

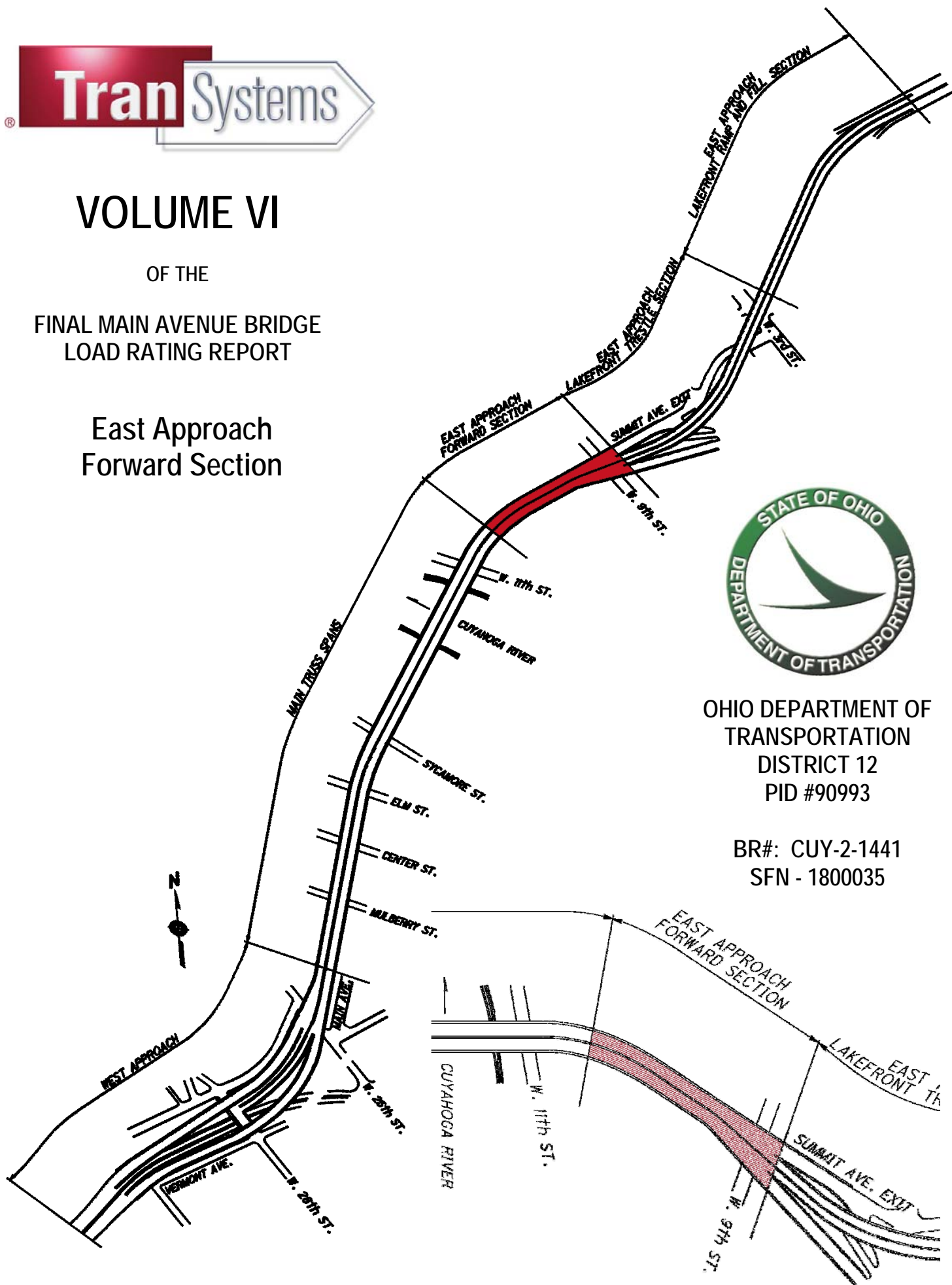


VOLUME VI

OF THE

FINAL MAIN AVENUE BRIDGE
LOAD RATING REPORT

East Approach Forward Section



OHIO DEPARTMENT OF
TRANSPORTATION
DISTRICT 12
PID #90993

BR#: CUY-2-1441
SFN - 1800035

Volume VI - Section Description

The CUY-2-1441 (Main Avenue) Bridge carries four to six lanes of State Route 2 traffic for 6580 feet through downtown Cleveland, over numerous local streets, RTA railroad tracks, Norfolk Southern/CSX railroad tracks and the Cuyahoga River. The bridge was fabricated and erected from 1938 to 1940. The West Approach, Main Truss Spans, and East Approach – Forward sections were opened to traffic on October 6, 1939; and the Lakefront Trestle and Lakefront Ramp were opened to traffic in 1940. The bridge was closed for a major rehabilitation project from April 13, 1991 to October 6, 1992. Work included replacing and widening of the deck, updating safety features, improving the drainage system, installing new floor system members, and strengthening or replacing deteriorated sections. The Main Avenue Bridge consists of five distinct sections (West Approach, Main Truss Spans, East Approach – Forward Section, East Approach – Lakefront Trestle, East Approach – Lakefront Ramp Section) of varying structure types within each section.

The Forward Section carries the six lanes of traffic from the Main Span at West 10th Street, at the base of the Flats from the Cuyahoga River Valley up to West 9th Street. The western part of the section consists of a single simply supported Pratt deck truss (Span 11). The eastern part of the Forward Section consists of steel truss bents that support steel floorbeams and stringers.

In Span 11 the Pratt deck truss members consist of rolled wide flange sections, with a similar deck framing system to the main truss span. There are five units of stringers; three units consist of simple span stringers while the remaining two units have 3-span continuous stringers. The trusses are spaced approximately 58'-0" apart and span approximately 160'-0".



In the eastern part of the Forward Section the steel truss bent members consist of rolled steel sections connected by riveted gusset plates. There are ten stringer units, six of which have simple spans and the other four are 2-span continuous. The interior stringers are rolled beams and the fascia stringers are welded plate girders. The stringers typically span between 30'-0" to 56'-0". The steel bents are longitudinally spaced similar to the stringer units. A lower utility/parking deck exists below the eastbound lanes of this section.



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BRIDGE LOAD RATING SUMMARY REPORT

CUY-2-1441

EAST APPROACH - FORWARD SECTION

SFN	BRIDGE NUMBER	DISTRICT
1800035	CUY-2-1441	12
ORIGINAL CONSTRUCTION YEAR	REHABILITATION YEAR	OVERALL STRUCTURE LENGTH (FT)
1938 - 1940	1991 - 1992	6580
FEATURE INTERSECTED:	NUMEROUS LOCAL STREETS, RTA RAILROAD TRACKS AND THE CUYAHOGA RIVER	
SPECIAL ASSUMPTIONS & COMMENTS		
RATING & ANALYSIS OPTION:		
LOAD RATING PURPOSE:	LOAD RATING FOR FUTURE REHABILITATION RECOMMENDATIONS	
RATING SOFTWARE:	STAAD, MDX	
BASIS OF ANALYSIS:	EXISTING PLANS AND FIELD MEASUREMENTS	
METHOD OF ANALYSIS:	LOAD FACTOR	
DESIGN LOADING (ORIGINAL):	H20-33	
STRUCTURE RATING SUMMARY		
LOADING & RATING TYPE	RATING FACTOR - RF (ROUNDED TO 2 DECIMAL POINTS)	RATING LOAD
INVENTORY CURRENT DESIGN	0.28	HS5.6
OPERATING CURRENT DESIGN	0.47	
OHIO LEGAL - 2F1	1.18	OHIO LEGAL LOADS OVERALL MINIMUM RATING FACTOR
OHIO LEGAL - 3F1	0.77	0.51
OHIO LEGAL - 4F1	0.67	OHIO LEGAL LOADS OVERALL CONTROLLING TRUCK
OHIO LEGAL - 5C1	0.51	4F1 & 5C1
RATED BY, PE#	REVIEWED BY, PE#	REPORT DATE
Patrick Plews, PE 71422	Anthony Koloze, PE 76258	6/22/2012
AGENCY/FIRM	PHONE NUMBER	EMAIL
TranSystems	216-861-1780	ctquion@transystems.com

TRUSS LOAD RATING

Truss Span 11

CUY-2-1441 Load Rating Analysis
Main Ave Bridge

Created: ADK
 Checked: CTG

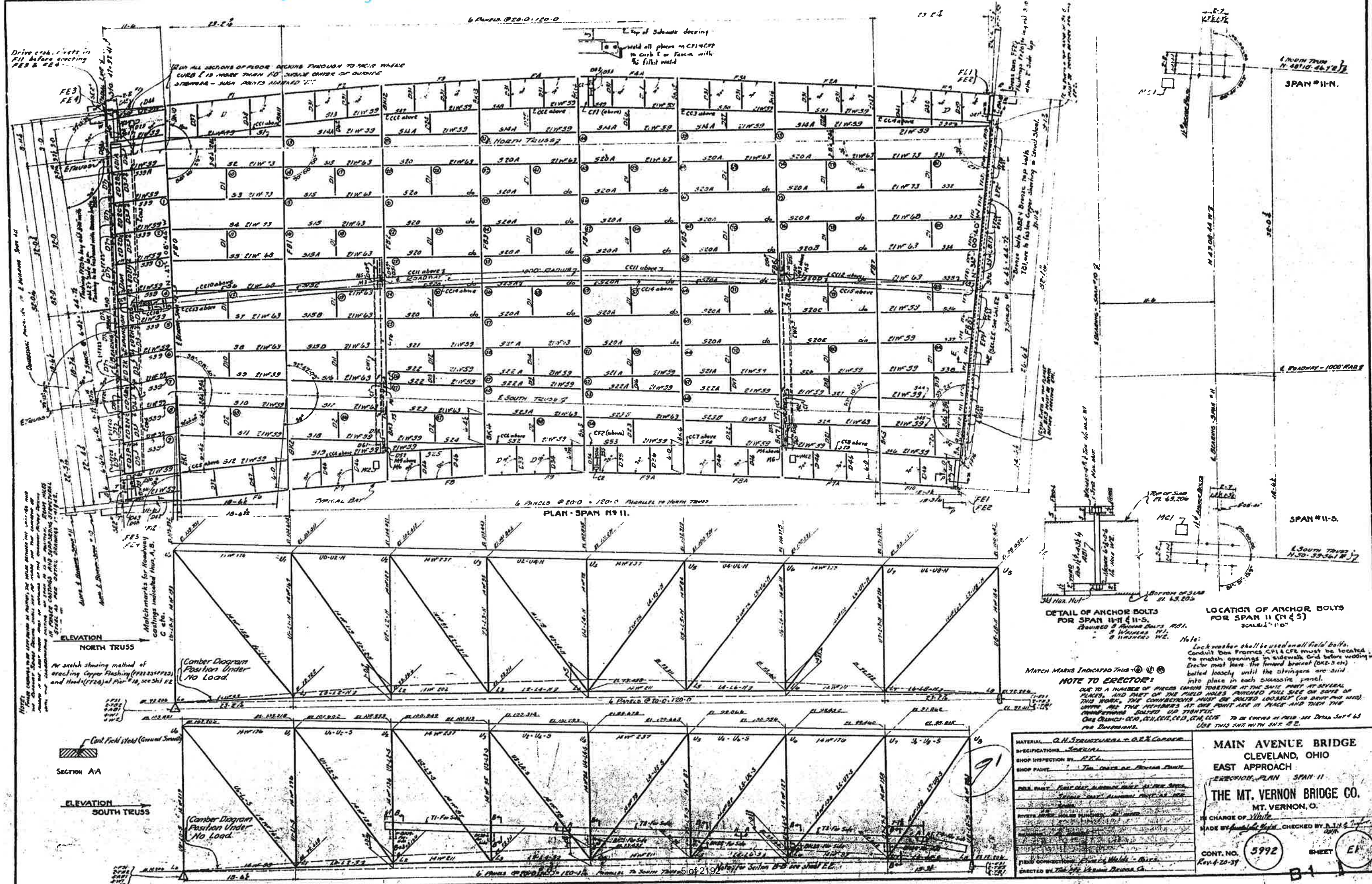
As-Built Controlling Rating Factor Summary							
Item	Location/Member	HS20 Inventory	HS20 Operating	2F1 Operating	3F1 Operating	4F1 Operating	5C1 Operating
Deck	Main Truss Spans	0.95	1.58	2.54	2.98	3.62	2.98
Stringers	S6-2	0.93	1.56	2.36	1.77	1.59	1.81
Floorbeam	South Cantilever @ U128	0.94	1.56	3.01	2.02	1.79	2.09
Truss	South Truss / U131-U132	1.08	1.80	---	---	---	1.97
	North Truss / U131-L131	---	---	3.46	2.36	2.16	---

As-Inspected Controlling Rating Factor Summary							
Item	Location/Member	HS20 Inventory	HS20 Operating	2F1 Operating	3F1 Operating	4F1 Operating	5C1 Operating
Deck	Main Truss Spans	0.95	1.58	2.54	2.98	3.62	2.98
Stringers	S6-2	0.93	1.56	2.36	1.77	1.59	1.81
Floorbeam	South Cantilever @ U128	0.94	1.56	---	2.02	1.79	2.09
	Interior @ U135	---	---	2.85	---	---	---
Truss	South Truss / U131-U132	1.08	1.80	---	---	---	1.97
	North Truss / U131-L131	---	---	3.46	2.36	2.16	---

Controlling Fatigue As-Inspected		
Item	Location/Member	Fatigue
Stringer	S10-3	322 Years
Floorbeam	South Cantilever @ U127	51 Years
Truss	South Truss / U130-L131	115 Years

Overall Summary			
Case	Rating Factor	Tonnage	HS equivalent or Ohio Legal Load %
HS20 Inventory	0.93	33.48	HS18.6
HS20 Operating	1.56	56.16	HS31.2
2F1	2.36	35.40	160%
3F1	1.77	40.71	
4F1	1.59	42.93	
5C1	1.81	72.40	
Fatigue	51 Years Remaining		

ORIGINAL PLANS



Drive each nut in
PI before erecting
FE3 & FE4

WELD ALL SECTIONS OF FLOOR BEAMS THROUGH TO PIER WHERE
CURB IS MORE THAN 10' SURFACE CENTER OF OUTSIDE
STRINGER - SUCH POINTS MARKED '1'

Top of Subgrade Decking
Weld all plates on CFI & CFE
to curb E or F with
5/8" fillet weld

Drain Beam FE1
Flashings FE1a, FE1b, FE1c
with 2" curb lip

Drain Beam FE2
Flashings FE2a, FE2b, FE2c
with 2" curb lip

Drain Beam FE3
Flashings FE3a, FE3b, FE3c
with 2" curb lip

Drain Beam FE4
Flashings FE4a, FE4b, FE4c
with 2" curb lip

Matchmarks for Homeway
castings indicated thus: A, B,
C etc.

Camber Diagram
Position Under
No Load

Camber Diagram
Position Under
No Load

DETAIL OF ANCHOR BOLTS
FOR SPAN 11-N (11-S)
SCHEDULE 40 ANCHOR BOLTS, A509, 1/2" DIAMETER, 4" LENGTH, W/2"

LOCATION OF ANCHOR BOLTS
FOR SPAN 11-N (11-S)
SCALE: 1/4" = 1'-0"

NOTE TO ERECTOR:
DUE TO A NUMBER OF PIECES COMING TOGETHER AT THE SAME POINT AT SEVERAL
PLACES, AND PART OF THE FIELD BOLTS PROJECTED FULL SIZE ON SOME OF
THIS WORK, THE CONTRACTOR MUST BE ALERT TO PUT THE BOLTS IN PLACE AND THEN THE
CONNECTIONS BOLTED UP TIGHTLY.
ONE QUANTITY OF CFI, CFI1, CFI2, CFI3, CFI4 TO BE CURVED IN FIELD - SEE DETAIL SHEET # 65
FOR DIMENSIONS.
USE THIS SHEET WITH SHEET # 4.

MATERIAL	A.M. STRUCTURAL - Q.E. & CORNER
SPECIFICATIONS	SPECIAL
SHOP INSPECTION BY	R.L.
SHOP PAINT	TWO COATS OF PRIMER PAINT
DATE PAINT	FIRST COAT, NUMBER PAINT IN FIELD PAINT
FIELD CONNECTIONS	FIELD OF WELDS - BOLTS
ERECTOR	THE MT. VERNON BRIDGE CO.

**MAIN AVENUE BRIDGE
CLEVELAND, OHIO
EAST APPROACH
ERECTION PLAN SPAN 11**

**THE MT. VERNON BRIDGE CO.
MT. VERNON, O.**

IN CHARGE OF *White*
MADE BY *White* CHECKED BY *A.M. & J.P.*

CONT. NO. **5992** SHEET **E1**

REV. 4-20-37

SECTION PROPERTIES

NORTH TRUSS



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Date 1/23/2012
Date 1/25/2012

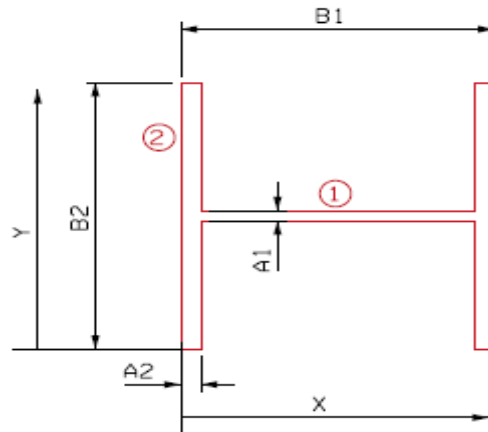
Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Rolled Beam WF14x 176

- $A_1 = t_w = 0.8200$ in
- $A_2 = t_f = 1.3130$ in
- $B_1 = d = 15.2500$ in
- $B_2 = b_f = 15.6400$ in



Member U127-L128

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		10.3517	7.8200	80.9501	0.5800	0.0000	0.0000	0.5800
2	Flange Plates		41.0706	7.8200	321.1724	837.1894	0.0000	0.0000	837.1894
Total			51.42		402.12	837.77		0.00	837.77
Section Losses			A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	7.8200	in	$S_{top} = 107.13$ in ³	y-bar =	7.8200	in	$S_{top} = 107.13$ in ³
$I_x =$	837.77	in ⁴	$S_{bott.} = 107.13$ in ³	$I_x =$	837.77	in ⁴	$S_{bott.} = 107.13$ in ³
$c_{top} =$	7.8200	in	A = 51.4223 in ²	$c_{top} =$	7.8200	in	A = 51.4223 in ²
$c_{bottom} =$	7.8200	in	$r_x = 4.0363$ in	$c_{bottom} =$	7.8200	in	$r_x = 4.0363$ in



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Date 1/23/2012
Date 1/25/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web Plate		10.3517	7.6250	78.9316	137.4749	0.0000	0.0000	137.4749
2	Left Flange		20.5353	0.6565	13.4814	2.9502	6.9685	997.1950	1000.1452
	Right Flange		20.5353	14.5935	299.6822	2.9502	6.9685	997.1950	1000.1452
Total			51.42		392.10	143.38		1994.39	2137.77
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties					As-Inspected Section Properties						
x-bar =	7.6250	in	S _{right} =	280.36	in ³	x-bar =	7.6250	in	S _{right} =	280.36	in ³
I _y =	2137.77	in ⁴	S _{left} =	280.36	in ³	I _y =	2137.77	in ⁴	S _{left} =	280.36	in ³
C _{right} =	7.6250	in	A =	51.4223	in ²	C _{right} =	7.6250	in	A =	51.4223	in ²
C _{left} =	7.6250	in	r _y =	6.4477	in	C _{left} =	7.6250	in	r _y =	6.4477	in



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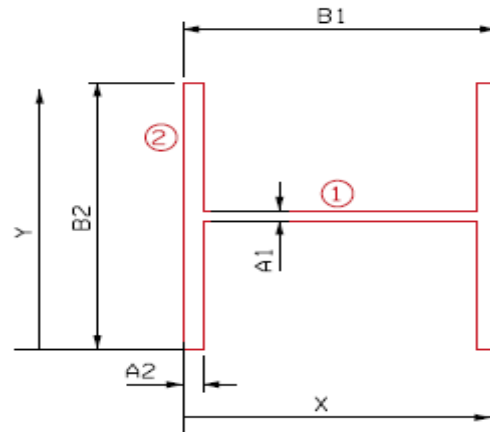
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Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Rolled Beam WF14x 176

- $A_1 = t_w = 0.8200$ in
- $A_2 = t_f = 1.3130$ in
- $B_1 = d = 15.2500$ in
- $B_2 = b_f = 15.6400$ in



Member U128-L129

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		10.3517	7.8200	80.9501	0.5800	0.0000	0.0000	0.5800
2	Flange Plates		41.0706	7.8200	321.1724	837.1894	0.0000	0.0000	837.1894
Total			51.42		402.12	837.77		0.00	837.77
Section Losses			A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	7.8200	in	$S_{top} = 107.13$ in ³	y-bar =	7.8200	in	$S_{top} = 107.13$ in ³
$I_x =$	837.77	in ⁴	$S_{bott.} = 107.13$ in ³	$I_x =$	837.77	in ⁴	$S_{bott.} = 107.13$ in ³
$c_{top} =$	7.8200	in	A = 51.4223 in ²	$c_{top} =$	7.8200	in	A = 51.4223 in ²
$c_{bottom} =$	7.8200	in	$r_x = 4.0363$ in	$c_{bottom} =$	7.8200	in	$r_x = 4.0363$ in



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Calculations For: **CUY-2-1441**

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y, gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web Plate		10.3517	7.6250	78.9316	137.4749	0.0000	0.0000	137.4749
2	Left Flange		20.5353	0.6565	13.4814	2.9502	6.9685	997.1950	1000.1452
	Right Flange		20.5353	14.5935	299.6822	2.9502	6.9685	997.1950	1000.1452
Total			51.42		392.10	143.38		1994.39	2137.77
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y, loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties					As-Inspected Section Properties						
x-bar =	7.6250	in	S _{right} =	280.36	in ³	x-bar =	7.6250	in	S _{right} =	280.36	in ³
I _y =	2137.77	n ⁴	S _{left} =	280.36	in ³	I _y =	2137.77	n ⁴	S _{left} =	280.36	in ³
C _{right} =	7.6250	in	A =	51.4223	in ²	C _{right} =	7.6250	in	A =	51.4223	in ²
C _{left} =	7.6250	in	r _y =	6.4477	in	C _{left} =	7.6250	in	r _y =	6.4477	in



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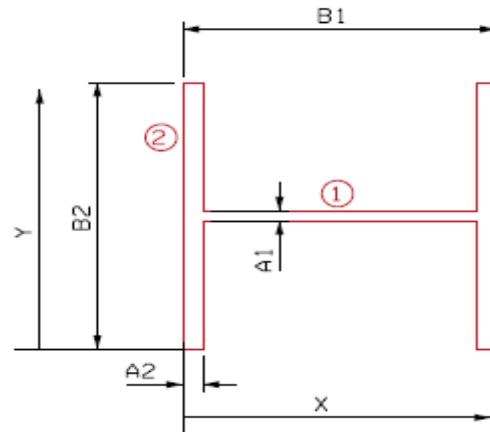
Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Rolled Beam WF14x 237

- $A_1 = t_w = 1.0900$ in
- $A_2 = t_f = 1.7480$ in
- $B_1 = d = 16.1200$ in
- $B_2 = b_f = 15.9100$ in



Member U129-L130

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		13.7602	7.9550	109.4621	1.3624	0.0000	0.0000	1.3624
2	Flange Plates		55.6214	7.9550	442.4679	1173.2774	0.0000	0.0000	1173.2774
Total			69.38		551.93	1174.64		0.00	1174.64
Section Losses			A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	7.9550	in	$S_{top} = 147.66$ in ³	y-bar =	7.9550	in	$S_{top} = 147.66$ in ³
$I_x =$	1174.64	in ⁴	$S_{bott.} = 147.66$ in ³	$I_x =$	1174.64	in ⁴	$S_{bott.} = 147.66$ in ³
$c_{top} =$	7.9550	in	A = 69.3815 in ²	$c_{top} =$	7.9550	in	A = 69.3815 in ²
$c_{bottom} =$	7.9550	in	$r_x = 4.1146$ in	$c_{bottom} =$	7.9550	in	$r_x = 4.1146$ in



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Calculations For: **CUY-2-1441**

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web Plate		13.7602	8.0600	110.9069	182.7411	0.0000	0.0000	182.7411
2	Left Flange		27.8107	0.8740	24.3065	7.0813	7.1860	1436.1045	1443.1858
	Right Flange		27.8107	15.2460	424.0016	7.0813	7.1860	1436.1045	1443.1858
Total			69.38		559.22	196.90		2872.21	3069.11
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties					As-Inspected Section Properties						
x-bar =	8.0600	in	S _{right} =	380.78	in ³	x-bar =	8.0600	in	S _{right} =	380.78	in ³
I _y =	3069.11	in ⁴	S _{left} =	380.78	in ³	I _y =	3069.11	in ⁴	S _{left} =	380.78	in ³
C _{right} =	8.0600	in	A =	69.3815	in ²	C _{right} =	8.0600	in	A =	69.3815	in ²
C _{left} =	8.0600	in	r _y =	6.6510	in	C _{left} =	8.0600	in	r _y =	6.6510	in



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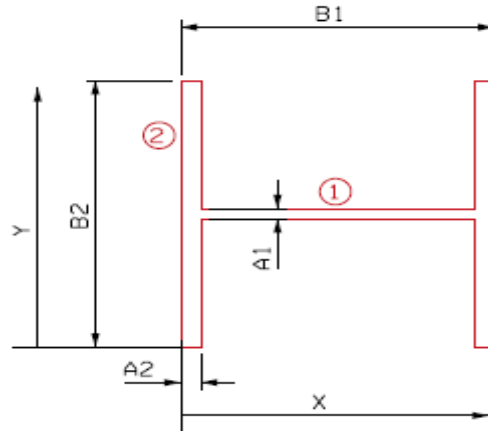
Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Rolled Beam WF14x 237

- $A_1 = t_w = 1.0900$ in
- $A_2 = t_f = 1.7480$ in
- $B_1 = d = 16.1200$ in
- $B_2 = b_f = 15.9100$ in



Member U130-L131

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		13.7602	7.9550	109.4621	1.3624	0.0000	0.0000	1.3624
2	Flange Plates		55.6214	7.9550	442.4679	1173.2774	0.0000	0.0000	1173.2774
Total			69.38		551.93	1174.64		0.00	1174.64
Section Losses			A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties							
y-bar =	7.9550	in	$S_{top} = 147.66$	in ³	y-bar =	7.9550	in	$S_{top} = 147.66$	in ³		
$I_x =$	1174.64	in ⁴	$S_{bott.} = 147.66$	in ³	$I_x =$	1174.64	in ⁴	$S_{bott.} = 147.66$	in ³		
$c_{top} =$	7.9550	in	A =	69.3815	in ²	$c_{top} =$	7.9550	in	A =	69.3815	in ²
$c_{bottom} =$	7.9550	in	$r_x =$	4.1146	in	$c_{bottom} =$	7.9550	in	$r_x =$	4.1146	in



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Calculations For: **CUY-2-1441**

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y, gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web Plate		13.7602	8.0600	110.9069	182.7411	0.0000	0.0000	182.7411
2	Left Flange		27.8107	0.8740	24.3065	7.0813	7.1860	1436.1045	1443.1858
	Right Flange		27.8107	15.2460	424.0016	7.0813	7.1860	1436.1045	1443.1858
Total			69.38		559.22	196.90		2872.21	3069.11
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y, loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties					As-Inspected Section Properties						
x-bar =	8.0600	in	S _{right} =	380.78	in ³	x-bar =	8.0600	in	S _{right} =	380.78	in ³
I _y =	3069.11	in ⁴	S _{left} =	380.78	in ³	I _y =	3069.11	in ⁴	S _{left} =	380.78	in ³
C _{right} =	8.0600	in	A =	69.3815	in ²	C _{right} =	8.0600	in	A =	69.3815	in ²
C _{left} =	8.0600	in	r _y =	6.6510	in	C _{left} =	8.0600	in	r _y =	6.6510	in



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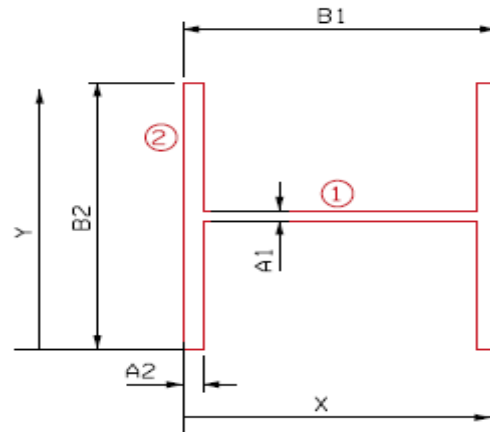
Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Rolled Beam WF14x 237

- $A_1 = t_w = 1.0900$ in
- $A_2 = t_f = 1.7480$ in
- $B_1 = d = 16.1200$ in
- $B_2 = b_f = 15.9100$ in



Member U131-L132

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		13.7602	7.9550	109.4621	1.3624	0.0000	0.0000	1.3624
2	Flange Plates		55.6214	7.9550	442.4679	1173.2774	0.0000	0.0000	1173.2774
Total			69.38		551.93	1174.64		0.00	1174.64
Section Losses			A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	7.9550	in	$S_{top} = 147.66$ in ³	y-bar =	7.9550	in	$S_{top} = 147.66$ in ³
$I_x =$	1174.64	in ⁴	$S_{bott.} = 147.66$ in ³	$I_x =$	1174.64	in ⁴	$S_{bott.} = 147.66$ in ³
$c_{top} =$	7.9550	in	$A = 69.3815$ in ²	$c_{top} =$	7.9550	in	$A = 69.3815$ in ²
$c_{bottom} =$	7.9550	in	$r_x = 4.1146$ in	$c_{bottom} =$	7.9550	in	$r_x = 4.1146$ in



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Calculations For: **CUY-2-1441**

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y, gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web Plate		13.7602	8.0600	110.9069	182.7411	0.0000	0.0000	182.7411
2	Left Flange		27.8107	0.8740	24.3065	7.0813	7.1860	1436.1045	1443.1858
	Right Flange		27.8107	15.2460	424.0016	7.0813	7.1860	1436.1045	1443.1858
Total			69.38		559.22	196.90		2872.21	3069.11
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y, loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties					As-Inspected Section Properties						
x-bar =	8.0600	in	S _{right} =	380.78	in ³	x-bar =	8.0600	in	S _{right} =	380.78	in ³
I _y =	3069.11	in ⁴	S _{left} =	380.78	in ³	I _y =	3069.11	in ⁴	S _{left} =	380.78	in ³
C _{right} =	8.0600	in	A =	69.3815	in ²	C _{right} =	8.0600	in	A =	69.3815	in ²
C _{left} =	8.0600	in	r _y =	6.6510	in	C _{left} =	8.0600	in	r _y =	6.6510	in



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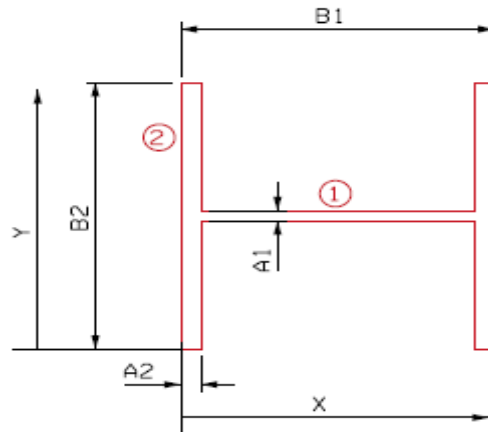
Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Rolled Beam WF14x 237

- $A_1 = t_w = 1.0900$ in
- $A_2 = t_f = 1.7480$ in
- $B_1 = d = 16.1200$ in
- $B_2 = b_f = 15.9100$ in



Member U132-L133

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		13.7602	7.9550	109.4621	1.3624	0.0000	0.0000	1.3624
2	Flange Plates		55.6214	7.9550	442.4679	1173.2774	0.0000	0.0000	1173.2774
Total			69.38		551.93	1174.64		0.00	1174.64
Section Losses			A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	7.9550	in	$S_{top} = 147.66$ in ³	y-bar =	7.9550	in	$S_{top} = 147.66$ in ³
$I_x =$	1174.64	in ⁴	$S_{bott.} = 147.66$ in ³	$I_x =$	1174.64	in ⁴	$S_{bott.} = 147.66$ in ³
$c_{top} =$	7.9550	in	$A = 69.3815$ in ²	$c_{top} =$	7.9550	in	$A = 69.3815$ in ²
$c_{bottom} =$	7.9550	in	$r_x = 4.1146$ in	$c_{bottom} =$	7.9550	in	$r_x = 4.1146$ in



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Sheet No. _____

Calculations For: **CUY-2-1441**

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web Plate		13.7602	8.0600	110.9069	182.7411	0.0000	0.0000	182.7411
2	Left Flange		27.8107	0.8740	24.3065	7.0813	7.1860	1436.1045	1443.1858
	Right Flange		27.8107	15.2460	424.0016	7.0813	7.1860	1436.1045	1443.1858
Total			69.38		559.22	196.90		2872.21	3069.11
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties					As-Inspected Section Properties						
x-bar =	8.0600	in	S _{right} =	380.78	in ³	x-bar =	8.0600	in	S _{right} =	380.78	in ³
I _y =	3069.11	in ⁴	S _{left} =	380.78	in ³	I _y =	3069.11	in ⁴	S _{left} =	380.78	in ³
C _{right} =	8.0600	in	A =	69.3815	in ²	C _{right} =	8.0600	in	A =	69.3815	in ²
C _{left} =	8.0600	in	r _y =	6.6510	in	C _{left} =	8.0600	in	r _y =	6.6510	in



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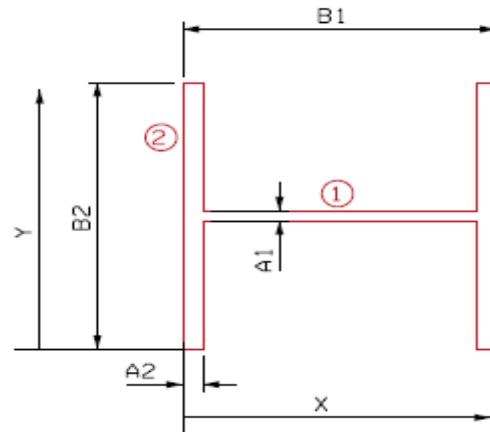
Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Rolled Beam WF14x 193

- $A_1 = t_w = 0.8900$ in
- $A_2 = t_f = 1.4380$ in
- $B_1 = d = 15.5000$ in
- $B_2 = b_f = 15.7100$ in



Member U133-L134

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		11.2354	7.8550	88.2538	0.7416	0.0000	0.0000	0.7416
2	Flange Plates		45.1820	7.8550	354.9043	929.2577	0.0000	0.0000	929.2577
Total			56.42		443.16	930.00		0.00	930.00
Section Losses			A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	7.8550	in	$S_{top} = 118.40$ in ³	y-bar =	7.8550	in	$S_{top} = 118.40$ in ³
$I_x =$	930.00	in ⁴	$S_{bott.} = 118.40$ in ³	$I_x =$	930.00	in ⁴	$S_{bott.} = 118.40$ in ³
$c_{top} =$	7.8550	in	A = 56.4173 in ²	$c_{top} =$	7.8550	in	A = 56.4173 in ²
$c_{bottom} =$	7.8550	in	$r_x = 4.0601$ in	$c_{bottom} =$	7.8550	in	$r_x = 4.0601$ in



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Sheet No. _____

Calculations For: **CUY-2-1441**

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web Plate		11.2354	7.7500	87.0740	149.2106	0.0000	0.0000	149.2106
2	Left Flange		22.5910	0.7190	16.2429	3.8929	7.0310	1116.7842	1120.6771
	Right Flange		22.5910	14.7810	333.9173	3.8929	7.0310	1116.7842	1120.6771
Total			56.42		437.23	157.00		2233.57	2390.56
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties					As-Inspected Section Properties						
x-bar =	7.7500	in	S _{right} =	308.46	in ³	x-bar =	7.7500	in	S _{right} =	308.46	in ³
I _y =	2390.56	in ⁴	S _{left} =	308.46	in ³	I _y =	2390.56	in ⁴	S _{left} =	308.46	in ³
C _{right} =	7.7500	in	A =	56.4173	in ²	C _{right} =	7.7500	in	A =	56.4173	in ²
C _{left} =	7.7500	in	r _y =	6.5094	in	C _{left} =	7.7500	in	r _y =	6.5094	in



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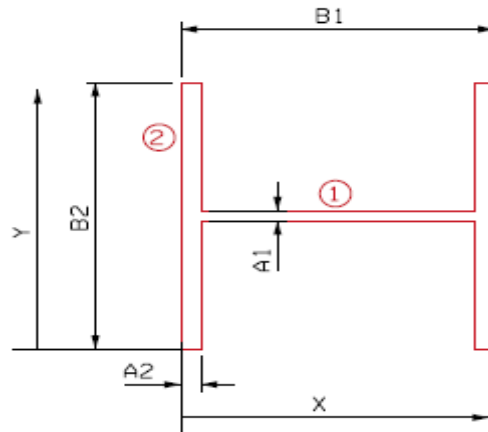
Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Rolled Beam WF14x 193

- $A_1 = t_w = 0.8900$ in
- $A_2 = t_f = 1.4380$ in
- $B_1 = d = 15.5000$ in
- $B_2 = b_f = 15.7100$ in



Member U134-L135

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		11.2354	7.8550	88.2538	0.7416	0.0000	0.0000	0.7416
2	Flange Plates		45.1820	7.8550	354.9043	929.2577	0.0000	0.0000	929.2577
Total			56.42		443.16	930.00		0.00	930.00
Section Losses			A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	7.8550	in	$S_{top} = 118.40$ in ³	y-bar =	7.8550	in	$S_{top} = 118.40$ in ³
$I_x =$	930.00	in ⁴	$S_{bott.} = 118.40$ in ³	$I_x =$	930.00	in ⁴	$S_{bott.} = 118.40$ in ³
$c_{top} =$	7.8550	in	A = 56.4173 in ²	$c_{top} =$	7.8550	in	A = 56.4173 in ²
$c_{bottom} =$	7.8550	in	$r_x = 4.0601$ in	$c_{bottom} =$	7.8550	in	$r_x = 4.0601$ in



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Date 1/23/2012
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Sheet No. _____

Calculations For: **CUY-2-1441**

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web Plate		11.2354	7.7500	87.0740	149.2106	0.0000	0.0000	149.2106
2	Left Flange		22.5910	0.7190	16.2429	3.8929	7.0310	1116.7842	1120.6771
	Right Flange		22.5910	14.7810	333.9173	3.8929	7.0310	1116.7842	1120.6771
Total			56.42		437.23	157.00		2233.57	2390.56
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties					As-Inspected Section Properties						
x-bar =	7.7500	in	S _{right} =	308.46	in ³	x-bar =	7.7500	in	S _{right} =	308.46	in ³
I _y =	2390.56	in ⁴	S _{left} =	308.46	in ³	I _y =	2390.56	in ⁴	S _{left} =	308.46	in ³
C _{right} =	7.7500	in	A =	56.4173	in ²	C _{right} =	7.7500	in	A =	56.4173	in ²
C _{left} =	7.7500	in	r _y =	6.5094	in	C _{left} =	7.7500	in	r _y =	6.5094	in



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Date 1/20/2012
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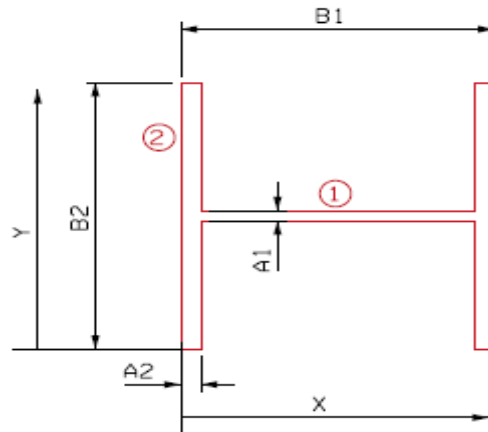
Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Rolled Beam WF14x 95

- $A_1 = t_w = 0.4650$ in
- $A_2 = t_f = 0.7480$ in
- $B_1 = d = 14.1200$ in
- $B_2 = b_f = 14.5450$ in



Member L127-L128

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I _o	d	Ad ²	I _{x,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		5.8702	7.2725	42.6907	0.1058	0.0000	0.0000	0.1058
2	Flange Plates		21.7593	7.2725	158.2447	383.6114	0.0000	0.0000	383.6114
Total			27.63		200.94	383.72		0.00	383.72
Section Losses			A	y	Ay	I _o	d	Ad ²	I _{x,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	7.2725	in	S _{top} = 52.76 in ³	y-bar =	7.2725	in	S _{top} = 52.76 in ³
I _x =	383.72	in ⁴	S _{bott.} = 52.76 in ³	I _x =	383.72	in ⁴	S _{bott.} = 52.76 in ³
c _{top} =	7.2725	in	A = 27.6295 in ²	c _{top} =	7.2725	in	A = 27.6295 in ²
c _{bottom} =	7.2725	in	r _x = 3.7267 in	c _{bottom} =	7.2725	in	r _x = 3.7267 in



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Date 1/20/2012
Date 1/25/2012

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Sheet No. _____

Calculations For: **CUY-2-1441**

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y, gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web Plate		5.8702	7.0600	41.4433	77.9584	0.0000	0.0000	77.9584
2	Left Flange		10.8797	0.3740	4.0690	0.5073	6.6860	486.3490	486.8563
	Right Flange		10.8797	13.7460	149.5518	0.5073	6.6860	486.3490	486.8563
Total			27.63		195.06	78.97		972.70	1051.67
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y, loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
x-bar =	7.0600	in	S _{right} = 148.96 in ³	x-bar =	7.0600	in	S _{right} = 148.96 in ³
I _y =	1051.67	in ⁴	S _{left} = 148.96 in ³	I _y =	1051.67	in ⁴	S _{left} = 148.96 in ³
C _{right} =	7.0600	in	A = 27.6295 in ²	C _{right} =	7.0600	in	A = 27.6295 in ²
C _{left} =	7.0600	in	r _y = 6.1696 in	C _{left} =	7.0600	in	r _y = 6.1696 in



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Date 1/20/2012
Date 1/25/2012

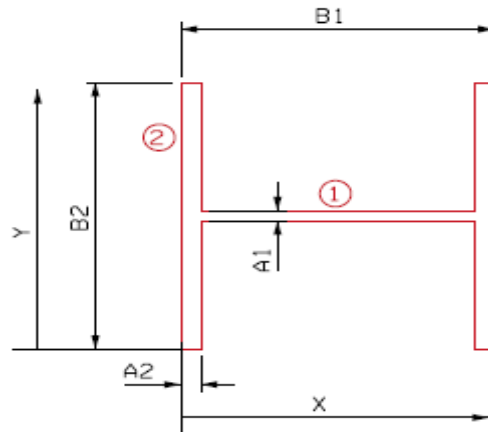
Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Rolled Beam WF14x 95

- $A_1 = t_w = 0.4650$ in
- $A_2 = t_f = 0.7480$ in
- $B_1 = d = 14.1200$ in
- $B_2 = b_f = 14.5450$ in



Member L128-L129

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I_o	d	Ad^2	$I_{x, gross}$
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		5.8702	7.2725	42.6907	0.1058	0.0000	0.0000	0.1058
2	Flange Plates		21.7593	7.2725	158.2447	383.6114	0.0000	0.0000	383.6114
Total			27.63		200.94	383.72		0.00	383.72
Section Losses			A	y	Ay	I_o	d	Ad^2	$I_{x, loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties							
y-bar =	7.2725	in	$S_{top} = 52.76$	in ³	y-bar =	7.2725	in	$S_{top} = 52.76$	in ³		
$I_x =$	383.72	in ⁴	$S_{bott.} = 52.76$	in ³	$I_x =$	383.72	in ⁴	$S_{bott.} = 52.76$	in ³		
$c_{top} =$	7.2725	in	A =	27.6295	in ²	$c_{top} =$	7.2725	in	A =	27.6295	in ²
$c_{bottom} =$	7.2725	in	$r_x =$	3.7267	in	$c_{bottom} =$	7.2725	in	$r_x =$	3.7267	in



Made By CTG
Checked By NRF

Date 1/20/2012
Date 1/25/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web Plate		5.8702	7.0600	41.4433	77.9584	0.0000	0.0000	77.9584
2	Left Flange		10.8797	0.3740	4.0690	0.5073	6.6860	486.3490	486.8563
	Right Flange		10.8797	13.7460	149.5518	0.5073	6.6860	486.3490	486.8563
Total			27.63		195.06	78.97		972.70	1051.67
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties					As-Inspected Section Properties						
x-bar =	7.0600	in	S _{right} =	148.96	in ³	x-bar =	7.0600	in	S _{right} =	148.96	in ³
I _y =	1051.67	in ⁴	S _{left} =	148.96	in ³	I _y =	1051.67	in ⁴	S _{left} =	148.96	in ³
C _{right} =	7.0600	in	A =	27.6295	in ²	C _{right} =	7.0600	in	A =	27.6295	in ²
C _{left} =	7.0600	in	r _y =	6.1696	in	C _{left} =	7.0600	in	r _y =	6.1696	in



Made By KMW
Checked By ADK

Date 2/6/2012
Date 2/15/2012

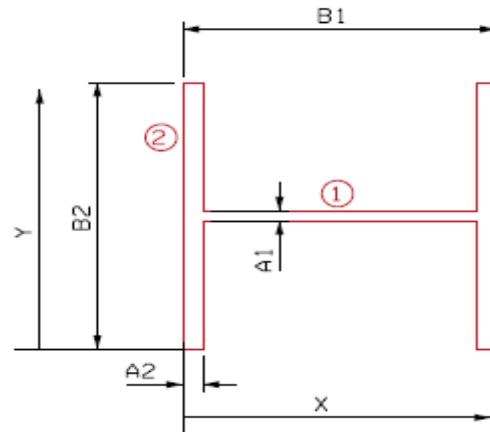
Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Rolled Beam **WF14x 202**

- $A_1 = t_w = 0.9300$ in
- $A_2 = t_f = 1.5030$ in
- $B_1 = d = 15.6300$ in
- $B_2 = b_f = 15.7500$ in



Member L129-L130

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I _o	d	Ad ²	I _{x,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		11.7403	7.8750	92.4550	0.8462	0.0000	0.0000	0.8462
2	Flange Plates		47.3445	7.8750	372.8379	978.6996	0.0000	0.0000	978.6996
Total			59.08		465.29	979.55		0.00	979.55
Section Losses			A	y	Ay	I _o	d	Ad ²	I _{x,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	12.6240	0.0625	-0.7890	8.3088	-6.5556	-0.0003	0.4396	-0.1525	-0.1527
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			-0.79		-6.56	0.00		-0.15	-0.15

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	7.8750	in	S _{top} = 124.39 in ³	y-bar =	7.8691	in	S _{top} = 124.27 in ³
I _x =	979.55	in ⁴	S _{bott.} = 124.39 in ³	I _x =	979.39	in ⁴	S _{bott.} = 124.46 in ³
c _{top} =	7.8750	in	A = 59.0848 in ²	c _{top} =	7.8809	in	A = 58.2958 in ²
c _{bottom} =	7.8750	in	r _x = 4.0717 in	c _{bottom} =	7.8691	in	r _x = 4.0988 in



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Calculations For: **CUY-2-1441**

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web Plate		11.7403	7.8150	91.7506	155.9167	0.0000	0.0000	155.9167
2	Left Flange		23.6723	0.7515	17.7897	4.4563	7.0635	1181.0803	1185.5367
	Right Flange		23.6723	14.8785	352.2076	4.4563	7.0635	1181.0803	1185.5367
Total			59.08		461.75	164.83		2362.16	2526.99
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0625	12.6240	-0.7890	7.8150	-6.1660	-10.4783	0.0000	0.0000	-10.4783
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			-0.79		-6.17	-10.48		0.00	-10.48

As-Built Section Properties					As-Inspected Section Properties						
x-bar =	7.8150	in	S _{right} =	323.35	in ³	x-bar =	7.8150	in	S _{right} =	322.01	in ³
I _y =	2526.99	in ⁴	S _{left} =	323.35	in ³	I _y =	2516.51	in ⁴	S _{left} =	322.01	in ³
C _{right} =	7.8150	in	A =	59.0848	in ²	C _{right} =	7.8150	in	A =	58.2958	in ²
C _{left} =	7.8150	in	r _y =	6.5398	in	C _{left} =	7.8150	in	r _y =	6.5702	in



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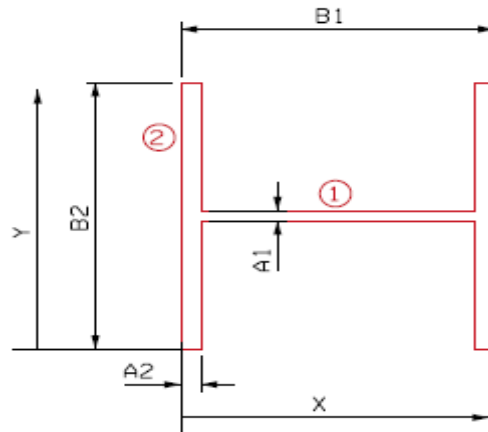
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Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Rolled Beam **WF14x 202**

- $A_1 = t_w = 0.9300$ in
- $A_2 = t_f = 1.5030$ in
- $B_1 = d = 15.6300$ in
- $B_2 = b_f = 15.7500$ in



Member L130-L131

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		11.7403	7.8750	92.4550	0.8462	0.0000	0.0000	0.8462
2	Flange Plates		47.3445	7.8750	372.8379	978.6996	0.0000	0.0000	978.6996
Total			59.08		465.29	979.55		0.00	979.55
Section Losses			A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	4.0000	0.2500	-1.0000	8.2150	-8.2150	-0.0052	0.3459	-0.1196	-0.1248
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			-1.00		-8.22	-0.01		-0.12	-0.12

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	7.8750	in	$S_{top} = 124.39$ in ³	y-bar =	7.8691	in	$S_{top} = 124.28$ in ³
$I_x =$	979.55	in ⁴	$S_{bott.} = 124.39$ in ³	$I_x =$	979.42	in ⁴	$S_{bott.} = 124.46$ in ³
$c_{top} =$	7.8750	in	A = 59.0848 in ²	$c_{top} =$	7.8809	in	A = 58.0848 in ²
$c_{bottom} =$	7.8750	in	$r_x = 4.0717$ in	$c_{bottom} =$	7.8691	in	$r_x = 4.1063$ in



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Calculations For: **CUY-2-1441**

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web Plate		11.7403	7.8150	91.7506	155.9167	0.0000	0.0000	155.9167
2	Left Flange		23.6723	0.7515	17.7897	4.4563	7.0635	1181.0803	1185.5367
	Right Flange		23.6723	14.8785	352.2076	4.4563	7.0635	1181.0803	1185.5367
Total			59.08		461.75	164.83		2362.16	2526.99
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.2500	4.0000	-1.0000	3.5030	-3.5030	-1.3333	4.3862	-19.2391	-20.5724
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			-1.00		-3.50	-1.33		-19.24	-20.57

As-Built Section Properties					As-Inspected Section Properties						
x-bar =	7.8150	in	S _{right} =	323.35	in ³	x-bar =	7.8892	in	S _{right} =	323.79	in ³
I _y =	2526.99	in ⁴	S _{left} =	323.35	in ³	I _y =	2506.42	in ⁴	S _{left} =	317.70	in ³
C _{right} =	7.8150	in	A =	59.0848	in ²	C _{right} =	7.7408	in	A =	58.0848	in ²
C _{left} =	7.8150	in	r _y =	6.5398	in	C _{left} =	7.8892	in	r _y =	6.5689	in



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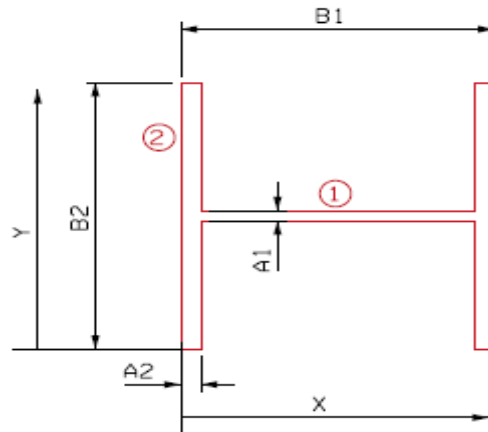
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Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Rolled Beam WF14x 211

- $A_1 = t_w = 0.9800$ in
- $A_2 = t_f = 1.5630$ in
- $B_1 = d = 15.7500$ in
- $B_2 = b_f = 15.8000$ in



Member L131-L132

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		12.3715	7.9000	97.7350	0.9901	0.0000	0.0000	0.9901
2	Flange Plates		49.3908	7.9000	390.1873	1027.4933	0.0000	0.0000	1027.4933
Total			61.76		487.92	1028.48		0.00	1028.48
Section Losses			A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties							
y-bar =	7.9000	in	$S_{top} = 130.19$	in ³	y-bar =	7.9000	in	$S_{top} = 130.19$	in ³		
$I_x =$	1028.48	in ⁴	$S_{bott.} = 130.19$	in ³	$I_x =$	1028.48	in ⁴	$S_{bott.} = 130.19$	in ³		
$c_{top} =$	7.9000	in	A =	61.7623	in ²	$c_{top} =$	7.9000	in	A =	61.7623	in ²
$c_{bottom} =$	7.9000	in	$r_x =$	4.0807	in	$c_{bottom} =$	7.9000	in	$r_x =$	4.0807	in



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Calculations For: **CUY-2-1441**

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web Plate		12.3715	7.8750	97.4257	164.2993	0.0000	0.0000	164.2993
2	Left Flange		24.6954	0.7815	19.2995	5.0275	7.0935	1242.6168	1247.6443
	Right Flange		24.6954	14.9685	369.6531	5.0275	7.0935	1242.6168	1247.6443
Total			61.76		486.38	174.35		2485.23	2659.59
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties					As-Inspected Section Properties						
x-bar =	7.8750	in	S _{right} =	337.73	in ³	x-bar =	7.8750	in	S _{right} =	337.73	in ³
I _y =	2659.59	in ⁴	S _{left} =	337.73	in ³	I _y =	2659.59	in ⁴	S _{left} =	337.73	in ³
C _{right} =	7.8750	in	A =	61.7623	in ²	C _{right} =	7.8750	in	A =	61.7623	in ²
C _{left} =	7.8750	in	r _y =	6.5621	in	C _{left} =	7.8750	in	r _y =	6.5621	in



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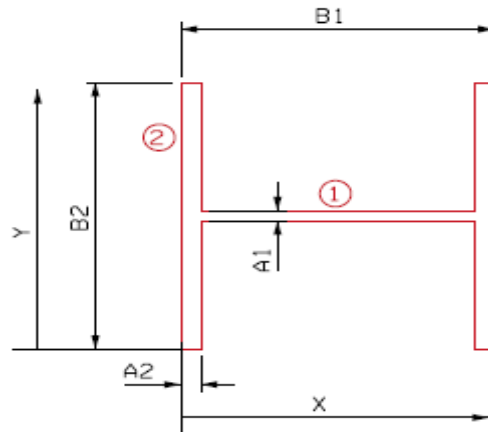
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Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Rolled Beam WF14x 211

- $A_1 = t_w = 0.9800$ in
- $A_2 = t_f = 1.5630$ in
- $B_1 = d = 15.7500$ in
- $B_2 = b_f = 15.8000$ in



Member L132-L133

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		12.3715	7.9000	97.7350	0.9901	0.0000	0.0000	0.9901
2	Flange Plates		49.3908	7.9000	390.1873	1027.4933	0.0000	0.0000	1027.4933
Total			61.76		487.92	1028.48		0.00	1028.48
Section Losses			A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	7.9000	in	$S_{top} = 130.19$ in ³	y-bar =	7.9000	in	$S_{top} = 130.19$ in ³
$I_x =$	1028.48	in ⁴	$S_{bott.} = 130.19$ in ³	$I_x =$	1028.48	in ⁴	$S_{bott.} = 130.19$ in ³
$c_{top} =$	7.9000	in	A = 61.7623 in ²	$c_{top} =$	7.9000	in	A = 61.7623 in ²
$c_{bottom} =$	7.9000	in	$r_x = 4.0807$ in	$c_{bottom} =$	7.9000	in	$r_x = 4.0807$ in



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Calculations For: **CUY-2-1441**

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web Plate		12.3715	7.8750	97.4257	164.2993	0.0000	0.0000	164.2993
2	Left Flange		24.6954	0.7815	19.2995	5.0275	7.0935	1242.6168	1247.6443
	Right Flange		24.6954	14.9685	369.6531	5.0275	7.0935	1242.6168	1247.6443
Total			61.76		486.38	174.35		2485.23	2659.59
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties					As-Inspected Section Properties						
x-bar =	7.8750	in	S _{right} =	337.73	in ³	x-bar =	7.8750	in	S _{right} =	337.73	in ³
I _y =	2659.59	in ⁴	S _{left} =	337.73	in ³	I _y =	2659.59	in ⁴	S _{left} =	337.73	in ³
C _{right} =	7.8750	in	A =	61.7623	in ²	C _{right} =	7.8750	in	A =	61.7623	in ²
C _{left} =	7.8750	in	r _y =	6.5621	in	C _{left} =	7.8750	in	r _y =	6.5621	in



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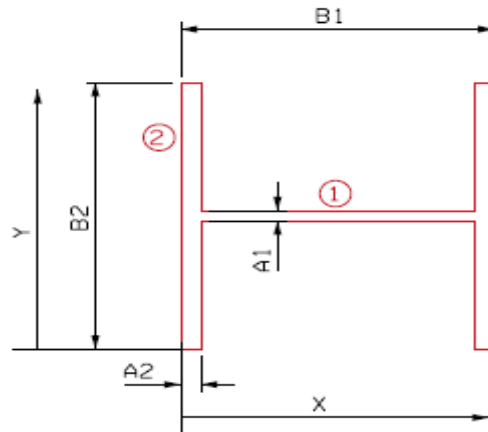
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Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Rolled Beam WF14x 111

- $A_1 = t_w = 0.5400$ in
- $A_2 = t_f = 0.8730$ in
- $B_1 = d = 14.3700$ in
- $B_2 = b_f = 14.6200$ in



Member L133-L134

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I_o	d	Ad^2	$I_{x, gross}$
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		6.8170	7.3100	49.8320	0.1657	0.0000	0.0000	0.1657
2	Flange Plates		25.5265	7.3100	186.5989	454.6792	0.0000	0.0000	454.6792
Total			32.34		236.43	454.84		0.00	454.84
Section Losses			A	y	Ay	I_o	d	Ad^2	$I_{x, loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	7.3100	in	$S_{top} = 62.22$ in ³	y-bar =	7.3100	in	$S_{top} = 62.22$ in ³
$I_x =$	454.84	in ⁴	$S_{bott.} = 62.22$ in ³	$I_x =$	454.84	in ⁴	$S_{bott.} = 62.22$ in ³
$c_{top} =$	7.3100	in	$A = 32.3435$ in ²	$c_{top} =$	7.3100	in	$A = 32.3435$ in ²
$c_{bottom} =$	7.3100	in	$r_x = 3.7501$ in	$c_{bottom} =$	7.3100	in	$r_x = 3.7501$ in



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Calculations For: **CUY-2-1441**

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y, gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web Plate		6.8170	7.1850	48.9799	90.5323	0.0000	0.0000	90.5323
2	Left Flange		12.7633	0.4365	5.5712	0.8106	6.7485	581.2676	582.0782
	Right Flange		12.7633	13.9335	177.8369	0.8106	6.7485	581.2676	582.0782
Total			32.34		232.39	92.15		1162.54	1254.69
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y, loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties					As-Inspected Section Properties				
x-bar =	7.1850	in	S _{right} =	174.63 in ³	x-bar =	7.1850	in	S _{right} =	174.63 in ³
I _y =	1254.69	in ⁴	S _{left} =	174.63 in ³	I _y =	1254.69	in ⁴	S _{left} =	174.63 in ³
C _{right} =	7.1850	in	A =	32.3435 in ²	C _{right} =	7.1850	in	A =	32.3435 in ²
C _{left} =	7.1850	in	r _y =	6.2284 in	C _{left} =	7.1850	in	r _y =	6.2284 in



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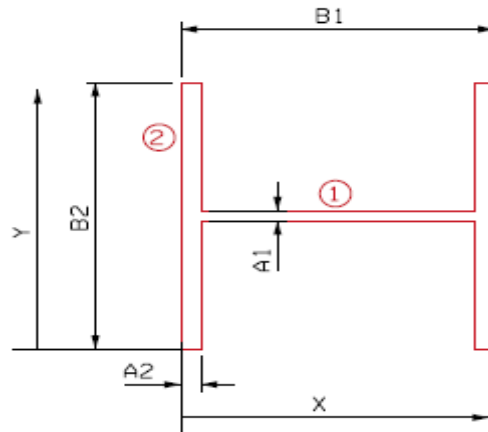
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Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Rolled Beam WF14x 111

- $A_1 = t_w = 0.5400$ in
- $A_2 = t_f = 0.8730$ in
- $B_1 = d = 14.3700$ in
- $B_2 = b_f = 14.6200$ in



Member L134-L135

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I_o	d	Ad^2	$I_{x, gross}$
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		6.8170	7.3100	49.8320	0.1657	0.0000	0.0000	0.1657
2	Flange Plates		25.5265	7.3100	186.5989	454.6792	0.0000	0.0000	454.6792
Total			32.34		236.43	454.84		0.00	454.84
Section Losses			A	y	Ay	I_o	d	Ad^2	$I_{x, loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties							
y-bar =	7.3100	in	$S_{top} = 62.22$	in^3	y-bar =	7.3100	in	$S_{top} = 62.22$	in^3		
$I_x =$	454.84	in^4	$S_{bott.} = 62.22$	in^3	$I_x =$	454.84	in^4	$S_{bott.} = 62.22$	in^3		
$c_{top} =$	7.3100	in	A =	32.3435	in^2	$c_{top} =$	7.3100	in	A =	32.3435	in^2
$c_{bottom} =$	7.3100	in	$r_x =$	3.7501	in	$c_{bottom} =$	7.3100	in	$r_x =$	3.7501	in



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Calculations For: **CUY-2-1441**

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y, gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web Plate		6.8170	7.1850	48.9799	90.5323	0.0000	0.0000	90.5323
2	Left Flange		12.7633	0.4365	5.5712	0.8106	6.7485	581.2676	582.0782
	Right Flange		12.7633	13.9335	177.8369	0.8106	6.7485	581.2676	582.0782
Total			32.34		232.39	92.15		1162.54	1254.69
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y, loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties					As-Inspected Section Properties						
x-bar =	7.1850	in	S _{right} =	174.63	in ³	x-bar =	7.1850	in	S _{right} =	174.63	in ³
I _y =	1254.69	in ⁴	S _{left} =	174.63	in ³	I _y =	1254.69	in ⁴	S _{left} =	174.63	in ³
C _{right} =	7.1850	in	A =	32.3435	in ²	C _{right} =	7.1850	in	A =	32.3435	in ²
C _{left} =	7.1850	in	r _y =	6.2284	in	C _{left} =	7.1850	in	r _y =	6.2284	in



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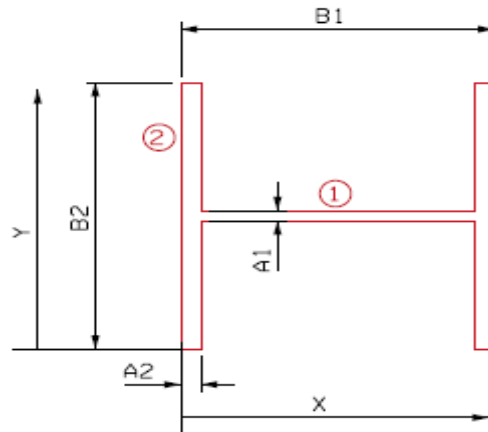
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Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Rolled Beam WF14x 193

- $A_1 = t_w = 0.8900$ in
- $A_2 = t_f = 1.4380$ in
- $B_1 = d = 15.5000$ in
- $B_2 = b_f = 15.7100$ in



Member U127-L127

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		11.2354	7.8550	88.2538	0.7416	0.0000	0.0000	0.7416
2	Flange Plates		45.1820	7.8550	354.9043	929.2577	0.0000	0.0000	929.2577
Total			56.42		443.16	930.00		0.00	930.00
Section Losses			A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	7.8550	in	$S_{top} = 118.40$ in ³	y-bar =	7.8550	in	$S_{top} = 118.40$ in ³
$I_x =$	930.00	in ⁴	$S_{bott.} = 118.40$ in ³	$I_x =$	930.00	in ⁴	$S_{bott.} = 118.40$ in ³
$c_{top} =$	7.8550	in	A = 56.4173 in ²	$c_{top} =$	7.8550	in	A = 56.4173 in ²
$c_{bottom} =$	7.8550	in	$r_x = 4.0601$ in	$c_{bottom} =$	7.8550	in	$r_x = 4.0601$ in



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Calculations For: **CUY-2-1441**

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web Plate		11.2354	7.7500	87.0740	149.2106	0.0000	0.0000	149.2106
2	Left Flange		22.5910	0.7190	16.2429	3.8929	7.0310	1116.7842	1120.6771
	Right Flange		22.5910	14.7810	333.9173	3.8929	7.0310	1116.7842	1120.6771
Total			56.42		437.23	157.00		2233.57	2390.56
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties					As-Inspected Section Properties						
x-bar =	7.7500	in	S _{right} =	308.46	in ³	x-bar =	7.7500	in	S _{right} =	308.46	in ³
I _y =	2390.56	in ⁴	S _{left} =	308.46	in ³	I _y =	2390.56	in ⁴	S _{left} =	308.46	in ³
C _{right} =	7.7500	in	A =	56.4173	in ²	C _{right} =	7.7500	in	A =	56.4173	in ²
C _{left} =	7.7500	in	r _y =	6.5094	in	C _{left} =	7.7500	in	r _y =	6.5094	in



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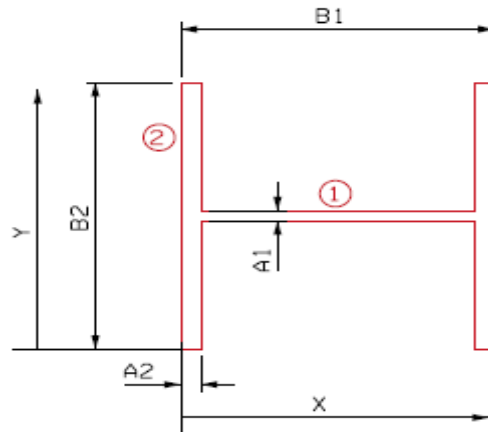
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Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Rolled Beam WF14x 167

- $A_1 = t_w = 0.7800$ in
- $A_2 = t_f = 1.2480$ in
- $B_1 = d = 15.1200$ in
- $B_2 = b_f = 15.6000$ in



Member U128-L128

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		9.8467	7.8000	76.8044	0.4992	0.0000	0.0000	0.4992
2	Flange Plates		38.9376	7.8000	303.7133	789.6545	0.0000	0.0000	789.6545
Total			48.78		380.52	790.15		0.00	790.15
Section Losses			A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties							
y-bar =	7.8000	in	$S_{top} = 101.30$	in ³	y-bar =	7.8000	in	$S_{top} = 101.30$	in ³		
$I_x =$	790.15	in ⁴	$S_{bott.} = 101.30$	in ³	$I_x =$	790.15	in ⁴	$S_{bott.} = 101.30$	in ³		
$c_{top} =$	7.8000	in	A =	48.7843	in ²	$c_{top} =$	7.8000	in	A =	48.7843	in ²
$c_{bottom} =$	7.8000	in	$r_x =$	4.0245	in	$c_{bottom} =$	7.8000	in	$r_x =$	4.0245	in



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Calculations For: **CUY-2-1441**

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web Plate		9.8467	7.5600	74.4412	130.7689	0.0000	0.0000	130.7689
2	Left Flange		19.4688	0.6240	12.1485	2.5269	6.9360	936.6069	939.1338
	Right Flange		19.4688	14.4960	282.2197	2.5269	6.9360	936.6069	939.1338
Total			48.78		368.81	135.82		1873.21	2009.04
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties					As-Inspected Section Properties						
x-bar =	7.5600	in	S _{right} =	265.75	in ³	x-bar =	7.5600	in	S _{right} =	265.75	in ³
I _y =	2009.04	in ⁴	S _{left} =	265.75	in ³	I _y =	2009.04	in ⁴	S _{left} =	265.75	in ³
C _{right} =	7.5600	in	A =	48.7843	in ²	C _{right} =	7.5600	in	A =	48.7843	in ²
C _{left} =	7.5600	in	r _y =	6.4173	in	C _{left} =	7.5600	in	r _y =	6.4173	in



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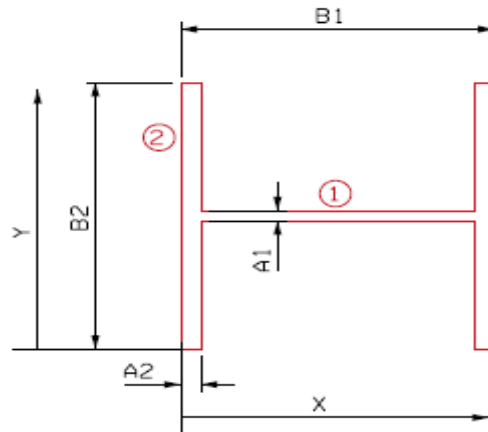
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Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Rolled Beam WF14x 127

- $A_1 = t_w = 0.6100$ in
- $A_2 = t_f = 0.9980$ in
- $B_1 = d = 14.6200$ in
- $B_2 = b_f = 14.6900$ in



Member U129-L129

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		7.7006	7.3450	56.5612	0.2388	0.0000	0.0000	0.2388
2	Flange Plates		29.3212	7.3450	215.3645	527.2841	0.0000	0.0000	527.2841
Total			37.02		271.93	527.52		0.00	527.52
Section Losses			A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	7.3450	in	$S_{top} = 71.82$ in ³	y-bar =	7.3450	in	$S_{top} = 71.82$ in ³
$I_x =$	527.52	in ⁴	$S_{bott.} = 71.82$ in ³	$I_x =$	527.52	in ⁴	$S_{bott.} = 71.82$ in ³
$c_{top} =$	7.3450	in	$A = 37.0219$ in ²	$c_{top} =$	7.3450	in	$A = 37.0219$ in ²
$c_{bottom} =$	7.3450	in	$r_x = 3.7748$ in	$c_{bottom} =$	7.3450	in	$r_x = 3.7748$ in



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Calculations For: **CUY-2-1441**

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web Plate		7.7006	7.3100	56.2917	102.2679	0.0000	0.0000	102.2679
2	Left Flange		14.6606	0.4990	7.3156	1.2168	6.8110	680.1021	681.3189
	Right Flange		14.6606	14.1210	207.0226	1.2168	6.8110	680.1021	681.3189
Total			37.02		270.63	104.70		1360.20	1464.91
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties					As-Inspected Section Properties						
x-bar =	7.3100	in	S _{right} =	200.40	in ³	x-bar =	7.3100	in	S _{right} =	200.40	in ³
I _y =	1464.91	in ⁴	S _{left} =	200.40	in ³	I _y =	1464.91	in ⁴	S _{left} =	200.40	in ³
C _{right} =	7.3100	in	A =	37.0219	in ²	C _{right} =	7.3100	in	A =	37.0219	in ²
C _{left} =	7.3100	in	r _y =	6.2904	in	C _{left} =	7.3100	in	r _y =	6.2904	in



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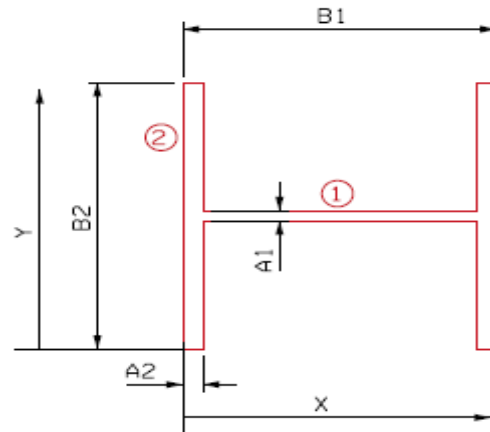
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Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Rolled Beam WF14x 95

- $A_1 = t_w = 0.4650$ in
- $A_2 = t_f = 0.7480$ in
- $B_1 = d = 14.1200$ in
- $B_2 = b_f = 14.5450$ in



Member U130-L130

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		5.8702	7.2725	42.6907	0.1058	0.0000	0.0000	0.1058
2	Flange Plates		21.7593	7.2725	158.2447	383.6114	0.0000	0.0000	383.6114
Total			27.63		200.94	383.72		0.00	383.72
Section Losses			A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	7.2725	in	$S_{top} = 52.76$ in ³	y-bar =	7.2725	in	$S_{top} = 52.76$ in ³
$I_x =$	383.72	in ⁴	$S_{bott.} = 52.76$ in ³	$I_x =$	383.72	in ⁴	$S_{bott.} = 52.76$ in ³
$c_{top} =$	7.2725	in	$A = 27.6295$ in ²	$c_{top} =$	7.2725	in	$A = 27.6295$ in ²
$c_{bottom} =$	7.2725	in	$r_x = 3.7267$ in	$c_{bottom} =$	7.2725	in	$r_x = 3.7267$ in



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Calculations For: **CUY-2-1441**

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web Plate		5.8702	7.0600	41.4433	77.9584	0.0000	0.0000	77.9584
2	Left Flange		10.8797	0.3740	4.0690	0.5073	6.6860	486.3490	486.8563
	Right Flange		10.8797	13.7460	149.5518	0.5073	6.6860	486.3490	486.8563
Total			27.63		195.06	78.97		972.70	1051.67
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties					As-Inspected Section Properties						
x-bar =	7.0600	in	S _{right} =	148.96	in ³	x-bar =	7.0600	in	S _{right} =	148.96	in ³
I _y =	1051.67	in ⁴	S _{left} =	148.96	in ³	I _y =	1051.67	in ⁴	S _{left} =	148.96	in ³
C _{right} =	7.0600	in	A =	27.6295	in ²	C _{right} =	7.0600	in	A =	27.6295	in ²
C _{left} =	7.0600	in	r _y =	6.1696	in	C _{left} =	7.0600	in	r _y =	6.1696	in



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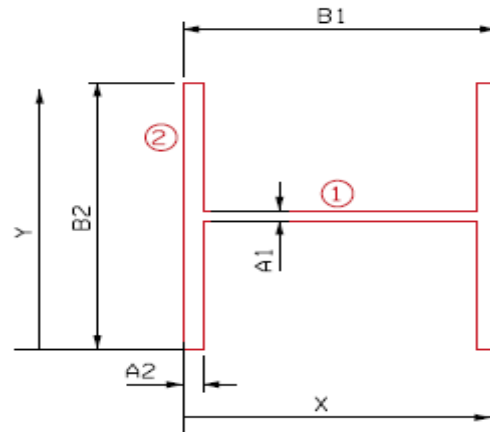
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Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Rolled Beam WF14x 78

- $A_1 = t_w = 0.4280$ in
- $A_2 = t_f = 0.7180$ in
- $B_1 = d = 14.0600$ in
- $B_2 = b_f = 12.0000$ in



Member U131-L131

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		5.4031	6.0000	32.4184	0.0825	0.0000	0.0000	0.0825
2	Flange Plates		17.2320	6.0000	103.3920	206.7840	0.0000	0.0000	206.7840
Total			22.64		135.81	206.87		0.00	206.87
Section Losses			A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	6.0000	in	$S_{top} = 34.48$ in ³	y-bar =	6.0000	in	$S_{top} = 34.48$ in ³
$I_x =$	206.87	in ⁴	$S_{bott.} = 34.48$ in ³	$I_x =$	206.87	in ⁴	$S_{bott.} = 34.48$ in ³
$c_{top} =$	6.0000	in	$A = 22.6351$ in ²	$c_{top} =$	6.0000	in	$A = 22.6351$ in ²
$c_{bottom} =$	6.0000	in	$r_x = 3.0231$ in	$c_{bottom} =$	6.0000	in	$r_x = 3.0231$ in



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Calculations For: **CUY-2-1441**

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y, gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web Plate		5.4031	7.0300	37.9836	71.7552	0.0000	0.0000	71.7552
2	Left Flange		8.6160	0.3590	3.0931	0.3701	6.6710	383.4313	383.8015
	Right Flange		8.6160	13.7010	118.0478	0.3701	6.6710	383.4313	383.8015
Total			22.64		159.12	72.50		766.86	839.36
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y, loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties					As-Inspected Section Properties						
x-bar =	7.0300	in	S _{right} =	119.40	in ³	x-bar =	7.0300	in	S _{right} =	119.40	in ³
I _y =	839.36	in ⁴	S _{left} =	119.40	in ³	I _y =	839.36	in ⁴	S _{left} =	119.40	in ³
C _{right} =	7.0300	in	A =	22.6351	in ²	C _{right} =	7.0300	in	A =	22.6351	in ²
C _{left} =	7.0300	in	r _y =	6.0895	in	C _{left} =	7.0300	in	r _y =	6.0895	in



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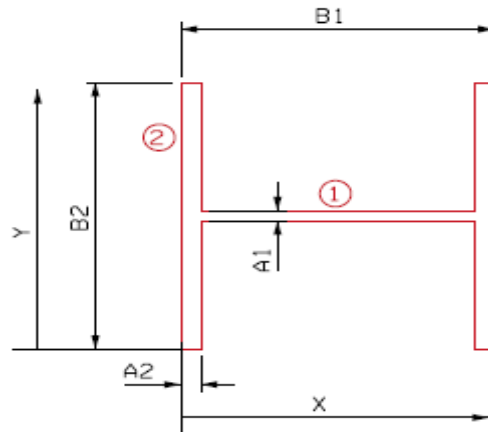
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Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Rolled Beam WF14x 84

- $A_1 = t_w = 0.4510$ in
- $A_2 = t_f = 0.7780$ in
- $B_1 = d = 14.1800$ in
- $B_2 = b_f = 12.0230$ in



Member U132-L132

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		5.6934	6.0115	34.2260	0.0965	0.0000	0.0000	0.0965
2	Flange Plates		18.7078	6.0115	112.4619	225.3548	0.0000	0.0000	225.3548
Total			24.40		146.69	225.45		0.00	225.45
Section Losses			A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties					As-Inspected Section Properties						
y-bar =	6.0115	in	$S_{top} =$	37.50	in ³	y-bar =	6.0115	in	$S_{top} =$	37.50	in ³
$I_x =$	225.45	in ⁴	$S_{bott.} =$	37.50	in ³	$I_x =$	225.45	in ⁴	$S_{bott.} =$	37.50	in ³
$c_{top} =$	6.0115	in	A =	24.4012	in ²	$c_{top} =$	6.0115	in	A =	24.4012	in ²
$c_{bottom} =$	6.0115	in	$r_x =$	3.0396	in	$c_{bottom} =$	6.0115	in	$r_x =$	3.0396	in



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Calculations For: **CUY-2-1441**

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y, gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web Plate		5.6934	7.0900	40.3664	75.6112	0.0000	0.0000	75.6112
2	Left Flange		9.3539	0.3890	3.6387	0.4718	6.7010	420.0217	420.4935
	Right Flange		9.3539	13.7910	128.9996	0.4718	6.7010	420.0217	420.4935
Total			24.40		173.00	76.55		840.04	916.60
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y, loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties					As-Inspected Section Properties						
x-bar =	7.0900	in	S _{right} =	129.28	in ³	x-bar =	7.0900	in	S _{right} =	129.28	in ³
I _y =	916.60	in ⁴	S _{left} =	129.28	in ³	I _y =	916.60	in ⁴	S _{left} =	129.28	in ³
C _{right} =	7.0900	in	A =	24.4012	in ²	C _{right} =	7.0900	in	A =	24.4012	in ²
C _{left} =	7.0900	in	r _y =	6.1289	in	C _{left} =	7.0900	in	r _y =	6.1289	in



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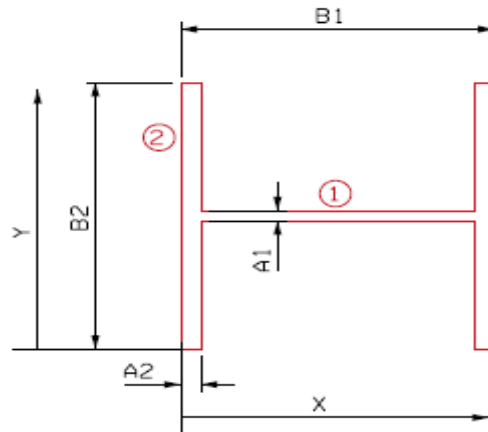
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Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Rolled Beam WF14x 111

- $A_1 = t_w = 0.5400$ in
- $A_2 = t_f = 0.8730$ in
- $B_1 = d = 14.3700$ in
- $B_2 = b_f = 14.6200$ in



Member U133-L133

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		6.8170	7.3100	49.8320	0.1657	0.0000	0.0000	0.1657
2	Flange Plates		25.5265	7.3100	186.5989	454.6792	0.0000	0.0000	454.6792
Total			32.34		236.43	454.84		0.00	454.84
Section Losses			A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties							
y-bar =	7.3100	in	$S_{top} = 62.22$	in^3	y-bar =	7.3100	in	$S_{top} = 62.22$	in^3		
$I_x =$	454.84	in^4	$S_{bott.} = 62.22$	in^3	$I_x =$	454.84	in^4	$S_{bott.} = 62.22$	in^3		
$c_{top} =$	7.3100	in	A =	32.3435	in^2	$c_{top} =$	7.3100	in	A =	32.3435	in^2
$c_{bottom} =$	7.3100	in	$r_x =$	3.7501	in	$c_{bottom} =$	7.3100	in	$r_x =$	3.7501	in



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Calculations For: **CUY-2-1441**

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y, gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web Plate		6.8170	7.1850	48.9799	90.5323	0.0000	0.0000	90.5323
2	Left Flange		12.7633	0.4365	5.5712	0.8106	6.7485	581.2676	582.0782
	Right Flange		12.7633	13.9335	177.8369	0.8106	6.7485	581.2676	582.0782
Total			32.34		232.39	92.15		1162.54	1254.69
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y, loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties					As-Inspected Section Properties						
x-bar =	7.1850	in	S _{right} =	174.63	in ³	x-bar =	7.1850	in	S _{right} =	174.63	in ³
I _y =	1254.69	in ⁴	S _{left} =	174.63	in ³	I _y =	1254.69	in ⁴	S _{left} =	174.63	in ³
C _{right} =	7.1850	in	A =	32.3435	in ²	C _{right} =	7.1850	in	A =	32.3435	in ²
C _{left} =	7.1850	in	r _y =	6.2284	in	C _{left} =	7.1850	in	r _y =	6.2284	in



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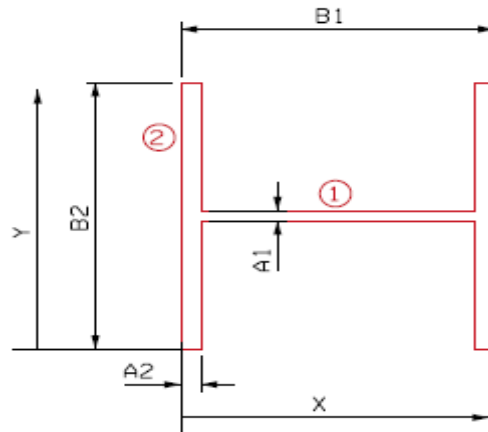
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Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Rolled Beam **WF14x 150**

- $A_1 = t_w = 0.6950$ in
- $A_2 = t_f = 1.1280$ in
- $B_1 = d = 14.8800$ in
- $B_2 = b_f = 15.5150$ in



Member U134-L134

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		8.7737	7.7575	68.0618	0.3532	0.0000	0.0000	0.3532
2	Flange Plates		35.0018	7.7575	271.5268	702.1230	0.0000	0.0000	702.1230
Total			43.78		339.59	702.48		0.00	702.48
Section Losses			A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.1250	6.0000	-0.7500	7.7575	-5.8181	-2.2500	0.0000	0.0000	-2.2500
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			-0.75		-5.82	-2.25		0.00	-2.25

As-Built Section Properties					As-Inspected Section Properties						
y-bar =	7.7575	in	$S_{top} =$	90.55	in ³	y-bar =	7.7575	in	$S_{top} =$	90.26	in ³
$I_x =$	702.48	in ⁴	$S_{bott.} =$	90.55	in ³	$I_x =$	700.23	in ⁴	$S_{bott.} =$	90.26	in ³
$C_{top} =$	7.7575	in	A =	43.7755	in ²	$C_{top} =$	7.7575	in	A =	43.0255	in ²
$C_{bottom} =$	7.7575	in	$r_x =$	4.0059	in	$C_{bottom} =$	7.7575	in	$r_x =$	4.0342	in



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Calculations For: **CUY-2-1441**

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y, gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web Plate		8.7737	7.4400	65.2762	116.5184	0.0000	0.0000	116.5184
2	Left Flange		17.5009	0.5640	9.8705	1.8557	6.8760	827.4326	829.2882
	Right Flange		17.5009	14.3160	250.5432	1.8557	6.8760	827.4326	829.2882
Total			43.78		325.69	120.23		1654.87	1775.09
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y, loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	6.0000	0.1250	-0.7500	0.0625	-0.0469	-0.0010	7.5061	-42.2562	-42.2571
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			-0.75		-0.05	0.00		-42.26	-42.26

As-Built Section Properties				As-Inspected Section Properties			
x-bar =	7.4400	in	S _{right} = 238.59 in ³	x-bar =	7.5686	in	S _{right} = 237.00 in ³
I _y =	1775.09	in ⁴	S _{left} = 238.59 in ³	I _y =	1732.84	in ⁴	S _{left} = 228.95 in ³
C _{right} =	7.4400	in	A = 43.7755 in ²	C _{right} =	7.3114	in	A = 43.0255 in ²
C _{left} =	7.4400	in	r _y = 6.3679 in	C _{left} =	7.5686	in	r _y = 6.3462 in



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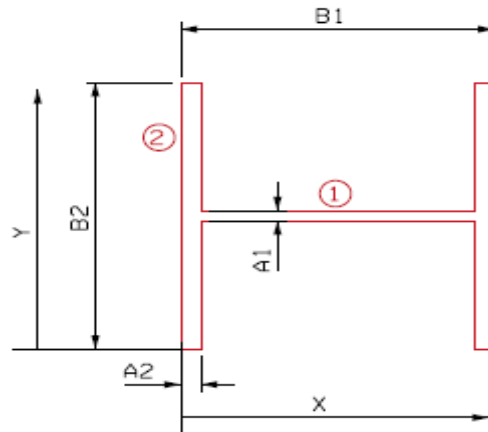
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Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Rolled Beam WF14x 184

- $A_1 = t_w = 0.8400$ in
- $A_2 = t_f = 1.3780$ in
- $B_1 = d = 15.3800$ in
- $B_2 = b_f = 15.6600$ in



Member U135-L135

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		10.6042	7.8300	83.0306	0.6235	0.0000	0.0000	0.6235
2	Flange Plates		43.1590	7.8300	337.9347	882.0095	0.0000	0.0000	882.0095
Total			53.76		420.97	882.63		0.00	882.63
Section Losses			A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties							
y-bar =	7.8300	in	$S_{top} = 112.72$	in ³	y-bar =	7.8300	in	$S_{top} = 112.72$	in ³		
$I_x =$	882.63	in ⁴	$S_{bott.} = 112.72$	in ³	$I_x =$	882.63	in ⁴	$S_{bott.} = 112.72$	in ³		
$c_{top} =$	7.8300	in	A =	53.7631	in ²	$c_{top} =$	7.8300	in	A =	53.7631	in ²
$c_{bottom} =$	7.8300	in	$r_x =$	4.0518	in	$c_{bottom} =$	7.8300	in	$r_x =$	4.0518	in



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Calculations For: **CUY-2-1441**

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web Plate		10.6042	7.6900	81.5460	140.8280	0.0000	0.0000	140.8280
2	Left Flange		21.5795	0.6890	14.8683	3.4147	7.0010	1057.6967	1061.1114
	Right Flange		21.5795	14.6910	317.0241	3.4147	7.0010	1057.6967	1061.1114
Total			53.76		413.44	147.66		2115.39	2263.05
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties					As-Inspected Section Properties						
x-bar =	7.6900	in	S _{right} =	294.28	in ³	x-bar =	7.6900	in	S _{right} =	294.28	in ³
I _y =	2263.05	in ⁴	S _{left} =	294.28	in ³	I _y =	2263.05	in ⁴	S _{left} =	294.28	in ³
C _{right} =	7.6900	in	A =	53.7631	in ²	C _{right} =	7.6900	in	A =	53.7631	in ²
C _{left} =	7.6900	in	r _y =	6.4879	in	C _{left} =	7.6900	in	r _y =	6.4879	in



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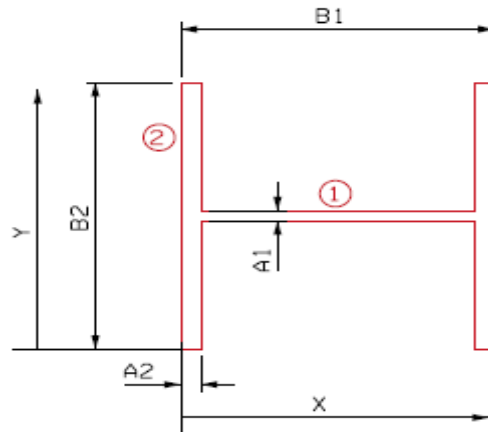
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Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Rolled Beam 14WF158

- $A_1 = t_w = 0.7300$ in
- $A_2 = t_f = 1.1880$ in
- $B_1 = d = 15.0000$ in
- $B_2 = b_f = 15.5500$ in



Member U127-L128

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		9.2155	7.7750	71.6507	0.4092	0.0000	0.0000	0.4092
2	Flange Plates		36.9468	7.7750	287.2614	744.4857	0.0000	0.0000	744.4857
Total			46.16		358.91	744.89		0.00	744.89
Section Losses			A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties							
y-bar =	7.7750	in	$S_{top} = 95.81$	in^3	y-bar =	7.7750	in	$S_{top} = 95.81$	in^3		
$I_x =$	744.89	in^4	$S_{bott.} = 95.81$	in^3	$I_x =$	744.89	in^4	$S_{bott.} = 95.81$	in^3		
$c_{top} =$	7.7750	in	A =	46.1623	in^2	$c_{top} =$	7.7750	in	A =	46.1623	in^2
$c_{bottom} =$	7.7750	in	$r_x =$	4.0170	in	$c_{bottom} =$	7.7750	in	$r_x =$	4.0170	in



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Calculations For: **CUY-2-1441**

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web Plate		9.2155	7.5000	69.1164	122.3862	0.0000	0.0000	122.3862
2	Left Flange		18.4734	0.5940	10.9732	2.1727	6.9060	881.0488	883.2215
	Right Flange		18.4734	14.4060	266.1278	2.1727	6.9060	881.0488	883.2215
Total			46.16		346.22	126.73		1762.10	1888.83
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
x-bar =	7.5000	in	S _{right} = 251.84 in ³	x-bar =	7.5000	in	S _{right} = 251.84 in ³
I _y =	1888.83	in ⁴	S _{left} = 251.84 in ³	I _y =	1888.83	in ⁴	S _{left} = 251.84 in ³
C _{right} =	7.5000	in	A = 46.1623 in ²	C _{right} =	7.5000	in	A = 46.1623 in ²
C _{left} =	7.5000	in	r _y = 6.3966 in	C _{left} =	7.5000	in	r _y = 6.3966 in



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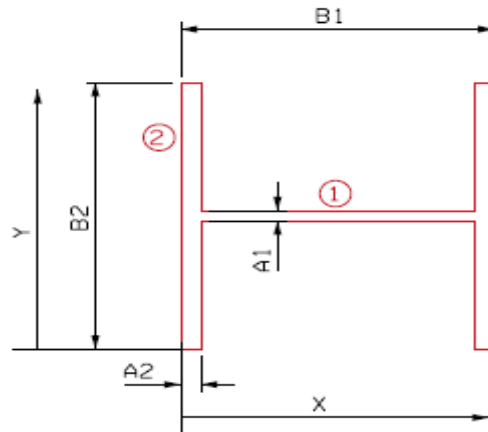
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Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Rolled Beam 14WF119

- $A_1 = t_w = 0.5700$ in
- $A_2 = t_f = 0.9380$ in
- $B_1 = d = 14.5000$ in
- $B_2 = b_f = 14.6500$ in



Member U128-L129

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		7.1957	7.3250	52.7084	0.1948	0.0000	0.0000	0.1948
2	Flange Plates		27.4834	7.3250	201.3159	491.5463	0.0000	0.0000	491.5463
Total			34.68		254.02	491.74		0.00	491.74
Section Losses			A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	7.3250	in	$S_{top} = 67.13$ in ³	y-bar =	7.3250	in	$S_{top} = 67.13$ in ³
$I_x =$	491.74	in ⁴	$S_{bott.} = 67.13$ in ³	$I_x =$	491.74	in ⁴	$S_{bott.} = 67.13$ in ³
$c_{top} =$	7.3250	in	A = 34.6791 in ²	$c_{top} =$	7.3250	in	A = 34.6791 in ²
$c_{bottom} =$	7.3250	in	$r_x = 3.7656$ in	$c_{bottom} =$	7.3250	in	$r_x = 3.7656$ in



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Calculations For: **CUY-2-1441**

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y, gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web Plate		7.1957	7.2500	52.1687	95.5619	0.0000	0.0000	95.5619
2	Left Flange		13.7417	0.4690	6.4449	1.0075	6.7810	631.8703	632.8779
	Right Flange		13.7417	14.0310	192.8098	1.0075	6.7810	631.8703	632.8779
Total			34.68		251.42	97.58		1263.74	1361.32
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y, loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties					As-Inspected Section Properties						
x-bar =	7.2500	in	S _{right} =	187.77	in ³	x-bar =	7.2500	in	S _{right} =	187.77	in ³
I _y =	1361.32	in ⁴	S _{left} =	187.77	in ³	I _y =	1361.32	in ⁴	S _{left} =	187.77	in ³
C _{right} =	7.2500	in	A =	34.6791	in ²	C _{right} =	7.2500	in	A =	34.6791	in ²
C _{left} =	7.2500	in	r _y =	6.2654	in	C _{left} =	7.2500	in	r _y =	6.2654	in



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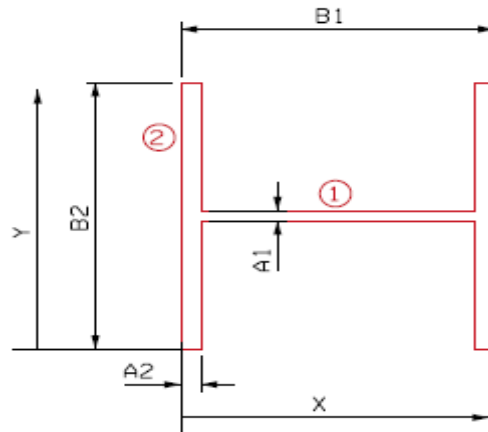
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Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Rolled Beam 14WF87

- $A_1 = t_w = 0.4200$ in
- $A_2 = t_f = 0.6880$ in
- $B_1 = d = 14.0000$ in
- $B_2 = b_f = 14.5000$ in



Member U129-L130

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		5.3021	7.2500	38.4401	0.0779	0.0000	0.0000	0.0779
2	Flange Plates		19.9520	7.2500	144.6520	349.5757	0.0000	0.0000	349.5757
Total			25.25		183.09	349.65		0.00	349.65
Section Losses			A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	7.2500	in	$S_{top} = 48.23$ in ³	y-bar =	7.2500	in	$S_{top} = 48.23$ in ³
$I_x =$	349.65	in ⁴	$S_{bott.} = 48.23$ in ³	$I_x =$	349.65	in ⁴	$S_{bott.} = 48.23$ in ³
$c_{top} =$	7.2500	in	$A = 25.2541$ in ²	$c_{top} =$	7.2500	in	$A = 25.2541$ in ²
$c_{bottom} =$	7.2500	in	$r_x = 3.7209$ in	$c_{bottom} =$	7.2500	in	$r_x = 3.7209$ in



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Calculations For: **CUY-2-1441**

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y, gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web Plate		5.3021	7.0000	37.1146	70.4140	0.0000	0.0000	70.4140
2	Left Flange		9.9760	0.3440	3.4317	0.3935	6.6560	441.9601	442.3536
	Right Flange		9.9760	13.6560	136.2323	0.3935	6.6560	441.9601	442.3536
Total			25.25		176.78	71.20		883.92	955.12
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y, loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties					As-Inspected Section Properties				
x-bar =	7.0000	in	S _{right} =	136.45 in ³	x-bar =	7.0000	in	S _{right} =	136.45 in ³
I _y =	955.12	in ⁴	S _{left} =	136.45 in ³	I _y =	955.12	in ⁴	S _{left} =	136.45 in ³
C _{right} =	7.0000	in	A =	25.2541 in ²	C _{right} =	7.0000	in	A =	25.2541 in ²
C _{left} =	7.0000	in	r _y =	6.1498 in	C _{left} =	7.0000	in	r _y =	6.1498 in



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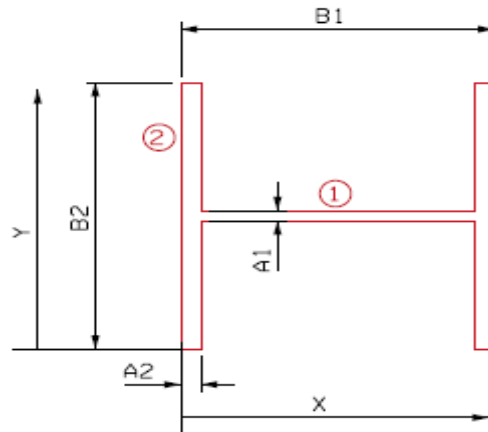
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Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Rolled Beam 14WF78

- $A_1 = t_w = 0.4280$ in
- $A_2 = t_f = 0.7180$ in
- $B_1 = d = 14.0600$ in
- $B_2 = b_f = 12.0000$ in



Member U130-L131

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		5.4031	6.0000	32.4184	0.0825	0.0000	0.0000	0.0825
2	Flange Plates		17.2320	6.0000	103.3920	206.7840	0.0000	0.0000	206.7840
Total			22.64		135.81	206.87		0.00	206.87
Section Losses			A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties							
y-bar =	6.0000	in	$S_{top} = 34.48$	in ³	y-bar =	6.0000	in	$S_{top} = 34.48$	in ³		
$I_x =$	206.87	in ⁴	$S_{bott.} = 34.48$	in ³	$I_x =$	206.87	in ⁴	$S_{bott.} = 34.48$	in ³		
$c_{top} =$	6.0000	in	A =	22.6351	in ²	$c_{top} =$	6.0000	in	A =	22.6351	in ²
$c_{bottom} =$	6.0000	in	$r_x =$	3.0231	in	$c_{bottom} =$	6.0000	in	$r_x =$	3.0231	in



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Calculations For: **CUY-2-1441**

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y, gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web Plate		5.4031	7.0300	37.9836	71.7552	0.0000	0.0000	71.7552
2	Left Flange		8.6160	0.3590	3.0931	0.3701	6.6710	383.4313	383.8015
	Right Flange		8.6160	13.7010	118.0478	0.3701	6.6710	383.4313	383.8015
Total			22.64		159.12	72.50		766.86	839.36
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y, loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties					As-Inspected Section Properties						
x-bar =	7.0300	in	S _{right} =	119.40	in ³	x-bar =	7.0300	in	S _{right} =	119.40	in ³
I _y =	839.36	in ⁴	S _{left} =	119.40	in ³	I _y =	839.36	in ⁴	S _{left} =	119.40	in ³
C _{right} =	7.0300	in	A =	22.6351	in ²	C _{right} =	7.0300	in	A =	22.6351	in ²
C _{left} =	7.0300	in	r _y =	6.0895	in	C _{left} =	7.0300	in	r _y =	6.0895	in



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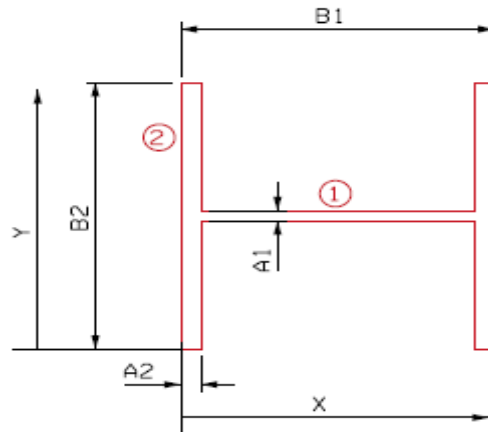
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Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Rolled Beam 14WF78

- $A_1 = t_w = 0.4280$ in
- $A_2 = t_f = 0.7180$ in
- $B_1 = d = 14.0600$ in
- $B_2 = b_f = 12.0000$ in



Member U132-L131

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		5.4031	6.0000	32.4184	0.0825	0.0000	0.0000	0.0825
2	Flange Plates		17.2320	6.0000	103.3920	206.7840	0.0000	0.0000	206.7840
Total			22.64		135.81	206.87		0.00	206.87
Section Losses			A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties							
y-bar =	6.0000	in	$S_{top} = 34.48$	in ³	y-bar =	6.0000	in	$S_{top} = 34.48$	in ³		
$I_x =$	206.87	in ⁴	$S_{bott.} = 34.48$	in ³	$I_x =$	206.87	in ⁴	$S_{bott.} = 34.48$	in ³		
$c_{top} =$	6.0000	in	A =	22.6351	in ²	$c_{top} =$	6.0000	in	A =	22.6351	in ²
$c_{bottom} =$	6.0000	in	$r_x =$	3.0231	in	$c_{bottom} =$	6.0000	in	$r_x =$	3.0231	in



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Calculations For: **CUY-2-1441**

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y, gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web Plate		5.4031	7.0300	37.9836	71.7552	0.0000	0.0000	71.7552
2	Left Flange		8.6160	0.3590	3.0931	0.3701	6.6710	383.4313	383.8015
	Right Flange		8.6160	13.7010	118.0478	0.3701	6.6710	383.4313	383.8015
Total			22.64		159.12	72.50		766.86	839.36
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y, loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties					As-Inspected Section Properties				
x-bar =	7.0300	in	S _{right} =	119.40 in ³	x-bar =	7.0300	in	S _{right} =	119.40 in ³
I _y =	839.36	in ⁴	S _{left} =	119.40 in ³	I _y =	839.36	in ⁴	S _{left} =	119.40 in ³
C _{right} =	7.0300	in	A =	22.6351 in ²	C _{right} =	7.0300	in	A =	22.6351 in ²
C _{left} =	7.0300	in	r _y =	6.0895 in	C _{left} =	7.0300	in	r _y =	6.0895 in



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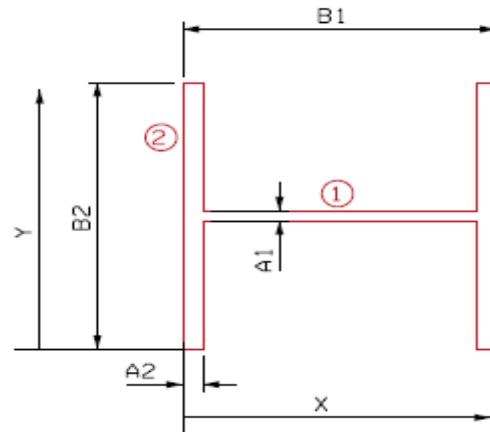
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Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Rolled Beam 14WF78

- $A_1 = t_w = 0.4280$ in
- $A_2 = t_f = 0.7180$ in
- $B_1 = d = 14.0600$ in
- $B_2 = b_f = 12.0000$ in



Member U133-L132

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		5.4031	6.0000	32.4184	0.0825	0.0000	0.0000	0.0825
2	Flange Plates		17.2320	6.0000	103.3920	206.7840	0.0000	0.0000	206.7840
Total			22.64		135.81	206.87		0.00	206.87
Section Losses			A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties					As-Inspected Section Properties						
y-bar =	6.0000	in	$S_{top} =$	34.48	in ³	y-bar =	6.0000	in	$S_{top} =$	34.48	in ³
$I_x =$	206.87	in ⁴	$S_{bott.} =$	34.48	in ³	$I_x =$	206.87	in ⁴	$S_{bott.} =$	34.48	in ³
$c_{top} =$	6.0000	in	A =	22.6351	in ²	$c_{top} =$	6.0000	in	A =	22.6351	in ²
$c_{bottom} =$	6.0000	in	$r_x =$	3.0231	in	$c_{bottom} =$	6.0000	in	$r_x =$	3.0231	in



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Calculations For: **CUY-2-1441**

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y, gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web Plate		5.4031	7.0300	37.9836	71.7552	0.0000	0.0000	71.7552
2	Left Flange		8.6160	0.3590	3.0931	0.3701	6.6710	383.4313	383.8015
	Right Flange		8.6160	13.7010	118.0478	0.3701	6.6710	383.4313	383.8015
Total			22.64		159.12	72.50		766.86	839.36
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y, loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties					As-Inspected Section Properties						
x-bar =	7.0300	in	S _{right} =	119.40	in ³	x-bar =	7.0300	in	S _{right} =	119.40	in ³
I _y =	839.36	in ⁴	S _{left} =	119.40	in ³	I _y =	839.36	in ⁴	S _{left} =	119.40	in ³
C _{right} =	7.0300	in	A =	22.6351	in ²	C _{right} =	7.0300	in	A =	22.6351	in ²
C _{left} =	7.0300	in	r _y =	6.0895	in	C _{left} =	7.0300	in	r _y =	6.0895	in



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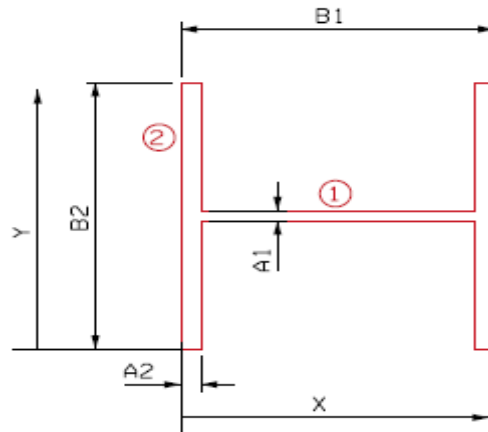
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Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Rolled Beam 14WF119

- $A_1 = t_w = 0.5700$ in
- $A_2 = t_f = 0.9380$ in
- $B_1 = d = 14.5000$ in
- $B_2 = b_f = 14.6500$ in



Member U134-L133

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		7.1957	7.3250	52.7084	0.1948	0.0000	0.0000	0.1948
2	Flange Plates		27.4834	7.3250	201.3159	491.5463	0.0000	0.0000	491.5463
Total			34.68		254.02	491.74		0.00	491.74
Section Losses			A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	7.3250	in	$S_{top} = 67.13$ in ³	y-bar =	7.3250	in	$S_{top} = 67.13$ in ³
$I_x =$	491.74	in ⁴	$S_{bott.} = 67.13$ in ³	$I_x =$	491.74	in ⁴	$S_{bott.} = 67.13$ in ³
$c_{top} =$	7.3250	in	$A = 34.6791$ in ²	$c_{top} =$	7.3250	in	$A = 34.6791$ in ²
$c_{bottom} =$	7.3250	in	$r_x = 3.7656$ in	$c_{bottom} =$	7.3250	in	$r_x = 3.7656$ in



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Calculations For: **CUY-2-1441**

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web Plate		7.1957	7.2500	52.1687	95.5619	0.0000	0.0000	95.5619
2	Left Flange		13.7417	0.4690	6.4449	1.0075	6.7810	631.8703	632.8779
	Right Flange		13.7417	14.0310	192.8098	1.0075	6.7810	631.8703	632.8779
Total			34.68		251.42	97.58		1263.74	1361.32
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties					As-Inspected Section Properties						
x-bar =	7.2500	in	S _{right} =	187.77	in ³	x-bar =	7.2500	in	S _{right} =	187.77	in ³
I _y =	1361.32	in ⁴	S _{left} =	187.77	in ³	I _y =	1361.32	in ⁴	S _{left} =	187.77	in ³
C _{right} =	7.2500	in	A =	34.6791	in ²	C _{right} =	7.2500	in	A =	34.6791	in ²
C _{left} =	7.2500	in	r _y =	6.2654	in	C _{left} =	7.2500	in	r _y =	6.2654	in



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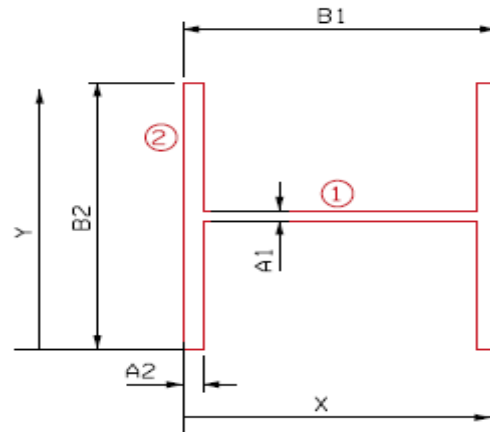
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Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Rolled Beam 14WF167

- $A_1 = t_w = 0.7800$ in
- $A_2 = t_f = 1.2480$ in
- $B_1 = d = 15.1200$ in
- $B_2 = b_f = 15.6000$ in



Member U135-L134

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		9.8467	7.8000	76.8044	0.4992	0.0000	0.0000	0.4992
2	Flange Plates		38.9376	7.8000	303.7133	789.6545	0.0000	0.0000	789.6545
Total			48.78		380.52	790.15		0.00	790.15
Section Losses			A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties							
y-bar =	7.8000	in	$S_{top} = 101.30$	in ³	y-bar =	7.8000	in	$S_{top} = 101.30$	in ³		
$I_x =$	790.15	in ⁴	$S_{bott.} = 101.30$	in ³	$I_x =$	790.15	in ⁴	$S_{bott.} = 101.30$	in ³		
$c_{top} =$	7.8000	in	A =	48.7843	in ²	$c_{top} =$	7.8000	in	A =	48.7843	in ²
$c_{bottom} =$	7.8000	in	$r_x =$	4.0245	in	$c_{bottom} =$	7.8000	in	$r_x =$	4.0245	in



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Calculations For: **CUY-2-1441**

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web Plate		9.8467	7.5600	74.4412	130.7689	0.0000	0.0000	130.7689
2	Left Flange		19.4688	0.6240	12.1485	2.5269	6.9360	936.6069	939.1338
	Right Flange		19.4688	14.4960	282.2197	2.5269	6.9360	936.6069	939.1338
Total			48.78		368.81	135.82		1873.21	2009.04
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties					As-Inspected Section Properties						
x-bar =	7.5600	in	S _{right} =	265.75	in ³	x-bar =	7.5600	in	S _{right} =	265.75	in ³
I _y =	2009.04	in ⁴	S _{left} =	265.75	in ³	I _y =	2009.04	in ⁴	S _{left} =	265.75	in ³
C _{right} =	7.5600	in	A =	48.7843	in ²	C _{right} =	7.5600	in	A =	48.7843	in ²
C _{left} =	7.5600	in	r _y =	6.4173	in	C _{left} =	7.5600	in	r _y =	6.4173	in

SOUTH TRUSS



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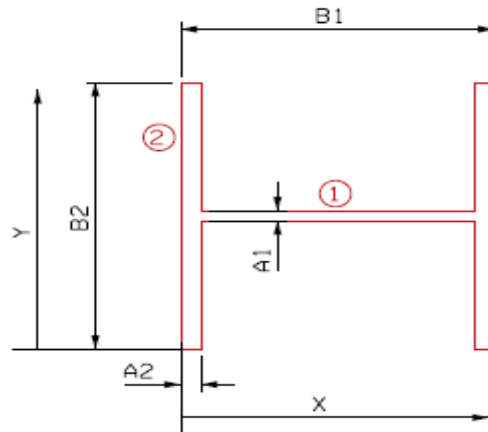
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Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Rolled Beam WF14x 176

- $A_1 = t_w = 0.8200$ in
- $A_2 = t_f = 1.3130$ in
- $B_1 = d = 15.2500$ in
- $B_2 = b_f = 15.6400$ in



Member U127-L128

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		10.3517	7.8200	80.9501	0.5800	0.0000	0.0000	0.5800
2	Flange Plates		41.0706	7.8200	321.1724	837.1894	0.0000	0.0000	837.1894
Total			51.42		402.12	837.77		0.00	837.77
Section Losses			A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	7.8200	in	$S_{top} = 107.13$ in ³	y-bar =	7.8200	in	$S_{top} = 107.13$ in ³
$I_x =$	837.77	in ⁴	$S_{bott.} = 107.13$ in ³	$I_x =$	837.77	in ⁴	$S_{bott.} = 107.13$ in ³
$c_{top} =$	7.8200	in	$A = 51.4223$ in ²	$c_{top} =$	7.8200	in	$A = 51.4223$ in ²
$c_{bottom} =$	7.8200	in	$r_x = 4.0363$ in	$c_{bottom} =$	7.8200	in	$r_x = 4.0363$ in



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Calculations For: **CUY-2-1441**

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web Plate		10.3517	7.6250	78.9316	137.4749	0.0000	0.0000	137.4749
2	Left Flange		20.5353	0.6565	13.4814	2.9502	6.9685	997.1950	1000.1452
	Right Flange		20.5353	14.5935	299.6822	2.9502	6.9685	997.1950	1000.1452
Total			51.42		392.10	143.38		1994.39	2137.77
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties					As-Inspected Section Properties						
x-bar =	7.6250	in	S _{right} =	280.36	in ³	x-bar =	7.6250	in	S _{right} =	280.36	in ³
I _y =	2137.77	in ⁴	S _{left} =	280.36	in ³	I _y =	2137.77	in ⁴	S _{left} =	280.36	in ³
C _{right} =	7.6250	in	A =	51.4223	in ²	C _{right} =	7.6250	in	A =	51.4223	in ²
C _{left} =	7.6250	in	r _y =	6.4477	in	C _{left} =	7.6250	in	r _y =	6.4477	in



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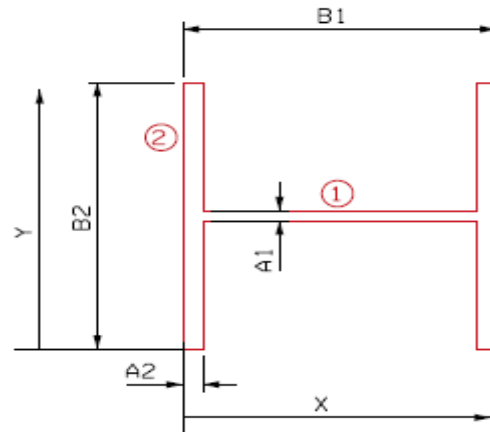
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Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Rolled Beam WF14x 176

- $A_1 = t_w = 0.8200$ in
- $A_2 = t_f = 1.3130$ in
- $B_1 = d = 15.2500$ in
- $B_2 = b_f = 15.6400$ in



Member U128-L129

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		10.3517	7.8200	80.9501	0.5800	0.0000	0.0000	0.5800
2	Flange Plates		41.0706	7.8200	321.1724	837.1894	0.0000	0.0000	837.1894
Total			51.42		402.12	837.77		0.00	837.77
Section Losses			A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	7.8200	in	$S_{top} = 107.13$ in ³	y-bar =	7.8200	in	$S_{top} = 107.13$ in ³
$I_x =$	837.77	in ⁴	$S_{bott.} = 107.13$ in ³	$I_x =$	837.77	in ⁴	$S_{bott.} = 107.13$ in ³
$c_{top} =$	7.8200	in	A = 51.4223 in ²	$c_{top} =$	7.8200	in	A = 51.4223 in ²
$c_{bottom} =$	7.8200	in	$r_x = 4.0363$ in	$c_{bottom} =$	7.8200	in	$r_x = 4.0363$ in



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Calculations For: **CUY-2-1441**

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web Plate		10.3517	7.6250	78.9316	137.4749	0.0000	0.0000	137.4749
2	Left Flange		20.5353	0.6565	13.4814	2.9502	6.9685	997.1950	1000.1452
	Right Flange		20.5353	14.5935	299.6822	2.9502	6.9685	997.1950	1000.1452
Total			51.42		392.10	143.38		1994.39	2137.77
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties					As-Inspected Section Properties						
x-bar =	7.6250	in	S _{right} =	280.36	in ³	x-bar =	7.6250	in	S _{right} =	280.36	in ³
I _y =	2137.77	in ⁴	S _{left} =	280.36	in ³	I _y =	2137.77	in ⁴	S _{left} =	280.36	in ³
C _{right} =	7.6250	in	A =	51.4223	in ²	C _{right} =	7.6250	in	A =	51.4223	in ²
C _{left} =	7.6250	in	r _y =	6.4477	in	C _{left} =	7.6250	in	r _y =	6.4477	in



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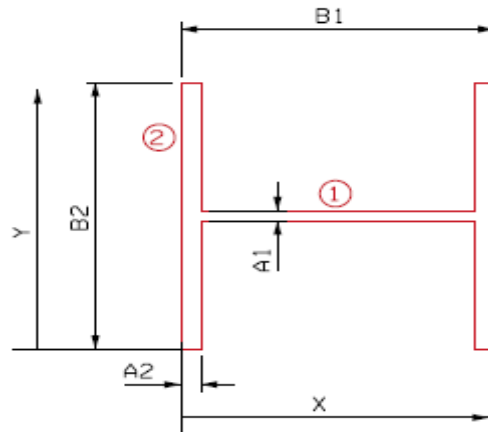
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Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Rolled Beam WF14x 237

- $A_1 = t_w = 1.0900$ in
- $A_2 = t_f = 1.7480$ in
- $B_1 = d = 16.1200$ in
- $B_2 = b_f = 15.9100$ in



Member U129-L130

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		13.7602	7.9550	109.4621	1.3624	0.0000	0.0000	1.3624
2	Flange Plates		55.6214	7.9550	442.4679	1173.2774	0.0000	0.0000	1173.2774
Total			69.38		551.93	1174.64		0.00	1174.64
Section Losses			A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	7.9550	in	$S_{top} = 147.66$ in ³	y-bar =	7.9550	in	$S_{top} = 147.66$ in ³
$I_x =$	1174.64	in ⁴	$S_{bott.} = 147.66$ in ³	$I_x =$	1174.64	in ⁴	$S_{bott.} = 147.66$ in ³
$c_{top} =$	7.9550	in	A = 69.3815 in ²	$c_{top} =$	7.9550	in	A = 69.3815 in ²
$c_{bottom} =$	7.9550	in	$r_x = 4.1146$ in	$c_{bottom} =$	7.9550	in	$r_x = 4.1146$ in



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Calculations For: **CUY-2-1441**

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web Plate		13.7602	8.0600	110.9069	182.7411	0.0000	0.0000	182.7411
2	Left Flange		27.8107	0.8740	24.3065	7.0813	7.1860	1436.1045	1443.1858
	Right Flange		27.8107	15.2460	424.0016	7.0813	7.1860	1436.1045	1443.1858
Total			69.38		559.22	196.90		2872.21	3069.11
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties					As-Inspected Section Properties						
x-bar =	8.0600	in	S _{right} =	380.78	in ³	x-bar =	8.0600	in	S _{right} =	380.78	in ³
I _y =	3069.11	in ⁴	S _{left} =	380.78	in ³	I _y =	3069.11	in ⁴	S _{left} =	380.78	in ³
C _{right} =	8.0600	in	A =	69.3815	in ²	C _{right} =	8.0600	in	A =	69.3815	in ²
C _{left} =	8.0600	in	r _y =	6.6510	in	C _{left} =	8.0600	in	r _y =	6.6510	in



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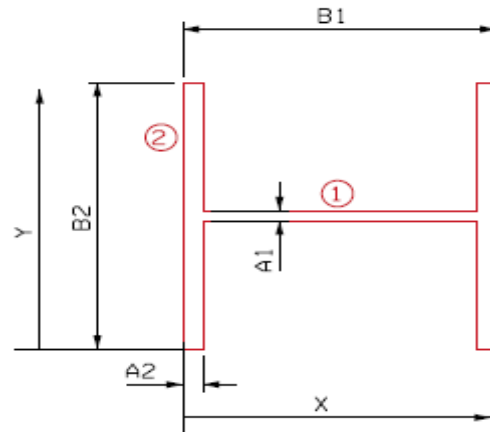
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Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Rolled Beam WF14x 237

- $A_1 = t_w = 1.0900$ in
- $A_2 = t_f = 1.7480$ in
- $B_1 = d = 16.1200$ in
- $B_2 = b_f = 15.9100$ in



Member U130-L131

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		13.7602	7.9550	109.4621	1.3624	0.0000	0.0000	1.3624
2	Flange Plates		55.6214	7.9550	442.4679	1173.2774	0.0000	0.0000	1173.2774
Total			69.38		551.93	1174.64		0.00	1174.64
Section Losses			A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	7.9550	in	$S_{top} = 147.66$ in ³	y-bar =	7.9550	in	$S_{top} = 147.66$ in ³
$I_x =$	1174.64	in ⁴	$S_{bott.} = 147.66$ in ³	$I_x =$	1174.64	in ⁴	$S_{bott.} = 147.66$ in ³
$c_{top} =$	7.9550	in	A = 69.3815 in ²	$c_{top} =$	7.9550	in	A = 69.3815 in ²
$c_{bottom} =$	7.9550	in	$r_x = 4.1146$ in	$c_{bottom} =$	7.9550	in	$r_x = 4.1146$ in



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Calculations For: **CUY-2-1441**

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y, gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web Plate		13.7602	8.0600	110.9069	182.7411	0.0000	0.0000	182.7411
2	Left Flange		27.8107	0.8740	24.3065	7.0813	7.1860	1436.1045	1443.1858
	Right Flange		27.8107	15.2460	424.0016	7.0813	7.1860	1436.1045	1443.1858
Total			69.38		559.22	196.90		2872.21	3069.11
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y, loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties					As-Inspected Section Properties						
x-bar =	8.0600	in	S _{right} =	380.78	in ³	x-bar =	8.0600	in	S _{right} =	380.78	in ³
I _y =	3069.11	in ⁴	S _{left} =	380.78	in ³	I _y =	3069.11	in ⁴	S _{left} =	380.78	in ³
C _{right} =	8.0600	in	A =	69.3815	in ²	C _{right} =	8.0600	in	A =	69.3815	in ²
C _{left} =	8.0600	in	r _y =	6.6510	in	C _{left} =	8.0600	in	r _y =	6.6510	in



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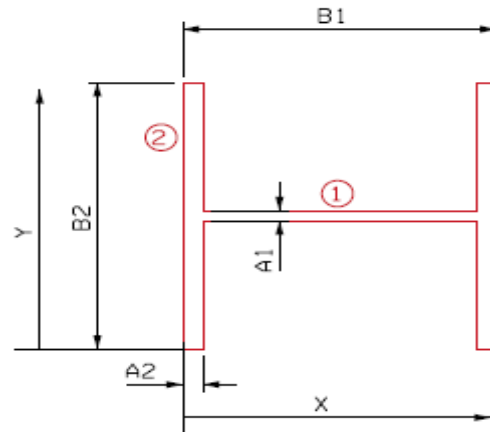
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Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Rolled Beam WF14x 237

- $A_1 = t_w = 1.0900$ in
- $A_2 = t_f = 1.7480$ in
- $B_1 = d = 16.1200$ in
- $B_2 = b_f = 15.9100$ in



Member U131-L132

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		13.7602	7.9550	109.4621	1.3624	0.0000	0.0000	1.3624
2	Flange Plates		55.6214	7.9550	442.4679	1173.2774	0.0000	0.0000	1173.2774
Total			69.38		551.93	1174.64		0.00	1174.64
Section Losses			A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	7.9550	in	$S_{top} = 147.66$ in ³	y-bar =	7.9550	in	$S_{top} = 147.66$ in ³
$I_x =$	1174.64	in ⁴	$S_{bott.} = 147.66$ in ³	$I_x =$	1174.64	in ⁴	$S_{bott.} = 147.66$ in ³
$c_{top} =$	7.9550	in	$A = 69.3815$ in ²	$c_{top} =$	7.9550	in	$A = 69.3815$ in ²
$c_{bottom} =$	7.9550	in	$r_x = 4.1146$ in	$c_{bottom} =$	7.9550	in	$r_x = 4.1146$ in



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Calculations For: **CUY-2-1441**

Y-Axis Section Properties:

Gross Section (without Losses)		A	x	Ax	I _o	d	Ad ²	I _{y, gross}
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web Plate	13.7602	8.0600	110.9069	182.7411	0.0000	0.0000	182.7411
2	Left Flange	27.8107	0.8740	24.3065	7.0813	7.1860	1436.1045	1443.1858
	Right Flange	27.8107	15.2460	424.0016	7.0813	7.1860	1436.1045	1443.1858
Total		69.38		559.22	196.90		2872.21	3069.11
Section Losses		A	x	Ax	I _o	d	Ad ²	I _{y, loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
x-bar =	8.0600	in	S _{right} = 380.78 in ³	x-bar =	8.0600	in	S _{right} = 380.78 in ³
I _y =	3069.11	in ⁴	S _{left} = 380.78 in ³	I _y =	3069.11	in ⁴	S _{left} = 380.78 in ³
C _{right} =	8.0600	in	A = 69.3815 in ²	C _{right} =	8.0600	in	A = 69.3815 in ²
C _{left} =	8.0600	in	r _y = 6.6510 in	C _{left} =	8.0600	in	r _y = 6.6510 in



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Date 1/26/2012

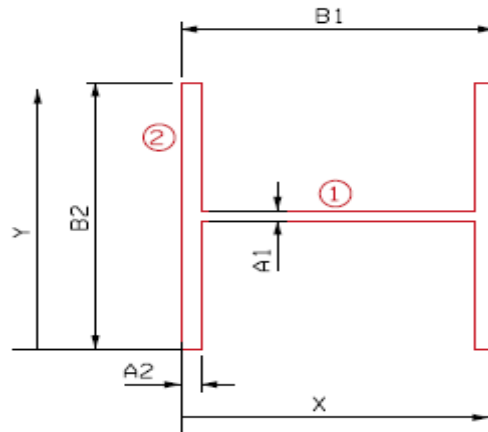
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Sheet No. _____

Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Rolled Beam WF14x 237

- $A_1 = t_w = 1.0900$ in
- $A_2 = t_f = 1.7480$ in
- $B_1 = d = 16.1200$ in
- $B_2 = b_f = 15.9100$ in



Member U132-L133

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		13.7602	7.9550	109.4621	1.3624	0.0000	0.0000	1.3624
2	Flange Plates		55.6214	7.9550	442.4679	1173.2774	0.0000	0.0000	1173.2774
Total			69.38		551.93	1174.64		0.00	1174.64
Section Losses			A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	7.9550	in	$S_{top} = 147.66$ in ³	y-bar =	7.9550	in	$S_{top} = 147.66$ in ³
$I_x =$	1174.64	in ⁴	$S_{bott.} = 147.66$ in ³	$I_x =$	1174.64	in ⁴	$S_{bott.} = 147.66$ in ³
$c_{top} =$	7.9550	in	$A = 69.3815$ in ²	$c_{top} =$	7.9550	in	$A = 69.3815$ in ²
$c_{bottom} =$	7.9550	in	$r_x = 4.1146$ in	$c_{bottom} =$	7.9550	in	$r_x = 4.1146$ in



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Calculations For: **CUY-2-1441**

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web Plate		13.7602	8.0600	110.9069	182.7411	0.0000	0.0000	182.7411
2	Left Flange		27.8107	0.8740	24.3065	7.0813	7.1860	1436.1045	1443.1858
	Right Flange		27.8107	15.2460	424.0016	7.0813	7.1860	1436.1045	1443.1858
Total			69.38		559.22	196.90		2872.21	3069.11
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties					As-Inspected Section Properties						
x-bar =	8.0600	in	S _{right} =	380.78	in ³	x-bar =	8.0600	in	S _{right} =	380.78	in ³
I _y =	3069.11	in ⁴	S _{left} =	380.78	in ³	I _y =	3069.11	in ⁴	S _{left} =	380.78	in ³
C _{right} =	8.0600	in	A =	69.3815	in ²	C _{right} =	8.0600	in	A =	69.3815	in ²
C _{left} =	8.0600	in	r _y =	6.6510	in	C _{left} =	8.0600	in	r _y =	6.6510	in



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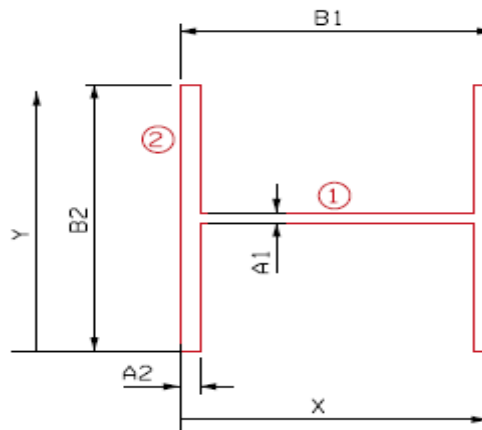
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Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Rolled Beam WF14x 176

- $A_1 = t_w = 0.8200$ in
- $A_2 = t_f = 1.3130$ in
- $B_1 = d = 15.2500$ in
- $B_2 = b_f = 15.6400$ in



Member U133-L134

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		10.3517	7.8200	80.9501	0.5800	0.0000	0.0000	0.5800
2	Flange Plates		41.0706	7.8200	321.1724	837.1894	0.0000	0.0000	837.1894
Total			51.42		402.12	837.77		0.00	837.77
Section Losses			A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	7.8200	in	$S_{top} = 107.13$ in ³	y-bar =	7.8200	in	$S_{top} = 107.13$ in ³
$I_x =$	837.77	in ⁴	$S_{bott.} = 107.13$ in ³	$I_x =$	837.77	in ⁴	$S_{bott.} = 107.13$ in ³
$c_{top} =$	7.8200	in	A = 51.4223 in ²	$c_{top} =$	7.8200	in	A = 51.4223 in ²
$c_{bottom} =$	7.8200	in	$r_x = 4.0363$ in	$c_{bottom} =$	7.8200	in	$r_x = 4.0363$ in



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Calculations For: **CUY-2-1441**

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y, gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web Plate		10.3517	7.6250	78.9316	137.4749	0.0000	0.0000	137.4749
2	Left Flange		20.5353	0.6565	13.4814	2.9502	6.9685	997.1950	1000.1452
	Right Flange		20.5353	14.5935	299.6822	2.9502	6.9685	997.1950	1000.1452
Total			51.42		392.10	143.38		1994.39	2137.77
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y, loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties					As-Inspected Section Properties						
x-bar =	7.6250	in	S _{right} =	280.36	in ³	x-bar =	7.6250	in	S _{right} =	280.36	in ³
I _y =	2137.77	in ⁴	S _{left} =	280.36	in ³	I _y =	2137.77	in ⁴	S _{left} =	280.36	in ³
C _{right} =	7.6250	in	A =	51.4223	in ²	C _{right} =	7.6250	in	A =	51.4223	in ²
C _{left} =	7.6250	in	r _y =	6.4477	in	C _{left} =	7.6250	in	r _y =	6.4477	in



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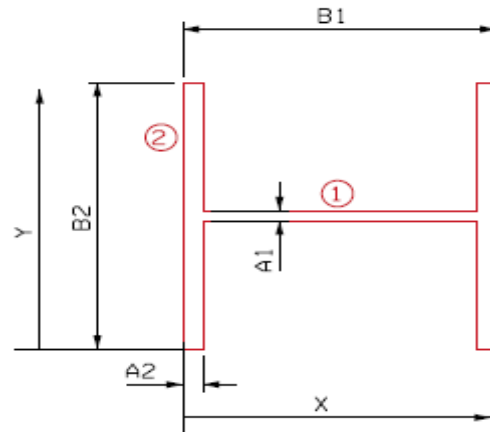
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Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Rolled Beam WF14x 176

- $A_1 = t_w = 0.8200$ in
- $A_2 = t_f = 1.3130$ in
- $B_1 = d = 15.2500$ in
- $B_2 = b_f = 15.6400$ in



Member U134-L135

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I _o	d	Ad ²	I _{x,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		10.3517	7.8200	80.9501	0.5800	0.0000	0.0000	0.5800
2	Flange Plates		41.0706	7.8200	321.1724	837.1894	0.0000	0.0000	837.1894
Total			51.42		402.12	837.77		0.00	837.77
Section Losses			A	y	Ay	I _o	d	Ad ²	I _{x,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	7.8200	in	S _{top} = 107.13 in ³	y-bar =	7.8200	in	S _{top} = 107.13 in ³
I _x =	837.77	in ⁴	S _{bottom} = 107.13 in ³	I _x =	837.77	in ⁴	S _{bottom} = 107.13 in ³
c _{top} =	7.8200	in	A = 51.4223 in ²	c _{top} =	7.8200	in	A = 51.4223 in ²
c _{bottom} =	7.8200	in	r _x = 4.0363 in	c _{bottom} =	7.8200	in	r _x = 4.0363 in



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Calculations For: **CUY-2-1441**

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web Plate		10.3517	7.6250	78.9316	137.4749	0.0000	0.0000	137.4749
2	Left Flange		20.5353	0.6565	13.4814	2.9502	6.9685	997.1950	1000.1452
	Right Flange		20.5353	14.5935	299.6822	2.9502	6.9685	997.1950	1000.1452
Total			51.42		392.10	143.38		1994.39	2137.77
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
x-bar =	7.6250	in	S _{right} = 280.36 in ³	x-bar =	7.6250	in	S _{right} = 280.36 in ³
I _y =	2137.77	in ⁴	S _{left} = 280.36 in ³	I _y =	2137.77	in ⁴	S _{left} = 280.36 in ³
C _{right} =	7.6250	in	A = 51.4223 in ²	C _{right} =	7.6250	in	A = 51.4223 in ²
C _{left} =	7.6250	in	r _y = 6.4477 in	C _{left} =	7.6250	in	r _y = 6.4477 in



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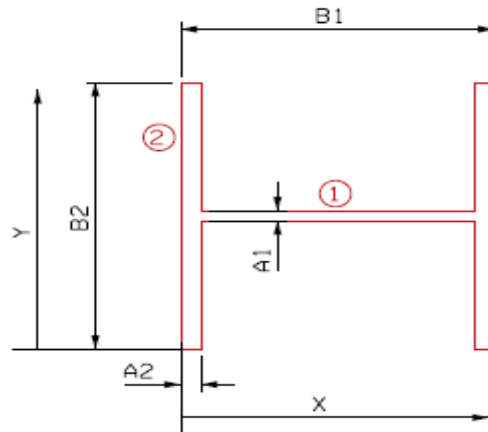
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Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Rolled Beam WF14x 95

- $A_1 = t_w = 0.4650$ in
- $A_2 = t_f = 0.7480$ in
- $B_1 = d = 14.1200$ in
- $B_2 = b_f = 14.5450$ in



Member L127-L128

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I_o	d	Ad^2	$I_{x, gross}$
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		5.8702	7.2725	42.6907	0.1058	0.0000	0.0000	0.1058
2	Flange Plates		21.7593	7.2725	158.2447	383.6114	0.0000	0.0000	383.6114
Total			27.63		200.94	383.72		0.00	383.72
Section Losses			A	y	Ay	I_o	d	Ad^2	$I_{x, loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	7.2725	in	$S_{top} = 52.76$ in ³	y-bar =	7.2725	in	$S_{top} = 52.76$ in ³
$I_x =$	383.72	in ⁴	$S_{bott.} = 52.76$ in ³	$I_x =$	383.72	in ⁴	$S_{bott.} = 52.76$ in ³
$c_{top} =$	7.2725	in	$A = 27.6295$ in ²	$c_{top} =$	7.2725	in	$A = 27.6295$ in ²
$c_{bottom} =$	7.2725	in	$r_x = 3.7267$ in	$c_{bottom} =$	7.2725	in	$r_x = 3.7267$ in



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Date 1/25/2012

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Calculations For: **CUY-2-1441**

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web Plate		5.8702	7.0600	41.4433	77.9584	0.0000	0.0000	77.9584
2	Left Flange		10.8797	0.3740	4.0690	0.5073	6.6860	486.3490	486.8563
	Right Flange		10.8797	13.7460	149.5518	0.5073	6.6860	486.3490	486.8563
Total			27.63		195.06	78.97		972.70	1051.67
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
x-bar =	7.0600	in	S _{right} = 148.96 in ³	x-bar =	7.0600	in	S _{right} = 148.96 in ³
I _y =	1051.67	in ⁴	S _{left} = 148.96 in ³	I _y =	1051.67	in ⁴	S _{left} = 148.96 in ³
C _{right} =	7.0600	in	A = 27.6295 in ²	C _{right} =	7.0600	in	A = 27.6295 in ²
C _{left} =	7.0600	in	r _y = 6.1696 in	C _{left} =	7.0600	in	r _y = 6.1696 in



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Date 1/25/2012

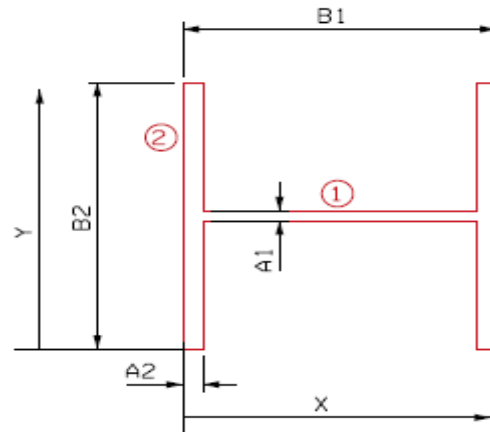
Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Rolled Beam WF14x 95

- $A_1 = t_w = 0.4650$ in
- $A_2 = t_f = 0.7480$ in
- $B_1 = d = 14.1200$ in
- $B_2 = b_f = 14.5450$ in



Member L128-L129

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I_o	d	Ad^2	$I_{x, gross}$
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		5.8702	7.2725	42.6907	0.1058	0.0000	0.0000	0.1058
2	Flange Plates		21.7593	7.2725	158.2447	383.6114	0.0000	0.0000	383.6114
Total			27.63		200.94	383.72		0.00	383.72
Section Losses			A	y	Ay	I_o	d	Ad^2	$I_{x, loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties					As-Inspected Section Properties						
y-bar =	7.2725	in	$S_{top} =$	52.76	in ³	y-bar =	7.2725	in	$S_{top} =$	52.76	in ³
$I_x =$	383.72	in ⁴	$S_{bott.} =$	52.76	in ³	$I_x =$	383.72	in ⁴	$S_{bott.} =$	52.76	in ³
$c_{top} =$	7.2725	in	A =	27.6295	in ²	$c_{top} =$	7.2725	in	A =	27.6295	in ²
$c_{bottom} =$	7.2725	in	$r_x =$	3.7267	in	$c_{bottom} =$	7.2725	in	$r_x =$	3.7267	in



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Calculations For: **CUY-2-1441**

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y, gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web Plate		5.8702	7.0600	41.4433	77.9584	0.0000	0.0000	77.9584
2	Left Flange		10.8797	0.3740	4.0690	0.5073	6.6860	486.3490	486.8563
	Right Flange		10.8797	13.7460	149.5518	0.5073	6.6860	486.3490	486.8563
Total			27.63		195.06	78.97		972.70	1051.67
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y, loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties					As-Inspected Section Properties						
x-bar =	7.0600	in	S _{right} =	148.96	in ³	x-bar =	7.0600	in	S _{right} =	148.96	in ³
I _y =	1051.67	in ⁴	S _{left} =	148.96	in ³	I _y =	1051.67	in ⁴	S _{left} =	148.96	in ³
C _{right} =	7.0600	in	A =	27.6295	in ²	C _{right} =	7.0600	in	A =	27.6295	in ²
C _{left} =	7.0600	in	r _y =	6.1696	in	C _{left} =	7.0600	in	r _y =	6.1696	in



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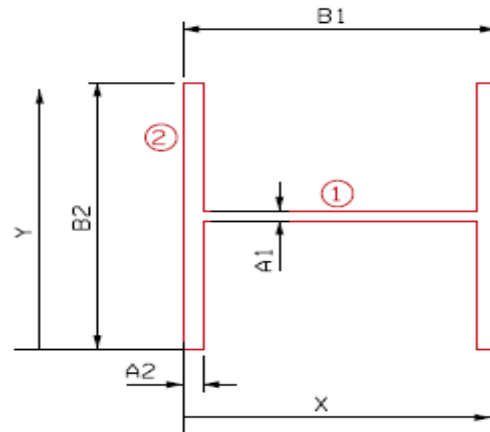
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Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Rolled Beam WF14x 211

- $A_1 = t_w = 0.9800$ in
- $A_2 = t_f = 1.5630$ in
- $B_1 = d = 15.7500$ in
- $B_2 = b_f = 15.8000$ in



Member L129-L130

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		12.3715	7.9000	97.7350	0.9901	0.0000	0.0000	0.9901
2	Flange Plates		49.3908	7.9000	390.1873	1027.4933	0.0000	0.0000	1027.4933
Total			61.76		487.92	1028.48		0.00	1028.48
Section Losses			A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties							
y-bar =	7.9000	in	$S_{top} = 130.19$	in ³	y-bar =	7.9000	in	$S_{top} = 130.19$	in ³		
$I_x =$	1028.48	in ⁴	$S_{bott.} = 130.19$	in ³	$I_x =$	1028.48	in ⁴	$S_{bott.} = 130.19$	in ³		
$c_{top} =$	7.9000	in	A =	61.7623	in ²	$c_{top} =$	7.9000	in	A =	61.7623	in ²
$c_{bottom} =$	7.9000	in	$r_x =$	4.0807	in	$c_{bottom} =$	7.9000	in	$r_x =$	4.0807	in



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Calculations For: **CUY-2-1441**

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web Plate		12.3715	7.8750	97.4257	164.2993	0.0000	0.0000	164.2993
2	Left Flange		24.6954	0.7815	19.2995	5.0275	7.0935	1242.6168	1247.6443
	Right Flange		24.6954	14.9685	369.6531	5.0275	7.0935	1242.6168	1247.6443
Total			61.76		486.38	174.35		2485.23	2659.59
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties					As-Inspected Section Properties						
x-bar =	7.8750	in	S _{right} =	337.73	in ³	x-bar =	7.8750	in	S _{right} =	337.73	in ³
I _y =	2659.59	in ⁴	S _{left} =	337.73	in ³	I _y =	2659.59	in ⁴	S _{left} =	337.73	in ³
C _{right} =	7.8750	in	A =	61.7623	in ²	C _{right} =	7.8750	in	A =	61.7623	in ²
C _{left} =	7.8750	in	r _y =	6.5621	in	C _{left} =	7.8750	in	r _y =	6.5621	in



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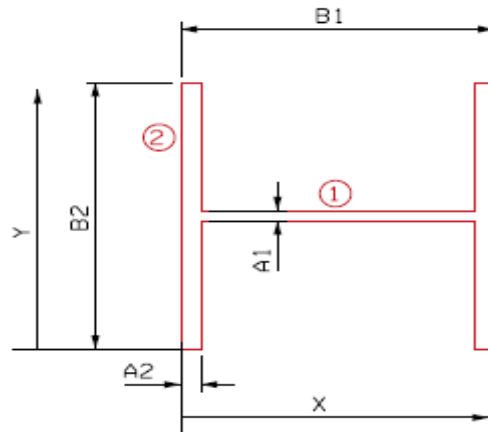
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Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Rolled Beam WF14x 211

- $A_1 = t_w = 0.9800$ in
- $A_2 = t_f = 1.5630$ in
- $B_1 = d = 15.7500$ in
- $B_2 = b_f = 15.8000$ in



Member L130-L131

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I _o	d	Ad ²	I _{x,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		12.3715	7.9000	97.7350	0.9901	0.0000	0.0000	0.9901
2	Flange Plates		49.3908	7.9000	390.1873	1027.4933	0.0000	0.0000	1027.4933
Total			61.76		487.92	1028.48		0.00	1028.48
Section Losses			A	y	Ay	I _o	d	Ad ²	I _{x,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	7.9000	in	S _{top} = 130.19 in ³	y-bar =	7.9000	in	S _{top} = 130.19 in ³
I _x =	1028.48	in ⁴	S _{bott.} = 130.19 in ³	I _x =	1028.48	in ⁴	S _{bott.} = 130.19 in ³
c _{top} =	7.9000	in	A = 61.7623 in ²	c _{top} =	7.9000	in	A = 61.7623 in ²
c _{bottom} =	7.9000	in	r _x = 4.0807 in	c _{bottom} =	7.9000	in	r _x = 4.0807 in



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Calculations For: **CUY-2-1441**

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web Plate		12.3715	7.8750	97.4257	164.2993	0.0000	0.0000	164.2993
2	Left Flange		24.6954	0.7815	19.2995	5.0275	7.0935	1242.6168	1247.6443
	Right Flange		24.6954	14.9685	369.6531	5.0275	7.0935	1242.6168	1247.6443
Total			61.76		486.38	174.35		2485.23	2659.59
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties					As-Inspected Section Properties						
x-bar =	7.8750	in	S _{right} =	337.73	in ³	x-bar =	7.8750	in	S _{right} =	337.73	in ³
I _y =	2659.59	in ⁴	S _{left} =	337.73	in ³	I _y =	2659.59	in ⁴	S _{left} =	337.73	in ³
C _{right} =	7.8750	in	A =	61.7623	in ²	C _{right} =	7.8750	in	A =	61.7623	in ²
C _{left} =	7.8750	in	r _y =	6.5621	in	C _{left} =	7.8750	in	r _y =	6.5621	in



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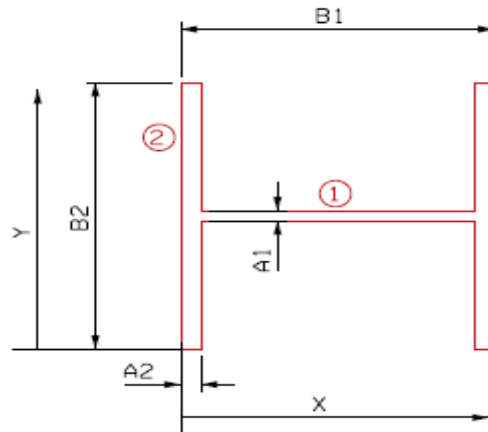
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Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Rolled Beam WF14x 211

- $A_1 = t_w = 0.9800$ in
- $A_2 = t_f = 1.5630$ in
- $B_1 = d = 15.7500$ in
- $B_2 = b_f = 15.8000$ in



Member L131-L132

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I _o	d	Ad ²	I _{x,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		12.3715	7.9000	97.7350	0.9901	0.0000	0.0000	0.9901
2	Flange Plates		49.3908	7.9000	390.1873	1027.4933	0.0000	0.0000	1027.4933
Total			61.76		487.92	1028.48		0.00	1028.48
Section Losses			A	y	Ay	I _o	d	Ad ²	I _{x,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	7.9000	in	S _{top} = 130.19 in ³	y-bar =	7.9000	in	S _{top} = 130.19 in ³
I _x =	1028.48	in ⁴	S _{bott.} = 130.19 in ³	I _x =	1028.48	in ⁴	S _{bott.} = 130.19 in ³
c _{top} =	7.9000	in	A = 61.7623 in ²	c _{top} =	7.9000	in	A = 61.7623 in ²
c _{bottom} =	7.9000	in	r _x = 4.0807 in	c _{bottom} =	7.9000	in	r _x = 4.0807 in



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Sheet No. _____

Calculations For: **CUY-2-1441**

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web Plate		12.3715	7.8750	97.4257	164.2993	0.0000	0.0000	164.2993
2	Left Flange		24.6954	0.7815	19.2995	5.0275	7.0935	1242.6168	1247.6443
	Right Flange		24.6954	14.9685	369.6531	5.0275	7.0935	1242.6168	1247.6443
Total			61.76		486.38	174.35		2485.23	2659.59
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties					As-Inspected Section Properties						
x-bar =	7.8750	in	S _{right} =	337.73	in ³	x-bar =	7.8750	in	S _{right} =	337.73	in ³
I _y =	2659.59	in ⁴	S _{left} =	337.73	in ³	I _y =	2659.59	in ⁴	S _{left} =	337.73	in ³
C _{right} =	7.8750	in	A =	61.7623	in ²	C _{right} =	7.8750	in	A =	61.7623	in ²
C _{left} =	7.8750	in	r _y =	6.5621	in	C _{left} =	7.8750	in	r _y =	6.5621	in



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Date 1/25/2012

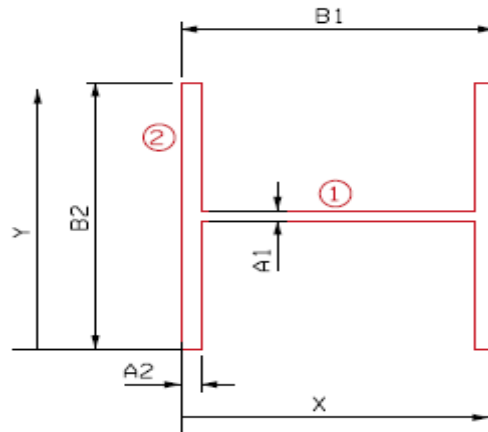
Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Rolled Beam WF14x 211

- $A_1 = t_w = 0.9800$ in
- $A_2 = t_f = 1.5630$ in
- $B_1 = d = 15.7500$ in
- $B_2 = b_f = 15.8000$ in



Member L132-L133

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		12.3715	7.9000	97.7350	0.9901	0.0000	0.0000	0.9901
2	Flange Plates		49.3908	7.9000	390.1873	1027.4933	0.0000	0.0000	1027.4933
Total			61.76		487.92	1028.48		0.00	1028.48
Section Losses			A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties							
y-bar =	7.9000	in	$S_{top} = 130.19$	in ³	y-bar =	7.9000	in	$S_{top} = 130.19$	in ³		
$I_x =$	1028.48	in ⁴	$S_{bott.} = 130.19$	in ³	$I_x =$	1028.48	in ⁴	$S_{bott.} = 130.19$	in ³		
$c_{top} =$	7.9000	in	A =	61.7623	in ²	$c_{top} =$	7.9000	in	A =	61.7623	in ²
$c_{bottom} =$	7.9000	in	$r_x =$	4.0807	in	$c_{bottom} =$	7.9000	in	$r_x =$	4.0807	in



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Calculations For: **CUY-2-1441**

Y-Axis Section Properties:

Gross Section (without Losses)		A	x	Ax	I _o	d	Ad ²	I _{y,gross}	
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)	
1	Web Plate	12.3715	7.8750	97.4257	164.2993	0.0000	0.0000	164.2993	
2	Left Flange	24.6954	0.7815	19.2995	5.0275	7.0935	1242.6168	1247.6443	
	Right Flange	24.6954	14.9685	369.6531	5.0275	7.0935	1242.6168	1247.6443	
Total		61.76		486.38	174.35		2485.23	2659.59	
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
x-bar =	7.8750	in	S _{right} = 337.73 in ³	x-bar =	7.8750	in	S _{right} = 337.73 in ³
I _y =	2659.59	in ⁴	S _{left} = 337.73 in ³	I _y =	2659.59	in ⁴	S _{left} = 337.73 in ³
C _{right} =	7.8750	in	A = 61.7623 in ²	C _{right} =	7.8750	in	A = 61.7623 in ²
C _{left} =	7.8750	in	r _y = 6.5621 in	C _{left} =	7.8750	in	r _y = 6.5621 in



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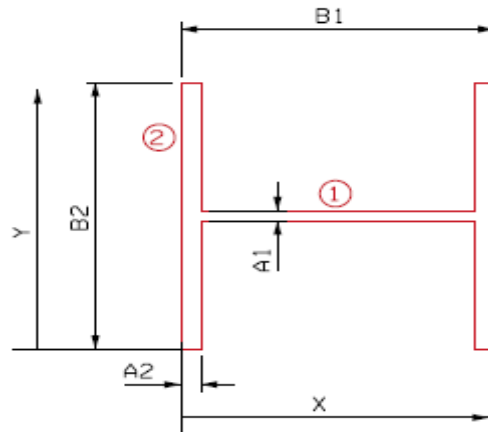
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Sheet No. _____

Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Rolled Beam WF14x 87

- $A_1 = t_w = 0.4200$ in
- $A_2 = t_f = 0.6880$ in
- $B_1 = d = 14.0000$ in
- $B_2 = b_f = 14.5000$ in



Member L133-L134

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		5.3021	7.2500	38.4401	0.0779	0.0000	0.0000	0.0779
2	Flange Plates		19.9520	7.2500	144.6520	349.5757	0.0000	0.0000	349.5757
Total			25.25		183.09	349.65		0.00	349.65
Section Losses			A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	7.2500	in	$S_{top} = 48.23$ in ³	y-bar =	7.2500	in	$S_{top} = 48.23$ in ³
$I_x =$	349.65	in ⁴	$S_{bott.} = 48.23$ in ³	$I_x =$	349.65	in ⁴	$S_{bott.} = 48.23$ in ³
$c_{top} =$	7.2500	in	$A = 25.2541$ in ²	$c_{top} =$	7.2500	in	$A = 25.2541$ in ²
$c_{bottom} =$	7.2500	in	$r_x = 3.7209$ in	$c_{bottom} =$	7.2500	in	$r_x = 3.7209$ in



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Calculations For: **CUY-2-1441**

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y, gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web Plate		5.3021	7.0000	37.1146	70.4140	0.0000	0.0000	70.4140
2	Left Flange		9.9760	0.3440	3.4317	0.3935	6.6560	441.9601	442.3536
	Right Flange		9.9760	13.6560	136.2323	0.3935	6.6560	441.9601	442.3536
Total			25.25		176.78	71.20		883.92	955.12
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y, loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties					As-Inspected Section Properties				
x-bar =	7.0000	in	S _{right} =	136.45 in ³	x-bar =	7.0000	in	S _{right} =	136.45 in ³
I _y =	955.12	in ⁴	S _{left} =	136.45 in ³	I _y =	955.12	in ⁴	S _{left} =	136.45 in ³
C _{right} =	7.0000	in	A =	25.2541 in ²	C _{right} =	7.0000	in	A =	25.2541 in ²
C _{left} =	7.0000	in	r _y =	6.1498 in	C _{left} =	7.0000	in	r _y =	6.1498 in



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Date 2/15/2012

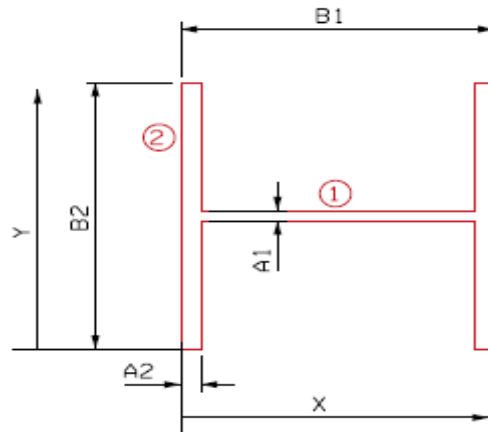
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Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Rolled Beam WF14x 87

- $A_1 = t_w = 0.4200$ in
- $A_2 = t_f = 0.6880$ in
- $B_1 = d = 14.0000$ in
- $B_2 = b_f = 14.5000$ in



Member L134-L135

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I_o	d	Ad^2	$I_{x, gross}$
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		5.3021	7.2500	38.4401	0.0779	0.0000	0.0000	0.0779
2	Flange Plates		19.9520	7.2500	144.6520	349.5757	0.0000	0.0000	349.5757
Total			25.25		183.09	349.65		0.00	349.65
Section Losses			A	y	Ay	I_o	d	Ad^2	$I_{x, loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.1250	14.5000	-1.8125	7.2500	-13.1406	-31.7565	0.1405	-0.0358	-31.7923
2	0.1250	6.0000	-0.7500	11.5000	-8.6250	-2.2500	4.3905	-14.4572	-16.7072
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			-2.56		-21.77	-34.01		-14.49	-48.50

As-Built Section Properties					As-Inspected Section Properties						
y-bar =	7.2500	in	$S_{top} =$	48.23	in ³	y-bar =	7.1095	in	$S_{top} =$	40.75	in ³
$I_x =$	349.65	in ⁴	$S_{bott.} =$	48.23	in ³	$I_x =$	301.15	in ⁴	$S_{bott.} =$	42.36	in ³
$c_{top} =$	7.2500	in	A =	25.2541	in ²	$c_{top} =$	7.3905	in	A =	22.6916	in ²
$c_{bottom} =$	7.2500	in	$r_x =$	3.7209	in	$c_{bottom} =$	7.1095	in	$r_x =$	3.6430	in



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Date 2/2/2012
 Date 2/15/2012

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Calculations For: **CUY-2-1441**

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y, gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web Plate		5.3021	7.0000	37.1146	70.4140	0.0000	0.0000	70.4140
2	Left Flange		9.9760	0.3440	3.4317	0.3935	6.6560	441.9601	442.3536
	Right Flange		9.9760	13.6560	136.2323	0.3935	6.6560	441.9601	442.3536
Total			25.25		176.78	71.20		883.92	955.12
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y, loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	14.5000	0.1250	-1.8125	0.0625	-0.1133	-0.0024	7.2623	-95.5941	-95.5964
2	6.0000	0.1250	-0.7500	13.9375	-10.4531	-0.0010	6.6127	-32.7955	-32.7964
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			-2.56		-10.57	0.00		-128.39	-128.39

As-Built Section Properties					As-Inspected Section Properties						
x-bar =	7.0000	in	S _{right} =	136.45	in ³	x-bar =	7.3248	in	S _{right} =	123.85	in ³
I _y =	955.12	in ⁴	S _{left} =	136.45	in ³	I _y =	826.73	in ⁴	S _{left} =	112.87	in ³
C _{right} =	7.0000	in	A =	25.2541	in ²	C _{right} =	6.6752	in	A =	22.6916	in ²
C _{left} =	7.0000	in	r _y =	6.1498	in	C _{left} =	7.3248	in	r _y =	6.0360	in



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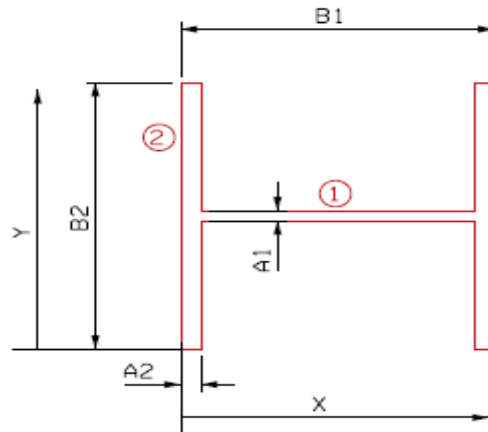
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Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Rolled Beam WF14x 219

- $A_1 = t_w = 1.0050$ in
- $A_2 = t_f = 1.6230$ in
- $B_1 = d = 15.8700$ in
- $B_2 = b_f = 15.8250$ in



Member U127-L127

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		12.6871	7.9125	100.3868	1.0679	0.0000	0.0000	1.0679
2	Flange Plates		51.3680	7.9125	406.4489	1072.0090	0.0000	0.0000	1072.0090
Total			64.06		506.84	1073.08		0.00	1073.08
Section Losses			A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties							
y-bar =	7.9125	in	$S_{top} = 135.62$	in ³	y-bar =	7.9125	in	$S_{top} = 135.62$	in ³		
$I_x =$	1073.08	in ⁴	$S_{bott.} = 135.62$	in ³	$I_x =$	1073.08	in ⁴	$S_{bott.} = 135.62$	in ³		
$c_{top} =$	7.9125	in	A =	64.0551	in ²	$c_{top} =$	7.9125	in	A =	64.0551	in ²
$c_{bottom} =$	7.9125	in	$r_x =$	4.0930	in	$c_{bottom} =$	7.9125	in	$r_x =$	4.0930	in



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Date 1/24/2012
Date 1/26/2012

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Sheet No. _____

Calculations For: **CUY-2-1441**

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web Plate		12.6871	7.9350	100.6723	168.4906	0.0000	0.0000	168.4906
2	Left Flange		25.6840	0.8115	20.8425	5.6379	7.1235	1303.3141	1308.9520
	Right Flange		25.6840	15.0585	386.7621	5.6379	7.1235	1303.3141	1308.9520
Total			64.06		508.28	179.77		2606.63	2786.39
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties					As-Inspected Section Properties				
x-bar =	7.9350	in	S _{right} =	351.15 in ³	x-bar =	7.9350	in	S _{right} =	351.15 in ³
I _y =	2786.39	in ⁴	S _{left} =	351.15 in ³	I _y =	2786.39	in ⁴	S _{left} =	351.15 in ³
C _{right} =	7.9350	in	A =	64.0551 in ²	C _{right} =	7.9350	in	A =	64.0551 in ²
C _{left} =	7.9350	in	r _y =	6.5955 in	C _{left} =	7.9350	in	r _y =	6.5955 in



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Date 1/24/2012
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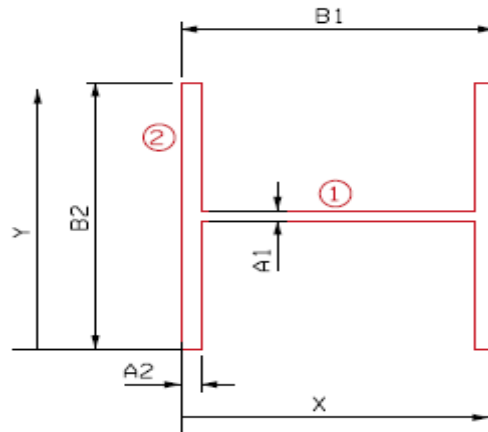
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Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Rolled Beam WF14x 176

- $A_1 = t_w = 0.8200$ in
- $A_2 = t_f = 1.3130$ in
- $B_1 = d = 15.2500$ in
- $B_2 = b_f = 15.6400$ in



Member U128-L128

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		10.3517	7.8200	80.9501	0.5800	0.0000	0.0000	0.5800
2	Flange Plates		41.0706	7.8200	321.1724	837.1894	0.0000	0.0000	837.1894
Total			51.42		402.12	837.77		0.00	837.77
Section Losses			A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	7.8200	in	$S_{top} = 107.13$ in ³	y-bar =	7.8200	in	$S_{top} = 107.13$ in ³
$I_x =$	837.77	in ⁴	$S_{bott.} = 107.13$ in ³	$I_x =$	837.77	in ⁴	$S_{bott.} = 107.13$ in ³
$c_{top} =$	7.8200	in	A = 51.4223 in ²	$c_{top} =$	7.8200	in	A = 51.4223 in ²
$c_{bottom} =$	7.8200	in	$r_x = 4.0363$ in	$c_{bottom} =$	7.8200	in	$r_x = 4.0363$ in



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Calculations For: **CUY-2-1441**

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web Plate		10.3517	7.6250	78.9316	137.4749	0.0000	0.0000	137.4749
2	Left Flange		20.5353	0.6565	13.4814	2.9502	6.9685	997.1950	1000.1452
	Right Flange		20.5353	14.5935	299.6822	2.9502	6.9685	997.1950	1000.1452
Total			51.42		392.10	143.38		1994.39	2137.77
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties					As-Inspected Section Properties						
x-bar =	7.6250	in	S _{right} =	280.36	in ³	x-bar =	7.6250	in	S _{right} =	280.36	in ³
I _y =	2137.77	in ⁴	S _{left} =	280.36	in ³	I _y =	2137.77	in ⁴	S _{left} =	280.36	in ³
C _{right} =	7.6250	in	A =	51.4223	in ²	C _{right} =	7.6250	in	A =	51.4223	in ²
C _{left} =	7.6250	in	r _y =	6.4477	in	C _{left} =	7.6250	in	r _y =	6.4477	in



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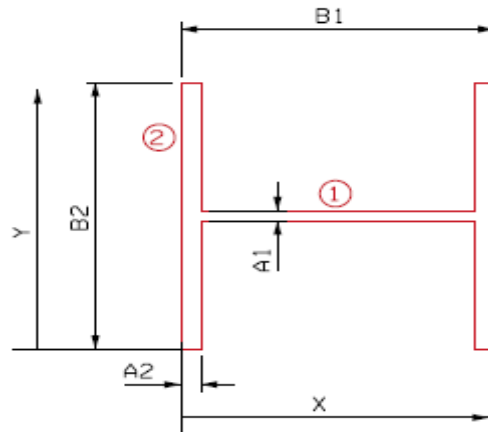
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Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Rolled Beam WF14x 136

- $A_1 = t_w = 0.6600$ in
- $A_2 = t_f = 1.0630$ in
- $B_1 = d = 14.7500$ in
- $B_2 = b_f = 14.7400$ in



Member U129-L129

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		8.3318	7.3700	61.4057	0.3024	0.0000	0.0000	0.3024
2	Flange Plates		31.3372	7.3700	230.9555	567.3806	0.0000	0.0000	567.3806
Total			39.67		292.36	567.68		0.00	567.68
Section Losses			A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties							
y-bar =	7.3700	in	$S_{top} = 77.03$	in^3	y-bar =	7.3700	in	$S_{top} = 77.03$	in^3		
$I_x =$	567.68	in^4	$S_{bott.} = 77.03$	in^3	$I_x =$	567.68	in^4	$S_{bott.} = 77.03$	in^3		
$c_{top} =$	7.3700	in	A =	39.6691	in^2	$c_{top} =$	7.3700	in	A =	39.6691	in^2
$c_{bottom} =$	7.3700	in	$r_x =$	3.7829	in	$c_{bottom} =$	7.3700	in	$r_x =$	3.7829	in



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Calculations For: **CUY-2-1441**

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y, gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web Plate		8.3318	7.3750	61.4473	110.6506	0.0000	0.0000	110.6506
2	Left Flange		15.6686	0.5315	8.3279	1.4754	6.8435	733.8162	735.2916
	Right Flange		15.6686	14.2185	222.7843	1.4754	6.8435	733.8162	735.2916
Total			39.67		292.56	113.60		1467.63	1581.23
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y, loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties					As-Inspected Section Properties						
x-bar =	7.3750	in	S _{right} =	214.40	in ³	x-bar =	7.3750	in	S _{right} =	214.40	in ³
I _y =	1581.23	in ⁴	S _{left} =	214.40	in ³	I _y =	1581.23	in ⁴	S _{left} =	214.40	in ³
C _{right} =	7.3750	in	A =	39.6691	in ²	C _{right} =	7.3750	in	A =	39.6691	in ²
C _{left} =	7.3750	in	r _y =	6.3135	in	C _{left} =	7.3750	in	r _y =	6.3135	in



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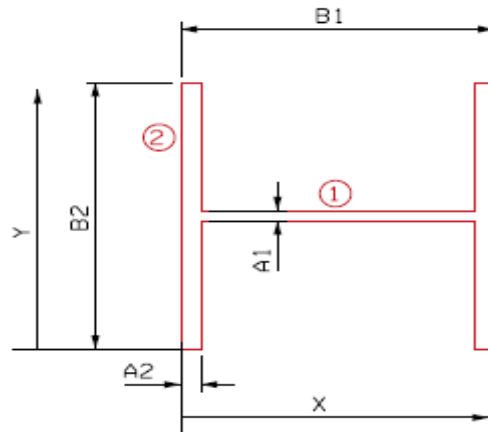
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Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Rolled Beam WF14x 95

- $A_1 = t_w = 0.4650$ in
- $A_2 = t_f = 0.7480$ in
- $B_1 = d = 14.1200$ in
- $B_2 = b_f = 14.5450$ in



Member U130-L130

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		5.8702	7.2725	42.6907	0.1058	0.0000	0.0000	0.1058
2	Flange Plates		21.7593	7.2725	158.2447	383.6114	0.0000	0.0000	383.6114
Total			27.63		200.94	383.72		0.00	383.72
Section Losses			A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	7.2725	in	$S_{top} = 52.76$ in ³	y-bar =	7.2725	in	$S_{top} = 52.76$ in ³
$I_x =$	383.72	in ⁴	$S_{bott.} = 52.76$ in ³	$I_x =$	383.72	in ⁴	$S_{bott.} = 52.76$ in ³
$C_{top} =$	7.2725	in	$A = 27.6295$ in ²	$C_{top} =$	7.2725	in	$A = 27.6295$ in ²
$C_{bottom} =$	7.2725	in	$r_x = 3.7267$ in	$C_{bottom} =$	7.2725	in	$r_x = 3.7267$ in



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Calculations For: **CUY-2-1441**

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y, gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web Plate		5.8702	7.0600	41.4433	77.9584	0.0000	0.0000	77.9584
2	Left Flange		10.8797	0.3740	4.0690	0.5073	6.6860	486.3490	486.8563
	Right Flange		10.8797	13.7460	149.5518	0.5073	6.6860	486.3490	486.8563
Total			27.63		195.06	78.97		972.70	1051.67
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y, loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties					As-Inspected Section Properties						
x-bar =	7.0600	in	S _{right} =	148.96	in ³	x-bar =	7.0600	in	S _{right} =	148.96	in ³
I _y =	1051.67	in ⁴	S _{left} =	148.96	in ³	I _y =	1051.67	in ⁴	S _{left} =	148.96	in ³
C _{right} =	7.0600	in	A =	27.6295	in ²	C _{right} =	7.0600	in	A =	27.6295	in ²
C _{left} =	7.0600	in	r _y =	6.1696	in	C _{left} =	7.0600	in	r _y =	6.1696	in



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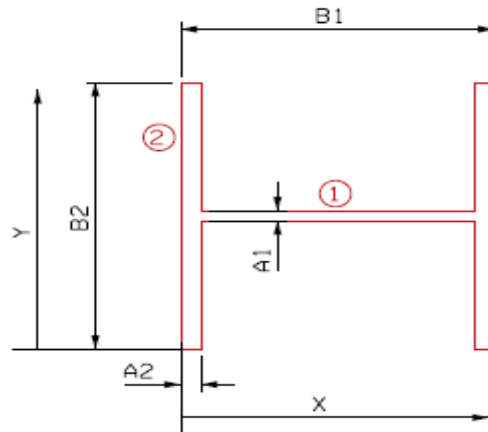
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Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Rolled Beam WF14x 84

- $A_1 = t_w = 0.4510$ in
- $A_2 = t_f = 0.7780$ in
- $B_1 = d = 14.1800$ in
- $B_2 = b_f = 12.0230$ in



Member U131-L131

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		5.6934	6.0115	34.2260	0.0965	0.0000	0.0000	0.0965
2	Flange Plates		18.7078	6.0115	112.4619	225.3548	0.0000	0.0000	225.3548
Total			24.40		146.69	225.45		0.00	225.45
Section Losses			A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties							
y-bar =	6.0115	in	$S_{top} = 37.50$	in^3	y-bar =	6.0115	in	$S_{top} = 37.50$	in^3		
$I_x =$	225.45	in^4	$S_{bott.} = 37.50$	in^3	$I_x =$	225.45	in^4	$S_{bott.} = 37.50$	in^3		
$c_{top} =$	6.0115	in	A =	24.4012	in^2	$c_{top} =$	6.0115	in	A =	24.4012	in^2
$c_{bottom} =$	6.0115	in	$r_x =$	3.0396	in	$c_{bottom} =$	6.0115	in	$r_x =$	3.0396	in



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Calculations For: **CUY-2-1441**

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y, gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web Plate		5.6934	7.0900	40.3664	75.6112	0.0000	0.0000	75.6112
2	Left Flange		9.3539	0.3890	3.6387	0.4718	6.7010	420.0217	420.4935
	Right Flange		9.3539	13.7910	128.9996	0.4718	6.7010	420.0217	420.4935
Total			24.40		173.00	76.55		840.04	916.60
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y, loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties					As-Inspected Section Properties						
x-bar =	7.0900	in	S _{right} =	129.28	in ³	x-bar =	7.0900	in	S _{right} =	129.28	in ³
I _y =	916.60	in ⁴	S _{left} =	129.28	in ³	I _y =	916.60	in ⁴	S _{left} =	129.28	in ³
C _{right} =	7.0900	in	A =	24.4012	in ²	C _{right} =	7.0900	in	A =	24.4012	in ²
C _{left} =	7.0900	in	r _y =	6.1289	in	C _{left} =	7.0900	in	r _y =	6.1289	in



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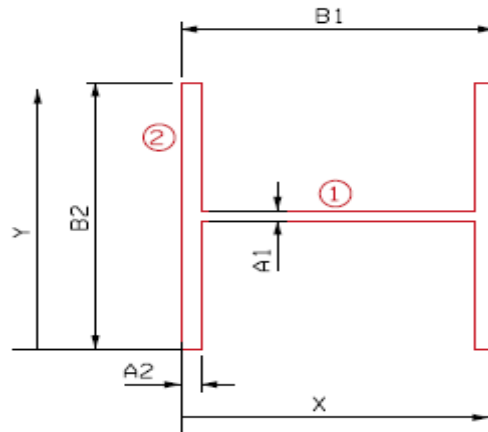
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Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Rolled Beam WF14x 87

- $A_1 = t_w = 0.4200$ in
- $A_2 = t_f = 0.6880$ in
- $B_1 = d = 14.0000$ in
- $B_2 = b_f = 14.5000$ in



Member U132-L132

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		5.3021	7.2500	38.4401	0.0779	0.0000	0.0000	0.0779
2	Flange Plates		19.9520	7.2500	144.6520	349.5757	0.0000	0.0000	349.5757
Total			25.25		183.09	349.65		0.00	349.65
Section Losses			A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	7.2500	in	$S_{top} = 48.23$ in ³	y-bar =	7.2500	in	$S_{top} = 48.23$ in ³
$I_x =$	349.65	in ⁴	$S_{bott.} = 48.23$ in ³	$I_x =$	349.65	in ⁴	$S_{bott.} = 48.23$ in ³
$c_{top} =$	7.2500	in	$A = 25.2541$ in ²	$c_{top} =$	7.2500	in	$A = 25.2541$ in ²
$c_{bottom} =$	7.2500	in	$r_x = 3.7209$ in	$c_{bottom} =$	7.2500	in	$r_x = 3.7209$ in



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Calculations For: **CUY-2-1441**

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y, gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web Plate		5.3021	7.0000	37.1146	70.4140	0.0000	0.0000	70.4140
2	Left Flange		9.9760	0.3440	3.4317	0.3935	6.6560	441.9601	442.3536
	Right Flange		9.9760	13.6560	136.2323	0.3935	6.6560	441.9601	442.3536
Total			25.25		176.78	71.20		883.92	955.12
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y, loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties					As-Inspected Section Properties				
x-bar =	7.0000	in	S _{right} =	136.45 in ³	x-bar =	7.0000	in	S _{right} =	136.45 in ³
I _y =	955.12	in ⁴	S _{left} =	136.45 in ³	I _y =	955.12	in ⁴	S _{left} =	136.45 in ³
C _{right} =	7.0000	in	A =	25.2541 in ²	C _{right} =	7.0000	in	A =	25.2541 in ²
C _{left} =	7.0000	in	r _y =	6.1498 in	C _{left} =	7.0000	in	r _y =	6.1498 in



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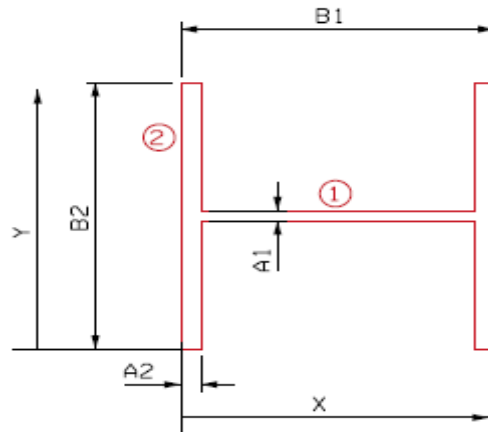
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Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Rolled Beam WF14x 127

- $A_1 = t_w = 0.6100$ in
- $A_2 = t_f = 0.9980$ in
- $B_1 = d = 14.6200$ in
- $B_2 = b_f = 14.6900$ in



Member U133-L133

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		7.7006	7.3450	56.5612	0.2388	0.0000	0.0000	0.2388
2	Flange Plates		29.3212	7.3450	215.3645	527.2841	0.0000	0.0000	527.2841
Total			37.02		271.93	527.52		0.00	527.52
Section Losses			A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties							
y-bar =	7.3450	in	$S_{top} = 71.82$	in^3	y-bar =	7.3450	in	$S_{top} = 71.82$	in^3		
$I_x =$	527.52	in^4	$S_{bott.} = 71.82$	in^3	$I_x =$	527.52	in^4	$S_{bott.} = 71.82$	in^3		
$c_{top} =$	7.3450	in	A =	37.0219	in^2	$c_{top} =$	7.3450	in	A =	37.0219	in^2
$c_{bottom} =$	7.3450	in	$r_x =$	3.7748	in	$c_{bottom} =$	7.3450	in	$r_x =$	3.7748	in



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Calculations For: **CUY-2-1441**

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web Plate		7.7006	7.3100	56.2917	102.2679	0.0000	0.0000	102.2679
2	Left Flange		14.6606	0.4990	7.3156	1.2168	6.8110	680.1021	681.3189
	Right Flange		14.6606	14.1210	207.0226	1.2168	6.8110	680.1021	681.3189
Total			37.02		270.63	104.70		1360.20	1464.91
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties					As-Inspected Section Properties				
x-bar =	7.3100	in	S _{right} =	200.40 in ³	x-bar =	7.3100	in	S _{right} =	200.40 in ³
I _y =	1464.91	in ⁴	S _{left} =	200.40 in ³	I _y =	1464.91	in ⁴	S _{left} =	200.40 in ³
C _{right} =	7.3100	in	A =	37.0219 in ²	C _{right} =	7.3100	in	A =	37.0219 in ²
C _{left} =	7.3100	in	r _y =	6.2904 in	C _{left} =	7.3100	in	r _y =	6.2904 in



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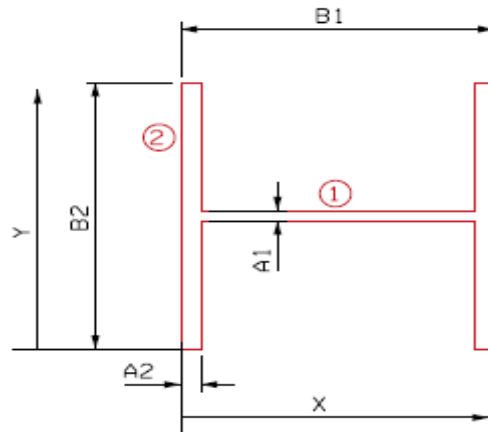
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Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Rolled Beam WF14x 158

- $A_1 = t_w = 0.7300$ in
- $A_2 = t_f = 1.1880$ in
- $B_1 = d = 15.0000$ in
- $B_2 = b_f = 15.5500$ in



Member U134-L134

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I _o	d	Ad ²	I _{x,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		9.2155	7.7750	71.6507	0.4092	0.0000	0.0000	0.4092
2	Flange Plates		36.9468	7.7750	287.2614	744.4857	0.0000	0.0000	744.4857
Total			46.16		358.91	744.89		0.00	744.89
Section Losses			A	y	Ay	I _o	d	Ad ²	I _{x,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	7.7750	in	S _{top} = 95.81 in ³	y-bar =	7.7750	in	S _{top} = 95.81 in ³
I _x =	744.89	in ⁴	S _{bottom} = 95.81 in ³	I _x =	744.89	in ⁴	S _{bottom} = 95.81 in ³
c _{top} =	7.7750	in	A = 46.1623 in ²	c _{top} =	7.7750	in	A = 46.1623 in ²
c _{bottom} =	7.7750	in	r _x = 4.0170 in	c _{bottom} =	7.7750	in	r _x = 4.0170 in



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Calculations For: **CUY-2-1441**

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web Plate		9.2155	7.5000	69.1164	122.3862	0.0000	0.0000	122.3862
2	Left Flange		18.4734	0.5940	10.9732	2.1727	6.9060	881.0488	883.2215
	Right Flange		18.4734	14.4060	266.1278	2.1727	6.9060	881.0488	883.2215
Total			46.16		346.22	126.73		1762.10	1888.83
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
x-bar =	7.5000	in	S _{right} = 251.84 in ³	x-bar =	7.5000	in	S _{right} = 251.84 in ³
I _y =	1888.83	in ⁴	S _{left} = 251.84 in ³	I _y =	1888.83	in ⁴	S _{left} = 251.84 in ³
C _{right} =	7.5000	in	A = 46.1623 in ²	C _{right} =	7.5000	in	A = 46.1623 in ²
C _{left} =	7.5000	in	r _y = 6.3966 in	C _{left} =	7.5000	in	r _y = 6.3966 in



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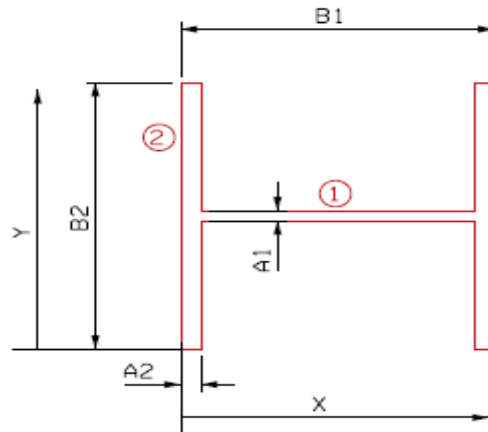
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Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Rolled Beam **WF14x 193**

- $A_1 = t_w = 0.8900$ in
- $A_2 = t_f = 1.4380$ in
- $B_1 = d = 15.5000$ in
- $B_2 = b_f = 15.7100$ in



Member U135-L135

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		11.2354	7.8550	88.2538	0.7416	0.0000	0.0000	0.7416
2	Flange Plates		45.1820	7.8550	354.9043	929.2577	0.0000	0.0000	929.2577
Total			56.42		443.16	930.00		0.00	930.00
Section Losses			A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0625	15.7100	-0.9819	7.8550	-7.7126	-20.1942	0.0708	-0.0049	-20.1992
2	0.1250	8.0000	-1.0000	11.7100	-11.7100	-5.3333	3.9258	-15.4120	-20.7454
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			-1.98		-19.42	-25.53		-15.42	-40.94

As-Built Section Properties				As-Inspected Section Properties							
y-bar =	7.8550	in	$S_{top} = 118.40$	in ³	y-bar =	7.7842	in	$S_{top} = 112.17$	in ³		
$I_x =$	930.00	in ⁴	$S_{bott.} = 118.40$	in ³	$I_x =$	889.05	in ⁴	$S_{bott.} = 114.21$	in ³		
$c_{top} =$	7.8550	in	A =	56.4173	in ²	$c_{top} =$	7.9258	in	A =	54.4354	in ²
$c_{bottom} =$	7.8550	in	$r_x =$	4.0601	in	$c_{bottom} =$	7.7842	in	$r_x =$	4.0413	in



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Calculations For: **CUY-2-1441**

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web Plate		11.2354	7.7500	87.0740	149.2106	0.0000	0.0000	149.2106
2	Left Flange		22.5910	0.7190	16.2429	3.8929	7.0310	1116.7842	1120.6771
	Right Flange		22.5910	14.7810	333.9173	3.8929	7.0310	1116.7842	1120.6771
Total			56.42		437.23	157.00		2233.57	2390.56
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	15.7100	0.0625	-0.9819	0.0313	-0.0307	-0.0003	7.7168	-58.4690	-58.4693
2	8.0000	0.1250	-1.0000	15.4375	-15.4375	-0.0013	7.6895	-59.1283	-59.1297
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			-1.98		-15.47	0.00		-117.60	-117.60

As-Built Section Properties					As-Inspected Section Properties						
x-bar =	7.7500	in	S _{right} =	308.46	in ³	x-bar =	7.7480	in	S _{right} =	293.21	in ³
I _y =	2390.56	in ⁴	S _{left} =	308.46	in ³	I _y =	2272.97	in ⁴	S _{left} =	293.36	in ³
c _{right} =	7.7500	in	A =	56.4173	in ²	c _{right} =	7.7520	in	A =	54.4354	in ²
c _{left} =	7.7500	in	r _y =	6.5094	in	c _{left} =	7.7480	in	r _y =	6.4618	in



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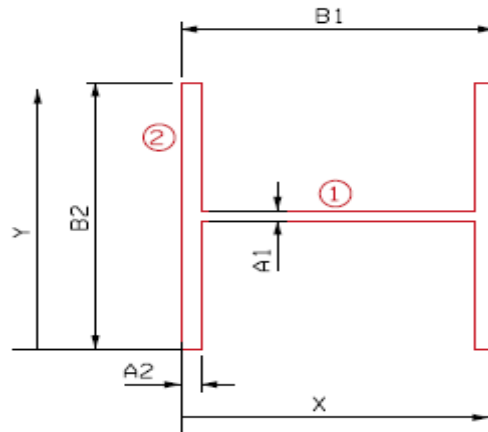
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Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Rolled Beam 14WF167

- $A_1 = t_w = 0.7800$ in
- $A_2 = t_f = 1.2480$ in
- $B_1 = d = 15.1200$ in
- $B_2 = b_f = 15.6000$ in



Member U127-L128

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		9.8467	7.8000	76.8044	0.4992	0.0000	0.0000	0.4992
2	Flange Plates		38.9376	7.8000	303.7133	789.6545	0.0000	0.0000	789.6545
Total			48.78		380.52	790.15		0.00	790.15
Section Losses			A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.1250	15.6000	-1.9500	7.8000	-15.2100	-39.5460	0.0000	0.0000	-39.5460
2	0.1250	15.6000	-1.9500	7.8000	-15.2100	-39.5460	0.0000	0.0000	-39.5460
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			-3.90		-30.42	-79.09		0.00	-79.09

As-Built Section Properties				As-Inspected Section Properties							
y-bar =	7.8000	in	$S_{top} = 101.30$	in ³	y-bar =	7.8000	in	$S_{top} = 91.16$	in ³		
$I_x =$	790.15	in ⁴	$S_{bott.} = 101.30$	in ³	$I_x =$	711.06	in ⁴	$S_{bott.} = 91.16$	in ³		
$c_{top} =$	7.8000	in	A =	48.7843	in ²	$c_{top} =$	7.8000	in	A =	44.8843	in ²
$c_{bottom} =$	7.8000	in	$r_x =$	4.0245	in	$c_{bottom} =$	7.8000	in	$r_x =$	3.9802	in



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Date 2/2/2012
 Date 2/16/2012

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Calculations For: **CUY-2-1441**

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web Plate		9.8467	7.5600	74.4412	130.7689	0.0000	0.0000	130.7689
2	Left Flange		19.4688	0.6240	12.1485	2.5269	6.9360	936.6069	939.1338
	Right Flange		19.4688	14.4960	282.2197	2.5269	6.9360	936.6069	939.1338
Total			48.78		368.81	135.82		1873.21	2009.04
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	15.6000	0.1250	-1.9500	0.0625	-0.1219	-0.0025	7.4975	-109.6144	-109.6169
2	15.6000	0.1250	-1.9500	15.0575	-29.3621	-0.0025	7.4975	-109.6144	-109.6169
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			-3.90		-29.48	-0.01		-219.23	-219.23

As-Built Section Properties				As-Inspected Section Properties			
x-bar =	7.5600	in	S _{right} = 265.75 in ³	x-bar =	7.5600	in	S _{right} = 236.75 in ³
I _y =	2009.04	n ⁴	S _{left} = 265.75 in ³	I _y =	1789.80	n ⁴	S _{left} = 236.75 in ³
C _{right} =	7.5600	in	A = 48.7843 in ²	C _{right} =	7.5600	in	A = 44.8843 in ²
C _{left} =	7.5600	in	r _y = 6.4173 in	C _{left} =	7.5600	in	r _y = 6.3147 in



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Date 2/1/2012
Date 2/1/2012

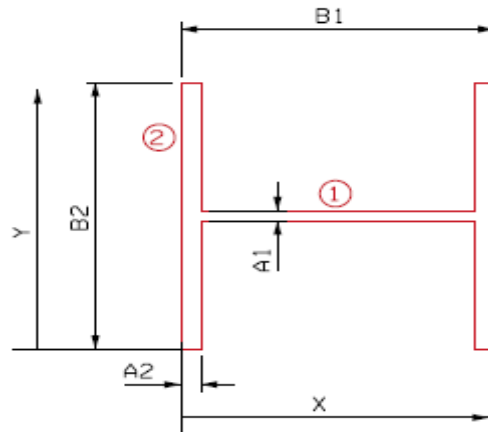
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Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Rolled Beam 14WF136

- $A_1 = t_w = 0.6600$ in
- $A_2 = t_f = 1.0630$ in
- $B_1 = d = 14.7500$ in
- $B_2 = b_f = 14.7400$ in



Member U128-L129

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		8.3318	7.3700	61.4057	0.3024	0.0000	0.0000	0.3024
2	Flange Plates		31.3372	7.3700	230.9555	567.3806	0.0000	0.0000	567.3806
Total			39.67		292.36	567.68		0.00	567.68
Section Losses			A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties							
y-bar =	7.3700	in	$S_{top} = 77.03$	in^3	y-bar =	7.3700	in	$S_{top} = 77.03$	in^3		
$I_x =$	567.68	in^4	$S_{bott.} = 77.03$	in^3	$I_x =$	567.68	in^4	$S_{bott.} = 77.03$	in^3		
$c_{top} =$	7.3700	in	A =	39.6691	in^2	$c_{top} =$	7.3700	in	A =	39.6691	in^2
$c_{bottom} =$	7.3700	in	$r_x =$	3.7829	in	$c_{bottom} =$	7.3700	in	$r_x =$	3.7829	in



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Calculations For: **CUY-2-1441**

Y-Axis Section Properties:

Gross Section (without Losses)		A	x	Ax	I _o	d	Ad ²	I _{y, gross}
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web Plate	8.3318	7.3750	61.4473	110.6506	0.0000	0.0000	110.6506
2	Left Flange	15.6686	0.5315	8.3279	1.4754	6.8435	733.8162	735.2916
	Right Flange	15.6686	14.2185	222.7843	1.4754	6.8435	733.8162	735.2916
Total		39.67		292.56	113.60		1467.63	1581.23
Section Losses		A	x	Ax	I _o	d	Ad ²	I _{y, loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
x-bar =	7.3750	in	S _{right} = 214.40 in ³	x-bar =	7.3750	in	S _{right} = 214.40 in ³
I _y =	1581.23	in ⁴	S _{left} = 214.40 in ³	I _y =	1581.23	in ⁴	S _{left} = 214.40 in ³
C _{right} =	7.3750	in	A = 39.6691 in ²	C _{right} =	7.3750	in	A = 39.6691 in ²
C _{left} =	7.3750	in	r _y = 6.3135 in	C _{left} =	7.3750	in	r _y = 6.3135 in



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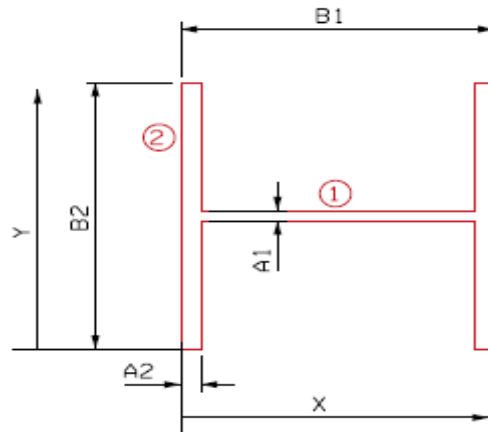
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Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Rolled Beam 14WF87

- $A_1 = t_w = 0.4200$ in
- $A_2 = t_f = 0.6880$ in
- $B_1 = d = 14.0000$ in
- $B_2 = b_f = 14.5000$ in



Member U129-L130

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		5.3021	7.2500	38.4401	0.0779	0.0000	0.0000	0.0779
2	Flange Plates		19.9520	7.2500	144.6520	349.5757	0.0000	0.0000	349.5757
Total			25.25		183.09	349.65		0.00	349.65
Section Losses			A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	7.2500	in	$S_{top} = 48.23$ in ³	y-bar =	7.2500	in	$S_{top} = 48.23$ in ³
$I_x =$	349.65	in ⁴	$S_{bott.} = 48.23$ in ³	$I_x =$	349.65	in ⁴	$S_{bott.} = 48.23$ in ³
$c_{top} =$	7.2500	in	$A = 25.2541$ in ²	$c_{top} =$	7.2500	in	$A = 25.2541$ in ²
$c_{bottom} =$	7.2500	in	$r_x = 3.7209$ in	$c_{bottom} =$	7.2500	in	$r_x = 3.7209$ in



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Calculations For: **CUY-2-1441**

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y, gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web Plate		5.3021	7.0000	37.1146	70.4140	0.0000	0.0000	70.4140
2	Left Flange		9.9760	0.3440	3.4317	0.3935	6.6560	441.9601	442.3536
	Right Flange		9.9760	13.6560	136.2323	0.3935	6.6560	441.9601	442.3536
Total			25.25		176.78	71.20		883.92	955.12
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y, loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties					As-Inspected Section Properties				
x-bar =	7.0000	in	S _{right} =	136.45 in ³	x-bar =	7.0000	in	S _{right} =	136.45 in ³
I _y =	955.12	in ⁴	S _{left} =	136.45 in ³	I _y =	955.12	in ⁴	S _{left} =	136.45 in ³
C _{right} =	7.0000	in	A =	25.2541 in ²	C _{right} =	7.0000	in	A =	25.2541 in ²
C _{left} =	7.0000	in	r _y =	6.1498 in	C _{left} =	7.0000	in	r _y =	6.1498 in



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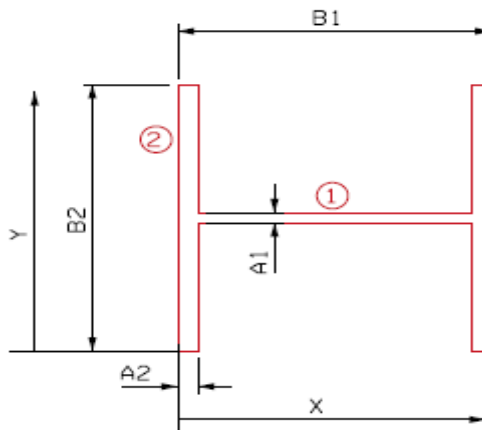
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Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Rolled Beam 14WF78

- $A_1 = t_w = 0.4280$ in
- $A_2 = t_f = 0.7180$ in
- $B_1 = d = 14.0600$ in
- $B_2 = b_f = 12.0000$ in



Member U130-L131

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I _o	d	Ad ²	I _{x,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		5.4031	6.0000	32.4184	0.0825	0.0000	0.0000	0.0825
2	Flange Plates		17.2320	6.0000	103.3920	206.7840	0.0000	0.0000	206.7840
Total			22.64		135.81	206.87		0.00	206.87
Section Losses			A	y	Ay	I _o	d	Ad ²	I _{x,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	6.0000	in	S _{top} = 34.48 in ³	y-bar =	6.0000	in	S _{top} = 34.48 in ³
I _x =	206.87	in ⁴	S _{bottom} = 34.48 in ³	I _x =	206.87	in ⁴	S _{bottom} = 34.48 in ³
c _{top} =	6.0000	in	A = 22.6351 in ²	c _{top} =	6.0000	in	A = 22.6351 in ²
c _{bottom} =	6.0000	in	r _x = 3.0231 in	c _{bottom} =	6.0000	in	r _x = 3.0231 in



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Calculations For: **CUY-2-1441**

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y, gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web Plate		5.4031	7.0300	37.9836	71.7552	0.0000	0.0000	71.7552
2	Left Flange		8.6160	0.3590	3.0931	0.3701	6.6710	383.4313	383.8015
	Right Flange		8.6160	13.7010	118.0478	0.3701	6.6710	383.4313	383.8015
Total			22.64		159.12	72.50		766.86	839.36
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y, loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties					As-Inspected Section Properties						
x-bar =	7.0300	in	S _{right} =	119.40	in ³	x-bar =	7.0300	in	S _{right} =	119.40	in ³
I _y =	839.36	in ⁴	S _{left} =	119.40	in ³	I _y =	839.36	in ⁴	S _{left} =	119.40	in ³
C _{right} =	7.0300	in	A =	22.6351	in ²	C _{right} =	7.0300	in	A =	22.6351	in ²
C _{left} =	7.0300	in	r _y =	6.0895	in	C _{left} =	7.0300	in	r _y =	6.0895	in



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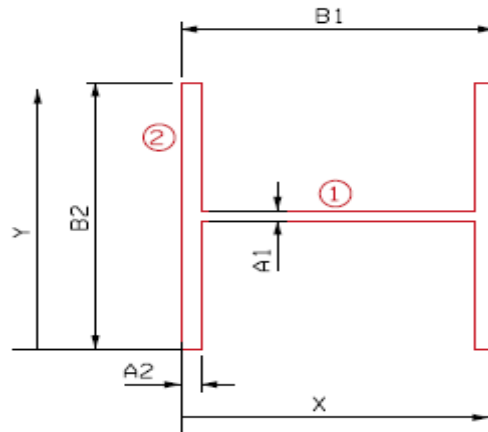
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Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Rolled Beam 14WF78

- $A_1 = t_w = 0.4280$ in
- $A_2 = t_f = 0.7180$ in
- $B_1 = d = 14.0600$ in
- $B_2 = b_f = 12.0000$ in



Member U132-L131

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		5.4031	6.0000	32.4184	0.0825	0.0000	0.0000	0.0825
2	Flange Plates		17.2320	6.0000	103.3920	206.7840	0.0000	0.0000	206.7840
Total			22.64		135.81	206.87		0.00	206.87
Section Losses			A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	6.0000	in	$S_{top} = 34.48$ in ³	y-bar =	6.0000	in	$S_{top} = 34.48$ in ³
$I_x =$	206.87	in ⁴	$S_{bott.} = 34.48$ in ³	$I_x =$	206.87	in ⁴	$S_{bott.} = 34.48$ in ³
$c_{top} =$	6.0000	in	$A = 22.6351$ in ²	$c_{top} =$	6.0000	in	$A = 22.6351$ in ²
$c_{bottom} =$	6.0000	in	$r_x = 3.0231$ in	$c_{bottom} =$	6.0000	in	$r_x = 3.0231$ in



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Date 1/23/2012
Date 1/24/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y, gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web Plate		5.4031	7.0300	37.9836	71.7552	0.0000	0.0000	71.7552
2	Left Flange		8.6160	0.3590	3.0931	0.3701	6.6710	383.4313	383.8015
	Right Flange		8.6160	13.7010	118.0478	0.3701	6.6710	383.4313	383.8015
Total			22.64		159.12	72.50		766.86	839.36
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y, loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties					As-Inspected Section Properties						
x-bar =	7.0300	in	S _{right} =	119.40	in ³	x-bar =	7.0300	in	S _{right} =	119.40	in ³
I _y =	839.36	in ⁴	S _{left} =	119.40	in ³	I _y =	839.36	in ⁴	S _{left} =	119.40	in ³
C _{right} =	7.0300	in	A =	22.6351	in ²	C _{right} =	7.0300	in	A =	22.6351	in ²
C _{left} =	7.0300	in	r _y =	6.0895	in	C _{left} =	7.0300	in	r _y =	6.0895	in



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Date 2/1/2012
Date 2/1/2012

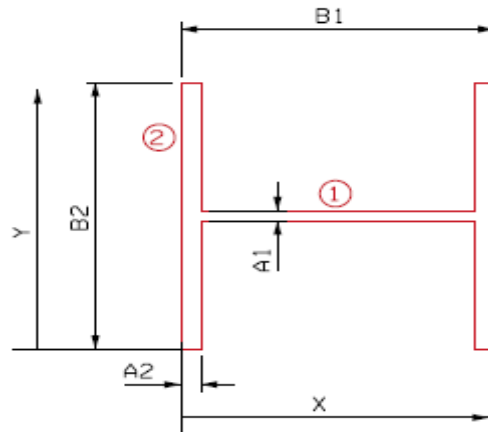
Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Rolled Beam 14WF87

- $A_1 = t_w = 0.4200$ in
- $A_2 = t_f = 0.6880$ in
- $B_1 = d = 14.0000$ in
- $B_2 = b_f = 14.5000$ in



Member U133-L132

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		5.3021	7.2500	38.4401	0.0779	0.0000	0.0000	0.0779
2	Flange Plates		19.9520	7.2500	144.6520	349.5757	0.0000	0.0000	349.5757
Total			25.25		183.09	349.65		0.00	349.65
Section Losses			A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties							
y-bar =	7.2500	in	$S_{top} = 48.23$	in^3	y-bar =	7.2500	in	$S_{top} = 48.23$	in^3		
$I_x =$	349.65	in^4	$S_{bott.} = 48.23$	in^3	$I_x =$	349.65	in^4	$S_{bott.} = 48.23$	in^3		
$c_{top} =$	7.2500	in	A =	25.2541	in^2	$c_{top} =$	7.2500	in	A =	25.2541	in^2
$c_{bottom} =$	7.2500	in	$r_x =$	3.7209	in	$c_{bottom} =$	7.2500	in	$r_x =$	3.7209	in



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Calculations For: **CUY-2-1441**

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y, gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web Plate		5.3021	7.0000	37.1146	70.4140	0.0000	0.0000	70.4140
2	Left Flange		9.9760	0.3440	3.4317	0.3935	6.6560	441.9601	442.3536
	Right Flange		9.9760	13.6560	136.2323	0.3935	6.6560	441.9601	442.3536
Total			25.25		176.78	71.20		883.92	955.12
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y, loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties					As-Inspected Section Properties						
x-bar =	7.0000	in	S _{right} =	136.45	in ³	x-bar =	7.0000	in	S _{right} =	136.45	in ³
I _y =	955.12	in ⁴	S _{left} =	136.45	in ³	I _y =	955.12	in ⁴	S _{left} =	136.45	in ³
C _{right} =	7.0000	in	A =	25.2541	in ²	C _{right} =	7.0000	in	A =	25.2541	in ²
C _{left} =	7.0000	in	r _y =	6.1498	in	C _{left} =	7.0000	in	r _y =	6.1498	in



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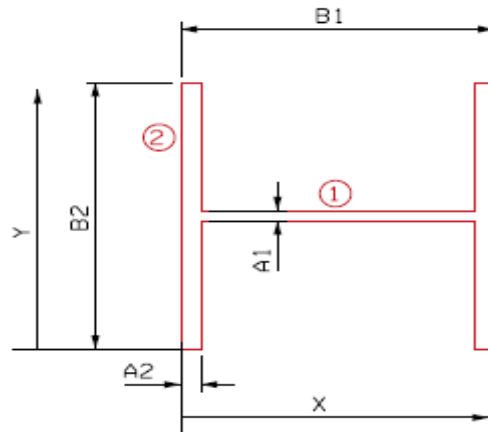
Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Rolled Beam 14WF136

- $A_1 = t_w = 0.6600$ in
- $A_2 = t_f = 1.0630$ in
- $B_1 = d = 14.7500$ in
- $B_2 = b_f = 14.7400$ in



Member U134-L133

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		8.3318	7.3700	61.4057	0.3024	0.0000	0.0000	0.3024
2	Flange Plates		31.3372	7.3700	230.9555	567.3806	0.0000	0.0000	567.3806
Total			39.67		292.36	567.68		0.00	567.68
Section Losses			A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties							
y-bar =	7.3700	in	$S_{top} = 77.03$	in^3	y-bar =	7.3700	in	$S_{top} = 77.03$	in^3		
$I_x =$	567.68	in^4	$S_{bott.} = 77.03$	in^3	$I_x =$	567.68	in^4	$S_{bott.} = 77.03$	in^3		
$C_{top} =$	7.3700	in	A =	39.6691	in^2	$C_{top} =$	7.3700	in	A =	39.6691	in^2
$C_{bottom} =$	7.3700	in	$r_x =$	3.7829	in	$C_{bottom} =$	7.3700	in	$r_x =$	3.7829	in



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Date 2/1/2012
Date 2/1/2012

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Sheet No. _____

Calculations For: **CUY-2-1441**

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y, gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web Plate		8.3318	7.3750	61.4473	110.6506	0.0000	0.0000	110.6506
2	Left Flange		15.6686	0.5315	8.3279	1.4754	6.8435	733.8162	735.2916
	Right Flange		15.6686	14.2185	222.7843	1.4754	6.8435	733.8162	735.2916
Total			39.67		292.56	113.60		1467.63	1581.23
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y, loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties					As-Inspected Section Properties						
x-bar =	7.3750	in	S _{right} =	214.40	in ³	x-bar =	7.3750	in	S _{right} =	214.40	in ³
I _y =	1581.23	in ⁴	S _{left} =	214.40	in ³	I _y =	1581.23	in ⁴	S _{left} =	214.40	in ³
C _{right} =	7.3750	in	A =	39.6691	in ²	C _{right} =	7.3750	in	A =	39.6691	in ²
C _{left} =	7.3750	in	r _y =	6.3135	in	C _{left} =	7.3750	in	r _y =	6.3135	in



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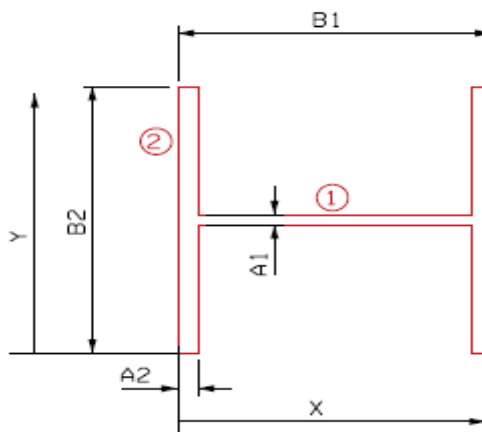
Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Rolled Beam 14WF158

- $A_1 = t_w = 0.7300$ in
- $A_2 = t_f = 1.1880$ in
- $B_1 = d = 15.0000$ in
- $B_2 = b_f = 15.5500$ in



Member U135-L134

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		9.2155	7.7750	71.6507	0.4092	0.0000	0.0000	0.4092
2	Flange Plates		36.9468	7.7750	287.2614	744.4857	0.0000	0.0000	744.4857
Total			46.16		358.91	744.89		0.00	744.89
Section Losses			A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	7.7750	in	$S_{top} = 95.81$ in ³	y-bar =	7.7750	in	$S_{top} = 95.81$ in ³
$I_x =$	744.89	in ⁴	$S_{bott.} = 95.81$ in ³	$I_x =$	744.89	in ⁴	$S_{bott.} = 95.81$ in ³
$c_{top} =$	7.7750	in	A = 46.1623 in ²	$c_{top} =$	7.7750	in	A = 46.1623 in ²
$c_{bottom} =$	7.7750	in	$r_x = 4.0170$ in	$c_{bottom} =$	7.7750	in	$r_x = 4.0170$ in



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Date 2/1/2012
Date 2/1/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web Plate		9.2155	7.5000	69.1164	122.3862	0.0000	0.0000	122.3862
2	Left Flange		18.4734	0.5940	10.9732	2.1727	6.9060	881.0488	883.2215
	Right Flange		18.4734	14.4060	266.1278	2.1727	6.9060	881.0488	883.2215
Total			46.16		346.22	126.73		1762.10	1888.83
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
x-bar =	7.5000	in	S _{right} = 251.84 in ³	x-bar =	7.5000	in	S _{right} = 251.84 in ³
I _y =	1888.83	in ⁴	S _{left} = 251.84 in ³	I _y =	1888.83	in ⁴	S _{left} = 251.84 in ³
C _{right} =	7.5000	in	A = 46.1623 in ²	C _{right} =	7.5000	in	A = 46.1623 in ²
C _{left} =	7.5000	in	r _y = 6.3966 in	C _{left} =	7.5000	in	r _y = 6.3966 in

DEAD LOADS

DECK DEAD LOADS

Main Ave - Main Truss

Deck / Barrier Dead Load Calcs

- Refer to sheet 213/547 of 1994 rehab plans (sheet 237/638 in 000003.pdf) attached
 - Class "S" lightweight concrete AB $\gamma = 113 \text{ pcf}$ (gen notes sheet 9/547 which is 9/638 in pdf)
 - Latex modified concrete wearing surface assume $\gamma = 150 \text{ pcf}$
 - SIP forms used G9A/547 (10/638)
 - \uparrow plan # Typ.
 - \uparrow pdf # Typ.

Slab

$$6\frac{3}{4}'' \times (85'6'' - 2 \times 2'' \text{ reveal}) \times 113 \text{ kcf} = 5.41 \text{ k/ft}$$

$$\text{Haunches: } (6'' + 6'') \times 1\frac{3}{4}'' \times 12 \text{ stringers} \times 113 \text{ kcf} = 0.27 \text{ k/ft}$$

\uparrow 10.2'' typ. W16x67

$$\text{Fascia haunches: } (2'0\frac{3}{8}'' - 2'' + 3'' + 2'4'') \times 1\frac{3}{4}'' \times 2 \times 113 \text{ kcf} = 0.14 \text{ k/ft}$$

} Not deducting embedded flanges
this will account for extra weight
from haunches taller than 1 3/4"

$$\therefore \text{Deck} = \underline{5.82 \text{ k/ft}}$$

Barriers

Median Barrier

$$A = (3'' \times 2'3'') + \left(\frac{11'' + 2'3''}{2}\right)(10'') + \left(\frac{9'' + 1'1''}{2}\right)(2'5'') = 4.17 \text{ SF}$$

$$\text{Weight} = 4.17 \text{ SF}^2 \times 113 \text{ kcf} = 0.47 \text{ k/ft}$$

Fascia Barriers

$$A = (3'' \times 1'9'') + \left(\frac{11'' + 1'9''}{2}\right)(11\frac{3}{4}'') + \left(\frac{9'' + 12''}{2}\right)(2'5'') = 3.98 \text{ SF}$$

$$\text{Weight} = 2 \times 3.98 \text{ SF} \times 113 \text{ kcf} = 0.90 \text{ k/ft}$$

$$\therefore \text{Barriers} = \underline{1.37 \text{ k/ft}}$$

Wearing Surface

$$1\frac{1}{4}'' (85'2'') \times 150 \text{ kcf} = \underline{1.33 \text{ k/ft}}$$

SIP Forms

$$\left[2 \left(5' - 8\frac{5}{8}'' + 4 \times 6'4\frac{1}{2}'' + 6'3\frac{3}{4}'' + 3'2\frac{1}{4}'' \right) - 13 \times 10'' \right] \times \overset{\substack{\uparrow \text{E width} \\ \uparrow \text{per Gen notes}}}{.002 \text{ ksf}} = \underline{0.14 \text{ k/ft}}$$

$$(5.82 + 1.37 + 1.33 + 0.14) \times \overset{\substack{\uparrow \\ \text{for lights, pilasters and misc. inclusions}}}{1.05} = 9.09 \text{ k/ft}$$

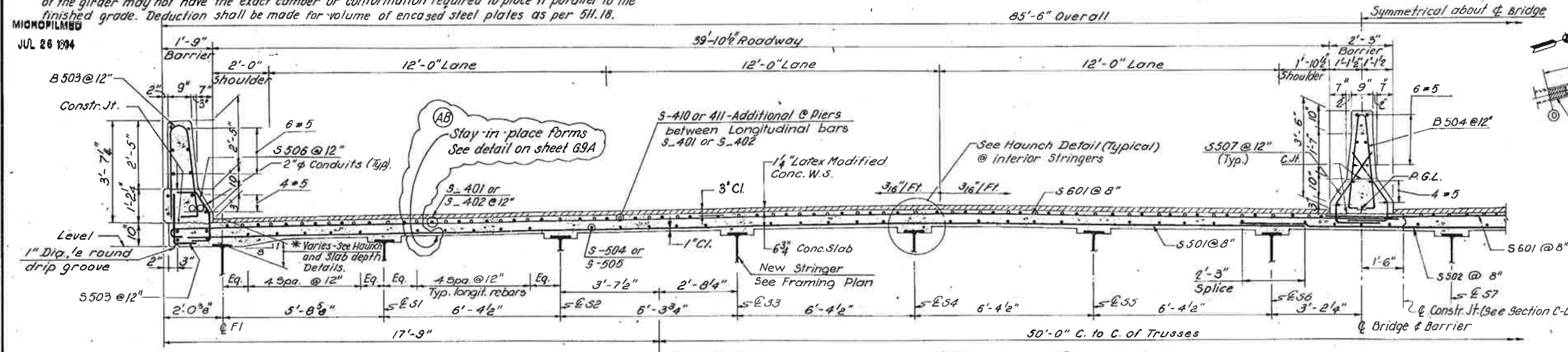
$$\Rightarrow \text{Total Deck Load} = 9.1 \text{ k/ft} \text{ longitudinally for entire deck width}$$

$$\text{DL/Beam} = \frac{9.1 \text{ k/ft}}{14} \approx 0.65 \text{ k/ft}$$

*This is the design dimension. The quantity of deck concrete to be paid for shall be based upon this dimension less 1/4" N.S. even though deviation from it may be necessary because the top flange of the girder may not have the exact camber or conformation required to place it parallel to the finished grade. Deduction shall be made for volume of encased steel plates as per 511.18.

Note: See Dwg. 262 for "Forms for Deck Overhang" note

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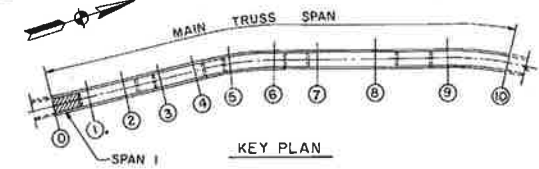


BAR SIZE	MIN. LAP
# 4	1'-10"
# 5	2'-3"
# 6	2'-8"

Deck Slab Depth: The distance shown from top of deck slab to top of steel beam is the design dimension. The quantity of deck concrete to be paid for shall be based on this dimension, less 1/4" N.S. even though deviation from it may be necessary because the top flange of the beam may not have the exact camber or conformation required to place it parallel to the finished grade.

A Haunch Width as shown on Haunch & Depth of Slab Details shall be used for Computing quantity of Concrete. 142-3 1/2

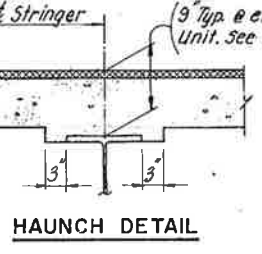
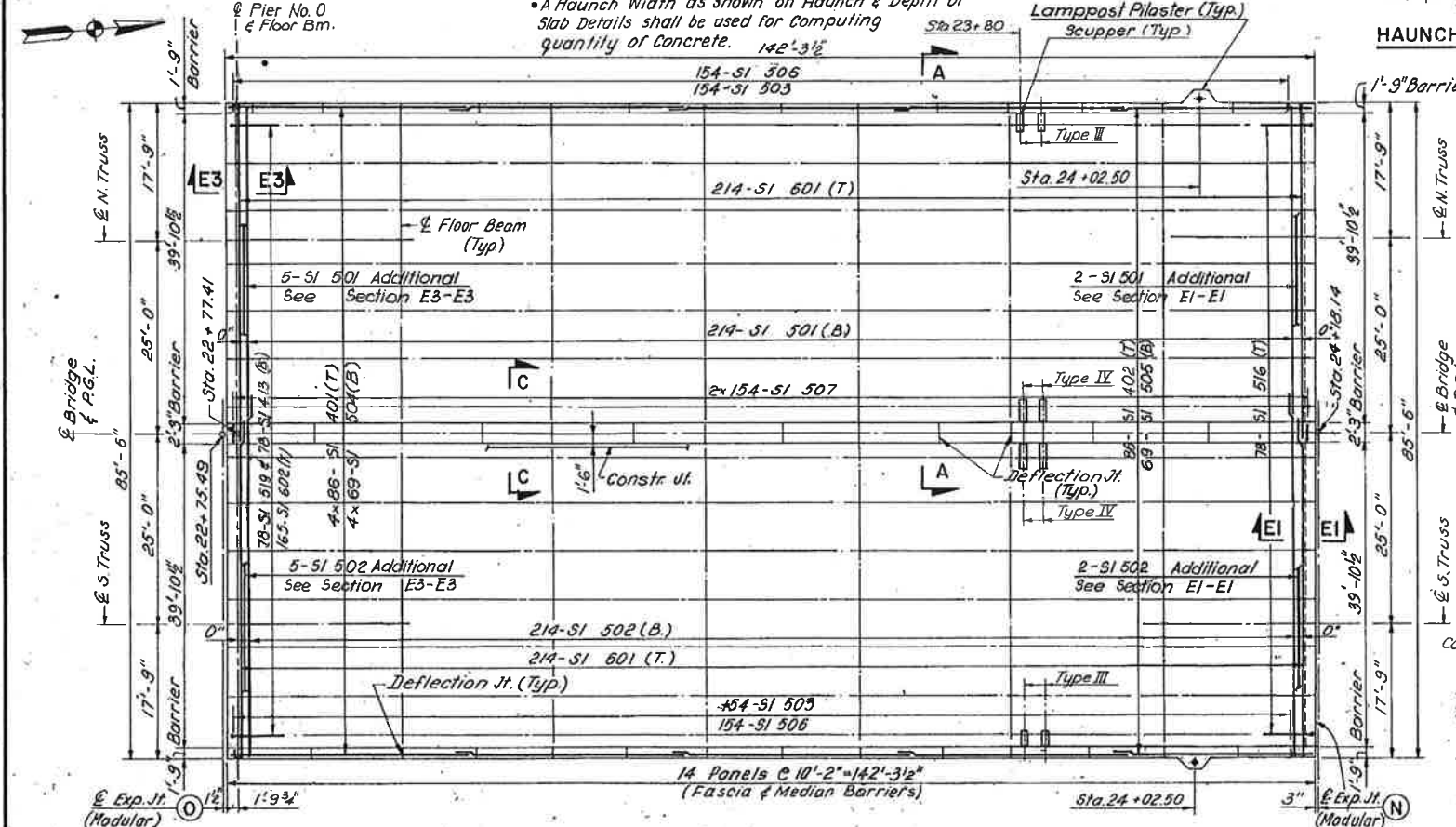
SECTION A-A (Looking East)



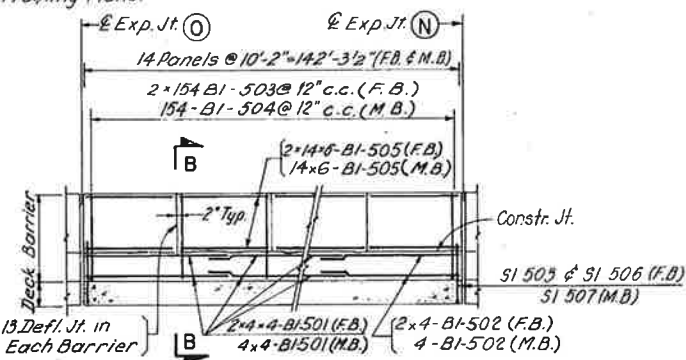
- NOTES**
- All Deck concrete shall be "Lightweight class 3"
 - Deck pouring sequences and directions are indicated in Dwg. N° 275 "Deck Slab Details 1"
 - Preformed deflection joint filler in barriers shall be either 1/4" thick gray sponge rubber (AASHTO M-153) or 1/4" gray cellular polyvinyl chloride (PVC) sponge. Concrete parapets above upper construction joints shall be placed in alternate sections by the use of bulkheads. Closing sections shall be placed after removal of bulkheads and after placement of expansion joint filler.
 - Embedded lighting conduits (size & layout), junction boxes, grounding etc. are detailed in the Dwg. N° 664 to 669 "Proposed Bridge Lighting"
 - For details of Deck supporting Traffic Signs, see Dwg. N° 275 & 277.
 - The contractor shall bend or field cut reinforcing steel as required at scuppers.

REFERENCES

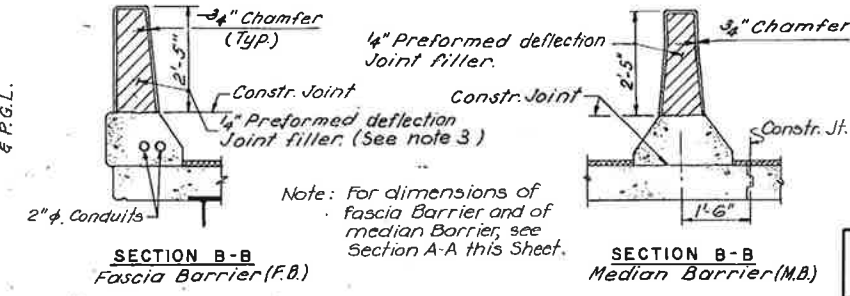
General Notes	DWG. NO.
General Plan & Elevation (Existing and Proposed)	201 to 206
Typical Cross Section	207
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End of slab sections EI-EI & E3-E3	276
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Sign Support details	275
Bar List	283
Haunch and Slab Depth details	262
Stay-in-place forms	69A



HAUNCH DETAIL

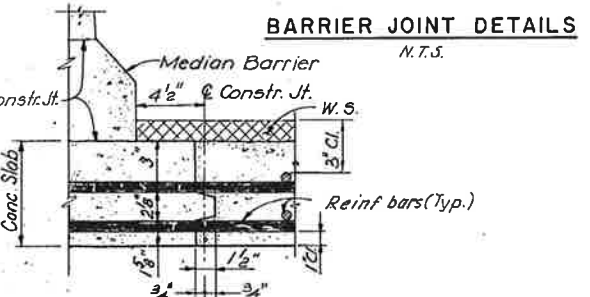


BARRIER DETAILS SPAN NO. I
N.T.S.

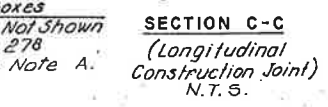


SECTION B-B Fascia Barrier (F.B.)

SECTION B-B Median Barrier (M.B.)



BARRIER JOINT DETAILS
N.T.S.



SECTION C-C (Longitudinal Construction Joint)
N.T.S.

NOTE A:
Field cut and bend reinf. bars to clear boxes.

Support Boxes for Exp. Jt. Not Shown See Dwg. 278 See also Note A.

TRUSS SPAN NO. I - PLAN

PAVLO ENGINEERING CO., P.C.
NEW YORK, NEW YORK

CUYAHOGA COUNTY ENGINEER
CLEVELAND OHIO

MAIN AVENUE BRIDGE
CITY OF CLEVELAND
BRIDGE OVER THE CUYAHOGA RIVER VALLEY

MAIN TRUSS SPAN - I
DECK SLAB REINFORCEMENT

BRIDGE NO. 193 REPORT NO. 7119 DATE Oct. 25, 1989

NO. B-136

DESIGN A.S./B.P.	DRAWN T.C.	CHECKED E.G.	REVISED TO AS BUILT AS BUILT 2/94
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268
89

JUL 20 1994

GENERAL NOTES

FHWA REGION	STATE	PROJECT	9
6	OHIO	BMP-73(51)	547

CUYAHOGA COUNTY
CUY - 2 - 14.66

MAIN S.D. SHEET

GENERAL NOTES - 3

3. WELDED CONNECTIONS SHALL BE DISASSEMBLED IN ACCORDANCE WITH THE FOLLOWING.

- a. ALL PAINT COVERING THE AFFECTED WELD SHALL BE REMOVED.
- b. THE AFFECTED WELD SHALL BE REMOVED BY MEANS OF AIR CARBON ARC GOUGING EQUIPMENT. TO ENSURE THAT BASE METAL REMAINING IN PLACE IS NOT DAMAGED, AT LEAST 1/8 INCH OF WELD MATERIAL SHALL BE LEFT IN PLACE.
- c. THE WELD MATERIAL LEFT IN PLACE SHALL BE GROUND FLUSH WITH THE BASE METAL SURFACE IN THE DIRECTION OF STRESS. NO BASE METAL SHALL BE REMOVED BY GRINDING.
- d. THE CONTRACTOR ACCOMPANIED BY THE ENGINEER SHALL PERFORM A CAREFUL VISUAL INSPECTION OF ALL WELD REMOVAL LOCATIONS. IF THE ENGINEER SUSPECTS DAMAGE, HE WILL DIRECT THE CONTRACTOR TO PERFORM NONDESTRUCTIVE TESTING FOR CRACKS WITH DYE PENETRANT, MAGNETIC PARTICLE OR ULTRASONIC TESTS. PAYMENT FOR THIS WORK SHALL BE INCLUDED WITH ITEM 202 PORTIONS OF STRUCTURES REMOVED, AS PER PLAN.

D. DISPOSAL OF REMOVED MATERIAL

ALL CONCRETE, STEEL, REINFORCING STEEL, ETC., REMOVED FROM THE STRUCTURE, UNLESS OTHERWISE SPECIFIED, SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE PROMPTLY REMOVED BY HIM FROM THE SITE. THE EXISTING BRONZE PLATES ON THE PYLONS SHALL BECOME THE PROPERTY OF THE COUNTY, AND SHALL BE STORED BY THE CONTRACTOR, PENDING REMOVAL BY THE CUYAHOGA COUNTY ARCHIVIST.

E. PROTECTIVE STRUCTURES

PROTECTIVE STRUCTURES FOR CATCHING FALLING DEBRIS AND WATER FROM THE DEMOLITION OPERATIONS SHALL BE IN ACCORDANCE WITH THE GENERAL NOTE, "FALSEWORK, TEMPORARY BRACING AND PROTECTIVE STRUCTURES."

APPROXIMATE ESTIMATED QUANTITIES FOR EACH SECTION OF BRIDGE ARE SHOWN ON THE PLANS FOR REFERENCE ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DEVELOPING ACTUAL REMOVAL QUANTITIES FOR BID USE. NO ADDITIONAL COMPENSATION SHALL BE MADE IF THE REMOVAL QUANTITIES DIFFER FROM THE QUANTITIES LISTED ON THE PLANS.

F. BASIS OF PAYMENT

PORTIONS OF STRUCTURES REMOVED, AS PER PLAN, WILL BE MEASURED AS A UNIT AND SHALL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE BID. THIS PRICE SHALL BE PAYMENT IN FULL FOR ALL MATERIAL, EQUIPMENT, LABOR AND INCIDENTALS NECESSARY TO COMPLETE THIS WORK.

20. ITEM 510-DOWEL HOLES, AS PER PLAN

DRILLING OF HOLES INTO CONCRETE AND THE FURNISHING AND PLACING GROUT INTO THE HOLES SHALL BE IN ACCORDANCE WITH SUPPLEMENTAL SPECIFICATION 853 AND SUPPLEMENTAL SPECIFICATION 956 EXCEPT FOR THE BASIS OF PAYMENT. DRILLING DOWEL HOLES AND FURNISHING AND PLACING NONSHRINKING EPOXY MORTAR, WILL BE MEASURED AS A UNIT INCLUDING ALL MATERIAL, EQUIPMENT, LABOR AND INCIDENTALS NECESSARY TO COMPLETE THE WORK. THIS ITEM SHALL BE PAID AT THE CONTRACT UNIT BID PRICE COMPLETE FOR.

ITEM	UNIT	DESCRIPTION
510	EACH	DOWEL HOLES, AS PER PLAN

21. FINISHING MACHINE SUPPORTS

WELDED ATTACHMENT OF SUPPORTS FOR CONCRETE DECK FINISHING MACHINE MAY BE MADE TO AREAS OF THE STRINGER FLANGES DESIGNATED "COMPRESSION." ATTACHMENTS SHALL NOT BE MADE TO AREAS DESIGNATED "TENSION." FILLET WELDS TO COMPRESSION FLANGES SHALL NOT BE CLOSER THAN 1" FROM EDGE OF FLANGE, NOT BE MORE THAN 2" LONG, AND NOT BE SMALLER THAN THE MINIMUM SIZE REQUIRED BY AASHTO.

22. ITEM SPECIAL - CLASS S LIGHTWEIGHT CONCRETE, SUPERSTRUCTURE (USING SHRINKAGE COMPENSATING CEMENT)

A. DESCRIPTION

THIS ITEM SHALL CONSIST OF FURNISHING AND PLACING PORTLAND CEMENT LIGHTWEIGHT CONCRETE USING SHRINKAGE COMPENSATING CEMENT FOR THE BRIDGE SUPERSTRUCTURE IN ACCORDANCE WITH ALL APPLICABLE PROVISIONS OF ITEM 511 OF THE STANDARD SPECIFICATIONS, EXCEPT AS MODIFIED HEREIN, AND IN REASONABLY CLOSE CONFORMITY WITH LINES, GRADES AND DIMENSIONS SHOWN ON THE PLANS.

B. MATERIALS

MATERIALS SHALL BE:

PORTLAND CEMENT - THE CEMENT SHALL BE SHRINKAGE COMPENSATING CEMENT CONFORMING TO ASTM C845, TYPE K.

FINE AGGREGATE - NATURAL SAND IN ACCORDANCE WITH 703.02.

COARSE AGGREGATE - LIGHTWEIGHT COARSE AGGREGATE SHALL CONSIST ONLY OF PROCESSED AGGREGATES PREPARED FROM NATURAL DEPOSITS OF SHALES OR CLAYS, PRODUCED BY A ROTARY KILN OPERATION, AND MEETING THE REQUIREMENTS OF ASTM C330. THE COARSE AGGREGATE SIZE DESIGNATION SHALL RANGE FROM 3/4 INCH TO NO. 4 ONLY. FURNACE SLAGS OR FLY ASHES WILL NOT BE ACCEPTABLE. THE LIGHTWEIGHT AGGREGATE PILE SHALL BE KEPT IN A STABLE, UNIFORM, DAMP CONDITION. SATURATED AGGREGATES SHALL NOT BE USED WHEN THE CONCRETE IS SUBJECT TO FREEZING AND THAWING DURING THE CURING CYCLE, DUE TO DAMAGE WHICH COULD RESULT FROM SUCH AN EXPOSURE.

WATER - WATER WHICH IS POTABLE IS SATISFACTORY

AIR ENTRAINING MIXTURE - 705.10 AS APPROVED BY THE ENGINEER.

CHEMICAL ADMIXTURE - WHEN REQUIRED BY 511.06, SHALL BE LIMITED TO 705.12, TYPE D.

C. PROPORTIONING

THE CONTRACTOR (ADVISED BY THE LIGHTWEIGHT AGGREGATE SUPPLIER) SHALL BE RESPONSIBLE FOR DESIGNING THE MIXTURE AND DETERMINING THE PROPORTIONS OF CEMENT, FINE AGGREGATE, COARSE AGGREGATE, WATER, AIR-ENTRAINMENT AND CHEMICAL ADMIXTURE IN ACCORDANCE WITH ACI 211.2 WHICH WILL PRODUCE A WORKABLE LIGHTWEIGHT CONCRETE MIX MEETING THE FOLLOWING REQUIREMENTS.

28 DAY AIR DRY UNIT WEIGHT - WITH A DESIGN AVERAGE UNIT WEIGHT OF 112 POUNDS PER CUBIC FOOT AND A PERMISSIBLE RANGE VARYING FROM 110 POUNDS PER CUBIC FOOT TO 114 POUNDS PER CUBIC FOOT. AN ADDITIONAL 3 POUNDS PER CUBIC FOOT SHALL BE PERMITTED FOR CONCRETE WHICH IS PUMPED. 28 DAY COMPRESSIVE STRENGTH - 4,500 PSI (MINIMUM).

CEMENT CONTENT - 715 POUNDS PER CUBIC YARD (MINIMUM).

SLUMP - 5 INCHES PLUS OR MINUS 1 INCH.

AIR CONTENT - 7 PERCENT PLUS OR MINUS 2 PERCENT.

WATER-CEMENT RATIO - 0.50 TO 0.55 MAXIMUM, USING DAMP LIGHTWEIGHT AGGREGATES, 0.81 TO 0.86 MAXIMUM, TOTAL WATER INCLUDING THE ABSORBED WATER.

THE CONTRACTOR SHALL DETERMINE THE 28-DAY DRY UNIT WEIGHT OF THE LIGHTWEIGHT CONCRETE MIX PRIOR TO INITIAL CONCRETE PLACEMENT FOR BOTH PUMPED & CONVENTIONALLY PLACED CONCRETE. FOR EACH CASE A TEST SPECIMEN SHALL BE PREPARED & THE 28-DAY AIR DRY UNIT WEIGHT DETERMINED IN ACCORDANCE WITH ASTM C567. ALL LIGHTWEIGHT CONCRETE SHALL HAVE GOOD WORKABILITY AND OTHER PROPERTIES SUCH THAT PROPER PLACEMENT, CONSOLIDATION AND FINISHING IS OBTAINED.

THE LIGHTWEIGHT CONCRETE MIX DESIGN SUBMITTED BY THE CONTRACTOR SHALL BE TESTED BY A RECOGNIZED TESTING LABORATORY WHICH IS REGULARLY INSPECTED BY THE CEMENT & CONCRETE REFERENCE LABORATORY (CCRL) & APPROVED BY THE ENGINEER. THE MIX DESIGN SHALL BE TESTED USING THE DAMP LOOSE VOLUMETRIC METHOD AS OUTLINED IN ACI 213R-79 SECTION 3.4.2. THE TESTING LABORATORY SHALL CERTIFY THAT THE LIGHTWEIGHT CONCRETE MEETS THE REQUIREMENTS SPECIFIED ABOVE AND SHALL SUBMIT COPIES OF THE CERTIFIED DESIGN MIX PROPORTIONS ALONG WITH ALL THE TEST RESULTS TO THE ENGINEER FOR APPROVAL, PRIOR TO LIGHTWEIGHT CONCRETE PLACEMENT.

D. CONCRETE DELIVERY

WHEN SUPPLYING CONCRETE USING TYPE K SHRINKAGE-COMPENSATING CEMENT, READY-MIX PLANTS IDENTIFIED AS "TRUCK MIX" SHALL PROPORTION THE CONCRETE SUCH THAT THE VOLUME PLACED INTO THE TRUCK IS AT LEAST 2 CUBIC YARDS LESS THAN THE RATED MAXIMUM CAPACITY OF THE MIX TRUCK. THE COST FOR COMPLYING WITH THIS REQUIREMENT SHALL BE INCLUDED IN THE APPROPRIATE CONCRETE BID ITEM. FOR NOTES E & F SEE SHEET G9A.

MAXIMUM AMBIENT TEMPERATURE AT THE TIME OF PLACEMENT OF CONCRETE SHALL BE 80 DEGREES F. CONCRETE PUMPING WILL NOT BE PERMITTED BETWEEN OCTOBER 15 AND MARCH 30.

H. HANDLING OF AGGREGATES

THE HANDLING OF THE LIGHTWEIGHT AGGREGATES SHALL BE ARRANGED TO PROVIDE A THOROUGH SPRINKLING OF THE AGGREGATES DURING THE STOCKPILING TO PRODUCE DAMP AGGREGATE. SPRINKLING SHALL BE DONE IN SUCH A WAY AS TO OBTAIN UNIFORM DISTRIBUTION OF MOISTURE. AGGREGATES SHALL NOT BE ALLOWED TO DRAIN AS LONG AS NECESSARY TO PRODUCE A UNIFORM MOISTURE CONTENT, AND SUCH MOISTURE CONTENT SHALL BE MAINTAINED IN-SO-FAR AS PRACTICAL UNTIL THE AGGREGATE IS USED. THE TYPE D ADMIXTURE SHALL BE ADDED TO THE MIX IN STRICT ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

THE SAME SOURCE OF AGGREGATE AND DESIGN MIX, ONCE ESTABLISHED AND CHECKED, SHALL BE USED THROUGHOUT THE WHOLE JOB. VARIATIONS THAT EXIST IN BATCHING ARRANGEMENTS, READY MIX PLANT LAYOUTS, WEATHER AND AGGREGATE PROPERTIES MAY REQUIRE DAILY MINOR FIELD ADJUSTMENTS TO THE BATCH WEIGHTS OF THE AGGREGATE. THE CONTRACTOR SHALL PROVIDE, AT NO COST TO THE STATE, A QUALIFIED TECHNICAL REPRESENTATIVE TRAINED BY THE LIGHTWEIGHT AGGREGATE SUPPLIER, EXPERIENCED IN THE DESIGN AND BATCHING OF LIGHTWEIGHT CONCRETE, AT THE BATCH PLANT DURING THE PRODUCTION PERIOD OF THE LIGHTWEIGHT CONCRETE TO INSURE CONSISTENT QUALITY CONTROL.

THIS TECHNICAL REPRESENTATIVE WILL DETERMINE THE MINIMUM DOSAGE RATE OF CHEMICAL (WATER REDUCING) ADMIXTURE TO BE USED IN THE FIELD BASED ON FIELD CONDITIONS ON THE DAY USED.

LIGHTWEIGHT CONCRETE SHALL BE PLACED, TESTED, FINISHED, CURED AND PROTECTED AS SPECIFIED IN ITEM 511 EXCEPT AS NOTED HEREIN. CARE SHALL BE TAKEN TO PROVIDE UNIFORM CONSOLIDATION WITHOUT OVER-VIBRATION.

LIGHTWEIGHT CONCRETE DECK SLABS SHALL BE FINISHED IN ACCORDANCE WITH THE REQUIREMENTS OF 451.09 AND 451.12 EXCEPT THAT CONSTRUCTION JOINTS SHALL NOT BE EDGED.

I. CURING

IMMEDIATELY AFTER THE DECK SLAB HAS BEEN SCREEDDED, AN APPROVED MONOMOLECULAR FILM OR A FOG SPRAY OF WATER SHALL BE APPLIED TO THE CONCRETE SURFACE.

MONOMOLECULAR FILM
THE FILM MATERIAL SHALL BE MASTER BUILDERS-CONFILM, EUCLID CHEMICAL CO., RUCOBAR, CHEM MASTERS - MONOLUX OR APPROVED EQUAL, AND SHALL BE APPLIED IN ACCORDANCE WITH THE MANUFACTURER'S PRINTED INSTRUCTIONS. IF THE FILM IS BROKEN OR THE FILM EVAPORATES PRIOR TO PLACEMENT OF THE WET BURLAP, THE FILM SHALL BE REAPPLIED.

FOG SPRAY OF WATER
DECKS AND SLABS SHALL BE GIVEN A FOG SPRAY OF WATER, FOGGING SHALL CONTINUE UNTIL THE WET BURLAP IS PLACED. FOG MISTING IS TO KEEP THE ENVIRONMENT SURROUNDING THE CONCRETE HUMID TO PREVENT EXCESSIVE EVAPORATION FROM THE SURFACE OF UNHARDENED CONCRETE. FOG MISTING SHALL NOT BE USED TO APPLY WATER TO THE SURFACE OF THE CONCRETE TO FACILITATE LUBRICATION FOR FINISHING PURPOSES. FOGGING EQUIPMENT SHALL HAVE WATER PRESSURE SYSTEMS RATED AT 2400 P.S.I. OR GREATER AND DISCHARGE APPROXIMATELY 2 TO 3 GALLONS PER MINUTE. WIDE ANGLE AND SHARP ANGLE NOZZLES SHALL BE USED FOR LOW WIND AND WINDY CONDITIONS, RESPECTIVELY.

CURING SHALL BE IN ACCORDANCE WITH SILA METHOD (A) WATER CURING USING CONTINUOUS SPRINKLING AND NO METHOD WHICH RETARDS EVAPORATION FROM THE BURLAP WILL BE ALLOWED. THE PROVISIONS OF SS 836 SHALL NOT BE USED UNDER THIS ITEM OF WORK, WHEN POURING UNDER PROVISION OF SIL2 METHODS WHICH RETARD EVAPORATION FROM THE BURLAP SHALL BE PERMITTED. PROVISIONS FOR SUPPLYING CURING WATER SHALL BE ON SITE AND OPERABLE BEFORE A POUR WILL BE PERMITTED TO START. CURING WATER SUPPLY PROVISIONS SHALL REMAIN ON SITE THROUGHOUT THE ENTIRE CURE PERIOD. THEY SHALL BE REPLENISHED, AS REQUIRED, WITH A SHUTTLE TANKER TRUCK OR A LOCAL WATER SOURCE SUCH AS A FIRE HYDRANT. CARE SHALL BE TAKEN TO AVOID THERMAL SHOCK OR EXCESSIVELY STEEP THERMAL GRADIENTS DUE TO THE USE OF COLD CURING WATER. CURING WATER SHOULD NOT BE MORE THAN 20 DEGREE F COOLER THAN THE CONCRETE, BECAUSE OF SURFACE TEMPERATURE STRESSES WHICH COULD CAUSE CRACKING.

J. CONCRETE ACCEPTANCE SAMPLING AND TESTING

ACCEPTANCE SAMPLING & TESTING OF THE LIGHTWEIGHT CONCRETE IS THE RESPONSIBILITY OF THE DEPARTMENT.
FOR EACH TEST SPECIMEN A FULL SET OF CONCRETE TESTS INCLUDING YIELD, WET UNIT WEIGHT, SLUMP, PERCENT AIR ENTRAINING AND STRENGTH SHALL BE PERFORMED. IN ADDITION, FOR EVERY TWO HUNDRED (200) CUBIC YARDS PLACED, A DRY UNIT WEIGHT TEST, SHALL BE PERFORMED. METHODS OF SAMPLING, CURING AND TESTING SHALL BE IN ACCORDANCE WITH ASTM, APPLICABLE SECTIONS. THE TESTING LAB SHALL FURNISH CERTIFIED TEST RESULTS TO THE ENGINEER WITHIN SEVEN (7) DAYS OF COMPLETION OF THE TEST. TEST RESULTS WHICH ARE DEFICIENT SHALL BE REPORTED TO THE ENGINEER IMMEDIATELY.

ON ALL STRUCTURES, THREE TEST CYLINDERS SHALL BE MADE FROM EACH FIFTY (50) CUBIC YARDS, OR FRACTION THEREOF, OF CONCRETE THAT IS INCORPORATED INTO THE WORK EACH DAY.

AT TWENTY-EIGHT DAYS THE THREE CYLINDERS ARE TO BE TESTED AND THE AVERAGE COMPRESSIVE STRENGTH RECORDED AND DEFINED AS THE "STRENGTH TEST".

AT THE OPTION OF THE CONTRACTOR THREE ADDITIONAL TEST CYLINDERS SHALL BE CAST AT HIS EXPENSE FOR BRIDGE DECK AND CONCRETE BEAM PLACEMENTS TO DETERMINE WHEN THE DECK MAY BE OPENED TO CONSTRUCTION TRAFFIC IN EXCESS OF SIX (6) TONS.

K. ACCEPTANCE OF CONCRETE

THE STRENGTH OF THE CONCRETE WILL BE CONSIDERED SATISFACTORY IF THE VALUE DETERMINED BY THE "STRENGTH TEST" EQUALS OR EXCEEDS 4,500 PSI. TEST RESULTS FAILING TO MEET THE 4,500 PSI REQUIREMENT WILL BE THE BASIS FOR DETERMINING REPLACEMENT OR A PROPORTIONATE CREDIT TO THE STATE AS FOLLOWS:

- 1. "STRENGTH TEST" OF LESS THAN 3,500 PSI; REPLACEMENT AT THE EXPENSE OF THE CONTRACTOR.
- 2. "STRENGTH TEST" OF 3,500 TO 4,500 PSI; PROPORTIONATE CREDIT TO THE STATE CALCULATED BY MULTIPLYING THE RATIO OF THE DEFICIENT STRENGTH TO 4,500 PSI, TIMES THE NUMBER OF CUBIC YARDS PLACED IN THE LOT TESTED, TIMES THE CONTRACT UNIT COST FOR CONCRETE. A LOT SHALL BE DEFINED AS EACH FIFTY (50) CUBIC YARDS OR FRACTION THEREOF FROM WHICH THE DEFICIENT SET OF TEST SPECIMENS WAS CAST.

L. LOADING OF STRUCTURE

TO PERMIT EARLY REMOVAL OF FALSEWORK OR OPENING TO TRAFFIC OF SIX (6) TONS OR LESS, THE REQUIREMENTS OF CMS 511.14 SHALL APPLY.

TO PERMIT OPENING TO TRAFFIC GREATER THAN SIX (6) TONS THE REQUIREMENTS OF CMS 511.14 SHALL APPLY AND THE AVERAGE STRENGTH OF THE THREE OPTIONAL TEST CYLINDERS NOTED IN "CONCRETE ACCEPTANCE SAMPLING AND TESTING", TESTED IN ACCORDANCE WITH ASTM C39, SHALL BE 3500 PSI MINIMUM.

ALL TESTING NOTED IN SECTION 511.14 AND OPTIONAL CYLINDER TESTING SHALL BE DONE AT THE CONTRACTOR'S EXPENSE BY A TESTING LABORATORY (CCRL) APPROVED BY THE ENGINEER. ALL BEAM TESTS SHALL BE PERFORMED ACCORDING TO STANDARD METHODS ON FILE IN THE OFFICE OF THE DIRECTOR. THE CONTRACTOR SHALL NOTIFY THE ENGINEER PRIOR TO REQUESTING ALL TESTS AND THE TESTING LABORATORY SHALL FURNISH CERTIFIED TEST RESULTS TO THE ENGINEER FOR APPROVAL PRIOR TO THE TIME THE CONTRACTOR DESIRES TO OPEN A SECTION OF DECK TO TRAFFIC.

As Built

PAVLO ENGINEERING CO., P.C.
NEW YORK, NEW YORK

CUYAHOGA COUNTY ENGINEER
CLEVELAND OHIO

MAIN AVENUE BRIDGE
CITY OF CLEVELAND
BRIDGE OVER THE CUYAHOGA RIVER VALLEY

GENERAL NOTES - 3

BRIDGE NO. 193 REPORT NO. 7119 DATE Dec. 5, 1989

No. B-136

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DESIGN H.T.	DRAWN C.P.	CHECKED A.T.	REVISED TO AS BUILT AS BUILT 2/94
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M. TECHNICAL ASSISTANCE

PRIOR TO THE FIRST CONCRETE PLACEMENT, THE CONTRACTOR SHALL ARRANGE A PRE-PLACEMENT MEETING TO BE CONDUCTED BY A TECHNICAL REPRESENTATIVE OF THE SHRINKAGE COMPENSATING CEMENT PRODUCER. IN ATTENDANCE SHALL BE THE CONTRACTOR'S SUPERINTENDENT, THE CONCRETE PLACEMENT AND FINISHING FOREMAN, A TECHNICAL REPRESENTATIVE OF THE LIGHTWEIGHT AGGREGATE SUPPLIER, A * REPRESENTATIVE FROM THE CONCRETE SUPPLIER AND DEPARTMENT REPRESENTATIVES AS DETERMINED BY THE ENGINEER. AT A MINIMUM THE MEETING AGENDA SHALL INCLUDE DISCUSSION OF BATCHING, HANDLING, TRANSPORTATION, PLACEMENT, FINISHING AND CURING SHRINKAGE COMPENSATING CEMENT CONCRETE. THE SHRINKAGE COMPENSATING CEMENT PRODUCER AND LIGHTWEIGHT AGGREGATE SUPPLIER SHALL ADDRESS ALL KNOWN PECULIARITIES OF LIGHTWEIGHT CONCRETE USING SHRINKAGE COMPENSATING CEMENT. A TECHNICAL REPRESENTATIVE FROM THE SHRINKAGE COMPENSATING CEMENT PRODUCER SHALL MONITOR BATCHING, PLACEMENT, FINISHING AND INITIAL CURING DURING THE FIRST PLACEMENT OF EACH TYPE OF CONCRETING OPERATIONS (I.E. BRIDGE DECK CONCRETE, ETC.). * TECHNICAL

N. BASIS OF PAYMENT

PAYMENT WILL BE MADE AT THE CONTRACT PRICE FOR:

ITEM	UNIT	DESCRIPTION
SPECIAL	CU. YD.	CLASS 5 LIGHTWEIGHT CONCRETE, SUPERSTRUCTURE (USING SHRINKAGE COMPENSATING CEMENT)

NOTE:

THE CONTRACTOR HAS THE OPTION TO USE STAY-IN-PLACE FORMS. SEE STANDARD DRAWING PSF-1-87 "PERMANENT STEEL DECK FORMS" SHEETS 1 OF 2 AND 2 OF 2. THE FORMS SHALL HAVE THE FOLLOWING PROPERTIES:
 $S_x = 0.2131$ CUBIC INCHES, $I = 0.2498$ IN.⁴. THE GAUGE OF THE SUPPORTING COMPONENTS SHALL BE 10. CAVITIES IN THE STEEL DECK FORM TO BE FILLED WITH STYROFOAM PRIOR TO POURING CONCRETE. DEAD LOAD FOR STAY-IN-PLACE FORMS SHALL NOT EXCEED 5 LBS. PER SQ. FT.

23. ITEM 519--PATCHING CONCRETE STRUCTURES, AS PER PLAN

A. DESCRIPTION

THIS ITEM SHALL CONSIST OF FURNISHING THE NECESSARY LABOR, MATERIALS AND EQUIPMENT TO REPAIR ALL SPALLED, DETERIORATED AND DELAMINATED CONCRETE AREAS WITH AN AVERAGE DEPTH GREATER THAN SIX INCHES, WITH EXPOSED PRIMARY REINFORCEMENT THAT WILL REMAIN AS PART OF THE RECONSTRUCTED BRIDGES. ALL AREAS OF DETERIORATED CONCRETE WILL BE PATCHED UNLESS OTHERWISE DIRECTED BY THE ENGINEER. DETERIORATED AREAS FOR WHICH PATCHING WOULD BE CONSIDERED COSMETIC, OR OF NO STRUCTURAL SIGNIFICANCE, WILL BE PATCHED ONLY IF THEY ARE READILY VISIBLE ABOVE THE GROUND LINE. ALL APPLICABLE PROVISIONS OF ITEM 519 OF THE SPECIFICATIONS SHALL APPLY, EXCEPT AS MODIFIED AND THE FOLLOWING SHALL BE CONSIDERED AS SUPPLEMENTAL TO PROVISIONS SET FORTH THEREIN.

NOTE 22. CONTINUED FROM G9.

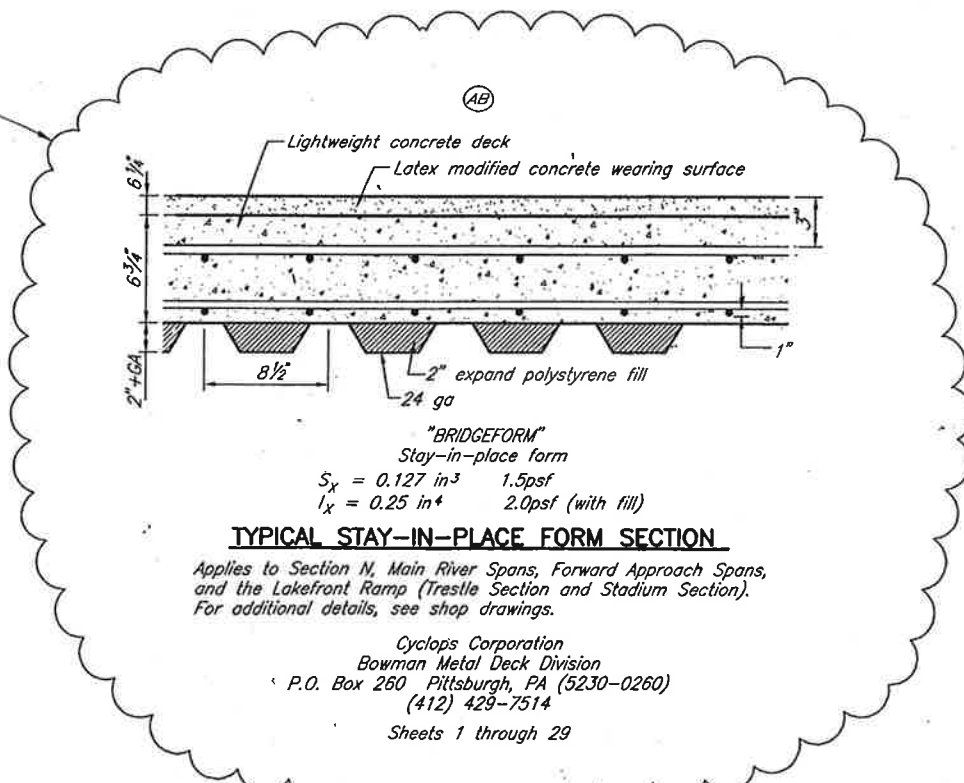
E. QUALITY CONTROL PLAN

THE CONTRACTOR SHALL BE RESPONSIBLE FOR AND SHALL DEVELOPE A QUALITY CONTROL PLAN DETAILING THE PROCESS CONTROL PROCEDURE HE PROPOSES TO FOLLOW IN ORDER TO ASSURE THAT THE CONCRETE MEETS THE REQUIREMENTS OF THIS SPECIFICATION. THIS PLAN SHALL OUTLINE THE METHODS OF TESTING THAT WILL BE EMPLOYED AND FREQUENCY OF TESTING. PERSONNEL IN CHARGE OF THE CONTRACTOR'S QUALITY CONTROL PROGRAM SHALL BE DESIGNATED BY NAME, SHALL BE PROFICIENT IN LIGHTWEIGHT CONCRETE TECHNOLOGY AND SHALL BE THOROUGHLY FAMILIAR WITH THE PERTINENT SPECIFICATIONS RELATING TO THE APPROVED MIX DESIGN, TESTING AND THE PRODUCTION OF LIGHTWEIGHT CONCRETE. THE PERSON IN CHARGE OF QUALITY CONTROL SHALL BE CAPABLE OF DESIGNING AND ADJUSTING LIGHTWEIGHT CONCRETE MIXTURES AND CONDUCTING TESTS ON THE PLASTIC CONCRETE AND COMPONENT MATERIALS IN ACCORDANCE WITH ACI OR ASTM STANDARDS. THIS PLAN SHALL BE SUBMITTED TO THE ENGINEER AT THE PRECONSTRUCTION CONFERENCE FOR APPROVAL.

F. QUALITY CONTROL SYSTEM

THE CONTRACTOR SHALL PROVIDE AND MAINTAIN A QUALITY CONTROL SYSTEM INCLUDING PERFORMANCE OF NECESSARY INSPECTION AND TESTING THAT WILL PROVIDE REASONABLE ASSURANCE THAT THE CONCRETE AND ITS COMPONENT MATERIALS CONFORM TO SPECIFICATION REQUIREMENTS. THE CONTRACTOR SHALL MAINTAIN RECORDS OF ALL INSPECTIONS AND TESTS WHICH SHALL INDICATE THE NATURE OF THE INSPECTIONS, THE AMOUNT AND TYPE OF LABORATORY OR FIELD TESTING, THE RESULTS OF THESE TESTS, AND ACTION TAKEN WHEN DEFICIENCIES WERE ENCOUNTERED OR MATERIAL WAS REJECTED. THE CONTRACTOR'S DOCUMENTATION PROCEDURES SHALL BE SUBJECT TO REVIEW AND APPROVAL BY THE ENGINEER. COPIES OF ALL CHARTS AND RECORDS DOCUMENTING THE CONTRACTOR'S QUALITY CONTROL INSPECTIONS AND TESTS SHALL BE SUBMITTED TO THE DEPARTMENT UPON COMPLETION OF THE WORK.

AS PART OF THE QUALITY CONTROL SYSTEM, THE CONTRACTOR SHALL HAVE A TESTING LABORATORY (CLRL) PERFORM AT LEAST ONE 28 DAY DRY UNIT WEIGHT TEST FOR EVERY TWO HUNDRED (200) CUBIC YARDS, OR FRACTION THEREOF, OF CONCRETE THAT IS INCORPORATED INTO THE WORK EACH DAY. CERTIFIED TEST RESULTS SHALL BE FURNISHED TO THE ENGINEER.



AS BUILT 2/94

G9A
93

TRUSS DEAD LOAD BUMP-UPS

* Gusset plates are not included in main truss bump-ups. These dead loads are applied within STAAD at each panel point to increase dead load accuracy.

GUSSET PLATES NOT INCLUDED. GUSSET PLATE DEAD LOADS APPLIED INDIVIDUALLY AT EACH PANEL POINT

Lower Chord				Upper Chord				Diagonal Members			Vertical Members		
Member	Location	Factor	AVG	Member	Location	Factor	AVG	Member	Location	Factor	Member	Location	Factor
L5L6	Midspan	1.50		U6U7		1.87		U0L1		1.13	U0L0		1.11
L33L34	Midspan	1.42		U20U21		1.36		U3-L4		1.26	U3L3		1.45
L64L65	Midspan	1.48		U45U46		1.23		U32-L33		1.08	U22L22		1.12
L105L106	Midspan	1.36		U75U76		1.35		U50L51		1.05	U43L43		1.20
L86L87	Midspan	1.33		U114U115		1.38		U62L61		1.25	U61L61		1.17
L35L36	Midspan	1.38		U85U86		1.22		U90L89		1.21	U96L96		1.37
L56L57	Midspan	1.33	1.40	U98U99		1.30		U102L101		1.25	U87L87		1.21
L111L112	PIER	1.33		U121U122		1.31		U111L112		1.21	U111L111		1.22
L91L92	PIER	1.28		U116U117		1.35		U124L123		<u>1.09</u>	U57L57		1.25
L90L91	PIER	1.35		U55U56		1.16	1.35			<u>1.17</u>	U80L80		1.14
L109L110	PIER	1.46		U127U128	SPAN 11	1.08					U74L74		<u>1.15</u>
L74L75	PIER	1.56		U130U131	SPAN 11	1.13	1.10						<u>1.22</u>
L19L20	PIER	1.64				<u>1.31</u>							
L23L24	PIER	1.41	1.43										
L128L129	SPAN 11	1.67											
L130L131	SPAN 11	1.29											
L132L133	SPAN 11	1.16	1.37										
		<u>1.41</u>											



Made By DMP
 Checked By CTG

Date 2/2/2012
 Date 2/6/2012

Job No. P402110046
 Sheet No. _____

Calculations For: **CUY-2-1441** Modified by *SFH to remove gusset plates* 3/6/2012

FROM SECTION PROPERTY CALCS:

Area = 69.39 in² Weight = 4.74 kips
 Length = 20.06 ft

FROM SHOP DRAWINGS:

PLATES

Description	Number	Length (in.)	Width (in.)	Height (in.)	Weight (kip)
2 fills	2	16.00	0.75	9.50	0.06
splice	2	10.50	0.75	31.50	0.14
splice	4	6.50	0.50	40.50	0.15

ANGLES

Description	Number	Length (ft.)	Weight/FT
			0.00

Total Added Plates = 0.35 kips
 Grand Total (with 5% bump-up)= 5.35 kips
Bump-Up Factor = 1.13



Made By DMP
Checked By CTG

Date 1/31/2012
Date 2/1/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441** Modified by *SFH to remove gusset plates* 3/6/2012

FROM SECTION PROPERTY CALCS:

Area = 51.43 in² Weight = 4.06 kips
Length = 23.18 ft

FROM SHOP DRAWINGS:

PLATES

<u>Description</u>	<u>Number</u>	<u>Length (in.)</u>	<u>Width (in.)</u>	<u>Height (in.)</u>	<u>Weight (kip)</u>
2 fills	2	15.50	0.19	69.00	0.11

ANGLES

<u>Description</u>	<u>Number</u>	<u>Length (ft.)</u>	<u>Weight/FT</u>	
				0.00

Total Added Plates =	0.11	kip
Grand Total (with 5% bump-up)=	4.38	kip
Bump-Up Factor =	1.08	



Made By DMP
 Checked By CTG

Date 2/2/2012
 Date 2/6/2012

Job No. P402110046
 Sheet No. _____

Calculations For: **CUY-2-1441** Modified by SFH to remove gusset plates 3/6/2012

FROM SECTION PROPERTY CALCS:

Area = **61.77** in² Weight = 4.20 kips
 Length = **20.00** ft

FROM SHOP DRAWINGS:

PLATES

<u>Description</u>	<u>Number</u>	<u>Length (in.)</u>	<u>Width (in.)</u>	<u>Height (in.)</u>	<u>Weight (kip)</u>
splice	2	6.50	0.88	68.00	0.22
lateral plate	2	19.50	0.50	38.00	0.21

ANGLES

<u>Description</u>	<u>Number</u>	<u>Length (ft.)</u>	<u>LB/FT</u>
--------------------	---------------	---------------------	--------------

Total Added Plates = 0.43
 Grand Total (with 5% bump-up)= 4.86
Bump-Up Factor = 1.16



Made By DMP
 Checked By CTG

Date 2/2/2012
 Date 2/6/2012

Job No. P402110046
 Sheet No. _____

Calculations For: **CUY-2-1441** Modified by *SFH to remove gusset plates* 3/6/2012

FROM SECTION PROPERTY CALCS:

Area = 59.09 in² Weight = 4.02 kips
 Length = 20.00 ft

FROM SHOP DRAWINGS:

PLATES

Description	Number	Length (in.)	Width (in.)	Height (in.)	Weight (kip)
2 plates	2	15.50	0.38	80.25	0.26
2 fills	2	15.50	0.13	39.63	0.04
splice	2	6.50	0.88	80.00	0.26
splice	2	10.50	0.75	31.50	0.14
lateral plate	2	19.00	0.50	42.00	0.23

ANGLES

Description	Number	Length (ft.)	LB/FT
-------------	--------	--------------	-------

Total Added Plates = 0.93
 Grand Total (with 5% bump-up)= 5.20
Bump-Up Factor = 1.29



Made By DMP
 Checked By CTG

Date 1/30/2012
 Date 1/30/2012

Job No. P402110046
 Sheet No. _____

Calculations For: **CUY-2-1441** Modified by *SFH to remove gusset plates* 3/6/2012

FROM SECTION PROPERTY CALCS:

Area = 27.63 in² Weight = 1.88 kips
 Length = 20.00 ft

FROM SHOP DRAWINGS:

PLATES

Description	Number	Length (in.)	Width (in.)	Height (in.)	Weight (kip)
2 fills	2	14.50	0.75	47.50	0.29
2 fills	2	14.50	0.56	75.25	0.35
Splice	2	6.50	0.75	67.63	0.19
Lateral Plates	2	17.50	0.50	38.00	0.19
Splice	2	11.00	0.38	25.50	0.06
fills	2	11.00	0.25	20.25	0.03

ANGLES

Description	Number	Length (ft.)	LB/FT
-------------	--------	--------------	-------

Total Added Plates = 1.11
 Grand Total (with 5% bump-up)= 3.14
Bump-Up Factor = 1.67

LATERAL BRACING



Made KMW
Checked ADK

Date 2/13/2012
Date 2/13/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Dead Load

Angles

Assumptions/Notes

Span
11

Element
Lateral Bracing

	Angle Dimension						L(tot./EA)	lb/ft	Total wt.	Section Subtotals
	Quantity	(inches)			Feet	Inches				
		Leg 1	Leg 2	Thickness	Length (L)					
Member Weight	1	0	0	0.00	0	0	0.000	0.0	0.000	
	1	0	0	0.00	0	0	0.000	0.0	0.000	
	1	0	0	0.00	0	0	0.000	0.0	0.000	
	1	0	0	0.00	0	0	0.000	0.0	0.000	
	1	0	0	0.00	0	0	0.000	0.0	0.000	
	1	0	0	0.00	0	0	0.000	0.0	0.000	
	1	0	0	0.00	0	0	0.000	0.0	0.000	
	1	0	0	0.00	0	0	0.000	0.0	0.000	
	1	0	0	0.00	0	0	0.000	0.0	0.000	
	1	0	0	0.00	0	0	0.000	0.0	0.000	
	1	0	0	0.00	0	0	0.000	0.0	0.000	
									0.000	
Members contributing to Total Weight	4	5	3.5	0.50	0	11.5	0.958	13.6	52.133	
	4	5	3.5	0.50	1	3.5	1.292	13.6	70.267	
	1	0	0	0.00	0	0	0.000	0.0	0.000	
	1	0	0	0.00	0	0	0.000	0.0	0.000	
	1	0	0	0.00	0	0	0.000	0.0	0.000	
	1	0	0	0.00	0	0	0.000	0.0	0.000	
	1	0	0	0.00	0	0	0.000	0.0	0.000	
	1	0	0	0.00	0	0	0.000	0.0	0.000	
	1	0	0	0.00	0	0	0.000	0.0	0.000	
	1	0	0	0.00	0	0	0.000	0.0	0.000	
	1	0	0	0.00	0	0	0.000	0.0	0.000	
	1	0	0	0.00	0	0	0.000	0.0	0.000	
									122.400	

Section Total 122.400 Pounds



Made KMW
Checked ADK

Date 2/13/2012
Date 2/13/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Dead Load

Plates

Assumptions/Notes

Span
11

Element
Sway Bracing



Steel= 490 #/Lf

	Plate Dimension					Area	Total wt.	Section Subtotals
	Quantity	(inches)		Feet	Inches			
		Height	Thickness	Width				
Member Weight	1	0	0.000	0	0	0.000	0.000	
	1	0	0.000	0	0	0.000	0.000	
	1	0	0.000	0	0	0.000	0.000	
	1	0	0.000	0	0	0.000	0.000	
	1	0	0.000	0	0	0.000	0.000	
	1	0	0.000	0	0	0.000	0.000	
	1	0	0.000	0	0	0.000	0.000	
	1	0	0.000	0	0	0.000	0.000	
	1	0	0.000	0	0	0.000	0.000	
	1	0	0.000	0	0	0.000	0.000	
	1	0	0.000	0	0	0.000	0.000	
	1	0	0.000	0	0	0.000	0.000	
	1	0	0.000	0	0	0.000	0.000	0.000
Members contributing to Total Weight	2	17.5	0.500	3	2	0.385	377.141	
	2	10	0.125	1	5.5	0.025	24.812	
	2	10	0.125	1	5.25	0.025	24.457	
	2	18	0.500	3	2	0.396	387.917	
	2	24	0.500	2	6	0.417	408.333	
	1	0	0.000	0	0	0.000	0.000	
	1	0	0.000	0	0	0.000	0.000	
	1	0	0.000	0	0	0.000	0.000	
	1	0	0.000	0	0	0.000	0.000	
	1	0	0.000	0	0	0.000	0.000	
	1	0	0.000	0	0	0.000	0.000	
	1	0	0.000	0	0	0.000	0.000	
	1	0	0.000	0	0	0.000	0.000	
	1	0	0.000	0	0	0.000	0.000	
	1	0	0.000	0	0	0.000	0.000	
	1	0	0.000	0	0	0.000	0.000	1222.661

Section Total 1222.661 Pounds



Made KMW
 Checked ADK

Date 2/13/2012
 Date 2/13/2012

Job No. P402110046
 Sheet No.

Calculations For: **CUY-2-1441**

Dead Load	Plates	Element	Assumptions/Notes
Span 11		Sway Bracing	

	Quantity	lb/ft	Total Lf	Total wt.	Section Subtotals
Member Weights	1	65	30.333	1971.645	3997.481
	1	65	31.167	2025.836	
	1	0	0.000	0.000	
	1	0	0.000	0.000	
	1	0	0.000	0.000	
	1	0	0.000	0.000	
	1	0	0.000	0.000	
	1	0	0.000	0.000	
	1	0	0.000	0.000	
Members contributing to Total Weight	1	0	0.000	0.000	0.000
	1	0	0.000	0.000	
	1	0	0.000	0.000	
	1	0	0.000	0.000	
	1	0	0.000	0.000	
	1	0	0.000	0.000	
	1	0	0.000	0.000	
	1	0	0.000	0.000	
	1	0	0.000	0.000	
	1	0	0.000	0.000	
	1	0	0.000	0.000	
	1	0	0.000	0.000	
	1	0	0.000	0.000	
	1	0	0.000	0.000	

Section Total 3997.481 Pounds



Made KMW
 Checked ADK

Date 2/13/2012
 Date 2/13/2012

Job No. P402110046
 Sheet No. _____

Calculations For: **CUY-2-1441**

Dead Load	Plates	Element	Assumptions/Notes
Span 11		Sway Bracing	<div style="border: 1px solid black; padding: 5px;"> Bay 3/4 used. Utilized entire plates at end connections. If desired, divide plate totals in half to account for only the lat connection. Conservative as is. </div>

Total Weight

Angles	122.40
Plates	1222.66
I-Sections	3997.48

Member Total 5342.54 lbs
 x 5% misc. 5609.668

Member Weight

Angles	0
Plates	0
I-Sections	3997.481

Main Member Tot. 3997.481 lbs

Bump-Up Factor = $\frac{5609.67}{3997.481}$ = 1.403

SWAY BRACING



Made KMW
Checked ADK

Date 2/13/2012
Date 2/13/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Dead Load

Angles

Assumptions/Notes

Span
11

Element
Sway Bracing

	Angle Dimension						L(tot./EA)	lb/ft	Total wt.	Section Subtotals
	Quantity	(inches)			Feet	Inches				
		Leg 1	Leg 2	Thickness	Length (L)					
Member Weight	1	0	0	0.00	0	0	0.000	0.0	0.000	0.000
	1	0	0	0.00	0	0	0.000	0.0	0.000	
	1	0	0	0.00	0	0	0.000	0.0	0.000	
	1	0	0	0.00	0	0	0.000	0.0	0.000	
	1	0	0	0.00	0	0	0.000	0.0	0.000	
	1	0	0	0.00	0	0	0.000	0.0	0.000	
	1	0	0	0.00	0	0	0.000	0.0	0.000	
	1	0	0	0.00	0	0	0.000	0.0	0.000	
	1	0	0	0.00	0	0	0.000	0.0	0.000	
	1	0	0	0.00	0	0	0.000	0.0	0.000	
	1	0	0	0.00	0	0	0.000	0.0	0.000	
Members contributing to Total Weight	2	4	3.5	0.50	1	5.5	1.458	11.9	34.708	232.492
	2	4	3.5	0.50	1	5	1.417	11.9	33.717	
	2	5	3.5	0.50	3	10	3.833	13.6	104.267	
	4	5	3.5	0.38	0	9.5	0.792	10.4	32.933	
	2	5	3.5	0.38	1	3.5	1.292	10.4	26.867	
	1	0	0	0.00	0	0	0.000	0.0	0.000	
	1	0	0	0.00	0	0	0.000	0.0	0.000	
	1	0	0	0.00	0	0	0.000	0.0	0.000	
	1	0	0	0.00	0	0	0.000	0.0	0.000	
	1	0	0	0.00	0	0	0.000	0.0	0.000	
	1	0	0	0.00	0	0	0.000	0.0	0.000	
	1	0	0	0.00	0	0	0.000	0.0	0.000	

Section Total 232.492 Pounds



Made KMW
Checked ADK

Date 2/13/2012
Date 2/13/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Dead Load

Plates

Assumptions/Notes

Span
11

Element
Sway Bracing



Steel= 490 #/Lf

	Plate Dimension					Area	Total wt.	Section Subtotals
	Quantity	(inches)		Feet	Inches			
		Height	Thickness	Width				
Member Weight	1	0	0	0	0	0.000	0.000	0.000
	1	0	0	0	0	0.000	0.000	
	1	0	0	0	0	0.000	0.000	
	1	0	0	0	0	0.000	0.000	
	1	0	0	0	0	0.000	0.000	
	1	0	0	0	0	0.000	0.000	
	1	0	0	0	0	0.000	0.000	
	1	0	0	0	0	0.000	0.000	
	1	0	0	0	0	0.000	0.000	
	1	0	0	0	0	0.000	0.000	
	1	0	0	0	0	0.000	0.000	
	1	0	0	0	0	0.000	0.000	
	1	0	0	0	0	0.000	0.000	
Members contributing to Total Weight	2	18.5	0.5	1	10.5	0.241	118.034	639.793
	2	15	0.5	3	10	0.399	195.660	
	2	25	0.5	3	10	0.666	326.100	
	1	0	0	0	0	0.000	0.000	
	1	0	0	0	0	0.000	0.000	
	1	0	0	0	0	0.000	0.000	
	1	0	0	0	0	0.000	0.000	
	1	0	0	0	0	0.000	0.000	
	1	0	0	0	0	0.000	0.000	
	1	0	0	0	0	0.000	0.000	
	1	0	0	0	0	0.000	0.000	
	1	0	0	0	0	0.000	0.000	
	1	0	0	0	0	0.000	0.000	
	1	0	0	0	0	0.000	0.000	
	1	0	0	0	0	0.000	0.000	
	1	0	0	0	0	0.000	0.000	

Section Total 639.793 Pounds



Made KMW
 Checked ADK

Date 2/13/2012
 Date 2/13/2012

Job No. P402110046
 Sheet No.

Calculations For: **CUY-2-1441**

Dead Load	Plates	Element	Assumptions/Notes
Span 11		Sway Bracing	

	Quantity	lb/ft	Total Lf	Total wt.	Section Subtotals
Member Weights	1	65	67.166	4365.810	6305.810
	1	40	48.500	1940.000	
	1	0	0.000	0.000	
	1	0	0.000	0.000	
	1	0	0.000	0.000	
	1	0	0.000	0.000	
	1	0	0.000	0.000	
	1	0	0.000	0.000	
	1	0	0.000	0.000	
Members contributing to Total Weight	1	0	0.000	0.000	0.000
	1	0	0.000	0.000	
	1	0	0.000	0.000	
	1	0	0.000	0.000	
	1	0	0.000	0.000	
	1	0	0.000	0.000	
	1	0	0.000	0.000	
	1	0	0.000	0.000	
	1	0	0.000	0.000	
	1	0	0.000	0.000	
	1	0	0.000	0.000	
	1	0	0.000	0.000	
	1	0	0.000	0.000	
	1	0	0.000	0.000	

Section Total 6305.810 Pounds



Made KMW
 Checked ADK

Date 2/13/2012
 Date 2/13/2012

Job No. P402110046
 Sheet No. _____

Calculations For: **CUY-2-1441**

Dead Load	Plates	Element	Assumptions/Notes
Span 11		Sway Bracing	

Total Weight

Angles	232.49
Plates	639.79
I-Sections	6305.81

Member Total 7178.09 lbs
 x 5% misc. 7536.999

Member Weight

Angles	0
Plates	0
I-Sections	6305.81

Main Member Tot. 6305.81 lbs

Bump-Up Factor = $\frac{7537.00}{6305.81}$ = **1.195**

CATWALK DEAD LOADS

* 2.47 kips applied to middle of floorbeams in STAAD.



Made KMW
Checked ADK

Date 2/14/2012
Date 2/14/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Dead Load

Angles

Assumptions/Notes

Span
N/A

Element
Catwalk

▪ Type A Truss Used - 000003.pdf Sheets 257-259A

	Angle Dimension						L(tot./EA)	lb/ft	Total wt.	Section Subtotals
	Quantity	(inches)		Thickness	Feet	Inches				
		Leg 1	Leg 2		Length (L)					
Member Weight	2	4	4	0.31	9	9	9.750	8.16	159.120	
	8	2.5	2.5	0.31	6	3	6.250	4.98	249.000	
	2	4	3	0.31	4	0	4.000	7.12	56.960	
	6	2.5	2.5	0.31	3	9	3.750	4.98	112.050	
	2	2.5	2.5	0.31	20	0	20.000	4.98	199.200	
	5	3	2	0.31	2	6	2.500	5.03	62.875	
	1	6	6	0.50	25	0	25.000	19.60	490.000	
	1	0	0	0.00	0	0	0.000	0.00	0.000	
	1	0	0	0.00	0	0	0.000	0.00	0.000	
	1	0	0	0.00	0	0	0.000	0.00	0.000	
	1	0	0	0.00	0	0	0.000	0.00	0.000	1329.205
Members contributing to Total Weight	1	0	0	0.00	0	0	0.000	0.00	0.000	
	1	0	0	0.00	0	0	0.000	0.00	0.000	
	1	0	0	0.00	0	0	0.000	0.00	0.000	
	1	0	0	0.00	0	0	0.000	0.00	0.000	
	1	0	0	0.00	0	0	0.000	0.00	0.000	
	1	0	0	0.00	0	0	0.000	0.00	0.000	
	1	0	0	0.00	0	0	0.000	0.00	0.000	
	1	0	0	0.00	0	0	0.000	0.00	0.000	
	1	0	0	0.00	0	0	0.000	0.00	0.000	
	1	0	0	0.00	0	0	0.000	0.00	0.000	
	1	0	0	0.00	0	0	0.000	0.00	0.000	
	1	0	0	0.00	0	0	0.000	0.00	0.000	0.000

Section Total 1329.205 Pounds



Made KMW
 Checked ADK

Date 2/14/2012
 Date 2/14/2012

Job No. P402110046
 Sheet No.

Calculations For: **CUY-2-1441**

Dead Load

WF sections and Tees/Channels

Assumptions/Notes

Span
N/A

Element
Catwalk

					Section Subtotals				
					Quantity	lb/ft	Lf / each	Total wt.	
Member Weights		2	27.5	0.667	36.667				
		2	15.5	20.000	620.000				
		1	0	0.000	0.000				
		1	0	0.000	0.000				
		1	0	0.000	0.000				
		1	0	0.000	0.000				
		1	0	0.000	0.000				
		1	0	0.000	0.000				
		1	0	0.000	0.000				
		1	0	0.000	0.000				
		1	0	0.000	0.000				
		1	0	0.000	0.000				
		1	0	0.000	0.000				656.667
Members contributing to Total Weight		1	0	0.000	0.000				
		1	0	0.000	0.000				
		1	0	0.000	0.000				
		1	0	0.000	0.000				
		1	0	0.000	0.000				
		1	0	0.000	0.000				
		1	0	0.000	0.000				
		1	0	0.000	0.000				
		1	0	0.000	0.000				
		1	0	0.000	0.000				
		1	0	0.000	0.000				
		1	0	0.000	0.000				
		1	0	0.000	0.000				
		1	0	0.000	0.000				0.000

Section Total 656.667 Pounds



Made KMW
 Checked ADK

Date 2/14/2012
 Date 2/14/2012

Job No. P402110046
 Sheet No. _____

Calculations For: **CUY-2-1441**

Dead Load	Plates	Element	Assumptions/Notes
Span N/A		Catwalk	

	# / ft ²	width (ft)	length (ft)	Total Wt.
Grating=	7.4	2.5	20	370

Total Weight

Angles	1329.21
Plates	0.00
I-Sections	656.67

Grating 370
Member Total 2355.87 lbs
 x 5% misc. **2473.665**

Wt per bay (20ft typ)

=

2473.665

DRAINAGE DEAD LOADS

- * Drain pipe weights applied at truss upper chord panel point at drainage locations on each truss line (3 kips).
- * Drainage troughs applied at each lower chord panel point with a trough present on each truss line (1.25 kips).

DRAINAGE DEAD LOAD

→ EXAMINE SPAN 3 DRAINAGE TO GET WEIGHT OF TYPICAL DRAINAGE

- REFERENCE 000003.pdf (41/547 for Plan,

STA 27+42.0 (DETAIL-19, 52/547)

Assume scuppers spaced at 4'-0" (per 57/547)

$$\begin{aligned}
 \text{Pipe length} &= 2(A-B) + 2\left(A - \frac{B+C}{2}\right) + 2(A_1 - B_1) + 2\left(A_1 - \frac{B_1+C_1}{2}\right) \\
 &+ 2\left[8^2 + (B-C)^2\right]^{1/2} + 2\left[8^2 + (B_1 - C_1)^2\right]^{1/2} \\
 &+ 2\left[16^2 + (C-D)^2\right]^{1/2} + 2\left[25^2 + (C_1 - D_1)^2\right]^{1/2} \\
 &+ 2(D-E) \\
 &= 2(680.3 - 676.1) + 2\left(680.3 - \frac{676.1 + 675.8}{2}\right) + 2(680.5 - 677.3) \\
 &+ 2\left(680.5 - \frac{677.3 + 676.4}{2}\right) + 2\left[8^2 + (676.1 - 675.8)^2\right]^{1/2} \\
 &+ 2\left[8^2 + (677.3 - 676.4)^2\right]^{1/2} + 2\left[16^2 + (675.8 - 671.7)^2\right]^{1/2} \\
 &+ 2\left[25^2 + (676.4 - 671)^2\right]^{1/2} + 2(671.7 - 660) \\
 &= 171 \text{ FT}
 \end{aligned}$$

$$\begin{aligned}
 \text{TROUGH WT/FT} &= 490 \text{ LB/FT} \times \left(\frac{16'' \times 3/8''}{144} + 2 \times \frac{12'' \times 3/8''}{144} + \frac{1}{4} \times \frac{2'' \times 16'' \times 1/2''}{12^3} \right) \\
 &= 52 \text{ LB/FT}
 \end{aligned}$$

(Roll 002.pdf, pg. 360/553)

← Assume 1 bar every 4'

$$\begin{aligned}
 \therefore \text{TOTAL WEIGHT} &= 171 \text{ FT} \times 29 \text{ LB/FT} + 52 \text{ LB/FT} \times 64' \times 2 \\
 &= 11,615 \text{ LB}
 \end{aligned}$$

← Length from downspout to Pier 2

↑ # OF TROUGHS

MULTIPLY BY 1.10 TO ACCOUNT FOR CONNECTIONS + ADD'L MATERIALS.

$$\therefore \text{WEIGHT} = 1.10 \times 11,615 \text{ LB} = \underline{\underline{12,780 \text{ LB}}}$$

Drainage Dead Loads -

BREAK COMPONENTS UP FOR MODELING PURPOSES:

→ TOTAL LOAD OF PIPE @ STA. 27+42.0:

$$\begin{aligned} &= 1.10 \times 171' \times 29 \text{ LB/FT} = 5,455 \text{ LB TOTAL} \\ &= 2,730 \text{ LB PER TRUSS} \\ &\approx \boxed{3^k} \text{ (ADK)} \end{aligned}$$

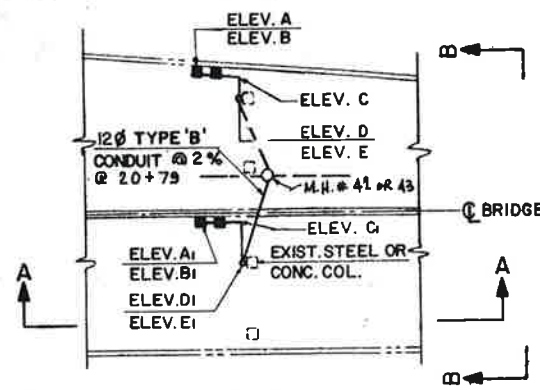
→ TROUGH LOAD DISTRIBUTED OVER 3 PANEL POINTS

$$\begin{aligned} \text{TOTAL TROUGH WT} &= 1.10 \times 52 \text{ LB/PT} \times 64' \times 2 \\ &= 7322 \text{ LB TOTAL} \\ &= 3661 \text{ LB PER TRUSS} \\ &= 1220 \text{ LB PER PANEL POINT} \\ &\approx \boxed{1.25^k} \text{ (ADK)} \end{aligned}$$

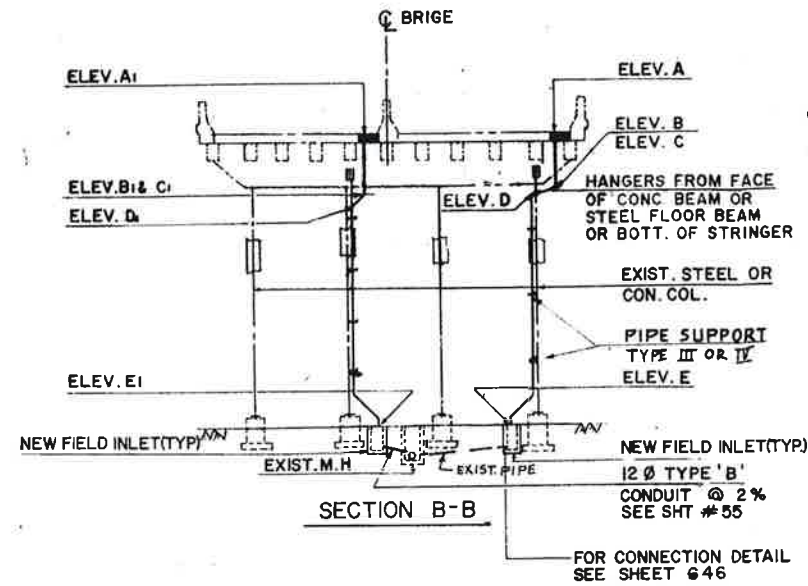
MICROFILMED
JUL 21 1994

FHWA REGION	STATE	PROJECT	52 547
5	OHIO	BHF-73(51)	

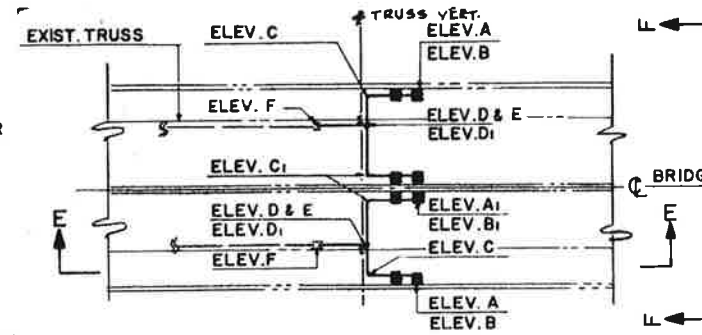
CUYAHOGA COUNTY
CUY-2-14.66



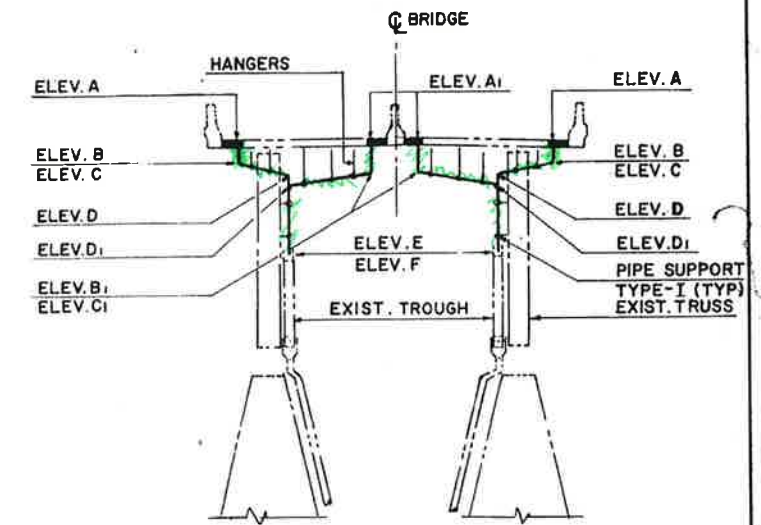
PLAN
STA. 20+79, 20+91, 21+80
DETAIL- 17



SECTION B-B

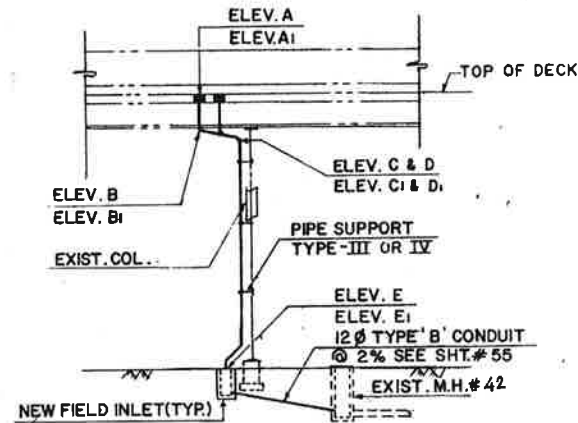


PLAN
STA. 25+45, 27+42
DETAIL- 19

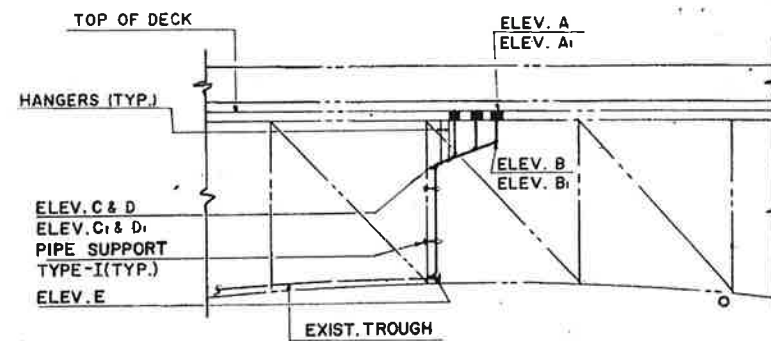


SECTION F-F

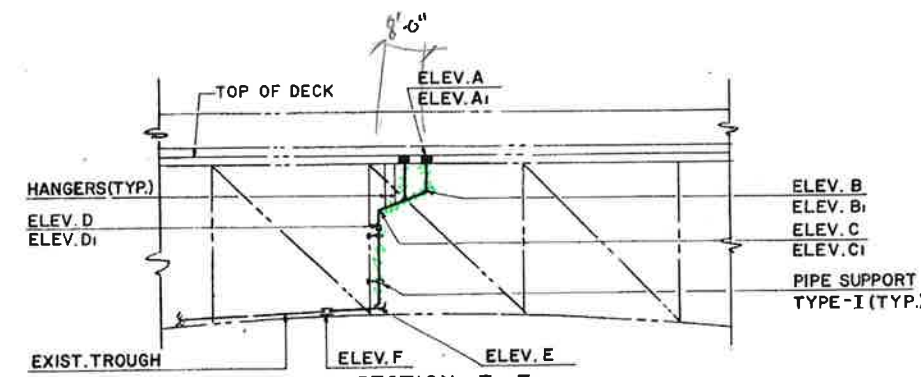
NOTE: For exact elevations, locations, and schematics see shop drawings.
OHIO STRUCTURES INC.
P.O. BOX 541 CANFIELD, OHIO 44406
(216) 533-0084
SHEETS 'E1 TO E39', 1 TO 72



SECTION A-A



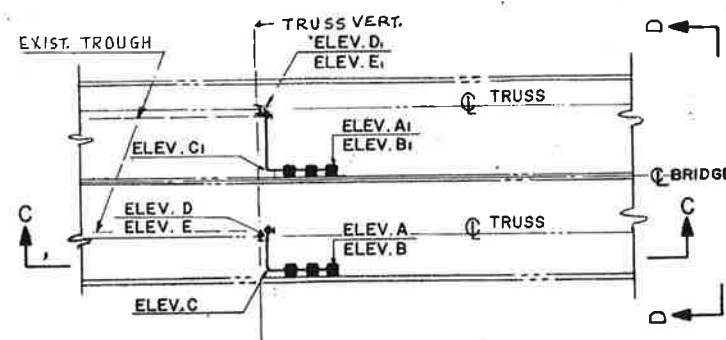
SECTION C-C



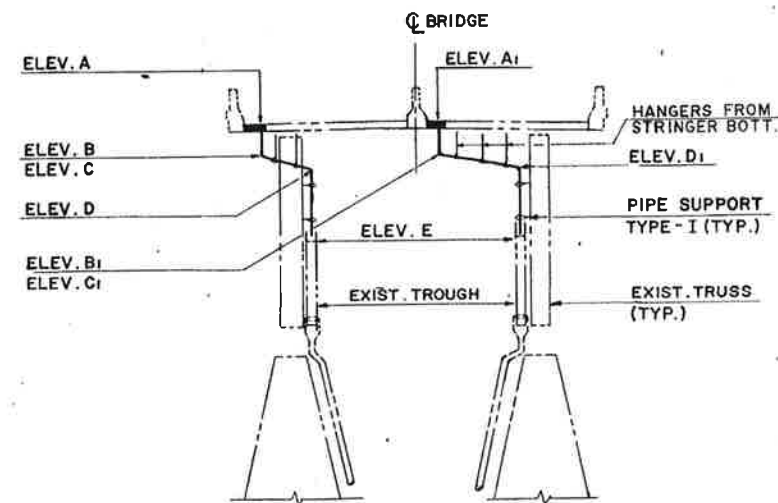
SECTION E-E

REFERENCES :
References and Legend

DWG. No.
G 43



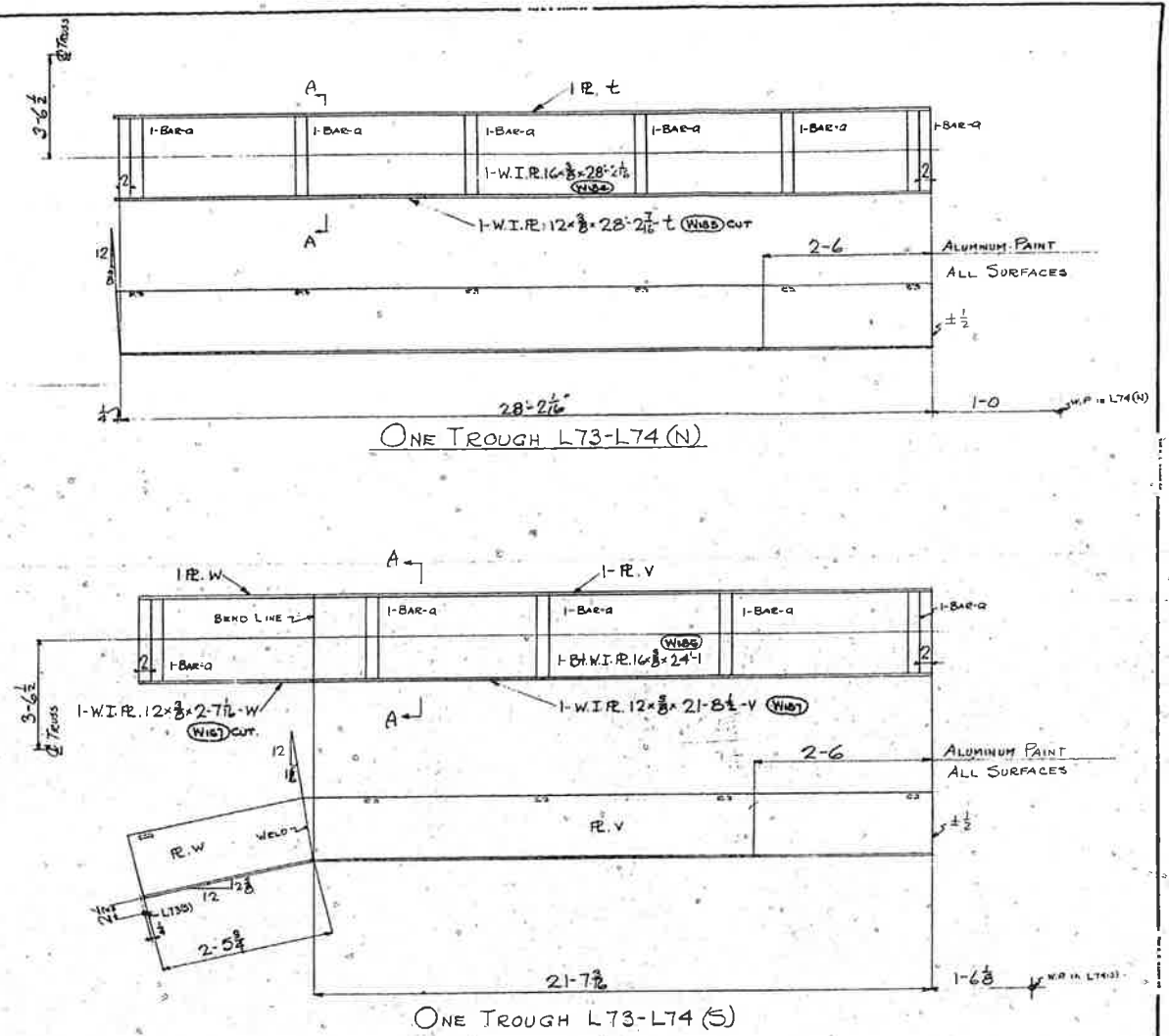
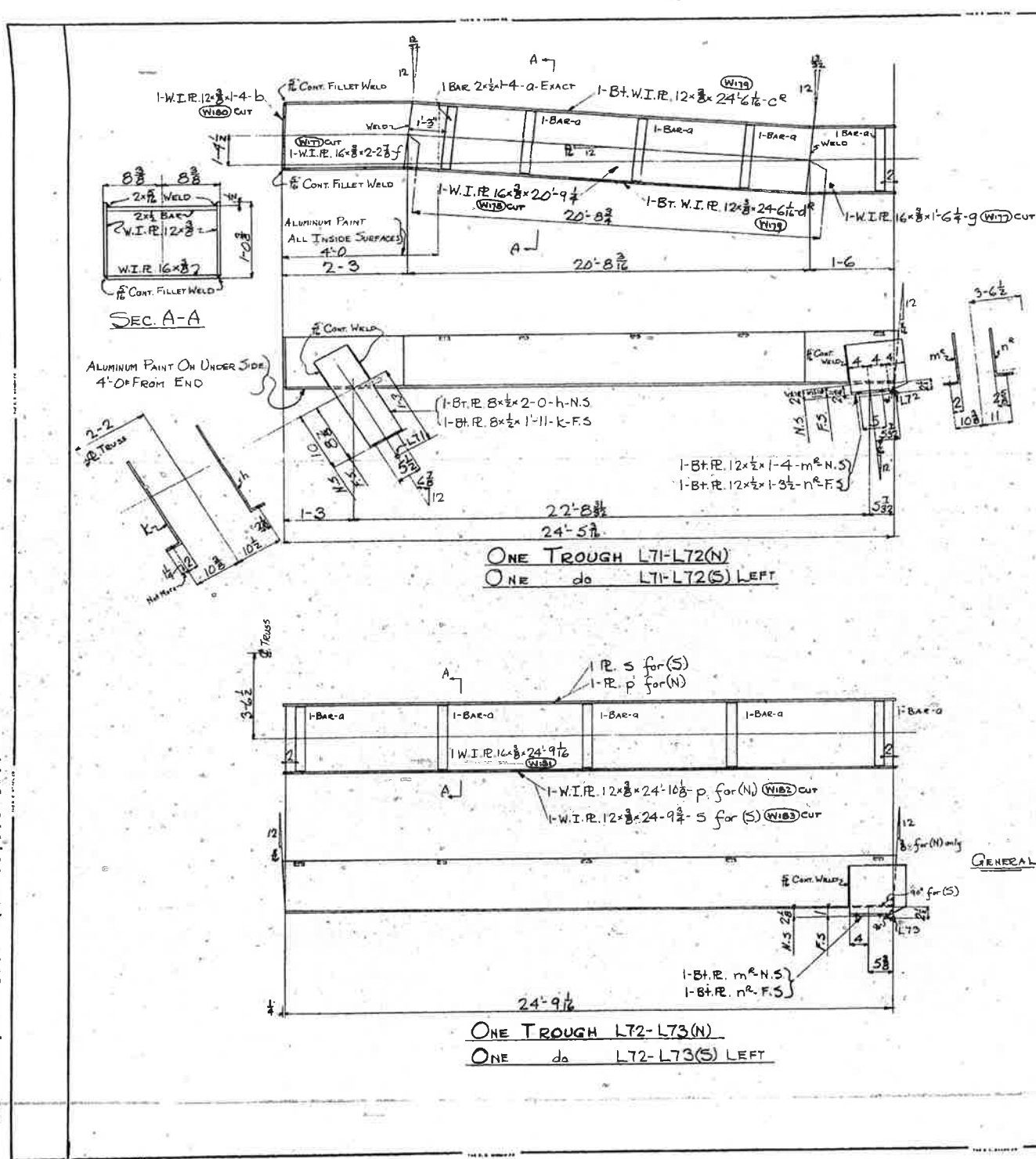
PLAN
STA. 30+40, 31+23, 32+44
34+26, 35+83, 37+04, 45+22, 46+85
DETAIL- 18



SECTION D-D

As Built

PAVLO ENGINEERING CO., P.C. NEW YORK, NEW YORK			
CUYAHOGA COUNTY ENGINEER CLEVELAND OHIO			
MAIN AVENUE BRIDGE CITY OF CLEVELAND BRIDGE OVER THE CUYAHOGA RIVER VALLEY			
DRAINAGE TYPICAL PLAN AND SECTIONS-4			
BRIDGE NO. 133	REPORT NO. 7119	DATE Dec. 3, 1989	
NO. B-136			G49 93
DESIGN SNA	DRAWN SNA	CHECKED CKP	REVISED TO AS BUILT AS BUILT 2/94



GENERAL NOTES: ALL JOINTS TO BE WATER TIGHT
 ALL SHOP & FIELD SPICES TO BE 100% BUTT WELDED
 SHOP PAINT: TWO COATS OF ZINC CHROMATE
 SHOP CONTACT SURFACES NOT PAINTED
 SURFACES INACCESSIBLE AFTER ERECTION (WHERE INDICATED ON SHOP DRAWINGS) TO BE GIVEN ONE ADDITIONAL SHOP COAT OF ALUMINUM PAINT
MATL. SPECS. STRUCTURAL STEEL - A.S.T.M. A7-36 WITH COPPER BEARING CONTENT OF 0.02%
 WROUGHT IRON - A.S.T.M. - A42-37T
 RIVETS - A.S.T.M. - A141-36 WITH COPPER BEARING CONTENT OF 0.20%
 ALUMINUM PAINT ON UNDER SIDE OF ALL TROUGHS 2 FEET FROM EACH END (EXCEPT AS NOTED) AND ON INSIDE SURFACES OF BENT CONN. RS. BELOW TROUGHS.
 SPACE BARS 'a' ABOUT AS SHOWN

UNIT #4

THE R. C. MAHON COMPANY	
DETROIT, MICHIGAN	
STRUCTURAL STEEL DIVISION	
MAIN AVENUE BRIDGE	
CLEVELAND, OHIO	
TROUGHS L71 to L74 N & S	
Made by: J.D.S.	Checked by: A.M.C.W. Date: 12-2-38
Shop Rivets: NONE	Shop Paint: SEE NOTE
Open Holes: 1/2"	Field Paint:
CONTRACT: 37237	SHEET No. 149

FLOORBEAM BUMP-UPS

Original Floorbeam (Typ.)	1.596
New Bracket (Typ.)	1.551
Original Bracket (Typ.)	1.526

Original Floorbeam (Typ.)



Made KMW
Checked ADK

Date 2/15/2012
Date 2/15/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Dead Load	Plates	Element	Assumptions/Notes
Span N/A		Original FB typ	

Total Weight

Angles	8274.30
Plates	5623.69
I-Sections	0.00

Member Total 13897.99 lbs
x 5% misc. 14592.89

Member Weight

Angles	5493.6
Plates	3651.074
I-Sections	0

Main Member Tot. 9144.674 lbs

Bump-Up Factor = $\frac{14592.89}{9144.674}$ = **1.596**

Original Floorbeam (Typ.)



Made
 Checked

Date 2/15/2012
 Date 2/15/2012

Job No. P402110046
 Sheet No.

Calculations For: **CUY-2-1441**

Dead Load

WF-Sections, Channels, WT's

Assumptions/Notes

Span
N/A

Element
Original FB typ

	Quantity	lb/ft	Total Lf	Total wt.	Section Subtotals
Member Weights	1	0	0.000	0.000	
	1	0	0.000	0.000	
	1	0	0.000	0.000	
	1	0	0.000	0.000	
	1	0	0.000	0.000	
	1	0	0.000	0.000	
	1	0	0.000	0.000	
	1	0	0.000	0.000	
	1	0	0.000	0.000	
	1	0	0.000	0.000	
	1	0	0.000	0.000	
	1	0	0.000	0.000	
	1	0	0.000	0.000	
Members contributing to Total Weight	1	0	0.000	0.000	
	1	0	0.000	0.000	
	1	0	0.000	0.000	
	1	0	0.000	0.000	
	1	0	0.000	0.000	
	1	0	0.000	0.000	
	1	0	0.000	0.000	
	1	0	0.000	0.000	
	1	0	0.000	0.000	
	1	0	0.000	0.000	
	1	0	0.000	0.000	
	1	0	0.000	0.000	
	1	0	0.000	0.000	

Section Total 0.000 Pounds

Original Floorbeam (Typ.)



Made KMW
Checked ADK

Date 2/15/2012
Date 2/15/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Dead Load	Plates	Assumptions/Notes
Span N/A	Element Original FB typ	

Steel= 490 #/Lf

	Plate Dimension					Area	Total wt.	Section Subtotals
	Quantity	(inches)		Feet	Inches			
		Height	Thickness	Width				
Member Weight	1	60	0.38	47	8.25	7.451	3651.074	
	1	0	0.00	0	0	0.000	0.000	
	1	0	0.00	0	0	0.000	0.000	
	1	0	0.00	0	0	0.000	0.000	
	1	0	0.00	0	0	0.000	0.000	
	1	0	0.00	0	0	0.000	0.000	
	1	0	0.00	0	0	0.000	0.000	
	1	0	0.00	0	0	0.000	0.000	
	1	0	0.00	0	0	0.000	0.000	
	1	0	0.00	0	0	0.000	0.000	
	1	0	0.00	0	0	0.000	0.000	
	1	0	0.00	0	0	0.000	0.000	
	1	0	0.00	0	0	0.000	0.000	3651.074
Members contributing to Total Weight	14	3.5	0.75	4	0.5	1.031	505.419	
	16	3.5	0.75	2	7	0.753	369.201	
	4	11	0.88	1	0.25	0.273	133.736	
	2	12	0.88	3	0	0.438	214.375	
	16	10.25	0.75	1	9.5	1.530	749.887	
	1	0	0.00	0	0	0.000	0.000	
	1	0	0.00	0	0	0.000	0.000	
	1	0	0.00	0	0	0.000	0.000	
	1	0	0.00	0	0	0.000	0.000	
	1	0	0.00	0	0	0.000	0.000	
	1	0	0.00	0	0	0.000	0.000	
	1	0	0.00	0	0	0.000	0.000	
	1	0	0.00	0	0	0.000	0.000	
	1	0	0.00	0	0	0.000	0.000	
	1	0	0.00	0	0	0.000	0.000	
	1	0	0.00	0	0	0.000	0.000	1972.619

Section Total 5623.693 Pounds

Original Floorbeam (Typ.)



Made KMW
Checked ADK

Date 2/15/2012
Date 2/15/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Dead Load

Angles

Assumptions/Notes

Span
N/A

Element
Original FB typ

▪ U47 used

	Quantity	Angle Dimension				Length (L)	L(tot./EA)	lb/ft	Total wt.	Section Subtotals
		(inches)		Feet	Inches					
		Leg 1	Leg 2	Thickness						
Member Weight	4	6	6.0	0.75	47	8.25	47.688	28.8	5493.600	
	1	0	0.0	0.00	0	0	0.000	0.0	0.000	
	1	0	0.0	0.00	0	0	0.000	0.0	0.000	
	1	0	0.0	0.00	0	0	0.000	0.0	0.000	
	1	0	0.0	0.00	0	0	0.000	0.0	0.000	
	1	0	0.0	0.00	0	0	0.000	0.0	0.000	
	1	0	0.0	0.00	0	0	0.000	0.0	0.000	
	1	0	0.0	0.00	0	0	0.000	0.0	0.000	
	1	0	0.0	0.00	0	0	0.000	0.0	0.000	
	1	0	0.0	0.00	0	0	0.000	0.0	0.000	
	1	0	0.0	0.00	0	0	0.000	0.0	0.000	5493.600
	Members contributing to Total Weight	12	5	3.5	0.50	3	7.75	3.646	13.6	595.000
14		4	3.5	0.38	4	10	4.833	9.1	615.767	
16		8	6.0	0.75	0	9	0.750	34.0	408.000	
4		8	6.0	0.63	4	10.5	4.875	28.6	557.700	
4		5	3.5	0.38	1	0.5	1.042	10.4	43.333	
24		4	3.5	0.38	1	0.5	1.042	9.1	227.500	
4		5	3.5	0.38	2	1.5	2.125	10.4	88.400	
4		5	3.5	0.63	3	7.75	3.646	16.8	245.000	
1		0	0.0	0.00	0	0	0.000	0.0	0.000	
1		0	0.0	0.00	0	0	0.000	0.0	0.000	
1		0	0.0	0.00	0	0	0.000	0.0	0.000	
1		0	0.0	0.00	0	0	0.000	0.0	0.000	2780.700

Section Total 8274.300 Pounds



Made KMW
 Checked ADK

Date 2/17/2012
 Date 2/18/2012

Job No. P402110046
 Sheet No. _____

Calculations For: **CUY-2-1441**

Dead Load	Plates	Element	Assumptions/Notes
Span n/a		Original Bracket	

Total Weight

Angles	1976.54
Plates	963.96
I-Sections	0.00

Member Total 2940.50 lbs
 x 5% misc. 3087.521

Member Weight

Angles	1278.281
Plates	745.1533
I-Sections	0

Main Member Tot. 2023.435 lbs

Bump-Up Factor = $\frac{3087.52}{2023.435}$ = 1.526



Made KMW
 Checked ADK

Date 2/17/2012
 Date 2/18/2012

Job No. P402110046
 Sheet No.

Calculations For: **CUY-2-1441**

Dead Load	WF-Sections, Channels, WT's	Assumptions/Notes
Span n/a	Element Original Bracket	

	Quantity	lb/ft	Total Lf	Total wt.	Section Subtotals
Member Weights	1	0	0.000	0.000	0.000
	1	0	0.000	0.000	
	1	0	0.000	0.000	
	1	0	0.000	0.000	
	1	0	0.000	0.000	
	1	0	0.000	0.000	
	1	0	0.000	0.000	
	1	0	0.000	0.000	
	1	0	0.000	0.000	
	1	0	0.000	0.000	
	1	0	0.000	0.000	
	1	0	0.000	0.000	
	1	0	0.000	0.000	
Members contributing to Total Weight	1	0	0.000	0.000	0.000
	1	0	0.000	0.000	
	1	0	0.000	0.000	
	1	0	0.000	0.000	
	1	0	0.000	0.000	
	1	0	0.000	0.000	
	1	0	0.000	0.000	
	1	0	0.000	0.000	
	1	0	0.000	0.000	
	1	0	0.000	0.000	
	1	0	0.000	0.000	
	1	0	0.000	0.000	
	1	0	0.000	0.000	
1	0	0.000	0.000		

Section Total 0.000 Pounds

Original Bracket Typ.



Made KMW
Checked ADK

Date 2/17/2012
Date 2/18/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Dead Load	Plates	Assumptions/Notes
Span n/a	Element Original Bracket	

Steel= 490 #/Lf

	Plate Dimension					Area	Total wt.	Section Subtotals
	Quantity	(inches)		Feet	Inches			
		Height	Thickness	Width				
Member Weight	1	45.028	0.38	12	11.625	1.521	745.153	
	1	0	0.00	0	0	0.000	0.000	
	1	0	0.00	0	0	0.000	0.000	
	1	0	0.00	0	0	0.000	0.000	
	1	0	0.00	0	0	0.000	0.000	
	1	0	0.00	0	0	0.000	0.000	
	1	0	0.00	0	0	0.000	0.000	
	1	0	0.00	0	0	0.000	0.000	
	1	0	0.00	0	0	0.000	0.000	
	1	0	0.00	0	0	0.000	0.000	
	1	0	0.00	0	0	0.000	0.000	
	1	0	0.00	0	0	0.000	0.000	
	1	0	0.00	0	0	0.000	0.000	
								745.153
Members contributing to Total Weight	4	3.5	0.50	1	6	0.073	35.729	
	2	3	0.50	1	6.75	0.033	15.951	
	2	6.25	0.38	1	2.375	0.039	19.107	
	2	6.5	0.50	4	0	0.181	88.472	
	4	3.5	0.50	2	6	0.122	59.549	
	1	0	0.00	0	0	0.000	0.000	
	1	0	0.00	0	0	0.000	0.000	
	1	0	0.00	0	0	0.000	0.000	
	1	0	0.00	0	0	0.000	0.000	
	1	0	0.00	0	0	0.000	0.000	
	1	0	0.00	0	0	0.000	0.000	
	1	0	0.00	0	0	0.000	0.000	
	1	0	0.00	0	0	0.000	0.000	
	1	0	0.00	0	0	0.000	0.000	
	1	0	0.00	0	0	0.000	0.000	
	1	0	0.00	0	0	0.000	0.000	
								218.808

Section Total 963.961 Pounds



Made KMW
Checked ADK

Date 2/17/2012
Date 2/18/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Dead Load	Angles	Assumptions/Notes
Span n/a	Element Original Bracket	Using 47N

	Quantity	Angle Dimension			Length (L)	L(tot./EA)	lb/ft	Total wt.	Section Subtotals	
		(inches)		Thickness						
		Leg 1	Leg 2	Thickness						
Member Weight	2	6	6	0.50	12	11.625	12.969	24.3	630.281	
	2	6	6	0.50	13	4	13.333	24.3	648.000	
	1	0	0	0.00	0	0	0.000	0.0	0.000	
	1	0	0	0.00	0	0	0.000	0.0	0.000	
	1	0	0	0.00	0	0	0.000	0.0	0.000	
	1	0	0	0.00	0	0	0.000	0.0	0.000	
	1	0	0	0.00	0	0	0.000	0.0	0.000	
	1	0	0	0.00	0	0	0.000	0.0	0.000	
	1	0	0	0.00	0	0	0.000	0.0	0.000	
	1	0	0	0.00	0	0	0.000	0.0	0.000	
	1	0	0	0.00	0	0	0.000	0.0	0.000	1278.281
Members contributing to Total Weight	2	7	4	0.63	4	10.75	4.896	22.1	216.396	
	8	5	3.5	0.38	1	0.5	1.042	10.4	86.667	
	2	5	3.5	0.50	2	1.5	2.125	12.8	54.400	
	2	5	3.5	0.50	3	1.25	3.104	12.8	79.467	
	2	4	3.5	0.38	2	10	2.833	9.1	51.567	
	2	4	3.5	0.38	3	9.5	3.792	9.1	69.008	
	2	4	3.5	0.38	4	2.625	4.219	9.1	76.781	
	2	8	6.5	0.50	1	2.375	1.198	26.7	63.969	
	1	0	0	0.00	0	0	0.000	0.0	0.000	
	1	0	0	0.00	0	0	0.000	0.0	0.000	
	1	0	0	0.00	0	0	0.000	0.0	0.000	
	1	0	0	0.00	0	0	0.000	0.0	0.000	
	1	0	0	0.00	0	0	0.000	0.0	0.000	698.254

Section Total 1976.535 Pounds

New Bracket (Typ.)



Made KMW
Checked ADK

Date 2/16/2012
Date 2/18/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Dead Load	Plates	Element	Assumptions/Notes
Span n/a		New Bracket typ.	

Total Weight

Angles	199.65
Plates	1630.88
I-Sections	0.00

Member Total **1830.53 lbs**
x 5% misc. **1922.059**

Member Weight

Angles	0
Plates	1239.415
I-Sections	0

Main Member Tot. **1239.415 lbs**

Bump-Up Factor = $\frac{1922.06}{1239.415}$ = **1.551**

New Bracket (Typ.)



Made KMW
Checked ADK

Date 2/16/2012
Date 2/18/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Dead Load

WF-Sections, Channels, WT's

Assumptions/Notes

Span
n/a

Element
New Bracket typ.

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	Quantity	lb/ft	Total Lf	Total wt.	Section Subtotals
Member Weights	1	0	0.000	0.000	
	1	0	0.000	0.000	
	1	0	0.000	0.000	
	1	0	0.000	0.000	
	1	0	0.000	0.000	
	1	0	0.000	0.000	
	1	0	0.000	0.000	
	1	0	0.000	0.000	
	1	0	0.000	0.000	
	1	0	0.000	0.000	
	1	0	0.000	0.000	
	1	0	0.000	0.000	
	1	0	0.000	0.000	
					0.000
Members contributing to Total Weight	1	0	0.000	0.000	
	1	0	0.000	0.000	
	1	0	0.000	0.000	
	1	0	0.000	0.000	
	1	0	0.000	0.000	
	1	0	0.000	0.000	
	1	0	0.000	0.000	
	1	0	0.000	0.000	
	1	0	0.000	0.000	
	1	0	0.000	0.000	
	1	0	0.000	0.000	
	1	0	0.000	0.000	
	1	0	0.000	0.000	
					0.000

Section Total 0.000 Pounds

New Bracket (Typ.)



Made KMW
Checked ADK

Date 2/16/2012
Date 2/18/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Dead Load	Plates	Assumptions/Notes
Span n/a	Element New Bracket typ.	

Steel= 490 #/Lf

	Quantity	Plate Dimension				Area	Total wt.	Section Subtotals
		(inches)		Feet	Inches			
		Height	Thickness	Width				
Member Weight	1	118.813	0.38	0	43.5	1.122	549.587	
	1	118.813	0.75	0	13	0.670	328.489	
	1	130.6943	0.75	0	13	0.737	361.338	
	1	0	0.00	0	0	0.000	0.000	
	1	0	0.00	0	0	0.000	0.000	
	1	0	0.00	0	0	0.000	0.000	
	1	0	0.00	0	0	0.000	0.000	
	1	0	0.00	0	0	0.000	0.000	
	1	0	0.00	0	0	0.000	0.000	
	1	0	0.00	0	0	0.000	0.000	
	1	0	0.00	0	0	0.000	0.000	
	1	0	0.00	0	0	0.000	0.000	
	1	0	0.00	0	0	0.000	0.000	1239.415
Members contributing to Total Weight	2	6	0.50	0	54.45	0.189	92.641	
	2	6	0.50	0	48.4	0.168	82.347	
	1	6	0.50	0	42.35	0.074	36.027	
	1	13	0.88	3	0	0.237	116.120	
	2	3.75	0.50	0	60.5	0.131	64.334	
	1	0	0.00	0	0	0.000	0.000	
	1	0	0.00	0	0	0.000	0.000	
	1	0	0.00	0	0	0.000	0.000	
	1	0	0.00	0	0	0.000	0.000	
	1	0	0.00	0	0	0.000	0.000	
	1	0	0.00	0	0	0.000	0.000	
	1	0	0.00	0	0	0.000	0.000	
	1	0	0.00	0	0	0.000	0.000	
	1	0	0.00	0	0	0.000	0.000	
	1	0	0.00	0	0	0.000	0.000	391.468

Section Total 1630.883 Pounds

New Bracket (Typ.)



Made KMW
Checked ADK

Date 2/16/2012
Date 2/18/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Dead Load	Angles	Assumptions/Notes
Span n/a	Element New Bracket typ.	10L South used

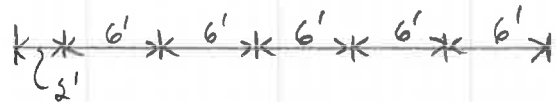
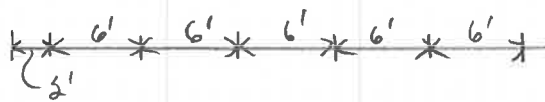
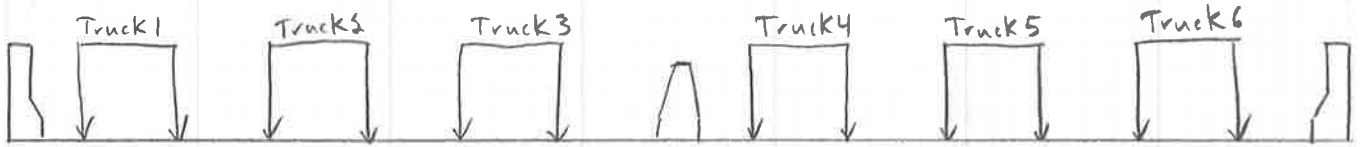
	Angle Dimension						L(tot./EA)	lb/ft	Total wt.	Section Subtotals
	Quantity	(inches)			Feet	Inches				
		Leg 1	Leg 2	Thickness	Length (L)					
Member Weight	1	0	0	0.00	0	0	0.000	0.0	0.000	0.000
	1	0	0	0.00	0	0	0.000	0.0	0.000	
	1	0	0	0.00	0	0	0.000	0.0	0.000	
	1	0	0	0.00	0	0	0.000	0.0	0.000	
	1	0	0	0.00	0	0	0.000	0.0	0.000	
	1	0	0	0.00	0	0	0.000	0.0	0.000	
	1	0	0	0.00	0	0	0.000	0.0	0.000	
	1	0	0	0.00	0	0	0.000	0.0	0.000	
	1	0	0	0.00	0	0	0.000	0.0	0.000	
	1	0	0	0.00	0	0	0.000	0.0	0.000	
	1	0	0	0.00	0	0	0.000	0.0	0.000	
Members contributing to Total Weight	2	6	4	0.63	0	60.5	5.042	19.8	199.650	199.650
	1	0	0	0.00	0	0	0.000	0.0	0.000	
	1	0	0	0.00	0	0	0.000	0.0	0.000	
	1	0	0	0.00	0	0	0.000	0.0	0.000	
	1	0	0	0.00	0	0	0.000	0.0	0.000	
	1	0	0	0.00	0	0	0.000	0.0	0.000	
	1	0	0	0.00	0	0	0.000	0.0	0.000	
	1	0	0	0.00	0	0	0.000	0.0	0.000	
	1	0	0	0.00	0	0	0.000	0.0	0.000	
	1	0	0	0.00	0	0	0.000	0.0	0.000	
	1	0	0	0.00	0	0	0.000	0.0	0.000	
	1	0	0	0.00	0	0	0.000	0.0	0.000	

Section Total 199.650 Pounds

LIVE LOAD CALCULATIONS

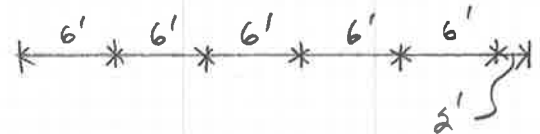
LANE CONFIGURATION

← N



Maximize North Truss

← N

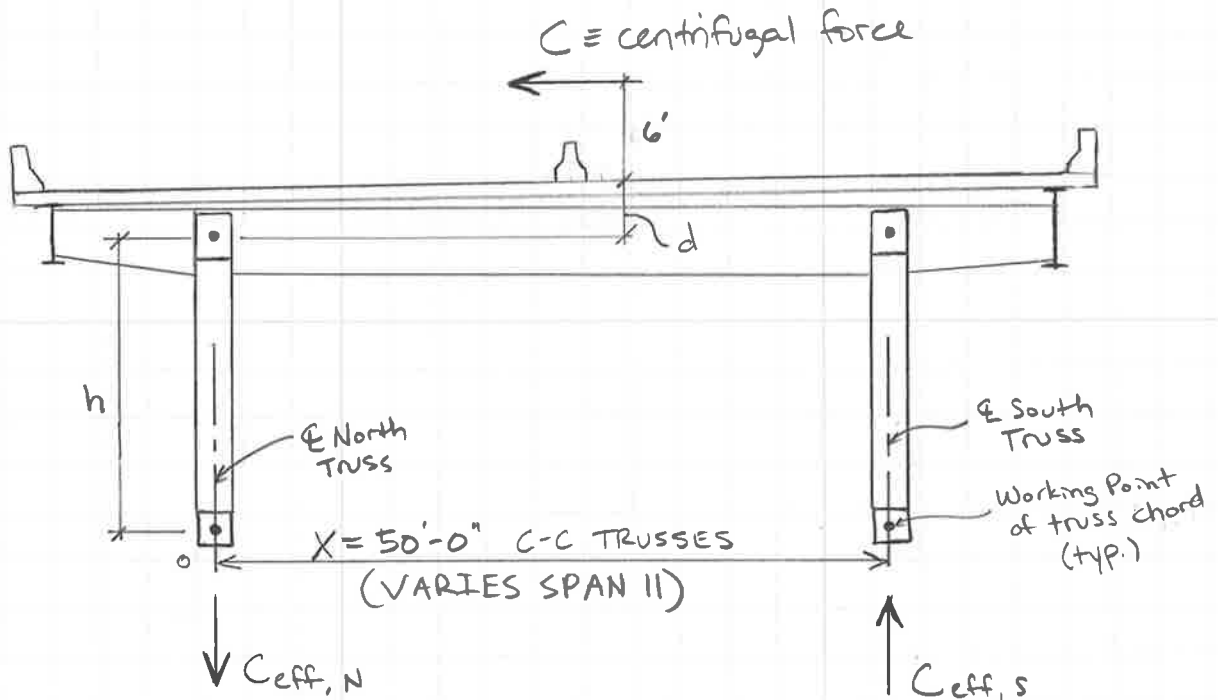


Maximize South Truss

* Fatigue loading consists of a single truck in the "Truck 1" lane.

CENTRIFUGAL FORCES

CENTRIFUGAL FORCE



- Treat each panel point as a frame that resists the couple generated by the lateral load due to centrifugal force.
- The North Truss will experience increased loading, while the South Truss experiences a decrease.
 - ∴ For the South Truss, calculate the following 2 load cases and use the critical forces:
 - Impact with reduction from centrifugal force (trucks moving)
 - No impact or centrifugal force (this represents stationary trucks in the critical positions)
- The centrifugal force, C , will be calculated per AASHTO 3.10.1 for the two bend points on the bridge with unique radii.

$$C = \frac{6.68 S^2}{R}, \quad \text{where } R = \text{radius at } \ominus \text{ roadway}$$

$$S = \text{design speed (MPH)}$$

$$\text{Bend point \#1: } R = 1762.95' \Rightarrow C = 9.473\%$$

(PP 44 to 62)

$$\text{Bend point \#2: } R = 1000' \Rightarrow C = 16.7\%$$

→ Treating each panel point as a frame, the centrifugal force increase or decrease is a function of the height of the truss verticals.

$$\sum M_o = C \times (G' + d + h) - X \times C_{eff}$$

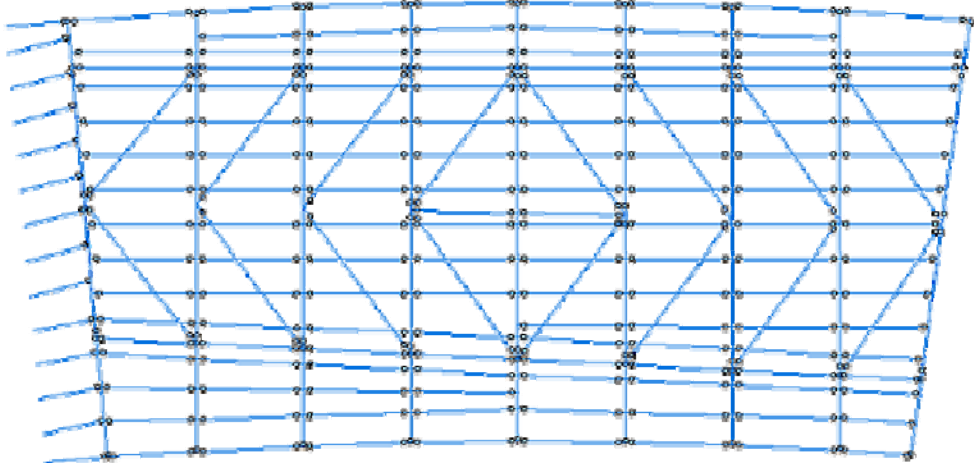
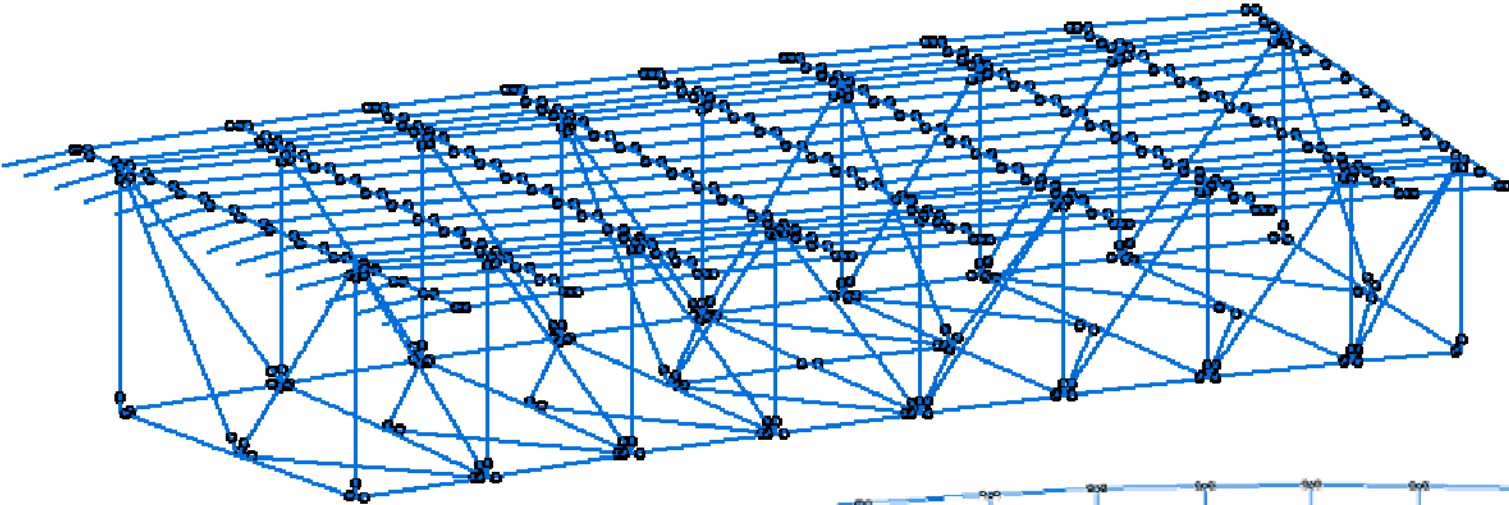
$$\therefore C_{eff} = \frac{C \times (G' + d + h)}{X}$$

Assume $d \approx 4'$ as an average (per plans).

$$\therefore C_{eff} = \frac{C \times (10' + h)}{X}, \quad \text{where } h = \text{height of vertical}$$

(working pt to working pt)

STAAD MODEL



STAAD MODEL GEOMETRY

- Span II Truss STAAD Geometry

Joints 1-9 N. Truss Lower Chord
 10-18 N. Truss Upper Chord
 19-27 S. Truss Lower Chord
 28-36 S. Truss Upper Chord

Members

1-8	N. Truss Lower Chord	33-41	N.T. Verticals
9-16	N. Truss Upper Chord	42-50	S.T. Verticals
17-24	S. Truss Lower Chord	51-58	N.T. Diagonals
25-32	S. Truss Upper Chord	59-66	S.T. Diagonals

Supports

	<u>Type</u>
L127	Fixed (Pin)
L135	Expansion (Pin)

Releases

- Truss members are released in MY and MZ at panel points.
- Secondary truss members are pin connected to truss panel points (Release MX, MY, MZ).
- Floorbeams are fixed at connection to truss.
- Stringers are released in FX and MZ. FX release prevents stringers from carrying axial forces intended for upper chord members.

Geometry

- Member lengths are determined by working point to working point distances.

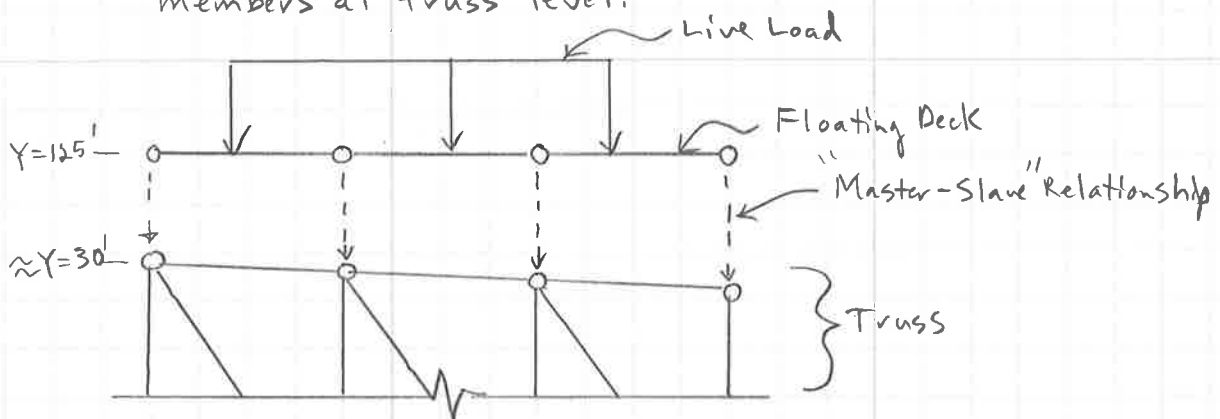
Section Properties

- Include rolled truss members and stringers, with built-up floorbeams.

- Span II Truss STAAD Geometry

Floating Deck (Live Load Models Only)

Modeled framing members raised up from truss in order to avoid applying live load to upper chord and truss web members directly. Loads applied at floating deck elevation with a "Master-Slave" relationship used to transfer vertical forces (FY) to framing members at truss level.



Dead Load

- Self-weight was applied to all members w/ calculated dead load "bump-ups" to account for connections, fill plates, secondary member connection plates, etc.
- Point loads applied to the structure include catwalk, gusset plates, drainage troughs, etc.
- Deck parapet and wearing surface loads applied as distributed loads to stringers.
- * See Dead Load Calc's. for more information.

Live Load

- Due to roadway curvature, a unique method was utilized to apply lane and truck loading across the structure.
- * Refer to Volume IV and Input Command File Sample Lane and HS-20 sections for further explanation.

DEAD LOAD COMMAND FILE

STAAD SPACE

START JOB INFORMATION

ENGINEER DATE 31-Jan-12
 JOB NAME Main Avenue Bridge Load Rating
 JOB CLIENT ODOT-12
 JOB NO P402110046
 ENGINEER NAME SFH
 END JOB INFORMATION
 INPUT WIDTH 79
 UNIT FEET KIP

JOINT COORDINATES

*1-9 North Truss Lower Chord
 1 4.7 0 -73.54 ; 2 27.91 0.52 -73.54 ; 3 47.91 0.96 -73.54 ;
 4 67.91 1.11 -73.54 ; 5 87.91 1.25 -73.54 ; 6 107.91 1.11 -73.54 ;
 7 127.91 0.96 -73.54 ; 8 147.91 0.52 -73.54 ; 9 171.13 0 -73.54 ;
 *10-18 North Truss Upper Chord
 10 4.7 31.5 -73.54 ; 11 27.91 30.81 -73.54 ; 12 47.91 30.21 -73.54 ;
 13 67.91 29.64 -73.54 ; 14 87.91 29.09 -73.54 ; 15 107.91 28.52 -73.54 ;
 16 127.91 27.91 -73.54 ; 17 147.91 27.44 -73.54 ; 18 171.13 26.89 -73.54 ;
 *19-27 South Truss Lower Chord
 19 9.39 0 -23.15 ; 20 27.91 0.46 -22.24 ; 21 47.91 0.96 -21.26 ;
 22 67.91 1.11 -20.27 ; 23 87.91 1.25 -19.29 ; 24 107.91 1.11 -18.3 ;
 25 127.91 0.96 -17.32 ; 26 147.91 0.52 -16.33 ; 27 163.18 0 -15.58 ;
 *28-36 South Truss Upper Chord
 28 9.39 30 -23.15 ; 29 27.91 29.4 -22.24 ; 30 47.91 28.74 -21.26 ;
 31 67.91 28.11 -20.27 ; 32 87.91 27.47 -19.29 ; 33 107.91 26.86 -18.3 ;
 34 127.91 26.23 -17.32 ; 35 147.91 25.66 -16.33 ; 36 163.18 25.2 -15.58 ;

*STRINGERS - A BBB CC A=Placeholder, BBB=Floorbeam, CC=Stringer (North to South)

212601 0 28.97 0 ; 212602 -0.5 29.13 -5.37 ;
 212603 -1.11 29.32 -11.93 ; 212604 -1.71 29.51 -18.37 ;
 212605 -2.3 29.70 -24.71 ; 212606 -2.9 29.89 -31.14 ;
 212607 -3.5 30.07 -37.57 ; 212608 -4.1 30.26 -44 ;
 212609 -4.7 30.45 -50.43 ; 212610 -5.3 30.64 -56.86 ;
 212611 -5.9 30.83 -63.3 ; 212612 -6.5 31.02 -69.73 ;
 212613 -7.09 31.20 -76.07 ; 212614 -7.56 31.35 -81.17 ;
 212701 11.45 29.34 -1.07 ; 212702 10.82 29.54 -7.78 ;
 212703 10.23 29.73 -14.13 ; 212704 9.64 29.92 -20.48 ;
 212705 9.05 30.11 -26.81 ; 212706 8.61 30.25 -31.6 ;
 212707 8.38 30.33 -34.07 ; 212708 8.01 30.44 -37.98 ;
 212709 7.78 30.52 -40.5 ; 212710 7.42 30.63 -44.35 ;
 212711 7.18 30.71 -46.94 ; 212712 6.82 30.82 -50.73 ;
 212713 6.58 30.90 -53.37 ; 212714 6.23 31.01 -57.1 ;
 212715 5.98 31.09 -59.8 ; 212716 5.64 31.20 -63.48 ;
 212717 5.38 31.28 -66.23 ; 212718 5.04 31.39 -69.85 ;
 212719 4.78 31.47 -72.66 ; 212720 4.44 31.58 -76.31 ;
 212721 4.19 31.66 -79 ; 212722 3.89 31.76 -82.24 ;
 212801 27.91 28.85 -2.17 ; 212802 27.91 29.01 -8.17 ;
 212803 27.91 29.17 -13.82 ; 212804 27.91 29.32 -19.47 ;
 212805 27.91 29.50 -26 ; 212806 27.91 29.66 -31.6 ;
 212807 27.91 29.83 -37.98 ; 212808 27.91 30.01 -44.35 ;
 212809 27.91 30.18 -50.73 ; 212810 27.91 30.36 -57.1 ;
 212811 27.91 30.53 -63.48 ; 212812 27.91 30.71 -69.85 ;
 212813 27.91 30.89 -76.3 ; 212814 27.91 30.97 -79.21 ;
 212815 27.91 31.10 -83.92 ; 212901 47.91 28.23 -3.16 ;
 212902 47.91 28.39 -8.74 ; 212903 47.91 28.52 -13.61 ;
 212904 47.91 28.66 -18.44 ; 212905 47.91 28.85 -25.15 ;
 212906 47.91 29.03 -31.6 ; 212907 47.91 29.21 -37.98 ;
 212908 47.91 29.39 -44.35 ; 212909 47.91 29.57 -50.73 ;
 212910 47.91 29.75 -57.1 ; 212911 47.91 29.93 -63.48 ;
 212912 47.91 30.11 -69.85 ; 212913 47.91 30.29 -76.29 ;
 212914 47.91 30.39 -79.8 ; 212915 47.91 30.53 -84.89 ;
 213001 67.91 27.64 -3.76 ; 213002 67.91 27.80 -9.34 ;
 213003 67.91 27.91 -13.39 ; 213004 67.91 28.03 -17.41 ;
 213005 67.91 28.23 -24.3 ; 213006 67.91 28.44 -31.6 ;
 213007 67.91 28.62 -37.98 ; 213008 67.91 28.80 -44.35 ;
 213009 67.91 28.98 -50.73 ; 213010 67.91 29.17 -57.1 ;
 213011 67.91 29.35 -63.48 ; 213012 67.91 29.53 -69.85 ;
 213013 67.91 29.72 -76.28 ; 213014 67.91 29.84 -80.39 ;
 213015 67.91 29.98 -85.48 ; 213101 87.91 27.01 -3.98 ;
 213102 87.91 27.19 -9.98 ; 213103 87.91 27.29 -13.17 ;
 213104 87.91 27.38 -16.37 ; 213105 87.91 27.59 -23.45 ;
 213106 87.91 27.66 -25.68 ; 213107 87.91 27.84 -31.6 ;
 213108 87.91 28.03 -37.98 ; 213109 87.91 28.22 -44.35 ;
 213110 87.91 28.41 -50.73 ; 213111 87.91 28.60 -57.1 ;
 213112 87.91 28.79 -63.48 ; 213113 87.91 28.98 -69.85
 198 of 2192
 213114 87.91 29.17 -76.27 ; 213115 87.91 29.31 -80.98 ;
 213116 87.91 29.45 -85.69 ; 213201 107.91 26.42 -3.81 ;

213116 87.91 29.45 -85.69 ; 213201 107.91 26.42 -3.81 ;
 213202 107.91 26.59 -9.39 ; 213203 107.91 26.77 -15.44 ;
 213204 107.91 26.98 -22.34 ; 213205 107.91 27.08 -25.57 ;
 213206 107.91 27.26 -31.6 ; 213207 107.91 27.45 -37.98 ;
 213208 107.91 27.64 -44.35 ; 213209 107.91 27.83 -50.73 ;
 213210 107.91 28.03 -57.1 ; 213211 107.91 28.22 -63.48 ;
 213212 107.91 28.41 -69.85 ; 213213 107.91 28.60 -76.25 ;
 213214 107.91 28.73 -80.41 ; 213215 107.91 28.88 -85.5 ;
 213301 127.91 25.81 -3.26 ; 213302 127.91 25.98 -8.84 ;
 213303 127.91 26.15 -14.51 ; 213304 127.91 26.35 -21.24 ;
 213305 127.91 26.47 -25.46 ; 213306 127.91 26.66 -31.6 ;
 213307 127.91 26.85 -37.98 ; 213308 127.91 27.04 -44.35 ;
 213309 127.91 27.23 -50.73 ; 213310 127.91 27.42 -57.1 ;
 213311 127.91 27.61 -63.48 ; 213312 127.91 27.80 -69.85 ;
 213313 127.91 27.99 -76.24 ; 213314 127.91 28.10 -79.85 ;
 213315 127.91 28.25 -84.94 ; 213401 147.91 25.22 -2.32 ;
 213402 147.91 25.41 -8.32 ; 213403 147.91 25.57 -13.57 ;
 213404 147.91 25.78 -20.13 ; 213405 147.91 25.94 -25.35 ;
 213406 147.91 26.14 -31.6 ; 213407 147.91 26.33 -37.98 ;
 213408 147.91 26.53 -44.35 ; 213409 147.91 26.73 -50.73 ;
 213410 147.91 26.93 -57.1 ; 213411 147.91 27.13 -63.48 ;
 213412 147.91 27.33 -69.85 ; 213413 147.91 27.52 -76.23 ;
 213414 147.91 27.62 -79.28 ; 213415 147.91 27.77 -83.99 ;
 213501 161.25 24.79 -1.48 ; 213502 162.07 24.96 -7.43 ;
 213503 162.81 25.12 -12.88 ; 213504 163.69 25.31 -19.26 ;
 213505 164.51 25.48 -25.26 ; 213506 165.38 25.67 -31.6 ;
 213507 166.25 25.85 -37.98 ; 213508 167.13 26.04 -44.35 ;
 213509 168.26 26.22 -50.73 ; 213510 168.87 26.41 -57.1 ;
 213511 169.75 26.60 -63.48 ; 213512 170.62 26.78 -69.85 ;
 213513 171.49 26.97 -76.23 ; 213514 172.33 27.15 -82.3 ;
 * Lateral Bracing Strut Midpoints (50-67)
 50 7.045 0 -48.345 ; 51 27.91 0.49 -47.89 ; 52 47.91 0.96 -47.4 ;
 53 67.91 1.11 -46.905 ; 54 87.91 1.25 -46.415 ; 55 107.91 1.11 -45.92 ;
 56 127.91 0.96 -45.43 ; 57 147.91 0.52 -44.935 ; 58 167.155 0 -44.56 ;

MEMBER INCIDENCES

*1-8 North Truss Lower Chord

1 1 2 ; 2 2 3 ; 3 3 4 ;
 4 4 5 ; 5 5 6 ; 6 6 7 ;
 7 7 8 ; 8 8 9 ;

*9-16 North Truss Upper Chord

9 10 11 ; 10 11 12 ; 11 12 13 ;
 12 13 14 ; 13 14 15 ; 14 15 16 ;
 15 16 17 ; 16 17 18 ;

*17-24 South Truss Lower Chord

17 19 20 ; 18 20 21 ; 19 21 22 ;
 20 22 23 ; 21 23 24 ; 22 24 25 ;
 23 25 26 ; 24 26 27 ;

*25-32 South Truss Upper Chord

25 28 29 ; 26 29 30 ; 27 30 31 ;
 28 31 32 ; 29 32 33 ; 30 33 34 ;
 31 34 35 ; 32 35 36 ;

*North Truss Verticals

33 1 10 ; 34 2 11 ; 35 3 12 ;
 36 4 13 ; 37 5 14 ; 38 6 15 ;
 39 7 16 ; 40 8 17 ; 41 9 18 ;

*South Truss Verticals

42 19 28 ; 43 20 29 ; 44 21 30 ;
 45 22 31 ; 46 23 32 ; 47 24 33 ;
 48 25 34 ; 49 26 35 ; 50 27 36 ;

*North Truss Diagonals

51 10 2 ; 52 11 3 ; 53 12 4 ;
 54 13 5 ; 55 5 15 ; 56 6 16 ;
 57 7 17 ; 58 8 18 ;

*South Truss Diagonals

59 28 20 ; 60 29 21 ; 61 30 22 ;
 62 31 23 ; 63 23 33 ; 64 24 34 ;
 65 25 35 ; 66 26 36 ;

*Stringers A BBB CC A=Placeholder BBB=Stringer Bay CC=Stringer Line

212701 212701 212601; 212702 212602 212702; 212703 212603 212703;
 212704 212604 212704; 212705 212605 212705; 212706 212606 212707;
 212707 212607 212709; 212708 212608 212711; 212709 212609 212713;
 212710 212610 212715; 212711 212611 212717; 212712 212612 212719;
 212713 212613 212721; 212715 212722 212614;

212801 212801 212701; 212802 212702 212802; 212803 212703 212803;
 212804 212704 212804; 212805 212705 212805; 212806 212706 212806;
 212807 212708 212807; 212808 212710 212808; 212809 212711 212809;
 212810 212714 212810; 212811 212716 212811; 212812 212718 212812;
 212813 212720 212813; 212815 212815 212722;

212813 212720 212813; 212815 212815 212722;

212901 212801 212901; 212902 212802 212902; 212903 212803 212903;

212904 212804 212904; 212905 212805 212905; 212906 212806 212906;

212907 212807 212907; 212908 212808 212908; 212909 212809 212909;

212910 212810 212910; 212911 212811 212911; 212912 212812 212912;

212913 212813 212913; 212914 212814 212914; 212915 212815 212915;

213001 212901 213001; 213002 212902 213002; 213003 212903 213003;

213004 212904 213004; 213005 212905 213005; 213006 212906 213006;

213007 212907 213007; 213008 212908 213008; 213009 212909 213009;

213010 212910 213010; 213011 212911 213011; 213012 212912 213012;

213013 212913 213013; 213014 212914 213014; 213015 212915 213015;

213101 213001 213101; 213102 213002 213102; 213103 213003 213103;

213104 213004 213104; 213105 213005 213105; 213106 213006 213107;

213107 213007 213108; 213108 213008 213109; 213109 213009 213110;

213110 213010 213111; 213111 213011 213112; 213112 213012 213113;

213113 213013 213114; 213114 213014 213115; 213115 213015 213116;

213201 213101 213201; 213202 213102 213202; 213203 213106 213205;

213204 213104 213203; 213205 213105 213204; 213206 213107 213206;

213207 213108 213207; 213208 213109 213208; 213209 213110 213209;

213210 213111 213210; 213211 213112 213211; 213212 213113 213212;

213213 213114 213213; 213214 213115 213214; 213215 213116 213215;

213301 213201 213301; 213302 213202 213302; 213303 213205 213305;

213304 213203 213303; 213305 213204 213304; 213306 213206 213306;

213307 213207 213307; 213308 213208 213308; 213309 213209 213309;

213310 213210 213310; 213311 213211 213311; 213312 213212 213312;

213313 213213 213313; 213314 213214 213314; 213315 213215 213315;

213401 213401 213301; 213402 213302 213402; 213403 213305 213405;

213404 213303 213403; 213405 213304 213404; 213406 213306 213406;

213407 213307 213407; 213408 213308 213408; 213409 213309 213409;

213410 213310 213410; 213411 213311 213411; 213412 213312 213412;

213413 213313 213413; 213414 213314 213414; 213415 213315 213415;

213501 213501 213401; 213502 213402 213502; 213503 213405 213505;

213504 213403 213503; 213505 213404 213504; 213506 213406 213506;

213507 213407 213507; 213508 213408 213508; 213509 213409 213509;

213510 213410 213510; 213511 213411 213511; 213512 213412 213512;

213513 213413 213513; 213515 213415 213514;

*FLOORBEAMS - A BBB CC A=Placeholder, BBB=Floorbeam, CC=Stringer (South to North)

312701 212702 212701 ; 312702 212703 212702 ; 312703 212704 212703 ;

312704 28 212704 ; 312705 28 212705 ; 312706 212705 212706 ;

312707 212706 212707 ; 312708 212707 212708 ; 312709 212708 212709 ;

312710 212709 212710 ; 312711 212710 212711 ; 312712 212711 212712 ;

312713 212712 212713 ; 312714 212713 212714 ; 312715 212714 212715 ;

312716 212715 212716 ; 312717 212716 212717 ; 312718 212717 212718 ;

312719 212718 212719 ; 312720 212719 10 ; 312721 10 212720 ;

312722 212720 212721 ; 312723 212721 212722 ;

312801 212802 212801 ; 312802 212803 212802 ; 312803 212804 212803 ;

312804 29 212804 ; 312805 29 212805 ; 312806 212805 212806 ;

312807 212806 212807 ; 312808 212807 212808 ; 312809 212808 212809 ;

312810 212809 212810 ; 312811 212810 212811 ; 312812 212811 212812 ;

312813 212812 11 ; 312814 11 212813 ; 312815 212813 212814 ;

312816 212814 212815 ;

312901 212902 212901 ; 312902 212903 212902 ; 312903 212904 212903 ;

312904 30 212904 ; 312905 30 212905 ; 312906 212905 212906 ;

312907 212906 212907 ; 312908 212907 212908 ; 312909 212908 212909 ;

312910 212909 212910 ; 312911 212910 212911 ; 312912 212911 212912 ;

312913 212912 12 ; 312914 12 212913 ; 312915 212913 212914 ;

312916 212914 212915 ;

313001 213002 213001 ; 313002 213003 213002 ; 313003 213004 213003 ;

313004 31 213004 ; 313005 31 213005 ; 313006 213005 213006 ;

313007 213006 213007 ; 313008 213007 213008 ; 313009 213008 213009 ;

313010 213009 213010 ; 313011 213010 213011 ; 313012 213011 213012 ;

313013 213012 13 ; 313014 13 213013 ; 313015 213013 213014 ;

313016 213014 213015 ;

313101 213102 213101 ; 313102 213103 213102 ; 313103 213104 213103 ;

313104 32 213104 ; 313105 32 213105 ; 313106 213105 213106 ;

313107 213106 213107 ; 313108 213107 213108 ; 313109 213108 213109 ;

313110 213109 213110 ; 313111 213110 213111 ; 313112 213111 213112 ;

313113 213112 213113 ; 313114 213113 14 ; 313115 14 213114 ;

313113 213112 213113 ; 313114 213113 14 ; 313115 14 213114 ;
313116 213114 213115 ; 313117 213115 213116 ;

313201 213202 213201 ; 313202 213203 213202 ; 313203 33 213203 ;
313204 33 213204 ; 313205 213204 213205 ; 313206 213205 213206 ;
313207 213206 213207 ; 313208 213207 213208 ; 313209 213208 213209 ;
313210 213209 213210 ; 313211 213210 213211 ; 313212 213211 213212 ;
313213 213212 15 ; 313214 15 213213 ; 313215 213213 213214 ;
313216 213214 213215 ;

313301 213302 213301 ; 313302 213303 213302 ; 313303 34 213303 ;
313304 34 213304 ; 313305 213304 213305 ; 313306 213305 213306 ;
313307 213306 213307 ; 313308 213307 213308 ; 313309 213308 213309 ;
313310 213309 213310 ; 313311 213310 213311 ; 313312 213311 213312 ;
313313 213312 16 ; 313314 16 213313 ; 313315 213313 213314 ;
313316 213314 213315 ;

313401 213402 213401 ; 313402 213403 213402 ; 313403 35 213403 ;
313404 35 213404 ; 313405 213404 213405 ; 313406 213405 213406 ;
313407 213406 213407 ; 313408 213407 213408 ; 313409 213408 213409 ;
313410 213409 213410 ; 313411 213410 213411 ; 313412 213411 213412 ;
313413 213412 17 ; 313414 17 213413 ; 313415 213413 213414 ;
313416 213414 213415 ;

313501 213502 213501 ; 313502 213503 213502 ; 313503 36 213503 ;
313504 36 213504 ; 313505 213504 213505 ; 313506 213505 213506 ;
313507 213506 213507 ; 313508 213507 213508 ; 313509 213508 213509 ;
313510 213509 213510 ; 313511 213510 213511 ; 313512 213511 213512 ;
313513 213512 18 ; 313514 18 213513 ; 313515 213513 213514 ;

*Lateral Bracing Horizontal Strut (500-517)

500 19 50 ; 501 50 1 ; 502 20 51 ;
503 51 2 ; 504 21 52 ; 505 52 3 ;
506 22 53 ; 507 53 4 ; 508 23 54 ;
509 54 5 ; 510 24 55 ; 511 55 6 ;
512 25 56 ; 513 56 7 ; 514 26 57 ;
515 57 8 ; 516 27 58 ; 517 58 9 ;

*Lateral Bracing Diagonal Members (517-535)

518 20 50 ; 519 50 2 ; 520 21 51 ;
521 51 3 ; 522 22 52 ; 523 52 4 ;
524 23 53 ; 525 53 5 ; 526 23 55 ;
527 55 5 ; 528 24 56 ; 529 56 6 ;
530 25 57 ; 531 57 7 ; 532 26 58 ;
533 58 8 ; 534 53 54 ; 535 54 55 ;

*Sway Bracing Members (601-608)

601 28 50 ; 602 50 10 ;
603 31 53 ; 604 53 13 ;
605 33 55 ; 606 55 15 ;
607 36 58 ; 608 58 18 ;

UNIT KIP INCH
DEFINE MATERIAL START
ISOTROPIC STEEL
E 29000
POISSON 0.3
DENSITY 0.000283
ALPHA 6E-006
DAMP 0.03
END DEFINE MATERIAL
CONSTANTS
MATERIAL STEEL ALL

UNIT KIP INCH
START USER TABLE

*Chord Members

TABLE 1
WIDEFLANGE
W14X237
69.38 16.12 1.0900 15.910 1.7480 3069.11 1174.64 1 0 0
W14x95
27.63 14.120 .4650 14.5450 .7480 1051.67 383.72 1 0 0
W14x202
59.08 15.63 .930 15.750 1.5030 2526.99 979.55 1 0 0
W14x111
32.34 14.37 .54 14.62 .8730 1254.69 454.84 1 0 0
W14X87
25.25 14 .42 14.5 .6880 955.12 349.65 1 0 0

*Vertical and Diagonals

*Vertical and Diagonals

TABLE 2
WIDEFLANGE

W14X78	22.64	14.06	.4280	12	.7180	839.36	206.87	1	0	0
W14X87	25.25	14	.42	14.5	.6880	955.12	349.65	1	0	0
W14X84	24.40	14.1800	.4510	12.023	.7780	916.60	225.45	1	0	0
W14X95	27.63	14.12	.4650	14.545	.7480	1051.67	383.72	1	0	0
W14X111	32.34	14.37	.54	16.62	.8760	1254.69	454.84	1	0	0
W14X127	37.02	14.62	.61	14.69	.998	1464.91	527.52	1	0	0
W14X136	39.67	14.75	.66	14.74	1.063	1581.23	567.68	1	0	0
W14X150	43.78	14.88	.6950	14.88	1.128	1775.09	702.48	1	0	0
W14X167	48.78	15.12	.78	15.6	1.2480	2009.04	790.15	1	0	0
W14X184	53.76	15.38	.84	15.66	1.3780	2263.05	882.63	1	0	0
W14X219	64.06	15.87	1.005	15.825	1.6230	2786.39	1073.08	1	0	0

*Fascia

TABLE 3
ISECTION

F1-1	54.9	.4375	53.1	8	.75	8	.75	1	0	0
F1-2	56.7	.4375	54.9	8	.75	8	.75	1	0	0
F1-3	56.7	.4375	56.7	8	.75	8	.75	1	0	0
F1-4	56.7	.375	56.7	8	.75	8	.75	1	0	0
F1-5	56.7	.4375	56.7	8	.75	8	.75	1	0	0
F2-1	44.1	.375	42.3	8	.75	8	.75	1	0	0
F2-2	45.9	.375	44.1	8	.75	8	.75	1	0	0
F2-3	45.9	.375	45.9	8	.75	8	.75	1	0	0
F2-4	49.5	.375	45.9	8	.75	8	.75	1	0	0
F2-5	51.3	.375	49.5	8	.75	8	.75	1	0	0

*Floorbeams

TABLE 4
PRISMATIC

F1	56.25	33749.58	242.87	1	0	0	0	0	0
F2	65.36	39230.87	266.41	1	0	0	0	0	0
F3	71.88	48107.08	446.32	1	0	0	0	0	0
F4	75	51049.97	487.01	1	0	0	0	0	0
F1EXT	56.25	33749.58	242.87	1	0	0	0	0	0
F2EXT	45.50	25269.92	160.52	1	0	0	0	0	0
F3EXT	50.94	29573.55	201.46	1	0	0	0	0	0

TABLE 5
ISECTION

R13401	44.0902	.375	30.6250	13	.75	13	.75	1	0	0
R13402	55.8723	.375	44.0902	13	.75	13	.75	1	0	0
R13403	60.5	.375	55.8723	13	.75	13	.75	1	0	0
R13501	43.8874	.375	30.6250	13	.75	13	.75	1	0	0

43.8874 .375 30.6250 13 .75 13 .75 1 0 0
R13502
56.0453 .375 43.8874 13 .75 13 .75 1 0 0
R13503
60.5 .375 56.0453 13 .75 13 .75 1 0 0
R13514
60.5 .375 53.0977 13 .75 13 .75 0 1 0
R13515
53.0977 .375 30.3750 13 .75 13 .75 1 0 0

END USER TABLE

MEMBER PROPERTY AMERICAN

**Inputing Section Properties

*Upper Chord

9 10 25 26 31 32 TABLE ST W14X176
11 TO 14 27 TO 30 UPTABLE 1 W14X237
15 16 TABLE ST W14X193

*Lower Chord

1 2 17 18 UPTABLE 1 W14X95
3 4 UPTABLE 1 W14X202
5 6 19 TO 22 TABLE ST W14x211
7 8 UPTABLE 1 W14X111
23 24 UPTABLE 1 W14X87

*Verticals

33 50 TABLE ST W14X193
34 UPTABLE 2 W14X167
35 48 UPTABLE 2 W14X127
36 45 UPTABLE 2 W14X95
37 UPTABLE 2 W14X78
38 46 UPTABLE 2 W14x84
39 UPTABLE 2 W14x111
40 UPTABLE 2 W14x150
41 UPTABLE 2 W14x184
42 UPTABLE 2 W14x219
43 TABLE ST W14x176
44 UPTABLE 2 W14x136
47 UPTABLE 2 W14x87
49 TABLE ST W14x159

*Diagonals

51 66 TABLE ST W14X159
52 57 TABLE ST W14X120
53 61 64 UPTABLE 2 W14X87
54 TO 56 62 63 UPTABLE 2 W14X78
58 59 UPTABLE 2 W14X167
60 65 UPTABLE 2 W14X136

*Lateral Bracing Horizontal Strut

500 TO 503 TABLE ST W12X40
504 TO 515 TABLE ST W12X53
516 517 TABLE ST W14X61

*Lateral Bracing Diagonal Members

518 519 TABLE ST W12X53
520 521 TABLE ST W12X58
522 TO 533 TABLE ST W12X65
534 535 TABLE ST W12X26

*Sway Bracing Members

601 TO 608 TABLE ST W12X65

*Stringers

212702 TO 212713 TABLE ST W14X53
212802 TO 212804 TABLE ST W16X67
212805 TO 212808 TABLE ST W14X61
212809 TO 212813 TABLE ST W16x77
212902 212903 213002 213003 213102 213103 TABLE ST W16X67
212904 TO 212914 213004 TO 213014 213104 TO 213114 TABLE ST W14X61
213202 213302 213402 TABLE ST W16X67
213203 TO 213214 213303 TO 213314 213403 TO 213414 TABLE ST W14X61
213502 TO 213509 TABLE ST W16X67
213510 TO 213513 TABLE ST W16X77

*Fascia

212701 UPTABLE 3 F2-1
212715 UPTABLE 3 F1-1
212801 UPTABLE 3 F2-2
212815 UPTABLE 3 F1-2

212815 UPTABLE 3 F1-2
 212901 213001 213101 UPTABLE 3 F2-3
 212915 213015 213115 UPTABLE 3 F1-3
 213201 213301 213401 UPTABLE 3 F2-4
 213215 213315 213415 UPTABLE 3 F1-4
 213501 UPTABLE 3 F2-5
 213515 UPTABLE 3 F1-5

*Floorbeams

312705 TO 312720 UPTABLE 4 F1
 312805 TO 312813 312905 TO 312913 313504 TO 313513 UPTABLE 4 F2
 313005 TO 313013 313105 TO 313114 313204 TO 313213 UPTABLE 4 F3
 313304 TO 313313 313404 TO 313413 UPTABLE 4 F4

313401 UPTABLE 5 R13401
 313402 UPTABLE 5 R13402
 313403 UPTABLE 5 R13403
 313501 UPTABLE 5 R13501
 313502 UPTABLE 5 R13502
 313503 UPTABLE 5 R13503
 313514 UPTABLE 5 R13514
 313515 UPTABLE 5 R13515

312701 TAPERED 40.0182 0.3750 30.6250 12.3750 0.7500
 312702 TAPERED 48.8987 0.3750 40.0182 12.3750 0.7500
 312703 TAPERED 57.7793 0.3750 48.8987 12.3750 0.7500
 312704 TAPERED 60.5000 0.3750 57.7793 12.3750 0.7500
 312721 TAPERED 60.5000 0.3750 52.7422 12.3750 0.5000
 312722 TAPERED 52.7422 0.3750 42.5845 12.3750 0.5000
 312723 TAPERED 42.5845 0.3750 30.3750 12.3750 0.5000
 312801 TAPERED 39.8778 0.3750 30.6250 12.3750 0.7500
 312802 TAPERED 48.5924 0.3750 39.8778 12.3750 0.7500
 312803 TAPERED 57.3071 0.3750 48.5924 12.3750 0.7500
 312804 TAPERED 60.5000 0.3750 57.3071 12.3750 0.7500
 312814 TAPERED 60.5000 0.3750 54.0833 12.3750 0.5000
 312815 TAPERED 54.0833 0.3750 45.0268 12.3750 0.5000
 312816 TAPERED 45.0268 0.3750 30.3750 12.3750 0.5000
 312901 TAPERED 40.2337 0.3750 30.6250 12.3750 0.6250
 312902 TAPERED 48.6066 0.3750 40.2337 12.3750 0.6250
 312903 TAPERED 56.9252 0.3750 48.6066 12.3750 0.6250
 312904 TAPERED 60.5000 0.3750 56.9252 12.3750 0.6250
 312914 TAPERED 60.5000 0.3750 54.7929 12.3750 0.5000
 312915 TAPERED 54.7929 0.3750 44.8317 12.3750 0.5000
 312916 TAPERED 44.8317 0.3750 30.3750 12.3750 0.5000
 313001 TAPERED 41.1975 0.3750 30.6250 12.3750 0.6250
 313002 TAPERED 48.8616 0.3750 41.1975 12.3750 0.6250
 313003 TAPERED 56.4654 0.3750 48.8616 12.3750 0.6250
 313004 TAPERED 60.5000 0.3750 56.4654 12.3750 0.6250
 313014 TAPERED 60.5000 0.3750 55.1077 12.3750 0.5000
 313015 TAPERED 55.1077 0.3750 44.0639 12.3750 0.5000
 313016 TAPERED 44.0639 0.3750 30.3750 12.3750 0.5000
 313101 TAPERED 42.8121 0.3750 30.3750 12.3750 0.5000
 313102 TAPERED 49.4409 0.3750 42.8121 12.3750 0.5000
 313103 TAPERED 56.0696 0.3750 49.4409 12.3750 0.5000
 313104 TAPERED 60.5000 0.3750 56.0696 12.3750 0.5000
 313115 TAPERED 60.5000 0.3750 55.3211 12.3750 0.5000
 313116 TAPERED 55.3211 0.3750 42.8479 12.3750 0.5000
 313117 TAPERED 42.8479 0.3750 30.3750 12.3750 0.5000
 313201 TAPERED 43.9528 0.3750 30.6250 12.3750 0.5000
 313202 TAPERED 56.1923 0.3750 43.9528 12.3750 0.5000
 313203 TAPERED 60.5000 0.3750 56.1923 12.3750 0.5000
 313214 TAPERED 60.5000 0.3750 55.1841 12.3750 0.5000
 313215 TAPERED 55.1841 0.3750 44.0346 12.3750 0.5000
 313216 TAPERED 44.0346 0.3750 30.3750 12.3750 0.5000
 313301 TAPERED 43.1443 0.3750 30.6250 12.3750 0.5000
 313302 TAPERED 55.8435 0.3750 43.1443 12.3750 0.5000
 313303 TAPERED 60.5000 0.3750 55.8435 12.3750 0.5000
 313314 TAPERED 60.5000 0.3750 54.9433 12.3750 0.5000
 313315 TAPERED 54.9433 0.3750 44.7589 12.3750 0.5000
 313316 TAPERED 44.7589 0.3750 30.3750 12.3750 0.5000
 313414 TAPERED 60.5000 0.3750 54.3804 12.3750 0.5000
 313415 TAPERED 54.3804 0.3750 44.9333 12.3750 0.5000
 313416 TAPERED 44.9333 0.3750 30.3750 12.3750 0.5000

CONSTRAINTS

BETA 90 MEMB 1 TO 66 601 TO 608

MEMBER RELEASE

1 TO 66 518 TO 535 601 TO 608 BOTH MY MZ

*Horizontal Strut Members

500 502 504 506 508 510 512 514 516 START MY MZ
 501 503 505 507 509 511 513 515 517 END MY MZ

212702 TO 212713 END MZ FX
 212701 212715 START MZ
 212801 TO 212813 212815 END MZ
 212901 TO 212915 END MZ
 213001 TO 213015 END MZ
 213101 TO 213115 END MZ
 213201 TO 213215 END MZ
 213301 TO 213315 END MZ
 213401 TO 213415 END MZ
 213501 TO 213513 213515 END MZ

212801 TO 212813 212815 START FX MZ
 212901 TO 212915 START FX MZ
 213001 TO 213015 START FX MZ
 213101 TO 213115 START FX MZ
 213201 TO 213215 START FX MZ
 213301 TO 213315 START FX MZ
 213401 TO 213415 START FX MZ
 213501 TO 213513 213515 START FX MZ

*Release at Cantilever Floorbeams at Fascia Interseccion

312701 END MZ
 312801 END MZ
 312901 END MZ
 313001 END MZ
 313101 END MZ
 313201 END MZ
 313301 END MZ
 313401 END MZ
 313501 END MZ

312723 END MZ
 312816 END MZ
 312916 END MZ
 313016 END MZ
 313117 END MZ
 313216 END MZ
 313316 END MZ
 313416 END MZ
 313515 END MZ

SUPPORTS

1 19 FIXED BUT MZ
 9 27 FIXED BUT MZ FX
 212601 TO 212614 FIXED BUT MZ MX MY

*Define Load Cases

UNITS KIP FEET
 LOAD 1 LOADTYPE Dead TITLE SELFWEIGHT + Bump Ups

*Upper Chords

SELFWEIGHT Y -1.10 LIST 9 TO 16 25 to 32

*Lower Chords

SELFWEIGHT Y -1.37 LIST 1 TO 8 17 TO 24

*Verticals

SELFWEIGHT Y -1.05 LIST 33 TO 50

*Diagonals

SELFWEIGHT Y -1.09 LIST 51 TO 66

*Lateral Bracing Horizontal Strut

SELFWEIGHT Y -1.4 LIST 500 TO 517

*Lateral Bracing Diagonal

SELFWEIGHT Y -1.05 LIST 518 TO 535

*Sway Bracing

SELFWEIGHT Y -1.2 LIST 601 TO 608

*Stringers

SELFWEIGHT Y -1.05 LIST 212702 TO 212713 212802 TO 212813 212902 TO 212914 -
 213002 TO 213014 213102 TO 213114 213202 TO 213214 213302 TO 213314 -
 213402 TO 213414 213502 TO 213513

*Fascia

SELFWEIGHT Y -1.05 LIST 212701 212715 212801 212815 212901 212915 213001 -
 213015 213101 213115 213201 213215 213301 213315 213401 213415 213501 213515

*Original Floorbeams

SELFWEIGHT Y -1.596 LIST 312705 TO 312720 312805 TO 312820 312905 TO 312913 -
 313005 TO 313013 313105 TO 313114 313204 TO 313213 313304 TO 313313 -
 313404 TO 313413 313504 TO 313513

313404 TO 313413 313504 TO 313513
 *Original Cantilever Floorbeams
 SELFWEIGHT Y -1.526 LIST -
 312701 312702 312703 312704 312721 312722 312723 312801 312802 312803 312804 -
 312814 312815 312816 312901 312902 312903 312904 312914 312915 312916 313001 -
 313002 313003 313004 313014 313015 313016 313101 313102 313103 313104 313115 -
 313116 313117 313201 313202 313203 313214 313215 313216 313301 313302 313303 -
 313314 313315 313316 313414 313415 313416
 *Replaced Cantilever Floorbeams
 SELFWEIGHT Y -1.551 LIST -
 313401 313402 313403 313501 313502 313503 313514 313515

LOAD 2 LOADTYPE DEAD TITLE GUSSET PLATE POINT LOADS
 JOINT LOAD
 *Gusset Plates Weight Applied as Point Loads to Truss Joints

*1-9 North Truss Lower Chord

1 FY -0.1911
 2 FY -1.4632625
 3 FY -1.3775125
 4 FY -1.1055625
 5 FY -1.3211625
 6 FY -0.99225
 7 FY -1.231125
 8 FY -1.2599125
 9 FY -0.2554125

*10-18 North Truss Upper Chord

10 FY -1.8650625
 11 FY -1.41855
 12 FY -1.285025
 13 FY -1.0847375
 14 FY -0.976325
 15 FY -1.0051125
 16 FY -1.32545
 17 FY -1.3566875
 18 FY -1.81545

*19-27 South Truss Lower Chord

19 FY -0.1911
 20 FY -1.4632625
 21 FY -1.3775125
 22 FY -1.1055625
 23 FY -1.3211625
 24 FY -0.99225
 25 FY -1.231125
 26 FY -1.2599125
 27 FY -0.2554125

*28-36 South Truss Upper Chord

28 FY -1.8650625
 29 FY -1.41855
 30 FY -1.285025
 31 FY -1.0847375
 32 FY -0.976325
 33 FY -1.0051125
 34 FY -1.32545
 35 FY -1.3566875
 36 FY -1.81545

LOAD 3 LOADTYPE DEAD TITLE DECK AND PARAPETS
 MEMBER LOAD

*Bays with 14 Stringers UNI FY = -0.65
 212701 TO 212713 212715 212801 TO 212813 213501 TO 213513 213515 -
 UNI GY -0.65

*Bays with 15 Stringers UNI FY = -0.61
 212901 TO 212915 213001 TO 213015 213101 TO 213115 -
 213201 TO 213215 213301 TO 213315 213401 TO 213415 -
 UNI GY -0.61

*Catwalks Joint Loads to Floorbeams Nodes
 LOAD 4 LOADTYPE DEAD TITLE INSPECTION WALKWAY
 JOINT LOAD

212710 212808 212908 213008 213109 213208 213308 213408 213508 -
 FY -2.474

*Drainage Loading to Upper and Lower Joints
 LOAD 5 LOADTYPE DEAD TITLE DRAINAGE LOADING STRUCTURES
 JOINT LOAD

*Drainage Scuppers (Upper Panel Points)
 12 30 18 36 FY -3
 *Drainage Troughs (Lower Panel Points) 206 of 2192
 3 TO 8 21 TO 26 FY -1.25

LOAD COMBINATION 10 TOTAL DEAD LOAD

1 1.0 2 1.0 3 1.0 4 1.0 5 1.0

PERFORM ANALYSIS PRINT LOAD DATA

FINISH

LIVE LOAD COMMAND FILE (SAMPLE LANE LOAD)

Sample Lane Load Code (Lane N1 shown)

*****LANE LOAD DISTRIBUTED LOADINGS*****

***** NORTH TRUSS LANES *****

*** LANE 1

LOAD GENERATION 1

TYPE 1 -7 125 -79.98997807 XINC .0001

TYPE 1 -6 125 -80.08211219 XINC .0001

•
•
•

TYPE 1 171 125 -81.19254873 XINC .0001

TYPE 1 172 125 -81.11305484 XINC .0001

TYPE 1 -7 125 -77.98997807 XINC .0001

TYPE 1 -6 125 -78.08211219 XINC .0001

•
•
•

TYPE 1 171 125 -79.19254873 XINC .0001

TYPE 1 172 125 -79.11305484 XINC .0001

TYPE 1 -7 125 -75.98997807 XINC .0001

TYPE 1 -6 125 -76.08211219 XINC .0001

•
•
•

TYPE 1 171 125 -77.19254873 XINC .0001

TYPE 1 172 125 -77.11305484 XINC .0001

TYPE 1 -7 125 -73.98997807 XINC .0001

TYPE 1 -6 125 -74.08211219 XINC .0001

•
•
•

TYPE 1 171 125 -75.19254873 XINC .0001

TYPE 1 172 125 -75.11305484 XINC .0001

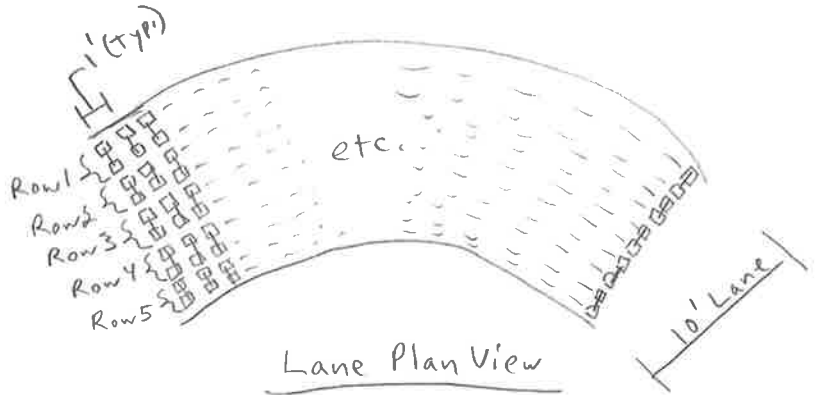
TYPE 1 -7 125 -71.98997807 XINC .0001

TYPE 1 -6 125 -72.08211219 XINC .0001

•
•
•

TYPE 1 171 125 -73.19254873 XINC .0001

TYPE 1 172 125 -73.11305484 XINC .0001



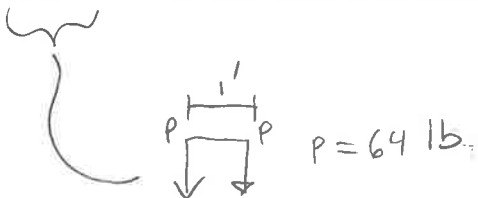
Row 1

Row 2

Row 3

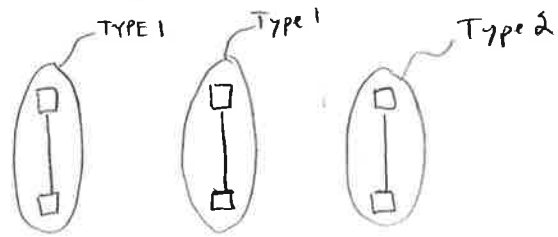
Row 4

Row 5



LIVE LOAD COMMAND FILE (SAMPLE HS-20 LOAD)

Sample HS-20 Load Generation (North Truss Lane N1 Shown)



HS-20 Plan

***** NORTH TRUSS LANES *****

*** Lane 1

LOAD GENERATION 1

TYPE 1 -35 125 -70.51415756 XINC .0001

TYPE 1 -21 125 -72.0978119 XINC .0001

TYPE 2 -7 125 -73.48997807 XINC .0001

LOAD GENERATION 1

TYPE 1 -34 125 -70.63364426 XINC .0001

TYPE 1 -20 125 -72.20359296 XINC .0001

TYPE 2 -6 125 -73.58211219 XINC .0001

LOAD GENERATION 1

TYPE 1 -33 125 -70.75214986 XINC .0001

TYPE 1 -19 125 -72.30839738 XINC .0001

TYPE 2 -5 125 -73.67327357 XINC .0001

LOAD GENERATION 1

TYPE 1 -32 125 -70.86967471 XINC .0001

TYPE 1 -18 125 -72.41222547 XINC .0001

TYPE 2 -4 125 -73.76346246 XINC .0001

LOAD GENERATION 1

TYPE 1 -31 125 -70.98621915 XINC .0001

TYPE 1 -17 125 -72.51507751 XINC .0001

TYPE 2 -3 125 -73.85267912 XINC .0001

LOAD GENERATION 1

TYPE 1 -30 125 -71.10178349 XINC .0001

TYPE 1 -16 125 -72.6169538 XINC .0001

TYPE 2 -2 125 -73.94092379 XINC .0001

LOAD GENERATION 1

TYPE 1 -29 125 -71.21636808 XINC .0001

TYPE 1 -15 125 -72.71785462 XINC .0001

TYPE 2 -1 125 -74.02819673 XINC .0001

LOAD GENERATION 1

TYPE 1 -28 125 -71.32997323 XINC .0001

TYPE 1 -14 125 -72.81778026 XINC .0001

TYPE 2 0 125 -74.11449819 XINC .0001

LOAD GENERATION 1

TYPE 1 -27 125 -71.44259927 XINC .0001

TYPE 1 -13 125 -72.91673101 XINC .0001

TYPE 2 1 125 -74.1998284 XINC .0001

LOAD GENERATION 1

TYPE 1 -26 125 -71.55424652 XINC .0001

TYPE 1 -12 125 -73.01470714 XINC .0001

TYPE 2 2 125 -74.2841876 XINC .0001

LOAD GENERATION 1

TYPE 1 -25 125 -71.6649153 XINC .0001

TYPE 1 -11 125 -73.11170892 XINC .0001

TYPE 2 3 125 -74.36757603 XINC .0001

LOAD GENERATION 1

TYPE 1 -24 125 -71.77460592 XINC .0001

TYPE 1 -10 125 -73.20773664 XINC .0001

TYPE 2 4 125 -74.44999393 XINC .0001

etc.

1' increments between truck positioning

AS-BUILT RATINGS

STAAD FORCE OUTPUT



Made By DWC
Checked By ADK

Date 4/4/2012
Date 4/9/2012

Loading Per AASHTO 17th Standard Edition and ODOT Bridge Design Manual 2004 Ed
Impact Per AASHTO 3.8.2 Multiple Presence per AASHTO 3.12.1

Job No. P402110046
Sheet No. 3 of 4

* Lateral force based on percentage of live load, C = 16.7% throughout Span 11 with R = 1000 feet.

Calculations For:

CUY-2-1441 Span 11 Truss, Truck Forces

Centrifugal force not included in South Truss calculations because neglecting it creates the governing load effects.

Truss	Member	Rating ID	Span Length	Impact (Percent)	Centrifugal Force*	Dead Load	Maximum Axial Forces with Impact, Multiple Presence Factors and Centrifugal Force													
							HS20 Truck		HS20 Lane		2F1		3F1		4F1		5C1		Truck Train	
							Comp	Tension	Comp	Tension	Comp	Tension	Comp	Tension	Comp	Tension	Comp	Tension	Comp	Tension
North	L127-L128	1	166.43 ft	17.16%	13.41%	-4.47	-41.94	42.36	-47.05	44.71	-17.75	17.84	-27.13	27.32	-31.74	32.03	-44.41	44.09	N/A	N/A
North	L128-L129	2	166.43 ft	17.16%	12.83%	344.02	-1.20	126.84	-0.56	116.74	-0.81	55.75	-1.07	84.17	-1.06	97.09	-0.98	122.78	N/A	N/A
North	L129-L130	3	166.43 ft	17.16%	12.31%	588.46	-5.81	210.39	-1.82	202.07	-2.99	92.23	-4.33	139.36	-4.91	161.18	-4.09	207.76	N/A	N/A
North	L130-L131	4	166.43 ft	17.16%	11.86%	750.71	-10.41	268.00	-8.05	260.64	-4.86	118.20	-7.27	178.22	-8.34	207.33	-8.92	263.23	N/A	N/A
North	L131-L132	5	166.43 ft	17.16%	11.48%	794.58	-14.22	287.19	-13.06	279.72	-6.36	126.84	-9.55	191.21	-11.09	222.45	-13.61	281.06	N/A	N/A
North	L132-L133	6	166.43 ft	17.16%	11.14%	660.69	-12.73	241.58	-11.66	233.43	-5.71	106.02	-8.57	160.25	-9.92	185.00	-12.46	237.99	N/A	N/A
North	L133-L134	7	166.43 ft	17.16%	10.88%	411.64	-8.69	151.60	-7.45	145.46	-3.90	65.80	-5.86	99.83	-6.71	115.67	-8.14	149.72	N/A	N/A
North	L134-L135	8	166.43 ft	17.16%	10.65%	-0.10	-2.22	2.35	-2.65	2.76	-0.93	0.99	-1.42	1.51	-1.67	1.77	-2.41	2.55	N/A	N/A
North	U127-U128	9	166.43 ft	17.16%	13.41%	-342.99	-135.31	18.42	-129.72	13.84	-58.72	8.58	-88.98	12.82	-103.08	14.55	-134.14	16.28	N/A	N/A
North	U128-U129	10	166.43 ft	17.16%	12.83%	-587.51	-226.38	24.94	-219.72	20.57	-99.05	11.30	-149.75	17.03	-173.07	19.66	-224.02	23.22	N/A	N/A
North	U129-U130	11	166.43 ft	17.16%	12.31%	-749.83	-284.26	26.93	-279.10	23.90	-125.29	11.97	-188.92	18.04	-219.90	20.96	-280.11	25.13	N/A	N/A
North	U130-U131	12	166.43 ft	17.16%	11.86%	-823.22	-307.51	25.85	-305.24	24.34	-135.78	11.36	-206.25	17.18	-238.77	19.94	-297.86	25.36	N/A	N/A
North	U131-U132	13	166.43 ft	17.16%	11.48%	-823.14	-306.60	25.78	-305.25	24.34	-135.38	11.33	-205.64	17.13	-238.07	19.88	-296.99	25.28	N/A	N/A
North	U132-U133	14	166.43 ft	17.16%	11.14%	-793.51	-295.85	22.48	-292.68	22.16	-130.41	9.78	-196.60	14.83	-228.85	17.20	-291.13	22.53	N/A	N/A
North	U133-U134	15	166.43 ft	17.16%	10.88%	-659.70	-246.65	17.50	-242.43	17.66	-107.96	7.61	-163.30	11.54	-188.67	13.37	-243.99	17.53	N/A	N/A
North	U134-U135	16	166.43 ft	17.16%	10.65%	-410.44	-153.88	10.69	-150.69	10.66	-66.68	4.67	-101.21	7.07	-117.33	8.18	-152.82	10.70	N/A	N/A
South	L127-L128	17	153.98 ft	17.92%	---	1.29	-40.63	35.50	-47.81	44.43	-17.11	15.03	-26.20	22.98	-30.71	26.88	-42.32	37.52	N/A	N/A
South	L128-L129	18	153.98 ft	17.92%	---	334.93	-0.26	118.65	-0.06	116.33	-0.16	53.16	-0.21	79.71	-0.21	89.60	-0.19	111.75	N/A	N/A
South	L129-L130	19	153.98 ft	17.92%	---	612.26	-0.24	213.40	-0.04	218.52	-0.13	95.00	-0.18	142.78	-0.17	162.12	-0.16	207.89	N/A	N/A
South	L130-L131	20	153.98 ft	17.92%	---	785.35	-1.48	270.34	-0.59	281.92	-0.86	119.97	-1.21	181.07	-1.30	206.46	-0.35	263.11	N/A	N/A
South	L131-L132	21	153.98 ft	17.92%	---	793.85	-7.35	274.21	-4.98	287.16	-3.42	121.39	-5.09	182.80	-5.87	208.85	-6.10	268.74	N/A	N/A
South	L132-L133	22	153.98 ft	17.92%	---	618.48	-6.46	217.55	-4.61	224.87	-2.94	95.71	-4.40	144.51	-5.02	163.94	-5.73	212.70	N/A	N/A
South	L133-L134	23	153.98 ft	17.92%	---	315.83	-3.08	112.99	-1.98	114.95	-1.38	49.42	-2.08	74.80	-2.38	85.00	-2.74	110.56	N/A	N/A
South	L134-L135	24	153.98 ft	17.92%	---	0.08	-0.88	0.84	-0.95	0.93	-0.37	0.36	-0.56	0.54	-0.66	0.64	-0.90	0.86	N/A	N/A
South	U127-U128	25	153.98 ft	17.92%	---	-333.74	-127.57	4.99	-125.75	5.21	-56.45	2.13	-85.00	3.23	-96.27	3.77	-122.08	5.08	N/A	N/A
South	U128-U129	26	153.98 ft	17.92%	---	-610.73	-223.12	10.00	-227.89	10.01	-99.19	4.36	-149.18	6.59	-169.66	7.64	-217.50	9.70	N/A	N/A
South	U129-U130	27	153.98 ft	17.92%	---	-784.05	-277.85	13.35	-290.03	13.37	-123.20	5.94	-186.12	8.93	-213.34	10.37	-270.72	12.83	N/A	N/A
South	U130-U131	28	153.98 ft	17.92%	---	-849.18	-296.79	14.63	-313.15	14.73	-131.29	6.53	-198.74	9.88	-228.04	11.42	-286.82	13.75	N/A	N/A
South	U131-U132	29	153.98 ft	17.92%	---	-849.27	-296.78	14.63	-313.14	14.73	-131.29	6.53	-198.73	9.88	-228.04	11.42	-286.81	13.75	N/A	N/A
South	U132-U133	30	153.98 ft	17.92%	---	-792.65	-276.88	13.59	-291.84	13.69	-122.47	6.00	-184.55	9.05	-212.10	10.46	-272.74	13.15	N/A	N/A
South	U133-U134	31	153.98 ft	17.92%	---	-617.74	-218.61	10.11	-227.79	10.38	-96.01	4.35	-145.03	6.61	-165.15	7.69	-214.24	9.93	N/A	N/A
South	U134-U135	32	153.98 ft	17.92%	---	-315.00	-112.99	4.61	-116.34	5.09	-49.34	1.94	-74.71	2.96	-84.97	3.47	-111.17	4.80	N/A	N/A



Made By DWC
Checked By ADK

Date 4/4/2012
Date 4/9/2012

Loading Per AASHTO 17th Standard Edition and ODOT Bridge Design Manual 2004 Ed
Impact Per AASHTO 3.8.2 Multiple Presence per AASHTO 3.12.1

Job No. P402110046
Sheet No. 4 of 4

* Lateral force based on percentage of live load, C = 16.7% throughout Span 11 with R = 1000 feet.

Calculations For:

CUY-2-1441 Span 11 Truss, Truck Forces

Centrifugal force not included in South Truss calculations because neglecting it creates the governing load effects.

Truss	Member	Rating ID	Span Length	Impact (Percent)	Centrifugal Force*	Dead Load	Maximum Axial Forces with Impact, Multiple Presence Factors and Centrifugal Force													
							HS20 Truck		HS20 Lane		2F1		3F1		4F1		5C1		Truck Train	
							Comp	Tension	Comp	Tension	Comp	Tension	Comp	Tension	Comp	Tension	Comp	Tension	Comp	Tension
North	U127-L127	33	166.43 ft	17.16%	13.70%	-542.16	-204.96	42.81	-231.47	29.78	-87.49	17.16	-133.13	27.42	-154.89	29.16	-210.40	38.98	N/A	N/A
North	U128-L128	34	166.43 ft	17.16%	13.12%	-462.42	-187.18	25.04	-201.23	21.75	-80.98	11.65	-122.83	17.42	-142.46	19.77	-186.62	22.18	N/A	N/A
North	U129-L129	35	166.43 ft	17.16%	12.54%	-349.03	-164.47	24.33	-157.64	17.48	-71.87	12.70	-108.70	18.29	-125.64	19.79	-159.59	19.68	N/A	N/A
North	U130-L130	36	166.43 ft	17.16%	12.08%	-224.84	-139.62	41.06	-114.47	19.67	-61.79	20.18	-93.11	29.66	-107.17	33.00	-130.53	27.72	N/A	N/A
North	U131-L131	37	166.43 ft	17.16%	11.65%	-117.57	-139.56	10.77	-112.55	8.68	-79.27	6.12	-116.10	8.94	-127.03	9.78	-112.19	8.64	N/A	N/A
North	U132-L132	38	166.43 ft	17.16%	11.31%	-167.74	-120.53	52.32	-93.84	23.59	-53.36	25.61	-80.54	37.53	-92.72	41.81	-112.41	35.05	N/A	N/A
North	U133-L133	39	166.43 ft	17.16%	10.98%	-312.24	-149.83	24.15	-143.00	17.21	-65.53	13.03	-99.22	18.42	-114.68	19.60	-144.95	19.70	N/A	N/A
North	U134-L134	40	166.43 ft	17.16%	10.78%	-463.33	-178.31	12.42	-193.75	13.72	-77.26	5.42	-117.27	8.21	-135.95	9.50	-177.10	12.44	N/A	N/A
North	U135-L135	41	166.43 ft	17.16%	10.53%	-562.22	-205.25	15.51	-225.98	15.39	-88.08	6.86	-134.27	10.34	-156.19	11.91	-209.19	15.14	N/A	N/A
South	U127-L127	42	153.98 ft	17.92%	---	-646.32	-261.60	7.95	-275.20	10.56	-105.76	3.35	-159.65	5.12	-181.19	6.00	-255.15	8.39	N/A	N/A
South	U128-L128	43	153.98 ft	17.92%	---	-529.86	-207.19	8.12	-229.81	9.53	-91.60	3.44	-137.97	5.25	-156.31	6.14	-198.50	8.29	N/A	N/A
South	U129-L129	44	153.98 ft	17.92%	---	-376.81	-170.28	17.49	-174.33	13.71	-75.66	9.64	-113.80	13.65	-129.13	14.41	-160.27	14.53	N/A	N/A
South	U130-L130	45	153.98 ft	17.92%	---	-227.45	-137.48	40.04	-120.54	20.21	-61.68	19.83	-92.52	29.15	-104.93	32.02	-125.32	25.52	N/A	N/A
South	U131-L131	46	153.98 ft	17.92%	---	-132.58	-137.37	7.10	-121.89	6.31	-77.89	4.02	-114.00	5.91	-123.89	6.47	-110.40	5.72	N/A	N/A
South	U132-L132	47	153.98 ft	17.92%	---	-208.72	-121.61	41.64	-108.11	20.90	-53.85	21.25	-81.23	30.79	-92.53	33.46	-114.04	26.03	N/A	N/A
South	U133-L133	48	153.98 ft	17.92%	---	-357.77	-151.66	15.85	-160.84	13.02	-66.55	9.13	-100.63	12.55	-114.70	13.24	-146.63	13.79	N/A	N/A
South	U134-L134	49	153.98 ft	17.92%	---	-505.69	-184.88	7.55	-212.45	9.20	-80.73	3.18	-122.24	4.86	-139.04	5.69	-181.93	7.90	N/A	N/A
South	U135-L135	50	153.98 ft	17.92%	---	-597.75	-220.62	7.61	-255.08	10.00	-95.23	3.20	-144.74	4.90	-165.56	5.74	-220.46	8.08	N/A	N/A
North	U127-L128	51	166.43 ft	17.16%	13.41%	583.77	-30.85	230.60	-26.74	247.36	-14.35	99.76	-21.46	151.32	-24.35	175.50	-27.32	229.91	N/A	N/A
North	U128-L129	52	166.43 ft	17.16%	12.83%	441.40	-27.93	198.96	-20.21	190.63	-14.54	86.96	-20.96	131.51	-22.70	152.00	-22.67	193.00	N/A	N/A
North	U129-L130	53	166.43 ft	17.16%	12.31%	287.74	-49.57	169.05	-23.72	138.39	-24.37	74.82	-35.80	112.74	-39.84	129.76	-33.46	158.04	N/A	N/A
North	U130-L131	54	166.43 ft	17.16%	11.86%	128.51	-79.61	138.43	-31.28	85.00	-37.09	62.26	-55.23	93.39	-62.53	106.94	-63.32	122.48	N/A	N/A
North	U132-L131	55	166.43 ft	17.16%	11.48%	51.15	-99.74	115.40	-39.55	58.84	-46.14	52.10	-68.65	78.18	-77.88	89.44	-80.21	101.76	N/A	N/A
North	U133-L132	56	166.43 ft	17.16%	11.14%	224.87	-64.74	149.57	-29.23	116.66	-31.69	66.22	-46.44	99.95	-51.74	115.07	-43.37	139.50	N/A	N/A
North	U134-L133	57	166.43 ft	17.16%	10.88%	415.14	-28.70	188.83	-20.72	180.90	-15.41	82.59	-21.82	125.05	-23.26	144.53	-23.55	182.64	N/A	N/A
North	U135-L134	58	166.43 ft	17.16%	10.65%	625.17	-16.21	232.84	-17.91	253.23	-7.07	100.88	-10.71	153.13	-12.40	177.53	-16.23	231.25	N/A	N/A
South	U127-L128	59	153.98 ft	17.92%	---	629.93	-9.44	240.84	-11.07	267.14	-3.99	106.48	-6.10	160.39	-7.13	181.70	-9.63	230.75	N/A	N/A
South	U128-L129	60	153.98 ft	17.92%	---	483.83	-19.78	209.02	-15.60	214.45	-10.85	92.90	-15.39	139.72	-16.29	158.28	-16.49	196.71	N/A	N/A
South	U129-L130	61	153.98 ft	17.92%	---	296.33	-49.10	169.09	-24.79	148.30	-24.31	75.86	-35.74	113.78	-39.26	129.04	-31.29	154.13	N/A	N/A
South	U130-L131	62	153.98 ft	17.92%	---	110.12	-82.27	132.70	-35.37	85.28	-38.07	60.55	-56.84	90.40	-63.62	101.83	-64.63	113.81	N/A	N/A
South	U132-L131	63	153.98 ft	17.92%	---	92.90	-89.90	119.55	-39.24	73.55	-42.38	53.76	-62.72	80.81	-69.75	91.26	-67.69	105.87	N/A	N/A
South	U133-L132	64	153.98 ft	17.92%	---	282.60	-52.85	154.81	-26.53	137.68	-26.97	68.55	-39.08	103.41	-42.47	117.79	-33.04	145.18	N/A	N/A
South	U134-L133	65	153.98 ft	17.92%	---	482.45	-19.32	195.79	-15.96	207.98	-11.05	85.93	-15.23	129.91	-16.10	148.01	-16.85	189.26	N/A	N/A
South	U135-L134	66	153.98 ft	17.92%	---	601.67	-8.75	214.55	-10.66	246.53	-3.68	93.68	-5.63	141.86	-6.60	161.36	-9.15	211.12	N/A	N/A

AS-BUILT RATING



Made By DWC Date 3/19/2012
 Checked By ADK Date 4/9/2012

Job No. P402110046
 Sheet No. 1 of 2

Calculations For: **CUY-2-1441 Span 11, Member Capacities**

Silicon Steel ^{&}			Carbon Steel ^{&}		
F _Y	45	ksi	F _Y	33	ksi
F _U	70	ksi	F _U	60	ksi
E	29000	ksi	E	29000	ksi
	112.79			131.71	

& From Original Design Plans and MCEEB 6.6.2.1

Truss	Member	Rating ID	As-Built Capacities											
			A _{GROSS} (in ²)	A _{NET} (in ²)	Length (ft)	Min r _{X,Y} (in)	K (AASHTO Appendix C Table C-1)	K*L r _{X,Y}	Type of Steel	Member Capacity				
										Compression		Tension (kips)		
										F _{CR} (ksi)	Capacity (kips)	Yield	Fract.	Control
North	L127-L128	1	27.63	23.49	23.22	3.73	0.750	56.07	Carbon	30.01	704.78	911.77	1409.10	911.77
North	L128-L129	2	27.63	23.49	20.01	3.73	0.750	48.31	Carbon	30.78	722.87	911.77	1409.10	911.77
North	L129-L130	3	59.08	50.22	20.00	4.07	0.750	44.21	Carbon	31.14	1563.96	1949.80	3013.33	1949.80
North	L130-L131	4	59.08	50.22	20.00	4.07	0.750	44.21	Carbon	31.14	1563.97	1949.80	3013.33	1949.80
North	L131-L132	5	61.76	52.50	20.00	4.08	0.750	44.11	Carbon	31.15	1635.27	2038.16	3149.88	2038.16
North	L132-L133	6	61.76	52.50	20.00	4.08	0.750	44.11	Carbon	31.15	1635.26	2038.16	3149.88	2038.16
North	L133-L134	7	32.34	27.49	20.01	3.75	0.750	48.01	Carbon	30.81	846.96	1067.33	1649.52	1067.33
North	L134-L135	8	32.34	27.49	23.23	3.75	0.750	55.74	Carbon	30.04	825.98	1067.33	1649.52	1067.33
North	U127-U128	9	51.42	43.71	23.22	4.04	0.750	51.77	Carbon	30.45	1330.95	1696.94	2622.54	1696.94
North	U128-U129	10	51.42	43.71	20.01	4.04	0.750	44.62	Carbon	31.11	1359.64	1696.94	2622.54	1696.94
North	U129-U130	11	69.38	58.97	20.01	4.11	0.750	43.76	Carbon	31.18	1838.71	2289.59	3538.46	2289.59
North	U130-U131	12	69.38	58.97	20.01	4.11	0.750	43.76	Carbon	31.18	1838.71	2289.59	3538.46	2289.59
North	U131-U132	13	69.38	58.97	20.01	4.11	0.750	43.76	Carbon	31.18	1838.71	2289.59	3538.46	2289.59
North	U132-U133	14	69.38	58.97	20.01	4.11	0.750	43.77	Carbon	31.18	1838.70	2289.59	3538.46	2289.59
North	U133-U134	15	56.42	47.95	20.01	4.06	0.750	44.35	Carbon	31.13	1492.80	1861.77	2877.28	1861.77
North	U134-U135	16	56.42	47.95	23.23	4.06	0.750	51.49	Carbon	30.48	1461.58	1861.77	2877.28	1861.77
South	L127-L128	17	27.63	23.49	18.55	3.73	0.750	44.79	Carbon	31.09	730.18	911.77	1409.10	911.77
South	L128-L129	18	27.63	23.49	20.03	3.73	0.750	48.37	Carbon	30.77	722.73	911.77	1409.10	911.77
South	L129-L130	19	61.76	52.50	20.03	4.08	0.750	44.16	Carbon	31.14	1635.03	2038.16	3149.88	2038.16
South	L130-L131	20	61.76	52.50	20.02	4.08	0.750	44.16	Carbon	31.14	1635.04	2038.16	3149.88	2038.16
South	L131-L132	21	61.76	52.50	20.03	4.08	0.750	44.16	Carbon	31.14	1635.03	2038.16	3149.88	2038.16
South	L132-L133	22	61.76	52.50	20.03	4.08	0.750	44.16	Carbon	31.14	1635.03	2038.16	3149.88	2038.16
South	L133-L134	23	25.25	21.47	20.03	3.72	0.750	48.44	Carbon	30.77	660.46	833.38	1287.96	833.38
South	L134-L135	24	25.25	21.47	15.30	3.72	0.750	37.00	Carbon	31.70	680.43	833.38	1287.96	833.38
South	U127-U128	25	51.42	43.71	18.55	4.04	0.750	41.37	Carbon	31.37	1371.25	1696.94	2622.54	1696.94
South	U128-U129	26	51.42	43.71	20.04	4.04	0.750	44.67	Carbon	31.10	1359.42	1696.94	2622.54	1696.94
South	U129-U130	27	69.38	58.97	20.03	4.11	0.750	43.82	Carbon	31.17	1838.43	2289.59	3538.46	2289.59
South	U130-U131	28	69.38	58.97	20.03	4.11	0.750	43.82	Carbon	31.17	1838.43	2289.59	3538.46	2289.59
South	U131-U132	29	69.38	58.97	20.03	4.11	0.750	43.82	Carbon	31.17	1838.43	2289.59	3538.46	2289.59
South	U132-U133	30	69.38	58.97	20.03	4.11	0.750	43.82	Carbon	31.17	1838.43	2289.59	3538.46	2289.59
South	U133-U134	31	51.42	43.71	20.03	4.04	0.750	44.67	Carbon	31.10	1359.44	1696.94	2622.54	1696.94
South	U134-U135	32	51.42	43.71	15.30	4.04	0.750	34.10	Carbon	31.89	1394.04	1696.94	2622.54	1696.94
North	U127-L127	33	56.42	47.95	31.50	4.06	0.750	69.83	Carbon	28.36	1360.10	1861.77	2877.28	1861.77
North	U128-L128	34	48.78	41.47	30.29	4.02	0.750	67.74	Carbon	28.64	1187.42	1609.88	2488.00	1609.88
North	U129-L129	35	37.02	31.47	29.25	3.77	0.750	69.74	Carbon	28.37	892.88	1221.72	1888.12	1221.72
North	U130-L130	36	27.63	23.49	28.53	3.73	0.750	68.90	Carbon	28.48	668.96	911.77	1409.10	911.77
North	U131-L131	37	22.64	19.24	27.84	3.02	0.750	82.88	Carbon	26.47	509.20	746.96	1154.39	746.96
North	U132-L132	38	24.40	20.74	27.41	3.04	0.750	81.16	Carbon	26.73	554.51	805.24	1244.46	805.24
North	U133-L133	39	32.34	27.49	26.95	3.75	0.750	64.68	Carbon	29.02	797.84	1067.33	1649.52	1067.33
North	U134-L134	40	43.78	37.21	26.92	4.01	0.750	60.48	Carbon	29.52	1098.44	1444.59	2232.55	1444.59
North	U135-L135	41	53.76	45.70	26.89	4.05	0.750	59.73	Carbon	29.61	1352.98	1774.18	2741.92	1774.18
South	U127-L127	42	64.06	54.45	30.00	4.09	0.750	65.97	Carbon	28.86	1571.38	2113.82	3266.81	2113.82
South	U128-L128	43	51.42	43.71	28.94	4.04	0.750	64.53	Carbon	29.04	1269.27	1696.94	2622.54	1696.94
South	U129-L129	44	39.67	33.72	27.78	3.78	0.750	66.09	Carbon	28.85	972.62	1309.08	2023.12	1309.08
South	U130-L130	45	27.63	23.49	27.00	3.73	0.750	65.21	Carbon	28.96	680.03	911.77	1409.10	911.77
South	U131-L131	46	24.40	20.74	26.22	3.04	0.750	77.63	Carbon	27.27	565.55	805.24	1244.46	805.24
South	U132-L132	47	25.25	21.47	25.75	3.72	0.750	62.28	Carbon	29.31	629.17	833.38	1287.96	833.38
South	U133-L133	48	37.02	31.47	25.27	3.77	0.750	60.25	Carbon	29.55	929.81	1221.72	1888.12	1221.72
South	U134-L134	49	46.16	39.24	25.14	4.02	0.750	56.33	Carbon	29.98	1176.44	1523.36	2354.28	1523.36
South	U135-L135	50	56.42	47.95	25.20	4.06	0.750	55.86	Carbon	30.03	1440.17	1861.77	2877.28	1861.77
North	U127-L128	51	46.16	39.24	38.71	4.02	0.750	86.73	Carbon	25.85	1014.12	1523.36	2354.28	1523.36
North	U128-L129	52	34.68	29.48	35.93	3.77	0.750	85.88	Carbon	25.99	765.97	1144.41	1768.63	1144.41



Made By DWC Date 3/19/2012
 Checked By ADK Date 4/9/2012

Job No. P402110046
 Sheet No. 2 of 2

Calculations For: **CUY-2-1441 Span 11, Member Capacities**

Silicon Steel ^{&}			Carbon Steel ^{&}		
F _Y	45	ksi	F _Y	33	ksi
F _U	70	ksi	F _U	60	ksi
E	29000	ksi	E	29000	ksi
	112.79			131.71	

& From Original Design Plans and MCEEB 6.6.2.1

Truss	Member	Rating ID	As-Built Capacities											
			A _{GROSS} (in ²)	A _{NET} (in ²)	Length (ft)	Min r _{X,Y} (in)	K (AASHTO Appendix C Table C-1)	K*L r _{X,Y}	Type of Steel	Member Capacity				
										Compression		Tension (kips)		
										F _{CR} (ksi)	Capacity (kips)	Yield	Fract.	Control
North	U129-L130	53	25.25	21.47	35.31	3.72	0.750	85.41	Carbon	26.06	559.44	833.38	1287.96	833.38
North	U130-L131	54	22.64	19.24	34.73	3.02	0.750	103.38	Carbon	22.83	439.31	746.96	1154.39	746.96
North	U132-L131	55	22.64	19.24	33.82	3.02	0.750	100.68	Carbon	23.36	449.41	746.96	1154.39	746.96
North	U133-L132	56	22.64	19.24	33.44	3.02	0.750	99.55	Carbon	23.57	453.54	746.96	1154.39	746.96
North	U134-L133	57	34.68	29.48	33.18	3.77	0.750	79.31	Carbon	27.02	796.38	1144.41	1768.63	1144.41
North	U135-L134	58	48.78	41.47	35.14	4.02	0.750	78.57	Carbon	27.13	1124.88	1609.88	2488.00	1609.88
South	U127-L128	59	48.78	41.47	34.88	4.02	0.750	77.99	Carbon	27.21	1128.46	1609.88	2488.00	1609.88
South	U128-L129	60	39.67	33.72	34.78	3.78	0.750	82.75	Carbon	26.49	893.09	1309.08	2023.12	1309.08
South	U129-L130	61	25.25	21.47	34.12	3.72	0.750	82.53	Carbon	26.52	569.29	833.38	1287.96	833.38
South	U130-L131	62	22.64	19.24	33.50	3.02	0.750	99.74	Carbon	23.54	452.85	746.96	1154.39	746.96
South	U132-L131	63	22.64	19.24	32.51	3.02	0.750	96.78	Carbon	24.09	463.50	746.96	1154.39	746.96
South	U133-L132	64	25.25	21.47	32.12	3.72	0.750	77.70	Carbon	27.26	585.11	833.38	1287.96	833.38
South	U134-L133	65	39.67	33.72	31.80	3.78	0.750	75.65	Carbon	27.56	929.17	1309.08	2023.12	1309.08
South	U135-L134	66	46.16	39.24	29.03	4.02	0.750	65.05	Carbon	28.98	1136.94	1523.36	2354.28	1523.36



Made By DWC
Checked By ADK

Date 4/4/2012
Date 4/9/2012

Job No. P402110046
Sheet No. 1 of 2

Calculations For: **CUY-2-1441 Span 11, As-Built Truss Rating**

Load Factors Per MCEEB 6.5.="C"

Inventory Dead Load Live Load
operating 1.30 2.17
1.30 1.30

Truss	Member	Rating ID	As-Built Main Truss Load Rating																											
			HS-20 Truck				HS-20 Lane				2F-1				3F-1				4F-1				5C-1				Truck Train			
			Compression		Tension		Compression		Tension		Compression		Tension		Compression		Tension		Compression		Tension		Compression		Tension		Compression		Tension	
			Inv.	Oper.	Inv.	Oper.	Inv.	Oper.	Inv.	Oper.	Inv.	Oper.	Inv.	Oper.	Inv.	Oper.	Inv.	Oper.	Inv.	Oper.	Inv.	Oper.	Inv.	Oper.	Inv.	Oper.	Inv.	Oper.	Inv.	Oper.
North	L127-L128	1	7.69	12.82	10.00	16.66	6.86	11.43	9.47	15.79	18.17	30.29	23.74	39.56	11.89	19.82	15.50	25.84	10.16	16.94	13.22	22.04	7.26	12.11	9.61	16.01	N/A	N/A	N/A	N/A
North	L128-L129	2	449.64	749.41	1.69	2.82	960.79	1601.32	1.84	3.06	663.69	1106.15	3.85	6.41	502.38	837.31	2.55	4.25	507.29	845.48	2.21	3.68	553.22	922.04	1.75	2.91	N/A	N/A	N/A	N/A
North	L129-L130	3	185.04	308.40	2.60	4.33	589.79	982.99	2.71	4.51	360.05	600.08	5.93	9.88	248.51	414.18	3.92	6.54	218.84	364.73	3.39	5.65	262.49	437.49	2.63	4.39	N/A	N/A	N/A	N/A
North	L130-L131	4	112.60	187.67	1.68	2.80	145.62	242.70	1.72	2.87	241.32	402.20	3.80	6.34	161.32	268.87	2.52	4.20	140.63	234.38	2.17	3.61	131.41	219.02	1.71	2.85	N/A	N/A	N/A	N/A
North	L131-L132	5	86.57	144.29	1.62	2.69	94.32	157.21	1.66	2.76	193.76	322.93	3.66	6.10	128.99	214.98	2.43	4.04	111.09	185.14	2.09	3.48	90.51	150.85	1.65	2.75	N/A	N/A	N/A	N/A
North	L132-L133	6	90.41	150.68	2.25	3.76	98.70	164.50	2.33	3.89	201.63	336.04	5.13	8.56	134.36	223.93	3.40	5.66	116.06	193.43	2.94	4.90	92.36	153.93	2.29	3.81	N/A	N/A	N/A	N/A
North	L133-L134	7	73.43	122.38	1.62	2.70	85.67	142.79	1.69	2.81	163.46	272.43	3.73	6.22	108.88	181.46	2.46	4.10	95.12	158.53	2.12	3.54	78.41	130.68	1.64	2.73	N/A	N/A	N/A	N/A
North	L134-L135	8	171.87	286.45	209.33	348.89	143.99	239.98	178.46	297.43	411.12	685.20	498.02	830.04	268.31	447.18	325.70	542.84	228.68	381.14	278.12	463.53	158.39	263.99	192.93	321.55	N/A	N/A	N/A	N/A
North	U127-U128	9	3.02	5.03	53.68	89.47	3.15	5.25	71.47	119.12	6.96	11.59	115.26	192.10	4.59	7.65	77.14	128.57	3.96	6.60	67.99	113.32	3.05	5.08	60.73	101.22	N/A	N/A	N/A	N/A
North	U128-U129	10	1.21	2.02	45.54	75.90	1.25	2.09	55.20	92.01	2.78	4.63	100.53	167.55	1.84	3.06	66.67	111.12	1.59	2.65	57.76	96.26	1.23	2.05	48.92	81.53	N/A	N/A	N/A	N/A
North	U129-U130	11	1.40	2.34	55.94	93.24	1.43	2.38	63.04	105.07	3.18	5.30	125.92	209.86	2.11	3.52	83.49	139.16	1.81	3.02	71.89	119.82	1.42	2.37	59.95	99.92	N/A	N/A	N/A	N/A
North	U130-U131	12	1.15	1.92	59.98	99.96	1.16	1.94	63.70	106.17	2.61	4.35	136.45	227.42	1.72	2.87	90.24	150.40	1.49	2.48	77.78	129.63	1.19	1.98	61.15	101.91	N/A	N/A	N/A	N/A
North	U131-U132	13	1.16	1.93	60.15	100.26	1.16	1.94	63.69	106.16	2.62	4.37	136.86	228.09	1.73	2.88	90.50	150.84	1.49	2.48	78.01	130.02	1.19	1.99	61.33	102.21	N/A	N/A	N/A	N/A
North	U132-U133	14	1.26	2.10	68.18	113.63	1.27	2.12	69.18	115.30	2.86	4.76	156.71	261.18	1.89	3.16	103.35	172.25	1.63	2.71	89.14	148.57	1.28	2.13	68.05	113.41	N/A	N/A	N/A	N/A
North	U133-U134	15	1.19	1.98	71.72	119.54	1.21	2.02	71.08	118.46	2.72	4.53	164.87	274.78	1.80	2.99	108.79	181.31	1.55	2.59	93.90	156.50	1.20	2.00	71.61	119.35	N/A	N/A	N/A	N/A
North	U134-U135	16	2.78	4.64	103.38	172.30	2.84	4.74	103.69	172.82	6.42	10.71	236.98	394.97	4.23	7.05	156.42	260.69	3.65	6.08	135.13	225.22	2.80	4.67	103.33	172.22	N/A	N/A	N/A	N/A
South	L127-L128	17	8.31	13.86	11.83	19.72	7.06	11.77	9.45	15.76	19.75	32.91	27.94	46.56	12.89	21.49	18.28	30.47	11.00	18.33	15.63	26.05	7.98	13.30	11.20	18.66	N/A	N/A	N/A	N/A
South	L128-L129	18	2048.76	3414.60	1.85	3.09	9593.41	15989.02	1.89	3.15	3302.65	5504.42	4.14	6.89	2571.85	4286.42	2.76	4.60	2560.95	4268.26	2.45	4.09	2811.09	4685.15	1.97	3.28	N/A	N/A	N/A	N/A
South	L129-L130	19	4629.98	7716.64	2.69	4.48	31593.86	52656.43	2.62	4.37	8514.19	14190.32	6.04	10.06	6374.95	10624.92	4.02	6.69	6573.13	10955.22	3.54	5.89	7047.86	11746.43	2.76	4.60	N/A	N/A	N/A	N/A
South	L130-L131	20	827.65	1379.42	1.74	2.89	2071.10	3451.83	1.67	2.78	1418.19	2363.65	3.91	6.52	1012.20	1687.01	2.59	4.32	939.90	1566.51	2.27	3.79	3456.47	5760.78	1.78	2.97	N/A	N/A	N/A	N/A
South	L131-L132	21	167.36	278.94	1.69	2.82	247.23	412.05	1.62	2.70	359.45	599.09	3.83	6.38	241.74	402.91	2.54	4.23	209.82	349.70	2.22	3.71	201.67	336.12	1.73	2.88	N/A	N/A	N/A	N/A
South	L132-L133	22	174.36	290.60	2.62	4.36	244.12	406.86	2.53	4.22	382.77	637.95	5.95	9.92	255.93	426.55	3.94	6.57	224.35	373.92	3.47	5.79	196.34	327.24	2.68	4.46	N/A	N/A	N/A	N/A
South	L133-L134	23	160.37	267.28	1.73	2.88	249.40	415.66	1.70	2.83	358.59	597.66	3.95	6.58	238.18	396.97	2.61	4.35	207.42	345.70	2.30	3.83	180.61	301.02	1.76	2.94	N/A	N/A	N/A	N/A
South	L134-L135	24	358.73	597.88	455.82	759.70	329.06	548.43	412.04	686.74	852.88	1421.46	1081.72	1802.87	557.34	928.90	706.39	1177.31	474.28	790.46	600.96	1001.59	349.00	581.66	445.18	741.97	N/A	N/A	N/A	N/A
South	U127-U128	25	3.39	5.65	196.92	328.21	3.44	5.73	188.84	314.74	7.66	12.77	461.27	768.78	5.09	8.48	304.15	506.91	4.49	7.49	260.70	434.50	3.54	5.91	193.63	322.72	N/A	N/A	N/A	N/A
South	U128-U129	26	1.17	1.95	114.97	191.61	1.15	1.91	114.85	191.41	2.63	4.39	263.78	439.63	1.75	2.92	174.37	290.62	1.54	2.56	150.57	250.94	1.20	2.00	118.52	197.53	N/A	N/A	N/A	N/A
South	U129-U130	27	1.36	2.27	114.40	190.67	1.30	2.17	114.26	190.43	3.07	5.11	256.96	428.26	2.03	3.39	171.01	285.02	1.77	2.95	147.32	245.53	1.40	2.33	119.06	198.44	N/A	N/A	N/A	N/A
South	U130-U131	28	1.14	1.90	107.07	178.45	1.08	1.80	106.31	177.18	2.58	4.30	239.83	399.72	1.71	2.84	158.53	264.22	1.49	2.48	137.11	228.52	1.18	1.97	113.91	189.85	N/A	N/A	N/A	N/A
South	U131-U132	29	1.14	1.90	107.06	178.44	1.08	1.80	106.31	177.19	2.58	4.30	239.84	399.74	1.71	2.84	158.54	264.23	1.49	2.48	137.10	228.50	1.18	1.97	113.91	189.86	N/A	N/A	N/A	N/A
South	U132-U133	30	1.35	2.24	112.77	187.95	1.28	2.13	111.90	186.50	3.04	5.07	255.39	425.65	2.02	3.37	169.33	282.22	1.76	2.93	146.45	244.08	1.37	2.28	116.49	194.15	N/A	N/A	N/A	N/A
South	U133-U134	31	1.17	1.96	114.12	190.20	1.13	1.88	111.15	185.25	2.67	4.46	265.17	441.95	1.77	2.95	174.45	290.75	1.55	2.59	150.03	250.05	1.20	2.00	116.20	193.66	N/A	N/A	N/A	N/A
South	U134-U135	32	4.02	6.70	210.85	351.42	3.91	6.51	190.89	318.15	9.21	15.35	500.27	833.78	6.08	10.14	328.07	546.78	5.35	8.91	280.23	467.05	4.09	6.81	202.62	337.69	N/A	N/A	N/A	N/A
North	U127-L127	33	1.48	2.46	27.67	46.12	1.31	2.18	39.78	66.31	3.46	5.76	69.03	115.05	2.27	3.79	43.20	72.01	1.95	3.25	40.63	67.71	1.44	2.40	30.39	50.64	N/A	N/A	N/A	N/A
North	U128-L128	34	1.45	2.41	40.75	67.92	1.34	2.24	46.91	78.19	3.34	5.57	87.61	146.02	2.20	3.67	58.59	97.66	1.90	3.17	51.62	86.04	1.45	2.42	46.01	76.69	N/A	N/A	N/A	N/A
North	U129-L129	35	1.23	2.05	31.79	52.98	1.29	2.14	44.25	73.74	2.82	4.70	60.87	101.45	1.86	3.11	42.28	70.47	1.61	2.69	39.08	65.13	1.27	2.12	39.29	65.49	N/A	N/A	N/A	N/A
North	U130-L130	36	1.25	2.08	13.53	22.56	1.52	2.53	28.25	47.08	2.81	4.69	27.54	45.89	1.87	3.11	18.74	31.23	1.62	2.70	16.84	28.07	1.33	2.22	20.05	33.41	N/A	N/A	N/A	N/A
North	U131-L131	37	1.18	1.96	38.57	64.28	1.46	2.44	47.87	79.78	2.07	3.46	67.82	113.03	1.42	2.36	46.47	77.45	1.29	2.16	42.45	70.74	1.47	2.44	48.09	80.14	N/A	N/A	N/A	N/A
North	U132-L132	38	1.29	2.15	9.03	15.05	1.65	2.76	20.02	33.37	2.91	4.85	18.44	30.74	1.93	3.21	12.59	20.98	1.67	2.79	11.30	18.83	1.38	2.30	13.48	22.46	N/A	N/A	N/A	N/A
North	U133-L133	39	1.21	2.01	28.16	46.93	1.26	2.11	39.50	65.83	2.76	4.60	52.18	86.96	1.82	3.04	36.91	61.51	1.58	2.63	34.69	57.82	1.25	2.08	34.51	57.52	N/A	N/A		



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Date 4/4/2012
Date 4/9/2012

Job No. P402110046
Sheet No. 2 of 2

Calculations For: **CUY-2-1441 Span 11, As-Built Truss Rating**

Load Factors Per MCEEB 6.5.="C"

	Dead Load	Live Load
nventory	1.30	2.17
perating	1.30	1.30

Truss	Member	Rating ID	As-Built Main Truss Load Rating																											
			HS-20 Truck				HS-20 Lane				2F-1				3F-1				4F-1				5C-1				Truck Train			
			Compression		Tension		Compression		Tension		Compression		Tension		Compression		Tension		Compression		Tension		Compression		Tension		Compression		Tension	
			Inv.	Oper.	Inv.	Oper.	Inv.	Oper.	Inv.	Oper.	Inv.	Oper.	Inv.	Oper.	Inv.	Oper.	Inv.	Oper.	Inv.	Oper.	Inv.	Oper.	Inv.	Oper.	Inv.	Oper.	Inv.	Oper.	Inv.	Oper.
North	U128-L129	52	22.14	36.90	1.32	2.21	30.59	50.98	1.38	2.30	42.53	70.89	3.03	5.05	29.50	49.17	2.00	3.34	27.24	45.39	1.73	2.89	27.27	45.46	1.36	2.27	N/A	N/A	N/A	N/A
North	U129-L130	53	8.69	14.49	1.25	2.09	18.17	30.28	1.53	2.55	17.68	29.47	2.83	4.72	12.03	20.06	1.88	3.13	10.81	18.02	1.63	2.72	12.88	21.46	1.34	2.24	N/A	N/A	N/A	N/A
North	U130-L131	54	3.52	5.86	1.93	3.22	8.95	14.91	3.15	5.25	7.55	12.58	4.30	7.16	5.07	8.45	2.87	4.78	4.48	7.46	2.50	4.17	4.42	7.37	2.19	3.64	N/A	N/A	N/A	N/A
North	U132-L131	55	2.39	3.98	2.72	4.54	6.02	10.03	5.34	8.90	5.16	8.60	6.03	10.05	3.47	5.78	4.02	6.70	3.06	5.10	3.51	5.85	2.97	4.95	3.09	5.14	N/A	N/A	N/A	N/A
North	U133-L132	56	5.32	8.86	1.40	2.34	11.78	19.63	1.80	3.00	10.86	18.10	3.17	5.28	7.41	12.35	2.10	3.50	6.65	11.09	1.82	3.04	7.94	13.23	1.50	2.51	N/A	N/A	N/A	N/A
North	U134-L133	57	21.48	35.81	1.48	2.46	29.76	49.60	1.54	2.57	40.00	66.67	3.38	5.63	28.26	47.09	2.23	3.72	26.51	44.18	1.93	3.22	26.19	43.64	1.53	2.55	N/A	N/A	N/A	N/A
North	U135-L134	58	55.17	91.95	1.58	2.63	49.93	83.21	1.45	2.42	126.55	210.91	3.65	6.08	83.50	139.17	2.40	4.00	72.13	120.22	2.07	3.45	55.09	91.81	1.59	2.65	N/A	N/A	N/A	N/A
South	U127-L128	59	95.24	158.73	1.52	2.53	81.20	135.34	1.37	2.28	225.16	375.27	3.43	5.71	147.40	245.66	2.28	3.79	126.06	210.11	2.01	3.35	93.34	155.56	1.58	2.64	N/A	N/A	N/A	N/A
South	U128-L129	60	35.51	59.18	1.50	2.50	45.02	75.03	1.46	2.44	64.72	107.87	3.38	5.63	45.64	76.06	2.25	3.74	43.14	71.89	1.98	3.31	42.59	70.99	1.60	2.66	N/A	N/A	N/A	N/A
South	U129-L130	61	8.97	14.95	1.22	2.04	17.77	29.62	1.39	2.32	18.12	30.20	2.73	4.54	12.33	20.55	1.82	3.03	11.22	18.70	1.60	2.67	14.08	23.46	1.34	2.24	N/A	N/A	N/A	N/A
South	U130-L131	62	3.34	5.57	2.10	3.50	7.78	12.96	3.27	5.45	7.23	12.04	4.60	7.67	4.84	8.07	3.08	5.14	4.32	7.21	2.74	4.56	4.26	7.09	2.45	4.08	N/A	N/A	N/A	N/A
South	U132-L131	63	3.00	5.00	2.42	4.03	6.87	11.45	3.93	6.55	6.36	10.60	5.38	8.96	4.30	7.17	3.58	5.96	3.87	6.44	3.17	5.28	3.98	6.64	2.73	4.55	N/A	N/A	N/A	N/A
South	U133-L132	64	8.32	13.86	1.39	2.32	16.57	27.61	1.56	2.60	16.30	27.17	3.14	5.23	11.25	18.75	2.08	3.47	10.35	17.25	1.83	3.04	13.31	22.18	1.48	2.47	N/A	N/A	N/A	N/A
South	U134-L133	65	37.19	61.98	1.61	2.68	44.99	74.99	1.51	2.52	64.99	108.31	3.66	6.10	47.17	78.61	2.42	4.04	44.61	74.35	2.13	3.54	42.64	71.06	1.66	2.77	N/A	N/A	N/A	N/A
South	U135-L134	66	101.24	168.74	1.59	2.66	83.12	138.53	1.39	2.31	240.74	401.24	3.65	6.09	157.30	262.17	2.41	4.02	134.25	223.75	2.12	3.53	96.79	161.32	1.62	2.70	N/A	N/A	N/A	N/A



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Date 4/4/2012
Date 4/9/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441 Span 11, As-Built Truss Rating Summary**

Truss	Member	Rating ID	As-Built Truss Load Rating Summary														
			HS-20 Truck and Lane				2F-1		3F-1		4F-1		5C-1		Truck Train		
			Inventory		Operating		Operating		Operating		Operating		Operating		Operating		
			Rating	Tons	Rating	Tons	Rating	Tons	Rating	Tons	Rating	Tons	Rating	Tons	Rating	Tons	
North	L127-L128	1	6.86	246.9	11.43	411.4	30.29	454.4	19.82	455.8	16.94	457.3	12.11	484.3	N/A	N/A	
North	L128-L129	2	1.69	60.9	2.82	101.4	6.41	96.1	4.25	97.6	3.68	99.4	2.91	116.4	N/A	N/A	
North	L129-L130	3	2.60	93.6	4.33	155.9	9.88	148.2	6.54	150.4	5.65	152.7	4.39	175.5	N/A	N/A	
North	L130-L131	4	1.68	60.4	2.80	100.6	6.34	95.1	4.20	96.7	3.61	97.6	2.85	113.8	N/A	N/A	
North	L131-L132	5	1.62	58.2	2.69	96.9	6.10	91.4	4.04	93.0	3.48	93.9	2.75	110.0	N/A	N/A	
North	L132-L133	6	2.25	81.1	3.76	135.2	8.56	128.3	5.66	130.2	4.90	132.4	3.81	152.5	N/A	N/A	
North	L133-L134	7	1.62	58.3	2.70	97.2	6.22	93.3	4.10	94.3	3.54	95.6	2.73	109.4	N/A	N/A	
North	L134-L135	8	143.99	5183.5	239.98	8639.2	685.20	10277.9	447.18	10285.2	381.14	10290.7	263.99	10559.6	N/A	N/A	
North	U127-U128	9	3.02	108.7	5.03	181.1	11.59	173.9	7.65	176.0	6.60	178.3	5.08	203.0	N/A	N/A	
North	U128-U129	10	1.21	43.7	2.02	72.9	4.63	69.4	3.06	70.4	2.65	71.5	2.05	81.8	N/A	N/A	
North	U129-U130	11	1.40	50.5	2.34	84.2	5.30	79.6	3.52	80.9	3.02	81.6	2.37	94.9	N/A	N/A	
North	U130-U131	12	1.15	41.5	1.92	69.2	4.35	65.3	2.87	65.9	2.48	66.8	1.98	79.4	N/A	N/A	
North	U131-U132	13	1.16	41.7	1.93	69.4	4.37	65.5	2.88	66.1	2.48	67.1	1.99	79.6	N/A	N/A	
North	U132-U133	14	1.26	45.3	2.10	75.6	4.76	71.4	3.16	72.6	2.71	73.3	2.13	85.3	N/A	N/A	
North	U133-U134	15	1.19	42.8	1.98	71.3	4.53	67.9	2.99	68.8	2.59	69.9	2.00	80.1	N/A	N/A	
North	U134-U135	16	2.78	100.2	4.64	167.0	10.71	160.6	7.05	162.2	6.08	164.3	4.67	186.8	N/A	N/A	
South	L127-L128	17	7.06	254.3	11.77	423.9	32.91	493.6	21.49	494.3	18.33	494.9	13.30	532.1	N/A	N/A	
South	L128-L129	18	1.85	66.7	3.09	111.2	6.89	103.4	4.60	105.7	4.09	110.4	3.28	131.2	N/A	N/A	
South	L129-L130	19	2.62	94.5	4.37	157.4	10.06	150.9	6.69	153.9	5.89	159.1	4.60	183.9	N/A	N/A	
South	L130-L131	20	1.67	59.9	2.78	99.9	6.52	97.8	4.32	99.4	3.79	102.3	2.97	119.0	N/A	N/A	
South	L131-L132	21	1.62	58.2	2.70	97.0	6.38	95.6	4.23	97.4	3.71	100.1	2.88	115.2	N/A	N/A	
South	L132-L133	22	2.53	91.2	4.22	152.0	9.92	148.8	6.57	151.1	5.79	156.4	4.46	178.5	N/A	N/A	
South	L133-L134	23	1.70	61.1	2.83	101.9	6.58	98.7	4.35	100.0	3.83	103.3	2.94	117.7	N/A	N/A	
South	L134-L135	24	329.06	11846.0	548.43	19743.4	1421.46	21322.0	928.90	21364.8	790.46	21342.5	581.66	23266.4	N/A	N/A	
South	U127-U128	25	3.39	122.1	5.65	203.5	12.77	191.6	8.48	195.1	7.49	202.2	5.91	236.3	N/A	N/A	
South	U128-U129	26	1.15	41.2	1.91	68.7	4.39	65.8	2.92	67.1	2.56	69.2	2.00	80.0	N/A	N/A	
South	U129-U130	27	1.30	46.9	2.17	78.2	5.11	76.7	3.39	77.9	2.95	79.7	2.33	93.1	N/A	N/A	
South	U130-U131	28	1.08	39.0	1.80	65.0	4.30	64.6	2.84	65.4	2.48	66.9	1.97	78.8	N/A	N/A	
South	U131-U132	29	1.08	39.0	1.80	64.9	4.30	64.5	2.84	65.4	2.48	66.9	1.97	78.8	N/A	N/A	
South	U132-U133	30	1.28	46.0	2.13	76.7	5.07	76.1	3.37	77.5	2.93	79.1	2.28	91.2	N/A	N/A	
South	U133-U134	31	1.13	40.6	1.88	67.6	4.46	66.9	2.95	67.9	2.59	70.0	2.00	79.9	N/A	N/A	
South	U134-U135	32	3.91	140.6	6.51	234.4	15.35	230.2	10.14	233.2	8.91	240.6	6.81	272.5	N/A	N/A	
North	U127-L127	33	1.31	47.0	2.18	78.4	5.76	86.4	3.79	87.1	3.25	87.9	2.40	95.8	N/A	N/A	
North	U128-L128	34	1.34	48.4	2.24	80.7	5.57	83.5	3.67	84.4	3.17	85.5	2.42	96.7	N/A	N/A	
North	U129-L129	35	1.23	44.4	2.05	73.9	4.70	70.5	3.11	71.5	2.69	72.6	2.12	84.7	N/A	N/A	
North	U130-L130	36	1.25	44.8	2.08	74.7	4.69	70.3	3.11	71.6	2.70	73.0	2.22	88.8	N/A	N/A	
North	U131-L131	37	1.18	42.4	1.96	70.7	3.46	51.9	2.36	54.3	2.16	58.3	2.44	97.7	N/A	N/A	
North	U132-L132	38	1.29	46.4	2.15	77.3	4.85	72.7	3.21	73.9	2.79	75.4	2.30	92.1	N/A	N/A	
North	U133-L133	39	1.21	43.5	2.01	72.4	4.60	69.0	3.04	69.9	2.63	71.0	2.08	83.2	N/A	N/A	
North	U134-L134	40	1.18	42.5	1.97	70.9	4.94	74.1	3.25	74.8	2.81	75.8	2.15	86.2	N/A	N/A	
North	U135-L135	41	1.27	45.7	2.12	76.2	5.43	81.5	3.56	82.0	3.06	82.7	2.29	91.5	N/A	N/A	
South	U127-L127	42	1.23	44.1	2.04	73.6	5.32	79.8	3.52	81.0	3.10	83.8	2.20	88.2	N/A	N/A	
South	U128-L128	43	1.17	42.0	1.94	69.9	4.87	73.1	3.24	74.4	2.86	77.1	2.25	90.0	N/A	N/A	
South	U129-L129	44	1.28	46.0	2.13	76.7	4.91	73.6	3.26	75.1	2.88	77.6	2.32	92.7	N/A	N/A	
South	U130-L130	45	1.29	46.5	2.15	77.4	4.79	71.9	3.20	73.5	2.82	76.1	2.36	94.4	N/A	N/A	
South	U131-L131	46	1.32	47.6	2.20	79.3	3.88	58.2	2.65	61.0	2.44	65.9	2.74	109.6	N/A	N/A	
South	U132-L132	47	1.36	48.9	2.26	81.5	5.11	76.7	3.39	77.9	2.97	80.3	2.41	96.5	N/A	N/A	
South	U133-L133	48	1.33	48.0	2.22	80.0	5.37	80.6	3.55	81.7	3.12	84.1	2.44	97.5	N/A	N/A	
South	U134-L134	49	1.13	40.6	1.88	67.7	4.95	74.2	3.27	75.1	2.87	77.5	2.19	87.8	N/A	N/A	
South	U135-L135	50	1.20	43.2	2.00	72.0	5.36	80.3	3.52	81.1	3.08	83.2	2.31	92.5	N/A	N/A	
North	U127-L128	51	1.43	51.3	2.38	85.6	5.89	88.4	3.89	89.4	3.35	90.5	2.56	102.3	N/A	N/A	
North	U128-L129	52	1.32	47.7	2.21	79.4	5.05	75.7	3.34	76.8	2.89	78.0	2.27	91.0	N/A	N/A	
North	U129-L130	53	1.25	45.1	2.09	75.2	4.72	70.8	3.13	72.1	2.72	73.5	2.24	89.4	N/A	N/A	
North	U130-L131	54	1.93	69.6	3.22	116.0	7.16	107.5	4.78	109.9	4.17	112.6	3.64	145.7	N/A	N/A	
North	U132-L131	55	2.39	85.9	3.98	143.2	8.60	129.0	5.78	132.9	5.10	137.6	4.95	197.9	N/A	N/A	
North	U133-L132	56	1.40	50.5	2.34	84.2	5.28	79.2	3.50	80.5	3.04	82.1	2.51	100.3	N/A	N/A	
North	U134-L133	57	1.48	53.2	2.46	88.7	5.63	84.5	3.72	85.6	3.22	86.9	2.55	101.9	N/A	N/A	
North	U135-L134	58	1.45	52.3	2.42	87.2	6.08	91.2	4.00	92.1	3.45	93.3	2.65	106.1	N/A	N/A	
South	U127-L128	59	1.37	49.2	2.28	82.0	5.71	85.7	3.79	87.3	3.35	90.4	2.64	105.5	N/A	N/A	
South	U128-L129	60	1.46	52.7	2.44	87.8	5.63	84.5	3.74	86.1	3.31	89.2	2.66	106.4	N/A	N/A	
South	U129-L130	61	1.22	44.0	2.04	73.4	4.54	68.2	3.03	69.7	2.67	72.1	2.24	89.5	N/A	N/A	
South	U130-L131	62	2.10	75.6	3.50	126.0	7.67	115.1	5.14	118.2	4.56	123.2	4.08	163.2	N/A	N/A	
South	U132-L131	63	2.42	87.0	4.03	145.1	8.96	134.4	5.96	137.1	5.28	142.5	4.55	182.0	N/A	N/A	
South	U133-L132	64	1.39	50.0	2.32	83.4	5.23	78.4	3.47	79.7	3.04	82.2	2.47	98.8	N/A	N/A	
South	U134-L133	65	1.51	54.5	2.52	90.8	6.10	91.6	4.04	92.9	3.54	95.7	2.77	110.9	N/A	N/A	
South	U135-L134	66	1.39	50.0	2.31	83.3	6.09	91.3	4.02	92.4	3.53	95.4	2.70	108.0	N/A	N/A	
Controlling Members																	
Rating	Tons	Rating	Tons	Rating	Tons	Rating	Tons	Rating	Tons	Rating	Tons	Rating	Tons	Rating	Tons		
1.08	38.97	1.80	64.94	3.46	51.87	2.36	54.30	2.16	58.26	1.97	78.78	N/A	N/A	N/A	N/A		
Truss	Member	Truss	Member	Truss	Member	Truss	Member	Truss	Member	Truss	Member	Truss	Member	Truss	Member		
South	U131-U132	South	U131-U132	North	U131-L131	North	U131-L131	North	U131-L131	South	U131-U132	N/A	N/A	N/A	N/A		

As-Built Fatigue Summary



Made By: DWC
Checked By: ADK

Date: 4/4/2012
Date: 4/11/2012

Job No.: P402110046
Sheet No.: _____

CUY-2-1441 Span 11 - As-Built Fatigue Summary

Redundant? No $f = 1.0$ (Calculate SAFE Life per ODOT BDM 402.2.6)
 $R_s = 1.75$
 Present ADTT* (T_p) = 160 $T_N = 361$ (Future ADTT, assuming growth rate of 1%/year)
 Weight Ratios = 1.0 ($W_p/W, W_N/W$ equal to unity per ODOT BDM 402.2.6)
 Impact** = 1.15 (Per ODOT BDM 402.2.6)
 $Y_p = 74$ (Present age of the bridge in years) $Y_{f,MIN} = 115$ years

* Based on surveyed 2010 ADTT value of 400, multiplied by F_L of 0.4 for 6 lanes of two-way traffic

** Impact is applied in calculation of stress range, S_r . Do not include in service force range.

Truss	Member	Rating ID	Service Force Range	Gross Area (in ²)	S_r	Cat.	K (Detail Constant)	C (cycles per truck passage)	Y_1	Y_N	Y_f
					(ksi)				(years)	(years)	(years)
North	L127-L128	1	13.29 k	27.63	0.55	D	6	1.00	41386	18334	18301
North	L128-L129	2	24.55 k	27.63	1.02	D	6	1.00	6558	2905	2872
North	L129-L130	3	47.28 k	59.08	0.92	D	6	1.00	8977	3977	3944
North	L130-L131	4	62.85 k	59.08	1.22	D	6	1.00	3822	1693	1661
North	L131-L132	5	69.20 k	61.76	1.29	D	6	1.00	3271	1449	1416
North	L132-L133	6	58.85 k	61.76	1.10	D	6	1.00	5319	2356	2323
North	L133-L134	7	37.58 k	32.34	1.34	D	6	1.00	2933	1299	1267
North	L134-L135	8	0.75 k	32.34	0.03	D	6	1.00	n/a	n/a	n/a
North	U127-U128	9	33.92 k	51.42	0.76	D	6	1.00	16032	7102	7069
North	U128-U129	10	56.00 k	51.42	1.25	D	6	1.00	3562	1578	1545
North	U129-U130	11	70.16 k	69.38	1.16	D	6	1.00	4450	1971	1938
North	U130-U131	12	74.26 k	69.38	1.23	D	6	1.00	3753	1663	1630
North	U131-U132	13	74.26 k	69.38	1.23	D	6	1.00	3753	1662	1630
North	U132-U133	14	73.29 k	69.38	1.21	D	6	1.00	3903	1729	1696
North	U133-U134	15	61.18 k	56.42	1.25	D	6	1.00	3607	1598	1565
North	U134-U135	16	38.69 k	56.42	0.79	D	6	1.00	14260	6317	6285
South	L127-L128	17	13.90 k	27.63	0.58	D	6	1.00	36125	16003	15970
South	L128-L129	18	25.29 k	27.63	1.05	D	6	1.00	6001	2658	2625
South	L129-L130	19	52.51 k	61.76	0.98	D	6	1.00	7486	3316	3284
South	L130-L131	20	69.03 k	61.76	1.29	D	6	1.00	3296	1460	1427
South	L131-L132	21	72.50 k	61.76	1.35	D	6	1.00	2844	1260	1227
South	L132-L133	22	55.38 k	61.76	1.03	D	6	1.00	6383	2828	2795
South	L133-L134	23	28.11 k	25.25	1.28	D	6	1.00	3338	1479	1446
South	L134-L135	24	0.30 k	25.25	0.01	D	6	1.00	n/a	n/a	n/a
South	U127-U128	25	35.36 k	51.42	0.79	D	6	1.00	14148	6268	6235
South	U128-U129	26	62.29 k	51.42	1.39	D	6	1.00	2589	1147	1114
South	U129-U130	27	76.80 k	69.38	1.27	D	6	1.00	3392	1503	1470
South	U130-U131	28	82.60 k	69.38	1.37	D	6	1.00	2727	1208	1175
South	U131-U132	29	82.59 k	69.38	1.37	D	6	1.00	2727	1208	1175
South	U132-U133	30	76.35 k	69.38	1.27	D	6	1.00	3452	1529	1497
South	U133-U134	31	57.39 k	51.42	1.28	D	6	1.00	3310	1466	1433
South	U134-U135	32	28.86 k	51.42	0.65	D	6	1.00	26020	11527	11494

As-Built Fatigue Summary



Made By: DWC
 Checked By: ADK

Date: 4/4/2012
 Date: 4/11/2012

Job No.: P402110046
 Sheet No.: _____

CUY-2-1441 Span 11 - As-Built Fatigue Summary

Redundant? No $f = 1.0$ (Calculate SAFE Life per ODOT BDM 402.2.6)
 $R_s = 1.75$
 Present ADTT* (T_p) = 160 $T_N = 361$ (Future ADTT, assuming growth rate of 1%/year)
 Weight Ratios = 1.0 ($W_p/W, W_N/W$ equal to unity per ODOT BDM 402.2.6)
 Impact** = 1.15 (Per ODOT BDM 402.2.6)
 $Y_p = 74$ (Present age of the bridge in years) $Y_{f,MIN} = 115$ years

* Based on surveyed 2010 ADTT value of 400, multiplied by F_L of 0.4 for 6 lanes of two-way traffic

** Impact is applied in calculation of stress range, S_r . Do not include in service force range.

Truss	Member	Rating ID	Service Force Range	Gross Area (in ²)	S_r	Cat.	K (Detail Constant)	C (cycles per truck passage)	Y_1	Y_N	Y_f
					(ksi)				(years)	(years)	(years)
North	U127-L127	33	52.57 k	56.42	1.07	D	6	1.00	5687	2519	2486
North	U128-L128	34	47.16 k	48.78	1.11	D	6	1.00	5092	2256	2223
North	U129-L129	35	43.70 k	37.02	1.36	D	6	1.00	2798	1239	1207
North	U130-L130	36	41.61 k	27.63	1.73	D	6	1.00	1347	597	564
North	U131-L131	37	29.20 k	22.64	1.48	D	6	1.00	2143	949	917
North	U132-L132	38	39.17 k	24.40	1.85	D	6	1.00	1112	493	460
North	U133-L133	39	41.04 k	32.34	1.46	D	6	1.00	2252	998	965
North	U134-L134	40	44.80 k	43.78	1.18	D	6	1.00	4292	1901	1869
North	U135-L135	41	52.45 k	53.76	1.12	D	6	1.00	4955	2195	2162
South	U127-L127	42	70.64 k	64.06	1.27	D	6	1.00	3431	1520	1487
South	U128-L128	43	57.54 k	51.42	1.29	D	6	1.00	3284	1455	1422
South	U129-L129	44	49.04 k	39.67	1.42	D	6	1.00	2435	1079	1046
South	U130-L130	45	44.85 k	27.63	1.87	D	6	1.00	1076	476	444
South	U131-L131	46	37.28 k	24.40	1.76	D	6	1.00	1290	572	539
South	U132-L132	47	41.67 k	25.25	1.90	D	6	1.00	1024	454	421
South	U133-L133	48	42.07 k	37.02	1.31	D	6	1.00	3136	1389	1357
South	U134-L134	49	47.23 k	46.16	1.18	D	6	1.00	4297	1903	1871
South	U135-L135	50	55.65 k	56.42	1.13	D	6	1.00	4794	2124	2091
North	U127-L128	51	57.97 k	46.16	1.44	D	6	1.00	2323	1029	996
North	U128-L129	52	52.43 k	34.68	1.74	D	6	1.00	1331	590	557
North	U129-L130	53	50.26 k	25.25	2.29	D	6	1.00	584	259	226
North	U130-L131	54	49.81 k	22.64	2.53	D	6	1.00	432	191	158
North	U132-L131	55	48.82 k	22.64	2.48	D	6	1.00	458	203	170
North	U133-L132	56	48.64 k	22.64	2.47	D	6	1.00	464	205	173
North	U134-L133	57	51.35 k	34.68	1.70	D	6	1.00	1417	628	595
North	U135-L134	58	58.55 k	48.78	1.38	D	6	1.00	2661	1179	1146
South	U127-L128	59	66.89 k	48.78	1.58	D	6	1.00	1785	791	758
South	U128-L129	60	59.93 k	39.67	1.74	D	6	1.00	1334	591	558
South	U129-L130	61	55.12 k	25.25	2.51	D	6	1.00	443	196	163
South	U130-L131	62	54.30 k	22.64	2.76	D	6	1.00	333	148	115
South	U132-L131	63	52.94 k	22.64	2.69	D	6	1.00	360	159	127
South	U133-L132	64	53.00 k	25.25	2.41	D	6	1.00	498	221	188
South	U134-L133	65	53.99 k	39.67	1.57	D	6	1.00	1825	808	776
South	U135-L134	66	54.80 k	46.16	1.37	D	6	1.00	2750	1218	1185

AS-INSPECTED RATINGS

Calculations For: CUY-2-1441 Span 11, As-Inspected Truss Rating

Load Factors Per MCEEB 6.5="C"

	Dead Load	Live Load
Inventory	1.30	2.17
Operating	1.30	1.30

Truss	Member	Rating ID	As-Inspected Main Truss Load Rating																											
			HS-20 Truck				HS-20 Lane				2F-1				3F-1				4F-1				5C-1				Truck Train			
			Compression		Tension		Compression		Tension		Compression		Tension		Compression		Tension		Compression		Tension		Compression		Tension		Compression		Tension	
			Inv.	Oper.	Inv.	Oper.	Inv.	Oper.	Inv.	Oper.	Inv.	Oper.	Inv.	Oper.	Inv.	Oper.	Inv.	Oper.	Inv.	Oper.	Inv.	Oper.	Inv.	Oper.	Inv.	Oper.	Inv.	Oper.	Inv.	Oper.
North	L127-L128	1	7.69	12.82	10.00	16.66	6.86	11.43	9.47	15.79	18.17	30.29	23.74	39.56	11.89	19.82	15.50	25.84	10.16	16.94	13.22	22.04	7.26	12.11	9.61	16.01	N/A	N/A	N/A	N/A
North	L128-L129	2	449.64	749.41	1.69	2.82	960.79	1601.32	1.84	3.06	663.69	1106.15	3.85	6.41	502.38	837.31	2.55	4.25	507.29	845.48	2.21	3.68	553.22	922.04	1.75	2.91	N/A	N/A	N/A	N/A
North	L129-L130	3	183.48	305.79	2.54	4.24	584.81	974.69	2.65	4.41	357.01	595.01	5.80	9.66	246.41	410.68	3.84	6.40	216.99	361.65	3.32	5.53	260.28	433.79	2.57	4.29	N/A	N/A	N/A	N/A
North	L130-L131	4	111.50	185.83	1.62	2.70	144.19	240.32	1.67	2.78	238.95	398.26	3.67	6.12	159.74	266.24	2.44	4.06	139.25	232.08	2.09	3.49	130.12	216.87	1.65	2.75	N/A	N/A	N/A	N/A
North	L131-L132	5	86.57	144.29	1.62	2.69	94.32	157.21	1.66	2.76	193.76	322.93	3.66	6.10	128.99	214.98	2.43	4.04	111.09	185.14	2.09	3.48	90.51	150.85	1.65	2.75	N/A	N/A	N/A	N/A
North	L132-L133	6	90.41	150.68	2.25	3.76	98.70	164.50	2.33	3.89	201.63	336.04	5.13	8.56	134.36	223.93	3.40	5.66	116.06	193.43	2.94	4.90	92.36	153.93	2.29	3.81	N/A	N/A	N/A	N/A
North	L133-L134	7	73.43	122.38	1.62	2.70	85.67	142.79	1.69	2.81	163.46	272.43	3.73	6.22	108.88	181.46	2.46	4.10	95.12	158.53	2.12	3.54	78.41	130.68	1.64	2.73	N/A	N/A	N/A	N/A
North	L134-L135	8	171.87	286.45	209.33	348.89	143.99	239.98	178.46	297.43	411.12	685.20	498.02	830.04	268.31	447.18	325.70	542.84	228.68	381.14	278.12	463.53	158.39	263.99	192.93	321.55	N/A	N/A	N/A	N/A
North	U127-U128	9	3.02	5.03	53.68	89.47	3.15	5.25	71.47	119.12	6.96	11.59	115.26	192.10	4.59	7.65	77.14	128.57	3.96	6.60	67.99	113.32	3.05	5.08	60.73	101.22	N/A	N/A	N/A	N/A
North	U128-U129	10	1.21	2.02	45.54	75.90	1.25	2.09	55.20	92.01	2.78	4.63	100.53	167.55	1.84	3.06	66.67	111.12	1.59	2.65	57.76	96.26	1.23	2.05	48.92	81.53	N/A	N/A	N/A	N/A
North	U129-U130	11	1.40	2.34	55.94	93.24	1.43	2.38	63.04	105.07	3.18	5.30	125.92	209.86	2.11	3.52	83.49	139.16	1.81	3.02	71.89	119.82	1.42	2.37	59.95	99.92	N/A	N/A	N/A	N/A
North	U130-U131	12	1.15	1.92	59.98	99.96	1.16	1.94	63.70	106.17	2.61	4.35	136.45	227.42	1.72	2.87	90.24	150.40	1.49	2.48	77.78	129.63	1.19	1.98	61.15	101.91	N/A	N/A	N/A	N/A
North	U131-U132	13	1.16	1.93	60.15	100.26	1.16	1.94	63.69	106.16	2.62	4.37	136.86	228.09	1.73	2.88	90.50	150.84	1.49	2.48	78.01	130.02	1.19	1.99	61.33	102.21	N/A	N/A	N/A	N/A
North	U132-U133	14	1.26	2.10	68.18	113.63	1.27	2.12	69.18	115.30	2.86	4.76	156.71	261.18	1.89	3.16	103.35	172.25	1.63	2.71	89.14	148.57	1.28	2.13	68.05	113.41	N/A	N/A	N/A	N/A
North	U133-U134	15	1.19	1.98	71.72	119.54	1.21	2.02	71.08	118.46	2.72	4.53	164.87	274.78	1.80	2.99	108.79	181.31	1.55	2.59	93.90	156.50	1.20	2.00	71.61	119.35	N/A	N/A	N/A	N/A
North	U134-U135	16	2.78	4.64	103.38	172.30	2.84	4.74	103.69	172.82	6.42	10.71	236.98	394.97	4.23	7.05	156.42	260.69	3.65	6.08	135.13	225.22	2.80	4.67	103.33	172.22	N/A	N/A	N/A	N/A
South	L127-L128	17	8.31	13.86	11.83	19.72	7.06	11.77	9.45	15.76	19.75	32.91	27.94	46.56	12.89	21.49	18.28	30.47	11.00	18.33	15.63	26.05	7.98	13.30	11.20	18.66	N/A	N/A	N/A	N/A
South	L128-L129	18	2048.76	3414.60	1.85	3.09	9593.41	15989.02	1.89	3.15	3302.65	5504.42	4.14	6.89	2571.85	4286.42	2.76	4.60	2560.95	4268.26	2.45	4.09	2811.09	4685.15	1.97	3.28	N/A	N/A	N/A	N/A
South	L129-L130	19	4629.98	7716.64	2.69	4.48	31593.86	52656.43	2.62	4.37	8514.19	14190.32	6.04	10.06	6374.95	10624.92	4.02	6.69	6573.13	10955.22	3.54	5.89	7047.86	11746.43	2.76	4.60	N/A	N/A	N/A	N/A
South	L130-L131	20	827.65	1379.42	1.74	2.89	2071.10	3451.83	1.67	2.78	1418.19	2363.65	3.91	6.52	1012.20	1687.01	2.59	4.32	939.90	1566.51	2.27	3.79	3456.47	5760.78	1.78	2.97	N/A	N/A	N/A	N/A
South	L131-L132	21	167.36	278.94	1.69	2.82	247.23	412.05	1.62	2.70	359.45	599.09	3.83	6.38	241.74	402.91	2.54	4.23	209.82	349.70	2.22	3.71	201.67	336.12	1.73	2.88	N/A	N/A	N/A	N/A
South	L132-L133	22	174.36	290.60	2.62	4.36	244.12	406.86	2.53	4.22	382.77	637.95	5.95	9.92	255.93	426.55	3.94	6.57	224.35	373.92	3.47	5.79	196.34	327.24	2.68	4.46	N/A	N/A	N/A	N/A
South	L133-L134	23	160.37	267.28	1.73	2.88	249.40	415.66	1.70	2.83	358.59	597.66	3.95	6.58	238.18	396.97	2.61	4.35	207.42	345.70	2.30	3.83	180.61	301.02	1.76	2.94	N/A	N/A	N/A	N/A
South	L134-L135	24	321.76	536.27	409.56	682.60	295.15	491.91	370.23	617.05	764.99	1274.98	971.95	1619.91	499.91	833.18	634.70	1057.84	425.40	709.01	539.97	899.95	313.03	521.72	400.00	666.67	N/A	N/A	N/A	N/A
South	U127-U128	25	3.39	5.65	196.92	328.21	3.44	5.73	188.84	314.74	7.66	12.77	461.27	768.78	5.09	8.48	304.15	506.91	4.49	7.49	260.70	434.50	3.54	5.91	193.63	322.72	N/A	N/A	N/A	N/A
South	U128-U129	26	1.17	1.95	114.97	191.61	1.15	1.91	114.85	191.41	2.63	4.39	263.78	439.63	1.75	2.92	174.37	290.62	1.54	2.56	150.57	250.94	1.20	2.00	118.52	197.53	N/A	N/A	N/A	N/A
South	U129-U130	27	1.36	2.27	114.40	190.67	1.30	2.17	114.26	190.43	3.07	5.11	256.96	428.26	2.03	3.39	171.01	285.02	1.77	2.95	147.32	245.53	1.40	2.33	119.06	198.44	N/A	N/A	N/A	N/A
South	U130-U131	28	1.14	1.90	107.07	178.45	1.08	1.80	106.31	177.18	2.58	4.30	239.83	399.72	1.71	2.84	158.53	264.22	1.49	2.48	137.11	228.52	1.18	1.97	113.91	189.85	N/A	N/A	N/A	N/A
South	U131-U132	29	1.14	1.90	107.06	178.44	1.08	1.80	106.31	177.19	2.58	4.30	239.84	399.74	1.71	2.84	158.54	264.23	1.49	2.48	137.10	228.50	1.18	1.97	113.91	189.86	N/A	N/A	N/A	N/A
South	U132-U133	30	1.35	2.24	112.77	187.95	1.28	2.13	111.90	186.50	3.04	5.07	255.39	425.65	2.02	3.37	169.33	282.22	1.76	2.93	146.45	244.08	1.37	2.28	116.49	194.15	N/A	N/A	N/A	N/A
South	U133-U134	31	1.17	1.96	114.12	190.20	1.13	1.88	111.15	185.25	2.67	4.46	265.17	441.95	1.77	2.95	174.45	290.75	1.55	2.59	150.03	250.05	1.20	2.00	116.20	193.66	N/A	N/A	N/A	N/A
South	U134-U135	32	4.02	6.70	210.85	351.42	3.91	6.51	190.89	318.15	9.21	15.35	500.27	833.78	6.08	10.14	328.07	546.78	5.35	8.91	280.23	467.05	4.09	6.81	202.62	337.69	N/A	N/A	N/A	N/A
North	U127-L127	33	1.48	2.46	27.67	46.12	1.31	2.18	39.78	66.31	3.46	5.76	69.03	115.05	2.27	3.79	43.20	72.01	1.95	3.25	40.63	67.71	1.44	2.40	30.39	50.64	N/A	N/A	N/A	N/A
North	U128-L128	34	1.45	2.41	40.75	67.92	1.34	2.24	46.91	78.19	3.34	5.57	87.61	146.02	2.20	3.67	58.59	97.66	1.90	3.17	51.62	86.04	1.45	2.42	46.01	76.69	N/A	N/A	N/A	N/A
North	U129-L129	35	1.23	2.05	31.79	52.98	1.29	2.14	44.25	73.74	2.82	4.70	60.87	101.45	1.86	3.11	42.28	70.47	1.61	2.69	39.08	65.13	1.27	2.12	39.29	65.49	N/A	N/A	N/A	N/A
North	U130-L130	36	1.25	2.08	13.53	22.56	1.52	2.53	28.25	47.08	2.81	4.69	27.54	45.89	1.87	3.11	18.74	31.23	1.62	2.70	16.84	28.07	1.33	2.22	20.05	33.41	N/A	N/A	N/A	N/A
North	U131-L131	37	1.18	1.96	38.57	64.28	1.46	2.44	47.87	79.78	2.07	3.46	67.82	113.03	1.42	2.36	46.47	77.45	1.29	2.16	42.45	70.74	1.47	2.44	48.09	80.14	N/A	N/A	N/A	N/A
North	U132-L132	38	1.29	2.15	9.03	15.05	1.65	2.76	20.02	33.37	2.91	4.85	18.44	30.74	1.93	3.21	12.59	20.98	1.67	2.79	11.30	18.83	1.38	2.30	13.48	22.46	N/A	N/A	N/A	N/A
North	U133-L133	39	1.21	2.01	28.16	46.93	1.26	2.11	39.50	65.83	2.76	4.60	52.18	86.96	1.82	3.04	36.91	61.51	1.58	2.63</										



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Date 4/9/2012

Job No. P402110046
Sheet No. 2 of 2

Calculations For: **CUY-2-1441 Span 11, As-Inspected Truss Rating**

Load Factors Per MCEEB 6.5="C"

	Dead Load	Live Load
Inventory	1.30	2.17
Operating	1.30	1.30

Truss	Member	Rating ID	As-Inspected Main Truss Load Rating																											
			HS-20 Truck				HS-20 Lane				2F-1				3F-1				4F-1				5C-1				Truck Train			
			Compression		Tension		Compression		Tension		Compression		Tension		Compression		Tension		Compression		Tension		Compression		Tension		Compression		Tension	
			Inv.	Oper.	Inv.	Oper.	Inv.	Oper.	Inv.	Oper.	Inv.	Oper.	Inv.	Oper.	Inv.	Oper.	Inv.	Oper.	Inv.	Oper.	Inv.	Oper.	Inv.	Oper.	Inv.	Oper.	Inv.	Oper.	Inv.	Oper.
North	U128-L129	52	22.14	36.90	1.32	2.21	30.59	50.98	1.38	2.30	42.53	70.89	3.03	5.05	29.50	49.17	2.00	3.34	27.24	45.39	1.73	2.89	27.27	45.46	1.36	2.27	N/A	N/A	N/A	N/A
North	U129-L130	53	8.69	14.49	1.25	2.09	18.17	30.28	1.53	2.55	17.68	29.47	2.83	4.72	12.03	20.06	1.88	3.13	10.81	18.02	1.63	2.72	12.88	21.46	1.34	2.24	N/A	N/A	N/A	N/A
North	U130-L131	54	3.52	5.86	1.93	3.22	8.95	14.91	3.15	5.25	7.55	12.58	4.30	7.16	5.07	8.45	2.87	4.78	4.48	7.46	2.50	4.17	4.42	7.37	2.19	3.64	N/A	N/A	N/A	N/A
North	U132-L131	55	2.39	3.98	2.72	4.54	6.02	10.03	5.34	8.90	5.16	8.60	6.03	10.05	3.47	5.78	4.02	6.70	3.06	5.10	3.47	5.85	2.97	4.95	3.09	5.14	N/A	N/A	N/A	N/A
North	U133-L132	56	5.32	8.86	1.40	2.34	11.78	19.63	1.80	3.00	10.86	18.10	3.17	5.28	7.41	12.35	2.10	3.50	6.65	11.09	1.82	3.04	7.94	13.23	1.50	2.51	N/A	N/A	N/A	N/A
North	U134-L133	57	21.48	35.81	1.48	2.46	29.76	49.60	1.54	2.57	40.00	66.67	3.38	5.63	28.26	47.09	2.23	3.72	26.51	44.18	1.93	3.22	26.19	43.64	1.53	2.55	N/A	N/A	N/A	N/A
North	U135-L134	58	55.17	91.95	1.58	2.63	49.93	83.21	1.45	2.42	126.55	210.91	3.65	6.08	83.50	139.17	2.40	4.00	72.13	120.22	2.07	3.45	55.09	91.81	1.59	2.65	N/A	N/A	N/A	N/A
South	U127-L128	59	90.58	150.97	1.27	2.12	77.24	128.73	1.14	1.91	214.16	356.94	2.87	4.78	140.19	233.65	1.91	3.18	119.90	199.84	1.68	2.80	88.78	147.96	1.32	2.21	N/A	N/A	N/A	N/A
South	U128-L129	60	35.51	59.18	1.50	2.50	45.02	75.03	1.46	2.44	64.72	107.87	3.38	5.63	45.64	76.06	2.25	3.74	43.14	71.89	1.98	3.31	42.59	70.99	1.60	2.66	N/A	N/A	N/A	N/A
South	U129-L130	61	8.97	14.95	1.22	2.04	17.77	29.62	1.39	2.32	18.12	30.20	2.73	4.54	12.33	20.55	1.82	3.03	11.22	18.70	1.60	2.67	14.08	23.46	1.34	2.24	N/A	N/A	N/A	N/A
South	U130-L131	62	3.34	5.57	2.10	3.50	7.78	12.96	3.27	5.45	7.23	12.04	4.60	7.67	4.84	8.07	3.08	5.14	4.32	7.21	2.74	4.56	4.26	7.09	2.45	4.08	N/A	N/A	N/A	N/A
South	U132-L131	63	3.00	5.00	2.42	4.03	6.87	11.45	3.93	6.55	6.36	10.60	5.38	8.96	4.30	7.17	3.58	5.96	3.87	6.44	3.17	5.28	3.98	6.64	2.73	4.55	N/A	N/A	N/A	N/A
South	U133-L132	64	8.32	13.86	1.39	2.32	16.57	27.61	1.56	2.60	16.30	27.17	3.14	5.23	11.25	18.75	2.08	3.47	10.35	17.25	1.83	3.04	13.31	22.18	1.48	2.47	N/A	N/A	N/A	N/A
South	U134-L133	65	37.19	61.98	1.61	2.68	44.99	74.99	1.51	2.52	64.99	108.31	3.66	6.10	47.17	78.61	2.42	4.04	44.61	74.35	2.13	3.54	42.64	71.06	1.66	2.77	N/A	N/A	N/A	N/A
South	U135-L134	66	101.24	168.74	1.59	2.66	83.12	138.53	1.39	2.31	240.74	401.24	3.65	6.09	157.30	262.17	2.41	4.02	134.25	223.75	2.12	3.53	96.79	161.32	1.62	2.70	N/A	N/A	N/A	N/A



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Date 4/4/2012
Date 4/9/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441 Span 11, As-Inspected Truss Rating Summary**

Truss	Member	Rating ID	As-Inspected Truss Load Rating Summary													
			HS-20 Truck and Lane				2F-1		3F-1		4F-1		5C-1		Truck Train	
			Inventory		Operating		Operating		Operating		Operating		Operating		Operating	
			Rating	Tons	Rating	Tons	Rating	Tons	Rating	Tons	Rating	Tons	Rating	Tons	Rating	Tons
North	L127-L128	1	6.86	246.9	11.43	411.4	30.29	454.4	19.82	455.8	16.94	457.3	12.11	484.3	N/A	N/A
North	L128-L129	2	1.69	60.9	2.82	101.4	6.41	96.1	4.25	97.6	3.68	99.4	2.91	116.4	N/A	N/A
North	L129-L130	3	2.54	91.5	4.24	152.5	9.66	145.0	6.40	147.1	5.53	149.3	4.29	171.6	N/A	N/A
North	L130-L131	4	1.62	58.3	2.70	97.2	6.12	91.8	4.06	93.4	3.49	94.3	2.75	110.0	N/A	N/A
North	L131-L132	5	1.62	58.2	2.69	96.9	6.10	91.4	4.04	93.0	3.48	93.9	2.75	110.0	N/A	N/A
North	L132-L133	6	2.25	81.1	3.76	135.2	8.56	128.3	5.66	130.2	4.90	132.4	3.81	152.5	N/A	N/A
North	L133-L134	7	1.62	58.3	2.70	97.2	6.22	93.3	4.10	94.3	3.54	95.6	2.73	109.4	N/A	N/A
North	L134-L135	8	143.99	5183.5	239.98	8639.2	685.20	10277.9	447.18	10285.2	381.14	10290.7	263.99	10559.6	N/A	N/A
North	U127-U128	9	3.02	108.7	5.03	181.1	11.59	173.9	7.65	176.0	6.60	178.3	5.08	203.0	N/A	N/A
North	U128-U129	10	1.21	43.7	2.02	72.9	4.63	69.4	3.06	70.4	2.65	71.5	2.05	81.8	N/A	N/A
North	U129-U130	11	1.40	50.5	2.34	84.2	5.30	79.6	3.52	80.9	3.02	81.6	2.37	94.9	N/A	N/A
North	U130-U131	12	1.15	41.5	1.92	69.2	4.35	65.3	2.87	65.9	2.48	66.8	1.98	79.4	N/A	N/A
North	U131-U132	13	1.16	41.7	1.93	69.4	4.37	65.5	2.88	66.1	2.48	67.1	1.99	79.6	N/A	N/A
North	U132-U133	14	1.26	45.3	2.10	75.6	4.76	71.4	3.16	72.6	2.71	73.3	2.13	85.3	N/A	N/A
North	U133-U134	15	1.19	42.8	1.98	71.3	4.53	67.9	2.99	68.8	2.59	69.9	2.00	80.1	N/A	N/A
North	U134-U135	16	2.78	100.2	4.64	167.0	10.71	160.6	7.05	162.2	6.08	164.3	4.67	186.8	N/A	N/A
South	L127-L128	17	7.06	254.3	11.77	423.9	32.91	493.6	21.49	494.3	18.33	494.9	13.30	532.1	N/A	N/A
South	L128-L129	18	1.85	66.7	3.09	111.2	6.89	103.4	4.60	105.7	4.09	110.4	3.28	131.2	N/A	N/A
South	L129-L130	19	2.62	94.5	4.37	157.4	10.06	150.9	6.69	153.9	5.89	159.1	4.60	183.9	N/A	N/A
South	L130-L131	20	1.67	59.9	2.78	99.9	6.52	97.8	4.32	99.4	3.79	102.3	2.97	119.0	N/A	N/A
South	L131-L132	21	1.62	58.2	2.70	97.0	6.38	95.6	4.23	97.4	3.71	100.1	2.88	115.2	N/A	N/A
South	L132-L133	22	2.53	91.2	4.22	152.0	9.92	148.8	6.57	151.1	5.79	156.4	4.46	178.5	N/A	N/A
South	L133-L134	23	1.70	61.1	2.83	101.9	6.58	98.7	4.35	100.0	3.83	103.3	2.94	117.7	N/A	N/A
South	L134-L135	24	295.15	10625.3	491.91	17708.9	1274.98	19124.8	833.18	19163.2	709.01	19143.1	521.72	20868.8	N/A	N/A
South	U127-U128	25	3.39	122.1	5.65	203.5	12.77	191.6	8.48	195.1	7.49	202.2	5.91	236.3	N/A	N/A
South	U128-U129	26	1.15	41.2	1.91	68.7	4.39	65.8	2.92	67.1	2.56	69.2	2.00	80.0	N/A	N/A
South	U129-U130	27	1.30	46.9	2.17	78.2	5.11	76.7	3.39	77.9	2.95	79.7	2.33	93.1	N/A	N/A
South	U130-U131	28	1.08	39.0	1.80	65.0	4.30	64.6	2.84	65.4	2.48	66.9	1.97	78.8	N/A	N/A
South	U131-U132	29	1.08	39.0	1.80	64.9	4.30	64.5	2.84	65.4	2.48	66.9	1.97	78.8	N/A	N/A
South	U132-U133	30	1.28	46.0	2.13	76.7	5.07	76.1	3.37	77.5	2.93	79.1	2.28	91.2	N/A	N/A
South	U133-U134	31	1.13	40.6	1.88	67.6	4.46	66.9	2.95	67.9	2.59	70.0	2.00	79.9	N/A	N/A
South	U134-U135	32	3.91	140.6	6.51	234.4	15.35	230.2	10.14	233.2	8.91	240.6	6.81	272.5	N/A	N/A
North	U127-L127	33	1.31	47.0	2.18	78.4	5.76	86.4	3.79	87.1	3.25	87.9	2.40	95.8	N/A	N/A
North	U128-L128	34	1.34	48.4	2.24	80.7	5.57	83.5	3.67	84.4	3.17	85.5	2.42	96.7	N/A	N/A
North	U129-L129	35	1.23	44.4	2.05	73.9	4.70	70.5	3.11	71.5	2.69	72.6	2.12	84.7	N/A	N/A
North	U130-L130	36	1.25	44.8	2.08	74.7	4.69	70.3	3.11	71.6	2.70	73.0	2.22	88.8	N/A	N/A
North	U131-L131	37	1.18	42.4	1.96	70.7	3.46	51.9	2.36	54.3	2.16	58.3	2.44	97.7	N/A	N/A
North	U132-L132	38	1.29	46.4	2.15	77.3	4.85	72.7	3.21	73.9	2.79	75.4	2.30	92.1	N/A	N/A
North	U133-L133	39	1.21	43.5	2.01	72.4	4.60	69.0	3.04	69.9	2.63	71.0	2.08	83.2	N/A	N/A
North	U134-L134	40	1.14	41.1	1.90	68.5	4.77	71.5	3.14	72.3	2.71	73.2	2.08	83.2	N/A	N/A
North	U135-L135	41	1.27	45.7	2.12	76.2	5.43	81.5	3.56	82.0	3.06	82.7	2.29	91.5	N/A	N/A
South	U127-L127	42	1.23	44.1	2.04	73.6	5.32	79.8	3.52	81.0	3.10	83.8	2.20	88.2	N/A	N/A
South	U128-L128	43	1.17	42.0	1.94	69.9	4.87	73.1	3.24	74.4	2.86	77.1	2.25	90.0	N/A	N/A
South	U129-L129	44	1.28	46.0	2.13	76.7	4.91	73.6	3.26	75.1	2.88	77.6	2.32	92.7	N/A	N/A
South	U130-L130	45	1.29	46.5	2.15	77.4	4.79	71.9	3.20	73.5	2.82	76.1	2.36	94.4	N/A	N/A
South	U131-L131	46	1.32	47.6	2.20	79.3	3.88	58.2	2.65	61.0	2.44	65.9	2.74	109.6	N/A	N/A
South	U132-L132	47	1.36	48.9	2.26	81.5	5.11	76.7	3.39	77.9	2.97	80.3	2.41	96.5	N/A	N/A
South	U133-L133	48	1.33	48.0	2.22	80.0	5.37	80.6	3.55	81.7	3.12	84.1	2.44	97.5	N/A	N/A
South	U134-L134	49	1.13	40.6	1.88	67.7	4.95	74.2	3.27	75.1	2.87	77.5	2.19	87.8	N/A	N/A
South	U135-L135	50	1.11	39.8	1.84	66.4	4.94	74.1	3.25	74.7	2.84	76.7	2.13	85.3	N/A	N/A
North	U127-L128	51	1.43	51.3	2.38	85.6	5.89	88.4	3.89	89.4	3.35	90.5	2.56	102.3	N/A	N/A
North	U128-L129	52	1.32	47.7	2.21	79.4	5.05	75.7	3.34	76.8	2.89	78.0	2.27	91.0	N/A	N/A
North	U129-L130	53	1.25	45.1	2.09	75.2	4.72	70.8	3.13	72.1	2.72	73.5	2.24	89.4	N/A	N/A
North	U130-L131	54	1.93	69.6	3.22	116.0	7.16	107.5	4.78	109.9	4.17	112.6	3.64	145.7	N/A	N/A
North	U132-L131	55	2.39	85.9	3.98	143.2	8.60	129.0	5.78	132.9	5.10	137.6	4.95	197.9	N/A	N/A
North	U133-L132	56	1.40	50.5	2.34	84.2	5.28	79.2	3.50	80.5	3.04	82.1	2.51	100.3	N/A	N/A
North	U134-L133	57	1.48	53.2	2.46	88.7	5.63	84.5	3.72	85.6	3.22	86.9	2.55	101.9	N/A	N/A
North	U135-L134	58	1.45	52.3	2.42	87.2	6.08	91.2	4.00	92.1	3.45	93.3	2.65	106.1	N/A	N/A
South	U127-L128	59	1.14	41.2	1.91	68.7	4.78	71.8	3.18	73.1	2.80	75.7	2.21	88.3	N/A	N/A
South	U128-L129	60	1.46	52.7	2.44	87.8	5.63	84.5	3.74	86.1	3.31	89.2	2.66	106.4	N/A	N/A
South	U129-L130	61	1.22	44.0	2.04	73.4	4.54	68.2	3.03	69.7	2.67	72.1	2.24	89.5	N/A	N/A
South	U130-L131	62	2.10	75.6	3.50	126.0	7.67	115.1	5.14	118.2	4.56	123.2	4.08	163.2	N/A	N/A
South	U132-L131	63	2.42	87.0	4.03	145.1	8.96	134.4	5.96	137.1	5.28	142.5	4.55	182.0	N/A	N/A
South	U133-L132	64	1.39	50.0	2.32	83.4	5.23	78.4	3.47	79.7	3.04	82.2	2.47	98.8	N/A	N/A
South	U134-L133	65	1.51	54.5	2.52	90.8	6.10	91.6	4.04	92.9	3.54	95.7	2.77	110.9	N/A	N/A
South	U135-L134	66	1.39	50.0	2.31	83.3	6.09	91.3	4.02	92.4	3.53	95.4	2.70	108.0	N/A	N/A
Controlling Members																
			Rating	Tons	Rating	Tons	Rating	Tons	Rating	Tons	Rating	Tons	Rating	Tons	Rating	Tons
			1.08	38.97	1.80	64.94	3.46	51.87	2.36	54.30	2.16	58.26	1.97	78.78	N/A	N/A
			Truss	Member	Truss	Member	Truss	Member	Truss	Member	Truss	Member	Truss	Member	Truss	Member
			South	U131-U132	South	U131-U132	North	U131-L131	North	U131-L131	North	U131-L131	South	U131-U132	N/A	N/A

As-Inspected Fatigue Summary



Made By: DWC
Checked By: ADK

Date: 4/4/2012
Date: 4/11/2012

Job No.: P402110046
Sheet No.: _____

CUY-2-1441 Span 11 - As-Inspected Fatigue Summary

Redundant? No $f = 1.0$ (Calculate SAFE Life per ODOT BDM 402.2.6)
 $R_s = 1.75$
 Present ADTT* (T_P) = 160 $T_N = 361$ (Future ADTT, assuming growth rate of 1%/year)
 Weight Ratios = 1.0 ($W_P/W, W_N/W$ equal to unity per ODOT BDM 402.2.6)
 Impact** = 1.15 (Per ODOT BDM 402.2.6)
 $Y_P = 74$ (Present age of the bridge in years) $Y_{f,MIN} = 115$ years

* Based on surveyed 2010 ADTT value of 400, multiplied by F_L of 0.4 for 6 lanes of two-way traffic

** Impact is applied in calculation of stress range, S_r . Do not include in service force range.

Truss	Member	Rating ID	Service Force Range	Gross Area (in ²)	S_r	Cat.	K (Detail Constant)	C (cycles per truck passage)	Y_1	Y_N	Y_f
					(ksi)				(years)	(years)	(years)
North	L127-L128	1	13.29 k	27.63	0.55	D	6	1.00	41386	18334	18301
North	L128-L129	2	24.55 k	27.63	1.02	D	6	1.00	6558	2905	2872
North	L129-L130	3	47.28 k	58.30	0.93	D	6	1.00	8622	3820	3787
North	L130-L131	4	62.85 k	58.08	1.24	D	6	1.00	3632	1609	1576
North	L131-L132	5	69.20 k	61.76	1.29	D	6	1.00	3271	1449	1416
North	L132-L133	6	58.85 k	61.76	1.10	D	6	1.00	5319	2356	2323
North	L133-L134	7	37.58 k	32.34	1.34	D	6	1.00	2933	1299	1267
North	L134-L135	8	0.75 k	32.34	0.03	D	6	1.00	n/a	n/a	n/a
North	U127-U128	9	33.92 k	51.42	0.76	D	6	1.00	16032	7102	7069
North	U128-U129	10	56.00 k	51.42	1.25	D	6	1.00	3562	1578	1545
North	U129-U130	11	70.16 k	69.38	1.16	D	6	1.00	4450	1971	1938
North	U130-U131	12	74.26 k	69.38	1.23	D	6	1.00	3753	1663	1630
North	U131-U132	13	74.26 k	69.38	1.23	D	6	1.00	3753	1662	1630
North	U132-U133	14	73.29 k	69.38	1.21	D	6	1.00	3903	1729	1696
North	U133-U134	15	61.18 k	56.42	1.25	D	6	1.00	3607	1598	1565
North	U134-U135	16	38.69 k	56.42	0.79	D	6	1.00	14260	6317	6285
South	L127-L128	17	13.90 k	27.63	0.58	D	6	1.00	36125	16003	15970
South	L128-L129	18	25.29 k	27.63	1.05	D	6	1.00	6001	2658	2625
South	L129-L130	19	52.51 k	61.76	0.98	D	6	1.00	7486	3316	3284
South	L130-L131	20	69.03 k	61.76	1.29	D	6	1.00	3296	1460	1427
South	L131-L132	21	72.50 k	61.76	1.35	D	6	1.00	2844	1260	1227
South	L132-L133	22	55.38 k	61.76	1.03	D	6	1.00	6383	2828	2795
South	L133-L134	23	28.11 k	25.25	1.28	D	6	1.00	3338	1479	1446
South	L134-L135	24	0.30 k	22.69	0.02	D	6	1.00	n/a	n/a	n/a
South	U127-U128	25	35.36 k	51.42	0.79	D	6	1.00	14148	6268	6235
South	U128-U129	26	62.29 k	51.42	1.39	D	6	1.00	2589	1147	1114
South	U129-U130	27	76.80 k	69.38	1.27	D	6	1.00	3392	1503	1470
South	U130-U131	28	82.60 k	69.38	1.37	D	6	1.00	2727	1208	1175
South	U131-U132	29	82.59 k	69.38	1.37	D	6	1.00	2727	1208	1175
South	U132-U133	30	76.35 k	69.38	1.27	D	6	1.00	3452	1529	1497
South	U133-U134	31	57.39 k	51.42	1.28	D	6	1.00	3310	1466	1433
South	U134-U135	32	28.86 k	51.42	0.65	D	6	1.00	26020	11527	11494

As-Inspected Fatigue Summary



Made By: DWC
Checked By: ADK

Date: 4/4/2012
Date: 4/11/2012

Job No.: P402110046
Sheet No.: _____

CUY-2-1441 Span 11 - As-Inspected Fatigue Summary

Redundant? No $f = 1.0$ (Calculate SAFE Life per ODOT BDM 402.2.6)
 $R_s = 1.75$
 Present ADTT* (T_p) = 160 $T_N = 361$ (Future ADTT, assuming growth rate of 1%/year)
 Weight Ratios = 1.0 ($W_p/W, W_N/W$ equal to unity per ODOT BDM 402.2.6)
 Impact** = 1.15 (Per ODOT BDM 402.2.6)
 $Y_p = 74$ (Present age of the bridge in years) $Y_{f,MIN} = 115$ years

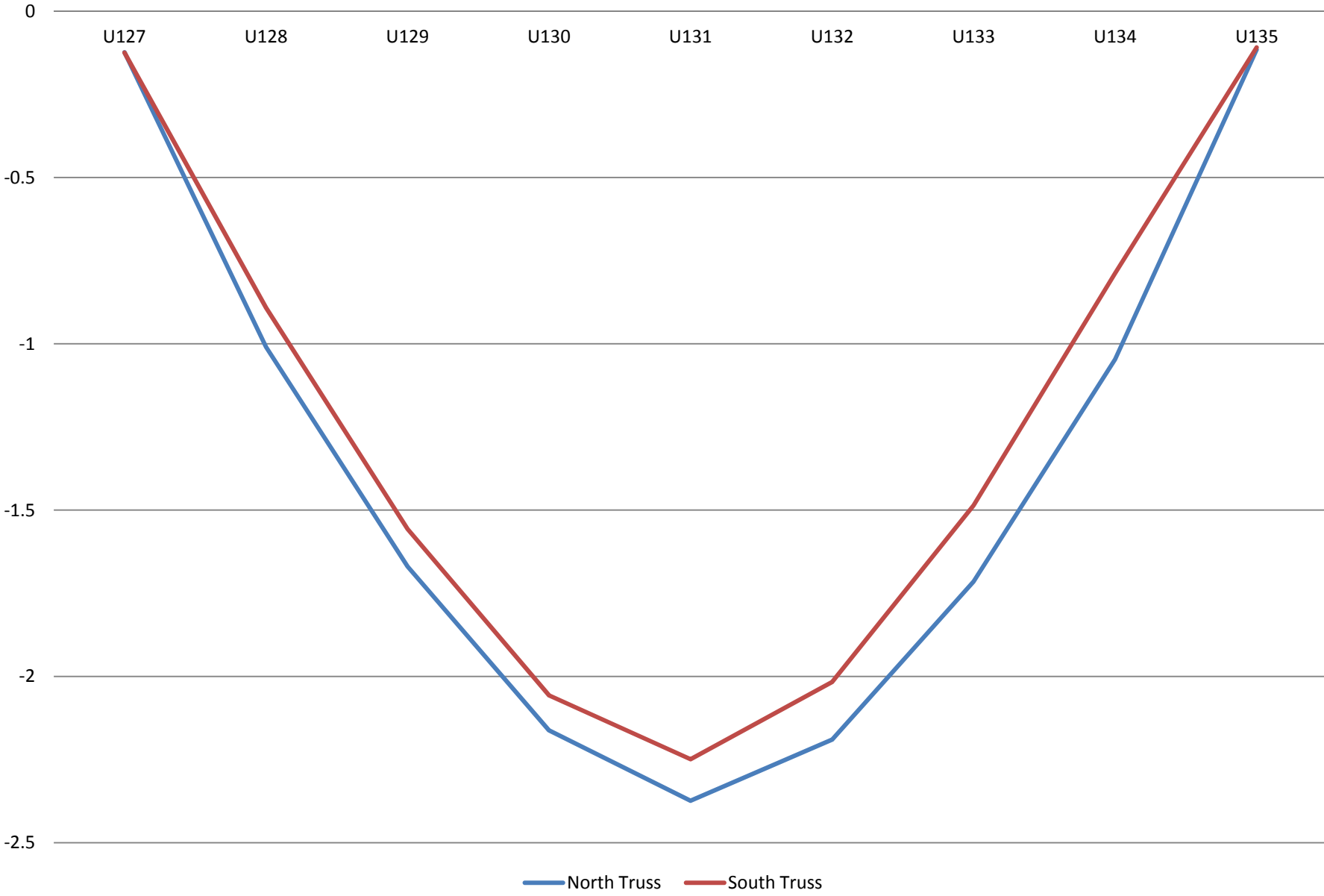
* Based on surveyed 2010 ADTT value of 400, multiplied by F_L of 0.4 for 6 lanes of two-way traffic

** Impact is applied in calculation of stress range, S_r . Do not include in service force range.

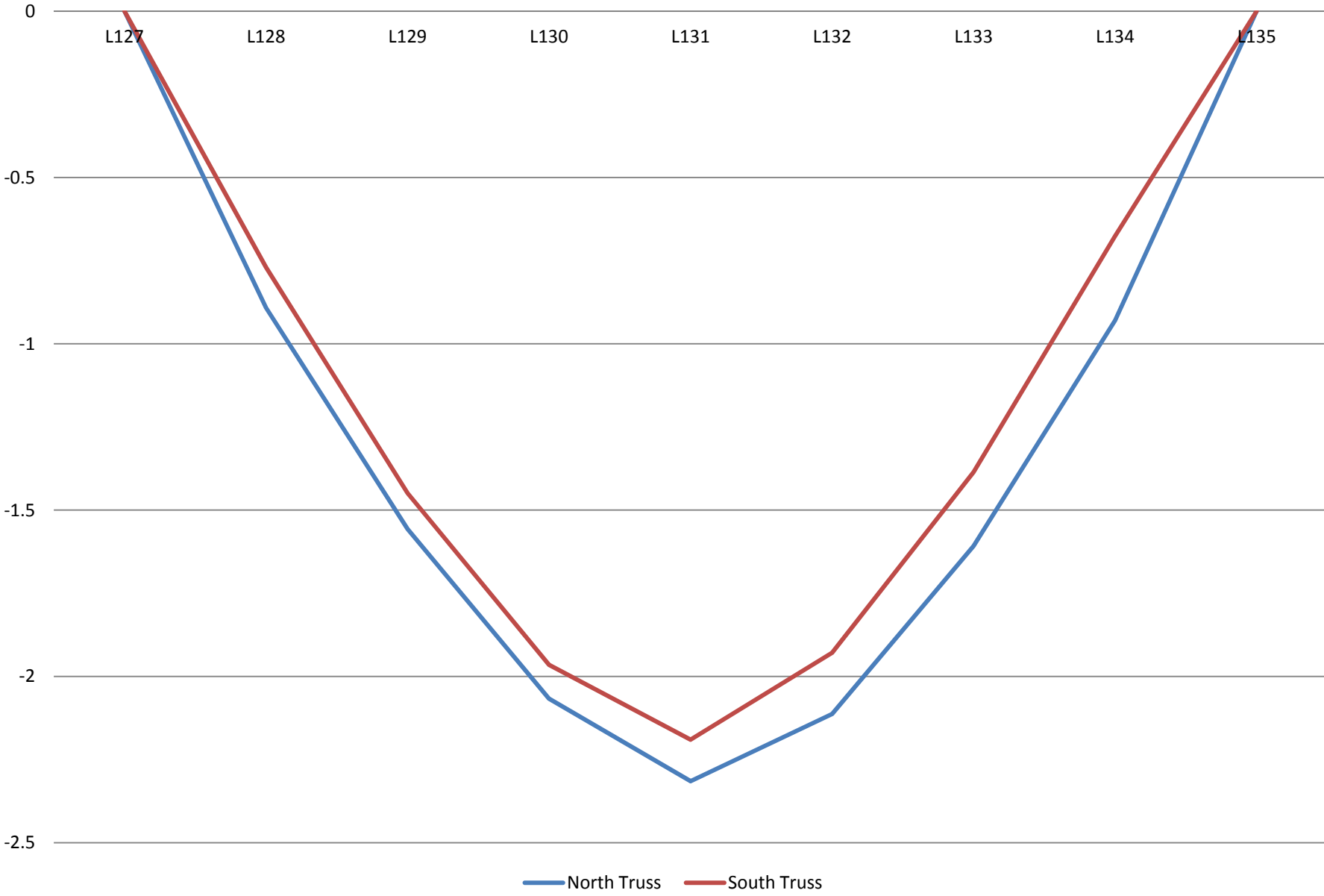
Truss	Member	Rating ID	Service Force Range	Gross Area (in ²)	S_r	Cat.	K (Detail Constant)	C (cycles per truck passage)	Y_1	Y_N	Y_f
					(ksi)				(years)	(years)	(years)
North	U127-L127	33	52.57 k	56.42	1.07	D	6	1.00	5687	2519	2486
North	U128-L128	34	47.16 k	48.78	1.11	D	6	1.00	5092	2256	2223
North	U129-L129	35	43.70 k	37.02	1.36	D	6	1.00	2798	1239	1207
North	U130-L130	36	41.61 k	27.63	1.73	D	6	1.00	1347	597	564
North	U131-L131	37	29.20 k	22.64	1.48	D	6	1.00	2143	949	917
North	U132-L132	38	39.17 k	24.40	1.85	D	6	1.00	1112	493	460
North	U133-L133	39	41.04 k	32.34	1.46	D	6	1.00	2252	998	965
North	U134-L134	40	44.80 k	43.03	1.20	D	6	1.00	4075	1805	1773
North	U135-L135	41	52.45 k	53.76	1.12	D	6	1.00	4955	2195	2162
South	U127-L127	42	70.64 k	64.06	1.27	D	6	1.00	3431	1520	1487
South	U128-L128	43	57.54 k	51.42	1.29	D	6	1.00	3284	1455	1422
South	U129-L129	44	49.04 k	39.67	1.42	D	6	1.00	2435	1079	1046
South	U130-L130	45	44.85 k	27.63	1.87	D	6	1.00	1076	476	444
South	U131-L131	46	37.28 k	24.40	1.76	D	6	1.00	1290	572	539
South	U132-L132	47	41.67 k	25.25	1.90	D	6	1.00	1024	454	421
South	U133-L133	48	42.07 k	37.02	1.31	D	6	1.00	3136	1389	1357
South	U134-L134	49	47.23 k	46.16	1.18	D	6	1.00	4297	1903	1871
South	U135-L135	50	55.65 k	54.44	1.18	D	6	1.00	4307	1908	1875
North	U127-L128	51	57.97 k	46.16	1.44	D	6	1.00	2323	1029	996
North	U128-L129	52	52.43 k	34.68	1.74	D	6	1.00	1331	590	557
North	U129-L130	53	50.26 k	25.25	2.29	D	6	1.00	584	259	226
North	U130-L131	54	49.81 k	22.64	2.53	D	6	1.00	432	191	158
North	U132-L131	55	48.82 k	22.64	2.48	D	6	1.00	458	203	170
North	U133-L132	56	48.64 k	22.64	2.47	D	6	1.00	464	205	173
North	U134-L133	57	51.35 k	34.68	1.70	D	6	1.00	1417	628	595
North	U135-L134	58	58.55 k	48.78	1.38	D	6	1.00	2661	1179	1146
South	U127-L128	59	66.89 k	44.88	1.71	D	6	1.00	1390	616	583
South	U128-L129	60	59.93 k	39.67	1.74	D	6	1.00	1334	591	558
South	U129-L130	61	55.12 k	25.25	2.51	D	6	1.00	443	196	163
South	U130-L131	62	54.30 k	22.64	2.76	D	6	1.00	333	148	115
South	U132-L131	63	52.94 k	22.64	2.69	D	6	1.00	360	159	127
South	U133-L132	64	53.00 k	25.25	2.41	D	6	1.00	498	221	188
South	U134-L133	65	53.99 k	39.67	1.57	D	6	1.00	1825	808	776
South	U135-L134	66	54.80 k	46.16	1.37	D	6	1.00	2750	1218	1185

DEAD LOAD DISPLACEMENTS

Upper Chord Dead Load Displacements (in.)



Lower Chord Dead Load Displacements (in.)



FRAMING MEMBER LOAD RATING

STRINGER LOAD RATING

STRINGER SECTION PROPERTIES



Made By DWC
Checked By SFH

Date 4/10/2012
Date 4/12/2012

Job No. P402110046
Sheet No. _____

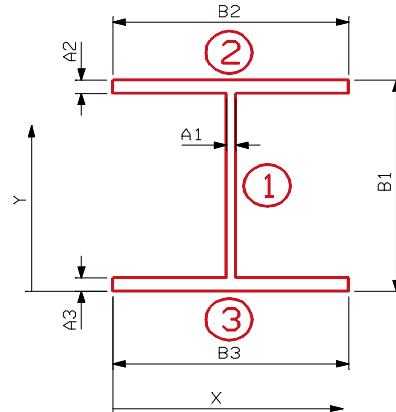
Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

- $A_1 = t_w = 0.4375$ in
- $B_1 = d = 53.3750$ in
- $A_2 = t_f = 0.7500$ in
- $B_2 = b_f = 8.0000$ in
- $A_3 = t_f = 0.7500$ in
- $B_3 = b_f = 8.0000$ in

$d_o = n/a$ in

d_o = stiffener spacing for shear check, for no stiffeners use "N/A"



Fascia Stringer F1-1

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I_o	d	Ad^2	$I_{x, gross}$
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web		22.6953	26.6875	605.6812	5089.4534	0.0000	0.0000	5089.4534
2	Top Flange		6.0000	53.0000	318.0000	0.2813	26.3125	4154.0859	4154.3672
3	Bottom Flange		6.0000	0.3750	2.2500	0.2813	26.3125	4154.0859	4154.3672
Total			34.70		925.93	5090.02		8308.17	13398.19
Section Losses			A	y	Ay	I_o	d	Ad^2	$I_{x, loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties							
y-bar =	26.6875	in	$S_{top} = 502.04$	in^3	y-bar =	26.6875	in	$S_{top} = 502.04$	in^3		
$I_x =$	13398.19	in^4	$S_{bott.} = 502.04$	in^3	$I_x =$	13398.19	in^4	$S_{bott.} = 502.04$	in^3		
$C_{top} =$	26.6875	in	A =	34.6953	in^2	$C_{top} =$	26.6875	in	A =	34.6953	in^2
$C_{bottom} =$	26.6875	in	$r_x =$	19.6511	in	$C_{bottom} =$	26.6875	in	$r_x =$	19.6511	in
J =	3.6980	in^4	Z =	610.08	in^3				Z =	610.08	in^3

Y-Axis Section Properties:

Gross Section (without Losses)		A	x	Ax	I _o	d	Ad ²	I _{y, gross}
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web	22.6953	4.0000	90.7813	0.3620	0.0000	0.0000	0.3620
2	Top Flange	6.0000	4.0000	24.0000	32.0000	0.0000	0.0000	32.0000
3	Bottom Flange	6.0000	4.0000	24.0000	32.0000	0.0000	0.0000	32.0000
Total		34.70		138.78	64.36		0.00	64.36
Section Losses		A	x	Ax	I _o	d	Ad ²	I _{y, loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
x-bar =	4.0000	in	S _{right} = 16.09 in ³	x-bar =	4.0000	in	S _{right} = 16.09 in ³
I _y =	64.36	in ⁴	S _{left} = 16.09 in ³	I _y =	64.36	in ⁴	S _{left} = 16.09 in ³
C _{right} =	4.0000	in	A = 34.6953 in ²	C _{right} =	4.0000	in	A = 34.6953 in ²
C _{left} =	4.0000	in	r _y = 1.3620 in	C _{left} =	4.0000	in	r _y = 1.3620 in

Non-composite Capacities*		
	AB	AI
M	#####	#####
V	210.66 k	210.66 k

*Noncompact Section

F_y = 36.00 ksi

AB = As-Built
 AI = As-Inspected
 M = Moment
 V = Shear



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Date 4/10/2012
Date 4/12/2012

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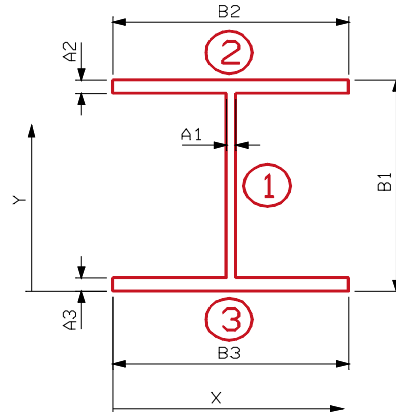
Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

- $A_1 = t_w = 0.4375$ in
- $B_1 = d = 15.2500$ in
- $A_2 = t_f = 0.7500$ in
- $B_2 = b_f = 8.0000$ in
- $A_3 = t_f = 0.7500$ in
- $B_3 = b_f = 8.0000$ in

$d_o = n/a$ in

d_o = stiffener spacing for shear check, for no stiffeners use "N/A"



Fascia Stringer F1-1 @ FB 126

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web		6.0156	7.6250	45.8691	94.7774	0.0000	0.0000	94.7774
2	Top Flange		6.0000	14.8750	89.2500	0.2813	7.2500	315.3750	315.6563
3	Bottom Flange		6.0000	0.3750	2.2500	0.2813	7.2500	315.3750	315.6563
Total			18.02		137.37	95.34		630.75	726.09
Section Losses			A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties					As-Inspected Section Properties						
y-bar =	7.6250	in	$S_{top} =$	95.22	in ³	y-bar =	7.6250	in	$S_{top} =$	95.22	in ³
$I_x =$	726.09	in ⁴	$S_{bott.} =$	95.22	in ³	$I_x =$	726.09	in ⁴	$S_{bott.} =$	95.22	in ³
$C_{top} =$	7.6250	in	A =	18.0156	in ²	$C_{top} =$	7.6250	in	A =	18.0156	in ²
$C_{bottom} =$	7.6250	in	$r_x =$	6.3485	in	$C_{bottom} =$	7.6250	in	$r_x =$	6.3485	in
J =	2.6338	in ⁴	Z =	107.68	in ³				Z =	107.68	in ³

Y-Axis Section Properties:

Gross Section (without Losses)		A	x	Ax	I _o	d	Ad ²	I _{y,gross}
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web	6.0156	4.0000	24.0625	0.0960	0.0000	0.0000	0.0960
2	Top Flange	6.0000	4.0000	24.0000	32.0000	0.0000	0.0000	32.0000
3	Bottom Flange	6.0000	4.0000	24.0000	32.0000	0.0000	0.0000	32.0000
Total		18.02		72.06	64.10		0.00	64.10
Section Losses		A	x	Ax	I _o	d	Ad ²	I _{y,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
x-bar =	4.0000	in	S _{right} = 16.02 in ³	x-bar =	4.0000	in	S _{right} = 16.02 in ³
I _y =	64.10	in ⁴	S _{left} = 16.02 in ³	I _y =	64.10	in ⁴	S _{left} = 16.02 in ³
C _{right} =	4.0000	in	A = 18.0156 in ²	C _{right} =	4.0000	in	A = 18.0156 in ²
C _{left} =	4.0000	in	r _y = 1.8862 in	C _{left} =	4.0000	in	r _y = 1.8862 in

Non-composite Capacities*		
	AB	AI
M	323.04 k-ft	323.04 k-ft
V	125.61 k	125.61 k

*Compact Section

F_y =	36.00 ksi
------------------------	------------------

AB = As-Built
 AI = As-Inspected
 M = Moment
 V = Shear



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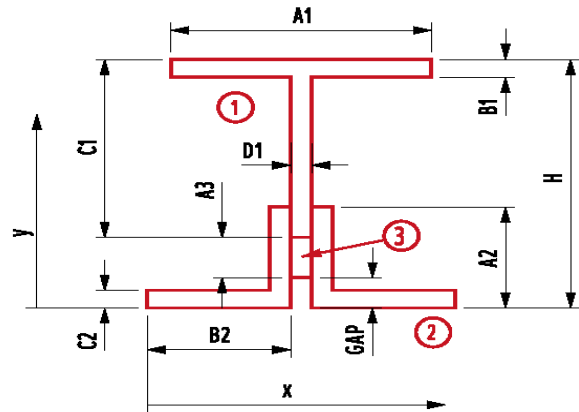
Date 4/10/2012
Date 4/10/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Partial W-Section*	W14x53	Bottom Angles:	
$A_1 = b_f =$	8.0600 in	$A_2 = L_v =$	5.0000 in
$B_1 = t_f =$	0.6600 in	$B_2 = L_h =$	5.0000 in
$C_1 = d =$	12.0000 in	$C_2 = t =$	0.5000 in
$D_1 = t_w =$	0.3700 in		



Additional Plate:		Miscellaneous:	
$A_3 = d =$	0.0000 in	H =	12.3750 in
$B_3 = t =$	0.3700 in	Gap =	0.3750 in

*select from dropdown list

Coped Stringer S9-1 @ FB 127

X-Axis Section Properties:

Gross Section (without Losses)		A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange	5.3196	12.0450	64.0746	0.1931	6.6250	233.4816	233.6747
	Web	4.1958	6.0450	25.3636	44.9635	0.6250	1.6391	46.6025
2	Horizontal Legs	4.5000	0.2500	1.1250	0.0938	5.1700	120.2794	120.3731
	Vertical Legs	5.0000	2.5000	12.5000	10.4167	2.9200	42.6316	53.0482
3	Additional Plate	0.0000	0.3750	0.0000	0.0000	5.0450	0.0000	0.0000
Total		19.02		103.06	55.67		398.03	453.70
Section Losses		A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.00		0.00	0.00		0.00	0.00



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Date 4/10/2012
Date 4/10/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	5.4200 in	S _{top} =	65.23 in ³	y-bar =	5.4200 in	S _{top} =	65.23 in ³
I _x =	453.70 in ⁴	S _{bott.} =	83.71 in ³	I _x =	453.70 in ⁴	S _{bott.} =	83.71 in ³
C _{top} =	6.9550 in	A =	19.0154 in ²	C _{top} =	6.9550 in	A =	19.0154 in ²
C _{bottom} =	5.4200 in	r _x =	4.8846 in	C _{bottom} =	5.4200 in	r _x =	4.8846 in
J =	1.7555 in ⁴	Z =	81.53 in ³			Z =	81.53 in ³

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange		5.3196	5.1850	27.5821	28.7984	0.0000	0.0000	28.7984
	Web		4.1958	5.1850	21.7552	0.0479	0.0000	0.0000	0.0479
2 (Left)	Horizontal Leg		2.2500	2.2500	5.0625	3.7969	2.9350	19.3820	23.1789
	Vertical Leg		2.5000	4.7500	11.8750	0.0521	0.4350	0.4731	0.5251
2 (Right)	Horizontal Leg		2.2500	8.1200	18.2700	3.7969	2.9350	19.3820	23.1789
	Vertical Leg		2.5000	5.6200	14.0500	0.0521	0.4350	0.4731	0.5251
3	Additional Plate		0.0000	5.1850	0.0000	0.0000	0.0000	0.0000	0.0000
Total			19.02		98.59	36.54		39.71	76.25
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
x-bar =	5.1850 in	S _{right} =	14.71 in ³	x-bar =	5.1850 in	S _{right} =	14.71 in ³
I _y =	76.25 in ⁴	S _{left} =	14.71 in ³	I _y =	76.25 in ⁴	S _{left} =	14.71 in ³
C _{right} =	5.1850 in	A =	19.0154 in ²	C _{right} =	5.1850 in	A =	19.0154 in ²
C _{left} =	5.1850 in	r _y =	2.0025 in	C _{left} =	5.1850 in	r _y =	2.0025 in

Stringer Capacity

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

Non-composite Capacities*		
	AB	AI
M	244.59 k-ft	244.59 k-ft
V	181.57 k	181.57 k

F_y = **36.00 ksi**

*Compact Section



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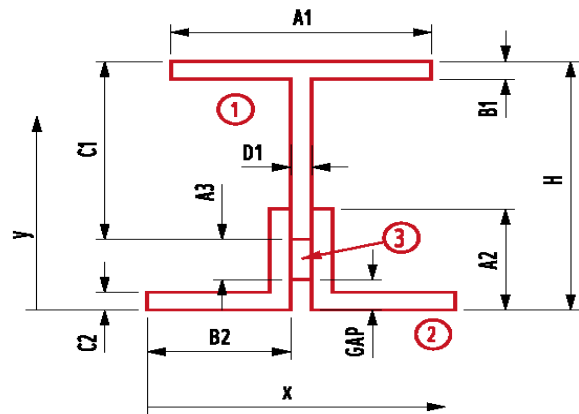
Date 4/10/2012
Date 4/10/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Partial W-Section*	W14x53	Bottom Angles:	
$A_1 = b_f =$	8.0600 in	$A_2 = L_v =$	5.0000 in
$B_1 = t_f =$	0.6600 in	$B_2 = L_h =$	5.0000 in
$C_1 = d =$	9.7500 in	$C_2 = t =$	0.5000 in
$D_1 = t_w =$	0.3700 in		



Additional Plate:		Miscellaneous:	
$A_3 = d =$	0.0000 in	H =	10.1875 in
$B_3 = t =$	0.3700 in	Gap =	0.4375 in

*select from dropdown list

Coped Stringer S10-1 @ FB 127

X-Axis Section Properties:

Gross Section (without Losses)		A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange	5.3196	9.8575	52.4380	0.1931	5.3026	149.5764	149.7695
	Web	3.3633	4.9825	16.7576	23.1586	0.4276	0.6151	23.7737
2	Horizontal Legs	4.5000	0.2500	1.1250	0.0938	4.3049	83.3933	83.4870
	Vertical Legs	5.0000	2.5000	12.5000	10.4167	2.0549	21.1123	31.5290
3	Additional Plate	0.0000	0.4375	0.0000	0.0000	4.1174	0.0000	0.0000
Total		18.18		82.82	33.86		254.70	288.56
Section Losses		A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total				0.00	0.00		0.00	0.00



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Date 4/10/2012
Date 4/10/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	4.5549 in	S _{top} =	51.23 in ³	y-bar =	4.5549 in	S _{top} =	51.23 in ³
I _x =	288.56 in ⁴	S _{bott.} =	63.35 in ³	I _x =	288.56 in ⁴	S _{bott.} =	63.35 in ³
C _{top} =	5.6326 in	A =	18.1829 in ²	C _{top} =	5.6326 in	A =	18.1829 in ²
C _{bottom} =	4.5549 in	r _x =	3.9837 in	C _{bottom} =	4.5549 in	r _x =	3.9837 in
J =	1.7176 in ⁴	Z =	64.15 in ³			Z =	64.15 in ³

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange		5.3196	5.1850	27.5821	28.7984	0.0000	0.0000	28.7984
	Web		3.3633	5.1850	17.4387	0.0384	0.0000	0.0000	0.0384
2 (Left)	Horizontal Leg		2.2500	2.2500	5.0625	3.7969	2.9350	19.3820	23.1789
	Vertical Leg		2.5000	4.7500	11.8750	0.0521	0.4350	0.4731	0.5251
2 (Right)	Horizontal Leg		2.2500	8.1200	18.2700	3.7969	2.9350	19.3820	23.1789
	Vertical Leg		2.5000	5.6200	14.0500	0.0521	0.4350	0.4731	0.5251
3	Additional Plate		0.0000	5.1850	0.0000	0.0000	0.0000	0.0000	0.0000
Total			18.18		94.28	36.53		39.71	76.24
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
x-bar =	5.1850 in	S _{right} =	14.70 in ³	x-bar =	5.1850 in	S _{right} =	14.70 in ³
I _y =	76.24 in ⁴	S _{left} =	14.70 in ³	I _y =	76.24 in ⁴	S _{left} =	14.70 in ³
C _{right} =	5.1850 in	A =	18.1829 in ²	C _{right} =	5.1850 in	A =	18.1829 in ²
C _{left} =	5.1850 in	r _y =	2.0477 in	C _{left} =	5.1850 in	r _y =	2.0477 in

Stringer Capacity

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

Non-composite Capacities*		
	AB	AI
M	192.45 k-ft	192.45 k-ft
V	164.19 k	164.19 k

F_y =	36.00 ksi
------------------------	------------------

*Compact Section



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Checked By SFH

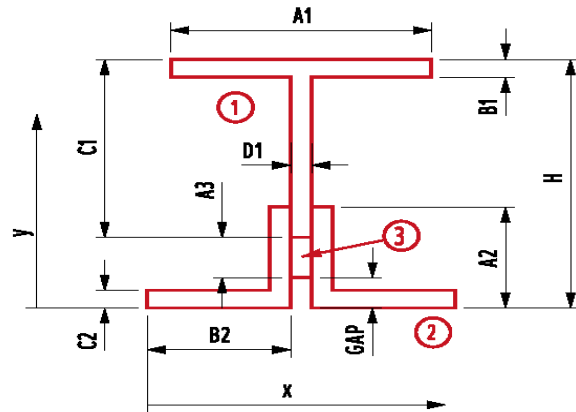
Date 4/10/2012
Date 4/10/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Partial W-Section*	W14x53	Bottom Angles:	
$A_1 = b_f =$	8.0600 in	$A_2 = L_v =$	5.0000 in
$B_1 = t_f =$	0.6600 in	$B_2 = L_h =$	5.0000 in
$C_1 = d =$	10.7500 in	$C_2 = t =$	0.5000 in
$D_1 = t_w =$	0.3700 in		



Additional Plate:		Miscellaneous:	
$A_3 = d =$	0.0000 in	H =	11.3125 in
$B_3 = t =$	0.3700 in	Gap =	0.5625 in

*select from dropdown list

Coped Stringer S11-1 @ FB 127

X-Axis Section Properties:

Gross Section (without Losses)		A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange	5.3196	10.9825	58.4225	0.1931	5.9708	189.6447	189.8378
	Web	3.7333	5.6075	20.9345	31.6733	0.5958	1.3251	32.9985
2	Horizontal Legs	4.5000	0.2500	1.1250	0.0938	4.7617	102.0330	102.1268
	Vertical Legs	5.0000	2.5000	12.5000	10.4167	2.5117	31.5438	41.9604
3	Additional Plate	0.0000	0.5625	0.0000	0.0000	4.4492	0.0000	0.0000
Total		18.55		92.98	42.38		324.55	366.92
Section Losses		A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.00		0.00	0.00		0.00	0.00



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Date 4/10/2012
Date 4/10/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	5.0117 in	S _{top} =	58.23 in ³	y-bar =	5.0117 in	S _{top} =	58.23 in ³
I _x =	366.92 in ⁴	S _{bott.} =	73.21 in ³	I _x =	366.92 in ⁴	S _{bott.} =	73.21 in ³
C _{top} =	6.3008 in	A =	18.5529 in ²	C _{top} =	6.3008 in	A =	18.5529 in ²
C _{bottom} =	5.0117 in	r _x =	4.4472 in	C _{bottom} =	5.0117 in	r _x =	4.4472 in
J =	1.7344 in ⁴	Z =	72.71 in ³			Z =	72.71 in ³

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange		5.3196	5.1850	27.5821	28.7984	0.0000	0.0000	28.7984
	Web		3.7333	5.1850	19.3572	0.0426	0.0000	0.0000	0.0426
2 (Left)	Horizontal Leg		2.2500	2.2500	5.0625	3.7969	2.9350	19.3820	23.1789
	Vertical Leg		2.5000	4.7500	11.8750	0.0521	0.4350	0.4731	0.5251
2 (Right)	Horizontal Leg		2.2500	8.1200	18.2700	3.7969	2.9350	19.3820	23.1789
	Vertical Leg		2.5000	5.6200	14.0500	0.0521	0.4350	0.4731	0.5251
3	Additional Plate		0.0000	5.1850	0.0000	0.0000	0.0000	0.0000	0.0000
Total			18.55		96.20	36.54		39.71	76.25
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
x-bar =	5.1850 in	S _{right} =	14.71 in ³	x-bar =	5.1850 in	S _{right} =	14.71 in ³
I _y =	76.25 in ⁴	S _{left} =	14.71 in ³	I _y =	76.25 in ⁴	S _{left} =	14.71 in ³
C _{right} =	5.1850 in	A =	18.5529 in ²	C _{right} =	5.1850 in	A =	18.5529 in ²
C _{left} =	5.1850 in	r _y =	2.0273 in	C _{left} =	5.1850 in	r _y =	2.0273 in

Stringer Capacity

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

Non-composite Capacities*		
	AB	AI
M	218.13 k-ft	218.13 k-ft
V	171.91 k	171.91 k

F_y =	36.00 ksi
------------------------	------------------

*Compact Section



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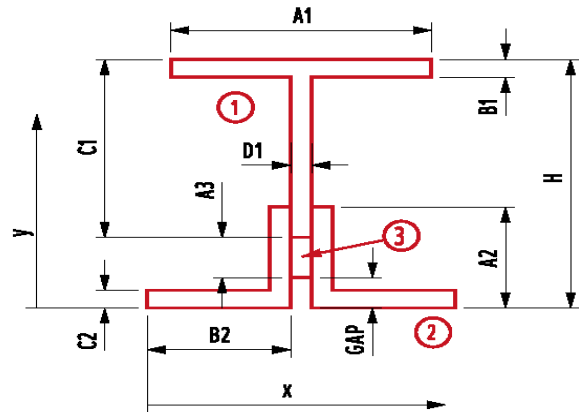
Date 4/10/2012
Date 4/10/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Partial W-Section*	W14x53	Bottom Angles:	
$A_1 = b_f =$	8.0600 in	$A_2 = L_v =$	5.0000 in
$B_1 = t_f =$	0.6600 in	$B_2 = L_h =$	5.0000 in
$C_1 = d =$	10.5000 in	$C_2 = t =$	0.5000 in
$D_1 = t_w =$	0.3700 in		



Additional Plate:		Miscellaneous:	
$A_3 = d =$	0.0000 in	H =	11.1250 in
$B_3 = t =$	0.3700 in	Gap =	0.6250 in

*select from dropdown list

Coped Stringer S12-1 @ FB 127

X-Axis Section Properties:

Gross Section (without Losses)		A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange	5.3196	10.7950	57.4251	0.1931	5.8526	182.2131	182.4062
	Web	3.6408	5.5450	20.1882	29.3769	0.6026	1.3222	30.6990
2	Horizontal Legs	4.5000	0.2500	1.1250	0.0938	4.6924	99.0829	99.1767
	Vertical Legs	5.0000	2.5000	12.5000	10.4167	2.4424	29.8261	40.2428
3	Additional Plate	0.0000	0.6250	0.0000	0.0000	4.3174	0.0000	0.0000
Total		18.46		91.24	40.08		312.44	352.52
Section Losses		A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total				0.00	0.00		0.00	0.00



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Date 4/10/2012
Date 4/10/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	4.9424 in	S _{top} =	57.02 in ³	y-bar =	4.9424 in	S _{top} =	57.02 in ³
I _x =	352.52 in ⁴	S _{bott.} =	71.33 in ³	I _x =	352.52 in ⁴	S _{bott.} =	71.33 in ³
C _{top} =	6.1826 in	A =	18.4604 in ²	C _{top} =	6.1826 in	A =	18.4604 in ²
C _{bottom} =	4.9424 in	r _x =	4.3699 in	C _{bottom} =	4.9424 in	r _x =	4.3699 in
J =	1.7302 in ⁴	Z =	71.16 in ³			Z =	71.16 in ³

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange		5.3196	5.1850	27.5821	28.7984	0.0000	0.0000	28.7984
	Web		3.6408	5.1850	18.8775	0.0415	0.0000	0.0000	0.0415
2 (Left)	Horizontal Leg		2.2500	2.2500	5.0625	3.7969	2.9350	19.3820	23.1789
	Vertical Leg		2.5000	4.7500	11.8750	0.0521	0.4350	0.4731	0.5251
2 (Right)	Horizontal Leg		2.2500	8.1200	18.2700	3.7969	2.9350	19.3820	23.1789
	Vertical Leg		2.5000	5.6200	14.0500	0.0521	0.4350	0.4731	0.5251
3	Additional Plate		0.0000	5.1850	0.0000	0.0000	0.0000	0.0000	0.0000
Total			18.46		95.72	36.54		39.71	76.25
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
x-bar =	5.1850 in	S _{right} =	14.71 in ³	x-bar =	5.1850 in	S _{right} =	14.71 in ³
I _y =	76.25 in ⁴	S _{left} =	14.71 in ³	I _y =	76.25 in ⁴	S _{left} =	14.71 in ³
C _{right} =	5.1850 in	A =	18.4604 in ²	C _{right} =	5.1850 in	A =	18.4604 in ²
C _{left} =	5.1850 in	r _y =	2.0323 in	C _{left} =	5.1850 in	r _y =	2.0323 in

Stringer Capacity

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

Non-composite Capacities*		
	AB	AI
M	213.48 k-ft	213.48 k-ft
V	169.98 k	169.98 k

F_y = **36.00 ksi**

*Compact Section



Made By DWC
Checked By SFH

Date 4/10/2012
Date 4/12/2012

Job No. P402110046
Sheet No. _____

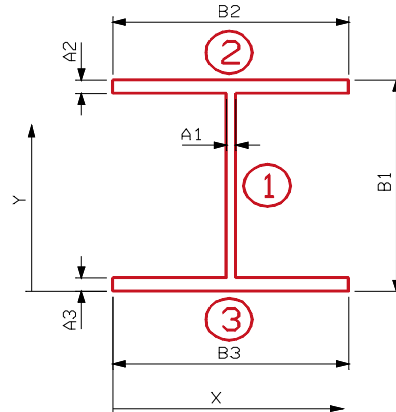
Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

- $A_1 = t_w = 0.3750$ in
- $B_1 = d = 42.6250$ in
- $A_2 = t_f = 0.7500$ in
- $B_2 = b_f = 8.0000$ in
- $A_3 = t_f = 0.7500$ in
- $B_3 = b_f = 8.0000$ in

$d_o = n/a$ in

d_o = stiffener spacing for shear check, for no stiffeners use "N/A"



Fascia Stringer F2-1

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I _o	d	Ad ²	I _{x,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web		15.4219	21.3125	328.6787	2173.5406	0.0000	0.0000	2173.5406
2	Top Flange		6.0000	42.2500	253.5000	0.2813	20.9375	2630.2734	2630.5547
3	Bottom Flange		6.0000	0.3750	2.2500	0.2813	20.9375	2630.2734	2630.5547
Total			27.42		584.43	2174.10		5260.55	7434.65
Section Losses			A	y	Ay	I _o	d	Ad ²	I _{x,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	21.3125	in	S _{top} = 348.84 in ³	y-bar =	21.3125	in	S _{top} = 348.84 in ³
I _x =	7434.65	in ⁴	S _{bottom} = 348.84 in ³	I _x =	7434.65	in ⁴	S _{bottom} = 348.84 in ³
c _{top} =	21.3125	in	A = 27.4219 in ²	c _{top} =	21.3125	in	A = 27.4219 in ²
c _{bottom} =	21.3125	in	r _x = 16.4658 in	c _{bottom} =	21.3125	in	r _x = 16.4658 in
J =	2.9729	in ⁴	Z = 409.81 in ³	Z =	409.81	in ³	

Y-Axis Section Properties:

Gross Section (without Losses)		A	x	Ax	I _o	d	Ad ²	I _{y, gross}
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web	15.4219	4.0000	61.6875	0.1807	0.0000	0.0000	0.1807
2	Top Flange	6.0000	4.0000	24.0000	32.0000	0.0000	0.0000	32.0000
3	Bottom Flange	6.0000	4.0000	24.0000	32.0000	0.0000	0.0000	32.0000
Total		27.42		109.69	64.18		0.00	64.18
Section Losses		A	x	Ax	I _o	d	Ad ²	I _{y, loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
x-bar =	4.0000	in	S _{right} = 16.05 in ³	x-bar =	4.0000	in	S _{right} = 16.05 in ³
I _y =	64.18	in ⁴	S _{left} = 16.05 in ³	I _y =	64.18	in ⁴	S _{left} = 16.05 in ³
C _{right} =	4.0000	in	A = 27.4219 in ²	C _{right} =	4.0000	in	A = 27.4219 in ²
C _{left} =	4.0000	in	r _y = 1.5299 in	C _{left} =	4.0000	in	r _y = 1.5299 in

Non-composite Capacities*		
	AB	AI
M	#####	#####
V	167.34 k	167.34 k

*Noncompact Section

F_y =	36.00 ksi
------------------------	------------------

AB = As-Built
 AI = As-Inspected
 M = Moment
 V = Shear



Made By DWC
Checked By SFH

Date 4/10/2012
Date 4/12/2012

Job No. P402110046
Sheet No. _____

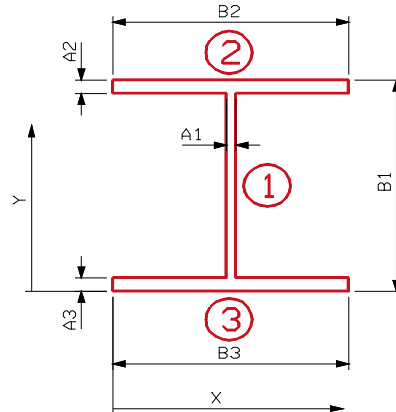
Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

- $A_1 = t_w = 0.3750$ in
- $B_1 = d = 13.4375$ in
- $A_2 = t_f = 0.7500$ in
- $B_2 = b_f = 8.0000$ in
- $A_3 = t_f = 0.7500$ in
- $B_3 = b_f = 8.0000$ in

$d_o = n/a$ in

d_o = stiffener spacing for shear check, for no stiffeners use "N/A"



Fascia Stringer F2-1 @ FB 126

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I_o	d	Ad^2	$I_{x, gross}$
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web		4.4766	6.7188	30.0769	53.1606	0.0000	0.0000	53.1606
2	Top Flange		6.0000	13.0625	78.3750	0.2813	6.3438	241.4590	241.7402
3	Bottom Flange		6.0000	0.3750	2.2500	0.2813	6.3438	241.4590	241.7402
Total			16.48		110.70	53.72		482.92	536.64
Section Losses			A	y	Ay	I_o	d	Ad^2	$I_{x, loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties					As-Inspected Section Properties						
y-bar =	6.7188	in	$S_{top} =$	79.87	in ³	y-bar =	6.7188	in	$S_{top} =$	79.87	in ³
$I_x =$	536.64	in ⁴	$S_{bott.} =$	79.87	in ³	$I_x =$	536.64	in ⁴	$S_{bott.} =$	79.87	in ³
$C_{top} =$	6.7188	in	A =	16.4766	in ²	$C_{top} =$	6.7188	in	A =	16.4766	in ²
$C_{bottom} =$	6.7188	in	$r_x =$	5.7070	in	$C_{bottom} =$	6.7188	in	$r_x =$	5.7070	in
J =	2.4598	in ⁴	Z =	89.48	in ³				Z =	89.48	in ³

Y-Axis Section Properties:

Gross Section (without Losses)		A	x	Ax	I _o	d	Ad ²	I _{y,gross}
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web	4.4766	4.0000	17.9063	0.0525	0.0000	0.0000	0.0525
2	Top Flange	6.0000	4.0000	24.0000	32.0000	0.0000	0.0000	32.0000
3	Bottom Flange	6.0000	4.0000	24.0000	32.0000	0.0000	0.0000	32.0000
Total		16.48		65.91	64.05		0.00	64.05
Section Losses		A	x	Ax	I _o	d	Ad ²	I _{y,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
x-bar =	4.0000	in	S _{right} = 16.01 in ³	x-bar =	4.0000	in	S _{right} = 16.01 in ³
I _y =	64.05	in ⁴	S _{left} = 16.01 in ³	I _y =	64.05	in ⁴	S _{left} = 16.01 in ³
C _{right} =	4.0000	in	A = 16.4766 in ²	C _{right} =	4.0000	in	A = 16.4766 in ²
C _{left} =	4.0000	in	r _y = 1.9717 in	C _{left} =	4.0000	in	r _y = 1.9717 in

Non-composite Capacities*		
	AB	AI
M	268.45 k-ft	268.45 k-ft
V	93.47 k	93.47 k

*Compact Section

F_y =	36.00 ksi
------------------------	------------------

AB = As-Built
 AI = As-Inspected
 M = Moment
 V = Shear



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Sheet No. _____

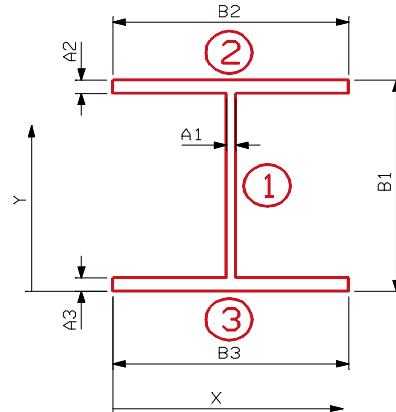
Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

- $A_1 = t_w = 0.4375$ in
- $B_1 = d = 53.3750$ in
- $A_2 = t_f = 0.7500$ in
- $B_2 = b_f = 8.0000$ in
- $A_3 = t_f = 0.7500$ in
- $B_3 = b_f = 8.0000$ in

$d_o = n/a$ in

d_o = stiffener spacing for shear check, for no stiffeners use "N/A"



Fascia Stringer F1-2 @ FB 127

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web		22.6953	26.6875	605.6812	5089.4534	0.0000	0.0000	5089.4534
2	Top Flange		6.0000	53.0000	318.0000	0.2813	26.3125	4154.0859	4154.3672
3	Bottom Flange		6.0000	0.3750	2.2500	0.2813	26.3125	4154.0859	4154.3672
Total			34.70		925.93	5090.02		8308.17	13398.19
Section Losses			A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties							
y-bar =	26.6875	in	$S_{top} = 502.04$	in^3	y-bar =	26.6875	in	$S_{top} = 502.04$	in^3		
$I_x =$	13398.19	in^4	$S_{bott.} = 502.04$	in^3	$I_x =$	13398.19	in^4	$S_{bott.} = 502.04$	in^3		
$C_{top} =$	26.6875	in	A =	34.6953	in^2	$C_{top} =$	26.6875	in	A =	34.6953	in^2
$C_{bottom} =$	26.6875	in	$r_x =$	19.6511	in	$C_{bottom} =$	26.6875	in	$r_x =$	19.6511	in
J =	3.6980	in^4	Z =	610.08	in^3				Z =	610.08	in^3

Y-Axis Section Properties:

Gross Section (without Losses)		A	x	Ax	I _o	d	Ad ²	I _{y, gross}
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web	22.6953	4.0000	90.7813	0.3620	0.0000	0.0000	0.3620
2	Top Flange	6.0000	4.0000	24.0000	32.0000	0.0000	0.0000	32.0000
3	Bottom Flange	6.0000	4.0000	24.0000	32.0000	0.0000	0.0000	32.0000
Total		34.70		138.78	64.36		0.00	64.36
Section Losses		A	x	Ax	I _o	d	Ad ²	I _{y, loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
x-bar =	4.0000	in	S _{right} = 16.09 in ³	x-bar =	4.0000	in	S _{right} = 16.09 in ³
I _y =	64.36	in ⁴	S _{left} = 16.09 in ³	I _y =	64.36	in ⁴	S _{left} = 16.09 in ³
C _{right} =	4.0000	in	A = 34.6953 in ²	C _{right} =	4.0000	in	A = 34.6953 in ²
C _{left} =	4.0000	in	r _y = 1.3620 in	C _{left} =	4.0000	in	r _y = 1.3620 in

Non-composite Capacities*		
	AB	AI
M	#####	#####
V	210.66 k	210.66 k

*Noncompact Section

F_y =	36.00 ksi
------------------------	------------------

AB = As-Built
 AI = As-Inspected
 M = Moment
 V = Shear



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Sheet No. _____

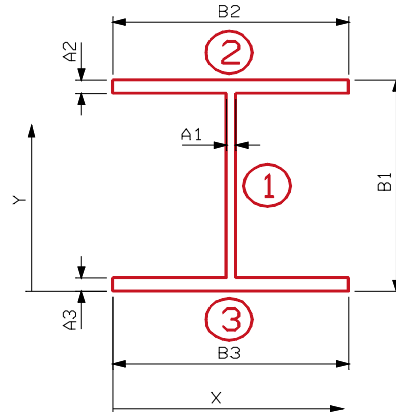
Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

- $A_1 = t_w = 0.4375$ in
- $B_1 = d = 55.1875$ in
- $A_2 = t_f = 0.7500$ in
- $B_2 = b_f = 8.0000$ in
- $A_3 = t_f = 0.7500$ in
- $B_3 = b_f = 8.0000$ in

$d_o = n/a$ in

d_o = stiffener spacing for shear check, for no stiffeners use "N/A"



Fascia Stringer F1-2 @ FB 128

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I _o	d	Ad ²	I _{x,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web		23.4883	27.5938	648.1298	5641.7827	0.0000	0.0000	5641.7827
2	Top Flange		6.0000	54.8125	328.8750	0.2813	27.2188	4445.1621	4445.4434
3	Bottom Flange		6.0000	0.3750	2.2500	0.2813	27.2188	4445.1621	4445.4434
Total			35.49		979.25	5642.35		8890.32	14532.67
Section Losses			A	y	Ay	I _o	d	Ad ²	I _{x,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties							
y-bar =	27.5938	in	S _{top} =	526.67	in ³	y-bar =	27.5938	in	S _{top} =	526.67	in ³
I _x =	14532.67	in ⁴	S _{bottom} =	526.67	in ³	I _x =	14532.67	in ⁴	S _{bottom} =	526.67	in ³
c _{top} =	27.5938	in	A =	35.4883	in ²	c _{top} =	27.5938	in	A =	35.4883	in ²
c _{bottom} =	27.5938	in	r _x =	20.2363	in	c _{bottom} =	27.5938	in	r _x =	20.2363	in
J =	3.7486	in ⁴	Z =	641.88	in ³	J =	3.7486	in ⁴	Z =	641.88	in ³

Y-Axis Section Properties:

Gross Section (without Losses)		A	x	Ax	I _o	d	Ad ²	I _{y,gross}
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web	23.4883	4.0000	93.9531	0.3747	0.0000	0.0000	0.3747
2	Top Flange	6.0000	4.0000	24.0000	32.0000	0.0000	0.0000	32.0000
3	Bottom Flange	6.0000	4.0000	24.0000	32.0000	0.0000	0.0000	32.0000
Total		35.49		141.95	64.37		0.00	64.37
Section Losses		A	x	Ax	I _o	d	Ad ²	I _{y,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
x-bar =	4.0000	in	S _{right} = 16.09 in ³	x-bar =	4.0000	in	S _{right} = 16.09 in ³
I _y =	64.37	in ⁴	S _{left} = 16.09 in ³	I _y =	64.37	in ⁴	S _{left} = 16.09 in ³
C _{right} =	4.0000	in	A = 35.4883 in ²	C _{right} =	4.0000	in	A = 35.4883 in ²
C _{left} =	4.0000	in	r _y = 1.3468 in	C _{left} =	4.0000	in	r _y = 1.3468 in

Non-composite Capacities*		
	AB	AI
M	#####	#####
V	203.55 k	203.55 k

*Noncompact Section

F_y = 36.00 ksi

AB = As-Built
 AI = As-Inspected
 M = Moment
 V = Shear



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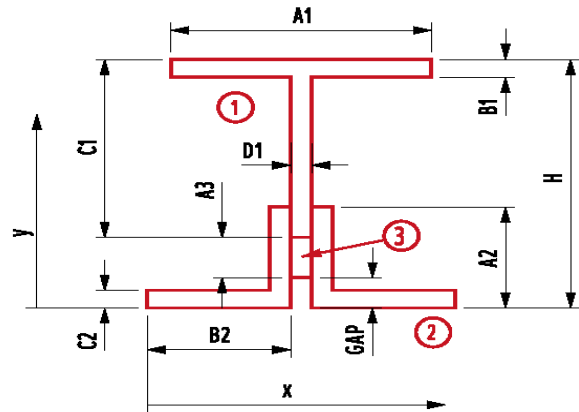
Date 4/10/2012
Date 4/10/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Partial W-Section*	W16x77	Bottom Angles:	
$A_1 = b_f =$	10.3000 in	$A_2 = L_v =$	6.0000 in
$B_1 = t_f =$	0.7600 in	$B_2 = L_h =$	4.0000 in
$C_1 = d =$	13.5000 in	$C_2 = t =$	0.5000 in
$D_1 = t_w =$	0.4550 in		



Additional Plate:		Miscellaneous:	
$A_3 = d =$	0.0000 in	H =	13.8750 in
$B_3 = t =$	0.4550 in	Gap =	0.3750 in

*select from dropdown list

Coped Stringer S1-2 @ FB 128

X-Axis Section Properties:

Gross Section (without Losses)		A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange	7.8280	13.4950	105.6389	0.3768	6.4198	322.6187	322.9955
	Web	5.7967	6.7450	39.0987	78.4040	0.3302	0.6321	79.0362
2	Horizontal Legs	3.5000	0.2500	0.8750	0.0729	6.8252	163.0432	163.1162
	Vertical Legs	6.0000	3.0000	18.0000	18.0000	4.0752	99.6451	117.6451
3	Additional Plate	0.0000	0.3750	0.0000	0.0000	6.7002	0.0000	0.0000
Total		23.12		163.61	96.85		585.94	682.79
Section Losses		A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.00		0.00	0.00		0.00	0.00



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Date 4/10/2012
Date 4/10/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	7.0752 in	S _{top} =	100.41 in ³	y-bar =	7.0752 in	S _{top} =	100.41 in ³
I _x =	682.79 in ⁴	S _{bott.} =	96.50 in ³	I _x =	682.79 in ⁴	S _{bott.} =	96.50 in ³
C _{top} =	6.7998 in	A =	23.1247 in ²	C _{top} =	6.7998 in	A =	23.1247 in ²
C _{bottom} =	7.0752 in	r _x =	5.4338 in	C _{bottom} =	7.0752 in	r _x =	5.4338 in
J =	2.6988 in ⁴	Z =	115.34 in ³			Z =	115.34 in ³

Y-Axis Section Properties:

Gross Section (without Losses)		A	x	Ax	I _o	d	Ad ²	I _{y,gross}
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange	7.8280	4.2275	33.0929	69.2060	0.9225	6.6617	75.8677
	Web	5.7967	4.2275	24.5055	0.1000	0.9225	4.9330	5.0330
2 (Left)	Horizontal Leg	1.7500	1.7500	3.0625	1.7865	3.4000	20.2300	22.0165
	Vertical Leg	3.0000	3.7500	11.2500	0.0625	1.4000	5.8800	5.9425
2 (Right)	Horizontal Leg	1.7500	6.7050	11.7338	1.7865	1.5550	4.2315	6.0180
	Vertical Leg	3.0000	4.7050	14.1150	0.0625	0.4450	0.5941	0.6566
3	Additional Plate	0.0000	4.2275	0.0000	0.0000	0.9225	0.0000	0.0000
Total		23.12		97.76	73.00		42.53	115.53
Section Losses		A	x	Ax	I _o	d	Ad ²	I _{y,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
x-bar =	5.1500 in	S _{right} =	22.43 in ³	x-bar =	5.1500 in	S _{right} =	22.43 in ³
I _y =	115.53 in ⁴	S _{left} =	22.43 in ³	I _y =	115.53 in ⁴	S _{left} =	22.43 in ³
C _{right} =	5.1500 in	A =	23.1247 in ²	C _{right} =	5.1500 in	A =	23.1247 in ²
C _{left} =	5.1500 in	r _y =	2.2352 in	C _{left} =	5.1500 in	r _y =	2.2352 in

Stringer Capacity

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

Non-composite Capacities*		
	AB	AI
M	346.02 k-ft	346.02 k-ft
V	235.88 k	235.88 k

F_y = **36.00 ksi**

*Compact Section



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Checked By _____

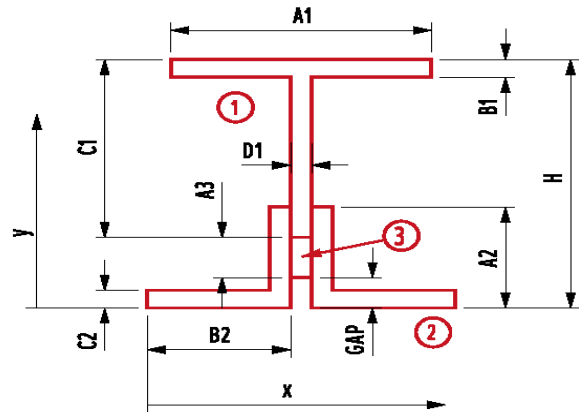
Date 4/10/2012
Date _____

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Sheet No. _____

Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Partial W-Section*	W16x77	Bottom Angles:	
$A_1 = b_f =$	10.3000 in	$A_2 = L_v =$	6.0000 in
$B_1 = t_f =$	0.7600 in	$B_2 = L_h =$	4.0000 in
$C_1 = d =$	13.5000 in	$C_2 = t =$	0.5000 in
$D_1 = t_w =$	0.4550 in		



Additional Plate:		Miscellaneous:	
$A_3 = d =$	0.0000 in	H =	13.8750 in
$B_3 = t =$	0.4550 in	Gap =	0.3750 in

*select from dropdown list

Coped Stringer S2-2 @ FB 128

X-Axis Section Properties:

Gross Section (without Losses)		A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange	7.8280	13.4950	105.6389	0.3768	6.4198	322.6187	322.9955
	Web	5.7967	6.7450	39.0987	78.4040	0.3302	0.6321	79.0362
2	Horizontal Legs	3.5000	0.2500	0.8750	0.0729	6.8252	163.0432	163.1162
	Vertical Legs	6.0000	3.0000	18.0000	18.0000	4.0752	99.6451	117.6451
3	Additional Plate	0.0000	0.3750	0.0000	0.0000	6.7002	0.0000	0.0000
Total		23.12		163.61	96.85		585.94	682.79
Section Losses		A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.00		0.00	0.00		0.00	0.00



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Date 4/10/2012
Date _____

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	7.0752 in	S _{top} =	100.41 in ³	y-bar =	7.0752 in	S _{top} =	100.41 in ³
I _x =	682.79 in ⁴	S _{bott.} =	96.50 in ³	I _x =	682.79 in ⁴	S _{bott.} =	96.50 in ³
C _{top} =	6.7998 in	A =	23.1247 in ²	C _{top} =	6.7998 in	A =	23.1247 in ²
C _{bottom} =	7.0752 in	r _x =	5.4338 in	C _{bottom} =	7.0752 in	r _x =	5.4338 in
J =	2.6988 in ⁴	Z =	115.34 in ³			Z =	115.34 in ³

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange		7.8280	4.2275	33.0929	69.2060	0.9225	6.6617	75.8677
	Web		5.7967	4.2275	24.5055	0.1000	0.9225	4.9330	5.0330
2 (Left)	Horizontal Leg		1.7500	1.7500	3.0625	1.7865	3.4000	20.2300	22.0165
	Vertical Leg		3.0000	3.7500	11.2500	0.0625	1.4000	5.8800	5.9425
2 (Right)	Horizontal Leg		1.7500	6.7050	11.7338	1.7865	1.5550	4.2315	6.0180
	Vertical Leg		3.0000	4.7050	14.1150	0.0625	0.4450	0.5941	0.6566
3	Additional Plate		0.0000	4.2275	0.0000	0.0000	0.9225	0.0000	0.0000
Total			23.12		97.76	73.00		42.53	115.53
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
x-bar =	5.1500 in	S _{right} =	22.43 in ³	x-bar =	5.1500 in	S _{right} =	22.43 in ³
I _y =	115.53 in ⁴	S _{left} =	22.43 in ³	I _y =	115.53 in ⁴	S _{left} =	22.43 in ³
C _{right} =	5.1500 in	A =	23.1247 in ²	C _{right} =	5.1500 in	A =	23.1247 in ²
C _{left} =	5.1500 in	r _y =	2.2352 in	C _{left} =	5.1500 in	r _y =	2.2352 in

Stringer Capacity

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

Non-composite Capacities*		
	AB	AI
M	346.02 k-ft	346.02 k-ft
V	235.88 k	235.88 k

F_y = **36.00 ksi**

*Compact Section



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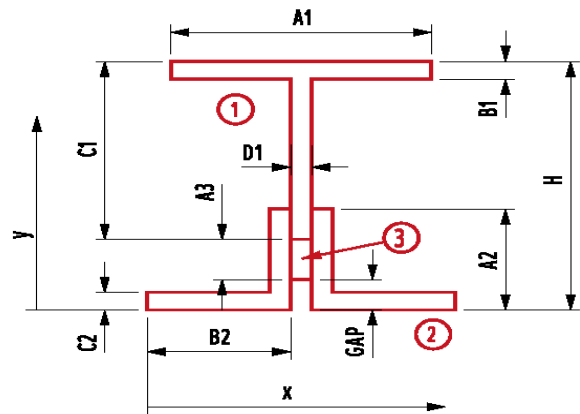
Date 4/10/2012
Date 4/10/2012

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Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Partial W-Section*	W16x77	Bottom Angles:	
$A_1 = b_f =$	10.3000 in	$A_2 = L_v =$	6.0000 in
$B_1 = t_f =$	0.7600 in	$B_2 = L_h =$	4.0000 in
$C_1 = d =$	13.5000 in	$C_2 = t =$	0.5000 in
$D_1 = t_w =$	0.4550 in		



Additional Plate:		Miscellaneous:	
$A_3 = d =$	0.0000 in	H =	13.8750 in
$B_3 = t =$	0.4550 in	Gap =	0.3750 in

*select from dropdown list

Coped Stringer S3-2 @ FB 128

X-Axis Section Properties:

Gross Section (without Losses)		A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange	7.8280	13.4950	105.6389	0.3768	6.4198	322.6187	322.9955
	Web	5.7967	6.7450	39.0987	78.4040	0.3302	0.6321	79.0362
2	Horizontal Legs	3.5000	0.2500	0.8750	0.0729	6.8252	163.0432	163.1162
	Vertical Legs	6.0000	3.0000	18.0000	18.0000	4.0752	99.6451	117.6451
3	Additional Plate	0.0000	0.3750	0.0000	0.0000	6.7002	0.0000	0.0000
Total		23.12		163.61	96.85		585.94	682.79
Section Losses		A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total				0.00	0.00		0.00	0.00



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Checked By SFH

Date 4/10/2012
Date 4/10/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

As-Built Section Properties				As-Inspected Section Properties							
y-bar =	7.0752	in	S _{top} =	100.41	in ³	y-bar =	7.0752	in	S _{top} =	100.41	in ³
I _x =	682.79	in ⁴	S _{bott.} =	96.50	in ³	I _x =	682.79	in ⁴	S _{bott.} =	96.50	in ³
C _{top} =	6.7998	in	A =	23.1247	in ²	C _{top} =	6.7998	in	A =	23.1247	in ²
C _{bottom} =	7.0752	in	r _x =	5.4338	in	C _{bottom} =	7.0752	in	r _x =	5.4338	in
J =	2.6988	in ⁴	Z =	115.34	in ³	Z =	115.34	in ³			

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange		7.8280	4.2275	33.0929	69.2060	0.9225	6.6617	75.8677
	Web		5.7967	4.2275	24.5055	0.1000	0.9225	4.9330	5.0330
2 (Left)	Horizontal Leg		1.7500	1.7500	3.0625	1.7865	3.4000	20.2300	22.0165
	Vertical Leg		3.0000	3.7500	11.2500	0.0625	1.4000	5.8800	5.9425
2 (Right)	Horizontal Leg		1.7500	6.7050	11.7338	1.7865	1.5550	4.2315	6.0180
	Vertical Leg		3.0000	4.7050	14.1150	0.0625	0.4450	0.5941	0.6566
3	Additional Plate		0.0000	4.2275	0.0000	0.0000	0.9225	0.0000	0.0000
Total			23.12		97.76	73.00		42.53	115.53
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties							
x-bar =	5.1500	in	S _{right} =	22.43	in ³	x-bar =	5.1500	in	S _{right} =	22.43	in ³
I _y =	115.53	in ⁴	S _{left} =	22.43	in ³	I _y =	115.53	in ⁴	S _{left} =	22.43	in ³
C _{right} =	5.1500	in	A =	23.1247	in ²	C _{right} =	5.1500	in	A =	23.1247	in ²
C _{left} =	5.1500	in	r _y =	2.2352	in	C _{left} =	5.1500	in	r _y =	2.2352	in

Stringer Capacity

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

Non-composite Capacities*		
	AB	AI
M	346.02 k-ft	346.02 k-ft
V	235.88 k	235.88 k

F_y = **36.00 ksi**

*Compact Section



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Date 4/10/2012
Date 4/10/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

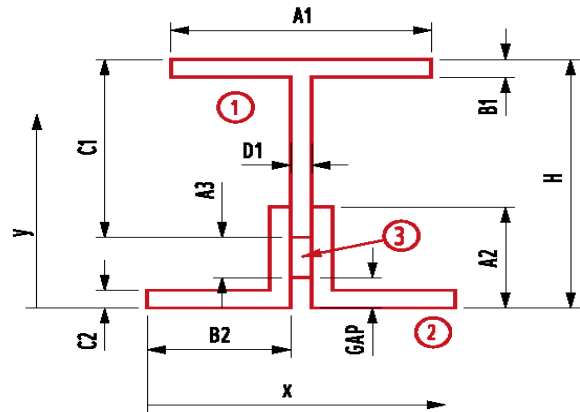
Partial W-Section*	W14x61	Bottom Angles:	
$A_1 = b_f =$	10.0000 in	$A_2 = L_v =$	6.0000 in
$B_1 = t_f =$	0.6450 in	$B_2 = L_h =$	4.0000 in
$C_1 = d =$	12.0000 in	$C_2 = t =$	0.5000 in
$D_1 = t_w =$	0.3750 in		

Additional Plate:

$A_3 = d =$	0.0000 in
$B_3 = t =$	0.3750 in

Miscellaneous:

H =	12.4375 in
Gap =	0.4375 in



*select from dropdown list

Coped Stringer S9-2 @ FB 127

X-Axis Section Properties:

Gross Section (without Losses)		A	y	Ay	I _o	d	Ad ²	I _{x,gross}
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange	6.4500	12.1150	78.1418	0.2236	6.0256	234.1863	234.4099
	Web	4.2581	6.1150	26.0384	45.7521	0.0256	0.0028	45.7549
2	Horizontal Legs	3.5000	0.2500	0.8750	0.0729	5.8394	119.3447	119.4176
	Vertical Legs	6.0000	3.0000	18.0000	18.0000	3.0894	57.2660	75.2660
3	Additional Plate	0.0000	0.4375	0.0000	0.0000	5.6519	0.0000	0.0000
Total		20.21		123.06	64.05		410.80	474.85
Section Losses		A	y	Ay	I _o	d	Ad ²	I _{x,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.00		0.00	0.00		0.00	0.00



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Date 4/10/2012
Date 4/10/2012

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Calculations For: **CUY-2-1441**

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	6.0894 in	S _{top} =	74.80 in ³	y-bar =	6.0894 in	S _{top} =	74.80 in ³
I _x =	474.85 in ⁴	S _{bottom} =	77.98 in ³	I _x =	474.85 in ⁴	S _{bottom} =	77.98 in ³
C _{top} =	6.3481 in	A =	20.2081 in ²	C _{top} =	6.3481 in	A =	20.2081 in ²
C _{bottom} =	6.0894 in	r _x =	4.8475 in	C _{bottom} =	6.0894 in	r _x =	4.8475 in
J =	1.8857 in ⁴	Z =	88.06 in ³			Z =	88.06 in ³

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange		6.4500	4.1875	27.0094	53.7500	0.8125	4.2580	58.0080
	Web		4.2581	4.1875	17.8309	0.0499	0.8125	2.8110	2.8609
2 (Left)	Horizontal Leg		1.7500	1.7500	3.0625	1.7865	3.2500	18.4844	20.2708
	Vertical Leg		3.0000	3.7500	11.2500	0.0625	1.2500	4.6875	4.7500
2 (Right)	Horizontal Leg		1.7500	6.6250	11.5938	1.7865	1.6250	4.6211	6.4076
	Vertical Leg		3.0000	4.6250	13.8750	0.0625	0.3750	0.4219	0.4844
3	Additional Plate		0.0000	4.1875	0.0000	0.0000	0.8125	0.0000	0.0000
Total			20.21		84.62	57.50		35.28	92.78
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
x-bar =	5.0000 in	S _{right} =	18.56 in ³	x-bar =	5.0000 in	S _{right} =	18.56 in ³
I _y =	92.78 in ⁴	S _{left} =	18.56 in ³	I _y =	92.78 in ⁴	S _{left} =	18.56 in ³
C _{right} =	5.0000 in	A =	20.2081 in ²	C _{right} =	5.0000 in	A =	20.2081 in ²
C _{left} =	5.0000 in	r _y =	2.1427 in	C _{left} =	5.0000 in	r _y =	2.1427 in

Stringer Capacity

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

Non-composite Capacities*		
	AB	AI
M	264.18 k-ft	264.18 k-ft
V	203.75 k	203.75 k

F_y = **36.00 ksi**

*Compact Section



Made By DWC
Checked By SFH

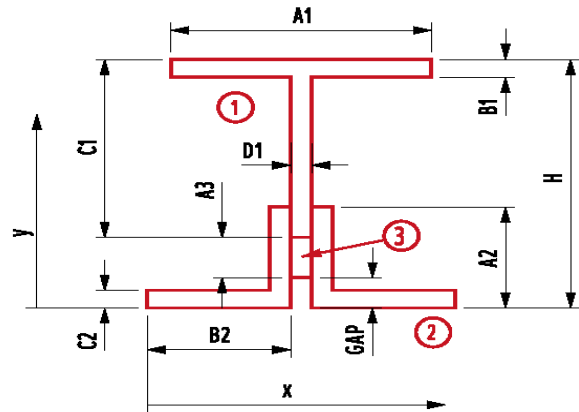
Date 4/10/2012
Date 4/10/2012

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Sheet No. _____

Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Partial W-Section*	W14x61	Bottom Angles:	
$A_1 = b_f =$	10.0000 in	$A_2 = L_v =$	6.0000 in
$B_1 = t_f =$	0.6450 in	$B_2 = L_h =$	4.0000 in
$C_1 = d =$	12.0000 in	$C_2 = t =$	0.5000 in
$D_1 = t_w =$	0.3750 in		



Additional Plate:		Miscellaneous:	
$A_3 = d =$	0.0000 in	H =	12.4375 in
$B_3 = t =$	0.3750 in	Gap =	0.4375 in

*select from dropdown list

Coped Stringer S9-2 @ FB 128

X-Axis Section Properties:

Gross Section (without Losses)		A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange	6.4500	12.1150	78.1418	0.2236	6.0256	234.1863	234.4099
	Web	4.2581	6.1150	26.0384	45.7521	0.0256	0.0028	45.7549
2	Horizontal Legs	3.5000	0.2500	0.8750	0.0729	5.8394	119.3447	119.4176
	Vertical Legs	6.0000	3.0000	18.0000	18.0000	3.0894	57.2660	75.2660
3	Additional Plate	0.0000	0.4375	0.0000	0.0000	5.6519	0.0000	0.0000
Total		20.21		123.06	64.05		410.80	474.85
Section Losses		A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00	0.00	0.00		0.00	0.00



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Date 4/10/2012
Date 4/10/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

As-Built Section Properties				As-Inspected Section Properties							
y-bar =	6.0894	in	S _{top} =	74.80	in ³	y-bar =	6.0894	in	S _{top} =	74.80	in ³
I _x =	474.85	in ⁴	S _{bott.} =	77.98	in ³	I _x =	474.85	in ⁴	S _{bott.} =	77.98	in ³
C _{top} =	6.3481	in	A =	20.2081	in ²	C _{top} =	6.3481	in	A =	20.2081	in ²
C _{bottom} =	6.0894	in	r _x =	4.8475	in	C _{bottom} =	6.0894	in	r _x =	4.8475	in
J =	1.8857	in ⁴	Z =	88.06	in ³	Z =	88.06	in ³			

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange		6.4500	4.1875	27.0094	53.7500	0.8125	4.2580	58.0080
	Web		4.2581	4.1875	17.8309	0.0499	0.8125	2.8110	2.8609
2 (Left)	Horizontal Leg		1.7500	1.7500	3.0625	1.7865	3.2500	18.4844	20.2708
	Vertical Leg		3.0000	3.7500	11.2500	0.0625	1.2500	4.6875	4.7500
2 (Right)	Horizontal Leg		1.7500	6.6250	11.5938	1.7865	1.6250	4.6211	6.4076
	Vertical Leg		3.0000	4.6250	13.8750	0.0625	0.3750	0.4219	0.4844
3	Additional Plate		0.0000	4.1875	0.0000	0.0000	0.8125	0.0000	0.0000
Total			20.21		84.62	57.50		35.28	92.78
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties							
x-bar =	5.0000	in	S _{right} =	18.56	in ³	x-bar =	5.0000	in	S _{right} =	18.56	in ³
I _y =	92.78	in ⁴	S _{left} =	18.56	in ³	I _y =	92.78	in ⁴	S _{left} =	18.56	in ³
C _{right} =	5.0000	in	A =	20.2081	in ²	C _{right} =	5.0000	in	A =	20.2081	in ²
C _{left} =	5.0000	in	r _y =	2.1427	in	C _{left} =	5.0000	in	r _y =	2.1427	in

Stringer Capacity

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

Non-composite Capacities*		
	AB	AI
M	264.18 k-ft	264.18 k-ft
V	203.75 k	203.75 k

F_y = **36.00 ksi**

*Compact Section



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Checked By SFH

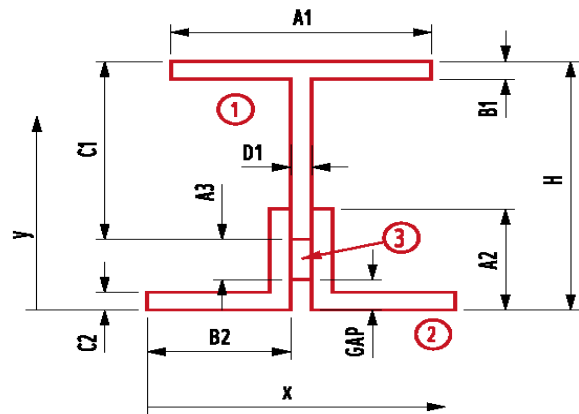
Date 4/10/2012
Date 4/10/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Partial W-Section*	W16x67	Bottom Angles:	
$A_1 = b_f =$	10.2000 in	$A_2 = L_v =$	5.0000 in
$B_1 = t_f =$	0.6650 in	$B_2 = L_h =$	5.0000 in
$C_1 = d =$	9.5000 in	$C_2 = t =$	0.5000 in
$D_1 = t_w =$	0.3950 in		



Additional Plate:		Miscellaneous:	
$A_3 = d =$	0.0000 in	H =	10.0625 in
$B_3 = t =$	0.3950 in	Gap =	0.5625 in

*select from dropdown list

Coped Stringer S10-2 @ FB 127

X-Axis Section Properties:

Gross Section (without Losses)		A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange	6.7830	9.7300	65.9986	0.2500	4.8241	157.8555	158.1055
	Web	3.4898	4.9800	17.3793	22.7005	0.0741	0.0192	22.7197
2	Horizontal Legs	4.5000	0.2500	1.1250	0.0938	4.6559	97.5471	97.6408
	Vertical Legs	5.0000	2.5000	12.5000	10.4167	2.4059	28.9411	39.3577
3	Additional Plate	0.0000	0.5625	0.0000	0.0000	4.3434	0.0000	0.0000
Total		19.77		97.00	33.46		284.36	317.82
Section Losses		A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total				0.00	0.00		0.00	0.00



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Checked By SFH

Date 4/10/2012
Date 4/10/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

As-Built Section Properties				As-Inspected Section Properties							
y-bar =	4.9059	in	S _{top} =	61.63	in ³	y-bar =	4.9059	in	S _{top} =	61.63	in ³
I _x =	317.82	in ⁴	S _{bott.} =	64.78	in ³	I _x =	317.82	in ⁴	S _{bott.} =	64.78	in ³
C _{top} =	5.1566	in	A =	19.7728	in ²	C _{top} =	5.1566	in	A =	19.7728	in ²
C _{bottom} =	4.9059	in	r _x =	4.0092	in	C _{bottom} =	4.9059	in	r _x =	4.0092	in
J =	1.9730	in ⁴	Z =	72.33	in ³				Z =	72.33	in ³

Y-Axis Section Properties:

Gross Section (without Losses)		A	x	Ax	I _o	d	Ad ²	I _{y,gross}
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange	6.7830	5.1975	35.2546	58.8086	0.0000	0.0000	58.8086
	Web	3.4898	5.1975	18.1384	0.0454	0.0000	0.0000	0.0454
2 (Left)	Horizontal Leg	2.2500	2.2500	5.0625	3.7969	2.9475	19.5475	23.3443
	Vertical Leg	2.5000	4.7500	11.8750	0.0521	0.4475	0.5006	0.5527
2 (Right)	Horizontal Leg	2.2500	8.1450	18.3263	3.7969	2.9475	19.5475	23.3443
	Vertical Leg	2.5000	5.6450	14.1125	0.0521	0.4475	0.5006	0.5527
3	Additional Plate	0.0000	5.1975	0.0000	0.0000	0.0000	0.0000	0.0000
Total		19.77		102.77	66.55		40.10	106.65
Section Losses		A	x	Ax	I _o	d	Ad ²	I _{y,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties							
x-bar =	5.1975	in	S _{right} =	20.52	in ³	x-bar =	5.1975	in	S _{right} =	20.52	in ³
I _y =	106.65	in ⁴	S _{left} =	20.52	in ³	I _y =	106.65	in ⁴	S _{left} =	20.52	in ³
C _{right} =	5.1975	in	A =	19.7728	in ²	C _{right} =	5.1975	in	A =	19.7728	in ²
C _{left} =	5.1975	in	r _y =	2.3224	in	C _{left} =	5.1975	in	r _y =	2.3224	in

Stringer Capacity

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

Non-composite Capacities*		
	AB	AI
M	216.99 k-ft	216.99 k-ft
V	166.83 k	166.83 k

F_y =	36.00 ksi
------------------------	------------------

*Compact Section



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Checked By SFH

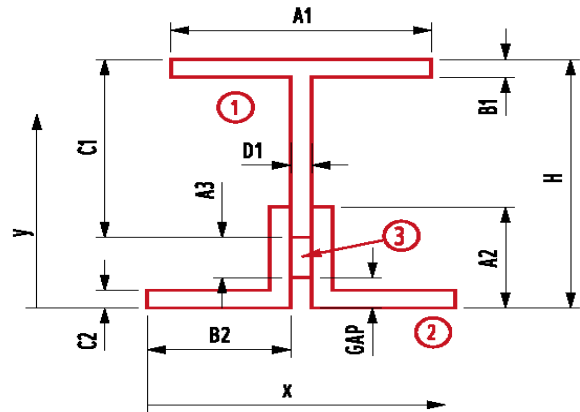
Date 4/10/2012
Date 4/10/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Partial W-Section*	W16x67	Bottom Angles:	
$A_1 = b_f =$	10.2000 in	$A_2 = L_v =$	5.0000 in
$B_1 = t_f =$	0.6650 in	$B_2 = L_h =$	5.0000 in
$C_1 = d =$	11.5000 in	$C_2 = t =$	0.5000 in
$D_1 = t_w =$	0.3950 in		



Additional Plate:		Miscellaneous:	
$A_3 = d =$	0.0000 in	H =	12.0000 in
$B_3 = t =$	0.3950 in	Gap =	0.5000 in

*select from dropdown list

Coped Stringer S10-2 @ FB 128

X-Axis Section Properties:

Gross Section (without Losses)		A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange	6.7830	11.6675	79.1407	0.2500	5.9245	238.0843	238.3343
	Web	4.2798	5.9175	25.3259	41.8700	0.1745	0.1304	42.0003
2	Horizontal Legs	4.5000	0.2500	1.1250	0.0938	5.4930	135.7768	135.8706
	Vertical Legs	5.0000	2.5000	12.5000	10.4167	3.2430	52.5840	63.0007
3	Additional Plate	0.0000	0.5000	0.0000	0.0000	5.2430	0.0000	0.0000
Total		20.56		118.09	52.63		426.58	479.21
Section Losses		A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.00		0.00	0.00		0.00	0.00



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Checked By SFH

Date 4/10/2012
Date 4/10/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	5.7430 in	S _{top} =	76.59 in ³	y-bar =	5.7430 in	S _{top} =	76.59 in ³
I _x =	479.21 in ⁴	S _{bott.} =	83.44 in ³	I _x =	479.21 in ⁴	S _{bott.} =	83.44 in ³
C _{top} =	6.2570 in	A =	20.5628 in ²	C _{top} =	6.2570 in	A =	20.5628 in ²
C _{bottom} =	5.7430 in	r _x =	4.8275 in	C _{bottom} =	5.7430 in	r _x =	4.8275 in
J =	2.0141 in ⁴	Z =	90.31 in ³			Z =	90.31 in ³

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange		6.7830	5.1975	35.2546	58.8086	0.0000	0.0000	58.8086
	Web		4.2798	5.1975	22.2444	0.0556	0.0000	0.0000	0.0556
2 (Left)	Horizontal Leg		2.2500	2.2500	5.0625	3.7969	2.9475	19.5475	23.3443
	Vertical Leg		2.5000	4.7500	11.8750	0.0521	0.4475	0.5006	0.5527
2 (Right)	Horizontal Leg		2.2500	8.1450	18.3263	3.7969	2.9475	19.5475	23.3443
	Vertical Leg		2.5000	5.6450	14.1125	0.0521	0.4475	0.5006	0.5527
3	Additional Plate		0.0000	5.1975	0.0000	0.0000	0.0000	0.0000	0.0000
Total			20.56		106.88	66.56		40.10	106.66
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
x-bar =	5.1975 in	S _{right} =	20.52 in ³	x-bar =	5.1975 in	S _{right} =	20.52 in ³
I _y =	106.66 in ⁴	S _{left} =	20.52 in ³	I _y =	106.66 in ⁴	S _{left} =	20.52 in ³
C _{right} =	5.1975 in	A =	20.5628 in ²	C _{right} =	5.1975 in	A =	20.5628 in ²
C _{left} =	5.1975 in	r _y =	2.2775 in	C _{left} =	5.1975 in	r _y =	2.2775 in

Stringer Capacity

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

Non-composite Capacities*		
	AB	AI
M	270.93 k-ft	270.93 k-ft
V	183.32 k	183.32 k

F_y = **36.00 ksi**

*Compact Section



Made By DWC
Checked By SFH

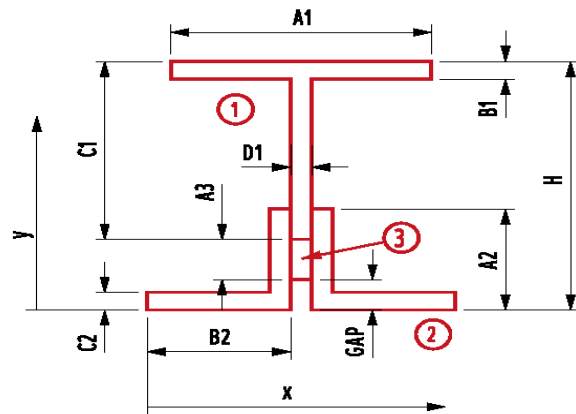
Date 4/10/2012
Date 4/10/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Partial W-Section*	W16x67	Bottom Angles:	
$A_1 = b_f =$	10.2000 in	$A_2 = L_v =$	5.0000 in
$B_1 = t_f =$	0.6650 in	$B_2 = L_h =$	5.0000 in
$C_1 = d =$	11.0000 in	$C_2 = t =$	0.5000 in
$D_1 = t_w =$	0.3950 in		



Additional Plate:		Miscellaneous:	
$A_3 = d =$	0.0000 in	H =	11.6250 in
$B_3 = t =$	0.3950 in	Gap =	0.6250 in

*select from dropdown list

Coped Stringer S11-2 @ FB 127

X-Axis Section Properties:

Gross Section (without Losses)		A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange	6.7830	11.2925	76.5970	0.2500	5.7012	220.4715	220.7215
	Web	4.0823	5.7925	23.6469	36.3369	0.2012	0.1652	36.5021
2	Horizontal Legs	4.5000	0.2500	1.1250	0.0938	5.3413	128.3833	128.4770
	Vertical Legs	5.0000	2.5000	12.5000	10.4167	3.0913	47.7811	58.1977
3	Additional Plate	0.0000	0.6250	0.0000	0.0000	4.9663	0.0000	0.0000
Total		20.37		113.87	47.10		396.80	443.90
Section Losses		A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.00		0.00	0.00		0.00	0.00



Made By DWC
Checked By SFH

Date 4/10/2012
Date 4/10/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	5.5913 in	S _{top} =	73.57 in ³	y-bar =	5.5913 in	S _{top} =	73.57 in ³
I _x =	443.90 in ⁴	S _{bott.} =	79.39 in ³	I _x =	443.90 in ⁴	S _{bott.} =	79.39 in ³
C _{top} =	6.0337 in	A =	20.3653 in ²	C _{top} =	6.0337 in	A =	20.3653 in ²
C _{bottom} =	5.5913 in	r _x =	4.6687 in	C _{bottom} =	5.5913 in	r _x =	4.6687 in
J =	2.0039 in ⁴	Z =	86.57 in ³			Z =	86.57 in ³

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange		6.7830	5.1975	35.2546	58.8086	0.0000	0.0000	58.8086
	Web		4.0823	5.1975	21.2179	0.0531	0.0000	0.0000	0.0531
2 (Left)	Horizontal Leg		2.2500	2.2500	5.0625	3.7969	2.9475	19.5475	23.3443
	Vertical Leg		2.5000	4.7500	11.8750	0.0521	0.4475	0.5006	0.5527
2 (Right)	Horizontal Leg		2.2500	8.1450	18.3263	3.7969	2.9475	19.5475	23.3443
	Vertical Leg		2.5000	5.6450	14.1125	0.0521	0.4475	0.5006	0.5527
3	Additional Plate		0.0000	5.1975	0.0000	0.0000	0.0000	0.0000	0.0000
Total			20.37		105.85	66.56		40.10	106.66
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
x-bar =	5.1975 in	S _{right} =	20.52 in ³	x-bar =	5.1975 in	S _{right} =	20.52 in ³
I _y =	106.66 in ⁴	S _{left} =	20.52 in ³	I _y =	106.66 in ⁴	S _{left} =	20.52 in ³
C _{right} =	5.1975 in	A =	20.3653 in ²	C _{right} =	5.1975 in	A =	20.3653 in ²
C _{left} =	5.1975 in	r _y =	2.2885 in	C _{left} =	5.1975 in	r _y =	2.2885 in

Stringer Capacity

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

Non-composite Capacities*		
	AB	AI
M	259.71 k-ft	259.71 k-ft
V	179.20 k	179.20 k

F_y = **36.00 ksi**

*Compact Section



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Checked By SFH

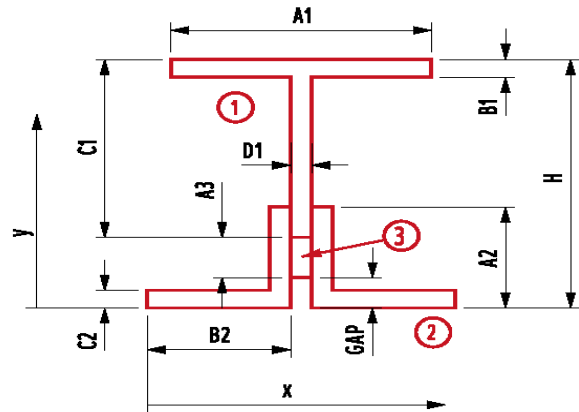
Date 4/10/2012
Date 4/10/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Partial W-Section*	W16x67	Bottom Angles:	
$A_1 = b_f =$	10.2000 in	$A_2 = L_v =$	5.0000 in
$B_1 = t_f =$	0.6650 in	$B_2 = L_h =$	5.0000 in
$C_1 = d =$	12.0000 in	$C_2 = t =$	0.5000 in
$D_1 = t_w =$	0.3950 in		



Additional Plate:		Miscellaneous:	
$A_3 = d =$	0.0000 in	H =	12.6250 in
$B_3 = t =$	0.3950 in	Gap =	0.6250 in

*select from dropdown list

Coped Stringer S11-2 @ FB 128

X-Axis Section Properties:

Gross Section (without Losses)		A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange	6.7830	12.2925	83.3800	0.2500	6.2628	266.0471	266.2970
	Web	4.4773	6.2925	28.1736	47.9381	0.2628	0.3092	48.2473
2	Horizontal Legs	4.5000	0.2500	1.1250	0.0938	5.7797	150.3224	150.4161
	Vertical Legs	5.0000	2.5000	12.5000	10.4167	3.5297	62.2940	72.7107
3	Additional Plate	0.0000	0.6250	0.0000	0.0000	5.4047	0.0000	0.0000
Total		20.76		125.18	58.70		478.97	537.67
Section Losses		A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.00		0.00	0.00		0.00	0.00



Made By DWC
Checked By SFH

Date 4/10/2012
Date 4/10/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

As-Built Section Properties				As-Inspected Section Properties							
y-bar =	6.0297	in	S _{top} =	81.52	in ³	y-bar =	6.0297	in	S _{top} =	81.52	in ³
I _x =	537.67	in ⁴	S _{bott.} =	89.17	in ³	I _x =	537.67	in ⁴	S _{bott.} =	89.17	in ³
C _{top} =	6.5953	in	A =	20.7603	in ²	C _{top} =	6.5953	in	A =	20.7603	in ²
C _{bottom} =	6.0297	in	r _x =	5.0891	in	C _{bottom} =	6.0297	in	r _x =	5.0891	in
J =	2.0244	in ⁴	Z =	96.17	in ³	Z =	96.17	in ³			

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange		6.7830	5.1975	35.2546	58.8086	0.0000	0.0000	58.8086
	Web		4.4773	5.1975	23.2709	0.0582	0.0000	0.0000	0.0582
2 (Left)	Horizontal Leg		2.2500	2.2500	5.0625	3.7969	2.9475	19.5475	23.3443
	Vertical Leg		2.5000	4.7500	11.8750	0.0521	0.4475	0.5006	0.5527
2 (Right)	Horizontal Leg		2.2500	8.1450	18.3263	3.7969	2.9475	19.5475	23.3443
	Vertical Leg		2.5000	5.6450	14.1125	0.0521	0.4475	0.5006	0.5527
3	Additional Plate		0.0000	5.1975	0.0000	0.0000	0.0000	0.0000	0.0000
Total			20.76		107.90	66.56		40.10	106.66
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties							
x-bar =	5.1975	in	S _{right} =	20.52	in ³	x-bar =	5.1975	in	S _{right} =	20.52	in ³
I _y =	106.66	in ⁴	S _{left} =	20.52	in ³	I _y =	106.66	in ⁴	S _{left} =	20.52	in ³
C _{right} =	5.1975	in	A =	20.7603	in ²	C _{right} =	5.1975	in	A =	20.7603	in ²
C _{left} =	5.1975	in	r _y =	2.2667	in	C _{left} =	5.1975	in	r _y =	2.2667	in

Stringer Capacity

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

Non-composite Capacities*		
	AB	AI
M	288.51 k-ft	288.51 k-ft
V	187.45 k	187.45 k

F_y = **36.00 ksi**

*Compact Section



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Checked By SFH

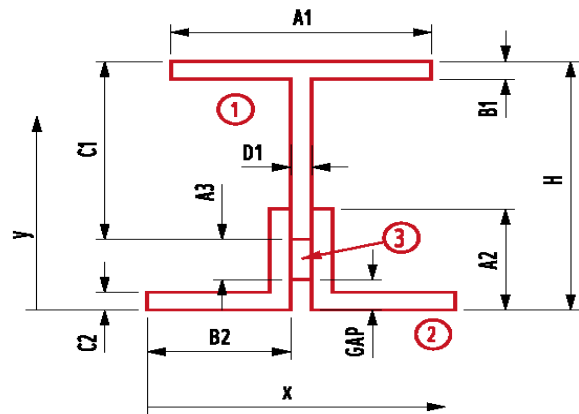
Date 4/10/2012
Date 4/10/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Partial W-Section*	W16x67	Bottom Angles:	
$A_1 = b_f =$	10.2000 in	$A_2 = L_v =$	5.0000 in
$B_1 = t_f =$	0.6650 in	$B_2 = L_h =$	5.0000 in
$C_1 = d =$	10.0000 in	$C_2 = t =$	0.5000 in
$D_1 = t_w =$	0.3950 in		



Additional Plate:		Miscellaneous:	
$A_3 = d =$	0.0000 in	H =	10.6250 in
$B_3 = t =$	0.3950 in	Gap =	0.6250 in

*select from dropdown list

Coped Stringer S12-2 @ FB 127

X-Axis Section Properties:

Gross Section (without Losses)		A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange	6.7830	10.2925	69.8140	0.2500	5.1371	179.0048	179.2548
	Web	3.6873	5.2925	19.5152	26.7768	0.1371	0.0693	26.8462
2	Horizontal Legs	4.5000	0.2500	1.1250	0.0938	4.9054	108.2815	108.3752
	Vertical Legs	5.0000	2.5000	12.5000	10.4167	2.6554	35.2547	45.6713
3	Additional Plate	0.0000	0.6250	0.0000	0.0000	4.5304	0.0000	0.0000
Total		19.97		102.95	37.54		322.61	360.15
Section Losses		A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00	0.00	0.00		0.00	0.00



Made By DWC
Checked By SFH

Date 4/10/2012
Date 4/10/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	5.1554 in	S _{top} =	65.84 in ³	y-bar =	5.1554 in	S _{top} =	65.84 in ³
I _x =	360.15 in ⁴	S _{bott.} =	69.86 in ³	I _x =	360.15 in ⁴	S _{bott.} =	69.86 in ³
C _{top} =	5.4696 in	A =	19.9703 in ²	C _{top} =	5.4696 in	A =	19.9703 in ²
C _{bottom} =	5.1554 in	r _x =	4.2467 in	C _{bottom} =	5.1554 in	r _x =	4.2467 in
J =	1.9833 in ⁴	Z =	77.31 in ³			Z =	77.31 in ³

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange		6.7830	5.1975	35.2546	58.8086	0.0000	0.0000	58.8086
	Web		3.6873	5.1975	19.1649	0.0479	0.0000	0.0000	0.0479
2 (Left)	Horizontal Leg		2.2500	2.2500	5.0625	3.7969	2.9475	19.5475	23.3443
	Vertical Leg		2.5000	4.7500	11.8750	0.0521	0.4475	0.5006	0.5527
2 (Right)	Horizontal Leg		2.2500	8.1450	18.3263	3.7969	2.9475	19.5475	23.3443
	Vertical Leg		2.5000	5.6450	14.1125	0.0521	0.4475	0.5006	0.5527
3	Additional Plate		0.0000	5.1975	0.0000	0.0000	0.0000	0.0000	0.0000
Total			19.97		103.80	66.55		40.10	106.65
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
x-bar =	5.1975 in	S _{right} =	20.52 in ³	x-bar =	5.1975 in	S _{right} =	20.52 in ³
I _y =	106.65 in ⁴	S _{left} =	20.52 in ³	I _y =	106.65 in ⁴	S _{left} =	20.52 in ³
C _{right} =	5.1975 in	A =	19.9703 in ²	C _{right} =	5.1975 in	A =	19.9703 in ²
C _{left} =	5.1975 in	r _y =	2.3109 in	C _{left} =	5.1975 in	r _y =	2.3109 in

Stringer Capacity

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

Non-composite Capacities*		
	AB	AI
M	231.93 k-ft	231.93 k-ft
V	170.95 k	170.95 k

F_y = **36.00 ksi**

*Compact Section



Made By DWC
Checked By SFH

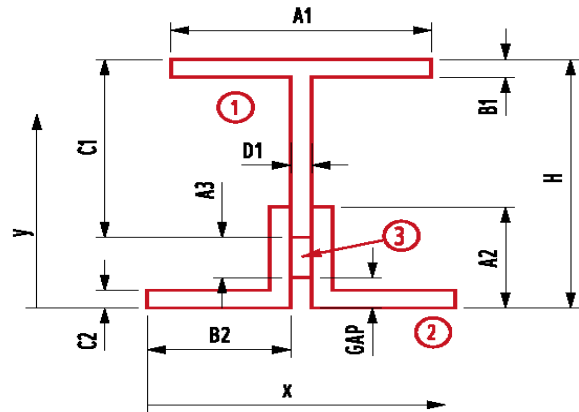
Date 4/10/2012
Date 4/10/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Partial W-Section*	W16x67	Bottom Angles:	
$A_1 = b_f =$	10.2000 in	$A_2 = L_v =$	5.0000 in
$B_1 = t_f =$	0.6650 in	$B_2 = L_h =$	5.0000 in
$C_1 = d =$	11.5000 in	$C_2 = t =$	0.5000 in
$D_1 = t_w =$	0.3950 in		



Additional Plate:	Miscellaneous:		
$A_3 = d =$	0.0000 in	$H =$	12.0000 in
$B_3 = t =$	0.3950 in	Gap =	0.5000 in

*select from dropdown list

Coped Stringer S12-2 @ FB 128

X-Axis Section Properties:

Gross Section (without Losses)		A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange	6.7830	11.6675	79.1407	0.2500	5.9245	238.0843	238.3343
	Web	4.2798	5.9175	25.3259	41.8700	0.1745	0.1304	42.0003
2	Horizontal Legs	4.5000	0.2500	1.1250	0.0938	5.4930	135.7768	135.8706
	Vertical Legs	5.0000	2.5000	12.5000	10.4167	3.2430	52.5840	63.0007
3	Additional Plate	0.0000	0.5000	0.0000	0.0000	5.2430	0.0000	0.0000
Total		20.56		118.09	52.63		426.58	479.21
Section Losses		A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.00		0.00	0.00		0.00	0.00



Made By DWC
Checked By SFH

Date 4/10/2012
Date 4/10/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	5.7430 in	S _{top} =	76.59 in ³	y-bar =	5.7430 in	S _{top} =	76.59 in ³
I _x =	479.21 in ⁴	S _{bott.} =	83.44 in ³	I _x =	479.21 in ⁴	S _{bott.} =	83.44 in ³
C _{top} =	6.2570 in	A =	20.5628 in ²	C _{top} =	6.2570 in	A =	20.5628 in ²
C _{bottom} =	5.7430 in	r _x =	4.8275 in	C _{bottom} =	5.7430 in	r _x =	4.8275 in
J =	2.0141 in ⁴	Z =	90.31 in ³			Z =	90.31 in ³

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange		6.7830	5.1975	35.2546	58.8086	0.0000	0.0000	58.8086
	Web		4.2798	5.1975	22.2444	0.0556	0.0000	0.0000	0.0556
2 (Left)	Horizontal Leg		2.2500	2.2500	5.0625	3.7969	2.9475	19.5475	23.3443
	Vertical Leg		2.5000	4.7500	11.8750	0.0521	0.4475	0.5006	0.5527
2 (Right)	Horizontal Leg		2.2500	8.1450	18.3263	3.7969	2.9475	19.5475	23.3443
	Vertical Leg		2.5000	5.6450	14.1125	0.0521	0.4475	0.5006	0.5527
3	Additional Plate		0.0000	5.1975	0.0000	0.0000	0.0000	0.0000	0.0000
Total			20.56		106.88	66.56		40.10	106.66
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
x-bar =	5.1975 in	S _{right} =	20.52 in ³	x-bar =	5.1975 in	S _{right} =	20.52 in ³
I _y =	106.66 in ⁴	S _{left} =	20.52 in ³	I _y =	106.66 in ⁴	S _{left} =	20.52 in ³
C _{right} =	5.1975 in	A =	20.5628 in ²	C _{right} =	5.1975 in	A =	20.5628 in ²
C _{left} =	5.1975 in	r _y =	2.2775 in	C _{left} =	5.1975 in	r _y =	2.2775 in

Stringer Capacity

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

Non-composite Capacities*		
	AB	AI
M	270.93 k-ft	270.93 k-ft
V	183.32 k	183.32 k

F_y =	36.00 ksi
------------------------	------------------

*Compact Section



Made By DWC
Checked By SFH

Date 4/10/2012
Date 4/12/2012

Job No. P402110046
Sheet No. _____

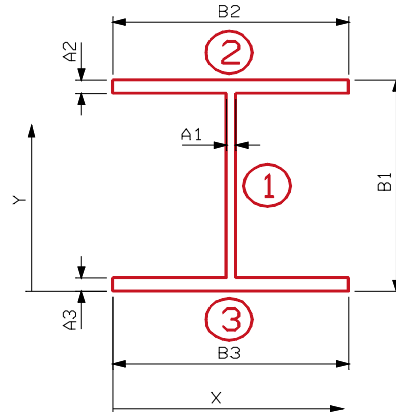
Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

- $A_1 = t_w = 0.3750$ in
- $B_1 = d = 42.6250$ in
- $A_2 = t_f = 0.7500$ in
- $B_2 = b_f = 8.0000$ in
- $A_3 = t_f = 0.7500$ in
- $B_3 = b_f = 8.0000$ in

$d_o = n/a$ in

d_o = stiffener spacing for shear check, for no stiffeners use "N/A"



Fascia Stringer F2-2 @ FB 127

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I _o	d	Ad ²	I _{x,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web		15.4219	21.3125	328.6787	2173.5406	0.0000	0.0000	2173.5406
2	Top Flange		6.0000	42.2500	253.5000	0.2813	20.9375	2630.2734	2630.5547
3	Bottom Flange		6.0000	0.3750	2.2500	0.2813	20.9375	2630.2734	2630.5547
Total			27.42		584.43	2174.10		5260.55	7434.65
Section Losses			A	y	Ay	I _o	d	Ad ²	I _{x,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	21.3125	in	S _{top} = 348.84 in ³	y-bar =	21.3125	in	S _{top} = 348.84 in ³
I _x =	7434.65	in ⁴	S _{bottom} = 348.84 in ³	I _x =	7434.65	in ⁴	S _{bottom} = 348.84 in ³
c _{top} =	21.3125	in	A = 27.4219 in ²	c _{top} =	21.3125	in	A = 27.4219 in ²
c _{bottom} =	21.3125	in	r _x = 16.4658 in	c _{bottom} =	21.3125	in	r _x = 16.4658 in
J =	2.9729	in ⁴	Z = 409.81 in ³				Z = 409.81 in ³

Y-Axis Section Properties:

Gross Section (without Losses)		A	x	Ax	I _o	d	Ad ²	I _{y,gross}
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web	15.4219	4.0000	61.6875	0.1807	0.0000	0.0000	0.1807
2	Top Flange	6.0000	4.0000	24.0000	32.0000	0.0000	0.0000	32.0000
3	Bottom Flange	6.0000	4.0000	24.0000	32.0000	0.0000	0.0000	32.0000
Total		27.42		109.69	64.18		0.00	64.18
Section Losses		A	x	Ax	I _o	d	Ad ²	I _{y,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
x-bar =	4.0000	in	S _{right} = 16.05 in ³	x-bar =	4.0000	in	S _{right} = 16.05 in ³
I _y =	64.18	in ⁴	S _{left} = 16.05 in ³	I _y =	64.18	in ⁴	S _{left} = 16.05 in ³
C _{right} =	4.0000	in	A = 27.4219 in ²	C _{right} =	4.0000	in	A = 27.4219 in ²
C _{left} =	4.0000	in	r _y = 1.5299 in	C _{left} =	4.0000	in	r _y = 1.5299 in

Non-composite Capacities*		
	AB	AI
M	#####	#####
V	167.34 k	167.34 k

*Noncompact Section

F_y =	36.00 ksi
------------------------	------------------

AB = As-Built
 AI = As-Inspected
 M = Moment
 V = Shear



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Job No. P402110046
Sheet No. _____

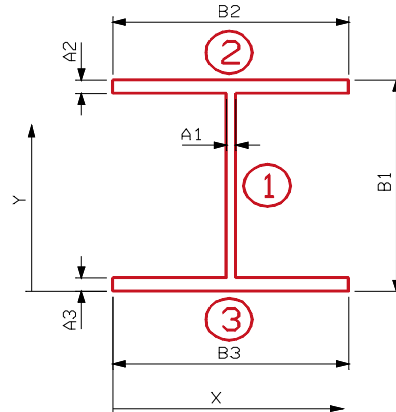
Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

- $A_1 = t_w = 0.3750$ in
- $B_1 = d = 44.3750$ in
- $A_2 = t_f = 0.7500$ in
- $B_2 = b_f = 8.0000$ in
- $A_3 = t_f = 0.7500$ in
- $B_3 = b_f = 8.0000$ in

$d_o = n/a$ in

d_o = stiffener spacing for shear check, for no stiffeners use "N/A"



Fascia Stringer F2-2 @ FB 128

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I_o	d	Ad^2	$I_{x, gross}$
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web		16.0781	22.1875	356.7334	2462.9887	0.0000	0.0000	2462.9887
2	Top Flange		6.0000	44.0000	264.0000	0.2813	21.8125	2854.7109	2854.9922
3	Bottom Flange		6.0000	0.3750	2.2500	0.2813	21.8125	2854.7109	2854.9922
Total			28.08		622.98	2463.55		5709.42	8172.97
Section Losses			A	y	Ay	I_o	d	Ad^2	$I_{x, loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties							
y-bar =	22.1875	in	$S_{top} = 368.36$	in^3	y-bar =	22.1875	in	$S_{top} = 368.36$	in^3		
$I_x =$	8172.97	in^4	$S_{bott.} = 368.36$	in^3	$I_x =$	8172.97	in^4	$S_{bott.} = 368.36$	in^3		
$C_{top} =$	22.1875	in	A =	28.0781	in^2	$C_{top} =$	22.1875	in	A =	28.0781	in^2
$C_{bottom} =$	22.1875	in	$r_x =$	17.0611	in	$C_{bottom} =$	22.1875	in	$r_x =$	17.0611	in
J =	3.0037	in^4	Z =	434.09	in^3				Z =	434.09	in^3

Y-Axis Section Properties:

Gross Section (without Losses)		A	x	Ax	I _o	d	Ad ²	I _{y, gross}
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web	16.0781	4.0000	64.3125	0.1884	0.0000	0.0000	0.1884
2	Top Flange	6.0000	4.0000	24.0000	32.0000	0.0000	0.0000	32.0000
3	Bottom Flange	6.0000	4.0000	24.0000	32.0000	0.0000	0.0000	32.0000
Total		28.08		112.31	64.19		0.00	64.19
Section Losses		A	x	Ax	I _o	d	Ad ²	I _{y, loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
x-bar =	4.0000	in	S _{right} = 16.05 in ³	x-bar =	4.0000	in	S _{right} = 16.05 in ³
I _y =	64.19	in ⁴	S _{left} = 16.05 in ³	I _y =	64.19	in ⁴	S _{left} = 16.05 in ³
C _{right} =	4.0000	in	A = 28.0781 in ²	C _{right} =	4.0000	in	A = 28.0781 in ²
C _{left} =	4.0000	in	r _y = 1.5120 in	C _{left} =	4.0000	in	r _y = 1.5120 in

Non-composite Capacities*		
	AB	AI
M	#####	#####
V	160.51 k	160.51 k

*Noncompact Section

F_y = 36.00 ksi

AB = As-Built
 AI = As-Inspected
 M = Moment
 V = Shear



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Date 4/10/2012
Date 4/12/2012

Job No. P402110046
Sheet No. _____

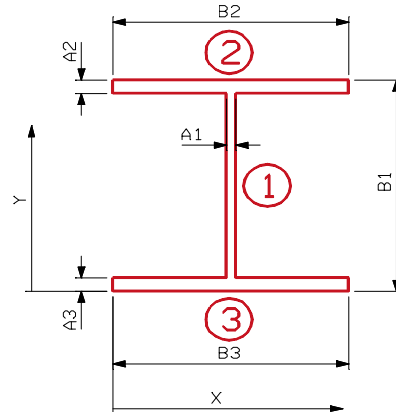
Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

- $A_1 = t_w = 0.4375$ in
- $B_1 = d = 55.1875$ in
- $A_2 = t_f = 0.7500$ in
- $B_2 = b_f = 8.0000$ in
- $A_3 = t_f = 0.7500$ in
- $B_3 = b_f = 8.0000$ in

$d_o = n/a$ in

d_o = stiffener spacing for shear check, for no stiffeners use "N/A"



Fascia Stringer F1-3

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web		23.4883	27.5938	648.1298	5641.7827	0.0000	0.0000	5641.7827
2	Top Flange		6.0000	54.8125	328.8750	0.2813	27.2188	4445.1621	4445.4434
3	Bottom Flange		6.0000	0.3750	2.2500	0.2813	27.2188	4445.1621	4445.4434
Total			35.49		979.25	5642.35		8890.32	14532.67
Section Losses			A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties							
y-bar =	27.5938	in	$S_{top} = 526.67$	in^3	y-bar =	27.5938	in	$S_{top} = 526.67$	in^3		
$I_x =$	14532.67	in^4	$S_{bott.} = 526.67$	in^3	$I_x =$	14532.67	in^4	$S_{bott.} = 526.67$	in^3		
$C_{top} =$	27.5938	in	A =	35.4883	in^2	$C_{top} =$	27.5938	in	A =	35.4883	in^2
$C_{bottom} =$	27.5938	in	$r_x =$	20.2363	in	$C_{bottom} =$	27.5938	in	$r_x =$	20.2363	in
J =	3.7486	in^4	Z =	641.88	in^3				Z =	641.88	in^3

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web		23.4883	4.0000	93.9531	0.3747	0.0000	0.0000	0.3747
2	Top Flange		6.0000	4.0000	24.0000	32.0000	0.0000	0.0000	32.0000
3	Bottom Flange		6.0000	4.0000	24.0000	32.0000	0.0000	0.0000	32.0000
Total			35.49		141.95	64.37		0.00	64.37
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties					As-Inspected Section Properties						
x-bar =	4.0000	in	S _{right} =	16.09	in ³	x-bar =	4.0000	in	S _{right} =	16.09	in ³
I _y =	64.37	in ⁴	S _{left} =	16.09	in ³	I _y =	64.37	in ⁴	S _{left} =	16.09	in ³
C _{right} =	4.0000	in	A =	35.4883	in ²	C _{right} =	4.0000	in	A =	35.4883	in ²
C _{left} =	4.0000	in	r _y =	1.3468	in	C _{left} =	4.0000	in	r _y =	1.3468	in

Non-composite Capacities*		
	AB	AI
M	#####	#####
V	203.55 k	203.55 k

*Noncompact Section

F_y =	36.00 ksi
------------------------	------------------

AB = As-Built
 AI = As-Inspected
 M = Moment
 V = Shear



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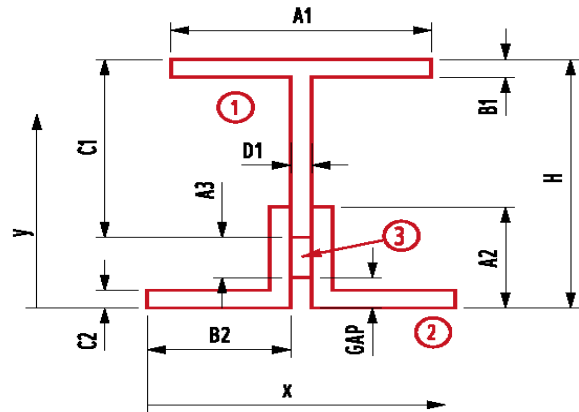
Date 4/10/2012
Date 4/10/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Partial W-Section*	W14x61	Bottom Angles:	
$A_1 = b_f =$	10.0000 in	$A_2 = L_v =$	5.0000 in
$B_1 = t_f =$	0.6450 in	$B_2 = L_h =$	5.0000 in
$C_1 = d =$	12.0000 in	$C_2 = t =$	0.5000 in
$D_1 = t_w =$	0.3750 in		



Additional Plate:		Miscellaneous:	
$A_3 = d =$	0.0000 in	H =	12.5000 in
$B_3 = t =$	0.3750 in	Gap =	0.5000 in

*select from dropdown list

Coped Stringer S10-3 @ FB 128

X-Axis Section Properties:

Gross Section (without Losses)		A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange	6.4500	12.1775	78.5449	0.2236	6.3148	257.2036	257.4272
	Web	4.2581	6.1775	26.3046	45.7521	0.3148	0.4219	46.1741
2	Horizontal Legs	4.5000	0.2500	1.1250	0.0938	5.6127	141.7615	141.8552
	Vertical Legs	5.0000	2.5000	12.5000	10.4167	3.3627	56.5392	66.9559
3	Additional Plate	0.0000	0.5000	0.0000	0.0000	5.3627	0.0000	0.0000
Total		20.21		118.47	56.49		455.93	512.41
Section Losses		A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.00		0.00	0.00		0.00	0.00



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Date 4/10/2012
Date 4/10/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

As-Built Section Properties				As-Inspected Section Properties							
y-bar =	5.8627	in	S _{top} =	77.20	in ³	y-bar =	5.8627	in	S _{top} =	77.20	in ³
I _x =	512.41	in ⁴	S _{bott.} =	87.40	in ³	I _x =	512.41	in ⁴	S _{bott.} =	87.40	in ³
C _{top} =	6.6373	in	A =	20.2081	in ²	C _{top} =	6.6373	in	A =	20.2081	in ²
C _{bottom} =	5.8627	in	r _x =	5.0355	in	C _{bottom} =	5.8627	in	r _x =	5.0355	in
J =	1.8857	in ⁴	Z =	91.92	in ³	Z =	91.92	in ³			

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange		6.4500	5.1875	33.4594	53.7500	0.0000	0.0000	53.7500
	Web		4.2581	5.1875	22.0890	0.0499	0.0000	0.0000	0.0499
2 (Left)	Horizontal Leg		2.2500	2.2500	5.0625	3.7969	2.9375	19.4150	23.2119
	Vertical Leg		2.5000	4.7500	11.8750	0.0521	0.4375	0.4785	0.5306
2 (Right)	Horizontal Leg		2.2500	8.1250	18.2813	3.7969	2.9375	19.4150	23.2119
	Vertical Leg		2.5000	5.6250	14.0625	0.0521	0.4375	0.4785	0.5306
3	Additional Plate		0.0000	5.1875	0.0000	0.0000	0.0000	0.0000	0.0000
Total			20.21		104.83	61.50		39.79	101.28
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties							
x-bar =	5.1875	in	S _{right} =	19.52	in ³	x-bar =	5.1875	in	S _{right} =	19.52	in ³
I _y =	101.28	in ⁴	S _{left} =	19.52	in ³	I _y =	101.28	in ⁴	S _{left} =	19.52	in ³
C _{right} =	5.1875	in	A =	20.2081	in ²	C _{right} =	5.1875	in	A =	20.2081	in ²
C _{left} =	5.1875	in	r _y =	2.2388	in	C _{left} =	5.1875	in	r _y =	2.2388	in

Stringer Capacity

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

Non-composite Capacities*		
	AB	AI
M	275.76 k-ft	275.76 k-ft
V	182.87 k	182.87 k

F_y = **36.00 ksi**

*Compact Section



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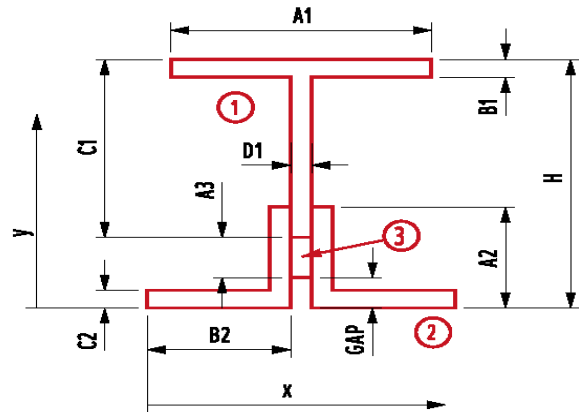
Date 4/10/2012
Date 4/10/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Partial W-Section*	W14x61	Bottom Angles:
$A_1 = b_f =$	10.0000 in	$A_2 = L_v =$ 5.0000 in
$B_1 = t_f =$	0.6450 in	$B_2 = L_h =$ 5.0000 in
$C_1 = d =$	12.0000 in	$C_2 = t =$ 0.5000 in
$D_1 = t_w =$	0.3750 in	



Additional Plate:	Miscellaneous:
$A_3 = d =$ 0.0000 in	H = 12.5000 in
$B_3 = t =$ 0.3750 in	Gap = 0.5000 in

*select from dropdown list

Coped Stringer S10-3 @ FB 129

X-Axis Section Properties:

Gross Section (without Losses)		A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange	6.4500	12.1775	78.5449	0.2236	6.3148	257.2036	257.4272
	Web	4.2581	6.1775	26.3046	45.7521	0.3148	0.4219	46.1741
2	Horizontal Legs	4.5000	0.2500	1.1250	0.0938	5.6127	141.7615	141.8552
	Vertical Legs	5.0000	2.5000	12.5000	10.4167	3.3627	56.5392	66.9559
3	Additional Plate	0.0000	0.5000	0.0000	0.0000	5.3627	0.0000	0.0000
Total		20.21		118.47	56.49		455.93	512.41
Section Losses		A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.00		0.00	0.00		0.00	0.00



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Date 4/10/2012
Date 4/10/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

As-Built Section Properties				As-Inspected Section Properties							
y-bar =	5.8627	in	S _{top} =	77.20	in ³	y-bar =	5.8627	in	S _{top} =	77.20	in ³
I _x =	512.41	in ⁴	S _{bott.} =	87.40	in ³	I _x =	512.41	in ⁴	S _{bott.} =	87.40	in ³
C _{top} =	6.6373	in	A =	20.2081	in ²	C _{top} =	6.6373	in	A =	20.2081	in ²
C _{bottom} =	5.8627	in	r _x =	5.0355	in	C _{bottom} =	5.8627	in	r _x =	5.0355	in
J =	1.8857	in ⁴	Z =	91.92	in ³	Z =	91.92	in ³			

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange		6.4500	5.1875	33.4594	53.7500	0.0000	0.0000	53.7500
	Web		4.2581	5.1875	22.0890	0.0499	0.0000	0.0000	0.0499
2 (Left)	Horizontal Leg		2.2500	2.2500	5.0625	3.7969	2.9375	19.4150	23.2119
	Vertical Leg		2.5000	4.7500	11.8750	0.0521	0.4375	0.4785	0.5306
2 (Right)	Horizontal Leg		2.2500	8.1250	18.2813	3.7969	2.9375	19.4150	23.2119
	Vertical Leg		2.5000	5.6250	14.0625	0.0521	0.4375	0.4785	0.5306
3	Additional Plate		0.0000	5.1875	0.0000	0.0000	0.0000	0.0000	0.0000
Total			20.21		104.83	61.50		39.79	101.28
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties							
x-bar =	5.1875	in	S _{right} =	19.52	in ³	x-bar =	5.1875	in	S _{right} =	19.52	in ³
I _y =	101.28	in ⁴	S _{left} =	19.52	in ³	I _y =	101.28	in ⁴	S _{left} =	19.52	in ³
C _{right} =	5.1875	in	A =	20.2081	in ²	C _{right} =	5.1875	in	A =	20.2081	in ²
C _{left} =	5.1875	in	r _y =	2.2388	in	C _{left} =	5.1875	in	r _y =	2.2388	in

Stringer Capacity

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

Non-composite Capacities*		
	AB	AI
M	275.76 k-ft	275.76 k-ft
V	182.87 k	182.87 k

F_y = **36.00 ksi**

*Compact Section



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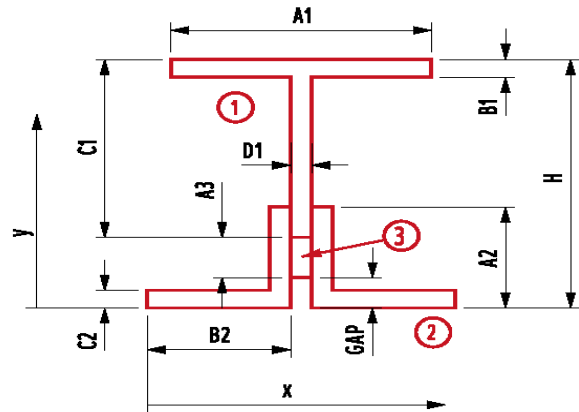
Date 4/10/2012
Date 4/10/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Partial W-Section*	W14x61	Bottom Angles:
$A_1 = b_f =$	10.0000 in	$A_2 = L_v =$ 5.0000 in
$B_1 = t_f =$	0.6450 in	$B_2 = L_h =$ 5.0000 in
$C_1 = d =$	12.0000 in	$C_2 = t =$ 0.5000 in
$D_1 = t_w =$	0.3750 in	



Additional Plate:	Miscellaneous:
$A_3 = d =$ 0.0000 in	H = 12.5000 in
$B_3 = t =$ 0.3750 in	Gap = 0.5000 in

*select from dropdown list

Coped Stringer S10-3 @ FB 130

X-Axis Section Properties:

Gross Section (without Losses)		A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange	6.4500	12.1775	78.5449	0.2236	6.3148	257.2036	257.4272
	Web	4.2581	6.1775	26.3046	45.7521	0.3148	0.4219	46.1741
2	Horizontal Legs	4.5000	0.2500	1.1250	0.0938	5.6127	141.7615	141.8552
	Vertical Legs	5.0000	2.5000	12.5000	10.4167	3.3627	56.5392	66.9559
3	Additional Plate	0.0000	0.5000	0.0000	0.0000	5.3627	0.0000	0.0000
Total		20.21		118.47	56.49		455.93	512.41
Section Losses		A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.00		0.00	0.00		0.00	0.00



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Date 4/10/2012
Date 4/10/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

As-Built Section Properties				As-Inspected Section Properties							
y-bar =	5.8627	in	S _{top} =	77.20	in ³	y-bar =	5.8627	in	S _{top} =	77.20	in ³
I _x =	512.41	in ⁴	S _{bott.} =	87.40	in ³	I _x =	512.41	in ⁴	S _{bott.} =	87.40	in ³
C _{top} =	6.6373	in	A =	20.2081	in ²	C _{top} =	6.6373	in	A =	20.2081	in ²
C _{bottom} =	5.8627	in	r _x =	5.0355	in	C _{bottom} =	5.8627	in	r _x =	5.0355	in
J =	1.8857	in ⁴	Z =	91.92	in ³	Z =	91.92	in ³			

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange		6.4500	5.1875	33.4594	53.7500	0.0000	0.0000	53.7500
	Web		4.2581	5.1875	22.0890	0.0499	0.0000	0.0000	0.0499
2 (Left)	Horizontal Leg		2.2500	2.2500	5.0625	3.7969	2.9375	19.4150	23.2119
	Vertical Leg		2.5000	4.7500	11.8750	0.0521	0.4375	0.4785	0.5306
2 (Right)	Horizontal Leg		2.2500	8.1250	18.2813	3.7969	2.9375	19.4150	23.2119
	Vertical Leg		2.5000	5.6250	14.0625	0.0521	0.4375	0.4785	0.5306
3	Additional Plate		0.0000	5.1875	0.0000	0.0000	0.0000	0.0000	0.0000
Total			20.21		104.83	61.50		39.79	101.28
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties							
x-bar =	5.1875	in	S _{right} =	19.52	in ³	x-bar =	5.1875	in	S _{right} =	19.52	in ³
I _y =	101.28	in ⁴	S _{left} =	19.52	in ³	I _y =	101.28	in ⁴	S _{left} =	19.52	in ³
C _{right} =	5.1875	in	A =	20.2081	in ²	C _{right} =	5.1875	in	A =	20.2081	in ²
C _{left} =	5.1875	in	r _y =	2.2388	in	C _{left} =	5.1875	in	r _y =	2.2388	in

Stringer Capacity

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

Non-composite Capacities*		
	AB	AI
M	275.76 k-ft	275.76 k-ft
V	182.87 k	182.87 k

F_y = **36.00 ksi**

*Compact Section



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Date 4/10/2012
Date 4/10/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

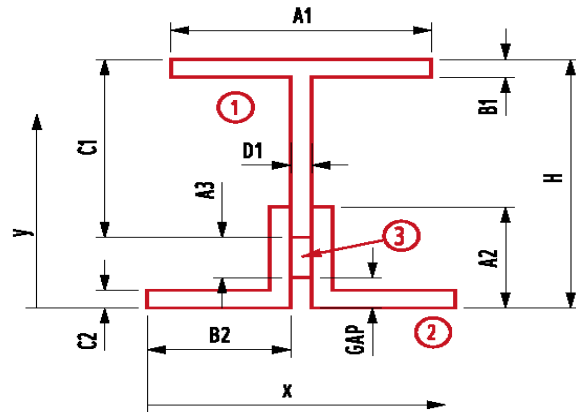
Partial W-Section*	W14x61	Bottom Angles:	
$A_1 = b_f =$	10.0000 in	$A_2 = L_v =$	5.0000 in
$B_1 = t_f =$	0.6450 in	$B_2 = L_h =$	5.0000 in
$C_1 = d =$	12.0000 in	$C_2 = t =$	0.5000 in
$D_1 = t_w =$	0.3750 in		

Additional Plate:

$A_3 = d =$	0.0000 in
$B_3 = t =$	0.3750 in

Miscellaneous:

H =	12.5000 in
Gap =	0.5000 in



*select from dropdown list

Coped Stringer S10-3 @ FB 131

X-Axis Section Properties:

Gross Section (without Losses)		A	y	Ay	I _o	d	Ad ²	I _{x,gross}
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange	6.4500	12.1775	78.5449	0.2236	6.3148	257.2036	257.4272
	Web	4.2581	6.1775	26.3046	45.7521	0.3148	0.4219	46.1741
2	Horizontal Legs	4.5000	0.2500	1.1250	0.0938	5.6127	141.7615	141.8552
	Vertical Legs	5.0000	2.5000	12.5000	10.4167	3.3627	56.5392	66.9559
3	Additional Plate	0.0000	0.5000	0.0000	0.0000	5.3627	0.0000	0.0000
Total		20.21		118.47	56.49		455.93	512.41
Section Losses		A	y	Ay	I _o	d	Ad ²	I _{x,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00	0.00	0.00		0.00	0.00



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Date 4/10/2012
Date 4/10/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

As-Built Section Properties				As-Inspected Section Properties							
y-bar =	5.8627	in	S _{top} =	77.20	in ³	y-bar =	5.8627	in	S _{top} =	77.20	in ³
I _x =	512.41	in ⁴	S _{bott.} =	87.40	in ³	I _x =	512.41	in ⁴	S _{bott.} =	87.40	in ³
C _{top} =	6.6373	in	A =	20.2081	in ²	C _{top} =	6.6373	in	A =	20.2081	in ²
C _{bottom} =	5.8627	in	r _x =	5.0355	in	C _{bottom} =	5.8627	in	r _x =	5.0355	in
J =	1.8857	in ⁴	Z =	91.92	in ³	Z =	91.92	in ³			

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange		6.4500	5.1875	33.4594	53.7500	0.0000	0.0000	53.7500
	Web		4.2581	5.1875	22.0890	0.0499	0.0000	0.0000	0.0499
2 (Left)	Horizontal Leg		2.2500	2.2500	5.0625	3.7969	2.9375	19.4150	23.2119
	Vertical Leg		2.5000	4.7500	11.8750	0.0521	0.4375	0.4785	0.5306
2 (Right)	Horizontal Leg		2.2500	8.1250	18.2813	3.7969	2.9375	19.4150	23.2119
	Vertical Leg		2.5000	5.6250	14.0625	0.0521	0.4375	0.4785	0.5306
3	Additional Plate		0.0000	5.1875	0.0000	0.0000	0.0000	0.0000	0.0000
Total			20.21		104.83	61.50		39.79	101.28
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties							
x-bar =	5.1875	in	S _{right} =	19.52	in ³	x-bar =	5.1875	in	S _{right} =	19.52	in ³
I _y =	101.28	in ⁴	S _{left} =	19.52	in ³	I _y =	101.28	in ⁴	S _{left} =	19.52	in ³
C _{right} =	5.1875	in	A =	20.2081	in ²	C _{right} =	5.1875	in	A =	20.2081	in ²
C _{left} =	5.1875	in	r _y =	2.2388	in	C _{left} =	5.1875	in	r _y =	2.2388	in

Stringer Capacity

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

Non-composite Capacities*		
	AB	AI
M	275.76 k-ft	275.76 k-ft
V	182.87 k	182.87 k

F_y = **36.00 ksi**

*Compact Section



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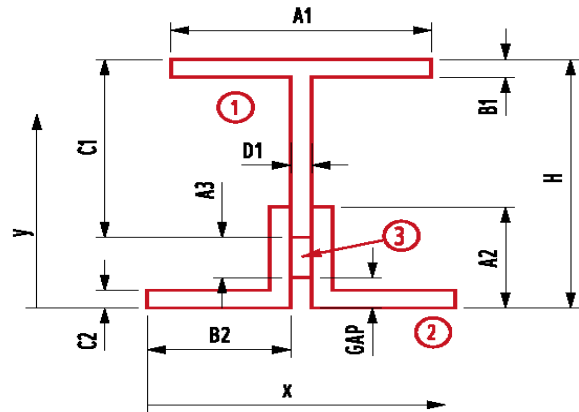
Date 4/10/2012
Date 4/10/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Partial W-Section*	W14x61	Bottom Angles:	
$A_1 = b_f =$	10.0000 in	$A_2 = L_v =$	5.0000 in
$B_1 = t_f =$	0.6450 in	$B_2 = L_h =$	5.0000 in
$C_1 = d =$	11.5000 in	$C_2 = t =$	0.5000 in
$D_1 = t_w =$	0.3750 in		



Additional Plate:	Miscellaneous:		
$A_3 = d =$	0.0000 in	$H =$	12.0000 in
$B_3 = t =$	0.3750 in	Gap =	0.5000 in

*select from dropdown list

Coped Stringer S11-3 @ FB 128

X-Axis Section Properties:

Gross Section (without Losses)		A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange	6.4500	11.6775	75.3199	0.2236	6.0296	234.5005	234.7241
	Web	4.0706	5.9275	24.1286	39.9705	0.2796	0.3183	40.2888
2	Horizontal Legs	4.5000	0.2500	1.1250	0.0938	5.3979	131.1156	131.2093
	Vertical Legs	5.0000	2.5000	12.5000	10.4167	3.1479	49.5448	59.9615
3	Additional Plate	0.0000	0.5000	0.0000	0.0000	5.1479	0.0000	0.0000
Total		20.02		113.07	50.70		415.48	466.18
Section Losses		A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.00		0.00	0.00		0.00	0.00



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Date 4/10/2012
Date 4/10/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

As-Built Section Properties				As-Inspected Section Properties							
y-bar =	5.6479	in	S _{top} =	73.39	in ³	y-bar =	5.6479	in	S _{top} =	73.39	in ³
I _x =	466.18	in ⁴	S _{bott.} =	82.54	in ³	I _x =	466.18	in ⁴	S _{bott.} =	82.54	in ³
C _{top} =	6.3521	in	A =	20.0206	in ²	C _{top} =	6.3521	in	A =	20.0206	in ²
C _{bottom} =	5.6479	in	r _x =	4.8255	in	C _{bottom} =	5.6479	in	r _x =	4.8255	in
J =	1.8769	in ⁴	Z =	87.31	in ³	Z =	87.31	in ³			

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange		6.4500	5.1875	33.4594	53.7500	0.0000	0.0000	53.7500
	Web		4.0706	5.1875	21.1164	0.0477	0.0000	0.0000	0.0477
2 (Left)	Horizontal Leg		2.2500	2.2500	5.0625	3.7969	2.9375	19.4150	23.2119
	Vertical Leg		2.5000	4.7500	11.8750	0.0521	0.4375	0.4785	0.5306
2 (Right)	Horizontal Leg		2.2500	8.1250	18.2813	3.7969	2.9375	19.4150	23.2119
	Vertical Leg		2.5000	5.6250	14.0625	0.0521	0.4375	0.4785	0.5306
3	Additional Plate		0.0000	5.1875	0.0000	0.0000	0.0000	0.0000	0.0000
Total			20.02		103.86	61.50		39.79	101.28
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties							
x-bar =	5.1875	in	S _{right} =	19.52	in ³	x-bar =	5.1875	in	S _{right} =	19.52	in ³
I _y =	101.28	in ⁴	S _{left} =	19.52	in ³	I _y =	101.28	in ⁴	S _{left} =	19.52	in ³
C _{right} =	5.1875	in	A =	20.0206	in ²	C _{right} =	5.1875	in	A =	20.0206	in ²
C _{left} =	5.1875	in	r _y =	2.2492	in	C _{left} =	5.1875	in	r _y =	2.2492	in

Stringer Capacity

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

Non-composite Capacities*		
	AB	AI
M	261.93 k-ft	261.93 k-ft
V	178.95 k	178.95 k

F_y = **36.00 ksi**

*Compact Section



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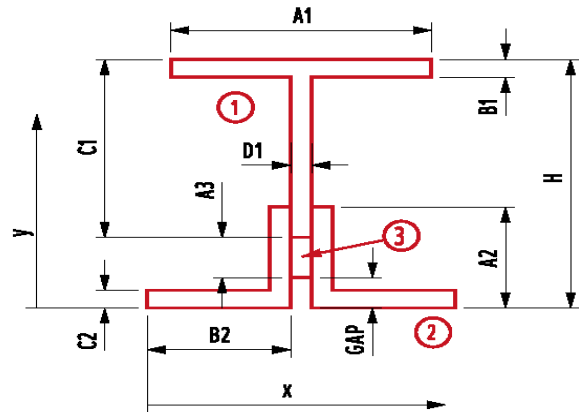
Date 4/10/2012
Date 4/10/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Partial W-Section*	W14x61	Bottom Angles:	
$A_1 = b_f =$	10.0000 in	$A_2 = L_v =$	5.0000 in
$B_1 = t_f =$	0.6450 in	$B_2 = L_h =$	5.0000 in
$C_1 = d =$	11.5000 in	$C_2 = t =$	0.5000 in
$D_1 = t_w =$	0.3750 in		



Additional Plate:		Miscellaneous:	
$A_3 = d =$	0.0000 in	H =	12.0000 in
$B_3 = t =$	0.3750 in	Gap =	0.5000 in

*select from dropdown list

Coped Stringer S11-3 @ FB 129

X-Axis Section Properties:

Gross Section (without Losses)		A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange	6.4500	11.6775	75.3199	0.2236	6.0296	234.5005	234.7241
	Web	4.0706	5.9275	24.1286	39.9705	0.2796	0.3183	40.2888
2	Horizontal Legs	4.5000	0.2500	1.1250	0.0938	5.3979	131.1156	131.2093
	Vertical Legs	5.0000	2.5000	12.5000	10.4167	3.1479	49.5448	59.9615
3	Additional Plate	0.0000	0.5000	0.0000	0.0000	5.1479	0.0000	0.0000
Total		20.02		113.07	50.70		415.48	466.18
Section Losses		A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.00		0.00	0.00		0.00	0.00



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Checked By SFH

Date 4/10/2012
Date 4/10/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	5.6479 in	S _{top} =	73.39 in ³	y-bar =	5.6479 in	S _{top} =	73.39 in ³
I _x =	466.18 in ⁴	S _{bottom} =	82.54 in ³	I _x =	466.18 in ⁴	S _{bottom} =	82.54 in ³
C _{top} =	6.3521 in	A =	20.0206 in ²	C _{top} =	6.3521 in	A =	20.0206 in ²
C _{bottom} =	5.6479 in	r _x =	4.8255 in	C _{bottom} =	5.6479 in	r _x =	4.8255 in
J =	1.8769 in ⁴	Z =	87.31 in ³			Z =	87.31 in ³

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange		6.4500	5.1875	33.4594	53.7500	0.0000	0.0000	53.7500
	Web		4.0706	5.1875	21.1164	0.0477	0.0000	0.0000	0.0477
2 (Left)	Horizontal Leg		2.2500	2.2500	5.0625	3.7969	2.9375	19.4150	23.2119
	Vertical Leg		2.5000	4.7500	11.8750	0.0521	0.4375	0.4785	0.5306
2 (Right)	Horizontal Leg		2.2500	8.1250	18.2813	3.7969	2.9375	19.4150	23.2119
	Vertical Leg		2.5000	5.6250	14.0625	0.0521	0.4375	0.4785	0.5306
3	Additional Plate		0.0000	5.1875	0.0000	0.0000	0.0000	0.0000	0.0000
Total			20.02		103.86	61.50		39.79	101.28
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
x-bar =	5.1875 in	S _{right} =	19.52 in ³	x-bar =	5.1875 in	S _{right} =	19.52 in ³
I _y =	101.28 in ⁴	S _{left} =	19.52 in ³	I _y =	101.28 in ⁴	S _{left} =	19.52 in ³
C _{right} =	5.1875 in	A =	20.0206 in ²	C _{right} =	5.1875 in	A =	20.0206 in ²
C _{left} =	5.1875 in	r _y =	2.2492 in	C _{left} =	5.1875 in	r _y =	2.2492 in

Stringer Capacity

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

Non-composite Capacities*		
	AB	AI
M	261.93 k-ft	261.93 k-ft
V	178.95 k	178.95 k

F_y = **36.00 ksi**

*Compact Section



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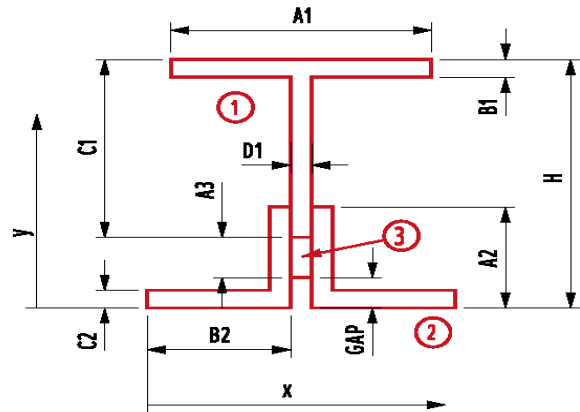
Date 4/10/2012
Date 4/10/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Partial W-Section*	W14x61	Bottom Angles:	
$A_1 = b_f =$	10.0000 in	$A_2 = L_v =$	5.0000 in
$B_1 = t_f =$	0.6450 in	$B_2 = L_h =$	5.0000 in
$C_1 = d =$	11.5000 in	$C_2 = t =$	0.5000 in
$D_1 = t_w =$	0.3750 in		



Additional Plate:		Miscellaneous:	
$A_3 = d =$	0.0000 in	H =	12.0000 in
$B_3 = t =$	0.3750 in	Gap =	0.5000 in

*select from dropdown list

Coped Stringer S11-3 @ FB 130

X-Axis Section Properties:

Gross Section (without Losses)		A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange	6.4500	11.6775	75.3199	0.2236	6.0296	234.5005	234.7241
	Web	4.0706	5.9275	24.1286	39.9705	0.2796	0.3183	40.2888
2	Horizontal Legs	4.5000	0.2500	1.1250	0.0938	5.3979	131.1156	131.2093
	Vertical Legs	5.0000	2.5000	12.5000	10.4167	3.1479	49.5448	59.9615
3	Additional Plate	0.0000	0.5000	0.0000	0.0000	5.1479	0.0000	0.0000
Total		20.02		113.07	50.70		415.48	466.18
Section Losses		A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.00		0.00	0.00		0.00	0.00



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Date 4/10/2012
Date 4/10/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	5.6479 in	S _{top} =	73.39 in ³	y-bar =	5.6479 in	S _{top} =	73.39 in ³
I _x =	466.18 in ⁴	S _{bottom} =	82.54 in ³	I _x =	466.18 in ⁴	S _{bottom} =	82.54 in ³
C _{top} =	6.3521 in	A =	20.0206 in ²	C _{top} =	6.3521 in	A =	20.0206 in ²
C _{bottom} =	5.6479 in	r _x =	4.8255 in	C _{bottom} =	5.6479 in	r _x =	4.8255 in
J =	1.8769 in ⁴	Z =	87.31 in ³			Z =	87.31 in ³

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange		6.4500	5.1875	33.4594	53.7500	0.0000	0.0000	53.7500
	Web		4.0706	5.1875	21.1164	0.0477	0.0000	0.0000	0.0477
2 (Left)	Horizontal Leg		2.2500	2.2500	5.0625	3.7969	2.9375	19.4150	23.2119
	Vertical Leg		2.5000	4.7500	11.8750	0.0521	0.4375	0.4785	0.5306
2 (Right)	Horizontal Leg		2.2500	8.1250	18.2813	3.7969	2.9375	19.4150	23.2119
	Vertical Leg		2.5000	5.6250	14.0625	0.0521	0.4375	0.4785	0.5306
3	Additional Plate		0.0000	5.1875	0.0000	0.0000	0.0000	0.0000	0.0000
Total			20.02		103.86	61.50		39.79	101.28
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
x-bar =	5.1875 in	S _{right} =	19.52 in ³	x-bar =	5.1875 in	S _{right} =	19.52 in ³
I _y =	101.28 in ⁴	S _{left} =	19.52 in ³	I _y =	101.28 in ⁴	S _{left} =	19.52 in ³
C _{right} =	5.1875 in	A =	20.0206 in ²	C _{right} =	5.1875 in	A =	20.0206 in ²
C _{left} =	5.1875 in	r _y =	2.2492 in	C _{left} =	5.1875 in	r _y =	2.2492 in

Stringer Capacity

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

Non-composite Capacities*		
	AB	AI
M	261.93 k-ft	261.93 k-ft
V	178.95 k	178.95 k

F_y = **36.00 ksi**

*Compact Section



Made By DWC
Checked By SFH

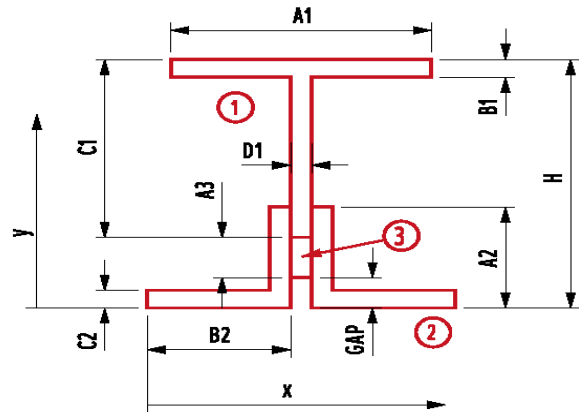
Date 4/10/2012
Date 4/10/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Partial W-Section*	W14x61	Bottom Angles:
$A_1 = b_f =$	10.0000 in	$A_2 = L_v =$ 5.0000 in
$B_1 = t_f =$	0.6450 in	$B_2 = L_h =$ 5.0000 in
$C_1 = d =$	11.5000 in	$C_2 = t =$ 0.5000 in
$D_1 = t_w =$	0.3750 in	



Additional Plate:	Miscellaneous:
$A_3 = d =$ 0.0000 in	H = 12.0000 in
$B_3 = t =$ 0.3750 in	Gap = 0.5000 in

*select from dropdown list

Coped Stringer S11-3 @ FB 131

X-Axis Section Properties:

Gross Section (without Losses)		A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange	6.4500	11.6775	75.3199	0.2236	6.0296	234.5005	234.7241
	Web	4.0706	5.9275	24.1286	39.9705	0.2796	0.3183	40.2888
2	Horizontal Legs	4.5000	0.2500	1.1250	0.0938	5.3979	131.1156	131.2093
	Vertical Legs	5.0000	2.5000	12.5000	10.4167	3.1479	49.5448	59.9615
3	Additional Plate	0.0000	0.5000	0.0000	0.0000	5.1479	0.0000	0.0000
Total		20.02		113.07	50.70		415.48	466.18
Section Losses		A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.00		0.00	0.00		0.00	0.00



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Date 4/10/2012
Date 4/10/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

As-Built Section Properties				As-Inspected Section Properties							
y-bar =	5.6479	in	S _{top} =	73.39	in ³	y-bar =	5.6479	in	S _{top} =	73.39	in ³
I _x =	466.18	in ⁴	S _{bottom} =	82.54	in ³	I _x =	466.18	in ⁴	S _{bottom} =	82.54	in ³
C _{top} =	6.3521	in	A =	20.0206	in ²	C _{top} =	6.3521	in	A =	20.0206	in ²
C _{bottom} =	5.6479	in	r _x =	4.8255	in	C _{bottom} =	5.6479	in	r _x =	4.8255	in
J =	1.8769	in ⁴	Z =	87.31	in ³	Z =	87.31	in ³			

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange		6.4500	5.1875	33.4594	53.7500	0.0000	0.0000	53.7500
	Web		4.0706	5.1875	21.1164	0.0477	0.0000	0.0000	0.0477
2 (Left)	Horizontal Leg		2.2500	2.2500	5.0625	3.7969	2.9375	19.4150	23.2119
	Vertical Leg		2.5000	4.7500	11.8750	0.0521	0.4375	0.4785	0.5306
2 (Right)	Horizontal Leg		2.2500	8.1250	18.2813	3.7969	2.9375	19.4150	23.2119
	Vertical Leg		2.5000	5.6250	14.0625	0.0521	0.4375	0.4785	0.5306
3	Additional Plate		0.0000	5.1875	0.0000	0.0000	0.0000	0.0000	0.0000
Total			20.02		103.86	61.50		39.79	101.28
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties							
x-bar =	5.1875	in	S _{right} =	19.52	in ³	x-bar =	5.1875	in	S _{right} =	19.52	in ³
I _y =	101.28	in ⁴	S _{left} =	19.52	in ³	I _y =	101.28	in ⁴	S _{left} =	19.52	in ³
C _{right} =	5.1875	in	A =	20.0206	in ²	C _{right} =	5.1875	in	A =	20.0206	in ²
C _{left} =	5.1875	in	r _y =	2.2492	in	C _{left} =	5.1875	in	r _y =	2.2492	in

Stringer Capacity

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

Non-composite Capacities*		
	AB	AI
M	261.93 k-ft	261.93 k-ft
V	178.95 k	178.95 k

F_y = **36.00 ksi**

*Compact Section



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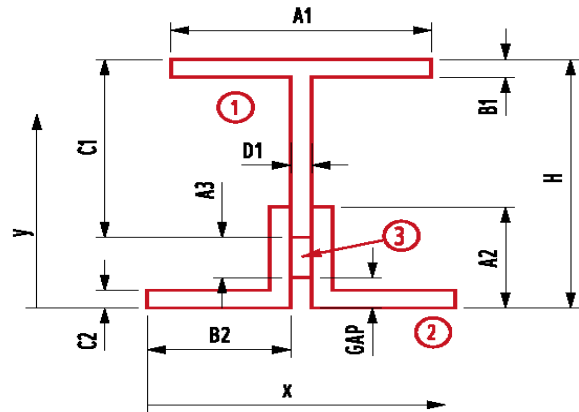
Date 4/10/2012
Date 4/12/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Partial W-Section*	W16x67	Bottom Angles:	
$A_1 = b_f =$	10.2000 in	$A_2 = L_v =$	5.0000 in
$B_1 = t_f =$	0.6650 in	$B_2 = L_h =$	5.0000 in
$C_1 = d =$	12.0000 in	$C_2 = t =$	0.5000 in
$D_1 = t_w =$	0.3950 in		



Additional Plate:		Miscellaneous:	
$A_3 = d =$	0.0000 in	H =	12.6250 in
$B_3 = t =$	0.3950 in	Gap =	0.6250 in

*select from dropdown list

Coped Stringer S12-3 @ FB 128

X-Axis Section Properties:

Gross Section (without Losses)		A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange	6.7830	12.2925	83.3800	0.2500	6.2628	266.0471	266.2970
	Web	4.4773	6.2925	28.1736	47.9381	0.2628	0.3092	48.2473
2	Horizontal Legs	4.5000	0.2500	1.1250	0.0938	5.7797	150.3224	150.4161
	Vertical Legs	5.0000	2.5000	12.5000	10.4167	3.5297	62.2940	72.7107
3	Additional Plate	0.0000	0.6250	0.0000	0.0000	5.4047	0.0000	0.0000
Total		20.76		125.18	58.70		478.97	537.67
Section Losses		A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00	0.00	0.00		0.00	0.00



Made By DWC
Checked By SFH

Date 4/10/2012
Date 4/12/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	6.0297 in	S _{top} =	81.52 in ³	y-bar =	6.0297 in	S _{top} =	81.52 in ³
I _x =	537.67 in ⁴	S _{bott.} =	89.17 in ³	I _x =	537.67 in ⁴	S _{bott.} =	89.17 in ³
C _{top} =	6.5953 in	A =	20.7603 in ²	C _{top} =	6.5953 in	A =	20.7603 in ²
C _{bottom} =	6.0297 in	r _x =	5.0891 in	C _{bottom} =	6.0297 in	r _x =	5.0891 in
J =	2.0244 in ⁴	Z =	96.17 in ³			Z =	96.17 in ³

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange		6.7830	5.1975	35.2546	58.8086	0.0000	0.0000	58.8086
	Web		4.4773	5.1975	23.2709	0.0582	0.0000	0.0000	0.0582
2 (Left)	Horizontal Leg		2.2500	2.2500	5.0625	3.7969	2.9475	19.5475	23.3443
	Vertical Leg		2.5000	4.7500	11.8750	0.0521	0.4475	0.5006	0.5527
2 (Right)	Horizontal Leg		2.2500	8.1450	18.3263	3.7969	2.9475	19.5475	23.3443
	Vertical Leg		2.5000	5.6450	14.1125	0.0521	0.4475	0.5006	0.5527
3	Additional Plate		0.0000	5.1975	0.0000	0.0000	0.0000	0.0000	0.0000
Total			20.76		107.90	66.56		40.10	106.66
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
x-bar =	5.1975 in	S _{right} =	20.52 in ³	x-bar =	5.1975 in	S _{right} =	20.52 in ³
I _y =	106.66 in ⁴	S _{left} =	20.52 in ³	I _y =	106.66 in ⁴	S _{left} =	20.52 in ³
C _{right} =	5.1975 in	A =	20.7603 in ²	C _{right} =	5.1975 in	A =	20.7603 in ²
C _{left} =	5.1975 in	r _y =	2.2667 in	C _{left} =	5.1975 in	r _y =	2.2667 in

Stringer Capacity

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

Non-composite Capacities*		
	AB	AI
M	288.51 k-ft	288.51 k-ft
V	187.45 k	187.45 k

F_y =	36.00 ksi
------------------------	------------------

*Compact Section



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Checked By SFH

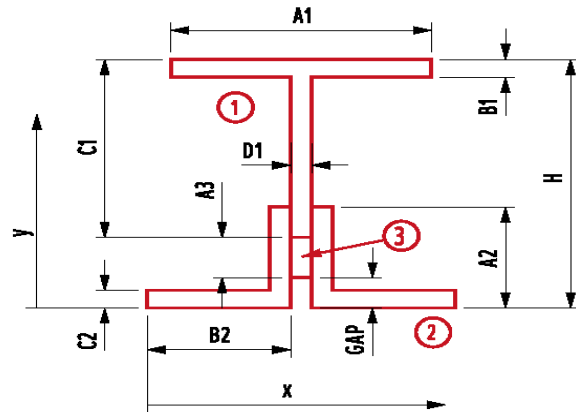
Date 4/10/2012
Date 4/10/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Partial W-Section*	W16x67	Bottom Angles:	
$A_1 = b_f =$	10.2000 in	$A_2 = L_v =$	5.0000 in
$B_1 = t_f =$	0.6650 in	$B_2 = L_h =$	5.0000 in
$C_1 = d =$	12.0000 in	$C_2 = t =$	0.5000 in
$D_1 = t_w =$	0.3950 in		



Additional Plate:		Miscellaneous:	
$A_3 = d =$	0.0000 in	H =	12.6250 in
$B_3 = t =$	0.3950 in	Gap =	0.6250 in

*select from dropdown list

Coped Stringer S12-3 @ FB 129

X-Axis Section Properties:

Gross Section (without Losses)		A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange	6.7830	12.2925	83.3800	0.2500	6.2628	266.0471	266.2970
	Web	4.4773	6.2925	28.1736	47.9381	0.2628	0.3092	48.2473
2	Horizontal Legs	4.5000	0.2500	1.1250	0.0938	5.7797	150.3224	150.4161
	Vertical Legs	5.0000	2.5000	12.5000	10.4167	3.5297	62.2940	72.7107
3	Additional Plate	0.0000	0.6250	0.0000	0.0000	5.4047	0.0000	0.0000
Total		20.76		125.18	58.70		478.97	537.67
Section Losses		A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.00		0.00	0.00		0.00	0.00



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Date 4/10/2012
Date 4/10/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	6.0297 in	S _{top} =	81.52 in ³	y-bar =	6.0297 in	S _{top} =	81.52 in ³
I _x =	537.67 in ⁴	S _{bott.} =	89.17 in ³	I _x =	537.67 in ⁴	S _{bott.} =	89.17 in ³
C _{top} =	6.5953 in	A =	20.7603 in ²	C _{top} =	6.5953 in	A =	20.7603 in ²
C _{bottom} =	6.0297 in	r _x =	5.0891 in	C _{bottom} =	6.0297 in	r _x =	5.0891 in
J =	2.0244 in ⁴	Z =	96.17 in ³			Z =	96.17 in ³

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange		6.7830	5.1975	35.2546	58.8086	0.0000	0.0000	58.8086
	Web		4.4773	5.1975	23.2709	0.0582	0.0000	0.0000	0.0582
2 (Left)	Horizontal Leg		2.2500	2.2500	5.0625	3.7969	2.9475	19.5475	23.3443
	Vertical Leg		2.5000	4.7500	11.8750	0.0521	0.4475	0.5006	0.5527
2 (Right)	Horizontal Leg		2.2500	8.1450	18.3263	3.7969	2.9475	19.5475	23.3443
	Vertical Leg		2.5000	5.6450	14.1125	0.0521	0.4475	0.5006	0.5527
3	Additional Plate		0.0000	5.1975	0.0000	0.0000	0.0000	0.0000	0.0000
Total			20.76		107.90	66.56		40.10	106.66
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
x-bar =	5.1975 in	S _{right} =	20.52 in ³	x-bar =	5.1975 in	S _{right} =	20.52 in ³
I _y =	106.66 in ⁴	S _{left} =	20.52 in ³	I _y =	106.66 in ⁴	S _{left} =	20.52 in ³
C _{right} =	5.1975 in	A =	20.7603 in ²	C _{right} =	5.1975 in	A =	20.7603 in ²
C _{left} =	5.1975 in	r _y =	2.2667 in	C _{left} =	5.1975 in	r _y =	2.2667 in

Stringer Capacity

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

Non-composite Capacities*		
	AB	AI
M	288.51 k-ft	288.51 k-ft
V	187.45 k	187.45 k

F_y = **36.00 ksi**

*Compact Section



Made By DWC
Checked By SFH

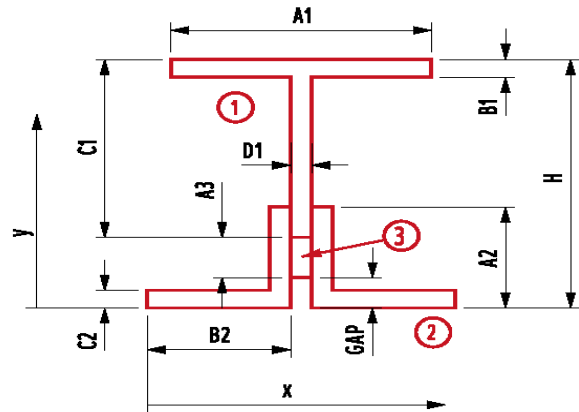
Date 4/10/2012
Date 4/10/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Partial W-Section*	W16x67	Bottom Angles:	
$A_1 = b_f =$	10.2000 in	$A_2 = L_v =$	5.0000 in
$B_1 = t_f =$	0.6650 in	$B_2 = L_h =$	5.0000 in
$C_1 = d =$	12.0000 in	$C_2 = t =$	0.5000 in
$D_1 = t_w =$	0.3950 in		



Additional Plate:		Miscellaneous:	
$A_3 = d =$	0.0000 in	H =	12.6250 in
$B_3 = t =$	0.3950 in	Gap =	0.6250 in

*select from dropdown list

Coped Stringer S12-3 @ FB 130

X-Axis Section Properties:

Gross Section (without Losses)		A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange	6.7830	12.2925	83.3800	0.2500	6.2628	266.0471	266.2970
	Web	4.4773	6.2925	28.1736	47.9381	0.2628	0.3092	48.2473
2	Horizontal Legs	4.5000	0.2500	1.1250	0.0938	5.7797	150.3224	150.4161
	Vertical Legs	5.0000	2.5000	12.5000	10.4167	3.5297	62.2940	72.7107
3	Additional Plate	0.0000	0.6250	0.0000	0.0000	5.4047	0.0000	0.0000
Total		20.76		125.18	58.70		478.97	537.67
Section Losses		A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.00		0.00	0.00		0.00	0.00



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Checked By SFH

Date 4/10/2012
Date 4/10/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	6.0297 in	S _{top} =	81.52 in ³	y-bar =	6.0297 in	S _{top} =	81.52 in ³
I _x =	537.67 in ⁴	S _{bott.} =	89.17 in ³	I _x =	537.67 in ⁴	S _{bott.} =	89.17 in ³
C _{top} =	6.5953 in	A =	20.7603 in ²	C _{top} =	6.5953 in	A =	20.7603 in ²
C _{bottom} =	6.0297 in	r _x =	5.0891 in	C _{bottom} =	6.0297 in	r _x =	5.0891 in
J =	2.0244 in ⁴	Z =	96.17 in ³			Z =	96.17 in ³

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange		6.7830	5.1975	35.2546	58.8086	0.0000	0.0000	58.8086
	Web		4.4773	5.1975	23.2709	0.0582	0.0000	0.0000	0.0582
2 (Left)	Horizontal Leg		2.2500	2.2500	5.0625	3.7969	2.9475	19.5475	23.3443
	Vertical Leg		2.5000	4.7500	11.8750	0.0521	0.4475	0.5006	0.5527
2 (Right)	Horizontal Leg		2.2500	8.1450	18.3263	3.7969	2.9475	19.5475	23.3443
	Vertical Leg		2.5000	5.6450	14.1125	0.0521	0.4475	0.5006	0.5527
3	Additional Plate		0.0000	5.1975	0.0000	0.0000	0.0000	0.0000	0.0000
Total			20.76		107.90	66.56		40.10	106.66
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
x-bar =	5.1975 in	S _{right} =	20.52 in ³	x-bar =	5.1975 in	S _{right} =	20.52 in ³
I _y =	106.66 in ⁴	S _{left} =	20.52 in ³	I _y =	106.66 in ⁴	S _{left} =	20.52 in ³
C _{right} =	5.1975 in	A =	20.7603 in ²	C _{right} =	5.1975 in	A =	20.7603 in ²
C _{left} =	5.1975 in	r _y =	2.2667 in	C _{left} =	5.1975 in	r _y =	2.2667 in

Stringer Capacity

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

Non-composite Capacities*		
	AB	AI
M	288.51 k-ft	288.51 k-ft
V	187.45 k	187.45 k

F_y = **36.00 ksi**

*Compact Section



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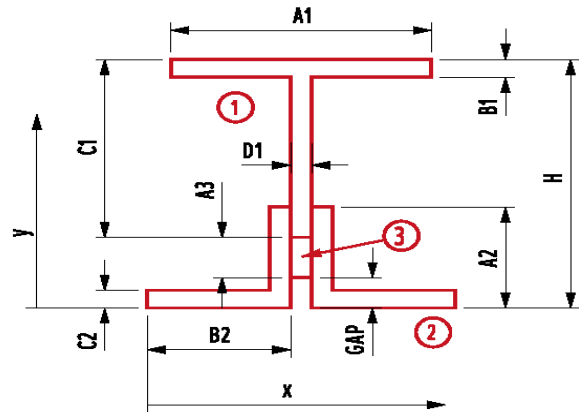
Date 4/10/2012
Date 4/10/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Partial W-Section*	W16x67	Bottom Angles:	
$A_1 = b_f =$	10.2000 in	$A_2 = L_v =$	5.0000 in
$B_1 = t_f =$	0.6650 in	$B_2 = L_h =$	5.0000 in
$C_1 = d =$	12.0000 in	$C_2 = t =$	0.5000 in
$D_1 = t_w =$	0.3950 in		



Additional Plate:		Miscellaneous:	
$A_3 = d =$	0.0000 in	H =	12.6250 in
$B_3 = t =$	0.3950 in	Gap =	0.6250 in

*select from dropdown list

Coped Stringer S12-3 @ FB 131

X-Axis Section Properties:

Gross Section (without Losses)		A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange	6.7830	12.2925	83.3800	0.2500	6.2628	266.0471	266.2970
	Web	4.4773	6.2925	28.1736	47.9381	0.2628	0.3092	48.2473
2	Horizontal Legs	4.5000	0.2500	1.1250	0.0938	5.7797	150.3224	150.4161
	Vertical Legs	5.0000	2.5000	12.5000	10.4167	3.5297	62.2940	72.7107
3	Additional Plate	0.0000	0.6250	0.0000	0.0000	5.4047	0.0000	0.0000
Total		20.76		125.18	58.70		478.97	537.67
Section Losses		A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.00		0.00	0.00		0.00	0.00



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Checked By SFH

Date 4/10/2012
Date 4/10/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

As-Built Section Properties				As-Inspected Section Properties							
y-bar =	6.0297	in	S _{top} =	81.52	in ³	y-bar =	6.0297	in	S _{top} =	81.52	in ³
I _x =	537.67	in ⁴	S _{bott.} =	89.17	in ³	I _x =	537.67	in ⁴	S _{bott.} =	89.17	in ³
C _{top} =	6.5953	in	A =	20.7603	in ²	C _{top} =	6.5953	in	A =	20.7603	in ²
C _{bottom} =	6.0297	in	r _x =	5.0891	in	C _{bottom} =	6.0297	in	r _x =	5.0891	in
J =	2.0244	in ⁴	Z =	96.17	in ³	Z =	96.17	in ³			

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange		6.7830	5.1975	35.2546	58.8086	0.0000	0.0000	58.8086
	Web		4.4773	5.1975	23.2709	0.0582	0.0000	0.0000	0.0582
2 (Left)	Horizontal Leg		2.2500	2.2500	5.0625	3.7969	2.9475	19.5475	23.3443
	Vertical Leg		2.5000	4.7500	11.8750	0.0521	0.4475	0.5006	0.5527
2 (Right)	Horizontal Leg		2.2500	8.1450	18.3263	3.7969	2.9475	19.5475	23.3443
	Vertical Leg		2.5000	5.6450	14.1125	0.0521	0.4475	0.5006	0.5527
3	Additional Plate		0.0000	5.1975	0.0000	0.0000	0.0000	0.0000	0.0000
Total			20.76		107.90	66.56		40.10	106.66
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties							
x-bar =	5.1975	in	S _{right} =	20.52	in ³	x-bar =	5.1975	in	S _{right} =	20.52	in ³
I _y =	106.66	in ⁴	S _{left} =	20.52	in ³	I _y =	106.66	in ⁴	S _{left} =	20.52	in ³
C _{right} =	5.1975	in	A =	20.7603	in ²	C _{right} =	5.1975	in	A =	20.7603	in ²
C _{left} =	5.1975	in	r _y =	2.2667	in	C _{left} =	5.1975	in	r _y =	2.2667	in

Stringer Capacity

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

Non-composite Capacities*		
	AB	AI
M	288.51 k-ft	288.51 k-ft
V	187.45 k	187.45 k

F_y = **36.00 ksi**

*Compact Section



Made By DWC
Checked By SFH

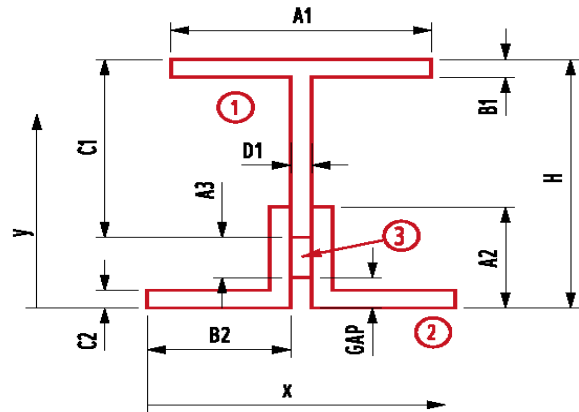
Date 4/10/2012
Date 4/10/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Partial W-Section*	W16x67	Bottom Angles:
$A_1 = b_f =$	10.2000 in	$A_2 = L_v =$ 5.0000 in
$B_1 = t_f =$	0.6650 in	$B_2 = L_h =$ 5.0000 in
$C_1 = d =$	11.5000 in	$C_2 = t =$ 0.5000 in
$D_1 = t_w =$	0.3950 in	



Additional Plate:	Miscellaneous:
$A_3 = d =$ 0.0000 in	H = 12.0000 in
$B_3 = t =$ 0.3950 in	Gap = 0.5000 in

*select from dropdown list

Coped Stringer S13-3 @ FB 128

X-Axis Section Properties:

Gross Section (without Losses)		A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange	6.7830	11.6675	79.1407	0.2500	5.9245	238.0843	238.3343
	Web	4.2798	5.9175	25.3259	41.8700	0.1745	0.1304	42.0003
2	Horizontal Legs	4.5000	0.2500	1.1250	0.0938	5.4930	135.7768	135.8706
	Vertical Legs	5.0000	2.5000	12.5000	10.4167	3.2430	52.5840	63.0007
3	Additional Plate	0.0000	0.5000	0.0000	0.0000	5.2430	0.0000	0.0000
Total		20.56		118.09	52.63		426.58	479.21
Section Losses		A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.00		0.00	0.00		0.00	0.00



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Checked By SFH

Date 4/10/2012
Date 4/10/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	5.7430 in	S _{top} =	76.59 in ³	y-bar =	5.7430 in	S _{top} =	76.59 in ³
I _x =	479.21 in ⁴	S _{bott.} =	83.44 in ³	I _x =	479.21 in ⁴	S _{bott.} =	83.44 in ³
C _{top} =	6.2570 in	A =	20.5628 in ²	C _{top} =	6.2570 in	A =	20.5628 in ²
C _{bottom} =	5.7430 in	r _x =	4.8275 in	C _{bottom} =	5.7430 in	r _x =	4.8275 in
J =	2.0141 in ⁴	Z =	90.31 in ³			Z =	90.31 in ³

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange		6.7830	5.1975	35.2546	58.8086	0.0000	0.0000	58.8086
	Web		4.2798	5.1975	22.2444	0.0556	0.0000	0.0000	0.0556
2 (Left)	Horizontal Leg		2.2500	2.2500	5.0625	3.7969	2.9475	19.5475	23.3443
	Vertical Leg		2.5000	4.7500	11.8750	0.0521	0.4475	0.5006	0.5527
2 (Right)	Horizontal Leg		2.2500	8.1450	18.3263	3.7969	2.9475	19.5475	23.3443
	Vertical Leg		2.5000	5.6450	14.1125	0.0521	0.4475	0.5006	0.5527
3	Additional Plate		0.0000	5.1975	0.0000	0.0000	0.0000	0.0000	0.0000
Total			20.56		106.88	66.56		40.10	106.66
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
x-bar =	5.1975 in	S _{right} =	20.52 in ³	x-bar =	5.1975 in	S _{right} =	20.52 in ³
I _y =	106.66 in ⁴	S _{left} =	20.52 in ³	I _y =	106.66 in ⁴	S _{left} =	20.52 in ³
C _{right} =	5.1975 in	A =	20.5628 in ²	C _{right} =	5.1975 in	A =	20.5628 in ²
C _{left} =	5.1975 in	r _y =	2.2775 in	C _{left} =	5.1975 in	r _y =	2.2775 in

Stringer Capacity

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

Non-composite Capacities*		
	AB	AI
M	270.93 k-ft	270.93 k-ft
V	183.32 k	183.32 k

F_y = **36.00 ksi**

*Compact Section



Made By DWC
Checked By SFH

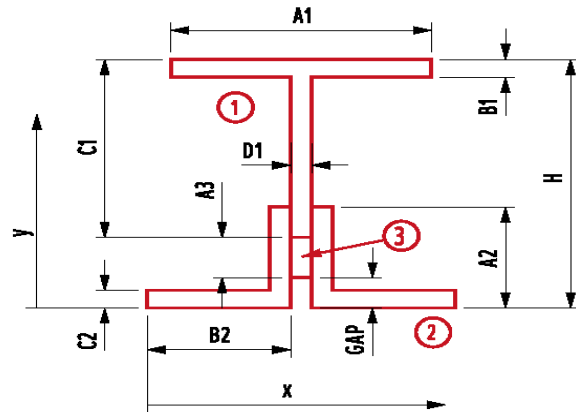
Date 4/10/2012
Date 4/10/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Partial W-Section*	W16x67	Bottom Angles:
$A_1 = b_f =$	10.2000 in	$A_2 = L_v =$ 5.0000 in
$B_1 = t_f =$	0.6650 in	$B_2 = L_h =$ 5.0000 in
$C_1 = d =$	11.7500 in	$C_2 = t =$ 0.5000 in
$D_1 = t_w =$	0.3950 in	



Additional Plate:	Miscellaneous:
$A_3 = d =$ 0.0000 in	H = 12.2500 in
$B_3 = t =$ 0.3950 in	Gap = 0.5000 in

*select from dropdown list

Coped Stringer S13-3 @ FB 129

X-Axis Section Properties:

Gross Section (without Losses)		A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange	6.7830	11.9175	80.8364	0.2500	6.0651	249.5190	249.7690
	Web	4.3786	6.0425	26.4575	44.8356	0.1901	0.1583	44.9939
2	Horizontal Legs	4.5000	0.2500	1.1250	0.0938	5.6024	141.2389	141.3326
	Vertical Legs	5.0000	2.5000	12.5000	10.4167	3.3524	56.1915	66.6082
3	Additional Plate	0.0000	0.5000	0.0000	0.0000	5.3524	0.0000	0.0000
Total		20.66		120.92	55.60		447.11	502.70
Section Losses		A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.00		0.00	0.00		0.00	0.00



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Date 4/10/2012
Date 4/10/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

As-Built Section Properties					As-Inspected Section Properties						
y-bar =	5.8524	in	S _{top} =	78.58	in ³	y-bar =	5.8524	in	S _{top} =	78.58	in ³
I _x =	502.70	in ⁴	S _{bott.} =	85.90	in ³	I _x =	502.70	in ⁴	S _{bott.} =	85.90	in ³
C _{top} =	6.3976	in	A =	20.6616	in ²	C _{top} =	6.3976	in	A =	20.6616	in ²
C _{bottom} =	5.8524	in	r _x =	4.9326	in	C _{bottom} =	5.8524	in	r _x =	4.9326	in
J =	2.0193	in ⁴	Z =	92.72	in ³				Z =	92.72	in ³

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange		6.7830	5.1975	35.2546	58.8086	0.0000	0.0000	58.8086
	Web		4.3786	5.1975	22.7576	0.0569	0.0000	0.0000	0.0569
2 (Left)	Horizontal Leg		2.2500	2.2500	5.0625	3.7969	2.9475	19.5475	23.3443
	Vertical Leg		2.5000	4.7500	11.8750	0.0521	0.4475	0.5006	0.5527
2 (Right)	Horizontal Leg		2.2500	8.1450	18.3263	3.7969	2.9475	19.5475	23.3443
	Vertical Leg		2.5000	5.6450	14.1125	0.0521	0.4475	0.5006	0.5527
3	Additional Plate		0.0000	5.1975	0.0000	0.0000	0.0000	0.0000	0.0000
Total			20.66		107.39	66.56		40.10	106.66
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties					As-Inspected Section Properties						
x-bar =	5.1975	in	S _{right} =	20.52	in ³	x-bar =	5.1975	in	S _{right} =	20.52	in ³
I _y =	106.66	in ⁴	S _{left} =	20.52	in ³	I _y =	106.66	in ⁴	S _{left} =	20.52	in ³
C _{right} =	5.1975	in	A =	20.6616	in ²	C _{right} =	5.1975	in	A =	20.6616	in ²
C _{left} =	5.1975	in	r _y =	2.2721	in	C _{left} =	5.1975	in	r _y =	2.2721	in

Stringer Capacity

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

Non-composite Capacities*		
	AB	AI
M	278.16 k-ft	278.16 k-ft
V	185.38 k	185.38 k

F_y =	36.00 ksi
------------------------	------------------

*Compact Section



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Checked By SFH

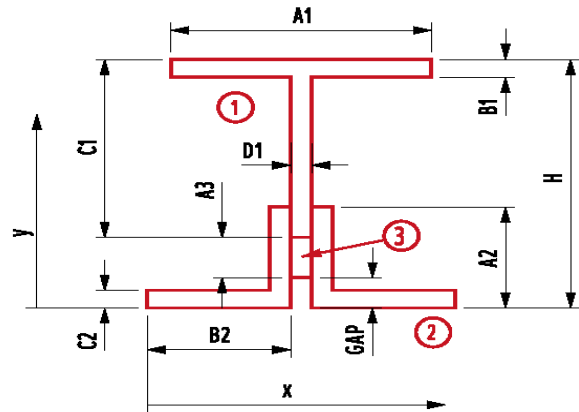
Date 4/10/2012
Date 4/10/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Partial W-Section*	W16x67	Bottom Angles:
$A_1 = b_f =$	10.2000 in	$A_2 = L_v =$ 5.0000 in
$B_1 = t_f =$	0.6650 in	$B_2 = L_h =$ 5.0000 in
$C_1 = d =$	11.7500 in	$C_2 = t =$ 0.5000 in
$D_1 = t_w =$	0.3950 in	



Additional Plate:	Miscellaneous:
$A_3 = d =$ 0.0000 in	H = 12.2500 in
$B_3 = t =$ 0.3950 in	Gap = 0.5000 in

*select from dropdown list

Coped Stringer S13-3 @ FB 130

X-Axis Section Properties:

Gross Section (without Losses)		A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange	6.7830	11.9175	80.8364	0.2500	6.0651	249.5190	249.7690
	Web	4.3786	6.0425	26.4575	44.8356	0.1901	0.1583	44.9939
2	Horizontal Legs	4.5000	0.2500	1.1250	0.0938	5.6024	141.2389	141.3326
	Vertical Legs	5.0000	2.5000	12.5000	10.4167	3.3524	56.1915	66.6082
3	Additional Plate	0.0000	0.5000	0.0000	0.0000	5.3524	0.0000	0.0000
Total		20.66		120.92	55.60		447.11	502.70
Section Losses		A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.00		0.00	0.00		0.00	0.00



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Date 4/10/2012
Date 4/10/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	5.8524 in	S _{top} =	78.58 in ³	y-bar =	5.8524 in	S _{top} =	78.58 in ³
I _x =	502.70 in ⁴	S _{bott.} =	85.90 in ³	I _x =	502.70 in ⁴	S _{bott.} =	85.90 in ³
C _{top} =	6.3976 in	A =	20.6616 in ²	C _{top} =	6.3976 in	A =	20.6616 in ²
C _{bottom} =	5.8524 in	r _x =	4.9326 in	C _{bottom} =	5.8524 in	r _x =	4.9326 in
J =	2.0193 in ⁴	Z =	92.72 in ³			Z =	92.72 in ³

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange		6.7830	5.1975	35.2546	58.8086	0.0000	0.0000	58.8086
	Web		4.3786	5.1975	22.7576	0.0569	0.0000	0.0000	0.0569
2 (Left)	Horizontal Leg		2.2500	2.2500	5.0625	3.7969	2.9475	19.5475	23.3443
	Vertical Leg		2.5000	4.7500	11.8750	0.0521	0.4475	0.5006	0.5527
2 (Right)	Horizontal Leg		2.2500	8.1450	18.3263	3.7969	2.9475	19.5475	23.3443
	Vertical Leg		2.5000	5.6450	14.1125	0.0521	0.4475	0.5006	0.5527
3	Additional Plate		0.0000	5.1975	0.0000	0.0000	0.0000	0.0000	0.0000
Total			20.66		107.39	66.56		40.10	106.66
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
x-bar =	5.1975 in	S _{right} =	20.52 in ³	x-bar =	5.1975 in	S _{right} =	20.52 in ³
I _y =	106.66 in ⁴	S _{left} =	20.52 in ³	I _y =	106.66 in ⁴	S _{left} =	20.52 in ³
C _{right} =	5.1975 in	A =	20.6616 in ²	C _{right} =	5.1975 in	A =	20.6616 in ²
C _{left} =	5.1975 in	r _y =	2.2721 in	C _{left} =	5.1975 in	r _y =	2.2721 in

Stringer Capacity

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

Non-composite Capacities*		
	AB	AI
M	278.16 k-ft	278.16 k-ft
V	185.38 k	185.38 k

F_y =	36.00 ksi
------------------------	------------------

*Compact Section



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Checked By SFH

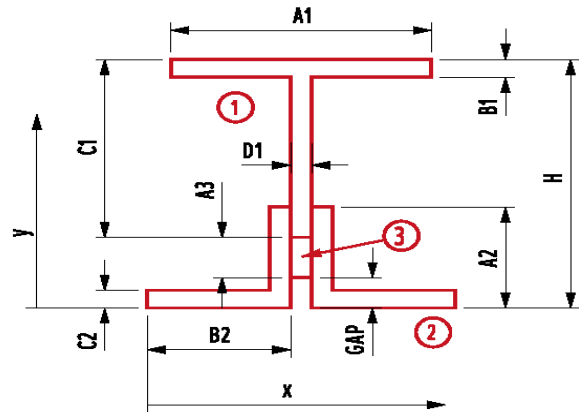
Date 4/10/2012
Date 4/10/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Partial W-Section*	W16x67	Bottom Angles:	
$A_1 = b_f =$	10.2000 in	$A_2 = L_v =$	5.0000 in
$B_1 = t_f =$	0.6650 in	$B_2 = L_h =$	5.0000 in
$C_1 = d =$	11.7500 in	$C_2 = t =$	0.5000 in
$D_1 = t_w =$	0.3950 in		



Additional Plate:		Miscellaneous:	
$A_3 = d =$	0.0000 in	H =	12.2500 in
$B_3 = t =$	0.3950 in	Gap =	0.5000 in

*select from dropdown list

Coped Stringer S13-3 @ FB 131

X-Axis Section Properties:

Gross Section (without Losses)		A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange	6.7830	11.9175	80.8364	0.2500	6.0651	249.5190	249.7690
	Web	4.3786	6.0425	26.4575	44.8356	0.1901	0.1583	44.9939
2	Horizontal Legs	4.5000	0.2500	1.1250	0.0938	5.6024	141.2389	141.3326
	Vertical Legs	5.0000	2.5000	12.5000	10.4167	3.3524	56.1915	66.6082
3	Additional Plate	0.0000	0.5000	0.0000	0.0000	5.3524	0.0000	0.0000
Total		20.66		120.92	55.60		447.11	502.70
Section Losses		A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.00		0.00	0.00		0.00	0.00



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Date 4/10/2012
Date 4/10/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

As-Built Section Properties					As-Inspected Section Properties						
y-bar =	5.8524	in	S _{top} =	78.58	in ³	y-bar =	5.8524	in	S _{top} =	78.58	in ³
I _x =	502.70	in ⁴	S _{bott.} =	85.90	in ³	I _x =	502.70	in ⁴	S _{bott.} =	85.90	in ³
C _{top} =	6.3976	in	A =	20.6616	in ²	C _{top} =	6.3976	in	A =	20.6616	in ²
C _{bottom} =	5.8524	in	r _x =	4.9326	in	C _{bottom} =	5.8524	in	r _x =	4.9326	in
J =	2.0193	in ⁴	Z =	92.72	in ³				Z =	92.72	in ³

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange		6.7830	5.1975	35.2546	58.8086	0.0000	0.0000	58.8086
	Web		4.3786	5.1975	22.7576	0.0569	0.0000	0.0000	0.0569
2 (Left)	Horizontal Leg		2.2500	2.2500	5.0625	3.7969	2.9475	19.5475	23.3443
	Vertical Leg		2.5000	4.7500	11.8750	0.0521	0.4475	0.5006	0.5527
2 (Right)	Horizontal Leg		2.2500	8.1450	18.3263	3.7969	2.9475	19.5475	23.3443
	Vertical Leg		2.5000	5.6450	14.1125	0.0521	0.4475	0.5006	0.5527
3	Additional Plate		0.0000	5.1975	0.0000	0.0000	0.0000	0.0000	0.0000
Total			20.66		107.39	66.56		40.10	106.66
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties					As-Inspected Section Properties						
x-bar =	5.1975	in	S _{right} =	20.52	in ³	x-bar =	5.1975	in	S _{right} =	20.52	in ³
I _y =	106.66	in ⁴	S _{left} =	20.52	in ³	I _y =	106.66	in ⁴	S _{left} =	20.52	in ³
C _{right} =	5.1975	in	A =	20.6616	in ²	C _{right} =	5.1975	in	A =	20.6616	in ²
C _{left} =	5.1975	in	r _y =	2.2721	in	C _{left} =	5.1975	in	r _y =	2.2721	in

Stringer Capacity

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

Non-composite Capacities*		
	AB	AI
M	278.16 k-ft	278.16 k-ft
V	185.38 k	185.38 k

F_y =	36.00 ksi
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*Compact Section



Made By DWC
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Date 4/10/2012
Date 4/12/2012

Job No. P402110046
Sheet No. _____

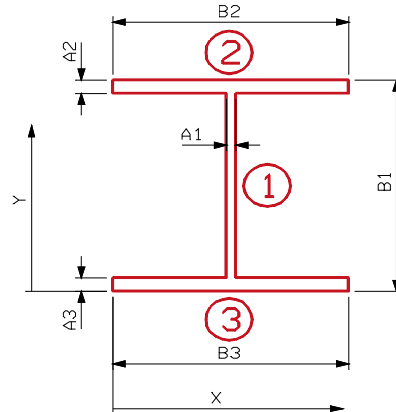
Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

- $A_1 = t_w = 0.3750$ in
- $B_1 = d = 44.3750$ in
- $A_2 = t_f = 0.7500$ in
- $B_2 = b_f = 8.0000$ in
- $A_3 = t_f = 0.7500$ in
- $B_3 = b_f = 8.0000$ in

$d_o = n/a$ in

d_o = stiffener spacing for shear check, for no stiffeners use "N/A"



Fascia Stringer F2-3

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I _o	d	Ad ²	I _{x,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web		16.0781	22.1875	356.7334	2462.9887	0.0000	0.0000	2462.9887
2	Top Flange		6.0000	44.0000	264.0000	0.2813	21.8125	2854.7109	2854.9922
3	Bottom Flange		6.0000	0.3750	2.2500	0.2813	21.8125	2854.7109	2854.9922
Total			28.08		622.98	2463.55		5709.42	8172.97
Section Losses			A	y	Ay	I _o	d	Ad ²	I _{x,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	22.1875	in	S _{top} = 368.36 in ³	y-bar =	22.1875	in	S _{top} = 368.36 in ³
I _x =	8172.97	in ⁴	S _{bottom} = 368.36 in ³	I _x =	8172.97	in ⁴	S _{bottom} = 368.36 in ³
c _{top} =	22.1875	in	A = 28.0781 in ²	c _{top} =	22.1875	in	A = 28.0781 in ²
c _{bottom} =	22.1875	in	r _x = 17.0611 in	c _{bottom} =	22.1875	in	r _x = 17.0611 in
J =	3.0037	in ⁴	Z = 434.09 in ³				Z = 434.09 in ³

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web		16.0781	4.0000	64.3125	0.1884	0.0000	0.0000	0.1884
2	Top Flange		6.0000	4.0000	24.0000	32.0000	0.0000	0.0000	32.0000
3	Bottom Flange		6.0000	4.0000	24.0000	32.0000	0.0000	0.0000	32.0000
Total			28.08		112.31	64.19		0.00	64.19
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties					As-Inspected Section Properties						
x-bar =	4.0000	in	S _{right} =	16.05	in ³	x-bar =	4.0000	in	S _{right} =	16.05	in ³
I _y =	64.19	in ⁴	S _{left} =	16.05	in ³	I _y =	64.19	in ⁴	S _{left} =	16.05	in ³
C _{right} =	4.0000	in	A =	28.0781	in ²	C _{right} =	4.0000	in	A =	28.0781	in ²
C _{left} =	4.0000	in	r _y =	1.5120	in	C _{left} =	4.0000	in	r _y =	1.5120	in

Non-composite Capacities*		
	AB	AI
M	#####	#####
V	160.51 k	160.51 k

*Noncompact Section

F_y = 36.00 ksi

AB = As-Built
 AI = As-Inspected
 M = Moment
 V = Shear



Made By DWC
Checked By SFH

Date 4/10/2012
Date 4/12/2012

Job No. P402110046
Sheet No. _____

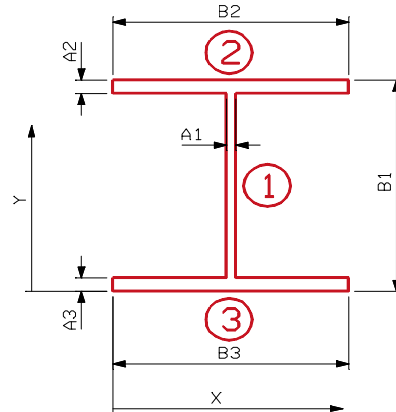
Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

- $A_1 = t_w = 0.3750$ in
- $B_1 = d = 55.1875$ in
- $A_2 = t_f = 0.7500$ in
- $B_2 = b_f = 8.0000$ in
- $A_3 = t_f = 0.7500$ in
- $B_3 = b_f = 8.0000$ in

$d_o = n/a$ in

d_o = stiffener spacing for shear check, for no stiffeners use "N/A"



Fascia Stringer F1-4

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I_o	d	Ad^2	$I_{x, gross}$
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web		20.1328	27.5938	555.5398	4835.8137	0.0000	0.0000	4835.8137
2	Top Flange		6.0000	54.8125	328.8750	0.2813	27.2188	4445.1621	4445.4434
3	Bottom Flange		6.0000	0.3750	2.2500	0.2813	27.2188	4445.1621	4445.4434
Total			32.13		886.66	4836.38		8890.32	13726.70
Section Losses			A	y	Ay	I_o	d	Ad^2	$I_{x, loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties							
y-bar =	27.5938	in	$S_{top} = 497.46$	in^3	y-bar =	27.5938	in	$S_{top} = 497.46$	in^3		
$I_x =$	13726.70	in^4	$S_{bott.} = 497.46$	in^3	$I_x =$	13726.70	in^4	$S_{bott.} = 497.46$	in^3		
$C_{top} =$	27.5938	in	A =	32.1328	in^2	$C_{top} =$	27.5938	in	A =	32.1328	in^2
$C_{bottom} =$	27.5938	in	$r_x =$	20.6685	in	$C_{bottom} =$	27.5938	in	$r_x =$	20.6685	in
J =	3.1937	in^4	Z =	596.85	in^3				Z =	596.85	in^3

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web		20.1328	4.0000	80.5313	0.2359	0.0000	0.0000	0.2359
2	Top Flange		6.0000	4.0000	24.0000	32.0000	0.0000	0.0000	32.0000
3	Bottom Flange		6.0000	4.0000	24.0000	32.0000	0.0000	0.0000	32.0000
Total			32.13		128.53	64.24		0.00	64.24
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties					As-Inspected Section Properties						
x-bar =	4.0000	in	S _{right} =	16.06	in ³	x-bar =	4.0000	in	S _{right} =	16.06	in ³
I _y =	64.24	in ⁴	S _{left} =	16.06	in ³	I _y =	64.24	in ⁴	S _{left} =	16.06	in ³
C _{right} =	4.0000	in	A =	32.1328	in ²	C _{right} =	4.0000	in	A =	32.1328	in ²
C _{left} =	4.0000	in	r _y =	1.4139	in	C _{left} =	4.0000	in	r _y =	1.4139	in

Non-composite Capacities*		
	AB	AI
M	#####	#####
V	128.18 k	128.18 k

*Noncompact Section

F_y = 36.00 ksi

AB = As-Built
 AI = As-Inspected
 M = Moment
 V = Shear



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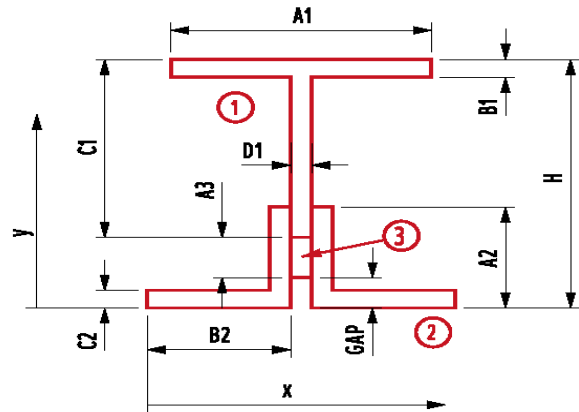
Date 4/10/2012
Date 4/10/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Partial W-Section*	W14x61	Bottom Angles:
$A_1 = b_f =$	10.0000 in	$A_2 = L_v =$ 6.0000 in
$B_1 = t_f =$	0.6450 in	$B_2 = L_h =$ 4.0000 in
$C_1 = d =$	11.7500 in	$C_2 = t =$ 0.5000 in
$D_1 = t_w =$	0.3750 in	



Additional Plate:	Miscellaneous:
$A_3 = d =$ 0.0000 in	H = 12.2500 in
$B_3 = t =$ 0.3750 in	Gap = 0.5000 in

*select from dropdown list

Coped Stringer S11-4 @ FB 131

X-Axis Section Properties:

Gross Section (without Losses)		A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange	6.4500	11.9275	76.9324	0.2236	5.9113	225.3848	225.6084
	Web	4.1644	6.0525	25.2049	42.7962	0.0363	0.0055	42.8017
2	Horizontal Legs	3.5000	0.2500	0.8750	0.0729	5.7662	116.3720	116.4449
	Vertical Legs	6.0000	3.0000	18.0000	18.0000	3.0162	54.5850	72.5850
3	Additional Plate	0.0000	0.5000	0.0000	0.0000	5.5162	0.0000	0.0000
Total		20.11		121.01	61.09		396.35	457.44
Section Losses		A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.00		0.00	0.00		0.00	0.00



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Date 4/10/2012
Date 4/10/2012

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Calculations For: **CUY-2-1441**

As-Built Section Properties					As-Inspected Section Properties						
y-bar =	6.0162	in	S _{top} =	73.38	in ³	y-bar =	6.0162	in	S _{top} =	73.38	in ³
I _x =	457.44	in ⁴	S _{bottom} =	76.03	in ³	I _x =	457.44	in ⁴	S _{bottom} =	76.03	in ³
C _{top} =	6.2338	in	A =	20.1144	in ²	C _{top} =	6.2338	in	A =	20.1144	in ²
C _{bottom} =	6.0162	in	r _x =	4.7689	in	C _{bottom} =	6.0162	in	r _x =	4.7689	in
J =	1.8813	in ⁴	Z =	86.27	in ³	Z =	86.27	in ³			

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange		6.4500	4.1875	27.0094	53.7500	0.8125	4.2580	58.0080
	Web		4.1644	4.1875	17.4383	0.0488	0.8125	2.7491	2.7979
2 (Left)	Horizontal Leg		1.7500	1.7500	3.0625	1.7865	3.2500	18.4844	20.2708
	Vertical Leg		3.0000	3.7500	11.2500	0.0625	1.2500	4.6875	4.7500
2 (Right)	Horizontal Leg		1.7500	6.6250	11.5938	1.7865	1.6250	4.6211	6.4076
	Vertical Leg		3.0000	4.6250	13.8750	0.0625	0.3750	0.4219	0.4844
3	Additional Plate		0.0000	4.1875	0.0000	0.0000	0.8125	0.0000	0.0000
Total			20.11		84.23	57.50		35.22	92.72
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties					As-Inspected Section Properties						
x-bar =	5.0000	in	S _{right} =	18.54	in ³	x-bar =	5.0000	in	S _{right} =	18.54	in ³
I _y =	92.72	in ⁴	S _{left} =	18.54	in ³	I _y =	92.72	in ⁴	S _{left} =	18.54	in ³
C _{right} =	5.0000	in	A =	20.1144	in ²	C _{right} =	5.0000	in	A =	20.1144	in ²
C _{left} =	5.0000	in	r _y =	2.1470	in	C _{left} =	5.0000	in	r _y =	2.1470	in

Stringer Capacity

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

Non-composite Capacities*		
	AB	AI
M	258.81 k-ft	258.81 k-ft
V	201.79 k	201.79 k

F_y = **36.00 ksi**

*Compact Section



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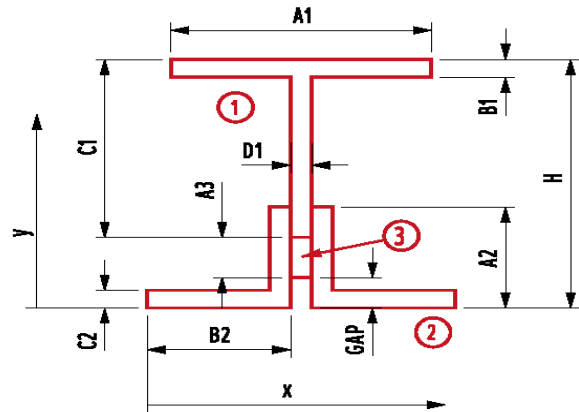
Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Partial W-Section*	W14x61	Bottom Angles:	
$A_1 = b_f =$	10.0000 in	$A_2 = L_v =$	6.0000 in
$B_1 = t_f =$	0.6450 in	$B_2 = L_h =$	4.0000 in
$C_1 = d =$	11.7500 in	$C_2 = t =$	0.5000 in
$D_1 = t_w =$	0.3750 in		

Additional Plate:	Miscellaneous:		
$A_3 = d =$	0.0000 in	$H =$	12.2500 in
$B_3 = t =$	0.3750 in	Gap =	0.5000 in



*select from dropdown list

Coped Stringer S12-4 @ FB 131

X-Axis Section Properties:

Gross Section (without Losses)		A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange	6.4500	11.9275	76.9324	0.2236	5.9113	225.3848	225.6084
	Web	4.1644	6.0525	25.2049	42.7962	0.0363	0.0055	42.8017
2	Horizontal Legs	3.5000	0.2500	0.8750	0.0729	5.7662	116.3720	116.4449
	Vertical Legs	6.0000	3.0000	18.0000	18.0000	3.0162	54.5850	72.5850
3	Additional Plate	0.0000	0.5000	0.0000	0.0000	5.5162	0.0000	0.0000
Total		20.11		121.01	61.09		396.35	457.44
Section Losses		A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.00		0.00	0.00		0.00	0.00



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Date 4/10/2012
Date 4/10/2012

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Calculations For: **CUY-2-1441**

As-Built Section Properties					As-Inspected Section Properties						
y-bar =	6.0162	in	S _{top} =	73.38	in ³	y-bar =	6.0162	in	S _{top} =	73.38	in ³
I _x =	457.44	in ⁴	S _{bottom} =	76.03	in ³	I _x =	457.44	in ⁴	S _{bottom} =	76.03	in ³
C _{top} =	6.2338	in	A =	20.1144	in ²	C _{top} =	6.2338	in	A =	20.1144	in ²
C _{bottom} =	6.0162	in	r _x =	4.7689	in	C _{bottom} =	6.0162	in	r _x =	4.7689	in
J =	1.8813	in ⁴	Z =	86.27	in ³	Z =	86.27	in ³			

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange		6.4500	4.1875	27.0094	53.7500	0.8125	4.2580	58.0080
	Web		4.1644	4.1875	17.4383	0.0488	0.8125	2.7491	2.7979
2 (Left)	Horizontal Leg		1.7500	1.7500	3.0625	1.7865	3.2500	18.4844	20.2708
	Vertical Leg		3.0000	3.7500	11.2500	0.0625	1.2500	4.6875	4.7500
2 (Right)	Horizontal Leg		1.7500	6.6250	11.5938	1.7865	1.6250	4.6211	6.4076
	Vertical Leg		3.0000	4.6250	13.8750	0.0625	0.3750	0.4219	0.4844
3	Additional Plate		0.0000	4.1875	0.0000	0.0000	0.8125	0.0000	0.0000
Total			20.11		84.23	57.50		35.22	92.72
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties					As-Inspected Section Properties						
x-bar =	5.0000	in	S _{right} =	18.54	in ³	x-bar =	5.0000	in	S _{right} =	18.54	in ³
I _y =	92.72	in ⁴	S _{left} =	18.54	in ³	I _y =	92.72	in ⁴	S _{left} =	18.54	in ³
C _{right} =	5.0000	in	A =	20.1144	in ²	C _{right} =	5.0000	in	A =	20.1144	in ²
C _{left} =	5.0000	in	r _y =	2.1470	in	C _{left} =	5.0000	in	r _y =	2.1470	in

Stringer Capacity

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

Non-composite Capacities*		
	AB	AI
M	258.81 k-ft	258.81 k-ft
V	201.79 k	201.79 k

F_y = **36.00 ksi**

*Compact Section



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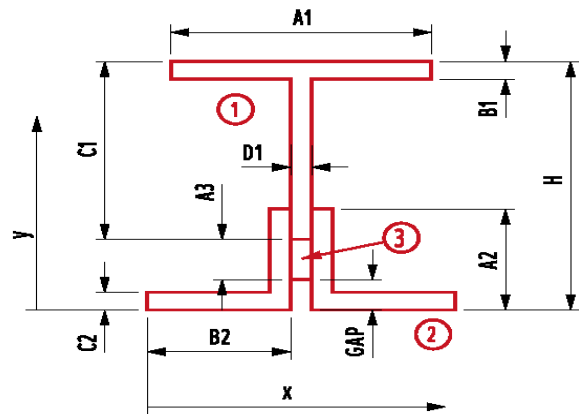
Date 4/10/2012
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Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Partial W-Section*	W16x67	Bottom Angles:	
$A_1 = b_f =$	10.2000 in	$A_2 = L_v =$	6.0000 in
$B_1 = t_f =$	0.6650 in	$B_2 = L_h =$	4.0000 in
$C_1 = d =$	11.8750 in	$C_2 = t =$	0.5000 in
$D_1 = t_w =$	0.3950 in		



Additional Plate:	Miscellaneous:		
$A_3 = d =$	0.0000 in	$H =$	12.3750 in
$B_3 = t =$	0.3950 in	Gap =	0.5000 in

*select from dropdown list

Coped Stringer S13-4 @ FB 131

X-Axis Section Properties:

Gross Section (without Losses)		A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange	6.7830	12.0425	81.6843	0.2500	5.8819	234.6696	234.9196
	Web	4.4280	6.1050	27.0326	46.3695	0.0556	0.0137	46.3832
2	Horizontal Legs	3.5000	0.2500	0.8750	0.0729	5.9106	122.2732	122.3462
	Vertical Legs	6.0000	3.0000	18.0000	18.0000	3.1606	59.9364	77.9364
3	Additional Plate	0.0000	0.5000	0.0000	0.0000	5.6606	0.0000	0.0000
Total		20.71		127.59	64.69		416.89	481.59
Section Losses		A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.00		0.00	0.00		0.00	0.00



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Date 4/10/2012
Date 4/10/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

As-Built Section Properties					As-Inspected Section Properties						
y-bar =	6.1606	in	S _{top} =	77.50	in ³	y-bar =	6.1606	in	S _{top} =	77.50	in ³
I _x =	481.59	in ⁴	S _{bott.} =	78.17	in ³	I _x =	481.59	in ⁴	S _{bott.} =	78.17	in ³
C _{top} =	6.2144	in	A =	20.7110	in ²	C _{top} =	6.2144	in	A =	20.7110	in ²
C _{bottom} =	6.1606	in	r _x =	4.8221	in	C _{bottom} =	6.1606	in	r _x =	4.8221	in
J =	2.0218	in ⁴	Z =	90.28	in ³	Z =	90.28	in ³			

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange		6.7830	4.1975	28.4716	58.8086	0.9025	5.5248	64.3334
	Web		4.4280	4.1975	18.5863	0.0576	0.9025	3.6066	3.6642
2 (Left)	Horizontal Leg		1.7500	1.7500	3.0625	1.7865	3.3500	19.6394	21.4258
	Vertical Leg		3.0000	3.7500	11.2500	0.0625	1.3500	5.4675	5.5300
2 (Right)	Horizontal Leg		1.7500	6.6450	11.6288	1.7865	1.5450	4.1773	5.9638
	Vertical Leg		3.0000	4.6450	13.9350	0.0625	0.4550	0.6211	0.6836
3	Additional Plate		0.0000	4.1975	0.0000	0.0000	0.9025	0.0000	0.0000
Total			20.71		86.93	62.56		39.04	101.60
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties					As-Inspected Section Properties						
x-bar =	5.1000	in	S _{right} =	19.92	in ³	x-bar =	5.1000	in	S _{right} =	19.92	in ³
I _y =	101.60	in ⁴	S _{left} =	19.92	in ³	I _y =	101.60	in ⁴	S _{left} =	19.92	in ³
C _{right} =	5.1000	in	A =	20.7110	in ²	C _{right} =	5.1000	in	A =	20.7110	in ²
C _{left} =	5.1000	in	r _y =	2.2149	in	C _{left} =	5.1000	in	r _y =	2.2149	in

Stringer Capacity

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

Non-composite Capacities*		
	AB	AI
M	270.84 k-ft	270.84 k-ft
V	207.30 k	207.30 k

F_y = **36.00 ksi**

*Compact Section



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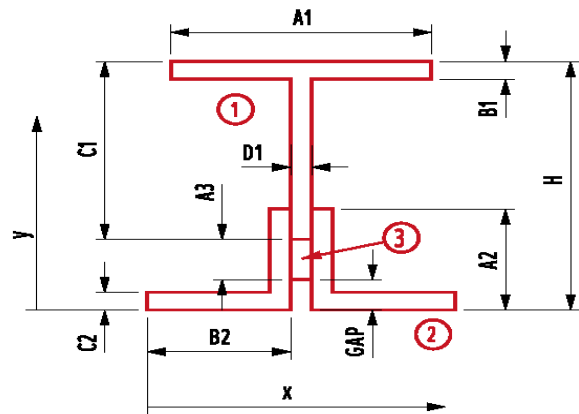
Date 4/10/2012
Date 4/10/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Partial W-Section*	W16x67	Bottom Angles:	
$A_1 = b_f =$	10.2000 in	$A_2 = L_v =$	5.0000 in
$B_1 = t_f =$	0.6650 in	$B_2 = L_h =$	5.0000 in
$C_1 = d =$	12.8750 in	$C_2 = t =$	0.5000 in
$D_1 = t_w =$	0.3950 in		



Additional Plate:		Miscellaneous:	
$A_3 = d =$	0.0000 in	H =	13.3750 in
$B_3 = t =$	0.3950 in	Gap =	0.5000 in

*select from dropdown list

Coped Stringer S13-4 @ FB 132

X-Axis Section Properties:

Gross Section (without Losses)		A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange	6.7830	13.0425	88.4673	0.2500	6.6960	304.1299	304.3799
	Web	4.8230	6.6050	31.8556	59.9188	0.2585	0.3224	60.2412
2	Horizontal Legs	4.5000	0.2500	1.1250	0.0938	6.0965	167.2502	167.3439
	Vertical Legs	5.0000	2.5000	12.5000	10.4167	3.8465	73.9759	84.3926
3	Additional Plate	0.0000	0.5000	0.0000	0.0000	5.8465	0.0000	0.0000
Total		21.11		133.95	70.68		545.68	616.36
Section Losses		A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00	0.00	0.00		0.00	0.00



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Checked By SFH

Date 4/10/2012
Date 4/10/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	6.3465 in	S _{top} =	87.69 in ³	y-bar =	6.3465 in	S _{top} =	87.69 in ³
I _x =	616.36 in ⁴	S _{bott.} =	97.12 in ³	I _x =	616.36 in ⁴	S _{bott.} =	97.12 in ³
C _{top} =	7.0285 in	A =	21.1060 in ²	C _{top} =	7.0285 in	A =	21.1060 in ²
C _{bottom} =	6.3465 in	r _x =	5.4040 in	C _{bottom} =	6.3465 in	r _x =	5.4040 in
J =	2.0424 in ⁴	Z =	103.79 in ³			Z =	103.79 in ³

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange		6.7830	5.1975	35.2546	58.8086	0.0000	0.0000	58.8086
	Web		4.8230	5.1975	25.0673	0.0627	0.0000	0.0000	0.0627
2 (Left)	Horizontal Leg		2.2500	2.2500	5.0625	3.7969	2.9475	19.5475	23.3443
	Vertical Leg		2.5000	4.7500	11.8750	0.0521	0.4475	0.5006	0.5527
2 (Right)	Horizontal Leg		2.2500	8.1450	18.3263	3.7969	2.9475	19.5475	23.3443
	Vertical Leg		2.5000	5.6450	14.1125	0.0521	0.4475	0.5006	0.5527
3	Additional Plate		0.0000	5.1975	0.0000	0.0000	0.0000	0.0000	0.0000
Total			21.11		109.70	66.57		40.10	106.67
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
x-bar =	5.1975 in	S _{right} =	20.52 in ³	x-bar =	5.1975 in	S _{right} =	20.52 in ³
I _y =	106.67 in ⁴	S _{left} =	20.52 in ³	I _y =	106.67 in ⁴	S _{left} =	20.52 in ³
C _{right} =	5.1975 in	A =	21.1060 in ²	C _{right} =	5.1975 in	A =	21.1060 in ²
C _{left} =	5.1975 in	r _y =	2.2481 in	C _{left} =	5.1975 in	r _y =	2.2481 in

Stringer Capacity

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

Non-composite Capacities*		
	AB	AI
M	311.37 k-ft	311.37 k-ft
V	194.66 k	194.66 k

F_y = **36.00 ksi**

*Compact Section



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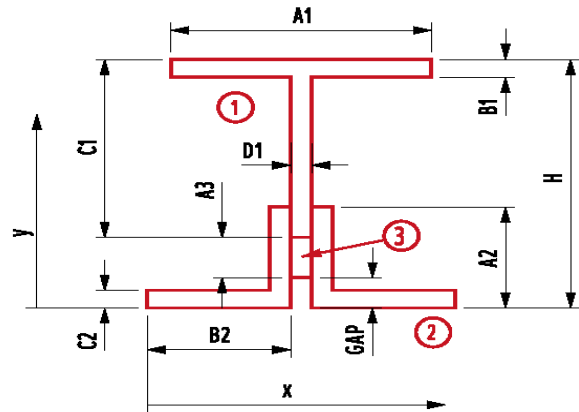
Date 4/10/2012
Date 4/10/2012

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Sheet No. _____

Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Partial W-Section*	W16x67	Bottom Angles:	
$A_1 = b_f =$	10.2000 in	$A_2 = L_v =$	5.0000 in
$B_1 = t_f =$	0.6650 in	$B_2 = L_h =$	5.0000 in
$C_1 = d =$	14.1250 in	$C_2 = t =$	0.5000 in
$D_1 = t_w =$	0.3950 in		



Additional Plate:		Miscellaneous:	
$A_3 = d =$	0.0000 in	H =	14.6250 in
$B_3 = t =$	0.3950 in	Gap =	0.5000 in

*select from dropdown list

Coped Stringer S13-4 @ FB 133

X-Axis Section Properties:

Gross Section (without Losses)		A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange	6.7830	14.2925	96.9460	0.2500	7.3938	370.8107	371.0606
	Web	5.3167	7.2300	38.4397	80.2696	0.3313	0.5834	80.8530
2	Horizontal Legs	4.5000	0.2500	1.1250	0.0938	6.6487	198.9260	199.0197
	Vertical Legs	5.0000	2.5000	12.5000	10.4167	4.3987	96.7447	107.1613
3	Additional Plate	0.0000	0.5000	0.0000	0.0000	6.3987	0.0000	0.0000
Total		21.60		149.01	91.03		667.06	758.09
Section Losses		A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.00		0.00	0.00		0.00	0.00



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Date 4/10/2012
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Calculations For: **CUY-2-1441**

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	6.8987 in	S _{top} =	98.12 in ³	y-bar =	6.8987 in	S _{top} =	98.12 in ³
I _x =	758.09 in ⁴	S _{bott.} =	109.89 in ³	I _x =	758.09 in ⁴	S _{bott.} =	109.89 in ³
C _{top} =	7.7263 in	A =	21.5997 in ²	C _{top} =	7.7263 in	A =	21.5997 in ²
C _{bottom} =	6.8987 in	r _x =	5.9243 in	C _{bottom} =	6.8987 in	r _x =	5.9243 in
J =	2.0681 in ⁴	Z =	116.60 in ³			Z =	116.60 in ³

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange		6.7830	5.1975	35.2546	58.8086	0.0000	0.0000	58.8086
	Web		5.3167	5.1975	27.6335	0.0691	0.0000	0.0000	0.0691
2 (Left)	Horizontal Leg		2.2500	2.2500	5.0625	3.7969	2.9475	19.5475	23.3443
	Vertical Leg		2.5000	4.7500	11.8750	0.0521	0.4475	0.5006	0.5527
2 (Right)	Horizontal Leg		2.2500	8.1450	18.3263	3.7969	2.9475	19.5475	23.3443
	Vertical Leg		2.5000	5.6450	14.1125	0.0521	0.4475	0.5006	0.5527
3	Additional Plate		0.0000	5.1975	0.0000	0.0000	0.0000	0.0000	0.0000
Total			21.60		112.26	66.58		40.10	106.67
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
x-bar =	5.1975 in	S _{right} =	20.52 in ³	x-bar =	5.1975 in	S _{right} =	20.52 in ³
I _y =	106.67 in ⁴	S _{left} =	20.52 in ³	I _y =	106.67 in ⁴	S _{left} =	20.52 in ³
C _{right} =	5.1975 in	A =	21.5997 in ²	C _{right} =	5.1975 in	A =	21.5997 in ²
C _{left} =	5.1975 in	r _y =	2.2223 in	C _{left} =	5.1975 in	r _y =	2.2223 in

Stringer Capacity

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

Non-composite Capacities*		
	AB	AI
M	349.80 k-ft	349.80 k-ft
V	204.97 k	204.97 k

F_y =	36.00 ksi
------------------------	------------------

*Compact Section



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Checked By SFH

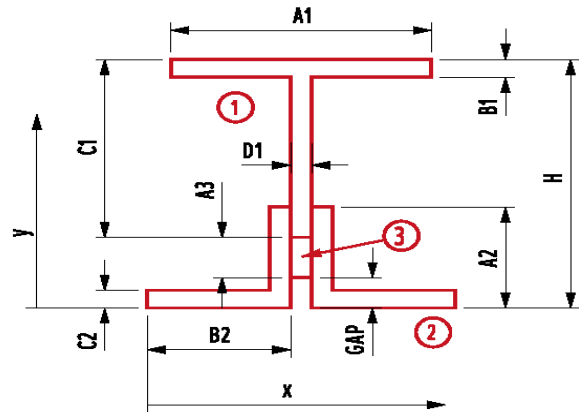
Date 4/10/2012
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Sheet No. _____

Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Partial W-Section*	W16x67	Bottom Angles:	
$A_1 = b_f =$	10.2000 in	$A_2 = L_v =$	6.0000 in
$B_1 = t_f =$	0.6650 in	$B_2 = L_h =$	4.0000 in
$C_1 = d =$	14.1250 in	$C_2 = t =$	0.5000 in
$D_1 = t_w =$	0.3950 in		



Additional Plate:		Miscellaneous:	
$A_3 = d =$	0.0000 in	H =	14.6250 in
$B_3 = t =$	0.3950 in	Gap =	0.5000 in

*select from dropdown list

Coped Stringer S13-4 @ FB 134

X-Axis Section Properties:

Gross Section (without Losses)		A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange	6.7830	14.2925	96.9460	0.2500	7.1507	346.8317	347.0816
	Web	5.3167	7.2300	38.4397	80.2696	0.0882	0.0414	80.3109
2	Horizontal Legs	3.5000	0.2500	0.8750	0.0729	6.8918	166.2392	166.3122
	Vertical Legs	6.0000	3.0000	18.0000	18.0000	4.1418	102.9271	120.9271
3	Additional Plate	0.0000	0.5000	0.0000	0.0000	6.6418	0.0000	0.0000
Total		21.60		154.26	98.59		616.04	714.63
Section Losses		A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.00		0.00	0.00		0.00	0.00



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Date 4/10/2012
Date 4/10/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

As-Built Section Properties				As-Inspected Section Properties							
y-bar =	7.1418	in	S _{top} =	95.50	in ³	y-bar =	7.1418	in	S _{top} =	95.50	in ³
I _x =	714.63	in ⁴	S _{bott.} =	100.06	in ³	I _x =	714.63	in ⁴	S _{bott.} =	100.06	in ³
C _{top} =	7.4832	in	A =	21.5997	in ²	C _{top} =	7.4832	in	A =	21.5997	in ²
C _{bottom} =	7.1418	in	r _x =	5.7520	in	C _{bottom} =	7.1418	in	r _x =	5.7520	in
J =	2.0681	in ⁴	Z =	112.32	in ³	Z =	112.32	in ³			

Y-Axis Section Properties:

Gross Section (without Losses)		A	x	Ax	I _o	d	Ad ²	I _{y,gross}
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange	6.7830	4.1975	28.4716	58.8086	0.9025	5.5248	64.3334
	Web	5.3167	4.1975	22.3168	0.0691	0.9025	4.3305	4.3996
2 (Left)	Horizontal Leg	1.7500	1.7500	3.0625	1.7865	3.3500	19.6394	21.4258
	Vertical Leg	3.0000	3.7500	11.2500	0.0625	1.3500	5.4675	5.5300
2 (Right)	Horizontal Leg	1.7500	6.6450	11.6288	1.7865	1.5450	4.1773	5.9638
	Vertical Leg	3.0000	4.6450	13.9350	0.0625	0.4550	0.6211	0.6836
3	Additional Plate	0.0000	4.1975	0.0000	0.0000	0.9025	0.0000	0.0000
Total		21.60		90.66	62.58		39.76	102.34
Section Losses		A	x	Ax	I _o	d	Ad ²	I _{y,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties							
x-bar =	5.1000	in	S _{right} =	20.07	in ³	x-bar =	5.1000	in	S _{right} =	20.07	in ³
I _y =	102.34	in ⁴	S _{left} =	20.07	in ³	I _y =	102.34	in ⁴	S _{left} =	20.07	in ³
C _{right} =	5.1000	in	A =	21.5997	in ²	C _{right} =	5.1000	in	A =	21.5997	in ²
C _{left} =	5.1000	in	r _y =	2.1767	in	C _{left} =	5.1000	in	r _y =	2.1767	in

Stringer Capacity

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

Non-composite Capacities*		
	AB	AI
M	336.96 k-ft	336.96 k-ft
V	225.85 k	225.85 k

F_y =	36.00 ksi
------------------------	------------------

*Compact Section



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Date 4/10/2012
Date 4/12/2012

Job No. P402110046
Sheet No. _____

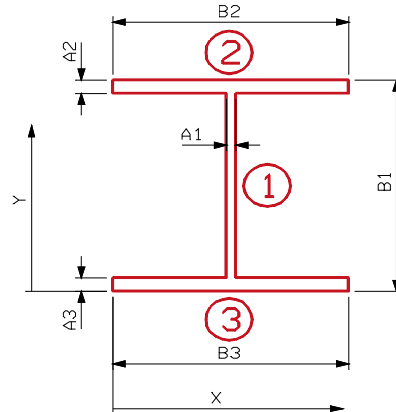
Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

- $A_1 = t_w = 0.3750$ in
- $B_1 = d = 42.6250$ in
- $A_2 = t_f = 0.7500$ in
- $B_2 = b_f = 8.0000$ in
- $A_3 = t_f = 0.7500$ in
- $B_3 = b_f = 8.0000$ in

$d_o = n/a$ in

d_o = stiffener spacing for shear check, for no stiffeners use "N/A"



Fascia Stringer F2-4 @ FB 131

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web		15.4219	21.3125	328.6787	2173.5406	0.0000	0.0000	2173.5406
2	Top Flange		6.0000	42.2500	253.5000	0.2813	20.9375	2630.2734	2630.5547
3	Bottom Flange		6.0000	0.3750	2.2500	0.2813	20.9375	2630.2734	2630.5547
Total			27.42		584.43	2174.10		5260.55	7434.65
Section Losses			A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties							
y-bar =	21.3125	in	$S_{top} = 348.84$	in^3	y-bar =	21.3125	in	$S_{top} = 348.84$	in^3		
$I_x =$	7434.65	in^4	$S_{bott.} = 348.84$	in^3	$I_x =$	7434.65	in^4	$S_{bott.} = 348.84$	in^3		
$c_{top} =$	21.3125	in	A =	27.4219	in^2	$c_{top} =$	21.3125	in	A =	27.4219	in^2
$c_{bottom} =$	21.3125	in	$r_x =$	16.4658	in	$c_{bottom} =$	21.3125	in	$r_x =$	16.4658	in
J =	2.9729	in^4	Z =	409.81	in^3	Z =	409.81	in^3			

Y-Axis Section Properties:

Gross Section (without Losses)		A	x	Ax	I _o	d	Ad ²	I _{y,gross}
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web	15.4219	4.0000	61.6875	0.1807	0.0000	0.0000	0.1807
2	Top Flange	6.0000	4.0000	24.0000	32.0000	0.0000	0.0000	32.0000
3	Bottom Flange	6.0000	4.0000	24.0000	32.0000	0.0000	0.0000	32.0000
Total		27.42		109.69	64.18		0.00	64.18
Section Losses		A	x	Ax	I _o	d	Ad ²	I _{y,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
x-bar =	4.0000	in	S _{right} = 16.05 in ³	x-bar =	4.0000	in	S _{right} = 16.05 in ³
I _y =	64.18	in ⁴	S _{left} = 16.05 in ³	I _y =	64.18	in ⁴	S _{left} = 16.05 in ³
C _{right} =	4.0000	in	A = 27.4219 in ²	C _{right} =	4.0000	in	A = 27.4219 in ²
C _{left} =	4.0000	in	r _y = 1.5299 in	C _{left} =	4.0000	in	r _y = 1.5299 in

Non-composite Capacities*		
	AB	AI
M	#####	#####
V	167.34 k	167.34 k

*Noncompact Section

F_y =	36.00 ksi
------------------------	------------------

AB = As-Built
 AI = As-Inspected
 M = Moment
 V = Shear



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Date 4/10/2012
Date 4/12/2012

Job No. P402110046
Sheet No. _____

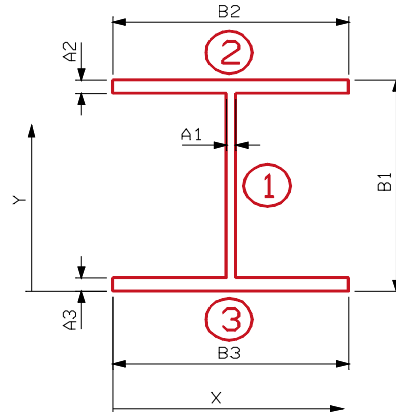
Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

- $A_1 = t_w = 0.3750$ in
- $B_1 = d = 48.0000$ in
- $A_2 = t_f = 0.7500$ in
- $B_2 = b_f = 8.0000$ in
- $A_3 = t_f = 0.7500$ in
- $B_3 = b_f = 8.0000$ in

$d_o = n/a$ in

d_o = stiffener spacing for shear check, for no stiffeners use "N/A"



Fascia Stringer F2-4 @ FB 134

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web		17.4375	24.0000	418.5000	3142.0195	0.0000	0.0000	3142.0195
2	Top Flange		6.0000	47.6250	285.7500	0.2813	23.6250	3348.8438	3349.1250
3	Bottom Flange		6.0000	0.3750	2.2500	0.2813	23.6250	3348.8438	3349.1250
Total			29.44		706.50	3142.58		6697.69	9840.27
Section Losses			A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties							
y-bar =	24.0000	in	$S_{top} = 410.01$	in^3	y-bar =	24.0000	in	$S_{top} = 410.01$	in^3		
$I_x =$	9840.27	in^4	$S_{bott.} = 410.01$	in^3	$I_x =$	9840.27	in^4	$S_{bott.} = 410.01$	in^3		
$c_{top} =$	24.0000	in	A =	29.4375	in^2	$c_{top} =$	24.0000	in	A =	29.4375	in^2
$c_{bottom} =$	24.0000	in	$r_x =$	18.2832	in	$c_{bottom} =$	24.0000	in	$r_x =$	18.2832	in
J =	3.0674	in^4	Z =	486.21	in^3	Z =	486.21	in^3			

Y-Axis Section Properties:

Gross Section (without Losses)		A	x	Ax	I _o	d	Ad ²	I _{y, gross}
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web	17.4375	4.0000	69.7500	0.2043	0.0000	0.0000	0.2043
2	Top Flange	6.0000	4.0000	24.0000	32.0000	0.0000	0.0000	32.0000
3	Bottom Flange	6.0000	4.0000	24.0000	32.0000	0.0000	0.0000	32.0000
Total		29.44		117.75	64.20		0.00	64.20
Section Losses		A	x	Ax	I _o	d	Ad ²	I _{y, loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
x-bar =	4.0000	in	S _{right} = 16.05 in ³	x-bar =	4.0000	in	S _{right} = 16.05 in ³
I _y =	64.20	in ⁴	S _{left} = 16.05 in ³	I _y =	64.20	in ⁴	S _{left} = 16.05 in ³
C _{right} =	4.0000	in	A = 29.4375 in ²	C _{right} =	4.0000	in	A = 29.4375 in ²
C _{left} =	4.0000	in	r _y = 1.4768 in	C _{left} =	4.0000	in	r _y = 1.4768 in

Non-composite Capacities*		
	AB	AI
M	#####	#####
V	148.00 k	148.00 k

*Noncompact Section

F_y = 36.00 ksi

AB = As-Built
 AI = As-Inspected
 M = Moment
 V = Shear



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Date 4/10/2012
Date 4/12/2012

Job No. P402110046
Sheet No. _____

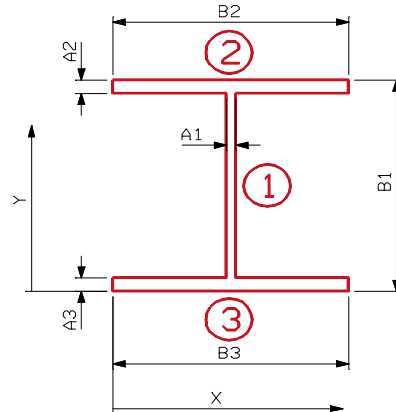
Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

- $A_1 = t_w = 0.4375$ in
- $B_1 = d = 55.1875$ in
- $A_2 = t_f = 0.7500$ in
- $B_2 = b_f = 8.0000$ in
- $A_3 = t_f = 0.7500$ in
- $B_3 = b_f = 8.0000$ in

$d_o = n/a$ in

d_o = stiffener spacing for shear check, for no stiffeners use "N/A"



Fascia Stringer F1-5

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I _o	d	Ad ²	I _{x,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web		23.4883	27.5938	648.1298	5641.7827	0.0000	0.0000	5641.7827
2	Top Flange		6.0000	54.8125	328.8750	0.2813	27.2188	4445.1621	4445.4434
3	Bottom Flange		6.0000	0.3750	2.2500	0.2813	27.2188	4445.1621	4445.4434
Total			35.49		979.25	5642.35		8890.32	14532.67
Section Losses			A	y	Ay	I _o	d	Ad ²	I _{x,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties							
y-bar =	27.5938	in	S _{top} =	526.67	in ³	y-bar =	27.5938	in	S _{top} =	526.67	in ³
I _x =	14532.67	in ⁴	S _{bottom} =	526.67	in ³	I _x =	14532.67	in ⁴	S _{bottom} =	526.67	in ³
C _{top} =	27.5938	in	A =	35.4883	in ²	C _{top} =	27.5938	in	A =	35.4883	in ²
C _{bottom} =	27.5938	in	r _x =	20.2363	in	C _{bottom} =	27.5938	in	r _x =	20.2363	in
J =	3.7486	in ⁴	Z =	641.88	in ³	J =	3.7486	in ⁴	Z =	641.88	in ³

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web		23.4883	4.0000	93.9531	0.3747	0.0000	0.0000	0.3747
2	Top Flange		6.0000	4.0000	24.0000	32.0000	0.0000	0.0000	32.0000
3	Bottom Flange		6.0000	4.0000	24.0000	32.0000	0.0000	0.0000	32.0000
Total			35.49		141.95	64.37		0.00	64.37
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties					As-Inspected Section Properties						
x-bar =	4.0000	in	S _{right} =	16.09	in ³	x-bar =	4.0000	in	S _{right} =	16.09	in ³
I _y =	64.37	in ⁴	S _{left} =	16.09	in ³	I _y =	64.37	in ⁴	S _{left} =	16.09	in ³
C _{right} =	4.0000	in	A =	35.4883	in ²	C _{right} =	4.0000	in	A =	35.4883	in ²
C _{left} =	4.0000	in	r _y =	1.3468	in	C _{left} =	4.0000	in	r _y =	1.3468	in

Non-composite Capacities*		
	AB	AI
M	#####	#####
V	203.55 k	203.55 k

*Noncompact Section

F_y =	36.00 ksi
------------------------	------------------

AB = As-Built
 AI = As-Inspected
 M = Moment
 V = Shear



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Checked By SFH

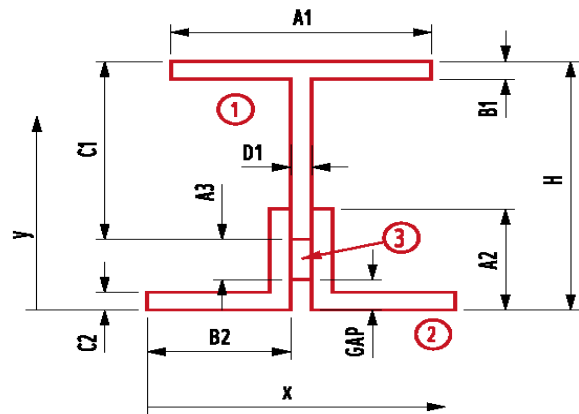
Date 4/10/2012
Date 4/10/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Partial W-Section*	W16x77	Bottom Angles:
$A_1 = b_f =$	10.3000 in	$A_2 = L_v =$ 5.0000 in
$B_1 = t_f =$	0.7600 in	$B_2 = L_h =$ 5.0000 in
$C_1 = d =$	13.2500 in	$C_2 = t =$ 0.5000 in
$D_1 = t_w =$	0.4550 in	



Additional Plate:	Miscellaneous:
$A_3 = d =$ 0.0000 in	H = 13.8750 in
$B_3 = t =$ 0.4550 in	Gap = 0.6250 in

*select from dropdown list

Coped Stringer S1-5 @ FB 134

X-Axis Section Properties:

Gross Section (without Losses)		A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange	7.8280	13.4950	105.6389	0.3768	6.6154	342.5826	342.9594
	Web	5.6830	6.8700	39.0419	73.8784	0.0096	0.0005	73.8789
2	Horizontal Legs	4.5000	0.2500	1.1250	0.0938	6.6296	197.7811	197.8749
	Vertical Legs	5.0000	2.5000	12.5000	10.4167	4.3796	95.9037	106.3204
3	Additional Plate	0.0000	0.6250	0.0000	0.0000	6.2546	0.0000	0.0000
Total		23.01		158.31	84.77		636.27	721.03
Section Losses		A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.00		0.00	0.00		0.00	0.00



Made By DWC
Checked By SFH

Date 4/10/2012
Date 4/10/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	6.8796 in	S _{top} =	103.07 in ³	y-bar =	6.8796 in	S _{top} =	103.07 in ³
I _x =	721.03 in ⁴	S _{bott.} =	104.81 in ³	I _x =	721.03 in ⁴	S _{bott.} =	104.81 in ³
C _{top} =	6.9954 in	A =	23.0110 in ²	C _{top} =	6.9954 in	A =	23.0110 in ²
C _{bottom} =	6.8796 in	r _x =	5.5977 in	C _{bottom} =	6.8796 in	r _x =	5.5977 in
J =	2.6910 in ⁴	Z =	119.71 in ³			Z =	119.71 in ³

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange		7.8280	5.2275	40.9209	69.2060	0.0000	0.0000	69.2060
	Web		5.6830	5.2275	29.7076	0.0980	0.0000	0.0000	0.0980
2 (Left)	Horizontal Leg		2.2500	2.2500	5.0625	3.7969	2.9775	19.9474	23.7443
	Vertical Leg		2.5000	4.7500	11.8750	0.0521	0.4775	0.5700	0.6221
2 (Right)	Horizontal Leg		2.2500	8.2050	18.4613	3.7969	2.9775	19.9474	23.7443
	Vertical Leg		2.5000	5.7050	14.2625	0.0521	0.4775	0.5700	0.6221
3	Additional Plate		0.0000	5.2275	0.0000	0.0000	0.0000	0.0000	0.0000
Total			23.01		120.29	77.00		41.03	118.04
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
x-bar =	5.2275 in	S _{right} =	22.58 in ³	x-bar =	5.2275 in	S _{right} =	22.58 in ³
I _y =	118.04 in ⁴	S _{left} =	22.58 in ³	I _y =	118.04 in ⁴	S _{left} =	22.58 in ³
C _{right} =	5.2275 in	A =	23.0110 in ²	C _{right} =	5.2275 in	A =	23.0110 in ²
C _{left} =	5.2275 in	r _y =	2.2649 in	C _{left} =	5.2275 in	r _y =	2.2649 in

Stringer Capacity

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

Non-composite Capacities*		
	AB	AI
M	359.13 k-ft	359.13 k-ft
V	212.62 k	212.62 k

F_y =	36.00 ksi
------------------------	------------------

*Compact Section



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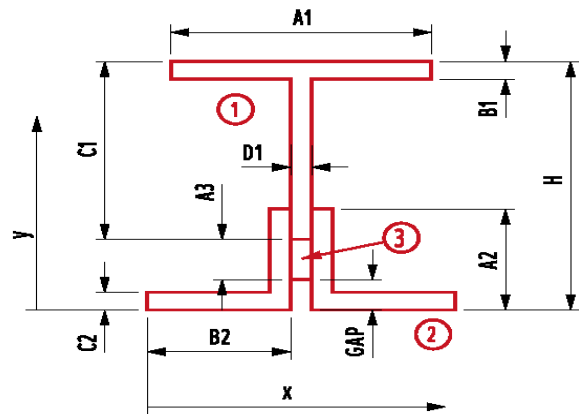
Date 4/10/2012
Date 4/10/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Partial W-Section*	W16x77	Bottom Angles:
$A_1 = b_f =$	10.3000 in	$A_2 = L_v =$ 5.0000 in
$B_1 = t_f =$	0.7600 in	$B_2 = L_h =$ 5.0000 in
$C_1 = d =$	13.5000 in	$C_2 = t =$ 0.5000 in
$D_1 = t_w =$	0.4550 in	



Additional Plate:	Miscellaneous:
$A_3 = d =$ 0.0000 in	H = 14.0000 in
$B_3 = t =$ 0.4550 in	Gap = 0.5000 in

*select from dropdown list

Coped Stringer S1-5 @ FB 135

X-Axis Section Properties:

Gross Section (without Losses)		A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange	7.8280	13.6200	106.6174	0.3768	6.6982	351.2050	351.5817
	Web	5.7967	6.8700	39.8233	78.4040	0.0518	0.0156	78.4196
2	Horizontal Legs	4.5000	0.2500	1.1250	0.0938	6.6718	200.3111	200.4048
	Vertical Legs	5.0000	2.5000	12.5000	10.4167	4.4218	97.7638	108.1804
3	Additional Plate	0.0000	0.5000	0.0000	0.0000	6.4218	0.0000	0.0000
Total		23.12		160.07	89.29		649.30	738.59
Section Losses		A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.00		0.00	0.00		0.00	0.00



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Date 4/10/2012
Date 4/10/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

As-Built Section Properties				As-Inspected Section Properties							
y-bar =	6.9218	in	S _{top} =	104.35	in ³	y-bar =	6.9218	in	S _{top} =	104.35	in ³
I _x =	738.59	in ⁴	S _{bott.} =	106.70	in ³	I _x =	738.59	in ⁴	S _{bott.} =	106.70	in ³
C _{top} =	7.0782	in	A =	23.1247	in ²	C _{top} =	7.0782	in	A =	23.1247	in ²
C _{bottom} =	6.9218	in	r _x =	5.6515	in	C _{bottom} =	6.9218	in	r _x =	5.6515	in
J =	2.6988	in ⁴	Z =	121.41	in ³	Z =	121.41	in ³			

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange		7.8280	5.2275	40.9209	69.2060	0.0000	0.0000	69.2060
	Web		5.7967	5.2275	30.3022	0.1000	0.0000	0.0000	0.1000
2 (Left)	Horizontal Leg		2.2500	2.2500	5.0625	3.7969	2.9775	19.9474	23.7443
	Vertical Leg		2.5000	4.7500	11.8750	0.0521	0.4775	0.5700	0.6221
2 (Right)	Horizontal Leg		2.2500	8.2050	18.4613	3.7969	2.9775	19.9474	23.7443
	Vertical Leg		2.5000	5.7050	14.2625	0.0521	0.4775	0.5700	0.6221
3	Additional Plate		0.0000	5.2275	0.0000	0.0000	0.0000	0.0000	0.0000
Total			23.12		120.88	77.00		41.03	118.04
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties							
x-bar =	5.2275	in	S _{right} =	22.58	in ³	x-bar =	5.2275	in	S _{right} =	22.58	in ³
I _y =	118.04	in ⁴	S _{left} =	22.58	in ³	I _y =	118.04	in ⁴	S _{left} =	22.58	in ³
C _{right} =	5.2275	in	A =	23.1247	in ²	C _{right} =	5.2275	in	A =	23.1247	in ²
C _{left} =	5.2275	in	r _y =	2.2593	in	C _{left} =	5.2275	in	r _y =	2.2593	in

Stringer Capacity

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

Non-composite Capacities*		
	AB	AI
M	364.23 k-ft	364.23 k-ft
V	215.00 k	215.00 k

F_y = **36.00 ksi**

*Compact Section



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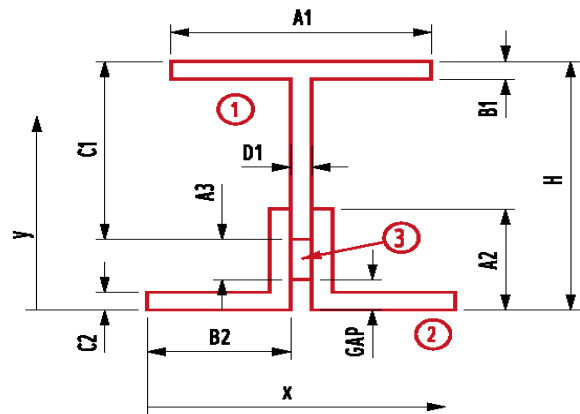
Date 4/10/2012
Date 4/10/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Partial W-Section*	W16x77	Bottom Angles:
$A_1 = b_f =$	10.3000 in	$A_2 = L_v =$ 5.0000 in
$B_1 = t_f =$	0.7600 in	$B_2 = L_h =$ 5.0000 in
$C_1 = d =$	12.2500 in	$C_2 = t =$ 0.5000 in
$D_1 = t_w =$	0.4550 in	



Additional Plate:	Miscellaneous:
$A_3 = d =$ 0.0000 in	H = 13.8750 in
$B_3 = t =$ 0.4550 in	Gap = 1.6250 in

*select from dropdown list

Coped Stringer S2-5 @ FB 134

X-Axis Section Properties:

Gross Section (without Losses)		A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange	7.8280	13.4950	105.6389	0.3768	6.4993	330.6654	331.0422
	Web	5.2280	7.3700	38.5300	57.5162	0.3743	0.7326	58.2488
2	Horizontal Legs	4.5000	0.2500	1.1250	0.0938	6.7457	204.7679	204.8617
	Vertical Legs	5.0000	2.5000	12.5000	10.4167	4.4957	101.0550	111.4716
3	Additional Plate	0.0000	1.6250	0.0000	0.0000	5.3707	0.0000	0.0000
Total		22.56		157.79	68.40		637.22	705.62
Section Losses		A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.00		0.00	0.00		0.00	0.00



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Date 4/10/2012
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Calculations For: **CUY-2-1441**

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	6.9957 in	S _{top} =	102.57 in ³	y-bar =	6.9957 in	S _{top} =	102.57 in ³
I _x =	705.62 in ⁴	S _{bott.} =	100.87 in ³	I _x =	705.62 in ⁴	S _{bott.} =	100.87 in ³
C _{top} =	6.8793 in	A =	22.5560 in ²	C _{top} =	6.8793 in	A =	22.5560 in ²
C _{bottom} =	6.9957 in	r _x =	5.5931 in	C _{bottom} =	6.9957 in	r _x =	5.5931 in
J =	2.6596 in ⁴	Z =	117.82 in ³			Z =	117.82 in ³

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange		7.8280	5.2275	40.9209	69.2060	0.0000	0.0000	69.2060
	Web		5.2280	5.2275	27.3291	0.0902	0.0000	0.0000	0.0902
2 (Left)	Horizontal Leg		2.2500	2.2500	5.0625	3.7969	2.9775	19.9474	23.7443
	Vertical Leg		2.5000	4.7500	11.8750	0.0521	0.4775	0.5700	0.6221
2 (Right)	Horizontal Leg		2.2500	8.2050	18.4613	3.7969	2.9775	19.9474	23.7443
	Vertical Leg		2.5000	5.7050	14.2625	0.0521	0.4775	0.5700	0.6221
3	Additional Plate		0.0000	5.2275	0.0000	0.0000	0.0000	0.0000	0.0000
Total			22.56		117.91	76.99		41.03	118.03
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
x-bar =	5.2275 in	S _{right} =	22.58 in ³	x-bar =	5.2275 in	S _{right} =	22.58 in ³
I _y =	118.03 in ⁴	S _{left} =	22.58 in ³	I _y =	118.03 in ⁴	S _{left} =	22.58 in ³
C _{right} =	5.2275 in	A =	22.5560 in ²	C _{right} =	5.2275 in	A =	22.5560 in ²
C _{left} =	5.2275 in	r _y =	2.2875 in	C _{left} =	5.2275 in	r _y =	2.2875 in

Stringer Capacity

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

Non-composite Capacities*		
	AB	AI
M	353.46 k-ft	353.46 k-ft
V	203.12 k	203.12 k

F_y = **36.00 ksi**

*Compact Section



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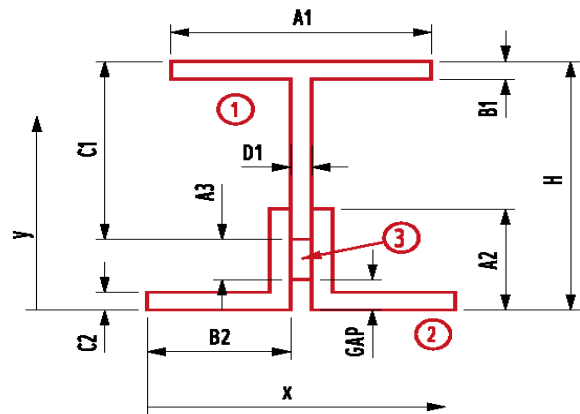
Date 4/10/2012
Date 4/10/2012

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Sheet No. _____

Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Partial W-Section*	W16x77	Bottom Angles:	
$A_1 = b_f =$	10.3000 in	$A_2 = L_v =$	5.0000 in
$B_1 = t_f =$	0.7600 in	$B_2 = L_h =$	5.0000 in
$C_1 = d =$	13.1250 in	$C_2 = t =$	0.5000 in
$D_1 = t_w =$	0.4550 in		



Additional Plate:		Miscellaneous:	
$A_3 = d =$	0.0000 in	H =	13.6250 in
$B_3 = t =$	0.4550 in	Gap =	0.5000 in

*select from dropdown list

Coped Stringer S2-5 @ FB 135

X-Axis Section Properties:

Gross Section (without Losses)		A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange	7.8280	13.2450	103.6819	0.3768	6.4966	330.3879	330.7646
	Web	5.6261	6.6825	37.5962	71.6824	0.0659	0.0244	71.7068
2	Horizontal Legs	4.5000	0.2500	1.1250	0.0938	6.4984	190.0310	190.1247
	Vertical Legs	5.0000	2.5000	12.5000	10.4167	4.2484	90.2442	100.6609
3	Additional Plate	0.0000	0.5000	0.0000	0.0000	6.2484	0.0000	0.0000
Total		22.95		154.90	82.57		610.69	693.26
Section Losses		A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.00		0.00	0.00		0.00	0.00



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Date 4/10/2012
Date 4/10/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

As-Built Section Properties				As-Inspected Section Properties							
y-bar =	6.7484	in	S _{top} =	100.81	in ³	y-bar =	6.7484	in	S _{top} =	100.81	in ³
I _x =	693.26	in ⁴	S _{bott.} =	102.73	in ³	I _x =	693.26	in ⁴	S _{bott.} =	102.73	in ³
C _{top} =	6.8766	in	A =	22.9541	in ²	C _{top} =	6.8766	in	A =	22.9541	in ²
C _{bottom} =	6.7484	in	r _x =	5.4956	in	C _{bottom} =	6.7484	in	r _x =	5.4956	in
J =	2.6871	in ⁴	Z =	117.09	in ³	Z =	117.09	in ³			

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange		7.8280	5.2275	40.9209	69.2060	0.0000	0.0000	69.2060
	Web		5.6261	5.2275	29.4103	0.0971	0.0000	0.0000	0.0971
2 (Left)	Horizontal Leg		2.2500	2.2500	5.0625	3.7969	2.9775	19.9474	23.7443
	Vertical Leg		2.5000	4.7500	11.8750	0.0521	0.4775	0.5700	0.6221
2 (Right)	Horizontal Leg		2.2500	8.2050	18.4613	3.7969	2.9775	19.9474	23.7443
	Vertical Leg		2.5000	5.7050	14.2625	0.0521	0.4775	0.5700	0.6221
3	Additional Plate		0.0000	5.2275	0.0000	0.0000	0.0000	0.0000	0.0000
Total			22.95		119.99	77.00		41.03	118.04
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties							
x-bar =	5.2275	in	S _{right} =	22.58	in ³	x-bar =	5.2275	in	S _{right} =	22.58	in ³
I _y =	118.04	in ⁴	S _{left} =	22.58	in ³	I _y =	118.04	in ⁴	S _{left} =	22.58	in ³
C _{right} =	5.2275	in	A =	22.9541	in ²	C _{right} =	5.2275	in	A =	22.9541	in ²
C _{left} =	5.2275	in	r _y =	2.2677	in	C _{left} =	5.2275	in	r _y =	2.2677	in

Stringer Capacity

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

Non-composite Capacities*		
	AB	AI
M	351.27 k-ft	351.27 k-ft
V	211.43 k	211.43 k

F_y = **36.00 ksi**

*Compact Section



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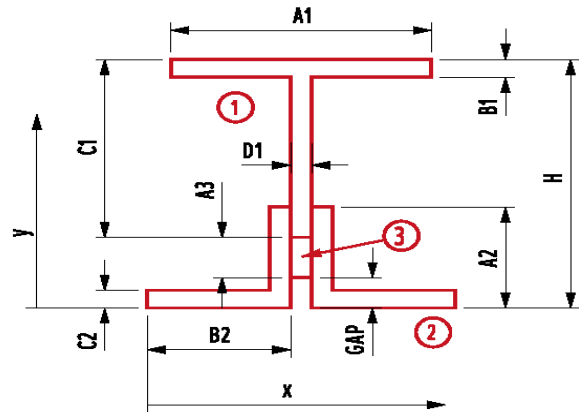
Date 4/10/2012
Date 4/10/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Partial W-Section*	W16x77	Bottom Angles:	
$A_1 = b_f =$	10.3000 in	$A_2 = L_v =$	5.0000 in
$B_1 = t_f =$	0.7600 in	$B_2 = L_h =$	5.0000 in
$C_1 = d =$	13.2500 in	$C_2 = t =$	0.5000 in
$D_1 = t_w =$	0.4550 in		



Additional Plate:		Miscellaneous:	
$A_3 = d =$	0.0000 in	H =	13.8750 in
$B_3 = t =$	0.4550 in	Gap =	0.6250 in

*select from dropdown list

Coped Stringer S3-5 @ FB 134

X-Axis Section Properties:

Gross Section (without Losses)		A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange	7.8280	13.4950	105.6389	0.3768	6.6154	342.5826	342.9594
	Web	5.6830	6.8700	39.0419	73.8784	0.0096	0.0005	73.8789
2	Horizontal Legs	4.5000	0.2500	1.1250	0.0938	6.6296	197.7811	197.8749
	Vertical Legs	5.0000	2.5000	12.5000	10.4167	4.3796	95.9037	106.3204
3	Additional Plate	0.0000	0.6250	0.0000	0.0000	6.2546	0.0000	0.0000
Total		23.01		158.31	84.77		636.27	721.03
Section Losses		A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.00		0.00	0.00		0.00	0.00



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Date 4/10/2012
Date 4/10/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	6.8796 in	S _{top} =	103.07 in ³	y-bar =	6.8796 in	S _{top} =	103.07 in ³
I _x =	721.03 in ⁴	S _{bott.} =	104.81 in ³	I _x =	721.03 in ⁴	S _{bott.} =	104.81 in ³
C _{top} =	6.9954 in	A =	23.0110 in ²	C _{top} =	6.9954 in	A =	23.0110 in ²
C _{bottom} =	6.8796 in	r _x =	5.5977 in	C _{bottom} =	6.8796 in	r _x =	5.5977 in
J =	2.6910 in ⁴	Z =	119.71 in ³			Z =	119.71 in ³

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange		7.8280	5.2275	40.9209	69.2060	0.0000	0.0000	69.2060
	Web		5.6830	5.2275	29.7076	0.0980	0.0000	0.0000	0.0980
2 (Left)	Horizontal Leg		2.2500	2.2500	5.0625	3.7969	2.9775	19.9474	23.7443
	Vertical Leg		2.5000	4.7500	11.8750	0.0521	0.4775	0.5700	0.6221
2 (Right)	Horizontal Leg		2.2500	8.2050	18.4613	3.7969	2.9775	19.9474	23.7443
	Vertical Leg		2.5000	5.7050	14.2625	0.0521	0.4775	0.5700	0.6221
3	Additional Plate		0.0000	5.2275	0.0000	0.0000	0.0000	0.0000	0.0000
Total			23.01		120.29	77.00		41.03	118.04
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
x-bar =	5.2275 in	S _{right} =	22.58 in ³	x-bar =	5.2275 in	S _{right} =	22.58 in ³
I _y =	118.04 in ⁴	S _{left} =	22.58 in ³	I _y =	118.04 in ⁴	S _{left} =	22.58 in ³
C _{right} =	5.2275 in	A =	23.0110 in ²	C _{right} =	5.2275 in	A =	23.0110 in ²
C _{left} =	5.2275 in	r _y =	2.2649 in	C _{left} =	5.2275 in	r _y =	2.2649 in

Stringer Capacity

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

Non-composite Capacities*		
	AB	AI
M	359.13 k-ft	359.13 k-ft
V	212.62 k	212.62 k

F_y = **36.00 ksi**

*Compact Section



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Checked By SFH

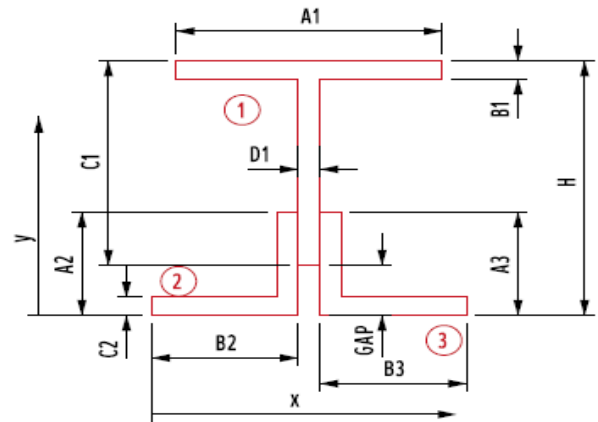
Date 4/9/2012
Date 4/10/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Partial W-Section* W16x77 Left Angle:
 $A_1 = b_f = 10.3000$ in $A_2 = L_v = 6.0000$ in
 $B_1 = t_f = 0.7600$ in $B_2 = L_h = 6.0000$ in
 $C_1 = d = 12.7500$ in $C_2 = t = 0.5000$ in
 $D_1 = t_w = 0.4550$ in
 Right Angle:
 $A_3 = L_v = 5.0000$ in
 $B_3 = L_h = 5.0000$ in
 $C_3 = t = 0.5000$ in
 Miscellaneous:
 $H = 13.2500$ in
 Gap = 0.5000 in



*select from dropdown list

Coped Stringer S3-5 @ FB 135

X-Axis Section Properties:

Gross Section (without Losses)		A	y	Ay	I _o	d	Ad ²	I _{x, gross}
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange	7.8280	12.8700	100.7464	0.3768	6.4504	325.7079	326.0846
	Web	5.4555	6.4950	35.4331	65.3563	0.0754	0.0310	65.3874
2	Horizontal Legs	2.7500	0.2500	0.6875	0.0573	6.1696	104.6749	104.7322
	Vertical Legs	3.0000	3.0000	9.0000	9.0000	3.4196	35.0804	44.0804
3	Horizontal Legs	2.2500	0.2500	0.5625	0.0469	6.1696	85.6431	85.6899
	Vertical Legs	2.5000	2.5000	6.2500	5.2083	3.9196	38.4076	43.6159
Total		23.78		152.68	80.05		589.54	669.59
Section Losses		A	y	Ay	I _o	d	Ad ²	I _{x, loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	6.4196	in	S _{top} = 98.03 in ³	y-bar =	6.4196	in	S _{top} = 98.03 in ³
I _x =	669.59	in ⁴	S _{bottom} = 104.30 in ³	I _x =	669.59	in ⁴	S _{bottom} = 104.30 in ³
C _{top} =	6.8304	in	A = 23.7835 in ²	C _{top} =	6.8304	in	A = 23.7835 in ²
C _{bottom} =	6.4196	in	r _x = 5.3060 in	C _{bottom} =	6.4196	in	r _x = 5.3060 in
J =	2.7586	in ⁴	Z = 115.46 in ³				Z = 115.46 in ³



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Date 4/9/2012
Date 4/10/2012

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Sheet No. _____

Calculations For: **CUY-2-1441**

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y, gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange		7.8280	6.2275	48.7489	69.2060	0.1304	0.1332	69.3392
	Web		5.4555	6.2275	33.9738	0.0941	0.1304	0.0928	0.1870
2 (Left)	Horizontal Leg		2.7500	2.7500	7.5625	6.9323	3.3471	30.8076	37.7399
	Vertical Leg		3.0000	5.7500	17.2500	0.0625	0.3471	0.3613	0.4238
3 (Right)	Horizontal Leg		2.2500	9.2050	20.7113	3.7969	3.1079	21.7335	25.5304
	Vertical Leg		2.5000	6.7050	16.7625	0.0521	0.6079	0.9240	0.9761
Total			23.78		145.01	80.14		54.05	134.20
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y, loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties					As-Inspected Section Properties				
x-bar =	6.0971	in	S _{right} =	25.05 in ³	x-bar =	6.0971	in	S _{right} =	25.05 in ³
I _y =	134.20	in ⁴	S _{left} =	22.01 in ³	I _y =	134.20	in ⁴	S _{left} =	22.01 in ³
C _{right} =	5.3579	in	A =	23.7835 in ²	C _{right} =	5.3579	in	A =	23.7835 in ²
C _{left} =	6.0971	in	r _y =	2.3754 in	C _{left} =	6.0971	in	r _y =	2.3754 in

Stringer Capacity

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

Non-composite Capacities*		
	AB	AI
M	294.09 k-ft	294.09 k-ft
V	218.31 k	218.31 k

F_y = **36.00 ksi**

*Noncompact Section



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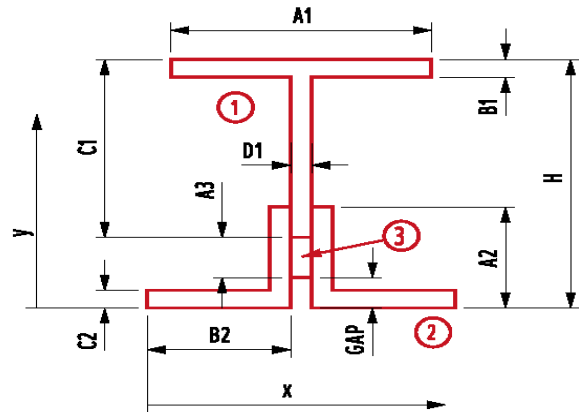
Date 4/10/2012
Date 4/10/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Partial W-Section*	W16x77	Bottom Angles:	
$A_1 = b_f =$	10.3000 in	$A_2 = L_v =$	5.0000 in
$B_1 = t_f =$	0.7600 in	$B_2 = L_h =$	5.0000 in
$C_1 = d =$	12.5000 in	$C_2 = t =$	0.5000 in
$D_1 = t_w =$	0.4550 in		



Additional Plate:		Miscellaneous:	
$A_3 = d =$	0.0000 in	H =	13.0000 in
$B_3 = t =$	0.4550 in	Gap =	0.5000 in

*select from dropdown list

Coped Stringer S4-5 @ FB 135

X-Axis Section Properties:

Gross Section (without Losses)		A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange	7.8280	12.6200	98.7894	0.3768	6.1602	297.0606	297.4374
	Web	5.3417	6.3700	34.0266	61.3528	0.0898	0.0430	61.3959
2	Horizontal Legs	4.5000	0.2500	1.1250	0.0938	6.2098	173.5255	173.6192
	Vertical Legs	5.0000	2.5000	12.5000	10.4167	3.9598	78.3988	88.8155
3	Additional Plate	0.0000	0.5000	0.0000	0.0000	5.9598	0.0000	0.0000
Total		22.67		146.44	72.24		549.03	621.27
Section Losses		A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.00		0.00	0.00		0.00	0.00



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Date 4/10/2012
Date 4/10/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	6.4598 in	S _{top} =	94.99 in ³	y-bar =	6.4598 in	S _{top} =	94.99 in ³
I _x =	621.27 in ⁴	S _{bott.} =	96.17 in ³	I _x =	621.27 in ⁴	S _{bott.} =	96.17 in ³
C _{top} =	6.5402 in	A =	22.6697 in ²	C _{top} =	6.5402 in	A =	22.6697 in ²
C _{bottom} =	6.4598 in	r _x =	5.2350 in	C _{bottom} =	6.4598 in	r _x =	5.2350 in
J =	2.6674 in ⁴	Z =	110.03 in ³			Z =	110.03 in ³

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange		7.8280	5.2275	40.9209	69.2060	0.0000	0.0000	69.2060
	Web		5.3417	5.2275	27.9237	0.0922	0.0000	0.0000	0.0922
2 (Left)	Horizontal Leg		2.2500	2.2500	5.0625	3.7969	2.9775	19.9474	23.7443
	Vertical Leg		2.5000	4.7500	11.8750	0.0521	0.4775	0.5700	0.6221
2 (Right)	Horizontal Leg		2.2500	8.2050	18.4613	3.7969	2.9775	19.9474	23.7443
	Vertical Leg		2.5000	5.7050	14.2625	0.0521	0.4775	0.5700	0.6221
3	Additional Plate		0.0000	5.2275	0.0000	0.0000	0.0000	0.0000	0.0000
Total			22.67		118.51	77.00		41.03	118.03
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
x-bar =	5.2275 in	S _{right} =	22.58 in ³	x-bar =	5.2275 in	S _{right} =	22.58 in ³
I _y =	118.03 in ⁴	S _{left} =	22.58 in ³	I _y =	118.03 in ⁴	S _{left} =	22.58 in ³
C _{right} =	5.2275 in	A =	22.6697 in ²	C _{right} =	5.2275 in	A =	22.6697 in ²
C _{left} =	5.2275 in	r _y =	2.2818 in	C _{left} =	5.2275 in	r _y =	2.2818 in

Stringer Capacity

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

Non-composite Capacities*		
	AB	AI
M	330.09 k-ft	330.09 k-ft
V	205.49 k	205.49 k

F_y = **36.00 ksi**

*Compact Section



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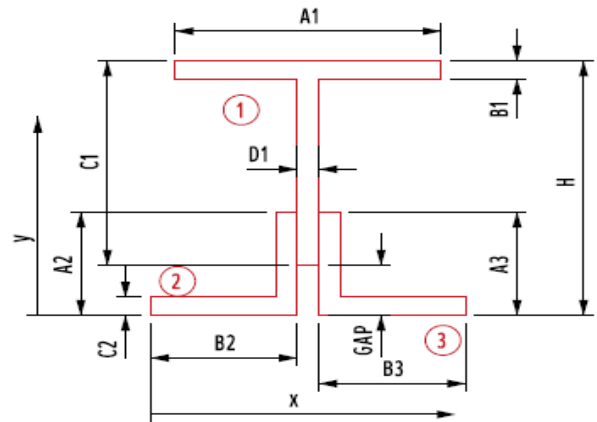
Date 4/9/2012
Date 4/10/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Partial W-Section*	W16x67	Left Angle:	
$A_1 = b_f =$	10.2000 in	$A_2 = L_v =$	6.0000 in
$B_1 = t_f =$	0.6650 in	$B_2 = L_h =$	6.0000 in
$C_1 = d =$	12.1250 in	$C_2 = t =$	0.5000 in
$D_1 = t_w =$	0.3950 in	Right Angle:	
		$A_3 = L_v =$	5.0000 in
		$B_3 = L_h =$	5.0000 in
		$C_3 = t =$	0.5000 in
		Miscellaneous:	
		H =	12.6875 in
		Gap =	0.5625 in



*select from dropdown list

Coped Stringer S5-5 @ FB 135

X-Axis Section Properties:

Gross Section (without Losses)		A	y	Ay	I _o	d	Ad ²	I _{x, gross}
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange	6.7830	12.3550	83.8040	0.2500	6.4499	282.1819	282.4319
	Web	4.5267	6.2925	28.4843	49.5416	0.3874	0.6794	50.2210
2	Horizontal Legs	2.7500	0.2500	0.6875	0.0573	5.6551	87.9451	88.0024
	Vertical Legs	3.0000	3.0000	9.0000	9.0000	2.9051	25.3186	34.3186
3	Horizontal Legs	2.2500	0.2500	0.5625	0.0469	5.6551	71.9551	72.0020
	Vertical Legs	2.5000	2.5000	6.2500	5.2083	3.4051	28.9866	34.1949
Total		21.81		128.79	64.10		497.07	561.17
Section Losses		A	y	Ay	I _o	d	Ad ²	I _{x, loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	5.9051 in	S _{top} =	82.74 in ³	y-bar =	5.9051 in	S _{top} =	82.74 in ³
I _x =	561.17 in ⁴	S _{bott.} =	95.03 in ³	I _x =	561.17 in ⁴	S _{bott.} =	95.03 in ³
C _{top} =	6.7824 in	A =	21.8097 in ²	C _{top} =	6.7824 in	A =	21.8097 in ²
C _{bottom} =	5.9051 in	r _x =	5.0725 in	C _{bottom} =	5.9051 in	r _x =	5.0725 in
J =	2.1103 in ⁴	Z =	99.50 in ³			Z =	99.50 in ³



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Date 4/9/2012
Date 4/10/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y, gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange		6.7830	6.1975	42.0376	58.8086	0.1409	0.1346	58.9432
	Web		4.5267	6.1975	28.0542	0.0589	0.1409	0.0898	0.1487
2 (Left)	Horizontal Leg		2.7500	2.7500	7.5625	6.9323	3.3066	30.0678	37.0001
	Vertical Leg		3.0000	5.7500	17.2500	0.0625	0.3066	0.2821	0.3446
3 (Right)	Horizontal Leg		2.2500	9.1450	20.5763	3.7969	3.0884	21.4607	25.2575
	Vertical Leg		2.5000	6.6450	16.6125	0.0521	0.5884	0.8655	0.9176
Total			21.81		132.09	69.71		52.90	122.61
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y, loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties					As-Inspected Section Properties				
x-bar =	6.0566	in	S _{right} =	22.97 in ³	x-bar =	6.0566	in	S _{right} =	22.97 in ³
I _y =	122.61	in ⁴	S _{left} =	20.24 in ³	I _y =	122.61	in ⁴	S _{left} =	20.24 in ³
C _{right} =	5.3384	in	A =	21.8097 in ²	C _{right} =	5.3384	in	A =	21.8097 in ²
C _{left} =	6.0566	in	r _y =	2.3711 in	C _{left} =	6.0566	in	r _y =	2.3711 in

Stringer Capacity

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

Non-composite Capacities*		
	AB	AI
M	248.22 k-ft	248.22 k-ft
V	198.92 k	198.92 k

F_y = **36.00 ksi**

*Noncompact Section



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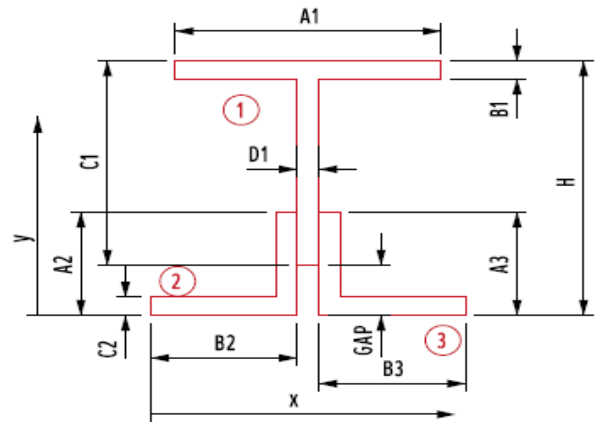
Date 4/9/2012
Date 4/10/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Partial W-Section*	W16x67	Left Angle:	
$A_1 = b_f =$	10.2000 in	$A_2 = L_v =$	6.0000 in
$B_1 = t_f =$	0.6650 in	$B_2 = L_h =$	6.0000 in
$C_1 = d =$	12.3750 in	$C_2 = t =$	0.5000 in
$D_1 = t_w =$	0.3950 in	Right Angle:	
		$A_3 = L_v =$	5.0000 in
		$B_3 = L_h =$	5.0000 in
		$C_3 = t =$	0.5000 in
		Miscellaneous:	
		H =	12.8125 in
		Gap =	0.4375 in



*select from dropdown list

Coped Stringer S6-5 @ FB 135

X-Axis Section Properties:

Gross Section (without Losses)		A	y	Ay	I _o	d	Ad ²	I _{x, gross}
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange	6.7830	12.4800	84.6518	0.2500	6.5345	289.6288	289.8788
	Web	4.6255	6.2925	29.1056	52.8551	0.3470	0.5568	53.4119
2	Horizontal Legs	2.7500	0.2500	0.6875	0.0573	5.6955	89.2076	89.2649
	Vertical Legs	3.0000	3.0000	9.0000	9.0000	2.9455	26.0286	35.0286
3	Horizontal Legs	2.2500	0.2500	0.5625	0.0469	5.6955	72.9881	73.0349
	Vertical Legs	2.5000	2.5000	6.2500	5.2083	3.4455	29.6793	34.8876
Total		21.91		130.26	67.42		508.09	575.51
Section Losses		A	y	Ay	I _o	d	Ad ²	I _{x, loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	5.9455 in	S _{top} =	83.81 in ³	y-bar =	5.9455 in	S _{top} =	83.81 in ³
I _x =	575.51 in ⁴	S _{bottom} =	96.80 in ³	I _x =	575.51 in ⁴	S _{bottom} =	96.80 in ³
C _{top} =	6.8670 in	A =	21.9085 in ²	C _{top} =	6.8670 in	A =	21.9085 in ²
C _{bottom} =	5.9455 in	r _x =	5.1253 in	C _{bottom} =	5.9455 in	r _x =	5.1253 in
J =	2.1154 in ⁴	Z =	100.92 in ³			Z =	100.92 in ³



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Date 4/9/2012
Date 4/10/2012

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Calculations For: **CUY-2-1441**

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y, gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange		6.7830	6.1975	42.0376	58.8086	0.1402	0.1334	58.9420
	Web		4.6255	6.1975	28.6662	0.0601	0.1402	0.0910	0.1511
2 (Left)	Horizontal Leg		2.7500	2.7500	7.5625	6.9323	3.3073	30.0794	37.0117
	Vertical Leg		3.0000	5.7500	17.2500	0.0625	0.3073	0.2832	0.3457
3 (Right)	Horizontal Leg		2.2500	9.1450	20.5763	3.7969	3.0877	21.4518	25.2487
	Vertical Leg		2.5000	6.6450	16.6125	0.0521	0.5877	0.8636	0.9157
Total			21.91		132.71	69.71		52.90	122.61
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y, loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties					As-Inspected Section Properties						
x-bar =	6.0573	in	S _{right} =	22.97	in ³	x-bar =	6.0573	in	S _{right} =	22.97	in ³
I _y =	122.61	in ⁴	S _{left} =	20.24	in ³	I _y =	122.61	in ⁴	S _{left} =	20.24	in ³
C _{right} =	5.3377	in	A =	21.9085	in ²	C _{right} =	5.3377	in	A =	21.9085	in ²
C _{left} =	6.0573	in	r _y =	2.3657	in	C _{left} =	6.0573	in	r _y =	2.3657	in

Stringer Capacity

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

Non-composite Capacities*		
	AB	AI
M	251.42 k-ft	251.42 k-ft
V	200.98 k	200.98 k

F_y = **36.00 ksi**

*Noncompact Section



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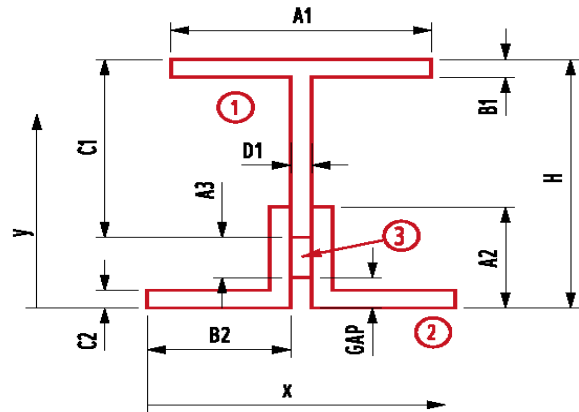
Date 4/10/2012
Date 4/10/2012

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Sheet No. _____

Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Partial W-Section*	W16x67	Bottom Angles:	
$A_1 = b_f =$	10.2000 in	$A_2 = L_v =$	5.0000 in
$B_1 = t_f =$	0.6650 in	$B_2 = L_h =$	5.0000 in
$C_1 = d =$	12.1250 in	$C_2 = t =$	0.5000 in
$D_1 = t_w =$	0.3950 in		



Additional Plate:		Miscellaneous:	
$A_3 = d =$	0.0000 in	H =	12.5625 in
$B_3 = t =$	0.3950 in	Gap =	0.4375 in

*select from dropdown list

Coped Stringer S7-5 @ FB 135

X-Axis Section Properties:

Gross Section (without Losses)		A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange	6.7830	12.2300	82.9561	0.2500	6.2472	264.7267	264.9767
	Web	4.5267	6.1675	27.9184	49.5416	0.1847	0.1545	49.6960
2	Horizontal Legs	4.5000	0.2500	1.1250	0.0938	5.7328	147.8906	147.9843
	Vertical Legs	5.0000	2.5000	12.5000	10.4167	3.4828	60.6482	71.0649
3	Additional Plate	0.0000	0.4375	0.0000	0.0000	5.5453	0.0000	0.0000
Total		20.81		124.50	60.30		473.42	533.72
Section Losses		A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.00		0.00	0.00		0.00	0.00



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Date 4/10/2012
Date 4/10/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

As-Built Section Properties				As-Inspected Section Properties							
y-bar =	5.9828	in	S _{top} =	81.12	in ³	y-bar =	5.9828	in	S _{top} =	81.12	in ³
I _x =	533.72	in ⁴	S _{bott.} =	89.21	in ³	I _x =	533.72	in ⁴	S _{bott.} =	89.21	in ³
C _{top} =	6.5797	in	A =	20.8097	in ²	C _{top} =	6.5797	in	A =	20.8097	in ²
C _{bottom} =	5.9828	in	r _x =	5.0644	in	C _{bottom} =	5.9828	in	r _x =	5.0644	in
J =	2.0270	in ⁴	Z =	95.85	in ³				Z =	95.85	in ³

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange		6.7830	5.1975	35.2546	58.8086	0.0000	0.0000	58.8086
	Web		4.5267	5.1975	23.5275	0.0589	0.0000	0.0000	0.0589
2 (Left)	Horizontal Leg		2.2500	2.2500	5.0625	3.7969	2.9475	19.5475	23.3443
	Vertical Leg		2.5000	4.7500	11.8750	0.0521	0.4475	0.5006	0.5527
2 (Right)	Horizontal Leg		2.2500	8.1450	18.3263	3.7969	2.9475	19.5475	23.3443
	Vertical Leg		2.5000	5.6450	14.1125	0.0521	0.4475	0.5006	0.5527
3	Additional Plate		0.0000	5.1975	0.0000	0.0000	0.0000	0.0000	0.0000
Total			20.81		108.16	66.57		40.10	106.66
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties							
x-bar =	5.1975	in	S _{right} =	20.52	in ³	x-bar =	5.1975	in	S _{right} =	20.52	in ³
I _y =	106.66	in ⁴	S _{left} =	20.52	in ³	I _y =	106.66	in ⁴	S _{left} =	20.52	in ³
C _{right} =	5.1975	in	A =	20.8097	in ²	C _{right} =	5.1975	in	A =	20.8097	in ²
C _{left} =	5.1975	in	r _y =	2.2640	in	C _{left} =	5.1975	in	r _y =	2.2640	in

Stringer Capacity

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

Non-composite Capacities*		
	AB	AI
M	287.55 k-ft	287.55 k-ft
V	188.48 k	188.48 k

F_y = **36.00 ksi**

*Compact Section



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Checked By SFH

Date 4/10/2012
Date 4/10/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

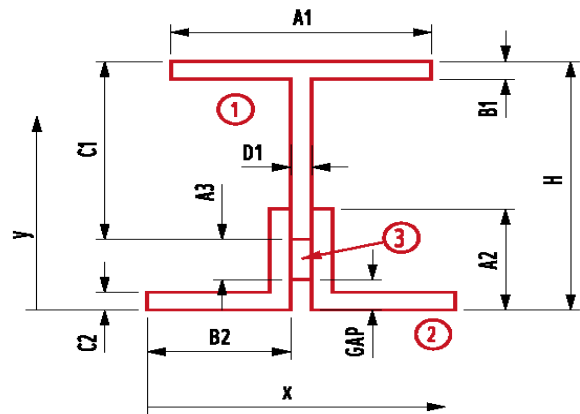
Partial W-Section*	W16x67	Bottom Angles:	
$A_1 = b_f =$	10.2000 in	$A_2 = L_v =$	5.0000 in
$B_1 = t_f =$	0.6650 in	$B_2 = L_h =$	5.0000 in
$C_1 = d =$	11.6250 in	$C_2 = t =$	0.5000 in
$D_1 = t_w =$	0.3950 in		

Additional Plate:

$A_3 = d =$	0.0000 in
$B_3 = t =$	0.3950 in

Miscellaneous:

H =	12.1875 in
Gap =	0.5625 in



*select from dropdown list

Coped Stringer S8-5 @ FB 135

X-Axis Section Properties:

Gross Section (without Losses)		A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange	6.7830	11.8550	80.4125	0.2500	6.0237	246.1180	246.3680
	Web	4.3292	6.0425	26.1592	43.3359	0.2112	0.1930	43.5289
2	Horizontal Legs	4.5000	0.2500	1.1250	0.0938	5.5813	140.1809	140.2746
	Vertical Legs	5.0000	2.5000	12.5000	10.4167	3.3313	55.4890	65.9057
3	Additional Plate	0.0000	0.5625	0.0000	0.0000	5.2688	0.0000	0.0000
Total		20.61		120.20	54.10		441.98	496.08
Section Losses		A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.00		0.00	0.00		0.00	0.00



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Date 4/10/2012
Date 4/10/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

As-Built Section Properties				As-Inspected Section Properties							
y-bar =	5.8313	in	S _{top} =	78.05	in ³	y-bar =	5.8313	in	S _{top} =	78.05	in ³
I _x =	496.08	in ⁴	S _{bott.} =	85.07	in ³	I _x =	496.08	in ⁴	S _{bott.} =	85.07	in ³
C _{top} =	6.3562	in	A =	20.6122	in ²	C _{top} =	6.3562	in	A =	20.6122	in ²
C _{bottom} =	5.8313	in	r _x =	4.9058	in	C _{bottom} =	5.8313	in	r _x =	4.9058	in
J =	2.0167	in ⁴	Z =	92.02	in ³				Z =	92.02	in ³

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange		6.7830	5.1975	35.2546	58.8086	0.0000	0.0000	58.8086
	Web		4.3292	5.1975	22.5010	0.0563	0.0000	0.0000	0.0563
2 (Left)	Horizontal Leg		2.2500	2.2500	5.0625	3.7969	2.9475	19.5475	23.3443
	Vertical Leg		2.5000	4.7500	11.8750	0.0521	0.4475	0.5006	0.5527
2 (Right)	Horizontal Leg		2.2500	8.1450	18.3263	3.7969	2.9475	19.5475	23.3443
	Vertical Leg		2.5000	5.6450	14.1125	0.0521	0.4475	0.5006	0.5527
3	Additional Plate		0.0000	5.1975	0.0000	0.0000	0.0000	0.0000	0.0000
Total			20.61		107.13	66.56		40.10	106.66
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties							
x-bar =	5.1975	in	S _{right} =	20.52	in ³	x-bar =	5.1975	in	S _{right} =	20.52	in ³
I _y =	106.66	in ⁴	S _{left} =	20.52	in ³	I _y =	106.66	in ⁴	S _{left} =	20.52	in ³
C _{right} =	5.1975	in	A =	20.6122	in ²	C _{right} =	5.1975	in	A =	20.6122	in ²
C _{left} =	5.1975	in	r _y =	2.2748	in	C _{left} =	5.1975	in	r _y =	2.2748	in

Stringer Capacity

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

Non-composite Capacities*		
	AB	AI
M	276.06 k-ft	276.06 k-ft
V	184.35 k	184.35 k

F_y = 36.00 ksi

*Compact Section



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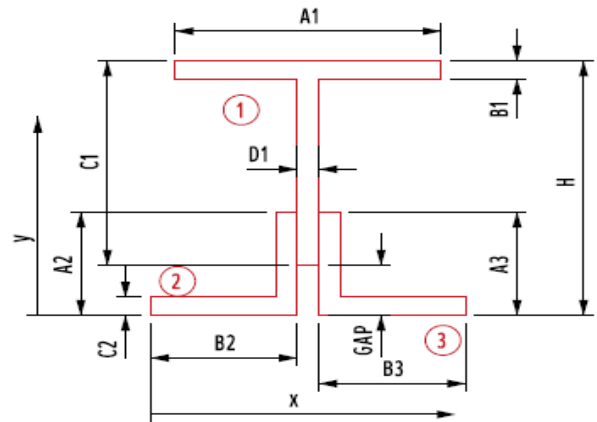
Date 4/9/2012
Date 4/10/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Partial W-Section*	W16x67	Left Angle:	
$A_1 = b_f =$	10.2000 in	$A_2 = L_v =$	6.0000 in
$B_1 = t_f =$	0.6650 in	$B_2 = L_h =$	6.0000 in
$C_1 = d =$	10.8750 in	$C_2 = t =$	0.5000 in
$D_1 = t_w =$	0.3950 in	Right Angle:	
		$A_3 = L_v =$	5.0000 in
		$B_3 = L_h =$	5.0000 in
		$C_3 = t =$	0.5000 in
		Miscellaneous:	
		H =	11.3125 in
		Gap =	0.4375 in



*select from dropdown list

Coped Stringer S9-5 @ FB 135

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I _o	d	Ad ²	I _{x, gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange		6.7830	10.9800	74.4773	0.2500	5.6633	217.5529	217.8029
	Web		4.0330	5.5425	22.3526	35.0343	0.2258	0.2057	35.2399
2	Horizontal Legs		2.7500	0.2500	0.6875	0.0573	5.0667	70.5958	70.6531
	Vertical Legs		3.0000	3.0000	9.0000	9.0000	2.3167	16.1009	25.1009
3	Horizontal Legs		2.2500	0.2500	0.5625	0.0469	5.0667	57.7602	57.8071
	Vertical Legs		2.5000	2.5000	6.2500	5.2083	2.8167	19.8341	25.0425
Total			21.32		113.33	49.60		382.05	431.65
Section Losses			A	y	Ay	I _o	d	Ad ²	I _{x, loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	5.3167 in	S _{top} =	71.99 in ³	y-bar =	5.3167 in	S _{top} =	71.99 in ³
I _x =	431.65 in ⁴	S _{bott.} =	81.19 in ³	I _x =	431.65 in ⁴	S _{bott.} =	81.19 in ³
C _{top} =	5.9958 in	A =	21.3160 in ²	C _{top} =	5.9958 in	A =	21.3160 in ²
C _{bottom} =	5.3167 in	r _x =	4.5000 in	C _{bottom} =	5.3167 in	r _x =	4.5000 in
J =	2.0846 in ⁴	Z =	86.53 in ³			Z =	86.53 in ³



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Date 4/9/2012
Date 4/10/2012

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Sheet No. _____

Calculations For: **CUY-2-1441**

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y, gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange		6.7830	6.1975	42.0376	58.8086	0.1441	0.1409	58.9495
	Web		4.0330	6.1975	24.9942	0.0524	0.1441	0.0838	0.1362
2 (Left)	Horizontal Leg		2.7500	2.7500	7.5625	6.9323	3.3034	30.0085	36.9408
	Vertical Leg		3.0000	5.7500	17.2500	0.0625	0.3034	0.2761	0.3386
3 (Right)	Horizontal Leg		2.2500	9.1450	20.5763	3.7969	3.0916	21.5060	25.3029
	Vertical Leg		2.5000	6.6450	16.6125	0.0521	0.5916	0.8751	0.9272
Total			21.32		129.03	69.70		52.89	122.60
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y, loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties					As-Inspected Section Properties				
x-bar =	6.0534	in	S _{right} =	22.95 in ³	x-bar =	6.0534	in	S _{right} =	22.95 in ³
I _y =	122.60	in ⁴	S _{left} =	20.25 in ³	I _y =	122.60	in ⁴	S _{left} =	20.25 in ³
C _{right} =	5.3416	in	A =	21.3160 in ²	C _{right} =	5.3416	in	A =	21.3160 in ²
C _{left} =	6.0534	in	r _y =	2.3982 in	C _{left} =	6.0534	in	r _y =	2.3982 in

Stringer Capacity

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

Non-composite Capacities*		
	AB	AI
M	215.97 k-ft	215.97 k-ft
V	188.61 k	188.61 k

F_y = **36.00 ksi**

*Noncompact Section



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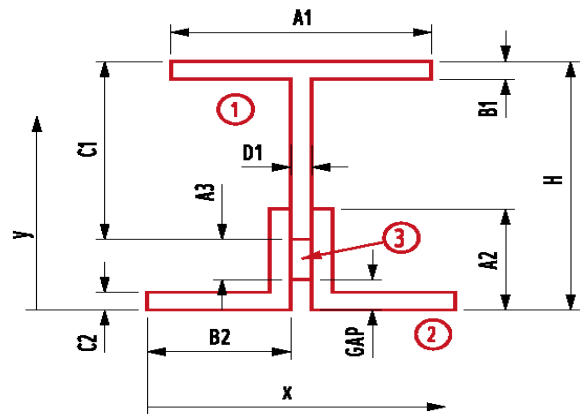
Date 4/10/2012
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Sheet No. _____

Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Partial W-Section*	W16x67	Bottom Angles:	
$A_1 = b_f =$	10.2000 in	$A_2 = L_v =$	5.0000 in
$B_1 = t_f =$	0.6650 in	$B_2 = L_h =$	5.0000 in
$C_1 = d =$	13.0000 in	$C_2 = t =$	0.5000 in
$D_1 = t_w =$	0.3950 in		



Additional Plate:		Miscellaneous:	
$A_3 = d =$	0.0000 in	H =	13.7500 in
$B_3 = t =$	0.3950 in	Gap =	0.7500 in

*select from dropdown list

Coped Stringer S10-5 @ FB 134

X-Axis Section Properties:

Gross Section (without Losses)		A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange	6.7830	13.4175	91.0109	0.2500	6.8782	320.9048	321.1548
	Web	4.8723	6.9175	33.7043	61.7779	0.3782	0.6971	62.4750
2	Horizontal Legs	4.5000	0.2500	1.1250	0.0938	6.2893	177.9967	178.0904
	Vertical Legs	5.0000	2.5000	12.5000	10.4167	4.0393	81.5782	91.9949
3	Additional Plate	0.0000	0.7500	0.0000	0.0000	5.7893	0.0000	0.0000
Total		21.16		138.34	72.54		581.18	653.72
Section Losses		A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00	0.00	0.00		0.00	0.00



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Date 4/10/2012
Date 4/10/2012

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Calculations For: **CUY-2-1441**

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	6.5393 in	S _{top} =	90.66 in ³	y-bar =	6.5393 in	S _{top} =	90.66 in ³
I _x =	653.72 in ⁴	S _{bott.} =	99.97 in ³	I _x =	653.72 in ⁴	S _{bott.} =	99.97 in ³
C _{top} =	7.2107 in	A =	21.1553 in ²	C _{top} =	7.2107 in	A =	21.1553 in ²
C _{bottom} =	6.5393 in	r _x =	5.5588 in	C _{bottom} =	6.5393 in	r _x =	5.5588 in
J =	2.0449 in ⁴	Z =	107.19 in ³			Z =	107.19 in ³

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange		6.7830	5.1975	35.2546	58.8086	0.0000	0.0000	58.8086
	Web		4.8723	5.1975	25.3239	0.0634	0.0000	0.0000	0.0634
2 (Left)	Horizontal Leg		2.2500	2.2500	5.0625	3.7969	2.9475	19.5475	23.3443
	Vertical Leg		2.5000	4.7500	11.8750	0.0521	0.4475	0.5006	0.5527
2 (Right)	Horizontal Leg		2.2500	8.1450	18.3263	3.7969	2.9475	19.5475	23.3443
	Vertical Leg		2.5000	5.6450	14.1125	0.0521	0.4475	0.5006	0.5527
3	Additional Plate		0.0000	5.1975	0.0000	0.0000	0.0000	0.0000	0.0000
Total			21.16		109.95	66.57		40.10	106.67
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
x-bar =	5.1975 in	S _{right} =	20.52 in ³	x-bar =	5.1975 in	S _{right} =	20.52 in ³
I _y =	106.67 in ⁴	S _{left} =	20.52 in ³	I _y =	106.67 in ⁴	S _{left} =	20.52 in ³
C _{right} =	5.1975 in	A =	21.1553 in ²	C _{right} =	5.1975 in	A =	21.1553 in ²
C _{left} =	5.1975 in	r _y =	2.2454 in	C _{left} =	5.1975 in	r _y =	2.2454 in

Stringer Capacity

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

Non-composite Capacities*		
	AB	AI
M	321.57 k-ft	321.57 k-ft
V	195.69 k	195.69 k

F_y = **36.00 ksi**

*Compact Section



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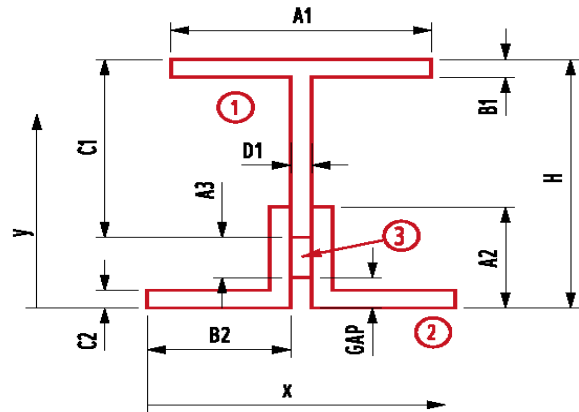
Date 4/10/2012
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Sheet No. _____

Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Partial W-Section*	W16x67	Bottom Angles:	
$A_1 = b_f =$	10.2000 in	$A_2 = L_v =$	5.0000 in
$B_1 = t_f =$	0.6650 in	$B_2 = L_h =$	5.0000 in
$C_1 = d =$	9.5000 in	$C_2 = t =$	0.5000 in
$D_1 = t_w =$	0.3950 in		



Additional Plate:		Miscellaneous:	
$A_3 = d =$	0.0000 in	H =	10.0000 in
$B_3 = t =$	0.3950 in	Gap =	0.5000 in

*select from dropdown list

Coped Stringer S10-5 @ FB 135

X-Axis Section Properties:

Gross Section (without Losses)		A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange	6.7830	9.6675	65.5747	0.2500	4.7941	155.8964	156.1464
	Web	3.4898	4.9175	17.1612	22.7005	0.0441	0.0068	22.7073
2	Horizontal Legs	4.5000	0.2500	1.1250	0.0938	4.6234	96.1912	96.2849
	Vertical Legs	5.0000	2.5000	12.5000	10.4167	2.3734	28.1651	38.5818
3	Additional Plate	0.0000	0.5000	0.0000	0.0000	4.3734	0.0000	0.0000
Total		19.77		96.36	33.46		280.26	313.72
Section Losses		A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total				0.00	0.00		0.00	0.00



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Date 4/10/2012
Date 4/10/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	4.8734 in	S _{top} =	61.19 in ³	y-bar =	4.8734 in	S _{top} =	61.19 in ³
I _x =	313.72 in ⁴	S _{bott.} =	64.37 in ³	I _x =	313.72 in ⁴	S _{bott.} =	64.37 in ³
C _{top} =	5.1266 in	A =	19.7728 in ²	C _{top} =	5.1266 in	A =	19.7728 in ²
C _{bottom} =	4.8734 in	r _x =	3.9832 in	C _{bottom} =	4.8734 in	r _x =	3.9832 in
J =	1.9730 in ⁴	Z =	71.86 in ³			Z =	71.86 in ³

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange		6.7830	5.1975	35.2546	58.8086	0.0000	0.0000	58.8086
	Web		3.4898	5.1975	18.1384	0.0454	0.0000	0.0000	0.0454
2 (Left)	Horizontal Leg		2.2500	2.2500	5.0625	3.7969	2.9475	19.5475	23.3443
	Vertical Leg		2.5000	4.7500	11.8750	0.0521	0.4475	0.5006	0.5527
2 (Right)	Horizontal Leg		2.2500	8.1450	18.3263	3.7969	2.9475	19.5475	23.3443
	Vertical Leg		2.5000	5.6450	14.1125	0.0521	0.4475	0.5006	0.5527
3	Additional Plate		0.0000	5.1975	0.0000	0.0000	0.0000	0.0000	0.0000
Total			19.77		102.77	66.55		40.10	106.65
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
x-bar =	5.1975 in	S _{right} =	20.52 in ³	x-bar =	5.1975 in	S _{right} =	20.52 in ³
I _y =	106.65 in ⁴	S _{left} =	20.52 in ³	I _y =	106.65 in ⁴	S _{left} =	20.52 in ³
C _{right} =	5.1975 in	A =	19.7728 in ²	C _{right} =	5.1975 in	A =	19.7728 in ²
C _{left} =	5.1975 in	r _y =	2.3224 in	C _{left} =	5.1975 in	r _y =	2.3224 in

Stringer Capacity

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

Non-composite Capacities*		
	AB	AI
M	215.58 k-ft	215.58 k-ft
V	166.83 k	166.83 k

F_y =	36.00 ksi
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*Compact Section



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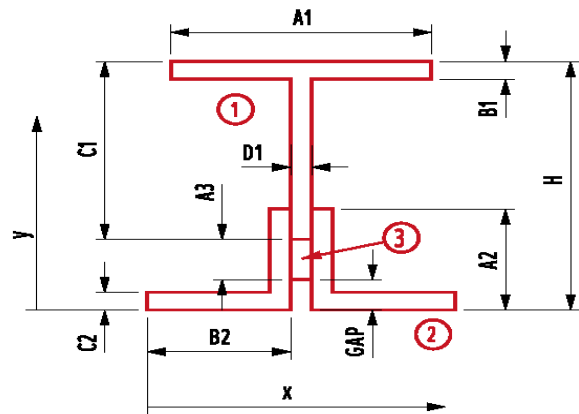
Date 4/10/2012
Date 4/10/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Partial W-Section*	W16x67	Bottom Angles:	
$A_1 = b_f =$	10.2000 in	$A_2 = L_v =$	5.0000 in
$B_1 = t_f =$	0.6650 in	$B_2 = L_h =$	5.0000 in
$C_1 = d =$	14.5000 in	$C_2 = t =$	0.5000 in
$D_1 = t_w =$	0.3950 in		



Additional Plate:	Miscellaneous:		
$A_3 = d =$	0.0000 in	$H =$	15.0000 in
$B_3 = t =$	0.3950 in	Gap =	0.5000 in

*select from dropdown list

Coped Stringer S11-5 @ FB 134

X-Axis Section Properties:

Gross Section (without Losses)		A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange	6.7830	14.6675	99.4897	0.2500	7.6024	392.0362	392.2862
	Web	5.4648	7.4175	40.5353	87.1672	0.3524	0.6788	87.8460
2	Horizontal Legs	4.5000	0.2500	1.1250	0.0938	6.8151	209.0035	209.0973
	Vertical Legs	5.0000	2.5000	12.5000	10.4167	4.5651	104.1995	114.6162
3	Additional Plate	0.0000	0.5000	0.0000	0.0000	6.5651	0.0000	0.0000
Total		21.75		153.65	97.93		705.92	803.85
Section Losses		A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.00		0.00	0.00		0.00	0.00



Made By DWC
Checked By SFH

Date 4/10/2012
Date 4/10/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	7.0651 in	S _{top} =	101.30 in ³	y-bar =	7.0651 in	S _{top} =	101.30 in ³
I _x =	803.85 in ⁴	S _{bott.} =	113.78 in ³	I _x =	803.85 in ⁴	S _{bott.} =	113.78 in ³
C _{top} =	7.9349 in	A =	21.7478 in ²	C _{top} =	7.9349 in	A =	21.7478 in ²
C _{bottom} =	7.0651 in	r _x =	6.0796 in	C _{bottom} =	7.0651 in	r _x =	6.0796 in
J =	2.0758 in ⁴	Z =	120.54 in ³			Z =	120.54 in ³

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange		6.7830	5.1975	35.2546	58.8086	0.0000	0.0000	58.8086
	Web		5.4648	5.1975	28.4034	0.0711	0.0000	0.0000	0.0711
2 (Left)	Horizontal Leg		2.2500	2.2500	5.0625	3.7969	2.9475	19.5475	23.3443
	Vertical Leg		2.5000	4.7500	11.8750	0.0521	0.4475	0.5006	0.5527
2 (Right)	Horizontal Leg		2.2500	8.1450	18.3263	3.7969	2.9475	19.5475	23.3443
	Vertical Leg		2.5000	5.6450	14.1125	0.0521	0.4475	0.5006	0.5527
3	Additional Plate		0.0000	5.1975	0.0000	0.0000	0.0000	0.0000	0.0000
Total			21.75		113.03	66.58		40.10	106.67
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
x-bar =	5.1975 in	S _{right} =	20.52 in ³	x-bar =	5.1975 in	S _{right} =	20.52 in ³
I _y =	106.67 in ⁴	S _{left} =	20.52 in ³	I _y =	106.67 in ⁴	S _{left} =	20.52 in ³
C _{right} =	5.1975 in	A =	21.7478 in ²	C _{right} =	5.1975 in	A =	21.7478 in ²
C _{left} =	5.1975 in	r _y =	2.2147 in	C _{left} =	5.1975 in	r _y =	2.2147 in

Stringer Capacity

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

Non-composite Capacities*		
	AB	AI
M	361.62 k-ft	361.62 k-ft
V	208.07 k	208.07 k

F_y =	36.00 ksi
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*Compact Section



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Checked By SFH

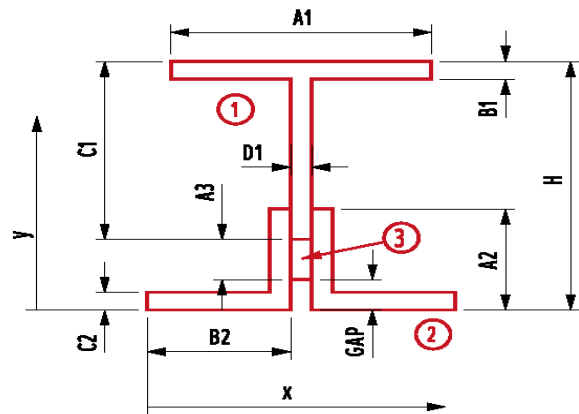
Date 4/10/2012
Date 4/10/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Partial W-Section*	W16x67	Bottom Angles:	
$A_1 = b_f =$	10.2000 in	$A_2 = L_v =$	5.0000 in
$B_1 = t_f =$	0.6650 in	$B_2 = L_h =$	5.0000 in
$C_1 = d =$	9.0000 in	$C_2 = t =$	0.5000 in
$D_1 = t_w =$	0.3950 in		



Additional Plate:		Miscellaneous:	
$A_3 = d =$	0.0000 in	H =	9.6250 in
$B_3 = t =$	0.3950 in	Gap =	0.6250 in

*select from dropdown list

Coped Stringer S11-5 @ FB 135

X-Axis Section Properties:

Gross Section (without Losses)		A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange	6.7830	9.2925	63.0310	0.2500	4.5705	141.6939	141.9438
	Web	3.2923	4.7925	15.7785	19.0604	0.0705	0.0164	19.0768
2	Horizontal Legs	4.5000	0.2500	1.1250	0.0938	4.4720	89.9941	90.0879
	Vertical Legs	5.0000	2.5000	12.5000	10.4167	2.2220	24.6862	35.1029
3	Additional Plate	0.0000	0.6250	0.0000	0.0000	4.0970	0.0000	0.0000
Total		19.58		92.43	29.82		256.39	286.21
Section Losses		A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.00		0.00	0.00		0.00	0.00



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Date 4/10/2012
Date 4/10/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	4.7220 in	S _{top} =	58.37 in ³	y-bar =	4.7220 in	S _{top} =	58.37 in ³
I _x =	286.21 in ⁴	S _{bott.} =	60.61 in ³	I _x =	286.21 in ⁴	S _{bott.} =	60.61 in ³
C _{top} =	4.9030 in	A =	19.5753 in ²	C _{top} =	4.9030 in	A =	19.5753 in ²
C _{bottom} =	4.7220 in	r _x =	3.8237 in	C _{bottom} =	4.7220 in	r _x =	3.8237 in
J =	1.9628 in ⁴	Z =	68.38 in ³			Z =	68.38 in ³

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange		6.7830	5.1975	35.2546	58.8086	0.0000	0.0000	58.8086
	Web		3.2923	5.1975	17.1119	0.0428	0.0000	0.0000	0.0428
2 (Left)	Horizontal Leg		2.2500	2.2500	5.0625	3.7969	2.9475	19.5475	23.3443
	Vertical Leg		2.5000	4.7500	11.8750	0.0521	0.4475	0.5006	0.5527
2 (Right)	Horizontal Leg		2.2500	8.1450	18.3263	3.7969	2.9475	19.5475	23.3443
	Vertical Leg		2.5000	5.6450	14.1125	0.0521	0.4475	0.5006	0.5527
3	Additional Plate		0.0000	5.1975	0.0000	0.0000	0.0000	0.0000	0.0000
Total			19.58		101.74	66.55		40.10	106.65
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
x-bar =	5.1975 in	S _{right} =	20.52 in ³	x-bar =	5.1975 in	S _{right} =	20.52 in ³
I _y =	106.65 in ⁴	S _{left} =	20.52 in ³	I _y =	106.65 in ⁴	S _{left} =	20.52 in ³
C _{right} =	5.1975 in	A =	19.5753 in ²	C _{right} =	5.1975 in	A =	19.5753 in ²
C _{left} =	5.1975 in	r _y =	2.3341 in	C _{left} =	5.1975 in	r _y =	2.3341 in

Stringer Capacity

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

Non-composite Capacities*		
	AB	AI
M	205.14 k-ft	205.14 k-ft
V	162.70 k	162.70 k

F_y = **36.00 ksi**

*Compact Section



Made By DWC
Checked By SFH

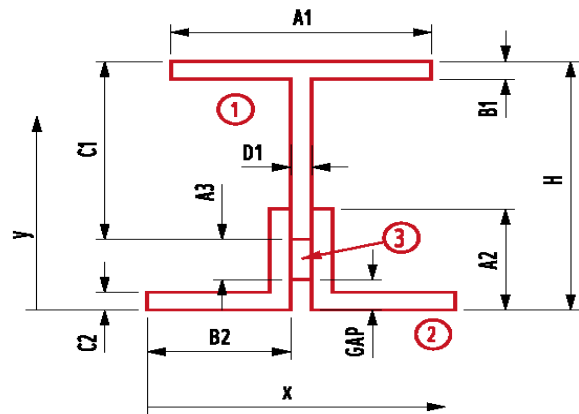
Date 4/10/2012
Date 4/10/2012

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Sheet No. _____

Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Partial W-Section*	W16x67	Bottom Angles:	
$A_1 = b_f =$	10.2000 in	$A_2 = L_v =$	5.0000 in
$B_1 = t_f =$	0.6650 in	$B_2 = L_h =$	5.0000 in
$C_1 = d =$	14.0000 in	$C_2 = t =$	0.5000 in
$D_1 = t_w =$	0.3950 in		



Additional Plate:		Miscellaneous:	
$A_3 = d =$	0.0000 in	H =	14.6250 in
$B_3 = t =$	0.3950 in	Gap =	0.6250 in

*select from dropdown list

Coped Stringer S12-5 @ FB 134

X-Axis Section Properties:

Gross Section (without Losses)		A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange	6.7830	14.2925	96.9460	0.2500	7.3792	369.3560	369.6059
	Web	5.2673	7.2925	38.4120	78.0540	0.3792	0.7576	78.8115
2	Horizontal Legs	4.5000	0.2500	1.1250	0.0938	6.6633	199.7956	199.8894
	Vertical Legs	5.0000	2.5000	12.5000	10.4167	4.4133	97.3843	107.8010
3	Additional Plate	0.0000	0.6250	0.0000	0.0000	6.2883	0.0000	0.0000
Total		21.55		148.98	88.81		667.29	756.11
Section Losses		A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.00		0.00	0.00		0.00	0.00



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Date 4/10/2012
Date 4/10/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	6.9133 in	S _{top} =	98.05 in ³	y-bar =	6.9133 in	S _{top} =	98.05 in ³
I _x =	756.11 in ⁴	S _{bott.} =	109.37 in ³	I _x =	756.11 in ⁴	S _{bott.} =	109.37 in ³
C _{top} =	7.7117 in	A =	21.5503 in ²	C _{top} =	7.7117 in	A =	21.5503 in ²
C _{bottom} =	6.9133 in	r _x =	5.9233 in	C _{bottom} =	6.9133 in	r _x =	5.9233 in
J =	2.0655 in ⁴	Z =	116.39 in ³			Z =	116.39 in ³

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange		6.7830	5.1975	35.2546	58.8086	0.0000	0.0000	58.8086
	Web		5.2673	5.1975	27.3769	0.0685	0.0000	0.0000	0.0685
2 (Left)	Horizontal Leg		2.2500	2.2500	5.0625	3.7969	2.9475	19.5475	23.3443
	Vertical Leg		2.5000	4.7500	11.8750	0.0521	0.4475	0.5006	0.5527
2 (Right)	Horizontal Leg		2.2500	8.1450	18.3263	3.7969	2.9475	19.5475	23.3443
	Vertical Leg		2.5000	5.6450	14.1125	0.0521	0.4475	0.5006	0.5527
3	Additional Plate		0.0000	5.1975	0.0000	0.0000	0.0000	0.0000	0.0000
Total			21.55		112.01	66.58		40.10	106.67
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
x-bar =	5.1975 in	S _{right} =	20.52 in ³	x-bar =	5.1975 in	S _{right} =	20.52 in ³
I _y =	106.67 in ⁴	S _{left} =	20.52 in ³	I _y =	106.67 in ⁴	S _{left} =	20.52 in ³
C _{right} =	5.1975 in	A =	21.5503 in ²	C _{right} =	5.1975 in	A =	21.5503 in ²
C _{left} =	5.1975 in	r _y =	2.2248 in	C _{left} =	5.1975 in	r _y =	2.2248 in

Stringer Capacity

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

Non-composite Capacities*		
	AB	AI
M	349.17 k-ft	349.17 k-ft
V	203.94 k	203.94 k

F_y =	36.00 ksi
------------------------	------------------

*Compact Section



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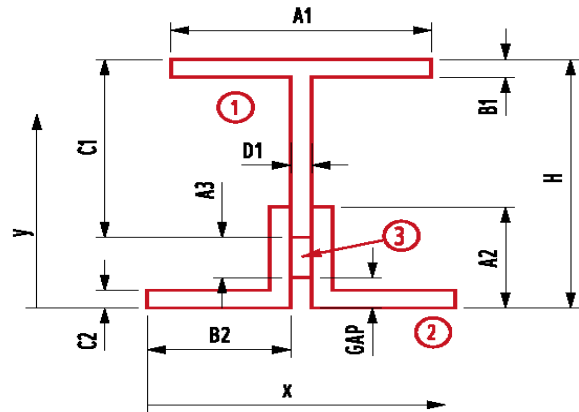
Date 4/10/2012
Date 4/10/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Partial W-Section*	W16x67	Bottom Angles:	
$A_1 = b_f =$	10.2000 in	$A_2 = L_v =$	5.0000 in
$B_1 = t_f =$	0.6650 in	$B_2 = L_h =$	5.0000 in
$C_1 = d =$	10.0000 in	$C_2 = t =$	0.5000 in
$D_1 = t_w =$	0.3950 in		



Additional Plate:		Miscellaneous:	
$A_3 = d =$	0.0000 in	H =	10.3750 in
$B_3 = t =$	0.3950 in	Gap =	0.3750 in

*select from dropdown list

Coped Stringer S12-5 @ FB 135

X-Axis Section Properties:

Gross Section (without Losses)		A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange	6.7830	10.0425	68.1183	0.2500	5.0182	170.8127	171.0627
	Web	3.6873	5.0425	18.5933	26.7768	0.0182	0.0012	26.7780
2	Horizontal Legs	4.5000	0.2500	1.1250	0.0938	4.7743	102.5721	102.6659
	Vertical Legs	5.0000	2.5000	12.5000	10.4167	2.5243	31.8601	42.2768
3	Additional Plate	0.0000	0.3750	0.0000	0.0000	4.6493	0.0000	0.0000
Total		19.97		100.34	37.54		305.25	342.78
Section Losses		A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00	0.00	0.00		0.00	0.00



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Date 4/10/2012
Date 4/10/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	5.0243 in	S _{top} =	64.06 in ³	y-bar =	5.0243 in	S _{top} =	64.06 in ³
I _x =	342.78 in ⁴	S _{bott.} =	68.23 in ³	I _x =	342.78 in ⁴	S _{bott.} =	68.23 in ³
C _{top} =	5.3507 in	A =	19.9703 in ²	C _{top} =	5.3507 in	A =	19.9703 in ²
C _{bottom} =	5.0243 in	r _x =	4.1430 in	C _{bottom} =	5.0243 in	r _x =	4.1430 in
J =	1.9833 in ⁴	Z =	75.39 in ³			Z =	75.39 in ³

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange		6.7830	5.1975	35.2546	58.8086	0.0000	0.0000	58.8086
	Web		3.6873	5.1975	19.1649	0.0479	0.0000	0.0000	0.0479
2 (Left)	Horizontal Leg		2.2500	2.2500	5.0625	3.7969	2.9475	19.5475	23.3443
	Vertical Leg		2.5000	4.7500	11.8750	0.0521	0.4475	0.5006	0.5527
2 (Right)	Horizontal Leg		2.2500	8.1450	18.3263	3.7969	2.9475	19.5475	23.3443
	Vertical Leg		2.5000	5.6450	14.1125	0.0521	0.4475	0.5006	0.5527
3	Additional Plate		0.0000	5.1975	0.0000	0.0000	0.0000	0.0000	0.0000
Total			19.97		103.80	66.55		40.10	106.65
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
x-bar =	5.1975 in	S _{right} =	20.52 in ³	x-bar =	5.1975 in	S _{right} =	20.52 in ³
I _y =	106.65 in ⁴	S _{left} =	20.52 in ³	I _y =	106.65 in ⁴	S _{left} =	20.52 in ³
C _{right} =	5.1975 in	A =	19.9703 in ²	C _{right} =	5.1975 in	A =	19.9703 in ²
C _{left} =	5.1975 in	r _y =	2.3109 in	C _{left} =	5.1975 in	r _y =	2.3109 in

Stringer Capacity

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

Non-composite Capacities*		
	AB	AI
M	226.17 k-ft	226.17 k-ft
V	170.95 k	170.95 k

F_y = 36.00 ksi

*Compact Section



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Checked By SFH

Date 4/10/2012
Date 4/12/2012

Job No. P402110046
Sheet No. _____

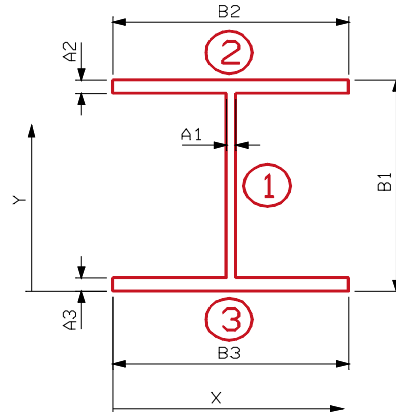
Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

- $A_1 = t_w = 0.3750$ in
- $B_1 = d = 48.0000$ in
- $A_2 = t_f = 0.7500$ in
- $B_2 = b_f = 8.0000$ in
- $A_3 = t_f = 0.7500$ in
- $B_3 = b_f = 8.0000$ in

$d_o = n/a$ in

d_o = stiffener spacing for shear check, for no stiffeners use "N/A"



Fascia Stringer F2-5 @ FB 134

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I _o	d	Ad ²	I _{x, gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web		17.4375	24.0000	418.5000	3142.0195	0.0000	0.0000	3142.0195
2	Top Flange		6.0000	47.6250	285.7500	0.2813	23.6250	3348.8438	3349.1250
3	Bottom Flange		6.0000	0.3750	2.2500	0.2813	23.6250	3348.8438	3349.1250
Total			29.44		706.50	3142.58		6697.69	9840.27
Section Losses			A	y	Ay	I _o	d	Ad ²	I _{x, loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties					As-Inspected Section Properties						
y-bar =	24.0000	in	S _{top} =	410.01	in ³	y-bar =	24.0000	in	S _{top} =	410.01	in ³
I _x =	9840.27	in ⁴	S _{bottom} =	410.01	in ³	I _x =	9840.27	in ⁴	S _{bottom} =	410.01	in ³
c _{top} =	24.0000	in	A =	29.4375	in ²	c _{top} =	24.0000	in	A =	29.4375	in ²
c _{bottom} =	24.0000	in	r _x =	18.2832	in	c _{bottom} =	24.0000	in	r _x =	18.2832	in
J =	3.0674	in ⁴	Z =	486.21	in ³	J =	3.0674	in ⁴	Z =	486.21	in ³

Y-Axis Section Properties:

Gross Section (without Losses)		A	x	Ax	I _o	d	Ad ²	I _{y, gross}
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web	17.4375	4.0000	69.7500	0.2043	0.0000	0.0000	0.2043
2	Top Flange	6.0000	4.0000	24.0000	32.0000	0.0000	0.0000	32.0000
3	Bottom Flange	6.0000	4.0000	24.0000	32.0000	0.0000	0.0000	32.0000
Total		29.44		117.75	64.20		0.00	64.20
Section Losses		A	x	Ax	I _o	d	Ad ²	I _{y, loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
x-bar =	4.0000	in	S _{right} = 16.05 in ³	x-bar =	4.0000	in	S _{right} = 16.05 in ³
I _y =	64.20	in ⁴	S _{left} = 16.05 in ³	I _y =	64.20	in ⁴	S _{left} = 16.05 in ³
C _{right} =	4.0000	in	A = 29.4375 in ²	C _{right} =	4.0000	in	A = 29.4375 in ²
C _{left} =	4.0000	in	r _y = 1.4768 in	C _{left} =	4.0000	in	r _y = 1.4768 in

Non-composite Capacities*		
	AB	AI
M	#####	#####
V	148.00 k	148.00 k

*Noncompact Section

F_y =	36.00 ksi
------------------------	------------------

AB = As-Built
 AI = As-Inspected
 M = Moment
 V = Shear



Made By DWC
Checked By SFH

Date 4/10/2012
Date 4/12/2012

Job No. P402110046
Sheet No. _____

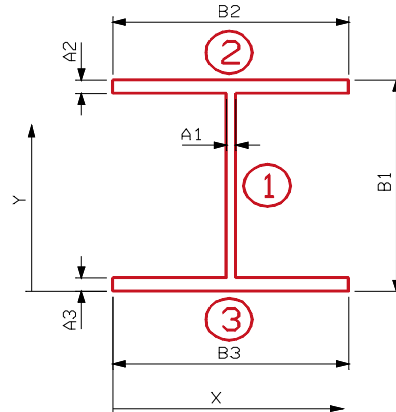
Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

- $A_1 = t_w = 0.3750$ in
- $B_1 = d = 49.9375$ in
- $A_2 = t_f = 0.7500$ in
- $B_2 = b_f = 8.0000$ in
- $A_3 = t_f = 0.7500$ in
- $B_3 = b_f = 8.0000$ in

$d_o = n/a$ in

d_o = stiffener spacing for shear check, for no stiffeners use "N/A"



Fascia Stringer F2-5 @ FB 135

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I_o	d	Ad^2	$I_{x, gross}$
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web		18.1641	24.9688	453.5339	3551.3639	0.0000	0.0000	3551.3639
2	Top Flange		6.0000	49.5625	297.3750	0.2813	24.5938	3629.1152	3629.3965
3	Bottom Flange		6.0000	0.3750	2.2500	0.2813	24.5938	3629.1152	3629.3965
Total			30.16		753.16	3551.93		7258.23	10810.16
Section Losses			A	y	Ay	I_o	d	Ad^2	$I_{x, loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties							
y-bar =	24.9688	in	$S_{top} = 432.95$	in^3	y-bar =	24.9688	in	$S_{top} = 432.95$	in^3		
$I_x =$	10810.16	in^4	$S_{bott.} = 432.95$	in^3	$I_x =$	10810.16	in^4	$S_{bott.} = 432.95$	in^3		
$C_{top} =$	24.9688	in	A =	30.1641	in^2	$C_{top} =$	24.9688	in	A =	30.1641	in^2
$C_{bottom} =$	24.9688	in	$r_x =$	18.9309	in	$C_{bottom} =$	24.9688	in	$r_x =$	18.9309	in
J =	3.1014	in^4	Z =	515.08	in^3				Z =	515.08	in^3

Y-Axis Section Properties:

Gross Section (without Losses)		A	x	Ax	I _o	d	Ad ²	I _{y,gross}
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web	18.1641	4.0000	72.6563	0.2129	0.0000	0.0000	0.2129
2	Top Flange	6.0000	4.0000	24.0000	32.0000	0.0000	0.0000	32.0000
3	Bottom Flange	6.0000	4.0000	24.0000	32.0000	0.0000	0.0000	32.0000
Total		30.16		120.66	64.21		0.00	64.21
Section Losses		A	x	Ax	I _o	d	Ad ²	I _{y,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
x-bar =	4.0000	in	S _{right} = 16.05 in ³	x-bar =	4.0000	in	S _{right} = 16.05 in ³
I _y =	64.21	in ⁴	S _{left} = 16.05 in ³	I _y =	64.21	in ⁴	S _{left} = 16.05 in ³
C _{right} =	4.0000	in	A = 30.1641 in ²	C _{right} =	4.0000	in	A = 30.1641 in ²
C _{left} =	4.0000	in	r _y = 1.4590 in	C _{left} =	4.0000	in	r _y = 1.4590 in

Non-composite Capacities*		
	AB	AI
M	#####	#####
V	142.08 k	142.08 k

*Noncompact Section

F_y =	36.00 ksi
------------------------	------------------

AB = As-Built
 AI = As-Inspected
 M = Moment
 V = Shear

STRINGER LOADS

LONGITUDINAL LIVE LOAD DISTRIBUTION FACTOR



Made By DWC
Checked By CTG

Date 6/20/2012
Date 6/20/2012

Job No. P402110046

Calculations For **CUY-2-1441**

Revisions to Stringer Analysis

- ◆ Isolated continuous stringers have copes over intermediate supports. Because the stringers are not full depth in these locations, the full negative moment cannot develop.
- ◆ Per discussion with ODOT May 29, 2012, any continuous stringer that is coped over intermediate supports should be re-analyzed as simply supported.
- ◆ Calculations for the revised stringers are included on the following page(s). Any data in the original rating calculations that has now been superseded remains in the volume for informational purposes, but has been crossed out.

LONGITUDINAL LLDF

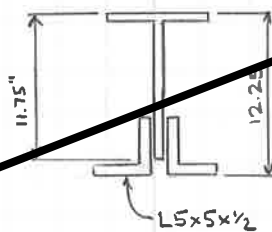
→ TWO STAAD MODELS WERE USED FOR DETERMINING LONGITUDINAL LIVE LOAD EFFECTS FOR 3-SPAN CONTINUOUS STRINGERS. WHILE FULL HEIGHT CONTINUOUS SECTIONS DEVELOP FULL NEGATIVE MOMENT, COPED STRINGERS WILL BE SOFTENED OVER SUPPORTS, RESULTING IN DECREASED NEGATIVE MOMENT BUT INCREASED POSITIVE MOMENT.

• MODEL #1: Stringer LLDF Type A3.std

- RUN LIVE LOAD VEHICLES OVER 3-SPAN CONTINUOUS, FULL HEIGHT W16x67 STRINGERS TO DETERMINE MAXIMUM LOAD EFFECTS ($A = 19.7 \text{ m}^2$, $I_x = 954 \text{ m}^4$)

MODEL #2: COPED STRINGER LLDF Type A3.std

- RUN LIVE LOAD VEHICLES OVER 3-SPAN CONTINUOUS W16x67 STRINGER W/ COPED SECTIONS OVER INTERIOR SUPPORTS (CHOOSE S13-3 AS TYPICAL COPE)



$A = 20.66 \text{ m}^2$
 $I_x = 502.7 \text{ m}^4$

→ LOAD EFFECTS FOR EACH MODEL ARE COMPILED IN "LIVE LOAD SUMMARY TABLE.XLS"



Made By DWC
 Checked By ADK

Date 4/11/2012
 Date 4/13/2012

Job No. P402110046

Calculations For: **CUY-2-1441 SPAN 11**

STAAD Output for Longitudinal LLDF for Stringers

	Type A1		Type A3* (Full Height Stringers)				Type A3* (Coped Stringers)			
	Shear (kips)	Moment (+) (kip-ft)	Shear (end) (kips)	Shear (int.) (kips)	Moment (+) (kip-ft)	Moment (-) (kip-ft)	Shear (end) (kips)	Shear (int.) (kips)	Moment (+) (kip-ft)	Moment (-) (kip-ft)
Unit DL	N/A	N/A	8.0	22.0	32.1	-39.7	8.1	21.9	33.2	-37.1
HS-20	N/A	N/A	19.3	22.1	64.4	-57.0	19.4	22.0	66.5	-52.5
2F1	N/A	N/A	12.0	13.0	40.3	-25.2	12.1	12.9	43.9	-23.1
3F1	N/A	N/A	16.1	18.2	55.1	-40.3	16.2	18.1	56.1	-37.0
4F1	N/A	N/A	16.2	18.8	59.9	-46.1	16.3	18.7	60.9	-42.3
5C1	N/A	N/A	15.6	17.1	57.9	-41.7	15.7	17.1	58.7	-38.3
Fatigue	N/A	N/A	12.6	12.8	49.2	-28.7	12.6	12.9	49.9	-26.3

*Maximum shear given at end supports and interior supports

FULL HEIGHT STRINGER LIVE LOAD DISTRIBUTION FACTOR

```

STAAD SPACE
START JOB INFORMATION
ENGINEER DATE 9-Apr-12
END JOB INFORMATION
INPUT WIDTH 79
UNIT FEET KIP
*Stringer Type A3
JOINT COORDINATES
1 0 0 0; 2 20 0 0; 3 40 0 0; 4 60 0 0;
MEMBER INCIDENCES
1 1 2; 2 2 3; 3 3 4;
DEFINE MATERIAL START
ISOTROPIC STEEL
E 4.176e+006
POISSON 0.3
DENSITY 0.489024
ALPHA 6e-006
DAMP 0.03
END DEFINE MATERIAL
MEMBER PROPERTY AMERICAN
1 TO 3 TABLE ST W16x67
CONSTANTS
MATERIAL STEEL ALL
SUPPORTS
2 PINNED
1 3 4 FIXED BUT FX MX MY MZ
DEFINE MOVING LOAD
*HS-20
TYPE 1 LOAD 16 16 4
DIST 14 14
*2F1
TYPE 2 LOAD 10 5
DIST 10
*3F1
TYPE 3 LOAD 6 8.5 8.5
DIST 10 4
*4F1
TYPE 4 LOAD 6 7 7 7
DIST 10 4 4
*5C1
TYPE 5 LOAD 6 8.5 8.5 8.5 8.5
DIST 12 4 31 4
*HS-20 Backwards
TYPE 6 LOAD 4 16 16
DIST 14 14
*2F1 Backwards
TYPE 7 LOAD 5 10
DIST 10
*3F1 Backwards
TYPE 8 LOAD 8.5 8.5 6
DIST 4 10
*4F1 Backwards
TYPE 9 LOAD 7 7 7 6
DIST 4 4 10
*5C1 Backwards
TYPE 10 LOAD 8.5 8.5 8.5 8.5 6
DIST 4 31 4 12

*HS-15 Fatigue
TYPE 11 LOAD 12 12 3
DIST 30 14
*HS-15 Fatigue Backwards
TYPE 12 LOAD 3 12 12
DIST 14 30

*LOAD 1 LOADTYPE DEAD TITLE DL
*MEMBER LOAD
*1 TO 3 UNI GY -1

```

```

****HS20
*LOAD GENERATION 1000
*TYPE 1 -28 0 0 XINC 0.1
*LOAD GENERATION 1000
*TYPE 6 -28 0 0 XINC 0.1
**2F1
*LOAD GENERATION 1000
*TYPE 2 -10 0 0 XINC 0.1
*LOAD GENERATION 1000

```

```
TYPE 7 -10 0 0 XINC 0.1
***3F1
*LOAD GENERATION 1000
*TYPE 3 -14 0 0 XINC 0.1
*LOAD GENERATION 1000
*TYPE 8 -14 0 0 XINC 0.1
***4F1
*LOAD GENERATION 1000
*TYPE 4 -18 0 0 XINC 0.1
*LOAD GENERATION 1000
*TYPE 9 -18 0 0 XINC 0.1
***5C1
*LOAD GENERATION 1000
*TYPE 5 -51 0 0 XINC 0.1
*LOAD GENERATION 1000
*TYPE 10 -51 0 0 XINC 0.1
****HS20 Fatigue
LOAD GENERATION 1100
TYPE 11 -44 0 0 XINC 0.1
LOAD GENERATION 1100
TYPE 12 -44 0 0 XINC 0.1

PERFORM ANALYSIS
FINISH
```



COPED STRINGER LIVE LOAD
DISTRIBUTION FACTOR

STAAD SPACE
START JOB INFORMATION
ENGINEER DATE 9-Apr-12
END JOB INFORMATION
INPUT WIDTH 79
UNIT FEET KIP
*Coped Stringer Type A3
JOINT COORDINATES
1 0 0 0; 2 19.25 0 0; 3 20 0 0; 4 20.75 0 0; 5 39.25 0 0;
6 40 0 0; 7 40.75 0 0; 8 60 0 0
MEMBER INCIDENCES
1 1 2; 2 2 3; 3 3 4; 4 4 5; 5 5 6; 6 6 7; 7 7 8;
DEFINE MATERIAL START
ISOTROPIC STEEL
E 4.176e+006
POISSON 0.3
DENSITY 0.489024
ALPHA 6e-006
DAMP 0.03
END DEFINE MATERIAL

UNIT INCHES KIP
MEMBER PROPERTY AMERICAN

1 4 7 TABLE ST W16x67
*MODEL S13-3 IN SPAN 11
2 3 5 6 PRIS AX 20.66 IX 2.0193 IY 100.66 IZ 502.70

CONSTANTS
MATERIAL STEEL ALL
SUPPORTS
3 PINNED
1 6 8 FIXED BUT FX MX MY MZ

UNIT FEET KIP
DEFINE MOVING LOAD
*HS-20
TYPE 1 LOAD 16 16 4
DIST 14 14
*2F1
TYPE 2 LOAD 10 5
DIST 10
*3F1
TYPE 3 LOAD 6 8.5 8.5
DIST 10 4
*4F1
TYPE 4 LOAD 6 7 7 7
DIST 10 4 4
*5C1
TYPE 5 LOAD 6 8.5 8.5 8.5 8.5
DIST 12 4 31 4
*HS-20 Backwards
TYPE 6 LOAD 4 16 16
DIST 14 14
*2F1 Backwards
TYPE 7 LOAD 5 10
DIST 10
*3F1 Backwards
TYPE 8 LOAD 8.5 8.5 6
DIST 4 10
*4F1 Backwards
TYPE 9 LOAD 7 7 7 6
DIST 4 4 10
*5C1 Backwards
TYPE 10 LOAD 8.5 8.5 8.5 8.5 6
DIST 4 31 4 12

*HS-15 Fatigue
TYPE 11 LOAD 12 12 3
DIST 30 14
*HS-15 Fatigue Backwards
TYPE 12 LOAD 7 12 12
DIST 14 30
*

*LOAD 1 LOADTYPE DEAD TITLE DL
*MEMBER LOAD
*1 TO 7 UNI GY -1
*
****HS20

LOAD GENERATION 1000
*TYPE 1 -28 0 0 XINC 0.1
*LOAD GENERATION 1000
*TYPE 6 -28 0 0 XINC 0.1
****2F1
*LOAD GENERATION 1000
*TYPE 2 -10 0 0 XINC 0.1
*LOAD GENERATION 1000
*TYPE 7 -10 0 0 XINC 0.1
***3F1
*LOAD GENERATION 1000
*TYPE 3 -14 0 0 XINC 0.1
*LOAD GENERATION 1000
*TYPE 8 -14 0 0 XINC 0.1
****4F1
*LOAD GENERATION 1000
*TYPE 4 -18 0 0 XINC 0.1
*LOAD GENERATION 1000
*TYPE 9 -18 0 0 XINC 0.1
***5C1
*LOAD GENERATION 1000
*TYPE 5 -51 0 0 XINC 0.1
*LOAD GENERATION 1000
*TYPE 10 -51 0 0 XINC 0.1
*****HS20 Fatigue
LOAD GENERATION 1100
TYPE 11 -44 0 0 XINC 0.1
LOAD GENERATION 1100
TYPE 12 -44 0 0 XINC 0.1

PERFORM ANALYSIS
FINISH

TRANSVERSE LIVE LOAD DISTRIBUTION FACTOR



Made By DWC
 Checked By ADK

Date 4/12/2012
 Date 4/13/2012

Job No. P402110046
 Sheet _____

Calculations For: **CUY-2-1441 SPAN 11**

UNIT 1

Type	#	Name	S1 _{left} (feet)	S1 _{Right} (feet)	S2 _{left} (feet)	S2 _{Right} (feet)	S _{AVG} (feet)	LLDF*	Fatigue DF**	Fatigue DF (wheel)
F	1	F1-1	-	5.126	-	3.251	4.19	0.76	0.284	0.568
S	1	S1-1	5.126	6.369	3.251	6.369	5.28	0.96	0.311	0.621
S	2	S2-1	6.369	6.459	6.369	6.459	6.41	1.17	0.377	0.755
S	3	S3-1	6.459	6.459	6.459	6.459	6.46	1.17	0.380	0.760
S	4	S4-1	6.459	6.459	6.459	6.459	6.46	1.17	0.380	0.760
S	5	S5-1	6.459	6.459	6.459	6.459	6.46	1.17	0.380	0.760
S	6	S6-1	6.459	6.459	6.459	6.459	6.46	1.17	0.380	0.760
S	7	S7-1	6.459	6.459	6.459	6.459	6.46	1.17	0.380	0.760
S	8	S8-1	6.459	6.459	6.459	7.299	6.67	1.21	0.392	0.785
S	9	S9-1	6.459	6.369	7.299	6.357	6.62	1.20	0.389	0.779
S	10	S10-1	6.369	6.459	6.357	6.375	6.39	1.16	0.376	0.752
S	11	S11-1	6.459	6.591	6.375	6.375	6.45	1.17	0.379	0.759
S	12	S12-1	6.591	5.395	6.375	6.743	6.28	1.14	0.369	0.738
F	2	F2-1	5.395	-	6.743	-	6.07	1.10	0.506	1.011

UNIT 2

Type	#	Name	S1 _{left} (feet)	S1 _{Right} (feet)	S2 _{left} (feet)	S2 _{Right} (feet)	S _{AVG} (feet)	LLDF*	Fatigue DF**	Fatigue DF (wheel)
F	1	F1-2	-	5.955	-	7.622	6.79	1.19	0.558	1.116
S	1	S1-2	5.955	6.488	7.622	6.448	6.63	1.21	0.390	0.780
S	2	S2-2	6.488	6.403	6.448	6.375	6.43	1.17	0.378	0.756
S	3	S3-2	6.403	6.403	6.375	6.375	6.39	1.16	0.376	0.752
S	4	S4-2	6.403	6.403	6.375	6.375	6.39	1.16	0.376	0.752
S	5	S5-2	6.403	6.403	6.375	6.375	6.39	1.16	0.376	0.752
S	6	S6-2	6.403	6.403	6.375	6.375	6.39	1.16	0.376	0.752
S	7	S7-2	6.403	6.403	6.375	6.375	6.39	1.16	0.376	0.752
S	8	S8-2	6.403	4.816	6.375	5.598	5.80	1.05	0.341	0.682
S	9	S9-2	4.816	6.357	5.598	6.531	5.83	1.06	0.343	0.685
S	10	S10-2	6.357	6.375	6.531	5.651	6.23	1.13	0.366	0.733
S	11	S11-2	6.375	6.375	5.651	5.651	6.01	1.09	0.354	0.707
S	12	S12-2	6.375	6.743	5.651	6	6.19	1.13	0.364	0.729
F	2	F2-2	6.743	-	6	-	6.37	1.14	0.529	1.058

UNIT 3

Type	#	Name	S1 _{left} (feet)	S1 _{Right} (feet)	S2 _{left} (feet)	S2 _{Right} (feet)	S _{AVG} (feet)	LLDF*	Fatigue DF**	Fatigue DF (wheel)
F	1	F1-3	-	4.71	-	4.708	4.71	0.86	0.363	0.726
S	1	S1-3	4.71	2.911	4.708	4.708	4.26	0.77	0.251	0.501
S	2	S2-3	2.911	6.448	4.708	6.419	5.12	0.93	0.301	0.603
S	3	S3-3	6.448	6.375	6.419	6.375	6.40	1.16	0.377	0.753
S	4	S4-3	6.375	6.375	6.375	6.375	6.38	1.16	0.375	0.750
S	5	S5-3	6.375	6.375	6.375	6.375	6.38	1.16	0.375	0.750
S	6	S6-3	6.375	6.375	6.375	6.375	6.38	1.16	0.375	0.750
S	7	S7-3	6.375	6.375	6.375	6.375	6.38	1.16	0.375	0.750
S	8	S8-3	6.375	6.375	6.375	6.375	6.38	1.16	0.375	0.750
S	9	S9-3	6.375	5.598	6.375	8.152	6.63	1.20	0.390	0.779
S	10	S10-3	5.598	6.531	8.152	7.075	6.84	1.24	0.402	0.805
S	11	S11-3	6.531	5.651	7.075	3.198	5.61	1.02	0.330	0.660
S	12	S12-3	5.651	5.651	3.198	3.198	4.42	0.80	0.260	0.521
S	13	S13-3	5.651	6	3.198	6	5.21	0.95	0.307	0.613
F	2	F2-3	6	-	6	-	6.00	1.09	0.500	1.000



Made By DWC
 Checked By ADK

Date 4/12/2012
 Date 4/13/2012

Job No. P402110046
 Sheet _____

Calculations For: **CUY-2-1441 SPAN 11**

UNIT 4

Type	#	Name	S1 _{left} (feet)	S1 _{Right} (feet)	S2 _{left} (feet)	S2 _{Right} (feet)	S _{AVG} (feet)	LLDF*	Fatigue DF**	Fatigue DF (wheel)
F	1	F1-4	-	4.708	-	4.708	4.71	0.86	0.363	0.726
S	1	S1-4	4.708	4.708	4.708	3.055	4.29	0.78	0.253	0.505
S	2	S2-4	4.708	6.419	3.055	6.375	5.14	0.93	0.302	0.605
S	3	S3-4	6.419	6.375	6.375	6.375	6.39	1.16	0.376	0.751
S	4	S4-4	6.375	6.375	6.375	6.375	6.38	1.16	0.375	0.750
S	5	S5-4	6.375	6.375	6.375	6.375	6.38	1.16	0.375	0.750
S	6	S6-4	6.375	6.375	6.375	6.375	6.38	1.16	0.375	0.750
S	7	S7-4	6.375	6.375	6.375	6.375	6.38	1.16	0.375	0.750
S	8	S8-4	6.375	6.375	6.375	6.375	6.38	1.16	0.375	0.750
S	9	S9-4	6.375	5.922	6.375	6.249	6.23	1.13	0.366	0.733
S	10	S10-4	5.922	2.23	6.249	5.221	4.91	0.89	0.289	0.577
S	11	S11-4	2.23	7.075	5.221	6.558	5.27	0.96	0.310	0.620
S	12	S12-4	7.075	6.396	6.558	5.25	6.32	1.15	0.372	0.744
S	13	S13-4	6.396	6	5.25	6	5.91	1.07	0.348	0.695
F	2	F2-4	6	-	6	-	6.00	1.09	0.500	1.000

UNIT 5

Type	#	Name	S1 _{left} (feet)	S1 _{Right} (feet)	S2 _{left} (feet)	S2 _{Right} (feet)	S _{AVG} (feet)	LLDF*	Fatigue DF**	Fatigue DF (wheel)
F	1	F1-5	-	7.763	-	6.08	6.92	1.21	0.567	1.133
S	1	S1-5	7.763	3.055	6.08	6.375	5.82	1.06	0.342	0.685
S	2	S2-5	3.055	6.375	6.375	6.375	5.55	1.01	0.326	0.652
S	3	S3-5	6.375	6.375	6.375	6.375	6.38	1.16	0.375	0.750
S	4	S4-5	6.375	6.375	6.375	6.375	6.38	1.16	0.375	0.750
S	5	S5-5	6.375	6.375	6.375	6.375	6.38	1.16	0.375	0.750
S	6	S6-5	6.375	6.375	6.375	6.375	6.38	1.16	0.375	0.750
S	7	S7-5	6.375	6.375	6.375	6.375	6.38	1.16	0.375	0.750
S	8	S8-5	6.375	6.375	6.375	6.339	6.37	1.16	0.374	0.749
S	9	S9-5	6.375	6.249	6.339	6.003	6.24	1.13	0.367	0.734
S	10	S10-5	6.249	5.221	6.003	6.441	5.98	1.09	0.352	0.703
S	11	S11-5	5.221	6.558	6.441	5.5	5.93	1.08	0.349	0.698
S	12	S12-5	6.558	5.25	5.5	6	5.83	1.06	0.343	0.686
F	2	F2-5	5.25	-	6	-	5.63	1.02	0.467	0.933

* Per AASHTO 3.23.2: For interior stringers, LLDF = S/5.5

For fascia stringers, LLDF = S/5.5 when S ≤ 6 feet and LLDF = S/(4+0.25S) when S > 6 feet

** Per AASHTO Fatigue Guide Sperr For interior stringers, LLDF = S/17

For fascia stringers, LLDF = 0.7 - .4P when P > 0.5 and LLDF = 0.9 - .8P when P < 0.5

Fatigue DF's must be multiplied by 2 in order to apply to wheel loads rather than axle.

SIMPLE SPAN LIVE LOADS

```

STAAD SPACE
START JOB INFORMATION
ENGINEER DATE 9-Apr-12
END JOB INFORMATION
INPUT WIDTH 79
UNIT FEET KIP
JOINT COORDINATES
1 0 0 0; 2 11.6 0 0;
MEMBER INCIDENCES
1 1 2;
DEFINE MATERIAL START
ISOTROPIC STEEL
E 4.176e+006
POISSON 0.3
DENSITY 0.489024
ALPHA 6e-006
DAMP 0.03
END DEFINE MATERIAL
MEMBER PROPERTY AMERICAN
1 TABLE ST W16X67
CONSTANTS
MATERIAL STEEL ALL
SUPPORTS
2 PINNED
1 FIXED BUT FX MX MY MZ
DEFINE MOVING LOAD
*HS-20
TYPE 1 LOAD 16 16 4
DIST 14 14
*2F1
TYPE 2 LOAD 10 5
DIST 10
*3F1
TYPE 3 LOAD 6 8.5 8.5
DIST 10 4
*4F1
TYPE 4 LOAD 6 7 7 7
DIST 10 4 4
*5C1
TYPE 5 LOAD 6 8.5 8.5 8.5 8.5
DIST 12 4 31 4
*HS-20 Backwards
TYPE 6 LOAD 4 16 16
DIST 14 14
*2F1 Backwards
TYPE 7 LOAD 5 10
DIST 10
*3F1 Backwards
TYPE 8 LOAD 8.5 8.5 6
DIST 4 10
*4F1 Backwards
TYPE 9 LOAD 7 7 7 6
DIST 4 4 10
*5C1 Backwards
TYPE 10 LOAD 8.5 8.5 8.5 8.5 6
DIST 4 31 4 12
*HS-15 Fatigue
TYPE 11 LOAD 12 12 3
DIST 30 14
*HS-15 Fatigue
TYPE 12 LOAD 3 12 12
DIST 14 30
*
**HS20
*LOAD GENERATION 1000
*TYPE 1 -28 0 0 XINC 0.1
*LOAD GENERATION 1000
*TYPE 6 -28 0 0 XINC 0.1
***2F1
*LOAD GENERATION 1000
*TYPE 2 -10 0 0 XINC 0.1
*LOAD GENERATION 1000
*TYPE 7 -10 0 0 XINC 0.1
****3F1
*LOAD GENERATION 1000
*TYPE 3 -14 0 0 XINC 0.1
*LOAD GENERATION 1000
*TYPE 8 -14 0 0 XINC 0.1
*****4F1
*LOAD GENERATION 1000

```

```
*TYPE 4 -18 0 0 XINC 0.1
*LOAD GENERATION 1000
*TYPE 9 -18 0 0 XINC 0.1
**5C1
LOAD GENERATION 1000
TYPE 5 -51 0 0 XINC 0.1
LOAD GENERATION 1000
TYPE 10 -51 0 0 XINC 0.1
****HS-15 Fatigue
*LOAD GENERATION 1000
*TYPE 11 -44 0 0 XINC 0.1
*LOAD GENERATION 1000
*TYPE 12 -44 0 0 XINC 0.1
PERFORM ANALYSIS
FINISH
```

STRINGER RATING FACTORS

Span 11 - Stringer Ratings



Date DWC

Date 4/12/2012

Job No. P402110046

Date ADK

Date 4/13/2012

Calculations For: **CUY-2-1441 Span 11**

Simple Span Stringers

$q_{DL} = 9.10$ k/ft

$q_{DL} = 0.65$ k/ft per beam

Stringer	Span (ft)	Self Weight	Member	Coped?	Capacity*		Dead Load**		Live Load		LLDF	Impact	Controlling Rating Factors			
					Moment	Shear	Moment	Shear	Moment	Shear			Moment		Shear	
					k-ft	k	k-ft	k	k-ft	k			Inventory	Operating	Inventory	Operating
F1-1	11.6	118.06	Welded PL	-	1506.12	210.66	13.02	4.49	46.40	16.00	0.76	1.30	14.94	24.94	5.96	9.95
S1-1	11.6	53.00	W14x53	-	261.30	97.18	11.87	4.09	46.40	16.00	0.96	1.30	1.96	3.27	2.12	3.54
S2-1	11.6	53.00	W14x53	-	261.30	97.18	11.87	4.09	46.40	16.00	1.17	1.30	1.61	2.69	1.75	2.91
S3-1	11.6	53.00	W14x53	-	261.30	97.18	11.87	4.09	46.40	16.00	1.17	1.30	1.60	2.67	1.73	2.89
S4-1	11.6	53.00	W14x53	-	261.30	97.18	11.87	4.09	46.40	16.00	1.17	1.30	1.60	2.67	1.73	2.89
S5-1	11.6	53.00	W14x53	-	261.30	97.18	11.87	4.09	46.40	16.00	1.17	1.30	1.60	2.67	1.73	2.89
S6-1	11.6	53.00	W14x53	-	261.30	97.18	11.87	4.09	46.40	16.00	1.17	1.30	1.60	2.67	1.73	2.89
S7-1	11.6	53.00	W14x53	-	261.30	97.18	11.87	4.09	46.40	16.00	1.17	1.30	1.60	2.67	1.73	2.89
S8-1	11.6	53.00	W14x53	-	261.30	97.18	11.87	4.09	46.40	16.00	1.21	1.30	1.55	2.59	1.68	2.80
S9-1	11.6	53.00	W14x53	One End	261.30	97.18	11.87	4.09	46.40	16.00	1.20	1.30	1.56	2.60	1.69	2.82
S10-1	11.6	53.00	W14x53	One End	261.30	97.18	11.87	4.09	46.40	16.00	1.16	1.30	1.62	2.70	1.75	2.92
S11-1	11.6	53.00	W14x53	One End	261.30	97.18	11.87	4.09	46.40	16.00	1.17	1.30	1.60	2.67	1.74	2.90
S12-1	11.6	53.00	W14x53	One End	261.30	97.18	11.87	4.09	46.40	16.00	1.14	1.30	1.65	2.75	1.78	2.98
F2-1	11.6	93.31	Welded PL	-	1046.52	93.47	12.58	4.34	46.40	16.00	1.10	1.30	7.15	11.94	1.77	2.95
F1-2	24.1	120.76	Welded PL	-	1506.12	203.55	56.40	9.36	99.20	22.90	1.19	1.30	4.30	7.17	2.49	4.15
S1-2	23.5	77.00	W16x77	One End	450.00	142.30	50.45	8.59	96.96	22.68	1.21	1.30	1.17	1.95	1.70	2.84
S2-2	22.9	77.00	W16x77	One End	450.00	142.30	47.91	8.37	92.48	22.24	1.17	1.30	1.27	2.12	1.79	2.99
S3-2	22.3	77.00	W16x77	One End	450.00	142.30	45.43	8.15	92.48	22.24	1.16	1.30	1.29	2.15	1.81	3.02
S4-2	21.7	77.00	W16x77	-	450.00	142.30	43.02	7.93	88.00	21.80	1.16	1.30	1.37	2.28	1.85	3.08
S5-2	21.1	77.00	W16x77	-	450.00	142.30	40.67	7.71	88.00	21.80	1.16	1.30	1.38	2.30	1.85	3.09
S6-2	20.5	61.00	W14x61	-	306.00	98.74	37.51	7.32	84.00	21.30	1.16	1.30	0.93	1.56	1.28	2.13
S7-2	19.9	61.00	W14x61	-	306.00	98.74	35.35	7.10	80.00	20.80	1.16	1.30	0.99	1.66	1.31	2.19
S8-2	19.3	61.00	W14x61	-	306.00	98.74	33.25	6.89	80.00	20.80	1.05	1.30	1.10	1.84	1.45	2.42
S9-2	18.9	61.00	W14x61	Yes	306.00	203.75	31.88	6.75	76.00	20.20	1.06	1.30	1.16	1.94	3.23	5.39
S10-2	18.3	67.00	W16x67	Yes	390.00	166.83	30.15	6.59	76.00	20.20	1.13	1.30	1.44	2.41	2.45	4.09
S11-2	17.7	67.00	W16x67	Yes	390.00	179.20	28.21	6.38	72.00	19.60	1.09	1.30	1.59	2.66	2.83	4.72
S12-2	17.1	67.00	W16x67	Yes	390.00	170.95	26.33	6.16	72.00	19.60	1.13	1.30	1.56	2.60	2.62	4.37
F2-2	16.5	95.54	Welded PL	Yes	1046.52	160.51	25.53	6.19	68.00	18.80	1.14	1.30	4.64	7.74	2.52	4.21
F1-5	24.5	120.76	Welded PL	-	1580.00	203.55	58.28	9.52	99.20	22.90	1.21	1.30	4.45	7.43	2.45	4.09
S1-5	23.6	77.00	W16x77	Yes	450.00	212.62	50.88	8.62	96.96	22.68	1.06	1.30	1.33	2.21	2.98	4.97
S2-5	22.7	77.00	W16x77	Yes	450.00	203.12	47.07	8.30	92.48	22.24	1.01	1.30	1.48	2.47	3.04	5.08
S3-5	21.8	77.00	W16x77	Yes	450.00	212.62	43.42	7.97	88.00	21.80	1.16	1.30	1.37	2.28	2.84	4.74
S4-5	21	77.00	W16x77	One End	450.00	142.30	40.29	7.67	84.00	21.30	1.16	1.30	1.45	2.42	1.90	3.17
S5-5	20.1	67.00	W16x77	One End	450.00	142.30	36.38	7.24	84.00	21.30	1.16	1.30	1.47	2.45	1.91	3.18
S6-5	19.2	67.00	W14x61	One End	306.00	98.74	33.19	6.92	80.00	20.80	1.16	1.30	1.00	1.68	1.32	2.20
S7-5	18.3	67.00	W14x61	One End	306.00	98.74	30.15	6.59	76.00	20.20	1.16	1.30	1.07	1.79	1.37	2.28
S8-5	17.5	67.00	W14x61	One End	306.00	98.74	27.58	6.30	72.00	19.60	1.16	1.30	1.15	1.92	1.41	2.36
S9-5	16.6	67.00	W14x61	One End	306.00	98.74	24.81	5.98	68.00	18.80	1.13	1.30	1.26	2.10	1.51	2.52
S10-5	15.8	67.00	W16x67	Yes	390.00	166.83	22.48	5.69	64.00	18.00	1.09	1.30	1.84	3.07	2.89	4.82
S11-5	14.9	67.00	W16x67	Yes	390.00	162.70	19.99	5.37	60.00	17.00	1.08	1.30	1.99	3.33	3.01	5.03
S12-5	14.2	67.00	W16x67	Yes	390.00	170.95	18.16	5.11	60.00	17.00	1.06	1.30	2.04	3.41	3.23	5.40
F2-5	13.4	102.64	Welded PL	-	1230.03	142.08	17.01	5.08	56.00	16.00	1.02	1.30	7.48	12.48	2.93	4.90

* Moment Capacity represents full height section capacity at midspan of beams

Shear Capacity represents minimum shear capacity at beam ends

** Dead load calculation includes deck weight (divided evenly among beams in bay) and beam self weight (increased by 5% for miscellaneous add'l weight)

Span 11 - Stringer Ratings



Date DWC

Date 4/12/2012

Job No. P402110046

Date ADK

Date 4/13/2012

Calculations For: **CUY-2-1441 Span 11**

Simple Span Stringers

$q_{DL} = 9.10$ k/ft

$q_{DL} = 0.65$ k/ft per beam

Stringer	Span (ft)	Self Weight	Member	Coped?	Capacity*		Dead Load**		Live Load		LLDF	Impact	Controlling Rating Factors	
					Moment	Shear	Moment	Shear	Moment	Shear			Moment	Shear
					k-ft	k	k-ft	k	k-ft	k			Operating	Operating
F1-1	11.6	118.06	Welded PL	-	1506.12	210.66	13.02	4.49	29.00	10.70	0.76	1.30	39.90	14.87
S1-1	11.6	53.00	W14x53	-	261.30	97.18	11.87	4.09	29.00	10.70	0.96	1.30	5.23	5.29
S2-1	11.6	53.00	W14x53	-	261.30	97.18	11.87	4.09	29.00	10.70	1.17	1.30	4.30	4.36
S3-1	11.6	53.00	W14x53	-	261.30	97.18	11.87	4.09	29.00	10.70	1.17	1.30	4.27	4.33
S4-1	11.6	53.00	W14x53	-	261.30	97.18	11.87	4.09	29.00	10.70	1.17	1.30	4.27	4.33
S5-1	11.6	53.00	W14x53	-	261.30	97.18	11.87	4.09	29.00	10.70	1.17	1.30	4.27	4.33
S6-1	11.6	53.00	W14x53	-	261.30	97.18	11.87	4.09	29.00	10.70	1.17	1.30	4.27	4.33
S7-1	11.6	53.00	W14x53	-	261.30	97.18	11.87	4.09	29.00	10.70	1.17	1.30	4.27	4.33
S8-1	11.6	53.00	W14x53	-	261.30	97.18	11.87	4.09	29.00	10.70	1.21	1.30	4.14	4.19
S9-1	11.6	53.00	W14x53	One End	261.30	97.18	11.87	4.09	29.00	10.70	1.20	1.30	4.17	4.22
S10-1	11.6	53.00	W14x53	One End	261.30	97.18	11.87	4.09	29.00	10.70	1.16	1.30	4.32	4.37
S11-1	11.6	53.00	W14x53	One End	261.30	97.18	11.87	4.09	29.00	10.70	1.17	1.30	4.28	4.33
S12-1	11.6	53.00	W14x53	One End	261.30	97.18	11.87	4.09	29.00	10.70	1.14	1.30	4.40	4.45
F2-1	11.6	93.31	Welded PL	-	1046.52	93.47	12.58	4.34	29.00	10.70	1.10	1.30	19.11	4.42
F1-2	24.1	120.76	Welded PL	-	1506.12	203.55	56.40	9.36	68.50	13.00	1.19	1.30	10.39	7.31
S1-2	23.5	77.00	W16x77	One End	450.00	142.30	50.45	8.59	66.64	12.94	1.21	1.30	2.83	4.98
S2-2	22.9	77.00	W16x77	One End	450.00	142.30	47.91	8.37	62.92	12.82	1.17	1.30	3.12	5.19
S3-2	22.3	77.00	W16x77	One End	450.00	142.30	45.43	8.15	62.92	12.82	1.16	1.30	3.16	5.23
S4-2	21.7	77.00	W16x77	-	450.00	142.30	43.02	7.93	59.20	12.70	1.16	1.30	3.39	5.29
S5-2	21.1	77.00	W16x77	-	450.00	142.30	40.67	7.71	59.20	12.70	1.16	1.30	3.42	5.31
S6-2	20.5	61.00	W14x61	-	306.00	98.74	37.51	7.32	55.60	12.60	1.16	1.30	2.36	3.61
S7-2	19.9	61.00	W14x61	-	306.00	98.74	35.35	7.10	52.00	12.50	1.16	1.30	2.55	3.65
S8-2	19.3	61.00	W14x61	-	306.00	98.74	33.25	6.89	52.00	12.50	1.05	1.30	2.84	4.03
S9-2	18.9	61.00	W14x61	Yes	306.00	203.75	31.88	6.75	48.50	12.35	1.06	1.30	3.05	8.82
S10-2	18.3	67.00	W16x67	Yes	390.00	166.83	30.15	6.59	48.50	12.35	1.13	1.30	3.78	6.70
S11-2	17.7	67.00	W16x67	Yes	390.00	179.20	28.21	6.38	45.00	12.20	1.09	1.30	4.25	7.58
S12-2	17.1	67.00	W16x67	Yes	390.00	170.95	26.33	6.16	45.00	12.20	1.13	1.30	4.16	7.02
F2-2	16.5	95.54	Welded PL	Yes	1046.52	160.51	25.53	6.19	42.50	12.05	1.14	1.30	12.38	6.57
F1-5	24.5	120.76	Welded PL	-	1580.00	203.55	58.28	9.52	68.50	13.00	1.21	1.30	10.76	7.20
S1-5	23.6	77.00	W16x77	Yes	450.00	212.62	50.88	8.62	66.64	12.94	1.06	1.30	3.22	8.71
S2-5	22.7	77.00	W16x77	Yes	450.00	203.12	47.07	8.30	62.92	12.82	1.01	1.30	3.63	8.81
S3-5	21.8	77.00	W16x77	Yes	450.00	212.62	43.42	7.97	59.20	12.70	1.16	1.30	3.39	8.13
S4-5	21	77.00	W16x77	One End	450.00	142.30	40.29	7.67	55.60	12.60	1.16	1.30	3.65	5.36
S5-5	20.1	67.00	W16x77	One End	450.00	142.30	36.38	7.24	55.60	12.60	1.16	1.30	3.70	5.38
S6-5	19.2	67.00	W14x61	One End	306.00	98.74	33.19	6.92	52.00	12.50	1.16	1.30	2.58	3.67
S7-5	18.3	67.00	W14x61	One End	306.00	98.74	30.15	6.59	48.50	12.35	1.16	1.30	2.81	3.73
S8-5	17.5	67.00	W14x61	One End	306.00	98.74	27.58	6.30	45.00	12.20	1.16	1.30	3.07	3.79
S9-5	16.6	67.00	W14x61	One End	306.00	98.74	24.81	5.98	42.50	12.05	1.13	1.30	3.36	3.94
S10-5	15.8	67.00	W16x67	Yes	390.00	166.83	22.48	5.69	40.00	11.90	1.09	1.30	4.91	7.29
S11-5	14.9	67.00	W16x67	Yes	390.00	162.70	19.99	5.37	37.50	11.65	1.08	1.30	5.33	7.34
S12-5	14.2	67.00	W16x67	Yes	390.00	170.95	18.16	5.11	37.50	11.65	1.06	1.30	5.46	7.88
F2-5	13.4	102.64	Welded PL	-	1230.03	142.08	17.01	5.08	35.00	11.40	1.02	1.30	19.97	6.88

* Moment Capacity represents full height section capacity at midspan of beams

Shear Capacity represents minimum shear capacity at beam ends

** Dead load calculation includes deck weight (divided evenly among beams in bay) and beam self weight (increased by 5% for miscellaneous add'l weight)

Span 11 - Stringer Ratings



Date DWC

Date 4/12/2012

Job No. P402110046

Date ADK

Date 4/13/2012

Calculations For: **CUY-2-1441 Span 11**

Simple Span Stringers

$q_{DL} = 9.10$ k/ft

$q_{DL} = 0.65$ k/ft per beam

Stringer	Span (ft)	Self Weight	Member	Coped?	Capacity*		Dead Load**		Live Load		LLDF	Impact	Controlling Rating Factors	
					Moment	Shear	Moment	Shear	Moment	Shear			Moment	Shear
					k-ft	k	k-ft	k	k-ft	k			Operating	Operating
F1-1	11.6	118.06	Welded PL	-	1506.12	210.66	13.02	4.49	33.70	14.10	0.76	1.30	34.34	11.29
S1-1	11.6	53.00	W14x53	-	261.30	97.18	11.87	4.09	33.70	14.10	0.96	1.30	4.50	4.02
S2-1	11.6	53.00	W14x53	-	261.30	97.18	11.87	4.09	33.70	14.10	1.17	1.30	3.70	3.31
S3-1	11.6	53.00	W14x53	-	261.30	97.18	11.87	4.09	33.70	14.10	1.17	1.30	3.68	3.28
S4-1	11.6	53.00	W14x53	-	261.30	97.18	11.87	4.09	33.70	14.10	1.17	1.30	3.68	3.28
S5-1	11.6	53.00	W14x53	-	261.30	97.18	11.87	4.09	33.70	14.10	1.17	1.30	3.68	3.28
S6-1	11.6	53.00	W14x53	-	261.30	97.18	11.87	4.09	33.70	14.10	1.17	1.30	3.68	3.28
S7-1	11.6	53.00	W14x53	-	261.30	97.18	11.87	4.09	33.70	14.10	1.17	1.30	3.68	3.28
S8-1	11.6	53.00	W14x53	-	261.30	97.18	11.87	4.09	33.70	14.10	1.21	1.30	3.56	3.18
S9-1	11.6	53.00	W14x53	One End	261.30	97.18	11.87	4.09	33.70	14.10	1.20	1.30	3.59	3.20
S10-1	11.6	53.00	W14x53	One End	261.30	97.18	11.87	4.09	33.70	14.10	1.16	1.30	3.72	3.32
S11-1	11.6	53.00	W14x53	One End	261.30	97.18	11.87	4.09	33.70	14.10	1.17	1.30	3.68	3.29
S12-1	11.6	53.00	W14x53	One End	261.30	97.18	11.87	4.09	33.70	14.10	1.14	1.30	3.78	3.38
F2-1	11.6	93.31	Welded PL	-	1046.52	93.47	12.58	4.34	33.70	14.10	1.10	1.30	16.44	3.35
F1-2	24.1	120.76	Welded PL	-	1506.12	203.55	56.40	9.36	93.70	18.20	1.19	1.30	7.59	5.22
S1-2	23.5	77.00	W16x77	One End	450.00	142.30	50.45	8.59	90.86	18.10	1.21	1.30	2.08	3.56
S2-2	22.9	77.00	W16x77	One End	450.00	142.30	47.91	8.37	85.18	17.90	1.17	1.30	2.30	3.72
S3-2	22.3	77.00	W16x77	One End	450.00	142.30	45.43	8.15	85.18	17.90	1.16	1.30	2.34	3.75
S4-2	21.7	77.00	W16x77	-	450.00	142.30	43.02	7.93	79.50	17.70	1.16	1.30	2.52	3.80
S5-2	21.1	77.00	W16x77	-	450.00	142.30	40.67	7.71	79.50	17.70	1.16	1.30	2.54	3.81
S6-2	20.5	61.00	W14x61	-	306.00	98.74	37.51	7.32	73.95	17.40	1.16	1.30	1.77	2.61
S7-2	19.9	61.00	W14x61	-	306.00	98.74	35.35	7.10	68.40	17.10	1.16	1.30	1.94	2.67
S8-2	19.3	61.00	W14x61	-	306.00	98.74	33.25	6.89	68.40	17.10	1.05	1.30	2.16	2.95
S9-2	18.9	61.00	W14x61	Yes	306.00	203.75	31.88	6.75	64.30	16.75	1.06	1.30	2.30	6.50
S10-2	18.3	67.00	W16x67	Yes	390.00	166.83	30.15	6.59	64.30	16.75	1.13	1.30	2.85	4.94
S11-2	17.7	67.00	W16x67	Yes	390.00	179.20	28.21	6.38	60.20	16.40	1.09	1.30	3.18	5.64
S12-2	17.1	67.00	W16x67	Yes	390.00	170.95	26.33	6.16	60.20	16.40	1.13	1.30	3.11	5.22
F2-2	16.5	95.54	Welded PL	Yes	1046.52	160.51	25.53	6.19	56.05	16.00	1.14	1.30	9.39	4.95
F1-5	24.5	120.76	Welded PL	-	1580.00	203.55	58.28	9.52	93.70	18.20	1.21	1.30	7.86	5.15
S1-5	23.6	77.00	W16x77	Yes	450.00	212.62	50.88	8.62	90.86	18.10	1.06	1.30	2.36	6.22
S2-5	22.7	77.00	W16x77	Yes	450.00	203.12	47.07	8.30	85.18	17.90	1.01	1.30	2.68	6.31
S3-5	21.8	77.00	W16x77	Yes	450.00	212.62	43.42	7.97	79.50	17.70	1.16	1.30	2.53	5.83
S4-5	21	77.00	W16x77	One End	450.00	142.30	40.29	7.67	73.95	17.40	1.16	1.30	2.74	3.88
S5-5	20.1	67.00	W16x77	One End	450.00	142.30	36.38	7.24	73.95	17.40	1.16	1.30	2.78	3.90
S6-5	19.2	67.00	W14x61	One End	306.00	98.74	33.19	6.92	68.40	17.10	1.16	1.30	1.96	2.68
S7-5	18.3	67.00	W14x61	One End	306.00	98.74	30.15	6.59	64.30	16.75	1.16	1.30	2.12	2.75
S8-5	17.5	67.00	W14x61	One End	306.00	98.74	27.58	6.30	60.20	16.40	1.16	1.30	2.29	2.82
S9-5	16.6	67.00	W14x61	One End	306.00	98.74	24.81	5.98	56.05	16.00	1.13	1.30	2.55	2.96
S10-5	15.8	67.00	W16x67	Yes	390.00	166.83	22.48	5.69	51.90	15.60	1.09	1.30	3.78	5.56
S11-5	14.9	67.00	W16x67	Yes	390.00	162.70	19.99	5.37	47.75	15.10	1.08	1.30	4.18	5.66
S12-5	14.2	67.00	W16x67	Yes	390.00	170.95	18.16	5.11	47.75	15.10	1.06	1.30	4.29	6.08
F2-5	13.4	102.64	Welded PL	-	1230.03	142.08	17.01	5.08	43.60	14.60	1.02	1.30	16.03	5.37

* Moment Capacity represents full height section capacity at midspan of beams

Shear Capacity represents minimum shear capacity at beam ends

** Dead load calculation includes deck weight (divided evenly among beams in bay) and beam self weight (increased by 5% for miscellaneous add'l weight)

Span 11 - Stringer Ratings



Date DWC

Date 4/12/2012

Job No. P402110046

Date ADK

Date 4/13/2012

Calculations For: **CUY-2-1441 Span 11**

Simple Span Stringers

$q_{DL} = 9.10$ k/ft

$q_{DL} = 0.65$ k/ft per beam

Stringer	Span (ft)	Self Weight	Member	Coped?	Capacity*		Dead Load**		Live Load		LLDF	Impact	Controlling Rating Factors	
					Moment	Shear	Moment	Shear	Moment	Shear			Moment	Shear
					k-ft	k	k-ft	k	k-ft	k			Operating	Operating
F1-1	11.6	118.06	Welded PL	-	1506.12	210.66	13.02	4.49	32.90	13.80	0.76	1.30	35.17	11.53
S1-1	11.6	53.00	W14x53	-	261.30	97.18	11.87	4.09	32.90	13.80	0.96	1.30	4.61	4.10
S2-1	11.6	53.00	W14x53	-	261.30	97.18	11.87	4.09	32.90	13.80	1.17	1.30	3.79	3.38
S3-1	11.6	53.00	W14x53	-	261.30	97.18	11.87	4.09	32.90	13.80	1.17	1.30	3.77	3.35
S4-1	11.6	53.00	W14x53	-	261.30	97.18	11.87	4.09	32.90	13.80	1.17	1.30	3.77	3.35
S5-1	11.6	53.00	W14x53	-	261.30	97.18	11.87	4.09	32.90	13.80	1.17	1.30	3.77	3.35
S6-1	11.6	53.00	W14x53	-	261.30	97.18	11.87	4.09	32.90	13.80	1.17	1.30	3.77	3.35
S7-1	11.6	53.00	W14x53	-	261.30	97.18	11.87	4.09	32.90	13.80	1.17	1.30	3.77	3.35
S8-1	11.6	53.00	W14x53	-	261.30	97.18	11.87	4.09	32.90	13.80	1.21	1.30	3.65	3.25
S9-1	11.6	53.00	W14x53	One End	261.30	97.18	11.87	4.09	32.90	13.80	1.20	1.30	3.67	3.27
S10-1	11.6	53.00	W14x53	One End	261.30	97.18	11.87	4.09	32.90	13.80	1.16	1.30	3.81	3.39
S11-1	11.6	53.00	W14x53	One End	261.30	97.18	11.87	4.09	32.90	13.80	1.17	1.30	3.77	3.36
S12-1	11.6	53.00	W14x53	One End	261.30	97.18	11.87	4.09	32.90	13.80	1.14	1.30	3.88	3.45
F2-1	11.6	93.31	Welded PL	-	1046.52	93.47	12.58	4.34	32.90	13.80	1.10	1.30	16.84	3.42
F1-2	24.1	120.76	Welded PL	-	1506.12	203.55	56.40	9.36	100.50	19.20	1.19	1.30	7.08	4.95
S1-2	23.5	77.00	W16x77	One End	450.00	142.30	50.45	8.59	97.90	19.02	1.21	1.30	1.93	3.39
S2-2	22.9	77.00	W16x77	One End	450.00	142.30	47.91	8.37	92.70	18.66	1.17	1.30	2.12	3.57
S3-2	22.3	77.00	W16x77	One End	450.00	142.30	45.43	8.15	92.70	18.66	1.16	1.30	2.15	3.60
S4-2	21.7	77.00	W16x77	-	450.00	142.30	43.02	7.93	87.50	18.30	1.16	1.30	2.29	3.67
S5-2	21.1	77.00	W16x77	-	450.00	142.30	40.67	7.71	87.50	18.30	1.16	1.30	2.31	3.68
S6-2	20.5	61.00	W14x61	-	306.00	98.74	37.51	7.32	82.25	17.85	1.16	1.30	1.59	2.55
S7-2	19.9	61.00	W14x61	-	306.00	98.74	35.35	7.10	77.00	17.40	1.16	1.30	1.72	2.62
S8-2	19.3	61.00	W14x61	-	306.00	98.74	33.25	6.89	77.00	17.40	1.05	1.30	1.92	2.90
S9-2	18.9	61.00	W14x61	Yes	306.00	203.75	31.88	6.75	71.75	16.85	1.06	1.30	2.06	6.46
S10-2	18.3	67.00	W16x67	Yes	390.00	166.83	30.15	6.59	71.75	16.85	1.13	1.30	2.55	4.91
S11-2	17.7	67.00	W16x67	Yes	390.00	179.20	28.21	6.38	66.50	16.30	1.09	1.30	2.88	5.68
S12-2	17.1	67.00	W16x67	Yes	390.00	170.95	26.33	6.16	66.50	16.30	1.13	1.30	2.81	5.25
F2-2	16.5	95.54	Welded PL	Yes	1046.52	160.51	25.53	6.19	61.25	16.05	1.14	1.30	8.59	4.93
F1-5	24.5	120.76	Welded PL	-	1580.00	203.55	58.28	9.52	100.50	19.20	1.21	1.30	7.33	4.88
S1-5	23.6	77.00	W16x77	Yes	450.00	212.62	50.88	8.62	97.90	19.02	1.06	1.30	2.19	5.92
S2-5	22.7	77.00	W16x77	Yes	450.00	203.12	47.07	8.30	92.70	18.66	1.01	1.30	2.46	6.05
S3-5	21.8	77.00	W16x77	Yes	450.00	212.62	43.42	7.97	87.50	18.30	1.16	1.30	2.30	5.64
S4-5	21	77.00	W16x77	One End	450.00	142.30	40.29	7.67	82.25	17.85	1.16	1.30	2.47	3.78
S5-5	20.1	67.00	W16x77	One End	450.00	142.30	36.38	7.24	82.25	17.85	1.16	1.30	2.50	3.80
S6-5	19.2	67.00	W14x61	One End	306.00	98.74	33.19	6.92	77.00	17.40	1.16	1.30	1.74	2.63
S7-5	18.3	67.00	W14x61	One End	306.00	98.74	30.15	6.59	71.75	16.85	1.16	1.30	1.90	2.73
S8-5	17.5	67.00	W14x61	One End	306.00	98.74	27.58	6.30	66.50	16.30	1.16	1.30	2.08	2.84
S9-5	16.6	67.00	W14x61	One End	306.00	98.74	24.81	5.98	61.25	16.05	1.13	1.30	2.33	2.96
S10-5	15.8	67.00	W16x67	Yes	390.00	166.83	22.48	5.69	56.00	15.80	1.09	1.30	3.51	5.49
S11-5	14.9	67.00	W16x67	Yes	390.00	162.70	19.99	5.37	50.75	15.40	1.08	1.30	3.94	5.55
S12-5	14.2	67.00	W16x67	Yes	390.00	170.95	18.16	5.11	50.75	15.40	1.06	1.30	4.03	5.96
F2-5	13.4	102.64	Welded PL	-	1230.03	142.08	17.01	5.08	45.50	15.00	1.02	1.30	15.36	5.23

* Moment Capacity represents full height section capacity at midspan of beams

Shear Capacity represents minimum shear capacity at beam ends

** Dead load calculation includes deck weight (divided evenly among beams in bay) and beam self weight (increased by 5% for miscellaneous add'l weight)

Span 11 - Stringer Ratings



Date DWC

Date 4/12/2012

Job No. P402110046

Date ADK

Date 4/13/2012

Calculations For: **CUY-2-1441 Span 11**

Simple Span Stringers

$q_{DL} = 9.10$ k/ft

$q_{DL} = 0.65$ k/ft per beam

Stringer	Span (ft)	Self Weight	Member	Coped?	Capacity*		Dead Load**		Live Load		LLDF	Impact	Controlling Rating Factors	
					Moment	Shear	Moment	Shear	Moment	Shear			Moment	Shear
					k-ft	k	k-ft	k	k-ft	k			Operating	Operating
F1-1	11.6	118.06	Welded PL	-	1506.12	210.66	13.02	4.49	33.70	14.10	0.76	1.30	34.34	11.29
S1-1	11.6	53.00	W14x53	-	261.30	97.18	11.87	4.09	33.70	14.10	0.96	1.30	4.50	4.02
S2-1	11.6	53.00	W14x53	-	261.30	97.18	11.87	4.09	33.70	14.10	1.17	1.30	3.70	3.31
S3-1	11.6	53.00	W14x53	-	261.30	97.18	11.87	4.09	33.70	14.10	1.17	1.30	3.68	3.28
S4-1	11.6	53.00	W14x53	-	261.30	97.18	11.87	4.09	33.70	14.10	1.17	1.30	3.68	3.28
S5-1	11.6	53.00	W14x53	-	261.30	97.18	11.87	4.09	33.70	14.10	1.17	1.30	3.68	3.28
S6-1	11.6	53.00	W14x53	-	261.30	97.18	11.87	4.09	33.70	14.10	1.17	1.30	3.68	3.28
S7-1	11.6	53.00	W14x53	-	261.30	97.18	11.87	4.09	33.70	14.10	1.17	1.30	3.68	3.28
S8-1	11.6	53.00	W14x53	-	261.30	97.18	11.87	4.09	33.70	14.10	1.21	1.30	3.56	3.18
S9-1	11.6	53.00	W14x53	One End	261.30	97.18	11.87	4.09	33.70	14.10	1.20	1.30	3.59	3.20
S10-1	11.6	53.00	W14x53	One End	261.30	97.18	11.87	4.09	33.70	14.10	1.16	1.30	3.72	3.32
S11-1	11.6	53.00	W14x53	One End	261.30	97.18	11.87	4.09	33.70	14.10	1.17	1.30	3.68	3.29
S12-1	11.6	53.00	W14x53	One End	261.30	97.18	11.87	4.09	33.70	14.10	1.14	1.30	3.78	3.38
F2-1	11.6	93.31	Welded PL	-	1046.52	93.47	12.58	4.34	33.70	14.10	1.10	1.30	16.44	3.35
F1-2	24.1	120.76	Welded PL	-	1506.12	203.55	56.40	9.36	87.70	17.70	1.19	1.30	8.11	5.37
S1-2	23.5	77.00	W16x77	One End	450.00	142.30	50.45	8.59	85.48	17.58	1.21	1.30	2.21	3.66
S2-2	22.9	77.00	W16x77	One End	450.00	142.30	47.91	8.37	81.04	17.34	1.17	1.30	2.42	3.84
S3-2	22.3	77.00	W16x77	One End	450.00	142.30	45.43	8.15	81.04	17.34	1.16	1.30	2.46	3.87
S4-2	21.7	77.00	W16x77	-	450.00	142.30	43.02	7.93	76.60	17.10	1.16	1.30	2.62	3.93
S5-2	21.1	77.00	W16x77	-	450.00	142.30	40.67	7.71	76.60	17.10	1.16	1.30	2.64	3.94
S6-2	20.5	61.00	W14x61	-	306.00	98.74	37.51	7.32	72.50	16.80	1.16	1.30	1.81	2.71
S7-2	19.9	61.00	W14x61	-	306.00	98.74	35.35	7.10	68.40	16.50	1.16	1.30	1.94	2.76
S8-2	19.3	61.00	W14x61	-	306.00	98.74	33.25	6.89	68.40	16.50	1.05	1.30	2.16	3.05
S9-2	18.9	61.00	W14x61	Yes	306.00	203.75	31.88	6.75	64.30	16.15	1.06	1.30	2.30	6.74
S10-2	18.3	67.00	W16x67	Yes	390.00	166.83	30.15	6.59	64.30	16.15	1.13	1.30	2.85	5.12
S11-2	17.7	67.00	W16x67	Yes	390.00	179.20	28.21	6.38	60.20	15.80	1.09	1.30	3.18	5.85
S12-2	17.1	67.00	W16x67	Yes	390.00	170.95	26.33	6.16	60.20	15.80	1.13	1.30	3.11	5.42
F2-2	16.5	95.54	Welded PL	Yes	1046.52	160.51	25.53	6.19	56.05	15.35	1.14	1.30	9.39	5.16
F1-5	24.5	120.76	Welded PL	-	1580.00	203.55	58.28	9.52	87.70	17.70	1.21	1.30	8.40	5.29
S1-5	23.6	77.00	W16x77	Yes	450.00	212.62	50.88	8.62	85.48	17.58	1.06	1.30	2.51	6.41
S2-5	22.7	77.00	W16x77	Yes	450.00	203.12	47.07	8.30	81.04	17.34	1.01	1.30	2.82	6.51
S3-5	21.8	77.00	W16x77	Yes	450.00	212.62	43.42	7.97	76.60	17.10	1.16	1.30	2.62	6.04
S4-5	21	77.00	W16x77	One End	450.00	142.30	40.29	7.67	72.50	16.80	1.16	1.30	2.80	4.02
S5-5	20.1	67.00	W16x77	One End	450.00	142.30	36.38	7.24	72.50	16.80	1.16	1.30	2.84	4.04
S6-5	19.2	67.00	W14x61	One End	306.00	98.74	33.19	6.92	68.40	16.50	1.16	1.30	1.96	2.78
S7-5	18.3	67.00	W14x61	One End	306.00	98.74	30.15	6.59	64.30	16.15	1.16	1.30	2.12	2.85
S8-5	17.5	67.00	W14x61	One End	306.00	98.74	27.58	6.30	60.20	15.80	1.16	1.30	2.29	2.93
S9-5	16.6	67.00	W14x61	One End	306.00	98.74	24.81	5.98	56.05	15.35	1.13	1.30	2.55	3.09
S10-5	15.8	67.00	W16x67	Yes	390.00	166.83	22.48	5.69	51.90	14.90	1.09	1.30	3.78	5.82
S11-5	14.9	67.00	W16x67	Yes	390.00	162.70	19.99	5.37	47.75	14.75	1.08	1.30	4.18	5.79
S12-5	14.2	67.00	W16x67	Yes	390.00	170.95	18.16	5.11	47.75	14.75	1.06	1.30	4.29	6.22
F2-5	13.4	102.64	Welded PL	-	1230.03	142.08	17.01	5.08	43.60	14.60	1.02	1.30	16.03	5.37

* Moment Capacity represents full height section capacity at midspan of beams

Shear Capacity represents minimum shear capacity at beam ends

** Dead load calculation includes deck weight (divided evenly among beams in bay) and beam self weight (increased by 5% for miscellaneous add'l weight)



Date DWC Date 6/7/2012 Job No. P402110046
 Date CTG Date 6/7/2012

Calculations For: **CUY-2-1441 Span 11**

REVISED 3-Span Continuous Stringers (Coped Stringers Modeled as Simple Span)

q_{DL} = 9.10 k/ft
 q_{DL} = 0.61 k/ft per beam

Stringer	Self Wt	Member	Coped?	Capacity*			Dead Load**			Live Load			LLDF	Impact	Controlling Rating Factors						
				Neg. Mom	Pos. Mom	Shear	Neg. Mom	Pos. Mom	Shear	Neg. Mom	Pos. Mom	Shear			Neg. Moment		Pos. Moment		Shear		
				k-ft	k-ft	k	k-ft	k-ft	k	k-ft	k-ft	k			INV	OPER	INV	OPER	INV	OPER	
F1-3	120.76	Welded PL	-	1580.00	1580.00	203.55	-36.67	24.45	9.17	-57.00	64.40	22.10	0.86	1.30	11.13	18.58	9.95	16.61	3.59	1.82	5.99
S1-3	61.00	W14x61	-	306.00	306.00	98.74	-33.54	22.36	8.38	-57.00	64.40	22.10	0.77	1.30	2.11	3.52	1.97	3.29	1.82	3.04	
S2-3	61.00	W14x61	-	306.00	306.00	98.74	-33.54	22.36	8.38	-57.00	64.40	22.10	0.93	1.30	1.75	2.93	1.64	2.73	1.51	2.53	
S3-3	61.00	W14x61	-	306.00	306.00	98.74	-33.54	22.36	8.38	-57.00	64.40	22.10	1.16	1.30	1.40	2.34	1.31	2.19	1.21	2.02	
S4-3	61.00	W14x61	-	306.00	306.00	98.74	-33.54	22.36	8.38	-57.00	64.40	22.10	1.16	1.30	1.41	2.35	1.32	2.20	1.22	2.03	
S5-3	61.00	W14x61	-	306.00	306.00	98.74	-33.54	22.36	8.38	-57.00	64.40	22.10	1.16	1.30	1.41	2.35	1.32	2.20	1.22	2.03	
S6-3	61.00	W14x61	-	306.00	306.00	98.74	-33.54	22.36	8.38	-57.00	64.40	22.10	1.16	1.30	1.41	2.35	1.32	2.20	1.22	2.03	
S7-3	61.00	W14x61	-	306.00	306.00	98.74	-33.54	22.36	8.38	-57.00	64.40	22.10	1.16	1.30	1.41	2.35	1.32	2.20	1.22	2.03	
S8-3	61.00	W14x61	-	306.00	306.00	98.74	-33.54	22.36	8.38	-57.00	64.40	22.10	1.16	1.30	1.41	2.35	1.32	2.20	1.22	2.03	
S9-3	61.00	W14x61	-	306.00	306.00	98.74	-33.54	22.36	8.38	-57.00	64.40	22.10	1.20	1.30	1.35	2.26	1.27	2.11	1.17	1.95	
S10-3	61.00	W14x61	Yes	N/A	306.00	182.87	N/A	33.65	6.71	N/A	80.00	20.80	1.24	1.30	N/A	N/A	0.93	1.56	2.39	3.98	
S11-3	61.00	W14x61	Yes	N/A	306.00	178.95	N/A	33.65	6.71	N/A	80.00	20.80	1.02	1.30	N/A	N/A	1.14	1.90	2.84	4.74	
S12-3	67.00	W16x67	Yes	N/A	390.00	187.45	N/A	33.97	6.77	N/A	80.00	20.80	0.80	1.30	N/A	N/A	1.90	3.18	3.78	6.32	
S13-3	67.00	W16x67	Yes	N/A	390.00	183.32	N/A	33.97	6.77	N/A	80.00	20.80	0.95	1.30	N/A	N/A	1.62	2.70	3.14	5.24	
F2-3	95.54	Welded PL	-	1105.08	1105.08	160.51	-35.35	23.57	8.84	-57.00	64.40	22.10	1.09	1.30	6.04	10.08	5.42	9.05	2.19	3.66	
F1-4	109.34	Welded PL	-	1492.37	1492.37	128.18	-36.07	24.05	9.02	-57.00	64.40	22.10	0.86	1.30	10.50	17.53	9.40	15.68	2.18	3.64	
S1-4	61.00	W14x61	-	306.00	306.00	98.74	-33.54	22.36	8.38	-57.00	64.40	22.10	0.78	1.30	2.09	3.49	1.95	3.26	1.80	3.01	
S2-4	61.00	W14x61	-	306.00	306.00	98.74	-33.54	22.36	8.38	-57.00	64.40	22.10	0.93	1.30	1.75	2.92	1.63	2.72	1.51	2.52	
S3-4	61.00	W14x61	-	306.00	306.00	98.74	-33.54	22.36	8.38	-57.00	64.40	22.10	1.16	1.30	1.41	2.35	1.31	2.19	1.21	2.03	
S4-4	61.00	W14x61	-	306.00	306.00	98.74	-33.54	22.36	8.38	-57.00	64.40	22.10	1.16	1.30	1.41	2.35	1.32	2.20	1.22	2.03	
S5-4	61.00	W14x61	-	306.00	306.00	98.74	-33.54	22.36	8.38	-57.00	64.40	22.10	1.16	1.30	1.41	2.35	1.32	2.20	1.22	2.03	
S6-4	61.00	W14x61	-	306.00	306.00	98.74	-33.54	22.36	8.38	-57.00	64.40	22.10	1.16	1.30	1.41	2.35	1.32	2.20	1.22	2.03	
S7-4	61.00	W14x61	-	306.00	306.00	98.74	-33.54	22.36	8.38	-57.00	64.40	22.10	1.16	1.30	1.41	2.35	1.32	2.20	1.22	2.03	
S8-4	61.00	W14x61	-	306.00	306.00	98.74	-33.54	22.36	8.38	-57.00	64.40	22.10	1.16	1.30	1.41	2.35	1.32	2.20	1.22	2.03	
S9-4	61.00	W14x61	-	306.00	306.00	98.74	-33.54	22.36	8.38	-57.00	64.40	22.10	1.13	1.30	1.44	2.40	1.35	2.25	1.24	2.08	
S10-4	61.00	W14x61	-	306.00	306.00	98.74	-33.54	22.36	8.38	-57.00	64.40	22.10	0.89	1.30	1.83	3.05	1.71	2.85	1.58	2.64	
S11-4	61.00	W14x61	End Only	306.00	306.00	98.74	-33.54	22.36	8.38	-57.00	64.40	22.10	0.96	1.30	1.70	2.84	1.59	2.66	1.47	2.45	
S12-4	61.00	W14x61	End Only	306.00	306.00	98.74	-33.54	22.36	8.38	-57.00	64.40	22.10	1.15	1.30	1.42	2.37	1.33	2.21	1.23	2.05	
S13-4	67.00	W16x67	Yes	N/A	390.00	194.66	N/A	33.97	6.77	N/A	80.00	20.80	1.07	1.30	N/A	N/A	1.43	2.38	2.95	4.92	
F2-4	100.17	Welded PL	-	1046.52	1046.52	148.00	-35.59	23.73	8.90	-57.00	64.40	22.10	1.09	1.30	5.70	9.52	5.12	8.55	2.01	3.35	

* Moment Capacity represents full height section capacity at midspan of beams

Shear Capacity represents minimum shear capacity at beam ends

** Dead load calculation includes deck weight (divided evenly among beams in bay) and beam self weight (increased by 5% for miscellaneous add'l weight)

Span 11 - Stringer Ratings



Date DWC Date 6/7/2012 Job No. P402110046
 Date CTG Date 6/7/2012

Calculations For: **CUY-2-1441 Span 11**

REVISED 3-Span Continuous Stringers (Coped Stringers Modeled as Simple Span)

$q_{DL} = 9.10$ k/ft
 $q_{DL} = 0.61$ k/ft per beam

Stringer	Self Wt	Member	Coped?	Capacity*			Dead Load**			Live Load			LLDF	Impact	Controlling Rating Factors		
				Neg. Mom	Pos. Mom	Shear	Neg. Mom	Pos. Mom	Shear	Neg. Mom	Pos. Mom	Shear			Neg. Moment	Pos. Moment	Shear
				k-ft	k-ft	k	k-ft	k-ft	k	k-ft	k-ft	k			OPER	OPER	OPER
F1-3	120.76	Welded PL	-	1580.00	1580.00	203.55	-36.67	24.45	9.17	-25.20	40.30	13.00	0.86	1.30	42.02	26.55	10.19
S1-3	61.00	W14x61	-	306.00	306.00	98.74	-33.54	22.36	8.38	-25.20	40.30	13.00	0.77	1.30	7.96	5.25	5.16
S2-3	61.00	W14x61	-	306.00	306.00	98.74	-33.54	22.36	8.38	-25.20	40.30	13.00	0.93	1.30	6.62	4.37	4.29
S3-3	61.00	W14x61	-	306.00	306.00	98.74	-33.54	22.36	8.38	-25.20	40.30	13.00	1.16	1.30	5.29	3.49	3.43
S4-3	61.00	W14x61	-	306.00	306.00	98.74	-33.54	22.36	8.38	-25.20	40.30	13.00	1.16	1.30	5.32	3.51	3.45
S5-3	61.00	W14x61	-	306.00	306.00	98.74	-33.54	22.36	8.38	-25.20	40.30	13.00	1.16	1.30	5.32	3.51	3.45
S6-3	61.00	W14x61	-	306.00	306.00	98.74	-33.54	22.36	8.38	-25.20	40.30	13.00	1.16	1.30	5.32	3.51	3.45
S7-3	61.00	W14x61	-	306.00	306.00	98.74	-33.54	22.36	8.38	-25.20	40.30	13.00	1.16	1.30	5.32	3.51	3.45
S8-3	61.00	W14x61	-	306.00	306.00	98.74	-33.54	22.36	8.38	-25.20	40.30	13.00	1.16	1.30	5.32	3.51	3.45
S9-3	61.00	W14x61	-	306.00	306.00	98.74	-33.54	22.36	8.38	-25.20	40.30	13.00	1.20	1.30	5.12	3.38	3.32
S10-3	61.00	W14x61	Yes	N/A	306.00	182.87	N/A	33.65	6.71	N/A	52.00	12.50	1.24	1.30	N/A	2.40	6.63
S11-3	61.00	W14x61	Yes	N/A	306.00	178.95	N/A	33.65	6.71	N/A	52.00	12.50	1.02	1.30	N/A	2.92	7.89
S12-3	67.00	W16x67	Yes	N/A	390.00	187.45	N/A	33.97	6.77	N/A	52.00	12.50	0.80	1.30	N/A	4.89	10.51
S13-3	67.00	W16x67	Yes	N/A	390.00	183.32	N/A	33.97	6.77	N/A	52.00	12.50	0.95	1.30	N/A	4.15	8.72
F2-3	95.54	Welded PL	-	1105.08	1105.08	160.51	-35.35	23.57	8.84	-25.20	40.30	13.00	1.09	1.30	22.80	14.46	6.22
F1-4	109.34	Welded PL	-	1492.37	1492.37	128.18	-36.07	24.05	9.02	-25.20	40.30	13.00	0.86	1.30	39.65	25.06	6.19
S1-4	61.00	W14x61	-	306.00	306.00	98.74	-33.54	22.36	8.38	-25.20	40.30	13.00	0.78	1.30	7.89	5.21	5.12
S2-4	61.00	W14x61	-	306.00	306.00	98.74	-33.54	22.36	8.38	-25.20	40.30	13.00	0.93	1.30	6.59	4.35	4.28
S3-4	61.00	W14x61	-	306.00	306.00	98.74	-33.54	22.36	8.38	-25.20	40.30	13.00	1.16	1.30	5.31	3.50	3.44
S4-4	61.00	W14x61	-	306.00	306.00	98.74	-33.54	22.36	8.38	-25.20	40.30	13.00	1.16	1.30	5.32	3.51	3.45
S5-4	61.00	W14x61	-	306.00	306.00	98.74	-33.54	22.36	8.38	-25.20	40.30	13.00	1.16	1.30	5.32	3.51	3.45
S6-4	61.00	W14x61	-	306.00	306.00	98.74	-33.54	22.36	8.38	-25.20	40.30	13.00	1.16	1.30	5.32	3.51	3.45
S7-4	61.00	W14x61	-	306.00	306.00	98.74	-33.54	22.36	8.38	-25.20	40.30	13.00	1.16	1.30	5.32	3.51	3.45
S8-4	61.00	W14x61	-	306.00	306.00	98.74	-33.54	22.36	8.38	-25.20	40.30	13.00	1.16	1.30	5.32	3.51	3.45
S9-4	61.00	W14x61	-	306.00	306.00	98.74	-33.54	22.36	8.38	-25.20	40.30	13.00	1.13	1.30	5.44	3.59	3.53
S10-4	61.00	W14x61	-	306.00	306.00	98.74	-33.54	22.36	8.38	-25.20	40.30	13.00	0.89	1.30	6.91	4.56	4.48
S11-4	61.00	W14x61	End Only	306.00	306.00	98.74	-33.54	22.36	8.38	-25.20	40.30	13.00	0.96	1.30	6.43	4.24	4.17
S12-4	61.00	W14x61	End Only	306.00	306.00	98.74	-33.54	22.36	8.38	-25.20	40.30	13.00	1.15	1.30	5.36	3.54	3.48
S13-4	67.00	W16x67	Yes	N/A	390.00	194.66	N/A	33.97	6.77	N/A	52.00	12.50	1.07	1.30	N/A	3.66	8.19
F2-4	100.17	Welded PL	-	1046.52	1046.52	148.00	-35.59	23.73	8.90	-25.20	40.30	13.00	1.09	1.30	21.53	13.67	5.69

* Moment Capacity represents full height section capacity at midspan of beams

Shear Capacity represents minimum shear capacity at beam ends

** Dead load calculation includes deck weight (divided evenly among beams in bay) and beam self weight (increased by 5% for miscellaneous add'l weight)

Span 11 - Stringer Ratings



Date DWC Date 6/7/2012 Job No. P402110046
 Date CTG Date 6/7/2012

Calculations For: **CUY-2-1441 Span 11**

REVISED 3-Span Continuous Stringers (Coped Stringers Modeled as Simple Span)

q_{DL} = 9.10 k/ft
 q_{DL} = 0.61 k/ft per beam

Stringer	Self Wt	Member	Coped?	Capacity*			Dead Load**			Live Load			LLDF	Impact	Controlling Rating Factors		
				Neg. Mom	Pos. Mom	Shear	Neg. Mom	Pos. Mom	Shear	Neg. Mom	Pos. Mom	Shear			Neg. Moment	Pos. Moment	Shear
				k-ft	k-ft	k	k-ft	k-ft	k	k-ft	k-ft	k			OPER	OPER	OPER
F1-3	120.76	Welded PL	-	1580.00	1580.00	203.55	-36.67	24.45	9.17	-40.30	55.10	18.20	0.86	1.30	26.28	19.42	7.28
S1-3	61.00	W14x61	-	306.00	306.00	98.74	-33.54	22.36	8.38	-40.30	55.10	18.20	0.77	1.30	4.98	3.84	3.69
S2-3	61.00	W14x61	-	306.00	306.00	98.74	-33.54	22.36	8.38	-40.30	55.10	18.20	0.93	1.30	4.14	3.19	3.07
S3-3	61.00	W14x61	-	306.00	306.00	98.74	-33.54	22.36	8.38	-40.30	55.10	18.20	1.16	1.30	3.31	2.55	2.45
S4-3	61.00	W14x61	-	306.00	306.00	98.74	-33.54	22.36	8.38	-40.30	55.10	18.20	1.16	1.30	3.32	2.57	2.46
S5-3	61.00	W14x61	-	306.00	306.00	98.74	-33.54	22.36	8.38	-40.30	55.10	18.20	1.16	1.30	3.32	2.57	2.46
S6-3	61.00	W14x61	-	306.00	306.00	98.74	-33.54	22.36	8.38	-40.30	55.10	18.20	1.16	1.30	3.32	2.57	2.46
S7-3	61.00	W14x61	-	306.00	306.00	98.74	-33.54	22.36	8.38	-40.30	55.10	18.20	1.16	1.30	3.32	2.57	2.46
S8-3	61.00	W14x61	-	306.00	306.00	98.74	-33.54	22.36	8.38	-40.30	55.10	18.20	1.16	1.30	3.32	2.57	2.46
S9-3	61.00	W14x61	-	306.00	306.00	98.74	-33.54	22.36	8.38	-40.30	55.10	18.20	1.20	1.30	3.20	2.47	2.37
S10-3	61.00	W14x61	Yes	N/A	306.00	182.87	N/A	33.65	6.71	N/A	68.40	17.10	1.24	1.30	N/A	1.82	4.85
S11-3	61.00	W14x61	Yes	N/A	306.00	178.95	N/A	33.65	6.71	N/A	68.40	17.10	1.02	1.30	N/A	2.22	5.77
S12-3	67.00	W16x67	Yes	N/A	390.00	187.45	N/A	33.97	6.77	N/A	68.40	17.10	0.80	1.30	N/A	3.72	7.68
S13-3	67.00	W16x67	Yes	N/A	390.00	183.32	N/A	33.97	6.77	N/A	68.40	17.10	0.95	1.30	N/A	3.16	6.37
F2-3	95.54	Welded PL	-	1105.08	1105.08	160.51	-35.35	23.57	8.84	-40.30	55.10	18.20	1.09	1.30	14.26	10.58	4.44
F1-4	109.34	Welded PL	-	1492.37	1492.37	128.18	-36.07	24.05	9.02	-40.30	55.10	18.20	0.86	1.30	24.79	18.33	4.42
S1-4	61.00	W14x61	-	306.00	306.00	98.74	-33.54	22.36	8.38	-40.30	55.10	18.20	0.78	1.30	4.93	3.81	3.66
S2-4	61.00	W14x61	-	306.00	306.00	98.74	-33.54	22.36	8.38	-40.30	55.10	18.20	0.93	1.30	4.12	3.18	3.06
S3-4	61.00	W14x61	-	306.00	306.00	98.74	-33.54	22.36	8.38	-40.30	55.10	18.20	1.16	1.30	3.32	2.56	2.46
S4-4	61.00	W14x61	-	306.00	306.00	98.74	-33.54	22.36	8.38	-40.30	55.10	18.20	1.16	1.30	3.32	2.57	2.46
S5-4	61.00	W14x61	-	306.00	306.00	98.74	-33.54	22.36	8.38	-40.30	55.10	18.20	1.16	1.30	3.32	2.57	2.46
S6-4	61.00	W14x61	-	306.00	306.00	98.74	-33.54	22.36	8.38	-40.30	55.10	18.20	1.16	1.30	3.32	2.57	2.46
S7-4	61.00	W14x61	-	306.00	306.00	98.74	-33.54	22.36	8.38	-40.30	55.10	18.20	1.16	1.30	3.32	2.57	2.46
S8-4	61.00	W14x61	-	306.00	306.00	98.74	-33.54	22.36	8.38	-40.30	55.10	18.20	1.16	1.30	3.32	2.57	2.46
S9-4	61.00	W14x61	-	306.00	306.00	98.74	-33.54	22.36	8.38	-40.30	55.10	18.20	1.13	1.30	3.40	2.63	2.52
S10-4	61.00	W14x61	-	306.00	306.00	98.74	-33.54	22.36	8.38	-40.30	55.10	18.20	0.89	1.30	4.32	3.33	3.20
S11-4	61.00	W14x61	End Only	306.00	306.00	98.74	-33.54	22.36	8.38	-40.30	55.10	18.20	0.96	1.30	4.02	3.10	2.98
S12-4	61.00	W14x61	End Only	306.00	306.00	98.74	-33.54	22.36	8.38	-40.30	55.10	18.20	1.15	1.30	3.35	2.59	2.49
S13-4	67.00	W16x67	Yes	N/A	390.00	194.66	N/A	33.97	6.77	N/A	68.40	17.10	1.07	1.30	N/A	2.78	5.98
F2-4	100.17	Welded PL	-	1046.52	1046.52	148.00	-35.59	23.73	8.90	-40.30	55.10	18.20	1.09	1.30	13.46	10.00	4.07

* Moment Capacity represents full height section capacity at midspan of beams

Shear Capacity represents minimum shear capacity at beam ends

** Dead load calculation includes deck weight (divided evenly among beams in bay) and beam self weight (increased by 5% for miscellaneous add'l weight)



Date DWC Date 6/7/2012 Job No. P402110046
 Date CTG Date 6/7/2012

Calculations For: **CUY-2-1441 Span 11**

REVISED 3-Span Continuous Stringers (Coped Stringers Modeled as Simple Span)

q_{DL} = 9.10 k/ft
 q_{DL} = 0.61 k/ft per beam

Stringer	Self Wt	Member	Coped?	Capacity*			Dead Load**			Live Load			LLDF	Impact	Controlling Rating Factors		
				Neg. Mom	Pos. Mom	Shear	Neg. Mom	Pos. Mom	Shear	Neg. Mom	Pos. Mom	Shear			Neg. Moment	Pos. Moment	Shear
				k-ft	k-ft	k	k-ft	k-ft	k	k-ft	k-ft	k			OPER	OPER	OPER
F1-3	120.76	Welded PL	-	1580.00	1580.00	203.55	-36.67	24.45	9.17	-46.10	59.90	18.80	0.86	1.30	22.97	17.86	7.04
S1-3	61.00	W14x61	-	306.00	306.00	98.74	-33.54	22.36	8.38	-46.10	59.90	18.80	0.77	1.30	4.35	3.53	3.57
S2-3	61.00	W14x61	-	306.00	306.00	98.74	-33.54	22.36	8.38	-46.10	59.90	18.80	0.93	1.30	3.62	2.94	2.97
S3-3	61.00	W14x61	-	306.00	306.00	98.74	-33.54	22.36	8.38	-46.10	59.90	18.80	1.16	1.30	2.89	2.35	2.37
S4-3	61.00	W14x61	-	306.00	306.00	98.74	-33.54	22.36	8.38	-46.10	59.90	18.80	1.16	1.30	2.91	2.36	2.39
S5-3	61.00	W14x61	-	306.00	306.00	98.74	-33.54	22.36	8.38	-46.10	59.90	18.80	1.16	1.30	2.91	2.36	2.39
S6-3	61.00	W14x61	-	306.00	306.00	98.74	-33.54	22.36	8.38	-46.10	59.90	18.80	1.16	1.30	2.91	2.36	2.39
S7-3	61.00	W14x61	-	306.00	306.00	98.74	-33.54	22.36	8.38	-46.10	59.90	18.80	1.16	1.30	2.91	2.36	2.39
S8-3	61.00	W14x61	-	306.00	306.00	98.74	-33.54	22.36	8.38	-46.10	59.90	18.80	1.16	1.30	2.91	2.36	2.39
S9-3	61.00	W14x61	-	306.00	306.00	98.74	-33.54	22.36	8.38	-46.10	59.90	18.80	1.20	1.30	2.80	2.27	2.30
S10-3	61.00	W14x61	Yes	N/A	306.00	182.87	N/A	33.65	6.71	N/A	77.00	17.40	1.24	1.30	N/A	1.62	4.76
S11-3	61.00	W14x61	Yes	N/A	306.00	178.95	N/A	33.65	6.71	N/A	77.00	17.40	1.02	1.30	N/A	1.97	5.67
S12-3	67.00	W16x67	Yes	N/A	390.00	187.45	N/A	33.97	6.77	N/A	77.00	17.40	0.80	1.30	N/A	3.30	7.55
S13-3	67.00	W16x67	Yes	N/A	390.00	183.32	N/A	33.97	6.77	N/A	77.00	17.40	0.95	1.30	N/A	2.80	6.26
F2-3	95.54	Welded PL	-	1105.08	1105.08	160.51	-35.35	23.57	8.84	-46.10	59.90	18.80	1.09	1.30	12.46	9.73	4.30
F1-4	109.34	Welded PL	-	1492.37	1492.37	128.18	-36.07	24.05	9.02	-46.10	59.90	18.80	0.86	1.30	21.67	16.86	4.28
S1-4	61.00	W14x61	-	306.00	306.00	98.74	-33.54	22.36	8.38	-46.10	59.90	18.80	0.78	1.30	4.31	3.50	3.54
S2-4	61.00	W14x61	-	306.00	306.00	98.74	-33.54	22.36	8.38	-46.10	59.90	18.80	0.93	1.30	3.60	2.93	2.96
S3-4	61.00	W14x61	-	306.00	306.00	98.74	-33.54	22.36	8.38	-46.10	59.90	18.80	1.16	1.30	2.90	2.36	2.38
S4-4	61.00	W14x61	-	306.00	306.00	98.74	-33.54	22.36	8.38	-46.10	59.90	18.80	1.16	1.30	2.91	2.36	2.39
S5-4	61.00	W14x61	-	306.00	306.00	98.74	-33.54	22.36	8.38	-46.10	59.90	18.80	1.16	1.30	2.91	2.36	2.39
S6-4	61.00	W14x61	-	306.00	306.00	98.74	-33.54	22.36	8.38	-46.10	59.90	18.80	1.16	1.30	2.91	2.36	2.39
S7-4	61.00	W14x61	-	306.00	306.00	98.74	-33.54	22.36	8.38	-46.10	59.90	18.80	1.16	1.30	2.91	2.36	2.39
S8-4	61.00	W14x61	-	306.00	306.00	98.74	-33.54	22.36	8.38	-46.10	59.90	18.80	1.16	1.30	2.91	2.36	2.39
S9-4	61.00	W14x61	-	306.00	306.00	98.74	-33.54	22.36	8.38	-46.10	59.90	18.80	1.13	1.30	2.97	2.42	2.44
S10-4	61.00	W14x61	-	306.00	306.00	98.74	-33.54	22.36	8.38	-46.10	59.90	18.80	0.89	1.30	3.78	3.07	3.10
S11-4	61.00	W14x61	End Only	306.00	306.00	98.74	-33.54	22.36	8.38	-46.10	59.90	18.80	0.96	1.30	3.51	2.85	2.88
S12-4	61.00	W14x61	End Only	306.00	306.00	98.74	-33.54	22.36	8.38	-46.10	59.90	18.80	1.15	1.30	2.93	2.38	2.41
S13-4	67.00	W16x67	Yes	N/A	390.00	194.66	N/A	33.97	6.77	N/A	77.00	17.40	1.07	1.30	N/A	2.47	5.88
F2-4	100.17	Welded PL	-	1046.52	1046.52	148.00	-35.59	23.73	8.90	-46.10	59.90	18.80	1.09	1.30	11.77	9.20	3.94

* Moment Capacity represents full height section capacity at midspan of beams

Shear Capacity represents minimum shear capacity at beam ends

** Dead load calculation includes deck weight (divided evenly among beams in bay) and beam self weight (increased by 5% for miscellaneous add'l weight)



Calculations For: **CUY-2-1441 Span 11**

REVISED 3-Span Continuous Stringers (Coped Stringers Modeled as Simple Span)

q_{DL} = 9.10 k/ft
 q_{DL} = 0.61 k/ft per beam

Stringer	Self Wt	Member	Coped?	Capacity*			Dead Load**			Live Load			LLDF	Impact	Controlling Rating Factors		
				Neg. Mom	Pos. Mom	Shear	Neg. Mom	Pos. Mom	Shear	Neg. Mom	Pos. Mom	Shear			Neg. Moment	Pos. Moment	Shear
				k-ft	k-ft	k	k-ft	k-ft	k	k-ft	k-ft	k			OPER	OPER	OPER
F1-3	120.76	Welded PL	-	1580.00	1580.00	203.55	-36.67	24.45	9.17	-41.70	57.90	17.10	0.86	1.30	25.40	18.48	7.74
S1-3	61.00	W14x61	-	306.00	306.00	98.74	-33.54	22.36	8.38	-41.70	57.90	17.10	0.77	1.30	4.81	3.65	3.93
S2-3	61.00	W14x61	-	306.00	306.00	98.74	-33.54	22.36	8.38	-41.70	57.90	17.10	0.93	1.30	4.00	3.04	3.26
S3-3	61.00	W14x61	-	306.00	306.00	98.74	-33.54	22.36	8.38	-41.70	57.90	17.10	1.16	1.30	3.20	2.43	2.61
S4-3	61.00	W14x61	-	306.00	306.00	98.74	-33.54	22.36	8.38	-41.70	57.90	17.10	1.16	1.30	3.21	2.44	2.62
S5-3	61.00	W14x61	-	306.00	306.00	98.74	-33.54	22.36	8.38	-41.70	57.90	17.10	1.16	1.30	3.21	2.44	2.62
S6-3	61.00	W14x61	-	306.00	306.00	98.74	-33.54	22.36	8.38	-41.70	57.90	17.10	1.16	1.30	3.21	2.44	2.62
S7-3	61.00	W14x61	-	306.00	306.00	98.74	-33.54	22.36	8.38	-41.70	57.90	17.10	1.16	1.30	3.21	2.44	2.62
S8-3	61.00	W14x61	-	306.00	306.00	98.74	-33.54	22.36	8.38	-41.70	57.90	17.10	1.16	1.30	3.21	2.44	2.62
S9-3	61.00	W14x61	-	306.00	306.00	98.74	-33.54	22.36	8.38	-41.70	57.90	17.10	1.20	1.30	3.09	2.35	2.52
S10-3	61.00	W14x61	Yes	N/A	306.00	182.87	N/A	33.65	6.71	N/A	68.40	16.50	1.24	1.30	N/A	1.82	5.02
S11-3	61.00	W14x61	Yes	N/A	306.00	178.95	N/A	33.65	6.71	N/A	68.40	16.50	1.02	1.30	N/A	2.22	5.98
S12-3	67.00	W16x67	Yes	N/A	390.00	187.45	N/A	33.97	6.77	N/A	68.40	16.50	0.80	1.30	N/A	3.72	7.96
S13-3	67.00	W16x67	Yes	N/A	390.00	183.32	N/A	33.97	6.77	N/A	68.40	16.50	0.95	1.30	N/A	3.16	6.60
F2-3	95.54	Welded PL	-	1105.08	1105.08	160.51	-35.35	23.57	8.84	-41.70	57.90	17.10	1.09	1.30	13.78	10.07	4.73
F1-4	109.34	Welded PL	-	1492.37	1492.37	128.18	-36.07	24.05	9.02	-41.70	57.90	17.10	0.86	1.30	23.96	17.44	4.71
S1-4	61.00	W14x61	-	306.00	306.00	98.74	-33.54	22.36	8.38	-41.70	57.90	17.10	0.78	1.30	4.77	3.62	3.89
S2-4	61.00	W14x61	-	306.00	306.00	98.74	-33.54	22.36	8.38	-41.70	57.90	17.10	0.93	1.30	3.98	3.03	3.25
S3-4	61.00	W14x61	-	306.00	306.00	98.74	-33.54	22.36	8.38	-41.70	57.90	17.10	1.16	1.30	3.21	2.44	2.62
S4-4	61.00	W14x61	-	306.00	306.00	98.74	-33.54	22.36	8.38	-41.70	57.90	17.10	1.16	1.30	3.21	2.44	2.62
S5-4	61.00	W14x61	-	306.00	306.00	98.74	-33.54	22.36	8.38	-41.70	57.90	17.10	1.16	1.30	3.21	2.44	2.62
S6-4	61.00	W14x61	-	306.00	306.00	98.74	-33.54	22.36	8.38	-41.70	57.90	17.10	1.16	1.30	3.21	2.44	2.62
S7-4	61.00	W14x61	-	306.00	306.00	98.74	-33.54	22.36	8.38	-41.70	57.90	17.10	1.16	1.30	3.21	2.44	2.62
S8-4	61.00	W14x61	-	306.00	306.00	98.74	-33.54	22.36	8.38	-41.70	57.90	17.10	1.16	1.30	3.21	2.44	2.62
S9-4	61.00	W14x61	-	306.00	306.00	98.74	-33.54	22.36	8.38	-41.70	57.90	17.10	1.13	1.30	3.29	2.50	2.68
S10-4	61.00	W14x61	-	306.00	306.00	98.74	-33.54	22.36	8.38	-41.70	57.90	17.10	0.89	1.30	4.17	3.17	3.41
S11-4	61.00	W14x61	End Only	306.00	306.00	98.74	-33.54	22.36	8.38	-41.70	57.90	17.10	0.96	1.30	3.89	2.95	3.17
S12-4	61.00	W14x61	End Only	306.00	306.00	98.74	-33.54	22.36	8.38	-41.70	57.90	17.10	1.15	1.30	3.24	2.46	2.65
S13-4	67.00	W16x67	Yes	N/A	390.00	194.66	N/A	33.97	6.77	N/A	68.40	16.50	1.07	1.30	N/A	2.78	6.20
F2-4	100.17	Welded PL	-	1046.52	1046.52	148.00	-35.59	23.73	8.90	-41.70	57.90	17.10	1.09	1.30	13.01	9.51	4.33

* Moment Capacity represents full height section capacity at midspan of beams

Shear Capacity represents minimum shear capacity at beam ends

** Dead load calculation includes deck weight (divided evenly among beams in bay) and beam self weight (increased by 5% for miscellaneous add'l weight)

STRINGER FATIGUE

SPAN 11



Made By: DWC
 Checked By: ADK

Date: 4/12/2012
 Date: 4/13/2012

Job No.: P402110046
 Sheet No.: _____

Span 11 - Stringer Fatigue Stress Ranges

GIRDER LOCATION	Span Type	Length	STAAD Output	LLDF	Service Moment Range
		(ft)	(k-ft)		
F1-1 Fillet Web-to-Flange Weld (Positive Moment)	Simple	11.6	34.8	0.57	19.75 k-ft
F2-1 Fillet Web-to-Flange Weld (Positive Moment)	Simple	11.6	34.8	1.01	35.20 k-ft
F1-2 Fillet Web-to-Flange Weld (Positive Moment)	Simple	24.1	72	1.12	80.36 k-ft
F2-2 Fillet Web-to-Flange Weld (Positive Moment)	Simple	16.5	49.2	1.06	52.07 k-ft
F1-3 Fillet Web-to-Flange Weld (Positive Moment)	3-Span Continuous	3 spa. @ 20'	49.2	0.73	35.71 k-ft
F2-3 Fillet Web-to-Flange Weld (Positive Moment)	3-Span Continuous	3 spa. @ 20'	49.2	1.00	49.20 k-ft
F1-4 Fillet Web-to-Flange Weld (Positive Moment)	3-Span Continuous	3 spa. @ 20'	49.2	0.73	35.70 k-ft
F2-4 Fillet Web-to-Flange Weld (Positive Moment)	3-Span Continuous	3 spa. @ 20'	49.2	1.00	49.20 k-ft
F1-5 Fillet Web-to-Flange Weld (Positive Moment)	Simple	24.5	73.2	1.13	82.95 k-ft
F2-5 Fillet Web-to-Flange Weld (Positive Moment)	Simple	13.4	40.2	0.93	37.52 k-ft
S10-3 Bolted Cope over Floorbeam (Negative Moment)	3-Span Continuous	3 spa. @ 20'	49.9	0.80	40.15 k-ft
S11-3 Bolted Cope over Floorbeam (Negative Moment)	3-Span Continuous	3 spa. @ 20'	49.9	0.66	32.96 k-ft
S12-3 Bolted Cope over Floorbeam (Negative Moment)	3-Span Continuous	3 spa. @ 20'	49.9	0.52	25.97 k-ft
S13-3 Bolted Cope over Floorbeam (Negative Moment)	3-Span Continuous	3 spa. @ 20'	49.9	0.61	30.60 k-ft
S13-4 Bolted Cope over Floorbeam (Negative Moment)	3-Span Continuous	3 spa. @ 20'	49.9	0.70	34.70 k-ft



Made By: DWC
Checked By: ADK

Date: 4/12/2012
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Sheet No.: _____

Span 11 - Stringer Fatigue Summary

Redundant? Yes $f = 2.0$ (Calculate MEAN Life per ODOT BDM 402.2.6)
 $R_s = 1.00$
 Present ADTT (T_P) = 160 $T_N = 361$ (Future ADTT, assuming growth rate of 1%/year)
 Weight Ratios = 1.0 ($W_P/W, W_N/W$ equal to unity per ODOT BDM 402.2.6)
 $C = \text{varies}$ (Cycles per truck passage)
 Impact* = 1.15 (Per ODOT BDM 402.2.6)
 $Y_P^{**} = 18$ (Present age of the bridge in years) $Y_{f,MIN} = 322$ years

* Impact is applied in calculation of stress range, S_r . Do not include in service moment range.

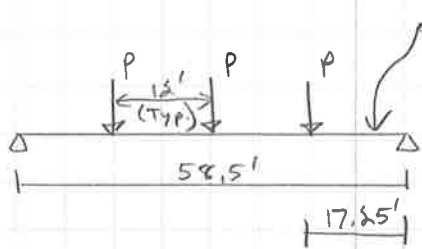
** Rehabilitated stringers have a Y_P of 18 years.

GIRDER LOCATION	Service M_r	S_x	S_r	Cat.	K (Detail Constant)	C	Y_f	Y_N	Y_f
	(k-ft)	(in ³)	(ksi)				(years)	(years)	(years)
F1-1 Fillet Web-to-Flange Weld (Positive Moment)	19.75	502.04	0.54	B	33	1.8	n/a	n/a	infinite
F2-1 Fillet Web-to-Flange Weld (Positive Moment)	35.20	348.84	1.39	B	33	1.8	n/a	n/a	infinite
F1-2 Fillet Web-to-Flange Weld (Positive Moment)	80.36	502.04	2.21	B	33	1.8	n/a	n/a	infinite
F2-2 Fillet Web-to-Flange Weld (Positive Moment)	52.07	348.84	2.06	B	33	1.8	n/a	n/a	infinite
F1-3 Fillet Web-to-Flange Weld (Positive Moment)	35.71	526.67	0.94	B	33	1.8	n/a	n/a	infinite
F2-3 Fillet Web-to-Flange Weld (Positive Moment)	49.20	368.36	1.84	B	33	1.8	n/a	n/a	infinite
F1-4 Fillet Web-to-Flange Weld (Positive Moment)	35.70	497.46	0.99	B	33	1.8	n/a	n/a	infinite
F2-4 Fillet Web-to-Flange Weld (Positive Moment)	49.20	348.84	1.95	B	33	1.8	n/a	n/a	infinite
F1-5 Fillet Web-to-Flange Weld (Positive Moment)	82.95	526.67	2.17	B	33	1.8	n/a	n/a	infinite
F2-5 Fillet Web-to-Flange Weld (Positive Moment)	37.52	410.01	1.26	B	33	1.8	n/a	n/a	infinite
S10-3 Bolted Cope over Floorbeam (Negative Moment)	40.15	77.20	7.18	B	33	1.5	743.98	329.58	321.61
S11-3 Bolted Cope over Floorbeam (Negative Moment)	32.96	73.39	6.20	B	33	1.5	1155.58	511.92	503.95
S12-3 Bolted Cope over Floorbeam (Negative Moment)	25.97	81.52	4.40	B	33	1.5	n/a	n/a	infinite
S13-3 Bolted Cope over Floorbeam (Negative Moment)	30.60	78.58	5.37	B	33	1.5	n/a	n/a	infinite
S13-4 Bolted Cope over Floorbeam (Negative Moment)	34.70	87.69	5.46	B	33	1.5	n/a	n/a	infinite

FLOORBEAM LOAD RATING

Span 11 Interior FB

Determine whether 3 or 4 lanes loaded will control Moment:



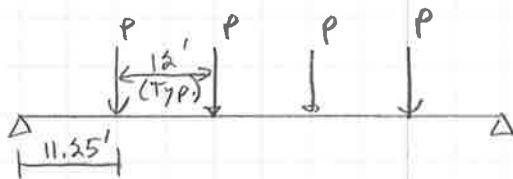
widest FB neglecting median

$$M_{max} = P\left(\frac{58.5}{4}\right) + 2\left(\frac{17.25\left(\frac{58.5}{2}\right)}{58.5}\right)P$$

$$= 31.875 P \times .9 = 28.6 P$$

↑ mult. presence factor

P = truck axle resultant



$$M_{max} = 11.25 P + 23.25 P$$

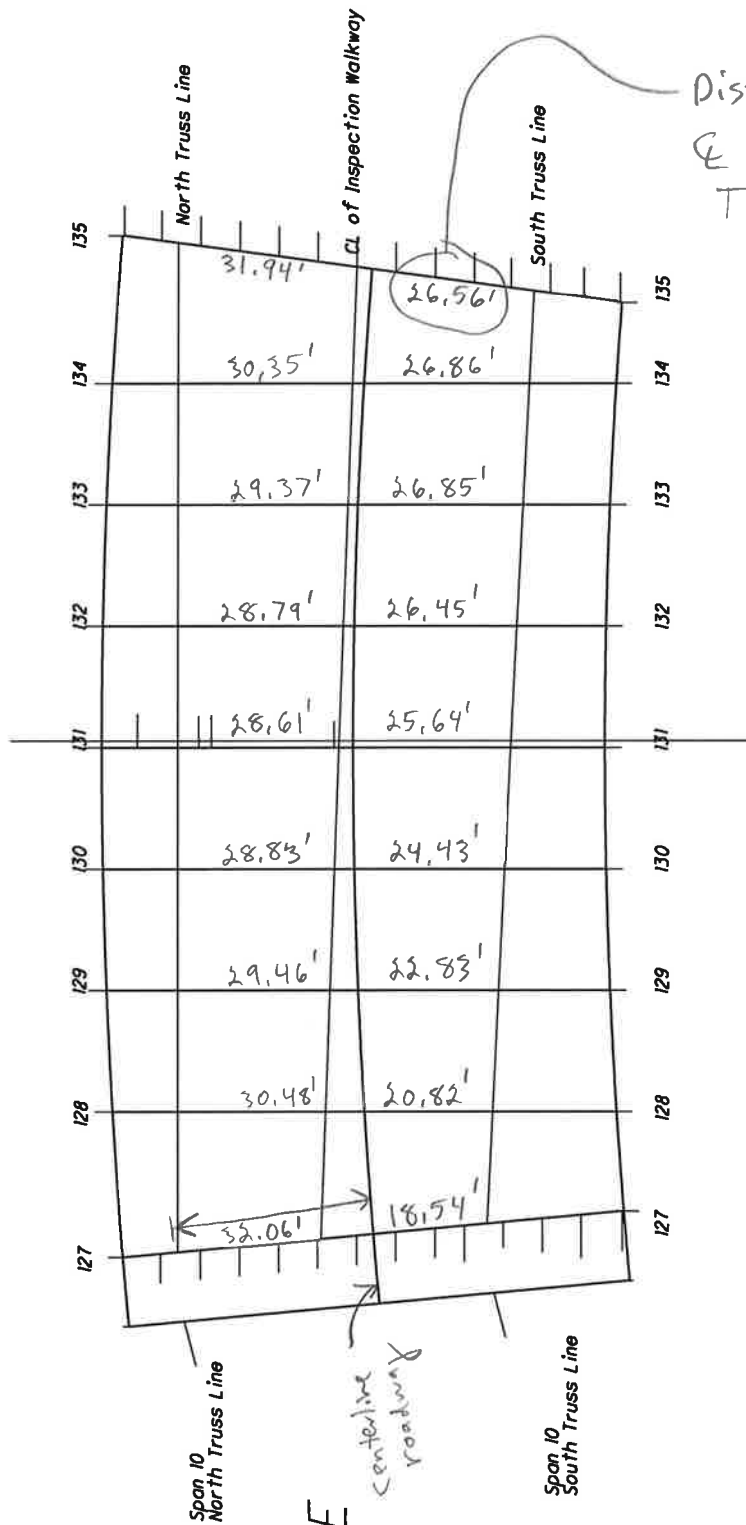
$$= 34.5 P \times .75 = 25 P$$

↑ mult. presence factor

28.6 P > 25 P ← 3 lanes controls

- Because N. side of median is always a greater distance to truss, place 2 trucks in lanes N. of median, 1 S. of median.

For shear, apply 3 trucks to North FB as at most can fit 2.5 axles b/w truss and median, Additional trucks on south side of median will have limited effect on max shear w/ .75 multiple presence factor.



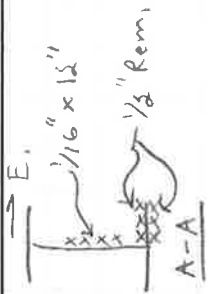
Distances from
 E Median to
 Truss E'

PROJECT
 - CHORD
 CENTERLINE
 PROJECT

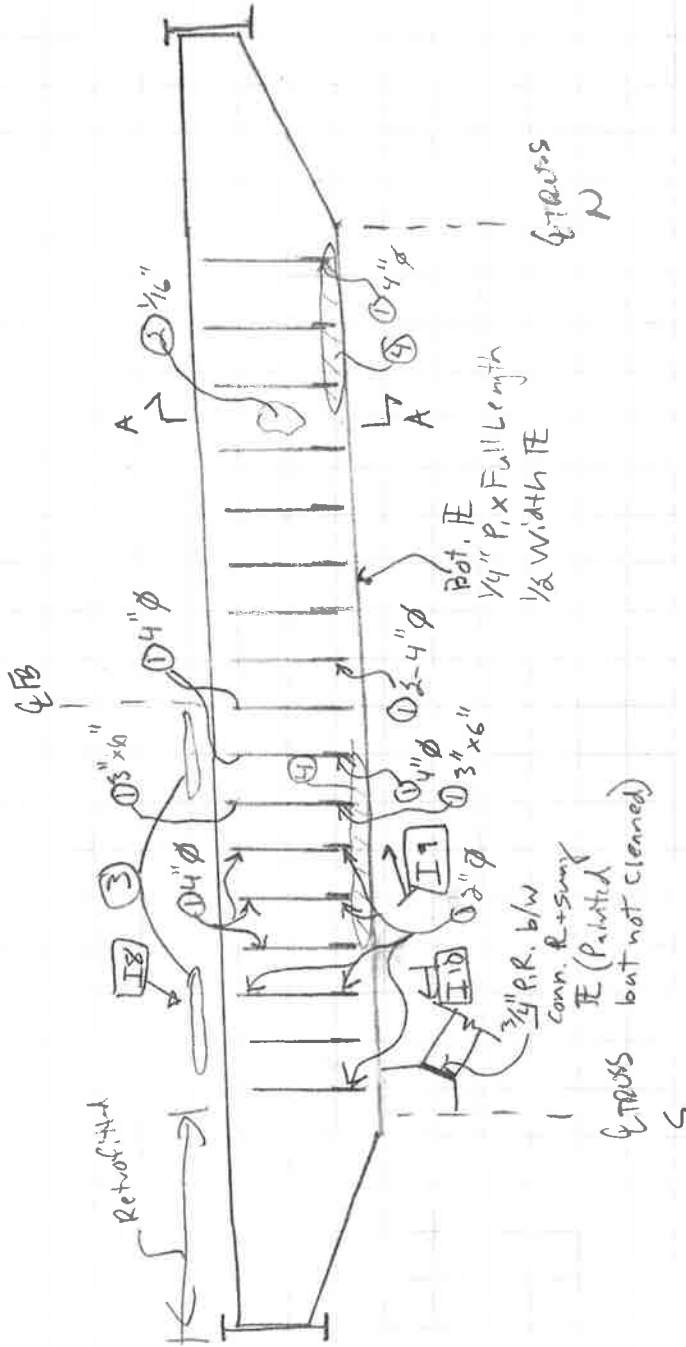
PROJECT NO _____
 DATE 12/5/11
 CREW ADK/KMW

BRIDGE NO 1800035
 SHEET _____

FB 135
 Field Notes



- ① 1" hole stiffener
- ② 1" P.
- ③ Leakage Present @ JT, I8
- ④ Bot FE & Rivets bheads up to 50% S.L.



E.E. FB 1108

Calculations for 1/4 US Grid

REVISION 1	DATE	CREW	412 of 2192	REVISION 2	DATE	CREW
REVISION 3	DATE	CREW		REVISION 4	DATE	CREW

FLOORBEAM SECTION PROPERTIES



Made By DWC
Checked By SFH

Date 4/6/2012
Date 4/10/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Top Angles:

$A_1 = l_w = 6.0000$ in
 $C_1 = t_f = 0.7500$ in
 $B_1 = l_v = 6.0000$ in

Bottom Angles:

$B_2 = l_h = 6.0000$ in
 $C_2 = t_f = 0.7500$ in
 $A_2 = l_v = 6.0000$ in

Web Plate:

$C_3 = 0.3750$ in
 $*B_3 = 60.0000$ in

$d_o = 47.1563$ in

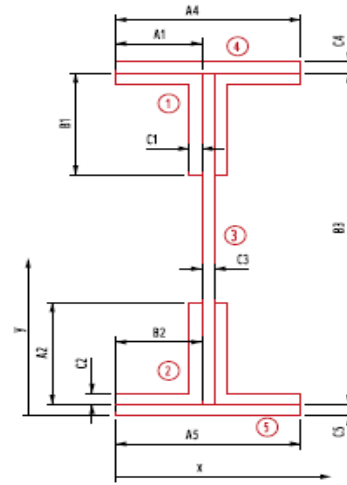
$d_o =$ stiffener spacing for shear check
Use "N/A" for no stiffeners

Top Cover Plate:

$C_4 = 0.0000$ in
 $A_4 = 0.0000$ in

Btm Cover Plate:

$C_5 = 0.0000$ in
 $A_5 = 0.0000$ in



Floorbeam 127

*using average height of section

X-Axis Section Properties:

Gross Section (without Losses)		A	y	Ay	I_o	d	Ad^2	$I_{x, gross}$
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Horizontal Leg	9.0000	59.6250	536.6250	0.4219	29.6250	7898.7656	7899.1875
	Vertical Leg	7.8750	56.6250	445.9219	18.0879	26.6250	5582.5137	5600.6016
2	Horizontal Leg	9.0000	0.3750	3.3750	0.4219	29.6250	7898.7656	7899.1875
	Vertical Leg	7.8750	3.3750	26.5781	18.0879	26.6250	5582.5137	5600.6016
3	Web Plate	22.5000	30.0000	675.0000	6750.0000	0.0000	0.0000	6750.0000
4	Cover Plate Top	0.0000	60.0000	0.0000	0.0000	30.0000	0.0000	0.0000
	Cover Plate Bottom	0.0000	0.0000	0.0000	0.0000	30.0000	0.0000	0.0000
Total		56.25		1687.50	6787.02		26962.56	33749.58
Section Losses		A	y	Ay	I_o	d	Ad^2	$I_{x, loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties							
y-bar =	30.0000	in	$S_{top} = 1124.99$	in ³	y-bar =	30.0000	in	$S_{top} = 1124.99$	in ³		
$I_x =$	33749.58	in ⁴	$S_{bott.} = 1124.99$	in ³	$I_x =$	33749.58	in ⁴	$S_{bott.} = 1124.99$	in ³		
$c_{top} =$	30.0000	in	A =	56.2500	in ²	$c_{top} =$	30.0000	in	A =	56.2500	in ²
$c_{bottom} =$	30.0000	in	$r_x =$	24.4947	in	$c_{bottom} =$	30.0000	in	$r_x =$	24.4947	in
J =	7.3828		Z =	1290.0938	in ³				Z =	1290.0938	in ³



Made By DWC
Checked By SFH

Date 4/6/2012
Date 4/10/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Y-Axis Section Properties:

Gross Section (without Losses)		A	x	Ax	I _o	d	Ad ²	I _{y, gross}	
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)	
1 (Left)	Horizontal Leg	4.5000	3.0000	13.5000	13.5000	3.1875	45.7207	59.2207	
	Vertical Leg	3.9375	5.6250	22.1484	0.1846	0.5625	1.2458	1.4304	
1 (Right)	Horizontal Leg	4.5000	9.3750	42.1875	13.5000	3.1875	45.7207	59.2207	
	Vertical Leg	3.9375	6.7500	26.5781	0.1846	0.5625	1.2458	1.4304	
2 (Left)	Horizontal Leg	4.5000	3.0000	13.5000	13.5000	3.1875	45.7207	59.2207	
	Vertical Leg	3.9375	5.6250	22.1484	0.1846	0.5625	1.2458	1.4304	
2 (Right)	Horizontal Leg	4.5000	9.3750	42.1875	13.5000	3.1875	45.7207	59.2207	
	Vertical Leg	3.9375	6.7500	26.5781	0.1846	0.5625	1.2458	1.4304	
3	Web Plate	22.5000	6.1875	139.2188	0.2637	0.0000	0.0000	0.2637	
4	Top Cover Plate	0.0000	6.1875	0.0000	0.0000	0.0000	0.0000	0.0000	
4	Bottom Cover Plate	0.0000	6.1875	0.0000	0.0000	0.0000	0.0000	0.0000	
Total		56.25		348.05	55.00		187.87	242.87	
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y, loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties							
x-bar =	6.1875	in	S _{right} =	39.25	in ³	x-bar =	6.1875	in	S _{right} =	39.25	in ³
I _y =	242.87	in ⁴	S _{left} =	39.25	in ³	I _y =	242.87	in ⁴	S _{left} =	39.25	in ³
C _{right} =	6.1875	in	A =	56.2500	in ²	C _{right} =	6.1875	in	A =	56.2500	in ²
C _{left} =	6.1875	in	r _y =	2.0779	in	C _{left} =	6.1875	in	r _y =	2.0779	in

Non-composite Capacities*		
	AB	AI
M	3093.71 k-ft	3093.71 k-ft
V	683.60 k	683.60 k

*Noncompact Section

F_y = 33.00 ksi

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear



Made By DWC
Checked By SFH

Date 4/6/2012
Date 4/10/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Top Angles:

$A_1 = l_w = 6.0000$ in
 $C_1 = t_f = 0.8125$ in
 $B_1 = l_v = 8.0000$ in

Bottom Angles:

$B_2 = l_h = 6.0000$ in
 $C_2 = t_f = 0.8125$ in
 $A_2 = l_v = 8.0000$ in

Web Plate:

$C_3 = 0.3750$ in
 $*B_3 = 60.0000$ in

$d_o = 44.5625$ in

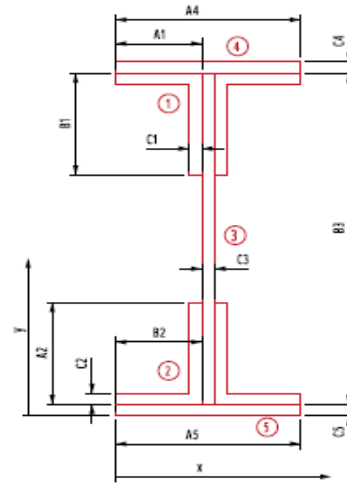
d_o = stiffener spacing for shear check
Use "N/A" for no stiffeners

Top Cover Plate:

$C_4 = 0.0000$ in
 $A_4 = 0.0000$ in

Btm Cover Plate:

$C_5 = 0.0000$ in
 $A_5 = 0.0000$ in



Floorbeam 128

*using average height of section

X-Axis Section Properties:

Gross Section (without Losses)		A	y	Ay	I _o	d	Ad ²	I _{x,gross}
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Horizontal Leg	9.7500	59.5938	581.0391	0.5364	29.5938	8538.9529	8539.4893
	Vertical Leg	11.6797	55.5938	649.3176	50.2812	25.5938	7650.6630	7700.9442
2	Horizontal Leg	9.7500	0.4063	3.9609	0.5364	29.5938	8538.9529	8539.4893
	Vertical Leg	11.6797	4.4063	51.4636	50.2812	25.5938	7650.6630	7700.9442
3	Web Plate	22.5000	30.0000	675.0000	6750.0000	0.0000	0.0000	6750.0000
4	Cover Plate Top	0.0000	60.0000	0.0000	0.0000	30.0000	0.0000	0.0000
	Cover Plate Bottom	0.0000	0.0000	0.0000	0.0000	30.0000	0.0000	0.0000
Total		65.36		1960.78	6851.64		32379.23	39230.87
Section Losses		A	y	Ay	I _o	d	Ad ²	I _{x,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	30.0000	in	S _{top} = 1307.70 in ³	y-bar =	30.0000	in	S _{top} = 1307.70 in ³
I _x =	39230.87	in ⁴	S _{bott.} = 1307.70 in ³	I _x =	39230.87	in ⁴	S _{bott.} = 1307.70 in ³
c _{top} =	30.0000	in	A = 65.3594 in ²	c _{top} =	30.0000	in	A = 65.3594 in ²
c _{bottom} =	30.0000	in	r _x = 24.4997 in	c _{bottom} =	30.0000	in	r _x = 24.4997 in
J =	10.4860		Z = 1512.4321 in ³				Z = 1512.4321 in ³



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Date 4/6/2012
Date 4/10/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Y-Axis Section Properties:

Gross Section (without Losses)		A	x	Ax	I _o	d	Ad ²	I _{y, gross}	
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)	
1 (Left)	Horizontal Leg	4.8750	3.0000	14.6250	14.6250	3.1875	49.5308	64.1558	
	Vertical Leg	5.8398	5.5938	32.6666	0.3213	0.5938	2.0588	2.3800	
1 (Right)	Horizontal Leg	4.8750	9.3750	45.7031	14.6250	3.1875	49.5308	64.1558	
	Vertical Leg	5.8398	6.7813	39.6014	0.3213	0.5938	2.0588	2.3800	
2 (Left)	Horizontal Leg	4.8750	3.0000	14.6250	14.6250	3.1875	49.5308	64.1558	
	Vertical Leg	5.8398	5.5938	32.6666	0.3213	0.5938	2.0588	2.3800	
2 (Right)	Horizontal Leg	4.8750	9.3750	45.7031	14.6250	3.1875	49.5308	64.1558	
	Vertical Leg	5.8398	6.7813	39.6014	0.3213	0.5938	2.0588	2.3800	
3	Web Plate	22.5000	6.1875	139.2188	0.2637	0.0000	0.0000	0.2637	
4	Top Cover Plate	0.0000	6.1875	0.0000	0.0000	0.0000	0.0000	0.0000	
4	Bottom Cover Plate	0.0000	6.1875	0.0000	0.0000	0.0000	0.0000	0.0000	
Total		65.36		404.41	60.05		206.36	266.41	
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y, loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties							
x-bar =	6.1875	in	S _{right} =	43.06	in ³	x-bar =	6.1875	in	S _{right} =	43.06	in ³
I _y =	266.41	in ⁴	S _{left} =	43.06	in ³	I _y =	266.41	in ⁴	S _{left} =	43.06	in ³
C _{right} =	6.1875	in	A =	65.3594	in ²	C _{right} =	6.1875	in	A =	65.3594	in ²
C _{left} =	6.1875	in	r _y =	2.0189	in	C _{left} =	6.1875	in	r _y =	2.0189	in

Non-composite Capacities*		
	AB	AI
M	3596.16 k-ft	3596.16 k-ft
V	877.75 k	877.75 k

*Noncompact Section

F_y = 33.00 ksi

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear



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Date 4/6/2012
Date 4/10/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Top Angles:

$A_1 = l_w = 6.0000$ in
 $C_1 = t_f = 0.8125$ in
 $B_1 = l_v = 8.0000$ in

Bottom Angles:

$B_2 = l_h = 6.0000$ in
 $C_2 = t_f = 0.8125$ in
 $A_2 = l_v = 8.0000$ in

Web Plate:

$C_3 = 0.3750$ in
 $*B_3 = 60.0000$ in

$d_o = 52.8750$ in

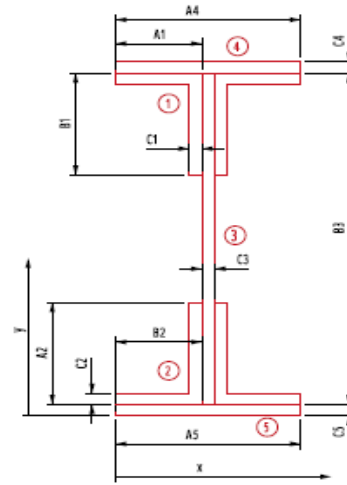
$d_o =$ stiffener spacing for shear check
Use "N/A" for no stiffeners

Top Cover Plate:

$C_4 = 0.0000$ in
 $A_4 = 0.0000$ in

Btm Cover Plate:

$C_5 = 0.0000$ in
 $A_5 = 0.0000$ in



Floorbeam 129

*using average height of section

X-Axis Section Properties:

Gross Section (without Losses)		A	y	Ay	I_o	d	Ad^2	$I_{x, gross}$
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Horizontal Leg	9.7500	59.5938	581.0391	0.5364	29.5938	8538.9529	8539.4893
	Vertical Leg	11.6797	55.5938	649.3176	50.2812	25.5938	7650.6630	7700.9442
2	Horizontal Leg	9.7500	0.4063	3.9609	0.5364	29.5938	8538.9529	8539.4893
	Vertical Leg	11.6797	4.4063	51.4636	50.2812	25.5938	7650.6630	7700.9442
3	Web Plate	22.5000	30.0000	675.0000	6750.0000	0.0000	0.0000	6750.0000
4	Cover Plate Top	0.0000	60.0000	0.0000	0.0000	30.0000	0.0000	0.0000
	Cover Plate Bottom	0.0000	0.0000	0.0000	0.0000	30.0000	0.0000	0.0000
Total		65.36		1960.78	6851.64		32379.23	39230.87
Section Losses		A	y	Ay	I_o	d	Ad^2	$I_{x, loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties							
y-bar =	30.0000	in	$S_{top} = 1307.70$	in ³	y-bar =	30.0000	in	$S_{top} = 1307.70$	in ³		
$I_x =$	39230.87	in ⁴	$S_{bott.} = 1307.70$	in ³	$I_x =$	39230.87	in ⁴	$S_{bott.} = 1307.70$	in ³		
$c_{top} =$	30.0000	in	A =	65.3594	in ²	$c_{top} =$	30.0000	in	A =	65.3594	in ²
$c_{bottom} =$	30.0000	in	$r_x =$	24.4997	in	$c_{bottom} =$	30.0000	in	$r_x =$	24.4997	in
J =	10.4860		Z =	1512.4321	in ³				Z =	1512.4321	in ³



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Date 4/6/2012
Date 4/10/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Y-Axis Section Properties:

Gross Section (without Losses)		A	x	Ax	I _o	d	Ad ²	I _{y, gross}	
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)	
1 (Left)	Horizontal Leg	4.8750	3.0000	14.6250	14.6250	3.1875	49.5308	64.1558	
	Vertical Leg	5.8398	5.5938	32.6666	0.3213	0.5938	2.0588	2.3800	
1 (Right)	Horizontal Leg	4.8750	9.3750	45.7031	14.6250	3.1875	49.5308	64.1558	
	Vertical Leg	5.8398	6.7813	39.6014	0.3213	0.5938	2.0588	2.3800	
2 (Left)	Horizontal Leg	4.8750	3.0000	14.6250	14.6250	3.1875	49.5308	64.1558	
	Vertical Leg	5.8398	5.5938	32.6666	0.3213	0.5938	2.0588	2.3800	
2 (Right)	Horizontal Leg	4.8750	9.3750	45.7031	14.6250	3.1875	49.5308	64.1558	
	Vertical Leg	5.8398	6.7813	39.6014	0.3213	0.5938	2.0588	2.3800	
3	Web Plate	22.5000	6.1875	139.2188	0.2637	0.0000	0.0000	0.2637	
4	Top Cover Plate	0.0000	6.1875	0.0000	0.0000	0.0000	0.0000	0.0000	
4	Bottom Cover Plate	0.0000	6.1875	0.0000	0.0000	0.0000	0.0000	0.0000	
Total		65.36		404.41	60.05		206.36	266.41	
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y, loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties							
x-bar =	6.1875	in	S _{right} =	43.06	in ³	x-bar =	6.1875	in	S _{right} =	43.06	in ³
I _y =	266.41	in ⁴	S _{left} =	43.06	in ³	I _y =	266.41	in ⁴	S _{left} =	43.06	in ³
C _{right} =	6.1875	in	A =	65.3594	in ²	C _{right} =	6.1875	in	A =	65.3594	in ²
C _{left} =	6.1875	in	r _y =	2.0189	in	C _{left} =	6.1875	in	r _y =	2.0189	in

Non-composite Capacities*		
	AB	AI
M	3596.16 k-ft	3596.16 k-ft
V	835.65 k	835.65 k

*Noncompact Section

F_y = 33.00 ksi

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear



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Date 4/6/2012
Date 4/10/2012

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Sheet No. _____

Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Top Angles:

$A_1 = l_w = 6.0000$ in
 $C_1 = t_f = 0.7500$ in
 $B_1 = l_v = 6.0000$ in

Bottom Angles:

$B_2 = l_h = 6.0000$ in
 $C_2 = t_f = 0.7500$ in
 $A_2 = l_v = 6.0000$ in

Web Plate:

$C_3 = 0.3750$ in
 $*B_3 = 60.0000$ in

$d_o = 44.5625$ in

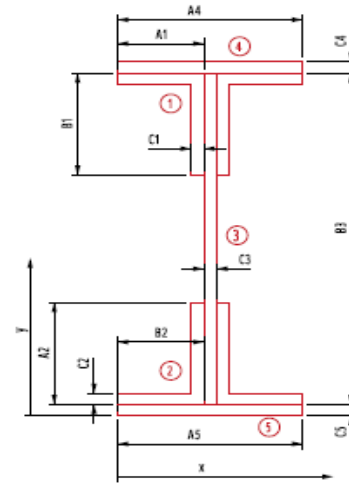
$d_o =$ stiffener spacing for shear check
Use "N/A" for no stiffeners

Top Cover Plate:

$C_4 = 0.6250$ in
 $A_4 = 12.5000$ in

Btm Cover Plate:

$C_5 = 0.6250$ in
 $A_5 = 12.5000$ in



Floorbeam 130

*using average height of section

X-Axis Section Properties:

Gross Section (without Losses)		A	y	Ay	I_o	d	Ad^2	$I_{x, gross}$
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Horizontal Leg	9.0000	60.2500	542.2500	0.4219	29.6250	7898.7656	7899.1875
	Vertical Leg	7.8750	57.2500	450.8438	18.0879	26.6250	5582.5137	5600.6016
2	Horizontal Leg	9.0000	1.0000	9.0000	0.4219	29.6250	7898.7656	7899.1875
	Vertical Leg	7.8750	4.0000	31.5000	18.0879	26.6250	5582.5137	5600.6016
3	Web Plate	22.5000	30.6250	689.0625	6750.0000	0.0000	0.0000	6750.0000
4	Cover Plate Top	7.8125	60.9375	476.0742	0.2543	30.3125	7178.4973	7178.7516
	Cover Plate Bottom	7.8125	0.3125	2.4414	0.2543	30.3125	7178.4973	7178.7516
Total		71.88		2201.17	6787.53		41319.55	48107.08
Section Losses		A	y	Ay	I_o	d	Ad^2	$I_{x, loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties							
y-bar =	30.6250	in	$S_{top} = 1570.84$	in ³	y-bar =	30.6250	in	$S_{top} = 1570.84$	in ³		
$I_x =$	48107.08	in ⁴	$S_{bott.} = 1570.84$	in ³	$I_x =$	48107.08	in ⁴	$S_{bott.} = 1570.84$	in ³		
$c_{top} =$	30.6250	in	A =	71.8750	in ²	$c_{top} =$	30.6250	in	A =	71.8750	in ²
$c_{bottom} =$	30.6250	in	$r_x =$	25.8711	in	$c_{bottom} =$	30.6250	in	$r_x =$	25.8711	in
J =	9.4173		Z =	1763.7266	in ³				Z =	1763.7266	in ³



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Date 4/6/2012
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Calculations For: **CUY-2-1441**

Y-Axis Section Properties:

Gross Section (without Losses)		A	x	Ax	I _o	d	Ad ²	I _{y, gross}	
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)	
1 (Left)	Horizontal Leg	4.5000	3.0625	13.7813	13.5000	3.1875	45.7207	59.2207	
	Vertical Leg	3.9375	5.6875	22.3945	0.1846	0.5625	1.2458	1.4304	
1 (Right)	Horizontal Leg	4.5000	9.4375	42.4688	13.5000	3.1875	45.7207	59.2207	
	Vertical Leg	3.9375	6.8125	26.8242	0.1846	0.5625	1.2458	1.4304	
2 (Left)	Horizontal Leg	4.5000	3.0625	13.7813	13.5000	3.1875	45.7207	59.2207	
	Vertical Leg	3.9375	5.6875	22.3945	0.1846	0.5625	1.2458	1.4304	
2 (Right)	Horizontal Leg	4.5000	9.4375	42.4688	13.5000	3.1875	45.7207	59.2207	
	Vertical Leg	3.9375	6.8125	26.8242	0.1846	0.5625	1.2458	1.4304	
3	Web Plate	22.5000	6.2500	140.6250	0.2637	0.0000	0.0000	0.2637	
4	Top Cover Plate	7.8125	6.2500	48.8281	203.4505	0.0000	0.0000	203.4505	
4	Bottom Cover Plate	7.8125	6.2500	48.8281	203.4505	0.0000	0.0000	203.4505	
Total		71.88		449.22	461.90		187.87	649.77	
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y, loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties							
x-bar =	6.2500	in	S _{right} =	103.96	in ³	x-bar =	6.2500	in	S _{right} =	103.96	in ³
I _y =	649.77	in ⁴	S _{left} =	103.96	in ³	I _y =	649.77	in ⁴	S _{left} =	103.96	in ³
C _{right} =	6.2500	in	A =	71.8750	in ²	C _{right} =	6.2500	in	A =	71.8750	in ²
C _{left} =	6.2500	in	r _y =	3.0067	in	C _{left} =	6.2500	in	r _y =	3.0067	in

Non-composite Capacities*		
	AB	AI
M	4319.82 k-ft	4319.82 k-ft
V	708.46 k	708.46 k

*Noncompact Section

F_y = 33.00 ksi

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear



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Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Top Angles:

$A_1 = l_w = 6.0000$ in
 $C_1 = t_f = 0.7500$ in
 $B_1 = l_v = 6.0000$ in

Bottom Angles:

$B_2 = l_h = 6.0000$ in
 $C_2 = t_f = 0.7500$ in
 $A_2 = l_v = 6.0000$ in

Web Plate:

$C_3 = 0.3750$ in
 $*B_3 = 60.0000$ in

$d_o = 44.5625$ in

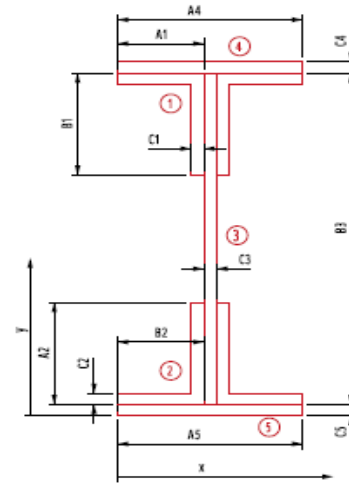
$d_o =$ stiffener spacing for shear check
Use "N/A" for no stiffeners

Top Cover Plate:

$C_4 = 0.6250$ in
 $A_4 = 12.5000$ in

Btm Cover Plate:

$C_5 = 0.6250$ in
 $A_5 = 12.5000$ in



Floorbeam 131

*using average height of section

X-Axis Section Properties:

Gross Section (without Losses)		A	y	Ay	I _o	d	Ad ²	I _{x, gross}
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Horizontal Leg	9.0000	60.2500	542.2500	0.4219	29.6250	7898.7656	7899.1875
	Vertical Leg	7.8750	57.2500	450.8438	18.0879	26.6250	5582.5137	5600.6016
2	Horizontal Leg	9.0000	1.0000	9.0000	0.4219	29.6250	7898.7656	7899.1875
	Vertical Leg	7.8750	4.0000	31.5000	18.0879	26.6250	5582.5137	5600.6016
3	Web Plate	22.5000	30.6250	689.0625	6750.0000	0.0000	0.0000	6750.0000
4	Cover Plate Top	7.8125	60.9375	476.0742	0.2543	30.3125	7178.4973	7178.7516
	Cover Plate Bottom	7.8125	0.3125	2.4414	0.2543	30.3125	7178.4973	7178.7516
Total		71.88		2201.17	6787.53		41319.55	48107.08
Section Losses		A	y	Ay	I _o	d	Ad ²	I _{x, loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	30.6250	in	S _{top} = 1570.84 in ³	y-bar =	30.6250	in	S _{top} = 1570.84 in ³
I _x =	48107.08	in ⁴	S _{bott.} = 1570.84 in ³	I _x =	48107.08	in ⁴	S _{bott.} = 1570.84 in ³
c _{top} =	30.6250	in	A = 71.8750 in ²	c _{top} =	30.6250	in	A = 71.8750 in ²
c _{bottom} =	30.6250	in	r _x = 25.8711 in	c _{bottom} =	30.6250	in	r _x = 25.8711 in
J =	9.4173		Z = 1763.7266 in ³				Z = 1763.7266 in ³



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Calculations For: **CUY-2-1441**

Y-Axis Section Properties:

Gross Section (without Losses)		A	x	Ax	I _o	d	Ad ²	I _{y, gross}	
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)	
1 (Left)	Horizontal Leg	4.5000	3.0625	13.7813	13.5000	3.1875	45.7207	59.2207	
	Vertical Leg	3.9375	5.6875	22.3945	0.1846	0.5625	1.2458	1.4304	
1 (Right)	Horizontal Leg	4.5000	9.4375	42.4688	13.5000	3.1875	45.7207	59.2207	
	Vertical Leg	3.9375	6.8125	26.8242	0.1846	0.5625	1.2458	1.4304	
2 (Left)	Horizontal Leg	4.5000	3.0625	13.7813	13.5000	3.1875	45.7207	59.2207	
	Vertical Leg	3.9375	5.6875	22.3945	0.1846	0.5625	1.2458	1.4304	
2 (Right)	Horizontal Leg	4.5000	9.4375	42.4688	13.5000	3.1875	45.7207	59.2207	
	Vertical Leg	3.9375	6.8125	26.8242	0.1846	0.5625	1.2458	1.4304	
3	Web Plate	22.5000	6.2500	140.6250	0.2637	0.0000	0.0000	0.2637	
4	Top Cover Plate	7.8125	6.2500	48.8281	203.4505	0.0000	0.0000	203.4505	
4	Bottom Cover Plate	7.8125	6.2500	48.8281	203.4505	0.0000	0.0000	203.4505	
Total		71.88		449.22	461.90		187.87	649.77	
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y, loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties							
x-bar =	6.2500	in	S _{right} =	103.96	in ³	x-bar =	6.2500	in	S _{right} =	103.96	in ³
I _y =	649.77	in ⁴	S _{left} =	103.96	in ³	I _y =	649.77	in ⁴	S _{left} =	103.96	in ³
C _{right} =	6.2500	in	A =	71.8750	in ²	C _{right} =	6.2500	in	A =	71.8750	in ²
C _{left} =	6.2500	in	r _y =	3.0067	in	C _{left} =	6.2500	in	r _y =	3.0067	in

Non-composite Capacities*		
	AB	AI
M	4319.82 k-ft	4319.82 k-ft
V	708.46 k	708.46 k

*Noncompact Section

F_y = 33.00 ksi

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear



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Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Top Angles:

$A_1 = l_w = 6.0000$ in
 $C_1 = t_f = 0.7500$ in
 $B_1 = l_v = 6.0000$ in

Bottom Angles:

$B_2 = l_h = 6.0000$ in
 $C_2 = t_f = 0.7500$ in
 $A_2 = l_v = 6.0000$ in

Web Plate:

$C_3 = 0.3750$ in
 $*B_3 = 60.0000$ in

$d_o = 44.5625$ in

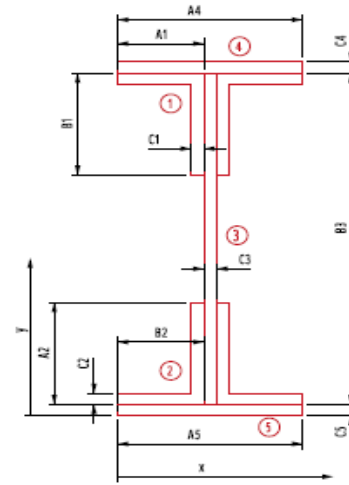
d_o = stiffener spacing for shear check
Use "N/A" for no stiffeners

Top Cover Plate:

$C_4 = 0.6250$ in
 $A_4 = 12.5000$ in

Btm Cover Plate:

$C_5 = 0.6250$ in
 $A_5 = 12.5000$ in



Floorbeam 132

*using average height of section

X-Axis Section Properties:

Gross Section (without Losses)		A	y	Ay	I_o	d	Ad^2	$I_{x, gross}$
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Horizontal Leg	9.0000	60.2500	542.2500	0.4219	29.6250	7898.7656	7899.1875
	Vertical Leg	7.8750	57.2500	450.8438	18.0879	26.6250	5582.5137	5600.6016
2	Horizontal Leg	9.0000	1.0000	9.0000	0.4219	29.6250	7898.7656	7899.1875
	Vertical Leg	7.8750	4.0000	31.5000	18.0879	26.6250	5582.5137	5600.6016
3	Web Plate	22.5000	30.6250	689.0625	6750.0000	0.0000	0.0000	6750.0000
4	Cover Plate Top	7.8125	60.9375	476.0742	0.2543	30.3125	7178.4973	7178.7516
	Cover Plate Bottom	7.8125	0.3125	2.4414	0.2543	30.3125	7178.4973	7178.7516
Total		71.88		2201.17	6787.53		41319.55	48107.08
Section Losses		A	y	Ay	I_o	d	Ad^2	$I_{x, loss}$
Loss #	b (in)	h (in)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties							
y-bar =	30.6250	in	$S_{top} = 1570.84$	in ³	y-bar =	30.6250	in	$S_{top} = 1570.84$	in ³		
$I_x =$	48107.08	in ⁴	$S_{bott.} = 1570.84$	in ³	$I_x =$	48107.08	in ⁴	$S_{bott.} = 1570.84$	in ³		
$c_{top} =$	30.6250	in	A =	71.8750	in ²	$c_{top} =$	30.6250	in	A =	71.8750	in ²
$c_{bottom} =$	30.6250	in	$r_x =$	25.8711	in	$c_{bottom} =$	30.6250	in	$r_x =$	25.8711	in
J =	9.4173		Z =	1763.7266	in ³				Z =	1763.7266	in ³



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Calculations For: **CUY-2-1441**

Y-Axis Section Properties:

Gross Section (without Losses)		A	x	Ax	I _o	d	Ad ²	I _{y, gross}	
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)	
1 (Left)	Horizontal Leg	4.5000	3.0625	13.7813	13.5000	3.1875	45.7207	59.2207	
	Vertical Leg	3.9375	5.6875	22.3945	0.1846	0.5625	1.2458	1.4304	
1 (Right)	Horizontal Leg	4.5000	9.4375	42.4688	13.5000	3.1875	45.7207	59.2207	
	Vertical Leg	3.9375	6.8125	26.8242	0.1846	0.5625	1.2458	1.4304	
2 (Left)	Horizontal Leg	4.5000	3.0625	13.7813	13.5000	3.1875	45.7207	59.2207	
	Vertical Leg	3.9375	5.6875	22.3945	0.1846	0.5625	1.2458	1.4304	
2 (Right)	Horizontal Leg	4.5000	9.4375	42.4688	13.5000	3.1875	45.7207	59.2207	
	Vertical Leg	3.9375	6.8125	26.8242	0.1846	0.5625	1.2458	1.4304	
3	Web Plate	22.5000	6.2500	140.6250	0.2637	0.0000	0.0000	0.2637	
4	Top Cover Plate	7.8125	6.2500	48.8281	203.4505	0.0000	0.0000	203.4505	
4	Bottom Cover Plate	7.8125	6.2500	48.8281	203.4505	0.0000	0.0000	203.4505	
Total		71.88		449.22	461.90		187.87	649.77	
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y, loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties							
x-bar =	6.2500	in	S _{right} =	103.96	in ³	x-bar =	6.2500	in	S _{right} =	103.96	in ³
I _y =	649.77	in ⁴	S _{left} =	103.96	in ³	I _y =	649.77	in ⁴	S _{left} =	103.96	in ³
C _{right} =	6.2500	in	A =	71.8750	in ²	C _{right} =	6.2500	in	A =	71.8750	in ²
C _{left} =	6.2500	in	r _y =	3.0067	in	C _{left} =	6.2500	in	r _y =	3.0067	in

Non-composite Capacities*		
	AB	AI
M	4319.82 k-ft	4319.82 k-ft
V	708.46 k	708.46 k

*Noncompact Section

F_y = 33.00 ksi

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear



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Date 4/6/2012
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Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Top Angles:

$A_1 = l_w = 6.0000$ in
 $C_1 = t_f = 0.7500$ in
 $B_1 = l_v = 6.0000$ in

Bottom Angles:

$B_2 = l_h = 6.0000$ in
 $C_2 = t_f = 0.7500$ in
 $A_2 = l_v = 6.0000$ in

Web Plate:

$C_3 = 0.3750$ in
 $*B_3 = 60.0000$ in

$d_o = 50.5625$ in

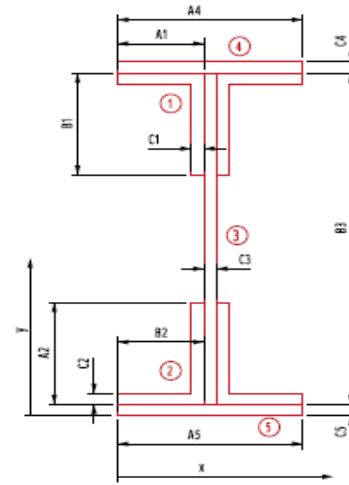
$d_o =$ stiffener spacing for shear check
Use "N/A" for no stiffeners

Top Cover Plate:

$C_4 = 0.7500$ in
 $A_4 = 12.5000$ in

Btm Cover Plate:

$C_5 = 0.7500$ in
 $A_5 = 12.5000$ in



Floorbeam 133

*using average height of section

X-Axis Section Properties:

Gross Section (without Losses)		A	y	Ay	I _o	d	Ad ²	I _{x, gross}
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Horizontal Leg	9.0000	60.3750	543.3750	0.4219	29.6250	7898.7656	7899.1875
	Vertical Leg	7.8750	57.3750	451.8281	18.0879	26.6250	5582.5137	5600.6016
2	Horizontal Leg	9.0000	1.1250	10.1250	0.4219	29.6250	7898.7656	7899.1875
	Vertical Leg	7.8750	4.1250	32.4844	18.0879	26.6250	5582.5137	5600.6016
3	Web Plate	22.5000	30.7500	691.8750	6750.0000	0.0000	0.0000	6750.0000
4	Cover Plate Top	9.3750	61.1250	573.0469	0.4395	30.3750	8649.7559	8650.1953
	Cover Plate Bottom	9.3750	0.3750	3.5156	0.4395	30.3750	8649.7559	8650.1953
Total		75.00		2306.25	6787.90		44262.07	51049.97
Section Losses		A	y	Ay	I _o	d	Ad ²	I _{x, loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	30.7500	in	S _{top} = 1660.16 in ³	y-bar =	30.7500	in	S _{top} = 1660.16 in ³
I _x =	51049.97	in ⁴	S _{bott.} = 1660.16 in ³	I _x =	51049.97	in ⁴	S _{bott.} = 1660.16 in ³
c _{top} =	30.7500	in	A = 75.0000 in ²	c _{top} =	30.7500	in	A = 75.0000 in ²
c _{bottom} =	30.7500	in	r _x = 26.0896 in	c _{bottom} =	30.7500	in	r _x = 26.0896 in
J =	10.8984		Z = 1859.6250 in ³				Z = 1859.6250 in ³



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Date 4/6/2012
Date 4/10/2012

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Calculations For: **CUY-2-1441**

Y-Axis Section Properties:

Gross Section (without Losses)		A	x	Ax	I _o	d	Ad ²	I _{y, gross}	
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)	
1 (Left)	Horizontal Leg	4.5000	3.0625	13.7813	13.5000	3.1875	45.7207	59.2207	
	Vertical Leg	3.9375	5.6875	22.3945	0.1846	0.5625	1.2458	1.4304	
1 (Right)	Horizontal Leg	4.5000	9.4375	42.4688	13.5000	3.1875	45.7207	59.2207	
	Vertical Leg	3.9375	6.8125	26.8242	0.1846	0.5625	1.2458	1.4304	
2 (Left)	Horizontal Leg	4.5000	3.0625	13.7813	13.5000	3.1875	45.7207	59.2207	
	Vertical Leg	3.9375	5.6875	22.3945	0.1846	0.5625	1.2458	1.4304	
2 (Right)	Horizontal Leg	4.5000	9.4375	42.4688	13.5000	3.1875	45.7207	59.2207	
	Vertical Leg	3.9375	6.8125	26.8242	0.1846	0.5625	1.2458	1.4304	
3	Web Plate	22.5000	6.2500	140.6250	0.2637	0.0000	0.0000	0.2637	
4	Top Cover Plate	9.3750	6.2500	58.5938	244.1406	0.0000	0.0000	244.1406	
4	Bottom Cover Plate	9.3750	6.2500	58.5938	244.1406	0.0000	0.0000	244.1406	
Total		75.00		468.75	543.28		187.87	731.15	
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y, loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties							
x-bar =	6.2500	in	S _{right} =	116.98	in ³	x-bar =	6.2500	in	S _{right} =	116.98	in ³
I _y =	731.15	in ⁴	S _{left} =	116.98	in ³	I _y =	731.15	in ⁴	S _{left} =	116.98	in ³
C _{right} =	6.2500	in	A =	75.0000	in ²	C _{right} =	6.2500	in	A =	75.0000	in ²
C _{left} =	6.2500	in	r _y =	3.1223	in	C _{left} =	6.2500	in	r _y =	3.1223	in

Non-composite Capacities*		
	AB	AI
M	4565.44 k-ft	4565.44 k-ft
V	655.52 k	655.52 k

*Noncompact Section

F_y = 33.00 ksi

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear



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Date 4/6/2012
Date 4/10/2012

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Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Top Angles:

$A_1 = l_w = 6.0000$ in
 $C_1 = t_f = 0.7500$ in
 $B_1 = l_v = 6.0000$ in

Bottom Angles:

$B_2 = l_h = 6.0000$ in
 $C_2 = t_f = 0.7500$ in
 $A_2 = l_v = 6.0000$ in

Web Plate:

$C_3 = 0.3750$ in
 $*B_3 = 60.0000$ in

$d_o = 44.6250$ in

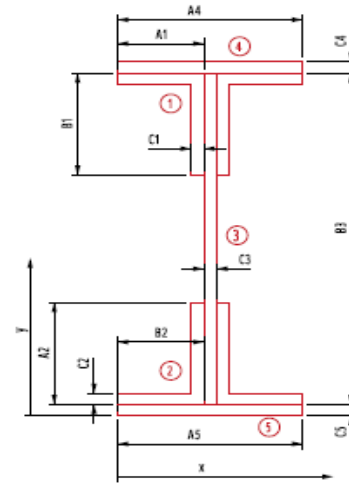
$d_o =$ stiffener spacing for shear check
Use "N/A" for no stiffeners

Top Cover Plate:

$C_4 = 0.7500$ in
 $A_4 = 12.5000$ in

Btm Cover Plate:

$C_5 = 0.7500$ in
 $A_5 = 12.5000$ in



Floorbeam 134

*using average height of section

X-Axis Section Properties:

Gross Section (without Losses)		A	y	Ay	I_o	d	Ad^2	$I_{x, gross}$
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Horizontal Leg	9.0000	60.3750	543.3750	0.4219	29.6250	7898.7656	7899.1875
	Vertical Leg	7.8750	57.3750	451.8281	18.0879	26.6250	5582.5137	5600.6016
2	Horizontal Leg	9.0000	1.1250	10.1250	0.4219	29.6250	7898.7656	7899.1875
	Vertical Leg	7.8750	4.1250	32.4844	18.0879	26.6250	5582.5137	5600.6016
3	Web Plate	22.5000	30.7500	691.8750	6750.0000	0.0000	0.0000	6750.0000
4	Cover Plate Top	9.3750	61.1250	573.0469	0.4395	30.3750	8649.7559	8650.1953
	Cover Plate Bottom	9.3750	0.3750	3.5156	0.4395	30.3750	8649.7559	8650.1953
Total		75.00		2306.25	6787.90		44262.07	51049.97
Section Losses		A	y	Ay	I_o	d	Ad^2	$I_{x, loss}$
Loss #	b (in)	h (in)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties							
y-bar =	30.7500	in	$S_{top} = 1660.16$	in ³	y-bar =	30.7500	in	$S_{top} = 1660.16$	in ³		
$I_x =$	51049.97	in ⁴	$S_{bott.} = 1660.16$	in ³	$I_x =$	51049.97	in ⁴	$S_{bott.} = 1660.16$	in ³		
$c_{top} =$	30.7500	in	A =	75.0000	in ²	$c_{top} =$	30.7500	in	A =	75.0000	in ²
$c_{bottom} =$	30.7500	in	$r_x =$	26.0896	in	$c_{bottom} =$	30.7500	in	$r_x =$	26.0896	in
J =	10.8984		Z =	1859.6250	in ³				Z =	1859.6250	in ³



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Calculations For: **CUY-2-1441**

Y-Axis Section Properties:

Gross Section (without Losses)		A	x	Ax	I _o	d	Ad ²	I _{y, gross}	
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)	
1 (Left)	Horizontal Leg	4.5000	3.0625	13.7813	13.5000	3.1875	45.7207	59.2207	
	Vertical Leg	3.9375	5.6875	22.3945	0.1846	0.5625	1.2458	1.4304	
1 (Right)	Horizontal Leg	4.5000	9.4375	42.4688	13.5000	3.1875	45.7207	59.2207	
	Vertical Leg	3.9375	6.8125	26.8242	0.1846	0.5625	1.2458	1.4304	
2 (Left)	Horizontal Leg	4.5000	3.0625	13.7813	13.5000	3.1875	45.7207	59.2207	
	Vertical Leg	3.9375	5.6875	22.3945	0.1846	0.5625	1.2458	1.4304	
2 (Right)	Horizontal Leg	4.5000	9.4375	42.4688	13.5000	3.1875	45.7207	59.2207	
	Vertical Leg	3.9375	6.8125	26.8242	0.1846	0.5625	1.2458	1.4304	
3	Web Plate	22.5000	6.2500	140.6250	0.2637	0.0000	0.0000	0.2637	
4	Top Cover Plate	9.3750	6.2500	58.5938	244.1406	0.0000	0.0000	244.1406	
4	Bottom Cover Plate	9.3750	6.2500	58.5938	244.1406	0.0000	0.0000	244.1406	
Total		75.00		468.75	543.28		187.87	731.15	
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y, loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties							
x-bar =	6.2500	in	S _{right} =	116.98	in ³	x-bar =	6.2500	in	S _{right} =	116.98	in ³
I _y =	731.15	in ⁴	S _{left} =	116.98	in ³	I _y =	731.15	in ⁴	S _{left} =	116.98	in ³
C _{right} =	6.2500	in	A =	75.0000	in ²	C _{right} =	6.2500	in	A =	75.0000	in ²
C _{left} =	6.2500	in	r _y =	3.1223	in	C _{left} =	6.2500	in	r _y =	3.1223	in

Non-composite Capacities*		
	AB	AI
M	4565.44 k-ft	4565.44 k-ft
V	707.82 k	707.82 k

*Noncompact Section

F_y = 33.00 ksi

AB = As-Built
 AI = As-Inspected
 M = Moment
 V = Shear



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Date 4/6/2012
Date 4/10/2012

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Calculations For: **CUY-2-1441**

As-Inspected By ADK 4/13/12

Element Dimensions (without Section Losses):

Top Angles:

$A_1 = l_w = 6.0000$ in
 $C_1 = t_f = 0.8125$ in
 $B_1 = l_v = 8.0000$ in

Bottom Angles:

$B_2 = l_h = 6.0000$ in
 $C_2 = t_f = 0.8125$ in
 $A_2 = l_v = 8.0000$ in

Web Plate:

$C_3 = 0.3750$ in
 $*B_3 = 60.0000$ in

$d_o = 44.6875$ in

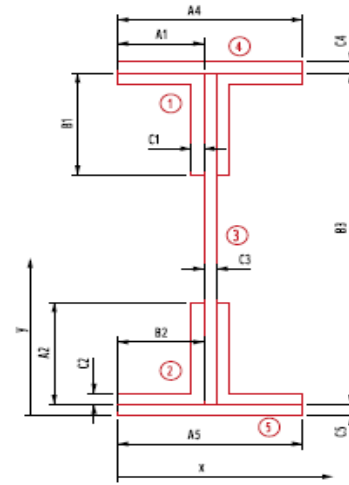
$d_o =$ stiffener spacing for shear check
Use "N/A" for no stiffeners

Top Cover Plate:

$C_4 = 0.0000$ in
 $A_4 = 0.0000$ in

Btm Cover Plate:

$C_5 = 0.0000$ in
 $A_5 = 0.0000$ in



Floorbeam 135

*using average height of section

X-Axis Section Properties:

Gross Section (without Losses)		A	y	Ay	I _o	d	Ad ²	I _{x, gross}
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Horizontal Leg	9.7500	59.5938	581.0391	0.5364	29.5938	8538.9529	8539.4893
	Vertical Leg	11.6797	55.5938	649.3176	50.2812	25.5938	7650.6630	7700.9442
2	Horizontal Leg	9.7500	0.4063	3.9609	0.5364	29.5938	8538.9529	8539.4893
	Vertical Leg	11.6797	4.4063	51.4636	50.2812	25.5938	7650.6630	7700.9442
3	Web Plate	22.5000	30.0000	675.0000	6750.0000	0.0000	0.0000	6750.0000
4	Cover Plate Top	0.0000	60.0000	0.0000	0.0000	30.0000	0.0000	0.0000
	Cover Plate Bottom	0.0000	0.0000	0.0000	0.0000	30.0000	0.0000	0.0000
Total		65.36		1960.78	6851.64		32379.23	39230.87
Section Losses		A	y	Ay	I _o	d	Ad ²	I _{x, loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)
1	6.0000	0.3125	-1.8750	0.1563	-0.2930	-0.0153	30.7357	-1771.2831
2	0.0625	12.0000	-0.7500	30.0000	-22.5000	-9.0000	0.8920	-0.5967
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			-2.63	-22.79	-9.02		-1771.88	-1780.90

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	30.0000	in	S _{top} = 1307.70 in ³	y-bar =	30.8920	in	S _{top} = 1286.59 in ³
I _x =	39230.87	in ⁴	S _{bott.} = 1307.70 in ³	I _x =	37449.97	in ⁴	S _{bott.} = 1212.29 in ³
c _{top} =	30.0000	in	A = 65.3594 in ²	c _{top} =	29.1080	in	A = 62.7344 in ²
c _{bottom} =	30.0000	in	r _x = 24.4997 in	c _{bottom} =	30.8920	in	r _x = 24.4328 in
J =	10.4860		Z = 1512.4321 in ³				Z = 1512.4321 in ³



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Date 4/10/2012

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Calculations For: **CUY-2-1441**

As-Inspected By ADK 4/13/12

Y-Axis Section Properties:

Gross Section (without Losses)		A	x	Ax	I _o	d	Ad ²	I _{y, gross}	
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)	
1 (Left)	Horizontal Leg	4.8750	3.0000	14.6250	14.6250	3.1875	49.5308	64.1558	
	Vertical Leg	5.8398	5.5938	32.6666	0.3213	0.5938	2.0588	2.3800	
1 (Right)	Horizontal Leg	4.8750	9.3750	45.7031	14.6250	3.1875	49.5308	64.1558	
	Vertical Leg	5.8398	6.7813	39.6014	0.3213	0.5938	2.0588	2.3800	
2 (Left)	Horizontal Leg	4.8750	3.0000	14.6250	14.6250	3.1875	49.5308	64.1558	
	Vertical Leg	5.8398	5.5938	32.6666	0.3213	0.5938	2.0588	2.3800	
2 (Right)	Horizontal Leg	4.8750	9.3750	45.7031	14.6250	3.1875	49.5308	64.1558	
	Vertical Leg	5.8398	6.7813	39.6014	0.3213	0.5938	2.0588	2.3800	
3	Web Plate	22.5000	6.1875	139.2188	0.2637	0.0000	0.0000	0.2637	
4	Top Cover Plate	0.0000	6.1875	0.0000	0.0000	0.0000	0.0000	0.0000	
4	Bottom Cover Plate	0.0000	6.1875	0.0000	0.0000	0.0000	0.0000	0.0000	
Total		65.36		404.41	60.05		206.36	266.41	
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y, loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.3125	6.0000	-1.8750	9.3750	-17.5781	-5.6250	3.2846	-20.2291	-25.8541
2	12.0000	0.0625	-0.7500	6.3438	-4.7578	-0.0002	0.2534	-0.0482	-0.0484
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			-2.63		-22.34	-5.63		-20.28	-25.90

As-Built Section Properties				As-Inspected Section Properties							
x-bar =	6.1875	in	S _{right} =	43.06	in ³	x-bar =	6.0904	in	S _{right} =	38.27	in ³
I _y =	266.41	in ⁴	S _{left} =	43.06	in ³	I _y =	240.50	in ⁴	S _{left} =	39.49	in ³
C _{right} =	6.1875	in	A =	65.3594	in ²	C _{right} =	6.2846	in	A =	62.7344	in ²
C _{left} =	6.1875	in	r _y =	2.0189	in	C _{left} =	6.0904	in	r _y =	1.9580	in

Non-composite Capacities*		
	AB	AI
M	3596.16 k-ft	3333.79 k-ft
V	877.75 k	863.39 k

*Noncompact Section

F_y = 33.00 ksi

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear



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Date 4/11/2012
Date 4/12/2012

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Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Top Angles:

$A_1 = l_h = 6.0000$ in
 $C_1 = t_f = 0.7500$ in
 $B_1 = l_v = 6.0000$ in

Bottom Angles:

$B_2 = l_h = 6.0000$ in
 $C_2 = t_f = 0.7500$ in
 $A_2 = l_v = 6.0000$ in

Web Plate:

$C_3 = t = 0.3750$ in
 $*B_3 = h = 60.2500$ in

$d_o = 36.4063$ in

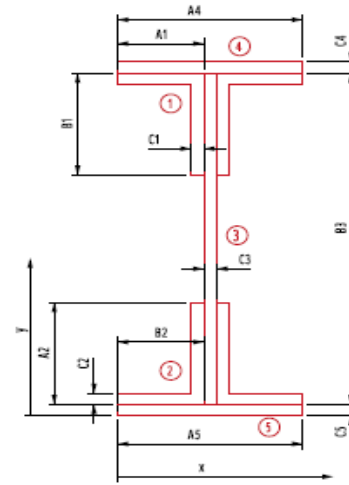
d_o = stiffener spacing for shear check
Use "N/A" for no stiffeners

Top Cover Plate:

$C_4 = t = 1.2500$ in
 $A_4 = b = 12.5000$ in

Btm Cover Plate:

$C_5 = t = 0.6250$ in
 $A_5 = b = 12.5000$ in



FB Bracket 127 South

*using height of web plate at support

X-Axis Section Properties:

Gross Section (without Losses)		A	y	Ay	I _o	d	Ad ²	I _{x, gross}
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Horizontal Leg	9.0000	60.5000	544.5000	0.4219	26.7082	6419.9685	6420.3904
	Vertical Leg	7.8750	57.5000	452.8125	18.0879	23.7082	4426.3834	4444.4712
2	Horizontal Leg	9.0000	1.0000	9.0000	0.4219	32.7918	9677.6984	9678.1203
	Vertical Leg	7.8750	4.0000	31.5000	18.0879	29.7918	6989.4502	7007.5381
3	Web Plate	22.5938	30.7500	694.7578	6834.7271	3.0418	209.0449	7043.7719
4	Cover Plate Top	15.6250	61.5000	960.9375	2.0345	27.7082	11996.0361	11998.0706
	Cover Plate Bottom	7.8125	0.3125	2.4414	0.2543	33.4793	8756.7278	8756.9821
Total		79.78		2695.95	6874.04		48475.31	55349.34
Section Losses		A	y	Ay	I _o	d	Ad ²	I _{x, loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	33.7918	in	S _{top} = 1953.51 in ³	y-bar =	33.7918	in	S _{top} = 1953.51 in ³
I _x =	55349.34	in ⁴	S _{bottom} = 1637.95 in ³	I _x =	55349.34	in ⁴	S _{bottom} = 1637.95 in ³
c _{top} =	28.3332	in	A = 79.7813 in ²	c _{top} =	28.3332	in	A = 79.7813 in ²
c _{bottom} =	33.7918	in	r _x = 26.3394 in	c _{bottom} =	33.7918	in	r _x = 26.3394 in
J =	16.5425		Z = 1974.7025 in ³				Z = 1974.7025 in ³



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Date 4/11/2012
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Calculations For: **CUY-2-1441**

Y-Axis Section Properties:

Gross Section (without Losses)		A	x	Ax	I _o	d	Ad ²	I _{y, gross}	
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)	
1 (Left)	Horizontal Leg	4.5000	3.0625	13.7813	13.5000	3.1875	45.7207	59.2207	
	Vertical Leg	3.9375	5.6875	22.3945	0.1846	0.5625	1.2458	1.4304	
1 (Right)	Horizontal Leg	4.5000	9.4375	42.4688	13.5000	3.1875	45.7207	59.2207	
	Vertical Leg	3.9375	6.8125	26.8242	0.1846	0.5625	1.2458	1.4304	
2 (Left)	Horizontal Leg	4.5000	3.0625	13.7813	13.5000	3.1875	45.7207	59.2207	
	Vertical Leg	3.9375	5.6875	22.3945	0.1846	0.5625	1.2458	1.4304	
2 (Right)	Horizontal Leg	4.5000	9.4375	42.4688	13.5000	3.1875	45.7207	59.2207	
	Vertical Leg	3.9375	6.8125	26.8242	0.1846	0.5625	1.2458	1.4304	
3	Web Plate	22.5938	6.2500	141.2109	0.2648	0.0000	0.0000	0.2648	
4	Top Cover Plate	15.6250	6.2500	97.6563	406.9010	0.0000	0.0000	406.9010	
4	Bottom Cover Plate	7.8125	6.2500	48.8281	203.4505	0.0000	0.0000	203.4505	
Total		79.78		498.63	665.35		187.87	853.22	
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y, loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties							
x-bar =	6.2500	in	S _{right} =	136.52	in ³	x-bar =	6.2500	in	S _{right} =	136.52	in ³
I _y =	853.22	in ⁴	S _{left} =	136.52	in ³	I _y =	853.22	in ⁴	S _{left} =	136.52	in ³
C _{right} =	6.2500	in	A =	79.7813	in ²	C _{right} =	6.2500	in	A =	79.7813	in ²
C _{left} =	6.2500	in	r _y =	3.2702	in	C _{left} =	6.2500	in	r _y =	3.2702	in

Non-composite Capacities*		
	AB	AI
M	4504.37 k-ft	4504.37 k-ft
V	733.90 k	733.90 k

*Noncompact Section

F_y = 33.00 ksi

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear



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Date 4/11/2012
Date 4/12/2012

Job No. P402110046
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Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Top Angles:

$A_1 = l_h = 6.0000$ in
 $C_1 = t_f = 0.5000$ in
 $B_1 = l_v = 6.0000$ in

Bottom Angles:

$B_2 = l_h = 6.0000$ in
 $C_2 = t_f = 0.5000$ in
 $A_2 = l_v = 6.0000$ in

Web Plate:

$C_3 = t = 0.3750$ in
 $*B_3 = h = 60.2500$ in

$d_o = 36.5000$ in

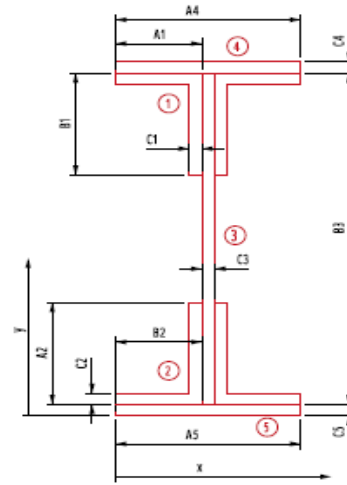
d_o = stiffener spacing for shear check
Use "N/A" for no stiffeners

Top Cover Plate:

$C_4 = t = 0.8750$ in
 $A_4 = b = 12.5000$ in

Btm Cover Plate:

$C_5 = t = 0.0000$ in
 $A_5 = b = 0.0000$ in



*using height of web plate at support

X-Axis Section Properties:

Gross Section (without Losses)		A	y	Ay	I_o	d	Ad^2	$I_{x, gross}$
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Horizontal Leg	6.0000	60.0000	360.0000	0.1250	23.9619	3445.0237	3445.1487
	Vertical Leg	5.5000	57.0000	313.5000	13.8646	20.9619	2416.6971	2430.5616
2	Horizontal Leg	6.0000	0.2500	1.5000	0.1250	35.7881	7684.7469	7684.8719
	Vertical Leg	5.5000	3.2500	17.8750	13.8646	32.7881	5912.8426	5926.7072
3	Web Plate	22.5938	30.1250	680.6367	6834.7271	5.9131	789.9962	7624.7233
4	Cover Plate Top	10.9375	60.6875	663.7695	0.6978	24.6494	6645.5246	6646.2224
	Cover Plate Bottom	0.0000	0.0000	0.0000	0.0000	36.0381	0.0000	0.0000
Total		56.53		2037.28	6863.40		26894.83	33758.24
Section Losses		A	y	Ay	I_o	d	Ad^2	$I_{x, loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties							
y-bar =	36.0381	in	$S_{top} = 1345.65$	in ³	y-bar =	36.0381	in	$S_{top} = 1345.65$	in ³		
$I_x =$	33758.24	in ⁴	$S_{bott.} = 936.74$	in ³	$I_x =$	33758.24	in ⁴	$S_{bott.} = 936.74$	in ³		
$c_{top} =$	25.0869	in	A =	56.5313	in ²	$c_{top} =$	25.0869	in	A =	56.5313	in ²
$c_{bottom} =$	36.0381	in	$r_x =$	24.4369	in	$c_{bottom} =$	36.0381	in	$r_x =$	24.4369	in
J =	5.7671	in ³	Z =	1248.9681	in ³				Z =	1248.9681	in ³



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Calculations For: **CUY-2-1441**

Y-Axis Section Properties:

Gross Section (without Losses)		A	x	Ax	I _o	d	Ad ²	I _{y, gross}	
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)	
1 (Left)	Horizontal Leg	3.0000	3.0625	9.1875	9.0000	3.1875	30.4805	39.4805	
	Vertical Leg	2.7500	5.8125	15.9844	0.0573	0.4375	0.5264	0.5837	
1 (Right)	Horizontal Leg	3.0000	9.4375	28.3125	9.0000	3.1875	30.4805	39.4805	
	Vertical Leg	2.7500	6.6875	18.3906	0.0573	0.4375	0.5264	0.5837	
2 (Left)	Horizontal Leg	3.0000	3.0625	9.1875	9.0000	3.1875	30.4805	39.4805	
	Vertical Leg	2.7500	5.8125	15.9844	0.0573	0.4375	0.5264	0.5837	
2 (Right)	Horizontal Leg	3.0000	9.4375	28.3125	9.0000	3.1875	30.4805	39.4805	
	Vertical Leg	2.7500	6.6875	18.3906	0.0573	0.4375	0.5264	0.5837	
3	Web Plate	22.5938	6.2500	141.2109	0.2648	0.0000	0.0000	0.2648	
4	Top Cover Plate	10.9375	6.2500	68.3594	284.8307	0.0000	0.0000	284.8307	
4	Bottom Cover Plate	0.0000	6.2500	0.0000	0.0000	0.0000	0.0000	0.0000	
Total		56.53		353.32	321.32		124.03	445.35	
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y, loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties							
x-bar =	6.2500	in	S _{right} =	71.26	in ³	x-bar =	6.2500	in	S _{right} =	71.26	in ³
I _y =	445.35	in ⁴	S _{left} =	71.26	in ³	I _y =	445.35	in ⁴	S _{left} =	71.26	in ³
C _{right} =	6.2500	in	A =	56.5313	in ²	C _{right} =	6.2500	in	A =	56.5313	in ²
C _{left} =	6.2500	in	r _y =	2.8068	in	C _{left} =	6.2500	in	r _y =	2.8068	in

Non-composite Capacities*		
	AB	AI
M	2576.02 k-ft	2576.02 k-ft
V	642.98 k	642.98 k

*Noncompact Section

F_y = 33.00 ksi

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear



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Date 4/11/2012
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Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Top Angles:

$A_1 = l_h = 6.0000$ in
 $C_1 = t_f = 0.7500$ in
 $B_1 = l_v = 6.0000$ in

Bottom Angles:

$B_2 = l_h = 6.0000$ in
 $C_2 = t_f = 0.7500$ in
 $A_2 = l_v = 6.0000$ in

Web Plate:

$C_3 = t = 0.3750$ in
 $*B_3 = h = 60.0000$ in

$d_o = 38.5000$ in

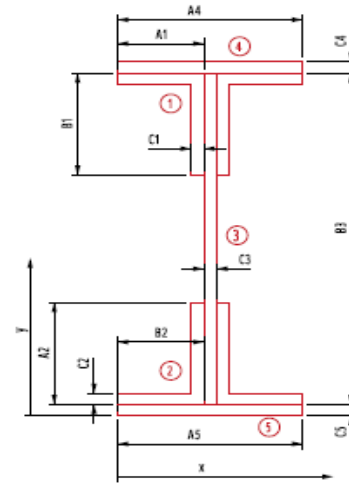
$d_o =$ stiffener spacing for shear check
Use "N/A" for no stiffeners

Top Cover Plate:

$C_4 = t = 1.5000$ in
 $A_4 = b = 12.5000$ in

Btm Cover Plate:

$C_5 = t = 0.0000$ in
 $A_5 = b = 0.0000$ in



FB Bracket 128 South

*using height of web plate at support

X-Axis Section Properties:

Gross Section (without Losses)		A	y	Ay	I_o	d	Ad^2	$I_{x, gross}$
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Horizontal Leg	9.0000	59.6250	536.6250	0.4219	21.9375	4331.2852	4331.7070
	Vertical Leg	7.8750	56.6250	445.9219	18.0879	18.9375	2824.2026	2842.2905
2	Horizontal Leg	9.0000	0.3750	3.3750	0.4219	37.3125	12530.0039	12530.4258
	Vertical Leg	7.8750	3.3750	26.5781	18.0879	34.3125	9271.6128	9289.7007
3	Web Plate	22.5000	30.0000	675.0000	6750.0000	7.6875	1329.6973	8079.6973
4	Cover Plate Top	18.7500	60.7500	1139.0625	3.5156	23.0625	9972.7295	9976.2451
	Cover Plate Bottom	0.0000	0.0000	0.0000	0.0000	37.6875	0.0000	0.0000
Total		75.00		2826.56	6790.54		40259.53	47050.07
Section Losses		A	y	Ay	I_o	d	Ad^2	$I_{x, loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties							
y-bar =	37.6875	in	$S_{top} = 1975.86$	in ³	y-bar =	37.6875	in	$S_{top} = 1975.86$	in ³		
$I_x =$	47050.07	in ⁴	$S_{bott.} = 1248.43$	in ³	$I_x =$	47050.07	in ⁴	$S_{bott.} = 1248.43$	in ³		
$c_{top} =$	23.8125	in	A =	75.0000	in ²	$c_{top} =$	23.8125	in	A =	75.0000	in ²
$c_{bottom} =$	37.6875	in	$r_x =$	25.0466	in	$c_{bottom} =$	37.6875	in	$r_x =$	25.0466	in
J =	21.4453		Z =	calculate	in ³	Z =	0.0000			in ³	



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Date 4/11/2012
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Calculations For: **CUY-2-1441**

Y-Axis Section Properties:

Gross Section (without Losses)		A	x	Ax	I _o	d	Ad ²	I _{y, gross}	
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)	
1 (Left)	Horizontal Leg	4.5000	3.0625	13.7813	13.5000	3.1875	45.7207	59.2207	
	Vertical Leg	3.9375	5.6875	22.3945	0.1846	0.5625	1.2458	1.4304	
1 (Right)	Horizontal Leg	4.5000	9.4375	42.4688	13.5000	3.1875	45.7207	59.2207	
	Vertical Leg	3.9375	6.8125	26.8242	0.1846	0.5625	1.2458	1.4304	
2 (Left)	Horizontal Leg	4.5000	3.0625	13.7813	13.5000	3.1875	45.7207	59.2207	
	Vertical Leg	3.9375	5.6875	22.3945	0.1846	0.5625	1.2458	1.4304	
2 (Right)	Horizontal Leg	4.5000	9.4375	42.4688	13.5000	3.1875	45.7207	59.2207	
	Vertical Leg	3.9375	6.8125	26.8242	0.1846	0.5625	1.2458	1.4304	
3	Web Plate	22.5000	6.2500	140.6250	0.2637	0.0000	0.0000	0.2637	
4	Top Cover Plate	18.7500	6.2500	117.1875	488.2813	0.0000	0.0000	488.2813	
4	Bottom Cover Plate	0.0000	6.2500	0.0000	0.0000	0.0000	0.0000	0.0000	
Total		75.00		468.75	543.28		187.87	731.15	
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y, loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties							
x-bar =	6.2500	in	S _{right} =	116.98	in ³	x-bar =	6.2500	in	S _{right} =	116.98	in ³
I _y =	731.15	in ⁴	S _{left} =	116.98	in ³	I _y =	731.15	in ⁴	S _{left} =	116.98	in ³
C _{right} =	6.2500	in	A =	75.0000	in ²	C _{right} =	6.2500	in	A =	75.0000	in ²
C _{left} =	6.2500	in	r _y =	3.1223	in	C _{left} =	6.2500	in	r _y =	3.1223	in

Non-composite Capacities*		
	AB	AI
M	3433.17 k-ft	3433.17 k-ft
V	732.11 k	732.11 k

*Noncompact Section

F_y = 33.00 ksi

AB = As-Built
 AI = As-Inspected
 M = Moment
 V = Shear



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Date 4/11/2012
Date 4/12/2012

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Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Top Angles:

$A_1 = l_h = 6.0000$ in
 $C_1 = t_f = 0.5000$ in
 $B_1 = l_v = 6.0000$ in

Bottom Angles:

$B_2 = l_h = 6.0000$ in
 $C_2 = t_f = 0.5000$ in
 $A_2 = l_v = 6.0000$ in

Web Plate:

$C_3 = t = 0.3750$ in
 $*B_3 = h = 60.0000$ in

$d_o = 34.3750$ in

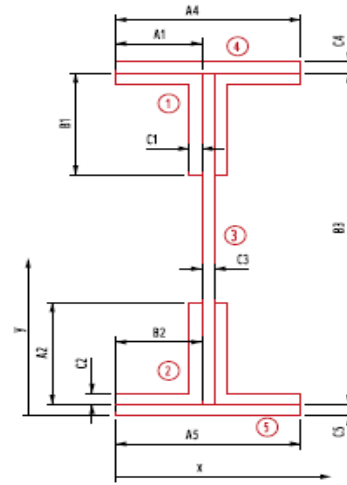
$d_o =$ stiffener spacing for shear check
Use "N/A" for no stiffeners

Top Cover Plate:

$C_4 = t = 0.8750$ in
 $A_4 = b = 12.5000$ in

Btm Cover Plate:

$C_5 = t = 0.0000$ in
 $A_5 = b = 0.0000$ in



FB Bracket 128 North

*using height of web plate at support

X-Axis Section Properties:

Gross Section (without Losses)		A	y	Ay	I _o	d	Ad ²	I _{x, gross}
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Horizontal Leg	6.0000	59.7500	358.5000	0.1250	23.8513	3413.2955	3413.4205
	Vertical Leg	5.5000	56.7500	312.1250	13.8646	20.8513	2391.2627	2405.1273
2	Horizontal Leg	6.0000	0.2500	1.5000	0.1250	35.6487	7624.9961	7625.1211
	Vertical Leg	5.5000	3.2500	17.8750	13.8646	32.6487	5862.6713	5876.5359
3	Web Plate	22.5000	30.0000	675.0000	6750.0000	5.8987	782.8906	7532.8906
4	Cover Plate Top	10.9375	60.4375	661.0352	0.6978	24.5388	6586.0236	6586.7214
	Cover Plate Bottom	0.0000	0.0000	0.0000	0.0000	35.8987	0.0000	0.0000
Total		56.44		2026.04	6778.68		26661.14	33439.82
Section Losses		A	y	Ay	I _o	d	Ad ²	I _{x, loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	35.8987	in	S _{top} = 1338.86 in ³	y-bar =	35.8987	in	S _{top} = 1338.86 in ³
I _x =	33439.82	in ⁴	S _{bottom} = 931.50 in ³	I _x =	33439.82	in ⁴	S _{bottom} = 931.50 in ³
c _{top} =	24.9763	in	A = 56.4375 in ²	c _{top} =	24.9763	in	A = 56.4375 in ²
c _{bottom} =	35.8987	in	r _x = 24.3415 in	c _{bottom} =	35.8987	in	r _x = 24.3415 in
J =	5.7627	in ³	Z = 1241.9076 in ³				Z = 1241.9076 in ³



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Calculations For: **CUY-2-1441**

Y-Axis Section Properties:

Gross Section (without Losses)		A	x	Ax	I _o	d	Ad ²	I _{y, gross}	
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)	
1 (Left)	Horizontal Leg	3.0000	3.0625	9.1875	9.0000	3.1875	30.4805	39.4805	
	Vertical Leg	2.7500	5.8125	15.9844	0.0573	0.4375	0.5264	0.5837	
1 (Right)	Horizontal Leg	3.0000	9.4375	28.3125	9.0000	3.1875	30.4805	39.4805	
	Vertical Leg	2.7500	6.6875	18.3906	0.0573	0.4375	0.5264	0.5837	
2 (Left)	Horizontal Leg	3.0000	3.0625	9.1875	9.0000	3.1875	30.4805	39.4805	
	Vertical Leg	2.7500	5.8125	15.9844	0.0573	0.4375	0.5264	0.5837	
2 (Right)	Horizontal Leg	3.0000	9.4375	28.3125	9.0000	3.1875	30.4805	39.4805	
	Vertical Leg	2.7500	6.6875	18.3906	0.0573	0.4375	0.5264	0.5837	
3	Web Plate	22.5000	6.2500	140.6250	0.2637	0.0000	0.0000	0.2637	
4	Top Cover Plate	10.9375	6.2500	68.3594	284.8307	0.0000	0.0000	284.8307	
4	Bottom Cover Plate	0.0000	6.2500	0.0000	0.0000	0.0000	0.0000	0.0000	
Total		56.44		352.73	321.32		124.03	445.35	
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y, loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties							
x-bar =	6.2500	in	S _{right} =	71.26	in ³	x-bar =	6.2500	in	S _{right} =	71.26	in ³
I _y =	445.35	in ⁴	S _{left} =	71.26	in ³	I _y =	445.35	in ⁴	S _{left} =	71.26	in ³
C _{right} =	6.2500	in	A =	56.4375	in ²	C _{right} =	6.2500	in	A =	56.4375	in ²
C _{left} =	6.2500	in	r _y =	2.8091	in	C _{left} =	6.2500	in	r _y =	2.8091	in

Non-composite Capacities*		
	AB	AI
M	2561.64 k-ft	2561.64 k-ft
V	641.19 k	641.19 k

*Noncompact Section

F_y = **33.00 ksi**

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear



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Date 4/11/2012
Date 4/12/2012

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Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Top Angles:

$A_1 = l_h = 6.0000$ in
 $C_1 = t_f = 0.6250$ in
 $B_1 = l_v = 6.0000$ in

Bottom Angles:

$B_2 = l_h = 6.0000$ in
 $C_2 = t_f = 0.6250$ in
 $A_2 = l_v = 6.0000$ in

Web Plate:

$C_3 = t = 0.3750$ in
 $*B_3 = h = 60.0000$ in

$d_o = 38.6250$ in

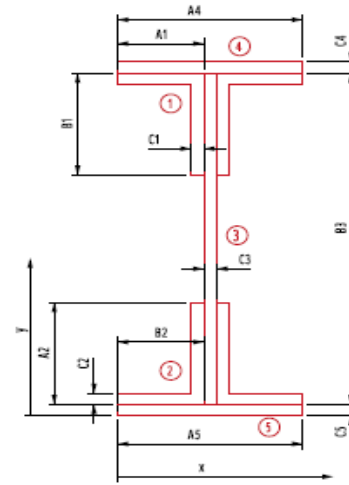
$d_o =$ stiffener spacing for shear check
Use "N/A" for no stiffeners

Top Cover Plate:

$C_4 = t = 1.2500$ in
 $A_4 = b = 12.5000$ in

Btm Cover Plate:

$C_5 = t = 0.0000$ in
 $A_5 = b = 0.0000$ in



*using height of web plate at support

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I_o	d	Ad^2	$I_{x, gross}$
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Horizontal Leg		7.5000	59.6875	447.6563	0.2441	22.4985	3796.3799	3796.6240
	Vertical Leg		6.7188	56.6875	380.8691	16.1757	19.4985	2554.4203	2570.5960
2	Horizontal Leg		7.5000	0.3125	2.3438	0.2441	36.8765	10199.0537	10199.2979
	Vertical Leg		6.7188	3.3125	22.2559	16.1757	33.8765	7710.5385	7726.7142
3	Web Plate		22.5000	30.0000	675.0000	6750.0000	7.1890	1162.8281	7912.8281
4	Cover Plate Top		15.6250	60.6250	947.2656	2.0345	23.4360	8581.9943	8584.0288
	Cover Plate Bottom		0.0000	0.0000	0.0000	0.0000	37.1890	0.0000	0.0000
Total			66.56		2475.39	6784.87		34005.21	40790.09
Section Losses			A	y	Ay	I_o	d	Ad^2	$I_{x, loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	37.1890 in	$S_{top} =$	1695.28 in ³	y-bar =	37.1890 in	$S_{top} =$	1695.28 in ³
$I_x =$	40790.09 in ⁴	$S_{bott.} =$	1096.83 in ³	$I_x =$	40790.09 in ⁴	$S_{bott.} =$	1096.83 in ³
$c_{top} =$	24.0610 in	A =	66.5625 in ²	$c_{top} =$	24.0610 in	A =	66.5625 in ²
$c_{bottom} =$	37.1890 in	$r_x =$	24.7550 in	$c_{bottom} =$	37.1890 in	$r_x =$	24.7550 in
J =	12.8955	Z =	1457.1810 in ³	Z =	1457.1810		in ³



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Calculations For: **CUY-2-1441**

Y-Axis Section Properties:

Gross Section (without Losses)		A	x	Ax	I _o	d	Ad ²	I _{y, gross}	
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)	
1 (Left)	Horizontal Leg	3.7500	3.0625	11.4844	11.2500	3.1875	38.1006	49.3506	
	Vertical Leg	3.3594	5.7500	19.3164	0.1094	0.5000	0.8398	0.9492	
1 (Right)	Horizontal Leg	3.7500	9.4375	35.3906	11.2500	3.1875	38.1006	49.3506	
	Vertical Leg	3.3594	6.7500	22.6758	0.1094	0.5000	0.8398	0.9492	
2 (Left)	Horizontal Leg	3.7500	3.0625	11.4844	11.2500	3.1875	38.1006	49.3506	
	Vertical Leg	3.3594	5.7500	19.3164	0.1094	0.5000	0.8398	0.9492	
2 (Right)	Horizontal Leg	3.7500	9.4375	35.3906	11.2500	3.1875	38.1006	49.3506	
	Vertical Leg	3.3594	6.7500	22.6758	0.1094	0.5000	0.8398	0.9492	
3	Web Plate	22.5000	6.2500	140.6250	0.2637	0.0000	0.0000	0.2637	
4	Top Cover Plate	15.6250	6.2500	97.6563	406.9010	0.0000	0.0000	406.9010	
4	Bottom Cover Plate	0.0000	6.2500	0.0000	0.0000	0.0000	0.0000	0.0000	
Total		66.56		416.02	452.60		155.76	608.36	
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y, loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties							
x-bar =	6.2500	in	S _{right} =	97.34	in ³	x-bar =	6.2500	in	S _{right} =	97.34	in ³
I _y =	608.36	in ⁴	S _{left} =	97.34	in ³	I _y =	608.36	in ⁴	S _{left} =	97.34	in ³
C _{right} =	6.2500	in	A =	66.5625	in ²	C _{right} =	6.2500	in	A =	66.5625	in ²
C _{left} =	6.2500	in	r _y =	3.0232	in	C _{left} =	6.2500	in	r _y =	3.0232	in

Non-composite Capacities*		
	AB	AI
M	3016.29 k-ft	3016.29 k-ft
V	687.84 k	687.84 k

*Noncompact Section

F_y = 33.00 ksi

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear



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Date 4/11/2012
Date 4/12/2012

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Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Top Angles:

$A_1 = l_h = 6.0000$ in
 $C_1 = t_f = 0.5000$ in
 $B_1 = l_v = 6.0000$ in

Bottom Angles:

$B_2 = l_h = 6.0000$ in
 $C_2 = t_f = 0.5000$ in
 $A_2 = l_v = 6.0000$ in

Web Plate:

$C_3 = t = 0.3750$ in
 $*B_3 = h = 60.0000$ in

$d_o = 34.6875$ in

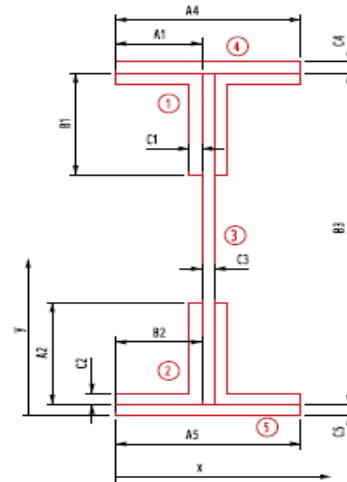
$d_o =$ stiffener spacing for shear check
Use "N/A" for no stiffeners

Top Cover Plate:

$C_4 = t = 0.8750$ in
 $A_4 = b = 12.5000$ in

Btm Cover Plate:

$C_5 = t = 0.0000$ in
 $A_5 = b = 0.0000$ in



FB Bracket 129 North

*using height of web plate at support

X-Axis Section Properties:

Gross Section (without Losses)		A	y	Ay	I_o	d	Ad^2	$I_{x, gross}$
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Horizontal Leg	6.0000	59.7500	358.5000	0.1250	23.8513	3413.2955	3413.4205
	Vertical Leg	5.5000	56.7500	312.1250	13.8646	20.8513	2391.2627	2405.1273
2	Horizontal Leg	6.0000	0.2500	1.5000	0.1250	35.6487	7624.9961	7625.1211
	Vertical Leg	5.5000	3.2500	17.8750	13.8646	32.6487	5862.6713	5876.5359
3	Web Plate	22.5000	30.0000	675.0000	6750.0000	5.8987	782.8906	7532.8906
4	Cover Plate Top	10.9375	60.4375	661.0352	0.6978	24.5388	6586.0236	6586.7214
	Cover Plate Bottom	0.0000	0.0000	0.0000	0.0000	35.8987	0.0000	0.0000
Total		56.44		2026.04	6778.68		26661.14	33439.82
Section Losses		A	y	Ay	I_o	d	Ad^2	$I_{x, loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties							
y-bar =	35.8987	in	$S_{top} = 1338.86$	in ³	y-bar =	35.8987	in	$S_{top} = 1338.86$	in ³		
$I_x =$	33439.82	in ⁴	$S_{bott.} = 931.50$	in ³	$I_x =$	33439.82	in ⁴	$S_{bott.} = 931.50$	in ³		
$c_{top} =$	24.9763	in	A =	56.4375	in ²	$c_{top} =$	24.9763	in	A =	56.4375	in ²
$c_{bottom} =$	35.8987	in	$r_x =$	24.3415	in	$c_{bottom} =$	35.8987	in	$r_x =$	24.3415	in
J =	5.7627		Z =	1241.9076	in ³				Z =	1241.9076	in ³



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Date 4/11/2012
Date 4/12/2012

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Calculations For: **CUY-2-1441**

Y-Axis Section Properties:

Gross Section (without Losses)		A	x	Ax	I _o	d	Ad ²	I _{y, gross}	
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)	
1 (Left)	Horizontal Leg	3.0000	3.0625	9.1875	9.0000	3.1875	30.4805	39.4805	
	Vertical Leg	2.7500	5.8125	15.9844	0.0573	0.4375	0.5264	0.5837	
1 (Right)	Horizontal Leg	3.0000	9.4375	28.3125	9.0000	3.1875	30.4805	39.4805	
	Vertical Leg	2.7500	6.6875	18.3906	0.0573	0.4375	0.5264	0.5837	
2 (Left)	Horizontal Leg	3.0000	3.0625	9.1875	9.0000	3.1875	30.4805	39.4805	
	Vertical Leg	2.7500	5.8125	15.9844	0.0573	0.4375	0.5264	0.5837	
2 (Right)	Horizontal Leg	3.0000	9.4375	28.3125	9.0000	3.1875	30.4805	39.4805	
	Vertical Leg	2.7500	6.6875	18.3906	0.0573	0.4375	0.5264	0.5837	
3	Web Plate	22.5000	6.2500	140.6250	0.2637	0.0000	0.0000	0.2637	
4	Top Cover Plate	10.9375	6.2500	68.3594	284.8307	0.0000	0.0000	284.8307	
4	Bottom Cover Plate	0.0000	6.2500	0.0000	0.0000	0.0000	0.0000	0.0000	
Total		56.44		352.73	321.32		124.03	445.35	
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y, loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties							
x-bar =	6.2500	in	S _{right} =	71.26	in ³	x-bar =	6.2500	in	S _{right} =	71.26	in ³
I _y =	445.35	in ⁴	S _{left} =	71.26	in ³	I _y =	445.35	in ⁴	S _{left} =	71.26	in ³
C _{right} =	6.2500	in	A =	56.4375	in ²	C _{right} =	6.2500	in	A =	56.4375	in ²
C _{left} =	6.2500	in	r _y =	2.8091	in	C _{left} =	6.2500	in	r _y =	2.8091	in

Non-composite Capacities*		
	AB	AI
M	2561.64 k-ft	2561.64 k-ft
V	641.19 k	641.19 k

*Noncompact Section

F_y = 33.00 ksi

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear



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Date 4/11/2012
Date 4/12/2012

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Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Top Angles:

$A_1 = l_h = 6.0000$ in
 $C_1 = t_f = 0.6250$ in
 $B_1 = l_v = 6.0000$ in

Bottom Angles:

$B_2 = l_h = 6.0000$ in
 $C_2 = t_f = 0.6250$ in
 $A_2 = l_v = 6.0000$ in

Web Plate:

$C_3 = t = 0.3750$ in
 $*B_3 = h = 60.2500$ in

$d_o = 38.5000$ in

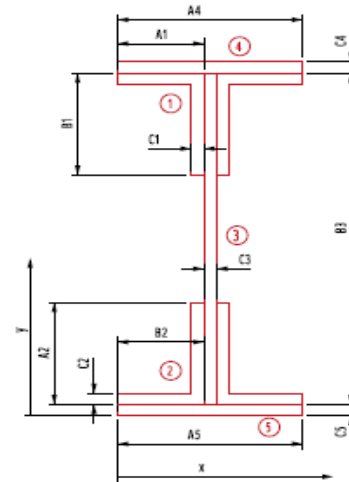
$d_o =$ stiffener spacing for shear check
Use "N/A" for no stiffeners

Top Cover Plate:

$C_4 = t = 1.2500$ in
 $A_4 = b = 12.5000$ in

Btm Cover Plate:

$C_5 = t = 0.0000$ in
 $A_5 = b = 0.0000$ in



FB Bracket 130 South

*using height of web plate at support

X-Axis Section Properties:

Gross Section (without Losses)		A	y	Ay	I _o	d	Ad ²	I _{x, gross}
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Horizontal Leg	7.5000	59.9375	449.5313	0.2441	22.6043	3832.1722	3832.4164
	Vertical Leg	6.7188	56.9375	382.5488	16.1757	19.6043	2582.2188	2598.3946
2	Horizontal Leg	7.5000	0.3125	2.3438	0.2441	37.0207	10278.9681	10279.2123
	Vertical Leg	6.7188	3.3125	22.2559	16.1757	34.0207	7776.3158	7792.4915
3	Web Plate	22.5938	30.1250	680.6367	6834.7271	7.2082	1173.9156	8008.6426
4	Cover Plate Top	15.6250	60.8750	951.1719	2.0345	23.5418	8659.6617	8661.6962
	Cover Plate Bottom	0.0000	0.0000	0.0000	0.0000	37.3332	0.0000	0.0000
Total		66.66		2488.49	6869.60		34303.25	41172.85
Section Losses		A	y	Ay	I _o	d	Ad ²	I _{x, loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	37.3332	in	S _{top} = 1703.69 in ³	y-bar =	37.3332	in	S _{top} = 1703.69 in ³
I _x =	41172.85	in ⁴	S _{bottom} = 1102.85 in ³	I _x =	41172.85	in ⁴	S _{bottom} = 1102.85 in ³
c _{top} =	24.1668	in	A = 66.6563 in ²	c _{top} =	24.1668	in	A = 66.6563 in ²
c _{bottom} =	37.3332	in	r _x = 24.8534 in	c _{bottom} =	37.3332	in	r _x = 24.8534 in
J =	12.8999		Z = 1465.5072 in ³				Z = 1465.5072 in ³



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Calculations For: **CUY-2-1441**

Y-Axis Section Properties:

Gross Section (without Losses)		A	x	Ax	I _o	d	Ad ²	I _{y, gross}	
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)	
1 (Left)	Horizontal Leg	3.7500	3.0625	11.4844	11.2500	3.1875	38.1006	49.3506	
	Vertical Leg	3.3594	5.7500	19.3164	0.1094	0.5000	0.8398	0.9492	
1 (Right)	Horizontal Leg	3.7500	9.4375	35.3906	11.2500	3.1875	38.1006	49.3506	
	Vertical Leg	3.3594	6.7500	22.6758	0.1094	0.5000	0.8398	0.9492	
2 (Left)	Horizontal Leg	3.7500	3.0625	11.4844	11.2500	3.1875	38.1006	49.3506	
	Vertical Leg	3.3594	5.7500	19.3164	0.1094	0.5000	0.8398	0.9492	
2 (Right)	Horizontal Leg	3.7500	9.4375	35.3906	11.2500	3.1875	38.1006	49.3506	
	Vertical Leg	3.3594	6.7500	22.6758	0.1094	0.5000	0.8398	0.9492	
3	Web Plate	22.5938	6.2500	141.2109	0.2648	0.0000	0.0000	0.2648	
4	Top Cover Plate	15.6250	6.2500	97.6563	406.9010	0.0000	0.0000	406.9010	
4	Bottom Cover Plate	0.0000	6.2500	0.0000	0.0000	0.0000	0.0000	0.0000	
Total		66.66		416.60	452.60		155.76	608.36	
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y, loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties							
x-bar =	6.2500	in	S _{right} =	97.34	in ³	x-bar =	6.2500	in	S _{right} =	97.34	in ³
I _y =	608.36	in ⁴	S _{left} =	97.34	in ³	I _y =	608.36	in ⁴	S _{left} =	97.34	in ³
C _{right} =	6.2500	in	A =	66.6563	in ²	C _{right} =	6.2500	in	A =	66.6563	in ²
C _{left} =	6.2500	in	r _y =	3.0211	in	C _{left} =	6.2500	in	r _y =	3.0211	in

Non-composite Capacities*		
	AB	AI
M	3032.84 k-ft	3032.84 k-ft
V	689.64 k	689.64 k

*Noncompact Section

F_y = 33.00 ksi

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear



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Date 4/11/2012
Date 4/12/2012

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Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Top Angles:

$A_1 = l_h = 6.0000$ in
 $C_1 = t_f = 0.5000$ in
 $B_1 = l_v = 6.0000$ in

Bottom Angles:

$B_2 = l_h = 6.0000$ in
 $C_2 = t_f = 0.5000$ in
 $A_2 = l_v = 6.0000$ in

Web Plate:

$C_3 = t = 0.3750$ in
 $*B_3 = h = 60.2500$ in

$d_o = 41.8438$ in

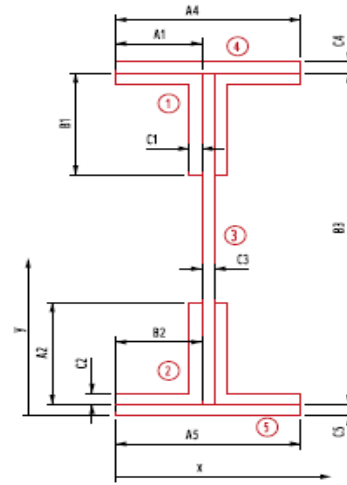
d_o = stiffener spacing for shear check
Use "N/A" for no stiffeners

Top Cover Plate:

$C_4 = t = 0.8750$ in
 $A_4 = b = 12.5000$ in

Btm Cover Plate:

$C_5 = t = 0.0000$ in
 $A_5 = b = 0.0000$ in



FB Bracket 130 North

*using height of web plate at support

X-Axis Section Properties:

Gross Section (without Losses)		A	y	Ay	I _o	d	Ad ²	I _{x, gross}
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Horizontal Leg	6.0000	60.0000	360.0000	0.1250	23.9619	3445.0237	3445.1487
	Vertical Leg	5.5000	57.0000	313.5000	13.8646	20.9619	2416.6971	2430.5616
2	Horizontal Leg	6.0000	0.2500	1.5000	0.1250	35.7881	7684.7469	7684.8719
	Vertical Leg	5.5000	3.2500	17.8750	13.8646	32.7881	5912.8426	5926.7072
3	Web Plate	22.5938	30.1250	680.6367	6834.7271	5.9131	789.9962	7624.7233
4	Cover Plate Top	10.9375	60.6875	663.7695	0.6978	24.6494	6645.5246	6646.2224
	Cover Plate Bottom	0.0000	0.0000	0.0000	0.0000	36.0381	0.0000	0.0000
Total		56.53		2037.28	6863.40		26894.83	33758.24
Section Losses		A	y	Ay	I _o	d	Ad ²	I _{x, loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	36.0381	in	S _{top} = 1345.65 in ³	y-bar =	36.0381	in	S _{top} = 1345.65 in ³
I _x =	33758.24	in ⁴	S _{bottom} = 936.74 in ³	I _x =	33758.24	in ⁴	S _{bottom} = 936.74 in ³
c _{top} =	25.0869	in	A = 56.5313 in ²	c _{top} =	25.0869	in	A = 56.5313 in ²
c _{bottom} =	36.0381	in	r _x = 24.4369 in	c _{bottom} =	36.0381	in	r _x = 24.4369 in
J =	5.7671	in ³	Z = 1248.9681 in ³				Z = 1248.9681 in ³



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Calculations For: **CUY-2-1441**

Y-Axis Section Properties:

Gross Section (without Losses)		A	x	Ax	I _o	d	Ad ²	I _{y, gross}	
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)	
1 (Left)	Horizontal Leg	3.0000	3.0625	9.1875	9.0000	3.1875	30.4805	39.4805	
	Vertical Leg	2.7500	5.8125	15.9844	0.0573	0.4375	0.5264	0.5837	
1 (Right)	Horizontal Leg	3.0000	9.4375	28.3125	9.0000	3.1875	30.4805	39.4805	
	Vertical Leg	2.7500	6.6875	18.3906	0.0573	0.4375	0.5264	0.5837	
2 (Left)	Horizontal Leg	3.0000	3.0625	9.1875	9.0000	3.1875	30.4805	39.4805	
	Vertical Leg	2.7500	5.8125	15.9844	0.0573	0.4375	0.5264	0.5837	
2 (Right)	Horizontal Leg	3.0000	9.4375	28.3125	9.0000	3.1875	30.4805	39.4805	
	Vertical Leg	2.7500	6.6875	18.3906	0.0573	0.4375	0.5264	0.5837	
3	Web Plate	22.5938	6.2500	141.2109	0.2648	0.0000	0.0000	0.2648	
4	Top Cover Plate	10.9375	6.2500	68.3594	284.8307	0.0000	0.0000	284.8307	
4	Bottom Cover Plate	0.0000	6.2500	0.0000	0.0000	0.0000	0.0000	0.0000	
Total		56.53		353.32	321.32		124.03	445.35	
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y, loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties							
x-bar =	6.2500	in	S _{right} =	71.26	in ³	x-bar =	6.2500	in	S _{right} =	71.26	in ³
I _y =	445.35	in ⁴	S _{left} =	71.26	in ³	I _y =	445.35	in ⁴	S _{left} =	71.26	in ³
C _{right} =	6.2500	in	A =	56.5313	in ²	C _{right} =	6.2500	in	A =	56.5313	in ²
C _{left} =	6.2500	in	r _y =	2.8068	in	C _{left} =	6.2500	in	r _y =	2.8068	in

Non-composite Capacities*		
	AB	AI
M	2576.02 k-ft	2576.02 k-ft
V	642.98 k	642.98 k

*Noncompact Section

F_y = 33.00 ksi

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear



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Date 4/11/2012
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Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Top Angles:

$A_1 = l_h = 6.0000$ in
 $C_1 = t_f = 0.5000$ in
 $B_1 = l_v = 6.0000$ in

Bottom Angles:

$B_2 = l_h = 6.0000$ in
 $C_2 = t_f = 0.5000$ in
 $A_2 = l_v = 6.0000$ in

Web Plate:

$C_3 = t = 0.3750$ in
 $*B_3 = h = 60.0000$ in

$d_o = 38.5000$ in

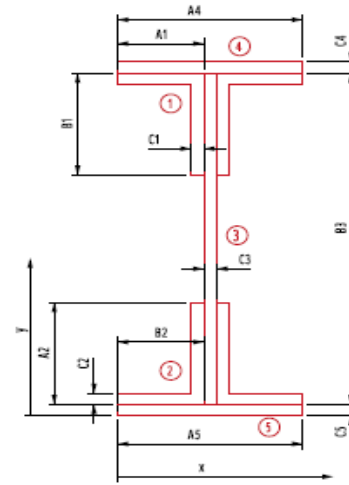
$d_o =$ stiffener spacing for shear check
Use "N/A" for no stiffeners

Top Cover Plate:

$C_4 = t = 0.8750$ in
 $A_4 = b = 12.5000$ in

Btm Cover Plate:

$C_5 = t = 0.0000$ in
 $A_5 = b = 0.0000$ in



FB Bracket 131 South

*using height of web plate at support

X-Axis Section Properties:

Gross Section (without Losses)		A	y	Ay	I _o	d	Ad ²	I _{x, gross}
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Horizontal Leg	6.0000	59.7500	358.5000	0.1250	23.8513	3413.2955	3413.4205
	Vertical Leg	5.5000	56.7500	312.1250	13.8646	20.8513	2391.2627	2405.1273
2	Horizontal Leg	6.0000	0.2500	1.5000	0.1250	35.6487	7624.9961	7625.1211
	Vertical Leg	5.5000	3.2500	17.8750	13.8646	32.6487	5862.6713	5876.5359
3	Web Plate	22.5000	30.0000	675.0000	6750.0000	5.8987	782.8906	7532.8906
4	Cover Plate Top	10.9375	60.4375	661.0352	0.6978	24.5388	6586.0236	6586.7214
	Cover Plate Bottom	0.0000	0.0000	0.0000	0.0000	35.8987	0.0000	0.0000
Total		56.44		2026.04	6778.68		26661.14	33439.82
Section Losses		A	y	Ay	I _o	d	Ad ²	I _{x, loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	35.8987	in	S _{top} = 1338.86 in ³	y-bar =	35.8987	in	S _{top} = 1338.86 in ³
I _x =	33439.82	in ⁴	S _{bottom} = 931.50 in ³	I _x =	33439.82	in ⁴	S _{bottom} = 931.50 in ³
c _{top} =	24.9763	in	A = 56.4375 in ²	c _{top} =	24.9763	in	A = 56.4375 in ²
c _{bottom} =	35.8987	in	r _x = 24.3415 in	c _{bottom} =	35.8987	in	r _x = 24.3415 in
J =	5.7627		Z = 1241.9076 in ³				Z = 1241.9076 in ³



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Calculations For: **CUY-2-1441**

Y-Axis Section Properties:

Gross Section (without Losses)		A	x	Ax	I _o	d	Ad ²	I _{y, gross}	
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)	
1 (Left)	Horizontal Leg	3.0000	3.0625	9.1875	9.0000	3.1875	30.4805	39.4805	
	Vertical Leg	2.7500	5.8125	15.9844	0.0573	0.4375	0.5264	0.5837	
1 (Right)	Horizontal Leg	3.0000	9.4375	28.3125	9.0000	3.1875	30.4805	39.4805	
	Vertical Leg	2.7500	6.6875	18.3906	0.0573	0.4375	0.5264	0.5837	
2 (Left)	Horizontal Leg	3.0000	3.0625	9.1875	9.0000	3.1875	30.4805	39.4805	
	Vertical Leg	2.7500	5.8125	15.9844	0.0573	0.4375	0.5264	0.5837	
2 (Right)	Horizontal Leg	3.0000	9.4375	28.3125	9.0000	3.1875	30.4805	39.4805	
	Vertical Leg	2.7500	6.6875	18.3906	0.0573	0.4375	0.5264	0.5837	
3	Web Plate	22.5000	6.2500	140.6250	0.2637	0.0000	0.0000	0.2637	
4	Top Cover Plate	10.9375	6.2500	68.3594	284.8307	0.0000	0.0000	284.8307	
4	Bottom Cover Plate	0.0000	6.2500	0.0000	0.0000	0.0000	0.0000	0.0000	
Total		56.44		352.73	321.32		124.03	445.35	
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y, loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties							
x-bar =	6.2500	in	S _{right} =	71.26	in ³	x-bar =	6.2500	in	S _{right} =	71.26	in ³
I _y =	445.35	in ⁴	S _{left} =	71.26	in ³	I _y =	445.35	in ⁴	S _{left} =	71.26	in ³
C _{right} =	6.2500	in	A =	56.4375	in ²	C _{right} =	6.2500	in	A =	56.4375	in ²
C _{left} =	6.2500	in	r _y =	2.8091	in	C _{left} =	6.2500	in	r _y =	2.8091	in

Non-composite Capacities*		
	AB	AI
M	2561.64 k-ft	2561.64 k-ft
V	641.19 k	641.19 k

*Noncompact Section

F_y = 33.00 ksi

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear



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Date 4/11/2012
Date 4/12/2012

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Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Top Angles:

$A_1 = l_h = 6.0000$ in
 $C_1 = t_f = 0.5000$ in
 $B_1 = l_v = 6.0000$ in

Bottom Angles:

$B_2 = l_h = 6.0000$ in
 $C_2 = t_f = 0.5000$ in
 $A_2 = l_v = 6.0000$ in

Web Plate:

$C_3 = t = 0.3750$ in
 $*B_3 = h = 60.0000$ in

$d_o = 44.4063$ in

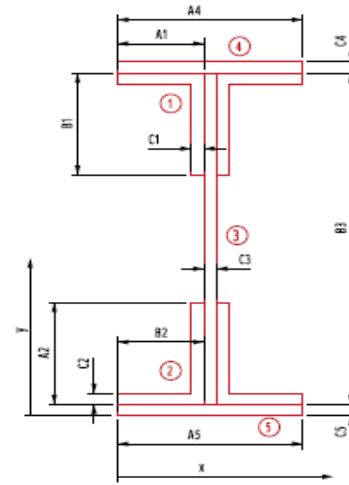
$d_o =$ stiffener spacing for shear check
Use "N/A" for no stiffeners

Top Cover Plate:

$C_4 = t = 0.8750$ in
 $A_4 = b = 12.5000$ in

Btm Cover Plate:

$C_5 = t = 0.0000$ in
 $A_5 = b = 0.0000$ in



FB Bracket 131 North

*using height of web plate at support

X-Axis Section Properties:

Gross Section (without Losses)		A	y	Ay	I _o	d	Ad ²	I _{x,gross}
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Horizontal Leg	6.0000	59.7500	358.5000	0.1250	23.8513	3413.2955	3413.4205
	Vertical Leg	5.5000	56.7500	312.1250	13.8646	20.8513	2391.2627	2405.1273
2	Horizontal Leg	6.0000	0.2500	1.5000	0.1250	35.6487	7624.9961	7625.1211
	Vertical Leg	5.5000	3.2500	17.8750	13.8646	32.6487	5862.6713	5876.5359
3	Web Plate	22.5000	30.0000	675.0000	6750.0000	5.8987	782.8906	7532.8906
4	Cover Plate Top	10.9375	60.4375	661.0352	0.6978	24.5388	6586.0236	6586.7214
	Cover Plate Bottom	0.0000	0.0000	0.0000	0.0000	35.8987	0.0000	0.0000
Total		56.44		2026.04	6778.68		26661.14	33439.82
Section Losses		A	y	Ay	I _o	d	Ad ²	I _{x,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	35.8987	in	S _{top} = 1338.86 in ³	y-bar =	35.8987	in	S _{top} = 1338.86 in ³
I _x =	33439.82	in ⁴	S _{bottom} = 931.50 in ³	I _x =	33439.82	in ⁴	S _{bottom} = 931.50 in ³
c _{top} =	24.9763	in	A = 56.4375 in ²	c _{top} =	24.9763	in	A = 56.4375 in ²
c _{bottom} =	35.8987	in	r _x = 24.3415 in	c _{bottom} =	35.8987	in	r _x = 24.3415 in
J =	5.7627		Z = 1241.9076 in ³				Z = 1241.9076 in ³



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Calculations For: **CUY-2-1441**

Y-Axis Section Properties:

Gross Section (without Losses)		A	x	Ax	I _o	d	Ad ²	I _{y, gross}	
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)	
1 (Left)	Horizontal Leg	3.0000	3.0625	9.1875	9.0000	3.1875	30.4805	39.4805	
	Vertical Leg	2.7500	5.8125	15.9844	0.0573	0.4375	0.5264	0.5837	
1 (Right)	Horizontal Leg	3.0000	9.4375	28.3125	9.0000	3.1875	30.4805	39.4805	
	Vertical Leg	2.7500	6.6875	18.3906	0.0573	0.4375	0.5264	0.5837	
2 (Left)	Horizontal Leg	3.0000	3.0625	9.1875	9.0000	3.1875	30.4805	39.4805	
	Vertical Leg	2.7500	5.8125	15.9844	0.0573	0.4375	0.5264	0.5837	
2 (Right)	Horizontal Leg	3.0000	9.4375	28.3125	9.0000	3.1875	30.4805	39.4805	
	Vertical Leg	2.7500	6.6875	18.3906	0.0573	0.4375	0.5264	0.5837	
3	Web Plate	22.5000	6.2500	140.6250	0.2637	0.0000	0.0000	0.2637	
4	Top Cover Plate	10.9375	6.2500	68.3594	284.8307	0.0000	0.0000	284.8307	
4	Bottom Cover Plate	0.0000	6.2500	0.0000	0.0000	0.0000	0.0000	0.0000	
Total		56.44		352.73	321.32		124.03	445.35	
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y, loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties							
x-bar =	6.2500	in	S _{right} =	71.26	in ³	x-bar =	6.2500	in	S _{right} =	71.26	in ³
I _y =	445.35	in ⁴	S _{left} =	71.26	in ³	I _y =	445.35	in ⁴	S _{left} =	71.26	in ³
C _{right} =	6.2500	in	A =	56.4375	in ²	C _{right} =	6.2500	in	A =	56.4375	in ²
C _{left} =	6.2500	in	r _y =	2.8091	in	C _{left} =	6.2500	in	r _y =	2.8091	in

Non-composite Capacities*		
	AB	AI
M	2561.64 k-ft	2561.64 k-ft
V	621.89 k	621.89 k

*Noncompact Section

F_y = 33.00 ksi

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear



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Date 4/12/2012

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Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Top Angles:

$A_1 = l_h = 6.0000$ in
 $C_1 = t_f = 0.5000$ in
 $B_1 = l_v = 6.0000$ in

Bottom Angles:

$B_2 = l_h = 6.0000$ in
 $C_2 = t_f = 0.5000$ in
 $A_2 = l_v = 6.0000$ in

Web Plate:

$C_3 = t = 0.3750$ in
 $*B_3 = h = 60.0000$ in

$d_o = 35.2500$ in

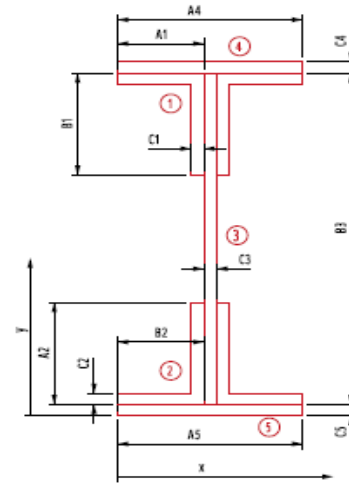
$d_o =$ stiffener spacing for shear check
Use "N/A" for no stiffeners

Top Cover Plate:

$C_4 = t = 0.8750$ in
 $A_4 = b = 12.5000$ in

Btm Cover Plate:

$C_5 = t = 0.0000$ in
 $A_5 = b = 0.0000$ in



FB Bracket 132 South

*using height of web plate at support

X-Axis Section Properties:

Gross Section (without Losses)		A	y	Ay	I _o	d	Ad ²	I _{x,gross}
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Horizontal Leg	6.0000	59.7500	358.5000	0.1250	23.8513	3413.2955	3413.4205
	Vertical Leg	5.5000	56.7500	312.1250	13.8646	20.8513	2391.2627	2405.1273
2	Horizontal Leg	6.0000	0.2500	1.5000	0.1250	35.6487	7624.9961	7625.1211
	Vertical Leg	5.5000	3.2500	17.8750	13.8646	32.6487	5862.6713	5876.5359
3	Web Plate	22.5000	30.0000	675.0000	6750.0000	5.8987	782.8906	7532.8906
4	Cover Plate Top	10.9375	60.4375	661.0352	0.6978	24.5388	6586.0236	6586.7214
	Cover Plate Bottom	0.0000	0.0000	0.0000	0.0000	35.8987	0.0000	0.0000
Total		56.44		2026.04	6778.68		26661.14	33439.82
Section Losses		A	y	Ay	I _o	d	Ad ²	I _{x,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	35.8987	in	S _{top} = 1338.86 in ³	y-bar =	35.8987	in	S _{top} = 1338.86 in ³
I _x =	33439.82	in ⁴	S _{bottom} = 931.50 in ³	I _x =	33439.82	in ⁴	S _{bottom} = 931.50 in ³
c _{top} =	24.9763	in	A = 56.4375 in ²	c _{top} =	24.9763	in	A = 56.4375 in ²
c _{bottom} =	35.8987	in	r _x = 24.3415 in	c _{bottom} =	35.8987	in	r _x = 24.3415 in
J =	5.7627	in ³	Z = 1241.9076 in ³				Z = 1241.9076 in ³



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Calculations For: **CUY-2-1441**

Y-Axis Section Properties:

Gross Section (without Losses)		A	x	Ax	I _o	d	Ad ²	I _{y, gross}	
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)	
1 (Left)	Horizontal Leg	3.0000	3.0625	9.1875	9.0000	3.1875	30.4805	39.4805	
	Vertical Leg	2.7500	5.8125	15.9844	0.0573	0.4375	0.5264	0.5837	
1 (Right)	Horizontal Leg	3.0000	9.4375	28.3125	9.0000	3.1875	30.4805	39.4805	
	Vertical Leg	2.7500	6.6875	18.3906	0.0573	0.4375	0.5264	0.5837	
2 (Left)	Horizontal Leg	3.0000	3.0625	9.1875	9.0000	3.1875	30.4805	39.4805	
	Vertical Leg	2.7500	5.8125	15.9844	0.0573	0.4375	0.5264	0.5837	
2 (Right)	Horizontal Leg	3.0000	9.4375	28.3125	9.0000	3.1875	30.4805	39.4805	
	Vertical Leg	2.7500	6.6875	18.3906	0.0573	0.4375	0.5264	0.5837	
3	Web Plate	22.5000	6.2500	140.6250	0.2637	0.0000	0.0000	0.2637	
4	Top Cover Plate	10.9375	6.2500	68.3594	284.8307	0.0000	0.0000	284.8307	
4	Bottom Cover Plate	0.0000	6.2500	0.0000	0.0000	0.0000	0.0000	0.0000	
Total		56.44		352.73	321.32		124.03	445.35	
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y, loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties							
x-bar =	6.2500	in	S _{right} =	71.26	in ³	x-bar =	6.2500	in	S _{right} =	71.26	in ³
I _y =	445.35	in ⁴	S _{left} =	71.26	in ³	I _y =	445.35	in ⁴	S _{left} =	71.26	in ³
C _{right} =	6.2500	in	A =	56.4375	in ²	C _{right} =	6.2500	in	A =	56.4375	in ²
C _{left} =	6.2500	in	r _y =	2.8091	in	C _{left} =	6.2500	in	r _y =	2.8091	in

Non-composite Capacities*		
	AB	AI
M	2561.64 k-ft	2561.64 k-ft
V	641.19 k	641.19 k

*Noncompact Section

F_y = 33.00 ksi

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear



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Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Top Angles:

$A_1 = l_h = 6.0000$ in
 $C_1 = t_f = 0.5000$ in
 $B_1 = l_v = 6.0000$ in

Bottom Angles:

$B_2 = l_h = 6.0000$ in
 $C_2 = t_f = 0.5000$ in
 $A_2 = l_v = 6.0000$ in

Web Plate:

$C_3 = t = 0.3750$ in
 $*B_3 = h = 60.0000$ in

$d_o = 42.4063$ in

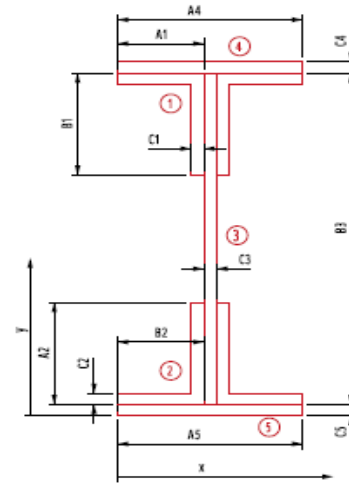
d_o = stiffener spacing for shear check
Use "N/A" for no stiffeners

Top Cover Plate:

$C_4 = t = 0.8750$ in
 $A_4 = b = 12.5000$ in

Btm Cover Plate:

$C_5 = t = 0.0000$ in
 $A_5 = b = 0.0000$ in



FB Bracket 132 North

*using height of web plate at support

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I _o	d	Ad ²	I _{x,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Horizontal Leg		6.0000	59.7500	358.5000	0.1250	23.8513	3413.2955	3413.4205
	Vertical Leg		5.5000	56.7500	312.1250	13.8646	20.8513	2391.2627	2405.1273
2	Horizontal Leg		6.0000	0.2500	1.5000	0.1250	35.6487	7624.9961	7625.1211
	Vertical Leg		5.5000	3.2500	17.8750	13.8646	32.6487	5862.6713	5876.5359
3	Web Plate		22.5000	30.0000	675.0000	6750.0000	5.8987	782.8906	7532.8906
4	Cover Plate Top		10.9375	60.4375	661.0352	0.6978	24.5388	6586.0236	6586.7214
	Cover Plate Bottom		0.0000	0.0000	0.0000	0.0000	35.8987	0.0000	0.0000
Total			56.44		2026.04	6778.68		26661.14	33439.82
Section Losses			A	y	Ay	I _o	d	Ad ²	I _{x,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	35.8987	in	S _{top} = 1338.86 in ³	y-bar =	35.8987	in	S _{top} = 1338.86 in ³
I _x =	33439.82	in ⁴	S _{bottom} = 931.50 in ³	I _x =	33439.82	in ⁴	S _{bottom} = 931.50 in ³
c _{top} =	24.9763	in	A = 56.4375 in ²	c _{top} =	24.9763	in	A = 56.4375 in ²
c _{bottom} =	35.8987	in	r _x = 24.3415 in	c _{bottom} =	35.8987	in	r _x = 24.3415 in
J =	5.7627		Z = 1241.9076 in ³				Z = 1241.9076 in ³



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Calculations For: **CUY-2-1441**

Y-Axis Section Properties:

Gross Section (without Losses)		A	x	Ax	I _o	d	Ad ²	I _{y, gross}	
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)	
1 (Left)	Horizontal Leg	3.0000	3.0625	9.1875	9.0000	3.1875	30.4805	39.4805	
	Vertical Leg	2.7500	5.8125	15.9844	0.0573	0.4375	0.5264	0.5837	
1 (Right)	Horizontal Leg	3.0000	9.4375	28.3125	9.0000	3.1875	30.4805	39.4805	
	Vertical Leg	2.7500	6.6875	18.3906	0.0573	0.4375	0.5264	0.5837	
2 (Left)	Horizontal Leg	3.0000	3.0625	9.1875	9.0000	3.1875	30.4805	39.4805	
	Vertical Leg	2.7500	5.8125	15.9844	0.0573	0.4375	0.5264	0.5837	
2 (Right)	Horizontal Leg	3.0000	9.4375	28.3125	9.0000	3.1875	30.4805	39.4805	
	Vertical Leg	2.7500	6.6875	18.3906	0.0573	0.4375	0.5264	0.5837	
3	Web Plate	22.5000	6.2500	140.6250	0.2637	0.0000	0.0000	0.2637	
4	Top Cover Plate	10.9375	6.2500	68.3594	284.8307	0.0000	0.0000	284.8307	
4	Bottom Cover Plate	0.0000	6.2500	0.0000	0.0000	0.0000	0.0000	0.0000	
Total		56.44		352.73	321.32		124.03	445.35	
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y, loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties							
x-bar =	6.2500	in	S _{right} =	71.26	in ³	x-bar =	6.2500	in	S _{right} =	71.26	in ³
I _y =	445.35	in ⁴	S _{left} =	71.26	in ³	I _y =	445.35	in ⁴	S _{left} =	71.26	in ³
C _{right} =	6.2500	in	A =	56.4375	in ²	C _{right} =	6.2500	in	A =	56.4375	in ²
C _{left} =	6.2500	in	r _y =	2.8091	in	C _{left} =	6.2500	in	r _y =	2.8091	in

Non-composite Capacities*		
	AB	AI
M	2561.64 k-ft	2561.64 k-ft
V	640.99 k	640.99 k

*Noncompact Section

F_y = 33.00 ksi

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear



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Date 4/11/2012
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Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Top Angles:

$A_1 = l_h = 6.0000$ in
 $C_1 = t_f = 0.5000$ in
 $B_1 = l_v = 6.0000$ in

Bottom Angles:

$B_2 = l_h = 6.0000$ in
 $C_2 = t_f = 0.5000$ in
 $A_2 = l_v = 6.0000$ in

Web Plate:

$C_3 = t = 0.3750$ in
 $*B_3 = h = 60.0000$ in

$d_o = 34.3750$ in

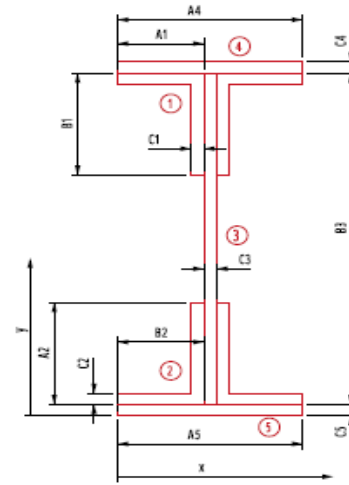
$d_o =$ stiffener spacing for shear check
Use "N/A" for no stiffeners

Top Cover Plate:

$C_4 = t = 0.8750$ in
 $A_4 = b = 12.5000$ in

Btm Cover Plate:

$C_5 = t = 0.0000$ in
 $A_5 = b = 0.0000$ in



FB Bracket 133 South

*using height of web plate at support

X-Axis Section Properties:

Gross Section (without Losses)		A	y	Ay	I _o	d	Ad ²	I _{x,gross}
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Horizontal Leg	6.0000	59.7500	358.5000	0.1250	23.8513	3413.2955	3413.4205
	Vertical Leg	5.5000	56.7500	312.1250	13.8646	20.8513	2391.2627	2405.1273
2	Horizontal Leg	6.0000	0.2500	1.5000	0.1250	35.6487	7624.9961	7625.1211
	Vertical Leg	5.5000	3.2500	17.8750	13.8646	32.6487	5862.6713	5876.5359
3	Web Plate	22.5000	30.0000	675.0000	6750.0000	5.8987	782.8906	7532.8906
4	Cover Plate Top	10.9375	60.4375	661.0352	0.6978	24.5388	6586.0236	6586.7214
	Cover Plate Bottom	0.0000	0.0000	0.0000	0.0000	35.8987	0.0000	0.0000
Total		56.44		2026.04	6778.68		26661.14	33439.82
Section Losses		A	y	Ay	I _o	d	Ad ²	I _{x,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	35.8987	in	S _{top} = 1338.86 in ³	y-bar =	35.8987	in	S _{top} = 1338.86 in ³
I _x =	33439.82	in ⁴	S _{bottom} = 931.50 in ³	I _x =	33439.82	in ⁴	S _{bottom} = 931.50 in ³
c _{top} =	24.9763	in	A = 56.4375 in ²	c _{top} =	24.9763	in	A = 56.4375 in ²
c _{bottom} =	35.8987	in	r _x = 24.3415 in	c _{bottom} =	35.8987	in	r _x = 24.3415 in
J =	5.7627		Z = 1241.9076 in ³				Z = 1241.9076 in ³



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Date 4/11/2012
Date 4/12/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Y-Axis Section Properties:

Gross Section (without Losses)		A	x	Ax	I _o	d	Ad ²	I _{y, gross}	
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)	
1 (Left)	Horizontal Leg	3.0000	3.0625	9.1875	9.0000	3.1875	30.4805	39.4805	
	Vertical Leg	2.7500	5.8125	15.9844	0.0573	0.4375	0.5264	0.5837	
1 (Right)	Horizontal Leg	3.0000	9.4375	28.3125	9.0000	3.1875	30.4805	39.4805	
	Vertical Leg	2.7500	6.6875	18.3906	0.0573	0.4375	0.5264	0.5837	
2 (Left)	Horizontal Leg	3.0000	3.0625	9.1875	9.0000	3.1875	30.4805	39.4805	
	Vertical Leg	2.7500	5.8125	15.9844	0.0573	0.4375	0.5264	0.5837	
2 (Right)	Horizontal Leg	3.0000	9.4375	28.3125	9.0000	3.1875	30.4805	39.4805	
	Vertical Leg	2.7500	6.6875	18.3906	0.0573	0.4375	0.5264	0.5837	
3	Web Plate	22.5000	6.2500	140.6250	0.2637	0.0000	0.0000	0.2637	
4	Top Cover Plate	10.9375	6.2500	68.3594	284.8307	0.0000	0.0000	284.8307	
4	Bottom Cover Plate	0.0000	6.2500	0.0000	0.0000	0.0000	0.0000	0.0000	
Total		56.44		352.73	321.32		124.03	445.35	
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y, loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties							
x-bar =	6.2500	in	S _{right} =	71.26	in ³	x-bar =	6.2500	in	S _{right} =	71.26	in ³
I _y =	445.35	in ⁴	S _{left} =	71.26	in ³	I _y =	445.35	in ⁴	S _{left} =	71.26	in ³
C _{right} =	6.2500	in	A =	56.4375	in ²	C _{right} =	6.2500	in	A =	56.4375	in ²
C _{left} =	6.2500	in	r _y =	2.8091	in	C _{left} =	6.2500	in	r _y =	2.8091	in

Non-composite Capacities*		
	AB	AI
M	2561.64 k-ft	2561.64 k-ft
V	641.19 k	641.19 k

*Noncompact Section

F_y = 33.00 ksi

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear



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Date 4/11/2012
Date 4/12/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Top Angles:

$A_1 = l_h = 6.0000$ in
 $C_1 = t_f = 0.5000$ in
 $B_1 = l_v = 6.0000$ in

Bottom Angles:

$B_2 = l_h = 6.0000$ in
 $C_2 = t_f = 0.5000$ in
 $A_2 = l_v = 6.0000$ in

Web Plate:

$C_3 = t = 0.3750$ in
 $*B_3 = h = 60.0000$ in

$d_o = 35.7188$ in

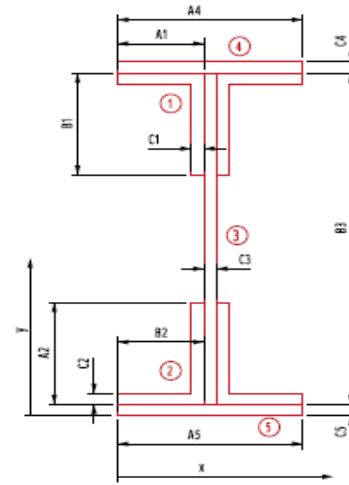
$d_o =$ stiffener spacing for shear check
Use "N/A" for no stiffeners

Top Cover Plate:

$C_4 = t = 0.8750$ in
 $A_4 = b = 12.5000$ in

Btm Cover Plate:

$C_5 = t = 0.0000$ in
 $A_5 = b = 0.0000$ in



FB Bracket 133 North

*using height of web plate at support

X-Axis Section Properties:

Gross Section (without Losses)		A	y	Ay	I _o	d	Ad ²	I _{x,gross}
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Horizontal Leg	6.0000	59.7500	358.5000	0.1250	23.8513	3413.2955	3413.4205
	Vertical Leg	5.5000	56.7500	312.1250	13.8646	20.8513	2391.2627	2405.1273
2	Horizontal Leg	6.0000	0.2500	1.5000	0.1250	35.6487	7624.9961	7625.1211
	Vertical Leg	5.5000	3.2500	17.8750	13.8646	32.6487	5862.6713	5876.5359
3	Web Plate	22.5000	30.0000	675.0000	6750.0000	5.8987	782.8906	7532.8906
4	Cover Plate Top	10.9375	60.4375	661.0352	0.6978	24.5388	6586.0236	6586.7214
	Cover Plate Bottom	0.0000	0.0000	0.0000	0.0000	35.8987	0.0000	0.0000
Total		56.44		2026.04	6778.68		26661.14	33439.82
Section Losses		A	y	Ay	I _o	d	Ad ²	I _{x,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	35.8987	in	S _{top} = 1338.86 in ³	y-bar =	35.8987	in	S _{top} = 1338.86 in ³
I _x =	33439.82	in ⁴	S _{bottom} = 931.50 in ³	I _x =	33439.82	in ⁴	S _{bottom} = 931.50 in ³
c _{top} =	24.9763	in	A = 56.4375 in ²	c _{top} =	24.9763	in	A = 56.4375 in ²
c _{bottom} =	35.8987	in	r _x = 24.3415 in	c _{bottom} =	35.8987	in	r _x = 24.3415 in
J =	5.7627	in ³	Z = 1241.9076 in ³				Z = 1241.9076 in ³



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Date 4/11/2012
Date 4/12/2012

Job No. P402110046
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Calculations For: **CUY-2-1441**

Y-Axis Section Properties:

Gross Section (without Losses)		A	x	Ax	I _o	d	Ad ²	I _{y, gross}	
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)	
1 (Left)	Horizontal Leg	3.0000	3.0625	9.1875	9.0000	3.1875	30.4805	39.4805	
	Vertical Leg	2.7500	5.8125	15.9844	0.0573	0.4375	0.5264	0.5837	
1 (Right)	Horizontal Leg	3.0000	9.4375	28.3125	9.0000	3.1875	30.4805	39.4805	
	Vertical Leg	2.7500	6.6875	18.3906	0.0573	0.4375	0.5264	0.5837	
2 (Left)	Horizontal Leg	3.0000	3.0625	9.1875	9.0000	3.1875	30.4805	39.4805	
	Vertical Leg	2.7500	5.8125	15.9844	0.0573	0.4375	0.5264	0.5837	
2 (Right)	Horizontal Leg	3.0000	9.4375	28.3125	9.0000	3.1875	30.4805	39.4805	
	Vertical Leg	2.7500	6.6875	18.3906	0.0573	0.4375	0.5264	0.5837	
3	Web Plate	22.5000	6.2500	140.6250	0.2637	0.0000	0.0000	0.2637	
4	Top Cover Plate	10.9375	6.2500	68.3594	284.8307	0.0000	0.0000	284.8307	
4	Bottom Cover Plate	0.0000	6.2500	0.0000	0.0000	0.0000	0.0000	0.0000	
Total		56.44		352.73	321.32		124.03	445.35	
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y, loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties							
x-bar =	6.2500	in	S _{right} =	71.26	in ³	x-bar =	6.2500	in	S _{right} =	71.26	in ³
I _y =	445.35	in ⁴	S _{left} =	71.26	in ³	I _y =	445.35	in ⁴	S _{left} =	71.26	in ³
C _{right} =	6.2500	in	A =	56.4375	in ²	C _{right} =	6.2500	in	A =	56.4375	in ²
C _{left} =	6.2500	in	r _y =	2.8091	in	C _{left} =	6.2500	in	r _y =	2.8091	in

Non-composite Capacities*		
	AB	AI
M	2561.64 k-ft	2561.64 k-ft
V	641.19 k	641.19 k

*Noncompact Section

F_y = 33.00 ksi

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear



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Date 4/10/2012
Date 4/12/2012

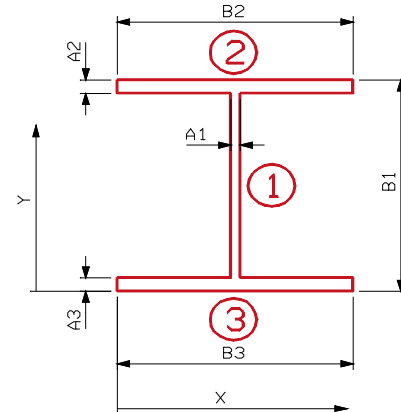
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Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

- $A_1 = t_w = 0.3750$ in
- $B_1 = d = 60.5000$ in
- $A_2 = t_f = 0.7500$ in
- $B_2 = b_f = 13.0000$ in
- $A_3 = t_f = 0.7500$ in
- $B_3 = b_f = 13.0000$ in

$d_o = 31.5000$ in
 $d_o =$ stiffener spacing for shear check, for no stiffeners use "N/A"



FB Bracket 134 South

BRACKET HAS BEEN REHABILITATED

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I_o	d	Ad^2	$I_{x, gross}$
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web		22.1250	30.2500	669.2813	6418.0938	0.0000	0.0000	6418.0938
2	Top Flange		9.7500	60.1250	586.2188	0.4570	29.8750	8702.0273	8702.4844
3	Bottom Flange		9.7500	0.3750	3.6563	0.4570	29.8750	8702.0273	8702.4844
Total			41.63		1259.16	6419.01		17404.05	23823.06
Section Losses			A	y	Ay	I_o	d	Ad^2	$I_{x, loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties							
y-bar =	30.2500	in	$S_{top} = 787.54$	in ³	y-bar =	30.2500	in	$S_{top} = 787.54$	in ³		
$I_x =$	23823.06	in ⁴	$S_{bott.} = 787.54$	in ³	$I_x =$	23823.06	in ⁴	$S_{bott.} = 787.54$	in ³		
$C_{top} =$	30.2500	in	A =	41.6250	in ²	$C_{top} =$	30.2500	in	A =	41.6250	in ²
$C_{bottom} =$	30.2500	in	$r_x =$	23.9233	in	$C_{bottom} =$	30.2500	in	$r_x =$	23.9233	in
J =	4.6934	in ⁴	Z =	908.91	in ³				Z =	908.91	in ³

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y, gross}
Element	Description		(in ⁴)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web		22.1250	6.5000	143.8125	0.2593	0.0000	0.0000	0.2593
2	Top Flange		9.7500	6.5000	63.3750	137.3125	0.0000	0.0000	137.3125
3	Bottom Flange		9.7500	6.5000	63.3750	137.3125	0.0000	0.0000	137.3125
Total			41.63		270.56	274.88		0.00	274.88
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y, loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties					As-Inspected Section Properties						
x-bar =	6.5000	in	S _{right} =	42.29	in ³	x-bar =	6.5000	in	S _{right} =	42.29	in ³
I _y =	274.88	in ⁴	S _{left} =	42.29	in ³	I _y =	274.88	in ⁴	S _{left} =	42.29	in ³
C _{right} =	6.5000	in	A =	41.6250	in ²	C _{right} =	6.5000	in	A =	41.6250	in ²
C _{left} =	6.5000	in	r _y =	2.5698	in	C _{left} =	6.5000	in	r _y =	2.5698	in

Non-composite Capacities*		
	AB	AI
M	2362.62 k-ft	2362.62 k-ft
V	440.84 k	440.84 k

*Noncompact Section

F_y =	36.00 ksi
------------------------	------------------

AB = As-Built
 AI = As-Inspected
 M = Moment
 V = Shear



Made By DWC
Checked By SFH

Date 4/11/2012
Date 4/12/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

Top Angles:

$A_1 = l_h = 6.0000$ in
 $C_1 = t_f = 0.5000$ in
 $B_1 = l_v = 6.0000$ in

Bottom Angles:

$B_2 = l_h = 6.0000$ in
 $C_2 = t_f = 0.5000$ in
 $A_2 = l_v = 6.0000$ in

Web Plate:

$C_3 = t = 0.3750$ in
 $*B_3 = h = 60.0000$ in

$d_o = 34.0000$ in

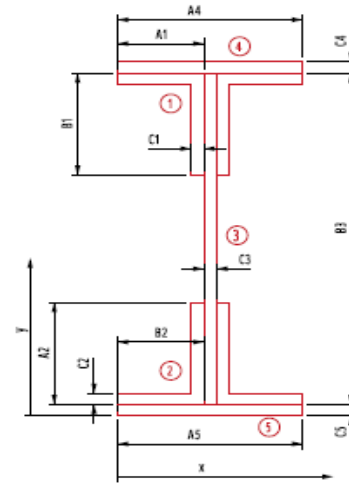
$d_o =$ stiffener spacing for shear check
Use "N/A" for no stiffeners

Top Cover Plate:

$C_4 = t = 0.8750$ in
 $A_4 = b = 12.5000$ in

Btm Cover Plate:

$C_5 = t = 0.0000$ in
 $A_5 = b = 0.0000$ in



FB Bracket 134 North

*using height of web plate at support

X-Axis Section Properties:

Gross Section (without Losses)		A	y	Ay	I _o	d	Ad ²	I _{x, gross}
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Horizontal Leg	6.0000	59.7500	358.5000	0.1250	23.8513	3413.2955	3413.4205
	Vertical Leg	5.5000	56.7500	312.1250	13.8646	20.8513	2391.2627	2405.1273
2	Horizontal Leg	6.0000	0.2500	1.5000	0.1250	35.6487	7624.9961	7625.1211
	Vertical Leg	5.5000	3.2500	17.8750	13.8646	32.6487	5862.6713	5876.5359
3	Web Plate	22.5000	30.0000	675.0000	6750.0000	5.8987	782.8906	7532.8906
4	Cover Plate Top	10.9375	60.4375	661.0352	0.6978	24.5388	6586.0236	6586.7214
	Cover Plate Bottom	0.0000	0.0000	0.0000	0.0000	35.8987	0.0000	0.0000
Total		56.44		2026.04	6778.68		26661.14	33439.82
Section Losses		A	y	Ay	I _o	d	Ad ²	I _{x, loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	35.8987	in	S _{top} = 1338.86 in ³	y-bar =	35.8987	in	S _{top} = 1338.86 in ³
I _x =	33439.82	in ⁴	S _{bottom} = 931.50 in ³	I _x =	33439.82	in ⁴	S _{bottom} = 931.50 in ³
c _{top} =	24.9763	in	A = 56.4375 in ²	c _{top} =	24.9763	in	A = 56.4375 in ²
c _{bottom} =	35.8987	in	r _x = 24.3415 in	c _{bottom} =	35.8987	in	r _x = 24.3415 in
J =	5.7627		Z = 1241.9076 in ³				Z = 1241.9076 in ³



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Checked By SFH

Date 4/11/2012
Date 4/12/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Y-Axis Section Properties:

Gross Section (without Losses)		A	x	Ax	I _o	d	Ad ²	I _{y, gross}	
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)	
1 (Left)	Horizontal Leg	3.0000	3.0625	9.1875	9.0000	3.1875	30.4805	39.4805	
	Vertical Leg	2.7500	5.8125	15.9844	0.0573	0.4375	0.5264	0.5837	
1 (Right)	Horizontal Leg	3.0000	9.4375	28.3125	9.0000	3.1875	30.4805	39.4805	
	Vertical Leg	2.7500	6.6875	18.3906	0.0573	0.4375	0.5264	0.5837	
2 (Left)	Horizontal Leg	3.0000	3.0625	9.1875	9.0000	3.1875	30.4805	39.4805	
	Vertical Leg	2.7500	5.8125	15.9844	0.0573	0.4375	0.5264	0.5837	
2 (Right)	Horizontal Leg	3.0000	9.4375	28.3125	9.0000	3.1875	30.4805	39.4805	
	Vertical Leg	2.7500	6.6875	18.3906	0.0573	0.4375	0.5264	0.5837	
3	Web Plate	22.5000	6.2500	140.6250	0.2637	0.0000	0.0000	0.2637	
4	Top Cover Plate	10.9375	6.2500	68.3594	284.8307	0.0000	0.0000	284.8307	
4	Bottom Cover Plate	0.0000	6.2500	0.0000	0.0000	0.0000	0.0000	0.0000	
Total		56.44		352.73	321.32		124.03	445.35	
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y, loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties							
x-bar =	6.2500	in	S _{right} =	71.26	in ³	x-bar =	6.2500	in	S _{right} =	71.26	in ³
I _y =	445.35	in ⁴	S _{left} =	71.26	in ³	I _y =	445.35	in ⁴	S _{left} =	71.26	in ³
C _{right} =	6.2500	in	A =	56.4375	in ²	C _{right} =	6.2500	in	A =	56.4375	in ²
C _{left} =	6.2500	in	r _y =	2.8091	in	C _{left} =	6.2500	in	r _y =	2.8091	in

Non-composite Capacities*		
	AB	AI
M	2561.64 k-ft	2561.64 k-ft
V	641.19 k	641.19 k

*Noncompact Section

F_y = 33.00 ksi

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear



Made By DWC
Checked By SFH

Date 4/10/2012
Date 4/12/2012

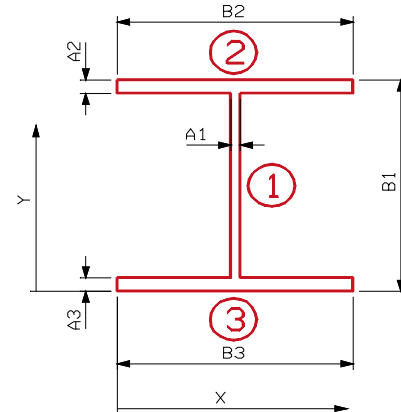
Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

- $A_1 = t_w = 0.3750$ in
- $B_1 = d = 60.5000$ in
- $A_2 = t_f = 0.7500$ in
- $B_2 = b_f = 13.0000$ in
- $A_3 = t_f = 0.7500$ in
- $B_3 = b_f = 13.0000$ in

$d_o = 33.1875$ in
 $d_o =$ stiffener spacing for shear check, for no stiffeners use "N/A"



FB Bracket 135 South

BRACKET HAS BEEN REHABILITATED

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I_o	d	Ad^2	$I_{x, gross}$
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web		22.1250	30.2500	669.2813	6418.0938	0.0000	0.0000	6418.0938
2	Top Flange		9.7500	60.1250	586.2188	0.4570	29.8750	8702.0273	8702.4844
3	Bottom Flange		9.7500	0.3750	3.6563	0.4570	29.8750	8702.0273	8702.4844
Total			41.63		1259.16	6419.01		17404.05	23823.06
Section Losses			A	y	Ay	I_o	d	Ad^2	$I_{x, loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties							
y-bar =	30.2500	in	$S_{top} = 787.54$	in ³	y-bar =	30.2500	in	$S_{top} = 787.54$	in ³		
$I_x =$	23823.06	in ⁴	$S_{bott.} = 787.54$	in ³	$I_x =$	23823.06	in ⁴	$S_{bott.} = 787.54$	in ³		
$C_{top} =$	30.2500	in	A =	41.6250	in ²	$C_{top} =$	30.2500	in	A =	41.6250	in ²
$C_{bottom} =$	30.2500	in	$r_x =$	23.9233	in	$C_{bottom} =$	30.2500	in	$r_x =$	23.9233	in
J =	4.6934	in ⁴	Z =	908.91	in ³				Z =	908.91	in ³

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y, gross}
Element	Description		(in ⁴)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web		22.1250	6.5000	143.8125	0.2593	0.0000	0.0000	0.2593
2	Top Flange		9.7500	6.5000	63.3750	137.3125	0.0000	0.0000	137.3125
3	Bottom Flange		9.7500	6.5000	63.3750	137.3125	0.0000	0.0000	137.3125
Total			41.63		270.56	274.88		0.00	274.88
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y, loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties					As-Inspected Section Properties						
x-bar =	6.5000	in	S _{right} =	42.29	in ³	x-bar =	6.5000	in	S _{right} =	42.29	in ³
I _y =	274.88	in ⁴	S _{left} =	42.29	in ³	I _y =	274.88	in ⁴	S _{left} =	42.29	in ³
C _{right} =	6.5000	in	A =	41.6250	in ²	C _{right} =	6.5000	in	A =	41.6250	in ²
C _{left} =	6.5000	in	r _y =	2.5698	in	C _{left} =	6.5000	in	r _y =	2.5698	in

Non-composite Capacities*		
	AB	AI
M	2362.62 k-ft	2362.62 k-ft
V	423.50 k	423.50 k

*Noncompact Section

F_y =	36.00 ksi
------------------------	------------------

AB = As-Built
 AI = As-Inspected
 M = Moment
 V = Shear



Made By DWC
Checked By SFH

Date 4/10/2012
Date 4/12/2012

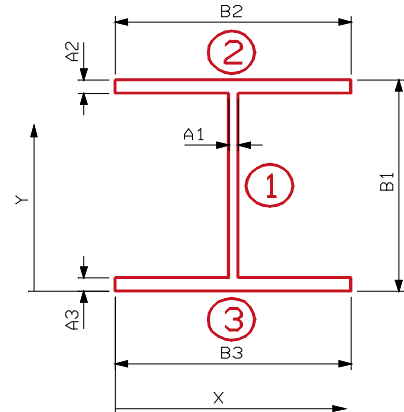
Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Element Dimensions (without Section Losses):

- $A_1 = t_w = 0.3750$ in
- $B_1 = d = 60.5000$ in
- $A_2 = t_f = 0.7500$ in
- $B_2 = b_f = 13.0000$ in
- $A_3 = t_f = 0.7500$ in
- $B_3 = b_f = 13.0000$ in

$d_o = 37.2500$ in
 $d_o =$ stiffener spacing for shear check, for no stiffeners use "N/A"



FB Bracket 135 North

BRACKET HAS BEEN REHABILITATED

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I_o	d	Ad^2	$I_{x, gross}$
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web		22.1250	30.2500	669.2813	6418.0938	0.0000	0.0000	6418.0938
2	Top Flange		9.7500	60.1250	586.2188	0.4570	29.8750	8702.0273	8702.4844
3	Bottom Flange		9.7500	0.3750	3.6563	0.4570	29.8750	8702.0273	8702.4844
Total			41.63		1259.16	6419.01		17404.05	23823.06
Section Losses			A	y	Ay	I_o	d	Ad^2	$I_{x, loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties							
y-bar =	30.2500	in	$S_{top} = 787.54$	in^3	y-bar =	30.2500	in	$S_{top} = 787.54$	in^3		
$I_x =$	23823.06	in^4	$S_{bott.} = 787.54$	in^3	$I_x =$	23823.06	n^4	$S_{bott.} = 787.54$	in^3		
$C_{top} =$	30.2500	in	A =	41.6250	in^2	$C_{top} =$	30.2500	in	A =	41.6250	in^2
$C_{bottom} =$	30.2500	in	$r_x =$	23.9233	in	$C_{bottom} =$	30.2500	in	$r_x =$	23.9233	in
J =	4.6934	in^4	Z =	908.91	in^3				Z =	908.91	in^3

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y, gross}
Element	Description		(in ⁴)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web		22.1250	6.5000	143.8125	0.2593	0.0000	0.0000	0.2593
2	Top Flange		9.7500	6.5000	63.3750	137.3125	0.0000	0.0000	137.3125
3	Bottom Flange		9.7500	6.5000	63.3750	137.3125	0.0000	0.0000	137.3125
Total			41.63		270.56	274.88		0.00	274.88
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y, loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties					As-Inspected Section Properties						
x-bar =	6.5000	in	S _{right} =	42.29	in ³	x-bar =	6.5000	in	S _{right} =	42.29	in ³
I _y =	274.88	in ⁴	S _{left} =	42.29	in ³	I _y =	274.88	in ⁴	S _{left} =	42.29	in ³
C _{right} =	6.5000	in	A =	41.6250	in ²	C _{right} =	6.5000	in	A =	41.6250	in ²
C _{left} =	6.5000	in	r _y =	2.5698	in	C _{left} =	6.5000	in	r _y =	2.5698	in

Non-composite Capacities*		
	AB	AI
M	2362.62 k-ft	2362.62 k-ft
V	388.91 k	388.91 k

*Noncompact Section

F_y =	36.00 ksi
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AB = As-Built
 AI = As-Inspected
 M = Moment
 V = Shear

FLOORBEAM LOADS

LONGITUDINAL LLDF

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STAAD SPACE
START JOB INFORMATION
ENGINEER DATE 11-Apr-12
END JOB INFORMATION
INPUT WIDTH 79
UNIT FEET KIP
JOINT COORDINATES
1 0 0 0; 2 20 0 0; 3 40 0 0;
MEMBER INCIDENCES
1 1 2; 2 2 3;
DEFINE MATERIAL START
ISOTROPIC STEEL
E 4.176e+006
POISSON 0.3
DENSITY 0.489024
ALPHA 6e-006
DAMP 0.03
END DEFINE MATERIAL
MEMBER PROPERTY AMERICAN
1 2 TABLE ST W24X84
CONSTANTS
MATERIAL STEEL ALL
SUPPORTS
2 PINNED
1 3 FIXED BUT FX MX MY MZ
DEFINE MOVING LOAD
*HS-20
TYPE 1 LOAD 16 16 4
DIST 14 14
*2F1
TYPE 2 LOAD 10 5
DIST 10
*3F1
TYPE 3 LOAD 6 8.5 8.5
DIST 10 4
*4F1
TYPE 4 LOAD 6 7 7 7
DIST 10 4 4
*5C1
TYPE 5 LOAD 6 8.5 8.5 8.5 8.5
DIST 12 4 31 4

*****p1*****
*HS-20 P1
TYPE 11 LOAD 18.6 18.6 4.65
DIST 14 14
*2F1 P1
TYPE 12 LOAD 11.163 5.82
DIST 10
*3F1 P1
TYPE 13 LOAD 6.98 9.89 9.89
DIST 10 4
*4F1 P1
TYPE 14 LOAD 6.98 8.14 8.14 8.14
DIST 10 4 4
*5C1 P1
TYPE 15 LOAD 6.98 9.89 9.89 9.89 9.89
DIST 12 4 31 4

*****p2*****
*HS-20 P2
TYPE 16 LOAD 13.39 13.39 3.35
DIST 14 14
*2F1 P2
TYPE 17 LOAD 8.37 4.185
DIST 10
*3F1 P2
TYPE 18 LOAD 5.02 7.11 7.11
DIST 10 4
*4F1 P2
TYPE 19 LOAD 5.02 5.86 5.86 5.86
DIST 10 4 4
*5C1 P2
TYPE 20 LOAD 5.02 7.11 7.11 7.11 7.11
DIST 12 4 31 4

*****NORTH TRUSS*****
**HS20 P1
*LOAD GENERATION 1000

```

```
*LOAD GENERATION 1000
*TYPE 11 -28 0 0 XINC 0.1
*
***HS20 P2
*LOAD GENERATION 1000
*TYPE 16 -28 0 0 XINC 0.1

****2F1 P1
*LOAD GENERATION 1000
*TYPE 12 -10 0 0 XINC 0.1

**2F1 P2
*LOAD GENERATION 1000
*TYPE 17 -10 0 0 XINC 0.1

***3F1 P1
*LOAD GENERATION 1000
*TYPE 13 -14 0 0 XINC 0.1
*
***3F1 P2
*LOAD GENERATION 1000
*TYPE 18 -14 0 0 XINC 0.1

***4F1 P1
*LOAD GENERATION 1000
*TYPE 14 -18 0 0 XINC 0.1

***4F1 P2
*LOAD GENERATION 1000
*TYPE 19 -18 0 0 XINC 0.1
*
***5C1 P1
*LOAD GENERATION 1000
*TYPE 15 -51 0 0 XINC 0.1

***5C1 P2
LOAD GENERATION 1000
TYPE 20 -51 0 0 XINC 0.1
```

*****SOUTH TRUSS*****

```
***HS20 P1 & P2
*LOAD GENERATION 1000
*TYPE 1 -28 0 0 XINC 0.1

***2F1 P1 & P2
*LOAD GENERATION 1000
*TYPE 2 -10 0 0 XINC 0.1

***3F1 P1 & P2
*LOAD GENERATION 1000
*TYPE 3 -14 0 0 XINC 0.1
*
***4F1 P1 & P2
*LOAD GENERATION 1000
*TYPE 4 -18 0 0 XINC 0.1

***5C1 P1 & P2
*LOAD GENERATION 1000
*TYPE 5 -51 0 0 XINC 0.1
```

```
PERFORM ANALYSIS
FINISH
```

```

STAAD SPACE
START JOB INFORMATION
ENGINEER DATE 11-Apr-12
END JOB INFORMATION
INPUT WIDTH 79
UNIT FEET KIP
JOINT COORDINATES
1 0 0 0; 2 7.5 0 0; 3 27.5 0 0;
MEMBER INCIDENCES
1 1 2; 2 2 3;
DEFINE MATERIAL START
ISOTROPIC STEEL
E 4.176e+006
POISSON 0.3
DENSITY 0.489024
ALPHA 6e-006
DAMP 0.03
END DEFINE MATERIAL
MEMBER PROPERTY AMERICAN
1 2 TABLE ST W24X84
CONSTANTS
MATERIAL STEEL ALL
SUPPORTS
2 PINNED
1 3 FIXED BUT FX MX MY MZ
DEFINE MOVING LOAD
*HS-20
TYPE 1 LOAD 16 16 4
DIST 14 14
*2F1
TYPE 2 LOAD 10 5
DIST 10
*3F1
TYPE 3 LOAD 6 8.5 8.5
DIST 10 4
*4F1
TYPE 4 LOAD 6 7 7 7
DIST 10 4 4
*5C1
TYPE 5 LOAD 6 8.5 8.5 8.5 8.5
DIST 12 4 31 4
*****P1*****
*HS-20 P1
TYPE 11 LOAD 18.6 18.6 4.65
DIST 14 14
*2F1 P1
TYPE 12 LOAD 11.163 5.82
DIST 10
*3F1 P1
TYPE 13 LOAD 6.98 9.89 9.89
DIST 10 4
*4F1 P1
TYPE 14 LOAD 6.98 8.14 8.14 8.14
DIST 10 4 4
*5C1 P1
TYPE 15 LOAD 6.98 9.89 9.89 9.89 9.89
DIST 12 4 31 4
*****P2*****
*HS-20 P2
TYPE 16 LOAD 13.39 13.39 3.35
DIST 14 14
*2F1 P2
TYPE 17 LOAD 8.37 4.185
DIST 10
*3F1 P2
TYPE 18 LOAD 5.02 7.11 7.11
DIST 10 4
*4F1 P2
TYPE 19 LOAD 5.02 5.86 5.86 5.86
DIST 10 4 4
*5C1 P2
TYPE 20 LOAD 5.02 7.11 7.11 7.11 7.11
DIST 12 4 31 4
*****NORTH TRUSS*****
***HS20 P1
**LOAD GENERATION 1000
**TYPE 11 -28 0 0 XINC 0.1
***HS20 P2
*LOAD GENERATION 1000
*TYPE 16 -28 0 0 XINC 0.1

```

```
**2F1 P1
*LOAD GENERATION 1000
*TYPE 12 -10 0 0 XINC 0.1
***2F1 P2
*LOAD GENERATION 1000
*TYPE 17 -10 0 0 XINC 0.1
***3F1 P1
*LOAD GENERATION 1000
*TYPE 13 -14 0 0 XINC 0.1
***3F1 P2
*LOAD GENERATION 1000
*TYPE 18 -14 0 0 XINC 0.1
*
***4F1 P1
*LOAD GENERATION 1000
*TYPE 14 -18 0 0 XINC 0.1
***4F1 P2
*LOAD GENERATION 1000
*TYPE 19 -18 0 0 XINC 0.1
*
***5C1 P1
*LOAD GENERATION 1000
*TYPE 15 -51 0 0 XINC 0.1
***5C1 P2
*LOAD GENERATION 1000
*TYPE 20 -51 0 0 XINC 0.1
*****SOUTH TRUSS*****
***HS20 P1 & P2
*LOAD GENERATION 1000
*TYPE 1 -28 0 0 XINC 0.1
***2F1 P1 & P2
*LOAD GENERATION 1000
*TYPE 2 -10 0 0 XINC 0.1
***3F1 P1 & P2
*LOAD GENERATION 1000
*TYPE 3 -14 0 0 XINC 0.1
*
**4F1 P1 & P2
LOAD GENERATION 1000
TYPE 4 -18 0 0 XINC 0.1
***5C1 P1 & P2
*LOAD GENERATION 1000
*TYPE 5 -51 0 0 XINC 0.1
PERFORM ANALYSIS
FINISH
```

```

STAAD SPACE
START JOB INFORMATION
ENGINEER DATE 11-Apr-12
END JOB INFORMATION
INPUT WIDTH 79
UNIT FEET KIP
JOINT COORDINATES
2 0 0 0; 3 23.25 0 0;
MEMBER INCIDENCES
2 2 3;
DEFINE MATERIAL START
ISOTROPIC STEEL
E 4.176e+006
POISSON 0.3
DENSITY 0.489024
ALPHA 6e-006
DAMP 0.03
END DEFINE MATERIAL
MEMBER PROPERTY AMERICAN
2 TABLE ST W24X84
CONSTANTS
MATERIAL STEEL ALL
SUPPORTS
2 PINNED
3 FIXED BUT FX MX MY MZ
DEFINE MOVING LOAD
*HS-20
TYPE 1 LOAD 16 16 4
DIST 14 14
*2F1
TYPE 2 LOAD 10 5
DIST 10
*3F1
TYPE 3 LOAD 6 8.5 8.5
DIST 10 4
*4F1
TYPE 4 LOAD 6 7 7 7
DIST 10 4 4
*5C1
TYPE 5 LOAD 6 8.5 8.5 8.5 8.5
DIST 12 4 31 4
*****P1*****
*HS-20 P1
TYPE 11 LOAD 18.6 18.6 4.65
DIST 14 14
*2F1 P1
TYPE 12 LOAD 11.163 5.82
DIST 10
*3F1 P1
TYPE 13 LOAD 6.98 9.89 9.89
DIST 10 4
*4F1 P1
TYPE 14 LOAD 6.98 8.14 8.14 8.14
DIST 10 4 4
*5C1 P1
TYPE 15 LOAD 6.98 9.89 9.89 9.89 9.89
DIST 12 4 31 4
*****P2*****
*HS-20 P2
TYPE 16 LOAD 13.39 13.39 3.35
DIST 14 14
*2F1 P2
TYPE 17 LOAD 8.37 4.185
DIST 10
*3F1 P2
TYPE 18 LOAD 5.02 7.11 7.11
DIST 10 4
*4F1 P2
TYPE 19 LOAD 5.02 5.86 5.86 5.86
DIST 10 4 4
*5C1 P2
TYPE 20 LOAD 5.02 7.11 7.11 7.11 7.11
DIST 12 4 31 4
*****NORTH TRUSS*****
***HS20 P1
**LOAD GENERATION 1000
**TYPE 11 -28 0 0 XINC 0.1
***HS20 P2
*LOAD GENERATION 1000
*TYPE 16 -28 0 0 XINC 0.1

```

```
**2F1 P1
*LOAD GENERATION 1000
*TYPE 12 -10 0 0 XINC 0.1
***2F1 P2
*LOAD GENERATION 1000
*TYPE 17 -10 0 0 XINC 0.1
***3F1 P1
*LOAD GENERATION 1000
*TYPE 13 -14 0 0 XINC 0.1
***3F1 P2
*LOAD GENERATION 1000
*TYPE 18 -14 0 0 XINC 0.1
*
***4F1 P1
*LOAD GENERATION 1000
*TYPE 14 -18 0 0 XINC 0.1
***4F1 P2
*LOAD GENERATION 1000
*TYPE 19 -18 0 0 XINC 0.1
*
***5C1 P1
*LOAD GENERATION 1000
*TYPE 15 -51 0 0 XINC 0.1
***5C1 P2
*LOAD GENERATION 1000
*TYPE 20 -51 0 0 XINC 0.1
*****SOUTH TRUSS*****
***HS20 P1 & P2
*LOAD GENERATION 1000
*TYPE 1 -28 0 0 XINC 0.1
***2F1 P1 & P2
*LOAD GENERATION 1000
*TYPE 2 -10 0 0 XINC 0.1
***3F1 P1 & P2
*LOAD GENERATION 1000
*TYPE 3 -14 0 0 XINC 0.1
*
***4F1 P1 & P2
*LOAD GENERATION 1000
*TYPE 4 -18 0 0 XINC 0.1
**5C1 P1 & P2
*LOAD GENERATION 1000
*TYPE 5 -51 0 0 XINC 0.1
PERFORM ANALYSIS
FINISH
```



```

STAAD SPACE
START JOB INFORMATION
ENGINEER DATE 03-Apr-12
END JOB INFORMATION
INPUT WIDTH 79
UNIT FEET KIP
JOINT COORDINATES
1 0 0 0; 2 20 0 0; 3 40 0 0;
MEMBER INCIDENCES
1 1 2; 2 2 3;
DEFINE MATERIAL START
ISOTROPIC STEEL
E 4.176e+006
POISSON 0.3
DENSITY 0.489024
ALPHA 6e-006
DAMP 0.03
END DEFINE MATERIAL
MEMBER PROPERTY AMERICAN
1 2 TABLE ST W24X84
CONSTANTS
MATERIAL STEEL ALL
SUPPORTS
2 PINNED
1 3 FIXED BUT FX MX MY MZ
DEFINE MOVING LOAD

```

```

*HS-20
TYPE 1 LOAD 12 12 3
DIST 30 14

```

```

*****P1*****
*HS-20 P1
TYPE 2 LOAD 13.96 13.96 3.49
DIST 30 14

```

```

*****P2*****
*HS-20 P2
TYPE 3 LOAD 10.04 10.04 2.51
DIST 30 14

```

*****NORTH TRUSS*****

```

***HS20 P1
*LOAD GENERATION 1000
*TYPE 2 -28 0 0 XINC 0.1
**
***HS20 P2
*LOAD GENERATION 1000
*TYPE 3 -28 0 0 XINC 0.1

```

*****SOUTH TRUSS*****

```

*
**HS20 P1 & P2
LOAD GENERATION 1000
TYPE 1 -44 0 0 XINC 0.1

```

```

PERFORM ANALYSIS
FINISH

```

Cantilever FB Service Loads

Made By: ADK Date: 4/11/2012
 Checked By: DWC Date: 4/13/2012

Panel Point	Truss	Length To Curb Length (ft)	Dead Load		HS-20				2F1				3F1				4F1				5C1			
			Shear (kips)	Moment (kip-ft)	P1 (kips)	P2 (kips)	Shear (kips)	Moment (kip-ft)	P1 (kips)	P2 (kips)	Shear (kips)	Moment (kip-ft)	P1 (kips)	P2 (kips)	Shear (kips)	Moment (kip-ft)	P1 (kips)	P2 (kips)	Shear (kips)	Moment (kip-ft)	P1 (kips)	P2 (kips)	Shear (kips)	Moment (kip-ft)
U127	N	8.94	20.2	106.1	31.0	22.3	53.4	236.4	15.7	11.6	27.2	119.5	24.0	17.3	41.3	183.0	27.1	19.5	46.7	206.7	23.2	16.7	39.9	176.9
U128	N	10.59	32.6	180.9	31.0	22.3	53.4	324.7	15.7	11.6	27.2	164.6	24.0	17.3	41.3	251.3	27.1	19.5	46.7	283.9	23.2	16.7	39.9	243.0
U129	N	11.58	43.5	298.6	31.0	22.3	53.4	377.2	15.7	11.6	27.2	191.4	24.0	17.3	41.3	291.9	27.1	19.5	46.7	329.8	23.2	16.7	39.9	282.2
U130	N	12.18	43.6	316.0	31.0	22.3	53.4	409.1	15.7	11.6	27.2	207.7	24.0	17.3	41.3	316.5	27.1	19.5	46.7	357.6	23.2	16.7	39.9	306.1
U131	N	12.39	43.5	325.7	31.0	22.3	53.4	420.5	15.7	11.6	27.2	213.5	24.0	17.3	41.3	325.4	27.1	19.5	46.7	367.6	23.2	16.7	39.9	314.6
U132	N	12.22	43.3	313.3	31.0	22.3	53.4	411.4	15.7	11.6	27.2	208.8	24.0	17.3	41.3	318.3	27.1	19.5	46.7	359.6	23.2	16.7	39.9	307.8
U133	N	11.66	43.2	296.6	31.0	22.3	53.4	381.7	15.7	11.6	27.2	193.7	24.0	17.3	41.3	295.3	27.1	19.5	46.7	333.7	23.2	16.7	39.9	285.6
U134	N	10.72	40.5	263.5	31.0	22.3	53.4	331.5	15.7	11.6	27.2	168.0	24.0	17.3	41.3	256.5	27.1	19.5	46.7	289.8	23.2	16.7	39.9	248.0
U135	N	9.13	19.8	114.8	31.0	22.3	53.4	246.5	15.7	11.6	27.2	124.7	24.0	17.3	41.3	190.7	27.1	19.5	46.7	215.5	23.2	16.7	39.9	184.4
U127	S	22.46	45.9	557.4	26.2	26.2	104.8	1201.6	13.8	13.8	55.4	634.7	20.6	20.6	82.6	946.6	22.8	22.8	91.3	1045.8	20.0	20.0	79.9	915.2
U128	S	20.26	56.4	632.4	26.7	26.7	106.8	989.2	13.8	13.8	55.4	512.9	20.6	20.6	82.6	764.9	23.3	23.3	93.3	864.4	20.0	20.0	79.9	739.6
U129	S	18.21	58.0	596.6	26.7	26.7	80.1	817.8	13.8	13.8	41.5	424.0	20.6	20.6	61.9	632.4	23.3	23.3	70.0	714.7	20.0	20.0	59.9	611.5
U130	S	16.58	57.7	537.9	26.7	26.7	80.1	687.0	13.8	13.8	41.5	356.2	20.6	20.6	61.9	531.2	23.3	23.3	70.0	600.3	20.0	20.0	59.9	513.6
U131	S	15.36	50.5	443.2	26.7	26.7	80.1	589.6	13.8	13.8	41.5	305.7	20.6	20.6	61.9	455.9	23.3	23.3	70.0	515.2	20.0	20.0	59.9	440.8
U132	S	14.56	43.6	382.2	26.7	26.7	80.1	525.6	13.8	13.8	41.5	272.5	20.6	20.6	61.9	406.4	23.3	23.3	70.0	459.3	20.0	20.0	59.9	393.0
U133	S	14.18	43.5	368.4	26.7	26.7	80.1	495.0	13.8	13.8	41.5	256.7	20.6	20.6	61.9	382.8	23.3	23.3	70.0	432.6	20.0	20.0	59.9	370.1
U134	S	14.22	38.9	318.3	26.7	26.7	80.1	497.9	13.8	13.8	41.5	258.2	20.6	20.6	61.9	385.1	23.3	23.3	70.0	435.1	20.0	20.0	59.9	372.3
U135	S	14.51	18.3	147.0	22.4	22.4	67.1	436.6	12.8	12.8	38.5	250.8	17.9	17.9	53.6	349.0	18.7	18.7	56.1	364.8	17.4	17.4	52.1	338.9

Interior Floorbeam Service Moments

Multiple Presence Factor = 0.9

Made By: ADK Date: 4/12/2012
 Checked By: DWC Date: 4/13/2012

Floorbeam	Distance From N. Truss to Median (ft)	Distance from S. Truss to Median (ft)	Floorbeam Length (ft)	R1 (kips)	R2 (kips)	Moment Factor (kip-ft)	Longitudinal LLDF (Wheel Force)*					Service Moment with Multiple Presence Factor					Dead Load**
							HS-20 (kips)	2F1 (kips)	3F1 (kips)	4F1 (kips)	5C1 (kips)	HS-20 (kip-ft)	2F1 (kip-ft)	3F1 (kip-ft)	4F1 (kip-ft)	5C1 (kip-ft)	Dead Load (kip-ft)
							U127	32.06	18.54	50.6	2.91	3.09	38.98	26.212	13.844	20.648	22.813
U128	30.48	20.82	51.3	3.14	2.86	42.38	26.701	13.844	20.648	23.333	19.964	1018.46	528.05	787.58	890.00	761.49	504.46
U129	29.46	22.83	52.29	3.31	2.69	44.70	26.701	13.844	20.648	23.333	19.964	1074.11	556.91	830.62	938.63	803.10	436.31
U130	28.83	24.43	53.26	3.43	2.57	47.12	26.701	13.844	20.648	23.333	19.964	1132.45	587.15	875.73	989.60	846.72	488.47
U131	28.61	25.64	54.25	3.50	2.50	48.84	26.701	13.844	20.648	23.333	19.964	1173.75	608.57	907.67	1025.70	877.60	577.09
U132	28.79	26.45	55.24	3.53	2.47	49.58	26.701	13.844	20.648	23.333	19.964	1191.46	617.75	921.36	1041.18	890.84	670.73
U133	29.37	26.85	56.22	3.51	2.49	49.39	26.701	13.844	20.648	23.333	19.964	1186.96	615.42	917.88	1037.24	887.48	723.18
U134	30.35	26.86	57.21	3.45	2.55	48.79	26.701	13.844	20.648	23.333	19.964	1172.45	607.90	906.66	1024.56	876.63	807.96
U135	31.94	26.56	58.5	3.34	2.66	48.66	22.364	12.848	17.875	18.684	17.359	979.37	562.64	782.78	818.21	760.19	527.18

* Taken from South Truss Cantilever Service Force Spreadsheet

** Taken from STAAD DL Model

Interior Floorbeam Service Shears

Multiple Presence Factor = 0.9

Made By: ADK Date: 4/12/2012
 Checked By: DWC Date: 4/13/2012

Floorbeam	Distance From N. Truss to Median (ft)	Distance from S. Truss to Median (ft)	Floorbeam Length (ft)	Shear Factor (kips)	Longitudinal LLDF (Wheel Force)*					Service Moment with Multiple Presence Factor					Dead Load**
					HS-20 (kips)	2F1 (kips)	3F1 (kips)	4F1 (kips)	5C1 (kips)	HS-20 (kips)	2F1 (kips)	3F1 (kips)	4F1 (kips)	5C1 (kips)	Dead Load (kips)
U127	32.06	18.54	50.6	3.81	26.212	13.844	20.648	22.813	19.964	89.98	47.52	70.88	78.31	68.53	48.01
U128	30.48	20.82	51.3	3.83	26.701	13.844	20.648	23.333	19.964	92.05	47.73	71.18	80.44	68.82	59.06
U129	29.46	22.83	52.29	3.85	26.701	13.844	20.648	23.333	19.964	92.58	48.00	71.59	80.90	69.22	58.84
U130	28.83	24.43	53.26	3.87	26.701	13.844	20.648	23.333	19.964	93.08	48.26	71.98	81.34	69.60	62.29
U131	28.61	25.64	54.25	3.89	26.701	13.844	20.648	23.333	19.964	93.58	48.52	72.36	81.77	69.97	66.03
U132	28.79	26.45	55.24	3.91	26.701	13.844	20.648	23.333	19.964	94.05	48.76	72.73	82.19	70.32	68.82
U133	29.37	26.85	56.22	3.93	26.701	13.844	20.648	23.333	19.964	94.51	49.00	73.08	82.59	70.66	70.29
U134	30.35	26.86	57.21	3.95	26.701	13.844	20.648	23.333	19.964	94.95	49.23	73.43	82.97	70.99	74.76
U135	31.94	26.56	58.5	3.97	22.364	12.848	17.875	18.684	17.359	79.99	45.96	63.94	66.83	62.09	44.39

* Taken from South Truss Cantilever Service Force Spreadsheet

** Taken from STAAD DL Model

FLOORBEAM RATING FACTORS

Span 11 - Floorbeam Ratings



Date ADK
Date DWC

Date 4/12/2012
Date 4/13/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441 Span 11**

Floorbeam Load Rating Factors (As-Built)

	Floorbeam	Span (ft)	Capacity*		Dead Load**		Live Load		Impact	Controlling Rating Factors				
			Moment	Shear	Moment	Shear	Moment	Shear		Moment		Shear		
			k-ft	k	k-ft	k	k-ft	k		Inventory	Operating	Inventory	Operating	
HS-20	North Cantilever	127	8.94	2576.02	642.98	106.12	20.21	236.42	53.39	1.30	3.66	6.10	4.10	6.84
		128	10.59	2561.64	641.19	180.86	32.58	324.75	53.39	1.30	2.54	4.24	3.98	6.64
		129	11.58	2561.64	641.19	298.58	43.47	377.22	53.39	1.30	2.04	3.41	3.88	6.48
		130	12.18	2576.02	642.98	316.02	43.56	409.13	53.39	1.30	1.88	3.13	3.89	6.50
		131	12.39	2561.64	621.89	325.74	43.46	420.51	53.39	1.30	1.80	3.01	3.75	6.27
		132	12.22	2561.64	640.99	313.29	43.31	411.38	53.39	1.30	1.86	3.10	3.88	6.48
		133	11.66	2561.64	641.19	296.62	43.24	381.72	53.39	1.30	2.02	3.37	3.88	6.48
		134	10.72	2561.64	641.19	263.53	40.49	331.50	53.39	1.30	2.37	3.96	3.91	6.52
	135	9.13	2362.62	388.91	114.80	19.85	246.49	53.39	1.30	3.18	5.31	2.41	4.02	
	Interior Floorbeams	127	50.60	3093.71	683.60	394.40	48.01	919.60	89.98	1.28	1.01	1.68	2.48	4.13
		128	51.30	3596.16	877.75	504.46	59.06	1018.46	92.05	1.28	1.04	1.73	3.12	5.21
		129	52.29	3596.16	835.65	436.31	58.84	1074.11	92.58	1.28	1.01	1.69	2.95	4.92
		130	53.26	4319.82	708.46	488.47	62.29	1132.45	93.08	1.28	1.17	1.95	2.43	4.05
		131	54.25	4319.82	708.46	577.09	66.03	1173.75	93.58	1.28	1.10	1.83	2.40	4.00
		132	55.24	4319.82	708.46	670.73	68.82	1191.46	94.05	1.28	1.04	1.74	2.37	3.96
		133	56.22	4565.44	655.52	723.18	70.29	1186.96	94.51	1.28	1.10	1.84	2.16	3.60
		134	57.21	4565.44	707.82	807.96	74.76	1172.45	94.95	1.27	1.08	1.81	2.33	3.88
	135	58.50	3596.16	877.75	527.18	44.39	979.37	79.99	1.27	1.08	1.80	3.71	6.20	
	South Cantilever	127	22.46	4504.37	733.90	557.43	45.90	1201.64	104.85	1.30	1.12	1.86	2.28	3.81
		128	20.26	3433.17	732.11	632.37	56.45	989.17	106.80	1.30	0.94	1.56	2.19	3.65
		129	18.21	3016.29	687.84	596.59	58.00	817.83	80.10	1.30	0.97	1.62	2.71	4.52
		130	16.58	3032.84	689.64	537.89	57.73	686.98	80.10	1.30	1.20	2.01	2.72	4.54
		131	15.36	2561.64	641.19	443.15	50.51	589.57	80.10	1.30	1.19	1.99	2.55	4.25
		132	14.56	2561.64	641.19	382.21	43.61	525.57	80.10	1.30	1.39	2.32	2.59	4.32
		133	14.18	2561.64	641.19	368.44	43.54	495.01	80.10	1.30	1.49	2.49	2.59	4.32
		134	14.22	2362.62	440.84	318.31	38.94	497.94	80.10	1.30	1.39	2.32	1.73	2.88
		135	14.51	2362.62	423.50	147.04	18.27	436.63	67.09	1.30	1.76	2.94	2.11	3.53

* Moment Capacity represents full height section capacity at midspan for interior floorbeams and at the truss interface for cantilever beams.

Shear Capacity represents shear capacity at beam ends

** Dead Load Taken From STAAD DL Model.

Span 11 - Floorbeam Ratings



Date ADK
Date DWC

Date 4/12/2012
Date 4/13/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441 Span 11**

Floorbeam Load Rating Factors (As-Inspected)

	Floorbeam	Span (ft)	Capacity*		Dead Load**		Live Load		Impact	Controlling Rating Factors				
			Moment	Shear	Moment	Shear	Moment	Shear		Moment		Shear		
			k-ft	k	k-ft	k	k-ft	k		Inventory	Operating	Inventory	Operating	
HS-20	North Cantilever	127	8.94	2576.02	642.98	106.12	20.21	236.42	53.39	1.30	3.66	6.10	4.10	6.84
		128	10.59	2561.64	641.19	180.86	32.58	324.75	53.39	1.30	2.54	4.24	3.98	6.64
		129	11.58	2561.64	641.19	298.58	43.47	377.22	53.39	1.30	2.04	3.41	3.88	6.48
		130	12.18	2576.02	642.98	316.02	43.56	409.13	53.39	1.30	1.88	3.13	3.89	6.50
		131	12.39	2561.64	621.89	325.74	43.46	420.51	53.39	1.30	1.80	3.01	3.75	6.27
		132	12.22	2561.64	640.99	313.29	43.31	411.38	53.39	1.30	1.86	3.10	3.88	6.48
		133	11.66	2561.64	641.19	296.62	43.24	381.72	53.39	1.30	2.02	3.37	3.88	6.48
		134	10.72	2561.64	641.19	263.53	40.49	331.50	53.39	1.30	2.37	3.96	3.91	6.52
	135	9.13	2362.62	388.91	114.80	19.85	246.49	53.39	1.30	3.18	5.31	2.41	4.02	
	Interior Floorbeams	127	50.60	3093.71	683.60	394.40	48.01	919.60	89.98	1.28	1.01	1.68	2.48	4.13
		128	51.30	3596.16	877.75	504.46	59.06	1018.46	92.05	1.28	1.04	1.73	3.12	5.21
		129	52.29	3596.16	835.65	436.31	58.84	1074.11	92.58	1.28	1.01	1.69	2.95	4.92
		130	53.26	4319.82	708.46	488.47	62.29	1132.45	93.08	1.28	1.17	1.95	2.43	4.05
		131	54.25	4319.82	708.46	577.09	66.03	1173.75	93.58	1.28	1.10	1.83	2.40	4.00
		132	55.24	4319.82	708.46	670.73	68.82	1191.46	94.05	1.28	1.04	1.74	2.37	3.96
		133	56.22	4565.44	655.52	723.18	70.29	1186.96	94.51	1.28	1.10	1.84	2.16	3.60
		134	57.21	4565.44	707.82	807.96	74.76	1172.45	94.95	1.27	1.08	1.81	2.33	3.88
	135	58.50	3333.79	863.39	527.18	44.39	979.37	79.99	1.27	0.98	1.63	3.65	6.09	
	South Cantilever	127	22.46	4504.37	733.90	557.43	45.90	1201.64	104.85	1.30	1.12	1.86	2.28	3.81
		128	20.26	3433.17	732.11	632.37	56.45	989.17	106.80	1.30	0.94	1.56	2.19	3.65
		129	18.21	3016.29	687.84	596.59	58.00	817.83	80.10	1.30	0.97	1.62	2.71	4.52
		130	16.58	3032.84	689.64	537.89	57.73	686.98	80.10	1.30	1.20	2.01	2.72	4.54
		131	15.36	2561.64	641.19	443.15	50.51	589.57	80.10	1.30	1.19	1.99	2.55	4.25
		132	14.56	2561.64	641.19	382.21	43.61	525.57	80.10	1.30	1.39	2.32	2.59	4.32
		133	14.18	2561.64	641.19	368.44	43.54	495.01	80.10	1.30	1.49	2.49	2.59	4.32
		134	14.22	2362.62	440.84	318.31	38.94	497.94	80.10	1.30	1.39	2.32	1.73	2.88
	135	14.51	2362.62	423.50	147.04	18.27	436.63	67.09	1.30	1.76	2.94	2.11	3.53	

* Moment Capacity represents full high section capacity at midspan for interior floorbeams and at the truss interface for cantilever beams.

Shear Capacity represents shear capacity at beam ends

** Dead Load Taken From STAAD DL Model.

Span 11 - Floorbeam Ratings



Date ADK
Date DWC

Date 4/12/2012
Date 4/13/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441 Span 11**

Floorbeam Load Rating Factors (As-Built)

	Floorbeam	Span (ft)	Capacity*		Dead Load**		Live Load		Impact	Rating Factor		
			Moment	Shear	Moment	Shear	Moment	Shear		Moment	Shear	
			k-ft	k	k-ft	k	k-ft	k		Operating	Operating	
2F1	North Cantilever	127	8.94	2576.02	642.98	106.12	20.21	119.53	27.24	1.30	12.07	13.40
		128	10.59	2561.64	641.19	180.86	32.58	164.60	27.24	1.30	8.36	13.01
		129	11.58	2561.64	641.19	298.58	43.47	191.38	27.24	1.30	6.72	12.70
		130	12.18	2576.02	642.98	316.02	43.56	207.66	27.24	1.30	6.17	12.74
		131	12.39	2561.64	621.89	325.74	43.46	213.47	27.24	1.30	5.93	12.28
		132	12.22	2561.64	640.99	313.29	43.31	208.80	27.24	1.30	6.11	12.70
		133	11.66	2561.64	641.19	296.62	43.24	193.67	27.24	1.30	6.65	12.71
		134	10.72	2561.64	641.19	263.53	40.49	168.05	27.24	1.30	7.81	12.78
		135	9.13	2362.62	388.91	114.80	19.85	124.67	27.24	1.30	10.51	7.89
	Interior Floorbeams	127	50.60	3093.71	683.60	394.40	48.01	485.69	47.52	1.28	3.18	7.83
		128	51.30	3596.16	877.75	504.46	59.06	528.05	47.73	1.28	3.34	10.06
		129	52.29	3596.16	835.65	436.31	58.84	556.91	48.00	1.28	3.26	9.49
		130	53.26	4319.82	708.46	488.47	62.29	587.15	48.26	1.28	3.77	7.81
		131	54.25	4319.82	708.46	577.09	66.03	608.57	48.52	1.28	3.53	7.72
		132	55.24	4319.82	708.46	670.73	68.82	617.75	48.76	1.28	3.36	7.64
		133	56.22	4565.44	655.52	723.18	70.29	615.42	49.00	1.28	3.55	6.94
		134	57.21	4565.44	707.82	807.96	74.76	607.90	49.23	1.27	3.49	7.49
		135	58.50	3596.16	877.75	527.18	44.39	562.64	45.96	1.27	3.13	10.79
	South Cantilever	127	22.46	4504.37	733.90	557.43	45.90	634.65	55.38	1.30	3.52	7.20
		128	20.26	3433.17	732.11	632.37	56.45	512.86	55.38	1.30	3.01	7.04
		129	18.21	3016.29	687.84	596.59	58.00	424.03	41.53	1.30	3.13	8.73
		130	16.58	3032.84	689.64	537.89	57.73	356.19	41.53	1.30	3.88	8.76
		131	15.36	2561.64	641.19	443.15	50.51	305.68	41.53	1.30	3.84	8.20
		132	14.56	2561.64	641.19	382.21	43.61	272.50	41.53	1.30	4.48	8.33
		133	14.18	2561.64	641.19	368.44	43.54	256.66	41.53	1.30	4.80	8.33
		134	14.22	2362.62	440.84	318.31	38.94	258.18	41.53	1.30	4.47	5.56
		135	14.51	2362.62	423.50	147.04	18.27	250.84	38.54	1.30	5.12	6.14

* Moment Capacity represents full high section capacity at midspan for interior floorbeams and at the truss interface for cantilever beams.

Shear Capacity represents shear capacity at beam ends

** Dead Load Taken From STAAD DL Model.

Span 11 - Floorbeam Ratings



Date ADK
Date DWC

Date 4/12/2012
Date 4/13/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441 Span 11**

Floorbeam Load Rating Factors (As-Inspected)

	Floorbeam	Span (ft)	Capacity*		Dead Load**		Live Load		Impact	Rating Factor		
			Moment	Shear	Moment	Shear	Moment	Shear		Moment	Shear	
			k-ft	k	k-ft	k	k-ft	k		Operating	Operating	
2F1	North Cantilever	127	8.94	2576.02	642.98	106.12	20.21	119.53	27.24	1.30	12.07	13.40
		128	10.59	2561.64	641.19	180.86	32.58	164.60	27.24	1.30	8.36	13.01
		129	11.58	2561.64	641.19	298.58	43.47	191.38	27.24	1.30	6.72	12.70
		130	12.18	2576.02	642.98	316.02	43.56	207.66	27.24	1.30	6.17	12.74
		131	12.39	2561.64	621.89	325.74	43.46	213.47	27.24	1.30	5.93	12.28
		132	12.22	2561.64	640.99	313.29	43.31	208.80	27.24	1.30	6.11	12.70
		133	11.66	2561.64	641.19	296.62	43.24	193.67	27.24	1.30	6.65	12.71
		134	10.72	2561.64	641.19	263.53	40.49	168.05	27.24	1.30	7.81	12.78
	135	9.13	2362.62	388.91	114.80	19.85	124.67	27.24	1.30	10.51	7.89	
	Interior Floorbeams	127	50.60	3093.71	683.60	394.40	48.01	485.69	47.52	1.28	3.18	7.83
		128	51.30	3596.16	877.75	504.46	59.06	528.05	47.73	1.28	3.34	10.06
		129	52.29	3596.16	835.65	436.31	58.84	556.91	48.00	1.28	3.26	9.49
		130	53.26	4319.82	708.46	488.47	62.29	587.15	48.26	1.28	3.77	7.81
		131	54.25	4319.82	708.46	577.09	66.03	608.57	48.52	1.28	3.53	7.72
		132	55.24	4319.82	708.46	670.73	68.82	617.75	48.76	1.28	3.36	7.64
		133	56.22	4565.44	655.52	723.18	70.29	615.42	49.00	1.28	3.55	6.94
		134	57.21	4565.44	707.82	807.96	74.76	607.90	49.23	1.27	3.49	7.49
	135	58.50	3333.79	863.39	527.18	44.39	562.64	45.96	1.27	2.85	10.60	
	South Cantilever	127	22.46	4504.37	733.90	557.43	45.90	634.65	55.38	1.30	3.52	7.20
		128	20.26	3433.17	732.11	632.37	56.45	512.86	55.38	1.30	3.01	7.04
		129	18.21	3016.29	687.84	596.59	58.00	424.03	41.53	1.30	3.13	8.73
		130	16.58	3032.84	689.64	537.89	57.73	356.19	41.53	1.30	3.88	8.76
		131	15.36	2561.64	641.19	443.15	50.51	305.68	41.53	1.30	3.84	8.20
		132	14.56	2561.64	641.19	382.21	43.61	272.50	41.53	1.30	4.48	8.33
		133	14.18	2561.64	641.19	368.44	43.54	256.66	41.53	1.30	4.80	8.33
		134	14.22	2362.62	440.84	318.31	38.94	258.18	41.53	1.30	4.47	5.56
	135	14.51	2362.62	423.50	147.04	18.27	250.84	38.54	1.30	5.12	6.14	

* Moment Capacity represents full height section capacity at midspan for interior floorbeams and at the truss interface for cantilever beams.

Shear Capacity represents shear capacity at beam ends

** Dead Load Taken From STAAD DL Model.

Span 11 - Floorbeam Ratings



Date ADK
Date DWC

Date 4/12/2012
Date 4/13/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441 Span 11**

Floorbeam Load Rating Factors (As-Built)

	Floorbeam	Span (ft)	Capacity*		Dead Load**		Live Load		Impact	Rating Factor		
			Moment	Shear	Moment	Shear	Moment	Shear		Moment	Shear	
			k-ft	k	k-ft	k	k-ft	k		Operating	Operating	
3F1	North Cantilever	127	8.94	2576.02	642.98	106.12	20.21	182.95	41.30	1.30	7.89	8.84
		128	10.59	2561.64	641.19	180.86	32.58	251.28	41.30	1.30	5.48	8.58
		129	11.58	2561.64	641.19	298.58	43.47	291.87	41.30	1.30	4.41	8.38
		130	12.18	2576.02	642.98	316.02	43.56	316.55	41.30	1.30	4.05	8.40
		131	12.39	2561.64	621.89	325.74	43.46	325.35	41.30	1.30	3.89	8.10
		132	12.22	2561.64	640.99	313.29	43.31	318.29	41.30	1.30	4.01	8.38
		133	11.66	2561.64	641.19	296.62	43.24	295.35	41.30	1.30	4.36	8.38
		134	10.72	2561.64	641.19	263.53	40.49	256.50	41.30	1.30	5.12	8.43
	135	9.13	2362.62	388.91	114.80	19.85	190.74	41.30	1.30	6.87	5.20	
	Interior Floorbeams	127	50.60	3093.71	683.60	394.40	48.01	724.40	70.88	1.28	2.13	5.25
		128	51.30	3596.16	877.75	504.46	59.06	787.58	71.18	1.28	2.24	6.74
		129	52.29	3596.16	835.65	436.31	58.84	830.62	71.59	1.28	2.19	6.36
		130	53.26	4319.82	708.46	488.47	62.29	875.73	71.98	1.28	2.53	5.24
		131	54.25	4319.82	708.46	577.09	66.03	907.67	72.36	1.28	2.37	5.17
		132	55.24	4319.82	708.46	670.73	68.82	921.36	72.73	1.28	2.25	5.12
		133	56.22	4565.44	655.52	723.18	70.29	917.88	73.08	1.28	2.38	4.65
		134	57.21	4565.44	707.82	807.96	74.76	906.66	73.43	1.27	2.34	5.02
	135	58.50	3596.16	877.75	527.18	44.39	782.78	63.94	1.27	2.25	7.75	
	South Cantilever	127	22.46	4504.37	733.90	557.43	45.90	946.57	82.59	1.30	2.36	4.83
		128	20.26	3433.17	732.11	632.37	56.45	764.93	82.59	1.30	2.02	4.72
		129	18.21	3016.29	687.84	596.59	58.00	632.43	61.94	1.30	2.10	5.85
		130	16.58	3032.84	689.64	537.89	57.73	531.24	61.94	1.30	2.60	5.87
		131	15.36	2561.64	641.19	443.15	50.51	455.91	61.94	1.30	2.58	5.50
		132	14.56	2561.64	641.19	382.21	43.61	406.43	61.94	1.30	3.01	5.58
		133	14.18	2561.64	641.19	368.44	43.54	382.80	61.94	1.30	3.22	5.58
		134	14.22	2362.62	440.84	318.31	38.94	385.06	61.94	1.30	2.99	3.73
	135	14.51	2362.62	423.50	147.04	18.27	348.99	53.63	1.30	3.68	4.41	

* Moment Capacity represents full high section capacity at midspan for interior floorbeams and at the truss interface for cantilever beams.
 Shear Capacity represents shear capacity at beam ends
 ** Dead Load Taken From STAAD DL Model.

Span 11 - Floorbeam Ratings



Date ADK

Date 4/12/2012

Job No. P402110046

Date DWC

Date 4/13/2012

Sheet No. _____

Calculations For: **CUY-2-1441 Span 11**

Floorbeam Load Rating Factors (As-Inspected)

	Floorbeam	Span (ft)	Capacity*		Dead Load**		Live Load		Impact	Rating Factor		
			Moment	Shear	Moment	Shear	Moment	Shear		Moment	Shear	
			k-ft	k	k-ft	k	k-ft	k		Operating	Operating	
3F1	North Cantilever	127	8.94	2576.02	642.98	106.12	20.21	182.95	41.30	1.30	7.89	8.84
		128	10.59	2561.64	641.19	180.86	32.58	251.28	41.30	1.30	5.48	8.58
		129	11.58	2561.64	641.19	298.58	43.47	291.87	41.30	1.30	4.41	8.38
		130	12.18	2576.02	642.98	316.02	43.56	316.55	41.30	1.30	4.05	8.40
		131	12.39	2561.64	621.89	325.74	43.46	325.35	41.30	1.30	3.89	8.10
		132	12.22	2561.64	640.99	313.29	43.31	318.29	41.30	1.30	4.01	8.38
		133	11.66	2561.64	641.19	296.62	43.24	295.35	41.30	1.30	4.36	8.38
		134	10.72	2561.64	641.19	263.53	40.49	256.50	41.30	1.30	5.12	8.43
	135	9.13	2362.62	388.91	114.80	19.85	190.74	41.30	1.30	6.87	5.20	
	Interior Floorbeams	127	50.60	3093.71	683.60	394.40	48.01	724.40	70.88	1.28	2.13	5.25
		128	51.30	3596.16	877.75	504.46	59.06	787.58	71.18	1.28	2.24	6.74
		129	52.29	3596.16	835.65	436.31	58.84	830.62	71.59	1.28	2.19	6.36
		130	53.26	4319.82	708.46	488.47	62.29	875.73	71.98	1.28	2.53	5.24
		131	54.25	4319.82	708.46	577.09	66.03	907.67	72.36	1.28	2.37	5.17
		132	55.24	4319.82	708.46	670.73	68.82	921.36	72.73	1.28	2.25	5.12
		133	56.22	4565.44	655.52	723.18	70.29	917.88	73.08	1.28	2.38	4.65
		134	57.21	4565.44	707.82	807.96	74.76	906.66	73.43	1.27	2.34	5.02
	135	58.50	3333.79	863.39	527.18	44.39	782.78	63.94	1.27	2.05	7.62	
	South Cantilever	127	22.46	4504.37	733.90	557.43	45.90	946.57	82.59	1.30	2.36	4.83
		128	20.26	3433.17	732.11	632.37	56.45	764.93	82.59	1.30	2.02	4.72
		129	18.21	3016.29	687.84	596.59	58.00	632.43	61.94	1.30	2.10	5.85
		130	16.58	3032.84	689.64	537.89	57.73	531.24	61.94	1.30	2.60	5.87
		131	15.36	2561.64	641.19	443.15	50.51	455.91	61.94	1.30	2.58	5.50
		132	14.56	2561.64	641.19	382.21	43.61	406.43	61.94	1.30	3.01	5.58
		133	14.18	2561.64	641.19	368.44	43.54	382.80	61.94	1.30	3.22	5.58
		134	14.22	2362.62	440.84	318.31	38.94	385.06	61.94	1.30	2.99	3.73
	135	14.51	2362.62	423.50	147.04	18.27	348.99	53.63	1.30	3.68	4.41	

* Moment Capacity represents full high section capacity at midspan for interior floorbeams and at the truss interface for cantilever beams.

Shear Capacity represents shear capacity at beam ends

** Dead Load Taken From STAAD DL Model.

Span 11 - Floorbeam Ratings



Date ADK
Date DWC

Date 4/12/2012
Date 4/13/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441 Span 11**

Floorbeam Load Rating Factors (As-Built)

	Floorbeam	Span (ft)	Capacity*		Dead Load**		Live Load		Impact	Rating Factor		
			Moment	Shear	Moment	Shear	Moment	Shear		Moment	Shear	
			k-ft	k	k-ft	k	k-ft	k		Operating	Operating	
4F1	North Cantilever	127	8.94	2576.02	642.98	106.12	20.21	206.67	46.67	1.30	6.98	7.82
		128	10.59	2561.64	641.19	180.86	32.58	283.89	46.67	1.30	4.85	7.59
		129	11.58	2561.64	641.19	298.58	43.47	329.76	46.67	1.30	3.90	7.41
		130	12.18	2576.02	642.98	316.02	43.56	357.65	46.67	1.30	3.58	7.43
		131	12.39	2561.64	621.89	325.74	43.46	367.60	46.67	1.30	3.44	7.17
		132	12.22	2561.64	640.99	313.29	43.31	359.61	46.67	1.30	3.54	7.41
		133	11.66	2561.64	641.19	296.62	43.24	333.69	46.67	1.30	3.86	7.42
		134	10.72	2561.64	641.19	263.53	40.49	289.79	46.67	1.30	4.53	7.46
	135	9.13	2362.62	388.91	114.80	19.85	215.48	46.67	1.30	6.08	4.60	
	Interior Floorbeams	127	50.60	3093.71	683.60	394.40	48.01	800.36	78.31	1.28	1.93	4.75
		128	51.30	3596.16	877.75	504.46	59.06	890.00	80.44	1.28	1.98	5.97
		129	52.29	3596.16	835.65	436.31	58.84	938.63	80.90	1.28	1.94	5.63
		130	53.26	4319.82	708.46	488.47	62.29	989.60	81.34	1.28	2.24	4.63
		131	54.25	4319.82	708.46	577.09	66.03	1025.70	81.77	1.28	2.09	4.58
		132	55.24	4319.82	708.46	670.73	68.82	1041.18	82.19	1.28	1.99	4.54
		133	56.22	4565.44	655.52	723.18	70.29	1037.24	82.59	1.28	2.11	4.12
		134	57.21	4565.44	707.82	807.96	74.76	1024.56	82.97	1.27	2.07	4.44
	135	58.50	3596.16	877.75	527.18	44.39	818.21	66.83	1.27	2.15	7.42	
	South Cantilever	127	22.46	4504.37	733.90	557.43	45.90	1045.82	91.25	1.30	2.14	4.37
		128	20.26	3433.17	732.11	632.37	56.45	864.39	93.33	1.30	1.79	4.18
		129	18.21	3016.29	687.84	596.59	58.00	714.67	70.00	1.30	1.86	5.18
		130	16.58	3032.84	689.64	537.89	57.73	600.33	70.00	1.30	2.30	5.20
		131	15.36	2561.64	641.19	443.15	50.51	515.20	70.00	1.30	2.28	4.87
		132	14.56	2561.64	641.19	382.21	43.61	459.28	70.00	1.30	2.66	4.94
		133	14.18	2561.64	641.19	368.44	43.54	432.57	70.00	1.30	2.85	4.94
		134	14.22	2362.62	440.84	318.31	38.94	435.13	70.00	1.30	2.65	3.30
	135	14.51	2362.62	423.50	147.04	18.27	364.79	56.05	1.30	3.52	4.22	

* Moment Capacity represents full high section capacity at midspan for interior floorbeams and at the truss interface for cantilever beams.

Shear Capacity represents shear capacity at beam ends

** Dead Load Taken From STAAD DL Model.

Span 11 - Floorbeam Ratings



Date ADK

Date 4/12/2012

Job No. P402110046

Date DWC

Date 4/13/2012

Sheet No. _____

Calculations For: **CUY-2-1441 Span 11**

Floorbeam Load Rating Factors (As-Inspected)

	Floorbeam	Span (ft)	Capacity*		Dead Load**		Live Load		Impact	Rating Factor		
			Moment	Shear	Moment	Shear	Moment	Shear		Moment	Shear	
			k-ft	k	k-ft	k	k-ft	k		Operating	Operating	
4F1	North Cantilever	127	8.94	2576.02	642.98	106.12	20.21	206.67	46.67	1.30	6.98	7.82
		128	10.59	2561.64	641.19	180.86	32.58	283.89	46.67	1.30	4.85	7.59
		129	11.58	2561.64	641.19	298.58	43.47	329.76	46.67	1.30	3.90	7.41
		130	12.18	2576.02	642.98	316.02	43.56	357.65	46.67	1.30	3.58	7.43
		131	12.39	2561.64	621.89	325.74	43.46	367.60	46.67	1.30	3.44	7.17
		132	12.22	2561.64	640.99	313.29	43.31	359.61	46.67	1.30	3.54	7.41
		133	11.66	2561.64	641.19	296.62	43.24	333.69	46.67	1.30	3.86	7.42
		134	10.72	2561.64	641.19	263.53	40.49	289.79	46.67	1.30	4.53	7.46
	135	9.13	2362.62	388.91	114.80	19.85	215.48	46.67	1.30	6.08	4.60	
	Interior Floorbeams	127	50.60	3093.71	683.60	394.40	48.01	800.36	78.31	1.28	1.93	4.75
		128	51.30	3596.16	877.75	504.46	59.06	890.00	80.44	1.28	1.98	5.97
		129	52.29	3596.16	835.65	436.31	58.84	938.63	80.90	1.28	1.94	5.63
		130	53.26	4319.82	708.46	488.47	62.29	989.60	81.34	1.28	2.24	4.63
		131	54.25	4319.82	708.46	577.09	66.03	1025.70	81.77	1.28	2.09	4.58
		132	55.24	4319.82	708.46	670.73	68.82	1041.18	82.19	1.28	1.99	4.54
		133	56.22	4565.44	655.52	723.18	70.29	1037.24	82.59	1.28	2.11	4.12
		134	57.21	4565.44	707.82	807.96	74.76	1024.56	82.97	1.27	2.07	4.44
	135	58.50	3333.79	863.39	527.18	44.39	818.21	66.83	1.27	1.96	7.29	
	South Cantilever	127	22.46	4504.37	733.90	557.43	45.90	1045.82	91.25	1.30	2.14	4.37
		128	20.26	3433.17	732.11	632.37	56.45	864.39	93.33	1.30	1.79	4.18
		129	18.21	3016.29	687.84	596.59	58.00	714.67	70.00	1.30	1.86	5.18
		130	16.58	3032.84	689.64	537.89	57.73	600.33	70.00	1.30	2.30	5.20
		131	15.36	2561.64	641.19	443.15	50.51	515.20	70.00	1.30	2.28	4.87
		132	14.56	2561.64	641.19	382.21	43.61	459.28	70.00	1.30	2.66	4.94
		133	14.18	2561.64	641.19	368.44	43.54	432.57	70.00	1.30	2.85	4.94
		134	14.22	2362.62	440.84	318.31	38.94	435.13	70.00	1.30	2.65	3.30
	135	14.51	2362.62	423.50	147.04	18.27	364.79	56.05	1.30	3.52	4.22	

* Moment Capacity represents full high section capacity at midspan for interior floorbeams and at the truss interface for cantilever beams.

Shear Capacity represents shear capacity at beam ends

** Dead Load Taken From STAAD DL Model.

Span 11 - Floorbeam Ratings



Date ADK
Date DWC

Date 4/12/2012
Date 4/13/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441 Span 11**

Floorbeam Load Rating Factors (As-Built)

	Floorbeam	Span (ft)	Capacity*		Dead Load**		Live Load		Impact	Rating Factor		
			Moment	Shear	Moment	Shear	Moment	Shear		Moment	Shear	
			k-ft	k	k-ft	k	k-ft	k		Operating	Operating	
5C1	North Cantilever	127	8.94	2576.02	642.98	106.12	20.21	176.90	39.93	1.30	8.16	9.14
		128	10.59	2561.64	641.19	180.86	32.58	242.96	39.93	1.30	5.67	8.87
		129	11.58	2561.64	641.19	298.58	43.47	282.21	39.93	1.30	4.56	8.66
		130	12.18	2576.02	642.98	316.02	43.56	306.07	39.93	1.30	4.19	8.69
		131	12.39	2561.64	621.89	325.74	43.46	314.58	39.93	1.30	4.02	8.38
		132	12.22	2561.64	640.99	313.29	43.31	307.75	39.93	1.30	4.14	8.66
		133	11.66	2561.64	641.19	296.62	43.24	285.57	39.93	1.30	4.51	8.67
		134	10.72	2561.64	641.19	263.53	40.49	248.01	39.93	1.30	5.29	8.72
		135	9.13	2362.62	388.91	114.80	19.85	184.43	39.93	1.30	7.10	5.38
	Interior Floorbeams	127	50.60	3093.71	683.60	394.40	48.01	700.40	68.53	1.28	2.21	5.43
		128	51.30	3596.16	877.75	504.46	59.06	761.49	68.82	1.28	2.31	6.97
		129	52.29	3596.16	835.65	436.31	58.84	803.10	69.22	1.28	2.26	6.58
		130	53.26	4319.82	708.46	488.47	62.29	846.72	69.60	1.28	2.61	5.42
		131	54.25	4319.82	708.46	577.09	66.03	877.60	69.97	1.28	2.45	5.35
		132	55.24	4319.82	708.46	670.73	68.82	890.84	70.32	1.28	2.33	5.30
		133	56.22	4565.44	655.52	723.18	70.29	887.48	70.66	1.28	2.46	4.81
		134	57.21	4565.44	707.82	807.96	74.76	876.63	70.99	1.27	2.42	5.19
	135	58.50	3596.16	877.75	527.18	44.39	760.19	62.09	1.27	2.31	7.98	
	South Cantilever	127	22.46	4504.37	733.90	557.43	45.90	915.21	79.86	1.30	2.44	5.00
		128	20.26	3433.17	732.11	632.37	56.45	739.59	79.86	1.30	2.09	4.88
		129	18.21	3016.29	687.84	596.59	58.00	611.48	59.89	1.30	2.17	6.05
		130	16.58	3032.84	689.64	537.89	57.73	513.65	59.89	1.30	2.69	6.07
		131	15.36	2561.64	641.19	443.15	50.51	440.81	59.89	1.30	2.67	5.69
		132	14.56	2561.64	641.19	382.21	43.61	392.96	59.89	1.30	3.11	5.77
		133	14.18	2561.64	641.19	368.44	43.54	370.11	59.89	1.30	3.33	5.78
		134	14.22	2362.62	440.84	318.31	38.94	372.31	59.89	1.30	3.10	3.86
		135	14.51	2362.62	423.50	147.04	18.27	338.92	52.08	1.30	3.79	4.54

* Moment Capacity represents full high section capacity at midspan for interior floorbeams and at the truss interface for cantilever beams.
 Shear Capacity represents shear capacity at beam ends
 ** Dead Load Taken From STAAD DL Model.

Span 11 - Floorbeam Ratings



Date ADK
Date DWC

Date 4/12/2012
Date 4/13/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441 Span 11**

Floorbeam Load Rating Factors (As-Inspected)

	Floorbeam	Span (ft)	Capacity*		Dead Load**		Live Load		Impact	Rating Factor		
			Moment	Shear	Moment	Shear	Moment	Shear		Moment	Shear	
			k-ft	k	k-ft	k	k-ft	k		Operating	Operating	
5C1	North Cantilever	127	8.94	2576.02	642.98	106.12	20.21	176.90	39.93	1.30	8.16	9.14
		128	10.59	2561.64	641.19	180.86	32.58	242.96	39.93	1.30	5.67	8.87
		129	11.58	2561.64	641.19	298.58	43.47	282.21	39.93	1.30	4.56	8.66
		130	12.18	2576.02	642.98	316.02	43.56	306.07	39.93	1.30	4.19	8.69
		131	12.39	2561.64	621.89	325.74	43.46	314.58	39.93	1.30	4.02	8.38
		132	12.22	2561.64	640.99	313.29	43.31	307.75	39.93	1.30	4.14	8.66
		133	11.66	2561.64	641.19	296.62	43.24	285.57	39.93	1.30	4.51	8.67
		134	10.72	2561.64	641.19	263.53	40.49	248.01	39.93	1.30	5.29	8.72
	135	9.13	2362.62	388.91	114.80	19.85	184.43	39.93	1.30	7.10	5.38	
	Interior Floorbeams	127	50.60	3093.71	683.60	394.40	48.01	700.40	68.53	1.28	2.21	5.43
		128	51.30	3596.16	877.75	504.46	59.06	761.49	68.82	1.28	2.31	6.97
		129	52.29	3596.16	835.65	436.31	58.84	803.10	69.22	1.28	2.26	6.58
		130	53.26	4319.82	708.46	488.47	62.29	846.72	69.60	1.28	2.61	5.42
		131	54.25	4319.82	708.46	577.09	66.03	877.60	69.97	1.28	2.45	5.35
		132	55.24	4319.82	708.46	670.73	68.82	890.84	70.32	1.28	2.33	5.30
		133	56.22	4565.44	655.52	723.18	70.29	887.48	70.66	1.28	2.46	4.81
		134	57.21	4565.44	707.82	807.96	74.76	876.63	70.99	1.27	2.42	5.19
	135	58.50	3333.79	863.39	527.18	44.39	760.19	62.09	1.27	2.11	7.84	
	South Cantilever	127	22.46	4504.37	733.90	557.43	45.90	915.21	79.86	1.30	2.44	5.00
		128	20.26	3433.17	732.11	632.37	56.45	739.59	79.86	1.30	2.09	4.88
		129	18.21	3016.29	687.84	596.59	58.00	611.48	59.89	1.30	2.17	6.05
		130	16.58	3032.84	689.64	537.89	57.73	513.65	59.89	1.30	2.69	6.07
		131	15.36	2561.64	641.19	443.15	50.51	440.81	59.89	1.30	2.67	5.69
		132	14.56	2561.64	641.19	382.21	43.61	392.96	59.89	1.30	3.11	5.77
		133	14.18	2561.64	641.19	368.44	43.54	370.11	59.89	1.30	3.33	5.78
		134	14.22	2362.62	440.84	318.31	38.94	372.31	59.89	1.30	3.10	3.86
	135	14.51	2362.62	423.50	147.04	18.27	338.92	52.08	1.30	3.79	4.54	

* Moment Capacity represents full high section capacity at midspan for interior floorbeams and at the truss interface for cantilever beams.

Shear Capacity represents shear capacity at beam ends

** Dead Load Taken From STAAD DL Model.

FLOORBEAM FATIGUE ANALYSIS

As-Built Floorbeam Fatigue Summary



Made By: ADK Date: 4/13/2012
 Checked By: DWC Date: 4/13/2012

Job No.: P402110046
 Sheet No.: _____

CUY-2-1441 Truss Span 11 Floorbeams - As-Built Fatigue Summary

Redundant? No → $f = 1.0$ (Calculate SAFE Life per ODOT BDM 402.2.6)
 $R_s = 1.75$
 Present ADTT* (T_p) = 160 → $T_N = 361$ (Future ADTT, assuming growth rate of 1%/year)
 Weight Ratios = 1.0 (W_p/W , W_N/W equal to unity per ODOT BDM 402.2.6)
 Impact** = 1.15 (Per ODOT BDM 402.2.6)
 $Y_p = 74$ (Present age of the bridge in years) $Y_{f,MIN} = 51$ years
 Rehabbed $Y_p = 18$ (Used for Cantilever Brackets 135N, 134S, 135S only)

* Based on surveyed 2010 ADTT value of 400, multiplied by F_L of 0.4 for 6 lanes of two-way traffic

** Impact is applied in calculation of stress range, S_r . Do not include in service moment range.

Member Type	Panel Point	North / South	Service Moment (kip-ft)	S_x (in ³)	S_r	Cat.	K (Detail Constant)	C (cycles per truck passage)	Y_i	Y_N	Y_f
					(ksi)				(years)	(years)	(years)
Cantilever Bracket	127	North	106.45	1345.65	1.09	D	6	1.00	5379	2383	2350
Cantilever Bracket	128	North	151.15	1338.86	1.56	D	6	1.00	1850	820	787
Cantilever Bracket	129	North	177.71	1338.86	1.83	D	6	1.00	1139	504	472
Cantilever Bracket	130	North	193.86	1345.65	1.99	D	6	1.00	891	394	362
Cantilever Bracket	131	North	199.62	1338.86	2.06	D	6	1.00	803	356	323
Cantilever Bracket	132	North	194.99	1338.86	2.01	D	6	1.00	862	382	349
Cantilever Bracket	133	North	179.99	1338.86	1.86	D	6	1.00	1096	485	453
Cantilever Bracket	134	North	154.57	1338.86	1.59	D	6	1.00	1730	767	734
Cantilever Bracket	135	North	111.55	787.54	1.95	C	12	1.00	1874	830	822
Interior Floorbeam	127	--	81.08	1124.99	0.99	D	6	1.00	7111	3150	3117
Interior Floorbeam	128	--	99.71	1307.70	1.05	D	6	1.00	6006	2661	2628
Interior Floorbeam	129	--	119.29	1307.70	1.26	D	6	1.00	3507	1554	1521
Interior Floorbeam	130	--	132.24	1570.84	1.16	D	6	1.00	4463	1977	1944
Interior Floorbeam	131	--	139.95	1570.84	1.23	D	6	1.00	3765	1668	1635
Interior Floorbeam	132	--	143.25	1570.84	1.26	D	6	1.00	3510	1555	1522
Interior Floorbeam	133	--	142.41	1660.16	1.18	D	6	1.00	4218	1868	1836
Interior Floorbeam	134	--	137.37	1660.16	1.14	D	6	1.00	4700	2082	2049
Interior Floorbeam	135	--	126.77	1307.70	1.34	D	6	1.00	2923	1295	1262
Cantilever Bracket	127	South	471.76	1953.51	3.33	D	6	1.00	189	84	51
Cantilever Bracket	128	South	412.34	1975.86	2.88	D	6	1.00	293	130	97
Cantilever Bracket	129	South	356.90	1695.28	2.91	D	6	1.00	285	126	94
Cantilever Bracket	130	South	312.77	1703.69	2.53	D	6	1.00	430	191	158
Cantilever Bracket	131	South	279.91	1338.86	2.89	D	6	1.00	291	129	96
Cantilever Bracket	132	South	258.32	1338.86	2.66	D	6	1.00	371	164	131
Cantilever Bracket	133	South	248.02	1338.86	2.56	D	6	1.00	419	186	153
Cantilever Bracket	134	South	249.01	787.54	4.36	C	12	1.00	168	75	67
Cantilever Bracket	135	South	256.89	787.54	4.50	C	12	1.00	153	68	60

As-Built Floorbeam Fatigue Summary



Made By: ADK Date: 4/13/2012
 Checked By: DWC Date: 4/13/2012

Job No.: P402110046
 Sheet No.: _____

CUY-2-1441 Truss Span 11 Floorbeams - As-Inspected Fatigue Summary

Redundant? No \longrightarrow $f = 1.0$ (Calculate SAFE Life per ODOT BDM 402.2.6)
 $R_s = 1.75$
 Present ADTT* (T_p) = 160 \longrightarrow $T_N = 361$ (Future ADTT, assuming growth rate of 1%/year)
 Weight Ratios = 1.0 (W_p/W , W_N/W equal to unity per ODOT BDM 402.2.6)
 Impact** = 1.15 (Per ODOT BDM 402.2.6)
 $Y_p = 74$ (Present age of the bridge in years) $Y_{f,MIN} = 51$ years
 Rehabbed $Y_p = 18$ (Used for Cantilever Brackets 135N, 134S, 135S only)

* Based on surveyed 2010 ADTT value of 400, multiplied by F_L of 0.4 for 6 lanes of two-way traffic

** Impact is applied in calculation of stress range, S_r . Do not include in service moment range.

Member Type	Panel Point	North / South	Service Moment (kip-ft)	S_x (in ³)	S_r	Cat.	K (Detail Constant)	C (cycles per truck passage)	Y_I	Y_N	Y_f
					(ksi)				(years)	(years)	(years)
Cantilever Bracket	127	North	106.45	1345.65	1.09	D	6	1.00	5379	2383	2350
Cantilever Bracket	128	North	151.15	1338.86	1.56	D	6	1.00	1850	820	787
Cantilever Bracket	129	North	177.71	1338.86	1.83	D	6	1.00	1139	504	472
Cantilever Bracket	130	North	193.86	1345.65	1.99	D	6	1.00	891	394	362
Cantilever Bracket	131	North	199.62	1338.86	2.06	D	6	1.00	803	356	323
Cantilever Bracket	132	North	194.99	1338.86	2.01	D	6	1.00	862	382	349
Cantilever Bracket	133	North	179.99	1338.86	1.86	D	6	1.00	1096	485	453
Cantilever Bracket	134	North	154.57	1338.86	1.59	D	6	1.00	1730	767	734
Cantilever Bracket	135	North	111.55	787.54	1.95	C	12	1.00	1874	830	822
Interior Floorbeam	127	--	81.08	1124.99	0.99	D	6	1.00	7111	3150	3117
Interior Floorbeam	128	--	99.71	1307.70	1.05	D	6	1.00	6006	2661	2628
Interior Floorbeam	129	--	119.29	1307.70	1.26	D	6	1.00	3507	1554	1521
Interior Floorbeam	130	--	132.24	1570.84	1.16	D	6	1.00	4463	1977	1944
Interior Floorbeam	131	--	139.95	1570.84	1.23	D	6	1.00	3765	1668	1635
Interior Floorbeam	132	--	143.25	1570.84	1.26	D	6	1.00	3510	1555	1522
Interior Floorbeam	133	--	142.41	1660.16	1.18	D	6	1.00	4218	1868	1836
Interior Floorbeam	134	--	137.37	1660.16	1.14	D	6	1.00	4700	2082	2049
Interior Floorbeam	135	--	126.77	1286.59	1.36	D	6	1.00	2783	1233	1200
Cantilever Bracket	127	South	471.76	1953.51	3.33	D	6	1.00	189	84	51
Cantilever Bracket	128	South	412.34	1975.86	2.88	D	6	1.00	293	130	97
Cantilever Bracket	129	South	356.90	1695.28	2.91	D	6	1.00	285	126	94
Cantilever Bracket	130	South	312.77	1703.69	2.53	D	6	1.00	430	191	158
Cantilever Bracket	131	South	279.91	1338.86	2.89	D	6	1.00	291	129	96
Cantilever Bracket	132	South	258.32	1338.86	2.66	D	6	1.00	371	164	131
Cantilever Bracket	133	South	248.02	1338.86	2.56	D	6	1.00	419	186	153
Cantilever Bracket	134	South	249.01	787.54	4.36	C	12	1.00	168	75	67
Cantilever Bracket	135	South	256.89	787.54	4.50	C	12	1.00	153	68	60

DECK LOAD RATING

DECK RATING - SPAN 11

→ MATERIAL PROPERTIES AND REINFORCING CONFIGURATION MATCHES MAIN TRUSS SPAN. BECAUSE GOVERNING BEAM SPACING DOES NOT EXCEED THAT USED IN MAIN SPAN, THE MAIN TRUSS RATING FACTORS GOVERN FOR SPAN 11.

RATING FACTORS :

	<u>INVENTORY</u>	<u>OPERATING</u>
HS20	0.95	1.58
2F1	—	2.54
3F1	—	2.98
4F1	—	3.62
5C1	—	2.98

East Approach - Forward Section*

CUY-2-1441 Load Rating Analysis
Main Ave Bridge

Calculated: PJP 4/12/2012
 Checked: CTG 4/16/2012

*Does not include Truss Span 11

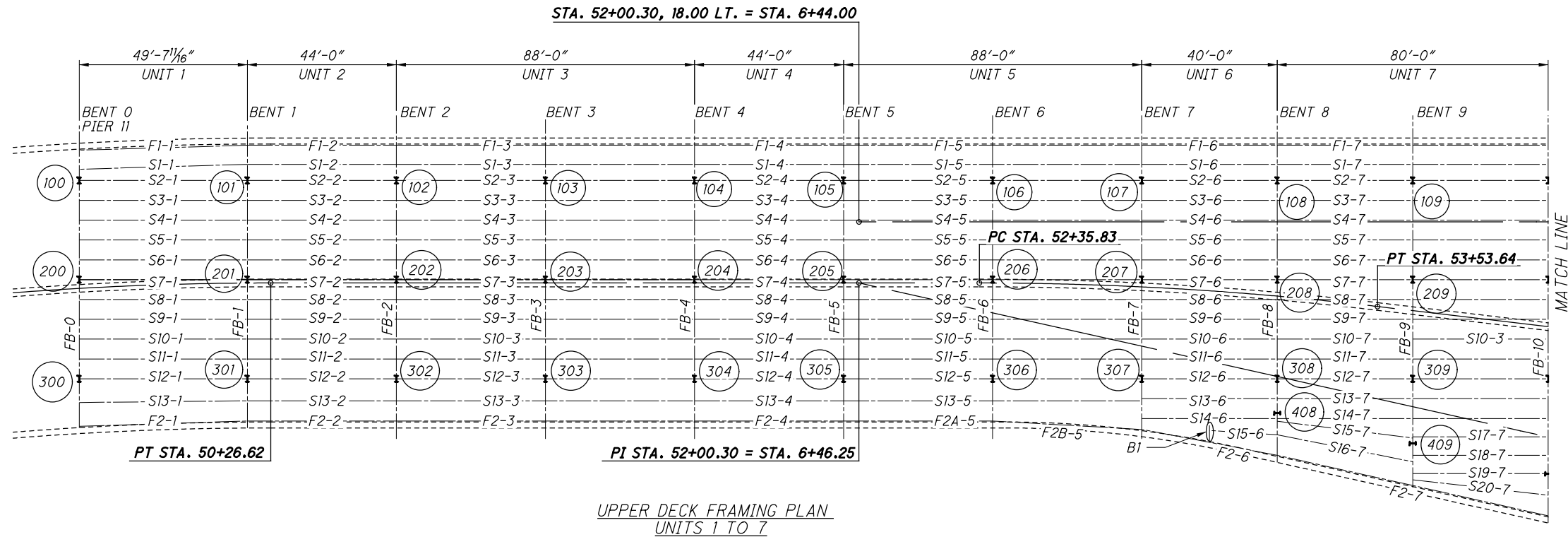
As-Built Controlling Rating Factor Summary								
Item	Location/Member	HS20 Inventory	HS20 Operating	2F1 Operating	3F1 Operating	4F1 Operating	5C1 Operating	Fatigue
Deck	Deck	0.90	1.50	2.40	2.82	3.43	2.82	
Stringers	Stringer S13-3	0.70	1.17	2.14	1.45	1.33	1.50	
	Stringer S14-7	0.78	1.30	1.35	0.92	0.84	0.95	
	Stringer S15-7							
Floorbeam	Floorbeam 3 at C103	0.51	0.85	1.95	1.28	1.10	0.96	
	FB-0							-11.26
Column	Column 409	0.59	0.98	2.21	1.53	1.25	1.16	

As-Inspected Controlling Rating Factor Summary								
Item	Location/Member	HS20 Inventory	HS20 Operating	2F1 Operating	3F1 Operating	4F1 Operating	5C1 Operating	Fatigue
Deck	Deck	0.90	1.50	2.40	2.82	3.43	2.82	
Stringers	Stringer S13-3	0.70	1.17	2.14	1.45	1.33	1.50	
	Stringer S14-7	0.78	1.30	1.35	0.92	0.84	0.95	
	Stringer S15-7							
Floorbeam*	Floorbeam 3 at C103	0.51	0.85	1.95	1.28	1.10	0.96	
	FB-0							-11.26
Column*	Column 409	0.59	0.98	2.21	1.53	1.25	1.16	

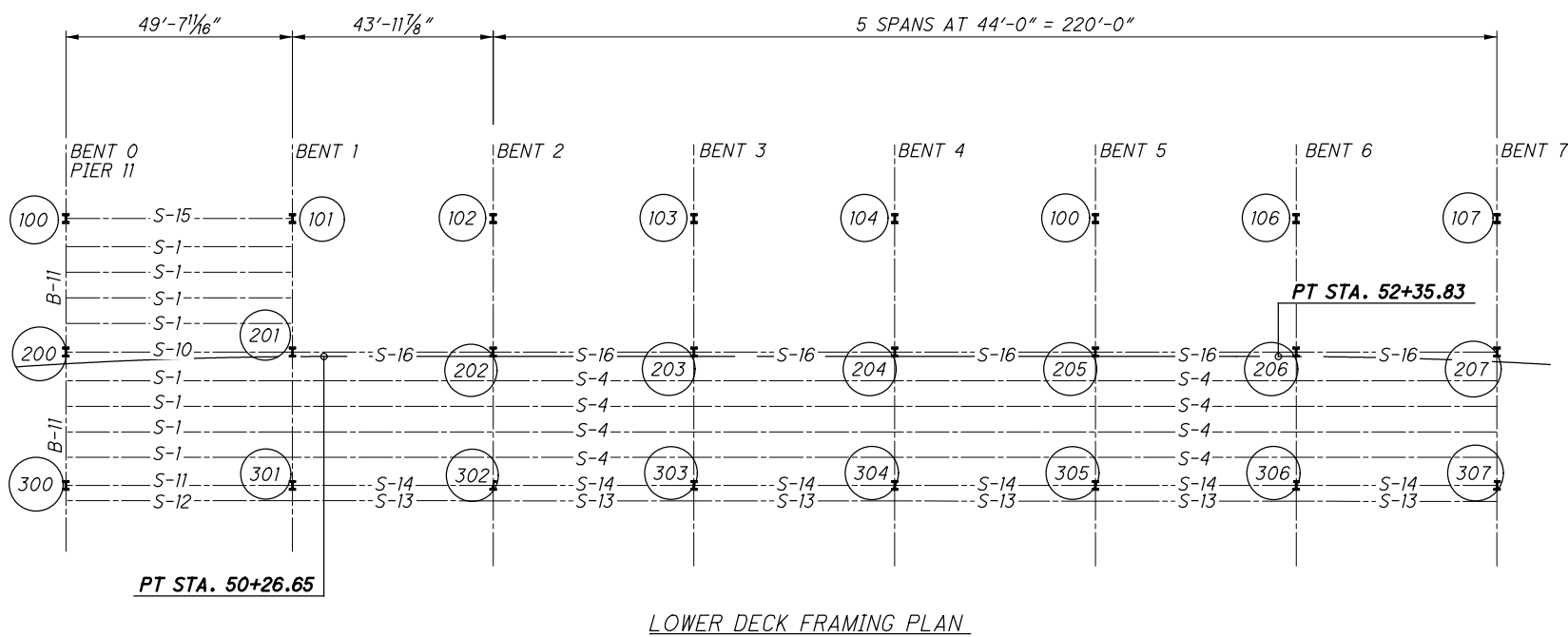
*Section loss is present, but does not affect the controlling ratings

Overall Summary			
Case	Rating Factor	Tonnage	HS equivalent or Ohio Legal Load %
HS20 Inventory	0.51	18.36	HS10.2
HS20 Operating	0.85	30.60	HS17.0
2F1	1.35	20.25	85%
3F1	0.92	21.16	
4F1	0.84	22.68	
5C1	0.95	38.00	
Fatigue	-11.26 years remaining		

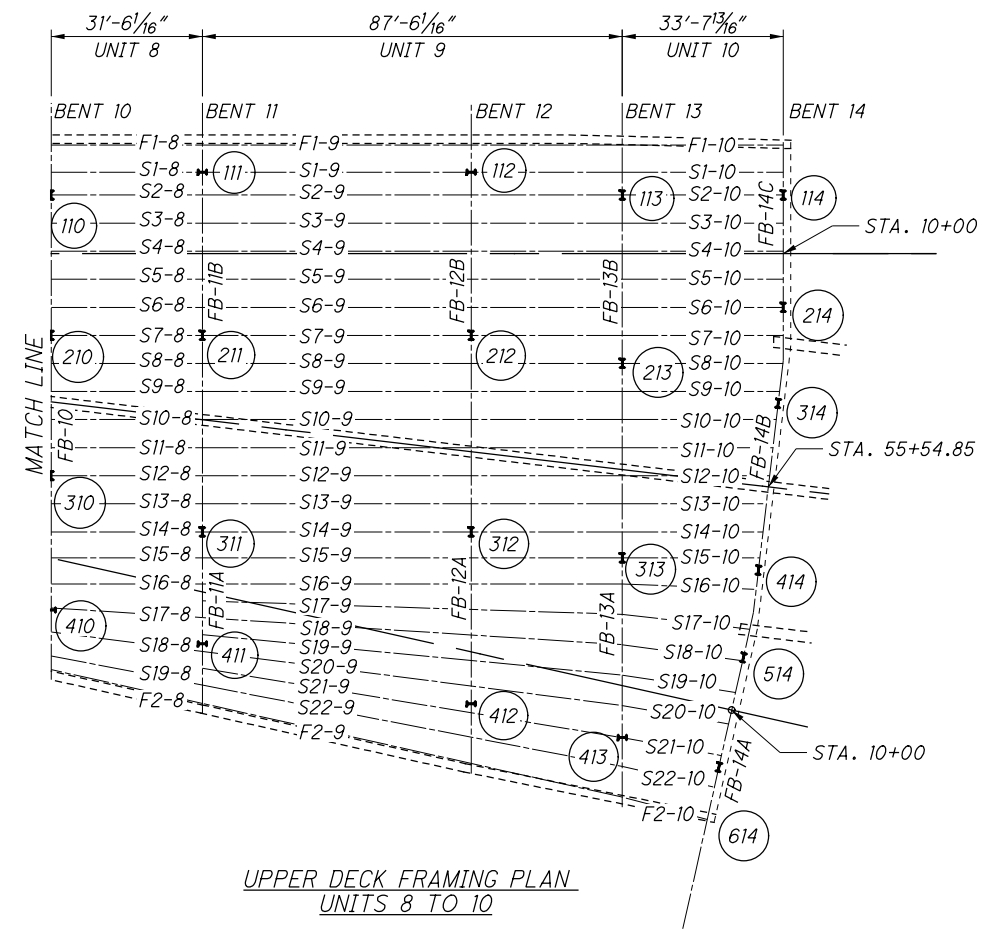
G:\CL11\0046\Bridg\002_1441_E_Appr_Fwd.dgn 4/13/2012 2:11:49 PM p:\piew



UPPER DECK FRAMING PLAN
UNITS 1 TO 7



LOWER DECK FRAMING PLAN



UPPER DECK FRAMING PLAN
UNITS 8 TO 10



Client: ODOT
Job Number: P402110046

Design: PJP
Check: FKL

Date: 4/5/2012
Date: 4/9/2012

Subject: CUY-2-1441: East Approach Forward Section
Slab Rating Between S12 and S13 - Units 1-5

Reference: AASHTO

Transverse Slab Rating Computations

Slab Span, S =	6.00	ft	(see section 302.2.1 ODOT Bridge Manual)
Structural Slab Thickness T =	6.75	in	
Slab Thickness, T =	0.5625	ft	
Top Bar ϕ (long.) =	0.5	in	Bot. Bar ϕ (long.) = 0.625 in
Top Bar ϕ (trans.) =	0.75	in	Bot. Bar ϕ (trans.) = 0.625 in
Conc. Cover Top =	1.75	in	Conc. Cover Bot. = 1 in
d_t =	4.125	in	d_b = 5.438 in
f_c =	4500	psi	
f_y =	60000	psi	Impact = 30%
ϕ =	0.9	(8.16.1.2.2)	

Dead Load W:

Concrete =	0.117	kcf
1 1/4" Latex Mod. Conc. WS =	16	psf
Slab =	0.066	k/ft
FWS =	0.016	k/ft
Total dead load =	0.082	k/ft

HS-20 Design Moments:

DL = (0.125)(W)(S ²)(0.8) =	0.29	ft-k	
LL+I = (S+2)(16)(1.3)(0.8)/32 =	4.16	ft-k	(3.24.3.1)

Top Reinforcement:

Provided: #	6	@	8.00	in	\Rightarrow	$A_s =$	0.66	in ² /ft
$a = [(A_s)(f_y)] / [0.85(f_c)(b)] =$	0.86	in						
$\phi M_n = \phi(A_s)(f_y)(d_t - 0.5a) =$	11.0	ft-k/ft						
$RF_{INV} = [\phi M_n - 1.3*DL] / [2.17 * (LL + I)] =$	1.17					$RF_{OPR} = [\phi M_n - 1.3*DL] / [1.3 * (LL + I)] =$	1.96	

Bottom Reinforcement:

Provided: #	5	@	8.00	in	\Rightarrow	$A_s =$	0.47	in ² /ft
$a = [(A_s)(f_y)] / [0.85(f_c)(b)] =$	0.61	in						
$\phi M_n = \phi(A_s)(f_y)(d_t - 0.5a) =$	10.7	ft-k/ft						
$RF_{INV} = [\phi M_n - 1.3*DL] / [2.17 * (LL + I)] =$	1.15					$RF_{OPR} = [\phi M_n - 1.3*DL] / [1.3 * (LL + I)] =$	1.92	



Client: ODOT
Job Number: P402110046

Design: PJP
Check: FKL

Date: 4/5/2012
Date: 4/9/2012

Subject: CUY-2-1441: East Approach Forward Section

2F1 Design Moments:

$$DL = (0.125)(W)(S^2)(0.8) = 0.29 \text{ ft-k}$$

$$LL+I = (S+2)(10)(1.3)(0.8)/32 = 2.60 \text{ ft-k} \quad (3.24.3.1)$$

Top Reinforcement:

Provided: # **6** @ **8.00** in $\Rightarrow A_s = 0.66 \text{ in}^2/\text{ft}$

$$a = [(A_s)(f_y)] / [0.85(f_c)(b)] = 0.86 \text{ in}$$

$$\phi M_n = \phi(A_s)(f_y)(d_r - 0.5a) = 11.0 \text{ ft-k/ft}$$

$$RF_{OPR} = [\phi M_n - 1.3DL] / [1.3 * (LL + I)] = \mathbf{3.13}$$

Bottom Reinforcement:

Provided: # **5** @ **8.00** in $\Rightarrow A_s = 0.47 \text{ in}^2/\text{ft}$

$$a = [(A_s)(f_y)] / [0.85(f_c)(b)] = 0.61 \text{ in}$$

$$\phi M_n = \phi(A_s)(f_y)(d_r - 0.5a) = 10.7 \text{ ft-k/ft}$$

$$RF_{OPR} = [\phi M_n - 1.3DL] / [1.3 * (LL + I)] = \mathbf{3.06}$$

3F1 Design Moments:

$$DL = (0.125)(W)(S^2)(0.8) = 0.29 \text{ ft-k}$$

$$LL+I = (S+2)(8.5)(1.3)(0.8)/32 = 2.21 \text{ ft-k} \quad (3.24.3.1)$$

Top Reinforcement:

Provided: # **6** @ **8.00** in $\Rightarrow A_s = 0.66 \text{ in}^2/\text{ft}$

$$a = [(A_s)(f_y)] / [0.85(f_c)(b)] = 0.86 \text{ in}$$

$$\phi M_n = \phi(A_s)(f_y)(d_r - 0.5a) = 11.0 \text{ ft-k/ft}$$

$$RF_{OPR} = [\phi M_n - 1.3DL] / [1.3 * (LL + I)] = \mathbf{3.69}$$

Bottom Reinforcement:

Provided: # **5** @ **8.00** in $\Rightarrow A_s = 0.47 \text{ in}^2/\text{ft}$

$$a = [(A_s)(f_y)] / [0.85(f_c)(b)] = 0.61 \text{ in}$$

$$\phi M_n = \phi(A_s)(f_y)(d_r - 0.5a) = 10.7 \text{ ft-k/ft}$$

$$RF_{OPR} = [\phi M_n - 1.3DL] / [1.3 * (LL + I)] = \mathbf{3.61}$$



Client: ODOT
Job Number: P402110046

Design: PJP
Check: FKL

Date: 4/5/2012
Date: 4/9/2012

Subject: CUY-2-1441: East Approach Forward Section

4F1 Design Moments:

$$DL = (0.125)(W)(S^2)(0.8) = 0.29 \text{ ft-k}$$

$$LL+I = (S+2)(7)(1.3)(0.8)/32 = 1.82 \text{ ft-k} \quad (3.24.3.1)$$

Top Reinforcement:

Provided: # **6** @ **8.00** in $\Rightarrow A_s = 0.66 \text{ in}^2/\text{ft}$

$$a = [(A_s)(f_y)] / [0.85(f_c)(b)] = 0.86 \text{ in}$$

$$\phi M_n = \phi(A_s)(f_y)(d_t - 0.5a) = 11.0 \text{ ft-k/ft}$$

$$RF_{OPR} = [\phi M_n - 1.3DL] / [1.3 * (LL + I)] = \mathbf{4.47}$$

Bottom Reinforcement:

Provided: # **5** @ **8.00** in $\Rightarrow A_s = 0.47 \text{ in}^2/\text{ft}$

$$a = [(A_s)(f_y)] / [0.85(f_c)(b)] = 0.61 \text{ in}$$

$$\phi M_n = \phi(A_s)(f_y)(d_t - 0.5a) = 10.7 \text{ ft-k/ft}$$

$$RF_{OPR} = [\phi M_n - 1.3DL] / [1.3 * (LL + I)] = \mathbf{4.38}$$

5C1 Design Moments:

$$DL = (0.125)(W)(S^2)(0.8) = 0.29 \text{ ft-k}$$

$$LL+I = (S+2)(8.5)(1.3)(0.8)/32 = 2.21 \text{ ft-k} \quad (3.24.3.1)$$

Top Reinforcement:

Provided: # **6** @ **8.00** in $\Rightarrow A_s = 0.66 \text{ in}^2/\text{ft}$

$$a = [(A_s)(f_y)] / [0.85(f_c)(b)] = 0.86 \text{ in}$$

$$\phi M_n = \phi(A_s)(f_y)(d_t - 0.5a) = 11.0 \text{ ft-k/ft}$$

$$RF_{OPR} = [\phi M_n - 1.3DL] / [1.3 * (LL + I)] = \mathbf{3.69}$$

Bottom Reinforcement:

Provided: # **5** @ **8.00** in $\Rightarrow A_s = 0.47 \text{ in}^2/\text{ft}$

$$a = [(A_s)(f_y)] / [0.85(f_c)(b)] = 0.61 \text{ in}$$

$$\phi M_n = \phi(A_s)(f_y)(d_t - 0.5a) = 10.7 \text{ ft-k/ft}$$

$$RF_{OPR} = [\phi M_n - 1.3DL] / [1.3 * (LL + I)] = \mathbf{3.61}$$



Client: ODOT
Job Number: P402110046

Design: PJP
Check: FKL

Date: 4/5/2012
Date: 4/9/2012

Subject: CUY-2-1441: East Approach Forward Section
Slab Rating Between S13-5 and F2-5

Reference: AASHTO

Transverse Slab Rating Computations

Slab Span, S =	7.94	ft	(variable - measured per LRFD Fig 9.7.2.3-1)
Structural Slab Thickness T =	6.75	in	
Slab Thickness, T =	0.5625	ft	
Top Bar ϕ (long.) =	0.5	in	Bot. Bar ϕ (long.) = 0.625 in
Top Bar ϕ (trans.) =	0.75	in	Bot. Bar ϕ (trans.) = 0.625 in
Conc. Cover Top =	1.75	in	Conc. Cover Bot. = 1 in
d_t =	4.125	in	d_b = 5.438 in
f_c =	4500	psi	
f_y =	60000	psi	Impact = 30%
ϕ =	0.9	(8.16.1.2.2)	

Dead Load W:

Concrete =	0.117	kcf
1 1/4" Latex Mod. Conc. WS =	16	psf
Slab =	0.066	k/ft
FWS =	0.016	k/ft
Total dead load =	0.082	k/ft

HS-20 Design Moments:

DL = (0.125)(W)(S ²)(0.8) =	0.52	ft-k	
LL+I = (S+2)(16)(1.3)(0.8)/32 =	5.17	ft-k	(3.24.3.1)

Top Reinforcement:

Provided: #	6	@	8.00	in	⇒	$A_s = 0.66$	in ² /ft
$a = [(A_s)(f_y)] / [0.85(f_c)(b)] =$	0.86	in					
$\phi M_n = \phi(A_s)(f_y)(d_t - 0.5a) =$	11.0	ft-k/ft					
$RF_{INV} = [\phi M_n - 1.3*DL] / [2.17 * (LL + I)] =$	0.92						
$RF_{OPR} = [\phi M_n - 1.3*DL] / [1.3 * (LL + I)] =$	1.53						

Bottom Reinforcement:

Provided: #	5	@	8.00	in	⇒	$A_s = 0.47$	in ² /ft
$a = [(A_s)(f_y)] / [0.85(f_c)(b)] =$	0.61	in					
$\phi M_n = \phi(A_s)(f_y)(d_t - 0.5a) =$	10.7	ft-k/ft					
$RF_{INV} = [\phi M_n - 1.3*DL] / [2.17 * (LL + I)] =$	0.90						
$RF_{OPR} = [\phi M_n - 1.3*DL] / [1.3 * (LL + I)] =$	1.50						



Client: ODOT
Job Number: P402110046

Design: PJP
Check: FKL

Date: 4/5/2012
Date: 4/9/2012

Subject: CUY-2-1441: East Approach Forward Section

2F1 Design Moments:

$$DL = (0.125)(W)(S^2)(0.8) = 0.52 \text{ ft-k}$$

$$LL+I = (S+2)(10)(1.3)(0.8)/32 = 3.23 \text{ ft-k} \quad (3.24.3.1)$$

Top Reinforcement:

Provided: # **6** @ **8.00** in $\Rightarrow A_s = 0.66 \text{ in}^2/\text{ft}$

$$a = [(A_s)(f_y)] / [0.85(f_c)(b)] = 0.86 \text{ in}$$

$$\phi M_n = \phi(A_s)(f_y)(d_r - 0.5a) = 11.0 \text{ ft-k/ft}$$

$$RF_{OPR} = [\phi M_n - 1.3DL] / [1.3 * (LL + I)] = \mathbf{2.45}$$

Bottom Reinforcement:

Provided: # **5** @ **8.00** in $\Rightarrow A_s = 0.47 \text{ in}^2/\text{ft}$

$$a = [(A_s)(f_y)] / [0.85(f_c)(b)] = 0.61 \text{ in}$$

$$\phi M_n = \phi(A_s)(f_y)(d_r - 0.5a) = 10.7 \text{ ft-k/ft}$$

$$RF_{OPR} = [\phi M_n - 1.3DL] / [1.3 * (LL + I)] = \mathbf{2.40}$$

3F1 Design Moments:

$$DL = (0.125)(W)(S^2)(0.8) = 0.52 \text{ ft-k}$$

$$LL+I = (S+2)(8.5)(1.3)(0.8)/32 = 2.75 \text{ ft-k} \quad (3.24.3.1)$$

Top Reinforcement:

Provided: # **6** @ **8.00** in $\Rightarrow A_s = 0.66 \text{ in}^2/\text{ft}$

$$a = [(A_s)(f_y)] / [0.85(f_c)(b)] = 0.86 \text{ in}$$

$$\phi M_n = \phi(A_s)(f_y)(d_r - 0.5a) = 11.0 \text{ ft-k/ft}$$

$$RF_{OPR} = [\phi M_n - 1.3DL] / [1.3 * (LL + I)] = \mathbf{2.89}$$

Bottom Reinforcement:

Provided: # **5** @ **8.00** in $\Rightarrow A_s = 0.47 \text{ in}^2/\text{ft}$

$$a = [(A_s)(f_y)] / [0.85(f_c)(b)] = 0.61 \text{ in}$$

$$\phi M_n = \phi(A_s)(f_y)(d_r - 0.5a) = 10.7 \text{ ft-k/ft}$$

$$RF_{OPR} = [\phi M_n - 1.3DL] / [1.3 * (LL + I)] = \mathbf{2.82}$$



Client: ODOT
Job Number: P402110046

Design: PJP
Check: FKL

Date: 4/5/2012
Date: 4/9/2012

Subject: CUY-2-1441: East Approach Forward Section

4F1 Design Moments:

$$\begin{aligned} DL &= (0.125)(W)(S^2)(0.8) = 0.52 \text{ ft-k} \\ LL+I &= (S+2)(7)(1.3)(0.8)/32 = 2.26 \text{ ft-k} \end{aligned} \quad (3.24.3.1)$$

Top Reinforcement:

$$\begin{aligned} \text{Provided: } \# & \quad 6 \quad @ \quad 8.00 \text{ in} \quad \Rightarrow \quad A_s = 0.66 \text{ in}^2/\text{ft} \\ a &= [(A_s)(f_y)] / [0.85(f_c)(b)] = 0.86 \text{ in} \\ \phi M_n &= \phi(A_s)(f_y)(d_t - 0.5a) = 11.0 \text{ ft-k/ft} \end{aligned}$$

$$RF_{OPR} = [\phi M_n - 1.3DL] / [1.3 * (LL + I)] = 3.50$$

Bottom Reinforcement:

$$\begin{aligned} \text{Provided: } \# & \quad 5 \quad @ \quad 8.00 \text{ in} \quad \Rightarrow \quad A_s = 0.47 \text{ in}^2/\text{ft} \\ a &= [(A_s)(f_y)] / [0.85(f_c)(b)] = 0.61 \text{ in} \\ \phi M_n &= \phi(A_s)(f_y)(d_t - 0.5a) = 10.7 \text{ ft-k/ft} \end{aligned}$$

$$RF_{OPR} = [\phi M_n - 1.3DL] / [1.3 * (LL + I)] = 3.43$$

5C1 Design Moments:

$$\begin{aligned} DL &= (0.125)(W)(S^2)(0.8) = 0.52 \text{ ft-k} \\ LL+I &= (S+2)(8.5)(1.3)(0.8)/32 = 2.75 \text{ ft-k} \end{aligned} \quad (3.24.3.1)$$

Top Reinforcement:

$$\begin{aligned} \text{Provided: } \# & \quad 6 \quad @ \quad 8.00 \text{ in} \quad \Rightarrow \quad A_s = 0.66 \text{ in}^2/\text{ft} \\ a &= [(A_s)(f_y)] / [0.85(f_c)(b)] = 0.86 \text{ in} \\ \phi M_n &= \phi(A_s)(f_y)(d_t - 0.5a) = 11.0 \text{ ft-k/ft} \end{aligned}$$

$$RF_{OPR} = [\phi M_n - 1.3DL] / [1.3 * (LL + I)] = 2.89$$

Bottom Reinforcement:

$$\begin{aligned} \text{Provided: } \# & \quad 5 \quad @ \quad 8.00 \text{ in} \quad \Rightarrow \quad A_s = 0.47 \text{ in}^2/\text{ft} \\ a &= [(A_s)(f_y)] / [0.85(f_c)(b)] = 0.61 \text{ in} \\ \phi M_n &= \phi(A_s)(f_y)(d_t - 0.5a) = 10.7 \text{ ft-k/ft} \end{aligned}$$

$$RF_{OPR} = [\phi M_n - 1.3DL] / [1.3 * (LL + I)] = 2.82$$



Made By DWC
Checked By CTG

Date 6/20/2012
Date 6/20/2012

Job No. P402110046

Calculations For **CUY-2-1441**

Revisions to Stringer Analysis

- ◆ Isolated continuous stringers have copes over intermediate supports. Because the stringers are not full depth in these locations, the full negative moment cannot develop.
- ◆ Per discussion with ODOT May 29, 2012, any continuous stringer that is coped over intermediate supports should be re-analyzed as simply supported.
- ◆ Calculations for the revised stringers are included on the following page(s). Any data in the original rating calculations that has now been superseded remains in the volume for informational purposes, but has been crossed out.



Made By CTG
 Checked By DWC

Date 6/6/2012
 Date 6/7/2012

Job No. P402110046

Calculations For CUY-2-1441

Forward Section Stringers (not including Span 11)

- ◆ Changing from continuous to simple span will slightly increase shear and will increase moment
- ◆ The stringers in the Forward Section will be controlled by moment, not shear
- ◆ Units 3, 5, 7, and 9 are 2 span with coped stringers
- ◆ Units 3 & 5 are similar: W24x104 stringers and 44' span lengths
 - ◆ S3-S11 are coped in Unit 3 with max DF of 1.064
 - ◆ S12 & S13 in Unit 3 are coped and have DF 1.123 and 1.130 respectively
 - ◆ S5-S11 are coped in Unit 5 with max DF of 1.064
 - ◆ S12 & S13 in Unit 5 are coped and have DF 1.123 and varying (higher than 1.123) respectively
- ◆ Unit 7 stringers are W27x84 and have a 40' span length
 - ◆ S6-S13 are coped with max DF of 1.064
 - ◆ S14 is coped with a varying DF
- ◆ Unit 9 stringers are W33x118 except S22 is W33x130, span lengths are around 56'
 - ◆ S1-S15 are coped with max DF of 1.064
 - ◆ S16, S17-S19, S20 & S21, S22 are coped with varying DF (most less than 1.064)
- ◆ Add hinges to MDX model to simulate simple spans and update rating factors

Unit	Stringer	HS20		Ohio Legal Operating			
		Inventory	Operating	2F1	3F1	4F1	5C1
3	S3	0.76	1.26	2.31	1.57	1.43	1.62
3	S12	0.70	1.18	2.15	1.46	1.33	1.50
3	S13	0.70	1.17	2.14	1.45	1.33	1.50
5	S13	0.72	1.20	1.99	1.36	1.22	1.41
7	S6	0.74	1.24	2.18	1.49	1.36	1.54
7	S14	0.78	1.30	1.35	0.92	0.84	0.95
9	S3	0.71	1.19	2.35	1.58	1.41	1.62
9	S16	0.88	1.48	2.63	1.79	1.60	1.82
9*	S19	0.99	1.66	---	---	---	---
9*	S21	0.95	1.59	---	---	---	---
9*	S22	1.11	1.86	---	---	---	---

*Legal loads not filled out for stringers with lower distribution factors because they won't control, just put in table for a comparison with HS20



Made By PJP Date 3/9/2012
 Checked By MTN Date 3/14/2012

Job No. P402110046
 Sheet No. _____

Calculations For: **CUY-2-1441 - East Approach Forward Section**

Unit 1 Stringers

W_{lightweight} = 0.117 kcf W_{WS} = 0.150 kcf Railing Weight 1.354 klf
 t_{deck} = 6.75 in t_{WS} = 1.25 in Girders in Unit 15
 SIP Form = 0.002 ksf number of lanes 6

Interior Stringers

Stringer	Section	Stringer Spacing	Slab & WS load	Railing load	Dist Factor	Deflection DF	HS-20 RF Pos. Moment
S1	W33X130	4.831	0.403	0.091	0.878	0.60	1.33
S2	W33X130	4.948	0.413	0.091	0.900	0.60	1.30
S3	W33X130	5.854	0.488	0.091	1.064	0.60	1.06
S4	W33X130	5.854	0.488	0.091	1.064	0.60	1.06
S5	W33X130	5.854	0.488	0.091	1.064	0.60	1.06
S6	W33X130	5.844	0.488	0.091	1.063	0.60	1.07
S7*	W33X130	5.833	0.487	0.091	1.061	0.60	1.62
S8	W33X130	5.844	0.488	0.091	1.063	0.60	1.07
S9	W33X130	5.854	0.488	0.091	1.064	0.60	1.06
S10	W33X130	5.854	0.488	0.091	1.064	0.60	1.06
S11	W33X130	5.854	0.488	0.091	1.064	0.60	1.06
S12*	W33X141	6.177	0.515	0.091	1.123	0.60	1.54
S13	W33X141	6.612	0.552	0.091	1.202	0.60	1.04

*Analysis of Stringers S7 and S12 includes extension and existing stringer

Fascia Stringers

Stringer	Avg. Web	Flanges	Deck Overhang	Stringer Spacing	Slab & WS load	Railing load	Dist Factor	Deflection DF	HS-20 RF Moment	HS-20 RF Shear
F1-1	50.5x0.375	10x0.75	2.22	5.620	0.420	0.091	1.022	0.60	1.54	1.37
F2-1	49.5x0.375	10x0.75	Varies, See Table Below					0.60	1.31	1.20

Stringer F2-1 Detail

Tenth Point	Deck Overhang	Stringer Spacing	Slab & WS load	Railing load	Dist Factor
0	2.134	7.042	0.472	0.091	1.222
0.1	2.063	6.931	0.461	0.091	1.209
0.2	1.992	6.820	0.451	0.091	1.195
0.3	1.921	6.709	0.440	0.091	1.182
0.4	1.851	6.598	0.430	0.091	1.168
0.5	1.780	6.487	0.419	0.091	1.154
0.6	1.838	6.376	0.419	0.091	1.140
0.7	1.896	6.265	0.420	0.091	1.126
0.8	1.955	6.154	0.420	0.091	1.111
0.9	2.013	6.043	0.420	0.091	1.097
1	2.072	5.932	0.420	0.091	1.079

Critical Stringer Ratings

Stringer S13-1 - Positive Moment					
HS-20 Inventory	HS-20 Operating	2F1	3F1	4F1	5C1
1.04	1.74	3.30	2.23	2.01	2.29



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Calculations For: **CUY-2-1441 - East Approach Forward Section**

Unit 2 Stringers

W_{lightweight} = 0.117 kcf W_{WS} = 0.150 kcf Railing Weight 1.354 klf
 t_{deck} = 6.75 in t_{WS} = 1.25 in Girders in Unit 15
 SIP Form = 0.002 ksf number of lanes 6

Interior Stringers

Stringer	Section	Stringer Spacing	Slab & WS load	Railing load	Dist Factor	Deflection DF	HS-20 RF Pos. Moment
S1	W27X114	5.195	0.433	0.091	0.945	0.60	1.06
S2	W30X116	5.313	0.443	0.091	0.966	0.60	1.17
S3	W30X116	5.854	0.488	0.091	1.064	0.60	1.04
S4	W30X116	5.854	0.488	0.091	1.064	0.60	1.04
S5	W30X116	5.854	0.488	0.091	1.064	0.60	1.04
S6	W30X116	5.844	0.488	0.091	1.063	0.60	1.04
S7	W30X116	5.833	0.487	0.091	1.061	0.60	1.05
S8	W30X116	5.844	0.488	0.091	1.063	0.60	1.04
S9	W30X116	5.854	0.488	0.091	1.064	0.60	1.04
S10	W30X116	5.854	0.488	0.091	1.064	0.60	1.04
S11	W30X116	5.854	0.488	0.091	1.064	0.60	1.04
S12	W30X124	6.177	0.515	0.091	1.123	0.60	1.07
S13	W30X124	6.216	0.519	0.091	1.130	0.60	1.07

Fascia Stringers

Stringer	Avg. Web	Flanges	Deck Overhang	Stringer Spacing	Slab & WS load	Railing load	Dist Factor	Deflection DF	HS-20 RF Moment	HS-20 RF Shear
F1-2	52.5x0.375	10x0.75	2.130	5.620	0.412	0.091	1.022	0.60	2.02	1.38
F2-2	57.5x0.5	10x0.75	2.047	5.932	0.418	0.091	1.079	0.60	2.43	3.06

Critical Stringer Ratings

Stringers S3, S4, S5, S6, S8, S9, S10, and S11-2 - Positive Moment					
HS-20 Inventory	HS-20 Operating	2F1	3F1	4F1	5C1
1.04	1.74	3.18	2.16	1.97	2.23



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Calculations For: **CUY-2-1441 - East Approach Forward Section**

Unit 3 Stringers

W_{lightweight} = 0.117 kcf W_{WS} = 0.150 kcf Railing Weight = 1.354 klf
 t_{deck} = 6.75 in t_{WS} = 1.25 in Girders in Unit = 15
 SIP Form = 0.002 ksf number of lanes = 6

Interior Stringers

Stringer	Section	Stringer Spacing	Slab & WS load	Railing load	Dist Factor	Deflection DF	HS-20 RF Pos. Moment	HS-20 RF Neg. Moment
S1	W24X104	5.195	0.433	0.091	0.945	0.60	1.25	0.96
S2	W24X104	5.313	0.443	0.091	0.966	0.60	1.22	0.99
S3	W24X104	5.854	0.488	0.091	1.064	0.60	1.09	0.95
S4	W24X104	5.854	0.488	0.091	1.064	0.60	1.09	1.03
S5	W24X104	5.854	0.488	0.091	1.064	0.60	1.09	1.11
S6	W24X104	5.844	0.488	0.091	1.063	0.60	1.09	0.98
S7	W24X104	5.833	0.487	0.091	1.061	0.60	1.09	1.04
S8	W24X104	5.844	0.488	0.091	1.063	0.60	1.09	0.95
S9	W24X104	5.854	0.488	0.091	1.064	0.60	1.09	0.99
S10	W24X104	5.854	0.488	0.091	1.064	0.60	1.09	0.84
S11	W24X104	5.854	0.488	0.091	1.064	0.60	1.09	0.81
S12*	W24X104	6.177	0.515	0.091	1.123	0.60	1.14	0.20
S13	W24X104	6.216	0.519	0.091	1.130	0.60	1.02	1.18

Stringers S1-3 to S12-3 are coped over the floor beam

*Analysis of Stringer S12 includes extension and existing stringer

Fascia Stringers

Stringer	Avg. Web	Flanges	Deck Overhang	Stringer Spacing	Slab & WS load	Railing load	Dist Factor	Deflection DF	HS-20 RF Moment	HS-20 RF Shear
F1-3	54x0.375	12x0.75	2.130	5.620	0.412	0.091	1.022	0.60	3.14	1.19
F2-3	61.5x0.5	12x0.75	2.047	5.932	0.418	0.091	1.079	0.60	3.91	2.60

Critical Stringer Ratings

Stringers S10-3 and S11-3 - Negative Moment					
HS-20 Inventory	HS-20 Operating	2F1	3F1	4F1	5C1
0.84	1.40	3.58	2.36	2.08	1.34

Stringer S12-3 - Negative Moment					
HS-20 Inventory	HS-20 Operating	2F1	3F1	4F1	5C1
0.20	0.34				

Stringer S13-3 - Positive Moment					
HS-20 Inventory	HS-20 Operating	2F1	3F1	4F1	5C1
1.02	1.70	3.06	2.13	1.94	2.19



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Calculations For: **CUY-2-1441 - East Approach Forward Section**

Unit 4 Stringers

W_{lightweight} = 0.117 kcf W_{WS} = 0.150 kcf Railing Weight 1.354 klf
 t_{deck} = 6.75 in t_{WS} = 1.25 in Girders in Unit 15
 SIP Form = 0.002 ksf number of lanes 6

Interior Stringers

Stringer	Section	Stringer Spacing	Slab & WS load	Railing load	Dist Factor	Deflection DF	HS-20 RF Pos. Moment
S1	W30X116	5.195	0.433	0.091	0.945	0.60	1.20
S2	W30X116	5.313	0.443	0.091	0.966	0.60	1.17
S3	W30X116	5.854	0.488	0.091	1.064	0.60	1.04
S4	W30X116	5.854	0.488	0.091	1.064	0.60	1.04
S5	W30X116	5.854	0.488	0.091	1.064	0.60	1.04
S6	W30X116	5.844	0.488	0.091	1.063	0.60	1.04
S7	W30X116	5.833	0.487	0.091	1.061	0.60	1.05
S8	W30X116	5.844	0.488	0.091	1.063	0.60	1.04
S9	W30X116	5.854	0.488	0.091	1.064	0.60	1.04
S10	W30X116	5.854	0.488	0.091	1.064	0.60	1.04
S11	W30X116	5.854	0.488	0.091	1.064	0.60	1.04
S12	W30X124	6.177	0.515	0.091	1.123	0.60	1.07
S13	W30X124	6.216	0.519	0.091	1.130	0.60	1.07

For Stringers S2 - S13, See Unit 2

Fascia Stringers

Stringer	Avg. Web	Flanges	Deck Overhang	Stringer Spacing	Slab & WS load	Railing load	Dist Factor	Deflection DF	HS-20 RF Moment	HS-20 RF Shear
F1-4	56x0.5	10x0.75	2.130	5.620	0.412	0.091	1.022	0.60	2.47	3.33
F2-4	58.625x0.5	10x0.75	2.047	5.932	0.418	0.091	1.079	0.60	2.50	3.00

Critical Stringer Ratings

Stringers S3, S4, S5, S6, S8, S9, S10, and S11-4 - Positive Moment					
HS-20 Inventory	HS-20 Operating	2F1	3F1	4F1	5C1
1.04	1.74	3.18	2.16	1.97	2.23



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Calculations For: **CUY-2-1441 - East Approach Forward Section**

Unit 5 Stringers

W _{lightweight} =	0.117 kcf	W _{WS} =	0.150 kcf	Railing Weight	1.354 klf
t _{deck} =	6.75 in	t _{WS} =	1.25 in	Girders in Unit	15
SIP Form =	0.002 ksf			number of lanes	6

Interior Stringers

Stringer	Section	Stringer Spacing	Slab & WS load	Railing load	Dist Factor	Deflection DF	HS-20 RF Pos. Moment	HS-20 RF Neg. Moment	
S1	W24X104	5.195	0.433	0.094	0.945	0.60	4.25	1.48	S1-5 through S4-5 are not coped
S2	W24X104	5.313	0.443	0.094	0.966	0.60	4.22	1.44	
S3	W24X104	5.854	0.488	0.094	1.064	0.60	4.09	1.27	
S4	W24X104	5.854	0.488	0.094	1.064	0.60	4.09	1.27	
S5	W24X104	5.854	0.488	0.094	1.064	0.60	4.09	0.70	S5-5 through S13-5 are coped over the floor beam
S6	W24X104	5.844	0.488	0.094	1.063	0.60	4.09	0.87	
S7	W24X104	5.833	0.487	0.094	1.061	0.60	4.09	0.87	
S8	W24X104	5.844	0.488	0.094	1.063	0.60	4.09	1.05	
S9	W24X104	5.854	0.488	0.094	1.064	0.60	4.09	0.98	
S10	W24X104	5.854	0.488	0.094	1.064	0.60	4.09	1.14	
S11	W24X104	5.854	0.488	0.094	1.064	0.60	4.09	1.06	
S12	W24X104	6.177	0.515	0.091	1.123	0.60	4.03	0.97	
S13	W24X117	Varies, See Table Below					0.60	4.04	0.97

For Positive Moment Ratings of Stringers S1 - S11, See Unit 3

Stringer 12 Detail

Tenth Point	Section	Stringer Spacing	Slab & WS load	Railing load	Dist Factor
0	W24X117	6.216	0.519	0.091	1.130
0.1		6.216	0.519	0.091	1.130
0.2		6.216	0.519	0.091	1.130
0.3		6.216	0.519	0.091	1.130
0.4		6.216	0.519	0.091	1.130
0.5		6.216	0.519	0.091	1.130
0.6		6.216	0.519	0.091	1.130
0.7		6.216	0.519	0.091	1.130
0.8		6.216	0.519	0.091	1.130
0.9		6.216	0.519	0.091	1.130
1		6.216	0.519	0.091	1.130
0.1		6.341	0.529	0.091	1.153
0.2		6.465	0.539	0.091	1.175
0.3		6.590	0.550	0.091	1.198
0.4		6.714	0.560	0.091	1.221
0.5		6.839	0.571	0.091	1.243
0.6		6.963	0.581	0.091	1.266
0.7		7.088	0.591	0.091	1.289
0.8		7.212	0.602	0.091	1.311
0.9		7.337	0.612	0.091	1.334
1		7.461	0.623	0.091	1.357



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Calculations For: **CUY-2-1441 - East Approach Forward Section**

Unit 5 Stringers

Fascia Stringers

Stringer	Avg. Web	Flanges	Deck Overhang	Stringer Spacing	Slab & WS load	Railing load	Dist Factor	Deflection DF	HS-20 RF Moment	HS-20 RF Shear
F1-5	62x0.5	12x0.75	2.130	5.620	0.412	0.091	1.022	0.60	4.17	2.73
F2A-5	57x0.5	10x0.75	2.047	5.932	0.418	0.091	1.079	0.60	2.40	3.09
F2B-5	49x0.5	10x0.75	Varies, See Table Below					0.60	1.70	2.96

Stringer F2B-5 Detail

Tenth Point	Deck Overhang	Stringer Spacing	Slab & WS load	Railing load	Dist Factor
0	2.047	5.932	0.418	0.091	1.079
0.1	1.903	6.181	0.417	0.091	1.115
0.2	1.758	6.430	0.415	0.091	1.147
0.3	1.614	6.679	0.413	0.091	1.178
0.4	1.469	6.928	0.412	0.091	1.209
0.5	1.325	7.177	0.410	0.091	1.239
0.6	1.488	7.426	0.434	0.091	1.268
0.7	1.650	7.675	0.458	0.091	1.297
0.8	1.813	7.924	0.482	0.091	1.325
0.9	1.976	8.173	0.506	0.091	1.352
1	2.138	8.422	0.530	0.091	1.379

Critical Stringer Ratings

Stringers S5-5 - Negative Moment					
HS-20 Inventory	HS-20 Operating	2F1	3F1	4F1	5C1
0.70	1.16	2.96	1.98	1.73	1.11

Stringers S12-5 - Positive Moment					
HS-20 Inventory	HS-20 Operating	2F1	3F1	4F1	5C1
1.03	1.71	3.09	2.15	1.95	1.32



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Calculations For: **CUY-2-1441 - East Approach Forward Section**

Unit 6 Stringers

$w_{\text{lightweight}} =$	0.117 kcf	$w_{\text{WS}} =$	0.150 kcf	Railing Weight	1.354 klf
$t_{\text{deck}} =$	6.75 in	$t_{\text{WS}} =$	1.25 in	Girders in Unit	16
SIP Form =	0.002 ksf			number of lanes	7

Interior Stringers

Stringer	Section	Stringer Spacing	Slab & WS load	Railing load	Dist Factor	Deflection DF	HS-20 RF Pos. Moment
S1	W27X102	5.195	0.433	0.085	0.945	0.66	1.13
S2	W27X102	5.313	0.443	0.085	0.966	0.66	1.10
S3	W27X102	5.854	0.488	0.085	1.064	0.66	0.98
S4	W27X102	5.854	0.488	0.085	1.064	0.66	0.98
S5	W27X102	5.854	0.488	0.085	1.064	0.66	0.98
S6	W27X102	5.844	0.488	0.085	1.063	0.66	0.99
S7	W27X102	5.833	0.487	0.085	1.061	0.66	0.99
S8	W27X102	5.844	0.488	0.085	1.063	0.66	0.99
S9	W27X102	5.854	0.488	0.085	1.064	0.66	0.98
S10	W27X102	5.854	0.488	0.085	1.064	0.66	0.98
S11	W27X102	5.854	0.488	0.085	1.064	0.66	0.98
S12	W27X102	5.854	0.488	0.085	1.064	0.66	0.98
S13	W27X102	5.854	0.488	0.085	1.064	0.66	0.98
S14	W27X114	Varies, See Table Below				0.66	1.06
S15	W16X67	Varies, See Table Below				0.66	1.86

Stringer 14 Detail

Tenth Point	Section	Stringer Spacing	Slab & WS load	Railing load	Dist Factor
0	W27X114	4.550	0.380	0.085	0.827
0.1		4.929	0.411	0.085	0.896
0.2		5.309	0.443	0.085	0.965
0.3		5.688	0.475	0.085	1.034
0.4		6.068	0.506	0.085	1.103
0.5		6.447	0.538	0.085	1.172
0.6		4.813	0.402	0.085	0.875
0.7		4.941	0.412	0.085	0.898
0.8		5.069	0.423	0.085	0.922
0.9		5.198	0.434	0.085	0.945
1		5.326	0.444	0.085	0.968

Stringer 14 has a 2.53 kip concentrated dead load at its midspan due to stringer S15-6's reaction on it.



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Unit 6 Stringers

Stringer 15 Detail

Tenth Point	Section	Stringer Spacing	Slab & WS load	Railing load	Dist Factor
0	W16X67	3.520	0.294	0.085	0.640
0.1		3.710	0.310	0.085	0.675
0.2		3.900	0.325	0.085	0.709
0.3		4.090	0.341	0.085	0.744
0.4		4.280	0.357	0.085	0.778
0.5		4.470	0.373	0.085	0.813
0.6		4.659	0.389	0.085	0.847
0.7		4.849	0.405	0.085	0.882
0.8		5.039	0.420	0.085	0.916
0.9		5.229	0.436	0.085	0.951
1		5.419	0.452	0.085	0.985

Fascia Stringers

Stringer	Avg. Web	Flanges	Deck Overhang	Stringer Spacing	Slab & WS load	Railing load	Dist Factor	Deflection DF	HS-20 RF Moment	HS-20 RF Shear
F1-6	66x0.5	12x0.75	2.130	5.620	0.412	0.085	1.022	0.66	4.17	2.88
F2-6	46x0.375	12x0.75	Varies, See Table Below					0.66	1.97	1.96

Stringer F2-6 Detail

Tenth Point	Deck Overhang	Stringer Spacing	Slab & WS load	Railing load	Dist Factor
0	2.101	3.214	0.309	0.085	0.584
0.1	1.989	3.976	0.332	0.085	0.723
0.2	1.876	4.739	0.354	0.085	0.862
0.3	1.764	5.501	0.377	0.085	1.000
0.4	1.652	6.264	0.399	0.085	1.125
0.5	1.540	7.026	0.422	0.085	1.221
0.6	1.647	4.019	0.305	0.085	0.731
0.7	1.753	4.524	0.335	0.085	0.823
0.8	1.859	5.030	0.365	0.085	0.915
0.9	1.966	5.536	0.395	0.085	1.007
1	2.072	6.042	0.425	0.085	1.096

Stringer F2-6 has a 2.53 kip concentrated dead load at its midspan due to stringer S15-6's reaction on it.

Critical Stringer Ratings

Stringers S3, S4, S5, S9, S10, S11, S12, and S13-6 - Positive Moment					
HS-20 Inventory	HS-20 Operating	2F1	3F1	4F1	5C1
0.98	1.64	2.89	1.98	1.81	2.04



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Calculations For: **CUY-2-1441 - East Approach Forward Section**

Unit 7 Stringers

W_{lightweight} = 0.117 kcf W_{WS} = 0.150 kcf Railing Weight 1.354 klf
 t_{deck} = 6.75 in t_{WS} = 1.25 in Girders in Unit 18
 SIP Form = 0.002 ksf number of lanes 7

Interior Stringers

Stringer	Section	Stringer Spacing	Slab & WS load	Railing load	Dist Factor	Deflection DF	HS-20 RF Pos. Moment	HS-20 RF Neg. Moment	
S1	W27X84	5.195	0.433	0.076	0.945	0.58	1.20	1.43	S1-7 Through S5-7 are not coped
S2	W27X84	5.313	0.443	0.076	0.966	0.58	1.17	1.39	
S3	W27X84	5.854	0.488	0.076	1.064	0.58	1.05	1.23	
S4	W27X84	5.854	0.488	0.076	1.064	0.58	1.05	1.23	
S5	W27X84	5.854	0.488	0.076	1.064	0.58	1.05	1.23	
S6	W27X84	5.844	0.488	0.076	1.063	0.58	1.05	1.02	S6-7 Through S14-7 are coped over the floor beam
S7	W27X84	5.833	0.487	0.076	1.061	0.58	1.05	0.77	
S8	W27X84	5.844	0.488	0.076	1.063	0.58	1.05	1.15	
S9	W27X84	5.854	0.488	0.076	1.064	0.58	1.05	1.21	
S10	W27X84	5.854	0.488	0.076	1.064	0.58	1.05	1.06	
S11	W27X84	5.854	0.488	0.076	1.064	0.58	1.05	0.91	
S12	W27X84	5.854	0.488	0.076	1.064	0.58	1.05	0.96	
S13	W27X84	5.854	0.488	0.076	1.064	0.58	1.05	0.92	
S14	W27X84	Varies, See Table Below				0.58	1.09	0.81	
S15	W27X84	Varies, See Table Below				0.58	0.98		S15-7 Through S20-7 are simple span
S16	W27X114	Varies, See Table Below				0.58	1.03		
S17	W27X102	5.417	0.452	0.076	0.985	0.58	1.08		
S18	W27X102	5.424	0.453	0.076	0.986	0.58	1.08		
S19	W27X102	Varies, See Table Below				0.58	1.23		
S20	W21X101	Varies, See Table Below				0.58	1.17		



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Calculations For: **CUY-2-1441 - East Approach Forward Section**

Unit 7 Stringers

Stringer 14 Detail

Tenth Point	Section	Stringer Spacing	Slab & WS load	Railing load	Dist Factor
0	W27X84	3.326	0.277	0.076	0.605
0.1		3.573	0.298	0.076	0.650
0.2		3.821	0.319	0.076	0.695
0.3		4.068	0.339	0.076	0.740
0.4		4.316	0.360	0.076	0.785
0.5		4.564	0.381	0.076	0.830
0.6		4.811	0.401	0.076	0.875
0.7		5.059	0.422	0.076	0.920
0.8		5.307	0.443	0.076	0.965
0.9		5.554	0.463	0.076	1.010
1		5.802	0.484	0.076	1.055
1.1		5.635	0.470	0.076	1.025
1.2		5.635	0.470	0.076	1.025
1.3		5.635	0.470	0.076	1.025
1.4		5.635	0.470	0.076	1.025
1.5		5.635	0.470	0.076	1.025
1.6		5.635	0.470	0.076	1.025
1.7		5.635	0.470	0.076	1.025
1.8		5.635	0.470	0.076	1.025
1.9		5.635	0.470	0.076	1.025
2		5.635	0.470	0.076	1.025

Stringer 15 Detail

Tenth Point	Section	Stringer Spacing	Slab & WS load	Railing load	Dist Factor	Fatigue DF
0	W27X84	2.398	0.200	0.076	0.436	0.252421
0.1		2.796	0.233	0.076	0.508	0.294284
0.2		3.193	0.266	0.076	0.581	0.336147
0.3		3.591	0.300	0.076	0.653	0.378011
0.4		3.989	0.333	0.076	0.725	0.419874
0.5		4.387	0.366	0.076	0.798	0.461737
0.6		4.784	0.399	0.076	0.870	0.503600
0.7		5.182	0.432	0.076	0.942	0.545463
0.8		5.580	0.466	0.076	1.014	0.587326
0.9		5.977	0.499	0.076	1.087	0.629189
1		6.375	0.532	0.076	1.159	0.671053



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Calculations For: **CUY-2-1441 - East Approach Forward Section**

Unit 7 Stringers

Stringer 16 Detail

Tenth Point	Section	Stringer Spacing	Slab & WS load	Railing load	Dist Factor
0	W27X114	5.021	0.419	0.076	0.913
0.1		5.219	0.435	0.076	0.949
0.2		5.417	0.452	0.076	0.985
0.3		5.615	0.468	0.076	1.021
0.4		5.813	0.485	0.076	1.057
0.5		6.011	0.502	0.076	1.093
0.6		6.208	0.518	0.076	1.129
0.7		6.406	0.535	0.076	1.165
0.8		6.604	0.551	0.076	1.201
0.9		6.802	0.568	0.076	1.237
1		7.000	0.584	0.076	1.273

Stringer 19 Detail

Tenth Point	Section	Stringer Spacing	Slab & WS load	Railing load	Dist Factor
0	W27X102	3.617	0.302	0.076	0.658
0.1		3.844	0.321	0.076	0.699
0.2		4.072	0.340	0.076	0.740
0.3		4.299	0.359	0.076	0.782
0.4		4.527	0.378	0.076	0.823
0.5		4.754	0.397	0.076	0.864
0.6		4.981	0.416	0.076	0.906
0.7		5.209	0.435	0.076	0.947
0.8		5.436	0.454	0.076	0.988
0.9		5.664	0.473	0.076	1.030
1		5.891	0.492	0.076	1.071

Stringer 20 Detail

Tenth Point	Section	Stringer Spacing	Slab & WS load	Railing load	Dist Factor
0	W21X101	1.742	0.145	0.076	0.317
0.1		2.189	0.183	0.076	0.398
0.2		2.637	0.220	0.076	0.479
0.3		3.084	0.257	0.076	0.561
0.4		3.532	0.295	0.076	0.642
0.5		3.979	0.332	0.076	0.723
0.6		4.426	0.369	0.076	0.805
0.7		4.874	0.407	0.076	0.886
0.8		5.321	0.444	0.076	0.967
0.9		5.769	0.481	0.076	1.049
1		6.216	0.519	0.076	1.130



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Calculations For: **CUY-2-1441 - East Approach Forward Section**

Unit 7 Stringers

Fascia Stringers

Stringer	Avg. Web	Flanges	Deck Overhang	Stringer Spacing	Slab & WS load	Railing load	Dist Factor	Deflection DF	HS-20 RF Moment	HS-20 RF Shear
F1-7	65.5x0.5	12x0.75	2.1302	5.620	0.412	0.076	1.022	0.58	5.24	2.60
F2-7	46.5x0.375	10x0.75	Varies, See Table Below					0.58	3.51	1.52

Stringer F2-7 Detail

Tenth Point	Deck Overhang	Stringer Spacing	Slab & WS load	Railing load	Dist Factor
0	2.08	2.130	0.262	0.076	0.387
0.1	2.08	2.525	0.279	0.076	0.459
0.2	2.08	2.921	0.295	0.076	0.531
0.3	2.08	3.316	0.312	0.076	0.603
0.4	2.08	3.711	0.328	0.076	0.675
0.5	2.08	4.107	0.345	0.076	0.747
0.6	2.08	4.502	0.361	0.076	0.819
0.7	2.08	4.897	0.378	0.076	0.890
0.8	2.08	5.293	0.394	0.076	0.962
0.9	2.08	5.688	0.411	0.076	1.034
1	2.08	6.083	0.427	0.076	1.102
1.1	2.08	3.330	0.312	0.076	0.605
1.2	2.08	3.330	0.312	0.076	0.605
1.3	2.08	3.330	0.312	0.076	0.605
1.4	2.08	3.330	0.312	0.076	0.605
1.5	2.08	3.330	0.312	0.076	0.605
1.6	2.08	3.330	0.312	0.076	0.605
1.7	2.08	3.330	0.312	0.076	0.605
1.8	2.08	3.330	0.312	0.076	0.605
1.9	2.08	3.330	0.312	0.076	0.605
2	2.08	3.330	0.312	0.076	0.605

Critical Stringer Ratings

Stringer S7-7 - Negative Moment					
HS-20 Inventory	HS-20 Operating	2F1	3F1	4F1	5C1
0.77	1.29	3.17	2.10	1.85	1.21

Stringer S15-7 - Positive Moment					
HS-20 Inventory	HS-20 Operating	2F1	3F1	4F1	5C1
0.98	1.64	1.45	1.00	0.86	1.05



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Unit 8 Stringers

$w_{lightweight} = 0.117$ kcf $w_{WS} = 0.150$ kcf Railing Weight 1.354 klf
 $t_{deck} = 6.75$ in $t_{WS} = 1.25$ in Girders in Unit 21
 SIP Form = 0.002 ksf number of lanes 9

Interior Stringers

Stringer	Section	Stringer Spacing	Slab & WS load	Railing load	Dist Factor	Deflection DF	HS-20 RF Pos. Moment
S1	W24X84	5.195	0.433	0.065	0.945	0.64	1.27
S2	W24X84	5.313	0.443	0.065	0.966	0.64	1.24
S3	W24X84	5.854	0.488	0.065	1.064	0.64	1.11
S4	W24X84	5.854	0.488	0.065	1.064	0.64	1.11
S5	W24X84	5.854	0.488	0.065	1.064	0.64	1.11
S6	W24X84	5.844	0.488	0.065	1.063	0.64	1.11
S7	W24X84	5.833	0.487	0.065	1.061	0.64	1.12
S8	W24X84	5.844	0.488	0.065	1.063	0.64	1.11
S9	W24X84	5.854	0.488	0.065	1.064	0.64	1.11
S10	W24X84	5.854	0.488	0.065	1.064	0.64	1.11
S11	W24X84	5.854	0.488	0.065	1.064	0.64	1.11
S12	W24X84	5.854	0.488	0.065	1.064	0.64	1.11
S13	W24X84	5.854	0.488	0.065	1.064	0.64	1.11
S14	W24X84	5.635	0.470	0.065	1.025	0.64	1.16
S15	W24X84	5.417	0.452	0.065	0.985	0.64	1.21
S16	W24X84	Varies, See Table Below				0.64	1.14
S17	W24X84	Varies, See Table Below				0.64	1.06
S18	W24X84	Varies, See Table Below				0.64	1.06
S19	W24X84	Varies, See Table Below				0.64	1.38

Stringer 16 Detail

Tenth Point	Section	Stringer Spacing	Slab & WS load	Railing load	Dist Factor
0	W24X84	5.208	0.435	0.065	0.947
0.1		5.310	0.443	0.065	0.965
0.2		5.411	0.452	0.065	0.984
0.3		5.513	0.460	0.065	1.002
0.4		5.614	0.468	0.065	1.021
0.5		5.716	0.477	0.065	1.039
0.6		5.817	0.485	0.065	1.058
0.7		5.919	0.494	0.065	1.076
0.8		6.020	0.502	0.065	1.095
0.9		6.122	0.511	0.065	1.113
1		6.223	0.519	0.065	1.131



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Unit 8 Stringers

Stringer 17 Detail

Tenth Point	Section	Stringer Spacing	Slab & WS load	Railing load	Dist Factor
0	W24X84	5.000	0.417	0.065	0.909
0.1		5.203	0.434	0.065	0.946
0.2		5.406	0.451	0.065	0.983
0.3		5.609	0.468	0.065	1.020
0.4		5.812	0.485	0.065	1.057
0.5		6.015	0.502	0.065	1.094
0.6		6.218	0.519	0.065	1.131
0.7		6.421	0.536	0.065	1.167
0.8		6.624	0.553	0.065	1.204
0.9		6.827	0.570	0.065	1.241
1		7.030	0.587	0.065	1.278

Stringer 18 Detail

Tenth Point	Section	Stringer Spacing	Slab & WS load	Railing load	Dist Factor	Fatigue DF
0	W24X84	5.000	0.417	0.065	0.909	0.526316
0.1		5.203	0.434	0.065	0.946	0.547684
0.2		5.406	0.451	0.065	0.983	0.569053
0.3		5.609	0.468	0.065	1.020	0.590421
0.4		5.812	0.485	0.065	1.057	0.611789
0.5		6.015	0.502	0.065	1.094	0.633158
0.6		6.218	0.519	0.065	1.131	0.654526
0.7		6.421	0.536	0.065	1.167	0.675895
0.8		6.624	0.553	0.065	1.204	0.697263
0.9		6.827	0.570	0.065	1.241	0.718632
1		7.030	0.587	0.065	1.278	0.740000

Stringer 19 Detail

Tenth Point	Section	Stringer Spacing	Slab & WS load	Railing load	Dist Factor
0	W24X84	3.933	0.328	0.065	0.715
0.1		4.082	0.341	0.065	0.742
0.2		4.231	0.353	0.065	0.769
0.3		4.379	0.365	0.065	0.796
0.4		4.528	0.378	0.065	0.823
0.5		4.677	0.390	0.065	0.850
0.6		4.826	0.403	0.065	0.877
0.7		4.975	0.415	0.065	0.904
0.8		5.123	0.427	0.065	0.932
0.9		5.272	0.440	0.065	0.959
1		5.421	0.452	0.065	0.986



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Unit 8 Stringers

Fascia Stringers

Stringer	Avg. Web	Flanges	Deck Overhang	Stringer Spacing	Slab & WS load	Railing load	Dist Factor	Deflection DF	HS-20 RF Moment	HS-20 RF Shear
F1-8	63x0.5	12x0.75	2.130	5.620	0.412	0.065	1.022	0.64	5.83	3.35
F2-8	48.5x0.375	12x0.75	2.063	3.250	0.308	0.065	0.591	0.64	6.24	3.06

Critical Stringer Ratings

Stringers S17-8 and S18-8 - Positive Moment					
HS-20 Inventory	HS-20 Operating	2F1	3F1	4F1	5C1
1.06	1.76	2.31	1.64	1.50	1.69



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Unit 9 Stringers

W_{lightweight} = 0.117 kcf W_{WS} = 0.150 kcf Railing Weight 1.354 klf
 t_{deck} = 6.75 in t_{WS} = 1.25 in Girders in Unit 24
 SIP Form = 0.002 ksf number of lanes 9

Interior Stringers

Stringer	Section	Stringer Spacing	Slab & WS load	Railing load	Dist Factor	Deflection DF	HS-20 RF Pos. Moment	HS-20 RF Neg. Moment
S1	W33x118	5.195	0.433	0.057	0.945	0.56	1.26	0.84
S2	W33x118	5.313	0.443	0.057	0.966	0.56	1.22	0.87
S3	W33x118	5.854	0.488	0.057	1.064	0.56	1.09	0.96
S4	W33x118	5.854	0.488	0.057	1.064	0.56	1.09	0.90
S5	W33x118	5.854	0.488	0.057	1.064	0.56	1.09	0.93
S6	W33x118	5.844	0.488	0.057	1.063	0.56	1.09	1.01
S7	W33x118	5.833	0.487	0.057	1.061	0.56	1.10	1.04
S8	W33x118	5.844	0.488	0.057	1.063	0.56	1.09	1.00
S9	W33x118	5.854	0.488	0.057	1.064	0.56	1.09	0.98
S10	W33x118	5.854	0.488	0.057	1.064	0.56	1.09	0.96
S11	W33x118	5.854	0.488	0.057	1.064	0.56	1.09	0.93
S12	W33x118	5.854	0.488	0.057	1.064	0.56	1.09	0.91
S13	W33x118	5.854	0.488	0.057	1.064	0.56	1.09	0.89
S14	W33x118	5.635	0.470	0.057	1.025	0.56	1.14	0.95
S15	W33x118	5.417	0.452	0.057	0.985	0.56	1.20	0.99
S16	W33x118	Varies, See Table Below				0.56	1.35	1.06
S17	W33x118	Varies, See Table Below				0.56	1.54	1.02
S18	W33x118	Varies, See Table Below				0.56	1.54	1.11
S19	W33x118	Varies, See Table Below				0.56	1.54	0.98
S20	W33x118	Varies, See Table Below				0.56	1.49	0.88
S21	W33x118	Varies, See Table Below				0.56	1.49	0.84
S22	W33X130	Varies, See Table Below				0.56	1.70	0.76

All Stringers are coped over the floor beam



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Unit 9 Stringers

Stringer 16 Detail

Tenth Point	Section	Stringer Spacing	Slab & WS load	Railing load	Dist Factor
0	W33x118	4.476	0.373	0.057	0.814
0.1		4.566	0.381	0.057	0.830
0.2		4.655	0.388	0.057	0.846
0.3		4.745	0.396	0.057	0.863
0.4		4.834	0.403	0.057	0.879
0.5		4.924	0.411	0.057	0.895
0.6		5.013	0.418	0.057	0.911
0.7		5.103	0.426	0.057	0.928
0.8		5.192	0.433	0.057	0.944
0.9		5.282	0.441	0.057	0.960
1		5.371	0.448	0.057	0.977
1.1		5.422	0.452	0.057	0.986
1.2		5.472	0.457	0.057	0.995
1.3		5.522	0.461	0.057	1.004
1.4		5.573	0.465	0.057	1.013
1.5		5.623	0.469	0.057	1.022
1.6		5.674	0.473	0.057	1.032
1.7		5.724	0.478	0.057	1.041
1.8		5.774	0.482	0.057	1.050
1.9		5.825	0.486	0.057	1.059
2		5.875	0.490	0.057	1.068



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Unit 9 Stringers

Stringer 17, 18 and 19 Detail

Tenth Point	Section	Stringer Spacing	Slab & WS load	Railing load	Dist Factor
0	W33x118	3.515	0.293	0.057	0.639
0.1		3.695	0.308	0.057	0.672
0.2		3.876	0.323	0.057	0.705
0.3		4.056	0.338	0.057	0.737
0.4		4.237	0.353	0.057	0.770
0.5		4.417	0.369	0.057	0.803
0.6		4.597	0.384	0.057	0.836
0.7		4.778	0.399	0.057	0.869
0.8		4.958	0.414	0.057	0.901
0.9		5.139	0.429	0.057	0.934
1		5.319	0.444	0.057	0.967
1.1		5.420	0.452	0.057	0.986
1.2		5.522	0.461	0.057	1.004
1.3		5.623	0.469	0.057	1.022
1.4		5.725	0.478	0.057	1.041
1.5		5.826	0.486	0.057	1.059
1.6		5.927	0.495	0.057	1.078
1.7		6.029	0.503	0.057	1.096
1.8		6.130	0.511	0.057	1.115
1.9		6.232	0.520	0.057	1.133
2		6.333	0.528	0.057	1.151

Stringer 20 and 21 Detail

Tenth Point	Section	Stringer Spacing	Slab & WS load	Railing load	Dist Factor
0	W33x118	3.515	0.293	0.057	0.639
0.1		3.707	0.309	0.057	0.674
0.2		3.900	0.325	0.057	0.709
0.3		4.092	0.341	0.057	0.744
0.4		4.285	0.357	0.057	0.779
0.5		4.477	0.374	0.057	0.814
0.6		4.669	0.390	0.057	0.849
0.7		4.862	0.406	0.057	0.884
0.8		5.054	0.422	0.057	0.919
0.9		5.247	0.438	0.057	0.954
1		5.439	0.454	0.057	0.989
1.1		5.547	0.463	0.057	1.009
1.2		5.655	0.472	0.057	1.028
1.3		5.764	0.481	0.057	1.048
1.4		5.872	0.490	0.057	1.068
1.5		5.980	0.499	0.057	1.087
1.6		6.088	0.508	0.057	1.107
1.7		6.196	0.517	0.057	1.127
1.8		6.305	0.526	0.057	1.146
1.9		6.413	0.535	0.057	1.166
2		6.521	0.544	0.057	1.186



Made By PJP Date 3/9/2012
Checked By MTN Date 3/14/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441 - East Approach Forward Section**

Unit 9 Stringers

Stringer 22 Detail

Tenth Point	Section	Stringer Spacing	Slab & WS load	Railing load	Dist Factor	Fatigue DF
0	W33X130	3.651	0.305	0.057	0.664	0.384316
0.1		3.814	0.318	0.057	0.693	0.401495
0.2		3.977	0.332	0.057	0.723	0.418674
0.3		4.141	0.345	0.057	0.753	0.435853
0.4		4.304	0.359	0.057	0.783	0.453032
0.5		4.467	0.373	0.057	0.812	0.470211
0.6		4.630	0.386	0.057	0.842	0.487389
0.7		4.793	0.400	0.057	0.872	0.504568
0.8		4.957	0.414	0.057	0.901	0.521747
0.9		5.120	0.427	0.057	0.931	0.538926
1		5.283	0.441	0.057	0.961	0.556105
1.1		5.375	0.448	0.057	0.977	0.565758
1.2		5.466	0.456	0.057	0.994	0.575411
1.3		5.558	0.464	0.057	1.011	0.585063
1.4		5.650	0.471	0.057	1.027	0.594716
1.5		5.742	0.479	0.057	1.044	0.604368
1.6		5.833	0.487	0.057	1.061	0.614021
1.7		5.925	0.494	0.057	1.077	0.623674
1.8		6.017	0.502	0.057	1.094	0.633326
1.9		6.108	0.510	0.057	1.111	0.642979
2		6.200	0.517	0.057	1.127	0.652632



Made By PJP Date 3/9/2012
 Checked By MTN Date 3/14/2012

Job No. P402110046
 Sheet No. _____

Calculations For: **CUY-2-1441 - East Approach Forward Section**

Unit 9 Stringers

Fascia Stringers

Stringer	Avg. Web	Flanges	Deck Overhang	Stringer Spacing	Slab & WS load	Railing load	Dist Factor	Deflection DF	HS-20 RF Moment	HS-20 RF Shear
F1-9	57x0.5	12x0.75	2.130	5.620	0.412	0.057	1.022	0.56	2.73	2.77
F2-9	33.7x0.375	12x0.75	Varies, See Table Below					0.56	1.43	2.15

Stringer F2-9 Detail

Tenth Point	Deck Overhang	Stringer Spacing	Slab & WS load	Railing load	Dist Factor
0	2.06	3.730	0.327	0.057	0.678
0.1	2.06	3.892	0.334	0.057	0.708
0.2	2.06	4.055	0.341	0.057	0.737
0.3	2.06	4.217	0.348	0.057	0.767
0.4	2.06	4.379	0.355	0.057	0.796
0.5	2.06	4.542	0.361	0.057	0.826
0.6	2.06	4.704	0.368	0.057	0.855
0.7	2.06	4.866	0.375	0.057	0.885
0.8	2.06	5.028	0.382	0.057	0.914
0.9	2.06	5.191	0.388	0.057	0.944
1	2.06	5.353	0.395	0.057	0.973
1.1	2.06	5.443	0.399	0.057	0.990
1.2	2.06	5.532	0.403	0.057	1.006
1.3	2.06	5.622	0.406	0.057	1.022
1.4	2.06	5.712	0.410	0.057	1.039
1.5	2.06	5.802	0.414	0.057	1.055
1.6	2.06	5.891	0.418	0.057	1.071
1.7	2.06	5.981	0.421	0.057	1.087
1.8	2.06	6.071	0.425	0.057	1.100
1.9	2.06	6.160	0.429	0.057	1.112
2	2.06	6.250	0.433	0.057	1.124

Critical Stringer Ratings

~~Stringers S3, S4, S5, S6, S8, S9, S10, S11, S12, and S13-9 - Pos. Moment~~

HS-20 Inventory	HS-20 Operating	2F1	3F1	4F1	5C1
1.09	1.82	2.49	2.39	2.15	2.45

~~Stringer S22-9 - Negative Moment~~

HS-20 Inventory	HS-20 Operating	2F1	3F1	4F1	5C1
0.76	1.26	2.12	1.43	1.25	1.06



Made By PJP Date 3/9/2012
 Checked By MTN Date 3/14/2012

Job No. P402110046
 Sheet No. _____

Calculations For: **CUY-2-1441 - East Approach Forward Section**

Unit 10 Stringers

$w_{\text{lightweight}} =$	0.117 kcf	$w_{\text{WS}} =$	0.150 kcf	Railing Weight	1.354 klf
$t_{\text{deck}} =$	6.75 in	$t_{\text{WS}} =$	1.25 in	Girders in Unit	24
SIP Form =	0.002 ksf			number of lanes	11

Interior Stringers

Stringer	Section	Span	Stringer Spacing	Slab & WS load	Railing load	Dist Factor	Deflection DF	HS-20 RF Pos. Moment
S1	W24X94	33.650	5.195	0.433	0.057	0.945	0.69	1.30
S2	W24X94	33.650	5.313	0.443	0.057	0.966	0.69	1.27
S3	W24X94	33.650	5.854	0.488	0.057	1.064	0.69	1.13
S4	W24X94	33.650	5.854	0.488	0.057	1.064	0.69	1.13
S5	W24X94	33.650	5.854	0.488	0.057	1.064	0.69	1.13
S6	W24X94	33.650	5.844	0.488	0.057	1.063	0.69	1.13
S7	W24X94	33.650	5.833	0.487	0.057	1.061	0.69	1.13
S8	W24X94	33.470	5.844	0.488	0.057	1.063	0.69	1.15
S9	W24X94	32.780	5.854	0.488	0.057	1.064	0.69	1.19
S10	W24X94	32.080	5.854	0.488	0.057	1.064	0.69	1.24
S11	W24X84	31.390	5.854	0.488	0.057	1.064	0.69	1.12
S12	W24X84	30.700	5.854	0.488	0.057	1.064	0.69	1.17
S13	W24X84	30.010	5.854	0.488	0.057	1.064	0.69	1.23
S14	W21X83	29.310	5.635	0.470	0.057	1.025	0.69	1.14
S15	W21X83	28.670	5.696	0.475	0.057	1.036	0.69	1.18
S16	W21X93	27.920	Varies, See Table Below				0.69	1.27
S17	W21X93	26.850	Varies, See Table Below				0.69	1.23
S18	W21X83	25.420	6.496	0.542	0.057	1.181	0.69	1.31
S19	W21X83	24.000	6.498	0.542	0.057	1.181	0.69	1.46
S20	W21X68	22.590	6.583	0.549	0.057	1.197	0.69	1.24
S21	W21X68	21.120	6.493	0.542	0.057	1.181	0.69	1.37
S22	W21X68	19.690	6.433	0.537	0.057	1.170	0.69	1.51

Stringer 16 Detail

Tenth Point	Section	Span	Stringer Spacing	Slab & WS load	Railing load	Dist Factor
0	W21X93	27.920	5.875	0.490	0.057	1.068
0.1			5.956	0.497	0.057	1.083
0.2			6.038	0.504	0.057	1.098
0.3			6.119	0.511	0.057	1.113
0.4			6.200	0.517	0.057	1.127
0.5			6.281	0.524	0.057	1.142
0.6			6.363	0.531	0.057	1.157
0.7			6.444	0.538	0.057	1.172
0.8			6.525	0.544	0.057	1.186
0.9			6.606	0.551	0.057	1.201
1			7.500	0.626	0.057	1.364



Made By PJP Date 3/9/2012
 Checked By MTN Date 3/14/2012

Job No. P402110046
 Sheet No. _____

Calculations For: **CUY-2-1441 - East Approach Forward Section**

Unit 10 Stringers

Stringer 17 Detail

Tenth Point	Section	Span	Stringer Spacing	Slab & WS load	Railing load	Dist Factor
0	W21X68	26.850	6.309	0.526	0.057	1.147
0.1			6.432	0.537	0.057	1.169
0.2			6.554	0.547	0.057	1.192
0.3			6.677	0.557	0.057	1.214
0.4			6.799	0.567	0.057	1.236
0.5			6.922	0.578	0.057	1.259
0.6			7.045	0.588	0.057	1.281
0.7			7.167	0.598	0.057	1.303
0.8			7.290	0.608	0.057	1.325
0.9			7.412	0.618	0.057	1.348
1			7.535	0.629	0.057	1.370

Fascia Stringers

Stringer	Avg. Web	Flanges	Deck Overhang	Stringer Spacing	Slab & WS load	Railing load	Dist Factor	Deflection DF	HS-20 RF Moment	HS-20 RF Shear
F1-10	48.5x0.375	12x0.75	1.5	5.620	0.360	0.057	1.022	0.69	3.36	1.72
F2-10	34x0.375	12x0.75	1.5	6.542	0.398	0.057	1.161	0.69	4.75	3.02

Critical Stringer Ratings

Stringer S11-10 - Positive Moment					
HS-20 Inventory	HS-20 Operating	2F1	3F1	4F1	5C1
1.12	1.88	3.04	2.11	1.99	2.21

CUY-2-1441 EAST APPROACH FORWARD
Line Girder : Input File : Definition
Fri Apr 13 16:02:16 2012

ID: CUY-2-1441 EAST APPROACH FORWARD

CONDITIONS

A36 STEEL
ENGLISH INPUT
ENGLISH OUTPUT
HS20 LOADING
LFD METHOD
NONCOMPOSITE GIRDER
RATE MODE
ROLLED SHAPES GIRDER
SELF WEIGHT FOR DEAD LOAD 1
W33X141

DATA

BR 24.83
FILLET 1.
FPC 4.5
HAUNCW 17.5
SPN 49.67
WAC 0.552
WAS 0.007
WCONC 117.
WHEELD 0.6
WHEELF 1.202
WHEELR 1.202
WHEELS 1.202
WSDL 0.091

GO

CUY-2-1441 EAST APPROACH FORWARD
 Line Girder : Rating Output : Governing Service Moment
 Fri Apr 13 16:02:50 2012

Service Moment - k-ft

Tenth Point	Location	Noncomp Dead	Comp Dead	Max LL+I	Min LL+I	Range
0	0.00	0.00	0.00	0.00	0.00	0.00
1	4.97	80.39	10.10	194.63 T	0.00	194.63
2	9.93	142.92	17.96	333.98 T	0.00	333.98
3	14.90	187.58	23.57	418.03 T	0.00	418.03
4	19.87	214.38	26.94	473.02 T	0.00	473.02
5	24.83	223.31	28.06	474.69 T	0.00	474.69
6	29.80	214.38	26.94	473.02 T	0.00	473.02
7	34.77	187.58	23.57	418.03 T	0.00	418.03
8	39.74	142.92	17.96	333.98 T	0.00	333.98
9	44.70	80.39	10.10	194.63 T	0.00	194.63
10	49.67	0.00	0.00	0.00	0.00	0.00

T - governed by truck loading
 L - governed by lane loading

At Bracing

Brace No.	Location	Noncomp Dead	Comp Dead	Max LL+I	Min LL+I	Range
2	24.83	223.31	28.06	474.69	0.00	

CUY-2-1441 EAST APPROACH FORWARD
 Line Girder : Rating Output : Governing Service Shear
 Fri Apr 13 16:02:56 2012

Service Shear -k

Tenth Point	Location	Noncomp Dead	Comp Dead	Max LL+I	Range
0	0.00	17.98	2.26	45.61 T	45.61
1	4.97	14.39	1.81	40.84 T	43.33
2	9.93	10.79	1.36	35.23 T	40.23
3	14.90	7.19	0.90	29.60 T	37.21
4	19.87	3.60	0.45	23.98 T	37.72
5	24.83	0.00	0.00	18.75 T	37.50
6	29.80	-3.60	-0.45	-23.98 T	37.73
7	34.77	-7.19	-0.90	-29.60 T	38.34
8	39.74	-10.79	-1.36	-35.21 T	40.21
9	44.70	-14.39	-1.81	-40.69 T	43.18
10	49.67	-17.98	-2.26	-45.45 T	45.45

T - governed by truck loading
 L - governed by lane loading

CUY-2-1441 EAST APPROACH FORWARD
Line Girder : Input File : Definition
Fri Apr 13 16:10:07 2012

ID: CUY-2-1441 EAST APPROACH FORWARD

CONDITIONS

A36 STEEL
ENGLISH INPUT
ENGLISH OUTPUT
HS20 LOADING
LFD METHOD
NONCOMPOSITE GIRDER
RATE MODE
ROLLED SHAPES GIRDER
SELF WEIGHT FOR DEAD LOAD 1
W30X116

DATA

BR 22.
FILLET 1.
FPC 4.5
HAUNCW 16.5
SPN 44.
WAC 0.488
WAS 0.006
WCONC 117.
WHEELD 0.6
WHEELF 1.064
WHEELR 1.064
WHEELS 1.064
WSDL 0.091

GO

CUY-2-1441 EAST APPROACH FORWARD
 Line Girder : Rating Output : Governing Service Moment
 Fri Apr 13 16:10:59 2012

Service Moment - k-ft

Tenth Point	Location	Noncomp Dead	Comp Dead	Max LL+I	Min LL+I	Range
0	0.00	0.00	0.00	0.00	0.00	0.00
1	4.40	55.09	7.93	147.14 T	0.00	147.14
2	8.80	97.93	14.09	250.61 T	0.00	250.61
3	13.20	128.54	18.50	315.03 T	0.00	315.03
4	17.60	146.90	21.14	354.29 T	0.00	354.29
5	22.00	153.02	22.02	352.97 T	0.00	352.97
6	26.40	146.90	21.14	354.29 T	0.00	354.29
7	30.80	128.54	18.50	315.03 T	0.00	315.03
8	35.20	97.93	14.09	250.61 T	0.00	250.61
9	39.60	55.09	7.93	147.14 T	0.00	147.14
10	44.00	0.00	0.00	0.00	0.00	0.00

T - governed by truck loading
 L - governed by lane loading

At Bracing

Brace No.	Location	Noncomp Dead	Comp Dead	Max LL+I	Min LL+I	Range
2	22.00	153.02	22.02	352.97	0.00	

CUY-2-1441 EAST APPROACH FORWARD
Line Girder : Rating Output : Governing Service Shear
Fri Apr 13 16:11:10 2012

Service Shear -k

Tenth Point	Location	Noncomp Dead	Comp Dead	Max LL+I	Range
0	0.00	13.91	2.00	39.23 T	39.23
1	4.40	11.13	1.60	34.66 T	36.87
2	8.80	8.35	1.20	29.68 T	34.10
3	13.20	5.56	0.80	24.70 T	31.34
4	17.60	2.78	0.40	19.92 T	30.98
5	22.00	0.00	0.00	15.49 T	30.98
6	26.40	-2.78	-0.40	-19.92 T	30.98
7	30.80	-5.56	-0.80	-24.70 T	31.34
8	35.20	-8.35	-1.20	-29.68 T	34.10
9	39.60	-11.13	-1.60	-34.66 T	36.87
10	44.00	-13.91	-2.00	-39.22 T	39.22

T - governed by truck loading
L - governed by lane loading

CUY-2-1441 EAST APPROACH FORWARD
Line Girder : Input File : Definition
Mon Jun 25 09:32:16 2012

ID: CUY-2-1441 EAST APPROACH FORWARD
CONDITIONS

A36 STEEL
ENGLISH INPUT
ENGLISH OUTPUT
HS20 LOADING
IGNORE MOMENT SHIFTING
LFD METHOD
NONCOMPOSITE GIRDER
RATE MODE
ROLLED SHAPES GIRDER
SELF WEIGHT FOR DEAD LOAD 1
W24X104

DATA

BR 22. 22. 22.
FILLET 1.
FPC 4.5
HAUNCW 18.75
HINGE 44.
SPN 44. 44.
WAC 0.488
WAS 0.006
WCONC 117.
WHEELD 0.6
WHEELF 1.064
WHEELR 1.064
WHEELS 1.064
WSDL 0.091

GO

Service Moment - k-ft

Tenth Point	Location	Noncomp Dead	Comp Dead	Max LL+I	Min LL+I	Range
0	0.00	0.00	0.00	0.00	0.00	0.00
1	4.40	54.34	7.93	147.14 T	0.00	147.14
2	8.80	96.61	14.09	250.61 T	0.00	250.61
3	13.20	126.80	18.50	315.03 T	0.00	315.03
4	17.60	144.91	21.14	354.29 T	0.00	354.29
5	22.00	150.95	22.02	352.97 T	0.00	352.97
6	26.40	144.91	21.14	354.29 T	0.00	354.29
7	30.80	126.80	18.50	315.03 T	0.00	315.03
8	35.20	96.61	14.09	250.61 T	0.00	250.61
9	39.60	54.34	7.93	147.14 T	0.00	147.14
10	44.00	0.00	0.00	0.00 T	0.00 T	0.00
11	48.40	54.34	7.93	147.14 T	0.00 T	147.14
12	52.80	96.61	14.09	250.61 T	0.00 T	250.61
13	57.20	126.80	18.50	315.03 T	0.00 T	315.03
14	61.60	144.91	21.14	354.29 T	0.00 T	354.29
15	66.00	150.95	22.02	352.97 T	0.00 T	352.97
16	70.40	144.91	21.14	354.29 T	0.00 T	354.29
17	74.80	126.80	18.50	315.03 T	0.00 T	315.03
18	79.20	96.61	14.09	250.61 T	0.00 T	250.61
19	83.60	54.34	7.93	147.14 T	0.00 T	147.14
20	88.00	0.00	0.00	0.00	0.00	0.00

T - governed by truck loading
 L - governed by lane loading

At Bracing

Brace No.

2	22.00	150.95	22.02	352.97	0.00
3	44.00	0.00	0.00	0.00	0.00
4	66.00	150.95	22.02	352.97	0.00

CUY-2-1441 EAST APPROACH FORWARD
 Line Girder : Rating Output : Governing Service Shear
 Mon Jun 25 09:33:02 2012

Service Shear -k

Tenth Point	Location	Noncomp Dead	Comp Dead	Max LL+I	Range
0	0.00	13.72	2.00	39.23 T	39.23
1	4.40	10.98	1.60	34.66 T	36.87
2	8.80	8.23	1.20	29.68 T	34.10
3	13.20	5.49	0.80	24.70 T	31.34
4	17.60	2.74	0.40	19.92 T	30.98
5	22.00	0.00	0.00	15.49 T	30.98
6	26.40	-2.74	-0.40	-19.92 T	30.98
7	30.80	-5.49	-0.80	-24.70 T	31.34
8	35.20	-8.23	-1.20	-29.68 T	34.10
9	39.60	-10.98	-1.60	-34.66 T	36.87
10	44.00L	-13.72	-2.00	-39.56 T	39.56
10	44.00R	13.72	2.00	39.56 T	39.56
11	48.40	10.98	1.60	34.66 T	36.87
12	52.80	8.23	1.20	29.68 T	34.10
13	57.20	5.49	0.80	24.70 T	31.34
14	61.60	2.74	0.40	19.92 T	30.98
15	66.00	0.00	0.00	15.49 T	30.98
16	70.40	-2.74	-0.40	-19.92 T	30.98
17	74.80	-5.49	-0.80	-24.70 T	31.34
18	79.20	-8.23	-1.20	-29.68 T	34.10
19	83.60	-10.98	-1.60	-34.66 T	36.87
20	88.00	-13.72	-2.00	-39.22 T	39.22

T - governed by truck loading
 L - governed by lane loading

CUY-2-1441 EAST APPROACH FORWARD
Line Girder : Input File : Definition
Fri Apr 13 16:13:37 2012

ID: CUY-2-1441 EAST APPROACH FORWARD
CONDITIONS

A36 STEEL
ENGLISH INPUT
ENGLISH OUTPUT
HS20 LOADING
IGNORE MOMENT SHIFTING
LFD METHOD
NONCOMPOSITE GIRDER
RATE MODE
ROLLED SHAPES GIRDER
SELF WEIGHT FOR DEAD LOAD 1
W24X104

DATA

BR 22. 22. 22.
FILLET 1.
FPC 4.5
HAUNCW 18.75
SPN 44. 44.
WAC 0.519
WAS 0.006
WCONC 117.
WHEELD 0.6
WHEELF 1.13
WHEELR 1.13
WHEELS 1.13
WSDL 0.091

GO

CUY-2-1441 EAST APPROACH FORWARD
 Line Girder : Rating Output : Governing Service Moment
 From Apr 13 16:14:09 2012

Service Moment - k-ft

Tenth Point	Location	Noncomp Dead	Comp Dead	Max LL+I	Min LL+I	Range
0	0.00	0.00	0.00	0.00	0.00	0.00
1	4.40	41.35	5.73	142.42 T	-18.06 T	160.48
2	8.80	70.03	9.69	234.97 T	-36.12 T	271.09
3	13.20	86.04	11.89	284.15 T	-54.18 T	338.33
4	17.60	89.36	12.33	304.03 T	-72.24 T	376.27
5	22.00	80.01	11.01	295.38 T	-90.30 T	385.68
6	26.40	57.98	7.93	271.54 T	-108.36 T	379.90
7	30.80	23.28	3.08	210.20 T	-126.42 T	336.62
8	35.20	-24.10	-3.52	125.31 T	-144.48 T	269.79
9	39.60	-84.15	-11.89	35.64 L	-162.54 T	198.18
10	44.00	-156.88	-22.02	0.00	-223.62 L	223.62
11	48.40	-84.15	-11.89	35.64 L	-162.54 T	198.18
12	52.80	-24.10	-3.52	125.31 T	-144.48 T	269.79
13	57.20	23.28	3.08	210.20 T	-126.42 T	336.62
14	61.60	57.98	7.93	271.54 T	-108.36 T	379.90
15	66.00	80.01	11.01	295.38 T	-90.30 T	385.68
16	70.40	89.36	12.33	304.03 T	-72.24 T	376.27
17	74.80	86.04	11.89	284.15 T	-54.18 T	338.33
18	79.20	70.03	9.69	234.97 T	-36.12 T	271.09
19	83.60	41.35	5.73	142.42 T	-18.06 T	160.48
20	88.00	0.00	0.00	0.00	0.00	0.00

T - governed by truck loading
 L - governed by lane loading

At Bracing

Brace No.

2	22.00	80.01	11.01	295.38	-90.30
3	44.00	-156.88	-22.02	0.00	-223.62
4	66.00	80.01	11.01	295.38	-90.30

CUY-2-1441 EAST APPROACH FORWARD
Line Girder : Rating Output : Governing Service Shear
Fri Apr 13 16:14:22 2012

Service Shear -k

Tenth Point	Location	Noncomp Dead	Comp Dead	Max LL+I	Range
0	0.00	10.84	1.50	39.46 T	43.58
1	4.40	7.96	1.10	33.76 T	37.88
2	8.80	5.08	0.70	27.82 T	33.65
3	13.20	2.20	0.30	22.21 T	30.86
4	17.60	-0.68	-0.10	16.99 T	31.30
5	22.00	-3.57	-0.50	-19.78 T	32.03
6	26.40	-6.45	-0.90	-25.01 T	33.04
7	30.80	-9.33	-1.30	-30.39 T	35.30
8	35.20	-12.21	-1.70	-35.65 T	38.37
9	39.60	-15.09	-2.10	-40.42 T	41.33
10	44.00L	-17.97	-2.50	-44.58 T	44.58
10	44.00R	17.97	2.50	44.58 T	44.58
11	48.40	15.09	2.10	40.42 T	41.33
12	52.80	12.21	1.70	35.65 T	38.37
13	57.20	9.33	1.30	30.39 T	35.30
14	61.60	6.45	0.90	25.01 T	33.04
15	66.00	3.57	0.50	19.78 T	32.03
16	70.40	0.68	0.10	-16.99 T	31.30
17	74.80	-2.20	-0.30	-22.21 T	30.86
18	79.20	-5.08	-0.70	-27.82 T	33.65
19	83.60	-7.96	-1.10	-33.76 T	37.88
20	88.00	-10.84	-1.50	-39.46 T	43.45

T - governed by truck loading
L - governed by lane loading

CUY-2-1441 EAST APPROACH FORWARD
Line Girder : Input File : Definition
Fri Apr 13 16:18:45 2012

ID: CUY-2-1441 EAST APPROACH FORWARD

CONDITIONS

A36 STEEL
ENGLISH INPUT
ENGLISH OUTPUT
HS20 LOADING
LFD METHOD
NONCOMPOSITE GIRDER
RATE MODE
ROLLED SHAPES GIRDER
SELF WEIGHT FOR DEAD LOAD 1
W30X116

DATA

BR 22.
FILLET 1.
FPC 4.5
HAUNCW 16.5
SPN 44.
WAC 0.488
WAS 0.006
WCONC 117.
WHEELD 0.6
WHEELF 1.064
WHEELR 1.064
WHEELS 1.064
WSDL 0.091

GO

CUY-2-1441 EAST APPROACH FORWARD
 Line Girder : Rating Output : Governing Service Moment
 Fri Apr 13 16:19:21 2012

Service Moment - k-ft

Tenth Point	Location	Noncomp Dead	Comp Dead	Max LL+I	Min LL+I	Range
0	0.00	0.00	0.00	0.00	0.00	0.00
1	4.40	55.09	7.93	147.14 T	0.00	147.14
2	8.80	97.93	14.09	250.61 T	0.00	250.61
3	13.20	128.54	18.50	315.03 T	0.00	315.03
4	17.60	146.90	21.14	354.29 T	0.00	354.29
5	22.00	153.02	22.02	352.97 T	0.00	352.97
6	26.40	146.90	21.14	354.29 T	0.00	354.29
7	30.80	128.54	18.50	315.03 T	0.00	315.03
8	35.20	97.93	14.09	250.61 T	0.00	250.61
9	39.60	55.09	7.93	147.14 T	0.00	147.14
10	44.00	0.00	0.00	0.00	0.00	0.00

T - governed by truck loading
 L - governed by lane loading

At Bracing

Brace No.	Location	Noncomp Dead	Comp Dead	Max LL+I	Min LL+I	Range
2	22.00	153.02	22.02	352.97	0.00	

CUY-2-1441 EAST APPROACH FORWARD
 Line Girder : Rating Output : Governing Service Shear
 Fri Apr 13 16:19:29 2012

Service Shear -k

Tenth Point	Location	Noncomp Dead	Comp Dead	Max LL+I	Range
0	0.00	13.91	2.00	39.23 T	39.23
1	4.40	11.13	1.60	34.66 T	36.87
2	8.80	8.35	1.20	29.68 T	34.10
3	13.20	5.56	0.80	24.70 T	31.34
4	17.60	2.78	0.40	19.92 T	30.98
5	22.00	0.00	0.00	15.49 T	30.98
6	26.40	-2.78	-0.40	-19.92 T	30.98
7	30.80	-5.56	-0.80	-24.70 T	31.34
8	35.20	-8.35	-1.20	-29.68 T	34.10
9	39.60	-11.13	-1.60	-34.66 T	36.87
10	44.00	-13.91	-2.00	-39.22 T	39.22

T - governed by truck loading
 L - governed by lane loading

CUY-2-1441 EAST APPROACH FORWARD
Line Girder : Input File : Definition
Mon Jun 25 09:41:41 2012

ID: CUY-2-1441 EAST APPROACH FORWARD

CONDITIONS

A36 STEEL
ENGLISH INPUT
ENGLISH OUTPUT
HS20 LOADING
IGNORE MOMENT SHIFTING
LFD METHOD
NONCOMPOSITE GIRDER
RATE MODE
ROLLED SHAPES GIRDER
SELF WEIGHT FOR DEAD LOAD 1
W24X117

DATA

BR 22. 22. 22.
FILLET 1.
FPC 4.5
HAUNCW 18.75
HINGE 44.
SPN 44. 44.
WAC 0.519 0.519 0.519 0.519 0.519 0.519 0.519 0.519 0.519 0.519
0.519 0.519 0.529 0.539 0.55 0.56 0.571 0.581 0.591 0.602
0.612 0.623
WAS 0.006
WCONC 117.
WHEELD 0.6
WHEELF 1.13 1.13 1.13 1.13 1.13 1.13 1.13 1.13 1.13 1.13 1.13 1.153
1.175 1.198 1.221 1.243 1.266 1.289 1.311 1.334 1.357
WHEELR 1.13 1.13 1.357
WHEELS 1.13 1.13 1.13 1.13 1.13 1.13 1.13 1.13 1.13 1.13 1.13 1.153
1.175 1.198 1.221 1.243 1.266 1.289 1.311 1.334 1.357
WSDL 0.091

GO

CUY-2-1441 EAST APPROACH FORWARD
 Line Girder : Rating Output : Governing Service Moment
 Mon Jun 25 09:41:57 2012

Service Moment - k-ft

Tenth Point	Location	Noncomp Dead	Comp Dead	Max LL+I	Min LL+I	Range
0	0.00	0.00	0.00	0.00	0.00	0.00
1	4.40	58.17	7.93	156.27 T	0.00	156.27
2	8.80	103.41	14.09	266.15 T	0.00	266.15
3	13.20	135.73	18.50	334.57 T	0.00	334.57
4	17.60	155.12	21.14	376.27 T	0.00	376.27
5	22.00	161.58	22.02	374.87 T	0.00	374.87
6	26.40	155.12	21.14	376.27 T	0.00	376.27
7	30.80	135.73	18.50	334.57 T	0.00	334.57
8	35.20	103.41	14.09	266.15 T	0.00	266.15
9	39.60	58.17	7.93	156.27 T	0.00	156.27
10	44.00	0.00	0.00	0.00 T	0.00 T	0.00
11	48.40	61.45	7.93	164.65 T	0.00 T	164.65
12	52.80	109.79	14.09	285.12 T	0.00 T	285.12
13	57.20	144.80	18.50	363.01 T	0.00 T	363.01
14	61.60	166.30	21.14	413.81 T	0.00 T	413.81
15	66.00	174.07	22.02	417.31 T	0.00 T	417.31
16	70.40	167.91	21.14	414.27 T	0.00 T	414.27
17	74.80	147.62	18.50	373.34 T	0.00 T	373.34
18	79.20	113.01	14.09	299.67 T	0.00 T	299.67
19	83.60	63.87	7.93	178.09 T	0.00 T	178.09
20	88.00	0.00	0.00	0.00	0.00	0.00

T - governed by truck loading
 L - governed by lane loading

At Bracing

Brace No.

2	22.00	161.58	22.02	374.87	0.00
3	44.00	0.00	0.00	0.00	0.00
4	66.00	174.07	22.02	417.31	0.00

CUY-2-1441 EAST APPROACH FORWARD
 Line Girder : Rating Output : Governing Service Shear
 Mon Jun 25 09:42:14 2012

Service Shear -k

Tenth Point	Location	Noncomp Dead	Comp Dead	Max LL+I	Range
0	0.00	14.69	2.00	41.66 T	41.66
1	4.40	11.75	1.60	36.81 T	39.16
2	8.80	8.81	1.20	31.52 T	36.22
3	13.20	5.88	0.80	26.23 T	33.28
4	17.60	2.94	0.40	21.15 T	32.91
5	22.00	0.00	0.00	16.45 T	32.91
6	26.40	-2.94	-0.40	-21.15 T	32.91
7	30.80	-5.88	-0.80	-26.23 T	33.28
8	35.20	-8.81	-1.20	-31.52 T	36.22
9	39.60	-11.75	-1.60	-36.81 T	39.16
10	44.00L	-14.69	-2.00	-42.02 T	42.02
10	44.00R	15.44	2.00	43.76 T	43.76
11	48.40	12.48	1.60	39.02 T	41.41
12	52.80	9.48	1.20	33.99 T	38.88
13	57.20	6.43	0.80	28.76 T	36.23
14	61.60	3.33	0.40	23.56 T	36.11
15	66.00	0.19	0.00	18.62 T	36.44
16	70.40	-3.00	-0.40	-23.28 T	36.77
17	74.80	-6.23	-0.80	-29.30 T	37.35
18	79.20	-9.51	-1.20	-35.73 T	41.19
19	83.60	-12.83	-1.60	-42.40 T	45.17
20	88.00	-16.21	-2.00	-48.26 T	48.26

T - governed by truck loading
 L - governed by lane loading

CUY-2-1441 EAST APPROACH FORWARD
Line Girder : Input File : Definition
Fri Apr 13 16:22:54 2012

ID: CUY-2-1441 EAST APPROACH FORWARD
CONDITIONS

A36 STEEL
ENGLISH INPUT
ENGLISH OUTPUT
HS20 LOADING
IGNORE MOMENT SHIFTING
LFD METHOD
NONCOMPOSITE GIRDER
RATE MODE
ROLLED SHAPES GIRDER
SELF WEIGHT FOR DEAD LOAD 1
W24X104

DATA

BR 22. 22. 22.
FILLET 1.
FPC 4.5
HAUNCW 18.75
SPN 44. 44.
WAC 0.515
WAS 0.006
WCONC 117.
WHEELD 0.6
WHEELF 1.123
WHEELR 1.123
WHEELS 1.123
WSDL 0.091

GO

CUY-2-1441 EAST APPROACH FORWARD
 Line Girder : Rating Output : Governing Service Moment
 Fri Apr 13 16:23:55 2012

Service Moment - k-ft

Tenth Point	Location	Noncomp Dead	Comp Dead	Max LL+I	Min LL+I	Range
0	0.00	0.00	0.00	0.00	0.00	0.00
1	4.40	41.10	5.73	141.54 T	-17.95 T	159.49
2	8.80	69.60	9.69	233.51 T	-35.90 T	269.41
3	13.20	85.51	11.89	282.39 T	-53.84 T	336.23
4	17.60	88.82	12.33	302.15 T	-71.79 T	373.94
5	22.00	79.52	11.01	293.55 T	-89.74 T	383.29
6	26.40	57.63	7.93	269.86 T	-107.69 T	377.55
7	30.80	23.14	3.08	208.90 T	-125.64 T	334.54
8	35.20	-23.95	-3.52	124.54 T	-143.59 T	268.12
9	39.60	-83.64	-11.89	35.42 L	-161.53 T	196.96
10	44.00	-155.92	-22.02	0.00	-222.23 L	222.23
11	48.40	-83.64	-11.89	35.42 L	-161.53 T	196.96
12	52.80	-23.95	-3.52	124.54 T	-143.59 T	268.12
13	57.20	23.14	3.08	208.90 T	-125.64 T	334.54
14	61.60	57.63	7.93	269.86 T	-107.69 T	377.55
15	66.00	79.52	11.01	293.55 T	-89.74 T	383.29
16	70.40	88.82	12.33	302.15 T	-71.79 T	373.94
17	74.80	85.51	11.89	282.39 T	-53.84 T	336.23
18	79.20	69.61	9.69	233.51 T	-35.90 T	269.41
19	83.60	41.10	5.73	141.54 T	-17.95 T	159.49
20	88.00	0.00	0.00	0.00	0.00	0.00

T - governed by truck loading
 L - governed by lane loading

At Bracing

Brace No.

2	22.00	79.52	11.01	293.55	-89.74
3	44.00	-155.92	-22.02	0.00	222.23
4	66.00	79.52	11.01	293.55	-89.74

Service Shear -k

Tenth Point	Location	Noncomp Dead	Comp Dead	Max LL+I	Range
0	0.00	10.77	1.50	39.21 T	43.31
1	4.40	7.91	1.10	33.55 T	37.64
2	8.80	5.05	0.70	27.65 T	33.44
3	13.20	2.18	0.30	22.07 T	30.67
4	17.60	-0.68	-0.10	16.88 T	31.10
5	22.00	-3.54	-0.50	-19.66 T	31.83
6	26.40	-6.41	-0.90	-24.86 T	32.84
7	30.80	-9.27	-1.30	-30.20 T	35.08
8	35.20	-12.13	-1.70	-35.42 T	38.13
9	39.60	-15.00	-2.10	-40.17 T	41.07
10	44.00L	-17.86	-2.50	-44.30 T	44.30
10	44.00R	17.86	2.50	44.30 T	44.30
11	48.40	15.00	2.10	40.17 T	41.07
12	52.80	12.13	1.70	35.42 T	38.13
13	57.20	9.27	1.30	30.20 T	35.08
14	61.60	6.41	0.90	24.86 T	32.84
15	66.00	3.54	0.50	19.66 T	31.83
16	70.40	0.68	0.10	-16.88 T	31.10
17	74.80	-2.18	-0.30	-22.07 T	30.67
18	79.20	-5.05	-0.70	-27.65 T	33.44
19	83.60	-7.91	-1.10	-33.55 T	37.64
20	88.00	-10.77	-1.50	-39.21 T	43.18

T - governed by truck loading
 L - governed by lane loading

CUY-2-1441 EAST APPROACH FORWARD
Line Girder : Input File : Definition
Fri Apr 13 16:28:34 2012

ID: CUY-2-1441 EAST APPROACH FORWARD

CONDITIONS

A36 STEEL
ENGLISH INPUT
ENGLISH OUTPUT
HS20 LOADING
LFD METHOD
NONCOMPOSITE GIRDER
RATE MODE
ROLLED SHAPES GIRDER
SELF WEIGHT FOR DEAD LOAD 1
W27X102

DATA

BR 20.
FILLET 1.
FPC 4.5
HAUNCW 16.
SPN 40.
WAC 0.488
WAS 0.006
WCONC 117.
WHEELD 0.66
WHEELF 1.064
WHEELR 1.064
WHEELS 1.064
WSDL 0.085

GO

CUY-2-1441 EAST APPROACH FORWARD
 Line Girder : Rating Output : Governing Service Moment
 Fri Apr 13 16:28:55 2012

Service Moment - k-ft

Tenth Point	Location	Noncomp Dead	Comp Dead	Max LL+I	Min LL+I	Range
0	0.00	0.00	0.00	0.00	0.00	0.00
1	4.00	44.44	6.12	132.79 T	0.00	132.79
2	8.00	79.00	10.88	225.74 T	0.00	225.74
3	12.00	103.69	14.28	278.85 T	0.00	278.85
4	16.00	118.50	16.32	307.62 T	0.00	307.62
5	20.00	123.44	17.00	304.30 T	0.00	304.30
6	24.00	118.50	16.32	307.62 T	0.00	307.62
7	28.00	103.69	14.28	278.85 T	0.00	278.85
8	32.00	79.00	10.88	225.74 T	0.00	225.74
9	36.00	44.44	6.12	132.79 T	0.00	132.79
10	40.00	0.00	0.00	0.00	0.00	0.00

T - governed by truck loading
 L - governed by lane loading

At Bracing

Brace No.	Location	Noncomp Dead	Comp Dead	Max LL+I	Min LL+I	Range
2	20.00	123.44	17.00	304.30	0.00	

CUY-2-1441 EAST APPROACH FORWARD
 Line Girder : Rating Output : Governing Service Shear
 Fri Apr 13 16:29:03 2012

Service Shear -k

Tenth Point	Location	Noncomp Dead	Comp Dead	Max LL+I	Range
0	0.00	12.34	1.70	38.18 T	38.18
1	4.00	9.88	1.36	34.30 T	36.52
2	8.00	7.41	1.02	29.32 T	33.75
3	12.00	4.94	0.68	24.34 T	30.98
4	16.00	2.47	0.34	19.92 T	29.05
5	20.00	0.00	0.00	15.49 T	29.88
6	24.00	-2.47	-0.34	-18.81 T	29.88
7	28.00	-4.94	-0.68	-23.24 T	29.88
8	32.00	-7.41	-1.02	-28.22 T	32.64
9	36.00	-9.88	-1.36	-33.20 T	35.41
10	40.00	-12.34	-1.70	-38.18 T	38.18

T - governed by truck loading
 L - governed by lane loading

CUY-2-1441 EAST APPROACH FORWARD
Line Girder : Input File : Definition
Mon Jun 25 09:43:00 2012

ID: CUY-2-1441 EAST APPROACH FORWARD
CONDITIONS

A36 STEEL
APPLY IMPACT AT AXLE LOCATION
ENGLISH INPUT
ENGLISH OUTPUT
HS20 LOADING
IGNORE MOMENT SHIFTING
LFD METHOD
NONCOMPOSITE GIRDER
RATE MODE
ROLLED SHAPES GIRDER
SELF WEIGHT FOR DEAD LOAD 1
W27X84

DATA

BR 20. 20. 20.
FILLET 1.
FPC 4.5
HAUNCW 16.
HINGE 40.
SPN 40. 40.
TSLABW 0.0001
WAC 0.277 0.298 0.319 0.339 0.36 0.381 0.401 0.422 0.443
0.463 0.484 0.47 0.47 0.47 0.47 0.47 0.47 0.47 0.47
0.47
WAS 0.005
WCONC 117.
WHEELD 0.58
WHEELF 0.605 0.65 0.695 0.74 0.785 0.83 0.875 0.92 0.965 1.01
1.055 1.025 1.025 1.025 1.025 1.025 1.025 1.025 1.025 1.025 1.025
WHEELR 0.605 1.055 1.025
WHEELS 0.605 0.65 0.695 0.74 0.785 0.83 0.875 0.92 0.965 1.01
1.055 1.025 1.025 1.025 1.025 1.025 1.025 1.025 1.025 1.025 1.025
WSDL 0.076

GO

CUY-2-1441 EAST APPROACH FORWARD
 Line Girder : Rating Output : Governing Service Moment
 Mon Jun 25 09:43:16 2012

Service Moment - k-ft

Tenth Point	Location	Noncomp Dead	Comp Dead	Max LL+I	Min LL+I	Range
0	0.00	0.00	0.00	0.00	0.00	0.00
1	4.00	33.38	5.47	90.39 T	0.00	90.39
2	8.00	60.22	9.73	161.96 T	0.00	161.96
3	12.00	80.20	12.77	209.66 T	0.00	209.66
4	16.00	92.98	14.59	239.08 T	0.00	239.08
5	20.00	98.23	15.20	244.75 T	0.00	244.75
6	24.00	95.62	14.59	240.86 T	0.00	240.86
7	28.00	84.83	12.77	227.35 T	0.00	227.35
8	32.00	65.51	9.73	188.93 T	0.00	188.93
9	36.00	37.35	5.47	114.72 T	0.00	114.72
10	40.00	0.00	0.00	0.00 T	0.00 T	0.00
11	44.00	41.83	5.47	127.92 T	0.00 T	127.92
12	48.00	74.33	9.73	217.46 T	0.00 T	217.46
13	52.00	97.55	12.77	268.63 T	0.00 T	268.63
14	56.00	111.47	14.59	296.44 T	0.00 T	296.44
15	60.00	116.11	15.20	293.15 T	0.00 T	293.15
16	64.00	111.47	14.59	296.35 T	0.00 T	296.35
17	68.00	97.53	12.77	268.63 T	0.00 T	268.63
18	72.00	74.31	9.73	217.53 T	0.00 T	217.53
19	76.00	41.80	5.47	127.92 T	0.00 T	127.92
20	80.00	0.00	0.00	0.00	0.00	0.00

T - governed by truck loading
 L - governed by lane loading

At Bracing

Brace No.

2	20.00	98.23	15.20	244.75	0.00
3	40.00	0.00	0.00	0.00	0.00
4	60.00	116.11	15.20	293.15	0.00

Service Shear -k

Tenth Point	Location	Noncomp Dead	Comp Dead	Max LL+I	Range
0	0.00	9.13	1.52	25.42 T	25.42
1	4.00	7.54	1.22	23.83 T	25.19
2	8.00	5.87	0.91	21.48 T	24.37
3	12.00	4.11	0.61	18.71 T	23.33
4	16.00	2.27	0.30	16.10 T	22.79
5	20.00	0.34	0.00	13.11 T	23.77
6	24.00	-1.66	-0.30	-14.53 T	24.29
7	28.00	-3.75	-0.61	-19.11 T	25.13
8	32.00	-5.92	-0.91	-23.83 T	28.03
9	36.00	-8.18	-1.22	-29.10 T	31.30
10	40.00L	-10.51	-1.52	-34.88 T	34.88
10	40.00R	11.64	1.52	37.84 T	37.84
11	44.00	9.29	1.22	33.05 T	35.18
12	48.00	6.96	0.91	28.25 T	32.51
13	52.00	4.64	0.61	23.45 T	29.85
14	56.00	2.32	0.30	19.19 T	28.81
15	60.00	0.00	0.00	14.92 T	28.78
16	64.00	-2.32	-0.30	-18.12 T	28.78
17	68.00	-4.64	-0.61	-22.39 T	28.78
18	72.00	-6.97	-0.91	-27.19 T	31.45
19	76.00	-9.29	-1.22	-31.98 T	34.11
20	80.00	-11.61	-1.52	-36.77 T	36.77

T - governed by truck loading
 L - governed by lane loading

CUY-2-1441 EAST APPROACH FORWARD
Line Girder : Input File : Definition
Fri Apr 13 16:30:03 2012

ID: CUY-2-1441 EAST APPROACH FORWARD
CONDITIONS

A36 STEEL
APPLY IMPACT AT AXLE LOCATION
ENGLISH INPUT
ENGLISH OUTPUT
HS20 LOADING
IGNORE MOMENT SHIFTING
LFD METHOD
NONCOMPOSITE GIRDER
RATE MODE
ROLLED SHAPES GIRDER
SELF WEIGHT FOR DEAD LOAD 1
W27X84

DATA

BR 20. 20. 20.
FILLET 1.
FPC 4.5
HAUNCW 16.
SPN 40. 40.
WAC 0.487
WAS 0.006
WCONC 117.
WHEELD 0.58
WHEELF 1.061
WHEELR 1.061
WHEELS 1.061
WSDL 0.076

GO

CUY-2-1441 EAST APPROACH FORWARD
 Line Girder : Rating Output : Governing Service Moment
 Fri Apr 13 16:30:24 2012

Service Moment - k-ft

Tenth Point	Location	Noncomp Dead	Comp Dead	Max LL+I	Min LL+I	Range
0	0.00	0.00	0.00	0.00	0.00	0.00
1	4.00	31.24	3.95	120.79 T	-14.81 T	135.60
2	8.00	52.90	6.69	197.99 T	-29.61 T	227.60
3	12.00	64.99	8.21	235.46 T	-44.42 T	279.88
4	16.00	67.50	8.51	247.53 T	-59.23 T	306.76
5	20.00	60.44	7.60	239.68 T	-74.03 T	313.71
6	24.00	43.80	5.47	222.29 T	-88.84 T	311.13
7	28.00	17.59	2.13	175.87 T	-103.65 T	279.52
8	32.00	-18.20	-2.43	107.11 T	-118.45 T	225.56
9	36.00	-63.57	-8.21	30.07 L	-133.26 T	163.33
10	40.00	-118.51	-15.20	0.00	-182.75 L	182.75
11	44.00	-63.57	-8.21	30.07 L	-133.26 T	163.33
12	48.00	-18.20	-2.43	107.11 T	-118.45 T	225.56
13	52.00	17.59	2.13	175.87 T	-103.65 T	279.52
14	56.00	43.80	5.47	222.29 T	-88.84 T	311.13
15	60.00	60.44	7.60	239.68 T	-74.03 T	313.71
16	64.00	67.50	8.51	247.53 T	-59.23 T	306.76
17	68.00	64.99	8.21	235.46 T	-44.42 T	279.88
18	72.00	52.90	6.69	197.99 T	-29.61 T	227.60
19	76.00	31.24	3.95	120.79 T	-14.81 T	135.60
20	80.00	0.00	0.00	0.00	0.00	0.00

T - governed by truck loading
 L - governed by lane loading

At Bracing

Brace No.

2	20.00	60.44	7.60	239.68	-74.03
3	40.00	-118.51	-15.20	0.00	182.75
4	60.00	60.44	7.60	239.68	-74.03

CUY-2-1441 EAST APPROACH FORWARD
Line Girder : Rating Output : Governing Service Shear
Fri Apr 13 16:30:30 2012

Service Shear -k

Tenth Point	Location	Noncomp Dead	Comp Dead	Max LL+I	Range
0	0.00	9.01	1.14	35.90 T	39.60
1	4.00	6.61	0.84	31.41 T	35.11
2	8.00	4.22	0.53	25.88 T	31.35
3	12.00	1.83	0.23	20.65 T	29.25
4	16.00	-0.57	-0.08	15.80 T	28.09
5	20.00	-2.96	-0.38	-17.22 T	28.61
6	24.00	-5.36	-0.68	-22.16 T	29.64
7	28.00	-7.75	-0.99	-26.94 T	31.47
8	32.00	-10.14	-1.29	-31.82 T	34.33
9	36.00	-12.54	-1.60	-36.41 T	37.22
10	40.00L	-14.93	-1.90	-40.48 T	40.48
10	40.00R	14.93	1.90	41.52 T	41.52
11	44.00	12.54	1.60	37.53 T	38.35
12	48.00	10.14	1.29	33.04 T	35.54
13	52.00	7.75	0.99	28.10 T	32.63
14	56.00	5.36	0.68	23.49 T	30.35
15	60.00	2.96	0.38	18.58 T	29.19
16	64.00	0.57	0.08	-14.89 T	28.32
17	68.00	-1.83	-0.23	-19.62 T	28.22
18	72.00	-4.22	-0.53	-24.75 T	30.22
19	76.00	-6.61	-0.84	-30.20 T	33.90
20	80.00	-9.01	-1.14	-35.89 T	39.59

T - governed by truck loading
L - governed by lane loading

CUY-2-1441 EAST APPROACH FORWARD
Line Girder : Input File : Definition
Fri Apr 13 16:31:32 2012

ID: CUY-2-1441 EAST APPROACH FORWARD

CONDITIONS

A36 STEEL
ENGLISH INPUT
ENGLISH OUTPUT
HS20 LOADING
LFD METHOD
NONCOMPOSITE GIRDER
RATE MODE
ROLLED SHAPES GIRDER
SELF WEIGHT FOR DEAD LOAD 1
W24X84

DATA

BR 15.89
FILLET 1.
FPC 4.5
HAUNCW 15.
SPN 31.77
WAC 0.417 0.434 0.451 0.468 0.485 0.502 0.519 0.536 0.553
0.57 0.587
WAS 0.005
WCONC 117.
WHEELD 0.64
WHEELF 0.909 0.946 0.983 1.02 1.057 1.094 1.131 1.167 1.204 1.241
1.278
WHEELR 0.909 1.278
WHEELS 0.909 0.946 0.983 1.02 1.057 1.094 1.131 1.167 1.204 1.241
1.278
WSDL 0.065

GO

CUY-2-1441 EAST APPROACH FORWARD
 Line Girder : Rating Output : Governing Service Moment
 Fri Apr 13 16:31:56 2012

Service Moment - k-ft

Tenth Point	Location	Noncomp Dead	Comp Dead	Max LL+I	Min LL+I	Range
0	0.00	0.00	0.00	0.00	0.00	0.00
1	3.18	26.70	2.95	90.28 T	0.00	90.28
2	6.35	47.93	5.25	158.50 T	0.00	158.50
3	9.53	63.51	6.89	202.49 T	0.00	202.49
4	12.71	73.27	7.87	219.12 T	0.00	219.12
5	15.88	77.03	8.20	209.97 T	0.00	209.97
6	19.06	74.64	7.87	219.99 T	0.00	219.99
7	22.24	65.91	6.89	213.43 T	0.00	213.43
8	25.42	50.67	5.25	176.62 T	0.00	176.62
9	28.59	28.76	2.95	106.45 T	0.00	106.45
10	31.77	0.00	0.00	0.00	0.00	0.00

T - governed by truck loading
 L - governed by lane loading

At Bracing

Brace No.	Location	Noncomp Dead	Comp Dead	Max LL+I	Min LL+I	Range
2	15.89	77.03	8.20	209.97	0.00	

CUY-2-1441 EAST APPROACH FORWARD
 Line Girder : Rating Output : Governing Service Shear
 Fri Apr 13 16:32:03 2012

Service Shear -k

Tenth Point	Location	Noncomp Dead	Comp Dead	Max LL+I	Range
0	0.00	9.25	1.03	32.95 T	32.95
1	3.18	7.55	0.83	29.90 T	31.87
2	6.35	5.80	0.62	26.38 T	30.47
3	9.53	4.00	0.41	22.67 T	29.04
4	12.71	2.14	0.21	18.66 T	27.46
5	15.88	0.23	0.00	14.34 T	27.69
6	19.06	-1.74	-0.21	-18.20 T	27.61
7	22.24	-3.76	-0.41	-23.36 T	30.64
8	25.42	-5.84	-0.62	-28.83 T	33.84
9	28.59	-7.97	-0.83	-34.70 T	37.28
10	31.77	-10.15	-1.03	-39.87 T	39.87

T - governed by truck loading
 L - governed by lane loading

CUY-2-1441 EAST APPROACH FORWARD
Line Girder : Input File : Definition
Mon Jun 25 09:43:49 2012

ID: CUY-2-1441 EAST APPROACH FORWARD

CONDITIONS

A36 STEEL
APPLY IMPACT AT AXLE LOCATION
ENGLISH INPUT
ENGLISH OUTPUT
HS20 LOADING
IGNORE MOMENT SHIFTING
LFD METHOD
NONCOMPOSITE GIRDER
RATE MODE
ROLLED SHAPES GIRDER
SELF WEIGHT FOR DEAD LOAD 1
W33X118

DATA

BR 18.67 18.67 34.43
FILLET 1.
FPC 4.5
HAUNCW 17.5
HINGE 56.
SPN 56. 31.51
WAC 0.488
WAS 0.006
WCONC 117.
WHEELD 0.56
WHEELF 1.064
WHEELR 1.064
WHEELS 1.064
WSDL 0.057

GO

Service Moment - k-ft

Tenth Point	Location	Noncomp Dead	Comp Dead	Max LL+I	Min LL+I	Range
0	0.00	0.00	0.00	0.00	0.00	0.00
1	5.60	89.70	8.04	194.67 T	0.00	194.67
2	11.20	159.47	14.30	346.76 T	0.00	346.76
3	16.80	209.30	18.77	438.01 T	0.00	438.01
4	22.40	239.20	21.45	489.72 T	0.00	489.72
5	28.00	249.17	22.34	494.28 T	0.00	494.28
6	33.60	239.20	21.45	489.72 T	0.00	489.72
7	39.20	209.30	18.77	430.49 T	0.00	430.49
8	44.80	159.47	14.30	346.76 T	0.00	346.76
9	50.40	89.70	8.04	191.63 T	0.00	191.63
10	56.00	0.00	0.00	0.00 T	0.00 T	0.00
11	59.15	28.40	2.55	94.54 T	0.00 T	94.54
12	62.30	50.49	4.53	161.19 T	0.00 T	161.19
13	65.45	66.27	5.94	199.94 T	0.00 T	199.94
14	68.60	75.73	6.79	210.80 T	0.00 T	210.80
15	71.76	78.89	7.07	198.61 T	0.00 T	198.61
16	74.91	75.73	6.79	210.80 T	0.00 T	210.80
17	78.06	66.27	5.94	199.94 T	0.00 T	199.94
18	81.21	50.49	4.53	161.19 T	0.00 T	161.19
19	84.36	28.40	2.55	94.54 T	0.00 T	94.54
20	87.51	0.00	0.00	0.00	0.00	0.00

T - governed by truck loading
 L - governed by lane loading

At Bracing

Brace No.

2	18.67	221.50	19.86	459.68	0.00
3	37.34	221.45	19.86	452.88	0.00
4	56.00	0.00	0.00	0.00	0.00
5	71.77	78.89	7.07	198.61	0.00

Service Shear -k

Tenth Point	Location	Noncomp Dead	Comp Dead	Max LL+I	Range
0	0.00	17.80	1.60	41.17 T	41.17
1	5.60	14.24	1.28	36.36 T	38.55
2	11.20	10.68	0.96	31.53 T	35.94
3	16.80	7.12	0.64	27.66 T	34.57
4	22.40	3.56	0.32	21.57 T	33.72
5	28.00	0.00	0.00	17.70 T	34.30
6	33.60	-3.56	-0.32	-21.57 T	34.83
7	39.20	-7.12	-0.64	-25.44 T	34.27
8	44.80	-10.68	-0.96	-32.57 T	36.98
9	50.40	-14.24	-1.28	-34.61 T	36.80
10	56.00L	-17.80	-1.60	-41.01 T	41.01
10	56.00R	10.01	0.90	36.03 T	36.03
11	59.15	8.01	0.72	31.05 T	33.26
12	62.30	6.01	0.54	26.56 T	30.98
13	65.45	4.01	0.36	22.13 T	28.77
14	68.60	2.00	0.18	17.70 T	26.56
15	71.76	0.00	0.00	-13.28 T	26.56
16	74.91	-2.00	-0.18	-17.70 T	26.56
17	78.06	-4.01	-0.36	-22.13 T	28.77
18	81.21	-6.01	-0.54	-26.56 T	30.98
19	84.36	-8.01	-0.72	-31.05 T	33.26
20	87.51	-10.01	-0.90	-35.05 T	35.05

T - governed by truck loading
 L - governed by lane loading

S22-9
Line Girder : Input File : Definition
Fri Apr 13 16:34:43 2012

ID: S22-9
CONDITIONS
A36 STEEL
A36 STIFFENER STEEL
APPLY IMPACT AT AXLE LOCATION
END-BOLTED COVER PLATE CONNECTIONS
ENGLISH INPUT
ENGLISH OUTPUT
HS20 LOADING
LFD METHOD
NO INTERMEDIATE TRANSVERSE STIFFENERS
NONCOMPOSITE GIRDER
RATE MODE
SELF WEIGHT FOR DEAD LOAD 1
SINGLE BEARING STIFFENERS EACH SIDE

DATA
BNCLIP 0. 20.495 0.
BR 19.03 19.03 35.09
BSPL 56.33 1.5
FILLET 1.
FPC 4.5
HAUNCW 17.5
SPLBFT 0.855 1. 0.855
SPLBFW 11.5 12. 11.5
SPLTFT 0.855
SPLTFW 11.5
SPLWD 31.39
SPLWT 0.58
SPN 57.08 32.12
SS 1.
SUPBST 0.0001
SUPBSW 0.0001
TCOVB 12.
TCOVSP 53.08 4.
TCOVT 0.875
TSLABW 0.0001
WAC 0.305 0.318 0.332 0.345 0.359 0.373 0.386 0.4 0.414
0.427 0.441 0.448 0.456 0.464 0.471 0.479 0.487 0.494 0.502
0.51 0.517
WAS 0.007
WCONC 117.
WHEELD 0.56
WHEELF 0.664 0.693 0.723 0.753 0.783 0.812 0.842 0.872 0.901
0.931 0.961 0.977 0.994 1.011 1.027 1.044 1.061 1.077 1.094 1.111
1.127
WHEELR 0.664 0.961 1.127
WHEELS 0.664 0.693 0.723 0.753 0.783 0.812 0.842 0.872 0.901
0.931 0.961 0.977 0.994 1.011 1.027 1.044 1.061 1.077 1.094 1.111
1.127
WSDL 0.057

GO

S22-9
 Line Girder : Rating Output : Governing Service Moment
 Fri Apr 13 16:35:04 2012

Service Moment - k-ft

Tenth Point	Location	Noncomp Dead	Comp Dead	Max LL+I	Min LL+I	Range
0	0.00	0.00	0.00	0.00	0.00	0.00
1	5.71	57.63	6.52	126.05 T	-7.59 T	133.64
2	11.42	99.69	11.18	213.91 T	-15.18 T	229.08
3	17.13	125.75	13.99	262.57 T	-22.77 T	285.33
4	22.83	135.37	14.94	283.48 T	-30.36 T	313.84
5	28.54	128.09	14.03	269.85 T	-37.94 T	307.80
6	34.25	103.48	11.27	241.80 T	-45.53 T	287.34
7	39.96	61.09	6.64	179.95 T	-53.12 T	233.07
8	45.66	0.69	0.17	91.05 T	-60.71 T	151.76
9	51.37	-77.29	-8.17	28.24 L	-113.65 T	141.89
Bot.flg.spl	56.33	-159.49	-16.92	1.74	-231.19	232.93
10	57.08	-173.10	-18.36	0.00	-254.76 T	254.76
Bot.flg.spl	57.83	-161.95	-17.26	8.15	-248.82	256.96
11	60.29	-127.61	-13.88	40.87 T	-229.29 T	270.16
12	63.50	-87.98	-9.99	97.32 T	-203.81 T	301.14
13	66.72	-54.29	-6.68	144.69 T	-178.33 T	323.03
14	69.93	-26.67	-3.96	169.60 T	-152.86 T	322.46
15	73.14	-5.50	-1.83	173.81 T	-127.30 T	301.19
16	76.35	9.09	-0.29	184.25 T	-101.91 T	286.15
17	79.56	17.01	0.87	181.32 T	-76.43 T	257.75
18	82.78	18.19	1.03	152.15 T	-50.95 T	203.10
19	85.99	12.55	0.81	92.82 T	-25.48 T	118.29
20	89.20	0.00	0.00	0.00	0.00	0.00

T - governed by truck loading
 L - governed by lane loading

At Bracing

Brace No.	Location	Noncomp Dead	Comp Dead	Max LL+I	Min LL+I	Range
2	19.03	130.79	14.51	272.64	-25.30	
3	38.06	77.17	8.39	203.49	-30.60	
4	57.08	-173.10	-18.36	0.00	-254.76	
5	73.15	-5.44	-1.83	173.84	-127.30	

S22-9
 Line Girder : Rating Output : Governing Service Shear
 Fri Apr 13 16:35:11 2012

Service Shear -k

Tenth Point	Location	Noncomp Dead	Comp Dead	Max LL+I	Range
0	0.00	11.43	1.31	26.28 T	27.63
1	5.71	8.75	0.98	23.58 T	25.48
2	11.42	5.98	0.65	20.20 T	24.17
3	17.13	3.14	0.33	16.69 T	24.75
4	22.83	0.22	0.00	13.17 T	25.50
5	28.54	-2.78	-0.32	-16.79 T	26.59
6	34.25	-5.86	-0.65	-21.69 T	28.38
7	39.96	-9.01	-0.97	-26.54 T	30.53
8	45.66	-12.13	-1.30	-31.12 T	32.97
9	51.37	-15.21	-1.62	-35.35 T	36.00
Bot flg.spl.	56.33	-17.98	-1.91	-37.60	37.67
10	57.08L	-18.38	-1.95	-37.82 T	37.82
10	57.08R	15.07	1.49	35.81 T	35.81
Bot flg.spl.	57.83	14.65	1.44	34.84	35.09
11	60.29	13.25	1.30	31.78 T	32.41
12	63.50	11.42	1.12	28.10 T	30.57
13	66.72	9.56	0.92	24.17 T	28.74
14	69.93	7.61	0.75	19.89 T	26.85
15	73.14	5.57	0.57	16.35 T	26.32
16	76.35	3.51	0.39	14.36 T	28.12
17	79.56	1.42	0.21	12.04 T	29.25
18	82.78	-0.69	0.02	-24.27 T	32.28
19	85.99	-2.83	-0.16	-29.85 T	37.87
20	89.20	-4.99	-0.34	-34.65 T	42.66

T - governed by truck loading
 L - governed by lane loading

CUY-2-1441 EAST APPROACH FORWARD
Line Girder : Input File : Definition
Fri Apr 13 16:36:13 2012

ID: CUY-2-1441 EAST APPROACH FORWARD

CONDITIONS

A36 STEEL
ENGLISH INPUT
ENGLISH OUTPUT
HS20 LOADING
LFD METHOD
NONCOMPOSITE GIRDER
RATE MODE
ROLLED SHAPES GIRDER
SELF WEIGHT FOR DEAD LOAD 1
W24X84

DATA

BR 16.75
FILLET 1.
FPC 4.5
HAUNCW 15.
SPN 31.39
WAC 0.488
WAS 0.006
WCONC 117.
WHEELD 0.69
WHEELF 1.064
WHEELR 1.064
WHEELS 1.064
WSDL 0.057

GO

CUY-2-1441 EAST APPROACH FORWARD
 Line Girder : Rating Output : Governing Service Moment
 Fri Apr 13 16:36:29 2012

Service Moment - k-ft

Tenth Point	Location	Noncomp Dead	Comp Dead	Max LL+I	Min LL+I	Range
0	0.00	0.00	0.00	0.00	0.00	0.00
1	3.14	26.50	2.53	94.06 T	0.00	94.06
2	6.28	47.10	4.49	160.34 T	0.00	160.34
3	9.42	61.82	5.90	198.82 T	0.00	198.82
4	12.56	70.66	6.74	209.52 T	0.00	209.52
5	15.69	73.60	7.02	197.12 T	0.00	197.12
6	18.83	70.66	6.74	209.52 T	0.00	209.52
7	21.97	61.82	5.90	198.82 T	0.00	198.82
8	25.11	47.10	4.49	160.34 T	0.00	160.34
9	28.25	26.50	2.53	94.06 T	0.00	94.06
10	31.39	0.00	0.00	0.00	0.00	0.00

T - governed by truck loading
 L - governed by lane loading

At Bracing

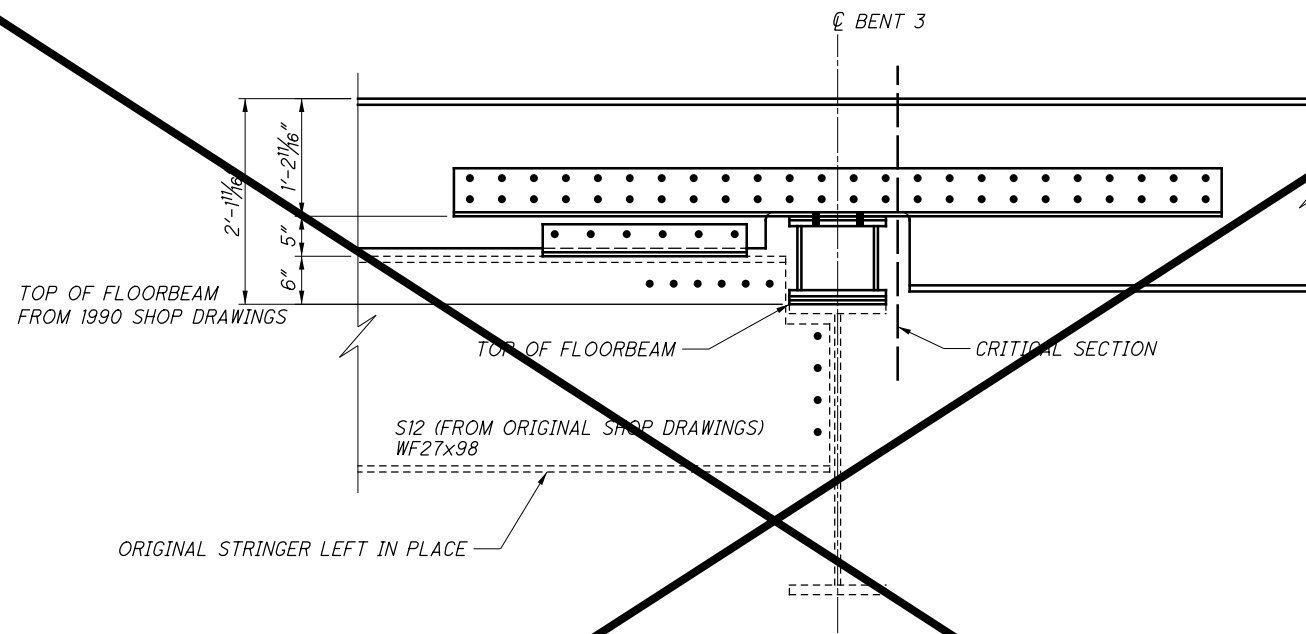
Brace No.	Location	Noncomp Dead	Comp Dead	Max LL+I	Min LL+I	Range
2	16.75	73.27	6.99	198.52	0.00	

CUY-2-1441 EAST APPROACH FORWARD
Line Girder : Rating Output : Governing Service Shear
Fri Apr 13 16:36:36 2012

Service Shear -k

Tenth Point	Location	Noncomp Dead	Comp Dead	Max LL+I	Range
0	0.00	9.38	0.89	34.99 T	34.99
1	3.14	7.50	0.72	31.03 T	33.24
2	6.28	5.63	0.54	26.56 T	30.98
3	9.42	3.75	0.36	22.13 T	28.77
4	12.56	1.88	0.18	17.70 T	26.56
5	15.69	0.00	0.00	-13.28 T	26.56
6	18.83	-1.88	-0.18	-17.70 T	26.56
7	21.97	-3.75	-0.36	-22.13 T	28.77
8	25.11	-5.63	-0.54	-26.56 T	30.98
9	28.25	-7.50	-0.72	-31.03 T	33.24
10	31.39	-9.38	-0.89	-34.99 T	34.99

T - governed by truck loading
L - governed by lane loading



EAST APPROACH - BEAM S12-3 OVER BENT 3

DESIGNED MTN CHECKED ---	DRAWN MTN REVISED ---	REVIEWED PJP	DATE 4/12/12	DESIGN AGENCY TranSystems 95 PUBLIC SQUARE, SUITE 1900 CLEVELAND, OHIO 44113
		STRUCTURE FILE NUMBER 1800035		
STRINGER S12-3 DETAIL		BRIDGE NO. CUY-2-1441		
SECTION III - EAST APPROACH - FORWARD SECTION				
CUY-2-1441				
1/1				



Made By MTN
Checked By FKL

Date 3/9/2012
Date 4/12/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441 - East Approach Forward Section**

Element Dimensions (without Section Losses):

Partial W-Section

$A_1 = b_f = 12.8000$ in
 $B_1 = t_f = 0.7500$ in
 $C_1 = d = 14.1875$ in
 $D_1 = t_w = 0.5000$ in

Bottom Angles:

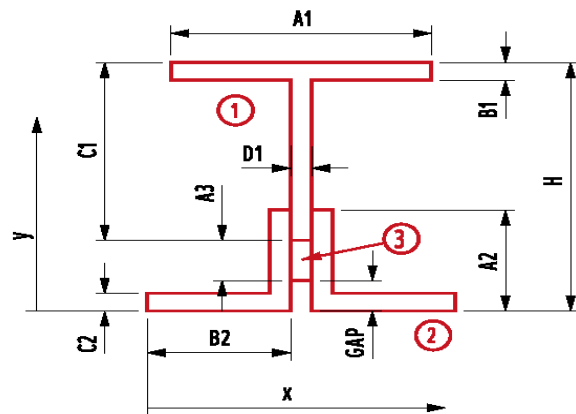
$A_2 = L_v = 6.0000$ in
 $B_2 = L_h = 4.0000$ in
 $C_2 = t = 0.5000$ in

Additional Plate:

$A_3 = d = 0.0000$ in
 $B_3 = t = 0.5000$ in

Miscellaneous:

$H = 14.6875$ in
Gap = 0.5000 in



Coped Stringer S12-3 @ Bent 3

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange		9.6000	14.3125	137.4000	0.4500	6.3812	390.9106	391.3606
	Web		6.7188	7.2188	48.5010	101.0984	0.7125	3.4112	104.5096
2	Horizontal Legs		3.5000	0.2500	0.8750	0.0729	7.6813	206.5077	206.5806
	Vertical Legs		6.0000	3.0000	18.0000	18.0000	4.9313	145.9057	163.9057
3	Additional Plate		0.0000	0.5000	0.0000	0.0000	7.4313	0.0000	0.0000
Total			25.82		204.78	119.62		746.74	866.36
Section Losses			A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties							
y-bar =	7.9313	in	S _{top} =	128.23	in ³	y-bar =	7.9313	in	S _{top} =	128.23	in ³
I _x =	866.36	in ⁴	S _{bottom} =	109.23	in ³	I _x =	866.36	in ⁴	S _{bottom} =	109.23	in ³
C _{top} =	6.7562	in	A =	25.8188	in ²	C _{top} =	6.7562	in	A =	25.8188	in ²
C _{bottom} =	7.9313	in	r _x =	5.7927	in	C _{bottom} =	7.9313	in	r _x =	5.7927	in
			Z =	140.37	in ³				Z =	140.37	in ³

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y, gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange		9.6000	4.2500	40.8000	131.0720	2.1500	44.3760	175.4480
	Web		6.7188	4.2500	28.5547	0.1400	2.1500	31.0574	31.1974
2 (Left)	Horizontal Leg		1.7500	1.7500	3.0625	1.7865	4.6500	37.8394	39.6258
	Vertical Leg		3.0000	3.7500	11.2500	0.0625	2.6500	21.0675	21.1300
2 (Right)	Horizontal Leg		1.7500	6.7500	11.8125	1.7865	0.3500	0.2144	2.0008
	Vertical Leg		3.0000	4.7500	14.2500	0.0625	1.6500	8.1675	8.2300
3	Additional Plate		0.0000	4.2500	0.0000	0.0000	2.1500	0.0000	0.0000
Total			25.82		109.73	134.91		142.72	277.63
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y, loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties							
x-bar =	6.4000	in	S _{right} =	43.38	in ³	x-bar =	6.4000	in	S _{right} =	43.38	in ³
I _y =	277.63	in ⁴	S _{left} =	43.38	in ³	I _y =	277.63	in ⁴	S _{left} =	43.38	in ³
C _{right} =	6.4000	in	A =	25.8188	in ²	C _{right} =	6.4000	in	A =	25.8188	in ²
C _{left} =	6.4000	in	r _y =	3.2792	in	C _{left} =	6.4000	in	r _y =	3.2792	in

Stringer Capacity

AB = As-Built
 AI = As-Inspected
 M = Moment
 V = Shear

Non-composite Capacities*		
	AB	AI
M	327.70 k-ft	327.70 k-ft
V	125.28 k	125.28 k

*Noncompact Section

F_y =	36.00 ksi
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As-Built Moments and Shears						
	DL	HS20	2F1	3F1	4F1	5C1
M	162.71 k-ft	262.01 k-ft	128.60 k-ft	194.59 k-ft	220.84 k-ft	225.90 k-ft
V	20.12 k	45.51 k	21.05 k	31.38 k	35.45 k	31.61 k

As-Built Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	0.20	---	---	---	---
Operating M	0.34	0.69	0.46	0.40	0.40
As-Inspected Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	0.20	---	---	---	---
Operating M	0.34	0.69	0.46	0.40	0.40
As-Built Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	1	---	---	---	---
Operating V	1.68	3.62	2.43	2.15	2.41
As-Inspected Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	1	---	---	---	---
Operating V	1.68	3.62	2.43	2.15	2.41

Controlling Rating Factors and Tonnage						
	HS20 Inventory	HS20 Operating	2F1 Operating	3F1 Operating	4F1 Operating	5C1 Operating
Rating Factor	0.20	0.34	0.69	0.46	0.40	0.40
Tonnage (US Tons)	7.2	12.24	24.84	16.56	14.40	14.40



Made By PJP
Checked By FKL

Date 3/9/2012
Date 4/12/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441 - East Approach Forward Section**

Element Dimensions (without Section Losses):

Partial W-Section

$A_1 = b_f = 12.8000$ in
 $B_1 = t_f = 0.7500$ in
 $C_1 = d = 22.0000$ in
 $D_1 = t_w = 0.5000$ in

Bottom Angles:

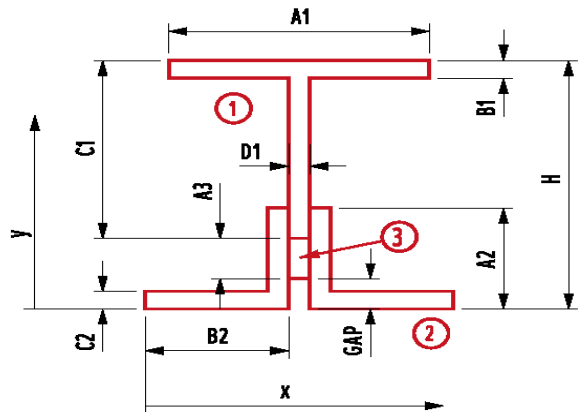
$A_2 = L_v = 6.0000$ in
 $B_2 = L_h = 4.0000$ in
 $C_2 = t = 0.5000$ in

Additional Plate:

$A_3 = d = 0.0000$ in
 $B_3 = t = 0.5000$ in

Miscellaneous:

$H = 22.5000$ in
 $Gap = 0.5000$ in



Coped Stringer S10-3 & S11-3 @ Bent 3

X-Axis Section Properties:

Gross Section (without Losses)		A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange	9.6000	22.1250	212.4000	0.4500	10.3680	1031.9474	1032.3974
	Web	10.6250	11.1250	118.2031	399.8210	0.6320	4.2445	404.0654
2	Horizontal Legs	3.5000	0.2500	0.8750	0.0729	11.5070	463.4422	463.5151
	Vertical Legs	6.0000	3.0000	18.0000	18.0000	8.7570	460.1149	478.1149
3	Additional Plate	0.0000	0.5000	0.0000	0.0000	11.2570	0.0000	0.0000
Total		29.73		349.48	418.34		1959.75	2378.09
Section Losses		A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	11.7570 in	S _{top} =	221.36 in ³	y-bar =	11.7570 in	S _{top} =	221.36 in ³
I _x =	2378.09 in ⁴	S _{bott.} =	202.27 in ³	I _x =	2378.09 in ⁴	S _{bott.} =	202.27 in ³
C _{top} =	10.7430 in	A =	29.7250 in ²	C _{top} =	10.7430 in	A =	29.7250 in ²
C _{bottom} =	11.7570 in	r _x =	8.9444 in	C _{bottom} =	11.7570 in	r _x =	8.9444 in
		Z =	248.85 in ³			Z =	248.85 in ³

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y, gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange		9.6000	4.2500	40.8000	131.0720	2.1500	44.3760	175.4480
	Web		10.6250	4.2500	45.1563	0.2214	2.1500	49.1141	49.3354
2 (Left)	Horizontal Leg		1.7500	1.7500	3.0625	1.7865	4.6500	37.8394	39.6258
	Vertical Leg		3.0000	3.7500	11.2500	0.0625	2.6500	21.0675	21.1300
2 (Right)	Horizontal Leg		1.7500	6.7500	11.8125	1.7865	0.3500	0.2144	2.0008
	Vertical Leg		3.0000	4.7500	14.2500	0.0625	1.6500	8.1675	8.2300
3	Additional Plate		0.0000	4.2500	0.0000	0.0000	2.1500	0.0000	0.0000
Total			29.73		126.33	134.99		160.78	295.77
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y, loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
x-bar =	6.4000 in	S _{right} =	46.21 in ³	x-bar =	6.4000 in	S _{right} =	46.21 in ³
I _y =	295.77 in ⁴	S _{left} =	46.21 in ³	I _y =	295.77 in ⁴	S _{left} =	46.21 in ³
C _{right} =	6.4000 in	A =	29.7250 in ²	C _{right} =	6.4000 in	A =	29.7250 in ²
C _{left} =	6.4000 in	r _y =	3.1544 in	C _{left} =	6.4000 in	r _y =	3.1544 in

Stringer Capacity

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

Non-composite Capacities*		
	AB	AI
M	606.81 k-ft	606.81 k-ft
V	125.28 k	125.28 k

F _y =	36.00 ksi
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*Noncompact Section

As-Built Moments and Shears						
	DL	HS20	2F1	3F1	4F1	5C1
M	171.47 k-ft	210.56 k-ft	82.53 k-ft	124.87 k-ft	141.76 k-ft	220.12 k-ft
V	19.62 k	41.97 k	19.68 k	29.10 k	32.62 k	30.16 k

As-Built Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	0.84	---	---	---	---
Operating M	1.40	3.58	2.36	2.08	1.34
As-Inspected Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	0.84	---	---	---	---
Operating M	1.40	3.58	2.36	2.08	1.34
As-Built Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	1.10	---	---	---	---
Operating V	1.83	3.90	2.64	2.35	2.54
As-Inspected Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	1.10	---	---	---	---
Operating V	1.83	3.90	2.64	2.35	2.54

Controlling Rating Factors and Tonnage						
	HS20 Inventory	HS20 Operating	2F1 Operating	3F1 Operating	4F1 Operating	5C1 Operating
Rating Factor	0.84	1.40	3.58	2.36	2.08	1.34
Tonnage (US Tons)	30.24	50.40	53.70	54.28	50.16	53.60



Made By MTN
Checked By FKL

Date 3/9/2012
Date 4/12/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441 - East Approach Forward Section**

Element Dimensions (without Section Losses):

Partial W-Section

$A_1 = b_f = 12.8000$ in
 $B_1 = t_f = 0.7500$ in
 $C_1 = d = 20.2500$ in
 $D_1 = t_w = 0.5000$ in

Bottom Angles:

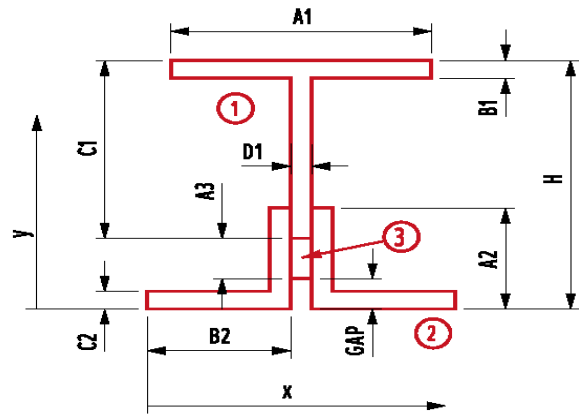
$A_2 = L_v = 6.0000$ in
 $B_2 = L_h = 4.0000$ in
 $C_2 = t = 0.5000$ in

Additional Plate:

$A_3 = d = 0.0000$ in
 $B_3 = t = 0.5000$ in

Miscellaneous:

$H = 20.7500$ in
 $Gap = 0.5000$ in



Coped Stringer S5-5 @ Bent 6

X-Axis Section Properties:

Gross Section (without Losses)		A	y	Ay	I_o	d	Ad^2	$I_{x, gross}$
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange	9.6000	20.3750	195.6000	0.4500	9.4768	862.1771	862.6271
	Web	9.7500	10.2500	99.9375	308.9531	0.6482	4.0963	313.0495
2	Horizontal Legs	3.5000	0.2500	0.8750	0.0729	10.6482	396.8431	396.9160
	Vertical Legs	6.0000	3.0000	18.0000	18.0000	7.8982	374.2875	392.2875
3	Additional Plate	0.0000	0.5000	0.0000	0.0000	10.3982	0.0000	0.0000
Total		28.85		314.41	327.48		1637.40	1964.88
Section Losses		A	y	Ay	I_o	d	Ad^2	$I_{x, loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.00		0.00	0.00		0.00	0.00

As-Built Section Properties					As-Inspected Section Properties						
y-bar =	10.8982	in	S _{top} =	199.44	in ³	y-bar =	10.8982	in	S _{top} =	199.44	in ³
I _x =	1964.88	in ⁴	S _{bott.} =	180.29	in ³	I _x =	1964.88	in ⁴	S _{bott.} =	180.29	in ³
C _{top} =	9.8518	in	A =	28.8500	in ²	C _{top} =	9.8518	in	A =	28.8500	in ²
C _{bottom} =	10.8982	in	r _x =	8.2527	in	C _{bottom} =	10.8982	in	r _x =	8.2527	in
			Z =	223.23	in ³				Z =	223.23	in ³

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y, gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange		9.6000	4.2500	40.8000	131.0720	2.1500	44.3760	175.4480
	Web		9.7500	4.2500	41.4375	0.2031	2.1500	45.0694	45.2725
2 (Left)	Horizontal Leg		1.7500	1.7500	3.0625	1.7865	4.6500	37.8394	39.6258
	Vertical Leg		3.0000	3.7500	11.2500	0.0625	2.6500	21.0675	21.1300
2 (Right)	Horizontal Leg		1.7500	6.7500	11.8125	1.7865	0.3500	0.2144	2.0008
	Vertical Leg		3.0000	4.7500	14.2500	0.0625	1.6500	8.1675	8.2300
3	Additional Plate		0.0000	4.2500	0.0000	0.0000	2.1500	0.0000	0.0000
Total			28.85		122.61	134.97		156.73	291.71
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y, loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties					As-Inspected Section Properties						
x-bar =	6.4000	in	S _{right} =	45.58	in ³	x-bar =	6.4000	in	S _{right} =	45.58	in ³
I _y =	291.71	in ⁴	S _{left} =	45.58	in ³	I _y =	291.71	in ⁴	S _{left} =	45.58	in ³
C _{right} =	6.4000	in	A =	28.8500	in ²	C _{right} =	6.4000	in	A =	28.8500	in ²
C _{left} =	6.4000	in	r _y =	3.1798	in	C _{left} =	6.4000	in	r _y =	3.1798	in

Stringer Capacity

AB = As-Built
 AI = As-Inspected
 M = Moment
 V = Shear

Non-composite Capacities*		
	AB	AI
M	540.88 k-ft	540.88 k-ft
V	125.28 k	125.28 k

F_y = 36.00 ksi

*Noncompact Section

As-Built Moments and Shears						
	DL	HS20	2F1	3F1	4F1	5C1
M	171.47 k-ft	210.56 k-ft	82.53 k-ft	124.87 k-ft	141.76 k-ft	220.12 k-ft
V	19.62 k	41.97 k	19.68 k	29.10 k	32.62 k	30.16 k

As-Built Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	0.70	---	---	---	---
Operating M	1.16	2.96	1.96	1.73	1.11
As-Inspected Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	0.70	---	---	---	---
Operating M	1.16	2.96	1.96	1.73	1.11
As-Built Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	1.10	---	---	---	---
Operating V	1.83	3.90	2.64	2.35	2.54
As-Inspected Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	1.10	---	---	---	---
Operating V	1.83	3.90	2.64	2.35	2.54

Controlling Rating Factors and Tonnage						
	HS20 Inventory	HS20 Operating	2F1 Operating	3F1 Operating	4F1 Operating	5C1 Operating
Rating Factor	0.70	1.16	2.96	1.96	1.73	1.11
Tonnage (US Tons)	25.20	41.76	44.40	45.08	46.71	44.40



Made By MTN
Checked By FKL

Date 3/9/2012
Date 4/12/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441 - East Approach Forward Section**

Element Dimensions (without Section Losses):

Partial W-Section

$A_1 = b_f = 10.0000$ in
 $B_1 = t_f = 0.6400$ in
 $C_1 = d = 21.5000$ in
 $D_1 = t_w = 0.4600$ in

Bottom Angles:

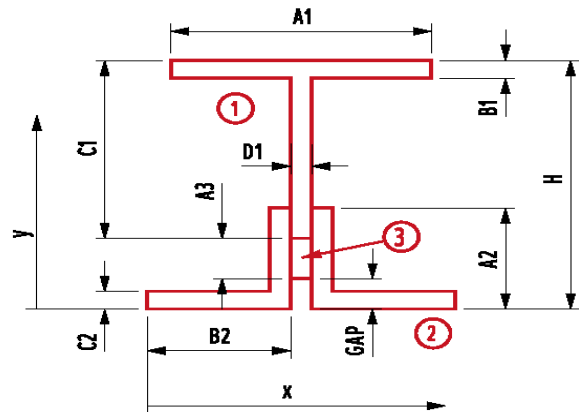
$A_2 = L_v = 6.0000$ in
 $B_2 = L_h = 4.0000$ in
 $C_2 = t = 0.5000$ in

Additional Plate:

$A_3 = d = 0.0000$ in
 $B_3 = t = 0.4600$ in

Miscellaneous:

$H = 22.0000$ in
 $Gap = 0.5000$ in



Coped Stringer S7-7 @ Bent 9

X-Axis Section Properties:

Gross Section (without Losses)		A	y	Ay	I_o	d	Ad^2	$I_{x, gross}$
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange	6.4000	21.6800	138.7520	0.2185	11.3838	829.3869	829.6053
	Web	9.5956	10.9300	104.8799	347.9521	0.6338	3.8550	351.8071
2	Horizontal Legs	3.5000	0.2500	0.8750	0.0729	10.0462	353.2390	353.3119
	Vertical Legs	6.0000	3.0000	18.0000	18.0000	7.2962	319.4042	337.4042
3	Additional Plate	0.0000	0.5000	0.0000	0.0000	9.7962	0.0000	0.0000
Total		25.50		262.51	366.24		1505.89	1872.13
Section Losses		A	y	Ay	I_o	d	Ad^2	$I_{x, loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	10.2962 in	S _{top} =	159.96 in ³	y-bar =	10.2962 in	S _{top} =	159.96 in ³
I _x =	1872.13 in ⁴	S _{bott.} =	181.83 in ³	I _x =	1872.13 in ⁴	S _{bott.} =	181.83 in ³
C _{top} =	11.7038 in	A =	25.4956 in ²	C _{top} =	11.7038 in	A =	25.4956 in ²
C _{bottom} =	10.2962 in	r _x =	8.5691 in	C _{bottom} =	10.2962 in	r _x =	8.5691 in
		Z =	198.58 in ³			Z =	198.58 in ³

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y, gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange		6.4000	4.2300	27.0720	53.3333	0.7700	3.7946	57.1279
	Web		9.5956	4.2300	40.5894	0.1692	0.7700	5.6892	5.8584
2 (Left)	Horizontal Leg		1.7500	1.7500	3.0625	1.7865	3.2500	18.4844	20.2708
	Vertical Leg		3.0000	3.7500	11.2500	0.0625	1.2500	4.6875	4.7500
2 (Right)	Horizontal Leg		1.7500	6.7100	11.7425	1.7865	1.7100	5.1172	6.9036
	Vertical Leg		3.0000	4.7100	14.1300	0.0625	0.2900	0.2523	0.3148
3	Additional Plate		0.0000	4.2300	0.0000	0.0000	0.7700	0.0000	0.0000
Total			25.50		107.85	57.20		38.03	95.23
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y, loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
x-bar =	5.0000 in	S _{right} =	19.05 in ³	x-bar =	5.0000 in	S _{right} =	19.05 in ³
I _y =	95.23 in ⁴	S _{left} =	19.05 in ³	I _y =	95.23 in ⁴	S _{left} =	19.05 in ³
C _{right} =	5.0000 in	A =	25.4956 in ²	C _{right} =	5.0000 in	A =	25.4956 in ²
C _{left} =	5.0000 in	r _y =	1.9326 in	C _{left} =	5.0000 in	r _y =	1.9326 in

Stringer Capacity

AB = As-Built
 AI = As-Inspected
 M = Moment
 V = Shear

Non-composite Capacities*		
	AB	AI
M	479.88 k-ft	479.88 k-ft
V	125.28 k	125.28 k

F_y = 36.00 ksi

*Noncompact Section

As-Built Moments and Shears						
	DL	HS20	2F1	3F1	4F1	5C1
M	133.71 k-ft	182.75 k-ft	74.28 k-ft	112.08 k-ft	127.00 k-ft	194.76 k-ft
V	16.83 k	41.52 k	19.52 k	28.92 k	32.51 k	29.52 k

As-Built Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	0.77	---	---	---	---
Operating M	1.29	3.17	2.10	1.85	1.21

As-Inspected Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	0.77	---	---	---	---
Operating M	1.29	3.17	2.10	1.85	1.21

As-Built Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	1.15	---	---	---	---
Operating V	1.92	4.07	2.75	2.45	2.69

As-Inspected Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	1.15	---	---	---	---
Operating V	1.92	4.07	2.75	2.45	2.69

Controlling Rating Factors and Tonnage						
	HS20 Inventory	HS20 Operating	2F1 Operating	3F1 Operating	4F1 Operating	5C1 Operating

Rating Factor	0.77	1.29	3.17	2.10	1.85	1.21
Tonnage (US Tons)	27.72	46.44	47.55	48.30	49.95	48.40



Made By MTN
Checked By FKL

Date 3/9/2012
Date 4/12/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441 - East Approach Forward Section**

Element Dimensions (without Section Losses):

Partial W-Section

$A_1 = b_f = 11.7529$ in
 $B_1 = t_f = 1.7300$ in
 $C_1 = d = 12.6250$ in
 $D_1 = t_w = 0.5800$ in

Bottom Angles:

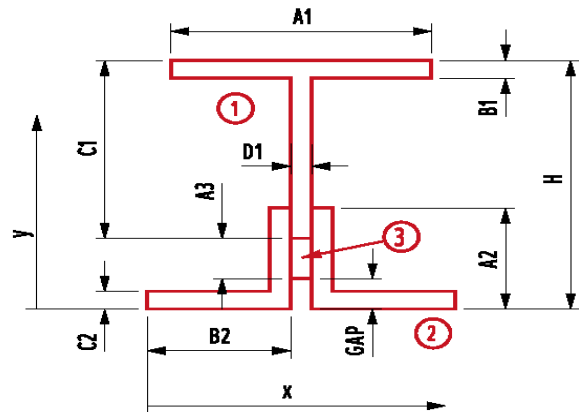
$A_2 = L_v = 6.0000$ in
 $B_2 = L_h = 6.0000$ in
 $C_2 = t = 1.0000$ in

Additional Plate:

$A_3 = d = 0.0000$ in
 $B_3 = t = 0.5800$ in

Miscellaneous:

$H = 13.1250$ in
 $Gap = 0.5000$ in



Coped Stringer S22-9 @ Bent 12

X-Axis Section Properties:

Gross Section (without Losses)		A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange	20.3325	12.2600	249.2764	5.0711	5.5211	619.7816	624.8527
	Web	6.3191	5.9475	37.5828	62.5070	0.7914	3.9580	66.4649
2	Horizontal Legs	10.0000	0.5000	5.0000	0.8333	6.2389	389.2414	390.0747
	Vertical Legs	12.0000	3.0000	36.0000	36.0000	3.7389	167.7544	203.7544
3	Additional Plate	0.0000	0.5000	0.0000	0.0000	6.2389	0.0000	0.0000
Total		48.65		327.86	104.41		1180.74	1285.15
Section Losses		A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00	0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	6.7389 in	S _{top} =	201.24 in ³	y-bar =	6.7389 in	S _{top} =	201.24 in ³
I _x =	1285.15 in ⁴	S _{bott.} =	190.71 in ³	I _x =	1285.15 in ⁴	S _{bott.} =	190.71 in ³
C _{top} =	6.3861 in	A =	48.6516 in ²	C _{top} =	6.3861 in	A =	48.6516 in ²
C _{bottom} =	6.7389 in	r _x =	5.1396 in	C _{bottom} =	6.7389 in	r _x =	5.1396 in
		Z =	235.21 in ³			Z =	235.21 in ³

Y-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y, gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Top Flange		20.3325	6.2900	127.8914	234.0447	0.0000	0.0000	234.0447
	Web		6.3191	6.2900	39.7471	0.1771	0.0000	0.0000	0.1771
2 (Left)	Horizontal Leg		5.0000	2.5000	12.5000	10.4167	3.7900	71.8205	82.2372
	Vertical Leg		6.0000	5.5000	33.0000	0.5000	0.7900	3.7446	4.2446
2 (Right)	Horizontal Leg		5.0000	10.0800	50.4000	10.4167	3.7900	71.8205	82.2372
	Vertical Leg		6.0000	7.0800	42.4800	0.5000	0.7900	3.7446	4.2446
3	Additional Plate		0.0000	6.2900	0.0000	0.0000	0.0000	0.0000	0.0000
Total			48.65		306.02	256.06		151.13	407.19
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y, loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
x-bar =	6.2900 in	S _{right} =	64.74 in ³	x-bar =	6.2900 in	S _{right} =	64.74 in ³
I _y =	407.19 in ⁴	S _{left} =	64.74 in ³	I _y =	407.19 in ⁴	S _{left} =	64.74 in ³
C _{right} =	6.2900 in	A =	48.6516 in ²	C _{right} =	6.2900 in	A =	48.6516 in ²
C _{left} =	6.2900 in	r _y =	2.8930 in	C _{left} =	6.2900 in	r _y =	2.8930 in

Stringer Capacity

AB = As-Built
 AI = As-Inspected
 M = Moment
 V = Shear

Non-composite Capacities*		
	AB	AI
M	572.12 k-ft	572.12 k-ft
V	131.94 k	131.94 k

F_y = 36.00 ksi

*Noncompact Section

As-Built Moments and Shears						
	DL	HS20	2F1	3F1	4F1	5C1
M	166.12 k-ft	216.88 k-ft	129.10 k-ft	190.96 k-ft	219.17 k-ft	257.34 k-ft
V	20.38 k	37.45 k	25.38 k	36.60 k	42.22 k	40.89 k

As-Built Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	0.76	---	---	---	---
Operating M	1.26	2.12	1.43	1.25	1.06
As-Inspected Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	0.76	---	---	---	---
Operating M	1.26	2.12	1.43	1.25	1.06
As-Built Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	1.30	---	---	---	---
Operating V	2.17	3.20	2.22	1.92	1.98
As-Inspected Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	1.30	---	---	---	---
Operating V	2.17	3.20	2.22	1.92	1.98

Controlling Rating Factors and Tonnage						
	HS20 Inventory	HS20 Operating	2F1 Operating	3F1 Operating	4F1 Operating	5C1 Operating
Rating Factor	0.76	1.26	2.12	1.43	1.25	1.06
Tonnage (US Tons)	27.36	45.36	31.80	32.89	33.75	42.40



Made By PJP
 Checked By MTN

Date 3/13/2012
 Date 3/14/2012

Job No. P402110046
 Sheet No. _____

Calculations For: **CUY-2-1441 - East Approach Forward Section**

Unit 2 and 3 Lower Deck Stringers

$W_{grid_deck} = 0.065$ ksf

Railing Weight 0.050 klf
 Girders in Unit 7
 number of lanes 2

Stringer	Section	Stringer Spacing	Slab & WS load	Railing load	Dist Factor	Deflection DF	HS-20 RF Moment	
S-16	27WF91	4.141	0.269	0.05	0.506	0.43	1.34	27WF, B27
S-4	27WF98	5.943	0.386	0	1.081	0.43	0.96	27WF, B27
S-4	27WF98	5.604	0.364	0	1.019	0.43		
S-4	27WF98	5.604	0.364	0	1.019	0.43		
S-4	27WF98	5.880	0.382	0	1.069	0.43		
S-14	30WF124	4.745	0.308	0	0.863	0.43	1.30	30WF, B30
S-13	30WF116	2.508	0.163	0	1.000	0.43	1.08	30WF, B30

CUY-2-1441 EAST APPROACH FORWARD
Line Girder : Input File : Definition
Fri Apr 13 18:01:31 2012

ID: CUY-2-1441 EAST APPROACH FORWARD
CONDITIONS

A36 STIFFENER STEEL
ENGLISH INPUT
ENGLISH OUTPUT
HS20 LOADING
LFD METHOD
NO INTERMEDIATE TRANSVERSE STIFFENERS
NONCOMPOSITE GIRDER
RATE MODE
SELF WEIGHT FOR DEAD LOAD 1
SINGLE BEARING STIFFENERS EACH SIDE

DATA

BR 24.82
FY 33.
SPLBFT 0.88
SPLBFW 11.51
SPLTFT 0.88
SPLTFW 11.51
SPLWD 31.39
SPLWT 0.58
SPN 49.64
SS 1.
SUPBST 0.0001
SUPBSW 0.0001
WAC 0.386
WAS 0.005
WHEELD 0.5
WHEELF 1.081
WHEELR 1.081
WHEELS 1.081

GO

CUY-2-1441 EAST APPROACH FORWARD
 Line Girder : Rating Output : Governing Service Moment
 Fri Apr 13 18:01:58 2012

Service Moment - k-ft

Tenth Point	Location	Noncomp Dead	Comp Dead	Max LL+I	Min LL+I	Range
0	0.00	0.00	0.00	0.00	0.00	0.00
1	4.96	57.87	0.00	174.93 T	0.00	174.93
2	9.93	102.88	0.00	300.17 T	0.00	300.17
3	14.89	135.03	0.00	375.71 T	0.00	375.71
4	19.86	154.32	0.00	425.06 T	0.00	425.06
5	24.82	160.75	0.00	426.55 T	0.00	426.55
6	29.78	154.32	0.00	425.06 T	0.00	425.06
7	34.75	135.03	0.00	375.71 T	0.00	375.71
8	39.71	102.88	0.00	300.17 T	0.00	300.17
9	44.68	57.87	0.00	174.93 T	0.00	174.93
10	49.64	0.00	0.00	0.00	0.00	0.00

T - governed by truck loading
 L - governed by lane loading

At Bracing

Brace No.	Location	Noncomp Dead	Comp Dead	Max LL+I	Min LL+I	Range
2	24.82	160.75	0.00	426.55	0.00	

CUY-2-1441 EAST APPROACH FORWARD
Line Girder : Rating Output : Governing Service Shear
Fri Apr 13 18:02:08 2012

Service Shear -k

Tenth Point	Location	Noncomp Dead	Comp Dead	Max LL+I	Range
0	0.00	12.95	0.00	41.01 T	41.01
1	4.96	10.36	0.00	36.73 T	38.96
2	9.93	7.77	0.00	31.68 T	36.18
3	14.89	5.18	0.00	26.62 T	33.46
4	19.86	2.59	0.00	21.56 T	33.92
5	24.82	0.00	0.00	16.86 T	33.73
6	29.78	-2.59	0.00	-21.56 T	33.93
7	34.75	-5.18	0.00	-26.62 T	34.48
8	39.71	-7.77	0.00	-31.67 T	36.16
9	44.68	-10.36	0.00	-36.59 T	38.83
10	49.64	-12.95	0.00	-40.87 T	40.87

T - governed by truck loading
L - governed by lane loading

Load Factor Ratings

Span 1

Location	Moment Capacity	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv	Op	Inv	Op
0.00	1123.2 B	348.5	>999.	>999.	3.72	6.22
4.96	1123.2 B	348.5	2.76	4.61	4.20	7.02
9.93	1123.2 B	348.5	1.52	2.54	4.92	8.22
14.89	1123.2 B	348.5	1.16	1.94	5.91	9.88
19.86	1123.2 B	348.5	1.00	1.67	7.37	12.31
24.82	1123.2 B	348.5	0.99	1.65	9.52	15.90
29.78	1123.2 B	348.5	1.00	1.67	7.37	12.31
34.75	1123.2 B	348.5	1.16	1.94	5.91	9.87
39.71	1123.2 B	348.5	1.52	2.54	4.92	8.22
44.68	1123.2 B	348.5	2.76	4.61	4.22	7.04
49.64	1123.2 B	348.5	>999.	>999.	3.74	6.24

 Minimum rating is 0.99 at location 24.82 in span 1.

Moment Capacity Codes

- C - Compact
- B - Braced non-compact
- U - Unbraced non-compact
- T - Transition between compact and braced non-compact
- S - Serviceability

This table is based on eq. (6-1a) of the AASHTO Manual for Condition Evaluation of Bridges.

Noncompact shapes ratings based on stress, as

$$IR = \frac{F_b - \text{Dead load factored stress}}{LL+I \text{ factored stress}}$$

Noncompact shape moment capacity is the product of allowable stress and LL+I section modulus.

CUY-2-1441 EAST APPROACH FORWARD
Line Girder : Input File : Definition
Fri Apr 13 18:02:49 2012

ID: CUY-2-1441 EAST APPROACH FORWARD
CONDITIONS

APPLY IMPACT AT AXLE LOCATION
ENGLISH INPUT
ENGLISH OUTPUT
HS20 LOADING
IGNORE MOMENT SHIFTING
LFD METHOD
NO INTERMEDIATE TRANSVERSE STIFFENERS
NONCOMPOSITE GIRDER
RATE MODE
SELF WEIGHT FOR DEAD LOAD 1
SINGLE BEARING STIFFENERS EACH SIDE

DATA

BR 22. 22. 22. 22. 22.
FY 33.
FYS 33.
SPLBFT 0.792
SPLBFW 10.
SPLTFT 0.792
SPLTFW 10.
SPLWD 25.416
SPLWT 0.5
SPN 44. 44. 44.
SS 0.2
SUPBST 0.1
SUPBSW 1.
WAC 0.386
WAS 0.006
WHEELD 0.43
WHEELF 1.081
WHEELR 1.081
WHEELS 1.081

GO

Service Moment - k-ft

Tenth Point	Location	Noncomp Dead	Comp Dead	Max LL+I	Min LL+I	Range
0	0.00	0.00	0.00	0.00	0.00	0.00
1	4.40	33.24	0.00	135.36 T	-14.08 T	149.43
2	8.80	57.01	0.00	222.90 T	-28.15 T	251.06
3	13.20	71.30	0.00	268.61 T	-42.23 T	310.84
4	17.60	76.13	0.00	286.24 T	-56.31 T	342.54
5	22.00	71.49	0.00	277.49 T	-70.38 T	347.87
6	26.40	57.38	0.00	253.08 T	-84.46 T	337.53
7	30.80	33.80	0.00	193.36 T	-98.53 T	291.89
8	35.20	0.75	0.00	110.89 T	-112.61 T	223.50
9	39.60	-41.77	0.00	44.93 L	-126.69 T	171.62
10	44.00	-93.76	0.00	45.84 T	-201.43 L	247.28
11	48.40	-51.15	0.00	42.92 L	-161.26 T	204.19
12	52.80	-18.00	0.00	119.89 T	-138.22 T	258.11
13	57.20	5.67	0.00	185.32 T	-115.18 T	300.50
14	61.60	19.88	0.00	224.83 T	-92.14 T	316.97
15	66.00	24.61	0.00	230.17 T	-85.57 L	315.74
16	70.40	19.88	0.00	224.82 T	-92.16 T	316.97
17	74.80	5.67	0.00	185.31 T	-115.19 T	300.50
18	79.20	-18.00	0.00	119.87 T	-138.22 T	258.10
19	83.60	-51.15	0.00	42.92 L	-161.26 T	204.18
20	88.00	-93.76	0.00	45.89 T	-201.44 L	247.34
21	92.40	-41.77	0.00	44.97 L	-126.71 T	171.69
22	96.80	0.75	0.00	110.90 T	-112.63 T	223.53
23	101.20	33.80	0.00	193.36 T	-98.55 T	291.91
24	105.60	57.38	0.00	253.09 T	-84.48 T	337.56
25	110.00	71.49	0.00	277.52 T	-70.40 T	347.91
26	114.40	76.13	0.00	286.24 T	-56.32 T	342.56
27	118.80	71.30	0.00	268.61 T	-42.24 T	310.85
28	123.20	57.01	0.00	222.92 T	-28.16 T	251.07
29	127.60	33.24	0.00	135.36 T	-14.08 T	149.44
30	132.00	0.00	0.00	0.00	0.00	0.00

T - governed by truck loading
 L - governed by lane loading

At Bracing

Brace No.

2	22.00	71.49	0.00	277.49	-70.38
3	44.00	-93.76	0.00	45.84	-201.43
4	66.00	24.61	0.00	230.17	-85.57
5	88.00	-93.76	0.00	45.89	-201.44
6	110.00	71.49	0.00	277.52	-70.40

CUY-2-1441 EAST APPROACH FORWARD
 Line Girder : Rating Output : Governing Service Shear
 Fri Apr 13 18:03:09 2012

Service Shear -k

Tenth Point	Location	Noncomp Dead	Comp Dead	Max LL+I	Range
0	0.00	8.63	0.00	37.61 T	40.82
1	4.40	6.48	0.00	32.10 T	35.31
2	8.80	4.33	0.00	26.38 T	32.03
3	13.20	2.17	0.00	20.99 T	29.37
4	17.60	0.02	0.00	16.00 T	29.85
5	22.00	-2.13	0.00	-19.14 T	30.63
6	26.40	-4.28	0.00	-24.18 T	31.70
7	30.80	-6.44	0.00	-29.34 T	33.91
8	35.20	-8.59	0.00	-34.36 T	36.89
9	39.60	-10.74	0.00	-38.90 T	39.95
10	44.00L	-12.89	0.00	-42.81 T	43.86
10	44.00R	10.76	0.00	40.71 T	45.96
11	48.40	8.61	0.00	35.94 T	41.19
12	52.80	6.46	0.00	30.71 T	35.96
13	57.20	4.30	0.00	25.27 T	31.33
14	61.60	2.15	0.00	19.85 T	29.88
15	66.00	0.00	0.00	-14.62 T	29.24
16	70.40	-2.15	0.00	-19.85 T	29.88
17	74.80	-4.30	0.00	-25.28 T	31.33
18	79.20	-6.46	0.00	-30.71 T	35.96
19	83.60	-8.61	0.00	-35.94 T	41.20
20	88.00L	-10.76	0.00	-40.71 T	45.97
20	88.00R	12.89	0.00	42.81 T	43.86
21	92.40	10.74	0.00	38.90 T	39.95
22	96.80	8.59	0.00	34.36 T	36.89
23	101.20	6.44	0.00	29.34 T	33.91
24	105.60	4.28	0.00	24.18 T	31.70
25	110.00	2.13	0.00	19.14 T	30.63
26	114.40	-0.02	0.00	-16.00 T	29.85
27	118.80	-2.17	0.00	-20.99 T	29.37
28	123.20	-4.33	0.00	-26.38 T	32.03
29	127.60	-6.48	0.00	-32.10 T	35.31
30	132.00	-8.63	0.00	-37.48 T	40.69

T - governed by truck loading
 L - governed by lane loading

Load Factor Ratings

Span 1

Location	Moment Capacity	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv	Op	Inv	Op
0.00	693.6 B	243.2	>999.	>999.	2.84	4.75
4.40	693.6 B	243.2	2.21	3.70	3.37	5.63
8.80	693.6 B	243.2	1.28	2.14	4.15	6.93
13.20	693.6 B	243.2	1.03	1.72	5.28	8.81
17.60	693.6 B	243.2	0.96	1.60	7.00	11.69
22.00	693.6 B	243.2	1.00	1.67	5.79	9.66
26.40	693.6 B	243.2	1.13	1.88	4.53	7.56
30.80	693.6 B	243.2	1.55	2.58	3.69	6.16
35.20	693.6 B	243.2	2.83	4.73	3.11	5.19
39.60	693.6 B	243.2	2.32	3.88	2.71	4.53
44.00	693.6 B	243.2	1.31	2.18	2.44	4.07

Span 2

Location	Moment Capacity	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv	Op	Inv	Op
0.00	693.6 B	243.2	1.31	2.18	2.59	4.33
4.40	693.6 B	243.2	1.79	2.99	2.97	4.97
8.80	693.6 B	243.2	2.23	3.73	3.52	5.88
13.20	693.6 B	243.2	1.71	2.85	4.33	7.23
17.60	693.6 B	243.2	1.37	2.28	5.58	9.32
22.00	693.6 B	243.2	1.32	2.21	7.66	12.80
26.40	693.6 B	243.2	1.37	2.28	5.58	9.32
30.80	693.6 B	243.2	1.71	2.85	4.33	7.23
35.20	693.6 B	243.2	2.23	3.73	3.52	5.88
39.60	693.6 B	243.2	1.79	2.99	2.97	4.97
44.00	693.6 B	243.2	1.31	2.18	2.59	4.33

Span 3

Location	Moment Capacity	Shear Capacity	Rating Factors			
			Bending		Shear	
			Inv	Op	Inv	Op
0.00	693.6 B	243.2	1.31	2.18	2.44	4.07
4.40	693.6 B	243.2	2.32	3.88	2.71	4.53
8.80	693.6 B	243.2	2.83	4.73	3.11	5.19
13.20	693.6 B	243.2	1.55	2.58	3.69	6.16
17.60	693.6 B	243.2	1.13	1.88	4.53	7.56
22.00	693.6 B	243.2	1.00	1.66	5.79	9.66
26.40	693.6 B	243.2	0.96	1.60	7.00	11.69
30.80	693.6 B	243.2	1.03	1.72	5.28	8.81
35.20	693.6 B	243.2	1.28	2.14	4.15	6.93
39.60	693.6 B	243.2	2.21	3.70	3.37	5.63
44.00	693.6 B	243.2	>999.	>999.	2.85	4.76

 Minimum rating is 0.96 at location 26.40 in span 3.

Moment Capacity Codes
 C - Compact
 B - Braced non-compact

- U - Unbraced non-compact
- T - Transition between compact and braced non-compact
- S - Serviceability

This table is based on eq. (6-1a) of the AASHTO Manual for Condition Evaluation of Bridges.

Noncompact shapes ratings based on stress, as

$$IR = \frac{F_b - \text{Dead load factored stress}}{\text{LL+I factored stress}}$$

Noncompact shape moment capacity is the product of allowable stress and LL+I section modulus.

EAST APPR. FORWARD SECTION



Made By: PJP Date: 4/9/2012
 Checked By: FKL Date: 4/13/2012

Job No.: P402110046
 Sheet No.: _____

East Approach Forward Section - Stringer Fatigue Summary

Redundant? Yes → $f = 2.0$ (Calculate MEAN Life per ODOT BDM 402.2.6)
 $R_s = 1.00$
 Past ADTT (T_p) = 180 → $T_N = 406$ (Future ADTT, assuming growth rate of %1/year)
 Weight Ratios = 1.0 ($W_p/W, W_N/W$)
 $C = 1.50$ (Cycles per truck passage)
 Impact* = 1.15 (Per ODOT BDM 402.2.6)
 $Y_p = 18$ (Present age of the bridge in years) $Y_{f,MIN} = 110$ years

* Impact is included in service moment range.

STRINGERS:	Service M_r	S_x	S_r	Cycles C	Cat.	K (Detail Constant)	Y_1	Y_N	Y_f
	(k-ft)	(in ³)	(ksi)				(years)	(years)	(years)
S13-1	184.31	448	4.94	1.00	C	12	1108.11	490.89	482.91
S3-2	136.01	329	4.96	1.00	C	12	1092.12	483.81	475.83
S13-3	148.57	258	6.91	1.00	C	12	404.07	179.00	171.03
S10-3	81.14	221	4.40	1.00	B	33	4308.61	1908.70	1900.73
S5-5	81.14	199	4.88	1.00	B	33	3151.08	1395.92	1387.95
S3-6	132.13	267	5.94	1.80	C	12	636.68	282.05	274.08
S15-7	140.76	213	7.93	1.50	C	12	267.36	118.44	110.47
S7-7	70.16	160	5.26	1.50	B	33	2516.63	1114.86	1106.88
S18-8	80.63	196	4.94	1.80	C	12	1108.34	490.99	483.02
S3-9	146.94	359	4.91	1.50	C	12	1125.27	498.49	490.52
S22-9	92.94	201	5.54	1.50	B	33	2154.15	954.28	946.31
S11-10	75.72	196	4.64	1.80	C	12	1338.23	592.83	584.86

EAST APPR. FORWARD SECTION



Made By: PJP Date: 4/10/2012
 Checked By: FKL Date: 4/13/2012

Job No.: P402110046
 Sheet No.: _____

East Approach Forward Section - Floorbeam Fatigue Summary

Redundant? No → $f = 1.0$ (Calculate SAFE Life per ODOT BDM 402.2.6)
 $R_S = 1.75$
 Present ADTT (T_P) = 180 → $T_N = 406$ (Future ADTT, assuming growth rate of 1%/year)
 Weight Ratios = 1.0 ($W_P/W, W_N/W$ equal to unity per ODOT BDM 402.2.6)
 $C = 1.00$ (Cycles per truck passage)
 Impact* = 1.15 (Per ODOT BDM 402.2.6)
 $Y_P^{**} = \text{Varies}$ (Present age of the bridge in years) $Y_{f,MIN} = -11$ years

* Impact is included in service moment range.

** Rehabbed floorbeams have a Y_p of 18 years.

FLOORBEAM	DETAIL AND LOCATION	Service M_r	S_x	S_r	Cat.	K (Detail Constant)	C	Y_P	Y_I	Y_N	Y_f
		(k-ft)	(in ³)	(ksi)				(years)	(years)	(years)	(years)
FB-0	Riveted Field Splice Between S8 and S9	211.23	502.90	5.04	D	6	1.0	74	48.57	21.52	-11.26
FB-1	Riveted Field Splice Between S8 and S9	189.69	621.20	3.66	D	6	1.0	74	126.41	56.00	23.22
FB-2	Riveted Field Splice Between S8 and S9	187.18	621.20	3.62	D	6	1.0	74	131.56	58.28	25.50
FB-3	Riveted Field Splice Between S8 and S9	208.83	621.20	4.03	D	6	1.0	74	94.74	41.97	9.19
FB-4	Riveted Field Splice Between S8 and S9	185.04	579.10	3.83	D	6	1.0	74	110.33	48.87	16.09
FB-5	Riveted Field Splice Between S8 and S9	184.00	621.20	3.55	D	6	1.0	74	138.50	61.36	28.57
FB-6	Riveted Field Splice Between S8 and S9	206.89	621.20	4.00	D	6	1.0	74	97.43	43.16	10.38
FB-7	Riveted Field Splice Between S8 and S9	190.42	835.50	2.73	D	6	1.0	74	304.03	134.69	101.90
FB-8	Riveted Field Splice Between S8 and S9	155.42	579.10	3.22	D	6	1.0	74	186.19	82.48	49.70
FB-9	Riveted Field Splice Between S8 and S9	148.42	579.10	3.08	D	6	1.0	74	213.80	94.71	61.93
FB-10	Bolted Field Splice Between S5 and S6	189.33	542.00	4.19	B	33	1.0	18	464.43	205.74	197.77
FB-11	Bolted Field Splice Between S8 and S9	187.00	911.70	2.46	B	33	1.0	74	2294.11	1016.28	983.50
FB-12	Bolted Field Splice Between S8 and S9	252.95	911.70	3.33	B	33	1.0	74	926.91	410.62	377.83
FB-13	Bolted Field Splice Between S10 and S11	240.36	663.60	4.35	B	33	1.0	74	416.60	184.55	151.77
FB-14A and FB-14C	Stiffener Weld to Flange	174.50	406.00	5.16	C	12	1.0	18	90.67	40.16	32.19
FB-14B	End of Bottom Flange Bolted Cover Plate	210.81	621.20	4.07	B	33	1.0	18	506.53	224.39	216.42

Note: All angles and plates welded to floor beam flanges at expansion joints are assumed to have been removed and welds ground as shown on as-built sheet 304/54



Made By DWC
 Checked By PJP

Date 4/5/2012
 Date 4/9/2012

Job No. P402110046
 Sheet No. _____

Calculations For: **CUY-2-1441 Span 11 Truss, Reactions**

Loading Per AASHTO 17th Standard Edition and ODOT Bridge Design Manual 2004 Ed

Impact Per AASHTO 3.8.2

Multiple Presence per AASHTO 3.12.1

CF Couple= 11.24% at Pier 11/Bent 0

Load Case	Governed By	Span Length		Impact Factor		Truck Load No Impact (kips)		Total Reaction LL+I With CF (kips)		Total Reaction LL+I No CF (kips)		CF (kips) per truss	
		North	South	North	South	R _N	R _S	R _N	R _S	R _N	R _S	R _N and R _S	
Dead Load	n/a	166.43 ft	153.98 ft	n/a	n/a	n/a	n/a	564.26	600.70	564.26	600.70		
Maximizing North Reaction	HS20 Lane Load	3 Lanes	166.43 ft	153.98 ft	17.16%	17.92%	192.96	32.55	n/a	n/a	226.06	38.39	n/a
	HS20 Truck	3 Lanes	166.43 ft	153.98 ft	17.16%	17.92%	160.78	28.79	206.43	30.71	188.36	33.95	15.92
	2F1	3 Lanes	166.43 ft	153.98 ft	17.16%	17.92%	68.99	12.64	88.58	13.49	80.82	14.91	6.86
	3F1	3 Lanes	166.43 ft	153.98 ft	17.16%	17.92%	105.17	19.13	135.04	20.41	123.22	22.56	10.44
	4F1	3 Lanes	166.43 ft	153.98 ft	17.16%	17.92%	122.35	22.09	157.09	23.56	143.34	26.05	12.13
	5C1	3 Lanes	166.43 ft	153.98 ft	17.16%	17.92%	163.88	27.97	210.41	29.84	191.99	32.99	16.12
	HS20 Lane Load	6 Lanes	166.43 ft	153.98 ft	17.16%	17.92%	190.77	185.35	n/a	n/a	223.50	218.57	n/a
	HS20 Truck	6 Lanes	166.43 ft	153.98 ft	17.16%	17.92%	159.43	158.67	204.71	169.27	186.79	187.11	26.72
	2F1	6 Lanes	166.43 ft	153.98 ft	17.16%	17.92%	68.40	68.46	87.82	73.04	80.13	80.73	11.50
	3F1	6 Lanes	166.43 ft	153.98 ft	17.16%	17.92%	104.31	104.09	133.93	111.05	122.21	122.75	17.51
	4F1	6 Lanes	166.43 ft	153.98 ft	17.16%	17.92%	121.42	121.13	155.90	129.23	142.25	142.85	20.37
5C1	6 Lanes	166.43 ft	153.98 ft	17.16%	17.92%	162.58	158.59	208.75	169.18	190.47	187.01	26.98	
Maximizing South Reaction	HS20 Lane Load	6 Lanes	166.43 ft	153.98 ft	17.16%	17.92%	158.70	215.73	n/a	n/a	185.93	254.40	n/a
	HS20 Truck	6 Lanes	166.43 ft	153.98 ft	17.16%	17.92%	133.21	187.40	171.04	199.92	156.06	220.99	26.93
	2F1	6 Lanes	166.43 ft	153.98 ft	17.16%	17.92%	57.10	80.78	73.32	86.17	66.90	95.25	11.58
	3F1	6 Lanes	166.43 ft	153.98 ft	17.16%	17.92%	87.18	122.77	111.94	130.97	102.14	144.77	17.64
	4F1	6 Lanes	166.43 ft	153.98 ft	17.16%	17.92%	101.51	142.83	130.34	152.37	118.93	168.43	20.52
	5C1	6 Lanes	166.43 ft	153.98 ft	17.16%	17.92%	135.95	187.00	174.56	199.49	159.28	220.51	27.13



Made By MTN
Checked By PJP

Date 4/4/2012
Date 4/9/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441 - East Approach Forward Section**

Bent 0 Reactions

Dead Load Reactions from MDX

Unit 1		
Stringer	DL1	DL2
F1-1	13.71	2.26
S1-1	14.13	2.26
S2-1	14.37	2.26
S3-1	16.23	2.26
S4-1	16.23	2.26
S5-1	16.23	2.26
S6-1	16.23	2.26
S7-1	17.78	2.26
S8-1	16.23	2.26
S9-1	16.23	2.26
S10-1	16.23	2.26
S11-1	16.23	2.26
S12-1	18.56	2.26
S13-1	18.12	2.26
F2-1	14.18	2.26

Bent 0 Reaction	
Stringer	Total DL
F1-1 +	15.97
S1-1 +	16.39
S2-1 +	16.63
S3-1 +	18.49
S4-1 +	18.49
S5-1 +	18.49
S6-1 +	18.49
S7-1 +	20.04
S8-1 +	18.49
S9-1 +	18.49
S10-1 +	18.49
S11-1 +	18.49
S12-1 +	20.82
S13-1 +	20.38
F2-1 +	16.44

Lower Deck Reactions from MDX

Unit 1		
Stringer	DL1	Continuous Over Bent?
S-15	10.63	No
S-1 (1)	13.08	No
S-1 (2)	13.08	No
S-1 (3)	13.08	No
S-1 (4)	13.08	No
S-10	14.97	No
S-1 (5)	13.08	No
S-1 (6)	13.08	No
S-1 (7)	13.08	No
S-1 (8)	13.08	No
S-11	11.39	No
S-12	7.25	No

Bent 0 Reaction	
Stringer	Total DL
S-15 +	10.63
S-1 (1) +	13.08
S-1 (2) +	13.08
S-1 (3) +	13.08
S-1 (4) +	13.08
S-10 +	14.97
S-1 (5) +	13.08
S-1 (6) +	13.08
S-1 (7) +	13.08
S-1 (8) +	13.08
S-11 +	11.39
S-12 +	7.25

Unit 1 - Live Load Reactions from STAAD

	LL	2 lane LL+I	3 lane	4 lane
HS-20	29.23	37.6	33.9	28.2
2F1	13.99	18.0	16.2	13.5
3F1	20.62	26.6	23.9	19.9
4F1	23.13	29.8	26.8	22.4
5C1	20.64	26.6	23.9	20.0

Impact Factor
Span 1 49.641
Impact = 1.286

3 lane reduction 0.9
4 lane + reduction 0.75

	LL	
HS-20	29.23	
2F1	13.99	0.478618
3F1	20.62	0.705440
4F1	23.13	0.791310
5C1	20.64	0.706124

Reactions per wheel line at Bent 0

See separate sheet for reactions from Truss Span 11



Made By MTN
 Checked By PJP

Date 4/4/2012
 Date 4/9/2012

Job No. P402110046
 Sheet No. _____

Calculations For: **CUY-2-1441 - East Approach Forward Section**

Bent 0 Reactions

Lower Deck Live Load

Parking Structure Live Load = 0.04 ksf (from ASCE 07 for Parking Structures)
 Span 1 Tributary Length = 24.82 ft
 Span 1 Distributed Load on FB = 0.99 klf

Unit 1		
Stringer	Tributary Width	Live Load Reaction
S-15	4.078	4.05
S-1 (1)	5.880	5.84
S-1 (2)	5.604	5.56
S-1 (3)	5.604	5.56
S-1 (4)	5.943	5.90
S-10	6.281	6.24
S-1 (5)	5.943	5.90
S-1 (6)	5.604	5.56
S-1 (7)	5.604	5.56
S-1 (8)	5.880	5.84
S-11	4.745	4.71
S-12	2.167	2.15

Unit 1 Centrifugal Wheel Loads (kips)

Radius, R = 1000 ft
 Design Speed, S = 50 mph
 Degree of Curv., D = 5.7294 degrees
 Centrifugal Coefficient, C = 16.8% AASHTO 17th [3.10.1]

	LL Reaction	2 lane LL+I		3 lane LL+I		4 lane LL+I	
		Left W	Right W	Left W	Right W	Left W	Right W
HS-20	29.23	27.8	47.5	25.0	42.7	20.9	35.6
2F1	13.99	13.3	22.7	12.0	20.5	10.0	17.1
3F1	20.62	19.6	33.5	17.7	30.2	14.7	25.1
4F1	23.13	22.0	37.6	19.8	33.8	16.5	28.2
5C1	20.64	19.7	33.5	17.7	30.2	14.8	25.2

Reactions per wheel line at Bent 0

See separate sheet for reactions from Truss Span 11

Unit 1 Centrifugal Horizontal Loads

Length of floor beam = 81.4795 ft
 Moment arm from top of deck to center of floorbeam = 3.3435 ft

LL Reaction (per Truck)		Number of Lanes Loaded							
		2		3		4		6	
		Horizontal (kip/ft)	Moment (kip*ft/ft)	Horizontal (kip/ft)	Moment (kip*ft/ft)	Horizontal (kip/ft)	Moment (kip*ft/ft)	Horizontal (kip/ft)	Moment (kip*ft/ft)
HS-20	58.46	0.241	0.806	0.325	1.088	0.362	1.209	0.542	1.814
2F1	27.98	0.115	0.386	0.156	0.521	0.173	0.579	0.260	0.868
3F1	41.24	0.170	0.569	0.230	0.768	0.255	0.853	0.383	1.279
4F1	46.26	0.191	0.638	0.258	0.861	0.286	0.957	0.429	1.435
5C1	41.28	0.170	0.569	0.230	0.768	0.255	0.854	0.383	1.281

Reactions per axle at Bent 0

See separate sheet for reactions from Truss Span 11

```

*****
*
*          STAAD.Pro          *
*          Version 2007      Build 05      *
*          Proprietary Program of          *
*          Bentley Systems, Inc.          *
*          Date=    APR 13, 2012          *
*          Time=    17:20:19              *
*
*          USER ID: TranSystems          *
*****

```

```

1. STAAD SPACE
INPUT FILE: Bent 0 Truck Loads.STD
2. START JOB INFORMATION
3. ENGINEER DATE 3/27/12
4. JOB NAME CUY-2-1441 EAST APPROACH FWD SECTION
5. JOB CLIENT ODOT
6. JOB NO P402110046
7. JOB REV REV 0
8. JOB REF BENT 1 TRUCK LOADS
9. ENGINEER NAME MTN
10. JOB COMMENT TRUCK LOADS APPLIED TO BENT 0 FLOOR BEAM
11. CHECKER NAME PJP
12. CHECKER DATE 4/9/12
13. END JOB INFORMATION
14. INPUT WIDTH 79
15. UNIT FEET KIP
16. JOINT COORDINATES
17. 13 0 0 1; 14 0 -0.1 1; 15 49.641 0 1; 23 0 0 2; 24 0 -0.1 2; 25 49.641 0 2
18. 33 0 0 3; 34 0 -0.1 3; 35 49.641 0 3; 43 0 0 4; 44 0 -0.1 4; 45 49.641 0 4
19. 53 0 0 5; 54 0 -0.1 5; 55 49.641 0 5
20. MEMBER INCIDENCES
21. 13 13 14; 14 13 15; 23 23 24; 24 23 25; 33 33 34; 34 33 35; 43 43 44; 44 43 45
22. 53 53 54; 54 53 55
23. MEMBER RELEASE
24. 14 24 34 44 54 START MZ
25. DEFINE MATERIAL START
26. ISOTROPIC STEEL
27. E 4.176E+006
28. POISSON 0.3
29. DENSITY 0.489024
30. ALPHA 6.5E-006
31. DAMP 0.03
32. END DEFINE MATERIAL
33. MEMBER PROPERTY AMERICAN
34. 13 14 23 24 33 34 43 44 53 54 TABLE ST W33X130
35. CONSTANTS
36. MATERIAL STEEL ALL
37. SUPPORTS
38. 14 24 34 44 54 FIXED
39. 15 25 35 45 55 FIXED BUT FX MZ
40. DEFINE MOVING LOAD

```

STAAD SPACE

-- PAGE NO. 2

```

41. *HS20 TRUCK
42. TYPE 1 LOAD 16 16 4
43. DIST 14 14
44. *TYPE 2F1 TRUCK
45. TYPE 2 LOAD 10 5
46. DIST 10
47. *TYPE 3F1 TRUCK
48. TYPE 3 LOAD 8.5 8.5 6
49. DIST 4 10
50. *TYPE 4F1 TRUCK
51. TYPE 4 LOAD 7 7 7 6
52. DIST 4 4 10
53. *TYPE 5C1 TRUCK
54. TYPE 5 LOAD 8.5 8.5 8.5 8.5 6
55. DIST 4 31 4 12
56. *HS20 TRAVELING UP STATION
57. LOAD GENERATION 29
**WARNING- THIS STRUCTURE IS DISJOINTED. IGNORE IF
      MASTER/SLAVE OR IF UNCONNECTED JOINTS.
58. TYPE 1 -28 0 1 XINC 1
59. *HS20 TRAVELING DOWN STATION
60. LOAD GENERATION 29
**WARNING-A MOVING LOAD THAT WOULD HAVE BEEN APPLIED BEYOND THE X AND Z RANGES
      OF THE STRUCTURE HAS BEEN IGNORED. CASE= 1 WHEEL 1 OF 3
**WARNING-A MOVING LOAD THAT WOULD HAVE BEEN APPLIED BEYOND THE X AND Z RANGES
      OF THE STRUCTURE HAS BEEN IGNORED. CASE= 1 WHEEL 2 OF 3
**WARNING-A MOVING LOAD THAT WOULD HAVE BEEN APPLIED BEYOND THE X AND Z RANGES
      OF THE STRUCTURE HAS BEEN IGNORED. CASE= 2 WHEEL 1 OF 3
**WARNING-A MOVING LOAD THAT WOULD HAVE BEEN APPLIED BEYOND THE X AND Z RANGES
      OF THE STRUCTURE HAS BEEN IGNORED. CASE= 2 WHEEL 2 OF 3
**WARNING-A MOVING LOAD THAT WOULD HAVE BEEN APPLIED BEYOND THE X AND Z RANGES
      OF THE STRUCTURE HAS BEEN IGNORED. CASE= 3 WHEEL 1 OF 3
**WARNING-A MOVING LOAD THAT WOULD HAVE BEEN APPLIED BEYOND THE X AND Z RANGES
      OF THE STRUCTURE HAS BEEN IGNORED. CASE= 3 WHEEL 2 OF 3
**WARNING-A MOVING LOAD THAT WOULD HAVE BEEN APPLIED BEYOND THE X AND Z RANGES
      OF THE STRUCTURE HAS BEEN IGNORED. CASE= 4 WHEEL 1 OF 3
**WARNING-A MOVING LOAD THAT WOULD HAVE BEEN APPLIED BEYOND THE X AND Z RANGES
      OF THE STRUCTURE HAS BEEN IGNORED. CASE= 4 WHEEL 2 OF 3
**WARNING-A MOVING LOAD THAT WOULD HAVE BEEN APPLIED BEYOND THE X AND Z RANGES
      OF THE STRUCTURE HAS BEEN IGNORED. CASE= 5 WHEEL 1 OF 3
**WARNING-A MOVING LOAD THAT WOULD HAVE BEEN APPLIED BEYOND THE X AND Z RANGES
      OF THE STRUCTURE HAS BEEN IGNORED. CASE= 5 WHEEL 2 OF 3
*ADDITIONAL MOVING LOAD MESSAGES SUPPRESSED
*ADDITIONAL MOVING LOAD MESSAGES SUPPRESSED
61. TYPE 1 28 0 1 XINC -1.
62. *TYPE 2F1 TRAVELING UP STATION
63. LOAD GENERATION 11
64. TYPE 2 -10 0 2 XINC 1
65. *TYPE 2F1 TRAVELING DOWN STATION
66. LOAD GENERATION 11
67. TYPE 2 10 0 2 XINC -1.
68. *TYPE 3F1 TRAVELING UP STATION
69. LOAD GENERATION 15
70. TYPE 3 -14 0 3 XINC 1
71. *TYPE 3F1 TRAVELING DOWN STATION
72. LOAD GENERATION 15

```

STAAD SPACE

-- PAGE NO. 3

73. TYPE 3 14 0 3 XINC -1.
74. *TYPE 4F1 TRAVELING UP STATION
75. LOAD GENERATION 19
76. TYPE 4 -18 0 4 XINC 1
77. *TYPE 4F1 TRAVELING DOWN STATION
78. LOAD GENERATION 19
79. TYPE 4 18 0 4 XINC -1.
80. *TYPE 5C1 TRAVELING UP STATION
81. LOAD GENERATION 52
82. TYPE 5 -51 0 5 XINC 1
83. *TYPE 5 TRAVELING DOWN STATION
84. LOAD GENERATION 52
85. TYPE 5 51 0 5 XINC -1.
86. PERFORM ANALYSIS

P R O B L E M S T A T I S T I C S

NUMBER OF JOINTS/MEMBER+ELEMENTS/SUPPORTS = 15/ 10/ 10

SOLVER USED IS THE OUT-OF-CORE BASIC SOLVER

ORIGINAL/FINAL BAND-WIDTH= 2/ 2/ 8 DOF
TOTAL PRIMARY LOAD CASES = 252, TOTAL DEGREES OF FREEDOM = 40
SIZE OF STIFFNESS MATRIX = 1 DOUBLE KILO-WORDS
REQRD/AVAIL. DISK SPACE = 12.3/ 514632.4 MB

87. PRINT MAXFORCE ENVELOPE NSECTION 1 LIST 13

STAAD SPACE

-- PAGE NO. 4

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/	DIST	LD	MZ/	DIST	LD	FX	DIST	LD
	FZ	DIST	LD	MY	DIST	LD			
13 MAX	0.00	0.00	1	0.00	0.00	1	29.23 C	0.00	29
	0.00	0.00	1	0.00	0.00	1			
MIN	0.00	0.10	252	0.00	0.10	252	0.00	0.10	252
	0.00	0.10	252	0.00	0.10	252			

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

88. *HS20 MAX REACTION - LISTED ABOVE

89. PRINT MAXFORCE ENVELOPE NSECTION 1 LIST 23

STAAD SPACE

-- PAGE NO. 5

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/	DIST	LD	MZ/	DIST	LD	FX	DIST	LD
	FZ	DIST	LD	MY	DIST	LD			
23 MAX	0.00	0.00	1	0.00	0.00	1	13.99 C	0.00	69
	0.00	0.00	1	0.00	0.00	1			
MIN	0.00	0.10	252	0.00	0.10	252	0.00	0.10	252
	0.00	0.10	252	0.00	0.10	252			

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

90. *TYPE 2F1 MAX REACTION - LISTED ABOVE

91. PRINT MAXFORCE ENVELOPE NSECTION 1 LIST 33

STAAD SPACE

-- PAGE NO. 6

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/	DIST	LD	MZ/	DIST	LD	FX	DIST	LD
	FZ	DIST	LD	MY	DIST	LD			
33 MAX	0.00	0.00	1	0.00	0.00	1	20.62 C	0.00	95
	0.00	0.00	1	0.00	0.00	1			
MIN	0.00	0.10	252	0.00	0.10	252	0.00	0.10	252
	0.00	0.10	252	0.00	0.10	252			

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

92. *TYPE 3F1 MAX REACTION - LISTED ABOVE
 93. PRINT MAXFORCE ENVELOPE NSECTION 1 LIST 43

STAAD SPACE

-- PAGE NO. 7

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/	DIST	LD	MZ/	DIST	LD	FX	DIST	LD
	FZ	DIST	LD	MY	DIST	LD			
43 MAX	0.00	0.00	1	0.00	0.00	1	23.13 C	0.00	129
	0.00	0.00	1	0.00	0.00	1			
MIN	0.00	0.10	252	0.00	0.10	252	0.00	0.10	252
	0.00	0.10	252	0.00	0.10	252			

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

94. *TYPE 4F1 MAX REACTION - LISTED ABOVE
 95. PRINT MAXFORCE ENVELOPE NSECTION 1 LIST 53

STAAD SPACE

-- PAGE NO. 8

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/	DIST	LD	MZ/	DIST	LD	FX	DIST	LD
	FZ	DIST	LD	MY	DIST	LD			
53 MAX	0.00	0.00	1	0.00	0.00	1	20.64 C	0.00	213
	0.00	0.00	1	0.00	0.00	1			
MIN	0.00	0.10	252	0.00	0.10	252	0.00	0.10	148
	0.00	0.10	252	0.00	0.10	252			

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

96. *TYPE 5C1 MAX REACTION - LISTED ABOVE

97. FINISH

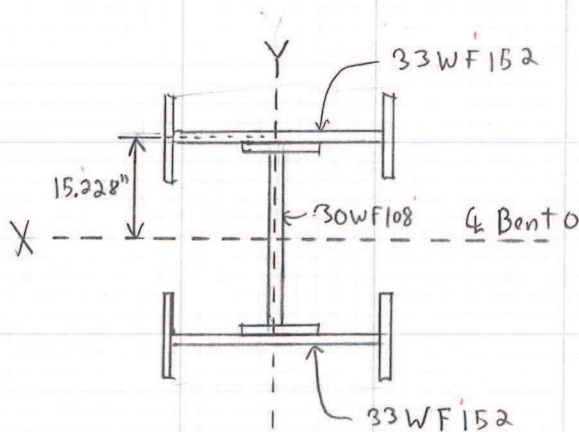
***** END OF THE STAAD.Pro RUN *****

**** DATE= APR 13,2012 TIME= 17:20:22 ****

```
*****  
*           For questions on STAAD.Pro, please contact           *  
*   Bentley Systems Offices at the following locations           *  
*                                                                 *  
*           Telephone           Web / Email           *  
*                                                                 *  
*   USA:           +1 (714)974-2500           *  
*   CANADA        +1 (905)632-4771           detech@odandetech.com *  
*   UK            +44(1454)207-000           *  
*   SINGAPORE     +65 6225-6158           *  
*   EUROPE        +31 23 5560560           *  
*   INDIA         +91(033)4006-2021           *  
*   JAPAN         +81(03)5952-6500           http://www.ctc-g.co.jp *  
*   CHINA         +86 10 5929 7000           *  
*   THAILAND     +66(0)2645-1018/19 partha.p@reissoftwareth.com *  
*                                                                 *  
*   Worldwide     http://selectservices.bentley.com/en-US/       *  
*                                                                 *  
*****
```


Main Ave Rating - Bent 0 Columns

- Columns C-100 & C-300 of Bent 0 are built from three WF sections.



I_x & I_y of WF sections are about axis shown in diagram

From 1940's U.S.S. Steel Sections Book

30 WF 108:
 $D = 29.82''$
 $d_w = 28.3''$

Area = 31.77 in^2
 $t_w = 0.548''$

$b_f = 10.484''$ $t_f = 0.76''$
 $I_x = 4461.0 \text{ in}^4$ $I_y = 135.1 \text{ in}^4$

33 WF 152:
 $D = 33.5''$
 $d_w = 31.39''$

Area = 44.71 in^2
 $t_w = 0.635''$

$b_f = 11.565''$ $t_f = 1.055''$
 $I_x = 256.1 \text{ in}^4$ $I_y = 8147.6 \text{ in}^4$

$$A = 31.77 \text{ in}^2 + 2(44.71 \text{ in}^2) = \underline{121.19 \text{ in}^2}$$

$$I_x = 4461.0 \text{ in}^4 + 2[(256.1 \text{ in}^4) + (44.71 \text{ in}^2)(15.228'')^2] = \underline{25,708.98 \text{ in}^4}$$

$$I_y = 135.1 \text{ in}^4 + 2(8147.6 \text{ in}^4) = \underline{16,430.3 \text{ in}^4}$$

$$r_x = \sqrt{\frac{I_x}{A}} = \sqrt{\frac{25,708.98}{121.19}} = \underline{14.565 \text{ in}}$$

$$r_y = \sqrt{\frac{I_y}{A}} = \sqrt{\frac{16,430.3}{121.19}} = \underline{11.644 \text{ in}}$$

$$C_x = \frac{29.82''}{2} + \frac{0.635''}{2} + \frac{11.565''}{2} = \underline{21.01''}$$

distance to extreme fiber from X axis

$$C_y = \frac{33.5''}{2} = \underline{16.75''}$$

distance to extreme fiber from Y axis

Main Ave Rating - Bent 0 Columns

$$S_x = \frac{I_x}{C_x} = \frac{25,708.98 \text{ in}^4}{21.61"} = \underline{\underline{1223.65 \text{ in}^3}}$$

$$S_y = \frac{I_y}{C_y} = \frac{16,430.3 \text{ in}^4}{16.75"} = \underline{\underline{980.91 \text{ in}^3}}$$

$$J = \frac{1}{3} \sum bt^3 = \frac{1}{3} [(28.3")(0.548")^3 + 2(10.484")(0.76")^3 + 2(31.39")(0.635")^3 + 4(11.565")(1.055")^3]$$

$$J = \frac{1}{3} [84.2568 \text{ in}^4] = \underline{\underline{28.09 \text{ in}^4}}$$



PROPERTIES

WIDE FLANGE
CB SECTIONS

PROPERTIES OF SECTIONS

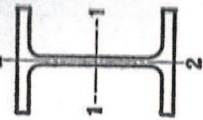
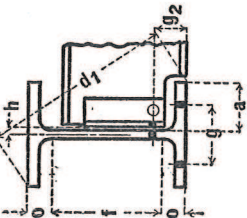


Table with columns: District Rolled, Section Index and Nominal Size, Depth of Section, WL. per Foot, Area of Section, Flange (Width, Thickness), Web Thickness, Axis 1-1 (I, S, r), Axis 2-2 (I, S, r), F, and I. Rows include sections like 36" WF, 33" WF, and 30" WF.

For key to symbols in first column, refer to page 3.



WIDE FLANGE
CB SECTIONS

DIMENSIONS OF SECTIONS
FOR DETAILING



DIMENSIONS

Table with columns: Section Index and Nominal Depth, Weight per Foot, Depth of Section, Flange (Width, Thickness), Web (Thickness, Half Thickness), Distance (a, f, o, d1), Clear. h, and Usual Gage g. Rows include sections like 36" WF, 33" WF, and 30" WF.

Gages gr. are based on 1/4" edge distance (1/8" maximum rivet).

Main Ave Rating - Bent 0 Lane Load from Unit 1

HS20 Lane Reaction on Bent 0 from Span 1

$$(0.640 \text{ klf}) \left(\frac{49.641'}{2} \right) = 15.89 \text{ kip/Lane}$$

$$\text{Load width in lane} = 10' \quad w = \frac{15.89 \text{ k}}{10'} = \underline{1.589 \text{ k/ft}}$$

$$\text{Impact} = \frac{50}{(49.641 + 125)} = 0.286 \leq 0.3 \quad I = \underline{1.286}$$

$$2 \text{ Lanes} = (1.589 \text{ k/ft})(1.286) = \underline{2.043 \text{ k/ft}} \text{ per lane}$$

$$3 \text{ Lanes} = (1.589 \text{ k/ft})(1.286)(0.9) = \underline{1.839 \text{ k/ft}} \text{ per lane}$$

$$4 + \text{ Lanes} = (1.589 \text{ k/ft})(1.286)(0.75) = \underline{1.533 \text{ k/ft}} \text{ per lane}$$

Note: Concentrated load is on Truss Span II.

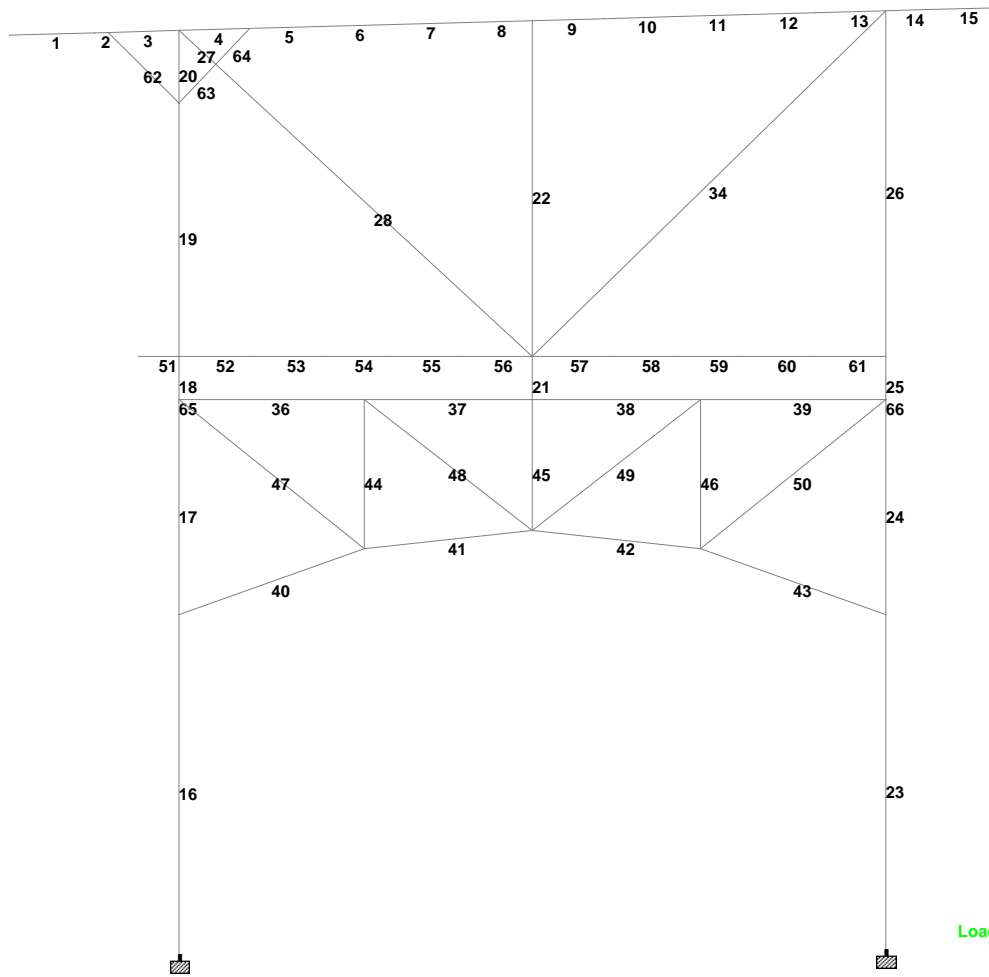


Job No P402110046	Sheet No 1	Rev
Part EAST APPROACH - FORWARD SECTION		
Ref Bent 0		
By MTN	Date 04-Apr-12	Chd PJP
File Bent_0_LL.std	Date/Time 12-Apr-2012 09:55	

Software licensed to TranSystems

Job Title CUY-2-1441 Main Ave. Rating

Client ODOT



```

*****
*
*          STAAD.Pro V8i SELECTseries1          *
*          Version  20.07.06.35                 *
*          Proprietary Program of              *
*          Bentley Systems, Inc.               *
*          Date=    APR 11, 2012               *
*          Time=    19: 4:25                   *
*
*          USER ID: TranSystems                *
*****

```

1. STAAD SPACE DXF IMPORT OF 002_1441BENT_1.DXF
- INPUT FILE: Bent_1_DL.STD
2. START JOB INFORMATION
3. ENGINEER DATE 30-MAR-12
4. JOB NAME CUY-2-1441 MAIN AVE RATING
5. JOB NO P402110046
6. JOB REF BENT 1
7. JOB COMMENT BENT 1 DEAD LOAD
8. ENGINEER NAME MTN
9. JOB CLIENT ODOT
10. JOB PART EAST APPR. - FWD. SECTION
11. CHECKER NAME PJP
12. CHECKER DATE 4/5/12
13. END JOB INFORMATION
14. INPUT WIDTH 79
15. UNIT FEET KIP
16. JOINT COORDINATES
17. 1 -2.32292 186.628 0; 2 3.60938 186.803 0; 3 10.1094 186.996 0
18. 4 15.9635 187.169 0; 5 21.8177 187.342 0; 6 27.6719 187.515 0
19. 7 33.526 187.688 0; 8 39.3594 187.861 0; 9 45.1927 188.033 0
20. 10 51.0469 188.206 0; 11 56.901 188.379 0; 12 62.7552 188.552 0
21. 13 68.6094 188.726 0; 14 73.3802 188.867 0; 15 79 189.033 0
22. 16 10.1094 117.15 0; 17 10.1094 132.879 0; 18 10.1094 138.212 0
23. 19 10.1094 160.579 0; 20 39.3594 117.15 0; 21 39.3594 126.9 0
24. 22 39.3594 132.879 0; 23 39.3594 138.212 0; 24 39.3594 160.579 0
25. 25 68.6094 117.15 0; 26 68.6094 132.879 0; 27 68.6094 138.212 0
26. 28 68.6094 160.579 0; 30 16.2656 138.212 0; 31 21.8698 138.212 0
27. 32 27.474 138.212 0; 33 33.0781 138.212 0; 34 45.6406 138.212 0
28. 35 51.2448 138.212 0; 36 56.849 138.212 0; 37 62.4531 138.212 0
29. 38 16.2656 132.879 0; 39 21.8698 132.879 0; 40 27.474 132.879 0
30. 41 33.0781 132.879 0; 42 45.6406 132.879 0; 43 51.2448 132.879 0
31. 44 56.849 132.879 0; 45 62.4531 132.879 0; 46 6.77604 160.579 0
32. 47 16.2656 160.579 0; 48 21.8698 160.579 0; 49 27.474 160.579 0
33. 50 33.0781 160.579 0; 51 45.6406 160.579 0; 52 51.2448 160.579 0
34. 53 56.849 160.579 0; 54 62.4531 160.579 0
35. MEMBER INCIDENCES
36. 1 1 2; 2 2 3; 3 3 4; 4 4 5; 5 5 6; 6 6 7; 7 7 8; 8 8 9; 9 9 10; 10 10 11
37. 11 11 12; 12 12 13; 13 13 14; 14 14 15; 15 16 17; 16 17 18; 17 18 19; 18 19 3
38. 19 20 21; 20 21 22; 21 22 23; 22 23 24; 23 24 8; 24 25 26; 25 26 27; 26 27 28
39. 27 28 13; 32 18 30; 33 30 31; 34 31 32; 35 32 33; 36 33 23; 37 23 34; 38 34 35
40. 39 35 36; 40 36 37; 41 37 27; 42 17 38; 43 38 39; 44 39 40; 45 40 41; 46 41 22

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41. 47 22 42; 48 42 43; 49 43 44; 50 44 45; 51 45 26; 52 38 30; 53 39 31; 54 40 32
42. 55 41 33; 56 42 34; 57 43 35; 58 44 36; 59 45 37; 60 17 30; 61 30 39; 62 39 32
43. 63 32 41; 64 41 23; 65 23 42; 66 42 35; 67 35 44; 68 44 37; 69 37 26; 70 41 21
44. 71 21 42; 72 46 19; 73 19 47; 74 47 48; 75 48 49; 76 49 50; 77 50 24; 78 24 51
45. 79 51 52; 80 52 53; 81 53 54; 82 54 28
46. DEFINE MATERIAL START
47. ISOTROPIC STEEL
48. E 4.176E+006
49. POISSON 0.3
50. DENSITY 0.489024
51. ALPHA 6E-006
52. DAMP 0.03
53. END DEFINE MATERIAL
54. MEMBER PROPERTY AMERICAN
55. 1 TO 14 TABLE ST W36X182
56. 15 TO 18 24 TO 27 TABLE ST W21X132
57. 19 TO 23 TABLE ST W24X146
58. 72 TO 77 TABLE ST W36X230
59. 78 TO 82 TABLE ST W36X160
60. 32 TO 71 TABLE ST W8X31
61. CONSTANTS
62. BETA 90 MEMB 32 TO 71
63. MATERIAL STEEL ALL
64. MEMBER TRUSS
65. 32 TO 71
66. SUPPORTS
67. 16 20 25 FIXED
68. LOAD 1 LOADTYPE DEAD TITLE LOAD CASE 1
69. SELFWEIGHT Y -1.05 LIST 1 TO 27 32 TO 82
70. JOINT LOAD
71. *F1-12 UPPER DECK FASCIA BEAM
72. 15 FY -30.01
73. *S1-12
74. 14 FY -31.14
75. *S2-12
76. 13 FY -31.67
77. *S3-12, S4-12, S5-12, S6-12, S8-12, S9-12, S10-12, S11-12
78. 4 TO 7 9 TO 12 FY -34.52
79. *S7-12
80. 8 FY -36.04
81. *S12-12
82. 3 FY -37.62
83. *S13-12
84. 2 FY -37.27
85. *F2-12 UPPER DECK FASCIA BEAM
86. 1 FY -30.96
87. *S-15 LOWER DECK (RIGHT FASCIA BEAM - LOOKING WEST)
88. 28 FY -10.63
89. *S-1 LOWER DECK (INTERIOR BEAMS - NORTH BAY)
90. 51 TO 54 FY -13.08
91. *S-10 _S-16 LOWER DECK (CENTER COLUMN BEAM)
92. 24 FY -24.51
93. *S-1 _S-4 LOWER DECK (INTERIOR BEAMS - SOUTH BAY)
94. 47 TO 50 FY -21.81
95. *S-11 _S-14 LOWER DECK (SECOND BEAM FROM LEFT - LOOKING WEST)
96. 19 FY -22.53

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97. *S-12 _S-13 LOWER DECK (LEFT FASCIA BEAM - LOOKING WEST)
 98. 46 FY -15.02
 99. MEMBER LOAD
 100. *DEAD LOAD OF STRENGTHENING PLATES ON COLUMNS = 44 LB/FT, 50 LB/FT IS USED TO I
 101. 18 UNI GY -0.05 0 22.1738
 102. 27 UNI GY -0.05 0 23.9038
 103. 17 26 UNI GY -0.05 0 22.367
 104. 15 24 UNI GY -0.05 0 15.729
 105. PERFORM ANALYSIS

P R O B L E M S T A T I S T I C S

NUMBER OF JOINTS/MEMBER+ELEMENTS/SUPPORTS = 53/ 78/ 3

SOLVER USED IS THE OUT-OF-CORE BASIC SOLVER

ORIGINAL/FINAL BAND-WIDTH= 27/ 6/ 42 DOF
 TOTAL PRIMARY LOAD CASES = 1, TOTAL DEGREES OF FREEDOM = 300
 SIZE OF STIFFNESS MATRIX = 13 DOUBLE KILO-WORDS
 REQD/AVAIL. DISK SPACE = 12.2/ 515501.0 MB

ZERO STIFFNESS IN DIRECTION 3 AT JOINT 30 EQN.NO. 69
 LOADS APPLIED OR DISTRIBUTED HERE FROM ELEMENTS WILL BE IGNORED.
 THIS MAY BE DUE TO ALL MEMBERS AT THIS JOINT BEING RELEASED OR
 EFFECTIVELY RELEASED IN THIS DIRECTION.

ZERO STIFFNESS IN DIRECTION 4 AT JOINT 30 EQN.NO. 70
 ZERO STIFFNESS IN DIRECTION 5 AT JOINT 30 EQN.NO. 71
 ZERO STIFFNESS IN DIRECTION 6 AT JOINT 30 EQN.NO. 72
 ZERO STIFFNESS IN DIRECTION 3 AT JOINT 38 EQN.NO. 87
 ZERO STIFFNESS IN DIRECTION 4 AT JOINT 38 EQN.NO. 88
 ZERO STIFFNESS IN DIRECTION 5 AT JOINT 38 EQN.NO. 89
 ZERO STIFFNESS IN DIRECTION 6 AT JOINT 38 EQN.NO. 90
 ZERO STIFFNESS IN DIRECTION 3 AT JOINT 31 EQN.NO. 93
 ZERO STIFFNESS IN DIRECTION 4 AT JOINT 31 EQN.NO. 94
 ZERO STIFFNESS IN DIRECTION 5 AT JOINT 31 EQN.NO. 95
 ZERO STIFFNESS IN DIRECTION 6 AT JOINT 31 EQN.NO. 96

**WARNING - THERE WERE MORE THAN 12 DOF WITH ZERO STIFFNESS.
 THE FIRST 12 ARE LISTED ABOVE.
 TOTAL # TRANSLATIONAL= 16 TOTAL # ROTATIONAL= 48

106. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 1 TO 14

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
1 MAX	-30.95	0.00	1	187.03	5.93	1			
	0.00	0.00	1	0.00	0.00	1	0.91 T	0.00	1
MIN	-32.08	5.93	1	0.00	0.00	1			
	0.00	5.93	1	0.00	5.93	1	0.95 T	5.93	1
2 MAX	-69.33	0.00	1	641.94	6.50	1			
	0.00	0.00	1	0.00	0.00	1	2.06 T	0.00	1
MIN	-70.58	6.50	1	187.03	0.00	1			
	0.00	6.50	1	0.00	6.50	1	2.10 T	6.50	1
3 MAX	80.46	0.00	1	609.45	0.00	1			
	0.00	0.00	1	0.00	0.00	1	2.22 C	0.00	1
MIN	79.34	5.86	1	141.50	5.86	1			
	0.00	5.86	1	0.00	5.86	1	2.19 C	5.86	1
4 MAX	44.84	0.00	1	141.50	0.00	1			
	0.00	0.00	1	0.00	0.00	1	1.17 C	0.00	1
MIN	43.72	5.86	1	-117.82	5.86	1			
	0.00	5.86	1	0.00	5.86	1	1.13 C	5.86	1
5 MAX	9.21	0.00	1	-117.82	0.00	1			
	0.00	0.00	1	0.00	0.00	1	0.11 C	0.00	1
MIN	8.09	5.86	1	-168.50	5.86	1			
	0.00	5.86	1	0.00	5.86	1	0.08 C	5.86	1
6 MAX	-26.41	0.00	1	-10.55	5.86	1			
	0.00	0.00	1	0.00	0.00	1	0.94 T	0.00	1
MIN	-27.53	5.86	1	-168.50	0.00	1			
	0.00	5.86	1	0.00	5.86	1	0.97 T	5.86	1
7 MAX	-62.03	0.00	1	354.74	5.84	1			
	0.00	0.00	1	0.00	0.00	1	2.00 T	0.00	1
MIN	-63.15	5.84	1	-10.55	0.00	1			
	0.00	5.84	1	0.00	5.84	1	2.03 T	5.84	1
8 MAX	68.72	0.00	1	373.22	0.00	1			
	0.00	0.00	1	0.00	0.00	1	2.48 C	0.00	1
MIN	67.60	5.84	1	-24.54	5.84	1			
	0.00	5.84	1	0.00	5.84	1	2.45 C	5.84	1
9 MAX	33.10	0.00	1	-24.54	0.00	1			
	0.00	0.00	1	0.00	0.00	1	1.43 C	0.00	1

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MIN	31.98	5.86	1	-215.11	5.86	1			
	0.00	5.86	1	0.00	5.86	1	1.40 C	5.86	1
10 MAX	-2.53	0.00	1	-197.03	5.86	1			
	0.00	0.00	1	0.00	0.00	1	0.38 C	0.00	1
MIN	-3.65	5.86	1	-215.11	0.00	1			
	0.00	5.86	1	0.00	5.86	1	0.35 C	5.86	1
11 MAX	-38.15	0.00	1	29.69	5.86	1			
	0.00	0.00	1	0.00	0.00	1	0.67 T	0.00	1
MIN	-39.27	5.86	1	-197.03	0.00	1			
	0.00	5.86	1	0.00	5.86	1	0.70 T	5.86	1
12 MAX	-73.77	0.00	1	465.05	5.86	1			
	0.00	0.00	1	0.00	0.00	1	1.74 T	0.00	1
MIN	-74.89	5.86	1	29.69	0.00	1			
	0.00	5.86	1	0.00	5.86	1	1.77 T	5.86	1
13 MAX	63.11	0.00	1	470.71	0.00	1			
	0.00	0.00	1	0.00	0.00	1	1.87 C	0.00	1
MIN	62.20	4.77	1	171.67	4.77	1			
	0.00	4.77	1	0.00	4.77	1	1.84 C	4.77	1
14 MAX	31.07	0.00	1	171.67	0.00	1			
	0.00	0.00	1	0.00	0.00	1	0.92 C	0.00	1
MIN	30.00	5.62	1	0.00	5.62	1			
	0.00	5.62	1	0.00	5.62	1	0.89 C	5.62	1

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

107. *FLOOR BEAM DEAD LOAD ABOVE

108. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 15 TO 18

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
15 MAX	-0.02	0.00	1	-2.02	15.73	1			
	0.00	0.00	1	0.00	0.00	1	283.13 C	0.00	1
MIN	-0.02	15.73	1	-2.33	0.00	1			
	0.00	15.73	1	0.00	15.73	1	280.17 C	15.73	1
16 MAX	2.49	0.00	1	-2.02	0.00	1			
	0.00	0.00	1	0.00	0.00	1	279.03 C	0.00	1
MIN	2.49	5.33	1	-15.29	5.33	1			
	0.00	5.33	1	0.00	5.33	1	278.29 C	5.33	1
17 MAX	-2.89	0.00	1	49.36	22.37	1			
	0.00	0.00	1	0.00	0.00	1	278.19 C	0.00	1
MIN	-2.89	22.37	1	-15.29	0.00	1			
	0.00	22.37	1	0.00	22.37	1	273.97 C	22.37	1
18 MAX	0.16	0.00	1	-28.27	0.00	1			
	0.00	0.00	1	0.00	0.00	1	193.48 C	0.00	1
MIN	0.16	26.42	1	-32.48	26.42	1			
	0.00	26.42	1	0.00	26.42	1	188.72 C	26.42	1

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

109. *COLUMN 3 DEAD LOAD ABOVE

110. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 19 TO 23

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
19 MAX	-0.22	0.00	1	0.15	9.75	1			
	0.00	0.00	1	0.00	0.00	1	296.99 C	0.00	1
MIN	-0.22	9.75	1	-1.98	0.00	1			
	0.00	9.75	1	0.00	9.75	1	295.50 C	9.75	1
20 MAX	-0.05	0.00	1	0.43	5.98	1			
	0.00	0.00	1	0.00	0.00	1	272.27 C	0.00	1
MIN	-0.05	5.98	1	0.15	0.00	1			
	0.00	5.98	1	0.00	5.98	1	271.35 C	5.98	1
21 MAX	-0.39	0.00	1	2.54	5.33	1			
	0.00	0.00	1	0.00	0.00	1	271.15 C	0.00	1
MIN	-0.39	5.33	1	0.43	0.00	1			
	0.00	5.33	1	0.00	5.33	1	270.33 C	5.33	1
22 MAX	1.11	0.00	1	2.54	0.00	1			
	0.00	0.00	1	0.00	0.00	1	287.76 C	0.00	1
MIN	1.11	22.37	1	-22.37	22.37	1			
	0.00	22.37	1	0.00	22.37	1	284.33 C	22.37	1
23 MAX	-0.62	0.00	1	18.49	27.28	1			
	0.00	0.00	1	0.00	0.00	1	172.17 C	0.00	1
MIN	-0.62	27.28	1	1.68	0.00	1			
	0.00	27.28	1	0.00	27.28	1	167.98 C	27.28	1

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

111. *COLUMN 2 DEAD LOAD ABOVE

112. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 24 TO 27

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
24 MAX	0.24	0.00	1	2.24	0.00	1			
	0.00	0.00	1	0.00	0.00	1	216.16 C	0.00	1
MIN	0.24	15.73	1	-1.51	15.73	1			
	0.00	15.73	1	0.00	15.73	1	213.20 C	15.73	1
25 MAX	-1.45	0.00	1	6.20	5.33	1			
	0.00	0.00	1	0.00	0.00	1	212.21 C	0.00	1
MIN	-1.45	5.33	1	-1.51	0.00	1			
	0.00	5.33	1	0.00	5.33	1	211.47 C	5.33	1
26 MAX	1.78	0.00	1	6.20	0.00	1			
	0.00	0.00	1	0.00	0.00	1	211.37 C	0.00	1
MIN	1.78	22.37	1	-33.54	22.37	1			
	0.00	22.37	1	0.00	22.37	1	207.16 C	22.37	1
27 MAX	0.46	0.00	1	18.51	0.00	1			
	0.00	0.00	1	0.00	0.00	1	174.81 C	0.00	1
MIN	0.46	28.15	1	5.66	28.15	1			
	0.00	28.15	1	0.00	28.15	1	169.72 C	28.15	1

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

113. *COLUMN 1 DEAD LOAD ABOVE

114. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 72 TO 77

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
72 MAX	-15.02	0.00	1	51.41	3.33	1			
	0.00	0.00	1	0.00	0.00	1	0.00	0.00	1
MIN	-15.82	3.33	1	0.00	0.00	1			
	0.00	3.33	1	0.00	3.33	1	0.00	3.33	1
73 MAX	42.14	0.00	1	129.03	0.00	1			
	0.00	0.00	1	0.00	0.00	1	3.05 C	0.00	1
MIN	40.66	6.16	1	-125.82	6.16	1			
	0.00	6.16	1	0.00	6.16	1	3.05 C	6.16	1
74 MAX	18.85	0.00	1	-125.82	0.00	1			
	0.00	0.00	1	0.00	0.00	1	3.05 C	0.00	1
MIN	17.49	5.60	1	-227.65	5.60	1			
	0.00	5.60	1	0.00	5.60	1	3.05 C	5.60	1
75 MAX	-4.32	0.00	1	-199.68	5.60	1			
	0.00	0.00	1	0.00	0.00	1	3.05 C	0.00	1
MIN	-5.67	5.60	1	-227.65	0.00	1			
	0.00	5.60	1	0.00	5.60	1	3.05 C	5.60	1
76 MAX	-27.48	0.00	1	-41.92	5.60	1			
	0.00	0.00	1	0.00	0.00	1	3.05 C	0.00	1
MIN	-28.83	5.60	1	-199.68	0.00	1			
	0.00	5.60	1	0.00	5.60	1	3.05 C	5.60	1
77 MAX	-50.64	0.00	1	280.91	6.28	1			
	0.00	0.00	1	0.00	0.00	1	3.05 C	0.00	1
MIN	-52.15	6.28	1	-41.92	0.00	1			
	0.00	6.28	1	0.00	6.28	1	3.05 C	6.28	1

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

115. *LOWER DECK FLOOR BEAM DL BETWEEN COL 2 AND 3 ABOVE

116. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 78 TO 82

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
78 MAX	35.50	0.00	1	256.86	0.00	1			
	0.00	0.00	1	0.00	0.00	1	1.32 C	0.00	1
MIN	34.45	6.28	1	37.17	6.28	1			
	0.00	6.28	1	0.00	6.28	1	1.32 C	6.28	1
79 MAX	21.37	0.00	1	37.17	0.00	1			
	0.00	0.00	1	0.00	0.00	1	1.32 C	0.00	1
MIN	20.43	5.60	1	-79.95	5.60	1			
	0.00	5.60	1	0.00	5.60	1	1.32 C	5.60	1
80 MAX	7.35	0.00	1	-79.95	0.00	1			
	0.00	0.00	1	0.00	0.00	1	1.32 C	0.00	1
MIN	6.41	5.60	1	-118.50	5.60	1			
	0.00	5.60	1	0.00	5.60	1	1.32 C	5.60	1
81 MAX	-6.67	0.00	1	-78.49	5.60	1			
	0.00	0.00	1	0.00	0.00	1	1.32 C	0.00	1
MIN	-7.61	5.60	1	-118.50	0.00	1			
	0.00	5.60	1	0.00	5.60	1	1.32 C	5.60	1
82 MAX	-20.69	0.00	1	52.05	6.16	1			
	0.00	0.00	1	0.00	0.00	1	1.32 C	0.00	1
MIN	-21.72	6.16	1	-78.49	0.00	1			
	0.00	6.16	1	0.00	6.16	1	1.32 C	6.16	1

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

117. *LOWER DECK FLOOR BEAM DL BETWEEN COL 1 AND 2 ABOVE
118. FINISH

***** END OF THE STAAD.Pro RUN *****

**** DATE= APR 11,2012 TIME= 19: 4:26 ****

* For questions on STAAD.Pro, please contact *
* Bentley Systems Offices at the following locations *
* *
* Telephone Web / Email *
* *
* USA: +1 (714)974-2500 *
* UK +44(1454)207-000 *
* SINGAPORE +65 6225-6158 *
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* *
* Worldwide <http://selectservices.bentley.com/en-US/> *
* *

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*****
*
*          STAAD.Pro V8i SELECTseries1          *
*          Version  20.07.06.35                  *
*          Proprietary Program of                *
*          Bentley Systems, Inc.                 *
*          Date=    APR 12, 2012                 *
*          Time=    9:55:17                      *
*
*          USER ID: TranSystems                  *
*****
```

1. STAAD SPACE DXF IMPORT OF 002_1441BENT_0.DXF
- INPUT FILE: Bent_0_LL.STD
2. START JOB INFORMATION
3. ENGINEER DATE 04-APR-12
4. JOB NAME CUY-2-1441 MAIN AVE. RATING
5. JOB NO P402110046
6. JOB REF BENT 0
7. JOB COMMENT BENT 0 LIVE LOAD
8. ENGINEER NAME MTN
9. JOB CLIENT ODOT
10. JOB PART EAST APPROACH - FORWARD SECTION
11. CHECKER NAME PJP
12. CHECKER DATE 4/9/12
13. END JOB INFORMATION
14. INPUT WIDTH 79
15. UNIT FEET KIP
16. JOINT COORDINATES
17. 1 -3.90625 193.175 0; 2 3.13542 193.371 0; 3 4.27202 193.403 0
18. 4 10.1094 193.566 0; 5 15.9635 193.729 0; 6 21.8177 193.892 0
19. 7 27.6719 194.055 0; 8 33.526 194.218 0; 9 39.3594 194.381 0
20. 10 45.1927 194.543 0; 11 51.0469 194.706 0; 12 56.901 194.869 0
21. 13 62.7552 195.033 0; 14 68.6094 195.196 0; 15 71.9219 195.288 0
22. 16 77.5417 195.445 0; 17 10.1094 117.15 0; 18 10.1094 145.235 0
23. 19 10.1094 163.016 0; 20 10.1094 166.6 0; 21 10.1094 187.566 0
24. 22 39.3594 163.016 0; 23 39.3594 166.6 0; 24 68.6094 117.5 0
25. 25 68.6094 145.235 0; 26 68.6094 163.016 0; 27 68.6094 166.6 0
26. 28 13.1478 190.764 0; 31 25.4323 163.016 0; 32 53.2865 163.016 0
27. 33 25.4323 150.672 0; 34 39.3594 152.183 0; 35 53.2865 150.672 0
28. 36 6.77604 166.6 0; 37 16.2656 166.6 0; 38 21.8698 166.6 0; 39 27.474 166.6 0
29. 40 33.0781 166.6 0; 41 45.6406 166.6 0; 42 51.2448 166.6 0; 43 56.849 166.6 0
30. 44 62.4531 166.6 0; 45 10.1094 163.016 -1.2708; 46 68.6094 163.016 -1.2708
31. MEMBER INCIDENCES
32. 1 1 2; 2 2 3; 3 3 4; 4 4 5; 5 5 6; 6 6 7; 7 7 8; 8 8 9; 9 9 10; 10 10 11
33. 11 11 12; 12 12 13; 13 13 14; 14 14 15; 15 15 16; 16 17 18; 17 18 19; 18 19 20
34. 19 20 21; 20 21 4; 21 22 23; 22 23 9; 23 24 25; 24 25 26; 25 26 27; 26 27 14
35. 27 4 28; 28 28 23; 34 23 14; 36 19 31; 37 31 22; 38 22 32; 39 32 26; 40 18 33
36. 41 33 34; 42 34 35; 43 35 25; 44 33 31; 45 34 22; 46 35 32; 47 19 33; 48 31 34
37. 49 34 32; 50 35 26; 51 36 20; 52 20 37; 53 37 38; 54 38 39; 55 39 40; 56 40 23
38. 57 23 41; 58 41 42; 59 42 43; 60 43 44; 61 44 27; 62 21 3; 63 21 28; 64 28 5
39. 65 45 19; 66 46 26
40. DEFINE MATERIAL START

41. ISOTROPIC STEEL
42. E 4.176E+006
43. POISSON 0.3
44. DENSITY 0.489024
45. ALPHA 6E-006
46. DAMP 0.03
47. END DEFINE MATERIAL
48. MEMBER PROPERTY AMERICAN
49. 1 TO 15 TABLE ST W36X150
50. 51 TO 61 TABLE ST W36X160
51. 18 TO 22 25 26 TABLE ST W14X74
52. 40 TO 50 TABLE ST W30X108
53. 34 TABLE ST W6X20
54. 27 28 TABLE ST W6X15
55. MEMBER PROPERTY AMERICAN
56. 16 17 23 24 65 -
57. 66 PRIS AX 0.841597 IX 0.001355 IY 1.23982 IZ 0.792356 YD 2.79167 -
58. ZD 3.50167 ZB 3.50167
59. 62 TO 64 TABLE ST W8X35
60. 36 TO 39 TABLE ST W30X173
61. CONSTANTS
62. BETA 90 MEMB 27 28 34 36 TO 50 62 TO 64
63. MATERIAL STEEL ALL
64. MEMBER TRUSS
65. 27 28 34 36 TO 50
66. SUPPORTS
67. 17 24 FIXED
68. *HS-15 FATIGUE TRUCK
69. DEFINE MOVING LOAD
70. TYPE 1 LOAD 25.2 25.2
71. DIST 6
72. *BEGIN HS-20 TRUCKS IN UNIT 1 WITHOUT CF NO LOAD ON LOWER DECK
73. LOAD 1 LOADTYPE LIVE TITLE AXIAL ON COLUMN C3 (3 LANE)
74. MEMBER LOAD
75. 1 CON GY -33.9 1.6189 0
76. 2 CON GY -33.9 0.5772 0
77. 3 CON GY -33.9 5.4406 0
78. 4 CON GY -33.9 5.6033 0
79. 5 CON GY -33.9 5.7491 0
80. 7 CON GY -33.9 0.0408 0
81. LOAD 2 LOADTYPE LIVE TITLE AXIAL ON COLUMN C3 (2 LANE)
82. MEMBER LOAD
83. 1 CON GY -37.6 1.6189 0
84. 2 CON GY -37.6 0.5772 0
85. 3 CON GY -37.6 5.4406 0
86. 4 CON GY -37.6 5.6033 0
87. LOAD 3 LOADTYPE LIVE TITLE NEG. MOMENT IN FB OVER C3 (3 LANE)
88. MEMBER LOAD
89. 1 CON GY -33.9 1.6189 0
90. 2 CON GY -33.9 0.5772 0
91. 4 CON GY -33.9 5.5449 0
92. 5 CON GY -33.9 5.6908 0
93. 6 CON GY -33.9 3.8366 0
94. 7 CON GY -33.9 3.9824 0
95. LOAD 4 LOADTYPE LIVE TITLE NEG. MOMENT IN FB OVER C3 (2 LANE)
96. MEMBER LOAD

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97. 1 CON GY -37.6 1.6189 0
98. 2 CON GY -37.6 0.5772 0
99. 5 CON GY -37.6 5.7708 0
100. 7 CON GY -37.6 0.0625 0
101. LOAD 5 LOADTYPE LIVE TITLE POS. MOMENT IN FB BETWEEN C3 _C2 (3 LANE)
102. MEMBER LOAD
103. 4 CON GY -33.9 5.5449 0
104. 5 CON GY -33.9 5.6908 0
105. 6 CON GY -33.9 3.8366 0
106. 7 CON GY -33.9 3.9824 0
107. 14 CON GY -33.9 1.2348 0
108. 15 CON GY -33.9 3.9223 0
109. LOAD 6 LOADTYPE LIVE TITLE POS. MOMENT IN FB BETWEEN C3 _C2 (2 LANE-1)
110. MEMBER LOAD
111. 4 CON GY -37.6 5.5449 0
112. 5 CON GY -37.6 5.6908 0
113. 6 CON GY -37.6 3.8366 0
114. 7 CON GY -37.6 3.9824 0
115. LOAD 7 LOADTYPE LIVE TITLE POS. MOMENT IN FB BETWEEN C3 _C2 (2 LANE-2)
116. MEMBER LOAD
117. 5 CON GY -37.6 5.7708 0
118. 7 CON GY -37.6 0.0625 0
119. 14 CON GY -37.6 1.2348 0
120. 15 CON GY -37.6 3.9223 0
121. LOAD 8 LOADTYPE LIVE TITLE MAX AXIAL ON COLUMN C2 (4 LANE)
122. MEMBER LOAD
123. 4 CON GY -28.2 5.5449 0
124. 5 CON GY -28.2 5.6908 0
125. 6 CON GY -28.2 5.8366 0
126. 8 CON GY -28.2 0.1283 0
127. 9 CON GY -28.2 0.5485 0
128. 10 CON GY -28.2 0.7152 0
129. 11 CON GY -28.2 0.861 0
130. 12 CON GY -28.2 1.0069 0
131. LOAD 9 LOADTYPE LIVE TITLE MAX AXIAL ON COLUMN C2 (3 LANE)
132. MEMBER LOAD
133. 6 CON GY -33.9 5.8366 0
134. 8 CON GY -33.9 0.1283 0
135. 9 CON GY -33.9 0.5485 0
136. 10 CON GY -33.9 0.7152 0
137. 11 CON GY -33.9 0.861 0
138. 12 CON GY -33.9 1.0069 0
139. LOAD 10 LOADTYPE LIVE TITLE MAX AXIAL ON COLUMN C2 (2 LANE)
140. MEMBER LOAD
141. 6 CON GY -37.6 5.8366 0
142. 8 CON GY -37.6 0.1283 0
143. 9 CON GY -37.6 0.5485 0
144. 10 CON GY -37.6 0.7152 0
145. LOAD 11 LOADTYPE LIVE TITLE NEG. MOMENT IN FB OVER C2 (4 LANE)
146. MEMBER LOAD
147. 4 CON GY -28.2 0.7708 0
148. 5 CON GY -28.2 0.9167 0
149. 5 CON GY -28.2 4.9167 0
150. 6 CON GY -28.2 5.0625 0
151. 9 CON GY -28.2 0.7917 0
152. 10 CON GY -28.2 0.9375 0

153. 10 CON GY -28.2 4.9375 0
154. 11 CON GY -28.2 5.0833 0
155. LOAD 12 LOADTYPE LIVE TITLE NEG. MOMENT IN FB OVER C2 (3 LANE)
156. MEMBER LOAD
157. 5 CON GY -33.9 5.7708 0
158. 7 CON GY -33.9 0.0625 0
159. 10 CON GY -33.9 0.7917 0
160. 11 CON GY -33.9 0.9375 0
161. 11 CON GY -33.9 4.9375 0
162. 12 CON GY -33.9 5.0833 0
163. LOAD 13 LOADTYPE LIVE TITLE NEG. MOMENT IN FB OVER C2 (2 LANE)
164. MEMBER LOAD
165. 5 CON GY -37.6 5.7708 0
166. 7 CON GY -37.6 0.0625 0
167. 10 CON GY -37.6 5.7917 0
168. 12 CON GY -37.6 0.0833 0
169. LOAD 14 LOADTYPE LIVE TITLE POS. MOMENT IN FB BETWEEN C2 _C1 (4 LANE)
170. MEMBER LOAD
171. 1 CON GY -28.2 1.6189 0
172. 2 CON GY -28.2 0.5772 0
173. 9 CON GY -28.2 2.5485 0
174. 10 CON GY -28.2 2.7152 0
175. 11 CON GY -28.2 0.861 0
176. 12 CON GY -28.2 1.0069 0
177. 13 CON GY -28.2 1.1527 0
178. 14 CON GY -28.2 1.2985 0
179. LOAD 15 LOADTYPE LIVE TITLE POS. MOMENT IN FB BETWEEN C2 _C1 (3 LANE-1)
180. MEMBER LOAD
181. 9 CON GY -33.9 2.5485 0
182. 10 CON GY -33.9 2.7152 0
183. 11 CON GY -33.9 0.861 0
184. 12 CON GY -33.9 1.0069 0
185. 13 CON GY -33.9 1.1527 0
186. 14 CON GY -33.9 1.2985 0
187. LOAD 16 LOADTYPE LIVE TITLE POS. MOMENT IN FB BETWEEN C2 _C1 (3 LANE-2)
188. MEMBER LOAD
189. 1 CON GY -33.9 1.6189 0
190. 2 CON GY -33.9 0.5772 0
191. 10 CON GY -33.9 0.7917 0
192. 11 CON GY -33.9 0.9375 0
193. 11 CON GY -33.9 4.9375 0
194. 12 CON GY -33.9 5.0833 0
195. LOAD 17 LOADTYPE LIVE TITLE POS. MOMENT IN FB BETWEEN C2 _C1 (2 LANE-1)
196. MEMBER LOAD
197. 10 CON GY -37.6 0.7917 0
198. 11 CON GY -37.6 0.9375 0
199. 11 CON GY -37.6 4.9375 0
200. 12 CON GY -37.6 5.0833 0
201. LOAD 18 LOADTYPE LIVE TITLE POS. MOMENT IN FB BETWEEN C2 _C1 (2 LANE-2)
202. MEMBER LOAD
203. 1 CON GY -37.6 1.6189 0
204. 2 CON GY -37.6 0.5772 0
205. 10 CON GY -37.6 5.7917 0
206. 12 CON GY -37.6 0.0833 0
207. LOAD 19 LOADTYPE LIVE TITLE MAX AXIAL ON COLUMN C1 (3 LANE)
208. MEMBER LOAD

209. 10 CON GY -33.9 0.6515 0
210. 11 CON GY -33.9 0.7973 0
211. 12 CON GY -33.9 0.9432 0
212. 13 CON GY -33.9 1.089 0
213. 14 CON GY -33.9 1.2348 0
214. 15 CON GY -33.9 3.9223 0
215. LOAD 20 LOADTYPE LIVE TITLE MAX AXIAL ON COLUMN C1 (2 LANE)
216. MEMBER LOAD
217. 12 CON GY -37.6 0.9432 0
218. 13 CON GY -37.6 1.089 0
219. 14 CON GY -37.6 1.2348 0
220. 15 CON GY -37.6 3.9223 0
221. LOAD 21 LOADTYPE LIVE TITLE NEG. MOMENT IN FB OVER C1 (3 LANE)
222. MEMBER LOAD
223. 10 CON GY -33.9 0.6515 0
224. 11 CON GY -33.9 0.7973 0
225. 11 CON GY -33.9 4.7973 0
226. 12 CON GY -33.9 4.9432 0
227. 14 CON GY -33.9 1.2348 0
228. 15 CON GY -33.9 3.9223 0
229. LOAD 22 LOADTYPE LIVE TITLE NEG. MOMENT IN FB OVER C1 (2 LANE)
230. MEMBER LOAD
231. 10 CON GY -37.6 5.7917 0
232. 12 CON GY -37.6 0.0833 0
233. 14 CON GY -37.6 1.2348 0
234. 15 CON GY -37.6 3.9223 0
235. LOAD 23 LOADTYPE LIVE TITLE ALL LANES LOADED - CENTER (6 LANE)
236. MEMBER LOAD
237. 2 CON GY -28.2 0.5189 0
238. 3 CON GY -28.2 5.3823 0
239. 4 CON GY -28.2 5.5449 0
240. 5 CON GY -28.2 5.6908 0
241. 6 CON GY -28.2 5.8366 0
242. 8 CON GY -28.2 0.1283 0
243. 9 CON GY -28.2 0.5485 0
244. 10 CON GY -28.2 0.7152 0
245. 11 CON GY -28.2 0.861 0
246. 12 CON GY -28.2 1.0069 0
247. 13 CON GY -28.2 1.1527 0
248. 14 CON GY -28.2 1.2985 0
249. LOAD 24 LOADTYPE LIVE TITLE ALL LANES LOADED - OUTSIDE (6 LANE)
250. MEMBER LOAD
251. 1 CON GY -28.2 1.6189 0
252. 2 CON GY -28.2 0.5772 0
253. 3 CON GY -28.2 5.4406 0
254. 4 CON GY -28.2 5.6033 0
255. 5 CON GY -28.2 5.7491 0
256. 7 CON GY -28.2 0.0408 0
257. 10 CON GY -28.2 0.6515 0
258. 11 CON GY -28.2 0.7973 0
259. 12 CON GY -28.2 0.9432 0
260. 13 CON GY -28.2 1.089 0
261. 14 CON GY -28.2 1.2348 0
262. 15 CON GY -28.2 3.9223 0
263. *BEGIN LOWER DECK LL (40PSF)
264. LOAD 25 LOADTYPE LIVE TITLE LOWER DECK LOAD

265. JOINT LOAD
266. 27 FY -4.05
267. 37 44 FY -5.84
268. 38 39 42 43 FY -5.56
269. 40 41 FY -5.9
270. 23 FY -6.24
271. 20 FY -4.71
272. 36 FY -2.15
273. *BEGIN HS-20 TRUCKS IN UNIT 1 AND LOWER DECK LOADED NO CENTRIFUGAL
274. LOAD 26 LOADTYPE LIVE TITLE HS20 NO CENTRIFUGAL
275. REPEAT LOAD
276. 1 1.0 25 1.0
277. LOAD 27 LOADTYPE LIVE TITLE HS20 NO CENTRIFUGAL
278. REPEAT LOAD
279. 2 1.0 25 1.0
280. LOAD 28 LOADTYPE LIVE TITLE HS20 NO CENTRIFUGAL
281. REPEAT LOAD
282. 3 1.0 25 1.0
283. LOAD 29 LOADTYPE LIVE TITLE HS20 NO CENTRIFUGAL
284. REPEAT LOAD
285. 4 1.0 25 1.0
286. LOAD 30 LOADTYPE LIVE TITLE HS20 NO CENTRIFUGAL
287. REPEAT LOAD
288. 5 1.0 25 1.0
289. LOAD 31 LOADTYPE LIVE TITLE HS20 NO CENTRIFUGAL
290. REPEAT LOAD
291. 6 1.0 25 1.0
292. LOAD 32 LOADTYPE LIVE TITLE HS20 NO CENTRIFUGAL
293. REPEAT LOAD
294. 7 1.0 25 1.0
295. LOAD 33 LOADTYPE LIVE TITLE HS20 NO CENTRIFUGAL
296. REPEAT LOAD
297. 8 1.0 25 1.0
298. LOAD 34 LOADTYPE LIVE TITLE HS20 NO CENTRIFUGAL
299. REPEAT LOAD
300. 9 1.0 25 1.0
301. LOAD 35 LOADTYPE LIVE TITLE HS20 NO CENTRIFUGAL
302. REPEAT LOAD
303. 10 1.0 25 1.0
304. LOAD 36 LOADTYPE LIVE TITLE HS20 NO CENTRIFUGAL
305. REPEAT LOAD
306. 11 1.0 25 1.0
307. LOAD 37 LOADTYPE LIVE TITLE HS20 NO CENTRIFUGAL
308. REPEAT LOAD
309. 12 1.0 25 1.0
310. LOAD 38 LOADTYPE LIVE TITLE HS20 NO CENTRIFUGAL
311. REPEAT LOAD
312. 13 1.0 25 1.0
313. LOAD 39 LOADTYPE LIVE TITLE HS20 NO CENTRIFUGAL
314. REPEAT LOAD
315. 14 1.0 25 1.0
316. LOAD 40 LOADTYPE LIVE TITLE HS20 NO CENTRIFUGAL
317. REPEAT LOAD
318. 15 1.0 25 1.0
319. LOAD 41 LOADTYPE LIVE TITLE HS20 NO CENTRIFUGAL
320. REPEAT LOAD

321. 16 1.0 25 1.0
322. LOAD 42 LOADTYPE LIVE TITLE HS20 NO CENTRIFUGAL
323. REPEAT LOAD
324. 17 1.0 25 1.0
325. LOAD 43 LOADTYPE LIVE TITLE HS20 NO CENTRIFUGAL
326. REPEAT LOAD
327. 18 1.0 25 1.0
328. LOAD 44 LOADTYPE LIVE TITLE HS20 NO CENTRIFUGAL
329. REPEAT LOAD
330. 19 1.0 25 1.0
331. LOAD 45 LOADTYPE LIVE TITLE HS20 NO CENTRIFUGAL
332. REPEAT LOAD
333. 20 1.0 25 1.0
334. LOAD 46 LOADTYPE LIVE TITLE HS20 NO CENTRIFUGAL
335. REPEAT LOAD
336. 21 1.0 25 1.0
337. LOAD 47 LOADTYPE LIVE TITLE HS20 NO CENTRIFUGAL
338. REPEAT LOAD
339. 22 1.0 25 1.0
340. LOAD 48 LOADTYPE LIVE TITLE HS20 NO CENTRIFUGAL
341. REPEAT LOAD
342. 23 1.0 25 1.0
343. LOAD 49 LOADTYPE LIVE TITLE HS20 NO CENTRIFUGAL
344. REPEAT LOAD
345. 24 1.0 25 1.0
346. *BEGIN 2F1 LOADING IN UNIT 1 LOWER DECK LOADED NO CENTRIFUGAL
347. LOAD 50 LOADTYPE LIVE TITLE 2F1 LOADING NO CENTRIFUGAL
348. REPEAT LOAD
349. 1 0.478618 25 1.0
350. LOAD 51 LOADTYPE LIVE TITLE 2F1 LOADING NO CENTRIFUGAL
351. REPEAT LOAD
352. 2 0.478618 25 1.0
353. LOAD 52 LOADTYPE LIVE TITLE 2F1 LOADING NO CENTRIFUGAL
354. REPEAT LOAD
355. 3 0.478618 25 1.0
356. LOAD 53 LOADTYPE LIVE TITLE 2F1 LOADING NO CENTRIFUGAL
357. REPEAT LOAD
358. 4 0.478618 25 1.0
359. LOAD 54 LOADTYPE LIVE TITLE 2F1 LOADING NO CENTRIFUGAL
360. REPEAT LOAD
361. 5 0.478618 25 1.0
362. LOAD 55 LOADTYPE LIVE TITLE 2F1 LOADING NO CENTRIFUGAL
363. REPEAT LOAD
364. 6 0.478618 25 1.0
365. LOAD 56 LOADTYPE LIVE TITLE 2F1 LOADING NO CENTRIFUGAL
366. REPEAT LOAD
367. 7 0.478618 25 1.0
368. LOAD 57 LOADTYPE LIVE TITLE 2F1 LOADING NO CENTRIFUGAL
369. REPEAT LOAD
370. 8 0.478618 25 1.0
371. LOAD 58 LOADTYPE LIVE TITLE 2F1 LOADING NO CENTRIFUGAL
372. REPEAT LOAD
373. 9 0.478618 25 1.0
374. LOAD 59 LOADTYPE LIVE TITLE 2F1 LOADING NO CENTRIFUGAL
375. REPEAT LOAD
376. 10 0.478618 25 1.0

377. LOAD 60 LOADTYPE LIVE TITLE 2F1 LOADING NO CENTRIFUGAL
378. REPEAT LOAD
379. 11 0.478618 25 1.0
380. LOAD 61 LOADTYPE LIVE TITLE 2F1 LOADING NO CENTRIFUGAL
381. REPEAT LOAD
382. 12 0.478618 25 1.0
383. LOAD 62 LOADTYPE LIVE TITLE 2F1 LOADING NO CENTRIFUGAL
384. REPEAT LOAD
385. 13 0.478618 25 1.0
386. LOAD 63 LOADTYPE LIVE TITLE 2F1 LOADING NO CENTRIFUGAL
387. REPEAT LOAD
388. 14 0.478618 25 1.0
389. LOAD 64 LOADTYPE LIVE TITLE 2F1 LOADING NO CENTRIFUGAL
390. REPEAT LOAD
391. 15 0.478618 25 1.0
392. LOAD 65 LOADTYPE LIVE TITLE 2F1 LOADING NO CENTRIFUGAL
393. REPEAT LOAD
394. 16 0.478618 25 1.0
395. LOAD 66 LOADTYPE LIVE TITLE 2F1 LOADING NO CENTRIFUGAL
396. REPEAT LOAD
397. 17 0.478618 25 1.0
398. LOAD 67 LOADTYPE LIVE TITLE 2F1 LOADING NO CENTRIFUGAL
399. REPEAT LOAD
400. 18 0.478618 25 1.0
401. LOAD 68 LOADTYPE LIVE TITLE 2F1 LOADING NO CENTRIFUGAL
402. REPEAT LOAD
403. 19 0.478618 25 1.0
404. LOAD 69 LOADTYPE LIVE TITLE 2F1 LOADING NO CENTRIFUGAL
405. REPEAT LOAD
406. 20 0.478618 25 1.0
407. LOAD 70 LOADTYPE LIVE TITLE 2F1 LOADING NO CENTRIFUGAL
408. REPEAT LOAD
409. 21 0.478618 25 1.0
410. LOAD 71 LOADTYPE LIVE TITLE 2F1 LOADING NO CENTRIFUGAL
411. REPEAT LOAD
412. 22 0.478618 25 1.0
413. LOAD 72 LOADTYPE LIVE TITLE 2F1 LOADING NO CENTRIFUGAL
414. REPEAT LOAD
415. 23 0.478618 25 1.0
416. LOAD 73 LOADTYPE LIVE TITLE 2F1 LOADING NO CENTRIFUGAL
417. REPEAT LOAD
418. 24 0.478618 25 1.0
419. *BEGIN 3F1 LOADING IN UNIT 1 LOWER DECK LOADED NO CENTRIFUGAL
420. LOAD 74 LOADTYPE LIVE TITLE 3F1 LOADING NO CENTRIFUGAL
421. REPEAT LOAD
422. 1 0.70544 25 1.0
423. LOAD 75 LOADTYPE LIVE TITLE 3F1 LOADING NO CENTRIFUGAL
424. REPEAT LOAD
425. 2 0.70544 25 1.0
426. LOAD 76 LOADTYPE LIVE TITLE 3F1 LOADING NO CENTRIFUGAL
427. REPEAT LOAD
428. 3 0.70544 25 1.0
429. LOAD 77 LOADTYPE LIVE TITLE 3F1 LOADING NO CENTRIFUGAL
430. REPEAT LOAD
431. 4 0.70544 25 1.0
432. LOAD 78 LOADTYPE LIVE TITLE 3F1 LOADING NO CENTRIFUGAL

433. REPEAT LOAD
434. 5 0.70544 25 1.0
435. LOAD 79 LOADTYPE LIVE TITLE 3F1 LOADING NO CENTRIFUGAL
436. REPEAT LOAD
437. 6 0.70544 25 1.0
438. LOAD 80 LOADTYPE LIVE TITLE 3F1 LOADING NO CENTRIFUGAL
439. REPEAT LOAD
440. 7 0.70544 25 1.0
441. LOAD 81 LOADTYPE LIVE TITLE 3F1 LOADING NO CENTRIFUGAL
442. REPEAT LOAD
443. 8 0.70544 25 1.0
444. LOAD 82 LOADTYPE LIVE TITLE 3F1 LOADING NO CENTRIFUGAL
445. REPEAT LOAD
446. 9 0.70544 25 1.0
447. LOAD 83 LOADTYPE LIVE TITLE 3F1 LOADING NO CENTRIFUGAL
448. REPEAT LOAD
449. 10 0.70544 25 1.0
450. LOAD 84 LOADTYPE LIVE TITLE 3F1 LOADING NO CENTRIFUGAL
451. REPEAT LOAD
452. 11 0.70544 25 1.0
453. LOAD 85 LOADTYPE LIVE TITLE 3F1 LOADING NO CENTRIFUGAL
454. REPEAT LOAD
455. 12 0.70544 25 1.0
456. LOAD 86 LOADTYPE LIVE TITLE 3F1 LOADING NO CENTRIFUGAL
457. REPEAT LOAD
458. 13 0.70544 25 1.0
459. LOAD 87 LOADTYPE LIVE TITLE 3F1 LOADING NO CENTRIFUGAL
460. REPEAT LOAD
461. 14 0.70544 25 1.0
462. LOAD 88 LOADTYPE LIVE TITLE 3F1 LOADING NO CENTRIFUGAL
463. REPEAT LOAD
464. 15 0.70544 25 1.0
465. LOAD 89 LOADTYPE LIVE TITLE 3F1 LOADING NO CENTRIFUGAL
466. REPEAT LOAD
467. 16 0.70544 25 1.0
468. LOAD 90 LOADTYPE LIVE TITLE 3F1 LOADING NO CENTRIFUGAL
469. REPEAT LOAD
470. 17 0.70544 25 1.0
471. LOAD 91 LOADTYPE LIVE TITLE 3F1 LOADING NO CENTRIFUGAL
472. REPEAT LOAD
473. 18 0.70544 25 1.0
474. LOAD 92 LOADTYPE LIVE TITLE 3F1 LOADING NO CENTRIFUGAL
475. REPEAT LOAD
476. 19 0.70544 25 1.0
477. LOAD 93 LOADTYPE LIVE TITLE 3F1 LOADING NO CENTRIFUGAL
478. REPEAT LOAD
479. 20 0.70544 25 1.0
480. LOAD 94 LOADTYPE LIVE TITLE 3F1 LOADING NO CENTRIFUGAL
481. REPEAT LOAD
482. 21 0.70544 25 1.0
483. LOAD 95 LOADTYPE LIVE TITLE 3F1 LOADING NO CENTRIFUGAL
484. REPEAT LOAD
485. 22 0.70544 25 1.0
486. LOAD 96 LOADTYPE LIVE TITLE 3F1 LOADING NO CENTRIFUGAL
487. REPEAT LOAD
488. 23 0.70544 25 1.0

489. LOAD 97 LOADTYPE LIVE TITLE 3F1 LOADING NO CENTRIFUGAL
490. REPEAT LOAD
491. 24 0.70544 25 1.0
492. *BEGIN 4F1 LOADING IN UNIT 1 LOWER DECK LOADED NO CENTRIFUGAL
493. LOAD 98 LOADTYPE LIVE TITLE 4F1 LOADING NO CENTRIFUGAL
494. REPEAT LOAD
495. 1 0.79131 25 1.0
496. LOAD 99 LOADTYPE LIVE TITLE 4F1 LOADING NO CENTRIFUGAL
497. REPEAT LOAD
498. 2 0.79131 25 1.0
499. LOAD 100 LOADTYPE LIVE TITLE 4F1 LOADING NO CENTRIFUGAL
500. REPEAT LOAD
501. 3 0.79131 25 1.0
502. LOAD 101 LOADTYPE LIVE TITLE 4F1 LOADING NO CENTRIFUGAL
503. REPEAT LOAD
504. 4 0.79131 25 1.0
505. LOAD 102 LOADTYPE LIVE TITLE 4F1 LOADING NO CENTRIFUGAL
506. REPEAT LOAD
507. 5 0.79131 25 1.0
508. LOAD 103 LOADTYPE LIVE TITLE 4F1 LOADING NO CENTRIFUGAL
509. REPEAT LOAD
510. 6 0.79131 25 1.0
511. LOAD 104 LOADTYPE LIVE TITLE 4F1 LOADING NO CENTRIFUGAL
512. REPEAT LOAD
513. 7 0.79131 25 1.0
514. LOAD 105 LOADTYPE LIVE TITLE 4F1 LOADING NO CENTRIFUGAL
515. REPEAT LOAD
516. 8 0.79131 25 1.0
517. LOAD 106 LOADTYPE LIVE TITLE 4F1 LOADING NO CENTRIFUGAL
518. REPEAT LOAD
519. 9 0.79131 25 1.0
520. LOAD 107 LOADTYPE LIVE TITLE 4F1 LOADING NO CENTRIFUGAL
521. REPEAT LOAD
522. 10 0.79131 25 1.0
523. LOAD 108 LOADTYPE LIVE TITLE 4F1 LOADING NO CENTRIFUGAL
524. REPEAT LOAD
525. 11 0.79131 25 1.0
526. LOAD 109 LOADTYPE LIVE TITLE 4F1 LOADING NO CENTRIFUGAL
527. REPEAT LOAD
528. 12 0.79131 25 1.0
529. LOAD 110 LOADTYPE LIVE TITLE 4F1 LOADING NO CENTRIFUGAL
530. REPEAT LOAD
531. 13 0.79131 25 1.0
532. LOAD 111 LOADTYPE LIVE TITLE 4F1 LOADING NO CENTRIFUGAL
533. REPEAT LOAD
534. 14 0.79131 25 1.0
535. LOAD 112 LOADTYPE LIVE TITLE 4F1 LOADING NO CENTRIFUGAL
536. REPEAT LOAD
537. 15 0.79131 25 1.0
538. LOAD 113 LOADTYPE LIVE TITLE 4F1 LOADING NO CENTRIFUGAL
539. REPEAT LOAD
540. 16 0.79131 25 1.0
541. LOAD 114 LOADTYPE LIVE TITLE 4F1 LOADING NO CENTRIFUGAL
542. REPEAT LOAD
543. 17 0.79131 25 1.0
544. LOAD 115 LOADTYPE LIVE TITLE 4F1 LOADING NO CENTRIFUGAL

545. REPEAT LOAD
546. 18 0.79131 25 1.0
547. LOAD 116 LOADTYPE LIVE TITLE 4F1 LOADING NO CENTRIFUGAL
548. REPEAT LOAD
549. 19 0.79131 25 1.0
550. LOAD 117 LOADTYPE LIVE TITLE 4F1 LOADING NO CENTRIFUGAL
551. REPEAT LOAD
552. 20 0.79131 25 1.0
553. LOAD 118 LOADTYPE LIVE TITLE 4F1 LOADING NO CENTRIFUGAL
554. REPEAT LOAD
555. 21 0.79131 25 1.0
556. LOAD 119 LOADTYPE LIVE TITLE 4F1 LOADING NO CENTRIFUGAL
557. REPEAT LOAD
558. 22 0.79131 25 1.0
559. LOAD 120 LOADTYPE LIVE TITLE 4F1 LOADING NO CENTRIFUGAL
560. REPEAT LOAD
561. 23 0.79131 25 1.0
562. LOAD 121 LOADTYPE LIVE TITLE 4F1 LOADING NO CENTRIFUGAL
563. REPEAT LOAD
564. 24 0.79131 25 1.0
565. *BEGIN 5C1 LOADING IN UNIT 1 LOWER DECK LOADED NO CENTRIFUGAL
566. LOAD 122 LOADTYPE LIVE TITLE 5C1 LOADING NO CENTRIFUGAL
567. REPEAT LOAD
568. 1 0.706124 25 1.0
569. LOAD 123 LOADTYPE LIVE TITLE 5C1 LOADING NO CENTRIFUGAL
570. REPEAT LOAD
571. 2 0.706124 25 1.0
572. LOAD 124 LOADTYPE LIVE TITLE 5C1 LOADING NO CENTRIFUGAL
573. REPEAT LOAD
574. 3 0.706124 25 1.0
575. LOAD 125 LOADTYPE LIVE TITLE 5C1 LOADING NO CENTRIFUGAL
576. REPEAT LOAD
577. 4 0.706124 25 1.0
578. LOAD 126 LOADTYPE LIVE TITLE 5C1 LOADING NO CENTRIFUGAL
579. REPEAT LOAD
580. 5 0.706124 25 1.0
581. LOAD 127 LOADTYPE LIVE TITLE 5C1 LOADING NO CENTRIFUGAL
582. REPEAT LOAD
583. 6 0.706124 25 1.0
584. LOAD 128 LOADTYPE LIVE TITLE 5C1 LOADING NO CENTRIFUGAL
585. REPEAT LOAD
586. 7 0.706124 25 1.0
587. LOAD 129 LOADTYPE LIVE TITLE 5C1 LOADING NO CENTRIFUGAL
588. REPEAT LOAD
589. 8 0.706124 25 1.0
590. LOAD 130 LOADTYPE LIVE TITLE 5C1 LOADING NO CENTRIFUGAL
591. REPEAT LOAD
592. 9 0.706124 25 1.0
593. LOAD 131 LOADTYPE LIVE TITLE 5C1 LOADING NO CENTRIFUGAL
594. REPEAT LOAD
595. 10 0.706124 25 1.0
596. LOAD 132 LOADTYPE LIVE TITLE 5C1 LOADING NO CENTRIFUGAL
597. REPEAT LOAD
598. 11 0.706124 25 1.0
599. LOAD 133 LOADTYPE LIVE TITLE 5C1 LOADING NO CENTRIFUGAL
600. REPEAT LOAD

601. 12 0.706124 25 1.0
602. LOAD 134 LOADTYPE LIVE TITLE 5C1 LOADING NO CENTRIFUGAL
603. REPEAT LOAD
604. 13 0.706124 25 1.0
605. LOAD 135 LOADTYPE LIVE TITLE 5C1 LOADING NO CENTRIFUGAL
606. REPEAT LOAD
607. 14 0.706124 25 1.0
608. LOAD 136 LOADTYPE LIVE TITLE 5C1 LOADING NO CENTRIFUGAL
609. REPEAT LOAD
610. 15 0.706124 25 1.0
611. LOAD 137 LOADTYPE LIVE TITLE 5C1 LOADING NO CENTRIFUGAL
612. REPEAT LOAD
613. 16 0.706124 25 1.0
614. LOAD 138 LOADTYPE LIVE TITLE 5C1 LOADING NO CENTRIFUGAL
615. REPEAT LOAD
616. 17 0.706124 25 1.0
617. LOAD 139 LOADTYPE LIVE TITLE 5C1 LOADING NO CENTRIFUGAL
618. REPEAT LOAD
619. 18 0.706124 25 1.0
620. LOAD 140 LOADTYPE LIVE TITLE 5C1 LOADING NO CENTRIFUGAL
621. REPEAT LOAD
622. 19 0.706124 25 1.0
623. LOAD 141 LOADTYPE LIVE TITLE 5C1 LOADING NO CENTRIFUGAL
624. REPEAT LOAD
625. 20 0.706124 25 1.0
626. LOAD 142 LOADTYPE LIVE TITLE 5C1 LOADING NO CENTRIFUGAL
627. REPEAT LOAD
628. 21 0.706124 25 1.0
629. LOAD 143 LOADTYPE LIVE TITLE 5C1 LOADING NO CENTRIFUGAL
630. REPEAT LOAD
631. 22 0.706124 25 1.0
632. LOAD 144 LOADTYPE LIVE TITLE 5C1 LOADING NO CENTRIFUGAL
633. REPEAT LOAD
634. 23 0.706124 25 1.0
635. LOAD 145 LOADTYPE LIVE TITLE 5C1 LOADING NO CENTRIFUGAL
636. REPEAT LOAD
637. 24 0.706124 25 1.0
638. *BEGIN HS-20 LOADING IN UNIT 1 WITH CENTRIFUGAL NO LOAD ON LOWER DECK
639. LOAD 146 LOADTYPE LIVE TITLE AXIAL ON COLUMN C3 (3 LANE)
640. MEMBER LOAD
641. 1 CON GY -25 1.6189 0
642. 2 CON GY -42.7 0.5772 0
643. 3 CON GY -25 5.4406 0
644. 4 CON GY -42.7 5.6033 0
645. 5 CON GY -25 5.7491 0
646. 7 CON GY -42.7 0.0408 0
647. 1 UNI GX 0.325 0 7.0444
648. 2 UNI GX 0.325 0 1.137
649. 3 UNI GX 0.325 0 5.8396
650. 4 TO 7 10 TO 13 UNI GX 0.325 0 5.8564
651. 8 9 UNI GX 0.325 0 5.8356
652. 14 UNI GX 0.325 0 3.3138
653. 15 UNI GX 0.325 0 5.622
654. 1 UMOM GZ -1.088 0 7.0444
655. 2 UMOM GZ -1.088 0 1.137
656. 3 UMOM GZ -1.088 0 5.8396

657. 4 TO 7 10 TO 13 UMOM GZ -1.088 0 5.8564
658. 8 9 UMOM GZ -1.088 0 5.8356
659. 14 UMOM GZ -1.088 0 3.3138
660. 15 UMOM GZ -1.088 0 5.622
661. LOAD 147 LOADTYPE LIVE TITLE AXIAL ON COLUMN C3 (2 LANE)
662. MEMBER LOAD
663. 1 CON GY -27.8 1.6189 0
664. 2 CON GY -47.5 0.5772 0
665. 3 CON GY -27.8 5.4406 0
666. 4 CON GY -47.5 5.6033 0
667. 1 UNI GX 0.241 0 7.0444
668. 2 UNI GX 0.241 0 1.137
669. 3 UNI GX 0.241 0 5.8396
670. 4 TO 7 10 TO 13 UNI GX 0.241 0 5.8564
671. 8 9 UNI GX 0.241 0 5.8356
672. 14 UNI GX 0.241 0 3.3138
673. 15 UNI GX 0.241 0 5.622
674. 1 UMOM GZ -0.806 0 7.0444
675. 2 UMOM GZ -0.806 0 1.137
676. 3 UMOM GZ -0.806 0 5.8396
677. 4 TO 7 10 TO 13 UMOM GZ -0.806 0 5.8564
678. 8 9 UMOM GZ -0.806 0 5.8356
679. 14 UMOM GZ -0.806 0 3.3138
680. 15 UMOM GZ -0.806 0 5.622
681. LOAD 148 LOADTYPE LIVE TITLE NEG. MOMENT IN FB OVER C3 (3 LANE)
682. MEMBER LOAD
683. 1 CON GY -25 1.6189 0
684. 2 CON GY -42.7 0.5772 0
685. 4 CON GY -25 5.5449 0
686. 5 CON GY -42.7 5.6908 0
687. 6 CON GY -25 3.8366 0
688. 7 CON GY -42.7 3.9824 0
689. 1 UNI GX 0.325 0 7.0444
690. 2 UNI GX 0.325 0 1.137
691. 3 UNI GX 0.325 0 5.8396
692. 4 TO 7 10 TO 13 UNI GX 0.325 0 5.8564
693. 8 9 UNI GX 0.325 0 5.8356
694. 14 UNI GX 0.325 0 3.3138
695. 15 UNI GX 0.325 0 5.622
696. 1 UMOM GZ -1.088 0 7.0444
697. 2 UMOM GZ -1.088 0 1.137
698. 3 UMOM GZ -1.088 0 5.8396
699. 4 TO 7 10 TO 13 UMOM GZ -1.088 0 5.8564
700. 8 9 UMOM GZ -1.088 0 5.8356
701. 14 UMOM GZ -1.088 0 3.3138
702. 15 UMOM GZ -1.088 0 5.622
703. LOAD 149 LOADTYPE LIVE TITLE NEG. MOMENT IN FB OVER C3 (2 LANE)
704. MEMBER LOAD
705. 1 CON GY -27.8 1.6189 0
706. 2 CON GY -47.5 0.5772 0
707. 5 CON GY -27.8 5.7708 0
708. 7 CON GY -47.5 0.0625 0
709. 1 UNI GX 0.241 0 7.0444
710. 2 UNI GX 0.241 0 1.137
711. 3 UNI GX 0.241 0 5.8396
712. 4 TO 7 10 TO 13 UNI GX 0.241 0 5.8564

713. 8 9 UNI GX 0.241 0 5.8356
714. 14 UNI GX 0.241 0 3.3138
715. 15 UNI GX 0.241 0 5.622
716. 1 UMOM GZ -0.806 0 7.0444
717. 2 UMOM GZ -0.806 0 1.137
718. 3 UMOM GZ -0.806 0 5.8396
719. 4 TO 7 10 TO 13 UMOM GZ -0.806 0 5.8564
720. 8 9 UMOM GZ -0.806 0 5.8356
721. 14 UMOM GZ -0.806 0 3.3138
722. 15 UMOM GZ -0.806 0 5.622
723. LOAD 150 LOADTYPE LIVE TITLE POS. MOMENT IN FB BETWEEN C3 _C2 (3 LANE)
724. MEMBER LOAD
725. 4 CON GY -25 5.5449 0
726. 5 CON GY -42.7 5.6908 0
727. 6 CON GY -25 3.8366 0
728. 7 CON GY -42.7 3.9824 0
729. 14 CON GY -25 1.2348 0
730. 15 CON GY -42.7 3.9223 0
731. 1 UNI GX 0.325 0 7.0444
732. 2 UNI GX 0.325 0 1.137
733. 3 UNI GX 0.325 0 5.8396
734. 4 TO 7 10 TO 13 UNI GX 0.325 0 5.8564
735. 8 9 UNI GX 0.325 0 5.8356
736. 14 UNI GX 0.325 0 3.3138
737. 15 UNI GX 0.325 0 5.622
738. 1 UMOM GZ -1.088 0 7.0444
739. 2 UMOM GZ -1.088 0 1.137
740. 3 UMOM GZ -1.088 0 5.8396
741. 4 TO 7 10 TO 13 UMOM GZ -1.088 0 5.8564
742. 8 9 UMOM GZ -1.088 0 5.8356
743. 14 UMOM GZ -1.088 0 3.3138
744. 15 UMOM GZ -1.088 0 5.622
745. LOAD 151 LOADTYPE LIVE TITLE POS. MOMENT IN FB BETWEEN C3 _C2 (2 LANE-1)
746. MEMBER LOAD
747. 4 CON GY -27.8 5.5449 0
748. 5 CON GY -47.5 5.6908 0
749. 6 CON GY -27.8 3.8366 0
750. 7 CON GY -47.5 3.9824 0
751. 1 UNI GX 0.241 0 7.0444
752. 2 UNI GX 0.241 0 1.137
753. 3 UNI GX 0.241 0 5.8396
754. 4 TO 7 10 TO 13 UNI GX 0.241 0 5.8564
755. 8 9 UNI GX 0.241 0 5.8356
756. 14 UNI GX 0.241 0 3.3138
757. 15 UNI GX 0.241 0 5.622
758. 1 UMOM GZ -0.806 0 7.0444
759. 2 UMOM GZ -0.806 0 1.137
760. 3 UMOM GZ -0.806 0 5.8396
761. 4 TO 7 10 TO 13 UMOM GZ -0.806 0 5.8564
762. 8 9 UMOM GZ -0.806 0 5.8356
763. 14 UMOM GZ -0.806 0 3.3138
764. 15 UMOM GZ -0.806 0 5.622
765. LOAD 152 LOADTYPE LIVE TITLE POS. MOMENT IN FB BETWEEN C3 _C2 (2 LANE-2)
766. MEMBER LOAD
767. 5 CON GY -27.8 5.7708 0
768. 7 CON GY -47.5 0.0625 0

769. 14 CON GY -27.8 1.2348 0
770. 15 CON GY -47.5 3.9223 0
771. 1 UNI GX 0.241 0 7.0444
772. 2 UNI GX 0.241 0 1.137
773. 3 UNI GX 0.241 0 5.8396
774. 4 TO 7 10 TO 13 UNI GX 0.241 0 5.8564
775. 8 9 UNI GX 0.241 0 5.8356
776. 14 UNI GX 0.241 0 3.3138
777. 15 UNI GX 0.241 0 5.622
778. 1 UMOM GZ -0.806 0 7.0444
779. 2 UMOM GZ -0.806 0 1.137
780. 3 UMOM GZ -0.806 0 5.8396
781. 4 TO 7 10 TO 13 UMOM GZ -0.806 0 5.8564
782. 8 9 UMOM GZ -0.806 0 5.8356
783. 14 UMOM GZ -0.806 0 3.3138
784. 15 UMOM GZ -0.806 0 5.622
785. LOAD 153 LOADTYPE LIVE TITLE MAX AXIAL ON COLUMN C2 (4 LANE)
786. MEMBER LOAD
787. 4 CON GY -20.9 5.5449 0
788. 5 CON GY -35.6 5.6908 0
789. 6 CON GY -20.9 5.8366 0
790. 8 CON GY -35.6 0.1283 0
791. 9 CON GY -20.9 0.5485 0
792. 10 CON GY -35.6 0.7152 0
793. 11 CON GY -20.9 0.861 0
794. 12 CON GY -35.6 1.0069 0
795. 1 UNI GX 0.362 0 7.0444
796. 2 UNI GX 0.362 0 1.137
797. 3 UNI GX 0.362 0 5.8396
798. 4 TO 7 10 TO 13 UNI GX 0.362 0 5.8564
799. 8 9 UNI GX 0.362 0 5.8356
800. 14 UNI GX 0.362 0 3.3138
801. 15 UNI GX 0.362 0 5.622
802. 1 UMOM GZ -1.209 0 7.0444
803. 2 UMOM GZ -1.209 0 1.137
804. 3 UMOM GZ -1.209 0 5.8396
805. 4 TO 7 10 TO 13 UMOM GZ -1.209 0 5.8564
806. 8 9 UMOM GZ -1.209 0 5.8356
807. 14 UMOM GZ -1.209 0 3.3138
808. 15 UMOM GZ -1.209 0 5.622
809. LOAD 154 LOADTYPE LIVE TITLE MAX AXIAL ON COLUMN C2 (3 LANE)
810. MEMBER LOAD
811. 6 CON GY -25 5.8366 0
812. 8 CON GY -42.7 0.1283 0
813. 9 CON GY -25 0.5485 0
814. 10 CON GY -42.7 0.7152 0
815. 11 CON GY -25 0.861 0
816. 12 CON GY -42.7 1.0069 0
817. 1 UNI GX 0.325 0 7.0444
818. 2 UNI GX 0.325 0 1.137
819. 3 UNI GX 0.325 0 5.8396
820. 4 TO 7 10 TO 13 UNI GX 0.325 0 5.8564
821. 8 9 UNI GX 0.325 0 5.8356
822. 14 UNI GX 0.325 0 3.3138
823. 15 UNI GX 0.325 0 5.622
824. 1 UMOM GZ -1.088 0 7.0444

825. 2 UMOM GZ -1.088 0 1.137
826. 3 UMOM GZ -1.088 0 5.8396
827. 4 TO 7 10 TO 13 UMOM GZ -1.088 0 5.8564
828. 8 9 UMOM GZ -1.088 0 5.8356
829. 14 UMOM GZ -1.088 0 3.3138
830. 15 UMOM GZ -1.088 0 5.622
831. LOAD 155 LOADTYPE LIVE TITLE MAX AXIAL ON COLUMN C2 (2 LANE)
832. MEMBER LOAD
833. 6 CON GY -27.8 5.8366 0
834. 8 CON GY -47.5 0.1283 0
835. 9 CON GY -27.8 0.5485 0
836. 10 CON GY -47.5 0.7152 0
837. 1 UNI GX 0.241 0 7.0444
838. 2 UNI GX 0.241 0 1.137
839. 3 UNI GX 0.241 0 5.8396
840. 4 TO 7 10 TO 13 UNI GX 0.241 0 5.8564
841. 8 9 UNI GX 0.241 0 5.8356
842. 14 UNI GX 0.241 0 3.3138
843. 15 UNI GX 0.241 0 5.622
844. 1 UMOM GZ -0.806 0 7.0444
845. 2 UMOM GZ -0.806 0 1.137
846. 3 UMOM GZ -0.806 0 5.8396
847. 4 TO 7 10 TO 13 UMOM GZ -0.806 0 5.8564
848. 8 9 UMOM GZ -0.806 0 5.8356
849. 14 UMOM GZ -0.806 0 3.3138
850. 15 UMOM GZ -0.806 0 5.622
851. LOAD 156 LOADTYPE LIVE TITLE NEG. MOMENT IN FB OVER C2 (4 LANE)
852. MEMBER LOAD
853. 4 CON GY -20.9 0.7708 0
854. 5 CON GY -35.6 0.9167 0
855. 5 CON GY -20.9 4.9167 0
856. 6 CON GY -35.6 5.0625 0
857. 9 CON GY -20.9 0.7917 0
858. 10 CON GY -35.6 0.9375 0
859. 10 CON GY -20.9 4.9375 0
860. 11 CON GY -35.6 5.0833 0
861. 1 UNI GX 0.362 0 7.0444
862. 2 UNI GX 0.362 0 1.137
863. 3 UNI GX 0.362 0 5.8396
864. 4 TO 7 10 TO 13 UNI GX 0.362 0 5.8564
865. 8 9 UNI GX 0.362 0 5.8356
866. 14 UNI GX 0.362 0 3.3138
867. 15 UNI GX 0.362 0 5.622
868. 1 UMOM GZ -1.209 0 7.0444
869. 2 UMOM GZ -1.209 0 1.137
870. 3 UMOM GZ -1.209 0 5.8396
871. 4 TO 7 10 TO 13 UMOM GZ -1.209 0 5.8564
872. 8 9 UMOM GZ -1.209 0 5.8356
873. 14 UMOM GZ -1.209 0 3.3138
874. 15 UMOM GZ -1.209 0 5.622
875. LOAD 157 LOADTYPE LIVE TITLE NEG. MOMENT IN FB OVER C2 (3 LANE)
876. MEMBER LOAD
877. 5 CON GY -25 5.7708 0
878. 7 CON GY -42.7 0.0625 0
879. 10 CON GY -25 0.7917 0
880. 11 CON GY -42.7 0.9375 0

881. 11 CON GY -25 4.9375 0
882. 12 CON GY -42.7 5.0833 0
883. 1 UNI GX 0.325 0 7.0444
884. 2 UNI GX 0.325 0 1.137
885. 3 UNI GX 0.325 0 5.8396
886. 4 TO 7 10 TO 13 UNI GX 0.325 0 5.8564
887. 8 9 UNI GX 0.325 0 5.8356
888. 14 UNI GX 0.325 0 3.3138
889. 15 UNI GX 0.325 0 5.622
890. 1 UMOM GZ -1.088 0 7.0444
891. 2 UMOM GZ -1.088 0 1.137
892. 3 UMOM GZ -1.088 0 5.8396
893. 4 TO 7 10 TO 13 UMOM GZ -1.088 0 5.8564
894. 8 9 UMOM GZ -1.088 0 5.8356
895. 14 UMOM GZ -1.088 0 3.3138
896. 15 UMOM GZ -1.088 0 5.622
897. LOAD 158 LOADTYPE LIVE TITLE NEG. MOMENT IN FB OVER C2 (2 LANE)
898. MEMBER LOAD
899. 5 CON GY -27.8 5.7708 0
900. 7 CON GY -47.5 0.0625 0
901. 10 CON GY -27.8 5.7917 0
902. 12 CON GY -47.5 0.0833 0
903. 1 UNI GX 0.241 0 7.0444
904. 2 UNI GX 0.241 0 1.137
905. 3 UNI GX 0.241 0 5.8396
906. 4 TO 7 10 TO 13 UNI GX 0.241 0 5.8564
907. 8 9 UNI GX 0.241 0 5.8356
908. 14 UNI GX 0.241 0 3.3138
909. 15 UNI GX 0.241 0 5.622
910. 1 UMOM GZ -0.806 0 7.0444
911. 2 UMOM GZ -0.806 0 1.137
912. 3 UMOM GZ -0.806 0 5.8396
913. 4 TO 7 10 TO 13 UMOM GZ -0.806 0 5.8564
914. 8 9 UMOM GZ -0.806 0 5.8356
915. 14 UMOM GZ -0.806 0 3.3138
916. 15 UMOM GZ -0.806 0 5.622
917. LOAD 159 LOADTYPE LIVE TITLE POS. MOMENT IN FB BETWEEN C2 _C1 (4 LANE)
918. MEMBER LOAD
919. 1 CON GY -20.9 1.6189 0
920. 2 CON GY -35.6 0.5772 0
921. 9 CON GY -20.9 2.5485 0
922. 10 CON GY -35.6 2.7152 0
923. 11 CON GY -20.9 0.861 0
924. 12 CON GY -35.6 1.0069 0
925. 13 CON GY -20.9 1.1527 0
926. 14 CON GY -35.6 1.2985 0
927. 1 UNI GX 0.362 0 7.0444
928. 2 UNI GX 0.362 0 1.137
929. 3 UNI GX 0.362 0 5.8396
930. 4 TO 7 10 TO 13 UNI GX 0.362 0 5.8564
931. 8 9 UNI GX 0.362 0 5.8356
932. 14 UNI GX 0.362 0 3.3138
933. 15 UNI GX 0.362 0 5.622
934. 1 UMOM GZ -1.209 0 7.0444
935. 2 UMOM GZ -1.209 0 1.137
936. 3 UMOM GZ -1.209 0 5.8396

937. 4 TO 7 10 TO 13 UMOM GZ -1.209 0 5.8564
938. 8 9 UMOM GZ -1.209 0 5.8356
939. 14 UMOM GZ -1.209 0 3.3138
940. 15 UMOM GZ -1.209 0 5.622
941. LOAD 160 LOADTYPE LIVE TITLE POS. MOMENT IN FB BETWEEN C2 _C1 (3 LANE-1)
942. MEMBER LOAD
943. 9 CON GY -25 2.5485 0
944. 10 CON GY -42.7 2.7152 0
945. 11 CON GY -25 0.861 0
946. 12 CON GY -42.7 1.0069 0
947. 13 CON GY -25 1.1527 0
948. 14 CON GY -42.7 1.2985 0
949. 1 UNI GX 0.325 0 7.0444
950. 2 UNI GX 0.325 0 1.137
951. 3 UNI GX 0.325 0 5.8396
952. 4 TO 7 10 TO 13 UNI GX 0.325 0 5.8564
953. 8 9 UNI GX 0.325 0 5.8356
954. 14 UNI GX 0.325 0 3.3138
955. 15 UNI GX 0.325 0 5.622
956. 1 UMOM GZ -1.088 0 7.0444
957. 2 UMOM GZ -1.088 0 1.137
958. 3 UMOM GZ -1.088 0 5.8396
959. 4 TO 7 10 TO 13 UMOM GZ -1.088 0 5.8564
960. 8 9 UMOM GZ -1.088 0 5.8356
961. 14 UMOM GZ -1.088 0 3.3138
962. 15 UMOM GZ -1.088 0 5.622
963. LOAD 161 LOADTYPE LIVE TITLE POS. MOMENT IN FB BETWEEN C2 _C1 (3 LANE-2)
964. MEMBER LOAD
965. 1 CON GY -25 1.6189 0
966. 2 CON GY -42.7 0.5772 0
967. 10 CON GY -25 0.7917 0
968. 11 CON GY -42.7 0.9375 0
969. 11 CON GY -25 4.9375 0
970. 12 CON GY -42.7 5.0833 0
971. 1 UNI GX 0.325 0 7.0444
972. 2 UNI GX 0.325 0 1.137
973. 3 UNI GX 0.325 0 5.8396
974. 4 TO 7 10 TO 13 UNI GX 0.325 0 5.8564
975. 8 9 UNI GX 0.325 0 5.8356
976. 14 UNI GX 0.325 0 3.3138
977. 15 UNI GX 0.325 0 5.622
978. 1 UMOM GZ -1.088 0 7.0444
979. 2 UMOM GZ -1.088 0 1.137
980. 3 UMOM GZ -1.088 0 5.8396
981. 4 TO 7 10 TO 13 UMOM GZ -1.088 0 5.8564
982. 8 9 UMOM GZ -1.088 0 5.8356
983. 14 UMOM GZ -1.088 0 3.3138
984. 15 UMOM GZ -1.088 0 5.622
985. LOAD 162 LOADTYPE LIVE TITLE POS. MOMENT IN FB BETWEEN C2 _C1 (2 LANE-1)
986. MEMBER LOAD
987. 10 CON GY -27.8 0.7917 0
988. 11 CON GY -47.5 0.9375 0
989. 11 CON GY -27.8 4.9375 0
990. 12 CON GY -47.5 5.0833 0
991. 1 UNI GX 0.241 0 7.0444
992. 2 UNI GX 0.241 0 1.137

993. 3 UNI GX 0.241 0 5.8396
994. 4 TO 7 10 TO 13 UNI GX 0.241 0 5.8564
995. 8 9 UNI GX 0.241 0 5.8356
996. 14 UNI GX 0.241 0 3.3138
997. 15 UNI GX 0.241 0 5.622
998. 1 UMOM GZ -0.806 0 7.0444
999. 2 UMOM GZ -0.806 0 1.137
1000. 3 UMOM GZ -0.806 0 5.8396
1001. 4 TO 7 10 TO 13 UMOM GZ -0.806 0 5.8564
1002. 8 9 UMOM GZ -0.806 0 5.8356
1003. 14 UMOM GZ -0.806 0 3.3138
1004. 15 UMOM GZ -0.806 0 5.622
1005. LOAD 163 LOADTYPE LIVE TITLE POS. MOMENT IN FB BETWEEN C2 _C1 (2 LANE-2)
1006. MEMBER LOAD
1007. 1 CON GY -27.8 1.6189 0
1008. 2 CON GY -47.5 0.5772 0
1009. 10 CON GY -27.8 5.7917 0
1010. 12 CON GY -47.5 0.0833 0
1011. 1 UNI GX 0.241 0 7.0444
1012. 2 UNI GX 0.241 0 1.137
1013. 3 UNI GX 0.241 0 5.8396
1014. 4 TO 7 10 TO 13 UNI GX 0.241 0 5.8564
1015. 8 9 UNI GX 0.241 0 5.8356
1016. 14 UNI GX 0.241 0 3.3138
1017. 15 UNI GX 0.241 0 5.622
1018. 1 UMOM GZ -0.806 0 7.0444
1019. 2 UMOM GZ -0.806 0 1.137
1020. 3 UMOM GZ -0.806 0 5.8396
1021. 4 TO 7 10 TO 13 UMOM GZ -0.806 0 5.8564
1022. 8 9 UMOM GZ -0.806 0 5.8356
1023. 14 UMOM GZ -0.806 0 3.3138
1024. 15 UMOM GZ -0.806 0 5.622
1025. LOAD 164 LOADTYPE LIVE TITLE MAX AXIAL ON COLUMN C1 (3 LANE)
1026. MEMBER LOAD
1027. 10 CON GY -25 0.6515 0
1028. 11 CON GY -42.7 0.7973 0
1029. 12 CON GY -25 0.9432 0
1030. 13 CON GY -42.7 1.089 0
1031. 14 CON GY -25 1.2348 0
1032. 15 CON GY -42.7 3.9223 0
1033. 1 UNI GX 0.325 0 7.0444
1034. 2 UNI GX 0.325 0 1.137
1035. 3 UNI GX 0.325 0 5.8396
1036. 4 TO 7 10 TO 13 UNI GX 0.325 0 5.8564
1037. 8 9 UNI GX 0.325 0 5.8356
1038. 14 UNI GX 0.325 0 3.3138
1039. 15 UNI GX 0.325 0 5.622
1040. 1 UMOM GZ -1.088 0 7.0444
1041. 2 UMOM GZ -1.088 0 1.137
1042. 3 UMOM GZ -1.088 0 5.8396
1043. 4 TO 7 10 TO 13 UMOM GZ -1.088 0 5.8564
1044. 8 9 UMOM GZ -1.088 0 5.8356
1045. 14 UMOM GZ -1.088 0 3.3138
1046. 15 UMOM GZ -1.088 0 5.622
1047. LOAD 165 LOADTYPE LIVE TITLE MAX AXIAL ON COLUMN C1 (2 LANE)
1048. MEMBER LOAD

1049. 12 CON GY -27.8 0.9432 0
1050. 13 CON GY -47.5 1.089 0
1051. 14 CON GY -27.8 1.2348 0
1052. 15 CON GY -47.5 3.9223 0
1053. 1 UNI GX 0.241 0 7.0444
1054. 2 UNI GX 0.241 0 1.137
1055. 3 UNI GX 0.241 0 5.8396
1056. 4 TO 7 10 TO 13 UNI GX 0.241 0 5.8564
1057. 8 9 UNI GX 0.241 0 5.8356
1058. 14 UNI GX 0.241 0 3.3138
1059. 15 UNI GX 0.241 0 5.622
1060. 1 UMOM GZ -0.806 0 7.0444
1061. 2 UMOM GZ -0.806 0 1.137
1062. 3 UMOM GZ -0.806 0 5.8396
1063. 4 TO 7 10 TO 13 UMOM GZ -0.806 0 5.8564
1064. 8 9 UMOM GZ -0.806 0 5.8356
1065. 14 UMOM GZ -0.806 0 3.3138
1066. 15 UMOM GZ -0.806 0 5.622
1067. LOAD 166 LOADTYPE LIVE TITLE NEG. MOMENT IN FB OVER C1 (3 LANE)
1068. MEMBER LOAD
1069. 10 CON GY -25 0.6515 0
1070. 11 CON GY -42.7 0.7973 0
1071. 11 CON GY -25 4.7973 0
1072. 12 CON GY -42.7 4.9432 0
1073. 14 CON GY -25 1.2348 0
1074. 15 CON GY -42.7 3.9223 0
1075. 1 UNI GX 0.325 0 7.0444
1076. 2 UNI GX 0.325 0 1.137
1077. 3 UNI GX 0.325 0 5.8396
1078. 4 TO 7 10 TO 13 UNI GX 0.325 0 5.8564
1079. 8 9 UNI GX 0.325 0 5.8356
1080. 14 UNI GX 0.325 0 3.3138
1081. 15 UNI GX 0.325 0 5.622
1082. 1 UMOM GZ -1.088 0 7.0444
1083. 2 UMOM GZ -1.088 0 1.137
1084. 3 UMOM GZ -1.088 0 5.8396
1085. 4 TO 7 10 TO 13 UMOM GZ -1.088 0 5.8564
1086. 8 9 UMOM GZ -1.088 0 5.8356
1087. 14 UMOM GZ -1.088 0 3.3138
1088. 15 UMOM GZ -1.088 0 5.622
1089. LOAD 167 LOADTYPE LIVE TITLE NEG. MOMENT IN FB OVER C1 (2 LANE)
1090. MEMBER LOAD
1091. 10 CON GY -27.8 5.7917 0
1092. 12 CON GY -47.5 0.0833 0
1093. 14 CON GY -27.8 1.2348 0
1094. 15 CON GY -47.5 3.9223 0
1095. 1 UNI GX 0.241 0 7.0444
1096. 2 UNI GX 0.241 0 1.137
1097. 3 UNI GX 0.241 0 5.8396
1098. 4 TO 7 10 TO 13 UNI GX 0.241 0 5.8564
1099. 8 9 UNI GX 0.241 0 5.8356
1100. 14 UNI GX 0.241 0 3.3138
1101. 15 UNI GX 0.241 0 5.622
1102. 1 UMOM GZ -0.806 0 7.0444
1103. 2 UMOM GZ -0.806 0 1.137
1104. 3 UMOM GZ -0.806 0 5.8396

1105. 4 TO 7 10 TO 13 UMOM GZ -0.806 0 5.8564
1106. 8 9 UMOM GZ -0.806 0 5.8356
1107. 14 UMOM GZ -0.806 0 3.3138
1108. 15 UMOM GZ -0.806 0 5.622
1109. LOAD 168 LOADTYPE LIVE TITLE ALL LANES LOADED - CENTER (6 LANE)
1110. MEMBER LOAD
1111. 2 CON GY -20.9 0.5189 0
1112. 3 CON GY -35.6 5.3823 0
1113. 4 CON GY -20.9 5.5449 0
1114. 5 CON GY -35.6 5.6908 0
1115. 6 CON GY -20.9 5.8366 0
1116. 8 CON GY -35.6 0.1283 0
1117. 9 CON GY -20.9 0.5485 0
1118. 10 CON GY -35.6 0.7152 0
1119. 11 CON GY -20.9 0.861 0
1120. 12 CON GY -35.6 1.0069 0
1121. 13 CON GY -20.9 1.1527 0
1122. 14 CON GY -35.6 1.2985 0
1123. 1 UNI GX 0.542 0 7.0444
1124. 2 UNI GX 0.542 0 1.137
1125. 3 UNI GX 0.542 0 5.8396
1126. 4 TO 7 10 TO 13 UNI GX 0.542 0 5.8564
1127. 8 9 UNI GX 0.542 0 5.8356
1128. 14 UNI GX 0.542 0 3.3138
1129. 15 UNI GX 0.542 0 5.622
1130. 1 UMOM GZ -1.814 0 7.0444
1131. 2 UMOM GZ -1.814 0 1.137
1132. 3 UMOM GZ -1.814 0 5.8396
1133. 4 TO 7 10 TO 13 UMOM GZ -1.814 0 5.8564
1134. 8 9 UMOM GZ -1.814 0 5.8356
1135. 14 UMOM GZ -1.814 0 3.3138
1136. 15 UMOM GZ -1.814 0 5.622
1137. LOAD 169 LOADTYPE LIVE TITLE ALL LANES LOADED - OUTSIDE (6 LANE)
1138. MEMBER LOAD
1139. 1 CON GY -20.9 1.6189 0
1140. 2 CON GY -35.6 0.5772 0
1141. 3 CON GY -20.9 5.4406 0
1142. 4 CON GY -35.6 5.6033 0
1143. 5 CON GY -20.9 5.7491 0
1144. 7 CON GY -35.6 0.0408 0
1145. 10 CON GY -20.9 0.6515 0
1146. 11 CON GY -35.6 0.7973 0
1147. 12 CON GY -20.9 0.9432 0
1148. 13 CON GY -35.6 1.089 0
1149. 14 CON GY -20.9 1.2348 0
1150. 15 CON GY -35.6 3.9223 0
1151. 1 UNI GX 0.542 0 7.0444
1152. 2 UNI GX 0.542 0 1.137
1153. 3 UNI GX 0.542 0 5.8396
1154. 4 TO 7 10 TO 13 UNI GX 0.542 0 5.8564
1155. 8 9 UNI GX 0.542 0 5.8356
1156. 14 UNI GX 0.542 0 3.3138
1157. 15 UNI GX 0.542 0 5.622
1158. 1 UMOM GZ -1.814 0 7.0444
1159. 2 UMOM GZ -1.814 0 1.137
1160. 3 UMOM GZ -1.814 0 5.8396

1161. 4 TO 7 10 TO 13 UMOM GZ -1.814 0 5.8564
1162. 8 9 UMOM GZ -1.814 0 5.8356
1163. 14 UMOM GZ -1.814 0 3.3138
1164. 15 UMOM GZ -1.814 0 5.622
1165. *BEGIN HS-20 LOADING IN UNIT 1 WITH CENTRIFUGAL AND LOWER DECK LOADED
1166. LOAD 170 LOADTYPE LIVE TITLE HS20 INCLUDING CENTRIFUGAL
1167. REPEAT LOAD
1168. 146 1.0 25 1.0
1169. LOAD 171 LOADTYPE LIVE TITLE HS20 INCLUDING CENTRIFUGAL
1170. REPEAT LOAD
1171. 147 1.0 25 1.0
1172. LOAD 172 LOADTYPE LIVE TITLE HS20 INCLUDING CENTRIFUGAL
1173. REPEAT LOAD
1174. 148 1.0 25 1.0
1175. LOAD 173 LOADTYPE LIVE TITLE HS20 INCLUDING CENTRIFUGAL
1176. REPEAT LOAD
1177. 149 1.0 25 1.0
1178. LOAD 174 LOADTYPE LIVE TITLE HS20 INCLUDING CENTRIFUGAL
1179. REPEAT LOAD
1180. 150 1.0 25 1.0
1181. LOAD 175 LOADTYPE LIVE TITLE HS20 INCLUDING CENTRIFUGAL
1182. REPEAT LOAD
1183. 151 1.0 25 1.0
1184. LOAD 176 LOADTYPE LIVE TITLE HS20 INCLUDING CENTRIFUGAL
1185. REPEAT LOAD
1186. 152 1.0 25 1.0
1187. LOAD 177 LOADTYPE LIVE TITLE HS20 INCLUDING CENTRIFUGAL
1188. REPEAT LOAD
1189. 153 1.0 25 1.0
1190. LOAD 178 LOADTYPE LIVE TITLE HS20 INCLUDING CENTRIFUGAL
1191. REPEAT LOAD
1192. 154 1.0 25 1.0
1193. LOAD 179 LOADTYPE LIVE TITLE HS20 INCLUDING CENTRIFUGAL
1194. REPEAT LOAD
1195. 155 1.0 25 1.0
1196. LOAD 180 LOADTYPE LIVE TITLE HS20 INCLUDING CENTRIFUGAL
1197. REPEAT LOAD
1198. 156 1.0 25 1.0
1199. LOAD 181 LOADTYPE LIVE TITLE HS20 INCLUDING CENTRIFUGAL
1200. REPEAT LOAD
1201. 157 1.0 25 1.0
1202. LOAD 182 LOADTYPE LIVE TITLE HS20 INCLUDING CENTRIFUGAL
1203. REPEAT LOAD
1204. 158 1.0 25 1.0
1205. LOAD 183 LOADTYPE LIVE TITLE HS20 INCLUDING CENTRIFUGAL
1206. REPEAT LOAD
1207. 159 1.0 25 1.0
1208. LOAD 184 LOADTYPE LIVE TITLE HS20 INCLUDING CENTRIFUGAL
1209. REPEAT LOAD
1210. 160 1.0 25 1.0
1211. LOAD 185 LOADTYPE LIVE TITLE HS20 INCLUDING CENTRIFUGAL
1212. REPEAT LOAD
1213. 161 1.0 25 1.0
1214. LOAD 186 LOADTYPE LIVE TITLE HS20 INCLUDING CENTRIFUGAL
1215. REPEAT LOAD
1216. 162 1.0 25 1.0

1217. LOAD 187 LOADTYPE LIVE TITLE HS20 INCLUDING CENTRIFUGAL
1218. REPEAT LOAD
1219. 163 1.0 25 1.0
1220. LOAD 188 LOADTYPE LIVE TITLE HS20 INCLUDING CENTRIFUGAL
1221. REPEAT LOAD
1222. 164 1.0 25 1.0
1223. LOAD 189 LOADTYPE LIVE TITLE HS20 INCLUDING CENTRIFUGAL
1224. REPEAT LOAD
1225. 165 1.0 25 1.0
1226. LOAD 190 LOADTYPE LIVE TITLE HS20 INCLUDING CENTRIFUGAL
1227. REPEAT LOAD
1228. 166 1.0 25 1.0
1229. LOAD 191 LOADTYPE LIVE TITLE HS20 INCLUDING CENTRIFUGAL
1230. REPEAT LOAD
1231. 167 1.0 25 1.0
1232. LOAD 192 LOADTYPE LIVE TITLE HS20 INCLUDING CENTRIFUGAL
1233. REPEAT LOAD
1234. 168 1.0 25 1.0
1235. LOAD 193 LOADTYPE LIVE TITLE HS20 INCLUDING CENTRIFUGAL
1236. REPEAT LOAD
1237. 169 1.0 25 1.0
1238. *BEGIN 2F1 LOAD IN UNIT 1 WITH CF AND LOWER DECK LOADED
1239. LOAD 194 LOADTYPE LIVE TITLE 2F1 LOADING INCLUDING CENTRIFUGAL
1240. REPEAT LOAD
1241. 146 0.478618 25 1.0
1242. LOAD 195 LOADTYPE LIVE TITLE 2F1 LOADING INCLUDING CENTRIFUGAL
1243. REPEAT LOAD
1244. 147 0.478618 25 1.0
1245. LOAD 196 LOADTYPE LIVE TITLE 2F1 LOADING INCLUDING CENTRIFUGAL
1246. REPEAT LOAD
1247. 148 0.478618 25 1.0
1248. LOAD 197 LOADTYPE LIVE TITLE 2F1 LOADING INCLUDING CENTRIFUGAL
1249. REPEAT LOAD
1250. 149 0.478618 25 1.0
1251. LOAD 198 LOADTYPE LIVE TITLE 2F1 LOADING INCLUDING CENTRIFUGAL
1252. REPEAT LOAD
1253. 150 0.478618 25 1.0
1254. LOAD 199 LOADTYPE LIVE TITLE 2F1 LOADING INCLUDING CENTRIFUGAL
1255. REPEAT LOAD
1256. 151 0.478618 25 1.0
1257. LOAD 200 LOADTYPE LIVE TITLE 2F1 LOADING INCLUDING CENTRIFUGAL
1258. REPEAT LOAD
1259. 152 0.478618 25 1.0
1260. LOAD 201 LOADTYPE LIVE TITLE 2F1 LOADING INCLUDING CENTRIFUGAL
1261. REPEAT LOAD
1262. 153 0.478618 25 1.0
1263. LOAD 202 LOADTYPE LIVE TITLE 2F1 LOADING INCLUDING CENTRIFUGAL
1264. REPEAT LOAD
1265. 154 0.478618 25 1.0
1266. LOAD 203 LOADTYPE LIVE TITLE 2F1 LOADING INCLUDING CENTRIFUGAL
1267. REPEAT LOAD
1268. 155 0.478618 25 1.0
1269. LOAD 204 LOADTYPE LIVE TITLE 2F1 LOADING INCLUDING CENTRIFUGAL
1270. REPEAT LOAD
1271. 156 0.478618 25 1.0
1272. LOAD 205 LOADTYPE LIVE TITLE 2F1 LOADING INCLUDING CENTRIFUGAL

1273. REPEAT LOAD
1274. 157 0.478618 25 1.0
1275. LOAD 206 LOADTYPE LIVE TITLE 2F1 LOADING INCLUDING CENTRIFUGAL
1276. REPEAT LOAD
1277. 158 0.478618 25 1.0
1278. LOAD 207 LOADTYPE LIVE TITLE 2F1 LOADING INCLUDING CENTRIFUGAL
1279. REPEAT LOAD
1280. 159 0.478618 25 1.0
1281. LOAD 208 LOADTYPE LIVE TITLE 2F1 LOADING INCLUDING CENTRIFUGAL
1282. REPEAT LOAD
1283. 160 0.478618 25 1.0
1284. LOAD 209 LOADTYPE LIVE TITLE 2F1 LOADING INCLUDING CENTRIFUGAL
1285. REPEAT LOAD
1286. 161 0.478618 25 1.0
1287. LOAD 210 LOADTYPE LIVE TITLE 2F1 LOADING INCLUDING CENTRIFUGAL
1288. REPEAT LOAD
1289. 162 0.478618 25 1.0
1290. LOAD 211 LOADTYPE LIVE TITLE 2F1 LOADING INCLUDING CENTRIFUGAL
1291. REPEAT LOAD
1292. 163 0.478618 25 1.0
1293. LOAD 212 LOADTYPE LIVE TITLE 2F1 LOADING INCLUDING CENTRIFUGAL
1294. REPEAT LOAD
1295. 164 0.478618 25 1.0
1296. LOAD 213 LOADTYPE LIVE TITLE 2F1 LOADING INCLUDING CENTRIFUGAL
1297. REPEAT LOAD
1298. 165 0.478618 25 1.0
1299. LOAD 214 LOADTYPE LIVE TITLE 2F1 LOADING INCLUDING CENTRIFUGAL
1300. REPEAT LOAD
1301. 166 0.478618 25 1.0
1302. LOAD 215 LOADTYPE LIVE TITLE 2F1 LOADING INCLUDING CENTRIFUGAL
1303. REPEAT LOAD
1304. 167 0.478618 25 1.0
1305. LOAD 216 LOADTYPE LIVE TITLE 2F1 LOADING INCLUDING CENTRIFUGAL
1306. REPEAT LOAD
1307. 168 0.478618 25 1.0
1308. LOAD 217 LOADTYPE LIVE TITLE 2F1 LOADING INCLUDING CENTRIFUGAL
1309. REPEAT LOAD
1310. 169 0.478618 25 1.0
1311. *BEGIN 3F1 LOAD IN UNIT 1 WITH CF AND LOWER DECK LOADED
1312. LOAD 218 LOADTYPE LIVE TITLE 3F1 LOADING INCLUDING CENTRIFUGAL
1313. REPEAT LOAD
1314. 146 0.70544 25 1.0
1315. LOAD 219 LOADTYPE LIVE TITLE 3F1 LOADING INCLUDING CENTRIFUGAL
1316. REPEAT LOAD
1317. 147 0.70544 25 1.0
1318. LOAD 220 LOADTYPE LIVE TITLE 3F1 LOADING INCLUDING CENTRIFUGAL
1319. REPEAT LOAD
1320. 148 0.70544 25 1.0
1321. LOAD 221 LOADTYPE LIVE TITLE 3F1 LOADING INCLUDING CENTRIFUGAL
1322. REPEAT LOAD
1323. 149 0.70544 25 1.0
1324. LOAD 222 LOADTYPE LIVE TITLE 3F1 LOADING INCLUDING CENTRIFUGAL
1325. REPEAT LOAD
1326. 150 0.70544 25 1.0
1327. LOAD 223 LOADTYPE LIVE TITLE 3F1 LOADING INCLUDING CENTRIFUGAL
1328. REPEAT LOAD

1329. 151 0.70544 25 1.0
1330. LOAD 224 LOADTYPE LIVE TITLE 3F1 LOADING INCLUDING CENTRIFUGAL
1331. REPEAT LOAD
1332. 152 0.70544 25 1.0
1333. LOAD 225 LOADTYPE LIVE TITLE 3F1 LOADING INCLUDING CENTRIFUGAL
1334. REPEAT LOAD
1335. 153 0.70544 25 1.0
1336. LOAD 226 LOADTYPE LIVE TITLE 3F1 LOADING INCLUDING CENTRIFUGAL
1337. REPEAT LOAD
1338. 154 0.70544 25 1.0
1339. LOAD 227 LOADTYPE LIVE TITLE 3F1 LOADING INCLUDING CENTRIFUGAL
1340. REPEAT LOAD
1341. 155 0.70544 25 1.0
1342. LOAD 228 LOADTYPE LIVE TITLE 3F1 LOADING INCLUDING CENTRIFUGAL
1343. REPEAT LOAD
1344. 156 0.70544 25 1.0
1345. LOAD 229 LOADTYPE LIVE TITLE 3F1 LOADING INCLUDING CENTRIFUGAL
1346. REPEAT LOAD
1347. 157 0.70544 25 1.0
1348. LOAD 230 LOADTYPE LIVE TITLE 3F1 LOADING INCLUDING CENTRIFUGAL
1349. REPEAT LOAD
1350. 158 0.70544 25 1.0
1351. LOAD 231 LOADTYPE LIVE TITLE 3F1 LOADING INCLUDING CENTRIFUGAL
1352. REPEAT LOAD
1353. 159 0.70544 25 1.0
1354. LOAD 232 LOADTYPE LIVE TITLE 3F1 LOADING INCLUDING CENTRIFUGAL
1355. REPEAT LOAD
1356. 160 0.70544 25 1.0
1357. LOAD 233 LOADTYPE LIVE TITLE 3F1 LOADING INCLUDING CENTRIFUGAL
1358. REPEAT LOAD
1359. 161 0.70544 25 1.0
1360. LOAD 234 LOADTYPE LIVE TITLE 3F1 LOADING INCLUDING CENTRIFUGAL
1361. REPEAT LOAD
1362. 162 0.70544 25 1.0
1363. LOAD 235 LOADTYPE LIVE TITLE 3F1 LOADING INCLUDING CENTRIFUGAL
1364. REPEAT LOAD
1365. 163 0.70544 25 1.0
1366. LOAD 236 LOADTYPE LIVE TITLE 3F1 LOADING INCLUDING CENTRIFUGAL
1367. REPEAT LOAD
1368. 164 0.70544 25 1.0
1369. LOAD 237 LOADTYPE LIVE TITLE 3F1 LOADING INCLUDING CENTRIFUGAL
1370. REPEAT LOAD
1371. 165 0.70544 25 1.0
1372. LOAD 238 LOADTYPE LIVE TITLE 3F1 LOADING INCLUDING CENTRIFUGAL
1373. REPEAT LOAD
1374. 166 0.70544 25 1.0
1375. LOAD 239 LOADTYPE LIVE TITLE 3F1 LOADING INCLUDING CENTRIFUGAL
1376. REPEAT LOAD
1377. 167 0.70544 25 1.0
1378. LOAD 240 LOADTYPE LIVE TITLE 3F1 LOADING INCLUDING CENTRIFUGAL
1379. REPEAT LOAD
1380. 168 0.70544 25 1.0
1381. LOAD 241 LOADTYPE LIVE TITLE 3F1 LOADING INCLUDING CENTRIFUGAL
1382. REPEAT LOAD
1383. 169 0.70544 25 1.0
1384. *BEGIN 4F1 LOAD IN UNIT 1 WITH CF AND LOWER DECK LOADED

1385. LOAD 242 LOADTYPE LIVE TITLE 4F1 LOADING INCLUDING CENTRIFUGAL
1386. REPEAT LOAD
1387. 146 0.79131 25 1.0
1388. LOAD 243 LOADTYPE LIVE TITLE 4F1 LOADING INCLUDING CENTRIFUGAL
1389. REPEAT LOAD
1390. 147 0.79131 25 1.0
1391. LOAD 244 LOADTYPE LIVE TITLE 4F1 LOADING INCLUDING CENTRIFUGAL
1392. REPEAT LOAD
1393. 148 0.79131 25 1.0
1394. LOAD 245 LOADTYPE LIVE TITLE 4F1 LOADING INCLUDING CENTRIFUGAL
1395. REPEAT LOAD
1396. 149 0.79131 25 1.0
1397. LOAD 246 LOADTYPE LIVE TITLE 4F1 LOADING INCLUDING CENTRIFUGAL
1398. REPEAT LOAD
1399. 150 0.79131 25 1.0
1400. LOAD 247 LOADTYPE LIVE TITLE 4F1 LOADING INCLUDING CENTRIFUGAL
1401. REPEAT LOAD
1402. 151 0.79131 25 1.0
1403. LOAD 248 LOADTYPE LIVE TITLE 4F1 LOADING INCLUDING CENTRIFUGAL
1404. REPEAT LOAD
1405. 152 0.79131 25 1.0
1406. LOAD 249 LOADTYPE LIVE TITLE 4F1 LOADING INCLUDING CENTRIFUGAL
1407. REPEAT LOAD
1408. 153 0.79131 25 1.0
1409. LOAD 250 LOADTYPE LIVE TITLE 4F1 LOADING INCLUDING CENTRIFUGAL
1410. REPEAT LOAD
1411. 154 0.79131 25 1.0
1412. LOAD 251 LOADTYPE LIVE TITLE 4F1 LOADING INCLUDING CENTRIFUGAL
1413. REPEAT LOAD
1414. 155 0.79131 25 1.0
1415. LOAD 252 LOADTYPE LIVE TITLE 4F1 LOADING INCLUDING CENTRIFUGAL
1416. REPEAT LOAD
1417. 156 0.79131 25 1.0
1418. LOAD 253 LOADTYPE LIVE TITLE 4F1 LOADING INCLUDING CENTRIFUGAL
1419. REPEAT LOAD
1420. 157 0.79131 25 1.0
1421. LOAD 254 LOADTYPE LIVE TITLE 4F1 LOADING INCLUDING CENTRIFUGAL
1422. REPEAT LOAD
1423. 158 0.79131 25 1.0
1424. LOAD 255 LOADTYPE LIVE TITLE 4F1 LOADING INCLUDING CENTRIFUGAL
1425. REPEAT LOAD
1426. 159 0.79131 25 1.0
1427. LOAD 256 LOADTYPE LIVE TITLE 4F1 LOADING INCLUDING CENTRIFUGAL
1428. REPEAT LOAD
1429. 160 0.79131 25 1.0
1430. LOAD 257 LOADTYPE LIVE TITLE 4F1 LOADING INCLUDING CENTRIFUGAL
1431. REPEAT LOAD
1432. 161 0.79131 25 1.0
1433. LOAD 258 LOADTYPE LIVE TITLE 4F1 LOADING INCLUDING CENTRIFUGAL
1434. REPEAT LOAD
1435. 162 0.79131 25 1.0
1436. LOAD 259 LOADTYPE LIVE TITLE 4F1 LOADING INCLUDING CENTRIFUGAL
1437. REPEAT LOAD
1438. 163 0.79131 25 1.0
1439. LOAD 260 LOADTYPE LIVE TITLE 4F1 LOADING INCLUDING CENTRIFUGAL
1440. REPEAT LOAD

1441. 164 0.79131 25 1.0
1442. LOAD 261 LOADTYPE LIVE TITLE 4F1 LOADING INCLUDING CENTRIFUGAL
1443. REPEAT LOAD
1444. 165 0.79131 25 1.0
1445. LOAD 262 LOADTYPE LIVE TITLE 4F1 LOADING INCLUDING CENTRIFUGAL
1446. REPEAT LOAD
1447. 166 0.79131 25 1.0
1448. LOAD 263 LOADTYPE LIVE TITLE 4F1 LOADING INCLUDING CENTRIFUGAL
1449. REPEAT LOAD
1450. 167 0.79131 25 1.0
1451. LOAD 264 LOADTYPE LIVE TITLE 4F1 LOADING INCLUDING CENTRIFUGAL
1452. REPEAT LOAD
1453. 168 0.79131 25 1.0
1454. LOAD 265 LOADTYPE LIVE TITLE 4F1 LOADING INCLUDING CENTRIFUGAL
1455. REPEAT LOAD
1456. 169 0.79131 25 1.0
1457. *BEGIN 5C1 LOAD IN UNIT 1 WITH CF AND LOWER DECK LOADED
1458. LOAD 266 LOADTYPE LIVE TITLE 5C1 LOADING INCLUDING CENTRIFUGAL
1459. REPEAT LOAD
1460. 146 0.706124 25 1.0
1461. LOAD 267 LOADTYPE LIVE TITLE 5C1 LOADING INCLUDING CENTRIFUGAL
1462. REPEAT LOAD
1463. 147 0.706124 25 1.0
1464. LOAD 268 LOADTYPE LIVE TITLE 5C1 LOADING INCLUDING CENTRIFUGAL
1465. REPEAT LOAD
1466. 148 0.706124 25 1.0
1467. LOAD 269 LOADTYPE LIVE TITLE 5C1 LOADING INCLUDING CENTRIFUGAL
1468. REPEAT LOAD
1469. 149 0.706124 25 1.0
1470. LOAD 270 LOADTYPE LIVE TITLE 5C1 LOADING INCLUDING CENTRIFUGAL
1471. REPEAT LOAD
1472. 150 0.706124 25 1.0
1473. LOAD 271 LOADTYPE LIVE TITLE 5C1 LOADING INCLUDING CENTRIFUGAL
1474. REPEAT LOAD
1475. 151 0.706124 25 1.0
1476. LOAD 272 LOADTYPE LIVE TITLE 5C1 LOADING INCLUDING CENTRIFUGAL
1477. REPEAT LOAD
1478. 152 0.706124 25 1.0
1479. LOAD 273 LOADTYPE LIVE TITLE 5C1 LOADING INCLUDING CENTRIFUGAL
1480. REPEAT LOAD
1481. 153 0.706124 25 1.0
1482. LOAD 274 LOADTYPE LIVE TITLE 5C1 LOADING INCLUDING CENTRIFUGAL
1483. REPEAT LOAD
1484. 154 0.706124 25 1.0
1485. LOAD 275 LOADTYPE LIVE TITLE 5C1 LOADING INCLUDING CENTRIFUGAL
1486. REPEAT LOAD
1487. 155 0.706124 25 1.0
1488. LOAD 276 LOADTYPE LIVE TITLE 5C1 LOADING INCLUDING CENTRIFUGAL
1489. REPEAT LOAD
1490. 156 0.706124 25 1.0
1491. LOAD 277 LOADTYPE LIVE TITLE 5C1 LOADING INCLUDING CENTRIFUGAL
1492. REPEAT LOAD
1493. 157 0.706124 25 1.0
1494. LOAD 278 LOADTYPE LIVE TITLE 5C1 LOADING INCLUDING CENTRIFUGAL
1495. REPEAT LOAD
1496. 158 0.706124 25 1.0

1497. LOAD 279 LOADTYPE LIVE TITLE 5C1 LOADING INCLUDING CENTRIFUGAL
1498. REPEAT LOAD
1499. 159 0.706124 25 1.0
1500. LOAD 280 LOADTYPE LIVE TITLE 5C1 LOADING INCLUDING CENTRIFUGAL
1501. REPEAT LOAD
1502. 160 0.706124 25 1.0
1503. LOAD 281 LOADTYPE LIVE TITLE 5C1 LOADING INCLUDING CENTRIFUGAL
1504. REPEAT LOAD
1505. 161 0.706124 25 1.0
1506. LOAD 282 LOADTYPE LIVE TITLE 5C1 LOADING INCLUDING CENTRIFUGAL
1507. REPEAT LOAD
1508. 162 0.706124 25 1.0
1509. LOAD 283 LOADTYPE LIVE TITLE 5C1 LOADING INCLUDING CENTRIFUGAL
1510. REPEAT LOAD
1511. 163 0.706124 25 1.0
1512. LOAD 284 LOADTYPE LIVE TITLE 5C1 LOADING INCLUDING CENTRIFUGAL
1513. REPEAT LOAD
1514. 164 0.706124 25 1.0
1515. LOAD 285 LOADTYPE LIVE TITLE 5C1 LOADING INCLUDING CENTRIFUGAL
1516. REPEAT LOAD
1517. 165 0.706124 25 1.0
1518. LOAD 286 LOADTYPE LIVE TITLE 5C1 LOADING INCLUDING CENTRIFUGAL
1519. REPEAT LOAD
1520. 166 0.706124 25 1.0
1521. LOAD 287 LOADTYPE LIVE TITLE 5C1 LOADING INCLUDING CENTRIFUGAL
1522. REPEAT LOAD
1523. 167 0.706124 25 1.0
1524. LOAD 288 LOADTYPE LIVE TITLE 5C1 LOADING INCLUDING CENTRIFUGAL
1525. REPEAT LOAD
1526. 168 0.706124 25 1.0
1527. LOAD 289 LOADTYPE LIVE TITLE 5C1 LOADING INCLUDING CENTRIFUGAL
1528. REPEAT LOAD
1529. 169 0.706124 25 1.0
1530. *BEGIN HS-20 LOADING ON TRUSS SPAN 11
1531. LOAD 290 LOADTYPE LIVE TITLE TRUSS HS20 LANE (3 LANES ON NORTH TRUSS)
1532. JOINT LOAD
1533. 46 FY -226.06
1534. 45 FY -38.39
1535. MEMBER LOAD
1536. 9 UNI GY -1.839 4.1839 5.8356
1537. 10 12 UNI GY -1.839 0 5.8564
1538. 11 UNI GY -1.839 0 2.4958
1539. 11 UNI GY -1.839 4.4965 5.8564
1540. 13 UNI GY -1.839 0 2.7875
1541. 13 UNI GY -1.839 4.7883 5.8564
1542. 14 UNI GY -1.839 0 3.3138
1543. 15 UNI GY -1.839 0 5.622
1544. REPEAT LOAD
1545. 25 1.0
1546. LOAD 291 LOADTYPE LIVE TITLE TRUSS HS20 LANE (6 LANES ON NORTH TRUSS)
1547. JOINT LOAD
1548. 46 FY -223.5
1549. 45 FY -218.57
1550. MEMBER LOAD
1551. 1 UNI GY -1.533 5.5627 7.0444
1552. 2 UNI GY -1.533 0 1.137

1553. 3 UNI GY -1.533 0 5.8396
1554. 4 UNI GY -1.533 0 1.5455
1555. 4 UNI GY -1.533 3.5463 5.8564
1556. 5 7 10 12 UNI GY -1.533 0 5.8564
1557. 6 UNI GY -1.533 0 1.8373
1558. 6 UNI GY -1.533 3.8381 5.8564
1559. 8 UNI GY -1.533 0 2.1291
1560. 9 UNI GY -1.533 4.1839 5.8356
1561. 11 UNI GY -1.533 0 2.4958
1562. 11 UNI GY -1.533 4.4965 5.8564
1563. 13 UNI GY -1.533 0 2.7875
1564. 13 UNI GY -1.533 4.7883 5.8564
1565. 14 UNI GY -1.533 0 3.3138
1566. 15 UNI GY -1.533 0 5.622
1567. REPEAT LOAD
1568. 25 1.0
1569. LOAD 292 LOADTYPE LIVE TITLE TRUSS HS20 LANE (6 LANES ON SOUTH TRUSS)
1570. JOINT LOAD
1571. 46 FY -185.93
1572. 45 FY -254.4
1573. MEMBER LOAD
1574. 1 UNI GY -1.533 0 7.0444
1575. 2 UNI GY -1.533 0 1.137
1576. 3 UNI GY -1.533 0 1.8224
1577. 3 UNI GY -1.533 3.8232 5.8396
1578. 4 6 11 13 UNI GY -1.533 0 5.8564
1579. 5 UNI GY -1.533 0 2.131
1580. 5 UNI GY -1.533 4.1318 5.8564
1581. 7 UNI GY -1.533 0 2.4228
1582. 8 UNI GY -1.533 4.3836 5.8356
1583. 9 UNI GY -1.533 0 5.8356
1584. 10 UNI GY -1.533 0 2.7163
1585. 10 UNI GY -1.533 4.717 5.8564
1586. 12 UNI GY -1.533 0 3.008
1587. 12 UNI GY -1.533 5.0088 5.8564
1588. 14 UNI GY -1.533 0 3.2998
1589. REPEAT LOAD
1590. 25 1.0
1591. LOAD 293 LOADTYPE LIVE TITLE TRUSS HS20 TRUCK WITH CF (3 LANES ON NORTH TRUSS)
1592. JOINT LOAD
1593. 46 FY -206.43
1594. 45 FY -30.71
1595. 19 26 FX 15.92
1596. REPEAT LOAD
1597. 25 1.0
1598. LOAD 294 LOADTYPE LIVE TITLE TRUSS HS20 TRUCK WITH CF (6 LANES ON NORTH TRUSS)
1599. JOINT LOAD
1600. 46 FY -204.71
1601. 45 FY -169.27
1602. 19 26 FX 26.72
1603. REPEAT LOAD
1604. 25 1.0
1605. LOAD 295 LOADTYPE LIVE TITLE TRUSS HS20 TRUCK WITH CF (6 LANES ON SOUTH TRUSS)
1606. JOINT LOAD
1607. 46 FY -171.04
1608. 45 FY -199.92

1609. 19 26 FX 26.93
1610. REPEAT LOAD
1611. 25 1.0
1612. LOAD 296 LOADTYPE LIVE TITLE TRUSS HS20 TRUCK NO CF (6 LANES ON SOUTH TRUSS)
1613. JOINT LOAD
1614. 46 FY -156.06
1615. 45 FY -220.99
1616. REPEAT LOAD
1617. 25 1.0
1618. *BEGIN 2F1 LOADING ON TRUSS SPAN 11
1619. LOAD 297 LOADTYPE LIVE TITLE TRUSS 2F1 WITH CF (3 LANES ON NORTH TRUSS)
1620. JOINT LOAD
1621. 46 FY -88.58
1622. 45 FY -13.49
1623. 19 26 FX 6.86
1624. REPEAT LOAD
1625. 25 1.0
1626. LOAD 298 LOADTYPE LIVE TITLE TRUSS 2F1 WITH CF (6 LANES ON NORTH TRUSS)
1627. JOINT LOAD
1628. 46 FY -87.82
1629. 45 FY -73.04
1630. 19 26 FX 11.5
1631. REPEAT LOAD
1632. 25 1.0
1633. LOAD 299 LOADTYPE LIVE TITLE TRUSS 2F1 WITH CF (6 LANES ON SOUTH TRUSS)
1634. JOINT LOAD
1635. 46 FY -73.32
1636. 45 FY -86.17
1637. 19 26 FX 11.58
1638. REPEAT LOAD
1639. 25 1.0
1640. LOAD 300 LOADTYPE LIVE TITLE TRUSS 2F1 NO CF (6 LANES ON SOUTH TRUSS)
1641. JOINT LOAD
1642. 46 FY -66.9
1643. 45 FY -95.25
1644. REPEAT LOAD
1645. 25 1.0
1646. *BEGIN 3F1 LOADING ON TRUSS SPAN 11
1647. LOAD 301 LOADTYPE LIVE TITLE TRUSS 3F1 WITH CF (3 LANES ON NORTH TRUSS)
1648. JOINT LOAD
1649. 46 FY -135.04
1650. 45 FY -20.41
1651. 19 26 FX 10.44
1652. REPEAT LOAD
1653. 25 1.0
1654. LOAD 302 LOADTYPE LIVE TITLE TRUSS 3F1 WITH CF (6 LANES ON NORTH TRUSS)
1655. JOINT LOAD
1656. 46 FY -133.93
1657. 45 FY -111.05
1658. 19 26 FX 17.51
1659. REPEAT LOAD
1660. 25 1.0
1661. LOAD 303 LOADTYPE LIVE TITLE TRUSS 3F1 WITH CF (6 LANES ON SOUTH TRUSS)
1662. JOINT LOAD
1663. 46 FY -111.94
1664. 45 FY -130.97

1665. 19 26 FX 17.64
1666. REPEAT LOAD
1667. 25 1.0
1668. LOAD 304 LOADTYPE LIVE TITLE TRUSS 3F1 NO CF (6 LANES ON SOUTH TRUSS)
1669. JOINT LOAD
1670. 46 FY -102.14
1671. 45 FY -144.77
1672. REPEAT LOAD
1673. 25 1.0
1674. *BEGIN 4F1 LOADING ON TRUSS SPAN 11
1675. LOAD 305 LOADTYPE LIVE TITLE TRUSS 4F1 WITH CF (3 LANES ON NORTH TRUSS)
1676. JOINT LOAD
1677. 46 FY -157.09
1678. 45 FY -23.56
1679. 19 26 FX 12.13
1680. REPEAT LOAD
1681. 25 1.0
1682. LOAD 306 LOADTYPE LIVE TITLE TRUSS 4F1 WITH CF (6 LANES ON NORTH TRUSS)
1683. JOINT LOAD
1684. 46 FY -155.9
1685. 45 FY -129.23
1686. 19 26 FX 20.37
1687. REPEAT LOAD
1688. 25 1.0
1689. LOAD 307 LOADTYPE LIVE TITLE TRUSS 4F1 WITH CF (6 LANES ON SOUTH TRUSS)
1690. JOINT LOAD
1691. 46 FY -130.34
1692. 45 FY -152.37
1693. 19 26 FX 20.52
1694. REPEAT LOAD
1695. 25 1.0
1696. LOAD 308 LOADTYPE LIVE TITLE TRUSS 4F1 NO CF (6 LANES ON SOUTH TRUSS)
1697. JOINT LOAD
1698. 46 FY -118.93
1699. 45 FY -168.43
1700. REPEAT LOAD
1701. 25 1.0
1702. *BEGIN 5C1 LOADING ON TRUSS SPAN 11
1703. LOAD 309 LOADTYPE LIVE TITLE TRUSS 5C1 WITH CF (3 LANES ON NORTH TRUSS)
1704. JOINT LOAD
1705. 46 FY -210.41
1706. 45 FY -29.84
1707. 19 26 FX 16.12
1708. REPEAT LOAD
1709. 25 1.0
1710. LOAD 310 LOADTYPE LIVE TITLE TRUSS 5C1 WITH CF (6 LANES ON NORTH TRUSS)
1711. JOINT LOAD
1712. 46 FY -208.75
1713. 45 FY -169.18
1714. 19 26 FX 26.98
1715. REPEAT LOAD
1716. 25 1.0
1717. LOAD 311 LOADTYPE LIVE TITLE TRUSS 5C1 WITH CF (6 LANES ON SOUTH TRUSS)
1718. JOINT LOAD
1719. 46 FY -174.56
1720. 45 FY -199.49

1721. 19 26 FX 27.13
 1722. REPEAT LOAD
 1723. 25 1.0
 1724. LOAD 312 LOADTYPE LIVE TITLE TRUSS 5C1 NO CF (6 LANES ON SOUTH TRUSS)
 1725. JOINT LOAD
 1726. 46 FY -159.28
 1727. 45 FY -220.51
 1728. REPEAT LOAD
 1729. 25 1.0
 1730. *BEGIN FATIGUE LOAD IN UNIT 1
 1731. LOAD GENERATION 29
 1732. TYPE 1 -1.2874 193.248 0 XINC 0.9979 YRANGE 2
 1733. LOAD GENERATION 29
 1734. TYPE 1 40.9079 194.424 0 XINC 0.9977 YRANGE 2
 1735. PDELTA 10 ANALYSIS

P R O B L E M S T A T I S T I C S

NUMBER OF JOINTS/MEMBER+ELEMENTS/SUPPORTS = 44/ 60/ 2

SOLVER USED IS THE OUT-OF-CORE BASIC SOLVER

ORIGINAL/FINAL BAND-WIDTH= 24/ 9/ 60 DOF
 TOTAL PRIMARY LOAD CASES = 370, TOTAL DEGREES OF FREEDOM = 252
 SIZE OF STIFFNESS MATRIX = 16 DOUBLE KILO-WORDS
 REQD/AVAIL. DISK SPACE = 14.3/ 515379.8 MB

ZERO STIFFNESS IN DIRECTION 3 AT JOINT 31 EQN.NO. 51
 LOADS APPLIED OR DISTRIBUTED HERE FROM ELEMENTS WILL BE IGNORED.
 THIS MAY BE DUE TO ALL MEMBERS AT THIS JOINT BEING RELEASED OR
 EFFECTIVELY RELEASED IN THIS DIRECTION.

ZERO STIFFNESS IN DIRECTION 4 AT JOINT 31 EQN.NO. 52
 ZERO STIFFNESS IN DIRECTION 5 AT JOINT 31 EQN.NO. 53
 ZERO STIFFNESS IN DIRECTION 6 AT JOINT 31 EQN.NO. 54
 ZERO STIFFNESS IN DIRECTION 3 AT JOINT 33 EQN.NO. 57
 ZERO STIFFNESS IN DIRECTION 4 AT JOINT 33 EQN.NO. 58
 ZERO STIFFNESS IN DIRECTION 5 AT JOINT 33 EQN.NO. 59
 ZERO STIFFNESS IN DIRECTION 6 AT JOINT 33 EQN.NO. 60
 ZERO STIFFNESS IN DIRECTION 3 AT JOINT 34 EQN.NO. 99
 ZERO STIFFNESS IN DIRECTION 4 AT JOINT 34 EQN.NO. 100
 ZERO STIFFNESS IN DIRECTION 5 AT JOINT 34 EQN.NO. 101
 ZERO STIFFNESS IN DIRECTION 6 AT JOINT 34 EQN.NO. 102

****WARNING - THERE WERE MORE THAN 12 DOF WITH ZERO STIFFNESS.**

THE FIRST 12 ARE LISTED ABOVE.

TOTAL # TRANSLATIONAL= 5 TOTAL # ROTATIONAL= 15

++ Adjusting Displacements 9:55:19
 ++ Adjusting Displacements 9:55:19
 ++ Adjusting Displacements 9:55:19


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++ Adjusting Displacements          9:55:20
++ Adjusting Displacements          9:55:20
++ Adjusting Displacements          9:55:20
++ Adjusting Displacements          9:55:20
++ Adjusting Displacements          9:55:20
++ Adjusting Displacements          9:55:21
++ Adjusting Displacements          9:55:21
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1736. DEFINE ENVELOPE
1737. 26 TO 49 170 TO 193 290 TO 296 ENVELOPE 1 TYPE STRESS
1738. 50 TO 73 194 TO 217 297 TO 300 ENVELOPE 2 TYPE STRESS
1739. 74 TO 97 218 TO 241 301 TO 304 ENVELOPE 3 TYPE STRESS
1740. 98 TO 121 242 TO 265 305 TO 308 ENVELOPE 4 TYPE STRESS
1741. 122 TO 145 266 TO 289 309 TO 312 ENVELOPE 5 TYPE STRESS
1742. END DEFINE ENVELOPE
1743. *LOAD LIST 1 TO 24 146 TO 169
1744. *PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 1 TO 15
1745. *HS-20 WITHOUT LOWER DECK MAX FLOOR BEAM FORCES ABOVE
1746. *PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 19 20
1747. *HS-20 WITHOUT LOWER DECK MAX COLUMN 3 FORCES ABOVE
1748. *PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 22
1749. *HS-20 WITHOUT LOWER DECK MAX COLUMN 2 FORCES ABOVE
1750. *PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 26
1751. *HS-20 WITHOUT LOWER DECK MAX COLUMN 1 FORCES ABOVE
1752. *PRINT MAXFORCE ENVELOPE LIST 36 TO 50
1753. *HS-20 WITHOUT LOWER DECK TRUSS FORCES ABOVE
1754. LOAD LIST 26 TO 49 170 TO 193 290 TO 296
1755. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 1 TO 15
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MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
1 MAX	0.00	0.00	26	203.91	7.04	29			
	0.00	0.00	26	0.01	7.04	292	3.82 C	7.04	192
	-37.59	7.04	43	-12.43	7.04	192			
MIN	0.00	7.04	296	0.00	7.04	296	1.05 T	7.04	43
	0.00	0.00	30	267.68	1.14	29			
	0.00	0.00	26	0.01	1.14	292	3.84 C	1.14	192
2 MAX	-75.33	1.14	187	-13.20	0.45	192			
	0.00	1.14	296	0.00	1.14	296	2.12 T	1.14	43
	0.00	0.00	291	341.27	5.84	29			
3 MAX	0.00	0.00	26	0.00	0.00	292	6.53 C	5.84	177
	-45.50	5.84	27	-11.68	5.84	180			
	-0.21	5.84	291	-1.08	5.26	291	66.71 T	5.84	27
4 MAX	54.65	0.00	36	478.27	5.86	43			
	0.00	0.00	192	0.00	5.86	192	13.54 C	0.00	34
	-36.27	5.86	171	-303.24	5.86	31			
MIN	-1.15	5.86	291	-7.57	5.86	291	57.23 T	5.86	27
	59.87	0.00	29	482.60	0.00	43			
	0.00	0.00	192	0.00	5.86	192	25.72 C	0.00	34
5 MAX	-12.55	5.86	177	-548.26	5.86	175			
	-1.27	5.86	291	-14.60	5.86	291	7.70 T	0.00	171
	26.31	0.00	173	364.44	0.00	41			
6 MAX	0.00	0.00	192	0.00	5.86	192	25.72 C	0.00	34
	-46.59	5.86	180	-548.26	0.00	175			
	-1.27	5.86	291	-22.30	5.86	291	6.29 T	0.00	171
7 MAX	26.27	0.00	173	275.57	0.00	41			
	0.00	0.00	192	0.00	5.86	192	24.78 C	0.00	34
	-79.70	5.86	175	-471.29	0.00	175			
MIN	-1.27	5.86	291	-29.92	5.86	291	4.88 T	0.00	171
	20.29	0.00	43	356.82	5.84	181			
	0.00	0.00	192	0.00	5.84	192	25.00 C	5.84	177
8 MAX	-79.74	5.84	175	-216.95	0.00	174			
	-1.27	5.84	291	-37.41	5.84	291	4.35 T	5.84	27
	98.83	0.00	34	362.73	0.00	181			
9 MAX	1.27	0.00	291	0.00	0.00	192	30.61 C	5.84	178

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MIN	-10.80	5.84	176	-265.37	5.84	41			
	0.00	5.84	192	-37.44	0.00	291	4.17 T	5.84	27
10 MAX	81.92	0.00	42	213.12	5.86	174			
	1.27	0.00	291	0.00	0.00	192	31.33 C	5.86	178
MIN	-10.84	5.86	176	-507.54	5.86	41			
	0.00	5.86	192	-30.02	0.00	291	4.17 T	5.86	27
11 MAX	48.99	0.00	186	249.63	5.86	174			
	1.27	0.00	291	0.00	0.00	192	32.76 C	5.86	177
MIN	-37.62	5.86	46	-568.02	4.69	42			
	0.00	5.86	192	-22.46	0.00	291	4.17 T	5.86	27
12 MAX	15.03	0.00	182	295.31	5.86	176			
	1.27	0.00	291	0.00	0.00	192	34.56 C	5.86	192
MIN	-78.73	5.86	190	-541.37	0.00	42			
	0.00	5.86	192	-14.83	0.00	291	4.17 T	5.86	27
13 MAX	7.39	0.00	31	393.30	5.86	191			
	1.27	0.00	291	0.53	5.86	291	37.16 C	5.86	192
MIN	-83.94	5.86	188	-346.95	0.00	186			
	0.00	5.86	192	-7.16	0.00	291	4.17 T	5.86	27
14 MAX	75.33	0.00	176	385.36	0.00	191			
	0.00	0.00	26	0.00	2.98	292	2.09 C	0.00	32
MIN	0.00	3.31	296	0.00	1.33	40			
	0.00	3.31	296	-0.01	0.00	291	3.85 T	0.00	192
15 MAX	47.52	0.00	189	190.87	0.00	191			
	0.00	0.00	26	0.00	5.06	291	1.05 C	0.00	32
MIN	0.00	5.62	296	0.00	3.94	46			
	0.00	5.62	296	0.00	0.00	291	3.05 T	0.00	192

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

1756. *HS-20 MAX FLOOR BEAM FORCES ABOVE

1757. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 19 20

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
19	MAX	5.46	0.00	187	89.25	20.97	31		
		0.00	0.00	192	40.41	0.00	291	185.75 C	0.00 26
	MIN	-7.38	20.97	31	-74.52	20.97	43		
		-1.07	20.97	291	0.00	0.00	192	11.11 T	20.97 188
20	MAX	14.80	0.00	31	76.96	0.00	31		
		0.00	0.00	192	7.51	0.00	291	74.86 C	0.00 48
	MIN	-12.95	6.00	43	-65.46	0.00	43		
		-0.91	6.00	291	-0.04	5.40	291	6.64 T	6.00 188

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

1758. *HS-20 MAX COLUMN 3 FORCES ABOVE

1759. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 22

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/	DIST	LD	MZ/	DIST	LD	FX	DIST	LD
	FZ	DIST	LD	MY	DIST	LD			
22 MAX	2.74	0.00	174	48.96	27.78	41	153.30 C	0.00	34
	2.54	0.00	291	0.00	25.00	192			
MIN	-2.61	27.78	41	-49.15	27.78	174	20.87 T	27.78	27
	0.00	27.78	192	-38.72	0.00	291			

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

1760. *HS-20 MAX COLUMN 2 FORCES ABOVE

1761. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 26

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/	DIST	LD	MZ/	DIST	LD	FX	DIST	LD
	FZ	DIST	LD	MY	DIST	LD			
26 MAX	4.15	0.00	186	45.43	0.00	186			
	0.00	0.00	192	43.05	0.00	291	170.76 C	0.00	188
MIN	-1.28	28.60	176	-73.80	28.60	186			
	-1.05	28.60	291	-4.37	0.00	290	1.28 T	28.60	27

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

1762. *HS-20 MAX COLUMN 1 FORCES ABOVE

1763. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 16 17

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
16 MAX	24.58	0.00	295	428.55	0.00	295			
	4.71	0.00	291	0.00	0.00	192	341.76 C	0.00	292
MIN	-8.95	28.08	48	-266.66	28.08	295			
	0.00	28.08	192	-525.85	0.00	292	14.23 C	28.08	189
17 MAX	10.36	0.00	48	136.09	0.00	48			
	4.70	0.00	291	0.00	0.00	178	339.05 C	0.00	292
MIN	-14.86	17.78	295	-266.66	0.00	295			
	0.00	17.78	192	-394.49	0.00	292	18.26 C	17.78	189

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

1764. *HS-20 MAX COLUMN 300 FORCES ABOVE

1765. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 23 24

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
23 MAX	31.27	0.00	192	491.14	0.00	192			
	4.70	0.00	291	0.00	0.00	192	303.42 C	0.00	290
MIN	1.35	27.73	27	-381.78	27.73	192			
	0.00	27.73	192	-493.34	0.00	291	21.25 C	27.73	27
24 MAX	-1.48	0.00	27	82.59	17.78	192			
	4.68	0.00	291	0.00	0.00	192	301.40 C	0.00	290
MIN	-26.08	17.78	192	-381.78	0.00	192			
	0.00	17.78	192	-353.70	0.00	291	20.25 C	17.78	27

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

1766. *HS-20 MAX COLUMN 100 FORCES ABOVE

1767. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 51 TO 61

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
51 MAX	-2.15	0.00	26	7.17	3.33	26			
	0.00	0.00	26	0.00	0.00	26	0.00	0.00	26
MIN	-2.15	3.33	296	0.00	0.00	296			
	0.00	3.33	296	0.00	3.33	296	0.00	3.33	296
52 MAX	17.46	0.00	33	126.17	0.00	33			
	5.86	0.00	291	36.45	6.16	291	28.43 C	0.00	34
MIN	8.24	6.16	171	-60.92	6.16	187			
	0.00	6.16	192	-2.10	0.00	291	1.90 C	6.16	174
53 MAX	11.62	0.00	33	18.55	0.00	33			
	5.86	0.00	291	71.37	5.60	291	28.43 C	0.00	34
MIN	2.40	5.60	171	-83.02	5.60	185			
	0.00	5.60	192	0.00	5.60	192	1.90 C	5.60	174
54 MAX	6.06	0.00	33	-34.29	0.00	31			
	5.86	0.00	291	105.92	5.60	291	28.43 C	0.00	34
MIN	-3.16	5.60	171	-87.06	5.60	34			
	0.00	5.60	192	0.00	5.60	192	1.90 C	5.60	174
55 MAX	0.50	0.00	33	-1.99	5.60	171			
	5.86	0.00	291	139.95	5.60	291	28.43 C	0.00	34
MIN	-8.72	5.60	171	-88.31	5.60	34			
	0.00	5.60	192	0.00	5.60	192	1.90 C	5.60	174
56 MAX	-5.40	0.00	33	89.86	6.28	171			
	5.86	0.00	291	177.25	6.28	291	28.43 C	0.00	34
MIN	-14.62	6.28	171	-88.31	0.00	34			
	0.00	6.28	192	0.00	6.28	192	1.90 C	6.28	174
57 MAX	13.46	0.00	27	84.96	0.00	27			
	0.00	0.00	192	177.25	0.00	291	45.53 C	0.00	192
MIN	4.38	6.28	192	-98.66	6.28	192			
	-5.82	6.28	291	0.00	0.00	192	6.67 C	6.28	27
58 MAX	7.56	0.00	27	0.40	0.00	27			
	0.00	0.00	192	140.10	0.00	291	45.53 C	0.00	192
MIN	-1.52	5.60	192	-98.66	0.00	192			
	-5.82	5.60	291	0.00	0.00	192	6.67 C	5.60	27
59 MAX	2.00	0.00	27	-39.10	5.60	185			
	0.00	0.00	192	106.15	0.00	291	45.53 C	0.00	192

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MIN	-7.08	5.60	192	-90.57	0.00	177			
	-5.82	5.60	291	0.00	0.00	192	6.67 C	5.60	27
60 MAX	-3.56	0.00	27	20.74	5.60	192			
	0.00	0.00	192	71.61	0.00	291	45.53 C	0.00	192
MIN	-12.64	5.60	192	-70.70	0.00	30			
	-5.82	5.60	291	0.00	0.00	192	6.67 C	5.60	27
61 MAX	-9.40	0.00	27	134.68	6.16	192			
	0.00	0.00	192	36.69	0.00	291	45.53 C	0.00	192
MIN	-18.48	6.16	192	-36.34	0.00	32			
	-5.82	6.16	291	-1.89	6.16	291	6.67 C	6.16	27

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

1768. *LOWER DECK FLOORBEAM ABOVE

1769. PRINT MAXFORCE ENVELOPE LIST 36 TO 50

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
36 MAX	0.12	0.00	295	0.00	0.00	26			
	0.03	0.00	192	0.00	0.00	26	50.03 C	0.00	192
MIN	0.00	15.32	193	0.00	15.32	296			
	0.00	14.05	296	0.00	15.32	296	0.81 C	15.32	27
37 MAX	0.00	0.00	192	0.00	0.00	26			
	0.06	0.00	34	0.00	0.00	26	121.73 C	0.00	48
MIN	-2.75	13.93	291	0.00	13.93	296			
	0.00	12.77	296	0.00	13.93	296	12.88 C	13.93	171
38 MAX	2.73	0.00	291	0.00	0.00	26			
	0.00	1.16	26	0.00	0.00	26	125.91 C	0.00	192
MIN	0.00	13.93	192	0.00	13.93	296			
	-0.06	13.93	192	0.00	13.93	296	14.33 C	13.93	27
39 MAX	0.10	0.00	294	0.00	0.00	26			
	0.00	0.00	295	0.00	0.00	26	29.90 C	0.00	48
MIN	-0.04	15.32	291	0.00	15.32	296			
	-0.02	15.32	48	0.00	15.32	296	28.30 T	15.32	295
40 MAX	0.02	0.00	292	0.00	0.00	26			
	0.01	0.00	48	0.00	0.00	26	20.49 C	0.00	48
MIN	-0.05	16.26	295	0.00	16.26	296			
	-0.01	16.26	192	0.00	16.26	296	41.84 T	16.26	295
41 MAX	0.00	0.00	26	0.00	0.00	26			
	0.00	1.17	26	0.00	0.00	26	7.48 T	0.00	27
MIN	0.00	14.01	296	0.00	14.01	296			
	-0.03	14.01	192	0.00	14.01	296	79.02 T	14.01	192
42 MAX	0.00	0.00	26	0.00	0.00	26			
	0.02	0.00	48	0.00	0.00	26	22.59 C	0.00	295
MIN	0.00	14.01	296	0.00	14.01	296			
	0.00	14.01	295	0.00	14.01	296	53.88 T	14.01	48
43 MAX	0.00	0.00	26	0.00	0.00	26			
	0.00	1.35	26	0.00	0.00	26	60.84 C	0.00	192
MIN	-0.06	16.26	294	0.00	16.26	296			
	-0.03	16.26	192	0.00	16.26	296	3.01 C	16.26	27
44 MAX	0.00	0.00	26	0.00	0.00	26			
	0.02	0.00	34	0.00	0.00	26	71.29 C	0.00	48

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MIN	0.00	12.34	296	0.00	12.34	296			
	0.00	12.34	294	0.00	12.34	296	11.23	T	12.34 295
45 MAX	0.00	0.00	192	0.00	0.00	26			
	0.01	0.00	192	0.00	0.00	26	131.02	C	0.00 48
MIN	-4.08	10.83	291	0.00	10.83	296			
	0.00	10.83	28	0.00	10.83	296	17.96	C	10.83 27
46 MAX	0.00	0.00	26	0.00	0.00	26			
	0.00	0.00	294	0.00	0.00	26	90.89	C	0.00 192
MIN	0.00	12.34	296	0.00	12.34	296			
	-0.02	12.34	48	0.00	12.34	296	9.87	C	12.34 27
47 MAX	0.01	0.00	295	0.00	0.00	26			
	0.00	0.00	294	0.00	0.00	26	2.14	C	0.00 295
MIN	-0.15	19.68	292	0.00	19.68	296			
	-0.03	19.68	34	0.00	19.68	296	93.48	T	19.68 48
48 MAX	0.00	0.00	26	0.00	0.00	26			
	0.00	0.00	294	0.00	0.00	26	18.30	C	0.00 295
MIN	0.00	17.64	296	0.00	17.64	296			
	-0.03	17.64	34	0.00	17.64	296	116.14	T	17.64 48
49 MAX	0.00	0.00	26	0.00	0.00	26			
	0.04	0.00	192	0.00	0.00	26	16.07	T	0.00 27
MIN	0.00	17.64	296	0.00	17.64	296			
	0.00	16.17	296	0.00	17.64	296	148.09	T	17.64 192
50 MAX	0.13	0.00	291	0.00	0.00	26			
	0.03	0.00	48	0.00	0.00	26	12.88	T	0.00 27
MIN	0.00	19.68	193	0.00	19.68	296			
	0.00	19.68	294	0.00	19.68	296	107.87	T	19.68 192

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

1770. *HS-20 TRUSS FORCES ABOVE

1771. LOAD LIST 50 TO 73 194 TO 217 297 TO 300

1772. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 1 TO 15

MEMBER FORCE ENVELOPE

 ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
1 MAX	0.00	0.00	50	97.60	7.04	53			
	0.00	0.00	50	0.00	0.00	50	1.83 C	7.04	216
	-17.99	7.04	67	-5.94	7.04	216			
MIN	0.00	7.04	300	0.00	7.04	300	0.50 T	7.04	67
	0.00	0.00	54	128.12	1.14	53			
	0.00	0.00	50	0.00	0.00	50	1.84 C	1.14	216
2 MIN	-36.05	1.14	211	-6.31	0.45	216			
	0.00	1.14	300	0.00	1.14	300	1.01 T	1.14	67
	0.22	0.00	60	163.79	5.84	53			
3 MAX	0.00	0.00	50	0.00	0.00	50	3.20 C	5.84	201
	-21.80	5.84	51	-5.16	0.00	201			
	0.00	5.84	297	-0.01	5.84	297	31.85 T	5.84	51
4 MAX	25.88	0.00	60	230.27	5.86	67			
	0.00	0.00	50	0.00	0.00	50	7.89 C	0.00	58
	-17.56	5.86	195	-143.00	5.86	55			
MIN	-0.01	5.86	298	-0.06	5.86	300	25.93 T	5.86	51
	29.10	0.00	53	232.61	0.00	67			
	0.00	0.00	50	0.00	0.00	50	14.62 C	0.00	58
5 MIN	-5.54	5.86	201	-262.79	5.86	199			
	-0.01	5.86	298	-0.11	5.86	298	1.39 T	0.00	195
	13.04	0.00	197	173.51	0.00	65			
6 MAX	0.00	0.00	50	0.00	0.00	50	14.62 C	0.00	58
	-21.83	5.86	204	-262.79	0.00	199			
	-0.01	5.86	298	-0.17	5.86	298	0.71 T	0.00	195
7 MAX	13.02	0.00	197	128.37	0.00	65			
	0.00	0.00	50	0.00	0.00	50	14.17 C	0.00	58
	-37.67	5.86	199	-228.71	0.00	199			
MIN	-0.01	5.86	298	-0.24	5.86	298	0.04 T	0.00	195
	10.15	0.00	67	161.97	5.84	205			
	0.00	0.00	50	0.00	0.00	50	14.28 C	5.84	201
8 MIN	-37.69	5.84	199	-109.76	0.00	198			
	-0.01	5.84	298	-0.31	5.84	300	0.22 C	5.84	51
	46.92	0.00	58	165.00	0.00	205			
9 MAX	0.01	0.00	300	0.00	0.00	50	16.94 C	5.84	202

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MIN	-5.54	5.84	200	-133.23	5.84	65				
	0.00	5.84	217	-0.31	0.00	298	0.30	C	5.84	51
10 MAX	38.83	0.00	66	97.72	5.86	198				
	0.01	0.00	300	0.00	0.00	50	17.28	C	5.86	202
MIN	-5.56	5.86	200	-246.92	5.86	65				
	0.00	5.86	217	-0.24	0.00	298	0.30	C	5.86	51
11 MAX	23.06	0.00	210	117.38	5.86	198				
	0.01	0.00	300	0.00	0.00	50	17.97	C	5.86	201
MIN	-18.39	5.86	70	-274.07	4.69	66				
	0.00	5.86	217	-0.18	0.00	300	0.30	C	5.86	51
12 MAX	6.81	0.00	206	141.46	5.86	200				
	0.01	0.00	300	0.00	0.00	50	18.83	C	5.86	216
MIN	-38.06	5.86	214	-260.87	0.00	66				
	0.00	5.86	217	-0.12	0.00	300	0.30	C	5.86	51
13 MAX	3.15	0.00	55	190.69	5.86	215				
	0.01	0.00	300	0.01	5.86	297	20.07	C	5.86	216
MIN	-40.55	5.86	212	-165.56	0.00	210				
	0.00	5.86	217	-0.06	0.00	300	0.30	C	5.86	51
14 MAX	36.05	0.00	200	184.44	0.00	215				
	0.00	0.00	50	0.00	0.00	50	1.00	C	0.00	56
MIN	0.00	2.98	72	0.00	1.33	64				
	0.00	3.31	300	0.00	3.31	300	1.84	T	0.00	216
15 MAX	22.74	0.00	200	91.36	0.00	215				
	0.00	0.00	50	0.00	0.00	50	0.50	C	0.00	56
MIN	0.00	5.62	300	0.00	3.94	70				
	0.00	5.62	300	0.00	5.62	300	1.46	T	0.00	216

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

1773. *2F1 MAX FLOOR BEAM FORCES ABOVE

1774. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 19 20

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
19 MAX	2.29	0.00	211	45.40	20.97	55			
	0.00	0.00	50	0.25	0.00	298	91.22 C	0.00	50
MIN	-3.89	20.97	55	-36.50	0.00	55			
	-0.01	20.97	298	0.00	0.00	216	2.98 T	20.97	212
20 MAX	7.53	0.00	55	38.99	0.00	55			
	0.00	0.00	50	0.06	0.00	300	37.30 C	0.00	72
MIN	-5.78	6.00	67	-29.19	0.00	67			
	-0.01	6.00	300	0.00	6.00	297	1.68 T	6.00	212

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

1775. *2F1 MAX COLUMN 3 FORCES ABOVE

1776. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 22

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
22 MAX	1.31	0.00	198	23.69	27.78	65			
	0.02	0.00	300	0.00	25.00	216	72.52 C	0.00	58
MIN	-1.26	27.78	65	-23.47	27.78	198			
	0.00	27.78	217	-0.62	0.00	300	10.79 T	27.78	51

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

1777. *2F1 MAX COLUMN 2 FORCES ABOVE

1778. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 26

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
26 MAX	2.21	0.00	210	25.21	0.00	210			
	0.00	0.00	50	0.25	0.00	300	84.08 C	0.00	212
MIN	-0.40	28.60	200	-38.00	28.60	210			
	-0.01	28.60	300	0.00	0.00	216	1.74 C	28.60	51

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

1779. *2F1 MAX COLUMN 1 FORCES ABOVE

1780. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 16 17

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
16 MAX	9.74	0.00	299	172.88	0.00	299			
	0.10	0.00	299	0.00	0.00	216	128.20 C	0.00	300
MIN	-5.04	28.08	72	-101.74	28.08	299			
	0.00	28.08	217	-128.21	0.00	300	24.01 C	28.08	213
17 MAX	5.79	0.00	72	76.48	0.00	72			
	0.11	0.00	299	0.00	0.00	50	126.99 C	0.00	300
MIN	-5.46	17.78	299	-101.74	0.00	299			
	0.00	17.78	217	-124.66	0.00	300	25.38 C	17.78	213

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

1781. *2F1 MAX COLUMN 300 FORCES ABOVE

1782. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 23 24

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
23 MAX	15.73	0.00	216	244.21	0.00	216			
	0.08	0.00	300	0.00	0.00	216	129.23 C	0.00	212
MIN	1.40	27.73	51	-193.60	27.73	216			
	0.00	27.73	217	-117.29	0.00	298	25.77 C	27.73	51
24 MAX	-1.49	0.00	51	42.13	17.78	216			
	0.08	0.00	300	0.00	0.00	50	123.07 C	0.00	212
MIN	-13.24	17.78	216	-193.60	0.00	216			
	0.00	17.78	217	-115.01	0.00	297	24.74 C	17.78	51

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

1783. *2F1 MAX COLUMN 100 FORCES ABOVE

1784. PRINT MAXFORCE ENVELOPE LIST 36 TO 50

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
36 MAX	0.02	0.00	299	0.00	0.00	50			
	0.01	0.00	216	0.00	0.00	50	25.47 C	0.00	216
	0.00	15.32	217	0.00	15.32	300			
	0.00	14.05	300	0.00	15.32	300	1.96 C	15.32	51
37 MAX	0.00	0.00	50	0.00	0.00	50			
	0.02	0.00	58	0.00	0.00	50	67.96 C	0.00	72
	-0.05	13.93	300	0.00	13.93	300			
	0.00	12.77	300	0.00	13.93	300	15.92 C	13.93	195
38 MAX	0.05	0.00	300	0.00	0.00	50			
	0.00	1.16	50	0.00	0.00	50	69.85 C	0.00	216
	0.00	13.93	217	0.00	13.93	300			
	-0.02	13.93	216	0.00	13.93	300	16.49 C	13.93	51
39 MAX	0.02	0.00	298	0.00	0.00	50			
	0.00	0.00	299	0.00	0.00	50	15.76 C	0.00	72
	0.00	15.32	300	0.00	15.32	300			
	0.00	15.32	72	0.00	15.32	300	10.54 T	15.32	299
40 MAX	0.00	0.00	300	0.00	0.00	50			
	0.00	0.00	72	0.00	0.00	50	11.49 C	0.00	72
	-0.01	16.26	299	0.00	16.26	300			
	0.00	16.26	217	0.00	16.26	300	16.13 T	16.26	299
41 MAX	0.00	0.00	50	0.00	0.00	50			
	0.00	1.17	50	0.00	0.00	50	8.58 T	0.00	51
	0.00	14.01	300	0.00	14.01	300			
	-0.01	14.01	216	0.00	14.01	300	42.76 T	14.01	216
42 MAX	0.00	0.00	50	0.00	0.00	50			
	0.01	0.00	72	0.00	0.00	50	4.22 C	0.00	299
	0.00	14.01	300	0.00	14.01	300			
	0.00	14.01	299	0.00	14.01	300	30.78 T	14.01	72
43 MAX	0.00	0.00	50	0.00	0.00	50			
	0.00	1.35	50	0.00	0.00	50	30.74 C	0.00	216
	-0.01	16.26	298	0.00	16.26	300			
	-0.01	16.26	216	0.00	16.26	300	3.08 C	16.26	51
44 MAX	0.00	0.00	50	0.00	0.00	50			
	0.00	0.00	202	0.00	0.00	50	40.47 C	0.00	72

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MIN	0.00	12.34	300	0.00	12.34	300			
	0.00	11.32	300	0.00	12.34	300	2.14	C	12.34 299
45 MAX	0.00	0.00	50	0.00	0.00	50			
	0.00	0.00	216	0.00	0.00	50	74.29	C	0.00 72
MIN	-0.08	10.83	300	0.00	10.83	300			
	0.00	10.83	52	0.00	10.83	300	20.23	C	10.83 51
46 MAX	0.00	0.00	50	0.00	0.00	50			
	0.00	0.00	298	0.00	0.00	50	49.82	C	0.00 216
MIN	0.00	12.34	300	0.00	12.34	300			
	-0.01	12.34	72	0.00	12.34	300	11.07	C	12.34 51
47 MAX	0.00	0.00	50	0.00	0.00	50			
	0.00	1.64	50	0.00	0.00	50	8.26	T	0.00 299
MIN	-0.02	19.68	300	0.00	19.68	300			
	-0.01	19.68	58	0.00	19.68	300	53.11	T	19.68 72
48 MAX	0.00	0.00	50	0.00	0.00	50			
	0.00	1.47	50	0.00	0.00	50	3.48	T	0.00 299
MIN	0.00	17.64	300	0.00	17.64	300			
	-0.01	17.64	58	0.00	17.64	300	65.92	T	17.64 72
49 MAX	0.00	0.00	50	0.00	0.00	50			
	0.01	0.00	216	0.00	0.00	50	18.03	T	0.00 51
MIN	0.00	17.64	300	0.00	17.64	300			
	0.00	16.17	300	0.00	17.64	300	81.16	T	17.64 216
50 MAX	0.03	0.00	298	0.00	0.00	50			
	0.01	0.00	72	0.00	0.00	50	14.55	T	0.00 51
MIN	0.00	19.68	217	0.00	19.68	300			
	0.00	18.04	300	0.00	19.68	300	59.97	T	19.68 216

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

1785. *2F1 TRUSS FORCES ABOVE

1786. LOAD LIST 74 TO 97 218 TO 241 301 TO 304

1787. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 1 TO 15

MEMBER FORCE ENVELOPE

 ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
1 MAX	0.00	0.00	74	143.85	7.04	77			
	0.00	0.00	74	0.00	0.00	74	2.69 C	7.04	240
	-26.51	7.04	75	-8.76	7.04	240			
MIN	0.00	7.04	304	0.00	7.04	304	0.74 T	7.04	91
	0.00	0.00	78	188.84	1.14	77			
	0.00	0.00	74	0.00	0.00	74	2.71 C	1.14	240
2 MIN	-53.14	1.14	235	-9.31	0.45	240			
	0.00	1.14	304	0.00	1.14	304	1.49 T	1.14	91
	0.42	0.00	84	240.98	5.84	77			
3 MAX	0.00	0.00	74	0.00	5.84	240	4.65 C	5.84	225
	-32.09	5.84	75	-7.88	5.84	228			
	0.00	5.84	301	-0.01	5.84	301	47.01 T	5.84	75
4 MAX	38.39	0.00	84	338.05	5.86	91			
	0.00	0.00	74	0.00	5.86	240	10.35 C	0.00	82
	-25.68	5.86	219	-212.61	5.86	79			
MIN	-0.01	5.86	302	-0.08	5.86	304	39.53 T	5.86	75
	42.48	0.00	77	341.26	0.00	91			
	0.00	0.00	74	0.00	5.86	240	19.45 C	0.00	82
5 MIN	-8.58	5.86	225	-386.90	5.86	223			
	-0.02	5.86	302	-0.16	5.86	302	4.14 T	0.00	219
	18.81	0.00	221	256.50	0.00	89			
6 MAX	0.00	0.00	74	0.00	5.86	240	19.45 C	0.00	82
	-32.60	5.86	228	-386.90	0.00	223			
	-0.02	5.86	302	-0.26	5.86	302	3.14 T	0.00	219
7 MAX	18.78	0.00	221	192.36	0.00	89			
	0.00	0.00	74	0.00	5.86	240	18.78 C	0.00	82
	-55.95	5.86	223	-334.19	0.00	223			
MIN	-0.02	5.86	302	-0.36	5.86	302	2.15 T	0.00	219
	14.55	0.00	91	246.71	5.84	229			
	0.00	0.00	74	0.00	5.84	240	18.94 C	5.84	225
8 MIN	-55.98	5.84	223	-156.37	0.00	222			
	-0.02	5.84	302	-0.46	5.84	304	1.77 T	5.84	75
	69.50	0.00	82	251.00	0.00	229			
9 MAX	0.02	0.00	304	0.00	0.00	240	22.88 C	5.84	226

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MIN	-7.82	5.84	224	-190.68	5.84	89				
	0.00	5.84	241	-0.46	0.00	302	1.65	T	5.84	75
10 MAX	57.57	0.00	90	147.89	5.86	222				
	0.02	0.00	304	0.00	0.00	240	23.39	C	5.86	226
MIN	-7.85	5.86	224	-360.26	5.86	89				
	0.00	5.86	241	-0.37	0.00	302	1.65	T	5.86	75
11 MAX	34.34	0.00	234	174.87	5.86	222				
	0.02	0.00	304	0.00	0.00	240	24.40	C	5.86	225
MIN	-26.76	5.86	94	-401.90	4.69	90				
	0.00	5.86	241	-0.28	0.00	304	1.65	T	5.86	75
12 MAX	10.39	0.00	230	208.35	5.86	224				
	0.02	0.00	304	0.00	0.00	240	25.67	C	5.86	240
MIN	-55.76	5.86	238	-382.85	0.00	90				
	0.00	5.86	241	-0.18	0.00	304	1.65	T	5.86	75
13 MAX	4.99	0.00	79	278.83	5.86	239				
	0.02	0.00	304	0.01	5.86	301	27.50	C	5.86	240
MIN	-59.43	5.86	236	-244.41	0.00	234				
	0.00	5.86	241	-0.08	0.00	304	1.65	T	5.86	75
14 MAX	53.14	0.00	224	271.85	0.00	239				
	0.00	0.00	74	0.00	0.00	74	1.47	C	0.00	80
MIN	0.00	3.31	304	0.00	1.33	88				
	0.00	3.31	304	0.00	3.31	304	2.72	T	0.00	240
15 MAX	33.52	0.00	224	134.65	0.00	239				
	0.00	0.00	74	0.00	0.00	74	0.74	C	0.00	80
MIN	0.00	5.62	304	0.00	3.94	94				
	0.00	5.62	304	0.00	5.62	304	2.15	T	0.00	240

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

1788. *3F1 MAX FLOOR BEAM FORCES ABOVE

1789. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 19 20

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
19 MAX	3.67	0.00	235	64.48	20.97	79			
	0.00	0.00	74	0.38	0.00	302	132.34 C	0.00	74
MIN	-5.41	20.97	79	-51.10	20.97	91			
	-0.02	20.97	302	0.00	0.00	240	6.51 T	20.97	236
20 MAX	10.70	0.00	79	55.51	0.00	79			
	0.00	0.00	74	0.09	0.00	304	53.64 C	0.00	96
MIN	-8.90	6.00	91	-44.97	0.00	91			
	-0.02	6.00	304	0.00	6.00	301	3.83 T	6.00	236

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

1790. *3F1 MAX COLUMN 3 FORCES ABOVE

1791. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 22

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/	DIST	LD	MZ/	DIST	LD	FX	DIST	LD
	FZ	DIST	LD	MY	DIST	LD			
22 MAX	1.93	0.00	222	34.71	27.78	89			
	0.03	0.00	304	0.00	25.00	240	107.66 C	0.00	82
MIN	-1.85	27.78	89	-34.67	27.78	222			
	0.00	27.78	241	-0.95	0.00	304	15.16 T	27.78	75

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

1792. *3F1 MAX COLUMN 2 FORCES ABOVE

1793. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 26

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/			MZ/			FX	DIST LD	
	FZ	DIST	LD	MY	DIST	LD		DIST	LD
26 MAX	3.05	0.00	234	33.99	0.00	234	121.79 C	0.00	236
	0.00	0.00	74	0.39	0.00	304			
MIN	-0.78	28.60	224	-53.64	28.60	234	0.42 C	28.60	75
	-0.02	28.60	304	0.00	0.00	240			

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

1794. *3F1 MAX COLUMN 1 FORCES ABOVE

1795. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 16 17

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
16 MAX	15.60	0.00	303	273.61	0.00	303			
	0.16	0.00	303	0.00	0.00	240	177.71 C	0.00	304
MIN	-6.74	28.08	96	-166.69	28.08	303			
	0.00	28.08	241	-196.84	0.00	304	19.76 C	28.08	237
17 MAX	7.78	0.00	96	102.40	0.00	96			
	0.19	0.00	303	0.00	0.00	226	176.42 C	0.00	304
MIN	-9.16	17.78	303	-166.69	0.00	303			
	0.00	17.78	241	-190.70	0.00	304	22.28 C	17.78	237

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

1796. *3F1 MAX COLUMN 300 FORCES ABOVE

1797. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 23 24

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
23 MAX	22.49	0.00	240	351.50	0.00	240			
	0.13	0.00	304	0.00	0.00	240	181.07 C	0.00	302
MIN	1.38	27.73	75	-275.35	27.73	240			
	0.00	27.73	241	-179.88	0.00	301	23.80 C	27.73	75
24 MAX	-1.49	0.00	75	59.72	17.78	240			
	0.12	0.00	304	0.00	0.00	240	169.57 C	0.00	302
MIN	-18.82	17.78	240	-275.35	0.00	240			
	0.00	17.78	241	-176.16	0.00	301	22.79 C	17.78	75

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

1798. *3F1 MAX COLUMN 100 FORCES ABOVE

1799. PRINT MAXFORCE ENVELOPE LIST 36 TO 50

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
36 MAX	0.05	0.00	303	0.00	0.00	74			
	0.01	0.00	240	0.00	0.00	74	36.14 C	0.00	240
	0.00	15.32	241	0.00	15.32	304			
	0.00	14.05	304	0.00	15.32	304	1.47 C	15.32	75
37 MAX	0.00	0.00	74	0.00	0.00	74			
	0.03	0.00	82	0.00	0.00	74	91.34 C	0.00	96
	-0.08	13.93	304	0.00	13.93	304			
	0.00	12.77	304	0.00	13.93	304	14.60 C	13.93	219
38 MAX	0.08	0.00	304	0.00	0.00	74			
	0.00	1.16	74	0.00	0.00	74	94.23 C	0.00	240
	0.00	13.93	241	0.00	13.93	304			
	-0.03	13.93	240	0.00	13.93	304	15.56 C	13.93	75
39 MAX	0.04	0.00	302	0.00	0.00	74			
	0.00	0.00	303	0.00	0.00	74	21.91 C	0.00	96
	0.00	15.32	304	0.00	15.32	304			
	-0.01	15.32	96	0.00	15.32	304	17.55 T	15.32	303
40 MAX	0.00	0.00	304	0.00	0.00	74			
	0.01	0.00	96	0.00	0.00	74	15.41 C	0.00	96
	-0.02	16.26	303	0.00	16.26	304			
	-0.01	16.26	241	0.00	16.26	304	26.27 T	16.26	303
41 MAX	0.00	0.00	74	0.00	0.00	74			
	0.00	1.17	74	0.00	0.00	74	8.10 T	0.00	75
	0.00	14.01	304	0.00	14.01	304			
	-0.02	14.01	240	0.00	14.01	304	58.52 T	14.01	240
42 MAX	0.00	0.00	74	0.00	0.00	74			
	0.01	0.00	96	0.00	0.00	74	11.46 C	0.00	303
	0.00	14.01	304	0.00	14.01	304			
	0.00	14.01	303	0.00	14.01	304	40.82 T	14.01	96
43 MAX	0.00	0.00	74	0.00	0.00	74			
	0.00	1.35	74	0.00	0.00	74	43.83 C	0.00	240
	-0.03	16.26	302	0.00	16.26	304			
	-0.01	16.26	240	0.00	16.26	304	3.05 C	16.26	75
44 MAX	0.00	0.00	74	0.00	0.00	74			
	0.01	0.00	82	0.00	0.00	74	53.87 C	0.00	96

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MIN	0.00	12.34	304	0.00	12.34	304			
	0.00	12.34	302	0.00	12.34	304	3.13	T	12.34 303
45 MAX	0.00	0.00	74	0.00	0.00	74			
	0.00	0.00	240	0.00	0.00	74	98.96	C	0.00 96
MIN	-0.13	10.83	304	0.00	10.83	304			
	0.00	10.83	76	0.00	10.83	304	19.25	C	10.83 75
46 MAX	0.00	0.00	74	0.00	0.00	74			
	0.00	0.00	302	0.00	0.00	74	67.68	C	0.00 240
MIN	0.00	12.34	304	0.00	12.34	304			
	-0.01	12.34	96	0.00	12.34	304	10.55	C	12.34 75
47 MAX	0.00	0.00	74	0.00	0.00	74			
	0.00	1.64	74	0.00	0.00	74	4.16	T	0.00 303
MIN	-0.03	19.68	304	0.00	19.68	304			
	-0.02	19.68	82	0.00	19.68	304	70.67	T	19.68 96
48 MAX	0.00	0.00	74	0.00	0.00	74			
	0.00	0.00	302	0.00	0.00	74	5.11	C	0.00 303
MIN	0.00	17.64	304	0.00	17.64	304			
	-0.02	17.64	82	0.00	17.64	304	87.76	T	17.64 96
49 MAX	0.00	0.00	74	0.00	0.00	74			
	0.02	0.00	240	0.00	0.00	74	17.18	T	0.00 75
MIN	0.00	17.64	304	0.00	17.64	304			
	0.00	16.17	304	0.00	17.64	304	110.26	T	17.64 240
50 MAX	0.05	0.00	302	0.00	0.00	74			
	0.02	0.00	96	0.00	0.00	74	13.83	T	0.00 75
MIN	0.00	19.68	241	0.00	19.68	304			
	0.00	19.68	302	0.00	19.68	304	80.80	T	19.68 240

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

1800. *3F1 TRUSS FORCES ABOVE

1801. LOAD LIST 98 TO 121 242 TO 265 305 TO 308

1802. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 1 TO 15

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
1 MAX	0.00	0.00	98	161.36	7.04	101			
	0.00	0.00	98	0.00	0.00	98	3.02 C	7.04	264
	-29.74	7.04	115	-9.83	7.04	264			
MIN	0.00	7.04	308	0.00	7.04	308	0.83 T	7.04	101
	0.00	0.00	102	211.82	1.14	101			
	0.00	0.00	98	0.00	0.00	98	3.04 C	1.14	264
2 MIN	-59.61	1.14	259	-10.44	0.45	264			
	0.00	1.14	308	0.00	1.14	308	1.67 T	1.14	115
	0.50	0.00	108	270.21	5.84	101			
3 MAX	0.00	0.00	98	0.00	5.84	264	5.19 C	5.84	249
	-35.99	5.84	99	-8.98	5.84	252			
	0.00	5.84	305	-0.01	5.84	305	52.75 T	5.84	99
4 MAX	43.13	0.00	108	378.90	5.86	115			
	0.00	0.00	98	0.00	5.86	264	11.28 C	0.00	106
	-28.76	5.86	243	-239.01	5.86	103			
MIN	-0.02	5.86	306	-0.10	5.86	308	44.69 T	5.86	99
	47.55	0.00	101	382.43	0.00	115			
	0.00	0.00	98	0.00	5.86	264	21.28 C	0.00	106
5 MIN	-9.74	5.86	249	-433.92	5.86	247			
	-0.02	5.86	306	-0.19	5.86	306	5.18 T	0.00	243
	21.00	0.00	245	287.95	0.00	113			
6 MAX	0.00	0.00	98	0.00	5.86	264	21.28 C	0.00	106
	-36.67	5.86	252	-433.92	0.00	247			
	-0.02	5.86	306	-0.31	5.86	306	4.06 T	0.00	243
7 MAX	20.97	0.00	245	216.60	0.00	113			
	0.00	0.00	98	0.00	5.86	264	20.53 C	0.00	106
	-62.87	5.86	247	-374.14	0.00	247			
MIN	-0.02	5.86	306	-0.42	5.86	306	2.94 T	0.00	243
	16.22	0.00	115	278.80	5.84	253			
	0.00	0.00	98	0.00	5.84	264	20.71 C	5.84	249
8 MIN	-62.90	5.84	247	-174.02	0.00	246			
	-0.02	5.84	306	-0.54	5.84	308	2.52 T	5.84	99
	78.05	0.00	106	283.57	0.00	253			
9 MAX	0.02	0.00	308	0.00	0.00	264	25.14 C	5.84	250

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MIN	-8.69	5.84	248	-212.45	5.84	113			
	0.00	5.84	265	-0.54	0.00	306	2.38	T	5.84 99
10 MAX	64.67	0.00	114	166.90	5.86	246			
	0.02	0.00	308	0.00	0.00	264	25.70	C	5.86 250
MIN	-8.72	5.86	248	-403.19	5.86	113			
	0.00	5.86	265	-0.43	0.00	308	2.38	T	5.86 99
11 MAX	38.61	0.00	258	196.66	5.86	246			
	0.02	0.00	308	0.00	0.00	264	26.84	C	5.86 249
MIN	-29.92	5.86	118	-450.31	4.69	114			
	0.00	5.86	265	-0.32	0.00	308	2.38	T	5.86 99
12 MAX	11.74	0.00	254	233.69	5.86	248			
	0.02	0.00	308	0.00	0.00	264	28.26	C	5.86 264
MIN	-62.45	5.86	262	-429.05	0.00	114			
	0.00	5.86	265	-0.21	0.00	308	2.38	T	5.86 99
13 MAX	5.69	0.00	103	312.20	5.86	263			
	0.02	0.00	308	0.02	5.86	305	30.32	C	5.86 264
MIN	-66.57	5.86	260	-274.29	0.00	258			
	0.00	5.86	265	-0.10	0.00	308	2.38	T	5.86 99
14 MAX	59.61	0.00	248	304.94	0.00	263			
	0.00	0.00	98	0.00	0.00	98	1.65	C	0.00 104
MIN	0.00	3.31	308	0.00	1.33	112			
	0.00	3.31	308	0.00	3.31	308	3.05	T	0.00 264
15 MAX	37.60	0.00	248	151.04	0.00	263			
	0.00	0.00	98	0.00	0.00	98	0.83	C	0.00 104
MIN	0.00	5.62	308	0.00	3.94	118			
	0.00	5.62	308	0.00	5.62	308	2.41	T	0.00 264

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

1803. *4F1 MAX FLOOR BEAM FORCES ABOVE

1804. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 19 20

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
19 MAX	4.20	0.00	259	71.71	20.97	103			
	0.00	0.00	98	0.44	0.00	306	147.91 C	0.00	98
MIN	-5.99	20.97	103	-57.93	20.97	115			
	-0.02	20.97	306	0.00	0.00	264	7.85 T	20.97	260
20 MAX	11.90	0.00	103	61.77	0.00	103			
	0.00	0.00	98	0.10	0.00	308	59.82 C	0.00	120
MIN	-10.08	6.00	115	-50.94	0.00	115			
	-0.02	6.00	308	0.00	6.00	305	4.65 T	6.00	260

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

1805. *4F1 MAX COLUMN 3 FORCES ABOVE

1806. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 22

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/	DIST	LD	MZ/	DIST	LD	FX	DIST	LD
	FZ	DIST	LD	MY	DIST	LD			
22 MAX	2.17	0.00	246	38.87	27.78	113			
	0.04	0.00	308	0.00	25.00	264	120.96 C	0.00	106
MIN	-2.07	27.78	113	-38.90	27.78	246			
	0.00	27.78	265	-1.10	0.00	308	16.82 T	27.78	99

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

1807. *4F1 MAX COLUMN 2 FORCES ABOVE

1808. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 26

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/			MZ/			FX	DIST LD	
	FZ	DIST	LD	MY	DIST	LD		DIST	LD
26 MAX	3.37	0.00	258	37.32	0.00	258	136.06 C	0.00	260
	0.00	0.00	98	0.45	0.00	308			
MIN	-0.92	28.60	248	-59.53	28.60	258	0.08 T	28.60	99
	-0.02	28.60	308	0.00	0.00	264			

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

1809. *4F1 MAX COLUMN 1 FORCES ABOVE

1810. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 16 17

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
16 MAX	18.38	0.00	307	321.58	0.00	307			
	0.20	0.00	307	0.00	0.00	264	201.37 C	0.00	308
MIN	-7.39	28.08	120	-197.63	28.08	307			
	0.00	28.08	265	-230.12	0.00	308	18.15 C	28.08	261
17 MAX	8.53	0.00	120	112.22	0.00	120			
	0.23	0.00	307	0.00	0.00	250	200.04 C	0.00	308
MIN	-10.92	17.78	307	-197.63	0.00	307			
	0.00	17.78	265	-222.56	0.00	308	21.11 C	17.78	261

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

1811. *4F1 MAX COLUMN 300 FORCES ABOVE

1812. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 23 24

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
23 MAX	25.05	0.00	264	392.17	0.00	264			
	0.15	0.00	308	0.00	0.00	264	205.86 C	0.00	306
MIN	1.37	27.73	99	-306.35	27.73	264			
	0.00	27.73	265	-209.96	0.00	305	23.06 C	27.73	99
24 MAX	-1.49	0.00	99	66.38	17.78	264			
	0.14	0.00	308	0.00	0.00	264	192.65 C	0.00	306
MIN	-20.94	17.78	264	-306.35	0.00	264			
	0.00	17.78	265	-205.39	0.00	305	22.05 C	17.78	99

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

1813. *4F1 MAX COLUMN 100 FORCES ABOVE

1814. PRINT MAXFORCE ENVELOPE LIST 36 TO 50

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
36 MAX	0.07	0.00	307	0.00	0.00	98			
	0.02	0.00	264	0.00	0.00	98	40.19 C	0.00	264
	0.00	15.32	265	0.00	15.32	308			
	0.00	14.05	308	0.00	15.32	308	1.28 C	15.32	99
37 MAX	0.00	0.00	98	0.00	0.00	98			
	0.04	0.00	106	0.00	0.00	98	100.20 C	0.00	120
	-0.09	13.93	308	0.00	13.93	308			
	0.00	12.77	308	0.00	13.93	308	14.10 C	13.93	243
38 MAX	0.09	0.00	308	0.00	0.00	98			
	0.00	1.16	98	0.00	0.00	98	103.46 C	0.00	264
	0.00	13.93	265	0.00	13.93	308			
	-0.04	13.93	264	0.00	13.93	308	15.20 C	13.93	99
39 MAX	0.06	0.00	306	0.00	0.00	98			
	0.00	0.00	307	0.00	0.00	98	24.24 C	0.00	120
	0.00	15.32	308	0.00	15.32	308			
	-0.01	15.32	120	0.00	15.32	308	20.88 T	15.32	307
40 MAX	0.00	0.00	308	0.00	0.00	98			
	0.01	0.00	120	0.00	0.00	98	16.89 C	0.00	120
	-0.03	16.26	307	0.00	16.26	308			
	-0.01	16.26	265	0.00	16.26	308	31.09 T	16.26	307
41 MAX	0.00	0.00	98	0.00	0.00	98			
	0.00	1.17	98	0.00	0.00	98	7.92 T	0.00	99
	0.00	14.01	308	0.00	14.01	308			
	-0.02	14.01	264	0.00	14.01	308	64.49 T	14.01	264
42 MAX	0.00	0.00	98	0.00	0.00	98			
	0.02	0.00	120	0.00	0.00	98	14.91 C	0.00	307
	0.00	14.01	308	0.00	14.01	308			
	0.00	14.01	307	0.00	14.01	308	44.63 T	14.01	120
43 MAX	0.00	0.00	98	0.00	0.00	98			
	0.00	1.35	98	0.00	0.00	98	48.79 C	0.00	264
	-0.04	16.26	306	0.00	16.26	308			
	-0.02	16.26	264	0.00	16.26	308	3.04 C	16.26	99
44 MAX	0.00	0.00	98	0.00	0.00	98			
	0.01	0.00	106	0.00	0.00	98	58.95 C	0.00	120

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MIN	0.00	12.34	308	0.00	12.34	308			
	0.00	12.34	306	0.00	12.34	308	5.64	T	12.34 307
45 MAX	0.00	0.00	98	0.00	0.00	98			
	0.01	0.00	264	0.00	0.00	98	108.31	C	0.00 120
MIN	-0.15	10.83	308	0.00	10.83	308			
	0.00	10.83	100	0.00	10.83	308	18.87	C	10.83 99
46 MAX	0.00	0.00	98	0.00	0.00	98			
	0.00	0.00	306	0.00	0.00	98	74.45	C	0.00 264
MIN	0.00	12.34	308	0.00	12.34	308			
	-0.01	12.34	120	0.00	12.34	308	10.35	C	12.34 99
47 MAX	0.00	0.00	98	0.00	0.00	98			
	0.00	1.64	98	0.00	0.00	98	2.21	T	0.00 307
MIN	-0.04	19.68	308	0.00	19.68	308			
	-0.02	19.68	106	0.00	19.68	308	77.31	T	19.68 120
48 MAX	0.00	0.00	98	0.00	0.00	98			
	0.00	0.00	306	0.00	0.00	98	9.19	C	0.00 307
MIN	0.00	17.64	308	0.00	17.64	308			
	-0.02	17.64	106	0.00	17.64	308	96.03	T	17.64 120
49 MAX	0.00	0.00	98	0.00	0.00	98			
	0.03	0.00	264	0.00	0.00	98	16.86	T	0.00 99
MIN	0.00	17.64	308	0.00	17.64	308			
	0.00	16.17	308	0.00	17.64	308	121.29	T	17.64 264
50 MAX	0.06	0.00	306	0.00	0.00	98			
	0.02	0.00	120	0.00	0.00	98	13.55	T	0.00 99
MIN	0.00	19.68	265	0.00	19.68	308			
	0.00	19.68	306	0.00	19.68	308	88.69	T	19.68 264

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

1815. *4F1 TRUSS FORCES ABOVE

1816. LOAD LIST 122 TO 145 266 TO 289 309 TO 312

1817. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 1 TO 15

MEMBER FORCE ENVELOPE

 ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
1 MAX	0.00	0.00	122	143.99	7.04	125			
	0.00	0.00	122	0.00	0.00	122	2.69 C	7.04	288
	-26.54	7.04	139	-8.77	7.04	288			
MIN	0.00	7.04	312	0.00	7.04	312	0.74 T	7.04	139
	0.00	0.00	126	189.02	1.14	125			
	0.00	0.00	122	0.00	0.00	122	2.71 C	1.14	288
2 MIN	-53.19	1.14	283	-9.32	0.45	288			
	0.00	1.14	312	0.00	1.14	312	1.49 T	1.14	139
	0.42	0.00	132	241.21	5.84	125			
3 MAX	0.00	0.00	122	0.00	0.00	309	4.65 C	5.84	273
	-32.12	5.84	123	-7.89	5.84	276			
	0.00	5.84	309	-0.01	5.84	309	47.06 T	5.84	123
4 MAX	38.43	0.00	132	338.38	5.86	139			
	0.00	0.00	122	0.00	5.86	288	10.35 C	0.00	130
	-25.71	5.86	267	-212.82	5.86	127			
MIN	-0.02	5.86	310	-0.13	5.86	312	39.58 T	5.86	123
	42.52	0.00	125	341.58	0.00	139			
	0.00	0.00	122	0.00	5.86	288	19.46 C	0.00	130
5 MIN	-8.59	5.86	273	-387.28	5.86	271			
	-0.03	5.86	310	-0.25	5.86	310	4.14 T	0.00	267
	18.83	0.00	269	256.75	0.00	137			
6 MAX	0.00	0.00	122	0.00	5.86	288	19.46 C	0.00	130
	-32.63	5.86	276	-387.28	0.00	271			
	-0.03	5.86	310	-0.41	5.86	310	3.15 T	0.00	267
7 MAX	18.80	0.00	269	192.55	0.00	137			
	0.00	0.00	122	0.00	5.86	288	18.80 C	0.00	130
	-56.01	5.86	271	-334.51	0.00	271			
MIN	-0.03	5.86	310	-0.56	5.86	310	2.15 T	0.00	267
	14.57	0.00	139	246.96	5.84	277			
	0.00	0.00	122	0.00	5.84	288	18.95 C	5.84	273
8 MIN	-56.04	5.84	271	-156.51	0.00	270			
	-0.03	5.84	310	-0.71	5.84	312	1.77 T	5.84	123
	69.57	0.00	130	251.26	0.00	277			
9 MAX	0.03	0.00	312	0.00	0.00	288	22.90 C	5.84	274

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MIN	-7.83	5.84	272	-190.86	5.84	137			
	0.00	5.84	289	-0.71	0.00	310	1.65	T	5.84 123
10 MAX	57.63	0.00	138	148.04	5.86	270			
	0.03	0.00	312	0.00	0.00	288	23.41	C	5.86 274
MIN	-7.86	5.86	272	-360.61	5.86	137			
	0.00	5.86	289	-0.57	0.00	312	1.65	T	5.86 123
11 MAX	34.37	0.00	282	175.05	5.86	270			
	0.03	0.00	312	0.00	0.00	288	24.42	C	5.86 273
MIN	-26.78	5.86	142	-402.29	4.69	138			
	0.00	5.86	289	-0.42	0.00	312	1.65	T	5.86 123
12 MAX	10.40	0.00	278	208.55	5.86	272			
	0.03	0.00	312	0.00	0.00	288	25.69	C	5.86 288
MIN	-55.81	5.86	286	-383.22	0.00	138			
	0.00	5.86	289	-0.28	0.00	312	1.65	T	5.86 123
13 MAX	5.00	0.00	127	279.09	5.86	287			
	0.03	0.00	312	0.02	5.86	309	27.52	C	5.86 288
MIN	-59.49	5.86	284	-244.65	0.00	282			
	0.00	5.86	289	-0.13	0.00	312	1.65	T	5.86 123
14 MAX	53.19	0.00	272	272.12	0.00	287			
	0.00	0.00	122	0.00	0.00	122	1.47	C	0.00 128
MIN	0.00	3.31	312	0.00	1.33	136			
	0.00	3.31	312	0.00	3.31	312	2.72	T	0.00 288
15 MAX	33.55	0.00	272	134.78	0.00	287			
	0.00	0.00	122	0.00	0.00	122	0.74	C	0.00 128
MIN	0.00	5.62	312	0.00	3.94	142			
	0.00	5.62	312	0.00	5.62	312	2.15	T	0.00 288

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

1818. *5C1 MAX FLOOR BEAM FORCES ABOVE

1819. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 19 20

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
19 MAX	3.68	0.00	283	64.54	20.97	127			
	0.00	0.00	122	0.58	0.00	310	132.47 C	0.00	122
MIN	-5.42	20.97	127	-51.16	20.97	139			
	-0.03	20.97	310	0.00	0.00	288	6.53 T	20.97	284
20 MAX	10.71	0.00	127	55.56	0.00	127			
	0.00	0.00	122	0.13	0.00	312	53.69 C	0.00	144
MIN	-8.91	6.00	139	-45.02	0.00	139			
	-0.03	6.00	312	0.00	6.00	309	3.84 T	6.00	284

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

1820. *5C1 MAX COLUMN 3 FORCES ABOVE

1821. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 22

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
22 MAX	1.93	0.00	270	34.74	27.78	137			
	0.05	0.00	312	0.00	25.00	288	107.77 C	0.00	130
MIN	-1.85	27.78	137	-34.71	27.78	270			
	0.00	27.78	289	-1.45	0.00	312	15.18 T	27.78	123

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

1822. *5C1 MAX COLUMN 2 FORCES ABOVE

1823. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 26

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/	DIST	LD	MZ/	DIST	LD	FX	DIST	LD
	FZ	DIST	LD	MY	DIST	LD			
26 MAX	3.06	0.00	282	34.02	0.00	282			
	0.00	0.00	122	0.59	0.00	312	121.90 C	0.00	284
MIN	-0.78	28.60	272	-53.68	28.60	282			
	-0.03	28.60	312	0.00	0.00	288	0.42 C	28.60	123

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

1824. *5C1 MAX COLUMN 1 FORCES ABOVE

1825. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 16 17

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/	DIST	LD	MZ/	DIST	LD	FX	DIST	LD
	FZ	DIST	LD	MY	DIST	LD			
16 MAX	24.77	0.00	311	431.96	0.00	311			
	0.29	0.00	311	0.00	0.00	288	253.44 C	0.00	312
MIN	-6.75	28.08	144	-268.75	28.08	311			
	0.00	28.08	289	-304.60	0.00	312	19.74 C	28.08	285
17 MAX	7.79	0.00	144	102.48	0.00	144			
	0.34	0.00	311	0.00	0.00	274	252.03 C	0.00	312
MIN	-14.98	17.78	311	-268.75	0.00	311			
	0.00	17.78	289	-293.42	0.00	312	22.27 C	17.78	285

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

1826. *5C1 MAX COLUMN 300 FORCES ABOVE

1827. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 23 24

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
23 MAX	29.49	0.00	311	492.50	0.00	311			
	0.19	0.00	312	0.00	0.00	288	265.24 C	0.00	310
MIN	1.38	27.73	123	-331.40	27.73	311			
	0.00	27.73	289	-283.52	0.00	309	23.80 C	27.73	123
24 MAX	-1.49	0.00	123	59.77	17.78	288			
	0.19	0.00	312	0.00	0.00	288	248.07 C	0.00	310
MIN	-19.23	17.78	311	-331.40	0.00	311			
	0.00	17.78	289	-276.62	0.00	309	22.78 C	17.78	123

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

1828. *5C1 MAX COLUMN 100 FORCES ABOVE

1829. PRINT MAXFORCE ENVELOPE LIST 36 TO 50

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
36 MAX	0.12	0.00	311	0.00	0.00	122			
	0.01	0.00	288	0.00	0.00	122	36.17 C	0.00	288
MIN	0.00	15.32	289	0.00	15.32	312			
	0.00	14.05	312	0.00	15.32	312	1.47 C	15.32	123
37 MAX	0.00	0.00	122	0.00	0.00	122			
	0.03	0.00	130	0.00	0.00	122	91.42 C	0.00	144
MIN	-0.12	13.93	312	0.00	13.93	312			
	0.00	12.77	312	0.00	13.93	312	14.60 C	13.93	267
38 MAX	0.12	0.00	312	0.00	0.00	122			
	0.00	1.16	122	0.00	0.00	122	94.30 C	0.00	288
MIN	0.00	13.93	289	0.00	13.93	312			
	-0.03	13.93	288	0.00	13.93	312	15.56 C	13.93	123
39 MAX	0.10	0.00	310	0.00	0.00	122			
	0.00	0.00	311	0.00	0.00	122	21.93 C	0.00	144
MIN	-0.01	15.32	312	0.00	15.32	312			
	-0.01	15.32	144	0.00	15.32	312	28.53 T	15.32	311
40 MAX	0.01	0.00	312	0.00	0.00	122			
	0.01	0.00	144	0.00	0.00	122	15.42 C	0.00	144
MIN	-0.05	16.26	311	0.00	16.26	312			
	-0.01	16.26	310	0.00	16.26	312	42.17 T	16.26	311
41 MAX	0.00	0.00	122	0.00	0.00	122			
	0.00	1.17	122	0.00	0.00	122	8.10 T	0.00	123
MIN	0.00	14.01	312	0.00	14.01	312			
	-0.02	14.01	288	0.00	14.01	312	58.57 T	14.01	288
42 MAX	0.00	0.00	122	0.00	0.00	122			
	0.01	0.00	144	0.00	0.00	122	22.83 C	0.00	311
MIN	0.00	14.01	312	0.00	14.01	312			
	0.00	14.01	311	0.00	14.01	312	40.85 T	14.01	144
43 MAX	0.00	0.00	122	0.00	0.00	122			
	0.00	1.35	122	0.00	0.00	122	51.69 C	0.00	311
MIN	-0.07	16.26	310	0.00	16.26	312			
	-0.01	16.26	288	0.00	16.26	312	3.05 C	16.26	123
44 MAX	0.00	0.00	122	0.00	0.00	122			
	0.01	0.00	130	0.00	0.00	122	53.91 C	0.00	144

DXF IMPORT OF 002_1441BENT_0.DXF

-- PAGE NO. 80

MIN	0.00	12.34	312	0.00	12.34	312			
	0.00	12.34	310	0.00	12.34	312	11.40	T	12.34 311
45 MAX	0.00	0.00	122	0.00	0.00	122			
	0.00	0.00	288	0.00	0.00	122	99.04	C	0.00 144
MIN	-0.20	10.83	312	0.00	10.83	312			
	0.00	10.83	124	0.00	10.83	312	19.25	C	10.83 123
46 MAX	0.00	0.00	122	0.00	0.00	122			
	0.00	0.00	310	0.00	0.00	122	67.74	C	0.00 288
MIN	0.00	12.34	312	0.00	12.34	312			
	-0.01	12.34	144	0.00	12.34	312	10.55	C	12.34 123
47 MAX	0.01	0.00	311	0.00	0.00	122			
	0.00	0.00	310	0.00	0.00	122	2.28	C	0.00 311
MIN	-0.05	19.68	312	0.00	19.68	312			
	-0.02	19.68	130	0.00	19.68	312	70.72	T	19.68 144
48 MAX	0.00	0.00	122	0.00	0.00	122			
	0.00	0.00	310	0.00	0.00	122	18.58	C	0.00 311
MIN	0.00	17.64	312	0.00	17.64	312			
	-0.02	17.64	130	0.00	17.64	312	87.83	T	17.64 144
49 MAX	0.00	0.00	122	0.00	0.00	122			
	0.02	0.00	288	0.00	0.00	122	17.18	T	0.00 123
MIN	0.00	17.64	312	0.00	17.64	312			
	0.00	16.17	312	0.00	17.64	312	110.35	T	17.64 288
50 MAX	0.09	0.00	310	0.00	0.00	122			
	0.02	0.00	144	0.00	0.00	122	13.83	T	0.00 123
MIN	0.00	19.68	289	0.00	19.68	312			
	0.00	19.68	310	0.00	19.68	312	80.86	T	19.68 288

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

1830. *5C1 TRUSS FORCES ABOVE

1831. LOAD LIST 313 TO 370

1832. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 1 TO 15

MEMBER FORCE ENVELOPE

 ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
1 MAX	0.00	0.00	313	111.45	7.04	313			
	0.00	0.00	313	0.00	0.00	313	0.00	0.00	313
	MIN	-25.19	7.04	317	0.00	7.04	370		
	0.00	7.04	370	0.00	7.04	370	0.70 T	7.04	317
2 MAX	0.00	0.00	318	140.09	1.14	313			
	0.00	0.00	313	0.00	0.00	313	0.00	0.00	318
	MIN	-25.19	1.14	318	0.00	1.14	370		
	0.00	1.14	370	0.00	1.14	370	0.71 T	1.14	318
3 MAX	14.39	0.00	319	197.81	5.84	313			
	0.00	0.00	313	0.00	0.00	313	0.54 C	0.00	341
	MIN	-32.93	5.84	318	-20.52	3.50	322		
	0.00	5.84	370	0.00	5.84	370	37.59 T	5.84	313
4 MAX	37.86	0.00	325	269.28	5.86	313			
	0.00	0.00	313	0.00	0.00	313	4.52 C	0.00	344
	MIN	-11.02	5.86	324	-149.96	5.86	330		
	0.00	5.86	370	0.00	5.86	370	30.99 T	5.86	313
5 MAX	32.55	0.00	331	271.03	0.00	313			
	0.00	0.00	313	0.00	0.00	313	6.45 C	0.00	341
	MIN	-15.97	5.86	330	-222.51	5.86	336		
	0.00	5.86	370	0.00	5.86	370	5.28 T	5.86	313
6 MAX	21.53	0.00	337	185.50	0.00	313			
	0.00	0.00	313	0.00	0.00	313	6.44 C	0.00	341
	MIN	-27.08	5.86	336	-223.51	1.17	337		
	0.00	5.86	370	0.00	5.86	370	5.28 T	5.86	313
7 MAX	14.60	0.00	313	100.00	0.00	313			
	0.00	0.00	313	0.00	0.00	313	5.84 C	0.00	342
	MIN	-35.65	5.86	341	-211.23	0.00	336		
	0.00	5.86	370	0.00	5.86	370	5.28 T	5.86	313
8 MAX	14.60	0.00	313	106.02	5.84	337			
	0.00	0.00	313	0.00	0.00	313	5.84 C	0.00	342
	MIN	-35.66	5.84	341	-111.32	0.00	341		
	0.00	5.84	370	0.00	5.84	370	5.28 T	5.84	313
9 MAX	43.67	0.00	342	110.66	0.00	351			
	0.00	0.00	313	0.00	0.00	313	7.55 C	0.00	342

DXF IMPORT OF 002_1441BENT_0.DXF

-- PAGE NO. 82

MIN	-5.86	5.84	370	-123.32	5.84	346			
	0.00	5.84	370	0.00	5.84	370	5.17	T	5.84 313
10 MAX	36.68	0.00	347	73.56	0.00	337			
	0.00	0.00	313	0.00	0.00	313	6.85	C	0.00 342
MIN	-12.20	5.86	346	-216.45	5.86	352			
	0.00	5.86	370	0.00	5.86	370	5.17	T	5.86 313
11 MAX	26.52	0.00	353	77.98	5.86	370			
	0.00	0.00	313	0.00	0.00	313	6.15	C	0.00 342
MIN	-22.08	5.86	352	-234.24	5.86	352			
	0.00	5.86	370	0.00	5.86	370	5.17	T	5.86 313
12 MAX	15.23	0.00	359	112.31	5.86	370			
	0.00	0.00	313	0.00	0.00	313	6.15	C	0.00 342
MIN	-31.34	5.86	357	-234.24	0.00	352			
	0.00	5.86	370	0.00	5.86	370	5.17	T	5.86 313
13 MAX	5.55	0.00	364	146.65	5.86	370			
	0.00	0.00	313	0.00	0.00	313	6.15	C	0.00 342
MIN	-42.92	5.86	363	-169.02	0.00	358			
	0.00	5.86	370	0.00	5.86	370	5.17	T	5.86 313
14 MAX	50.38	0.00	370	163.00	0.00	370			
	0.00	0.00	313	0.00	0.00	313	1.40	C	0.00 370
MIN	0.00	3.31	367	0.00	0.33	364			
	0.00	3.31	370	0.00	3.31	370	0.00		3.31 367
15 MAX	25.19	0.00	368	73.63	0.00	370			
	0.00	0.00	313	0.00	0.00	313	0.70	C	0.00 368
MIN	0.00	5.62	370	0.00	5.62	370			
	0.00	5.62	370	0.00	5.62	370	0.00		5.62 370

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

1833. *HS-15 FATIGUE LOADING MAX FLOOR BEAM FORCES ABOVE
1834. FINISH

***** END OF THE STAAD.Pro RUN *****

**** DATE= APR 12,2012 TIME= 9:58: 4 ****

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*****
*           For questions on STAAD.Pro, please contact           *
*   Bentley Systems Offices at the following locations           *
*                                                                 *
*           Telephone                Web / Email                 *
*                                                                 *
*   USA:          +1 (714)974-2500                                *
*   UK            +44(1454)207-000                                *
*   SINGAPORE    +65 6225-6158                                    *
*   EUROPE       +31 23 5560560                                  *
*   INDIA        +91(033)4006-2021                               *
*   JAPAN        +81(03)5952-6500   http://www.ctc-g.co.jp      *
*   CHINA        +86 10 5929 7000                               *
*   THAILAND     +66(0)2645-1018/19 partha.p@reisoftwareth.com  *
*                                                                 *
*   Worldwide    http://selectservices.bentley.com/en-US/      *
*                                                                 *
*****
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EAST APPROACH FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/30/2012
Date 4/13/2012

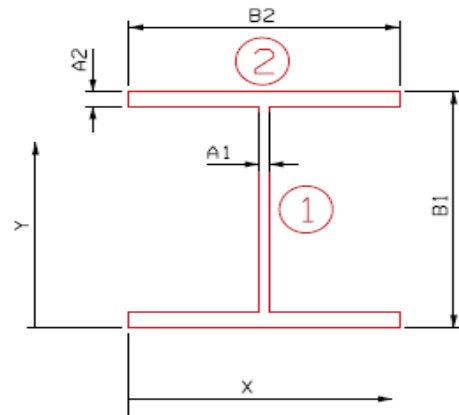
Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Red text indicates user input

Element Dimensions (without Section Losses):

$A_1 = t_w = 0.6250$ in
 $A_2 = t_f = 0.9400$ in
 $B_1 = d = 35.8400$ in
 $B_2 = b_f = 11.9720$ in
36WF150



FB-0 @ COLUMN 300
EAST APPR. FWD SECTION

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I _o	d	Ad ²	I _{x,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		21.2250	17.9200	380.3520	2039.8668	0.0000	0.0000	2039.8668
2	Top Flange		11.2537	35.3700	398.0427	0.8286	17.4500	3426.7737	3427.6023
	Bottom Flange		11.2537	0.4700	5.2892	0.8286	17.4500	3426.7737	3427.6023
Total			43.73		783.68	2041.52		6853.55	8895.07
Section Losses			A	y	Ay	I _o	d	Ad ²	I _{x,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	12.0000	0.0625	-0.7500	0.0313	-0.0234	-0.0002	18.9871	-270.3812	-270.3814
2	0.0625	12.0000	-0.7500	6.0000	-4.5000	-9.0000	13.0183	-127.1072	-136.1072
3	0.2500	6.0000	-1.5000	3.0000	-4.5000	-4.5000	16.0183	-384.8792	-389.3792
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			-3.00		-9.02	-13.50		-782.37	-795.87

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	17.9200	in	S _{top} = 496.38 in ³	y-bar =	19.0183	in	S _{top} = 481.47 in ³
I _x =	8895.07	in ⁴	S _{bott.} = 496.38 in ³	I _x =	8099.20	in ⁴	S _{bott.} = 425.86 in ³
C _{top} =	17.9200	in	A = 43.7324 in ²	C _{top} =	16.8217	in	A = 40.7324 in ²
C _{bottom} =	17.9200	in	r _x = 14.2618 in	C _{bottom} =	19.0183	in	r _x = 14.1010 in
			Z = 572.95 in ³				Z = warning in ³

EAST APPROACH FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/30/2012
Date 4/13/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Floorbeam Capacities

Non-composite Capacities*		
	AB	AI
M	1365.04 k-ft	1171.12 k-ft
V	406.25 k	363.18 k

*Noncompact Section

$F_y =$	33.00 ksi
---------	------------------

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

As-Built Moments and Shears						
	DL	HS20	2F1	3F1	4F1	5C1
M	396.26 k-ft	478.27 k-ft	228.91 k-ft	337.39 k-ft	378.46 k-ft	337.72 k-ft
V	48.35 k	75.33 k	36.05 k	53.14 k	59.61 k	53.19 k

As-Built Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	0.82	---	---	---	---
Operating M	1.37	2.86	1.94	1.73	1.94
As-Inspected Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	0.63	---	---	---	---
Operating M	1.06	2.2	1.5	1.33	1.49
As-Built Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	2.1	---	---	---	---
Operating V	3.51	7.33	4.97	4.43	4.97
As-Inspected Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	1.84	---	---	---	---
Operating V	3.07	6.41	4.35	3.88	4.34

Controlling Rating Factors and Tonnage						
	HS20 Inventory	HS20 Operating	2F1 Operating	3F1 Operating	4F1 Operating	5C1 Operating
Rating Factor	0.63	1.06	2.2	1.5	1.33	1.49
Tonnage (US Tons)	22.68	38.16	33	34.5	35.91	59.6

EAST APPROACH FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/30/2012
Date 4/13/2012

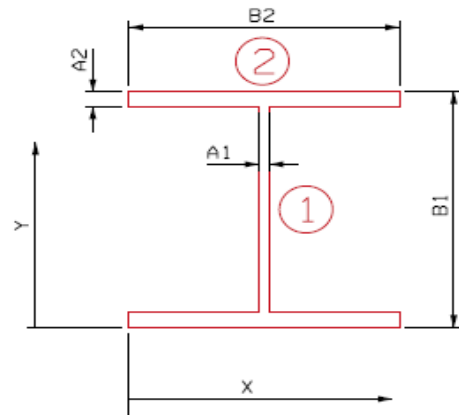
Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Red text indicates user input

Element Dimensions (without Section Losses):

$A_1 = t_w = 0.6250$ in
 $A_2 = t_f = 0.9400$ in
 $B_1 = d = 35.8400$ in
 $B_2 = b_f = 11.9720$ in
36WF150



FB-0 @ COLUMN 200
EAST APPR. FWD SECTION

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I _o	d	Ad ²	I _{x,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		21.2250	17.9200	380.3520	2039.8668	0.0000	0.0000	2039.8668
2	Top Flange		11.2537	35.3700	398.0427	0.8286	17.4500	3426.7737	3427.6023
	Bottom Flange		11.2537	0.4700	5.2892	0.8286	17.4500	3426.7737	3427.6023
Total			43.73		783.68	2041.52		6853.55	8895.07
Section Losses			A	y	Ay	I _o	d	Ad ²	I _{x,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	17.9200	in	S _{top} = 496.38 in ³	y-bar =	17.9200	in	S _{top} = 496.38 in ³
I _x =	8895.07	in ⁴	S _{bottom} = 496.38 in ³	I _x =	8895.07	in ⁴	S _{bottom} = 496.38 in ³
C _{top} =	17.9200	in	A = 43.7324 in ²	C _{top} =	17.9200	in	A = 43.7324 in ²
C _{bottom} =	17.9200	in	r _x = 14.2618 in	C _{bottom} =	17.9200	in	r _x = 14.2618 in
			Z = 572.95 in ³				Z = 572.95 in ³

EAST APPROACH FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/30/2012
Date 4/13/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Floorbeam Capacities

Non-composite Capacities*		
	AB	AI
M	1365.04 k-ft	1365.04 k-ft
V	406.25 k	406.25 k

*Noncompact Section

$F_y =$	33.00 ksi
---------	------------------

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

As-Built Moments and Shears						
	DL	HS20	2F1	3F1	4F1	5C1
M	108.50 k-ft	362.73 k-ft	173.61 k-ft	255.88 k-ft	287.03 k-ft	256.13 k-ft
V	35.20 k	98.83 k	47.30 k	69.72 k	78.21 k	69.79 k

As-Built Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.56	---	---	---	---
Operating M	2.60	5.42	3.68	3.28	3.68
As-Inspected Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.56	---	---	---	---
Operating M	2.60	5.42	3.68	3.28	3.68
As-Built Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	1.68	---	---	---	---
Operating V	2.81	5.86	3.98	3.55	3.97
As-Inspected Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	1.68	---	---	---	---
Operating V	2.81	5.86	3.98	3.55	3.97

Controlling Rating Factors and Tonnage						
	HS20 Inventory	HS20 Operating	2F1 Operating	3F1 Operating	4F1 Operating	5C1 Operating
Rating Factor	1.56	2.60	5.42	3.68	3.28	3.68
Tonnage (US Tons)	56.16	93.6	81.3	84.64	88.56	147.2

EAST APPROACH FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/20/2012
Date 4/13/2012

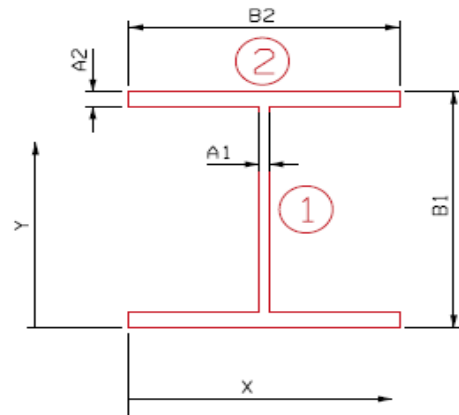
Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Red text indicates user input

Element Dimensions (without Section Losses):

$A_1 = t_w = 0.6250$ in
 $A_2 = t_f = 0.9400$ in
 $B_1 = d = 35.8400$ in
 $B_2 = b_f = 11.9720$ in
36WF150



FB-0 @ COLUMN 100
EAST APPR. FWD SECTION

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I _o	d	Ad ²	I _{x,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		21.2250	17.9200	380.3520	2039.8668	0.0000	0.0000	2039.8668
2	Top Flange		11.2537	35.3700	398.0427	0.8286	17.4500	3426.7737	3427.6023
	Bottom Flange		11.2537	0.4700	5.2892	0.8286	17.4500	3426.7737	3427.6023
Total			43.73		783.68	2041.52		6853.55	8895.07
Section Losses			A	y	Ay	I _o	d	Ad ²	I _{x,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.1250	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	17.9200	in	S _{top} = 496.38 in ³	y-bar =	17.9200	in	S _{top} = 496.38 in ³
I _x =	8895.07	in ⁴	S _{bottom} = 496.38 in ³	I _x =	8895.07	in ⁴	S _{bottom} = 496.38 in ³
C _{top} =	17.9200	in	A = 43.7324 in ²	C _{top} =	17.9200	in	A = 43.7324 in ²
C _{bottom} =	17.9200	in	r _x = 14.2618 in	C _{bottom} =	17.9200	in	r _x = 14.2618 in
			Z = 572.95 in ³				Z = warning in ³

EAST APPROACH FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/20/2012
Date 4/13/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Floorbeam Capacities

Non-composite Capacities*		
	AB	AI
M	1365.04 k-ft	1365.04 k-ft
V	406.25 k	406.25 k

*Noncompact Section

$F_y =$	33.00 ksi
---------	------------------

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

As-Built Moments and Shears						
	DL	HS20	2F1	3F1	4F1	5C1
M	228.53 k-ft	393.30 k-ft	188.24 k-ft	277.45 k-ft	311.22 k-ft	277.72 k-ft
V	43.35 k	83.94 k	40.18 k	59.21 k	66.42 k	59.27 k

As-Built Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.25	---	---	---	---
Operating M	2.09	4.36	2.96	2.64	2.96
As-Inspected Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.25	---	---	---	---
Operating M	2.09	4.36	2.96	2.64	2.96
As-Built Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	1.92	---	---	---	---
Operating V	3.21	6.7	4.55	4.05	4.54
As-Inspected Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	1.92	---	---	---	---
Operating V	3.21	6.7	4.55	4.05	4.54

Controlling Rating Factors and Tonnage						
	HS20 Inventory	HS20 Operating	2F1 Operating	3F1 Operating	4F1 Operating	5C1 Operating
Rating Factor	1.25	2.09	4.36	2.96	2.64	2.96
Tonnage (US Tons)	45	75.24	65.4	68.08	71.28	118.4

EAST APPROACH FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/20/2012
Date 4/13/2012

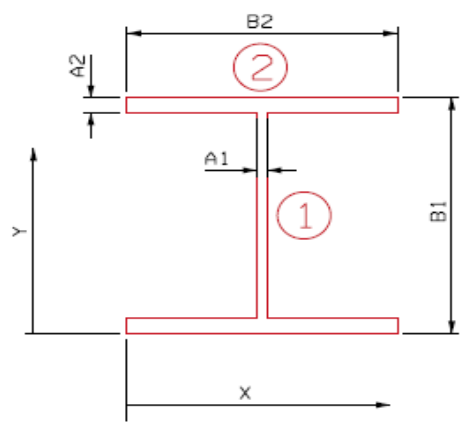
Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Red text indicates user input

Element Dimensions (without Section Losses):

- $A_1 = t_w = 0.6250$ in
- $A_2 = t_f = 0.9400$ in
- $B_1 = d = 35.8400$ in
- $B_2 = b_f = 11.9720$ in
- 36WF150**



FB-0 @ Between 200 & 300
EAST APPR. FWD SECTION

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I _o	d	Ad ²	I _{x,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		21.2250	17.9200	380.3520	2039.8668	0.0000	0.0000	2039.8668
2	Top Flange		11.2537	35.3700	398.0427	0.8286	17.4500	3426.7737	3427.6023
	Bottom Flange		11.2537	0.4700	5.2892	0.8286	17.4500	3426.7737	3427.6023
Total			43.73		783.68	2041.52		6853.55	8895.07
Section Losses			A	y	Ay	I _o	d	Ad ²	I _{x,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0625	36.0000	-2.2500	18.0000	-40.5000	-243.0000	0.5048	-0.5734	-243.5734
2	0.1875	6.0000	-1.1250	33.0000	-37.1250	-3.3750	15.5048	-270.4497	-273.8247
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			-3.38		-77.63	-246.38		-271.02	-517.40

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	17.9200	in	S _{top} = 496.38 in ³	y-bar =	17.4952	in	S _{top} = 456.68 in ³
I _x =	8895.07	in ⁴	S _{bottom} = 496.38 in ³	I _x =	8377.67	in ⁴	S _{bottom} = 478.86 in ³
C _{top} =	17.9200	in	A = 43.7324 in ²	C _{top} =	18.3448	in	A = 40.3574 in ²
C _{bottom} =	17.9200	in	r _x = 14.2618 in	C _{bottom} =	17.4952	in	r _x = 14.4079 in
			Z = 572.95 in ³				Z = warning in ³

EAST APPROACH FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/20/2012
Date 4/13/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Floorbeam Capacities

Non-composite Capacities*		
	AB	AI
M	1575.61 k-ft	1255.86 k-ft
V	406.25 k	341.65 k

*Compact Section

$F_y =$	33.00 ksi
---------	------------------

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

As-Built Moments and Shears						
	DL	HS20	2F1	3F1	4F1	5C1
M	120.34 k-ft	548.26 k-ft	262.41 k-ft	386.76 k-ft	433.84 k-ft	387.14 k-ft
V	28.94 k	46.59 k	22.30 k	32.87 k	36.87 k	32.90 k

As-Built Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.19	---	---	---	---
Operating M	1.99	4.16	2.82	2.52	2.82
As-Inspected Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	0.92	---	---	---	---
Operating M	1.54	3.22	2.19	1.95	2.18
As-Built Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	3.65	---	---	---	---
Operating V	6.09	12.72	8.63	7.69	8.62
As-Inspected Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	3.01	---	---	---	---
Operating V	5.02	10.49	7.12	6.34	7.11

Controlling Rating Factors and Tonnage						
	HS20 Inventory	HS20 Operating	2F1 Operating	3F1 Operating	4F1 Operating	5C1 Operating
Rating Factor	0.92	1.54	3.22	2.19	1.95	2.18
Tonnage (US Tons)	33.12	55.44	48.3	50.37	52.65	87.2

EAST APPROACH FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/30/2012
Date 4/13/2012

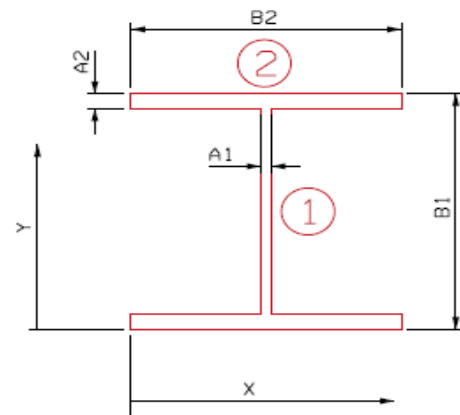
Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Red text indicates user input

Element Dimensions (without Section Losses):

$A_1 = t_w = 0.6250$ in
 $A_2 = t_f = 0.9400$ in
 $B_1 = d = 35.8400$ in
 $B_2 = b_f = 11.9720$ in
36WF150



FB-0 @ Between 100 & 200
EAST APPR. FWD SECTION

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I_o	d	Ad^2	$I_{x, gross}$
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		21.2250	17.9200	380.3520	2039.8668	0.0000	0.0000	2039.8668
2	Top Flange		11.2537	35.3700	398.0427	0.8286	17.4500	3426.7737	3427.6023
	Bottom Flange		11.2537	0.4700	5.2892	0.8286	17.4500	3426.7737	3427.6023
Total			43.73		783.68	2041.52		6853.55	8895.07
Section Losses			A	y	Ay	I_o	d	Ad^2	$I_{x, loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0625	36.0000	-2.2500	18.0000	-40.5000	-243.0000	0.5048	-0.5734	-243.5734
2	0.1875	6.0000	-1.1250	33.0000	-37.1250	-3.3750	15.5048	-270.4497	-273.8247
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			-3.38		-77.63	-246.38		-271.02	-517.40

As-Built Section Properties				As-Inspected Section Properties							
y-bar =	17.9200	in	$S_{top} = 496.38$	in ³	y-bar =	17.4952	in	$S_{top} = 456.68$	in ³		
$I_x =$	8895.07	in ⁴	$S_{bott.} = 496.38$	in ³	$I_x =$	8377.67	in ⁴	$S_{bott.} = 478.86$	in ³		
$C_{top} =$	17.9200	in	A =	43.7324	in ²	$C_{top} =$	18.3448	in	A =	40.3574	in ²
$C_{bottom} =$	17.9200	in	$r_x =$	14.2618	in	$C_{bottom} =$	17.4952	in	$r_x =$	14.4079	in
			Z =	572.95	in ³				Z =	warning	in ³

EAST APPROACH FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/30/2012
Date 4/13/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Floorbeam Capacities

Non-composite Capacities*		
	AB	AI
M	1575.61 k-ft	1255.86 k-ft
V	406.25 k	341.65 k

*Compact Section

$F_y =$	33.00 ksi
---------	------------------

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

As-Built Moments and Shears						
	DL	HS20	2F1	3F1	4F1	5C1
M	184.00 k-ft	568.02 k-ft	271.86 k-ft	400.70 k-ft	449.48 k-ft	401.09 k-ft
V	15.79 k	48.99 k	23.45 k	34.56 k	38.77 k	34.59 k

As-Built Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.08	---	---	---	---
Operating M	1.81	3.78	2.57	2.29	2.56
As-Inspected Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	0.82	---	---	---	---
Operating M	1.38	2.88	1.95	1.74	1.95
As-Built Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	3.63	---	---	---	---
Operating V	6.06	12.65	8.59	7.65	8.58
As-Inspected Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	3.02	---	---	---	---
Operating V	5.04	10.53	7.15	6.37	7.14

Controlling Rating Factors and Tonnage						
	HS20 Inventory	HS20 Operating	2F1 Operating	3F1 Operating	4F1 Operating	5C1 Operating
Rating Factor	0.82	1.38	2.88	1.95	1.74	1.95
Tonnage (US Tons)	29.52	49.68	43.2	44.85	46.98	78

CUY-2-1441 Load Rating Analysis - As-Built
Main Ave Bridge
East Approach Fwd Section - Bent 0

Column: C300A

Section Properties	14WF78	(For section properties of built-up section, see hand calculations)
A =	22.940 in ²	I _x = 851.200 in ⁴
h =	14.060 in	S _x = 121.100 in ³
b _f =	12.000 in	r _x = 6.090 in
t _f =	0.718 in	I _y = 206.900 in ⁴
t _w =	0.428 in	S _y = 34.500 in ³
		r _y = 3.000 in
F _y =	33.0 ksi	Z _x = 132 in ³
E =	29000 ksi	
L _{cx} =	323.59 in	
L _{cy} =	323.59 in	
K _x =	0.650 AASHTO Appendix C	
K _y =	0.650 AASHTO Appendix C	

Axial Loading

$$P_u = 0.85 A_s F_{cr}$$

AASHTO 10.54 Concentrically Loaded Columns

$$F_{cr} = F_y \left(1 - \frac{F_y}{4\pi^2 E} \left(\frac{KL_c}{r} \right)^2 \right)$$

For: $\frac{KL_c}{r} \leq \sqrt{\frac{2\pi^2 E}{F_y}}$

$$F_{cr} = \frac{\pi^2 E}{\left(\frac{KL_c}{r} \right)^2}$$

For: $\frac{KL_c}{r} > \sqrt{\frac{2\pi^2 E}{F_y}}$

KL/r_y = 70.112 < 131.706
 KL/r_x = 34.538 < 131.706

F_{CR} = 28.324 ksi

P_u = 552.3 k



Calculated: FKL Date: 4/2/2012
 Checked: MTN Date: 4/12/2012

CUY-2-1441 Load Rating Analysis - As-Built
Main Ave Bridge
East Approach Fwd Section - Bent 0

Column: C300A

Axial Loading and Bending

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_e}\right)} \leq 1.0$$

AASHTO 10.54.2 Combined Axial Load and Bending

=0.6+0.4

a = 0 **When moment is small assume a = 0
 C = 0.600

$$F_e = \frac{E\pi^2}{\left(\frac{KL_c}{r}\right)^2}$$

F_{ex} = 239.944 ksi
 F_{ey} = 58.226 ksi

Column Compactness Check

M_u=F_yZ For Compact Section
 M_u=F_yS For Non-Compact Section

$\frac{b}{t} \leq \frac{4110}{\sqrt{F_y}}$	16.713	<	22.625
--------------------------------------------	--------	---	--------

$\frac{D}{t_w} \leq \frac{19230}{\sqrt{F_y}}$	29.495	<	105.858
-----------------------------------------------	--------	---	---------

$\frac{L}{r_y} \leq \frac{\left(3.6 - 2.2 \frac{M_1}{M_u}\right) \times 10^6}{F_y}$	107.864	<	109.091
-------------------------------------------------------------------------------------	---------	---	---------

Column Moment Capacity

Non-Compact Section

M_{ux} = 333.0 k-ft

CUY-2-1441 Load Rating Analysis - As-Built

Main Ave Bridge

East Approach Forward Section - Column 300A Ratings



Calculated: FKL 4/3/2012
Checked: MTN 4/12/2012

Column Loading

	DL	HS-20	2F1	3F1	4F1	5C1
Max Axial	127.15	185.73	91.22	132.34	147.91	132.47
Moment	20.43	4.88	6.83	6.00	5.68	6.00
Axial	125.52	86.27	43.64	62.20	69.23	62.26
Max Mom.	1.85	89.23	36.50	64.48	71.71	64.54

DL Factor
LL Factor

1.30
2.17 INV
1.30 OPER

Factored Loads				Capacities		
Axial Force		Moment		P _u	M _u	A _s F _{ex}
Dead Load	Max. LL + I	Dead Load	Max LL + I			

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_e}\right)} \leq 1.0$$

Load Case	Member	Dead Load kips	Max. LL + I kips	Dead Load k-ft	Max LL + I k-ft	P _u kips	M _u k-ft	A _s F _{ex} kips	Condition Equation	RF
HS20 INV	C300A	165.2963	402.42	26.55	10.58	552.30	333.00	5504.32	1.00	0.86
HS20 INV	C300A	163.1786	186.92	2.41	193.32	552.30	333.00	5504.32	1.00	0.98
HS20 OPR	C300A	165.2963	241.45	26.55	6.35	552.30	333.00	5504.32	1.00	1.44
HS20 OPR	C300A	163.1786	112.15	2.41	115.99	552.30	333.00	5504.32	1.00	1.64
2F1	C300A	165.2963	118.59	26.55	8.88	552.30	333.00	5504.32	1.00	2.79
2F1	C300A	163.1786	56.73	2.41	47.45	552.30	333.00	5504.32	1.00	3.60
3F1	C300A	165.2963	172.05	26.55	7.80	552.30	333.00	5504.32	1.00	1.98
3F1	C300A	163.1786	80.87	2.41	83.83	552.30	333.00	5504.32	1.00	2.27
4F1	C300A	165.2963	192.29	26.55	7.39	552.30	333.00	5504.32	1.00	1.79
4F1	C300A	163.1786	90.00	2.41	93.22	552.30	333.00	5504.32	1.00	2.04
5C1	C300A	165.2963	172.21	26.55	7.80	552.30	333.00	5504.32	1.00	1.98
5C1	C300A	163.1786	80.94	2.41	83.90	552.30	333.00	5504.32	1.00	2.27

Load Case	Controlling RF
HS20 INV	0.86
HS20 OPR	1.44
2F1	2.79
3F1	1.98
4F1	1.79
5C1	1.98



Calculated: FKL Date: 4/2/2012
 Checked: MTN Date: 4/12/2012

CUY-2-1441 Load Rating Analysis - As-Built
Main Ave Bridge
East Approach Fwd Section - Bent 0

Column: C200A

Section Properties	14WF78	(For section properties of built-up section, see hand calculations)
A =	22.940 in ²	I _x = 851.200 in ⁴
h =	14.060 in	S _x = 121.100 in ³
b _f =	12.000 in	r _x = 6.090 in
t _f =	0.718 in	I _y = 206.900 in ⁴
t _w =	0.428 in	S _y = 34.500 in ³
F _y =	33.0 ksi	r _y = 3.000 in
E =	29000 ksi	Z _x = 132 in ³
L _{cx} =	333.37 in	
L _{cy} =	333.37 in	
K _x =	0.650 AASHTO Appendix C	
K _y =	0.650 AASHTO Appendix C	

Axial Loading

$$P_u = 0.85 A_s F_{cr}$$

AASHTO 10.54 Concentrically Loaded Columns

$$F_{cr} = F_y \left(1 - \frac{F_y}{4\pi^2 E} \left(\frac{KL_c}{r} \right)^2 \right)$$

$$\text{For: } \frac{KL_c}{r} \leq \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$F_{cr} = \frac{\pi^2 E}{\left(\frac{KL_c}{r} \right)^2}$$

$$\text{For: } \frac{KL_c}{r} > \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$KL/r_y = 72.231 < 131.706$$

$$KL/r_x = 35.582 < 131.706$$

$$F_{CR} = 28.037 \text{ ksi}$$

$$P_u = 546.7 \text{ k}$$



Calculated: FKL Date: 4/2/2012
 Checked: MTN Date: 4/12/2012

CUY-2-1441 Load Rating Analysis - As-Built
Main Ave Bridge
East Approach Fwd Section - Bent 0

Column: C200A

Axial Loading and Bending

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_e}\right)} \leq 1.0$$

AASHTO 10.54.2 Combined Axial Load and Bending

$$= 0.6 + 0.4$$

$$a = 0 \quad \text{**When moment is small assume } a = 0$$

$$C = 0.600$$

$$F_e = \frac{E \pi^2}{\left(\frac{KL_c}{r}\right)^2}$$

$$F_{ex} = 226.072 \text{ ksi}$$

$$F_{ey} = 54.860 \text{ ksi}$$

Column Compactness Check

$M_u = F_y Z$ For Compact Section

$M_u = F_y S$ For Non-Compact Section

$$\frac{b}{i} \leq \frac{4110}{\sqrt{F_y}}$$

$$16.713 < 22.625$$

$$\frac{D}{t_w} \leq \frac{19230}{\sqrt{F_y}}$$

$$29.495 < 105.858$$

$$\frac{L}{r_y} \leq \frac{\left(3.6 - 2.2 \frac{M_1}{M_u}\right) \times 10^6}{F_y}$$

$$111.124 > 109.091$$

Column Moment Capacity

Non-Compact Section

$$M_{ux} = 333.0 \text{ k-ft}$$

CUY-2-1441 Load Rating Analysis - As-Built

Main Ave Bridge

East Approach Forward Section - Column 200A Ratings



Calculated: FKL 4/3/2012
Checked: MTN 4/12/2012

Column Loading

	DL	HS-20	2F1	3F1	4F1	5C1
Max Axial	86.70	153.32	72.52	107.66	120.96	107.77
Moment	3.46	5.49	2.76	3.94	4.39	3.94
Axial	84.54	63.63	25.77	38.74	50.01	44.45
Max Mom.	5.60	49.16	23.69	34.71	38.90	34.71

DL Factor
LL Factor

1.30
2.17 INV
1.30 OPER

Factored Loads				Capacities		
Axial Force		Moment		P _u	M _u	A _s F _{ex}
Dead Load	Max. LL + I	Dead Load	Max LL + I			

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_e}\right)} \leq 1.0$$

Load Case	Member	kips	kips	k-ft	k-ft	kips	k-ft	kips	Condition Equation	RF
HS20 INV	C200A	112.71	332.18	4.50	11.89	546.70	333.00	5186.10	1.00	1.24
HS20 INV	C200A	109.902	137.87	7.29	106.51	546.70	333.00	5186.10	1.00	1.72
HS20 OPR	C200A	112.71	199.31	4.50	7.13	546.70	333.00	5186.10	1.00	2.07
HS20 OPR	C200A	109.902	82.72	7.29	63.90	546.70	333.00	5186.10	1.00	2.86
2F1	C200A	112.71	94.28	4.50	3.59	546.70	333.00	5186.10	1.00	4.37
2F1	C200A	109.902	33.51	7.29	30.79	546.70	333.00	5186.10	1.00	6.51
3F1	C200A	112.71	139.96	4.50	5.12	546.70	333.00	5186.10	1.00	2.95
3F1	C200A	109.902	50.36	7.29	45.12	546.70	333.00	5186.10	1.00	4.39
4F1	C200A	112.71	157.25	4.50	5.71	546.70	333.00	5186.10	1.00	2.62
4F1	C200A	109.902	65.01	7.29	50.57	546.70	333.00	5186.10	1.00	3.62
5C1	C200A	112.71	140.09	4.50	5.13	546.70	333.00	5186.10	1.00	2.94
5C1	C200A	109.902	57.78	7.29	45.12	546.70	333.00	5186.10	1.00	4.07

Load Case	Controlling RF
HS20 INV	1.24
HS20 OPR	2.07
2F1	4.37
3F1	2.95
4F1	2.62
5C1	2.94



Calculated: FKL Date: 4/2/2012

Checked: MTN Date: 4/12/2012

CUY-2-1441 Load Rating Analysis - As-Built

Main Ave Bridge

East Approach Fwd Section - Bent 0

Column: **C100A**

Section Properties	14WF78	(For section properties of built-up section, see hand calculations)
A =	22.940 in ²	I _x = 851.200 in ⁴
h =	14.060 in	S _x = 121.100 in ³
b _f =	12.000 in	r _x = 6.090 in
t _f =	0.718 in	I _y = 206.900 in ⁴
t _w =	0.428 in	S _y = 34.500 in ³
F _y =	33.0 ksi	r _y = 3.000 in
E =	29000 ksi	Z _x = 132 in ³
L _{cx} =	343.15 in	
L _{cy} =	343.15 in	
K _x =	0.650 AASHTO Appendix C	
K _y =	0.650 AASHTO Appendix C	

Axial Loading

$$P_u = 0.85 A_s F_{cr}$$

AASHTO 10.54 Concentrically Loaded Columns

$$F_{cr} = F_y \left(1 - \frac{F_y}{4\pi^2 E} \left(\frac{KL_c}{r} \right)^2 \right)$$

$$\text{For: } \frac{KL_c}{r} \leq \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$F_{cr} = \frac{\pi^2 E}{\left(\frac{KL_c}{r} \right)^2}$$

$$\text{For: } \frac{KL_c}{r} > \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$KL/r_y = 74.350 < 131.706$$

$$KL/r_x = 36.625 < 131.706$$

$$F_{CR} = 27.742 \text{ ksi}$$

$$P_u = 540.9 \text{ k}$$



Calculated: FKL Date: 4/2/2012
 Checked: MTN Date: 4/12/2012

CUY-2-1441 Load Rating Analysis - As-Built
Main Ave Bridge
East Approach Fwd Section - Bent 0

Column: C100A

Axial Loading and Bending

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_e}\right)} \leq 1.0$$

AASHTO 10.54.2 Combined Axial Load and Bending

$$= 0.6 + 0.4$$

$$a = 0 \quad \text{**When moment is small assume } a = 0$$

$$C = 0.600$$

$$F_e = \frac{E\pi^2}{\left(\frac{KL_c}{r}\right)^2}$$

$$F_{ex} = 213.370 \text{ ksi}$$

$$F_{ey} = 51.777 \text{ ksi}$$

Column Compactness Check

$M_u = F_y Z$ For Compact Section

$M_u = F_y S$ For Non-Compact Section

$$\frac{b}{i} \leq \frac{4110}{\sqrt{F_y}}$$

$$16.713 < 22.625$$

$$\frac{D}{t_w} \leq \frac{19230}{\sqrt{F_y}}$$

$$29.495 < 105.858$$

$$\frac{L}{r_y} \leq \frac{\left(3.6 - 2.2 \frac{M_1}{M_u}\right) \times 10^6}{F_y}$$

$$114.384 > 109.091$$

Column Moment Capacity

Non-Compact Section

$$M_{ux} = 333.0 \text{ k-ft}$$

CUY-2-1441 Load Rating Analysis - As-Built

Main Ave Bridge

East Approach Forward Section - Column 100A Ratings



Calculated: FKL 4/3/2012
Checked: MTN 4/12/2012

Column Loading

	DL	HS-20	2F1	3F1	4F1	5C1
Max Axial	111.40	170.76	84.08	121.79	136.06	121.90
Moment	27.17	26.32	16.13	20.57	22.25	20.58
Axial	109.17	94.69	47.68	68.13	75.87	68.19
Max Mom.	25.30	73.80	38.00	53.64	59.53	53.68

DL Factor 1.30
LL Factor 2.17 INV
1.30 OPER

Factored Loads				Capacities		
Axial Force		Moment		P _u	M _u	A _s F _{ex}
Dead Load	Max. LL + I	Dead Load	Max LL + I			

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_e}\right)} \leq 1.0$$

Load Case	Member	kips	kips	k-ft	k-ft	kips	k-ft	kips	Condition Equation	RF
HS20 INV	C100A	144.8148	369.98	35.32	57.03	540.90	333.00	4894.70	1.00	0.83
HS20 INV	C100A	141.9249	205.16	32.88	159.90	540.90	333.00	4894.70	1.00	0.98
HS20 OPR	C100A	144.8148	221.99	35.32	34.22	540.90	333.00	4894.70	1.00	1.38
HS20 OPR	C100A	141.9249	123.09	32.88	95.94	540.90	333.00	4894.70	1.00	1.63
2F1	C100A	144.8148	109.31	35.32	20.97	540.90	333.00	4894.70	1.00	2.72
2F1	C100A	141.9249	61.98	32.88	49.41	540.90	333.00	4894.70	1.00	3.21
3F1	C100A	144.8148	158.32	35.32	26.74	540.90	333.00	4894.70	1.00	1.92
3F1	C100A	141.9249	88.57	32.88	69.73	540.90	333.00	4894.70	1.00	2.26
4F1	C100A	144.8148	176.88	35.32	28.92	540.90	333.00	4894.70	1.00	1.72
4F1	C100A	141.9249	98.63	32.88	77.39	540.90	333.00	4894.70	1.00	2.03
5C1	C100A	144.8148	158.47	35.32	26.76	540.90	333.00	4894.70	1.00	1.91
5C1	C100A	141.9249	88.65	32.88	69.79	540.90	333.00	4894.70	1.00	2.25

Load Case	Controlling RF
HS20 INV	0.83
HS20 OPER	1.38
2F1	2.72
3F1	1.92
4F1	1.72
5C1	1.91



Calculated: FKL Date: 4/2/2012
 Checked: MTN Date: 4/12/2012

CUY-2-1441 Load Rating Analysis - As-Built
Main Ave Bridge
East Approach Fwd Section - Bent 0

Column: C300

Section Properties 30WF108 & 2-33WF15 (For section properties of built-up section, see hand calculations)

A =	121.190	in ²	I _x =	25708.980	in ⁴
h =	31.091	in	S _x =	1223.650	in ³
b _f =	33.500	in	r _x =	14.565	in
t _f =	1.395	in	I _y =	16430.300	in ⁴
t _w =	0.548	in	S _y =	980.910	in ³
			r _y =	11.644	in
F _y =	33.0	ksi			
E =	29000	ksi			
L _{cx} =	275.20	in			
L _{cy} =	337.02	in			
K _x =	0.650	AASHTO Appendix C			
K _y =	0.650	AASHTO Appendix C			

Axial Loading

$$P_u = 0.85 A_s F_{cr}$$

AASHTO 10.54 Concentrically Loaded Columns

$$F_{cr} = F_y \left(1 - \frac{F_y}{4\pi^2 E} \left(\frac{KL_c}{r} \right)^2 \right)$$

$$\text{For: } \frac{KL_c}{r} \leq \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$F_{cr} = \frac{\pi^2 E}{\left(\frac{KL_c}{r} \right)^2}$$

$$\text{For: } \frac{KL_c}{r} > \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$\begin{aligned} KL/r_y &= 18.813 < 131.706 \\ KL/r_x &= 12.281 < 131.706 \end{aligned}$$

$$F_{CR} = 32.663 \text{ ksi}$$

$$P_u = 3364.7 \text{ k}$$



Calculated: FKL Date: 4/2/2012
 Checked: MTN Date: 4/12/2012

CUY-2-1441 Load Rating Analysis - As-Built
Main Ave Bridge
East Approach Fwd Section - Bent 0

Column: C300

Axial Loading and Bending

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_e}\right)} \leq 1.0$$

AASHTO 10.54.2 Combined Axial Load and Bending

$$= 0.6 + 0.4$$

$$a = 0 \quad \text{**When moment is small assume } a = 0$$

$$C = 0.600$$

$$F_e = \frac{E\pi^2}{\left(\frac{KL_c}{r}\right)^2}$$

$F_{ex} = 1897.614 \text{ ksi}$
 $F_{ey} = 808.656 \text{ ksi}$

Column Compactness Check

$M_u = F_y Z$ For Compact Section

$M_u = F_y S$ For Non-Compact Section

Columns have holes in the tension flange. Section is Non-Compact

Column Moment Capacity

Non-Compact Section

$$M_{ux} = 3365.0 \text{ k-ft}$$

$$M_{uy} = 2697.5 \text{ k-ft}$$

CUY-2-1441 Load Rating Analysis - As-Built

Main Ave Bridge

East Approach Forward Section - Column 300 Ratings

Column Loading

	DL	HS-20	2F1	3F1	4F1	5C1
Max Axial	874.99	341.76	128.20	177.71	201.37	253.44
Moment My	155.11	50.09	22.44	24.30	25.19	27.16
Moment Mx	763.34	525.85	128.21	196.84	230.12	304.60
Axial	874.99	206.31	107.73	146.55	165.10	205.69
Moment My	155.11	428.55	172.88	273.61	321.58	431.96
Moment Mx	763.34	280.41	116.94	180.05	210.77	279.91

Calculated: 4/3/2012
Checked: 4/12/2012

FKL MTN

Checked: MTN



DL Factor LL Factor	Member	Factored Loads										Capacities					RF
		Axial Force		Moment My		Moment Mx		P _u kips	M _{uy} k-ft	M _{ux} k-ft	A _{s,sv} kips	A _{s,ex} kips	Condition Equation				
		Dead Load kips	Max. LL + I kips	Dead Load k-ft	Max LL + I k-ft	Dead Load k-ft	Max LL + I k-ft										
1.30	1.30 OPER	1137.4818	740.48	201.64	108.54	992.34	1139.35	992.34	992.34	3364.70	2697.50	3365.00	98001.08	229971.79	1.00	0.97	
2.17 INV	C300	1137.4818	447.01	201.64	928.53	992.34	607.55	992.34	992.34	3364.70	2697.50	3365.00	98001.08	229971.79	1.00	0.97	
	C300	1137.4818	444.29	201.64	65.12	992.34	683.61	992.34	992.34	3364.70	2697.50	3365.00	98001.08	229971.79	1.00	1.62	
	C300	1137.4818	268.20	201.64	557.12	992.34	364.53	992.34	992.34	3364.70	2697.50	3365.00	98001.08	229971.79	1.00	1.62	
	C300	1137.4818	166.66	201.64	29.17	992.34	166.67	992.34	992.34	3364.70	2697.50	3365.00	98001.08	229971.79	1.00	5.08	
	C300	1137.4818	140.05	201.64	224.74	992.34	152.02	992.34	992.34	3364.70	2697.50	3365.00	98001.08	229971.79	1.00	3.66	
	C300	1137.4818	231.03	201.64	31.59	992.34	35.31	992.34	992.34	3364.70	2697.50	3365.00	98001.08	229971.79	1.00	5.32	
	C300	1137.4818	190.51	201.64	355.70	992.34	234.07	992.34	992.34	3364.70	2697.50	3365.00	98001.08	229971.79	1.00	2.45	
	C300	1137.4818	261.78	201.64	32.75	992.34	299.16	992.34	992.34	3364.70	2697.50	3365.00	98001.08	229971.79	1.00	3.15	
	C300	1137.4818	214.63	201.64	418.05	992.34	274.00	992.34	992.34	3364.70	2697.50	3365.00	98001.08	229971.79	1.00	2.11	
	C300	1137.4818	329.47	201.64	35.31	992.34	395.99	992.34	992.34	3364.70	2697.50	3365.00	98001.08	229971.79	1.00	2.47	
	C300	1137.4818	267.39	201.64	561.55	992.34	363.89	992.34	992.34	3364.70	2697.50	3365.00	98001.08	229971.79	1.00	1.61	

$$\frac{P}{P_u} + \frac{M_c}{M_{uy}} \left(1 - \frac{P}{A_s F_c} \right) + M_{ux} \left(1 - \frac{P}{A_s F_c} \right) \leq 1.0$$

Load Case	Controlling RF
HS20 INV	0.97
HS20 OPER	1.62
2F1	3.66
3F1	2.45
4F1	2.11
5C1	1.61



Calculated: FKL Date: 4/2/2012
 Checked: MTN Date: 4/12/2012

CUY-2-1441 Load Rating Analysis - As-Built
Main Ave Bridge
East Approach Fwd Section - Bent 0

Column: C100

Section Properties 30WF108 & 2-33WF15 (For section properties of built-up section, see hand calculations)

A =	121.190	in ²	I _x =	25708.980	in ⁴
h =	31.091	in	S _x =	1223.650	in ³
b _f =	33.500	in	r _x =	14.565	in
t _f =	1.395	in	I _y =	16430.300	in ⁴
t _w =	0.548	in	S _y =	980.910	in ³
			r _y =	11.644	in
F _y =	33.0	ksi			
E =	29000	ksi			
L _{cx} =	275.20	in			
L _{cy} =	337.02	in			
K _x =	0.650	AASHTO Appendix C			
K _y =	0.650	AASHTO Appendix C			

Axial Loading

$$P_u = 0.85 A_s F_{cr}$$

AASHTO 10.54 Concentrically Loaded Columns

$$F_{cr} = F_y \left(1 - \frac{F_y}{4\pi^2 E} \left(\frac{KL_c}{r} \right)^2 \right)$$

$$\text{For: } \frac{KL_c}{r} \leq \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$F_{cr} = \frac{\pi^2 E}{\left(\frac{KL_c}{r} \right)^2}$$

$$\text{For: } \frac{KL_c}{r} > \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$\begin{aligned} KL/r_y &= 18.813 < 131.706 \\ KL/r_x &= 12.281 < 131.706 \end{aligned}$$

$$F_{CR} = 32.663 \text{ ksi}$$

$$P_u = 3364.7 \text{ k}$$



Calculated: FKL Date: 4/2/2012
 Checked: MTN Date: 4/12/2012

CUY-2-1441 Load Rating Analysis - As-Built
Main Ave Bridge
East Approach Fwd Section - Bent 0

Column: C100

Axial Loading and Bending About the X-Axis

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_e}\right)} \leq 1.0$$

AASHTO 10.54.2 Combined Axial Load and Bending

$$= 0.6 + 0.4$$

$$a = 0 \quad \text{**When moment is small assume } a = 0$$

$$C = 0.600$$

$$F_e = \frac{E\pi^2}{\left(\frac{KL_c}{r}\right)^2}$$

$$F_{ex} = 1897.614 \text{ ksi}$$

$$F_{ey} = 808.656 \text{ ksi}$$

Column Compactness Check

$M_u = F_y Z$ For Compact Section

$M_u = F_y S$ For Non-Compact Section

Columns have holes in the tension flange. Section is Non-Compact

Column Moment Capacity

Non-Compact Section

$$M_{ux} = 3365.0 \text{ k-ft}$$

$$M_{uy} = 2697.5 \text{ k-ft}$$

CUY-2-1441 Load Rating Analysis - As-Built

Main Ave Bridge

East Approach Forward Section - Column 100 Ratings

Column Loading

	DL	HS-20	2F1	3F1	4F1	5C1
Max Axial	813.35	303.42	129.04	181.07	205.86	265.24
Moment My	150.42	40.25	219.25	324.54	374.74	491.04
Moment Mx	717.09	339.67	117.29	179.82	209.85	282.67
Axial	813.35	290.95	129.04	181.07	205.86	265.24
Moment My	150.42	486.40	219.25	324.54	374.74	491.04
Moment Mx	717.09	277.11	117.29	179.82	209.85	282.67

Calculated: 4/3/2012
 Checked: 4/12/2012
 FKL MTN
 MTN



$$\frac{P_u}{P_u} + \frac{M_{ux}}{M_{ux}} + \frac{M_{uy}}{M_{uy}} + \frac{M_C}{M_C} \leq 1.0$$

$$\frac{P_u}{P_u} + \frac{M_{ux}}{M_{ux}} + \frac{M_{uy}}{M_{uy}} + \frac{M_C}{M_C} \left(1 - \frac{P_u}{A_s F_{cx}} \right) \leq 1.0$$

DL Factor LL Factor	Member	Factored Loads										Capacities					RF
		Axial Force		Moment My		Moment Mx		P _u kips	M _{ux} k-ft	M _{uy} k-ft	A _s F _{cy} kips	A _s F _{cx} kips					
		Dead Load kips	Max. LL + I kips	Dead Load k-ft	Max LL + I k-ft	Dead Load k-ft	Max LL + I k-ft										
1.30 2.17 INV	1.30 OPER	C100	1057.3485	657.41	195.54	87.20	932.22	735.95	3364.70	2697.50	3365.00	98001.08	229971.79	1.00	1.36		
		C100	1057.3485	630.39	195.54	1053.86	600.39	3364.70	2697.50	3365.00	98001.08	229971.79	1.00	0.89			
		C100	1057.3485	394.45	195.54	52.32	932.22	441.57	3364.70	2697.50	3365.00	98001.08	229971.79	1.00	2.27		
		C100	1057.3485	378.23	195.54	632.32	932.22	360.24	3364.70	2697.50	3365.00	98001.08	229971.79	1.00	1.48		
		C100	1057.3485	167.75	195.54	285.03	932.22	152.48	3364.70	2697.50	3365.00	98001.08	229971.79	1.00	3.35		
		C100	1057.3485	167.75	195.54	285.03	932.22	152.48	3364.70	2697.50	3365.00	98001.08	229971.79	1.00	3.35		
		C100	1057.3485	235.39	195.54	421.90	932.22	638.36	3364.70	2697.50	3365.00	98001.08	229971.79	1.00	1.70		
		C100	1057.3485	235.39	195.54	421.90	932.22	233.76	3364.70	2697.50	3365.00	98001.08	229971.79	1.00	2.29		
		C100	1057.3485	267.62	195.54	487.16	932.22	272.80	3364.70	2697.50	3365.00	98001.08	229971.79	1.00	1.99		
		C100	1057.3485	267.62	195.54	487.16	932.22	272.80	3364.70	2697.50	3365.00	98001.08	229971.79	1.00	1.99		
		C100	1057.3485	344.82	195.54	638.36	932.22	367.47	3364.70	2697.50	3365.00	98001.08	229971.79	1.00	1.52		
		C100	1057.3485	344.82	195.54	638.36	932.22	367.47	3364.70	2697.50	3365.00	98001.08	229971.79	1.00	1.52		

Load Case	Controlling RF
HS20 INV	0.89
HS20 OPER	1.48
2F1	3.35
3F1	1.70
4F1	1.99
5C1	1.52



Calculated: FKL Date: 4/2/2012
 Checked: MTN Date: 4/12/2012

CUY-2-1441 Load Rating Analysis - As-Built
Main Ave Bridge
East Approach Fwd Section - Bent 0

Truss: Center Vertical

Section Properties	30WF108	(All web member of Truss)
A =	31.770 in ²	I _x = 4461.000 in ⁴
h =	29.820 in	S _x = 299.200 in ³
b _f =	10.484 in	r _x = 11.850 in
t _f =	0.760 in	I _y = 135.100 in ⁴
t _w =	0.548 in	S _y = 25.800 in ³
		r _y = 2.060 in
F _y =	33.0 ksi	
E =	29000 ksi	
L _{cx} =	130.00 in	
L _{cy} =	130.00 in	
K _x =	1.000 AASHTO Appendix C	
K _y =	1.000 AASHTO Appendix C	

Axial Loading

$$P_u = 0.85 A_s F_{cr}$$

AASHTO 10.54 Concentrically Loaded Columns

$$F_{cr} = F_y \left(1 - \frac{F_y}{4\pi^2 E} \left(\frac{KL_c}{r} \right)^2 \right)$$

$$\text{For: } \frac{KL_c}{r} \leq \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$F_{cr} = \frac{\pi^2 E}{\left(\frac{KL_c}{r} \right)^2}$$

$$\text{For: } \frac{KL_c}{r} > \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$\begin{aligned} KL/r_y &= 63.105 < 131.706 \\ KL/r_x &= 10.970 < 131.706 \end{aligned}$$

$$F_{CR} = 29.212 \text{ ksi}$$

$$P_u = 788.9 \text{ k}$$

CUY-2-1441 Load Rating Analysis - As-Built

Main Ave Bridge



Calculated: FKL 4/9/2012
 Checked: MTN 4/12/2012

East Approach Forward Section - Truss web member Ratings - Center Vertical is the critical member

Column Loading

	DL	HS-20	2F1	3F1	4F1	5C1
Max Axial	128.54	131.02	74.29	98.96	108.31	99.04
Moment	0.00	0.00	0.00	0.00	0.00	0.00

DL Factor	LL Factor	Factored Loads						RF
		Axial Force		Moment		P _u		
		Dead Load	Max. LL + I	Dead Load	Max LL + I			
Load Case	Member	kips	kips	k-ft	k-ft	kips		
1.30	2.17 INV	167.0981	283.88	0.00	0.00	788.90	2.19	
1.30 OPER		0	0.00	0.00	0.00	788.90		
	HS20 OPR	167.0981	170.33	0.00	0.00	788.90	3.65	
	HS20 OPR	0	0.00	0.00	0.00	788.90		
	2F1	167.0981	96.58	0.00	0.00	788.90	6.44	
	2F1	0	0.00	0.00	0.00	788.90		
	3F1	167.0981	128.65	0.00	0.00	788.90	4.83	
	3F1	0	0.00	0.00	0.00	788.90		
	4F1	167.0981	140.80	0.00	0.00	788.90	4.42	
	4F1	0	0.00	0.00	0.00	788.90		
	5C1	167.0981	128.75	0.00	0.00	788.90	4.83	
	5C1	0	0.00	0.00	0.00	788.90		

Load Case	Controlling RF
HS20 INV	2.19
HS20 OPER	3.65
2F1	6.44
3F1	4.83
4F1	4.42
5C1	4.83



Made By MTN
Checked By PJP

Date 3/30/2012
Date 4/5/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441 - East Approach Forward Section**

Bent 1 Reactions

Dead Load Reactions from MDX

Unit 1		
Stringer	DL1	DL2
F1-1	13.71	2.26
S1-1	14.13	2.26
S2-1	14.37	2.26
S3-1	16.23	2.26
S4-1	16.23	2.26
S5-1	16.23	2.26
S6-1	16.23	2.26
S7-1	17.78	2.26
S8-1	16.23	2.26
S9-1	16.23	2.26
S10-1	16.23	2.26
S11-1	16.23	2.26
S12-1	18.56	2.26
S13-1	18.12	2.26
F2-1	13.75	2.26

Unit 2		
Stringer	DL1	DL2
F1-2	12.04	2.00
S1-2	12.75	2.00
S2-2	13.04	2.00
S3-2	14.03	2.00
S4-2	14.03	2.00
S5-2	14.03	2.00
S6-2	14.03	2.00
S7-2	14.00	2.00
S8-2	14.03	2.00
S9-2	14.03	2.00
S10-2	14.03	2.00
S11-2	14.03	2.00
S12-2	14.80	2.00
S13-2	14.89	2.00
F2-2	12.95	2.00

Bent 1 Reaction	
Stringer	Total DL
F1-1 + F1-2	30.01
S1-1 + S1-2	31.14
S2-1 + S2-2	31.67
S3-1 + S3-2	34.52
S4-1 + S4-2	34.52
S5-1 + S5-2	34.52
S6-1 + S6-2	34.52
S7-1 + S7-2	36.04
S8-1 + S8-2	34.52
S9-1 + S9-2	34.52
S10-1 + S10-2	34.52
S11-1 + S11-2	34.52
S12-1 + S12-2	37.62
S13-1 + S13-2	37.27
F2-1 + F2-2	30.96

Lower Deck Reactions from MDX

Unit 1		
Stringer	DL1	Continuous Over Bent?
S-15	10.63	No
S-1 (1)	13.08	No
S-1 (2)	13.08	No
S-1 (3)	13.08	No
S-1 (4)	13.08	No
S-10	14.97	No
S-1 (5)	13.08	No
S-1 (6)	13.08	No
S-1 (7)	13.08	No
S-1 (8)	13.08	No
S-11	11.39	No
S-12	7.25	No

Unit 2		
Stringer	DL1	Continuous Over Bent?
S-16	9.54	No
S-4 (1)	8.73	No
S-4 (2)	8.73	No
S-4 (3)	8.73	No
S-4 (4)	8.73	No
S-14	11.14	No
S-13	7.77	No

Bent 1 Reaction	
Stringer	Total DL
S-15 +	10.63
S-1 (1) +	13.08
S-1 (2) +	13.08
S-1 (3) +	13.08
S-1 (4) +	13.08
S-10 + S-16	24.51
S-1 (5) + S-4 (1)	21.81
S-1 (6) + S-4 (2)	21.81
S-1 (7) + S-4 (3)	21.81
S-1 (8) + S-4 (4)	21.81
S-11 + S-14	22.53
S-12 + S-13	15.02

Live Load Reactions from STAAD

	LL	2 lane LL+I	3 lane	4 lane
HS-20	30.21	39.1	35.2	29.3
2F1	13.99	18.1	16.3	13.6
3F1	21.02	27.2	24.5	20.4
4F1	24.11	31.2	28.1	23.4
5C1	25.74	33.3	30.0	25.0

Impact Factor
Span 1 49.641
Span 2 43.990
L_{avg} 46.82
Impact = 1.291
3 lane reduction 0.9
4 lane + reduction 0.75

	LL	
HS-20	30.21	
2F1	13.99	0.463092
3F1	21.02	0.695796
4F1	24.11	0.798080
5C1	25.74	0.852036

Reactions per wheel line at Bent 1



Made By MTN
 Checked By PJP

Date 3/30/2012
 Date 4/5/2012

Job No. P402110046
 Sheet No. _____

Calculations For: **CUY-2-1441 - East Approach Forward Section**

Bent 1 Reactions

Lower Deck Live Load

Parking Structure Live Load = 0.04 ksf (from ASCE 07 for Parking Structures)
 Span 1 Tributary Length = 24.82 ft
 Span 1 Distributed Load on FB = 0.99 klf
 Span 2 Tributary Length = 21.99 ft
 Span 2 Distributed Load on FB = 0.88 klf

Unit 1		
Stringer	Tributary Width	Live Load Reaction
S-15	4.078	4.05
S-1 (1)	5.880	5.84
S-1 (2)	5.604	5.56
S-1 (3)	5.604	5.56
S-1 (4)	5.943	5.90
S-10	6.281	6.24
S-1 (5)	5.943	5.90
S-1 (6)	5.604	5.56
S-1 (7)	5.604	5.56
S-1 (8)	5.880	5.84
S-11	4.745	4.71
S-12	2.167	2.15

Unit 2		
Stringer	Tributary Width	Live Load Reaction
S-16	4.141	3.64
S-4 (1)	5.943	5.23
S-4 (2)	5.604	4.93
S-4 (3)	5.604	4.93
S-4 (4)	5.880	5.17
S-14	4.745	4.17
S-13	2.167	1.91

Bent 1 Reaction	
Stringer	Total LL
S-15 +	4.05
S-1 (1) +	5.84
S-1 (2) +	5.56
S-1 (3) +	5.56
S-1 (4) +	5.90
S-10 + S-16	9.88
S-1 (5) + S-4 (1)	11.13
S-1 (6) + S-4 (2)	10.49
S-1 (7) + S-4 (3)	10.49
S-1 (8) + S-4 (4)	11.01
S-11 + S-14	8.89
S-12 + S-13	4.06

```
*****
*
*          STAAD.Pro          *
*          Version 2007      Build 05      *
*          Proprietary Program of          *
*          Bentley Systems, Inc.          *
*          Date=   APR  5, 2012          *
*          Time=   14:14: 2              *
*
*          USER ID: TranSystems          *
*****
```

1. STAAD SPACE
- INPUT FILE: Bent 1 Truck Loads.STD
2. START JOB INFORMATION
3. ENGINEER DATE 3/27/12
4. JOB NAME CUY-2-1441 EAST APPROACH FWD SECTION
5. JOB CLIENT ODOT
6. JOB NO P402110046
7. JOB REV REV 0
8. JOB REF BENT 1 TRUCK LOADS
9. ENGINEER NAME MTN
10. CHECKER NAME PJP
11. CHECKER DATE 4/5/12
12. END JOB INFORMATION
13. INPUT WIDTH 79
14. UNIT FEET KIP
15. JOINT COORDINATES
16. 12 -49.641 0 1; 13 0 0 1; 14 0 -0.1 1; 15 44 0 1; 22 -49.641 0 2; 23 0 0 2
17. 24 0 -0.1 2; 25 44 0 2; 32 -49.641 0 3; 33 0 0 3; 34 0 -0.1 3; 35 44 0 3
18. 42 -49.641 0 4; 43 0 0 4; 44 0 -0.1 4; 45 44 0 4; 52 -49.641 0 5; 53 0 0 5
19. 54 0 -0.1 5; 55 44 0 5
20. MEMBER INCIDENCES
21. 12 12 13; 13 13 14; 14 13 15; 22 22 23; 23 23 24; 24 23 25; 32 32 33; 33 33 34
22. 34 33 35; 42 42 43; 43 43 44; 44 43 45; 52 52 53; 53 53 54; 54 53 55
23. MEMBER RELEASE
24. 12 22 32 42 52 END MZ
25. 14 24 34 44 54 START MZ
26. DEFINE MATERIAL START
27. ISOTROPIC STEEL
28. E 4.176E+006
29. POISSON 0.3
30. DENSITY 0.489024
31. ALPHA 6.5E-006
32. DAMP 0.03
33. END DEFINE MATERIAL
34. MEMBER PROPERTY AMERICAN
35. 12 13 22 23 32 33 42 43 52 53 TABLE ST W33X130
36. 14 24 34 44 54 TABLE ST W30X116
37. CONSTANTS
38. MATERIAL STEEL ALL
39. SUPPORTS
40. 14 24 34 44 54 FIXED

STAAD SPACE

-- PAGE NO. 2

41. 12 15 22 25 32 35 42 45 52 55 FIXED BUT FX MZ
42. DEFINE MOVING LOAD
43. *HS20 TRUCK
44. TYPE 1 LOAD 16 16 4
45. DIST 14 14
46. *TYPE 2F1 TRUCK
47. TYPE 2 LOAD 10 5
48. DIST 10
49. *TYPE 3F1 TRUCK
50. TYPE 3 LOAD 8.5 8.5 6
51. DIST 4 10
52. *TYPE 4F1 TRUCK
53. TYPE 4 LOAD 7 7 7 6
54. DIST 4 4 10
55. *TYPE 5C1 TRUCK
56. TYPE 5 LOAD 8.5 8.5 8.5 8.5 6
57. DIST 4 31 4 12
58. *HS20 TRAVELING UP STATION
59. LOAD GENERATION 29
**WARNING- THIS STRUCTURE IS DISJOINTED. IGNORE IF
MASTER/SLAVE OR IF UNCONNECTED JOINTS.
60. TYPE 1 -28 0 1 XINC 1
61. *HS20 TRAVELING DOWN STATION
62. LOAD GENERATION 29
63. TYPE 1 28 0 1 XINC -1.
64. *TYPE 2F1 TRAVELING UP STATION
65. LOAD GENERATION 11
66. TYPE 2 -10 0 2 XINC 1
67. *TYPE 2F1 TRAVELING DOWN STATION
68. LOAD GENERATION 11
69. TYPE 2 10 0 2 XINC -1.
70. *TYPE 3F1 TRAVELING UP STATION
71. LOAD GENERATION 15
72. TYPE 3 -14 0 3 XINC 1
73. *TYPE 3F1 TRAVELING DOWN STATION
74. LOAD GENERATION 15
75. TYPE 3 14 0 3 XINC -1.
76. *TYPE 4F1 TRAVELING UP STATION
77. LOAD GENERATION 19
78. TYPE 4 -18 0 4 XINC 1
79. *TYPE 4F1 TRAVELING DOWN STATION
80. LOAD GENERATION 19
81. TYPE 4 18 0 4 XINC -1.
82. *TYPE 5C1 TRAVELING UP STATION
83. LOAD GENERATION 52
84. TYPE 5 -51 0 5 XINC 1
85. *TYPE 5 TRAVELING DOWN STATION
86. LOAD GENERATION 52
**WARNING-A MOVING LOAD THAT WOULD HAVE BEEN APPLIED BEYOND THE X AND Z RANGES
OF THE STRUCTURE HAS BEEN IGNORED. CASE= 149 WHEEL 1 OF 5
**WARNING-A MOVING LOAD THAT WOULD HAVE BEEN APPLIED BEYOND THE X AND Z RANGES
OF THE STRUCTURE HAS BEEN IGNORED. CASE= 150 WHEEL 1 OF 5
**WARNING-A MOVING LOAD THAT WOULD HAVE BEEN APPLIED BEYOND THE X AND Z RANGES
OF THE STRUCTURE HAS BEEN IGNORED. CASE= 194 WHEEL 5 OF 5
**WARNING-A MOVING LOAD THAT WOULD HAVE BEEN APPLIED BEYOND THE X AND Z RANGES
OF THE STRUCTURE HAS BEEN IGNORED. CASE= 195 WHEEL 5 OF 5

STAAD SPACE

-- PAGE NO. 3

**WARNING-A MOVING LOAD THAT WOULD HAVE BEEN APPLIED BEYOND THE X AND Z RANGES
 OF THE STRUCTURE HAS BEEN IGNORED. CASE= 196 WHEEL 5 OF 5

**WARNING-A MOVING LOAD THAT WOULD HAVE BEEN APPLIED BEYOND THE X AND Z RANGES
 OF THE STRUCTURE HAS BEEN IGNORED. CASE= 197 WHEEL 5 OF 5

**WARNING-A MOVING LOAD THAT WOULD HAVE BEEN APPLIED BEYOND THE X AND Z RANGES
 OF THE STRUCTURE HAS BEEN IGNORED. CASE= 198 WHEEL 5 OF 5

**WARNING-A MOVING LOAD THAT WOULD HAVE BEEN APPLIED BEYOND THE X AND Z RANGES
 OF THE STRUCTURE HAS BEEN IGNORED. CASE= 199 WHEEL 5 OF 5

**WARNING-A MOVING LOAD THAT WOULD HAVE BEEN APPLIED BEYOND THE X AND Z RANGES
 OF THE STRUCTURE HAS BEEN IGNORED. CASE= 200 WHEEL 5 OF 5

87. TYPE 5 51 0 5 XINC -1.

88. PERFORM ANALYSIS

**WARNING-A MOVING LOAD THAT WOULD HAVE BEEN APPLIED BEYOND THE X AND Z RANGES
 OF THE STRUCTURE HAS BEEN IGNORED. CASE= 201 WHEEL 1 OF 5

*ADDITIONAL MOVING LOAD MESSAGES SUPPRESSED

*ADDITIONAL MOVING LOAD MESSAGES SUPPRESSED

P R O B L E M S T A T I S T I C S

NUMBER OF JOINTS/MEMBER+ELEMENTS/SUPPORTS = 20/ 15/ 15

SOLVER USED IS THE OUT-OF-CORE BASIC SOLVER

ORIGINAL/FINAL BAND-WIDTH= 2/ 2/ 8 DOF

TOTAL PRIMARY LOAD CASES = 252, TOTAL DEGREES OF FREEDOM = 50

SIZE OF STIFFNESS MATRIX = 1 DOUBLE KILO-WORDS

REQRD/AVAIL. DISK SPACE = 12.4/ 514526.6 MB

89. PRINT MAXFORCE ENVELOPE NSECTION 1 LIST 13

STAAD SPACE

-- PAGE NO. 4

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/	DIST	LD	MZ/	DIST	LD	FX	DIST	LD
	FZ	DIST	LD	MY	DIST	LD			
13 MAX	0.00	0.00	1	0.00	0.00	1	30.21 C	0.00	15
	0.00	0.00	1	0.00	0.00	1			
MIN	0.00	0.10	252	0.00	0.10	252	0.00	0.10	252
	0.00	0.10	252	0.00	0.10	252			

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

90. *HS20 MAX REACTION - LISTED ABOVE

91. PRINT MAXFORCE ENVELOPE NSECTION 1 LIST 23

STAAD SPACE

-- PAGE NO. 5

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/	DIST	LD	MZ/	DIST	LD	FX	DIST	LD
	FZ	DIST	LD	MY	DIST	LD			
23 MAX	0.00	0.00	1	0.00	0.00	1	13.99 C	0.00	80
	0.00	0.00	1	0.00	0.00	1			
MIN	0.00	0.10	252	0.00	0.10	252	0.00	0.10	252
	0.00	0.10	252	0.00	0.10	252			

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

92. *TYPE 2F1 MAX REACTION - LISTED ABOVE

93. PRINT MAXFORCE ENVELOPE NSECTION 1 LIST 33

STAAD SPACE

-- PAGE NO. 6

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/	DIST	LD	MZ/	DIST	LD	FX	DIST	LD
	FZ	DIST	LD	MY	DIST	LD			
33 MAX	0.00	0.00	1	0.00	0.00	1	21.02 C	0.00	106
	0.00	0.00	1	0.00	0.00	1			
MIN	0.00	0.10	252	0.00	0.10	252	0.00	0.10	252
	0.00	0.10	252	0.00	0.10	252			

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

94. *TYPE 3F1 MAX REACTION - LISTED ABOVE
 95. PRINT MAXFORCE ENVELOPE NSECTION 1 LIST 43

STAAD SPACE

-- PAGE NO. 7

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/	DIST	LD	MZ/	DIST	LD	FX	DIST	LD
	FZ	DIST	LD	MY	DIST	LD			
43 MAX	0.00	0.00	1	0.00	0.00	1	24.11 C	0.00	144
	0.00	0.00	1	0.00	0.00	1			
MIN	0.00	0.10	252	0.00	0.10	252	0.00	0.10	252
	0.00	0.10	252	0.00	0.10	252			

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

96. *TYPE 4F1 MAX REACTION - LISTED ABOVE
 97. PRINT MAXFORCE ENVELOPE NSECTION 1 LIST 53

STAAD SPACE

-- PAGE NO. 8

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/	DIST	LD	MZ/	DIST	LD	FX	DIST	LD
	FZ	DIST	LD	MY	DIST	LD			
53 MAX	0.00	0.00	1	0.00	0.00	1	25.74 C	0.00	165
	0.00	0.00	1	0.00	0.00	1			
MIN	0.00	0.10	252	0.00	0.10	252	0.00	0.10	148
	0.00	0.10	252	0.00	0.10	252			

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

98. *TYPE 5C1 MAX REACTION - LISTED ABOVE

99. FINISH

***** END OF THE STAAD.Pro RUN *****

**** DATE= APR 5,2012 TIME= 14:14: 6 ****

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*****
*           For questions on STAAD.Pro, please contact           *
*   Bentley Systems Offices at the following locations           *
*                                                                 *
*           Telephone           Web / Email           *
*                                                                 *
*   USA:           +1 (714)974-2500           *
*   CANADA         +1 (905)632-4771           detech@odandetech.com *
*   UK             +44(1454)207-000           *
*   SINGAPORE      +65 6225-6158           *
*   EUROPE         +31 23 5560560           *
*   INDIA          +91(033)4006-2021           *
*   JAPAN          +81(03)5952-6500           http://www.ctc-g.co.jp *
*   CHINA          +86 10 5929 7000           *
*   THAILAND       +66(0)2645-1018/19 partha.p@reissoftwareth.com *
*                                                                 *
*   Worldwide      http://selectservices.bentley.com/en-US/ *
*                                                                 *
*****
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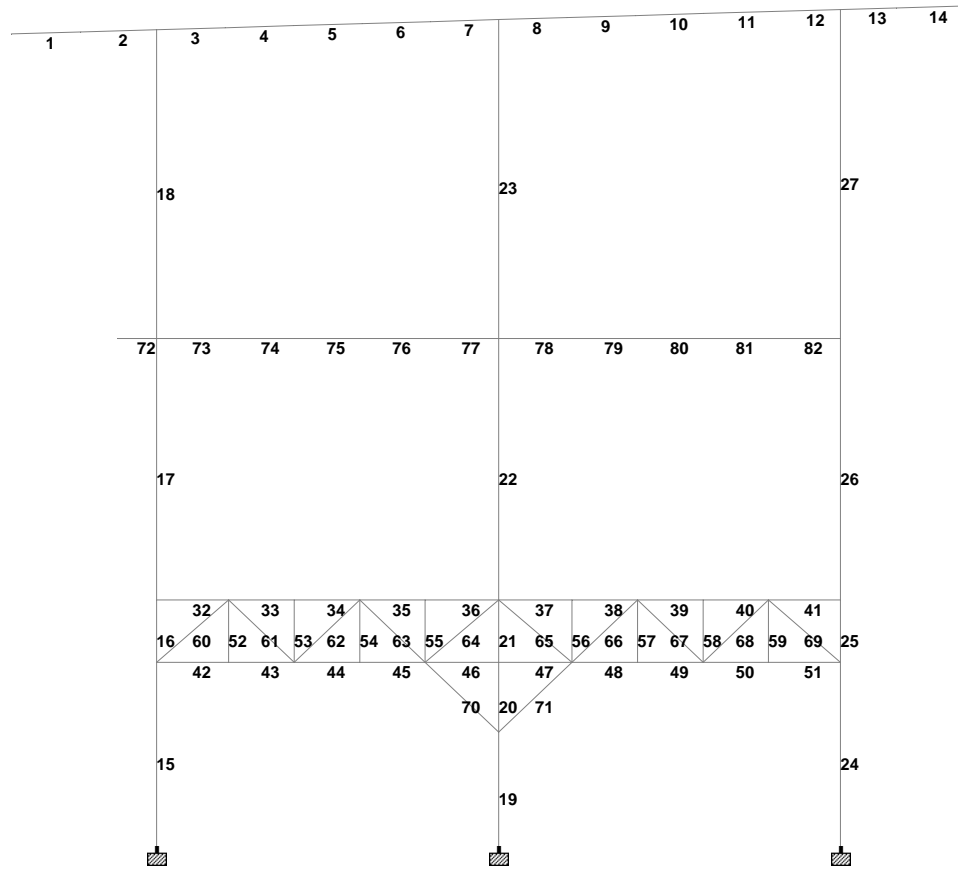



Job No P402110046	Sheet No 1	Rev
Part EAST APPR. - FWD. SECTION		
Ref Bent 1		
By MTN	Date 30-Mar-12	Chd PJP
File Bent_1_LL.std	Date/Time 12-Apr-2012 13:27	

Software licensed to TranSystems

Job Title CUY-2-1441 Main Ave Rating

Client ODOT



```
*****
*
*          STAAD.Pro V8i SELECTseries1          *
*          Version  20.07.06.35                 *
*          Proprietary Program of              *
*          Bentley Systems, Inc.                *
*          Date=    APR 11, 2012                *
*          Time=    19: 4:25                    *
*
*          USER ID: TranSystems                 *
*****
```

1. STAAD SPACE DXF IMPORT OF 002_1441BENT_1.DXF
- INPUT FILE: Bent_1_DL.STD
2. START JOB INFORMATION
3. ENGINEER DATE 30-MAR-12
4. JOB NAME CUY-2-1441 MAIN AVE RATING
5. JOB NO P402110046
6. JOB REF BENT 1
7. JOB COMMENT BENT 1 DEAD LOAD
8. ENGINEER NAME MTN
9. JOB CLIENT ODOT
10. JOB PART EAST APPR. - FWD. SECTION
11. CHECKER NAME PJP
12. CHECKER DATE 4/5/12
13. END JOB INFORMATION
14. INPUT WIDTH 79
15. UNIT FEET KIP
16. JOINT COORDINATES
17. 1 -2.32292 186.628 0; 2 3.60938 186.803 0; 3 10.1094 186.996 0
18. 4 15.9635 187.169 0; 5 21.8177 187.342 0; 6 27.6719 187.515 0
19. 7 33.526 187.688 0; 8 39.3594 187.861 0; 9 45.1927 188.033 0
20. 10 51.0469 188.206 0; 11 56.901 188.379 0; 12 62.7552 188.552 0
21. 13 68.6094 188.726 0; 14 73.3802 188.867 0; 15 79 189.033 0
22. 16 10.1094 117.15 0; 17 10.1094 132.879 0; 18 10.1094 138.212 0
23. 19 10.1094 160.579 0; 20 39.3594 117.15 0; 21 39.3594 126.9 0
24. 22 39.3594 132.879 0; 23 39.3594 138.212 0; 24 39.3594 160.579 0
25. 25 68.6094 117.15 0; 26 68.6094 132.879 0; 27 68.6094 138.212 0
26. 28 68.6094 160.579 0; 30 16.2656 138.212 0; 31 21.8698 138.212 0
27. 32 27.474 138.212 0; 33 33.0781 138.212 0; 34 45.6406 138.212 0
28. 35 51.2448 138.212 0; 36 56.849 138.212 0; 37 62.4531 138.212 0
29. 38 16.2656 132.879 0; 39 21.8698 132.879 0; 40 27.474 132.879 0
30. 41 33.0781 132.879 0; 42 45.6406 132.879 0; 43 51.2448 132.879 0
31. 44 56.849 132.879 0; 45 62.4531 132.879 0; 46 6.77604 160.579 0
32. 47 16.2656 160.579 0; 48 21.8698 160.579 0; 49 27.474 160.579 0
33. 50 33.0781 160.579 0; 51 45.6406 160.579 0; 52 51.2448 160.579 0
34. 53 56.849 160.579 0; 54 62.4531 160.579 0
35. MEMBER INCIDENCES
36. 1 1 2; 2 2 3; 3 3 4; 4 4 5; 5 5 6; 6 6 7; 7 7 8; 8 8 9; 9 9 10; 10 10 11
37. 11 11 12; 12 12 13; 13 13 14; 14 14 15; 15 16 17; 16 17 18; 17 18 19; 18 19 3
38. 19 20 21; 20 21 22; 21 22 23; 22 23 24; 23 24 8; 24 25 26; 25 26 27; 26 27 28
39. 27 28 13; 32 18 30; 33 30 31; 34 31 32; 35 32 33; 36 33 23; 37 23 34; 38 34 35
40. 39 35 36; 40 36 37; 41 37 27; 42 17 38; 43 38 39; 44 39 40; 45 40 41; 46 41 22

DXF IMPORT OF 002_1441BENT_1.DXF

-- PAGE NO. 2

41. 47 22 42; 48 42 43; 49 43 44; 50 44 45; 51 45 26; 52 38 30; 53 39 31; 54 40 32
42. 55 41 33; 56 42 34; 57 43 35; 58 44 36; 59 45 37; 60 17 30; 61 30 39; 62 39 32
43. 63 32 41; 64 41 23; 65 23 42; 66 42 35; 67 35 44; 68 44 37; 69 37 26; 70 41 21
44. 71 21 42; 72 46 19; 73 19 47; 74 47 48; 75 48 49; 76 49 50; 77 50 24; 78 24 51
45. 79 51 52; 80 52 53; 81 53 54; 82 54 28
46. DEFINE MATERIAL START
47. ISOTROPIC STEEL
48. E 4.176E+006
49. POISSON 0.3
50. DENSITY 0.489024
51. ALPHA 6E-006
52. DAMP 0.03
53. END DEFINE MATERIAL
54. MEMBER PROPERTY AMERICAN
55. 1 TO 14 TABLE ST W36X182
56. 15 TO 18 24 TO 27 TABLE ST W21X132
57. 19 TO 23 TABLE ST W24X146
58. 72 TO 77 TABLE ST W36X230
59. 78 TO 82 TABLE ST W36X160
60. 32 TO 71 TABLE ST W8X31
61. CONSTANTS
62. BETA 90 MEMB 32 TO 71
63. MATERIAL STEEL ALL
64. MEMBER TRUSS
65. 32 TO 71
66. SUPPORTS
67. 16 20 25 FIXED
68. LOAD 1 LOADTYPE DEAD TITLE LOAD CASE 1
69. SELFWEIGHT Y -1.05 LIST 1 TO 27 32 TO 82
70. JOINT LOAD
71. *F1-12 UPPER DECK FASCIA BEAM
72. 15 FY -30.01
73. *S1-12
74. 14 FY -31.14
75. *S2-12
76. 13 FY -31.67
77. *S3-12, S4-12, S5-12, S6-12, S8-12, S9-12, S10-12, S11-12
78. 4 TO 7 9 TO 12 FY -34.52
79. *S7-12
80. 8 FY -36.04
81. *S12-12
82. 3 FY -37.62
83. *S13-12
84. 2 FY -37.27
85. *F2-12 UPPER DECK FASCIA BEAM
86. 1 FY -30.96
87. *S-15 LOWER DECK (RIGHT FASCIA BEAM - LOOKING WEST)
88. 28 FY -10.63
89. *S-1 LOWER DECK (INTERIOR BEAMS - NORTH BAY)
90. 51 TO 54 FY -13.08
91. *S-10 _S-16 LOWER DECK (CENTER COLUMN BEAM)
92. 24 FY -24.51
93. *S-1 _S-4 LOWER DECK (INTERIOR BEAMS - SOUTH BAY)
94. 47 TO 50 FY -21.81
95. *S-11 _S-14 LOWER DECK (SECOND BEAM FROM LEFT - LOOKING WEST)
96. 19 FY -22.53

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97. *S-12 _S-13 LOWER DECK (LEFT FASCIA BEAM - LOOKING WEST)
 98. 46 FY -15.02
 99. MEMBER LOAD
 100. *DEAD LOAD OF STRENGTHENING PLATES ON COLUMNS = 44 LB/FT, 50 LB/FT IS USED TO I
 101. 18 UNI GY -0.05 0 22.1738
 102. 27 UNI GY -0.05 0 23.9038
 103. 17 26 UNI GY -0.05 0 22.367
 104. 15 24 UNI GY -0.05 0 15.729
 105. PERFORM ANALYSIS

P R O B L E M S T A T I S T I C S

NUMBER OF JOINTS/MEMBER+ELEMENTS/SUPPORTS = 53/ 78/ 3

SOLVER USED IS THE OUT-OF-CORE BASIC SOLVER

ORIGINAL/FINAL BAND-WIDTH= 27/ 6/ 42 DOF
 TOTAL PRIMARY LOAD CASES = 1, TOTAL DEGREES OF FREEDOM = 300
 SIZE OF STIFFNESS MATRIX = 13 DOUBLE KILO-WORDS
 REQD/AVAIL. DISK SPACE = 12.2/ 515501.0 MB

ZERO STIFFNESS IN DIRECTION 3 AT JOINT 30 EQN.NO. 69
 LOADS APPLIED OR DISTRIBUTED HERE FROM ELEMENTS WILL BE IGNORED.
 THIS MAY BE DUE TO ALL MEMBERS AT THIS JOINT BEING RELEASED OR
 EFFECTIVELY RELEASED IN THIS DIRECTION.

ZERO STIFFNESS IN DIRECTION 4 AT JOINT 30 EQN.NO. 70
 ZERO STIFFNESS IN DIRECTION 5 AT JOINT 30 EQN.NO. 71
 ZERO STIFFNESS IN DIRECTION 6 AT JOINT 30 EQN.NO. 72
 ZERO STIFFNESS IN DIRECTION 3 AT JOINT 38 EQN.NO. 87
 ZERO STIFFNESS IN DIRECTION 4 AT JOINT 38 EQN.NO. 88
 ZERO STIFFNESS IN DIRECTION 5 AT JOINT 38 EQN.NO. 89
 ZERO STIFFNESS IN DIRECTION 6 AT JOINT 38 EQN.NO. 90
 ZERO STIFFNESS IN DIRECTION 3 AT JOINT 31 EQN.NO. 93
 ZERO STIFFNESS IN DIRECTION 4 AT JOINT 31 EQN.NO. 94
 ZERO STIFFNESS IN DIRECTION 5 AT JOINT 31 EQN.NO. 95
 ZERO STIFFNESS IN DIRECTION 6 AT JOINT 31 EQN.NO. 96

****WARNING - THERE WERE MORE THAN 12 DOF WITH ZERO STIFFNESS.**

THE FIRST 12 ARE LISTED ABOVE.

TOTAL # TRANSLATIONAL= 16 TOTAL # ROTATIONAL= 48

106. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 1 TO 14

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
1 MAX	-30.95	0.00	1	187.03	5.93	1			
	0.00	0.00	1	0.00	0.00	1	0.91 T	0.00	1
MIN	-32.08	5.93	1	0.00	0.00	1			
	0.00	5.93	1	0.00	5.93	1	0.95 T	5.93	1
2 MAX	-69.33	0.00	1	641.94	6.50	1			
	0.00	0.00	1	0.00	0.00	1	2.06 T	0.00	1
MIN	-70.58	6.50	1	187.03	0.00	1			
	0.00	6.50	1	0.00	6.50	1	2.10 T	6.50	1
3 MAX	80.46	0.00	1	609.45	0.00	1			
	0.00	0.00	1	0.00	0.00	1	2.22 C	0.00	1
MIN	79.34	5.86	1	141.50	5.86	1			
	0.00	5.86	1	0.00	5.86	1	2.19 C	5.86	1
4 MAX	44.84	0.00	1	141.50	0.00	1			
	0.00	0.00	1	0.00	0.00	1	1.17 C	0.00	1
MIN	43.72	5.86	1	-117.82	5.86	1			
	0.00	5.86	1	0.00	5.86	1	1.13 C	5.86	1
5 MAX	9.21	0.00	1	-117.82	0.00	1			
	0.00	0.00	1	0.00	0.00	1	0.11 C	0.00	1
MIN	8.09	5.86	1	-168.50	5.86	1			
	0.00	5.86	1	0.00	5.86	1	0.08 C	5.86	1
6 MAX	-26.41	0.00	1	-10.55	5.86	1			
	0.00	0.00	1	0.00	0.00	1	0.94 T	0.00	1
MIN	-27.53	5.86	1	-168.50	0.00	1			
	0.00	5.86	1	0.00	5.86	1	0.97 T	5.86	1
7 MAX	-62.03	0.00	1	354.74	5.84	1			
	0.00	0.00	1	0.00	0.00	1	2.00 T	0.00	1
MIN	-63.15	5.84	1	-10.55	0.00	1			
	0.00	5.84	1	0.00	5.84	1	2.03 T	5.84	1
8 MAX	68.72	0.00	1	373.22	0.00	1			
	0.00	0.00	1	0.00	0.00	1	2.48 C	0.00	1
MIN	67.60	5.84	1	-24.54	5.84	1			
	0.00	5.84	1	0.00	5.84	1	2.45 C	5.84	1
9 MAX	33.10	0.00	1	-24.54	0.00	1			
	0.00	0.00	1	0.00	0.00	1	1.43 C	0.00	1

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MIN	31.98	5.86	1	-215.11	5.86	1			
	0.00	5.86	1	0.00	5.86	1	1.40 C	5.86	1
10 MAX	-2.53	0.00	1	-197.03	5.86	1			
	0.00	0.00	1	0.00	0.00	1	0.38 C	0.00	1
MIN	-3.65	5.86	1	-215.11	0.00	1			
	0.00	5.86	1	0.00	5.86	1	0.35 C	5.86	1
11 MAX	-38.15	0.00	1	29.69	5.86	1			
	0.00	0.00	1	0.00	0.00	1	0.67 T	0.00	1
MIN	-39.27	5.86	1	-197.03	0.00	1			
	0.00	5.86	1	0.00	5.86	1	0.70 T	5.86	1
12 MAX	-73.77	0.00	1	465.05	5.86	1			
	0.00	0.00	1	0.00	0.00	1	1.74 T	0.00	1
MIN	-74.89	5.86	1	29.69	0.00	1			
	0.00	5.86	1	0.00	5.86	1	1.77 T	5.86	1
13 MAX	63.11	0.00	1	470.71	0.00	1			
	0.00	0.00	1	0.00	0.00	1	1.87 C	0.00	1
MIN	62.20	4.77	1	171.67	4.77	1			
	0.00	4.77	1	0.00	4.77	1	1.84 C	4.77	1
14 MAX	31.07	0.00	1	171.67	0.00	1			
	0.00	0.00	1	0.00	0.00	1	0.92 C	0.00	1
MIN	30.00	5.62	1	0.00	5.62	1			
	0.00	5.62	1	0.00	5.62	1	0.89 C	5.62	1

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

107. *FLOOR BEAM DEAD LOAD ABOVE

108. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 15 TO 18

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
15 MAX	-0.02	0.00	1	-2.02	15.73	1			
	0.00	0.00	1	0.00	0.00	1	283.13 C	0.00	1
MIN	-0.02	15.73	1	-2.33	0.00	1			
	0.00	15.73	1	0.00	15.73	1	280.17 C	15.73	1
16 MAX	2.49	0.00	1	-2.02	0.00	1			
	0.00	0.00	1	0.00	0.00	1	279.03 C	0.00	1
MIN	2.49	5.33	1	-15.29	5.33	1			
	0.00	5.33	1	0.00	5.33	1	278.29 C	5.33	1
17 MAX	-2.89	0.00	1	49.36	22.37	1			
	0.00	0.00	1	0.00	0.00	1	278.19 C	0.00	1
MIN	-2.89	22.37	1	-15.29	0.00	1			
	0.00	22.37	1	0.00	22.37	1	273.97 C	22.37	1
18 MAX	0.16	0.00	1	-28.27	0.00	1			
	0.00	0.00	1	0.00	0.00	1	193.48 C	0.00	1
MIN	0.16	26.42	1	-32.48	26.42	1			
	0.00	26.42	1	0.00	26.42	1	188.72 C	26.42	1

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

109. *COLUMN 3 DEAD LOAD ABOVE

110. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 19 TO 23

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
19 MAX	-0.22	0.00	1	0.15	9.75	1			
	0.00	0.00	1	0.00	0.00	1	296.99 C	0.00	1
MIN	-0.22	9.75	1	-1.98	0.00	1			
	0.00	9.75	1	0.00	9.75	1	295.50 C	9.75	1
20 MAX	-0.05	0.00	1	0.43	5.98	1			
	0.00	0.00	1	0.00	0.00	1	272.27 C	0.00	1
MIN	-0.05	5.98	1	0.15	0.00	1			
	0.00	5.98	1	0.00	5.98	1	271.35 C	5.98	1
21 MAX	-0.39	0.00	1	2.54	5.33	1			
	0.00	0.00	1	0.00	0.00	1	271.15 C	0.00	1
MIN	-0.39	5.33	1	0.43	0.00	1			
	0.00	5.33	1	0.00	5.33	1	270.33 C	5.33	1
22 MAX	1.11	0.00	1	2.54	0.00	1			
	0.00	0.00	1	0.00	0.00	1	287.76 C	0.00	1
MIN	1.11	22.37	1	-22.37	22.37	1			
	0.00	22.37	1	0.00	22.37	1	284.33 C	22.37	1
23 MAX	-0.62	0.00	1	18.49	27.28	1			
	0.00	0.00	1	0.00	0.00	1	172.17 C	0.00	1
MIN	-0.62	27.28	1	1.68	0.00	1			
	0.00	27.28	1	0.00	27.28	1	167.98 C	27.28	1

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

111. *COLUMN 2 DEAD LOAD ABOVE

112. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 24 TO 27

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
24 MAX	0.24	0.00	1	2.24	0.00	1			
	0.00	0.00	1	0.00	0.00	1	216.16 C	0.00	1
MIN	0.24	15.73	1	-1.51	15.73	1			
	0.00	15.73	1	0.00	15.73	1	213.20 C	15.73	1
25 MAX	-1.45	0.00	1	6.20	5.33	1			
	0.00	0.00	1	0.00	0.00	1	212.21 C	0.00	1
MIN	-1.45	5.33	1	-1.51	0.00	1			
	0.00	5.33	1	0.00	5.33	1	211.47 C	5.33	1
26 MAX	1.78	0.00	1	6.20	0.00	1			
	0.00	0.00	1	0.00	0.00	1	211.37 C	0.00	1
MIN	1.78	22.37	1	-33.54	22.37	1			
	0.00	22.37	1	0.00	22.37	1	207.16 C	22.37	1
27 MAX	0.46	0.00	1	18.51	0.00	1			
	0.00	0.00	1	0.00	0.00	1	174.81 C	0.00	1
MIN	0.46	28.15	1	5.66	28.15	1			
	0.00	28.15	1	0.00	28.15	1	169.72 C	28.15	1

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

113. *COLUMN 1 DEAD LOAD ABOVE

114. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 72 TO 77

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
72 MAX	-15.02	0.00	1	51.41	3.33	1			
	0.00	0.00	1	0.00	0.00	1	0.00	0.00	1
MIN	-15.82	3.33	1	0.00	0.00	1			
	0.00	3.33	1	0.00	3.33	1	0.00	3.33	1
73 MAX	42.14	0.00	1	129.03	0.00	1			
	0.00	0.00	1	0.00	0.00	1	3.05 C	0.00	1
MIN	40.66	6.16	1	-125.82	6.16	1			
	0.00	6.16	1	0.00	6.16	1	3.05 C	6.16	1
74 MAX	18.85	0.00	1	-125.82	0.00	1			
	0.00	0.00	1	0.00	0.00	1	3.05 C	0.00	1
MIN	17.49	5.60	1	-227.65	5.60	1			
	0.00	5.60	1	0.00	5.60	1	3.05 C	5.60	1
75 MAX	-4.32	0.00	1	-199.68	5.60	1			
	0.00	0.00	1	0.00	0.00	1	3.05 C	0.00	1
MIN	-5.67	5.60	1	-227.65	0.00	1			
	0.00	5.60	1	0.00	5.60	1	3.05 C	5.60	1
76 MAX	-27.48	0.00	1	-41.92	5.60	1			
	0.00	0.00	1	0.00	0.00	1	3.05 C	0.00	1
MIN	-28.83	5.60	1	-199.68	0.00	1			
	0.00	5.60	1	0.00	5.60	1	3.05 C	5.60	1
77 MAX	-50.64	0.00	1	280.91	6.28	1			
	0.00	0.00	1	0.00	0.00	1	3.05 C	0.00	1
MIN	-52.15	6.28	1	-41.92	0.00	1			
	0.00	6.28	1	0.00	6.28	1	3.05 C	6.28	1

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

115. *LOWER DECK FLOOR BEAM DL BETWEEN COL 2 AND 3 ABOVE

116. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 78 TO 82

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
78 MAX	35.50	0.00	1	256.86	0.00	1			
	0.00	0.00	1	0.00	0.00	1	1.32 C	0.00	1
MIN	34.45	6.28	1	37.17	6.28	1			
	0.00	6.28	1	0.00	6.28	1	1.32 C	6.28	1
79 MAX	21.37	0.00	1	37.17	0.00	1			
	0.00	0.00	1	0.00	0.00	1	1.32 C	0.00	1
MIN	20.43	5.60	1	-79.95	5.60	1			
	0.00	5.60	1	0.00	5.60	1	1.32 C	5.60	1
80 MAX	7.35	0.00	1	-79.95	0.00	1			
	0.00	0.00	1	0.00	0.00	1	1.32 C	0.00	1
MIN	6.41	5.60	1	-118.50	5.60	1			
	0.00	5.60	1	0.00	5.60	1	1.32 C	5.60	1
81 MAX	-6.67	0.00	1	-78.49	5.60	1			
	0.00	0.00	1	0.00	0.00	1	1.32 C	0.00	1
MIN	-7.61	5.60	1	-118.50	0.00	1			
	0.00	5.60	1	0.00	5.60	1	1.32 C	5.60	1
82 MAX	-20.69	0.00	1	52.05	6.16	1			
	0.00	0.00	1	0.00	0.00	1	1.32 C	0.00	1
MIN	-21.72	6.16	1	-78.49	0.00	1			
	0.00	6.16	1	0.00	6.16	1	1.32 C	6.16	1

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

117. *LOWER DECK FLOOR BEAM DL BETWEEN COL 1 AND 2 ABOVE
118. FINISH

***** END OF THE STAAD.Pro RUN *****

**** DATE= APR 11,2012 TIME= 19: 4:26 ****

* For questions on STAAD.Pro, please contact *
* Bentley Systems Offices at the following locations *
* *
* Telephone Web / Email *
* *
* USA: +1 (714)974-2500 *
* UK +44(1454)207-000 *
* SINGAPORE +65 6225-6158 *
* EUROPE +31 23 5560560 *
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* *
* Worldwide <http://selectservices.bentley.com/en-US/> *
* *

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*****
*
*          STAAD.Pro V8i SELECTseries1          *
*          Version  20.07.06.35                 *
*          Proprietary Program of              *
*          Bentley Systems, Inc.               *
*          Date=    APR 12, 2012                *
*          Time=    13:27:44                   *
*
*          USER ID: TranSystems                 *
*****

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1. STAAD SPACE DXF IMPORT OF 002_1441BENT_1.DXF
- INPUT FILE: Bent_1_LL.STD
2. START JOB INFORMATION
3. ENGINEER DATE 30-MAR-12
4. JOB NAME CUY-2-1441 MAIN AVE RATING
5. JOB NO P402110046
6. JOB REF BENT 1
7. JOB COMMENT BENT 1 LIVE LOAD
8. ENGINEER NAME MTN
9. JOB CLIENT ODOT
10. JOB PART EAST APPR. - FWD. SECTION
11. CHECKER NAME PJP
12. CHECKER DATE 4/5/12
13. END JOB INFORMATION
14. INPUT WIDTH 79
15. UNIT FEET KIP
16. JOINT COORDINATES
17. 1 -2.32292 186.628 0; 2 3.60938 186.803 0; 3 10.1094 186.996 0
18. 4 15.9635 187.169 0; 5 21.8177 187.342 0; 6 27.6719 187.515 0
19. 7 33.526 187.688 0; 8 39.3594 187.861 0; 9 45.1927 188.033 0
20. 10 51.0469 188.206 0; 11 56.901 188.379 0; 12 62.7552 188.552 0
21. 13 68.6094 188.726 0; 14 73.3802 188.867 0; 15 79 189.033 0
22. 16 10.1094 117.15 0; 17 10.1094 132.879 0; 18 10.1094 138.212 0
23. 19 10.1094 160.579 0; 20 39.3594 117.15 0; 21 39.3594 126.9 0
24. 22 39.3594 132.879 0; 23 39.3594 138.212 0; 24 39.3594 160.579 0
25. 25 68.6094 117.15 0; 26 68.6094 132.879 0; 27 68.6094 138.212 0
26. 28 68.6094 160.579 0; 30 16.2656 138.212 0; 31 21.8698 138.212 0
27. 32 27.474 138.212 0; 33 33.0781 138.212 0; 34 45.6406 138.212 0
28. 35 51.2448 138.212 0; 36 56.849 138.212 0; 37 62.4531 138.212 0
29. 38 16.2656 132.879 0; 39 21.8698 132.879 0; 40 27.474 132.879 0
30. 41 33.0781 132.879 0; 42 45.6406 132.879 0; 43 51.2448 132.879 0
31. 44 56.849 132.879 0; 45 62.4531 132.879 0; 46 6.77604 160.579 0
32. 47 16.2656 160.579 0; 48 21.8698 160.579 0; 49 27.474 160.579 0
33. 50 33.0781 160.579 0; 51 45.6406 160.579 0; 52 51.2448 160.579 0
34. 53 56.849 160.579 0; 54 62.4531 160.579 0
35. MEMBER INCIDENCES
36. 1 1 2; 2 2 3; 3 3 4; 4 4 5; 5 5 6; 6 6 7; 7 7 8; 8 8 9; 9 9 10; 10 10 11
37. 11 11 12; 12 12 13; 13 13 14; 14 14 15; 15 16 17; 16 17 18; 17 18 19; 18 19 3
38. 19 20 21; 20 21 22; 21 22 23; 22 23 24; 23 24 8; 24 25 26; 25 26 27; 26 27 28
39. 27 28 13; 32 18 30; 33 30 31; 34 31 32; 35 32 33; 36 33 23; 37 23 34; 38 34 35
40. 39 35 36; 40 36 37; 41 37 27; 42 17 38; 43 38 39; 44 39 40; 45 40 41; 46 41 22

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-- PAGE NO. 2

41. 47 22 42; 48 42 43; 49 43 44; 50 44 45; 51 45 26; 52 38 30; 53 39 31; 54 40 32
42. 55 41 33; 56 42 34; 57 43 35; 58 44 36; 59 45 37; 60 17 30; 61 30 39; 62 39 32
43. 63 32 41; 64 41 23; 65 23 42; 66 42 35; 67 35 44; 68 44 37; 69 37 26; 70 41 21
44. 71 21 42; 72 46 19; 73 19 47; 74 47 48; 75 48 49; 76 49 50; 77 50 24; 78 24 51
45. 79 51 52; 80 52 53; 81 53 54; 82 54 28
46. DEFINE MATERIAL START
47. ISOTROPIC STEEL
48. E 4.176E+006
49. POISSON 0.3
50. DENSITY 0.489024
51. ALPHA 6E-006
52. DAMP 0.03
53. END DEFINE MATERIAL
54. MEMBER PROPERTY AMERICAN
55. 1 TO 14 TABLE ST W36X182
56. 16 25 TABLE ST W21X132
57. 19 TO 23 TABLE ST W24X146
58. 72 TO 77 TABLE ST W36X230
59. 78 TO 82 TABLE ST W36X160
60. 32 TO 71 TABLE ST W8X31
61. 15 17 18 24 26 27 TABLE TB W21X132 WP 1.08333 TH 0.041667
62. CONSTANTS
63. BETA 90 MEMB 32 TO 71
64. MATERIAL STEEL ALL
65. MEMBER TRUSS
66. 32 TO 71
67. SUPPORTS
68. 16 20 25 FIXED
69. DEFINE MOVING LOAD
70. TYPE 1 LOAD 26.1 26.1
71. DIST 6
72. LOAD 1 LOADTYPE LIVE TITLE AXIAL ON COLUMN C3 (3 LANE)
73. MEMBER LOAD
74. 1 CON GY -35.2 1.7031 0
75. 2 CON GY -35.2 1.77091 0
76. 3 CON GY -35.2 1.2708 0
77. 4 CON GY -35.2 1.4167 0
78. 5 CON GY -35.2 1.5625 0
79. 6 CON GY -35.2 1.7083 0
80. LOAD 2 LOADTYPE LIVE TITLE AXIAL ON COLUMN C3 (2 LANE)
81. MEMBER LOAD
82. 1 CON GY -39.1 1.7031 0
83. 2 CON GY -39.1 1.77091 0
84. 3 CON GY -39.1 1.2708 0
85. 4 CON GY -39.1 1.4167 0
86. LOAD 3 LOADTYPE LIVE TITLE NEG. MOMENT IN FB OVER C3 (3 LANE)
87. MEMBER LOAD
88. 1 CON GY -35.2 1.7031 0
89. 2 CON GY -35.2 1.77091 0
90. 4 CON GY -35.2 0.7708 0
91. 5 CON GY -35.2 0.9167 0
92. 5 CON GY -35.2 4.9167 0
93. 6 CON GY -35.2 5.0625 0
94. LOAD 4 LOADTYPE LIVE TITLE NEG. MOMENT IN FB OVER C3 (2 LANE)
95. MEMBER LOAD
96. 1 CON GY -39.1 1.7031 0

97. 2 CON GY -39.1 1.77091 0
98. 4 CON GY -39.1 5.7708 0
99. 6 CON GY -39.1 0.0625 0
100. LOAD 5 LOADTYPE LIVE TITLE POS. MOMENT IN FB BETWEEN C3 _C2 (3 LANE)
101. MEMBER LOAD
102. 4 CON GY -35.2 0.7708 0
103. 5 CON GY -35.2 0.9167 0
104. 5 CON GY -35.2 4.9167 0
105. 6 CON GY -35.2 5.0625 0
106. 13 CON GY -35.2 2.7708 0
107. 14 CON GY -35.2 4.00003 0
108. LOAD 6 LOADTYPE LIVE TITLE POS. MOMENT IN FB BETWEEN C3 _C2 (2 LANE-1)
109. MEMBER LOAD
110. 4 CON GY -39.1 0.7708 0
111. 5 CON GY -39.1 0.9167 0
112. 5 CON GY -39.1 4.9167 0
113. 6 CON GY -39.1 5.0625 0
114. LOAD 7 LOADTYPE LIVE TITLE POS. MOMENT IN FB BETWEEN C3 _C2 (2 LANE-2)
115. MEMBER LOAD
116. 4 CON GY -39.1 5.7708 0
117. 6 CON GY -39.1 0.0625 0
118. 13 CON GY -39.1 2.7708 0
119. 14 CON GY -39.1 4.00003 0
120. LOAD 8 LOADTYPE LIVE TITLE MAX AXIAL ON COLUMN C2 (4 LANE)
121. MEMBER LOAD
122. 4 CON GY -29.3 1.2917 0
123. 5 CON GY -29.3 1.4375 0
124. 6 CON GY -29.3 1.5833 0
125. 7 CON GY -29.3 1.72925 0
126. 8 CON GY -29.3 2 0
127. 9 CON GY -29.3 2.1667 0
128. 10 CON GY -29.3 2.3125 0
129. 11 CON GY -29.3 2.4583 0
130. LOAD 9 LOADTYPE LIVE TITLE MAX AXIAL ON COLUMN C2 (3 LANE)
131. MEMBER LOAD
132. 6 CON GY -35.2 1.5833 0
133. 7 CON GY -35.2 1.72925 0
134. 8 CON GY -35.2 2 0
135. 9 CON GY -35.2 2.1667 0
136. 10 CON GY -35.2 2.3125 0
137. 11 CON GY -35.2 2.4583 0
138. LOAD 10 LOADTYPE LIVE TITLE MAX AXIAL ON COLUMN C2 (2 LANE)
139. MEMBER LOAD
140. 6 CON GY -39.1 1.5833 0
141. 7 CON GY -39.1 1.72925 0
142. 8 CON GY -39.1 2 0
143. 9 CON GY -39.1 2.1667 0
144. LOAD 11 LOADTYPE LIVE TITLE NEG. MOMENT IN FB OVER C2 (4 LANE)
145. MEMBER LOAD
146. 4 CON GY -29.3 0.7708 0
147. 5 CON GY -29.3 0.9167 0
148. 5 CON GY -29.3 4.9167 0
149. 6 CON GY -29.3 5.0625 0
150. 9 CON GY -29.3 0.7917 0
151. 10 CON GY -29.3 0.9375 0
152. 10 CON GY -29.3 4.9375 0

153. 11 CON GY -29.3 5.0833 0
154. LOAD 12 LOADTYPE LIVE TITLE NEG. MOMENT IN FB OVER C2 (3 LANE)
155. MEMBER LOAD
156. 4 CON GY -35.2 5.7708 0
157. 6 CON GY -35.2 0.0625 0
158. 9 CON GY -35.2 0.7917 0
159. 10 CON GY -35.2 0.9375 0
160. 10 CON GY -35.2 4.9375 0
161. 11 CON GY -35.2 5.0833 0
162. LOAD 13 LOADTYPE LIVE TITLE NEG. MOMENT IN FB OVER C2 (2 LANE)
163. MEMBER LOAD
164. 4 CON GY -39.1 5.7708 0
165. 6 CON GY -39.1 0.0625 0
166. 9 CON GY -39.1 5.7917 0
167. 11 CON GY -39.1 0.0833 0
168. LOAD 14 LOADTYPE LIVE TITLE POS. MOMENT IN FB BETWEEN C2 _C1 (3 LANE)
169. MEMBER LOAD
170. 1 CON GY -35.2 1.7031 0
171. 2 CON GY -35.2 1.77091 0
172. 9 CON GY -35.2 0.7917 0
173. 10 CON GY -35.2 0.9375 0
174. 10 CON GY -35.2 4.9375 0
175. 11 CON GY -35.2 5.0833 0
176. LOAD 15 LOADTYPE LIVE TITLE POS. MOMENT IN FB BETWEEN C2 _C1 (2 LANE-1)
177. MEMBER LOAD
178. 9 CON GY -39.1 0.7917 0
179. 10 CON GY -39.1 0.9375 0
180. 10 CON GY -39.1 4.9375 0
181. 11 CON GY -39.1 5.0833 0
182. LOAD 16 LOADTYPE LIVE TITLE POS. MOMENT IN FB BETWEEN C2 _C1 (2 LANE-2)
183. MEMBER LOAD
184. 1 CON GY -39.1 1.7031 0
185. 2 CON GY -39.1 1.77091 0
186. 9 CON GY -39.1 5.7917 0
187. 11 CON GY -39.1 0.0833 0
188. LOAD 17 LOADTYPE LIVE TITLE MAX AXIAL ON COLUMN C1 (3 LANE)
189. MEMBER LOAD
190. 9 CON GY -35.2 2.1875 0
191. 10 CON GY -35.2 2.3333 0
192. 11 CON GY -35.2 2.4792 0
193. 12 CON GY -35.2 2.62507 0
194. 13 CON GY -35.2 2.7708 0
195. 14 CON GY -35.2 4.00003 0
196. LOAD 18 LOADTYPE LIVE TITLE MAX AXIAL ON COLUMN C1 (2 LANE)
197. MEMBER LOAD
198. 11 CON GY -39.1 2.4792 0
199. 12 CON GY -39.1 2.62507 0
200. 13 CON GY -39.1 2.7708 0
201. 14 CON GY -39.1 4.00003 0
202. LOAD 19 LOADTYPE LIVE TITLE NEG. MOMENT IN FB OVER C1 (3 LANE)
203. MEMBER LOAD
204. 9 CON GY -35.2 0.7917 0
205. 10 CON GY -35.2 0.9375 0
206. 10 CON GY -35.2 4.9375 0
207. 11 CON GY -35.2 5.0833 0
208. 13 CON GY -35.2 2.7708 0

209. 14 CON GY -35.2 4.00003 0
210. LOAD 20 LOADTYPE LIVE TITLE NEG. MOMENT IN FB OVER C1 (2 LANE)
211. MEMBER LOAD
212. 9 CON GY -39.1 5.7917 0
213. 11 CON GY -39.1 0.0833 0
214. 13 CON GY -39.1 2.7708 0
215. 14 CON GY -39.1 4.00003 0
216. LOAD 21 LOADTYPE LIVE TITLE ALL LANES LOADED - CENTER (6 LANE)
217. MEMBER LOAD
218. 2 CON GY -29.3 1.64591 0
219. 3 CON GY -29.3 1.1458 0
220. 4 CON GY -29.3 1.2917 0
221. 5 CON GY -29.3 1.4375 0
222. 6 CON GY -29.3 1.5833 0
223. 7 CON GY -29.3 1.72925 0
224. 8 CON GY -29.3 2 0
225. 9 CON GY -29.3 2.1667 0
226. 10 CON GY -29.3 2.3125 0
227. 11 CON GY -29.3 2.4583 0
228. 12 CON GY -29.3 2.60427 0
229. 13 CON GY -29.3 2.75 0
230. LOAD 22 LOADTYPE LIVE TITLE ALL LANES LOADED - OUTSIDE (6 LANE)
231. MEMBER LOAD
232. 1 CON GY -29.3 1.7031 0
233. 2 CON GY -29.3 1.77091 0
234. 3 CON GY -29.3 1.2708 0
235. 4 CON GY -29.3 1.4167 0
236. 5 CON GY -29.3 1.5625 0
237. 6 CON GY -29.3 1.7083 0
238. 9 CON GY -29.3 2.1875 0
239. 10 CON GY -29.3 2.3333 0
240. 11 CON GY -29.3 2.4792 0
241. 12 CON GY -29.3 2.62507 0
242. 13 CON GY -29.3 2.7708 0
243. 14 CON GY -29.3 4.00003 0
244. LOAD 23 LOADTYPE LIVE TITLE LOWER DECK LOAD
245. JOINT LOAD
246. 28 FY -4.05
247. 54 FY -5.84
248. 52 53 FY -5.56
249. 51 FY -5.9
250. 24 FY -9.88
251. 50 FY -11.13
252. 48 49 FY -10.49
253. 47 FY -11.01
254. 19 FY -8.89
255. 46 FY -4.06
256. LOAD 24 LOADTYPE LIVE TITLE LOAD 1 WITH LOWER DECK
257. REPEAT LOAD
258. 1 1.0 23 1.0
259. LOAD 25 LOADTYPE LIVE TITLE LOAD 2 WITH LOWER DECK
260. REPEAT LOAD
261. 2 1.0 23 1.0
262. LOAD 26 LOADTYPE LIVE TITLE LOAD 3 WITH LOWER DECK
263. REPEAT LOAD
264. 3 1.0 23 1.0

265. LOAD 27 LOADTYPE LIVE TITLE LOAD 4 WITH LOWER DECK
266. REPEAT LOAD
267. 4 1.0 23 1.0
268. LOAD 28 LOADTYPE LIVE TITLE LOAD 5 WITH LOWER DECK
269. REPEAT LOAD
270. 5 1.0 23 1.0
271. LOAD 29 LOADTYPE LIVE TITLE LOAD 6 WITH LOWER DECK
272. REPEAT LOAD
273. 6 1.0 23 1.0
274. LOAD 30 LOADTYPE LIVE TITLE LOAD 7 WITH LOWER DECK
275. REPEAT LOAD
276. 7 1.0 23 1.0
277. LOAD 31 LOADTYPE LIVE TITLE LOAD 8 WITH LOWER DECK
278. REPEAT LOAD
279. 8 1.0 23 1.0
280. LOAD 32 LOADTYPE LIVE TITLE LOAD 9 WITH LOWER DECK
281. REPEAT LOAD
282. 9 1.0 23 1.0
283. LOAD 33 LOADTYPE LIVE TITLE LOAD 10 WITH LOWER DECK
284. REPEAT LOAD
285. 10 1.0 23 1.0
286. LOAD 34 LOADTYPE LIVE TITLE LOAD 11 WITH LOWER DECK
287. REPEAT LOAD
288. 11 1.0 23 1.0
289. LOAD 35 LOADTYPE LIVE TITLE LOAD 12 WITH LOWER DECK
290. REPEAT LOAD
291. 12 1.0 23 1.0
292. LOAD 36 LOADTYPE LIVE TITLE LOAD 13 WITH LOWER DECK
293. REPEAT LOAD
294. 13 1.0 23 1.0
295. LOAD 37 LOADTYPE LIVE TITLE LOAD 14 WITH LOWER DECK
296. REPEAT LOAD
297. 14 1.0 23 1.0
298. LOAD 38 LOADTYPE LIVE TITLE LOAD 15 WITH LOWER DECK
299. REPEAT LOAD
300. 15 1.0 23 1.0
301. LOAD 39 LOADTYPE LIVE TITLE LOAD 16 WITH LOWER DECK
302. REPEAT LOAD
303. 16 1.0 23 1.0
304. LOAD 40 LOADTYPE LIVE TITLE LOAD 17 WITH LOWER DECK
305. REPEAT LOAD
306. 17 1.0 23 1.0
307. LOAD 41 LOADTYPE LIVE TITLE LOAD 18 WITH LOWER DECK
308. REPEAT LOAD
309. 18 1.0 23 1.0
310. LOAD 42 LOADTYPE LIVE TITLE LOAD 19 WITH LOWER DECK
311. REPEAT LOAD
312. 19 1.0 23 1.0
313. LOAD 43 LOADTYPE LIVE TITLE LOAD 20 WITH LOWER DECK
314. REPEAT LOAD
315. 20 1.0 23 1.0
316. LOAD 44 LOADTYPE LIVE TITLE LOAD 21 WITH LOWER DECK
317. REPEAT LOAD
318. 21 1.0 23 1.0
319. LOAD 45 LOADTYPE LIVE TITLE LOAD 22 WITH LOWER DECK
320. REPEAT LOAD

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321. 22 1.0 23 1.0
322. LOAD 46 LOADTYPE LIVE TITLE 2F1 LOADING
323. REPEAT LOAD
324. 1 0.463092 23 1.0
325. LOAD 47 LOADTYPE LIVE TITLE 2F1 LOADING
326. REPEAT LOAD
327. 2 0.463092 23 1.0
328. LOAD 48 LOADTYPE LIVE TITLE 2F1 LOADING
329. REPEAT LOAD
330. 3 0.463092 23 1.0
331. LOAD 49 LOADTYPE LIVE TITLE 2F1 LOADING
332. REPEAT LOAD
333. 4 0.463092 23 1.0
334. LOAD 50 LOADTYPE LIVE TITLE 2F1 LOADING
335. REPEAT LOAD
336. 5 0.463092 23 1.0
337. LOAD 51 LOADTYPE LIVE TITLE 2F1 LOADING
338. REPEAT LOAD
339. 6 0.463092 23 1.0
340. LOAD 52 LOADTYPE LIVE TITLE 2F1 LOADING
341. REPEAT LOAD
342. 7 0.463092 23 1.0
343. LOAD 53 LOADTYPE LIVE TITLE 2F1 LOADING
344. REPEAT LOAD
345. 8 0.463092 23 1.0
346. LOAD 54 LOADTYPE LIVE TITLE 2F1 LOADING
347. REPEAT LOAD
348. 9 0.463092 23 1.0
349. LOAD 55 LOADTYPE LIVE TITLE 2F1 LOADING
350. REPEAT LOAD
351. 10 0.463092 23 1.0
352. LOAD 56 LOADTYPE LIVE TITLE 2F1 LOADING
353. REPEAT LOAD
354. 11 0.463092 23 1.0
355. LOAD 57 LOADTYPE LIVE TITLE 2F1 LOADING
356. REPEAT LOAD
357. 12 0.463092 23 1.0
358. LOAD 58 LOADTYPE LIVE TITLE 2F1 LOADING
359. REPEAT LOAD
360. 13 0.463092 23 1.0
361. LOAD 59 LOADTYPE LIVE TITLE 2F1 LOADING
362. REPEAT LOAD
363. 14 0.463092 23 1.0
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365. REPEAT LOAD
366. 15 0.463092 23 1.0
367. LOAD 61 LOADTYPE LIVE TITLE 2F1 LOADING
368. REPEAT LOAD
369. 16 0.463092 23 1.0
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371. REPEAT LOAD
372. 17 0.463092 23 1.0
373. LOAD 63 LOADTYPE LIVE TITLE 2F1 LOADING
374. REPEAT LOAD
375. 18 0.463092 23 1.0
376. LOAD 64 LOADTYPE LIVE TITLE 2F1 LOADING

377. REPEAT LOAD
378. 19 0.463092 23 1.0
379. LOAD 65 LOADTYPE LIVE TITLE 2F1 LOADING
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381. 20 0.463092 23 1.0
382. LOAD 66 LOADTYPE LIVE TITLE 2F1 LOADING
383. REPEAT LOAD
384. 21 0.463092 23 1.0
385. LOAD 67 LOADTYPE LIVE TITLE 2F1 LOADING
386. REPEAT LOAD
387. 22 0.463092 23 1.0
388. LOAD 68 LOADTYPE LIVE TITLE 3F1 LOADING
389. REPEAT LOAD
390. 1 0.695796 23 1.0
391. LOAD 69 LOADTYPE LIVE TITLE 3F1 LOADING
392. REPEAT LOAD
393. 2 0.695796 23 1.0
394. LOAD 70 LOADTYPE LIVE TITLE 3F1 LOADING
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396. 3 0.695796 23 1.0
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399. 4 0.695796 23 1.0
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405. 6 0.695796 23 1.0
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408. 7 0.695796 23 1.0
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411. 8 0.695796 23 1.0
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414. 9 0.695796 23 1.0
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417. 10 0.695796 23 1.0
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420. 11 0.695796 23 1.0
421. LOAD 79 LOADTYPE LIVE TITLE 3F1 LOADING
422. REPEAT LOAD
423. 12 0.695796 23 1.0
424. LOAD 80 LOADTYPE LIVE TITLE 3F1 LOADING
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426. 13 0.695796 23 1.0
427. LOAD 81 LOADTYPE LIVE TITLE 3F1 LOADING
428. REPEAT LOAD
429. 14 0.695796 23 1.0
430. LOAD 82 LOADTYPE LIVE TITLE 3F1 LOADING
431. REPEAT LOAD
432. 15 0.695796 23 1.0

433. LOAD 83 LOADTYPE LIVE TITLE 3F1 LOADING
434. REPEAT LOAD
435. 16 0.695796 23 1.0
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438. 17 0.695796 23 1.0
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441. 18 0.695796 23 1.0
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453. 22 0.695796 23 1.0
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486. 11 0.79808 23 1.0
487. LOAD 101 LOADTYPE LIVE TITLE 4F1 LOADING
488. REPEAT LOAD

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489. 12 0.79808 23 1.0
490. LOAD 102 LOADTYPE LIVE TITLE 4F1 LOADING
491. REPEAT LOAD
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495. 14 0.79808 23 1.0
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507. 18 0.79808 23 1.0
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561. 14 0.852036 23 1.0
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576. 19 0.852036 23 1.0
577. LOAD 131 LOADTYPE LIVE TITLE 5C1 LOADING
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579. 20 0.852036 23 1.0
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586. LOAD GENERATION 29
587. TYPE 1 0.3802 186.708 0 XINC 0.9955 YRANGE 2
588. LOAD GENERATION 29
589. TYPE 1 42.5052 187.954 0 XINC 0.9955 YRANGE 2
590. PDELTA 10 ANALYSIS

P R O B L E M S T A T I S T I C S

NUMBER OF JOINTS/MEMBER+ELEMENTS/SUPPORTS = 53/ 78/ 3

SOLVER USED IS THE OUT-OF-CORE BASIC SOLVER

ORIGINAL/FINAL BAND-WIDTH= 27/ 6/ 42 DOF
TOTAL PRIMARY LOAD CASES = 191, TOTAL DEGREES OF FREEDOM = 300
SIZE OF STIFFNESS MATRIX = 13 DOUBLE KILO-WORDS
REQRD/AVAIL. DISK SPACE = 13.6/ 515629.1 MB

ZERO STIFFNESS IN DIRECTION 3 AT JOINT 30 EQN.NO. 69
LOADS APPLIED OR DISTRIBUTED HERE FROM ELEMENTS WILL BE IGNORED.
THIS MAY BE DUE TO ALL MEMBERS AT THIS JOINT BEING RELEASED OR
EFFECTIVELY RELEASED IN THIS DIRECTION.

ZERO STIFFNESS IN DIRECTION 4 AT JOINT	30 EQN.NO.	70
ZERO STIFFNESS IN DIRECTION 5 AT JOINT	30 EQN.NO.	71
ZERO STIFFNESS IN DIRECTION 6 AT JOINT	30 EQN.NO.	72
ZERO STIFFNESS IN DIRECTION 3 AT JOINT	38 EQN.NO.	87
ZERO STIFFNESS IN DIRECTION 4 AT JOINT	38 EQN.NO.	88
ZERO STIFFNESS IN DIRECTION 5 AT JOINT	38 EQN.NO.	89
ZERO STIFFNESS IN DIRECTION 6 AT JOINT	38 EQN.NO.	90
ZERO STIFFNESS IN DIRECTION 3 AT JOINT	31 EQN.NO.	93
ZERO STIFFNESS IN DIRECTION 4 AT JOINT	31 EQN.NO.	94
ZERO STIFFNESS IN DIRECTION 5 AT JOINT	31 EQN.NO.	95
ZERO STIFFNESS IN DIRECTION 6 AT JOINT	31 EQN.NO.	96

****WARNING - THERE WERE MORE THAN 12 DOF WITH ZERO STIFFNESS.**

THE FIRST 12 ARE LISTED ABOVE.

TOTAL # TRANSLATIONAL= 16 TOTAL # ROTATIONAL= 48

++ Adjusting Displacements	13:27:45
++ Adjusting Displacements	13:27:45
++ Adjusting Displacements	13:27:45
++ Adjusting Displacements	13:27:45
++ Adjusting Displacements	13:27:45
++ Adjusting Displacements	13:27:45
++ Adjusting Displacements	13:27:46
++ Adjusting Displacements	13:27:46
++ Adjusting Displacements	13:27:46
++ Adjusting Displacements	13:27:46

591. *LOAD LIST 1 TO 22
592. *PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 1 TO 14
593. *HS-20 WITHOUT LOWER DECK MAX FLOOR BEAM FORCES ABOVE
594. *PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 15 TO 18
595. *HS-20 WITHOUT LOWER DECK MAX COLUMN 3 FORCES ABOVE
596. *PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 19 TO 23
597. *HS-20 WITHOUT LOWER DECK MAX COLUMN 2 FORCES ABOVE
598. *PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 24 TO 27
599. *HS-20 WITHOUT LOWER DECK MAX COLUMN 1 FORCES ABOVE
600. LOAD LIST 24 TO 45

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601. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 1 TO 14

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
1 MAX	0.00	0.00	24	165.38	5.93	27			
	0.00	0.00	24	0.00	0.00	24	0.00	0.00	24
	-39.08	5.93	39	0.00	5.93	44			
MIN	0.00	5.93	45	0.00	5.93	45	1.15 T	5.93	39
	0.00	0.00	28	604.45	6.50	27			
	0.00	0.00	24	0.00	0.00	24	0.00	0.00	28
2 MAX	-78.17	6.50	39	0.00	6.50	43			
	0.00	6.50	45	0.00	6.50	45	2.32 T	6.50	39
	0.00	0.00	24	562.46	0.00	26			
3 MAX	0.00	0.00	24	0.00	0.00	24	12.80 C	0.00	29
	-6.69	5.86	38	-231.11	5.86	29			
	0.00	5.86	45	0.00	5.86	45	6.04 T	5.86	39
4 MAX	82.13	0.00	26	349.37	0.00	39			
	0.00	0.00	24	0.00	0.00	24	12.80 C	0.00	29
	-9.13	5.86	35	-458.78	5.86	29			
MIN	0.00	5.86	45	0.00	5.86	45	6.04 T	5.86	39
	46.95	0.00	26	268.18	0.00	37			
	0.00	0.00	24	0.00	0.00	24	11.64 C	0.00	29
5 MAX	-44.45	5.86	29	-488.32	1.17	29			
	0.00	5.86	45	0.00	5.86	45	6.04 T	5.86	39
	0.00	0.00	27	206.25	0.00	37			
6 MAX	0.00	0.00	24	0.00	0.00	24	9.33 C	0.00	29
	-83.54	5.27	29	-426.41	0.00	29			
	0.00	5.86	45	0.00	5.86	45	6.04 T	5.86	39
7 MAX	14.77	0.00	39	419.69	5.84	34			
	0.00	0.00	24	0.00	0.00	24	8.17 C	0.00	29
	-83.54	5.84	29	-138.55	0.00	28			
MIN	0.00	5.84	45	0.00	5.84	45	6.04 T	5.84	39
	94.48	0.00	32	417.61	0.00	35			
	0.00	0.00	24	0.00	0.00	24	11.99 C	0.00	38
8 MAX	-10.01	5.84	30	-151.19	5.84	37			
	0.00	5.84	45	0.00	5.84	45	5.08 T	5.84	30
	83.47	0.00	38	180.33	5.86	28			
9 MAX	0.00	0.00	24	0.00	0.00	24	11.99 C	0.00	38

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MIN	-10.60	5.86	43	-431.75	5.86	38			
	0.00	5.86	45	0.00	5.86	45	5.08 T	5.86	30
10 MAX	44.39	0.00	38	217.89	5.86	28			
	0.00	0.00	24	0.00	0.00	24	10.84 C	0.00	38
MIN	-42.51	5.86	42	-493.26	4.69	38			
	0.00	5.86	45	0.00	5.86	45	5.08 T	5.86	30
11 MAX	6.89	0.00	36	265.79	5.86	30			
	0.00	0.00	24	0.00	0.00	24	8.53 C	0.00	38
MIN	-77.70	5.86	42	-463.55	0.00	38			
	0.00	5.86	45	0.00	5.86	45	5.08 T	5.86	30
12 MAX	6.33	0.00	29	458.30	5.86	42			
	0.00	0.00	24	0.00	0.00	24	7.36 C	0.00	38
MIN	-89.82	5.86	40	-242.63	0.00	37			
	0.00	5.86	45	0.00	5.86	45	5.08 T	5.86	30
13 MAX	78.17	0.00	30	451.19	0.00	30			
	0.00	0.00	24	0.00	0.00	24	2.31 C	0.00	30
MIN	0.00	4.77	44	0.00	2.86	44			
	0.00	4.77	45	0.00	4.77	45	0.00	4.77	44
14 MAX	39.08	0.00	30	156.34	0.00	30			
	0.00	0.00	24	0.00	0.00	24	1.15 C	0.00	30
MIN	0.00	5.62	45	0.00	5.62	45			
	0.00	5.62	45	0.00	5.62	45	0.00	5.62	45

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

602. *HS-20 MAX FLOOR BEAM FORCES ABOVE

603. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 15 TO 18

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
15 MAX	0.33	0.00	25	4.24	15.73	32			
	0.00	0.00	24	0.00	0.00	24	206.96 C	0.00	24
MIN	-0.55	15.73	31	-5.88	15.73	25			
	0.00	15.73	45	0.00	15.73	45	27.13 C	15.73	42
16 MAX	2.85	0.00	33	4.24	0.00	32			
	0.00	0.00	24	0.00	0.00	24	206.95 C	0.00	24
MIN	0.18	5.33	41	-11.40	5.33	33			
	0.00	5.33	45	0.00	5.33	45	26.95 C	5.33	42
17 MAX	-1.05	0.00	28	44.22	22.37	37			
	0.00	0.00	24	0.00	0.00	24	206.95 C	0.00	24
MIN	-2.43	22.37	37	-11.40	0.00	33			
	0.00	22.37	45	0.00	22.37	45	26.95 C	22.37	42
18 MAX	6.48	0.00	39	195.37	26.42	29			
	0.00	0.00	24	0.00	0.00	24	174.59 C	0.00	24
MIN	-10.64	26.42	29	-168.52	26.42	39			
	0.00	26.42	45	0.00	26.42	45	6.64 T	26.42	38

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

604. *HS-20 MAX COLUMN 3 FORCES ABOVE

605. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 19 TO 23

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
19 MAX	0.13	0.00	28	3.06	9.75	40			
	0.00	0.00	24	0.00	0.00	24	194.10 C	0.00	44
MIN	-0.42	9.75	37	-2.61	0.00	25			
	0.00	9.75	45	0.00	9.75	45	46.54 C	9.75	25
20 MAX	0.18	0.00	40	3.06	0.00	40			
	0.00	0.00	24	0.00	0.00	24	181.88 C	0.00	44
MIN	-0.22	5.98	24	-2.01	0.00	24			
	0.00	5.98	45	0.00	5.98	45	42.88 C	5.98	25
21 MAX	0.43	0.00	28	10.29	5.33	38			
	0.00	0.00	24	0.00	0.00	24	181.88 C	0.00	44
MIN	-1.54	5.33	38	-2.88	5.33	28			
	0.00	5.33	45	0.00	5.33	45	42.88 C	5.33	25
22 MAX	2.12	0.00	37	11.13	22.37	28			
	0.00	0.00	24	0.00	0.00	24	195.04 C	0.00	44
MIN	-0.63	22.37	28	-37.78	22.37	37			
	0.00	22.37	45	0.00	22.37	45	45.98 C	22.37	25
23 MAX	11.48	0.00	28	206.85	27.28	37			
	0.00	0.00	24	0.00	0.00	24	155.44 C	0.00	32
MIN	-11.51	27.28	37	-196.83	27.28	28			
	0.00	27.28	45	0.00	27.28	45	4.97 T	27.28	25

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

606. *HS-20 MAX COLUMN 2 FORCES ABOVE

607. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 24 TO 27

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
24 MAX	0.74	0.00	32	5.84	0.00	32			
	0.00	0.00	24	0.00	0.00	24	173.72 C	0.00	40
MIN	-0.19	15.73	25	-5.89	15.73	32			
	0.00	15.73	45	0.00	15.73	45	7.22 C	15.73	24
25 MAX	0.45	0.00	25	10.10	5.33	33			
	0.00	0.00	24	0.00	0.00	24	173.56 C	0.00	40
MIN	-2.86	5.33	33	-5.89	0.00	32			
	0.00	5.33	45	0.00	5.33	45	7.08 C	5.33	26
26 MAX	1.69	0.00	33	10.10	0.00	33			
	0.00	0.00	24	0.00	0.00	24	173.56 C	0.00	40
MIN	0.31	22.37	37	-30.74	22.37	28			
	0.00	22.37	45	0.00	22.37	45	7.08 C	22.37	26
27 MAX	9.52	0.00	38	126.72	28.15	30			
	0.00	0.00	24	0.00	0.00	24	160.18 C	0.00	40
MIN	-4.78	28.15	30	-191.36	28.15	38			
	0.00	28.15	45	0.00	28.15	45	6.38 T	28.15	29

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

608. *HS-20 MAX COLUMN 1 FORCES ABOVE

609. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 72 TO 77

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
72 MAX	-4.06	0.00	24	13.53	3.33	24			
	0.00	0.00	24	0.00	0.00	24	0.00	0.00	24
MIN	-4.06	3.33	45	0.00	0.00	45			
	0.00	3.33	45	0.00	3.33	45	0.00	3.33	45
73 MAX	24.36	0.00	32	129.46	0.00	31			
	0.00	0.00	24	0.00	0.00	24	8.78 C	0.00	39
MIN	17.93	6.16	30	-72.88	6.16	39			
	0.00	6.16	45	0.00	6.16	45	9.51 T	6.16	29
74 MAX	13.35	0.00	32	-14.87	0.00	29			
	0.00	0.00	24	0.00	0.00	24	8.78 C	0.00	39
MIN	6.92	5.60	30	-127.60	5.60	37			
	0.00	5.60	45	0.00	5.60	45	9.51 T	5.60	29
75 MAX	2.86	0.00	32	-62.82	5.60	28			
	0.00	0.00	24	0.00	0.00	24	8.78 C	0.00	39
MIN	-3.57	5.60	30	-129.27	5.60	37			
	0.00	5.60	45	0.00	5.60	45	9.51 T	5.60	29
76 MAX	-7.63	0.00	32	11.48	5.60	28			
	0.00	0.00	24	0.00	0.00	24	8.78 C	0.00	39
MIN	-14.06	5.60	30	-129.27	0.00	37			
	0.00	5.60	45	0.00	5.60	45	9.51 T	5.60	29
77 MAX	-18.76	0.00	32	169.32	6.28	30			
	0.00	0.00	24	0.00	0.00	24	8.78 C	0.00	39
MIN	-25.19	6.28	30	-72.60	0.00	32			
	0.00	6.28	45	0.00	6.28	45	9.51 T	6.28	29

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

610. *LOWER DECK FLOORBEAM BETWEEN COL 2 AND 3 ABOVE

611. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 78 TO 82

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
78 MAX	16.38	0.00	25	141.80	0.00	39			
	0.00	0.00	24	0.00	0.00	24	6.31 C	0.00	30
MIN	9.45	6.28	31	-26.13	6.28	29			
	0.00	6.28	45	0.00	6.28	45	9.15 T	6.28	38
79 MAX	10.48	0.00	25	43.35	0.00	39			
	0.00	0.00	24	0.00	0.00	24	6.31 C	0.00	30
MIN	3.55	5.60	31	-53.59	5.60	28			
	0.00	5.60	45	0.00	5.60	45	9.15 T	5.60	38
80 MAX	4.92	0.00	25	-9.38	0.00	37			
	0.00	0.00	24	0.00	0.00	24	6.31 C	0.00	30
MIN	-2.01	5.60	31	-57.92	5.60	28			
	0.00	5.60	45	0.00	5.60	45	9.15 T	5.60	38
81 MAX	-0.64	0.00	25	12.37	5.60	32			
	0.00	0.00	24	0.00	0.00	24	6.31 C	0.00	30
MIN	-7.57	5.60	31	-57.92	0.00	28			
	0.00	5.60	45	0.00	5.60	45	9.15 T	5.60	38
82 MAX	-6.48	0.00	25	93.38	6.16	31			
	0.00	0.00	24	0.00	0.00	24	6.31 C	0.00	30
MIN	-13.41	6.16	31	-43.92	0.00	25			
	0.00	6.16	45	0.00	6.16	45	9.15 T	6.16	38

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

612. *LOWER DECK FLOORBEAM BETWEEN COL 1 AND 2 ABOVE
613. LOAD LIST 46 TO 67
614. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 1 TO 14

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
1 MAX	0.00	0.00	46	76.59	5.93	49			
	0.00	0.00	46	0.00	0.00	46	0.00	0.00	46
	-18.10	5.93	61	0.00	5.93	66			
MIN	0.00	5.93	67	0.00	5.93	67	0.53 T	5.93	61
	0.00	0.00	50	279.92	6.50	49			
	0.00	0.00	46	0.00	0.00	46	0.00	0.00	50
2 MAX	-36.20	6.50	61	0.00	6.50	65			
	0.00	6.50	67	0.00	6.50	67	1.07 T	6.50	61
	0.00	0.00	46	266.85	0.00	48			
3 MAX	0.00	0.00	46	0.00	0.00	46	6.78 C	0.00	51
	-2.72	5.86	60	-102.71	5.86	51			
	0.00	5.86	67	0.00	5.86	67	1.94 T	5.86	61
4 MAX	38.41	0.00	48	165.91	0.00	61			
	0.00	0.00	46	0.00	0.00	46	6.78 C	0.00	51
	-3.85	5.86	57	-210.35	5.86	51			
MIN	0.00	5.86	67	0.00	5.86	67	1.94 T	5.86	61
	22.11	0.00	48	126.14	0.00	59			
	0.00	0.00	46	0.00	0.00	46	6.24 C	0.00	51
5 MAX	-20.20	5.27	51	-224.48	1.17	51			
	0.00	5.86	67	0.00	5.86	67	1.94 T	5.86	61
	7.56	0.00	49	95.29	0.00	59			
6 MAX	0.00	0.00	46	0.00	0.00	46	5.17 C	0.00	51
	-38.30	5.86	51	-197.59	0.00	51			
	0.00	5.86	67	0.00	5.86	67	1.94 T	5.86	61
7 MAX	7.21	0.00	61	189.74	5.84	56			
	0.00	0.00	46	0.00	0.00	46	4.64 C	0.00	51
	-38.30	5.84	51	-66.54	0.00	50			
MIN	0.00	5.84	67	0.00	5.84	67	1.94 T	5.84	61
	43.33	0.00	54	186.33	0.00	57			
	0.00	0.00	46	0.00	0.00	46	6.07 C	0.00	60
8 MAX	-5.05	5.84	52	-74.61	5.84	59			
	0.00	5.84	67	0.00	5.84	67	1.84 T	5.84	52
	38.23	0.00	60	81.31	5.86	50			
9 MAX	0.00	0.00	46	0.00	0.00	46	6.07 C	0.00	60

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MIN	-5.32	5.86	65	-202.03	5.86	60			
	0.00	5.86	67	0.00	5.86	67	1.84 T	5.86	52
10 MAX	20.14	0.00	60	101.13	5.86	50			
	0.00	0.00	46	0.00	0.00	46	5.53 C	0.00	60
MIN	-20.10	5.86	64	-228.54	4.69	60			
	0.00	5.86	67	0.00	5.86	67	1.84 T	5.86	52
11 MAX	2.77	0.00	58	125.74	5.86	52			
	0.00	0.00	46	0.00	0.00	46	4.46 C	0.00	60
MIN	-36.40	5.86	64	-214.29	0.00	60			
	0.00	5.86	67	0.00	5.86	67	1.84 T	5.86	52
12 MAX	2.51	0.00	51	217.43	5.86	64			
	0.00	0.00	46	0.00	0.00	46	3.92 C	0.00	60
MIN	-42.01	5.86	62	-109.50	0.00	59			
	0.00	5.86	67	0.00	5.86	67	1.84 T	5.86	52
13 MAX	36.20	0.00	52	208.93	0.00	52			
	0.00	0.00	46	0.00	0.00	46	1.07 C	0.00	52
MIN	0.00	4.77	66	0.00	2.86	66			
	0.00	4.77	67	0.00	4.77	67	0.00	4.77	66
14 MAX	18.10	0.00	52	72.40	0.00	52			
	0.00	0.00	46	0.00	0.00	46	0.53 C	0.00	52
MIN	0.00	5.62	67	0.00	5.62	67			
	0.00	5.62	67	0.00	5.62	67	0.00	5.62	67

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

615. *2F1 MAX FLOOR BEAM FORCES ABOVE

616. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 15 TO 18

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
15 MAX	0.18	0.00	47	1.26	15.73	54			
	0.00	0.00	46	0.00	0.00	46	114.18 C	0.00	46
MIN	-0.23	15.73	53	-3.42	15.73	47			
	0.00	15.73	67	0.00	15.73	67	30.92 C	15.73	64
16 MAX	1.92	0.00	55	1.26	0.00	54			
	0.00	0.00	46	0.00	0.00	46	113.97 C	0.00	46
MIN	0.68	5.33	63	-9.16	5.33	55			
	0.00	5.33	67	0.00	5.33	67	30.62 C	5.33	64
17 MAX	-1.39	0.00	50	36.76	22.37	59			
	0.00	0.00	46	0.00	0.00	46	113.97 C	0.00	46
MIN	-2.03	22.37	59	-9.16	0.00	55			
	0.00	22.37	67	0.00	22.37	67	30.62 C	22.37	64
18 MAX	2.16	0.00	61	96.99	26.42	51			
	0.00	0.00	46	0.00	0.00	46	81.25 C	0.00	46
MIN	-5.77	26.42	51	-71.78	26.42	61			
	0.00	26.42	67	0.00	26.42	67	2.67 T	26.42	60

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

617. *2F1 MAX COLUMN 3 FORCES ABOVE

618. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 19 TO 23

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
19 MAX	-0.01	0.00	50	1.68	9.75	62			
	0.00	0.00	46	0.00	0.00	46	113.51 C	0.00	66
MIN	-0.26	9.75	59	-1.64	0.00	47			
	0.00	9.75	67	0.00	9.75	67	45.18 C	9.75	47
20 MAX	0.08	0.00	62	1.68	0.00	62			
	0.00	0.00	46	0.00	0.00	46	106.68 C	0.00	66
MIN	-0.11	5.98	46	-0.67	0.00	46			
	0.00	5.98	67	0.00	5.98	67	42.32 C	5.98	47
21 MAX	-0.06	0.00	50	6.45	5.33	60			
	0.00	0.00	46	0.00	0.00	46	106.68 C	0.00	66
MIN	-0.97	5.33	60	-0.05	0.00	51			
	0.00	5.33	67	0.00	5.33	67	42.32 C	5.33	47
22 MAX	1.35	0.00	59	6.45	0.00	60			
	0.00	0.00	46	0.00	0.00	46	114.39 C	0.00	66
MIN	0.08	22.37	50	-24.08	22.37	59			
	0.00	22.37	67	0.00	22.37	67	45.36 C	22.37	47
23 MAX	5.63	0.00	50	93.27	27.28	59			
	0.00	0.00	46	0.00	0.00	46	71.17 C	0.00	54
MIN	-5.01	27.28	59	-93.57	27.28	50			
	0.00	27.28	67	0.00	27.28	67	3.10 T	27.28	47

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

619. *2F1 MAX COLUMN 2 FORCES ABOVE

620. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 24 TO 27

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
24 MAX	0.39	0.00	54	3.16	0.00	54			
	0.00	0.00	46	0.00	0.00	46	88.32 C	0.00	62
MIN	-0.05	15.73	47	-2.96	15.73	54			
	0.00	15.73	67	0.00	15.73	67	11.23 C	15.73	46
25 MAX	-0.26	0.00	47	6.93	5.33	55			
	0.00	0.00	46	0.00	0.00	46	88.03 C	0.00	62
MIN	-1.79	5.33	55	-2.96	0.00	54			
	0.00	5.33	67	0.00	5.33	67	10.94 C	5.33	48
26 MAX	1.31	0.00	55	6.93	0.00	55			
	0.00	0.00	46	0.00	0.00	46	88.03 C	0.00	62
MIN	0.68	22.37	59	-23.85	22.37	50			
	0.00	22.37	67	0.00	22.37	67	10.94 C	22.37	48
27 MAX	4.94	0.00	60	53.61	28.15	52			
	0.00	0.00	46	0.00	0.00	46	74.58 C	0.00	62
MIN	-1.69	28.15	52	-93.90	28.15	60			
	0.00	28.15	67	0.00	28.15	67	2.55 T	28.15	51

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

621. *2F1 MAX COLUMN 1 FORCES ABOVE

622. LOAD LIST 68 TO 89

623. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 1 TO 14

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
1 MAX	0.00	0.00	68	115.07	5.93	71			
	0.00	0.00	68	0.00	0.00	68	0.00	0.00	68
	-27.19	5.93	83	0.00	5.93	88			
MIN	0.00	5.93	89	0.00	5.93	89	0.80 T	5.93	83
	0.00	0.00	72	420.58	6.50	71			
	0.00	0.00	68	0.00	0.00	68	0.00	0.00	72
2 MAX	-54.39	6.50	83	0.00	6.50	87			
	0.00	6.50	89	0.00	6.50	89	1.61 T	6.50	83
	0.00	0.00	68	394.96	0.00	70			
3 MAX	0.00	0.00	68	0.00	0.00	68	9.39 C	0.00	73
	-4.44	5.86	82	-158.34	5.86	73			
	0.00	5.86	89	0.00	5.86	89	3.72 T	5.86	83
4 MAX	57.36	0.00	70	245.39	0.00	83			
	0.00	0.00	68	0.00	0.00	68	9.39 C	0.00	73
	-6.14	5.86	79	-318.00	5.86	73			
MIN	0.00	5.86	89	0.00	5.86	89	3.72 T	5.86	83
	32.88	0.00	70	187.68	0.00	81			
	0.00	0.00	68	0.00	0.00	68	8.58 C	0.00	73
5 MAX	-30.71	5.27	73	-338.81	1.17	73			
	0.00	5.86	89	0.00	5.86	89	3.72 T	5.86	83
	11.01	0.00	71	143.37	0.00	81			
6 MAX	0.00	0.00	68	0.00	0.00	68	6.98 C	0.00	73
	-57.91	5.86	73	-296.75	0.00	73			
	0.00	5.86	89	0.00	5.86	89	3.72 T	5.86	83
7 MAX	10.48	0.00	83	289.39	5.84	78			
	0.00	0.00	68	0.00	0.00	68	6.17 C	0.00	73
	-57.91	5.84	73	-97.75	0.00	72			
MIN	0.00	5.84	89	0.00	5.84	89	3.72 T	5.84	83
	65.50	0.00	76	286.56	0.00	79			
	0.00	0.00	68	0.00	0.00	68	8.63 C	0.00	82
8 MAX	-7.20	5.84	74	-107.80	5.84	81			
	0.00	5.84	89	0.00	5.84	89	3.24 T	5.84	74
	57.84	0.00	82	124.22	5.86	72			
9 MAX	0.00	0.00	68	0.00	0.00	68	8.64 C	0.00	82

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MIN	-7.61	5.86	87	-301.58	5.86	82			
	0.00	5.86	89	0.00	5.86	89	3.24	T	5.86 74
10 MAX	30.65	0.00	82	151.72	5.86	72			
	0.00	0.00	68	0.00	0.00	68	7.83	C	0.00 82
MIN	-29.82	5.86	86	-343.26	4.69	82			
	0.00	5.86	89	0.00	5.86	89	3.24	T	5.86 74
11 MAX	4.56	0.00	80	186.41	5.86	74			
	0.00	0.00	68	0.00	0.00	68	6.23	C	0.00 82
MIN	-54.30	5.86	86	-322.30	0.00	82			
	0.00	5.86	89	0.00	5.86	89	3.24	T	5.86 74
12 MAX	4.17	0.00	73	321.83	5.86	86			
	0.00	0.00	68	0.00	0.00	68	5.41	C	0.00 82
MIN	-62.73	5.86	84	-167.17	0.00	81			
	0.00	5.86	89	0.00	5.86	89	3.24	T	5.86 74
13 MAX	54.39	0.00	74	313.93	0.00	74			
	0.00	0.00	68	0.00	0.00	68	1.61	C	0.00 74
MIN	0.00	4.77	88	0.00	2.86	88			
	0.00	4.77	89	0.00	4.77	89	0.00		4.77 88
14 MAX	27.19	0.00	74	108.78	0.00	74			
	0.00	0.00	68	0.00	0.00	68	0.80	C	0.00 74
MIN	0.00	5.62	89	0.00	5.62	89			
	0.00	5.62	89	0.00	5.62	89	0.00		5.62 89

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

624. *3F1 MAX FLOOR BEAM FORCES ABOVE

625. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 15 TO 18

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
15 MAX	0.25	0.00	69	2.55	15.73	76			
	0.00	0.00	68	0.00	0.00	68	154.39 C	0.00	68
MIN	-0.37	15.73	75	-4.49	15.73	69			
	0.00	15.73	89	0.00	15.73	89	29.28 C	15.73	86
16 MAX	2.32	0.00	77	2.55	0.00	76			
	0.00	0.00	68	0.00	0.00	68	154.26 C	0.00	68
MIN	0.46	5.33	85	-10.13	5.33	77			
	0.00	5.33	89	0.00	5.33	89	29.03 C	5.33	86
17 MAX	-1.24	0.00	72	39.99	22.37	81			
	0.00	0.00	68	0.00	0.00	68	154.26 C	0.00	68
MIN	-2.20	22.37	81	-10.13	0.00	77			
	0.00	22.37	89	0.00	22.37	89	29.03 C	22.37	86
18 MAX	4.03	0.00	83	139.65	26.42	73			
	0.00	0.00	68	0.00	0.00	68	121.71 C	0.00	68
MIN	-7.88	26.42	73	-113.76	26.42	83			
	0.00	26.42	89	0.00	26.42	89	4.39 T	26.42	82

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

626. *3F1 MAX COLUMN 3 FORCES ABOVE

627. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 19 TO 23

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
19 MAX	0.05	0.00	72	2.28	9.75	84			
	0.00	0.00	68	0.00	0.00	68	148.44 C	0.00	88
MIN	-0.33	9.75	81	-2.06	0.00	69			
	0.00	9.75	89	0.00	9.75	89	45.77 C	9.75	69
20 MAX	0.12	0.00	84	2.28	0.00	84			
	0.00	0.00	68	0.00	0.00	68	139.27 C	0.00	88
MIN	-0.16	5.98	68	-1.25	0.00	68			
	0.00	5.98	89	0.00	5.98	89	42.57 C	5.98	69
21 MAX	0.15	0.00	72	8.11	5.33	82			
	0.00	0.00	68	0.00	0.00	68	139.27 C	0.00	88
MIN	-1.21	5.33	82	-1.04	5.33	72			
	0.00	5.33	89	0.00	5.33	89	42.57 C	5.33	69
22 MAX	1.68	0.00	81	8.11	0.00	82			
	0.00	0.00	68	0.00	0.00	68	149.35 C	0.00	88
MIN	-0.23	22.37	72	-30.02	22.37	81			
	0.00	22.37	89	0.00	22.37	89	45.63 C	22.37	69
23 MAX	8.17	0.00	72	142.48	27.28	81			
	0.00	0.00	68	0.00	0.00	68	107.70 C	0.00	76
MIN	-7.83	27.28	81	-138.31	27.28	72			
	0.00	27.28	89	0.00	27.28	89	3.91 T	27.28	69

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

628. *3F1 MAX COLUMN 2 FORCES ABOVE

629. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 24 TO 27

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
24 MAX	0.54	0.00	76	4.32	0.00	76			
	0.00	0.00	68	0.00	0.00	68	125.33 C	0.00	84
MIN	-0.11	15.73	69	-4.23	15.73	76			
	0.00	15.73	89	0.00	15.73	89	9.49 C	15.73	68
25 MAX	0.05	0.00	69	8.31	5.33	77			
	0.00	0.00	68	0.00	0.00	68	125.10 C	0.00	84
MIN	-2.25	5.33	77	-4.23	0.00	76			
	0.00	5.33	89	0.00	5.33	89	9.27 C	5.33	70
26 MAX	1.48	0.00	77	8.31	0.00	77			
	0.00	0.00	68	0.00	0.00	68	125.10 C	0.00	84
MIN	0.52	22.37	81	-26.84	22.37	72			
	0.00	22.37	89	0.00	22.37	89	9.27 C	22.37	70
27 MAX	6.92	0.00	82	85.33	28.15	74			
	0.00	0.00	68	0.00	0.00	68	111.68 C	0.00	84
MIN	-3.03	28.15	74	-136.16	28.15	82			
	0.00	28.15	89	0.00	28.15	89	4.21 T	28.15	73

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

630. *3F1 MAX COLUMN 1 FORCES ABOVE

631. LOAD LIST 90 TO 111

632. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 1 TO 14

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
1 MAX	0.00	0.00	90	131.99	5.93	93			
	0.00	0.00	90	0.00	0.00	90	0.00	0.00	90
	-31.19	5.93	105	0.00	5.93	110			
MIN	0.00	5.93	111	0.00	5.93	111	0.92 T	5.93	105
	0.00	0.00	94	482.41	6.50	93			
	0.00	0.00	90	0.00	0.00	90	0.00	0.00	94
2 MAX	-62.38	6.50	105	0.00	6.50	109			
	0.00	6.50	111	0.00	6.50	111	1.85 T	6.50	105
	0.00	0.00	90	451.28	0.00	92			
3 MAX	0.00	0.00	90	0.00	0.00	90	10.53 C	0.00	95
	-5.20	5.86	104	-182.80	5.86	95			
	0.00	5.86	111	0.00	5.86	111	4.50 T	5.86	105
4 MAX	65.69	0.00	92	280.34	0.00	105			
	0.00	0.00	90	0.00	0.00	90	10.53 C	0.00	95
	-7.15	5.86	101	-365.33	5.86	95			
MIN	0.00	5.86	111	0.00	5.86	111	4.50 T	5.86	105
	37.61	0.00	92	214.74	0.00	103			
	0.00	0.00	90	0.00	0.00	90	9.61 C	0.00	95
5 MAX	-35.33	5.86	95	-389.07	1.17	95			
	0.00	5.86	111	0.00	5.86	111	4.50 T	5.86	105
	0.00	0.00	93	164.51	0.00	103			
6 MAX	0.00	0.00	90	0.00	0.00	90	7.77 C	0.00	95
	-66.52	5.86	95	-340.34	0.00	95			
	0.00	5.86	111	0.00	5.86	111	4.50 T	5.86	105
7 MAX	11.92	0.00	105	333.20	5.84	100			
	0.00	0.00	90	0.00	0.00	90	6.84 C	0.00	95
	-66.52	5.84	95	-111.47	0.00	94			
MIN	0.00	5.84	111	0.00	5.84	111	4.50 T	5.84	105
	75.25	0.00	98	330.63	0.00	101			
	0.00	0.00	90	0.00	0.00	90	9.76 C	0.00	104
8 MAX	-8.15	5.84	96	-122.39	5.84	103			
	0.00	5.84	111	0.00	5.84	111	3.86 T	5.84	96
	0.00	0.00	104	143.08	5.86	94			
9 MAX	0.00	0.00	90	0.00	0.00	90	9.77 C	0.00	104

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MIN	-8.61	5.86	109	-345.34	5.86	104			
	0.00	5.86	111	0.00	5.86	111	3.86	T	5.86 96
10 MAX	35.27	0.00	104	173.96	5.86	94			
	0.00	0.00	90	0.00	0.00	90	8.84	C	0.00 104
MIN	-34.08	5.86	108	-393.69	4.69	104			
	0.00	5.86	111	0.00	5.86	111	3.86	T	5.86 96
11 MAX	5.34	0.00	102	213.10	5.86	96			
	0.00	0.00	90	0.00	0.00	90	7.00	C	0.00 104
MIN	-62.16	5.86	108	-369.79	0.00	104			
	0.00	5.86	111	0.00	5.86	111	3.86	T	5.86 96
12 MAX	4.89	0.00	95	367.72	5.86	108			
	0.00	0.00	90	0.00	0.00	90	6.07	C	0.00 104
MIN	-71.84	5.86	106	-192.53	0.00	103			
	0.00	5.86	111	0.00	5.86	111	3.86	T	5.86 96
13 MAX	62.38	0.00	96	360.08	0.00	96			
	0.00	0.00	90	0.00	0.00	90	1.84	C	0.00 96
MIN	0.00	4.77	110	0.00	2.86	110			
	0.00	4.77	111	0.00	4.77	111	0.00		4.77 110
14 MAX	31.19	0.00	96	124.77	0.00	96			
	0.00	0.00	90	0.00	0.00	90	0.92	C	0.00 96
MIN	0.00	5.62	111	0.00	5.62	111			
	0.00	5.62	111	0.00	5.62	111	0.00		5.62 111

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

633. *4F1 MAX FLOOR BEAM FORCES ABOVE

634. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 15 TO 18

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
15 MAX	0.28	0.00	91	3.12	15.73	98			
	0.00	0.00	90	0.00	0.00	90	172.07 C	0.00	90
MIN	-0.43	15.73	97	-4.96	15.73	91			
	0.00	15.73	111	0.00	15.73	111	28.55 C	15.73	108
16 MAX	2.50	0.00	99	3.12	0.00	98			
	0.00	0.00	90	0.00	0.00	90	171.98 C	0.00	90
MIN	0.37	5.33	107	-10.56	5.33	99			
	0.00	5.33	111	0.00	5.33	111	28.34 C	5.33	108
17 MAX	-1.18	0.00	94	41.42	22.37	103			
	0.00	0.00	90	0.00	0.00	90	171.98 C	0.00	90
MIN	-2.28	22.37	103	-10.56	0.00	99			
	0.00	22.37	111	0.00	22.37	111	28.34 C	22.37	108
18 MAX	4.85	0.00	105	158.40	26.42	95			
	0.00	0.00	90	0.00	0.00	90	139.49 C	0.00	90
MIN	-8.81	26.42	95	-132.19	26.42	105			
	0.00	26.42	111	0.00	26.42	111	5.14 T	26.42	104

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

635. *4F1 MAX COLUMN 3 FORCES ABOVE

636. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 19 TO 23

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
19 MAX	0.07	0.00	94	2.54	9.75	106			
	0.00	0.00	90	0.00	0.00	90	163.79 C	0.00	110
MIN	-0.36	9.75	103	-2.24	0.00	91			
	0.00	9.75	111	0.00	9.75	111	46.03 C	9.75	91
20 MAX	0.14	0.00	106	2.54	0.00	106			
	0.00	0.00	90	0.00	0.00	90	153.60 C	0.00	110
MIN	-0.18	5.98	90	-1.51	0.00	90			
	0.00	5.98	111	0.00	5.98	111	42.67 C	5.98	91
21 MAX	0.24	0.00	94	8.84	5.33	104			
	0.00	0.00	90	0.00	0.00	90	153.60 C	0.00	110
MIN	-1.32	5.33	104	-1.66	5.33	94			
	0.00	5.33	111	0.00	5.33	111	42.67 C	5.33	91
22 MAX	1.83	0.00	103	8.84	0.00	104			
	0.00	0.00	90	0.00	0.00	90	164.71 C	0.00	110
MIN	-0.36	22.37	94	-32.63	22.37	103			
	0.00	22.37	111	0.00	22.37	111	45.75 C	22.37	91
23 MAX	9.28	0.00	94	164.12	27.28	103			
	0.00	0.00	90	0.00	0.00	90	123.75 C	0.00	98
MIN	-9.06	27.28	103	-157.99	27.28	94			
	0.00	27.28	111	0.00	27.28	111	4.27 T	27.28	91

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

637. *4F1 MAX COLUMN 2 FORCES ABOVE

638. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 24 TO 27

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
24 MAX	0.61	0.00	98	4.83	0.00	98			
	0.00	0.00	90	0.00	0.00	90	141.60 C	0.00	106
	-0.14	15.73	91	-4.79	15.73	98			
MIN	0.00	15.73	111	0.00	15.73	111	8.73 C	15.73	90
	0.18	0.00	91	8.91	5.33	99			
	0.00	0.00	90	0.00	0.00	90	141.39 C	0.00	106
25 MAX	0.00	0.00	90	0.00	0.00	90			
	-2.46	5.33	99	-4.79	0.00	98			
	0.00	5.33	111	0.00	5.33	111	8.53 C	5.33	92
26 MAX	1.55	0.00	99	8.91	0.00	99			
	0.00	0.00	90	0.00	0.00	90	141.39 C	0.00	106
	0.45	22.37	103	-28.15	22.37	94			
MIN	0.00	22.37	111	0.00	22.37	111	8.53 C	22.37	92
	7.80	0.00	104	99.26	28.15	96			
	0.00	0.00	90	0.00	0.00	90	127.99 C	0.00	106
27 MAX	-3.62	28.15	96	-154.73	28.15	104			
	0.00	28.15	111	0.00	28.15	111	4.94 T	28.15	95

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

639. *4F1 MAX COLUMN 1 FORCES ABOVE

640. LOAD LIST 112 TO 133

641. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 1 TO 14

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
1 MAX	0.00	0.00	112	140.91	5.93	115			
	0.00	0.00	112	0.00	0.00	112	0.00	0.00	112
	-33.30	5.93	127	0.00	5.93	132			
MIN	0.00	5.93	133	0.00	5.93	133	0.98 T	5.93	115
	0.00	0.00	116	515.02	6.50	115			
	0.00	0.00	112	0.00	0.00	112	0.00	0.00	116
2 MIN	-66.60	6.50	127	0.00	6.50	131			
	0.00	6.50	133	0.00	6.50	133	1.98 T	6.50	127
	88.82	0.00	112	480.98	0.00	114			
3 MAX	0.00	0.00	112	0.00	0.00	112	11.14 C	0.00	117
	-5.60	5.86	126	-195.71	5.86	117			
	0.00	5.86	133	0.00	5.86	133	4.91 T	5.86	127
4 MIN	70.08	0.00	114	298.79	0.00	127			
	0.00	0.00	112	0.00	0.00	112	11.14 C	0.00	117
	-7.68	5.86	123	-390.29	5.86	117			
5 MAX	0.00	5.86	133	0.00	5.86	133	4.91 T	5.86	127
	40.10	0.00	114	229.02	0.00	125			
	0.00	0.00	112	0.00	0.00	112	10.16 C	0.00	117
6 MIN	-37.77	5.86	117	-415.59	1.17	117			
	0.00	5.86	133	0.00	5.86	133	4.91 T	5.86	127
	13.33	0.00	115	175.66	0.00	125			
7 MAX	0.00	0.00	112	0.00	0.00	112	8.19 C	0.00	117
	-71.07	5.86	117	-363.34	0.00	117			
	0.00	5.86	133	0.00	5.86	133	4.91 T	5.86	127
8 MIN	12.68	0.00	127	356.31	5.84	122			
	0.00	0.00	112	0.00	0.00	112	7.20 C	0.00	117
	-71.07	5.84	117	-118.70	0.00	116			
9 MAX	0.00	5.84	133	0.00	5.84	133	4.91 T	5.84	127
	80.39	0.00	120	353.87	0.00	123			
	0.00	0.00	112	0.00	0.00	112	10.36 C	0.00	126
8 MIN	-8.65	5.84	118	-130.08	5.84	125			
	0.00	5.84	133	0.00	5.84	133	4.18 T	5.84	118
	71.01	0.00	126	153.03	5.86	116			
9 MAX	0.00	0.00	112	0.00	0.00	112	10.36 C	0.00	126

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MIN	-9.14	5.86	131	-368.43	5.86	126			
	0.00	5.86	133	0.00	5.86	133	4.19	T	5.86 118
10 MAX	37.71	0.00	126	185.70	5.86	116			
	0.00	0.00	112	0.00	0.00	112	9.38	C	0.00 126
MIN	-36.34	5.27	130	-420.29	4.69	126			
	0.00	5.86	133	0.00	5.86	133	4.19	T	5.86 118
11 MAX	5.76	0.00	124	227.17	5.86	118			
	0.00	0.00	112	0.00	0.00	112	7.41	C	0.00 126
MIN	-66.31	5.86	130	-394.84	0.00	126			
	0.00	5.86	133	0.00	5.86	133	4.19	T	5.86 118
12 MAX	5.28	0.00	117	391.92	5.86	130			
	0.00	0.00	112	0.00	0.00	112	6.41	C	0.00 126
MIN	-76.64	5.86	128	-205.91	0.00	125			
	0.00	5.86	133	0.00	5.86	133	4.19	T	5.86 118
13 MAX	66.60	0.00	118	384.42	0.00	118			
	0.00	0.00	112	0.00	0.00	112	1.97	C	0.00 118
MIN	0.00	4.77	132	0.00	2.86	132			
	0.00	4.77	133	0.00	4.77	133	0.00		4.77 132
14 MAX	33.30	0.00	118	133.21	0.00	118			
	0.00	0.00	112	0.00	0.00	112	0.98	C	0.00 118
MIN	0.00	5.62	133	0.00	5.62	133			
	0.00	5.62	133	0.00	5.62	133	0.00		5.62 133

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

642. *5C1 MAX FLOOR BEAM FORCES ABOVE

643. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 15 TO 18

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
15 MAX	0.29	0.00	113	3.42	15.73	120			
	0.00	0.00	112	0.00	0.00	112	181.39 C	0.00	112
MIN	-0.46	15.73	119	-5.21	15.73	113			
	0.00	15.73	133	0.00	15.73	133	28.17 C	15.73	130
16 MAX	2.59	0.00	121	3.42	0.00	120			
	0.00	0.00	112	0.00	0.00	112	181.32 C	0.00	112
MIN	0.31	5.33	129	-10.78	5.33	121			
	0.00	5.33	133	0.00	5.33	133	27.97 C	5.33	130
17 MAX	-1.15	0.00	116	42.17	22.37	125			
	0.00	0.00	112	0.00	0.00	112	181.32 C	0.00	112
MIN	-2.32	22.37	125	-10.78	0.00	121			
	0.00	22.37	133	0.00	22.37	133	27.97 C	22.37	130
18 MAX	5.29	0.00	127	168.28	26.42	117			
	0.00	0.00	112	0.00	0.00	112	148.87 C	0.00	112
MIN	-9.30	26.42	117	-141.90	26.42	127			
	0.00	26.42	133	0.00	26.42	133	5.54 T	26.42	126

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

644. *5C1 MAX COLUMN 3 FORCES ABOVE

645. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 19 TO 23

MEMBER FORCE ENVELOPE

 ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
19 MAX	0.09	0.00	116	2.68	9.75	128			
	0.00	0.00	112	0.00	0.00	112	171.89 C	0.00	132
MIN	-0.37	9.75	125	-2.34	0.00	113			
	0.00	9.75	133	0.00	9.75	133	46.17 C	9.75	113
20 MAX	0.15	0.00	128	2.68	0.00	128			
	0.00	0.00	112	0.00	0.00	112	161.15 C	0.00	132
MIN	-0.19	5.98	112	-1.64	0.00	112			
	0.00	5.98	133	0.00	5.98	133	42.73 C	5.98	113
21 MAX	0.29	0.00	116	9.23	5.33	126			
	0.00	0.00	112	0.00	0.00	112	161.15 C	0.00	132
MIN	-1.38	5.33	126	-1.99	5.33	116			
	0.00	5.33	133	0.00	5.33	133	42.73 C	5.33	113
22 MAX	1.91	0.00	125	9.23	0.00	126			
	0.00	0.00	112	0.00	0.00	112	172.82 C	0.00	132
MIN	-0.43	22.37	116	-34.00	22.37	125			
	0.00	22.37	133	0.00	22.37	133	45.81 C	22.37	113
23 MAX	9.87	0.00	116	175.53	27.28	125			
	0.00	0.00	112	0.00	0.00	112	132.22 C	0.00	120
MIN	-9.72	27.28	125	-168.36	27.28	116			
	0.00	27.28	133	0.00	27.28	133	4.46 T	27.28	113

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

646. *5C1 MAX COLUMN 2 FORCES ABOVE
 647. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 24 TO 27

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
24 MAX	0.65	0.00	120	5.10	0.00	120			
	0.00	0.00	112	0.00	0.00	112	150.18 C	0.00	128
MIN	-0.15	15.73	113	-5.08	15.73	120			
	0.00	15.73	133	0.00	15.73	133	8.33 C	15.73	112
25 MAX	0.25	0.00	113	9.23	5.33	121			
	0.00	0.00	112	0.00	0.00	112	149.99 C	0.00	128
MIN	-2.56	5.33	121	-5.08	0.00	120			
	0.00	5.33	133	0.00	5.33	133	8.15 C	5.33	114
26 MAX	1.59	0.00	121	9.23	0.00	121			
	0.00	0.00	112	0.00	0.00	112	149.99 C	0.00	128
MIN	0.41	22.37	125	-28.84	22.37	116			
	0.00	22.37	133	0.00	22.37	133	8.15 C	22.37	114
27 MAX	8.26	0.00	126	106.60	28.15	118			
	0.00	0.00	112	0.00	0.00	112	136.59 C	0.00	128
MIN	-3.93	28.15	118	-164.52	28.15	126			
	0.00	28.15	133	0.00	28.15	133	5.33 T	28.15	117

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

648. *5C1 MAX COLUMN 1 FORCES ABOVE

649. LOAD LIST 134 TO 191

650. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 1 TO 14

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
1 MAX	0.00	0.00	134	84.28	5.93	134			
	0.00	0.00	134	0.00	0.00	134	0.00	0.00	134
MIN	-26.09	5.93	137	0.00	5.93	191			
	0.00	5.93	191	0.00	5.93	191	0.77 T	5.93	137
2 MAX	0.00	0.00	138	351.25	6.50	134			
	0.00	0.00	134	0.00	0.00	134	0.00	0.00	138
MIN	-52.18	6.50	137	0.00	6.50	191			
	0.00	6.50	191	0.00	6.50	191	1.55 T	6.50	137
3 MAX	45.68	0.00	144	247.83	0.00	134			
	0.00	0.00	134	0.00	0.00	134	4.23 C	0.00	153
MIN	-4.73	5.86	143	-136.19	5.86	150			
	0.00	5.86	191	0.00	5.86	191	4.54 T	5.86	134
4 MAX	34.27	0.00	150	185.84	0.00	134			
	0.00	0.00	134	0.00	0.00	134	4.23 C	0.00	153
MIN	-15.99	5.86	149	-204.34	5.86	155			
	0.00	5.86	191	0.00	5.86	191	4.54 T	5.86	134
5 MAX	22.72	0.00	156	123.86	0.00	134			
	0.00	0.00	134	0.00	0.00	134	4.08 C	0.00	156
MIN	-27.61	5.86	155	-207.46	0.59	156			
	0.00	5.86	191	0.00	5.86	191	4.54 T	5.86	134
6 MAX	12.22	0.00	162	65.12	5.86	170			
	0.00	0.00	134	0.00	0.00	134	3.31 C	0.00	156
MIN	-38.36	5.86	161	-189.69	0.00	156			
	0.00	5.86	191	0.00	5.86	191	4.54 T	5.86	134
7 MAX	10.58	0.00	134	139.38	5.84	157			
	0.00	0.00	134	0.00	0.00	134	2.68 C	0.00	153
MIN	-39.96	5.84	162	-98.28	0.00	161			
	0.00	5.84	191	0.00	5.84	191	4.54 T	5.84	134
8 MAX	42.97	0.00	163	138.82	0.00	170			
	0.00	0.00	134	0.00	0.00	134	4.07 C	0.00	171
MIN	-7.26	5.84	191	-98.30	5.84	165			
	0.00	5.84	191	0.00	5.84	191	3.62 T	5.84	191
9 MAX	38.31	0.00	166	64.14	0.00	157			
	0.00	0.00	134	0.00	0.00	134	4.07 C	0.00	171

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MIN	-12.27	5.86	165	-190.46	5.86	171			
	0.00	5.86	191	0.00	5.86	191	3.62	T	5.86 191
10 MAX	27.55	0.00	172	88.54	5.86	191			
	0.00	0.00	134	0.00	0.00	134	4.04	C	0.00 172
MIN	-22.77	5.86	171	-207.94	5.27	171			
	0.00	5.86	191	0.00	5.86	191	3.62	T	5.86 191
11 MAX	15.94	0.00	178	131.08	5.86	191			
	0.00	0.00	134	0.00	0.00	134	3.27	C	0.00 172
MIN	-34.33	5.86	177	-205.10	0.59	172			
	0.00	5.86	191	0.00	5.86	191	3.62	T	5.86 191
12 MAX	4.69	0.00	184	173.63	5.86	191			
	0.00	0.00	134	0.00	0.00	134	2.53	C	0.00 171
MIN	-45.72	5.86	183	-137.15	0.00	177			
	0.00	5.86	191	0.00	5.86	191	3.63	T	5.86 191
13 MAX	52.18	0.00	190	248.99	0.00	191			
	0.00	0.00	134	0.00	0.00	134	1.54	C	0.00 190
MIN	0.00	4.77	187	0.00	0.95	184			
	0.00	4.77	191	0.00	4.77	191	0.00		4.77 187
14 MAX	26.09	0.00	188	78.28	0.00	191			
	0.00	0.00	134	0.00	0.00	134	0.77	C	0.00 188
MIN	0.00	5.62	191	0.00	5.62	191			
	0.00	5.62	191	0.00	5.62	191	0.00		5.62 191

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

651. *FATIGUE FLOOR BEAM FORCES ABOVE

652. FINISH

***** END OF THE STAAD.Pro RUN *****

**** DATE= APR 12,2012 TIME= 13:28:17 ****

* For questions on STAAD.Pro, please contact *
* Bentley Systems Offices at the following locations *
* *
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* *

EAST APPROACH FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/30/2012
Date 4/13/2012

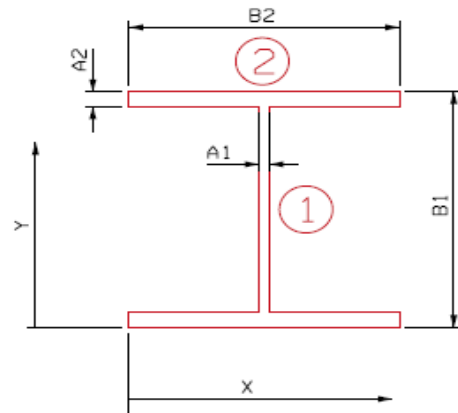
Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Red text indicates user input

Element Dimensions (without Section Losses):

$A_1 = t_w = 0.7250$ in
 $A_2 = t_f = 1.1800$ in
 $B_1 = d = 36.3200$ in
 $B_2 = b_f = 12.0720$ in
36WFB182



FB-1 @ COLUMN 301
EAST APPR. FWD SECTION

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I _o	d	Ad ²	I _{x,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		24.6210	18.1600	447.1174	2366.2455	0.0000	0.0000	2366.2455
2	Top Flange		14.2450	35.7300	508.9724	1.6529	17.5700	4397.4890	4399.1418
	Bottom Flange		14.2450	0.5900	8.4045	1.6529	17.5700	4397.4890	4399.1418
Total			53.11		964.49	2369.55		8794.98	11164.53
Section Losses			A	y	Ay	I _o	d	Ad ²	I _{x,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.2500	5.0000	-1.2500	33.5000	-41.8750	-2.6042	15.7097	-308.4949	-311.0990
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			-1.25		-41.88	-2.60		-308.49	-311.10

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	18.1600 in	S _{top} =	614.79 in ³	y-bar =	17.7903 in	S _{top} =	585.73 in ³
I _x =	11164.53 in ⁴	S _{bott.} =	614.79 in ³	I _x =	10853.43 in ⁴	S _{bott.} =	610.08 in ³
C _{top} =	18.1600 in	A =	53.1109 in ²	C _{top} =	18.5297 in	A =	51.8609 in ²
C _{bottom} =	18.1600 in	r _x =	14.4987 in	C _{bottom} =	17.7903 in	r _x =	14.4665 in
		Z =	709.60 in ³			Z =	warning in ³

EAST APPROACH FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/30/2012
Date 4/13/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Floorbeam Capacities

Non-composite Capacities*		
	AB	AI
M	1690.66 k-ft	1610.76 k-ft
V	471.25 k	447.32 k

*Noncompact Section

$F_y =$	33.00 ksi
---------	------------------

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

As-Built Moments and Shears						
	DL	HS20	2F1	3F1	4F1	5C1
M	641.94 k-ft	604.45 k-ft	228.70 k-ft	343.15 k-ft	393.47 k-ft	515.00 k-ft
V	70.58 k	78.17 k	19.76 k	29.39 k	33.62 k	66.60 k

As-Built Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	0.65	---	---	---	---
Operating M	1.09	2.88	1.92	1.67	1.28
As-Inspected Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	0.59	---	---	---	---
Operating M	0.99	2.61	1.74	1.52	1.16
As-Built Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	2.24	---	---	---	---
Operating V	3.73	14.77	9.93	8.68	4.38
As-Inspected Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	2.1	---	---	---	---
Operating V	3.5	13.84	9.31	8.14	4.11

Controlling Rating Factors and Tonnage						
	HS20 Inventory	HS20 Operating	2F1 Operating	3F1 Operating	4F1 Operating	5C1 Operating
Rating Factor	0.59	0.99	2.61	1.74	1.52	1.16
Tonnage (US Tons)	21.24	35.64	39.15	40.02	41.04	46.4

EAST APPROACH FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/30/2012
Date 4/13/2012

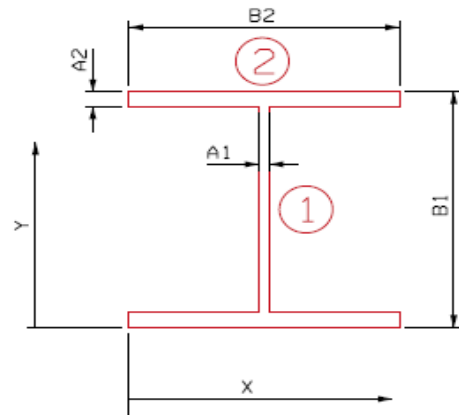
Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Red text indicates user input

Element Dimensions (without Section Losses):

$A_1 = t_w = 0.7250$ in
 $A_2 = t_f = 1.1800$ in
 $B_1 = d = 36.3200$ in
 $B_2 = b_f = 12.0720$ in
36WFB182



FB-1 @ COLUMN 201
EAST APPR. FWD SECTION

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I _o	d	Ad ²	I _{x,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		24.6210	18.1600	447.1174	2366.2455	0.0000	0.0000	2366.2455
2	Top Flange		14.2450	35.7300	508.9724	1.6529	17.5700	4397.4890	4399.1418
	Bottom Flange		14.2450	0.5900	8.4045	1.6529	17.5700	4397.4890	4399.1418
Total			53.11		964.49	2369.55		8794.98	11164.53
Section Losses			A	y	Ay	I _o	d	Ad ²	I _{x,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.1250	18.0000	-2.2500	27.0000	-60.7500	-60.7500	8.7753	-173.2638	-234.0138
2	0.2500	6.0000	-1.5000	33.0000	-49.5000	-4.5000	14.7753	-327.4649	-331.9649
3	12.0000	0.1250	-1.5000	0.0625	-0.0938	-0.0020	18.1622	-494.7975	-494.7995
4	4.0000	0.2500	-1.0000	0.1250	-0.1250	-0.0052	18.0997	-327.5986	-327.6038
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			-6.25		-110.47	-65.26		-1323.12	-1388.38

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	18.1600	in	S _{top} = 614.79 in ³	y-bar =	18.2247	in	S _{top} = 540.26 in ³
I _x =	11164.53	in ⁴	S _{bott.} = 614.79 in ³	I _x =	9776.15	in ⁴	S _{bott.} = 536.42 in ³
C _{top} =	18.1600	in	A = 53.1109 in ²	C _{top} =	18.0953	in	A = 46.8609 in ²
C _{bottom} =	18.1600	in	r _x = 14.4987 in	C _{bottom} =	18.2247	in	r _x = 14.4437 in
			Z = 709.60 in ³				Z = warning in ³

EAST APPROACH FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/30/2012
Date 4/13/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Floorbeam Capacities

Non-composite Capacities*		
	AB	AI
M	1690.66 k-ft	1475.16 k-ft
V	471.25 k	399.47 k

*Noncompact Section

$F_y =$	33.00 ksi
---------	------------------

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

As-Built Moments and Shears						
	DL	HS20	2F1	3F1	4F1	5C1
M	373.22 k-ft	419.69 k-ft	191.82 k-ft	293.67 k-ft	338.44 k-ft	362.05 k-ft
V	68.72 k	94.48 k	43.89 k	66.24 k	76.07 k	81.25 k

As-Built Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.32	---	---	---	---
Operating M	2.21	4.83	3.16	2.74	2.56
As-Inspected Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.09	---	---	---	---
Operating M	1.81	3.97	2.59	2.25	2.1
As-Built Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	1.86	---	---	---	---
Operating V	3.11	6.69	4.44	3.86	3.62
As-Inspected Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	1.51	---	---	---	---
Operating V	2.53	5.44	3.6	3.14	2.94

Controlling Rating Factors and Tonnage						
	HS20 Inventory	HS20 Operating	2F1 Operating	3F1 Operating	4F1 Operating	5C1 Operating
Rating Factor	1.09	1.81	3.97	2.59	2.25	2.1
Tonnage (US Tons)	39.24	65.16	59.55	59.57	60.75	84

EAST APPROACH FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/20/2012
Date 4/13/2012

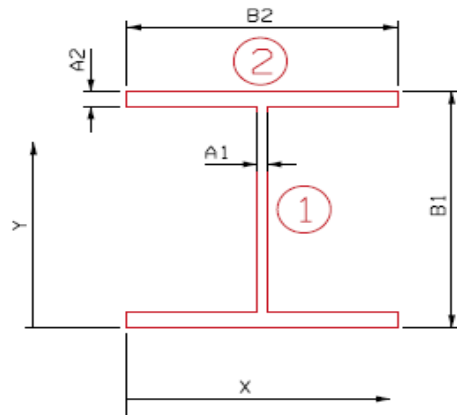
Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Red text indicates user input

Element Dimensions (without Section Losses):

$A_1 = t_w = 0.7250$ in
 $A_2 = t_f = 1.1800$ in
 $B_1 = d = 36.3200$ in
 $B_2 = b_f = 12.0720$ in
36WFB182



FB-1 @ COLUMN 101
EAST APPR. FWD SECTION

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I_o	d	Ad^2	$I_{x, gross}$
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		24.6210	18.1600	447.1174	2366.2455	0.0000	0.0000	2366.2455
2	Top Flange		14.2450	35.7300	508.9724	1.6529	17.5700	4397.4890	4399.1418
	Bottom Flange		14.2450	0.5900	8.4045	1.6529	17.5700	4397.4890	4399.1418
Total			53.11		964.49	2369.55		8794.98	11164.53
Section Losses			A	y	Ay	I_o	d	Ad^2	$I_{x, loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0625	18.0000	-1.1250	27.0000	-30.3750	-30.3750	8.1173	-74.1265	-104.5015
2	0.0625	18.0000	-1.1250	27.0000	-30.3750	-30.3750	8.1173	-74.1265	-104.5015
3	12.0000	0.2500	-3.0000	0.0000	0.0000	-0.0156	0.0000	0.0000	-0.0156
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			-5.25		-60.75	-60.77		-148.25	-209.02

As-Built Section Properties				As-Inspected Section Properties							
y-bar =	18.1600	in	$S_{top} = 614.79$	in^3	y-bar =	18.8827	in	$S_{top} = 628.28$	in^3		
$I_x =$	11164.53	in^4	$S_{bott.} = 614.79$	in^3	$I_x =$	10955.51	in^4	$S_{bott.} = 580.19$	in^3		
$C_{top} =$	18.1600	in	A =	53.1109	in^2	$C_{top} =$	17.4373	in	A =	47.8609	in^2
$C_{bottom} =$	18.1600	in	$r_x =$	14.4987	in	$C_{bottom} =$	18.8827	in	$r_x =$	15.1295	in
			Z =	709.60	in^3				Z =	warning	in^3

EAST APPROACH FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/20/2012
Date 4/13/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Floorbeam Capacities

Non-composite Capacities*		
	AB	AI
M	1690.66 k-ft	1595.51 k-ft
V	471.25 k	428.18 k

*Noncompact Section

$F_y =$	33.00 ksi
---------	------------------

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

As-Built Moments and Shears						
	DL	HS20	2F1	3F1	4F1	5C1
M	470.71 k-ft	458.30 k-ft	208.93 k-ft	313.93 k-ft	360.08 k-ft	384.42 k-ft
V	74.89 k	89.82 k	36.20 k	54.39 k	62.38 k	66.60 k

As-Built Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.08	---	---	---	---
Operating M	1.81	3.97	2.64	2.3	2.16
As-Inspected Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	0.99	---	---	---	---
Operating M	1.65	3.62	2.41	2.1	1.97
As-Built Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	1.92	---	---	---	---
Operating V	3.2	7.95	5.29	4.61	4.32
As-Inspected Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	1.7	---	---	---	---
Operating V	2.83	7.03	4.68	4.08	3.82

Controlling Rating Factors and Tonnage						
	HS20 Inventory	HS20 Operating	2F1 Operating	3F1 Operating	4F1 Operating	5C1 Operating
Rating Factor	0.99	1.65	3.62	2.41	2.1	1.97
Tonnage (US Tons)	35.64	59.4	54.3	55.43	56.7	78.8

EAST APPROACH FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/20/2012
Date 4/13/2012

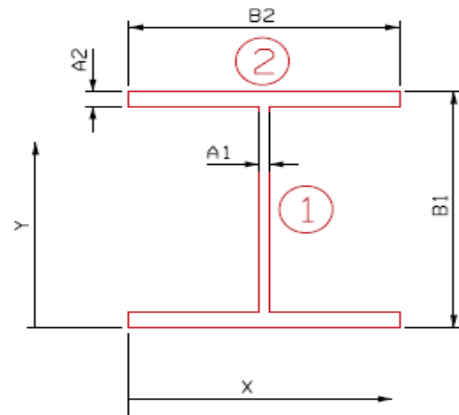
Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Red text indicates user input

Element Dimensions (without Section Losses):

$A_1 = t_w = 0.7250$ in
 $A_2 = t_f = 1.1800$ in
 $B_1 = d = 36.3200$ in
 $B_2 = b_f = 12.0720$ in
36WFB182



**FB-1 @ Between 201 & 301
EAST APPR. FWD SECTION**

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I _o	d	Ad ²	I _{x,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		24.6210	18.1600	447.1174	2366.2455	0.0000	0.0000	2366.2455
2	Top Flange		14.2450	35.7300	508.9724	1.6529	17.5700	4397.4890	4399.1418
	Bottom Flange		14.2450	0.5900	8.4045	1.6529	17.5700	4397.4890	4399.1418
Total			53.11		964.49	2369.55		8794.98	11164.53
Section Losses			A	y	Ay	I _o	d	Ad ²	I _{x,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.2500	5.0000	-1.2500	33.5000	-41.8750	-2.6042	15.7097	-308.4949	-311.0990
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			-1.25		-41.88	-2.60		-308.49	-311.10

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	18.1600	in	S _{top} = 614.79 in ³	y-bar =	17.7903	in	S _{top} = 585.73 in ³
I _x =	11164.53	in ⁴	S _{bottom} = 614.79 in ³	I _x =	10853.43	in ⁴	S _{bottom} = 610.08 in ³
C _{top} =	18.1600	in	A = 53.1109 in ²	C _{top} =	18.5297	in	A = 51.8609 in ²
C _{bottom} =	18.1600	in	r _x = 14.4987 in	C _{bottom} =	17.7903	in	r _x = 14.4665 in
			Z = 709.60 in ³				Z = warning in ³

EAST APPROACH FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/20/2012
Date 4/13/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Floorbeam Capacities

Non-composite Capacities*		
	AB	AI
M	1951.40 k-ft	1610.76 k-ft
V	471.25 k	447.32 k

*Compact Section

$F_y =$	33.00 ksi
---------	------------------

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

As-Built Moments and Shears						
	DL	HS20	2F1	3F1	4F1	5C1
M	168.50 k-ft	488.32 k-ft	220.00 k-ft	332.53 k-ft	382.00 k-ft	408.10 k-ft
V	26.41 k	44.45 k	19.46 k	29.67 k	34.16 k	36.53 k

As-Built Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.63	---	---	---	---
Operating M	2.73	6.06	4.01	3.49	3.27
As-Inspected Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.31	---	---	---	---
Operating M	2.19	4.87	3.22	2.8	2.62
As-Built Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	4.53	---	---	---	---
Operating V	7.56	17.27	11.33	9.84	9.2
As-Inspected Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	4.28	---	---	---	---
Operating V	7.15	16.32	10.71	9.3	8.7

Controlling Rating Factors and Tonnage						
	HS20 Inventory	HS20 Operating	2F1 Operating	3F1 Operating	4F1 Operating	5C1 Operating
Rating Factor	1.31	2.19	4.87	3.22	2.8	2.62
Tonnage (US Tons)	47.16	78.84	73.05	74.06	75.6	104.8

EAST APPROACH FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/30/2012
Date 4/13/2012

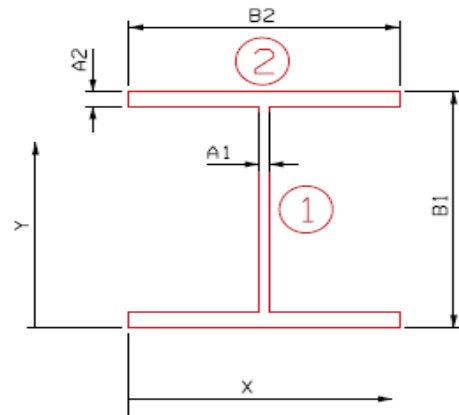
Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Red text indicates user input

Element Dimensions (without Section Losses):

$A_1 = t_w = 0.7250$ in
 $A_2 = t_f = 1.1800$ in
 $B_1 = d = 36.3200$ in
 $B_2 = b_f = 12.0720$ in
36WFB182



FB-1 @ Between 101 & 201
EAST APPR. FWD SECTION

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I _o	d	Ad ²	I _{x,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		24.6210	18.1600	447.1174	2366.2455	0.0000	0.0000	2366.2455
2	Top Flange		14.2450	35.7300	508.9724	1.6529	17.5700	4397.4890	4399.1418
	Bottom Flange		14.2450	0.5900	8.4045	1.6529	17.5700	4397.4890	4399.1418
Total			53.11		964.49	2369.55		8794.98	11164.53
Section Losses			A	y	Ay	I _o	d	Ad ²	I _{x,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.1250	36.0000	-4.5000	18.0000	-81.0000	-486.0000	0.2759	-0.3425	-486.3425
2	0.2500	6.0000	-1.5000	15.0000	-22.5000	-4.5000	3.2759	-16.0972	-20.5972
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			-6.00		-103.50	-490.50		-16.44	-506.94

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	18.1600	in	S _{top} = 614.79 in ³	y-bar =	18.2759	in	S _{top} = 590.64 in ³
I _x =	11164.53	in ⁴	S _{bott.} = 614.79 in ³	I _x =	10657.59	in ⁴	S _{bott.} = 583.15 in ³
C _{top} =	18.1600	in	A = 53.1109 in ²	C _{top} =	18.0441	in	A = 47.1109 in ²
C _{bottom} =	18.1600	in	r _x = 14.4987 in	C _{bottom} =	18.2759	in	r _x = 15.0407 in
			Z = 709.60 in ³				Z = warning in ³

EAST APPROACH FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/30/2012
Date 4/13/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Floorbeam Capacities

Non-composite Capacities*		
	AB	AI
M	1951.40 k-ft	1603.66 k-ft
V	471.25 k	356.41 k

*Compact Section

$F_y =$	33.00 ksi
---------	------------------

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

As-Built Moments and Shears						
	DL	HS20	2F1	3F1	4F1	5C1
M	216.00 k-ft	493.26 k-ft	228.70 k-ft	343.15 k-ft	393.47 k-ft	420.01 k-ft
V	31.56 k	44.39 k	19.76 k	29.39 k	33.62 k	35.85 k

As-Built Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.56	---	---	---	---
Operating M	2.61	5.62	3.74	3.27	3.06
As-Inspected Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.24	---	---	---	---
Operating M	2.06	4.45	2.97	2.59	2.42
As-Built Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	4.47	---	---	---	---
Operating V	7.46	16.75	11.26	9.84	9.23
As-Inspected Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	3.27	---	---	---	---
Operating V	5.47	12.28	8.25	7.22	6.77

Controlling Rating Factors and Tonnage						
	HS20 Inventory	HS20 Operating	2F1 Operating	3F1 Operating	4F1 Operating	5C1 Operating
Rating Factor	1.24	2.06	4.45	2.97	2.59	2.42
Tonnage (US Tons)	44.64	74.16	66.75	68.31	69.93	96.8



Calculated: FKL Date: 3/30/2012
Checked: MTN Date: 4/12/2012'

CUY-2-1441 Load Rating Analysis - As-Built
Main Ave Bridge

East Approach Fwd Section - Bent 1

Column: C301

Section Properties 21WF132 & New reinforcing Plates

$$\begin{array}{ll} A = 51.810 \text{ in}^2 & I_x = 4687.547 \text{ in}^4 \\ h = 22.310 \text{ in} & S_x = 420.219 \text{ in}^3 \\ b_f = 13.087 \text{ in} & r_x = 9.512 \text{ in} \\ t_f = 1.520 \text{ in} & I_y = 536.883 \text{ in}^4 \\ t_w = 0.614 \text{ in} & S_y = 82.048 \text{ in}^3 \\ & r_y = 3.219 \text{ in} \end{array}$$

$$\begin{array}{ll} E = 29000 \text{ ksi} \\ L_{cx} = 317.00 \text{ in} \\ L_{cy} = 317.00 \text{ in} \\ K_x = 0.650 \text{ AASHTO Appendix C} \\ K_y = 0.650 \text{ AASHTO Appendix C} \end{array}$$

Axial Loading

$$P_u = 0.85 A_s F_{cr}$$

AASHTO 10.54 Concentrically Loaded Columns

$$F_{cr} = F_y \left(1 - \frac{F_y}{4\pi^2 E} \left(\frac{KL_c}{r} \right)^2 \right) \quad \text{For: } \frac{KL_c}{r} \leq \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$F_{cr} = \frac{\pi^2 E}{\left(\frac{KL_c}{r} \right)^2} \quad \text{For: } \frac{KL_c}{r} > \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$KL/r_y = 64.010$$

$$KL/r_x = 21.663$$

$$P_u = 1294.7 \text{ k}$$

Axial Loading and Bending

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_c} \right)} \leq 1.0$$

AASHTO 10.54.2 Combined Axial Load and Bending

$$= 0.6 + 0.4$$

$$\begin{array}{ll} a = 0 & \text{**When moment is small assume } a = 0 \\ C = 0.600 \end{array}$$

$$F_e = \frac{E\pi^2}{\left(\frac{KL_c}{r} \right)^2} \quad \begin{array}{ll} F_{ex} = 609.921 \text{ ksi} \\ F_{ey} = 69.857 \text{ ksi} \end{array}$$

Column Moment Capacity

Strong Axis Bending

$M_u = F_y S_x$ For Non-Compact Section

$$\text{Total } M_{ux} = 1209.8 \text{ k-ft}$$



Calculated: FKL Date: 3/30/2012
 Checked: MTN Date: 4/12/2012

CUY-2-1441 Load Rating Analysis - As-Built
Main Ave Bridge
East Approach Fwd Section - Bent 1

Column: C301

Section Properties	21WF132	ONLY		
A =	38.810	in ²	I _x =	3141.600 in ⁴
h =	21.310	in	S _x =	294.800 in ³
b _f =	13.087	in	r _x =	9.000 in
t _f =	1.020	in	I _y =	353.800 in ⁴
t _w =	0.614	in	S _y =	54.100 in ³
			r _y =	3.020 in
F _y =	33.0	ksi	Z	327.8 in ³
E =	29000	ksi		
L _{cx} =	317.00	in		
L _{cy} =	317.00	in		
K _x =	0.650	AASHTO Appendix C		
K _y =	0.650	AASHTO Appendix C		

Axial Loading

$$P_u = 0.85 A_s F_{cr}$$

AASHTO 10.54 Concentrically Loaded Columns

$$F_{cr} = F_y \left(1 - \frac{F_y}{4\pi^2 E} \left(\frac{KL_c}{r} \right)^2 \right) \quad \text{For: } \frac{KL_c}{r} \leq \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$F_{cr} = \frac{\pi^2 E}{\left(\frac{KL_c}{r} \right)^2} \quad \text{For: } \frac{KL_c}{r} > \sqrt{\frac{2\pi^2 E}{F_y}}$$

KL/r_y = 64.010 < 131.706
 KL/r_x = 21.663 < 131.706

F_{CR} = 29.103 ksi

$$P_u = 960.1 \text{ k}$$



Calculated: FKL Date: 3/30/2012
 Checked: MTN Date: 4/12/2012

CUY-2-1441 Load Rating Analysis - As-Built
 Main Ave Bridge
 East Approach Fwd Section - Bent 1

Column: C301

Section Properties 2-1/2"x13" Plates ONLY

A = 13.000 in² I_x = 1545.947 in⁴
 h = 22.310 in S_x = 138.588 in³
 b_f = 13.000 in r_x = 10.905 in
 t_f = 0.500 in I_y = 183.083 in⁴
 t_w = 0.000 in S_y = 28.167 in³
 r_y = 3.753 in
 F_y = 34.5 ksi F_y using strain compatibility
 E = 29000 ksi
 L_{cx} = 317.00 in
 L_{cy} = 317.00 in
 K_x = 0.650 AASHTO Appendix C
 K_y = 0.650 AASHTO Appendix C

Axial Loading

$$P_u = 0.85 A_s F_{cr}$$

AASHTO 10.54 Centrally Loaded Columns

$$F_{cr} = F_y \left(1 - \frac{F_y}{4\pi^2 E} \left(\frac{KL_c}{r} \right)^2 \right) \quad \text{For: } \frac{KL_c}{r} \leq \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$F_{cr} = \frac{\pi^2 E}{\left(\frac{KL_c}{r} \right)^2} \quad \text{For: } \frac{KL_c}{r} > \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$KL/r_y = 64.010 < 128.721$$

$$KL/r_x = 21.663 < 128.721$$

$$F_{CR} = 30.277 \text{ ksi}$$

$$P_u = 334.6 \text{ k}$$

CUY-2-1441 Load Rating Analysis - As-Built

Main Ave Bridge

East Approach Forward Section - Column 301 Ratings



Calculated:

FKL 3/30/2012

Checked:

MTN 4/12/2012

Column Loading

	DL	HS-20	2F1	3F1	4F1	5C1
Max Axial	283.13	206.96	114.18	154.39	172.07	181.39
Moment	2.33	2.56	1.45	1.93	2.14	2.25
Axial	273.98	73.14	34.28	51.12	58.53	62.43
Max Mom.	49.36	195.37	96.99	139.65	158.40	168.28

DL Factor

1.30

LL Factor

2.17 INV
1.30 OPER

Factored Loads

Axial Force

Moment

Capacities

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_c}\right)} \leq 1.0$$

Load Case	Member	Axial Force		Moment		P _u kips	M _u k-ft	A _s F _{ex} kips	Condition Equation	RF
		Dead Load	Max. LL + I	Dead Load	Max LL + I					
HS20 INV	C301	368.0703	448.42	3.02	5.54	1294.70	1209.80	31600.01	1.00	2.05
HS20 INV	C301	356.1675	158.48	64.16	423.31	1294.70	1209.80	31600.01	1.00	2.05
HS20 OPR	C301	368.0703	269.05	3.02	3.32	1294.70	1209.80	31600.01	1.00	3.41
HS20 OPR	C301	356.1675	95.09	64.16	253.99	1294.70	1209.80	31600.01	1.00	3.42
2F1	C301	368.0703	148.44	3.02	1.88	1294.70	1209.80	31600.01	1.00	6.18
2F1	C301	356.1675	44.56	64.16	126.09	1294.70	1209.80	31600.01	1.00	7.04
3F1	C301	368.0703	200.71	3.02	2.51	1294.70	1209.80	31600.01	1.00	4.57
3F1	C301	356.1675	66.46	64.16	181.55	1294.70	1209.80	31600.01	1.00	4.83
4F1	C301	368.0703	223.69	3.02	2.78	1294.70	1209.80	31600.01	1.00	4.10
4F1	C301	356.1675	76.09	64.16	205.91	1294.70	1209.80	31600.01	1.00	4.24
5C1	C301	368.0703	235.81	3.02	2.93	1294.70	1209.80	31600.01	1.00	3.89
5C1	C301	356.1675	81.16	64.16	218.76	1294.70	1209.80	31600.01	1.00	3.99

Load Case	Controlling RF
HS20 INV	2.05
HS20 OPR	3.41
2F1	6.18
3F1	4.57
4F1	4.10
5C1	3.89



Calculated: FKL Date: 3/30/2012
Checked: MTN Date: 4/12/2012

CUY-2-1441 Load Rating Analysis - As-Built
Main Ave Bridge

East Approach Fwd Section - Bent 1

Column: C201

Section Properties 24WF140

A =	41.160	in ²	I _x =	4376.100	in ⁴
h =	24.410	in	S _x =	358.600	in ³
b _f =	14.029	in	r _x =	10.310	in
t _f =	0.980	in	I _y =	414.500	in ⁴
t _w =	0.594	in	S _y =	59.100	in ³
			r _y =	3.170	in
F _y =	33.0	ksi	Z	397	in ³
E =	29000	ksi			
L _{cx} =	327.38	in			
L _{cy} =	327.38	in			
K _x =	0.650	AASHTO Appendix C			
K _y =	0.650	AASHTO Appendix C			

Axial Loading

$$P_u = 0.85 A_s F_{cr}$$

AASHTO 10.54 Concentrically Loaded Columns

$$F_{cr} = F_y \left(1 - \frac{F_y}{4\pi^2 E} \left(\frac{KL_c}{r} \right)^2 \right) \quad \text{For: } \frac{KL_c}{r} \leq \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$F_{cr} = \frac{\pi^2 E}{\left(\frac{KL_c}{r} \right)^2} \quad \text{For: } \frac{KL_c}{r} > \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$KL/r_y = 67.129 < 131.706$$

$$KL/r_x = 20.640 < 131.706$$

$$F_{CR} = 28.714 \text{ ksi}$$

$$P_u = 1004.6 \text{ k}$$

Axial Loading and Bending

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_c} \right)} \leq 1.0$$

AASHTO 10.54.2 Combined Axial Load and Bending

$$= 0.6 + 0.4$$

$$a = 0 \quad \text{**When moment is small assume } a = 0$$

$$C = 0.600$$

$$F_e = \frac{E\pi^2}{\left(\frac{KL_c}{r} \right)^2} \quad F_{ex} = 671.852 \text{ ksi}$$

$$F_{ey} = 63.515 \text{ ksi}$$

Column Moment Capacity

Strong Axis Bending

M_u = F_yZ For Compact Section

$$\text{Total } M_{ux} = 1091.8 \text{ k-ft}$$

CUY-2-1441 Load Rating Analysis - As-Built

Main Ave Bridge

East Approach Forward Section - Column 201 Ratings



Calculated:

FKL 3/30/2012

Checked:

MTN 4/12/2012

Column Loading

	DL	HS-20	2F1	3F1	4F1	5C1
Max Axial	296.99	195.05	114.39	149.35	164.71	172.82
Moment	1.98	3.95	3.53	3.71	3.79	3.84
Axial	284.33	65.29	31.05	44.97	51.81	55.41
Max Mom.	22.37	206.85	93.57	142.48	164.12	175.53

DL Factor

1.30

LL Factor

2.17 INV
1.30 OPER

Factored Loads

Axial Force

Moment

Capacities

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_c}\right)} \leq 1.0$$

Load Case	Member	Axial Force		Moment		P _u kips	M _u k-ft	A _s F _c kips	Condition Equation	RF
		Dead Load	Max. LL + I	Dead Load	Max LL + I					
HS20 INV	C201	386.0922	422.60	2.58	8.57	1004.60	1091.80	27653.42	1.00	1.44
HS20 INV	C201	369.6251	141.47	29.08	448.17	1004.60	1091.80	27653.42	1.00	1.57
HS20 OPR	C201	386.0922	253.56	2.58	5.14	1004.60	1091.80	27653.42	1.00	2.40
HS20 OPR	C201	369.6251	84.88	29.08	268.90	1004.60	1091.80	27653.42	1.00	2.61
2F1	C201	386.0922	148.71	2.58	4.58	1004.60	1091.80	27653.42	1.00	4.08
2F1	C201	369.6251	40.37	29.08	121.64	1004.60	1091.80	27653.42	1.00	5.67
3F1	C201	386.0922	194.15	2.58	4.82	1004.60	1091.80	27653.42	1.00	3.13
3F1	C201	369.6251	58.47	29.08	185.23	1004.60	1091.80	27653.42	1.00	3.80
4F1	C201	386.0922	214.12	2.58	4.93	1004.60	1091.80	27653.42	1.00	2.84
4F1	C201	369.6251	67.35	29.08	213.35	1004.60	1091.80	27653.42	1.00	3.30
5C1	C201	386.0922	224.66	2.58	4.99	1004.60	1091.80	27653.42	1.00	2.71
5C1	C201	369.6251	72.03	29.08	228.19	1004.60	1091.80	27653.42	1.00	3.08

Load Case	Controlling RF
HS20 INV	1.44
HS20 OPR	2.40
2F1	4.08
3F1	3.13
4F1	2.84
5C1	2.71



Calculated: FKL Date: 3/30/2012
Checked: MTN Date: 4/12/2012

CUY-2-1441 Load Rating Analysis - As-Built
Main Ave Bridge

East Approach Fwd Section - Bent 1

Column: C101

Section Properties 21WF132 & New reinforcing Plates

A =	51.810	in ²	I _x =	4687.547	in ⁴
h =	22.310	in	S _x =	420.219	in ³
b _f =	13.087	in	r _x =	9.512	in
t _f =	1.520	in	I _y =	536.883	in ⁴
t _w =	0.614	in	S _y =	82.048	in ³
			r _y =	3.219	in

E =	29000	ksi
L _{cx} =	337.76	in
L _{cy} =	337.76	in
K _x =	0.650	AASHTO Appendix C
K _y =	0.650	AASHTO Appendix C

Axial Loading

$$P_u = 0.85 A_s F_{cr}$$

AASHTO 10.54 Centrally Loaded Columns

$$F_{cr} = F_y \left(1 - \frac{F_y}{4\pi^2 E} \left(\frac{KL_c}{r} \right)^2 \right) \quad \text{For: } \frac{KL_c}{r} \leq \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$F_{cr} = \frac{\pi^2 E}{\left(\frac{KL_c}{r} \right)^2} \quad \text{For: } \frac{KL_c}{r} > \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$KL/r_y = 68.201$$

$$KL/r_x = 23.081$$

$$P_u = 1270.9 \text{ k}$$

Axial Loading and Bending

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_c} \right)} \leq 1.0$$

AASHTO 10.54.2 Combined Axial Load and Bending

$$= 0.6 + 0.4$$

$$a = 0 \quad \text{**When moment is small assume } a = 0$$

$$C = 0.600$$

$$F_e = \frac{E\pi^2}{\left(\frac{KL_c}{r} \right)^2} \quad F_{ex} = 537.250 \text{ ksi}$$

$$F_{ey} = 61.533 \text{ ksi}$$

Column Moment Capacity

Strong Axis Bending

M_u = F_yS_x For Non-Compact Section

$$\text{Total } M_{ux} = 1209.8 \text{ k-ft}$$



Calculated: FKL Date: 3/30/2012
 Checked: MTN Date: 4/12/2012

CUY-2-1441 Load Rating Analysis - As-Built
 Main Ave Bridge

East Approach Fwd Section - Bent 1

Column: C101

Section Properties 21WF132 ONLY

A =	38.810	in ²	I _x =	3141.600	in ⁴
h =	21.310	in	S _x =	294.800	in ³
b _f =	13.087	in	r _x =	9.000	in
t _f =	1.020	in	I _y =	353.800	in ⁴
t _w =	0.614	in	S _y =	54.100	in ³
			r _y =	3.020	in
F _y =	33.0	ksi	Z	327.8	in ³
E =	29000	ksi			
L _{cx} =	337.76	in			
L _{cy} =	337.76	in			
K _x =	0.650	AASHTO Appendix C			
K _y =	0.650	AASHTO Appendix C			

Axial Loading

$$P_u = 0.85 A_s F_{cr}$$

AASHTO 10.54 Centrally Loaded Columns

$$F_{cr} = F_y \left(1 - \frac{F_y}{4\pi^2 E} \left(\frac{KL_c}{r} \right)^2 \right) \quad \text{For: } \frac{KL_c}{r} \leq \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$F_{cr} = \frac{\pi^2 E}{\left(\frac{KL_c}{r} \right)^2} \quad \text{For: } \frac{KL_c}{r} > \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$KL/r_y = 68.201 < 131.706$$

$$KL/r_x = 23.081 < 131.706$$

$$F_{CR} = 28.576 \text{ ksi}$$

$$P_u = 942.7 \text{ k}$$



Calculated: FKL Date: 3/30/2012
 Checked: MTN Date: 4/12/2012

CUY-2-1441 Load Rating Analysis - As-Built
 Main Ave Bridge

East Approach Fwd Section - Bent 1

Column: C101

Section Properties 2-1/2"x13" Plates ONLY

A =	13.000	in ²	I _x =	1545.947	in ⁴
h =	22.310	in	S _x =	138.588	in ³
b _f =	13.000	in	r _x =	10.905	in
t _f =	0.500	in	I _y =	183.083	in ⁴
t _w =	0.000	in	S _y =	28.167	in ³
			r _y =	3.753	in
F _y =	34.5	ksi			
E =	29000	ksi			
L _{cx} =	337.76	in			
L _{cy} =	337.76	in			
K _x =	0.650	AASHTO Appendix C			
K _y =	0.650	AASHTO Appendix C			

Axial Loading

$$P_u = 0.85 A_s F_{cr}$$

AASHTO 10.54 Centrally Loaded Columns

$$F_{cr} = F_y \left(1 - \frac{F_y}{4\pi^2 E} \left(\frac{KL_c}{r} \right)^2 \right) \quad \text{For: } \frac{KL_c}{r} \leq \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$F_{cr} = \frac{\pi^2 E}{\left(\frac{KL_c}{r} \right)^2} \quad \text{For: } \frac{KL_c}{r} > \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$KL/r_y = 68.201 < 128.721$$

$$KL/r_x = 23.081 < 128.721$$

$$F_{CR} = 29.699 \text{ ksi}$$

$$P_u = 328.2 \text{ k}$$

CUY-2-1441 Load Rating Analysis - As-Built

Main Ave Bridge

East Approach Forward Section - Column 101 Ratings



Calculated:

FKL 3/30/2012

Checked:

MTN 4/12/2012

Column Loading

	DL	HS-20	2F1	3F1	4F1	5C1
Max Axial	216.16	173.72	88.32	125.33	141.60	150.18
Moment	2.24	0.50	2.08	2.69	2.96	3.10
Axial	207.16	72.61	34.03	50.75	58.10	61.98
Max Mom.	33.54	191.36	93.90	136.16	154.73	164.52

DL Factor
LL Factor

1.30
2.17 INV
1.30 OPER

Factored Loads				Capacities		
Axial Force		Moment		P _u	M _u	A _s F _{ex}
Dead Load	Max. LL + I	Dead Load	Max LL + I			

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_e}\right)} \leq 1.0$$

Load Case	Member	Dead Load kips	Max. LL + I kips	Dead Load k-ft	Max LL + I k-ft	P _u kips	M _u k-ft	A _s F _{ex} kips	Condition Equation	RF
HS20 INV	C101	281.0119	376.38	2.91	1.07	1270.90	1209.80	27834.92	1.00	2.62
HS20 INV	C101	269.308	157.32	43.60	414.61	1270.90	1209.80	27834.92	1.00	2.29
HS20 OPR	C101	281.0119	225.83	2.91	0.64	1270.90	1209.80	27834.92	1.00	4.37
HS20 OPR	C101	269.308	94.39	43.60	248.77	1270.90	1209.80	27834.92	1.00	3.82
2F1	C101	281.0119	114.82	2.91	2.70	1270.90	1209.80	27834.92	1.00	8.47
2F1	C101	269.308	44.24	43.60	122.07	1270.90	1209.80	27834.92	1.00	7.92
3F1	C101	281.0119	162.93	2.91	3.50	1270.90	1209.80	27834.92	1.00	5.98
3F1	C101	269.308	65.98	43.60	177.01	1270.90	1209.80	27834.92	1.00	5.40
4F1	C101	281.0119	184.08	2.91	3.85	1270.90	1209.80	27834.92	1.00	5.29
4F1	C101	269.308	75.53	43.60	201.15	1270.90	1209.80	27834.92	1.00	4.74
5C1	C101	281.0119	195.24	2.91	4.04	1270.90	1209.80	27834.92	1.00	4.99
5C1	C101	269.308	80.57	43.60	213.87	1270.90	1209.80	27834.92	1.00	4.46

Load Case	Controlling RF
HS20 INV	2.29
HS20 OPR	3.82
2F1	7.92
3F1	5.40
4F1	4.74
5C1	4.46



Made By PJP
Checked By FKL

Date 4/11/2012
Date 4/12/2012

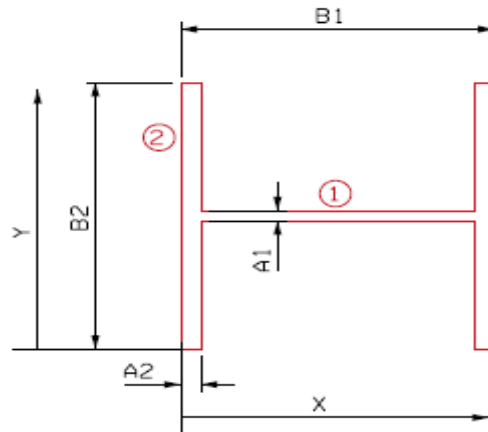
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Calculations For: **CUY-2-1441 East Approach Forward Section**

Element Dimensions (without Section Losses):

Rolled Beam

- $A_1 = t_w = 0.5940$ in
- $A_2 = t_f = 0.9800$ in
- $B_1 = d = 24.4100$ in
- $B_2 = b_f = 14.0290$ in



Column 201

Y-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I_o	d	Ad^2	$I_{y,gross}$
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		13.3353	7.0145	93.5405	0.3921	0.0000	0.0000	0.3921
2	Flange Plates		27.4968	7.0145	192.8766	450.9776	0.0000	0.0000	450.9776
Total			40.83		286.42	451.37		0.00	451.37
Section Losses			A	y	Ay	I_o	d	Ad^2	$I_{y,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	22.4500	0.1250	-2.8063	6.7800	-19.0264	-0.0037	0.2518	-0.1779	-0.1816
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			-2.81		-19.03	0.00		-0.18	-0.18

As-Built Section Properties				As-Inspected Section Properties			
x-bar =	7.0145	in	$S_{top} = 64.35$ in ³	x-bar =	7.0318	in	$S_{top} = 64.48$ in ³
$I_y =$	451.37	in ⁴	$S_{bott.} = 64.35$ in ³	$I_y =$	451.19	in ⁴	$S_{bott.} = 64.16$ in ³
$C_{top} =$	7.0145	in	$A = 40.8321$ in ²	$C_{top} =$	6.9972	in	$A = 38.0259$ in ²
$C_{bottom} =$	7.0145	in	$r_y = 3.3248$ in	$C_{bottom} =$	7.0318	in	$r_y = 3.4446$ in



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Calculations For: **CUY-2-1441 East Approach Forward Section**

X-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{x,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web Plate		13.3353	12.2050	162.7573	560.0854	0.0000	0.0000	560.0854
2	Left Flange		13.7484	0.4900	6.7367	1.1003	11.7150	1886.8500	1887.9503
	Right Flange		13.7484	23.9200	328.8622	1.1003	11.7150	1886.8500	1887.9503
Total			40.83		498.36	562.29		3773.70	4335.99
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{x,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.1250	22.4500	-2.8063	12.2050	-34.2503	-117.8631	0.0000	0.0000	-117.8631
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			-2.81		-34.25	-117.86		0.00	-117.86

As-Built Section Properties					As-Inspected Section Properties						
y-bar =	12.2050	in	S _{right} =	355.26	in ³	y-bar =	12.2050	in	S _{right} =	345.61	in ³
I _x =	4335.99	in ⁴	S _{left} =	355.26	in ³	I _x =	4218.12	in ⁴	S _{left} =	345.61	in ³
C _{right} =	12.2050	in	A =	40.8321	in ²	C _{right} =	12.2050	in	A =	38.0259	in ²
C _{left} =	12.2050	in	r _y =	10.3049	in	C _{left} =	12.2050	in	r _x =	10.5322	in



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Calculations For: **CUY-2-1441 East Approach Forward Section**

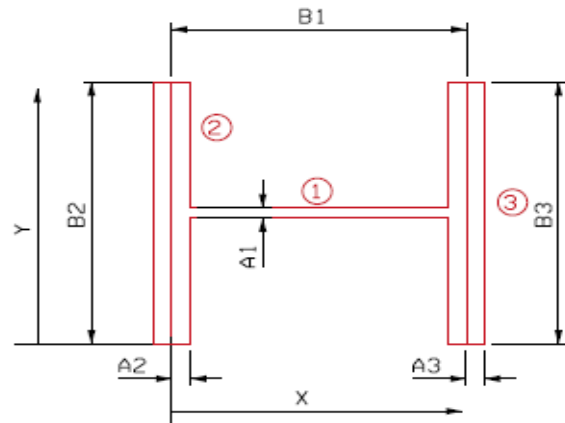
Element Dimensions (without Section Losses):

Rolled Beam

- $A_1 = t_w = 0.6140$ in
- $A_2 = t_f = 1.0200$ in
- $B_1 = d = 21.3100$ in
- $B_2 = b_f = 13.0870$ in

Cover Plate

- $A_3 = t = 0.5000$ in
- $B_3 = b = 13.0000$ in



Column 101

Y-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I_o	d	Ad^2	$I_{y,gross}$
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web Plate		11.8318	6.5435	77.4213	0.3717	0.0000	0.0000	0.3717
2	Flange Plates		26.6975	6.5435	174.6950	381.0388	0.0000	0.0000	381.0388
3	Cover Plate		13.0000	6.5435	85.0655	183.0833	0.0000	0.0000	183.0833
Total			51.53		337.18	564.49		0.00	564.49
Section Losses			A	y	Ay	I_o	d	Ad^2	$I_{y,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	2.0000	0.2500	-0.5000	6.7255	-3.3628	-0.0026	0.3035	-0.0460	-0.0486
2	0.2500	6.2120	-1.5530	10.2905	-15.9811	-4.9941	3.8685	-23.2406	-28.2347
3	0.0625	13.0870	-0.8179	6.5435	-5.3522	-11.6740	0.1215	-0.0121	-11.6861
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			-2.87		-24.70	-16.67		-23.30	-39.97

As-Built Section Properties				As-Inspected Section Properties							
x-bar =	6.5435	in	$S_{top} = 86.27$	in ³	x-bar =	6.4220	in	$S_{top} = 80.16$	in ³		
$I_y =$	564.49	in ⁴	$S_{bott.} = 86.27$	in ³	$I_y =$	524.52	in ⁴	$S_{bott.} = 81.68$	in ³		
$c_{top} =$	6.5435	in	A =	51.5293	in ²	$c_{top} =$	6.5435	in	A =	48.6583	in ²
$c_{bottom} =$	6.5435	in	$r_y =$	3.3098	in	$c_{bottom} =$	6.4220	in	$r_y =$	3.2833	in



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Date 4/12/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441 East Approach Forward Section**

X-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{y,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web Plate		11.8318	11.1550	131.9835	366.1274	0.0000	0.0000	366.1274
2	Left Flange		13.3487	1.0100	13.4822	1.1573	10.1450	1373.8660	1375.0233
	Right Flange		13.3487	21.3000	284.3282	1.1573	10.1450	1373.8660	1375.0233
3	Left Plate		6.5000	0.2500	1.6250	0.1354	10.9050	772.9737	773.1091
	Right Plate		6.5000	22.0600	143.3900	0.1354	10.9050	772.9737	773.1091
Total			51.53		574.81	368.71		4293.68	4662.39
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{y,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.2500	2.0000	-0.5000	0.8950	-0.4475	-0.1667	10.5147	-55.2798	-55.4465
2	6.2120	0.2500	-1.5530	1.1450	-1.7782	-0.0081	10.2647	-163.6315	-163.6396
3	13.0870	0.0625	-0.8179	21.2788	-17.4047	-0.0003	9.8690	-79.6650	-79.6653
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			-2.87		-19.63	-0.18		-298.58	-298.75

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	11.1550 in	S _{right} =	417.96 in ³	y-bar =	11.4097 in	S _{right} =	400.32 in ³
I _x =	4662.39 in ⁴	S _{left} =	417.96 in ³	I _x =	4363.64 in ⁴	S _{left} =	382.45 in ³
C _{right} =	11.1550 in	A =	51.5293 in ²	C _{right} =	10.9003 in	A =	48.6583 in ²
C _{left} =	11.1550 in	r _x =	9.5121 in	C _{left} =	11.4097 in	r _x =	9.4699 in



Calculated: FKL Date: 3/30/2012
 Checked: MTN Date: 4/12/2012

CUY-2-1441 Load Rating Analysis - As-Inspected
Main Ave Bridge
East Approach Fwd Section - Bent 1

Column: C201

Section Properties 24WF140

A =	38.026	in ²	I _x =	4218.120	in ⁴
h =	24.410	in	S _x =	345.610	in ³
b _f =	14.029	in	r _x =	10.532	in
t _f =	0.980	in	I _y =	451.190	in ⁴
t _w =	0.594	in	S _y =	64.160	in ³
			r _y =	3.445	in
F _y =	33.0	ksi			
E =	29000	ksi			
L _{cx} =	327.38	in			
L _{cy} =	327.38	in			
K _x =	0.650	AASHTO Appendix C			
K _y =	0.650	AASHTO Appendix C			

Axial Loading

$$P_u = 0.85 A_s F_{cr}$$

AASHTO 10.54 Concentrically Loaded Columns

$$F_{cr} = F_y \left(1 - \frac{F_y}{4\pi^2 E} \left(\frac{KL_c}{r} \right)^2 \right)$$

$$\text{For: } \frac{KL_c}{r} \leq \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$F_{cr} = \frac{\pi^2 E}{\left(\frac{KL_c}{r} \right)^2}$$

$$\text{For: } \frac{KL_c}{r} > \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$KL/r_y = 61.778 < 131.706$$

$$KL/r_x = 20.205 < 131.706$$

$$F_{CR} = 29.370 \text{ ksi}$$

$$P_u = 949.3 \text{ k}$$



Calculated: FKL Date: 3/30/2012
 Checked: MTN Date: 4/12/2012

CUY-2-1441 Load Rating Analysis - As-Inspected
Main Ave Bridge
East Approach Fwd Section - Bent 1

Column: C201

Axial Loading and Bending

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_e}\right)} \leq 1.0$$

AASHTO 10.54.2 Combined Axial Load and Bending

$$= 0.6 + 0.4$$

a = 0 **When moment is small assume a = 0
 C = 0.600

$$F_e = \frac{E \pi^2}{\left(\frac{KL_c}{r}\right)^2}$$

$F_{ex} = 701.125 \text{ ksi}$
 $F_{ey} = 74.996 \text{ ksi}$

Column Moment Capacity

Strong Axis Bending

$M_u = F_y S_x$ For Non-Compact Section

Total $M_{ux} = 950.4 \text{ k-ft}$

CUY-2-1441 Load Rating Analysis - As-Inspected

Main Ave Bridge

East Approach Forward Section - Column 201 Ratings



Calculated:

FKL 3/30/2012

Checked:

MTN 4/12/2012

Column Loading

	DL	HS-20	2F1	3F1	4F1	5C1
Max Axial	296.99	195.05	114.39	149.35	164.71	172.82
Moment	1.98	3.95	3.53	3.71	3.79	3.84
Axial	284.33	65.29	31.05	44.97	51.81	55.41
Max Mom.	22.37	206.85	93.57	142.48	164.12	175.53

DL Factor

1.30

LL Factor

2.17 INV
1.30 OPER

Factored Loads

Axial Force

Moment

Capacities

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_c}\right)} \leq 1.0$$

Load Case	Member	Axial Force		Moment		P _u kips	M _u k-ft	A _s F _{ex} kips	Condition Equation	RF
		Dead Load	Max. LL + I	Dead Load	Max LL + I					
HS20 INV	C201	386.0922	422.60	2.58	8.57	949.30	950.43	26660.92	1.00	1.31
HS20 INV	C201	369.6251	141.47	29.08	448.17	949.30	950.43	26660.92	1.00	1.35
HS20 OPR	C201	386.0922	253.56	2.58	5.14	949.30	950.43	26660.92	1.00	2.19
HS20 OPR	C201	369.6251	84.88	29.08	268.90	949.30	950.43	26660.92	1.00	2.25
2F1	C201	386.0922	148.71	2.58	4.58	949.30	950.43	26660.92	1.00	3.71
2F1	C201	369.6251	40.37	29.08	121.64	949.30	950.43	26660.92	1.00	4.89
3F1	C201	386.0922	194.15	2.58	4.82	949.30	950.43	26660.92	1.00	2.85
3F1	C201	369.6251	58.47	29.08	185.23	949.30	950.43	26660.92	1.00	3.27
4F1	C201	386.0922	214.12	2.58	4.93	949.30	950.43	26660.92	1.00	2.59
4F1	C201	369.6251	67.35	29.08	213.35	949.30	950.43	26660.92	1.00	2.84
5C1	C201	386.0922	224.66	2.58	4.99	949.30	950.43	26660.92	1.00	2.47
5C1	C201	369.6251	72.03	29.08	228.19	949.30	950.43	26660.92	1.00	2.65

Load Case	Controlling RF
HS20 INV	1.31
HS20 OPR	2.19
2F1	3.71
3F1	2.85
4F1	2.59
5C1	2.47



Calculated: FKL Date: 3/30/2012
 Checked: MTN Date: 4/12/2012

CUY-2-1441 Load Rating Analysis - As-Inspected
Main Ave Bridge
East Approach Fwd Section - Bent 1

Column: C101

Section Properties 21WF132 & New reinforcing Plates

A =	48.658	in ²	I _x =	4363.640	in ⁴
h =	22.310	in	S _x =	382.450	in ³
b _f =	13.087	in	r _x =	9.470	in
t _f =	1.020	in	I _y =	524.520	in ⁴
t _w =	0.527	in	S _y =	80.160	in ³
			r _y =	3.283	in
F _y =	33.0	ksi			
E =	29000	ksi			
L _{cx} =	337.76	in			
L _{cy} =	337.76	in			
K _x =	0.650	AASHTO Appendix C			
K _y =	0.650	AASHTO Appendix C			

Axial Loading

$$P_u = 0.85 A_s F_{cr}$$

AASHTO 10.54 Concentrically Loaded Columns

$$F_{cr} = F_y \left(1 - \frac{F_y}{4\pi^2 E} \left(\frac{KL_c}{r} \right)^2 \right)$$

$$\text{For: } \frac{KL_c}{r} \leq \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$F_{cr} = \frac{\pi^2 E}{\left(\frac{KL_c}{r} \right)^2}$$

$$\text{For: } \frac{KL_c}{r} > \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$\begin{aligned} KL/r_y &= 66.868 < 131.706 \\ KL/r_x &= 23.184 < 131.706 \end{aligned}$$

$$F_{CR} = 28.747 \text{ ksi}$$

$$P_u = 1189.0 \text{ k}$$



Calculated: FKL Date: 3/30/2012
 Checked: MTN Date: 4/12/2012

CUY-2-1441 Load Rating Analysis - As-Inspected
Main Ave Bridge
East Approach Fwd Section - Bent 1

Column: C101

Axial Loading and Bending

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_e}\right)} \leq 1.0$$

AASHTO 10.54.2 Combined Axial Load and Bending

$$= 0.6 + 0.4$$

$$a = 0 \quad \text{**When moment is small assume } a = 0$$

$$C = 0.600$$

$$F_e = \frac{E \pi^2}{\left(\frac{KL_c}{r}\right)^2} \quad \begin{array}{l} F_{ex} = 532.520 \text{ ksi} \\ F_{ey} = 64.013 \text{ ksi} \end{array}$$

Column Moment Capacity

Strong Axis Bending

$M_u = F_y S_x$ For Non-Compact Section

Total $M_{ux} = 1051.7$ k-ft

CUY-2-1441 Load Rating Analysis - As-Inspected

Main Ave Bridge

East Approach Forward Section - Column 101 Ratings



Calculated:

FKL 3/30/2012

Checked:

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Column Loading

	DL	HS-20	2F1	3F1	4F1	5C1
Max Axial	216.16	173.72	88.32	125.33	141.60	150.18
Moment	2.24	0.50	2.08	2.69	2.96	3.10
Axial	207.16	72.61	34.03	50.75	58.10	61.98
Max Mom.	33.54	191.36	93.90	136.16	154.73	164.52

DL Factor

1.30

LL Factor

2.17 INV
1.30 OPER

Factored Loads

Axial Force

Moment

Capacities

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_e}\right)} \leq 1.0$$

Load Case	Member	Axial Force		Moment		P _u	M _u	A _s F _e	Condition Equation	RF
		Dead Load	Max. LL + I	Dead Load	Max LL + I					
HS20 INV	C101	281.0119	376.38	2.91	1.07	1189.00	1051.70	25911.54	1.00	2.40
HS20 INV	C101	269.308	157.32	43.60	414.61	1189.00	1051.70	25911.54	1.00	2.00
HS20 OPR	C101	281.0119	225.83	2.91	0.64	1189.00	1051.70	25911.54	1.00	4.00
HS20 OPR	C101	269.308	94.39	43.60	248.77	1189.00	1051.70	25911.54	1.00	3.33
2F1	C101	281.0119	114.82	2.91	2.70	1189.00	1051.70	25911.54	1.00	7.76
2F1	C101	269.308	44.24	43.60	122.07	1189.00	1051.70	25911.54	1.00	6.90
3F1	C101	281.0119	162.93	2.91	3.50	1189.00	1051.70	25911.54	1.00	5.48
3F1	C101	269.308	65.98	43.60	177.01	1189.00	1051.70	25911.54	1.00	4.71
4F1	C101	281.0119	184.08	2.91	3.85	1189.00	1051.70	25911.54	1.00	4.85
4F1	C101	269.308	75.53	43.60	201.15	1189.00	1051.70	25911.54	1.00	4.13
5C1	C101	281.0119	195.24	2.91	4.04	1189.00	1051.70	25911.54	1.00	4.57
5C1	C101	269.308	80.57	43.60	213.87	1189.00	1051.70	25911.54	1.00	3.88

Load Case	Controlling RF
HS20 INV	2.00
HS20 OPR	3.33
2F1	6.90
3F1	4.71
4F1	4.13
5C1	3.88



Made By MTN
 Checked By PJP

Date 3/30/2012
 Date 4/5/2012

Job No. P402110046
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Calculations For: **CUY-2-1441 - East Approach Forward Section**

Bent 2 Reactions

Dead Load Reactions from MDX

Unit 2		
Stringer	DL1	DL2
F1-2	12.04	2.00
S1-2	12.75	2.00
S2-2	13.04	2.00
S3-2	14.03	2.00
S4-2	14.03	2.00
S5-2	14.03	2.00
S6-2	14.03	2.00
S7-2	14.00	2.00
S8-2	14.03	2.00
S9-2	14.03	2.00
S10-2	14.03	2.00
S11-2	14.03	2.00
S12-2	14.80	2.00
S13-2	14.89	2.00
F2-2	12.95	2.00

Unit 3		
Stringer	DL1	DL2
F1-3	9.32	1.50
S1-3	9.52	1.50
S2-3	9.68	1.50
S3-3	10.43	1.50
S4-3	10.43	1.50
S5-3	10.43	1.50
S6-3	10.43	1.50
S7-3	10.41	1.50
S8-3	10.43	1.50
S9-3	10.43	1.50
S10-3	10.43	1.50
S11-3	10.43	1.50
S12-3	12.45	1.55
S13-3	10.94	1.50
F2-3	10.10	1.50

Bent 2 Reaction	
Stringer	Total DL
F1-2 + F1-3	24.86
S1-2 + S1-3	25.77
S2-2 + S2-3	26.22
S3-2 + S3-3	27.96
S4-2 + S4-3	27.96
S5-2 + S5-3	27.96
S6-2 + S6-3	27.96
S7-2 + S7-3	27.91
S8-2 + S8-3	27.96
S9-2 + S9-3	27.96
S10-2 + S10-3	27.96
S11-2 + S11-3	27.96
S12-2 + S12-3	30.80
S13-2 + S13-3	29.33
F2-2 + F2-3	26.55

Dead Load Reactions from MDX

Lower Deck		
Stringer	DL1	Continuous Over Bent?
S-16	9.54	No
S-4 (1)	23.65	Yes
S-4 (2)	23.65	Yes
S-4 (3)	23.65	Yes
S-4 (4)	23.65	Yes
S-14	11.14	No
S-13	7.77	No

Bent 2 Reaction	
Stringer	Total DL
S-16	19.08
S-4 (1)	23.65
S-4 (2)	23.65
S-4 (3)	23.65
S-4 (4)	23.65
S-14	22.28
S-13	15.54

Live Load Reactions from STAAD (Same as Bent 5)

	LL	2 lane LL+I	3 lane	4 lane
HS-20	29.35	38.1	34.3	28.6
2F1	13.86	18.0	16.2	13.5
3F1	20.67	26.8	24.2	20.1
4F1	23.66	30.7	27.6	23.0
5C1	23.64	30.7	27.6	23.0

Impact Factor
 Span 2 43.990
 Span 3 44.000
 L_{avg} 43.99
 Impact = 1.296
 3 lane reduction 0.9
 4 lane + reduction 0.75

	LL	
HS-20	29.35	
2F1	13.86	0.472232
3F1	20.67	0.704259
4F1	23.66	0.806133
5C1	23.64	0.805451

Reactions per wheel line at Bent 4



Made By MTN
Checked By PJP

Date 3/30/2012
Date 4/5/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441 - East Approach Forward Section**

Bent 2 Reactions

Lower Deck Live Load

Parking Structure Live Load = 0.04 ksf (from ASCE 07 for Parking Structures)
Tributary Length = 43.99 ft
Distributed Load on FB = 1.76 klf

Bent 2		
Stringer	Tributary Width	Live Load Reaction
S-16	4.141	7.29
S-4 (1)	5.943	10.46
S-4 (2)	5.604	9.86
S-4 (3)	5.604	9.86
S-4 (4)	5.880	10.35
S-14	4.758	8.37
S-13	2.180	3.84

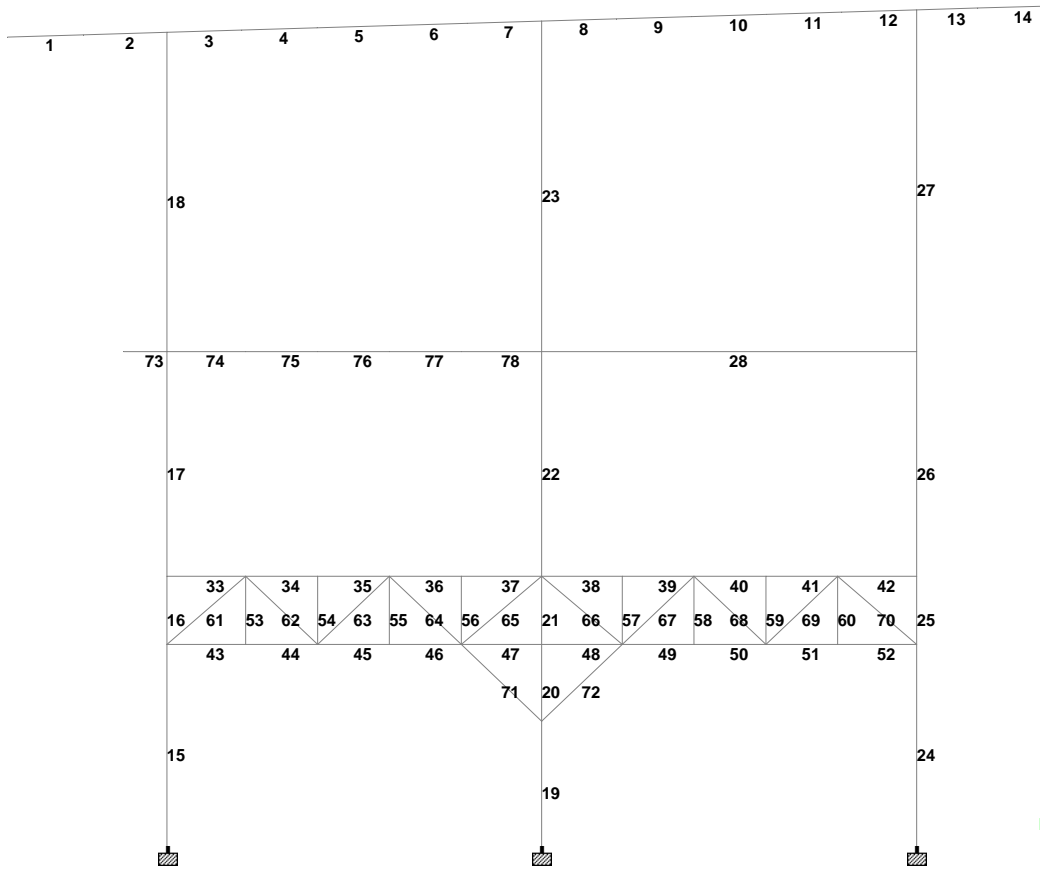


Job No P402110046	Sheet No 1	Rev
Part EAST APPROACH FWD. SECTION		
Ref Bent 2		
By MTN	Date 30-Mar-12	Chd PJP
File Bent_2_LL.std	Date/Time 12-Apr-2012 15:00	

Software licensed to TranSystems

Job Title CUY-2-1441 Main Ave. Rating

Client ODOT



Y
Z-X

Load 1

```
*****
*
*          STAAD.Pro          *
*          Version 2007   Build 05      *
*          Proprietary Program of      *
*          Bentley Systems, Inc.       *
*          Date=   APR 11, 2012        *
*          Time=   10:27:20           *
*
*          USER ID: TranSystems        *
*****
```

1. STAAD SPACE DXF IMPORT OF 002_1441BENT_2.DXF
- INPUT FILE: Bent_2_DL.STD
2. START JOB INFORMATION
 3. ENGINEER DATE 30-MAR-12
 4. JOB NAME CUY-2-1441 MAIN AVE. RATING
 5. JOB NO P402110046
 6. JOB REF BENT 2
 7. JOB COMMENT BENT 2 DEAD LOAD
 8. ENGINEER NAME MTN
 9. JOB CLIENT ODOT
 10. JOB PART EAST APPROACH FWD. SECTION
 11. CHECKER NAME PJP
 12. CHECKER DATE 4/5/12
 13. END JOB INFORMATION
 14. INPUT WIDTH 79
 15. UNIT FEET KIP
 16. JOINT COORDINATES
 17. 1 -2.32292 180.262 0; 2 3.60938 180.44 0; 3 10.1094 180.636 0
 18. 4 15.9635 180.812 0; 5 21.8177 180.988 0; 6 27.6719 181.164 0
 19. 7 33.526 181.34 0; 8 39.3594 181.516 0; 9 45.1927 181.691 0
 20. 10 51.0469 181.867 0; 11 56.901 182.043 0; 12 62.7552 182.219 0
 21. 13 68.6094 182.396 0; 14 73.3802 182.539 0; 15 79 182.708 0
 22. 16 10.1094 117.15 0; 17 10.1094 132.879 0; 18 10.1094 138.212 0
 23. 19 10.1094 155.737 0; 20 39.3594 117.15 0; 21 39.3594 126.9 0
 24. 22 39.3594 132.879 0; 23 39.3594 138.212 0; 24 39.3594 155.737 0
 25. 25 68.6094 117.15 0; 26 68.6094 132.879 0; 27 68.6094 138.212 0
 26. 28 68.6094 155.737 0; 30 16.2656 138.212 0; 31 21.8698 138.212 0
 27. 32 27.474 138.212 0; 33 33.0781 138.212 0; 34 45.6406 138.212 0
 28. 35 51.2448 138.212 0; 36 56.849 138.212 0; 37 62.4531 138.212 0
 29. 38 16.2656 132.879 0; 39 21.8698 132.879 0; 40 27.474 132.879 0
 30. 41 33.0781 132.879 0; 42 45.6406 132.879 0; 43 51.2448 132.879 0
 31. 44 56.849 132.879 0; 45 62.4531 132.879 0; 46 6.75 155.737 0
 32. 47 16.2656 155.737 0; 48 21.8698 155.737 0; 49 27.474 155.737 0
 33. 50 33.0781 155.737 0
 34. MEMBER INCIDENCES
 35. 1 1 2; 2 2 3; 3 3 4; 4 4 5; 5 5 6; 6 6 7; 7 7 8; 8 8 9; 9 9 10; 10 10 11
 36. 11 11 12; 12 12 13; 13 13 14; 14 14 15; 15 16 17; 16 17 18; 17 18 19; 18 19 3
 37. 19 20 21; 20 21 22; 21 22 23; 22 23 24; 23 24 8; 24 25 26; 25 26 27; 26 27 28
 38. 27 28 13; 28 24 28; 33 18 30; 34 30 31; 35 31 32; 36 32 33; 37 33 23; 38 23 34
 39. 39 34 35; 40 35 36; 41 36 37; 42 37 27; 43 17 38; 44 38 39; 45 39 40; 46 40 41
 40. 47 41 22; 48 22 42; 49 42 43; 50 43 44; 51 44 45; 52 45 26; 53 38 30; 54 39 31

DXF IMPORT OF 002_1441BENT_2.DXF

-- PAGE NO. 2

41. 55 40 32; 56 41 33; 57 42 34; 58 43 35; 59 44 36; 60 45 37; 61 17 30; 62 30 39
42. 63 39 32; 64 32 41; 65 41 23; 66 23 42; 67 42 35; 68 35 44; 69 44 37; 70 37 26
43. 71 41 21; 72 21 42; 73 46 19; 74 19 47; 75 47 48; 76 48 49; 77 49 50; 78 50 24
44. DEFINE MATERIAL START
45. ISOTROPIC STEEL
46. E 4.176E+006
47. POISSON 0.3
48. DENSITY 0.489024
49. ALPHA 6E-006
50. DAMP 0.03
51. END DEFINE MATERIAL
52. MEMBER PROPERTY AMERICAN
53. 1 TO 14 TABLE ST W36X182
54. 15 TO 18 24 TO 27 TABLE ST W21X132
55. 19 TO 23 TABLE ST W24X146
56. 28 TABLE ST W14X61
57. 33 TO 72 TABLE ST W8X31
58. 73 TO 78 TABLE ST W36X230
59. CONSTANTS
60. BETA 90 MEMB 33 TO 72
61. MATERIAL STEEL ALL
62. MEMBER TRUSS
63. 28 33 TO 72
64. SUPPORTS
65. 16 20 25 FIXED
66. LOAD 1 LOADTYPE DEAD TITLE LOAD CASE 1
67. SELFWEIGHT Y -1.05 LIST 1 TO 28 33 TO 78
68. JOINT LOAD
69. *F1-23 UPPER DECK FASCIA BEAM
70. 15 FY -24.86
71. *S1-23
72. 14 FY -25.77
73. *S2-23
74. 13 FY -26.22
75. *S3-23, S4-23, S5-23, S6-23, S8-23, S9-23, S10-23, S11-23
76. 4 TO 7 9 TO 12 FY -27.96
77. *S7-23
78. 8 FY -27.91
79. *S12-23
80. 3 FY -30.8
81. *S13-23
82. 2 FY -29.33
83. *F2-23 UPPER DECK FASCIA BEAM
84. 1 FY -26.55
85. *S-16 LOWER DECK (RIGHT FASCIA BEAM - LOOKING WEST)
86. 24 FY -19.08
87. *S-4 LOWER DECK (INTERIOR BEAM)
88. 47 TO 50 FY -23.65
89. *S-14 LOWER DECK (SECOND BEAM FROM LEFT - LOOKING WEST)
90. 19 FY -22.28
91. *S-13 LOWER DECK (LEFT FASCIA BEAM - LOOKING WEST)
92. 46 FY -15.54
93. PERFORM ANALYSIS

P R O B L E M S T A T I S T I C S

NUMBER OF JOINTS/MEMBER+ELEMENTS/SUPPORTS = 49/ 74/ 3

SOLVER USED IS THE OUT-OF-CORE BASIC SOLVER

ORIGINAL/FINAL BAND-WIDTH= 27/ 7/ 48 DOF
 TOTAL PRIMARY LOAD CASES = 1, TOTAL DEGREES OF FREEDOM = 276
 SIZE OF STIFFNESS MATRIX = 14 DOUBLE KILO-WORDS
 REQD/AVAIL. DISK SPACE = 12.2/ 514920.1 MB

ZERO STIFFNESS IN DIRECTION 3 AT JOINT 30 EQN.NO. 69
 LOADS APPLIED OR DISTRIBUTED HERE FROM ELEMENTS WILL BE IGNORED.
 THIS MAY BE DUE TO ALL MEMBERS AT THIS JOINT BEING RELEASED OR
 EFFECTIVELY RELEASED IN THIS DIRECTION.

ZERO STIFFNESS IN DIRECTION 4 AT JOINT	30 EQN.NO.	70
ZERO STIFFNESS IN DIRECTION 5 AT JOINT	30 EQN.NO.	71
ZERO STIFFNESS IN DIRECTION 6 AT JOINT	30 EQN.NO.	72
ZERO STIFFNESS IN DIRECTION 3 AT JOINT	38 EQN.NO.	87
ZERO STIFFNESS IN DIRECTION 4 AT JOINT	38 EQN.NO.	88
ZERO STIFFNESS IN DIRECTION 5 AT JOINT	38 EQN.NO.	89
ZERO STIFFNESS IN DIRECTION 6 AT JOINT	38 EQN.NO.	90
ZERO STIFFNESS IN DIRECTION 3 AT JOINT	31 EQN.NO.	93
ZERO STIFFNESS IN DIRECTION 4 AT JOINT	31 EQN.NO.	94
ZERO STIFFNESS IN DIRECTION 5 AT JOINT	31 EQN.NO.	95
ZERO STIFFNESS IN DIRECTION 6 AT JOINT	31 EQN.NO.	96

****WARNING - THERE WERE MORE THAN 12 DOF WITH ZERO STIFFNESS.**

THE FIRST 12 ARE LISTED ABOVE.

TOTAL # TRANSLATIONAL= 16 TOTAL # ROTATIONAL= 48

94. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 1 TO 14

MEMBER FORCE ENVELOPE

 ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
1 MAX	-26.54	0.00	1	160.87	5.93	1			
	0.00	0.00	1	0.00	0.00	1	0.80 T	0.00	1
MIN	-27.67	5.93	1	0.00	0.00	1			
	0.00	5.93	1	0.00	5.93	1	0.83 T	5.93	1
2 MAX	-56.99	0.00	1	535.50	6.50	1			
	0.00	0.00	1	0.00	0.00	1	1.72 T	0.00	1
MIN	-58.23	6.50	1	160.87	0.00	1			
	0.00	6.50	1	0.00	6.50	1	1.76 T	6.50	1
3 MAX	66.03	0.00	1	514.80	0.00	1			
	0.00	0.00	1	0.00	0.00	1	3.10 C	0.00	1
MIN	64.91	5.86	1	131.38	5.86	1			
	0.00	5.86	1	0.00	5.86	1	3.06 C	5.86	1
4 MAX	36.96	0.00	1	131.38	0.00	1			
	0.00	0.00	1	0.00	0.00	1	2.22 C	0.00	1
MIN	35.84	5.86	1	-81.82	5.86	1			
	0.00	5.86	1	0.00	5.86	1	2.19 C	5.86	1
5 MAX	7.89	0.00	1	-81.82	0.00	1			
	0.00	0.00	1	0.00	0.00	1	1.35 C	0.00	1
MIN	6.78	5.86	1	-124.78	5.86	1			
	0.00	5.86	1	0.00	5.86	1	1.31 C	5.86	1
6 MAX	-21.17	0.00	1	2.49	5.86	1			
	0.00	0.00	1	0.00	0.00	1	0.47 C	0.00	1
MIN	-22.29	5.86	1	-124.78	0.00	1			
	0.00	5.86	1	0.00	5.86	1	0.44 C	5.86	1
7 MAX	-50.24	0.00	1	298.94	5.84	1			
	0.00	0.00	1	0.00	0.00	1	0.41 T	0.00	1
MIN	-51.35	5.84	1	2.49	0.00	1			
	0.00	5.84	1	0.00	5.84	1	0.44 T	5.84	1
8 MAX	56.33	0.00	1	302.18	0.00	1			
	0.00	0.00	1	0.00	0.00	1	0.76 C	0.00	1
MIN	55.21	5.84	1	-23.29	5.84	1			
	0.00	5.84	1	0.00	5.84	1	0.73 C	5.84	1
9 MAX	27.26	0.00	1	-23.29	0.00	1			
	0.00	0.00	1	0.00	0.00	1	0.11 T	0.00	1

DXF IMPORT OF 002_1441BENT_2.DXF

-- PAGE NO. 5

MIN	26.14	5.86	1	-179.69	5.86	1			
	0.00	5.86	1	0.00	5.86	1	0.14 T	5.86	1
10 MAX	-1.80	0.00	1	-165.86	5.86	1			
	0.00	0.00	1	0.00	0.00	1	0.98 T	0.00	1
MIN	-2.92	5.86	1	-179.69	0.00	1			
	0.00	5.86	1	0.00	5.86	1	1.02 T	5.86	1
11 MAX	-30.87	0.00	1	18.21	5.86	1			
	0.00	0.00	1	0.00	0.00	1	1.86 T	0.00	1
MIN	-31.99	5.86	1	-165.86	0.00	1			
	0.00	5.86	1	0.00	5.86	1	1.89 T	5.86	1
12 MAX	-59.93	0.00	1	372.52	5.86	1			
	0.00	0.00	1	0.00	0.00	1	2.74 T	0.00	1
MIN	-61.05	5.86	1	18.21	0.00	1			
	0.00	5.86	1	0.00	5.86	1	2.77 T	5.86	1
13 MAX	52.59	0.00	1	391.58	0.00	1			
	0.00	0.00	1	0.00	0.00	1	1.58 C	0.00	1
MIN	51.68	4.77	1	142.73	4.77	1			
	0.00	4.77	1	0.00	4.77	1	1.55 C	4.77	1
14 MAX	25.92	0.00	1	142.73	0.00	1			
	0.00	0.00	1	0.00	0.00	1	0.78 C	0.00	1
MIN	24.85	5.62	1	0.00	5.62	1			
	0.00	5.62	1	0.00	5.62	1	0.75 C	5.62	1

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

95. *FLOOR BEAM DEAD LOAD ABOVE

96. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 15 TO 18

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
15 MAX	0.45	0.00	1	0.01	0.00	1			
	0.00	0.00	1	0.00	0.00	1	256.18 C	0.00	1
MIN	0.45	15.73	1	-7.06	15.73	1			
	0.00	15.73	1	0.00	15.73	1	254.00 C	15.73	1
16 MAX	3.04	0.00	1	-7.06	0.00	1			
	0.00	0.00	1	0.00	0.00	1	252.59 C	0.00	1
MIN	3.04	5.33	1	-23.28	5.33	1			
	0.00	5.33	1	0.00	5.33	1	251.85 C	5.33	1
17 MAX	-5.86	0.00	1	79.35	17.53	1			
	0.00	0.00	1	0.00	0.00	1	251.75 C	0.00	1
MIN	-5.86	17.53	1	-23.28	0.00	1			
	0.00	17.53	1	0.00	17.53	1	249.33 C	17.53	1
18 MAX	-1.11	0.00	1	-20.70	24.90	1			
	0.00	0.00	1	0.00	0.00	1	158.59 C	0.00	1
MIN	-1.11	24.90	1	-48.34	0.00	1			
	0.00	24.90	1	0.00	24.90	1	155.15 C	24.90	1

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

97. *COLUMN 3 DEAD LOAD ABOVE

98. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 19 TO 23

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
19 MAX	-0.97	0.00	1	3.55	9.75	1			
	0.00	0.00	1	0.00	0.00	1	220.93 C	0.00	1
MIN	-0.97	9.75	1	-5.88	0.00	1			
	0.00	9.75	1	0.00	9.75	1	219.43 C	9.75	1
20 MAX	0.16	0.00	1	3.55	0.00	1			
	0.00	0.00	1	0.00	0.00	1	201.54 C	0.00	1
MIN	0.16	5.98	1	2.58	5.98	1			
	0.00	5.98	1	0.00	5.98	1	200.62 C	5.98	1
21 MAX	-1.42	0.00	1	10.15	5.33	1			
	0.00	0.00	1	0.00	0.00	1	200.42 C	0.00	1
MIN	-1.42	5.33	1	2.58	0.00	1			
	0.00	5.33	1	0.00	5.33	1	199.60 C	5.33	1
22 MAX	5.94	0.00	1	10.15	0.00	1			
	0.00	0.00	1	0.00	0.00	1	211.77 C	0.00	1
MIN	5.94	17.53	1	-93.90	17.53	1			
	0.00	17.53	1	0.00	17.53	1	209.09 C	17.53	1
23 MAX	2.04	0.00	1	55.78	0.00	1			
	0.00	0.00	1	0.00	0.00	1	139.53 C	0.00	1
MIN	2.04	25.78	1	3.24	25.78	1			
	0.00	25.78	1	0.00	25.78	1	135.58 C	25.78	1

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

99. *COLUMN 2 DEAD LOAD ABOVE

100. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 24 TO 27

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
24 MAX	0.52	0.00	1	3.20	0.00	1			
	0.00	0.00	1	0.00	0.00	1	150.81 C	0.00	1
MIN	0.52	15.73	1	-4.94	15.73	1			
	0.00	15.73	1	0.00	15.73	1	148.64 C	15.73	1
25 MAX	0.41	0.00	1	-4.94	0.00	1			
	0.00	0.00	1	0.00	0.00	1	147.83 C	0.00	1
MIN	0.41	5.33	1	-7.12	5.33	1			
	0.00	5.33	1	0.00	5.33	1	147.09 C	5.33	1
26 MAX	-0.08	0.00	1	-5.69	17.53	1			
	0.00	0.00	1	0.00	0.00	1	146.99 C	0.00	1
MIN	-0.08	17.53	1	-7.12	0.00	1			
	0.00	17.53	1	0.00	17.53	1	144.57 C	17.53	1
27 MAX	-0.93	0.00	1	19.06	26.66	1			
	0.00	0.00	1	0.00	0.00	1	143.63 C	0.00	1
MIN	-0.93	26.66	1	-5.69	0.00	1			
	0.00	26.66	1	0.00	26.66	1	139.95 C	26.66	1

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

101. *COLUMN 1 DEAD LOAD ABOVE

102. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 73 TO 78

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
73 MAX	-15.54	0.00	1	53.57	3.36	1			
	0.00	0.00	1	0.00	0.00	1	0.00	0.00	1
MIN	-16.35	3.36	1	0.00	0.00	1			
	0.00	3.36	1	0.00	3.36	1	0.00	3.36	1
74 MAX	52.11	0.00	1	181.25	0.00	1			
	0.00	0.00	1	0.00	0.00	1	4.75 C	0.00	1
MIN	50.62	6.16	1	-134.96	6.16	1			
	0.00	6.16	1	0.00	6.16	1	4.75 C	6.16	1
75 MAX	26.97	0.00	1	-134.96	0.00	1			
	0.00	0.00	1	0.00	0.00	1	4.75 C	0.00	1
MIN	25.62	5.60	1	-282.34	5.60	1			
	0.00	5.60	1	0.00	5.60	1	4.75 C	5.60	1
76 MAX	1.97	0.00	1	-282.34	0.00	1			
	0.00	0.00	1	0.00	0.00	1	4.75 C	0.00	1
MIN	0.62	5.60	1	-289.60	5.60	1			
	0.00	5.60	1	0.00	5.60	1	4.75 C	5.60	1
77 MAX	-23.03	0.00	1	-156.76	5.60	1			
	0.00	0.00	1	0.00	0.00	1	4.75 C	0.00	1
MIN	-24.38	5.60	1	-289.60	0.00	1			
	0.00	5.60	1	0.00	5.60	1	4.75 C	5.60	1
78 MAX	-48.03	0.00	1	149.69	6.28	1			
	0.00	0.00	1	0.00	0.00	1	4.75 C	0.00	1
MIN	-49.54	6.28	1	-156.76	0.00	1			
	0.00	6.28	1	0.00	6.28	1	4.75 C	6.28	1

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

103. *LOWER DECK FLOOR BEAM DEAD LOAD ABOVE

104. FINISH

***** END OF THE STAAD.Pro RUN *****

**** DATE= APR 11,2012 TIME= 10:27:20 ****

* For questions on STAAD.Pro, please contact *
* Bentley Systems Offices at the following locations *
* *
* Telephone Web / Email *
* *
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* *

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*
*          STAAD.Pro V8i SELECTseries1          *
*          Version  20.07.06.35                 *
*          Proprietary Program of              *
*          Bentley Systems, Inc.               *
*          Date=    APR 12, 2012               *
*          Time=    15: 0:22                   *
*
*          USER ID: TranSystems                *
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1. STAAD SPACE DXF IMPORT OF 002_1441BENT_2.DXF
- INPUT FILE: Bent_2_LL.STD
2. START JOB INFORMATION
 3. ENGINEER DATE 30-MAR-12
 4. JOB NAME CUY-2-1441 MAIN AVE. RATING
 5. JOB NO P402110046
 6. JOB REF BENT 2
 7. JOB COMMENT BENT 2 LIVE LOAD
 8. ENGINEER NAME MTN
 9. JOB CLIENT ODOT
 10. JOB PART EAST APPROACH FWD. SECTION
 11. CHECKER NAME PJP
 12. CHECKER DATE 4/5/12
 13. END JOB INFORMATION
 14. INPUT WIDTH 79
 15. UNIT FEET KIP
 16. JOINT COORDINATES
 17. 1 -2.32292 180.262 0; 2 3.60938 180.44 0; 3 10.1094 180.636 0
 18. 4 15.9635 180.812 0; 5 21.8177 180.988 0; 6 27.6719 181.164 0
 19. 7 33.526 181.34 0; 8 39.3594 181.516 0; 9 45.1927 181.691 0
 20. 10 51.0469 181.867 0; 11 56.901 182.043 0; 12 62.7552 182.219 0
 21. 13 68.6094 182.396 0; 14 73.3802 182.539 0; 15 79 182.708 0
 22. 16 10.1094 117.15 0; 17 10.1094 132.879 0; 18 10.1094 138.212 0
 23. 19 10.1094 155.737 0; 20 39.3594 117.15 0; 21 39.3594 126.9 0
 24. 22 39.3594 132.879 0; 23 39.3594 138.212 0; 24 39.3594 155.737 0
 25. 25 68.6094 117.15 0; 26 68.6094 132.879 0; 27 68.6094 138.212 0
 26. 28 68.6094 155.737 0; 30 16.2656 138.212 0; 31 21.8698 138.212 0
 27. 32 27.474 138.212 0; 33 33.0781 138.212 0; 34 45.6406 138.212 0
 28. 35 51.2448 138.212 0; 36 56.849 138.212 0; 37 62.4531 138.212 0
 29. 38 16.2656 132.879 0; 39 21.8698 132.879 0; 40 27.474 132.879 0
 30. 41 33.0781 132.879 0; 42 45.6406 132.879 0; 43 51.2448 132.879 0
 31. 44 56.849 132.879 0; 45 62.4531 132.879 0; 46 6.75 155.737 0
 32. 47 16.2656 155.737 0; 48 21.8698 155.737 0; 49 27.474 155.737 0
 33. 50 33.0781 155.737 0
 34. MEMBER INCIDENCES
 35. 1 1 2; 2 2 3; 3 3 4; 4 4 5; 5 5 6; 6 6 7; 7 7 8; 8 8 9; 9 9 10; 10 10 11
 36. 11 11 12; 12 12 13; 13 13 14; 14 14 15; 15 16 17; 16 17 18; 17 18 19; 18 19 3
 37. 19 20 21; 20 21 22; 21 22 23; 22 23 24; 23 24 8; 24 25 26; 25 26 27; 26 27 28
 38. 27 28 13; 28 24 28; 33 18 30; 34 30 31; 35 31 32; 36 32 33; 37 33 23; 38 23 34
 39. 39 34 35; 40 35 36; 41 36 37; 42 37 27; 43 17 38; 44 38 39; 45 39 40; 46 40 41
 40. 47 41 22; 48 22 42; 49 42 43; 50 43 44; 51 44 45; 52 45 26; 53 38 30; 54 39 31

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41. 55 40 32; 56 41 33; 57 42 34; 58 43 35; 59 44 36; 60 45 37; 61 17 30; 62 30 39
42. 63 39 32; 64 32 41; 65 41 23; 66 23 42; 67 42 35; 68 35 44; 69 44 37; 70 37 26
43. 71 41 21; 72 21 42; 73 46 19; 74 19 47; 75 47 48; 76 48 49; 77 49 50; 78 50 24
44. DEFINE MATERIAL START
45. ISOTROPIC STEEL
46. E 4.176E+006
47. POISSON 0.3
48. DENSITY 0.489024
49. ALPHA 6E-006
50. DAMP 0.03
51. END DEFINE MATERIAL
52. MEMBER PROPERTY AMERICAN
53. 1 TO 14 TABLE ST W36X182
54. 15 TO 18 24 TO 27 TABLE ST W21X132
55. 19 TO 23 TABLE ST W24X146
56. 28 TABLE ST W14X61
57. 33 TO 72 TABLE ST W8X31
58. 73 TO 78 TABLE ST W36X230
59. CONSTANTS
60. BETA 90 MEMB 33 TO 72
61. MATERIAL STEEL ALL
62. MEMBER TRUSS
63. 28 33 TO 72
64. SUPPORTS
65. 16 20 25 FIXED
66. DEFINE MOVING LOAD
67. TYPE 1 LOAD 25.4 25.4
68. DIST 6
69. LOAD 1 LOADTYPE LIVE TITLE AXIAL ON COLUMN C3 (3 LANE)
70. MEMBER LOAD
71. 1 CON GY -34.3 1.7031 0
72. 2 CON GY -34.3 1.77091 0
73. 3 CON GY -34.3 1.2708 0
74. 4 CON GY -34.3 1.4167 0
75. 5 CON GY -34.3 1.5625 0
76. 6 CON GY -34.3 1.7083 0
77. LOAD 2 LOADTYPE LIVE TITLE AXIAL ON COLUMN C3 (2 LANE)
78. MEMBER LOAD
79. 1 CON GY -38.1 1.7031 0
80. 2 CON GY -38.1 1.77091 0
81. 3 CON GY -38.1 1.2708 0
82. 4 CON GY -38.1 1.4167 0
83. LOAD 3 LOADTYPE LIVE TITLE NEG. MOMENT IN FB OVER C3 (3 LANE)
84. MEMBER LOAD
85. 1 CON GY -34.3 1.7031 0
86. 2 CON GY -34.3 1.77091 0
87. 4 CON GY -34.3 0.7708 0
88. 5 CON GY -34.3 0.9167 0
89. 5 CON GY -34.3 4.9167 0
90. 6 CON GY -34.3 5.0625 0
91. LOAD 4 LOADTYPE LIVE TITLE NEG. MOMENT IN FB OVER C3 (2 LANE)
92. MEMBER LOAD
93. 1 CON GY -38.1 1.7031 0
94. 2 CON GY -38.1 1.77091 0
95. 4 CON GY -38.1 5.7708 0
96. 6 CON GY -38.1 0.0625 0

97. LOAD 5 LOADTYPE LIVE TITLE POS. MOMENT IN FB BETWEEN C3 _C2 (3 LANE)
98. MEMBER LOAD
99. 4 CON GY -34.3 0.7708 0
100. 5 CON GY -34.3 0.9167 0
101. 5 CON GY -34.3 4.9167 0
102. 6 CON GY -34.3 5.0625 0
103. 13 CON GY -34.3 2.7708 0
104. 14 CON GY -34.3 4.00003 0
105. LOAD 6 LOADTYPE LIVE TITLE POS. MOMENT IN FB BETWEEN C3 _C2 (2 LANE-1)
106. MEMBER LOAD
107. 4 CON GY -38.1 0.7708 0
108. 5 CON GY -38.1 0.9167 0
109. 5 CON GY -38.1 4.9167 0
110. 6 CON GY -38.1 5.0625 0
111. LOAD 7 LOADTYPE LIVE TITLE POS. MOMENT IN FB BETWEEN C3 _C2 (2 LANE-2)
112. MEMBER LOAD
113. 4 CON GY -38.1 5.7708 0
114. 6 CON GY -38.1 0.0625 0
115. 13 CON GY -38.1 2.7708 0
116. 14 CON GY -38.1 4.00003 0
117. LOAD 8 LOADTYPE LIVE TITLE MAX AXIAL ON COLUMN C2 (4 LANE)
118. MEMBER LOAD
119. 4 CON GY -28.6 1.2917 0
120. 5 CON GY -28.6 1.4375 0
121. 6 CON GY -28.6 1.5833 0
122. 7 CON GY -28.6 1.72925 0
123. 8 CON GY -28.6 2 0
124. 9 CON GY -28.6 2.1667 0
125. 10 CON GY -28.6 2.3125 0
126. 11 CON GY -28.6 2.4583 0
127. LOAD 9 LOADTYPE LIVE TITLE MAX AXIAL ON COLUMN C2 (3 LANE)
128. MEMBER LOAD
129. 6 CON GY -34.3 1.5833 0
130. 7 CON GY -34.3 1.72925 0
131. 8 CON GY -34.3 2 0
132. 9 CON GY -34.3 2.1667 0
133. 10 CON GY -34.3 2.3125 0
134. 11 CON GY -34.3 2.4583 0
135. LOAD 10 LOADTYPE LIVE TITLE MAX AXIAL ON COLUMN C2 (2 LANE)
136. MEMBER LOAD
137. 6 CON GY -38.1 1.5833 0
138. 7 CON GY -38.1 1.72925 0
139. 8 CON GY -38.1 2 0
140. 9 CON GY -38.1 2.1667 0
141. LOAD 11 LOADTYPE LIVE TITLE NEG. MOMENT IN FB OVER C2 (4 LANE)
142. MEMBER LOAD
143. 4 CON GY -28.6 0.7708 0
144. 5 CON GY -28.6 0.9167 0
145. 5 CON GY -28.6 4.9167 0
146. 6 CON GY -28.6 5.0625 0
147. 9 CON GY -28.6 0.7917 0
148. 10 CON GY -28.6 0.9375 0
149. 10 CON GY -28.6 4.9375 0
150. 11 CON GY -28.6 5.0833 0
151. LOAD 12 LOADTYPE LIVE TITLE NEG. MOMENT IN FB OVER C2 (3 LANE)
152. MEMBER LOAD

153. 4 CON GY -34.3 5.7708 0
154. 6 CON GY -34.3 0.0625 0
155. 9 CON GY -34.3 0.7917 0
156. 10 CON GY -34.3 0.9375 0
157. 10 CON GY -34.3 4.9375 0
158. 11 CON GY -34.3 5.0833 0
159. LOAD 13 LOADTYPE LIVE TITLE NEG. MOMENT IN FB OVER C2 (2 LANE)
160. MEMBER LOAD
161. 4 CON GY -38.1 5.7708 0
162. 6 CON GY -38.1 0.0625 0
163. 9 CON GY -38.1 5.7917 0
164. 11 CON GY -38.1 0.0833 0
165. LOAD 14 LOADTYPE LIVE TITLE POS. MOMENT IN FB BETWEEN C2 _C1 (3 LANE)
166. MEMBER LOAD
167. 1 CON GY -34.3 1.7031 0
168. 2 CON GY -34.3 1.77091 0
169. 9 CON GY -34.3 0.7917 0
170. 10 CON GY -34.3 0.9375 0
171. 10 CON GY -34.3 4.9375 0
172. 11 CON GY -34.3 5.0833 0
173. LOAD 15 LOADTYPE LIVE TITLE POS. MOMENT IN FB BETWEEN C2 _C1 (2 LANE-1)
174. MEMBER LOAD
175. 9 CON GY -38.1 0.7917 0
176. 10 CON GY -38.1 0.9375 0
177. 10 CON GY -38.1 4.9375 0
178. 11 CON GY -38.1 5.0833 0
179. LOAD 16 LOADTYPE LIVE TITLE POS. MOMENT IN FB BETWEEN C2 _C1 (2 LANE-2)
180. MEMBER LOAD
181. 1 CON GY -38.1 1.7031 0
182. 2 CON GY -38.1 1.77091 0
183. 9 CON GY -38.1 5.7917 0
184. 11 CON GY -38.1 0.0833 0
185. LOAD 17 LOADTYPE LIVE TITLE MAX AXIAL ON COLUMN C1 (3 LANE)
186. MEMBER LOAD
187. 9 CON GY -34.3 2.1875 0
188. 10 CON GY -34.3 2.3333 0
189. 11 CON GY -34.3 2.4792 0
190. 12 CON GY -34.3 2.62507 0
191. 13 CON GY -34.3 2.7708 0
192. 14 CON GY -34.3 4.00003 0
193. LOAD 18 LOADTYPE LIVE TITLE MAX AXIAL ON COLUMN C1 (2 LANE)
194. MEMBER LOAD
195. 11 CON GY -38.1 2.4792 0
196. 12 CON GY -38.1 2.62507 0
197. 13 CON GY -38.1 2.7708 0
198. 14 CON GY -38.1 4.00003 0
199. LOAD 19 LOADTYPE LIVE TITLE NEG. MOMENT IN FB OVER C1 (3 LANE)
200. MEMBER LOAD
201. 9 CON GY -34.3 0.7917 0
202. 10 CON GY -34.3 0.9375 0
203. 10 CON GY -34.3 4.9375 0
204. 11 CON GY -34.3 5.0833 0
205. 13 CON GY -34.3 2.7708 0
206. 14 CON GY -34.3 4.00003 0
207. LOAD 20 LOADTYPE LIVE TITLE NEG. MOMENT IN FB OVER C1 (2 LANE)
208. MEMBER LOAD

209. 9 CON GY -38.1 5.7917 0
210. 11 CON GY -38.1 0.0833 0
211. 13 CON GY -38.1 2.7708 0
212. 14 CON GY -38.1 4.00003 0
213. LOAD 21 LOADTYPE LIVE TITLE ALL LANES LOADED - CENTER (6 LANE)
214. MEMBER LOAD
215. 2 CON GY -28.6 1.64591 0
216. 3 CON GY -28.6 1.1458 0
217. 4 CON GY -28.6 1.2917 0
218. 5 CON GY -28.6 1.4375 0
219. 6 CON GY -28.6 1.5833 0
220. 7 CON GY -28.6 1.72925 0
221. 8 CON GY -28.6 2 0
222. 9 CON GY -28.6 2.1667 0
223. 10 CON GY -28.6 2.3125 0
224. 11 CON GY -28.6 2.4583 0
225. 12 CON GY -28.6 2.60427 0
226. 13 CON GY -28.6 2.75 0
227. LOAD 22 LOADTYPE LIVE TITLE ALL LANES LOADED - OUTSIDE (6 LANE)
228. MEMBER LOAD
229. 1 CON GY -28.6 1.7031 0
230. 2 CON GY -28.6 1.77091 0
231. 3 CON GY -28.6 1.2708 0
232. 4 CON GY -28.6 1.4167 0
233. 5 CON GY -28.6 1.5625 0
234. 6 CON GY -28.6 1.7083 0
235. 9 CON GY -28.6 2.1875 0
236. 10 CON GY -28.6 2.3333 0
237. 11 CON GY -28.6 2.4792 0
238. 12 CON GY -28.6 2.62507 0
239. 13 CON GY -28.6 2.7708 0
240. 14 CON GY -28.6 4.00003 0
241. LOAD 23 LOADTYPE LIVE TITLE LOWER DECK LOAD
242. JOINT LOAD
243. 24 FY -7.29
244. 50 FY -10.46
245. 48 49 FY -9.86
246. 47 FY -10.35
247. 19 FY -8.37
248. 46 FY -3.84
249. LOAD 24 LOADTYPE LIVE TITLE LOAD 1 WITH LOWER DECK
250. REPEAT LOAD
251. 1 1.0 23 1.0
252. LOAD 25 LOADTYPE LIVE TITLE LOAD 2 WITH LOWER DECK
253. REPEAT LOAD
254. 2 1.0 23 1.0
255. LOAD 26 LOADTYPE LIVE TITLE LOAD 3 WITH LOWER DECK
256. REPEAT LOAD
257. 3 1.0 23 1.0
258. LOAD 27 LOADTYPE LIVE TITLE LOAD 4 WITH LOWER DECK
259. REPEAT LOAD
260. 4 1.0 23 1.0
261. LOAD 28 LOADTYPE LIVE TITLE LOAD 5 WITH LOWER DECK
262. REPEAT LOAD
263. 5 1.0 23 1.0
264. LOAD 29 LOADTYPE LIVE TITLE LOAD 6 WITH LOWER DECK

265. REPEAT LOAD
266. 6 1.0 23 1.0
267. LOAD 30 LOADTYPE LIVE TITLE LOAD 7 WITH LOWER DECK
268. REPEAT LOAD
269. 7 1.0 23 1.0
270. LOAD 31 LOADTYPE LIVE TITLE LOAD 8 WITH LOWER DECK
271. REPEAT LOAD
272. 8 1.0 23 1.0
273. LOAD 32 LOADTYPE LIVE TITLE LOAD 9 WITH LOWER DECK
274. REPEAT LOAD
275. 9 1.0 23 1.0
276. LOAD 33 LOADTYPE LIVE TITLE LOAD 10 WITH LOWER DECK
277. REPEAT LOAD
278. 10 1.0 23 1.0
279. LOAD 34 LOADTYPE LIVE TITLE LOAD 11 WITH LOWER DECK
280. REPEAT LOAD
281. 11 1.0 23 1.0
282. LOAD 35 LOADTYPE LIVE TITLE LOAD 12 WITH LOWER DECK
283. REPEAT LOAD
284. 12 1.0 23 1.0
285. LOAD 36 LOADTYPE LIVE TITLE LOAD 13 WITH LOWER DECK
286. REPEAT LOAD
287. 13 1.0 23 1.0
288. LOAD 37 LOADTYPE LIVE TITLE LOAD 14 WITH LOWER DECK
289. REPEAT LOAD
290. 14 1.0 23 1.0
291. LOAD 38 LOADTYPE LIVE TITLE LOAD 15 WITH LOWER DECK
292. REPEAT LOAD
293. 15 1.0 23 1.0
294. LOAD 39 LOADTYPE LIVE TITLE LOAD 16 WITH LOWER DECK
295. REPEAT LOAD
296. 16 1.0 23 1.0
297. LOAD 40 LOADTYPE LIVE TITLE LOAD 17 WITH LOWER DECK
298. REPEAT LOAD
299. 17 1.0 23 1.0
300. LOAD 41 LOADTYPE LIVE TITLE LOAD 18 WITH LOWER DECK
301. REPEAT LOAD
302. 18 1.0 23 1.0
303. LOAD 42 LOADTYPE LIVE TITLE LOAD 19 WITH LOWER DECK
304. REPEAT LOAD
305. 19 1.0 23 1.0
306. LOAD 43 LOADTYPE LIVE TITLE LOAD 20 WITH LOWER DECK
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308. 20 1.0 23 1.0
309. LOAD 44 LOADTYPE LIVE TITLE LOAD 21 WITH LOWER DECK
310. REPEAT LOAD
311. 21 1.0 23 1.0
312. LOAD 45 LOADTYPE LIVE TITLE LOAD 22 WITH LOWER DECK
313. REPEAT LOAD
314. 22 1.0 23 1.0
315. LOAD 46 LOADTYPE LIVE TITLE 2F1 LOADING
316. REPEAT LOAD
317. 1 0.472232 23 1.0
318. LOAD 47 LOADTYPE LIVE TITLE 2F1 LOADING
319. REPEAT LOAD
320. 2 0.472232 23 1.0

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321. LOAD 48 LOADTYPE LIVE TITLE 2F1 LOADING
322. REPEAT LOAD
323. 3 0.472232 23 1.0
324. LOAD 49 LOADTYPE LIVE TITLE 2F1 LOADING
325. REPEAT LOAD
326. 4 0.472232 23 1.0
327. LOAD 50 LOADTYPE LIVE TITLE 2F1 LOADING
328. REPEAT LOAD
329. 5 0.472232 23 1.0
330. LOAD 51 LOADTYPE LIVE TITLE 2F1 LOADING
331. REPEAT LOAD
332. 6 0.472232 23 1.0
333. LOAD 52 LOADTYPE LIVE TITLE 2F1 LOADING
334. REPEAT LOAD
335. 7 0.472232 23 1.0
336. LOAD 53 LOADTYPE LIVE TITLE 2F1 LOADING
337. REPEAT LOAD
338. 8 0.472232 23 1.0
339. LOAD 54 LOADTYPE LIVE TITLE 2F1 LOADING
340. REPEAT LOAD
341. 9 0.472232 23 1.0
342. LOAD 55 LOADTYPE LIVE TITLE 2F1 LOADING
343. REPEAT LOAD
344. 10 0.472232 23 1.0
345. LOAD 56 LOADTYPE LIVE TITLE 2F1 LOADING
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347. 11 0.472232 23 1.0
348. LOAD 57 LOADTYPE LIVE TITLE 2F1 LOADING
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351. LOAD 58 LOADTYPE LIVE TITLE 2F1 LOADING
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353. 13 0.472232 23 1.0
354. LOAD 59 LOADTYPE LIVE TITLE 2F1 LOADING
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358. REPEAT LOAD
359. 15 0.472232 23 1.0
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362. 16 0.472232 23 1.0
363. LOAD 62 LOADTYPE LIVE TITLE 2F1 LOADING
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365. 17 0.472232 23 1.0
366. LOAD 63 LOADTYPE LIVE TITLE 2F1 LOADING
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368. 18 0.472232 23 1.0
369. LOAD 64 LOADTYPE LIVE TITLE 2F1 LOADING
370. REPEAT LOAD
371. 19 0.472232 23 1.0
372. LOAD 65 LOADTYPE LIVE TITLE 2F1 LOADING
373. REPEAT LOAD
374. 20 0.472232 23 1.0
375. LOAD 66 LOADTYPE LIVE TITLE 2F1 LOADING
376. REPEAT LOAD

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377. 21 0.472232 23 1.0
378. LOAD 67 LOADTYPE LIVE TITLE 2F1 LOADING
379. REPEAT LOAD
380. 22 0.472232 23 1.0
381. LOAD 68 LOADTYPE LIVE TITLE 3F1 LOADING
382. REPEAT LOAD
383. 1 0.704259 23 1.0
384. LOAD 69 LOADTYPE LIVE TITLE 3F1 LOADING
385. REPEAT LOAD
386. 2 0.704259 23 1.0
387. LOAD 70 LOADTYPE LIVE TITLE 3F1 LOADING
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390. LOAD 71 LOADTYPE LIVE TITLE 3F1 LOADING
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393. LOAD 72 LOADTYPE LIVE TITLE 3F1 LOADING
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395. 5 0.704259 23 1.0
396. LOAD 73 LOADTYPE LIVE TITLE 3F1 LOADING
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404. 8 0.704259 23 1.0
405. LOAD 76 LOADTYPE LIVE TITLE 3F1 LOADING
406. REPEAT LOAD
407. 9 0.704259 23 1.0
408. LOAD 77 LOADTYPE LIVE TITLE 3F1 LOADING
409. REPEAT LOAD
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411. LOAD 78 LOADTYPE LIVE TITLE 3F1 LOADING
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413. 11 0.704259 23 1.0
414. LOAD 79 LOADTYPE LIVE TITLE 3F1 LOADING
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431. 17 0.704259 23 1.0
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435. LOAD 86 LOADTYPE LIVE TITLE 3F1 LOADING
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449. 1 0.806133 23 1.0
450. LOAD 91 LOADTYPE LIVE TITLE 4F1 LOADING
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453. LOAD 92 LOADTYPE LIVE TITLE 4F1 LOADING
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462. LOAD 95 LOADTYPE LIVE TITLE 4F1 LOADING
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467. 7 0.806133 23 1.0
468. LOAD 97 LOADTYPE LIVE TITLE 4F1 LOADING
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484. REPEAT LOAD
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486. LOAD 103 LOADTYPE LIVE TITLE 4F1 LOADING
487. REPEAT LOAD
488. 14 0.806133 23 1.0

489. LOAD 104 LOADTYPE LIVE TITLE 4F1 LOADING
490. REPEAT LOAD
491. 15 0.806133 23 1.0
492. LOAD 105 LOADTYPE LIVE TITLE 4F1 LOADING
493. REPEAT LOAD
494. 16 0.806133 23 1.0
495. LOAD 106 LOADTYPE LIVE TITLE 4F1 LOADING
496. REPEAT LOAD
497. 17 0.806133 23 1.0
498. LOAD 107 LOADTYPE LIVE TITLE 4F1 LOADING
499. REPEAT LOAD
500. 18 0.806133 23 1.0
501. LOAD 108 LOADTYPE LIVE TITLE 4F1 LOADING
502. REPEAT LOAD
503. 19 0.806133 23 1.0
504. LOAD 109 LOADTYPE LIVE TITLE 4F1 LOADING
505. REPEAT LOAD
506. 20 0.806133 23 1.0
507. LOAD 110 LOADTYPE LIVE TITLE 4F1 LOADING
508. REPEAT LOAD
509. 21 0.806133 23 1.0
510. LOAD 111 LOADTYPE LIVE TITLE 4F1 LOADING
511. REPEAT LOAD
512. 22 0.806133 23 1.0
513. LOAD 112 LOADTYPE LIVE TITLE 5C1 LOADING
514. REPEAT LOAD
515. 1 0.805451 23 1.0
516. LOAD 113 LOADTYPE LIVE TITLE 5C1 LOADING
517. REPEAT LOAD
518. 2 0.805451 23 1.0
519. LOAD 114 LOADTYPE LIVE TITLE 5C1 LOADING
520. REPEAT LOAD
521. 3 0.805451 23 1.0
522. LOAD 115 LOADTYPE LIVE TITLE 5C1 LOADING
523. REPEAT LOAD
524. 4 0.805451 23 1.0
525. LOAD 116 LOADTYPE LIVE TITLE 5C1 LOADING
526. REPEAT LOAD
527. 5 0.805451 23 1.0
528. LOAD 117 LOADTYPE LIVE TITLE 5C1 LOADING
529. REPEAT LOAD
530. 6 0.805451 23 1.0
531. LOAD 118 LOADTYPE LIVE TITLE 5C1 LOADING
532. REPEAT LOAD
533. 7 0.805451 23 1.0
534. LOAD 119 LOADTYPE LIVE TITLE 5C1 LOADING
535. REPEAT LOAD
536. 8 0.805451 23 1.0
537. LOAD 120 LOADTYPE LIVE TITLE 5C1 LOADING
538. REPEAT LOAD
539. 9 0.805451 23 1.0
540. LOAD 121 LOADTYPE LIVE TITLE 5C1 LOADING
541. REPEAT LOAD
542. 10 0.805451 23 1.0
543. LOAD 122 LOADTYPE LIVE TITLE 5C1 LOADING
544. REPEAT LOAD

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545. 11 0.805451 23 1.0
 546. LOAD 123 LOADTYPE LIVE TITLE 5C1 LOADING
 547. REPEAT LOAD
 548. 12 0.805451 23 1.0
 549. LOAD 124 LOADTYPE LIVE TITLE 5C1 LOADING
 550. REPEAT LOAD
 551. 13 0.805451 23 1.0
 552. LOAD 125 LOADTYPE LIVE TITLE 5C1 LOADING
 553. REPEAT LOAD
 554. 14 0.805451 23 1.0
 555. LOAD 126 LOADTYPE LIVE TITLE 5C1 LOADING
 556. REPEAT LOAD
 557. 15 0.805451 23 1.0
 558. LOAD 127 LOADTYPE LIVE TITLE 5C1 LOADING
 559. REPEAT LOAD
 560. 16 0.805451 23 1.0
 561. LOAD 128 LOADTYPE LIVE TITLE 5C1 LOADING
 562. REPEAT LOAD
 563. 17 0.805451 23 1.0
 564. LOAD 129 LOADTYPE LIVE TITLE 5C1 LOADING
 565. REPEAT LOAD
 566. 18 0.805451 23 1.0
 567. LOAD 130 LOADTYPE LIVE TITLE 5C1 LOADING
 568. REPEAT LOAD
 569. 19 0.805451 23 1.0
 570. LOAD 131 LOADTYPE LIVE TITLE 5C1 LOADING
 571. REPEAT LOAD
 572. 20 0.805451 23 1.0
 573. LOAD 132 LOADTYPE LIVE TITLE 5C1 LOADING
 574. REPEAT LOAD
 575. 21 0.805451 23 1.0
 576. LOAD 133 LOADTYPE LIVE TITLE 5C1 LOADING
 577. REPEAT LOAD
 578. 22 0.805451 23 1.0
 579. LOAD GENERATION 29
 580. TYPE 1 0.3802 180.343 0 XINC 0.9955 YRANGE 2
 581. LOAD GENERATION 29
 582. TYPE 1 42.5052 181.61 0 XINC 0.9955 YRANGE 2
 583. PDELTA 10 ANALYSIS

P R O B L E M S T A T I S T I C S

NUMBER OF JOINTS/MEMBER+ELEMENTS/SUPPORTS = 49/ 74/ 3

SOLVER USED IS THE OUT-OF-CORE BASIC SOLVER

ORIGINAL/FINAL BAND-WIDTH= 27/ 7/ 48 DOF
 TOTAL PRIMARY LOAD CASES = 191, TOTAL DEGREES OF FREEDOM = 276
 SIZE OF STIFFNESS MATRIX = 14 DOUBLE KILO-WORDS
 REQD/AVAIL. DISK SPACE = 13.5/ 515628.1 MB

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ZERO STIFFNESS IN DIRECTION 3 AT JOINT 30 EQN.NO. 69
 LOADS APPLIED OR DISTRIBUTED HERE FROM ELEMENTS WILL BE IGNORED.
 THIS MAY BE DUE TO ALL MEMBERS AT THIS JOINT BEING RELEASED OR
 EFFECTIVELY RELEASED IN THIS DIRECTION.

ZERO STIFFNESS IN DIRECTION 4 AT JOINT	30 EQN.NO.	70
ZERO STIFFNESS IN DIRECTION 5 AT JOINT	30 EQN.NO.	71
ZERO STIFFNESS IN DIRECTION 6 AT JOINT	30 EQN.NO.	72
ZERO STIFFNESS IN DIRECTION 3 AT JOINT	38 EQN.NO.	87
ZERO STIFFNESS IN DIRECTION 4 AT JOINT	38 EQN.NO.	88
ZERO STIFFNESS IN DIRECTION 5 AT JOINT	38 EQN.NO.	89
ZERO STIFFNESS IN DIRECTION 6 AT JOINT	38 EQN.NO.	90
ZERO STIFFNESS IN DIRECTION 3 AT JOINT	31 EQN.NO.	93
ZERO STIFFNESS IN DIRECTION 4 AT JOINT	31 EQN.NO.	94
ZERO STIFFNESS IN DIRECTION 5 AT JOINT	31 EQN.NO.	95
ZERO STIFFNESS IN DIRECTION 6 AT JOINT	31 EQN.NO.	96

**WARNING - THERE WERE MORE THAN 12 DOF WITH ZERO STIFFNESS.

THE FIRST 12 ARE LISTED ABOVE.

TOTAL # TRANSLATIONAL= 16 TOTAL # ROTATIONAL= 48

++ Adjusting Displacements	15: 0:22
++ Adjusting Displacements	15: 0:23
++ Adjusting Displacements	15: 0:23
++ Adjusting Displacements	15: 0:23
++ Adjusting Displacements	15: 0:23
++ Adjusting Displacements	15: 0:23
++ Adjusting Displacements	15: 0:23
++ Adjusting Displacements	15: 0:23
++ Adjusting Displacements	15: 0:24
++ Adjusting Displacements	15: 0:24

584. *LOAD LIST 1 TO 22
 585. *PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 1 TO 14
 586. *HS-20 WITHOUT LOWER DECK MAX FLOOR BEAM FORCES ABOVE
 587. *PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 15 TO 18
 588. *HS-20 WITHOUT LOWER DECK MAX COLUMN 3 FORCES ABOVE
 589. *PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 19 TO 23
 590. *HS-20 WITHOUT LOWER DECK MAX COLUMN 2 FORCES ABOVE
 591. *PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 24 TO 27
 592. *HS-20 WITHOUT LOWER DECK MAX COLUMN 1 FORCES ABOVE
 593. LOAD LIST 24 TO 45
 594. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 1 TO 14

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
1 MAX	0.00	0.00	24	161.15	5.93	27			
	0.00	0.00	24	0.00	0.00	24	0.00	0.00	24
	MIN	-38.08	5.93	39	0.00	5.93	44		
	0.00	5.93	45	0.00	5.93	45	1.14 T	5.93	39
2 MAX	0.00	0.00	28	588.99	6.50	27			
	0.00	0.00	24	0.00	0.00	24	0.00	0.00	28
	MIN	-76.17	6.50	39	0.00	6.50	43		
	0.00	6.50	45	0.00	6.50	45	2.30 T	6.50	39
3 MAX	101.21	0.00	24	547.50	0.00	26			
	0.00	0.00	24	0.00	0.00	24	11.31 C	0.00	29
	MIN	-7.98	5.86	38	-250.02	5.86	29		
	0.00	5.86	45	0.00	5.86	45	5.51 T	5.86	39
4 MAX	79.56	0.00	26	364.24	0.00	39			
	0.00	0.00	24	0.00	0.00	24	11.31 C	0.00	29
	MIN	-11.04	5.86	35	-460.44	5.86	29		
	0.00	5.86	45	0.00	5.86	45	5.51 T	5.86	39
5 MAX	45.28	0.00	26	279.81	0.00	37			
	0.00	0.00	24	0.00	0.00	24	10.16 C	0.00	29
	MIN	-45.26	5.86	29	-486.94	1.17	29		
	0.00	5.86	45	0.00	5.86	45	5.51 T	5.86	39
6 MAX	15.37	0.00	27	219.62	0.00	37			
	0.00	0.00	24	0.00	0.00	24	7.87 C	0.00	29
	MIN	-83.35	5.27	29	-417.48	0.00	29		
	0.00	5.86	45	0.00	5.86	45	5.51 T	5.86	39
7 MAX	14.91	0.00	39	441.46	5.84	34			
	0.00	0.00	24	0.00	0.00	24	6.72 C	0.00	29
	MIN	-83.35	5.84	29	-128.88	0.00	28		
	0.00	5.84	45	0.00	5.84	45	5.50 T	5.84	39
8 MAX	94.08	0.00	32	426.43	0.00	35			
	0.00	0.00	24	0.00	0.00	24	9.13 C	0.00	38
	MIN	-9.82	5.84	30	-145.49	5.84	37		
	0.00	5.84	45	0.00	5.84	45	5.25 T	5.84	30
9 MAX	83.39	0.00	38	187.48	5.86	28			
	0.00	0.00	24	0.00	0.00	24	9.14 C	0.00	38

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MIN	-9.89	5.86	43	-430.30	5.86	38			
	0.00	5.86	45	0.00	5.86	45	5.25 T	5.86	30
10 MAX	45.31	0.00	38	222.35	5.86	28			
	0.00	0.00	24	0.00	0.00	24	7.99 C	0.00	38
MIN	-40.34	5.86	42	-499.87	4.69	38			
	0.00	5.86	45	0.00	5.86	45	5.25 T	5.86	30
11 MAX	8.44	0.00	36	270.91	5.86	30			
	0.00	0.00	24	0.00	0.00	24	5.70 C	0.00	38
MIN	-74.62	5.86	42	-473.32	0.00	38			
	0.00	5.86	45	0.00	5.86	45	5.25 T	5.86	30
12 MAX	7.34	0.00	29	427.52	5.86	42			
	0.00	0.00	24	0.00	0.00	24	4.55 C	0.00	38
MIN	-86.53	5.86	40	-263.11	0.00	38			
	0.00	5.86	45	0.00	5.86	45	5.25 T	5.86	30
13 MAX	76.17	0.00	30	439.65	0.00	30			
	0.00	0.00	24	0.00	0.00	24	2.28 C	0.00	30
MIN	0.00	4.77	44	0.00	2.86	44			
	0.00	4.77	45	0.00	4.77	45	0.00	4.77	44
14 MAX	38.08	0.00	30	152.34	0.00	30			
	0.00	0.00	24	0.00	0.00	24	1.15 C	0.00	30
MIN	0.00	5.62	45	0.00	5.62	45			
	0.00	5.62	45	0.00	5.62	45	0.00	5.62	45

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

595. *HS-20 MAX FLOOR BEAM FORCES ABOVE

596. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 15 TO 18

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
15 MAX	0.67	0.00	25	3.84	0.00	41			
	0.00	0.00	24	0.00	0.00	24	202.58 C	0.00	24
MIN	-0.40	15.73	31	-9.15	15.73	25			
	0.00	15.73	45	0.00	15.73	45	25.39 C	15.73	42
16 MAX	1.74	0.00	33	3.32	0.00	32			
	0.00	0.00	24	0.00	0.00	24	202.69 C	0.00	24
MIN	0.48	5.33	41	-14.61	5.33	25			
	0.00	5.33	45	0.00	5.33	45	25.56 C	5.33	42
17 MAX	-1.01	0.00	29	47.86	17.53	39			
	0.00	0.00	24	0.00	0.00	24	202.69 C	0.00	24
MIN	-3.53	17.53	39	-14.61	0.00	25			
	0.00	17.53	45	0.00	17.53	45	25.56 C	17.53	42
18 MAX	5.95	0.00	39	154.13	24.90	29			
	0.00	0.00	24	0.00	0.00	24	169.89 C	0.00	24
MIN	-9.23	24.90	29	-137.33	24.90	39			
	0.00	24.90	45	0.00	24.90	45	7.96 T	24.90	38

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

597. *HS-20 MAX COLUMN 3 FORCES ABOVE

598. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 19 TO 23

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
19 MAX	-0.06	0.00	28	4.89	9.75	40			
	0.00	0.00	24	0.00	0.00	24	180.98 C	0.00	44
MIN	-0.76	9.75	37	-4.94	0.00	25			
	0.00	9.75	45	0.00	9.75	45	23.01 C	9.75	25
20 MAX	0.39	0.00	41	4.89	0.00	40			
	0.00	0.00	24	0.00	0.00	24	169.22 C	0.00	32
MIN	-0.21	5.98	29	-1.61	0.00	24			
	0.00	5.98	45	0.00	5.98	45	20.48 C	5.98	25
21 MAX	0.43	0.00	25	18.62	5.33	38			
	0.00	0.00	24	0.00	0.00	24	169.22 C	0.00	32
MIN	-2.78	5.33	38	-2.93	5.33	24			
	0.00	5.33	45	0.00	5.33	45	20.48 C	5.33	25
22 MAX	4.85	0.00	37	18.62	0.00	38			
	0.00	0.00	24	0.00	0.00	24	181.42 C	0.00	32
MIN	0.18	17.53	28	-73.19	17.53	37			
	0.00	17.53	45	0.00	17.53	45	21.96 C	17.53	25
23 MAX	11.81	0.00	28	192.72	25.78	37			
	0.00	0.00	24	0.00	0.00	24	155.38 C	0.00	32
MIN	-10.16	25.78	37	-189.60	25.78	28			
	0.00	25.78	45	0.00	25.78	45	5.28 T	25.78	25

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

599. *HS-20 MAX COLUMN 2 FORCES ABOVE

600. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 24 TO 27

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
24 MAX	0.83	0.00	32	5.62	0.00	32			
	0.00	0.00	24	0.00	0.00	24	154.77 C	0.00	40
MIN	-0.23	15.73	25	-7.50	15.73	32			
	0.00	15.73	45	0.00	15.73	45	6.97 T	15.73	29
25 MAX	1.93	0.00	25	4.58	5.33	33			
	0.00	0.00	24	0.00	0.00	24	155.13 C	0.00	40
MIN	-2.08	5.33	33	-9.64	5.33	25			
	0.00	5.33	45	0.00	5.33	45	7.34 T	5.33	29
26 MAX	1.14	0.00	30	36.01	17.53	38			
	0.00	0.00	24	0.00	0.00	24	155.13 C	0.00	40
MIN	-2.13	17.53	38	-20.49	17.53	30			
	0.00	17.53	45	0.00	17.53	45	7.34 T	17.53	29
27 MAX	6.63	0.00	38	111.19	26.66	30			
	0.00	0.00	24	0.00	0.00	24	155.13 C	0.00	40
MIN	-4.96	26.66	30	-140.72	26.66	38			
	0.00	26.66	45	0.00	26.66	45	7.34 T	26.66	29

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

601. *HS-20 MAX COLUMN 1 FORCES ABOVE

602. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 73 TO 78

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
73 MAX	-3.84	0.00	24	12.90	3.36	24			
	0.00	0.00	24	0.00	0.00	24	0.00	0.00	24
MIN	-3.84	3.36	45	0.00	0.00	45			
	0.00	3.36	45	0.00	3.36	45	0.00	3.36	45
74 MAX	22.03	0.00	37	102.09	0.00	29			
	0.00	0.00	24	0.00	0.00	24	9.48 C	0.00	39
MIN	18.97	6.16	30	-82.50	6.16	39			
	0.00	6.16	45	0.00	6.16	45	8.22 T	6.16	29
75 MAX	11.68	0.00	37	-23.28	0.00	29			
	0.00	0.00	24	0.00	0.00	24	9.48 C	0.00	39
MIN	8.62	5.60	30	-147.58	5.60	37			
	0.00	5.60	45	0.00	5.60	45	8.22 T	5.60	29
76 MAX	1.82	0.00	37	-76.72	5.60	28			
	0.00	0.00	24	0.00	0.00	24	9.48 C	0.00	39
MIN	-1.24	5.60	30	-157.78	5.60	37			
	0.00	5.60	45	0.00	5.60	45	8.22 T	5.60	29
77 MAX	-8.04	0.00	37	-15.09	5.60	28			
	0.00	0.00	24	0.00	0.00	24	9.48 C	0.00	39
MIN	-11.10	5.60	30	-157.78	0.00	37			
	0.00	5.60	45	0.00	5.60	45	8.22 T	5.60	29
78 MAX	-18.50	0.00	37	119.68	6.28	28			
	0.00	0.00	24	0.00	0.00	24	9.48 C	0.00	39
MIN	-21.56	6.28	30	-112.71	0.00	37			
	0.00	6.28	45	0.00	6.28	45	8.22 T	6.28	29

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

603. *LOWER DECK FLOORBEAM FORCES ABOVE

604. LOAD LIST 46 TO 67

605. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 1 TO 14

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
1 MAX	0.00	0.00	46	76.10	5.93	49			
	0.00	0.00	46	0.00	0.00	46	0.00	0.00	46
	-17.98	5.93	61	0.00	5.93	66			
MIN	0.00	5.93	67	0.00	5.93	67	0.54 T	5.93	61
	0.00	0.00	50	278.15	6.50	49			
	0.00	0.00	46	0.00	0.00	46	0.00	0.00	50
2 MAX	-35.97	6.50	61	0.00	6.50	65			
	0.00	6.50	67	0.00	6.50	67	1.08 T	6.50	61
	0.00	0.00	46	264.05	0.00	48			
3 MAX	0.00	0.00	46	0.00	0.00	46	6.12 C	0.00	51
	-3.57	5.86	60	-113.52	5.86	51			
	0.00	5.86	67	0.00	5.86	67	1.82 T	5.86	61
4 MAX	37.76	0.00	48	176.37	0.00	61			
	0.00	0.00	46	0.00	0.00	46	6.12 C	0.00	51
	-5.02	5.86	57	-214.00	5.86	51			
MIN	0.00	5.86	67	0.00	5.86	67	1.82 T	5.86	61
	21.57	0.00	48	135.43	0.00	59			
	0.00	0.00	46	0.00	0.00	46	5.58 C	0.00	51
5 MAX	-21.18	5.86	51	-226.74	1.17	51			
	0.00	5.86	67	0.00	5.86	67	1.82 T	5.86	61
	7.44	0.00	49	105.92	0.00	59			
6 MAX	0.00	0.00	46	0.00	0.00	46	4.50 C	0.00	51
	-39.17	5.27	51	-194.85	0.00	51			
	0.00	5.86	67	0.00	5.86	67	1.82 T	5.86	61
7 MAX	7.23	0.00	61	208.47	5.84	56			
	0.00	0.00	46	0.00	0.00	46	3.95 C	0.00	51
	-39.17	5.84	51	-59.71	0.00	50			
MIN	0.00	5.84	67	0.00	5.84	67	1.82 T	5.84	61
	44.27	0.00	54	196.97	0.00	57			
	0.00	0.00	46	0.00	0.00	46	4.33 C	0.00	60
8 MAX	-4.79	5.84	52	-72.17	5.84	59			
	0.00	5.84	67	0.00	5.84	67	2.46 T	5.84	52
	39.22	0.00	60	85.96	5.86	50			
9 MAX	0.00	0.00	46	0.00	0.00	46	4.33 C	0.00	60

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MIN	-4.83	5.86	65	-205.67	5.86	60			
	0.00	5.86	67	0.00	5.86	67	2.46	T	5.86 52
10 MAX	21.23	0.00	60	103.35	5.86	50			
	0.00	0.00	46	0.00	0.00	46	3.79	C	0.00 60
MIN	-19.21	5.86	64	-237.76	4.69	60			
	0.00	5.86	67	0.00	5.86	67	2.46	T	5.86 52
11 MAX	3.82	0.00	58	127.19	5.86	52			
	0.00	0.00	46	0.00	0.00	46	2.71	C	0.00 60
MIN	-35.40	5.86	64	-225.04	0.00	60			
	0.00	5.86	67	0.00	5.86	67	2.46	T	5.86 52
12 MAX	3.31	0.00	51	202.17	5.86	64			
	0.00	0.00	46	0.00	0.00	46	2.17	C	0.00 60
MIN	-41.02	5.27	62	-124.82	0.00	60			
	0.00	5.86	67	0.00	5.86	67	2.46	T	5.86 52
13 MAX	35.97	0.00	52	207.61	0.00	52			
	0.00	0.00	46	0.00	0.00	46	1.08	C	0.00 52
MIN	0.00	4.30	66	0.00	2.86	66			
	0.00	4.77	67	0.00	4.77	67	0.00		4.77 66
14 MAX	17.98	0.00	52	71.94	0.00	52			
	0.00	0.00	46	0.00	0.00	46	0.54	C	0.00 52
MIN	0.00	5.06	65	0.00	5.62	67			
	0.00	5.62	67	0.00	5.62	67	0.00		5.62 67

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

606. *2F1 MAX FLOOR BEAM FORCES ABOVE

607. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 15 TO 18

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
15 MAX	0.43	0.00	47	2.15	0.00	63			
	0.00	0.00	46	0.00	0.00	46	113.29 C	0.00	46
MIN	-0.07	15.73	53	-5.85	15.73	47			
	0.00	15.73	67	0.00	15.73	67	29.63 C	15.73	64
16 MAX	1.39	0.00	55	0.03	0.00	54			
	0.00	0.00	46	0.00	0.00	46	113.18 C	0.00	46
MIN	0.79	5.33	63	-11.43	5.33	47			
	0.00	5.33	67	0.00	5.33	67	29.55 C	5.33	64
17 MAX	-1.69	0.00	51	39.32	17.53	61			
	0.00	0.00	46	0.00	0.00	46	113.18 C	0.00	46
MIN	-2.88	17.53	61	-11.43	0.00	47			
	0.00	17.53	67	0.00	17.53	67	29.55 C	17.53	64
18 MAX	2.03	0.00	61	78.43	24.90	51			
	0.00	0.00	46	0.00	0.00	46	80.43 C	0.00	46
MIN	-5.13	24.90	51	-59.45	24.90	61			
	0.00	24.90	67	0.00	24.90	67	3.54 T	24.90	60

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

608. *2F1 MAX COLUMN 3 FORCES ABOVE

609. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 19 TO 23

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
19 MAX	-0.23	0.00	50	3.15	9.75	62			
	0.00	0.00	46	0.00	0.00	46	99.26 C	0.00	66
MIN	-0.56	9.75	59	-3.47	0.00	47			
	0.00	9.75	67	0.00	9.75	67	24.68 C	9.75	47
20 MAX	0.21	0.00	63	3.15	0.00	62			
	0.00	0.00	46	0.00	0.00	46	93.02 C	0.00	54
MIN	-0.07	5.98	51	0.08	0.00	46			
	0.00	5.98	67	0.00	5.98	67	22.80 C	5.98	47
21 MAX	-0.23	0.00	47	11.75	5.33	60			
	0.00	0.00	46	0.00	0.00	46	93.02 C	0.00	54
MIN	-1.74	5.33	60	0.37	0.00	46			
	0.00	5.33	67	0.00	5.33	67	22.80 C	5.33	47
22 MAX	3.57	0.00	59	11.75	0.00	60			
	0.00	0.00	46	0.00	0.00	46	99.71 C	0.00	54
MIN	1.36	17.53	50	-53.99	17.53	59			
	0.00	17.53	67	0.00	17.53	67	24.42 C	17.53	47
23 MAX	6.33	0.00	50	86.53	25.78	59			
	0.00	0.00	46	0.00	0.00	46	73.00 C	0.00	54
MIN	-4.04	25.78	59	-93.97	25.78	50			
	0.00	25.78	67	0.00	25.78	67	2.86 T	25.78	47

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

610. *2F1 MAX COLUMN 2 FORCES ABOVE

611. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 24 TO 27

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
24 MAX	0.48	0.00	54	3.11	0.00	54			
	0.00	0.00	46	0.00	0.00	46	73.33 C	0.00	62
MIN	-0.02	15.73	47	-4.41	15.73	54			
	0.00	15.73	67	0.00	15.73	67	3.05 T	15.73	51
25 MAX	0.91	0.00	47	1.26	5.33	55			
	0.00	0.00	46	0.00	0.00	46	73.42 C	0.00	62
MIN	-0.98	5.33	55	-5.44	5.33	47			
	0.00	5.33	67	0.00	5.33	67	3.30 T	5.33	51
26 MAX	0.47	0.00	52	17.23	17.53	60			
	0.00	0.00	46	0.00	0.00	46	73.42 C	0.00	62
MIN	-1.07	17.53	60	-9.40	17.53	52			
	0.00	17.53	67	0.00	17.53	67	3.30 T	17.53	51
27 MAX	3.15	0.00	60	52.34	26.66	52			
	0.00	0.00	46	0.00	0.00	46	73.42 C	0.00	62
MIN	-2.32	26.66	52	-66.81	26.66	60			
	0.00	26.66	67	0.00	26.66	67	3.30 T	26.66	51

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

612. *2F1 MAX COLUMN 1 FORCES ABOVE

613. LOAD LIST 68 TO 89

614. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 1 TO 14

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
1 MAX	0.00	0.00	68	113.50	5.93	71			
	0.00	0.00	68	0.00	0.00	68	0.00	0.00	68
	MIN	-26.82	5.93	83	0.00	5.93	88		
	0.00	5.93	89	0.00	5.93	89	0.80 T	5.93	83
2 MAX	0.00	0.00	72	414.81	6.50	71			
	0.00	0.00	68	0.00	0.00	68	0.00	0.00	72
	MIN	-53.64	6.50	83	0.00	6.50	87		
	0.00	6.50	89	0.00	6.50	89	1.62 T	6.50	83
3 MAX	71.38	0.00	68	388.65	0.00	70			
	0.00	0.00	68	0.00	0.00	68	8.40 C	0.00	73
	MIN	-5.51	5.86	82	-173.51	5.86	73		
	0.00	5.86	89	0.00	5.86	89	3.44 T	5.86	83
4 MAX	56.13	0.00	70	258.94	0.00	83			
	0.00	0.00	68	0.00	0.00	68	8.40 C	0.00	73
	MIN	-7.67	5.86	79	-322.32	5.86	73		
	0.00	5.86	89	0.00	5.86	89	3.44 T	5.86	83
5 MAX	31.99	0.00	70	198.88	0.00	81			
	0.00	0.00	68	0.00	0.00	68	7.59 C	0.00	73
	MIN	-31.77	5.86	73	-341.11	1.17	73		
	0.00	5.86	89	0.00	5.86	89	3.44 T	5.86	83
6 MAX	10.93	0.00	71	155.90	0.00	81			
	0.00	0.00	68	0.00	0.00	68	5.98 C	0.00	73
	MIN	-58.59	5.86	73	-292.71	0.00	73		
	0.00	5.86	89	0.00	5.86	89	3.44 T	5.86	83
7 MAX	10.60	0.00	83	310.89	5.84	78			
	0.00	0.00	68	0.00	0.00	68	5.17 C	0.00	73
	MIN	-58.59	5.84	73	-90.12	0.00	72		
	0.00	5.84	89	0.00	5.84	89	3.44 T	5.84	83
8 MAX	66.17	0.00	76	297.85	0.00	79			
	0.00	0.00	68	0.00	0.00	68	6.44 C	0.00	82
	MIN	-7.00	5.84	74	-104.40	5.84	81		
	0.00	5.84	89	0.00	5.84	89	3.69 T	5.84	74
9 MAX	58.64	0.00	82	130.58	5.86	72			
	0.00	0.00	68	0.00	0.00	68	6.45 C	0.00	82

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MIN	-7.05	5.86	87	-304.41	5.86	82			
	0.00	5.86	89	0.00	5.86	89	3.69 T	5.86	74
10 MAX	31.82	0.00	82	155.65	5.86	72			
	0.00	0.00	68	0.00	0.00	68	5.64 C	0.00	82
MIN	-28.50	5.27	86	-352.97	4.69	82			
	0.00	5.86	89	0.00	5.86	89	3.69 T	5.86	74
11 MAX	5.85	0.00	80	190.35	5.86	74			
	0.00	0.00	68	0.00	0.00	68	4.03 C	0.00	82
MIN	-52.64	5.86	86	-334.17	0.00	82			
	0.00	5.86	89	0.00	5.86	89	3.69 T	5.86	74
12 MAX	5.08	0.00	73	301.24	5.86	86			
	0.00	0.00	68	0.00	0.00	68	3.21 C	0.00	82
MIN	-61.03	5.27	84	-185.60	0.00	82			
	0.00	5.86	89	0.00	5.86	89	3.69 T	5.86	74
13 MAX	53.64	0.00	74	309.62	0.00	74			
	0.00	0.00	68	0.00	0.00	68	1.61 C	0.00	74
MIN	0.00	4.77	88	0.00	2.86	88			
	0.00	4.77	89	0.00	4.77	89	0.00	4.77	88
14 MAX	26.82	0.00	85	107.29	0.00	74			
	0.00	0.00	68	0.00	0.00	68	0.81 C	0.00	74
MIN	0.00	5.06	86	0.00	5.62	89			
	0.00	5.62	89	0.00	5.62	89	0.00	5.62	89

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

615. *3F1 MAX FLOOR BEAM FORCES ABOVE

616. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 15 TO 18

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
15 MAX	0.54	0.00	69	2.89	0.00	85			
	0.00	0.00	68	0.00	0.00	68	152.54 C	0.00	68
MIN	-0.21	15.73	75	-7.30	15.73	69			
	0.00	15.73	89	0.00	15.73	89	27.77 C	15.73	86
16 MAX	1.55	0.00	77	1.48	0.00	76			
	0.00	0.00	68	0.00	0.00	68	152.53 C	0.00	68
MIN	0.65	5.33	85	-12.82	5.33	69			
	0.00	5.33	89	0.00	5.33	89	27.80 C	5.33	86
17 MAX	-1.39	0.00	73	43.07	17.53	83			
	0.00	0.00	68	0.00	0.00	68	152.53 C	0.00	68
MIN	-3.17	17.53	83	-12.82	0.00	69			
	0.00	17.53	89	0.00	17.53	89	27.80 C	17.53	86
18 MAX	3.76	0.00	83	111.73	24.90	73			
	0.00	0.00	68	0.00	0.00	68	119.76 C	0.00	68
MIN	-6.93	24.90	73	-93.73	24.90	83			
	0.00	24.90	89	0.00	24.90	89	5.49 T	24.90	82

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

617. *3F1 MAX COLUMN 3 FORCES ABOVE

618. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 19 TO 23

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
19 MAX	-0.15	0.00	72	3.92	9.75	84			
	0.00	0.00	68	0.00	0.00	68	135.19 C	0.00	88
MIN	-0.65	9.75	81	-4.12	0.00	69			
	0.00	9.75	89	0.00	9.75	89	23.95 C	9.75	69
20 MAX	0.29	0.00	85	3.92	0.00	84			
	0.00	0.00	68	0.00	0.00	68	126.52 C	0.00	76
MIN	-0.13	5.98	73	-0.66	0.00	68			
	0.00	5.98	89	0.00	5.98	89	21.78 C	5.98	69
21 MAX	0.06	0.00	69	14.76	5.33	82			
	0.00	0.00	68	0.00	0.00	68	126.52 C	0.00	76
MIN	-2.20	5.33	82	-0.36	5.33	68			
	0.00	5.33	89	0.00	5.33	89	21.78 C	5.33	69
22 MAX	4.13	0.00	81	14.76	0.00	82			
	0.00	0.00	68	0.00	0.00	68	135.63 C	0.00	76
MIN	0.84	17.53	72	-62.43	17.53	81			
	0.00	17.53	89	0.00	17.53	89	23.34 C	17.53	69
23 MAX	8.74	0.00	72	133.20	25.78	81			
	0.00	0.00	68	0.00	0.00	68	109.22 C	0.00	76
MIN	-6.73	25.78	81	-136.01	25.78	72			
	0.00	25.78	89	0.00	25.78	89	3.92 T	25.78	69

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

619. *3F1 MAX COLUMN 2 FORCES ABOVE

620. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 24 TO 27

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
24 MAX	0.63	0.00	76	4.22	0.00	76			
	0.00	0.00	68	0.00	0.00	68	109.13 C	0.00	84
MIN	-0.11	15.73	69	-5.77	15.73	76			
	0.00	15.73	89	0.00	15.73	89	4.77 T	15.73	73
25 MAX	1.36	0.00	69	2.72	5.33	77			
	0.00	0.00	68	0.00	0.00	68	109.34 C	0.00	84
MIN	-1.46	5.33	77	-7.28	5.33	69			
	0.00	5.33	89	0.00	5.33	89	5.08 T	5.33	73
26 MAX	0.76	0.00	74	25.48	17.53	82			
	0.00	0.00	68	0.00	0.00	68	109.34 C	0.00	84
MIN	-1.53	17.53	82	-14.27	17.53	74			
	0.00	17.53	89	0.00	17.53	89	5.08 T	17.53	73
27 MAX	4.68	0.00	82	78.25	26.66	74			
	0.00	0.00	68	0.00	0.00	68	109.34 C	0.00	84
MIN	-3.48	26.66	74	-99.32	26.66	82			
	0.00	26.66	89	0.00	26.66	89	5.08 T	26.66	73

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

621. *3F1 MAX COLUMN 1 FORCES ABOVE

622. LOAD LIST 90 TO 111

623. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 1 TO 14

MEMBER FORCE ENVELOPE

 ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
1 MAX	0.00	0.00	90	129.91	5.93	93			
	0.00	0.00	90	0.00	0.00	90	0.00	0.00	90
	-30.70	5.93	105	0.00	5.93	110			
MIN	0.00	5.93	111	0.00	5.93	111	0.92 T	5.93	105
	0.00	0.00	94	474.81	6.50	93			
	0.00	0.00	90	0.00	0.00	90	0.00	0.00	94
2 MAX	-61.40	6.50	105	0.00	6.50	109			
	0.00	6.50	111	0.00	6.50	111	1.85 T	6.50	105
	0.00	0.00	90	443.36	0.00	92			
3 MAX	0.00	0.00	90	0.00	0.00	90	9.40 C	0.00	95
	-6.36	5.86	104	-199.86	5.86	95			
	0.00	5.86	111	0.00	5.86	111	4.15 T	5.86	105
4 MAX	64.20	0.00	92	295.20	0.00	105			
	0.00	0.00	90	0.00	0.00	90	9.40 C	0.00	95
	-8.83	5.86	101	-369.89	5.86	95			
MIN	0.00	5.86	111	0.00	5.86	111	4.15 T	5.86	105
	36.56	0.00	92	226.76	0.00	103			
	0.00	0.00	90	0.00	0.00	90	8.48 C	0.00	95
5 MAX	-36.42	5.27	95	-391.34	1.17	95			
	0.00	5.86	111	0.00	5.86	111	4.15 T	5.86	105
	0.00	0.00	93	177.85	0.00	103			
6 MAX	0.00	0.00	90	0.00	0.00	90	6.63 C	0.00	95
	-67.12	5.86	95	-335.69	0.00	95			
	0.00	5.86	111	0.00	5.86	111	4.15 T	5.86	105
7 MAX	12.09	0.00	105	355.86	5.84	100			
	0.00	0.00	90	0.00	0.00	90	5.70 C	0.00	95
	-67.12	5.84	95	-103.47	0.00	94			
MIN	0.00	5.84	111	0.00	5.84	111	4.15 T	5.84	105
	75.78	0.00	98	342.14	0.00	101			
	0.00	0.00	90	0.00	0.00	90	7.37 C	0.00	104
8 MAX	-7.97	5.84	96	-118.56	5.84	103			
	0.00	5.84	111	0.00	5.84	111	4.23 T	5.84	96
	0.00	0.00	104	150.18	5.86	94			
9 MAX	0.00	0.00	90	0.00	0.00	90	7.37 C	0.00	104

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MIN	-8.03	5.86	109	-347.77	5.86	104			
	0.00	5.86	111	0.00	5.86	111	4.23	T	5.86 96
10 MAX	36.47	0.00	104	178.62	5.86	94			
	0.00	0.00	90	0.00	0.00	90	6.45	C	0.00 104
MIN	-32.58	5.86	108	-403.57	4.69	104			
	0.00	5.86	111	0.00	5.86	111	4.23	T	5.86 96
11 MAX	6.74	0.00	102	218.10	5.86	96			
	0.00	0.00	90	0.00	0.00	90	4.61	C	0.00 104
MIN	-60.21	5.86	108	-382.10	0.00	104			
	0.00	5.86	111	0.00	5.86	111	4.23	T	5.86 96
12 MAX	5.86	0.00	95	344.74	5.86	108			
	0.00	0.00	90	0.00	0.00	90	3.67	C	0.00 104
MIN	-69.81	5.86	106	-212.29	0.00	104			
	0.00	5.86	111	0.00	5.86	111	4.23	T	5.86 96
13 MAX	61.40	0.00	96	354.41	0.00	96			
	0.00	0.00	90	0.00	0.00	90	1.84	C	0.00 96
MIN	0.00	4.77	110	0.00	2.86	110			
	0.00	4.77	111	0.00	4.77	111	0.00		4.77 110
14 MAX	30.70	0.00	96	122.81	0.00	96			
	0.00	0.00	90	0.00	0.00	90	0.92	C	0.00 96
MIN	0.00	5.62	111	0.00	5.62	111			
	0.00	5.62	111	0.00	5.62	111	0.00		5.62 111

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

624. *4F1 MAX FLOOR BEAM FORCES ABOVE

625. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 15 TO 18

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
15 MAX	0.58	0.00	91	3.22	0.00	107			
	0.00	0.00	90	0.00	0.00	90	169.78 C	0.00	90
MIN	-0.28	15.73	97	-7.93	15.73	91			
	0.00	15.73	111	0.00	15.73	111	26.95 C	15.73	108
16 MAX	1.61	0.00	99	2.11	0.00	98			
	0.00	0.00	90	0.00	0.00	90	169.81 C	0.00	90
MIN	0.59	5.33	107	-13.43	5.33	91			
	0.00	5.33	111	0.00	5.33	111	27.03 C	5.33	108
17 MAX	-1.26	0.00	95	44.72	17.53	105			
	0.00	0.00	90	0.00	0.00	90	169.81 C	0.00	90
MIN	-3.29	17.53	105	-13.43	0.00	91			
	0.00	17.53	111	0.00	17.53	111	27.03 C	17.53	108
18 MAX	4.51	0.00	105	126.34	24.90	95			
	0.00	0.00	90	0.00	0.00	90	137.03 C	0.00	90
MIN	-7.72	24.90	95	-108.77	24.90	105			
	0.00	24.90	111	0.00	24.90	111	6.34 T	24.90	104

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

626. *4F1 MAX COLUMN 3 FORCES ABOVE

627. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 19 TO 23

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
19 MAX	-0.12	0.00	94	4.25	9.75	106			
	0.00	0.00	90	0.00	0.00	90	150.96 C	0.00	110
MIN	-0.69	9.75	103	-4.40	0.00	91			
	0.00	9.75	111	0.00	9.75	111	23.63 C	9.75	91
20 MAX	0.32	0.00	107	4.25	0.00	106			
	0.00	0.00	90	0.00	0.00	90	141.23 C	0.00	98
MIN	-0.16	5.98	95	-0.99	0.00	90			
	0.00	5.98	111	0.00	5.98	111	21.33 C	5.98	91
21 MAX	0.19	0.00	91	16.09	5.33	104			
	0.00	0.00	90	0.00	0.00	90	141.23 C	0.00	98
MIN	-2.40	5.33	104	-1.24	5.33	90			
	0.00	5.33	111	0.00	5.33	111	21.33 C	5.33	91
22 MAX	4.38	0.00	103	16.09	0.00	104			
	0.00	0.00	90	0.00	0.00	90	151.40 C	0.00	98
MIN	0.61	17.53	94	-66.13	17.53	103			
	0.00	17.53	111	0.00	17.53	111	22.86 C	17.53	91
23 MAX	9.80	0.00	94	153.70	25.78	103			
	0.00	0.00	90	0.00	0.00	90	125.12 C	0.00	98
MIN	-7.91	25.78	103	-154.47	25.78	94			
	0.00	25.78	111	0.00	25.78	111	4.39 T	25.78	91

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

628. *4F1 MAX COLUMN 2 FORCES ABOVE

629. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 24 TO 27

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
24 MAX	0.70	0.00	98	4.70	0.00	98			
	0.00	0.00	90	0.00	0.00	90	124.85 C	0.00	106
MIN	-0.15	15.73	91	-6.36	15.73	98			
	0.00	15.73	111	0.00	15.73	111	5.53 T	15.73	95
25 MAX	1.55	0.00	91	3.36	5.33	99			
	0.00	0.00	90	0.00	0.00	90	125.11 C	0.00	106
MIN	-1.67	5.33	99	-8.09	5.33	91			
	0.00	5.33	111	0.00	5.33	111	5.85 T	5.33	95
26 MAX	0.89	0.00	96	29.10	17.53	104			
	0.00	0.00	90	0.00	0.00	90	125.11 C	0.00	106
MIN	-1.74	17.53	104	-16.41	17.53	96			
	0.00	17.53	111	0.00	17.53	111	5.85 T	17.53	95
27 MAX	5.35	0.00	104	89.61	26.66	96			
	0.00	0.00	90	0.00	0.00	90	125.11 C	0.00	106
MIN	-3.99	26.66	96	-113.59	26.66	104			
	0.00	26.66	111	0.00	26.66	111	5.85 T	26.66	95

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

630. *4F1 MAX COLUMN 1 FORCES ABOVE

631. LOAD LIST 112 TO 133

632. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 1 TO 14

MEMBER FORCE ENVELOPE

 ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
1 MAX	0.00	0.00	112	129.80	5.93	115			
	0.00	0.00	112	0.00	0.00	112	0.00	0.00	112
	-30.67	5.93	127	0.00	5.93	132			
MIN	0.00	5.93	133	0.00	5.93	133	0.92 T	5.93	127
2 MAX	0.00	0.00	116	474.41	6.50	115			
	0.00	0.00	112	0.00	0.00	112	0.00	0.00	116
	-61.35	6.50	127	0.00	6.50	131			
MIN	0.00	6.50	133	0.00	6.50	133	1.85 T	6.50	127
3 MAX	81.59	0.00	112	442.99	0.00	114			
	0.00	0.00	112	0.00	0.00	112	9.39 C	0.00	117
	-6.35	5.86	126	-199.68	5.86	117			
MIN	0.00	5.86	133	0.00	5.86	133	4.15 T	5.86	127
4 MAX	64.15	0.00	114	294.96	0.00	127			
	0.00	0.00	112	0.00	0.00	112	9.39 C	0.00	117
	-8.82	5.86	123	-369.57	5.86	117			
MIN	0.00	5.86	133	0.00	5.86	133	4.15 T	5.86	127
5 MAX	36.53	0.00	114	226.57	0.00	125			
	0.00	0.00	112	0.00	0.00	112	8.47 C	0.00	117
	-36.39	5.86	117	-391.00	1.17	117			
MIN	0.00	5.86	133	0.00	5.86	133	4.15 T	5.86	127
6 MAX	12.45	0.00	115	177.70	0.00	125			
	0.00	0.00	112	0.00	0.00	112	6.63 C	0.00	117
	-67.06	5.86	117	-335.40	0.00	117			
MIN	0.00	5.86	133	0.00	5.86	133	4.15 T	5.86	127
7 MAX	12.08	0.00	127	355.56	5.84	122			
	0.00	0.00	112	0.00	0.00	112	5.70 C	0.00	117
	-67.06	5.84	117	-103.38	0.00	116			
MIN	0.00	5.84	133	0.00	5.84	133	4.14 T	5.84	127
8 MAX	75.72	0.00	120	341.85	0.00	123			
	0.00	0.00	112	0.00	0.00	112	7.36 C	0.00	126
	-7.97	5.84	118	-118.46	5.84	125			
MIN	0.00	5.84	133	0.00	5.84	133	4.22 T	5.84	118
9 MAX	67.11	0.00	126	150.05	5.86	116			
	0.00	0.00	112	0.00	0.00	112	7.37 C	0.00	126

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MIN	-8.02	5.86	131	-347.48	5.86	126			
	0.00	5.86	133	0.00	5.86	133	4.22	T	5.86 118
10 MAX	36.43	0.00	126	178.47	5.86	116			
	0.00	0.00	112	0.00	0.00	112	6.45	C	0.00 126
MIN	-32.55	5.27	130	-403.23	4.69	126			
	0.00	5.86	133	0.00	5.86	133	4.22	T	5.86 118
11 MAX	6.73	0.00	124	217.91	5.86	118			
	0.00	0.00	112	0.00	0.00	112	4.60	C	0.00 126
MIN	-60.16	5.86	130	-381.78	0.00	126			
	0.00	5.86	133	0.00	5.86	133	4.22	T	5.86 118
12 MAX	5.86	0.00	117	344.45	5.86	130			
	0.00	0.00	112	0.00	0.00	112	3.67	C	0.00 126
MIN	-69.75	5.86	128	-212.11	0.00	126			
	0.00	5.86	133	0.00	5.86	133	4.23	T	5.86 118
13 MAX	61.35	0.00	118	354.11	0.00	118			
	0.00	0.00	112	0.00	0.00	112	1.84	C	0.00 118
MIN	0.00	4.77	132	0.00	2.86	132			
	0.00	4.77	133	0.00	4.77	133	0.00		4.77 132
14 MAX	30.67	0.00	118	122.70	0.00	118			
	0.00	0.00	112	0.00	0.00	112	0.92	C	0.00 118
MIN	0.00	5.62	133	0.00	5.62	133			
	0.00	5.62	133	0.00	5.62	133	0.00		5.62 133

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

633. *5C1 MAX FLOOR BEAM FORCES ABOVE

634. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 15 TO 18

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
15 MAX	0.58	0.00	113	3.22	0.00	129			
	0.00	0.00	112	0.00	0.00	112	169.66 C	0.00	112
MIN	-0.27	15.73	119	-7.93	15.73	113			
	0.00	15.73	133	0.00	15.73	133	26.95 C	15.73	130
16 MAX	1.61	0.00	121	2.11	0.00	120			
	0.00	0.00	112	0.00	0.00	112	169.69 C	0.00	112
MIN	0.59	5.33	129	-13.43	5.33	113			
	0.00	5.33	133	0.00	5.33	133	27.03 C	5.33	130
17 MAX	-1.26	0.00	117	44.71	17.53	127			
	0.00	0.00	112	0.00	0.00	112	169.69 C	0.00	112
MIN	-3.29	17.53	127	-13.43	0.00	113			
	0.00	17.53	133	0.00	17.53	133	27.03 C	17.53	130
18 MAX	4.51	0.00	127	126.25	24.90	117			
	0.00	0.00	112	0.00	0.00	112	136.91 C	0.00	112
MIN	-7.72	24.90	117	-108.67	24.90	127			
	0.00	24.90	133	0.00	24.90	133	6.33 T	24.90	126

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

635. *5C1 MAX COLUMN 3 FORCES ABOVE

636. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 19 TO 23

MEMBER FORCE ENVELOPE

 ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
19 MAX	-0.12	0.00	116	4.25	9.75	128			
	0.00	0.00	112	0.00	0.00	112	150.86 C	0.00	132
MIN	-0.69	9.75	125	-4.40	0.00	113			
	0.00	9.75	133	0.00	9.75	133	23.63 C	9.75	113
20 MAX	0.32	0.00	129	4.25	0.00	128			
	0.00	0.00	112	0.00	0.00	112	141.13 C	0.00	120
MIN	-0.16	5.98	117	-0.99	0.00	112			
	0.00	5.98	133	0.00	5.98	133	21.33 C	5.98	113
21 MAX	0.19	0.00	113	16.08	5.33	126			
	0.00	0.00	112	0.00	0.00	112	141.13 C	0.00	120
MIN	-2.40	5.33	126	-1.24	5.33	112			
	0.00	5.33	133	0.00	5.33	133	21.33 C	5.33	113
22 MAX	4.38	0.00	125	16.08	0.00	126			
	0.00	0.00	112	0.00	0.00	112	151.29 C	0.00	120
MIN	0.61	17.53	116	-66.11	17.53	125			
	0.00	17.53	133	0.00	17.53	133	22.87 C	17.53	113
23 MAX	9.79	0.00	116	153.57	25.78	125			
	0.00	0.00	112	0.00	0.00	112	125.01 C	0.00	120
MIN	-7.90	25.78	125	-154.34	25.78	116			
	0.00	25.78	133	0.00	25.78	133	4.39 T	25.78	113

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

- 637. *5C1 MAX COLUMN 2 FORCES ABOVE
- 638. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 24 TO 27

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
24 MAX	0.70	0.00	120	4.70	0.00	120			
	0.00	0.00	112	0.00	0.00	112	124.75 C	0.00	128
MIN	-0.15	15.73	113	-6.36	15.73	120			
	0.00	15.73	133	0.00	15.73	133	5.52 T	15.73	117
25 MAX	1.55	0.00	113	3.35	5.33	121			
	0.00	0.00	112	0.00	0.00	112	125.01 C	0.00	128
MIN	-1.67	5.33	121	-8.09	5.33	113			
	0.00	5.33	133	0.00	5.33	133	5.85 T	5.33	117
26 MAX	0.89	0.00	118	29.08	17.53	126			
	0.00	0.00	112	0.00	0.00	112	125.01 C	0.00	128
MIN	-1.74	17.53	126	-16.39	17.53	118			
	0.00	17.53	133	0.00	17.53	133	5.85 T	17.53	117
27 MAX	5.35	0.00	126	89.53	26.66	118			
	0.00	0.00	112	0.00	0.00	112	125.01 C	0.00	128
MIN	-3.98	26.66	118	-113.49	26.66	126			
	0.00	26.66	133	0.00	26.66	133	5.85 T	26.66	117

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

639. *5C1 MAX COLUMN 1 FORCES ABOVE

640. LOAD LIST 134 TO 191

641. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 1 TO 14

MEMBER FORCE ENVELOPE

 ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
1 MAX	0.00	0.00	134	82.02	5.93	134			
	0.00	0.00	134	0.00	0.00	134	0.00	0.00	134
	MIN	-25.39	5.93	137	0.00	5.93	191		
	0.00	5.93	191	0.00	5.93	191	0.76 T	5.93	137
2 MAX	0.00	0.00	138	341.83	6.50	134			
	0.00	0.00	134	0.00	0.00	134	0.00	0.00	138
	MIN	-50.78	6.50	137	0.00	6.50	191		
	0.00	6.50	191	0.00	6.50	191	1.53 T	6.50	137
3 MAX	44.19	0.00	144	262.05	0.00	134			
	0.00	0.00	134	0.00	0.00	134	3.73 C	0.00	152
	MIN	-4.77	5.27	143	-141.44	5.86	150		
	0.00	5.86	191	0.00	5.86	191	3.70 T	5.86	134
4 MAX	32.79	0.00	150	196.77	0.00	134			
	0.00	0.00	134	0.00	0.00	134	3.73 C	0.00	152
	MIN	-16.10	5.86	149	-204.97	5.86	155		
	0.00	5.86	191	0.00	5.86	191	3.70 T	5.86	134
5 MAX	21.51	0.00	156	131.49	0.00	134			
	0.00	0.00	134	0.00	0.00	134	3.57 C	0.00	156
	MIN	-27.47	5.86	155	-207.60	0.59	156		
	0.00	5.86	191	0.00	5.86	191	3.70 T	5.86	134
6 MAX	11.42	0.00	162	67.69	5.86	170			
	0.00	0.00	134	0.00	0.00	134	2.80 C	0.00	156
	MIN	-37.83	5.86	161	-187.18	0.00	156		
	0.00	5.86	191	0.00	5.86	191	3.70 T	5.86	134
7 MAX	11.14	0.00	134	139.91	5.84	157			
	0.00	0.00	134	0.00	0.00	134	2.20 C	0.00	152
	MIN	-39.36	5.84	162	-94.69	0.00	161		
	0.00	5.84	191	0.00	5.84	191	3.70 T	5.84	134
8 MAX	42.21	0.00	163	138.42	0.00	170			
	0.00	0.00	134	0.00	0.00	134	3.35 C	0.00	171
	MIN	-7.56	5.84	191	-95.57	5.84	166		
	0.00	5.84	191	0.00	5.84	191	2.88 T	5.84	191
9 MAX	37.76	0.00	166	65.38	0.00	157			
	0.00	0.00	134	0.00	0.00	134	3.35 C	0.00	171

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MIN	-11.50	5.86	165	-188.74	5.86	171			
	0.00	5.86	191	0.00	5.86	191	2.88	T	5.86 191
10 MAX	27.40	0.00	172	94.67	5.86	191			
	0.00	0.00	134	0.00	0.00	134	3.33	C	0.00 172
MIN	-21.58	5.86	171	-208.83	5.27	171			
	0.00	5.86	191	0.00	5.86	191	2.88	T	5.86 191
11 MAX	16.05	0.00	178	138.93	5.86	191			
	0.00	0.00	134	0.00	0.00	134	2.63	C	0.00 178
MIN	-32.84	5.86	177	-206.81	0.59	172			
	0.00	5.86	191	0.00	5.86	191	2.88	T	5.86 191
12 MAX	4.78	0.00	184	183.19	5.86	191			
	0.00	0.00	134	0.00	0.00	134	1.86	C	0.00 178
MIN	-44.19	5.86	183	-143.10	0.00	177			
	0.00	5.86	191	0.00	5.86	191	2.88	T	5.86 191
13 MAX	50.78	0.00	190	242.31	0.00	191			
	0.00	0.00	134	0.00	0.00	134	1.52	C	0.00 190
MIN	0.00	4.30	187	0.00	0.95	184			
	0.00	4.77	191	0.00	4.77	191	0.00		4.77 187
14 MAX	25.39	0.00	188	76.18	0.00	191			
	0.00	0.00	134	0.00	0.00	134	0.76	C	0.00 188
MIN	0.00	5.06	191	0.00	5.62	191			
	0.00	5.62	191	0.00	5.62	191	0.00		5.62 191

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

642. *FATIGUE FLOOR BEAM FORCES ABOVE

643. FINISH

***** END OF THE STAAD.Pro RUN *****

**** DATE= APR 12,2012 TIME= 15: 0:49 ****

* For questions on STAAD.Pro, please contact *
* Bentley Systems Offices at the following locations *
* *
* Telephone Web / Email *
* *
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* *

EAST APPROACH FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/30/2012
Date 4/13/2012

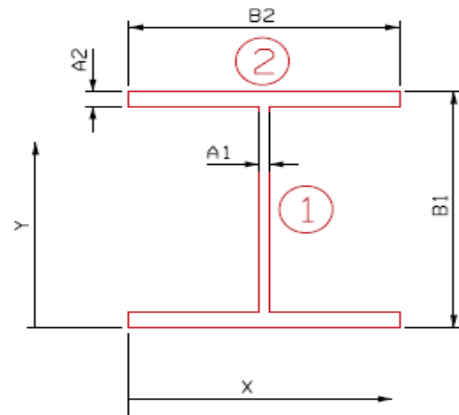
Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Red text indicates user input

Element Dimensions (without Section Losses):

$A_1 = t_w = 0.7250$ in
 $A_2 = t_f = 1.1800$ in
 $B_1 = d = 36.3200$ in
 $B_2 = b_f = 12.0720$ in
36WFB182



FB-2 @ COLUMN 302
EAST APPR. FWD SECTION

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I _o	d	Ad ²	I _{x,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		24.6210	18.1600	447.1174	2366.2455	0.0000	0.0000	2366.2455
2	Top Flange		14.2450	35.7300	508.9724	1.6529	17.5700	4397.4890	4399.1418
	Bottom Flange		14.2450	0.5900	8.4045	1.6529	17.5700	4397.4890	4399.1418
Total			53.11		964.49	2369.55		8794.98	11164.53
Section Losses			A	y	Ay	I _o	d	Ad ²	I _{x,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.1250	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	18.1600	in	S _{top} = 614.79 in ³	y-bar =	18.1600	in	S _{top} = 614.79 in ³
I _x =	11164.53	in ⁴	S _{bottom} = 614.79 in ³	I _x =	11164.53	in ⁴	S _{bottom} = 614.79 in ³
C _{top} =	18.1600	in	A = 53.1109 in ²	C _{top} =	18.1600	in	A = 53.1109 in ²
C _{bottom} =	18.1600	in	r _x = 14.4987 in	C _{bottom} =	18.1600	in	r _x = 14.4987 in
			Z = 709.60 in ³				Z = warning in ³

EAST APPROACH FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/30/2012
Date 4/13/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Floorbeam Capacities

Non-composite Capacities*		
	AB	AI
M	1690.66 k-ft	1690.66 k-ft
V	471.25 k	471.25 k

*Noncompact Section

$F_y =$	33.00 ksi
---------	------------------

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

As-Built Moments and Shears						
	DL	HS20	2F1	3F1	4F1	5C1
M	535.50 k-ft	588.99 k-ft	278.15 k-ft	414.81 k-ft	471.81 k-ft	474.41 k-ft
V	58.23 k	76.17 k	35.97 k	53.64 k	61.40 k	61.35 k

As-Built Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	0.78	---	---	---	---
Operating M	1.30	2.75	1.84	1.62	1.61
As-Inspected Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	0.78	---	---	---	---
Operating M	1.30	2.75	1.84	1.62	1.61
As-Built Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	2.39	---	---	---	---
Operating V	3.99	8.46	5.67	4.96	4.96
As-Inspected Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	2.39	---	---	---	---
Operating V	3.99	8.46	5.67	4.96	4.96

Controlling Rating Factors and Tonnage						
	HS20 Inventory	HS20 Operating	2F1 Operating	3F1 Operating	4F1 Operating	5C1 Operating
Rating Factor	0.78	1.30	2.75	1.84	1.62	1.61
Tonnage (US Tons)	28.08	46.8	41.25	42.32	43.74	64.4

EAST APPROACH FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/30/2012
Date 4/13/2012

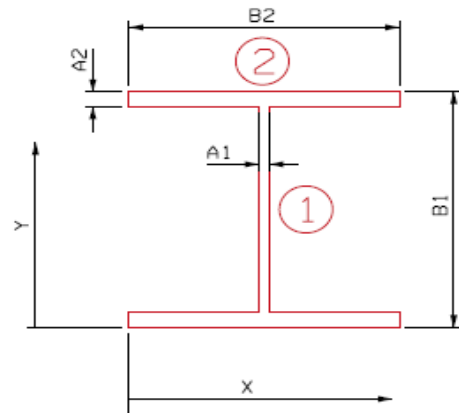
Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Red text indicates user input

Element Dimensions (without Section Losses):

$A_1 = t_w = 0.7250$ in
 $A_2 = t_f = 1.1800$ in
 $B_1 = d = 36.3200$ in
 $B_2 = b_f = 12.0720$ in
36WFB182



FB-2 @ COLUMN 202
EAST APPR. FWD SECTION

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I _o	d	Ad ²	I _{x,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		24.6210	18.1600	447.1174	2366.2455	0.0000	0.0000	2366.2455
2	Top Flange		14.2450	35.7300	508.9724	1.6529	17.5700	4397.4890	4399.1418
	Bottom Flange		14.2450	0.5900	8.4045	1.6529	17.5700	4397.4890	4399.1418
Total			53.11		964.49	2369.55		8794.98	11164.53
Section Losses			A	y	Ay	I _o	d	Ad ²	I _{x,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	18.1600	in	S _{top} = 614.79 in ³	y-bar =	18.1600	in	S _{top} = 614.79 in ³
I _x =	11164.53	in ⁴	S _{bottom} = 614.79 in ³	I _x =	11164.53	in ⁴	S _{bottom} = 614.79 in ³
C _{top} =	18.1600	in	A = 53.1109 in ²	C _{top} =	18.1600	in	A = 53.1109 in ²
C _{bottom} =	18.1600	in	r _x = 14.4987 in	C _{bottom} =	18.1600	in	r _x = 14.4987 in
			Z = 709.60 in ³				Z = 709.60 in ³

EAST APPROACH FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/30/2012
Date 4/13/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Floorbeam Capacities

Non-composite Capacities*		
	AB	AI
M	1690.66 k-ft	1690.66 k-ft
V	471.25 k	471.25 k

*Noncompact Section

$F_y =$	33.00 ksi
---------	------------------

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

As-Built Moments and Shears						
	DL	HS20	2F1	3F1	4F1	5C1
M	302.18 k-ft	441.46 k-ft	201.90 k-ft	305.56 k-ft	351.07 k-ft	350.76 k-ft
V	56.33 k	83.35 k	44.72 k	66.87 k	76.60 k	76.53 k

As-Built Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.35	---	---	---	---
Operating M	2.26	4.94	3.27	2.84	2.85
As-Inspected Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.35	---	---	---	---
Operating M	2.26	4.94	3.27	2.84	2.85
As-Built Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	2.2	---	---	---	---
Operating V	3.67	6.85	4.58	4	4
As-Inspected Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	2.2	---	---	---	---
Operating V	3.67	6.85	4.58	4	4

Controlling Rating Factors and Tonnage						
	HS20 Inventory	HS20 Operating	2F1 Operating	3F1 Operating	4F1 Operating	5C1 Operating
Rating Factor	1.35	2.26	4.94	3.27	2.84	2.85
Tonnage (US Tons)	48.6	81.36	74.1	75.21	76.68	114

EAST APPROACH FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/20/2012
Date 4/13/2012

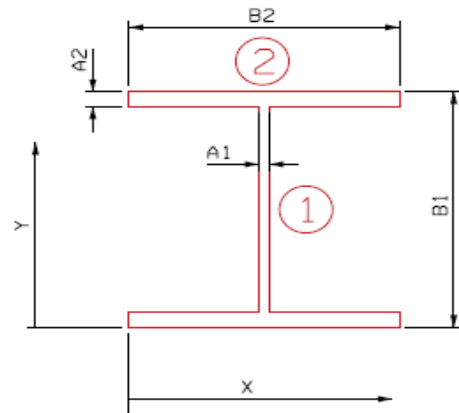
Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Red text indicates user input

Element Dimensions (without Section Losses):

$A_1 = t_w = 0.7250$ in
 $A_2 = t_f = 1.1800$ in
 $B_1 = d = 36.3200$ in
 $B_2 = b_f = 12.0720$ in
36WFB182



FB-2 @ COLUMN 102
EAST APPR. FWD SECTION

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I _o	d	Ad ²	I _{x,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		24.6210	18.1600	447.1174	2366.2455	0.0000	0.0000	2366.2455
2	Top Flange		14.2450	35.7300	508.9724	1.6529	17.5700	4397.4890	4399.1418
	Bottom Flange		14.2450	0.5900	8.4045	1.6529	17.5700	4397.4890	4399.1418
Total			53.11		964.49	2369.55		8794.98	11164.53
Section Losses			A	y	Ay	I _o	d	Ad ²	I _{x,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.1250	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar = 18.1600 in	S _{top} = 614.79 in ³			y-bar = 18.1600 in	S _{top} = 614.79 in ³		
I _x = 11164.53 in ⁴	S _{bottom} = 614.79 in ³			I _x = 11164.53 in ⁴	S _{bottom} = 614.79 in ³		
C _{top} = 18.1600 in	A = 53.1109 in ²			C _{top} = 18.1600 in	A = 53.1109 in ²		
C _{bottom} = 18.1600 in	r _x = 14.4987 in			C _{bottom} = 18.1600 in	r _x = 14.4987 in		
	Z = 709.60 in ³				Z = warning in ³		

EAST APPROACH FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/20/2012
Date 4/13/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Floorbeam Capacities

Non-composite Capacities*		
	AB	AI
M	1690.66 k-ft	1690.66 k-ft
V	471.25 k	471.25 k

*Noncompact Section

$F_y =$	33.00 ksi
---------	------------------

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

As-Built Moments and Shears						
	DL	HS20	2F1	3F1	4F1	5C1
M	391.58 k-ft	441.46 k-ft	207.61 k-ft	309.62 k-ft	354.41 k-ft	354.11 k-ft
V	52.59 k	83.35 k	35.97 k	53.64 k	61.40 k	61.35 k

As-Built Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.23	---	---	---	---
Operating M	2.06	4.38	2.94	2.56	2.57
As-Inspected Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.23	---	---	---	---
Operating M	2.06	4.38	2.94	2.56	2.57
As-Built Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	2.23	---	---	---	---
Operating V	3.72	8.62	5.78	5.05	5.05
As-Inspected Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	2.23	---	---	---	---
Operating V	3.72	8.62	5.78	5.05	5.05

Controlling Rating Factors and Tonnage						
	HS20 Inventory	HS20 Operating	2F1 Operating	3F1 Operating	4F1 Operating	5C1 Operating
Rating Factor	1.23	2.06	4.38	2.94	2.56	2.57
Tonnage (US Tons)	44.28	74.16	65.7	67.62	69.12	102.8

EAST APPROACH FORWARD SECTION



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Date 3/20/2012
Date 4/13/2012

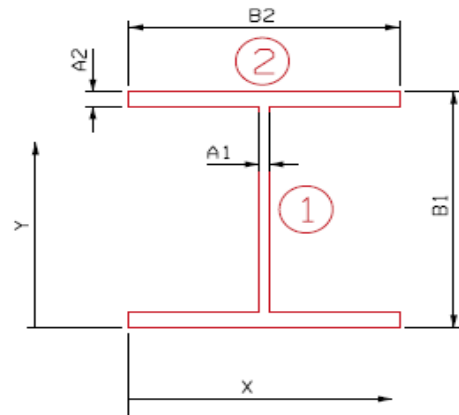
Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Red text indicates user input

Element Dimensions (without Section Losses):

$A_1 = t_w = 0.7250$ in
 $A_2 = t_f = 1.1800$ in
 $B_1 = d = 36.3200$ in
 $B_2 = b_f = 12.0720$ in
36WFB182



FB-2 Between 202 & 302
EAST APPR. FWD SECTION

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I _o	d	Ad ²	I _{x,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		24.6210	18.1600	447.1174	2366.2455	0.0000	0.0000	2366.2455
2	Top Flange		14.2450	35.7300	508.9724	1.6529	17.5700	4397.4890	4399.1418
	Bottom Flange		14.2450	0.5900	8.4045	1.6529	17.5700	4397.4890	4399.1418
Total			53.11		964.49	2369.55		8794.98	11164.53
Section Losses			A	y	Ay	I _o	d	Ad ²	I _{x,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	18.1600	in	S _{top} = 614.79 in ³	y-bar =	18.1600	in	S _{top} = 614.79 in ³
I _x =	11164.53	in ⁴	S _{bottom} = 614.79 in ³	I _x =	11164.53	in ⁴	S _{bottom} = 614.79 in ³
C _{top} =	18.1600	in	A = 53.1109 in ²	C _{top} =	18.1600	in	A = 53.1109 in ²
C _{bottom} =	18.1600	in	r _x = 14.4987 in	C _{bottom} =	18.1600	in	r _x = 14.4987 in
			Z = 709.60 in ³				Z = 709.60 in ³

EAST APPROACH FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/20/2012
Date 4/13/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Floorbeam Capacities

Non-composite Capacities*		
	AB	AI
M	1951.40 k-ft	1951.40 k-ft
V	471.25 k	471.25 k

*Compact Section

$F_y =$	33.00 ksi
---------	------------------

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

As-Built Moments and Shears						
	DL	HS20	2F1	3F1	4F1	5C1
M	124.78 k-ft	486.94 k-ft	224.77 k-ft	338.07 k-ft	387.82 k-ft	387.49 k-ft
V	7.89 k	45.26 k	20.77 k	31.14 k	35.69 k	35.66 k

As-Built Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.69	---	---	---	---
Operating M	2.83	6.12	4.07	3.55	3.55
As-Inspected Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.69	---	---	---	---
Operating M	2.83	6.12	4.07	3.55	3.55
As-Built Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	4.69	---	---	---	---
Operating V	7.83	17.07	11.39	9.94	9.94
As-Inspected Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	4.69	---	---	---	---
Operating V	7.83	17.07	11.39	9.94	9.94

Controlling Rating Factors and Tonnage						
	HS20 Inventory	HS20 Operating	2F1 Operating	3F1 Operating	4F1 Operating	5C1 Operating
Rating Factor	1.69	2.83	6.12	4.07	3.55	3.55
Tonnage (US Tons)	60.84	101.88	91.8	93.61	95.85	142

EAST APPROACH FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/30/2012
Date 4/13/2012

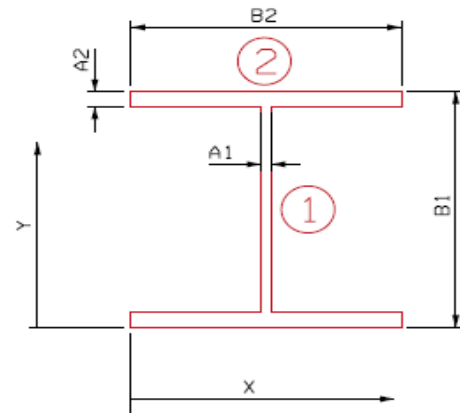
Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Red text indicates user input

Element Dimensions (without Section Losses):

$A_1 = t_w = 0.7250$ in
 $A_2 = t_f = 1.1800$ in
 $B_1 = d = 36.3200$ in
 $B_2 = b_f = 12.0720$ in
36WFB182



FB-2 @ Between 102 & 202
EAST APPR. FWD SECTION

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I _o	d	Ad ²	I _{x,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		24.6210	18.1600	447.1174	2366.2455	0.0000	0.0000	2366.2455
2	Top Flange		14.2450	35.7300	508.9724	1.6529	17.5700	4397.4890	4399.1418
	Bottom Flange		14.2450	0.5900	8.4045	1.6529	17.5700	4397.4890	4399.1418
Total			53.11		964.49	2369.55		8794.98	11164.53
Section Losses			A	y	Ay	I _o	d	Ad ²	I _{x,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	18.1600	in	S _{top} = 614.79 in ³	y-bar =	18.1600	in	S _{top} = 614.79 in ³
I _x =	11164.53	in ⁴	S _{bottom} = 614.79 in ³	I _x =	11164.53	in ⁴	S _{bottom} = 614.79 in ³
C _{top} =	18.1600	in	A = 53.1109 in ²	C _{top} =	18.1600	in	A = 53.1109 in ²
C _{bottom} =	18.1600	in	r _x = 14.4987 in	C _{bottom} =	18.1600	in	r _x = 14.4987 in
			Z = 709.60 in ³				Z = 709.60 in ³

EAST APPROACH FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/30/2012
Date 4/13/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Floorbeam Capacities

Non-composite Capacities*		
	AB	AI
M	1951.40 k-ft	1951.40 k-ft
V	471.25 k	471.25 k

*Compact Section

$F_y =$	33.00 ksi
---------	------------------

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

As-Built Moments and Shears						
	DL	HS20	2F1	3F1	4F1	5C1
M	179.69 k-ft	499.87 k-ft	225.38 k-ft	334.73 k-ft	382.76 k-ft	382.44 k
V	26.14 k	40.34 k	35.27 k	52.42 k	59.96 k	59.91 k

As-Built Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.58	---	---	---	---
Operating M	2.64	5.86	3.95	3.45	3.46
As-Inspected Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.58	---	---	---	---
Operating M	2.64	5.86	3.95	3.45	3.46
As-Built Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	5	---	---	---	---
Operating V	8.34	9.54	6.42	5.61	5.61
As-Inspected Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	5	---	---	---	---
Operating V	8.34	9.54	6.42	5.61	5.61

Controlling Rating Factors and Tonnage						
	HS20 Inventory	HS20 Operating	2F1 Operating	3F1 Operating	4F1 Operating	5C1 Operating
Rating Factor	1.58	2.64	5.86	3.95	3.45	3.46
Tonnage (US Tons)	56.88	95.04	87.9	90.85	93.15	138.4



Calculated: FKL Date: 3/29/2012

Checked: MTN Date: 4/12/2012

CUY-2-1441 Load Rating Analysis - As-Built

Main Ave Bridge

East Approach Fwd Section - Bent 2

Column:	C302
---------	------

Section Properties 21WF132

A =	38.810	in ²	I _x =	3141.600	in ⁴
h =	21.310	in	S _x =	294.800	in ³
b _f =	13.087	in	r _x =	9.000	in
t _f =	1.020	in	I _y =	353.800	in ⁴
t _w =	0.614	in	S _y =	54.100	in ³
			r _y =	3.020	in
F _y =	33.0	ksi	Z _x =	327.8	in ³
E =	29000	ksi			
L _{cx} =	298.79	in			
L _{cy} =	298.79	in			
K _x =	0.650	AASHTO Appendix C			
K _y =	0.650	AASHTO Appendix C			

Axial Loading

$$P_u = 0.85 A_s F_{cr}$$

AASHTO 10.54 Concentrically Loaded Columns

$$F_{cr} = F_y \left(1 - \frac{F_y}{4\pi^2 E} \left(\frac{KL_c}{r} \right)^2 \right)$$

$$\text{For: } \frac{KL_c}{r} \leq \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$F_{cr} = \frac{\pi^2 E}{\left(\frac{KL_c}{r} \right)^2}$$

$$\text{For: } \frac{KL_c}{r} > \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$KL/r_y = 64.309 < 131.706$$

$$KL/r_x = 21.579 < 131.706$$

$$F_{CR} = 29.066 \text{ ksi}$$

$P_u =$	958.9	k
---------	-------	---



Calculated: FKL Date: 3/29/2012
 Checked: MTN Date: 4/12/2012

CUY-2-1441 Load Rating Analysis - As-Built
Main Ave Bridge
East Approach Fwd Section - Bent 2

Column: C302

Axial Loading and Bending

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_e}\right)} \leq 1.0$$

AASHTO 10.54.2 Combined Axial Load and Bending

=0.6+0.4

a = 0 **When moment is small assume a = 0
 C = 0.600

$$F_e = \frac{E\pi^2}{\left(\frac{KL_c}{r}\right)^2}$$

F_{ex} = 614.653 ksi
 F_{ey} = 69.208 ksi

Column Compactness Check

M_u=F_yZ For Compact Section
 M_u=F_yS For Non-Compact Section

$\frac{b}{i} \leq \frac{4110}{\sqrt{F_y}}$	12.830	<	22.625
$\frac{D}{t_w} \leq \frac{19230}{\sqrt{F_y}}$	31.384	<	105.858
$\frac{L}{r_y} \leq \frac{\left(3.6 - 2.2 \frac{M_1}{M_u}\right) \times 10^6}{F_y}$	98.936	<	109.091

Column Moment Capacity

Compact Section

M_{uy} = 901.5 k-ft

CUY-2-1441 Load Rating Analysis - As-Built

Main Ave Bridge

East Approach Forward Section - Column 302 Ratings



Calculated:

FKL 3/29/2012

Checked:

MTN 4/12/2012

Column Loading

	DL	HS-20	2F1	3F1	4F1	5C1
Max Axial	256.18	202.69	113.29	152.54	169.81	169.69
Moment	0.01	11.91	4.53	5.33	11.26	11.25
Axial	249.33	69.29	32.94	48.92	55.94	55.89
Max Mom.	79.35	154.13	78.43	111.73	126.34	126.25

DL Factor

1.30

LL Factor

2.17 INV
1.30 OPER

Factored Loads

Axial Force

Moment

Capacities

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_c}\right)} \leq 1.0$$

Load Case	Member	Axial Force		Moment		P _u kips	M _u k-ft	A _s F _{ex} kips	Condition Equation	RF
		Dead Load	Max. LL + I	Dead Load	Max LL + I					
HS20 INV	C302	333.0288	439.16	0.01	25.80	958.90	901.50	23854.67	1.00	1.37
HS20 INV	C302	324.1277	150.14	103.15	333.95	958.90	901.50	23854.67	1.00	1.54
HS20 OPR	C302	333.0288	263.50	0.01	15.48	958.90	901.50	23854.67	1.00	2.29
HS20 OPR	C302	324.1277	90.08	103.15	200.37	958.90	901.50	23854.67	1.00	2.57
2F1	C302	333.0288	147.27	0.01	5.89	958.90	901.50	23854.67	1.00	4.14
2F1	C302	324.1277	42.82	103.15	101.96	958.90	901.50	23854.67	1.00	5.19
3F1	C302	333.0288	198.30	0.01	6.93	958.90	901.50	23854.67	1.00	3.08
3F1	C302	324.1277	63.60	103.15	145.25	958.90	901.50	23854.67	1.00	3.58
4F1	C302	333.0288	220.75	0.01	14.63	958.90	901.50	23854.67	1.00	2.72
4F1	C302	324.1277	72.72	103.15	164.25	958.90	901.50	23854.67	1.00	3.15
5C1	C302	333.0288	220.60	0.01	14.63	958.90	901.50	23854.67	1.00	2.72
5C1	C302	324.1277	72.66	103.15	164.12	958.90	901.50	23854.67	1.00	3.16

Load Case	Controlling RF
HS20 INV	1.37
HS20 OPR	2.29
2F1	4.14
3F1	3.08
4F1	2.72
5C1	2.72



Calculated: FKL Date: 3/29/2012
 Checked: MTN Date: 4/12/2012

CUY-2-1441 Load Rating Analysis - As-Built
Main Ave Bridge
East Approach Fwd Section - Bent 2

Column: C202

Section Properties 24WF140

A =	41.160	in ²	I _x =	4376.100	in ⁴
h =	24.410	in	S _x =	358.600	in ³
b _f =	14.029	in	r _x =	10.310	in
t _f =	0.980	in	I _y =	414.500	in ⁴
t _w =	0.594	in	S _y =	59.100	in ³
			r _y =	3.170	in
F _y =	33.0	ksi	Z _x =	397	in ³
E =	29000	ksi			
L _{cx} =	309.59	in			
L _{cy} =	309.59	in			
K _x =	0.650	AASHTO Appendix C			
K _y =	0.650	AASHTO Appendix C			

Axial Loading

$$P_u = 0.85 A_s F_{cr}$$

AASHTO 10.54 Concentrically Loaded Columns

$$F_{cr} = F_y \left(1 - \frac{F_y}{4\pi^2 E} \left(\frac{KL_c}{r} \right)^2 \right)$$

$$\text{For: } \frac{KL_c}{r} \leq \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$F_{cr} = \frac{\pi^2 E}{\left(\frac{KL_c}{r} \right)^2}$$

$$\text{For: } \frac{KL_c}{r} > \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$KL/r_y = 63.480 < 131.706$$

$$KL/r_x = 19.518 < 131.706$$

$$F_{CR} = 29.167 \text{ ksi}$$

$$P_u = 1020.4 \text{ k}$$



Calculated: FKL Date: 3/29/2012

Checked: MTN Date: 4/12/2012

CUY-2-1441 Load Rating Analysis - As-Built**Main Ave Bridge****East Approach Fwd Section - Bent 2****Column: C202**Axial Loading and Bending

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_e}\right)} \leq 1.0$$

AASHTO 10.54.2 Combined Axial Load and Bending

$$= 0.6 + 0.4$$

$$a = 0 \quad \text{**When moment is small assume } a = 0$$

$$C = 0.600$$

$$F_e = \frac{E\pi^2}{\left(\frac{KL_c}{r}\right)^2}$$

$$F_{ex} = 751.312 \text{ ksi}$$

$$F_{ey} = 71.027 \text{ ksi}$$

Column Compactness Check $M_u = F_y Z$ For Compact Section $M_u = F_y S$ For Non-Compact Section

$$\frac{b}{i} \leq \frac{4110}{\sqrt{F_y}}$$

$$14.315 < 22.625$$

$$\frac{D}{t_w} \leq \frac{19230}{\sqrt{F_y}}$$

$$37.795 < 105.858$$

$$\frac{L}{r_y} \leq \frac{\left(3.6 - 2.2 \frac{M_1}{M_u}\right) \times 10^6}{F_y}$$

$$97.662 < 109.091$$

Column Moment Capacity

Compact Section

$$M_{uy} = 1091.8 \text{ k-ft}$$

CUY-2-1441 Load Rating Analysis - As-Built

Main Ave Bridge

East Approach Forward Section - Column 202 Ratings



Calculated:

FKL 3/29/2012

Checked:

MTN 4/12/2012

Column Loading

	DL	HS-20	2F1	3F1	4F1	5C1
Max Axial	220.93	181.42	99.71	135.63	151.40	151.30
Moment	5.88	41.96	39.22	40.41	40.94	40.94
Axial	209.09	65.05	31.97	48.02	55.07	55.02
Max Mom.	93.90	192.72	93.97	136.01	154.47	154.34

DL Factor

1.30

LL Factor

2.17 INV
1.30 OPER

Factored Loads

Axial Force

Moment

Capacities

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_e}\right)} \leq 1.0$$

Load Case	Member	Axial Force		Moment		P _u kips	M _u k-ft	A _s F _e kips	Condition Equation	RF
		Dead Load	Max. LL + I	Dead Load	Max LL + I					
HS20 INV	C202	287.2051	393.07	7.64	90.91	1020.40	1091.80	30923.99	1.00	1.64
HS20 INV	C202	271.8131	140.94	122.07	417.56	1020.40	1091.80	30923.99	1.00	1.79
HS20 OPR	C202	287.2051	235.84	7.64	54.55	1020.40	1091.80	30923.99	1.00	2.73
HS20 OPR	C202	271.8131	84.57	122.07	250.54	1020.40	1091.80	30923.99	1.00	2.99
2F1	C202	287.2051	129.62	7.64	50.99	1020.40	1091.80	30923.99	1.00	4.58
2F1	C202	271.8131	41.56	122.07	122.16	1020.40	1091.80	30923.99	1.00	6.11
3F1	C202	287.2051	176.32	7.64	52.54	1020.40	1091.80	30923.99	1.00	3.53
3F1	C202	271.8131	62.43	122.07	176.81	1020.40	1091.80	30923.99	1.00	4.16
4F1	C202	287.2051	196.82	7.64	53.23	1020.40	1091.80	30923.99	1.00	3.20
4F1	C202	271.8131	71.59	122.07	200.81	1020.40	1091.80	30923.99	1.00	3.65
5C1	C202	287.2051	196.68	7.64	53.22	1020.40	1091.80	30923.99	1.00	3.21
5C1	C202	271.8131	71.53	122.07	200.64	1020.40	1091.80	30923.99	1.00	3.65

Load Case	Controlling RF
HS20 INV	1.64
HS20 OPER	2.73
2F1	4.58
3F1	3.53
4F1	3.20
5C1	3.21



Calculated: FKL Date: 3/29/2012
 Checked: MTN Date: 4/12/2012

CUY-2-1441 Load Rating Analysis - As-Built
Main Ave Bridge
East Approach Fwd Section - Bent 2

Column: C102

Section Properties 21WF132

A =	38.810	in ²	I _x =	3141.600	in ⁴
h =	21.310	in	S _x =	294.800	in ³
b _f =	13.087	in	r _x =	9.000	in
t _f =	1.020	in	I _y =	353.800	in ⁴
t _w =	0.614	in	S _y =	54.100	in ³
			r _y =	3.020	in
F _y =	33.0	ksi	Z _x =	327.8	in ³
E =	29000	ksi			
L _{cx} =	319.91	in			
L _{cy} =	319.91	in			
K _x =	0.650	AASHTO Appendix C			
K _y =	0.650	AASHTO Appendix C			

Axial Loading

$$P_u = 0.85 A_s F_{cr}$$

AASHTO 10.54 Concentrically Loaded Columns

$$F_{cr} = F_y \left(1 - \frac{F_y}{4\pi^2 E} \left(\frac{KL_c}{r} \right)^2 \right)$$

$$\text{For: } \frac{KL_c}{r} \leq \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$F_{cr} = \frac{\pi^2 E}{\left(\frac{KL_c}{r} \right)^2}$$

$$\text{For: } \frac{KL_c}{r} > \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$KL/r_y = 68.854 < 131.706$$

$$KL/r_x = 23.104 < 131.706$$

$$F_{CR} = 28.490 \text{ ksi}$$

$$P_u = 939.9 \text{ k}$$



Calculated: FKL Date: 3/29/2012

Checked: MTN Date: 4/12/2012

CUY-2-1441 Load Rating Analysis - As-Built**Main Ave Bridge****East Approach Fwd Section - Bent 2****Column: C102**Axial Loading and Bending

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_e}\right)} \leq 1.0$$

AASHTO 10.54.2 Combined Axial Load and Bending

$$= 0.6 + 0.4$$

$$a = 0 \quad \text{**When moment is small assume } a = 0$$

$$C = 0.600$$

$$F_e = \frac{E\pi^2}{\left(\frac{KL_c}{r}\right)^2}$$

$$F_{ex} = 536.174 \text{ ksi}$$

$$F_{ey} = 60.372 \text{ ksi}$$

Column Compactness Check $M_u = F_y Z$ For Compact Section $M_u = F_y S$ For Non-Compact Section

$$\frac{b}{i} \leq \frac{4110}{\sqrt{F_y}}$$

$$12.830 < 22.625$$

$$\frac{D}{t_w} \leq \frac{19230}{\sqrt{F_y}}$$

$$31.384 < 105.858$$

$$\frac{L}{r_y} \leq \frac{\left(3.6 - 2.2 \frac{M_1}{M_u}\right) \times 10^6}{F_y}$$

$$105.930 < 109.091$$

Column Moment Capacity

Compact Section

$$M_{uy} = 901.5 \text{ k-ft}$$

CUY-2-1441 Load Rating Analysis - As-Built

Main Ave Bridge

East Approach Forward Section - Column 102 Ratings



Calculated:

FKL 3/29/2012

Checked:

MTN 4/12/2012

Column Loading

	DL	HS-20	2F1	3F1	4F1	5C1
Max Axial	150.82	155.13	73.42	109.34	125.11	125.01
Moment	3.20	2.84	2.24	2.51	2.62	2.62
Axial	139.95	68.77	32.64	48.52	55.50	55.45
Max Mom.	19.06	140.72	66.81	99.33	113.59	113.49

DL Factor

1.30

LL Factor

2.17 INV
1.30 OPER

Factored Loads

Axial Force

Moment

Capacities

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_e}\right)} \leq 1.0$$

Load Case	Member	Axial Force		Moment		P _u kips	M _u k-ft	A _s F _e kips	Condition Equation	RF
		Dead Load	Max. LL + I	Dead Load	Max LL + I					
HS20 INV	C102	196.0595	336.12	4.17	6.15	939.90	901.50	20808.92	1.00	2.18
HS20 INV	C102	181.9298	149.00	24.77	304.89	939.90	901.50	20808.92	1.00	2.16
HS20 OPR	C102	196.0595	201.67	4.17	3.69	939.90	901.50	20808.92	1.00	3.63
HS20 OPR	C102	181.9298	89.40	24.77	182.93	939.90	901.50	20808.92	1.00	3.59
2F1	C102	196.0595	95.44	4.17	2.92	939.90	901.50	20808.92	1.00	7.61
2F1	C102	181.9298	42.43	24.77	86.86	939.90	901.50	20808.92	1.00	7.57
3F1	C102	196.0595	142.14	4.17	3.26	939.90	901.50	20808.92	1.00	5.14
3F1	C102	181.9298	63.08	24.77	129.12	939.90	901.50	20808.92	1.00	5.09
4F1	C102	196.0595	162.65	4.17	3.41	939.90	901.50	20808.92	1.00	4.50
4F1	C102	181.9298	72.15	24.77	147.67	939.90	901.50	20808.92	1.00	4.45
5C1	C102	196.0595	162.51	4.17	3.40	939.90	901.50	20808.92	1.00	4.50
5C1	C102	181.9298	72.09	24.77	147.54	939.90	901.50	20808.92	1.00	4.45

Load Case	Controlling RF
HS20 INV	2.16
HS20 OPR	3.59
2F1	7.57
3F1	5.09
4F1	4.45
5C1	4.45



Made By MTN
 Checked By PJP

Date 3/29/2012
 Date 4/5/2012

Job No. P402110046
 Sheet No. _____

Calculations For: **CUY-2-1441 - East Approach Forward Section**

Bent 3 Reactions

Dead Load Reactions from MDX

Unit 3		
Stringer	DL1	DL2
F1-3	30.47	5.00
S1-3	31.22	5.00
S2-3	31.77	5.00
S3-3	34.24	5.00
S4-3	34.24	5.00
S5-3	34.24	5.00
S6-3	34.24	5.00
S7-3	34.18	5.00
S8-3	34.24	5.00
S9-3	34.24	5.00
S10-3	34.24	5.00
S11-3	34.24	5.00
S12-3	36.47	4.92
S13-3	35.94	5.00
F2-3	32.93	5.00

Unit 3		
Stringer	DL1	DL2

Bent 3 Reaction	
Stringer	Total DL
F1-3	35.47
S1-3	36.22
S2-3	36.77
S3-3	39.24
S4-3	39.24
S5-3	39.24
S6-3	39.24
S7-3	39.18
S8-3	39.24
S9-3	39.24
S10-3	39.24
S11-3	39.24
S12-3	41.39
S13-3	40.94
F2-3	37.93

Dead Load Reactions from MDX

Lower Deck		
Stringer	DL1	Continuous Over Bent?
S-16	9.54	No
S-4 (1)	23.65	Yes
S-4 (2)	23.65	Yes
S-4 (3)	23.65	Yes
S-4 (4)	23.65	Yes
S-14	11.14	No
S-13	7.77	No

Bent 3 Reaction	
Stringer	Total DL
S-16	19.08
S-4 (1)	23.65
S-4 (2)	23.65
S-4 (3)	23.65
S-4 (4)	23.65
S-14	22.28
S-13	15.54

Live Load + Impact Reactions from MDX

	LL+I per Beam	LL+I per Wheel	3 Lane LL+I	4 Lane LL+I
HS-20	44.37	41.7	37.6	31.3
2F1	19.35	18.2	16.4	13.7
3F1	29.49	27.7	25.0	20.8
4F1	34.32	32.3	29.1	24.2
5C1	39.28	36.9	33.3	27.7
LLDF =	1.064	Wheels/beam		

Impact Factor
 Span 3 44.000
 Span 4 44.000 Impact = 1.2347

 3 lane reduction 0.9
 4 lane + reduction 0.75

	LL+I	
HS-20	44.37	1.000000
2F1	19.35	0.436105
3F1	29.49	0.664638
4F1	34.32	0.773496
5C1	39.28	0.885283



Made By MTN
Checked By PJP

Date 3/29/2012
Date 4/5/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441 - East Approach Forward Section**

Bent 3 Reactions

Lower Deck Live Load

Parking Structure Live Load = 0.04 ksf (from ASCE 07 for Parking Structures)
Tributary Length = 44.00 ft
Distributed Load on FB = 1.76 klf

Bent 3		
Stringer	Tributary Width	Live Load Reaction
S-16	4.141	7.29
S-4 (1)	5.943	10.46
S-4 (2)	5.604	9.86
S-4 (3)	5.604	9.86
S-4 (4)	5.880	10.35
S-14	4.768	8.39
S-13	2.190	3.85



Job No
P402110046

Sheet No
1

Rev

Software licensed to TranSystems

Part East Approach - Forward Section

Job Title CUY-2-1441 Main Ave Rating

Ref Bent 3

By MTN

Date 29-Mar-12

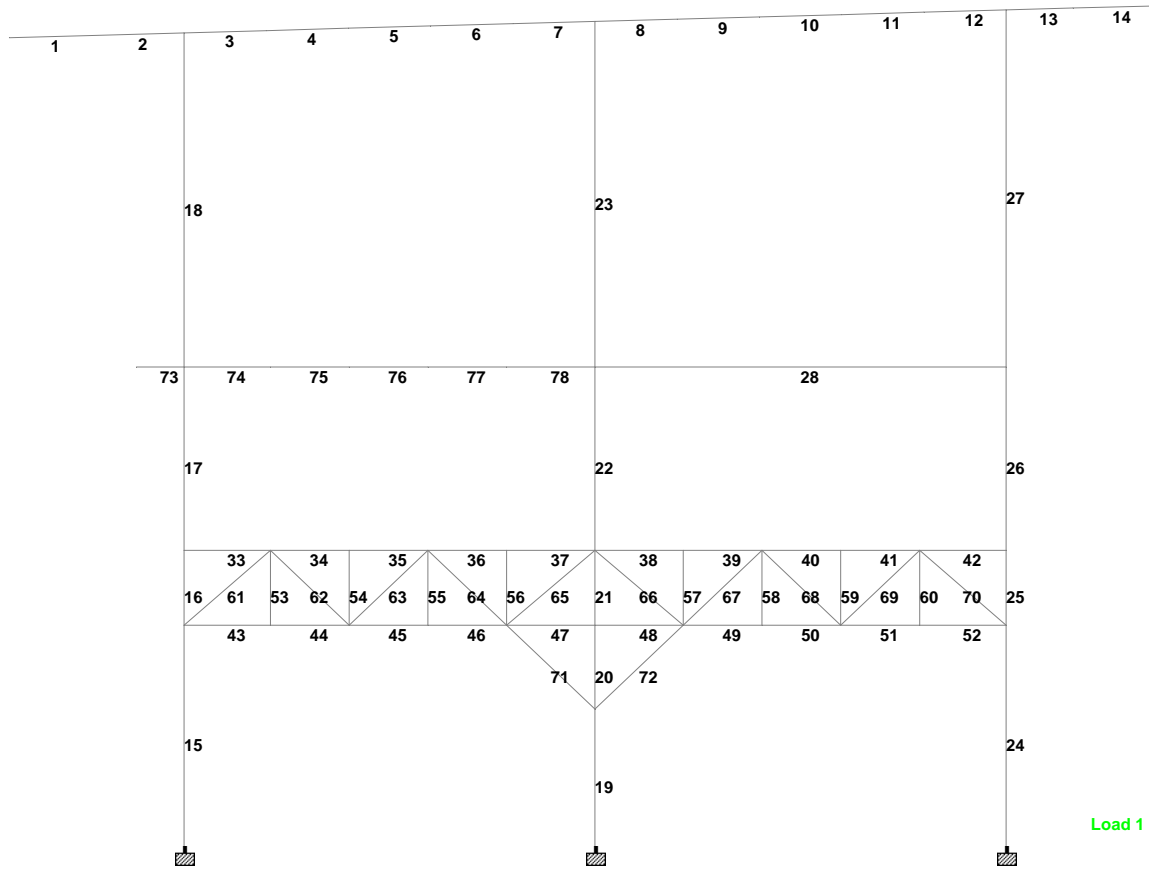
Chd PJP

Client ODOT

File Bent_3_LL.std

Date/Time 12-Apr-2012 16:07

Y
Z-X



Load 1


```

*****
*
*          STAAD.Pro          *
*          Version 2007      Build 05      *
*          Proprietary Program of          *
*          Bentley Systems, Inc.          *
*          Date=    APR 11, 2012          *
*          Time=    10:34:39              *
*
*          USER ID: TranSystems          *
*****

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1. STAAD SPACE DXF IMPORT OF 002_1441BENT_3.DXF
- INPUT FILE: Bent_3_DL.STD
2. START JOB INFORMATION
3. ENGINEER DATE 29-MAR-12
4. JOB NAME CUY-2-1441 MAIN AVE RATING
5. JOB NO P402110046
6. JOB PART EAST APPROACH - FORWARD SECTION
7. JOB REF BENT 3
8. JOB COMMENT BENT 3 DEAD LOAD
9. ENGINEER NAME MTN
10. JOB CLIENT ODOT
11. CHECKER NAME PJP
12. CHECKER DATE 4/5/12
13. END JOB INFORMATION
14. INPUT WIDTH 79
15. UNIT FEET KIP
16. JOINT COORDINATES
17. 1 -2.32292 174.679 0; 2 3.60938 174.845 0; 3 10.1094 175.026 0
18. 4 15.9635 175.189 0; 5 21.8177 175.352 0; 6 27.6719 175.515 0
19. 7 33.526 175.678 0; 8 39.3594 175.841 0; 9 45.1927 176.003 0
20. 10 51.0469 176.166 0; 11 56.901 176.329 0; 12 62.7552 176.493 0
21. 13 68.6094 176.656 0; 14 73.3802 176.789 0; 15 79 176.945 0
22. 16 10.1094 117.15 0; 17 10.1094 132.879 0; 18 10.1094 138.212 0
23. 19 10.1094 151.245 0; 20 39.3594 117.15 0; 21 39.3594 126.9 0
24. 22 39.3594 132.879 0; 23 39.3594 138.212 0; 24 39.3594 151.245 0
25. 25 68.6094 117.15 0; 26 68.6094 132.879 0; 27 68.6094 138.212 0
26. 28 68.6094 151.245 0; 30 16.2656 138.212 0; 31 21.8698 138.212 0
27. 32 27.474 138.212 0; 33 33.0781 138.212 0; 34 45.6406 138.212 0
28. 35 51.2448 138.212 0; 36 56.849 138.212 0; 37 62.4531 138.212 0
29. 38 16.2656 132.879 0; 39 21.8698 132.879 0; 40 27.474 132.879 0
30. 41 33.0781 132.879 0; 42 45.6406 132.879 0; 43 51.2448 132.879 0
31. 44 56.849 132.879 0; 45 62.4531 132.879 0; 46 6.72917 151.245 0
32. 47 16.2656 151.245 0; 48 21.8698 151.245 0; 49 27.474 151.245 0
33. 50 33.0781 151.245 0
34. MEMBER INCIDENCES
35. 1 1 2; 2 2 3; 3 3 4; 4 4 5; 5 5 6; 6 6 7; 7 7 8; 8 8 9; 9 9 10; 10 10 11
36. 11 11 12; 12 12 13; 13 13 14; 14 14 15; 15 16 17; 16 17 18; 17 18 19; 18 19 3
37. 19 20 21; 20 21 22; 21 22 23; 22 23 24; 23 24 8; 24 25 26; 25 26 27; 26 27 28
38. 27 28 13; 28 24 28; 33 18 30; 34 30 31; 35 31 32; 36 32 33; 37 33 23; 38 23 34
39. 39 34 35; 40 35 36; 41 36 37; 42 37 27; 43 17 38; 44 38 39; 45 39 40; 46 40 41
40. 47 41 22; 48 22 42; 49 42 43; 50 43 44; 51 44 45; 52 45 26; 53 38 30; 54 39 31

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41. 55 40 32; 56 41 33; 57 42 34; 58 43 35; 59 44 36; 60 45 37; 61 17 30; 62 30 39
42. 63 39 32; 64 32 41; 65 41 23; 66 23 42; 67 42 35; 68 35 44; 69 44 37; 70 37 26
43. 71 41 21; 72 21 42; 73 46 19; 74 19 47; 75 47 48; 76 48 49; 77 49 50; 78 50 24
44. DEFINE MATERIAL START
45. ISOTROPIC STEEL
46. E 4.176E+006
47. POISSON 0.3
48. DENSITY 0.489024
49. ALPHA 6E-006
50. DAMP 0.03
51. END DEFINE MATERIAL
52. MEMBER PROPERTY AMERICAN
53. 1 TO 14 TABLE ST W36X182
54. 15 TO 18 24 TO 27 TABLE ST W21X132
55. 19 TO 23 TABLE ST W24X146
56. 28 TABLE ST W14X61
57. 33 TO 72 TABLE ST W8X31
58. 73 TO 78 TABLE ST W36X230
59. CONSTANTS
60. BETA 90 MEMB 33 TO 72
61. MATERIAL STEEL ALL
62. MEMBER TRUSS
63. 28 33 TO 72
64. SUPPORTS
65. 16 20 25 FIXED
66. LOAD 1 LOADTYPE DEAD TITLE LOAD CASE 1
67. SELFWEIGHT Y -1.05 LIST 1 TO 28 33 TO 78
68. JOINT LOAD
69. *F1-3 UPPER DECK FASCIA BEAM
70. 15 FY -35.47
71. *S1-3
72. 14 FY -36.22
73. *S2-3
74. 13 FY -36.77
75. *S3-3, S4-3, S5-3, S6-3, S8-3, S9-3, S10-3, S11-3
76. 4 TO 7 9 TO 12 FY -39.24
77. *S7-3
78. 8 FY -39.18
79. *S12-3
80. 3 FY -41.39
81. *S13-3
82. 2 FY -40.94
83. *F2-3 UPPER DECK FASCIA BEAM
84. 1 FY -37.93
85. *S-16 LOWER DECK (RIGHT FASCIA BEAM - LOOKING WEST)
86. 24 FY -19.08
87. *S-4 LOWER DECK (INTERIOR BEAM)
88. 47 TO 50 FY -23.65
89. *S-14 LOWER DECK (SECOND BEAM FROM LEFT - LOOKING WEST)
90. 19 FY -22.28
91. *S-13 LOWER DECK (LEFT FASCIA BEAM - LOOKING WEST)
92. 46 FY -15.54
93. MEMBER LOAD
94. *DEAD LOAD OF STRENGTHENING PLATES ON COLUMNS = 44 LB/FT, 50 LB/FT IS USED TO I
95. 18 UNI GY -0.05 0 19.5377
96. 27 UNI GY -0.05 0 21.1677

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97. 17 26 UNI GY -0.05 0 8.979
 98. 15 24 UNI GY -0.05 0 15.729
 99. PERFORM ANALYSIS

P R O B L E M S T A T I S T I C S

NUMBER OF JOINTS/MEMBER+ELEMENTS/SUPPORTS = 49/ 74/ 3

SOLVER USED IS THE OUT-OF-CORE BASIC SOLVER

ORIGINAL/FINAL BAND-WIDTH= 27/ 7/ 48 DOF
 TOTAL PRIMARY LOAD CASES = 1, TOTAL DEGREES OF FREEDOM = 276
 SIZE OF STIFFNESS MATRIX = 14 DOUBLE KILO-WORDS
 REQD/AVAIL. DISK SPACE = 12.2/ 514920.5 MB

ZERO STIFFNESS IN DIRECTION 3 AT JOINT 30 EQN.NO. 69
 LOADS APPLIED OR DISTRIBUTED HERE FROM ELEMENTS WILL BE IGNORED.
 THIS MAY BE DUE TO ALL MEMBERS AT THIS JOINT BEING RELEASED OR
 EFFECTIVELY RELEASED IN THIS DIRECTION.

ZERO STIFFNESS IN DIRECTION 4 AT JOINT 30 EQN.NO. 70
 ZERO STIFFNESS IN DIRECTION 5 AT JOINT 30 EQN.NO. 71
 ZERO STIFFNESS IN DIRECTION 6 AT JOINT 30 EQN.NO. 72
 ZERO STIFFNESS IN DIRECTION 3 AT JOINT 38 EQN.NO. 87
 ZERO STIFFNESS IN DIRECTION 4 AT JOINT 38 EQN.NO. 88
 ZERO STIFFNESS IN DIRECTION 5 AT JOINT 38 EQN.NO. 89
 ZERO STIFFNESS IN DIRECTION 6 AT JOINT 38 EQN.NO. 90
 ZERO STIFFNESS IN DIRECTION 3 AT JOINT 31 EQN.NO. 93
 ZERO STIFFNESS IN DIRECTION 4 AT JOINT 31 EQN.NO. 94
 ZERO STIFFNESS IN DIRECTION 5 AT JOINT 31 EQN.NO. 95
 ZERO STIFFNESS IN DIRECTION 6 AT JOINT 31 EQN.NO. 96

**WARNING - THERE WERE MORE THAN 12 DOF WITH ZERO STIFFNESS.
 THE FIRST 12 ARE LISTED ABOVE.
 TOTAL # TRANSLATIONAL= 16 TOTAL # ROTATIONAL= 48

100. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 1 TO 14

MEMBER FORCE ENVELOPE

 ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
1 MAX	-37.92	0.00	1	228.38	5.93	1			
	0.00	0.00	1	0.00	0.00	1	1.06 T	0.00	1
MIN	-39.05	5.93	1	0.00	0.00	1			
	0.00	5.93	1	0.00	5.93	1	1.09 T	5.93	1
2 MAX	-79.97	0.00	1	752.44	6.50	1			
	0.00	0.00	1	0.00	0.00	1	2.23 T	0.00	1
MIN	-81.22	6.50	1	228.38	0.00	1			
	0.00	6.50	1	0.00	6.50	1	2.26 T	6.50	1
3 MAX	91.37	0.00	1	708.79	0.00	1			
	0.00	0.00	1	0.00	0.00	1	2.41 C	0.00	1
MIN	90.25	5.86	1	176.98	5.86	1			
	0.00	5.86	1	0.00	5.86	1	2.38 C	5.86	1
4 MAX	51.02	0.00	1	176.98	0.00	1			
	0.00	0.00	1	0.00	0.00	1	1.29 C	0.00	1
MIN	49.91	5.86	1	-118.57	5.86	1			
	0.00	5.86	1	0.00	5.86	1	1.25 C	5.86	1
5 MAX	10.68	0.00	1	-118.57	0.00	1			
	0.00	0.00	1	0.00	0.00	1	0.16 C	0.00	1
MIN	9.56	5.86	1	-177.84	5.86	1			
	0.00	5.86	1	0.00	5.86	1	0.13 C	5.86	1
6 MAX	-29.66	0.00	1	-0.84	5.86	1			
	0.00	0.00	1	0.00	0.00	1	0.96 T	0.00	1
MIN	-30.78	5.86	1	-177.84	0.00	1			
	0.00	5.86	1	0.00	5.86	1	0.99 T	5.86	1
7 MAX	-70.01	0.00	1	410.95	5.84	1			
	0.00	0.00	1	0.00	0.00	1	2.09 T	0.00	1
MIN	-71.12	5.84	1	-0.84	0.00	1			
	0.00	5.84	1	0.00	5.84	1	2.12 T	5.84	1
8 MAX	77.98	0.00	1	425.09	0.00	1			
	0.00	0.00	1	0.00	0.00	1	0.65 C	0.00	1
MIN	76.86	5.84	1	-26.71	5.84	1			
	0.00	5.84	1	0.00	5.84	1	0.62 C	5.84	1
9 MAX	37.64	0.00	1	-26.71	0.00	1			
	0.00	0.00	1	0.00	0.00	1	0.46 T	0.00	1

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MIN	36.52	5.86	1	-243.86	5.86	1			
	0.00	5.86	1	0.00	5.86	1	0.50 T	5.86	1
10 MAX	-2.70	0.00	1	-224.75	5.86	1			
	0.00	0.00	1	0.00	0.00	1	1.59 T	0.00	1
MIN	-3.82	5.86	1	-243.86	0.00	1			
	0.00	5.86	1	0.00	5.86	1	1.62 T	5.86	1
11 MAX	-43.05	0.00	1	30.64	5.86	1			
	0.00	0.00	1	0.00	0.00	1	2.72 T	0.00	1
MIN	-44.17	5.86	1	-224.75	0.00	1			
	0.00	5.86	1	0.00	5.86	1	2.75 T	5.86	1
12 MAX	-83.39	0.00	1	522.30	5.86	1			
	0.00	0.00	1	0.00	0.00	1	3.83 T	0.00	1
MIN	-84.51	5.86	1	30.64	0.00	1			
	0.00	5.86	1	0.00	5.86	1	3.86 T	5.86	1
13 MAX	73.65	0.00	1	551.67	0.00	1			
	0.00	0.00	1	0.00	0.00	1	2.05 C	0.00	1
MIN	72.74	4.77	1	202.35	4.77	1			
	0.00	4.77	1	0.00	4.77	1	2.03 C	4.77	1
14 MAX	36.53	0.00	1	202.35	0.00	1			
	0.00	0.00	1	0.00	0.00	1	1.01 C	0.00	1
MIN	35.46	5.62	1	0.00	5.62	1			
	0.00	5.62	1	0.00	5.62	1	0.98 C	5.62	1

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

101. *FLOOR BEAM DEAD LOAD ABOVE

102. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 15 TO 18

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
15 MAX	0.43	0.00	1	-0.72	0.00	1			
	0.00	0.00	1	0.00	0.00	1	316.20 C	0.00	1
MIN	0.43	15.73	1	-7.55	15.73	1			
	0.00	15.73	1	0.00	15.73	1	313.24 C	15.73	1
16 MAX	2.03	0.00	1	-7.55	0.00	1			
	0.00	0.00	1	0.00	0.00	1	312.03 C	0.00	1
MIN	2.03	5.33	1	-18.39	5.33	1			
	0.00	5.33	1	0.00	5.33	1	311.29 C	5.33	1
17 MAX	-8.37	0.00	1	90.65	13.03	1			
	0.00	0.00	1	0.00	0.00	1	311.19 C	0.00	1
MIN	-8.37	13.03	1	-18.39	0.00	1			
	0.00	13.03	1	0.00	13.03	1	308.94 C	13.03	1
18 MAX	0.14	0.00	1	-40.43	0.00	1			
	0.00	0.00	1	0.00	0.00	1	218.30 C	0.00	1
MIN	0.14	23.78	1	-43.66	23.78	1			
	0.00	23.78	1	0.00	23.78	1	214.04 C	23.78	1

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

103. *COLUMN 3 DEAD LOAD ABOVE

104. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 19 TO 23

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
19 MAX	-1.01	0.00	1	3.94	9.75	1			
	0.00	0.00	1	0.00	0.00	1	273.50 C	0.00	1
MIN	-1.01	9.75	1	-5.94	0.00	1			
	0.00	9.75	1	0.00	9.75	1	272.01 C	9.75	1
20 MAX	0.34	0.00	1	3.94	0.00	1			
	0.00	0.00	1	0.00	0.00	1	250.19 C	0.00	1
MIN	0.34	5.98	1	1.88	5.98	1			
	0.00	5.98	1	0.00	5.98	1	249.27 C	5.98	1
21 MAX	-0.10	0.00	1	2.40	5.33	1			
	0.00	0.00	1	0.00	0.00	1	249.06 C	0.00	1
MIN	-0.10	5.33	1	1.88	0.00	1			
	0.00	5.33	1	0.00	5.33	1	248.25 C	5.33	1
22 MAX	8.51	0.00	1	2.40	0.00	1			
	0.00	0.00	1	0.00	0.00	1	263.73 C	0.00	1
MIN	8.51	13.03	1	-108.46	13.03	1			
	0.00	13.03	1	0.00	13.03	1	261.73 C	13.03	1
23 MAX	1.38	0.00	1	47.98	0.00	1			
	0.00	0.00	1	0.00	0.00	1	192.07 C	0.00	1
MIN	1.38	24.60	1	14.14	24.60	1			
	0.00	24.60	1	0.00	24.60	1	188.30 C	24.60	1

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

105. *COLUMN 2 DEAD LOAD ABOVE

106. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 24 TO 27

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
24 MAX	0.58	0.00	1	3.79	0.00	1			
	0.00	0.00	1	0.00	0.00	1	206.98 C	0.00	1
MIN	0.58	15.73	1	-5.32	15.73	1			
	0.00	15.73	1	0.00	15.73	1	204.02 C	15.73	1
25 MAX	1.04	0.00	1	-5.32	0.00	1			
	0.00	0.00	1	0.00	0.00	1	203.63 C	0.00	1
MIN	1.04	5.33	1	-10.85	5.33	1			
	0.00	5.33	1	0.00	5.33	1	202.89 C	5.33	1
26 MAX	-0.14	0.00	1	-9.03	13.03	1			
	0.00	0.00	1	0.00	0.00	1	202.79 C	0.00	1
MIN	-0.14	13.03	1	-10.85	0.00	1			
	0.00	13.03	1	0.00	13.03	1	200.54 C	13.03	1
27 MAX	-1.51	0.00	1	29.38	25.41	1			
	0.00	0.00	1	0.00	0.00	1	199.61 C	0.00	1
MIN	-1.51	25.41	1	-9.03	0.00	1			
	0.00	25.41	1	0.00	25.41	1	195.03 C	25.41	1

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

107. *COLUMN 1 DEAD LOAD ABOVE

108. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 73 TO 78

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
73 MAX	-15.54	0.00	1	53.91	3.38	1			
	0.00	0.00	1	0.00	0.00	1	0.00	0.00	1
MIN	-16.35	3.38	1	0.00	0.00	1			
	0.00	3.38	1	0.00	3.38	1	0.00	3.38	1
74 MAX	52.00	0.00	1	184.99	0.00	1			
	0.00	0.00	1	0.00	0.00	1	8.50 C	0.00	1
MIN	50.52	6.16	1	-130.59	6.16	1			
	0.00	6.16	1	0.00	6.16	1	8.50 C	6.16	1
75 MAX	26.87	0.00	1	-130.59	0.00	1			
	0.00	0.00	1	0.00	0.00	1	8.50 C	0.00	1
MIN	25.52	5.60	1	-277.39	5.60	1			
	0.00	5.60	1	0.00	5.60	1	8.50 C	5.60	1
76 MAX	1.87	0.00	1	-277.39	0.00	1			
	0.00	0.00	1	0.00	0.00	1	8.50 C	0.00	1
MIN	0.52	5.60	1	-284.08	5.60	1			
	0.00	5.60	1	0.00	5.60	1	8.50 C	5.60	1
77 MAX	-23.13	0.00	1	-150.66	5.60	1			
	0.00	0.00	1	0.00	0.00	1	8.50 C	0.00	1
MIN	-24.48	5.60	1	-284.08	0.00	1			
	0.00	5.60	1	0.00	5.60	1	8.50 C	5.60	1
78 MAX	-48.13	0.00	1	156.43	6.28	1			
	0.00	0.00	1	0.00	0.00	1	8.50 C	0.00	1
MIN	-49.65	6.28	1	-150.66	0.00	1			
	0.00	6.28	1	0.00	6.28	1	8.50 C	6.28	1

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

109. *LOWER DECK FLOOR BEAM DEAD LOAD ABOVE

110. FINISH

***** END OF THE STAAD.Pro RUN *****

**** DATE= APR 11,2012 TIME= 10:34:40 ****

* For questions on STAAD.Pro, please contact *
* Bentley Systems Offices at the following locations *
* *
* Telephone Web / Email *
* *
* USA: +1 (714)974-2500 *
* CANADA +1 (905)632-4771 detech@odandetech.com *
* UK +44 (1454)207-000 *
* SINGAPORE +65 6225-6158 *
* EUROPE +31 23 5560560 *
* INDIA +91(033)4006-2021 *
* JAPAN +81(03)5952-6500 <http://www.ctc-g.co.jp> *
* CHINA +86 10 5929 7000 *
* THAILAND +66(0)2645-1018/19 partha.p@reissoftwareth.com *
* *
* Worldwide <http://selectservices.bentley.com/en-US/> *
* *

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*****
*
*          STAAD.Pro V8i SELECTseries1          *
*          Version  20.07.06.35                 *
*          Proprietary Program of              *
*          Bentley Systems, Inc.               *
*          Date=    APR 12, 2012               *
*          Time=    16: 7:52                   *
*
*          USER ID: TranSystems                 *
*****

```

1. STAAD SPACE DXF IMPORT OF 002_1441BENT_3.DXF
- INPUT FILE: Bent_3_LL.STD
2. START JOB INFORMATION
3. ENGINEER DATE 29-MAR-12
4. JOB NAME CUY-2-1441 MAIN AVE RATING
5. JOB NO P402110046
6. JOB PART EAST APPROACH - FORWARD SECTION
7. JOB REF BENT 3
8. JOB COMMENT BENT 3 LIVE LOAD
9. ENGINEER NAME MTN
10. JOB CLIENT ODOT
11. CHECKER NAME PJP
12. CHECKER DATE 4/5/12
13. END JOB INFORMATION
14. INPUT WIDTH 79
15. UNIT FEET KIP
16. JOINT COORDINATES
17. 1 -2.32292 174.679 0; 2 3.60938 174.845 0; 3 10.1094 175.026 0
18. 4 15.9635 175.189 0; 5 21.8177 175.352 0; 6 27.6719 175.515 0
19. 7 33.526 175.678 0; 8 39.3594 175.841 0; 9 45.1927 176.003 0
20. 10 51.0469 176.166 0; 11 56.901 176.329 0; 12 62.7552 176.493 0
21. 13 68.6094 176.656 0; 14 73.3802 176.789 0; 15 79 176.945 0
22. 16 10.1094 117.15 0; 17 10.1094 132.879 0; 18 10.1094 138.212 0
23. 19 10.1094 151.245 0; 20 39.3594 117.15 0; 21 39.3594 126.9 0
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34. MEMBER INCIDENCES
35. 1 1 2; 2 2 3; 3 3 4; 4 4 5; 5 5 6; 6 6 7; 7 7 8; 8 8 9; 9 9 10; 10 10 11
36. 11 11 12; 12 12 13; 13 13 14; 14 14 15; 15 16 17; 16 17 18; 17 18 19; 18 19 3
37. 19 20 21; 20 21 22; 21 22 23; 22 23 24; 23 24 8; 24 25 26; 25 26 27; 26 27 28
38. 27 28 13; 28 24 28; 33 18 30; 34 30 31; 35 31 32; 36 32 33; 37 33 23; 38 23 34
39. 39 34 35; 40 35 36; 41 36 37; 42 37 27; 43 17 38; 44 38 39; 45 39 40; 46 40 41
40. 47 41 22; 48 22 42; 49 42 43; 50 43 44; 51 44 45; 52 45 26; 53 38 30; 54 39 31

DXF IMPORT OF 002_1441BENT_3.DXF

-- PAGE NO. 2

41. 55 40 32; 56 41 33; 57 42 34; 58 43 35; 59 44 36; 60 45 37; 61 17 30; 62 30 39
42. 63 39 32; 64 32 41; 65 41 23; 66 23 42; 67 42 35; 68 35 44; 69 44 37; 70 37 26
43. 71 41 21; 72 21 42; 73 46 19; 74 19 47; 75 47 48; 76 48 49; 77 49 50; 78 50 24
44. DEFINE MATERIAL START
45. ISOTROPIC STEEL
46. E 4.176E+006
47. POISSON 0.3
48. DENSITY 0.489024
49. ALPHA 6E-006
50. DAMP 0.03
51. END DEFINE MATERIAL
52. MEMBER PROPERTY AMERICAN
53. 1 TO 14 TABLE ST W36X182
54. 16 25 TABLE ST W21X132
55. 19 TO 23 TABLE ST W24X146
56. 28 TABLE ST W14X61
57. 33 TO 72 TABLE ST W8X31
58. 73 TO 78 TABLE ST W36X230
59. 15 17 18 24 26 27 TABLE TB W21X132 WP 1.0833 TH 0.041667
60. CONSTANTS
61. BETA 90 MEMB 33 TO 72
62. MATERIAL STEEL ALL
63. MEMBER TRUSS
64. 28 33 TO 72
65. SUPPORTS
66. 16 20 25 FIXED
67. DEFINE MOVING LOAD
68. TYPE 1 LOAD 29.1 29.1
69. DIST 6
70. LOAD 1 LOADTYPE LIVE TITLE AXIAL ON COLUMN C3 (3 LANE)
71. MEMBER LOAD
72. 1 CON GY -37.6 1.7031 0
73. 2 CON GY -37.6 1.77091 0
74. 3 CON GY -37.6 1.2708 0
75. 4 CON GY -37.6 1.4167 0
76. 5 CON GY -37.6 1.5625 0
77. 6 CON GY -37.6 1.7083 0
78. LOAD 2 LOADTYPE LIVE TITLE AXIAL ON COLUMN C3 (2 LANE)
79. MEMBER LOAD
80. 1 CON GY -41.7 1.7031 0
81. 2 CON GY -41.7 1.77091 0
82. 3 CON GY -41.7 1.2708 0
83. 4 CON GY -41.7 1.4167 0
84. LOAD 3 LOADTYPE LIVE TITLE NEG. MOMENT IN FB OVER C3 (3 LANE)
85. MEMBER LOAD
86. 1 CON GY -37.6 1.7031 0
87. 2 CON GY -37.6 1.77091 0
88. 4 CON GY -37.6 0.7708 0
89. 5 CON GY -37.6 0.9167 0
90. 5 CON GY -37.6 4.9167 0
91. 6 CON GY -37.6 5.0625 0
92. LOAD 4 LOADTYPE LIVE TITLE NEG. MOMENT IN FB OVER C3 (2 LANE)
93. MEMBER LOAD
94. 1 CON GY -41.7 1.7031 0
95. 2 CON GY -41.7 1.77091 0
96. 4 CON GY -41.7 5.7708 0

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97. 6 CON GY -41.7 0.0625 0
98. LOAD 5 LOADTYPE LIVE TITLE POS. MOMENT IN FB BETWEEN C3 _C2 (3 LANE)
99. MEMBER LOAD
100. 4 CON GY -37.6 0.7708 0
101. 5 CON GY -37.6 0.9167 0
102. 5 CON GY -37.6 4.9167 0
103. 6 CON GY -37.6 5.0625 0
104. 13 CON GY -37.6 2.7708 0
105. 14 CON GY -37.6 4.00003 0
106. LOAD 6 LOADTYPE LIVE TITLE POS. MOMENT IN FB BETWEEN C3 _C2 (2 LANE-1)
107. MEMBER LOAD
108. 4 CON GY -41.7 0.7708 0
109. 5 CON GY -41.7 0.9167 0
110. 5 CON GY -41.7 4.9167 0
111. 6 CON GY -41.7 5.0625 0
112. LOAD 7 LOADTYPE LIVE TITLE POS. MOMENT IN FB BETWEEN C3 _C2 (2 LANE-2)
113. MEMBER LOAD
114. 4 CON GY -41.7 5.7708 0
115. 6 CON GY -41.7 0.0625 0
116. 13 CON GY -41.7 2.7708 0
117. 14 CON GY -41.7 4.00003 0
118. LOAD 8 LOADTYPE LIVE TITLE MAX AXIAL ON COLUMN C2 (4 LANE)
119. MEMBER LOAD
120. 4 CON GY -31.3 1.2917 0
121. 5 CON GY -31.3 1.4375 0
122. 6 CON GY -31.3 1.5833 0
123. 7 CON GY -31.3 1.72925 0
124. 8 CON GY -31.3 2 0
125. 9 CON GY -31.3 2.1667 0
126. 10 CON GY -31.3 2.3125 0
127. 11 CON GY -31.3 2.4583 0
128. LOAD 9 LOADTYPE LIVE TITLE MAX AXIAL ON COLUMN C2 (3 LANE)
129. MEMBER LOAD
130. 6 CON GY -37.6 1.5833 0
131. 7 CON GY -37.6 1.72925 0
132. 8 CON GY -37.6 2 0
133. 9 CON GY -37.6 2.1667 0
134. 10 CON GY -37.6 2.3125 0
135. 11 CON GY -37.6 2.4583 0
136. LOAD 10 LOADTYPE LIVE TITLE MAX AXIAL ON COLUMN C2 (2 LANE)
137. MEMBER LOAD
138. 6 CON GY -41.7 1.5833 0
139. 7 CON GY -41.7 1.72925 0
140. 8 CON GY -41.7 2 0
141. 9 CON GY -41.7 2.1667 0
142. LOAD 11 LOADTYPE LIVE TITLE NEG. MOMENT IN FB OVER C2 (4 LANE)
143. MEMBER LOAD
144. 4 CON GY -31.3 0.7708 0
145. 5 CON GY -31.3 0.9167 0
146. 5 CON GY -31.3 4.9167 0
147. 6 CON GY -31.3 5.0625 0
148. 9 CON GY -31.3 0.7917 0
149. 10 CON GY -31.3 0.9375 0
150. 10 CON GY -31.3 4.9375 0
151. 11 CON GY -31.3 5.0833 0
152. LOAD 12 LOADTYPE LIVE TITLE NEG. MOMENT IN FB OVER C2 (3 LANE)

153. MEMBER LOAD
154. 4 CON GY -37.6 5.7708 0
155. 6 CON GY -37.6 0.0625 0
156. 9 CON GY -37.6 0.7917 0
157. 10 CON GY -37.6 0.9375 0
158. 10 CON GY -37.6 4.9375 0
159. 11 CON GY -37.6 5.0833 0
160. LOAD 13 LOADTYPE LIVE TITLE NEG. MOMENT IN FB OVER C2 (2 LANE)
161. MEMBER LOAD
162. 4 CON GY -41.7 5.7708 0
163. 6 CON GY -41.7 0.0625 0
164. 9 CON GY -41.7 5.7917 0
165. 11 CON GY -41.7 0.0833 0
166. LOAD 14 LOADTYPE LIVE TITLE POS. MOMENT IN FB BETWEEN C2 _C1 (3 LANE)
167. MEMBER LOAD
168. 1 CON GY -37.6 1.7031 0
169. 2 CON GY -37.6 1.77091 0
170. 9 CON GY -37.6 0.7917 0
171. 10 CON GY -37.6 0.9375 0
172. 10 CON GY -37.6 4.9375 0
173. 11 CON GY -37.6 5.0833 0
174. LOAD 15 LOADTYPE LIVE TITLE POS. MOMENT IN FB BETWEEN C2 _C1 (2 LANE-1)
175. MEMBER LOAD
176. 9 CON GY -41.7 0.7917 0
177. 10 CON GY -41.7 0.9375 0
178. 10 CON GY -41.7 4.9375 0
179. 11 CON GY -41.7 5.0833 0
180. LOAD 16 LOADTYPE LIVE TITLE POS. MOMENT IN FB BETWEEN C2 _C1 (2 LANE-2)
181. MEMBER LOAD
182. 1 CON GY -41.7 1.7031 0
183. 2 CON GY -41.7 1.77091 0
184. 9 CON GY -41.7 5.7917 0
185. 11 CON GY -41.7 0.0833 0
186. LOAD 17 LOADTYPE LIVE TITLE MAX AXIAL ON COLUMN C1 (3 LANE)
187. MEMBER LOAD
188. 9 CON GY -37.6 2.1875 0
189. 10 CON GY -37.6 2.3333 0
190. 11 CON GY -37.6 2.4792 0
191. 12 CON GY -37.6 2.62507 0
192. 13 CON GY -37.6 2.7708 0
193. 14 CON GY -37.6 4.00003 0
194. LOAD 18 LOADTYPE LIVE TITLE MAX AXIAL ON COLUMN C1 (2 LANE)
195. MEMBER LOAD
196. 11 CON GY -41.7 2.4792 0
197. 12 CON GY -41.7 2.62507 0
198. 13 CON GY -41.7 2.7708 0
199. 14 CON GY -41.7 4.00003 0
200. LOAD 19 LOADTYPE LIVE TITLE NEG. MOMENT IN FB OVER C1 (3 LANE)
201. MEMBER LOAD
202. 9 CON GY -37.6 0.7917 0
203. 10 CON GY -37.6 0.9375 0
204. 10 CON GY -37.6 4.9375 0
205. 11 CON GY -37.6 5.0833 0
206. 13 CON GY -37.6 2.7708 0
207. 14 CON GY -37.6 4.00003 0
208. LOAD 20 LOADTYPE LIVE TITLE NEG. MOMENT IN FB OVER C1 (2 LANE)

209. MEMBER LOAD
210. 9 CON GY -41.7 5.7917 0
211. 11 CON GY -41.7 0.0833 0
212. 13 CON GY -41.7 2.7708 0
213. 14 CON GY -41.7 4.00003 0
214. LOAD 21 LOADTYPE LIVE TITLE ALL LANES LOADED - CENTER (6 LANE)
215. MEMBER LOAD
216. 2 CON GY -31.3 1.64591 0
217. 3 CON GY -31.3 1.1458 0
218. 4 CON GY -31.3 1.2917 0
219. 5 CON GY -31.3 1.4375 0
220. 6 CON GY -31.3 1.5833 0
221. 7 CON GY -31.3 1.72925 0
222. 8 CON GY -31.3 2 0
223. 9 CON GY -31.3 2.1667 0
224. 10 CON GY -31.3 2.3125 0
225. 11 CON GY -31.3 2.4583 0
226. 12 CON GY -31.3 2.60427 0
227. 13 CON GY -31.3 2.75 0
228. LOAD 22 LOADTYPE LIVE TITLE ALL LANES LOADED - OUTSIDE (6 LANE)
229. MEMBER LOAD
230. 1 CON GY -31.3 1.7031 0
231. 2 CON GY -31.3 1.77091 0
232. 3 CON GY -31.3 1.2708 0
233. 4 CON GY -31.3 1.4167 0
234. 5 CON GY -31.3 1.5625 0
235. 6 CON GY -31.3 1.7083 0
236. 9 CON GY -31.3 2.1875 0
237. 10 CON GY -31.3 2.3333 0
238. 11 CON GY -31.3 2.4792 0
239. 12 CON GY -31.3 2.62507 0
240. 13 CON GY -31.3 2.7708 0
241. 14 CON GY -31.3 4.00003 0
242. LOAD 23 LOADTYPE LIVE TITLE LOWER DECK LOAD
243. JOINT LOAD
244. 24 FY -7.29
245. 50 FY -10.46
246. 48 49 FY -9.86
247. 47 FY -10.35
248. 19 FY -8.39
249. 46 FY -3.85
250. LOAD 24 LOADTYPE LIVE TITLE LOAD 1 WITH LOWER DECK
251. REPEAT LOAD
252. 1 1.0 23 1.0
253. LOAD 25 LOADTYPE LIVE TITLE LOAD 2 WITH LOWER DECK
254. REPEAT LOAD
255. 2 1.0 23 1.0
256. LOAD 26 LOADTYPE LIVE TITLE LOAD 3 WITH LOWER DECK
257. REPEAT LOAD
258. 3 1.0 23 1.0
259. LOAD 27 LOADTYPE LIVE TITLE LOAD 4 WITH LOWER DECK
260. REPEAT LOAD
261. 4 1.0 23 1.0
262. LOAD 28 LOADTYPE LIVE TITLE LOAD 5 WITH LOWER DECK
263. REPEAT LOAD
264. 5 1.0 23 1.0

265. LOAD 29 LOADTYPE LIVE TITLE LOAD 6 WITH LOWER DECK
266. REPEAT LOAD
267. 6 1.0 23 1.0
268. LOAD 30 LOADTYPE LIVE TITLE LOAD 7 WITH LOWER DECK
269. REPEAT LOAD
270. 7 1.0 23 1.0
271. LOAD 31 LOADTYPE LIVE TITLE LOAD 8 WITH LOWER DECK
272. REPEAT LOAD
273. 8 1.0 23 1.0
274. LOAD 32 LOADTYPE LIVE TITLE LOAD 9 WITH LOWER DECK
275. REPEAT LOAD
276. 9 1.0 23 1.0
277. LOAD 33 LOADTYPE LIVE TITLE LOAD 10 WITH LOWER DECK
278. REPEAT LOAD
279. 10 1.0 23 1.0
280. LOAD 34 LOADTYPE LIVE TITLE LOAD 11 WITH LOWER DECK
281. REPEAT LOAD
282. 11 1.0 23 1.0
283. LOAD 35 LOADTYPE LIVE TITLE LOAD 12 WITH LOWER DECK
284. REPEAT LOAD
285. 12 1.0 23 1.0
286. LOAD 36 LOADTYPE LIVE TITLE LOAD 13 WITH LOWER DECK
287. REPEAT LOAD
288. 13 1.0 23 1.0
289. LOAD 37 LOADTYPE LIVE TITLE LOAD 14 WITH LOWER DECK
290. REPEAT LOAD
291. 14 1.0 23 1.0
292. LOAD 38 LOADTYPE LIVE TITLE LOAD 15 WITH LOWER DECK
293. REPEAT LOAD
294. 15 1.0 23 1.0
295. LOAD 39 LOADTYPE LIVE TITLE LOAD 16 WITH LOWER DECK
296. REPEAT LOAD
297. 16 1.0 23 1.0
298. LOAD 40 LOADTYPE LIVE TITLE LOAD 17 WITH LOWER DECK
299. REPEAT LOAD
300. 17 1.0 23 1.0
301. LOAD 41 LOADTYPE LIVE TITLE LOAD 18 WITH LOWER DECK
302. REPEAT LOAD
303. 18 1.0 23 1.0
304. LOAD 42 LOADTYPE LIVE TITLE LOAD 19 WITH LOWER DECK
305. REPEAT LOAD
306. 19 1.0 23 1.0
307. LOAD 43 LOADTYPE LIVE TITLE LOAD 20 WITH LOWER DECK
308. REPEAT LOAD
309. 20 1.0 23 1.0
310. LOAD 44 LOADTYPE LIVE TITLE LOAD 21 WITH LOWER DECK
311. REPEAT LOAD
312. 21 1.0 23 1.0
313. LOAD 45 LOADTYPE LIVE TITLE LOAD 22 WITH LOWER DECK
314. REPEAT LOAD
315. 22 1.0 23 1.0
316. LOAD 46 LOADTYPE LIVE TITLE 2F1 LOADING
317. REPEAT LOAD
318. 1 0.436105 23 1.0
319. LOAD 47 LOADTYPE LIVE TITLE 2F1 LOADING
320. REPEAT LOAD

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321. 2 0.436105 23 1.0
322. LOAD 48 LOADTYPE LIVE TITLE 2F1 LOADING
323. REPEAT LOAD
324. 3 0.436105 23 1.0
325. LOAD 49 LOADTYPE LIVE TITLE 2F1 LOADING
326. REPEAT LOAD
327. 4 0.436105 23 1.0
328. LOAD 50 LOADTYPE LIVE TITLE 2F1 LOADING
329. REPEAT LOAD
330. 5 0.436105 23 1.0
331. LOAD 51 LOADTYPE LIVE TITLE 2F1 LOADING
332. REPEAT LOAD
333. 6 0.436105 23 1.0
334. LOAD 52 LOADTYPE LIVE TITLE 2F1 LOADING
335. REPEAT LOAD
336. 7 0.436105 23 1.0
337. LOAD 53 LOADTYPE LIVE TITLE 2F1 LOADING
338. REPEAT LOAD
339. 8 0.436105 23 1.0
340. LOAD 54 LOADTYPE LIVE TITLE 2F1 LOADING
341. REPEAT LOAD
342. 9 0.436105 23 1.0
343. LOAD 55 LOADTYPE LIVE TITLE 2F1 LOADING
344. REPEAT LOAD
345. 10 0.436105 23 1.0
346. LOAD 56 LOADTYPE LIVE TITLE 2F1 LOADING
347. REPEAT LOAD
348. 11 0.436105 23 1.0
349. LOAD 57 LOADTYPE LIVE TITLE 2F1 LOADING
350. REPEAT LOAD
351. 12 0.436105 23 1.0
352. LOAD 58 LOADTYPE LIVE TITLE 2F1 LOADING
353. REPEAT LOAD
354. 13 0.436105 23 1.0
355. LOAD 59 LOADTYPE LIVE TITLE 2F1 LOADING
356. REPEAT LOAD
357. 14 0.436105 23 1.0
358. LOAD 60 LOADTYPE LIVE TITLE 2F1 LOADING
359. REPEAT LOAD
360. 15 0.436105 23 1.0
361. LOAD 61 LOADTYPE LIVE TITLE 2F1 LOADING
362. REPEAT LOAD
363. 16 0.436105 23 1.0
364. LOAD 62 LOADTYPE LIVE TITLE 2F1 LOADING
365. REPEAT LOAD
366. 17 0.436105 23 1.0
367. LOAD 63 LOADTYPE LIVE TITLE 2F1 LOADING
368. REPEAT LOAD
369. 18 0.436105 23 1.0
370. LOAD 64 LOADTYPE LIVE TITLE 2F1 LOADING
371. REPEAT LOAD
372. 19 0.436105 23 1.0
373. LOAD 65 LOADTYPE LIVE TITLE 2F1 LOADING
374. REPEAT LOAD
375. 20 0.436105 23 1.0
376. LOAD 66 LOADTYPE LIVE TITLE 2F1 LOADING

377. REPEAT LOAD
378. 21 0.436105 23 1.0
379. LOAD 67 LOADTYPE LIVE TITLE 2F1 LOADING
380. REPEAT LOAD
381. 22 0.436105 23 1.0
382. LOAD 68 LOADTYPE LIVE TITLE 3F1 LOADING
383. REPEAT LOAD
384. 1 0.664638 23 1.0
385. LOAD 69 LOADTYPE LIVE TITLE 3F1 LOADING
386. REPEAT LOAD
387. 2 0.664638 23 1.0
388. LOAD 70 LOADTYPE LIVE TITLE 3F1 LOADING
389. REPEAT LOAD
390. 3 0.664638 23 1.0
391. LOAD 71 LOADTYPE LIVE TITLE 3F1 LOADING
392. REPEAT LOAD
393. 4 0.664638 23 1.0
394. LOAD 72 LOADTYPE LIVE TITLE 3F1 LOADING
395. REPEAT LOAD
396. 5 0.664638 23 1.0
397. LOAD 73 LOADTYPE LIVE TITLE 3F1 LOADING
398. REPEAT LOAD
399. 6 0.664638 23 1.0
400. LOAD 74 LOADTYPE LIVE TITLE 3F1 LOADING
401. REPEAT LOAD
402. 7 0.664638 23 1.0
403. LOAD 75 LOADTYPE LIVE TITLE 3F1 LOADING
404. REPEAT LOAD
405. 8 0.664638 23 1.0
406. LOAD 76 LOADTYPE LIVE TITLE 3F1 LOADING
407. REPEAT LOAD
408. 9 0.664638 23 1.0
409. LOAD 77 LOADTYPE LIVE TITLE 3F1 LOADING
410. REPEAT LOAD
411. 10 0.664638 23 1.0
412. LOAD 78 LOADTYPE LIVE TITLE 3F1 LOADING
413. REPEAT LOAD
414. 11 0.664638 23 1.0
415. LOAD 79 LOADTYPE LIVE TITLE 3F1 LOADING
416. REPEAT LOAD
417. 12 0.664638 23 1.0
418. LOAD 80 LOADTYPE LIVE TITLE 3F1 LOADING
419. REPEAT LOAD
420. 13 0.664638 23 1.0
421. LOAD 81 LOADTYPE LIVE TITLE 3F1 LOADING
422. REPEAT LOAD
423. 14 0.664638 23 1.0
424. LOAD 82 LOADTYPE LIVE TITLE 3F1 LOADING
425. REPEAT LOAD
426. 15 0.664638 23 1.0
427. LOAD 83 LOADTYPE LIVE TITLE 3F1 LOADING
428. REPEAT LOAD
429. 16 0.664638 23 1.0
430. LOAD 84 LOADTYPE LIVE TITLE 3F1 LOADING
431. REPEAT LOAD
432. 17 0.664638 23 1.0

433. LOAD 85 LOADTYPE LIVE TITLE 3F1 LOADING
434. REPEAT LOAD
435. 18 0.664638 23 1.0
436. LOAD 86 LOADTYPE LIVE TITLE 3F1 LOADING
437. REPEAT LOAD
438. 19 0.664638 23 1.0
439. LOAD 87 LOADTYPE LIVE TITLE 3F1 LOADING
440. REPEAT LOAD
441. 20 0.664638 23 1.0
442. LOAD 88 LOADTYPE LIVE TITLE 3F1 LOADING
443. REPEAT LOAD
444. 21 0.664638 23 1.0
445. LOAD 89 LOADTYPE LIVE TITLE 3F1 LOADING
446. REPEAT LOAD
447. 22 0.664638 23 1.0
448. LOAD 90 LOADTYPE LIVE TITLE 4F1 LOADING
449. REPEAT LOAD
450. 1 0.773496 23 1.0
451. LOAD 91 LOADTYPE LIVE TITLE 4F1 LOADING
452. REPEAT LOAD
453. 2 0.773496 23 1.0
454. LOAD 92 LOADTYPE LIVE TITLE 4F1 LOADING
455. REPEAT LOAD
456. 3 0.773496 23 1.0
457. LOAD 93 LOADTYPE LIVE TITLE 4F1 LOADING
458. REPEAT LOAD
459. 4 0.773496 23 1.0
460. LOAD 94 LOADTYPE LIVE TITLE 4F1 LOADING
461. REPEAT LOAD
462. 5 0.773496 23 1.0
463. LOAD 95 LOADTYPE LIVE TITLE 4F1 LOADING
464. REPEAT LOAD
465. 6 0.773496 23 1.0
466. LOAD 96 LOADTYPE LIVE TITLE 4F1 LOADING
467. REPEAT LOAD
468. 7 0.773496 23 1.0
469. LOAD 97 LOADTYPE LIVE TITLE 4F1 LOADING
470. REPEAT LOAD
471. 8 0.773496 23 1.0
472. LOAD 98 LOADTYPE LIVE TITLE 4F1 LOADING
473. REPEAT LOAD
474. 9 0.773496 23 1.0
475. LOAD 99 LOADTYPE LIVE TITLE 4F1 LOADING
476. REPEAT LOAD
477. 10 0.773496 23 1.0
478. LOAD 100 LOADTYPE LIVE TITLE 4F1 LOADING
479. REPEAT LOAD
480. 11 0.773496 23 1.0
481. LOAD 101 LOADTYPE LIVE TITLE 4F1 LOADING
482. REPEAT LOAD
483. 12 0.773496 23 1.0
484. LOAD 102 LOADTYPE LIVE TITLE 4F1 LOADING
485. REPEAT LOAD
486. 13 0.773496 23 1.0
487. LOAD 103 LOADTYPE LIVE TITLE 4F1 LOADING
488. REPEAT LOAD

489. 14 0.773496 23 1.0
490. LOAD 104 LOADTYPE LIVE TITLE 4F1 LOADING
491. REPEAT LOAD
492. 15 0.773496 23 1.0
493. LOAD 105 LOADTYPE LIVE TITLE 4F1 LOADING
494. REPEAT LOAD
495. 16 0.773496 23 1.0
496. LOAD 106 LOADTYPE LIVE TITLE 4F1 LOADING
497. REPEAT LOAD
498. 17 0.773496 23 1.0
499. LOAD 107 LOADTYPE LIVE TITLE 4F1 LOADING
500. REPEAT LOAD
501. 18 0.773496 23 1.0
502. LOAD 108 LOADTYPE LIVE TITLE 4F1 LOADING
503. REPEAT LOAD
504. 19 0.773496 23 1.0
505. LOAD 109 LOADTYPE LIVE TITLE 4F1 LOADING
506. REPEAT LOAD
507. 20 0.773496 23 1.0
508. LOAD 110 LOADTYPE LIVE TITLE 4F1 LOADING
509. REPEAT LOAD
510. 21 0.773496 23 1.0
511. LOAD 111 LOADTYPE LIVE TITLE 4F1 LOADING
512. REPEAT LOAD
513. 22 0.773496 23 1.0
514. LOAD 112 LOADTYPE LIVE TITLE 5C1 LOADING
515. REPEAT LOAD
516. 1 0.885283 23 1.0
517. LOAD 113 LOADTYPE LIVE TITLE 5C1 LOADING
518. REPEAT LOAD
519. 2 0.885283 23 1.0
520. LOAD 114 LOADTYPE LIVE TITLE 5C1 LOADING
521. REPEAT LOAD
522. 3 0.885283 23 1.0
523. LOAD 115 LOADTYPE LIVE TITLE 5C1 LOADING
524. REPEAT LOAD
525. 4 0.885283 23 1.0
526. LOAD 116 LOADTYPE LIVE TITLE 5C1 LOADING
527. REPEAT LOAD
528. 5 0.885283 23 1.0
529. LOAD 117 LOADTYPE LIVE TITLE 5C1 LOADING
530. REPEAT LOAD
531. 6 0.885283 23 1.0
532. LOAD 118 LOADTYPE LIVE TITLE 5C1 LOADING
533. REPEAT LOAD
534. 7 0.885283 23 1.0
535. LOAD 119 LOADTYPE LIVE TITLE 5C1 LOADING
536. REPEAT LOAD
537. 8 0.885283 23 1.0
538. LOAD 120 LOADTYPE LIVE TITLE 5C1 LOADING
539. REPEAT LOAD
540. 9 0.885283 23 1.0
541. LOAD 121 LOADTYPE LIVE TITLE 5C1 LOADING
542. REPEAT LOAD
543. 10 0.885283 23 1.0
544. LOAD 122 LOADTYPE LIVE TITLE 5C1 LOADING

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545. REPEAT LOAD
546. 11 0.885283 23 1.0
547. LOAD 123 LOADTYPE LIVE TITLE 5C1 LOADING
548. REPEAT LOAD
549. 12 0.885283 23 1.0
550. LOAD 124 LOADTYPE LIVE TITLE 5C1 LOADING
551. REPEAT LOAD
552. 13 0.885283 23 1.0
553. LOAD 125 LOADTYPE LIVE TITLE 5C1 LOADING
554. REPEAT LOAD
555. 14 0.885283 23 1.0
556. LOAD 126 LOADTYPE LIVE TITLE 5C1 LOADING
557. REPEAT LOAD
558. 15 0.885283 23 1.0
559. LOAD 127 LOADTYPE LIVE TITLE 5C1 LOADING
560. REPEAT LOAD
561. 16 0.885283 23 1.0
562. LOAD 128 LOADTYPE LIVE TITLE 5C1 LOADING
563. REPEAT LOAD
564. 17 0.885283 23 1.0
565. LOAD 129 LOADTYPE LIVE TITLE 5C1 LOADING
566. REPEAT LOAD
567. 18 0.885283 23 1.0
568. LOAD 130 LOADTYPE LIVE TITLE 5C1 LOADING
569. REPEAT LOAD
570. 19 0.885283 23 1.0
571. LOAD 131 LOADTYPE LIVE TITLE 5C1 LOADING
572. REPEAT LOAD
573. 20 0.885283 23 1.0
574. LOAD 132 LOADTYPE LIVE TITLE 5C1 LOADING
575. REPEAT LOAD
576. 21 0.885283 23 1.0
577. LOAD 133 LOADTYPE LIVE TITLE 5C1 LOADING
578. REPEAT LOAD
579. 22 0.885283 23 1.0
580. LOAD GENERATION 29
581. TYPE 1 0.3802 174.754 0 XINC 0.9955 YRANGE 2
582. LOAD GENERATION 29
583. TYPE 1 42.5052 175.928 0 XINC 0.9955 YRANGE 2
584. PDELTA 10 ANALYSIS

P R O B L E M S T A T I S T I C S

NUMBER OF JOINTS/MEMBER+ELEMENTS/SUPPORTS = 49/ 74/ 3

SOLVER USED IS THE OUT-OF-CORE BASIC SOLVER

ORIGINAL/FINAL BAND-WIDTH= 27/ 7/ 48 DOF
 TOTAL PRIMARY LOAD CASES = 191, TOTAL DEGREES OF FREEDOM = 276
 SIZE OF STIFFNESS MATRIX = 14 DOUBLE KILO-WORDS
 REQD/AVAIL. DISK SPACE = 13.5/ 515628.2 MB

ZERO STIFFNESS IN DIRECTION 3 AT JOINT 30 EQN.NO. 69
 LOADS APPLIED OR DISTRIBUTED HERE FROM ELEMENTS WILL BE IGNORED.
 THIS MAY BE DUE TO ALL MEMBERS AT THIS JOINT BEING RELEASED OR
 EFFECTIVELY RELEASED IN THIS DIRECTION.

ZERO STIFFNESS IN DIRECTION 4 AT JOINT	30 EQN.NO.	70
ZERO STIFFNESS IN DIRECTION 5 AT JOINT	30 EQN.NO.	71
ZERO STIFFNESS IN DIRECTION 6 AT JOINT	30 EQN.NO.	72
ZERO STIFFNESS IN DIRECTION 3 AT JOINT	38 EQN.NO.	87
ZERO STIFFNESS IN DIRECTION 4 AT JOINT	38 EQN.NO.	88
ZERO STIFFNESS IN DIRECTION 5 AT JOINT	38 EQN.NO.	89
ZERO STIFFNESS IN DIRECTION 6 AT JOINT	38 EQN.NO.	90
ZERO STIFFNESS IN DIRECTION 3 AT JOINT	31 EQN.NO.	93
ZERO STIFFNESS IN DIRECTION 4 AT JOINT	31 EQN.NO.	94
ZERO STIFFNESS IN DIRECTION 5 AT JOINT	31 EQN.NO.	95
ZERO STIFFNESS IN DIRECTION 6 AT JOINT	31 EQN.NO.	96

**WARNING - THERE WERE MORE THAN 12 DOF WITH ZERO STIFFNESS.

THE FIRST 12 ARE LISTED ABOVE.

TOTAL # TRANSLATIONAL= 16 TOTAL # ROTATIONAL= 48

++ Adjusting Displacements	16: 7:53
++ Adjusting Displacements	16: 7:53
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585. *LOAD LIST 1 TO 22
 586. *PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 1 TO 14
 587. *HS-20 WITHOUT LOWER DECK MAX FLOOR BEAM FORCES ABOVE
 588. *PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 15 TO 18
 589. *HS-20 WITHOUT LOWER DECK MAX COLUMN 3 FORCES ABOVE
 590. *PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 19 TO 23
 591. *HS-20 WITHOUT LOWER DECK MAX COLUMN 2 FORCES ABOVE
 592. *PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 24 TO 27
 593. *HS-20 WITHOUT LOWER DECK MAX COLUMN 1 FORCES ABOVE
 594. LOAD LIST 24 TO 45
 595. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 1 TO 14

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
1 MAX	0.00	0.00	24	176.38	5.93	27			
	0.00	0.00	24	0.00	0.00	24	0.00	0.00	24
	MIN	-41.68	5.93	39	0.00	5.93	44		
	0.00	5.93	45	0.00	5.93	45	1.17 T	5.93	39
2 MAX	0.00	0.00	28	644.64	6.50	27			
	0.00	0.00	24	0.00	0.00	24	0.00	0.00	28
	MIN	-83.37	6.50	39	0.00	6.50	43		
	0.00	6.50	45	0.00	6.50	45	2.32 T	6.50	39
3 MAX	110.99	0.00	24	599.36	0.00	26			
	0.00	0.00	24	0.00	0.00	24	14.33 C	0.00	29
	MIN	-7.97	5.86	38	-243.04	5.86	29		
	0.00	5.86	45	0.00	5.86	45	7.41 T	5.86	39
4 MAX	87.31	0.00	26	365.84	0.00	39			
	0.00	0.00	24	0.00	0.00	24	14.33 C	0.00	29
	MIN	-10.65	5.86	35	-482.08	5.86	29		
	0.00	5.86	45	0.00	5.86	45	7.41 T	5.86	39
5 MAX	49.72	0.00	26	280.91	0.00	37			
	0.00	0.00	24	0.00	0.00	24	13.17 C	0.00	29
	MIN	-48.06	5.86	29	-512.83	1.17	29		
	0.00	5.86	45	0.00	5.86	45	7.41 T	5.86	39
6 MAX	16.25	0.00	27	218.24	0.00	37			
	0.00	0.00	24	0.00	0.00	24	10.85 C	0.00	29
	MIN	-89.74	5.86	29	-443.79	0.00	29		
	0.00	5.86	45	0.00	5.86	45	7.41 T	5.86	39
7 MAX	15.34	0.00	39	466.51	5.84	34			
	0.00	0.00	24	0.00	0.00	24	9.68 C	0.00	29
	MIN	-89.74	5.84	29	-135.47	0.00	28		
	0.00	5.84	45	0.00	5.84	45	7.41 T	5.84	39
8 MAX	101.66	0.00	32	454.48	0.00	35			
	0.00	0.00	24	0.00	0.00	24	12.13 C	0.00	38
	MIN	-10.22	5.84	30	-151.93	5.84	37		
	0.00	5.84	45	0.00	5.84	45	6.91 T	5.84	30
9 MAX	89.50	0.00	38	186.18	5.86	28			
	0.00	0.00	24	0.00	0.00	24	12.14 C	0.00	38

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MIN	-10.81	5.86	43	-455.12	5.86	38				
	0.00	5.86	45	0.00	5.86	45	6.91 T	5.86	30	
10 MAX	47.82	0.00	38	223.59	5.86	28				
	0.00	0.00	24	0.00	0.00	24	10.98 C	0.00	38	
MIN	-44.90	5.86	42	-522.94	4.69	38				
	0.00	5.86	45	0.00	5.86	45	6.91 T	5.86	30	
11 MAX	7.77	0.00	36	272.28	5.86	30				
	0.00	0.00	24	0.00	0.00	24	8.65 C	0.00	38	
MIN	-82.48	5.86	42	-491.82	0.00	38				
	0.00	5.86	45	0.00	5.86	45	6.91 T	5.86	30	
12 MAX	7.17	0.00	29	482.25	5.86	42				
	0.00	0.00	24	0.00	0.00	24	7.49 C	0.00	38	
MIN	-95.50	5.86	40	-258.31	0.00	37				
	0.00	5.86	45	0.00	5.86	45	6.91 T	5.86	30	
13 MAX	83.37	0.00	30	481.20	0.00	30				
	0.00	0.00	24	0.00	0.00	24	2.32 C	0.00	30	
MIN	0.00	4.77	44	0.00	2.86	44				
	0.00	4.77	45	0.00	4.77	45	0.00	4.77	44	
14 MAX	41.68	0.00	30	166.74	0.00	30				
	0.00	0.00	24	0.00	0.00	24	1.16 C	0.00	30	
MIN	0.00	5.62	45	0.00	5.62	45				
	0.00	5.62	45	0.00	5.62	45	0.00	5.62	45	

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

596. *HS-20 MAX FLOOR BEAM FORCES ABOVE

597. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 15 TO 18

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
15 MAX	0.56	0.00	25	5.18	15.73	31			
	0.00	0.00	24	0.00	0.00	24	219.47 C	0.00	24
MIN	-0.62	15.73	31	-9.14	15.73	25			
	0.00	15.73	45	0.00	15.73	45	25.76 C	15.73	42
16 MAX	1.23	0.00	33	5.18	0.00	31			
	0.00	0.00	24	0.00	0.00	24	219.44 C	0.00	24
MIN	-0.42	5.33	41	-10.29	5.33	25			
	0.00	5.33	45	0.00	5.33	45	25.86 C	5.33	42
17 MAX	-0.95	0.00	29	66.18	13.03	39			
	0.00	0.00	24	0.00	0.00	24	219.44 C	0.00	24
MIN	-5.84	13.03	39	-10.29	0.00	25			
	0.00	13.03	45	0.00	13.03	45	25.86 C	13.03	42
18 MAX	7.83	0.00	39	208.04	23.78	29			
	0.00	0.00	24	0.00	0.00	24	186.26 C	0.00	24
MIN	-12.18	23.78	29	-188.91	23.78	39			
	0.00	23.78	45	0.00	23.78	45	7.93 T	23.78	38

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

598. *HS-20 MAX COLUMN 3 FORCES ABOVE

599. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 19 TO 23

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
19 MAX	0.00	0.00	29	4.75	9.75	40			
	0.00	0.00	24	0.00	0.00	24	191.07 C	0.00	32
MIN	-0.76	9.75	37	-4.53	0.00	25			
	0.00	9.75	45	0.00	9.75	45	22.36 C	9.75	25
20 MAX	0.35	0.00	41	4.75	0.00	40			
	0.00	0.00	24	0.00	0.00	24	179.98 C	0.00	32
MIN	-0.26	5.98	29	-0.92	0.00	26			
	0.00	5.98	45	0.00	5.98	45	20.40 C	5.98	25
21 MAX	0.80	0.00	25	15.84	5.33	32			
	0.00	0.00	24	0.00	0.00	24	179.99 C	0.00	32
MIN	-2.40	5.33	32	-4.53	5.33	25			
	0.00	5.33	45	0.00	5.33	45	20.40 C	5.33	25
22 MAX	7.06	0.00	37	15.84	0.00	32			
	0.00	0.00	24	0.00	0.00	24	193.02 C	0.00	32
MIN	0.33	13.03	28	-85.06	13.03	37			
	0.00	13.03	45	0.00	13.03	45	21.59 C	13.03	25
23 MAX	14.86	0.00	28	228.52	24.60	37			
	0.00	0.00	24	0.00	0.00	24	167.95 C	0.00	32
MIN	-13.30	24.60	37	-225.90	24.60	28			
	0.00	24.60	45	0.00	24.60	45	4.93 T	24.60	25

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

600. *HS-20 MAX COLUMN 2 FORCES ABOVE

601. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 24 TO 27

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
24 MAX	0.95	0.00	32	6.77	0.00	32			
	0.00	0.00	24	0.00	0.00	24	170.69 C	0.00	40
MIN	-0.07	15.73	25	-8.15	15.73	32			
	0.00	15.73	45	0.00	15.73	45	6.91 T	15.73	26
25 MAX	2.26	0.00	25	12.14	5.33	32			
	0.00	0.00	24	0.00	0.00	24	170.68 C	0.00	40
MIN	-3.80	5.33	32	-13.05	5.33	25			
	0.00	5.33	45	0.00	5.33	45	7.18 T	5.33	29
26 MAX	1.28	0.00	30	43.70	13.03	38			
	0.00	0.00	24	0.00	0.00	24	170.68 C	0.00	40
MIN	-2.79	13.03	38	-23.11	13.03	27			
	0.00	13.03	45	0.00	13.03	45	7.18 T	13.03	29
27 MAX	9.64	0.00	38	149.01	25.41	30			
	0.00	0.00	24	0.00	0.00	24	170.68 C	0.00	40
MIN	-6.62	25.41	30	-201.09	25.41	38			
	0.00	25.41	45	0.00	25.41	45	7.18 T	25.41	29

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

602. *HS-20 MAX COLUMN 1 FORCES ABOVE

603. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 73 TO 78

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
73 MAX	-3.85	0.00	24	13.01	3.38	24			
	0.00	0.00	24	0.00	0.00	24	0.00	0.00	24
MIN	-3.85	3.38	45	0.00	0.00	45			
	0.00	3.38	45	0.00	3.38	45	0.00	3.38	45
74 MAX	23.89	0.00	37	113.42	0.00	34			
	0.00	0.00	24	0.00	0.00	24	13.67 C	0.00	39
MIN	18.16	6.16	28	-60.01	6.16	39			
	0.00	6.16	45	0.00	6.16	45	11.23 T	6.16	29
75 MAX	13.54	0.00	37	-16.71	0.00	29			
	0.00	0.00	24	0.00	0.00	24	13.67 C	0.00	39
MIN	7.81	5.60	28	-132.82	5.60	37			
	0.00	5.60	45	0.00	5.60	45	11.23 T	5.60	29
76 MAX	3.68	0.00	37	-65.66	5.60	28			
	0.00	0.00	24	0.00	0.00	24	13.67 C	0.00	39
MIN	-2.05	5.60	28	-153.44	5.60	37			
	0.00	5.60	45	0.00	5.60	45	11.23 T	5.60	29
77 MAX	-6.18	0.00	37	1.07	5.60	28			
	0.00	0.00	24	0.00	0.00	24	13.67 C	0.00	39
MIN	-11.91	5.60	28	-153.44	0.00	37			
	0.00	5.60	45	0.00	5.60	45	11.23 T	5.60	29
78 MAX	-16.64	0.00	37	141.56	6.28	28			
	0.00	0.00	24	0.00	0.00	24	13.67 C	0.00	39
MIN	-22.37	6.28	28	-118.79	0.00	37			
	0.00	6.28	45	0.00	6.28	45	11.23 T	6.28	29

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

604. *LOWER DECK FLOOR BEAM FORCES ABOVE

605. LOAD LIST 46 TO 67

606. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 1 TO 14

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
1 MAX	0.00	0.00	46	76.92	5.93	49			
	0.00	0.00	46	0.00	0.00	46	0.00	0.00	46
	-18.18	5.93	61	0.00	5.93	66			
MIN	0.00	5.93	67	0.00	5.93	67	0.51 T	5.93	61
	0.00	0.00	50	281.14	6.50	49			
	0.00	0.00	46	0.00	0.00	46	0.00	0.00	50
2 MAX	-36.36	6.50	61	0.00	6.50	65			
	0.00	6.50	67	0.00	6.50	67	1.01 T	6.50	61
	0.00	0.00	46	266.80	0.00	48			
3 MAX	0.00	0.00	46	0.00	0.00	46	7.19 C	0.00	51
	-3.29	5.86	60	-101.53	5.86	51			
	0.00	5.86	67	0.00	5.86	67	2.29 T	5.86	61
4 MAX	38.26	0.00	48	163.81	0.00	61			
	0.00	0.00	46	0.00	0.00	46	7.19 C	0.00	51
	-4.45	5.86	57	-206.88	5.86	51			
MIN	0.00	5.86	67	0.00	5.86	67	2.29 T	5.86	61
	21.87	0.00	48	125.70	0.00	59			
	0.00	0.00	46	0.00	0.00	46	6.68 C	0.00	51
5 MAX	-20.76	5.86	51	-220.51	1.17	51			
	0.00	5.86	67	0.00	5.86	67	2.29 T	5.86	61
	7.27	0.00	49	97.30	0.00	59			
6 MAX	0.00	0.00	46	0.00	0.00	46	5.67 C	0.00	51
	-38.94	5.86	51	-191.31	0.00	51			
	0.00	5.86	67	0.00	5.86	67	2.29 T	5.86	61
7 MAX	6.87	0.00	61	203.38	5.84	56			
	0.00	0.00	46	0.00	0.00	46	5.16 C	0.00	51
	-38.94	5.84	51	-58.00	0.00	50			
MIN	0.00	5.84	67	0.00	5.84	67	2.29 T	5.84	61
	44.10	0.00	54	192.75	0.00	57			
	0.00	0.00	46	0.00	0.00	46	5.36 C	0.00	60
8 MAX	-4.68	5.84	52	-70.36	5.84	59			
	0.00	5.84	67	0.00	5.84	67	2.94 T	5.84	52
	38.80	0.00	60	78.41	5.86	50			
9 MAX	0.00	0.00	46	0.00	0.00	46	5.36 C	0.00	60

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MIN	-4.94	5.86	65	-201.17	5.86	60			
	0.00	5.86	67	0.00	5.86	67	2.94	T	5.86 52
10 MAX	20.62	0.00	60	96.04	5.86	50			
	0.00	0.00	46	0.00	0.00	46	4.85	C	0.00 60
MIN	-19.81	5.86	64	-229.65	4.69	60			
	0.00	5.86	67	0.00	5.86	67	2.94	T	5.86 52
11 MAX	3.16	0.00	58	118.60	5.86	52			
	0.00	0.00	46	0.00	0.00	46	3.84	C	0.00 60
MIN	-36.20	5.86	64	-215.81	0.00	60			
	0.00	5.86	67	0.00	5.86	67	2.94	T	5.86 52
12 MAX	2.90	0.00	51	211.60	5.86	64			
	0.00	0.00	46	0.00	0.00	46	3.33	C	0.00 60
MIN	-41.88	5.86	62	-112.60	0.00	59			
	0.00	5.86	67	0.00	5.86	67	2.94	T	5.86 52
13 MAX	36.36	0.00	52	209.85	0.00	52			
	0.00	0.00	46	0.00	0.00	46	1.01	C	0.00 52
MIN	0.00	4.77	66	0.00	2.86	66			
	0.00	4.77	67	0.00	4.77	67	0.00		4.77 66
14 MAX	18.18	0.00	52	72.72	0.00	52			
	0.00	0.00	46	0.00	0.00	46	0.50	C	0.00 52
MIN	0.00	5.06	67	0.00	5.62	67			
	0.00	5.62	67	0.00	5.62	67	0.00		5.62 67

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

607. *2F1 MAX FLOOR BEAM FORCES ABOVE

608. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 15 TO 18

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
15 MAX	0.33	0.00	47	1.20	0.00	63			
	0.00	0.00	46	0.00	0.00	46	114.69 C	0.00	46
MIN	-0.18	15.73	53	-5.47	15.73	47			
	0.00	15.73	67	0.00	15.73	67	30.23 C	15.73	64
16 MAX	0.68	0.00	55	0.77	0.00	54			
	0.00	0.00	46	0.00	0.00	46	114.54 C	0.00	46
MIN	-0.04	5.33	63	-6.73	5.33	47			
	0.00	5.33	67	0.00	5.33	67	30.13 C	5.33	64
17 MAX	-2.35	0.00	51	51.86	13.03	61			
	0.00	0.00	46	0.00	0.00	46	114.54 C	0.00	46
MIN	-4.48	13.03	61	-6.73	0.00	47			
	0.00	13.03	67	0.00	13.03	67	30.13 C	13.03	64
18 MAX	2.48	0.00	61	96.28	23.78	51			
	0.00	0.00	46	0.00	0.00	46	81.44 C	0.00	46
MIN	-6.24	23.78	51	-77.09	23.78	61			
	0.00	23.78	67	0.00	23.78	67	3.24 T	23.78	60

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

609. *2F1 MAX COLUMN 3 FORCES ABOVE

610. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 19 TO 23

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
19 MAX	-0.22	0.00	51	3.10	9.75	62			
	0.00	0.00	46	0.00	0.00	46	97.82 C	0.00	54
MIN	-0.55	9.75	59	-3.05	0.00	47			
	0.00	9.75	67	0.00	9.75	67	24.26 C	9.75	47
20 MAX	0.19	0.00	63	3.10	0.00	62			
	0.00	0.00	46	0.00	0.00	46	92.37 C	0.00	54
MIN	-0.07	5.98	51	0.59	5.98	46			
	0.00	5.98	67	0.00	5.98	67	22.79 C	5.98	47
21 MAX	-0.04	0.00	47	9.75	5.33	54			
	0.00	0.00	46	0.00	0.00	46	92.37 C	0.00	54
MIN	-1.43	5.33	54	0.59	0.00	46			
	0.00	5.33	67	0.00	5.33	67	22.79 C	5.33	47
22 MAX	5.09	0.00	59	9.75	0.00	54			
	0.00	0.00	46	0.00	0.00	46	98.97 C	0.00	54
MIN	2.16	13.03	50	-60.50	13.03	59			
	0.00	13.03	67	0.00	13.03	67	24.22 C	13.03	47
23 MAX	7.34	0.00	50	94.18	24.60	59			
	0.00	0.00	46	0.00	0.00	46	72.80 C	0.00	54
MIN	-4.94	24.60	59	-103.88	24.60	50			
	0.00	24.60	67	0.00	24.60	67	2.59 T	24.60	47

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

611. *2F1 MAX COLUMN 2 FORCES ABOVE

612. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 24 TO 27

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
24 MAX	0.54	0.00	54	3.76	0.00	54			
	0.00	0.00	46	0.00	0.00	46	74.82 C	0.00	62
	MIN	0.10	15.73	47	-4.73	15.73	54		
		0.00	15.73	67	0.00	15.73	67	2.63 T	15.73
25 MAX	0.84	0.00	47	4.85	5.33	54			
	0.00	0.00	46	0.00	0.00	46	74.66 C	0.00	62
	MIN	-1.79	5.33	54	-6.11	5.33	47		
		0.00	5.33	67	0.00	5.33	67	2.90 T	5.33
26 MAX	0.48	0.00	52	19.59	13.03	60			
	0.00	0.00	46	0.00	0.00	46	74.66 C	0.00	62
	MIN	-1.29	13.03	60	-9.49	13.03	49		
		0.00	13.03	67	0.00	13.03	67	2.90 T	13.03
27 MAX	4.28	0.00	60	63.82	25.41	52			
	0.00	0.00	46	0.00	0.00	46	74.66 C	0.00	62
	MIN	-2.81	25.41	52	-89.06	25.41	60		
		0.00	25.41	67	0.00	25.41	67	2.90 T	25.41

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

613. *2F1 MAX COLUMN 1 FORCES ABOVE

614. LOAD LIST 68 TO 89

615. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 1 TO 14

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
1 MAX	0.00	0.00	68	117.23	5.93	71			
	0.00	0.00	68	0.00	0.00	68	0.00	0.00	68
	MIN	-27.70	5.93	83	0.00	5.93	88		
	0.00	5.93	89	0.00	5.93	89	0.78 T	5.93	83
2 MAX	0.00	0.00	72	428.46	6.50	71			
	0.00	0.00	68	0.00	0.00	68	0.00	0.00	72
	MIN	-55.41	6.50	83	0.00	6.50	87		
	0.00	6.50	89	0.00	6.50	89	1.54 T	6.50	83
3 MAX	73.87	0.00	68	401.56	0.00	70			
	0.00	0.00	68	0.00	0.00	68	10.08 C	0.00	73
	MIN	-5.18	5.86	82	-158.85	5.86	73		
	0.00	5.86	89	0.00	5.86	89	4.36 T	5.86	83
4 MAX	58.14	0.00	70	245.65	0.00	83			
	0.00	0.00	68	0.00	0.00	68	10.08 C	0.00	73
	MIN	-6.96	5.86	79	-318.38	5.86	73		
	0.00	5.86	89	0.00	5.86	89	4.36 T	5.86	83
5 MAX	33.16	0.00	70	188.58	0.00	81			
	0.00	0.00	68	0.00	0.00	68	9.31 C	0.00	73
	MIN	-31.82	5.86	73	-338.95	1.17	73		
	0.00	5.86	89	0.00	5.86	89	4.36 T	5.86	83
6 MAX	10.91	0.00	71	146.30	0.00	81			
	0.00	0.00	68	0.00	0.00	68	7.77 C	0.00	73
	MIN	-59.53	5.86	73	-293.61	0.00	73		
	0.00	5.86	89	0.00	5.86	89	4.36 T	5.86	83
7 MAX	10.30	0.00	83	310.00	5.84	78			
	0.00	0.00	68	0.00	0.00	68	6.99 C	0.00	73
	MIN	-59.53	5.84	73	-89.40	0.00	72		
	0.00	5.84	89	0.00	5.84	89	4.36 T	5.84	83
8 MAX	67.43	0.00	76	298.82	0.00	79			
	0.00	0.00	68	0.00	0.00	68	8.10 C	0.00	82
	MIN	-6.93	5.84	74	-103.42	5.84	81		
	0.00	5.84	89	0.00	5.84	89	4.55 T	5.84	74
9 MAX	59.35	0.00	82	122.07	5.86	72			
	0.00	0.00	68	0.00	0.00	68	8.11 C	0.00	82

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MIN	-7.32	5.86	87	-304.07	5.86	82			
	0.00	5.86	89	0.00	5.86	89	4.55 T	5.86	74
10 MAX	31.64	0.00	82	147.71	5.86	72			
	0.00	0.00	68	0.00	0.00	68	7.33 C	0.00	82
MIN	-29.98	5.86	86	-348.49	4.69	82			
	0.00	5.86	89	0.00	5.86	89	4.55 T	5.86	74
11 MAX	5.03	0.00	80	180.86	5.86	74			
	0.00	0.00	68	0.00	0.00	68	5.79 C	0.00	82
MIN	-54.96	5.86	86	-327.65	0.00	82			
	0.00	5.86	89	0.00	5.86	89	4.55 T	5.86	74
12 MAX	4.63	0.00	73	321.29	5.86	86			
	0.00	0.00	68	0.00	0.00	68	5.02 C	0.00	82
MIN	-63.61	5.86	84	-171.62	0.00	81			
	0.00	5.86	89	0.00	5.86	89	4.55 T	5.86	74
13 MAX	55.41	0.00	74	319.82	0.00	74			
	0.00	0.00	68	0.00	0.00	68	1.54 C	0.00	74
MIN	0.00	4.77	88	0.00	2.86	88			
	0.00	4.77	89	0.00	4.77	89	0.00	4.77	88
14 MAX	27.70	0.00	74	110.82	0.00	74			
	0.00	0.00	68	0.00	0.00	68	0.77 C	0.00	74
MIN	0.00	5.62	89	0.00	5.62	89			
	0.00	5.62	89	0.00	5.62	89	0.00	5.62	89

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

616. *3F1 MAX FLOOR BEAM FORCES ABOVE

617. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 15 TO 18

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
15 MAX	0.42	0.00	69	2.55	15.73	76			
	0.00	0.00	68	0.00	0.00	68	157.15 C	0.00	68
MIN	-0.36	15.73	75	-6.96	15.73	69			
	0.00	15.73	89	0.00	15.73	89	28.42 C	15.73	86
16 MAX	0.91	0.00	77	2.55	0.00	76			
	0.00	0.00	68	0.00	0.00	68	157.05 C	0.00	68
MIN	-0.19	5.33	85	-8.16	5.33	69			
	0.00	5.33	89	0.00	5.33	89	28.40 C	5.33	86
17 MAX	-1.78	0.00	73	57.65	13.03	83			
	0.00	0.00	68	0.00	0.00	68	157.05 C	0.00	68
MIN	-5.03	13.03	83	-8.16	0.00	69			
	0.00	13.03	89	0.00	13.03	89	28.40 C	13.03	86
18 MAX	4.65	0.00	83	141.60	23.78	73			
	0.00	0.00	68	0.00	0.00	68	123.92 C	0.00	68
MIN	-8.65	23.78	73	-122.47	23.78	83			
	0.00	23.78	89	0.00	23.78	89	5.14 T	23.78	82

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

618. *3F1 MAX COLUMN 3 FORCES ABOVE

619. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 19 TO 23

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
19 MAX	-0.13	0.00	73	3.77	9.75	84			
	0.00	0.00	68	0.00	0.00	68	135.61 C	0.00	76
MIN	-0.63	9.75	81	-3.65	0.00	69			
	0.00	9.75	89	0.00	9.75	89	23.49 C	9.75	69
20 MAX	0.26	0.00	85	3.77	0.00	84			
	0.00	0.00	68	0.00	0.00	68	127.88 C	0.00	76
MIN	-0.15	5.98	73	0.00	0.00	70			
	0.00	5.98	89	0.00	5.98	89	21.82 C	5.98	69
21 MAX	0.30	0.00	69	12.21	5.33	76			
	0.00	0.00	68	0.00	0.00	68	127.88 C	0.00	76
MIN	-1.82	5.33	76	-1.29	5.33	69			
	0.00	5.33	89	0.00	5.33	89	21.82 C	5.33	69
22 MAX	5.89	0.00	81	12.21	0.00	76			
	0.00	0.00	68	0.00	0.00	68	137.09 C	0.00	76
MIN	1.42	13.03	72	-70.45	13.03	81			
	0.00	13.03	89	0.00	13.03	89	23.15 C	13.03	69
23 MAX	10.39	0.00	72	148.60	24.60	81			
	0.00	0.00	68	0.00	0.00	68	111.36 C	0.00	76
MIN	-8.32	24.60	81	-153.31	24.60	72			
	0.00	24.60	89	0.00	24.60	89	3.53 T	24.60	69

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

620. *3F1 MAX COLUMN 2 FORCES ABOVE
 621. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 24 TO 27

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
24 MAX	0.70	0.00	76	4.98	0.00	76			
	0.00	0.00	68	0.00	0.00	68	113.67 C	0.00	84
MIN	0.03	15.73	69	-6.11	15.73	76			
	0.00	15.73	89	0.00	15.73	89	4.36 T	15.73	70
25 MAX	1.42	0.00	69	7.80	5.33	76			
	0.00	0.00	68	0.00	0.00	68	113.58 C	0.00	84
MIN	-2.61	5.33	76	-8.92	5.33	69			
	0.00	5.33	89	0.00	5.33	89	4.63 T	5.33	73
26 MAX	0.80	0.00	74	29.35	13.03	82			
	0.00	0.00	68	0.00	0.00	68	113.58 C	0.00	84
MIN	-1.90	13.03	82	-15.00	13.03	71			
	0.00	13.03	89	0.00	13.03	89	4.63 T	13.03	73
27 MAX	6.45	0.00	82	98.38	25.41	74			
	0.00	0.00	68	0.00	0.00	68	113.58 C	0.00	84
MIN	-4.36	25.41	74	-134.48	25.41	82			
	0.00	25.41	89	0.00	25.41	89	4.63 T	25.41	73

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

- 622. *3F1 MAX COLUMN 1 FORCES ABOVE
- 623. LOAD LIST 90 TO 111
- 624. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 1 TO 14

MEMBER FORCE ENVELOPE

 ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
1 MAX	0.00	0.00	90	136.43	5.93	93			
	0.00	0.00	90	0.00	0.00	90	0.00	0.00	90
	MIN	-32.24	5.93	105	0.00	5.93	110		
	0.00	5.93	111	0.00	5.93	111	0.90 T	5.93	105
2 MAX	0.00	0.00	94	498.63	6.50	93			
	0.00	0.00	90	0.00	0.00	90	0.00	0.00	94
	MIN	-64.48	6.50	105	0.00	6.50	109		
	0.00	6.50	111	0.00	6.50	111	1.80 T	6.50	105
3 MAX	85.92	0.00	90	465.76	0.00	92			
	0.00	0.00	90	0.00	0.00	90	11.46 C	0.00	95
	MIN	-6.09	5.86	104	-186.17	5.86	95		
	0.00	5.86	111	0.00	5.86	111	5.35 T	5.86	105
4 MAX	67.61	0.00	92	284.65	0.00	105			
	0.00	0.00	90	0.00	0.00	90	11.46 C	0.00	95
	MIN	-8.16	5.86	101	-371.51	5.86	95		
	0.00	5.86	111	0.00	5.86	111	5.35 T	5.86	105
5 MAX	38.54	0.00	92	218.55	0.00	103			
	0.00	0.00	90	0.00	0.00	90	10.56 C	0.00	95
	MIN	-37.09	5.86	95	-395.39	1.17	95		
	0.00	5.86	111	0.00	5.86	111	5.35 T	5.86	105
6 MAX	12.64	0.00	93	169.65	0.00	103			
	0.00	0.00	90	0.00	0.00	90	8.77 C	0.00	95
	MIN	-69.33	5.86	95	-342.36	0.00	95		
	0.00	5.86	111	0.00	5.86	111	5.35 T	5.86	105
7 MAX	11.93	0.00	105	360.80	5.84	100			
	0.00	0.00	90	0.00	0.00	90	7.86 C	0.00	95
	MIN	-69.34	5.84	95	-104.35	0.00	94		
	0.00	5.84	111	0.00	5.84	111	5.35 T	5.84	105
8 MAX	78.54	0.00	98	349.34	0.00	101			
	0.00	0.00	90	0.00	0.00	90	9.41 C	0.00	104
	MIN	-8.00	5.84	96	-119.17	5.84	103		
	0.00	5.84	111	0.00	5.84	111	5.32 T	5.84	96
9 MAX	69.13	0.00	104	142.88	5.86	94			
	0.00	0.00	90	0.00	0.00	90	9.41 C	0.00	104

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MIN	-8.45	5.86	109	-353.09	5.86	104			
	0.00	5.86	111	0.00	5.86	111	5.32	T	5.86 96
10 MAX	36.89	0.00	104	172.34	5.86	94			
	0.00	0.00	90	0.00	0.00	90	8.52	C	0.00 104
MIN	-34.82	5.86	108	-405.11	4.69	104			
	0.00	5.86	111	0.00	5.86	111	5.32	T	5.86 96
11 MAX	5.92	0.00	102	210.52	5.86	96			
	0.00	0.00	90	0.00	0.00	90	6.72	C	0.00 104
MIN	-63.89	5.27	108	-380.93	0.00	104			
	0.00	5.86	111	0.00	5.86	111	5.32	T	5.86 96
12 MAX	5.45	0.00	95	373.54	5.86	108			
	0.00	0.00	90	0.00	0.00	90	5.82	C	0.00 104
MIN	-73.96	5.27	106	-199.75	0.00	103			
	0.00	5.86	111	0.00	5.86	111	5.32	T	5.86 96
13 MAX	64.48	0.00	96	372.20	0.00	96			
	0.00	0.00	90	0.00	0.00	90	1.80	C	0.00 96
MIN	0.00	4.77	110	0.00	2.86	110			
	0.00	4.77	111	0.00	4.77	111	0.00		4.77 110
14 MAX	32.24	0.00	96	128.98	0.00	96			
	0.00	0.00	90	0.00	0.00	90	0.90	C	0.00 96
MIN	0.00	5.06	111	0.00	5.62	111			
	0.00	5.62	111	0.00	5.62	111	0.00		5.62 111

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

625. *4F1 MAX FLOOR BEAM FORCES ABOVE

626. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 15 TO 18

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
15 MAX	0.47	0.00	91	3.41	15.73	97			
	0.00	0.00	90	0.00	0.00	90	177.37 C	0.00	90
MIN	-0.44	15.73	97	-7.67	15.73	91			
	0.00	15.73	111	0.00	15.73	111	27.56 C	15.73	108
16 MAX	1.01	0.00	99	3.41	0.00	97			
	0.00	0.00	90	0.00	0.00	90	177.30 C	0.00	90
MIN	-0.27	5.33	107	-8.85	5.33	91			
	0.00	5.33	111	0.00	5.33	111	27.58 C	5.33	108
17 MAX	-1.51	0.00	95	60.42	13.03	105			
	0.00	0.00	90	0.00	0.00	90	177.30 C	0.00	90
MIN	-5.29	13.03	105	-8.85	0.00	91			
	0.00	13.03	111	0.00	13.03	111	27.58 C	13.03	108
18 MAX	5.68	0.00	105	163.18	23.78	95			
	0.00	0.00	90	0.00	0.00	90	144.15 C	0.00	90
MIN	-9.79	23.78	95	-144.05	23.78	105			
	0.00	23.78	111	0.00	23.78	111	6.05 T	23.78	104

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

627. *4F1 MAX COLUMN 3 FORCES ABOVE

628. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 19 TO 23

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
19 MAX	-0.09	0.00	95	4.09	9.75	106			
	0.00	0.00	90	0.00	0.00	90	153.61 C	0.00	98
MIN	-0.67	9.75	103	-3.94	0.00	91			
	0.00	9.75	111	0.00	9.75	111	23.12 C	9.75	91
20 MAX	0.29	0.00	107	4.09	0.00	106			
	0.00	0.00	90	0.00	0.00	90	144.79 C	0.00	98
MIN	-0.18	5.98	95	-0.30	0.00	92			
	0.00	5.98	111	0.00	5.98	111	21.36 C	5.98	91
21 MAX	0.46	0.00	91	13.39	5.33	98			
	0.00	0.00	90	0.00	0.00	90	144.79 C	0.00	98
MIN	-2.01	5.33	98	-2.34	5.33	91			
	0.00	5.33	111	0.00	5.33	111	21.36 C	5.33	91
22 MAX	6.27	0.00	103	13.39	0.00	98			
	0.00	0.00	90	0.00	0.00	90	155.24 C	0.00	98
MIN	1.07	13.03	94	-75.19	13.03	103			
	0.00	13.03	111	0.00	13.03	111	22.65 C	13.03	91
23 MAX	11.84	0.00	94	174.54	24.60	103			
	0.00	0.00	90	0.00	0.00	90	129.73 C	0.00	98
MIN	-9.94	24.60	103	-176.87	24.60	94			
	0.00	24.60	111	0.00	24.60	111	3.99 T	24.60	91

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

629. *4F1 MAX COLUMN 2 FORCES ABOVE

630. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 24 TO 27

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
24 MAX	0.78	0.00	98	5.56	0.00	98			
	0.00	0.00	90	0.00	0.00	90	132.18 C	0.00	106
MIN	0.00	15.73	91	-6.77	15.73	98			
	0.00	15.73	111	0.00	15.73	111	5.19 T	15.73	92
25 MAX	1.69	0.00	91	9.20	5.33	98			
	0.00	0.00	90	0.00	0.00	90	132.11 C	0.00	106
MIN	-2.99	5.33	98	-10.26	5.33	91			
	0.00	5.33	111	0.00	5.33	111	5.46 T	5.33	95
26 MAX	0.96	0.00	96	34.01	13.03	104			
	0.00	0.00	90	0.00	0.00	90	132.11 C	0.00	106
MIN	-2.19	13.03	104	-17.63	13.03	93			
	0.00	13.03	111	0.00	13.03	111	5.46 T	13.03	95
27 MAX	7.49	0.00	104	114.83	25.41	96			
	0.00	0.00	90	0.00	0.00	90	132.11 C	0.00	106
MIN	-5.09	25.41	96	-156.11	25.41	104			
	0.00	25.41	111	0.00	25.41	111	5.46 T	25.41	95

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

631. *4F1 MAX COLUMN 1 FORCES ABOVE

632. LOAD LIST 112 TO 133

633. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 1 TO 14

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
1 MAX	0.00	0.00	112	156.14	5.93	115			
	0.00	0.00	112	0.00	0.00	112	0.00	0.00	112
	-36.90	5.93	127	0.00	5.93	132			
MIN	0.00	5.93	133	0.00	5.93	133	1.03 T	5.93	127
	0.00	0.00	116	570.69	6.50	115			
	0.00	0.00	112	0.00	0.00	112	0.00	0.00	116
2 MAX	-73.80	6.50	127	0.00	6.50	131			
	0.00	6.50	133	0.00	6.50	133	2.06 T	6.50	127
	0.00	0.00	112	531.70	0.00	114			
3 MAX	0.00	0.00	112	0.00	0.00	112	12.87 C	0.00	117
	-7.02	5.86	126	-214.23	5.86	117			
	0.00	5.86	133	0.00	5.86	133	6.37 T	5.86	127
4 MAX	77.33	0.00	114	324.72	0.00	127			
	0.00	0.00	112	0.00	0.00	112	12.87 C	0.00	117
	-9.39	5.86	123	-426.07	5.86	117			
MIN	0.00	5.86	133	0.00	5.86	133	6.37 T	5.86	127
	44.06	0.00	114	249.32	0.00	125			
	0.00	0.00	112	0.00	0.00	112	11.85 C	0.00	117
5 MAX	-42.50	5.86	117	-453.34	1.17	117			
	0.00	5.86	133	0.00	5.86	133	6.37 T	5.86	127
	0.00	0.00	115	193.63	0.00	125			
6 MAX	0.00	0.00	112	0.00	0.00	112	9.79 C	0.00	117
	-79.40	5.86	117	-392.41	0.00	117			
	0.00	5.86	133	0.00	5.86	133	6.37 T	5.86	127
7 MAX	13.61	0.00	127	412.97	5.84	122			
	0.00	0.00	112	0.00	0.00	112	8.76 C	0.00	117
	-79.41	5.84	117	-119.71	0.00	116			
MIN	0.00	5.84	133	0.00	5.84	133	6.37 T	5.84	127
	89.95	0.00	120	401.23	0.00	123			
	0.00	0.00	112	0.00	0.00	112	10.75 C	0.00	126
8 MAX	-9.09	5.84	118	-135.34	5.84	125			
	0.00	5.84	133	0.00	5.84	133	6.10 T	5.84	118
	0.00	0.00	126	164.25	5.86	116			
9 MAX	0.00	0.00	112	0.00	0.00	112	10.76 C	0.00	126

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MIN	-9.62	5.86	131	-403.44	5.86	126			
	0.00	5.86	133	0.00	5.86	133	6.10	T	5.86 118
10 MAX	42.28	0.00	126	197.63	5.86	116			
	0.00	0.00	112	0.00	0.00	112	9.73	C	0.00 126
MIN	-39.79	5.86	130	-463.26	4.69	126			
	0.00	5.86	133	0.00	5.86	133	6.10	T	5.86 118
11 MAX	6.84	0.00	124	241.00	5.86	118			
	0.00	0.00	112	0.00	0.00	112	7.67	C	0.00 126
MIN	-73.07	5.86	130	-435.65	0.00	126			
	0.00	5.86	133	0.00	5.86	133	6.10	T	5.86 118
12 MAX	6.30	0.00	117	427.19	5.86	130			
	0.00	0.00	112	0.00	0.00	112	6.65	C	0.00 126
MIN	-84.59	5.27	128	-228.65	0.00	125			
	0.00	5.86	133	0.00	5.86	133	6.10	T	5.86 118
13 MAX	73.80	0.00	118	426.00	0.00	118			
	0.00	0.00	112	0.00	0.00	112	2.06	C	0.00 118
MIN	0.00	4.77	132	0.00	2.86	132			
	0.00	4.77	133	0.00	4.77	133	0.00		4.77 132
14 MAX	36.90	0.00	118	147.62	0.00	118			
	0.00	0.00	112	0.00	0.00	112	1.02	C	0.00 118
MIN	0.00	5.62	133	0.00	5.62	133			
	0.00	5.62	133	0.00	5.62	133	0.00		5.62 133

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

634. *5C1 MAX FLOOR BEAM FORCES ABOVE

635. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 15 TO 18

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
15 MAX	0.51	0.00	113	4.28	15.73	119			
	0.00	0.00	112	0.00	0.00	112	198.15 C	0.00	112
MIN	-0.53	15.73	119	-8.40	15.73	113			
	0.00	15.73	133	0.00	15.73	133	26.67 C	15.73	130
16 MAX	1.12	0.00	121	4.28	0.00	119			
	0.00	0.00	112	0.00	0.00	112	198.10 C	0.00	112
MIN	-0.34	5.33	129	-9.56	5.33	113			
	0.00	5.33	133	0.00	5.33	133	26.73 C	5.33	130
17 MAX	-1.23	0.00	117	63.26	13.03	127			
	0.00	0.00	112	0.00	0.00	112	198.10 C	0.00	112
MIN	-5.56	13.03	127	-9.56	0.00	113			
	0.00	13.03	133	0.00	13.03	133	26.73 C	13.03	130
18 MAX	6.74	0.00	127	185.32	23.78	117			
	0.00	0.00	112	0.00	0.00	112	164.94 C	0.00	112
MIN	-10.97	23.78	117	-166.20	23.78	127			
	0.00	23.78	133	0.00	23.78	133	6.98 T	23.78	126

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

636. *5C1 MAX COLUMN 3 FORCES ABOVE

637. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 19 TO 23

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
19 MAX	-0.04	0.00	117	4.41	9.75	128			
	0.00	0.00	112	0.00	0.00	112	172.10 C	0.00	120
MIN	-0.72	9.75	125	-4.23	0.00	113			
	0.00	9.75	133	0.00	9.75	133	22.75 C	9.75	113
20 MAX	0.32	0.00	129	4.41	0.00	128			
	0.00	0.00	112	0.00	0.00	112	162.16 C	0.00	120
MIN	-0.22	5.98	117	-0.61	0.00	114			
	0.00	5.98	133	0.00	5.98	133	20.89 C	5.98	113
21 MAX	0.63	0.00	113	14.60	5.33	120			
	0.00	0.00	112	0.00	0.00	112	162.16 C	0.00	120
MIN	-2.20	5.33	120	-3.42	5.33	113			
	0.00	5.33	133	0.00	5.33	133	20.89 C	5.33	113
22 MAX	6.66	0.00	125	14.60	0.00	120			
	0.00	0.00	112	0.00	0.00	112	173.89 C	0.00	120
MIN	0.70	13.03	116	-80.06	13.03	125			
	0.00	13.03	133	0.00	13.03	133	22.12 C	13.03	113
23 MAX	13.33	0.00	116	201.18	24.60	125			
	0.00	0.00	112	0.00	0.00	112	148.60 C	0.00	120
MIN	-11.60	24.60	125	-201.06	24.60	116			
	0.00	24.60	133	0.00	24.60	133	4.45 T	24.60	113

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

638. *5C1 MAX COLUMN 2 FORCES ABOVE

639. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 24 TO 27

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
24 MAX	0.86	0.00	120	6.16	0.00	120			
	0.00	0.00	112	0.00	0.00	112	151.18 C	0.00	128
MIN	-0.03	15.73	113	-7.45	15.73	120			
	0.00	15.73	133	0.00	15.73	133	6.04 T	15.73	114
25 MAX	1.97	0.00	113	10.65	5.33	120			
	0.00	0.00	112	0.00	0.00	112	151.15 C	0.00	128
MIN	-3.39	5.33	120	-11.63	5.33	113			
	0.00	5.33	133	0.00	5.33	133	6.31 T	5.33	117
26 MAX	1.11	0.00	118	38.79	13.03	126			
	0.00	0.00	112	0.00	0.00	112	151.15 C	0.00	128
MIN	-2.48	13.03	126	-20.34	13.03	115			
	0.00	13.03	133	0.00	13.03	133	6.31 T	13.03	117
27 MAX	8.55	0.00	126	131.70	25.41	118			
	0.00	0.00	112	0.00	0.00	112	151.15 C	0.00	128
MIN	-5.85	25.41	118	-178.31	25.41	126			
	0.00	25.41	133	0.00	25.41	133	6.31 T	25.41	117

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

640. *5C1 MAX COLUMN 1 FORCES ABOVE

641. LOAD LIST 134 TO 191

642. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 1 TO 14

MEMBER FORCE ENVELOPE

 ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
1 MAX	0.00	0.00	134	93.96	5.93	134			
	0.00	0.00	134	0.00	0.00	134	0.00	0.00	134
	MIN	-29.09	5.93	137	0.00	5.93	191		
	0.00	5.93	191	0.00	5.93	191	0.81 T	5.93	137
2 MAX	0.00	0.00	138	391.62	6.50	134			
	0.00	0.00	134	0.00	0.00	134	0.00	0.00	138
	MIN	-58.18	6.50	137	0.00	6.50	191		
	0.00	6.50	191	0.00	6.50	191	1.62 T	6.50	137
3 MAX	51.03	0.00	144	275.98	0.00	134			
	0.00	0.00	134	0.00	0.00	134	5.04 C	0.00	153
	MIN	-5.16	5.86	143	-149.67	5.86	150		
	0.00	5.86	191	0.00	5.86	191	5.39 T	5.86	134
4 MAX	38.23	0.00	150	205.98	0.00	134			
	0.00	0.00	134	0.00	0.00	134	5.04 C	0.00	153
	MIN	-17.80	5.86	149	-225.64	5.86	155		
	0.00	5.86	191	0.00	5.86	191	5.39 T	5.86	134
5 MAX	25.24	0.00	156	136.01	0.00	134			
	0.00	0.00	134	0.00	0.00	134	4.83 C	0.00	156
	MIN	-30.85	5.86	155	-229.11	0.59	156		
	0.00	5.86	191	0.00	5.86	191	5.39 T	5.86	134
6 MAX	13.43	0.00	162	73.01	5.86	169			
	0.00	0.00	134	0.00	0.00	134	4.02 C	0.00	156
	MIN	-42.96	5.86	161	-208.83	0.00	156		
	0.00	5.86	191	0.00	5.86	191	5.39 T	5.86	134
7 MAX	11.95	0.00	134	159.37	5.84	157			
	0.00	0.00	134	0.00	0.00	134	3.41 C	0.00	153
	MIN	-44.75	5.84	162	-105.80	0.00	161		
	0.00	5.84	191	0.00	5.84	191	5.39 T	5.84	134
8 MAX	48.07	0.00	163	157.62	0.00	170			
	0.00	0.00	134	0.00	0.00	134	4.64 C	0.00	171
	MIN	-8.08	5.84	191	-106.47	5.84	165		
	0.00	5.84	191	0.00	5.84	191	4.17 T	5.84	191
9 MAX	42.83	0.00	166	70.66	0.00	158			
	0.00	0.00	134	0.00	0.00	134	4.64 C	0.00	171

DXF IMPORT OF 002_1441BENT_3.DXF

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MIN	-13.56	5.86	165	-210.02	5.86	171			
	0.00	5.86	191	0.00	5.86	191	4.17	T	5.86 191
10 MAX	30.72	0.00	172	96.63	5.86	191			
	0.00	0.00	134	0.00	0.00	134	4.63	C	0.00 172
MIN	-25.37	5.86	171	-229.62	5.27	171			
	0.00	5.86	191	0.00	5.86	191	4.17	T	5.86 191
11 MAX	17.69	0.00	178	143.97	5.86	191			
	0.00	0.00	134	0.00	0.00	134	3.82	C	0.00 172
MIN	-38.35	5.86	177	-226.45	0.59	172			
	0.00	5.86	191	0.00	5.86	191	4.17	T	5.86 191
12 MAX	5.15	0.00	184	191.33	5.86	191			
	0.00	0.00	134	0.00	0.00	134	3.02	C	0.00 171
MIN	-51.07	5.86	183	-150.48	0.00	177			
	0.00	5.86	191	0.00	5.86	191	4.17	T	5.86 191
13 MAX	58.18	0.00	190	277.61	0.00	191			
	0.00	0.00	134	0.00	0.00	134	1.62	C	0.00 190
MIN	0.00	4.77	187	0.00	0.95	184			
	0.00	4.77	191	0.00	4.77	191	0.00		4.77 187
14 MAX	29.09	0.00	191	87.27	0.00	191			
	0.00	0.00	134	0.00	0.00	134	0.81	C	0.00 188
MIN	0.00	5.06	190	0.00	5.62	191			
	0.00	5.62	191	0.00	5.62	191	0.00		5.62 191

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

643. *FATIGUE FLOOR BEAM FORCES ABOVE

644. FINISH

***** END OF THE STAAD.Pro RUN *****

**** DATE= APR 12,2012 TIME= 16: 8:21 ****

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*****
*           For questions on STAAD.Pro, please contact           *
*   Bentley Systems Offices at the following locations           *
*                                                                 *
*           Telephone           Web / Email                       *
*                                                                 *
*   USA:           +1 (714)974-2500                               *
*   UK             +44(1454)207-000                               *
*   SINGAPORE     +65 6225-6158                                  *
*   EUROPE        +31 23 5560560                                 *
*   INDIA         +91(033)4006-2021                               *
*   JAPAN         +81(03)5952-6500   http://www.ctc-g.co.jp     *
*   CHINA         +86 10 5929 7000                               *
*   THAILAND     +66(0)2645-1018/19 partha.p@reisoftwareth.com *
*                                                                 *
*   Worldwide     http://selectservices.bentley.com/en-US/     *
*                                                                 *
*****
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EAST APPROACH FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/30/2012
Date 4/13/2012

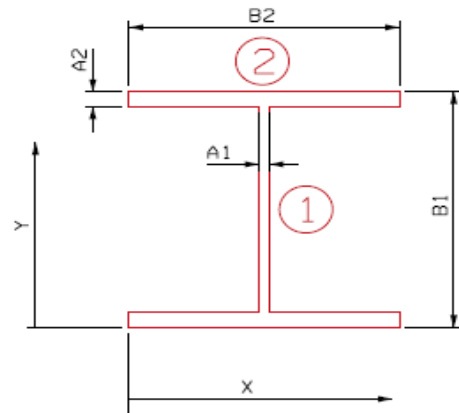
Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Red text indicates user input

Element Dimensions (without Section Losses):

$A_1 = t_w = 0.7250$ in
 $A_2 = t_f = 1.1800$ in
 $B_1 = d = 36.3200$ in
 $B_2 = b_f = 12.0720$ in
36WFB182



FB-3 @ COLUMN 303
EAST APPR. FWD SECTION

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I _o	d	Ad ²	I _{x,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		24.6210	18.1600	447.1174	2366.2455	0.0000	0.0000	2366.2455
2	Top Flange		14.2450	35.7300	508.9724	1.6529	17.5700	4397.4890	4399.1418
	Bottom Flange		14.2450	0.5900	8.4045	1.6529	17.5700	4397.4890	4399.1418
Total			53.11		964.49	2369.55		8794.98	11164.53
Section Losses			A	y	Ay	I _o	d	Ad ²	I _{x,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.1250	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	18.1600	in	S _{top} = 614.79 in ³	y-bar =	18.1600	in	S _{top} = 614.79 in ³
I _x =	11164.53	in ⁴	S _{bottom} = 614.79 in ³	I _x =	11164.53	in ⁴	S _{bottom} = 614.79 in ³
C _{top} =	18.1600	in	A = 53.1109 in ²	C _{top} =	18.1600	in	A = 53.1109 in ²
C _{bottom} =	18.1600	in	r _x = 14.4987 in	C _{bottom} =	18.1600	in	r _x = 14.4987 in
			Z = 709.60 in ³				Z = warning in ³

EAST APPROACH FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/30/2012
Date 4/13/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Floorbeam Capacities

Non-composite Capacities*		
	AB	AI
M	1690.66 k-ft	1690.66 k-ft
V	471.25 k	471.25 k

F_y = 33.00 ksi

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

*Noncompact Section

As-Built Moments and Shears						
	DL	HS20	2F1	3F1	4F1	5C1
M	752.45 k-ft	644.64 k-ft	281.14 k-ft	428.46 k-ft	498.63 k-ft	570.69 k-ft
V	81.22 k	83.37 k	36.36 k	55.41 k	64.49 k	73.80 k

As-Built Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	0.51	---	---	---	---
Operating M	0.85	1.95	1.28	1.1	0.96
As-Inspected Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	0.51	---	---	---	---
Operating M	0.85	1.95	1.28	1.1	0.96
As-Built Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	2.02	---	---	---	---
Operating V	3.37	7.74	5.08	4.36	3.81
As-Inspected Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	2.02	---	---	---	---
Operating V	3.37	7.74	5.08	4.36	3.81

Controlling Rating Factors and Tonnage						
	HS20 Inventory	HS20 Operating	2F1 Operating	3F1 Operating	4F1 Operating	5C1 Operating
Rating Factor	0.51	0.85	1.95	1.28	1.1	0.96
Tonnage (US Tons)	18.36	30.6	29.25	29.44	29.7	38.4

EAST APPROACH FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/30/2012
Date 4/13/2012

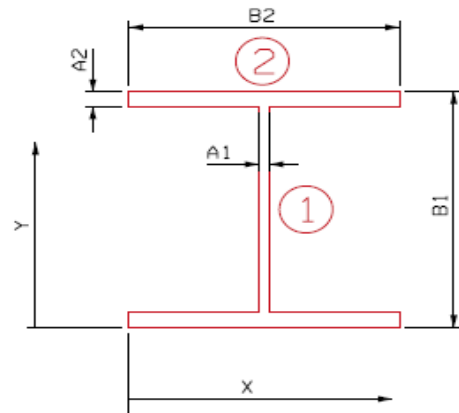
Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Red text indicates user input

Element Dimensions (without Section Losses):

$A_1 = t_w = 0.7250$ in
 $A_2 = t_f = 1.1800$ in
 $B_1 = d = 36.3200$ in
 $B_2 = b_f = 12.0720$ in
36WFB182



FB-3 @ COLUMN 203
EAST APPR. FWD SECTION

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I _o	d	Ad ²	I _{x,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		24.6210	18.1600	447.1174	2366.2455	0.0000	0.0000	2366.2455
2	Top Flange		14.2450	35.7300	508.9724	1.6529	17.5700	4397.4890	4399.1418
	Bottom Flange		14.2450	0.5900	8.4045	1.6529	17.5700	4397.4890	4399.1418
Total			53.11		964.49	2369.55		8794.98	11164.53
Section Losses			A	y	Ay	I _o	d	Ad ²	I _{x,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar = 18.1600 in	S _{top} = 614.79 in ³			y-bar = 18.1600 in	S _{top} = 614.79 in ³		
I _x = 11164.53 in ⁴	S _{bottom} = 614.79 in ³			I _x = 11164.53 in ⁴	S _{bottom} = 614.79 in ³		
C _{top} = 18.1600 in	A = 53.1109 in ²			C _{top} = 18.1600 in	A = 53.1109 in ²		
C _{bottom} = 18.1600 in	r _x = 14.4987 in			C _{bottom} = 18.1600 in	r _x = 14.4987 in		
	Z = 709.60 in ³				Z = 709.60 in ³		

EAST APPROACH FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/30/2012
Date 4/13/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Floorbeam Capacities

Non-composite Capacities*		
	AB	AI
M	1690.66 k-ft	1690.66 k-ft
V	471.25 k	471.25 k

*Noncompact Section

$F_y =$	33.00 ksi
---------	------------------

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

As-Built Moments and Shears						
	DL	HS20	2F1	3F1	4F1	5C1
M	425.09 k-ft	466.51 k-ft	197.64 k-ft	305.52 k-ft	357.07 k-ft	410.01 k-ft
V	77.98 k	89.74 k	31.33 k	56.63 k	65.97 k	75.56 k

As-Built Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.12	---	---	---	---
Operating M	1.88	4.43	2.87	2.45	2.14
As-Inspected Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.12	---	---	---	---
Operating M	1.88	4.43	2.87	2.45	2.14
As-Built Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	1.9	---	---	---	---
Operating V	3.17	9.08	5.02	4.31	3.77
As-Inspected Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	1.9	---	---	---	---
Operating V	3.17	9.08	5.02	4.31	3.77

Controlling Rating Factors and Tonnage						
	HS20 Inventory	HS20 Operating	2F1 Operating	3F1 Operating	4F1 Operating	5C1 Operating
Rating Factor	1.12	1.88	4.43	2.87	2.45	2.14
Tonnage (US Tons)	40.32	67.68	66.45	66.01	66.15	85.6

EAST APPROACH FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/20/2012
Date 4/13/2012

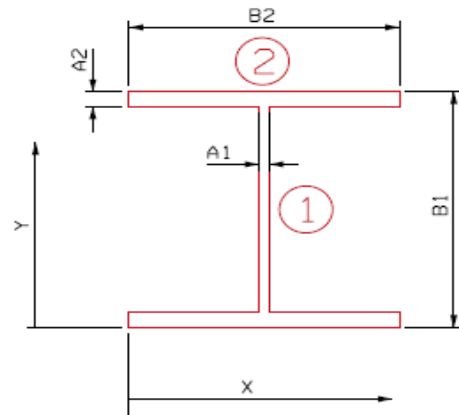
Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Red text indicates user input

Element Dimensions (without Section Losses):

$A_1 = t_w = 0.7250$ in
 $A_2 = t_f = 1.1800$ in
 $B_1 = d = 36.3200$ in
 $B_2 = b_f = 12.0720$ in
36WFB182



FB-3 @ COLUMN 103
EAST APPR. FWD SECTION

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I _o	d	Ad ²	I _{x,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		24.6210	18.1600	447.1174	2366.2455	0.0000	0.0000	2366.2455
2	Top Flange		14.2450	35.7300	508.9724	1.6529	17.5700	4397.4890	4399.1418
	Bottom Flange		14.2450	0.5900	8.4045	1.6529	17.5700	4397.4890	4399.1418
Total			53.11		964.49	2369.55		8794.98	11164.53
Section Losses			A	y	Ay	I _o	d	Ad ²	I _{x,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	5.0000	0.1250	-0.6250	0.0625	-0.0391	-0.0008	18.3664	-210.8288	-210.8296
2	0.2500	2.0000	-0.5000	35.0000	-17.5000	-0.1667	16.5711	-137.3000	-137.4667
3	0.2500	9.0000	-2.2500	13.5000	-30.3750	-15.1875	4.9289	-54.6625	-69.8500
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			-3.38		-47.91	-15.35		-402.79	-418.15

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	18.1600	in	S _{top} = 614.79 in ³	y-bar =	18.4289	in	S _{top} = 600.66 in ³
I _x =	11164.53	in ⁴	S _{bottom} = 614.79 in ³	I _x =	10746.38	in ⁴	S _{bottom} = 583.13 in ³
C _{top} =	18.1600	in	A = 53.1109 in ²	C _{top} =	17.8911	in	A = 49.7359 in ²
C _{bottom} =	18.1600	in	r _x = 14.4987 in	C _{bottom} =	18.4289	in	r _x = 14.6993 in
			Z = 709.60 in ³				Z = warning in ³

EAST APPROACH FORWARD SECTION



Made By FKL
 Checked By PJP

Date 3/20/2012
 Date 4/13/2012

Job No. P402110046
 Sheet No. _____

Calculations For: **CUY-2-1441**

Floorbeam Capacities

Non-composite Capacities*		
	AB	AI
M	1690.66 k-ft	1603.59 k-ft
V	471.25 k	418.61 k

*Noncompact Section

$F_y =$	33.00 ksi
---------	------------------

AB = As-Built
 AI = As-Inspected
 M = Moment
 V = Shear

As-Built Moments and Shears						
	DL	HS20	2F1	3F1	4F1	5C1
M	551.67 k-ft	482.25 k-ft	209.85 k-ft	319.82 k-ft	372.20 k-ft	426.00 k-ft
V	73.65 k	95.50 k	36.36 k	55.41 k	64.49 k	73.80 k

As-Built Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	0.93	---	---	---	---
Operating M	1.55	3.57	2.34	2.01	1.76
As-Inspected Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	0.85	---	---	---	---
Operating M	1.41	3.25	2.13	1.83	1.6
As-Built Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	1.81	---	---	---	---
Operating V	3.02	7.94	5.21	4.48	3.91
As-Inspected Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	1.56	---	---	---	---
Operating V	2.6	6.83	4.48	3.85	3.37

EAST APPROACH FORWARD SECTION



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Date 3/20/2012
Date 4/13/2012

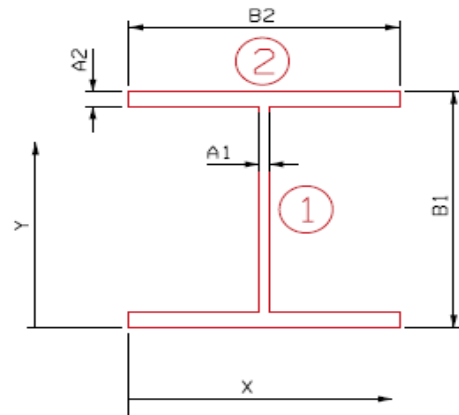
Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Red text indicates user input

Element Dimensions (without Section Losses):

$A_1 = t_w = 0.7250$ in
 $A_2 = t_f = 1.1800$ in
 $B_1 = d = 36.3200$ in
 $B_2 = b_f = 12.0720$ in
36WFB182



FB-3 @ Between 203 & 303
EAST APPR. FWD SECTION

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I _o	d	Ad ²	I _{x,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		24.6210	18.1600	447.1174	2366.2455	0.0000	0.0000	2366.2455
2	Top Flange		14.2450	35.7300	508.9724	1.6529	17.5700	4397.4890	4399.1418
	Bottom Flange		14.2450	0.5900	8.4045	1.6529	17.5700	4397.4890	4399.1418
Total			53.11		964.49	2369.55		8794.98	11164.53
Section Losses			A	y	Ay	I _o	d	Ad ²	I _{x,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	18.1600	in	S _{top} = 614.79 in ³	y-bar =	18.1600	in	S _{top} = 614.79 in ³
I _x =	11164.53	in ⁴	S _{bottom} = 614.79 in ³	I _x =	11164.53	in ⁴	S _{bottom} = 614.79 in ³
C _{top} =	18.1600	in	A = 53.1109 in ²	C _{top} =	18.1600	in	A = 53.1109 in ²
C _{bottom} =	18.1600	in	r _x = 14.4987 in	C _{bottom} =	18.1600	in	r _x = 14.4987 in
			Z = 709.60 in ³				Z = 709.60 in ³

EAST APPROACH FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/20/2012
Date 4/13/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Floorbeam Capacities

Non-composite Capacities*		
	AB	AI
M	1951.40 k-ft	1951.40 k-ft
V	471.25 k	471.25 k

*Compact Section

$F_y =$	33.00 ksi
---------	------------------

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

As-Built Moments and Shears						
	DL	HS20	2F1	3F1	4F1	5C1
M	177.84 k-ft	512.83 k-ft	223.65 k-ft	340.85 k-ft	396.67 k-ft	454.00 k-ft
V	10.68 k	49.72 k	21.68 k	33.05 k	38.46 k	44.02 k

As-Built Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.55	---	---	---	---
Operating M	2.58	5.92	3.88	3.34	2.91
As-Inspected Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.55	---	---	---	---
Operating M	2.58	5.92	3.88	3.34	2.91
As-Built Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	4.24	---	---	---	---
Operating V	7.08	16.23	10.65	9.15	7.99
As-Inspected Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	4.24	---	---	---	---
Operating V	7.08	16.23	10.65	9.15	7.99

Controlling Rating Factors and Tonnage						
	HS20 Inventory	HS20 Operating	2F1 Operating	3F1 Operating	4F1 Operating	5C1 Operating
Rating Factor	1.55	2.58	5.92	3.88	3.34	2.91
Tonnage (US Tons)	55.8	92.88	88.8	89.24	90.18	116.4

EAST APPROACH FORWARD SECTION



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Date 3/30/2012
Date 4/13/2012

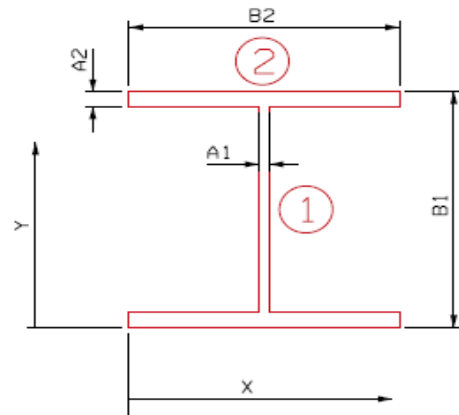
Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Red text indicates user input

Element Dimensions (without Section Losses):

$A_1 = t_w = 0.7250$ in
 $A_2 = t_f = 1.1800$ in
 $B_1 = d = 36.3200$ in
 $B_2 = b_f = 12.0720$ in
36WFB182



FB-3 @ Between 103 & 203
EAST APPR. FWD SECTION

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I _o	d	Ad ²	I _{x,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		24.6210	18.1600	447.1174	2366.2455	0.0000	0.0000	2366.2455
2	Top Flange		14.2450	35.7300	508.9724	1.6529	17.5700	4397.4890	4399.1418
	Bottom Flange		14.2450	0.5900	8.4045	1.6529	17.5700	4397.4890	4399.1418
Total			53.11		964.49	2369.55		8794.98	11164.53
Section Losses			A	y	Ay	I _o	d	Ad ²	I _{x,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	18.1600 in	S _{top} =	614.79 in ³	y-bar =	18.1600 in	S _{top} =	614.79 in ³
I _x =	11164.53 in ⁴	S _{bottom} =	614.79 in ³	I _x =	11164.53 in ⁴	S _{bottom} =	614.79 in ³
C _{top} =	18.1600 in	A =	53.1109 in ²	C _{top} =	18.1600 in	A =	53.1109 in ²
C _{bottom} =	18.1600 in	r _x =	14.4987 in	C _{bottom} =	18.1600 in	r _x =	14.4987 in
		Z =	709.60 in ³			Z =	709.60 in ³

EAST APPROACH FORWARD SECTION



Made By FKL
 Checked By PJP

Date 3/30/2012
 Date 4/13/2012

Job No. P402110046
 Sheet No. _____

Calculations For: **CUY-2-1441**

Floorbeam Capacities

Non-composite Capacities*		
	AB	AI
M	1951.40 k-ft	1951.40 k-ft
V	471.25 k	471.25 k

*Compact Section

$F_y =$	33.00 ksi
---------	------------------

AB = As-Built
 AI = As-Inspected
 M = Moment
 V = Shear

As-Built Moments and Shears						
	DL	HS20	2F1	3F1	4F1	5C1
M	243.86 k-ft	522.94 k-ft	228.06 k-ft	347.57 k-ft	404.49 k-ft	462.95 k-ft
V	3.82 k	44.90 k	19.58 k	29.84 k	34.73 k	39.75 k

As-Built Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.44	---	---	---	---
Operating M	2.4	5.51	3.62	3.11	2.72
As-Inspected Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.44	---	---	---	---
Operating M	2.4	5.51	3.62	3.11	2.72
As-Built Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	4.79	---	---	---	---
Operating V	7.99	18.32	12.02	10.33	9.02
As-Inspected Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	4.79	---	---	---	---
Operating V	7.99	18.32	12.02	10.33	9.02

Controlling Rating Factors and Tonnage						
	HS20 Inventory	HS20 Operating	2F1 Operating	3F1 Operating	4F1 Operating	5C1 Operating
Rating Factor	1.44	2.4	5.51	3.62	3.11	2.72
Tonnage (US Tons)	51.84	86.4	82.65	83.26	83.97	108.8



Calculated: FKL Date: 3/30/2012
Checked: MTN Date: 4/12/2012

CUY-2-1441 Load Rating Analysis - As-Built
Main Ave Bridge
East Approach Fwd Section - Bent 3

Column: C303

Section Properties		21WF132 & New reinforcing Plates	
A =	51.810 in ²	I _x =	4687.547 in ⁴
h =	22.310 in	S _x =	420.219 in ³
b _f =	13.087 in	r _x =	9.512 in
t _f =	1.520 in	I _y =	536.883 in ⁴
t _w =	0.614 in	S _y =	82.048 in ³
		r _y =	3.219 in

E =	29000	ksi
L _{cx} =	285.37	in
L _{cy} =	285.37	in
K _x =	0.650	AASHTO Appendix C
K _y =	0.650	AASHTO Appendix C

Axial Loading

$$P_u = 0.85 A_s F_{cr}$$

AASHTO 10.54 Concentrically Loaded Columns

$$F_{cr} = F_y \left(1 - \frac{F_y}{4\pi^2 E} \left(\frac{KL_c}{r} \right)^2 \right) \quad \text{For: } \frac{KL_c}{r} \leq \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$F_{cr} = \frac{\pi^2 E}{\left(\frac{KL_c}{r} \right)^2} \quad \text{For: } \frac{KL_c}{r} > \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$KL/r_y = 57.622$$

$$KL/r_x = 19.501$$

$$P_u = 1327.9 \text{ k}$$

Axial Loading and Bending

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_c} \right)} \leq 1.0$$

AASHTO 10.54.2 Combined Axial Load and Bending

$$C = 0.6 + 0.4a$$

$$a = 0 \quad \text{**When moment is small assume } a = 0$$

$$C = 0.600$$

$$F_e = \frac{E\pi^2}{\left(\frac{KL_c}{r} \right)^2} \quad F_{ex} = 752.641 \text{ ksi}$$

$$F_{ey} = 86.203 \text{ ksi}$$

Column Moment Capacity

Strong Axis Bending

$M_u = F_y S_x$ For Non-Compact Section

$$\text{Total } M_{ux} = 1209.8 \text{ k-ft}$$



Calculated: FKL Date: 3/30/2012
 Checked: MTN Date: 4/12/2012

CUY-2-1441 Load Rating Analysis - As-Built
 Main Ave Bridge
 East Approach Fwd Section - Bent 3

Column: C303

Section Properties		21WF132 ONLY	
A =	38.810	in ²	$I_x = 3141.600$ in ⁴
h =	21.310	in	$S_x = 294.800$ in ³
$b_f =$	13.087	in	$r_x = 9.000$ in
$t_f =$	1.020	in	$I_y = 353.800$ in ⁴
$t_w =$	0.614	in	$S_y = 54.100$ in ³
			$r_y = 3.020$ in
$F_y =$	33.0	ksi	Z 327.8 in ³
E =	29000	ksi	
$L_{cx} =$	285.37	in	
$L_{cy} =$	285.37	in	
$K_x =$	0.650	AASHTO Appendix C	
$K_y =$	0.650	AASHTO Appendix C	

Axial Loading

$$P_u = 0.85 A_s F_{cr}$$

AASHTO 10.54 Concentrically Loaded Columns

$$F_{cr} = F_y \left(1 - \frac{F_y}{4\pi^2 E} \left(\frac{KL_c}{r} \right)^2 \right) \quad \text{For: } \frac{KL_c}{r} \leq \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$F_{cr} = \frac{\pi^2 E}{\left(\frac{KL_c}{r} \right)^2} \quad \text{For: } \frac{KL_c}{r} > \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$KL/r_y = 57.622 < 131.706$$

$$KL/r_x = 19.501 < 131.706$$

$$F_{CR} = 29.842 \text{ ksi}$$

$$P_u = 984.4 \text{ k}$$



Calculated: FKL Date: 3/30/2012
 Checked: MTN Date: 4/12/2012

CUY-2-1441 Load Rating Analysis - As-Built
 Main Ave Bridge
 East Approach Fwd Section - Bent 3

Column: C303

Section Properties 2-1/2"x13" Plates ONLY

A =	13.000	in ²	I _x =	1545.947	in ⁴
h =	22.310	in	S _x =	138.588	in ³
b _f =	13.000	in	r _x =	10.905	in
t _f =	0.500	in	I _y =	183.083	in ⁴
t _w =	0.000	in	S _y =	28.167	in ³
			r _y =	3.753	in
F _y =	34.5	ksi	F _y using strain compatibility		
E =	29000	ksi			
L _{cx} =	285.37	in			
L _{cy} =	285.37	in			
K _x =	0.650	AASHTO Appendix C			
K _y =	0.650	AASHTO Appendix C			

Axial Loading

$$P_u = 0.85 A_s F_{cr}$$

AASHTO 10.54 Concentrically Loaded Columns

$$F_{cr} = F_y \left(1 - \frac{F_y}{4\pi^2 E} \left(\frac{KL_c}{r} \right)^2 \right) \quad \text{For: } \frac{KL_c}{r} \leq \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$F_{cr} = \frac{\pi^2 E}{\left(\frac{KL_c}{r} \right)^2} \quad \text{For: } \frac{KL_c}{r} > \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$KL/r_y = 57.622 < 128.721$$

$$KL/r_x = 19.501 < 128.721$$

$$F_{CR} = 31.087 \text{ ksi}$$

$$P_u = 343.5 \text{ k}$$

CUY-2-1441 Load Rating Analysis - As-Built

Main Ave Bridge

East Approach Forward Section - Column 303 Ratings



Calculated:

FKL 3/30/2012

Checked:

MTN 4/12/2012

Column Loading

	DL	HS-20	2F1	3F1	4F1	5C1
Max Axial	316.20	219.47	114.69	157.15	177.38	198.15
Moment	0.73	5.61	3.93	4.61	4.94	5.27
Axial	308.94	77.37	33.96	51.55	59.93	68.54
Max Mom.	90.65	208.04	96.28	141.60	163.18	185.32

DL Factor

1.30

LL Factor

2.17 INV
1.30 OPER

Factored Loads

Axial Force

Moment

Capacities

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_c}\right)} \leq 1.0$$

Load Case	Member	Axial Force		Moment		P _u kips	M _u k-ft	A _s F _c kips	Condition Equation	RF
		Dead Load	Max. LL + I	Dead Load	Max LL + I					
HS20 INV	C303	411.0639	475.51	0.94	12.16	1327.90	1209.80	38994.31	1.00	1.89
HS20 INV	C303	401.6246	167.62	117.85	450.75	1327.90	1209.80	38994.31	1.00	1.80
HS20 OPR	C303	411.0639	285.31	0.94	7.29	1327.90	1209.80	38994.31	1.00	3.16
HS20 OPR	C303	401.6246	100.57	117.85	270.45	1327.90	1209.80	38994.31	1.00	3.00
2F1	C303	411.0639	149.09	0.94	5.11	1327.90	1209.80	38994.31	1.00	6.00
2F1	C303	401.6246	44.15	117.85	125.17	1327.90	1209.80	38994.31	1.00	6.62
3F1	C303	411.0639	204.29	0.94	6.00	1327.90	1209.80	38994.31	1.00	4.40
3F1	C303	401.6246	67.02	117.85	184.08	1327.90	1209.80	38994.31	1.00	4.45
4F1	C303	411.0639	230.59	0.94	6.42	1327.90	1209.80	38994.31	1.00	3.90
4F1	C303	401.6246	77.91	117.85	212.13	1327.90	1209.80	38994.31	1.00	3.85
5C1	C303	411.0639	257.59	0.94	6.85	1327.90	1209.80	38994.31	1.00	3.49
5C1	C303	401.6246	89.10	117.85	240.92	1327.90	1209.80	38994.31	1.00	3.38

Load Case	Controlling RF
HS20 INV	1.80
HS20 OPR	3.00
2F1	6.00
3F1	4.40
4F1	3.85
5C1	3.38



Calculated: FKL Date: 3/30/2012
Checked: MTN Date: 4/12/2012

CUY-2-1441 Load Rating Analysis - As-Built
Main Ave Bridge
East Approach Fwd Section - Bent 3

Column: C203

Section Properties 24WF140

A =	41.160	in ²	I _x =	4376.100	in ⁴
h =	24.410	in	S _x =	358.600	in ³
b _f =	14.029	in	r _x =	10.310	in
t _f =	0.980	in	I _y =	414.500	in ⁴
t _w =	0.594	in	S _y =	59.100	in ³
			r _y =	3.170	in
F _y =	33.0	ksi	Z	397	in ³
E =	29000	ksi			
L _{cx} =	295.15	in			
L _{cy} =	295.15	in			
K _x =	0.650	AASHTO Appendix C			
K _y =	0.650	AASHTO Appendix C			

Axial Loading

$$P_u = 0.85 A_s F_{cr}$$

AASHTO 10.54 Concentrically Loaded Columns

$$F_{cr} = F_y \left(1 - \frac{F_y}{4\pi^2 E} \left(\frac{KL_c}{r} \right)^2 \right) \quad \text{For: } \frac{KL_c}{r} \leq \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$F_{cr} = \frac{\pi^2 E}{\left(\frac{KL_c}{r} \right)^2} \quad \text{For: } \frac{KL_c}{r} > \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$KL/r_y = 60.520 < 131.706$$

$$KL/r_x = 18.608 < 131.706$$

$$F_{CR} = 29.516 \text{ ksi}$$

$$P_u = 1032.6 \text{ k}$$

Axial Loading and Bending

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_e} \right)} \leq 1.0$$

AASHTO 10.54.2 Combined Axial Load and Bending

$$C = 0.6 + 0.4a$$

$$a = 0 \quad \text{**When moment is small assume } a = 0$$

$$C = 0.600$$

$$F_e = \frac{E\pi^2}{\left(\frac{KL_c}{r} \right)^2} \quad F_{ex} = 826.603 \text{ ksi}$$

$$F_{ey} = 78.144 \text{ ksi}$$

Column Moment Capacity

Strong Axis Bending

M_u = F_yZ For Compact Section

$$\text{Total } M_{ux} = 1091.8 \text{ k-ft}$$

CUY-2-1441 Load Rating Analysis - As-Built

Main Ave Bridge

East Approach Forward Section - Column 203 Ratings



Calculated:

FKL 3/30/2012

Checked:

MTN 4/12/2012

Column Loading

	DL	HS-20	2F1	3F1	4F1	5C1
Max Axial	273.50	193.02	98.97	137.09	155.24	173.89
Moment	5.95	46.49	43.66	44.80	45.34	45.91
Axial	261.73	70.84	31.94	49.09	57.26	65.64
Max Mom.	108.46	228.52	103.88	153.31	176.87	201.06

DL Factor

1.30

LL Factor

2.17 INV
1.30 OPER

Factored Loads

Axial Force

Moment

Capacities

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_c}\right)} \leq 1.0$$

Load Case	Member	Axial Force		Moment		P _u kips	M _u k-ft	A _s F _c kips	Condition Equation	RF
		Dead Load	Max. LL + I	Dead Load	Max LL + I					
HS20 INV	C203	355.5526	418.22	7.73	100.72	1032.60	1091.80	34022.97	1.00	1.41
HS20 INV	C203	340.2516	153.48	140.99	495.14	1032.60	1091.80	34022.97	1.00	1.39
HS20 OPR	C203	355.5526	250.93	7.73	60.43	1032.60	1091.80	34022.97	1.00	2.35
HS20 OPR	C203	340.2516	92.09	140.99	297.08	1032.60	1091.80	34022.97	1.00	2.32
2F1	C203	355.5526	128.66	7.73	56.76	1032.60	1091.80	34022.97	1.00	4.16
2F1	C203	340.2516	41.52	140.99	135.04	1032.60	1091.80	34022.97	1.00	5.12
3F1	C203	355.5526	178.21	7.73	58.24	1032.60	1091.80	34022.97	1.00	3.17
3F1	C203	340.2516	63.81	140.99	199.31	1032.60	1091.80	34022.97	1.00	3.42
4F1	C203	355.5526	201.81	7.73	58.95	1032.60	1091.80	34022.97	1.00	2.85
4F1	C203	340.2516	74.43	140.99	229.93	1032.60	1091.80	34022.97	1.00	2.95
5C1	C203	355.5526	226.05	7.73	59.68	1032.60	1091.80	34022.97	1.00	2.58
5C1	C203	340.2516	85.34	140.99	261.38	1032.60	1091.80	34022.97	1.00	2.59

Load Case	Controlling RF
HS20 INV	1.39
HS20 OPER	2.32
2F1	4.16
3F1	3.17
4F1	2.85
5C1	2.58



Calculated: FKL Date: 3/30/2012
Checked: MTN Date: 4/12/2012

CUY-2-1441 Load Rating Analysis - As-Built
Main Ave Bridge
East Approach Fwd Section - Bent 3

Column: C103

Section Properties		21WF132 & New reinforcing Plates	
A =	51.810 in ²	I _x =	4687.547 in ⁴
h =	22.310 in	S _x =	420.219 in ³
b _f =	13.087 in	r _x =	9.512 in
t _f =	1.520 in	I _y =	536.883 in ⁴
t _w =	0.614 in	S _y =	82.048 in ³
		r _y =	3.219 in

E =	29000	ksi
L _{cx} =	304.93	in
L _{cy} =	304.93	in
K _x =	0.650	AASHTO Appendix C
K _y =	0.650	AASHTO Appendix C

Axial Loading

$$P_u = 0.85 A_s F_{cr}$$

AASHTO 10.54 Concentrically Loaded Columns

$$F_{cr} = F_y \left(1 - \frac{F_y}{4\pi^2 E} \left(\frac{KL_c}{r} \right)^2 \right) \quad \text{For: } \frac{KL_c}{r} \leq \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$F_{cr} = \frac{\pi^2 E}{\left(\frac{KL_c}{r} \right)^2} \quad \text{For: } \frac{KL_c}{r} > \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$KL/r_y = 61.572$$

$$KL/r_x = 20.838$$

$$P_u = 1307.8 \text{ k}$$

Axial Loading and Bending

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_c} \right)} \leq 1.0$$

AASHTO 10.54.2 Combined Axial Load and Bending

$$C = 0.6 + 0.4a$$

$$a = 0 \quad \text{**When moment is small assume } a = 0$$

$$C = 0.600$$

$$F_e = \frac{E\pi^2}{\left(\frac{KL_c}{r} \right)^2} \quad \begin{array}{l} F_{ex} = 659.169 \text{ ksi} \\ F_{ey} = 75.497 \text{ ksi} \end{array}$$

Column Moment Capacity

Strong Axis Bending

$M_u = F_y S_x$ For Non-Compact Section

$$\text{Total } M_{ux} = 1209.8 \text{ k-ft}$$



Calculated: FKL Date: 3/30/2012
 Checked: MTN Date: 4/12/2012

CUY-2-1441 Load Rating Analysis - As-Built
Main Ave Bridge
East Approach Fwd Section - Bent 3

Column: C103

Section Properties		21WF132 ONLY	
A =	38.810 in ²	I _x =	3141.600 in ⁴
h =	21.310 in	S _x =	294.800 in ³
b _f =	13.087 in	r _x =	9.000 in
t _f =	1.020 in	I _y =	353.800 in ⁴
t _w =	0.614 in	S _y =	54.100 in ³
		r _y =	3.020 in
F _y =	33.0 ksi	Z	327.8 in ³
E =	29000 ksi		
L _{cx} =	304.93 in		
L _{cy} =	304.93 in		
K _x =	0.650 AASHTO Appendix C		
K _y =	0.650 AASHTO Appendix C		

Axial Loading

$$P_u = 0.85 A_s F_{cr}$$

AASHTO 10.54 Concentrically Loaded Columns

$$F_{cr} = F_y \left(1 - \frac{F_y}{4\pi^2 E} \left(\frac{KL_c}{r} \right)^2 \right) \quad \text{For: } \frac{KL_c}{r} \leq \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$F_{cr} = \frac{\pi^2 E}{\left(\frac{KL_c}{r} \right)^2} \quad \text{For: } \frac{KL_c}{r} > \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$KL/r_y = 61.572 < 131.706$$

$$KL/r_x = 20.838 < 131.706$$

$$F_{CR} = 29.394 \text{ ksi}$$

$$P_u = 969.7 \text{ k}$$



Calculated: FKL Date: 3/30/2012
 Checked: MTN Date: 4/12/2012

CUY-2-1441 Load Rating Analysis - As-Built
Main Ave Bridge
East Approach Fwd Section - Bent 3

Column: C103

Section Properties 2-1/2"x13" Plates ONLY

A =	13.000	in ²	I _x =	1545.947	in ⁴
h =	22.310	in	S _x =	138.588	in ³
b _f =	13.000	in	r _x =	10.905	in
t _f =	0.500	in	I _y =	183.083	in ⁴
t _w =	0.000	in	S _y =	28.167	in ³
			r _y =	3.753	in
F _y =	34.5	ksi	F _y using strain compatibility		
E =	29000	ksi			
L _{cx} =	304.93	in			
L _{cy} =	304.93	in			
K _x =	0.650	AASHTO Appendix C			
K _y =	0.650	AASHTO Appendix C			

Axial Loading

$$P_u = 0.85 A_s F_{cr}$$

AASHTO 10.54 Concentrically Loaded Columns

$$F_{cr} = F_y \left(1 - \frac{F_y}{4\pi^2 E} \left(\frac{KL_c}{r} \right)^2 \right) \quad \text{For: } \frac{KL_c}{r} \leq \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$F_{cr} = \frac{\pi^2 E}{\left(\frac{KL_c}{r} \right)^2} \quad \text{For: } \frac{KL_c}{r} > \sqrt{\frac{2\pi^2 E}{F_y}}$$

KL/r _y =	61.572	<	128.721
KL/r _x =	20.838	<	128.721

F_{CR} = 30.596 ksi

P_u = 338.1 k

CUY-2-1441 Load Rating Analysis - As-Built

Main Ave Bridge

East Approach Forward Section - Column 103 Ratings



Calculated:

FKL 3/30/2012

Checked:

MTN 4/12/2012

Column Loading

	DL	HS-20	2F1	3F1	4F1	5C1
Max Axial	206.98	170.69	74.82	113.67	132.18	151.18
Moment	3.80	4.21	2.65	3.28	3.58	3.89
Axial	195.03	77.00	33.81	51.31	59.65	68.21
Max Mom.	29.38	201.09	89.06	134.48	156.11	178.31

DL Factor

1.30

LL Factor

2.17 INV
1.30 OPER

Factored Loads

Axial Force

Moment

Capacities

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_e}\right)} \leq 1.0$$

Load Case	Member	Axial Force		Moment		P _u kips	M _u k-ft	A _s F _e kips	Condition Equation	RF
		Dead Load	Max. LL + I	Dead Load	Max LL + I					
HS20 INV	C103	269.0766	369.82	4.93	9.13	1307.80	1209.80	34151.57	1.00	2.75
HS20 INV	C103	253.5416	166.82	38.19	435.69	1307.80	1209.80	34151.57	1.00	2.26
HS20 OPR	C103	269.0766	221.89	4.93	5.48	1307.80	1209.80	34151.57	1.00	4.59
HS20 OPR	C103	253.5416	100.09	38.19	261.41	1307.80	1209.80	34151.57	1.00	3.77
2F1	C103	269.0766	97.27	4.93	3.44	1307.80	1209.80	34151.57	1.00	10.40
2F1	C103	253.5416	43.95	38.19	115.77	1307.80	1209.80	34151.57	1.00	8.54
3F1	C103	269.0766	147.77	4.93	4.27	1307.80	1209.80	34151.57	1.00	6.87
3F1	C103	253.5416	66.71	38.19	174.83	1307.80	1209.80	34151.57	1.00	5.65
4F1	C103	269.0766	171.83	4.93	4.66	1307.80	1209.80	34151.57	1.00	5.92
4F1	C103	253.5416	77.54	38.19	202.94	1307.80	1209.80	34151.57	1.00	4.86
5C1	C103	269.0766	196.54	4.93	5.06	1307.80	1209.80	34151.57	1.00	5.18
5C1	C103	253.5416	88.67	38.19	231.80	1307.80	1209.80	34151.57	1.00	4.25

Load Case	Controlling RF
HS20 INV	2.26
HS20 OPR	3.77
2F1	8.54
3F1	5.65
4F1	4.86
5C1	4.25



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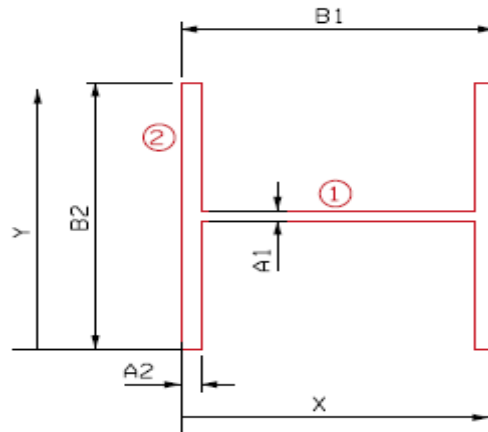
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Calculations For: **CUY-2-1441 East Approach Forward Section**

Element Dimensions (without Section Losses):

Rolled Beam

- $A_1 = t_w = 0.5940$ in
- $A_2 = t_f = 0.9800$ in
- $B_1 = d = 24.4100$ in
- $B_2 = b_f = 14.0290$ in



Column 203

Y-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I_o	d	Ad^2	$I_{y,gross}$
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		13.3353	7.0145	93.5405	0.3921	0.0000	0.0000	0.3921
2	Flange Plates		27.4968	7.0145	192.8766	450.9776	0.0000	0.0000	450.9776
Total			40.83		286.42	451.37		0.00	451.37
Section Losses			A	y	Ay	I_o	d	Ad^2	$I_{y,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	22.4500	0.0625	-1.4031	6.7488	-9.4693	-0.0005	0.2178	-0.0666	-0.0670
2	22.4500	0.0938	-2.1047	7.2646	-15.2898	-0.0015	0.2981	-0.1870	-0.1885
3	0.0938	6.7175	-0.6298	10.6703	-6.7198	-2.3682	3.7037	-8.6387	-11.0068
4	0.0938	6.7175	-0.6298	10.6703	-6.7198	-2.3682	3.7037	-8.6387	-11.0068
5	0.0625	6.7175	-0.4198	3.3588	-1.4102	-1.5788	3.6078	-5.4648	-7.0436
6	0.0625	6.7175	-0.4198	3.3588	-1.4102	-1.5788	3.6078	-5.4648	-7.0436
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			-5.61		-41.02	-7.90		-28.46	-36.36

As-Built Section Properties				As-Inspected Section Properties							
x-bar =	7.0145	in	$S_{top} = 64.35$	in ³	x-bar =	6.9666	in	$S_{top} = 58.76$	in ³		
$I_y =$	451.37	in ⁴	$S_{bott.} = 64.35$	in ³	$I_y =$	415.01	in ⁴	$S_{bott.} = 59.57$	in ³		
$C_{top} =$	7.0145	in	A =	40.8321	in ²	$C_{top} =$	7.0624	in	A =	35.2251	in ²
$C_{bottom} =$	7.0145	in	$r_y =$	3.3248	in	$C_{bottom} =$	6.9666	in	$r_y =$	3.4325	in



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Calculations For: **CUY-2-1441 East Approach Forward Section**

X-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{x,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web Plate		13.3353	12.2050	162.7573	560.0854	0.0000	0.0000	560.0854
2	Left Flange		13.7484	0.4900	6.7367	1.1003	11.7150	1886.8500	1887.9503
	Right Flange		13.7484	23.9200	328.8622	1.1003	11.7150	1886.8500	1887.9503
Total			40.83		498.36	562.29		3773.70	4335.99
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{x,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0625	22.4500	-1.4031	12.2050	-17.1251	-58.9315	0.0000	0.0000	-58.9315
2	0.0938	22.4500	-2.1047	12.2050	-25.6877	-88.3973	0.0000	0.0000	-88.3973
3	6.7175	0.0938	-0.6298	0.9331	-0.5877	-0.0005	11.2719	-80.0150	-80.0154
4	6.7175	0.0938	-0.6298	23.4769	-14.7849	-0.0005	11.2719	-80.0150	-80.0154
5	6.7175	0.0625	-0.4198	23.4613	-9.8501	-0.0001	11.2563	-53.1955	-53.1957
6	6.7175	0.0625	-0.4198	0.9488	-0.3983	-0.0001	11.2563	-53.1955	-53.1957
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			-5.61		-68.43	-147.33		-266.42	-413.75

As-Built Section Properties					As-Inspected Section Properties						
y-bar =	12.2050	in	S _{right} =	355.26	in ³	y-bar =	12.2050	in	S _{right} =	321.36	in ³
I _x =	4335.99	in ⁴	S _{left} =	355.26	in ³	I _x =	3922.23	in ⁴	S _{left} =	321.36	in ³
C _{right} =	12.2050	in	A =	40.8321	in ²	C _{right} =	12.2050	in	A =	35.2251	in ²
C _{left} =	12.2050	in	r _y =	10.3049	in	C _{left} =	12.2050	in	r _y =	10.5521	in



Calculated: FKL Date: 3/30/2012

Checked: MTN Date: 4/12/2012

CUY-2-1441 Load Rating Analysis - As-Inspected

Main Ave Bridge

East Approach Fwd Section - Bent 3

Column:	C203
---------	------

Section Properties 24WF140

A =	35.225	in ²	I _x =	3922.230	in ⁴
h =	24.410	in	S _x =	321.360	in ³
b _f =	14.029	in	r _x =	10.552	in
t _f =	0.980	in	I _y =	415.010	in ⁴
t _w =	0.594	in	S _y =	58.760	in ³
			r _y =	3.433	in
F _y =	33.0	ksi			
E =	29000	ksi			
L _{cx} =	295.15	in			
L _{cy} =	295.15	in			
K _x =	0.650	AASHTO Appendix C			
K _y =	0.650	AASHTO Appendix C			

Axial Loading

$$P_u = 0.85 A_s F_{cr}$$

AASHTO 10.54 Concentrically Loaded Columns

$$F_{cr} = F_y \left(1 - \frac{F_y}{4\pi^2 E} \left(\frac{KL_c}{r} \right)^2 \right)$$

$$\text{For: } \frac{KL_c}{r} \leq \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$F_{cr} = \frac{\pi^2 E}{\left(\frac{KL_c}{r} \right)^2}$$

$$\text{For: } \frac{KL_c}{r} > \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$KL/r_y = 55.892 < 131.706$$

$$KL/r_x = 18.181 < 131.706$$

$$F_{CR} = 30.029 \text{ ksi}$$

$P_u = 899.1 \text{ k}$



Calculated: FKL Date: 3/30/2012
 Checked: MTN Date: 4/12/2012

CUY-2-1441 Load Rating Analysis - As-Inspected
Main Ave Bridge
East Approach Fwd Section - Bent 3

Column: C203

Axial Loading and Bending

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_e}\right)} \leq 1.0$$

AASHTO 10.54.2 Combined Axial Load and Bending

$$= 0.6 + 0.4$$

$$a = 0 \quad \text{**When moment is small assume } a = 0$$

$$C = 0.600$$

$$F_e = \frac{E \pi^2}{\left(\frac{KL_c}{r}\right)^2} \quad \begin{array}{l} F_{ex} = 865.885 \text{ ksi} \\ F_{ey} = 91.622 \text{ ksi} \end{array}$$

Column Moment Capacity

Strong Axis Bending

$M_u = F_y S_x$ For Non-Compact Section

Total $M_{ux} = 883.7$ k-ft

CUY-2-1441 Load Rating Analysis - As-Inspected

Main Ave Bridge

East Approach Forward Section - Column 203 Ratings



Calculated:

FKL 3/30/2012

Checked:

MTN 4/12/2012

Column Loading

	DL	HS-20	2F1	3F1	4F1	5C1
Max Axial	273.50	193.02	98.97	137.09	155.24	173.89
Moment	5.95	46.49	43.66	44.80	45.34	45.91
Axial	261.73	70.84	31.94	49.09	57.26	65.64
Max Mom.	108.46	228.52	103.88	153.31	176.87	201.06

DL Factor

1.30

LL Factor

2.17 INV
1.30 OPER

Factored Loads

Axial Force

Moment

Capacities

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_e}\right)} \leq 1.0$$

Load Case	Member	Axial Force		Moment		P _u kips	M _u k-ft	A _s F _e kips	Condition Equation	RF
		Dead Load	Max. LL + I	Dead Load	Max LL + I					
HS20 INV	C203	355.5526	418.22	7.73	100.72	899.10	883.70	30500.90	1.00	1.12
HS20 INV	C203	340.2516	153.48	140.99	495.14	899.10	883.70	30500.90	1.00	1.02
HS20 OPR	C203	355.5526	250.93	7.73	60.43	899.10	883.70	30500.90	1.00	1.87
HS20 OPR	C203	340.2516	92.09	140.99	297.08	899.10	883.70	30500.90	1.00	1.71
2F1	C203	355.5526	128.66	7.73	56.76	899.10	883.70	30500.90	1.00	3.28
2F1	C203	340.2516	41.52	140.99	135.04	899.10	883.70	30500.90	1.00	3.76
3F1	C203	355.5526	178.21	7.73	58.24	899.10	883.70	30500.90	1.00	2.51
3F1	C203	340.2516	63.81	140.99	199.31	899.10	883.70	30500.90	1.00	2.51
4F1	C203	355.5526	201.81	7.73	58.95	899.10	883.70	30500.90	1.00	2.26
4F1	C203	340.2516	74.43	140.99	229.93	899.10	883.70	30500.90	1.00	2.17
5C1	C203	355.5526	226.05	7.73	59.68	899.10	883.70	30500.90	1.00	2.04
5C1	C203	340.2516	85.34	140.99	261.38	899.10	883.70	30500.90	1.00	1.90

Load Case	Controlling RF
HS20 INV	1.02
HS20 OPR	1.71
2F1	3.28
3F1	2.51
4F1	2.17
5C1	1.90



Made By MTN
 Checked By PJP

Date 3/28/2012
 Date 4/5/2012

Job No. P402110046
 Sheet No. _____

Calculations For: **CUY-2-1441 - East Approach Forward Section**

Bent 4 Reactions

Dead Load Reactions from MDX

Unit 3		
Stringer	DL1	DL2
F1-3	9.32	1.50
S1-3	9.52	1.50
S2-3	9.68	1.50
S3-3	10.43	1.50
S4-3	10.43	1.50
S5-3	10.43	1.50
S6-3	10.43	1.50
S7-3	10.41	1.50
S8-3	10.43	1.50
S9-3	10.43	1.50
S10-3	10.43	1.50
S11-3	10.43	1.50
S12-3	11.14	1.55
S13-3	10.94	1.50
F2-3	10.10	1.50

Unit 4		
Stringer	DL1	DL2
F1-4	12.76	2.00
S1-4	12.82	2.00
S2-4	13.04	2.00
S3-4	14.03	2.00
S4-4	14.03	2.00
S5-4	14.03	2.00
S6-4	14.03	2.00
S7-4	14.00	2.00
S8-4	14.03	2.00
S9-4	14.03	2.00
S10-4	14.03	2.00
S11-4	14.03	2.00
S12-4	14.80	2.00
S13-4	14.89	2.00
F2-4	12.99	2.00

Bent 4 Reaction	
Stringer	Total DL
F1-3 + F1-4	25.58
S1-3 + S1-4	25.84
S2-3 + S2-4	26.22
S3-3 + S3-4	27.96
S4-3 + S4-4	27.96
S5-3 + S5-4	27.96
S6-3 + S6-4	27.96
S7-3 + S7-4	27.91
S8-3 + S8-4	27.96
S9-3 + S9-4	27.96
S10-3 + S10-4	27.96
S11-3 + S11-4	27.96
S12-3 + S12-4	29.49
S13-3 + S13-4	29.33
F2-3 + F2-4	26.59

Dead Load Reactions from MDX

Lower Deck		
Stringer	DL1	Continuous Over Bent?
S-16	9.54	No
S-4 (1)	8.73	No
S-4 (2)	8.73	No
S-4 (3)	8.73	No
S-4 (4)	8.73	No
S-14	11.14	No
S-13	7.77	No

Bent 4 Reaction	
Stringer	Total DL
S-16	19.08
S-4 (1)	17.46
S-4 (2)	17.46
S-4 (3)	17.46
S-4 (4)	17.46
S-14	22.28
S-13	15.54

Live Load Reactions from STAAD (Same as Bent 5)

	LL	2 lane LL+I	3 lane	4 lane
HS-20	29.35	38.1	34.3	28.6
2F1	13.86	18.0	16.2	13.5
3F1	20.67	26.8	24.2	20.1
4F1	23.66	30.7	27.6	23.0
5C1	23.64	30.7	27.6	23.0

Impact Factor
 Span 4 44.000
 Span 5 44.000
 $L_{avg} = 44.00$
 Impact = 1.296
 3 lane reduction 0.9
 4 lane + reduction 0.75

	LL	
HS-20	29.35	
2F1	13.86	0.472232
3F1	20.67	0.704259
4F1	23.66	0.806133
5C1	23.64	0.805451

Reactions per wheel line at Bent 4



Made By MTN
Checked By PJP

Date 3/28/2012
Date 4/5/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441 - East Approach Forward Section**

Bent 4 Reactions

Lower Deck Live Load

Parking Structure Live Load = 0.04 ksf (from ASCE 07 for Parking Structures)
Tributary Length = 44.00 ft
Distributed Load on FB = 1.76 klf

Bent 4		
Stringer	Tributary Width	Live Load Reaction
S-16	4.141	7.29
S-4 (1)	5.943	10.46
S-4 (2)	5.604	9.86
S-4 (3)	5.604	9.86
S-4 (4)	5.880	10.35
S-14	4.781	8.42
S-13	2.203	3.88

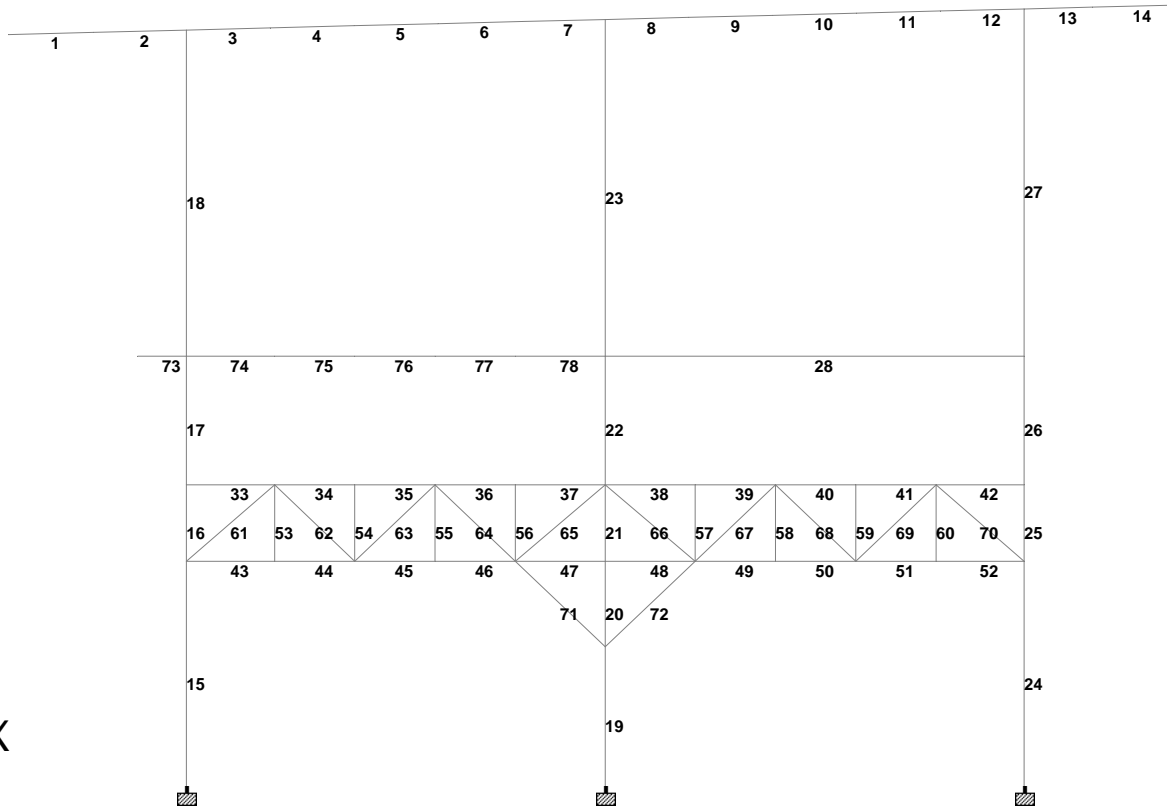


Job No P402110046	Sheet No 1	Rev
Part East Approach - Forward Section		
Ref Bent 4		
By MTN	Date 28-Mar-12	Chd PJP
File Bent_4_LL.std	Date/Time 13-Apr-2012 12:44	

Software licensed to TranSystems

Job Title CUY-2-1441 Main Ave. Rating

Client ODOT



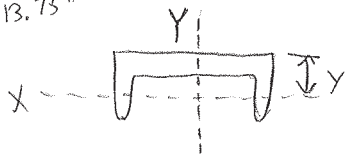
Load 1

Bent 4 Columns

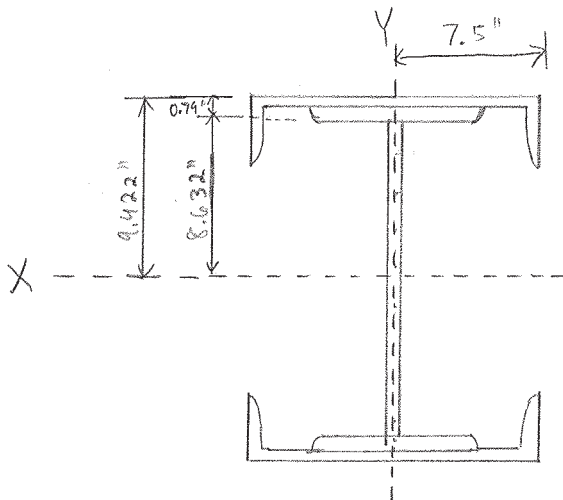
Columns 104 & 304 are 18WF70s with 2-C15x35 channels
 * From 1940 U.S. Steel Sections book

18WF70: Area = 20.56 in² b_f = 8.75" t_f = 0.751"
 D = 18.0" t_w = 0.438" I_x = 1153.9 in⁴ I_y = 78.5 in⁴
 d_w = 16.498"

C15x35: Area = 10.23 in² b_f = 3.422" t_f = 0.625"
 D = 15" t_w = 0.422" I_x = 8.4 in⁴ I_y = 318.7 in⁴
 d_w = 13.75" y = 0.79"



• Columns 104 & 304



$$A = 20.56 + 2(10.23) = \underline{41.02 \text{ in}^2}$$

$$I_x = (1153.9 \text{ in}^4) + 2[(8.4 \text{ in}^4) + (10.23 \text{ in}^2)(8.632")^2]$$

$$I_x = \underline{2695.20 \text{ in}^4}$$

$$I_y = 78.5 \text{ in}^4 + 2(318.7 \text{ in}^4)$$

$$I_y = \underline{715.9 \text{ in}^4}$$

$$J = \frac{1}{3} \sum b t^3 = \frac{1}{3} [2(8.75")(0.751")^3 + (16.498")(0.438")^3 + 2(13.75")(0.422")^3 + 4(3.422")(0.625")^3]$$

$$= \frac{1}{3} [14.2071]$$

$$= \underline{4.736 \text{ in}^4}$$

$$r_x = \sqrt{\frac{I_x}{A}} = \sqrt{\frac{2695.2 \text{ in}^4}{41.02 \text{ in}^2}} = \underline{8.106 \text{ in}}$$

$$r_y = \sqrt{\frac{I_y}{A}} = \sqrt{\frac{715.9 \text{ in}^4}{41.02 \text{ in}^2}} = \underline{4.178 \text{ in}}$$

$$S_x = \frac{I_x}{C_x} = \frac{2695.20 \text{ in}^4}{9.422"} = \underline{286.05 \text{ in}^3}$$

$$S_y = \frac{I_y}{C_y} = \frac{715.9}{7.5"} = \underline{95.45 \text{ in}^3}$$

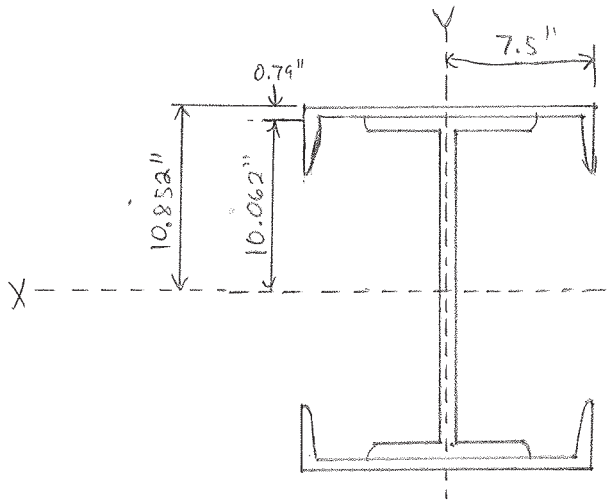
Bot 4 Columns

Column 204 is 21 WF 82 with 2 - C 15 x 35 channels

21 WF 82: Area = 24.10 in² b_f = 8.962" t_f = 0.795"
 D = 20.86" t_w = 0.499" I_x = 1752.4 in⁴ I_y = 89.6 in⁴
 d_w = 19.27"

C 15 x 35: See Sheet 1

• Column 204



$$A = 24.10 + 2(10.23) = \underline{44.56 \text{ in}^2}$$

$$I_x = 1752.4 \text{ in}^4 + 2[(8.4 \text{ in}^4) + (10.23 \text{ in}^2)(10.062 \text{ in})^2]$$

$$I_x = \underline{3840.65 \text{ in}^4}$$

$$I_y = 89.6 \text{ in}^4 + 2(318.7)$$

$$I_y = \underline{727 \text{ in}^4}$$

$$J = \frac{1}{3} \sum b t^3 = \frac{1}{3} [2(8.962)(0.795 \text{ in})^3 + (19.27 \text{ in})(0.499 \text{ in})^3 + 2(13.75 \text{ in})(0.422 \text{ in})^3 + 4(3.422 \text{ in})(0.625 \text{ in})^3]$$

$$= \frac{1}{3} [16.8089]$$

$$= \underline{5.603 \text{ in}^4}$$

$$r_x = \sqrt{\frac{I_x}{A}} = \sqrt{\frac{3840.65 \text{ in}^4}{44.56 \text{ in}^2}} = \underline{9.284 \text{ in}}$$

$$S_x = \frac{I_x}{C_x} = \frac{3840.65 \text{ in}^4}{10.852 \text{ in}} = \underline{353.91 \text{ in}^3}$$

$$r_y = \sqrt{\frac{I_y}{A}} = \sqrt{\frac{727 \text{ in}^4}{44.56 \text{ in}^2}} = \underline{4.039 \text{ in}}$$

$$S_y = \frac{I_y}{C_y} = \frac{727 \text{ in}^4}{7.5 \text{ in}} = \underline{96.93 \text{ in}^3}$$



PROPERTIES

CHANNELS
AMERICAN STANDARD

PROPERTIES OF SECTIONS



Table with columns: District Rolled, Section Index and Nominal Size, Depth of Channel, Weight Per Foot, Area of Section, Width of Flange, Web Thickness, Axis 1-1 (I, S, x, y), Axis 2-2 (I, S, x, y). Rows include sections like C 60, C 1, C 20, C 2, C 3, C 4.

IC 60 is not an American standard channel. For key to symbols in first column, refer to page 3.

CHANNELS

AMERICAN STANDARD

DIMENSIONS OF SECTIONS
FOR DETAILING

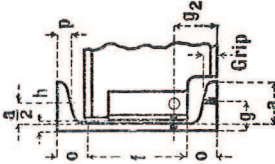


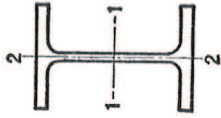
Table with columns: Section Index and Depth, Weight per Foot, Flange (Width, Thickness, p), Web (Thickness, Half Thickness), Distance (Min. g2, o, f, a, Clear. h, Gage g, Grip), Max. Flange Rivet In. Rows include sections like IC 60, C 1, C 20, C 2, C 3, C 4.

Gages g2 are based on 1/4" edge distance (2/8" maximum rivet). IC 60 is not an American standard channel.



PROPERTIES

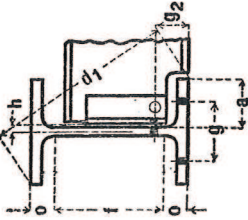
**WIDE FLANGE
CB SECTIONS**



PROPERTIES OF SECTIONS


District Rolled	Section Index and Nominal Size	Depth of Section In.	Weight per Foot Lbs.	Area of Section In. ²	Flange		Axis 1-1		Axis 2-2		
					Width In.	Web Thickness In.	I In. ⁴	S In. ³	I In. ⁴	S In. ³	I In. ⁴
P. C.	18" WF	18.64	124	36.45	11.889	1.071	2227.1	239.0	281.9	47.4	2.78
	CB 183	18.48	114	33.51	11.833	.991	2033.8	220.1	255.6	43.2	2.76
	18 x 11 3/4	18.32	105	30.86	11.792	.911	1852.5	202.2	231.0	39.2	2.73
	R = 60	18.16	96	28.22	11.750	.831	1674.7	184.4	206.8	35.2	2.71
P. C.	18" WF	18.32	85	24.97	8.838	.911	1429.9	156.1	99.4	22.5	2.00
	CB 182	18.16	77	22.63	8.787	.831	1286.8	141.7	88.6	20.2	1.98
	18 x 8 3/4	18.00	70	20.56	8.750	.751	1153.9	128.2	78.5	17.9	1.95
	R = 60	17.87	64	18.80	8.715	.686	1045.8	117.0	70.3	16.1	1.93
P. C.	18" WF	18.12	55	16.19	7.532	.630	889.9	98.2	42.0	11.1	1.61
	CB 181	18.00	50	14.71	7.500	.570	800.6	89.0	37.2	9.9	1.59
	18 x 7 1/2	17.90	47	13.81	7.492	.520	736.4	82.3	33.5	9.0	1.56
	R = 43										
P. C.	16" WF	16.64	114	33.51	11.629	1.035	1642.6	197.4	254.6	43.8	2.76
	CB 163	16.48	105	30.87	11.582	.955	1497.5	181.7	230.7	39.8	2.73
	16 x 11 1/2	16.32	96	28.22	11.533	.875	1355.1	166.1	207.2	35.9	2.71
	R = 60	16.16	88	25.87	11.502	.795	1222.6	151.3	185.2	32.2	2.67
P. C.	16" WF	16.32	78	22.92	8.586	.875	1042.6	127.8	87.5	20.4	1.95
	CB 162	16.16	71	20.86	8.543	.795	936.9	115.9	77.9	18.2	1.93
	16 x 8 1/2	16.00	64	18.80	8.500	.715	833.8	104.2	68.4	16.1	1.91
	R = 60	15.86	58	17.04	8.464	.645	746.4	94.1	60.5	14.3	1.88
P. C.	16" WF	16.25	50	14.70	7.073	.628	655.4	80.7	34.8	9.8	1.54
	CB 161	16.12	45	13.24	7.039	.563	583.3	72.4	30.5	8.7	1.52
	16 x 7	16.00	40	11.77	7.000	.503	515.5	64.4	26.5	7.6	1.50
	R = 43	15.85	36	10.59	6.992	.428	446.3	56.3	22.1	6.3	1.45

For key to symbols in first column, refer to page 3.



**WIDE FLANGE
CB SECTIONS**

**DIMENSIONS OF SECTIONS
FOR DETAILING**



DIMENSIONS

Section Index and Nominal Depth	Weight per Foot Lbs.	Depth of Section In.	Flange		Web		Distance						Usual Gage g	
			Width In.	Thickness In.	Thickness In.	Half Thickness In.	a In.	f In.	o In.	d ₁ In.	Min. g ₂ In.	Clear. h In.		
18" WF	124	18 5/8	11 7/8	1 1/16	1 1/16	5/16	3/8	5 5/8	15 1/2	1 3/4	22 1/8	3	3/8	5 1/2
CB 183	114	18 1/2	11 7/8	1	1 1/16	5/8	3/8	5 5/8	15 1/8	1 11/16	22	3	3/8	5 1/2
18 x 11 3/4	105	18 3/8	11 3/4	5/16	1 1/2	3/4	3/8	5 5/8	15 1/2	1 5/8	21 7/8	2 3/4	3/8	5 1/2
R = 60	96	18 1/8	11 3/4	13/16	1 1/2	1/2	3/4	5 5/8	15 1/2	1 1/2	21 3/4	2 3/4	3/16	5 1/2
18" WF	85	18 3/8	8 7/8	15/16	9/16	1/4	1/4	4 1/8	15 3/8	1 1/2	20 3/8	2 3/4	5/16	5 1/2
CB 182	77	18 1/8	8 3/4	1 1/2	1/2	1/4	1/4	4 1/8	15 3/8	1 3/8	20 1/8	2 3/4	5/16	5 1/2
18 x 8 3/4	70	18	8 3/4	3/4	7/16	1/4	1/4	4 1/8	15 3/8	1 5/8	20	2 3/4	9/16	5 1/2
R = 60	64	17 7/8	8 3/4	1/16	7/16	3/16	3/16	4 1/8	15 3/8	1 1/4	20	2 1/2	1/4	5 1/2
18" WF	55	18 1/8	7 1/2	5/8	3/8	3/16	3/16	3 5/8	15 7/8	1 1/8	19 5/8	2 1/2	1/4	3 1/2
CB 181	50	18	7 1/2	9/16	3/8	3/8	3/8	3 5/8	15 7/8	1 1/16	19 1/2	2 1/4	1/4	3 1/2
18 x 7 1/2	47	17 7/8	7 1/2	1/2	3/8	3/8	3/8	3 5/8	15 7/8	1	19 3/8	2 1/4	1/4	3 1/2
R = 43														
16" WF	114	16 5/8	11 5/8	1 1/16	5/8	5/16	5/16	5 1/2	13 1/8	1 3/4	20 3/8	3	3/8	5 1/2
CB 163	105	16 1/2	11 5/8	1 1/16	5/8	5/16	5/16	5 1/2	13 1/8	1 11/16	20 1/4	3	3/8	5 1/2
16 x 11 1/2	96	16 3/8	11 1/2	7/8	9/16	5/16	5/16	5 1/2	13 1/8	1 5/8	20	2 3/4	3/8	5 1/2
R = 60	88	16 1/8	11 1/2	1 1/2	7/2	1/4	1/4	5 1/2	13 1/8	1 1/2	19 7/8	2 3/4	5/16	5 1/2
16" WF	78	16 3/8	8 5/8	7/8	9/16	1/4	1/4	4	13 3/8	1 1/8	18 1/2	2 3/4	5/16	5 1/2
CB 162	71	16 1/8	8 1/2	1 1/2	1 1/2	1/4	1/4	4	13 3/8	1 3/8	18 1/4	2 3/4	5/16	5 1/2
16 x 8 1/2	64	16	8 1/2	1 1/16	7/16	1/4	1/4	4	13 3/8	1 5/16	18 1/8	2 1/2	5/16	5 1/2
R = 60	58	15 7/8	8 1/2	5/8	7/16	1/4	1/4	4	13 3/8	1 1/4	18	2 1/2	5/16	5 1/2
16" WF	50	16 1/4	7 1/6	5/8	3/8	3/16	3/16	3 3/8	14	1 1/8	17 3/4	2 1/2	1/4	3 1/2
CB 161	45	16 1/8	7	9/16	3/8	3/8	3/8	3 3/8	14	1 1/16	17 5/8	2 1/4	1/4	3 1/2
16 x 7	40	16	7	1 1/2	3/16	3/16	3/16	3 3/8	14	1	17 1/2	2 1/4	1/4	3 1/2
R = 43	36	15 7/8	7	7/16	5/16	3/16	3/16	3 3/8	14	1 15/16	17 3/8	2 1/4	1/4	3 1/2

Gages g₂ are based on 1 1/4" edge distance (7/8" maximum rivet).

I

PROPERTIES

WIDE FLANGE CB SECTIONS



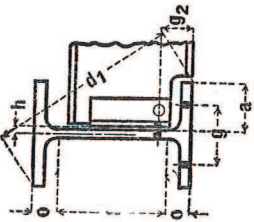
PROPERTIES OF SECTIONS

District Rolled	Section Index and Nominal Size	Depth of Section In.	Weight of Section Lbs.	Area of Section In. ²	Flange		Web Thickness In.	Axis 1-1		Axis 2-2		
					Width In.	Thickness In.		I In. ⁴	S In. ³	r In.	I In. ⁴	S In. ³
P. C.	21" WF	27.31	177	52.10	1.190	.725	6728.6	492.8	11.36	518.9	73.7	3.15
	CB 272	27.12	163	47.93	1.095	.670	6141.5	452.9	11.32	468.7	66.8	3.13
	27 x 14	27.00	154	45.30	1.035	.635	5775.8	427.8	11.29	437.6	62.5	3.11
	R = .86	26.88	145	42.68	.975	.600	5414.3	402.9	11.26	406.9	58.3	3.09
P. C.	27" WF	27.28	114	33.53	.932	.570	4080.5	299.2	11.03	149.6	29.7	2.11
	CB 271	27.14	106	31.17	.862	.535	3761.2	277.2	10.98	136.1	27.1	2.09
	27 x 10	27.00	98	28.82	.792	.500	3446.5	255.3	10.94	122.9	24.6	2.07
	R = .64	26.84	91	26.77	.712	.483	3129.2	233.2	10.81	109.0	21.8	2.02
P. C. 1001 of 2102	24" WF	24.72	160	47.04	1.135	.656	5110.3	413.5	10.42	492.6	69.9	3.23
	CB 243	24.56	150	44.10	1.055	.628	4733.5	385.5	10.36	452.5	64.3	3.20
	24 x 14	24.41	140	41.16	.980	.594	4376.1	358.6	10.31	414.5	59.1	3.17
	R = .70	24.25	130	38.21	.900	.565	4009.5	330.7	10.24	375.2	53.6	3.13
P. C. 102	24" WF	24.31	120	35.29	.930	.556	3635.3	299.1	10.15	254.0	42.0	2.68
	CB 242	24.16	110	32.36	.855	.510	3315.0	274.4	10.12	229.1	38.0	2.66
	24 x 12	24.00	100	29.43	.775	.468	2987.3	248.9	10.08	203.5	33.9	2.63
	R = .70	24.00	100	29.43	.775	.468	2987.3	248.9	10.08	203.5	33.9	2.63
P. C.	24" WF	24.29	94	27.63	.872	.516	2683.0	220.9	9.85	102.2	22.6	1.92
	CB 241	24.16	87	25.58	.807	.480	2467.8	204.3	9.82	92.9	20.6	1.91
	24 x 9	24.00	80	23.54	.727	.455	2229.7	185.8	9.73	82.4	18.3	1.87
	R = .54	23.87	74	21.77	.662	.430	2033.8	170.4	9.67	73.8	16.5	1.84
P. C.	21" WF	21.46	142	41.76	1.095	.659	3403.1	317.2	9.03	385.9	58.8	3.04
	CB 213	21.31	132	38.81	1.020	.614	3141.6	294.8	9.00	353.8	54.1	3.02
	21 x 13	21.16	122	35.85	.945	.567	2883.2	272.5	8.97	322.1	49.4	3.00
	R = .65	21.00	112	32.93	.865	.527	2620.6	249.6	8.92	289.7	44.6	2.96
P. C.	21" WF	21.29	103	30.27	1.010	.608	2268.0	213.1	8.66	119.9	26.4	1.99
	CB 212	21.14	96	28.21	.935	.575	2088.0	197.6	8.60	109.3	24.2	1.97
	21 x 9	21.00	89	26.15	.865	.537	1919.2	182.8	8.57	99.4	22.1	1.95
	R = .65	20.86	82	24.10	.795	.499	1752.4	168.0	8.53	89.6	20.0	1.93
P. C.	21" WF	21.24	73	21.46	.740	.455	1600.3	150.7	8.64	66.2	16.0	1.76
	CB 211	21.13	68	20.02	.685	.430	1478.3	139.9	8.59	60.4	14.6	1.74
	21 x 8 1/4	21.00	63	18.52	.620	.410	1343.6	128.0	8.52	53.8	13.0	1.70
	R = .54	20.91	59	17.36	.575	.390	1246.8	119.3	8.47	49.2	12.0	1.68

For key to symbols in first column, refer to page 3.

WIDE FLANGE CB SECTIONS

DIMENSIONS OF SECTIONS FOR DETAILING



Section Index and Nominal Depth	Flange		Depth of Section In.	Weight per Foot Lbs.	Web		Distance							Usu. Gag g	In.
	Width In.	Thickness In.			Thickness In.	Half Thickness In.	a	f	o	d ₁	Min. g ₂ In.	Clear. h			
27" WF	14 1/8	1 3/16	27 1/4	177	3/4	3/8	6 3/4	23	2 3/8	30 3/4	3 1/4	7/16	5 1/4	5 1/2	
CB 272	14	1 1/8	27 1/8	163	1 1/16	3/8	6 3/4	23	2 3/8	30 5/8	3 1/4	7/16	5 1/4	5 1/2	
27 x 14	14	1 1/16	27	154	5/8	5/16	6 3/4	23	2	30 1/2	3 1/4	3/8	5 1/4	5 1/2	
R = .86	14	1	26 7/8	145	5/8	5/16	6 3/4	23	1 15/16	30 3/8	3 1/4	3/8	5 1/4	5 1/2	
27" WF	10 1/8	5/16	27 1/4	114	9/16	5/16	4 3/4	24	1 5/8	29 1/8	2 3/4	3/8	5 1/4	5 1/2	
CB 271	10	7/8	27 1/4	106	9/16	5/16	4 3/4	24	1 5/8	29	2 3/4	3/8	5 1/4	5 1/2	
27 x 10	10	1 1/2	27	98	1 1/2	1/4	4 3/4	24	1 1/2	28 7/8	2 3/4	5/16	5 1/4	5 1/2	
R = .64	10	1 1/2	26 7/8	91	1 1/2	1/4	4 3/4	24	1 1/2	28 3/4	2 3/4	5/16	5 1/4	5 1/2	
24" WF	14 1/8	1 1/8	24 3/4	160	1 1/8	5/8	6 3/4	20 3/4	2	28 1/2	3 1/4	3/8	5 1/4	5 1/2	
CB 243	14 1/8	1 1/16	24 1/2	150	5/8	5/16	6 3/4	20 3/4	1 7/8	28 1/4	3 1/4	3/8	5 1/4	5 1/2	
24 x 14	14	1	24 3/8	140	5/8	5/16	6 3/4	20 3/4	1 7/8	28 1/8	3	3/8	5 1/4	5 1/2	
R = .70	14	7/8	24 1/4	130	9/16	5/16	6 3/4	20 3/4	1 3/4	28	3	3/8	5 1/4	5 1/2	
24" WF	12 1/8	5/16	24 1/4	120	9/16	5/16	5 3/4	20 7/8	1 11/16	27 1/8	3	3/8	5 1/4	5 1/2	
CB 242	12	7/8	24 1/8	110	1 1/2	1/4	5 3/4	20 7/8	1 5/8	27	3	3/8	5 1/4	5 1/2	
24 x 12	12	3/4	24	100	1 1/2	1/4	5 3/4	20 7/8	1 5/8	26 7/8	3	3/8	5 1/4	5 1/2	
R = .70	12	3/4	24	100	1 1/2	1/4	5 3/4	20 7/8	1 5/8	26 7/8	3	3/8	5 1/4	5 1/2	
24" WF	9	7/8	24 1/4	94	9/16	1/4	4 1/4	21 3/8	1 7/16	25 7/8	2 3/4	5/16	5 1/4	5 1/2	
CB 241	9	1 3/16	24 1/8	87	1 1/2	1/4	4 1/4	21 3/8	1 3/8	25 3/4	2 3/4	5/16	5 1/4	5 1/2	
24 x 9	9	3/4	24	80	1 1/2	1/4	4 1/4	21 3/8	1 3/8	25 5/8	2 1/2	5/16	5 1/4	5 1/2	
R = .54	9	1 1/16	23 7/8	74	7/16	1/4	4 1/4	21 3/8	1 1/4	25 1/2	2 1/2	5/16	5 1/4	5 1/2	
21" WF	13 1/8	1 1/8	21 1/2	142	1 1/8	5/8	6 1/4	17 3/4	1 7/8	25 1/4	3	7/16	5 1/4	5 1/2	
CB 213	13 1/8	1 1/16	21 1/4	132	1 1/8	5/8	6 1/4	17 3/4	1 3/4	25	3	3/8	5 1/4	5 1/2	
21 x 13	13	1 5/16	21 1/8	122	1 1/8	5/8	6 1/4	17 3/4	1 3/4	24 7/8	3	3/8	5 1/4	5 1/2	
R = .65	13	7/8	21	112	1 1/8	5/8	6 1/4	17 3/4	1 5/8	24 3/4	3	3/8	5 1/4	5 1/2	
21" WF	9 1/8	1	21 1/4	103	1	5/8	5 1/4	18	1 5/8	23 1/8	3	3/8	5 1/4	5 1/2	
CB 212	9	1 5/16	21 1/8	96	1 1/8	5/8	5 1/4	18	1 5/8	23	3	3/8	5 1/4	5 1/2	
21 x 9	9	7/8	21	89	1 1/8	5/8	5 1/4	18	1 1/8	22 7/8	2 3/4	3/8	5 1/4	5 1/2	
R = .65	9	1 3/16	20 7/8	82	1 1/8	5/8	5 1/4	18	1 1/8	22 3/4	2 3/4	3/8	5 1/4	5 1/2	
21" WF	8 1/4	3/4	21 1/4	73	1 1/2	1/4	4 1/4	4	1 5/8	22 7/8	2 1/2	5/16	5 1/4	5 1/2	
CB 211	8 1/4	7/16	21 1/8	68	7/16	1/4	4 1/4	4	1 5/8	22 3/4	2 1/2	5/16	5 1/4	5 1/2	
21 x 8 1/4	8 1/4	5/8	21	63	7/16	1/4	4 1/4	4	1 5/8	22 5/8	2 1/2	5/16	5 1/4	5 1/2	
R = .54	8 1/4	3/8	20 7/8	59	9/16	3/8	4 1/4	4	1 5/8	22 1/2	2 1/2	1/4	5 1/4	5 1/2	

Gages g₂ are based on 1 1/4" edge distance (1/8" maximum rivet).



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Sheet No. _____

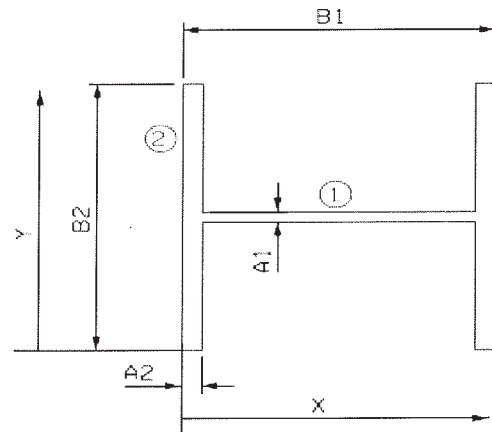
Calculations For: **CUY-2-1441 East Approach Forward Section**

Element Dimensions (without Section Losses):

Rolled Beam

- $A_1 = t_w = 0.4380$ in
- $A_2 = t_f = 0.7510$ in
- $B_1 = d = 18.0000$ in
- $B_2 = b_f = 8.7500$ in

Note: Only for losses to Wide Flange Shape
Channel sections and losses added separately.



Column 304

Y-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I_o	d	Ad^2	$I_{y, gross}$
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		7.2261	4.3750	31.6143	0.1155	0.0000	0.0000	0.1155
2	Flange Plates		13.1425	4.3750	57.4984	83.8519	0.0000	0.0000	83.8519
Total			20.37		89.11	83.97		0.00	83.97
Section Losses			A	y	Ay	I_o	d	Ad^2	$I_{y, loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	16.4980	0.0625	-1.0311	4.1873	-4.3176	-0.0003	0.1878	-0.0363	-0.0367
2	16.4980	0.0625	-1.0311	4.5628	-4.7048	-0.0003	0.1878	-0.0363	-0.0367
3	0.0625	4.1560	-0.2598	6.6720	-1.7331	-0.3739	2.2970	-1.3705	-1.7444
4	0.0625	4.1560	-0.2598	6.6720	-1.7331	-0.3739	2.2970	-1.3705	-1.7444
5	0.0625	4.1560	-0.2598	2.0780	-0.5398	-0.3739	2.2970	-1.3705	-1.7444
6	0.0625	4.1560	-0.2598	2.0780	-0.5398	-0.3739	2.2970	-1.3705	-1.7444
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			-3.10		-13.57	-1.50		-5.55	-7.05

As-Built Section Properties				As-Inspected Section Properties			
x-bar =	4.3750	in	$S_{top} = 19.19$ in ³	x-bar =	4.3750	in	$S_{top} = 17.58$ in ³
$I_y =$	83.97	in ⁴	$S_{bott.} = 19.19$ in ³	$I_y =$	76.92	in ⁴	$S_{bott.} = 17.58$ in ³
$C_{top} =$	4.3750	in	$A = 20.3686$ in ²	$C_{top} =$	4.3750	in	$A = 17.2674$ in ²
$C_{bottom} =$	4.3750	in	$r_y = 2.0304$ in	$C_{bottom} =$	4.3750	in	$r_y = 2.1106$ in



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 Sheet No. _____

Calculations For: **CUY-2-1441 East Approach Forward Section**

X-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{x,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web Plate		7.2261	9.0000	65.0351	163.9029	0.0000	0.0000	163.9029
2	Left Flange		6.5713	0.3755	2.4675	0.3088	8.6245	488.7827	489.0916
	Right Flange		6.5713	17.6245	115.8150	0.3088	8.6245	488.7827	489.0916
Total			20.37		183.32	164.52		977.57	1142.09
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{x,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0625	16.4980	-1.0311	9.0000	-9.2801	-23.3880	0.0000	0.0000	-23.3880
2	0.0625	16.4980	-1.0311	9.0000	-9.2801	-23.3880	0.0000	0.0000	-23.3880
3	4.1560	0.0625	-0.2598	0.7198	-0.1870	-0.0001	8.2803	-17.8091	-17.8092
4	4.1560	0.0625	-0.2598	17.2803	-4.4885	-0.0001	8.2803	-17.8091	-17.8092
5	4.1560	0.0625	-0.2598	17.2803	-4.4885	-0.0001	8.2803	-17.8091	-17.8092
6	4.1560	0.0625	-0.2598	0.7198	-0.1870	-0.0001	8.2803	-17.8091	-17.8092
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			-3.10		-27.91	-46.78		-71.24	-118.01

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	9.0000	in	S _{right} = 126.90 in ³	y-bar =	9.0000	in	S _{right} = 113.79 in ³
I _x =	1142.09	in ⁴	S _{left} = 126.90 in ³	I _x =	1024.07	in ⁴	S _{left} = 113.79 in ³
C _{right} =	9.0000	in	A = 20.3686 in ²	C _{right} =	9.0000	in	A = 17.2674 in ²
C _{left} =	9.0000	in	r _y = 7.4880 in	C _{left} =	9.0000	in	r _y = 7.7011 in

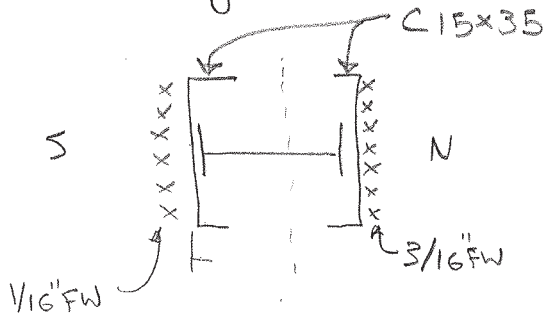
Bent 4 Columns

Calculate as-inspected section properties @ C304

The as-inspected section props for the WF shape have been calculated in the attached.

$I_x = 1024.07 \text{ in}^4$ $A = 17.267 \text{ in}^2$

$I_y = 79.62 \text{ in}^4$



Loss on Channels

South Channel

Centroid of loss

$A_{\text{loss}} = -0.9375 \text{ in}^2$

$-x = 0.03125 \text{ in}$

$Ax = -0.0293 \text{ in}^3$

As-Built

$A = 10.23 \text{ in}^2$

$x = 0.79 \text{ in}$

$Ax = 8.08 \text{ in}^3$

As Insp. Centroid of Channel

$$\frac{(8.08 \text{ in}^3 - 0.0293 \text{ in}^3)}{(10.23 \text{ in}^2 - 0.9375 \text{ in}^2)} = 0.8663 \text{ in}$$

$$I_0 = \frac{1}{2} b h^3 = \frac{1}{2} 15'' (0.0625'')^3 = -0.00031 \text{ in}^4$$

$I = I_c + I_0 + Ad^2$

$d = 0.83505 \text{ in}^2 \approx 0.8663'' - 0.03125 \text{ in}$

Bent 4 Columns

$$I = 8.4 \text{ in}^4 + -0.00031 \text{ in}^4 + -0.9375 \text{ in}^2 (0.83505 \text{ in})^2$$

$$I_x = 7.746 \text{ in}^4$$

$$I_y = I_c + I_o + A d^2 \quad \text{d=0 centroid unchanged}$$

$$I_o = -\frac{1}{12} 0.0625 \text{ in} (15 \text{ in})^3 = -17.578 \text{ in}^4$$

$$I_y = 318.7 \text{ in}^4 - 17.578 \text{ in}^4$$

$$I_y = 301.122 \text{ in}^4$$

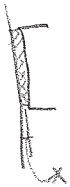
North Channel

$$I = I_c + I_o + A d^2$$

$$A_{\text{loss}} = -\frac{3}{16} \times 15 \text{ in} = -2.8125 \text{ in}^2$$

$$x = 0.09375 \text{ in}$$

$$Ax = 0.2637 \text{ in}^3$$



$$A_s \text{ - Inspect Centroid} = \frac{8.08 \text{ in}^3 - 0.2637 \text{ in}^3}{10.23 \text{ in}^2 - 2.8125 \text{ in}^2} = 1.054 \text{ in}$$

$$I_o = \frac{1}{12} b h^3 = \frac{1}{12} \cdot 15 \text{ in} (0.1875 \text{ in})^3 = 0.0082 \text{ in}^4$$

$$d = 1.054 \text{ in} - 0.09375 \text{ in} = 0.96025 \text{ in}$$

$$I = I_c + I_o + A d^2$$

$$I_x = 8.4 \text{ in}^4 + -0.0082 \text{ in}^4 + -2.8125 \text{ in}^2 (0.96025 \text{ in})^2$$

$$I_x = 5.798 \text{ in}^4$$

Bent 4 Columns

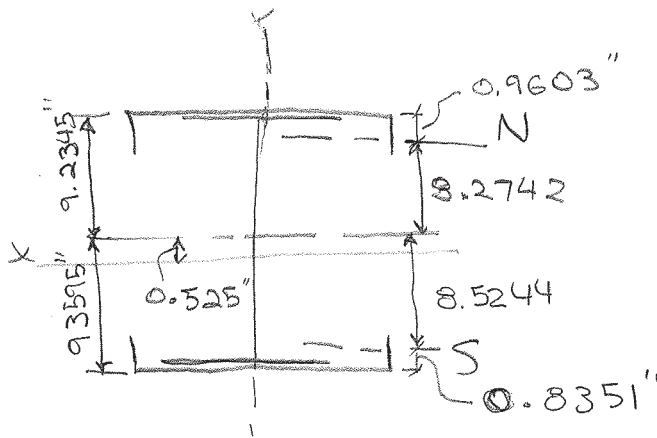
North Channel

$$I_y = I_c + I_o + A d^2$$

$$I_o = \frac{1}{12} b h^3 = \frac{1}{12} 0.1875'' (15'')^3 = -52.734$$

$$I_y = 318.7 \text{ in}^4 - 52.734 \text{ in}^4 = 265.965$$

Combined Section Props



Find new centroid

From center of WF

$$A_N = 7.4175 \text{ in}^2$$

$$A_S = 9.2925 \text{ in}^2$$

$$\bar{X} = \frac{7.4175 \text{ in}^2 (8.2742'') - 9.2925 \text{ in}^2 (8.5244'') + \cancel{0}}{7.41745 \text{ in}^2 + 9.2925 \text{ in}^2 + \cancel{17.2674 \text{ in}^2}}$$

$$= 0.525''$$

Bent 4 Columns

$$I_x = \sum I_o + \sum A d^2$$

WF

North E

$$I_o = 1024.07 \text{ in}^4$$

$$I_o = 5.798 \text{ in}^4$$

$$A = 17.2674 \text{ in}^2$$

$$A = 7.4175 \text{ in}^2$$

$$d = 0.525 \text{ in}$$

$$d = 8.2742 \text{ in} + 0.525 \text{ in} = 8.7992 \text{ in}$$

South E

$$I_o = 7.746 \text{ in}^4$$

$$A = 9.2925 \text{ in}^2$$

$$d = 8.5244 \text{ in} - 0.525 \text{ in} = 7.9994 \text{ in}$$

$$I_x = 1037.605 \text{ in}^4 + 4.759 \text{ in}^4 + 574.307 + 594.631$$

$$= 2211.302 \text{ in}^4$$

$$I_y = \sum I_o + \sum A d^2 \quad \text{all symm}$$

$$I_y = 76.92 \text{ in}^4 + 265.965 + 301.122$$

$$I_y = 644.007 \text{ in}^4$$

$$S_N = \frac{I_x}{C_N} = \frac{2211.302 \text{ in}^4}{9.7595 \text{ in}} = 226.58 \text{ in}^3$$

$$S_S = \frac{I_x}{C_S} = \frac{2211.302}{8.835} = 250.27 \text{ in}^3$$

$$S_y = \frac{I_y}{C_y} = \frac{644.007}{7.5} = 85.868 \text{ in}^3$$

$$r_x = \sqrt{\frac{2211.302 \text{ in}^4}{33.977 \text{ in}^2}} = 8.067 \text{ in}$$

$$r_y = \sqrt{\frac{644.007 \text{ in}^4}{33.977 \text{ in}^2}} = 4.354 \text{ in}$$

```
*****
*
*          STAAD.Pro V8i SELECTseries1          *
*          Version  20.07.06.35                  *
*          Proprietary Program of                *
*          Bentley Systems, Inc.                 *
*          Date=    APR 11, 2012                 *
*          Time=    19: 6: 9                     *
*
*          USER ID: TranSystems                  *
*****
```

1. STAAD SPACE DXF IMPORT OF 002_1441BENT_4.DXF
- INPUT FILE: Bent_4_DL.STD
2. START JOB INFORMATION
3. ENGINEER DATE 28-MAR-12
4. JOB NAME CUY-2-1441 MAIN AVE. RATING
5. JOB NO P402110046
6. JOB REF BENT 4
7. JOB COMMENT BENT 4 DEAD LOAD
8. ENGINEER NAME MTN
9. JOB CLIENT ODOT
10. JOB PART EAST APPROACH FORWARD SECTION
11. CHECKER NAME PJP
12. CHECKER DATE 4/5/12
13. END JOB INFORMATION
14. INPUT WIDTH 79
15. UNIT FEET KIP
16. JOINT COORDINATES
17. 1 -2.32292 169.658 0; 2 3.60938 169.807 0; 3 10.1094 169.971 0
18. 4 15.9635 170.118 0; 5 21.8177 170.265 0; 6 27.6719 170.412 0
19. 7 33.526 170.559 0; 8 39.3594 170.706 0; 9 45.1927 170.852 0
20. 10 51.0469 170.999 0; 11 56.901 171.147 0; 12 62.7552 171.294 0
21. 13 68.6094 171.441 0; 14 73.3802 171.561 0; 15 79 171.702 0
22. 16 10.1094 117.15 0; 17 10.1094 132.879 0; 18 10.1094 138.212 0
23. 19 10.1094 147.191 0; 20 39.3594 117.15 0; 21 39.3594 126.9 0
24. 22 39.3594 132.879 0; 23 39.3594 138.212 0; 24 39.3594 147.191 0
25. 25 68.6094 117.15 0; 26 68.6094 132.879 0; 27 68.6094 138.212 0
26. 28 68.6094 147.191 0; 30 16.2656 138.212 0; 31 21.8698 138.212 0
27. 32 27.474 138.212 0; 33 33.0781 138.212 0; 34 45.6406 138.212 0
28. 35 51.2448 138.212 0; 36 56.849 138.212 0; 37 62.4531 138.212 0
29. 38 16.2656 132.879 0; 39 21.8698 132.879 0; 40 27.474 132.879 0
30. 41 33.0781 132.879 0; 42 45.6406 132.879 0; 43 51.2448 132.879 0
31. 44 56.849 132.879 0; 45 62.4531 132.879 0; 46 6.70313 147.191 0
32. 47 16.2656 147.191 0; 48 21.8698 147.191 0; 49 27.474 147.191 0
33. 50 33.0781 147.191 0
34. MEMBER INCIDENCES
35. 1 1 2; 2 2 3; 3 3 4; 4 4 5; 5 5 6; 6 6 7; 7 7 8; 8 8 9; 9 9 10; 10 10 11
36. 11 11 12; 12 12 13; 13 13 14; 14 14 15; 15 16 17; 16 17 18; 17 18 19; 18 19 3
37. 19 20 21; 20 21 22; 21 22 23; 22 23 24; 23 24 8; 24 25 26; 25 26 27; 26 27 28
38. 27 28 13; 28 24 28; 33 18 30; 34 30 31; 35 31 32; 36 32 33; 37 33 23; 38 23 34
39. 39 34 35; 40 35 36; 41 36 37; 42 37 27; 43 17 38; 44 38 39; 45 39 40; 46 40 41
40. 47 41 22; 48 22 42; 49 42 43; 50 43 44; 51 44 45; 52 45 26; 53 38 30; 54 39 31

DXF IMPORT OF 002_1441BENT_4.DXF

-- PAGE NO. 2

41. 55 40 32; 56 41 33; 57 42 34; 58 43 35; 59 44 36; 60 45 37; 61 17 30; 62 30 39
42. 63 39 32; 64 32 41; 65 41 23; 66 23 42; 67 42 35; 68 35 44; 69 44 37; 70 37 26
43. 71 41 21; 72 21 42; 73 46 19; 74 19 47; 75 47 48; 76 48 49; 77 49 50; 78 50 24
44. DEFINE MATERIAL START
45. ISOTROPIC STEEL
46. E 4.176E+006
47. POISSON 0.3
48. DENSITY 0.489024
49. ALPHA 6E-006
50. DAMP 0.03
51. END DEFINE MATERIAL
52. MEMBER PROPERTY AMERICAN
53. 1 TO 14 TABLE ST W36X170
54. 28 TABLE ST W14X61
55. 33 TO 72 TABLE ST W8X31
56. 73 TO 78 TABLE ST W36X230
57. MEMBER PROPERTY AMERICAN
58. 15 TO 18 24 TO 27 PRIS AX 0.284861 IX 0.000228 IY 0.034524 IZ 0.129977
59. 19 TO 23 PRIS AX 0.309444 IX 0.00027 IY 0.03506 IZ 0.185217
60. CONSTANTS
61. BETA 90 MEMB 33 TO 72
62. MATERIAL STEEL ALL
63. SUPPORTS
64. 16 20 25 FIXED
65. MEMBER TRUSS
66. 28 33 TO 72
67. LOAD 1 LOADTYPE DEAD TITLE LOAD CASE 1
68. SELFWEIGHT Y -1.05 LIST 1 TO 28 33 TO 78
69. JOINT LOAD
70. *F1-34
71. 15 FY -25.58
72. *S1-34
73. 14 FY -25.84
74. *S2-34
75. 13 FY -26.22
76. *S3-34, S4-3, S5-3, S6-3, S8-3, S9-3, S10-3, S11-3
77. 4 TO 7 9 TO 12 FY -27.96
78. *S7-34
79. 8 FY -27.91
80. *S12-34
81. 3 FY -29.49
82. *S13-34
83. 2 FY -29.33
84. *F2-34
85. 1 FY -26.59
86. *LOWER DECK S-16
87. 24 FY -19.08
88. *LOWER DECK S-4
89. 47 TO 50 FY -17.46
90. *LOWER DECK S-14
91. 19 FY -22.28
92. *LOWER DECK S-13
93. 46 FY -15.54
94. PDELTA 10 ANALYSIS

P R O B L E M S T A T I S T I C S

NUMBER OF JOINTS/MEMBER+ELEMENTS/SUPPORTS = 49/ 74/ 3

SOLVER USED IS THE OUT-OF-CORE BASIC SOLVER

ORIGINAL/FINAL BAND-WIDTH= 27/ 7/ 48 DOF
TOTAL PRIMARY LOAD CASES = 1, TOTAL DEGREES OF FREEDOM = 276
SIZE OF STIFFNESS MATRIX = 14 DOUBLE KILO-WORDS
REQRD/AVAIL. DISK SPACE = 12.2/ 515500.7 MB

ZERO STIFFNESS IN DIRECTION 3 AT JOINT 30 EQN.NO. 69
LOADS APPLIED OR DISTRIBUTED HERE FROM ELEMENTS WILL BE IGNORED.
THIS MAY BE DUE TO ALL MEMBERS AT THIS JOINT BEING RELEASED OR
EFFECTIVELY RELEASED IN THIS DIRECTION.

ZERO STIFFNESS IN DIRECTION 4 AT JOINT	30 EQN.NO.	70
ZERO STIFFNESS IN DIRECTION 5 AT JOINT	30 EQN.NO.	71
ZERO STIFFNESS IN DIRECTION 6 AT JOINT	30 EQN.NO.	72
ZERO STIFFNESS IN DIRECTION 3 AT JOINT	38 EQN.NO.	87
ZERO STIFFNESS IN DIRECTION 4 AT JOINT	38 EQN.NO.	88
ZERO STIFFNESS IN DIRECTION 5 AT JOINT	38 EQN.NO.	89
ZERO STIFFNESS IN DIRECTION 6 AT JOINT	38 EQN.NO.	90
ZERO STIFFNESS IN DIRECTION 3 AT JOINT	31 EQN.NO.	93
ZERO STIFFNESS IN DIRECTION 4 AT JOINT	31 EQN.NO.	94
ZERO STIFFNESS IN DIRECTION 5 AT JOINT	31 EQN.NO.	95
ZERO STIFFNESS IN DIRECTION 6 AT JOINT	31 EQN.NO.	96

****WARNING - THERE WERE MORE THAN 12 DOF WITH ZERO STIFFNESS.**

THE FIRST 12 ARE LISTED ABOVE.

TOTAL # TRANSLATIONAL= 16 TOTAL # ROTATIONAL= 48

++ Adjusting Displacements	19: 6:10
++ Adjusting Displacements	19: 6:10
++ Adjusting Displacements	19: 6:10
++ Adjusting Displacements	19: 6:10
++ Adjusting Displacements	19: 6:10
++ Adjusting Displacements	19: 6:10
++ Adjusting Displacements	19: 6:10
++ Adjusting Displacements	19: 6:10
++ Adjusting Displacements	19: 6:10
++ Adjusting Displacements	19: 6:10

95. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 1 TO 14

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
1 MAX	-26.58	0.00	1	160.87	5.93	1			
	0.00	0.00	1	0.00	0.00	1	0.67 T	0.00	1
MIN	-27.64	5.93	1	0.00	0.00	1			
	0.00	5.93	1	0.00	5.93	1	0.69 T	5.93	1
2 MAX	-56.96	0.00	1	534.98	6.50	1			
	0.00	0.00	1	0.00	0.00	1	1.44 T	0.00	1
MIN	-58.12	6.50	1	160.87	0.00	1			
	0.00	6.50	1	0.00	6.50	1	1.47 T	6.50	1
3 MAX	65.77	0.00	1	506.45	0.00	1			
	0.00	0.00	1	0.00	0.00	1	1.41 C	0.00	1
MIN	64.73	5.86	1	124.36	5.86	1			
	0.00	5.86	1	0.00	5.86	1	1.38 C	5.86	1
4 MAX	36.77	0.00	1	124.36	0.00	1			
	0.00	0.00	1	0.00	0.00	1	0.68 C	0.00	1
MIN	35.73	5.86	1	-87.94	5.86	1			
	0.00	5.86	1	0.00	5.86	1	0.66 C	5.86	1
5 MAX	7.78	0.00	1	-87.94	0.00	1			
	0.00	0.00	1	0.00	0.00	1	0.05 T	0.00	1
MIN	6.74	5.86	1	-130.44	5.86	1			
	0.00	5.86	1	0.00	5.86	1	0.07 T	5.86	1
6 MAX	-21.22	0.00	1	-3.15	5.86	1			
	0.00	0.00	1	0.00	0.00	1	0.77 T	0.00	1
MIN	-22.26	5.86	1	-130.44	0.00	1			
	0.00	5.86	1	0.00	5.86	1	0.80 T	5.86	1
7 MAX	-50.21	0.00	1	292.87	5.84	1			
	0.00	0.00	1	0.00	0.00	1	1.51 T	0.00	1
MIN	-51.25	5.84	1	-3.15	0.00	1			
	0.00	5.84	1	0.00	5.84	1	1.53 T	5.84	1
8 MAX	55.96	0.00	1	302.80	0.00	1			
	0.00	0.00	1	0.00	0.00	1	0.34 C	0.00	1
MIN	54.92	5.84	1	-20.68	5.84	1			
	0.00	5.84	1	0.00	5.84	1	0.32 C	5.84	1
9 MAX	26.96	0.00	1	-20.68	0.00	1			
	0.00	0.00	1	0.00	0.00	1	0.38 T	0.00	1

DXF IMPORT OF 002_1441BENT_4.DXF

-- PAGE NO. 5

MIN	25.92	5.86	1	-175.53	5.86	1				
	0.00	5.86	1	0.00	5.86	1	0.41 T	5.86	1	
10 MAX	-2.03	0.00	1	-160.59	5.86	1				
	0.00	0.00	1	0.00	0.00	1	1.11 T	0.00	1	
MIN	-3.07	5.86	1	-175.53	0.00	1				
	0.00	5.86	1	0.00	5.86	1	1.14 T	5.86	1	
11 MAX	-31.03	0.00	1	24.15	5.86	1				
	0.00	0.00	1	0.00	0.00	1	1.84 T	0.00	1	
MIN	-32.07	5.86	1	-160.59	0.00	1				
	0.00	5.86	1	0.00	5.86	1	1.86 T	5.86	1	
12 MAX	-60.02	0.00	1	378.68	5.86	1				
	0.00	0.00	1	0.00	0.00	1	2.57 T	0.00	1	
MIN	-61.06	5.86	1	24.15	0.00	1				
	0.00	5.86	1	0.00	5.86	1	2.59 T	5.86	1	
13 MAX	53.26	0.00	1	398.70	0.00	1				
	0.00	0.00	1	0.00	0.00	1	1.34 C	0.00	1	
MIN	52.41	4.77	1	146.57	4.77	1				
	0.00	4.77	1	0.00	4.77	1	1.32 C	4.77	1	
14 MAX	26.57	0.00	1	146.57	0.00	1				
	0.00	0.00	1	0.00	0.00	1	0.67 C	0.00	1	
MIN	25.57	5.62	1	0.00	5.62	1				
	0.00	5.62	1	0.00	5.62	1	0.64 C	5.62	1	

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

96. *FLOOR BEAM DEAD LOAD ABOVE

97. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 15 TO 18

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
15 MAX	0.33	0.00	1	-0.18	0.00	1			
	0.00	0.00	1	0.00	0.00	1	241.14 C	0.00	1
MIN	0.33	15.73	1	-5.22	15.73	1			
	0.00	15.73	1	0.00	15.73	1	238.84 C	15.73	1
16 MAX	1.27	0.00	1	-5.22	0.00	1			
	0.00	0.00	1	0.00	0.00	1	237.31 C	0.00	1
MIN	1.27	5.33	1	-11.87	5.33	1			
	0.00	5.33	1	0.00	5.33	1	236.53 C	5.33	1
17 MAX	-9.61	0.00	1	74.43	8.98	1			
	0.00	0.00	1	0.00	0.00	1	236.43 C	0.00	1
MIN	-9.61	8.98	1	-11.87	0.00	1			
	0.00	8.98	1	0.00	8.98	1	235.11 C	8.98	1
18 MAX	0.24	0.00	1	-23.68	0.00	1			
	0.00	0.00	1	0.00	0.00	1	156.74 C	0.00	1
MIN	0.24	22.78	1	-28.53	22.78	1			
	0.00	22.78	1	0.00	22.78	1	153.41 C	22.78	1

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

98. *COLUMN 3 DEAD LOAD ABOVE

99. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 19 TO 23

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
19 MAX	-0.95	0.00	1	4.32	9.75	1			
	0.00	0.00	1	0.00	0.00	1	206.66 C	0.00	1
MIN	-0.95	9.75	1	-4.95	0.00	1			
	0.00	9.75	1	0.00	9.75	1	205.11 C	9.75	1
20 MAX	0.49	0.00	1	4.32	0.00	1			
	0.00	0.00	1	0.00	0.00	1	189.06 C	0.00	1
MIN	0.49	5.98	1	1.39	5.98	1			
	0.00	5.98	1	0.00	5.98	1	188.11 C	5.98	1
21 MAX	0.46	0.00	1	1.39	0.00	1			
	0.00	0.00	1	0.00	0.00	1	187.91 C	0.00	1
MIN	0.46	5.33	1	-1.07	5.33	1			
	0.00	5.33	1	0.00	5.33	1	187.06 C	5.33	1
22 MAX	10.01	0.00	1	-1.07	0.00	1			
	0.00	0.00	1	0.00	0.00	1	197.47 C	0.00	1
MIN	10.01	8.98	1	-90.68	8.98	1			
	0.00	8.98	1	0.00	8.98	1	196.04 C	8.98	1
23 MAX	0.82	0.00	1	28.57	0.00	1			
	0.00	0.00	1	0.00	0.00	1	138.87 C	0.00	1
MIN	0.82	23.51	1	9.92	23.51	1			
	0.00	23.51	1	0.00	23.51	1	135.13 C	23.51	1

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

100. *COLUMN 2 DEAD LOAD ABOVE

101. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 24 TO 27

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
24 MAX	0.62	0.00	1	4.45	0.00	1			
	0.00	0.00	1	0.00	0.00	1	150.34 C	0.00	1
MIN	0.62	15.73	1	-5.36	15.73	1			
	0.00	15.73	1	0.00	15.73	1	148.04 C	15.73	1
25 MAX	0.88	0.00	1	-5.36	0.00	1			
	0.00	0.00	1	0.00	0.00	1	147.28 C	0.00	1
MIN	0.88	5.33	1	-10.04	5.33	1			
	0.00	5.33	1	0.00	5.33	1	146.50 C	5.33	1
26 MAX	-0.40	0.00	1	-6.19	8.98	1			
	0.00	0.00	1	0.00	0.00	1	146.40 C	0.00	1
MIN	-0.40	8.98	1	-10.04	0.00	1			
	0.00	8.98	1	0.00	8.98	1	145.08 C	8.98	1
27 MAX	-1.06	0.00	1	20.03	24.25	1			
	0.00	0.00	1	0.00	0.00	1	144.15 C	0.00	1
MIN	-1.06	24.25	1	-6.19	0.00	1			
	0.00	24.25	1	0.00	24.25	1	140.60 C	24.25	1

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

102. *COLUMN 1 DEAD LOAD ABOVE

103. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 73 TO 78

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
73 MAX	-15.54	0.00	1	54.33	3.41	1			
	0.00	0.00	1	0.00	0.00	1	0.00	0.00	1
MIN	-16.36	3.41	1	0.00	0.00	1			
	0.00	3.41	1	0.00	3.41	1	0.00	3.41	1
74 MAX	39.73	0.00	1	152.44	0.00	1			
	0.00	0.00	1	0.00	0.00	1	9.85 C	0.00	1
MIN	38.25	6.16	1	-87.61	6.16	1			
	0.00	6.16	1	0.00	6.16	1	9.85 C	6.16	1
75 MAX	20.79	0.00	1	-87.61	0.00	1			
	0.00	0.00	1	0.00	0.00	1	9.85 C	0.00	1
MIN	19.44	5.60	1	-200.33	5.60	1			
	0.00	5.60	1	0.00	5.60	1	9.85 C	5.60	1
76 MAX	1.98	0.00	1	-200.33	0.00	1			
	0.00	0.00	1	0.00	0.00	1	9.85 C	0.00	1
MIN	0.62	5.60	1	-207.61	5.60	1			
	0.00	5.60	1	0.00	5.60	1	9.85 C	5.60	1
77 MAX	-16.84	0.00	1	-109.45	5.60	1			
	0.00	0.00	1	0.00	0.00	1	9.85 C	0.00	1
MIN	-18.19	5.60	1	-207.61	0.00	1			
	0.00	5.60	1	0.00	5.60	1	9.85 C	5.60	1
78 MAX	-35.65	0.00	1	119.25	6.28	1			
	0.00	0.00	1	0.00	0.00	1	9.85 C	0.00	1
MIN	-37.16	6.28	1	-109.45	0.00	1			
	0.00	6.28	1	0.00	6.28	1	9.85 C	6.28	1

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

104. *LOWER DECK FLOOR BEAM DEAD LOAD ABOVE

105. FINISH

***** END OF THE STAAD.Pro RUN *****

**** DATE= APR 11,2012 TIME= 19: 6:10 ****

* For questions on STAAD.Pro, please contact *
* Bentley Systems Offices at the following locations *
* *
* Telephone Web / Email *
* *
* USA: +1 (714)974-2500 *
* UK +44(1454)207-000 *
* SINGAPORE +65 6225-6158 *
* EUROPE +31 23 5560560 *
* INDIA +91(033)4006-2021 *
* JAPAN +81(03)5952-6500 <http://www.ctc-g.co.jp> *
* CHINA +86 10 5929 7000 *
* THAILAND +66(0)2645-1018/19 partha.p@reissoftwareth.com *
* *
* Worldwide <http://selectservices.bentley.com/en-US/> *
* *

```

*****
*
*          STAAD.Pro          *
*          Version 2007      Build 05      *
*          Proprietary Program of        *
*          Bentley Systems, Inc.         *
*          Date=    APR 13, 2012        *
*          Time=    16:41:49            *
*
*          USER ID: TranSystems          *
*****

```

1. STAAD SPACE DXF IMPORT OF 002_1441BENT_4.DXF
- INPUT FILE: Bent_4_LL.STD
2. START JOB INFORMATION
3. ENGINEER DATE 28-MAR-12
4. JOB NAME CUY-2-1441 MAIN AVE. RATING
5. JOB NO P402110046
6. JOB REF BENT 4
7. JOB COMMENT BENT 4 LIVE LOAD
8. ENGINEER NAME MTN
9. JOB CLIENT ODOT
10. JOB PART EAST APPROACH - FORWARD SECTION
11. CHECKER NAME PJP
12. CHECKER DATE 4/6/12
13. END JOB INFORMATION
14. INPUT WIDTH 79
15. UNIT FEET KIP
16. JOINT COORDINATES
17. 1 -2.32292 169.658 0; 2 3.60938 169.807 0; 3 10.1094 169.971 0
18. 4 15.9635 170.118 0; 5 21.8177 170.265 0; 6 27.6719 170.412 0
19. 7 33.526 170.559 0; 8 39.3594 170.706 0; 9 45.1927 170.852 0
20. 10 51.0469 170.999 0; 11 56.901 171.147 0; 12 62.7552 171.294 0
21. 13 68.6094 171.441 0; 14 73.3802 171.561 0; 15 79 171.702 0
22. 16 10.1094 117.15 0; 17 10.1094 132.879 0; 18 10.1094 138.212 0
23. 19 10.1094 147.191 0; 20 39.3594 117.15 0; 21 39.3594 126.9 0
24. 22 39.3594 132.879 0; 23 39.3594 138.212 0; 24 39.3594 147.191 0
25. 25 68.6094 117.15 0; 26 68.6094 132.879 0; 27 68.6094 138.212 0
26. 28 68.6094 147.191 0; 30 16.2656 138.212 0; 31 21.8698 138.212 0
27. 32 27.474 138.212 0; 33 33.0781 138.212 0; 34 45.6406 138.212 0
28. 35 51.2448 138.212 0; 36 56.849 138.212 0; 37 62.4531 138.212 0
29. 38 16.2656 132.879 0; 39 21.8698 132.879 0; 40 27.474 132.879 0
30. 41 33.0781 132.879 0; 42 45.6406 132.879 0; 43 51.2448 132.879 0
31. 44 56.849 132.879 0; 45 62.4531 132.879 0; 46 6.70313 147.191 0
32. 47 16.2656 147.191 0; 48 21.8698 147.191 0; 49 27.474 147.191 0
33. 50 33.0781 147.191 0
34. MEMBER INCIDENCES
35. 1 1 2; 2 2 3; 3 3 4; 4 4 5; 5 5 6; 6 6 7; 7 7 8; 8 8 9; 9 9 10; 10 10 11
36. 11 11 12; 12 12 13; 13 13 14; 14 14 15; 15 16 17; 16 17 18; 17 18 19; 18 19 3
37. 19 20 21; 20 21 22; 21 22 23; 22 23 24; 23 24 8; 24 25 26; 25 26 27; 26 27 28
38. 27 28 13; 28 24 28; 33 18 30; 34 30 31; 35 31 32; 36 32 33; 37 33 23; 38 23 34
39. 39 34 35; 40 35 36; 41 36 37; 42 37 27; 43 17 38; 44 38 39; 45 39 40; 46 40 41
40. 47 41 22; 48 22 42; 49 42 43; 50 43 44; 51 44 45; 52 45 26; 53 38 30; 54 39 31

DXF IMPORT OF 002_1441BENT_4.DXF

-- PAGE NO. 2

41. 55 40 32; 56 41 33; 57 42 34; 58 43 35; 59 44 36; 60 45 37; 61 17 30; 62 30 39
42. 63 39 32; 64 32 41; 65 41 23; 66 23 42; 67 42 35; 68 35 44; 69 44 37; 70 37 26
43. 71 41 21; 72 21 42; 73 46 19; 74 19 47; 75 47 48; 76 48 49; 77 49 50; 78 50 24
44. DEFINE MATERIAL START
45. ISOTROPIC STEEL
46. E 4.176E+006
47. POISSON 0.3
48. DENSITY 0.489024
49. ALPHA 6E-006
50. DAMP 0.03
51. END DEFINE MATERIAL
52. MEMBER PROPERTY AMERICAN
53. 1 TO 14 TABLE ST W36X170
54. 28 TABLE ST W14X61
55. 33 TO 72 TABLE ST W8X31
56. 73 TO 78 TABLE ST W36X230
57. MEMBER PROPERTY AMERICAN
58. 15 TO 18 24 TO 27 PRIS AX 0.284861 IX 0.000228 IY 0.034524 IZ 0.129977
59. 19 TO 23 PRIS AX 0.309444 IX 0.00027 IY 0.03506 IZ 0.185217
60. CONSTANTS
61. BETA 90 MEMB 33 TO 72
62. MATERIAL STEEL ALL
63. SUPPORTS
64. 16 20 25 FIXED
65. MEMBER TRUSS
66. 28 33 TO 72
67. DEFINE MOVING LOAD
68. TYPE 1 LOAD 25.4 25.4
69. DIST 6
70. LOAD 1 LOADTYPE LIVE TITLE AXIAL ON COLUMN C3 (3 LANE)
71. MEMBER LOAD
72. 1 CON GY -34.3 1.7031 0
73. 2 CON GY -34.3 1.77091 0
74. 3 CON GY -34.3 1.2708 0
75. 4 CON GY -34.3 1.4167 0
76. 5 CON GY -34.3 1.5625 0
77. 6 CON GY -34.3 1.7083 0
78. LOAD 2 LOADTYPE LIVE TITLE AXIAL ON COLUMN C3 (2 LANE)
79. MEMBER LOAD
80. 1 CON GY -38.1 1.7031 0
81. 2 CON GY -38.1 1.77091 0
82. 3 CON GY -38.1 1.2708 0
83. 4 CON GY -38.1 1.4167 0
84. LOAD 3 LOADTYPE LIVE TITLE NEG. MOMENT IN FB OVER C3 (3 LANE)
85. MEMBER LOAD
86. 1 CON GY -34.3 1.7031 0
87. 2 CON GY -34.3 1.77091 0
88. 4 CON GY -34.3 0.7708 0
89. 5 CON GY -34.3 0.9167 0
90. 5 CON GY -34.3 4.9167 0
91. 6 CON GY -34.3 5.0625 0
92. LOAD 4 LOADTYPE LIVE TITLE NEG. MOMENT IN FB OVER C3 (2 LANE)
93. MEMBER LOAD
94. 1 CON GY -38.1 1.7031 0
95. 2 CON GY -38.1 1.77091 0
96. 4 CON GY -38.1 5.7708 0

97. 6 CON GY -38.1 0.0625 0
98. LOAD 5 LOADTYPE LIVE TITLE POS. MOMENT IN FB BETWEEN C3 _C2 (3 LANE)
99. MEMBER LOAD
100. 4 CON GY -34.3 0.7708 0
101. 5 CON GY -34.3 0.9167 0
102. 5 CON GY -34.3 4.9167 0
103. 6 CON GY -34.3 5.0625 0
104. 13 CON GY -34.3 2.7708 0
105. 14 CON GY -34.3 4.00003 0
106. LOAD 6 LOADTYPE LIVE TITLE POS. MOMENT IN FB BETWEEN C3 _C2 (2 LANE-1)
107. MEMBER LOAD
108. 4 CON GY -38.1 0.7708 0
109. 5 CON GY -38.1 0.9167 0
110. 5 CON GY -38.1 4.9167 0
111. 6 CON GY -38.1 5.0625 0
112. LOAD 7 LOADTYPE LIVE TITLE POS. MOMENT IN FB BETWEEN C3 _C2 (2 LANE-2)
113. MEMBER LOAD
114. 4 CON GY -38.1 5.7708 0
115. 6 CON GY -38.1 0.0625 0
116. 13 CON GY -38.1 2.7708 0
117. 14 CON GY -38.1 4.00003 0
118. LOAD 8 LOADTYPE LIVE TITLE MAX AXIAL ON COLUMN C2 (4 LANE)
119. MEMBER LOAD
120. 4 CON GY -28.6 1.2917 0
121. 5 CON GY -28.6 1.4375 0
122. 6 CON GY -28.6 1.5833 0
123. 7 CON GY -28.6 1.72925 0
124. 8 CON GY -28.6 2 0
125. 9 CON GY -28.6 2.1667 0
126. 10 CON GY -28.6 2.3125 0
127. 11 CON GY -28.6 2.4583 0
128. LOAD 9 LOADTYPE LIVE TITLE MAX AXIAL ON COLUMN C2 (3 LANE)
129. MEMBER LOAD
130. 6 CON GY -34.3 1.5833 0
131. 7 CON GY -34.3 1.72925 0
132. 8 CON GY -34.3 2 0
133. 9 CON GY -34.3 2.1667 0
134. 10 CON GY -34.3 2.3125 0
135. 11 CON GY -34.3 2.4583 0
136. LOAD 10 LOADTYPE LIVE TITLE MAX AXIAL ON COLUMN C2 (2 LANE)
137. MEMBER LOAD
138. 6 CON GY -38.1 1.5833 0
139. 7 CON GY -38.1 1.72925 0
140. 8 CON GY -38.1 2 0
141. 9 CON GY -38.1 2.1667 0
142. LOAD 11 LOADTYPE LIVE TITLE NEG. MOMENT IN FB OVER C2 (4 LANE)
143. MEMBER LOAD
144. 4 CON GY -28.6 0.7708 0
145. 5 CON GY -28.6 0.9167 0
146. 5 CON GY -28.6 4.9167 0
147. 6 CON GY -28.6 5.0625 0
148. 9 CON GY -28.6 0.7917 0
149. 10 CON GY -28.6 0.9375 0
150. 10 CON GY -28.6 4.9375 0
151. 11 CON GY -28.6 5.0833 0
152. LOAD 12 LOADTYPE LIVE TITLE NEG. MOMENT IN FB OVER C2 (3 LANE)

153. MEMBER LOAD
154. 4 CON GY -34.3 5.7708 0
155. 6 CON GY -34.3 0.0625 0
156. 9 CON GY -34.3 0.7917 0
157. 10 CON GY -34.3 0.9375 0
158. 10 CON GY -34.3 4.9375 0
159. 11 CON GY -34.3 5.0833 0
160. LOAD 13 LOADTYPE LIVE TITLE NEG. MOMENT IN FB OVER C2 (2 LANE)
161. MEMBER LOAD
162. 4 CON GY -38.1 5.7708 0
163. 6 CON GY -38.1 0.0625 0
164. 9 CON GY -38.1 5.7917 0
165. 11 CON GY -38.1 0.0833 0
166. LOAD 14 LOADTYPE LIVE TITLE POS. MOMENT IN FB BETWEEN C2 _C1 (3 LANE)
167. MEMBER LOAD
168. 1 CON GY -34.3 1.7031 0
169. 2 CON GY -34.3 1.77091 0
170. 9 CON GY -34.3 0.7917 0
171. 10 CON GY -34.3 0.9375 0
172. 10 CON GY -34.3 4.9375 0
173. 11 CON GY -34.3 5.0833 0
174. LOAD 15 LOADTYPE LIVE TITLE POS. MOMENT IN FB BETWEEN C2 _C1 (2 LANE-1)
175. MEMBER LOAD
176. 9 CON GY -38.1 0.7917 0
177. 10 CON GY -38.1 0.9375 0
178. 10 CON GY -38.1 4.9375 0
179. 11 CON GY -38.1 5.0833 0
180. LOAD 16 LOADTYPE LIVE TITLE POS. MOMENT IN FB BETWEEN C2 _C1 (2 LANE-2)
181. MEMBER LOAD
182. 1 CON GY -38.1 1.7031 0
183. 2 CON GY -38.1 1.77091 0
184. 9 CON GY -38.1 5.7917 0
185. 11 CON GY -38.1 0.0833 0
186. LOAD 17 LOADTYPE LIVE TITLE MAX AXIAL ON COLUMN C1 (3 LANE)
187. MEMBER LOAD
188. 9 CON GY -34.3 2.1875 0
189. 10 CON GY -34.3 2.3333 0
190. 11 CON GY -34.3 2.4792 0
191. 12 CON GY -34.3 2.62507 0
192. 13 CON GY -34.3 2.7708 0
193. 14 CON GY -34.3 4.00003 0
194. LOAD 18 LOADTYPE LIVE TITLE MAX AXIAL ON COLUMN C1 (2 LANE)
195. MEMBER LOAD
196. 11 CON GY -38.1 2.4792 0
197. 12 CON GY -38.1 2.62507 0
198. 13 CON GY -38.1 2.7708 0
199. 14 CON GY -38.1 4.00003 0
200. LOAD 19 LOADTYPE LIVE TITLE NEG. MOMENT IN FB OVER C1 (3 LANE)
201. MEMBER LOAD
202. 9 CON GY -34.3 0.7917 0
203. 10 CON GY -34.3 0.9375 0
204. 10 CON GY -34.3 4.9375 0
205. 11 CON GY -34.3 5.0833 0
206. 13 CON GY -34.3 2.7708 0
207. 14 CON GY -34.3 4.00003 0
208. LOAD 20 LOADTYPE LIVE TITLE NEG. MOMENT IN FB OVER C1 (2 LANE)

209. MEMBER LOAD
210. 9 CON GY -38.1 5.7917 0
211. 11 CON GY -38.1 0.0833 0
212. 13 CON GY -38.1 2.7708 0
213. 14 CON GY -38.1 4.00003 0
214. LOAD 21 LOADTYPE LIVE TITLE ALL LANES LOADED - CENTER (6 LANE)
215. MEMBER LOAD
216. 2 CON GY -28.6 1.64591 0
217. 3 CON GY -28.6 1.1458 0
218. 4 CON GY -28.6 1.2917 0
219. 5 CON GY -28.6 1.4375 0
220. 6 CON GY -28.6 1.5833 0
221. 7 CON GY -28.6 1.72925 0
222. 8 CON GY -28.6 2 0
223. 9 CON GY -28.6 2.1667 0
224. 10 CON GY -28.6 2.3125 0
225. 11 CON GY -28.6 2.4583 0
226. 12 CON GY -28.6 2.60427 0
227. 13 CON GY -28.6 2.75 0
228. LOAD 22 LOADTYPE LIVE TITLE ALL LANES LOADED - OUTSIDE (6 LANE)
229. MEMBER LOAD
230. 1 CON GY -28.6 1.7031 0
231. 2 CON GY -28.6 1.77091 0
232. 3 CON GY -28.6 1.2708 0
233. 4 CON GY -28.6 1.4167 0
234. 5 CON GY -28.6 1.5625 0
235. 6 CON GY -28.6 1.7083 0
236. 9 CON GY -28.6 2.1875 0
237. 10 CON GY -28.6 2.3333 0
238. 11 CON GY -28.6 2.4792 0
239. 12 CON GY -28.6 2.62507 0
240. 13 CON GY -28.6 2.7708 0
241. 14 CON GY -28.6 4.00003 0
242. LOAD 23 LOADTYPE LIVE TITLE LOWER DECK LOAD
243. JOINT LOAD
244. 24 FY -7.29
245. 50 FY -10.46
246. 48 49 FY -9.86
247. 47 FY -10.35
248. 19 FY -8.42
249. 46 FY -3.88
250. LOAD 24 LOADTYPE LIVE TITLE LOAD 1 WITH LOWER DECK
251. REPEAT LOAD
252. 1 1.0 23 1.0
253. LOAD 25 LOADTYPE LIVE TITLE LOAD 2 WITH LOWER DECK
254. REPEAT LOAD
255. 2 1.0 23 1.0
256. LOAD 26 LOADTYPE LIVE TITLE LOAD 3 WITH LOWER DECK
257. REPEAT LOAD
258. 3 1.0 23 1.0
259. LOAD 27 LOADTYPE LIVE TITLE LOAD 4 WITH LOWER DECK
260. REPEAT LOAD
261. 4 1.0 23 1.0
262. LOAD 28 LOADTYPE LIVE TITLE LOAD 5 WITH LOWER DECK
263. REPEAT LOAD
264. 5 1.0 23 1.0

265. LOAD 29 LOADTYPE LIVE TITLE LOAD 6 WITH LOWER DECK
266. REPEAT LOAD
267. 6 1.0 23 1.0
268. LOAD 30 LOADTYPE LIVE TITLE LOAD 7 WITH LOWER DECK
269. REPEAT LOAD
270. 7 1.0 23 1.0
271. LOAD 31 LOADTYPE LIVE TITLE LOAD 8 WITH LOWER DECK
272. REPEAT LOAD
273. 8 1.0 23 1.0
274. LOAD 32 LOADTYPE LIVE TITLE LOAD 9 WITH LOWER DECK
275. REPEAT LOAD
276. 9 1.0 23 1.0
277. LOAD 33 LOADTYPE LIVE TITLE LOAD 10 WITH LOWER DECK
278. REPEAT LOAD
279. 10 1.0 23 1.0
280. LOAD 34 LOADTYPE LIVE TITLE LOAD 11 WITH LOWER DECK
281. REPEAT LOAD
282. 11 1.0 23 1.0
283. LOAD 35 LOADTYPE LIVE TITLE LOAD 12 WITH LOWER DECK
284. REPEAT LOAD
285. 12 1.0 23 1.0
286. LOAD 36 LOADTYPE LIVE TITLE LOAD 13 WITH LOWER DECK
287. REPEAT LOAD
288. 13 1.0 23 1.0
289. LOAD 37 LOADTYPE LIVE TITLE LOAD 14 WITH LOWER DECK
290. REPEAT LOAD
291. 14 1.0 23 1.0
292. LOAD 38 LOADTYPE LIVE TITLE LOAD 15 WITH LOWER DECK
293. REPEAT LOAD
294. 15 1.0 23 1.0
295. LOAD 39 LOADTYPE LIVE TITLE LOAD 16 WITH LOWER DECK
296. REPEAT LOAD
297. 16 1.0 23 1.0
298. LOAD 40 LOADTYPE LIVE TITLE LOAD 17 WITH LOWER DECK
299. REPEAT LOAD
300. 17 1.0 23 1.0
301. LOAD 41 LOADTYPE LIVE TITLE LOAD 18 WITH LOWER DECK
302. REPEAT LOAD
303. 18 1.0 23 1.0
304. LOAD 42 LOADTYPE LIVE TITLE LOAD 19 WITH LOWER DECK
305. REPEAT LOAD
306. 19 1.0 23 1.0
307. LOAD 43 LOADTYPE LIVE TITLE LOAD 20 WITH LOWER DECK
308. REPEAT LOAD
309. 20 1.0 23 1.0
310. LOAD 44 LOADTYPE LIVE TITLE LOAD 21 WITH LOWER DECK
311. REPEAT LOAD
312. 21 1.0 23 1.0
313. LOAD 45 LOADTYPE LIVE TITLE LOAD 22 WITH LOWER DECK
314. REPEAT LOAD
315. 22 1.0 23 1.0
316. LOAD 46 LOADTYPE LIVE TITLE 2F1 LOADING
317. REPEAT LOAD
318. 1 0.472232 23 1.0
319. LOAD 47 LOADTYPE LIVE TITLE 2F1 LOADING
320. REPEAT LOAD

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321. 2 0.472232 23 1.0
322. LOAD 48 LOADTYPE LIVE TITLE 2F1 LOADING
323. REPEAT LOAD
324. 3 0.472232 23 1.0
325. LOAD 49 LOADTYPE LIVE TITLE 2F1 LOADING
326. REPEAT LOAD
327. 4 0.472232 23 1.0
328. LOAD 50 LOADTYPE LIVE TITLE 2F1 LOADING
329. REPEAT LOAD
330. 5 0.472232 23 1.0
331. LOAD 51 LOADTYPE LIVE TITLE 2F1 LOADING
332. REPEAT LOAD
333. 6 0.472232 23 1.0
334. LOAD 52 LOADTYPE LIVE TITLE 2F1 LOADING
335. REPEAT LOAD
336. 7 0.472232 23 1.0
337. LOAD 53 LOADTYPE LIVE TITLE 2F1 LOADING
338. REPEAT LOAD
339. 8 0.472232 23 1.0
340. LOAD 54 LOADTYPE LIVE TITLE 2F1 LOADING
341. REPEAT LOAD
342. 9 0.472232 23 1.0
343. LOAD 55 LOADTYPE LIVE TITLE 2F1 LOADING
344. REPEAT LOAD
345. 10 0.472232 23 1.0
346. LOAD 56 LOADTYPE LIVE TITLE 2F1 LOADING
347. REPEAT LOAD
348. 11 0.472232 23 1.0
349. LOAD 57 LOADTYPE LIVE TITLE 2F1 LOADING
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351. 12 0.472232 23 1.0
352. LOAD 58 LOADTYPE LIVE TITLE 2F1 LOADING
353. REPEAT LOAD
354. 13 0.472232 23 1.0
355. LOAD 59 LOADTYPE LIVE TITLE 2F1 LOADING
356. REPEAT LOAD
357. 14 0.472232 23 1.0
358. LOAD 60 LOADTYPE LIVE TITLE 2F1 LOADING
359. REPEAT LOAD
360. 15 0.472232 23 1.0
361. LOAD 61 LOADTYPE LIVE TITLE 2F1 LOADING
362. REPEAT LOAD
363. 16 0.472232 23 1.0
364. LOAD 62 LOADTYPE LIVE TITLE 2F1 LOADING
365. REPEAT LOAD
366. 17 0.472232 23 1.0
367. LOAD 63 LOADTYPE LIVE TITLE 2F1 LOADING
368. REPEAT LOAD
369. 18 0.472232 23 1.0
370. LOAD 64 LOADTYPE LIVE TITLE 2F1 LOADING
371. REPEAT LOAD
372. 19 0.472232 23 1.0
373. LOAD 65 LOADTYPE LIVE TITLE 2F1 LOADING
374. REPEAT LOAD
375. 20 0.472232 23 1.0
376. LOAD 66 LOADTYPE LIVE TITLE 2F1 LOADING

377. REPEAT LOAD
378. 21 0.472232 23 1.0
379. LOAD 67 LOADTYPE LIVE TITLE 2F1 LOADING
380. REPEAT LOAD
381. 22 0.472232 23 1.0
382. LOAD 68 LOADTYPE LIVE TITLE 3F1 LOADING
383. REPEAT LOAD
384. 1 0.704259 23 1.0
385. LOAD 69 LOADTYPE LIVE TITLE 3F1 LOADING
386. REPEAT LOAD
387. 2 0.704259 23 1.0
388. LOAD 70 LOADTYPE LIVE TITLE 3F1 LOADING
389. REPEAT LOAD
390. 3 0.704259 23 1.0
391. LOAD 71 LOADTYPE LIVE TITLE 3F1 LOADING
392. REPEAT LOAD
393. 4 0.704259 23 1.0
394. LOAD 72 LOADTYPE LIVE TITLE 3F1 LOADING
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397. LOAD 73 LOADTYPE LIVE TITLE 3F1 LOADING
398. REPEAT LOAD
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400. LOAD 74 LOADTYPE LIVE TITLE 3F1 LOADING
401. REPEAT LOAD
402. 7 0.704259 23 1.0
403. LOAD 75 LOADTYPE LIVE TITLE 3F1 LOADING
404. REPEAT LOAD
405. 8 0.704259 23 1.0
406. LOAD 76 LOADTYPE LIVE TITLE 3F1 LOADING
407. REPEAT LOAD
408. 9 0.704259 23 1.0
409. LOAD 77 LOADTYPE LIVE TITLE 3F1 LOADING
410. REPEAT LOAD
411. 10 0.704259 23 1.0
412. LOAD 78 LOADTYPE LIVE TITLE 3F1 LOADING
413. REPEAT LOAD
414. 11 0.704259 23 1.0
415. LOAD 79 LOADTYPE LIVE TITLE 3F1 LOADING
416. REPEAT LOAD
417. 12 0.704259 23 1.0
418. LOAD 80 LOADTYPE LIVE TITLE 3F1 LOADING
419. REPEAT LOAD
420. 13 0.704259 23 1.0
421. LOAD 81 LOADTYPE LIVE TITLE 3F1 LOADING
422. REPEAT LOAD
423. 14 0.704259 23 1.0
424. LOAD 82 LOADTYPE LIVE TITLE 3F1 LOADING
425. REPEAT LOAD
426. 15 0.704259 23 1.0
427. LOAD 83 LOADTYPE LIVE TITLE 3F1 LOADING
428. REPEAT LOAD
429. 16 0.704259 23 1.0
430. LOAD 84 LOADTYPE LIVE TITLE 3F1 LOADING
431. REPEAT LOAD
432. 17 0.704259 23 1.0

433. LOAD 85 LOADTYPE LIVE TITLE 3F1 LOADING
434. REPEAT LOAD
435. 18 0.704259 23 1.0
436. LOAD 86 LOADTYPE LIVE TITLE 3F1 LOADING
437. REPEAT LOAD
438. 19 0.704259 23 1.0
439. LOAD 87 LOADTYPE LIVE TITLE 3F1 LOADING
440. REPEAT LOAD
441. 20 0.704259 23 1.0
442. LOAD 88 LOADTYPE LIVE TITLE 3F1 LOADING
443. REPEAT LOAD
444. 21 0.704259 23 1.0
445. LOAD 89 LOADTYPE LIVE TITLE 3F1 LOADING
446. REPEAT LOAD
447. 22 0.704259 23 1.0
448. LOAD 90 LOADTYPE LIVE TITLE 4F1 LOADING
449. REPEAT LOAD
450. 1 0.806133 23 1.0
451. LOAD 91 LOADTYPE LIVE TITLE 4F1 LOADING
452. REPEAT LOAD
453. 2 0.806133 23 1.0
454. LOAD 92 LOADTYPE LIVE TITLE 4F1 LOADING
455. REPEAT LOAD
456. 3 0.806133 23 1.0
457. LOAD 93 LOADTYPE LIVE TITLE 4F1 LOADING
458. REPEAT LOAD
459. 4 0.806133 23 1.0
460. LOAD 94 LOADTYPE LIVE TITLE 4F1 LOADING
461. REPEAT LOAD
462. 5 0.806133 23 1.0
463. LOAD 95 LOADTYPE LIVE TITLE 4F1 LOADING
464. REPEAT LOAD
465. 6 0.806133 23 1.0
466. LOAD 96 LOADTYPE LIVE TITLE 4F1 LOADING
467. REPEAT LOAD
468. 7 0.806133 23 1.0
469. LOAD 97 LOADTYPE LIVE TITLE 4F1 LOADING
470. REPEAT LOAD
471. 8 0.806133 23 1.0
472. LOAD 98 LOADTYPE LIVE TITLE 4F1 LOADING
473. REPEAT LOAD
474. 9 0.806133 23 1.0
475. LOAD 99 LOADTYPE LIVE TITLE 4F1 LOADING
476. REPEAT LOAD
477. 10 0.806133 23 1.0
478. LOAD 100 LOADTYPE LIVE TITLE 4F1 LOADING
479. REPEAT LOAD
480. 11 0.806133 23 1.0
481. LOAD 101 LOADTYPE LIVE TITLE 4F1 LOADING
482. REPEAT LOAD
483. 12 0.806133 23 1.0
484. LOAD 102 LOADTYPE LIVE TITLE 4F1 LOADING
485. REPEAT LOAD
486. 13 0.806133 23 1.0
487. LOAD 103 LOADTYPE LIVE TITLE 4F1 LOADING
488. REPEAT LOAD

489. 14 0.806133 23 1.0
490. LOAD 104 LOADTYPE LIVE TITLE 4F1 LOADING
491. REPEAT LOAD
492. 15 0.806133 23 1.0
493. LOAD 105 LOADTYPE LIVE TITLE 4F1 LOADING
494. REPEAT LOAD
495. 16 0.806133 23 1.0
496. LOAD 106 LOADTYPE LIVE TITLE 4F1 LOADING
497. REPEAT LOAD
498. 17 0.806133 23 1.0
499. LOAD 107 LOADTYPE LIVE TITLE 4F1 LOADING
500. REPEAT LOAD
501. 18 0.806133 23 1.0
502. LOAD 108 LOADTYPE LIVE TITLE 4F1 LOADING
503. REPEAT LOAD
504. 19 0.806133 23 1.0
505. LOAD 109 LOADTYPE LIVE TITLE 4F1 LOADING
506. REPEAT LOAD
507. 20 0.806133 23 1.0
508. LOAD 110 LOADTYPE LIVE TITLE 4F1 LOADING
509. REPEAT LOAD
510. 21 0.806133 23 1.0
511. LOAD 111 LOADTYPE LIVE TITLE 4F1 LOADING
512. REPEAT LOAD
513. 22 0.806133 23 1.0
514. LOAD 112 LOADTYPE LIVE TITLE 5C1 LOADING
515. REPEAT LOAD
516. 1 0.805451 23 1.0
517. LOAD 113 LOADTYPE LIVE TITLE 5C1 LOADING
518. REPEAT LOAD
519. 2 0.805451 23 1.0
520. LOAD 114 LOADTYPE LIVE TITLE 5C1 LOADING
521. REPEAT LOAD
522. 3 0.805451 23 1.0
523. LOAD 115 LOADTYPE LIVE TITLE 5C1 LOADING
524. REPEAT LOAD
525. 4 0.805451 23 1.0
526. LOAD 116 LOADTYPE LIVE TITLE 5C1 LOADING
527. REPEAT LOAD
528. 5 0.805451 23 1.0
529. LOAD 117 LOADTYPE LIVE TITLE 5C1 LOADING
530. REPEAT LOAD
531. 6 0.805451 23 1.0
532. LOAD 118 LOADTYPE LIVE TITLE 5C1 LOADING
533. REPEAT LOAD
534. 7 0.805451 23 1.0
535. LOAD 119 LOADTYPE LIVE TITLE 5C1 LOADING
536. REPEAT LOAD
537. 8 0.805451 23 1.0
538. LOAD 120 LOADTYPE LIVE TITLE 5C1 LOADING
539. REPEAT LOAD
540. 9 0.805451 23 1.0
541. LOAD 121 LOADTYPE LIVE TITLE 5C1 LOADING
542. REPEAT LOAD
543. 10 0.805451 23 1.0
544. LOAD 122 LOADTYPE LIVE TITLE 5C1 LOADING

545. REPEAT LOAD
546. 11 0.805451 23 1.0
547. LOAD 123 LOADTYPE LIVE TITLE 5C1 LOADING
548. REPEAT LOAD
549. 12 0.805451 23 1.0
550. LOAD 124 LOADTYPE LIVE TITLE 5C1 LOADING
551. REPEAT LOAD
552. 13 0.805451 23 1.0
553. LOAD 125 LOADTYPE LIVE TITLE 5C1 LOADING
554. REPEAT LOAD
555. 14 0.805451 23 1.0
556. LOAD 126 LOADTYPE LIVE TITLE 5C1 LOADING
557. REPEAT LOAD
558. 15 0.805451 23 1.0
559. LOAD 127 LOADTYPE LIVE TITLE 5C1 LOADING
560. REPEAT LOAD
561. 16 0.805451 23 1.0
562. LOAD 128 LOADTYPE LIVE TITLE 5C1 LOADING
563. REPEAT LOAD
564. 17 0.805451 23 1.0
565. LOAD 129 LOADTYPE LIVE TITLE 5C1 LOADING
566. REPEAT LOAD
567. 18 0.805451 23 1.0
568. LOAD 130 LOADTYPE LIVE TITLE 5C1 LOADING
569. REPEAT LOAD
570. 19 0.805451 23 1.0
571. LOAD 131 LOADTYPE LIVE TITLE 5C1 LOADING
572. REPEAT LOAD
573. 20 0.805451 23 1.0
574. LOAD 132 LOADTYPE LIVE TITLE 5C1 LOADING
575. REPEAT LOAD
576. 21 0.805451 23 1.0
577. LOAD 133 LOADTYPE LIVE TITLE 5C1 LOADING
578. REPEAT LOAD
579. 22 0.805451 23 1.0
580. LOAD GENERATION 29
581. TYPE 1 0.3802 169.726 0 XINC 0.9955 YRANGE 2
582. LOAD GENERATION 29
583. TYPE 1 42.5052 170.785 0 XINC 0.9955 YRANGE 2
584. PDELTA 10 ANALYSIS

PROBLEM STATISTICS

NUMBER OF JOINTS/MEMBER+ELEMENTS/SUPPORTS = 49/ 74/ 3

SOLVER USED IS THE OUT-OF-CORE BASIC SOLVER

ORIGINAL/FINAL BAND-WIDTH= 27/ 7/ 48 DOF
 TOTAL PRIMARY LOAD CASES = 191, TOTAL DEGREES OF FREEDOM = 276
 SIZE OF STIFFNESS MATRIX = 14 DOUBLE KILO-WORDS
 REQD/AVAIL. DISK SPACE = 13.5/ 515482.7 MB

ZERO STIFFNESS IN DIRECTION 3 AT JOINT 30 EQN.NO. 69
 LOADS APPLIED OR DISTRIBUTED HERE FROM ELEMENTS WILL BE IGNORED.
 THIS MAY BE DUE TO ALL MEMBERS AT THIS JOINT BEING RELEASED OR
 EFFECTIVELY RELEASED IN THIS DIRECTION.
 ZERO STIFFNESS IN DIRECTION 4 AT JOINT 30 EQN.NO. 70
 ZERO STIFFNESS IN DIRECTION 5 AT JOINT 30 EQN.NO. 71
 ZERO STIFFNESS IN DIRECTION 6 AT JOINT 30 EQN.NO. 72
 ZERO STIFFNESS IN DIRECTION 3 AT JOINT 38 EQN.NO. 87
 ZERO STIFFNESS IN DIRECTION 4 AT JOINT 38 EQN.NO. 88
 ZERO STIFFNESS IN DIRECTION 5 AT JOINT 38 EQN.NO. 89
 ZERO STIFFNESS IN DIRECTION 6 AT JOINT 38 EQN.NO. 90
 ZERO STIFFNESS IN DIRECTION 3 AT JOINT 31 EQN.NO. 93
 ZERO STIFFNESS IN DIRECTION 4 AT JOINT 31 EQN.NO. 94
 ZERO STIFFNESS IN DIRECTION 5 AT JOINT 31 EQN.NO. 95
 ZERO STIFFNESS IN DIRECTION 6 AT JOINT 31 EQN.NO. 96

****WARNING - THERE WERE MORE THAN 12 DOF WITH ZERO STIFFNESS.**
 THE FIRST 12 ARE LISTED ABOVE.
 TOTAL # TRANSLATIONAL= 16 TOTAL # ROTATIONAL= 48

++ Adjusting Displacements 16:41:50
 ++ Adjusting Displacements 16:41:51
 ++ Adjusting Displacements 16:41:51
 ++ Adjusting Displacements 16:41:51
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 ++ Adjusting Displacements 16:41:51
 ++ Adjusting Displacements 16:41:51
 ++ Adjusting Displacements 16:41:51
 ++ Adjusting Displacements 16:41:52
 ++ Adjusting Displacements 16:41:52

585. *LOAD LIST 1 TO 22
 586. *PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 1 TO 14
 587. *HS-20 WITHOUT LOWER DECK MAX FLOOR BEAM FORCES ABOVE
 588. *PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 15 TO 18
 589. *HS-20 WITHOUT LOWER DECK MAX COLUMN 3 FORCES ABOVE
 590. *PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 19 TO 23
 591. *HS-20 WITHOUT LOWER DECK MAX COLUMN 2 FORCES ABOVE
 592. *PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 24 TO 27
 593. *HS-20 WITHOUT LOWER DECK MAX COLUMN 1 FORCES ABOVE
 594. LOAD LIST 24 TO 45
 595. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 1 TO 14

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
1 MAX	0.00	0.00	39	161.15	5.93	27			
	0.00	0.00	24	0.00	0.00	24	0.00	0.00	24
	-38.09	5.93	27	0.00	1.19	39			
MIN	0.00	5.93	45	0.00	5.93	45	0.96 T	5.93	39
	0.00	0.00	28	588.98	6.50	27			
	0.00	0.00	24	0.00	0.00	24	0.00	0.00	28
2 MAX	-76.17	6.50	27	0.00	6.50	43			
	0.00	6.50	45	0.00	6.50	45	1.92 T	6.50	39
	0.00	0.00	24	547.72	0.00	26			
3 MAX	0.00	0.00	24	0.00	0.00	24	12.02 C	0.00	29
	-8.18	5.86	38	-246.87	5.86	29			
	0.00	5.86	45	0.00	5.86	45	6.73 T	5.86	39
4 MAX	79.60	0.00	26	359.70	0.00	39			
	0.00	0.00	24	0.00	0.00	24	12.02 C	0.00	29
	-11.31	5.86	35	-456.10	5.86	29			
MIN	0.00	5.86	45	0.00	5.86	45	6.73 T	5.86	39
	45.31	0.00	26	274.92	0.00	37			
	0.00	0.00	24	0.00	0.00	24	11.06 C	0.00	29
5 MAX	-45.48	5.86	29	-482.36	1.17	29			
	0.00	5.86	45	0.00	5.86	45	6.73 T	5.86	39
	0.00	0.00	27	214.57	0.00	37			
6 MAX	0.00	0.00	24	0.00	0.00	24	9.15 C	0.00	29
	-83.58	5.86	29	-411.96	0.00	29			
	0.00	5.86	45	0.00	5.86	45	6.73 T	5.86	39
7 MAX	15.02	0.00	39	449.33	5.84	34			
	0.00	0.00	24	0.00	0.00	24	8.18 C	0.00	29
	-83.58	5.84	29	-126.28	0.00	28			
MIN	0.00	5.84	45	0.00	5.84	45	6.73 T	5.84	39
	94.78	0.00	32	437.06	0.00	35			
	0.00	0.00	24	0.00	0.00	24	9.78 C	0.00	38
8 MAX	-9.98	5.84	30	-142.30	5.84	37			
	0.00	5.84	45	0.00	5.84	45	5.93 T	5.84	30
	0.00	0.00	38	184.24	5.86	28			
9 MAX	0.00	0.00	24	0.00	0.00	24	9.78 C	0.00	38

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MIN	-10.05	5.86	43	-423.73	5.86	38			
	0.00	5.86	45	0.00	5.86	45	5.93 T	5.86	30
10 MAX	45.60	0.00	38	219.41	5.86	28			
	0.00	0.00	24	0.00	0.00	24	8.83 C	0.00	38
MIN	-40.38	5.86	42	-494.62	4.68	38			
	0.00	5.86	45	0.00	5.86	45	5.94 T	5.86	30
11 MAX	8.73	0.00	36	268.77	5.86	30			
	0.00	0.00	24	0.00	0.00	24	6.91 C	0.00	38
MIN	-74.67	5.86	42	-468.44	0.00	38			
	0.00	5.86	45	0.00	5.86	45	5.93 T	5.86	30
12 MAX	7.61	0.00	29	429.59	5.86	42			
	0.00	0.00	24	0.00	0.00	24	5.96 C	0.00	38
MIN	-86.69	5.86	40	-259.90	0.00	38			
	0.00	5.86	45	0.00	5.86	45	5.93 T	5.86	30
13 MAX	76.18	0.00	30	439.68	0.00	30			
	0.00	0.00	24	0.00	0.00	24	1.92 C	0.00	30
MIN	0.00	4.77	44	0.00	2.86	44			
	0.00	4.77	45	0.00	4.77	45	0.00	4.77	44
14 MAX	38.09	0.00	30	152.36	0.00	30			
	0.00	0.00	24	0.00	0.00	24	0.96 C	0.00	30
MIN	0.00	5.62	44	0.00	5.62	45			
	0.00	5.62	45	0.00	5.62	45	0.00	5.62	45

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

596. *HS-20 MAX FLOOR BEAM FORCES ABOVE

597. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 15 TO 18

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
15 MAX	0.68	0.00	25	3.79	0.00	41			
	0.00	0.00	24	0.00	0.00	24	202.93 C	0.00	24
MIN	-0.36	15.73	33	-8.76	15.73	25			
	0.00	15.73	45	0.00	15.73	45	25.64 C	15.73	42
16 MAX	1.44	0.00	33	2.52	0.00	33			
	0.00	0.00	24	0.00	0.00	24	202.91 C	0.00	24
MIN	-0.37	5.33	41	-9.00	5.33	39			
	0.00	5.33	45	0.00	5.33	45	25.69 C	5.33	42
17 MAX	-2.11	0.00	29	64.35	8.98	37			
	0.00	0.00	24	0.00	0.00	24	202.92 C	0.00	24
MIN	-8.10	8.98	39	-9.00	0.00	39			
	0.00	8.98	45	0.00	8.98	45	25.69 C	8.98	42
18 MAX	7.07	0.00	39	156.09	22.78	29			
	0.00	0.00	24	0.00	0.00	24	170.08 C	0.00	24
MIN	-10.28	22.78	29	-141.18	22.78	39			
	0.00	22.78	45	0.00	22.78	45	8.17 T	22.78	38

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

598. *HS-20 MAX COLUMN 3 FORCES ABOVE

599. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 19 TO 23

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
19 MAX	-0.07	0.00	28	5.65	9.75	40			
	0.00	0.00	24	0.00	0.00	24	181.04 C	0.00	44
MIN	-1.00	9.75	37	-4.70	0.00	39			
	0.00	9.75	45	0.00	9.75	45	22.23 C	9.75	25
20 MAX	0.70	0.00	40	5.65	0.00	40			
	0.00	0.00	24	0.00	0.00	24	170.78 C	0.00	32
MIN	-0.11	5.98	29	-0.59	0.00	29			
	0.00	5.98	45	0.00	5.98	45	20.20 C	5.98	25
21 MAX	1.51	0.00	25	13.51	5.33	38			
	0.00	0.00	24	0.00	0.00	24	170.78 C	0.00	32
MIN	-2.27	5.33	32	-7.46	5.33	25			
	0.00	5.33	45	0.00	5.33	45	20.20 C	5.33	25
22 MAX	11.30	0.00	37	13.51	0.00	38			
	0.00	0.00	24	0.00	0.00	24	182.66 C	0.00	32
MIN	0.21	8.98	28	-96.79	8.98	37			
	0.00	8.98	45	0.00	8.98	45	21.25 C	8.98	25
23 MAX	13.49	0.00	28	201.16	23.51	37			
	0.00	0.00	24	0.00	0.00	24	156.61 C	0.00	32
MIN	-12.20	23.51	37	-195.96	23.51	28			
	0.00	23.51	45	0.00	23.51	45	6.04 T	23.51	25

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

600. *HS-20 MAX COLUMN 2 FORCES ABOVE

601. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 24 TO 27

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
24 MAX	0.93	0.00	32	6.22	0.00	32			
	0.00	0.00	24	0.00	0.00	24	155.00 C	0.00	40
	-0.10	15.73	25	-8.46	15.73	32			
MIN	0.00	15.73	45	0.00	15.73	45	7.13 T	15.73	29
	2.65	0.00	25	8.67	5.33	32			
	0.00	0.00	24	0.00	0.00	24	155.28 C	0.00	40
25 MAX	-3.21	5.33	32	-13.98	5.33	25			
	0.00	5.33	45	0.00	5.33	45	7.60 T	5.33	29
	2.15	0.00	28	43.87	8.98	38			
26 MAX	0.00	0.00	24	0.00	0.00	24	155.28 C	0.00	40
	-4.33	8.98	38	-24.96	8.98	30			
	0.00	8.98	45	0.00	8.98	45	7.60 T	8.98	29
27 MAX	7.68	0.00	38	112.37	24.25	30			
	0.00	0.00	24	0.00	0.00	24	155.28 C	0.00	40
	-5.66	24.25	30	-142.27	24.25	38			
MIN	0.00	24.25	45	0.00	24.25	45	7.60 T	24.25	29

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

602. *HS-20 MAX COLUMN 1 FORCES ABOVE

603. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 73 TO 78

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
73 MAX	-3.88	0.00	24	13.22	3.41	24			
	0.00	0.00	24	0.00	0.00	24	0.00	0.00	24
MIN	-3.88	3.41	45	0.00	0.00	45			
	0.00	3.41	45	0.00	3.41	45	0.00	3.41	45
74 MAX	22.01	0.00	37	107.11	0.00	29			
	0.00	0.00	24	0.00	0.00	24	15.21 C	0.00	39
MIN	18.95	6.16	30	-76.02	6.16	39			
	0.00	6.16	45	0.00	6.16	45	8.17 T	6.16	29
75 MAX	11.65	0.00	37	-18.24	0.00	29			
	0.00	0.00	24	0.00	0.00	24	15.21 C	0.00	39
MIN	8.60	5.60	30	-140.65	5.60	37			
	0.00	5.60	45	0.00	5.60	45	8.17 T	5.60	29
76 MAX	1.79	0.00	37	-71.68	5.60	28			
	0.00	0.00	24	0.00	0.00	24	15.21 C	0.00	39
MIN	-1.26	5.60	30	-150.69	5.60	37			
	0.00	5.60	45	0.00	5.60	45	8.17 T	5.60	29
77 MAX	-8.07	0.00	37	-9.97	5.60	28			
	0.00	0.00	24	0.00	0.00	24	15.21 C	0.00	39
MIN	-11.12	5.60	30	-150.69	0.00	37			
	0.00	5.60	45	0.00	5.60	45	8.17 T	5.60	29
78 MAX	-18.54	0.00	37	124.90	6.28	28			
	0.00	0.00	24	0.00	0.00	24	15.21 C	0.00	39
MIN	-21.58	6.28	30	-105.43	0.00	37			
	0.00	6.28	45	0.00	6.28	45	8.17 T	6.28	29

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

604. *LOWER DECK FLOORBEAM FORCES ABOVE

605. LOAD LIST 46 TO 67

606. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 1 TO 14

MEMBER FORCE ENVELOPE

 ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
1 MAX	0.00	0.00	61	76.10	5.93	49			
	0.00	0.00	46	0.00	0.00	46	0.00	0.00	46
	MIN	-17.99	5.93	49	0.00	1.19	61		
	0.00	5.93	67	0.00	5.93	67	0.45 T	5.93	47
2 MAX	0.00	0.00	50	278.14	6.50	49			
	0.00	0.00	46	0.00	0.00	46	0.00	0.00	50
	MIN	-35.97	6.50	49	0.00	6.50	65		
	0.00	6.50	67	0.00	6.50	67	0.91 T	6.50	61
3 MAX	48.06	0.00	46	263.71	0.00	48			
	0.00	0.00	46	0.00	0.00	46	6.42 C	0.00	51
	MIN	-3.69	5.86	60	-112.44	5.86	51		
	0.00	5.86	67	0.00	5.86	67	2.43 T	5.86	61
4 MAX	37.76	0.00	48	173.96	0.00	61			
	0.00	0.00	46	0.00	0.00	46	6.42 C	0.00	51
	MIN	-5.17	5.86	57	-212.23	5.86	51		
	0.00	5.86	67	0.00	5.86	67	2.43 T	5.86	61
5 MAX	21.56	0.00	48	132.95	0.00	59			
	0.00	0.00	46	0.00	0.00	46	5.97 C	0.00	51
	MIN	-21.30	5.86	51	-224.83	1.17	51		
	0.00	5.86	67	0.00	5.86	67	2.43 T	5.86	61
6 MAX	7.48	0.00	49	103.47	0.00	59			
	0.00	0.00	46	0.00	0.00	46	5.07 C	0.00	51
	MIN	-39.29	5.86	51	-192.39	0.00	51		
	0.00	5.86	67	0.00	5.86	67	2.43 T	5.86	61
7 MAX	7.26	0.00	61	212.31	5.84	56			
	0.00	0.00	46	0.00	0.00	46	4.61 C	0.00	51
	MIN	-39.29	5.84	51	-58.52	0.00	50		
	0.00	5.84	67	0.00	5.84	67	2.43 T	5.84	61
8 MAX	44.62	0.00	54	202.55	0.00	57			
	0.00	0.00	46	0.00	0.00	46	4.65 C	0.00	60
	MIN	-4.86	5.84	52	-70.24	5.84	59		
	0.00	5.84	67	0.00	5.84	67	2.77 T	5.84	52
9 MAX	39.38	0.00	60	84.82	5.86	50			
	0.00	0.00	46	0.00	0.00	46	4.65 C	0.00	60

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MIN	-4.89	5.86	65	-202.27	5.86	60			
	0.00	5.86	67	0.00	5.86	67	2.77 T	5.86	52
10 MAX	21.39	0.00	60	102.24	5.86	50			
	0.00	0.00	46	0.00	0.00	46	4.20 C	0.00	60
MIN	-19.21	5.86	64	-235.08	4.68	60			
	0.00	5.86	67	0.00	5.86	67	2.77 T	5.86	52
11 MAX	3.98	0.00	58	126.37	5.86	52			
	0.00	0.00	46	0.00	0.00	46	3.30 C	0.00	60
MIN	-35.40	5.86	64	-222.55	0.00	60			
	0.00	5.86	67	0.00	5.86	67	2.77 T	5.86	52
12 MAX	3.45	0.00	51	203.13	5.86	64			
	0.00	0.00	46	0.00	0.00	46	2.84 C	0.00	60
MIN	-41.08	5.86	62	-123.26	0.00	60			
	0.00	5.86	67	0.00	5.86	67	2.77 T	5.86	52
13 MAX	35.97	0.00	52	207.62	0.00	52			
	0.00	0.00	46	0.00	0.00	46	0.90 C	0.00	52
MIN	0.00	4.30	66	0.00	2.86	66			
	0.00	4.77	67	0.00	4.77	67	0.00	4.77	66
14 MAX	17.99	0.00	52	71.95	0.00	52			
	0.00	0.00	46	0.00	0.00	46	0.45 C	0.00	52
MIN	0.00	5.62	66	0.00	5.62	67			
	0.00	5.62	67	0.00	5.62	67	0.00	5.62	67

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

607. *2F1 MAX FLOOR BEAM FORCES ABOVE

608. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 15 TO 18

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
15 MAX	0.45	0.00	47	2.22	0.00	63			
	0.00	0.00	46	0.00	0.00	46	113.54 C	0.00	46
MIN	-0.04	15.73	55	-5.81	15.73	47			
	0.00	15.73	67	0.00	15.73	67	29.83 C	15.73	64
16 MAX	0.93	0.00	55	-0.48	0.00	55			
	0.00	0.00	46	0.00	0.00	46	113.31 C	0.00	46
MIN	0.07	5.33	63	-7.22	5.33	61			
	0.00	5.33	67	0.00	5.33	67	29.63 C	5.33	64
17 MAX	-3.72	0.00	51	51.87	8.98	59			
	0.00	0.00	46	0.00	0.00	46	113.31 C	0.00	46
MIN	-6.55	8.98	61	-7.22	0.00	61			
	0.00	8.98	67	0.00	8.98	67	29.63 C	8.98	64
18 MAX	2.60	0.00	61	78.82	22.78	51			
	0.00	0.00	46	0.00	0.00	46	80.50 C	0.00	46
MIN	-5.60	22.78	51	-61.62	22.78	61			
	0.00	22.78	67	0.00	22.78	67	3.67 T	22.78	60

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

609. *2F1 MAX COLUMN 3 FORCES ABOVE

610. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 19 TO 23

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
19 MAX	-0.30	0.00	50	4.01	9.75	62			
	0.00	0.00	46	0.00	0.00	46	99.24 C	0.00	66
MIN	-0.74	9.75	59	-3.52	0.00	61			
	0.00	9.75	67	0.00	9.75	67	24.25 C	9.75	47
20 MAX	0.48	0.00	62	4.01	0.00	62			
	0.00	0.00	46	0.00	0.00	46	93.94 C	0.00	54
MIN	0.10	5.98	51	0.43	5.98	50			
	0.00	5.98	67	0.00	5.98	67	22.84 C	5.98	47
21 MAX	0.55	0.00	47	7.64	5.33	60			
	0.00	0.00	46	0.00	0.00	46	93.94 C	0.00	54
MIN	-1.22	5.33	54	-2.24	5.33	47			
	0.00	5.33	67	0.00	5.33	67	22.84 C	5.33	47
22 MAX	8.27	0.00	59	7.64	0.00	60			
	0.00	0.00	46	0.00	0.00	46	100.35 C	0.00	54
MIN	3.03	8.98	50	-70.77	8.98	59			
	0.00	8.98	67	0.00	8.98	67	24.14 C	8.98	47
23 MAX	7.08	0.00	50	90.92	23.51	59			
	0.00	0.00	46	0.00	0.00	46	73.63 C	0.00	54
MIN	-5.05	23.51	59	-96.45	23.51	50			
	0.00	23.51	67	0.00	23.51	67	3.18 T	23.51	47

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

611. *2F1 MAX COLUMN 2 FORCES ABOVE

612. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 24 TO 27

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
24 MAX	0.58	0.00	54	3.86	0.00	54			
	0.00	0.00	46	0.00	0.00	46	73.45 C	0.00	62
	MIN	0.09	15.73	47	-5.22	15.73	54		
		0.00	15.73	67	0.00	15.73	67	3.10 T	15.73
25 MAX	1.26	0.00	47	2.77	5.33	54			
	0.00	0.00	46	0.00	0.00	46	73.47 C	0.00	62
	MIN	-1.50	5.33	54	-7.90	5.33	47		
		0.00	5.33	67	0.00	5.33	67	3.45 T	5.33
26 MAX	0.81	0.00	50	21.27	8.98	60			
	0.00	0.00	46	0.00	0.00	46	73.47 C	0.00	62
	MIN	-2.25	8.98	60	-11.26	8.98	52		
		0.00	8.98	67	0.00	8.98	67	3.45 T	8.98
27 MAX	3.66	0.00	60	52.80	24.25	52			
	0.00	0.00	46	0.00	0.00	46	73.47 C	0.00	62
	MIN	-2.64	24.25	52	-67.47	24.25	60		
		0.00	24.25	67	0.00	24.25	67	3.45 T	24.25

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

613. *2F1 MAX COLUMN 1 FORCES ABOVE

614. LOAD LIST 68 TO 89

615. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 1 TO 14

MEMBER FORCE ENVELOPE

 ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
1 MAX	0.00	0.00	83	113.49	5.93	71			
	0.00	0.00	68	0.00	0.00	68	0.00	0.00	68
	-26.82	5.93	71	0.00	1.19	83			
MIN	0.00	5.93	89	0.00	5.93	89	0.67 T	5.93	83
	0.00	0.00	72	414.80	6.50	71			
	0.00	0.00	68	0.00	0.00	68	0.00	0.00	72
2 MAX	-53.65	5.85	71	0.00	6.50	87			
	0.00	6.50	89	0.00	6.50	89	1.35 T	6.50	83
	0.00	0.00	68	388.56	0.00	70			
3 MAX	0.00	0.00	68	0.00	0.00	68	8.88 C	0.00	73
	-5.66	5.86	82	-171.54	5.86	73			
	0.00	5.86	89	0.00	5.86	89	4.32 T	5.86	83
4 MAX	56.15	0.00	70	255.61	0.00	83			
	0.00	0.00	68	0.00	0.00	68	8.88 C	0.00	73
	-7.87	5.86	79	-319.43	5.86	73			
MIN	0.00	5.86	89	0.00	5.86	89	4.32 T	5.86	83
	32.00	0.00	70	195.37	0.00	81			
	0.00	0.00	68	0.00	0.00	68	8.21 C	0.00	73
5 MAX	-31.93	5.86	73	-338.04	1.17	73			
	0.00	5.86	89	0.00	5.86	89	4.32 T	5.86	83
	11.00	0.00	71	152.32	0.00	81			
6 MAX	0.00	0.00	68	0.00	0.00	68	6.86 C	0.00	73
	-58.76	5.86	73	-288.92	0.00	73			
	0.00	5.86	89	0.00	5.86	89	4.32 T	5.86	83
7 MAX	10.68	0.00	83	316.50	5.84	78			
	0.00	0.00	68	0.00	0.00	68	6.18 C	0.00	73
	-58.76	5.84	73	-88.32	0.00	72			
MIN	0.00	5.84	89	0.00	5.84	89	4.32 T	5.84	83
	66.67	0.00	76	305.65	0.00	79			
	0.00	0.00	68	0.00	0.00	68	6.90 C	0.00	82
8 MAX	-7.11	5.84	74	-101.93	5.84	81			
	0.00	5.84	89	0.00	5.84	89	4.16 T	5.84	74
	58.87	0.00	82	128.54	5.86	72			
9 MAX	0.00	0.00	68	0.00	0.00	68	6.91 C	0.00	82

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MIN	-7.16	5.86	87	-299.62	5.86	82			
	0.00	5.86	89	0.00	5.86	89	4.16 T	5.86	74
10 MAX	32.03	0.00	82	153.75	5.86	72			
	0.00	0.00	68	0.00	0.00	68	6.24 C	0.00	82
MIN	-28.52	5.86	86	-349.18	4.68	82			
	0.00	5.86	89	0.00	5.86	89	4.16 T	5.86	74
11 MAX	6.07	0.00	80	188.97	5.86	74			
	0.00	0.00	68	0.00	0.00	68	4.89 C	0.00	82
MIN	-52.67	5.86	86	-330.65	0.00	82			
	0.00	5.86	89	0.00	5.86	89	4.16 T	5.86	74
12 MAX	5.28	0.00	73	302.68	5.86	86			
	0.00	0.00	68	0.00	0.00	68	4.21 C	0.00	82
MIN	-61.13	5.86	84	-183.33	0.00	82			
	0.00	5.86	89	0.00	5.86	89	4.16 T	5.86	74
13 MAX	53.65	0.00	74	309.64	0.00	74			
	0.00	0.00	68	0.00	0.00	68	1.35 C	0.00	74
MIN	0.00	4.77	88	0.00	2.86	88			
	0.00	4.77	89	0.00	4.77	89	0.00	4.77	88
14 MAX	26.82	0.00	74	107.30	0.00	74			
	0.00	0.00	68	0.00	0.00	68	0.67 C	0.00	74
MIN	0.00	5.62	88	0.00	5.62	89			
	0.00	5.62	89	0.00	5.62	89	0.00	5.62	89

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

616. *3F1 MAX FLOOR BEAM FORCES ABOVE

617. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 15 TO 18

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
15 MAX	0.55	0.00	69	2.91	0.00	85			
	0.00	0.00	68	0.00	0.00	68	152.84 C	0.00	68
MIN	-0.18	15.73	77	-7.10	15.73	69			
	0.00	15.73	89	0.00	15.73	89	27.99 C	15.73	86
16 MAX	1.15	0.00	77	0.84	0.00	77			
	0.00	0.00	68	0.00	0.00	68	152.70 C	0.00	68
MIN	-0.12	5.33	85	-8.00	5.33	83			
	0.00	5.33	89	0.00	5.33	89	27.90 C	5.33	86
17 MAX	-3.02	0.00	73	57.36	8.98	81			
	0.00	0.00	68	0.00	0.00	68	152.70 C	0.00	68
MIN	-7.23	8.98	83	-8.00	0.00	83			
	0.00	8.98	89	0.00	8.98	89	27.90 C	8.98	86
18 MAX	4.57	0.00	83	112.79	22.78	73			
	0.00	0.00	68	0.00	0.00	68	119.88 C	0.00	68
MIN	-7.66	22.78	73	-96.62	22.78	83			
	0.00	22.78	89	0.00	22.78	89	5.65 T	22.78	82

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

618. *3F1 MAX COLUMN 3 FORCES ABOVE

619. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 19 TO 23

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
19 MAX	-0.20	0.00	72	4.73	9.75	84			
	0.00	0.00	68	0.00	0.00	68	135.20 C	0.00	88
MIN	-0.86	9.75	81	-4.04	0.00	83			
	0.00	9.75	89	0.00	9.75	89	23.36 C	9.75	69
20 MAX	0.58	0.00	84	4.73	0.00	84			
	0.00	0.00	68	0.00	0.00	68	127.72 C	0.00	76
MIN	0.01	5.98	73	0.24	5.98	72			
	0.00	5.98	89	0.00	5.98	89	21.68 C	5.98	69
21 MAX	0.97	0.00	69	10.22	5.33	82			
	0.00	0.00	68	0.00	0.00	68	127.72 C	0.00	76
MIN	-1.68	5.33	76	-4.53	5.33	69			
	0.00	5.33	89	0.00	5.33	89	21.68 C	5.33	69
22 MAX	9.60	0.00	81	10.22	0.00	82			
	0.00	0.00	68	0.00	0.00	68	136.54 C	0.00	76
MIN	1.79	8.98	72	-82.21	8.98	81			
	0.00	8.98	89	0.00	8.98	89	22.87 C	8.98	69
23 MAX	9.89	0.00	72	139.36	23.51	81			
	0.00	0.00	68	0.00	0.00	68	110.11 C	0.00	76
MIN	-8.19	23.51	81	-140.18	23.51	72			
	0.00	23.51	89	0.00	23.51	89	4.43 T	23.51	69

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

620. *3F1 MAX COLUMN 2 FORCES ABOVE

621. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 24 TO 27

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
24 MAX	0.73	0.00	76	4.89	0.00	76			
	0.00	0.00	68	0.00	0.00	68	109.30 C	0.00	84
MIN	0.01	15.73	69	-6.65	15.73	76			
	0.00	15.73	89	0.00	15.73	89	4.87 T	15.73	73
25 MAX	1.87	0.00	69	5.36	5.33	76			
	0.00	0.00	68	0.00	0.00	68	109.43 C	0.00	84
MIN	-2.25	5.33	76	-10.57	5.33	69			
	0.00	5.33	89	0.00	5.33	89	5.27 T	5.33	73
26 MAX	1.40	0.00	72	31.20	8.98	82			
	0.00	0.00	68	0.00	0.00	68	109.43 C	0.00	84
MIN	-3.17	8.98	82	-17.29	8.98	74			
	0.00	8.98	89	0.00	8.98	89	5.27 T	8.98	73
27 MAX	5.42	0.00	82	79.00	24.25	74			
	0.00	0.00	68	0.00	0.00	68	109.43 C	0.00	84
MIN	-3.97	24.25	74	-100.35	24.25	82			
	0.00	24.25	89	0.00	24.25	89	5.27 T	24.25	73

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

622. *3F1 MAX COLUMN 1 FORCES ABOVE

623. LOAD LIST 90 TO 111

624. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 1 TO 14

MEMBER FORCE ENVELOPE

 ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
1 MAX	0.00	0.00	105	129.91	5.93	93			
	0.00	0.00	90	0.00	0.00	90	0.00	0.00	90
	MIN	-30.70	5.93	93	0.00	1.19	105		
	0.00	5.93	111	0.00	5.93	111	0.77 T	5.93	105
2 MAX	0.00	0.00	94	474.80	6.50	93			
	0.00	0.00	90	0.00	0.00	90	0.00	0.00	94
	MIN	-61.41	5.85	93	0.00	6.50	109		
	0.00	6.50	111	0.00	6.50	111	1.55 T	6.50	105
3 MAX	81.82	0.00	90	443.38	0.00	92			
	0.00	0.00	90	0.00	0.00	90	9.96 C	0.00	95
	MIN	-6.53	5.86	104	-197.48	5.86	95		
	0.00	5.86	111	0.00	5.86	111	5.15 T	5.86	105
4 MAX	64.23	0.00	92	291.47	0.00	105			
	0.00	0.00	90	0.00	0.00	90	9.96 C	0.00	95
	MIN	-9.05	5.86	101	-366.51	5.86	95		
	0.00	5.86	111	0.00	5.86	111	5.15 T	5.86	105
5 MAX	36.59	0.00	92	222.77	0.00	103			
	0.00	0.00	90	0.00	0.00	90	9.19 C	0.00	95
	MIN	-36.60	5.86	95	-387.75	1.17	95		
	0.00	5.86	111	0.00	5.86	111	5.15 T	5.86	105
6 MAX	12.55	0.00	93	173.76	0.00	103			
	0.00	0.00	90	0.00	0.00	90	7.65 C	0.00	95
	MIN	-67.31	5.86	95	-331.30	0.00	95		
	0.00	5.86	111	0.00	5.86	111	5.15 T	5.86	105
7 MAX	12.17	0.00	105	362.25	5.84	100			
	0.00	0.00	90	0.00	0.00	90	6.87 C	0.00	95
	MIN	-67.31	5.84	95	-101.40	0.00	94		
	0.00	5.84	111	0.00	5.84	111	5.15 T	5.84	105
8 MAX	76.35	0.00	98	350.92	0.00	101			
	0.00	0.00	90	0.00	0.00	90	7.89 C	0.00	104
	MIN	-8.10	5.84	96	-115.84	5.84	103		
	0.00	5.84	111	0.00	5.84	111	4.77 T	5.84	96
9 MAX	67.42	0.00	104	147.73	5.86	94			
	0.00	0.00	90	0.00	0.00	90	7.90 C	0.00	104

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MIN	-8.15	5.86	109	-342.37	5.86	104			
	0.00	5.86	111	0.00	5.86	111	4.77	T	5.86 96
10 MAX	36.71	0.00	104	176.37	5.86	94			
	0.00	0.00	90	0.00	0.00	90	7.13	C	0.00 104
MIN	-32.61	5.86	108	-399.28	4.68	104			
	0.00	5.86	111	0.00	5.86	111	4.77	T	5.86 96
11 MAX	6.98	0.00	102	216.46	5.86	96			
	0.00	0.00	90	0.00	0.00	90	5.58	C	0.00 104
MIN	-60.25	5.86	108	-378.11	0.00	104			
	0.00	5.86	111	0.00	5.86	111	4.77	T	5.86 96
12 MAX	6.08	0.00	95	346.40	5.86	108			
	0.00	0.00	90	0.00	0.00	90	4.81	C	0.00 104
MIN	-69.94	5.86	106	-209.71	0.00	104			
	0.00	5.86	111	0.00	5.86	111	4.77	T	5.86 96
13 MAX	61.41	0.00	96	354.43	0.00	96			
	0.00	0.00	90	0.00	0.00	90	1.54	C	0.00 96
MIN	0.00	4.30	110	0.00	2.86	110			
	0.00	4.77	111	0.00	4.77	111	0.00		4.77 110
14 MAX	30.70	0.00	96	122.82	0.00	96			
	0.00	0.00	90	0.00	0.00	90	0.77	C	0.00 96
MIN	0.00	5.62	110	0.00	5.62	111			
	0.00	5.62	111	0.00	5.62	111	0.00		5.62 111

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

625. *4F1 MAX FLOOR BEAM FORCES ABOVE

626. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 15 TO 18

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
15 MAX	0.59	0.00	91	3.21	0.00	107			
	0.00	0.00	90	0.00	0.00	90	170.09 C	0.00	90
MIN	-0.24	15.73	99	-7.67	15.73	91			
	0.00	15.73	111	0.00	15.73	111	27.18 C	15.73	108
16 MAX	1.25	0.00	99	1.42	0.00	99			
	0.00	0.00	90	0.00	0.00	90	170.00 C	0.00	90
MIN	-0.21	5.33	107	-8.34	5.33	105			
	0.00	5.33	111	0.00	5.33	111	27.14 C	5.33	108
17 MAX	-2.70	0.00	95	59.76	8.98	103			
	0.00	0.00	90	0.00	0.00	90	170.00 C	0.00	90
MIN	-7.53	8.98	105	-8.34	0.00	105			
	0.00	8.98	111	0.00	8.98	111	27.14 C	8.98	108
18 MAX	5.43	0.00	105	127.71	22.78	95			
	0.00	0.00	90	0.00	0.00	90	137.17 C	0.00	90
MIN	-8.56	22.78	95	-111.97	22.78	105			
	0.00	22.78	111	0.00	22.78	111	6.52 T	22.78	104

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

627. *4F1 MAX COLUMN 3 FORCES ABOVE

628. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 19 TO 23

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
19 MAX	-0.16	0.00	94	5.05	9.75	106			
	0.00	0.00	90	0.00	0.00	90	150.99 C	0.00	110
MIN	-0.91	9.75	103	-4.26	0.00	105			
	0.00	9.75	111	0.00	9.75	111	22.97 C	9.75	91
20 MAX	0.62	0.00	106	5.05	0.00	106			
	0.00	0.00	90	0.00	0.00	90	142.55 C	0.00	98
MIN	-0.03	5.98	95	0.02	0.00	95			
	0.00	5.98	111	0.00	5.98	111	21.17 C	5.98	91
21 MAX	1.16	0.00	91	11.35	5.33	104			
	0.00	0.00	90	0.00	0.00	90	142.55 C	0.00	98
MIN	-1.88	5.33	98	-5.54	5.33	91			
	0.00	5.33	111	0.00	5.33	111	21.17 C	5.33	91
22 MAX	10.19	0.00	103	11.35	0.00	104			
	0.00	0.00	90	0.00	0.00	90	152.42 C	0.00	98
MIN	1.24	8.98	94	-87.23	8.98	103			
	0.00	8.98	111	0.00	8.98	111	22.31 C	8.98	91
23 MAX	11.13	0.00	94	160.64	23.51	103			
	0.00	0.00	90	0.00	0.00	90	126.13 C	0.00	98
MIN	-9.57	23.51	103	-159.39	23.51	94			
	0.00	23.51	111	0.00	23.51	111	4.99 T	23.51	91

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

629. *4F1 MAX COLUMN 2 FORCES ABOVE

630. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 24 TO 27

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
24 MAX	0.80	0.00	98	5.35	0.00	98			
	0.00	0.00	90	0.00	0.00	90	125.04 C	0.00	106
MIN	-0.03	15.73	91	-7.27	15.73	98			
	0.00	15.73	111	0.00	15.73	111	5.65 T	15.73	95
25 MAX	2.14	0.00	91	6.50	5.33	98			
	0.00	0.00	90	0.00	0.00	90	125.23 C	0.00	106
MIN	-2.58	5.33	98	-11.74	5.33	91			
	0.00	5.33	111	0.00	5.33	111	6.07 T	5.33	95
26 MAX	1.66	0.00	94	35.57	8.98	104			
	0.00	0.00	90	0.00	0.00	90	125.23 C	0.00	106
MIN	-3.57	8.98	104	-19.93	8.98	96			
	0.00	8.98	111	0.00	8.98	111	6.07 T	8.98	95
27 MAX	6.20	0.00	104	90.50	24.25	96			
	0.00	0.00	90	0.00	0.00	90	125.23 C	0.00	106
MIN	-4.55	24.25	96	-114.79	24.25	104			
	0.00	24.25	111	0.00	24.25	111	6.07 T	24.25	95

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

631. *4F1 MAX COLUMN 1 FORCES ABOVE

632. LOAD LIST 112 TO 133

633. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 1 TO 14

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
1 MAX	0.00	0.00	127	129.80	5.93	115			
	0.00	0.00	112	0.00	0.00	112	0.00	0.00	112
	-30.68	5.93	115	0.00	1.19	127			
MIN	0.00	5.93	133	0.00	5.93	133	0.77 T	5.93	113
2 MAX	0.00	0.00	116	474.40	6.50	115			
	0.00	0.00	112	0.00	0.00	112	0.00	0.00	116
	-61.35	5.85	115	0.00	6.50	131			
MIN	0.00	6.50	133	0.00	6.50	133	1.55 T	6.50	127
3 MAX	81.75	0.00	112	443.01	0.00	114			
	0.00	0.00	112	0.00	0.00	112	9.95 C	0.00	117
	-6.52	5.86	126	-197.31	5.86	117			
MIN	0.00	5.86	133	0.00	5.86	133	5.15 T	5.86	127
4 MAX	64.18	0.00	114	291.23	0.00	127			
	0.00	0.00	112	0.00	0.00	112	9.95 C	0.00	117
	-9.05	5.86	123	-366.19	5.86	117			
MIN	0.00	5.86	133	0.00	5.86	133	5.15 T	5.86	127
5 MAX	36.56	0.00	114	222.59	0.00	125			
	0.00	0.00	112	0.00	0.00	112	9.18 C	0.00	117
	-36.57	5.86	117	-387.42	1.17	117			
MIN	0.00	5.86	133	0.00	5.86	133	5.15 T	5.86	127
6 MAX	12.54	0.00	115	173.62	0.00	125			
	0.00	0.00	112	0.00	0.00	112	7.64 C	0.00	117
	-67.25	5.86	117	-331.02	0.00	117			
MIN	0.00	5.86	133	0.00	5.86	133	5.15 T	5.86	127
7 MAX	12.16	0.00	127	361.95	5.84	122			
	0.00	0.00	112	0.00	0.00	112	6.87 C	0.00	117
	-67.25	5.84	117	-101.31	0.00	116			
MIN	0.00	5.84	133	0.00	5.84	133	5.15 T	5.84	127
8 MAX	76.29	0.00	120	350.62	0.00	123			
	0.00	0.00	112	0.00	0.00	112	7.88 C	0.00	126
	-8.09	5.84	118	-115.74	5.84	125			
MIN	0.00	5.84	133	0.00	5.84	133	4.77 T	5.84	118
9 MAX	67.36	0.00	126	147.60	5.86	116			
	0.00	0.00	112	0.00	0.00	112	7.89 C	0.00	126

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MIN	-8.15	5.86	131	-342.09	5.86	126			
	0.00	5.86	133	0.00	5.86	133	4.77	T	5.86 118
10 MAX	36.68	0.00	126	176.22	5.86	116			
	0.00	0.00	112	0.00	0.00	112	7.13	C	0.00 126
MIN	-32.58	5.86	130	-398.94	4.68	126			
	0.00	5.86	133	0.00	5.86	133	4.77	T	5.86 118
11 MAX	6.98	0.00	124	216.28	5.86	118			
	0.00	0.00	112	0.00	0.00	112	5.58	C	0.00 126
MIN	-60.20	5.86	130	-377.79	0.00	126			
	0.00	5.86	133	0.00	5.86	133	4.77	T	5.86 118
12 MAX	6.08	0.00	117	346.10	5.86	130			
	0.00	0.00	112	0.00	0.00	112	4.81	C	0.00 126
MIN	-69.88	5.86	128	-209.53	0.00	126			
	0.00	5.86	133	0.00	5.86	133	4.77	T	5.86 118
13 MAX	61.36	0.00	118	354.13	0.00	118			
	0.00	0.00	112	0.00	0.00	112	1.54	C	0.00 118
MIN	0.00	4.30	132	0.00	2.86	132			
	0.00	4.77	133	0.00	4.77	133	0.00		4.77 132
14 MAX	30.68	0.00	118	122.72	0.00	118			
	0.00	0.00	112	0.00	0.00	112	0.77	C	0.00 118
MIN	0.00	5.62	132	0.00	5.62	133			
	0.00	5.62	133	0.00	5.62	133	0.00		5.62 133

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

634. *5C1 MAX FLOOR BEAM FORCES ABOVE

635. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 15 TO 18

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
15 MAX	0.59	0.00	113	3.21	0.00	129			
	0.00	0.00	112	0.00	0.00	112	169.98 C	0.00	112
MIN	-0.24	15.73	121	-7.67	15.73	113			
	0.00	15.73	133	0.00	15.73	133	27.19 C	15.73	130
16 MAX	1.25	0.00	121	1.41	0.00	121			
	0.00	0.00	112	0.00	0.00	112	169.88 C	0.00	112
MIN	-0.21	5.33	129	-8.34	5.33	127			
	0.00	5.33	133	0.00	5.33	133	27.14 C	5.33	130
17 MAX	-2.71	0.00	117	59.75	8.98	125			
	0.00	0.00	112	0.00	0.00	112	169.88 C	0.00	112
MIN	-7.53	8.98	127	-8.34	0.00	127			
	0.00	8.98	133	0.00	8.98	133	27.14 C	8.98	130
18 MAX	5.43	0.00	127	127.61	22.78	117			
	0.00	0.00	112	0.00	0.00	112	137.06 C	0.00	112
MIN	-8.56	22.78	117	-111.87	22.78	127			
	0.00	22.78	133	0.00	22.78	133	6.51 T	22.78	126

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

636. *5C1 MAX COLUMN 3 FORCES ABOVE

637. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 19 TO 23

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
19 MAX	-0.16	0.00	116	5.05	9.75	128			
	0.00	0.00	112	0.00	0.00	112	150.89 C	0.00	132
MIN	-0.91	9.75	125	-4.26	0.00	127			
	0.00	9.75	133	0.00	9.75	133	22.97 C	9.75	113
20 MAX	0.62	0.00	128	5.05	0.00	128			
	0.00	0.00	112	0.00	0.00	112	142.45 C	0.00	120
MIN	-0.03	5.98	117	0.02	0.00	117			
	0.00	5.98	133	0.00	5.98	133	21.17 C	5.98	113
21 MAX	1.16	0.00	113	11.34	5.33	126			
	0.00	0.00	112	0.00	0.00	112	142.45 C	0.00	120
MIN	-1.88	5.33	120	-5.53	5.33	113			
	0.00	5.33	133	0.00	5.33	133	21.17 C	5.33	113
22 MAX	10.18	0.00	125	11.34	0.00	126			
	0.00	0.00	112	0.00	0.00	112	152.32 C	0.00	120
MIN	1.25	8.98	116	-87.20	8.98	125			
	0.00	8.98	133	0.00	8.98	133	22.31 C	8.98	113
23 MAX	11.13	0.00	116	160.50	23.51	125			
	0.00	0.00	112	0.00	0.00	112	126.02 C	0.00	120
MIN	-9.56	23.51	125	-159.26	23.51	116			
	0.00	23.51	133	0.00	23.51	133	4.98 T	23.51	113

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

638. *5C1 MAX COLUMN 2 FORCES ABOVE

639. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 24 TO 27

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
24 MAX	0.80	0.00	120	5.35	0.00	120			
	0.00	0.00	112	0.00	0.00	112	124.94 C	0.00	128
MIN	-0.03	15.73	113	-7.27	15.73	120			
	0.00	15.73	133	0.00	15.73	133	5.64 T	15.73	117
25 MAX	2.14	0.00	113	6.49	5.33	120			
	0.00	0.00	112	0.00	0.00	112	125.12 C	0.00	128
MIN	-2.58	5.33	120	-11.74	5.33	113			
	0.00	5.33	133	0.00	5.33	133	6.07 T	5.33	117
26 MAX	1.66	0.00	116	35.54	8.98	126			
	0.00	0.00	112	0.00	0.00	112	125.12 C	0.00	128
MIN	-3.57	8.98	126	-19.92	8.98	118			
	0.00	8.98	133	0.00	8.98	133	6.07 T	8.98	117
27 MAX	6.20	0.00	126	90.42	24.25	118			
	0.00	0.00	112	0.00	0.00	112	125.12 C	0.00	128
MIN	-4.55	24.25	118	-114.69	24.25	126			
	0.00	24.25	133	0.00	24.25	133	6.07 T	24.25	117

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

640. *5C1 MAX COLUMN 1 FORCES ABOVE

641. LOAD LIST 134 TO 191

642. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 1 TO 14

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
1 MAX	0.00	0.00	134	82.02	5.93	134			
	0.00	0.00	134	0.00	0.00	134	0.00	0.00	134
	MIN	-25.39	5.93	137	0.00	3.56	135		
	0.00	5.93	191	0.00	5.93	191	0.64 T	5.93	137
2 MAX	0.00	0.00	138	341.83	6.50	134			
	0.00	0.00	134	0.00	0.00	134	0.00	0.00	138
	MIN	-50.78	5.85	137	0.00	2.60	140		
	0.00	6.50	191	0.00	6.50	191	1.28 T	6.50	137
3 MAX	44.30	0.00	144	261.34	0.00	134			
	0.00	0.00	134	0.00	0.00	134	4.03 C	0.00	153
	MIN	-4.66	5.27	143	-140.04	5.86	150		
	0.00	5.86	191	0.00	5.86	191	4.28 T	5.86	134
4 MAX	32.82	0.00	150	195.11	0.00	134			
	0.00	0.00	134	0.00	0.00	134	4.03 C	0.00	153
	MIN	-16.06	5.86	149	-203.26	5.86	155		
	0.00	5.86	191	0.00	5.86	191	4.28 T	5.86	134
5 MAX	21.45	0.00	156	128.88	0.00	134			
	0.00	0.00	134	0.00	0.00	134	3.87 C	0.00	156
	MIN	-27.52	5.86	155	-205.80	0.59	156		
	0.00	5.86	191	0.00	5.86	191	4.28 T	5.86	134
6 MAX	11.31	0.00	134	68.70	5.86	169			
	0.00	0.00	134	0.00	0.00	134	3.24 C	0.00	156
	MIN	-37.98	5.86	161	-185.02	0.00	156		
	0.00	5.86	191	0.00	5.86	191	4.28 T	5.86	134
7 MAX	11.31	0.00	134	143.19	5.84	157			
	0.00	0.00	134	0.00	0.00	134	2.76 C	0.00	153
	MIN	-39.52	5.84	162	-91.19	0.00	161		
	0.00	5.84	191	0.00	5.84	191	4.28 T	5.84	134
8 MAX	42.44	0.00	163	142.15	0.00	170			
	0.00	0.00	134	0.00	0.00	134	3.59 C	0.00	171
	MIN	-7.77	5.84	191	-91.71	5.84	166		
	0.00	5.84	191	0.00	5.84	191	3.18 T	5.84	191
9 MAX	37.95	0.00	166	66.67	0.00	158			
	0.00	0.00	134	0.00	0.00	134	3.59 C	0.00	171

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MIN	-11.30	5.86	165	-186.53	5.86	171			
	0.00	5.86	191	0.00	5.86	191	3.18	T	5.86 191
10 MAX	27.49	0.00	172	92.83	5.86	191			
	0.00	0.00	134	0.00	0.00	134	3.59	C	0.00 172
MIN	-21.48	5.86	171	-207.14	5.27	171			
	0.00	5.86	191	0.00	5.86	191	3.18	T	5.86 191
11 MAX	16.02	0.00	178	138.31	5.86	191			
	0.00	0.00	134	0.00	0.00	134	2.94	C	0.00 172
MIN	-32.86	5.86	177	-205.29	0.59	172			
	0.00	5.86	191	0.00	5.86	191	3.18	T	5.86 191
12 MAX	4.65	0.00	184	183.81	5.86	191			
	0.00	0.00	134	0.00	0.00	134	2.32	C	0.00 171
MIN	-44.32	5.86	183	-141.91	0.00	177			
	0.00	5.86	191	0.00	5.86	191	3.18	T	5.86 191
13 MAX	50.79	0.00	191	242.31	0.00	191			
	0.00	0.00	134	0.00	0.00	134	1.28	C	0.00 190
MIN	0.00	4.77	184	0.00	0.95	184			
	0.00	4.77	191	0.00	4.77	191	0.00		4.77 187
14 MAX	25.39	0.00	191	76.18	0.00	191			
	0.00	0.00	134	0.00	0.00	134	0.64	C	0.00 188
MIN	0.00	5.62	187	0.00	5.62	191			
	0.00	5.62	191	0.00	5.62	191	0.00		5.62 191

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

643. *FATIGUE FLOOR BEAM FORCES ABOVE

644. FINISH

***** END OF THE STAAD.Pro RUN *****

**** DATE= APR 13,2012 TIME= 16:42:21 ****

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*****
*           For questions on STAAD.Pro, please contact           *
*   Bentley Systems Offices at the following locations           *
*                                                                 *
*           Telephone                Web / Email                *
*                                                                 *
*   USA:          +1 (714)974-2500                                *
*   CANADA        +1 (905)632-4771      detech@odandetech.com    *
*   UK             +44(1454)207-000                                           *
*   SINGAPORE      +65 6225-6158                                             *
*   EUROPE         +31 23 5560560                                           *
*   INDIA          +91(033)4006-2021                                         *
*   JAPAN          +81(03)5952-6500    http://www.ctc-g.co.jp     *
*   CHINA          +86 10 5929 7000                                           *
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*                                                                 *
*   Worldwide      http://selectservices.bentley.com/en-US/        *
*                                                                 *
*****
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EAST APPROACH FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/30/2012
Date 4/13/2012

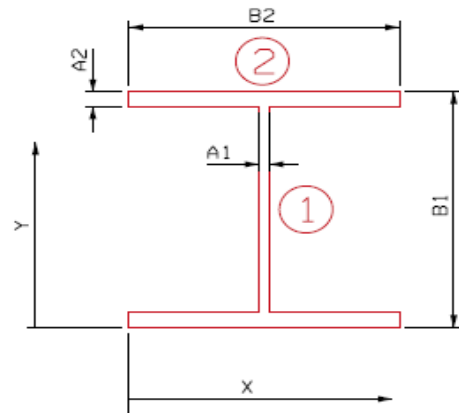
Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Red text indicates user input

Element Dimensions (without Section Losses):

$A_1 = t_w = 0.6800$ in
 $A_2 = t_f = 1.1000$ in
 $B_1 = d = 36.1600$ in
 $B_2 = b_f = 12.0270$ in
36WFB170



FB-4 @ COLUMN 304
EAST APPR. FWD SECTION

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I _o	d	Ad ²	I _{x,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		23.0928	18.0800	417.5178	2219.3751	0.0000	0.0000	2219.3751
2	Top Flange		13.2297	35.6100	471.1096	1.3340	17.5300	4065.4987	4066.8327
	Bottom Flange		13.2297	0.5500	7.2763	1.3340	17.5300	4065.4987	4066.8327
Total			49.55		895.90	2222.04		8131.00	10353.04
Section Losses			A	y	Ay	I _o	d	Ad ²	I _{x,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.2500	10.0000	-2.5000	31.0000	-77.5000	-20.8333	13.1352	-431.3331	-452.1665
2	5.0000	0.2500	-1.2500	0.1250	-0.1563	-0.0065	17.7398	-393.3760	-393.3825
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			-3.75		-77.66	-20.84		-824.71	-845.55

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	18.0800	in	S _{top} = 572.62 in ³	y-bar =	17.8648	in	S _{top} = 519.67 in ³
I _x =	10353.04	in ⁴	S _{bottom} = 572.62 in ³	I _x =	9507.49	in ⁴	S _{bottom} = 532.19 in ³
C _{top} =	18.0800	in	A = 49.5522 in ²	C _{top} =	18.2952	in	A = 45.8022 in ²
C _{bottom} =	18.0800	in	r _x = 14.4545 in	C _{bottom} =	17.8648	in	r _x = 14.4075 in
			Z = 659.89 in ³				Z = warning in ³

EAST APPROACH FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/30/2012
Date 4/13/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Floorbeam Capacities

Non-composite Capacities*		
	AB	AI
M	1574.72 k-ft	1429.10 k-ft
V	442.00 k	394.15 k

*Noncompact Section

$F_y =$	33.00 ksi
---------	------------------

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

As-Built Moments and Shears						
	DL	HS20	2F1	3F1	4F1	5C1
M	535.00 k-ft	588.98 k-ft	278.14 k-ft	414.80 k-ft	474.80 k-ft	474.40 k-ft
V	58.12 k	76.18 k	35.97 k	53.65 k	61.41 k	61.36 k

As-Built Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	0.69	---	---	---	---
Operating M	1.15	2.43	1.63	1.42	1.43
As-Inspected Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	0.57	---	---	---	---
Operating M	0.96	2.03	1.36	1.19	1.19
As-Built Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	2.22	---	---	---	---
Operating V	3.7	7.84	5.25	4.59	4.59
As-Inspected Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	1.93	---	---	---	---
Operating V	3.22	6.81	4.57	3.99	3.99

Controlling Rating Factors and Tonnage						
	HS20 Inventory	HS20 Operating	2F1 Operating	3F1 Operating	4F1 Operating	5C1 Operating
Rating Factor	0.57	0.96	2.03	1.36	1.19	1.19
Tonnage (US Tons)	20.52	34.56	30.45	31.28	32.13	47.6

EAST APPROACH FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/30/2012
Date 4/13/2012

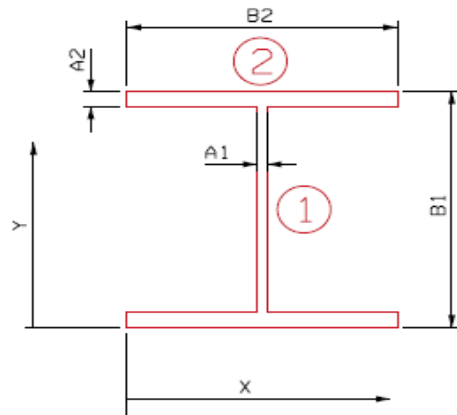
Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Red text indicates user input

Element Dimensions (without Section Losses):

$A_1 = t_w = 0.6800$ in
 $A_2 = t_f = 1.1000$ in
 $B_1 = d = 36.1600$ in
 $B_2 = b_f = 12.0270$ in
36WFB170



**FB-4 @ COLUMN 204
EAST APPR. FWD SECTION**

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I _o	d	Ad ²	I _{x,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		23.0928	18.0800	417.5178	2219.3751	0.0000	0.0000	2219.3751
2	Top Flange		13.2297	35.6100	471.1096	1.3340	17.5300	4065.4987	4066.8327
	Bottom Flange		13.2297	0.5500	7.2763	1.3340	17.5300	4065.4987	4066.8327
Total			49.55		895.90	2222.04		8131.00	10353.04
Section Losses			A	y	Ay	I _o	d	Ad ²	I _{x,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	12.0000	0.3500	-4.2000	0.1250	-0.5250	-0.0429	20.5626	-1775.8516	-1775.8945
2	7.0000	0.4750	-3.3250	0.1875	-0.6234	-0.0625	20.5001	-1397.3491	-1397.4117
3	0.2500	6.0000	-1.5000	33.0000	-49.5000	-4.5000	12.3124	-227.3916	-231.8916
4	0.3750	2.0000	-0.7500	17.0000	-12.7500	-0.2500	3.6876	-10.1990	-10.4490
5	5.0000	0.1250	-0.6250	36.0625	-22.5391	-0.0008	15.3749	-147.7416	-147.7424
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			-10.40		-85.94	-4.86		-3558.53	-3563.39

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	18.0800	in	S _{top} = 572.62 in ³	y-bar =	20.6876	in	S _{top} = 438.82 in ³
I _x =	10353.04	in ⁴	S _{bottom} = 572.62 in ³	I _x =	6789.65	in ⁴	S _{bottom} = 328.20 in ³
C _{top} =	18.0800	in	A = 49.5522 in ²	C _{top} =	15.4724	in	A = 39.1522 in ²
C _{bottom} =	18.0800	in	r _x = 14.4545 in	C _{bottom} =	20.6876	in	r _x = 13.1688 in
			Z = 659.89 in ³				Z = warning in ³

EAST APPROACH FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/30/2012
Date 4/13/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Floorbeam Capacities

Non-composite Capacities*		
	AB	AI
M	1574.72 k-ft	902.55 k-ft
V	442.00 k	398.93 k

*Noncompact Section

$F_y =$	33.00 ksi
---------	------------------

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

As-Built Moments and Shears						
	DL	HS20	2F1	3F1	4F1	5C1
M	302.80 k-ft	449.40 k-ft	205.85 k-ft	310.97 k-ft	357.13 k-ft	356.82 k-ft
V	52.00 k	83.57 k	37.58 k	56.21 k	64.39 k	64.34 k

As-Built Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.21	---	---	---	---
Operating M	2.02	4.41	2.92	2.54	2.55
As-Inspected Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	0.52	---	---	---	---
Operating M	0.87	1.9	1.26	1.1	1.1
As-Built Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	2.06	---	---	---	---
Operating V	3.45	7.66	5.12	4.47	4.48
As-Inspected Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	1.83	---	---	---	---
Operating V	3.05	6.78	4.53	3.96	3.96

Controlling Rating Factors and Tonnage						
	HS20 Inventory	HS20 Operating	2F1 Operating	3F1 Operating	4F1 Operating	5C1 Operating
Rating Factor	0.52	0.87	1.9	1.26	1.1	1.1
Tonnage (US Tons)	18.72	31.32	28.5	28.98	29.7	44

EAST APPROACH FORWARD SECTION



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Date 3/20/2012
Date 4/13/2012

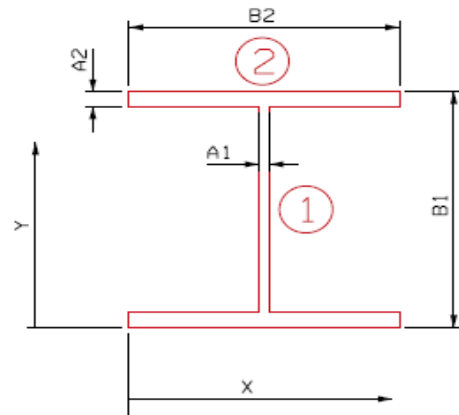
Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Red text indicates user input

Element Dimensions (without Section Losses):

$A_1 = t_w = 0.6800$ in
 $A_2 = t_f = 1.1000$ in
 $B_1 = d = 36.1600$ in
 $B_2 = b_f = 12.0270$ in
36WFB170



FB-4 @ COLUMN 104
EAST APPR. FWD SECTION

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I _o	d	Ad ²	I _{x, gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		23.0928	18.0800	417.5178	2219.3751	0.0000	0.0000	2219.3751
2	Top Flange		13.2297	35.6100	471.1096	1.3340	17.5300	4065.4987	4066.8327
	Bottom Flange		13.2297	0.5500	7.2763	1.3340	17.5300	4065.4987	4066.8327
Total			49.55		895.90	2222.04		8131.00	10353.04
Section Losses			A	y	Ay	I _o	d	Ad ²	I _{x, loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.1250	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	18.0800	in	S _{top} = 572.62 in ³	y-bar =	18.0800	in	S _{top} = 572.62 in ³
I _x =	10353.04	in ⁴	S _{bottom} = 572.62 in ³	I _x =	10353.04	in ⁴	S _{bottom} = 572.62 in ³
C _{top} =	18.0800	in	A = 49.5522 in ²	C _{top} =	18.0800	in	A = 49.5522 in ²
C _{bottom} =	18.0800	in	r _x = 14.4545 in	C _{bottom} =	18.0800	in	r _x = 14.4545 in
			Z = 659.89 in ³				Z = warning in ³

EAST APPROACH FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/20/2012
Date 4/13/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Floorbeam Capacities

Non-composite Capacities*		
	AB	AI
M	1574.72 k-ft	1574.72 k-ft
V	442.00 k	442.00 k

$F_y =$ **33.00 ksi**

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

*Noncompact Section

As-Built Moments and Shears						
	DL	HS20	2F1	3F1	4F1	5C1
M	398.70 k-ft	439.68 k-ft	207.62 k-ft	309.64 k-ft	354.44 k-ft	354.13 k-ft
V	53.26 k	76.18 k	35.97 k	53.65 k	61.41 k	61.36 k

As-Built Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.11	---	---	---	---
Operating M	1.85	3.91	2.62	2.29	2.29
As-Inspected Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.11	---	---	---	---
Operating M	1.85	3.91	2.62	2.29	2.29
As-Built Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	2.25	---	---	---	---
Operating V	3.76	7.97	5.34	4.67	4.67
As-Inspected Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	2.25	---	---	---	---
Operating V	3.76	7.97	5.34	4.67	4.67

Controlling Rating Factors and Tonnage						
	HS20 Inventory	HS20 Operating	2F1 Operating	3F1 Operating	4F1 Operating	5C1 Operating
Rating Factor	1.11	1.85	3.91	2.62	2.29	2.29
Tonnage (US Tons)	39.96	66.6	58.65	60.26	61.83	91.6

EAST APPROACH FORWARD SECTION



Made By FKL
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Date 3/20/2012
Date 4/13/2012

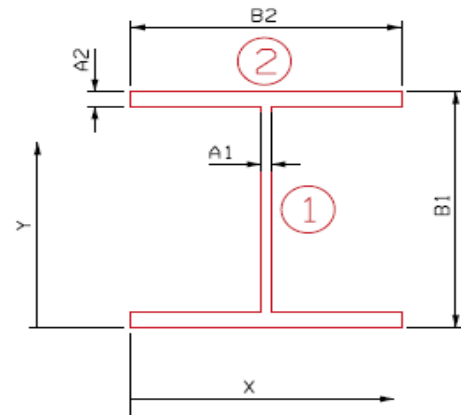
Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Red text indicates user input

Element Dimensions (without Section Losses):

$A_1 = t_w = 0.6800$ in
 $A_2 = t_f = 1.1000$ in
 $B_1 = d = 36.1600$ in
 $B_2 = b_f = 12.0270$ in
36WFB170



FB-4 @ Between 204 & 304
EAST APPR. FWD SECTION

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I _o	d	Ad ²	I _{x,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		23.0928	18.0800	417.5178	2219.3751	0.0000	0.0000	2219.3751
2	Top Flange		13.2297	35.6100	471.1096	1.3340	17.5300	4065.4987	4066.8327
	Bottom Flange		13.2297	0.5500	7.2763	1.3340	17.5300	4065.4987	4066.8327
Total			49.55		895.90	2222.04		8131.00	10353.04
Section Losses			A	y	Ay	I _o	d	Ad ²	I _{x,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	12.0000	0.4750	-5.7000	0.1250	-0.7125	-0.1072	20.0549	-2292.5232	-2292.6304
2	1.0000	0.9750	-0.9750	0.4875	-0.4753	-0.0772	19.6924	-378.0940	-378.1712
3	0.2500	12.0000	-3.0000	30.0000	-90.0000	-36.0000	9.8201	-289.3060	-325.3060
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			-9.68		-91.19	-36.18		-2959.92	-2996.11

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	18.0800	in	S _{top} = 572.62 in ³	y-bar =	20.1799	in	S _{top} = 460.38 in ³
I _x =	10353.04	in ⁴	S _{bottom} = 572.62 in ³	I _x =	7356.93	in ⁴	S _{bottom} = 364.57 in ³
C _{top} =	18.0800	in	A = 49.5522 in ²	C _{top} =	15.9801	in	A = 39.8772 in ²
C _{bottom} =	18.0800	in	r _x = 14.4545 in	C _{bottom} =	20.1799	in	r _x = 13.5827 in
			Z = 659.89 in ³				Z = warning in ³

EAST APPROACH FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/20/2012
Date 4/13/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Floorbeam Capacities

Non-composite Capacities*		
	AB	AI
M	1814.70 k-ft	1002.56 k-ft
V	442.00 k	384.58 k

*Compact Section

$F_y =$	33.00 ksi
---------	------------------

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

As-Built Moments and Shears						
	DL	HS20	2F1	3F1	4F1	5C1
M	130.44 k-ft	457.37 k-ft	210.30 k-ft	316.44 k-ft	331.57 k-ft	362.74 k-ft
V	7.78 k	31.24 k	15.00 k	22.27 k	35.96 k	25.43 k

As-Built Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.66	---	---	---	---
Operating M	2.77	6.02	4	3.82	3.49
As-Inspected Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	0.84	---	---	---	---
Operating M	1.4	3.05	2.02	1.93	1.77
As-Built Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	6.37	---	---	---	---
Operating V	10.63	22.15	14.92	9.24	13.06
As-Inspected Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	5.52	---	---	---	---
Operating V	9.22	19.2	12.93	8.01	11.33

Controlling Rating Factors and Tonnage						
	HS20 Inventory	HS20 Operating	2F1 Operating	3F1 Operating	4F1 Operating	5C1 Operating
Rating Factor	0.84	1.4	3.05	2.02	1.93	1.77
Tonnage (US Tons)	30.24	50.4	45.75	46.46	52.11	70.8

EAST APPROACH FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/30/2012
Date 4/13/2012

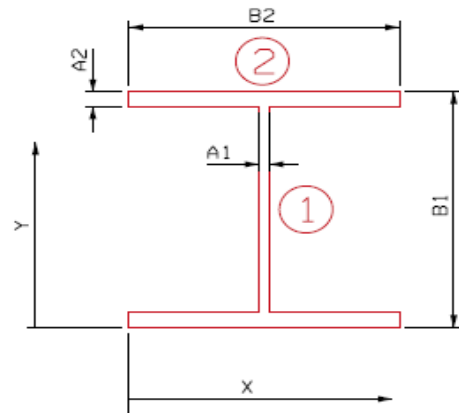
Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Red text indicates user input

Element Dimensions (without Section Losses):

$A_1 = t_w = 0.6800$ in
 $A_2 = t_f = 1.1000$ in
 $B_1 = d = 36.1600$ in
 $B_2 = b_f = 12.0270$ in
36WFB170



FB-4 @ Between 104 & 204
EAST APPR. FWD SECTION

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I _o	d	Ad ²	I _{x,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		23.0928	18.0800	417.5178	2219.3751	0.0000	0.0000	2219.3751
2	Top Flange		13.2297	35.6100	471.1096	1.3340	17.5300	4065.4987	4066.8327
	Bottom Flange		13.2297	0.5500	7.2763	1.3340	17.5300	4065.4987	4066.8327
Total			49.55		895.90	2222.04		8131.00	10353.04
Section Losses			A	y	Ay	I _o	d	Ad ²	I _{x,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	18.0800	in	S _{top} = 572.62 in ³	y-bar =	18.0800	in	S _{top} = 572.62 in ³
I _x =	10353.04	in ⁴	S _{bottom} = 572.62 in ³	I _x =	10353.04	in ⁴	S _{bottom} = 572.62 in ³
C _{top} =	18.0800	in	A = 49.5522 in ²	C _{top} =	18.0800	in	A = 49.5522 in ²
C _{bottom} =	18.0800	in	r _x = 14.4545 in	C _{bottom} =	18.0800	in	r _x = 14.4545 in
			Z = 659.89 in ³				Z = 659.89 in ³

EAST APPROACH FORWARD SECTION



Made By FKL
 Checked By PJP

Date 3/30/2012
 Date 4/13/2012

Job No. P402110046
 Sheet No. _____

Calculations For: **CUY-2-1441**

Floorbeam Capacities

Non-composite Capacities*		
	AB	AI
M	1814.70 k-ft	1814.70 k-ft
V	442.00 k	442.00 k

*Compact Section

F_y = 33.00 ksi

AB = As-Built
 AI = As-Inspected
 M = Moment
 V = Shear

As-Built Moments and Shears						
	DL	HS20	2F1	3F1	4F1	5C1
M	175.53 k-ft	469.14 k-ft	222.75 k-ft	331.05 k-ft	378.62 k-ft	378.30 k-ft
V	25.92 k	14.55 k	0.81 k	21.53 k	24.60 k	24.58 k

As-Built Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.56	---	---	---	---
Operating M	2.6	5.48	3.69	3.22	3.23
As-Inspected Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.56	---	---	---	---
Operating M	2.6	5.48	3.69	3.22	3.23
As-Built Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	12.93	---	---	---	---
Operating V	21.59	387.75	14.59	12.77	12.78
As-Inspected Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	12.93	---	---	---	---
Operating V	21.59	387.75	14.59	12.77	12.78

Controlling Rating Factors and Tonnage						
	HS20 Inventory	HS20 Operating	2F1 Operating	3F1 Operating	4F1 Operating	5C1 Operating
Rating Factor	1.56	2.6	5.48	3.69	3.22	3.23
Tonnage (US Tons)	56.16	93.6	82.2	84.87	86.94	129.2



Calculated: FKL Date: 4/2/2012
 Checked: MTN Date: 4/12/2012

CUY-2-1441 Load Rating Analysis - As-Built
Main Ave Bridge
East Approach Fwd Section - Bent 4

Column: C304

Section Properties 18WF70 & 2-C15x35 (For section properties of built-up section, see hand calculations)

A =	41.020	in ²	I _x =	2695.200	in ⁴
h =	18.844	in	S _x =	286.050	in ³
b _f =	15.000	in	r _x =	8.106	in
t _f =	1.173	in	I _y =	715.900	in ⁴
t _w =	0.438	in	S _y =	95.450	in ³
			r _y =	4.178	in
F _y =	33.0	ksi			
E =	29000	ksi			
L _{cx} =	273.36	in			
L _{cy} =	273.36	in			
K _x =	0.650	AASHTO Appendix C			
K _y =	0.650	AASHTO Appendix C			

Axial Loading

$$P_u = 0.85 A_s F_{cr}$$

AASHTO 10.54 Concentrically Loaded Columns

$$F_{cr} = F_y \left(1 - \frac{F_y}{4\pi^2 E} \left(\frac{KL_c}{r} \right)^2 \right)$$

$$\text{For: } \frac{KL_c}{r} \leq \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$F_{cr} = \frac{\pi^2 E}{\left(\frac{KL_c}{r} \right)^2}$$

$$\text{For: } \frac{KL_c}{r} > \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$\begin{aligned} KL/r_y &= 42.528 < 131.706 \\ KL/r_x &= 21.920 < 131.706 \end{aligned}$$

$$F_{CR} = 31.280 \text{ ksi}$$

$$P_u = 1090.6 \text{ k}$$



Calculated: FKL Date: 4/2/2012
 Checked: MTN Date: 4/12/2012

CUY-2-1441 Load Rating Analysis - As-Built
Main Ave Bridge
East Approach Fwd Section - Bent 4

Column: C304

Axial Loading and Bending

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_e}\right)} \leq 1.0$$

AASHTO 10.54.2 Combined Axial Load and Bending

=0.6+0.4

a = 0 **When moment is small assume a = 0
 C = 0.600

$$F_e = \frac{E\pi^2}{\left(\frac{KL_c}{r}\right)^2}$$

F_{ex} = 595.682 ksi
 F_{ey} = 158.248 ksi

Column Compactness Check

M_u=F_yZ For Compact Section
 M_u=F_yS For Non-Compact Section

$\frac{b}{i} \leq \frac{4110}{\sqrt{F_y}}$	12.788	<	22.625
$\frac{D}{t_w} \leq \frac{19230}{\sqrt{F_y}}$	37.667	<	105.858
$\frac{L}{r_y} \leq \frac{\left(3.6 - 2.2 \frac{M_1}{M_u}\right) \times 10^6}{F_y}$	65.428	<	109.091

Column Moment Capacity

Non-Compact Section

M_{ux} = 786.6 k-ft

CUY-2-1441 Load Rating Analysis - As-Built

Main Ave Bridge

East Approach Forward Section - Column 304 Ratings



Calculated:

FKL 4/3/2012

Checked:

MTN 4/12/2012

Column Loading

	DL	HS-20	2F1	3F1	4F1	5C1
Max Axial	241.14	202.93	113.54	152.84	170.09	169.98
Moment	0.18	5.78	4.41	5.01	5.28	5.28
Axial	235.11	69.06	32.81	48.75	55.74	55.70
Max Mom.	74.43	155.84	78.77	112.67	127.55	127.45

DL Factor

1.30

LL Factor

2.17 INV
1.30 OPER

Factored Loads

Axial Force

Moment

Capacities

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_e}\right)} \leq 1.0$$

Load Case	Member	Axial Force		Moment		P _u	M _u	A _s F _e	Condition Equation	RF
		Dead Load	Max. LL + I	Dead Load	Max LL + I					
HS20 INV	C304	313.482	439.69	0.24	12.53	1090.60	786.60	24434.87	1.00	1.72
HS20 INV	C304	305.6482	149.63	96.76	337.66	1090.60	786.60	24434.87	1.00	1.61
HS20 OPR	C304	313.482	263.81	0.24	7.52	1090.60	786.60	24434.87	1.00	2.87
HS20 OPR	C304	305.6482	89.78	96.76	202.59	1090.60	786.60	24434.87	1.00	2.68
2F1	C304	313.482	147.60	0.24	5.73	1090.60	786.60	24434.87	1.00	5.09
2F1	C304	305.6482	42.65	96.76	102.40	1090.60	786.60	24434.87	1.00	5.42
3F1	C304	313.482	198.69	0.24	6.52	1090.60	786.60	24434.87	1.00	3.80
3F1	C304	305.6482	63.37	96.76	146.48	1090.60	786.60	24434.87	1.00	3.74
4F1	C304	313.482	221.12	0.24	6.86	1090.60	786.60	24434.87	1.00	3.42
4F1	C304	305.6482	72.47	96.76	165.81	1090.60	786.60	24434.87	1.00	3.29
5C1	C304	313.482	220.97	0.24	6.86	1090.60	786.60	24434.87	1.00	3.42
5C1	C304	305.6482	72.41	96.76	165.69	1090.60	786.60	24434.87	1.00	3.30

Load Case	Controlling RF
HS20 INV	1.61
HS20 OPR	2.68
2F1	5.09
3F1	3.74
4F1	3.29
5C1	3.30



Calculated: FKL Date: 4/2/2012
 Checked: MTN Date: 4/12/2012

CUY-2-1441 Load Rating Analysis - As-Built
Main Ave Bridge
East Approach Fwd Section - Bent 4

Column: C204

Section Properties 21WF82 & 2-C15x35 (For section properties of built-up section, see hand calculations)

A =	44.560	in ²	I _x =	3840.650	in ⁴
h =	21.704	in	S _x =	353.910	in ³
b _f =	15.000	in	r _x =	9.284	in
t _f =	1.217	in	I _y =	727.000	in ⁴
t _w =	0.499	in	S _y =	96.930	in ³
			r _y =	4.039	in
F _y =	33.0	ksi			
E =	29000	ksi			
L _{cx} =	282.18	in			
L _{cy} =	282.18	in			
K _x =	0.650	AASHTO Appendix C			
K _y =	0.650	AASHTO Appendix C			

Axial Loading

$$P_u = 0.85 A_s F_{cr}$$

AASHTO 10.54 Concentrically Loaded Columns

$$F_{cr} = F_y \left(1 - \frac{F_y}{4\pi^2 E} \left(\frac{KL_c}{r} \right)^2 \right) \quad \text{For: } \frac{KL_c}{r} \leq \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$F_{cr} = \frac{\pi^2 E}{\left(\frac{KL_c}{r} \right)^2} \quad \text{For: } \frac{KL_c}{r} > \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$KL/r_y = 45.411 < 131.706$$

$$KL/r_x = 19.756 < 131.706$$

$$F_{CR} = 31.038 \text{ ksi}$$

$$P_u = 1175.6 \text{ k}$$



Calculated: FKL Date: 4/2/2012
 Checked: MTN Date: 4/12/2012

CUY-2-1441 Load Rating Analysis - As-Built
Main Ave Bridge
East Approach Fwd Section - Bent 4

Column: C204

Axial Loading and Bending

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_e}\right)} \leq 1.0$$

AASHTO 10.54.2 Combined Axial Load and Bending

$$= 0.6 + 0.4$$

$$a = 0 \quad \text{**When moment is small assume } a = 0$$

$$C = 0.600$$

$$F_e = \frac{E \pi^2}{\left(\frac{KL_c}{r}\right)^2}$$

$F_{ex} = 733.312 \text{ ksi}$
 $F_{ey} = 138.793 \text{ ksi}$

Column Compactness Check

$M_u = F_y Z$ For Compact Section

$M_u = F_y S$ For Non-Compact Section

$$\frac{b}{i} \leq \frac{4110}{\sqrt{F_y}}$$

$$12.325 < 22.625$$

$$\frac{D}{t_w} \leq \frac{19230}{\sqrt{F_y}}$$

$$38.617 < 105.858$$

$$\frac{L}{r_y} \leq \frac{\left(3.6 - 2.2 \frac{M_1}{M_u}\right) \times 10^6}{F_y}$$

$$69.864 < 109.091$$

Column Moment Capacity

Non-Compact Section

$$M_{ux} = 973.3 \text{ k-ft}$$

CUY-2-1441 Load Rating Analysis - As-Built

Main Ave Bridge

East Approach Forward Section - Column 204 Ratings



Calculated:

FKL 4/3/2012

Checked:

MTN 4/12/2012

Column Loading

	DL	HS-20	2F1	3F1	4F1	5C1
Max Axial	206.66	182.66	100.35	136.54	152.43	152.32
Moment	4.95	54.75	50.89	52.58	53.33	53.33
Axial	196.04	64.99	31.99	48.01	55.05	55.00
Max Mom.	90.68	200.92	96.41	140.08	159.26	159.13

DL Factor

1.30

LL Factor

2.17 INV
1.30 OPER

Factored Loads

Axial Force

Moment

Capacities

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_e}\right)} \leq 1.0$$

Load Case	Member	Axial Force		Moment		P _u	M _u	A _s F _e	Condition Equation	RF
		Dead Load	Max. LL + I	Dead Load	Max LL + I					
HS20 INV	C204	268.6606	395.77	6.43	118.63	1175.60	973.30	32676.39	1.00	1.86
HS20 INV	C204	254.852	140.82	117.89	435.33	1175.60	973.30	32676.39	1.00	1.81
HS20 OPR	C204	268.6606	237.46	6.43	71.18	1175.60	973.30	32676.39	1.00	3.10
HS20 OPR	C204	254.852	84.49	117.89	261.20	1175.60	973.30	32676.39	1.00	3.01
2F1	C204	268.6606	130.46	6.43	66.16	1175.60	973.30	32676.39	1.00	5.02
2F1	C204	254.852	41.58	117.89	125.34	1175.60	973.30	32676.39	1.00	6.24
3F1	C204	268.6606	177.50	6.43	68.36	1175.60	973.30	32676.39	1.00	3.95
3F1	C204	254.852	62.41	117.89	182.11	1175.60	973.30	32676.39	1.00	4.24
4F1	C204	268.6606	198.15	6.43	69.33	1175.60	973.30	32676.39	1.00	3.61
4F1	C204	254.852	71.56	117.89	207.04	1175.60	973.30	32676.39	1.00	3.73
5C1	C204	268.6606	198.02	6.43	69.32	1175.60	973.30	32676.39	1.00	3.61
5C1	C204	254.852	71.50	117.89	206.87	1175.60	973.30	32676.39	1.00	3.73

Load Case	Controlling RF
HS20 INV	1.81
HS20 OPR	3.01
2F1	5.02
3F1	3.95
4F1	3.61
5C1	3.61



Calculated: FKL Date: 4/2/2012
 Checked: MTN Date: 4/12/2012

CUY-2-1441 Load Rating Analysis - As-Built
Main Ave Bridge
East Approach Fwd Section - Bent 4

Column: C104

Section Properties 18WF70 & 2-C15x35 (For section properties of built-up section, see hand calculations)

A =	41.020	in ²	I _x =	2695.200	in ⁴
h =	18.844	in	S _x =	286.050	in ³
b _f =	15.000	in	r _x =	8.106	in
t _f =	1.173	in	I _y =	715.900	in ⁴
t _w =	0.438	in	S _y =	95.450	in ³
			r _y =	4.178	in
F _y =	33.0	ksi			
E =	29000	ksi			
L _{cx} =	291.00	in			
L _{cy} =	291.00	in			
K _x =	0.650	AASHTO Appendix C			
K _y =	0.650	AASHTO Appendix C			

Axial Loading

$$P_u = 0.85 A_s F_{cr}$$

AASHTO 10.54 Concentrically Loaded Columns

$$F_{cr} = F_y \left(1 - \frac{F_y}{4\pi^2 E} \left(\frac{KL_c}{r} \right)^2 \right)$$

$$\text{For: } \frac{KL_c}{r} \leq \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$F_{cr} = \frac{\pi^2 E}{\left(\frac{KL_c}{r} \right)^2}$$

$$\text{For: } \frac{KL_c}{r} > \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$KL/r_y = 45.273 < 131.706$$

$$KL/r_x = 23.335 < 131.706$$

$$F_{CR} = 31.050 \text{ ksi}$$

$$P_u = 1082.6 \text{ k}$$



Calculated: FKL Date: 4/2/2012
 Checked: MTN Date: 4/12/2012

CUY-2-1441 Load Rating Analysis - As-Built
Main Ave Bridge
East Approach Fwd Section - Bent 4

Column: C104

Axial Loading and Bending

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_e}\right)} \leq 1.0$$

AASHTO 10.54.2 Combined Axial Load and Bending

=0.6+0.4

a = 0 **When moment is small assume a = 0
 C = 0.600

$$F_e = \frac{E\pi^2}{\left(\frac{KL_c}{r}\right)^2}$$

F_{ex} = 525.652 ksi
 F_{ey} = 139.644 ksi

Column Compactness Check

M_u=F_yZ For Compact Section
 M_u=F_yS For Non-Compact Section

$\frac{b}{i} \leq \frac{4110}{\sqrt{F_y}}$	12.788	<	22.625
$\frac{D}{t_w} \leq \frac{19230}{\sqrt{F_y}}$	37.667	<	105.858
$\frac{L}{r_y} \leq \frac{\left(3.6 - 2.2 \frac{M_1}{M_u}\right) \times 10^6}{F_y}$	69.651	<	109.091

Column Moment Capacity

Non-Compact Section

M_{ux} = 786.6 k-ft

CUY-2-1441 Load Rating Analysis - As-Built

Main Ave Bridge

East Approach Forward Section - Column 104 Ratings



Calculated:

FKL 4/3/2012

Checked:

MTN 4/12/2012

Column Loading

	DL	HS-20	2F1	3F1	4F1	5C1
Max Axial	150.338	155.279	73.47	109.43	125.23	125.12
Moment	4.447	2.845	2.66	2.74	2.78	2.78
Axial	140.603	68.485	32.48	48.31	55.26	55.21
Max Mom.	20.026	141.955	67.40	100.20	114.59	114.49

DL Factor

1.30

LL Factor

2.17 INV
1.30 OPER

Factored Loads

Axial Force

Moment

Capacities

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_e}\right)} \leq 1.0$$

Load Case	Member	Axial Force		Moment		P _u kips	M _u k-ft	A _s F _e kips	Condition Equation	RF
		Dead Load	Max. LL + I	Dead Load	Max LL + I					
HS20 INV	C104	195.4394	336.44	5.78	6.16	1082.60	786.60	21562.24	1.00	2.58
HS20 INV	C104	182.7839	148.38	26.03	307.57	1082.60	786.60	21562.24	1.00	2.15
HS20 OPR	C104	195.4394	201.86	5.78	3.70	1082.60	786.60	21562.24	1.00	4.30
HS20 OPR	C104	182.7839	89.03	26.03	184.54	1082.60	786.60	21562.24	1.00	3.58
2F1	C104	195.4394	95.51	5.78	3.46	1082.60	786.60	21562.24	1.00	8.96
2F1	C104	182.7839	42.23	26.03	87.62	1082.60	786.60	21562.24	1.00	7.55
3F1	C104	195.4394	142.26	5.78	3.57	1082.60	786.60	21562.24	1.00	6.07
3F1	C104	182.7839	62.80	26.03	130.25	1082.60	786.60	21562.24	1.00	5.08
4F1	C104	195.4394	162.79	5.78	3.61	1082.60	786.60	21562.24	1.00	5.32
4F1	C104	182.7839	71.84	26.03	148.96	1082.60	786.60	21562.24	1.00	4.44
5C1	C104	195.4394	162.66	5.78	3.61	1082.60	786.60	21562.24	1.00	5.32
5C1	C104	182.7839	71.78	26.03	148.84	1082.60	786.60	21562.24	1.00	4.44

Load Case	Controlling RF
HS20 INV	2.15
HS20 OPR	3.58
2F1	7.55
3F1	5.08
4F1	4.44
5C1	4.44



Calculated: FKL Date: 4/2/2012
 Checked: MTN Date: 4/12/2012

CUY-2-1441 Load Rating Analysis - As-Inspected
Main Ave Bridge
East Approach Fwd Section - Bent 4

Column: C304

Section Properties 18WF70 & 2-C15x35 (For section properties of built-up section, see hand calculations)

A =	33.977	in ²	I _x =	2211.302	in ⁴
h =	18.594	in	S _x =	226.580	in ³
b _f =	15.000	in	r _x =	8.067	in
t _f =	1.173	in	I _y =	644.007	in ⁴
t _w =	0.438	in	S _y =	85.868	in ³
			r _y =	4.354	in
F _y =	33.0	ksi			
E =	29000	ksi			
L _{cx} =	273.36	in			
L _{cy} =	273.36	in			
K _x =	0.650	AASHTO Appendix C			
K _y =	0.650	AASHTO Appendix C			

Axial Loading

$$P_u = 0.85 A_s F_{cr}$$

AASHTO 10.54 Concentrically Loaded Columns

$$F_{cr} = F_y \left(1 - \frac{F_y}{4\pi^2 E} \left(\frac{KL_c}{r} \right)^2 \right)$$

$$\text{For: } \frac{KL_c}{r} \leq \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$F_{cr} = \frac{\pi^2 E}{\left(\frac{KL_c}{r} \right)^2}$$

$$\text{For: } \frac{KL_c}{r} > \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$KL/r_y = 40.809 < 131.706$$

$$KL/r_x = 22.026 < 131.706$$

$$F_{CR} = 31.416 \text{ ksi}$$

$$P_u = 907.3 \text{ k}$$



Calculated: FKL Date: 4/2/2012
 Checked: MTN Date: 4/12/2012

CUY-2-1441 Load Rating Analysis - As-Inspected
Main Ave Bridge

East Approach Fwd Section - Bent 4

Column: C304

Axial Loading and Bending

AASHTO 10.54.2 Combined Axial Load and Bending

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_e}\right)} \leq 1.0$$

=0.6+0.4

a = 0 **When moment is small assume a = 0
 C = 0.600

$$F_e = \frac{E\pi^2}{\left(\frac{KL_c}{r}\right)^2}$$

F_{ex} = 589.964 ksi
 F_{ey} = 171.861 ksi

Column Compactness Check

M_u=F_yZ For Compact Section
 M_u=F_yS For Non-Compact Section

$\frac{b}{t} \leq \frac{4110}{\sqrt{F_y}}$	12.788	<	22.625
--------------------------------------------	--------	---	--------

$\frac{D}{t_w} \leq \frac{19230}{\sqrt{F_y}}$	37.096	<	105.858
-----------------------------------------------	--------	---	---------

$\frac{L}{r_y} \leq \frac{\left(3.6 - 2.2 \frac{M_1}{M_u}\right) \times 10^6}{F_y}$	62.784	<	109.091
-------------------------------------------------------------------------------------	--------	---	---------

Column Moment Capacity

Non-Compact Section

M_{ux} = 623.1 k-ft

CUY-2-1441 Load Rating Analysis - As-Inspected

Main Ave Bridge

East Approach Forward Section - Column 304 Ratings



Calculated:

FKL 4/3/2012

Checked:

MTN 4/12/2012

Column Loading

	DL	HS-20	2F1	3F1	4F1	5C1
Max Axial	241.14	202.93	113.54	152.84	170.09	169.98
Moment	0.18	5.78	4.41	5.01	5.28	5.28
Axial	235.11	69.06	32.81	48.75	55.74	55.70
Max Mom.	74.43	155.84	78.77	112.67	127.55	127.45

DL Factor

1.30

LL Factor

2.17 INV
1.30 OPER

Factored Loads

Axial Force

Moment

Capacities

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_e}\right)} \leq 1.0$$

Load Case	Member	Axial Force		Moment		P _u kips	M _u k-ft	A _s F _e kips	Condition Equation	RF
		Dead Load	Max. LL + I	Dead Load	Max LL + I					
HS20 INV	C304	313.482	439.69	0.24	12.53	907.30	623.10	20045.19	1.00	1.32
HS20 INV	C304	305.6482	149.63	96.76	337.66	907.30	623.10	20045.19	1.00	1.14
HS20 OPR	C304	313.482	263.81	0.24	7.52	907.30	623.10	20045.19	1.00	2.19
HS20 OPR	C304	305.6482	89.78	96.76	202.59	907.30	623.10	20045.19	1.00	1.90
2F1	C304	313.482	147.60	0.24	5.73	907.30	623.10	20045.19	1.00	3.88
2F1	C304	305.6482	42.65	96.76	102.40	907.30	623.10	20045.19	1.00	3.84
3F1	C304	313.482	198.69	0.24	6.52	907.30	623.10	20045.19	1.00	2.90
3F1	C304	305.6482	63.37	96.76	146.48	907.30	623.10	20045.19	1.00	2.65
4F1	C304	313.482	221.12	0.24	6.86	907.30	623.10	20045.19	1.00	2.61
4F1	C304	305.6482	72.47	96.76	165.81	907.30	623.10	20045.19	1.00	2.33
5C1	C304	313.482	220.97	0.24	6.86	907.30	623.10	20045.19	1.00	2.61
5C1	C304	305.6482	72.41	96.76	165.69	907.30	623.10	20045.19	1.00	2.33

Load Case	Controlling RF
HS20 INV	1.14
HS20 OPR	1.90
2F1	3.84
3F1	2.65
4F1	2.33
5C1	2.33



Made By MTN
 Checked By PJP

Date 3/26/2012
 Date 4/6/2012

Job No. P402110046
 Sheet No. _____

Calculations For: **CUY-2-1441 - East Approach Forward Section**

Bent 5 Reactions

Dead Load Reactions from MDX

Unit 4		
Stringer	DL1	DL2
F1-4	12.76	2.00
S1-4	12.82	2.00
S2-4	13.04	2.00
S3-4	14.03	2.00
S4-4	14.03	2.00
S5-4	14.03	2.00
S6-4	14.03	2.00
S7-4	14.00	2.00
S8-4	14.03	2.00
S9-4	14.03	2.00
S10-4	14.03	2.00
S11-4	14.03	2.00
S12-4	14.80	2.00
S13-4	14.89	2.00
F2-4	12.99	2.00

Unit 5		
Stringer	DL1	DL2
F1-5	10.01	1.50
S1-5	9.52	1.50
S2-5	9.68	1.50
S3-5	10.43	1.50
S4-5	10.43	1.50
S5-5	10.43	1.50
S6-5	10.43	1.50
S7-5	10.41	1.50
S8-5	10.43	1.50
S9-5	10.43	1.50
S10-5	10.43	1.50
S11-5	10.43	1.50
S12-5	10.88	1.50
S13-5	11.04	1.50
F2A-5	12.93	2.00

Bent 5 Reaction	
Stringer	Total DL
F1-4 + F1-5	26.27
S1-4 + S1-5	25.84
S2-4 + S2-5	26.22
S3-4 + S3-5	27.96
S4-4 + S4-5	27.96
S5-4 + S5-5	27.96
S6-4 + S6-5	27.96
S7-4 + S7-5	27.91
S8-4 + S8-5	27.96
S9-4 + S9-5	27.96
S10-4 + S10-5	27.96
S11-4 + S11-5	27.96
S12-4 + S12-5	29.18
S13-4 + S13-5	29.43
F2-4 + F2A-5	29.92

Dead Load Reactions from MDX

Lower Deck		
Stringer	DL1	Continuous Over Bent?
S-16	9.54	No
S-4 (1)	23.65	Yes
S-4 (2)	23.65	Yes
S-4 (3)	23.65	Yes
S-4 (4)	23.65	Yes
S-14	11.14	No
S-13	7.77	No

Bent 5 Reaction	
Stringer	Total DL
S-16	19.08
S-4 (1)	23.65
S-4 (2)	23.65
S-4 (3)	23.65
S-4 (4)	23.65
S-14	22.28
S-13	15.54

Live Load Reactions from STAAD

	LL	2 lane LL+I	3 lane	4 lane
HS-20	29.35	38.1	34.3	28.6
2F1	13.86	18.0	16.2	13.5
3F1	20.67	26.8	24.2	20.1
4F1	23.66	30.7	27.6	23.0
5C1	23.64	30.7	27.6	23.0

Impact Factor
 Span 5 44.000
 Span 6 44.000
 L_{avg} 44.00
 Impact = 1.296
 3 lane reduction 0.9
 4 lane + reduction 0.75

	LL	
HS-20	29.35	
2F1	13.86	0.472232
3F1	20.67	0.704259
4F1	23.66	0.806133
5C1	23.64	0.805451

Reactions per wheel line at Bent 5



Made By MTN
Checked By PJP

Date 3/26/2012
Date 4/6/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441 - East Approach Forward Section**

Bent 5 Reactions

Lower Deck Live Load

Parking Structure Live Load = 0.04 ksf (from ASCE 07 for Parking Structures)
Tributary Length = 44.00 ft
Distributed Load on FB = 1.76 klf

Bent 5		
Stringer	Tributary Width	Live Load Reaction
S-16	4.141	7.29
S-4 (1)	5.943	10.46
S-4 (2)	5.604	9.86
S-4 (3)	5.604	9.86
S-4 (4)	5.880	10.35
S-14	4.794	8.44
S-13	2.216	3.90

```

*****
*
*          STAAD.Pro          *
*          Version 2007      Build 05      *
*          Proprietary Program of          *
*          Bentley Systems, Inc.          *
*          Date=   APR  5, 2012          *
*          Time=   16:25:24              *
*
*          USER ID: TranSystems          *
*****

```

```

1. STAAD SPACE
INPUT FILE: Bent 5 Truck Loads.STD
2. START JOB INFORMATION
3. ENGINEER DATE 3/27/12
4. JOB NAME CUY-2-1441 EAST APPROACH FWD SECTION
5. JOB CLIENT ODOT
6. JOB NO P402110046
7. JOB REV REV 0
8. JOB REF BENT 5 TRUCK LOADS
9. ENGINEER NAME MTN
10. CHECKER NAME PJP
11. CHECKER DATE 4/5/12
12. END JOB INFORMATION
13. INPUT WIDTH 79
14. UNIT FEET KIP
15. JOINT COORDINATES
16. 11 -88 0 1; 12 -44 0 1; 13 0 0 1; 14 0 -0.1 1; 15 44 0 1; 21 -88 0 2
17. 22 -44 0 2; 23 0 0 2; 24 0 -0.1 2; 25 44 0 2; 31 -88 0 3; 32 -44 0 3; 33 0 0 3
18. 34 0 -0.1 3; 35 44 0 3; 41 -88 0 4; 42 -44 0 4; 43 0 0 4; 44 0 -0.1 4
19. 45 44 0 4; 51 -88 0 5; 52 -44 0 5; 53 0 0 5; 54 0 -0.1 5; 55 44 0 5
20. MEMBER INCIDENCES
21. 11 11 12; 12 12 13; 13 13 14; 14 13 15; 21 21 22; 22 22 23; 23 23 24; 24 23 25
22. 31 31 32; 32 32 33; 33 33 34; 34 33 35; 41 41 42; 42 42 43; 43 43 44; 44 43 45
23. 51 51 52; 52 52 53; 53 53 54; 54 53 55
24. MEMBER RELEASE
25. 12 22 32 42 52 END MZ
26. 14 24 34 44 54 START MZ
27. DEFINE MATERIAL START
28. ISOTROPIC STEEL
29. E 4.176E+006
30. POISSON 0.3
31. DENSITY 0.489024
32. ALPHA 6.5E-006
33. DAMP 0.03
34. END DEFINE MATERIAL
35. MEMBER PROPERTY AMERICAN
36. 11 21 31 41 51 TABLE ST W24X104
37. 12 13 22 23 32 33 42 43 52 53 TABLE ST W24X104
38. 14 24 34 44 54 TABLE ST W30X116
39. CONSTANTS
40. MATERIAL STEEL ALL

```

41. SUPPORTS
 42. 14 24 34 44 54 FIXED
 43. 11 12 15 21 22 25 31 32 35 41 42 45 51 52 55 FIXED BUT FX MZ
 44. DEFINE MOVING LOAD
 45. *HS20 TRUCK
 46. TYPE 1 LOAD 16 16 4
 47. DIST 14 14
 48. *TYPE 2F1 TRUCK
 49. TYPE 2 LOAD 10 5
 50. DIST 10
 51. *TYPE 3F1 TRUCK
 52. TYPE 3 LOAD 8.5 8.5 6
 53. DIST 4 10
 54. *TYPE 4F1 TRUCK
 55. TYPE 4 LOAD 7 7 7 6
 56. DIST 4 4 10
 57. *TYPE 5C1 TRUCK
 58. TYPE 5 LOAD 8.5 8.5 8.5 8.5 6
 59. DIST 4 31 4 12
 60. *HS20 TRAVELING UP STATION
 61. LOAD GENERATION 29
****WARNING- THIS STRUCTURE IS DISJOINTED. IGNORE IF**
 MASTER/SLAVE OR IF UNCONNECTED JOINTS.
 62. TYPE 1 -28 0 1 XINC 1
 63. *HS20 TRAVELING DOWN STATION
 64. LOAD GENERATION 29
 65. TYPE 1 28 0 1 XINC -1.
 66. *TYPE 2F1 TRAVELING UP STATION
 67. LOAD GENERATION 11
 68. TYPE 2 -10 0 2 XINC 1
 69. *TYPE 2F1 TRAVELING DOWN STATION
 70. LOAD GENERATION 11
 71. TYPE 2 10 0 2 XINC -1.
 72. *TYPE 3F1 TRAVELING UP STATION
 73. LOAD GENERATION 15
 74. TYPE 3 -14 0 3 XINC 1
 75. *TYPE 3F1 TRAVELING DOWN STATION
 76. LOAD GENERATION 15
 77. TYPE 3 14 0 3 XINC -1.
 78. *TYPE 4F1 TRAVELING UP STATION
 79. LOAD GENERATION 19
 80. TYPE 4 -18 0 4 XINC 1
 81. *TYPE 4F1 TRAVELING DOWN STATION
 82. LOAD GENERATION 19
 83. TYPE 4 18 0 4 XINC -1.
 84. *TYPE 5C1 TRAVELING UP STATION
 85. LOAD GENERATION 52
 86. TYPE 5 -51 0 5 XINC 1
 87. *TYPE 5 TRAVELING DOWN STATION
 88. LOAD GENERATION 52
****WARNING-A MOVING LOAD THAT WOULD HAVE BEEN APPLIED BEYOND THE X AND Z RANGES**
 OF THE STRUCTURE HAS BEEN IGNORED. CASE= 194 WHEEL 5 OF 5
****WARNING-A MOVING LOAD THAT WOULD HAVE BEEN APPLIED BEYOND THE X AND Z RANGES**
 OF THE STRUCTURE HAS BEEN IGNORED. CASE= 195 WHEEL 5 OF 5
****WARNING-A MOVING LOAD THAT WOULD HAVE BEEN APPLIED BEYOND THE X AND Z RANGES**
 OF THE STRUCTURE HAS BEEN IGNORED. CASE= 196 WHEEL 5 OF 5

STAAD SPACE

-- PAGE NO. 3

**WARNING-A MOVING LOAD THAT WOULD HAVE BEEN APPLIED BEYOND THE X AND Z RANGES
OF THE STRUCTURE HAS BEEN IGNORED. CASE= 197 WHEEL 5 OF 5

**WARNING-A MOVING LOAD THAT WOULD HAVE BEEN APPLIED BEYOND THE X AND Z RANGES
OF THE STRUCTURE HAS BEEN IGNORED. CASE= 198 WHEEL 5 OF 5

**WARNING-A MOVING LOAD THAT WOULD HAVE BEEN APPLIED BEYOND THE X AND Z RANGES
OF THE STRUCTURE HAS BEEN IGNORED. CASE= 199 WHEEL 5 OF 5

**WARNING-A MOVING LOAD THAT WOULD HAVE BEEN APPLIED BEYOND THE X AND Z RANGES
OF THE STRUCTURE HAS BEEN IGNORED. CASE= 200 WHEEL 5 OF 5

89. TYPE 5 51 0 5 XINC -1.

90. PERFORM ANALYSIS

**WARNING-A MOVING LOAD THAT WOULD HAVE BEEN APPLIED BEYOND THE X AND Z RANGES
OF THE STRUCTURE HAS BEEN IGNORED. CASE= 201 WHEEL 1 OF 5

**WARNING-A MOVING LOAD THAT WOULD HAVE BEEN APPLIED BEYOND THE X AND Z RANGES
OF THE STRUCTURE HAS BEEN IGNORED. CASE= 201 WHEEL 2 OF 5

**WARNING-A MOVING LOAD THAT WOULD HAVE BEEN APPLIED BEYOND THE X AND Z RANGES
OF THE STRUCTURE HAS BEEN IGNORED. CASE= 202 WHEEL 1 OF 5

*ADDITIONAL MOVING LOAD MESSAGES SUPPRESSED

*ADDITIONAL MOVING LOAD MESSAGES SUPPRESSED

P R O B L E M S T A T I S T I C S

NUMBER OF JOINTS/MEMBER+ELEMENTS/SUPPORTS = 25/ 20/ 20

SOLVER USED IS THE OUT-OF-CORE BASIC SOLVER

ORIGINAL/FINAL BAND-WIDTH= 2/ 2/ 8 DOF

TOTAL PRIMARY LOAD CASES = 252, TOTAL DEGREES OF FREEDOM = 60

SIZE OF STIFFNESS MATRIX = 1 DOUBLE KILO-WORDS

REQD/AVAIL. DISK SPACE = 12.5/ 514488.5 MB

91. PRINT MAXFORCE ENVELOPE NSECTION 1 LIST 13

STAAD SPACE

-- PAGE NO. 4

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/	DIST	LD	MZ/	DIST	LD	FX	DIST	LD
	FZ	DIST	LD	MY	DIST	LD			
13 MAX	0.00	0.00	1	0.00	0.00	1	29.35 C	0.00	44
	0.00	0.00	1	0.00	0.00	1			
MIN	0.00	0.10	252	0.00	0.10	252	0.00	0.10	252
	0.00	0.10	252	0.00	0.10	252			

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

92. *HS20 MAX REACTION - LISTED ABOVE

93. PRINT MAXFORCE ENVELOPE NSECTION 1 LIST 23

STAAD SPACE

-- PAGE NO. 5

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/	DIST	LD	MZ/	DIST	LD	FX	DIST	LD
	FZ	DIST	LD	MY	DIST	LD			
23 MAX	0.00	0.00	1	0.00	0.00	1	13.86 C	0.00	69
	0.00	0.00	1	0.00	0.00	1			
MIN	0.00	0.10	252	0.00	0.10	252	0.00	0.10	252
	0.00	0.10	252	0.00	0.10	252			

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

94. *TYPE 2F1 MAX REACTION - LISTED ABOVE
 95. PRINT MAXFORCE ENVELOPE NSECTION 1 LIST 33

STAAD SPACE

-- PAGE NO. 6

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/	DIST	LD	MZ/	DIST	LD	FX	DIST	LD
	FZ	DIST	LD	MY	DIST	LD			
33 MAX	0.00	0.00	1	0.00	0.00	1	20.67 C	0.00	91
	0.00	0.00	1	0.00	0.00	1			
MIN	0.00	0.10	252	0.00	0.10	252	0.00	0.10	252
	0.00	0.10	252	0.00	0.10	252			

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

96. *TYPE 3F1 MAX REACTION - LISTED ABOVE
 97. PRINT MAXFORCE ENVELOPE NSECTION 1 LIST 43

STAAD SPACE

-- PAGE NO. 7

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/	DIST	LD	MZ/	DIST	LD	FX	DIST	LD
	FZ	DIST	LD	MY	DIST	LD			
43 MAX	0.00	0.00	1	0.00	0.00	1	23.66 C	0.00	125
	0.00	0.00	1	0.00	0.00	1			
MIN	0.00	0.10	252	0.00	0.10	252	0.00	0.10	252
	0.00	0.10	252	0.00	0.10	252			

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

98. *TYPE 4F1 MAX REACTION - LISTED ABOVE
 99. PRINT MAXFORCE ENVELOPE NSECTION 1 LIST 53

STAAD SPACE

-- PAGE NO. 8

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/	DIST	LD	MZ/	DIST	LD	FX	DIST	LD
	FZ	DIST	LD	MY	DIST	LD			
53 MAX	0.00	0.00	1	0.00	0.00	1	23.64 C	0.00	217
	0.00	0.00	1	0.00	0.00	1			
MIN	0.00	0.10	252	0.00	0.10	252	0.00	0.10	148
	0.00	0.10	252	0.00	0.10	252			

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

100. *TYPE 5C1 MAX REACTION - LISTED ABOVE

101. FINISH

***** END OF THE STAAD.Pro RUN *****

**** DATE= APR 5,2012 TIME= 16:25:27 ****

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*****
*           For questions on STAAD.Pro, please contact           *
*   Bentley Systems Offices at the following locations           *
*                                                                 *
*           Telephone                Web / Email                *
*                                                                 *
*   USA:          +1 (714)974-2500                               *
*   CANADA        +1 (905)632-4771      detech@odandetech.com    *
*   UK            +44(1454)207-000                                           *
*   SINGAPORE     +65 6225-6158                                           *
*   EUROPE        +31 23 5560560                                           *
*   INDIA         +91(033)4006-2021                                           *
*   JAPAN         +81(03)5952-6500      http://www.ctc-g.co.jp    *
*   CHINA         +86 10 5929 7000                                           *
*   THAILAND      +66(0)2645-1018/19 partha.p@reissoftwareth.com *
*                                                                 *
*   Worldwide     http://selectservices.bentley.com/en-US/        *
*                                                                 *
*****
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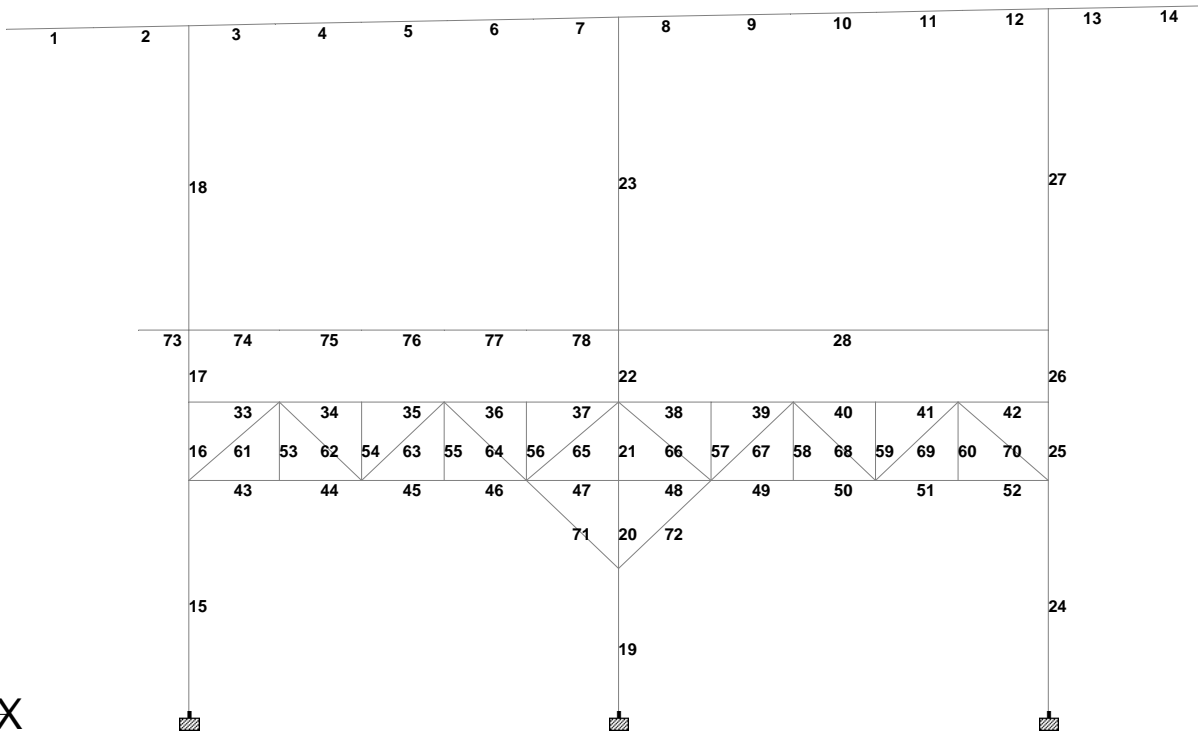



Job No P402110046	Sheet No 1	Rev
Part East Approach - Forward Section		
Ref Bent 5		
By MTN	Date 26-Mar-12	Chd PJP
File Bent_5_LL.std	Date/Time 12-Apr-2012 18:05	

Software licensed to TranSystems

Job Title CUY-2-1441 Main Ave. Load Rating

Client ODOT



Load 1

```

*****
*
*          STAAD.Pro V8i SELECTseries1          *
*          Version  20.07.06.35                  *
*          Proprietary Program of                *
*          Bentley Systems, Inc.                 *
*          Date=    APR 11, 2012                 *
*          Time=    19: 6:43                     *
*
*          USER ID: TranSystems                  *
*****

```

1. STAAD SPACE DXF IMPORT OF 002_1441BENT_5.DXF
- INPUT FILE: Bent_5_DL.STD
2. START JOB INFORMATION
3. ENGINEER DATE 26-MAR-12
4. JOB NAME CUY-2-1441 MAIN AVE. LOAD RATING
5. JOB NO P402110046
6. JOB REF BENT 5
7. JOB COMMENT BENT 5 DEAD LOAD
8. ENGINEER NAME MTN
9. JOB CLIENT ODOT
10. JOB PART EAST APPROACH - FORWARD SECTION
11. CHECKER NAME PJP
12. CHECKER DATE 4/6/12
13. END JOB INFORMATION
14. INPUT WIDTH 79
15. UNIT FEET KIP
16. JOINT COORDINATES
17. 1 -2.32292 163.592 0; 2 3.60938 163.709 0; 3 10.1094 163.837 0
18. 4 15.9635 163.952 0; 5 21.8177 164.067 0; 6 27.6719 164.182 0
19. 7 33.526 164.297 0; 8 39.3594 164.412 0; 9 45.1927 164.526 0
20. 10 51.0469 164.642 0; 11 56.901 164.757 0; 12 62.7552 164.872 0
21. 13 68.6094 164.987 0; 14 73.3802 165.081 0; 15 79 165.191 0
22. 16 10.1094 117.15 0; 17 10.1094 132.879 0; 18 10.1094 138.212 0
23. 19 10.1094 143.123 0; 20 39.3594 117.15 0; 21 39.3594 126.9 0
24. 22 39.3594 132.879 0; 23 39.3594 138.212 0; 24 39.3594 143.123 0
25. 25 68.6094 117.15 0; 26 68.6094 132.879 0; 27 68.6094 138.212 0
26. 28 68.6094 143.123 0; 30 16.2656 138.212 0; 31 21.8698 138.212 0
27. 32 27.474 138.212 0; 33 33.0781 138.212 0; 34 45.6406 138.212 0
28. 35 51.2448 138.212 0; 36 56.849 138.212 0; 37 62.4531 138.212 0
29. 38 16.2656 132.879 0; 39 21.8698 132.879 0; 40 27.474 132.879 0
30. 41 33.0781 132.879 0; 42 45.6406 132.879 0; 43 51.2448 132.879 0
31. 44 56.849 132.879 0; 45 62.4531 132.879 0; 46 6.67708 143.123 0
32. 47 16.2656 143.123 0; 48 21.8698 143.123 0; 49 27.474 143.123 0
33. 50 33.0781 143.123 0
34. MEMBER INCIDENCES
35. 1 1 2; 2 2 3; 3 3 4; 4 4 5; 5 5 6; 6 6 7; 7 7 8; 8 8 9; 9 9 10; 10 10 11
36. 11 11 12; 12 12 13; 13 13 14; 14 14 15; 15 16 17; 16 17 18; 17 18 19; 18 19 3
37. 19 20 21; 20 21 22; 21 22 23; 22 23 24; 23 24 8; 24 25 26; 25 26 27; 26 27 28
38. 27 28 13; 28 24 28; 33 18 30; 34 30 31; 35 31 32; 36 32 33; 37 33 23; 38 23 34
39. 39 34 35; 40 35 36; 41 36 37; 42 37 27; 43 17 38; 44 38 39; 45 39 40; 46 40 41
40. 47 41 22; 48 22 42; 49 42 43; 50 43 44; 51 44 45; 52 45 26; 53 38 30; 54 39 31

DXF IMPORT OF 002_1441BENT_5.DXF

-- PAGE NO. 2

41. 55 40 32; 56 41 33; 57 42 34; 58 43 35; 59 44 36; 60 45 37; 61 17 30; 62 30 39
42. 63 39 32; 64 32 41; 65 41 23; 66 23 42; 67 42 35; 68 35 44; 69 44 37; 70 37 26
43. 71 41 21; 72 21 42; 73 46 19; 74 19 47; 75 47 48; 76 48 49; 77 49 50; 78 50 24
44. DEFINE MATERIAL START
45. ISOTROPIC STEEL
46. E 4.176E+006
47. POISSON 0.3
48. DENSITY 0.489024
49. ALPHA 6E-006
50. DAMP 0.03
51. END DEFINE MATERIAL
52. MEMBER PROPERTY AMERICAN
53. 1 TO 14 TABLE ST W36X182
54. 15 TO 18 24 TO 27 TABLE ST W21X111
55. 19 TO 23 TABLE ST W24X146
56. 73 TO 78 TABLE ST W36X230
57. 28 TABLE ST W14X61
58. 33 TO 72 TABLE ST W8X31
59. CONSTANTS
60. BETA 90 MEMB 33 TO 72
61. MATERIAL STEEL ALL
62. SUPPORTS
63. 16 20 25 FIXED
64. MEMBER TRUSS
65. 28 33 TO 72
66. LOAD 1 LOADTYPE DEAD TITLE LOAD CASE 1
67. SELFWEIGHT Y -1.05 LIST 1 TO 28 33 TO 78
68. JOINT LOAD
69. *F1-4 _F1-5
70. 15 FY -26.27
71. *S1-4 _S1-5
72. 14 FY -25.84
73. *S2-4 _S2-5
74. 13 FY -26.22
75. *S3-45 TO S6-45, S8-45 TO S11-45
76. 4 TO 7 9 TO 12 FY -27.96
77. *S7-4 _S7-5
78. 8 FY -27.91
79. *S12-4 _S12-5
80. 3 FY -29.18
81. *S13-4 _S13-5
82. 2 FY -29.43
83. *F2-4 _F2A-5
84. 1 FY -29.92
85. *S-16 LOWER DECK
86. 24 FY -19.08
87. *S-4 LOWER DECK
88. 47 TO 50 FY -23.65
89. *S-14 LOWER DECK
90. 19 FY -22.28
91. *S-13 LOWER DECK
92. 46 FY -15.54
93. PDELTA 10 ANALYSIS

P R O B L E M S T A T I S T I C S

NUMBER OF JOINTS/MEMBER+ELEMENTS/SUPPORTS = 49/ 74/ 3

SOLVER USED IS THE OUT-OF-CORE BASIC SOLVER

ORIGINAL/FINAL BAND-WIDTH= 27/ 7/ 48 DOF
TOTAL PRIMARY LOAD CASES = 1, TOTAL DEGREES OF FREEDOM = 276
SIZE OF STIFFNESS MATRIX = 14 DOUBLE KILO-WORDS
REQRD/AVAIL. DISK SPACE = 12.2/ 515492.0 MB

ZERO STIFFNESS IN DIRECTION 3 AT JOINT 30 EQN.NO. 69
LOADS APPLIED OR DISTRIBUTED HERE FROM ELEMENTS WILL BE IGNORED.
THIS MAY BE DUE TO ALL MEMBERS AT THIS JOINT BEING RELEASED OR
EFFECTIVELY RELEASED IN THIS DIRECTION.

ZERO STIFFNESS IN DIRECTION 4 AT JOINT	30 EQN.NO.	70
ZERO STIFFNESS IN DIRECTION 5 AT JOINT	30 EQN.NO.	71
ZERO STIFFNESS IN DIRECTION 6 AT JOINT	30 EQN.NO.	72
ZERO STIFFNESS IN DIRECTION 3 AT JOINT	38 EQN.NO.	87
ZERO STIFFNESS IN DIRECTION 4 AT JOINT	38 EQN.NO.	88
ZERO STIFFNESS IN DIRECTION 5 AT JOINT	38 EQN.NO.	89
ZERO STIFFNESS IN DIRECTION 6 AT JOINT	38 EQN.NO.	90
ZERO STIFFNESS IN DIRECTION 3 AT JOINT	31 EQN.NO.	93
ZERO STIFFNESS IN DIRECTION 4 AT JOINT	31 EQN.NO.	94
ZERO STIFFNESS IN DIRECTION 5 AT JOINT	31 EQN.NO.	95
ZERO STIFFNESS IN DIRECTION 6 AT JOINT	31 EQN.NO.	96

****WARNING - THERE WERE MORE THAN 12 DOF WITH ZERO STIFFNESS.**

THE FIRST 12 ARE LISTED ABOVE.

TOTAL # TRANSLATIONAL= 16 TOTAL # ROTATIONAL= 48

++ Adjusting Displacements	19: 6:43
++ Adjusting Displacements	19: 6:43
++ Adjusting Displacements	19: 6:43
++ Adjusting Displacements	19: 6:43
++ Adjusting Displacements	19: 6:43
++ Adjusting Displacements	19: 6:43
++ Adjusting Displacements	19: 6:43
++ Adjusting Displacements	19: 6:43
++ Adjusting Displacements	19: 6:43
++ Adjusting Displacements	19: 6:43

94. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 1 TO 14

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
1 MAX	-29.91	0.00	1	180.85	5.93	1			
	0.00	0.00	1	0.00	0.00	1	0.59 T	0.00	1
MIN	-31.05	5.93	1	0.00	0.00	1			
	0.00	5.93	1	0.00	5.93	1	0.61 T	5.93	1
2 MAX	-60.47	0.00	1	578.02	6.50	1			
	0.00	0.00	1	0.00	0.00	1	1.19 T	0.00	1
MIN	-61.71	6.50	1	180.85	0.00	1			
	0.00	6.50	1	0.00	6.50	1	1.22 T	6.50	1
3 MAX	67.13	0.00	1	542.46	0.00	1			
	0.00	0.00	1	0.00	0.00	1	1.31 C	0.00	1
MIN	66.01	5.86	1	152.67	5.86	1			
	0.00	5.86	1	0.00	5.86	1	1.29 C	5.86	1
4 MAX	38.06	0.00	1	152.67	0.00	1			
	0.00	0.00	1	0.00	0.00	1	0.74 C	0.00	1
MIN	36.94	5.86	1	-66.90	5.86	1			
	0.00	5.86	1	0.00	5.86	1	0.72 C	5.86	1
5 MAX	8.98	0.00	1	-66.90	0.00	1			
	0.00	0.00	1	0.00	0.00	1	0.17 C	0.00	1
MIN	7.86	5.86	1	-116.22	5.86	1			
	0.00	5.86	1	0.00	5.86	1	0.15 C	5.86	1
6 MAX	-20.09	0.00	1	4.68	5.86	1			
	0.00	0.00	1	0.00	0.00	1	0.40 T	0.00	1
MIN	-21.21	5.86	1	-116.22	0.00	1			
	0.00	5.86	1	0.00	5.86	1	0.42 T	5.86	1
7 MAX	-49.16	0.00	1	294.78	5.83	1			
	0.00	0.00	1	0.00	0.00	1	0.98 T	0.00	1
MIN	-50.28	5.83	1	4.68	0.00	1			
	0.00	5.83	1	0.00	5.83	1	1.00 T	5.83	1
8 MAX	56.38	0.00	1	309.80	0.00	1			
	0.00	0.00	1	0.00	0.00	1	0.47 T	0.00	1
MIN	55.26	5.83	1	-15.87	5.83	1			
	0.00	5.83	1	0.00	5.83	1	0.50 T	5.83	1
9 MAX	27.31	0.00	1	-15.87	0.00	1			
	0.00	0.00	1	0.00	0.00	1	1.04 T	0.00	1

DXF IMPORT OF 002_1441BENT_5.DXF

-- PAGE NO. 5

MIN	26.19	5.86	1	-172.49	5.86	1				
	0.00	5.86	1	0.00	5.86	1	1.06 T	5.86	1	
10 MAX	-1.77	0.00	1	-158.87	5.86	1				
	0.00	0.00	1	0.00	0.00	1	1.61 T	0.00	1	
MIN	-2.88	5.86	1	-172.49	0.00	1				
	0.00	5.86	1	0.00	5.86	1	1.63 T	5.86	1	
11 MAX	-30.84	0.00	1	24.97	5.86	1				
	0.00	0.00	1	0.00	0.00	1	2.18 T	0.00	1	
MIN	-31.96	5.86	1	-158.87	0.00	1				
	0.00	5.86	1	0.00	5.86	1	2.20 T	5.86	1	
12 MAX	-59.91	0.00	1	379.05	5.86	1				
	0.00	0.00	1	0.00	0.00	1	2.75 T	0.00	1	
MIN	-61.03	5.86	1	24.97	0.00	1				
	0.00	5.86	1	0.00	5.86	1	2.78 T	5.86	1	
13 MAX	54.09	0.00	1	406.56	0.00	1				
	0.00	0.00	1	0.00	0.00	1	1.07 C	0.00	1	
MIN	53.17	4.77	1	150.65	4.77	1				
	0.00	4.77	1	0.00	4.77	1	1.05 C	4.77	1	
14 MAX	27.34	0.00	1	150.65	0.00	1				
	0.00	0.00	1	0.00	0.00	1	0.54 C	0.00	1	
MIN	26.26	5.62	1	0.00	5.62	1				
	0.00	5.62	1	0.00	5.62	1	0.51 C	5.62	1	

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

95. *FLOOR BEAM DEAD LOAD ABOVE

96. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 15 TO 18

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
15 MAX	-0.04	0.00	1	-3.14	15.73	1			
	0.00	0.00	1	0.00	0.00	1	254.35 C	0.00	1
MIN	-0.04	15.73	1	-3.98	0.00	1			
	0.00	15.73	1	0.00	15.73	1	252.51 C	15.73	1
16 MAX	-3.86	0.00	1	17.62	5.33	1			
	0.00	0.00	1	0.00	0.00	1	251.48 C	0.00	1
MIN	-3.86	5.33	1	-3.14	0.00	1			
	0.00	5.33	1	0.00	5.33	1	250.86 C	5.33	1
17 MAX	-15.43	0.00	1	93.34	4.91	1			
	0.00	0.00	1	0.00	0.00	1	250.76 C	0.00	1
MIN	-15.43	4.91	1	17.62	0.00	1			
	0.00	4.91	1	0.00	4.91	1	250.19 C	4.91	1
18 MAX	0.01	0.00	1	-35.56	20.71	1			
	0.00	0.00	1	0.00	0.00	1	160.47 C	0.00	1
MIN	0.01	20.71	1	-36.49	8.29	1			
	0.00	20.71	1	0.00	20.71	1	158.05 C	20.71	1

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

97. *COLUMN 3 DEAD LOAD ABOVE

98. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 19 TO 23

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
19 MAX	-0.49	0.00	1	2.10	9.75	1			
	0.00	0.00	1	0.00	0.00	1	220.06 C	0.00	1
MIN	-0.49	9.75	1	-2.72	0.00	1			
	0.00	9.75	1	0.00	9.75	1	218.56 C	9.75	1
20 MAX	1.08	0.00	1	2.10	0.00	1			
	0.00	0.00	1	0.00	0.00	1	200.09 C	0.00	1
MIN	1.08	5.98	1	-4.36	5.98	1			
	0.00	5.98	1	0.00	5.98	1	199.17 C	5.98	1
21 MAX	8.19	0.00	1	-4.36	0.00	1			
	0.00	0.00	1	0.00	0.00	1	198.97 C	0.00	1
MIN	8.19	5.33	1	-48.01	5.33	1			
	0.00	5.33	1	0.00	5.33	1	198.15 C	5.33	1
22 MAX	17.80	0.00	1	-48.01	0.00	1			
	0.00	0.00	1	0.00	0.00	1	209.16 C	0.00	1
MIN	17.80	4.91	1	-135.13	4.91	1			
	0.00	4.91	1	0.00	4.91	1	208.41 C	4.91	1
23 MAX	1.57	0.00	1	47.82	0.00	1			
	0.00	0.00	1	0.00	0.00	1	137.82 C	0.00	1
MIN	1.57	21.29	1	15.02	21.29	1			
	0.00	21.29	1	0.00	21.29	1	134.55 C	21.29	1

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

99. *COLUMN 2 DEAD LOAD ABOVE
100. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 24 TO 27

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
24 MAX	0.53	0.00	1	3.00	0.00	1			
	0.00	0.00	1	0.00	0.00	1	147.45 C	0.00	1
MIN	0.53	15.73	1	-5.38	15.73	1			
	0.00	15.73	1	0.00	15.73	1	145.61 C	15.73	1
25 MAX	2.63	0.00	1	-5.38	0.00	1			
	0.00	0.00	1	0.00	0.00	1	146.17 C	0.00	1
MIN	2.63	5.33	1	-19.38	5.33	1			
	0.00	5.33	1	0.00	5.33	1	145.55 C	5.33	1
26 MAX	-2.36	0.00	1	-7.59	4.91	1			
	0.00	0.00	1	0.00	0.00	1	145.45 C	0.00	1
MIN	-2.36	4.91	1	-19.38	0.00	1			
	0.00	4.91	1	0.00	4.91	1	144.87 C	4.91	1
27 MAX	-1.58	0.00	1	27.51	21.86	1			
	0.00	0.00	1	0.00	0.00	1	143.94 C	0.00	1
MIN	-1.58	21.86	1	-7.59	0.00	1			
	0.00	21.86	1	0.00	21.86	1	141.39 C	21.86	1

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

101. *COLUMN 1 DEAD LOAD ABOVE

102. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 73 TO 78

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
73 MAX	-15.54	0.00	1	54.76	3.43	1			
	0.00	0.00	1	0.00	0.00	1	0.00	0.00	1
MIN	-16.37	3.43	1	0.00	0.00	1			
	0.00	3.43	1	0.00	3.43	1	0.00	3.43	1
74 MAX	51.07	0.00	1	184.28	0.00	1			
	0.00	0.00	1	0.00	0.00	1	15.44 C	0.00	1
MIN	49.59	6.16	1	-125.65	6.16	1			
	0.00	6.16	1	0.00	6.16	1	15.44 C	6.16	1
75 MAX	25.94	0.00	1	-125.65	0.00	1			
	0.00	0.00	1	0.00	0.00	1	15.44 C	0.00	1
MIN	24.59	5.60	1	-267.28	5.60	1			
	0.00	5.60	1	0.00	5.60	1	15.44 C	5.60	1
76 MAX	0.94	0.00	1	-267.28	0.00	1			
	0.00	0.00	1	0.00	0.00	1	15.44 C	0.00	1
MIN	-0.41	5.60	1	-269.11	3.92	1			
	0.00	5.60	1	0.00	5.60	1	15.44 C	5.60	1
77 MAX	-24.06	0.00	1	-130.07	5.60	1			
	0.00	0.00	1	0.00	0.00	1	15.44 C	0.00	1
MIN	-25.41	5.60	1	-268.75	0.00	1			
	0.00	5.60	1	0.00	5.60	1	15.44 C	5.60	1
78 MAX	-49.06	0.00	1	182.95	6.28	1			
	0.00	0.00	1	0.00	0.00	1	15.44 C	0.00	1
MIN	-50.58	6.28	1	-130.07	0.00	1			
	0.00	6.28	1	0.00	6.28	1	15.44 C	6.28	1

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

103. *LOWER DECK FLOOR BEAM DEAD LOAD ABOVE

104. FINISH

***** END OF THE STAAD.Pro RUN *****

**** DATE= APR 11,2012 TIME= 19: 6:43 ****

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*****
*           For questions on STAAD.Pro, please contact           *
*   Bentley Systems Offices at the following locations           *
*                                                                 *
*           Telephone           Web / Email                       *
*                                                                 *
*   USA:           +1 (714)974-2500                               *
*   UK             +44(1454)207-000                               *
*   SINGAPORE     +65 6225-6158                                  *
*   EUROPE        +31 23 5560560                                 *
*   INDIA         +91(033)4006-2021                              *
*   JAPAN         +81(03)5952-6500   http://www.ctc-g.co.jp     *
*   CHINA         +86 10 5929 7000                               *
*   THAILAND      +66(0)2645-1018/19 partha.p@reisoftwareth.com *
*                                                                 *
* Worldwide      http://selectservices.bentley.com/en-US/      *
*                                                                 *
*****

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*****
*
*          STAAD.Pro V8i SELECTseries1          *
*          Version  20.07.06.35                 *
*          Proprietary Program of              *
*          Bentley Systems, Inc.               *
*          Date=    APR 12, 2012               *
*          Time=    18: 5:15                   *
*
*          USER ID: TranSystems                *
*****
```

1. STAAD SPACE DXF IMPORT OF 002_1441BENT_5.DXF
- INPUT FILE: Bent_5_LL.STD
2. START JOB INFORMATION
3. ENGINEER DATE 26-MAR-12
4. JOB NAME CUY-2-1441 MAIN AVE. LOAD RATING
5. JOB NO P402110046
6. JOB REF BENT 5
7. JOB COMMENT BENT 5 LIVE LOAD
8. ENGINEER NAME MTN
9. JOB CLIENT ODOT
10. JOB PART EAST APPROACH - FORWARD SECTION
11. CHECKER NAME PJP
12. CHECKER DATE 4/6/12
13. END JOB INFORMATION
14. INPUT WIDTH 79
15. UNIT FEET KIP
16. JOINT COORDINATES
17. 1 -2.32292 163.592 0; 2 3.60938 163.709 0; 3 10.1094 163.837 0
18. 4 15.9635 163.952 0; 5 21.8177 164.067 0; 6 27.6719 164.182 0
19. 7 33.526 164.297 0; 8 39.3594 164.412 0; 9 45.1927 164.526 0
20. 10 51.0469 164.642 0; 11 56.901 164.757 0; 12 62.7552 164.872 0
21. 13 68.6094 164.987 0; 14 73.3802 165.081 0; 15 79 165.191 0
22. 16 10.1094 117.15 0; 17 10.1094 132.879 0; 18 10.1094 138.212 0
23. 19 10.1094 143.123 0; 20 39.3594 117.15 0; 21 39.3594 126.9 0
24. 22 39.3594 132.879 0; 23 39.3594 138.212 0; 24 39.3594 143.123 0
25. 25 68.6094 117.15 0; 26 68.6094 132.879 0; 27 68.6094 138.212 0
26. 28 68.6094 143.123 0; 30 16.2656 138.212 0; 31 21.8698 138.212 0
27. 32 27.474 138.212 0; 33 33.0781 138.212 0; 34 45.6406 138.212 0
28. 35 51.2448 138.212 0; 36 56.849 138.212 0; 37 62.4531 138.212 0
29. 38 16.2656 132.879 0; 39 21.8698 132.879 0; 40 27.474 132.879 0
30. 41 33.0781 132.879 0; 42 45.6406 132.879 0; 43 51.2448 132.879 0
31. 44 56.849 132.879 0; 45 62.4531 132.879 0; 46 6.67708 143.123 0
32. 47 16.2656 143.123 0; 48 21.8698 143.123 0; 49 27.474 143.123 0
33. 50 33.0781 143.123 0
34. MEMBER INCIDENCES
35. 1 1 2; 2 2 3; 3 3 4; 4 4 5; 5 5 6; 6 6 7; 7 7 8; 8 8 9; 9 9 10; 10 10 11
36. 11 11 12; 12 12 13; 13 13 14; 14 14 15; 15 16 17; 16 17 18; 17 18 19; 18 19 3
37. 19 20 21; 20 21 22; 21 22 23; 22 23 24; 23 24 8; 24 25 26; 25 26 27; 26 27 28
38. 27 28 13; 28 24 28; 33 18 30; 34 30 31; 35 31 32; 36 32 33; 37 33 23; 38 23 34
39. 39 34 35; 40 35 36; 41 36 37; 42 37 27; 43 17 38; 44 38 39; 45 39 40; 46 40 41
40. 47 41 22; 48 22 42; 49 42 43; 50 43 44; 51 44 45; 52 45 26; 53 38 30; 54 39 31

DXF IMPORT OF 002_1441BENT_5.DXF

-- PAGE NO. 2

41. 55 40 32; 56 41 33; 57 42 34; 58 43 35; 59 44 36; 60 45 37; 61 17 30; 62 30 39
42. 63 39 32; 64 32 41; 65 41 23; 66 23 42; 67 42 35; 68 35 44; 69 44 37; 70 37 26
43. 71 41 21; 72 21 42; 73 46 19; 74 19 47; 75 47 48; 76 48 49; 77 49 50; 78 50 24
44. DEFINE MATERIAL START
45. ISOTROPIC STEEL
46. E 4.176E+006
47. POISSON 0.3
48. DENSITY 0.489024
49. ALPHA 6E-006
50. DAMP 0.03
51. END DEFINE MATERIAL
52. MEMBER PROPERTY AMERICAN
53. 1 TO 14 TABLE ST W36X182
54. 15 TO 18 24 TO 27 TABLE ST W21X111
55. 19 TO 23 TABLE ST W24X146
56. 73 TO 78 TABLE ST W36X230
57. 28 TABLE ST W14X61
58. 33 TO 72 TABLE ST W8X31
59. CONSTANTS
60. BETA 90 MEMB 33 TO 72
61. MATERIAL STEEL ALL
62. SUPPORTS
63. 16 20 25 FIXED
64. MEMBER TRUSS
65. 28 33 TO 72
66. DEFINE MOVING LOAD
67. TYPE 1 LOAD 25.4 25.4
68. DIST 6
69. LOAD 1 LOADTYPE LIVE TITLE AXIAL ON COLUMN C3 (3 LANE)
70. MEMBER LOAD
71. 1 CON GY -34.3 1.7031 0
72. 2 CON GY -34.3 1.77091 0
73. 3 CON GY -34.3 1.2708 0
74. 4 CON GY -34.3 1.4167 0
75. 5 CON GY -34.3 1.5625 0
76. 6 CON GY -34.3 1.7083 0
77. LOAD 2 LOADTYPE LIVE TITLE AXIAL ON COLUMN C3 (2 LANE)
78. MEMBER LOAD
79. 1 CON GY -38.1 1.7031 0
80. 2 CON GY -38.1 1.77091 0
81. 3 CON GY -38.1 1.2708 0
82. 4 CON GY -38.1 1.4167 0
83. LOAD 3 LOADTYPE LIVE TITLE NEG. MOMENT IN FB OVER C3 (3 LANE)
84. MEMBER LOAD
85. 1 CON GY -34.3 1.7031 0
86. 2 CON GY -34.3 1.77091 0
87. 4 CON GY -34.3 0.7708 0
88. 5 CON GY -34.3 0.9167 0
89. 5 CON GY -34.3 4.9167 0
90. 6 CON GY -34.3 5.0625 0
91. LOAD 4 LOADTYPE LIVE TITLE NEG. MOMENT IN FB OVER C3 (2 LANE)
92. MEMBER LOAD
93. 1 CON GY -38.1 1.7031 0
94. 2 CON GY -38.1 1.77091 0
95. 4 CON GY -38.1 5.7708 0
96. 6 CON GY -38.1 0.0625 0

97. LOAD 5 LOADTYPE LIVE TITLE POS. MOMENT IN FB BETWEEN C3 _C2 (3 LANE)
98. MEMBER LOAD
99. 4 CON GY -34.3 0.7708 0
100. 5 CON GY -34.3 0.9167 0
101. 5 CON GY -34.3 4.9167 0
102. 6 CON GY -34.3 5.0625 0
103. 13 CON GY -34.3 2.7708 0
104. 14 CON GY -34.3 4.00003 0
105. LOAD 6 LOADTYPE LIVE TITLE POS. MOMENT IN FB BETWEEN C3 _C2 (2 LANE-1)
106. MEMBER LOAD
107. 4 CON GY -38.1 0.7708 0
108. 5 CON GY -38.1 0.9167 0
109. 5 CON GY -38.1 4.9167 0
110. 6 CON GY -38.1 5.0625 0
111. LOAD 7 LOADTYPE LIVE TITLE POS. MOMENT IN FB BETWEEN C3 _C2 (2 LANE-2)
112. MEMBER LOAD
113. 4 CON GY -38.1 5.7708 0
114. 6 CON GY -38.1 0.0625 0
115. 13 CON GY -38.1 2.7708 0
116. 14 CON GY -38.1 4.00003 0
117. LOAD 8 LOADTYPE LIVE TITLE MAX AXIAL ON COLUMN C2 (4 LANE)
118. MEMBER LOAD
119. 4 CON GY -28.6 1.2917 0
120. 5 CON GY -28.6 1.4375 0
121. 6 CON GY -28.6 1.5833 0
122. 7 CON GY -28.6 1.72925 0
123. 8 CON GY -28.6 2 0
124. 9 CON GY -28.6 2.1667 0
125. 10 CON GY -28.6 2.3125 0
126. 11 CON GY -28.6 2.4583 0
127. LOAD 9 LOADTYPE LIVE TITLE MAX AXIAL ON COLUMN C2 (3 LANE)
128. MEMBER LOAD
129. 6 CON GY -34.3 1.5833 0
130. 7 CON GY -34.3 1.72925 0
131. 8 CON GY -34.3 2 0
132. 9 CON GY -34.3 2.1667 0
133. 10 CON GY -34.3 2.3125 0
134. 11 CON GY -34.3 2.4583 0
135. LOAD 10 LOADTYPE LIVE TITLE MAX AXIAL ON COLUMN C2 (2 LANE)
136. MEMBER LOAD
137. 6 CON GY -38.1 1.5833 0
138. 7 CON GY -38.1 1.72925 0
139. 8 CON GY -38.1 2 0
140. 9 CON GY -38.1 2.1667 0
141. LOAD 11 LOADTYPE LIVE TITLE NEG. MOMENT IN FB OVER C2 (4 LANE)
142. MEMBER LOAD
143. 4 CON GY -28.6 0.7708 0
144. 5 CON GY -28.6 0.9167 0
145. 5 CON GY -28.6 4.9167 0
146. 6 CON GY -28.6 5.0625 0
147. 9 CON GY -28.6 0.7917 0
148. 10 CON GY -28.6 0.9375 0
149. 10 CON GY -28.6 4.9375 0
150. 11 CON GY -28.6 5.0833 0
151. LOAD 12 LOADTYPE LIVE TITLE NEG. MOMENT IN FB OVER C2 (3 LANE)
152. MEMBER LOAD

153. 4 CON GY -34.3 5.7708 0
154. 6 CON GY -34.3 0.0625 0
155. 9 CON GY -34.3 0.7917 0
156. 10 CON GY -34.3 0.9375 0
157. 10 CON GY -34.3 4.9375 0
158. 11 CON GY -34.3 5.0833 0
159. LOAD 13 LOADTYPE LIVE TITLE NEG. MOMENT IN FB OVER C2 (2 LANE)
160. MEMBER LOAD
161. 4 CON GY -38.1 5.7708 0
162. 6 CON GY -38.1 0.0625 0
163. 9 CON GY -38.1 5.7917 0
164. 11 CON GY -38.1 0.0833 0
165. LOAD 14 LOADTYPE LIVE TITLE POS. MOMENT IN FB BETWEEN C2 _C1 (3 LANE)
166. MEMBER LOAD
167. 1 CON GY -34.3 1.7031 0
168. 2 CON GY -34.3 1.77091 0
169. 9 CON GY -34.3 0.7917 0
170. 10 CON GY -34.3 0.9375 0
171. 10 CON GY -34.3 4.9375 0
172. 11 CON GY -34.3 5.0833 0
173. LOAD 15 LOADTYPE LIVE TITLE POS. MOMENT IN FB BETWEEN C2 _C1 (2 LANE-1)
174. MEMBER LOAD
175. 9 CON GY -38.1 0.7917 0
176. 10 CON GY -38.1 0.9375 0
177. 10 CON GY -38.1 4.9375 0
178. 11 CON GY -38.1 5.0833 0
179. LOAD 16 LOADTYPE LIVE TITLE POS. MOMENT IN FB BETWEEN C2 _C1 (2 LANE-2)
180. MEMBER LOAD
181. 1 CON GY -38.1 1.7031 0
182. 2 CON GY -38.1 1.77091 0
183. 9 CON GY -38.1 5.7917 0
184. 11 CON GY -38.1 0.0833 0
185. LOAD 17 LOADTYPE LIVE TITLE MAX AXIAL ON COLUMN C1 (3 LANE)
186. MEMBER LOAD
187. 9 CON GY -34.3 2.1875 0
188. 10 CON GY -34.3 2.3333 0
189. 11 CON GY -34.3 2.4792 0
190. 12 CON GY -34.3 2.62507 0
191. 13 CON GY -34.3 2.7708 0
192. 14 CON GY -34.3 4.00003 0
193. LOAD 18 LOADTYPE LIVE TITLE MAX AXIAL ON COLUMN C1 (2 LANE)
194. MEMBER LOAD
195. 11 CON GY -38.1 2.4792 0
196. 12 CON GY -38.1 2.62507 0
197. 13 CON GY -38.1 2.7708 0
198. 14 CON GY -38.1 4.00003 0
199. LOAD 19 LOADTYPE LIVE TITLE NEG. MOMENT IN FB OVER C1 (3 LANE)
200. MEMBER LOAD
201. 9 CON GY -34.3 0.7917 0
202. 10 CON GY -34.3 0.9375 0
203. 10 CON GY -34.3 4.9375 0
204. 11 CON GY -34.3 5.0833 0
205. 13 CON GY -34.3 2.7708 0
206. 14 CON GY -34.3 4.00003 0
207. LOAD 20 LOADTYPE LIVE TITLE NEG. MOMENT IN FB OVER C1 (2 LANE)
208. MEMBER LOAD

209. 9 CON GY -38.1 5.7917 0
210. 11 CON GY -38.1 0.0833 0
211. 13 CON GY -38.1 2.7708 0
212. 14 CON GY -38.1 4.00003 0
213. LOAD 21 LOADTYPE LIVE TITLE ALL LANES LOADED - CENTER (6 LANE)
214. MEMBER LOAD
215. 2 CON GY -28.6 1.64591 0
216. 3 CON GY -28.6 1.1458 0
217. 4 CON GY -28.6 1.2917 0
218. 5 CON GY -28.6 1.4375 0
219. 6 CON GY -28.6 1.5833 0
220. 7 CON GY -28.6 1.72925 0
221. 8 CON GY -28.6 2 0
222. 9 CON GY -28.6 2.1667 0
223. 10 CON GY -28.6 2.3125 0
224. 11 CON GY -28.6 2.4583 0
225. 12 CON GY -28.6 2.60427 0
226. 13 CON GY -28.6 2.75 0
227. LOAD 22 LOADTYPE LIVE TITLE ALL LANES LOADED - OUTSIDE (6 LANE)
228. MEMBER LOAD
229. 1 CON GY -28.6 1.7031 0
230. 2 CON GY -28.6 1.77091 0
231. 3 CON GY -28.6 1.2708 0
232. 4 CON GY -28.6 1.4167 0
233. 5 CON GY -28.6 1.5625 0
234. 6 CON GY -28.6 1.7083 0
235. 9 CON GY -28.6 2.1875 0
236. 10 CON GY -28.6 2.3333 0
237. 11 CON GY -28.6 2.4792 0
238. 12 CON GY -28.6 2.62507 0
239. 13 CON GY -28.6 2.7708 0
240. 14 CON GY -28.6 4.00003 0
241. LOAD 23 LOADTYPE LIVE TITLE LOWER DECK LOAD
242. JOINT LOAD
243. 24 FY -7.29
244. 50 FY -10.46
245. 48 49 FY -9.86
246. 47 FY -10.35
247. 19 FY -8.44
248. 46 FY -3.9
249. LOAD 24 LOADTYPE LIVE TITLE LOAD 1 WITH LOWER DECK
250. REPEAT LOAD
251. 1 1.0 23 1.0
252. LOAD 25 LOADTYPE LIVE TITLE LOAD 2 WITH LOWER DECK
253. REPEAT LOAD
254. 2 1.0 23 1.0
255. LOAD 26 LOADTYPE LIVE TITLE LOAD 3 WITH LOWER DECK
256. REPEAT LOAD
257. 3 1.0 23 1.0
258. LOAD 27 LOADTYPE LIVE TITLE LOAD 4 WITH LOWER DECK
259. REPEAT LOAD
260. 4 1.0 23 1.0
261. LOAD 28 LOADTYPE LIVE TITLE LOAD 5 WITH LOWER DECK
262. REPEAT LOAD
263. 5 1.0 23 1.0
264. LOAD 29 LOADTYPE LIVE TITLE LOAD 6 WITH LOWER DECK

265. REPEAT LOAD
266. 6 1.0 23 1.0
267. LOAD 30 LOADTYPE LIVE TITLE LOAD 7 WITH LOWER DECK
268. REPEAT LOAD
269. 7 1.0 23 1.0
270. LOAD 31 LOADTYPE LIVE TITLE LOAD 8 WITH LOWER DECK
271. REPEAT LOAD
272. 8 1.0 23 1.0
273. LOAD 32 LOADTYPE LIVE TITLE LOAD 9 WITH LOWER DECK
274. REPEAT LOAD
275. 9 1.0 23 1.0
276. LOAD 33 LOADTYPE LIVE TITLE LOAD 10 WITH LOWER DECK
277. REPEAT LOAD
278. 10 1.0 23 1.0
279. LOAD 34 LOADTYPE LIVE TITLE LOAD 11 WITH LOWER DECK
280. REPEAT LOAD
281. 11 1.0 23 1.0
282. LOAD 35 LOADTYPE LIVE TITLE LOAD 12 WITH LOWER DECK
283. REPEAT LOAD
284. 12 1.0 23 1.0
285. LOAD 36 LOADTYPE LIVE TITLE LOAD 13 WITH LOWER DECK
286. REPEAT LOAD
287. 13 1.0 23 1.0
288. LOAD 37 LOADTYPE LIVE TITLE LOAD 14 WITH LOWER DECK
289. REPEAT LOAD
290. 14 1.0 23 1.0
291. LOAD 38 LOADTYPE LIVE TITLE LOAD 15 WITH LOWER DECK
292. REPEAT LOAD
293. 15 1.0 23 1.0
294. LOAD 39 LOADTYPE LIVE TITLE LOAD 16 WITH LOWER DECK
295. REPEAT LOAD
296. 16 1.0 23 1.0
297. LOAD 40 LOADTYPE LIVE TITLE LOAD 17 WITH LOWER DECK
298. REPEAT LOAD
299. 17 1.0 23 1.0
300. LOAD 41 LOADTYPE LIVE TITLE LOAD 18 WITH LOWER DECK
301. REPEAT LOAD
302. 18 1.0 23 1.0
303. LOAD 42 LOADTYPE LIVE TITLE LOAD 19 WITH LOWER DECK
304. REPEAT LOAD
305. 19 1.0 23 1.0
306. LOAD 43 LOADTYPE LIVE TITLE LOAD 20 WITH LOWER DECK
307. REPEAT LOAD
308. 20 1.0 23 1.0
309. LOAD 44 LOADTYPE LIVE TITLE LOAD 21 WITH LOWER DECK
310. REPEAT LOAD
311. 21 1.0 23 1.0
312. LOAD 45 LOADTYPE LIVE TITLE LOAD 22 WITH LOWER DECK
313. REPEAT LOAD
314. 22 1.0 23 1.0
315. LOAD 46 LOADTYPE LIVE TITLE 2F1 LOADING
316. REPEAT LOAD
317. 1 0.472232 23 1.0
318. LOAD 47 LOADTYPE LIVE TITLE 2F1 LOADING
319. REPEAT LOAD
320. 2 0.472232 23 1.0

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321. LOAD 48 LOADTYPE LIVE TITLE 2F1 LOADING
322. REPEAT LOAD
323. 3 0.472232 23 1.0
324. LOAD 49 LOADTYPE LIVE TITLE 2F1 LOADING
325. REPEAT LOAD
326. 4 0.472232 23 1.0
327. LOAD 50 LOADTYPE LIVE TITLE 2F1 LOADING
328. REPEAT LOAD
329. 5 0.472232 23 1.0
330. LOAD 51 LOADTYPE LIVE TITLE 2F1 LOADING
331. REPEAT LOAD
332. 6 0.472232 23 1.0
333. LOAD 52 LOADTYPE LIVE TITLE 2F1 LOADING
334. REPEAT LOAD
335. 7 0.472232 23 1.0
336. LOAD 53 LOADTYPE LIVE TITLE 2F1 LOADING
337. REPEAT LOAD
338. 8 0.472232 23 1.0
339. LOAD 54 LOADTYPE LIVE TITLE 2F1 LOADING
340. REPEAT LOAD
341. 9 0.472232 23 1.0
342. LOAD 55 LOADTYPE LIVE TITLE 2F1 LOADING
343. REPEAT LOAD
344. 10 0.472232 23 1.0
345. LOAD 56 LOADTYPE LIVE TITLE 2F1 LOADING
346. REPEAT LOAD
347. 11 0.472232 23 1.0
348. LOAD 57 LOADTYPE LIVE TITLE 2F1 LOADING
349. REPEAT LOAD
350. 12 0.472232 23 1.0
351. LOAD 58 LOADTYPE LIVE TITLE 2F1 LOADING
352. REPEAT LOAD
353. 13 0.472232 23 1.0
354. LOAD 59 LOADTYPE LIVE TITLE 2F1 LOADING
355. REPEAT LOAD
356. 14 0.472232 23 1.0
357. LOAD 60 LOADTYPE LIVE TITLE 2F1 LOADING
358. REPEAT LOAD
359. 15 0.472232 23 1.0
360. LOAD 61 LOADTYPE LIVE TITLE 2F1 LOADING
361. REPEAT LOAD
362. 16 0.472232 23 1.0
363. LOAD 62 LOADTYPE LIVE TITLE 2F1 LOADING
364. REPEAT LOAD
365. 17 0.472232 23 1.0
366. LOAD 63 LOADTYPE LIVE TITLE 2F1 LOADING
367. REPEAT LOAD
368. 18 0.472232 23 1.0
369. LOAD 64 LOADTYPE LIVE TITLE 2F1 LOADING
370. REPEAT LOAD
371. 19 0.472232 23 1.0
372. LOAD 65 LOADTYPE LIVE TITLE 2F1 LOADING
373. REPEAT LOAD
374. 20 0.472232 23 1.0
375. LOAD 66 LOADTYPE LIVE TITLE 2F1 LOADING
376. REPEAT LOAD

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377. 21 0.472232 23 1.0
378. LOAD 67 LOADTYPE LIVE TITLE 2F1 LOADING
379. REPEAT LOAD
380. 22 0.472232 23 1.0
381. LOAD 68 LOADTYPE LIVE TITLE 3F1 LOADING
382. REPEAT LOAD
383. 1 0.704259 23 1.0
384. LOAD 69 LOADTYPE LIVE TITLE 3F1 LOADING
385. REPEAT LOAD
386. 2 0.704259 23 1.0
387. LOAD 70 LOADTYPE LIVE TITLE 3F1 LOADING
388. REPEAT LOAD
389. 3 0.704259 23 1.0
390. LOAD 71 LOADTYPE LIVE TITLE 3F1 LOADING
391. REPEAT LOAD
392. 4 0.704259 23 1.0
393. LOAD 72 LOADTYPE LIVE TITLE 3F1 LOADING
394. REPEAT LOAD
395. 5 0.704259 23 1.0
396. LOAD 73 LOADTYPE LIVE TITLE 3F1 LOADING
397. REPEAT LOAD
398. 6 0.704259 23 1.0
399. LOAD 74 LOADTYPE LIVE TITLE 3F1 LOADING
400. REPEAT LOAD
401. 7 0.704259 23 1.0
402. LOAD 75 LOADTYPE LIVE TITLE 3F1 LOADING
403. REPEAT LOAD
404. 8 0.704259 23 1.0
405. LOAD 76 LOADTYPE LIVE TITLE 3F1 LOADING
406. REPEAT LOAD
407. 9 0.704259 23 1.0
408. LOAD 77 LOADTYPE LIVE TITLE 3F1 LOADING
409. REPEAT LOAD
410. 10 0.704259 23 1.0
411. LOAD 78 LOADTYPE LIVE TITLE 3F1 LOADING
412. REPEAT LOAD
413. 11 0.704259 23 1.0
414. LOAD 79 LOADTYPE LIVE TITLE 3F1 LOADING
415. REPEAT LOAD
416. 12 0.704259 23 1.0
417. LOAD 80 LOADTYPE LIVE TITLE 3F1 LOADING
418. REPEAT LOAD
419. 13 0.704259 23 1.0
420. LOAD 81 LOADTYPE LIVE TITLE 3F1 LOADING
421. REPEAT LOAD
422. 14 0.704259 23 1.0
423. LOAD 82 LOADTYPE LIVE TITLE 3F1 LOADING
424. REPEAT LOAD
425. 15 0.704259 23 1.0
426. LOAD 83 LOADTYPE LIVE TITLE 3F1 LOADING
427. REPEAT LOAD
428. 16 0.704259 23 1.0
429. LOAD 84 LOADTYPE LIVE TITLE 3F1 LOADING
430. REPEAT LOAD
431. 17 0.704259 23 1.0
432. LOAD 85 LOADTYPE LIVE TITLE 3F1 LOADING

433. REPEAT LOAD
434. 18 0.704259 23 1.0
435. LOAD 86 LOADTYPE LIVE TITLE 3F1 LOADING
436. REPEAT LOAD
437. 19 0.704259 23 1.0
438. LOAD 87 LOADTYPE LIVE TITLE 3F1 LOADING
439. REPEAT LOAD
440. 20 0.704259 23 1.0
441. LOAD 88 LOADTYPE LIVE TITLE 3F1 LOADING
442. REPEAT LOAD
443. 21 0.704259 23 1.0
444. LOAD 89 LOADTYPE LIVE TITLE 3F1 LOADING
445. REPEAT LOAD
446. 22 0.704259 23 1.0
447. LOAD 90 LOADTYPE LIVE TITLE 4F1 LOADING
448. REPEAT LOAD
449. 1 0.806133 23 1.0
450. LOAD 91 LOADTYPE LIVE TITLE 4F1 LOADING
451. REPEAT LOAD
452. 2 0.806133 23 1.0
453. LOAD 92 LOADTYPE LIVE TITLE 4F1 LOADING
454. REPEAT LOAD
455. 3 0.806133 23 1.0
456. LOAD 93 LOADTYPE LIVE TITLE 4F1 LOADING
457. REPEAT LOAD
458. 4 0.806133 23 1.0
459. LOAD 94 LOADTYPE LIVE TITLE 4F1 LOADING
460. REPEAT LOAD
461. 5 0.806133 23 1.0
462. LOAD 95 LOADTYPE LIVE TITLE 4F1 LOADING
463. REPEAT LOAD
464. 6 0.806133 23 1.0
465. LOAD 96 LOADTYPE LIVE TITLE 4F1 LOADING
466. REPEAT LOAD
467. 7 0.806133 23 1.0
468. LOAD 97 LOADTYPE LIVE TITLE 4F1 LOADING
469. REPEAT LOAD
470. 8 0.806133 23 1.0
471. LOAD 98 LOADTYPE LIVE TITLE 4F1 LOADING
472. REPEAT LOAD
473. 9 0.806133 23 1.0
474. LOAD 99 LOADTYPE LIVE TITLE 4F1 LOADING
475. REPEAT LOAD
476. 10 0.806133 23 1.0
477. LOAD 100 LOADTYPE LIVE TITLE 4F1 LOADING
478. REPEAT LOAD
479. 11 0.806133 23 1.0
480. LOAD 101 LOADTYPE LIVE TITLE 4F1 LOADING
481. REPEAT LOAD
482. 12 0.806133 23 1.0
483. LOAD 102 LOADTYPE LIVE TITLE 4F1 LOADING
484. REPEAT LOAD
485. 13 0.806133 23 1.0
486. LOAD 103 LOADTYPE LIVE TITLE 4F1 LOADING
487. REPEAT LOAD
488. 14 0.806133 23 1.0

489. LOAD 104 LOADTYPE LIVE TITLE 4F1 LOADING
490. REPEAT LOAD
491. 15 0.806133 23 1.0
492. LOAD 105 LOADTYPE LIVE TITLE 4F1 LOADING
493. REPEAT LOAD
494. 16 0.806133 23 1.0
495. LOAD 106 LOADTYPE LIVE TITLE 4F1 LOADING
496. REPEAT LOAD
497. 17 0.806133 23 1.0
498. LOAD 107 LOADTYPE LIVE TITLE 4F1 LOADING
499. REPEAT LOAD
500. 18 0.806133 23 1.0
501. LOAD 108 LOADTYPE LIVE TITLE 4F1 LOADING
502. REPEAT LOAD
503. 19 0.806133 23 1.0
504. LOAD 109 LOADTYPE LIVE TITLE 4F1 LOADING
505. REPEAT LOAD
506. 20 0.806133 23 1.0
507. LOAD 110 LOADTYPE LIVE TITLE 4F1 LOADING
508. REPEAT LOAD
509. 21 0.806133 23 1.0
510. LOAD 111 LOADTYPE LIVE TITLE 4F1 LOADING
511. REPEAT LOAD
512. 22 0.806133 23 1.0
513. LOAD 112 LOADTYPE LIVE TITLE 5C1 LOADING
514. REPEAT LOAD
515. 1 0.805451 23 1.0
516. LOAD 113 LOADTYPE LIVE TITLE 5C1 LOADING
517. REPEAT LOAD
518. 2 0.805451 23 1.0
519. LOAD 114 LOADTYPE LIVE TITLE 5C1 LOADING
520. REPEAT LOAD
521. 3 0.805451 23 1.0
522. LOAD 115 LOADTYPE LIVE TITLE 5C1 LOADING
523. REPEAT LOAD
524. 4 0.805451 23 1.0
525. LOAD 116 LOADTYPE LIVE TITLE 5C1 LOADING
526. REPEAT LOAD
527. 5 0.805451 23 1.0
528. LOAD 117 LOADTYPE LIVE TITLE 5C1 LOADING
529. REPEAT LOAD
530. 6 0.805451 23 1.0
531. LOAD 118 LOADTYPE LIVE TITLE 5C1 LOADING
532. REPEAT LOAD
533. 7 0.805451 23 1.0
534. LOAD 119 LOADTYPE LIVE TITLE 5C1 LOADING
535. REPEAT LOAD
536. 8 0.805451 23 1.0
537. LOAD 120 LOADTYPE LIVE TITLE 5C1 LOADING
538. REPEAT LOAD
539. 9 0.805451 23 1.0
540. LOAD 121 LOADTYPE LIVE TITLE 5C1 LOADING
541. REPEAT LOAD
542. 10 0.805451 23 1.0
543. LOAD 122 LOADTYPE LIVE TITLE 5C1 LOADING
544. REPEAT LOAD

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545. 11 0.805451 23 1.0
 546. LOAD 123 LOADTYPE LIVE TITLE 5C1 LOADING
 547. REPEAT LOAD
 548. 12 0.805451 23 1.0
 549. LOAD 124 LOADTYPE LIVE TITLE 5C1 LOADING
 550. REPEAT LOAD
 551. 13 0.805451 23 1.0
 552. LOAD 125 LOADTYPE LIVE TITLE 5C1 LOADING
 553. REPEAT LOAD
 554. 14 0.805451 23 1.0
 555. LOAD 126 LOADTYPE LIVE TITLE 5C1 LOADING
 556. REPEAT LOAD
 557. 15 0.805451 23 1.0
 558. LOAD 127 LOADTYPE LIVE TITLE 5C1 LOADING
 559. REPEAT LOAD
 560. 16 0.805451 23 1.0
 561. LOAD 128 LOADTYPE LIVE TITLE 5C1 LOADING
 562. REPEAT LOAD
 563. 17 0.805451 23 1.0
 564. LOAD 129 LOADTYPE LIVE TITLE 5C1 LOADING
 565. REPEAT LOAD
 566. 18 0.805451 23 1.0
 567. LOAD 130 LOADTYPE LIVE TITLE 5C1 LOADING
 568. REPEAT LOAD
 569. 19 0.805451 23 1.0
 570. LOAD 131 LOADTYPE LIVE TITLE 5C1 LOADING
 571. REPEAT LOAD
 572. 20 0.805451 23 1.0
 573. LOAD 132 LOADTYPE LIVE TITLE 5C1 LOADING
 574. REPEAT LOAD
 575. 21 0.805451 23 1.0
 576. LOAD 133 LOADTYPE LIVE TITLE 5C1 LOADING
 577. REPEAT LOAD
 578. 22 0.805451 23 1.0
 579. LOAD GENERATION 29
 580. TYPE 1 0.3802 163.645 0 XINC 0.9955 YRANGE 2
 581. LOAD GENERATION 29
 582. TYPE 1 42.5052 164.474 0 XINC 0.9955 YRANGE 2
 583. PDELTA 10 ANALYSIS

P R O B L E M S T A T I S T I C S

NUMBER OF JOINTS/MEMBER+ELEMENTS/SUPPORTS = 49/ 74/ 3

SOLVER USED IS THE OUT-OF-CORE BASIC SOLVER

ORIGINAL/FINAL BAND-WIDTH= 27/ 7/ 48 DOF
 TOTAL PRIMARY LOAD CASES = 191, TOTAL DEGREES OF FREEDOM = 276
 SIZE OF STIFFNESS MATRIX = 14 DOUBLE KILO-WORDS
 REQD/AVAIL. DISK SPACE = 13.5/ 515606.7 MB

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ZERO STIFFNESS IN DIRECTION 3 AT JOINT 30 EQN.NO. 69
 LOADS APPLIED OR DISTRIBUTED HERE FROM ELEMENTS WILL BE IGNORED.
 THIS MAY BE DUE TO ALL MEMBERS AT THIS JOINT BEING RELEASED OR
 EFFECTIVELY RELEASED IN THIS DIRECTION.

ZERO STIFFNESS IN DIRECTION 4 AT JOINT	30 EQN.NO.	70
ZERO STIFFNESS IN DIRECTION 5 AT JOINT	30 EQN.NO.	71
ZERO STIFFNESS IN DIRECTION 6 AT JOINT	30 EQN.NO.	72
ZERO STIFFNESS IN DIRECTION 3 AT JOINT	38 EQN.NO.	87
ZERO STIFFNESS IN DIRECTION 4 AT JOINT	38 EQN.NO.	88
ZERO STIFFNESS IN DIRECTION 5 AT JOINT	38 EQN.NO.	89
ZERO STIFFNESS IN DIRECTION 6 AT JOINT	38 EQN.NO.	90
ZERO STIFFNESS IN DIRECTION 3 AT JOINT	31 EQN.NO.	93
ZERO STIFFNESS IN DIRECTION 4 AT JOINT	31 EQN.NO.	94
ZERO STIFFNESS IN DIRECTION 5 AT JOINT	31 EQN.NO.	95
ZERO STIFFNESS IN DIRECTION 6 AT JOINT	31 EQN.NO.	96

****WARNING - THERE WERE MORE THAN 12 DOF WITH ZERO STIFFNESS.**

THE FIRST 12 ARE LISTED ABOVE.

TOTAL # TRANSLATIONAL= 16 TOTAL # ROTATIONAL= 48

++ Adjusting Displacements	18: 5:15
++ Adjusting Displacements	18: 5:16
++ Adjusting Displacements	18: 5:16
++ Adjusting Displacements	18: 5:16
++ Adjusting Displacements	18: 5:16
++ Adjusting Displacements	18: 5:16
++ Adjusting Displacements	18: 5:16
++ Adjusting Displacements	18: 5:16
++ Adjusting Displacements	18: 5:16
++ Adjusting Displacements	18: 5:17

584. *LOAD LIST 1 TO 22
 585. *PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 1 TO 14
 586. *HS-20 WITHOUT LOWER DECK MAX FLOOR BEAM FORCES ABOVE
 587. *PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 15 TO 18
 588. *HS-20 WITHOUT LOWER DECK MAX COLUMN 3 FORCES ABOVE
 589. *PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 19 TO 23
 590. *HS-20 WITHOUT LOWER DECK MAX COLUMN 2 FORCES ABOVE
 591. *PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 24 TO 27
 592. *HS-20 WITHOUT LOWER DECK MAX COLUMN 1 FORCES ABOVE
 593. LOAD LIST 24 TO 45
 594. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 1 TO 14

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
1 MAX	0.00	0.00	24	161.14	5.93	27			
	0.00	0.00	24	0.00	0.00	24	0.00	0.00	24
MIN	-38.09	5.93	39	0.00	5.93	44			
	0.00	5.93	45	0.00	5.93	45	0.75 T	5.93	39
2 MAX	0.00	0.00	28	588.97	6.50	27			
	0.00	0.00	24	0.00	0.00	24	0.00	0.00	28
MIN	-76.19	6.50	39	0.00	6.50	43			
	0.00	6.50	45	0.00	6.50	45	1.50 T	6.50	39
3 MAX	101.10	0.00	24	545.44	0.00	26			
	0.00	0.00	24	0.00	0.00	24	12.32 C	0.00	29
MIN	-8.27	5.86	38	-248.44	5.86	29			
	0.00	5.86	45	0.00	5.86	45	7.45 T	5.86	39
4 MAX	79.28	0.00	26	359.58	0.00	39			
	0.00	0.00	24	0.00	0.00	24	12.32 C	0.00	29
MIN	-11.57	5.86	35	-455.49	5.86	29			
	0.00	5.86	45	0.00	5.86	45	7.45 T	5.86	39
5 MAX	44.98	0.00	26	274.43	0.00	37			
	0.00	0.00	24	0.00	0.00	24	11.57 C	0.00	29
MIN	-45.85	5.86	29	-481.33	1.17	29			
	0.00	5.86	45	0.00	5.86	45	7.45 T	5.86	39
6 MAX	15.29	0.00	27	214.56	0.00	37			
	0.00	0.00	24	0.00	0.00	24	10.07 C	0.00	29
MIN	-83.94	5.27	29	-409.22	0.00	29			
	0.00	5.86	45	0.00	5.86	45	7.45 T	5.86	39
7 MAX	14.99	0.00	39	454.43	5.83	34			
	0.00	0.00	24	0.00	0.00	24	9.32 C	0.00	29
MIN	-83.95	5.83	29	-119.65	0.00	28			
	0.00	5.83	45	0.00	5.83	45	7.45 T	5.83	39
8 MAX	95.16	0.00	32	445.21	0.00	35			
	0.00	0.00	24	0.00	0.00	24	9.75 C	0.00	38
MIN	-9.83	5.83	30	-134.29	5.83	37			
	0.00	5.83	45	0.00	5.83	45	6.49 T	5.83	30
9 MAX	84.15	0.00	38	184.99	5.86	28			
	0.00	0.00	24	0.00	0.00	24	9.77 C	0.00	38

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MIN	-9.83	5.86	30	-420.19	5.86	38			
	0.00	5.86	45	0.00	5.86	45	6.49 T	5.86	30
10 MAX	46.06	0.00	38	218.92	5.86	28			
	0.00	0.00	24	0.00	0.00	24	9.01 C	0.00	38
MIN	-39.95	5.27	42	-493.23	4.68	38			
	0.00	5.86	45	0.00	5.86	45	6.49 T	5.86	30
11 MAX	9.07	0.00	36	268.06	5.86	30			
	0.00	0.00	24	0.00	0.00	24	7.51 C	0.00	38
MIN	-74.24	5.86	42	-467.60	0.00	38			
	0.00	5.86	45	0.00	5.86	45	6.49 T	5.86	30
12 MAX	7.82	0.00	29	426.22	5.86	42			
	0.00	0.00	24	0.00	0.00	24	6.77 C	0.00	38
MIN	-86.26	5.86	40	-261.75	0.00	38			
	0.00	5.86	45	0.00	5.86	45	6.49 T	5.86	30
13 MAX	76.19	0.00	30	439.70	0.00	30			
	0.00	0.00	24	0.00	0.00	24	1.50 C	0.00	30
MIN	0.00	4.77	44	0.00	2.86	44			
	0.00	4.77	45	0.00	4.77	45	0.00	4.77	44
14 MAX	38.09	0.00	30	152.38	0.00	30			
	0.00	0.00	24	0.00	0.00	24	0.75 C	0.00	30
MIN	0.00	5.62	45	0.00	5.62	45			
	0.00	5.62	45	0.00	5.62	45	0.00	5.62	45

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

595. *HS-20 MAX FLOOR BEAM FORCES ABOVE

596. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 15 TO 18

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
15 MAX	0.30	0.00	25	3.53	15.73	32			
	0.00	0.00	24	0.00	0.00	24	201.89 C	0.00	24
MIN	-0.48	15.73	33	-5.97	15.73	25			
	0.00	15.73	45	0.00	15.73	45	24.83 C	15.73	42
16 MAX	-0.16	0.00	29	12.17	5.33	37			
	0.00	0.00	24	0.00	0.00	24	202.23 C	0.00	24
MIN	-2.80	5.33	39	-5.97	0.00	25			
	0.00	5.33	45	0.00	5.33	45	25.15 C	5.33	42
17 MAX	-2.74	0.00	28	59.20	4.91	37			
	0.00	0.00	24	0.00	0.00	24	202.23 C	0.00	24
MIN	-9.58	4.91	37	1.75	0.00	29			
	0.00	4.91	45	0.00	4.91	45	25.15 C	4.91	42
18 MAX	7.74	0.00	39	152.34	20.71	29			
	0.00	0.00	24	0.00	0.00	24	169.74 C	0.00	24
MIN	-10.97	20.71	29	-141.56	20.71	39			
	0.00	20.71	45	0.00	20.71	45	8.28 T	20.71	38

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

597. *HS-20 MAX COLUMN 3 FORCES ABOVE

598. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 19 TO 23

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
19 MAX	-0.05	0.00	29	4.44	9.75	40			
	0.00	0.00	24	0.00	0.00	24	182.99 C	0.00	44
MIN	-0.30	9.75	41	-3.92	0.00	24			
	0.00	9.75	45	0.00	9.75	45	24.34 C	9.75	25
20 MAX	0.79	0.00	41	4.44	0.00	40			
	0.00	0.00	24	0.00	0.00	24	171.35 C	0.00	32
MIN	-0.11	5.98	29	-4.09	5.98	25			
	0.00	5.98	45	0.00	5.98	45	21.20 C	5.98	25
21 MAX	5.76	0.00	39	0.09	0.00	32			
	0.00	0.00	24	0.00	0.00	24	171.35 C	0.00	32
MIN	0.65	5.33	29	-33.98	5.33	39			
	0.00	5.33	45	0.00	5.33	45	21.20 C	5.33	25
22 MAX	13.76	0.00	37	-4.08	0.00	29			
	0.00	0.00	24	0.00	0.00	24	183.45 C	0.00	32
MIN	1.11	4.91	28	-99.56	4.91	37			
	0.00	4.91	45	0.00	4.91	45	22.21 C	4.91	25
23 MAX	14.80	0.00	28	210.73	21.29	37			
	0.00	0.00	24	0.00	0.00	24	157.16 C	0.00	32
MIN	-13.27	21.29	37	-201.59	21.29	28			
	0.00	21.29	45	0.00	21.29	45	5.65 T	21.29	25

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

599. *HS-20 MAX COLUMN 2 FORCES ABOVE

600. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 24 TO 27

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
24 MAX	0.59	0.00	33	3.90	0.00	32			
	0.00	0.00	24	0.00	0.00	24	154.09 C	0.00	40
MIN	-0.10	15.73	25	-5.47	15.73	33			
	0.00	15.73	45	0.00	15.73	45	7.64 T	15.73	26
25 MAX	3.53	0.00	25	17.03	5.33	38			
	0.00	0.00	24	0.00	0.00	24	154.85 C	0.00	40
MIN	-3.82	5.33	32	-19.56	5.33	25			
	0.00	5.33	45	0.00	5.33	45	7.80 T	5.33	29
26 MAX	1.63	0.00	28	39.42	4.91	38			
	0.00	0.00	24	0.00	0.00	24	154.85 C	0.00	40
MIN	-4.57	4.91	38	-23.35	4.91	30			
	0.00	4.91	45	0.00	4.91	45	7.80 T	4.91	29
27 MAX	8.10	0.00	38	114.03	21.86	30			
	0.00	0.00	24	0.00	0.00	24	154.85 C	0.00	40
MIN	-6.30	21.86	30	-137.76	21.86	38			
	0.00	21.86	45	0.00	21.86	45	7.80 T	21.86	29

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

601. *HS-20 MAX COLUMN 1 FORCES ABOVE

602. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 73 TO 78

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
73 MAX	-3.90	0.00	24	13.39	3.43	24			
	0.00	0.00	24	0.00	0.00	24	0.00	0.00	24
MIN	-3.90	3.43	45	0.00	0.00	45			
	0.00	3.43	45	0.00	3.43	45	0.00	3.43	45
74 MAX	21.53	0.00	32	105.13	0.00	29			
	0.00	0.00	24	0.00	0.00	24	17.19 C	0.00	39
MIN	18.81	6.16	30	-75.96	6.16	39			
	0.00	6.16	45	0.00	6.16	45	7.90 T	6.16	29
75 MAX	11.18	0.00	32	-20.39	0.00	29			
	0.00	0.00	24	0.00	0.00	24	17.19 C	0.00	39
MIN	8.46	5.60	30	-136.73	5.60	37			
	0.00	5.60	45	0.00	5.60	45	7.90 T	5.60	29
76 MAX	1.32	0.00	32	-73.18	5.60	28			
	0.00	0.00	24	0.00	0.00	24	17.19 C	0.00	39
MIN	-1.40	5.60	30	-142.75	5.60	37			
	0.00	5.60	45	0.00	5.60	45	7.90 T	5.60	29
77 MAX	-8.54	0.00	32	-11.25	5.60	28			
	0.00	0.00	24	0.00	0.00	24	17.19 C	0.00	39
MIN	-11.26	5.60	30	-142.75	0.00	37			
	0.00	5.60	45	0.00	5.60	45	7.90 T	5.60	29
78 MAX	-19.00	0.00	32	123.87	6.28	28			
	0.00	0.00	24	0.00	0.00	24	17.19 C	0.00	39
MIN	-21.72	6.28	30	-93.47	0.00	37			
	0.00	6.28	45	0.00	6.28	45	7.90 T	6.28	29

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

603. *LOWER DECK FLOOR BEAM FORCES ABOVE

604. LOAD LIST 46 TO 67

605. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 1 TO 14

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
1 MAX	0.00	0.00	46	76.10	5.93	49			
	0.00	0.00	46	0.00	0.00	46	0.00	0.00	46
	-17.99	5.93	61	0.00	5.93	66			
MIN	0.00	5.93	67	0.00	5.93	67	0.35 T	5.93	61
	0.00	0.00	50	278.13	6.50	49			
	0.00	0.00	46	0.00	0.00	46	0.00	0.00	50
2 MAX	-35.98	6.50	61	0.00	6.50	65			
	0.00	6.50	67	0.00	6.50	67	0.71 T	6.50	61
	0.00	0.00	46	262.45	0.00	48			
3 MAX	0.00	0.00	46	0.00	0.00	46	6.64 C	0.00	51
	-3.74	5.86	60	-113.27	5.86	51			
	0.00	5.86	67	0.00	5.86	67	2.69 T	5.86	61
4 MAX	37.59	0.00	48	173.72	0.00	61			
	0.00	0.00	46	0.00	0.00	46	6.64 C	0.00	51
	-5.30	5.86	57	-211.99	5.86	51			
MIN	0.00	5.86	67	0.00	5.86	67	2.69 T	5.86	61
	21.40	0.00	48	132.59	0.00	59			
	0.00	0.00	46	0.00	0.00	46	6.29 C	0.00	51
5 MAX	-21.49	5.86	51	-224.38	1.17	51			
	0.00	5.86	67	0.00	5.86	67	2.69 T	5.86	61
	7.37	0.00	49	103.40	0.00	59			
6 MAX	0.00	0.00	46	0.00	0.00	46	5.58 C	0.00	51
	-39.48	5.86	51	-191.10	0.00	51			
	0.00	5.86	67	0.00	5.86	67	2.69 T	5.86	61
7 MAX	7.23	0.00	61	214.78	5.83	56			
	0.00	0.00	46	0.00	0.00	46	5.22 C	0.00	51
	-39.48	5.83	51	-55.33	0.00	50			
MIN	0.00	5.83	67	0.00	5.83	67	2.69 T	5.83	61
	44.84	0.00	54	207.16	0.00	57			
	0.00	0.00	46	0.00	0.00	46	4.61 C	0.00	60
8 MAX	-4.74	5.83	52	-65.90	5.83	59			
	0.00	5.83	67	0.00	5.83	67	3.06 T	5.83	52
	39.64	0.00	60	85.44	5.86	50			
9 MAX	0.00	0.00	46	0.00	0.00	46	4.63 C	0.00	60

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MIN	-4.74	5.86	52	-200.27	5.86	60			
	0.00	5.86	67	0.00	5.86	67	3.06 T	5.86	52
10 MAX	21.65	0.00	60	102.03	5.86	50			
	0.00	0.00	46	0.00	0.00	46	4.27 C	0.00	60
MIN	-18.97	5.27	64	-234.28	4.68	60			
	0.00	5.86	67	0.00	5.86	67	3.06 T	5.86	52
11 MAX	4.18	0.00	58	125.81	5.86	52			
	0.00	0.00	46	0.00	0.00	46	3.56 C	0.00	60
MIN	-35.16	5.27	64	-222.05	0.00	60			
	0.00	5.86	67	0.00	5.86	67	3.06 T	5.86	52
12 MAX	3.59	0.00	51	201.15	5.86	64			
	0.00	0.00	46	0.00	0.00	46	3.21 C	0.00	60
MIN	-40.84	5.86	62	-124.26	0.00	60			
	0.00	5.86	67	0.00	5.86	67	3.06 T	5.86	52
13 MAX	35.98	0.00	52	207.64	0.00	52			
	0.00	0.00	46	0.00	0.00	46	0.71 C	0.00	52
MIN	0.00	4.77	66	0.00	2.86	66			
	0.00	4.77	67	0.00	4.77	67	0.00	4.77	66
14 MAX	17.99	0.00	52	71.96	0.00	52			
	0.00	0.00	46	0.00	0.00	46	0.35 C	0.00	52
MIN	0.00	5.62	67	0.00	5.62	67			
	0.00	5.62	67	0.00	5.62	67	0.00	5.62	67

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

606. *2F1 MAX FLOOR BEAM FORCES ABOVE

607. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 15 TO 18

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
15 MAX	0.14	0.00	47	1.11	15.73	54			
	0.00	0.00	46	0.00	0.00	46	112.85 C	0.00	46
MIN	-0.23	15.73	55	-3.38	15.73	47			
	0.00	15.73	67	0.00	15.73	67	29.25 C	15.73	64
16 MAX	-0.87	0.00	51	9.46	5.33	59			
	0.00	0.00	46	0.00	0.00	46	112.86 C	0.00	46
MIN	-2.12	5.33	61	-3.38	0.00	47			
	0.00	5.33	67	0.00	5.33	67	29.25 C	5.33	64
17 MAX	-4.68	0.00	50	48.29	4.91	59			
	0.00	0.00	46	0.00	0.00	46	112.86 C	0.00	46
MIN	-7.91	4.91	59	4.55	0.00	51			
	0.00	4.91	67	0.00	4.91	67	29.25 C	4.91	64
18 MAX	2.83	0.00	61	76.92	20.71	51			
	0.00	0.00	46	0.00	0.00	46	80.33 C	0.00	46
MIN	-6.00	20.71	51	-62.05	20.71	61			
	0.00	20.71	67	0.00	20.71	67	3.73 T	20.71	60

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

608. *2F1 MAX COLUMN 3 FORCES ABOVE

609. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 19 TO 23

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
19 MAX	-0.12	0.00	51	2.64	9.75	62			
	0.00	0.00	46	0.00	0.00	46	100.59 C	0.00	66
MIN	-0.23	9.75	63	-2.22	0.00	46			
	0.00	9.75	67	0.00	9.75	67	25.68 C	9.75	47
20 MAX	0.57	0.00	62	2.64	0.00	62			
	0.00	0.00	46	0.00	0.00	46	94.46 C	0.00	54
MIN	0.15	5.98	51	-2.57	5.98	47			
	0.00	5.98	67	0.00	5.98	67	23.57 C	5.98	47
21 MAX	4.14	0.00	61	-0.60	0.00	54			
	0.00	0.00	46	0.00	0.00	46	94.46 C	0.00	54
MIN	1.72	5.33	51	-24.24	5.33	61			
	0.00	5.33	67	0.00	5.33	67	23.57 C	5.33	47
22 MAX	10.30	0.00	59	-10.14	0.00	51			
	0.00	0.00	46	0.00	0.00	46	100.91 C	0.00	54
MIN	4.33	4.91	50	-73.87	4.91	59			
	0.00	4.91	67	0.00	4.91	67	24.78 C	4.91	47
23 MAX	7.80	0.00	50	96.20	21.29	59			
	0.00	0.00	46	0.00	0.00	46	73.93 C	0.00	54
MIN	-5.46	21.29	59	-98.48	21.29	50			
	0.00	21.29	67	0.00	21.29	67	2.94 T	21.29	47

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

610. *2F1 MAX COLUMN 2 FORCES ABOVE

611. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 24 TO 27

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
24 MAX	0.38	0.00	55	2.38	0.00	54			
	0.00	0.00	46	0.00	0.00	46	72.82 C	0.00	62
	MIN	0.05	15.73	47	-3.59	15.73	55		
		0.00	15.73	67	0.00	15.73	67	3.55 T	15.73
25 MAX	1.79	0.00	47	6.34	5.33	60			
	0.00	0.00	46	0.00	0.00	46	73.23 C	0.00	62
	MIN	-1.67	5.33	54	-10.91	5.33	47		
		0.00	5.33	67	0.00	5.33	67	3.58 T	5.33
26 MAX	0.35	0.00	50	18.94	4.91	60			
	0.00	0.00	46	0.00	0.00	46	73.23 C	0.00	62
	MIN	-2.57	4.91	60	-10.91	0.00	47		
		0.00	4.91	67	0.00	4.91	67	3.58 T	4.91
27 MAX	3.84	0.00	60	54.06	21.86	52			
	0.00	0.00	46	0.00	0.00	46	73.23 C	0.00	62
	MIN	-2.96	21.86	52	-64.99	21.86	60		
		0.00	21.86	67	0.00	21.86	67	3.58 T	21.86

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

612. *2F1 MAX COLUMN 1 FORCES ABOVE

613. LOAD LIST 68 TO 89

614. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 1 TO 14

MEMBER FORCE ENVELOPE

 ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
1 MAX	0.00	0.00	68	113.49	5.93	71			
	0.00	0.00	68	0.00	0.00	68	0.00	0.00	68
	-26.83	5.34	83	0.00	5.93	88			
MIN	0.00	5.93	89	0.00	5.93	89	0.53 T	5.93	83
	0.00	0.00	72	414.79	6.50	71			
	0.00	0.00	68	0.00	0.00	68	0.00	0.00	72
2 MAX	-53.65	6.50	83	0.00	6.50	87			
	0.00	6.50	89	0.00	6.50	89	1.06 T	6.50	83
	0.00	0.00	68	386.85	0.00	70			
3 MAX	0.00	0.00	68	0.00	0.00	68	9.14 C	0.00	73
	-5.74	5.86	82	-172.68	5.86	73			
	0.00	5.86	89	0.00	5.86	89	4.78 T	5.86	83
4 MAX	55.92	0.00	70	255.41	0.00	83			
	0.00	0.00	68	0.00	0.00	68	9.14 C	0.00	73
	-8.06	5.86	79	-319.03	5.86	73			
MIN	0.00	5.86	89	0.00	5.86	89	4.78 T	5.86	83
	31.77	0.00	70	194.94	0.00	81			
	0.00	0.00	68	0.00	0.00	68	8.61 C	0.00	73
5 MAX	-32.20	5.86	73	-337.33	1.17	73			
	0.00	5.86	89	0.00	5.86	89	4.78 T	5.86	83
	10.85	0.00	71	152.27	0.00	81			
6 MAX	0.00	0.00	68	0.00	0.00	68	7.55 C	0.00	73
	-59.03	5.86	73	-286.98	0.00	73			
	0.00	5.86	89	0.00	5.86	89	4.78 T	5.86	83
7 MAX	10.64	0.00	83	320.13	5.83	78			
	0.00	0.00	68	0.00	0.00	68	7.02 C	0.00	73
	-59.03	5.83	73	-83.60	0.00	72			
MIN	0.00	5.83	89	0.00	5.83	89	4.78 T	5.83	83
	66.96	0.00	76	311.82	0.00	79			
	0.00	0.00	68	0.00	0.00	68	6.87 C	0.00	82
8 MAX	-6.98	5.83	74	-95.96	5.83	81			
	0.00	5.83	89	0.00	5.83	89	4.57 T	5.83	74
	59.21	0.00	82	129.20	5.86	72			
9 MAX	0.00	0.00	68	0.00	0.00	68	6.89 C	0.00	82

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MIN	-6.98	5.86	74	-296.94	5.86	82			
	0.00	5.86	89	0.00	5.86	89	4.57 T	5.86	74
10 MAX	32.38	0.00	82	153.41	5.86	72			
	0.00	0.00	68	0.00	0.00	68	6.35 C	0.00	82
MIN	-28.19	5.86	86	-348.10	4.68	82			
	0.00	5.86	89	0.00	5.86	89	4.57 T	5.86	74
11 MAX	6.33	0.00	80	188.33	5.86	74			
	0.00	0.00	68	0.00	0.00	68	5.30 C	0.00	82
MIN	-52.34	5.86	86	-329.99	0.00	82			
	0.00	5.86	89	0.00	5.86	89	4.57 T	5.86	74
12 MAX	5.45	0.00	73	300.10	5.86	86			
	0.00	0.00	68	0.00	0.00	68	4.77 C	0.00	82
MIN	-60.81	5.86	84	-184.69	0.00	82			
	0.00	5.86	89	0.00	5.86	89	4.57 T	5.86	74
13 MAX	53.65	0.00	74	309.66	0.00	74			
	0.00	0.00	68	0.00	0.00	68	1.06 C	0.00	74
MIN	0.00	4.77	88	0.00	2.86	88			
	0.00	4.77	89	0.00	4.77	89	0.00	4.77	88
14 MAX	26.83	0.00	74	107.31	0.00	74			
	0.00	0.00	68	0.00	0.00	68	0.53 C	0.00	74
MIN	0.00	5.62	89	0.00	5.62	89			
	0.00	5.62	89	0.00	5.62	89	0.00	5.62	89

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

615. *3F1 MAX FLOOR BEAM FORCES ABOVE

616. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 15 TO 18

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
15 MAX	0.21	0.00	69	2.18	15.73	76			
	0.00	0.00	68	0.00	0.00	68	152.00 C	0.00	68
MIN	-0.34	15.73	77	-4.52	15.73	69			
	0.00	15.73	89	0.00	15.73	89	27.31 C	15.73	86
16 MAX	-0.56	0.00	73	10.66	5.33	81			
	0.00	0.00	68	0.00	0.00	68	152.15 C	0.00	68
MIN	-2.42	5.33	83	-4.52	0.00	69			
	0.00	5.33	89	0.00	5.33	89	27.45 C	5.33	86
17 MAX	-3.83	0.00	72	53.09	4.91	81			
	0.00	0.00	68	0.00	0.00	68	152.15 C	0.00	68
MIN	-8.64	4.91	81	3.32	0.00	73			
	0.00	4.91	89	0.00	4.91	89	27.45 C	4.91	86
18 MAX	4.99	0.00	83	110.09	20.71	73			
	0.00	0.00	68	0.00	0.00	68	119.64 C	0.00	68
MIN	-8.19	20.71	73	-97.04	20.71	83			
	0.00	20.71	89	0.00	20.71	89	5.73 T	20.71	82

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

617. *3F1 MAX COLUMN 3 FORCES ABOVE

618. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 19 TO 23

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
19 MAX	-0.09	0.00	73	3.43	9.75	84			
	0.00	0.00	68	0.00	0.00	68	136.81 C	0.00	88
MIN	-0.26	9.75	85	-2.97	0.00	68			
	0.00	9.75	89	0.00	9.75	89	25.09 C	9.75	69
20 MAX	0.66	0.00	84	3.43	0.00	84			
	0.00	0.00	68	0.00	0.00	68	128.26 C	0.00	76
MIN	0.04	5.98	73	-3.24	5.98	69			
	0.00	5.98	89	0.00	5.98	89	22.53 C	5.98	69
21 MAX	4.85	0.00	83	-0.29	0.00	76			
	0.00	0.00	68	0.00	0.00	68	128.26 C	0.00	76
MIN	1.25	5.33	73	-28.52	5.33	83			
	0.00	5.33	89	0.00	5.33	89	22.53 C	5.33	69
22 MAX	11.82	0.00	81	-7.48	0.00	73			
	0.00	0.00	68	0.00	0.00	68	137.19 C	0.00	76
MIN	2.92	4.91	72	-85.15	4.91	81			
	0.00	4.91	89	0.00	4.91	89	23.65 C	4.91	69
23 MAX	10.87	0.00	72	146.55	21.29	81			
	0.00	0.00	68	0.00	0.00	68	110.52 C	0.00	76
MIN	-8.89	21.29	81	-143.81	21.29	72			
	0.00	21.29	89	0.00	21.29	89	4.13 T	21.29	69

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

619. *3F1 MAX COLUMN 2 FORCES ABOVE

620. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 24 TO 27

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
24 MAX	0.47	0.00	77	3.05	0.00	76			
	0.00	0.00	68	0.00	0.00	68	108.55 C	0.00	84
MIN	-0.02	15.73	69	-4.41	15.73	77			
	0.00	15.73	89	0.00	15.73	89	5.35 T	15.73	70
25 MAX	2.55	0.00	69	11.03	5.33	82			
	0.00	0.00	68	0.00	0.00	68	109.11 C	0.00	84
MIN	-2.62	5.33	76	-14.71	5.33	69			
	0.00	5.33	89	0.00	5.33	89	5.44 T	5.33	73
26 MAX	0.91	0.00	72	27.94	4.91	82			
	0.00	0.00	68	0.00	0.00	68	109.11 C	0.00	84
MIN	-3.45	4.91	82	-16.23	4.91	74			
	0.00	4.91	89	0.00	4.91	89	5.44 T	4.91	73
27 MAX	5.71	0.00	82	80.45	21.86	74			
	0.00	0.00	68	0.00	0.00	68	109.11 C	0.00	84
MIN	-4.43	21.86	74	-97.00	21.86	82			
	0.00	21.86	89	0.00	21.86	89	5.44 T	21.86	73

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

621. *3F1 MAX COLUMN 1 FORCES ABOVE

622. LOAD LIST 90 TO 111

623. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 1 TO 14

MEMBER FORCE ENVELOPE

 ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
1 MAX	0.00	0.00	90	129.90	5.93	93			
	0.00	0.00	90	0.00	0.00	90	0.00	0.00	90
	-30.71	5.93	93	0.00	5.93	110			
MIN	0.00	5.93	111	0.00	5.93	111	0.61 T	5.93	105
	0.00	0.00	94	474.79	6.50	93			
	0.00	0.00	90	0.00	0.00	90	0.00	0.00	94
2 MAX	-61.42	6.50	105	0.00	6.50	109			
	0.00	6.50	111	0.00	6.50	111	1.21 T	6.50	105
	0.00	0.00	90	441.48	0.00	92			
3 MAX	0.00	0.00	90	0.00	0.00	90	10.23 C	0.00	95
	-6.61	5.86	104	-198.77	5.86	95			
	0.00	5.86	111	0.00	5.86	111	5.70 T	5.86	105
4 MAX	63.96	0.00	92	291.28	0.00	105			
	0.00	0.00	90	0.00	0.00	90	10.23 C	0.00	95
	-9.27	5.86	101	-366.03	5.86	95			
MIN	0.00	5.86	111	0.00	5.86	111	5.70 T	5.86	105
	36.32	0.00	92	222.31	0.00	103			
	0.00	0.00	90	0.00	0.00	90	9.63 C	0.00	95
5 MAX	-36.90	5.86	95	-386.93	1.17	95			
	0.00	5.86	111	0.00	5.86	111	5.70 T	5.86	105
	12.38	0.00	93	173.72	0.00	103			
6 MAX	0.00	0.00	90	0.00	0.00	90	8.42 C	0.00	95
	-67.61	5.86	95	-329.08	0.00	95			
	0.00	5.86	111	0.00	5.86	111	5.70 T	5.86	105
7 MAX	12.14	0.00	105	366.39	5.83	100			
	0.00	0.00	90	0.00	0.00	90	7.81 C	0.00	95
	-67.61	5.83	95	-96.02	0.00	94			
MIN	0.00	5.83	111	0.00	5.83	111	5.70 T	5.83	105
	76.68	0.00	98	357.76	0.00	101			
	0.00	0.00	90	0.00	0.00	90	7.86 C	0.00	104
8 MAX	-7.96	5.83	96	-109.17	5.83	103			
	0.00	5.83	111	0.00	5.83	111	5.23 T	5.83	96
	67.80	0.00	104	148.42	5.86	94			
9 MAX	0.00	0.00	90	0.00	0.00	90	7.88 C	0.00	104

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MIN	-7.96	5.86	96	-339.39	5.86	104			
	0.00	5.86	111	0.00	5.86	111	5.23	T	5.86 96
10 MAX	37.09	0.00	104	175.97	5.86	94			
	0.00	0.00	90	0.00	0.00	90	7.27	C	0.00 104
MIN	-32.24	5.27	108	-398.09	4.68	104			
	0.00	5.86	111	0.00	5.86	111	5.23	T	5.86 96
11 MAX	7.27	0.00	102	215.79	5.86	96			
	0.00	0.00	90	0.00	0.00	90	6.06	C	0.00 104
MIN	-59.89	5.27	108	-377.38	0.00	104			
	0.00	5.86	111	0.00	5.86	111	5.23	T	5.86 96
12 MAX	6.27	0.00	95	343.54	5.86	108			
	0.00	0.00	90	0.00	0.00	90	5.46	C	0.00 104
MIN	-69.58	5.86	106	-211.23	0.00	104			
	0.00	5.86	111	0.00	5.86	111	5.23	T	5.86 96
13 MAX	61.42	0.00	96	354.46	0.00	96			
	0.00	0.00	90	0.00	0.00	90	1.21	C	0.00 96
MIN	0.00	4.77	110	0.00	2.86	110			
	0.00	4.77	111	0.00	4.77	111	0.00		4.77 110
14 MAX	30.71	0.00	96	122.84	0.00	96			
	0.00	0.00	90	0.00	0.00	90	0.60	C	0.00 96
MIN	0.00	5.62	111	0.00	5.62	111			
	0.00	5.62	111	0.00	5.62	111	0.00		5.62 111

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

624. *4F1 MAX FLOOR BEAM FORCES ABOVE

625. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 15 TO 18

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
15 MAX	0.24	0.00	91	2.64	15.73	98			
	0.00	0.00	90	0.00	0.00	90	169.18 C	0.00	90
MIN	-0.39	15.73	99	-5.02	15.73	91			
	0.00	15.73	111	0.00	15.73	111	26.45 C	15.73	108
16 MAX	-0.42	0.00	95	11.18	5.33	103			
	0.00	0.00	90	0.00	0.00	90	169.40 C	0.00	90
MIN	-2.55	5.33	105	-5.02	0.00	91			
	0.00	5.33	111	0.00	5.33	111	26.65 C	5.33	108
17 MAX	-3.45	0.00	94	55.19	4.91	103			
	0.00	0.00	90	0.00	0.00	90	169.40 C	0.00	90
MIN	-8.97	4.91	103	2.78	0.00	95			
	0.00	4.91	111	0.00	4.91	111	26.65 C	4.91	108
18 MAX	5.94	0.00	105	124.65	20.71	95			
	0.00	0.00	90	0.00	0.00	90	136.89 C	0.00	90
MIN	-9.14	20.71	95	-112.39	20.71	105			
	0.00	20.71	111	0.00	20.71	111	6.61 T	20.71	104

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

626. *4F1 MAX COLUMN 3 FORCES ABOVE

627. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 19 TO 23

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
19 MAX	-0.08	0.00	95	3.78	9.75	106			
	0.00	0.00	90	0.00	0.00	90	152.72 C	0.00	110
MIN	-0.27	9.75	107	-3.29	0.00	90			
	0.00	9.75	111	0.00	9.75	111	24.83 C	9.75	91
20 MAX	0.71	0.00	106	3.78	0.00	106			
	0.00	0.00	90	0.00	0.00	90	143.10 C	0.00	98
MIN	-0.01	5.98	95	-3.53	5.98	91			
	0.00	5.98	111	0.00	5.98	111	22.07 C	5.98	91
21 MAX	5.16	0.00	105	-0.16	0.00	98			
	0.00	0.00	90	0.00	0.00	90	143.10 C	0.00	98
MIN	1.04	5.33	95	-30.40	5.33	105			
	0.00	5.33	111	0.00	5.33	111	22.07 C	5.33	91
22 MAX	12.49	0.00	103	-6.30	0.00	95			
	0.00	0.00	90	0.00	0.00	90	153.13 C	0.00	98
MIN	2.29	4.91	94	-90.11	4.91	103			
	0.00	4.91	111	0.00	4.91	111	23.16 C	4.91	91
23 MAX	12.23	0.00	94	168.66	21.29	103			
	0.00	0.00	90	0.00	0.00	90	126.59 C	0.00	98
MIN	-10.40	21.29	103	-163.71	21.29	94			
	0.00	21.29	111	0.00	21.29	111	4.65 T	21.29	91

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

628. *4F1 MAX COLUMN 2 FORCES ABOVE

629. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 24 TO 27

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
24 MAX	0.51	0.00	99	3.34	0.00	98			
	0.00	0.00	90	0.00	0.00	90	124.24 C	0.00	106
MIN	-0.05	15.73	91	-4.78	15.73	99			
	0.00	15.73	111	0.00	15.73	111	6.14 T	15.73	92
25 MAX	2.89	0.00	91	13.10	5.33	104			
	0.00	0.00	90	0.00	0.00	90	124.87 C	0.00	106
MIN	-3.03	5.33	98	-16.38	5.33	91			
	0.00	5.33	111	0.00	5.33	111	6.25 T	5.33	95
26 MAX	1.16	0.00	94	31.89	4.91	104			
	0.00	0.00	90	0.00	0.00	90	124.87 C	0.00	106
MIN	-3.83	4.91	104	-18.68	4.91	96			
	0.00	4.91	111	0.00	4.91	111	6.25 T	4.91	95
27 MAX	6.54	0.00	104	92.03	21.86	96			
	0.00	0.00	90	0.00	0.00	90	124.87 C	0.00	106
MIN	-5.07	21.86	96	-111.04	21.86	104			
	0.00	21.86	111	0.00	21.86	111	6.25 T	21.86	95

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

630. *4F1 MAX COLUMN 1 FORCES ABOVE

631. LOAD LIST 112 TO 133

632. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 1 TO 14

MEMBER FORCE ENVELOPE

 ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
1 MAX	0.00	0.00	112	129.79	5.93	115			
	0.00	0.00	112	0.00	0.00	112	0.00	0.00	112
	-30.68	5.34	127	0.00	5.93	132			
MIN	0.00	5.93	133	0.00	5.93	133	0.61 T	5.93	127
	0.00	0.00	116	474.39	6.50	115			
	0.00	0.00	112	0.00	0.00	112	0.00	0.00	116
2 MAX	-61.36	6.50	127	0.00	6.50	131			
	0.00	6.50	133	0.00	6.50	133	1.21 T	6.50	127
	0.00	0.00	112	441.11	0.00	114			
3 MAX	0.00	0.00	112	0.00	0.00	112	10.22 C	0.00	117
	-6.60	5.86	126	-198.60	5.86	117			
	0.00	5.86	133	0.00	5.86	133	5.69 T	5.86	127
4 MAX	63.91	0.00	114	291.04	0.00	127			
	0.00	0.00	112	0.00	0.00	112	10.22 C	0.00	117
	-9.26	5.86	123	-365.71	5.86	117			
MIN	0.00	5.86	133	0.00	5.86	133	5.69 T	5.86	127
	36.29	0.00	114	222.13	0.00	125			
	0.00	0.00	112	0.00	0.00	112	9.62 C	0.00	117
5 MAX	-36.87	5.27	117	-386.60	1.17	117			
	0.00	5.86	133	0.00	5.86	133	5.69 T	5.86	127
	12.37	0.00	115	173.58	0.00	125			
6 MAX	0.00	0.00	112	0.00	0.00	112	8.42 C	0.00	117
	-67.55	5.86	117	-328.80	0.00	117			
	0.00	5.86	133	0.00	5.86	133	5.69 T	5.86	127
7 MAX	12.13	0.00	127	366.08	5.83	122			
	0.00	0.00	112	0.00	0.00	112	7.81 C	0.00	117
	-67.55	5.83	117	-95.93	0.00	116			
MIN	0.00	5.83	133	0.00	5.83	133	5.69 T	5.83	127
	76.61	0.00	120	357.46	0.00	123			
	0.00	0.00	112	0.00	0.00	112	7.86 C	0.00	126
8 MAX	-7.96	5.83	118	-109.08	5.83	125			
	0.00	5.83	133	0.00	5.83	133	5.22 T	5.83	118
	67.74	0.00	126	148.29	5.86	116			
9 MAX	0.00	0.00	112	0.00	0.00	112	7.88 C	0.00	126

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MIN	-7.95	5.86	118	-339.10	5.86	126			
	0.00	5.86	133	0.00	5.86	133	5.23	T	5.86 118
10 MAX	37.06	0.00	126	175.82	5.86	116			
	0.00	0.00	112	0.00	0.00	112	7.26	C	0.00 126
MIN	-32.21	5.86	130	-397.76	4.68	126			
	0.00	5.86	133	0.00	5.86	133	5.22	T	5.86 118
11 MAX	7.27	0.00	124	215.60	5.86	118			
	0.00	0.00	112	0.00	0.00	112	6.06	C	0.00 126
MIN	-59.84	5.27	130	-377.07	0.00	126			
	0.00	5.86	133	0.00	5.86	133	5.22	T	5.86 118
12 MAX	6.26	0.00	117	343.25	5.86	130			
	0.00	0.00	112	0.00	0.00	112	5.45	C	0.00 126
MIN	-69.52	5.86	128	-211.05	0.00	126			
	0.00	5.86	133	0.00	5.86	133	5.22	T	5.86 118
13 MAX	61.36	0.00	118	354.16	0.00	118			
	0.00	0.00	112	0.00	0.00	112	1.21	C	0.00 118
MIN	0.00	4.77	132	0.00	2.86	132			
	0.00	4.77	133	0.00	4.77	133	0.00		4.77 132
14 MAX	30.68	0.00	118	122.73	0.00	118			
	0.00	0.00	112	0.00	0.00	112	0.60	C	0.00 118
MIN	0.00	5.06	133	0.00	5.62	133			
	0.00	5.62	133	0.00	5.62	133	0.00		5.62 133

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

633. *5C1 MAX FLOOR BEAM FORCES ABOVE

634. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 15 TO 18

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
15 MAX	0.24	0.00	113	2.64	15.73	120			
	0.00	0.00	112	0.00	0.00	112	169.07 C	0.00	112
MIN	-0.39	15.73	121	-5.02	15.73	113			
	0.00	15.73	133	0.00	15.73	133	26.46 C	15.73	130
16 MAX	-0.42	0.00	117	11.18	5.33	125			
	0.00	0.00	112	0.00	0.00	112	169.28 C	0.00	112
MIN	-2.55	5.33	127	-5.02	0.00	113			
	0.00	5.33	133	0.00	5.33	133	26.66 C	5.33	130
17 MAX	-3.45	0.00	116	55.18	4.91	125			
	0.00	0.00	112	0.00	0.00	112	169.28 C	0.00	112
MIN	-8.96	4.91	125	2.78	0.00	117			
	0.00	4.91	133	0.00	4.91	133	26.66 C	4.91	130
18 MAX	5.93	0.00	127	124.55	20.71	117			
	0.00	0.00	112	0.00	0.00	112	136.78 C	0.00	112
MIN	-9.14	20.71	117	-112.28	20.71	127			
	0.00	20.71	133	0.00	20.71	133	6.60 T	20.71	126

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

635. *5C1 MAX COLUMN 3 FORCES ABOVE

636. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 19 TO 23

MEMBER FORCE ENVELOPE

 ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
19 MAX	-0.08	0.00	117	3.78	9.75	128			
	0.00	0.00	112	0.00	0.00	112	152.61 C	0.00	132
MIN	-0.27	9.75	129	-3.29	0.00	112			
	0.00	9.75	133	0.00	9.75	133	24.84 C	9.75	113
20 MAX	0.71	0.00	128	3.78	0.00	128			
	0.00	0.00	112	0.00	0.00	112	143.00 C	0.00	120
MIN	-0.01	5.98	117	-3.53	5.98	113			
	0.00	5.98	133	0.00	5.98	133	22.08 C	5.98	113
21 MAX	5.16	0.00	127	-0.16	0.00	120			
	0.00	0.00	112	0.00	0.00	112	143.00 C	0.00	120
MIN	1.04	5.33	117	-30.39	5.33	127			
	0.00	5.33	133	0.00	5.33	133	22.08 C	5.33	113
22 MAX	12.48	0.00	125	-6.31	0.00	117			
	0.00	0.00	112	0.00	0.00	112	153.02 C	0.00	120
MIN	2.30	4.91	116	-90.08	4.91	125			
	0.00	4.91	133	0.00	4.91	133	23.16 C	4.91	113
23 MAX	12.22	0.00	116	168.51	21.29	125			
	0.00	0.00	112	0.00	0.00	112	126.48 C	0.00	120
MIN	-10.39	21.29	125	-163.58	21.29	116			
	0.00	21.29	133	0.00	21.29	133	4.65 T	21.29	113

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

- 637. *5C1 MAX COLUMN 2 FORCES ABOVE
- 638. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 24 TO 27

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
24 MAX	0.51	0.00	121	3.34	0.00	120			
	0.00	0.00	112	0.00	0.00	112	124.13 C	0.00	128
MIN	-0.05	15.73	113	-4.77	15.73	121			
	0.00	15.73	133	0.00	15.73	133	6.13 T	15.73	114
25 MAX	2.89	0.00	113	13.08	5.33	126			
	0.00	0.00	112	0.00	0.00	112	124.76 C	0.00	128
MIN	-3.03	5.33	120	-16.37	5.33	113			
	0.00	5.33	133	0.00	5.33	133	6.25 T	5.33	117
26 MAX	1.16	0.00	116	31.86	4.91	126			
	0.00	0.00	112	0.00	0.00	112	124.76 C	0.00	128
MIN	-3.83	4.91	126	-18.66	4.91	118			
	0.00	4.91	133	0.00	4.91	133	6.25 T	4.91	117
27 MAX	6.53	0.00	126	91.95	21.86	118			
	0.00	0.00	112	0.00	0.00	112	124.76 C	0.00	128
MIN	-5.07	21.86	118	-110.95	21.86	126			
	0.00	21.86	133	0.00	21.86	133	6.25 T	21.86	117

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

639. *5C1 MAX COLUMN 1 FORCES ABOVE

640. LOAD LIST 134 TO 191

641. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 1 TO 14

MEMBER FORCE ENVELOPE

 ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
1 MAX	0.00	0.00	134	82.02	5.93	134			
	0.00	0.00	134	0.00	0.00	134	0.00	0.00	134
	-25.40	5.34	136	0.00	5.93	191			
MIN	0.00	5.93	191	0.00	5.93	191	0.50 T	5.93	137
	0.00	0.00	138	341.83	6.50	134			
	0.00	0.00	134	0.00	0.00	134	0.00	0.00	138
2 MAX	0.00	0.00	134	0.00	0.00	134	0.00	0.00	138
	-50.79	6.50	137	0.00	6.50	191			
	0.00	6.50	191	0.00	6.50	191	1.00 T	6.50	137
3 MAX	44.20	0.00	144	261.98	0.00	134			
	0.00	0.00	134	0.00	0.00	134	4.08 C	0.00	153
	-4.76	5.27	143	-140.62	5.86	150			
MIN	0.00	5.86	191	0.00	5.86	191	4.68 T	5.86	134
	32.69	0.00	150	195.80	0.00	134			
	0.00	0.00	134	0.00	0.00	134	4.08 C	0.00	153
4 MAX	-16.19	5.86	149	-202.98	5.86	155			
	0.00	5.86	191	0.00	5.86	191	4.68 T	5.86	134
	21.33	0.00	156	129.63	0.00	134			
5 MAX	0.00	0.00	134	0.00	0.00	134	3.96 C	0.00	156
	-27.65	5.86	155	-205.43	0.59	156			
	0.00	5.86	191	0.00	5.86	191	4.68 T	5.86	134
6 MAX	11.30	0.00	134	68.17	5.86	169			
	0.00	0.00	134	0.00	0.00	134	3.47 C	0.00	156
	-38.08	5.86	161	-184.00	0.00	156			
MIN	0.00	5.86	191	0.00	5.86	191	4.68 T	5.86	134
	11.30	0.00	134	145.61	5.83	157			
	0.00	0.00	134	0.00	0.00	134	3.09 C	0.00	153
7 MAX	-39.62	5.83	162	-89.70	0.00	161			
	0.00	5.83	191	0.00	5.83	191	4.67 T	5.83	134
	42.52	0.00	163	144.72	0.00	170			
8 MAX	0.00	0.00	134	0.00	0.00	134	3.61 C	0.00	171
	-7.74	5.83	191	-90.14	5.83	166			
	0.00	5.83	191	0.00	5.83	191	3.37 T	5.83	191
9 MAX	38.05	0.00	166	66.30	0.00	158			
	0.00	0.00	134	0.00	0.00	134	3.62 C	0.00	171

DXF IMPORT OF 002_1441BENT_5.DXF

-- PAGE NO. 40

MIN	-11.20	5.86	165	-185.45	5.86	171			
	0.00	5.86	191	0.00	5.86	191	3.37	T	5.86 191
10 MAX	27.63	0.00	172	93.50	5.86	191			
	0.00	0.00	134	0.00	0.00	134	3.62	C	0.00 172
MIN	-21.35	5.86	171	-206.76	5.27	171			
	0.00	5.86	191	0.00	5.86	191	3.37	T	5.86 191
11 MAX	16.17	0.00	178	138.82	5.86	191			
	0.00	0.00	134	0.00	0.00	134	3.12	C	0.00 172
MIN	-32.72	5.86	177	-205.08	0.59	172			
	0.00	5.86	191	0.00	5.86	191	3.37	T	5.86 191
12 MAX	4.76	0.00	184	184.15	5.86	191			
	0.00	0.00	134	0.00	0.00	134	2.62	C	0.00 171
MIN	-44.21	5.86	183	-142.54	0.00	177			
	0.00	5.86	191	0.00	5.86	191	3.37	T	5.86 191
13 MAX	50.79	0.00	190	242.31	0.00	191			
	0.00	0.00	134	0.00	0.00	134	1.00	C	0.00 190
MIN	0.00	4.77	187	0.00	0.95	184			
	0.00	4.77	191	0.00	4.77	191	0.00		4.77 187
14 MAX	25.40	0.00	188	76.18	0.00	191			
	0.00	0.00	134	0.00	0.00	134	0.50	C	0.00 188
MIN	0.00	5.62	191	0.00	5.62	191			
	0.00	5.62	191	0.00	5.62	191	0.00		5.62 191

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

642. *FATIGUE FLOOR BEAM FORCES ABOVE

643. FINISH

***** END OF THE STAAD.Pro RUN *****

**** DATE= APR 12,2012 TIME= 18: 5:43 ****

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*****
*           For questions on STAAD.Pro, please contact           *
*   Bentley Systems Offices at the following locations           *
*                                                                 *
*           Telephone           Web / Email           *
*                                                                 *
*   USA:           +1 (714)974-2500           *
*   UK             +44(1454)207-000           *
*   SINGAPORE     +65 6225-6158           *
*   EUROPE        +31 23 5560560           *
*   INDIA         +91(033)4006-2021           *
*   JAPAN         +81(03)5952-6500   http://www.ctc-g.co.jp           *
*   CHINA         +86 10 5929 7000           *
*   THAILAND     +66(0)2645-1018/19 partha.p@reisoftwareth.com *
*                                                                 *
*   Worldwide     http://selectservices.bentley.com/en-US/ *
*                                                                 *
*****
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EAST APPROACH FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/30/2012
Date 4/13/2012

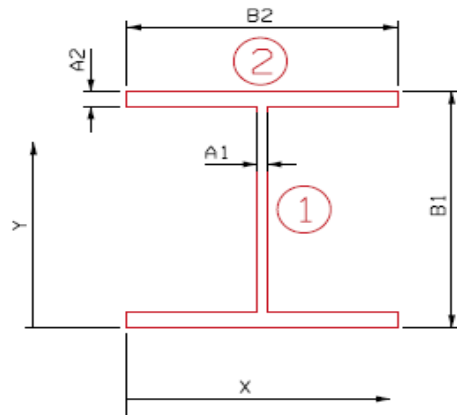
Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Red text indicates user input

Element Dimensions (without Section Losses):

$A_1 = t_w = 0.7250$ in
 $A_2 = t_f = 1.1800$ in
 $B_1 = d = 36.3200$ in
 $B_2 = b_f = 12.0720$ in
36WFB182



FB-5 @ COLUMN 305
EAST APPR. FWD SECTION

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I _o	d	Ad ²	I _{x,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		24.6210	18.1600	447.1174	2366.2455	0.0000	0.0000	2366.2455
2	Top Flange		14.2450	35.7300	508.9724	1.6529	17.5700	4397.4890	4399.1418
	Bottom Flange		14.2450	0.5900	8.4045	1.6529	17.5700	4397.4890	4399.1418
Total			53.11		964.49	2369.55		8794.98	11164.53
Section Losses			A	y	Ay	I _o	d	Ad ²	I _{x,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.1250	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	18.1600	in	S _{top} = 614.79 in ³	y-bar =	18.1600	in	S _{top} = 614.79 in ³
I _x =	11164.53	in ⁴	S _{bottom} = 614.79 in ³	I _x =	11164.53	in ⁴	S _{bottom} = 614.79 in ³
C _{top} =	18.1600	in	A = 53.1109 in ²	C _{top} =	18.1600	in	A = 53.1109 in ²
C _{bottom} =	18.1600	in	r _x = 14.4987 in	C _{bottom} =	18.1600	in	r _x = 14.4987 in
			Z = 709.60 in ³				Z = warning in ³

EAST APPROACH FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/30/2012
Date 4/13/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Floorbeam Capacities

Non-composite Capacities*		
	AB	AI
M	1690.66 k-ft	1690.66 k-ft
V	471.25 k	471.25 k

*Noncompact Section

$F_y =$	33.00 ksi
---------	------------------

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

As-Built Moments and Shears						
	DL	HS20	2F1	3F1	4F1	5C1
M	578.04 k-ft	588.97 k-ft	278.14 k-ft	414.79 k-ft	474.79 k-ft	474.39 k-ft
V	61.72 k	76.19 k	35.98 k	53.65 k	61.42 k	61.36 k

As-Built Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	0.73	---	---	---	---
Operating M	1.23	2.6	1.74	1.52	1.52
As-Inspected Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	0.73	---	---	---	---
Operating M	1.23	2.6	1.74	1.52	1.52
As-Built Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	2.37	---	---	---	---
Operating V	3.95	8.36	5.61	4.9	4.9
As-Inspected Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	2.37	---	---	---	---
Operating V	3.95	8.36	5.61	4.9	4.9

Controlling Rating Factors and Tonnage						
	HS20 Inventory	HS20 Operating	2F1 Operating	3F1 Operating	4F1 Operating	5C1 Operating
Rating Factor	0.73	1.23	2.6	1.74	1.52	1.52
Tonnage (US Tons)	26.28	44.28	39	40.02	41.04	60.8

EAST APPROACH FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/30/2012
Date 4/13/2012

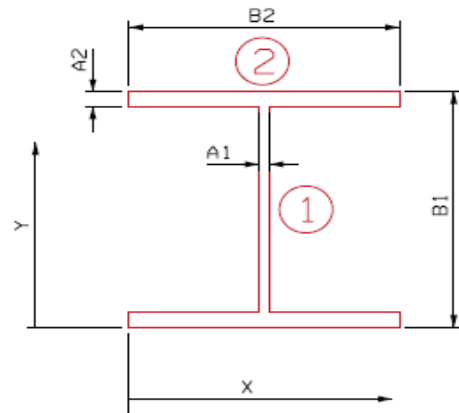
Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Red text indicates user input

Element Dimensions (without Section Losses):

$A_1 = t_w = 0.7250$ in
 $A_2 = t_f = 1.1800$ in
 $B_1 = d = 36.3200$ in
 $B_2 = b_f = 12.0720$ in
36WFB182



FB-5 @ COLUMN 205
EAST APPR. FWD SECTION

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I _o	d	Ad ²	I _{x,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		24.6210	18.1600	447.1174	2366.2455	0.0000	0.0000	2366.2455
2	Top Flange		14.2450	35.7300	508.9724	1.6529	17.5700	4397.4890	4399.1418
	Bottom Flange		14.2450	0.5900	8.4045	1.6529	17.5700	4397.4890	4399.1418
Total			53.11		964.49	2369.55		8794.98	11164.53
Section Losses			A	y	Ay	I _o	d	Ad ²	I _{x,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar = 18.1600 in	S _{top} = 614.79 in ³			y-bar = 18.1600 in	S _{top} = 614.79 in ³		
I _x = 11164.53 in ⁴	S _{bottom} = 614.79 in ³			I _x = 11164.53 in ⁴	S _{bottom} = 614.79 in ³		
C _{top} = 18.1600 in	A = 53.1109 in ²			C _{top} = 18.1600 in	A = 53.1109 in ²		
C _{bottom} = 18.1600 in	r _x = 14.4987 in			C _{bottom} = 18.1600 in	r _x = 14.4987 in		
	Z = 709.60 in ³				Z = 709.60 in ³		

EAST APPROACH FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/30/2012
Date 4/13/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Floorbeam Capacities

Non-composite Capacities*		
	AB	AI
M	1690.66 k-ft	1690.66 k-ft
V	471.25 k	471.25 k

*Noncompact Section

$F_y =$	33.00 ksi
---------	------------------

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

As-Built Moments and Shears						
	DL	HS20	2F1	3F1	4F1	5C1
M	308.96 k-ft	454.43 k-ft	209.49 k-ft	315.99 k-ft	362.75 k-ft	362.43 k-ft
V	51.36 k	83.95 k	37.78 k	56.48 k	64.69 k	64.64 k

As-Built Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.31	---	---	---	---
Operating M	2.18	4.73	3.14	2.73	2.74
As-Inspected Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.31	---	---	---	---
Operating M	2.18	4.73	3.14	2.73	2.74
As-Built Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	2.22	---	---	---	---
Operating V	3.71	8.24	5.51	4.81	4.81
As-Inspected Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	2.22	---	---	---	---
Operating V	3.71	8.24	5.51	4.81	4.81

Controlling Rating Factors and Tonnage						
	HS20 Inventory	HS20 Operating	2F1 Operating	3F1 Operating	4F1 Operating	5C1 Operating
Rating Factor	1.31	2.18	4.73	3.14	2.73	2.74
Tonnage (US Tons)	47.16	78.48	70.95	72.22	73.71	109.6

EAST APPROACH FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/20/2012
Date 4/13/2012

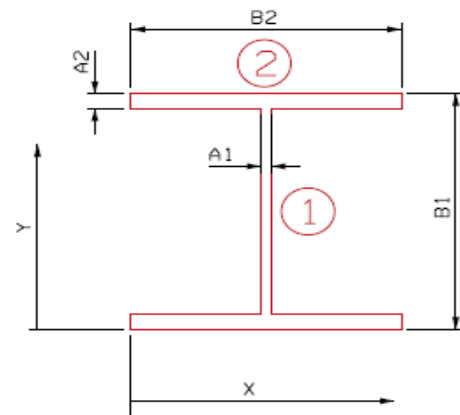
Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Red text indicates user input

Element Dimensions (without Section Losses):

$A_1 = t_w = 0.7250$ in
 $A_2 = t_f = 1.1800$ in
 $B_1 = d = 36.3200$ in
 $B_2 = b_f = 12.0720$ in
36WFB182



FB-5 @ COLUMN 105
EAST APPR. FWD SECTION

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I _o	d	Ad ²	I _{x,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		24.6210	18.1600	447.1174	2366.2455	0.0000	0.0000	2366.2455
2	Top Flange		14.2450	35.7300	508.9724	1.6529	17.5700	4397.4890	4399.1418
	Bottom Flange		14.2450	0.5900	8.4045	1.6529	17.5700	4397.4890	4399.1418
Total			53.11		964.49	2369.55		8794.98	11164.53
Section Losses			A	y	Ay	I _o	d	Ad ²	I _{x,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.1250	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar = 18.1600 in	S _{top} = 614.79 in ³			y-bar = 18.1600 in	S _{top} = 614.79 in ³		
I _x = 11164.53 in ⁴	S _{bottom} = 614.79 in ³			I _x = 11164.53 in ⁴	S _{bottom} = 614.79 in ³		
C _{top} = 18.1600 in	A = 53.1109 in ²			C _{top} = 18.1600 in	A = 53.1109 in ²		
C _{bottom} = 18.1600 in	r _x = 14.4987 in			C _{bottom} = 18.1600 in	r _x = 14.4987 in		
	Z = 709.60 in ³				Z = warning in ³		

EAST APPROACH FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/20/2012
Date 4/13/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Floorbeam Capacities

Non-composite Capacities*		
	AB	AI
M	1690.66 k-ft	1690.66 k-ft
V	471.25 k	471.25 k

*Noncompact Section

$F_y =$	33.00 ksi
---------	------------------

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

As-Built Moments and Shears						
	DL	HS20	2F1	3F1	4F1	5C1
M	406.56 k-ft	439.70 k-ft	207.64 k-ft	309.66 k-ft	354.46 k-ft	354.16 k-ft
V	54.09 k	86.26 k	35.98 k	53.66 k	61.42 k	61.36 k

As-Built Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.22	---	---	---	---
Operating M	2.03	4.31	2.89	2.52	2.52
As-Inspected Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.22	---	---	---	---
Operating M	2.03	4.31	2.89	2.52	2.52
As-Built Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	2.14	---	---	---	---
Operating V	3.58	8.57	5.75	5.02	5.03
As-Inspected Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	2.14	---	---	---	---
Operating V	3.58	8.57	5.75	5.02	5.03

Controlling Rating Factors and Tonnage						
	HS20 Inventory	HS20 Operating	2F1 Operating	3F1 Operating	4F1 Operating	5C1 Operating
Rating Factor	1.22	2.03	4.31	2.89	2.52	2.52
Tonnage (US Tons)	43.92	73.08	64.65	66.47	68.04	100.8

EAST APPROACH FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/20/2012
Date 4/13/2012

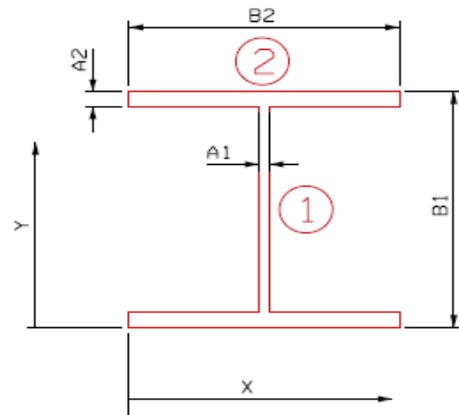
Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Red text indicates user input

Element Dimensions (without Section Losses):

$A_1 = t_w = 0.7250$ in
 $A_2 = t_f = 1.1800$ in
 $B_1 = d = 36.3200$ in
 $B_2 = b_f = 12.0720$ in
36WFB182



FB-5 @ Between 205 & 305
EAST APPR. FWD SECTION

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I _o	d	Ad ²	I _{x,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		24.6210	18.1600	447.1174	2366.2455	0.0000	0.0000	2366.2455
2	Top Flange		14.2450	35.7300	508.9724	1.6529	17.5700	4397.4890	4399.1418
	Bottom Flange		14.2450	0.5900	8.4045	1.6529	17.5700	4397.4890	4399.1418
Total			53.11		964.49	2369.55		8794.98	11164.53
Section Losses			A	y	Ay	I _o	d	Ad ²	I _{x,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties							
y-bar =	18.1600	in	S _{top} =	614.79	in ³	y-bar =	18.1600	in	S _{top} =	614.79	in ³
I _x =	11164.53	in ⁴	S _{bott.} =	614.79	in ³	I _x =	11164.53	in ⁴	S _{bott.} =	614.79	in ³
C _{top} =	18.1600	in	A =	53.1109	in ²	C _{top} =	18.1600	in	A =	53.1109	in ²
C _{bottom} =	18.1600	in	r _x =	14.4987	in	C _{bottom} =	18.1600	in	r _x =	14.4987	in
			Z =	709.60	in ³				Z =	709.60	in ³

EAST APPROACH FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/20/2012
Date 4/13/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Floorbeam Capacities

Non-composite Capacities*		
	AB	AI
M	1951.40 k-ft	1951.40 k-ft
V	471.25 k	471.25 k

*Compact Section

$F_y =$	33.00 ksi
---------	------------------

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

As-Built Moments and Shears						
	DL	HS20	2F1	3F1	4F1	5C1
M	116.22 k-ft	481.33 k-ft	165.60 k-ft	243.75 k-ft	278.08 k-ft	277.85 k-ft
V	8.98 k	45.85 k	6.47 k	9.54 k	10.89 k	10.88 k

As-Built Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.72	---	---	---	---
Operating M	2.88	8.36	5.68	4.98	4.98
As-Inspected Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.72	---	---	---	---
Operating M	2.88	8.36	5.68	4.98	4.98
As-Built Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	4.62	---	---	---	---
Operating V	7.71	54.64	37.06	32.46	32.49
As-Inspected Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	4.62	---	---	---	---
Operating V	7.71	54.64	37.06	32.46	32.49

Controlling Rating Factors and Tonnage						
	HS20 Inventory	HS20 Operating	2F1 Operating	3F1 Operating	4F1 Operating	5C1 Operating
Rating Factor	1.72	2.88	8.36	5.68	4.98	4.98
Tonnage (US Tons)	61.92	103.68	125.4	130.64	134.46	199.2

EAST APPROACH FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/20/2012
Date 4/13/2012

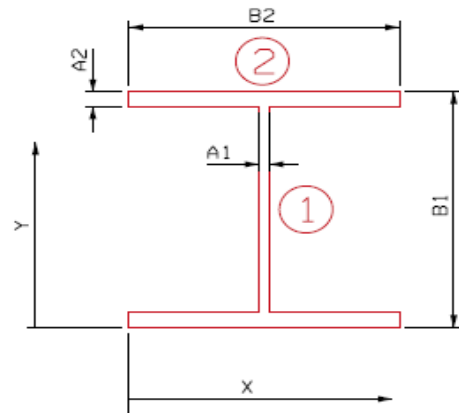
Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Red text indicates user input

Element Dimensions (without Section Losses):

$A_1 = t_w = 0.7250$ in
 $A_2 = t_f = 1.1800$ in
 $B_1 = d = 36.3200$ in
 $B_2 = b_f = 12.0720$ in
36WFB182



FB-5 @ Between 105 & 205
EAST APPR. FWD SECTION

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I _o	d	Ad ²	I _{x,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		24.6210	18.1600	447.1174	2366.2455	0.0000	0.0000	2366.2455
2	Top Flange		14.2450	35.7300	508.9724	1.6529	17.5700	4397.4890	4399.1418
	Bottom Flange		14.2450	0.5900	8.4045	1.6529	17.5700	4397.4890	4399.1418
Total			53.11		964.49	2369.55		8794.98	11164.53
Section Losses			A	y	Ay	I _o	d	Ad ²	I _{x,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	18.1600	in	S _{top} = 614.79 in ³	y-bar =	18.1600	in	S _{top} = 614.79 in ³
I _x =	11164.53	in ⁴	S _{bottom} = 614.79 in ³	I _x =	11164.53	in ⁴	S _{bottom} = 614.79 in ³
C _{top} =	18.1600	in	A = 53.1109 in ²	C _{top} =	18.1600	in	A = 53.1109 in ²
C _{bottom} =	18.1600	in	r _x = 14.4987 in	C _{bottom} =	18.1600	in	r _x = 14.4987 in
			Z = 709.60 in ³				Z = 709.60 in ³

EAST APPROACH FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/20/2012
Date 4/13/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Floorbeam Capacities

Non-composite Capacities*		
	AB	AI
M	1951.40 k-ft	1951.40 k-ft
V	471.25 k	471.25 k

*Compact Section

$F_y =$	33.00 ksi
---------	------------------

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

As-Built Moments and Shears						
	DL	HS20	2F1	3F1	4F1	5C1
M	172.49 k-ft	493.23 k-ft	101.34 k-ft	186.00 k-ft	213.00 k-ft	212.82 k-ft
V	26.19 k	46.06 k	2.60 k	6.72 k	7.65 k	7.64 k

As-Built Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.61	---	---	---	---
Operating M	2.69	13.11	7.14	6.24	6.24
As-Inspected Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.61	---	---	---	---
Operating M	2.69	13.11	7.14	6.24	6.24
As-Built Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	4.37	---	---	---	---
Operating V	7.3	129.35	50.05	43.96	44.02
As-Inspected Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	4.37	---	---	---	---
Operating V	7.3	129.35	50.05	43.96	44.02

Controlling Rating Factors and Tonnage						
	HS20 Inventory	HS20 Operating	2F1 Operating	3F1 Operating	4F1 Operating	5C1 Operating
Rating Factor	1.61	2.69	13.11	7.14	6.24	6.24
Tonnage (US Tons)	57.96	96.84	196.65	164.22	168.48	249.6



Calculated: FKL Date: 4/5/2012

Checked: MTN Date: 4/12/2012

CUY-2-1441 Load Rating Analysis - As-Built

Main Ave Bridge

East Approach Fwd Section - Bent 5

Column:	C305
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Section Properties 21WF112

A =	32.930	in ²	I _x =	2620.600	in ⁴
h =	21.000	in	S _x =	249.600	in ³
b _f =	13.000	in	r _x =	8.920	in
t _f =	0.865	in	I _y =	289.700	in ⁴
t _w =	0.527	in	S _y =	44.600	in ³
			r _y =	2.960	in
F _y =	33.0	ksi	Z _x =	275.3	in ³
E =	29000	ksi			
L _{cx} =	248.57	in			
L _{cy} =	248.57	in			
K _x =	0.650	AASHTO Appendix C			
K _y =	0.650	AASHTO Appendix C			

Axial Loading

$$P_u = 0.85 A_s F_{cr}$$

AASHTO 10.54 Concentrically Loaded Columns

$$F_{cr} = F_y \left(1 - \frac{F_y}{4\pi^2 E} \left(\frac{KL_c}{r} \right)^2 \right)$$

$$\text{For: } \frac{KL_c}{r} \leq \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$F_{cr} = \frac{\pi^2 E}{\left(\frac{KL_c}{r} \right)^2}$$

$$\text{For: } \frac{KL_c}{r} > \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$KL/r_y = 54.584 < 131.706$$

$$KL/r_x = 18.113 < 131.706$$

$$F_{CR} = 30.166 \text{ ksi}$$

$P_u =$	844.4	k
---------	-------	---



Calculated: FKL Date: 4/5/2012
 Checked: MTN Date: 4/12/2012

CUY-2-1441 Load Rating Analysis - As-Built
Main Ave Bridge
East Approach Fwd Section - Bent 5

Column: C305

Axial Loading and Bending

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_e}\right)} \leq 1.0$$

AASHTO 10.54.2 Combined Axial Load and Bending

=0.6+0.4

a = 0 **When moment is small assume a = 0
 C = 0.600

$$F_e = \frac{E\pi^2}{\left(\frac{KL_c}{r}\right)^2}$$

F_{ex} = 872.406 ksi
 F_{ey} = 96.067 ksi

Column Compactness Check

M_u=F_yZ For Compact Section
 M_u=F_yS For Non-Compact Section

$\frac{b}{i} \leq \frac{4110}{\sqrt{F_y}}$	15.029	<	22.625
$\frac{D}{t_w} \leq \frac{19230}{\sqrt{F_y}}$	36.565	<	105.858
$\frac{L}{r_y} \leq \frac{\left(3.6 - 2.2 \frac{M_1}{M_u}\right) \times 10^6}{F_y}$	83.975	<	109.091

Column Moment Capacity

Compact Section

M_{ux} = 757.1 k-ft

CUY-2-1441 Load Rating Analysis - As-Built

Main Ave Bridge

East Approach Forward Section - Column 305 Ratings



Calculated:

FKL 4/5/2012

Checked:

MTN 4/12/2012

Column Loading

	DL	HS-20	2F1	3F1	4F1	5C1
Max Axial	254.35	202.23	112.86	152.15	169.40	169.28
Moment	3.99	4.85	6.01	5.50	5.28	5.28
Axial	250.19	68.66	32.60	48.45	55.41	55.37
Max Mom.	93.34	152.34	76.92	110.09	124.65	124.55

DL Factor

1.30

LL Factor

2.17 INV
1.30 OPER

Factored Loads

Axial Force

Moment

Capacities

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_e}\right)} \leq 1.0$$

Load Case	Member	Axial Force		Moment		P _u kips	M _u k-ft	A _s F _e kips	Condition Equation	RF
		Dead Load	Max. LL + I	Dead Load	Max LL + I					
HS20 INV	C305	330.6524	438.16	5.18	10.51	844.40	757.10	28728.33	1.00	1.15
HS20 INV	C305	325.2431	148.75	121.34	330.07	844.40	757.10	28728.33	1.00	1.17
HS20 OPR	C305	330.6524	262.90	5.18	6.30	844.40	757.10	28728.33	1.00	1.91
HS20 OPR	C305	325.2431	89.25	121.34	198.04	844.40	757.10	28728.33	1.00	1.95
2F1	C305	330.6524	146.72	5.18	7.81	844.40	757.10	28728.33	1.00	3.35
2F1	C305	325.2431	42.38	121.34	99.99	844.40	757.10	28728.33	1.00	3.95
3F1	C305	330.6524	197.79	5.18	7.15	844.40	757.10	28728.33	1.00	2.52
3F1	C305	325.2431	62.99	121.34	143.12	844.40	757.10	28728.33	1.00	2.72
4F1	C305	330.6524	220.22	5.18	6.86	844.40	757.10	28728.33	1.00	2.27
4F1	C305	325.2431	72.04	121.34	162.04	844.40	757.10	28728.33	1.00	2.39
5C1	C305	330.6524	220.07	5.18	6.86	844.40	757.10	28728.33	1.00	2.27
5C1	C305	325.2431	71.97	121.34	161.92	844.40	757.10	28728.33	1.00	2.40

Load Case	Controlling RF
HS20 INV	1.15
HS20 OPR	1.91
2F1	3.35
3F1	2.52
4F1	2.27
5C1	2.27



Calculated: FKL Date: 4/5/2012
 Checked: MTN Date: 4/12/2012

CUY-2-1441 Load Rating Analysis - As-Built
Main Ave Bridge
East Approach Fwd Section - Bent 5

Column: C205

Section Properties 24WF140

A =	41.160	in ²	I _x =	4376.100	in ⁴
h =	24.410	in	S _x =	358.600	in ³
b _f =	14.029	in	r _x =	10.310	in
t _f =	0.980	in	I _y =	414.500	in ⁴
t _w =	0.594	in	S _y =	59.100	in ³
			r _y =	3.170	in
F _y =	33.0	ksi	Z _x =	397	in ³
E =	29000	ksi			
L _{cx} =	255.47	in			
L _{cy} =	255.47	in			
K _x =	0.650	AASHTO Appendix C			
K _y =	0.650	AASHTO Appendix C			

Axial Loading

$$P_u = 0.85 A_s F_{cr}$$

AASHTO 10.54 Concentrically Loaded Columns

$$F_{cr} = F_y \left(1 - \frac{F_y}{4\pi^2 E} \left(\frac{KL_c}{r} \right)^2 \right)$$

$$\text{For: } \frac{KL_c}{r} \leq \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$F_{cr} = \frac{\pi^2 E}{\left(\frac{KL_c}{r} \right)^2}$$

$$\text{For: } \frac{KL_c}{r} > \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$KL/r_y = 52.383 < 131.706$$

$$KL/r_x = 16.106 < 131.706$$

$$F_{CR} = 30.390 \text{ ksi}$$

$$P_u = 1063.2 \text{ k}$$



Calculated: FKL Date: 4/5/2012
 Checked: MTN Date: 4/12/2012

CUY-2-1441 Load Rating Analysis - As-Built
Main Ave Bridge
East Approach Fwd Section - Bent 5

Column: C205

Axial Loading and Bending

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_e}\right)} \leq 1.0$$

AASHTO 10.54.2 Combined Axial Load and Bending

$$= 0.6 + 0.4$$

$$a = 0 \quad \text{**When moment is small assume } a = 0$$

$$C = 0.600$$

$$F_e = \frac{E\pi^2}{\left(\frac{KL_c}{r}\right)^2}$$

$F_{ex} = 1103.355 \text{ ksi}$
 $F_{ey} = 104.308 \text{ ksi}$

Column Compactness Check

$M_u = F_y Z$ For Compact Section

$M_u = F_y S$ For Non-Compact Section

$$\frac{b}{i} \leq \frac{4110}{\sqrt{F_y}}$$

$$14.315 < 22.625$$

$$\frac{D}{t_w} \leq \frac{19230}{\sqrt{F_y}}$$

$$37.795 < 105.858$$

$$\frac{L}{r_y} \leq \frac{\left(3.6 - 2.2 \frac{M_1}{M_u}\right) \times 10^6}{F_y}$$

$$80.589 < 109.091$$

Column Moment Capacity

Compact Section

$$M_{ux} = 1091.8 \text{ k-ft}$$

CUY-2-1441 Load Rating Analysis - As-Built

Main Ave Bridge

East Approach Forward Section - Column 205 Ratings



Calculated:

FKL 4/5/2012

Checked:

MTN 4/12/2012

Column Loading

	DL	HS-20	2F1	3F1	4F1	5C1
Max Axial	220.06	183.45	100.91	137.19	153.13	153.02
Moment	2.72	53.84	52.29	52.97	53.27	53.27
Axial	208.41	65.48	32.34	48.50	55.59	55.54
Max Mom.	135.13	210.73	98.48	143.81	163.71	163.58

DL Factor

1.30

LL Factor

2.17 INV
1.30 OPER

Factored Loads

Axial Force

Moment

Capacities

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_e}\right)} \leq 1.0$$

Load Case	Member	Axial Force		Moment		P _u	M _u	A _s F _e	Condition Equation	RF
		Dead Load	Max. LL + I	Dead Load	Max LL + I					
HS20 INV	C205	286.0728	397.47	3.53	116.66	1063.20	1091.80	45414.10	1.00	1.66
HS20 INV	C205	270.9317	141.86	175.66	456.58	1063.20	1091.80	45414.10	1.00	1.67
HS20 OPR	C205	286.0728	238.48	3.53	70.00	1063.20	1091.80	45414.10	1.00	2.77
HS20 OPR	C205	270.9317	85.12	175.66	273.95	1063.20	1091.80	45414.10	1.00	2.79
2F1	C205	286.0728	131.18	3.53	67.98	1063.20	1091.80	45414.10	1.00	4.51
2F1	C205	270.9317	42.05	175.66	128.03	1063.20	1091.80	45414.10	1.00	5.85
3F1	C205	286.0728	178.35	3.53	68.86	1063.20	1091.80	45414.10	1.00	3.53
3F1	C205	270.9317	63.04	175.66	186.95	1063.20	1091.80	45414.10	1.00	3.97
4F1	C205	286.0728	199.06	3.53	69.25	1063.20	1091.80	45414.10	1.00	3.22
4F1	C205	270.9317	72.26	175.66	212.82	1063.20	1091.80	45414.10	1.00	3.48
5C1	C205	286.0728	198.93	3.53	69.25	1063.20	1091.80	45414.10	1.00	3.23
5C1	C205	270.9317	72.20	175.66	212.65	1063.20	1091.80	45414.10	1.00	3.48

Load Case	Controlling RF
HS20 INV	1.66
HS20 OPR	2.77
2F1	4.51
3F1	3.53
4F1	3.22
5C1	3.23



Calculated: FKL Date: 4/5/2012
 Checked: MTN Date: 4/12/2012

CUY-2-1441 Load Rating Analysis - As-Built
Main Ave Bridge
East Approach Fwd Section - Bent 5

Column: C105

Section Properties 21WF112

A =	32.930	in ²	I _x =	2620.600	in ⁴
h =	21.000	in	S _x =	249.600	in ³
b _f =	13.000	in	r _x =	8.920	in
t _f =	0.865	in	I _y =	289.700	in ⁴
t _w =	0.527	in	S _y =	44.600	in ³
			r _y =	2.960	in
F _y =	33.0	ksi	Z _x =	275.3	in ³
E =	29000	ksi			
L _{cx} =	262.37	in			
L _{cy} =	262.37	in			
K _x =	0.750	AASHTO Appendix C			
K _y =	0.750	AASHTO Appendix C			

Axial Loading

$$P_u = 0.85 A_s F_{cr}$$

AASHTO 10.54 Concentrically Loaded Columns

$$F_{cr} = F_y \left(1 - \frac{F_y}{4\pi^2 E} \left(\frac{KL_c}{r} \right)^2 \right)$$

$$\text{For: } \frac{KL_c}{r} \leq \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$F_{cr} = \frac{\pi^2 E}{\left(\frac{KL_c}{r} \right)^2}$$

$$\text{For: } \frac{KL_c}{r} > \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$KL/r_y = 66.478 < 131.706$$

$$KL/r_x = 22.060 < 131.706$$

$$F_{CR} = 28.796 \text{ ksi}$$

$$P_u = 806.0 \text{ k}$$



Calculated: FKL Date: 4/5/2012

Checked: MTN Date: 4/12/2012

CUY-2-1441 Load Rating Analysis - As-Built

Main Ave Bridge

East Approach Fwd Section - Bent 5

Column:	C105
---------	------

Axial Loading and Bending

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_e}\right)} \leq 1.0$$

AASHTO 10.54.2 Combined Axial Load and Bending

$$= 0.6 + 0.4$$

$$a = 0 \quad \text{**When moment is small assume } a = 0$$

$$C = 0.600$$

$$F_e = \frac{E \pi^2}{\left(\frac{KL_c}{r}\right)^2}$$

$$F_{ex} = 588.154 \text{ ksi}$$

$$F_{ey} = 64.766 \text{ ksi}$$

Column Compactness Check

 $M_u = F_y Z$ For Compact Section

 $M_u = F_y S$ For Non-Compact Section

$$\frac{b}{i} \leq \frac{4110}{\sqrt{F_y}}$$

$$15.029 < 22.625$$

$$\frac{D}{t_w} \leq \frac{19230}{\sqrt{F_y}}$$

$$36.565 < 105.858$$

$$\frac{L}{r_y} \leq \frac{\left(3.6 - 2.2 \frac{M_1}{M_u}\right) \times 10^6}{F_y}$$

$$88.637 < 109.091$$

Column Moment Capacity

Compact Section

$M_{uy} = 757.1 \text{ k-ft}$

CUY-2-1441 Load Rating Analysis - As-Built

Main Ave Bridge

East Approach Forward Section - Column 105 Ratings



Calculated:

FKL 4/5/2012

Checked:

MTN 4/12/2012

Column Loading

	DL	HS-20	2F1	3F1	4F1	5C1
Max Axial	145.61	154.85	73.23	109.11	124.87	124.76
Moment	5.38	0.38	1.88	1.23	0.94	0.94
Axial	141.39	68.07	32.25	48.00	54.91	54.87
Max Mom.	27.51	137.76	64.99	97.00	111.05	110.95

DL Factor

1.30

LL Factor

2.17 INV
1.30 OPER

Factored Loads

Axial Force

Moment

Capacities

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_c}\right)} \leq 1.0$$

Load Case	Member	Axial Force		Moment		P _u kips	M _u k-ft	A _s F _{ex} kips	Condition Equation	RF
		Dead Load	Max. LL + I	Dead Load	Max LL + I					
HS20 INV	C105	189.2956	335.51	6.99	0.83	806.00	757.10	19367.92	1.00	1.82
HS20 INV	C105	183.8083	147.49	35.76	298.49	806.00	757.10	19367.92	1.00	1.75
HS20 OPR	C105	189.2956	201.31	6.99	0.50	806.00	757.10	19367.92	1.00	3.03
HS20 OPR	C105	183.8083	88.49	35.76	179.09	806.00	757.10	19367.92	1.00	2.91
2F1	C105	189.2956	95.19	6.99	2.44	806.00	757.10	19367.92	1.00	6.32
2F1	C105	183.8083	41.92	35.76	84.49	806.00	757.10	19367.92	1.00	6.16
3F1	C105	189.2956	141.84	6.99	1.59	806.00	757.10	19367.92	1.00	4.28
3F1	C105	183.8083	62.40	35.76	126.10	806.00	757.10	19367.92	1.00	4.14
4F1	C105	189.2956	162.33	6.99	1.22	806.00	757.10	19367.92	1.00	3.75
4F1	C105	183.8083	71.39	35.76	144.36	806.00	757.10	19367.92	1.00	3.61
5C1	C105	189.2956	162.19	6.99	1.22	806.00	757.10	19367.92	1.00	3.75
5C1	C105	183.8083	71.33	35.76	144.24	806.00	757.10	19367.92	1.00	3.62

Load Case	Controlling RF
HS20 INV	1.75
HS20 OPR	2.91
2F1	6.16
3F1	4.14
4F1	3.61
5C1	3.62



Made By MTN
Checked By PJP

Date 3/26/2012
Date 4/6/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441 - East Approach Forward Section**

Bent 6 Reactions

Dead Load Reactions from MDX

Unit 5		
Stringer	DL1	DL2
F1-5	32.65	5.01
S1-5	31.22	5.00
S2-5	31.77	5.00
S3-5	34.24	5.00
S4-5	34.24	5.00
S5-5	34.24	5.00
S6-5	34.24	5.00
S7-5	34.18	5.00
S8-5	34.24	5.00
S9-5	34.24	5.00
S10-5	34.24	5.00
S11-5	34.24	5.00
S12-5	35.72	5.00
S13-5	37.67	5.00
F2A-5	12.93	2.00

Unit 5		
Stringer	DL1	DL2
F2B-5	12.71	2.01

Bent 6 Reaction	
Stringer	Total DL
F1-5	37.66
S1-5	36.22
S2-5	36.77
S3-5	39.24
S4-5	39.24
S5-5	39.24
S6-5	39.24
S7-5	39.18
S8-5	39.24
S9-5	39.24
S10-5	39.24
S11-5	39.24
S12-5	40.72
S13-5	42.67
F2A-5 + F2B-5	29.65

Dead Load Reactions from MDX

Lower Deck		
Stringer	DL1	Continuous Over Bent?
S-16	9.54	No
S-4 (1)	23.65	Yes
S-4 (2)	23.65	Yes
S-4 (3)	23.65	Yes
S-4 (4)	23.65	Yes
S-14	11.14	No
S-13	7.77	No

Bent 6 Reaction	
Stringer	Total DL
S-16	19.08
S-4 (1)	23.65
S-4 (2)	23.65
S-4 (3)	23.65
S-4 (4)	23.65
S-14	22.28
S-13	15.54

Live Load + Impact Reactions from MDX

	LL+I per Beam	LL+I per Wheel	3 Lane LL+I	4 Lane LL+I
HS-20	44.37	41.7	37.6	31.3
2F1	19.35	18.2	16.4	13.7
3F1	29.49	27.7	25.0	20.8
4F1	34.32	32.3	29.1	24.2
5C1	39.28	36.9	33.3	27.7
LLDF =	1.064	Wheels/beam		

Impact Factor
Span 6 44.000
Span 7 44.000 Impact = 1.2347

3 lane reduction 0.9
4 lane + reduction 0.75

	LL+I	
HS-20	44.37	
2F1	19.35	0.436105
3F1	29.49	0.664638
4F1	34.32	0.773496
5C1	39.28	0.885283



Made By MTN
Checked By PJP

Date 3/26/2012
Date 4/6/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441 - East Approach Forward Section**

Bent 6 Reactions

Lower Deck Live Load

Parking Structure Live Load = 0.04 ksf (from ASCE 07 for Parking Structures)
Tributary Length = 44.00 ft
Distributed Load on FB = 1.76 klf

Bent 6		
Stringer	Tributary Width	Live Load Reaction
S-16	4.141	7.29
S-4 (1)	5.943	10.46
S-4 (2)	5.604	9.86
S-4 (3)	5.604	9.86
S-4 (4)	5.880	10.35
S-14	4.807	8.46
S-13	2.229	3.92



Job No
P402110046

Sheet No
1

Rev

Software licensed to TranSystems

Part East Approach - forward Section

Job Title CUY-2-1441 Main Ave Rating

Ref Bent 6

By MTN

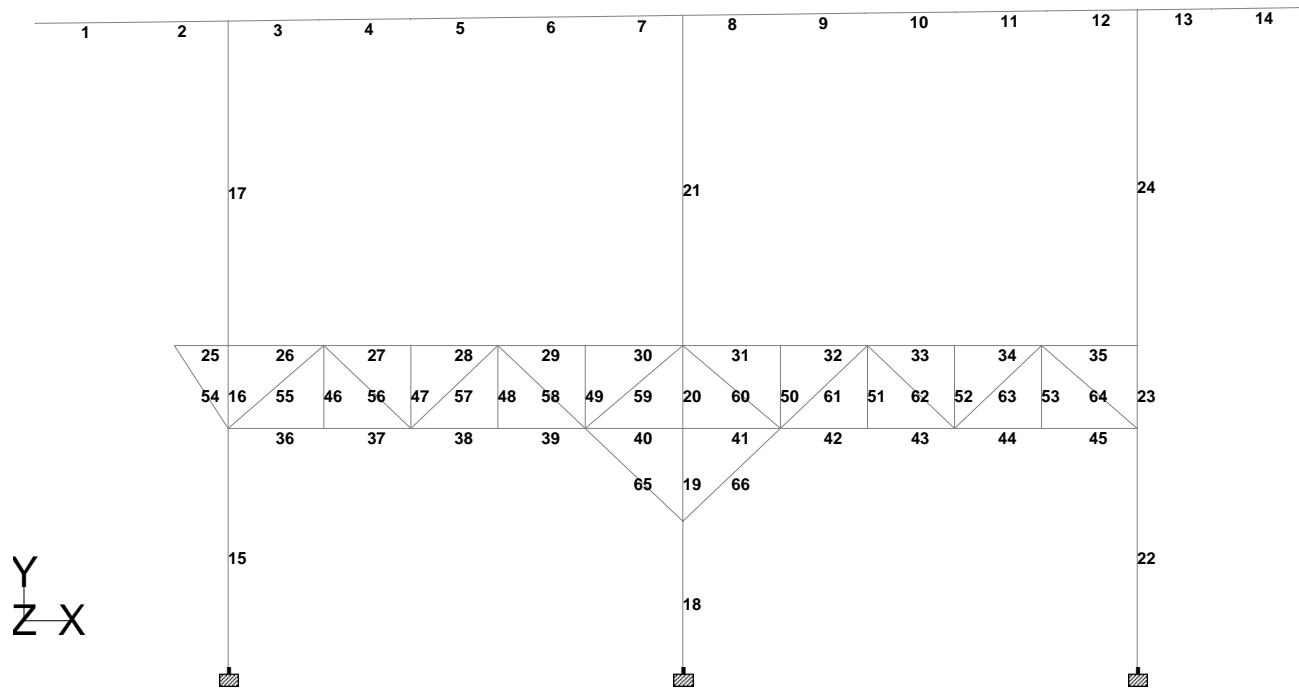
Date 20-Mar-12

Chd PJP

Client ODOT

File Bent_6_LL.std

Date/Time 12-Apr-2012 19:11



Load 1

```

*****
*
*          STAAD.Pro          *
*          Version 2007      Build 05      *
*          Proprietary Program of          *
*          Bentley Systems, Inc.          *
*          Date=    APR 6, 2012          *
*          Time=    9:49: 0              *
*
*          USER ID: TranSystems          *
*****

```

1. STAAD SPACE DXF IMPORT OF 002_1441BENT_6.DXF
- INPUT FILE: Bent_6_DL.STD
2. START JOB INFORMATION
3. ENGINEER DATE 20-MAR-12
4. JOB NAME CUY-2-1441 MAIN AVE RATING
5. JOB COMMENT BENT 6 DEAD LOAD. EXTERIOR COLUMNS DO NOT HAVE STRENGTHENING PLATES
6. JOB COMMENT TO MODEL DEAD LOAD. ASSUMED PLATES ADDED AFTER SUPERSTRUCTURE
7. JOB COMMENT REPLACEMENT AND HELP WITH LIVE LOAD ONLY.
8. ENGINEER NAME MTN
9. ENGINEER NAME MTN
10. JOB NO P406110046
11. JOB PART EAST APPROACH - FORWARD SECTION
12. JOB REF BENT 6
13. JOB CLIENT ODOT
14. CHECKER NAME PJP
15. CHECKER DATE 4/6/12
16. END JOB INFORMATION
17. INPUT WIDTH 79
18. UNIT FEET KIP
19. JOINT COORDINATES
20. 1 -2.32292 158.613 0; 2 3.60938 158.686 0; 3 10.1094 158.766 0
21. 4 15.9635 158.838 0; 5 21.8177 158.91 0; 6 27.6719 158.982 0
22. 7 33.526 159.054 0; 8 39.3594 159.126 0; 9 45.1927 159.198 0
23. 10 51.0469 159.27 0; 11 56.901 159.342 0; 12 62.7552 159.414 0
24. 13 68.6094 159.486 0; 14 73.3802 159.545 0; 15 79 159.614 0
25. 16 10.1094 117.15 0; 17 10.1094 132.545 0; 18 10.1094 137.879 0
26. 19 39.3594 117.15 0; 20 39.3594 126.566 0; 21 39.3594 132.545 0
27. 22 39.3594 137.879 0; 23 68.6094 117.15 0; 24 68.6094 132.545 0
28. 25 68.6094 137.879 0; 26 6.65104 137.879 0; 27 16.2656 137.879 0
29. 28 21.8698 137.879 0; 29 27.474 137.879 0; 30 33.0781 137.879 0
30. 31 45.6406 137.879 0; 32 51.2448 137.879 0; 33 56.849 137.879 0
31. 34 62.4531 137.879 0; 35 16.2656 132.545 0; 36 21.8698 132.545 0
32. 37 27.474 132.545 0; 38 33.0781 132.545 0; 39 45.6406 132.545 0
33. 40 51.2448 132.545 0; 41 56.849 132.545 0; 42 62.4531 132.545 0
34. MEMBER INCIDENCES
35. 1 1 2; 2 2 3; 3 3 4; 4 4 5; 5 5 6; 6 6 7; 7 7 8; 8 8 9; 9 9 10; 10 10 11
36. 11 11 12; 12 12 13; 13 13 14; 14 14 15; 15 16 17; 16 17 18; 17 18 3; 18 19 20
37. 19 20 21; 20 21 22; 21 22 8; 22 23 24; 23 24 25; 24 25 13; 25 26 18; 26 18 27
38. 27 27 28; 28 28 29; 29 29 30; 30 30 22; 31 22 31; 32 31 32; 33 32 33; 34 33 34
39. 35 34 25; 36 17 35; 37 35 36; 38 36 37; 39 37 38; 40 38 21; 41 21 39; 42 39 40
40. 43 40 41; 44 41 42; 45 42 24; 46 35 27; 47 36 28; 48 37 29; 49 38 30; 50 39 31

DXF IMPORT OF 002_1441BENT_6.DXF

-- PAGE NO. 2

41. 51 40 32; 52 41 33; 53 42 34; 54 26 17; 55 17 27; 56 27 36; 57 36 29; 58 29 38
42. 59 38 22; 60 22 39; 61 39 32; 62 32 41; 63 41 34; 64 34 24; 65 20 38; 66 20 39
43. DEFINE MATERIAL START
44. ISOTROPIC STEEL
45. E 4.176E+006
46. POISSON 0.3
47. DENSITY 0.489024
48. ALPHA 6E-006
49. DAMP 0.03
50. END DEFINE MATERIAL
51. MEMBER PROPERTY AMERICAN
52. 1 TO 14 TABLE ST W36X182
53. 15 TO 17 22 TO 24 TABLE ST W21X111
54. 18 TO 21 TABLE ST W24X146
55. 25 TO 45 65 66 TABLE ST W8X58
56. 54 TO 64 TABLE ST W8X48
57. 46 TO 53 TABLE ST W8X31
58. CONSTANTS
59. BETA 90 MEMB 25 TO 66
60. MATERIAL STEEL ALL
61. SUPPORTS
62. 16 19 23 FIXED
63. MEMBER TRUSS
64. 25 TO 66
65. LOAD 1 LOADTYPE DEAD TITLE LOAD CASE 1
66. SELFWEIGHT Y -1.05 LIST 1 TO 66
67. JOINT LOAD
68. *F1-5 UPPER DECK FASCIA BEAM
69. 15 FY -37.66
70. *S1-5
71. 14 FY -36.22
72. *S2-5
73. 13 FY -36.77
74. *S3-5, S4-5, S5-5, S6-5, S8-5, S9-5, S10-5, S11-5
75. 4 TO 7 9 TO 12 FY -39.24
76. *S7-5
77. 8 FY -39.18
78. *S12-5
79. 3 FY -40.72
80. *S13-5
81. 2 FY -42.67
82. *F2A-5 _F2B-5 UPPER DECK FASCIA BEAMS
83. 1 FY -29.65
84. *S-16 LOWER DECK (RIGHT FASCIA BEAM - LOOKING WEST)
85. 22 FY -19.08
86. *S-4 LOWER DECK (INTERIOR BEAM)
87. 27 TO 30 FY -23.65
88. *S-14 LOWER DECK (SECOND BEAM FROM LEFT - LOOKING WEST)
89. 18 FY -22.28
90. *S-13 LOWER DECK (LEFT FASCIA BEAM - LOOKING WEST)
91. 26 FY -15.54
92. MEMBER LOAD
93. *DEAD LOAD OF STRENGTHENING PLATES ON COLUMNS = 44 LB/FT, 50 LB/FT IS USED TO I
94. 17 UNI GY -0.05 0 15.77
95. 24 UNI GY -0.05 0 16.49
96. 15 22 UNI GY -0.05 0 15.395

97. PDELTA 10 ANALYSIS

P R O B L E M S T A T I S T I C S

NUMBER OF JOINTS/MEMBER+ELEMENTS/SUPPORTS = 42/ 66/ 3

SOLVER USED IS THE OUT-OF-CORE BASIC SOLVER

ORIGINAL/FINAL BAND-WIDTH= 19/ 5/ 36 DOF
 TOTAL PRIMARY LOAD CASES = 1, TOTAL DEGREES OF FREEDOM = 234
 SIZE OF STIFFNESS MATRIX = 9 DOUBLE KILO-WORDS
 REQD/AVAIL. DISK SPACE = 12.2/ 514321.0 MB

ZERO STIFFNESS IN DIRECTION 3 AT JOINT 26 EQN.NO. 45
 LOADS APPLIED OR DISTRIBUTED HERE FROM ELEMENTS WILL BE IGNORED.
 THIS MAY BE DUE TO ALL MEMBERS AT THIS JOINT BEING RELEASED OR
 EFFECTIVELY RELEASED IN THIS DIRECTION.

ZERO STIFFNESS IN DIRECTION 4 AT JOINT	26 EQN.NO.	46
ZERO STIFFNESS IN DIRECTION 5 AT JOINT	26 EQN.NO.	47
ZERO STIFFNESS IN DIRECTION 6 AT JOINT	26 EQN.NO.	48
ZERO STIFFNESS IN DIRECTION 3 AT JOINT	27 EQN.NO.	51
ZERO STIFFNESS IN DIRECTION 4 AT JOINT	27 EQN.NO.	52
ZERO STIFFNESS IN DIRECTION 5 AT JOINT	27 EQN.NO.	53
ZERO STIFFNESS IN DIRECTION 6 AT JOINT	27 EQN.NO.	54
ZERO STIFFNESS IN DIRECTION 3 AT JOINT	35 EQN.NO.	63
ZERO STIFFNESS IN DIRECTION 4 AT JOINT	35 EQN.NO.	64
ZERO STIFFNESS IN DIRECTION 5 AT JOINT	35 EQN.NO.	65
ZERO STIFFNESS IN DIRECTION 6 AT JOINT	35 EQN.NO.	66

****WARNING - THERE WERE MORE THAN 12 DOF WITH ZERO STIFFNESS.**

THE FIRST 12 ARE LISTED ABOVE.

TOTAL # TRANSLATIONAL= 17 TOTAL # ROTATIONAL= 51

++ Adjusting Displacements	9:49: 0
++ Adjusting Displacements	9:49: 0
++ Adjusting Displacements	9:49: 0
++ Adjusting Displacements	9:49: 0
++ Adjusting Displacements	9:49: 0
++ Adjusting Displacements	9:49: 0
++ Adjusting Displacements	9:49: 0
++ Adjusting Displacements	9:49: 0
++ Adjusting Displacements	9:49: 0
++ Adjusting Displacements	9:49: 0

98. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 1 TO 14

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
1 MAX	-29.65	0.00	1	179.25	5.93	1			
	0.00	0.00	1	0.00	0.00	1	0.36 T	0.00	1
MIN	-30.78	5.93	1	0.00	0.00	1			
	0.00	5.93	1	0.00	5.93	1	0.38 T	5.93	1
2 MAX	-73.45	0.00	1	660.73	6.50	1			
	0.00	0.00	1	0.00	0.00	1	0.90 T	0.00	1
MIN	-74.69	6.50	1	179.25	0.00	1			
	0.00	6.50	1	0.00	6.50	1	0.92 T	6.50	1
3 MAX	87.35	0.00	1	617.98	0.00	1			
	0.00	0.00	1	0.00	0.00	1	0.90 T	0.00	1
MIN	86.24	5.85	1	109.84	5.85	1			
	0.00	5.85	1	0.00	5.85	1	0.91 T	5.85	1
4 MAX	47.00	0.00	1	109.84	0.00	1			
	0.00	0.00	1	0.00	0.00	1	1.39 T	0.00	1
MIN	45.88	5.85	1	-162.05	5.85	1			
	0.00	5.85	1	0.00	5.85	1	1.41 T	5.85	1
5 MAX	6.64	0.00	1	-162.05	0.00	1			
	0.00	0.00	1	0.00	0.00	1	1.89 T	0.00	1
MIN	5.52	5.85	1	-197.66	5.85	1			
	0.00	5.85	1	0.00	5.85	1	1.90 T	5.85	1
6 MAX	-33.71	0.00	1	2.98	5.85	1			
	0.00	0.00	1	0.00	0.00	1	2.39 T	0.00	1
MIN	-34.83	5.85	1	-197.66	0.00	1			
	0.00	5.85	1	0.00	5.85	1	2.40 T	5.85	1
7 MAX	-74.07	0.00	1	438.33	5.83	1			
	0.00	0.00	1	0.00	0.00	1	2.88 T	0.00	1
MIN	-75.18	5.83	1	2.98	0.00	1			
	0.00	5.83	1	0.00	5.83	1	2.90 T	5.83	1
8 MAX	78.05	0.00	1	443.06	0.00	1			
	0.00	0.00	1	0.00	0.00	1	1.53 T	0.00	1
MIN	76.94	5.83	1	-9.03	5.83	1			
	0.00	5.83	1	0.00	5.83	1	1.54 T	5.83	1
9 MAX	37.70	0.00	1	-9.03	0.00	1			
	0.00	0.00	1	0.00	0.00	1	2.03 T	0.00	1

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MIN	36.58	5.85	1	-226.47	5.85	1				
	0.00	5.85	1	0.00	5.85	1	2.04 T	5.85	1	
10 MAX	-2.65	0.00	1	-207.65	5.85	1				
	0.00	0.00	1	0.00	0.00	1	2.53 T	0.00	1	
MIN	-3.77	5.85	1	-226.47	0.00	1				
	0.00	5.85	1	0.00	5.85	1	2.54 T	5.85	1	
11 MAX	-43.01	0.00	1	47.43	5.85	1				
	0.00	0.00	1	0.00	0.00	1	3.02 T	0.00	1	
MIN	-44.13	5.85	1	-207.65	0.00	1				
	0.00	5.85	1	0.00	5.85	1	3.04 T	5.85	1	
12 MAX	-83.37	0.00	1	538.78	5.85	1				
	0.00	0.00	1	0.00	0.00	1	3.52 T	0.00	1	
MIN	-84.48	5.85	1	47.43	0.00	1				
	0.00	5.85	1	0.00	5.85	1	3.53 T	5.85	1	
13 MAX	75.86	0.00	1	574.43	0.00	1				
	0.00	0.00	1	0.00	0.00	1	0.94 C	0.00	1	
MIN	74.95	4.77	1	214.66	4.77	1				
	0.00	4.77	1	0.00	4.77	1	0.93 C	4.77	1	
14 MAX	38.73	0.00	1	214.66	0.00	1				
	0.00	0.00	1	0.00	0.00	1	0.48 C	0.00	1	
MIN	37.66	5.62	1	0.00	5.62	1				
	0.00	5.62	1	0.00	5.62	1	0.46 C	5.62	1	

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

99. *FLOOR BEAM DEAD LOAD ABOVE
 100. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 15 TO 17

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
15 MAX	-4.72	0.00	1	37.14	15.39	1			
	0.00	0.00	1	0.00	0.00	1	287.90 C	0.00	1
MIN	-4.72	15.39	1	-35.60	0.00	1			
	0.00	15.39	1	0.00	15.39	1	285.33 C	15.39	1
16 MAX	7.33	0.00	1	37.14	0.00	1			
	0.00	0.00	1	0.00	0.00	1	229.17 C	0.00	1
MIN	7.33	5.33	1	-1.99	5.33	1			
	0.00	5.33	1	0.00	5.33	1	228.55 C	5.33	1
17 MAX	1.95	0.00	1	-1.99	0.00	1			
	0.00	0.00	1	0.00	0.00	1	205.98 C	0.00	1
MIN	1.95	20.89	1	-42.75	20.89	1			
	0.00	20.89	1	0.00	20.89	1	202.75 C	20.89	1

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

101. *COLUMN 3 DEAD LOAD ABOVE

102. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 18 TO 21

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
18 MAX	6.90	0.00	1	18.09	0.00	1			
	0.00	0.00	1	0.00	0.00	1	293.68 C	0.00	1
MIN	6.90	9.42	1	-46.93	9.42	1			
	0.00	9.42	1	0.00	9.42	1	292.24 C	9.42	1
19 MAX	-9.53	0.00	1	10.08	5.98	1			
	0.00	0.00	1	0.00	0.00	1	216.15 C	0.00	1
MIN	-9.53	5.98	1	-46.93	0.00	1			
	0.00	5.98	1	0.00	5.98	1	215.24 C	5.98	1
20 MAX	-1.04	0.00	1	15.63	5.33	1			
	0.00	0.00	1	0.00	0.00	1	214.85 C	0.00	1
MIN	-1.04	5.33	1	10.08	0.00	1			
	0.00	5.33	1	0.00	5.33	1	214.03 C	5.33	1
21 MAX	0.51	0.00	1	15.63	0.00	1			
	0.00	0.00	1	0.00	0.00	1	195.68 C	0.00	1
MIN	0.51	21.25	1	4.73	21.25	1			
	0.00	21.25	1	0.00	21.25	1	192.42 C	21.25	1

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

103. *COLUMN 2 DEAD LOAD ABOVE

104. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 22 TO 24

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
22 MAX	-2.26	0.00	1	15.63	15.39	1			
	0.00	0.00	1	0.00	0.00	1	195.72 C	0.00	1
MIN	-2.26	15.39	1	-19.09	0.00	1			
	0.00	15.39	1	0.00	15.39	1	193.16 C	15.39	1
23 MAX	6.42	0.00	1	15.63	0.00	1			
	0.00	0.00	1	0.00	0.00	1	201.31 C	0.00	1
MIN	6.42	5.33	1	-18.62	5.33	1			
	0.00	5.33	1	0.00	5.33	1	200.69 C	5.33	1
24 MAX	-2.51	0.00	1	35.66	21.61	1			
	0.00	0.00	1	0.00	0.00	1	200.50 C	0.00	1
MIN	-2.51	21.61	1	-18.62	0.00	1			
	0.00	21.61	1	0.00	21.61	1	197.16 C	21.61	1

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

105. *COLUMN 1 DEAD LOAD ABOVE

106. PRINT MAXFORCE ENVELOPE LIST 25 TO 66

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
25 MAX	0.00	0.00	1	0.00	0.00	1			
	0.11	3.46	1	0.00	0.00	1	10.25 T	0.00	1
MIN	0.00	3.46	1	0.00	3.46	1			
	-0.11	0.00	1	0.00	3.46	1	10.25 T	3.46	1
26 MAX	0.00	0.00	1	0.00	0.00	1			
	0.19	6.16	1	0.00	0.00	1	15.57 T	0.00	1
MIN	0.00	6.16	1	0.00	6.16	1			
	-0.19	0.00	1	0.00	6.16	1	15.57 T	6.16	1
27 MAX	0.00	0.00	1	0.00	0.00	1			
	0.17	5.60	1	0.00	0.00	1	46.01 C	0.00	1
MIN	0.00	5.60	1	0.00	5.60	1			
	-0.17	0.00	1	0.00	5.60	1	46.01 C	5.60	1
28 MAX	0.00	0.00	1	0.00	0.00	1			
	0.17	5.60	1	0.00	0.00	1	46.01 C	0.00	1
MIN	0.00	5.60	1	0.00	5.60	1			
	-0.17	0.00	1	0.00	5.60	1	46.01 C	5.60	1
29 MAX	0.00	0.00	1	0.00	0.00	1			
	0.17	5.60	1	0.00	0.00	1	1.24 T	0.00	1
MIN	0.00	5.60	1	0.00	5.60	1			
	-0.17	0.00	1	0.00	5.60	1	1.24 T	5.60	1
30 MAX	0.00	0.00	1	0.00	0.00	1			
	0.19	6.28	1	0.00	0.00	1	1.24 T	0.00	1
MIN	0.00	6.28	1	0.00	6.28	1			
	-0.19	0.00	1	0.00	6.28	1	1.24 T	6.28	1
31 MAX	0.00	0.00	1	0.00	0.00	1			
	0.19	6.28	1	0.00	0.00	1	35.88 T	0.00	1
MIN	0.00	6.28	1	0.00	6.28	1			
	-0.19	0.00	1	0.00	6.28	1	35.88 T	6.28	1
32 MAX	0.00	0.00	1	0.00	0.00	1			
	0.17	5.60	1	0.00	0.00	1	35.88 T	0.00	1
MIN	0.00	5.60	1	0.00	5.60	1			
	-0.17	0.00	1	0.00	5.60	1	35.88 T	5.60	1
33 MAX	0.00	0.00	1	0.00	0.00	1			
	0.17	5.60	1	0.00	0.00	1	11.29 T	0.00	1

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MIN	0.00	5.60	1	0.00	5.60	1			
	-0.17	0.00	1	0.00	5.60	1	11.29	T	5.60 1
34 MAX	0.00	0.00	1	0.00	0.00	1			
	0.17	5.60	1	0.00	0.00	1	11.29	T	0.00 1
MIN	0.00	5.60	1	0.00	5.60	1			
	-0.17	0.00	1	0.00	5.60	1	11.29	T	5.60 1
35 MAX	0.00	0.00	1	0.00	0.00	1			
	0.19	6.16	1	0.00	0.00	1	8.91	C	0.00 1
MIN	0.00	6.16	1	0.00	6.16	1			
	-0.19	0.00	1	0.00	6.16	1	8.91	C	6.16 1
36 MAX	0.00	0.00	1	0.00	0.00	1			
	0.19	6.16	1	0.00	0.00	1	23.75	T	0.00 1
MIN	0.00	6.16	1	0.00	6.16	1			
	-0.19	0.00	1	0.00	6.16	1	23.75	T	6.16 1
37 MAX	0.00	0.00	1	0.00	0.00	1			
	0.17	5.60	1	0.00	0.00	1	23.75	T	0.00 1
MIN	0.00	5.60	1	0.00	5.60	1			
	-0.17	0.00	1	0.00	5.60	1	23.75	T	5.60 1
38 MAX	0.00	0.00	1	0.00	0.00	1			
	0.17	5.60	1	0.00	0.00	1	28.83	T	0.00 1
MIN	0.00	5.60	1	0.00	5.60	1			
	-0.17	0.00	1	0.00	5.60	1	28.83	T	5.60 1
39 MAX	0.00	0.00	1	0.00	0.00	1			
	0.17	5.60	1	0.00	0.00	1	28.83	T	0.00 1
MIN	0.00	5.60	1	0.00	5.60	1			
	-0.17	0.00	1	0.00	5.60	1	28.83	T	5.60 1
40 MAX	0.00	0.00	1	0.00	0.00	1			
	0.19	6.28	1	0.00	0.00	1	22.83	T	0.00 1
MIN	0.00	6.28	1	0.00	6.28	1			
	-0.19	0.00	1	0.00	6.28	1	22.83	T	6.28 1
41 MAX	0.00	0.00	1	0.00	0.00	1			
	0.19	6.28	1	0.00	0.00	1	14.35	T	0.00 1
MIN	0.00	6.28	1	0.00	6.28	1			
	-0.19	0.00	1	0.00	6.28	1	14.35	T	6.28 1
42 MAX	0.00	0.00	1	0.00	0.00	1			
	0.17	5.60	1	0.00	0.00	1	23.19	C	0.00 1
MIN	0.00	5.60	1	0.00	5.60	1			
	-0.17	0.00	1	0.00	5.60	1	23.19	C	5.60 1
43 MAX	0.00	0.00	1	0.00	0.00	1			
	0.17	5.60	1	0.00	0.00	1	23.19	C	0.00 1
MIN	0.00	5.60	1	0.00	5.60	1			
	-0.17	0.00	1	0.00	5.60	1	23.19	C	5.60 1
44 MAX	0.00	0.00	1	0.00	0.00	1			
	0.17	5.60	1	0.00	0.00	1	1.22	C	0.00 1

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MIN	0.00	5.60	1	0.00	5.60	1			
	-0.17	0.00	1	0.00	5.60	1	1.22	C	5.60 1
45 MAX	0.00	0.00	1	0.00	0.00	1			
	0.19	6.16	1	0.00	0.00	1	1.22	C	0.00 1
MIN	0.00	6.16	1	0.00	6.16	1			
	-0.19	0.00	1	0.00	6.16	1	1.22	C	6.16 1
46 MAX	0.00	0.00	1	0.00	0.00	1			
	0.00	0.00	1	0.00	0.00	1	0.35	T	0.00 1
MIN	0.00	5.33	1	0.00	5.33	1			
	0.00	5.33	1	0.00	5.33	1	0.52	T	5.33 1
47 MAX	0.00	0.00	1	0.00	0.00	1			
	0.00	0.00	1	0.00	0.00	1	24.19	C	0.00 1
MIN	0.00	5.33	1	0.00	5.33	1			
	0.00	5.33	1	0.00	5.33	1	24.02	C	5.33 1
48 MAX	0.00	0.00	1	0.00	0.00	1			
	0.00	0.00	1	0.00	0.00	1	0.33	T	0.00 1
MIN	0.00	5.33	1	0.00	5.33	1			
	0.00	5.33	1	0.00	5.33	1	0.51	T	5.33 1
49 MAX	0.00	0.00	1	0.00	0.00	1			
	0.00	0.00	1	0.00	0.00	1	24.19	C	0.00 1
MIN	0.00	5.33	1	0.00	5.33	1			
	0.00	5.33	1	0.00	5.33	1	24.01	C	5.33 1
50 MAX	0.00	0.00	1	0.00	0.00	1			
	0.00	0.00	1	0.00	0.00	1	0.55	C	0.00 1
MIN	0.00	5.33	1	0.00	5.33	1			
	0.00	5.33	1	0.00	5.33	1	0.38	C	5.33 1
51 MAX	0.00	0.00	1	0.00	0.00	1			
	0.00	0.00	1	0.00	0.00	1	0.34	T	0.00 1
MIN	0.00	5.33	1	0.00	5.33	1			
	0.00	5.33	1	0.00	5.33	1	0.51	T	5.33 1
52 MAX	0.00	0.00	1	0.00	0.00	1			
	0.00	0.00	1	0.00	0.00	1	0.52	C	0.00 1
MIN	0.00	5.33	1	0.00	5.33	1			
	0.00	5.33	1	0.00	5.33	1	0.34	C	5.33 1
53 MAX	0.00	0.00	1	0.00	0.00	1			
	0.00	0.00	1	0.00	0.00	1	0.36	T	0.00 1
MIN	0.00	5.33	1	0.00	5.33	1			
	0.00	5.33	1	0.00	5.33	1	0.53	T	5.33 1
54 MAX	0.00	0.00	1	0.00	0.00	1			
	0.09	6.36	1	0.00	0.00	1	18.97	C	6.36 1
MIN	0.00	6.36	1	0.00	6.36	1			
	-0.09	0.00	1	0.00	6.36	1	18.71	C	0.00 1
55 MAX	0.00	0.00	1	0.00	0.00	1			
	0.15	8.15	1	0.00	0.00	1	60.92	C	0.00 1

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MIN	0.00	8.15	1	0.00	8.15	1				
	-0.15	0.00	1	0.00	8.15	1	60.65	C	8.15	1
56 MAX	0.00	0.00	1	0.00	0.00	1				
	0.14	7.74	1	0.00	0.00	1	21.43	T	7.74	1
MIN	0.00	7.74	1	0.00	7.74	1				
	-0.14	0.00	1	0.00	7.74	1	21.70	T	0.00	1
57 MAX	0.00	0.00	1	0.00	0.00	1				
	0.14	7.74	1	0.00	0.00	1	14.42	T	0.00	1
MIN	0.00	7.74	1	0.00	7.74	1				
	-0.14	0.00	1	0.00	7.74	1	14.69	T	7.74	1
58 MAX	0.00	0.00	1	0.00	0.00	1				
	0.14	7.74	1	0.00	0.00	1	50.79	C	7.74	1
MIN	0.00	7.74	1	0.00	7.74	1				
	-0.14	0.00	1	0.00	7.74	1	50.53	C	0.00	1
59 MAX	0.00	0.00	1	0.00	0.00	1				
	0.16	8.24	1	0.00	0.00	1	22.40	T	0.00	1
MIN	0.00	8.24	1	0.00	8.24	1				
	-0.16	0.00	1	0.00	8.24	1	22.67	T	8.24	1
60 MAX	0.00	0.00	1	0.00	0.00	1				
	0.16	8.24	1	0.00	0.00	1	25.02	C	8.24	1
MIN	0.00	8.24	1	0.00	8.24	1				
	-0.16	0.00	1	0.00	8.24	1	24.75	C	0.00	1
61 MAX	0.00	0.00	1	0.00	0.00	1				
	0.14	7.74	1	0.00	0.00	1	18.01	C	0.00	1
MIN	0.00	7.74	1	0.00	7.74	1				
	-0.14	0.00	1	0.00	7.74	1	17.75	C	7.74	1
62 MAX	0.00	0.00	1	0.00	0.00	1				
	0.14	7.74	1	0.00	0.00	1	15.94	T	7.74	1
MIN	0.00	7.74	1	0.00	7.74	1				
	-0.14	0.00	1	0.00	7.74	1	16.21	T	0.00	1
63 MAX	0.00	0.00	1	0.00	0.00	1				
	0.14	7.74	1	0.00	0.00	1	14.40	C	0.00	1
MIN	0.00	7.74	1	0.00	7.74	1				
	-0.14	0.00	1	0.00	7.74	1	14.13	C	7.74	1
64 MAX	0.00	0.00	1	0.00	0.00	1				
	0.15	8.15	1	0.00	0.00	1	12.92	T	8.15	1
MIN	0.00	8.15	1	0.00	8.15	1				
	-0.15	0.00	1	0.00	8.15	1	13.19	T	0.00	1
65 MAX	0.00	0.00	1	0.00	0.00	1				
	0.19	8.67	1	0.00	0.00	1	66.27	C	0.00	1
MIN	0.00	8.67	1	0.00	8.67	1				
	-0.19	0.00	1	0.00	8.67	1	65.90	C	8.67	1
66 MAX	0.00	0.00	1	0.00	0.00	1				
	0.19	8.67	1	0.00	0.00	1	43.71	C	0.00	1

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MIN	0.00	8.67	1	0.00	8.67	1			
	-0.19	0.00	1	0.00	8.67	1	43.34	C	8.67 1

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

107. *TRUSS MEMBER DEAD LOAD ABOVE

108. FINISH

***** END OF THE STAAD.Pro RUN *****

**** DATE= APR 6,2012 TIME= 9:49: 0 ****

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*****
*           For questions on STAAD.Pro, please contact           *
*   Bentley Systems Offices at the following locations           *
*                                                                 *
*           Telephone           Web / Email                       *
*                                                                 *
*   USA:           +1 (714)974-2500                               *
*   CANADA        +1 (905)632-4771           detech@odandetech.com *
*   UK            +44(1454)207-000                               *
*   SINGAPORE     +65 6225-6158                               *
*   EUROPE        +31 23 5560560                               *
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*                                                                 *
*   Worldwide     http://selectservices.bentley.com/en-US/      *
*                                                                 *
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*          STAAD.Pro V8i SELECTseries1          *
*          Version  20.07.06.35                 *
*          Proprietary Program of              *
*          Bentley Systems, Inc.               *
*          Date=    APR 12, 2012                *
*          Time=    19:11:58                   *
*
*          USER ID: TranSystems                 *
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1. STAAD SPACE DXF IMPORT OF 002_1441BENT_6.DXF
- INPUT FILE: Bent_6_LL.STD
2. START JOB INFORMATION
3. ENGINEER DATE 20-MAR-12
4. JOB NAME CUY-2-1441 MAIN AVE RATING
5. JOB COMMENT BENT 6 LIVE LOAD.
6. ENGINEER NAME MTN
7. JOB NO P402110046
8. JOB PART EAST APPROACH - FORWARD SECTION
9. JOB REF BENT 6
10. JOB CLIENT ODOT
11. CHECKER NAME PJP
12. CHECKER DATE 4/6/12
13. END JOB INFORMATION
14. INPUT WIDTH 79
15. UNIT FEET KIP
16. JOINT COORDINATES
17. 1 -2.32292 158.613 0; 2 3.60938 158.686 0; 3 10.1094 158.766 0
18. 4 15.9635 158.838 0; 5 21.8177 158.91 0; 6 27.6719 158.982 0
19. 7 33.526 159.054 0; 8 39.3594 159.126 0; 9 45.1927 159.198 0
20. 10 51.0469 159.27 0; 11 56.901 159.342 0; 12 62.7552 159.414 0
21. 13 68.6094 159.486 0; 14 73.3802 159.545 0; 15 79 159.614 0
22. 16 10.1094 117.15 0; 17 10.1094 132.545 0; 18 10.1094 137.879 0
23. 19 39.3594 117.15 0; 20 39.3594 126.566 0; 21 39.3594 132.545 0
24. 22 39.3594 137.879 0; 23 68.6094 117.15 0; 24 68.6094 132.545 0
25. 25 68.6094 137.879 0; 26 6.65104 137.879 0; 27 16.2656 137.879 0
26. 28 21.8698 137.879 0; 29 27.474 137.879 0; 30 33.0781 137.879 0
27. 31 45.6406 137.879 0; 32 51.2448 137.879 0; 33 56.849 137.879 0
28. 34 62.4531 137.879 0; 35 16.2656 132.545 0; 36 21.8698 132.545 0
29. 37 27.474 132.545 0; 38 33.0781 132.545 0; 39 45.6406 132.545 0
30. 40 51.2448 132.545 0; 41 56.849 132.545 0; 42 62.4531 132.545 0
31. MEMBER INCIDENCES
32. 1 1 2; 2 2 3; 3 3 4; 4 4 5; 5 5 6; 6 6 7; 7 7 8; 8 8 9; 9 9 10; 10 10 11
33. 11 11 12; 12 12 13; 13 13 14; 14 14 15; 15 16 17; 16 17 18; 17 18 3; 18 19 20
34. 19 20 21; 20 21 22; 21 22 8; 22 23 24; 23 24 25; 24 25 13; 25 26 18; 26 18 27
35. 27 27 28; 28 28 29; 29 29 30; 30 30 22; 31 22 31; 32 31 32; 33 32 33; 34 33 34
36. 35 34 25; 36 17 35; 37 35 36; 38 36 37; 39 37 38; 40 38 21; 41 21 39; 42 39 40
37. 43 40 41; 44 41 42; 45 42 24; 46 35 27; 47 36 28; 48 37 29; 49 38 30; 50 39 31
38. 51 40 32; 52 41 33; 53 42 34; 54 26 17; 55 17 27; 56 27 36; 57 36 29; 58 29 38
39. 59 38 22; 60 22 39; 61 39 32; 62 32 41; 63 41 34; 64 34 24; 65 20 38; 66 20 39
40. DEFINE MATERIAL START

41. ISOTROPIC STEEL
42. E 4.176E+006
43. POISSON 0.3
44. DENSITY 0.489024
45. ALPHA 6E-006
46. DAMP 0.03
47. END DEFINE MATERIAL
48. MEMBER PROPERTY AMERICAN
49. 1 TO 14 TABLE ST W36X182
50. 16 23 TABLE ST W21X111
51. 18 TO 21 TABLE ST W24X146
52. 25 TO 45 65 66 TABLE ST W8X58
53. 54 TO 64 TABLE ST W8X48
54. 46 TO 53 TABLE ST W8X31
55. 15 17 22 24 TABLE TB W21X111 WP 1.08333 TH 0.04167
56. CONSTANTS
57. BETA 90 MEMB 25 TO 66
58. MATERIAL STEEL ALL
59. SUPPORTS
60. 16 19 23 FIXED
61. MEMBER TRUSS
62. 25 TO 66
63. DEFINE MOVING LOAD
64. TYPE 1 LOAD 29.1 29.1
65. DIST 6
66. LOAD 1 LOADTYPE LIVE TITLE AXIAL ON COLUMN C306 (3 LANE)
67. MEMBER LOAD
68. 1 CON GY -37.6 1.7031 0
69. 2 CON GY -37.6 1.77091 0
70. 3 CON GY -37.6 1.2708 0
71. 4 CON GY -37.6 1.4167 0
72. 5 CON GY -37.6 1.5625 0
73. 6 CON GY -37.6 1.7083 0
74. LOAD 2 LOADTYPE LIVE TITLE AXIAL ON COLUMN C306 (2 LANE)
75. MEMBER LOAD
76. 1 CON GY -41.7 1.7031 0
77. 2 CON GY -41.7 1.77091 0
78. 3 CON GY -41.7 1.2708 0
79. 4 CON GY -41.7 1.4167 0
80. LOAD 3 LOADTYPE LIVE TITLE NEG. MOMENT IN FB OVER C306 (3 LANE)
81. MEMBER LOAD
82. 1 CON GY -37.6 1.7031 0
83. 2 CON GY -37.6 1.77091 0
84. 4 CON GY -37.6 0.7708 0
85. 5 CON GY -37.6 0.9167 0
86. 5 CON GY -37.6 4.9167 0
87. 6 CON GY -37.6 5.0625 0
88. LOAD 4 LOADTYPE LIVE TITLE NEG. MOMENT IN FB OVER C306 (2 LANE)
89. MEMBER LOAD
90. 1 CON GY -41.7 1.7031 0
91. 2 CON GY -41.7 1.77091 0
92. 4 CON GY -41.7 5.7708 0
93. 6 CON GY -41.7 0.0625 0
94. LOAD 5 LOADTYPE LIVE TITLE POS. MOMENT IN FB BETWEEN C306 _C206 (3 LANE)
95. MEMBER LOAD
96. 4 CON GY -37.6 0.7708 0

97. 5 CON GY -37.6 0.9167 0
98. 5 CON GY -37.6 4.9167 0
99. 6 CON GY -37.6 5.0625 0
100. 13 CON GY -37.6 2.7708 0
101. 14 CON GY -37.6 4.00003 0
102. LOAD 6 LOADTYPE LIVE TITLE POS. MOMENT IN FB BETWEEN C306 _C206 (2 LANE-1)
103. MEMBER LOAD
104. 4 CON GY -41.7 0.7708 0
105. 5 CON GY -41.7 0.9167 0
106. 5 CON GY -41.7 4.9167 0
107. 6 CON GY -41.7 5.0625 0
108. LOAD 7 LOADTYPE LIVE TITLE POS. MOMENT IN FB BETWEEN C306 _C206 (2 LANE-2)
109. MEMBER LOAD
110. 4 CON GY -41.7 5.7708 0
111. 6 CON GY -41.7 0.0625 0
112. 13 CON GY -41.7 2.7708 0
113. 14 CON GY -41.7 4.00003 0
114. LOAD 8 LOADTYPE LIVE TITLE MAX AXIAL ON COLUMN C206 (4 LANE)
115. MEMBER LOAD
116. 4 CON GY -31.3 1.2917 0
117. 5 CON GY -31.3 1.4375 0
118. 6 CON GY -31.3 1.5833 0
119. 7 CON GY -31.3 1.72925 0
120. 8 CON GY -31.3 2 0
121. 9 CON GY -31.3 2.1667 0
122. 10 CON GY -31.3 2.3125 0
123. 11 CON GY -31.3 2.4583 0
124. LOAD 9 LOADTYPE LIVE TITLE MAX AXIAL ON COLUMN C206 (3 LANE)
125. MEMBER LOAD
126. 6 CON GY -37.6 1.5833 0
127. 7 CON GY -37.6 1.72925 0
128. 8 CON GY -37.6 2 0
129. 9 CON GY -37.6 2.1667 0
130. 10 CON GY -37.6 2.3125 0
131. 11 CON GY -37.6 2.4583 0
132. LOAD 10 LOADTYPE LIVE TITLE MAX AXIAL ON COLUMN C206 (2 LANE)
133. MEMBER LOAD
134. 6 CON GY -41.7 1.5833 0
135. 7 CON GY -41.7 1.72925 0
136. 8 CON GY -41.7 2 0
137. 9 CON GY -41.7 2.1667 0
138. LOAD 11 LOADTYPE LIVE TITLE NEG. MOMENT IN FB OVER C206 (4 LANE)
139. MEMBER LOAD
140. 4 CON GY -31.3 0.7708 0
141. 5 CON GY -31.3 0.9167 0
142. 5 CON GY -31.3 4.9167 0
143. 6 CON GY -31.3 5.0625 0
144. 9 CON GY -31.3 0.7917 0
145. 10 CON GY -31.3 0.9375 0
146. 10 CON GY -31.3 4.9375 0
147. 11 CON GY -31.3 5.0833 0
148. LOAD 12 LOADTYPE LIVE TITLE NEG. MOMENT IN FB OVER C206 (3 LANE)
149. MEMBER LOAD
150. 4 CON GY -37.6 5.7708 0
151. 6 CON GY -37.6 0.0625 0
152. 9 CON GY -37.6 0.7917 0

153. 10 CON GY -37.6 0.9375 0
154. 10 CON GY -37.6 4.9375 0
155. 11 CON GY -37.6 5.0833 0
156. LOAD 13 LOADTYPE LIVE TITLE NEG. MOMENT IN FB OVER C206 (2 LANE)
157. MEMBER LOAD
158. 4 CON GY -41.7 5.7708 0
159. 6 CON GY -41.7 0.0625 0
160. 9 CON GY -41.7 5.7917 0
161. 11 CON GY -41.7 0.0833 0
162. LOAD 14 LOADTYPE LIVE TITLE POS. MOMENT IN FB BETWEEN C206 _C106 (3 LANE)
163. MEMBER LOAD
164. 1 CON GY -37.6 1.7031 0
165. 2 CON GY -37.6 1.77091 0
166. 9 CON GY -37.6 0.7917 0
167. 10 CON GY -37.6 0.9375 0
168. 10 CON GY -37.6 4.9375 0
169. 11 CON GY -37.6 5.0833 0
170. LOAD 15 LOADTYPE LIVE TITLE POS. MOMENT IN FB BETWEEN C206 _C106 (2 LANE-1)
171. MEMBER LOAD
172. 9 CON GY -41.7 0.7917 0
173. 10 CON GY -41.7 0.9375 0
174. 10 CON GY -41.7 4.9375 0
175. 11 CON GY -41.7 5.0833 0
176. LOAD 16 LOADTYPE LIVE TITLE POS. MOMENT IN FB BETWEEN C206 _C106 (2 LANE-2)
177. MEMBER LOAD
178. 1 CON GY -41.7 1.7031 0
179. 2 CON GY -41.7 1.77091 0
180. 9 CON GY -41.7 5.7917 0
181. 11 CON GY -41.7 0.0833 0
182. LOAD 17 LOADTYPE LIVE TITLE MAX AXIAL ON COLUMN C106 (3 LANE)
183. MEMBER LOAD
184. 9 CON GY -37.6 2.1875 0
185. 10 CON GY -37.6 2.3333 0
186. 11 CON GY -37.6 2.4792 0
187. 12 CON GY -37.6 2.62507 0
188. 13 CON GY -37.6 2.7708 0
189. 14 CON GY -37.6 4.00003 0
190. LOAD 18 LOADTYPE LIVE TITLE MAX AXIAL ON COLUMN C106 (2 LANE)
191. MEMBER LOAD
192. 11 CON GY -41.7 2.4792 0
193. 12 CON GY -41.7 2.62507 0
194. 13 CON GY -41.7 2.7708 0
195. 14 CON GY -41.7 4.00003 0
196. LOAD 19 LOADTYPE LIVE TITLE NEG. MOMENT IN FB OVER C106 (3 LANE)
197. MEMBER LOAD
198. 9 CON GY -37.6 0.7917 0
199. 10 CON GY -37.6 0.9375 0
200. 10 CON GY -37.6 4.9375 0
201. 11 CON GY -37.6 5.0833 0
202. 13 CON GY -37.6 2.7708 0
203. 14 CON GY -37.6 4.00003 0
204. LOAD 20 LOADTYPE LIVE TITLE NEG. MOMENT IN FB OVER C106 (2 LANE)
205. MEMBER LOAD
206. 9 CON GY -41.7 5.7917 0
207. 11 CON GY -41.7 0.0833 0
208. 13 CON GY -41.7 2.7708 0

209. 14 CON GY -41.7 4.00003 0
210. LOAD 21 LOADTYPE LIVE TITLE ALL LANES LOADED - CENTER (6 LANE)
211. MEMBER LOAD
212. 2 CON GY -31.3 1.64591 0
213. 3 CON GY -31.3 1.1458 0
214. 4 CON GY -31.3 1.2917 0
215. 5 CON GY -31.3 1.4375 0
216. 6 CON GY -31.3 1.5833 0
217. 7 CON GY -31.3 1.72925 0
218. 8 CON GY -31.3 2 0
219. 9 CON GY -31.3 2.1667 0
220. 10 CON GY -31.3 2.3125 0
221. 11 CON GY -31.3 2.4583 0
222. 12 CON GY -31.3 2.60427 0
223. 13 CON GY -31.3 2.75 0
224. LOAD 22 LOADTYPE LIVE TITLE ALL LANES LOADED - OUTSIDE (6 LANE)
225. MEMBER LOAD
226. 1 CON GY -31.3 1.7031 0
227. 2 CON GY -31.3 1.77091 0
228. 3 CON GY -31.3 1.2708 0
229. 4 CON GY -31.3 1.4167 0
230. 5 CON GY -31.3 1.5625 0
231. 6 CON GY -31.3 1.7083 0
232. 9 CON GY -31.3 2.1875 0
233. 10 CON GY -31.3 2.3333 0
234. 11 CON GY -31.3 2.4792 0
235. 12 CON GY -31.3 2.62507 0
236. 13 CON GY -31.3 2.7708 0
237. 14 CON GY -31.3 4.00003 0
238. LOAD 23 LOADTYPE LIVE TITLE LOWER DECK LOAD
239. JOINT LOAD
240. 22 FY -7.29
241. 30 FY -10.46
242. 28 29 FY -9.86
243. 27 FY -10.35
244. 18 FY -8.47
245. 26 FY -3.92
246. LOAD 24 LOADTYPE LIVE TITLE LOAD 1 WITH LOWER DECK
247. REPEAT LOAD
248. 1 1.0 23 1.0
249. LOAD 25 LOADTYPE LIVE TITLE LOAD 2 WITH LOWER DECK
250. REPEAT LOAD
251. 2 1.0 23 1.0
252. LOAD 26 LOADTYPE LIVE TITLE LOAD 3 WITH LOWER DECK
253. REPEAT LOAD
254. 3 1.0 23 1.0
255. LOAD 27 LOADTYPE LIVE TITLE LOAD 4 WITH LOWER DECK
256. REPEAT LOAD
257. 4 1.0 23 1.0
258. LOAD 28 LOADTYPE LIVE TITLE LOAD 5 WITH LOWER DECK
259. REPEAT LOAD
260. 5 1.0 23 1.0
261. LOAD 29 LOADTYPE LIVE TITLE LOAD 6 WITH LOWER DECK
262. REPEAT LOAD
263. 6 1.0 23 1.0
264. LOAD 30 LOADTYPE LIVE TITLE LOAD 7 WITH LOWER DECK

265. REPEAT LOAD
266. 7 1.0 23 1.0
267. LOAD 31 LOADTYPE LIVE TITLE LOAD 8 WITH LOWER DECK
268. REPEAT LOAD
269. 8 1.0 23 1.0
270. LOAD 32 LOADTYPE LIVE TITLE LOAD 9 WITH LOWER DECK
271. REPEAT LOAD
272. 9 1.0 23 1.0
273. LOAD 33 LOADTYPE LIVE TITLE LOAD 10 WITH LOWER DECK
274. REPEAT LOAD
275. 10 1.0 23 1.0
276. LOAD 34 LOADTYPE LIVE TITLE LOAD 11 WITH LOWER DECK
277. REPEAT LOAD
278. 11 1.0 23 1.0
279. LOAD 35 LOADTYPE LIVE TITLE LOAD 12 WITH LOWER DECK
280. REPEAT LOAD
281. 12 1.0 23 1.0
282. LOAD 36 LOADTYPE LIVE TITLE LOAD 13 WITH LOWER DECK
283. REPEAT LOAD
284. 13 1.0 23 1.0
285. LOAD 37 LOADTYPE LIVE TITLE LOAD 14 WITH LOWER DECK
286. REPEAT LOAD
287. 14 1.0 23 1.0
288. LOAD 38 LOADTYPE LIVE TITLE LOAD 15 WITH LOWER DECK
289. REPEAT LOAD
290. 15 1.0 23 1.0
291. LOAD 39 LOADTYPE LIVE TITLE LOAD 16 WITH LOWER DECK
292. REPEAT LOAD
293. 16 1.0 23 1.0
294. LOAD 40 LOADTYPE LIVE TITLE LOAD 17 WITH LOWER DECK
295. REPEAT LOAD
296. 17 1.0 23 1.0
297. LOAD 41 LOADTYPE LIVE TITLE LOAD 18 WITH LOWER DECK
298. REPEAT LOAD
299. 18 1.0 23 1.0
300. LOAD 42 LOADTYPE LIVE TITLE LOAD 19 WITH LOWER DECK
301. REPEAT LOAD
302. 19 1.0 23 1.0
303. LOAD 43 LOADTYPE LIVE TITLE LOAD 20 WITH LOWER DECK
304. REPEAT LOAD
305. 20 1.0 23 1.0
306. LOAD 44 LOADTYPE LIVE TITLE LOAD 21 WITH LOWER DECK
307. REPEAT LOAD
308. 21 1.0 23 1.0
309. LOAD 45 LOADTYPE LIVE TITLE LOAD 22 WITH LOWER DECK
310. REPEAT LOAD
311. 22 1.0 23 1.0
312. LOAD 46 LOADTYPE LIVE TITLE 2F1 LOADING
313. REPEAT LOAD
314. 1 0.436105 23 1.0
315. LOAD 47 LOADTYPE LIVE TITLE 2F1 LOADING
316. REPEAT LOAD
317. 2 0.436105 23 1.0
318. LOAD 48 LOADTYPE LIVE TITLE 2F1 LOADING
319. REPEAT LOAD
320. 3 0.436105 23 1.0

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321. LOAD 49 LOADTYPE LIVE TITLE 2F1 LOADING
322. REPEAT LOAD
323. 4 0.436105 23 1.0
324. LOAD 50 LOADTYPE LIVE TITLE 2F1 LOADING
325. REPEAT LOAD
326. 5 0.436105 23 1.0
327. LOAD 51 LOADTYPE LIVE TITLE 2F1 LOADING
328. REPEAT LOAD
329. 6 0.436105 23 1.0
330. LOAD 52 LOADTYPE LIVE TITLE 2F1 LOADING
331. REPEAT LOAD
332. 7 0.436105 23 1.0
333. LOAD 53 LOADTYPE LIVE TITLE 2F1 LOADING
334. REPEAT LOAD
335. 8 0.436105 23 1.0
336. LOAD 54 LOADTYPE LIVE TITLE 2F1 LOADING
337. REPEAT LOAD
338. 9 0.436105 23 1.0
339. LOAD 55 LOADTYPE LIVE TITLE 2F1 LOADING
340. REPEAT LOAD
341. 10 0.436105 23 1.0
342. LOAD 56 LOADTYPE LIVE TITLE 2F1 LOADING
343. REPEAT LOAD
344. 11 0.436105 23 1.0
345. LOAD 57 LOADTYPE LIVE TITLE 2F1 LOADING
346. REPEAT LOAD
347. 12 0.436105 23 1.0
348. LOAD 58 LOADTYPE LIVE TITLE 2F1 LOADING
349. REPEAT LOAD
350. 13 0.436105 23 1.0
351. LOAD 59 LOADTYPE LIVE TITLE 2F1 LOADING
352. REPEAT LOAD
353. 14 0.436105 23 1.0
354. LOAD 60 LOADTYPE LIVE TITLE 2F1 LOADING
355. REPEAT LOAD
356. 15 0.436105 23 1.0
357. LOAD 61 LOADTYPE LIVE TITLE 2F1 LOADING
358. REPEAT LOAD
359. 16 0.436105 23 1.0
360. LOAD 62 LOADTYPE LIVE TITLE 2F1 LOADING
361. REPEAT LOAD
362. 17 0.436105 23 1.0
363. LOAD 63 LOADTYPE LIVE TITLE 2F1 LOADING
364. REPEAT LOAD
365. 18 0.436105 23 1.0
366. LOAD 64 LOADTYPE LIVE TITLE 2F1 LOADING
367. REPEAT LOAD
368. 19 0.436105 23 1.0
369. LOAD 65 LOADTYPE LIVE TITLE 2F1 LOADING
370. REPEAT LOAD
371. 20 0.436105 23 1.0
372. LOAD 66 LOADTYPE LIVE TITLE 2F1 LOADING
373. REPEAT LOAD
374. 21 0.436105 23 1.0
375. LOAD 67 LOADTYPE LIVE TITLE 2F1 LOADING
376. REPEAT LOAD

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377. 22 0.436105 23 1.0
378. LOAD 68 LOADTYPE LIVE TITLE 3F1 LOADING
379. REPEAT LOAD
380. 1 0.664638 23 1.0
381. LOAD 69 LOADTYPE LIVE TITLE 3F1 LOADING
382. REPEAT LOAD
383. 2 0.664638 23 1.0
384. LOAD 70 LOADTYPE LIVE TITLE 3F1 LOADING
385. REPEAT LOAD
386. 3 0.664638 23 1.0
387. LOAD 71 LOADTYPE LIVE TITLE 3F1 LOADING
388. REPEAT LOAD
389. 4 0.664638 23 1.0
390. LOAD 72 LOADTYPE LIVE TITLE 3F1 LOADING
391. REPEAT LOAD
392. 5 0.664638 23 1.0
393. LOAD 73 LOADTYPE LIVE TITLE 3F1 LOADING
394. REPEAT LOAD
395. 6 0.664638 23 1.0
396. LOAD 74 LOADTYPE LIVE TITLE 3F1 LOADING
397. REPEAT LOAD
398. 7 0.664638 23 1.0
399. LOAD 75 LOADTYPE LIVE TITLE 3F1 LOADING
400. REPEAT LOAD
401. 8 0.664638 23 1.0
402. LOAD 76 LOADTYPE LIVE TITLE 3F1 LOADING
403. REPEAT LOAD
404. 9 0.664638 23 1.0
405. LOAD 77 LOADTYPE LIVE TITLE 3F1 LOADING
406. REPEAT LOAD
407. 10 0.664638 23 1.0
408. LOAD 78 LOADTYPE LIVE TITLE 3F1 LOADING
409. REPEAT LOAD
410. 11 0.664638 23 1.0
411. LOAD 79 LOADTYPE LIVE TITLE 3F1 LOADING
412. REPEAT LOAD
413. 12 0.664638 23 1.0
414. LOAD 80 LOADTYPE LIVE TITLE 3F1 LOADING
415. REPEAT LOAD
416. 13 0.664638 23 1.0
417. LOAD 81 LOADTYPE LIVE TITLE 3F1 LOADING
418. REPEAT LOAD
419. 14 0.664638 23 1.0
420. LOAD 82 LOADTYPE LIVE TITLE 3F1 LOADING
421. REPEAT LOAD
422. 15 0.664638 23 1.0
423. LOAD 83 LOADTYPE LIVE TITLE 3F1 LOADING
424. REPEAT LOAD
425. 16 0.664638 23 1.0
426. LOAD 84 LOADTYPE LIVE TITLE 3F1 LOADING
427. REPEAT LOAD
428. 17 0.664638 23 1.0
429. LOAD 85 LOADTYPE LIVE TITLE 3F1 LOADING
430. REPEAT LOAD
431. 18 0.664638 23 1.0
432. LOAD 86 LOADTYPE LIVE TITLE 3F1 LOADING

433. REPEAT LOAD
434. 19 0.664638 23 1.0
435. LOAD 87 LOADTYPE LIVE TITLE 3F1 LOADING
436. REPEAT LOAD
437. 20 0.664638 23 1.0
438. LOAD 88 LOADTYPE LIVE TITLE 3F1 LOADING
439. REPEAT LOAD
440. 21 0.664638 23 1.0
441. LOAD 89 LOADTYPE LIVE TITLE 3F1 LOADING
442. REPEAT LOAD
443. 22 0.664638 23 1.0
444. LOAD 90 LOADTYPE LIVE TITLE 4F1 LOADING
445. REPEAT LOAD
446. 1 0.773496 23 1.0
447. LOAD 91 LOADTYPE LIVE TITLE 4F1 LOADING
448. REPEAT LOAD
449. 2 0.773496 23 1.0
450. LOAD 92 LOADTYPE LIVE TITLE 4F1 LOADING
451. REPEAT LOAD
452. 3 0.773496 23 1.0
453. LOAD 93 LOADTYPE LIVE TITLE 4F1 LOADING
454. REPEAT LOAD
455. 4 0.773496 23 1.0
456. LOAD 94 LOADTYPE LIVE TITLE 4F1 LOADING
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459. LOAD 95 LOADTYPE LIVE TITLE 4F1 LOADING
460. REPEAT LOAD
461. 6 0.773496 23 1.0
462. LOAD 96 LOADTYPE LIVE TITLE 4F1 LOADING
463. REPEAT LOAD
464. 7 0.773496 23 1.0
465. LOAD 97 LOADTYPE LIVE TITLE 4F1 LOADING
466. REPEAT LOAD
467. 8 0.773496 23 1.0
468. LOAD 98 LOADTYPE LIVE TITLE 4F1 LOADING
469. REPEAT LOAD
470. 9 0.773496 23 1.0
471. LOAD 99 LOADTYPE LIVE TITLE 4F1 LOADING
472. REPEAT LOAD
473. 10 0.773496 23 1.0
474. LOAD 100 LOADTYPE LIVE TITLE 4F1 LOADING
475. REPEAT LOAD
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477. LOAD 101 LOADTYPE LIVE TITLE 4F1 LOADING
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480. LOAD 102 LOADTYPE LIVE TITLE 4F1 LOADING
481. REPEAT LOAD
482. 13 0.773496 23 1.0
483. LOAD 103 LOADTYPE LIVE TITLE 4F1 LOADING
484. REPEAT LOAD
485. 14 0.773496 23 1.0
486. LOAD 104 LOADTYPE LIVE TITLE 4F1 LOADING
487. REPEAT LOAD
488. 15 0.773496 23 1.0

489. LOAD 105 LOADTYPE LIVE TITLE 4F1 LOADING
490. REPEAT LOAD
491. 16 0.773496 23 1.0
492. LOAD 106 LOADTYPE LIVE TITLE 4F1 LOADING
493. REPEAT LOAD
494. 17 0.773496 23 1.0
495. LOAD 107 LOADTYPE LIVE TITLE 4F1 LOADING
496. REPEAT LOAD
497. 18 0.773496 23 1.0
498. LOAD 108 LOADTYPE LIVE TITLE 4F1 LOADING
499. REPEAT LOAD
500. 19 0.773496 23 1.0
501. LOAD 109 LOADTYPE LIVE TITLE 4F1 LOADING
502. REPEAT LOAD
503. 20 0.773496 23 1.0
504. LOAD 110 LOADTYPE LIVE TITLE 4F1 LOADING
505. REPEAT LOAD
506. 21 0.773496 23 1.0
507. LOAD 111 LOADTYPE LIVE TITLE 4F1 LOADING
508. REPEAT LOAD
509. 22 0.773496 23 1.0
510. LOAD 112 LOADTYPE LIVE TITLE 5C1 LOADING
511. REPEAT LOAD
512. 1 0.885283 23 1.0
513. LOAD 113 LOADTYPE LIVE TITLE 5C1 LOADING
514. REPEAT LOAD
515. 2 0.885283 23 1.0
516. LOAD 114 LOADTYPE LIVE TITLE 5C1 LOADING
517. REPEAT LOAD
518. 3 0.885283 23 1.0
519. LOAD 115 LOADTYPE LIVE TITLE 5C1 LOADING
520. REPEAT LOAD
521. 4 0.885283 23 1.0
522. LOAD 116 LOADTYPE LIVE TITLE 5C1 LOADING
523. REPEAT LOAD
524. 5 0.885283 23 1.0
525. LOAD 117 LOADTYPE LIVE TITLE 5C1 LOADING
526. REPEAT LOAD
527. 6 0.885283 23 1.0
528. LOAD 118 LOADTYPE LIVE TITLE 5C1 LOADING
529. REPEAT LOAD
530. 7 0.885283 23 1.0
531. LOAD 119 LOADTYPE LIVE TITLE 5C1 LOADING
532. REPEAT LOAD
533. 8 0.885283 23 1.0
534. LOAD 120 LOADTYPE LIVE TITLE 5C1 LOADING
535. REPEAT LOAD
536. 9 0.885283 23 1.0
537. LOAD 121 LOADTYPE LIVE TITLE 5C1 LOADING
538. REPEAT LOAD
539. 10 0.885283 23 1.0
540. LOAD 122 LOADTYPE LIVE TITLE 5C1 LOADING
541. REPEAT LOAD
542. 11 0.885283 23 1.0
543. LOAD 123 LOADTYPE LIVE TITLE 5C1 LOADING
544. REPEAT LOAD

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545. 12 0.885283 23 1.0
 546. LOAD 124 LOADTYPE LIVE TITLE 5C1 LOADING
 547. REPEAT LOAD
 548. 13 0.885283 23 1.0
 549. LOAD 125 LOADTYPE LIVE TITLE 5C1 LOADING
 550. REPEAT LOAD
 551. 14 0.885283 23 1.0
 552. LOAD 126 LOADTYPE LIVE TITLE 5C1 LOADING
 553. REPEAT LOAD
 554. 15 0.885283 23 1.0
 555. LOAD 127 LOADTYPE LIVE TITLE 5C1 LOADING
 556. REPEAT LOAD
 557. 16 0.885283 23 1.0
 558. LOAD 128 LOADTYPE LIVE TITLE 5C1 LOADING
 559. REPEAT LOAD
 560. 17 0.885283 23 1.0
 561. LOAD 129 LOADTYPE LIVE TITLE 5C1 LOADING
 562. REPEAT LOAD
 563. 18 0.885283 23 1.0
 564. LOAD 130 LOADTYPE LIVE TITLE 5C1 LOADING
 565. REPEAT LOAD
 566. 19 0.885283 23 1.0
 567. LOAD 131 LOADTYPE LIVE TITLE 5C1 LOADING
 568. REPEAT LOAD
 569. 20 0.885283 23 1.0
 570. LOAD 132 LOADTYPE LIVE TITLE 5C1 LOADING
 571. REPEAT LOAD
 572. 21 0.885283 23 1.0
 573. LOAD 133 LOADTYPE LIVE TITLE 5C1 LOADING
 574. REPEAT LOAD
 575. 22 0.885283 23 1.0
 576. LOAD GENERATION 29
 577. TYPE 1 0.3802 158.646 0 XINC 0.9955 YRANGE 2
 578. LOAD GENERATION 29
 579. TYPE 1 42.5052 159.165 0 XINC 0.9955 YRANGE 2
 580. PDELTA 10 ANALYSIS

P R O B L E M S T A T I S T I C S

NUMBER OF JOINTS/MEMBER+ELEMENTS/SUPPORTS = 42/ 66/ 3

SOLVER USED IS THE OUT-OF-CORE BASIC SOLVER

ORIGINAL/FINAL BAND-WIDTH= 19/ 5/ 36 DOF
 TOTAL PRIMARY LOAD CASES = 191, TOTAL DEGREES OF FREEDOM = 234
 SIZE OF STIFFNESS MATRIX = 9 DOUBLE KILO-WORDS
 REQD/AVAIL. DISK SPACE = 13.3/ 515538.4 MB

ZERO STIFFNESS IN DIRECTION 3 AT JOINT 26 EQN.NO. 45

LOADS APPLIED OR DISTRIBUTED HERE FROM ELEMENTS WILL BE IGNORED.
 THIS MAY BE DUE TO ALL MEMBERS AT THIS JOINT BEING RELEASED OR
 EFFECTIVELY RELEASED IN THIS DIRECTION.

ZERO STIFFNESS IN DIRECTION 4 AT JOINT	26 EQN.NO.	46
ZERO STIFFNESS IN DIRECTION 5 AT JOINT	26 EQN.NO.	47
ZERO STIFFNESS IN DIRECTION 6 AT JOINT	26 EQN.NO.	48
ZERO STIFFNESS IN DIRECTION 3 AT JOINT	27 EQN.NO.	51
ZERO STIFFNESS IN DIRECTION 4 AT JOINT	27 EQN.NO.	52
ZERO STIFFNESS IN DIRECTION 5 AT JOINT	27 EQN.NO.	53
ZERO STIFFNESS IN DIRECTION 6 AT JOINT	27 EQN.NO.	54
ZERO STIFFNESS IN DIRECTION 3 AT JOINT	35 EQN.NO.	63
ZERO STIFFNESS IN DIRECTION 4 AT JOINT	35 EQN.NO.	64
ZERO STIFFNESS IN DIRECTION 5 AT JOINT	35 EQN.NO.	65
ZERO STIFFNESS IN DIRECTION 6 AT JOINT	35 EQN.NO.	66

**WARNING - THERE WERE MORE THAN 12 DOF WITH ZERO STIFFNESS.

THE FIRST 12 ARE LISTED ABOVE.

TOTAL # TRANSLATIONAL= 17 TOTAL # ROTATIONAL= 51

++ Adjusting Displacements	19:11:59
++ Adjusting Displacements	19:11:59
++ Adjusting Displacements	19:11:59
++ Adjusting Displacements	19:11:59
++ Adjusting Displacements	19:11:59
++ Adjusting Displacements	19:12: 0
++ Adjusting Displacements	19:12: 0
++ Adjusting Displacements	19:12: 0
++ Adjusting Displacements	19:12: 0
++ Adjusting Displacements	19:12: 0

581. *LOAD LIST 1 TO 22
 582. *PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 1 TO 14
 583. *HS-20 WITHOUT LOWER DECK MAX FLOOR BEAM FORCES ABOVE
 584. *PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 15 TO 17
 585. *HS-20 WITHOUT LOWER DECK MAX COLUMN 3 FORCES ABOVE
 586. *PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 18 TO 21
 587. *HS-20 WITHOUT LOWER DECK MAX COLUMN 2 FORCES ABOVE
 588. *PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 22 TO 24
 589. *HS-20 WITHOUT LOWER DECK MAX COLUMN 1 FORCES ABOVE
 590. LOAD LIST 24 TO 45
 591. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 1 TO 14

MEMBER FORCE ENVELOPE

 ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
1 MAX	0.00	0.00	24	176.36	5.93	27			
	0.00	0.00	24	0.00	0.00	24	0.00	0.00	24
	MIN	-41.70	5.93	39	0.00	5.93	44		
	0.00	5.93	45	0.00	5.93	45	0.51 T	5.93	39
2 MAX	0.00	0.00	28	644.61	6.50	27			
	0.00	0.00	24	0.00	0.00	24	0.00	0.00	28
	MIN	-83.39	5.85	39	0.00	6.50	43		
	0.00	6.50	45	0.00	6.50	45	1.03 T	6.50	39
3 MAX	110.63	0.00	24	589.62	0.00	26			
	0.00	0.00	24	0.00	0.00	24	12.51 C	0.00	29
	MIN	-8.33	5.85	38	-250.23	5.85	29		
	0.00	5.85	45	0.00	5.85	45	9.56 T	5.85	39
4 MAX	86.78	0.00	26	361.48	0.00	39			
	0.00	0.00	24	0.00	0.00	24	12.51 C	0.00	29
	MIN	-11.31	5.85	35	-484.35	5.85	29		
	0.00	5.85	45	0.00	5.85	45	9.56 T	5.85	39
5 MAX	49.18	0.00	26	277.02	0.00	37			
	0.00	0.00	24	0.00	0.00	24	12.00 C	0.00	29
	MIN	-48.91	5.85	29	-514.13	1.17	29		
	0.00	5.85	45	0.00	5.85	45	9.56 T	5.85	39
6 MAX	15.96	0.00	27	215.09	0.00	37			
	0.00	0.00	24	0.00	0.00	24	10.97 C	0.00	29
	MIN	-90.61	5.85	29	-441.23	0.00	29		
	0.00	5.85	45	0.00	5.85	45	9.56 T	5.85	39
7 MAX	15.32	0.00	39	478.31	5.83	34			
	0.00	0.00	24	0.00	0.00	24	10.46 C	0.00	29
	MIN	-90.61	5.83	29	-129.77	0.00	28		
	0.00	5.83	45	0.00	5.83	45	9.56 T	5.83	39
8 MAX	103.30	0.00	32	480.29	0.00	35			
	0.00	0.00	24	0.00	0.00	24	11.70 C	0.00	38
	MIN	-10.11	5.83	30	-143.23	5.83	37		
	0.00	5.83	45	0.00	5.83	45	7.91 T	5.83	30
9 MAX	90.60	0.00	38	188.46	5.85	28			
	0.00	0.00	24	0.00	0.00	24	11.70 C	0.00	38

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MIN	-10.68	5.85	43	-446.03	5.85	38			
	0.00	5.85	45	0.00	5.85	45	7.91 T	5.85	30
10 MAX	48.90	0.00	38	223.19	5.85	28			
	0.00	0.00	24	0.00	0.00	24	11.18 C	0.00	38
MIN	-44.41	5.27	42	-518.88	4.68	38			
	0.00	5.85	45	0.00	5.85	45	7.91 T	5.85	30
11 MAX	8.88	0.00	36	271.68	5.85	30			
	0.00	0.00	24	0.00	0.00	24	10.16 C	0.00	38
MIN	-82.01	5.85	42	-489.08	0.00	38			
	0.00	5.85	45	0.00	5.85	45	7.91 T	5.85	30
12 MAX	8.19	0.00	29	478.93	5.85	42			
	0.00	0.00	24	0.00	0.00	24	9.64 C	0.00	38
MIN	-95.16	5.27	40	-258.21	0.00	37			
	0.00	5.85	45	0.00	5.85	45	7.91 T	5.85	30
13 MAX	83.39	0.00	30	481.28	0.00	30			
	0.00	0.00	24	0.00	0.00	24	1.03 C	0.00	30
MIN	0.00	4.77	44	0.00	2.86	44			
	0.00	4.77	45	0.00	4.77	45	0.00	4.77	44
14 MAX	41.70	0.00	30	166.79	0.00	30			
	0.00	0.00	24	0.00	0.00	24	0.51 C	0.00	30
MIN	0.00	5.62	45	0.00	5.62	45			
	0.00	5.62	45	0.00	5.62	45	0.00	5.62	45

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

592. *HS-20 MAX FLOOR BEAM FORCES ABOVE

593. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 15 TO 17

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
15 MAX	-1.52	0.00	28	28.06	15.39	37			
	0.00	0.00	24	0.00	0.00	24	214.72 C	0.00	24
MIN	-3.48	15.39	37	-25.63	0.00	37			
	0.00	15.39	45	0.00	15.39	45	21.69 C	15.39	42
16 MAX	11.18	0.00	34	28.06	0.00	37			
	0.00	0.00	24	0.00	0.00	24	194.31 C	0.00	24
MIN	1.79	5.33	41	-45.59	5.33	29			
	0.00	5.33	45	0.00	5.33	45	0.14 C	5.33	38
17 MAX	9.75	0.00	39	195.91	20.89	29			
	0.00	0.00	24	0.00	0.00	24	185.84 C	0.00	24
MIN	-11.57	20.89	29	-193.38	20.89	39			
	0.00	20.89	45	0.00	20.89	45	8.33 T	20.89	38

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

594. *HS-20 MAX COLUMN 3 FORCES ABOVE

595. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 18 TO 21

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
18 MAX	5.42	0.00	37	18.96	0.00	37			
	0.00	0.00	24	0.00	0.00	24	198.55 C	0.00	32
MIN	1.55	9.42	28	-32.11	9.42	37			
	0.00	9.42	45	0.00	9.42	45	32.98 C	9.42	25
19 MAX	-4.00	0.00	41	14.39	5.98	28			
	0.00	0.00	24	0.00	0.00	24	166.86 C	0.00	32
MIN	-4.34	5.98	25	-32.11	0.00	37			
	0.00	5.98	45	0.00	5.98	45	10.58 C	5.98	25
20 MAX	16.55	0.00	37	103.36	5.33	28			
	0.00	0.00	24	0.00	0.00	24	166.85 C	0.00	32
MIN	-16.68	5.33	28	-95.40	5.33	37			
	0.00	5.33	45	0.00	5.33	45	10.58 C	5.33	25
21 MAX	15.58	0.00	28	241.64	21.25	37			
	0.00	0.00	24	0.00	0.00	24	170.40 C	0.00	32
MIN	-15.84	21.25	37	-228.12	21.25	28			
	0.00	21.25	45	0.00	21.25	45	5.21 T	21.25	25

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

596. *HS-20 MAX COLUMN 2 FORCES ABOVE

597. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 22 TO 24

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
22 MAX	-0.03	0.00	28	14.42	15.39	37			
	0.00	0.00	24	0.00	0.00	24	167.03 C	0.00	40
MIN	-1.94	15.39	37	-15.56	0.00	37			
	0.00	15.39	45	0.00	15.39	45	11.32 T	15.39	26
23 MAX	6.82	0.00	25	37.13	5.33	38			
	0.00	0.00	24	0.00	0.00	24	170.35 C	0.00	40
MIN	-5.04	5.33	35	-28.86	5.33	27			
	0.00	5.33	45	0.00	5.33	45	8.19 T	5.33	29
24 MAX	10.58	0.00	38	150.33	21.61	30			
	0.00	0.00	24	0.00	0.00	24	170.35 C	0.00	40
MIN	-7.78	21.61	30	-191.24	21.61	38			
	0.00	21.61	45	0.00	21.61	45	8.19 T	21.61	29

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

598. *HS-20 MAX COLUMN 1 FORCES ABOVE

599. PRINT MAXFORCE ENVELOPE LIST 25 TO 66

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
25 MAX	0.00	0.00	24	0.00	0.00	24			
	0.00	0.29	24	0.00	0.00	24	2.54 T	0.00	42
	MIN	0.00	3.46	45	0.00	3.46	45		
	0.00	3.46	25	0.00	3.46	45	2.54 T	3.46	24
26 MAX	0.00	0.00	24	0.00	0.00	24			
	0.00	0.00	39	0.00	0.00	24	4.08 C	0.00	39
	MIN	0.00	6.16	45	0.00	6.16	45		
	-0.01	6.16	32	0.00	6.16	45	24.80 T	6.16	29
27 MAX	0.00	0.00	24	0.00	0.00	24			
	0.01	0.00	37	0.00	0.00	24	30.94 C	0.00	39
	MIN	0.00	5.60	45	0.00	5.60	45		
	0.00	5.14	45	0.00	5.60	45	5.37 C	5.60	29
28 MAX	0.00	0.00	24	0.00	0.00	24			
	0.00	0.00	32	0.00	0.00	24	30.94 C	0.00	39
	MIN	0.00	5.60	45	0.00	5.60	45		
	0.00	5.60	25	0.00	5.60	45	5.37 C	5.60	29
29 MAX	0.00	0.00	24	0.00	0.00	24			
	0.00	0.00	28	0.00	0.00	24	15.90 C	0.00	37
	MIN	0.00	5.60	45	0.00	5.60	45		
	0.00	5.60	39	0.00	5.60	45	11.89 T	5.60	28
30 MAX	0.00	0.00	24	0.00	0.00	24			
	0.00	0.00	30	0.00	0.00	24	15.90 C	0.00	37
	MIN	0.00	6.28	45	0.00	6.28	45		
	0.00	6.28	37	0.00	6.28	45	11.89 T	6.28	28
31 MAX	0.00	0.00	24	0.00	0.00	24			
	0.01	0.00	37	0.00	0.00	24	0.29 C	0.00	28
	MIN	0.00	6.28	45	0.00	6.28	45		
	0.00	6.28	28	0.00	6.28	45	26.46 T	6.28	37
32 MAX	0.00	0.00	24	0.00	0.00	24			
	0.00	0.00	32	0.00	0.00	24	0.29 C	0.00	28
	MIN	0.00	5.60	45	0.00	5.60	45		
	0.00	5.60	41	0.00	5.60	45	26.46 T	5.60	37
33 MAX	0.00	0.00	24	0.00	0.00	24			
	0.00	0.00	32	0.00	0.00	24	4.66 C	0.00	28

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MIN	0.00	5.60	45	0.00	5.60	45			
	0.00	5.60	40	0.00	5.60	45	18.34	T	5.60 38
34 MAX	0.00	0.00	24	0.00	0.00	24			
	0.00	0.00	31	0.00	0.00	24	4.66	C	0.00 28
MIN	0.00	5.60	45	0.00	5.60	45			
	0.00	5.60	37	0.00	5.60	45	18.34	T	5.60 38
35 MAX	0.00	0.00	24	0.00	0.00	24			
	0.00	0.00	41	0.00	0.00	24	11.11	C	0.00 30
MIN	0.00	6.16	45	0.00	6.16	45			
	0.00	6.16	38	0.00	6.16	45	14.93	T	6.16 38
36 MAX	0.00	0.00	24	0.00	0.00	24			
	0.00	0.51	24	0.00	0.00	24	6.50	T	0.00 29
MIN	0.00	6.16	45	0.00	6.16	45			
	0.00	6.16	42	0.00	6.16	45	11.37	T	6.16 43
37 MAX	0.00	0.00	24	0.00	0.00	24			
	0.00	0.47	24	0.00	0.00	24	6.50	T	0.00 29
MIN	0.00	5.60	45	0.00	5.60	45			
	0.00	5.60	42	0.00	5.60	45	11.37	T	5.60 43
38 MAX	0.00	0.00	24	0.00	0.00	24			
	0.00	0.00	25	0.00	0.00	24	9.82	T	0.00 30
MIN	0.00	5.60	45	0.00	5.60	45			
	0.00	5.60	32	0.00	5.60	45	18.49	T	5.60 38
39 MAX	0.00	0.00	24	0.00	0.00	24			
	0.00	0.00	39	0.00	0.00	24	9.82	T	0.00 30
MIN	0.00	5.60	45	0.00	5.60	45			
	0.00	5.14	45	0.00	5.60	45	18.49	T	5.60 38
40 MAX	0.00	0.00	24	0.00	0.00	24			
	0.00	0.00	32	0.00	0.00	24	2.04	C	0.00 30
MIN	0.00	6.28	45	0.00	6.28	45			
	0.00	6.28	30	0.00	6.28	45	27.42	T	6.28 32
41 MAX	0.00	0.00	24	0.00	0.00	24			
	0.00	0.00	31	0.00	0.00	24	8.60	C	0.00 25
MIN	0.00	6.28	45	0.00	6.28	45			
	0.00	6.28	39	0.00	6.28	45	22.50	T	6.28 31
42 MAX	0.00	0.00	24	0.00	0.00	24			
	0.00	0.00	41	0.00	0.00	24	12.49	C	0.00 39
MIN	0.00	5.60	45	0.00	5.60	45			
	0.00	5.60	37	0.00	5.60	45	2.55	C	5.60 29
43 MAX	0.00	0.00	24	0.00	0.00	24			
	0.00	0.00	41	0.00	0.00	24	12.49	C	0.00 39
MIN	0.00	5.60	45	0.00	5.60	45			
	0.00	5.60	32	0.00	5.60	45	2.55	C	5.60 29
44 MAX	0.00	0.00	24	0.00	0.00	24			
	0.00	0.00	38	0.00	0.00	24	4.49	C	0.00 38

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MIN	0.00	5.60	45	0.00	5.60	45			
	0.00	5.60	33	0.00	5.60	45	1.30	T	5.60 25
45 MAX	0.00	0.00	24	0.00	0.00	24			
	0.00	0.00	38	0.00	0.00	24	4.49	C	0.00 38
MIN	0.00	6.16	45	0.00	6.16	45			
	0.00	6.16	33	0.00	6.16	45	1.30	T	6.16 25
46 MAX	0.00	0.00	24	0.00	0.00	24			
	0.00	0.00	42	0.00	0.00	24	0.00	C	0.00 43
MIN	0.00	5.33	45	0.00	5.33	45			
	0.00	4.89	45	0.00	5.33	45	0.00	C	5.33 29
47 MAX	0.00	0.00	24	0.00	0.00	24			
	0.00	0.00	32	0.00	0.00	24	9.87	C	0.00 39
MIN	0.00	5.33	45	0.00	5.33	45			
	0.00	5.33	25	0.00	5.33	45	9.86	C	5.33 29
48 MAX	0.00	0.00	24	0.00	0.00	24			
	0.00	0.00	32	0.00	0.00	24	0.00	C	0.00 38
MIN	0.00	5.33	45	0.00	5.33	45			
	0.00	5.33	39	0.00	5.33	45	0.00	C	5.33 30
49 MAX	0.00	0.00	24	0.00	0.00	24			
	0.00	0.44	24	0.00	0.00	24	10.46	C	0.00 37
MIN	0.00	5.33	45	0.00	5.33	45			
	0.00	5.33	25	0.00	5.33	45	10.46	C	5.33 30
50 MAX	0.00	0.00	24	0.00	0.00	24			
	0.00	0.00	28	0.00	0.00	24	0.00	C	0.00 37
MIN	0.00	5.33	45	0.00	5.33	45			
	0.00	5.33	37	0.00	5.33	45	0.00	T	5.33 28
51 MAX	0.00	0.00	24	0.00	0.00	24			
	0.00	0.00	41	0.00	0.00	24	0.00	C	0.00 39
MIN	0.00	5.33	45	0.00	5.33	45			
	0.00	5.33	37	0.00	5.33	45	0.00	C	5.33 29
52 MAX	0.00	0.00	24	0.00	0.00	24			
	0.00	0.00	40	0.00	0.00	24	0.00	C	0.00 38
MIN	0.00	5.33	45	0.00	5.33	45			
	0.00	5.33	32	0.00	5.33	45	0.00	C	5.33 26
53 MAX	0.00	0.00	24	0.00	0.00	24			
	0.00	0.00	24	0.00	0.00	24	0.00	C	0.00 38
MIN	0.00	5.33	45	0.00	5.33	45			
	0.00	5.33	45	0.00	5.33	45	0.00	T	5.33 30
54 MAX	0.00	0.00	24	0.00	0.00	24			
	0.00	0.00	42	0.00	0.00	24	4.67	C	0.00 24
MIN	0.00	6.36	45	0.00	6.36	45			
	0.00	6.36	29	0.00	6.36	45	4.67	C	6.36 38
55 MAX	0.00	0.00	24	0.00	0.00	24			
	0.01	0.00	32	0.00	0.00	24	30.86	C	0.00 32

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MIN	0.00	8.15	45	0.00	8.15	45			
	0.00	7.47	45	0.00	8.15	45	23.33	C	8.15 30
56 MAX	0.00	0.00	24	0.00	0.00	24			
	0.00	0.64	24	0.00	0.00	24	7.15	T	0.00 30
MIN	0.00	7.74	45	0.00	7.74	45			
	0.00	7.74	32	0.00	7.74	45	14.30	T	7.74 32
57 MAX	0.00	0.00	24	0.00	0.00	24			
	0.00	0.00	25	0.00	0.00	24	0.00	T	0.00 32
MIN	0.00	7.74	45	0.00	7.74	45			
	0.00	7.74	33	0.00	7.74	45	7.16	T	7.74 30
58 MAX	0.00	0.00	24	0.00	0.00	24			
	0.00	0.64	24	0.00	0.00	24	21.46	C	0.00 30
MIN	0.00	7.74	45	0.00	7.74	45			
	0.00	7.74	25	0.00	7.74	45	14.30	C	7.74 32
59 MAX	0.00	0.00	24	0.00	0.00	24			
	0.00	0.00	25	0.00	0.00	24	0.96	T	0.00 32
MIN	0.00	8.24	45	0.00	8.24	45			
	0.00	7.55	45	0.00	8.24	45	16.42	T	8.24 41
60 MAX	0.00	0.00	24	0.00	0.00	24			
	0.00	0.69	24	0.00	0.00	24	18.48	C	0.00 31
MIN	0.00	8.24	45	0.00	8.24	45			
	0.00	8.24	32	0.00	8.24	45	1.92	C	8.24 25
61 MAX	0.00	0.00	24	0.00	0.00	24			
	0.00	0.00	41	0.00	0.00	24	8.74	C	0.00 25
MIN	0.00	7.74	45	0.00	7.74	45			
	0.00	7.74	37	0.00	7.74	45	0.04	C	7.74 31
62 MAX	0.00	0.00	24	0.00	0.00	24			
	0.00	0.00	26	0.00	0.00	24	0.04	T	0.00 31
MIN	0.00	7.74	45	0.00	7.74	45			
	0.00	7.74	41	0.00	7.74	45	8.74	T	7.74 25
63 MAX	0.00	0.00	24	0.00	0.00	24			
	0.00	0.00	41	0.00	0.00	24	8.74	C	0.00 25
MIN	0.00	7.74	45	0.00	7.74	45			
	0.00	7.74	26	0.00	7.74	45	0.04	C	7.74 31
64 MAX	0.00	0.00	24	0.00	0.00	24			
	0.00	0.00	26	0.00	0.00	24	0.04	T	0.00 31
MIN	0.00	8.15	45	0.00	8.15	45			
	0.00	8.15	41	0.00	8.15	45	9.20	T	8.15 25
65 MAX	0.00	0.00	24	0.00	0.00	24			
	0.01	0.00	44	0.00	0.00	24	30.00	C	0.00 44
MIN	0.00	8.67	45	0.00	8.67	45			
	0.00	7.95	45	0.00	8.67	45	21.09	C	8.67 41
66 MAX	0.00	0.00	24	0.00	0.00	24			
	0.00	0.72	24	0.00	0.00	24	19.36	C	0.00 44

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MIN	0.00	8.67	45	0.00	8.67	45			
	0.00	8.67	37	0.00	8.67	45	10.54 C	8.67	25

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

600. *TRUSS MEMBER FORCES ABOVE

601. LOAD LIST 46 TO 67

602. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 1 TO 14

MEMBER FORCE ENVELOPE

 ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
1 MAX	0.00	0.00	46	76.91	5.93	49			
	0.00	0.00	46	0.00	0.00	46	0.00	0.00	46
	-18.18	5.93	61	0.00	5.93	66			
MIN	0.00	5.93	67	0.00	5.93	67	0.22 T	5.93	49
	0.00	0.00	50	281.12	6.50	49			
	0.00	0.00	46	0.00	0.00	46	0.00	0.00	50
2 MAX	-36.37	6.50	61	0.00	6.50	65			
	0.00	6.50	67	0.00	6.50	67	0.45 T	6.50	61
	0.00	0.00	46	259.29	0.00	48			
3 MAX	0.00	0.00	46	0.00	0.00	46	5.82 C	0.00	51
	-3.55	5.85	60	-107.33	5.85	51			
	0.00	5.85	67	0.00	5.85	67	3.80 T	5.85	61
4 MAX	37.92	0.00	48	159.27	0.00	61			
	0.00	0.00	46	0.00	0.00	46	5.82 C	0.00	51
	-4.85	5.85	57	-209.90	5.85	51			
MIN	0.00	5.85	67	0.00	5.85	67	3.80 T	5.85	61
	21.53	0.00	48	121.99	0.00	59			
	0.00	0.00	46	0.00	0.00	46	5.60 C	0.00	51
5 MAX	-21.25	5.27	51	-222.99	1.17	51			
	0.00	5.85	67	0.00	5.85	67	3.80 T	5.85	61
	7.04	0.00	49	94.54	0.00	59			
6 MAX	0.00	0.00	46	0.00	0.00	46	5.15 C	0.00	51
	-39.43	5.85	51	-191.59	0.00	51			
	0.00	5.85	67	0.00	5.85	67	3.80 T	5.85	61
7 MAX	6.75	0.00	61	208.39	5.83	56			
	0.00	0.00	46	0.00	0.00	46	4.92 C	0.00	51
	-39.43	5.83	51	-56.30	0.00	50			
MIN	0.00	5.83	67	0.00	5.83	67	3.80 T	5.83	61
	44.95	0.00	54	206.79	0.00	57			
	0.00	0.00	46	0.00	0.00	46	5.08 C	0.00	60
8 MAX	-4.51	5.83	52	-64.53	5.83	59			
	0.00	5.83	67	0.00	5.83	67	3.47 T	5.83	52
	39.41	0.00	60	80.68	5.85	50			
9 MAX	0.00	0.00	46	0.00	0.00	46	5.08 C	0.00	60

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MIN	-4.75	5.85	65	-195.93	5.85	60			
	0.00	5.85	67	0.00	5.85	67	3.47 T	5.85	52
10 MAX	21.22	0.00	60	96.38	5.85	50			
	0.00	0.00	46	0.00	0.00	46	4.85 C	0.00	60
MIN	-19.47	5.85	64	-227.22	4.68	60			
	0.00	5.85	67	0.00	5.85	67	3.47 T	5.85	52
11 MAX	3.77	0.00	58	118.09	5.85	52			
	0.00	0.00	46	0.00	0.00	46	4.41 C	0.00	60
MIN	-35.86	5.85	64	-214.11	0.00	60			
	0.00	5.85	67	0.00	5.85	67	3.47 T	5.85	52
12 MAX	3.47	0.00	51	209.13	5.85	64			
	0.00	0.00	46	0.00	0.00	46	4.18 C	0.00	60
MIN	-41.60	5.85	62	-112.82	0.00	59			
	0.00	5.85	67	0.00	5.85	67	3.47 T	5.85	52
13 MAX	36.37	0.00	52	209.88	0.00	52			
	0.00	0.00	46	0.00	0.00	46	0.45 C	0.00	52
MIN	0.00	4.77	66	0.00	2.86	66			
	0.00	4.77	67	0.00	4.77	67	0.00	4.77	66
14 MAX	18.18	0.00	52	72.74	0.00	52			
	0.00	0.00	46	0.00	0.00	46	0.22 C	0.00	52
MIN	0.00	5.62	67	0.00	5.62	67			
	0.00	5.62	67	0.00	5.62	67	0.00	5.62	67

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

603. *2F1 MAX FLOOR BEAM FORCES ABOVE

604. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 15 TO 17

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
15 MAX	-2.01	0.00	50	22.82	15.39	59			
	0.00	0.00	46	0.00	0.00	46	110.56 C	0.00	46
MIN	-2.86	15.39	59	-21.32	0.00	59			
	0.00	15.39	67	0.00	15.39	67	26.39 C	15.39	64
16 MAX	7.87	0.00	56	22.82	0.00	59			
	0.00	0.00	46	0.00	0.00	46	89.60 C	0.00	46
MIN	3.79	5.33	63	-25.28	5.33	51			
	0.00	5.33	67	0.00	5.33	67	4.93 C	5.33	60
17 MAX	3.88	0.00	61	87.70	20.89	51			
	0.00	0.00	46	0.00	0.00	46	81.13 C	0.00	46
MIN	-5.41	20.89	51	-82.29	20.89	61			
	0.00	20.89	67	0.00	20.89	67	3.55 T	20.89	60

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

605. *2F1 MAX COLUMN 3 FORCES ABOVE

606. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 18 TO 21

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
18 MAX	4.28	0.00	59	14.57	0.00	59			
	0.00	0.00	46	0.00	0.00	46	105.09 C	0.00	54
MIN	2.59	9.42	50	-25.75	9.42	59			
	0.00	9.42	67	0.00	9.42	67	32.89 C	9.42	47
19 MAX	-4.11	0.00	63	8.66	5.98	50			
	0.00	0.00	46	0.00	0.00	46	81.31 C	0.00	54
MIN	-4.26	5.98	47	-25.75	0.00	59			
	0.00	5.98	67	0.00	5.98	67	13.16 C	5.98	47
20 MAX	6.57	0.00	59	50.73	5.33	50			
	0.00	0.00	46	0.00	0.00	46	81.30 C	0.00	54
MIN	-7.89	5.33	50	-35.74	5.33	59			
	0.00	5.33	67	0.00	5.33	67	13.16 C	5.33	47
21 MAX	7.18	0.00	50	102.86	21.25	59			
	0.00	0.00	46	0.00	0.00	46	74.12 C	0.00	54
MIN	-6.52	21.25	59	-101.90	21.25	50			
	0.00	21.25	67	0.00	21.25	67	2.45 T	21.25	47

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

607. *2F1 MAX COLUMN 2 FORCES ABOVE

608. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 22 TO 24

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
22 MAX	-0.58	0.00	50	9.94	15.39	59			
	0.00	0.00	46	0.00	0.00	46	71.36 C	0.00	62
MIN	-1.42	15.39	59	-11.93	0.00	59			
	0.00	15.39	67	0.00	15.39	67	6.41 T	15.39	48
23 MAX	3.79	0.00	47	15.42	5.33	60			
	0.00	0.00	46	0.00	0.00	46	74.39 C	0.00	62
MIN	-1.37	5.33	57	-13.31	5.33	49			
	0.00	5.33	67	0.00	5.33	67	3.47 T	5.33	51
24 MAX	4.59	0.00	60	65.40	21.61	52			
	0.00	0.00	46	0.00	0.00	46	74.39 C	0.00	62
MIN	-3.41	21.61	52	-83.74	21.61	60			
	0.00	21.61	67	0.00	21.61	67	3.47 T	21.61	51

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

609. *2F1 MAX COLUMN 1 FORCES ABOVE

610. LOAD LIST 68 TO 89

611. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 1 TO 14

MEMBER FORCE ENVELOPE

 ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
1 MAX	0.00	0.00	68	117.22	5.93	71			
	0.00	0.00	68	0.00	0.00	68	0.00	0.00	68
	MIN	-27.71	5.93	83	0.00	5.93	88		
	0.00	5.93	89	0.00	5.93	89	0.34 T	5.93	83
2 MAX	0.00	0.00	72	428.44	6.50	71			
	0.00	0.00	68	0.00	0.00	68	0.00	0.00	72
	MIN	-55.43	6.50	83	0.00	6.50	87		
	0.00	6.50	89	0.00	6.50	89	0.68 T	6.50	83
3 MAX	73.58	0.00	68	393.15	0.00	70			
	0.00	0.00	68	0.00	0.00	68	8.53 C	0.00	73
	MIN	-5.49	5.85	82	-165.22	5.85	73		
	0.00	5.85	89	0.00	5.85	89	6.13 T	5.85	83
4 MAX	57.72	0.00	70	241.20	0.00	83			
	0.00	0.00	68	0.00	0.00	68	8.53 C	0.00	73
	MIN	-7.47	5.85	79	-321.11	5.85	73		
	0.00	5.85	89	0.00	5.85	89	6.13 T	5.85	83
5 MAX	32.73	0.00	70	184.80	0.00	81			
	0.00	0.00	68	0.00	0.00	68	8.19 C	0.00	73
	MIN	-32.46	5.85	73	-340.96	1.17	73		
	0.00	5.85	89	0.00	5.85	89	6.13 T	5.85	83
6 MAX	10.65	0.00	71	143.39	0.00	81			
	0.00	0.00	68	0.00	0.00	68	7.51 C	0.00	73
	MIN	-60.17	5.85	73	-292.75	0.00	73		
	0.00	5.85	89	0.00	5.85	89	6.13 T	5.85	83
7 MAX	10.22	0.00	83	317.77	5.83	78			
	0.00	0.00	68	0.00	0.00	68	7.17 C	0.00	73
	MIN	-60.17	5.83	73	-86.07	0.00	72		
	0.00	5.83	89	0.00	5.83	89	6.13 T	5.83	83
8 MAX	68.60	0.00	76	317.63	0.00	79			
	0.00	0.00	68	0.00	0.00	68	7.76 C	0.00	82
	MIN	-6.78	5.83	74	-96.42	5.83	81		
	0.00	5.83	89	0.00	5.83	89	5.27 T	5.83	74
9 MAX	60.15	0.00	82	124.35	5.85	72			
	0.00	0.00	68	0.00	0.00	68	7.76 C	0.00	82

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MIN	-7.15	5.85	87	-297.27	5.85	82			
	0.00	5.85	89	0.00	5.85	89	5.27 T	5.85	74
10 MAX	32.44	0.00	82	147.76	5.85	72			
	0.00	0.00	68	0.00	0.00	68	7.42 C	0.00	82
MIN	-29.58	5.85	86	-345.40	4.68	82			
	0.00	5.85	89	0.00	5.85	89	5.27 T	5.85	74
11 MAX	5.84	0.00	80	180.32	5.85	74			
	0.00	0.00	68	0.00	0.00	68	6.74 C	0.00	82
MIN	-54.56	5.27	86	-325.52	0.00	82			
	0.00	5.85	89	0.00	5.85	89	5.27 T	5.85	74
12 MAX	5.38	0.00	73	318.47	5.85	86			
	0.00	0.00	68	0.00	0.00	68	6.40 C	0.00	82
MIN	-63.31	5.85	84	-171.71	0.00	81			
	0.00	5.85	89	0.00	5.85	89	5.27 T	5.85	74
13 MAX	55.43	0.00	74	319.87	0.00	74			
	0.00	0.00	68	0.00	0.00	68	0.69 C	0.00	74
MIN	0.00	4.77	88	0.00	2.86	88			
	0.00	4.77	89	0.00	4.77	89	0.00	4.77	88
14 MAX	27.71	0.00	74	110.86	0.00	74			
	0.00	0.00	68	0.00	0.00	68	0.34 C	0.00	74
MIN	0.00	5.62	89	0.00	5.62	89			
	0.00	5.62	89	0.00	5.62	89	0.00	5.62	89

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

612. *3F1 MAX FLOOR BEAM FORCES ABOVE

613. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 15 TO 17

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
15 MAX	-1.81	0.00	72	24.94	15.39	81			
	0.00	0.00	68	0.00	0.00	68	152.77 C	0.00	68
MIN	-3.11	15.39	81	-23.07	0.00	81			
	0.00	15.39	89	0.00	15.39	89	24.49 C	15.39	86
16 MAX	9.22	0.00	78	24.94	0.00	81			
	0.00	0.00	68	0.00	0.00	68	132.03 C	0.00	68
MIN	2.98	5.33	85	-33.51	5.33	73			
	0.00	5.33	89	0.00	5.33	89	2.99 C	5.33	82
17 MAX	6.26	0.00	83	131.58	20.89	73			
	0.00	0.00	68	0.00	0.00	68	123.56 C	0.00	68
MIN	-7.91	20.89	73	-127.36	20.89	83			
	0.00	20.89	89	0.00	20.89	89	5.48 T	20.89	82

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

614. *3F1 MAX COLUMN 3 FORCES ABOVE

615. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 18 TO 21

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
18 MAX	4.74	0.00	81	16.35	0.00	81			
	0.00	0.00	68	0.00	0.00	68	142.97 C	0.00	76
MIN	2.17	9.42	72	-28.33	9.42	81			
	0.00	9.42	89	0.00	9.42	89	32.93 C	9.42	69
19 MAX	-4.06	0.00	85	10.98	5.98	72			
	0.00	0.00	68	0.00	0.00	68	115.98 C	0.00	76
MIN	-4.29	5.98	69	-28.33	0.00	81			
	0.00	5.98	89	0.00	5.98	89	12.12 C	5.98	69
20 MAX	10.61	0.00	81	72.03	5.33	72			
	0.00	0.00	68	0.00	0.00	68	115.98 C	0.00	76
MIN	-11.44	5.33	72	-59.89	5.33	81			
	0.00	5.33	89	0.00	5.33	89	12.12 C	5.33	69
21 MAX	10.58	0.00	72	159.09	21.25	81			
	0.00	0.00	68	0.00	0.00	68	113.14 C	0.00	76
MIN	-10.29	21.25	81	-153.04	21.25	72			
	0.00	21.25	89	0.00	21.25	89	3.57 T	21.25	69

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

616. *3F1 MAX COLUMN 2 FORCES ABOVE

617. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 22 TO 24

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
22 MAX	-0.36	0.00	72	11.76	15.39	81			
	0.00	0.00	68	0.00	0.00	68	110.13 C	0.00	84
MIN	-1.63	15.39	81	-13.40	0.00	81			
	0.00	15.39	89	0.00	15.39	89	8.40 T	15.39	70
23 MAX	5.02	0.00	69	24.21	5.33	82			
	0.00	0.00	68	0.00	0.00	68	113.28 C	0.00	84
MIN	-2.86	5.33	79	-19.60	5.33	71			
	0.00	5.33	89	0.00	5.33	89	5.38 T	5.33	73
24 MAX	7.02	0.00	82	99.86	21.61	74			
	0.00	0.00	68	0.00	0.00	68	113.28 C	0.00	84
MIN	-5.18	21.61	74	-127.33	21.61	82			
	0.00	21.61	89	0.00	21.61	89	5.38 T	21.61	73

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

618. *3F1 MAX COLUMN 1 FORCES ABOVE

619. LOAD LIST 90 TO 111

620. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 1 TO 14

MEMBER FORCE ENVELOPE

 ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
1 MAX	0.00	0.00	90	136.41	5.93	93			
	0.00	0.00	90	0.00	0.00	90	0.00	0.00	90
	MIN	-32.25	5.93	105	0.00	5.93	110		
	0.00	5.93	111	0.00	5.93	111	0.40 T	5.93	93
2 MAX	0.00	0.00	94	498.61	6.50	93			
	0.00	0.00	90	0.00	0.00	90	0.00	0.00	94
	MIN	-64.50	6.50	105	0.00	6.50	109		
	0.00	6.50	111	0.00	6.50	111	0.79 T	6.50	105
3 MAX	85.60	0.00	90	456.92	0.00	92			
	0.00	0.00	90	0.00	0.00	90	9.82 C	0.00	95
	MIN	-6.41	5.85	104	-192.81	5.85	95		
	0.00	5.85	111	0.00	5.85	111	7.24 T	5.85	105
4 MAX	67.15	0.00	92	280.23	0.00	105			
	0.00	0.00	90	0.00	0.00	90	9.82 C	0.00	95
	MIN	-8.71	5.85	101	-374.09	5.85	95		
	0.00	5.85	111	0.00	5.85	111	7.24 T	5.85	105
5 MAX	38.07	0.00	92	214.73	0.00	103			
	0.00	0.00	90	0.00	0.00	90	9.43 C	0.00	95
	MIN	-37.80	5.85	95	-397.16	1.17	95		
	0.00	5.85	111	0.00	5.85	111	7.24 T	5.85	105
6 MAX	12.37	0.00	93	166.66	0.00	103			
	0.00	0.00	90	0.00	0.00	90	8.63 C	0.00	95
	MIN	-70.05	5.85	95	-340.94	0.00	95		
	0.00	5.85	111	0.00	5.85	111	7.24 T	5.85	105
7 MAX	11.87	0.00	105	369.88	5.83	100			
	0.00	0.00	90	0.00	0.00	90	8.23 C	0.00	95
	MIN	-70.05	5.83	95	-100.26	0.00	94		
	0.00	5.83	111	0.00	5.83	111	7.24 T	5.83	105
8 MAX	79.86	0.00	98	370.43	0.00	101			
	0.00	0.00	90	0.00	0.00	90	9.04 C	0.00	104
	MIN	-7.86	5.83	96	-111.62	5.83	103		
	0.00	5.83	111	0.00	5.83	111	6.12 T	5.83	96
9 MAX	70.04	0.00	104	145.16	5.85	94			
	0.00	0.00	90	0.00	0.00	90	9.04 C	0.00	104

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MIN	-8.30	5.85	109	-345.55	5.85	104			
	0.00	5.85	111	0.00	5.85	111	6.12	T	5.85 96
10 MAX	37.78	0.00	104	172.24	5.85	94			
	0.00	0.00	90	0.00	0.00	90	8.64	C	0.00 104
MIN	-34.39	5.27	108	-401.71	4.68	104			
	0.00	5.85	111	0.00	5.85	111	6.12	T	5.85 96
11 MAX	6.82	0.00	102	209.97	5.85	96			
	0.00	0.00	90	0.00	0.00	90	7.85	C	0.00 104
MIN	-63.47	5.85	108	-378.60	0.00	104			
	0.00	5.85	111	0.00	5.85	111	6.12	T	5.85 96
12 MAX	6.30	0.00	95	370.56	5.85	108			
	0.00	0.00	90	0.00	0.00	90	7.45	C	0.00 104
MIN	-73.65	5.85	106	-199.78	0.00	103			
	0.00	5.85	111	0.00	5.85	111	6.12	T	5.85 96
13 MAX	64.50	0.00	96	372.26	0.00	96			
	0.00	0.00	90	0.00	0.00	90	0.80	C	0.00 96
MIN	0.00	4.77	110	0.00	2.86	110			
	0.00	4.77	111	0.00	4.77	111	0.00		4.77 110
14 MAX	32.25	0.00	96	129.01	0.00	96			
	0.00	0.00	90	0.00	0.00	90	0.40	C	0.00 96
MIN	0.00	5.62	111	0.00	5.62	111			
	0.00	5.62	111	0.00	5.62	111	0.00		5.62 111

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

621. *4F1 MAX FLOOR BEAM FORCES ABOVE

622. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 15 TO 17

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
15 MAX	-1.72	0.00	94	25.95	15.39	103			
	0.00	0.00	90	0.00	0.00	90	172.88 C	0.00	90
MIN	-3.23	15.39	103	-23.90	0.00	103			
	0.00	15.39	111	0.00	15.39	111	23.58 C	15.39	108
16 MAX	9.85	0.00	100	25.95	0.00	103			
	0.00	0.00	90	0.00	0.00	90	152.25 C	0.00	90
MIN	2.60	5.33	107	-37.43	5.33	95			
	0.00	5.33	111	0.00	5.33	111	2.06 C	5.33	104
17 MAX	7.39	0.00	105	152.47	20.89	95			
	0.00	0.00	90	0.00	0.00	90	143.78 C	0.00	90
MIN	-9.10	20.89	95	-148.80	20.89	105			
	0.00	20.89	111	0.00	20.89	111	6.41 T	20.89	104

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

623. *4F1 MAX COLUMN 3 FORCES ABOVE

624. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 18 TO 21

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
18 MAX	4.96	0.00	103	17.20	0.00	103			
	0.00	0.00	90	0.00	0.00	90	161.01 C	0.00	98
MIN	1.97	9.42	94	-29.56	9.42	103			
	0.00	9.42	111	0.00	9.42	111	32.95 C	9.42	91
19 MAX	-4.04	0.00	107	12.09	5.98	94			
	0.00	0.00	90	0.00	0.00	90	132.49 C	0.00	98
MIN	-4.31	5.98	91	-29.56	0.00	103			
	0.00	5.98	111	0.00	5.98	111	11.62 C	5.98	91
20 MAX	12.53	0.00	103	82.19	5.33	94			
	0.00	0.00	90	0.00	0.00	90	132.49 C	0.00	98
MIN	-13.14	5.33	94	-71.41	5.33	103			
	0.00	5.33	111	0.00	5.33	111	11.62 C	5.33	91
21 MAX	12.20	0.00	94	185.88	21.25	103			
	0.00	0.00	90	0.00	0.00	90	131.73 C	0.00	98
MIN	-12.09	21.25	103	-177.41	21.25	94			
	0.00	21.25	111	0.00	21.25	111	4.10 T	21.25	91

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

625. *4F1 MAX COLUMN 2 FORCES ABOVE

626. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 22 TO 24

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
22 MAX	-0.25	0.00	94	12.62	15.39	103			
	0.00	0.00	90	0.00	0.00	90	128.60 C	0.00	106
MIN	-1.73	15.39	103	-14.10	0.00	103			
	0.00	15.39	111	0.00	15.39	111	9.35 T	15.39	92
23 MAX	5.60	0.00	91	28.40	5.33	104			
	0.00	0.00	90	0.00	0.00	90	131.80 C	0.00	106
MIN	-3.56	5.33	101	-22.60	5.33	93			
	0.00	5.33	111	0.00	5.33	111	6.29 T	5.33	95
24 MAX	8.17	0.00	104	116.25	21.61	96			
	0.00	0.00	90	0.00	0.00	90	131.80 C	0.00	106
MIN	-6.03	21.61	96	-148.08	21.61	104			
	0.00	21.61	111	0.00	21.61	111	6.29 T	21.61	95

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

627. *4F1 MAX COLUMN 1 FORCES ABOVE

628. LOAD LIST 112 TO 133

629. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 1 TO 14

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
1 MAX	0.00	0.00	112	156.13	5.93	115			
	0.00	0.00	112	0.00	0.00	112	0.00	0.00	112
	-36.91	5.93	127	0.00	5.93	132			
MIN	0.00	5.93	133	0.00	5.93	133	0.45 T	5.93	127
	0.00	0.00	116	570.66	6.50	115			
	0.00	0.00	112	0.00	0.00	112	0.00	0.00	116
2 MAX	-73.83	6.50	127	0.00	6.50	131			
	0.00	6.50	133	0.00	6.50	133	0.91 T	6.50	127
	0.00	0.00	112	522.41	0.00	114			
3 MAX	0.00	0.00	112	0.00	0.00	112	11.15 C	0.00	117
	-7.36	5.85	126	-221.14	5.85	117			
	0.00	5.85	133	0.00	5.85	133	8.39 T	5.85	127
4 MAX	76.84	0.00	114	320.32	0.00	127			
	0.00	0.00	112	0.00	0.00	112	11.15 C	0.00	117
	-9.99	5.85	123	-428.50	5.85	117			
MIN	0.00	5.85	133	0.00	5.85	133	8.39 T	5.85	127
	43.55	0.00	114	245.47	0.00	125			
	0.00	0.00	112	0.00	0.00	112	10.70 C	0.00	117
5 MAX	-43.28	5.85	117	-454.89	1.17	117			
	0.00	5.85	133	0.00	5.85	133	8.39 T	5.85	127
	14.14	0.00	115	190.56	0.00	125			
6 MAX	0.00	0.00	112	0.00	0.00	112	9.79 C	0.00	117
	-80.19	5.85	117	-390.43	0.00	117			
	0.00	5.85	133	0.00	5.85	133	8.39 T	5.85	127
7 MAX	13.57	0.00	127	423.40	5.83	122			
	0.00	0.00	112	0.00	0.00	112	9.33 C	0.00	117
	-80.20	5.83	117	-114.82	0.00	116			
MIN	0.00	5.83	133	0.00	5.83	133	8.39 T	5.83	127
	91.43	0.00	120	424.65	0.00	123			
	0.00	0.00	112	0.00	0.00	112	10.35 C	0.00	126
8 MAX	-8.97	5.83	118	-127.22	5.83	125			
	0.00	5.83	133	0.00	5.83	133	7.00 T	5.83	118
	80.19	0.00	126	166.53	5.85	116			
9 MAX	0.00	0.00	112	0.00	0.00	112	10.35 C	0.00	126

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MIN	-9.47	5.85	131	-395.14	5.85	126			
	0.00	5.85	133	0.00	5.85	133	7.00	T	5.85 118
10 MAX	43.27	0.00	126	197.38	5.85	116			
	0.00	0.00	112	0.00	0.00	112	9.89	C	0.00 126
MIN	-39.34	5.27	130	-459.53	4.68	126			
	0.00	5.85	133	0.00	5.85	133	7.00	T	5.85 118
11 MAX	7.84	0.00	124	240.42	5.85	118			
	0.00	0.00	112	0.00	0.00	112	8.99	C	0.00 126
MIN	-72.62	5.27	130	-433.12	0.00	126			
	0.00	5.85	133	0.00	5.85	133	7.00	T	5.85 118
12 MAX	7.23	0.00	117	424.04	5.85	130			
	0.00	0.00	112	0.00	0.00	112	8.53	C	0.00 126
MIN	-84.27	5.85	128	-228.61	0.00	125			
	0.00	5.85	133	0.00	5.85	133	7.00	T	5.85 118
13 MAX	73.83	0.00	118	426.06	0.00	118			
	0.00	0.00	112	0.00	0.00	112	0.91	C	0.00 118
MIN	0.00	4.77	132	0.00	2.86	132			
	0.00	4.77	133	0.00	4.77	133	0.00		4.77 132
14 MAX	36.91	0.00	118	147.66	0.00	118			
	0.00	0.00	112	0.00	0.00	112	0.45	C	0.00 118
MIN	0.00	5.62	133	0.00	5.62	133			
	0.00	5.62	133	0.00	5.62	133	0.00		5.62 133

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

630. *5C1 MAX FLOOR BEAM FORCES ABOVE

631. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 15 TO 17

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
15 MAX	-1.62	0.00	116	26.99	15.39	125			
	0.00	0.00	112	0.00	0.00	112	193.53 C	0.00	112
MIN	-3.35	15.39	125	-24.75	0.00	125			
	0.00	15.39	133	0.00	15.39	133	22.65 C	15.39	130
16 MAX	10.51	0.00	122	26.99	0.00	125			
	0.00	0.00	112	0.00	0.00	112	173.01 C	0.00	112
MIN	2.20	5.33	129	-41.45	5.33	117			
	0.00	5.33	133	0.00	5.33	133	1.12 C	5.33	126
17 MAX	8.55	0.00	127	173.91	20.89	117			
	0.00	0.00	112	0.00	0.00	112	164.54 C	0.00	112
MIN	-10.32	20.89	117	-170.81	20.89	127			
	0.00	20.89	133	0.00	20.89	133	7.36 T	20.89	126

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

632. *5C1 MAX COLUMN 3 FORCES ABOVE

633. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 18 TO 21

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
18 MAX	5.19	0.00	125	18.07	0.00	125			
	0.00	0.00	112	0.00	0.00	112	179.54 C	0.00	120
	1.76	9.42	116	-30.82	9.42	125			
MIN	0.00	9.42	133	0.00	9.42	133	32.96 C	9.42	113
	-4.02	0.00	129	13.23	5.98	116			
	0.00	0.00	112	0.00	0.00	112	149.45 C	0.00	120
19 MIN	-4.32	5.98	113	-30.82	0.00	125			
	0.00	5.98	133	0.00	5.98	133	11.11 C	5.98	113
	14.52	0.00	125	92.64	5.33	116			
20 MAX	0.00	0.00	112	0.00	0.00	112	149.45 C	0.00	120
	-14.89	5.33	116	-83.24	5.33	125			
	0.00	5.33	133	0.00	5.33	133	11.11 C	5.33	113
21 MAX	13.87	0.00	116	213.40	21.25	125			
	0.00	0.00	112	0.00	0.00	112	150.81 C	0.00	120
	-13.94	21.25	125	-202.43	21.25	116			
MIN	0.00	21.25	133	0.00	21.25	133	4.65 T	21.25	113

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

634. *5C1 MAX COLUMN 2 FORCES ABOVE

635. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 22 TO 24

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
22 MAX	-0.14	0.00	116	13.51	15.39	125			
	0.00	0.00	112	0.00	0.00	112	147.56 C	0.00	128
MIN	-1.84	15.39	125	-14.82	0.00	125			
	0.00	15.39	133	0.00	15.39	133	10.32 T	15.39	114
23 MAX	6.20	0.00	113	32.71	5.33	126			
	0.00	0.00	112	0.00	0.00	112	150.82 C	0.00	128
MIN	-4.29	5.33	123	-25.69	5.33	115			
	0.00	5.33	133	0.00	5.33	133	7.23 T	5.33	117
24 MAX	9.36	0.00	126	133.08	21.61	118			
	0.00	0.00	112	0.00	0.00	112	150.82 C	0.00	128
MIN	-6.89	21.61	118	-169.39	21.61	126			
	0.00	21.61	133	0.00	21.61	133	7.23 T	21.61	117

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

636. *5C1 MAX COLUMN 1 FORCES ABOVE

637. LOAD LIST 134 TO 191

638. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 1 TO 14

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
1 MAX	0.00	0.00	134	93.97	5.93	134			
	0.00	0.00	134	0.00	0.00	134	0.00	0.00	134
	MIN	-29.10	5.93	137	0.00	5.93	191		
	0.00	5.93	191	0.00	5.93	191	0.36 T	5.93	137
2 MAX	0.00	0.00	138	391.63	6.50	134			
	0.00	0.00	134	0.00	0.00	134	0.00	0.00	138
	MIN	-58.20	5.85	134	0.00	6.50	191		
	0.00	6.50	191	0.00	6.50	191	0.72 T	6.50	137
3 MAX	51.01	0.00	144	277.24	0.00	134			
	0.00	0.00	134	0.00	0.00	134	4.73 C	0.00	153
	MIN	-5.18	5.85	143	-150.63	5.85	150		
	0.00	5.85	191	0.00	5.85	191	6.00 T	5.85	134
4 MAX	38.09	0.00	150	206.34	0.00	134			
	0.00	0.00	134	0.00	0.00	134	4.73 C	0.00	153
	MIN	-17.94	5.85	149	-225.25	5.85	155		
	0.00	5.85	191	0.00	5.85	191	6.00 T	5.85	134
5 MAX	25.00	0.00	156	135.47	0.00	134			
	0.00	0.00	134	0.00	0.00	134	4.60 C	0.00	156
	MIN	-31.10	5.85	155	-228.48	0.59	156		
	0.00	5.85	191	0.00	5.85	191	6.00 T	5.85	134
6 MAX	13.13	0.00	162	74.40	5.85	169			
	0.00	0.00	134	0.00	0.00	134	4.24 C	0.00	156
	MIN	-43.27	5.85	161	-206.89	0.00	156		
	0.00	5.85	191	0.00	5.85	191	6.01 T	5.85	134
7 MAX	12.11	0.00	134	164.52	5.83	157			
	0.00	0.00	134	0.00	0.00	134	4.02 C	0.00	153
	MIN	-45.06	5.83	162	-101.43	0.00	161		
	0.00	5.83	191	0.00	5.83	191	6.00 T	5.83	134
8 MAX	48.48	0.00	163	164.31	0.00	170			
	0.00	0.00	134	0.00	0.00	134	4.60 C	0.00	172
	MIN	-8.41	5.83	191	-101.02	5.83	166		
	0.00	5.83	191	0.00	5.83	191	4.47 T	5.83	191
9 MAX	43.22	0.00	166	74.00	0.00	158			
	0.00	0.00	134	0.00	0.00	134	4.60 C	0.00	172

DXF IMPORT OF 002_1441BENT_6.DXF

-- PAGE NO. 44

MIN	-13.18	5.85	165	-207.40	5.85	171			
	0.00	5.85	191	0.00	5.85	191	4.47	T	5.85 191
10 MAX	31.04	0.00	172	96.59	5.85	191			
	0.00	0.00	134	0.00	0.00	134	4.60	C	0.00 172
MIN	-25.06	5.85	171	-228.69	5.27	171			
	0.00	5.85	191	0.00	5.85	191	4.47	T	5.85 191
11 MAX	17.87	0.00	178	145.86	5.85	191			
	0.00	0.00	134	0.00	0.00	134	4.24	C	0.00 172
MIN	-38.16	5.85	177	-225.96	0.59	172			
	0.00	5.85	191	0.00	5.85	191	4.47	T	5.85 191
12 MAX	5.13	0.00	184	195.13	5.85	191			
	0.00	0.00	134	0.00	0.00	134	3.89	C	0.00 172
MIN	-51.07	5.85	183	-151.45	0.00	177			
	0.00	5.85	191	0.00	5.85	191	4.47	T	5.85 191
13 MAX	58.20	0.00	190	277.61	0.00	191			
	0.00	0.00	134	0.00	0.00	134	0.72	C	0.00 190
MIN	0.00	4.77	187	0.00	0.95	184			
	0.00	4.77	191	0.00	4.77	191	0.00		4.77 187
14 MAX	29.10	0.00	188	87.27	0.00	191			
	0.00	0.00	134	0.00	0.00	134	0.36	C	0.00 188
MIN	0.00	5.62	191	0.00	5.62	191			
	0.00	5.62	191	0.00	5.62	191	0.00		5.62 191

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

639. *FATIGUE FLOOR BEAM FORCES ABOVE

640. FINISH

***** END OF THE STAAD.Pro RUN *****

**** DATE= APR 12,2012 TIME= 19:12:25 ****

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*****
*           For questions on STAAD.Pro, please contact           *
*   Bentley Systems Offices at the following locations           *
*                                                                 *
*           Telephone                Web / Email                 *
*                                                                 *
*   USA:          +1 (714)974-2500                               *
*   UK            +44(1454)207-000                               *
*   SINGAPORE    +65 6225-6158                                   *
*   EUROPE       +31 23 5560560                                  *
*   INDIA        +91(033)4006-2021                               *
*   JAPAN        +81(03)5952-6500   http://www.ctc-g.co.jp      *
*   CHINA        +86 10 5929 7000                               *
*   THAILAND     +66(0)2645-1018/19 partha.p@reisoftwareth.com *
*                                                                 *
*   Worldwide    http://selectservices.bentley.com/en-US/      *
*                                                                 *
*****
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EAST APPROACH FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/30/2012
Date 4/13/2012

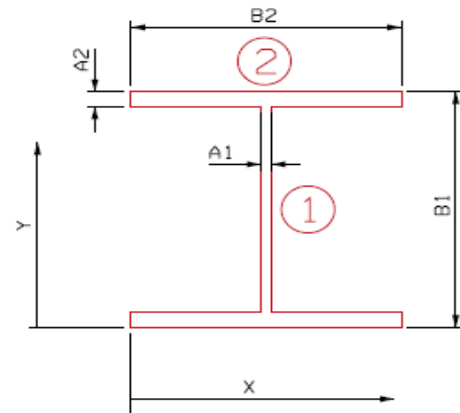
Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Red text indicates user input

Element Dimensions (without Section Losses):

$A_1 = t_w = 0.7250$ in
 $A_2 = t_f = 1.1800$ in
 $B_1 = d = 36.3200$ in
 $B_2 = b_f = 12.0720$ in
36WFB182



FB-6 @ COLUMN 306
EAST APPR. FWD SECTION

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I _o	d	Ad ²	I _{x,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		24.6210	18.1600	447.1174	2366.2455	0.0000	0.0000	2366.2455
2	Top Flange		14.2450	35.7300	508.9724	1.6529	17.5700	4397.4890	4399.1418
	Bottom Flange		14.2450	0.5900	8.4045	1.6529	17.5700	4397.4890	4399.1418
Total			53.11		964.49	2369.55		8794.98	11164.53
Section Losses			A	y	Ay	I _o	d	Ad ²	I _{x,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.1250	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	18.1600	in	S _{top} = 614.79 in ³	y-bar =	18.1600	in	S _{top} = 614.79 in ³
I _x =	11164.53	in ⁴	S _{bottom} = 614.79 in ³	I _x =	11164.53	in ⁴	S _{bottom} = 614.79 in ³
C _{top} =	18.1600	in	A = 53.1109 in ²	C _{top} =	18.1600	in	A = 53.1109 in ²
C _{bottom} =	18.1600	in	r _x = 14.4987 in	C _{bottom} =	18.1600	in	r _x = 14.4987 in
			Z = 709.60 in ³				Z = warning in ³

EAST APPROACH FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/30/2012
Date 4/13/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Floorbeam Capacities

Non-composite Capacities*		
	AB	AI
M	1690.66 k-ft	1690.66 k-ft
V	471.25 k	471.25 k

*Noncompact Section

$F_y =$	33.00 ksi
---------	------------------

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

As-Built Moments and Shears						
	DL	HS20	2F1	3F1	4F1	5C1
M	660.73 k-ft	644.64 k-ft	281.14 k-ft	428.46 k-ft	498.63 k-ft	570.69 k-ft
V	73.45 k	83.37 k	36.36 k	55.41 k	64.49 k	73.80 k

As-Built Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	0.59	---	---	---	---
Operating M	0.99	2.28	1.49	1.28	1.12
As-Inspected Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	0.59	---	---	---	---
Operating M	0.99	2.28	1.49	1.28	1.12
As-Built Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	2.08	---	---	---	---
Operating V	3.47	7.95	5.22	4.48	3.92
As-Inspected Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	2.08	---	---	---	---
Operating V	3.47	7.95	5.22	4.48	3.92

Controlling Rating Factors and Tonnage						
	HS20 Inventory	HS20 Operating	2F1 Operating	3F1 Operating	4F1 Operating	5C1 Operating
Rating Factor	0.59	0.99	2.28	1.49	1.28	1.12
Tonnage (US Tons)	21.24	35.64	34.2	34.27	34.56	44.8

EAST APPROACH FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/30/2012
Date 4/13/2012

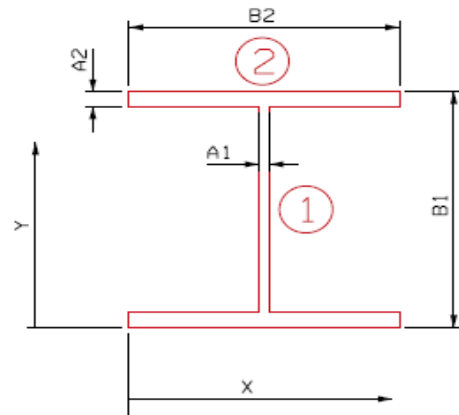
Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Red text indicates user input

Element Dimensions (without Section Losses):

$A_1 = t_w = 0.7250$ in
 $A_2 = t_f = 1.1800$ in
 $B_1 = d = 36.3200$ in
 $B_2 = b_f = 12.0720$ in
36WFB182



FB-6 @ COLUMN 206
EAST APPR. FWD SECTION

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I _o	d	Ad ²	I _{x,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		24.6210	18.1600	447.1174	2366.2455	0.0000	0.0000	2366.2455
2	Top Flange		14.2450	35.7300	508.9724	1.6529	17.5700	4397.4890	4399.1418
	Bottom Flange		14.2450	0.5900	8.4045	1.6529	17.5700	4397.4890	4399.1418
Total			53.11		964.49	2369.55		8794.98	11164.53
Section Losses			A	y	Ay	I _o	d	Ad ²	I _{x,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	18.1600	in	S _{top} = 614.79 in ³	y-bar =	18.1600	in	S _{top} = 614.79 in ³
I _x =	11164.53	in ⁴	S _{bottom} = 614.79 in ³	I _x =	11164.53	in ⁴	S _{bottom} = 614.79 in ³
C _{top} =	18.1600	in	A = 53.1109 in ²	C _{top} =	18.1600	in	A = 53.1109 in ²
C _{bottom} =	18.1600	in	r _x = 14.4987 in	C _{bottom} =	18.1600	in	r _x = 14.4987 in
			Z = 709.60 in ³				Z = 709.60 in ³

EAST APPROACH FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/30/2012
Date 4/13/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Floorbeam Capacities

Non-composite Capacities*		
	AB	AI
M	1690.66 k-ft	1690.66 k-ft
V	471.25 k	471.25 k

*Noncompact Section

$F_y =$	33.00 ksi
---------	------------------

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

As-Built Moments and Shears						
	DL	HS20	2F1	3F1	4F1	5C1
M	443.06 k-ft	478.31 k-ft	197.64 k-ft	305.52 k-ft	357.07 k-ft	410.01 k-ft
V	78.05 k	90.61 k	31.33 k	56.63 k	65.97 k	75.56 k

As-Built Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.07	---	---	---	---
Operating M	1.79	4.34	2.81	2.4	2.09
As-Inspected Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.07	---	---	---	---
Operating M	1.79	4.34	2.81	2.4	2.09
As-Built Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	1.88	---	---	---	---
Operating V	3.14	9.08	5.02	4.31	3.76
As-Inspected Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	1.88	---	---	---	---
Operating V	3.14	9.08	5.02	4.31	3.76

Controlling Rating Factors and Tonnage						
	HS20 Inventory	HS20 Operating	2F1 Operating	3F1 Operating	4F1 Operating	5C1 Operating
Rating Factor	1.07	1.79	4.34	2.81	2.4	2.09
Tonnage (US Tons)	38.52	64.44	65.1	64.63	64.8	83.6

EAST APPROACH FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/20/2012
Date 4/13/2012

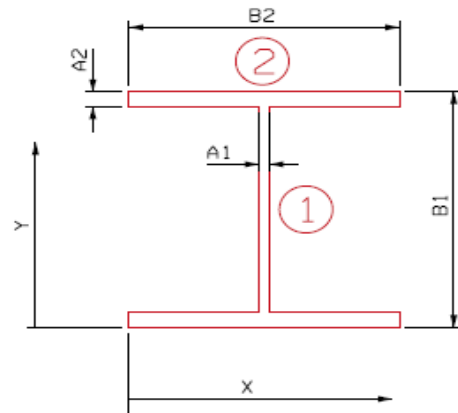
Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Red text indicates user input

Element Dimensions (without Section Losses):

$A_1 = t_w = 0.7250$ in
 $A_2 = t_f = 1.1800$ in
 $B_1 = d = 36.3200$ in
 $B_2 = b_f = 12.0720$ in
36WFB182



FB-6 @ COLUMN 106
EAST APPR. FWD SECTION

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I _o	d	Ad ²	I _{x,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		24.6210	18.1600	447.1174	2366.2455	0.0000	0.0000	2366.2455
2	Top Flange		14.2450	35.7300	508.9724	1.6529	17.5700	4397.4890	4399.1418
	Bottom Flange		14.2450	0.5900	8.4045	1.6529	17.5700	4397.4890	4399.1418
Total			53.11		964.49	2369.55		8794.98	11164.53
Section Losses			A	y	Ay	I _o	d	Ad ²	I _{x,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	6.0000	0.1250	-0.7500	36.0625	-27.0469	-0.0010	19.2338	-277.4553	-277.4563
2	6.0000	0.0625	-0.3750	36.0300	-13.5113	-0.0001	19.2013	-138.2592	-138.2594
3	12.0000	0.1250	-1.5000	35.9375	-53.9063	-0.0020	19.1088	-547.7214	-547.7233
4	12.0000	0.0625	-0.7500	35.9688	-26.9766	-0.0002	19.1401	-274.7572	-274.7574
5	0.0625	6.0000	-0.3750	33.0000	-12.3750	-1.1250	16.1713	-98.0670	-99.1920
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			-3.75		-133.82	-1.13		-1336.26	-1337.39

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	18.1600	in	S _{top} = 614.79 in ³	y-bar =	16.8287	in	S _{top} = 504.18 in ³
I _x =	11164.53	in ⁴	S _{bottom} = 614.79 in ³	I _x =	9827.14	in ⁴	S _{bottom} = 583.95 in ³
C _{top} =	18.1600	in	A = 53.1109 in ²	C _{top} =	19.4913	in	A = 49.3609 in ²
C _{bottom} =	18.1600	in	r _x = 14.4987 in	C _{bottom} =	16.8287	in	r _x = 14.1098 in
			Z = 709.60 in ³				Z = warning in ³

EAST APPROACH FORWARD SECTION



Made By FKL
 Checked By PJP

Date 3/20/2012
 Date 4/13/2012

Job No. P402110046
 Sheet No. _____

Calculations For: **CUY-2-1441**

Floorbeam Capacities

Non-composite Capacities*		
	AB	AI
M	1690.66 k-ft	1386.49 k-ft
V	471.25 k	464.07 k

*Noncompact Section

$F_y =$	33.00 ksi
---------	------------------

AB = As-Built
 AI = As-Inspected
 M = Moment
 V = Shear

As-Built Moments and Shears						
	DL	HS20	2F1	3F1	4F1	5C1
M	574.43 k-ft	481.20 k-ft	209.85 k-ft	319.82 k-ft	372.20 k-ft	426.00 k-ft
V	84.48 k	83.37 k	36.36 k	55.41 k	64.49 k	73.80 k

As-Built Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	0.90	---	---	---	---
Operating M	1.51	3.46	2.27	1.95	1.7
As-Inspected Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	0.61	---	---	---	---
Operating M	1.02	2.35	1.54	1.32	1.16
As-Built Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	2	---	---	---	---
Operating V	3.33	7.65	5.02	4.31	3.77
As-Inspected Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	1.96	---	---	---	---
Operating V	3.27	7.49	4.92	4.23	3.69

Controlling Rating Factors and Tonnage						
	HS20 Inventory	HS20 Operating	2F1 Operating	3F1 Operating	4F1 Operating	5C1 Operating
Rating Factor	0.61	1.02	2.35	1.54	1.32	1.16
Tonnage (US Tons)	21.96	36.72	35.25	35.42	35.64	46.4

EAST APPROACH FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/20/2012
Date 4/13/2012

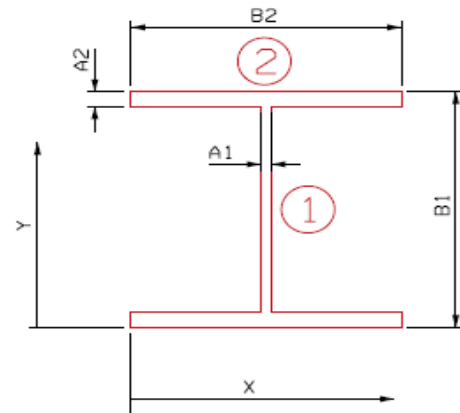
Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Red text indicates user input

Element Dimensions (without Section Losses):

$A_1 = t_w = 0.7250$ in
 $A_2 = t_f = 1.1800$ in
 $B_1 = d = 36.3200$ in
 $B_2 = b_f = 12.0720$ in
36WFB182



FB-6 @ Between 206 & 306
EAST APPR. FWD SECTION

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I _o	d	Ad ²	I _{x,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		24.6210	18.1600	447.1174	2366.2455	0.0000	0.0000	2366.2455
2	Top Flange		14.2450	35.7300	508.9724	1.6529	17.5700	4397.4890	4399.1418
	Bottom Flange		14.2450	0.5900	8.4045	1.6529	17.5700	4397.4890	4399.1418
Total			53.11		964.49	2369.55		8794.98	11164.53
Section Losses			A	y	Ay	I _o	d	Ad ²	I _{x,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	18.1600	in	S _{top} = 614.79 in ³	y-bar =	18.1600	in	S _{top} = 614.79 in ³
I _x =	11164.53	in ⁴	S _{bottom} = 614.79 in ³	I _x =	11164.53	in ⁴	S _{bottom} = 614.79 in ³
C _{top} =	18.1600	in	A = 53.1109 in ²	C _{top} =	18.1600	in	A = 53.1109 in ²
C _{bottom} =	18.1600	in	r _x = 14.4987 in	C _{bottom} =	18.1600	in	r _x = 14.4987 in
			Z = 709.60 in ³				Z = 709.60 in ³

EAST APPROACH FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/20/2012
Date 4/13/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Floorbeam Capacities

Non-composite Capacities*		
	AB	AI
M	1951.40 k-ft	1951.40 k-ft
V	471.25 k	471.25 k

*Compact Section

$F_y =$	33.00 ksi
---------	------------------

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

As-Built Moments and Shears						
	DL	HS20	2F1	3F1	4F1	5C1
M	197.66 k-ft	484.35 k-ft	209.90 k-ft	321.11 k-ft	374.09 k-ft	428.50 k-ft
V	5.50 k	34.48 k	15.12 k	22.97 k	26.71 k	30.55 k

As-Built Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.61	---	---	---	---
Operating M	2.69	6.21	4.06	3.48	3.04
As-Inspected Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.61	---	---	---	---
Operating M	2.69	6.21	4.06	3.48	3.04
As-Built Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	6.2	---	---	---	---
Operating V	10.35	23.61	15.54	13.37	11.69
As-Inspected Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	6.2	---	---	---	---
Operating V	10.35	23.61	15.54	13.37	11.69

Controlling Rating Factors and Tonnage						
	HS20 Inventory	HS20 Operating	2F1 Operating	3F1 Operating	4F1 Operating	5C1 Operating
Rating Factor	1.61	2.69	6.21	4.06	3.48	3.04
Tonnage (US Tons)	57.96	96.84	93.15	93.38	93.96	121.6

EAST APPROACH FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/30/2012
Date 4/13/2012

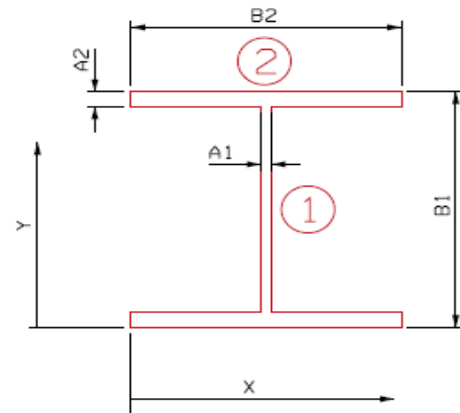
Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Red text indicates user input

Element Dimensions (without Section Losses):

$A_1 = t_w = 0.7250$ in
 $A_2 = t_f = 1.1800$ in
 $B_1 = d = 36.3200$ in
 $B_2 = b_f = 12.0720$ in
36WFB182



FB-6 @ Between 106 & 206
EAST APPR. FWD SECTION

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I _o	d	Ad ²	I _{x,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		24.6210	18.1600	447.1174	2366.2455	0.0000	0.0000	2366.2455
2	Top Flange		14.2450	35.7300	508.9724	1.6529	17.5700	4397.4890	4399.1418
	Bottom Flange		14.2450	0.5900	8.4045	1.6529	17.5700	4397.4890	4399.1418
Total			53.11		964.49	2369.55		8794.98	11164.53
Section Losses			A	y	Ay	I _o	d	Ad ²	I _{x,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties							
y-bar =	18.1600	in	S _{top} =	614.79	in ³	y-bar =	18.1600	in	S _{top} =	614.79	in ³
I _x =	11164.53	in ⁴	S _{bottom} =	614.79	in ³	I _x =	11164.53	in ⁴	S _{bottom} =	614.79	in ³
C _{top} =	18.1600	in	A =	53.1109	in ²	C _{top} =	18.1600	in	A =	53.1109	in ²
C _{bottom} =	18.1600	in	r _x =	14.4987	in	C _{bottom} =	18.1600	in	r _x =	14.4987	in
			Z =	709.60	in ³				Z =	709.60	in ³

EAST APPROACH FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/30/2012
Date 4/13/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Floorbeam Capacities

Non-composite Capacities*		
	AB	AI
M	1951.40 k-ft	1951.40 k-ft
V	471.25 k	471.25 k

*Compact Section

$F_y =$	33.00 ksi
---------	------------------

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

As-Built Moments and Shears						
	DL	HS20	2F1	3F1	4F1	5C1
M	226.49 k-ft	518.88 k-ft	229.60 k-ft	348.47 k-ft	405.12 k-ft	463.24 k-ft
V	2.66 k	48.90 k	0.81 k	1.77 k	27.36 k	95.27 k

As-Built Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.47	---	---	---	---
Operating M	2.46	5.55	3.66	3.15	2.75
As-Inspected Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.47	---	---	---	---
Operating M	2.46	5.55	3.66	3.15	2.75
As-Built Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	4.41	---	---	---	---
Operating V	7.36	444.25	203.3	13.15	3.78
As-Inspected Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	4.41	---	---	---	---
Operating V	7.36	444.25	203.3	13.15	3.78

Controlling Rating Factors and Tonnage						
	HS20 Inventory	HS20 Operating	2F1 Operating	3F1 Operating	4F1 Operating	5C1 Operating
Rating Factor	1.47	2.46	5.55	3.66	3.15	2.75
Tonnage (US Tons)	52.92	88.56	83.25	84.18	85.05	110



Calculated: FKL Date: 3/30/2012
Checked: MTN Date: 4/12/2012

CUY-2-1441 Load Rating Analysis - As-Built
Main Ave Bridge
East Approach Fwd Section - Bent 6

Column: C306

Section Properties		21WF112 & New reinforcing Plates	
A =	45.930 in ²	I _x =	4122.913 in ⁴
h =	22.000 in	S _x =	374.810 in ³
b _f =	13.000 in	r _x =	9.474 in
t _f =	1.365 in	I _y =	472.783 in ⁴
t _w =	0.527 in	S _y =	72.736 in ³
		r _y =	3.208 in
F _y =	33.0 ksi		
E =	29000 ksi		
L _{cx} =	250.65 in		
L _{cy} =	250.65 in		
K _x =	0.650 AASHTO Appendix C		
K _y =	0.650 AASHTO Appendix C		

Axial Loading

$$P_u = 0.85 A_s F_{cr}$$

AASHTO 10.54 Concentrically Loaded Columns

$$F_{cr} = F_y \left(1 - \frac{F_y}{4\pi^2 E} \left(\frac{KL_c}{r} \right)^2 \right) \quad \text{For: } \frac{KL_c}{r} \leq \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$F_{cr} = \frac{\pi^2 E}{\left(\frac{KL_c}{r} \right)^2} \quad \text{For: } \frac{KL_c}{r} > \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$KL/r_y = 50.780 < 131.706$$

$$KL/r_x = 17.196 < 131.706$$

$$F_{CR} = 30.547 \text{ ksi}$$

$$P_u = 1207.3 \text{ k}$$

Axial Loading and Bending

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_c} \right)} \leq 1.0$$

AASHTO 10.54.2 Combined Axial Load and Bending

$$C = 0.6 + 0.4a$$

$$a = 0 \quad \text{**When moment is small assume } a = 0$$

$$C = 0.600$$

$$F_e = \frac{E\pi^2}{\left(\frac{KL_c}{r} \right)^2} \quad F_{ex} = 967.938 \text{ ksi}$$

$$F_{ey} = 110.996 \text{ ksi}$$

Column Moment Capacity

Strong Axis Bending

$M_u = F_y S_x$ For Non-Compact Section

$$\text{Total } M_{ux} = 1079.8 \text{ k-ft}$$



Calculated: FKL Date: 3/30/2012
Checked: MTN Date: 4/12/2012

CUY-2-1441 Load Rating Analysis - As-Built

Main Ave Bridge

East Approach Fwd Section - Bent 6

Column: C306

Section Properties 21WF112 ONLY

A =	32.930	in ²	I _x =	2620.600	in ⁴
h =	21.000	in	S _x =	249.600	in ³
b _f =	13.000	in	r _x =	8.920	in
t _f =	0.865	in	I _y =	289.700	in ⁴
t _w =	0.527	in	S _y =	44.600	in ³
			r _y =	2.960	in
F _y =	33.0	ksi	Z	275.3	in ³
E =	29000	ksi			
L _{cx} =	250.65	in			
L _{cy} =	250.65	in			
K _x =	0.650	AASHTO Appendix C			
K _y =	0.650	AASHTO Appendix C			

Axial Loading

$$P_u = 0.85 A_s F_{cr}$$

AASHTO 10.54 Concentrically Loaded Columns

$$F_{cr} = F_y \left(1 - \frac{F_y}{4\pi^2 E} \left(\frac{KL_c}{r} \right)^2 \right) \quad \text{For: } \frac{KL_c}{r} \leq \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$F_{cr} = \frac{\pi^2 E}{\left(\frac{KL_c}{r} \right)^2} \quad \text{For: } \frac{KL_c}{r} > \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$KL/r_y = 50.780 < 131.706$$

$$KL/r_x = 17.196 < 131.706$$

$$F_{CR} = 30.547 \text{ ksi}$$

$$P_u = 855.0 \text{ k}$$



Calculated: FKL Date: 3/30/2012
Checked: MTN Date: 4/12/2012

CUY-2-1441 Load Rating Analysis - As-Built
Main Ave Bridge

East Approach Fwd Section - Bent 6

Column: C306

Section Properties 2-1/2"x13" Plates ONLY

A =	13.000	in ²	I _x =	1502.313	in ⁴
h =	22.000	in	S _x =	136.574	in ³
b _f =	13.000	in	r _x =	10.750	in
t _f =	0.500	in	I _y =	183.083	in ⁴
t _w =	0.000	in	S _y =	28.167	in ³
			r _y =	3.753	in
F _y =	34.6	ksi	F _y using strain compatibility		
E =	29000	ksi			
L _{cx} =	250.65	in			
L _{cy} =	250.65	in			
K _x =	0.650	AASHTO Appendix C			
K _y =	0.650	AASHTO Appendix C			

Axial Loading

$$P_u = 0.85 A_s F_{cr}$$

AASHTO 10.54 Concentrically Loaded Columns

$$F_{cr} = F_y \left(1 - \frac{F_y}{4\pi^2 E} \left(\frac{KL_c}{r} \right)^2 \right) \quad \text{For: } \frac{KL_c}{r} \leq \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$F_{cr} = \frac{\pi^2 E}{\left(\frac{KL_c}{r} \right)^2} \quad \text{For: } \frac{KL_c}{r} > \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$KL/r_y = 50.780 < 128.678$$

$$KL/r_x = 17.196 < 128.678$$

$$F_{CR} = 31.879 \text{ ksi}$$

$$P_u = 352.3 \text{ k}$$

CUY-2-1441 Load Rating Analysis - As-Built

Main Ave Bridge

East Approach Forward Section - Column 306 Ratings



Calculated:

FKL 3/30/2012

Checked:

MTN 4/12/2012

Column Loading

	DL	HS-20	2F1	3F1	4F1	5C1
Max Axial	287.90	214.72	110.56	152.77	172.88	193.53
Moment	35.39	19.00	18.40	18.66	18.77	15.35
Axial	202.74	98.44	33.38	50.79	59.08	67.59
Max Mom.	42.75	195.91	87.70	131.58	152.47	173.91

DL Factor

1.30

LL Factor

2.17 INV
1.30 OPER

Factored Loads

Axial Force

Moment

Capacities

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_e}\right)} \leq 1.0$$

Load Case	Member	Axial Force		Moment		P _u kips	M _u k-ft	A _s F _e kips	Condition Equation	RF
		Dead Load	Max. LL + I	Dead Load	Max LL + I					
HS20 INV	C306	374.27	465.23	46.01	41.17	1207.30	1079.81	44457.38	1.00	1.62
HS20 INV	C306	263.562	213.29	55.58	424.47	1207.30	1079.81	44457.38	1.00	1.80
HS20 OPR	C306	374.27	279.14	46.01	24.70	1207.30	1079.81	44457.38	1.00	2.71
HS20 OPR	C306	263.562	127.97	55.58	254.68	1207.30	1079.81	44457.38	1.00	3.01
2F1	C306	374.27	143.73	46.01	23.92	1207.30	1079.81	44457.38	1.00	5.00
2F1	C306	263.562	43.39	55.58	114.01	1207.30	1079.81	44457.38	1.00	7.49
3F1	C306	374.27	198.60	46.01	24.26	1207.30	1079.81	44457.38	1.00	3.72
3F1	C306	263.562	66.03	55.58	171.05	1207.30	1079.81	44457.38	1.00	4.97
4F1	C306	374.27	224.74	46.01	24.40	1207.30	1079.81	44457.38	1.00	3.32
4F1	C306	263.562	76.80	55.58	198.21	1207.30	1079.81	44457.38	1.00	4.28
5C1	C306	374.27	251.59	46.01	19.95	1207.30	1079.81	44457.38	1.00	3.02
5C1	C306	263.562	87.87	55.58	226.08	1207.30	1079.81	44457.38	1.00	3.75

Load Case	Controlling RF
HS20 INV	1.62
HS20 OPR	2.71
2F1	5.00
3F1	3.72
4F1	3.32
5C1	3.02



Calculated: FKL Date: 3/30/2012
Checked: MTN Date: 4/12/2012

CUY-2-1441 Load Rating Analysis - As-Built
Main Ave Bridge
East Approach Fwd Section - Bent 6

Column: C206

Section Properties 24WF140

A =	41.160	in ²	I _x =	4376.100	in ⁴
h =	24.410	in	S _x =	358.600	in ³
b _f =	14.029	in	r _x =	10.310	in
t _f =	0.980	in	I _y =	414.500	in ⁴
t _w =	0.594	in	S _y =	59.100	in ³
			r _y =	3.170	in
F _y =	33.0	ksi	Z	397	in ³
E =	29000	ksi			
L _{cx} =	254.97	in			
L _{cy} =	254.97	in			
K _x =	0.650	AASHTO Appendix C			
K _y =	0.650	AASHTO Appendix C			

Axial Loading

$$P_u = 0.85 A_s F_{cr}$$

AASHTO 10.54 Concentrically Loaded Columns

$$F_{cr} = F_y \left(1 - \frac{F_y}{4\pi^2 E} \left(\frac{KL_c}{r} \right)^2 \right) \quad \text{For: } \frac{KL_c}{r} \leq \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$F_{cr} = \frac{\pi^2 E}{\left(\frac{KL_c}{r} \right)^2} \quad \text{For: } \frac{KL_c}{r} > \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$KL/r_y = 52.281 < 131.706$$

$$KL/r_x = 16.075 < 131.706$$

$$F_{CR} = 30.400 \text{ ksi}$$

$$P_u = 1063.6 \text{ k}$$

Axial Loading and Bending

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_c} \right)} \leq 1.0$$

AASHTO 10.54.2 Combined Axial Load and Bending

$$C = 0.6 + 0.4a$$

$$a = 0 \quad \text{**When moment is small assume } a = 0$$

$$C = 0.600$$

$$F_e = \frac{E\pi^2}{\left(\frac{KL_c}{r} \right)^2} \quad F_{ex} = 1107.680 \text{ ksi}$$

$$F_{ey} = 104.717 \text{ ksi}$$

Column Moment Capacity

Strong Axis Bending

M_u = F_yZ For Compact Section

$$\text{Total } M_{ux} = 1091.8 \text{ k-ft}$$

CUY-2-1441 Load Rating Analysis - As-Built

Main Ave Bridge

East Approach Forward Section - Column 206 Ratings



Calculated:

FKL 3/30/2012

Checked:

MTN 4/12/2012

Column Loading

	DL	HS-20	2F1	3F1	4F1	5C1
Max Axial	293.68	198.55	105.09	142.97	161.01	179.54
Moment	18.35	11.43	21.94	21.33	21.41	21.50
Axial	292.23	71.08	30.82	47.14	54.91	62.89
Max Mom.	46.93	241.64	102.86	159.09	185.88	213.40

DL Factor

1.30

LL Factor

2.17 INV
1.30 OPER

Factored Loads

Axial Force

Moment

Capacities

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_e}\right)} \leq 1.0$$

Load Case	Member	Axial Force		Moment		P _u kips	M _u k-ft	A _s F _e kips	Condition Equation	RF
		Dead Load	Max. LL + I	Dead Load	Max LL + I					
HS20 INV	C206	381.784	430.19	23.86	24.77	1063.60	1091.80	45592.11	1.00	1.50
HS20 INV	C206	379.899	154.01	61.01	523.55	1063.60	1091.80	45592.11	1.00	1.40
HS20 OPR	C206	381.784	258.12	23.86	14.86	1063.60	1091.80	45592.11	1.00	2.50
HS20 OPR	C206	379.899	92.40	61.01	314.13	1063.60	1091.80	45592.11	1.00	2.33
2F1	C206	381.784	136.62	23.86	28.52	1063.60	1091.80	45592.11	1.00	4.34
2F1	C206	379.899	40.07	61.01	133.72	1063.60	1091.80	45592.11	1.00	5.43
3F1	C206	381.784	185.86	23.86	27.73	1063.60	1091.80	45592.11	1.00	3.30
3F1	C206	379.899	61.28	61.01	206.82	1063.60	1091.80	45592.11	1.00	3.52
4F1	C206	381.784	209.31	23.86	27.83	1063.60	1091.80	45592.11	1.00	2.95
4F1	C206	379.899	71.38	61.01	241.64	1063.60	1091.80	45592.11	1.00	3.02
5C1	C206	381.784	233.40	23.86	27.95	1063.60	1091.80	45592.11	1.00	2.67
5C1	C206	379.899	81.76	61.01	277.42	1063.60	1091.80	45592.11	1.00	2.63

Load Case	Controlling RF
HS20 INV	1.40
HS20 OPR	2.33
2F1	4.34
3F1	3.30
4F1	2.95
5C1	2.63



Calculated: FKL Date: 3/30/2012
Checked: MTN Date: 4/12/2012

CUY-2-1441 Load Rating Analysis - As-Built
Main Ave Bridge
East Approach Fwd Section - Bent 6

Column: C106

Section Properties		21WF112 & New reinforcing Plates	
A =	45.930 in ²	I _x =	4122.913 in ⁴
h =	22.000 in	S _x =	374.810 in ³
b _f =	13.000 in	r _x =	9.474 in
t _f =	1.365 in	I _y =	472.783 in ⁴
t _w =	0.527 in	S _y =	72.736 in ³
		r _y =	3.208 in
F _y =	33.0 ksi		
E =	29000 ksi		
L _{cx} =	259.29 in		
L _{cy} =	259.29 in		
K _x =	0.650 AASHTO Appendix C		
K _y =	0.650 AASHTO Appendix C		

Axial Loading

$$P_u = 0.85 A_s F_{cr}$$

AASHTO 10.54 Concentrically Loaded Columns

$$F_{cr} = F_y \left(1 - \frac{F_y}{4\pi^2 E} \left(\frac{KL_c}{r} \right)^2 \right) \quad \text{For: } \frac{KL_c}{r} \leq \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$F_{cr} = \frac{\pi^2 E}{\left(\frac{KL_c}{r} \right)^2} \quad \text{For: } \frac{KL_c}{r} > \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$KL/r_y = 52.531 < 131.706$$

$$KL/r_x = 17.789 < 131.706$$

$$F_{CR} = 30.375 \text{ ksi}$$

$$P_u = 1200.4 \text{ k}$$

Axial Loading and Bending

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_c} \right)} \leq 1.0$$

AASHTO 10.54.2 Combined Axial Load and Bending

$$C = 0.6 + 0.4a$$

$$a = 0 \quad \text{**When moment is small assume } a = 0$$

$$C = 0.600$$

$$F_e = \frac{E\pi^2}{\left(\frac{KL_c}{r} \right)^2} \quad F_{ex} = 904.505 \text{ ksi}$$

$$F_{ey} = 103.722 \text{ ksi}$$

Column Moment Capacity

Strong Axis Bending

$M_u = F_y S_x$ For Non-Compact Section

$$\text{Total } M_{ux} = 1079.8 \text{ k-ft}$$



Calculated: FKL Date: 3/30/2012
 Checked: MTN Date: 4/12/2012

CUY-2-1441 Load Rating Analysis - As-Built

Main Ave Bridge

East Approach Fwd Section - Bent 6

Column: C106

Section Properties 21WF112 ONLY

A =	32.930	in ²	I _x =	2620.600	in ⁴
h =	21.000	in	S _x =	249.600	in ³
b _f =	13.000	in	r _x =	8.920	in
t _f =	0.865	in	I _y =	289.700	in ⁴
t _w =	0.527	in	S _y =	44.600	in ³
			r _y =	2.960	in
F _y =	33.0	ksi	Z	275.3	in ³
E =	29000	ksi			
L _{cx} =	259.29	in			
L _{cy} =	259.29	in			
K _x =	0.650	AASHTO Appendix C			
K _y =	0.650	AASHTO Appendix C			

Axial Loading

$$P_u = 0.85 A_s F_{cr}$$

AASHTO 10.54 Concentrically Loaded Columns

$$F_{cr} = F_y \left(1 - \frac{F_y}{4\pi^2 E} \left(\frac{KL_c}{r} \right)^2 \right) \quad \text{For: } \frac{KL_c}{r} \leq \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$F_{cr} = \frac{\pi^2 E}{\left(\frac{KL_c}{r} \right)^2} \quad \text{For: } \frac{KL_c}{r} > \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$KL/r_y = 52.531 < 131.706$$

$$KL/r_x = 17.789 < 131.706$$

$$F_{CR} = 30.375 \text{ ksi}$$

$$P_u = 850.2 \text{ k}$$



Calculated: FKL Date: 3/30/2012
 Checked: MTN Date: 4/12/2012

CUY-2-1441 Load Rating Analysis - As-Built
Main Ave Bridge
East Approach Fwd Section - Bent 6

Column: C106

Section Properties 2-1/2"x13" Plates ONLY

A =	13.000	in ²	I _x =	1502.313	in ⁴
h =	22.000	in	S _x =	136.574	in ³
b _f =	13.000	in	r _x =	10.750	in
t _f =	0.500	in	I _y =	183.083	in ⁴
t _w =	0.000	in	S _y =	28.167	in ³
			r _y =	3.753	in
F _y =	34.6	ksi	F _y using strain compatibility		
E =	29000	ksi			
L _{cx} =	259.29	in			
L _{cy} =	259.29	in			
K _x =	0.650	AASHTO Appendix C			
K _y =	0.650	AASHTO Appendix C			

Axial Loading

$$P_u = 0.85 A_s F_{cr}$$

AASHTO 10.54 Concentrically Loaded Columns

$$F_{cr} = F_y \left(1 - \frac{F_y}{4\pi^2 E} \left(\frac{KL_c}{r} \right)^2 \right) \quad \text{For: } \frac{KL_c}{r} \leq \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$F_{cr} = \frac{\pi^2 E}{\left(\frac{KL_c}{r} \right)^2} \quad \text{For: } \frac{KL_c}{r} > \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$KL/r_y = 52.531 < 128.678$$

$$KL/r_x = 17.789 < 128.678$$

$$F_{CR} = 31.691 \text{ ksi}$$

$$P_u = 350.2 \text{ k}$$

CUY-2-1441 Load Rating Analysis - As-Built

Main Ave Bridge

East Approach Forward Section - Column 106 Ratings



Calculated:

FKL 3/30/2012

Checked:

MTN 4/12/2012

Column Loading

	DL	HS-20	2F1	3F1	4F1	5C1
Max Axial	201.31	170.35	74.39	113.28	131.80	150.82
Moment	15.49	31.01	8.63	20.82	24.16	27.58
Axial	197.17	76.06	33.27	50.62	58.88	67.36
Max Mom.	35.66	191.24	83.74	127.33	148.08	169.39

DL Factor

1.30

LL Factor

2.17 INV
1.30 OPER

Factored Loads

Axial Force

Moment

Capacities

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_c}\right)} \leq 1.0$$

Load Case	Member	Axial Force		Moment		P _u kips	M _u k-ft	A _s F _{ex} kips	Condition Equation	RF
		Dead Load	Max. LL + I	Dead Load	Max LL + I					
HS20 INV	C106	261.703	369.09	20.14	67.19	1200.40	1079.81	41543.94	1.00	2.23
HS20 INV	C106	256.321	164.80	46.36	414.35	1200.40	1079.81	41543.94	1.00	2.05
HS20 OPR	C106	261.703	221.46	20.14	40.31	1200.40	1079.81	41543.94	1.00	3.71
HS20 OPR	C106	256.321	98.88	46.36	248.61	1200.40	1079.81	41543.94	1.00	3.42
2F1	C106	261.703	96.71	20.14	11.22	1200.40	1079.81	41543.94	1.00	8.86
2F1	C106	256.321	43.25	46.36	108.86	1200.40	1079.81	41543.94	1.00	7.81
3F1	C106	261.703	147.26	20.14	27.07	1200.40	1079.81	41543.94	1.00	5.58
3F1	C106	256.321	65.81	46.36	165.53	1200.40	1079.81	41543.94	1.00	5.14
4F1	C106	261.703	171.34	20.14	31.41	1200.40	1079.81	41543.94	1.00	4.80
4F1	C106	256.321	76.54	46.36	192.50	1200.40	1079.81	41543.94	1.00	4.41
5C1	C106	261.703	196.07	20.14	35.85	1200.40	1079.81	41543.94	1.00	4.19
5C1	C106	256.321	87.57	46.36	220.21	1200.40	1079.81	41543.94	1.00	3.86

Load Case	Controlling RF
HS20 INV	2.05
HS20 OPR	3.42
2F1	7.81
3F1	5.14
4F1	4.41
5C1	3.86



Made By MTN
Checked By PJP

Date 3/31/2012
Date 4/6/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441 - East Approach Forward Section**

Bent 7 Reactions

Dead Load Reactions from MDX

Unit 5		
Stringer	DL1	DL2
F1-5	10.01	1.50
S1-5	9.52	1.50
S2-5	9.68	1.50
S3-5	10.43	1.50
S4-5	10.43	1.50
S5-5	10.43	1.50
S6-5	10.43	1.50
S7-5	10.41	1.50
S8-5	10.43	1.50
S9-5	10.43	1.50
S10-5	10.43	1.50
S11-5	10.43	1.50
S12-5	10.88	1.50
S13-5	12.55	1.50
F2B-5	13.53	2.01

Unit 6		
Stringer	DL1	DL2
F1-6	12.22	1.70
S1-6	11.35	1.70
S2-6	11.55	1.70
S3-6	12.45	1.70
S4-6	12.45	1.70
S5-6	12.45	1.70
S6-6	12.45	1.70
S7-6	12.43	1.70
S8-6	12.45	1.70
S9-6	12.45	1.70
S10-6	12.45	1.70
S11-6	12.45	1.70
S12-6	12.45	1.70
S13-6	12.45	1.70
S14-6	13.14	1.70
F2-6	11.35	1.73

Bent 7 Reaction	
Stringer	Total DL
F1-5 + F1-6	25.43
S1-5 + S1-6	24.07
S2-5 + S2-6	24.43
S3-5 + S3-6	26.08
S4-5 + S4-6	26.08
S5-5 + S5-6	26.08
S6-5 + S6-6	26.08
S7-5 + S7-6	26.04
S8-5 + S8-6	26.08
S9-5 + S9-6	26.08
S10-5 + S10-6	26.08
S11-5 + S11-6	26.08
S12-5 + S12-6	26.53
+ S13-6	14.15
S13-5 +	14.05
+ S14-6	14.84
F2B-5 + F2-6	28.62

Dead Load Reactions from MDX

Lower Deck		
Stringer	DL1	Continuous Over Bent?
S-16	9.54	No
S-4 (1)	8.73	No
S-4 (2)	8.73	No
S-4 (3)	8.73	No
S-4 (4)	8.73	No
S-14	11.14	No
S-13	7.77	No

Bent 7 Reaction	
Stringer	Total DL
S-16	9.54
S-4 (1)	8.73
S-4 (2)	8.73
S-4 (3)	8.73
S-4 (4)	8.73
S-14	11.14
S-13	7.77

Live Load Reactions from STAAD

	LL	2 lane LL+I	3 lane	4 lane
HS-20	28.84	37.5	33.8	28.2
2F1	13.75	17.9	16.1	13.5
3F1	20.54	26.7	24.1	20.1
4F1	23.41	30.5	27.4	22.9
5C1	22.63	29.5	26.5	22.1

Impact Factor
Span 7 44.000
Span 8 40.000
 L_{avg} 42.00
Impact = 1.299
3 lane reduction 0.9
4 lane + reduction 0.75

	LL	
HS-20	28.84	
2F1	13.75	0.476768
3F1	20.54	0.712205
4F1	23.41	0.811720
5C1	22.63	0.784674

Reactions per wheel line at Bent 7



Made By MTN
 Checked By PJP

Date 3/31/2012
 Date 4/6/2012

Job No. P402110046
 Sheet No. _____

Calculations For: **CUY-2-1441 - East Approach Forward Section**

Bent 7 Reactions

Lower Deck Live Load

Parking Structure Live Load = 0.04 ksf (from ASCE 07 for Parking Structures)
 Tributary Length = 22.00 ft
 Distributed Load on FB = 0.88 klf

Bent 7		
Stringer	Tributary Width	Live Load Reaction
S-16	4.141	3.64
S-4 (1)	5.943	5.23
S-4 (2)	5.604	4.93
S-4 (3)	5.604	4.93
S-4 (4)	5.880	5.17
S-14	4.820	4.24
S-13	2.242	1.97

Centrifugal Wheel Loads (kips)

Radius, R = 1000 ft
 Design Speed, S = 50 mph
 Degree of Curv., D = 5.7294 degrees
 Centrifugal Coefficient, C = 16.8% AASHTO 17th [3.10.1]

	LL Wheel Reaction	2 lane LL+I		3 lane LL+I		4 lane LL+I	
		Left W	Right W	Left W	Right W	Left W	Right W
HS-20	28.84	27.8	47.2	25.1	42.5	20.9	35.4
2F1	13.75	13.3	22.5	12.0	20.3	10.0	16.9
3F1	20.54	19.8	33.6	17.9	30.3	14.9	25.2
4F1	23.41	22.6	38.3	20.3	34.5	17.0	28.8
5C1	22.63	21.9	37.1	19.7	33.4	16.4	27.8

Reactions per wheel line at Bent 7

Centrifugal Horizontal Loads

Length of floor beam = 83.8144 ft
 Moment arm from top of deck to center of floorbeam = 3.595 ft

LL Reaction (per Truck)	Number of Lanes Loaded								
	2		3		4		6		
	Horizontal (kip/ft)	Moment (kip*ft/ft)	Horizontal (kip/ft)	Moment (kip*ft/ft)	Horizontal (kip/ft)	Moment (kip*ft/ft)	Horizontal (kip/ft)	Moment (kip*ft/ft)	
HS-20	57.68	0.231	0.831	0.312	1.122	0.347	1.247	0.520	1.870
2F1	27.50	0.110	0.396	0.149	0.535	0.165	0.594	0.248	0.892
3F1	41.08	0.165	0.592	0.222	0.799	0.247	0.888	0.371	1.332
4F1	46.82	0.188	0.675	0.253	0.911	0.282	1.012	0.422	1.518
5C1	45.26	0.181	0.652	0.245	0.881	0.272	0.978	0.408	1.468

Reactions per axle at Bent 7

```

*****
*
*          STAAD.Pro          *
*          Version 2007      Build 05      *
*          Proprietary Program of          *
*          Bentley Systems, Inc.          *
*          Date=   APR  6, 2012          *
*          Time=   10:32: 8              *
*
*          USER ID: TranSystems          *
*****

```

```

1. STAAD SPACE
INPUT FILE: Bent 7 Truck Loads.STD
2. START JOB INFORMATION
3. ENGINEER DATE 3/27/12
4. JOB NAME CUY-2-1441
5. JOB CLIENT ODOT
6. JOB NO P402110046
7. JOB REV REV 0
8. JOB REF BENT 7 TRUCK LOADS
9. ENGINEER NAME MTN
10. JOB PART EAST APPROACH - FWD SECTION
11. CHECKER NAME PJP
12. CHECKER DATE 4/6/12
13. END JOB INFORMATION
14. INPUT WIDTH 79
15. UNIT FEET KIP
16. JOINT COORDINATES
17. 11 -88 0 1; 12 -44 0 1; 13 0 0 1; 14 0 -0.1 1; 15 40 0 1; 21 -88 0 2
18. 22 -44 0 2; 23 0 0 2; 24 0 -0.1 2; 25 40 0 2; 31 -88 0 3; 32 -44 0 3; 33 0 0 3
19. 34 0 -0.1 3; 35 40 0 3; 41 -88 0 4; 42 -44 0 4; 43 0 0 4; 44 0 -0.1 4
20. 45 40 0 4; 51 -88 0 5; 52 -44 0 5; 53 0 0 5; 54 0 -0.1 5; 55 40 0 5
21. MEMBER INCIDENCES
22. 11 11 12; 12 12 13; 13 13 14; 14 13 15; 21 21 22; 22 22 23; 23 23 24; 24 23 25
23. 31 31 32; 32 32 33; 33 33 34; 34 33 35; 41 41 42; 42 42 43; 43 43 44; 44 43 45
24. 51 51 52; 52 52 53; 53 53 54; 54 53 55
25. MEMBER RELEASE
26. 12 22 32 42 52 END MZ
27. 14 24 34 44 54 START MZ
28. DEFINE MATERIAL START
29. ISOTROPIC STEEL
30. E 4.176E+006
31. POISSON 0.3
32. DENSITY 0.489024
33. ALPHA 6.5E-006
34. DAMP 0.03
35. END DEFINE MATERIAL
36. MEMBER PROPERTY AMERICAN
37. 11 21 31 41 51 TABLE ST W24X104
38. 12 13 22 23 32 33 42 43 52 53 TABLE ST W24X104
39. 14 24 34 44 54 TABLE ST W27X102
40. CONSTANTS

```

41. MATERIAL STEEL ALL
42. SUPPORTS
43. 14 24 34 44 54 FIXED
44. 11 12 15 21 22 25 31 32 35 41 42 45 51 52 55 FIXED BUT FX MZ
45. DEFINE MOVING LOAD
46. *HS20 TRUCK
47. TYPE 1 LOAD 16 16 4
48. DIST 14 14
49. *TYPE 2F1 TRUCK
50. TYPE 2 LOAD 10 5
51. DIST 10
52. *TYPE 3F1 TRUCK
53. TYPE 3 LOAD 8.5 8.5 6
54. DIST 4 10
55. *TYPE 4F1 TRUCK
56. TYPE 4 LOAD 7 7 7 6
57. DIST 4 4 10
58. *TYPE 5C1 TRUCK
59. TYPE 5 LOAD 8.5 8.5 8.5 8.5 6
60. DIST 4 31 4 12
61. *HS20 TRAVELING UP STATION
62. LOAD GENERATION 29
**WARNING- THIS STRUCTURE IS DISJOINTED. IGNORE IF
MASTER/SLAVE OR IF UNCONNECTED JOINTS.
63. TYPE 1 -28 0 1 XINC 1
64. *HS20 TRAVELING DOWN STATION
65. LOAD GENERATION 29
66. TYPE 1 28 0 1 XINC -1.
67. *TYPE 2F1 TRAVELING UP STATION
68. LOAD GENERATION 11
69. TYPE 2 -10 0 2 XINC 1
70. *TYPE 2F1 TRAVELING DOWN STATION
71. LOAD GENERATION 11
72. TYPE 2 10 0 2 XINC -1.
73. *TYPE 3F1 TRAVELING UP STATION
74. LOAD GENERATION 15
75. TYPE 3 -14 0 3 XINC 1
76. *TYPE 3F1 TRAVELING DOWN STATION
77. LOAD GENERATION 15
78. TYPE 3 14 0 3 XINC -1.
79. *TYPE 4F1 TRAVELING UP STATION
80. LOAD GENERATION 19
81. TYPE 4 -18 0 4 XINC 1
82. *TYPE 4F1 TRAVELING DOWN STATION
83. LOAD GENERATION 19
84. TYPE 4 18 0 4 XINC -1.
85. *TYPE 5C1 TRAVELING UP STATION
86. LOAD GENERATION 52
87. TYPE 5 -51 0 5 XINC 1
88. *TYPE 5 TRAVELING DOWN STATION
89. LOAD GENERATION 52
**WARNING-A MOVING LOAD THAT WOULD HAVE BEEN APPLIED BEYOND THE X AND Z RANGES
OF THE STRUCTURE HAS BEEN IGNORED. CASE= 190 WHEEL 5 OF 5
**WARNING-A MOVING LOAD THAT WOULD HAVE BEEN APPLIED BEYOND THE X AND Z RANGES
OF THE STRUCTURE HAS BEEN IGNORED. CASE= 191 WHEEL 5 OF 5

STAAD SPACE

-- PAGE NO. 3

**WARNING-A MOVING LOAD THAT WOULD HAVE BEEN APPLIED BEYOND THE X AND Z RANGES
 OF THE STRUCTURE HAS BEEN IGNORED. CASE= 192 WHEEL 5 OF 5

**WARNING-A MOVING LOAD THAT WOULD HAVE BEEN APPLIED BEYOND THE X AND Z RANGES
 OF THE STRUCTURE HAS BEEN IGNORED. CASE= 193 WHEEL 5 OF 5

**WARNING-A MOVING LOAD THAT WOULD HAVE BEEN APPLIED BEYOND THE X AND Z RANGES
 OF THE STRUCTURE HAS BEEN IGNORED. CASE= 194 WHEEL 5 OF 5

**WARNING-A MOVING LOAD THAT WOULD HAVE BEEN APPLIED BEYOND THE X AND Z RANGES
 OF THE STRUCTURE HAS BEEN IGNORED. CASE= 195 WHEEL 5 OF 5

**WARNING-A MOVING LOAD THAT WOULD HAVE BEEN APPLIED BEYOND THE X AND Z RANGES
 OF THE STRUCTURE HAS BEEN IGNORED. CASE= 196 WHEEL 5 OF 5

**WARNING-A MOVING LOAD THAT WOULD HAVE BEEN APPLIED BEYOND THE X AND Z RANGES
 OF THE STRUCTURE HAS BEEN IGNORED. CASE= 197 WHEEL 5 OF 5

**WARNING-A MOVING LOAD THAT WOULD HAVE BEEN APPLIED BEYOND THE X AND Z RANGES
 OF THE STRUCTURE HAS BEEN IGNORED. CASE= 198 WHEEL 5 OF 5

**WARNING-A MOVING LOAD THAT WOULD HAVE BEEN APPLIED BEYOND THE X AND Z RANGES
 OF THE STRUCTURE HAS BEEN IGNORED. CASE= 199 WHEEL 5 OF 5

*ADDITIONAL MOVING LOAD MESSAGES SUPPRESSED

90. TYPE 5 51 0 5 XINC -1.

91. PERFORM ANALYSIS

*ADDITIONAL MOVING LOAD MESSAGES SUPPRESSED

P R O B L E M S T A T I S T I C S

NUMBER OF JOINTS/MEMBER+ELEMENTS/SUPPORTS = 25/ 20/ 20

SOLVER USED IS THE OUT-OF-CORE BASIC SOLVER

ORIGINAL/FINAL BAND-WIDTH= 2/ 2/ 8 DOF

TOTAL PRIMARY LOAD CASES = 252, TOTAL DEGREES OF FREEDOM = 60

SIZE OF STIFFNESS MATRIX = 1 DOUBLE KILO-WORDS

REQRD/AVAIL. DISK SPACE = 12.5/ 514314.9 MB

92. PRINT MAXFORCE ENVELOPE NSECTION 1 LIST 13

STAAD SPACE

-- PAGE NO. 4

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/	DIST	LD	MZ/	DIST	LD	FX	DIST	LD
	FZ	DIST	LD	MY	DIST	LD			
13 MAX	0.00	0.00	1	0.00	0.00	1	28.84 C	0.00	44
	0.00	0.00	1	0.00	0.00	1			
MIN	0.00	0.10	252	0.00	0.10	252	0.00	0.10	252
	0.00	0.10	252	0.00	0.10	252			

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

93. *HS20 MAX REACTION - LISTED ABOVE

94. PRINT MAXFORCE ENVELOPE NSECTION 1 LIST 23

STAAD SPACE

-- PAGE NO. 5

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/			MZ/			FX	DIST LD	
	FZ	DIST	LD	MY	DIST	LD		DIST	LD
23 MAX	0.00	0.00	1	0.00	0.00	1	13.75 C	0.00	69
	0.00	0.00	1	0.00	0.00	1			
MIN	0.00	0.10	252	0.00	0.10	252	0.00	0.10	252
	0.00	0.10	252	0.00	0.10	252			

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

95. *TYPE 2F1 MAX REACTION - LISTED ABOVE
 96. PRINT MAXFORCE ENVELOPE NSECTION 1 LIST 33

STAAD SPACE

-- PAGE NO. 6

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/	DIST	LD	MZ/	DIST	LD	FX	DIST	LD
	FZ	DIST	LD	MY	DIST	LD			
33 MAX	0.00	0.00	1	0.00	0.00	1	20.54 C	0.00	91
	0.00	0.00	1	0.00	0.00	1			
MIN	0.00	0.10	252	0.00	0.10	252	0.00	0.10	252
	0.00	0.10	252	0.00	0.10	252			

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

97. *TYPE 3F1 MAX REACTION - LISTED ABOVE
 98. PRINT MAXFORCE ENVELOPE NSECTION 1 LIST 43

STAAD SPACE

-- PAGE NO. 7

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/	DIST	LD	MZ/	DIST	LD	FX	DIST	LD
	FZ	DIST	LD	MY	DIST	LD			
43 MAX	0.00	0.00	1	0.00	0.00	1	23.41 C	0.00	125
	0.00	0.00	1	0.00	0.00	1			
MIN	0.00	0.10	252	0.00	0.10	252	0.00	0.10	252
	0.00	0.10	252	0.00	0.10	252			

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

99. *TYPE 4F1 MAX REACTION - LISTED ABOVE
 100. PRINT MAXFORCE ENVELOPE NSECTION 1 LIST 53

STAAD SPACE

-- PAGE NO. 8

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/	DIST	LD	MZ/	DIST	LD	FX	DIST	LD
	FZ	DIST	LD	MY	DIST	LD			
53 MAX	0.00	0.00	1	0.00	0.00	1	22.63 C	0.00	165
	0.00	0.00	1	0.00	0.00	1			
MIN	0.00	0.10	252	0.00	0.10	252	0.00	0.10	148
	0.00	0.10	252	0.00	0.10	252			

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

101. *TYPE 5C1 MAX REACTION - LISTED ABOVE

102. FINISH

***** END OF THE STAAD.Pro RUN *****

**** DATE= APR 6,2012 TIME= 10:32:11 ****

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*****
*           For questions on STAAD.Pro, please contact           *
*   Bentley Systems Offices at the following locations           *
*                                                                 *
*           Telephone                Web / Email                *
*                                                                 *
*   USA:          +1 (714)974-2500                               *
*   CANADA        +1 (905)632-4771    detech@odandetech.com    *
*   UK            +44(1454)207-000                                       *
*   SINGAPORE     +65 6225-6158                                           *
*   EUROPE        +31 23 5560560                                           *
*   INDIA         +91(033)4006-2021                                         *
*   JAPAN         +81(03)5952-6500    http://www.ctc-g.co.jp    *
*   CHINA         +86 10 5929 7000                                         *
*   THAILAND      +66(0)2645-1018/19 partha.p@reissoftwareth.com *
*                                                                 *
*   Worldwide     http://selectservices.bentley.com/en-US/         *
*                                                                 *
*****
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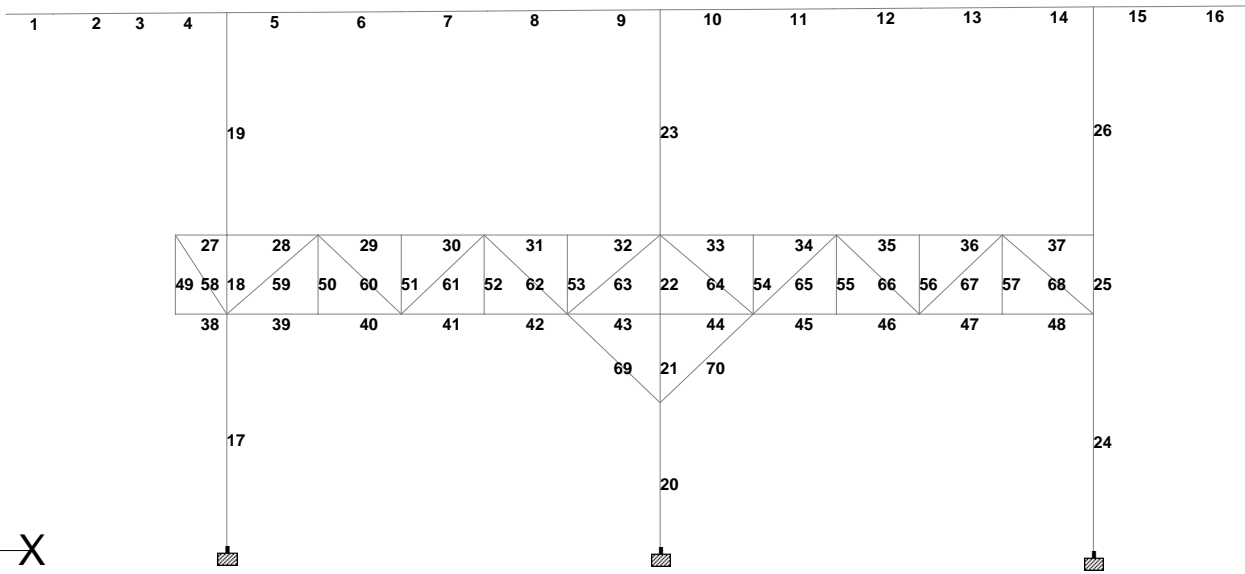



Job No P402110046	Sheet No 1	Rev
Part East Approach - Forward Section		
Ref Bent 7		
By MTN	Date 31-Mar-12	Chd PJP
File Bent_7_LL.std	Date/Time 13-Apr-2012 08:47	

Software licensed to TranSystems

Job Title CUY-2-1441 Main Ave Rating

Client ODOT



Load 1

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*****
*
*          STAAD.Pro V8i SELECTseries1          *
*          Version  20.07.06.35                 *
*          Proprietary Program of              *
*          Bentley Systems, Inc.               *
*          Date=    APR 11, 2012                *
*          Time=    19: 8:28                    *
*
*          USER ID: TranSystems                 *
*****

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1. STAAD SPACE DXF IMPORT OF 002_1441BENT_7.DXF
INPUT FILE: Bent_7_DL.STD

- 2. START JOB INFORMATION
- 3. ENGINEER DATE 31-MAR-12
- 4. JOB NAME CUY-2-1441 MAIN AVE RATING
- 5. JOB NO P402110046
- 6. JOB REF BENT 7
- 7. JOB COMMENT BENT 7 DEAD LOAD
- 8. ENGINEER NAME MTN
- 9. JOB CLIENT ODOT
- 10. JOB PART EAST APPRAOCH - FORWARD SECTION
- 11. CHECKER NAME PJP
- 12. CHECKER DATE 4/6/12
- 13. END JOB INFORMATION

- 14. INPUT WIDTH 79
- 15. UNIT FEET KIP
- 16. JOINT COORDINATES
- 17. 1 -4.8125 153.125 0; 2 -1.59896 153.146 0; 3 3.60938 153.181 0
- 18. 4 4.25521 153.186 0; 5 10.1094 153.225 0; 6 15.9635 153.264 0
- 19. 7 21.8177 153.303 0; 8 27.6719 153.342 0; 9 33.526 153.381 0
- 20. 10 39.3594 153.42 0; 11 45.1927 153.458 0; 12 51.0469 153.497 0
- 21. 13 56.901 153.536 0; 14 62.7552 153.576 0; 15 68.6094 153.615 0
- 22. 16 73.3802 153.646 0; 17 79 153.684 0; 18 10.1094 117.19 0
- 23. 19 10.1094 132.879 0; 20 10.1094 138.212 0; 21 39.3594 117.15 0
- 24. 22 39.3594 126.9 0; 23 39.3594 132.879 0; 24 39.3594 138.212 0
- 25. 25 68.6094 116.88 0; 26 68.6094 132.879 0; 27 68.6094 138.212 0
- 26. 28 6.625 138.212 0; 29 16.2656 138.212 0; 30 21.8698 138.212 0
- 27. 31 27.474 138.212 0; 32 33.0781 138.212 0; 33 45.6406 138.212 0
- 28. 34 51.2448 138.212 0; 35 56.849 138.212 0; 36 62.4531 138.212 0
- 29. 37 6.625 132.879 0; 38 16.2656 132.879 0; 39 21.8698 132.879 0
- 30. 40 27.474 132.879 0; 41 33.0781 132.879 0; 42 45.6406 132.879 0
- 31. 43 51.2448 132.879 0; 44 56.849 132.879 0; 45 62.4531 132.879 0

- 32. MEMBER INCIDENCES
- 33. 1 1 2; 2 2 3; 3 3 4; 4 4 5; 5 5 6; 6 6 7; 7 7 8; 8 8 9; 9 9 10; 10 10 11
- 34. 11 11 12; 12 12 13; 13 13 14; 14 14 15; 15 15 16; 16 16 17; 17 18 19; 18 19 20
- 35. 19 20 5; 20 21 22; 21 22 23; 22 23 24; 23 24 10; 24 25 26; 25 26 27; 26 27 15
- 36. 27 28 20; 28 20 29; 29 29 30; 30 30 31; 31 31 32; 32 32 24; 33 24 33; 34 33 34
- 37. 35 34 35; 36 35 36; 37 36 27; 38 37 19; 39 19 38; 40 38 39; 41 39 40; 42 40 41
- 38. 43 41 23; 44 23 42; 45 42 43; 46 43 44; 47 44 45; 48 45 26; 49 37 28; 50 38 29
- 39. 51 39 30; 52 40 31; 53 41 32; 54 42 33; 55 43 34; 56 44 35; 57 45 36; 58 28 19
- 40. 59 19 29; 60 29 39; 61 39 31; 62 31 41; 63 41 24; 64 24 42; 65 42 34; 66 34 44

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41. 67 44 36; 68 36 26; 69 41 22; 70 22 42
42. DEFINE MATERIAL START
43. ISOTROPIC STEEL
44. E 4.176E+006
45. POISSON 0.3
46. DENSITY 0.489024
47. ALPHA 6E-006
48. DAMP 0.03
49. END DEFINE MATERIAL
50. MEMBER PROPERTY AMERICAN
51. 1 TO 16 TABLE ST W36X230
52. 17 TO 19 24 TO 26 TABLE ST W21X111
53. 20 TO 23 TABLE ST W24X104
54. 49 TO 57 TABLE ST W8X31
55. 58 TO 68 TABLE ST W8X48
56. 27 TO 48 69 70 TABLE ST W8X58
57. CONSTANTS
58. BETA 90 MEMB 27 TO 70
59. MATERIAL STEEL ALL
60. MEMBER TRUSS
61. 27 TO 70
62. SUPPORTS
63. 18 21 25 FIXED
64. LOAD 1 LOADTYPE DEAD TITLE LOAD CASE 1
65. SELFWEIGHT Y -1.05 LIST 1 TO 70
66. JOINT LOAD
67. *F1-56 FASCIA BEAMS
68. 17 FY -25.43
69. *S1-56
70. 16 FY -24.07
71. *S2-56
72. 15 FY -24.43
73. *S3-56, S4-56, S5-56, S6-56, S8-56, S9-56, S10-56, S11-56
74. 6 TO 9 11 TO 14 FY -26.08
75. *S7-56
76. 10 FY -26.04
77. *S12-56
78. 5 FY -26.53
79. *S13-6
80. 4 FY -14.15
81. *S13-5
82. 3 FY -14.05
83. *S14-6
84. 2 FY -14.84
85. *F2B-5 _F2-6 FASCIA BEAMS
86. 1 FY -28.62
87. *S-16 LOWER DECK (RIGHT FASCIA BEAM - LOOKING WEST)
88. 24 FY -9.54
89. *S-4 LOWER DECK (INTERIOR BEAM)
90. 29 TO 32 FY -8.73
91. *S-14 LOWER DECK (SECOND BEAM FROM LEFT - LOOKING WEST)
92. 20 FY -11.14
93. *S-13 LOWER DECK (LEFT FASCIA BEAM - LOOKING WEST)
94. 28 FY -7.77
95. PERFORM ANALYSIS
```

P R O B L E M S T A T I S T I C S

NUMBER OF JOINTS/MEMBER+ELEMENTS/SUPPORTS = 45/ 70/ 3

SOLVER USED IS THE OUT-OF-CORE BASIC SOLVER

ORIGINAL/FINAL BAND-WIDTH= 20/ 5/ 36 DOF
 TOTAL PRIMARY LOAD CASES = 1, TOTAL DEGREES OF FREEDOM = 252
 SIZE OF STIFFNESS MATRIX = 10 DOUBLE KILO-WORDS
 REQD/AVAIL. DISK SPACE = 12.2/ 515492.2 MB

ZERO STIFFNESS IN DIRECTION 3 AT JOINT 36 EQN.NO. 45
 LOADS APPLIED OR DISTRIBUTED HERE FROM ELEMENTS WILL BE IGNORED.
 THIS MAY BE DUE TO ALL MEMBERS AT THIS JOINT BEING RELEASED OR
 EFFECTIVELY RELEASED IN THIS DIRECTION.

ZERO STIFFNESS IN DIRECTION 4 AT JOINT	36 EQN.NO.	46
ZERO STIFFNESS IN DIRECTION 5 AT JOINT	36 EQN.NO.	47
ZERO STIFFNESS IN DIRECTION 6 AT JOINT	36 EQN.NO.	48
ZERO STIFFNESS IN DIRECTION 3 AT JOINT	45 EQN.NO.	57
ZERO STIFFNESS IN DIRECTION 4 AT JOINT	45 EQN.NO.	58
ZERO STIFFNESS IN DIRECTION 5 AT JOINT	45 EQN.NO.	59
ZERO STIFFNESS IN DIRECTION 6 AT JOINT	45 EQN.NO.	60
ZERO STIFFNESS IN DIRECTION 3 AT JOINT	35 EQN.NO.	63
ZERO STIFFNESS IN DIRECTION 4 AT JOINT	35 EQN.NO.	64
ZERO STIFFNESS IN DIRECTION 5 AT JOINT	35 EQN.NO.	65
ZERO STIFFNESS IN DIRECTION 6 AT JOINT	35 EQN.NO.	66

****WARNING - THERE WERE MORE THAN 12 DOF WITH ZERO STIFFNESS.**

THE FIRST 12 ARE LISTED ABOVE.

TOTAL # TRANSLATIONAL= 18 TOTAL # ROTATIONAL= 54

96. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 1 TO 16

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
1 MAX	-28.62	0.00	1	93.22	3.21	1			
	0.00	0.00	1	0.00	0.00	1	0.19 T	0.00	1
MIN	-29.39	3.21	1	0.00	0.00	1			
	0.00	3.21	1	0.00	3.21	1	0.19 T	3.21	1
2 MAX	-44.23	0.00	1	326.87	5.21	1			
	0.00	0.00	1	0.00	0.00	1	0.30 T	0.00	1
MIN	-45.49	5.21	1	93.22	0.00	1			
	0.00	5.21	1	0.00	5.21	1	0.31 T	5.21	1
3 MAX	-59.54	0.00	1	365.38	0.65	1			
	0.00	0.00	1	0.00	0.00	1	0.46 T	0.00	1
MIN	-59.69	0.65	1	326.87	0.00	1			
	0.00	0.65	1	0.00	0.65	1	0.46 T	0.65	1
4 MAX	-73.84	0.00	1	801.82	5.85	1			
	0.00	0.00	1	0.00	0.00	1	0.49 T	0.00	1
MIN	-75.26	5.85	1	365.38	0.00	1			
	0.00	5.85	1	0.00	5.85	1	0.50 T	5.85	1
5 MAX	72.23	0.00	1	701.10	0.00	1			
	0.00	0.00	1	0.00	0.00	1	6.71 T	0.00	1
MIN	70.82	5.85	1	282.38	5.85	1			
	0.00	5.85	1	0.00	5.85	1	6.72 T	5.85	1
6 MAX	44.74	0.00	1	282.38	0.00	1			
	0.00	0.00	1	0.00	0.00	1	6.89 T	0.00	1
MIN	43.33	5.85	1	24.60	5.85	1			
	0.00	5.85	1	0.00	5.85	1	6.90 T	5.85	1
7 MAX	17.25	0.00	1	24.60	0.00	1			
	0.00	0.00	1	0.00	0.00	1	7.08 T	0.00	1
MIN	15.84	5.85	1	-72.25	5.85	1			
	0.00	5.85	1	0.00	5.85	1	7.09 T	5.85	1
8 MAX	-10.24	0.00	1	-8.16	5.85	1			
	0.00	0.00	1	0.00	0.00	1	7.26 T	0.00	1
MIN	-11.65	5.85	1	-72.25	0.00	1			
	0.00	5.85	1	0.00	5.85	1	7.27 T	5.85	1
9 MAX	-37.73	0.00	1	216.05	5.83	1			
	0.00	0.00	1	0.00	0.00	1	7.44 T	0.00	1

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MIN	-39.14	5.83	1	-8.16	0.00	1			
	0.00	5.83	1	0.00	5.83	1	7.45 T	5.83	1
10 MAX	52.24	0.00	1	259.42	0.00	1			
	0.00	0.00	1	0.00	0.00	1	2.97 T	0.00	1
MIN	50.83	5.83	1	-41.22	5.83	1			
	0.00	5.83	1	0.00	5.83	1	2.98 T	5.83	1
11 MAX	24.76	0.00	1	-41.22	0.00	1			
	0.00	0.00	1	0.00	0.00	1	3.15 T	0.00	1
MIN	23.34	5.85	1	-182.02	5.85	1			
	0.00	5.85	1	0.00	5.85	1	3.16 T	5.85	1
12 MAX	-2.73	0.00	1	-161.88	5.85	1			
	0.00	0.00	1	0.00	0.00	1	3.33 T	0.00	1
MIN	-4.15	5.85	1	-182.02	0.00	1			
	0.00	5.85	1	0.00	5.85	1	3.34 T	5.85	1
13 MAX	-30.22	0.00	1	19.20	5.85	1			
	0.00	0.00	1	0.00	0.00	1	3.52 T	0.00	1
MIN	-31.64	5.85	1	-161.88	0.00	1			
	0.00	5.85	1	0.00	5.85	1	3.53 T	5.85	1
14 MAX	-57.72	0.00	1	361.22	5.85	1			
	0.00	0.00	1	0.00	0.00	1	3.70 T	0.00	1
MIN	-59.13	5.85	1	19.20	0.00	1			
	0.00	5.85	1	0.00	5.85	1	3.71 T	5.85	1
15 MAX	52.00	0.00	1	392.08	0.00	1			
	0.00	0.00	1	0.00	0.00	1	0.34 C	0.00	1
MIN	50.85	4.77	1	146.72	4.77	1			
	0.00	4.77	1	0.00	4.77	1	0.33 C	4.77	1
16 MAX	26.78	0.00	1	146.72	0.00	1			
	0.00	0.00	1	0.00	0.00	1	0.18 C	0.00	1
MIN	25.43	5.62	1	0.00	5.62	1			
	0.00	5.62	1	0.00	5.62	1	0.17 C	5.62	1

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

97. *FLOOR BEAM DEAD LOAD ABOVE

98. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 17 TO 19

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
17 MAX	-1.92	0.00	1	15.70	15.69	1			
	0.00	0.00	1	0.00	0.00	1	213.50 C	0.00	1
MIN	-1.92	15.69	1	-14.48	0.00	1			
	0.00	15.69	1	0.00	15.69	1	211.67 C	15.69	1
18 MAX	1.58	0.00	1	15.70	0.00	1			
	0.00	0.00	1	0.00	0.00	1	187.78 C	0.00	1
MIN	1.58	5.33	1	7.26	5.33	1			
	0.00	5.33	1	0.00	5.33	1	187.15 C	5.33	1
19 MAX	7.19	0.00	1	7.26	0.00	1			
	0.00	0.00	1	0.00	0.00	1	175.72 C	0.00	1
MIN	7.19	15.01	1	-100.71	15.01	1			
	0.00	15.01	1	0.00	15.01	1	173.97 C	15.01	1

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

99. *COLUMN 3 DEAD LOAD ABOVE
100. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 20 TO 23

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
20 MAX	2.51	0.00	1	8.18	0.00	1			
	0.00	0.00	1	0.00	0.00	1	167.51 C	0.00	1
MIN	2.51	9.75	1	-16.30	9.75	1			
	0.00	9.75	1	0.00	9.75	1	166.45 C	9.75	1
21 MAX	-3.05	0.00	1	1.93	5.98	1			
	0.00	0.00	1	0.00	0.00	1	120.60 C	0.00	1
MIN	-3.05	5.98	1	-16.30	0.00	1			
	0.00	5.98	1	0.00	5.98	1	119.94 C	5.98	1
22 MAX	3.29	0.00	1	1.93	0.00	1			
	0.00	0.00	1	0.00	0.00	1	119.56 C	0.00	1
MIN	3.29	5.33	1	-15.61	5.33	1			
	0.00	5.33	1	0.00	5.33	1	118.98 C	5.33	1
23 MAX	-3.88	0.00	1	43.37	15.21	1			
	0.00	0.00	1	0.00	0.00	1	119.11 C	0.00	1
MIN	-3.88	15.21	1	-15.61	0.00	1			
	0.00	15.21	1	0.00	15.21	1	117.45 C	15.21	1

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

101. *COLUMN 2 DEAD LOAD ABOVE

102. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 24 TO 26

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
24 MAX	-0.59	0.00	1	3.43	16.00	1			
	0.00	0.00	1	0.00	0.00	1	136.28 C	0.00	1
MIN	-0.59	16.00	1	-5.96	0.00	1			
	0.00	16.00	1	0.00	16.00	1	134.42 C	16.00	1
25 MAX	4.43	0.00	1	3.43	0.00	1			
	0.00	0.00	1	0.00	0.00	1	138.19 C	0.00	1
MIN	4.43	5.33	1	-20.18	5.33	1			
	0.00	5.33	1	0.00	5.33	1	137.57 C	5.33	1
26 MAX	-3.31	0.00	1	30.86	15.40	1			
	0.00	0.00	1	0.00	0.00	1	137.38 C	0.00	1
MIN	-3.31	15.40	1	-20.18	0.00	1			
	0.00	15.40	1	0.00	15.40	1	135.59 C	15.40	1

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

103. *COLUMN 1 DEAD LOAD ABOVE

104. PRINT MAXFORCE ENVELOPE LIST 27 TO 70

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
27 MAX	0.00	0.00	1	0.00	0.00	1			
	0.11	3.48	1	0.00	0.00	1	5.43 T	0.00	1
	MIN	0.00	3.48	1	0.00	3.48	1		
	-0.11	0.00	1	0.00	3.48	1	5.43 T	3.48	1
28 MAX	0.00	0.00	1	0.00	0.00	1			
	0.19	6.16	1	0.00	0.00	1	0.18 C	0.00	1
	MIN	0.00	6.16	1	0.00	6.16	1		
	-0.19	0.00	1	0.00	6.16	1	0.18 C	6.16	1
29 MAX	0.00	0.00	1	0.00	0.00	1			
	0.17	5.60	1	0.00	0.00	1	22.55 C	0.00	1
	MIN	0.00	5.60	1	0.00	5.60	1		
	-0.17	0.00	1	0.00	5.60	1	22.55 C	5.60	1
30 MAX	0.00	0.00	1	0.00	0.00	1			
	0.17	5.60	1	0.00	0.00	1	22.55 C	0.00	1
	MIN	0.00	5.60	1	0.00	5.60	1		
	-0.17	0.00	1	0.00	5.60	1	22.55 C	5.60	1
31 MAX	0.00	0.00	1	0.00	0.00	1			
	0.17	5.60	1	0.00	0.00	1	1.39 C	0.00	1
	MIN	0.00	5.60	1	0.00	5.60	1		
	-0.17	0.00	1	0.00	5.60	1	1.39 C	5.60	1
32 MAX	0.00	0.00	1	0.00	0.00	1			
	0.19	6.28	1	0.00	0.00	1	1.39 C	0.00	1
	MIN	0.00	6.28	1	0.00	6.28	1		
	-0.19	0.00	1	0.00	6.28	1	1.39 C	6.28	1
33 MAX	0.00	0.00	1	0.00	0.00	1			
	0.19	6.28	1	0.00	0.00	1	18.20 T	0.00	1
	MIN	0.00	6.28	1	0.00	6.28	1		
	-0.19	0.00	1	0.00	6.28	1	18.20 T	6.28	1
34 MAX	0.00	0.00	1	0.00	0.00	1			
	0.17	5.60	1	0.00	0.00	1	18.20 T	0.00	1
	MIN	0.00	5.60	1	0.00	5.60	1		
	-0.17	0.00	1	0.00	5.60	1	18.20 T	5.60	1
35 MAX	0.00	0.00	1	0.00	0.00	1			
	0.17	5.60	1	0.00	0.00	1	2.80 T	0.00	1

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MIN	0.00	5.60	1	0.00	5.60	1			
	-0.17	0.00	1	0.00	5.60	1	2.80 T	5.60	1
36 MAX	0.00	0.00	1	0.00	0.00	1			
	0.17	5.60	1	0.00	0.00	1	2.80 T	0.00	1
MIN	0.00	5.60	1	0.00	5.60	1			
	-0.17	0.00	1	0.00	5.60	1	2.80 T	5.60	1
37 MAX	0.00	0.00	1	0.00	0.00	1			
	0.19	6.16	1	0.00	0.00	1	7.74 C	0.00	1
MIN	0.00	6.16	1	0.00	6.16	1			
	-0.19	0.00	1	0.00	6.16	1	7.74 C	6.16	1
38 MAX	0.00	0.00	1	0.00	0.00	1			
	0.11	3.48	1	0.00	0.00	1	0.00	0.00	1
MIN	0.00	3.48	1	0.00	3.48	1			
	-0.11	0.00	1	0.00	3.48	1	0.00	3.48	1
39 MAX	0.00	0.00	1	0.00	0.00	1			
	0.19	6.16	1	0.00	0.00	1	8.28 T	0.00	1
MIN	0.00	6.16	1	0.00	6.16	1			
	-0.19	0.00	1	0.00	6.16	1	8.28 T	6.16	1
40 MAX	0.00	0.00	1	0.00	0.00	1			
	0.17	5.60	1	0.00	0.00	1	8.28 T	0.00	1
MIN	0.00	5.60	1	0.00	5.60	1			
	-0.17	0.00	1	0.00	5.60	1	8.28 T	5.60	1
41 MAX	0.00	0.00	1	0.00	0.00	1			
	0.17	5.60	1	0.00	0.00	1	8.09 T	0.00	1
MIN	0.00	5.60	1	0.00	5.60	1			
	-0.17	0.00	1	0.00	5.60	1	8.09 T	5.60	1
42 MAX	0.00	0.00	1	0.00	0.00	1			
	0.17	5.60	1	0.00	0.00	1	8.09 T	0.00	1
MIN	0.00	5.60	1	0.00	5.60	1			
	-0.17	0.00	1	0.00	5.60	1	8.09 T	5.60	1
43 MAX	0.00	0.00	1	0.00	0.00	1			
	0.19	6.28	1	0.00	0.00	1	18.82 T	0.00	1
MIN	0.00	6.28	1	0.00	6.28	1			
	-0.19	0.00	1	0.00	6.28	1	18.82 T	6.28	1
44 MAX	0.00	0.00	1	0.00	0.00	1			
	0.19	6.28	1	0.00	0.00	1	12.48 T	0.00	1
MIN	0.00	6.28	1	0.00	6.28	1			
	-0.19	0.00	1	0.00	6.28	1	12.48 T	6.28	1
45 MAX	0.00	0.00	1	0.00	0.00	1			
	0.17	5.60	1	0.00	0.00	1	12.57 C	0.00	1
MIN	0.00	5.60	1	0.00	5.60	1			
	-0.17	0.00	1	0.00	5.60	1	12.57 C	5.60	1
46 MAX	0.00	0.00	1	0.00	0.00	1			
	0.17	5.60	1	0.00	0.00	1	12.57 C	0.00	1

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MIN	0.00	5.60	1	0.00	5.60	1			
	-0.17	0.00	1	0.00	5.60	1	12.57 C	5.60	1
47 MAX	0.00	0.00	1	0.00	0.00	1			
	0.17	5.60	1	0.00	0.00	1	0.21 T	0.00	1
MIN	0.00	5.60	1	0.00	5.60	1			
	-0.17	0.00	1	0.00	5.60	1	0.21 T	5.60	1
48 MAX	0.00	0.00	1	0.00	0.00	1			
	0.19	6.16	1	0.00	0.00	1	0.21 T	0.00	1
MIN	0.00	6.16	1	0.00	6.16	1			
	-0.19	0.00	1	0.00	6.16	1	0.21 T	6.16	1
49 MAX	0.00	0.00	1	0.00	0.00	1			
	0.00	0.00	1	0.00	0.00	1	0.11 T	0.00	1
MIN	0.00	5.33	1	0.00	5.33	1			
	0.00	5.33	1	0.00	5.33	1	0.28 T	5.33	1
50 MAX	0.00	0.00	1	0.00	0.00	1			
	0.00	0.00	1	0.00	0.00	1	0.36 T	0.00	1
MIN	0.00	5.33	1	0.00	5.33	1			
	0.00	5.33	1	0.00	5.33	1	0.53 T	5.33	1
51 MAX	0.00	0.00	1	0.00	0.00	1			
	0.00	0.00	1	0.00	0.00	1	9.25 C	0.00	1
MIN	0.00	5.33	1	0.00	5.33	1			
	0.00	5.33	1	0.00	5.33	1	9.07 C	5.33	1
52 MAX	0.00	0.00	1	0.00	0.00	1			
	0.00	0.00	1	0.00	0.00	1	0.34 T	0.00	1
MIN	0.00	5.33	1	0.00	5.33	1			
	0.00	5.33	1	0.00	5.33	1	0.52 T	5.33	1
53 MAX	0.00	0.00	1	0.00	0.00	1			
	0.00	0.00	1	0.00	0.00	1	9.27 C	0.00	1
MIN	0.00	5.33	1	0.00	5.33	1			
	0.00	5.33	1	0.00	5.33	1	9.09 C	5.33	1
54 MAX	0.00	0.00	1	0.00	0.00	1			
	0.00	0.00	1	0.00	0.00	1	0.54 C	0.00	1
MIN	0.00	5.33	1	0.00	5.33	1			
	0.00	5.33	1	0.00	5.33	1	0.36 C	5.33	1
55 MAX	0.00	0.00	1	0.00	0.00	1			
	0.00	0.00	1	0.00	0.00	1	0.34 T	0.00	1
MIN	0.00	5.33	1	0.00	5.33	1			
	0.00	5.33	1	0.00	5.33	1	0.52 T	5.33	1
56 MAX	0.00	0.00	1	0.00	0.00	1			
	0.00	0.00	1	0.00	0.00	1	0.52 C	0.00	1
MIN	0.00	5.33	1	0.00	5.33	1			
	0.00	5.33	1	0.00	5.33	1	0.34 C	5.33	1
57 MAX	0.00	0.00	1	0.00	0.00	1			
	0.00	0.00	1	0.00	0.00	1	0.36 T	0.00	1

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MIN	0.00	5.33	1	0.00	5.33	1			
	0.00	5.33	1	0.00	5.33	1	0.53 T	5.33	1
58 MAX	0.00	0.00	1	0.00	0.00	1			
	0.09	6.37	1	0.00	0.00	1	10.07 C	6.37	1
MIN	0.00	6.37	1	0.00	6.37	1			
	-0.09	0.00	1	0.00	6.37	1	9.80 C	0.00	1
59 MAX	0.00	0.00	1	0.00	0.00	1			
	0.15	8.14	1	0.00	0.00	1	22.92 C	0.00	1
MIN	0.00	8.14	1	0.00	8.14	1			
	-0.15	0.00	1	0.00	8.14	1	22.65 C	8.14	1
60 MAX	0.00	0.00	1	0.00	0.00	1			
	0.14	7.74	1	0.00	0.00	1	6.97 T	7.74	1
MIN	0.00	7.74	1	0.00	7.74	1			
	-0.14	0.00	1	0.00	7.74	1	7.24 T	0.00	1
61 MAX	0.00	0.00	1	0.00	0.00	1			
	0.14	7.74	1	0.00	0.00	1	7.23 T	0.00	1
MIN	0.00	7.74	1	0.00	7.74	1			
	-0.14	0.00	1	0.00	7.74	1	7.50 T	7.74	1
62 MAX	0.00	0.00	1	0.00	0.00	1			
	0.14	7.74	1	0.00	0.00	1	21.97 C	7.74	1
MIN	0.00	7.74	1	0.00	7.74	1			
	-0.14	0.00	1	0.00	7.74	1	21.70 C	0.00	1
63 MAX	0.00	0.00	1	0.00	0.00	1			
	0.16	8.24	1	0.00	0.00	1	0.07 C	0.00	1
MIN	0.00	8.24	1	0.00	8.24	1			
	-0.16	0.00	1	0.00	8.24	1	0.19 T	8.24	1
64 MAX	0.00	0.00	1	0.00	0.00	1			
	0.16	8.24	1	0.00	0.00	1	16.37 C	8.24	1
MIN	0.00	8.24	1	0.00	8.24	1			
	-0.16	0.00	1	0.00	8.24	1	16.10 C	0.00	1
65 MAX	0.00	0.00	1	0.00	0.00	1			
	0.14	7.74	1	0.00	0.00	1	11.66 C	0.00	1
MIN	0.00	7.74	1	0.00	7.74	1			
	-0.14	0.00	1	0.00	7.74	1	11.40 C	7.74	1
66 MAX	0.00	0.00	1	0.00	0.00	1			
	0.14	7.74	1	0.00	0.00	1	9.59 T	7.74	1
MIN	0.00	7.74	1	0.00	7.74	1			
	-0.14	0.00	1	0.00	7.74	1	9.86 T	0.00	1
67 MAX	0.00	0.00	1	0.00	0.00	1			
	0.14	7.74	1	0.00	0.00	1	8.05 C	0.00	1
MIN	0.00	7.74	1	0.00	7.74	1			
	-0.14	0.00	1	0.00	7.74	1	7.78 C	7.74	1
68 MAX	0.00	0.00	1	0.00	0.00	1			
	0.15	8.14	1	0.00	0.00	1	6.23 T	8.14	1

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MIN	0.00	8.14	1	0.00	8.14	1			
	-0.15	0.00	1	0.00	8.14	1	6.50 T	0.00	1
69 MAX	0.00	0.00	1	0.00	0.00	1			
	0.19	8.67	1	0.00	0.00	1	36.89 C	8.67	1
MIN	0.00	8.67	1	0.00	8.67	1			
	-0.19	0.00	1	0.00	8.67	1	36.52 C	0.00	1
70 MAX	0.00	0.00	1	0.00	0.00	1			
	0.19	8.67	1	0.00	0.00	1	29.22 C	0.00	1
MIN	0.00	8.67	1	0.00	8.67	1			
	-0.19	0.00	1	0.00	8.67	1	28.85 C	8.67	1

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

105. *TRUSS MEMBER DEAD LOAD ABOVE

106. FINISH

***** END OF THE STAAD.Pro RUN *****

**** DATE= APR 11,2012 TIME= 19: 8:29 ****

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*****
*           For questions on STAAD.Pro, please contact           *
*   Bentley Systems Offices at the following locations           *
*                                                                 *
*           Telephone           Web / Email                       *
*                                                                 *
*   USA:           +1 (714)974-2500                               *
*   UK             +44(1454)207-000                               *
*   SINGAPORE     +65 6225-6158                                  *
*   EUROPE        +31 23 5560560                                 *
*   INDIA         +91(033)4006-2021                               *
*   JAPAN         +81(03)5952-6500   http://www.ctc-g.co.jp      *
*   CHINA         +86 10 5929 7000                               *
*   THAILAND     +66(0)2645-1018/19 partha.p@reisoftwareth.com *
*                                                                 *
*   Worldwide     http://selectservices.bentley.com/en-US/     *
*                                                                 *
*****
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*****
*
*          STAAD.Pro V8i SELECTseries1          *
*          Version  20.07.06.35                *
*          Proprietary Program of              *
*          Bentley Systems, Inc.                *
*          Date=    APR 13, 2012                *
*          Time=    8:49:27                    *
*
*          USER ID: TranSystems                 *
*****

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1. STAAD SPACE DXF IMPORT OF 002_1441BENT_7.DXF
- INPUT FILE: Bent_7_LL.STD
2. START JOB INFORMATION
3. ENGINEER DATE 31-MAR-12
4. JOB NAME CUY-2-1441 MAIN AVE RATING
5. JOB NO P402110046
6. JOB REF BENT 7
7. JOB COMMENT BENT 7 LIVE LOAD
8. ENGINEER NAME MTN
9. JOB CLIENT ODOT
10. JOB PART EAST APPROACH - FORWARD SECTION
11. CHECKER NAME PJP
12. CHECKER DATE 4/10/12
13. END JOB INFORMATION
14. INPUT WIDTH 79
15. UNIT FEET KIP
16. JOINT COORDINATES
17. 1 -4.8125 153.125 0; 2 -1.59896 153.146 0; 3 3.60938 153.181 0
18. 4 4.25521 153.186 0; 5 10.1094 153.225 0; 6 15.9635 153.264 0
19. 7 21.8177 153.303 0; 8 27.6719 153.342 0; 9 33.526 153.381 0
20. 10 39.3594 153.42 0; 11 45.1927 153.458 0; 12 51.0469 153.497 0
21. 13 56.901 153.536 0; 14 62.7552 153.576 0; 15 68.6094 153.615 0
22. 16 73.3802 153.646 0; 17 79 153.684 0; 18 10.1094 117.19 0
23. 19 10.1094 132.879 0; 20 10.1094 138.212 0; 21 39.3594 117.15 0
24. 22 39.3594 126.9 0; 23 39.3594 132.879 0; 24 39.3594 138.212 0
25. 25 68.6094 116.88 0; 26 68.6094 132.879 0; 27 68.6094 138.212 0
26. 28 6.625 138.212 0; 29 16.2656 138.212 0; 30 21.8698 138.212 0
27. 31 27.474 138.212 0; 32 33.0781 138.212 0; 33 45.6406 138.212 0
28. 34 51.2448 138.212 0; 35 56.849 138.212 0; 36 62.4531 138.212 0
29. 37 6.625 132.879 0; 38 16.2656 132.879 0; 39 21.8698 132.879 0
30. 40 27.474 132.879 0; 41 33.0781 132.879 0; 42 45.6406 132.879 0
31. 43 51.2448 132.879 0; 44 56.849 132.879 0; 45 62.4531 132.879 0
32. MEMBER INCIDENCES
33. 1 1 2; 2 2 3; 3 3 4; 4 4 5; 5 5 6; 6 6 7; 7 7 8; 8 8 9; 9 9 10; 10 10 11
34. 11 11 12; 12 12 13; 13 13 14; 14 14 15; 15 15 16; 16 16 17; 17 18 19; 18 19 20
35. 19 20 5; 20 21 22; 21 22 23; 22 23 24; 23 24 10; 24 25 26; 25 26 27; 26 27 15
36. 27 28 20; 28 20 29; 29 29 30; 30 30 31; 31 31 32; 32 32 24; 33 24 33; 34 33 34
37. 35 34 35; 36 35 36; 37 36 27; 38 37 19; 39 19 38; 40 38 39; 41 39 40; 42 40 41
38. 43 41 23; 44 23 42; 45 42 43; 46 43 44; 47 44 45; 48 45 26; 49 37 28; 50 38 29
39. 51 39 30; 52 40 31; 53 41 32; 54 42 33; 55 43 34; 56 44 35; 57 45 36; 58 28 19
40. 59 19 29; 60 29 39; 61 39 31; 62 31 41; 63 41 24; 64 24 42; 65 42 34; 66 34 44

41. 67 44 36; 68 36 26; 69 41 22; 70 22 42
42. DEFINE MATERIAL START
43. ISOTROPIC STEEL
44. E 4.176E+006
45. POISSON 0.3
46. DENSITY 0.489024
47. ALPHA 6E-006
48. DAMP 0.03
49. END DEFINE MATERIAL
50. MEMBER PROPERTY AMERICAN
51. 1 TO 16 TABLE ST W36X230
52. 17 TO 19 24 TO 26 TABLE ST W21X111
53. 20 TO 23 TABLE ST W24X104
54. 49 TO 57 TABLE ST W8X31
55. 58 TO 68 TABLE ST W8X48
56. 27 TO 48 69 70 TABLE ST W8X58
57. CONSTANTS
58. BETA 90 MEMB 27 TO 70
59. MATERIAL STEEL ALL
60. MEMBER TRUSS
61. 27 TO 70
62. SUPPORTS
63. 18 21 25 FIXED
64. DEFINE MOVING LOAD
65. TYPE 1 LOAD 24.9 24.9
66. DIST 6
67. LOAD 1 LOADTYPE LIVE TITLE AXIAL ON COLUMN C3 (3 LANE)
68. MEMBER LOAD
69. 1 CON GY -33.8 1.626 0
70. 2 CON GY -33.8 4.4125 0
71. 4 CON GY -33.8 4.5583 0
72. 5 CON GY -33.8 4.7041 0
73. 6 CON GY -33.8 4.85 0
74. 7 CON GY -33.8 4.9958 0
75. LOAD 2 LOADTYPE LIVE TITLE AXIAL ON COLUMN C3 (2 LANE)
76. MEMBER LOAD
77. 1 CON GY -37.5 1.626 0
78. 2 CON GY -37.5 4.4125 0
79. 4 CON GY -37.5 4.5583 0
80. 5 CON GY -37.5 4.7041 0
81. LOAD 3 LOADTYPE LIVE TITLE NEG. MOMENT IN FB OVER C3 (3 LANE)
82. MEMBER LOAD
83. 1 CON GY -33.8 1.626 0
84. 2 CON GY -33.8 4.4125 0
85. 6 CON GY -33.8 0.1415 0
86. 7 CON GY -33.8 0.2874 0
87. 7 CON GY -33.8 4.2874 0
88. 8 CON GY -33.8 4.4332 0
89. LOAD 4 LOADTYPE LIVE TITLE NEG. MOMENT IN FB OVER C3 (2 LANE)
90. MEMBER LOAD
91. 1 CON GY -37.5 1.626 0
92. 2 CON GY -37.5 4.4125 0
93. 6 CON GY -37.5 5.7708 0
94. 8 CON GY -37.5 0.0625 0
95. LOAD 5 LOADTYPE LIVE TITLE POS. MOMENT IN FB BETWEEN C3 _C2 (3 LANE)
96. MEMBER LOAD

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97. 6 CON GY -33.8 0.1415 0
98. 7 CON GY -33.8 0.2874 0
99. 7 CON GY -33.8 4.2874 0
100. 8 CON GY -33.8 4.4332 0
101. 15 CON GY -33.8 2.7708 0
102. 16 CON GY -33.8 4 0
103. LOAD 6 LOADTYPE LIVE TITLE POS. MOMENT IN FB BETWEEN C3 _C2 (2 LANE-1)
104. MEMBER LOAD
105. 6 CON GY -37.5 0.1415 0
106. 7 CON GY -37.5 0.2874 0
107. 7 CON GY -37.5 4.2874 0
108. 8 CON GY -37.5 4.4332 0
109. LOAD 7 LOADTYPE LIVE TITLE POS. MOMENT IN FB BETWEEN C3 _C2 (2 LANE-2)
110. MEMBER LOAD
111. 6 CON GY -37.5 5.7708 0
112. 8 CON GY -37.5 0.0625 0
113. 15 CON GY -37.5 2.7708 0
114. 16 CON GY -37.5 4 0
115. LOAD 8 LOADTYPE LIVE TITLE MAX AXIAL ON COLUMN C2 (4 LANE)
116. MEMBER LOAD
117. 6 CON GY -28.2 0.1415 0
118. 7 CON GY -28.2 0.2874 0
119. 8 CON GY -28.2 0.4332 0
120. 9 CON GY -28.2 0.579 0
121. 10 CON GY -28.2 0.9983 0
122. 11 CON GY -28.2 1.165 0
123. 12 CON GY -28.2 1.3108 0
124. 13 CON GY -28.2 1.4566 0
125. LOAD 9 LOADTYPE LIVE TITLE MAX AXIAL ON COLUMN C2 (3 LANE)
126. MEMBER LOAD
127. 8 CON GY -33.8 0.4332 0
128. 9 CON GY -33.8 0.579 0
129. 10 CON GY -33.8 0.9983 0
130. 11 CON GY -33.8 1.165 0
131. 12 CON GY -33.8 1.3108 0
132. 13 CON GY -33.8 1.4566 0
133. LOAD 10 LOADTYPE LIVE TITLE MAX AXIAL ON COLUMN C2 (2 LANE)
134. MEMBER LOAD
135. 8 CON GY -37.5 0.4332 0
136. 9 CON GY -37.5 0.579 0
137. 10 CON GY -37.5 0.9983 0
138. 11 CON GY -37.5 1.165 0
139. LOAD 11 LOADTYPE LIVE TITLE NEG. MOMENT IN FB OVER C2 (4 LANE)
140. MEMBER LOAD
141. 6 CON GY -28.2 0.1415 0
142. 7 CON GY -28.2 0.2874 0
143. 7 CON GY -28.2 4.2874 0
144. 8 CON GY -28.2 4.4332 0
145. 11 CON GY -28.2 0.7917 0
146. 12 CON GY -28.2 0.9375 0
147. 12 CON GY -28.2 4.9375 0
148. 13 CON GY -28.2 5.0833 0
149. LOAD 12 LOADTYPE LIVE TITLE NEG. MOMENT IN FB OVER C2 (3 LANE)
150. MEMBER LOAD
151. 6 CON GY -33.8 5.7708 0
152. 8 CON GY -33.8 0.0625 0

153. 11 CON GY -33.8 0.7917 0
154. 12 CON GY -33.8 0.9375 0
155. 12 CON GY -33.8 4.9375 0
156. 13 CON GY -33.8 5.0833 0
157. LOAD 13 LOADTYPE LIVE TITLE NEG. MOMENT IN FB OVER C2 (2 LANE)
158. MEMBER LOAD
159. 6 CON GY -37.5 5.7708 0
160. 8 CON GY -37.5 0.0625 0
161. 11 CON GY -37.5 5.7917 0
162. 13 CON GY -37.5 0.0833 0
163. LOAD 14 LOADTYPE LIVE TITLE POS. MOMENT IN FB BETWEEN C2 _C1 (3 LANE)
164. MEMBER LOAD
165. 1 CON GY -33.8 1.626 0
166. 2 CON GY -33.8 4.4125 0
167. 11 CON GY -33.8 0.7917 0
168. 12 CON GY -33.8 0.9375 0
169. 12 CON GY -33.8 4.9375 0
170. 13 CON GY -33.8 5.0833 0
171. LOAD 15 LOADTYPE LIVE TITLE POS. MOMENT IN FB BETWEEN C2 _C1 (2 LANE-1)
172. MEMBER LOAD
173. 11 CON GY -37.5 0.7917 0
174. 12 CON GY -37.5 0.9375 0
175. 12 CON GY -37.5 4.9375 0
176. 13 CON GY -37.5 5.0833 0
177. LOAD 16 LOADTYPE LIVE TITLE POS. MOMENT IN FB BETWEEN C2 _C1 (2 LANE-2)
178. MEMBER LOAD
179. 1 CON GY -37.5 1.626 0
180. 2 CON GY -37.5 4.4125 0
181. 11 CON GY -37.5 5.7917 0
182. 13 CON GY -37.5 0.0833 0
183. LOAD 17 LOADTYPE LIVE TITLE MAX AXIAL ON COLUMN C1 (3 LANE)
184. MEMBER LOAD
185. 11 CON GY -33.8 2.1875 0
186. 12 CON GY -33.8 2.3333 0
187. 13 CON GY -33.8 2.4792 0
188. 14 CON GY -33.8 2.625 0
189. 15 CON GY -33.8 2.7708 0
190. 16 CON GY -33.8 4 0
191. LOAD 18 LOADTYPE LIVE TITLE MAX AXIAL ON COLUMN C1 (2 LANE)
192. MEMBER LOAD
193. 13 CON GY -37.5 2.4792 0
194. 14 CON GY -37.5 2.625 0
195. 15 CON GY -37.5 2.7708 0
196. 16 CON GY -37.5 4 0
197. LOAD 19 LOADTYPE LIVE TITLE NEG. MOMENT IN FB OVER C1 (3 LANE)
198. MEMBER LOAD
199. 11 CON GY -33.8 0.7917 0
200. 12 CON GY -33.8 0.9375 0
201. 12 CON GY -33.8 4.9375 0
202. 13 CON GY -33.8 5.0833 0
203. 15 CON GY -33.8 2.7708 0
204. 16 CON GY -33.8 4 0
205. LOAD 20 LOADTYPE LIVE TITLE NEG. MOMENT IN FB OVER C1 (2 LANE)
206. MEMBER LOAD
207. 11 CON GY -37.5 5.7917 0
208. 13 CON GY -37.5 0.0833 0

209. 15 CON GY -37.5 2.7708 0
210. 16 CON GY -37.5 4 0
211. LOAD 21 LOADTYPE LIVE TITLE ALL LANES LOADED - CENTER (6 LANE)
212. MEMBER LOAD
213. 3 CON GY -28.2 0.4957 0
214. 4 CON GY -28.2 5.8499 0
215. 6 CON GY -28.2 0.1415 0
216. 7 CON GY -28.2 0.2874 0
217. 8 CON GY -28.2 0.4332 0
218. 9 CON GY -28.2 0.579 0
219. 10 CON GY -28.2 0.9983 0
220. 11 CON GY -28.2 1.165 0
221. 12 CON GY -28.2 1.3108 0
222. 13 CON GY -28.2 1.4566 0
223. 14 CON GY -28.2 1.6025 0
224. 15 CON GY -28.2 1.7483 0
225. LOAD 22 LOADTYPE LIVE TITLE ALL LANES LOADED - OUTSIDE (6 LANE)
226. MEMBER LOAD
227. 1 CON GY -28.2 1.626 0
228. 2 CON GY -28.2 4.4125 0
229. 4 CON GY -28.2 4.5583 0
230. 5 CON GY -28.2 4.7041 0
231. 6 CON GY -28.2 4.85 0
232. 7 CON GY -28.2 4.9958 0
233. 11 CON GY -28.2 2.1875 0
234. 12 CON GY -28.2 2.3333 0
235. 13 CON GY -28.2 2.4792 0
236. 14 CON GY -28.2 2.625 0
237. 15 CON GY -28.2 2.7708 0
238. 16 CON GY -28.2 4 0
239. LOAD 23 LOADTYPE LIVE TITLE LOWER DECK LOAD
240. JOINT LOAD
241. 24 FY -3.64
242. 32 FY -5.23
243. 30 31 FY -4.93
244. 29 FY -5.17
245. 20 FY -4.24
246. 28 FY -1.97
247. LOAD 24 LOADTYPE LIVE TITLE LOAD 1 WITH LOWER DECK
248. REPEAT LOAD
249. 1 1.0 23 1.0
250. LOAD 25 LOADTYPE LIVE TITLE LOAD 2 WITH LOWER DECK
251. REPEAT LOAD
252. 2 1.0 23 1.0
253. LOAD 26 LOADTYPE LIVE TITLE LOAD 3 WITH LOWER DECK
254. REPEAT LOAD
255. 3 1.0 23 1.0
256. LOAD 27 LOADTYPE LIVE TITLE LOAD 4 WITH LOWER DECK
257. REPEAT LOAD
258. 4 1.0 23 1.0
259. LOAD 28 LOADTYPE LIVE TITLE LOAD 5 WITH LOWER DECK
260. REPEAT LOAD
261. 5 1.0 23 1.0
262. LOAD 29 LOADTYPE LIVE TITLE LOAD 6 WITH LOWER DECK
263. REPEAT LOAD
264. 6 1.0 23 1.0

265. LOAD 30 LOADTYPE LIVE TITLE LOAD 7 WITH LOWER DECK
266. REPEAT LOAD
267. 7 1.0 23 1.0
268. LOAD 31 LOADTYPE LIVE TITLE LOAD 8 WITH LOWER DECK
269. REPEAT LOAD
270. 8 1.0 23 1.0
271. LOAD 32 LOADTYPE LIVE TITLE LOAD 9 WITH LOWER DECK
272. REPEAT LOAD
273. 9 1.0 23 1.0
274. LOAD 33 LOADTYPE LIVE TITLE LOAD 10 WITH LOWER DECK
275. REPEAT LOAD
276. 10 1.0 23 1.0
277. LOAD 34 LOADTYPE LIVE TITLE LOAD 11 WITH LOWER DECK
278. REPEAT LOAD
279. 11 1.0 23 1.0
280. LOAD 35 LOADTYPE LIVE TITLE LOAD 12 WITH LOWER DECK
281. REPEAT LOAD
282. 12 1.0 23 1.0
283. LOAD 36 LOADTYPE LIVE TITLE LOAD 13 WITH LOWER DECK
284. REPEAT LOAD
285. 13 1.0 23 1.0
286. LOAD 37 LOADTYPE LIVE TITLE LOAD 14 WITH LOWER DECK
287. REPEAT LOAD
288. 14 1.0 23 1.0
289. LOAD 38 LOADTYPE LIVE TITLE LOAD 15 WITH LOWER DECK
290. REPEAT LOAD
291. 15 1.0 23 1.0
292. LOAD 39 LOADTYPE LIVE TITLE LOAD 16 WITH LOWER DECK
293. REPEAT LOAD
294. 16 1.0 23 1.0
295. LOAD 40 LOADTYPE LIVE TITLE LOAD 17 WITH LOWER DECK
296. REPEAT LOAD
297. 17 1.0 23 1.0
298. LOAD 41 LOADTYPE LIVE TITLE LOAD 18 WITH LOWER DECK
299. REPEAT LOAD
300. 18 1.0 23 1.0
301. LOAD 42 LOADTYPE LIVE TITLE LOAD 19 WITH LOWER DECK
302. REPEAT LOAD
303. 19 1.0 23 1.0
304. LOAD 43 LOADTYPE LIVE TITLE LOAD 20 WITH LOWER DECK
305. REPEAT LOAD
306. 20 1.0 23 1.0
307. LOAD 44 LOADTYPE LIVE TITLE LOAD 21 WITH LOWER DECK
308. REPEAT LOAD
309. 21 1.0 23 1.0
310. LOAD 45 LOADTYPE LIVE TITLE LOAD 22 WITH LOWER DECK
311. REPEAT LOAD
312. 22 1.0 23 1.0
313. LOAD 46 LOADTYPE LIVE TITLE 2F1 LOADING
314. REPEAT LOAD
315. 1 0.476768 23 1.0
316. LOAD 47 LOADTYPE LIVE TITLE 2F1 LOADING
317. REPEAT LOAD
318. 2 0.476768 23 1.0
319. LOAD 48 LOADTYPE LIVE TITLE 2F1 LOADING
320. REPEAT LOAD

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321. 3 0.476768 23 1.0
322. LOAD 49 LOADTYPE LIVE TITLE 2F1 LOADING
323. REPEAT LOAD
324. 4 0.476768 23 1.0
325. LOAD 50 LOADTYPE LIVE TITLE 2F1 LOADING
326. REPEAT LOAD
327. 5 0.476768 23 1.0
328. LOAD 51 LOADTYPE LIVE TITLE 2F1 LOADING
329. REPEAT LOAD
330. 6 0.476768 23 1.0
331. LOAD 52 LOADTYPE LIVE TITLE 2F1 LOADING
332. REPEAT LOAD
333. 7 0.476768 23 1.0
334. LOAD 53 LOADTYPE LIVE TITLE 2F1 LOADING
335. REPEAT LOAD
336. 8 0.476768 23 1.0
337. LOAD 54 LOADTYPE LIVE TITLE 2F1 LOADING
338. REPEAT LOAD
339. 9 0.476768 23 1.0
340. LOAD 55 LOADTYPE LIVE TITLE 2F1 LOADING
341. REPEAT LOAD
342. 10 0.476768 23 1.0
343. LOAD 56 LOADTYPE LIVE TITLE 2F1 LOADING
344. REPEAT LOAD
345. 11 0.476768 23 1.0
346. LOAD 57 LOADTYPE LIVE TITLE 2F1 LOADING
347. REPEAT LOAD
348. 12 0.476768 23 1.0
349. LOAD 58 LOADTYPE LIVE TITLE 2F1 LOADING
350. REPEAT LOAD
351. 13 0.476768 23 1.0
352. LOAD 59 LOADTYPE LIVE TITLE 2F1 LOADING
353. REPEAT LOAD
354. 14 0.476768 23 1.0
355. LOAD 60 LOADTYPE LIVE TITLE 2F1 LOADING
356. REPEAT LOAD
357. 15 0.476768 23 1.0
358. LOAD 61 LOADTYPE LIVE TITLE 2F1 LOADING
359. REPEAT LOAD
360. 16 0.476768 23 1.0
361. LOAD 62 LOADTYPE LIVE TITLE 2F1 LOADING
362. REPEAT LOAD
363. 17 0.476768 23 1.0
364. LOAD 63 LOADTYPE LIVE TITLE 2F1 LOADING
365. REPEAT LOAD
366. 18 0.476768 23 1.0
367. LOAD 64 LOADTYPE LIVE TITLE 2F1 LOADING
368. REPEAT LOAD
369. 19 0.476768 23 1.0
370. LOAD 65 LOADTYPE LIVE TITLE 2F1 LOADING
371. REPEAT LOAD
372. 20 0.476768 23 1.0
373. LOAD 66 LOADTYPE LIVE TITLE 2F1 LOADING
374. REPEAT LOAD
375. 21 0.476768 23 1.0
376. LOAD 67 LOADTYPE LIVE TITLE 2F1 LOADING

377. REPEAT LOAD
378. 22 0.476768 23 1.0
379. LOAD 68 LOADTYPE LIVE TITLE 3F1 LOADING
380. REPEAT LOAD
381. 1 0.712205 23 1.0
382. LOAD 69 LOADTYPE LIVE TITLE 3F1 LOADING
383. REPEAT LOAD
384. 2 0.712205 23 1.0
385. LOAD 70 LOADTYPE LIVE TITLE 3F1 LOADING
386. REPEAT LOAD
387. 3 0.712205 23 1.0
388. LOAD 71 LOADTYPE LIVE TITLE 3F1 LOADING
389. REPEAT LOAD
390. 4 0.712205 23 1.0
391. LOAD 72 LOADTYPE LIVE TITLE 3F1 LOADING
392. REPEAT LOAD
393. 5 0.712205 23 1.0
394. LOAD 73 LOADTYPE LIVE TITLE 3F1 LOADING
395. REPEAT LOAD
396. 6 0.712205 23 1.0
397. LOAD 74 LOADTYPE LIVE TITLE 3F1 LOADING
398. REPEAT LOAD
399. 7 0.712205 23 1.0
400. LOAD 75 LOADTYPE LIVE TITLE 3F1 LOADING
401. REPEAT LOAD
402. 8 0.712205 23 1.0
403. LOAD 76 LOADTYPE LIVE TITLE 3F1 LOADING
404. REPEAT LOAD
405. 9 0.712205 23 1.0
406. LOAD 77 LOADTYPE LIVE TITLE 3F1 LOADING
407. REPEAT LOAD
408. 10 0.712205 23 1.0
409. LOAD 78 LOADTYPE LIVE TITLE 3F1 LOADING
410. REPEAT LOAD
411. 11 0.712205 23 1.0
412. LOAD 79 LOADTYPE LIVE TITLE 3F1 LOADING
413. REPEAT LOAD
414. 12 0.712205 23 1.0
415. LOAD 80 LOADTYPE LIVE TITLE 3F1 LOADING
416. REPEAT LOAD
417. 13 0.712205 23 1.0
418. LOAD 81 LOADTYPE LIVE TITLE 3F1 LOADING
419. REPEAT LOAD
420. 14 0.712205 23 1.0
421. LOAD 82 LOADTYPE LIVE TITLE 3F1 LOADING
422. REPEAT LOAD
423. 15 0.712205 23 1.0
424. LOAD 83 LOADTYPE LIVE TITLE 3F1 LOADING
425. REPEAT LOAD
426. 16 0.712205 23 1.0
427. LOAD 84 LOADTYPE LIVE TITLE 3F1 LOADING
428. REPEAT LOAD
429. 17 0.712205 23 1.0
430. LOAD 85 LOADTYPE LIVE TITLE 3F1 LOADING
431. REPEAT LOAD
432. 18 0.712205 23 1.0

433. LOAD 86 LOADTYPE LIVE TITLE 3F1 LOADING
434. REPEAT LOAD
435. 19 0.712205 23 1.0
436. LOAD 87 LOADTYPE LIVE TITLE 3F1 LOADING
437. REPEAT LOAD
438. 20 0.712205 23 1.0
439. LOAD 88 LOADTYPE LIVE TITLE 3F1 LOADING
440. REPEAT LOAD
441. 21 0.712205 23 1.0
442. LOAD 89 LOADTYPE LIVE TITLE 3F1 LOADING
443. REPEAT LOAD
444. 22 0.712205 23 1.0
445. LOAD 90 LOADTYPE LIVE TITLE 4F1 LOADING
446. REPEAT LOAD
447. 1 0.81172 23 1.0
448. LOAD 91 LOADTYPE LIVE TITLE 4F1 LOADING
449. REPEAT LOAD
450. 2 0.81172 23 1.0
451. LOAD 92 LOADTYPE LIVE TITLE 4F1 LOADING
452. REPEAT LOAD
453. 3 0.81172 23 1.0
454. LOAD 93 LOADTYPE LIVE TITLE 4F1 LOADING
455. REPEAT LOAD
456. 4 0.81172 23 1.0
457. LOAD 94 LOADTYPE LIVE TITLE 4F1 LOADING
458. REPEAT LOAD
459. 5 0.81172 23 1.0
460. LOAD 95 LOADTYPE LIVE TITLE 4F1 LOADING
461. REPEAT LOAD
462. 6 0.81172 23 1.0
463. LOAD 96 LOADTYPE LIVE TITLE 4F1 LOADING
464. REPEAT LOAD
465. 7 0.81172 23 1.0
466. LOAD 97 LOADTYPE LIVE TITLE 4F1 LOADING
467. REPEAT LOAD
468. 8 0.81172 23 1.0
469. LOAD 98 LOADTYPE LIVE TITLE 4F1 LOADING
470. REPEAT LOAD
471. 9 0.81172 23 1.0
472. LOAD 99 LOADTYPE LIVE TITLE 4F1 LOADING
473. REPEAT LOAD
474. 10 0.81172 23 1.0
475. LOAD 100 LOADTYPE LIVE TITLE 4F1 LOADING
476. REPEAT LOAD
477. 11 0.81172 23 1.0
478. LOAD 101 LOADTYPE LIVE TITLE 4F1 LOADING
479. REPEAT LOAD
480. 12 0.81172 23 1.0
481. LOAD 102 LOADTYPE LIVE TITLE 4F1 LOADING
482. REPEAT LOAD
483. 13 0.81172 23 1.0
484. LOAD 103 LOADTYPE LIVE TITLE 4F1 LOADING
485. REPEAT LOAD
486. 14 0.81172 23 1.0
487. LOAD 104 LOADTYPE LIVE TITLE 4F1 LOADING
488. REPEAT LOAD

489. 15 0.81172 23 1.0
490. LOAD 105 LOADTYPE LIVE TITLE 4F1 LOADING
491. REPEAT LOAD
492. 16 0.81172 23 1.0
493. LOAD 106 LOADTYPE LIVE TITLE 4F1 LOADING
494. REPEAT LOAD
495. 17 0.81172 23 1.0
496. LOAD 107 LOADTYPE LIVE TITLE 4F1 LOADING
497. REPEAT LOAD
498. 18 0.81172 23 1.0
499. LOAD 108 LOADTYPE LIVE TITLE 4F1 LOADING
500. REPEAT LOAD
501. 19 0.81172 23 1.0
502. LOAD 109 LOADTYPE LIVE TITLE 4F1 LOADING
503. REPEAT LOAD
504. 20 0.81172 23 1.0
505. LOAD 110 LOADTYPE LIVE TITLE 4F1 LOADING
506. REPEAT LOAD
507. 21 0.81172 23 1.0
508. LOAD 111 LOADTYPE LIVE TITLE 4F1 LOADING
509. REPEAT LOAD
510. 22 0.81172 23 1.0
511. LOAD 112 LOADTYPE LIVE TITLE 5C1 LOADING
512. REPEAT LOAD
513. 1 0.784674 23 1.0
514. LOAD 113 LOADTYPE LIVE TITLE 5C1 LOADING
515. REPEAT LOAD
516. 2 0.784674 23 1.0
517. LOAD 114 LOADTYPE LIVE TITLE 5C1 LOADING
518. REPEAT LOAD
519. 3 0.784674 23 1.0
520. LOAD 115 LOADTYPE LIVE TITLE 5C1 LOADING
521. REPEAT LOAD
522. 4 0.784674 23 1.0
523. LOAD 116 LOADTYPE LIVE TITLE 5C1 LOADING
524. REPEAT LOAD
525. 5 0.784674 23 1.0
526. LOAD 117 LOADTYPE LIVE TITLE 5C1 LOADING
527. REPEAT LOAD
528. 6 0.784674 23 1.0
529. LOAD 118 LOADTYPE LIVE TITLE 5C1 LOADING
530. REPEAT LOAD
531. 7 0.784674 23 1.0
532. LOAD 119 LOADTYPE LIVE TITLE 5C1 LOADING
533. REPEAT LOAD
534. 8 0.784674 23 1.0
535. LOAD 120 LOADTYPE LIVE TITLE 5C1 LOADING
536. REPEAT LOAD
537. 9 0.784674 23 1.0
538. LOAD 121 LOADTYPE LIVE TITLE 5C1 LOADING
539. REPEAT LOAD
540. 10 0.784674 23 1.0
541. LOAD 122 LOADTYPE LIVE TITLE 5C1 LOADING
542. REPEAT LOAD
543. 11 0.784674 23 1.0
544. LOAD 123 LOADTYPE LIVE TITLE 5C1 LOADING

545. REPEAT LOAD
546. 12 0.784674 23 1.0
547. LOAD 124 LOADTYPE LIVE TITLE 5C1 LOADING
548. REPEAT LOAD
549. 13 0.784674 23 1.0
550. LOAD 125 LOADTYPE LIVE TITLE 5C1 LOADING
551. REPEAT LOAD
552. 14 0.784674 23 1.0
553. LOAD 126 LOADTYPE LIVE TITLE 5C1 LOADING
554. REPEAT LOAD
555. 15 0.784674 23 1.0
556. LOAD 127 LOADTYPE LIVE TITLE 5C1 LOADING
557. REPEAT LOAD
558. 16 0.784674 23 1.0
559. LOAD 128 LOADTYPE LIVE TITLE 5C1 LOADING
560. REPEAT LOAD
561. 17 0.784674 23 1.0
562. LOAD 129 LOADTYPE LIVE TITLE 5C1 LOADING
563. REPEAT LOAD
564. 18 0.784674 23 1.0
565. LOAD 130 LOADTYPE LIVE TITLE 5C1 LOADING
566. REPEAT LOAD
567. 19 0.784674 23 1.0
568. LOAD 131 LOADTYPE LIVE TITLE 5C1 LOADING
569. REPEAT LOAD
570. 20 0.784674 23 1.0
571. LOAD 132 LOADTYPE LIVE TITLE 5C1 LOADING
572. REPEAT LOAD
573. 21 0.784674 23 1.0
574. LOAD 133 LOADTYPE LIVE TITLE 5C1 LOADING
575. REPEAT LOAD
576. 22 0.784674 23 1.0
577. LOAD 134 LOADTYPE LIVE TITLE AXIAL ON COLUMN C3 (3 LANE)
578. MEMBER LOAD
579. 1 CON GY -25.1 1.626 0
580. 2 CON GY -42.5 4.4125 0
581. 4 CON GY -25.1 4.5583 0
582. 5 CON GY -42.5 4.7041 0
583. 6 CON GY -25.1 4.85 0
584. 7 CON GY -42.5 4.9958 0
585. 1 UNI GX 0.312 0 3.2136
586. 2 UNI GX 0.312 0 5.2084
587. 3 UNI GX 0.312 0 0.6458
588. 4 TO 8 11 TO 14 UNI GX 0.312 0 5.8543
589. 9 10 UNI GX 0.312 0 5.8335
590. 15 UNI GX 0.312 0 4.7709
591. 16 UNI GX 0.312 0 5.6199
592. 1 UMOM GZ -1.122 0 3.2136
593. 2 UMOM GZ -1.122 0 5.2084
594. 3 UMOM GZ -1.122 0 0.6458
595. 4 TO 8 11 TO 14 UMOM GZ -1.122 0 5.8543
596. 9 10 UMOM GZ -1.122 0 5.8335
597. 15 UMOM GZ -1.122 0 4.7709
598. 16 UMOM GZ -1.122 0 5.6199
599. LOAD 135 LOADTYPE LIVE TITLE AXIAL ON COLUMN C3 (2 LANE)
600. MEMBER LOAD

601. 1 CON GY -27.8 1.626 0
602. 2 CON GY -47.2 4.4125 0
603. 4 CON GY -27.8 4.5583 0
604. 5 CON GY -47.2 4.7041 0
605. 1 UNI GX 0.231 0 3.2136
606. 2 UNI GX 0.231 0 5.2084
607. 3 UNI GX 0.231 0 0.6458
608. 4 TO 8 11 TO 14 UNI GX 0.231 0 5.8543
609. 9 10 UNI GX 0.231 0 5.8335
610. 15 UNI GX 0.231 0 4.7709
611. 16 UNI GX 0.231 0 5.6199
612. 1 UMOM GZ -0.831 0 3.2136
613. 2 UMOM GZ -0.831 0 5.2084
614. 3 UMOM GZ -0.831 0 0.6458
615. 4 TO 8 11 TO 14 UMOM GZ -0.831 0 5.8543
616. 9 10 UMOM GZ -0.831 0 5.8335
617. 15 UMOM GZ -0.831 0 4.7709
618. 16 UMOM GZ -0.831 0 5.6199
619. LOAD 136 LOADTYPE LIVE TITLE NEG. MOMENT IN FB OVER C3 (3 LANE)
620. MEMBER LOAD
621. 1 CON GY -25.1 1.626 0
622. 2 CON GY -42.5 4.4125 0
623. 6 CON GY -25.1 0.1415 0
624. 7 CON GY -42.5 0.2874 0
625. 7 CON GY -25.1 4.2874 0
626. 8 CON GY -42.5 4.4332 0
627. 1 UNI GX 0.312 0 3.2136
628. 2 UNI GX 0.312 0 5.2084
629. 3 UNI GX 0.312 0 0.6458
630. 4 TO 8 11 TO 14 UNI GX 0.312 0 5.8543
631. 9 10 UNI GX 0.312 0 5.8335
632. 15 UNI GX 0.312 0 4.7709
633. 16 UNI GX 0.312 0 5.6199
634. 1 UMOM GZ -1.122 0 3.2136
635. 2 UMOM GZ -1.122 0 5.2084
636. 3 UMOM GZ -1.122 0 0.6458
637. 4 TO 8 11 TO 14 UMOM GZ -1.122 0 5.8543
638. 9 10 UMOM GZ -1.122 0 5.8335
639. 15 UMOM GZ -1.122 0 4.7709
640. 16 UMOM GZ -1.122 0 5.6199
641. LOAD 137 LOADTYPE LIVE TITLE NEG. MOMENT IN FB OVER C3 (2 LANE)
642. MEMBER LOAD
643. 1 CON GY -27.8 1.626 0
644. 2 CON GY -47.2 4.4125 0
645. 6 CON GY -27.8 5.7708 0
646. 8 CON GY -47.2 0.0625 0
647. 1 UNI GX 0.231 0 3.2136
648. 2 UNI GX 0.231 0 5.2084
649. 3 UNI GX 0.231 0 0.6458
650. 4 TO 8 11 TO 14 UNI GX 0.231 0 5.8543
651. 9 10 UNI GX 0.231 0 5.8335
652. 15 UNI GX 0.231 0 4.7709
653. 16 UNI GX 0.231 0 5.6199
654. 1 UMOM GZ -0.831 0 3.2136
655. 2 UMOM GZ -0.831 0 5.2084
656. 3 UMOM GZ -0.831 0 0.6458

657. 4 TO 8 11 TO 14 UMOM GZ -0.831 0 5.8543
658. 9 10 UMOM GZ -0.831 0 5.8335
659. 15 UMOM GZ -0.831 0 4.7709
660. 16 UMOM GZ -0.831 0 5.6199
661. LOAD 138 LOADTYPE LIVE TITLE POS. MOMENT IN FB BETWEEN C3 _C2 (3 LANE)
662. MEMBER LOAD
663. 6 CON GY -25.1 0.1415 0
664. 7 CON GY -42.5 0.2874 0
665. 7 CON GY -25.1 4.2874 0
666. 8 CON GY -42.5 4.4332 0
667. 15 CON GY -25.1 2.7708 0
668. 16 CON GY -42.5 4 0
669. 1 UNI GX 0.312 0 3.2136
670. 2 UNI GX 0.312 0 5.2084
671. 3 UNI GX 0.312 0 0.6458
672. 4 TO 8 11 TO 14 UNI GX 0.312 0 5.8543
673. 9 10 UNI GX 0.312 0 5.8335
674. 15 UNI GX 0.312 0 4.7709
675. 16 UNI GX 0.312 0 5.6199
676. 1 UMOM GZ -1.122 0 3.2136
677. 2 UMOM GZ -1.122 0 5.2084
678. 3 UMOM GZ -1.122 0 0.6458
679. 4 TO 8 11 TO 14 UMOM GZ -1.122 0 5.8543
680. 9 10 UMOM GZ -1.122 0 5.8335
681. 15 UMOM GZ -1.122 0 4.7709
682. 16 UMOM GZ -1.122 0 5.6199
683. LOAD 139 LOADTYPE LIVE TITLE POS. MOMENT IN FB BETWEEN C3 _C2 (2 LANE-1)
684. MEMBER LOAD
685. 6 CON GY -27.8 0.1415 0
686. 7 CON GY -47.2 0.2874 0
687. 7 CON GY -27.8 4.2874 0
688. 8 CON GY -47.2 4.4332 0
689. 1 UNI GX 0.231 0 3.2136
690. 2 UNI GX 0.231 0 5.2084
691. 3 UNI GX 0.231 0 0.6458
692. 4 TO 8 11 TO 14 UNI GX 0.231 0 5.8543
693. 9 10 UNI GX 0.231 0 5.8335
694. 15 UNI GX 0.231 0 4.7709
695. 16 UNI GX 0.231 0 5.6199
696. 1 UMOM GZ -0.831 0 3.2136
697. 2 UMOM GZ -0.831 0 5.2084
698. 3 UMOM GZ -0.831 0 0.6458
699. 4 TO 8 11 TO 14 UMOM GZ -0.831 0 5.8543
700. 9 10 UMOM GZ -0.831 0 5.8335
701. 15 UMOM GZ -0.831 0 4.7709
702. 16 UMOM GZ -0.831 0 5.6199
703. LOAD 140 LOADTYPE LIVE TITLE POS. MOMENT IN FB BETWEEN C3 _C2 (2 LANE-2)
704. MEMBER LOAD
705. 6 CON GY -27.8 5.7708 0
706. 8 CON GY -47.2 0.0625 0
707. 15 CON GY -27.8 2.7708 0
708. 16 CON GY -47.2 4 0
709. 1 UNI GX 0.231 0 3.2136
710. 2 UNI GX 0.231 0 5.2084
711. 3 UNI GX 0.231 0 0.6458
712. 4 TO 8 11 TO 14 UNI GX 0.231 0 5.8543

713. 9 10 UNI GX 0.231 0 5.8335
714. 15 UNI GX 0.231 0 4.7709
715. 16 UNI GX 0.231 0 5.6199
716. 1 UMOM GZ -0.831 0 3.2136
717. 2 UMOM GZ -0.831 0 5.2084
718. 3 UMOM GZ -0.831 0 0.6458
719. 4 TO 8 11 TO 14 UMOM GZ -0.831 0 5.8543
720. 9 10 UMOM GZ -0.831 0 5.8335
721. 15 UMOM GZ -0.831 0 4.7709
722. 16 UMOM GZ -0.831 0 5.6199
723. LOAD 141 LOADTYPE LIVE TITLE MAX AXIAL ON COLUMN C2 (4 LANE)
724. MEMBER LOAD
725. 6 CON GY -20.9 0.1415 0
726. 7 CON GY -35.4 0.2874 0
727. 8 CON GY -20.9 0.4332 0
728. 9 CON GY -35.4 0.579 0
729. 10 CON GY -20.9 0.9983 0
730. 11 CON GY -35.4 1.165 0
731. 12 CON GY -20.9 1.3108 0
732. 13 CON GY -35.4 1.4566 0
733. 1 UNI GX 0.347 0 3.2136
734. 2 UNI GX 0.347 0 5.2084
735. 3 UNI GX 0.347 0 0.6458
736. 4 TO 8 11 TO 14 UNI GX 0.347 0 5.8543
737. 9 10 UNI GX 0.347 0 5.8335
738. 15 UNI GX 0.347 0 4.7709
739. 16 UNI GX 0.347 0 5.6199
740. 1 UMOM GZ -1.247 0 3.2136
741. 2 UMOM GZ -1.247 0 5.2084
742. 3 UMOM GZ -1.247 0 0.6458
743. 4 TO 8 11 TO 14 UMOM GZ -1.247 0 5.8543
744. 9 10 UMOM GZ -1.247 0 5.8335
745. 15 UMOM GZ -1.247 0 4.7709
746. 16 UMOM GZ -1.247 0 5.6199
747. LOAD 142 LOADTYPE LIVE TITLE MAX AXIAL ON COLUMN C2 (3 LANE)
748. MEMBER LOAD
749. 8 CON GY -25.1 0.4332 0
750. 9 CON GY -42.5 0.579 0
751. 10 CON GY -25.1 0.9983 0
752. 11 CON GY -42.5 1.165 0
753. 12 CON GY -25.1 1.3108 0
754. 13 CON GY -42.5 1.4566 0
755. 1 UNI GX 0.312 0 3.2136
756. 2 UNI GX 0.312 0 5.2084
757. 3 UNI GX 0.312 0 0.6458
758. 4 TO 8 11 TO 14 UNI GX 0.312 0 5.8543
759. 9 10 UNI GX 0.312 0 5.8335
760. 15 UNI GX 0.312 0 4.7709
761. 16 UNI GX 0.312 0 5.6199
762. 1 UMOM GZ -1.122 0 3.2136
763. 2 UMOM GZ -1.122 0 5.2084
764. 3 UMOM GZ -1.122 0 0.6458
765. 4 TO 8 11 TO 14 UMOM GZ -1.122 0 5.8543
766. 9 10 UMOM GZ -1.122 0 5.8335
767. 15 UMOM GZ -1.122 0 4.7709
768. 16 UMOM GZ -1.122 0 5.6199

769. LOAD 143 LOADTYPE LIVE TITLE MAX AXIAL ON COLUMN C2 (2 LANE)
770. MEMBER LOAD
771. 8 CON GY -27.8 0.4332 0
772. 9 CON GY -47.2 0.579 0
773. 10 CON GY -27.8 0.9983 0
774. 11 CON GY -47.2 1.165 0
775. 1 UNI GX 0.231 0 3.2136
776. 2 UNI GX 0.231 0 5.2084
777. 3 UNI GX 0.231 0 0.6458
778. 4 TO 8 11 TO 14 UNI GX 0.231 0 5.8543
779. 9 10 UNI GX 0.231 0 5.8335
780. 15 UNI GX 0.231 0 4.7709
781. 16 UNI GX 0.231 0 5.6199
782. 1 UMOM GZ -0.831 0 3.2136
783. 2 UMOM GZ -0.831 0 5.2084
784. 3 UMOM GZ -0.831 0 0.6458
785. 4 TO 8 11 TO 14 UMOM GZ -0.831 0 5.8543
786. 9 10 UMOM GZ -0.831 0 5.8335
787. 15 UMOM GZ -0.831 0 4.7709
788. 16 UMOM GZ -0.831 0 5.6199
789. LOAD 144 LOADTYPE LIVE TITLE NEG. MOMENT IN FB OVER C2 (4 LANE)
790. MEMBER LOAD
791. 6 CON GY -20.9 0.1415 0
792. 7 CON GY -35.4 0.2874 0
793. 7 CON GY -20.9 4.2874 0
794. 8 CON GY -35.4 4.4332 0
795. 11 CON GY -20.9 0.7917 0
796. 12 CON GY -35.4 0.9375 0
797. 12 CON GY -20.9 4.9375 0
798. 13 CON GY -35.4 5.0833 0
799. 1 UNI GX 0.347 0 3.2136
800. 2 UNI GX 0.347 0 5.2084
801. 3 UNI GX 0.347 0 0.6458
802. 4 TO 8 11 TO 14 UNI GX 0.347 0 5.8543
803. 9 10 UNI GX 0.347 0 5.8335
804. 15 UNI GX 0.347 0 4.7709
805. 16 UNI GX 0.347 0 5.6199
806. 1 UMOM GZ -1.247 0 3.2136
807. 2 UMOM GZ -1.247 0 5.2084
808. 3 UMOM GZ -1.247 0 0.6458
809. 4 TO 8 11 TO 14 UMOM GZ -1.247 0 5.8543
810. 9 10 UMOM GZ -1.247 0 5.8335
811. 15 UMOM GZ -1.247 0 4.7709
812. 16 UMOM GZ -1.247 0 5.6199
813. LOAD 145 LOADTYPE LIVE TITLE NEG. MOMENT IN FB OVER C2 (3 LANE)
814. MEMBER LOAD
815. 6 CON GY -25.1 5.7708 0
816. 8 CON GY -42.5 0.0625 0
817. 11 CON GY -25.1 0.7917 0
818. 12 CON GY -42.5 0.9375 0
819. 12 CON GY -25.1 4.9375 0
820. 13 CON GY -42.5 5.0833 0
821. 1 UNI GX 0.312 0 3.2136
822. 2 UNI GX 0.312 0 5.2084
823. 3 UNI GX 0.312 0 0.6458
824. 4 TO 8 11 TO 14 UNI GX 0.312 0 5.8543

825. 9 10 UNI GX 0.312 0 5.8335
826. 15 UNI GX 0.312 0 4.7709
827. 16 UNI GX 0.312 0 5.6199
828. 1 UMOM GZ -1.122 0 3.2136
829. 2 UMOM GZ -1.122 0 5.2084
830. 3 UMOM GZ -1.122 0 0.6458
831. 4 TO 8 11 TO 14 UMOM GZ -1.122 0 5.8543
832. 9 10 UMOM GZ -1.122 0 5.8335
833. 15 UMOM GZ -1.122 0 4.7709
834. 16 UMOM GZ -1.122 0 5.6199
835. LOAD 146 LOADTYPE LIVE TITLE NEG. MOMENT IN FB OVER C2 (2 LANE)
836. MEMBER LOAD
837. 6 CON GY -27.8 5.7708 0
838. 8 CON GY -47.2 0.0625 0
839. 11 CON GY -27.8 5.7917 0
840. 13 CON GY -47.2 0.0833 0
841. 1 UNI GX 0.231 0 3.2136
842. 2 UNI GX 0.231 0 5.2084
843. 3 UNI GX 0.231 0 0.6458
844. 4 TO 8 11 TO 14 UNI GX 0.231 0 5.8543
845. 9 10 UNI GX 0.231 0 5.8335
846. 15 UNI GX 0.231 0 4.7709
847. 16 UNI GX 0.231 0 5.6199
848. 1 UMOM GZ -0.831 0 3.2136
849. 2 UMOM GZ -0.831 0 5.2084
850. 3 UMOM GZ -0.831 0 0.6458
851. 4 TO 8 11 TO 14 UMOM GZ -0.831 0 5.8543
852. 9 10 UMOM GZ -0.831 0 5.8335
853. 15 UMOM GZ -0.831 0 4.7709
854. 16 UMOM GZ -0.831 0 5.6199
855. LOAD 147 LOADTYPE LIVE TITLE POS. MOMENT IN FB BETWEEN C2 _C1 (3 LANE)
856. MEMBER LOAD
857. 1 CON GY -25.1 1.626 0
858. 2 CON GY -42.5 4.4125 0
859. 11 CON GY -25.1 0.7917 0
860. 12 CON GY -42.5 0.9375 0
861. 12 CON GY -25.1 4.9375 0
862. 13 CON GY -42.5 5.0833 0
863. 1 UNI GX 0.312 0 3.2136
864. 2 UNI GX 0.312 0 5.2084
865. 3 UNI GX 0.312 0 0.6458
866. 4 TO 8 11 TO 14 UNI GX 0.312 0 5.8543
867. 9 10 UNI GX 0.312 0 5.8335
868. 15 UNI GX 0.312 0 4.7709
869. 16 UNI GX 0.312 0 5.6199
870. 1 UMOM GZ -1.122 0 3.2136
871. 2 UMOM GZ -1.122 0 5.2084
872. 3 UMOM GZ -1.122 0 0.6458
873. 4 TO 8 11 TO 14 UMOM GZ -1.122 0 5.8543
874. 9 10 UMOM GZ -1.122 0 5.8335
875. 15 UMOM GZ -1.122 0 4.7709
876. 16 UMOM GZ -1.122 0 5.6199
877. LOAD 148 LOADTYPE LIVE TITLE POS. MOMENT IN FB BETWEEN C2 _C1 (2 LANE-1)
878. MEMBER LOAD
879. 11 CON GY -27.8 0.7917 0
880. 12 CON GY -47.2 0.9375 0

881. 12 CON GY -27.8 4.9375 0
882. 13 CON GY -47.2 5.0833 0
883. 1 UNI GX 0.231 0 3.2136
884. 2 UNI GX 0.231 0 5.2084
885. 3 UNI GX 0.231 0 0.6458
886. 4 TO 8 11 TO 14 UNI GX 0.231 0 5.8543
887. 9 10 UNI GX 0.231 0 5.8335
888. 15 UNI GX 0.231 0 4.7709
889. 16 UNI GX 0.231 0 5.6199
890. 1 UMOM GZ -0.831 0 3.2136
891. 2 UMOM GZ -0.831 0 5.2084
892. 3 UMOM GZ -0.831 0 0.6458
893. 4 TO 8 11 TO 14 UMOM GZ -0.831 0 5.8543
894. 9 10 UMOM GZ -0.831 0 5.8335
895. 15 UMOM GZ -0.831 0 4.7709
896. 16 UMOM GZ -0.831 0 5.6199
897. LOAD 149 LOADTYPE LIVE TITLE POS. MOMENT IN FB BETWEEN C2 _C1 (2 LANE-2)
898. MEMBER LOAD
899. 1 CON GY -27.8 1.626 0
900. 2 CON GY -47.2 4.4125 0
901. 11 CON GY -27.8 5.7917 0
902. 13 CON GY -47.2 0.0833 0
903. 1 UNI GX 0.231 0 3.2136
904. 2 UNI GX 0.231 0 5.2084
905. 3 UNI GX 0.231 0 0.6458
906. 4 TO 8 11 TO 14 UNI GX 0.231 0 5.8543
907. 9 10 UNI GX 0.231 0 5.8335
908. 15 UNI GX 0.231 0 4.7709
909. 16 UNI GX 0.231 0 5.6199
910. 1 UMOM GZ -0.831 0 3.2136
911. 2 UMOM GZ -0.831 0 5.2084
912. 3 UMOM GZ -0.831 0 0.6458
913. 4 TO 8 11 TO 14 UMOM GZ -0.831 0 5.8543
914. 9 10 UMOM GZ -0.831 0 5.8335
915. 15 UMOM GZ -0.831 0 4.7709
916. 16 UMOM GZ -0.831 0 5.6199
917. LOAD 150 LOADTYPE LIVE TITLE MAX AXIAL ON COLUMN C1 (3 LANE)
918. MEMBER LOAD
919. 11 CON GY -25.1 2.1875 0
920. 12 CON GY -42.5 2.3333 0
921. 13 CON GY -25.1 2.4792 0
922. 14 CON GY -42.5 2.625 0
923. 15 CON GY -25.1 2.7708 0
924. 16 CON GY -42.5 4 0
925. 1 UNI GX 0.312 0 3.2136
926. 2 UNI GX 0.312 0 5.2084
927. 3 UNI GX 0.312 0 0.6458
928. 4 TO 8 11 TO 14 UNI GX 0.312 0 5.8543
929. 9 10 UNI GX 0.312 0 5.8335
930. 15 UNI GX 0.312 0 4.7709
931. 16 UNI GX 0.312 0 5.6199
932. 1 UMOM GZ -1.122 0 3.2136
933. 2 UMOM GZ -1.122 0 5.2084
934. 3 UMOM GZ -1.122 0 0.6458
935. 4 TO 8 11 TO 14 UMOM GZ -1.122 0 5.8543
936. 9 10 UMOM GZ -1.122 0 5.8335

937. 15 UMOM GZ -1.122 0 4.7709
938. 16 UMOM GZ -1.122 0 5.6199
939. LOAD 151 LOADTYPE LIVE TITLE MAX AXIAL ON COLUMN C1 (2 LANE)
940. MEMBER LOAD
941. 13 CON GY -27.8 2.4792 0
942. 14 CON GY -47.2 2.625 0
943. 15 CON GY -27.8 2.7708 0
944. 16 CON GY -47.2 4 0
945. 1 UNI GX 0.231 0 3.2136
946. 2 UNI GX 0.231 0 5.2084
947. 3 UNI GX 0.231 0 0.6458
948. 4 TO 8 11 TO 14 UNI GX 0.231 0 5.8543
949. 9 10 UNI GX 0.231 0 5.8335
950. 15 UNI GX 0.231 0 4.7709
951. 16 UNI GX 0.231 0 5.6199
952. 1 UMOM GZ -0.831 0 3.2136
953. 2 UMOM GZ -0.831 0 5.2084
954. 3 UMOM GZ -0.831 0 0.6458
955. 4 TO 8 11 TO 14 UMOM GZ -0.831 0 5.8543
956. 9 10 UMOM GZ -0.831 0 5.8335
957. 15 UMOM GZ -0.831 0 4.7709
958. 16 UMOM GZ -0.831 0 5.6199
959. LOAD 152 LOADTYPE LIVE TITLE NEG. MOMENT IN FB OVER C1 (3 LANE)
960. MEMBER LOAD
961. 11 CON GY -25.1 0.7917 0
962. 12 CON GY -42.5 0.9375 0
963. 12 CON GY -25.1 4.9375 0
964. 13 CON GY -42.5 5.0833 0
965. 15 CON GY -25.1 2.7708 0
966. 16 CON GY -42.5 4 0
967. 1 UNI GX 0.312 0 3.2136
968. 2 UNI GX 0.312 0 5.2084
969. 3 UNI GX 0.312 0 0.6458
970. 4 TO 8 11 TO 14 UNI GX 0.312 0 5.8543
971. 9 10 UNI GX 0.312 0 5.8335
972. 15 UNI GX 0.312 0 4.7709
973. 16 UNI GX 0.312 0 5.6199
974. 1 UMOM GZ -1.122 0 3.2136
975. 2 UMOM GZ -1.122 0 5.2084
976. 3 UMOM GZ -1.122 0 0.6458
977. 4 TO 8 11 TO 14 UMOM GZ -1.122 0 5.8543
978. 9 10 UMOM GZ -1.122 0 5.8335
979. 15 UMOM GZ -1.122 0 4.7709
980. 16 UMOM GZ -1.122 0 5.6199
981. LOAD 153 LOADTYPE LIVE TITLE NEG. MOMENT IN FB OVER C1 (2 LANE)
982. MEMBER LOAD
983. 11 CON GY -27.8 5.7917 0
984. 13 CON GY -47.2 0.0833 0
985. 15 CON GY -27.8 2.7708 0
986. 16 CON GY -47.2 4 0
987. 1 UNI GX 0.231 0 3.2136
988. 2 UNI GX 0.231 0 5.2084
989. 3 UNI GX 0.231 0 0.6458
990. 4 TO 8 11 TO 14 UNI GX 0.231 0 5.8543
991. 9 10 UNI GX 0.231 0 5.8335
992. 15 UNI GX 0.231 0 4.7709

993. 16 UNI GX 0.231 0 5.6199
994. 1 UMOM GZ -0.831 0 3.2136
995. 2 UMOM GZ -0.831 0 5.2084
996. 3 UMOM GZ -0.831 0 0.6458
997. 4 TO 8 11 TO 14 UMOM GZ -0.831 0 5.8543
998. 9 10 UMOM GZ -0.831 0 5.8335
999. 15 UMOM GZ -0.831 0 4.7709
1000. 16 UMOM GZ -0.831 0 5.6199
1001. LOAD 154 LOADTYPE LIVE TITLE ALL LANES LOADED - CENTER (6 LANE)
1002. MEMBER LOAD
1003. 3 CON GY -20.9 0.4957 0
1004. 4 CON GY -35.4 5.8499 0
1005. 6 CON GY -20.9 0.1415 0
1006. 7 CON GY -35.4 0.2874 0
1007. 8 CON GY -20.9 0.4332 0
1008. 9 CON GY -35.4 0.579 0
1009. 10 CON GY -20.9 0.9983 0
1010. 11 CON GY -35.4 1.165 0
1011. 12 CON GY -20.9 1.3108 0
1012. 13 CON GY -35.4 1.4566 0
1013. 14 CON GY -20.9 1.6025 0
1014. 15 CON GY -35.4 1.7483 0
1015. 1 UNI GX 0.52 0 3.2136
1016. 2 UNI GX 0.52 0 5.2084
1017. 3 UNI GX 0.52 0 0.6458
1018. 4 TO 8 11 TO 14 UNI GX 0.52 0 5.8543
1019. 9 10 UNI GX 0.52 0 5.8335
1020. 15 UNI GX 0.52 0 4.7709
1021. 16 UNI GX 0.52 0 5.6199
1022. 1 UMOM GZ -1.87 0 3.2136
1023. 2 UMOM GZ -1.87 0 5.2084
1024. 3 UMOM GZ -1.87 0 0.6458
1025. 4 TO 8 11 TO 14 UMOM GZ -1.87 0 5.8543
1026. 9 10 UMOM GZ -1.87 0 5.8335
1027. 15 UMOM GZ -1.87 0 4.7709
1028. 16 UMOM GZ -1.87 0 5.6199
1029. LOAD 155 LOADTYPE LIVE TITLE ALL LANES LOADED - OUTSIDE (6 LANE)
1030. MEMBER LOAD
1031. 1 CON GY -20.9 1.626 0
1032. 2 CON GY -35.4 4.4125 0
1033. 4 CON GY -20.9 4.5583 0
1034. 5 CON GY -35.4 4.7041 0
1035. 6 CON GY -20.9 4.85 0
1036. 7 CON GY -35.4 4.9958 0
1037. 11 CON GY -20.9 2.1875 0
1038. 12 CON GY -35.4 2.3333 0
1039. 13 CON GY -20.9 2.4792 0
1040. 14 CON GY -35.4 2.625 0
1041. 15 CON GY -20.9 2.7708 0
1042. 16 CON GY -35.4 4 0
1043. 1 UNI GX 0.52 0 3.2136
1044. 2 UNI GX 0.52 0 5.2084
1045. 3 UNI GX 0.52 0 0.6458
1046. 4 TO 8 11 TO 14 UNI GX 0.52 0 5.8543
1047. 9 10 UNI GX 0.52 0 5.8335
1048. 15 UNI GX 0.52 0 4.7709

1049. 16 UNI GX 0.52 0 5.6199
1050. 1 UMOM GZ -1.87 0 3.2136
1051. 2 UMOM GZ -1.87 0 5.2084
1052. 3 UMOM GZ -1.87 0 0.6458
1053. 4 TO 8 11 TO 14 UMOM GZ -1.87 0 5.8543
1054. 9 10 UMOM GZ -1.87 0 5.8335
1055. 15 UMOM GZ -1.87 0 4.7709
1056. 16 UMOM GZ -1.87 0 5.6199
1057. LOAD 156 LOADTYPE LIVE TITLE HS20 INCLUDING CENTRIFUGAL
1058. REPEAT LOAD
1059. 134 1.0 23 1.0
1060. LOAD 157 LOADTYPE LIVE TITLE HS20 INCLUDING CENTRIFUGAL
1061. REPEAT LOAD
1062. 135 1.0 23 1.0
1063. LOAD 158 LOADTYPE LIVE TITLE HS20 INCLUDING CENTRIFUGAL
1064. REPEAT LOAD
1065. 136 1.0 23 1.0
1066. LOAD 159 LOADTYPE LIVE TITLE HS20 INCLUDING CENTRIFUGAL
1067. REPEAT LOAD
1068. 137 1.0 23 1.0
1069. LOAD 160 LOADTYPE LIVE TITLE HS20 INCLUDING CENTRIFUGAL
1070. REPEAT LOAD
1071. 138 1.0 23 1.0
1072. LOAD 161 LOADTYPE LIVE TITLE HS20 INCLUDING CENTRIFUGAL
1073. REPEAT LOAD
1074. 139 1.0 23 1.0
1075. LOAD 162 LOADTYPE LIVE TITLE HS20 INCLUDING CENTRIFUGAL
1076. REPEAT LOAD
1077. 140 1.0 23 1.0
1078. LOAD 163 LOADTYPE LIVE TITLE HS20 INCLUDING CENTRIFUGAL
1079. REPEAT LOAD
1080. 141 1.0 23 1.0
1081. LOAD 164 LOADTYPE LIVE TITLE HS20 INCLUDING CENTRIFUGAL
1082. REPEAT LOAD
1083. 142 1.0 23 1.0
1084. LOAD 165 LOADTYPE LIVE TITLE HS20 INCLUDING CENTRIFUGAL
1085. REPEAT LOAD
1086. 143 1.0 23 1.0
1087. LOAD 166 LOADTYPE LIVE TITLE HS20 INCLUDING CENTRIFUGAL
1088. REPEAT LOAD
1089. 144 1.0 23 1.0
1090. LOAD 167 LOADTYPE LIVE TITLE HS20 INCLUDING CENTRIFUGAL
1091. REPEAT LOAD
1092. 145 1.0 23 1.0
1093. LOAD 168 LOADTYPE LIVE TITLE HS20 INCLUDING CENTRIFUGAL
1094. REPEAT LOAD
1095. 146 1.0 23 1.0
1096. LOAD 169 LOADTYPE LIVE TITLE HS20 INCLUDING CENTRIFUGAL
1097. REPEAT LOAD
1098. 147 1.0 23 1.0
1099. LOAD 170 LOADTYPE LIVE TITLE HS20 INCLUDING CENTRIFUGAL
1100. REPEAT LOAD
1101. 148 1.0 23 1.0
1102. LOAD 171 LOADTYPE LIVE TITLE HS20 INCLUDING CENTRIFUGAL
1103. REPEAT LOAD
1104. 149 1.0 23 1.0

1105. LOAD 172 LOADTYPE LIVE TITLE HS20 INCLUDING CENTRIFUGAL
1106. REPEAT LOAD
1107. 150 1.0 23 1.0
1108. LOAD 173 LOADTYPE LIVE TITLE HS20 INCLUDING CENTRIFUGAL
1109. REPEAT LOAD
1110. 151 1.0 23 1.0
1111. LOAD 174 LOADTYPE LIVE TITLE HS20 INCLUDING CENTRIFUGAL
1112. REPEAT LOAD
1113. 152 1.0 23 1.0
1114. LOAD 175 LOADTYPE LIVE TITLE HS20 INCLUDING CENTRIFUGAL
1115. REPEAT LOAD
1116. 153 1.0 23 1.0
1117. LOAD 176 LOADTYPE LIVE TITLE HS20 INCLUDING CENTRIFUGAL
1118. REPEAT LOAD
1119. 154 1.0 23 1.0
1120. LOAD 177 LOADTYPE LIVE TITLE HS20 INCLUDING CENTRIFUGAL
1121. REPEAT LOAD
1122. 155 1.0 23 1.0
1123. LOAD 178 LOADTYPE LIVE TITLE 2F1 LOADING INCLUDING CENTRIFUGAL
1124. REPEAT LOAD
1125. 134 0.476768 23 1.0
1126. LOAD 179 LOADTYPE LIVE TITLE 2F1 LOADING INCLUDING CENTRIFUGAL
1127. REPEAT LOAD
1128. 135 0.476768 23 1.0
1129. LOAD 180 LOADTYPE LIVE TITLE 2F1 LOADING INCLUDING CENTRIFUGAL
1130. REPEAT LOAD
1131. 136 0.476768 23 1.0
1132. LOAD 181 LOADTYPE LIVE TITLE 2F1 LOADING INCLUDING CENTRIFUGAL
1133. REPEAT LOAD
1134. 137 0.476768 23 1.0
1135. LOAD 182 LOADTYPE LIVE TITLE 2F1 LOADING INCLUDING CENTRIFUGAL
1136. REPEAT LOAD
1137. 138 0.476768 23 1.0
1138. LOAD 183 LOADTYPE LIVE TITLE 2F1 LOADING INCLUDING CENTRIFUGAL
1139. REPEAT LOAD
1140. 139 0.476768 23 1.0
1141. LOAD 184 LOADTYPE LIVE TITLE 2F1 LOADING INCLUDING CENTRIFUGAL
1142. REPEAT LOAD
1143. 140 0.476768 23 1.0
1144. LOAD 185 LOADTYPE LIVE TITLE 2F1 LOADING INCLUDING CENTRIFUGAL
1145. REPEAT LOAD
1146. 141 0.476768 23 1.0
1147. LOAD 186 LOADTYPE LIVE TITLE 2F1 LOADING INCLUDING CENTRIFUGAL
1148. REPEAT LOAD
1149. 142 0.476768 23 1.0
1150. LOAD 187 LOADTYPE LIVE TITLE 2F1 LOADING INCLUDING CENTRIFUGAL
1151. REPEAT LOAD
1152. 143 0.476768 23 1.0
1153. LOAD 188 LOADTYPE LIVE TITLE 2F1 LOADING INCLUDING CENTRIFUGAL
1154. REPEAT LOAD
1155. 144 0.476768 23 1.0
1156. LOAD 189 LOADTYPE LIVE TITLE 2F1 LOADING INCLUDING CENTRIFUGAL
1157. REPEAT LOAD
1158. 145 0.476768 23 1.0
1159. LOAD 190 LOADTYPE LIVE TITLE 2F1 LOADING INCLUDING CENTRIFUGAL
1160. REPEAT LOAD

1161. 146 0.476768 23 1.0
1162. LOAD 191 LOADTYPE LIVE TITLE 2F1 LOADING INCLUDING CENTRIFUGAL
1163. REPEAT LOAD
1164. 147 0.476768 23 1.0
1165. LOAD 192 LOADTYPE LIVE TITLE 2F1 LOADING INCLUDING CENTRIFUGAL
1166. REPEAT LOAD
1167. 148 0.476768 23 1.0
1168. LOAD 193 LOADTYPE LIVE TITLE 2F1 LOADING INCLUDING CENTRIFUGAL
1169. REPEAT LOAD
1170. 149 0.476768 23 1.0
1171. LOAD 194 LOADTYPE LIVE TITLE 2F1 LOADING INCLUDING CENTRIFUGAL
1172. REPEAT LOAD
1173. 150 0.476768 23 1.0
1174. LOAD 195 LOADTYPE LIVE TITLE 2F1 LOADING INCLUDING CENTRIFUGAL
1175. REPEAT LOAD
1176. 151 0.476768 23 1.0
1177. LOAD 196 LOADTYPE LIVE TITLE 2F1 LOADING INCLUDING CENTRIFUGAL
1178. REPEAT LOAD
1179. 152 0.476768 23 1.0
1180. LOAD 197 LOADTYPE LIVE TITLE 2F1 LOADING INCLUDING CENTRIFUGAL
1181. REPEAT LOAD
1182. 153 0.476768 23 1.0
1183. LOAD 198 LOADTYPE LIVE TITLE 2F1 LOADING INCLUDING CENTRIFUGAL
1184. REPEAT LOAD
1185. 154 0.476768 23 1.0
1186. LOAD 199 LOADTYPE LIVE TITLE 2F1 LOADING INCLUDING CENTRIFUGAL
1187. REPEAT LOAD
1188. 155 0.476768 23 1.0
1189. LOAD 200 LOADTYPE LIVE TITLE 3F1 LOADING INCLUDING CENTRIFUGAL
1190. REPEAT LOAD
1191. 134 0.712205 23 1.0
1192. LOAD 201 LOADTYPE LIVE TITLE 3F1 LOADING INCLUDING CENTRIFUGAL
1193. REPEAT LOAD
1194. 135 0.712205 23 1.0
1195. LOAD 202 LOADTYPE LIVE TITLE 3F1 LOADING INCLUDING CENTRIFUGAL
1196. REPEAT LOAD
1197. 136 0.712205 23 1.0
1198. LOAD 203 LOADTYPE LIVE TITLE 3F1 LOADING INCLUDING CENTRIFUGAL
1199. REPEAT LOAD
1200. 137 0.712205 23 1.0
1201. LOAD 204 LOADTYPE LIVE TITLE 3F1 LOADING INCLUDING CENTRIFUGAL
1202. REPEAT LOAD
1203. 138 0.712205 23 1.0
1204. LOAD 205 LOADTYPE LIVE TITLE 3F1 LOADING INCLUDING CENTRIFUGAL
1205. REPEAT LOAD
1206. 139 0.712205 23 1.0
1207. LOAD 206 LOADTYPE LIVE TITLE 3F1 LOADING INCLUDING CENTRIFUGAL
1208. REPEAT LOAD
1209. 140 0.712205 23 1.0
1210. LOAD 207 LOADTYPE LIVE TITLE 3F1 LOADING INCLUDING CENTRIFUGAL
1211. REPEAT LOAD
1212. 141 0.712205 23 1.0
1213. LOAD 208 LOADTYPE LIVE TITLE 3F1 LOADING INCLUDING CENTRIFUGAL
1214. REPEAT LOAD
1215. 142 0.712205 23 1.0
1216. LOAD 209 LOADTYPE LIVE TITLE 3F1 LOADING INCLUDING CENTRIFUGAL

1217. REPEAT LOAD
1218. 143 0.712205 23 1.0
1219. LOAD 210 LOADTYPE LIVE TITLE 3F1 LOADING INCLUDING CENTRIFUGAL
1220. REPEAT LOAD
1221. 144 0.712205 23 1.0
1222. LOAD 211 LOADTYPE LIVE TITLE 3F1 LOADING INCLUDING CENTRIFUGAL
1223. REPEAT LOAD
1224. 145 0.712205 23 1.0
1225. LOAD 212 LOADTYPE LIVE TITLE 3F1 LOADING INCLUDING CENTRIFUGAL
1226. REPEAT LOAD
1227. 146 0.712205 23 1.0
1228. LOAD 213 LOADTYPE LIVE TITLE 3F1 LOADING INCLUDING CENTRIFUGAL
1229. REPEAT LOAD
1230. 147 0.712205 23 1.0
1231. LOAD 214 LOADTYPE LIVE TITLE 3F1 LOADING INCLUDING CENTRIFUGAL
1232. REPEAT LOAD
1233. 148 0.712205 23 1.0
1234. LOAD 215 LOADTYPE LIVE TITLE 3F1 LOADING INCLUDING CENTRIFUGAL
1235. REPEAT LOAD
1236. 149 0.712205 23 1.0
1237. LOAD 216 LOADTYPE LIVE TITLE 3F1 LOADING INCLUDING CENTRIFUGAL
1238. REPEAT LOAD
1239. 150 0.712205 23 1.0
1240. LOAD 217 LOADTYPE LIVE TITLE 3F1 LOADING INCLUDING CENTRIFUGAL
1241. REPEAT LOAD
1242. 151 0.712205 23 1.0
1243. LOAD 218 LOADTYPE LIVE TITLE 3F1 LOADING INCLUDING CENTRIFUGAL
1244. REPEAT LOAD
1245. 152 0.712205 23 1.0
1246. LOAD 219 LOADTYPE LIVE TITLE 3F1 LOADING INCLUDING CENTRIFUGAL
1247. REPEAT LOAD
1248. 153 0.712205 23 1.0
1249. LOAD 220 LOADTYPE LIVE TITLE 3F1 LOADING INCLUDING CENTRIFUGAL
1250. REPEAT LOAD
1251. 154 0.712205 23 1.0
1252. LOAD 221 LOADTYPE LIVE TITLE 3F1 LOADING INCLUDING CENTRIFUGAL
1253. REPEAT LOAD
1254. 155 0.712205 23 1.0
1255. LOAD 222 LOADTYPE LIVE TITLE 4F1 LOADING INCLUDING CENTRIFUGAL
1256. REPEAT LOAD
1257. 134 0.81172 23 1.0
1258. LOAD 223 LOADTYPE LIVE TITLE 4F1 LOADING INCLUDING CENTRIFUGAL
1259. REPEAT LOAD
1260. 135 0.81172 23 1.0
1261. LOAD 224 LOADTYPE LIVE TITLE 4F1 LOADING INCLUDING CENTRIFUGAL
1262. REPEAT LOAD
1263. 136 0.81172 23 1.0
1264. LOAD 225 LOADTYPE LIVE TITLE 4F1 LOADING INCLUDING CENTRIFUGAL
1265. REPEAT LOAD
1266. 137 0.81172 23 1.0
1267. LOAD 226 LOADTYPE LIVE TITLE 4F1 LOADING INCLUDING CENTRIFUGAL
1268. REPEAT LOAD
1269. 138 0.81172 23 1.0
1270. LOAD 227 LOADTYPE LIVE TITLE 4F1 LOADING INCLUDING CENTRIFUGAL
1271. REPEAT LOAD
1272. 139 0.81172 23 1.0

1273. LOAD 228 LOADTYPE LIVE TITLE 4F1 LOADING INCLUDING CENTRIFUGAL
1274. REPEAT LOAD
1275. 140 0.81172 23 1.0
1276. LOAD 229 LOADTYPE LIVE TITLE 4F1 LOADING INCLUDING CENTRIFUGAL
1277. REPEAT LOAD
1278. 141 0.81172 23 1.0
1279. LOAD 230 LOADTYPE LIVE TITLE 4F1 LOADING INCLUDING CENTRIFUGAL
1280. REPEAT LOAD
1281. 142 0.81172 23 1.0
1282. LOAD 231 LOADTYPE LIVE TITLE 4F1 LOADING INCLUDING CENTRIFUGAL
1283. REPEAT LOAD
1284. 143 0.81172 23 1.0
1285. LOAD 232 LOADTYPE LIVE TITLE 4F1 LOADING INCLUDING CENTRIFUGAL
1286. REPEAT LOAD
1287. 144 0.81172 23 1.0
1288. LOAD 233 LOADTYPE LIVE TITLE 4F1 LOADING INCLUDING CENTRIFUGAL
1289. REPEAT LOAD
1290. 145 0.81172 23 1.0
1291. LOAD 234 LOADTYPE LIVE TITLE 4F1 LOADING INCLUDING CENTRIFUGAL
1292. REPEAT LOAD
1293. 146 0.81172 23 1.0
1294. LOAD 235 LOADTYPE LIVE TITLE 4F1 LOADING INCLUDING CENTRIFUGAL
1295. REPEAT LOAD
1296. 147 0.81172 23 1.0
1297. LOAD 236 LOADTYPE LIVE TITLE 4F1 LOADING INCLUDING CENTRIFUGAL
1298. REPEAT LOAD
1299. 148 0.81172 23 1.0
1300. LOAD 237 LOADTYPE LIVE TITLE 4F1 LOADING INCLUDING CENTRIFUGAL
1301. REPEAT LOAD
1302. 149 0.81172 23 1.0
1303. LOAD 238 LOADTYPE LIVE TITLE 4F1 LOADING INCLUDING CENTRIFUGAL
1304. REPEAT LOAD
1305. 150 0.81172 23 1.0
1306. LOAD 239 LOADTYPE LIVE TITLE 4F1 LOADING INCLUDING CENTRIFUGAL
1307. REPEAT LOAD
1308. 151 0.81172 23 1.0
1309. LOAD 240 LOADTYPE LIVE TITLE 4F1 LOADING INCLUDING CENTRIFUGAL
1310. REPEAT LOAD
1311. 152 0.81172 23 1.0
1312. LOAD 241 LOADTYPE LIVE TITLE 4F1 LOADING INCLUDING CENTRIFUGAL
1313. REPEAT LOAD
1314. 153 0.81172 23 1.0
1315. LOAD 242 LOADTYPE LIVE TITLE 4F1 LOADING INCLUDING CENTRIFUGAL
1316. REPEAT LOAD
1317. 154 0.81172 23 1.0
1318. LOAD 243 LOADTYPE LIVE TITLE 4F1 LOADING INCLUDING CENTRIFUGAL
1319. REPEAT LOAD
1320. 155 0.81172 23 1.0
1321. LOAD 244 LOADTYPE LIVE TITLE 5C1 LOADING INCLUDING CENTRIFUGAL
1322. REPEAT LOAD
1323. 134 0.784674 23 1.0
1324. LOAD 245 LOADTYPE LIVE TITLE 5C1 LOADING INCLUDING CENTRIFUGAL
1325. REPEAT LOAD
1326. 135 0.784674 23 1.0
1327. LOAD 246 LOADTYPE LIVE TITLE 5C1 LOADING INCLUDING CENTRIFUGAL
1328. REPEAT LOAD

1329. 136 0.784674 23 1.0
1330. LOAD 247 LOADTYPE LIVE TITLE 5C1 LOADING INCLUDING CENTRIFUGAL
1331. REPEAT LOAD
1332. 137 0.784674 23 1.0
1333. LOAD 248 LOADTYPE LIVE TITLE 5C1 LOADING INCLUDING CENTRIFUGAL
1334. REPEAT LOAD
1335. 138 0.784674 23 1.0
1336. LOAD 249 LOADTYPE LIVE TITLE 5C1 LOADING INCLUDING CENTRIFUGAL
1337. REPEAT LOAD
1338. 139 0.784674 23 1.0
1339. LOAD 250 LOADTYPE LIVE TITLE 5C1 LOADING INCLUDING CENTRIFUGAL
1340. REPEAT LOAD
1341. 140 0.784674 23 1.0
1342. LOAD 251 LOADTYPE LIVE TITLE 5C1 LOADING INCLUDING CENTRIFUGAL
1343. REPEAT LOAD
1344. 141 0.784674 23 1.0
1345. LOAD 252 LOADTYPE LIVE TITLE 5C1 LOADING INCLUDING CENTRIFUGAL
1346. REPEAT LOAD
1347. 142 0.784674 23 1.0
1348. LOAD 253 LOADTYPE LIVE TITLE 5C1 LOADING INCLUDING CENTRIFUGAL
1349. REPEAT LOAD
1350. 143 0.784674 23 1.0
1351. LOAD 254 LOADTYPE LIVE TITLE 5C1 LOADING INCLUDING CENTRIFUGAL
1352. REPEAT LOAD
1353. 144 0.784674 23 1.0
1354. LOAD 255 LOADTYPE LIVE TITLE 5C1 LOADING INCLUDING CENTRIFUGAL
1355. REPEAT LOAD
1356. 145 0.784674 23 1.0
1357. LOAD 256 LOADTYPE LIVE TITLE 5C1 LOADING INCLUDING CENTRIFUGAL
1358. REPEAT LOAD
1359. 146 0.784674 23 1.0
1360. LOAD 257 LOADTYPE LIVE TITLE 5C1 LOADING INCLUDING CENTRIFUGAL
1361. REPEAT LOAD
1362. 147 0.784674 23 1.0
1363. LOAD 258 LOADTYPE LIVE TITLE 5C1 LOADING INCLUDING CENTRIFUGAL
1364. REPEAT LOAD
1365. 148 0.784674 23 1.0
1366. LOAD 259 LOADTYPE LIVE TITLE 5C1 LOADING INCLUDING CENTRIFUGAL
1367. REPEAT LOAD
1368. 149 0.784674 23 1.0
1369. LOAD 260 LOADTYPE LIVE TITLE 5C1 LOADING INCLUDING CENTRIFUGAL
1370. REPEAT LOAD
1371. 150 0.784674 23 1.0
1372. LOAD 261 LOADTYPE LIVE TITLE 5C1 LOADING INCLUDING CENTRIFUGAL
1373. REPEAT LOAD
1374. 151 0.784674 23 1.0
1375. LOAD 262 LOADTYPE LIVE TITLE 5C1 LOADING INCLUDING CENTRIFUGAL
1376. REPEAT LOAD
1377. 152 0.784674 23 1.0
1378. LOAD 263 LOADTYPE LIVE TITLE 5C1 LOADING INCLUDING CENTRIFUGAL
1379. REPEAT LOAD
1380. 153 0.784674 23 1.0
1381. LOAD 264 LOADTYPE LIVE TITLE 5C1 LOADING INCLUDING CENTRIFUGAL
1382. REPEAT LOAD
1383. 154 0.784674 23 1.0
1384. LOAD 265 LOADTYPE LIVE TITLE 5C1 LOADING INCLUDING CENTRIFUGAL

1385. REPEAT LOAD
 1386. 155 0.784674 23 1.0
 1387. LOAD GENERATION 29
 1388. TYPE 1 -2.1865 153.142 0 XINC 1.0461 YRANGE 2
 1389. LOAD GENERATION 29
 1390. TYPE 1 41.3551 153.433 0 XINC 1.0366 YRANGE 2
 1391. PDELTA 10 ANALYSIS

P R O B L E M S T A T I S T I C S

NUMBER OF JOINTS/MEMBER+ELEMENTS/SUPPORTS = 45/ 70/ 3

SOLVER USED IS THE OUT-OF-CORE BASIC SOLVER

ORIGINAL/FINAL BAND-WIDTH= 20/ 5/ 36 DOF
 TOTAL PRIMARY LOAD CASES = 323, TOTAL DEGREES OF FREEDOM = 252
 SIZE OF STIFFNESS MATRIX = 10 DOUBLE KILO-WORDS
 REQD/AVAIL. DISK SPACE = 14.2/ 515442.1 MB

ZERO STIFFNESS IN DIRECTION 3 AT JOINT 36 EQN.NO. 45
 LOADS APPLIED OR DISTRIBUTED HERE FROM ELEMENTS WILL BE IGNORED.
 THIS MAY BE DUE TO ALL MEMBERS AT THIS JOINT BEING RELEASED OR
 EFFECTIVELY RELEASED IN THIS DIRECTION.

ZERO STIFFNESS IN DIRECTION 4 AT JOINT 36 EQN.NO. 46
 ZERO STIFFNESS IN DIRECTION 5 AT JOINT 36 EQN.NO. 47
 ZERO STIFFNESS IN DIRECTION 6 AT JOINT 36 EQN.NO. 48
 ZERO STIFFNESS IN DIRECTION 3 AT JOINT 45 EQN.NO. 57
 ZERO STIFFNESS IN DIRECTION 4 AT JOINT 45 EQN.NO. 58
 ZERO STIFFNESS IN DIRECTION 5 AT JOINT 45 EQN.NO. 59
 ZERO STIFFNESS IN DIRECTION 6 AT JOINT 45 EQN.NO. 60
 ZERO STIFFNESS IN DIRECTION 3 AT JOINT 35 EQN.NO. 63
 ZERO STIFFNESS IN DIRECTION 4 AT JOINT 35 EQN.NO. 64
 ZERO STIFFNESS IN DIRECTION 5 AT JOINT 35 EQN.NO. 65
 ZERO STIFFNESS IN DIRECTION 6 AT JOINT 35 EQN.NO. 66

****WARNING - THERE WERE MORE THAN 12 DOF WITH ZERO STIFFNESS.**
 THE FIRST 12 ARE LISTED ABOVE.

TOTAL # TRANSLATIONAL= 18 TOTAL # ROTATIONAL= 54

++ Adjusting Displacements 8:49:29
 ++ Adjusting Displacements 8:49:29
 ++ Adjusting Displacements 8:49:29
 ++ Adjusting Displacements 8:49:29
 ++ Adjusting Displacements 8:49:30
 ++ Adjusting Displacements 8:49:30
 ++ Adjusting Displacements 8:49:30
 ++ Adjusting Displacements 8:49:30
 ++ Adjusting Displacements 8:49:30
 ++ Adjusting Displacements 8:49:30
 ++ Adjusting Displacements 8:49:31

1392. *LOAD LIST 1 TO 22
1393. *PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 1 TO 16
1394. *HS-20 NO CENTRIFUGAL OR LOWER DECK MAX FLOOR BEAM FORCES ABOVE
1395. *PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 17 TO 19
1396. *HS-20 NO CENTRIFUGAL OR LOWER DECK MAX COLUMN 3 FORCES ABOVE
1397. *PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 20 TO 23
1398. *HS-20 NO CENTRIFUGAL OR LOWER DECK MAX COLUMN 2 FORCES ABOVE
1399. *PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 24 TO 26
1400. *HS-20 NO CENTRIFUGAL OR LOWER DECK MAX COLUMN 1 FORCES ABOVE
1401. *LOAD LIST 24 TO 45
1402. *PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 17 TO 19
1403. *HS-20 WITH LOWER DECK NO CENTRIFUGAL MAX COLUMN 3 FORCES ABOVE
1404. *PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 20 TO 23
1405. *HS-20 WITH LOWER DECK NO CENTRIFUGAL MAX COLUMN 2 FORCES ABOVE
1406. *PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 24 TO 26
1407. *HS-20 WITH LOWER DECK NO CENTRIFUGAL MAX COLUMN 1 FORCES ABOVE
1408. *PRINT MAXFORCE ENVELOPE LIST 27 TO 70
1409. *TRUSS WITH LOWER DECK NO CENTRIFUGAL MEMBER FORCES ABOVE
1410. LOAD LIST 24 TO 45 156 TO 177
1411. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 1 TO 16

MEMBER FORCE ENVELOPE

 ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
1 MAX	0.00	0.00	24	59.53	3.21	27			
	0.00	0.00	24	0.00	0.00	24	1.67 C	3.21	176
	-37.50	3.21	39	-5.99	3.21	176			
MIN	0.00	3.21	177	0.00	3.21	177	0.25 T	3.21	39
	0.00	0.00	28	284.69	5.21	27			
	0.00	0.00	24	0.00	0.00	24	4.38 C	5.21	176
2 MAX	-75.01	5.21	171	-15.64	5.21	176			
	0.00	5.21	177	0.00	5.21	177	0.50 T	5.21	39
	0.00	0.00	28	333.12	0.65	27			
3 MAX	0.00	0.00	24	0.00	0.00	24	4.55 C	0.65	176
	-75.01	0.65	171	-16.47	0.45	176			
	0.00	0.65	177	0.00	0.65	177	0.58 T	0.65	39
4 MAX	0.00	0.00	28	820.78	5.85	25			
	0.00	0.00	24	0.00	0.00	24	7.38 C	5.85	176
	-112.50	5.85	25	-18.39	5.85	166			
MIN	0.00	5.85	177	0.00	5.85	177	0.75 T	5.85	25
	87.15	0.00	26	680.56	0.00	27			
	0.00	0.00	24	0.00	0.00	24	11.30 C	0.00	29
5 MAX	-12.29	5.85	174	-310.36	5.85	160			
	0.00	5.85	177	0.00	5.85	177	13.62 T	0.00	171
	87.15	0.00	26	477.25	0.00	39			
6 MAX	0.00	0.00	24	0.00	0.00	24	11.35 C	5.85	161
	-12.30	5.85	174	-514.55	5.85	161			
	0.00	5.85	177	0.00	5.85	177	12.27 T	0.00	171
7 MAX	53.35	0.00	26	353.61	0.00	39			
	0.00	0.00	24	0.00	0.00	24	12.21 C	5.85	161
	-41.39	5.27	29	-521.48	0.59	161			
MIN	0.00	5.85	177	0.00	5.85	177	12.12 T	5.85	39
	22.92	0.00	159	257.52	0.00	37			
	0.00	0.00	24	0.00	0.00	24	13.24 C	5.85	161
8 MAX	-87.19	5.85	161	-418.11	0.00	161			
	0.00	5.85	177	0.00	5.85	177	12.12 T	5.85	39
	21.11	0.00	39	479.90	5.83	166			
9 MAX	0.00	0.00	24	0.00	0.00	24	14.59 C	5.83	161

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MIN	-87.20	5.83	161	-128.05	0.00	28				
	0.00	5.83	177	0.00	5.83	177	12.12	T	5.83	39
10 MAX	97.63	0.00	32	421.59	0.00	35				
	0.00	0.00	24	0.00	0.00	24	10.67	C	0.00	38
MIN	-15.37	5.83	162	-170.92	5.83	37				
	0.00	5.83	177	0.00	5.83	177	12.30	T	0.00	160
11 MAX	82.17	0.00	38	210.62	5.85	160				
	0.00	0.00	24	0.00	0.00	24	10.68	C	0.00	38
MIN	-15.38	5.85	162	-431.69	5.85	170				
	0.00	5.85	177	0.00	5.85	177	10.59	T	0.00	162
12 MAX	46.35	0.00	170	278.17	5.85	160				
	0.00	0.00	24	0.00	0.00	24	10.48	C	5.85	170
MIN	-42.00	5.85	174	-498.82	4.68	38				
	0.00	5.85	177	0.00	5.85	177	9.24	T	0.00	162
13 MAX	12.34	0.00	168	347.95	5.85	162				
	0.00	0.00	24	0.00	0.00	24	11.51	C	5.85	170
MIN	-84.51	5.85	174	-472.84	0.00	38				
	0.00	5.85	177	0.00	5.85	177	7.89	T	0.00	162
14 MAX	7.68	0.00	29	539.10	5.85	174				
	0.00	0.00	24	0.00	0.00	24	12.96	C	5.85	167
MIN	-96.33	5.85	172	-271.98	0.00	37				
	0.00	5.85	177	0.00	5.85	177	7.41	T	5.85	30
15 MAX	75.01	0.00	162	499.71	0.00	175				
	0.00	0.00	24	0.00	0.00	24	0.49	C	0.00	30
MIN	0.00	4.77	44	0.00	1.91	44				
	0.00	4.77	177	0.00	4.77	177	5.17	T	0.00	176
16 MAX	47.21	0.00	162	193.49	0.00	175				
	0.00	0.00	24	0.00	0.00	24	0.25	C	0.00	30
MIN	0.00	5.06	43	0.00	5.62	177				
	0.00	5.62	177	0.00	5.62	177	2.92	T	0.00	176

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

1412. *HS-20 WITH CENTRIFUGAL AND LOWER DECK MAX FLOOR BEAM FORCES ABOVE
 1413. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 17 TO 19

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
17 MAX	8.08	0.00	177	80.10	0.00	177			
	0.00	0.00	24	0.00	0.00	24	198.47 C	0.00	24
MIN	-1.67	15.69	32	-47.98	15.69	177			
	0.00	15.69	177	0.00	15.69	177	7.24 T	15.69	174
18 MAX	7.15	0.00	31	99.16	5.33	177			
	0.00	0.00	24	0.00	0.00	24	189.74 C	0.00	24
MIN	-27.63	5.33	177	-47.98	0.00	177			
	0.00	5.33	177	0.00	5.33	177	8.08 T	5.33	174
19 MAX	18.24	0.00	177	133.51	15.01	29			
	0.00	0.00	24	0.00	0.00	24	185.50 C	0.00	24
MIN	-10.82	15.01	29	-211.88	15.01	169			
	0.00	15.01	177	0.00	15.01	177	12.32 T	15.01	174

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

1414. *HS-20 WITH CENTRIFUGAL AND LOWER DECK MAX COLUMN 3 FORCES ABOVE

1415. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 20 TO 23

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
20 MAX	27.62	0.00	177	176.29	0.00	177			
	0.00	0.00	24	0.00	0.00	24	166.56 C	0.00	32
MIN	0.32	9.75	28	-93.74	9.75	177			
	0.00	9.75	177	0.00	9.75	177	4.14 C	9.75	25
21 MAX	-1.42	0.00	28	5.95	5.98	28			
	0.00	0.00	24	0.00	0.00	24	139.60 C	0.00	32
MIN	-14.28	5.98	176	-93.74	0.00	177			
	0.00	5.98	177	0.00	5.98	177	9.91 T	5.98	25
22 MAX	12.12	0.00	37	129.58	5.33	160			
	0.00	0.00	24	0.00	0.00	24	139.60 C	0.00	32
MIN	-24.24	5.33	160	-67.45	5.33	37			
	0.00	5.33	177	0.00	5.33	177	9.91 T	5.33	25
23 MAX	25.41	0.00	160	186.23	15.21	37			
	0.00	0.00	24	0.00	0.00	24	155.11 C	0.00	32
MIN	-16.66	15.21	37	-257.70	15.21	160			
	0.00	15.21	177	0.00	15.21	177	19.70 T	15.21	25

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

1416. *HS-20 WITH CENTRIFUGAL AND LOWER DECK MAX COLUMN 2 FORCES ABOVE

1417. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 24 TO 26

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
24 MAX	8.39	0.00	176	82.91	0.00	176			
	0.00	0.00	24	0.00	0.00	24	170.31 C	0.00	172
MIN	-0.95	16.00	37	-52.43	16.00	176			
	0.00	16.00	177	0.00	16.00	177	9.45 T	16.00	26
25 MAX	7.10	0.00	25	102.43	5.33	176			
	0.00	0.00	24	0.00	0.00	24	163.89 C	0.00	172
MIN	-29.06	5.33	176	-52.43	0.00	176			
	0.00	5.33	177	0.00	5.33	177	7.68 T	5.33	29
26 MAX	18.00	0.00	176	102.43	0.00	176			
	0.00	0.00	24	0.00	0.00	24	163.89 C	0.00	172
MIN	-7.34	15.40	30	-179.81	15.40	170			
	0.00	15.40	177	0.00	15.40	177	7.68 T	15.40	29

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

1418. *HS-20 WITH CENTRIFUGAL AND LOWER DECK MAX COLUMN 1 FORCES ABOVE
 1419. PRINT MAXFORCE ENVELOPE LIST 27 TO 70

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD	
27 MAX	0.00	0.00	24	0.00	0.00	24				
	0.00	0.29	24	0.00	0.00	24	1.29 T	0.00	174	
	MIN	0.00	3.48	177	0.00	3.48	177			
		0.00	3.48	177	0.00	3.48	177	1.29 T	3.48	24
28 MAX	0.00	0.00	24	0.00	0.00	24				
	0.00	0.00	174	0.00	0.00	24	44.58 C	0.00	177	
	MIN	0.00	6.16	177	0.00	6.16	177			
		0.00	6.16	156	0.00	6.16	177	18.38 T	6.16	29
29 MAX	0.00	0.00	24	0.00	0.00	24				
	0.00	0.00	37	0.00	0.00	24	25.12 C	0.00	169	
	MIN	0.00	5.60	177	0.00	5.60	177			
		0.00	5.60	157	0.00	5.60	177	1.95 T	5.60	29
30 MAX	0.00	0.00	24	0.00	0.00	24				
	0.00	0.00	32	0.00	0.00	24	25.12 C	0.00	169	
	MIN	0.00	5.60	177	0.00	5.60	177			
		0.00	5.60	157	0.00	5.60	177	1.95 T	5.60	29
31 MAX	0.00	0.00	24	0.00	0.00	24				
	0.00	0.00	177	0.00	0.00	24	12.86 C	0.00	37	
	MIN	0.00	5.60	177	0.00	5.60	177			
		0.00	5.60	39	0.00	5.60	177	25.55 T	5.60	160
32 MAX	0.00	0.00	24	0.00	0.00	24				
	0.00	0.00	157	0.00	0.00	24	12.86 C	0.00	37	
	MIN	0.00	6.28	177	0.00	6.28	177			
		-0.01	6.28	176	0.00	6.28	177	25.55 T	6.28	160
33 MAX	0.00	0.00	24	0.00	0.00	24				
	0.00	0.00	37	0.00	0.00	24	17.22 C	0.00	160	
	MIN	0.00	6.28	177	0.00	6.28	177			
		0.00	6.28	163	0.00	6.28	177	20.02 T	6.28	37
34 MAX	0.00	0.00	24	0.00	0.00	24				
	0.00	0.00	44	0.00	0.00	24	17.22 C	0.00	160	
	MIN	0.00	5.60	177	0.00	5.60	177			
		0.00	5.60	176	0.00	5.60	177	20.02 T	5.60	37
35 MAX	0.00	0.00	24	0.00	0.00	24				
	0.00	0.00	176	0.00	0.00	24	4.75 C	0.00	30	

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MIN	0.00	5.60	177	0.00	5.60	177			
	0.00	5.60	40	0.00	5.60	177	17.21	T	5.60 170
36 MAX	0.00	0.00	24	0.00	0.00	24			
	0.00	0.00	163	0.00	0.00	24	4.75	C	0.00 30
MIN	0.00	5.60	177	0.00	5.60	177			
	0.00	5.60	37	0.00	5.60	177	17.21	T	5.60 170
37 MAX	0.00	0.00	24	0.00	0.00	24			
	0.00	0.00	41	0.00	0.00	24	11.42	C	0.00 25
MIN	0.00	6.16	177	0.00	6.16	177			
	-0.01	6.16	177	0.00	6.16	177	47.06	T	6.16 176
38 MAX	0.00	0.00	24	0.00	0.00	24			
	0.00	0.00	24	0.00	0.00	24	0.00		0.00 24
MIN	0.00	3.48	177	0.00	3.48	177			
	0.00	3.48	177	0.00	3.48	177	0.00		3.48 177
39 MAX	0.00	0.00	24	0.00	0.00	24			
	0.00	0.51	24	0.00	0.00	24	3.07	T	0.00 31
MIN	0.00	6.16	177	0.00	6.16	177			
	0.00	6.16	176	0.00	6.16	177	24.25	T	6.16 177
40 MAX	0.00	0.00	24	0.00	0.00	24			
	0.00	0.00	177	0.00	0.00	24	3.07	T	0.00 31
MIN	0.00	5.60	177	0.00	5.60	177			
	0.00	5.60	164	0.00	5.60	177	24.25	T	5.60 177
41 MAX	0.00	0.00	24	0.00	0.00	24			
	0.00	0.00	39	0.00	0.00	24	10.32	C	0.00 177
MIN	0.00	5.60	177	0.00	5.60	177			
	0.00	5.60	177	0.00	5.60	177	11.34	T	5.60 32
42 MAX	0.00	0.00	24	0.00	0.00	24			
	0.00	0.00	39	0.00	0.00	24	10.32	C	0.00 177
MIN	0.00	5.60	177	0.00	5.60	177			
	0.00	5.60	177	0.00	5.60	177	11.34	T	5.60 32
43 MAX	0.00	0.00	24	0.00	0.00	24			
	0.00	0.00	37	0.00	0.00	24	5.78	C	0.00 173
MIN	0.00	6.28	177	0.00	6.28	177			
	0.00	6.28	176	0.00	6.28	177	30.83	T	6.28 32
44 MAX	0.00	0.00	24	0.00	0.00	24			
	0.00	0.00	32	0.00	0.00	24	12.77	C	0.00 25
MIN	0.00	6.28	177	0.00	6.28	177			
	0.00	6.28	176	0.00	6.28	177	31.63	T	6.28 163
45 MAX	0.00	0.00	24	0.00	0.00	24			
	0.00	0.00	163	0.00	0.00	24	11.03	C	0.00 25
MIN	0.00	5.60	177	0.00	5.60	177			
	0.00	5.60	26	0.00	5.60	177	8.88	T	5.60 176
46 MAX	0.00	0.00	24	0.00	0.00	24			
	0.00	0.00	176	0.00	0.00	24	11.03	C	0.00 25

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MIN	0.00	5.60	177	0.00	5.60	177			
	0.00	5.60	44	0.00	5.60	177	8.88	T	5.60 176
47 MAX	0.00	0.00	24	0.00	0.00	24			
	0.00	0.00	172	0.00	0.00	24	21.02	C	0.00 176
MIN	0.00	5.60	177	0.00	5.60	177			
	0.00	5.60	176	0.00	5.60	177	1.27	T	5.60 25
48 MAX	0.00	0.00	24	0.00	0.00	24			
	0.00	0.00	177	0.00	0.00	24	21.02	C	0.00 176
MIN	0.00	6.16	177	0.00	6.16	177			
	0.00	6.16	165	0.00	6.16	177	1.27	T	6.16 25
49 MAX	0.00	0.00	24	0.00	0.00	24			
	0.00	0.00	24	0.00	0.00	24	0.00		0.00 24
MIN	0.00	5.33	177	0.00	5.33	177			
	0.00	5.33	177	0.00	5.33	177	0.00		5.33 177
50 MAX	0.00	0.00	24	0.00	0.00	24			
	0.00	0.00	176	0.00	0.00	24	0.00	C	0.00 177
MIN	0.00	5.33	177	0.00	5.33	177			
	0.00	5.33	24	0.00	5.33	177	0.00	C	5.33 31
51 MAX	0.00	0.00	24	0.00	0.00	24			
	0.00	0.00	164	0.00	0.00	24	4.93	C	0.00 169
MIN	0.00	5.33	177	0.00	5.33	177			
	0.00	5.33	25	0.00	5.33	177	4.93	C	5.33 29
52 MAX	0.00	0.00	24	0.00	0.00	24			
	0.00	0.00	32	0.00	0.00	24	0.00	C	0.00 32
MIN	0.00	5.33	177	0.00	5.33	177			
	0.00	5.33	39	0.00	5.33	177	0.00	T	5.33 156
53 MAX	0.00	0.00	24	0.00	0.00	24			
	0.00	0.00	176	0.00	0.00	24	5.24	C	0.00 176
MIN	0.00	5.33	177	0.00	5.33	177			
	0.00	5.33	25	0.00	5.33	177	5.23	C	5.33 32
54 MAX	0.00	0.00	24	0.00	0.00	24			
	0.00	0.00	160	0.00	0.00	24	0.00	C	0.00 37
MIN	0.00	5.33	177	0.00	5.33	177			
	0.00	5.33	37	0.00	5.33	177	0.00	T	5.33 28
55 MAX	0.00	0.00	24	0.00	0.00	24			
	0.00	0.00	41	0.00	0.00	24	0.00	C	0.00 25
MIN	0.00	5.33	177	0.00	5.33	177			
	0.00	5.33	37	0.00	5.33	177	0.00	C	5.33 156
56 MAX	0.00	0.00	24	0.00	0.00	24			
	0.00	0.00	174	0.00	0.00	24	0.00	C	0.00 170
MIN	0.00	5.33	177	0.00	5.33	177			
	0.00	5.33	164	0.00	5.33	177	0.00	C	5.33 27
57 MAX	0.00	0.00	24	0.00	0.00	24			
	0.00	0.00	177	0.00	0.00	24	0.00	C	0.00 176

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MIN	0.00	5.33	177	0.00	5.33	177			
	0.00	5.33	165	0.00	5.33	177	0.00 C	5.33	26
58 MAX	0.00	0.00	24	0.00	0.00	24			
	0.00	0.00	177	0.00	0.00	24	2.35 C	0.00	24
MIN	0.00	6.37	177	0.00	6.37	177			
	0.00	6.37	29	0.00	6.37	177	2.35 C	6.37	174
59 MAX	0.00	0.00	24	0.00	0.00	24			
	0.00	0.00	32	0.00	0.00	24	17.47 C	0.00	32
MIN	0.00	8.14	177	0.00	8.14	177			
	0.00	8.14	177	0.00	8.14	177	13.46 T	8.14	177
60 MAX	0.00	0.00	24	0.00	0.00	24			
	0.00	0.00	176	0.00	0.00	24	20.28 C	0.00	177
MIN	0.00	7.74	177	0.00	7.74	177			
	0.00	7.74	32	0.00	7.74	177	9.10 T	7.74	32
61 MAX	0.00	0.00	24	0.00	0.00	24			
	0.00	0.00	177	0.00	0.00	24	1.94 C	0.00	32
MIN	0.00	7.74	177	0.00	7.74	177			
	0.00	7.74	164	0.00	7.74	177	27.43 T	7.74	177
62 MAX	0.00	0.00	24	0.00	0.00	24			
	0.00	0.00	164	0.00	0.00	24	34.58 C	0.00	177
MIN	0.00	7.74	177	0.00	7.74	177			
	0.00	7.74	157	0.00	7.74	177	5.21 C	7.74	32
63 MAX	0.00	0.00	24	0.00	0.00	24			
	0.00	0.00	176	0.00	0.00	24	14.54 C	0.00	176
MIN	0.00	8.24	177	0.00	8.24	177			
	0.00	8.24	162	0.00	8.24	177	8.30 T	8.24	25
64 MAX	0.00	0.00	24	0.00	0.00	24			
	0.00	0.00	160	0.00	0.00	24	20.05 C	0.00	31
MIN	0.00	8.24	177	0.00	8.24	177			
	0.00	8.24	32	0.00	8.24	177	2.83 T	8.24	157
65 MAX	0.00	0.00	24	0.00	0.00	24			
	0.00	0.00	163	0.00	0.00	24	8.49 C	0.00	25
MIN	0.00	7.74	177	0.00	7.74	177			
	0.00	7.74	172	0.00	7.74	177	20.64 T	7.74	176
66 MAX	0.00	0.00	24	0.00	0.00	24			
	0.00	0.00	173	0.00	0.00	24	20.64 C	0.00	176
MIN	0.00	7.74	177	0.00	7.74	177			
	0.00	7.74	176	0.00	7.74	177	8.50 T	7.74	25
67 MAX	0.00	0.00	24	0.00	0.00	24			
	0.00	0.00	163	0.00	0.00	24	8.49 C	0.00	25
MIN	0.00	7.74	177	0.00	7.74	177			
	0.00	7.74	172	0.00	7.74	177	20.64 T	7.74	176
68 MAX	0.00	0.00	24	0.00	0.00	24			
	0.00	0.00	177	0.00	0.00	24	21.73 C	0.00	176

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MIN	0.00	8.14	177	0.00	8.14	177			
	0.00	8.14	41	0.00	8.14	177	8.94 T	8.14	25
69 MAX	0.00	0.00	24	0.00	0.00	24			
	0.01	0.00	177	0.00	0.00	24	50.63 C	0.00	176
MIN	0.00	8.67	177	0.00	8.67	177			
	0.00	8.67	44	0.00	8.67	177	12.28 C	8.67	41
70 MAX	0.00	0.00	24	0.00	0.00	24			
	0.00	0.00	165	0.00	0.00	24	19.43 C	0.00	44
MIN	0.00	8.67	177	0.00	8.67	177			
	0.00	8.67	177	0.00	8.67	177	10.60 T	8.67	177

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

1420. *TRUSS MEMBER FORCES WITH CENTRIFUGAL AND LOWER DECK ABOVE
 1421. LOAD LIST 46 TO 67 178 TO 199
 1422. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 1 TO 16

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
1 MAX	0.00	0.00	46	28.38	3.21	49			
	0.00	0.00	46	0.00	0.00	46	0.80 C	3.21	198
	-17.88	3.21	61	-2.86	3.21	198			
MIN	0.00	3.21	199	0.00	3.21	199	0.12 T	3.21	61
	0.00	0.00	50	135.73	5.21	49			
	0.00	0.00	46	0.00	0.00	46	2.09 C	5.21	198
2 MAX	-35.76	5.21	193	-7.45	5.21	198			
	0.00	5.21	199	0.00	5.21	199	0.24 T	5.21	61
	0.00	0.00	50	158.82	0.65	49			
3 MAX	0.00	0.00	46	0.00	0.00	46	2.17 C	0.65	198
	-35.76	0.65	193	-7.85	0.45	198			
	0.00	0.65	199	0.00	0.65	199	0.28 T	0.65	61
4 MAX	0.00	0.00	50	391.32	5.85	47			
	0.00	0.00	46	0.00	0.00	46	3.52 C	5.85	198
	-53.64	5.85	47	-8.76	5.85	188			
MIN	0.00	5.85	199	0.00	5.85	199	0.36 T	5.85	47
	41.60	0.00	48	325.57	0.00	49			
	0.00	0.00	46	0.00	0.00	46	5.63 C	0.00	51
5 MAX	-5.80	5.85	196	-146.99	5.85	182			
	0.00	5.85	199	0.00	5.85	199	6.25 T	0.00	193
	41.60	0.00	48	228.34	0.00	61			
6 MAX	0.00	0.00	46	0.00	0.00	46	5.66 C	5.85	183
	-5.81	5.85	196	-244.70	5.85	183			
	0.00	5.85	199	0.00	5.85	199	5.60 T	0.00	193
7 MAX	25.49	0.00	48	169.11	0.00	61			
	0.00	0.00	46	0.00	0.00	46	6.07 C	5.85	183
	-19.68	5.85	51	-248.03	0.59	183			
MIN	0.00	5.85	199	0.00	5.85	199	5.53 T	5.85	61
	10.98	0.00	181	123.00	0.00	59			
	0.00	0.00	46	0.00	0.00	46	6.56 C	5.85	183
8 MAX	-41.51	5.85	183	-199.06	0.00	183			
	0.00	5.85	199	0.00	5.85	199	5.53 T	5.85	61
	10.12	0.00	61	228.33	5.83	188			
9 MAX	0.00	0.00	46	0.00	0.00	46	7.20 C	5.83	183

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MIN	-41.52	5.83	183	-61.12	0.00	50			
	0.00	5.83	199	0.00	5.83	199	5.53 T	5.83	61
10 MAX	46.48	0.00	54	199.27	0.00	57			
	0.00	0.00	46	0.00	0.00	46	5.08 C	0.00	60
MIN	-7.39	5.83	184	-82.83	5.83	59			
	0.00	5.83	199	0.00	5.83	199	5.87 T	0.00	182
11 MAX	39.11	0.00	60	99.45	5.85	182			
	0.00	0.00	46	0.00	0.00	46	5.08 C	0.00	60
MIN	-7.39	5.85	184	-206.73	5.85	192			
	0.00	5.85	199	0.00	5.85	199	5.05 T	0.00	184
12 MAX	22.03	0.00	192	131.99	5.85	182			
	0.00	0.00	46	0.00	0.00	46	4.99 C	5.85	192
MIN	-20.08	5.85	196	-238.42	4.68	60			
	0.00	5.85	199	0.00	5.85	199	4.41 T	0.00	184
13 MAX	5.82	0.00	190	165.63	5.85	184			
	0.00	0.00	46	0.00	0.00	46	5.48 C	5.85	192
MIN	-40.35	5.85	196	-225.96	0.00	60			
	0.00	5.85	199	0.00	5.85	199	3.77 T	0.00	184
14 MAX	3.60	0.00	51	257.14	5.85	196			
	0.00	0.00	46	0.00	0.00	46	6.17 C	5.85	189
MIN	-45.99	5.85	194	-129.81	0.00	59			
	0.00	5.85	199	0.00	5.85	199	3.54 T	5.85	52
15 MAX	35.76	0.00	184	238.25	0.00	197			
	0.00	0.00	46	0.00	0.00	46	0.23 C	0.00	52
MIN	0.00	4.29	66	0.00	1.91	66			
	0.00	4.77	199	0.00	4.77	199	2.47 T	0.00	198
16 MAX	22.51	0.00	184	92.25	0.00	197			
	0.00	0.00	46	0.00	0.00	46	0.12 C	0.00	52
MIN	0.00	5.62	199	0.00	5.62	199			
	0.00	5.62	199	0.00	5.62	199	1.39 T	0.00	198

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

1423. *2F1 MAX FLOOR BEAM FORCES ABOVE

1424. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 17 TO 19

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
17 MAX	3.36	0.00	199	34.38	0.00	199			
	0.00	0.00	46	0.00	0.00	46	102.52 C	0.00	46
MIN	-1.30	15.69	54	-18.58	15.69	199			
	0.00	15.69	199	0.00	15.69	199	4.46 C	15.69	196
18 MAX	4.67	0.00	53	44.54	5.33	199			
	0.00	0.00	46	0.00	0.00	46	92.73 C	0.00	46
MIN	-11.85	5.33	199	-18.58	0.00	199			
	0.00	5.33	199	0.00	5.33	199	1.57 T	5.33	196
19 MAX	8.46	0.00	199	64.87	15.01	51			
	0.00	0.00	46	0.00	0.00	46	88.49 C	0.00	46
MIN	-5.41	15.01	51	-99.86	15.01	191			
	0.00	15.01	199	0.00	15.01	199	5.81 T	15.01	196

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

1425. *2F1 MAX COLUMN 3 FORCES ABOVE

1426. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 20 TO 23

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
20 MAX	13.85	0.00	199	86.29	0.00	199			
	0.00	0.00	46	0.00	0.00	46	87.96 C	0.00	54
MIN	0.86	9.75	50	-48.96	9.75	199			
	0.00	9.75	199	0.00	9.75	199	10.52 C	9.75	47
21 MAX	-1.60	0.00	50	3.95	5.98	50			
	0.00	0.00	46	0.00	0.00	46	70.34 C	0.00	54
MIN	-7.70	5.98	199	-48.96	0.00	199			
	0.00	5.98	199	0.00	5.98	199	0.94 T	5.98	47
22 MAX	5.49	0.00	59	64.22	5.33	182			
	0.00	0.00	46	0.00	0.00	46	70.34 C	0.00	54
MIN	-11.80	5.33	182	-29.53	5.33	59			
	0.00	5.33	199	0.00	5.33	199	0.94 T	5.33	47
23 MAX	12.37	0.00	182	87.43	15.21	59			
	0.00	0.00	46	0.00	0.00	46	73.83 C	0.00	54
MIN	-7.69	15.21	59	-124.07	15.21	182			
	0.00	15.21	199	0.00	15.21	199	9.51 T	15.21	47

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

1427. *2F1 MAX COLUMN 2 FORCES ABOVE

1428. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 24 TO 26

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
24 MAX	3.81	0.00	198	37.68	0.00	198			
	0.00	0.00	46	0.00	0.00	46	80.50 C	0.00	194
MIN	-0.65	16.00	59	-23.49	16.00	198			
	0.00	16.00	199	0.00	16.00	199	5.19 T	16.00	48
25 MAX	3.71	0.00	47	48.30	5.33	198			
	0.00	0.00	46	0.00	0.00	46	78.20 C	0.00	194
MIN	-13.47	5.33	198	-23.49	0.00	198			
	0.00	5.33	199	0.00	5.33	199	3.60 T	5.33	51
26 MAX	8.57	0.00	198	48.43	15.40	52			
	0.00	0.00	46	0.00	0.00	46	78.20 C	0.00	194
MIN	-3.51	15.40	52	-85.92	15.40	192			
	0.00	15.40	199	0.00	15.40	199	3.60 T	15.40	51

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

1429. *2F1 MAX COLUMN 1 FORCES ABOVE

1430. LOAD LIST 68 TO 89 200 TO 221

1431. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 1 TO 16

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
1 MAX	0.00	0.00	68	42.40	3.21	71			
	0.00	0.00	68	0.00	0.00	68	1.19 C	3.21	220
	MIN	-26.71	3.21	83	-4.27	3.21	220		
	0.00	3.21	221	0.00	3.21	221	0.17 T	3.21	83
2 MAX	0.00	0.00	72	202.76	5.21	71			
	0.00	0.00	68	0.00	0.00	68	3.12 C	5.21	220
	MIN	-53.42	5.21	215	-11.14	5.21	220		
	0.00	5.21	221	0.00	5.21	221	0.36 T	5.21	83
3 MAX	0.00	0.00	72	237.25	0.65	71			
	0.00	0.00	68	0.00	0.00	68	3.24 C	0.65	220
	MIN	-53.43	0.65	215	-11.73	0.45	220		
	0.00	0.65	221	0.00	0.65	221	0.41 T	0.65	83
4 MAX	0.00	0.00	72	584.57	5.85	69			
	0.00	0.00	68	0.00	0.00	68	5.26 C	5.85	220
	MIN	-80.12	5.85	69	-13.09	5.85	210		
	0.00	5.85	221	0.00	5.85	221	0.53 T	5.85	69
5 MAX	62.10	0.00	70	485.28	0.00	71			
	0.00	0.00	68	0.00	0.00	68	8.18 C	0.00	73
	MIN	-8.72	5.85	218	-220.47	5.85	204		
	0.00	5.85	221	0.00	5.85	221	9.57 T	0.00	215
6 MAX	62.10	0.00	70	340.33	0.00	83			
	0.00	0.00	68	0.00	0.00	68	8.22 C	5.85	205
	MIN	-8.73	5.85	218	-366.10	5.85	205		
	0.00	5.85	221	0.00	5.85	221	8.60 T	0.00	215
7 MAX	38.03	0.00	70	252.12	0.00	83			
	0.00	0.00	68	0.00	0.00	68	8.83 C	5.85	205
	MIN	-29.45	5.85	73	-371.06	0.59	205		
	0.00	5.85	221	0.00	5.85	221	8.49 T	5.85	83
8 MAX	16.35	0.00	203	183.52	0.00	81			
	0.00	0.00	68	0.00	0.00	68	9.57 C	5.85	205
	MIN	-62.07	5.85	205	-297.61	0.00	205		
	0.00	5.85	221	0.00	5.85	221	8.49 T	5.85	83
9 MAX	15.06	0.00	83	341.50	5.83	210			
	0.00	0.00	68	0.00	0.00	68	10.53 C	5.83	205

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MIN	-62.07	5.83	205	-91.24	0.00	72			
	0.00	5.83	221	0.00	5.83	221	8.49	T	5.83 83
10 MAX	69.49	0.00	76	299.30	0.00	79			
	0.00	0.00	68	0.00	0.00	68	7.59	C	0.00 82
MIN	-10.98	5.83	206	-122.47	5.83	81			
	0.00	5.83	221	0.00	5.83	221	8.76	T	0.00 204
11 MAX	58.49	0.00	82	149.47	5.85	204			
	0.00	0.00	68	0.00	0.00	68	7.60	C	0.00 82
MIN	-10.98	5.85	206	-307.95	5.85	214			
	0.00	5.85	221	0.00	5.85	221	7.54	T	0.00 206
12 MAX	32.97	0.00	214	197.75	5.85	204			
	0.00	0.00	68	0.00	0.00	68	7.46	C	5.85 214
MIN	-29.94	5.85	218	-355.58	4.68	82			
	0.00	5.85	221	0.00	5.85	221	6.58	T	0.00 206
13 MAX	8.75	0.00	212	247.65	5.85	206			
	0.00	0.00	68	0.00	0.00	68	8.19	C	5.85 214
MIN	-60.22	5.85	218	-337.03	0.00	82			
	0.00	5.85	221	0.00	5.85	221	5.62	T	0.00 206
14 MAX	5.44	0.00	73	383.99	5.85	218			
	0.00	0.00	68	0.00	0.00	68	9.22	C	5.85 211
MIN	-68.64	5.85	216	-193.76	0.00	81			
	0.00	5.85	221	0.00	5.85	221	5.28	T	5.85 74
15 MAX	53.43	0.00	206	355.90	0.00	219			
	0.00	0.00	68	0.00	0.00	68	0.35	C	0.00 74
MIN	0.00	4.77	88	0.00	1.91	88			
	0.00	4.77	221	0.00	4.77	221	3.68	T	0.00 220
16 MAX	33.62	0.00	206	137.80	0.00	219			
	0.00	0.00	68	0.00	0.00	68	0.18	C	0.00 74
MIN	0.00	5.06	89	0.00	5.62	221			
	0.00	5.62	221	0.00	5.62	221	2.08	T	0.00 220

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

1432. *3F1 MAX FLOOR BEAM FORCES ABOVE

1433. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 17 TO 19

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
17 MAX	5.49	0.00	221	54.93	0.00	221			
	0.00	0.00	68	0.00	0.00	68	145.69 C	0.00	68
MIN	-1.47	15.69	76	-31.79	15.69	221			
	0.00	15.69	221	0.00	15.69	221	0.80 T	15.69	218
18 MAX	5.79	0.00	75	69.06	5.33	221			
	0.00	0.00	68	0.00	0.00	68	136.38 C	0.00	68
MIN	-18.93	5.33	221	-31.79	0.00	221			
	0.00	5.33	221	0.00	5.33	221	4.50 T	5.33	218
19 MAX	12.86	0.00	221	95.76	15.01	73			
	0.00	0.00	68	0.00	0.00	68	132.14 C	0.00	68
MIN	-7.84	15.01	73	-150.27	15.01	213			
	0.00	15.01	221	0.00	15.01	221	8.74 T	15.01	218

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

1434. *3F1 MAX COLUMN 3 FORCES ABOVE

1435. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 20 TO 23

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
20 MAX	20.04	0.00	221	126.72	0.00	221			
	0.00	0.00	68	0.00	0.00	68	123.33 C	0.00	76
MIN	0.61	9.75	72	-69.07	9.75	221			
	0.00	9.75	221	0.00	9.75	221	7.65 C	9.75	69
21 MAX	-1.52	0.00	72	4.85	5.98	72			
	0.00	0.00	68	0.00	0.00	68	101.50 C	0.00	76
MIN	-10.65	5.98	221	-69.07	0.00	221			
	0.00	5.98	221	0.00	5.98	221	4.98 T	5.98	69
22 MAX	8.47	0.00	81	93.59	5.33	204			
	0.00	0.00	68	0.00	0.00	68	101.50 C	0.00	76
MIN	-17.39	5.33	204	-46.57	5.33	81			
	0.00	5.33	221	0.00	5.33	221	4.98 T	5.33	69
23 MAX	18.23	0.00	204	131.88	15.21	81			
	0.00	0.00	68	0.00	0.00	68	110.40 C	0.00	76
MIN	-11.72	15.21	81	-184.16	15.21	204			
	0.00	15.21	221	0.00	15.21	221	14.09 T	15.21	69

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

1436. *3F1 MAX COLUMN 2 FORCES ABOVE

1437. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 24 TO 26

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
24 MAX	5.87	0.00	220	58.01	0.00	220			
	0.00	0.00	68	0.00	0.00	68	120.91 C	0.00	216
MIN	-0.78	16.00	81	-36.49	16.00	220			
	0.00	16.00	221	0.00	16.00	221	7.11 T	16.00	70
25 MAX	5.23	0.00	69	72.61	5.33	220			
	0.00	0.00	68	0.00	0.00	68	116.76 C	0.00	216
MIN	-20.47	5.33	220	-36.49	0.00	220			
	0.00	5.33	221	0.00	5.33	221	5.44 T	5.33	73
26 MAX	12.81	0.00	220	72.61	0.00	220			
	0.00	0.00	68	0.00	0.00	68	116.76 C	0.00	216
MIN	-5.23	15.40	74	-128.17	15.40	214			
	0.00	15.40	221	0.00	15.40	221	5.44 T	15.40	73

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

1438. *3F1 MAX COLUMN 1 FORCES ABOVE

1439. LOAD LIST 90 TO 111 222 TO 243

1440. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 1 TO 16

MEMBER FORCE ENVELOPE

 ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
1 MAX	0.00	0.00	90	48.32	3.21	93			
	0.00	0.00	90	0.00	0.00	90	1.36 C	3.21	242
	-30.44	3.21	105	-4.87	3.21	242			
MIN	0.00	3.21	243	0.00	3.21	243	0.20 T	3.21	105
	0.00	0.00	94	231.09	5.21	93			
	0.00	0.00	90	0.00	0.00	90	3.55 C	5.21	242
2 MIN	-60.89	5.21	237	-12.69	5.21	242			
	0.00	5.21	243	0.00	5.21	243	0.41 T	5.21	105
	0.00	0.00	94	270.40	0.65	93			
3 MAX	0.00	0.00	90	0.00	0.00	90	3.70 C	0.65	242
	-60.89	0.65	237	-13.37	0.45	242			
	0.00	0.65	243	0.00	0.65	243	0.47 T	0.65	105
4 MAX	0.00	0.00	94	666.24	5.85	91			
	0.00	0.00	90	0.00	0.00	90	5.99 C	5.85	242
	-91.32	5.85	91	-14.92	5.85	232			
MIN	0.00	5.85	243	0.00	5.85	243	0.61 T	5.85	91
	70.76	0.00	92	552.80	0.00	93			
	0.00	0.00	90	0.00	0.00	90	9.26 C	0.00	95
5 MIN	-9.95	5.85	240	-251.54	5.85	226			
	0.00	5.85	243	0.00	5.85	243	10.97 T	0.00	237
	70.76	0.00	92	387.67	0.00	105			
6 MAX	0.00	0.00	90	0.00	0.00	90	9.30 C	5.85	227
	-9.96	5.85	240	-417.43	5.85	227			
	0.00	5.85	243	0.00	5.85	243	9.87 T	0.00	237
7 MAX	43.33	0.00	92	287.21	0.00	105			
	0.00	0.00	90	0.00	0.00	90	10.00 C	5.85	227
	-33.58	5.85	95	-423.06	0.59	227			
MIN	0.00	5.85	243	0.00	5.85	243	9.75 T	5.85	105
	18.62	0.00	225	209.11	0.00	103			
	0.00	0.00	90	0.00	0.00	90	10.84 C	5.85	227
8 MIN	-70.75	5.85	227	-339.28	0.00	227			
	0.00	5.85	243	0.00	5.85	243	9.75 T	5.85	105
	17.16	0.00	105	389.35	5.83	232			
9 MAX	0.00	0.00	90	0.00	0.00	90	11.93 C	5.83	227

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MIN	-70.76	5.83	227	-103.97	0.00	94			
	0.00	5.83	243	0.00	5.83	243	9.75 T	5.83	105
10 MAX	79.22	0.00	98	341.59	0.00	101			
	0.00	0.00	90	0.00	0.00	90	8.66 C	0.00	104
MIN	-12.50	5.83	228	-139.22	5.83	103			
	0.00	5.83	243	0.00	5.83	243	9.99 T	0.00	226
11 MAX	66.68	0.00	104	170.61	5.85	226			
	0.00	0.00	90	0.00	0.00	90	8.67 C	0.00	104
MIN	-12.50	5.85	228	-350.73	5.85	236			
	0.00	5.85	243	0.00	5.85	243	8.60 T	0.00	228
12 MAX	37.60	0.00	236	225.56	5.85	226			
	0.00	0.00	90	0.00	0.00	90	8.51 C	5.85	236
MIN	-34.11	5.85	240	-405.11	4.68	104			
	0.00	5.85	243	0.00	5.85	243	7.50 T	0.00	228
13 MAX	9.99	0.00	234	282.33	5.85	228			
	0.00	0.00	90	0.00	0.00	90	9.34 C	5.85	236
MIN	-68.62	5.85	240	-383.99	0.00	104			
	0.00	5.85	243	0.00	5.85	243	6.40 T	0.00	228
14 MAX	6.21	0.00	95	437.62	5.85	240			
	0.00	0.00	90	0.00	0.00	90	10.51 C	5.85	233
MIN	-78.21	5.85	238	-220.81	0.00	103			
	0.00	5.85	243	0.00	5.85	243	6.01 T	5.85	96
15 MAX	60.89	0.00	228	405.63	0.00	241			
	0.00	0.00	90	0.00	0.00	90	0.40 C	0.00	96
MIN	0.00	4.77	110	0.00	1.91	110			
	0.00	4.77	243	0.00	4.77	243	4.20 T	0.00	242
16 MAX	38.32	0.00	228	157.06	0.00	241			
	0.00	0.00	90	0.00	0.00	90	0.21 C	0.00	96
MIN	0.00	5.06	109	0.00	5.62	243			
	0.00	5.62	243	0.00	5.62	243	2.37 T	0.00	242

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

1441. *4F1 MAX FLOOR BEAM FORCES ABOVE

1442. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 17 TO 19

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
17 MAX	6.38	0.00	243	63.63	0.00	243			
	0.00	0.00	90	0.00	0.00	90	163.94 C	0.00	90
MIN	-1.54	15.69	98	-37.38	15.69	243			
	0.00	15.69	243	0.00	15.69	243	3.03 T	15.69	240
18 MAX	6.26	0.00	97	79.45	5.33	243			
	0.00	0.00	90	0.00	0.00	90	154.83 C	0.00	90
MIN	-21.93	5.33	243	-37.38	0.00	243			
	0.00	5.33	243	0.00	5.33	243	5.74 T	5.33	240
19 MAX	14.72	0.00	243	108.82	15.01	95			
	0.00	0.00	90	0.00	0.00	90	150.59 C	0.00	90
MIN	-8.87	15.01	95	-171.58	15.01	235			
	0.00	15.01	243	0.00	15.01	243	9.97 T	15.01	240

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

1443. *4F1 MAX COLUMN 3 FORCES ABOVE

1444. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 20 TO 23

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
20 MAX	22.66	0.00	243	143.84	0.00	243			
	0.00	0.00	90	0.00	0.00	90	138.28 C	0.00	98
MIN	0.51	9.75	94	-77.59	9.75	243			
	0.00	9.75	243	0.00	9.75	243	6.44 C	9.75	91
21 MAX	-1.48	0.00	94	5.23	5.98	94			
	0.00	0.00	90	0.00	0.00	90	114.68 C	0.00	98
MIN	-11.90	5.98	242	-77.59	0.00	243			
	0.00	5.98	243	0.00	5.98	243	6.68 T	5.98	91
22 MAX	9.73	0.00	103	106.03	5.33	226			
	0.00	0.00	90	0.00	0.00	90	114.68 C	0.00	98
MIN	-19.76	5.33	226	-53.79	5.33	103			
	0.00	5.33	243	0.00	5.33	243	6.68 T	5.33	91
23 MAX	20.71	0.00	226	150.67	15.21	103			
	0.00	0.00	90	0.00	0.00	90	125.86 C	0.00	98
MIN	-13.43	15.21	103	-209.58	15.21	226			
	0.00	15.21	243	0.00	15.21	243	16.03 T	15.21	91

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

1445. *4F1 MAX COLUMN 2 FORCES ABOVE

1446. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 24 TO 26

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
24 MAX	6.74	0.00	242	66.61	0.00	242			
	0.00	0.00	90	0.00	0.00	90	137.99 C	0.00	238
MIN	-0.84	16.00	103	-42.00	16.00	242			
	0.00	16.00	243	0.00	16.00	243	7.92 T	16.00	92
25 MAX	5.88	0.00	91	82.91	5.33	242			
	0.00	0.00	90	0.00	0.00	90	133.05 C	0.00	238
MIN	-23.43	5.33	242	-42.00	0.00	242			
	0.00	5.33	243	0.00	5.33	243	6.21 T	5.33	95
26 MAX	14.61	0.00	242	82.91	0.00	242			
	0.00	0.00	90	0.00	0.00	90	133.06 C	0.00	238
MIN	-5.96	15.40	96	-146.02	15.40	236			
	0.00	15.40	243	0.00	15.40	243	6.21 T	15.40	95

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

1447. *4F1 MAX COLUMN 1 FORCES ABOVE
1448. LOAD LIST 112 TO 133 244 TO 265
1449. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 1 TO 16

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
1 MAX	0.00	0.00	112	46.71	3.21	115			
	0.00	0.00	112	0.00	0.00	112	1.31 C	3.21	264
	MIN	-29.42	2.89	127	-4.70	3.21	264		
	0.00	3.21	265	0.00	3.21	265	0.19 T	3.21	127
2 MAX	0.00	0.00	116	223.39	5.21	115			
	0.00	0.00	112	0.00	0.00	112	3.44 C	5.21	264
	MIN	-58.86	5.21	259	-12.27	5.21	264		
	0.00	5.21	265	0.00	5.21	265	0.40 T	5.21	127
3 MAX	0.00	0.00	116	261.40	0.65	115			
	0.00	0.00	112	0.00	0.00	112	3.57 C	0.65	264
	MIN	-58.86	0.65	259	-12.92	0.45	264		
	0.00	0.65	265	0.00	0.65	265	0.46 T	0.65	127
4 MAX	0.00	0.00	116	644.05	5.85	113			
	0.00	0.00	112	0.00	0.00	112	5.79 C	5.85	264
	MIN	-88.27	5.85	113	-14.42	5.85	254		
	0.00	5.85	265	0.00	5.85	265	0.59 T	5.85	113
5 MAX	68.41	0.00	114	534.45	0.00	115			
	0.00	0.00	112	0.00	0.00	112	8.96 C	0.00	117
	MIN	-9.62	5.85	262	-243.10	5.85	248		
	0.00	5.85	265	0.00	5.85	265	10.59 T	0.00	259
6 MAX	68.41	0.00	114	374.80	0.00	127			
	0.00	0.00	112	0.00	0.00	112	9.01 C	5.85	249
	MIN	-9.63	5.85	262	-403.48	5.85	249		
	0.00	5.85	265	0.00	5.85	265	9.53 T	0.00	259
7 MAX	41.89	0.00	114	277.68	0.00	127			
	0.00	0.00	112	0.00	0.00	112	9.68 C	5.85	249
	MIN	-32.45	5.85	117	-408.93	0.59	249		
	0.00	5.85	265	0.00	5.85	265	9.41 T	5.85	127
8 MAX	18.00	0.00	247	202.15	0.00	125			
	0.00	0.00	112	0.00	0.00	112	10.49 C	5.85	249
	MIN	-68.39	5.85	249	-327.95	0.00	249		
	0.00	5.85	265	0.00	5.85	265	9.41 T	5.85	127
9 MAX	16.59	0.00	127	376.35	5.83	254			
	0.00	0.00	112	0.00	0.00	112	11.55 C	5.83	249

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MIN	-68.40	5.83	249	-100.51	0.00	116			
	0.00	5.83	265	0.00	5.83	265	9.41	T	5.83 127
10 MAX	76.58	0.00	120	330.10	0.00	123			
	0.00	0.00	112	0.00	0.00	112	8.37	C	0.00 126
MIN	-12.08	5.83	250	-134.67	5.83	125			
	0.00	5.83	265	0.00	5.83	265	9.65	T	0.00 248
11 MAX	64.45	0.00	126	164.87	5.85	248			
	0.00	0.00	112	0.00	0.00	112	8.38	C	0.00 126
MIN	-12.09	5.85	250	-339.10	5.85	258			
	0.00	5.85	265	0.00	5.85	265	8.31	T	0.00 250
12 MAX	36.34	0.00	258	218.00	5.85	248			
	0.00	0.00	112	0.00	0.00	112	8.22	C	5.85 258
MIN	-32.98	5.85	262	-391.64	4.68	126			
	0.00	5.85	265	0.00	5.85	265	7.25	T	0.00 250
13 MAX	9.65	0.00	256	272.90	5.85	250			
	0.00	0.00	112	0.00	0.00	112	9.03	C	5.85 258
MIN	-66.34	5.85	262	-371.22	0.00	126			
	0.00	5.85	265	0.00	5.85	265	6.19	T	0.00 250
14 MAX	6.00	0.00	117	423.04	5.85	262			
	0.00	0.00	112	0.00	0.00	112	10.16	C	5.85 255
MIN	-75.61	5.85	260	-213.46	0.00	125			
	0.00	5.85	265	0.00	5.85	265	5.81	T	5.85 118
15 MAX	58.86	0.00	250	392.11	0.00	263			
	0.00	0.00	112	0.00	0.00	112	0.38	C	0.00 118
MIN	0.00	4.77	132	0.00	1.91	132			
	0.00	4.77	265	0.00	4.77	265	4.06	T	0.00 264
16 MAX	37.04	0.00	250	151.82	0.00	263			
	0.00	0.00	112	0.00	0.00	112	0.20	C	0.00 118
MIN	0.00	5.06	133	0.00	5.62	265			
	0.00	5.62	265	0.00	5.62	265	2.29	T	0.00 264

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

1450. *5C1 MAX FLOOR BEAM FORCES ABOVE

1451. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 17 TO 19

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
17 MAX	6.14	0.00	265	61.26	0.00	265			
	0.00	0.00	112	0.00	0.00	112	158.98 C	0.00	112
MIN	-1.52	15.69	120	-35.86	15.69	265			
	0.00	15.69	265	0.00	15.69	265	2.42 T	15.69	262
18 MAX	6.13	0.00	119	76.63	5.33	265			
	0.00	0.00	112	0.00	0.00	112	149.82 C	0.00	112
MIN	-21.12	5.33	265	-35.86	0.00	265			
	0.00	5.33	265	0.00	5.33	265	5.40 T	5.33	262
19 MAX	14.22	0.00	265	105.27	15.01	117			
	0.00	0.00	112	0.00	0.00	112	145.58 C	0.00	112
MIN	-8.59	15.01	117	-165.78	15.01	257			
	0.00	15.01	265	0.00	15.01	265	9.64 T	15.01	262

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

1452. *5C1 MAX COLUMN 3 FORCES ABOVE

1453. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 20 TO 23

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
20 MAX	21.95	0.00	265	139.19	0.00	265			
	0.00	0.00	112	0.00	0.00	112	134.21 C	0.00	120
MIN	0.54	9.75	116	-75.28	9.75	265			
	0.00	9.75	265	0.00	9.75	265	6.77 C	9.75	113
21 MAX	-1.49	0.00	116	5.12	5.98	116			
	0.00	0.00	112	0.00	0.00	112	111.10 C	0.00	120
MIN	-11.56	5.98	264	-75.28	0.00	265			
	0.00	5.98	265	0.00	5.98	265	6.22 T	5.98	113
22 MAX	9.39	0.00	125	102.65	5.33	248			
	0.00	0.00	112	0.00	0.00	112	111.10 C	0.00	120
MIN	-19.12	5.33	248	-51.83	5.33	125			
	0.00	5.33	265	0.00	5.33	265	6.22 T	5.33	113
23 MAX	20.04	0.00	248	145.56	15.21	125			
	0.00	0.00	112	0.00	0.00	112	121.66 C	0.00	120
MIN	-12.97	15.21	125	-202.67	15.21	248			
	0.00	15.21	265	0.00	15.21	265	15.51 T	15.21	113

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

1454. *5C1 MAX COLUMN 2 FORCES ABOVE

1455. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 24 TO 26

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
24 MAX	6.51	0.00	264	64.27	0.00	264			
	0.00	0.00	112	0.00	0.00	112	133.35 C	0.00	260
MIN	-0.83	16.00	125	-40.50	16.00	264			
	0.00	16.00	265	0.00	16.00	265	7.70 T	16.00	114
25 MAX	5.70	0.00	113	80.11	5.33	264			
	0.00	0.00	112	0.00	0.00	112	128.62 C	0.00	260
MIN	-22.63	5.33	264	-40.50	0.00	264			
	0.00	5.33	265	0.00	5.33	265	6.00 T	5.33	117
26 MAX	14.12	0.00	264	80.11	0.00	264			
	0.00	0.00	112	0.00	0.00	112	128.63 C	0.00	260
MIN	-5.76	15.40	118	-141.17	15.40	258			
	0.00	15.40	265	0.00	15.40	265	6.00 T	15.40	117

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

1456. *5C1 MAX COLUMN 1 FORCES ABOVE

1457. LOAD LIST 266 TO 323

1458. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 1 TO 16

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
1 MAX	0.00	0.00	266	14.63	3.21	266			
	0.00	0.00	266	0.00	0.00	266	0.00	0.00	266
	-24.90	3.21	266	0.00	3.21	323			
MIN	0.00	3.21	323	0.00	3.21	323	0.16 T	3.21	266
	0.00	0.00	267	144.32	5.21	266			
	0.00	0.00	266	0.00	0.00	266	0.00	0.00	267
2 MAX	-24.90	5.21	271	0.00	5.21	323			
	0.00	5.21	323	0.00	5.21	323	0.17 T	5.21	271
	0.00	0.00	272	171.39	0.65	266			
3 MAX	0.00	0.00	266	0.00	0.00	266	0.00	0.00	272
	-49.80	0.65	266	0.00	0.65	323			
	0.00	0.65	323	0.00	0.65	323	0.39 T	0.65	266
4 MAX	0.00	0.00	273	462.93	5.85	266			
	0.00	0.00	266	0.00	0.00	266	0.00	0.00	273
	-49.80	5.85	270	0.00	5.85	323			
MIN	0.00	5.85	323	0.00	5.85	323	0.33 T	5.85	272
	43.30	0.00	278	361.51	0.00	266			
	0.00	0.00	266	0.00	0.00	266	4.06 C	0.00	288
5 MAX	-4.64	5.85	277	-143.19	5.85	283			
	0.00	5.85	323	0.00	5.85	323	7.50 T	5.85	266
	0.00	0.00	284	272.07	0.00	266			
6 MAX	0.00	0.00	266	0.00	0.00	266	4.06 C	0.00	288
	-16.30	5.85	283	-206.76	5.85	289			
	0.00	5.85	323	0.00	5.85	323	7.50 T	5.85	266
7 MAX	21.87	0.00	289	182.65	0.00	266			
	0.00	0.00	266	0.00	0.00	266	4.04 C	0.00	289
	-26.07	5.85	288	-207.97	1.17	290			
MIN	0.00	5.85	323	0.00	5.85	323	7.50 T	5.85	266
	15.27	0.00	266	93.24	0.00	266			
	0.00	0.00	266	0.00	0.00	266	3.87 C	0.00	289
8 MAX	-36.79	5.85	294	-190.42	0.00	289			
	0.00	5.85	323	0.00	5.85	323	7.50 T	5.85	266
	15.27	0.00	266	131.62	5.83	290			
9 MAX	0.00	0.00	266	0.00	0.00	266	3.73 C	0.00	288

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MIN	-36.79	5.83	294	-94.79	0.00	294			
	0.00	5.83	323	0.00	5.83	323	7.50	T	5.83 266
10 MAX	42.92	0.00	295	131.58	0.00	303			
	0.00	0.00	266	0.00	0.00	266	3.99	C	0.00 305
MIN	-7.56	5.83	323	-96.74	5.83	299			
	0.00	5.83	323	0.00	5.83	323	4.10	T	5.83 323
11 MAX	36.97	0.00	299	67.83	0.00	291			
	0.00	0.00	266	0.00	0.00	266	4.00	C	0.00 305
MIN	-11.27	5.85	298	-189.72	5.85	304			
	0.00	5.85	323	0.00	5.85	323	4.10	T	5.85 323
12 MAX	26.38	0.00	305	94.75	5.85	323			
	0.00	0.00	266	0.00	0.00	266	4.00	C	0.00 305
MIN	-21.58	5.85	304	-207.20	5.27	304			
	0.00	5.85	323	0.00	5.85	323	4.10	T	5.85 323
13 MAX	16.71	0.00	310	138.99	5.85	323			
	0.00	0.00	266	0.00	0.00	266	3.83	C	0.00 305
MIN	-31.16	5.85	309	-205.24	0.59	305			
	0.00	5.85	323	0.00	5.85	323	4.10	T	5.85 323
14 MAX	5.14	0.00	316	183.24	5.85	323			
	0.00	0.00	266	0.00	0.00	266	3.66	C	0.00 305
MIN	-42.81	5.85	315	-145.74	0.00	310			
	0.00	5.85	323	0.00	5.85	323	4.10	T	5.85 323
15 MAX	49.80	0.00	322	237.57	0.00	323			
	0.00	0.00	266	0.00	0.00	266	0.32	C	0.00 322
MIN	0.00	4.29	319	0.00	0.95	316			
	0.00	4.77	323	0.00	4.77	323	0.00		4.77 320
16 MAX	24.90	0.00	321	74.69	0.00	323			
	0.00	0.00	266	0.00	0.00	266	0.17	C	0.00 321
MIN	0.00	5.62	323	0.00	5.62	323			
	0.00	5.62	323	0.00	5.62	323	0.00		5.62 323

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

1459. *FATIGUE FLOOR BEAM FORCES ABOVE
 1460. FINISH

***** END OF THE STAAD.Pro RUN *****

**** DATE= APR 13,2012 TIME= 8:51: 1 ****

* For questions on STAAD.Pro, please contact *
* Bentley Systems Offices at the following locations *
* *
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EAST APPROACH - FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/30/2012
Date 4/13/2012

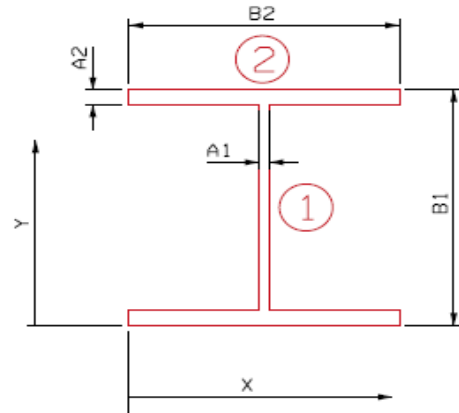
Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Red text indicates user input

Element Dimensions (without Section Losses):

$A_1 = t_w = 0.7650$ in
 $A_2 = t_f = 1.2600$ in
 $B_1 = d = 35.8800$ in
 $B_2 = b_f = 16.4750$ in
36WFB230



FB-7 @ COLUMN 307
EAST APPR. FWD SECTION

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I _o	d	Ad ²	I _{x,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		25.5204	17.9400	457.8360	2366.7823	0.0000	0.0000	2366.7823
2	Top Flange		20.7585	35.2500	731.7371	2.7463	17.3100	6219.9960	6222.7423
	Bottom Flange		20.7585	0.6300	13.0779	2.7463	17.3100	6219.9960	6222.7423
Total			67.04		1202.65	2372.28		12439.99	14812.27
Section Losses			A	y	Ay	I _o	d	Ad ²	I _{x,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	12.0000	0.1250	-1.5000	0.0625	-0.0938	-0.0020	18.2416	-499.1323	-499.1343
2	12.0000	0.1250	-1.5000	35.9375	-53.9063	-0.0020	17.6334	-466.4068	-466.4087
3	0.2500	1.0000	-0.2500	2.5000	-0.6250	-0.0208	15.8041	-62.4422	-62.4630
4	0.5625	2.0000	-1.1250	4.0000	-4.5000	-0.3750	14.3041	-230.1822	-230.5572
5	0.2500	1.0000	-0.2500	4.5000	-1.1250	-0.0208	13.8041	-47.6381	-47.6589
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			-4.63		-60.25	-0.42		-1305.80	-1306.22

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	17.9400	in	S _{top} = 825.66 in ³	y-bar =	18.3041	in	S _{top} = 768.44 in ³
I _x =	14812.27	in ⁴	S _{bottom} = 825.66 in ³	I _x =	13506.04	in ⁴	S _{bottom} = 737.87 in ³
C _{top} =	17.9400	in	A = 67.0374 in ²	C _{top} =	17.5759	in	A = 62.4124 in ²
C _{bottom} =	17.9400	in	r _x = 14.8646 in	C _{bottom} =	18.3041	in	r _x = 14.7105 in
			Z = 931.50 in ³				Z = warning in ³

EAST APPROACH - FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/30/2012
Date 4/13/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Floorbeam Capacities

Non-composite Capacities*		
	AB	AI
M	2270.55 k-ft	2029.15 k-ft
V	488.46 k	457.36 k

$F_y =$ **33.00 ksi**

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

*Noncompact Section

As-Built Moments and Shears						
	DL	HS20	2F1	3F1	4F1	5C1
M	801.82 k-ft	820.78 k-ft	391.32 k-ft	584.56 k-ft	666.24 k-ft	644.04 k-ft
V	75.26 k	112.50 k	53.64 k	80.12 k	91.32 k	88.28 k

As-Built Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	0.69	---	---	---	---
Operating M	1.15	2.41	1.62	1.42	1.47
As-Inspected Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	0.55	---	---	---	---
Operating M	0.92	1.94	1.3	1.14	1.18
As-Built Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	1.6	---	---	---	---
Operating V	2.67	5.6	3.75	3.29	3.4
As-Inspected Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	1.47	---	---	---	---
Operating V	2.46	5.16	3.45	3.03	3.13

Controlling Rating Factors and Tonnage						
	HS20 Inventory	HS20 Operating	2F1 Operating	3F1 Operating	4F1 Operating	5C1 Operating
Rating Factor	0.55	0.92	1.94	1.3	1.14	1.18
Tonnage (US Tons)	19.8	33.12	29.1	29.9	30.78	47.2

EAST APPROACH - FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/30/2012
Date 4/13/2012

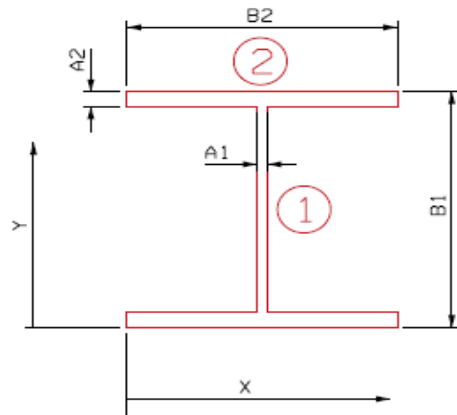
Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Red text indicates user input

Element Dimensions (without Section Losses):

$A_1 = t_w = 0.7650$ in
 $A_2 = t_f = 1.2600$ in
 $B_1 = d = 35.8800$ in
 $B_2 = b_f = 16.4750$ in
36WFB230



**FB-7 @ COLUMN 207
EAST APPR. FWD SECTION**

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I_o	d	Ad^2	$I_{x, gross}$
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		25.5204	17.9400	457.8360	2366.7823	0.0000	0.0000	2366.7823
2	Top Flange		20.7585	35.2500	731.7371	2.7463	17.3100	6219.9960	6222.7423
	Bottom Flange		20.7585	0.6300	13.0779	2.7463	17.3100	6219.9960	6222.7423
Total			67.04		1202.65	2372.28		12439.99	14812.27
Section Losses			A	y	Ay	I_o	d	Ad^2	$I_{x, loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	12.0000	0.0625	-0.7500	0.0313	-0.0234	-0.0002	18.6535	-260.9659	-260.9661
2	12.0000	0.0625	-0.7500	0.0313	-0.0234	-0.0002	18.6535	-260.9659	-260.9661
3	0.0625	12.0000	-0.7500	6.0000	-4.5000	-9.0000	12.6848	-120.6779	-129.6779
4	0.0625	12.0000	-0.7500	6.0000	-4.5000	-9.0000	12.6848	-120.6779	-129.6779
5	0.1250	2.0000	-0.2500	7.0000	-1.7500	-0.0833	11.6848	-34.1336	-34.2169
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			-3.25		-10.80	-18.08		-797.42	-815.50

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	17.9400	in	$S_{top} = 825.66$ in ³	y-bar =	18.6848	in	$S_{top} = 813.99$ in ³
$I_x =$	14812.27	in ⁴	$S_{bott.} = 825.66$ in ³	$I_x =$	13996.76	in ⁴	$S_{bott.} = 749.10$ in ³
$C_{top} =$	17.9400	in	$A = 67.0374$ in ²	$C_{top} =$	17.1952	in	$A = 63.7874$ in ²
$C_{bottom} =$	17.9400	in	$r_x = 14.8646$ in	$C_{bottom} =$	18.6848	in	$r_x = 14.8131$ in
			$Z = 931.50$ in ³				$Z =$ warning in ³

EAST APPROACH - FORWARD SECTION



Made By FKL
 Checked By PJP

Date 3/30/2012
 Date 4/13/2012

Job No. P402110046
 Sheet No. _____

Calculations For: **CUY-2-1441**

Floorbeam Capacities

Non-composite Capacities*		
	AB	AI
M	2270.55 k-ft	2060.02 k-ft
V	488.46 k	454.97 k

*Noncompact Section

$F_y =$	33.00 ksi
---------	------------------

AB = As-Built
 AI = As-Inspected
 M = Moment
 V = Shear

As-Built Moments and Shears						
	DL	HS20	2F1	3F1	4F1	5C1
M	259.42 k-ft	480.43 k-ft	228.58 k-ft	341.88 k-ft	389.79 k-ft	376.77 k-ft
V	52.24 k	14.48 k	42.11 k	62.95 k	71.76 k	69.37 k

As-Built Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.85	---	---	---	---
Operating M	3.10	6.51	4.35	3.82	3.95
As-Inspected Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.65	---	---	---	---
Operating M	2.76	5.8	3.88	3.4	3.52
As-Built Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	13.38	---	---	---	---
Operating V	22.34	7.68	5.14	4.51	4.66
As-Inspected Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	12.32	---	---	---	---
Operating V	20.56	7.07	4.73	4.15	4.29

Controlling Rating Factors and Tonnage						
	HS20 Inventory	HS20 Operating	2F1 Operating	3F1 Operating	4F1 Operating	5C1 Operating
Rating Factor	1.65	2.76	5.8	3.88	3.4	3.52
Tonnage (US Tons)	59.4	99.36	87	89.24	91.8	140.8

EAST APPROACH - FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/20/2012
Date 4/13/2012

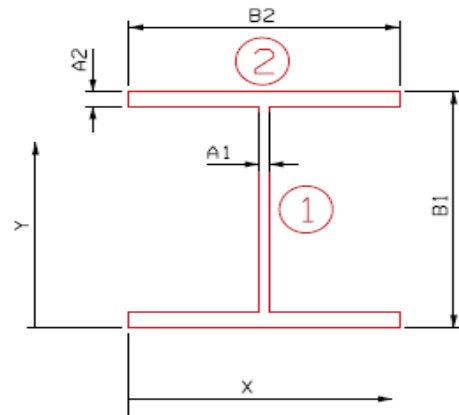
Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Red text indicates user input

Element Dimensions (without Section Losses):

$A_1 = t_w = 0.7650$ in
 $A_2 = t_f = 1.2600$ in
 $B_1 = d = 35.8800$ in
 $B_2 = b_f = 16.4750$ in
36WFB230



FB-7 @ COLUMN 107
EAST APPR. FWD SECTION

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I _o	d	Ad ²	I _{x,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		25.5204	17.9400	457.8360	2366.7823	0.0000	0.0000	2366.7823
2	Top Flange		20.7585	35.2500	731.7371	2.7463	17.3100	6219.9960	6222.7423
	Bottom Flange		20.7585	0.6300	13.0779	2.7463	17.3100	6219.9960	6222.7423
Total			67.04		1202.65	2372.28		12439.99	14812.27
Section Losses			A	y	Ay	I _o	d	Ad ²	I _{x,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.1250	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar = 17.9400 in	S _{top} = 825.66 in ³			y-bar = 17.9400 in	S _{top} = 825.66 in ³		
I _x = 14812.27 in ⁴	S _{bottom} = 825.66 in ³			I _x = 14812.27 in ⁴	S _{bottom} = 825.66 in ³		
C _{top} = 17.9400 in	A = 67.0374 in ²			C _{top} = 17.9400 in	A = 67.0374 in ²		
C _{bottom} = 17.9400 in	r _x = 14.8646 in			C _{bottom} = 17.9400 in	r _x = 14.8646 in		
	Z = 931.50 in ³				Z = warning in ³		

EAST APPROACH - FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/20/2012
Date 4/13/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Floorbeam Capacities

Non-composite Capacities*		
	AB	AI
M	2270.55 k-ft	2270.55 k-ft
V	488.46 k	488.46 k

*Noncompact Section

$F_y =$	33.00 ksi
---------	------------------

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

As-Built Moments and Shears						
	DL	HS20	2F1	3F1	4F1	5C1
M	392.08 k-ft	539.10 k-ft	257.03 k-ft	383.95 k-ft	437.60 k-ft	423.02 k-ft
V	52.00 k	96.33 k	45.93 k	68.61 k	78.19 k	75.59 k

As-Built Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.51	---	---	---	---
Operating M	2.51	5.27	3.53	3.1	3.2
As-Inspected Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.51	---	---	---	---
Operating M	2.51	5.27	3.53	3.1	3.2
As-Built Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	2.01	---	---	---	---
Operating V	3.36	7.05	4.72	4.14	4.28
As-Inspected Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	2.01	---	---	---	---
Operating V	3.36	7.05	4.72	4.14	4.28

Controlling Rating Factors and Tonnage						
	HS20 Inventory	HS20 Operating	2F1 Operating	3F1 Operating	4F1 Operating	5C1 Operating
Rating Factor	1.51	2.51	5.27	3.53	3.1	3.2
Tonnage (US Tons)	54.36	90.36	79.05	81.19	83.7	128

EAST APPROACH - FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/20/2012
Date 4/13/2012

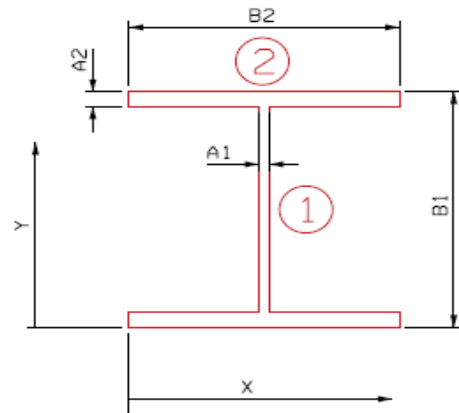
Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Red text indicates user input

Element Dimensions (without Section Losses):

$A_1 = t_w = 0.7650$ in
 $A_2 = t_f = 1.2600$ in
 $B_1 = d = 35.8800$ in
 $B_2 = b_f = 16.4750$ in
36WFB230



FB-7 @ Between 207 & 307
EAST APPR. FWD SECTION

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I _o	d	Ad ²	I _{x,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		25.5204	17.9400	457.8360	2366.7823	0.0000	0.0000	2366.7823
2	Top Flange		20.7585	35.2500	731.7371	2.7463	17.3100	6219.9960	6222.7423
	Bottom Flange		20.7585	0.6300	13.0779	2.7463	17.3100	6219.9960	6222.7423
Total			67.04		1202.65	2372.28		12439.99	14812.27
Section Losses			A	y	Ay	I _o	d	Ad ²	I _{x,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties							
y-bar =	17.9400	in	S _{top} =	825.66	in ³	y-bar =	17.9400	in	S _{top} =	825.66	in ³
I _x =	14812.27	in ⁴	S _{bottom} =	825.66	in ³	I _x =	14812.27	in ⁴	S _{bottom} =	825.66	in ³
C _{top} =	17.9400	in	A =	67.0374	in ²	C _{top} =	17.9400	in	A =	67.0374	in ²
C _{bottom} =	17.9400	in	r _x =	14.8646	in	C _{bottom} =	17.9400	in	r _x =	14.8646	in
			Z =	931.50	in ³				Z =	931.50	in ³

EAST APPROACH - FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/20/2012
Date 4/13/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Floorbeam Capacities

Non-composite Capacities*		
	AB	AI
M	2561.63 k-ft	2561.63 k-ft
V	488.46 k	488.46 k

*Compact Section

$F_y =$	33.00 ksi
---------	------------------

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

As-Built Moments and Shears						
	DL	HS20	2F1	3F1	4F1	5C1
M	72.25 k-ft	521.48 k-ft	248.63 k-ft	371.40 k-ft	423.30 k-ft	409.19 k-ft
V	44.74 k	53.35 k	25.44 k	38.00 k	43.31 k	41.86 k

As-Built Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	2.18	---	---	---	---
Operating M	3.64	7.63	5.11	4.48	4.64
As-Inspected Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	2.18	---	---	---	---
Operating M	3.64	7.63	5.11	4.48	4.64
As-Built Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	3.72	---	---	---	---
Operating V	6.2	13.01	8.71	7.64	7.91
As-Inspected Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	3.72	---	---	---	---
Operating V	6.2	13.01	8.71	7.64	7.91

Controlling Rating Factors and Tonnage						
	HS20 Inventory	HS20 Operating	2F1 Operating	3F1 Operating	4F1 Operating	5C1 Operating
Rating Factor	2.18	3.64	7.63	5.11	4.48	4.64
Tonnage (US Tons)	78.48	131.04	114.45	117.53	120.96	185.6

EAST APPROACH - FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/20/2012
Date 4/13/2012

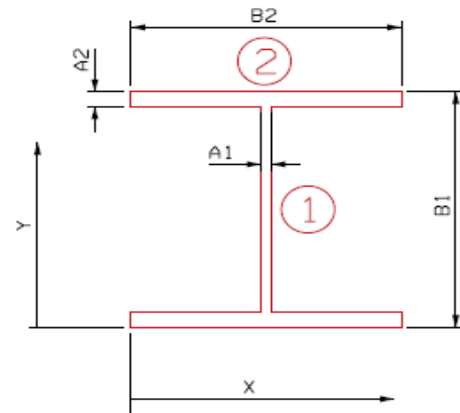
Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Red text indicates user input

Element Dimensions (without Section Losses):

$A_1 = t_w = 0.7650$ in
 $A_2 = t_f = 1.2600$ in
 $B_1 = d = 35.8800$ in
 $B_2 = b_f = 16.4750$ in
36WFB230



FB-7 @ Between 107 & 207
EAST APPR. FWD SECTION

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I _o	d	Ad ²	I _{x,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		25.5204	17.9400	457.8360	2366.7823	0.0000	0.0000	2366.7823
2	Top Flange		20.7585	35.2500	731.7371	2.7463	17.3100	6219.9960	6222.7423
	Bottom Flange		20.7585	0.6300	13.0779	2.7463	17.3100	6219.9960	6222.7423
Total			67.04		1202.65	2372.28		12439.99	14812.27
Section Losses			A	y	Ay	I _o	d	Ad ²	I _{x,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties							
y-bar =	17.9400	in	S _{top} =	825.66	in ³	y-bar =	17.9400	in	S _{top} =	825.66	in ³
I _x =	14812.27	in ⁴	S _{bottom} =	825.66	in ³	I _x =	14812.27	in ⁴	S _{bottom} =	825.66	in ³
C _{top} =	17.9400	in	A =	67.0374	in ²	C _{top} =	17.9400	in	A =	67.0374	in ²
C _{bottom} =	17.9400	in	r _x =	14.8646	in	C _{bottom} =	17.9400	in	r _x =	14.8646	in
			Z =	931.50	in ³				Z =	931.50	in ³

EAST APPROACH - FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/20/2012
Date 4/13/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Floorbeam Capacities

Non-composite Capacities*		
	AB	AI
M	2561.63 k-ft	2561.63 k-ft
V	488.46 k	488.46 k

F_y = 33.00 ksi

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

*Compact Section

As-Built Moments and Shears						
	DL	HS20	2F1	3F1	4F1	5C1
M	182.02 k-ft	498.82 k-ft	237.82 k-ft	355.26 k-ft	404.90 k-ft	391.41 k-ft
V	23.35 k	46.35 k	22.10 k	33.01 k	37.62 k	36.37 k

As-Built Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	2.15	---	---	---	---
Operating M	3.59	7.52	5.03	4.42	4.57
As-Inspected Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	2.15	---	---	---	---
Operating M	3.59	7.52	5.03	4.42	4.57
As-Built Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	4.55	---	---	---	---
Operating V	7.6	15.95	10.67	9.37	9.69
As-Inspected Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	4.55	---	---	---	---
Operating V	7.6	15.95	10.67	9.37	9.69

Controlling Rating Factors and Tonnage						
	HS20 Inventory	HS20 Operating	2F1 Operating	3F1 Operating	4F1 Operating	5C1 Operating
Rating Factor	2.15	3.59	7.52	5.03	4.42	4.57
Tonnage (US Tons)	77.4	129.24	112.8	115.69	119.34	182.8

CUY-2-1441 Load Rating Analysis - As-Built
Main Ave Bridge
East Approach Fwd Section - Bent 7

Column: C307

Section Properties 21WF112

A =	32.930	in ²	I _x =	2620.600	in ⁴
h =	21.000	in	S _x =	249.600	in ³
b _f =	13.000	in	r _x =	8.920	in
t _f =	0.865	in	I _y =	289.700	in ⁴
t _w =	0.527	in	S _y =	44.600	in ³
			r _y =	2.960	in
F _y =	33.0	ksi	Z _x =	275.3	in ³
E =	29000	ksi			
L _{cx} =	188.27	in			
L _{cy} =	252.27	in			
K _x =	0.650	AASHTO Appendix C			
K _y =	0.650	AASHTO Appendix C			

Axial Loading

$$P_u = 0.85 A_s F_{cr}$$

AASHTO 10.54 Concentrically Loaded Columns

$$F_{cr} = F_y \left(1 - \frac{F_y}{4\pi^2 E} \left(\frac{KL_c}{r} \right)^2 \right)$$

For: $\frac{KL_c}{r} \leq \sqrt{\frac{2\pi^2 E}{F_y}}$

$$F_{cr} = \frac{\pi^2 E}{\left(\frac{KL_c}{r} \right)^2}$$

For: $\frac{KL_c}{r} > \sqrt{\frac{2\pi^2 E}{F_y}}$

KL/r_y = 55.397 < 131.706
 KL/r_x = 13.719 < 131.706

F_{CR} = 30.081 ksi

P_u = 842.0 k

CUY-2-1441 Load Rating Analysis - As-Built
Main Ave Bridge
East Approach Fwd Section - Bent 7

Column: C307

Axial Loading and Bending

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_e}\right)} \leq 1.0$$

AASHTO 10.54.2 Combined Axial Load and Bending

$$= 0.6 + 0.4$$

a = 0 **When moment is small assume a = 0
 C = 0.600

$$F_e = \frac{E\pi^2}{\left(\frac{KL_c}{r}\right)^2}$$

$F_{ex} = 1520.676 \text{ ksi}$
 $F_{ey} = 93.266 \text{ ksi}$

Column Compactness Check

$M_u = F_y Z$ For Compact Section

$M_u = F_y S$ For Non-Compact Section

$$\frac{b}{i} \leq \frac{4110}{\sqrt{F_y}}$$

15.029 < 22.625

$$\frac{D}{t_w} \leq \frac{19230}{\sqrt{F_y}}$$

36.565 < 105.858

$$\frac{L}{r_y} \leq \frac{\left(3.6 - 2.2 \frac{M_1}{M_u}\right) \times 10^6}{F_y}$$

85.226 < 109.091

Column Moment Capacity

Compact Section

$M_{uy} = 757.1 \text{ k-ft}$

CUY-2-1441 Load Rating Analysis - As-Built

Main Ave Bridge

East Approach Forward Section - Column 307 Ratings



Calculated:

FKL 3/19/2012

Checked:

MTN 4/12/2012

Column Loading

	DL	HS-20	2F1	3F1	4F1	5C1
Max Axial	213.50	198.47	102.52	145.69	163.94	158.98
Moment	7.26	8.25	7.66	7.92	8.04	8.01
Axial	211.67	161.75	77.17	115.23	131.31	126.94
Max Mom.	15.70	182.88	86.09	129.67	148.07	143.07

DL Factor

1.30

LL Factor

2.17 INV
1.30 OPER

Factored Loads

Axial Force

Moment

Capacities

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_c}\right)} \leq 1.0$$

Load Case	Member	Axial Force		Moment		P _u kips	M _u k-ft	A _s F _{ex} kips	Condition Equation	RF
		Dead Load	Max. LL + I	Dead Load	Max LL + I					
HS20 INV	C307	277.55	430.02	9.44	17.88	842.00	757.10	50075.86	1.00	1.26
HS20 INV	C307	275.171	350.45	20.41	396.24	842.00	757.10	50075.86	1.00	0.90
HS20 OPR	C307	277.55	258.01	9.44	10.73	842.00	757.10	50075.86	1.00	2.10
HS20 OPR	C307	275.171	210.27	20.41	237.74	842.00	757.10	50075.86	1.00	1.49
2F1	C307	277.55	133.27	9.44	9.95	842.00	757.10	50075.86	1.00	3.99
2F1	C307	275.171	100.32	20.41	111.92	842.00	757.10	50075.86	1.00	3.14
3F1	C307	277.55	189.40	9.44	10.30	842.00	757.10	50075.86	1.00	2.84
3F1	C307	275.171	149.79	20.41	168.57	842.00	757.10	50075.86	1.00	2.10
4F1	C307	277.55	213.12	9.44	10.45	842.00	757.10	50075.86	1.00	2.53
4F1	C307	275.171	170.71	20.41	192.49	842.00	757.10	50075.86	1.00	1.84
5C1	C307	277.55	206.68	9.44	10.41	842.00	757.10	50075.86	1.00	2.61
5C1	C307	275.171	165.02	20.41	185.99	842.00	757.10	50075.86	1.00	1.90

Load Case	Controlling RF
HS20 INV	0.90
HS20 OPR	1.49
2F1	3.14
3F1	2.10
4F1	1.84
5C1	1.90

CUY-2-1441 Load Rating Analysis - As-Built
Main Ave Bridge
East Approach Fwd Section - Bent 7

Column: C207

Section Properties 24WF110

A =	32.360	in ²	I _x =	3315.000	in ⁴
h =	24.160	in	S _x =	274.400	in ³
b _f =	12.042	in	r _x =	10.120	in
t _f =	0.855	in	I _y =	229.100	in ⁴
t _w =	0.510	in	S _y =	38.000	in ³
			r _y =	2.660	in
F _y =	33.0	ksi	Z _x =	304.2	in ³
E =	29000	ksi			
L _{cx} =	188.75	in			
L _{cy} =	252.75	in			
K _x =	0.650	AASHTO Appendix C			
K _y =	0.650	AASHTO Appendix C			

Axial Loading

$$P_u = 0.85 A_s F_{cr}$$

AASHTO 10.54 Concentrically Loaded Columns

$$F_{cr} = F_y \left(1 - \frac{F_y}{4\pi^2 E} \left(\frac{KL_c}{r} \right)^2 \right)$$

For: $\frac{KL_c}{r} \leq \sqrt{\frac{2\pi^2 E}{F_y}}$

$$F_{cr} = \frac{\pi^2 E}{\left(\frac{KL_c}{r} \right)^2}$$

For: $\frac{KL_c}{r} > \sqrt{\frac{2\pi^2 E}{F_y}}$

KL/r_y = 61.762 < 131.706
 KL/r_x = 12.123 < 131.706

F_{CR} = 29.372 ksi

P_u = 807.9 k

CUY-2-1441 Load Rating Analysis - As-Built
Main Ave Bridge
East Approach Fwd Section - Bent 7

Column: C207

Axial Loading and Bending

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_e}\right)} \leq 1.0$$

AASHTO 10.54.2 Combined Axial Load and Bending

$$= 0.6 + 0.4$$

a = 0 **When moment is small assume a = 0
 C = 0.600

$$F_e = \frac{E\pi^2}{\left(\frac{KL_c}{r}\right)^2}$$

$F_{ex} = 1947.405 \text{ ksi}$
 $F_{ey} = 75.033 \text{ ksi}$

Column Compactness Check

$M_u = F_y Z$ For Compact Section

$M_u = F_y S$ For Non-Compact Section

$$\frac{b}{i} \leq \frac{4110}{\sqrt{F_y}} \quad 14.084 < 22.625$$

$$\frac{D}{t_w} \leq \frac{19230}{\sqrt{F_y}} \quad 44.020 < 105.858$$

$$\frac{L}{r_y} \leq \frac{\left(3.6 - 2.2 \frac{M_1}{M_u}\right) \times 10^6}{F_y} \quad 95.019 < 109.091$$

Column Moment Capacity

Compact Section

$M_{uy} = 836.6 \text{ k-ft}$

CUY-2-1441 Load Rating Analysis - As-Built

Main Ave Bridge

East Approach Forward Section - Column 207 Ratings



Calculated:

FKL 3/19/2012

Checked:

MTN 4/12/2012

Column Loading

	DL	HS-20	2F1	3F1	4F1	5C1
Max Axial	167.51	166.56	87.96	123.33	138.28	134.21
Moment	8.18	9.45	8.90	9.15	9.25	9.23
Axial	117.45	151.35	72.04	107.73	122.81	118.71
Max Mom.	43.37	152.21	73.62	108.90	123.86	119.79

DL Factor

1.30

LL Factor

2.17 INV
1.30 OPER

Factored Loads

Axial Force

Moment

Capacities

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_e}\right)} \leq 1.0$$

Load Case	Member	Axial Force		Moment		P _u	M _u	A _s F _e	Condition Equation	RF
		Dead Load	Max. LL + I	Dead Load	Max LL + I					
HS20 INV	C207	217.7682	360.89	10.64	20.48	807.90	836.60	63018.03	1.00	1.57
HS20 INV	C207	152.6824	327.93	56.38	329.78	807.90	836.60	63018.03	1.00	1.20
HS20 OPR	C207	217.7682	216.53	10.64	12.29	807.90	836.60	63018.03	1.00	2.61
HS20 OPR	C207	152.6824	196.76	56.38	197.87	807.90	836.60	63018.03	1.00	1.99
2F1	C207	217.7682	114.35	10.64	11.57	807.90	836.60	63018.03	1.00	4.82
2F1	C207	152.6824	93.65	56.38	95.70	807.90	836.60	63018.03	1.00	4.16
3F1	C207	217.7682	160.33	10.64	11.89	807.90	836.60	63018.03	1.00	3.49
3F1	C207	152.6824	140.04	56.38	141.57	807.90	836.60	63018.03	1.00	2.79
4F1	C207	217.7682	179.76	10.64	12.03	807.90	836.60	63018.03	1.00	3.13
4F1	C207	152.6824	159.66	56.38	161.01	807.90	836.60	63018.03	1.00	2.45
5C1	C207	217.7682	174.48	10.64	11.99	807.90	836.60	63018.03	1.00	3.22
5C1	C207	152.6824	154.33	56.38	155.73	807.90	836.60	63018.03	1.00	2.54

Load Case	Controlling RF
HS20 INV	1.20
HS20 OPR	1.99
2F1	4.16
3F1	2.79
4F1	2.45
5C1	2.54

CUY-2-1441 Load Rating Analysis - As-Built
Main Ave Bridge
East Approach Fwd Section - Bent 7

Column: C107

Section Properties 21WF112

A =	32.930	in ²	I _x =	2620.600	in ⁴
h =	21.000	in	S _x =	249.600	in ³
b _f =	13.000	in	r _x =	8.920	in
t _f =	0.865	in	I _y =	289.700	in ⁴
t _w =	0.527	in	S _y =	44.600	in ³
			r _y =	2.960	in
F _y =	33.0	ksi	Z _x =	275.3	in ³
E =	29000	ksi			
L _{cx} =	191.99	in			
L _{cy} =	255.99	in			
K _x =	0.650	AASHTO Appendix C			
K _y =	0.650	AASHTO Appendix C			

Axial Loading

$$P_u = 0.85 A_s F_{cr}$$

AASHTO 10.54 Concentrically Loaded Columns

$$F_{cr} = F_y \left(1 - \frac{F_y}{4\pi^2 E} \left(\frac{KL_c}{r} \right)^2 \right)$$

For: $\frac{KL_c}{r} \leq \sqrt{\frac{2\pi^2 E}{F_y}}$

$$F_{cr} = \frac{\pi^2 E}{\left(\frac{KL_c}{r} \right)^2}$$

For: $\frac{KL_c}{r} > \sqrt{\frac{2\pi^2 E}{F_y}}$

KL/r_y = 56.214 < 131.706
 KL/r_x = 13.990 < 131.706

F_{CR} = 29.994 ksi

P_u = 839.6 k

CUY-2-1441 Load Rating Analysis - As-Built
Main Ave Bridge
East Approach Fwd Section - Bent 7

Column: C107

Axial Loading and Bending

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_e}\right)} \leq 1.0$$

AASHTO 10.54.2 Combined Axial Load and Bending

$$= 0.6 + 0.4$$

a = 0 **When moment is small assume a = 0
 C = 0.600

$$F_e = \frac{E\pi^2}{\left(\frac{KL_c}{r}\right)^2}$$

$F_{ex} = 1462.318 \text{ ksi}$
 $F_{ey} = 90.575 \text{ ksi}$

Column Compactness Check

$M_u = F_y Z$ For Compact Section

$M_u = F_y S$ For Non-Compact Section

$$\frac{b}{i} \leq \frac{4110}{\sqrt{F_y}} \quad 15.029 < 22.625$$

$$\frac{D}{t_w} \leq \frac{19230}{\sqrt{F_y}} \quad 36.565 < 105.858$$

$$\frac{L}{r_y} \leq \frac{\left(3.6 - 2.2 \frac{M_1}{M_u}\right) \times 10^6}{F_y} \quad 86.483 < 109.091$$

Column Moment Capacity

Compact Section

$M_{uy} = 757.1 \text{ k-ft}$

CUY-2-1441 Load Rating Analysis - As-Built

Main Ave Bridge

East Approach Forward Section - Column 107 Ratings



Calculated:

FKL 3/19/2012

Checked:

MTN 4/12/2012

Column Loading

	DL	HS-20	2F1	3F1	4F1	5C1
Max Axial	138.19	170.32	80.50	120.91	137.99	133.35
Moment	3.43	47.76	21.00	33.04	38.13	36.74
Axial	135.59	94.61	45.16	67.41	76.81	74.25
Max Mom.	30.86	176.25	84.03	125.47	143.01	138.25

DL Factor

1.30

LL Factor

2.17 INV
1.30 OPER

Factored Loads

Axial Force

Moment

Capacities

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_e}\right)} \leq 1.0$$

Load Case	Member	Axial Force		Moment		P _u	M _u	A _s F _e	Condition Equation	RF
		Dead Load	Max. LL + I	Dead Load	Max LL + I					
HS20 INV	C107	179.6483	369.02	4.46	103.48	839.60	757.10	48154.12	1.00	1.50
HS20 INV	C107	176.2605	204.98	40.12	381.86	839.60	757.10	48154.12	1.00	1.38
HS20 OPR	C107	179.6483	221.41	4.46	62.09	839.60	757.10	48154.12	1.00	2.49
HS20 OPR	C107	176.2605	122.99	40.12	229.12	839.60	757.10	48154.12	1.00	2.30
2F1	C107	179.6483	104.65	4.46	27.30	839.60	757.10	48154.12	1.00	5.34
2F1	C107	176.2605	58.71	40.12	109.24	839.60	757.10	48154.12	1.00	4.82
3F1	C107	179.6483	157.18	4.46	42.95	839.60	757.10	48154.12	1.00	3.53
3F1	C107	176.2605	87.63	40.12	163.11	839.60	757.10	48154.12	1.00	3.23
4F1	C107	179.6483	179.39	4.46	49.57	839.60	757.10	48154.12	1.00	3.09
4F1	C107	176.2605	99.85	40.12	185.92	839.60	757.10	48154.12	1.00	2.83
5C1	C107	179.6483	173.36	4.46	47.77	839.60	757.10	48154.12	1.00	3.20
5C1	C107	176.2605	96.53	40.12	179.72	839.60	757.10	48154.12	1.00	2.93

Load Case	Controlling RF
HS20 INV	1.38
HS20 OPR	2.30
2F1	4.82
3F1	3.23
4F1	2.83
5C1	2.93



Calculated: FKL Date: 3/29/2012

Checked: MTN Date: 4/12/2012

CUY-2-1441 Load Rating Analysis - As-Inspected

Main Ave Bridge

East Approach Fwd Section - Bent 7

Column:	C207
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Section Properties 24WF110

A =	25.916	in ²	I _x =	2803.120	in ⁴
h =	24.160	in	S _x =	217.540	in ³
b _f =	12.042	in	r _x =	10.400	in
t _f =	0.855	in	I _y =	228.780	in ⁴
t _w =	0.510	in	S _y =	36.830	in ³
			r _y =	2.971	in
F _y =	33.0	ksi			
E =	29000	ksi			
L _{cx} =	188.75	in			
L _{cy} =	252.75	in			
K _x =	0.650	AASHTO Appendix C			
K _y =	0.650	AASHTO Appendix C			

Axial Loading

$$P_u = 0.85 A_s F_{cr}$$

AASHTO 10.54 Concentrically Loaded Columns

$$F_{cr} = F_y \left(1 - \frac{F_y}{4\pi^2 E} \left(\frac{KL_c}{r} \right)^2 \right) \quad \text{For: } \frac{KL_c}{r} \leq \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$F_{cr} = \frac{\pi^2 E}{\left(\frac{KL_c}{r} \right)^2} \quad \text{For: } \frac{KL_c}{r} > \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$KL/r_y = 55.293 < 131.706$$

$$KL/r_x = 11.797 < 131.706$$

$$F_{CR} = 30.092 \text{ ksi}$$

$P_u = 662.9 \text{ k}$



Calculated: FKL Date: 3/29/2012
 Checked: MTN Date: 4/12/2012

CUY-2-1441 Load Rating Analysis - As-Inspected
Main Ave Bridge
East Approach Fwd Section - Bent 7

Column: C207

Axial Loading and Bending

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_e}\right)} \leq 1.0$$

AASHTO 10.54.2 Combined Axial Load and Bending

=0.6+0.4

a = 0 **When moment is small assume a = 0
 C = 0.600

$$F_e = \frac{E\pi^2}{\left(\frac{KL_c}{r}\right)^2}$$

F_{ex} = 2056.657 ksi
 F_{ey} = 93.617 ksi

Column Compactness Check

M_u=F_yZ For Compact Section
 M_u=F_yS For Non-Compact Section

$\frac{b}{i} \leq \frac{4110}{\sqrt{F_y}}$	14.084	<	22.625
$\frac{D}{t_w} \leq \frac{19230}{\sqrt{F_y}}$	44.020	<	105.858
$\frac{L}{r_y} \leq \frac{\left(3.6 - 2.2 \frac{M_1}{M_u}\right) \times 10^6}{F_y}$	85.067	<	109.091

Column Moment Capacity

Non-Compact Section

M_{uy} = 598.2 k-ft

CUY-2-1441 Load Rating Analysis - As-Inspected

Main Ave Bridge

East Approach Forward Section - Column 207 Ratings



Calculated:

FKL 3/19/2012

Checked:

MTN 4/12/2012

Column Loading

	DL	HS-20	2F1	3F1	4F1	5C1
Max Axial	167.51	166.56	87.96	123.33	138.28	134.21
Moment	8.18	9.45	8.90	9.15	9.25	9.23
Axial	117.45	151.35	72.04	107.73	122.81	118.71
Max Mom.	43.37	152.21	73.62	108.90	123.86	119.79

DL Factor

1.30

LL Factor

2.17 INV
1.30 OPER

Factored Loads

Axial Force

Moment

Capacities

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_e}\right)} \leq 1.0$$

Load Case	Member	Axial Force		Moment		P _u kips	M _u k-ft	A _s F _e kips	Condition Equation	RF
		Dead Load	Max. LL + I	Dead Load	Max LL + I					
HS20 INV	C207	217.7682	360.89	10.64	20.48	662.90	598.20	53300.95	1.00	1.17
HS20 INV	C207	152.6824	327.93	56.38	329.78	662.90	598.20	53300.95	1.00	0.86
HS20 OPR	C207	217.7682	216.53	10.64	12.29	662.90	598.20	53300.95	1.00	1.95
HS20 OPR	C207	152.6824	196.76	56.38	197.87	662.90	598.20	53300.95	1.00	1.43
2F1	C207	217.7682	114.35	10.64	11.57	662.90	598.20	53300.95	1.00	3.59
2F1	C207	152.6824	93.65	56.38	95.70	662.90	598.20	53300.95	1.00	2.99
3F1	C207	217.7682	160.33	10.64	11.89	662.90	598.20	53300.95	1.00	2.60
3F1	C207	152.6824	140.04	56.38	141.57	662.90	598.20	53300.95	1.00	2.01
4F1	C207	217.7682	179.76	10.64	12.03	662.90	598.20	53300.95	1.00	2.33
4F1	C207	152.6824	159.66	56.38	161.01	662.90	598.20	53300.95	1.00	1.77
5C1	C207	217.7682	174.48	10.64	11.99	662.90	598.20	53300.95	1.00	2.40
5C1	C207	152.6824	154.33	56.38	155.73	662.90	598.20	53300.95	1.00	1.83

Load Case	Controlling RF
HS20 INV	0.86
HS20 OPER	1.43
2F1	2.99
3F1	2.01
4F1	1.77
5C1	1.83



Made By PJP
Checked By FKL

Date 4/11/2012
Date 4/12/2012

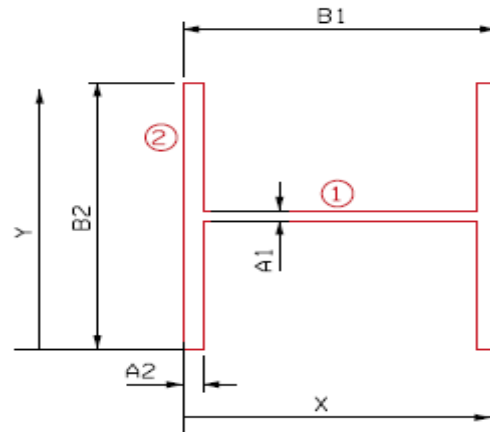
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Calculations For: **CUY-2-1441 East Approach Forward Section**

Element Dimensions (without Section Losses):

Rolled Beam

- $A_1 = t_w = 0.5100$ in
- $A_2 = t_f = 0.8550$ in
- $B_1 = d = 24.1600$ in
- $B_2 = b_f = 12.0420$ in



Column 207

Y-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I_o	d	Ad^2	$I_{y,gross}$
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		11.4495	6.0210	68.9374	0.2482	0.0000	0.0000	0.2482
2	Flange Plates		20.5918	6.0210	123.9833	248.8346	0.0000	0.0000	248.8346
Total			32.04		192.92	249.08		0.00	249.08
Section Losses			A	y	Ay	I_o	d	Ad^2	$I_{y,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	7.0000	0.2500	-1.7500	5.8910	-10.3093	-0.0091	0.3205	-0.1798	-0.1889
2	10.0000	0.3125	-3.1250	5.9223	-18.5070	-0.0254	0.2893	-0.2615	-0.2869
3	0.2500	5.0000	-1.2500	2.5000	-3.1250	-2.6042	3.7115	-17.2191	-19.8233
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			-6.13		-31.94	-2.64		-17.66	-20.30

As-Built Section Properties					As-Inspected Section Properties						
x-bar =	6.0210	in	$S_{top} =$	41.37	in ³	x-bar =	6.2115	in	$S_{top} =$	39.24	in ³
$I_y =$	249.08	in ⁴	$S_{bott.} =$	41.37	in ³	$I_y =$	228.78	in ⁴	$S_{bott.} =$	36.83	in ³
$C_{top} =$	6.0210	in	A =	32.0413	in ²	$C_{top} =$	5.8305	in	A =	25.9163	in ²
$C_{bottom} =$	6.0210	in	$r_y =$	2.7882	in	$C_{bottom} =$	6.2115	in	$r_y =$	2.9712	in



Made By PJP
Checked By FKL

Date 4/11/2012
Date 4/12/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441 East Approach Forward Section**

X-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{x,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web Plate		11.4495	12.0800	138.3100	480.8814	0.0000	0.0000	480.8814
2	Left Flange		10.2959	0.4275	4.4015	0.6272	11.6525	1397.9864	1398.6137
	Right Flange		10.2959	23.7325	244.3477	0.6272	11.6525	1397.9864	1398.6137
Total			32.04		387.06	482.14		2795.97	3278.11
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{x,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.2500	7.0000	-1.7500	4.3550	-7.6213	-7.1458	6.9194	-83.7867	-90.9326
2	0.3125	10.0000	-3.1250	18.3050	-57.2031	-26.0417	7.0306	-154.4666	-180.5082
3	5.0000	0.2500	-1.2500	24.0350	-30.0438	-0.0065	12.7606	-203.5411	-203.5476
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			-6.13		-94.87	-33.19		-441.79	-474.99

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	12.0800	in	S _{right} = 271.37 in ³	y-bar =	11.2744	in	S _{right} = 217.54 in ³
I _x =	3278.11	in ⁴	S _{left} = 271.37 in ³	I _x =	2803.12	in ⁴	S _{left} = 248.63 in ³
C _{right} =	12.0800	in	A = 32.0413 in ²	C _{right} =	12.8856	in	A = 25.9163 in ²
C _{left} =	12.0800	in	r _y = 10.1148 in	C _{left} =	11.2744	in	r _y = 10.4000 in



Made By MTN
 Checked By PJP

Date 4/3/2012
 Date 4/6/2012

Job No. P402110046
 Sheet No. _____

Calculations For: **CUY-2-1441 - East Approach Forward Section**

Bent 8 Reactions

Dead Load Reactions from MDX

Unit 6		
Stringer	DL1	DL2
F1-6	12.22	1.70
S1-6	11.35	1.70
S2-6	11.55	1.70
S3-6	12.45	1.70
S4-6	12.45	1.70
S5-6	12.45	1.70
S6-6	12.45	1.70
S7-6	12.43	1.70
S8-6	12.45	1.70
S9-6	12.45	1.70
S10-6	12.45	1.70
S11-6	12.45	1.70
S12-6	12.45	1.70
S13-6	12.45	1.70
S14-6	13.10	1.70
S15-6	4.98	0.00
F2-6	11.66	1.73

Unit 7		
Stringer	DL1	DL2
F1-7	9.75	1.14
S1-7	8.28	1.14
S2-7	8.43	1.14
S3-7	9.11	1.14
S4-7	9.11	1.14
S5-7	9.11	1.14
S6-7	9.11	1.14
S7-7	9.09	1.14
S8-7	9.11	1.14
S9-7	9.11	1.14
S10-7	9.11	1.14
S11-7	9.11	1.14
S12-7	9.11	1.14
S13-7	9.11	1.14
S14-7	6.55	1.14
S15-7	8.57	1.53
S16-7	12.64	1.55
F2-7	7.44	1.17

Bent 8 Reaction	
Stringer	Total DL
F1-6 + F1-7	24.81
S1-6 + S1-7	22.47
S2-6 + S2-7	22.82
S3-6 + S3-7	24.40
S4-6 + S4-7	24.40
S5-6 + S5-7	24.40
S6-6 + S6-7	24.40
S7-6 + S7-7	24.36
S8-6 + S8-7	24.40
S9-6 + S9-7	24.40
S10-6 + S10-7	24.40
S11-6 + S11-7	24.40
S12-6 + S12-7	24.40
S13-6 + S13-7	24.40
S14-6 + S14-7	22.49
+ S15-7	10.10
S15-6 + S16-7	19.17
F2-6 + F2-7	22.00

Live Load Reactions from STAAD

	LL	2 lane LL+I	3 lane	4 lane
HS-20	28.69	37.3	33.6	28.0
2F1	13.75	17.9	16.1	13.5
3F1	20.44	26.6	24.0	20.0
4F1	23.33	30.4	27.3	22.8
5C1	22.02	28.7	25.8	21.5

Impact Factor
 Span 8 40.000
 Span 9 40.000
 L_{avg} 40.00
 3 lane reduction 0.9
 4 lane + reduction 0.75
 Impact = 1.300

	LL	
HS-20	28.69	
2F1	13.75	0.479261
3F1	20.44	0.712443
4F1	23.33	0.813175
5C1	22.02	0.767515

Reactions per wheel line at Bent 8



Made By MTN
 Checked By PJP

Date 4/3/2012
 Date 4/6/2012

Job No. P402110046
 Sheet No. _____

Calculations For: **CUY-2-1441 - East Approach Forward Section**

Bent 8 Reactions

Centrifugal Wheel Loads (kips)

Radius, R = 1000 ft
 Design Speed, S = 50 mph
 Degree of Curv., D = 5.7294 degrees
 Centrifugal Coefficient, C = 16.8% AASHTO 17th [3.10.1]

	LL	2 lane LL+I		3 lane LL+I		4 lane LL+I	
	Reaction	Left W	Right W	Left W	Right W	Left W	Right W
HS-20	28.69	27.7	47.0	24.9	42.3	20.8	35.3
2F1	13.75	13.3	22.5	12.0	20.3	10.0	16.9
3F1	20.44	19.8	33.5	17.8	30.1	14.8	25.1
4F1	23.33	22.5	38.2	20.3	34.4	16.9	28.7
5C1	22.02	21.3	36.1	19.2	32.5	16.0	27.1

Reactions per wheel line at Bent 8

Centrifugal Horizontal Loads

Length of floor beam = 91.438 ft
 Avg. moment arm from top of deck to center of floorbeam = 4.1375 ft

LL Reaction (per Truck)	Number of Lanes Loaded										
	2		3		4		5		6		
	Horizontal (kip/ft)	Moment (kip*ft/ft)	Horizontal (kip/ft)	Moment (kip*ft/ft)	Horizontal (kip/ft)	Moment (kip*ft/ft)	Horizontal (kip/ft)	Moment (kip*ft/ft)	Horizontal (kip/ft)	Moment (kip*ft/ft)	
HS-20	57.38	0.211	0.872	0.285	1.178	0.316	1.309	0.395	1.636	0.474	1.963
2F1	27.50	0.101	0.418	0.136	0.564	0.152	0.627	0.189	0.784	0.227	0.941
3F1	40.88	0.150	0.622	0.203	0.839	0.225	0.932	0.282	1.165	0.338	1.398
4F1	46.66	0.171	0.709	0.231	0.958	0.257	1.064	0.321	1.330	0.386	1.596
5C1	44.04	0.162	0.670	0.218	0.904	0.243	1.004	0.303	1.255	0.364	1.507

Reactions per axle at Bent 8

```

*****
*
*          STAAD.Pro          *
*          Version 2007      Build 05      *
*          Proprietary Program of          *
*          Bentley Systems, Inc.          *
*          Date=    APR 13, 2012          *
*          Time=    16:11: 0              *
*
*          USER ID: TranSystems          *
*****

```

```

1. STAAD SPACE
INPUT FILE: Bent 8 Truck Loads.STD
2. START JOB INFORMATION
3. ENGINEER DATE 4/3/12
4. JOB NAME CUY-2-1441
5. JOB CLIENT ODOT
6. JOB NO P402110046
7. JOB REF BENT 8 TRUCK LOADS
8. ENGINEER NAME MTN
9. JOB PART EAST APPROACH FWD SECTION
10. CHECKER NAME PJP
11. CHECKER DATE 4/6/12
12. END JOB INFORMATION
13. INPUT WIDTH 79
14. UNIT FEET KIP
15. JOINT COORDINATES
16. 11 -80 0 1; 12 -40 0 1; 13 0 0 1; 14 0 -0.1 1; 15 40 0 1; 21 -80 0 2
17. 22 -40 0 2; 23 0 0 2; 24 0 -0.1 2; 25 40 0 2; 31 -80 0 3; 32 -40 0 3; 33 0 0 3
18. 34 0 -0.1 3; 35 40 0 3; 41 -80 0 4; 42 -40 0 4; 43 0 0 4; 44 0 -0.1 4
19. 45 40 0 4; 51 -80 0 5; 52 -40 0 5; 53 0 0 5; 54 0 -0.1 5; 55 40 0 5
20. MEMBER INCIDENCES
21. 11 11 12; 12 12 13; 13 13 14; 14 13 15; 21 21 22; 22 22 23; 23 23 24; 24 23 25
22. 31 31 32; 32 32 33; 33 33 34; 34 33 35; 41 41 42; 42 42 43; 43 43 44; 44 43 45
23. 51 51 52; 52 52 53; 53 53 54; 54 53 55
24. MEMBER RELEASE
25. 12 22 32 42 52 END MZ
26. 14 24 34 44 54 START MZ
27. DEFINE MATERIAL START
28. ISOTROPIC STEEL
29. E 4.176E+006
30. POISSON 0.3
31. DENSITY 0.489024
32. ALPHA 6.5E-006
33. DAMP 0.03
34. END DEFINE MATERIAL
35. MEMBER PROPERTY AMERICAN
36. 11 21 31 41 51 TABLE ST W27X84
37. 12 13 22 23 32 33 42 43 52 53 TABLE ST W27X84
38. 14 24 34 44 54 TABLE ST W27X102
39. CONSTANTS
40. MATERIAL STEEL ALL

```

41. SUPPORTS
42. 14 24 34 44 54 FIXED
43. 11 12 15 21 22 25 31 32 35 41 42 45 51 52 55 FIXED BUT FX MZ
44. DEFINE MOVING LOAD
45. *HS20 TRUCK
46. TYPE 1 LOAD 16 16 4
47. DIST 14 14
48. *TYPE 2F1 TRUCK
49. TYPE 2 LOAD 10 5
50. DIST 10
51. *TYPE 3F1 TRUCK
52. TYPE 3 LOAD 8.5 8.5 6
53. DIST 4 10
54. *TYPE 4F1 TRUCK
55. TYPE 4 LOAD 7 7 7 6
56. DIST 4 4 10
57. *TYPE 5C1 TRUCK
58. TYPE 5 LOAD 8.5 8.5 8.5 8.5 6
59. DIST 4 31 4 12
60. *HS20 TRAVELING UP STATION
61. LOAD GENERATION 29
****WARNING- THIS STRUCTURE IS DISJOINTED. IGNORE IF
MASTER/SLAVE OR IF UNCONNECTED JOINTS.**
62. TYPE 1 -28 0 1 XINC 1
63. *HS20 TRAVELING DOWN STATION
64. LOAD GENERATION 29
65. TYPE 1 28 0 1 XINC -1.
66. *TYPE 2F1 TRAVELING UP STATION
67. LOAD GENERATION 11
68. TYPE 2 -10 0 2 XINC 1
69. *TYPE 2F1 TRAVELING DOWN STATION
70. LOAD GENERATION 11
71. TYPE 2 10 0 2 XINC -1.
72. *TYPE 3F1 TRAVELING UP STATION
73. LOAD GENERATION 15
74. TYPE 3 -14 0 3 XINC 1
75. *TYPE 3F1 TRAVELING DOWN STATION
76. LOAD GENERATION 15
77. TYPE 3 14 0 3 XINC -1.
78. *TYPE 4F1 TRAVELING UP STATION
79. LOAD GENERATION 19
80. TYPE 4 -18 0 4 XINC 1
81. *TYPE 4F1 TRAVELING DOWN STATION
82. LOAD GENERATION 19
83. TYPE 4 18 0 4 XINC -1.
84. *TYPE 5C1 TRAVELING UP STATION
85. LOAD GENERATION 52
86. TYPE 5 -51 0 5 XINC 1
87. *TYPE 5 TRAVELING DOWN STATION
88. LOAD GENERATION 52
****WARNING-A MOVING LOAD THAT WOULD HAVE BEEN APPLIED BEYOND THE X AND Z RANGES
OF THE STRUCTURE HAS BEEN IGNORED. CASE= 190 WHEEL 5 OF 5**
****WARNING-A MOVING LOAD THAT WOULD HAVE BEEN APPLIED BEYOND THE X AND Z RANGES
OF THE STRUCTURE HAS BEEN IGNORED. CASE= 191 WHEEL 5 OF 5**
****WARNING-A MOVING LOAD THAT WOULD HAVE BEEN APPLIED BEYOND THE X AND Z RANGES
OF THE STRUCTURE HAS BEEN IGNORED. CASE= 192 WHEEL 5 OF 5**

STAAD SPACE

-- PAGE NO. 3

**WARNING-A MOVING LOAD THAT WOULD HAVE BEEN APPLIED BEYOND THE X AND Z RANGES
 OF THE STRUCTURE HAS BEEN IGNORED. CASE= 193 WHEEL 5 OF 5

**WARNING-A MOVING LOAD THAT WOULD HAVE BEEN APPLIED BEYOND THE X AND Z RANGES
 OF THE STRUCTURE HAS BEEN IGNORED. CASE= 194 WHEEL 5 OF 5

**WARNING-A MOVING LOAD THAT WOULD HAVE BEEN APPLIED BEYOND THE X AND Z RANGES
 OF THE STRUCTURE HAS BEEN IGNORED. CASE= 195 WHEEL 5 OF 5

**WARNING-A MOVING LOAD THAT WOULD HAVE BEEN APPLIED BEYOND THE X AND Z RANGES
 OF THE STRUCTURE HAS BEEN IGNORED. CASE= 196 WHEEL 5 OF 5

**WARNING-A MOVING LOAD THAT WOULD HAVE BEEN APPLIED BEYOND THE X AND Z RANGES
 OF THE STRUCTURE HAS BEEN IGNORED. CASE= 197 WHEEL 5 OF 5

**WARNING-A MOVING LOAD THAT WOULD HAVE BEEN APPLIED BEYOND THE X AND Z RANGES
 OF THE STRUCTURE HAS BEEN IGNORED. CASE= 198 WHEEL 5 OF 5

**WARNING-A MOVING LOAD THAT WOULD HAVE BEEN APPLIED BEYOND THE X AND Z RANGES
 OF THE STRUCTURE HAS BEEN IGNORED. CASE= 199 WHEEL 5 OF 5

*ADDITIONAL MOVING LOAD MESSAGES SUPPRESSED

89. TYPE 5 51 0 5 XINC -1.

90. PERFORM ANALYSIS

*ADDITIONAL MOVING LOAD MESSAGES SUPPRESSED

P R O B L E M S T A T I S T I C S

NUMBER OF JOINTS/MEMBER+ELEMENTS/SUPPORTS = 25/ 20/ 20

SOLVER USED IS THE OUT-OF-CORE BASIC SOLVER

ORIGINAL/FINAL BAND-WIDTH= 2/ 2/ 8 DOF

TOTAL PRIMARY LOAD CASES = 252, TOTAL DEGREES OF FREEDOM = 60

SIZE OF STIFFNESS MATRIX = 1 DOUBLE KILO-WORDS

REQD/AVAIL. DISK SPACE = 12.5/ 515482.8 MB

91. PRINT MAXFORCE ENVELOPE NSECTION 1 LIST 13

STAAD SPACE

-- PAGE NO. 4

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/	DIST	LD	MZ/	DIST	LD	FX	DIST	LD
	FZ	DIST	LD	MY	DIST	LD			
13 MAX	0.00	0.00	1	0.00	0.00	1	28.69 C	0.00	44
	0.00	0.00	1	0.00	0.00	1			
MIN	0.00	0.10	252	0.00	0.10	252	0.00	0.10	252
	0.00	0.10	252	0.00	0.10	252			

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

92. *HS20 MAX REACTION - LISTED ABOVE

93. PRINT MAXFORCE ENVELOPE NSECTION 1 LIST 23

STAAD SPACE

-- PAGE NO. 5

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/	DIST	LD	MZ/	DIST	LD	FX	DIST	LD
	FZ	DIST	LD	MY	DIST	LD			
23 MAX	0.00	0.00	1	0.00	0.00	1	13.75 C	0.00	69
	0.00	0.00	1	0.00	0.00	1			
MIN	0.00	0.10	252	0.00	0.10	252	0.00	0.10	252
	0.00	0.10	252	0.00	0.10	252			

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

94. *TYPE 2F1 MAX REACTION - LISTED ABOVE
 95. PRINT MAXFORCE ENVELOPE NSECTION 1 LIST 33

STAAD SPACE

-- PAGE NO. 6

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/	DIST	LD	MZ/	DIST	LD	FX	DIST	LD
	FZ	DIST	LD	MY	DIST	LD			
33 MAX	0.00	0.00	1	0.00	0.00	1	20.44 C	0.00	91
	0.00	0.00	1	0.00	0.00	1			
MIN	0.00	0.10	252	0.00	0.10	252	0.00	0.10	252
	0.00	0.10	252	0.00	0.10	252			

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

96. *TYPE 3F1 MAX REACTION - LISTED ABOVE
 97. PRINT MAXFORCE ENVELOPE NSECTION 1 LIST 43

STAAD SPACE

-- PAGE NO. 7

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/	DIST	LD	MZ/	DIST	LD	FX	DIST	LD
	FZ	DIST	LD	MY	DIST	LD			
43 MAX	0.00	0.00	1	0.00	0.00	1	23.33 C	0.00	125
	0.00	0.00	1	0.00	0.00	1			
MIN	0.00	0.10	252	0.00	0.10	252	0.00	0.10	252
	0.00	0.10	252	0.00	0.10	252			

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

98. *TYPE 4F1 MAX REACTION - LISTED ABOVE
 99. PRINT MAXFORCE ENVELOPE NSECTION 1 LIST 53

STAAD SPACE

-- PAGE NO. 8

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/	DIST	LD	MZ/	DIST	LD	FX	DIST	LD
	FZ	DIST	LD	MY	DIST	LD			
53 MAX	0.00	0.00	1	0.00	0.00	1	22.02 C	0.00	217
	0.00	0.00	1	0.00	0.00	1			
MIN	0.00	0.10	252	0.00	0.10	252	0.00	0.10	148
	0.00	0.10	252	0.00	0.10	252			

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

100. *TYPE 5C1 MAX REACTION - LISTED ABOVE

101. FINISH

***** END OF THE STAAD.Pro RUN *****

**** DATE= APR 13,2012 TIME= 16:11: 3 ****

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*****
*           For questions on STAAD.Pro, please contact           *
*   Bentley Systems Offices at the following locations           *
*                                                                 *
*           Telephone           Web / Email           *
*                                                                 *
*   USA:           +1 (714)974-2500           *
*   CANADA         +1 (905)632-4771           detech@odandetech.com *
*   UK             +44(1454)207-000           *
*   SINGAPORE      +65 6225-6158           *
*   EUROPE         +31 23 5560560           *
*   INDIA          +91(033)4006-2021        *
*   JAPAN          +81(03)5952-6500        http://www.ctc-g.co.jp *
*   CHINA          +86 10 5929 7000        *
*   THAILAND       +66(0)2645-1018/19      partha.p@reissoftwareth.com *
*                                                                 *
*   Worldwide      http://selectservices.bentley.com/en-US/    *
*                                                                 *
*****
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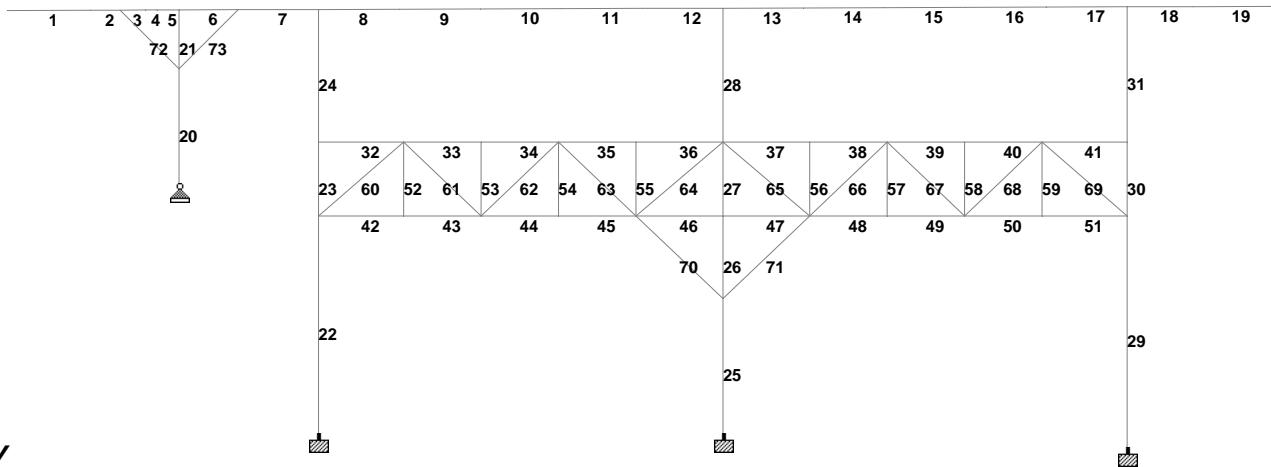



Job No P402110046	Sheet No 1	Rev
Part East Approach Forward Section		
Ref Bent 8		
By MTN	Date 03-Apr-12	Chd PJP
File Bent_8_LL.std	Date/Time 09-Apr-2012 10:03	

Software licensed to TranSystems

Job Title CUY-2-1441 Main Ave Rating

Client ODOT



```
*****
*
*          STAAD.Pro          *
*          Version 2007      Build 05      *
*          Proprietary Program of        *
*          Bentley Systems, Inc.         *
*          Date=   APR 9, 2012          *
*          Time=   8:47:54              *
*
*          USER ID: TranSystems          *
*****
```

1. STAAD SPACE DXF IMPORT OF 002_1441BENT_8.DXF
- INPUT FILE: Bent_8_DL.STD
2. START JOB INFORMATION
3. ENGINEER DATE 03-APR-12
4. JOB NAME CUY-2-1441 MAIN AVE RATING
5. JOB NO P402110046
6. JOB REF BENT 8
7. JOB COMMENT BENT 8 DEAD LOAD
8. ENGINEER NAME MTN
9. JOB CLIENT ODOT
10. JOB PART EAST APPROACH - FORWARD SECTION
11. CHECKER NAME PJP
12. CHECKER DATE 4/9/12
13. END JOB INFORMATION
14. INPUT WIDTH 79
15. UNIT FEET KIP
16. JOINT COORDINATES
17. 1 -12.4375 147.74 0; 2 -6.39583 147.759 0; 3 -4.25701 147.766 0
18. 4 -2.39583 147.772 0; 5 -1.59896 147.775 0; 6 0 147.78 0; 7 4.28475 147.794 0
19. 8 10.1094 147.813 0; 9 15.9635 147.832 0; 10 21.8177 147.851 0
20. 11 27.6719 147.87 0; 12 33.526 147.889 0; 13 39.3594 147.908 0
21. 14 45.1927 147.927 0; 15 51.0469 147.946 0; 16 56.901 147.965 0
22. 17 62.7552 147.984 0; 18 68.6094 148.003 0; 19 73.3802 148.018 0
23. 20 79 148.037 0; 21 0 135.23 0; 22 0 143.509 0; 23 10.1094 117.15 0
24. 24 10.1094 132.879 0; 25 10.1094 138.212 0; 26 39.3594 117.15 0
25. 27 39.3594 126.9 0; 28 39.3594 132.879 0; 29 39.3594 138.212 0
26. 30 68.6094 116.15 0; 31 68.6094 132.879 0; 32 68.6094 138.212 0
27. 33 16.2656 138.212 0; 34 21.8698 138.212 0; 35 27.474 138.212 0
28. 36 33.0781 138.212 0; 37 45.6406 138.212 0; 38 51.2448 138.212 0
29. 39 56.849 138.212 0; 40 62.4531 138.212 0; 41 16.2656 132.879 0
30. 42 21.8698 132.879 0; 43 27.474 132.879 0; 44 33.0781 132.879 0
31. 45 45.6406 132.879 0; 46 51.2448 132.879 0; 47 56.849 132.879 0
32. 48 62.4531 132.879 0
33. MEMBER INCIDENCES
34. 1 1 2; 2 2 3; 3 3 4; 4 4 5; 5 5 6; 6 6 7; 7 7 8; 8 8 9; 9 9 10; 10 10 11
35. 11 11 12; 12 12 13; 13 13 14; 14 14 15; 15 15 16; 16 16 17; 17 17 18; 18 18 19
36. 19 19 20; 20 21 22; 21 22 6; 22 23 24; 23 24 25; 24 25 8; 25 26 27; 26 27 28
37. 27 28 29; 28 29 13; 29 30 31; 30 31 32; 31 32 18; 32 25 33; 33 33 34; 34 34 35
38. 35 35 36; 36 36 29; 37 29 37; 38 37 38; 39 38 39; 40 39 40; 41 40 32; 42 24 41
39. 43 41 42; 44 42 43; 45 43 44; 46 44 28; 47 28 45; 48 45 46; 49 46 47; 50 47 48
40. 51 48 31; 52 41 33; 53 42 34; 54 43 35; 55 44 36; 56 45 37; 57 46 38; 58 47 39

DXF IMPORT OF 002_1441BENT_8.DXF

-- PAGE NO. 2

41. 59 48 40; 60 24 33; 61 33 42; 62 42 35; 63 35 44; 64 44 29; 65 29 45; 66 45 38
42. 67 38 47; 68 47 40; 69 40 31; 70 44 27; 71 27 45
43. DEFINE MATERIAL START
44. ISOTROPIC STEEL
45. E 4.176E+006
46. POISSON 0.3
47. DENSITY 0.489024
48. ALPHA 6E-006
49. DAMP 0.03
50. END DEFINE MATERIAL
51. MEMBER PROPERTY AMERICAN
52. 1 TO 19 TABLE ST W36X170
53. 20 21 TABLE ST W21X68
54. 22 TO 24 29 TO 31 TABLE ST W21X111
55. 25 TO 28 TABLE ST W24X131
56. 32 TO 71 TABLE ST W8X31
57. CONSTANTS
58. BETA 90 MEMB 20 21 32 TO 71
59. MATERIAL STEEL ALL
60. MEMBER TRUSS
61. 32 TO 71
62. SUPPORTS
63. 23 26 30 FIXED
64. 21 PINNED
65. MEMBER RELEASE
66. 21 END MY
67. LOAD 1 LOADTYPE DEAD TITLE LOAD CASE 1
68. SELFWEIGHT Y -1.05 LIST 1 TO 71
69. JOINT LOAD
70. *F1-6Z
71. 20 FY -24.81
72. *S1-6Z
73. 19 FY -22.47
74. *S2-6Z
75. 18 FY -22.82
76. *S3-67 TO S6-67 AND S8-67 TO S13-6Z
77. 7 TO 12 14 TO 17 FY -24.4
78. *S7-6Z
79. 13 FY -24.36
80. *S14-6Z
81. 5 FY -22.49
82. *S15-7
83. 4 FY -10.1
84. *S15-6 _S16-7
85. 2 FY -19.17
86. *F2-6Z
87. 1 FY -22
88. PDELTA 10 ANALYSIS

P R O B L E M S T A T I S T I C S

NUMBER OF JOINTS/MEMBER+ELEMENTS/SUPPORTS = 48/ 71/ 4

SOLVER USED IS THE OUT-OF-CORE BASIC SOLVER

ORIGINAL/FINAL BAND-WIDTH= 18/ 5/ 36 DOF
TOTAL PRIMARY LOAD CASES = 1, TOTAL DEGREES OF FREEDOM = 267
SIZE OF STIFFNESS MATRIX = 10 DOUBLE KILO-WORDS
REQRD/AVAIL. DISK SPACE = 12.2/ 514288.9 MB

ZERO STIFFNESS IN DIRECTION 3 AT JOINT 33 EQN.NO. 84
LOADS APPLIED OR DISTRIBUTED HERE FROM ELEMENTS WILL BE IGNORED.
THIS MAY BE DUE TO ALL MEMBERS AT THIS JOINT BEING RELEASED OR
EFFECTIVELY RELEASED IN THIS DIRECTION.

ZERO STIFFNESS IN DIRECTION 4 AT JOINT	33 EQN.NO.	85
ZERO STIFFNESS IN DIRECTION 5 AT JOINT	33 EQN.NO.	86
ZERO STIFFNESS IN DIRECTION 6 AT JOINT	33 EQN.NO.	87
ZERO STIFFNESS IN DIRECTION 3 AT JOINT	41 EQN.NO.	96
ZERO STIFFNESS IN DIRECTION 4 AT JOINT	41 EQN.NO.	97
ZERO STIFFNESS IN DIRECTION 5 AT JOINT	41 EQN.NO.	98
ZERO STIFFNESS IN DIRECTION 6 AT JOINT	41 EQN.NO.	99
ZERO STIFFNESS IN DIRECTION 3 AT JOINT	34 EQN.NO.	102
ZERO STIFFNESS IN DIRECTION 4 AT JOINT	34 EQN.NO.	103
ZERO STIFFNESS IN DIRECTION 5 AT JOINT	34 EQN.NO.	104
ZERO STIFFNESS IN DIRECTION 6 AT JOINT	34 EQN.NO.	105

****WARNING - THERE WERE MORE THAN 12 DOF WITH ZERO STIFFNESS.**

THE FIRST 12 ARE LISTED ABOVE.

TOTAL # TRANSLATIONAL= 16 TOTAL # ROTATIONAL= 48

++ Adjusting Displacements	8:47:54
++ Adjusting Displacements	8:47:54
++ Adjusting Displacements	8:47:54
++ Adjusting Displacements	8:47:54
++ Adjusting Displacements	8:47:54
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++ Adjusting Displacements	8:47:54
++ Adjusting Displacements	8:47:54
++ Adjusting Displacements	8:47:54
++ Adjusting Displacements	8:47:54

89. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 1 TO 19

MEMBER FORCE ENVELOPE

 ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
1 MAX	-22.00	0.00	1	136.17	6.04	1			
	0.00	0.00	1	0.00	0.00	1	0.07 T	0.00	1
MIN	-23.08	6.04	1	0.00	0.00	1			
	0.00	6.04	1	0.00	6.04	1	0.07 T	6.04	1
2 MAX	-42.25	0.00	1	226.94	2.14	1			
	0.00	0.00	1	0.00	0.00	1	0.14 T	0.00	1
MIN	-42.63	2.14	1	136.17	0.00	1			
	0.00	2.14	1	0.00	2.14	1	0.14 T	2.14	1
3 MAX	-42.63	0.00	1	306.58	1.86	1			
	0.00	0.00	1	0.00	0.00	1	0.14 T	0.00	1
MIN	-42.96	1.86	1	226.94	0.00	1			
	0.00	1.86	1	0.00	1.86	1	0.14 T	1.86	1
4 MAX	-53.06	0.00	1	348.92	0.80	1			
	0.00	0.00	1	0.00	0.00	1	0.20 T	0.00	1
MIN	-53.20	0.80	1	306.58	0.00	1			
	0.00	0.80	1	0.00	0.80	1	0.20 T	0.80	1
5 MAX	-75.69	0.00	1	470.18	1.60	1			
	0.00	0.00	1	0.00	0.00	1	0.24 T	0.00	1
MIN	-75.98	1.60	1	348.92	0.00	1			
	0.00	1.60	1	0.00	1.60	1	0.24 T	1.60	1
6 MAX	43.73	0.00	1	470.18	0.00	1			
	0.00	0.00	1	0.00	0.00	1	0.16 C	0.00	1
MIN	42.96	4.28	1	284.46	4.28	1			
	0.00	4.28	1	0.00	4.28	1	0.16 C	4.28	1
7 MAX	18.56	0.00	1	284.46	0.00	1			
	0.00	0.00	1	0.00	0.00	1	0.08 C	0.00	1
MIN	17.52	5.82	1	179.37	5.82	1			
	0.00	5.82	1	0.00	5.82	1	0.07 C	5.82	1
8 MAX	47.89	0.00	1	215.33	0.00	1			
	0.00	0.00	1	0.00	0.00	1	3.42 C	0.00	1
MIN	46.84	5.85	1	-61.96	5.85	1			
	0.00	5.85	1	0.00	5.85	1	3.42 C	5.85	1
9 MAX	22.44	0.00	1	-61.96	0.00	1			
	0.00	0.00	1	0.00	0.00	1	3.34 C	0.00	1

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-- PAGE NO. 5

MIN	21.40	5.85	1	-190.29	5.85	1			
	0.00	5.85	1	0.00	5.85	1	3.34 C	5.85	1
10 MAX	-3.00	0.00	1	-169.66	5.85	1			
	0.00	0.00	1	0.00	0.00	1	3.26 C	0.00	1
MIN	-4.05	5.85	1	-190.29	0.00	1			
	0.00	5.85	1	0.00	5.85	1	3.26 C	5.85	1
11 MAX	-28.45	0.00	1	-0.07	5.85	1			
	0.00	0.00	1	0.00	0.00	1	3.18 C	0.00	1
MIN	-29.49	5.85	1	-169.66	0.00	1			
	0.00	5.85	1	0.00	5.85	1	3.17 C	5.85	1
12 MAX	-53.89	0.00	1	317.33	5.83	1			
	0.00	0.00	1	0.00	0.00	1	3.09 C	0.00	1
MIN	-54.93	5.83	1	-0.07	0.00	1			
	0.00	5.83	1	0.00	5.83	1	3.09 C	5.83	1
13 MAX	49.02	0.00	1	283.87	0.00	1			
	0.00	0.00	1	0.00	0.00	1	1.30 T	0.00	1
MIN	47.98	5.83	1	0.97	5.83	1			
	0.00	5.83	1	0.00	5.83	1	1.30 T	5.83	1
14 MAX	23.58	0.00	1	0.97	0.00	1			
	0.00	0.00	1	0.00	0.00	1	1.38 T	0.00	1
MIN	22.53	5.85	1	-133.99	5.85	1			
	0.00	5.85	1	0.00	5.85	1	1.39 T	5.85	1
15 MAX	-1.87	0.00	1	-120.00	5.85	1			
	0.00	0.00	1	0.00	0.00	1	1.47 T	0.00	1
MIN	-2.91	5.85	1	-133.99	0.00	1			
	0.00	5.85	1	0.00	5.85	1	1.47 T	5.85	1
16 MAX	-27.31	0.00	1	42.93	5.85	1			
	0.00	0.00	1	0.00	0.00	1	1.55 T	0.00	1
MIN	-28.35	5.85	1	-120.00	0.00	1			
	0.00	5.85	1	0.00	5.85	1	1.55 T	5.85	1
17 MAX	-52.75	0.00	1	354.82	5.85	1			
	0.00	0.00	1	0.00	0.00	1	1.63 T	0.00	1
MIN	-53.80	5.85	1	42.93	0.00	1			
	0.00	5.85	1	0.00	5.85	1	1.63 T	5.85	1
18 MAX	49.13	0.00	1	374.62	0.00	1			
	0.00	0.00	1	0.00	0.00	1	0.15 C	0.00	1
MIN	48.28	4.77	1	142.24	4.77	1			
	0.00	4.77	1	0.00	4.77	1	0.15 C	4.77	1
19 MAX	25.81	0.00	1	142.24	0.00	1			
	0.00	0.00	1	0.00	0.00	1	0.09 C	0.00	1
MIN	24.81	5.62	1	0.00	5.62	1			
	0.00	5.62	1	0.00	5.62	1	0.08 C	5.62	1

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

90. *FLOOR BEAM DEAD LOAD ABOVE

91. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 20 21

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
20 MAX	0.00	0.00	1	0.00	0.00	1			
	0.00	0.00	1	0.00	0.00	1	120.60 C	0.00	1
MIN	0.00	8.28	1	0.00	8.28	1			
	0.00	8.28	1	0.00	8.28	1	120.01 C	8.28	1
21 MAX	0.00	0.00	1	0.00	0.00	1			
	0.00	0.00	1	0.00	4.27	1	120.01 C	0.00	1
MIN	0.00	4.27	1	0.00	4.27	1			
	0.00	4.27	1	0.00	0.00	1	119.70 C	4.27	1

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

92. *COLUMN 4 DEAD LOAD ABOVE

93. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 22 TO 24

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
22 MAX	-0.09	0.00	1	1.25	15.73	1			
	0.00	0.00	1	0.00	0.00	1	59.19 C	0.00	1
MIN	-0.09	15.73	1	-0.22	0.00	1			
	0.00	15.73	1	0.00	15.73	1	57.35 C	15.73	1
23 MAX	-0.67	0.00	1	4.80	5.33	1			
	0.00	0.00	1	0.00	0.00	1	56.61 C	0.00	1
MIN	-0.67	5.33	1	1.25	0.00	1			
	0.00	5.33	1	0.00	5.33	1	55.99 C	5.33	1
24 MAX	-3.24	0.00	1	35.95	9.60	1			
	0.00	0.00	1	0.00	0.00	1	55.89 C	0.00	1
MIN	-3.24	9.60	1	4.80	0.00	1			
	0.00	9.60	1	0.00	9.60	1	54.77 C	9.60	1

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

94. *COLUMN 3 DEAD LOAD ABOVE

95. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 25 TO 28

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
25 MAX	-0.28	0.00	1	3.35	9.75	1			
	0.00	0.00	1	0.00	0.00	1	138.50 C	0.00	1
MIN	-0.28	9.75	1	0.61	0.00	1			
	0.00	9.75	1	0.00	9.75	1	137.17 C	9.75	1
26 MAX	0.15	0.00	1	3.35	0.00	1			
	0.00	0.00	1	0.00	0.00	1	123.84 C	0.00	1
MIN	0.15	5.98	1	2.47	5.98	1			
	0.00	5.98	1	0.00	5.98	1	123.02 C	5.98	1
27 MAX	-1.88	0.00	1	12.52	5.33	1			
	0.00	0.00	1	0.00	0.00	1	122.82 C	0.00	1
MIN	-1.88	5.33	1	2.47	0.00	1			
	0.00	5.33	1	0.00	5.33	1	122.08 C	5.33	1
28 MAX	4.74	0.00	1	12.52	0.00	1			
	0.00	0.00	1	0.00	0.00	1	129.62 C	0.00	1
MIN	4.74	9.70	1	-33.46	9.70	1			
	0.00	9.70	1	0.00	9.70	1	128.29 C	9.70	1

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

96. *COLUMN 2 DEAD LOAD ABOVE

97. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 29 TO 31

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
29 MAX	0.39	0.00	1	3.86	0.00	1			
	0.00	0.00	1	0.00	0.00	1	130.98 C	0.00	1
MIN	0.39	16.73	1	-2.75	16.73	1			
	0.00	16.73	1	0.00	16.73	1	129.03 C	16.73	1
30 MAX	-1.57	0.00	1	5.65	5.33	1			
	0.00	0.00	1	0.00	0.00	1	127.62 C	0.00	1
MIN	-1.57	5.33	1	-2.75	0.00	1			
	0.00	5.33	1	0.00	5.33	1	127.00 C	5.33	1
31 MAX	-1.44	0.00	1	19.80	9.79	1			
	0.00	0.00	1	0.00	0.00	1	126.90 C	0.00	1
MIN	-1.44	9.79	1	5.65	0.00	1			
	0.00	9.79	1	0.00	9.79	1	125.76 C	9.79	1

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

98. *COLUMN 1 DEAD LOAD ABOVE

99. FINISH

***** END OF THE STAAD.Pro RUN *****

**** DATE= APR 9,2012 TIME= 8:47:54 ****

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*****
*           For questions on STAAD.Pro, please contact           *
*   Bentley Systems Offices at the following locations           *
*                                                                 *
*           Telephone                Web / Email                *
*                                                                 *
*   USA:          +1 (714)974-2500                               *
*   CANADA        +1 (905)632-4771      detech@odandetech.com    *
*   UK            +44(1454)207-000                                           *
*   SINGAPORE     +65 6225-6158                                           *
*   EUROPE        +31 23 5560560                                           *
*   INDIA         +91(033)4006-2021                                           *
*   JAPAN         +81(03)5952-6500      http://www.ctc-g.co.jp    *
*   CHINA         +86 10 5929 7000                                           *
*   THAILAND      +66(0)2645-1018/19 partha.p@reissoftwareth.com *
*                                                                 *
*   Worldwide     http://selectservices.bentley.com/en-US/        *
*                                                                 *
*****
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*****
*
*          STAAD.Pro          *
*          Version 2007      Build 05      *
*          Proprietary Program of        *
*          Bentley Systems, Inc.         *
*          Date=    APR 9, 2012         *
*          Time=    10: 4: 0            *
*
*          USER ID: TranSystems        *
*****

```

1. STAAD SPACE DXF IMPORT OF 002_1441BENT_8.DXF
INPUT FILE: Bent_8_LL.STD

2. START JOB INFORMATION
3. ENGINEER DATE 03-APR-12
4. JOB NAME CUY-2-1441 MAIN AVE RATING
5. JOB NO P402110046
6. JOB REF BENT 8
7. JOB COMMENT BENT 8 LIVE LOAD
8. ENGINEER NAME MTN
9. JOB CLIENT ODOT
10. JOB PART EAST APPROACH FORWARD SECTION
11. CHECKER NAME PJP
12. CHECKER DATE 4/9/12
13. END JOB INFORMATION
14. INPUT WIDTH 79
15. UNIT FEET KIP
16. JOINT COORDINATES
17. 1 -12.4375 147.74 0; 2 -6.39583 147.759 0; 3 -4.25701 147.766 0
18. 4 -2.39583 147.772 0; 5 -1.59896 147.775 0; 6 0 147.78 0; 7 4.28475 147.794 0
19. 8 10.1094 147.813 0; 9 15.9635 147.832 0; 10 21.8177 147.851 0
20. 11 27.6719 147.87 0; 12 33.526 147.889 0; 13 39.3594 147.908 0
21. 14 45.1927 147.927 0; 15 51.0469 147.946 0; 16 56.901 147.965 0
22. 17 62.7552 147.984 0; 18 68.6094 148.003 0; 19 73.3802 148.018 0
23. 20 79 148.037 0; 21 0 135.23 0; 22 0 143.509 0; 23 10.1094 117.15 0
24. 24 10.1094 132.879 0; 25 10.1094 138.212 0; 26 39.3594 117.15 0
25. 27 39.3594 126.9 0; 28 39.3594 132.879 0; 29 39.3594 138.212 0
26. 30 68.6094 116.15 0; 31 68.6094 132.879 0; 32 68.6094 138.212 0
27. 33 16.2656 138.212 0; 34 21.8698 138.212 0; 35 27.474 138.212 0
28. 36 33.0781 138.212 0; 37 45.6406 138.212 0; 38 51.2448 138.212 0
29. 39 56.849 138.212 0; 40 62.4531 138.212 0; 41 16.2656 132.879 0
30. 42 21.8698 132.879 0; 43 27.474 132.879 0; 44 33.0781 132.879 0
31. 45 45.6406 132.879 0; 46 51.2448 132.879 0; 47 56.849 132.879 0
32. 48 62.4531 132.879 0
33. MEMBER INCIDENCES
34. 1 1 2; 2 2 3; 3 3 4; 4 4 5; 5 5 6; 6 6 7; 7 7 8; 8 8 9; 9 9 10; 10 10 11
35. 11 11 12; 12 12 13; 13 13 14; 14 14 15; 15 15 16; 16 16 17; 17 17 18; 18 18 19
36. 19 19 20; 20 21 22; 21 22 6; 22 23 24; 23 24 25; 24 25 8; 25 26 27; 26 27 28
37. 27 28 29; 28 29 13; 29 30 31; 30 31 32; 31 32 18; 32 25 33; 33 33 34; 34 34 35
38. 35 35 36; 36 36 29; 37 29 37; 38 37 38; 39 38 39; 40 39 40; 41 40 32; 42 24 41
39. 43 41 42; 44 42 43; 45 43 44; 46 44 28; 47 28 45; 48 45 46; 49 46 47; 50 47 48
40. 51 48 31; 52 41 33; 53 42 34; 54 43 35; 55 44 36; 56 45 37; 57 46 38; 58 47 39

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-- PAGE NO. 2

41. 59 48 40; 60 24 33; 61 33 42; 62 42 35; 63 35 44; 64 44 29; 65 29 45; 66 45 38
42. 67 38 47; 68 47 40; 69 40 31; 70 44 27; 71 27 45; 72 22 3; 73 22 7
43. DEFINE MATERIAL START
44. ISOTROPIC STEEL
45. E 4.176E+006
46. POISSON 0.3
47. DENSITY 0.489024
48. ALPHA 6E-006
49. DAMP 0.03
50. END DEFINE MATERIAL
51. MEMBER PROPERTY AMERICAN
52. 1 TO 19 TABLE ST W36X170
53. 20 21 TABLE ST W21X68
54. 22 TO 24 29 TO 31 TABLE ST W21X111
55. 25 TO 28 TABLE ST W24X131
56. 32 TO 71 TABLE ST W8X31
57. 72 73 TABLE ST W8X35
58. CONSTANTS
59. BETA 90 MEMB 20 21 32 TO 71
60. MATERIAL STEEL ALL
61. MEMBER TRUSS
62. 32 TO 71
63. SUPPORTS
64. 23 26 30 FIXED
65. 21 PINNED
66. DEFINE MOVING LOAD
67. TYPE 1 LOAD 24.7 24.7
68. DIST 6
69. LOAD 1 LOADTYPE LIVE TITLE AXIAL ON COLUMN C4 (5 LANE)
70. MEMBER LOAD
71. 1 CON GY -28 1.6839 0
72. 2 CON GY -28 1.6422 0
73. 6 CON GY -28 1.2464 0
74. 7 CON GY -28 2.9616 0
75. 13 CON GY -28 0.625 0
76. 14 CON GY -28 0.7917 0
77. 14 CON GY -28 5.7917 0
78. 16 CON GY -28 0.0833 0
79. 16 CON GY -28 5.0833 0
80. 17 CON GY -28 5.2292 0
81. LOAD 2 LOADTYPE LIVE TITLE AXIAL ON COLUMN C4 (3 LANE)
82. MEMBER LOAD
83. 1 CON GY -33.6 1.6839 0
84. 2 CON GY -33.6 1.6422 0
85. 6 CON GY -33.6 1.2464 0
86. 7 CON GY -33.6 2.9616 0
87. 14 CON GY -33.6 5.7917 0
88. 16 CON GY -33.6 0.0833 0
89. LOAD 3 LOADTYPE LIVE TITLE AXIAL ON COLUMN C4 (2 LANE)
90. MEMBER LOAD
91. 1 CON GY -37.3 1.6839 0
92. 2 CON GY -37.3 1.6422 0
93. 6 CON GY -37.3 1.2464 0
94. 7 CON GY -37.3 2.9616 0
95. LOAD 4 LOADTYPE LIVE TITLE NEG. MOMENT IN FB OVER C4 (5 LANE)
96. MEMBER LOAD

97. 1 CON GY -28 1.6839 0
98. 2 CON GY -28 1.6422 0
99. 6 CON GY -28 2.0547 0
100. 7 CON GY -28 3.7699 0
101. 13 CON GY -28 0.625 0
102. 14 CON GY -28 0.7917 0
103. 14 CON GY -28 5.7917 0
104. 16 CON GY -28 0.0833 0
105. 16 CON GY -28 5.0833 0
106. 17 CON GY -28 5.2292 0
107. LOAD 5 LOADTYPE LIVE TITLE NEG. MOMENT IN FB OVER C4 (4 LANE)
108. MEMBER LOAD
109. 1 CON GY -28 1.6839 0
110. 2 CON GY -28 1.6422 0
111. 6 CON GY -28 2.0547 0
112. 7 CON GY -28 3.7699 0
113. 14 CON GY -28 0.7917 0
114. 15 CON GY -28 0.9375 0
115. 15 CON GY -28 4.9375 0
116. 16 CON GY -28 5.0833 0
117. LOAD 6 LOADTYPE LIVE TITLE NEG. MOMENT IN FB OVER C4 (3 LANE)
118. MEMBER LOAD
119. 1 CON GY -33.6 1.6839 0
120. 2 CON GY -33.6 1.6422 0
121. 6 CON GY -33.6 2.0547 0
122. 7 CON GY -33.6 3.7699 0
123. 14 CON GY -33.6 5.7917 0
124. 16 CON GY -33.6 0.0833 0
125. LOAD 7 LOADTYPE LIVE TITLE NEG. MOMENT IN FB OVER C4 (2 LANE)
126. MEMBER LOAD
127. 1 CON GY -37.3 1.6839 0
128. 2 CON GY -37.3 1.6422 0
129. 6 CON GY -37.3 2.0547 0
130. 7 CON GY -37.3 3.7699 0
131. LOAD 8 LOADTYPE LIVE TITLE POS. MOMENT IN FB BTWN C4-C3, C2-C1 (4 LANE)
132. MEMBER LOAD
133. 6 CON GY -28 2.0547 0
134. 7 CON GY -28 3.7699 0
135. 13 CON GY -28 0.625 0
136. 14 CON GY -28 0.7917 0
137. 14 CON GY -28 5.7917 0
138. 16 CON GY -28 0.0833 0
139. 16 CON GY -28 5.0833 0
140. 17 CON GY -28 5.2292 0
141. LOAD 9 LOADTYPE LIVE TITLE POS. MOMENT IN FB BTWN C4-C3, C2-C1 (3 LANE-1)
142. MEMBER LOAD
143. 6 CON GY -33.6 2.0547 0
144. 7 CON GY -33.6 3.7699 0
145. 14 CON GY -33.6 0.7917 0
146. 15 CON GY -33.6 0.9375 0
147. 15 CON GY -33.6 4.9375 0
148. 16 CON GY -33.6 5.0833 0
149. LOAD 10 LOADTYPE LIVE TITLE POS. MOMENT IN FB BTWN C4-C3, C2-C1 (3 LANE-2)
150. MEMBER LOAD
151. 13 CON GY -33.6 0.625 0
152. 14 CON GY -33.6 0.7917 0

153. 14 CON GY -33.6 5.7917 0
154. 16 CON GY -33.6 0.0833 0
155. 16 CON GY -33.6 5.0833 0
156. 17 CON GY -33.6 5.2292 0
157. LOAD 11 LOADTYPE LIVE TITLE POS. MOMENT IN FB BTWN C4-C3, C2-C1 (2 LANE-1)
158. MEMBER LOAD
159. 6 CON GY -37.3 2.0547 0
160. 7 CON GY -37.3 3.7699 0
161. 14 CON GY -37.3 5.7917 0
162. 16 CON GY -37.3 0.0833 0
163. LOAD 12 LOADTYPE LIVE TITLE POS. MOMENT IN FB BTWN C4-C3, C2-C1 (2 LANE-2)
164. MEMBER LOAD
165. 14 CON GY -37.3 0.7917 0
166. 15 CON GY -37.3 0.9375 0
167. 15 CON GY -37.3 4.9375 0
168. 16 CON GY -37.3 5.0833 0
169. LOAD 13 LOADTYPE LIVE TITLE MAX AXIAL ON COLUMN C3 (3 LANE)
170. MEMBER LOAD
171. 6 CON GY -33.6 1.3784 0
172. 7 CON GY -33.6 3.0936 0
173. 8 CON GY -33.6 1.269 0
174. 9 CON GY -33.6 1.4148 0
175. 10 CON GY -33.6 1.5607 0
176. 11 CON GY -33.6 1.7065 0
177. LOAD 14 LOADTYPE LIVE TITLE MAX AXIAL ON COLUMN C3 (2 LANE)
178. MEMBER LOAD
179. 6 CON GY -37.3 4.1094 0
180. 7 CON GY -37.3 5.8246 0
181. 8 CON GY -37.3 4 0
182. 9 CON GY -37.3 4.1458 0
183. LOAD 15 LOADTYPE LIVE TITLE POS. MOMENT IN FB BETWEEN C3 _C2 (4 LANE)
184. MEMBER LOAD
185. 1 CON GY -28 1.6839 0
186. 2 CON GY -28 1.6422 0
187. 8 CON GY -28 3.269 0
188. 9 CON GY -28 3.4148 0
189. 10 CON GY -28 2.9167 0
190. 11 CON GY -28 3.0625 0
191. 18 CON GY -28 2.7708 0
192. 19 CON GY -28 4 0
193. LOAD 16 LOADTYPE LIVE TITLE POS. MOMENT IN FB BETWEEN C3 _C2 (3 LANE)
194. MEMBER LOAD
195. 1 CON GY -33.6 1.6839 0
196. 2 CON GY -33.6 1.6422 0
197. 8 CON GY -33.6 3.269 0
198. 9 CON GY -33.6 3.4148 0
199. 10 CON GY -33.6 2.9167 0
200. 11 CON GY -33.6 3.0625 0
201. LOAD 17 LOADTYPE LIVE TITLE POS. MOMENT IN FB BETWEEN C3 _C2 (2 LANE)
202. MEMBER LOAD
203. 8 CON GY -37.3 3.269 0
204. 9 CON GY -37.3 3.4148 0
205. 10 CON GY -37.3 2.9167 0
206. 11 CON GY -37.3 3.0625 0
207. LOAD 18 LOADTYPE LIVE TITLE MAX AXIAL ON COLUMN C3 (6 LANE)
208. MEMBER LOAD

209. 1 CON GY -28 1.6839 0
210. 2 CON GY -28 1.6422 0
211. 8 CON GY -28 3.269 0
212. 9 CON GY -28 3.4148 0
213. 10 CON GY -28 3.5607 0
214. 11 CON GY -28 3.7065 0
215. 12 CON GY -28 4.1111 0
216. 13 CON GY -28 4.2777 0
217. 14 CON GY -28 4.4444 0
218. 15 CON GY -28 4.5902 0
219. 16 CON GY -28 4.7361 0
220. 17 CON GY -28 4.8819 0
221. LOAD 19 LOADTYPE LIVE TITLE MAX AXIAL ON COLUMN C3 (3 LANE)
222. MEMBER LOAD
223. 10 CON GY -33.6 3.5607 0
224. 11 CON GY -33.6 3.7065 0
225. 12 CON GY -33.6 4.1111 0
226. 13 CON GY -33.6 4.2777 0
227. 14 CON GY -33.6 4.4444 0
228. 15 CON GY -33.6 4.5902 0
229. LOAD 20 LOADTYPE LIVE TITLE MAX AXIAL ON COLUMN C3 (2 LANE)
230. MEMBER LOAD
231. 10 CON GY -37.3 3.5607 0
232. 11 CON GY -37.3 3.7065 0
233. 12 CON GY -37.3 4.1111 0
234. 13 CON GY -37.3 4.2777 0
235. LOAD 21 LOADTYPE LIVE TITLE NEG. MOMENT IN FB OVER C2 (6 LANE)
236. MEMBER LOAD
237. 1 CON GY -28 1.6839 0
238. 2 CON GY -28 1.6422 0
239. 8 CON GY -28 3.269 0
240. 9 CON GY -28 3.4148 0
241. 10 CON GY -28 2.9167 0
242. 11 CON GY -28 3.0625 0
243. 13 CON GY -28 0.625 0
244. 14 CON GY -28 0.7917 0
245. 14 CON GY -28 5.7917 0
246. 16 CON GY -28 0.0833 0
247. 16 CON GY -28 5.0833 0
248. 17 CON GY -28 5.2292 0
249. LOAD 22 LOADTYPE LIVE TITLE NEG. MOMENT IN FB OVER C2 (3 LANE)
250. MEMBER LOAD
251. 9 CON GY -33.6 5.7708 0
252. 11 CON GY -33.6 0.0625 0
253. 14 CON GY -33.6 0.7917 0
254. 15 CON GY -33.6 0.9375 0
255. 15 CON GY -33.6 4.9375 0
256. 16 CON GY -33.6 5.0833 0
257. LOAD 23 LOADTYPE LIVE TITLE NEG. MOMENT IN FB OVER C2 (2 LANE)
258. MEMBER LOAD
259. 9 CON GY -37.3 5.7708 0
260. 11 CON GY -37.3 0.0625 0
261. 14 CON GY -37.3 5.7917 0
262. 16 CON GY -37.3 0.0833 0
263. LOAD 24 LOADTYPE LIVE TITLE MAX AXIAL ON COLUMN C1 (4 LANE)
264. MEMBER LOAD

265. 6 CON GY -28 2.0547 0
266. 7 CON GY -28 3.7699 0
267. 14 CON GY -28 2.1875 0
268. 15 CON GY -28 2.3333 0
269. 16 CON GY -28 2.4792 0
270. 17 CON GY -28 2.625 0
271. 18 CON GY -28 2.7708 0
272. 19 CON GY -28 4 0
273. LOAD 25 LOADTYPE LIVE TITLE MAX AXIAL ON COLUMN C1 (3 LANE)
274. MEMBER LOAD
275. 14 CON GY -33.6 2.1875 0
276. 15 CON GY -33.6 2.3333 0
277. 16 CON GY -33.6 2.4792 0
278. 17 CON GY -33.6 2.625 0
279. 18 CON GY -33.6 2.7708 0
280. 19 CON GY -33.6 4 0
281. LOAD 26 LOADTYPE LIVE TITLE MAX AXIAL ON COLUMN C1 (2 LANE)
282. MEMBER LOAD
283. 16 CON GY -37.3 2.4792 0
284. 17 CON GY -37.3 2.625 0
285. 18 CON GY -37.3 2.7708 0
286. 19 CON GY -37.3 4 0
287. LOAD 27 LOADTYPE LIVE TITLE NEG. MOMENT IN FB OVER C1 (4 LANE)
288. MEMBER LOAD
289. 6 CON GY -28 2.0547 0
290. 7 CON GY -28 3.7699 0
291. 14 CON GY -28 0.7917 0
292. 15 CON GY -28 0.9375 0
293. 15 CON GY -28 4.9375 0
294. 16 CON GY -28 5.0833 0
295. 18 CON GY -28 2.7708 0
296. 19 CON GY -28 4 0
297. LOAD 28 LOADTYPE LIVE TITLE NEG. MOMENT IN FB OVER C1 (3 LANE)
298. MEMBER LOAD
299. 14 CON GY -33.6 0.7917 0
300. 15 CON GY -33.6 0.9375 0
301. 15 CON GY -33.6 4.9375 0
302. 16 CON GY -33.6 5.0833 0
303. 18 CON GY -33.6 2.7708 0
304. 19 CON GY -33.6 4 0
305. LOAD 29 LOADTYPE LIVE TITLE NEG. MOMENT IN FB OVER C1 (2 LANE)
306. MEMBER LOAD
307. 14 CON GY -37.3 5.7917 0
308. 16 CON GY -37.3 0.0833 0
309. 18 CON GY -37.3 2.7708 0
310. 19 CON GY -37.3 4 0
311. LOAD 30 LOADTYPE LIVE TITLE ALL LANES LOADED - CENTER (6 LANE)
312. MEMBER LOAD
313. 6 CON GY -28 1.3784 0
314. 7 CON GY -28 3.0936 0
315. 8 CON GY -28 3.269 0
316. 9 CON GY -28 3.4148 0
317. 10 CON GY -28 3.5607 0
318. 11 CON GY -28 3.7065 0
319. 12 CON GY -28 4.1111 0
320. 13 CON GY -28 4.2777 0

321. 14 CON GY -28 4.4444 0
322. 15 CON GY -28 4.5902 0
323. 16 CON GY -28 4.7361 0
324. 17 CON GY -28 4.8819 0
325. LOAD 31 LOADTYPE LIVE TITLE ALL LANES LOADED - OUTSIDE (6 LANE)
326. MEMBER LOAD
327. 1 CON GY -28 1.6839 0
328. 2 CON GY -28 1.6422 0
329. 6 CON GY -28 1.2464 0
330. 7 CON GY -28 2.9616 0
331. 8 CON GY -28 3.137 0
332. 9 CON GY -28 3.2829 0
333. 14 CON GY -28 2.1875 0
334. 15 CON GY -28 2.3333 0
335. 16 CON GY -28 2.4792 0
336. 17 CON GY -28 2.625 0
337. 18 CON GY -28 2.7708 0
338. 19 CON GY -28 4 0
339. LOAD 32 LOADTYPE LIVE TITLE 2F1 LOADING NO CENTRIFUGAL
340. REPEAT LOAD
341. 1 0.479261
342. LOAD 33 LOADTYPE LIVE TITLE 2F1 LOADING NO CENTRIFUGAL
343. REPEAT LOAD
344. 2 0.479261
345. LOAD 34 LOADTYPE LIVE TITLE 2F1 LOADING NO CENTRIFUGAL
346. REPEAT LOAD
347. 3 0.479261
348. LOAD 35 LOADTYPE LIVE TITLE 2F1 LOADING NO CENTRIFUGAL
349. REPEAT LOAD
350. 4 0.479261
351. LOAD 36 LOADTYPE LIVE TITLE 2F1 LOADING NO CENTRIFUGAL
352. REPEAT LOAD
353. 5 0.479261
354. LOAD 37 LOADTYPE LIVE TITLE 2F1 LOADING NO CENTRIFUGAL
355. REPEAT LOAD
356. 6 0.479261
357. LOAD 38 LOADTYPE LIVE TITLE 2F1 LOADING NO CENTRIFUGAL
358. REPEAT LOAD
359. 7 0.479261
360. LOAD 39 LOADTYPE LIVE TITLE 2F1 LOADING NO CENTRIFUGAL
361. REPEAT LOAD
362. 8 0.479261
363. LOAD 40 LOADTYPE LIVE TITLE 2F1 LOADING NO CENTRIFUGAL
364. REPEAT LOAD
365. 9 0.479261
366. LOAD 41 LOADTYPE LIVE TITLE 2F1 LOADING NO CENTRIFUGAL
367. REPEAT LOAD
368. 10 0.479261
369. LOAD 42 LOADTYPE LIVE TITLE 2F1 LOADING NO CENTRIFUGAL
370. REPEAT LOAD
371. 11 0.479261
372. LOAD 43 LOADTYPE LIVE TITLE 2F1 LOADING NO CENTRIFUGAL
373. REPEAT LOAD
374. 12 0.479261
375. LOAD 44 LOADTYPE LIVE TITLE 2F1 LOADING NO CENTRIFUGAL
376. REPEAT LOAD

377. 13 0.479261
378. LOAD 45 LOADTYPE LIVE TITLE 2F1 LOADING NO CENTRIFUGAL
379. REPEAT LOAD
380. 14 0.479261
381. LOAD 46 LOADTYPE LIVE TITLE 2F1 LOADING NO CENTRIFUGAL
382. REPEAT LOAD
383. 15 0.479261
384. LOAD 47 LOADTYPE LIVE TITLE 2F1 LOADING NO CENTRIFUGAL
385. REPEAT LOAD
386. 16 0.479261
387. LOAD 48 LOADTYPE LIVE TITLE 2F1 LOADING NO CENTRIFUGAL
388. REPEAT LOAD
389. 17 0.479261
390. LOAD 49 LOADTYPE LIVE TITLE 2F1 LOADING NO CENTRIFUGAL
391. REPEAT LOAD
392. 18 0.479261
393. LOAD 50 LOADTYPE LIVE TITLE 2F1 LOADING NO CENTRIFUGAL
394. REPEAT LOAD
395. 19 0.479261
396. LOAD 51 LOADTYPE LIVE TITLE 2F1 LOADING NO CENTRIFUGAL
397. REPEAT LOAD
398. 20 0.479261
399. LOAD 52 LOADTYPE LIVE TITLE 2F1 LOADING NO CENTRIFUGAL
400. REPEAT LOAD
401. 21 0.479261
402. LOAD 53 LOADTYPE LIVE TITLE 2F1 LOADING NO CENTRIFUGAL
403. REPEAT LOAD
404. 22 0.479261
405. LOAD 54 LOADTYPE LIVE TITLE 2F1 LOADING NO CENTRIFUGAL
406. REPEAT LOAD
407. 23 0.479261
408. LOAD 55 LOADTYPE LIVE TITLE 2F1 LOADING NO CENTRIFUGAL
409. REPEAT LOAD
410. 24 0.479261
411. LOAD 56 LOADTYPE LIVE TITLE 2F1 LOADING NO CENTRIFUGAL
412. REPEAT LOAD
413. 25 0.479261
414. LOAD 57 LOADTYPE LIVE TITLE 2F1 LOADING NO CENTRIFUGAL
415. REPEAT LOAD
416. 26 0.479261
417. LOAD 58 LOADTYPE LIVE TITLE 2F1 LOADING NO CENTRIFUGAL
418. REPEAT LOAD
419. 27 0.479261
420. LOAD 59 LOADTYPE LIVE TITLE 2F1 LOADING NO CENTRIFUGAL
421. REPEAT LOAD
422. 28 0.479261
423. LOAD 60 LOADTYPE LIVE TITLE 2F1 LOADING NO CENTRIFUGAL
424. REPEAT LOAD
425. 29 0.479261
426. LOAD 61 LOADTYPE LIVE TITLE 2F1 LOADING NO CENTRIFUGAL
427. REPEAT LOAD
428. 30 0.479261
429. LOAD 62 LOADTYPE LIVE TITLE 2F1 LOADING NO CENTRIFUGAL
430. REPEAT LOAD
431. 31 0.479261
432. LOAD 63 LOADTYPE LIVE TITLE 3F1 LOADING NO CENTRIFUGAL

433. REPEAT LOAD
434. 1 0.712443
435. LOAD 64 LOADTYPE LIVE TITLE 3F1 LOADING NO CENTRIFUGAL
436. REPEAT LOAD
437. 2 0.712443
438. LOAD 65 LOADTYPE LIVE TITLE 3F1 LOADING NO CENTRIFUGAL
439. REPEAT LOAD
440. 3 0.712443
441. LOAD 66 LOADTYPE LIVE TITLE 3F1 LOADING NO CENTRIFUGAL
442. REPEAT LOAD
443. 4 0.712443
444. LOAD 67 LOADTYPE LIVE TITLE 3F1 LOADING NO CENTRIFUGAL
445. REPEAT LOAD
446. 5 0.712443
447. LOAD 68 LOADTYPE LIVE TITLE 3F1 LOADING NO CENTRIFUGAL
448. REPEAT LOAD
449. 6 0.712443
450. LOAD 69 LOADTYPE LIVE TITLE 3F1 LOADING NO CENTRIFUGAL
451. REPEAT LOAD
452. 7 0.712443
453. LOAD 70 LOADTYPE LIVE TITLE 3F1 LOADING NO CENTRIFUGAL
454. REPEAT LOAD
455. 8 0.712443
456. LOAD 71 LOADTYPE LIVE TITLE 3F1 LOADING NO CENTRIFUGAL
457. REPEAT LOAD
458. 9 0.712443
459. LOAD 72 LOADTYPE LIVE TITLE 3F1 LOADING NO CENTRIFUGAL
460. REPEAT LOAD
461. 10 0.712443
462. LOAD 73 LOADTYPE LIVE TITLE 3F1 LOADING NO CENTRIFUGAL
463. REPEAT LOAD
464. 11 0.712443
465. LOAD 74 LOADTYPE LIVE TITLE 3F1 LOADING NO CENTRIFUGAL
466. REPEAT LOAD
467. 12 0.712443
468. LOAD 75 LOADTYPE LIVE TITLE 3F1 LOADING NO CENTRIFUGAL
469. REPEAT LOAD
470. 13 0.712443
471. LOAD 76 LOADTYPE LIVE TITLE 3F1 LOADING NO CENTRIFUGAL
472. REPEAT LOAD
473. 14 0.712443
474. LOAD 77 LOADTYPE LIVE TITLE 3F1 LOADING NO CENTRIFUGAL
475. REPEAT LOAD
476. 15 0.712443
477. LOAD 78 LOADTYPE LIVE TITLE 3F1 LOADING NO CENTRIFUGAL
478. REPEAT LOAD
479. 16 0.712443
480. LOAD 79 LOADTYPE LIVE TITLE 3F1 LOADING NO CENTRIFUGAL
481. REPEAT LOAD
482. 17 0.712443
483. LOAD 80 LOADTYPE LIVE TITLE 3F1 LOADING NO CENTRIFUGAL
484. REPEAT LOAD
485. 18 0.712443
486. LOAD 81 LOADTYPE LIVE TITLE 3F1 LOADING NO CENTRIFUGAL
487. REPEAT LOAD
488. 19 0.712443

489. LOAD 82 LOADTYPE LIVE TITLE 3F1 LOADING NO CENTRIFUGAL
490. REPEAT LOAD
491. 20 0.712443
492. LOAD 83 LOADTYPE LIVE TITLE 3F1 LOADING NO CENTRIFUGAL
493. REPEAT LOAD
494. 21 0.712443
495. LOAD 84 LOADTYPE LIVE TITLE 3F1 LOADING NO CENTRIFUGAL
496. REPEAT LOAD
497. 22 0.712443
498. LOAD 85 LOADTYPE LIVE TITLE 3F1 LOADING NO CENTRIFUGAL
499. REPEAT LOAD
500. 23 0.712443
501. LOAD 86 LOADTYPE LIVE TITLE 3F1 LOADING NO CENTRIFUGAL
502. REPEAT LOAD
503. 24 0.712443
504. LOAD 87 LOADTYPE LIVE TITLE 3F1 LOADING NO CENTRIFUGAL
505. REPEAT LOAD
506. 25 0.712443
507. LOAD 88 LOADTYPE LIVE TITLE 3F1 LOADING NO CENTRIFUGAL
508. REPEAT LOAD
509. 26 0.712443
510. LOAD 89 LOADTYPE LIVE TITLE 3F1 LOADING NO CENTRIFUGAL
511. REPEAT LOAD
512. 27 0.712443
513. LOAD 90 LOADTYPE LIVE TITLE 3F1 LOADING NO CENTRIFUGAL
514. REPEAT LOAD
515. 28 0.712443
516. LOAD 91 LOADTYPE LIVE TITLE 3F1 LOADING NO CENTRIFUGAL
517. REPEAT LOAD
518. 29 0.712443
519. LOAD 92 LOADTYPE LIVE TITLE 3F1 LOADING NO CENTRIFUGAL
520. REPEAT LOAD
521. 30 0.712443
522. LOAD 93 LOADTYPE LIVE TITLE 3F1 LOADING NO CENTRIFUGAL
523. REPEAT LOAD
524. 31 0.712443
525. LOAD 94 LOADTYPE LIVE TITLE 4F1 LOADING NO CENTRIFUGAL
526. REPEAT LOAD
527. 1 0.813175
528. LOAD 95 LOADTYPE LIVE TITLE 4F1 LOADING NO CENTRIFUGAL
529. REPEAT LOAD
530. 2 0.813175
531. LOAD 96 LOADTYPE LIVE TITLE 4F1 LOADING NO CENTRIFUGAL
532. REPEAT LOAD
533. 3 0.813175
534. LOAD 97 LOADTYPE LIVE TITLE 4F1 LOADING NO CENTRIFUGAL
535. REPEAT LOAD
536. 4 0.813175
537. LOAD 98 LOADTYPE LIVE TITLE 4F1 LOADING NO CENTRIFUGAL
538. REPEAT LOAD
539. 5 0.813175
540. LOAD 99 LOADTYPE LIVE TITLE 4F1 LOADING NO CENTRIFUGAL
541. REPEAT LOAD
542. 6 0.813175
543. LOAD 100 LOADTYPE LIVE TITLE 4F1 LOADING NO CENTRIFUGAL
544. REPEAT LOAD

545. 7 0.813175
546. LOAD 101 LOADTYPE LIVE TITLE 4F1 LOADING NO CENTRIFUGAL
547. REPEAT LOAD
548. 8 0.813175
549. LOAD 102 LOADTYPE LIVE TITLE 4F1 LOADING NO CENTRIFUGAL
550. REPEAT LOAD
551. 9 0.813175
552. LOAD 103 LOADTYPE LIVE TITLE 4F1 LOADING NO CENTRIFUGAL
553. REPEAT LOAD
554. 10 0.813175
555. LOAD 104 LOADTYPE LIVE TITLE 4F1 LOADING NO CENTRIFUGAL
556. REPEAT LOAD
557. 11 0.813175
558. LOAD 105 LOADTYPE LIVE TITLE 4F1 LOADING NO CENTRIFUGAL
559. REPEAT LOAD
560. 12 0.813175
561. LOAD 106 LOADTYPE LIVE TITLE 4F1 LOADING NO CENTRIFUGAL
562. REPEAT LOAD
563. 13 0.813175
564. LOAD 107 LOADTYPE LIVE TITLE 4F1 LOADING NO CENTRIFUGAL
565. REPEAT LOAD
566. 14 0.813175
567. LOAD 108 LOADTYPE LIVE TITLE 4F1 LOADING NO CENTRIFUGAL
568. REPEAT LOAD
569. 15 0.813175
570. LOAD 109 LOADTYPE LIVE TITLE 4F1 LOADING NO CENTRIFUGAL
571. REPEAT LOAD
572. 16 0.813175
573. LOAD 110 LOADTYPE LIVE TITLE 4F1 LOADING NO CENTRIFUGAL
574. REPEAT LOAD
575. 17 0.813175
576. LOAD 111 LOADTYPE LIVE TITLE 4F1 LOADING NO CENTRIFUGAL
577. REPEAT LOAD
578. 18 0.813175
579. LOAD 112 LOADTYPE LIVE TITLE 4F1 LOADING NO CENTRIFUGAL
580. REPEAT LOAD
581. 19 0.813175
582. LOAD 113 LOADTYPE LIVE TITLE 4F1 LOADING NO CENTRIFUGAL
583. REPEAT LOAD
584. 20 0.813175
585. LOAD 114 LOADTYPE LIVE TITLE 4F1 LOADING NO CENTRIFUGAL
586. REPEAT LOAD
587. 21 0.813175
588. LOAD 115 LOADTYPE LIVE TITLE 4F1 LOADING NO CENTRIFUGAL
589. REPEAT LOAD
590. 22 0.813175
591. LOAD 116 LOADTYPE LIVE TITLE 4F1 LOADING NO CENTRIFUGAL
592. REPEAT LOAD
593. 23 0.813175
594. LOAD 117 LOADTYPE LIVE TITLE 4F1 LOADING NO CENTRIFUGAL
595. REPEAT LOAD
596. 24 0.813175
597. LOAD 118 LOADTYPE LIVE TITLE 4F1 LOADING NO CENTRIFUGAL
598. REPEAT LOAD
599. 25 0.813175
600. LOAD 119 LOADTYPE LIVE TITLE 4F1 LOADING NO CENTRIFUGAL

601. REPEAT LOAD
602. 26 0.813175
603. LOAD 120 LOADTYPE LIVE TITLE 4F1 LOADING NO CENTRIFUGAL
604. REPEAT LOAD
605. 27 0.813175
606. LOAD 121 LOADTYPE LIVE TITLE 4F1 LOADING NO CENTRIFUGAL
607. REPEAT LOAD
608. 28 0.813175
609. LOAD 122 LOADTYPE LIVE TITLE 4F1 LOADING NO CENTRIFUGAL
610. REPEAT LOAD
611. 29 0.813175
612. LOAD 123 LOADTYPE LIVE TITLE 4F1 LOADING NO CENTRIFUGAL
613. REPEAT LOAD
614. 30 0.813175
615. LOAD 124 LOADTYPE LIVE TITLE 4F1 LOADING NO CENTRIFUGAL
616. REPEAT LOAD
617. 31 0.813175
618. LOAD 125 LOADTYPE LIVE TITLE 5C1 LOADING NO CENTRIFUGAL
619. REPEAT LOAD
620. 1 0.767515
621. LOAD 126 LOADTYPE LIVE TITLE 5C1 LOADING NO CENTRIFUGAL
622. REPEAT LOAD
623. 2 0.767515
624. LOAD 127 LOADTYPE LIVE TITLE 5C1 LOADING NO CENTRIFUGAL
625. REPEAT LOAD
626. 3 0.767515
627. LOAD 128 LOADTYPE LIVE TITLE 5C1 LOADING NO CENTRIFUGAL
628. REPEAT LOAD
629. 4 0.767515
630. LOAD 129 LOADTYPE LIVE TITLE 5C1 LOADING NO CENTRIFUGAL
631. REPEAT LOAD
632. 5 0.767515
633. LOAD 130 LOADTYPE LIVE TITLE 5C1 LOADING NO CENTRIFUGAL
634. REPEAT LOAD
635. 6 0.767515
636. LOAD 131 LOADTYPE LIVE TITLE 5C1 LOADING NO CENTRIFUGAL
637. REPEAT LOAD
638. 7 0.767515
639. LOAD 132 LOADTYPE LIVE TITLE 5C1 LOADING NO CENTRIFUGAL
640. REPEAT LOAD
641. 8 0.767515
642. LOAD 133 LOADTYPE LIVE TITLE 5C1 LOADING NO CENTRIFUGAL
643. REPEAT LOAD
644. 9 0.767515
645. LOAD 134 LOADTYPE LIVE TITLE 5C1 LOADING NO CENTRIFUGAL
646. REPEAT LOAD
647. 10 0.767515
648. LOAD 135 LOADTYPE LIVE TITLE 5C1 LOADING NO CENTRIFUGAL
649. REPEAT LOAD
650. 11 0.767515
651. LOAD 136 LOADTYPE LIVE TITLE 5C1 LOADING NO CENTRIFUGAL
652. REPEAT LOAD
653. 12 0.767515
654. LOAD 137 LOADTYPE LIVE TITLE 5C1 LOADING NO CENTRIFUGAL
655. REPEAT LOAD
656. 13 0.767515

657. LOAD 138 LOADTYPE LIVE TITLE 5C1 LOADING NO CENTRIFUGAL
658. REPEAT LOAD
659. 14 0.767515
660. LOAD 139 LOADTYPE LIVE TITLE 5C1 LOADING NO CENTRIFUGAL
661. REPEAT LOAD
662. 15 0.767515
663. LOAD 140 LOADTYPE LIVE TITLE 5C1 LOADING NO CENTRIFUGAL
664. REPEAT LOAD
665. 16 0.767515
666. LOAD 141 LOADTYPE LIVE TITLE 5C1 LOADING NO CENTRIFUGAL
667. REPEAT LOAD
668. 17 0.767515
669. LOAD 142 LOADTYPE LIVE TITLE 5C1 LOADING NO CENTRIFUGAL
670. REPEAT LOAD
671. 18 0.767515
672. LOAD 143 LOADTYPE LIVE TITLE 5C1 LOADING NO CENTRIFUGAL
673. REPEAT LOAD
674. 19 0.767515
675. LOAD 144 LOADTYPE LIVE TITLE 5C1 LOADING NO CENTRIFUGAL
676. REPEAT LOAD
677. 20 0.767515
678. LOAD 145 LOADTYPE LIVE TITLE 5C1 LOADING NO CENTRIFUGAL
679. REPEAT LOAD
680. 21 0.767515
681. LOAD 146 LOADTYPE LIVE TITLE 5C1 LOADING NO CENTRIFUGAL
682. REPEAT LOAD
683. 22 0.767515
684. LOAD 147 LOADTYPE LIVE TITLE 5C1 LOADING NO CENTRIFUGAL
685. REPEAT LOAD
686. 23 0.767515
687. LOAD 148 LOADTYPE LIVE TITLE 5C1 LOADING NO CENTRIFUGAL
688. REPEAT LOAD
689. 24 0.767515
690. LOAD 149 LOADTYPE LIVE TITLE 5C1 LOADING NO CENTRIFUGAL
691. REPEAT LOAD
692. 25 0.767515
693. LOAD 150 LOADTYPE LIVE TITLE 5C1 LOADING NO CENTRIFUGAL
694. REPEAT LOAD
695. 26 0.767515
696. LOAD 151 LOADTYPE LIVE TITLE 5C1 LOADING NO CENTRIFUGAL
697. REPEAT LOAD
698. 27 0.767515
699. LOAD 152 LOADTYPE LIVE TITLE 5C1 LOADING NO CENTRIFUGAL
700. REPEAT LOAD
701. 28 0.767515
702. LOAD 153 LOADTYPE LIVE TITLE 5C1 LOADING NO CENTRIFUGAL
703. REPEAT LOAD
704. 29 0.767515
705. LOAD 154 LOADTYPE LIVE TITLE 5C1 LOADING NO CENTRIFUGAL
706. REPEAT LOAD
707. 30 0.767515
708. LOAD 155 LOADTYPE LIVE TITLE 5C1 LOADING NO CENTRIFUGAL
709. REPEAT LOAD
710. 31 0.767515
711. LOAD 156 LOADTYPE LIVE TITLE AXIAL ON COLUMN C4 (5 LANE)
712. MEMBER LOAD

713. 1 CON GY -20.8 1.6839 0
714. 2 CON GY -35.3 1.6422 0
715. 6 CON GY -20.8 1.2464 0
716. 7 CON GY -35.3 2.9616 0
717. 13 CON GY -20.8 0.625 0
718. 14 CON GY -35.3 0.7917 0
719. 14 CON GY -20.8 5.7917 0
720. 16 CON GY -35.3 0.0833 0
721. 16 CON GY -20.8 5.0833 0
722. 17 CON GY -35.3 5.2292 0
723. 1 UNI GX 0.395 0 6.0417
724. 2 UNI GX 0.395 0 2.1388
725. 3 UNI GX 0.395 0 1.8612
726. 4 UNI GX 0.395 0 0.7969
727. 5 UNI GX 0.395 0 1.599
728. 6 UNI GX 0.395 0 4.2848
729. 7 UNI GX 0.395 0 5.8247
730. 8 TO 11 14 TO 17 UNI GX 0.395 0 5.8542
731. 12 13 UNI GX 0.395 0 5.8334
732. 18 UNI GX 0.395 0 4.7709
733. 19 UNI GX 0.395 0 5.6198
734. 1 UMOM GZ -1.636 0 6.0417
735. 2 UMOM GZ -1.636 0 2.1388
736. 3 UMOM GZ -1.636 0 1.8612
737. 4 UMOM GZ -1.636 0 0.7969
738. 5 UMOM GZ -1.636 0 1.599
739. 6 UMOM GZ -1.636 0 4.2848
740. 7 UMOM GZ -1.636 0 5.8247
741. 8 TO 11 14 TO 17 UMOM GZ -1.636 0 5.8542
742. 12 13 UMOM GZ -1.636 0 5.8334
743. 18 UMOM GZ -1.636 0 4.7709
744. 19 UMOM GZ -1.636 0 5.6198
745. LOAD 157 LOADTYPE LIVE TITLE AXIAL ON COLUMN C4 (3 LANE)
746. MEMBER LOAD
747. 1 CON GY -24.9 1.6839 0
748. 2 CON GY -42.3 1.6422 0
749. 6 CON GY -24.9 1.2464 0
750. 7 CON GY -42.3 2.9616 0
751. 14 CON GY -24.9 5.7917 0
752. 16 CON GY -42.3 0.0833 0
753. 1 UNI GX 0.285 0 6.0417
754. 2 UNI GX 0.285 0 2.1388
755. 3 UNI GX 0.285 0 1.8612
756. 4 UNI GX 0.285 0 0.7969
757. 5 UNI GX 0.285 0 1.599
758. 6 UNI GX 0.285 0 4.2848
759. 7 UNI GX 0.285 0 5.8247
760. 8 TO 11 14 TO 17 UNI GX 0.285 0 5.8542
761. 12 13 UNI GX 0.285 0 5.8334
762. 18 UNI GX 0.285 0 4.7709
763. 19 UNI GX 0.285 0 5.6198
764. 1 UMOM GZ -1.178 0 6.0417
765. 2 UMOM GZ -1.178 0 2.1388
766. 3 UMOM GZ -1.178 0 1.8612
767. 4 UMOM GZ -1.178 0 0.7969
768. 5 UMOM GZ -1.178 0 1.599

769. 6 UMOM GZ -1.178 0 4.2848
770. 7 UMOM GZ -1.178 0 5.8247
771. 8 TO 11 14 TO 17 UMOM GZ -1.178 0 5.8542
772. 12 13 UMOM GZ -1.178 0 5.8334
773. 18 UMOM GZ -1.178 0 4.7709
774. 19 UMOM GZ -1.178 0 5.6198
775. LOAD 158 LOADTYPE LIVE TITLE AXIAL ON COLUMN C4 (2 LANE)
776. MEMBER LOAD
777. 1 CON GY -27.7 1.6839 0
778. 2 CON GY -47 1.6422 0
779. 6 CON GY -27.7 1.2464 0
780. 7 CON GY -47 2.9616 0
781. 1 UNI GX 0.211 0 6.0417
782. 2 UNI GX 0.211 0 2.1388
783. 3 UNI GX 0.211 0 1.8612
784. 4 UNI GX 0.211 0 0.7969
785. 5 UNI GX 0.211 0 1.599
786. 6 UNI GX 0.211 0 4.2848
787. 7 UNI GX 0.211 0 5.8247
788. 8 TO 11 14 TO 17 UNI GX 0.211 0 5.8542
789. 12 13 UNI GX 0.211 0 5.8334
790. 18 UNI GX 0.211 0 4.7709
791. 19 UNI GX 0.211 0 5.6198
792. 1 UMOM GZ -0.872 0 6.0417
793. 2 UMOM GZ -0.872 0 2.1388
794. 3 UMOM GZ -0.872 0 1.8612
795. 4 UMOM GZ -0.872 0 0.7969
796. 5 UMOM GZ -0.872 0 1.599
797. 6 UMOM GZ -0.872 0 4.2848
798. 7 UMOM GZ -0.872 0 5.8247
799. 8 TO 11 14 TO 17 UMOM GZ -0.872 0 5.8542
800. 12 13 UMOM GZ -0.872 0 5.8334
801. 18 UMOM GZ -0.872 0 4.7709
802. 19 UMOM GZ -0.872 0 5.6198
803. LOAD 159 LOADTYPE LIVE TITLE NEG. MOMENT IN FB OVER C4 (5 LANE)
804. MEMBER LOAD
805. 1 CON GY -20.8 1.6839 0
806. 2 CON GY -35.3 1.6422 0
807. 6 CON GY -20.8 2.0547 0
808. 7 CON GY -35.3 3.7699 0
809. 13 CON GY -20.8 0.625 0
810. 14 CON GY -35.3 0.7917 0
811. 14 CON GY -20.8 5.7917 0
812. 16 CON GY -35.3 0.0833 0
813. 16 CON GY -20.8 5.0833 0
814. 17 CON GY -35.3 5.2292 0
815. 1 UNI GX 0.395 0 6.0417
816. 2 UNI GX 0.395 0 2.1388
817. 3 UNI GX 0.395 0 1.8612
818. 4 UNI GX 0.395 0 0.7969
819. 5 UNI GX 0.395 0 1.599
820. 6 UNI GX 0.395 0 4.2848
821. 7 UNI GX 0.395 0 5.8247
822. 8 TO 11 14 TO 17 UNI GX 0.395 0 5.8542
823. 12 13 UNI GX 0.395 0 5.8334
824. 18 UNI GX 0.395 0 4.7709

825. 19 UNI GX 0.395 0 5.6198
826. 1 UMOM GZ -1.636 0 6.0417
827. 2 UMOM GZ -1.636 0 2.1388
828. 3 UMOM GZ -1.636 0 1.8612
829. 4 UMOM GZ -1.636 0 0.7969
830. 5 UMOM GZ -1.636 0 1.599
831. 6 UMOM GZ -1.636 0 4.2848
832. 7 UMOM GZ -1.636 0 5.8247
833. 8 TO 11 14 TO 17 UMOM GZ -1.636 0 5.8542
834. 12 13 UMOM GZ -1.636 0 5.8334
835. 18 UMOM GZ -1.636 0 4.7709
836. 19 UMOM GZ -1.636 0 5.6198
837. LOAD 160 LOADTYPE LIVE TITLE NEG. MOMENT IN FB OVER C4 (4 LANE)
838. MEMBER LOAD
839. 1 CON GY -20.8 1.6839 0
840. 2 CON GY -35.3 1.6422 0
841. 6 CON GY -20.8 2.0547 0
842. 7 CON GY -35.3 3.7699 0
843. 14 CON GY -20.8 0.7917 0
844. 15 CON GY -35.3 0.9375 0
845. 15 CON GY -20.8 4.9375 0
846. 16 CON GY -35.3 5.0833 0
847. 1 UNI GX 0.316 0 6.0417
848. 2 UNI GX 0.316 0 2.1388
849. 3 UNI GX 0.316 0 1.8612
850. 4 UNI GX 0.316 0 0.7969
851. 5 UNI GX 0.316 0 1.599
852. 6 UNI GX 0.316 0 4.2848
853. 7 UNI GX 0.316 0 5.8247
854. 8 TO 11 14 TO 17 UNI GX 0.316 0 5.8542
855. 12 13 UNI GX 0.316 0 5.8334
856. 18 UNI GX 0.316 0 4.7709
857. 19 UNI GX 0.316 0 5.6198
858. 1 UMOM GZ -1.309 0 6.0417
859. 2 UMOM GZ -1.309 0 2.1388
860. 3 UMOM GZ -1.309 0 1.8612
861. 4 UMOM GZ -1.309 0 0.7969
862. 5 UMOM GZ -1.309 0 1.599
863. 6 UMOM GZ -1.309 0 4.2848
864. 7 UMOM GZ -1.309 0 5.8247
865. 8 TO 11 14 TO 17 UMOM GZ -1.309 0 5.8542
866. 12 13 UMOM GZ -1.309 0 5.8334
867. 18 UMOM GZ -1.309 0 4.7709
868. 19 UMOM GZ -1.309 0 5.6198
869. LOAD 161 LOADTYPE LIVE TITLE NEG. MOMENT IN FB OVER C4 (3 LANE)
870. MEMBER LOAD
871. 1 CON GY -24.9 1.6839 0
872. 2 CON GY -42.3 1.6422 0
873. 6 CON GY -24.9 2.0547 0
874. 7 CON GY -42.3 3.7699 0
875. 14 CON GY -24.9 5.7917 0
876. 16 CON GY -42.3 0.0833 0
877. 1 UNI GX 0.285 0 6.0417
878. 2 UNI GX 0.285 0 2.1388
879. 3 UNI GX 0.285 0 1.8612
880. 4 UNI GX 0.285 0 0.7969

881. 5 UNI GX 0.285 0 1.599
882. 6 UNI GX 0.285 0 4.2848
883. 7 UNI GX 0.285 0 5.8247
884. 8 TO 11 14 TO 17 UNI GX 0.285 0 5.8542
885. 12 13 UNI GX 0.285 0 5.8334
886. 18 UNI GX 0.285 0 4.7709
887. 19 UNI GX 0.285 0 5.6198
888. 1 UMOM GZ -1.178 0 6.0417
889. 2 UMOM GZ -1.178 0 2.1388
890. 3 UMOM GZ -1.178 0 1.8612
891. 4 UMOM GZ -1.178 0 0.7969
892. 5 UMOM GZ -1.178 0 1.599
893. 6 UMOM GZ -1.178 0 4.2848
894. 7 UMOM GZ -1.178 0 5.8247
895. 8 TO 11 14 TO 17 UMOM GZ -1.178 0 5.8542
896. 12 13 UMOM GZ -1.178 0 5.8334
897. 18 UMOM GZ -1.178 0 4.7709
898. 19 UMOM GZ -1.178 0 5.6198
899. LOAD 162 LOADTYPE LIVE TITLE NEG. MOMENT IN FB OVER C4 (2 LANE)
900. MEMBER LOAD
901. 1 CON GY -27.7 1.6839 0
902. 2 CON GY -47 1.6422 0
903. 6 CON GY -27.7 2.0547 0
904. 7 CON GY -47 3.7699 0
905. 1 UNI GX 0.211 0 6.0417
906. 2 UNI GX 0.211 0 2.1388
907. 3 UNI GX 0.211 0 1.8612
908. 4 UNI GX 0.211 0 0.7969
909. 5 UNI GX 0.211 0 1.599
910. 6 UNI GX 0.211 0 4.2848
911. 7 UNI GX 0.211 0 5.8247
912. 8 TO 11 14 TO 17 UNI GX 0.211 0 5.8542
913. 12 13 UNI GX 0.211 0 5.8334
914. 18 UNI GX 0.211 0 4.7709
915. 19 UNI GX 0.211 0 5.6198
916. 1 UMOM GZ -0.872 0 6.0417
917. 2 UMOM GZ -0.872 0 2.1388
918. 3 UMOM GZ -0.872 0 1.8612
919. 4 UMOM GZ -0.872 0 0.7969
920. 5 UMOM GZ -0.872 0 1.599
921. 6 UMOM GZ -0.872 0 4.2848
922. 7 UMOM GZ -0.872 0 5.8247
923. 8 TO 11 14 TO 17 UMOM GZ -0.872 0 5.8542
924. 12 13 UMOM GZ -0.872 0 5.8334
925. 18 UMOM GZ -0.872 0 4.7709
926. 19 UMOM GZ -0.872 0 5.6198
927. LOAD 163 LOADTYPE LIVE TITLE POS. MOMENT IN FB BTWN C4-C3, C2-C1 (4 LANE)
928. MEMBER LOAD
929. 6 CON GY -20.8 2.0547 0
930. 7 CON GY -35.3 3.7699 0
931. 13 CON GY -20.8 0.625 0
932. 14 CON GY -35.3 0.7917 0
933. 14 CON GY -20.8 5.7917 0
934. 16 CON GY -35.3 0.0833 0
935. 16 CON GY -20.8 5.0833 0
936. 17 CON GY -35.3 5.2292 0

937. 1 UNI GX 0.316 0 6.0417
938. 2 UNI GX 0.316 0 2.1388
939. 3 UNI GX 0.316 0 1.8612
940. 4 UNI GX 0.316 0 0.7969
941. 5 UNI GX 0.316 0 1.599
942. 6 UNI GX 0.316 0 4.2848
943. 7 UNI GX 0.316 0 5.8247
944. 8 TO 11 14 TO 17 UNI GX 0.316 0 5.8542
945. 12 13 UNI GX 0.316 0 5.8334
946. 18 UNI GX 0.316 0 4.7709
947. 19 UNI GX 0.316 0 5.6198
948. 1 UMOM GZ -1.309 0 6.0417
949. 2 UMOM GZ -1.309 0 2.1388
950. 3 UMOM GZ -1.309 0 1.8612
951. 4 UMOM GZ -1.309 0 0.7969
952. 5 UMOM GZ -1.309 0 1.599
953. 6 UMOM GZ -1.309 0 4.2848
954. 7 UMOM GZ -1.309 0 5.8247
955. 8 TO 11 14 TO 17 UMOM GZ -1.309 0 5.8542
956. 12 13 UMOM GZ -1.309 0 5.8334
957. 18 UMOM GZ -1.309 0 4.7709
958. 19 UMOM GZ -1.309 0 5.6198
959. LOAD 164 LOADTYPE LIVE TITLE POS. MOMENT IN FB BTWN C4-C3, C2-C1 (3 LANE-1)
960. MEMBER LOAD
961. 6 CON GY -24.9 2.0547 0
962. 7 CON GY -42.3 3.7699 0
963. 14 CON GY -24.9 0.7917 0
964. 15 CON GY -42.3 0.9375 0
965. 15 CON GY -24.9 4.9375 0
966. 16 CON GY -42.3 5.0833 0
967. 1 UNI GX 0.285 0 6.0417
968. 2 UNI GX 0.285 0 2.1388
969. 3 UNI GX 0.285 0 1.8612
970. 4 UNI GX 0.285 0 0.7969
971. 5 UNI GX 0.285 0 1.599
972. 6 UNI GX 0.285 0 4.2848
973. 7 UNI GX 0.285 0 5.8247
974. 8 TO 11 14 TO 17 UNI GX 0.285 0 5.8542
975. 12 13 UNI GX 0.285 0 5.8334
976. 18 UNI GX 0.285 0 4.7709
977. 19 UNI GX 0.285 0 5.6198
978. 1 UMOM GZ -1.178 0 6.0417
979. 2 UMOM GZ -1.178 0 2.1388
980. 3 UMOM GZ -1.178 0 1.8612
981. 4 UMOM GZ -1.178 0 0.7969
982. 5 UMOM GZ -1.178 0 1.599
983. 6 UMOM GZ -1.178 0 4.2848
984. 7 UMOM GZ -1.178 0 5.8247
985. 8 TO 11 14 TO 17 UMOM GZ -1.178 0 5.8542
986. 12 13 UMOM GZ -1.178 0 5.8334
987. 18 UMOM GZ -1.178 0 4.7709
988. 19 UMOM GZ -1.178 0 5.6198
989. LOAD 165 LOADTYPE LIVE TITLE POS. MOMENT IN FB BTWN C4-C3, C2-C1 (3 LANE-2)
990. MEMBER LOAD
991. 13 CON GY -24.9 0.625 0
992. 14 CON GY -42.3 0.7917 0

993. 14 CON GY -24.9 5.7917 0
994. 16 CON GY -42.3 0.0833 0
995. 16 CON GY -24.9 5.0833 0
996. 17 CON GY -42.3 5.2292 0
997. 1 UNI GX 0.285 0 6.0417
998. 2 UNI GX 0.285 0 2.1388
999. 3 UNI GX 0.285 0 1.8612
1000. 4 UNI GX 0.285 0 0.7969
1001. 5 UNI GX 0.285 0 1.599
1002. 6 UNI GX 0.285 0 4.2848
1003. 7 UNI GX 0.285 0 5.8247
1004. 8 TO 11 14 TO 17 UNI GX 0.285 0 5.8542
1005. 12 13 UNI GX 0.285 0 5.8334
1006. 18 UNI GX 0.285 0 4.7709
1007. 19 UNI GX 0.285 0 5.6198
1008. 1 UMOM GZ -1.178 0 6.0417
1009. 2 UMOM GZ -1.178 0 2.1388
1010. 3 UMOM GZ -1.178 0 1.8612
1011. 4 UMOM GZ -1.178 0 0.7969
1012. 5 UMOM GZ -1.178 0 1.599
1013. 6 UMOM GZ -1.178 0 4.2848
1014. 7 UMOM GZ -1.178 0 5.8247
1015. 8 TO 11 14 TO 17 UMOM GZ -1.178 0 5.8542
1016. 12 13 UMOM GZ -1.178 0 5.8334
1017. 18 UMOM GZ -1.178 0 4.7709
1018. 19 UMOM GZ -1.178 0 5.6198
1019. LOAD 166 LOADTYPE LIVE TITLE POS. MOMENT IN FB BTWN C4-C3, C2-C1 (2 LANE-1)
1020. MEMBER LOAD
1021. 6 CON GY -27.7 2.0547 0
1022. 7 CON GY -47 3.7699 0
1023. 14 CON GY -27.7 5.7917 0
1024. 16 CON GY -47 0.0833 0
1025. 1 UNI GX 0.211 0 6.0417
1026. 2 UNI GX 0.211 0 2.1388
1027. 3 UNI GX 0.211 0 1.8612
1028. 4 UNI GX 0.211 0 0.7969
1029. 5 UNI GX 0.211 0 1.599
1030. 6 UNI GX 0.211 0 4.2848
1031. 7 UNI GX 0.211 0 5.8247
1032. 8 TO 11 14 TO 17 UNI GX 0.211 0 5.8542
1033. 12 13 UNI GX 0.211 0 5.8334
1034. 18 UNI GX 0.211 0 4.7709
1035. 19 UNI GX 0.211 0 5.6198
1036. 1 UMOM GZ -0.872 0 6.0417
1037. 2 UMOM GZ -0.872 0 2.1388
1038. 3 UMOM GZ -0.872 0 1.8612
1039. 4 UMOM GZ -0.872 0 0.7969
1040. 5 UMOM GZ -0.872 0 1.599
1041. 6 UMOM GZ -0.872 0 4.2848
1042. 7 UMOM GZ -0.872 0 5.8247
1043. 8 TO 11 14 TO 17 UMOM GZ -0.872 0 5.8542
1044. 12 13 UMOM GZ -0.872 0 5.8334
1045. 18 UMOM GZ -0.872 0 4.7709
1046. 19 UMOM GZ -0.872 0 5.6198
1047. LOAD 167 LOADTYPE LIVE TITLE POS. MOMENT IN FB BTWN C4-C3, C2-C1 (2 LANE-2)
1048. MEMBER LOAD

1049. 14 CON GY -27.7 0.7917 0
1050. 15 CON GY -47 0.9375 0
1051. 15 CON GY -27.7 4.9375 0
1052. 16 CON GY -47 5.0833 0
1053. 1 UNI GX 0.211 0 6.0417
1054. 2 UNI GX 0.211 0 2.1388
1055. 3 UNI GX 0.211 0 1.8612
1056. 4 UNI GX 0.211 0 0.7969
1057. 5 UNI GX 0.211 0 1.599
1058. 6 UNI GX 0.211 0 4.2848
1059. 7 UNI GX 0.211 0 5.8247
1060. 8 TO 11 14 TO 17 UNI GX 0.211 0 5.8542
1061. 12 13 UNI GX 0.211 0 5.8334
1062. 18 UNI GX 0.211 0 4.7709
1063. 19 UNI GX 0.211 0 5.6198
1064. 1 UMOM GZ -0.872 0 6.0417
1065. 2 UMOM GZ -0.872 0 2.1388
1066. 3 UMOM GZ -0.872 0 1.8612
1067. 4 UMOM GZ -0.872 0 0.7969
1068. 5 UMOM GZ -0.872 0 1.599
1069. 6 UMOM GZ -0.872 0 4.2848
1070. 7 UMOM GZ -0.872 0 5.8247
1071. 8 TO 11 14 TO 17 UMOM GZ -0.872 0 5.8542
1072. 12 13 UMOM GZ -0.872 0 5.8334
1073. 18 UMOM GZ -0.872 0 4.7709
1074. 19 UMOM GZ -0.872 0 5.6198
1075. LOAD 168 LOADTYPE LIVE TITLE MAX AXIAL ON COLUMN C3 (3 LANE)
1076. MEMBER LOAD
1077. 6 CON GY -24.9 1.3784 0
1078. 7 CON GY -42.3 3.0936 0
1079. 8 CON GY -24.9 1.269 0
1080. 9 CON GY -42.3 1.4148 0
1081. 10 CON GY -24.9 1.5607 0
1082. 11 CON GY -42.3 1.7065 0
1083. 1 UNI GX 0.285 0 6.0417
1084. 2 UNI GX 0.285 0 2.1388
1085. 3 UNI GX 0.285 0 1.8612
1086. 4 UNI GX 0.285 0 0.7969
1087. 5 UNI GX 0.285 0 1.599
1088. 6 UNI GX 0.285 0 4.2848
1089. 7 UNI GX 0.285 0 5.8247
1090. 8 TO 11 14 TO 17 UNI GX 0.285 0 5.8542
1091. 12 13 UNI GX 0.285 0 5.8334
1092. 18 UNI GX 0.285 0 4.7709
1093. 19 UNI GX 0.285 0 5.6198
1094. 1 UMOM GZ -1.178 0 6.0417
1095. 2 UMOM GZ -1.178 0 2.1388
1096. 3 UMOM GZ -1.178 0 1.8612
1097. 4 UMOM GZ -1.178 0 0.7969
1098. 5 UMOM GZ -1.178 0 1.599
1099. 6 UMOM GZ -1.178 0 4.2848
1100. 7 UMOM GZ -1.178 0 5.8247
1101. 8 TO 11 14 TO 17 UMOM GZ -1.178 0 5.8542
1102. 12 13 UMOM GZ -1.178 0 5.8334
1103. 18 UMOM GZ -1.178 0 4.7709
1104. 19 UMOM GZ -1.178 0 5.6198

1105. LOAD 169 LOADTYPE LIVE TITLE MAX AXIAL ON COLUMN C3 (2 LANE)
1106. MEMBER LOAD
1107. 6 CON GY -27.7 4.1094 0
1108. 7 CON GY -47 5.8246 0
1109. 8 CON GY -27.7 4 0
1110. 9 CON GY -47 4.1458 0
1111. 1 UNI GX 0.211 0 6.0417
1112. 2 UNI GX 0.211 0 2.1388
1113. 3 UNI GX 0.211 0 1.8612
1114. 4 UNI GX 0.211 0 0.7969
1115. 5 UNI GX 0.211 0 1.599
1116. 6 UNI GX 0.211 0 4.2848
1117. 7 UNI GX 0.211 0 5.8247
1118. 8 TO 11 14 TO 17 UNI GX 0.211 0 5.8542
1119. 12 13 UNI GX 0.211 0 5.8334
1120. 18 UNI GX 0.211 0 4.7709
1121. 19 UNI GX 0.211 0 5.6198
1122. 1 UMOM GZ -0.872 0 6.0417
1123. 2 UMOM GZ -0.872 0 2.1388
1124. 3 UMOM GZ -0.872 0 1.8612
1125. 4 UMOM GZ -0.872 0 0.7969
1126. 5 UMOM GZ -0.872 0 1.599
1127. 6 UMOM GZ -0.872 0 4.2848
1128. 7 UMOM GZ -0.872 0 5.8247
1129. 8 TO 11 14 TO 17 UMOM GZ -0.872 0 5.8542
1130. 12 13 UMOM GZ -0.872 0 5.8334
1131. 18 UMOM GZ -0.872 0 4.7709
1132. 19 UMOM GZ -0.872 0 5.6198
1133. LOAD 170 LOADTYPE LIVE TITLE POS. MOMENT IN FB BETWEEN C3 _C2 (4 LANE)
1134. MEMBER LOAD
1135. 1 CON GY -20.8 1.6839 0
1136. 2 CON GY -35.3 1.6422 0
1137. 8 CON GY -20.8 3.269 0
1138. 9 CON GY -35.3 3.4148 0
1139. 10 CON GY -20.8 2.9167 0
1140. 11 CON GY -35.3 3.0625 0
1141. 18 CON GY -20.8 2.7708 0
1142. 19 CON GY -35.3 4 0
1143. 1 UNI GX 0.316 0 6.0417
1144. 2 UNI GX 0.316 0 2.1388
1145. 3 UNI GX 0.316 0 1.8612
1146. 4 UNI GX 0.316 0 0.7969
1147. 5 UNI GX 0.316 0 1.599
1148. 6 UNI GX 0.316 0 4.2848
1149. 7 UNI GX 0.316 0 5.8247
1150. 8 TO 11 14 TO 17 UNI GX 0.316 0 5.8542
1151. 12 13 UNI GX 0.316 0 5.8334
1152. 18 UNI GX 0.316 0 4.7709
1153. 19 UNI GX 0.316 0 5.6198
1154. 1 UMOM GZ -1.309 0 6.0417
1155. 2 UMOM GZ -1.309 0 2.1388
1156. 3 UMOM GZ -1.309 0 1.8612
1157. 4 UMOM GZ -1.309 0 0.7969
1158. 5 UMOM GZ -1.309 0 1.599
1159. 6 UMOM GZ -1.309 0 4.2848
1160. 7 UMOM GZ -1.309 0 5.8247

1161. 8 TO 11 14 TO 17 UMOM GZ -1.309 0 5.8542
1162. 12 13 UMOM GZ -1.309 0 5.8334
1163. 18 UMOM GZ -1.309 0 4.7709
1164. 19 UMOM GZ -1.309 0 5.6198
1165. LOAD 171 LOADTYPE LIVE TITLE POS. MOMENT IN FB BETWEEN C3 _C2 (3 LANE)
1166. MEMBER LOAD
1167. 1 CON GY -24.9 1.6839 0
1168. 2 CON GY -42.3 1.6422 0
1169. 8 CON GY -24.9 3.269 0
1170. 9 CON GY -42.3 3.4148 0
1171. 10 CON GY -24.9 2.9167 0
1172. 11 CON GY -42.3 3.0625 0
1173. 1 UNI GX 0.285 0 6.0417
1174. 2 UNI GX 0.285 0 2.1388
1175. 3 UNI GX 0.285 0 1.8612
1176. 4 UNI GX 0.285 0 0.7969
1177. 5 UNI GX 0.285 0 1.599
1178. 6 UNI GX 0.285 0 4.2848
1179. 7 UNI GX 0.285 0 5.8247
1180. 8 TO 11 14 TO 17 UNI GX 0.285 0 5.8542
1181. 12 13 UNI GX 0.285 0 5.8334
1182. 18 UNI GX 0.285 0 4.7709
1183. 19 UNI GX 0.285 0 5.6198
1184. 1 UMOM GZ -1.178 0 6.0417
1185. 2 UMOM GZ -1.178 0 2.1388
1186. 3 UMOM GZ -1.178 0 1.8612
1187. 4 UMOM GZ -1.178 0 0.7969
1188. 5 UMOM GZ -1.178 0 1.599
1189. 6 UMOM GZ -1.178 0 4.2848
1190. 7 UMOM GZ -1.178 0 5.8247
1191. 8 TO 11 14 TO 17 UMOM GZ -1.178 0 5.8542
1192. 12 13 UMOM GZ -1.178 0 5.8334
1193. 18 UMOM GZ -1.178 0 4.7709
1194. 19 UMOM GZ -1.178 0 5.6198
1195. LOAD 172 LOADTYPE LIVE TITLE POS. MOMENT IN FB BETWEEN C3 _C2 (2 LANE)
1196. MEMBER LOAD
1197. 8 CON GY -27.7 3.269 0
1198. 9 CON GY -47 3.4148 0
1199. 10 CON GY -27.7 2.9167 0
1200. 11 CON GY -47 3.0625 0
1201. 1 UNI GX 0.211 0 6.0417
1202. 2 UNI GX 0.211 0 2.1388
1203. 3 UNI GX 0.211 0 1.8612
1204. 4 UNI GX 0.211 0 0.7969
1205. 5 UNI GX 0.211 0 1.599
1206. 6 UNI GX 0.211 0 4.2848
1207. 7 UNI GX 0.211 0 5.8247
1208. 8 TO 11 14 TO 17 UNI GX 0.211 0 5.8542
1209. 12 13 UNI GX 0.211 0 5.8334
1210. 18 UNI GX 0.211 0 4.7709
1211. 19 UNI GX 0.211 0 5.6198
1212. 1 UMOM GZ -0.872 0 6.0417
1213. 2 UMOM GZ -0.872 0 2.1388
1214. 3 UMOM GZ -0.872 0 1.8612
1215. 4 UMOM GZ -0.872 0 0.7969
1216. 5 UMOM GZ -0.872 0 1.599

1217. 6 UMOM GZ -0.872 0 4.2848
1218. 7 UMOM GZ -0.872 0 5.8247
1219. 8 TO 11 14 TO 17 UMOM GZ -0.872 0 5.8542
1220. 12 13 UMOM GZ -0.872 0 5.8334
1221. 18 UMOM GZ -0.872 0 4.7709
1222. 19 UMOM GZ -0.872 0 5.6198
1223. LOAD 173 LOADTYPE LIVE TITLE MAX AXIAL ON COLUMN C3 (6 LANE)
1224. MEMBER LOAD
1225. 1 CON GY -20.8 1.6839 0
1226. 2 CON GY -35.3 1.6422 0
1227. 8 CON GY -20.8 3.269 0
1228. 9 CON GY -35.3 3.4148 0
1229. 10 CON GY -20.8 3.5607 0
1230. 11 CON GY -35.3 3.7065 0
1231. 12 CON GY -20.8 4.1111 0
1232. 13 CON GY -35.3 4.2777 0
1233. 14 CON GY -20.8 4.4444 0
1234. 15 CON GY -35.3 4.5902 0
1235. 16 CON GY -20.8 4.7361 0
1236. 17 CON GY -35.3 4.8819 0
1237. 1 UNI GX 0.474 0 6.0417
1238. 2 UNI GX 0.474 0 2.1388
1239. 3 UNI GX 0.474 0 1.8612
1240. 4 UNI GX 0.474 0 0.7969
1241. 5 UNI GX 0.474 0 1.599
1242. 6 UNI GX 0.474 0 4.2848
1243. 7 UNI GX 0.474 0 5.8247
1244. 8 TO 11 14 TO 17 UNI GX 0.474 0 5.8542
1245. 12 13 UNI GX 0.474 0 5.8334
1246. 18 UNI GX 0.474 0 4.7709
1247. 19 UNI GX 0.474 0 5.6198
1248. 1 UMOM GZ -1.963 0 6.0417
1249. 2 UMOM GZ -1.963 0 2.1388
1250. 3 UMOM GZ -1.963 0 1.8612
1251. 4 UMOM GZ -1.963 0 0.7969
1252. 5 UMOM GZ -1.963 0 1.599
1253. 6 UMOM GZ -1.963 0 4.2848
1254. 7 UMOM GZ -1.963 0 5.8247
1255. 8 TO 11 14 TO 17 UMOM GZ -1.963 0 5.8542
1256. 12 13 UMOM GZ -1.963 0 5.8334
1257. 18 UMOM GZ -1.963 0 4.7709
1258. 19 UMOM GZ -1.963 0 5.6198
1259. LOAD 174 LOADTYPE LIVE TITLE MAX AXIAL ON COLUMN C3 (3 LANE)
1260. MEMBER LOAD
1261. 10 CON GY -24.9 3.5607 0
1262. 11 CON GY -42.3 3.7065 0
1263. 12 CON GY -24.9 4.1111 0
1264. 13 CON GY -42.3 4.2777 0
1265. 14 CON GY -24.9 4.4444 0
1266. 15 CON GY -42.3 4.5902 0
1267. 1 UNI GX 0.285 0 6.0417
1268. 2 UNI GX 0.285 0 2.1388
1269. 3 UNI GX 0.285 0 1.8612
1270. 4 UNI GX 0.285 0 0.7969
1271. 5 UNI GX 0.285 0 1.599
1272. 6 UNI GX 0.285 0 4.2848

1273. 7 UNI GX 0.285 0 5.8247
1274. 8 TO 11 14 TO 17 UNI GX 0.285 0 5.8542
1275. 12 13 UNI GX 0.285 0 5.8334
1276. 18 UNI GX 0.285 0 4.7709
1277. 19 UNI GX 0.285 0 5.6198
1278. 1 UMOM GZ -1.178 0 6.0417
1279. 2 UMOM GZ -1.178 0 2.1388
1280. 3 UMOM GZ -1.178 0 1.8612
1281. 4 UMOM GZ -1.178 0 0.7969
1282. 5 UMOM GZ -1.178 0 1.599
1283. 6 UMOM GZ -1.178 0 4.2848
1284. 7 UMOM GZ -1.178 0 5.8247
1285. 8 TO 11 14 TO 17 UMOM GZ -1.178 0 5.8542
1286. 12 13 UMOM GZ -1.178 0 5.8334
1287. 18 UMOM GZ -1.178 0 4.7709
1288. 19 UMOM GZ -1.178 0 5.6198
1289. LOAD 175 LOADTYPE LIVE TITLE MAX AXIAL ON COLUMN C3 (2 LANE)
1290. MEMBER LOAD
1291. 10 CON GY -27.7 3.5607 0
1292. 11 CON GY -47 3.7065 0
1293. 12 CON GY -27.7 4.1111 0
1294. 13 CON GY -47 4.2777 0
1295. 1 UNI GX 0.211 0 6.0417
1296. 2 UNI GX 0.211 0 2.1388
1297. 3 UNI GX 0.211 0 1.8612
1298. 4 UNI GX 0.211 0 0.7969
1299. 5 UNI GX 0.211 0 1.599
1300. 6 UNI GX 0.211 0 4.2848
1301. 7 UNI GX 0.211 0 5.8247
1302. 8 TO 11 14 TO 17 UNI GX 0.211 0 5.8542
1303. 12 13 UNI GX 0.211 0 5.8334
1304. 18 UNI GX 0.211 0 4.7709
1305. 19 UNI GX 0.211 0 5.6198
1306. 1 UMOM GZ -0.872 0 6.0417
1307. 2 UMOM GZ -0.872 0 2.1388
1308. 3 UMOM GZ -0.872 0 1.8612
1309. 4 UMOM GZ -0.872 0 0.7969
1310. 5 UMOM GZ -0.872 0 1.599
1311. 6 UMOM GZ -0.872 0 4.2848
1312. 7 UMOM GZ -0.872 0 5.8247
1313. 8 TO 11 14 TO 17 UMOM GZ -0.872 0 5.8542
1314. 12 13 UMOM GZ -0.872 0 5.8334
1315. 18 UMOM GZ -0.872 0 4.7709
1316. 19 UMOM GZ -0.872 0 5.6198
1317. LOAD 176 LOADTYPE LIVE TITLE NEG. MOMENT IN FB OVER C2 (6 LANE)
1318. MEMBER LOAD
1319. 1 CON GY -20.8 1.6839 0
1320. 2 CON GY -35.3 1.6422 0
1321. 8 CON GY -20.8 3.269 0
1322. 9 CON GY -35.3 3.4148 0
1323. 10 CON GY -20.8 2.9167 0
1324. 11 CON GY -35.3 3.0625 0
1325. 13 CON GY -20.8 0.625 0
1326. 14 CON GY -35.3 0.7917 0
1327. 14 CON GY -20.8 5.7917 0
1328. 16 CON GY -35.3 0.0833 0

1329. 16 CON GY -20.8 5.0833 0
1330. 17 CON GY -35.3 5.2292 0
1331. 1 UNI GX 0.474 0 6.0417
1332. 2 UNI GX 0.474 0 2.1388
1333. 3 UNI GX 0.474 0 1.8612
1334. 4 UNI GX 0.474 0 0.7969
1335. 5 UNI GX 0.474 0 1.599
1336. 6 UNI GX 0.474 0 4.2848
1337. 7 UNI GX 0.474 0 5.8247
1338. 8 TO 11 14 TO 17 UNI GX 0.474 0 5.8542
1339. 12 13 UNI GX 0.474 0 5.8334
1340. 18 UNI GX 0.474 0 4.7709
1341. 19 UNI GX 0.474 0 5.6198
1342. 1 UMOM GZ -1.963 0 6.0417
1343. 2 UMOM GZ -1.963 0 2.1388
1344. 3 UMOM GZ -1.963 0 1.8612
1345. 4 UMOM GZ -1.963 0 0.7969
1346. 5 UMOM GZ -1.963 0 1.599
1347. 6 UMOM GZ -1.963 0 4.2848
1348. 7 UMOM GZ -1.963 0 5.8247
1349. 8 TO 11 14 TO 17 UMOM GZ -1.963 0 5.8542
1350. 12 13 UMOM GZ -1.963 0 5.8334
1351. 18 UMOM GZ -1.963 0 4.7709
1352. 19 UMOM GZ -1.963 0 5.6198
1353. LOAD 177 LOADTYPE LIVE TITLE NEG. MOMENT IN FB OVER C2 (3 LANE)
1354. MEMBER LOAD
1355. 9 CON GY -24.9 5.7708 0
1356. 11 CON GY -42.3 0.0625 0
1357. 14 CON GY -24.9 0.7917 0
1358. 15 CON GY -42.3 0.9375 0
1359. 15 CON GY -24.9 4.9375 0
1360. 16 CON GY -42.3 5.0833 0
1361. 1 UNI GX 0.285 0 6.0417
1362. 2 UNI GX 0.285 0 2.1388
1363. 3 UNI GX 0.285 0 1.8612
1364. 4 UNI GX 0.285 0 0.7969
1365. 5 UNI GX 0.285 0 1.599
1366. 6 UNI GX 0.285 0 4.2848
1367. 7 UNI GX 0.285 0 5.8247
1368. 8 TO 11 14 TO 17 UNI GX 0.285 0 5.8542
1369. 12 13 UNI GX 0.285 0 5.8334
1370. 18 UNI GX 0.285 0 4.7709
1371. 19 UNI GX 0.285 0 5.6198
1372. 1 UMOM GZ -1.178 0 6.0417
1373. 2 UMOM GZ -1.178 0 2.1388
1374. 3 UMOM GZ -1.178 0 1.8612
1375. 4 UMOM GZ -1.178 0 0.7969
1376. 5 UMOM GZ -1.178 0 1.599
1377. 6 UMOM GZ -1.178 0 4.2848
1378. 7 UMOM GZ -1.178 0 5.8247
1379. 8 TO 11 14 TO 17 UMOM GZ -1.178 0 5.8542
1380. 12 13 UMOM GZ -1.178 0 5.8334
1381. 18 UMOM GZ -1.178 0 4.7709
1382. 19 UMOM GZ -1.178 0 5.6198
1383. LOAD 178 LOADTYPE LIVE TITLE NEG. MOMENT IN FB OVER C2 (2 LANE)
1384. MEMBER LOAD

1385. 9 CON GY -27.7 5.7708 0
1386. 11 CON GY -47 0.0625 0
1387. 14 CON GY -27.7 5.7917 0
1388. 16 CON GY -47 0.0833 0
1389. 1 UNI GX 0.211 0 6.0417
1390. 2 UNI GX 0.211 0 2.1388
1391. 3 UNI GX 0.211 0 1.8612
1392. 4 UNI GX 0.211 0 0.7969
1393. 5 UNI GX 0.211 0 1.599
1394. 6 UNI GX 0.211 0 4.2848
1395. 7 UNI GX 0.211 0 5.8247
1396. 8 TO 11 14 TO 17 UNI GX 0.211 0 5.8542
1397. 12 13 UNI GX 0.211 0 5.8334
1398. 18 UNI GX 0.211 0 4.7709
1399. 19 UNI GX 0.211 0 5.6198
1400. 1 UMOM GZ -0.872 0 6.0417
1401. 2 UMOM GZ -0.872 0 2.1388
1402. 3 UMOM GZ -0.872 0 1.8612
1403. 4 UMOM GZ -0.872 0 0.7969
1404. 5 UMOM GZ -0.872 0 1.599
1405. 6 UMOM GZ -0.872 0 4.2848
1406. 7 UMOM GZ -0.872 0 5.8247
1407. 8 TO 11 14 TO 17 UMOM GZ -0.872 0 5.8542
1408. 12 13 UMOM GZ -0.872 0 5.8334
1409. 18 UMOM GZ -0.872 0 4.7709
1410. 19 UMOM GZ -0.872 0 5.6198
1411. LOAD 179 LOADTYPE LIVE TITLE MAX AXIAL ON COLUMN C1 (4 LANE)
1412. MEMBER LOAD
1413. 6 CON GY -20.8 2.0547 0
1414. 7 CON GY -35.3 3.7699 0
1415. 14 CON GY -20.8 2.1875 0
1416. 15 CON GY -35.3 2.3333 0
1417. 16 CON GY -20.8 2.4792 0
1418. 17 CON GY -35.3 2.625 0
1419. 18 CON GY -20.8 2.7708 0
1420. 19 CON GY -35.3 4 0
1421. 1 UNI GX 0.316 0 6.0417
1422. 2 UNI GX 0.316 0 2.1388
1423. 3 UNI GX 0.316 0 1.8612
1424. 4 UNI GX 0.316 0 0.7969
1425. 5 UNI GX 0.316 0 1.599
1426. 6 UNI GX 0.316 0 4.2848
1427. 7 UNI GX 0.316 0 5.8247
1428. 8 TO 11 14 TO 17 UNI GX 0.316 0 5.8542
1429. 12 13 UNI GX 0.316 0 5.8334
1430. 18 UNI GX 0.316 0 4.7709
1431. 19 UNI GX 0.316 0 5.6198
1432. 1 UMOM GZ -1.309 0 6.0417
1433. 2 UMOM GZ -1.309 0 2.1388
1434. 3 UMOM GZ -1.309 0 1.8612
1435. 4 UMOM GZ -1.309 0 0.7969
1436. 5 UMOM GZ -1.309 0 1.599
1437. 6 UMOM GZ -1.309 0 4.2848
1438. 7 UMOM GZ -1.309 0 5.8247
1439. 8 TO 11 14 TO 17 UMOM GZ -1.309 0 5.8542
1440. 12 13 UMOM GZ -1.309 0 5.8334

1441. 18 UMOM GZ -1.309 0 4.7709
1442. 19 UMOM GZ -1.309 0 5.6198
1443. LOAD 180 LOADTYPE LIVE TITLE MAX AXIAL ON COLUMN C1 (3 LANE)
1444. MEMBER LOAD
1445. 14 CON GY -24.9 2.1875 0
1446. 15 CON GY -42.3 2.3333 0
1447. 16 CON GY -24.9 2.4792 0
1448. 17 CON GY -42.3 2.625 0
1449. 18 CON GY -24.9 2.7708 0
1450. 19 CON GY -42.3 4 0
1451. 1 UNI GX 0.285 0 6.0417
1452. 2 UNI GX 0.285 0 2.1388
1453. 3 UNI GX 0.285 0 1.8612
1454. 4 UNI GX 0.285 0 0.7969
1455. 5 UNI GX 0.285 0 1.599
1456. 6 UNI GX 0.285 0 4.2848
1457. 7 UNI GX 0.285 0 5.8247
1458. 8 TO 11 14 TO 17 UNI GX 0.285 0 5.8542
1459. 12 13 UNI GX 0.285 0 5.8334
1460. 18 UNI GX 0.285 0 4.7709
1461. 19 UNI GX 0.285 0 5.6198
1462. 1 UMOM GZ -1.178 0 6.0417
1463. 2 UMOM GZ -1.178 0 2.1388
1464. 3 UMOM GZ -1.178 0 1.8612
1465. 4 UMOM GZ -1.178 0 0.7969
1466. 5 UMOM GZ -1.178 0 1.599
1467. 6 UMOM GZ -1.178 0 4.2848
1468. 7 UMOM GZ -1.178 0 5.8247
1469. 8 TO 11 14 TO 17 UMOM GZ -1.178 0 5.8542
1470. 12 13 UMOM GZ -1.178 0 5.8334
1471. 18 UMOM GZ -1.178 0 4.7709
1472. 19 UMOM GZ -1.178 0 5.6198
1473. LOAD 181 LOADTYPE LIVE TITLE MAX AXIAL ON COLUMN C1 (2 LANE)
1474. MEMBER LOAD
1475. 16 CON GY -27.7 2.4792 0
1476. 17 CON GY -47 2.625 0
1477. 18 CON GY -27.7 2.7708 0
1478. 19 CON GY -47 4 0
1479. 1 UNI GX 0.211 0 6.0417
1480. 2 UNI GX 0.211 0 2.1388
1481. 3 UNI GX 0.211 0 1.8612
1482. 4 UNI GX 0.211 0 0.7969
1483. 5 UNI GX 0.211 0 1.599
1484. 6 UNI GX 0.211 0 4.2848
1485. 7 UNI GX 0.211 0 5.8247
1486. 8 TO 11 14 TO 17 UNI GX 0.211 0 5.8542
1487. 12 13 UNI GX 0.211 0 5.8334
1488. 18 UNI GX 0.211 0 4.7709
1489. 19 UNI GX 0.211 0 5.6198
1490. 1 UMOM GZ -0.872 0 6.0417
1491. 2 UMOM GZ -0.872 0 2.1388
1492. 3 UMOM GZ -0.872 0 1.8612
1493. 4 UMOM GZ -0.872 0 0.7969
1494. 5 UMOM GZ -0.872 0 1.599
1495. 6 UMOM GZ -0.872 0 4.2848
1496. 7 UMOM GZ -0.872 0 5.8247

1497. 8 TO 11 14 TO 17 UMOM GZ -0.872 0 5.8542
1498. 12 13 UMOM GZ -0.872 0 5.8334
1499. 18 UMOM GZ -0.872 0 4.7709
1500. 19 UMOM GZ -0.872 0 5.6198
1501. LOAD 182 LOADTYPE LIVE TITLE NEG. MOMENT IN FB OVER C1 (4 LANE)
1502. MEMBER LOAD
1503. 6 CON GY -20.8 2.0547 0
1504. 7 CON GY -35.3 3.7699 0
1505. 14 CON GY -20.8 0.7917 0
1506. 15 CON GY -35.3 0.9375 0
1507. 15 CON GY -20.8 4.9375 0
1508. 16 CON GY -35.3 5.0833 0
1509. 18 CON GY -20.8 2.7708 0
1510. 19 CON GY -35.3 4 0
1511. 1 UNI GX 0.316 0 6.0417
1512. 2 UNI GX 0.316 0 2.1388
1513. 3 UNI GX 0.316 0 1.8612
1514. 4 UNI GX 0.316 0 0.7969
1515. 5 UNI GX 0.316 0 1.599
1516. 6 UNI GX 0.316 0 4.2848
1517. 7 UNI GX 0.316 0 5.8247
1518. 8 TO 11 14 TO 17 UNI GX 0.316 0 5.8542
1519. 12 13 UNI GX 0.316 0 5.8334
1520. 18 UNI GX 0.316 0 4.7709
1521. 19 UNI GX 0.316 0 5.6198
1522. 1 UMOM GZ -1.309 0 6.0417
1523. 2 UMOM GZ -1.309 0 2.1388
1524. 3 UMOM GZ -1.309 0 1.8612
1525. 4 UMOM GZ -1.309 0 0.7969
1526. 5 UMOM GZ -1.309 0 1.599
1527. 6 UMOM GZ -1.309 0 4.2848
1528. 7 UMOM GZ -1.309 0 5.8247
1529. 8 TO 11 14 TO 17 UMOM GZ -1.309 0 5.8542
1530. 12 13 UMOM GZ -1.309 0 5.8334
1531. 18 UMOM GZ -1.309 0 4.7709
1532. 19 UMOM GZ -1.309 0 5.6198
1533. LOAD 183 LOADTYPE LIVE TITLE NEG. MOMENT IN FB OVER C1 (3 LANE)
1534. MEMBER LOAD
1535. 14 CON GY -24.9 0.7917 0
1536. 15 CON GY -42.3 0.9375 0
1537. 15 CON GY -24.9 4.9375 0
1538. 16 CON GY -42.3 5.0833 0
1539. 18 CON GY -24.9 2.7708 0
1540. 19 CON GY -42.3 4 0
1541. 1 UNI GX 0.285 0 6.0417
1542. 2 UNI GX 0.285 0 2.1388
1543. 3 UNI GX 0.285 0 1.8612
1544. 4 UNI GX 0.285 0 0.7969
1545. 5 UNI GX 0.285 0 1.599
1546. 6 UNI GX 0.285 0 4.2848
1547. 7 UNI GX 0.285 0 5.8247
1548. 8 TO 11 14 TO 17 UNI GX 0.285 0 5.8542
1549. 12 13 UNI GX 0.285 0 5.8334
1550. 18 UNI GX 0.285 0 4.7709
1551. 19 UNI GX 0.285 0 5.6198
1552. 1 UMOM GZ -1.178 0 6.0417

1553. 2 UMOM GZ -1.178 0 2.1388
1554. 3 UMOM GZ -1.178 0 1.8612
1555. 4 UMOM GZ -1.178 0 0.7969
1556. 5 UMOM GZ -1.178 0 1.599
1557. 6 UMOM GZ -1.178 0 4.2848
1558. 7 UMOM GZ -1.178 0 5.8247
1559. 8 TO 11 14 TO 17 UMOM GZ -1.178 0 5.8542
1560. 12 13 UMOM GZ -1.178 0 5.8334
1561. 18 UMOM GZ -1.178 0 4.7709
1562. 19 UMOM GZ -1.178 0 5.6198
1563. LOAD 184 LOADTYPE LIVE TITLE NEG. MOMENT IN FB OVER C1 (2 LANE)
1564. MEMBER LOAD
1565. 14 CON GY -27.7 5.7917 0
1566. 16 CON GY -47 0.0833 0
1567. 18 CON GY -27.7 2.7708 0
1568. 19 CON GY -47 4 0
1569. 1 UNI GX 0.211 0 6.0417
1570. 2 UNI GX 0.211 0 2.1388
1571. 3 UNI GX 0.211 0 1.8612
1572. 4 UNI GX 0.211 0 0.7969
1573. 5 UNI GX 0.211 0 1.599
1574. 6 UNI GX 0.211 0 4.2848
1575. 7 UNI GX 0.211 0 5.8247
1576. 8 TO 11 14 TO 17 UNI GX 0.211 0 5.8542
1577. 12 13 UNI GX 0.211 0 5.8334
1578. 18 UNI GX 0.211 0 4.7709
1579. 19 UNI GX 0.211 0 5.6198
1580. 1 UMOM GZ -0.872 0 6.0417
1581. 2 UMOM GZ -0.872 0 2.1388
1582. 3 UMOM GZ -0.872 0 1.8612
1583. 4 UMOM GZ -0.872 0 0.7969
1584. 5 UMOM GZ -0.872 0 1.599
1585. 6 UMOM GZ -0.872 0 4.2848
1586. 7 UMOM GZ -0.872 0 5.8247
1587. 8 TO 11 14 TO 17 UMOM GZ -0.872 0 5.8542
1588. 12 13 UMOM GZ -0.872 0 5.8334
1589. 18 UMOM GZ -0.872 0 4.7709
1590. 19 UMOM GZ -0.872 0 5.6198
1591. LOAD 185 LOADTYPE LIVE TITLE ALL LANES LOADED - CENTER (6 LANE)
1592. MEMBER LOAD
1593. 6 CON GY -20.8 1.3784 0
1594. 7 CON GY -35.3 3.0936 0
1595. 8 CON GY -20.8 3.269 0
1596. 9 CON GY -35.3 3.4148 0
1597. 10 CON GY -20.8 3.5607 0
1598. 11 CON GY -35.3 3.7065 0
1599. 12 CON GY -20.8 4.1111 0
1600. 13 CON GY -35.3 4.2777 0
1601. 14 CON GY -20.8 4.4444 0
1602. 15 CON GY -35.3 4.5902 0
1603. 16 CON GY -20.8 4.7361 0
1604. 17 CON GY -35.3 4.8819 0
1605. 1 UNI GX 0.474 0 6.0417
1606. 2 UNI GX 0.474 0 2.1388
1607. 3 UNI GX 0.474 0 1.8612
1608. 4 UNI GX 0.474 0 0.7969

1609. 5 UNI GX 0.474 0 1.599
1610. 6 UNI GX 0.474 0 4.2848
1611. 7 UNI GX 0.474 0 5.8247
1612. 8 TO 11 14 TO 17 UNI GX 0.474 0 5.8542
1613. 12 13 UNI GX 0.474 0 5.8334
1614. 18 UNI GX 0.474 0 4.7709
1615. 19 UNI GX 0.474 0 5.6198
1616. 1 UMOM GZ -1.963 0 6.0417
1617. 2 UMOM GZ -1.963 0 2.1388
1618. 3 UMOM GZ -1.963 0 1.8612
1619. 4 UMOM GZ -1.963 0 0.7969
1620. 5 UMOM GZ -1.963 0 1.599
1621. 6 UMOM GZ -1.963 0 4.2848
1622. 7 UMOM GZ -1.963 0 5.8247
1623. 8 TO 11 14 TO 17 UMOM GZ -1.963 0 5.8542
1624. 12 13 UMOM GZ -1.963 0 5.8334
1625. 18 UMOM GZ -1.963 0 4.7709
1626. 19 UMOM GZ -1.963 0 5.6198
1627. LOAD 186 LOADTYPE LIVE TITLE ALL LANES LOADED - OUTSIDE (6 LANE)
1628. MEMBER LOAD
1629. 1 CON GY -20.8 1.6839 0
1630. 2 CON GY -35.3 1.6422 0
1631. 6 CON GY -20.8 1.2464 0
1632. 7 CON GY -35.3 2.9616 0
1633. 8 CON GY -20.8 3.137 0
1634. 9 CON GY -35.3 3.2829 0
1635. 14 CON GY -20.8 2.1875 0
1636. 15 CON GY -35.3 2.3333 0
1637. 16 CON GY -20.8 2.4792 0
1638. 17 CON GY -35.3 2.625 0
1639. 18 CON GY -20.8 2.7708 0
1640. 19 CON GY -35.3 4 0
1641. 1 UNI GX 0.474 0 6.0417
1642. 2 UNI GX 0.474 0 2.1388
1643. 3 UNI GX 0.474 0 1.8612
1644. 4 UNI GX 0.474 0 0.7969
1645. 5 UNI GX 0.474 0 1.599
1646. 6 UNI GX 0.474 0 4.2848
1647. 7 UNI GX 0.474 0 5.8247
1648. 8 TO 11 14 TO 17 UNI GX 0.474 0 5.8542
1649. 12 13 UNI GX 0.474 0 5.8334
1650. 18 UNI GX 0.474 0 4.7709
1651. 19 UNI GX 0.474 0 5.6198
1652. 1 UMOM GZ -1.963 0 6.0417
1653. 2 UMOM GZ -1.963 0 2.1388
1654. 3 UMOM GZ -1.963 0 1.8612
1655. 4 UMOM GZ -1.963 0 0.7969
1656. 5 UMOM GZ -1.963 0 1.599
1657. 6 UMOM GZ -1.963 0 4.2848
1658. 7 UMOM GZ -1.963 0 5.8247
1659. 8 TO 11 14 TO 17 UMOM GZ -1.963 0 5.8542
1660. 12 13 UMOM GZ -1.963 0 5.8334
1661. 18 UMOM GZ -1.963 0 4.7709
1662. 19 UMOM GZ -1.963 0 5.6198
1663. LOAD 187 LOADTYPE LIVE TITLE 2F1 LOADING INCLUDING CENTRIFUGAL
1664. REPEAT LOAD

1665. 156 0.479261
1666. LOAD 188 LOADTYPE LIVE TITLE 2F1 LOADING INCLUDING CENTRIFUGAL
1667. REPEAT LOAD
1668. 157 0.479261
1669. LOAD 189 LOADTYPE LIVE TITLE 2F1 LOADING INCLUDING CENTRIFUGAL
1670. REPEAT LOAD
1671. 158 0.479261
1672. LOAD 190 LOADTYPE LIVE TITLE 2F1 LOADING INCLUDING CENTRIFUGAL
1673. REPEAT LOAD
1674. 159 0.479261
1675. LOAD 191 LOADTYPE LIVE TITLE 2F1 LOADING INCLUDING CENTRIFUGAL
1676. REPEAT LOAD
1677. 160 0.479261
1678. LOAD 192 LOADTYPE LIVE TITLE 2F1 LOADING INCLUDING CENTRIFUGAL
1679. REPEAT LOAD
1680. 161 0.479261
1681. LOAD 193 LOADTYPE LIVE TITLE 2F1 LOADING INCLUDING CENTRIFUGAL
1682. REPEAT LOAD
1683. 162 0.479261
1684. LOAD 194 LOADTYPE LIVE TITLE 2F1 LOADING INCLUDING CENTRIFUGAL
1685. REPEAT LOAD
1686. 163 0.479261
1687. LOAD 195 LOADTYPE LIVE TITLE 2F1 LOADING INCLUDING CENTRIFUGAL
1688. REPEAT LOAD
1689. 164 0.479261
1690. LOAD 196 LOADTYPE LIVE TITLE 2F1 LOADING INCLUDING CENTRIFUGAL
1691. REPEAT LOAD
1692. 165 0.479261
1693. LOAD 197 LOADTYPE LIVE TITLE 2F1 LOADING INCLUDING CENTRIFUGAL
1694. REPEAT LOAD
1695. 166 0.479261
1696. LOAD 198 LOADTYPE LIVE TITLE 2F1 LOADING INCLUDING CENTRIFUGAL
1697. REPEAT LOAD
1698. 167 0.479261
1699. LOAD 199 LOADTYPE LIVE TITLE 2F1 LOADING INCLUDING CENTRIFUGAL
1700. REPEAT LOAD
1701. 168 0.479261
1702. LOAD 200 LOADTYPE LIVE TITLE 2F1 LOADING INCLUDING CENTRIFUGAL
1703. REPEAT LOAD
1704. 169 0.479261
1705. LOAD 201 LOADTYPE LIVE TITLE 2F1 LOADING INCLUDING CENTRIFUGAL
1706. REPEAT LOAD
1707. 170 0.479261
1708. LOAD 202 LOADTYPE LIVE TITLE 2F1 LOADING INCLUDING CENTRIFUGAL
1709. REPEAT LOAD
1710. 171 0.479261
1711. LOAD 203 LOADTYPE LIVE TITLE 2F1 LOADING INCLUDING CENTRIFUGAL
1712. REPEAT LOAD
1713. 172 0.479261
1714. LOAD 204 LOADTYPE LIVE TITLE 2F1 LOADING INCLUDING CENTRIFUGAL
1715. REPEAT LOAD
1716. 173 0.479261
1717. LOAD 205 LOADTYPE LIVE TITLE 2F1 LOADING INCLUDING CENTRIFUGAL
1718. REPEAT LOAD
1719. 174 0.479261
1720. LOAD 206 LOADTYPE LIVE TITLE 2F1 LOADING INCLUDING CENTRIFUGAL

1721. REPEAT LOAD
1722. 175 0.479261
1723. LOAD 207 LOADTYPE LIVE TITLE 2F1 LOADING INCLUDING CENTRIFUGAL
1724. REPEAT LOAD
1725. 176 0.479261
1726. LOAD 208 LOADTYPE LIVE TITLE 2F1 LOADING INCLUDING CENTRIFUGAL
1727. REPEAT LOAD
1728. 177 0.479261
1729. LOAD 209 LOADTYPE LIVE TITLE 2F1 LOADING INCLUDING CENTRIFUGAL
1730. REPEAT LOAD
1731. 178 0.479261
1732. LOAD 210 LOADTYPE LIVE TITLE 2F1 LOADING INCLUDING CENTRIFUGAL
1733. REPEAT LOAD
1734. 179 0.479261
1735. LOAD 211 LOADTYPE LIVE TITLE 2F1 LOADING INCLUDING CENTRIFUGAL
1736. REPEAT LOAD
1737. 180 0.479261
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1739. REPEAT LOAD
1740. 181 0.479261
1741. LOAD 213 LOADTYPE LIVE TITLE 2F1 LOADING INCLUDING CENTRIFUGAL
1742. REPEAT LOAD
1743. 182 0.479261
1744. LOAD 214 LOADTYPE LIVE TITLE 2F1 LOADING INCLUDING CENTRIFUGAL
1745. REPEAT LOAD
1746. 183 0.479261
1747. LOAD 215 LOADTYPE LIVE TITLE 2F1 LOADING INCLUDING CENTRIFUGAL
1748. REPEAT LOAD
1749. 184 0.479261
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1751. REPEAT LOAD
1752. 185 0.479261
1753. LOAD 217 LOADTYPE LIVE TITLE 2F1 LOADING INCLUDING CENTRIFUGAL
1754. REPEAT LOAD
1755. 186 0.479261
1756. LOAD 218 LOADTYPE LIVE TITLE 3F1 LOADING INCLUDING CENTRIFUGAL
1757. REPEAT LOAD
1758. 156 0.712443
1759. LOAD 219 LOADTYPE LIVE TITLE 3F1 LOADING INCLUDING CENTRIFUGAL
1760. REPEAT LOAD
1761. 157 0.712443
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1764. 158 0.712443
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1768. LOAD 222 LOADTYPE LIVE TITLE 3F1 LOADING INCLUDING CENTRIFUGAL
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1770. 160 0.712443
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1779. 163 0.712443
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1788. 166 0.712443
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1790. REPEAT LOAD
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1800. 170 0.712443
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1805. REPEAT LOAD
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1808. REPEAT LOAD
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1811. REPEAT LOAD
1812. 174 0.712443
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1814. REPEAT LOAD
1815. 175 0.712443
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1827. 179 0.712443
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1829. REPEAT LOAD
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1832. REPEAT LOAD

1833. 181 0.712443
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1835. REPEAT LOAD
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1837. LOAD 245 LOADTYPE LIVE TITLE 3F1 LOADING INCLUDING CENTRIFUGAL
1838. REPEAT LOAD
1839. 183 0.712443
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1841. REPEAT LOAD
1842. 184 0.712443
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1848. 186 0.712443
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1851. 156 0.813175
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1853. REPEAT LOAD
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1856. REPEAT LOAD
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1860. 159 0.813175
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1862. REPEAT LOAD
1863. 160 0.813175
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1875. 164 0.813175
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1885. LOAD 261 LOADTYPE LIVE TITLE 4F1 LOADING INCLUDING CENTRIFUGAL
1886. REPEAT LOAD
1887. 168 0.813175
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1889. REPEAT LOAD
1890. 169 0.813175
1891. LOAD 263 LOADTYPE LIVE TITLE 4F1 LOADING INCLUDING CENTRIFUGAL
1892. REPEAT LOAD
1893. 170 0.813175
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1895. REPEAT LOAD
1896. 171 0.813175
1897. LOAD 265 LOADTYPE LIVE TITLE 4F1 LOADING INCLUDING CENTRIFUGAL
1898. REPEAT LOAD
1899. 172 0.813175
1900. LOAD 266 LOADTYPE LIVE TITLE 4F1 LOADING INCLUDING CENTRIFUGAL
1901. REPEAT LOAD
1902. 173 0.813175
1903. LOAD 267 LOADTYPE LIVE TITLE 4F1 LOADING INCLUDING CENTRIFUGAL
1904. REPEAT LOAD
1905. 174 0.813175
1906. LOAD 268 LOADTYPE LIVE TITLE 4F1 LOADING INCLUDING CENTRIFUGAL
1907. REPEAT LOAD
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1911. 176 0.813175
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1913. REPEAT LOAD
1914. 177 0.813175
1915. LOAD 271 LOADTYPE LIVE TITLE 4F1 LOADING INCLUDING CENTRIFUGAL
1916. REPEAT LOAD
1917. 178 0.813175
1918. LOAD 272 LOADTYPE LIVE TITLE 4F1 LOADING INCLUDING CENTRIFUGAL
1919. REPEAT LOAD
1920. 179 0.813175
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1922. REPEAT LOAD
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1925. REPEAT LOAD
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1929. 182 0.813175
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1931. REPEAT LOAD
1932. 183 0.813175
1933. LOAD 277 LOADTYPE LIVE TITLE 4F1 LOADING INCLUDING CENTRIFUGAL
1934. REPEAT LOAD
1935. 184 0.813175
1936. LOAD 278 LOADTYPE LIVE TITLE 4F1 LOADING INCLUDING CENTRIFUGAL
1937. REPEAT LOAD
1938. 185 0.813175
1939. LOAD 279 LOADTYPE LIVE TITLE 4F1 LOADING INCLUDING CENTRIFUGAL
1940. REPEAT LOAD
1941. 186 0.813175
1942. LOAD 280 LOADTYPE LIVE TITLE 5C1 LOADING INCLUDING CENTRIFUGAL
1943. REPEAT LOAD
1944. 156 0.767515

1945. LOAD 281 LOADTYPE LIVE TITLE 5C1 LOADING INCLUDING CENTRIFUGAL
1946. REPEAT LOAD
1947. 157 0.767515
1948. LOAD 282 LOADTYPE LIVE TITLE 5C1 LOADING INCLUDING CENTRIFUGAL
1949. REPEAT LOAD
1950. 158 0.767515
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1952. REPEAT LOAD
1953. 159 0.767515
1954. LOAD 284 LOADTYPE LIVE TITLE 5C1 LOADING INCLUDING CENTRIFUGAL
1955. REPEAT LOAD
1956. 160 0.767515
1957. LOAD 285 LOADTYPE LIVE TITLE 5C1 LOADING INCLUDING CENTRIFUGAL
1958. REPEAT LOAD
1959. 161 0.767515
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1961. REPEAT LOAD
1962. 162 0.767515
1963. LOAD 287 LOADTYPE LIVE TITLE 5C1 LOADING INCLUDING CENTRIFUGAL
1964. REPEAT LOAD
1965. 163 0.767515
1966. LOAD 288 LOADTYPE LIVE TITLE 5C1 LOADING INCLUDING CENTRIFUGAL
1967. REPEAT LOAD
1968. 164 0.767515
1969. LOAD 289 LOADTYPE LIVE TITLE 5C1 LOADING INCLUDING CENTRIFUGAL
1970. REPEAT LOAD
1971. 165 0.767515
1972. LOAD 290 LOADTYPE LIVE TITLE 5C1 LOADING INCLUDING CENTRIFUGAL
1973. REPEAT LOAD
1974. 166 0.767515
1975. LOAD 291 LOADTYPE LIVE TITLE 5C1 LOADING INCLUDING CENTRIFUGAL
1976. REPEAT LOAD
1977. 167 0.767515
1978. LOAD 292 LOADTYPE LIVE TITLE 5C1 LOADING INCLUDING CENTRIFUGAL
1979. REPEAT LOAD
1980. 168 0.767515
1981. LOAD 293 LOADTYPE LIVE TITLE 5C1 LOADING INCLUDING CENTRIFUGAL
1982. REPEAT LOAD
1983. 169 0.767515
1984. LOAD 294 LOADTYPE LIVE TITLE 5C1 LOADING INCLUDING CENTRIFUGAL
1985. REPEAT LOAD
1986. 170 0.767515
1987. LOAD 295 LOADTYPE LIVE TITLE 5C1 LOADING INCLUDING CENTRIFUGAL
1988. REPEAT LOAD
1989. 171 0.767515
1990. LOAD 296 LOADTYPE LIVE TITLE 5C1 LOADING INCLUDING CENTRIFUGAL
1991. REPEAT LOAD
1992. 172 0.767515
1993. LOAD 297 LOADTYPE LIVE TITLE 5C1 LOADING INCLUDING CENTRIFUGAL
1994. REPEAT LOAD
1995. 173 0.767515
1996. LOAD 298 LOADTYPE LIVE TITLE 5C1 LOADING INCLUDING CENTRIFUGAL
1997. REPEAT LOAD
1998. 174 0.767515
1999. LOAD 299 LOADTYPE LIVE TITLE 5C1 LOADING INCLUDING CENTRIFUGAL
2000. REPEAT LOAD

2001. 175 0.767515
 2002. LOAD 300 LOADTYPE LIVE TITLE 5C1 LOADING INCLUDING CENTRIFUGAL
 2003. REPEAT LOAD
 2004. 176 0.767515
 2005. LOAD 301 LOADTYPE LIVE TITLE 5C1 LOADING INCLUDING CENTRIFUGAL
 2006. REPEAT LOAD
 2007. 177 0.767515
 2008. LOAD 302 LOADTYPE LIVE TITLE 5C1 LOADING INCLUDING CENTRIFUGAL
 2009. REPEAT LOAD
 2010. 178 0.767515
 2011. LOAD 303 LOADTYPE LIVE TITLE 5C1 LOADING INCLUDING CENTRIFUGAL
 2012. REPEAT LOAD
 2013. 179 0.767515
 2014. LOAD 304 LOADTYPE LIVE TITLE 5C1 LOADING INCLUDING CENTRIFUGAL
 2015. REPEAT LOAD
 2016. 180 0.767515
 2017. LOAD 305 LOADTYPE LIVE TITLE 5C1 LOADING INCLUDING CENTRIFUGAL
 2018. REPEAT LOAD
 2019. 181 0.767515
 2020. LOAD 306 LOADTYPE LIVE TITLE 5C1 LOADING INCLUDING CENTRIFUGAL
 2021. REPEAT LOAD
 2022. 182 0.767515
 2023. LOAD 307 LOADTYPE LIVE TITLE 5C1 LOADING INCLUDING CENTRIFUGAL
 2024. REPEAT LOAD
 2025. 183 0.767515
 2026. LOAD 308 LOADTYPE LIVE TITLE 5C1 LOADING INCLUDING CENTRIFUGAL
 2027. REPEAT LOAD
 2028. 184 0.767515
 2029. LOAD 309 LOADTYPE LIVE TITLE 5C1 LOADING INCLUDING CENTRIFUGAL
 2030. REPEAT LOAD
 2031. 185 0.767515
 2032. LOAD 310 LOADTYPE LIVE TITLE 5C1 LOADING INCLUDING CENTRIFUGAL
 2033. REPEAT LOAD
 2034. 186 0.767515
 2035. LOAD GENERATION 35
 2036. TYPE 1 -9.7536 147.748 0 XINC 1.0039 YRANGE 2
 2037. LOAD GENERATION 32
 2038. TYPE 1 38.6371 147.905 0 XINC 1.024 YRANGE 2
 2039. PDELTA 10 ANALYSIS

P R O B L E M S T A T I S T I C S

NUMBER OF JOINTS/MEMBER+ELEMENTS/SUPPORTS = 48/ 73/ 4

SOLVER USED IS THE OUT-OF-CORE BASIC SOLVER

ORIGINAL/FINAL BAND-WIDTH= 19/ 5/ 36 DOF
 TOTAL PRIMARY LOAD CASES = 377, TOTAL DEGREES OF FREEDOM = 267
 SIZE OF STIFFNESS MATRIX = 10 DOUBLE KILO-WORDS
 REQD/AVAIL. DISK SPACE = 14.6/ 514312.3 MB

DXF IMPORT OF 002_1441BENT_8.DXF

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ZERO STIFFNESS IN DIRECTION 3 AT JOINT 33 EQN.NO. 84
 LOADS APPLIED OR DISTRIBUTED HERE FROM ELEMENTS WILL BE IGNORED.
 THIS MAY BE DUE TO ALL MEMBERS AT THIS JOINT BEING RELEASED OR
 EFFECTIVELY RELEASED IN THIS DIRECTION.

ZERO STIFFNESS IN DIRECTION 4 AT JOINT	33 EQN.NO.	85
ZERO STIFFNESS IN DIRECTION 5 AT JOINT	33 EQN.NO.	86
ZERO STIFFNESS IN DIRECTION 6 AT JOINT	33 EQN.NO.	87
ZERO STIFFNESS IN DIRECTION 3 AT JOINT	41 EQN.NO.	96
ZERO STIFFNESS IN DIRECTION 4 AT JOINT	41 EQN.NO.	97
ZERO STIFFNESS IN DIRECTION 5 AT JOINT	41 EQN.NO.	98
ZERO STIFFNESS IN DIRECTION 6 AT JOINT	41 EQN.NO.	99
ZERO STIFFNESS IN DIRECTION 3 AT JOINT	34 EQN.NO.	102
ZERO STIFFNESS IN DIRECTION 4 AT JOINT	34 EQN.NO.	103
ZERO STIFFNESS IN DIRECTION 5 AT JOINT	34 EQN.NO.	104
ZERO STIFFNESS IN DIRECTION 6 AT JOINT	34 EQN.NO.	105

****WARNING - THERE WERE MORE THAN 12 DOF WITH ZERO STIFFNESS.**

THE FIRST 12 ARE LISTED ABOVE.

TOTAL # TRANSLATIONAL= 16 TOTAL # ROTATIONAL= 48

++ Adjusting Displacements	10: 4: 2
++ Adjusting Displacements	10: 4: 2
++ Adjusting Displacements	10: 4: 2
++ Adjusting Displacements	10: 4: 3
++ Adjusting Displacements	10: 4: 3
++ Adjusting Displacements	10: 4: 3
++ Adjusting Displacements	10: 4: 3
++ Adjusting Displacements	10: 4: 4
++ Adjusting Displacements	10: 4: 4
++ Adjusting Displacements	10: 4: 4

2040. LOAD LIST 1 TO 31 156 TO 186

2041. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 1 TO 19

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
1 MAX	0.00	0.00	185	162.54	6.04	7			
	0.00	0.00	1	0.00	0.00	1	2.86 C	6.04	185
MIN	-37.30	6.04	7	-11.84	6.04	185			
	0.00	6.04	186	0.00	6.04	186	0.12 T	6.04	7
2 MAX	0.00	0.00	8	260.85	2.14	7			
	0.00	0.00	1	0.00	0.00	1	3.88 C	2.14	185
MIN	-74.71	2.14	158	-16.01	2.14	185			
	0.00	2.14	186	0.00	2.14	186	0.24 T	2.14	7
3 MAX	3.53	0.00	11	301.45	1.86	7			
	0.00	0.00	1	0.00	0.00	1	6.15 C	1.86	185
MIN	-30.43	1.86	171	-17.35	1.86	185			
	0.00	1.86	186	0.00	1.86	186	51.23 T	1.86	3
4 MAX	3.53	0.00	11	319.83	0.80	7			
	0.00	0.00	1	0.00	0.00	1	6.52 C	0.80	185
MIN	-30.42	0.80	171	-18.40	0.80	185			
	0.00	0.80	186	0.00	0.80	186	51.24 T	0.80	3
5 MAX	3.53	0.00	11	356.77	1.60	7			
	0.00	0.00	1	0.00	0.00	1	7.28 C	1.60	185
MIN	-30.45	1.60	171	-24.10	1.60	164			
	0.00	1.60	186	0.00	1.60	186	51.22 T	1.60	3
6 MAX	46.57	0.00	3	377.63	4.28	16			
	0.00	0.00	1	0.00	0.00	1	9.85 C	4.28	185
MIN	-26.35	4.28	14	-83.74	2.14	11			
	0.00	4.28	186	0.00	4.28	186	50.53 T	4.28	3
7 MAX	57.92	0.00	3	384.70	0.00	16			
	0.00	0.00	1	0.00	0.00	1	9.77 C	5.82	185
MIN	-71.08	5.82	169	-83.60	3.49	166			
	0.00	5.82	186	0.00	5.82	186	0.65 T	5.82	3
8 MAX	88.68	0.00	17	316.30	0.00	17			
	0.00	0.00	1	0.00	0.00	1	12.62 C	0.00	17
MIN	-10.76	5.85	165	-133.71	5.85	169			
	0.00	5.85	186	0.00	5.85	186	8.12 T	0.00	183
9 MAX	56.07	0.00	168	50.41	5.85	1			
	0.00	0.00	1	0.00	0.00	1	13.11 C	5.85	172

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MIN	-21.85	5.85	169	-322.46	5.85	172			
	0.00	5.85	186	0.00	5.85	186	6.45	T	0.00 183
10 MAX	27.40	0.00	20	102.97	5.85	167			
	0.00	0.00	1	0.00	0.00	1	14.25	C	5.85 172
MIN	-24.72	5.85	185	-357.01	2.93	17			
	0.00	5.85	186	0.00	5.85	186	5.21	T	5.85 28
11 MAX	1.64	0.00	3	159.52	5.85	167			
	0.00	0.00	1	0.00	0.00	1	15.34	C	5.85 172
MIN	-66.96	5.85	172	-291.64	0.00	172			
	0.00	5.85	186	0.00	5.85	186	5.21	T	5.85 28
12 MAX	1.64	0.00	3	444.83	5.83	185			
	0.00	0.00	1	0.00	0.00	1	17.28	C	5.83 185
MIN	-84.51	5.83	20	-81.23	0.00	20			
	0.00	5.83	186	0.00	5.83	186	5.21	T	5.83 28
13 MAX	107.13	0.00	10	442.65	0.00	22			
	0.00	0.00	1	0.00	0.00	1	20.26	C	0.00 12
MIN	-10.90	5.83	170	-121.66	5.83	165			
	0.00	5.83	186	0.00	5.83	186	19.79	T	0.00 170
14 MAX	81.50	0.00	12	121.90	0.00	17			
	0.00	0.00	1	0.00	0.00	1	20.25	C	0.00 12
MIN	-10.91	5.85	170	-381.94	5.85	167			
	0.00	5.85	186	0.00	5.85	186	17.95	T	0.00 170
15 MAX	46.59	0.00	167	168.57	5.85	170			
	0.00	0.00	1	0.00	0.00	1	20.23	C	5.85 167
MIN	-39.97	5.85	183	-441.95	4.68	12			
	0.00	5.85	186	0.00	5.85	186	16.10	T	0.00 170
16 MAX	12.60	0.00	178	224.90	5.85	170			
	0.00	0.00	1	0.00	0.00	1	21.31	C	5.85 167
MIN	-82.28	5.85	183	-415.81	0.00	12			
	0.00	5.85	186	0.00	5.85	186	14.25	T	0.00 170
17 MAX	6.45	0.00	17	518.40	5.85	183			
	0.00	0.00	1	0.00	0.00	1	22.55	C	5.85 167
MIN	-103.87	5.85	165	-208.78	0.00	12			
	0.00	5.85	186	0.00	5.85	186	12.96	T	5.85 15
18 MAX	74.70	0.00	184	498.06	0.00	184			
	0.00	0.00	1	0.00	0.00	1	0.23	C	0.00 26
MIN	0.00	4.77	30	0.00	4.77	30			
	0.00	4.77	186	0.00	4.77	186	4.93	T	0.00 185
19 MAX	47.00	0.00	184	192.91	0.00	184			
	0.00	0.00	1	0.00	0.00	1	0.13	C	0.00 26
MIN	0.00	5.62	170	0.00	5.62	186			
	0.00	5.62	186	0.00	5.62	186	2.66	T	0.00 185

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

2042. *HS-20 MAX FLOOR BEAM FORCES ABOVE
2043. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 20 21

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/	DIST	LD	MZ/	DIST	LD	FX	DIST	LD
	FZ	DIST	LD	MY	DIST	LD			
20 MAX	0.00	0.00	1	0.00	0.00	1			
	0.36	0.00	13	2.98	8.28	13	169.82 C	0.00	3
MIN	0.00	8.28	186	0.00	8.28	186			
	-1.60	8.28	186	-13.25	8.28	186	25.23 T	8.28	172
21 MAX	0.00	0.00	1	0.00	0.00	1			
	1.24	0.00	186	1.67	4.27	186	69.46 C	0.00	3
MIN	0.00	4.27	186	0.00	4.27	186			
	-0.27	4.27	14	-3.62	0.00	186	16.75 T	4.27	172

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

2044. *HS-20 MAX COLUMN 4 FORCES ABOVE

2045. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 22 TO 24

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
22 MAX	8.85	0.00	186	87.64	0.00	186			
	0.00	0.00	1	0.00	0.00	1	133.44 C	0.00	13
MIN	-0.90	15.73	1	-52.59	15.73	185			
	0.00	15.73	186	0.00	15.73	186	22.07 T	15.73	2
23 MAX	2.27	0.00	19	56.85	5.33	186			
	0.00	0.00	1	0.00	0.00	1	139.12 C	0.00	168
MIN	-20.32	5.33	186	-52.59	0.00	185			
	0.00	5.33	186	0.00	5.33	186	23.18 T	5.33	2
24 MAX	14.85	0.00	186	111.03	9.60	17			
	0.00	0.00	1	0.00	0.00	1	139.12 C	0.00	168
MIN	-12.11	9.60	17	-96.74	9.60	156			
	0.00	9.60	186	0.00	9.60	186	23.18 T	9.60	2

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

2046. *HS-20 MAX COLUMN 3 FORCES ABOVE

2047. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 25 TO 28

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
25 MAX	26.46	0.00	185	187.65	0.00	185			
	0.00	0.00	1	0.00	0.00	1	152.23 C	0.00	19
MIN	-1.66	9.75	15	-70.36	9.75	185			
	0.00	9.75	186	0.00	9.75	186	1.86 T	9.75	158
26 MAX	0.60	0.00	15	9.77	0.00	15			
	0.00	0.00	1	0.00	0.00	1	144.74 C	0.00	19
MIN	-7.32	5.98	185	-70.36	0.00	185			
	0.00	5.98	186	0.00	5.98	186	2.22 T	5.98	158
27 MAX	2.09	0.00	12	68.21	5.33	186			
	0.00	0.00	1	0.00	0.00	1	144.74 C	0.00	19
MIN	-17.12	5.33	186	-26.60	0.00	185			
	0.00	5.33	186	0.00	5.33	186	2.22 T	5.33	158
28 MAX	31.38	0.00	170	191.97	9.70	12			
	0.00	0.00	1	0.00	0.00	1	155.50 C	0.00	19
MIN	-21.47	9.70	12	-241.94	9.70	170			
	0.00	9.70	186	0.00	9.70	186	2.35 T	9.70	158

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

2048. *HS-20 MAX COLUMN 2 FORCES ABOVE

2049. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 29 TO 31

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
29 MAX	7.69	0.00	185	80.89	0.00	173			
	0.00	0.00	1	0.00	0.00	1	167.67 C	0.00	180
MIN	-0.64	16.73	12	-47.85	16.73	185			
	0.00	16.73	186	0.00	16.73	186	6.05 T	16.73	17
30 MAX	0.56	0.00	9	49.37	5.33	186			
	0.00	0.00	1	0.00	0.00	1	161.32 C	0.00	180
MIN	-17.68	5.33	186	-47.85	0.00	185			
	0.00	5.33	186	0.00	5.33	186	6.44 T	5.33	17
31 MAX	25.02	0.00	165	126.43	9.79	15			
	0.00	0.00	1	0.00	0.00	1	161.32 C	0.00	180
MIN	-12.93	9.79	15	-218.37	9.79	167			
	0.00	9.79	186	0.00	9.79	186	6.44 T	9.79	17

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

2050. *HS-20 MAX COLUMN 1 FORCES ABOVE

2051. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 72 73

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
72 MAX	1.01	0.00	186	5.92	0.00	186			
	0.00	0.00	1	0.00	0.00	1	72.59 C	0.00	3
MIN	-0.28	6.02	17	-1.19	0.00	17			
	0.00	6.02	186	0.00	6.02	186	5.06 T	6.02	172
73 MAX	0.64	0.00	11	7.23	6.06	171			
	0.00	0.00	1	0.00	0.00	1	69.78 C	0.00	3
MIN	-1.79	6.06	176	-4.39	0.00	176			
	0.00	6.06	186	0.00	6.06	186	6.32 T	6.06	172

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

2052. *HS-20 KNEE BRACE FORCES ABOVE

2053. LOAD LIST 32 TO 62 187 TO 217

2054. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 1 TO 19

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
1 MAX	0.00	0.00	216	77.90	6.04	38			
	0.00	0.00	32	0.00	0.00	32	1.37 C	6.04	216
	-17.88	6.04	38	-5.67	6.04	216			
MIN	0.00	6.04	217	0.00	6.04	217	0.06 T	6.04	38
	0.00	0.00	39	125.01	2.14	38			
	0.00	0.00	32	0.00	0.00	32	1.86 C	2.14	216
2 MAX	-35.80	2.14	189	-7.67	2.14	216			
	0.00	2.14	217	0.00	2.14	217	0.12 T	2.14	38
	0.00	0.00	42	144.45	1.86	38			
3 MAX	0.00	0.00	32	0.00	0.00	32	2.94 C	1.86	216
	-14.57	1.86	202	-8.31	1.86	216			
	0.00	1.86	217	0.00	1.86	217	24.55 T	1.86	34
4 MAX	0.00	0.00	42	153.24	0.80	38			
	0.00	0.00	32	0.00	0.00	32	3.13 C	0.80	216
	-14.56	0.80	202	-8.82	0.80	216			
MIN	0.00	0.80	217	0.00	0.80	217	24.56 T	0.80	34
	1.69	0.00	42	170.91	1.60	38			
	0.00	0.00	32	0.00	0.00	32	3.49 C	1.60	216
5 MAX	-14.58	1.60	202	-11.55	1.60	195			
	0.00	1.60	217	0.00	1.60	217	24.55 T	1.60	34
	22.34	0.00	34	180.90	4.28	47			
6 MAX	0.00	0.00	32	0.00	0.00	32	4.72 C	4.28	216
	-12.63	4.28	45	-40.13	2.14	42			
	0.00	4.28	217	0.00	4.28	217	24.20 T	4.28	34
7 MAX	27.74	0.00	34	184.29	0.00	47			
	0.00	0.00	32	0.00	0.00	32	4.68 C	5.82	216
	-34.07	5.82	200	-40.08	3.49	197			
MIN	0.00	5.82	217	0.00	5.82	217	0.33 T	5.82	34
	42.50	0.00	48	151.57	0.00	48			
	0.00	0.00	32	0.00	0.00	32	6.05 C	0.00	48
8 MAX	-5.16	5.85	196	-64.07	5.85	200			
	0.00	5.85	217	0.00	5.85	217	3.88 T	0.00	214
	26.87	0.00	199	24.16	5.85	32			
9 MAX	0.00	0.00	32	0.00	0.00	32	6.28 C	5.85	203

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MIN	-10.47	5.85	200	-154.52	5.85	203			
	0.00	5.85	217	0.00	5.85	217	3.08	T	0.00 214
10 MAX	13.13	0.00	51	49.34	5.85	198			
	0.00	0.00	32	0.00	0.00	32	6.83	C	5.85 203
MIN	-11.84	5.85	216	-171.08	2.93	48			
	0.00	5.85	217	0.00	5.85	217	2.49	T	5.85 59
11 MAX	0.79	0.00	34	76.43	5.85	198			
	0.00	0.00	32	0.00	0.00	32	7.35	C	5.85 203
MIN	-32.09	5.85	203	-139.75	0.00	203			
	0.00	5.85	217	0.00	5.85	217	2.49	T	5.85 59
12 MAX	0.79	0.00	34	213.13	5.83	216			
	0.00	0.00	32	0.00	0.00	32	8.28	C	5.83 216
MIN	-40.50	5.25	51	-38.93	0.00	51			
	0.00	5.83	217	0.00	5.83	217	2.49	T	5.83 59
13 MAX	51.33	0.00	41	212.11	0.00	53			
	0.00	0.00	32	0.00	0.00	32	9.70	C	0.00 43
MIN	-5.22	5.83	201	-58.29	5.83	196			
	0.00	5.83	217	0.00	5.83	217	9.49	T	0.00 201
14 MAX	39.05	0.00	43	58.42	0.00	48			
	0.00	0.00	32	0.00	0.00	32	9.70	C	0.00 43
MIN	-5.23	5.85	201	-183.00	5.85	198			
	0.00	5.85	217	0.00	5.85	217	8.61	T	0.00 201
15 MAX	22.33	0.00	198	80.78	5.85	201			
	0.00	0.00	32	0.00	0.00	32	9.69	C	5.85 198
MIN	-19.15	5.85	214	-211.76	4.68	43			
	0.00	5.85	217	0.00	5.85	217	7.72	T	0.00 201
16 MAX	6.04	0.00	209	107.75	5.85	201			
	0.00	0.00	32	0.00	0.00	32	10.21	C	5.85 198
MIN	-39.43	5.85	214	-199.22	0.00	43			
	0.00	5.85	217	0.00	5.85	217	6.83	T	0.00 201
17 MAX	3.09	0.00	48	248.40	5.85	214			
	0.00	0.00	32	0.00	0.00	32	10.80	C	5.85 198
MIN	-49.77	5.85	196	-100.03	0.00	43			
	0.00	5.85	217	0.00	5.85	217	6.21	T	5.85 46
18 MAX	35.80	0.00	215	238.70	0.00	215			
	0.00	0.00	32	0.00	0.00	32	0.11	C	0.00 57
MIN	0.00	4.77	61	0.00	4.77	61			
	0.00	4.77	217	0.00	4.77	217	2.36	T	0.00 216
19 MAX	22.53	0.00	215	92.45	0.00	215			
	0.00	0.00	32	0.00	0.00	32	0.06	C	0.00 57
MIN	0.00	5.62	201	0.00	5.62	217			
	0.00	5.62	217	0.00	5.62	217	1.28	T	0.00 216

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

2055. *2F1 MAX FLOOR BEAM FORCES ABOVE

2056. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 20 21

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
20 MAX	0.00	0.00	32	0.00	0.00	32			
	0.17	0.00	44	1.43	8.28	44	81.36 C	0.00	34
MIN	0.00	8.28	217	0.00	8.28	217			
	-0.76	8.28	217	-6.32	8.28	217	12.09 T	8.28	203
21 MAX	0.00	0.00	32	0.00	0.00	32			
	0.59	0.00	217	0.79	4.27	217	33.28 C	0.00	34
MIN	0.00	4.27	217	0.00	4.27	217			
	-0.13	4.27	45	-1.73	0.00	217	8.03 T	4.27	203

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

2057. *2F1 MAX COLUMN 4 FORCES ABOVE

2058. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 22 TO 24

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
22 MAX	4.22	0.00	217	41.80	0.00	217			
	0.00	0.00	32	0.00	0.00	32	63.95 C	0.00	44
MIN	-0.43	15.73	32	-25.13	15.73	216			
	0.00	15.73	217	0.00	15.73	217	10.55 T	15.73	33
23 MAX	1.09	0.00	50	27.13	5.33	217			
	0.00	0.00	32	0.00	0.00	32	66.67 C	0.00	199
MIN	-9.69	5.33	217	-25.13	0.00	216			
	0.00	5.33	217	0.00	5.33	217	11.09 T	5.33	33
24 MAX	7.08	0.00	217	53.21	9.60	48			
	0.00	0.00	32	0.00	0.00	32	66.67 C	0.00	199
MIN	-5.80	9.60	48	-46.20	9.60	187			
	0.00	9.60	217	0.00	9.60	217	11.09 T	9.60	33

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

2059. *2F1 MAX COLUMN 3 FORCES ABOVE

2060. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 25 TO 28

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
25 MAX	12.65	0.00	216	89.68	0.00	216			
	0.00	0.00	32	0.00	0.00	32	72.96 C	0.00	50
MIN	-0.80	9.75	46	-33.62	9.75	216			
	0.00	9.75	217	0.00	9.75	217	0.89 T	9.75	189
26 MAX	0.29	0.00	46	4.70	0.00	46			
	0.00	0.00	32	0.00	0.00	32	69.37 C	0.00	50
MIN	-3.50	5.98	216	-33.62	0.00	216			
	0.00	5.98	217	0.00	5.98	217	1.06 T	5.98	189
27 MAX	1.00	0.00	43	32.55	5.33	217			
	0.00	0.00	32	0.00	0.00	32	69.37 C	0.00	50
MIN	-8.17	5.33	217	-12.71	0.00	216			
	0.00	5.33	217	0.00	5.33	217	1.06 T	5.33	189
28 MAX	15.02	0.00	201	91.98	9.70	43			
	0.00	0.00	32	0.00	0.00	32	74.53 C	0.00	50
MIN	-10.29	9.70	43	-115.83	9.70	201			
	0.00	9.70	217	0.00	9.70	217	1.13 T	9.70	189

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

2061. *2F1 MAX COLUMN 2 FORCES ABOVE

2062. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 29 TO 31

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
29 MAX	3.68	0.00	216	38.63	0.00	216			
	0.00	0.00	32	0.00	0.00	32	80.35 C	0.00	211
MIN	-0.30	16.73	43	-22.87	16.73	216			
	0.00	16.73	217	0.00	16.73	217	2.90 T	16.73	48
30 MAX	0.26	0.00	40	23.54	5.33	217			
	0.00	0.00	32	0.00	0.00	32	77.31 C	0.00	211
MIN	-8.43	5.33	217	-22.87	0.00	216			
	0.00	5.33	217	0.00	5.33	217	3.09 T	5.33	48
31 MAX	11.98	0.00	196	60.62	9.79	46			
	0.00	0.00	32	0.00	0.00	32	77.31 C	0.00	211
MIN	-6.20	9.79	46	-104.63	9.79	198			
	0.00	9.79	217	0.00	9.79	217	3.09 T	9.79	48

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

2063. *2F1 MAX COLUMN 1 FORCES ABOVE

2064. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 72 73

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
72 MAX	0.48	0.00	217	2.83	0.00	217			
	0.00	0.00	32	0.00	0.00	32	34.82 C	0.00	34
MIN	-0.14	6.02	48	-0.57	0.00	48			
	0.00	6.02	217	0.00	6.02	217	2.43 T	6.02	203
73 MAX	0.31	0.00	42	3.46	6.06	202			
	0.00	0.00	32	0.00	0.00	32	33.39 C	0.00	34
MIN	-0.86	6.06	207	-2.10	0.00	207			
	0.00	6.06	217	0.00	6.06	217	3.03 T	6.06	203

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

2065. *2F1 KNEE BRACE FORCES ABOVE

2066. LOAD LIST 63 TO 93 218 TO 248

2067. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 1 TO 19

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
1 MAX	0.00	0.00	247	115.80	6.04	69			
	0.00	0.00	63	0.00	0.00	63	2.04 C	6.04	247
MIN	-26.57	6.04	69	-8.43	6.04	247			
	0.00	6.04	248	0.00	6.04	248	0.08 T	6.04	69
2 MAX	0.00	0.00	70	185.84	2.14	69			
	0.00	0.00	63	0.00	0.00	63	2.76 C	2.14	247
MIN	-53.22	2.14	220	-11.41	2.14	247			
	0.00	2.14	248	0.00	2.14	248	0.17 T	2.14	69
3 MAX	2.51	0.00	73	214.74	1.86	69			
	0.00	0.00	63	0.00	0.00	63	4.38 C	1.86	247
MIN	-21.67	1.86	233	-12.36	1.86	247			
	0.00	1.86	248	0.00	1.86	248	36.50 T	1.86	65
4 MAX	2.51	0.00	73	227.82	0.80	69			
	0.00	0.00	63	0.00	0.00	63	4.65 C	0.80	247
MIN	-21.66	0.80	233	-13.11	0.80	247			
	0.00	0.80	248	0.00	0.80	248	36.51 T	0.80	65
5 MAX	2.51	0.00	73	254.12	1.60	69			
	0.00	0.00	63	0.00	0.00	63	5.19 C	1.60	247
MIN	-21.68	1.60	233	-17.17	1.60	226			
	0.00	1.60	248	0.00	1.60	248	36.50 T	1.60	65
6 MAX	33.19	0.00	65	268.97	4.28	78			
	0.00	0.00	63	0.00	0.00	63	7.02 C	4.28	247
MIN	-18.77	4.28	76	-59.65	2.14	73			
	0.00	4.28	248	0.00	4.28	248	35.99 T	4.28	65
7 MAX	41.25	0.00	65	274.01	0.00	78			
	0.00	0.00	63	0.00	0.00	63	6.96 C	5.82	247
MIN	-50.64	5.82	231	-59.57	3.49	228			
	0.00	5.82	248	0.00	5.82	248	0.48 T	5.82	65
8 MAX	63.18	0.00	79	225.33	0.00	79			
	0.00	0.00	63	0.00	0.00	63	8.99 C	0.00	79
MIN	-7.67	5.85	227	-95.26	5.85	231			
	0.00	5.85	248	0.00	5.85	248	5.78 T	0.00	245
9 MAX	39.95	0.00	230	35.92	5.85	63			
	0.00	0.00	63	0.00	0.00	63	9.34 C	5.85	234

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MIN	-15.57	5.85	231	-229.72	5.85	234			
	0.00	5.85	248	0.00	5.85	248	4.59	T	0.00 245
10 MAX	19.52	0.00	82	73.35	5.85	229			
	0.00	0.00	63	0.00	0.00	63	10.15	C	5.85 234
MIN	-17.61	5.85	247	-254.33	2.93	79			
	0.00	5.85	248	0.00	5.85	248	3.71	T	5.85 90
11 MAX	1.17	0.00	65	113.63	5.85	229			
	0.00	0.00	63	0.00	0.00	63	10.93	C	5.85 234
MIN	-47.70	5.85	234	-207.76	0.00	234			
	0.00	5.85	248	0.00	5.85	248	3.71	T	5.85 90
12 MAX	1.17	0.00	65	316.86	5.83	247			
	0.00	0.00	63	0.00	0.00	63	12.31	C	5.83 247
MIN	-60.21	5.83	82	-57.87	0.00	82			
	0.00	5.83	248	0.00	5.83	248	3.71	T	5.83 90
13 MAX	76.31	0.00	72	315.34	0.00	84			
	0.00	0.00	63	0.00	0.00	63	14.43	C	0.00 74
MIN	-7.76	5.83	232	-86.66	5.83	227			
	0.00	5.83	248	0.00	5.83	248	14.11	T	0.00 232
14 MAX	58.06	0.00	74	86.84	0.00	79			
	0.00	0.00	63	0.00	0.00	63	14.43	C	0.00 74
MIN	-7.77	5.85	232	-272.07	5.85	229			
	0.00	5.85	248	0.00	5.85	248	12.79	T	0.00 232
15 MAX	33.19	0.00	229	120.09	5.85	232			
	0.00	0.00	63	0.00	0.00	63	14.41	C	5.85 229
MIN	-28.48	5.85	245	-314.82	4.68	74			
	0.00	5.85	248	0.00	5.85	248	11.47	T	0.00 232
16 MAX	8.98	0.00	240	160.20	5.85	232			
	0.00	0.00	63	0.00	0.00	63	15.18	C	5.85 229
MIN	-58.62	5.85	245	-296.19	0.00	74			
	0.00	5.85	248	0.00	5.85	248	10.16	T	0.00 232
17 MAX	4.60	0.00	79	369.29	5.85	245			
	0.00	0.00	63	0.00	0.00	63	16.06	C	5.85 229
MIN	-73.99	5.85	227	-148.72	0.00	74			
	0.00	5.85	248	0.00	5.85	248	9.24	T	5.85 77
18 MAX	53.22	0.00	246	354.84	0.00	246			
	0.00	0.00	63	0.00	0.00	63	0.17	C	0.00 88
MIN	0.00	4.77	92	0.00	4.77	92			
	0.00	4.77	248	0.00	4.77	248	3.51	T	0.00 247
19 MAX	33.49	0.00	246	137.44	0.00	246			
	0.00	0.00	63	0.00	0.00	63	0.09	C	0.00 88
MIN	0.00	5.62	232	0.00	5.62	248			
	0.00	5.62	248	0.00	5.62	248	1.90	T	0.00 247

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

2068. *3F1 MAX FLOOR BEAM FORCES ABOVE
2069. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 20 21

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
20 MAX	0.00	0.00	63	0.00	0.00	63			
	0.26	0.00	75	2.12	8.28	75	120.97 C	0.00	65
MIN	0.00	8.28	248	0.00	8.28	248			
	-1.14	8.28	248	-9.42	8.28	248	17.97 T	8.28	234
21 MAX	0.00	0.00	63	0.00	0.00	63			
	0.88	0.00	248	1.19	4.27	248	49.48 C	0.00	65
MIN	0.00	4.27	248	0.00	4.27	248			
	-0.19	4.27	76	-2.57	0.00	248	11.93 T	4.27	234

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

2070. *3F1 MAX COLUMN 4 FORCES ABOVE

2071. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 22 TO 24

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
22 MAX	6.29	0.00	248	62.27	0.00	248			
	0.00	0.00	63	0.00	0.00	63	95.06 C	0.00	75
MIN	-0.64	15.73	63	-37.41	15.73	247			
	0.00	15.73	248	0.00	15.73	248	15.70 T	15.73	64
23 MAX	1.62	0.00	81	40.41	5.33	248			
	0.00	0.00	63	0.00	0.00	63	99.11 C	0.00	230
MIN	-14.44	5.33	248	-37.41	0.00	247			
	0.00	5.33	248	0.00	5.33	248	16.50 T	5.33	64
24 MAX	10.55	0.00	248	79.10	9.60	79			
	0.00	0.00	63	0.00	0.00	63	99.11 C	0.00	230
MIN	-8.63	9.60	79	-68.79	9.60	218			
	0.00	9.60	248	0.00	9.60	248	16.50 T	9.60	64

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

2072. *3F1 MAX COLUMN 3 FORCES ABOVE

2073. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 25 TO 28

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
25 MAX	18.82	0.00	247	133.48	0.00	247			
	0.00	0.00	63	0.00	0.00	63	108.45 C	0.00	81
MIN	-1.19	9.75	77	-50.04	9.75	247			
	0.00	9.75	248	0.00	9.75	248	1.33 T	9.75	220
26 MAX	0.43	0.00	77	6.97	0.00	77			
	0.00	0.00	63	0.00	0.00	63	103.12 C	0.00	81
MIN	-5.21	5.98	247	-50.04	0.00	247			
	0.00	5.98	248	0.00	5.98	248	1.58 T	5.98	220
27 MAX	1.49	0.00	74	48.48	5.33	248			
	0.00	0.00	63	0.00	0.00	63	103.12 C	0.00	81
MIN	-12.17	5.33	248	-18.92	0.00	247			
	0.00	5.33	248	0.00	5.33	248	1.58 T	5.33	220
28 MAX	22.34	0.00	232	136.75	9.70	74			
	0.00	0.00	63	0.00	0.00	63	110.79 C	0.00	81
MIN	-15.29	9.70	74	-172.27	9.70	232			
	0.00	9.70	248	0.00	9.70	248	1.68 T	9.70	220

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

2074. *3F1 MAX COLUMN 2 FORCES ABOVE

2075. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 29 TO 31

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
29 MAX	5.47	0.00	247	57.50	0.00	235			
	0.00	0.00	63	0.00	0.00	63	119.45 C	0.00	242
MIN	-0.45	16.73	74	-34.04	16.73	247			
	0.00	16.73	248	0.00	16.73	248	4.31 T	16.73	79
30 MAX	0.39	0.00	71	35.08	5.33	248			
	0.00	0.00	63	0.00	0.00	63	114.93 C	0.00	242
MIN	-12.56	5.33	248	-34.04	0.00	247			
	0.00	5.33	248	0.00	5.33	248	4.59 T	5.33	79
31 MAX	17.82	0.00	227	90.10	9.79	77			
	0.00	0.00	63	0.00	0.00	63	114.93 C	0.00	242
MIN	-9.22	9.79	77	-155.55	9.79	229			
	0.00	9.79	248	0.00	9.79	248	4.59 T	9.79	79

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

2076. *3F1 MAX COLUMN 1 FORCES ABOVE

2077. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 72 73

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
72 MAX	0.71	0.00	248	4.21	0.00	248			
	0.00	0.00	63	0.00	0.00	63	51.74 C	0.00	65
MIN	-0.20	6.02	79	-0.85	0.00	79			
	0.00	6.02	248	0.00	6.02	248	3.61 T	6.02	234
73 MAX	0.46	0.00	73	5.15	6.06	233			
	0.00	0.00	63	0.00	0.00	63	49.67 C	0.00	65
MIN	-1.27	6.06	238	-3.12	0.00	238			
	0.00	6.06	248	0.00	6.06	248	4.50 T	6.06	234

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

2078. *3F1 KNEE BRACE FORCES ABOVE

2079. LOAD LIST 94 TO 124 249 TO 279

2080. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 1 TO 19

MEMBER FORCE ENVELOPE

 ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD	
1 MAX	0.00	0.00	278	132.18	6.04	100				
	0.00	0.00	94	0.00	0.00	94	2.33 C	6.04	278	
	MIN	-30.33	6.04	100	-9.62	6.04	278			
		0.00	6.04	279	0.00	6.04	279	0.10 T	6.04	96
2 MAX	0.00	0.00	101	212.11	2.14	100				
	0.00	0.00	94	0.00	0.00	94	3.15 C	2.14	278	
	MIN	-60.75	2.14	251	-13.02	2.14	278			
		0.00	2.14	279	0.00	2.14	279	0.20 T	2.14	100
3 MAX	2.87	0.00	104	245.12	1.86	100				
	0.00	0.00	94	0.00	0.00	94	5.00 C	1.86	278	
	MIN	-24.74	1.86	264	-14.11	1.86	278			
		0.00	1.86	279	0.00	1.86	279	41.66 T	1.86	96
4 MAX	2.87	0.00	104	260.05	0.80	100				
	0.00	0.00	94	0.00	0.00	94	5.30 C	0.80	278	
	MIN	-24.73	0.80	264	-14.96	0.80	278			
		0.00	0.80	279	0.00	0.80	279	41.67 T	0.80	96
5 MAX	2.87	0.00	104	290.07	1.60	100				
	0.00	0.00	94	0.00	0.00	94	5.92 C	1.60	278	
	MIN	-24.75	1.60	264	-19.60	1.60	257			
		0.00	1.60	279	0.00	1.60	279	41.66 T	1.60	96
6 MAX	37.88	0.00	96	307.03	4.28	109				
	0.00	0.00	94	0.00	0.00	94	8.01 C	4.28	278	
	MIN	-21.43	4.28	107	-68.09	2.14	104			
		0.00	4.28	279	0.00	4.28	279	41.08 T	4.28	96
7 MAX	47.09	0.00	96	312.78	0.00	109				
	0.00	0.00	94	0.00	0.00	94	7.95 C	5.82	278	
	MIN	-57.80	5.82	262	-67.99	3.49	259			
		0.00	5.82	279	0.00	5.82	279	0.54 T	5.82	96
8 MAX	72.11	0.00	110	257.20	0.00	110				
	0.00	0.00	94	0.00	0.00	94	10.26 C	0.00	110	
	MIN	-8.75	5.85	258	-108.73	5.85	262			
		0.00	5.85	279	0.00	5.85	279	6.60 T	0.00	276
9 MAX	45.59	0.00	261	40.99	5.85	94				
	0.00	0.00	94	0.00	0.00	94	10.66 C	5.85	265	

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MIN	-17.77	5.85	262	-262.20	5.85	265			
	0.00	5.85	279	0.00	5.85	279	5.24	T	0.00 276
10 MAX	22.28	0.00	113	83.73	5.85	260			
	0.00	0.00	94	0.00	0.00	94	11.59	C	5.85 265
MIN	-20.10	5.85	278	-290.30	2.93	110			
	0.00	5.85	279	0.00	5.85	279	4.23	T	5.85 121
11 MAX	1.34	0.00	96	129.70	5.85	260			
	0.00	0.00	94	0.00	0.00	94	12.47	C	5.85 265
MIN	-54.45	5.85	265	-237.14	0.00	265			
	0.00	5.85	279	0.00	5.85	279	4.23	T	5.85 121
12 MAX	1.34	0.00	96	361.69	5.83	278			
	0.00	0.00	94	0.00	0.00	94	14.05	C	5.83 278
MIN	-68.72	5.83	113	-66.05	0.00	113			
	0.00	5.83	279	0.00	5.83	279	4.23	T	5.83 121
13 MAX	87.11	0.00	103	359.93	0.00	115			
	0.00	0.00	94	0.00	0.00	94	16.47	C	0.00 105
MIN	-8.86	5.83	263	-98.92	5.83	258			
	0.00	5.83	279	0.00	5.83	279	16.10	T	0.00 263
14 MAX	66.27	0.00	105	99.13	0.00	110			
	0.00	0.00	94	0.00	0.00	94	16.47	C	0.00 105
MIN	-8.87	5.85	263	-310.56	5.85	260			
	0.00	5.85	279	0.00	5.85	279	14.60	T	0.00 263
15 MAX	37.88	0.00	260	137.07	5.85	263			
	0.00	0.00	94	0.00	0.00	94	16.45	C	5.85 260
MIN	-32.50	5.85	276	-359.35	4.68	105			
	0.00	5.85	279	0.00	5.85	279	13.10	T	0.00 263
16 MAX	10.25	0.00	271	182.86	5.85	263			
	0.00	0.00	94	0.00	0.00	94	17.33	C	5.85 260
MIN	-66.91	5.85	276	-338.09	0.00	105			
	0.00	5.85	279	0.00	5.85	279	11.59	T	0.00 263
17 MAX	5.25	0.00	110	421.52	5.85	276			
	0.00	0.00	94	0.00	0.00	94	18.33	C	5.85 260
MIN	-84.46	5.85	258	-169.76	0.00	105			
	0.00	5.85	279	0.00	5.85	279	10.54	T	5.85 108
18 MAX	60.75	0.00	277	405.01	0.00	277			
	0.00	0.00	94	0.00	0.00	94	0.19	C	0.00 119
MIN	0.00	4.77	123	0.00	4.77	123			
	0.00	4.77	279	0.00	4.77	279	4.00	T	0.00 278
19 MAX	38.22	0.00	277	156.87	0.00	277			
	0.00	0.00	94	0.00	0.00	94	0.10	C	0.00 119
MIN	0.00	5.62	263	0.00	5.62	279			
	0.00	5.62	279	0.00	5.62	279	2.17	T	0.00 278

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

2081. *4F1 MAX FLOOR BEAM FORCES ABOVE

2082. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 20 21

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/	DIST	LD	MZ/	DIST	LD	FX	DIST	LD
	FZ	DIST	LD	MY	DIST	LD			
20 MAX	0.00	0.00	94	0.00	0.00	94			
	0.29	0.00	106	2.42	8.28	106	138.08 C	0.00	96
MIN	0.00	8.28	279	0.00	8.28	279			
	-1.30	8.28	279	-10.76	8.28	279	20.51 T	8.28	265
21 MAX	0.00	0.00	94	0.00	0.00	94			
	1.01	0.00	279	1.36	4.27	279	56.48 C	0.00	96
MIN	0.00	4.27	279	0.00	4.27	279			
	-0.22	4.27	107	-2.94	0.00	279	13.62 T	4.27	265

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

2083. *4F1 MAX COLUMN 4 FORCES ABOVE

2084. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 22 TO 24

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
22 MAX	7.18	0.00	279	71.14	0.00	279			
	0.00	0.00	94	0.00	0.00	94	108.50 C	0.00	106
MIN	-0.73	15.73	94	-42.72	15.73	278			
	0.00	15.73	279	0.00	15.73	279	17.93 T	15.73	95
23 MAX	1.85	0.00	112	46.16	5.33	279			
	0.00	0.00	94	0.00	0.00	94	113.13 C	0.00	261
MIN	-16.50	5.33	279	-42.72	0.00	278			
	0.00	5.33	279	0.00	5.33	279	18.84 T	5.33	95
24 MAX	12.06	0.00	279	90.29	9.60	110			
	0.00	0.00	94	0.00	0.00	94	113.13 C	0.00	261
MIN	-9.84	9.60	110	-78.57	9.60	249			
	0.00	9.60	279	0.00	9.60	279	18.84 T	9.60	95

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

2085. *4F1 MAX COLUMN 3 FORCES ABOVE

2086. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 25 TO 28

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
25 MAX	21.50	0.00	278	152.44	0.00	278			
	0.00	0.00	94	0.00	0.00	94	123.79 C	0.00	112
MIN	-1.36	9.75	108	-57.15	9.75	278			
	0.00	9.75	279	0.00	9.75	279	1.51 T	9.75	251
26 MAX	0.49	0.00	108	7.95	0.00	108			
	0.00	0.00	94	0.00	0.00	94	117.70 C	0.00	112
MIN	-5.95	5.98	278	-57.15	0.00	278			
	0.00	5.98	279	0.00	5.98	279	1.80 T	5.98	251
27 MAX	1.70	0.00	105	55.38	5.33	279			
	0.00	0.00	94	0.00	0.00	94	117.70 C	0.00	112
MIN	-13.90	5.33	279	-21.61	0.00	278			
	0.00	5.33	279	0.00	5.33	279	1.80 T	5.33	251
28 MAX	25.50	0.00	263	156.09	9.70	105			
	0.00	0.00	94	0.00	0.00	94	126.45 C	0.00	112
MIN	-17.46	9.70	105	-196.66	9.70	263			
	0.00	9.70	279	0.00	9.70	279	1.91 T	9.70	251

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

2087. *4F1 MAX COLUMN 2 FORCES ABOVE

2088. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 29 TO 31

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
29 MAX	6.25	0.00	278	65.68	0.00	266			
	0.00	0.00	94	0.00	0.00	94	136.34 C	0.00	273
MIN	-0.52	16.73	105	-38.87	16.73	278			
	0.00	16.73	279	0.00	16.73	279	4.92 T	16.73	110
30 MAX	0.45	0.00	102	40.08	5.33	279			
	0.00	0.00	94	0.00	0.00	94	131.18 C	0.00	273
MIN	-14.35	5.33	279	-38.87	0.00	278			
	0.00	5.33	279	0.00	5.33	279	5.24 T	5.33	110
31 MAX	20.34	0.00	258	102.83	9.79	108			
	0.00	0.00	94	0.00	0.00	94	131.18 C	0.00	273
MIN	-10.52	9.79	108	-177.55	9.79	260			
	0.00	9.79	279	0.00	9.79	279	5.24 T	9.79	110

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

2089. *4F1 MAX COLUMN 1 FORCES ABOVE

2090. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 72 73

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/	DIST	LD	MZ/	DIST	LD	FX	DIST	LD
	FZ	DIST	LD	MY	DIST	LD			
72 MAX	0.82	0.00	279	4.81	0.00	279			
	0.00	0.00	94	0.00	0.00	94	59.05 C	0.00	96
MIN	-0.23	6.02	110	-0.96	0.00	110			
	0.00	6.02	279	0.00	6.02	279	4.12 T	6.02	265
73 MAX	0.52	0.00	104	5.88	6.06	264			
	0.00	0.00	94	0.00	0.00	94	56.71 C	0.00	96
MIN	-1.46	6.06	269	-3.57	0.00	269			
	0.00	6.06	279	0.00	6.06	279	5.14 T	6.06	265

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

2091. *4F1 KNEE BRACE FORCES ABOVE
2092. LOAD LIST 125 TO 155 280 TO 310
2093. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 1 TO 19

MEMBER FORCE ENVELOPE

 ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD	
1 MAX	0.00	0.00	309	124.76	6.04	131				
	0.00	0.00	125	0.00	0.00	125	2.20 C	6.04	309	
	MIN	-28.63	6.04	131	-9.08	6.04	309			
		0.00	6.04	310	0.00	6.04	310	0.09 T	6.04	127
2 MAX	0.00	0.00	132	200.20	2.14	131				
	0.00	0.00	125	0.00	0.00	125	2.98 C	2.14	309	
	MIN	-57.34	2.14	282	-12.29	2.14	309			
		0.00	2.14	310	0.00	2.14	310	0.19 T	2.14	131
3 MAX	2.71	0.00	135	231.35	1.86	131				
	0.00	0.00	125	0.00	0.00	125	4.72 C	1.86	309	
	MIN	-23.35	1.86	295	-13.31	1.86	309			
		0.00	1.86	310	0.00	1.86	310	39.32 T	1.86	127
4 MAX	2.71	0.00	135	245.44	0.80	131				
	0.00	0.00	125	0.00	0.00	125	5.01 C	0.80	309	
	MIN	-23.34	0.80	295	-14.12	0.80	309			
		0.00	0.80	310	0.00	0.80	310	39.33 T	0.80	127
5 MAX	2.71	0.00	135	273.77	1.60	131				
	0.00	0.00	125	0.00	0.00	125	5.59 C	1.60	309	
	MIN	-23.36	1.60	295	-18.50	1.60	288			
		0.00	1.60	310	0.00	1.60	310	39.32 T	1.60	127
6 MAX	35.76	0.00	127	289.78	4.28	140				
	0.00	0.00	125	0.00	0.00	125	7.56 C	4.28	309	
	MIN	-20.22	4.28	138	-64.27	2.14	135			
		0.00	4.28	310	0.00	4.28	310	38.77 T	4.28	127
7 MAX	44.44	0.00	127	295.20	0.00	140				
	0.00	0.00	125	0.00	0.00	125	7.50 C	5.82	309	
	MIN	-54.56	5.82	293	-64.17	3.49	290			
		0.00	5.82	310	0.00	5.82	310	0.51 T	5.82	127
8 MAX	68.06	0.00	141	242.75	0.00	141				
	0.00	0.00	125	0.00	0.00	125	9.69 C	0.00	141	
	MIN	-8.26	5.85	289	-102.62	5.85	293			
		0.00	5.85	310	0.00	5.85	310	6.23 T	0.00	307
9 MAX	43.03	0.00	292	38.69	5.85	125				
	0.00	0.00	125	0.00	0.00	125	10.06 C	5.85	296	

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MIN	-16.77	5.85	293	-247.48	5.85	296			
	0.00	5.85	310	0.00	5.85	310	4.95	T	0.00 307
10 MAX	21.03	0.00	144	79.02	5.85	291			
	0.00	0.00	125	0.00	0.00	125	10.94	C	5.85 296
MIN	-18.97	5.85	309	-273.99	2.93	141			
	0.00	5.85	310	0.00	5.85	310	3.99	T	5.85 152
11 MAX	1.26	0.00	127	122.42	5.85	291			
	0.00	0.00	125	0.00	0.00	125	11.77	C	5.85 296
MIN	-51.39	5.85	296	-223.82	0.00	296			
	0.00	5.85	310	0.00	5.85	310	3.99	T	5.85 152
12 MAX	1.26	0.00	127	341.37	5.83	309			
	0.00	0.00	125	0.00	0.00	125	13.26	C	5.83 309
MIN	-64.86	5.83	144	-62.34	0.00	144			
	0.00	5.83	310	0.00	5.83	310	3.99	T	5.83 152
13 MAX	82.22	0.00	134	339.72	0.00	146			
	0.00	0.00	125	0.00	0.00	125	15.54	C	0.00 136
MIN	-8.37	5.83	294	-93.36	5.83	289			
	0.00	5.83	310	0.00	5.83	310	15.20	T	0.00 294
14 MAX	62.54	0.00	136	93.56	0.00	141			
	0.00	0.00	125	0.00	0.00	125	15.54	C	0.00 136
MIN	-8.37	5.85	294	-293.11	5.85	291			
	0.00	5.85	310	0.00	5.85	310	13.78	T	0.00 294
15 MAX	35.76	0.00	291	129.38	5.85	294			
	0.00	0.00	125	0.00	0.00	125	15.53	C	5.85 291
MIN	-30.68	5.85	307	-339.16	4.68	136			
	0.00	5.85	310	0.00	5.85	310	12.36	T	0.00 294
16 MAX	9.67	0.00	302	172.59	5.85	294			
	0.00	0.00	125	0.00	0.00	125	16.36	C	5.85 291
MIN	-63.15	5.85	307	-319.10	0.00	136			
	0.00	5.85	310	0.00	5.85	310	10.94	T	0.00 294
17 MAX	4.95	0.00	141	397.85	5.85	307			
	0.00	0.00	125	0.00	0.00	125	17.30	C	5.85 291
MIN	-79.71	5.85	289	-160.23	0.00	136			
	0.00	5.85	310	0.00	5.85	310	9.95	T	5.85 139
18 MAX	57.34	0.00	308	382.27	0.00	308			
	0.00	0.00	125	0.00	0.00	125	0.18	C	0.00 150
MIN	0.00	4.77	154	0.00	4.77	154			
	0.00	4.77	310	0.00	4.77	310	3.78	T	0.00 309
19 MAX	36.08	0.00	308	148.06	0.00	308			
	0.00	0.00	125	0.00	0.00	125	0.10	C	0.00 150
MIN	0.00	5.62	294	0.00	5.62	310			
	0.00	5.62	310	0.00	5.62	310	2.04	T	0.00 300

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

2094. *5C1 MAX FLOOR BEAM FORCES ABOVE

2095. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 20 21

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
20 MAX	0.00	0.00	125	0.00	0.00	125			
	0.28	0.00	137	2.28	8.28	137	130.32 C	0.00	127
	MIN	0.00	8.28	310	0.00	8.28	310		
	-1.23	8.28	310	-10.15	8.28	310	19.36 T	8.28	296
21 MAX	0.00	0.00	125	0.00	0.00	125			
	0.95	0.00	310	1.28	4.27	310	53.31 C	0.00	127
	MIN	0.00	4.27	310	0.00	4.27	310		
	-0.21	4.27	138	-2.77	0.00	310	12.86 T	4.27	296

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

2096. *5C1 MAX COLUMN 4 FORCES ABOVE

2097. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 22 TO 24

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
22 MAX	6.78	0.00	310	67.12	0.00	310			
	0.00	0.00	125	0.00	0.00	125	102.41 C	0.00	137
MIN	-0.69	15.73	125	-40.31	15.73	309			
	0.00	15.73	310	0.00	15.73	310	16.92 T	15.73	126
23 MAX	1.74	0.00	143	43.55	5.33	310			
	0.00	0.00	125	0.00	0.00	125	106.78 C	0.00	292
MIN	-15.57	5.33	310	-40.31	0.00	309			
	0.00	5.33	310	0.00	5.33	310	17.78 T	5.33	126
24 MAX	11.37	0.00	310	85.22	9.60	141			
	0.00	0.00	125	0.00	0.00	125	106.78 C	0.00	292
MIN	-9.29	9.60	141	-74.13	9.60	280			
	0.00	9.60	310	0.00	9.60	310	17.78 T	9.60	126

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

2098. *5C1 MAX COLUMN 3 FORCES ABOVE

2099. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 25 TO 28

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
25 MAX	20.28	0.00	309	143.84	0.00	309			
	0.00	0.00	125	0.00	0.00	125	116.84 C	0.00	143
MIN	-1.28	9.75	139	-53.93	9.75	309			
	0.00	9.75	310	0.00	9.75	310	1.43 T	9.75	282
26 MAX	0.46	0.00	139	7.51	0.00	139			
	0.00	0.00	125	0.00	0.00	125	111.09 C	0.00	143
MIN	-5.61	5.98	309	-53.93	0.00	309			
	0.00	5.98	310	0.00	5.98	310	1.70 T	5.98	282
27 MAX	1.60	0.00	136	52.25	5.33	310			
	0.00	0.00	125	0.00	0.00	125	111.09 C	0.00	143
MIN	-13.11	5.33	310	-20.39	0.00	309			
	0.00	5.33	310	0.00	5.33	310	1.70 T	5.33	282
28 MAX	24.07	0.00	294	147.32	9.70	136			
	0.00	0.00	125	0.00	0.00	125	119.35 C	0.00	143
MIN	-16.48	9.70	136	-185.60	9.70	294			
	0.00	9.70	310	0.00	9.70	310	1.80 T	9.70	282

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

2100. *5C1 MAX COLUMN 2 FORCES ABOVE

2101. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 29 TO 31

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
29 MAX	5.90	0.00	309	61.97	0.00	297			
	0.00	0.00	125	0.00	0.00	125	128.69 C	0.00	304
MIN	-0.49	16.73	136	-36.68	16.73	309			
	0.00	16.73	310	0.00	16.73	310	4.64 T	16.73	141
30 MAX	0.42	0.00	133	37.81	5.33	310			
	0.00	0.00	125	0.00	0.00	125	123.81 C	0.00	304
MIN	-13.53	5.33	310	-36.68	0.00	309			
	0.00	5.33	310	0.00	5.33	310	4.94 T	5.33	141
31 MAX	19.20	0.00	289	97.06	9.79	139			
	0.00	0.00	125	0.00	0.00	125	123.82 C	0.00	304
MIN	-9.93	9.79	139	-167.58	9.79	291			
	0.00	9.79	310	0.00	9.79	310	4.94 T	9.79	141

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

2102. *5C1 MAX COLUMN 1 FORCES ABOVE

2103. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 72 73

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/	DIST	LD	MZ/	DIST	LD	FX	DIST	LD
	FZ	DIST	LD	MY	DIST	LD			
72 MAX	0.77	0.00	310	4.54	0.00	310			
	0.00	0.00	125	0.00	0.00	125	55.74 C	0.00	127
MIN	-0.22	6.02	141	-0.91	0.00	141			
	0.00	6.02	310	0.00	6.02	310	3.89 T	6.02	296
73 MAX	0.49	0.00	135	5.55	6.06	295			
	0.00	0.00	125	0.00	0.00	125	53.52 C	0.00	127
MIN	-1.37	6.06	300	-3.37	0.00	300			
	0.00	6.06	310	0.00	6.06	310	4.85 T	6.06	296

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

2104. *5C1 KNEE BRACE FORCES ABOVE

2105. LOAD LIST 311 TO 377

2106. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 1 TO 19

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
1 MAX	0.00	0.00	311	82.94	6.04	311			
	0.00	0.00	311	0.00	0.00	311	0.00	0.00	311
MIN	-24.70	6.04	314	0.00	3.63	312			
	0.00	6.04	377	0.00	6.04	377	0.08 T	6.04	314
2 MAX	0.00	0.00	315	135.77	2.14	311			
	0.00	0.00	311	0.00	0.00	311	0.00	0.00	315
MIN	-24.70	1.92	316	0.00	1.50	316			
	0.00	2.14	377	0.00	2.14	377	0.08 T	2.14	316
3 MAX	11.07	0.00	317	160.88	1.86	311			
	0.00	0.00	311	0.00	0.00	311	1.16 C	0.00	340
MIN	-24.67	1.86	312	-12.50	1.49	318			
	0.00	1.86	377	0.00	1.86	377	28.29 T	1.86	311
4 MAX	6.88	0.00	319	177.40	0.80	311			
	0.00	0.00	311	0.00	0.00	311	1.16 C	0.00	340
MIN	-28.22	0.72	313	-16.48	0.64	319			
	0.00	0.80	377	0.00	0.80	377	28.30 T	0.80	311
5 MAX	4.69	0.00	320	210.58	1.60	311			
	0.00	0.00	311	0.00	0.00	311	1.16 C	0.00	340
MIN	-31.67	1.60	314	-15.68	0.80	320			
	0.00	1.60	377	0.00	1.60	377	28.29 T	1.60	311
6 MAX	28.75	0.00	321	211.19	0.00	311			
	0.00	0.00	311	0.00	0.00	311	1.09 C	0.00	340
MIN	-14.99	4.28	319	-61.14	4.28	325			
	0.00	4.28	377	0.00	4.28	377	27.80 T	4.28	311
7 MAX	30.54	0.00	311	196.09	0.00	311			
	0.00	0.00	311	0.00	0.00	311	0.20 C	0.00	325
MIN	-30.60	5.82	324	-62.64	0.00	325			
	0.00	5.82	377	0.00	5.82	377	0.43 T	5.82	311
8 MAX	43.94	0.00	331	133.24	0.00	340			
	0.00	0.00	311	0.00	0.00	311	4.93 C	0.00	341
MIN	-4.38	5.85	330	-82.07	5.85	336			
	0.00	5.85	377	0.00	5.85	377	2.44 T	5.85	377
9 MAX	34.83	0.00	337	19.15	5.85	355			
	0.00	0.00	311	0.00	0.00	311	4.93 C	0.00	341

DXF IMPORT OF 002_1441BENT_8.DXF

-- PAGE NO. 80

MIN	-12.90	5.85	336	-156.40	5.85	342			
	0.00	5.85	377	0.00	5.85	377	2.44	T	5.85 377
10 MAX	23.58	0.00	343	38.57	5.85	355			
	0.00	0.00	311	0.00	0.00	311	4.89	C	0.00 343
MIN	-23.94	5.85	342	-165.04	3.51	340			
	0.00	5.85	377	0.00	5.85	377	2.44	T	5.85 377
11 MAX	0.88	0.00	311	57.98	5.85	355			
	0.00	0.00	311	0.00	0.00	311	4.81	C	0.00 343
MIN	-29.69	5.85	345	-155.42	0.00	343			
	0.00	5.85	377	0.00	5.85	377	2.44	T	5.85 377
12 MAX	0.88	0.00	311	131.88	5.83	345			
	0.00	0.00	311	0.00	0.00	311	4.77	C	0.00 341
MIN	-29.69	5.83	345	-41.29	0.00	345			
	0.00	5.83	377	0.00	5.83	377	2.44	T	5.83 377
13 MAX	45.04	0.00	347	149.30	0.00	356			
	0.00	0.00	311	0.00	0.00	311	7.67	C	0.00 360
MIN	-7.00	5.83	377	-79.23	5.83	352			
	0.00	5.83	377	0.00	5.83	377	7.81	T	5.83 377
14 MAX	36.38	0.00	353	54.24	0.00	345			
	0.00	0.00	311	0.00	0.00	311	7.67	C	0.00 360
MIN	-11.42	5.85	352	-170.36	5.85	358			
	0.00	5.85	377	0.00	5.85	377	7.81	T	5.85 377
15 MAX	25.54	0.00	359	76.00	5.85	377			
	0.00	0.00	311	0.00	0.00	311	7.67	C	0.00 360
MIN	-20.14	5.27	357	-186.34	4.68	357			
	0.00	5.85	377	0.00	5.85	377	7.81	T	5.85 377
16 MAX	15.83	0.00	364	116.97	5.85	377			
	0.00	0.00	311	0.00	0.00	311	7.59	C	0.00 360
MIN	-31.66	5.85	363	-186.22	0.00	358			
	0.00	5.85	377	0.00	5.85	377	7.81	T	5.85 377
17 MAX	4.66	0.00	370	157.96	5.85	377			
	0.00	0.00	311	0.00	0.00	311	7.50	C	0.00 360
MIN	-43.00	5.85	369	-123.29	0.00	364			
	0.00	5.85	377	0.00	5.85	377	7.81	T	5.85 377
18 MAX	49.40	0.00	377	235.72	0.00	377			
	0.00	0.00	311	0.00	0.00	311	0.16	C	0.00 376
MIN	0.00	4.77	370	0.00	0.95	370			
	0.00	4.77	377	0.00	4.77	377	0.00		4.77 374
19 MAX	24.70	0.00	377	74.12	0.00	377			
	0.00	0.00	311	0.00	0.00	311	0.08	C	0.00 375
MIN	0.00	5.62	374	0.00	5.62	377			
	0.00	5.62	377	0.00	5.62	377	0.00		5.62 377

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

2107. *FATIGUE FLOOR BEAM FORCES ABOVE

2108. FINISH

***** END OF THE STAAD.Pro RUN *****

**** DATE= APR 9,2012 TIME= 10: 7:44 ****

 * For questions on STAAD.Pro, please contact *
 * Bentley Systems Offices at the following locations *
 * *
 * Telephone Web / Email *
 * *
 * USA: +1 (714)974-2500 *
 * CANADA +1 (905)632-4771 detech@odandetech.com *
 * UK +44(1454)207-000 *
 * SINGAPORE +65 6225-6158 *
 * EUROPE +31 23 5560560 *
 * INDIA +91(033)4006-2021 *
 * JAPAN +81(03)5952-6500 http://www.ctc-g.co.jp *
 * CHINA +86 10 5929 7000 *
 * THAILAND +66(0)2645-1018/19 partha.p@reisoftwareth.com *
 * *
 * Worldwide http://selectservices.bentley.com/en-US/ *
 * *

EAST APPROACH - FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/20/2012
Date 4/12/2012

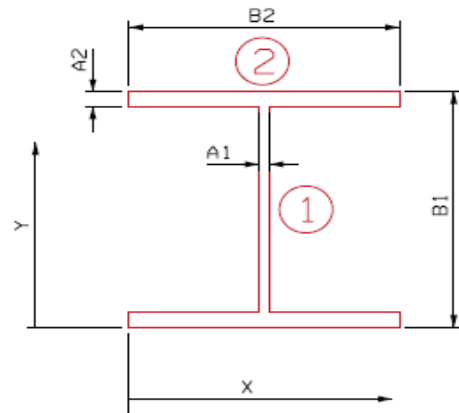
Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Red text indicates user input

Element Dimensions (without Section Losses):

$A_1 = t_w = 0.6800$ in
 $A_2 = t_f = 1.1000$ in
 $B_1 = d = 36.1600$ in
 $B_2 = b_f = 12.0270$ in
36WFB170



FB-8 @ COLUMN 408
EAST APPR. FWD SECTION

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I _o	d	Ad ²	I _{x,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		23.0928	18.0800	417.5178	2219.3751	0.0000	0.0000	2219.3751
2	Top Flange		13.2297	35.6100	471.1096	1.3340	17.5300	4065.4987	4066.8327
	Bottom Flange		13.2297	0.5500	7.2763	1.3340	17.5300	4065.4987	4066.8327
Total			49.55		895.90	2222.04		8131.00	10353.04
Section Losses			A	y	Ay	I _o	d	Ad ²	I _{x,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.1250	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	18.0800	in	S _{top} = 572.62 in ³	y-bar =	18.0800	in	S _{top} = 572.62 in ³
I _x =	10353.04	in ⁴	S _{bottom} = 572.62 in ³	I _x =	10353.04	in ⁴	S _{bottom} = 572.62 in ³
C _{top} =	18.0800	in	A = 49.5522 in ²	C _{top} =	18.0800	in	A = 49.5522 in ²
C _{bottom} =	18.0800	in	r _x = 14.4545 in	C _{bottom} =	18.0800	in	r _x = 14.4545 in
			Z = 659.89 in ³				Z = warning in ³

EAST APPROACH - FORWARD SECTION



Made By FKL
 Checked By PJP

Date 3/20/2012
 Date 4/12/2012

Job No. P402110046
 Sheet No. _____

Calculations For: **CUY-2-1441**

Floorbeam Capacities

Non-composite Capacities*		
	AB	AI
M	1574.72 k-ft	1574.72 k-ft
V	442.00 k	442.00 k

F_y = 33.00 ksi

AB = As-Built
 AI = As-Inspected
 M = Moment
 V = Shear

*Noncompact Section

As-Built Moments and Shears						
	DL	HS20	2F1	3F1	4F1	5C1
M	470.18 k-ft	377.63 k-ft	180.98 k-ft	269.04 k-ft	307.08 k-ft	289.84 k-ft
V	75.98 k	46.57 k	22.32 k	33.18 k	37.87 k	35.74 k

As-Built Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.18	---	---	---	---
Operating M	1.96	4.1	2.75	2.41	2.56
As-Inspected Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.18	---	---	---	---
Operating M	1.96	4.1	2.75	2.41	2.56
As-Built Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	3.4	---	---	---	---
Operating V	5.67	11.83	7.96	6.97	7.39
As-Inspected Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	3.4	---	---	---	---
Operating V	5.67	11.83	7.96	6.97	7.39

Controlling Rating Factors and Tonnage						
	HS20 Inventory	HS20 Operating	2F1 Operating	3F1 Operating	4F1 Operating	5C1 Operating
Rating Factor	1.18	1.96	4.1	2.75	2.41	2.56
Tonnage (US Tons)	42.48	70.56	61.5	63.25	65.07	102.4

EAST APPROACH - FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/20/2012
Date 4/12/2012

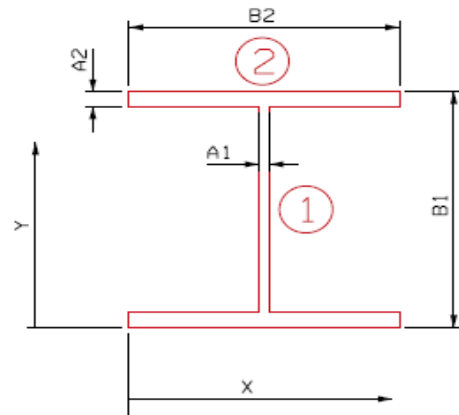
Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Red text indicates user input

Element Dimensions (without Section Losses):

$A_1 = t_w = 0.6800$ in
 $A_2 = t_f = 1.1000$ in
 $B_1 = d = 36.1600$ in
 $B_2 = b_f = 12.0270$ in
36WFB170



**FB-8 @ COLUMN 308
EAST APPR. FWD SECTION**

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I _o	d	Ad ²	I _{x,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		23.0928	18.0800	417.5178	2219.3751	0.0000	0.0000	2219.3751
2	Top Flange		13.2297	35.6100	471.1096	1.3340	17.5300	4065.4987	4066.8327
	Bottom Flange		13.2297	0.5500	7.2763	1.3340	17.5300	4065.4987	4066.8327
Total			49.55		895.90	2222.04		8131.00	10353.04
Section Losses			A	y	Ay	I _o	d	Ad ²	I _{x,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	18.0800	in	S _{top} = 572.62 in ³	y-bar =	18.0800	in	S _{top} = 572.62 in ³
I _x =	10353.04	in ⁴	S _{bottom} = 572.62 in ³	I _x =	10353.04	in ⁴	S _{bottom} = 572.62 in ³
C _{top} =	18.0800	in	A = 49.5522 in ²	C _{top} =	18.0800	in	A = 49.5522 in ²
C _{bottom} =	18.0800	in	r _x = 14.4545 in	C _{bottom} =	18.0800	in	r _x = 14.4545 in
			Z = 659.89 in ³				Z = 659.89 in ³

EAST APPROACH - FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/20/2012
Date 4/12/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Floorbeam Capacities

Non-composite Capacities*		
	AB	AI
M	1574.72 k-ft	1574.72 k-ft
V	442.00 k	442.00 k

*Noncompact Section

$F_y =$	33.00 ksi
---------	------------------

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

As-Built Moments and Shears						
	DL	HS20	2F1	3F1	4F1	5C1
M	284.44 k-ft	384.70 k-ft	184.37 k-ft	274.08 k-ft	312.83 k-ft	295.26 k-ft
V	18.57 k	88.68 k	42.50 k	63.18 k	72.11 k	68.06 k

As-Built Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.44	---	---	---	---
Operating M	2.41	5.03	3.38	2.96	3.14
As-Inspected Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.44	---	---	---	---
Operating M	2.41	5.03	3.38	2.96	3.14
As-Built Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	2.17	---	---	---	---
Operating V	3.62	7.56	5.09	4.46	4.72
As-Inspected Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	2.17	---	---	---	---
Operating V	3.62	7.56	5.09	4.46	4.72

Controlling Rating Factors and Tonnage						
	HS20 Inventory	HS20 Operating	2F1 Operating	3F1 Operating	4F1 Operating	5C1 Operating
Rating Factor	1.44	2.41	5.03	3.38	2.96	3.14
Tonnage (US Tons)	51.84	86.76	75.45	77.74	79.92	125.6

EAST APPROACH - FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/20/2012
Date 4/12/2012

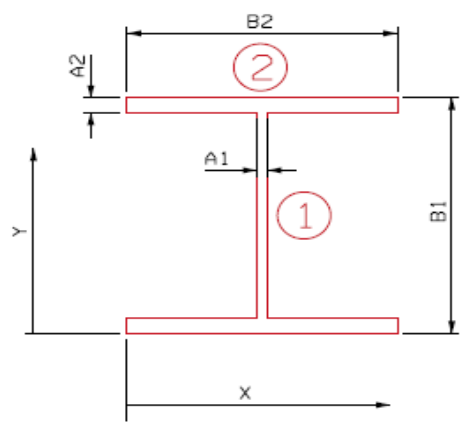
Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Red text indicates user input

Element Dimensions (without Section Losses):

$A_1 = t_w = 0.6800$ in
 $A_2 = t_f = 1.1000$ in
 $B_1 = d = 36.1600$ in
 $B_2 = b_f = 12.0270$ in
36WFB170



**FB-8 @ COLUMN 208
EAST APPR. FWD SECTION**

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I _o	d	Ad ²	I _{x,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		23.0928	18.0800	417.5178	2219.3751	0.0000	0.0000	2219.3751
2	Top Flange		13.2297	35.6100	471.1096	1.3340	17.5300	4065.4987	4066.8327
	Bottom Flange		13.2297	0.5500	7.2763	1.3340	17.5300	4065.4987	4066.8327
Total			49.55		895.90	2222.04		8131.00	10353.04
Section Losses			A	y	Ay	I _o	d	Ad ²	I _{x,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	18.0800	in	S _{top} = 572.62 in ³	y-bar =	18.0800	in	S _{top} = 572.62 in ³
I _x =	10353.04	in ⁴	S _{bottom} = 572.62 in ³	I _x =	10353.04	in ⁴	S _{bottom} = 572.62 in ³
C _{top} =	18.0800	in	A = 49.5522 in ²	C _{top} =	18.0800	in	A = 49.5522 in ²
C _{bottom} =	18.0800	in	r _x = 14.4545 in	C _{bottom} =	18.0800	in	r _x = 14.4545 in
			Z = 659.89 in ³				Z = 659.89 in ³

EAST APPROACH - FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/20/2012
Date 4/12/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Floorbeam Capacities

Non-composite Capacities*		
	AB	AI
M	1574.72 k-ft	1574.72 k-ft
V	442.00 k	442.00 k

*Noncompact Section

$F_y =$	33.00 ksi
---------	------------------

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

As-Built Moments and Shears						
	DL	HS20	2F1	3F1	4F1	5C1
M	317.33 k-ft	444.83 k-ft	213.19 k-ft	316.92 k-ft	361.72 k-ft	341.41 k-ft
V	54.93 k	107.13 k	51.34 k	76.32 k	87.12 k	82.22 k

As-Built Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.20	---	---	---	---
Operating M	2.01	4.19	2.82	2.47	2.62
As-Inspected Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.20	---	---	---	---
Operating M	2.01	4.19	2.82	2.47	2.62
As-Built Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	1.59	---	---	---	---
Operating V	2.66	5.55	3.73	3.27	3.47
As-Inspected Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	1.59	---	---	---	---
Operating V	2.66	5.55	3.73	3.27	3.47

Controlling Rating Factors and Tonnage						
	HS20 Inventory	HS20 Operating	2F1 Operating	3F1 Operating	4F1 Operating	5C1 Operating
Rating Factor	1.20	2.01	4.19	2.82	2.47	2.62
Tonnage (US Tons)	43.2	72.36	62.85	64.86	66.69	104.8

EAST APPROACH - FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/20/2012
Date 4/12/2012

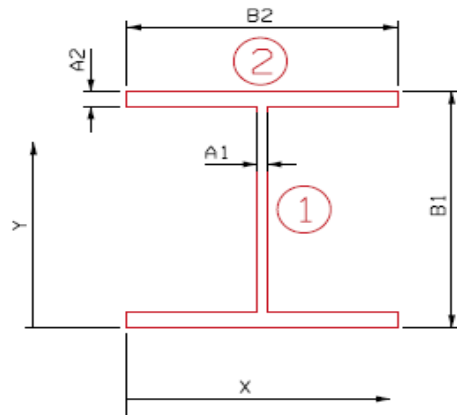
Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Red text indicates user input

Element Dimensions (without Section Losses):

$A_1 = t_w = 0.6800$ in
 $A_2 = t_f = 1.1000$ in
 $B_1 = d = 36.1600$ in
 $B_2 = b_f = 12.0270$ in
36WFB170



FB-8 @ COLUMN 108
EAST APPR. FWD SECTION

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I _o	d	Ad ²	I _{x,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		23.0928	18.0800	417.5178	2219.3751	0.0000	0.0000	2219.3751
2	Top Flange		13.2297	35.6100	471.1096	1.3340	17.5300	4065.4987	4066.8327
	Bottom Flange		13.2297	0.5500	7.2763	1.3340	17.5300	4065.4987	4066.8327
Total			49.55		895.90	2222.04		8131.00	10353.04
Section Losses			A	y	Ay	I _o	d	Ad ²	I _{x,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	12.0000	0.6000	-7.2000	36.0000	-259.2000	-0.2160	20.5246	-3033.0689	-3033.2849
2	0.2500	6.0000	-1.5000	3.0000	-4.5000	-4.5000	12.4754	-233.4531	-237.9531
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			-8.70		-263.70	-4.72		-3266.52	-3271.24

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	18.0800	in	S _{top} = 572.62 in ³	y-bar =	15.4754	in	S _{top} = 342.37 in ³
I _x =	10353.04	in ⁴	S _{bottom} = 572.62 in ³	I _x =	7081.80	in ⁴	S _{bottom} = 457.62 in ³
C _{top} =	18.0800	in	A = 49.5522 in ²	C _{top} =	20.6846	in	A = 40.8522 in ²
C _{bottom} =	18.0800	in	r _x = 14.4545 in	C _{bottom} =	15.4754	in	r _x = 13.1663 in
			Z = 659.89 in ³				Z = warning in ³

EAST APPROACH - FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/20/2012
Date 4/12/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Floorbeam Capacities

Non-composite Capacities*		
	AB	AI
M	1574.72 k-ft	941.52 k-ft
V	442.00 k	413.29 k

*Noncompact Section

$F_y =$	33.00 ksi
---------	------------------

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

As-Built Moments and Shears						
	DL	HS20	2F1	3F1	4F1	5C1
M	374.62 k-ft	518.04 k-ft	248.28 k-ft	369.07 k-ft	421.26 k-ft	397.60 k-ft
V	53.80 k	103.87 k	49.78 k	74.00 k	84.46 k	79.72 k

As-Built Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	0.97	---	---	---	---
Operating M	1.62	3.37	2.27	1.99	2.1
As-Inspected Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	0.40	---	---	---	---
Operating M	0.67	1.41	0.95	0.83	0.88
As-Built Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	1.65	---	---	---	---
Operating V	2.76	5.75	3.87	3.39	3.59
As-Inspected Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	1.52	---	---	---	---
Operating V	2.54	5.31	3.57	3.13	3.31

Controlling Rating Factors and Tonnage						
	HS20 Inventory	HS20 Operating	2F1 Operating	3F1 Operating	4F1 Operating	5C1 Operating
Rating Factor	0.40	0.67	1.41	0.95	0.83	0.88
Tonnage (US Tons)	14.4	24.12	21.15	21.85	22.41	35.2

EAST APPROACH - FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/20/2012
Date 4/12/2012

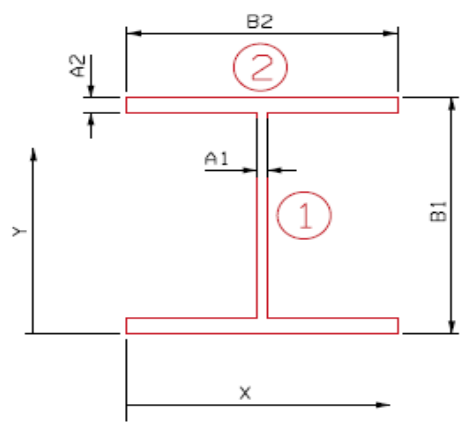
Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Red text indicates user input

Element Dimensions (without Section Losses):

$A_1 = t_w = 0.6800$ in
 $A_2 = t_f = 1.1000$ in
 $B_1 = d = 36.1600$ in
 $B_2 = b_f = 12.0270$ in
36WFB170



**FB-8 Between 208 & 308
EAST APPR. FWD SECTION**

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I_o	d	Ad^2	$I_{x,gross}$
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		23.0928	18.0800	417.5178	2219.3751	0.0000	0.0000	2219.3751
2	Top Flange		13.2297	35.6100	471.1096	1.3340	17.5300	4065.4987	4066.8327
	Bottom Flange		13.2297	0.5500	7.2763	1.3340	17.5300	4065.4987	4066.8327
Total			49.55		895.90	2222.04		8131.00	10353.04
Section Losses			A	y	Ay	I_o	d	Ad^2	$I_{x,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties							
y-bar =	18.0800	in	$S_{top} = 572.62$	in ³	y-bar =	18.0800	in	$S_{top} = 572.62$	in ³		
$I_x =$	10353.04	in ⁴	$S_{bott.} = 572.62$	in ³	$I_x =$	10353.04	in ⁴	$S_{bott.} = 572.62$	in ³		
$C_{top} =$	18.0800	in	A =	49.5522	in ²	$C_{top} =$	18.0800	in	A =	49.5522	in ²
$C_{bottom} =$	18.0800	in	$r_x =$	14.4545	in	$C_{bottom} =$	18.0800	in	$r_x =$	14.4545	in
			Z =	659.89	in ³				Z =	659.89	in ³

EAST APPROACH - FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/20/2012
Date 4/12/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Floorbeam Capacities

Non-composite Capacities*		
	AB	AI
M	1814.70 k-ft	1814.70 k-ft
V	442.00 k	442.00 k

*Compact Section

$F_y =$	33.00 ksi
---------	------------------

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

As-Built Moments and Shears						
	DL	HS20	2F1	3F1	4F1	5C1
M	190.27 k-ft	357.01 k-ft	171.10 k-ft	254.35 k-ft	290.31 k-ft	274.01 k-ft
V	21.40 k	27.40 k	13.13 k	19.52 k	22.28 k	21.03 k

As-Built Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	2.02	---	---	---	---
Operating M	3.38	7.05	4.74	4.15	4.4
As-Inspected Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	2.02	---	---	---	---
Operating M	3.38	7.05	4.74	4.15	4.4
As-Built Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	6.97	---	---	---	---
Operating V	11.63	24.26	16.32	14.3	15.15
As-Inspected Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	6.97	---	---	---	---
Operating V	11.63	24.26	16.32	14.3	15.15

Controlling Rating Factors and Tonnage						
	HS20 Inventory	HS20 Operating	2F1 Operating	3F1 Operating	4F1 Operating	5C1 Operating
Rating Factor	2.02	3.38	7.05	4.74	4.15	4.4
Tonnage (US Tons)	72.72	121.68	105.75	109.02	112.05	176

EAST APPROACH - FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/20/2012
Date 4/12/2012

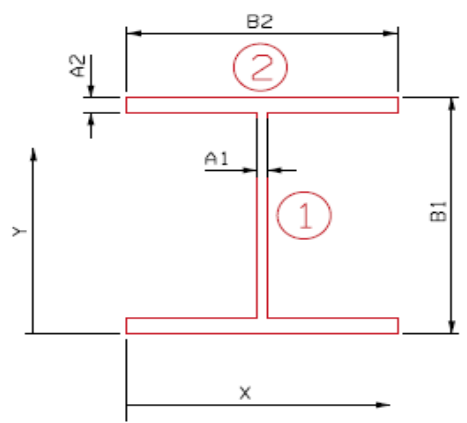
Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Red text indicates user input

Element Dimensions (without Section Losses):

$A_1 = t_w = 0.6800$ in
 $A_2 = t_f = 1.1000$ in
 $B_1 = d = 36.1600$ in
 $B_2 = b_f = 12.0270$ in
36WFB170



FB-8 @ Between 108 & 208
EAST APPR. FWD SECTION

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I_o	d	Ad^2	$I_{x, gross}$
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		23.0928	18.0800	417.5178	2219.3751	0.0000	0.0000	2219.3751
2	Top Flange		13.2297	35.6100	471.1096	1.3340	17.5300	4065.4987	4066.8327
	Bottom Flange		13.2297	0.5500	7.2763	1.3340	17.5300	4065.4987	4066.8327
Total			49.55		895.90	2222.04		8131.00	10353.04
Section Losses			A	y	Ay	I_o	d	Ad^2	$I_{x, loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties							
y-bar =	18.0800	in	$S_{top} = 572.62$	in ³	y-bar =	18.0800	in	$S_{top} = 572.62$	in ³		
$I_x =$	10353.04	in ⁴	$S_{bott.} = 572.62$	in ³	$I_x =$	10353.04	in ⁴	$S_{bott.} = 572.62$	in ³		
$C_{top} =$	18.0800	in	A =	49.5522	in ²	$C_{top} =$	18.0800	in	A =	49.5522	in ²
$C_{bottom} =$	18.0800	in	$r_x =$	14.4545	in	$C_{bottom} =$	18.0800	in	$r_x =$	14.4545	in
			Z =	659.89	in ³				Z =	659.89	in ³

EAST APPROACH - FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/20/2012
Date 4/12/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Floorbeam Capacities

Non-composite Capacities*		
	AB	AI
M	1814.70 k-ft	1814.70 k-ft
V	442.00 k	442.00 k

*Compact Section

$F_y =$	33.00 ksi
---------	------------------

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

As-Built Moments and Shears						
	DL	HS20	2F1	3F1	4F1	5C1
M	133.99 k-ft	441.95 k-ft	211.81 k-ft	314.86 k-ft	359.38 k-ft	339.20 k-ft
V	22.54 k	46.59 k	22.33 k	33.19 k	37.89 k	35.76 k

As-Built Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.71	---	---	---	---
Operating M	2.86	5.96	4.01	3.51	3.72
As-Inspected Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.71	---	---	---	---
Operating M	2.86	5.96	4.01	3.51	3.72
As-Built Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	4.08	---	---	---	---
Operating V	6.81	14.22	9.56	8.38	8.88
As-Inspected Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	4.08	---	---	---	---
Operating V	6.81	14.22	9.56	8.38	8.88

Controlling Rating Factors and Tonnage						
	HS20 Inventory	HS20 Operating	2F1 Operating	3F1 Operating	4F1 Operating	5C1 Operating
Rating Factor	1.71	2.86	5.96	4.01	3.51	3.72
Tonnage (US Tons)	61.56	102.96	89.4	92.23	94.77	148.8



Calculated: FKL Date: 4/6/2012
 Checked: PJP Date: 4/12/2012

CUY-2-1441 Load Rating Analysis - As-Built
Main Ave Bridge
East Approach Fwd Section - Bent 8

Column: C408

Section Properties 21WF68

A =	20.020	in ²	I _x =	1478.300	in ⁴
h =	21.130	in	S _x =	139.900	in ³
b _f =	8.270	in	r _x =	8.590	in
t _f =	0.685	in	I _y =	60.400	in ⁴
t _w =	0.430	in	S _y =	14.600	in ³
			r _y =	1.740	in
F _y =	33.0	ksi	Z	157.8	in ³
E =	29000	ksi			
L _{cx} =	150.60	in			
L _{cy} =	99.36	in			
K _x =	0.800	AASHTO Appendix C			
K _y =	0.800	AASHTO Appendix C			

Axial Loading

$$P_u = 0.85 A_s F_{cr}$$

AASHTO 10.54 Concentrically Loaded Columns

$$F_{cr} = F_y \left(1 - \frac{F_y}{4\pi^2 E} \left(\frac{KL_c}{r} \right)^2 \right)$$

$$\text{For: } \frac{KL_c}{r} \leq \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$F_{cr} = \frac{\pi^2 E}{\left(\frac{KL_c}{r} \right)^2}$$

$$\text{For: } \frac{KL_c}{r} > \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$KL/r_y = 45.683 < 131.706$$

$$KL/r_x = 14.026 < 131.706$$

$$F_{CR} = 31.015 \text{ ksi}$$

$$P_u = 527.8 \text{ k}$$



Calculated: FKL Date: 4/6/2012
 Checked: PJP Date: 4/12/2012

CUY-2-1441 Load Rating Analysis - As-Built
Main Ave Bridge

East Approach Fwd Section - Bent 8

Axial Loading and Bending

Column: C408

AASHTO 10.54.2 Combined Axial Load and Bending

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_e}\right)} \leq 1.0$$

$$= 0.6 + 0.4$$

a = 0 **When moment is small assume a = 0
 C = 0.600

$$F_e = \frac{E\pi^2}{\left(\frac{KL_c}{r}\right)^2}$$

$F_{ex} = 1454.970 \text{ ksi}$
 $F_{ey} = 137.149 \text{ ksi}$

Column Moment Capacity

Weak Axis Bending

$M_u = F_y S_y$ For Non-Compact Section

$M_{uy} = 40.2 \text{ k-ft}$

CUY-2-1441 Load Rating Analysis - As-Built

Main Ave Bridge

East Approach Forward Section - Column 408 Ratings



Calculated:

FKL 4/6/2012

Checked:

PJP 4/12/2012

Column Loading

	DL	HS-20	2F1	3F1	4F1	5C1
Max Axial	120.6	169.82	81.36	120.97	138.08	130.32
Moment	0.01	6.645	3.18	4.73	5.40	5.09
Axial	119.71	138.61	48.80	72.68	82.96	78.30
Max Moment	0.01	10.328	6.32	9.42	10.76	10.15

DL Factor

1.30

LL Factor

2.17 INV

1.30 OPER

Factored Loads

Axial Force

Moment

Capacities

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_c}\right)} \leq 1.0$$

Load Case	Member	Axial Force		Moment		P _u	M _u	A _s F _c	Condition Equation	RF
		Dead Load	Max. LL + I	Dead Load	Max LL + I					
HS20 INV	C408	156.78	367.94	0.01	14.40	527.80	40.20	2745.73	1.00	0.74
HS20 INV	C408	155.623	300.32	0.01	22.38	527.80	40.20	2745.73	1.00	0.74
HS20 OPR	C408	156.78	220.77	0.01	8.64	527.80	40.20	2745.73	1.00	1.23
HS20 OPR	C408	155.623	180.19	0.01	13.43	527.80	40.20	2745.73	1.00	1.23
2F1	C408	156.78	105.77	0.01	4.13	527.80	40.20	2745.73	1.00	2.57
2F1	C408	155.623	63.44	0.01	8.22	527.80	40.20	2745.73	1.00	2.72
3F1	C408	156.78	157.26	0.01	6.14	527.80	40.20	2745.73	1.00	1.73
3F1	C408	155.623	94.48	0.01	12.25	527.80	40.20	2745.73	1.00	1.82
4F1	C408	156.78	179.50	0.01	7.02	527.80	40.20	2745.73	1.00	1.51
4F1	C408	155.623	107.84	0.01	13.99	527.80	40.20	2745.73	1.00	1.60
5C1	C408	156.78	169.42	0.01	6.62	527.80	40.20	2745.73	1.00	1.60
5C1	C408	155.623	101.79	0.01	13.20	527.80	40.20	2745.73	1.00	1.69

Knee braces added in rehabilitation cause bending about the weak axis. Original design and details probably treated this member as axial only.

Load Case	Controlling RF
HS20 INV	0.74
HS20 OPR	1.23
2F1	2.57
3F1	1.73
4F1	1.51
5C1	1.60



Calculated: FKL Date: 4/6/2012

Checked: PJP Date: 4/12/2012

CUY-2-1441 Load Rating Analysis - As-Built

Main Ave Bridge

East Approach Fwd Section - Bent 8

Column: **C308**

Section Properties 21WF112

A =	32.930	in ²	I _x =	2620.600	in ⁴
h =	21.000	in	S _x =	249.600	in ³
b _f =	13.000	in	r _x =	8.920	in
t _f =	0.865	in	I _y =	289.700	in ⁴
t _w =	0.527	in	S _y =	44.600	in ³
			r _y =	2.960	in
F _y =	33.0	ksi	Z _x =	275.3	in ³
E =	29000	ksi			
L _{cx} =	188.76	in			
L _{cy} =	367.92	in			
K _x =	0.650	AASHTO Appendix C			
K _y =	0.650	AASHTO Appendix C			

Axial Loading

$$P_u = 0.85 A_s F_{cr}$$

AASHTO 10.54 Concentrically Loaded Columns

$$F_{cr} = F_y \left(1 - \frac{F_y}{4\pi^2 E} \left(\frac{KL_c}{r} \right)^2 \right) \quad \text{For: } \frac{KL_c}{r} \leq \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$F_{cr} = \frac{\pi^2 E}{\left(\frac{KL_c}{r} \right)^2} \quad \text{For: } \frac{KL_c}{r} > \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$KL/r_y = 80.793 < 131.706$$

$$KL/r_x = 13.755 < 131.706$$

$$F_{CR} = 26.791 \text{ ksi}$$

$$P_u = 749.9 \text{ k}$$



Calculated: FKL Date: 4/6/2012
 Checked: PJP Date: 4/12/2012

CUY-2-1441 Load Rating Analysis - As-Built

Main Ave Bridge

East Approach Fwd Section - Bent 8

Column: C308

Axial Loading and Bending

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_e}\right)} \leq 1.0$$

AASHTO 10.54.2 Combined Axial Load and Bending

$$= 0.6 + 0.4$$

a = 0 **When moment is small assume a = 0
 C = 0.600

$$F_e = \frac{E\pi^2}{\left(\frac{KL_c}{r}\right)^2}$$

$F_{ex} = 1512.798 \text{ ksi}$
 $F_{ey} = 43.848 \text{ ksi}$

Column Compactness Check

$M_u = F_y Z$ For Compact Section

$M_u = F_y S$ For Non-Compact Section

$$\frac{b}{t} \leq \frac{4110}{\sqrt{F_y}}$$

$$15.029 < 22.625$$

$$\frac{D}{t_w} \leq \frac{19230}{\sqrt{F_y}}$$

$$36.565 < 105.858$$

$$\frac{L}{r_y} \leq \frac{\left(3.6 - 2.2 \frac{M_1}{M_u}\right) \times 10^6}{F_y}$$

$$124.297 > 109.091$$

Column Moment Capacity

Non-Compact Section

$$M_{uy} = 686.4 \text{ k-ft}$$

CUY-2-1441 Load Rating Analysis - As-Built
 Main Ave Bridge
 East Approach Forward Section - Column 308 Ratings
 Column Loading



Calculated: FKL 4/6/2012
 Checked: PJP 4/12/2012

	DL	HS-20	2F1	3F1	4F1	5C1
Max Axial	59.19	139.12	66.67	99.11	113.13	106.78
Moment	0.22	35.684	17.14	25.45	29.04	27.42
Axial	54.77	108.736	52.11	77.47	88.42	83.46
Max Moment	35.95	111.03	53.21	79.10	90.29	85.22

DL Factor 1.30
 LL Factor 2.17 INV
 1.30 OPER

Factored Loads				Capacities		
Axial Force		Moment		P _u	M _u	A _s F _{ex}
Dead Load	Max. LL + I	Dead Load	Max LL + I			

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_c}\right)} \leq 1.0$$

Load Case	Member	Dead Load kips	Max. LL + I kips	Dead Load k-ft	Max LL + I k-ft	P _u kips	M _u k-ft	A _s F _{ex} kips	Condition Equation	RF
HS20 INV	C308	76.947	301.43	0.29	77.32	749.90	686.40	49816.42	1.00	1.91
HS20 INV	C308	71.201	235.59	46.74	240.57	749.90	686.40	49816.42	1.00	1.64
HS20 OPR	C308	76.947	180.86	0.29	46.39	749.90	686.40	49816.42	1.00	3.18
HS20 OPR	C308	71.201	141.36	46.74	144.34	749.90	686.40	49816.42	1.00	2.74
2F1	C308	76.947	86.67	0.29	22.28	749.90	686.40	49816.42	1.00	6.63
2F1	C308	71.201	67.75	46.74	69.17	749.90	686.40	49816.42	1.00	5.71
3F1	C308	76.947	128.84	0.29	33.09	749.90	686.40	49816.42	1.00	4.46
3F1	C308	71.201	100.71	46.74	102.83	749.90	686.40	49816.42	1.00	3.84
4F1	C308	76.947	147.07	0.29	37.75	749.90	686.40	49816.42	1.00	3.91
4F1	C308	71.201	114.95	46.74	117.38	749.90	686.40	49816.42	1.00	3.36
5C1	C308	76.947	138.81	0.29	35.64	749.90	686.40	49816.42	1.00	4.14
5C1	C308	71.201	108.49	46.74	110.79	749.90	686.40	49816.42	1.00	3.56

Load Case	Controlling RF
HS20 INV	1.64
HS20 OPR	2.74
2F1	5.71
3F1	3.84
4F1	3.36
5C1	3.56



Calculated: FKL Date: 4/6/2012
 Checked: Date:

CUY-2-1441 Load Rating Analysis - As-Built

Main Ave Bridge

East Approach Fwd Section - Bent 8

Column: C208

Section Properties 24WF130

A =	38.210	in ²	I _x =	4009.500	in ⁴
h =	24.250	in	S _x =	330.700	in ³
b _f =	14.000	in	r _x =	10.240	in
t _f =	0.900	in	I _y =	375.200	in ⁴
t _w =	0.565	in	S _y =	53.600	in ³
			r _y =	3.130	in
F _y =	33.0	ksi	Z _x =	365.4	in ³
E =	29000	ksi			
L _{cx} =	117.00	in			
L _{cy} =	369.15	in			
K _x =	0.650	AASHTO Appendix C			
K _y =	0.650	AASHTO Appendix C			

Axial Loading

$$P_u = 0.85 A_s F_{cr}$$

AASHTO 10.54 Concentrically Loaded Columns

$$F_{cr} = F_y \left(1 - \frac{F_y}{4\pi^2 E} \left(\frac{KL_c}{r} \right)^2 \right)$$

$$\text{For: } \frac{KL_c}{r} \leq \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$F_{cr} = \frac{\pi^2 E}{\left(\frac{KL_c}{r} \right)^2}$$

$$\text{For: } \frac{KL_c}{r} > \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$KL/r_y = 76.660 < 131.706$$

$$KL/r_x = 7.427 < 131.706$$

$$F_{CR} = 27.410 \text{ ksi}$$

$$P_u = 890.2 \text{ k}$$



Calculated: FKL Date: 4/6/2012
 Checked: Date:

CUY-2-1441 Load Rating Analysis - As-Built
Main Ave Bridge
East Approach Fwd Section - Bent 8

Column: C208

Axial Loading and Bending

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_e}\right)} \leq 1.0$$

AASHTO 10.54.2 Combined Axial Load and Bending

$$= 0.6 + 0.4$$

a = 0 **When moment is small assume a = 0
 C = 0.600

$$F_e = \frac{E\pi^2}{\left(\frac{KL_c}{r}\right)^2}$$

$F_{ex} = 5189.186 \text{ ksi}$
 $F_{ey} = 48.704 \text{ ksi}$

Column Compactness Check

$M_u = F_y Z$ For Compact Section

$M_u = F_y S$ For Non-Compact Section

$$\frac{b}{t} \leq \frac{4110}{\sqrt{F_y}}$$

15.556 < 22.625

$$\frac{D}{t_w} \leq \frac{19230}{\sqrt{F_y}}$$

39.735 < 105.858

$$\frac{L}{r_y} \leq \frac{\left(3.6 - 2.2 \frac{M_1}{M_u}\right) \times 10^6}{F_y}$$

117.938 > 109.091

Column Moment Capacity

Non-Compact Section

$M_{uy} = 909.4 \text{ k-ft}$

CUY-2-1441 Load Rating Analysis - As-Built

Main Ave Bridge

East Approach Forward Section - Column 208 Ratings



Calculated:

FKL 4/6/2012

Checked:

FJP 4/12/2012

Column Loading

	DL	HS-20	2F1	3F1	4F1	5C1
Max Axial	138.5	155.505	74.53	110.79	126.45	119.35
Moment	0.61	34.192	16.38	17.71	27.80	26.24
Axial	122.82	148.54	43.11	64.08	93.27	30.32
Max Moment	12.52	187.65	91.98	136.75	146.78	185.60

DL Factor

1.30

LL Factor

2.17 INV

1.30 OPER

Factored Loads

Axial Force

Moment

Capacities

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_c}\right)} \leq 1.0$$

Load Case	Member	Axial Force		Moment		P _u	M _u	A _s F _{ex}	Condition Equation	RF
		Dead Load	Max. LL + I	Dead Load	Max LL + I					
HS20 INV	C208	180.05	336.93	0.79	74.08	890.20	909.40	198278.79	1.00	1.86
HS20 INV	C208	159.666	321.84	16.28	406.58	890.20	909.40	198278.79	1.00	1.28
HS20 OPR	C208	180.05	202.16	0.79	44.45	890.20	909.40	198278.79	1.00	3.11
HS20 OPR	C208	159.666	193.10	16.28	243.95	890.20	909.40	198278.79	1.00	2.14
2F1	C208	180.05	96.89	0.79	21.29	890.20	909.40	198278.79	1.00	6.48
2F1	C208	159.666	56.04	16.28	119.57	890.20	909.40	198278.79	1.00	5.70
3F1	C208	180.05	144.03	0.79	23.02	890.20	909.40	198278.79	1.00	4.50
3F1	C208	159.666	83.30	16.28	177.77	890.20	909.40	198278.79	1.00	3.84
4F1	C208	180.05	164.39	0.79	36.14	890.20	909.40	198278.79	1.00	3.82
4F1	C208	159.666	121.25	16.28	190.82	890.20	909.40	198278.79	1.00	3.09
5C1	C208	180.05	155.16	0.79	34.11	890.20	909.40	198278.79	1.00	4.05
5C1	C208	159.666	39.42	16.28	241.28	890.20	909.40	198278.79	1.00	3.98

Load Case	Controlling RF
HS20 INV	1.28
HS20 OPR	2.14
2F1	5.70
3F1	3.84
4F1	3.09
5C1	3.98



Calculated: FKL Date: 4/6/2012
 Checked: PJP Date: 4/12/2012

CUY-2-1441 Load Rating Analysis - As-Built
Main Ave Bridge
East Approach Fwd Section - Bent 8

Column: C108

Section Properties 21WF112

A =	32.930	in ²	I _x =	2620.600	in ⁴
h =	21.000	in	S _x =	249.600	in ³
b _f =	13.000	in	r _x =	8.920	in
t _f =	0.865	in	I _y =	289.700	in ⁴
t _w =	0.527	in	S _y =	44.600	in ³
			r _y =	2.960	in
F _y =	33.0	ksi	Z _x =	275.3	in ³
E =	29000	ksi			
L _{cx} =	200.76	in			
L _{cy} =	382.20	in			
K _x =	0.650	AASHTO Appendix C			
K _y =	0.650	AASHTO Appendix C			

Axial Loading

$$P_u = 0.85 A_s F_{cr}$$

AASHTO 10.54 Concentrically Loaded Columns

$$F_{cr} = F_y \left(1 - \frac{F_y}{4\pi^2 E} \left(\frac{KL_c}{r} \right)^2 \right)$$

$$\text{For: } \frac{KL_c}{r} \leq \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$F_{cr} = \frac{\pi^2 E}{\left(\frac{KL_c}{r} \right)^2}$$

$$\text{For: } \frac{KL_c}{r} > \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$KL/r_y = 83.929 < 131.706$$

$$KL/r_x = 14.629 < 131.706$$

$$F_{CR} = 26.300 \text{ ksi}$$

$$P_u = 736.1 \text{ k}$$



Calculated: FKL Date: 4/6/2012
 Checked: PJP Date: 4/12/2012

CUY-2-1441 Load Rating Analysis - As-Built

Main Ave Bridge

East Approach Fwd Section - Bent 8

Column: C108

Axial Loading and Bending

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_e}\right)} \leq 1.0$$

AASHTO 10.54.2 Combined Axial Load and Bending

$$= 0.6 + 0.4$$

$$a = 0 \quad \text{**When moment is small assume } a = 0$$

$$C = 0.600$$

$$F_e = \frac{E\pi^2}{\left(\frac{KL_c}{r}\right)^2} \quad \begin{matrix} F_{ex} = 1337.354 \text{ ksi} \\ F_{ey} = 40.632 \text{ ksi} \end{matrix}$$

Column Compactness Check

$M_u = F_y Z$ For Compact Section

$M_u = F_y S$ For Non-Compact Section

$$\frac{b}{t} \leq \frac{4110}{\sqrt{F_y}}$$

$$15.029 < 22.625$$

$$\frac{D}{t_w} \leq \frac{19230}{\sqrt{F_y}}$$

$$36.565 < 105.858$$

$$\frac{L}{r_y} \leq \frac{\left(3.6 - 2.2 \frac{M_1}{M_u}\right) \times 10^6}{F_y}$$

$$129.122 > 109.091$$

Column Moment Capacity

Non-Compact Section

$$M_{uy} = 686.4 \text{ k-ft}$$

CUY-2-1441 Load Rating Analysis - As-Built

Main Ave Bridge

East Approach Forward Section - Column 108 Ratings



Calculated:

FKL 4/6/2012

Checked:

PJP 4/12/2012

Column Loading

	DL	HS-20	2F1	3F1	4F1	5C1
Max Axial	130.98	167.67	80.35	119.45	136.34	128.69
Moment	3.86	46.322	22.14	32.92	37.65	35.53
Axial	125.76	103.765	35.97	53.47	62.05	57.60
Max Moment	19.8	211.213	104.63	155.55	177.55	167.58

DL Factor 1.30
LL Factor 2.17 INV
1.30 OPER

Factored Loads				Capacities		
Axial Force		Moment		P _u	M _u	A _s F _{ex}
Dead Load	Max. LL + I	Dead Load	Max LL + I			

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_c}\right)} \leq 1.0$$

Load Case	Member	kips	kips	k-ft	k-ft	kips	k-ft	kips	Condition Equation	RF
HS20 INV	C108	170.274	363.29	5.02	100.36	736.10	686.40	44039.07	1.00	1.31
HS20 INV	C108	163.488	224.82	25.74	457.63	736.10	686.40	44039.07	1.00	1.06
HS20 OPR	C108	170.274	217.97	5.02	60.22	736.10	686.40	44039.07	1.00	2.19
HS20 OPR	C108	163.488	134.89	25.74	274.58	736.10	686.40	44039.07	1.00	1.77
2F1	C108	170.274	104.46	5.02	28.78	736.10	686.40	44039.07	1.00	4.56
2F1	C108	163.488	46.76	25.74	136.02	736.10	686.40	44039.07	1.00	4.12
3F1	C108	170.274	155.29	5.02	42.80	736.10	686.40	44039.07	1.00	3.07
3F1	C108	163.488	69.51	25.74	202.22	736.10	686.40	44039.07	1.00	2.77
4F1	C108	170.274	177.24	5.02	48.94	736.10	686.40	44039.07	1.00	2.69
4F1	C108	163.488	80.67	25.74	230.82	736.10	686.40	44039.07	1.00	2.41
5C1	C108	170.274	167.30	5.02	46.19	736.10	686.40	44039.07	1.00	2.85
5C1	C108	163.488	74.88	25.74	217.85	736.10	686.40	44039.07	1.00	2.57

Load Case	Controlling RF
HS20 INV	1.06
HS20 OPR	1.77
2F1	4.12
3F1	2.77
4F1	2.41
5C1	2.57



Made By PJP
Checked By MTN

Date 3/15/2012
Date 4/9/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441 - East Approach Forward Section**

Bent 9 Reactions

Dead Load Reactions from MDX

Unit 7 - Span 9		
Stringer	DL1	DL2
F1-7	31.74	3.8
S1-7	27.17	3.8
S2-7	26.67	3.8
S3-7	29.91	3.8
S4-7	29.91	3.8
S5-7	29.91	3.8
S6-7	29.91	3.8
S7-7	29.86	3.8
S8-7	29.91	3.8
S9-7	29.91	3.8
S10-7	29.91	3.8
S11-7	29.91	3.8
S12-7	29.91	3.8
S13-7	29.91	3.8
S14-7	27.49	3.8
S15-7	10.80	1.53
S16-7	13.77	1.55
F2-7	25.94	3.89

Unit 7 - Span 10		
Stringer	DL1	DL2
S17-7	11.71	1.52
S18-7	11.71	1.52
S19-7	9.97	1.52
S20-7	8.17	1.53

Bent 9 Reaction	
Stringer	Total DL
F1-7	35.54
S1-7	30.97
S2-7	30.47
S3-7	33.71
S4-7	33.71
S5-7	33.71
S6-7	33.71
S7-7	33.66
S8-7	33.71
S9-7	33.71
S10-7	33.71
S11-7	33.71
S12-7	33.71
S13-7	33.71
S14-7	31.29
S17-7	13.23
S15-7	12.33
S18-7	13.23
S16-7	15.32
S19-7	11.49
S20-7	9.70
F2-7	29.83

Fascis stringers and stringers S1-7 through S14-7 are continuous. Stringers S15-7 through S20-7 are simple span.

Dist Factor 1.061 wheels/beam

Live Load Reactions from MDX

	LL+I	2 lane LL+I	3 lane	4 lane	Ratio
HS-20	43.96	41.4	37.3	31.1	1.00000
2F1	19.37	18.3	16.5	13.7	0.44063
3F1	29.49	27.8	25.1	20.9	0.67084
4F1	34.28	32.4	29.1	24.3	0.77980
5C1	36.95	34.9	31.4	26.2	0.84054

3 lane reduction 0.9
4 + reduction 0.75

Reactions per wheel line at Bent 9

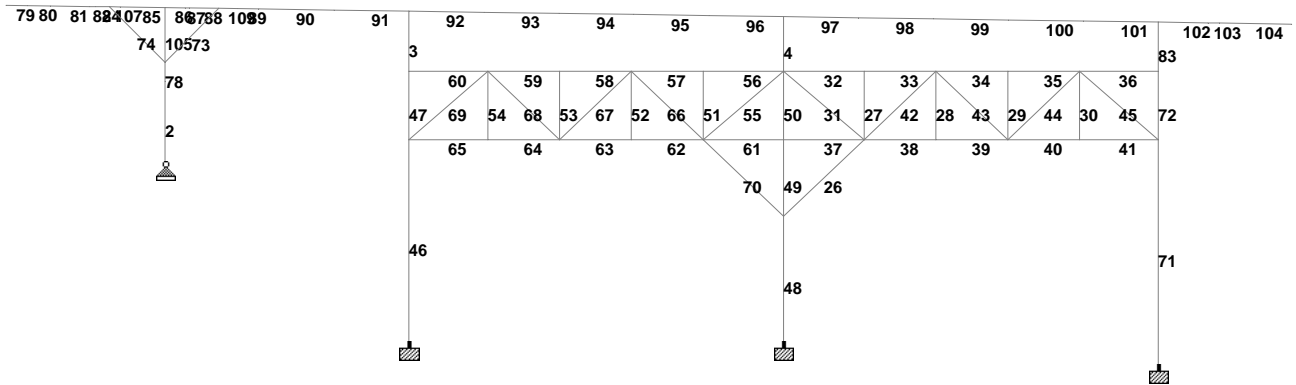


Job No P402110046	Sheet No 1	Rev
Part EAST APPROACH FORWARD SECTION		
Ref BENT 9 ANALYSIS		
By PJP	Date 14-Mar-12	Chd MTN
File Bent_9_LL.std	Date/Time 10-Apr-2012 12:27	

Software licensed to TranSystems

Job Title CUY-2-1441

Client ODOT



Y
Z-X

```

*****
*
*          STAAD.Pro V8i SELECTseries1          *
*          Version  20.07.06.35                 *
*          Proprietary Program of               *
*          Bentley Systems, Inc.                *
*          Date=    APR 10, 2012                *
*          Time=    12:27:14                    *
*
*          USER ID: TranSystems                 *
*****

```

1. STAAD SPACE DXF IMPORT OF 002_1441BENT_9.DXF
- INPUT FILE: Bent_9_DL.STD
2. START JOB INFORMATION
3. ENGINEER DATE 14-MAR-12
4. JOB NAME CUY-2-1441
5. JOB CLIENT ODOT
6. JOB NO P402110046
7. JOB COMMENT EAST APPROACH FORWARD SECTION BENT 9 ANALYSIS
8. ENGINEER NAME PJP
9. JOB PART EAST APPROACH FWD SECTION
10. JOB REF BENT 9
11. CHECKER NAME MTN
12. CHECKER DATE 4/9/12
13. END JOB INFORMATION
14. INPUT WIDTH 79
15. UNIT FEET KIP
16. JOINT COORDINATES
17. 2 68.6094 26.4025 0; 3 -8.93229 25.6073 0; 4 -8.93229 19.35 0
18. 5 10.1094 31.0993 0; 6 10.1094 26.4025 0; 7 39.3594 30.6709 0
19. 8 39.3594 26.4025 0; 9 -19.6667 31.5355 0; 10 -17.8646 31.5091 0
20. 11 -14.7891 31.4641 0; 12 -14.349 31.4576 0; 13 -12.4323 31.4295 0
21. 14 -8.93229 31.3783 0; 15 -7.34896 31.3551 0; 16 -7.01563 31.3502 0
22. 17 -1.59896 31.2708 0; 18 4.25521 31.1851 0; 19 15.9635 31.0136 0
23. 20 21.8177 30.9278 0; 21 27.6719 30.8421 0; 22 33.526 30.7563 0
24. 23 45.1927 30.5854 0; 24 51.0469 30.4996 0; 25 56.901 30.4139 0
25. 26 62.7552 30.3281 0; 27 68.6094 30.2424 0; 28 72.4699 30.1858 0
26. 29 73.3802 30.1725 0; 30 79 30.0902 0; 31 39.3594 15.09 0
27. 32 45.6406 21.0692 0; 33 45.6406 26.4025 0; 34 51.2448 21.0692 0
28. 35 51.2448 26.4025 0; 36 56.849 21.0692 0; 37 56.849 26.4025 0
29. 38 62.4531 21.0692 0; 39 62.4531 26.4025 0; 40 39.3594 21.0692 0
30. 41 68.6094 21.0692 0; 42 10.1094 5.36 0; 43 10.1094 21.0692 0
31. 44 39.3594 5.34 0; 45 33.0781 21.0692 0; 46 33.0781 26.4025 0
32. 47 27.474 21.0692 0; 48 27.474 26.4025 0; 49 21.8698 21.0692 0
33. 50 21.8698 26.4025 0; 51 16.2656 21.0692 0; 52 16.2656 26.4025 0
34. 53 68.6094 3.55 0; 54 -3.24461 31.295 0; 55 -21.349 31.56 0
35. MEMBER INCIDENCES
36. 2 3 4; 3 5 6; 4 7 8; 26 31 32; 27 32 33; 28 34 35; 29 36 37; 30 38 39; 31 32 8
37. 32 8 33; 33 33 35; 34 35 37; 35 37 39; 36 39 2; 37 40 32; 38 32 34; 39 34 36
38. 40 36 38; 41 38 41; 42 32 35; 43 35 36; 44 36 39; 45 39 41; 46 42 43; 47 43 6
39. 48 44 31; 49 31 40; 50 40 8; 51 45 46; 52 47 48; 53 49 50; 54 51 52; 55 45 8
40. 56 8 46; 57 46 48; 58 48 50; 59 50 52; 60 52 6; 61 40 45; 62 45 47; 63 47 49

DXF IMPORT OF 002_1441BENT_9.DXF

-- PAGE NO. 2

41. 64 49 51; 65 51 43; 66 45 48; 67 48 49; 68 49 52; 69 52 43; 70 31 45; 71 53 41
42. 72 41 2; 78 3 14; 79 9 55; 80 9 10; 81 10 11; 82 11 12; 83 2 27; 84 12 13
43. 85 13 14; 86 14 15; 87 15 16; 88 16 54; 89 54 17; 90 17 18; 91 18 5; 92 5 19
44. 93 19 20; 94 20 21; 95 21 22; 96 22 7; 97 7 23; 98 23 24; 99 24 25; 100 25 26
45. 101 26 27; 102 27 28; 103 28 29; 104 29 30
46. DEFINE MATERIAL START
47. ISOTROPIC STEEL
48. E 4.176E+006
49. POISSON 0.3
50. DENSITY 0.489024
51. ALPHA 6E-006
52. DAMP 0.03
53. END DEFINE MATERIAL
54. MEMBER PROPERTY AMERICAN
55. 26 TO 45 51 TO 70 TABLE ST W8X31
56. 79 TO 82 84 TO 104 TABLE ST W36X170
57. 3 46 47 71 72 83 TABLE ST W21X111
58. 2 78 TABLE ST W21X68
59. 4 48 TO 50 TABLE ST W24X131
60. CONSTANTS
61. BETA 90 MEMB 2 26 TO 45 51 TO 70 78
62. MATERIAL STEEL ALL
63. MEMBER TRUSS
64. 26 TO 45 51 TO 70
65. SUPPORTS
66. 42 44 53 FIXED
67. 4 PINNED
68. MEMBER RELEASE
69. 78 END MY
70. LOAD 1 LOADTYPE DEAD TITLE DEAD LOADS
71. SELFWEIGHT Y -1.05 LIST 2 TO 4 26 TO 72 78 TO 104
72. *SUPER STRUCTURE LOADS
73. JOINT LOAD
74. *F2-7
75. 55 FY -29.83
76. *S20-7
77. 9 FY -9.7
78. *S19-7
79. 10 FY -11.49
80. *S16-7
81. 12 FY -15.32
82. *S18-7
83. 13 FY -13.23
84. *S15-7
85. 15 FY -12.33
86. *S17-7
87. 16 FY -13.23
88. *S14-7
89. 17 FY -31.29
90. *S13-7
91. 18 FY -33.71
92. *S12-7
93. 5 FY -33.71
94. *S11-7
95. 19 FY -33.71
96. *S10-7

DXF IMPORT OF 002_1441BENT_9.DXF

-- PAGE NO. 3

97. 20 FY -33.71
 98. *S9-7
 99. 21 FY -33.71
 100. *S8-7
 101. 22 FY -33.71
 102. *S7-7
 103. 7 FY -33.66
 104. *S6-7
 105. 23 FY -33.71
 106. *S5-7
 107. 24 FY -33.71
 108. *S4-7
 109. 25 FY -33.71
 110. *S3-7
 111. 26 FY -33.71
 112. *S2-7
 113. 27 FY -30.47
 114. *S1-7
 115. 29 FY -30.97
 116. *F1-7
 117. 30 FY -35.54
 118. PDELTA 10 ANALYSIS

P R O B L E M S T A T I S T I C S

NUMBER OF JOINTS/MEMBER+ELEMENTS/SUPPORTS = 54/ 77/ 4

SOLVER USED IS THE OUT-OF-CORE BASIC SOLVER

ORIGINAL/FINAL BAND-WIDTH= 46/ 5/ 36 DOF
 TOTAL PRIMARY LOAD CASES = 1, TOTAL DEGREES OF FREEDOM = 303
 SIZE OF STIFFNESS MATRIX = 11 DOUBLE KILO-WORDS
 REQD/AVAIL. DISK SPACE = 12.2/ 514589.6 MB

ZERO STIFFNESS IN DIRECTION 3 AT JOINT 52 EQN.NO. 108
 LOADS APPLIED OR DISTRIBUTED HERE FROM ELEMENTS WILL BE IGNORED.
 THIS MAY BE DUE TO ALL MEMBERS AT THIS JOINT BEING RELEASED OR
 EFFECTIVELY RELEASED IN THIS DIRECTION.

ZERO STIFFNESS IN DIRECTION 4 AT JOINT 52 EQN.NO. 109
 ZERO STIFFNESS IN DIRECTION 5 AT JOINT 52 EQN.NO. 110
 ZERO STIFFNESS IN DIRECTION 6 AT JOINT 52 EQN.NO. 111
 ZERO STIFFNESS IN DIRECTION 3 AT JOINT 51 EQN.NO. 120
 ZERO STIFFNESS IN DIRECTION 4 AT JOINT 51 EQN.NO. 121
 ZERO STIFFNESS IN DIRECTION 5 AT JOINT 51 EQN.NO. 122
 ZERO STIFFNESS IN DIRECTION 6 AT JOINT 51 EQN.NO. 123
 ZERO STIFFNESS IN DIRECTION 3 AT JOINT 50 EQN.NO. 126
 ZERO STIFFNESS IN DIRECTION 4 AT JOINT 50 EQN.NO. 127
 ZERO STIFFNESS IN DIRECTION 5 AT JOINT 50 EQN.NO. 128
 ZERO STIFFNESS IN DIRECTION 6 AT JOINT 50 EQN.NO. 129

**WARNING - THERE WERE MORE THAN 12 DOF WITH ZERO STIFFNESS.
THE FIRST 12 ARE LISTED ABOVE.

TOTAL # TRANSLATIONAL= 16 TOTAL # ROTATIONAL= 48

++ Adjusting Displacements	12:27:14
++ Adjusting Displacements	12:27:14
++ Adjusting Displacements	12:27:14
++ Adjusting Displacements	12:27:14
++ Adjusting Displacements	12:27:14
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++ Adjusting Displacements	12:27:14
++ Adjusting Displacements	12:27:14
++ Adjusting Displacements	12:27:14
++ Adjusting Displacements	12:27:14

119. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 79 TO 82 84 TO 104

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
79 MAX	30.13	0.00	1	50.44	0.00	1			
	0.00	0.00	1	0.00	0.00	1	0.44 C	0.00	1
MIN	29.83	1.68	1	0.00	1.68	1			
	0.00	1.68	1	0.00	1.68	1	0.43 C	1.68	1
80 MAX	-39.83	0.00	1	122.51	1.80	1			
	0.00	0.00	1	0.00	0.00	1	0.59 C	1.80	1
MIN	-40.15	1.80	1	50.44	0.00	1			
	0.00	1.80	1	0.00	1.80	1	0.58 C	0.00	1
81 MAX	-51.64	0.00	1	282.18	3.08	1			
	0.00	0.00	1	0.00	0.00	1	0.76 C	3.08	1
MIN	-52.18	3.08	1	122.51	0.00	1			
	0.00	3.08	1	0.00	3.08	1	0.76 C	0.00	1
82 MAX	-52.18	0.00	1	305.17	0.44	1			
	0.00	0.00	1	0.00	0.00	1	0.77 C	0.44	1
MIN	-52.26	0.44	1	282.18	0.00	1			
	0.00	0.44	1	0.00	0.44	1	0.77 C	0.00	1
84 MAX	-67.58	0.00	1	435.05	1.92	1			
	0.00	0.00	1	0.00	0.00	1	1.00 C	1.92	1
MIN	-67.92	1.92	1	305.17	0.00	1			
	0.00	1.92	1	0.00	1.92	1	0.99 C	0.00	1
85 MAX	-81.15	0.00	1	720.21	3.50	1			
	0.00	0.00	1	0.00	0.00	1	1.20 C	3.50	1
MIN	-81.78	3.50	1	435.05	0.00	1			
	0.00	3.50	1	0.00	3.50	1	1.19 C	0.00	1
86 MAX	83.81	0.00	1	720.21	0.00	1			
	0.00	0.00	1	0.00	0.00	1	1.20 T	1.58	1
MIN	83.53	1.58	1	587.72	1.58	1			
	0.00	1.58	1	0.00	1.58	1	1.21 T	0.00	1
87 MAX	71.20	0.00	1	587.72	0.00	1			
	0.00	0.00	1	0.00	0.00	1	1.02 T	0.33	1
MIN	71.14	0.33	1	563.99	0.33	1			
	0.00	0.33	1	0.00	0.33	1	1.02 T	0.00	1
88 MAX	57.91	0.00	1	563.99	0.00	1			
	0.00	0.00	1	0.00	0.00	1	0.81 T	3.77	1

DXF IMPORT OF 002_1441BENT_9.DXF

-- PAGE NO. 6

MIN	57.24	3.77	1	346.83	3.77	1				
	0.00	3.77	1	0.00	3.77	1	0.82 T	0.00	1	
89 MAX	57.24	0.00	1	346.83	0.00	1				
	0.00	0.00	1	0.00	0.00	1	0.81 T	1.65	1	
MIN	56.95	1.65	1	252.86	1.65	1				
	0.00	1.65	1	0.00	1.65	1	0.82 T	0.00	1	
90 MAX	25.66	0.00	1	252.86	0.00	1				
	0.00	0.00	1	0.00	0.00	1	0.34 T	5.85	1	
MIN	24.62	5.85	1	105.67	5.85	1				
	0.00	5.85	1	0.00	5.85	1	0.35 T	0.00	1	
91 MAX	-9.09	0.00	1	161.93	5.85	1				
	0.00	0.00	1	0.00	0.00	1	0.17 C	5.85	1	
MIN	-10.13	5.85	1	105.67	0.00	1				
	0.00	5.85	1	0.00	5.85	1	0.16 C	0.00	1	
92 MAX	62.67	0.00	1	243.68	0.00	1				
	0.00	0.00	1	0.00	0.00	1	9.22 C	5.85	1	
MIN	61.62	5.85	1	-120.22	5.85	1				
	0.00	5.85	1	0.00	5.85	1	9.21 C	0.00	1	
93 MAX	27.92	0.00	1	-120.22	0.00	1				
	0.00	0.00	1	0.00	0.00	1	9.73 C	5.85	1	
MIN	26.87	5.85	1	-280.66	5.85	1				
	0.00	5.85	1	0.00	5.85	1	9.71 C	0.00	1	
94 MAX	-6.83	0.00	1	-237.59	5.85	1				
	0.00	0.00	1	0.00	0.00	1	10.24 C	5.85	1	
MIN	-7.88	5.85	1	-280.66	0.00	1				
	0.00	5.85	1	0.00	5.85	1	10.22 C	0.00	1	
95 MAX	-41.58	0.00	1	8.97	5.85	1				
	0.00	0.00	1	0.00	0.00	1	10.75 C	5.85	1	
MIN	-42.63	5.85	1	-237.59	0.00	1				
	0.00	5.85	1	0.00	5.85	1	10.73 C	0.00	1	
96 MAX	-76.33	0.00	1	457.39	5.83	1				
	0.00	0.00	1	0.00	0.00	1	11.26 C	5.83	1	
MIN	-77.37	5.83	1	8.97	0.00	1				
	0.00	5.83	1	0.00	5.83	1	11.24 C	0.00	1	
97 MAX	67.00	0.00	1	394.61	0.00	1				
	0.00	0.00	1	0.00	0.00	1	6.01 T	5.83	1	
MIN	65.96	5.83	1	6.81	5.83	1				
	0.00	5.83	1	0.00	5.83	1	6.03 T	0.00	1	
98 MAX	32.25	0.00	1	6.81	0.00	1				
	0.00	0.00	1	0.00	0.00	1	5.50 T	5.85	1	
MIN	31.21	5.85	1	-178.94	5.85	1				
	0.00	5.85	1	0.00	5.85	1	5.52 T	0.00	1	
99 MAX	-2.50	0.00	1	-161.24	5.85	1				
	0.00	0.00	1	0.00	0.00	1	4.99 T	5.85	1	

DXF IMPORT OF 002_1441BENT_9.DXF

-- PAGE NO. 7

MIN	-3.54	5.85	1	-178.94	0.00	1				
	0.00	5.85	1	0.00	5.85	1	5.01 T	0.00	1	
100 MAX	-37.25	0.00	1	59.89	5.85	1				
	0.00	0.00	1	0.00	0.00	1	4.48 T	5.85	1	
MIN	-38.29	5.85	1	-161.24	0.00	1				
	0.00	5.85	1	0.00	5.85	1	4.50 T	0.00	1	
101 MAX	-72.00	0.00	1	484.49	5.85	1				
	0.00	0.00	1	0.00	0.00	1	3.97 T	5.85	1	
MIN	-73.04	5.85	1	59.89	0.00	1				
	0.00	5.85	1	0.00	5.85	1	3.99 T	0.00	1	
102 MAX	68.36	0.00	1	526.65	0.00	1				
	0.00	0.00	1	0.00	0.00	1	0.99 T	3.86	1	
MIN	67.67	3.86	1	264.07	3.86	1				
	0.00	3.86	1	0.00	3.86	1	1.00 T	0.00	1	
103 MAX	67.67	0.00	1	264.07	0.00	1				
	0.00	0.00	1	0.00	0.00	1	0.99 T	0.91	1	
MIN	67.50	0.91	1	202.54	0.91	1				
	0.00	0.91	1	0.00	0.91	1	0.99 T	0.00	1	
104 MAX	36.54	0.00	1	202.54	0.00	1				
	0.00	0.00	1	0.00	0.00	1	0.52 T	5.62	1	
MIN	35.54	5.62	1	0.00	5.62	1				
	0.00	5.62	1	0.00	5.62	1	0.54 T	0.00	1	

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

120. *FLOOR BEAM RESULTS ABOVE

121. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 2 78

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
2 MAX	0.00	0.00	1	0.00	0.00	1			
	0.02	0.00	1	0.00	0.00	1	166.46 C	6.26	1
MIN	0.00	6.26	1	0.00	6.26	1			
	0.02	6.26	1	0.00	6.26	1	166.02 C	0.00	1
78 MAX	0.00	0.00	1	0.00	0.00	1			
	0.00	0.00	1	0.00	5.77	1	166.02 C	0.00	1
MIN	0.00	5.77	1	0.00	5.77	1			
	0.00	5.77	1	-0.12	5.19	1	165.61 C	5.77	1

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

122. *COLUMN 4 RESULTS ABOVE

123. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 3 46 47

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
3 MAX	-10.10	0.00	1	-34.48	4.70	1			
	0.00	0.00	1	0.00	0.00	1	106.92 C	4.70	1
MIN	-10.10	4.70	1	-81.75	0.00	1			
	0.00	4.70	1	0.00	4.70	1	106.37 C	0.00	1
46 MAX	-0.23	0.00	1	2.18	15.71	1			
	0.00	0.00	1	0.00	0.00	1	109.23 C	0.00	1
MIN	-0.23	15.71	1	-1.37	0.00	1			
	0.00	15.71	1	0.00	15.71	1	107.39 C	15.71	1
47 MAX	-6.06	0.00	1	34.48	5.33	1			
	0.00	0.00	1	0.00	0.00	1	107.64 C	0.00	1
MIN	-6.06	5.33	1	2.18	0.00	1			
	0.00	5.33	1	0.00	5.33	1	107.02 C	5.33	1

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

124. *COLUMN 3 RESULTS ABOVE

125. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 4 48 TO 50

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
4 MAX	15.17	0.00	1	62.78	0.00	1			
	0.00	0.00	1	0.00	0.00	1	178.85 C	4.27	1
MIN	15.17	4.27	1	-2.05	4.27	1			
	0.00	4.27	1	0.00	4.27	1	178.27 C	0.00	1
48 MAX	-0.06	0.00	1	3.87	9.75	1			
	0.00	0.00	1	0.00	0.00	1	188.49 C	0.00	1
MIN	-0.06	9.75	1	3.34	0.00	1			
	0.00	9.75	1	0.00	9.75	1	187.15 C	9.75	1
49 MAX	0.27	0.00	1	3.87	0.00	1			
	0.00	0.00	1	0.00	0.00	1	169.68 C	0.00	1
MIN	0.27	5.98	1	2.20	5.98	1			
	0.00	5.98	1	0.00	5.98	1	168.86 C	5.98	1
50 MAX	0.02	0.00	1	2.20	0.00	1			
	0.00	0.00	1	0.00	0.00	1	168.65 C	0.00	1
MIN	0.02	5.33	1	2.05	5.33	1			
	0.00	5.33	1	0.00	5.33	1	167.92 C	5.33	1

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

126. *COLUMN 2 RESULTS ABOVE

127. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 71 72 83

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
71 MAX	0.31	0.00	1	3.74	0.00	1			
	0.00	0.00	1	0.00	0.00	1	176.66 C	0.00	1
MIN	0.31	17.52	1	-1.74	17.52	1			
	0.00	17.52	1	0.00	17.52	1	174.62 C	17.52	1
72 MAX	-4.63	0.00	1	22.93	5.33	1			
	0.00	0.00	1	0.00	0.00	1	172.98 C	0.00	1
MIN	-4.63	5.33	1	-1.74	0.00	1			
	0.00	5.33	1	0.00	5.33	1	172.36 C	5.33	1
83 MAX	-5.04	0.00	1	42.16	3.84	1			
	0.00	0.00	1	0.00	0.00	1	172.26 C	0.00	1
MIN	-5.04	3.84	1	22.93	0.00	1			
	0.00	3.84	1	0.00	3.84	1	171.81 C	3.84	1

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

128. *COLUMN 1 RESULTS ABOVE

129. FINISH

***** END OF THE STAAD.Pro RUN *****

**** DATE= APR 10,2012 TIME= 12:27:14 ****


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*****
*           For questions on STAAD.Pro, please contact           *
*   Bentley Systems Offices at the following locations           *
*                                                                 *
*           Telephone                Web / Email                *
*                                                                 *
*   USA:          +1 (714)974-2500                               *
*   UK            +44(1454)207-000                               *
*   SINGAPORE    +65 6225-6158                                  *
*   EUROPE       +31 23 5560560                                 *
*   INDIA        +91(033)4006-2021                               *
*   JAPAN        +81(03)5952-6500   http://www.ctc-g.co.jp      *
*   CHINA        +86 10 5929 7000                               *
*   THAILAND     +66(0)2645-1018/19 partha.p@reisoftwareth.com *
*                                                                 *
*   Worldwide    http://selectservices.bentley.com/en-US/     *
*                                                                 *
*****
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*****
*
*          STAAD.Pro V8i SELECTseries1          *
*          Version  20.07.06.35                 *
*          Proprietary Program of              *
*          Bentley Systems, Inc.               *
*          Date=    APR 10, 2012                *
*          Time=    12:27:35                   *
*
*          USER ID: TranSystems                 *
*****
    
```

1. STAAD SPACE DXF IMPORT OF 002_1441BENT_9.DXF
- INPUT FILE: Bent_9_LL.STD
2. START JOB INFORMATION
3. ENGINEER DATE 14-MAR-12
4. JOB NAME CUY-2-1441
5. JOB CLIENT ODOT
6. JOB NO P402110046
7. JOB COMMENT EAST APPROACH FORWARD SECTION BENT 9 ANALYSIS
8. ENGINEER NAME PJP
9. JOB PART EAST APPROACH FORWARD SECTION
10. JOB REF BENT 9 ANALYSIS
11. CHECKER NAME MTN
12. CHECKER DATE 4/9/12
13. END JOB INFORMATION
14. INPUT WIDTH 79
15. UNIT FEET KIP
16. JOINT COORDINATES
17. 2 68.6094 26.4025 0; 3 -8.93229 25.6073 0; 4 -8.93229 19.35 0
18. 5 10.1094 31.0993 0; 6 10.1094 26.4025 0; 7 39.3594 30.6709 0
19. 8 39.3594 26.4025 0; 9 -19.6667 31.5355 0; 10 -17.8646 31.5091 0
20. 11 -14.7891 31.4641 0; 12 -14.349 31.4576 0; 13 -12.4323 31.4295 0
21. 14 -8.93229 31.3783 0; 15 -7.34896 31.3551 0; 16 -7.01563 31.3502 0
22. 17 -1.59896 31.2708 0; 18 4.25521 31.1851 0; 19 15.9635 31.0136 0
23. 20 21.8177 30.9278 0; 21 27.6719 30.8421 0; 22 33.526 30.7563 0
24. 23 45.1927 30.5854 0; 24 51.0469 30.4996 0; 25 56.901 30.4139 0
25. 26 62.7552 30.3281 0; 27 68.6094 30.2424 0; 28 72.4699 30.1858 0
26. 29 73.3802 30.1725 0; 30 79 30.0902 0; 31 39.3594 15.09 0
27. 32 45.6406 21.0692 0; 33 45.6406 26.4025 0; 34 51.2448 21.0692 0
28. 35 51.2448 26.4025 0; 36 56.849 21.0692 0; 37 56.849 26.4025 0
29. 38 62.4531 21.0692 0; 39 62.4531 26.4025 0; 40 39.3594 21.0692 0
30. 41 68.6094 21.0692 0; 42 10.1094 5.36 0; 43 10.1094 21.0692 0
31. 44 39.3594 5.34 0; 45 33.0781 21.0692 0; 46 33.0781 26.4025 0
32. 47 27.474 21.0692 0; 48 27.474 26.4025 0; 49 21.8698 21.0692 0
33. 50 21.8698 26.4025 0; 51 16.2656 21.0692 0; 52 16.2656 26.4025 0
34. 53 68.6094 3.55 0; 54 -3.24461 31.295 0; 55 -21.349 31.56 0
35. 57 -8.93229 27.1073 0; 59 -13.2667 31.4417 0; 60 -4.72297 31.3166 0
36. MEMBER INCIDENCES
37. 2 3 4; 3 5 6; 4 7 8; 26 31 32; 27 32 33; 28 34 35; 29 36 37; 30 38 39; 31 32 8
38. 32 8 33; 33 33 35; 34 35 37; 35 37 39; 36 39 2; 37 40 32; 38 32 34; 39 34 36
39. 40 36 38; 41 38 41; 42 32 35; 43 35 36; 44 36 39; 45 39 41; 46 42 43; 47 43 6
40. 48 44 31; 49 31 40; 50 40 8; 51 45 46; 52 47 48; 53 49 50; 54 51 52; 55 45 8

41. 56 8 46; 57 46 48; 58 48 50; 59 50 52; 60 52 6; 61 40 45; 62 45 47; 63 47 49
42. 64 49 51; 65 51 43; 66 45 48; 67 48 49; 68 49 52; 69 52 43; 70 31 45; 71 53 41
43. 72 41 2; 73 57 60; 74 57 59; 78 3 57; 79 9 55; 80 9 10; 81 10 11; 82 11 12
44. 83 2 27; 84 12 59; 85 13 14; 86 14 15; 87 15 16; 88 16 60; 89 54 17; 90 17 18
45. 91 18 5; 92 5 19; 93 19 20; 94 20 21; 95 21 22; 96 22 7; 97 7 23; 98 23 24
46. 99 24 25; 100 25 26; 101 26 27; 102 27 28; 103 28 29; 104 29 30; 105 57 14
47. 107 59 13; 109 60 54
48. DEFINE MATERIAL START
49. ISOTROPIC STEEL
50. E 4.176E+006
51. POISSON 0.3
52. DENSITY 0.489024
53. ALPHA 6E-006
54. DAMP 0.03
55. END DEFINE MATERIAL
56. MEMBER PROPERTY AMERICAN
57. 26 TO 45 51 TO 70 73 74 TABLE ST W8X31
58. 79 TO 82 84 TO 104 107 109 TABLE ST W36X170
59. 3 46 47 71 72 83 TABLE ST W21X111
60. 2 78 105 TABLE ST W21X68
61. 4 48 TO 50 TABLE ST W24X131
62. CONSTANTS
63. BETA 90 MEMB 2 26 TO 45 51 TO 70 78 105
64. MATERIAL STEEL ALL
65. MEMBER TRUSS
66. 26 TO 45 51 TO 70
67. SUPPORTS
68. 42 44 53 FIXED
69. 4 PINNED
70. DEFINE MOVING LOAD
71. TYPE 1 LOAD 28.75 28.75
72. DIST 6
73. LOAD 1 LOADTYPE NONE TITLE 5 LANE HS-20 FB MOMENT AT COL4
74. MEMBER LOAD
75. 80 CON GY -31.1 0.03 0
76. 84 CON GY -31.1 0.71 0
77. 88 CON GY -31.1 1.38 0
78. 90 CON GY -31.1 1.96 0
79. 91 CON GY -31.1 0.11 0
80. 92 CON GY -31.1 0.25 0
81. 98 CON GY -31.1 0.79 0
82. 99 CON GY -31.1 0.94 0
83. 99 CON GY -31.1 4.94 0
84. 100 CON GY -31.1 5.08 0
85. LOAD 2 LOADTYPE NONE TITLE 3 LANE HS-20 FB MOMENT AT COL4
86. MEMBER LOAD
87. 80 CON GY -37.3 0.03 0
88. 84 CON GY -37.3 0.71 0
89. 88 CON GY -37.3 1.38 0
90. 90 CON GY -37.3 1.96 0
91. 91 CON GY -37.3 0.11 0
92. 92 CON GY -37.3 0.25 0
93. LOAD 3 LOADTYPE NONE TITLE 2 LANE HS-20 FB MOMENT AT COL4
94. MEMBER LOAD
95. 80 CON GY -41.4 0.03 0
96. 84 CON GY -41.4 0.71 0

97. 89 CON GY -41.4 0.833 0
98. 90 CON GY -41.4 5.188 0
99. LOAD 4 LOADTYPE NONE TITLE 3 LANE HS-20 FB COL4 AXIAL LOADING
100. MEMBER LOAD
101. 80 CON GY -37.3 0.03 0
102. 84 CON GY -37.3 0.71 0
103. 86 CON GY -37.3 1.29 0
104. 89 CON GY -37.3 1.61 0
105. 91 CON GY -37.3 0.11 0
106. 92 CON GY -37.3 0.25 0
107. LOAD 5 LOADTYPE NONE TITLE 2 LANE HS-20 FB COL4 AXIAL LOADING
108. MEMBER LOAD
109. 80 CON GY -41.4 0.03 0
110. 84 CON GY -41.4 0.71 0
111. 86 CON GY -41.4 1.29 0
112. 89 CON GY -41.4 1.61 0
113. LOAD 6 LOADTYPE NONE TITLE 5 LANE HS-20 POSITIVE FB MOMENTS
114. MEMBER LOAD
115. 86 CON GY -31.1 1.52 0
116. 90 CON GY -31.1 0.19 0
117. 90 CON GY -31.1 4.1879 0
118. 91 CON GY -31.1 4.34 0
119. 97 CON GY -31.1 0.63 0
120. 98 CON GY -31.1 0.79 0
121. 98 CON GY -31.1 5.79 0
122. 100 CON GY -31.1 0.08 0
123. 100 CON GY -31.1 5.08 0
124. 101 CON GY -31.1 5.23 0
125. LOAD 7 LOADTYPE NONE TITLE 2 LANE HS-20 POSITIVE FB MOMENTS
126. MEMBER LOAD
127. 86 CON GY -41.4 1.52 0
128. 90 CON GY -41.4 0.19 0
129. 90 CON GY -41.4 4.1879 0
130. 91 CON GY -41.4 4.34 0
131. LOAD 8 LOADTYPE NONE TITLE 2 LANE HS-20 POSITIVE FB MOMENTS
132. MEMBER LOAD
133. 98 CON GY -41.4 0.79 0
134. 99 CON GY -41.4 0.94 0
135. 99 CON GY -41.4 4.94 0
136. 100 CON GY -41.4 5.08 0
137. LOAD 9 LOADTYPE NONE TITLE 3 LANE HS-20 POSITIVE FB MOMENTS
138. MEMBER LOAD
139. 97 CON GY -37.3 0.63 0
140. 98 CON GY -37.3 0.79 0
141. 98 CON GY -37.3 5.79 0
142. 100 CON GY -37.3 0.08 0
143. 100 CON GY -37.3 5.08 0
144. 101 CON GY -37.3 5.23 0
145. LOAD 10 LOADTYPE NONE TITLE 4 LANE HS-20 POSITIVE FB MOMENTS
146. MEMBER LOAD
147. 80 CON GY -31.1 0.03 0
148. 84 CON GY -31.1 0.71 0
149. 91 CON GY -31.1 4.82 0
150. 92 CON GY -31.1 4.96 0
151. 93 CON GY -31.1 5.11 0
152. 94 CON GY -31.1 5.26 0

153. 102 CON GY -31.1 2.77 0
154. 104 CON GY -31.1 4 0
155. LOAD 11 LOADTYPE NONE TITLE 3 LANE HS-20 POSITIVE FB MOMENTS
156. MEMBER LOAD
157. 80 CON GY -37.3 0.03 0
158. 84 CON GY -37.3 0.71 0
159. 91 CON GY -37.3 4.82 0
160. 92 CON GY -37.3 4.96 0
161. 93 CON GY -37.3 5.11 0
162. 94 CON GY -37.3 5.26 0
163. LOAD 12 LOADTYPE NONE TITLE 2 LANE HS-20 POSITIVE FB MOMENTS
164. MEMBER LOAD
165. 91 CON GY -41.4 4.82 0
166. 92 CON GY -41.4 4.96 0
167. 93 CON GY -41.4 5.11 0
168. 94 CON GY -41.4 5.26 0
169. LOAD 13 LOADTYPE NONE TITLE 5 LANE HS-20 COL 1 AXIAL LOADING
170. MEMBER LOAD
171. 86 CON GY -31.1 1.52 0
172. 90 CON GY -31.1 0.19 0
173. 90 CON GY -31.1 4.19 0
174. 91 CON GY -31.1 4.33 0
175. 98 CON GY -31.1 2.19 0
176. 99 CON GY -31.1 2.33 0
177. 100 CON GY -31.1 2.48 0
178. 101 CON GY -31.1 2.63 0
179. 102 CON GY -31.1 2.77 0
180. 104 CON GY -31.1 4 0
181. LOAD 14 LOADTYPE NONE TITLE 3 LANE HS-20 COL 1 AXIAL LOADING
182. MEMBER LOAD
183. 98 CON GY -37.3 2.19 0
184. 99 CON GY -37.3 2.33 0
185. 100 CON GY -37.3 2.48 0
186. 101 CON GY -37.3 2.63 0
187. 102 CON GY -37.3 2.77 0
188. 104 CON GY -37.3 4 0
189. LOAD 15 LOADTYPE NONE TITLE 2 LANE HS-20 COL 1 AXIAL LOADING
190. MEMBER LOAD
191. 100 CON GY -41.4 2.48 0
192. 101 CON GY -41.4 2.63 0
193. 102 CON GY -41.4 2.77 0
194. 104 CON GY -41.4 4 0
195. LOAD 16 LOADTYPE NONE TITLE 5 LANE HS-20 FB MOMENT AT COL 1
196. MEMBER LOAD
197. 86 CON GY -31.1 1.52 0
198. 90 CON GY -31.1 0.19 0
199. 90 CON GY -31.1 4.19 0
200. 91 CON GY -31.1 4.33 0
201. 98 CON GY -31.1 0.79 0
202. 99 CON GY -31.1 0.94 0
203. 99 CON GY -31.1 4.94 0
204. 100 CON GY -31.1 5.08 0
205. 102 CON GY -31.1 2.77 0
206. 104 CON GY -31.1 4 0
207. LOAD 17 LOADTYPE NONE TITLE 3 LANE HS-20 FB MOMENT AT COL 1
208. MEMBER LOAD

209. 98 CON GY -37.3 0.79 0
210. 99 CON GY -37.3 0.94 0
211. 99 CON GY -37.3 4.94 0
212. 100 CON GY -37.3 5.08 0
213. 102 CON GY -37.3 2.77 0
214. 104 CON GY -37.3 4 0
215. LOAD 18 LOADTYPE NONE TITLE 2 LANE HS-20 FB MOMENT AT COL 1
216. MEMBER LOAD
217. 98 CON GY -41.4 5.79 0
218. 100 CON GY -41.4 0.08 0
219. 102 CON GY -41.4 2.77 0
220. 104 CON GY -41.4 4 0
221. LOAD 19 LOADTYPE NONE TITLE 4 LANE HS-20 FB MOMENT AT COL 3
222. MEMBER LOAD
223. 89 CON GY -31.1 0.32 0
224. 90 CON GY -31.1 4.67 0
225. 91 CON GY -31.1 4.82 0
226. 92 CON GY -31.1 4.96 0
227. 93 CON GY -31.1 5.11 0
228. 94 CON GY -31.1 5.26 0
229. 102 CON GY -31.1 2.77 0
230. 104 CON GY -31.1 4 0
231. LOAD 20 LOADTYPE NONE TITLE 3 LANE HS-20 FB MOMENT AT COL 3
232. MEMBER LOAD
233. 89 CON GY -37.3 0.32 0
234. 90 CON GY -37.3 4.67 0
235. 91 CON GY -37.3 4.82 0
236. 92 CON GY -37.3 4.96 0
237. 93 CON GY -37.3 5.11 0
238. 94 CON GY -37.3 5.26 0
239. LOAD 21 LOADTYPE NONE TITLE 6 LANE HS-20 FB MOMENT AT COL 2
240. MEMBER LOAD
241. 80 CON GY -31.1 0.03 0
242. 84 CON GY -31.1 0.71 0
243. 91 CON GY -31.1 4.82 0
244. 92 CON GY -31.1 4.96 0
245. 93 CON GY -31.1 5.11 0
246. 94 CON GY -31.1 5.26 0
247. 95 CON GY -31.1 5.693 0
248. 97 CON GY -31.1 0.01 0
249. 98 CON GY -31.1 2.17 0
250. 99 CON GY -31.1 2.32 0
251. 100 CON GY -31.1 0.47 0
252. 101 CON GY -31.1 0.61 0
253. LOAD 22 LOADTYPE NONE TITLE 3 LANE HS-20 COL 2 AXIAL LOADING
254. MEMBER LOAD
255. 93 CON GY -37.3 5.11 0
256. 94 CON GY -37.3 5.26 0
257. 95 CON GY -37.3 5.693 0
258. 97 CON GY -37.3 0.01 0
259. 98 CON GY -37.3 0.17 0
260. 99 CON GY -37.3 0.32 0
261. LOAD 23 LOADTYPE NONE TITLE 3 LANE HS-20 FB MOMENT AT COL 2
262. MEMBER LOAD
263. 93 CON GY -37.3 5.11 0
264. 94 CON GY -37.3 5.26 0

265. 98 CON GY -37.3 0.79 0
266. 99 CON GY -37.3 0.94 0
267. 99 CON GY -37.3 4.94 0
268. 100 CON GY -37.3 5.08 0
269. LOAD 24 LOADTYPE NONE TITLE 7 LANE HS-20 CENTER
270. MEMBER LOAD
271. 81 CON GY -31.1 2.94 0
272. 86 CON GY -31.1 0.01 0
273. 89 CON GY -31.1 0.32 0
274. 90 CON GY -31.1 4.67 0
275. 91 CON GY -31.1 4.82 0
276. 92 CON GY -31.1 4.96 0
277. 93 CON GY -31.1 5.11 0
278. 94 CON GY -31.1 5.26 0
279. 95 CON GY -31.1 5.693 0
280. 97 CON GY -31.1 0.01 0
281. 98 CON GY -31.1 0.17 0
282. 99 CON GY -31.1 0.32 0
283. 100 CON GY -31.1 0.47 0
284. 101 CON GY -31.1 0.61 0
285. LOAD 25 LOADTYPE NONE TITLE 7 LANE HS-20 OUSIDE
286. MEMBER LOAD
287. 80 CON GY -31.1 0.03 0
288. 84 CON GY -31.1 0.71 0
289. 86 CON GY -31.1 1.29 0
290. 89 CON GY -31.1 1.61 0
291. 91 CON GY -31.1 0.11 0
292. 92 CON GY -31.1 0.25 0
293. 93 CON GY -31.1 0.4 0
294. 94 CON GY -31.1 0.55 0
295. 98 CON GY -31.1 2.19 0
296. 99 CON GY -31.1 2.33 0
297. 100 CON GY -31.1 2.48 0
298. 101 CON GY -31.1 2.63 0
299. 102 CON GY -31.1 2.77 0
300. 104 CON GY -31.1 4 0
301. *BEGIN 2F1 LOADING
302. LOAD 26 LOADTYPE LIVE TITLE 2F1 LOADING
303. REPEAT LOAD
304. 1 0.440628
305. LOAD 27 LOADTYPE LIVE TITLE 2F1 LOADING
306. REPEAT LOAD
307. 2 0.440628
308. LOAD 28 LOADTYPE LIVE TITLE 2F1 LOADING
309. REPEAT LOAD
310. 3 0.440628
311. LOAD 29 LOADTYPE LIVE TITLE 2F1 LOADING
312. REPEAT LOAD
313. 4 0.440628
314. LOAD 30 LOADTYPE LIVE TITLE 2F1 LOADING
315. REPEAT LOAD
316. 5 0.440628
317. LOAD 31 LOADTYPE LIVE TITLE 2F1 LOADING
318. REPEAT LOAD
319. 6 0.440628
320. LOAD 32 LOADTYPE LIVE TITLE 2F1 LOADING

321. REPEAT LOAD
322. 7 0.440628
323. LOAD 33 LOADTYPE LIVE TITLE 2F1 LOADING
324. REPEAT LOAD
325. 8 0.440628
326. LOAD 34 LOADTYPE LIVE TITLE 2F1 LOADING
327. REPEAT LOAD
328. 9 0.440628
329. LOAD 35 LOADTYPE LIVE TITLE 2F1 LOADING
330. REPEAT LOAD
331. 10 0.440628
332. LOAD 36 LOADTYPE LIVE TITLE 2F1 LOADING
333. REPEAT LOAD
334. 11 0.440628
335. LOAD 37 LOADTYPE LIVE TITLE 2F1 LOADING
336. REPEAT LOAD
337. 12 0.440628
338. LOAD 38 LOADTYPE LIVE TITLE 2F1 LOADING
339. REPEAT LOAD
340. 13 0.440628
341. LOAD 39 LOADTYPE LIVE TITLE 2F1 LOADING
342. REPEAT LOAD
343. 14 0.440628
344. LOAD 40 LOADTYPE LIVE TITLE 2F1 LOADING
345. REPEAT LOAD
346. 15 0.440628
347. LOAD 41 LOADTYPE LIVE TITLE 2F1 LOADING
348. REPEAT LOAD
349. 16 0.440628
350. LOAD 42 LOADTYPE LIVE TITLE 2F1 LOADING
351. REPEAT LOAD
352. 17 0.440628
353. LOAD 43 LOADTYPE LIVE TITLE 2F1 LOADING
354. REPEAT LOAD
355. 18 0.440628
356. LOAD 44 LOADTYPE LIVE TITLE 2F1 LOADING
357. REPEAT LOAD
358. 19 0.440628
359. LOAD 45 LOADTYPE LIVE TITLE 2F1 LOADING
360. REPEAT LOAD
361. 20 0.440628
362. LOAD 46 LOADTYPE LIVE TITLE 2F1 LOADING
363. REPEAT LOAD
364. 21 0.440628
365. LOAD 47 LOADTYPE LIVE TITLE 2F1 LOADING
366. REPEAT LOAD
367. 22 0.440628
368. LOAD 48 LOADTYPE LIVE TITLE 2F1 LOADING
369. REPEAT LOAD
370. 23 0.440628
371. LOAD 49 LOADTYPE LIVE TITLE 2F1 LOADING
372. REPEAT LOAD
373. 24 0.440628
374. LOAD 50 LOADTYPE LIVE TITLE 2F1 LOADING
375. REPEAT LOAD
376. 25 0.440628

377. *BEGIN 3F1 LOADING
378. LOAD 51 LOADTYPE LIVE TITLE 3F1 LOADING
379. REPEAT LOAD
380. 1 0.670837
381. LOAD 52 LOADTYPE LIVE TITLE 3F1 LOADING
382. REPEAT LOAD
383. 2 0.670837
384. LOAD 53 LOADTYPE LIVE TITLE 3F1 LOADING
385. REPEAT LOAD
386. 3 0.670837
387. LOAD 54 LOADTYPE LIVE TITLE 3F1 LOADING
388. REPEAT LOAD
389. 4 0.670837
390. LOAD 55 LOADTYPE LIVE TITLE 3F1 LOADING
391. REPEAT LOAD
392. 5 0.670837
393. LOAD 56 LOADTYPE LIVE TITLE 3F1 LOADING
394. REPEAT LOAD
395. 6 0.670837
396. LOAD 57 LOADTYPE LIVE TITLE 3F1 LOADING
397. REPEAT LOAD
398. 7 0.670837
399. LOAD 58 LOADTYPE LIVE TITLE 3F1 LOADING
400. REPEAT LOAD
401. 8 0.670837
402. LOAD 59 LOADTYPE LIVE TITLE 3F1 LOADING
403. REPEAT LOAD
404. 9 0.670837
405. LOAD 60 LOADTYPE LIVE TITLE 3F1 LOADING
406. REPEAT LOAD
407. 10 0.670837
408. LOAD 61 LOADTYPE LIVE TITLE 3F1 LOADING
409. REPEAT LOAD
410. 11 0.670837
411. LOAD 62 LOADTYPE LIVE TITLE 3F1 LOADING
412. REPEAT LOAD
413. 12 0.670837
414. LOAD 63 LOADTYPE LIVE TITLE 3F1 LOADING
415. REPEAT LOAD
416. 13 0.670837
417. LOAD 64 LOADTYPE LIVE TITLE 3F1 LOADING
418. REPEAT LOAD
419. 14 0.670837
420. LOAD 65 LOADTYPE LIVE TITLE 3F1 LOADING
421. REPEAT LOAD
422. 15 0.670837
423. LOAD 66 LOADTYPE LIVE TITLE 3F1 LOADING
424. REPEAT LOAD
425. 16 0.670837
426. LOAD 67 LOADTYPE LIVE TITLE 3F1 LOADING
427. REPEAT LOAD
428. 17 0.670837
429. LOAD 68 LOADTYPE LIVE TITLE 3F1 LOADING
430. REPEAT LOAD
431. 18 0.670837
432. LOAD 69 LOADTYPE LIVE TITLE 3F1 LOADING

433. REPEAT LOAD
434. 19 0.670837
435. LOAD 70 LOADTYPE LIVE TITLE 3F1 LOADING
436. REPEAT LOAD
437. 20 0.670837
438. LOAD 71 LOADTYPE LIVE TITLE 3F1 LOADING
439. REPEAT LOAD
440. 21 0.670837
441. LOAD 72 LOADTYPE LIVE TITLE 3F1 LOADING
442. REPEAT LOAD
443. 22 0.670837
444. LOAD 73 LOADTYPE LIVE TITLE 3F1 LOADING
445. REPEAT LOAD
446. 23 0.670837
447. LOAD 74 LOADTYPE LIVE TITLE 3F1 LOADING
448. REPEAT LOAD
449. 24 0.670837
450. LOAD 75 LOADTYPE LIVE TITLE 3F1 LOADING
451. REPEAT LOAD
452. 25 0.670837
453. *BEGIN 4F1 LOADING
454. LOAD 76 LOADTYPE LIVE TITLE 4F1 LOADING
455. REPEAT LOAD
456. 1 0.7798
457. LOAD 77 LOADTYPE LIVE TITLE 4F1 LOADING
458. REPEAT LOAD
459. 2 0.7798
460. LOAD 78 LOADTYPE LIVE TITLE 4F1 LOADING
461. REPEAT LOAD
462. 3 0.7798
463. LOAD 79 LOADTYPE LIVE TITLE 4F1 LOADING
464. REPEAT LOAD
465. 4 0.7798
466. LOAD 80 LOADTYPE LIVE TITLE 4F1 LOADING
467. REPEAT LOAD
468. 5 0.7798
469. LOAD 81 LOADTYPE LIVE TITLE 4F1 LOADING
470. REPEAT LOAD
471. 6 0.7798
472. LOAD 82 LOADTYPE LIVE TITLE 4F1 LOADING
473. REPEAT LOAD
474. 7 0.7798
475. LOAD 83 LOADTYPE LIVE TITLE 4F1 LOADING
476. REPEAT LOAD
477. 8 0.7798
478. LOAD 84 LOADTYPE LIVE TITLE 4F1 LOADING
479. REPEAT LOAD
480. 9 0.7798
481. LOAD 85 LOADTYPE LIVE TITLE 4F1 LOADING
482. REPEAT LOAD
483. 10 0.7798
484. LOAD 86 LOADTYPE LIVE TITLE 4F1 LOADING
485. REPEAT LOAD
486. 11 0.7798
487. LOAD 87 LOADTYPE LIVE TITLE 4F1 LOADING
488. REPEAT LOAD

489. 12 0.7798
490. LOAD 88 LOADTYPE LIVE TITLE 4F1 LOADING
491. REPEAT LOAD
492. 13 0.7798
493. LOAD 89 LOADTYPE LIVE TITLE 4F1 LOADING
494. REPEAT LOAD
495. 14 0.7798
496. LOAD 90 LOADTYPE LIVE TITLE 4F1 LOADING
497. REPEAT LOAD
498. 15 0.7798
499. LOAD 91 LOADTYPE LIVE TITLE 4F1 LOADING
500. REPEAT LOAD
501. 16 0.7798
502. LOAD 92 LOADTYPE LIVE TITLE 4F1 LOADING
503. REPEAT LOAD
504. 17 0.7798
505. LOAD 93 LOADTYPE LIVE TITLE 4F1 LOADING
506. REPEAT LOAD
507. 18 0.7798
508. LOAD 94 LOADTYPE LIVE TITLE 4F1 LOADING
509. REPEAT LOAD
510. 19 0.7798
511. LOAD 95 LOADTYPE LIVE TITLE 4F1 LOADING
512. REPEAT LOAD
513. 20 0.7798
514. LOAD 96 LOADTYPE LIVE TITLE 4F1 LOADING
515. REPEAT LOAD
516. 21 0.7798
517. LOAD 97 LOADTYPE LIVE TITLE 4F1 LOADING
518. REPEAT LOAD
519. 22 0.7798
520. LOAD 98 LOADTYPE LIVE TITLE 4F1 LOADING
521. REPEAT LOAD
522. 23 0.7798
523. LOAD 99 LOADTYPE LIVE TITLE 4F1 LOADING
524. REPEAT LOAD
525. 24 0.7798
526. LOAD 100 LOADTYPE LIVE TITLE 4F1 LOADING
527. REPEAT LOAD
528. 25 0.7798
529. *BEGIN 5C1 LOADING
530. LOAD 101 LOADTYPE LIVE TITLE 5C1 LOADING
531. REPEAT LOAD
532. 1 0.840537
533. LOAD 102 LOADTYPE LIVE TITLE 5C1 LOADING
534. REPEAT LOAD
535. 2 0.840537
536. LOAD 103 LOADTYPE LIVE TITLE 5C1 LOADING
537. REPEAT LOAD
538. 3 0.840537
539. LOAD 104 LOADTYPE LIVE TITLE 5C1 LOADING
540. REPEAT LOAD
541. 4 0.840537
542. LOAD 105 LOADTYPE LIVE TITLE 5C1 LOADING
543. REPEAT LOAD
544. 5 0.840537

545. LOAD 106 LOADTYPE LIVE TITLE 5C1 LOADING
546. REPEAT LOAD
547. 6 0.840537
548. LOAD 107 LOADTYPE LIVE TITLE 5C1 LOADING
549. REPEAT LOAD
550. 7 0.840537
551. LOAD 108 LOADTYPE LIVE TITLE 5C1 LOADING
552. REPEAT LOAD
553. 8 0.840537
554. LOAD 109 LOADTYPE LIVE TITLE 5C1 LOADING
555. REPEAT LOAD
556. 9 0.840537
557. LOAD 110 LOADTYPE LIVE TITLE 5C1 LOADING
558. REPEAT LOAD
559. 10 0.840537
560. LOAD 111 LOADTYPE LIVE TITLE 5C1 LOADING
561. REPEAT LOAD
562. 11 0.840537
563. LOAD 112 LOADTYPE LIVE TITLE 5C1 LOADING
564. REPEAT LOAD
565. 12 0.840537
566. LOAD 113 LOADTYPE LIVE TITLE 5C1 LOADING
567. REPEAT LOAD
568. 13 0.840537
569. LOAD 114 LOADTYPE LIVE TITLE 5C1 LOADING
570. REPEAT LOAD
571. 14 0.840537
572. LOAD 115 LOADTYPE LIVE TITLE 5C1 LOADING
573. REPEAT LOAD
574. 15 0.840537
575. LOAD 116 LOADTYPE LIVE TITLE 5C1 LOADING
576. REPEAT LOAD
577. 16 0.840537
578. LOAD 117 LOADTYPE LIVE TITLE 5C1 LOADING
579. REPEAT LOAD
580. 17 0.840537
581. LOAD 118 LOADTYPE LIVE TITLE 5C1 LOADING
582. REPEAT LOAD
583. 18 0.840537
584. LOAD 119 LOADTYPE LIVE TITLE 5C1 LOADING
585. REPEAT LOAD
586. 19 0.840537
587. LOAD 120 LOADTYPE LIVE TITLE 5C1 LOADING
588. REPEAT LOAD
589. 20 0.840537
590. LOAD 121 LOADTYPE LIVE TITLE 5C1 LOADING
591. REPEAT LOAD
592. 21 0.840537
593. LOAD 122 LOADTYPE LIVE TITLE 5C1 LOADING
594. REPEAT LOAD
595. 22 0.840537
596. LOAD 123 LOADTYPE LIVE TITLE 5C1 LOADING
597. REPEAT LOAD
598. 23 0.840537
599. LOAD 124 LOADTYPE LIVE TITLE 5C1 LOADING
600. REPEAT LOAD

601. 24 0.840537
 602. LOAD 125 LOADTYPE LIVE TITLE 5C1 LOADING
 603. REPEAT LOAD
 604. 25 0.840537
 605. *HS-15 FATIGUE TRUCK IN EB LANES
 606. LOAD GENERATION 39
 607. TYPE 1 -18.612 31.52 0 XINC 1.017 YRANGE 1
 608. LOAD GENERATION 36
 609. *HS-15 FATIGUE TRUCK IN WB LANES
 610. TYPE 1 34.37 30.74 0 XINC 1.029 YRANGE 1
 611. PDELTA 10 ANALYSIS

P R O B L E M S T A T I S T I C S

NUMBER OF JOINTS/MEMBER+ELEMENTS/SUPPORTS = 57/ 82/ 4

SOLVER USED IS THE OUT-OF-CORE BASIC SOLVER

ORIGINAL/FINAL BAND-WIDTH= 53/ 5/ 36 DOF
 TOTAL PRIMARY LOAD CASES = 200, TOTAL DEGREES OF FREEDOM = 321
 SIZE OF STIFFNESS MATRIX = 12 DOUBLE KILO-WORDS
 REQD/AVAIL. DISK SPACE = 13.7/ 514597.3 MB

ZERO STIFFNESS IN DIRECTION 3 AT JOINT 52 EQN.NO. 126
 LOADS APPLIED OR DISTRIBUTED HERE FROM ELEMENTS WILL BE IGNORED.
 THIS MAY BE DUE TO ALL MEMBERS AT THIS JOINT BEING RELEASED OR
 EFFECTIVELY RELEASED IN THIS DIRECTION.
 ZERO STIFFNESS IN DIRECTION 4 AT JOINT 52 EQN.NO. 127
 ZERO STIFFNESS IN DIRECTION 5 AT JOINT 52 EQN.NO. 128
 ZERO STIFFNESS IN DIRECTION 6 AT JOINT 52 EQN.NO. 129
 ZERO STIFFNESS IN DIRECTION 3 AT JOINT 51 EQN.NO. 138
 ZERO STIFFNESS IN DIRECTION 4 AT JOINT 51 EQN.NO. 139
 ZERO STIFFNESS IN DIRECTION 5 AT JOINT 51 EQN.NO. 140
 ZERO STIFFNESS IN DIRECTION 6 AT JOINT 51 EQN.NO. 141
 ZERO STIFFNESS IN DIRECTION 3 AT JOINT 50 EQN.NO. 144
 ZERO STIFFNESS IN DIRECTION 4 AT JOINT 50 EQN.NO. 145
 ZERO STIFFNESS IN DIRECTION 5 AT JOINT 50 EQN.NO. 146
 ZERO STIFFNESS IN DIRECTION 6 AT JOINT 50 EQN.NO. 147

**WARNING - THERE WERE MORE THAN 12 DOF WITH ZERO STIFFNESS.

THE FIRST 12 ARE LISTED ABOVE.

TOTAL # TRANSLATIONAL= 16 TOTAL # ROTATIONAL= 48

++ Adjusting Displacements 12:27:36
 ++ Adjusting Displacements 12:27:36
 ++ Adjusting Displacements 12:27:36
 ++ Adjusting Displacements 12:27:36
 ++ Adjusting Displacements 12:27:36
 ++ Adjusting Displacements 12:27:36
 ++ Adjusting Displacements 12:27:37

DXF IMPORT OF 002_1441BENT_9.DXF

-- PAGE NO. 13

++ Adjusting Displacements 12:27:37
++ Adjusting Displacements 12:27:37
++ Adjusting Displacements 12:27:37

612. LOAD LIST 1 TO 25

613. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 79 TO 82 84 TO 104 107 109

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
79 MAX	0.00	0.00	1	0.00	0.00	1			
	0.00	0.00	1	0.00	0.00	1	0.00	0.00	1
MIN	0.00	1.68	25	0.00	1.68	25			
	0.00	1.68	25	0.00	1.68	25	0.00	1.68	25
80 MAX	0.00	0.00	1	73.37	1.80	5			
	0.00	0.00	1	0.00	0.00	1	0.61 C	1.80	3
MIN	-41.40	1.80	5	0.00	1.80	24			
	0.00	1.80	25	0.00	1.80	25	0.00	1.80	24
81 MAX	0.00	0.00	6	200.70	3.08	5			
	0.00	0.00	1	0.00	0.00	1	0.61 C	0.00	3
MIN	-41.40	3.08	5	0.00	3.08	23			
	0.00	3.08	25	0.00	3.08	25	0.00	3.08	23
82 MAX	0.00	0.00	6	218.92	0.44	5			
	0.00	0.00	1	0.00	0.00	1	0.61 C	0.00	3
MIN	-41.40	0.44	5	0.00	0.44	23			
	0.00	0.44	25	0.00	0.44	25	0.00	0.44	23
84 MAX	0.00	0.00	6	279.14	1.08	5			
	0.00	0.00	1	0.00	0.00	1	1.22 C	1.08	3
MIN	-82.79	1.08	5	0.00	1.08	23			
	0.00	1.08	25	0.00	1.08	25	0.00	1.08	23
85 MAX	6.68	0.00	7	413.97	3.50	3			
	0.00	0.00	1	0.00	0.00	1	0.96 C	0.00	12
MIN	-32.78	3.50	11	-28.91	3.50	7			
	0.00	3.50	25	0.00	3.50	25	52.60 T	3.50	5
86 MAX	63.78	0.00	7	414.84	0.00	3			
	0.00	0.00	1	0.00	0.00	1	1.03 C	0.00	22
MIN	-9.94	1.58	11	-128.35	1.58	7			
	0.00	1.58	25	0.00	1.58	25	52.98 T	0.00	5
87 MAX	41.16	0.00	2	411.78	0.33	11			
	0.00	0.00	1	0.00	0.00	1	1.03 C	0.00	22
MIN	-9.94	0.33	11	-135.81	0.33	7			
	0.00	0.33	25	0.00	0.33	25	52.37 T	0.33	5
88 MAX	41.17	0.00	2	434.47	2.29	11			
	0.00	0.00	1	0.00	0.00	1	1.03 C	0.00	22

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MIN	-9.94	2.29	11	-187.13	2.29	7				
	0.00	2.29	25	0.00	2.29	25	52.37	T	2.29	5
89 MAX	73.82	0.00	3	401.14	0.00	11				
	0.00	0.00	1	0.00	0.00	1	0.76	C	1.65	20
MIN	-10.17	1.65	20	-296.32	1.65	7				
	0.00	1.65	25	0.00	1.65	25	1.89	T	0.00	3
90 MAX	51.87	0.00	2	355.40	0.00	11				
	0.00	0.00	1	0.00	0.00	1	1.61	C	5.85	7
MIN	-49.51	5.85	7	-299.44	0.59	7				
	0.00	5.85	25	0.00	5.85	25	1.71	T	5.85	11
91 MAX	27.79	0.00	11	278.04	5.85	20				
	0.00	0.00	1	0.00	0.00	1	2.22	C	5.85	7
MIN	-90.90	5.85	7	-187.69	0.00	7				
	0.00	5.85	25	0.00	5.85	25	1.71	T	0.00	11
92 MAX	78.63	0.00	12	335.71	0.00	20				
	0.00	0.00	1	0.00	0.00	1	19.33	C	5.85	11
MIN	-8.93	5.85	8	-158.41	5.85	11				
	0.00	5.85	25	0.00	5.85	25	14.45	T	5.85	16
93 MAX	41.29	0.00	22	75.69	5.85	6				
	0.00	0.00	1	0.00	0.00	1	19.88	C	5.85	11
MIN	-8.93	5.85	8	-315.27	5.27	11				
	0.00	5.85	25	0.00	5.85	25	14.45	T	5.85	16
94 MAX	7.08	0.00	25	100.46	5.85	8				
	0.00	0.00	1	0.00	0.00	1	20.42	C	5.85	11
MIN	-45.56	5.85	12	-312.55	0.00	12				
	0.00	5.85	25	0.00	5.85	25	14.45	T	5.85	16
95 MAX	4.22	0.00	7	152.78	5.85	8				
	0.00	0.00	1	0.00	0.00	1	20.42	C	0.00	11
MIN	-70.60	5.85	22	-263.52	0.00	12				
	0.00	5.85	25	0.00	5.85	25	14.45	T	5.85	16
96 MAX	4.22	0.00	7	430.36	5.83	21				
	0.00	0.00	1	0.00	0.00	1	20.42	C	0.00	11
MIN	-70.60	5.83	22	-34.31	0.00	22				
	0.00	5.83	25	0.00	5.83	25	14.45	T	5.83	16
97 MAX	118.67	0.00	9	493.83	0.00	23				
	0.00	0.00	1	0.00	0.00	1	35.20	C	0.00	8
MIN	-6.19	5.83	10	-91.07	5.83	17				
	0.00	5.83	25	0.00	5.83	25	24.52	T	5.83	19
98 MAX	90.14	0.00	8	98.78	5.85	10				
	0.00	0.00	1	0.00	0.00	1	35.81	C	5.85	8
MIN	-9.57	5.85	18	-401.86	5.85	8				
	0.00	5.85	25	0.00	5.85	25	24.52	T	5.85	19
99 MAX	48.74	0.00	8	135.00	5.85	10				
	0.00	0.00	1	0.00	0.00	1	37.02	C	5.85	8

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MIN	-43.09	5.85	17	-475.21	4.68	8				
	0.00	5.85	25	0.00	5.85	25	24.52	T	5.85	19
100 MAX	8.90	0.00	24	171.27	5.85	10				
	0.00	0.00	1	0.00	0.00	1	37.63	C	5.85	8
MIN	-80.38	5.85	17	-445.93	0.00	8				
	0.00	5.85	25	0.00	5.85	25	24.52	T	5.85	19
101 MAX	5.50	0.00	12	479.84	5.85	17				
	0.00	0.00	1	0.00	0.00	1	37.63	C	0.00	8
MIN	-105.11	5.85	9	-214.22	0.00	8				
	0.00	5.85	25	0.00	5.85	25	24.52	T	5.85	19
102 MAX	82.79	0.00	15	477.75	0.00	18				
	0.00	0.00	1	0.00	0.00	1	0.00		0.00	1
MIN	0.00	3.86	24	0.00	3.86	24				
	0.00	3.86	25	0.00	3.86	25	1.21	T	0.00	18
103 MAX	41.40	0.00	15	203.27	0.00	18				
	0.00	0.00	1	0.00	0.00	1	0.00		0.00	1
MIN	0.00	0.91	24	0.00	0.91	24				
	0.00	0.91	25	0.00	0.91	25	0.60	T	0.91	18
104 MAX	41.40	0.00	15	165.58	0.00	18				
	0.00	0.00	1	0.00	0.00	1	0.00		0.00	1
MIN	0.00	5.06	17	0.00	4.50	15				
	0.00	5.62	25	0.00	5.62	25	0.61	T	0.00	18
107 MAX	6.68	0.00	7	303.21	0.83	3				
	0.00	0.00	1	0.00	0.00	1	0.96	C	0.00	12
MIN	-32.78	0.83	11	-5.56	0.83	7				
	0.00	0.83	25	0.00	0.83	25	52.60	T	0.83	5
109 MAX	73.82	0.00	3	442.23	0.00	11				
	0.00	0.00	1	0.00	0.00	1	0.40	C	0.00	7
MIN	-7.59	1.48	12	-241.54	1.48	7				
	0.00	1.48	25	0.00	1.48	25	1.88	T	1.48	3

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

614. *HS-20 FLOOR BEAM RESULTS ABOVE

615. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 2 78 105

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
2 MAX	0.00	0.00	1	0.00	0.00	1			
	0.88	0.00	7	8.95	0.00	11	181.53 C	0.00	5
MIN	0.00	6.26	25	0.00	6.26	25			
	-1.30	6.26	11	-5.96	0.00	7	7.59 T	6.26	12
78 MAX	0.00	0.00	1	0.00	0.00	1			
	0.88	0.00	7	7.24	1.50	7	181.53 C	0.00	5
MIN	0.00	1.50	25	0.00	1.50	25			
	-1.30	1.50	11	-10.78	1.50	11	7.59 T	1.50	12
105 MAX	0.00	0.00	1	0.00	0.00	1			
	1.05	0.00	11	1.87	0.00	7	77.84 C	0.00	5
MIN	0.00	4.27	25	0.00	4.27	25			
	-0.64	4.27	7	-3.01	0.00	11	5.47 T	4.27	12

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

616. *HS-20 COLUMN 4 RESULTS ABOVE

617. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 3 46 47

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
3 MAX	15.09	0.00	16	83.89	0.00	16			
	0.00	0.00	1	0.00	0.00	1	158.42 C	0.00	20
MIN	-21.08	4.70	11	-138.93	0.00	11			
	0.00	4.70	25	0.00	4.70	25	16.72 T	4.70	5
46 MAX	0.90	0.00	19	9.69	15.71	9			
	0.00	0.00	1	0.00	0.00	1	157.81 C	0.00	20
MIN	-1.24	15.71	21	-11.78	0.00	21			
	0.00	15.71	25	0.00	15.71	25	16.39 T	15.71	5
47 MAX	4.49	0.00	6	40.00	5.33	11			
	0.00	0.00	1	0.00	0.00	1	158.42 C	0.00	20
MIN	-8.05	5.33	10	-20.54	5.33	7			
	0.00	5.33	25	0.00	5.33	25	16.72 T	5.33	5

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

618. *HS-20 COLUMN 3 RESULTS ABOVE

619. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 4 48 TO 50

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
4 MAX	35.46	0.00	10	176.66	0.00	10			
	0.00	0.00	1	0.00	0.00	1	169.53 C	0.00	22
MIN	-42.09	4.27	8	-237.74	0.00	8			
	0.00	4.27	25	0.00	4.27	25	4.09 T	4.27	7
48 MAX	0.86	0.00	6	8.21	9.75	10			
	0.00	0.00	1	0.00	0.00	1	167.41 C	0.00	22
MIN	-1.13	9.75	11	-6.99	9.75	6			
	0.00	9.75	25	0.00	9.75	25	2.16 T	9.75	7
49 MAX	1.02	0.00	10	8.21	0.00	10			
	0.00	0.00	1	0.00	0.00	1	158.76 C	0.00	22
MIN	-1.31	5.98	8	-6.99	0.00	6			
	0.00	5.98	25	0.00	5.98	25	4.78 T	5.98	7
50 MAX	6.77	0.00	12	58.19	5.33	8			
	0.00	0.00	1	0.00	0.00	1	158.76 C	0.00	22
MIN	-10.49	5.33	8	-38.40	5.33	12			
	0.00	5.33	25	0.00	5.33	25	4.78 T	5.33	7

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

620. *HS-20 COLUMN 2 RESULTS ABOVE

621. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 71 72 83

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
71 MAX	0.85	0.00	22	8.27	0.00	23			
	0.00	0.00	1	0.00	0.00	1	168.07 C	0.00	14
MIN	-0.58	17.52	15	-7.95	17.52	22			
	0.00	17.52	25	0.00	17.52	25	5.91 T	17.52	20
72 MAX	16.12	0.00	8	64.08	5.33	10			
	0.00	0.00	1	0.00	0.00	1	168.32 C	0.00	14
MIN	-11.45	5.33	10	-87.85	5.33	8			
	0.00	5.33	25	0.00	5.33	25	5.60 T	5.33	12
83 MAX	36.52	0.00	8	155.17	3.84	19			
	0.00	0.00	1	0.00	0.00	1	168.32 C	0.00	14
MIN	-24.61	3.84	19	-227.92	3.84	8			
	0.00	3.84	25	0.00	3.84	25	5.60 T	3.84	12

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

622. *HS-20 COLUMN 1 RESULTS ABOVE

623. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 73 74

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
73 MAX	1.57	0.00	7	7.75	5.95	11			
	0.00	0.00	1	0.00	0.00	1	71.74 C	0.00	5
MIN	-1.79	5.95	11	-5.21	5.95	7			
	0.00	5.95	25	0.00	5.95	25	1.67 T	5.95	22
74 MAX	0.37	0.00	5	4.80	0.00	5			
	0.00	0.00	1	0.00	0.00	1	75.37 C	0.00	5
MIN	-0.21	6.13	20	-1.12	0.00	7			
	0.00	6.13	25	0.00	6.13	25	1.38 T	6.13	12

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

624. *HS-20 KNEE BRACE MAXFORCE ABOVE

625. LOAD LIST 26 TO 50

626. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 79 TO 82 84 TO 104 107 109

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
79 MAX	0.00	0.00	26	0.00	0.00	26			
	0.00	0.00	26	0.00	0.00	26	0.00	0.00	26
MIN	0.00	1.68	50	0.00	1.68	50			
	0.00	1.68	50	0.00	1.68	50	0.00	1.68	50
80 MAX	0.00	0.00	26	32.33	1.80	30			
	0.00	0.00	26	0.00	0.00	26	0.27 C	1.80	28
MIN	-18.24	1.80	30	0.00	1.80	49			
	0.00	1.80	50	0.00	1.80	50	0.00	1.80	49
81 MAX	0.00	0.00	31	88.43	3.08	30			
	0.00	0.00	26	0.00	0.00	26	0.27 C	0.00	28
MIN	-18.24	3.08	30	0.00	3.08	48			
	0.00	3.08	50	0.00	3.08	50	0.00	3.08	48
82 MAX	0.00	0.00	31	96.46	0.44	30			
	0.00	0.00	26	0.00	0.00	26	0.27 C	0.00	28
MIN	-18.24	0.44	30	0.00	0.44	48			
	0.00	0.44	50	0.00	0.44	50	0.00	0.44	48
84 MAX	0.00	0.00	31	123.00	1.08	30			
	0.00	0.00	26	0.00	0.00	26	0.54 C	1.08	28
MIN	-36.48	1.08	30	0.00	1.08	48			
	0.00	1.08	50	0.00	1.08	50	0.00	1.08	48
85 MAX	2.93	0.00	32	182.27	3.50	28			
	0.00	0.00	26	0.00	0.00	26	0.42 C	0.00	37
MIN	-14.39	3.50	36	-12.67	3.50	32			
	0.00	3.50	50	0.00	3.50	50	23.19 T	3.50	30
86 MAX	28.08	0.00	32	182.66	0.00	28			
	0.00	0.00	26	0.00	0.00	26	0.45 C	0.00	47
MIN	-4.33	1.58	36	-56.47	1.58	32			
	0.00	1.58	50	0.00	1.58	50	23.33 T	0.00	30
87 MAX	18.16	0.00	27	181.24	0.33	36			
	0.00	0.00	26	0.00	0.00	26	0.45 C	0.00	47
MIN	-4.33	0.33	36	-59.75	0.33	32			
	0.00	0.33	50	0.00	0.33	50	23.06 T	0.33	30
88 MAX	18.17	0.00	27	191.15	2.29	36			
	0.00	0.00	26	0.00	0.00	26	0.45 C	0.00	47

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MIN	-4.33	2.29	36	-82.32	2.29	32			
	0.00	2.29	50	0.00	2.29	50	23.06	T	2.29 30
89 MAX	32.50	0.00	28	176.50	0.00	36			
	0.00	0.00	26	0.00	0.00	26	0.34	C	1.65 45
MIN	-4.48	1.65	45	-130.47	1.65	32			
	0.00	1.65	50	0.00	1.65	50	0.86	T	0.00 28
90 MAX	22.84	0.00	27	156.38	0.00	36			
	0.00	0.00	26	0.00	0.00	26	0.72	C	5.85 32
MIN	-21.80	5.85	32	-131.85	0.59	32			
	0.00	5.85	50	0.00	5.85	50	0.78	T	5.85 36
91 MAX	12.22	0.00	36	122.50	5.85	45			
	0.00	0.00	26	0.00	0.00	26	0.99	C	5.85 32
MIN	-40.04	5.85	32	-82.66	0.00	32			
	0.00	5.85	50	0.00	5.85	50	0.78	T	0.00 36
92 MAX	34.64	0.00	37	147.91	0.00	45			
	0.00	0.00	26	0.00	0.00	26	8.49	C	5.85 36
MIN	-3.93	5.85	33	-69.74	5.85	36			
	0.00	5.85	50	0.00	5.85	50	6.36	T	5.85 41
93 MAX	18.19	0.00	47	33.34	5.85	31			
	0.00	0.00	26	0.00	0.00	26	8.73	C	5.85 36
MIN	-3.93	5.85	33	-138.86	5.27	36			
	0.00	5.85	50	0.00	5.85	50	6.36	T	5.85 41
94 MAX	3.12	0.00	50	44.25	5.85	33			
	0.00	0.00	26	0.00	0.00	26	8.97	C	5.85 36
MIN	-20.08	5.85	37	-137.69	0.00	37			
	0.00	5.85	50	0.00	5.85	50	6.36	T	5.85 41
95 MAX	1.86	0.00	32	67.29	5.85	33			
	0.00	0.00	26	0.00	0.00	26	8.97	C	0.00 36
MIN	-31.11	5.85	47	-116.09	0.00	37			
	0.00	5.85	50	0.00	5.85	50	6.36	T	5.85 41
96 MAX	1.86	0.00	32	189.58	5.83	46			
	0.00	0.00	26	0.00	0.00	26	8.97	C	0.00 36
MIN	-31.11	5.83	47	-15.11	0.00	47			
	0.00	5.83	50	0.00	5.83	50	6.36	T	5.83 41
97 MAX	52.29	0.00	34	217.54	0.00	48			
	0.00	0.00	26	0.00	0.00	26	15.50	C	0.00 33
MIN	-2.73	5.83	35	-40.12	5.83	42			
	0.00	5.83	50	0.00	5.83	50	10.80	T	5.83 44
98 MAX	39.71	0.00	33	43.54	5.85	35			
	0.00	0.00	26	0.00	0.00	26	15.77	C	5.85 33
MIN	-4.21	5.85	43	-176.98	5.85	33			
	0.00	5.85	50	0.00	5.85	50	10.80	T	5.85 44
99 MAX	21.47	0.00	33	59.49	5.85	35			
	0.00	0.00	26	0.00	0.00	26	16.30	C	5.85 33

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MIN	-18.99	5.27	42	-209.28	4.68	33			
	0.00	5.85	50	0.00	5.85	50	10.80 T	5.85	44
100 MAX	3.92	0.00	49	75.45	5.85	35			
	0.00	0.00	26	0.00	0.00	26	16.57 C	5.85	33
MIN	-35.42	5.85	42	-196.38	0.00	33			
	0.00	5.85	50	0.00	5.85	50	10.80 T	5.85	44
101 MAX	2.42	0.00	37	211.42	5.85	42			
	0.00	0.00	26	0.00	0.00	26	16.57 C	0.00	33
MIN	-46.32	5.85	34	-94.34	0.00	33			
	0.00	5.85	50	0.00	5.85	50	10.80 T	5.85	44
102 MAX	36.48	0.00	40	210.51	0.00	43			
	0.00	0.00	26	0.00	0.00	26	0.00	0.00	26
MIN	0.00	3.86	49	0.00	3.86	49			
	0.00	3.86	50	0.00	3.86	50	0.53 T	0.00	43
103 MAX	18.24	0.00	40	89.57	0.00	43			
	0.00	0.00	26	0.00	0.00	26	0.00	0.00	26
MIN	0.00	0.91	49	0.00	0.91	49			
	0.00	0.91	50	0.00	0.91	50	0.27 T	0.91	43
104 MAX	18.24	0.00	40	72.96	0.00	43			
	0.00	0.00	26	0.00	0.00	26	0.00	0.00	26
MIN	0.00	5.62	50	0.00	4.50	40			
	0.00	5.62	50	0.00	5.62	50	0.27 T	0.00	43
107 MAX	2.93	0.00	32	133.58	0.83	28			
	0.00	0.00	26	0.00	0.00	26	0.42 C	0.00	37
MIN	-14.39	0.83	36	-2.44	0.83	32			
	0.00	0.83	50	0.00	0.83	50	23.19 T	0.83	30
109 MAX	32.50	0.00	28	194.58	0.00	36			
	0.00	0.00	26	0.00	0.00	26	0.19 C	0.00	32
MIN	-3.34	1.48	37	-106.31	1.48	32			
	0.00	1.48	50	0.00	1.48	50	0.86 T	1.48	28

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

627. *2F1 FLOOR BEAM RESULTS ABOVE

628. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 2 78 105

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
2 MAX	0.00	0.00	26	0.00	0.00	26			
	0.41	0.00	32	3.93	0.00	36	79.96 C	0.00	30
MIN	0.00	6.26	50	0.00	6.26	50			
	-0.60	6.26	36	-2.62	0.00	32	3.34 T	6.26	37
78 MAX	0.00	0.00	26	0.00	0.00	26			
	0.41	0.00	32	3.22	1.50	32	79.96 C	0.00	30
MIN	0.00	1.50	50	0.00	1.50	50			
	-0.60	1.50	36	-4.81	1.50	36	3.34 T	1.50	37
105 MAX	0.00	0.00	26	0.00	0.00	26			
	0.47	0.00	36	0.83	0.00	32	34.30 C	0.00	30
MIN	0.00	4.27	50	0.00	4.27	50			
	-0.30	4.27	32	-1.34	0.00	36	2.41 T	4.27	37

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

629. *2F1 COLUMN 4 RESULTS ABOVE

630. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 3 46 47

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
3 MAX	6.65	0.00	41	36.97	0.00	41			
	0.00	0.00	26	0.00	0.00	26	69.80 C	0.00	45
MIN	-9.29	4.70	36	-61.23	0.00	36			
	0.00	4.70	50	0.00	4.70	50	7.33 T	4.70	30
46 MAX	0.40	0.00	44	4.27	15.71	34			
	0.00	0.00	26	0.00	0.00	26	69.53 C	0.00	45
MIN	-0.55	15.71	46	-5.23	0.00	46			
	0.00	15.71	50	0.00	15.71	50	7.18 T	15.71	30
47 MAX	1.98	0.00	31	17.60	5.33	36			
	0.00	0.00	26	0.00	0.00	26	69.80 C	0.00	45
MIN	-3.54	5.33	35	-9.04	5.33	32			
	0.00	5.33	50	0.00	5.33	50	7.33 T	5.33	30

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

631. *2F1 COLUMN 3 RESULTS ABOVE

632. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 4 48 TO 50

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
4 MAX	15.61	0.00	35	77.79	0.00	35			
	0.00	0.00	26	0.00	0.00	26	74.70 C	0.00	47
MIN	-18.53	4.27	33	-104.71	0.00	33			
	0.00	4.27	50	0.00	4.27	50	1.80 T	4.27	32
48 MAX	0.38	0.00	31	3.66	9.75	35			
	0.00	0.00	26	0.00	0.00	26	73.77 C	0.00	47
MIN	-0.52	9.75	36	-3.09	9.75	31			
	0.00	9.75	50	0.00	9.75	50	0.95 T	9.75	32
49 MAX	0.45	0.00	35	3.66	0.00	35			
	0.00	0.00	26	0.00	0.00	26	69.95 C	0.00	47
MIN	-0.58	5.98	33	-3.09	0.00	31			
	0.00	5.98	50	0.00	5.98	50	2.11 T	5.98	32
50 MAX	2.98	0.00	37	25.63	5.33	33			
	0.00	0.00	26	0.00	0.00	26	69.95 C	0.00	47
MIN	-4.62	5.33	33	-16.92	5.33	37			
	0.00	5.33	50	0.00	5.33	50	2.11 T	5.33	32

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

633. *2F1 COLUMN 2 RESULTS ABOVE

634. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 71 72 83

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
71 MAX	0.37	0.00	47	3.64	0.00	48			
	0.00	0.00	26	0.00	0.00	26	74.06 C	0.00	39
MIN	-0.26	17.52	40	-3.51	17.52	47			
	0.00	17.52	50	0.00	17.52	50	2.60 T	17.52	45
72 MAX	7.10	0.00	33	28.22	5.33	35			
	0.00	0.00	26	0.00	0.00	26	74.17 C	0.00	39
MIN	-5.04	5.33	35	-38.68	5.33	33			
	0.00	5.33	50	0.00	5.33	50	2.47 T	5.33	37
83 MAX	16.08	0.00	33	68.39	3.84	44			
	0.00	0.00	26	0.00	0.00	26	74.17 C	0.00	39
MIN	-10.84	3.84	44	-100.40	3.84	33			
	0.00	3.84	50	0.00	3.84	50	2.47 T	3.84	37

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

635. *2F1 COLUMN 1 RESULTS ABOVE

636. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 73 74

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
73 MAX	0.70	0.00	32	3.42	5.95	36			
	0.00	0.00	26	0.00	0.00	26	31.50 C	0.00	30
MIN	-0.81	5.95	36	-2.30	5.95	32			
	0.00	5.95	50	0.00	5.95	50	0.74 T	5.95	47
74 MAX	0.20	0.00	30	2.15	0.00	30			
	0.00	0.00	26	0.00	0.00	26	33.27 C	0.00	30
MIN	-0.10	6.13	45	-0.51	0.00	32			
	0.00	6.13	50	0.00	6.13	50	0.61 T	6.13	37

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

637. *2F1 KNEE BRACE MAXFORCE ABOVE

638. LOAD LIST 51 TO 75

639. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 79 TO 82 84 TO 104 107 109

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
79 MAX	0.00	0.00	51	0.00	0.00	51			
	0.00	0.00	51	0.00	0.00	51	0.00	0.00	51
MIN	0.00	1.68	75	0.00	1.68	75			
	0.00	1.68	75	0.00	1.68	75	0.00	1.68	75
80 MAX	0.00	0.00	51	49.22	1.80	55			
	0.00	0.00	51	0.00	0.00	51	0.41 C	1.80	53
MIN	-27.77	1.80	55	0.00	1.80	74			
	0.00	1.80	75	0.00	1.80	75	0.00	1.80	74
81 MAX	0.00	0.00	56	134.63	3.08	55			
	0.00	0.00	51	0.00	0.00	51	0.41 C	0.00	53
MIN	-27.77	3.08	55	0.00	3.08	73			
	0.00	3.08	75	0.00	3.08	75	0.00	3.08	73
82 MAX	0.00	0.00	56	146.86	0.44	55			
	0.00	0.00	51	0.00	0.00	51	0.41 C	0.00	53
MIN	-27.77	0.44	55	0.00	0.44	73			
	0.00	0.44	75	0.00	0.44	75	0.00	0.44	73
84 MAX	0.00	0.00	56	187.26	1.08	55			
	0.00	0.00	51	0.00	0.00	51	0.82 C	1.08	53
MIN	-55.54	1.08	55	0.00	1.08	73			
	0.00	1.08	75	0.00	1.08	75	0.00	1.08	73
85 MAX	4.46	0.00	57	277.58	3.50	53			
	0.00	0.00	51	0.00	0.00	51	0.64 C	0.00	62
MIN	-21.94	3.50	61	-19.34	3.50	57			
	0.00	3.50	75	0.00	3.50	75	35.30 T	3.50	55
86 MAX	42.77	0.00	57	278.18	0.00	53			
	0.00	0.00	51	0.00	0.00	51	0.69 C	0.00	72
MIN	-6.62	1.58	61	-86.03	1.58	57			
	0.00	1.58	75	0.00	1.58	75	35.52 T	0.00	55
87 MAX	27.64	0.00	52	276.06	0.33	61			
	0.00	0.00	51	0.00	0.00	51	0.69 C	0.00	72
MIN	-6.62	0.33	61	-91.03	0.33	57			
	0.00	0.33	75	0.00	0.33	75	35.12 T	0.33	55
88 MAX	27.64	0.00	52	291.20	2.29	61			
	0.00	0.00	51	0.00	0.00	51	0.69 C	0.00	72

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MIN	-6.62	2.29	61	-125.41	2.29	57				
	0.00	2.29	75	0.00	2.29	75	35.12	T	2.29	55
89 MAX	49.50	0.00	53	268.87	0.00	61				
	0.00	0.00	51	0.00	0.00	51	0.51	C	1.65	70
MIN	-6.82	1.65	70	-198.69	1.65	57				
	0.00	1.65	75	0.00	1.65	75	1.29	T	0.00	53
90 MAX	34.78	0.00	52	238.22	0.00	61				
	0.00	0.00	51	0.00	0.00	51	1.09	C	5.85	57
MIN	-33.20	5.27	57	-200.79	0.59	57				
	0.00	5.85	75	0.00	5.85	75	1.17	T	5.85	61
91 MAX	18.62	0.00	61	186.51	5.85	70				
	0.00	0.00	51	0.00	0.00	51	1.50	C	5.85	57
MIN	-60.97	5.85	57	-125.87	0.00	57				
	0.00	5.85	75	0.00	5.85	75	1.17	T	0.00	61
92 MAX	52.75	0.00	62	225.19	0.00	70				
	0.00	0.00	51	0.00	0.00	51	12.94	C	5.85	61
MIN	-5.99	5.85	58	-106.22	5.85	61				
	0.00	5.85	75	0.00	5.85	75	9.69	T	5.85	66
93 MAX	27.70	0.00	72	50.77	5.85	56				
	0.00	0.00	51	0.00	0.00	51	13.31	C	5.85	61
MIN	-5.99	5.85	58	-211.44	5.27	61				
	0.00	5.85	75	0.00	5.85	75	9.69	T	5.85	66
94 MAX	4.75	0.00	75	67.38	5.85	58				
	0.00	0.00	51	0.00	0.00	51	13.68	C	5.85	61
MIN	-30.56	5.27	62	-209.65	0.00	62				
	0.00	5.85	75	0.00	5.85	75	9.69	T	5.85	66
95 MAX	2.83	0.00	57	102.46	5.85	58				
	0.00	0.00	51	0.00	0.00	51	13.68	C	0.00	61
MIN	-47.36	5.85	72	-176.76	0.00	62				
	0.00	5.85	75	0.00	5.85	75	9.69	T	5.85	66
96 MAX	2.83	0.00	57	288.66	5.83	71				
	0.00	0.00	51	0.00	0.00	51	13.68	C	0.00	61
MIN	-47.36	5.83	72	-23.01	0.00	72				
	0.00	5.83	75	0.00	5.83	75	9.69	T	5.83	66
97 MAX	79.60	0.00	59	331.23	0.00	73				
	0.00	0.00	51	0.00	0.00	51	23.61	C	0.00	58
MIN	-4.15	5.83	60	-61.09	5.83	67				
	0.00	5.83	75	0.00	5.83	75	16.45	T	5.83	69
98 MAX	60.46	0.00	58	66.28	5.85	60				
	0.00	0.00	51	0.00	0.00	51	24.01	C	5.85	58
MIN	-6.42	5.85	68	-269.50	5.85	58				
	0.00	5.85	75	0.00	5.85	75	16.45	T	5.85	69
99 MAX	32.69	0.00	58	90.57	5.85	60				
	0.00	0.00	51	0.00	0.00	51	24.83	C	5.85	58

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MIN	-28.90	5.85	67	-318.69	4.68	58			
	0.00	5.85	75	0.00	5.85	75	16.45	T	5.85 69
100 MAX	5.97	0.00	74	114.88	5.85	60			
	0.00	0.00	51	0.00	0.00	51	25.23	C	5.85 58
MIN	-53.92	5.85	67	-299.05	0.00	58			
	0.00	5.85	75	0.00	5.85	75	16.45	T	5.85 69
101 MAX	3.69	0.00	62	321.89	5.85	67			
	0.00	0.00	51	0.00	0.00	51	25.23	C	0.00 58
MIN	-70.51	5.85	59	-143.66	0.00	58			
	0.00	5.85	75	0.00	5.85	75	16.45	T	5.85 69
102 MAX	55.54	0.00	65	320.50	0.00	68			
	0.00	0.00	51	0.00	0.00	51	0.00		0.00 51
MIN	0.00	3.86	74	0.00	3.86	74			
	0.00	3.86	75	0.00	3.86	75	0.81	T	0.00 68
103 MAX	27.77	0.00	65	136.36	0.00	68			
	0.00	0.00	51	0.00	0.00	51	0.00		0.00 51
MIN	0.00	0.91	74	0.00	0.91	74			
	0.00	0.91	75	0.00	0.91	75	0.41	T	0.91 68
104 MAX	27.77	0.00	65	111.08	0.00	68			
	0.00	0.00	51	0.00	0.00	51	0.00		0.00 51
MIN	0.00	5.62	75	0.00	4.50	65			
	0.00	5.62	75	0.00	5.62	75	0.41	T	0.00 68
107 MAX	4.46	0.00	57	203.38	0.83	53			
	0.00	0.00	51	0.00	0.00	51	0.64	C	0.00 62
MIN	-21.94	0.83	61	-3.72	0.83	57			
	0.00	0.83	75	0.00	0.83	75	35.30	T	0.83 55
109 MAX	49.50	0.00	53	296.41	0.00	61			
	0.00	0.00	51	0.00	0.00	51	0.28	C	0.00 57
MIN	-5.09	1.48	62	-161.93	1.48	57			
	0.00	1.48	75	0.00	1.48	75	1.29	T	1.48 53

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

640. *3F1 FLOOR BEAM RESULTS ABOVE

641. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 2 78 105

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
2 MAX	0.00	0.00	51	0.00	0.00	51			
	0.61	0.00	57	5.99	0.00	61	121.75 C	0.00	55
MIN	0.00	6.26	75	0.00	6.26	75			
	-0.90	6.26	61	-3.99	0.00	57	5.09 T	6.26	62
78 MAX	0.00	0.00	51	0.00	0.00	51			
	0.61	0.00	57	4.88	1.50	57	121.75 C	0.00	55
MIN	0.00	1.50	75	0.00	1.50	75			
	-0.90	1.50	61	-7.29	1.50	61	5.09 T	1.50	62
105 MAX	0.00	0.00	51	0.00	0.00	51			
	0.71	0.00	61	1.26	0.00	57	52.22 C	0.00	55
MIN	0.00	4.27	75	0.00	4.27	75			
	-0.44	4.27	57	-2.04	0.00	61	3.67 T	4.27	62

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

642. *3F1 COLUMN 4 RESULTS ABOVE

643. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 3 46 47

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
3 MAX	10.12	0.00	66	56.28	0.00	66			
	0.00	0.00	51	0.00	0.00	51	106.27 C	0.00	70
MIN	-14.15	4.70	61	-93.21	0.00	61			
	0.00	4.70	75	0.00	4.70	75	11.18 T	4.70	55
46 MAX	0.60	0.00	69	6.50	15.71	59			
	0.00	0.00	51	0.00	0.00	51	105.86 C	0.00	70
MIN	-0.84	15.71	71	-7.94	0.00	71			
	0.00	15.71	75	0.00	15.71	75	10.95 T	15.71	55
47 MAX	3.01	0.00	56	26.81	5.33	61			
	0.00	0.00	51	0.00	0.00	51	106.27 C	0.00	70
MIN	-5.39	5.33	60	-13.77	5.33	57			
	0.00	5.33	75	0.00	5.33	75	11.18 T	5.33	55

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

644. *3F1 COLUMN 3 RESULTS ABOVE

645. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 4 48 TO 50

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
4 MAX	23.77	0.00	60	118.46	0.00	60			
	0.00	0.00	51	0.00	0.00	51	113.72 C	0.00	72
MIN	-28.22	4.27	58	-159.45	0.00	58			
	0.00	4.27	75	0.00	4.27	75	2.74 T	4.27	57
48 MAX	0.58	0.00	56	5.54	9.75	60			
	0.00	0.00	51	0.00	0.00	51	112.31 C	0.00	72
MIN	-0.78	9.75	61	-4.70	9.75	56			
	0.00	9.75	75	0.00	9.75	75	1.45 T	9.75	57
49 MAX	0.69	0.00	60	5.54	0.00	60			
	0.00	0.00	51	0.00	0.00	51	106.50 C	0.00	72
MIN	-0.88	5.98	58	-4.70	0.00	56			
	0.00	5.98	75	0.00	5.98	75	3.21 T	5.98	57
50 MAX	4.54	0.00	62	39.02	5.33	58			
	0.00	0.00	51	0.00	0.00	51	106.50 C	0.00	72
MIN	-7.03	5.33	58	-25.75	5.33	62			
	0.00	5.33	75	0.00	5.33	75	3.21 T	5.33	57

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

646. *3F1 COLUMN 2 RESULTS ABOVE

647. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 71 72 83

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
71 MAX	0.57	0.00	72	5.55	0.00	73			
	0.00	0.00	51	0.00	0.00	51	112.75 C	0.00	64
MIN	-0.39	17.52	65	-5.34	17.52	72			
	0.00	17.52	75	0.00	17.52	75	3.96 T	17.52	70
72 MAX	10.81	0.00	58	42.98	5.33	60			
	0.00	0.00	51	0.00	0.00	51	112.92 C	0.00	64
MIN	-7.67	5.33	60	-58.91	5.33	58			
	0.00	5.33	75	0.00	5.33	75	3.76 T	5.33	62
83 MAX	24.49	0.00	58	104.11	3.84	69			
	0.00	0.00	51	0.00	0.00	51	112.92 C	0.00	64
MIN	-16.51	3.84	69	-152.87	3.84	58			
	0.00	3.84	75	0.00	3.84	75	3.76 T	3.84	62

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

648. *3F1 COLUMN 1 RESULTS ABOVE

649. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 73 74

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/	DIST	LD	MZ/	DIST	LD	FX	DIST	LD
	FZ	DIST	LD	MY	DIST	LD			
73 MAX	1.06	0.00	57	5.21	5.95	61			
	0.00	0.00	51	0.00	0.00	51	48.03 C	0.00	55
MIN	-1.22	5.95	61	-3.49	5.95	57			
	0.00	5.95	75	0.00	5.95	75	1.12 T	5.95	72
74 MAX	0.28	0.00	55	3.25	0.00	55			
	0.00	0.00	51	0.00	0.00	51	50.61 C	0.00	55
MIN	-0.14	6.13	70	-0.76	0.00	57			
	0.00	6.13	75	0.00	6.13	75	0.93 T	6.13	62

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

650. *3F1 KNEE BRACE MAXFORCE ABOVE

651. LOAD LIST 76 TO 100

652. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 79 TO 82 84 TO 104 107 109

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
79 MAX	0.00	0.00	76	0.00	0.00	76			
	0.00	0.00	76	0.00	0.00	76	0.00	0.00	76
MIN	0.00	1.68	100	0.00	1.68	100			
	0.00	1.68	100	0.00	1.68	100	0.00	1.68	100
80 MAX	0.00	0.00	76	57.21	1.80	80			
	0.00	0.00	76	0.00	0.00	76	0.47 C	1.80	78
MIN	-32.28	1.80	80	0.00	1.80	99			
	0.00	1.80	100	0.00	1.80	100	0.00	1.80	99
81 MAX	0.00	0.00	81	156.50	3.08	80			
	0.00	0.00	76	0.00	0.00	76	0.47 C	0.00	78
MIN	-32.28	3.08	80	0.00	3.08	98			
	0.00	3.08	100	0.00	3.08	100	0.00	3.08	98
82 MAX	0.00	0.00	81	170.71	0.44	80			
	0.00	0.00	76	0.00	0.00	76	0.48 C	0.00	78
MIN	-32.28	0.44	80	0.00	0.44	98			
	0.00	0.44	100	0.00	0.44	100	0.00	0.44	98
84 MAX	0.00	0.00	81	217.67	1.08	80			
	0.00	0.00	76	0.00	0.00	76	0.95 C	1.08	78
MIN	-64.56	1.08	80	0.00	1.08	98			
	0.00	1.08	100	0.00	1.08	100	0.00	1.08	98
85 MAX	5.20	0.00	82	322.72	3.50	78			
	0.00	0.00	76	0.00	0.00	76	0.75 C	0.00	87
MIN	-25.52	3.50	86	-22.50	3.50	82			
	0.00	3.50	100	0.00	3.50	100	41.03 T	3.50	80
86 MAX	49.72	0.00	82	323.40	0.00	78			
	0.00	0.00	76	0.00	0.00	76	0.81 C	0.00	97
MIN	-7.72	1.58	86	-100.03	1.58	82			
	0.00	1.58	100	0.00	1.58	100	41.30 T	0.00	80
87 MAX	32.12	0.00	77	320.97	0.33	86			
	0.00	0.00	76	0.00	0.00	76	0.81 C	0.00	97
MIN	-7.72	0.33	86	-105.84	0.33	82			
	0.00	0.33	100	0.00	0.33	100	40.83 T	0.33	80
88 MAX	32.12	0.00	77	338.60	2.29	86			
	0.00	0.00	76	0.00	0.00	76	0.81 C	0.00	97

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MIN	-7.72	2.29	86	-145.83	2.29	82				
	0.00	2.29	100	0.00	2.29	100	40.83	T	2.29	80
89 MAX	57.55	0.00	78	312.63	0.00	86				
	0.00	0.00	76	0.00	0.00	76	0.59	C	1.65	95
MIN	-7.93	1.65	95	-231.00	1.65	82				
	0.00	1.65	100	0.00	1.65	100	1.49	T	0.00	78
90 MAX	40.44	0.00	77	276.99	0.00	86				
	0.00	0.00	76	0.00	0.00	76	1.27	C	5.85	82
MIN	-38.60	5.85	82	-233.44	0.59	82				
	0.00	5.85	100	0.00	5.85	100	1.35	T	5.85	86
91 MAX	21.66	0.00	86	216.81	5.85	95				
	0.00	0.00	76	0.00	0.00	76	1.74	C	5.85	82
MIN	-70.88	5.85	82	-146.33	0.00	82				
	0.00	5.85	100	0.00	5.85	100	1.35	T	0.00	86
92 MAX	61.31	0.00	87	261.77	0.00	95				
	0.00	0.00	76	0.00	0.00	76	15.06	C	5.85	86
MIN	-6.97	5.85	83	-123.49	5.85	86				
	0.00	5.85	100	0.00	5.85	100	11.26	T	5.85	91
93 MAX	32.19	0.00	97	59.02	5.85	81				
	0.00	0.00	76	0.00	0.00	76	15.48	C	5.85	86
MIN	-6.97	5.85	83	-245.81	5.27	86				
	0.00	5.85	100	0.00	5.85	100	11.26	T	5.85	91
94 MAX	5.52	0.00	100	78.33	5.85	83				
	0.00	0.00	76	0.00	0.00	76	15.91	C	5.85	86
MIN	-35.53	5.85	87	-243.71	0.00	87				
	0.00	5.85	100	0.00	5.85	100	11.26	T	5.85	91
95 MAX	3.29	0.00	82	119.11	5.85	83				
	0.00	0.00	76	0.00	0.00	76	15.91	C	0.00	86
MIN	-55.06	5.85	97	-205.48	0.00	87				
	0.00	5.85	100	0.00	5.85	100	11.26	T	5.85	91
96 MAX	3.29	0.00	82	335.56	5.83	96				
	0.00	0.00	76	0.00	0.00	76	15.91	C	0.00	86
MIN	-55.06	5.83	97	-26.75	0.00	97				
	0.00	5.83	100	0.00	5.83	100	11.26	T	5.83	91
97 MAX	92.53	0.00	84	385.05	0.00	98				
	0.00	0.00	76	0.00	0.00	76	27.44	C	0.00	83
MIN	-4.82	5.83	85	-71.01	5.83	92				
	0.00	5.83	100	0.00	5.83	100	19.12	T	5.83	94
98 MAX	70.29	0.00	83	77.04	5.85	85				
	0.00	0.00	76	0.00	0.00	76	27.92	C	5.85	83
MIN	-7.46	5.85	93	-313.31	5.85	83				
	0.00	5.85	100	0.00	5.85	100	19.12	T	5.85	94
99 MAX	38.01	0.00	83	105.27	5.85	85				
	0.00	0.00	76	0.00	0.00	76	28.86	C	5.85	83

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MIN	-33.60	5.85	92	-370.49	4.68	83			
	0.00	5.85	100	0.00	5.85	100	19.12	T	5.85 94
100 MAX	6.94	0.00	99	133.55	5.85	85			
	0.00	0.00	76	0.00	0.00	76	29.34	C	5.85 83
MIN	-62.68	5.85	92	-347.66	0.00	83			
	0.00	5.85	100	0.00	5.85	100	19.12	T	5.85 94
101 MAX	4.29	0.00	87	374.17	5.85	92			
	0.00	0.00	76	0.00	0.00	76	29.34	C	0.00 83
MIN	-81.97	5.85	84	-167.01	0.00	83			
	0.00	5.85	100	0.00	5.85	100	19.12	T	5.85 94
102 MAX	64.56	0.00	90	372.55	0.00	93			
	0.00	0.00	76	0.00	0.00	76	0.00		0.00 76
MIN	0.00	3.86	99	0.00	3.86	99			
	0.00	3.86	100	0.00	3.86	100	0.95	T	0.00 93
103 MAX	32.28	0.00	90	158.51	0.00	93			
	0.00	0.00	76	0.00	0.00	76	0.00		0.00 76
MIN	0.00	0.91	99	0.00	0.91	99			
	0.00	0.91	100	0.00	0.91	100	0.47	T	0.91 93
104 MAX	32.28	0.00	90	129.12	0.00	93			
	0.00	0.00	76	0.00	0.00	76	0.00		0.00 76
MIN	0.00	5.06	93	0.00	4.50	90			
	0.00	5.62	100	0.00	5.62	100	0.47	T	0.00 90
107 MAX	5.20	0.00	82	236.42	0.83	78			
	0.00	0.00	76	0.00	0.00	76	0.75	C	0.00 87
MIN	-25.52	0.83	86	-4.33	0.83	82			
	0.00	0.83	100	0.00	0.83	100	41.03	T	0.83 80
109 MAX	57.55	0.00	78	344.65	0.00	86			
	0.00	0.00	76	0.00	0.00	76	0.32	C	0.00 82
MIN	-5.92	1.48	87	-188.27	1.48	82			
	0.00	1.48	100	0.00	1.48	100	1.49	T	1.48 78

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

653. *4F1 FLOOR BEAM RESULTS ABOVE

654. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 2 78 105

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
2 MAX	0.00	0.00	76	0.00	0.00	76			
	0.70	0.00	82	6.97	0.00	86	141.54 C	0.00	80
MIN	0.00	6.26	100	0.00	6.26	100			
	-1.04	6.26	86	-4.64	0.00	82	5.92 T	6.26	87
78 MAX	0.00	0.00	76	0.00	0.00	76			
	0.70	0.00	82	5.67	1.50	82	141.54 C	0.00	80
MIN	0.00	1.50	100	0.00	1.50	100			
	-1.04	1.50	86	-8.45	1.50	86	5.92 T	1.50	87
105 MAX	0.00	0.00	76	0.00	0.00	76			
	0.82	0.00	86	1.46	0.00	82	60.70 C	0.00	80
MIN	0.00	4.27	100	0.00	4.27	100			
	-0.51	4.27	82	-2.36	0.00	86	4.26 T	4.27	87

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

655. *4F1 COLUMN 4 RESULTS ABOVE

656. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 3 46 47

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
3 MAX	11.77	0.00	91	65.42	0.00	91			
	0.00	0.00	76	0.00	0.00	76	123.53 C	0.00	95
MIN	-16.44	4.70	86	-108.35	0.00	86			
	0.00	4.70	100	0.00	4.70	100	13.01 T	4.70	80
46 MAX	0.70	0.00	94	7.56	15.71	84			
	0.00	0.00	76	0.00	0.00	76	123.06 C	0.00	95
MIN	-0.97	15.71	96	-9.21	0.00	96			
	0.00	15.71	100	0.00	15.71	100	12.75 T	15.71	80
47 MAX	3.50	0.00	81	31.17	5.33	86			
	0.00	0.00	76	0.00	0.00	76	123.53 C	0.00	95
MIN	-6.27	5.33	85	-16.01	5.33	82			
	0.00	5.33	100	0.00	5.33	100	13.01 T	5.33	80

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

657. *4F1 COLUMN 3 RESULTS ABOVE

658. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 4 48 TO 50

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
4 MAX	27.64	0.00	85	137.72	0.00	85			
	0.00	0.00	76	0.00	0.00	76	132.20 C	0.00	97
MIN	-32.81	4.27	83	-185.36	0.00	83			
	0.00	4.27	100	0.00	4.27	100	3.19 T	4.27	82
48 MAX	0.67	0.00	81	6.43	9.75	85			
	0.00	0.00	76	0.00	0.00	76	130.55 C	0.00	97
MIN	-0.90	9.75	86	-5.46	9.75	81			
	0.00	9.75	100	0.00	9.75	100	1.69 T	9.75	82
49 MAX	0.80	0.00	85	6.43	0.00	85			
	0.00	0.00	76	0.00	0.00	76	123.80 C	0.00	97
MIN	-1.02	5.98	83	-5.46	0.00	81			
	0.00	5.98	100	0.00	5.98	100	3.73 T	5.98	82
50 MAX	5.28	0.00	87	45.37	5.33	83			
	0.00	0.00	76	0.00	0.00	76	123.80 C	0.00	97
MIN	-8.18	5.33	83	-29.94	5.33	87			
	0.00	5.33	100	0.00	5.33	100	3.73 T	5.33	82

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

659. *4F1 COLUMN 2 RESULTS ABOVE

660. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 71 72 83

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
71 MAX	0.66	0.00	97	6.45	0.00	98			
	0.00	0.00	76	0.00	0.00	76	131.06 C	0.00	89
MIN	-0.46	17.52	90	-6.20	17.52	97			
	0.00	17.52	100	0.00	17.52	100	4.60 T	17.52	95
72 MAX	12.57	0.00	83	49.96	5.33	85			
	0.00	0.00	76	0.00	0.00	76	131.26 C	0.00	89
MIN	-8.92	5.33	85	-68.49	5.33	83			
	0.00	5.33	100	0.00	5.33	100	4.37 T	5.33	87
83 MAX	28.47	0.00	83	121.01	3.84	94			
	0.00	0.00	76	0.00	0.00	76	131.26 C	0.00	89
MIN	-19.19	3.84	94	-177.71	3.84	83			
	0.00	3.84	100	0.00	3.84	100	4.37 T	3.84	87

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

661. *4F1 COLUMN 1 RESULTS ABOVE

662. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 73 74

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
73 MAX	1.23	0.00	82	6.05	5.95	86			
	0.00	0.00	76	0.00	0.00	76	55.87 C	0.00	80
MIN	-1.41	5.95	86	-4.06	5.95	82			
	0.00	5.95	100	0.00	5.95	100	1.30 T	5.95	97
74 MAX	0.31	0.00	80	3.77	0.00	80			
	0.00	0.00	76	0.00	0.00	76	58.81 C	0.00	80
MIN	-0.17	6.13	95	-0.88	0.00	82			
	0.00	6.13	100	0.00	6.13	100	1.08 T	6.13	87

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

663. *4F1 KNEE BRACE MAXFORCE ABOVE

664. LOAD LIST 101 TO 125

665. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 79 TO 82 84 TO 104 107 109

MEMBER FORCE ENVELOPE

 ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
79 MAX	0.00	0.00	101	0.00	0.00	101			
	0.00	0.00	101	0.00	0.00	101	0.00	0.00	101
	MIN	0.00	1.68	125	0.00	1.68	125	0.00	1.68
	0.00	1.68	125	0.00	1.68	125	0.00	1.68	125
80 MAX	0.00	0.00	101	61.67	1.80	105			
	0.00	0.00	101	0.00	0.00	101	0.51 C	1.80	103
	MIN	-34.79	1.80	105	0.00	1.80	124	0.00	1.80
	0.00	1.80	125	0.00	1.80	125	0.00	1.80	124
81 MAX	0.00	0.00	106	168.69	3.08	105			
	0.00	0.00	101	0.00	0.00	101	0.51 C	0.00	103
	MIN	-34.79	3.08	105	0.00	3.08	123	0.00	3.08
	0.00	3.08	125	0.00	3.08	125	0.00	3.08	123
82 MAX	0.00	0.00	106	184.01	0.44	105			
	0.00	0.00	101	0.00	0.00	101	0.51 C	0.00	103
	MIN	-34.79	0.44	105	0.00	0.44	123	0.00	0.44
	0.00	0.44	125	0.00	0.44	125	0.00	0.44	123
84 MAX	0.00	0.00	106	234.63	1.08	105			
	0.00	0.00	101	0.00	0.00	101	1.02 C	1.08	103
	MIN	-69.59	1.08	105	0.00	1.08	123	0.00	1.08
	0.00	1.08	125	0.00	1.08	125	0.00	1.08	123
85 MAX	5.60	0.00	107	347.88	3.50	103			
	0.00	0.00	101	0.00	0.00	101	0.80 C	0.00	112
	MIN	-27.52	3.50	111	-24.26	3.50	107	44.22 T	3.50
	0.00	3.50	125	0.00	3.50	125	44.22 T	3.50	105
86 MAX	53.60	0.00	107	348.62	0.00	103			
	0.00	0.00	101	0.00	0.00	101	0.87 C	0.00	122
	MIN	-8.33	1.58	111	-107.84	1.58	107	44.52 T	0.00
	0.00	1.58	125	0.00	1.58	125	44.52 T	0.00	105
87 MAX	34.61	0.00	102	346.01	0.33	111			
	0.00	0.00	101	0.00	0.00	101	0.87 C	0.00	122
	MIN	-8.33	0.33	111	-114.11	0.33	107	44.01 T	0.33
	0.00	0.33	125	0.00	0.33	125	44.01 T	0.33	105
88 MAX	34.62	0.00	102	365.03	2.29	111			
	0.00	0.00	101	0.00	0.00	101	0.87 C	0.00	122

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MIN	-8.33	2.29	111	-157.21	2.29	107			
	0.00	2.29	125	0.00	2.29	125	44.01	T	2.29 105
89 MAX	62.04	0.00	103	337.03	0.00	111			
	0.00	0.00	101	0.00	0.00	101	0.64	C	1.65 120
MIN	-8.55	1.65	120	-249.02	1.65	107			
	0.00	1.65	125	0.00	1.65	125	1.60	T	0.00 103
90 MAX	43.59	0.00	102	298.61	0.00	111			
	0.00	0.00	101	0.00	0.00	101	1.36	C	5.85 107
MIN	-41.61	5.85	107	-251.64	0.59	107			
	0.00	5.85	125	0.00	5.85	125	1.45	T	5.85 111
91 MAX	23.35	0.00	111	233.70	5.85	120			
	0.00	0.00	101	0.00	0.00	101	1.87	C	5.85 107
MIN	-76.40	5.27	107	-157.74	0.00	107			
	0.00	5.85	125	0.00	5.85	125	1.45	T	0.00 111
92 MAX	66.09	0.00	112	282.17	0.00	120			
	0.00	0.00	101	0.00	0.00	101	16.23	C	5.85 111
MIN	-7.51	5.85	108	-133.12	5.85	111			
	0.00	5.85	125	0.00	5.85	125	12.14	T	5.85 116
93 MAX	34.70	0.00	122	63.62	5.85	106			
	0.00	0.00	101	0.00	0.00	101	16.69	C	5.85 111
MIN	-7.51	5.85	108	-264.96	5.27	111			
	0.00	5.85	125	0.00	5.85	125	12.14	T	5.85 116
94 MAX	5.95	0.00	125	84.43	5.85	108			
	0.00	0.00	101	0.00	0.00	101	17.15	C	5.85 111
MIN	-38.30	5.85	112	-262.70	0.00	112			
	0.00	5.85	125	0.00	5.85	125	12.14	T	5.85 116
95 MAX	3.55	0.00	107	128.40	5.85	108			
	0.00	0.00	101	0.00	0.00	101	17.15	C	0.00 111
MIN	-59.34	5.85	122	-221.49	0.00	112			
	0.00	5.85	125	0.00	5.85	125	12.14	T	5.85 116
96 MAX	3.55	0.00	107	361.71	5.83	121			
	0.00	0.00	101	0.00	0.00	101	17.15	C	0.00 111
MIN	-59.34	5.83	122	-28.83	0.00	122			
	0.00	5.83	125	0.00	5.83	125	12.14	T	5.83 116
97 MAX	99.74	0.00	109	415.05	0.00	123			
	0.00	0.00	101	0.00	0.00	101	29.58	C	0.00 108
MIN	-5.20	5.83	110	-76.54	5.83	117			
	0.00	5.83	125	0.00	5.83	125	20.61	T	5.83 119
98 MAX	75.76	0.00	108	83.03	5.85	110			
	0.00	0.00	101	0.00	0.00	101	30.09	C	5.85 108
MIN	-8.04	5.85	118	-337.73	5.85	108			
	0.00	5.85	125	0.00	5.85	125	20.61	T	5.85 119
99 MAX	40.97	0.00	108	113.47	5.85	110			
	0.00	0.00	101	0.00	0.00	101	31.11	C	5.85 108

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MIN	-36.22	5.27	117	-399.37	4.68	108			
	0.00	5.85	125	0.00	5.85	125	20.61	T	5.85 119
100 MAX	7.48	0.00	124	143.95	5.85	110			
	0.00	0.00	101	0.00	0.00	101	31.62	C	5.85 108
MIN	-67.57	5.85	117	-374.76	0.00	108			
	0.00	5.85	125	0.00	5.85	125	20.61	T	5.85 119
101 MAX	4.63	0.00	112	403.32	5.85	117			
	0.00	0.00	101	0.00	0.00	101	31.62	C	0.00 108
MIN	-88.35	5.85	109	-180.03	0.00	108			
	0.00	5.85	125	0.00	5.85	125	20.61	T	5.85 119
102 MAX	69.59	0.00	115	401.57	0.00	118			
	0.00	0.00	101	0.00	0.00	101	0.00		0.00 101
MIN	0.00	3.86	124	0.00	3.86	124			
	0.00	3.86	125	0.00	3.86	125	1.02	T	0.00 118
103 MAX	34.79	0.00	115	170.85	0.00	118			
	0.00	0.00	101	0.00	0.00	101	0.00		0.00 101
MIN	0.00	0.91	124	0.00	0.91	124			
	0.00	0.91	125	0.00	0.91	125	0.51	T	0.91 118
104 MAX	34.79	0.00	115	139.18	0.00	118			
	0.00	0.00	101	0.00	0.00	101	0.00		0.00 101
MIN	0.00	5.06	117	0.00	4.50	115			
	0.00	5.62	125	0.00	5.62	125	0.51	T	0.00 118
107 MAX	5.60	0.00	107	254.84	0.83	103			
	0.00	0.00	101	0.00	0.00	101	0.80	C	0.00 112
MIN	-27.52	0.83	111	-4.67	0.83	107			
	0.00	0.83	125	0.00	0.83	125	44.22	T	0.83 105
109 MAX	62.04	0.00	103	371.55	0.00	111			
	0.00	0.00	101	0.00	0.00	101	0.34	C	0.00 107
MIN	-6.38	1.48	112	-202.96	1.48	107			
	0.00	1.48	125	0.00	1.48	125	1.60	T	1.48 103

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

666. *5C1 FLOOR BEAM RESULTS ABOVE

667. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 2 78 105

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
2 MAX	0.00	0.00	101	0.00	0.00	101			
	0.75	0.00	107	7.51	0.00	111	152.57 C	0.00	105
MIN	0.00	6.26	125	0.00	6.26	125			
	-1.11	6.26	111	-5.01	0.00	107	6.38 T	6.26	112
78 MAX	0.00	0.00	101	0.00	0.00	101			
	0.75	0.00	107	6.10	1.50	107	152.57 C	0.00	105
MIN	0.00	1.50	125	0.00	1.50	125			
	-1.11	1.50	111	-9.10	1.50	111	6.38 T	1.50	112
105 MAX	0.00	0.00	101	0.00	0.00	101			
	0.89	0.00	111	1.57	0.00	107	65.43 C	0.00	105
MIN	0.00	4.27	125	0.00	4.27	125			
	-0.54	4.27	107	-2.54	0.00	111	4.59 T	4.27	112

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

668. *5C1 COLUMN 4 RESULTS ABOVE

669. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 3 46 47

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
3 MAX	12.68	0.00	116	70.51	0.00	116			
	0.00	0.00	101	0.00	0.00	101	133.15 C	0.00	120
MIN	-17.72	4.70	111	-116.78	0.00	111			
	0.00	4.70	125	0.00	4.70	125	14.03 T	4.70	105
46 MAX	0.75	0.00	119	8.15	15.71	109			
	0.00	0.00	101	0.00	0.00	101	132.64 C	0.00	120
MIN	-1.04	15.71	121	-9.92	0.00	121			
	0.00	15.71	125	0.00	15.71	125	13.75 T	15.71	105
47 MAX	3.77	0.00	106	33.61	5.33	111			
	0.00	0.00	101	0.00	0.00	101	133.15 C	0.00	120
MIN	-6.76	5.33	110	-17.26	5.33	107			
	0.00	5.33	125	0.00	5.33	125	14.03 T	5.33	105

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

670. *5C1 COLUMN 3 RESULTS ABOVE

671. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 4 48 TO 50

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
4 MAX	29.79	0.00	110	148.46	0.00	110			
	0.00	0.00	101	0.00	0.00	101	142.49 C	0.00	122
MIN	-35.37	4.27	108	-199.81	0.00	108			
	0.00	4.27	125	0.00	4.27	125	3.44 T	4.27	107
48 MAX	0.72	0.00	106	6.92	9.75	110			
	0.00	0.00	101	0.00	0.00	101	140.72 C	0.00	122
MIN	-0.96	9.75	111	-5.88	9.75	106			
	0.00	9.75	125	0.00	9.75	125	1.82 T	9.75	107
49 MAX	0.86	0.00	110	6.92	0.00	110			
	0.00	0.00	101	0.00	0.00	101	133.44 C	0.00	122
MIN	-1.10	5.98	108	-5.88	0.00	106			
	0.00	5.98	125	0.00	5.98	125	4.02 T	5.98	107
50 MAX	5.69	0.00	112	48.90	5.33	108			
	0.00	0.00	101	0.00	0.00	101	133.44 C	0.00	122
MIN	-8.81	5.33	108	-32.27	5.33	112			
	0.00	5.33	125	0.00	5.33	125	4.02 T	5.33	107

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

672. *5C1 COLUMN 2 RESULTS ABOVE

673. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 71 72 83

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD	
71 MAX	0.71	0.00	122	6.95	0.00	123				
	0.00	0.00	101	0.00	0.00	101	141.27 C	0.00	114	
	MIN	-0.49	17.52	115	-6.69	17.52	122			
		0.00	17.52	125	0.00	17.52	125	4.96 T	17.52	120
72 MAX	13.55	0.00	108	53.85	5.33	110				
	0.00	0.00	101	0.00	0.00	101	141.48 C	0.00	114	
	MIN	-9.62	5.33	110	-73.83	5.33	108			
		0.00	5.33	125	0.00	5.33	125	4.71 T	5.33	112
83 MAX	30.69	0.00	108	130.44	3.84	119				
	0.00	0.00	101	0.00	0.00	101	141.48 C	0.00	114	
	MIN	-20.68	3.84	119	-191.56	3.84	108			
		0.00	3.84	125	0.00	3.84	125	4.71 T	3.84	112

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

674. *5C1 COLUMN 1 RESULTS ABOVE

675. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 73 74

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
73 MAX	1.33	0.00	107	6.52	5.95	111			
	0.00	0.00	101	0.00	0.00	101	60.24 C	0.00	105
MIN	-1.52	5.95	111	-4.38	5.95	107			
	0.00	5.95	125	0.00	5.95	125	1.41 T	5.95	122
74 MAX	0.33	0.00	105	4.05	0.00	105			
	0.00	0.00	101	0.00	0.00	101	63.38 C	0.00	105
MIN	-0.18	6.13	120	-0.95	0.00	107			
	0.00	6.13	125	0.00	6.13	125	1.16 T	6.13	112

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

676. *5C1 KNEE BRACE MAXFORCE ABOVE

677. LOAD LIST 126 TO 200

678. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 79 TO 82 84 TO 104 107 109

MEMBER FORCE ENVELOPE

 ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD	
79 MAX	0.00	0.00	126	0.00	0.00	126				
	0.00	0.00	126	0.00	0.00	126	0.00	0.00	126	
	MIN	0.00	1.68	200	0.00	1.68	200			
		0.00	1.68	200	0.00	1.68	200	0.00	1.68	200
80 MAX	0.00	0.00	126	21.49	1.80	126				
	0.00	0.00	126	0.00	0.00	126	0.42 C	1.80	126	
	MIN	-28.75	1.80	126	0.00	1.80	200			
		0.00	1.80	200	0.00	1.80	200	0.00	1.80	200
81 MAX	0.00	0.00	127	109.91	3.08	126				
	0.00	0.00	126	0.00	0.00	126	0.42 C	3.08	127	
	MIN	-28.75	3.08	129	0.00	3.08	200			
		0.00	3.08	200	0.00	3.08	200	0.00	3.08	200
82 MAX	0.00	0.00	130	122.56	0.44	126				
	0.00	0.00	126	0.00	0.00	126	0.42 C	0.00	127	
	MIN	-28.75	0.44	129	0.00	0.44	200			
		0.00	0.44	200	0.00	0.44	200	0.00	0.44	200
84 MAX	0.00	0.00	131	153.68	1.08	126				
	0.00	0.00	126	0.00	0.00	126	0.42 C	0.00	127	
	MIN	-28.75	1.08	129	0.00	1.08	200			
		0.00	1.08	200	0.00	1.08	200	0.00	1.08	200
85 MAX	9.73	0.00	133	256.37	3.50	126				
	0.00	0.00	126	0.00	0.00	126	0.60 C	0.00	163	
	MIN	-39.53	3.50	129	-18.49	1.75	134			
		0.00	3.50	200	0.00	3.50	200	28.76 T	3.50	126
86 MAX	39.32	0.00	136	262.70	1.58	126				
	0.00	0.00	126	0.00	0.00	126	0.70 C	0.00	163	
	MIN	-7.82	1.43	131	-70.46	1.58	137			
		0.00	1.58	200	0.00	1.58	200	28.44 T	1.58	126
87 MAX	32.36	0.00	138	263.82	0.33	126				
	0.00	0.00	126	0.00	0.00	126	0.70 C	0.00	163	
	MIN	-7.82	0.33	131	-76.88	0.33	138			
		0.00	0.33	200	0.00	0.33	200	28.44 T	0.33	126
88 MAX	32.36	0.00	138	271.51	2.29	126				
	0.00	0.00	126	0.00	0.00	126	0.70 C	0.00	163	

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MIN	-12.18	2.06	133	-121.43	2.29	140			
	0.00	2.29	200	0.00	2.29	200	28.44	T	2.29 126
89 MAX	24.35	0.00	142	242.14	0.00	126			
	0.00	0.00	126	0.00	0.00	126	0.52	C	1.65 142
MIN	-12.86	1.65	136	-154.71	0.99	142			
	0.00	1.65	200	0.00	1.65	200	1.24	T	1.65 126
90 MAX	23.05	0.00	126	204.20	0.00	126			
	0.00	0.00	126	0.00	0.00	126	0.94	C	5.85 142
MIN	-33.14	5.27	142	-154.81	0.59	143			
	0.00	5.85	200	0.00	5.85	200	1.24	T	5.85 126
91 MAX	23.05	0.00	126	95.91	5.85	163			
	0.00	0.00	126	0.00	0.00	126	1.00	C	5.85 145
MIN	-49.28	5.85	148	-115.81	0.00	143			
	0.00	5.85	200	0.00	5.85	200	1.24	T	5.85 126
92 MAX	50.80	0.00	155	155.39	0.00	163			
	0.00	0.00	126	0.00	0.00	126	8.83	C	0.00 164
MIN	-5.23	5.85	154	-97.22	5.85	160			
	0.00	5.85	200	0.00	5.85	200	4.32	T	5.85 142
93 MAX	41.34	0.00	160	38.91	0.00	142			
	0.00	0.00	126	0.00	0.00	126	9.25	C	5.85 164
MIN	-14.13	5.85	159	-174.11	5.85	164			
	0.00	5.85	200	0.00	5.85	200	4.32	T	5.85 142
94 MAX	12.60	0.00	160	41.40	5.85	178			
	0.00	0.00	126	0.00	0.00	126	9.67	C	5.85 164
MIN	-25.09	5.85	164	-189.09	4.10	164			
	0.00	5.85	200	0.00	5.85	200	4.32	T	5.85 142
95 MAX	3.92	0.00	165	63.12	5.85	178			
	0.00	0.00	126	0.00	0.00	126	9.67	C	0.00 164
MIN	-25.09	5.85	164	-148.42	0.00	164			
	0.00	5.85	200	0.00	5.85	200	4.32	T	5.85 142
96 MAX	3.92	0.00	165	144.92	5.83	164			
	0.00	0.00	126	0.00	0.00	126	9.67	C	0.00 164
MIN	-29.22	5.25	169	-61.49	0.58	165			
	0.00	5.83	200	0.00	5.83	200	4.32	T	5.83 142
97 MAX	52.76	0.00	170	178.95	0.00	179			
	0.00	0.00	126	0.00	0.00	126	14.09	C	0.00 183
MIN	-7.84	5.83	200	-85.67	5.83	175			
	0.00	5.83	200	0.00	5.83	200	14.32	T	5.83 200
98 MAX	42.63	0.00	176	52.64	0.00	164			
	0.00	0.00	126	0.00	0.00	126	14.36	C	5.85 181
MIN	-12.98	5.85	175	-192.12	5.85	181			
	0.00	5.85	200	0.00	5.85	200	14.32	T	5.85 200
99 MAX	29.76	0.00	182	82.58	5.85	200			
	0.00	0.00	126	0.00	0.00	126	14.78	C	5.85 181

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MIN	-25.52	5.85	181	-211.32	4.68	180			
	0.00	5.85	200	0.00	5.85	200	14.32	T	5.85 200
100 MAX	18.29	0.00	187	128.50	5.85	200			
	0.00	0.00	126	0.00	0.00	126	14.93	C	5.85 183
MIN	-36.96	5.85	186	-209.12	0.00	181			
	0.00	5.85	200	0.00	5.85	200	14.32	T	5.85 200
101 MAX	5.32	0.00	193	174.43	5.85	200			
	0.00	0.00	126	0.00	0.00	126	14.93	C	0.00 183
MIN	-50.18	5.85	192	-136.98	0.00	187			
	0.00	5.85	200	0.00	5.85	200	14.32	T	5.85 200
102 MAX	57.49	0.00	199	274.59	0.00	200			
	0.00	0.00	126	0.00	0.00	126	0.00		0.00 126
MIN	0.00	3.47	194	0.00	3.09	195			
	0.00	3.86	200	0.00	3.86	200	0.84	T	0.00 200
103 MAX	28.75	0.00	198	112.56	0.00	200			
	0.00	0.00	126	0.00	0.00	126	0.00		0.00 126
MIN	0.00	0.91	197	0.00	0.91	197			
	0.00	0.91	200	0.00	0.91	200	0.42	T	0.91 200
104 MAX	28.75	0.00	198	86.39	0.00	200			
	0.00	0.00	126	0.00	0.00	126	0.00		0.00 126
MIN	0.00	5.62	200	0.00	3.37	200			
	0.00	5.62	200	0.00	5.62	200	0.42	T	0.00 200
107 MAX	11.33	0.00	132	157.59	0.83	126			
	0.00	0.00	126	0.00	0.00	126	0.60	C	0.00 163
MIN	-28.26	0.83	126	-7.60	0.75	132			
	0.00	0.83	200	0.00	0.83	200	29.19	T	0.00 126
109 MAX	30.83	0.00	140	276.23	0.00	126			
	0.00	0.00	126	0.00	0.00	126	0.48	C	1.48 141
MIN	-9.31	1.48	135	-147.77	1.48	141			
	0.00	1.48	200	0.00	1.48	200	1.24	T	1.48 126

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

679. *HS-15 FATIGUE TRUCK FLOOR BEAM RESULTS ABOVE
680. FINISH

***** END OF THE STAAD.Pro RUN *****

**** DATE= APR 10,2012 TIME= 12:28:16 ****

* For questions on STAAD.Pro, please contact *
* Bentley Systems Offices at the following locations *
* *
* Telephone Web / Email *
* *
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* *

EAST APPROACH - FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/20/2012
Date 4/13/2012

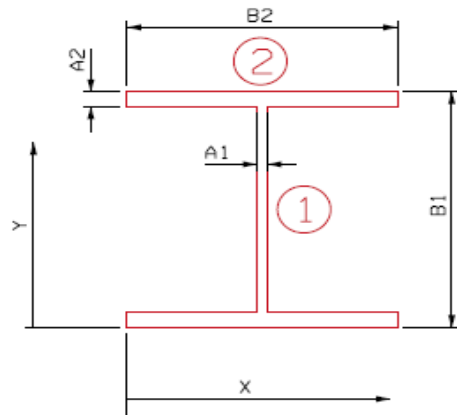
Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Red text indicates user input

Element Dimensions (without Section Losses):

$A_1 = t_w = 0.6800$ in
 $A_2 = t_f = 1.1000$ in
 $B_1 = d = 36.1600$ in
 $B_2 = b_f = 12.0270$ in
36WFB170



FB-9 @ COLUMN 409
EAST APPR. FWD SECTION

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I _o	d	Ad ²	I _{x,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		23.0928	18.0800	417.5178	2219.3751	0.0000	0.0000	2219.3751
2	Top Flange		13.2297	35.6100	471.1096	1.3340	17.5300	4065.4987	4066.8327
	Bottom Flange		13.2297	0.5500	7.2763	1.3340	17.5300	4065.4987	4066.8327
Total			49.55		895.90	2222.04		8131.00	10353.04
Section Losses			A	y	Ay	I _o	d	Ad ²	I _{x,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.1250	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	18.0800	in	S _{top} = 572.62 in ³	y-bar =	18.0800	in	S _{top} = 572.62 in ³
I _x =	10353.04	in ⁴	S _{bottom} = 572.62 in ³	I _x =	10353.04	in ⁴	S _{bottom} = 572.62 in ³
C _{top} =	18.0800	in	A = 49.5522 in ²	C _{top} =	18.0800	in	A = 49.5522 in ²
C _{bottom} =	18.0800	in	r _x = 14.4545 in	C _{bottom} =	18.0800	in	r _x = 14.4545 in
			Z = 659.89 in ³				Z = warning in ³

EAST APPROACH - FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/20/2012
Date 4/13/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Floorbeam Capacities

Non-composite Capacities*		
	AB	AI
M	1574.72 k-ft	1574.72 k-ft
V	442.00 k	442.00 k

*Noncompact Section

$F_y =$	33.00 ksi
---------	------------------

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

As-Built Moments and Shears						
	DL	HS20	2F1	3F1	4F1	5C1
M	720.21 k-ft	414.84 k-ft	182.66 k-ft	278.18 k-ft	323.40 k-ft	348.62 k-ft
V	81.78 k	24.15 k	10.70 k	16.27 k	18.86 k	20.32 k

As-Built Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	0.71	---	---	---	---
Operating M	1.18	2.69	1.77	1.52	1.41
As-Inspected Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	0.71	---	---	---	---
Operating M	1.18	2.69	1.77	1.52	1.41
As-Built Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	6.41	---	---	---	---
Operating V	10.69	24.13	15.87	13.69	12.71
As-Inspected Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	6.41	---	---	---	---
Operating V	10.69	24.13	15.87	13.69	12.71

Controlling Rating Factors and Tonnage						
	HS20 Inventory	HS20 Operating	2F1 Operating	3F1 Operating	4F1 Operating	5C1 Operating
Rating Factor	0.71	1.18	2.69	1.77	1.52	1.41
Tonnage (US Tons)	25.56	42.48	40.35	40.71	41.04	56.4

EAST APPROACH - FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/20/2012
Date 4/13/2012

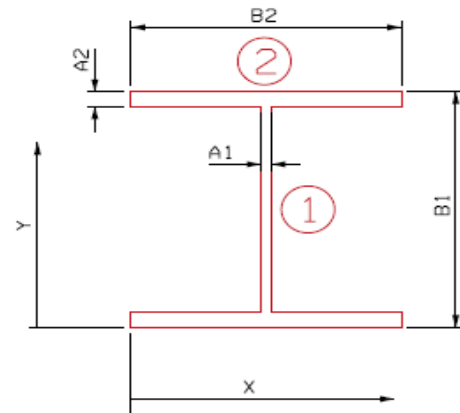
Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Red text indicates user input

Element Dimensions (without Section Losses):

$A_1 = t_w = 0.6800$ in
 $A_2 = t_f = 1.1000$ in
 $B_1 = d = 36.1600$ in
 $B_2 = b_f = 12.0270$ in
36WFB170



FB-9 @ COLUMN 209
EAST APPR. FWD SECTION

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I_o	d	Ad^2	$I_{x, gross}$
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		23.0928	18.0800	417.5178	2219.3751	0.0000	0.0000	2219.3751
2	Top Flange		13.2297	35.6100	471.1096	1.3340	17.5300	4065.4987	4066.8327
	Bottom Flange		13.2297	0.5500	7.2763	1.3340	17.5300	4065.4987	4066.8327
Total			49.55		895.90	2222.04		8131.00	10353.04
Section Losses			A	y	Ay	I_o	d	Ad^2	$I_{x, loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties							
y-bar =	18.0800	in	$S_{top} = 572.62$	in^3	y-bar =	18.0800	in	$S_{top} = 572.62$	in^3		
$I_x =$	10353.04	in^4	$S_{bott.} = 572.62$	in^3	$I_x =$	10353.04	in^4	$S_{bott.} = 572.62$	in^3		
$C_{top} =$	18.0800	in	A =	49.5522	in^2	$C_{top} =$	18.0800	in	A =	49.5522	in^2
$C_{bottom} =$	18.0800	in	$r_x =$	14.4545	in	$C_{bottom} =$	18.0800	in	$r_x =$	14.4545	in
			Z =	659.89	in^3				Z =	659.89	in^3

EAST APPROACH - FORWARD SECTION



Made By FKL
 Checked By PJP

Date 3/20/2012
 Date 4/13/2012

Job No. P402110046
 Sheet No. _____

Calculations For: **CUY-2-1441**

Floorbeam Capacities

Non-composite Capacities*		
	AB	AI
M	1574.72 k-ft	1574.72 k-ft
V	442.00 k	442.00 k

*Noncompact Section

$F_y =$	33.00 ksi
---------	------------------

AB = As-Built
 AI = As-Inspected
 M = Moment
 V = Shear

As-Built Moments and Shears						
	DL	HS20	2F1	3F1	4F1	5C1
M	457.39 k-ft	493.83 k-ft	217.54 k-ft	331.23 k-ft	385.05 k-ft	415.05 k-ft
V	77.37 k	85.21 k	37.55 k	57.17 k	66.46 k	71.64 k

As-Built Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	0.91	---	---	---	---
Operating M	1.53	3.47	2.28	1.96	1.82
As-Inspected Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	0.91	---	---	---	---
Operating M	1.53	3.47	2.28	1.96	1.82
As-Built Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	1.85	---	---	---	---
Operating V	3.08	6.99	4.59	3.95	3.67
As-Inspected Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	1.85	---	---	---	---
Operating V	3.08	6.99	4.59	3.95	3.67

Controlling Rating Factors and Tonnage						
	HS20 Inventory	HS20 Operating	2F1 Operating	3F1 Operating	4F1 Operating	5C1 Operating
Rating Factor	0.91	1.53	3.47	2.28	1.96	1.82
Tonnage (US Tons)	32.76	55.08	52.05	52.44	52.92	72.8

EAST APPROACH - FORWARD SECTION



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Checked By PJP

Date 3/20/2012
Date 4/13/2012

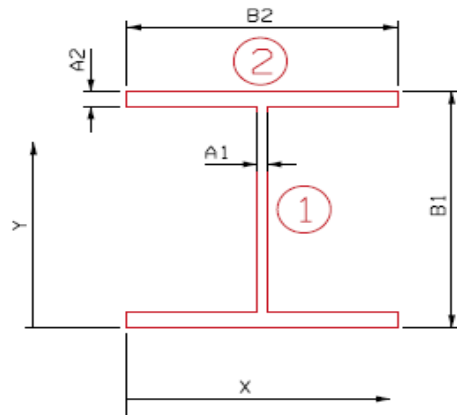
Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Red text indicates user input

Element Dimensions (without Section Losses):

$A_1 = t_w = 0.6800$ in
 $A_2 = t_f = 1.1000$ in
 $B_1 = d = 36.1600$ in
 $B_2 = b_f = 12.0270$ in
36WFB170



FB-9 @ COLUMN 109
EAST APPR. FWD SECTION

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I_o	d	Ad^2	$I_{x, gross}$
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		23.0928	18.0800	417.5178	2219.3751	0.0000	0.0000	2219.3751
2	Top Flange		13.2297	35.6100	471.1096	1.3340	17.5300	4065.4987	4066.8327
	Bottom Flange		13.2297	0.5500	7.2763	1.3340	17.5300	4065.4987	4066.8327
Total			49.55		895.90	2222.04		8131.00	10353.04
Section Losses			A	y	Ay	I_o	d	Ad^2	$I_{x, loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	12.0000	0.0625	-0.7500	0.0313	-0.0234	-0.0002	18.3261	-251.8852	-251.8854
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			-0.75		-0.02	0.00		-251.89	-251.89

As-Built Section Properties				As-Inspected Section Properties							
y-bar =	18.0800	in	$S_{top} = 572.62$	in ³	y-bar =	18.3574	in	$S_{top} = 567.40$	in ³		
$I_x =$	10353.04	in ⁴	$S_{bott.} = 572.62$	in ³	$I_x =$	10101.16	in ⁴	$S_{bott.} = 550.25$	in ³		
$C_{top} =$	18.0800	in	A =	49.5522	in ²	$C_{top} =$	17.8026	in	A =	48.8022	in ²
$C_{bottom} =$	18.0800	in	$r_x =$	14.4545	in	$C_{bottom} =$	18.3574	in	$r_x =$	14.3869	in
			Z =	659.89	in ³				Z =	warning	in ³

EAST APPROACH - FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/20/2012
Date 4/13/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Floorbeam Capacities

Non-composite Capacities*		
	AB	AI
M	1574.72 k-ft	1513.19 k-ft
V	442.00 k	442.00 k

*Noncompact Section

$F_y =$	33.00 ksi
---------	------------------

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

As-Built Moments and Shears						
	DL	HS20	2F1	3F1	4F1	5C1
M	526.65 k-ft	479.84 k-ft	211.42 k-ft	321.89 k-ft	374.17 k-ft	403.32 k-ft
V	68.36 k	105.11 k	35.42 k	53.93 k	62.69 k	67.57 k

As-Built Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	0.85	---	---	---	---
Operating M	1.43	3.24	2.13	1.83	1.7
As-Inspected Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	0.80	---	---	---	---
Operating M	1.33	3.01	1.98	1.7	1.58
As-Built Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	1.55	---	---	---	---
Operating V	2.58	7.67	5.04	4.33	4.02
As-Inspected Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	1.55	---	---	---	---
Operating V	2.58	7.67	5.04	4.33	4.02

Controlling Rating Factors and Tonnage						
	HS20 Inventory	HS20 Operating	2F1 Operating	3F1 Operating	4F1 Operating	5C1 Operating
Rating Factor	0.80	1.33	3.01	1.98	1.7	1.58
Tonnage (US Tons)	28.8	47.88	45.15	45.54	45.9	63.2

EAST APPROACH - FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/20/2012
Date 4/13/2012

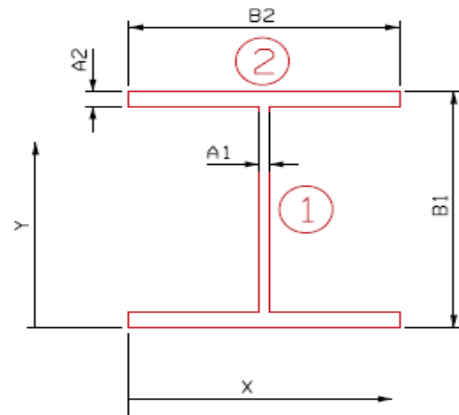
Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Red text indicates user input

Element Dimensions (without Section Losses):

$A_1 = t_w = 0.6800$ in
 $A_2 = t_f = 1.1000$ in
 $B_1 = d = 36.1600$ in
 $B_2 = b_f = 12.0270$ in
36WFB170



FB-9 @ Between 209 & 309
EAST APPR. FWD SECTION

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I_o	d	Ad^2	$I_{x, gross}$
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		23.0928	18.0800	417.5178	2219.3751	0.0000	0.0000	2219.3751
2	Top Flange		13.2297	35.6100	471.1096	1.3340	17.5300	4065.4987	4066.8327
	Bottom Flange		13.2297	0.5500	7.2763	1.3340	17.5300	4065.4987	4066.8327
Total			49.55		895.90	2222.04		8131.00	10353.04
Section Losses			A	y	Ay	I_o	d	Ad^2	$I_{x, loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	12.0000	0.0625	-0.7500	0.0313	-0.0234	-0.0002	18.3261	-251.8852	-251.8854
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			-0.75		-0.02	0.00		-251.89	-251.89

As-Built Section Properties				As-Inspected Section Properties							
y-bar =	18.0800	in	$S_{top} = 572.62$	in^3	y-bar =	18.3574	in	$S_{top} = 567.40$	in^3		
$I_x =$	10353.04	in^4	$S_{bott.} = 572.62$	in^3	$I_x =$	10101.16	in^4	$S_{bott.} = 550.25$	in^3		
$C_{top} =$	18.0800	in	A =	49.5522	in^2	$C_{top} =$	17.8026	in	A =	48.8022	in^2
$C_{bottom} =$	18.0800	in	$r_x =$	14.4545	in	$C_{bottom} =$	18.3574	in	$r_x =$	14.3869	in
			Z =	659.89	in^3				Z =	warning	in^3

EAST APPROACH - FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/20/2012
Date 4/13/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Floorbeam Capacities

Non-composite Capacities*		
	AB	AI
M	1814.70 k-ft	1513.19 k-ft
V	442.00 k	442.00 k

*Compact Section

$F_y =$	33.00 ksi
---------	------------------

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

As-Built Moments and Shears						
	DL	HS20	2F1	3F1	4F1	5C1
M	273.45 k-ft	312.55 k-ft	137.69 k-ft	209.65 k-ft	243.71 k-ft	262.70 k-ft
V	26.56 k	4.17 k	1.83 k	2.79 k	3.25 k	3.50 k

As-Built Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	2.15	---	---	---	---
Operating M	3.59	8.15	5.35	4.61	4.27
As-Inspected Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.71	---	---	---	---
Operating M	2.85	6.47	4.25	3.65	3.39
As-Built Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	45.03	---	---	---	---
Operating V	75.17	171.28	112.34	96.44	89.55
As-Inspected Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	45.03	---	---	---	---
Operating V	75.17	171.28	112.34	96.44	89.55

Controlling Rating Factors and Tonnage						
	HS20 Inventory	HS20 Operating	2F1 Operating	3F1 Operating	4F1 Operating	5C1 Operating
Rating Factor	1.71	2.85	6.47	4.25	3.65	3.39
Tonnage (US Tons)	61.56	102.6	97.05	97.75	98.55	135.6

EAST APPROACH - FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/20/2012
Date 4/13/2012

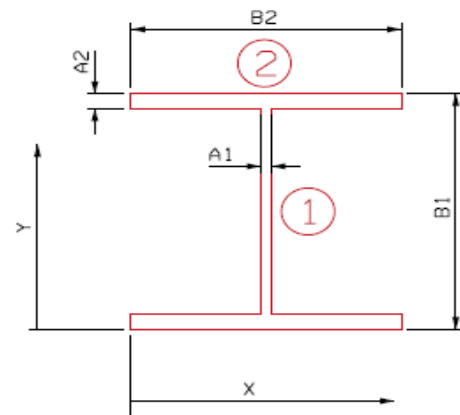
Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Red text indicates user input

Element Dimensions (without Section Losses):

$A_1 = t_w = 0.6800$ in
 $A_2 = t_f = 1.1000$ in
 $B_1 = d = 36.1600$ in
 $B_2 = b_f = 12.0270$ in
36WFB170



FB-9 @ Between 109 & 209
EAST APPR. FWD SECTION

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I_o	d	Ad^2	$I_{x, gross}$
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		23.0928	18.0800	417.5178	2219.3751	0.0000	0.0000	2219.3751
2	Top Flange		13.2297	35.6100	471.1096	1.3340	17.5300	4065.4987	4066.8327
	Bottom Flange		13.2297	0.5500	7.2763	1.3340	17.5300	4065.4987	4066.8327
Total			49.55		895.90	2222.04		8131.00	10353.04
Section Losses			A	y	Ay	I_o	d	Ad^2	$I_{x, loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties							
y-bar =	18.0800	in	$S_{top} = 572.62$	in ³	y-bar =	18.0800	in	$S_{top} = 572.62$	in ³		
$I_x =$	10353.04	in ⁴	$S_{bott.} = 572.62$	in ³	$I_x =$	10353.04	in ⁴	$S_{bott.} = 572.62$	in ³		
$C_{top} =$	18.0800	in	A =	49.5522	in ²	$C_{top} =$	18.0800	in	A =	49.5522	in ²
$C_{bottom} =$	18.0800	in	$r_x =$	14.4545	in	$C_{bottom} =$	18.0800	in	$r_x =$	14.4545	in
			Z =	659.89	in ³				Z =	659.89	in ³

EAST APPROACH - FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/20/2012
Date 4/13/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Floorbeam Capacities

Non-composite Capacities*		
	AB	AI
M	1814.70 k-ft	1814.70 k-ft
V	442.00 k	442.00 k

*Compact Section

$F_y =$	33.00 ksi
---------	------------------

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

As-Built Moments and Shears						
	DL	HS20	2F1	3F1	4F1	5C1
M	172.12 k-ft	445.93 k-ft	196.38 k-ft	299.05 k-ft	347.66 k-ft	374.76 k-ft
V	30.33 k	34.10 k	15.02 k	22.87 k	26.58 k	28.66 k

As-Built Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.64	---	---	---	---
Operating M	2.74	6.23	4.09	3.52	3.27
As-Inspected Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.64	---	---	---	---
Operating M	2.74	6.23	4.09	3.52	3.27
As-Built Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	5.44	---	---	---	---
Operating V	9.08	20.62	13.54	11.65	10.8
As-Inspected Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	5.44	---	---	---	---
Operating V	9.08	20.62	13.54	11.65	10.8

Controlling Rating Factors and Tonnage						
	HS20 Inventory	HS20 Operating	2F1 Operating	3F1 Operating	4F1 Operating	5C1 Operating
Rating Factor	1.64	2.74	6.23	4.09	3.52	3.27
Tonnage (US Tons)	59.04	98.64	93.45	94.07	95.04	130.8



Calculated: FKL Date: 3/19/2012
 Checked: PJP Date: 4/12/2012

CUY-2-1441 Load Rating Analysis - As-Built
Main Ave Bridge
East Approach Fwd Section - Bent 9

Column: C409

Section Properties 21WF68

A =	20.020	in ²	I _x =	1478.300	in ⁴
h =	21.130	in	S _x =	139.900	in ³
b _f =	8.270	in	r _x =	8.590	in
t _f =	0.685	in	I _y =	60.400	in ⁴
t _w =	0.430	in	S _y =	14.600	in ³
			r _y =	1.740	in
F _y =	33.0	ksi	Z	157.8	in ³
E =	29000	ksi			
L _{cx} =	144.34	in			
L _{cy} =	75.09	in			
K _x =	0.800	AASHTO Appendix C			
K _y =	0.800	AASHTO Appendix C			

Axial Loading

$$P_u = 0.85 A_s F_{cr}$$

AASHTO 10.54 Concentrically Loaded Columns

$$F_{cr} = F_y \left(1 - \frac{F_y}{4\pi^2 E} \left(\frac{KL_c}{r} \right)^2 \right)$$

$$\text{For: } \frac{KL_c}{r} \leq \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$F_{cr} = \frac{\pi^2 E}{\left(\frac{KL_c}{r} \right)^2}$$

$$\text{For: } \frac{KL_c}{r} > \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$KL/r_y = 34.523 < 131.706$$

$$KL/r_x = 13.442 < 131.706$$

$$F_{CR} = 31.866 \text{ ksi}$$

$$P_u = 542.3 \text{ k}$$



Calculated: FKL Date: 3/19/2012
 Checked: PJP Date: 4/12/2012

CUY-2-1441 Load Rating Analysis - As-Built
Main Ave Bridge

East Approach Fwd Section - Bent 9

Axial Loading and Bending

Column: C409

AASHTO 10.54.2 Combined Axial Load and Bending

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_e}\right)} \leq 1.0$$

$$= 0.6 + 0.4$$

a = 0 **When moment is small assume a = 0
 C = 0.600

$$F_e = \frac{E\pi^2}{\left(\frac{KL_c}{r}\right)^2}$$

$F_{ex} = 1583.999 \text{ ksi}$
 $F_{ey} = 240.148 \text{ ksi}$

Column Moment Capacity

Weak Axis Bending

$M_u = F_y S_y$ For Non-Compact Section

$M_{uy} = 40.2 \text{ k-ft}$

CUY-2-1441 Load Rating Analysis - As-Built

Main Ave Bridge

East Approach Forward Section - Column 409 Ratings



Calculated:

FKL 3/19/2012

Checked:

PJP 4/12/2012

Column Loading

	DL	HS-20	2F1	3F1	4F1	5C1
Max Axial	166.46	181.53	79.96	121.75	141.54	152.57
Moment	0.01	8.29	3.74	4.71	6.53	7.02
Axial	165.61	102.413	45.11	68.68	79.84	86.06
Max Moment	0.01	10.782	4.81	7.29	8.45	9.10

DL Factor

1.30

LL Factor

2.17 INV

1.30 OPER

Factored Loads

Axial Force

Moment

Capacities

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_c}\right)} \leq 1.0$$

Load Case	Member	Axial Force		Moment		P _u	M _u	A _s F _{ev}	Condition Equation	RF
		Dead Load	Max. LL + I	Dead Load	Max LL + I					
HS20 INV	C409	216.398	393.32	0.01	17.96	542.30	40.20	4807.77	1.00	0.59
HS20 INV	C409	215.293	221.89	0.01	23.36	542.30	40.20	4807.77	1.00	0.76
HS20 OPR	C409	216.398	235.99	0.01	10.78	542.30	40.20	4807.77	1.00	0.98
HS20 OPR	C409	215.293	133.14	0.01	14.02	542.30	40.20	4807.77	1.00	1.27
2F1	C409	216.398	103.95	0.01	4.86	542.30	40.20	4807.77	1.00	2.21
2F1	C409	215.293	58.64	0.01	6.25	542.30	40.20	4807.77	1.00	2.88
3F1	C409	216.398	158.28	0.01	6.12	542.30	40.20	4807.77	1.00	1.53
3F1	C409	215.293	89.28	0.01	9.48	542.30	40.20	4807.77	1.00	1.89
4F1	C409	216.398	184.00	0.01	8.49	542.30	40.20	4807.77	1.00	1.25
4F1	C409	215.293	103.79	0.01	10.99	542.30	40.20	4807.77	1.00	1.63
5C1	C409	216.398	198.34	0.01	9.13	542.30	40.20	4807.77	1.00	1.16
5C1	C409	215.293	111.88	0.01	11.83	542.30	40.20	4807.77	1.00	1.51

Knee braces added in rehabilitation cause bending about the weak axis. Original design and details probably treated this member as axial only.

Load Case	Controlling RF
HS20 INV	0.59
HS20 OPR	0.98
2F1	2.21
3F1	1.53
4F1	1.25
5C1	1.16



Calculated: FKL Date: 3/19/2012

Checked: PJP Date: 4/12/2012

CUY-2-1441 Load Rating Analysis - As-Built

Main Ave Bridge

East Approach Fwd Section - Bent 9

Column:	C309
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Section Properties 21WF112

A =	32.930	in ²	I _x =	2620.600	in ⁴
h =	21.000	in	S _x =	249.600	in ³
b _f =	13.000	in	r _x =	8.920	in
t _f =	0.865	in	I _y =	289.700	in ⁴
t _w =	0.527	in	S _y =	44.600	in ³
			r _y =	2.960	in
F _y =	33.0	ksi	Z _x =	275.3	in ³
E =	29000	ksi			
L _{cx} =	188.51	in			
L _{cy} =	308.87	in			
K _x =	0.650	AASHTO Appendix C			
K _y =	0.650	AASHTO Appendix C			

Axial Loading

$$P_u = 0.85 A_s F_{cr}$$

AASHTO 10.54 Concentrically Loaded Columns

$$F_{cr} = F_y \left(1 - \frac{F_y}{4\pi^2 E} \left(\frac{KL_c}{r} \right)^2 \right)$$

$$\text{For: } \frac{KL_c}{r} \leq \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$F_{cr} = \frac{\pi^2 E}{\left(\frac{KL_c}{r} \right)^2}$$

$$\text{For: } \frac{KL_c}{r} > \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$KL/r_y = 67.826 < 131.706$$

$$KL/r_x = 13.737 < 131.706$$

$$F_{CR} = 28.624 \text{ ksi}$$

$P_u = 801.2 \text{ k}$



Calculated: FKL Date: 3/19/2012

Checked: PJP Date: 4/12/2012

CUY-2-1441 Load Rating Analysis - As-Built**Main Ave Bridge****East Approach Fwd Section - Bent 9****Column: C309**Axial Loading and Bending

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_e}\right)} \leq 1.0$$

AASHTO 10.54.2 Combined Axial Load and Bending

$$= 0.6 + 0.4$$

$$a = 0 \quad \text{**When moment is small assume } a = 0$$

$$C = 0.600$$

$$F_e = \frac{E\pi^2}{\left(\frac{KL_c}{r}\right)^2} \quad \begin{array}{l} F_{ex} = 1516.845 \text{ ksi} \\ F_{ey} = 62.217 \text{ ksi} \end{array}$$

Column Compactness Check $M_u = F_y Z$ For Compact Section $M_u = F_y S$ For Non-Compact Section

$$\frac{b}{t} \leq \frac{4110}{\sqrt{F_y}}$$

$$15.029 < 22.625$$

$$\frac{D}{t_w} \leq \frac{19230}{\sqrt{F_y}}$$

$$36.565 < 105.858$$

$$\frac{L}{r_y} \leq \frac{\left(3.6 - 2.2 \frac{M_1}{M_u}\right) \times 10^6}{F_y}$$

$$104.347 < 109.091$$

Column Moment Capacity

Compact Section

$$M_{uy} = 757.1 \text{ k-ft}$$

CUY-2-1441 Load Rating Analysis - As-Built

Main Ave Bridge

East Approach Forward Section - Column 309 Ratings



Calculated:

FKL 3/19/2012

Checked:

PJP 4/12/2012

Column Loading

	DL	HS-20	2F1	3F1	4F1	5C1
Max Axial	109.23	158.42	69.80	106.27	123.53	133.15
Moment	1.37	57.665	25.41	38.68	44.97	48.47
Axial	106.37	77.382	34.12	51.93	60.36	65.06
Max Moment	81.75	138.927	61.23	93.21	108.35	116.78

DL Factor
LL Factor

1.30
2.17 INV
1.30 OPER

Factored Loads				Capacities		
Axial Force		Moment		P _u	M _u	A _s F _{ex}
Dead Load	Max. LL + I	Dead Load	Max LL + I			

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_c}\right)} \leq 1.0$$

Load Case	Member	Dead Load kips	Max. LL + I kips	Dead Load k-ft	Max LL + I k-ft	P _u kips	M _u k-ft	A _s F _{ex} kips	Condition Equation	RF
HS20 INV	C309	141.999	343.24	1.78	124.94	801.20	757.10	49949.70	1.00	1.55
HS20 INV	C309	138.281	167.66	106.28	301.01	801.20	757.10	49949.70	1.00	1.65
HS20 OPR	C309	141.999	205.95	1.78	74.96	801.20	757.10	49949.70	1.00	2.59
HS20 OPR	C309	138.281	100.60	106.28	180.61	801.20	757.10	49949.70	1.00	2.75
2F1	C309	141.999	90.74	1.78	33.03	801.20	757.10	49949.70	1.00	5.88
2F1	C309	138.281	44.36	106.28	79.60	801.20	757.10	49949.70	1.00	6.25
3F1	C309	141.999	138.15	1.78	50.28	801.20	757.10	49949.70	1.00	3.86
3F1	C309	138.281	67.51	106.28	121.17	801.20	757.10	49949.70	1.00	4.10
4F1	C309	141.999	160.59	1.78	58.46	801.20	757.10	49949.70	1.00	3.32
4F1	C309	138.281	78.47	106.28	140.86	801.20	757.10	49949.70	1.00	3.53
5C1	C309	141.999	173.10	1.78	63.01	801.20	757.10	49949.70	1.00	3.08
5C1	C309	138.281	84.58	106.28	151.81	801.20	757.10	49949.70	1.00	3.27

Load Case	Controlling RF
HS20 INV	1.55
HS20 OPR	2.59
2F1	5.88
3F1	3.86
4F1	3.32
5C1	3.08



Calculated: FKL Date: 3/19/2012

Checked: PJP Date: 4/12/2012

CUY-2-1441 Load Rating Analysis - As-Built

Main Ave Bridge

East Approach Fwd Section - Bent 9

Column:	C209
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Section Properties 24WF130

A =	38.210	in ²	I _x =	4009.500	in ⁴
h =	24.250	in	S _x =	330.700	in ³
b _f =	14.000	in	r _x =	10.240	in
t _f =	0.900	in	I _y =	375.200	in ⁴
t _w =	0.565	in	S _y =	53.600	in ³
			r _y =	3.130	in
F _y =	33.0	ksi	Z _x =	365.4	in ³
E =	29000	ksi			
L _{cx} =	117.00	in			
L _{cy} =	303.97	in			
K _x =	0.650	AASHTO Appendix C			
K _y =	0.650	AASHTO Appendix C			

Axial Loading

$$P_u = 0.85 A_s F_{cr}$$

AASHTO 10.54 Concentrically Loaded Columns

$$F_{cr} = F_y \left(1 - \frac{F_y}{4\pi^2 E} \left(\frac{KL_c}{r} \right)^2 \right)$$

$$\text{For: } \frac{KL_c}{r} \leq \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$F_{cr} = \frac{\pi^2 E}{\left(\frac{KL_c}{r} \right)^2}$$

$$\text{For: } \frac{KL_c}{r} > \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$KL/r_y = 63.124 < 131.706$$

$$KL/r_x = 7.427 < 131.706$$

$$F_{CR} = 29.210 \text{ ksi}$$

$P_u = 948.7 \text{ k}$



Calculated: FKL Date: 3/19/2012

Checked: PJP Date: 4/12/2012

CUY-2-1441 Load Rating Analysis - As-Built**Main Ave Bridge****East Approach Fwd Section - Bent 9****Column: C209**Axial Loading and Bending

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_e}\right)} \leq 1.0$$

AASHTO 10.54.2 Combined Axial Load and Bending

$$= 0.6 + 0.4$$

$$a = 0 \quad \text{**When moment is small assume } a = 0$$

$$C = 0.600$$

$$F_e = \frac{E\pi^2}{\left(\frac{KL_c}{r}\right)^2} \quad \begin{array}{l} F_{ex} = 5189.186 \text{ ksi} \\ F_{ey} = 71.830 \text{ ksi} \end{array}$$

Column Compactness Check $M_u = F_y Z$ For Compact Section $M_u = F_y S$ For Non-Compact Section

$$\frac{b}{t} \leq \frac{4110}{\sqrt{F_y}}$$

$$15.556 < 22.625$$

$$\frac{D}{t_w} \leq \frac{19230}{\sqrt{F_y}}$$

$$39.735 < 105.858$$

$$\frac{L}{r_y} \leq \frac{\left(3.6 - 2.2 \frac{M_1}{M_u}\right) \times 10^6}{F_y}$$

$$97.114 < 109.091$$

Column Moment Capacity

Compact Section

$$M_{ux} = 1004.9 \text{ k-ft}$$

CUY-2-1441 Load Rating Analysis - As-Built

Main Ave Bridge

East Approach Forward Section - Column 209 Ratings



Calculated:

FKL 3/19/2012

Checked:

PJP 4/12/2012

Column Loading

	DL	HS-20	2F1	3F1	4F1	5C1
Max Axial	188.49	169.53	74.70	113.72	132.20	142.49
Moment	3.34	31.51	13.89	21.14	24.58	26.49
Axial	187.15	98.46	43.38	66.05	76.78	82.76
Max Moment	3.87	237.74	104.70	159.45	185.36	199.81

DL Factor

1.30

LL Factor

2.17 INV

1.30 OPER

Factored Loads

Axial Force

Moment

Capacities

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_c}\right)} \leq 1.0$$

Load Case	Member	Axial Force		Moment		Capacities			Condition Equation	RF
		Dead Load	Max. LL + I	Dead Load	Max LL + I	P _u	M _u	A _s F _c		
HS20 INV	C209	245.037	367.32	4.34	68.27	948.70	1004.90	198278.79	1.00	1.73
HS20 INV	C209	243.295	213.33	5.03	515.10	948.70	1004.90	198278.79	1.00	1.39
HS20 OPR	C209	245.037	220.39	4.34	40.96	948.70	1004.90	198278.79	1.00	2.87
HS20 OPR	C209	243.295	128.00	5.03	309.06	948.70	1004.90	198278.79	1.00	2.31
2F1	C209	245.037	97.11	4.34	18.06	948.70	1004.90	198278.79	1.00	6.52
2F1	C209	243.295	56.39	5.03	136.11	948.70	1004.90	198278.79	1.00	5.25
3F1	C209	245.037	147.84	4.34	27.48	948.70	1004.90	198278.79	1.00	4.29
3F1	C209	243.295	85.87	5.03	207.29	948.70	1004.90	198278.79	1.00	3.45
4F1	C209	245.037	171.86	4.34	31.95	948.70	1004.90	198278.79	1.00	3.69
4F1	C209	243.295	99.81	5.03	240.97	948.70	1004.90	198278.79	1.00	2.97
5C1	C209	245.037	185.24	4.34	34.44	948.70	1004.90	198278.79	1.00	3.42
5C1	C209	243.295	107.59	5.03	259.75	948.70	1004.90	198278.79	1.00	2.75

Load Case	Controlling RF
HS20 INV	1.39
HS20 OPR	2.31
2F1	5.25
3F1	3.45
4F1	2.97
5C1	2.75



Calculated: FKL Date: 3/19/2012
 Checked: PJP Date: 4/12/2012

CUY-2-1441 Load Rating Analysis - As-Built
Main Ave Bridge
East Approach Fwd Section - Bent 9

Column: C109

Section Properties 21WF112

A =	32.930	in ²	I _x =	2620.600	in ⁴
h =	21.000	in	S _x =	249.600	in ³
b _f =	13.000	in	r _x =	8.920	in
t _f =	0.865	in	I _y =	289.700	in ⁴
t _w =	0.527	in	S _y =	44.600	in ³
			r _y =	2.960	in
F _y =	33.0	ksi	Z _x =	275.3	in ³
E =	29000	ksi			
L _{cx} =	210.23	in			
L _{cy} =	319.38	in			
K _x =	0.650	AASHTO Appendix C			
K _y =	0.650	AASHTO Appendix C			

Axial Loading

$$P_u = 0.85 A_s F_{cr}$$

AASHTO 10.54 Concentrically Loaded Columns

$$F_{cr} = F_y \left(1 - \frac{F_y}{4\pi^2 E} \left(\frac{KL_c}{r} \right)^2 \right)$$

For: $\frac{KL_c}{r} \leq \sqrt{\frac{2\pi^2 E}{F_y}}$

$$F_{cr} = \frac{\pi^2 E}{\left(\frac{KL_c}{r} \right)^2}$$

For: $\frac{KL_c}{r} > \sqrt{\frac{2\pi^2 E}{F_y}}$

$$KL/r_y = 70.135 < 131.706$$

$$KL/r_x = 15.319 < 131.706$$

$$F_{CR} = 28.321 \text{ ksi}$$

$$P_u = 792.7 \text{ k}$$



Calculated: FKL Date: 3/19/2012

Checked: PJP Date: 4/12/2012

CUY-2-1441 Load Rating Analysis - As-Built**Main Ave Bridge****East Approach Fwd Section - Bent 9****Column: C109**Axial Loading and Bending

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_e}\right)} \leq 1.0$$

AASHTO 10.54.2 Combined Axial Load and Bending

$$= 0.6 + 0.4$$

$$a = 0 \quad \text{**When moment is small assume } a = 0$$

$$C = 0.600$$

$$F_e = \frac{E\pi^2}{\left(\frac{KL_c}{r}\right)^2} \quad \begin{array}{l} F_{ex} = 1219.578 \text{ ksi} \\ F_{ey} = 58.188 \text{ ksi} \end{array}$$

Column Compactness Check $M_u = F_y Z$ For Compact Section $M_u = F_y S$ For Non-Compact Section

$$\frac{b}{t} \leq \frac{4110}{\sqrt{F_y}}$$

$$15.029 < 22.625$$

$$\frac{D}{t_w} \leq \frac{19230}{\sqrt{F_y}}$$

$$36.565 < 105.858$$

$$\frac{L}{r_y} \leq \frac{\left(3.6 - 2.2 \frac{M_1}{M_u}\right) \times 10^6}{F_y}$$

$$107.899 < 109.091$$

Column Moment Capacity

Compact Section

$$M_{uy} = 757.1 \text{ k-ft}$$

CUY-2-1441 Load Rating Analysis - As-Built

Main Ave Bridge

East Approach Forward Section - Column 109 Ratings



Calculated:

FKL 3/19/2012

Checked:

PJP 4/12/2012

Column Loading

	DL	HS-20	2F1	3F1	4F1	5C1
Max Axial	176.66	168.32	74.17	112.92	131.26	141.48
Moment	3.75	34.94	15.19	23.13	26.89	28.99
Axial	171.81	76	33.49	50.98	59.26	63.87
Max Moment	42.16	227.92	100.40	152.87	177.71	191.56

DL Factor

1.30

LL Factor

2.17 INV

1.30 OPER

Factored Loads

Axial Force

Moment

Capacities

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_c}\right)} \leq 1.0$$

Load Case	Member	Axial Force		Moment		P _u	M _u	A _s F _{ex}	Condition Equation	RF
		Dead Load	Max. LL + I	Dead Load	Max LL + I					
HS20 INV	C109	229.658	364.69	4.88	75.70	792.70	757.10	40160.72	1.00	1.36
HS20 INV	C109	223.353	164.67	54.81	493.83	792.70	757.10	40160.72	1.00	1.12
HS20 OPR	C109	229.658	218.82	4.88	45.42	792.70	757.10	40160.72	1.00	2.26
HS20 OPR	C109	223.353	98.80	54.81	296.30	792.70	757.10	40160.72	1.00	1.86
2F1	C109	229.658	96.42	4.88	19.75	792.70	757.10	40160.72	1.00	5.13
2F1	C109	223.353	43.54	54.81	130.52	792.70	757.10	40160.72	1.00	4.23
3F1	C109	229.658	146.80	4.88	30.07	792.70	757.10	40160.72	1.00	3.37
3F1	C109	223.353	66.27	54.81	198.73	792.70	757.10	40160.72	1.00	2.78
4F1	C109	229.658	170.64	4.88	34.96	792.70	757.10	40160.72	1.00	2.90
4F1	C109	223.353	77.04	54.81	231.02	792.70	757.10	40160.72	1.00	2.39
5C1	C109	229.658	183.92	4.88	37.69	792.70	757.10	40160.72	1.00	2.69
5C1	C109	223.353	83.03	54.81	249.03	792.70	757.10	40160.72	1.00	2.22

Load Case	Controlling RF
HS20 INV	1.12
HS20 OPR	1.86
2F1	4.23
3F1	2.78
4F1	2.39
5C1	2.22



Made By PJP
 Checked By MTN

Date 3/21/2012
 Date 4/9/2012

Job No. P402110046
 Sheet No. _____

Calculations For: **CUY-2-1441 - East Approach Forward Section**

Bent 10 Reactions

Dead Load Reactions from MDX

Unit 7		
Stringer	DL1	DL2
F1-7	9.75	1.14
S1-7	8.28	1.14
S2-7	8.43	1.14
S3-7	9.11	1.14
S4-7	9.11	1.14
S5-7	9.11	1.14
S6-7	9.11	1.14
S7-7	9.09	1.14
S8-7	9.11	1.14
S9-7	9.11	1.14
S10-7	9.11	1.14
S11-7	9.11	1.14
S12-7	9.11	1.14
S13-7	9.11	1.14
S14-7	9.02	1.14
S17-7	11.71	1.52
S18-7	11.71	1.52
S19-7	11.24	1.52
S20-7	10.67	1.52
F2-7	7.34	1.17

Unit 8		
Stringer	DL1	DL2
F1-8	10.12	1.02
S1-8	8.62	1.02
S2-8	8.77	1.02
S3-8	9.48	1.02
S4-8	9.48	1.02
S5-8	9.48	1.02
S6-8	9.48	1.02
S7-8	9.47	1.02
S8-8	9.48	1.02
S9-8	9.48	1.02
S10-8	9.48	1.02
S11-8	9.48	1.02
S12-8	9.48	1.02
S13-8	9.48	1.02
S14-8	9.20	1.02
S15-8	8.92	1.02
S16-8	9.09	1.02
S17-8	9.33	1.03
S18-8	9.33	1.03
S19-8	7.76	1.04
F2-8	7.91	1.05

Bent 10 Reaction	
Stringer	Total DL
F1-7 + F1-8	22.03
S1-7 + S1-8	19.06
S2-7 + S2-8	19.36
S3-7 + S3-8	20.75
S4-7 + S4-8	20.75
S5-7 + S5-8	20.75
S6-7 + S6-8	20.75
S7-7 + S7-8	20.72
S8-7 + S8-8	20.75
S9-7 + S9-8	20.75
S10-7 + S10-8	20.75
S11-7 + S11-8	20.75
S12-7 + S12-8	20.75
S13-7 + S13-8	20.75
S14-7 + S14-8	20.38
S17-7 + S15-8	23.17
S18-7 + S16-8	23.34
+ S17-8	10.36
S19-7 +	12.76
+ S18-8	10.36
S20-7 +	12.19
+ S19-8	8.80
F2-7 + F2-8	17.47

Live Load Reactions from STAAD

	LL	2 lane LL+I	3 lane	4 lane
HS-20	27.41	35.7	32.1	26.8
2F1	13.46	17.5	15.8	13.2
3F1	20.07	26.1	23.5	19.6
4F1	22.68	29.5	26.6	22.2
5C1	20.76	27.0	24.3	20.3

Impact Factor
 Span 10 40.000
 Span 11 31.505
 $L_{avg} = 35.75$
 3 lane reduction 0.9
 4 + reduction 0.75
 Impact = 1.300

	LL	
HS-20	27.41	1
2F1	13.46	0.491062
3F1	20.07	0.732215
4F1	22.68	0.827435
5C1	20.76	0.757388

Reactions per wheel line at Bent 10

```

*****
*
*          STAAD.Pro          *
*          Version 2007      Build 05      *
*          Proprietary Program of          *
*          Bentley Systems, Inc.          *
*          Date=   MAR 26, 2012          *
*          Time=   11: 2:44              *
*
*          USER ID: TranSystems          *
*****

```

```

1. STAAD SPACE
INPUT FILE: Bent 10 Truck Loads.STD
2. START JOB INFORMATION
3. ENGINEER DATE 3/20/11
4. JOB NAME CUY-2-1441 EAST APPROACH FWD SECTION
5. JOB CLIENT ODOT
6. JOB NO P402110046
7. JOB REV REV 0
8. JOB REF BENT 10 TRUCK LOADS
9. ENGINEER NAME PJP
10. END JOB INFORMATION
11. INPUT WIDTH 79
12. UNIT FEET KIP
13. JOINT COORDINATES
14. 11 -80 0 1; 12 -40 0 1; 13 0 0 1; 14 0 -0.1 1; 15 31.505 0 1; 21 -80 0 2
15. 22 -40 0 2; 23 0 0 2; 24 0 -0.1 2; 25 31.505 0 2; 31 -80 0 3; 32 -40 0 3
16. 33 0 0 3; 34 0 -0.1 3; 35 31.505 0 3; 41 -80 0 4; 42 -40 0 4; 43 0 0 4
17. 44 0 -0.1 4; 45 31.505 0 4; 51 -80 0 5; 52 -40 0 5; 53 0 0 5; 54 0 -0.1 5
18. 55 31.505 0 5
19. MEMBER INCIDENCES
20. 11 11 12; 12 12 13; 13 13 14; 14 13 15; 21 21 22; 22 22 23; 23 23 24; 24 23 25
21. 31 31 32; 32 32 33; 33 33 34; 34 33 35; 41 41 42; 42 42 43; 43 43 44; 44 43 45
22. 51 51 52; 52 52 53; 53 53 54; 54 53 55
23. MEMBER RELEASE
24. 12 22 32 42 52 END MZ
25. 14 24 34 44 54 START MZ
26. DEFINE MATERIAL START
27. ISOTROPIC STEEL
28. E 4.176E+006
29. POISSON 0.3
30. DENSITY 0.489024
31. ALPHA 6.5E-006
32. DAMP 0.03
33. END DEFINE MATERIAL
34. MEMBER PROPERTY AMERICAN
35. 11 21 31 41 51 TABLE ST W27X84
36. 12 13 22 23 32 33 42 43 52 53 TABLE ST W27X84
37. 14 24 34 44 54 TABLE ST W24X84
38. CONSTANTS
39. MATERIAL STEEL ALL
40. SUPPORTS

```

STAAD SPACE

-- PAGE NO. 2

41. 14 24 34 44 54 FIXED
 42. 11 12 15 21 22 25 31 32 35 41 42 45 51 52 55 FIXED BUT FX MZ
 43. DEFINE MOVING LOAD
 44. *HS20 TRUCK
 45. TYPE 1 LOAD 16 16 4
 46. DIST 14 14
 47. *TYPE 2F1 TRUCK
 48. TYPE 2 LOAD 10 5
 49. DIST 10
 50. *TYPE 3F1 TRUCK
 51. TYPE 3 LOAD 8.5 8.5 6
 52. DIST 4 10
 53. *TYPE 4F1 TRUCK
 54. TYPE 4 LOAD 7 7 7 6
 55. DIST 4 4 10
 56. *TYPE 5C1 TRUCK
 57. TYPE 5 LOAD 8.5 8.5 8.5 8.5 6
 58. DIST 4 31 4 12
 59. *HS20 TRAVELING UP STATION
 60. LOAD GENERATION 29
****WARNING- THIS STRUCTURE IS DISJOINTED. IGNORE IF
 MASTER/SLAVE OR IF UNCONNECTED JOINTS.**
 61. TYPE 1 -28 0 1 XINC 1
 62. *HS20 TRAVELING DOWN STATION
 63. LOAD GENERATION 29
 64. TYPE 1 28 0 1 XINC -1.
 65. *TYPE 2F1 TRAVELING UP STATION
 66. LOAD GENERATION 11
 67. TYPE 2 -10 0 2 XINC 1
 68. *TYPE 2F1 TRAVELING DOWN STATION
 69. LOAD GENERATION 11
 70. TYPE 2 10 0 2 XINC -1.
 71. *TYPE 3F1 TRAVELING UP STATION
 72. LOAD GENERATION 15
 73. TYPE 3 -14 0 3 XINC 1
 74. *TYPE 3F1 TRAVELING DOWN STATION
 75. LOAD GENERATION 15
 76. TYPE 3 14 0 3 XINC -1.
 77. *TYPE 4F1 TRAVELING UP STATION
 78. LOAD GENERATION 19
 79. TYPE 4 -18 0 4 XINC 1
 80. *TYPE 4F1 TRAVELING DOWN STATION
 81. LOAD GENERATION 19
 82. TYPE 4 18 0 4 XINC -1.
 83. *TYPE 5C1 TRAVELING UP STATION
 84. LOAD GENERATION 52
 85. TYPE 5 -51 0 5 XINC 1
 86. *TYPE 5 TRAVELING DOWN STATION
 87. LOAD GENERATION 52
****WARNING-A MOVING LOAD THAT WOULD HAVE BEEN APPLIED BEYOND THE X AND Z RANGES
 OF THE STRUCTURE HAS BEEN IGNORED. CASE= 181 WHEEL 5 OF 5**
****WARNING-A MOVING LOAD THAT WOULD HAVE BEEN APPLIED BEYOND THE X AND Z RANGES
 OF THE STRUCTURE HAS BEEN IGNORED. CASE= 182 WHEEL 5 OF 5**
****WARNING-A MOVING LOAD THAT WOULD HAVE BEEN APPLIED BEYOND THE X AND Z RANGES
 OF THE STRUCTURE HAS BEEN IGNORED. CASE= 183 WHEEL 5 OF 5**

STAAD SPACE

-- PAGE NO. 3

**WARNING-A MOVING LOAD THAT WOULD HAVE BEEN APPLIED BEYOND THE X AND Z RANGES
 OF THE STRUCTURE HAS BEEN IGNORED. CASE= 184 WHEEL 5 OF 5

**WARNING-A MOVING LOAD THAT WOULD HAVE BEEN APPLIED BEYOND THE X AND Z RANGES
 OF THE STRUCTURE HAS BEEN IGNORED. CASE= 185 WHEEL 5 OF 5

**WARNING-A MOVING LOAD THAT WOULD HAVE BEEN APPLIED BEYOND THE X AND Z RANGES
 OF THE STRUCTURE HAS BEEN IGNORED. CASE= 186 WHEEL 5 OF 5

**WARNING-A MOVING LOAD THAT WOULD HAVE BEEN APPLIED BEYOND THE X AND Z RANGES
 OF THE STRUCTURE HAS BEEN IGNORED. CASE= 187 WHEEL 5 OF 5

**WARNING-A MOVING LOAD THAT WOULD HAVE BEEN APPLIED BEYOND THE X AND Z RANGES
 OF THE STRUCTURE HAS BEEN IGNORED. CASE= 188 WHEEL 5 OF 5

**WARNING-A MOVING LOAD THAT WOULD HAVE BEEN APPLIED BEYOND THE X AND Z RANGES
 OF THE STRUCTURE HAS BEEN IGNORED. CASE= 189 WHEEL 5 OF 5

**WARNING-A MOVING LOAD THAT WOULD HAVE BEEN APPLIED BEYOND THE X AND Z RANGES
 OF THE STRUCTURE HAS BEEN IGNORED. CASE= 190 WHEEL 5 OF 5

*ADDITIONAL MOVING LOAD MESSAGES SUPPRESSED

*ADDITIONAL MOVING LOAD MESSAGES SUPPRESSED

88. TYPE 5 51 0 5 XINC -1.

89. PERFORM ANALYSIS

P R O B L E M S T A T I S T I C S

NUMBER OF JOINTS/MEMBER+ELEMENTS/SUPPORTS = 25/ 20/ 20

SOLVER USED IS THE OUT-OF-CORE BASIC SOLVER

ORIGINAL/FINAL BAND-WIDTH= 2/ 2/ 8 DOF

TOTAL PRIMARY LOAD CASES = 252, TOTAL DEGREES OF FREEDOM = 60

SIZE OF STIFFNESS MATRIX = 1 DOUBLE KILO-WORDS

REQD/AVAIL. DISK SPACE = 12.5/ 518815.1 MB

90. PRINT MAXFORCE ENVELOPE NSECTION 1 LIST 13

STAAD SPACE

-- PAGE NO. 4

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/			MZ/			FX	DIST	LD
	FZ	DIST	LD	MY	DIST	LD			
13 MAX	0.00	0.00	1	0.00	0.00	1	27.41 C	0.00	15
	0.00	0.00	1	0.00	0.00	1			
MIN	0.00	0.10	252	0.00	0.10	252	0.00	0.10	252
	0.00	0.10	252	0.00	0.10	252			

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

91. *HS20 MAX REACTION - LISTED ABOVE
 92. PRINT MAXFORCE ENVELOPE NSECTION 1 LIST 23

STAAD SPACE

-- PAGE NO. 5

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/	DIST	LD	MZ/	DIST	LD	FX	DIST	LD
	FZ	DIST	LD	MY	DIST	LD			
23 MAX	0.00	0.00	1	0.00	0.00	1	13.46 C	0.00	80
	0.00	0.00	1	0.00	0.00	1			
MIN	0.00	0.10	252	0.00	0.10	252	0.00	0.10	252
	0.00	0.10	252	0.00	0.10	252			

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

93. *TYPE 2F1 MAX REACTION - LISTED ABOVE

94. PRINT MAXFORCE ENVELOPE NSECTION 1 LIST 33

STAAD SPACE

-- PAGE NO. 6

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/	DIST	LD	MZ/	DIST	LD	FX	DIST	LD
	FZ	DIST	LD	MY	DIST	LD			
33 MAX	0.00	0.00	1	0.00	0.00	1	20.07 C	0.00	106
	0.00	0.00	1	0.00	0.00	1			
MIN	0.00	0.10	252	0.00	0.10	252	0.00	0.10	252
	0.00	0.10	252	0.00	0.10	252			

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

95. *TYPE 3F1 MAX REACTION - LISTED ABOVE

96. PRINT MAXFORCE ENVELOPE NSECTION 1 LIST 43

STAAD SPACE

-- PAGE NO. 7

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/	DIST	LD	MZ/	DIST	LD	FX	DIST	LD
	FZ	DIST	LD	MY	DIST	LD			
43 MAX	0.00	0.00	1	0.00	0.00	1	22.68 C	0.00	144
	0.00	0.00	1	0.00	0.00	1			
MIN	0.00	0.10	252	0.00	0.10	252	0.00	0.10	252
	0.00	0.10	252	0.00	0.10	252			

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

97. *TYPE 4F1 MAX REACTION - LISTED ABOVE
 98. PRINT MAXFORCE ENVELOPE NSECTION 1 LIST 53

STAAD SPACE

-- PAGE NO. 8

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/	DIST	LD	MZ/	DIST	LD	FX	DIST	LD
	FZ	DIST	LD	MY	DIST	LD			
53 MAX	0.00	0.00	1	0.00	0.00	1	20.76 C	0.00	165
	0.00	0.00	1	0.00	0.00	1			
MIN	0.00	0.10	252	0.00	0.10	252	0.00	0.10	148
	0.00	0.10	252	0.00	0.10	252			

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

99. *TYPE 5C1 MAX REACTION - LISTED ABOVE

100. FINISH

***** END OF THE STAAD.Pro RUN *****

**** DATE= MAR 26,2012 TIME= 11: 2:48 ****

```
*****
*           For questions on STAAD.Pro, please contact           *
*   Bentley Systems Offices at the following locations           *
*                                                                 *
*           Telephone           Web / Email           *
*                                                                 *
* USA:           +1 (714)974-2500           *
* CANADA        +1 (905)632-4771           detech@odandetech.com *
* UK            +44(1454)207-000           *
* SINGAPORE     +65 6225-6158           *
* EUROPE        +31 23 5560560           *
* INDIA         +91(033)4006-2021           *
* JAPAN         +81(03)5952-6500           http://www.ctc-g.co.jp *
* CHINA         +86 10 5929 7000           *
* THAILAND      +66(0)2645-1018/19 partha.p@reissoftwareth.com *
*                                                                 *
* Worldwide     http://selectservices.bentley.com/en-US/       *
*                                                                 *
*****
```




Job No P402110046	Sheet No 1	Rev
Part EAST APPROACH FORWARD SECTION		
Ref BENT 10		
By PJP	Date 21-Mar-12	Chd MTN
File BENT_10_LL.std	Date/Time 10-Apr-2012 12:29	

Software licensed to TranSystems

Job Title CUY-2-1441

Client ODOT



Y
Z-X

Load 1

```

*****
*
*          STAAD.Pro V8i SELECTseries1          *
*          Version  20.07.06.35                 *
*          Proprietary Program of              *
*          Bentley Systems, Inc.               *
*          Date=    APR 10, 2012               *
*          Time=    12:28:51                  *
*
*          USER ID: TranSystems                *
*****

```

```

1. STAAD SPACE DXF IMPORT OF 002_1441BENT_10.DXF
INPUT FILE: BENT_10_DL.STD
2. START JOB INFORMATION
3. ENGINEER DATE 21-MAR-12
4. JOB NAME CUY-2-1441
5. JOB CLIENT ODOT
6. JOB NO P402110046
7. JOB PART EAST APPROACH FORWARD SECTION
8. JOB REF BENT 10
9. ENGINEER NAME PJP
10. CHECKER NAME MTN
11. CHECKER DATE 9-APR-12
12. END JOB INFORMATION
13. INPUT WIDTH 79
14. UNIT FEET KIP
15. JOINT COORDINATES
16. 1 -17.8646 16.8692 0; 2 -12.083 22.6507 0; 3 -23.6248 22.6293 0
17. 4 10.1094 17.8793 0; 5 14.9308 22.7007 0; 6 5.30576 22.6829 0
18. 7 68.6094 17.9875 0; 8 63.8058 22.7911 0; 9 73.4308 22.8089 0
19. 10 39.3594 17.9334 0; 11 34.5558 22.737 0; 12 44.1808 22.7548 0
20. 13 -17.8646 12.49 0; 14 -17.8646 22.64 0; 15 10.1094 2.41 0
21. 16 10.1094 22.6918 0; 17 39.3594 1.76 0; 18 39.3594 22.7459 0; 19 68.6094 0 0
22. 20 68.6094 22.8 0; 21 -30.2969 22.617 0; 22 -27.4323 22.6223 0
23. 23 -24.2135 22.6283 0; 24 -22.4323 22.6316 0; 25 -17.4323 22.6408 0
24. 26 -12.4323 22.65 0; 27 -7.01563 22.6601 0; 28 -1.59896 22.6701 0
25. 29 4.25521 22.6809 0; 30 15.9635 22.7026 0; 31 21.8177 22.7134 0
26. 32 27.6719 22.7243 0; 33 33.526 22.7351 0; 34 45.1927 22.7567 0
27. 35 51.0469 22.7675 0; 36 56.901 22.7783 0; 37 62.7552 22.7892 0
28. 38 73.3802 22.8088 0; 39 79 22.8192 0
29. MEMBER INCIDENCES
30. 9 13 1; 10 1 14; 11 15 4; 12 4 16; 13 17 10; 14 10 18; 15 19 7; 16 7 20
31. 17 21 22; 18 22 23; 19 23 3; 20 3 24; 21 24 14; 22 14 25; 23 25 26; 24 26 2
32. 25 2 27; 26 27 28; 27 28 29; 28 29 6; 29 6 16; 30 16 5; 31 5 30; 32 30 31
33. 33 31 32; 34 32 33; 35 33 11; 36 11 18; 37 18 12; 38 12 34; 39 34 35; 40 35 36
34. 41 36 37; 42 37 8; 43 8 20; 44 20 38; 45 38 9; 46 9 39
35. DEFINE MATERIAL START
36. ISOTROPIC STEEL
37. E 4.176E+006
38. POISSON 0.3
39. DENSITY 0.489024
40. ALPHA 6E-006

```

41. DAMP 0.03
42. END DEFINE MATERIAL
43. MEMBER PROPERTY AMERICAN
44. 17 TO 46 TABLE ST W36X150
45. 9 10 TABLE ST W14X68
46. 11 12 TABLE ST W14X90
47. 13 TO 16 TABLE ST W14X82
48. CONSTANTS
49. BETA 90 MEMB 9 10
50. MATERIAL STEEL ALL
51. SUPPORTS
52. 15 17 19 FIXED
53. 13 PINNED
54. MEMBER RELEASE
55. 10 END MY
56. LOAD 1 LOADTYPE DEAD TITLE DEAD LOADS
57. SELFWEIGHT Y -1.05 LIST 9 TO 46
58. JOINT LOAD
59. *F1-7 + F1-8
60. 39 FY -22.03
61. *S1-7 + S1-8
62. 38 FY -19.06
63. *S2-7 + S2-8
64. 20 FY -19.36
65. *S3-7 + S3-8
66. 37 FY -20.75
67. *S4-7 + S4-8
68. 36 FY -20.75
69. *S5-7 + S5-8
70. 35 FY -20.75
71. *S6-7 + S6-8
72. 34 FY -20.75
73. *S7-7 + S7-8
74. 18 FY -20.72
75. *S8-7 + S8-8
76. 33 FY -20.75
77. *S9-7 + S9-8
78. 32 FY -20.75
79. *S10-7 + S10-8
80. 31 FY -20.75
81. *S11-7 + S11-8
82. 30 FY -20.75
83. *S12-7 + S12-8
84. 16 FY -20.75
85. *S13-7 + S13-8
86. 29 FY -20.75
87. *S14-7 + S14-8
88. 28 FY -20.38
89. *S17-7 + S15-8
90. 27 FY -23.17
91. *S18-7 + S16-8
92. 26 FY -23.34
93. *S17-8
94. 25 FY -10.36
95. *S19-7 +
96. 14 FY -12.76

DXF IMPORT OF 002_1441BENT_10.DXF

-- PAGE NO. 3

97. *+ S18-8
 98. 24 FY -10.36
 99. *S20-7 +
 100. 23 FY -12.19
 101. *S19-8
 102. 22 FY -8.8
 103. *F2-7 + F2-8
 104. 21 FY -17.47
 105. PDELTA 10 ANALYSIS

P R O B L E M S T A T I S T I C S

NUMBER OF JOINTS/MEMBER+ELEMENTS/SUPPORTS = 39/ 38/ 4

SOLVER USED IS THE OUT-OF-CORE BASIC SOLVER

ORIGINAL/FINAL BAND-WIDTH= 30/ 2/ 18 DOF
 TOTAL PRIMARY LOAD CASES = 1, TOTAL DEGREES OF FREEDOM = 213
 SIZE OF STIFFNESS MATRIX = 4 DOUBLE KILO-WORDS
 REQD/AVAIL. DISK SPACE = 12.1/ 514589.5 MB

++ Adjusting Displacements 12:28:51
 ++ Adjusting Displacements 12:28:51
 ++ Adjusting Displacements 12:28:51
 ++ Adjusting Displacements 12:28:51
 ++ Adjusting Displacements 12:28:51
 ++ Adjusting Displacements 12:28:51
 ++ Adjusting Displacements 12:28:51
 ++ Adjusting Displacements 12:28:51
 ++ Adjusting Displacements 12:28:51
 ++ Adjusting Displacements 12:28:51
 ++ Adjusting Displacements 12:28:51

106. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 17 TO 46

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
17 MAX	-17.47	0.00	1	50.69	2.86	1			
	0.00	0.00	1	0.00	0.00	1	0.03 T	0.00	1
MIN	-17.92	2.86	1	0.00	0.00	1			
	0.00	2.86	1	0.00	2.86	1	0.03 T	2.86	1
18 MAX	-26.72	0.00	1	137.52	3.22	1			
	0.00	0.00	1	0.00	0.00	1	0.05 T	0.00	1
MIN	-27.23	3.22	1	50.69	0.00	1			
	0.00	3.22	1	0.00	3.22	1	0.05 T	3.22	1
19 MAX	-39.42	0.00	1	160.75	0.59	1			
	0.00	0.00	1	0.00	0.00	1	0.07 T	0.00	1
MIN	-39.51	0.59	1	137.52	0.00	1			
	0.00	0.59	1	0.00	0.59	1	0.07 T	0.59	1
20 MAX	-39.51	0.00	1	207.98	1.19	1			
	0.00	0.00	1	0.00	0.00	1	0.08 T	0.00	1
MIN	-39.70	1.19	1	160.75	0.00	1			
	0.00	1.19	1	0.00	1.19	1	0.08 T	1.19	1
21 MAX	-50.06	0.00	1	438.28	4.57	1			
	0.00	0.00	1	0.00	0.00	1	0.09 T	0.00	1
MIN	-50.78	4.57	1	207.98	0.00	1			
	0.00	4.57	1	0.00	4.57	1	0.09 T	4.57	1
22 MAX	66.35	0.00	1	438.28	0.00	1			
	0.00	0.00	1	0.00	0.00	1	0.15 C	0.00	1
MIN	66.29	0.43	1	409.61	0.43	1			
	0.00	0.43	1	0.00	0.43	1	0.15 C	0.43	1
23 MAX	55.93	0.00	1	409.61	0.00	1			
	0.00	0.00	1	0.00	0.00	1	0.13 C	0.00	1
MIN	55.14	5.00	1	131.95	5.00	1			
	0.00	5.00	1	0.00	5.00	1	0.12 C	5.00	1
24 MAX	31.80	0.00	1	131.95	0.00	1			
	0.00	0.00	1	0.00	0.00	1	0.09 C	0.00	1
MIN	31.74	0.35	1	120.86	0.35	1			
	0.00	0.35	1	0.00	0.35	1	0.09 C	0.35	1
25 MAX	31.74	0.00	1	120.86	0.00	1			
	0.00	0.00	1	0.00	0.00	1	0.08 C	0.00	1

DXF IMPORT OF 002_1441BENT_10.DXF

-- PAGE NO. 5

MIN	30.94	5.07	1	-37.97	5.07	1				
	0.00	5.07	1	0.00	5.07	1	0.08 C	5.07	1	
26 MAX	7.77	0.00	1	-37.97	0.00	1				
	0.00	0.00	1	0.00	0.00	1	0.04 C	0.00	1	
MIN	6.92	5.42	1	-77.77	5.42	1				
	0.00	5.42	1	0.00	5.42	1	0.04 C	5.42	1	
27 MAX	-13.46	0.00	1	3.73	5.85	1				
	0.00	0.00	1	0.00	0.00	1	0.00 T	0.00	1	
MIN	-14.38	5.85	1	-77.77	0.00	1				
	0.00	5.85	1	0.00	5.85	1	0.00 T	5.85	1	
28 MAX	-35.13	0.00	1	40.73	1.05	1				
	0.00	0.00	1	0.00	0.00	1	0.04 T	0.00	1	
MIN	-35.30	1.05	1	3.73	0.00	1				
	0.00	1.05	1	0.00	1.05	1	0.04 T	1.05	1	
29 MAX	-35.30	0.00	1	212.10	4.80	1				
	0.00	0.00	1	0.00	0.00	1	0.04 T	0.00	1	
MIN	-36.06	4.80	1	40.73	0.00	1				
	0.00	4.80	1	0.00	4.80	1	0.04 T	4.80	1	
30 MAX	42.62	0.00	1	216.15	0.00	1				
	0.00	0.00	1	0.00	0.00	1	0.28 C	0.00	1	
MIN	41.86	4.82	1	12.49	4.82	1				
	0.00	4.82	1	0.00	4.82	1	0.28 C	4.82	1	
31 MAX	41.86	0.00	1	12.49	0.00	1				
	0.00	0.00	1	0.00	0.00	1	0.28 C	0.00	1	
MIN	41.70	1.03	1	-30.65	1.03	1				
	0.00	1.03	1	0.00	1.03	1	0.28 C	1.03	1	
32 MAX	20.95	0.00	1	-30.65	0.00	1				
	0.00	0.00	1	0.00	0.00	1	0.24 C	0.00	1	
MIN	20.03	5.85	1	-150.59	5.85	1				
	0.00	5.85	1	0.00	5.85	1	0.24 C	5.85	1	
33 MAX	-0.72	0.00	1	-143.65	5.85	1				
	0.00	0.00	1	0.00	0.00	1	0.20 C	0.00	1	
MIN	-1.65	5.85	1	-150.59	0.00	1				
	0.00	5.85	1	0.00	5.85	1	0.20 C	5.85	1	
34 MAX	-22.40	0.00	1	-9.83	5.85	1				
	0.00	0.00	1	0.00	0.00	1	0.16 C	0.00	1	
MIN	-23.32	5.85	1	-143.65	0.00	1				
	0.00	5.85	1	0.00	5.85	1	0.16 C	5.85	1	
35 MAX	-44.07	0.00	1	35.64	1.03	1				
	0.00	0.00	1	0.00	0.00	1	0.12 C	0.00	1	
MIN	-44.23	1.03	1	-9.83	0.00	1				
	0.00	1.03	1	0.00	1.03	1	0.12 C	1.03	1	
36 MAX	-44.23	0.00	1	249.93	4.80	1				
	0.00	0.00	1	0.00	0.00	1	0.12 C	0.00	1	

DXF IMPORT OF 002_1441BENT_10.DXF

-- PAGE NO. 6

MIN	-44.99	4.80	1	35.64	0.00	1			
	0.00	4.80	1	0.00	4.80	1	0.12 C	4.80	1
37 MAX	41.15	0.00	1	242.77	0.00	1			
	0.00	0.00	1	0.00	0.00	1	0.32 T	0.00	1
MIN	40.39	4.82	1	46.20	4.82	1			
	0.00	4.82	1	0.00	4.82	1	0.32 T	4.82	1
38 MAX	40.39	0.00	1	46.20	0.00	1			
	0.00	0.00	1	0.00	0.00	1	0.32 T	0.00	1
MIN	40.23	1.01	1	5.41	1.01	1			
	0.00	1.01	1	0.00	1.01	1	0.32 T	1.01	1
39 MAX	19.48	0.00	1	5.41	0.00	1			
	0.00	0.00	1	0.00	0.00	1	0.36 T	0.00	1
MIN	18.56	5.85	1	-105.94	5.85	1			
	0.00	5.85	1	0.00	5.85	1	0.36 T	5.85	1
40 MAX	-2.19	0.00	1	-90.41	5.85	1			
	0.00	0.00	1	0.00	0.00	1	0.40 T	0.00	1
MIN	-3.11	5.85	1	-105.94	0.00	1			
	0.00	5.85	1	0.00	5.85	1	0.40 T	5.85	1
41 MAX	-23.86	0.00	1	52.00	5.85	1			
	0.00	0.00	1	0.00	0.00	1	0.44 T	0.00	1
MIN	-24.79	5.85	1	-90.41	0.00	1			
	0.00	5.85	1	0.00	5.85	1	0.44 T	5.85	1
42 MAX	-45.54	0.00	1	99.93	1.05	1			
	0.00	0.00	1	0.00	0.00	1	0.48 T	0.00	1
MIN	-45.70	1.05	1	52.00	0.00	1			
	0.00	1.05	1	0.00	1.05	1	0.48 T	1.05	1
43 MAX	-45.70	0.00	1	321.28	4.80	1			
	0.00	0.00	1	0.00	0.00	1	0.48 T	0.00	1
MIN	-46.46	4.80	1	99.93	0.00	1			
	0.00	4.80	1	0.00	4.80	1	0.48 T	4.80	1
44 MAX	42.73	0.00	1	328.35	0.00	1			
	0.00	0.00	1	0.00	0.00	1	0.08 C	0.00	1
MIN	41.98	4.77	1	126.29	4.77	1			
	0.00	4.77	1	0.00	4.77	1	0.08 C	4.77	1
45 MAX	22.92	0.00	1	126.29	0.00	1			
	0.00	0.00	1	0.00	0.00	1	0.04 C	0.00	1
MIN	22.91	0.05	1	125.13	0.05	1			
	0.00	0.05	1	0.00	0.05	1	0.04 C	0.05	1
46 MAX	22.91	0.00	1	125.13	0.00	1			
	0.00	0.00	1	0.00	0.00	1	0.04 C	0.00	1
MIN	22.03	5.57	1	0.00	5.57	1			
	0.00	5.57	1	0.00	5.57	1	0.04 C	5.57	1

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

- 107. *FLOOR BEAM MAXIMUM FORCE RESULTS ABOVE
- 108. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 9 10

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
9 MAX	0.00	0.00	1	0.00	0.00	1			
	0.02	0.00	1	0.00	0.00	1	130.62 C	0.00	1
MIN	0.00	4.38	1	0.00	4.38	1			
	0.02	4.38	1	0.00	4.38	1	130.30 C	4.38	1
10 MAX	0.00	0.00	1	0.00	0.00	1			
	0.00	0.00	1	0.00	5.77	1	130.30 C	0.00	1
MIN	0.00	5.77	1	0.00	5.77	1			
	0.00	5.77	1	-0.12	5.19	1	129.89 C	5.77	1

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

109. *COLUMN 410 MAXIMUM FOECE RESULTS ABOVE

110. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 11 12

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
11 MAX	-0.18	0.00	1	3.28	15.47	1			
	0.00	0.00	1	0.00	0.00	1	101.34 C	0.00	1
MIN	-0.18	15.47	1	0.58	0.00	1			
	0.00	15.47	1	0.00	15.47	1	99.88 C	15.47	1
12 MAX	-0.18	0.00	1	4.05	4.81	1			
	0.00	0.00	1	0.00	0.00	1	99.88 C	0.00	1
MIN	-0.18	4.81	1	3.28	0.00	1			
	0.00	4.81	1	0.00	4.81	1	99.43 C	4.81	1

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

111. *COLUMN 310 MAXIMUM FOECE RESULTS ABOVE

112. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 13 14

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
13 MAX	0.60	0.00	1	5.53	0.00	1			
	0.00	0.00	1	0.00	0.00	1	108.66 C	0.00	1
MIN	0.60	16.17	1	-4.29	16.17	1			
	0.00	16.17	1	0.00	16.17	1	107.27 C	16.17	1
14 MAX	0.60	0.00	1	-4.29	0.00	1			
	0.00	0.00	1	0.00	0.00	1	107.27 C	0.00	1
MIN	0.60	4.81	1	-7.16	4.81	1			
	0.00	4.81	1	0.00	4.81	1	106.86 C	4.81	1

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

113. *COLUMN 210 MAXIMUM FOECE RESULTS ABOVE

114. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 15 16

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
15 MAX	-0.39	0.00	1	5.31	17.99	1			
	0.00	0.00	1	0.00	0.00	1	110.51 C	0.00	1
MIN	-0.39	17.99	1	-1.71	0.00	1			
	0.00	17.99	1	0.00	17.99	1	108.96 C	17.99	1
16 MAX	-0.39	0.00	1	7.06	4.81	1			
	0.00	0.00	1	0.00	0.00	1	108.96 C	0.00	1
MIN	-0.39	4.81	1	5.31	0.00	1			
	0.00	4.81	1	0.00	4.81	1	108.55 C	4.81	1

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

115. *COLUMN 110 MAXIMUM FOECE RESULTS ABOVE

116. FINISH

***** END OF THE STAAD.Pro RUN *****

**** DATE= APR 10,2012 TIME= 12:28:51 ****

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*****
*           For questions on STAAD.Pro, please contact           *
*   Bentley Systems Offices at the following locations           *
*                                                                 *
*           Telephone           Web / Email           *
*                                                                 *
*   USA:           +1 (714)974-2500           *
*   UK           +44(1454)207-000           *
*   SINGAPORE +65 6225-6158           *
*   EUROPE      +31 23 5560560           *
*   INDIA       +91(033)4006-2021           *
*   JAPAN       +81(03)5952-6500   http://www.ctc-g.co.jp   *
*   CHINA       +86 10 5929 7000           *
*   THAILAND    +66(0)2645-1018/19 partha.p@reisoftwareth.com *
*                                                                 *
*   Worldwide    http://selectservices.bentley.com/en-US/   *
*                                                                 *
*****
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*****
*
*          STAAD.Pro V8i SELECTseries1          *
*          Version  20.07.06.35                  *
*          Proprietary Program of               *
*          Bentley Systems, Inc.                *
*          Date=    APR 10, 2012                *
*          Time=    12:29:11                    *
*
*          USER ID: TranSystems                 *
*****

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1. STAAD SPACE DXF IMPORT OF 002_1441BENT_10.DXF
INPUT FILE: BENT_10_LL.STD
2. START JOB INFORMATION
3. ENGINEER DATE 21-MAR-12
4. JOB NAME CUY-2-1441
5. JOB CLIENT ODOT
6. JOB NO P402110046
7. JOB PART EAST APPROACH FORWARD SECTION
8. JOB REF BENT 10
9. ENGINEER NAME PJP
10. CHECKER NAME MTN
11. CHECKER DATE 9-APR-12
12. END JOB INFORMATION
13. INPUT WIDTH 79
14. UNIT FEET KIP
15. JOINT COORDINATES
16. 1 -17.865 16.8692 0; 2 -12.083 22.6507 0; 3 -23.6248 22.6293 0
17. 4 10.1094 17.8793 0; 5 14.9308 22.7007 0; 6 5.30576 22.6829 0
18. 7 68.6094 17.9875 0; 8 63.8058 22.7911 0; 9 73.4308 22.8089 0
19. 10 39.3594 17.9334 0; 11 34.5558 22.737 0; 12 44.1808 22.7548 0
20. 13 -17.8646 12.49 0; 14 -17.8646 22.64 0; 15 10.1094 2.41 0
21. 16 10.1094 22.6918 0; 17 39.3594 1.76 0; 18 39.3594 22.7459 0; 19 68.6094 0 0
22. 20 68.6094 22.8 0; 21 -30.2969 22.617 0; 22 -27.4323 22.6223 0
23. 23 -24.2135 22.6283 0; 24 -22.4323 22.6316 0; 25 -17.4323 22.6408 0
24. 26 -12.4323 22.65 0; 27 -7.01563 22.6601 0; 28 -1.59896 22.6701 0
25. 29 4.25521 22.6809 0; 30 15.9635 22.7026 0; 31 21.8177 22.7134 0
26. 32 27.6719 22.7243 0; 33 33.526 22.7351 0; 34 45.1927 22.7567 0
27. 35 51.0469 22.7675 0; 36 56.901 22.7783 0; 37 62.7552 22.7892 0
28. 38 73.3802 22.8088 0; 39 79 22.8192 0; 42 -17.8646 18.3692 0
29. 43 -22.1276 22.6322 0; 44 -13.5858 22.6479 0
30. MEMBER INCIDENCES
31. 1 42 44; 2 42 43; 9 13 1; 10 1 42; 11 15 4; 12 4 16; 13 17 10; 14 10 18
32. 15 19 7; 16 7 20; 17 21 22; 18 22 23; 19 23 3; 20 3 24; 21 24 43; 22 14 25
33. 23 25 44; 24 26 2; 25 2 27; 26 27 28; 27 28 29; 28 29 6; 29 6 16; 30 16 5
34. 31 5 30; 32 30 31; 33 31 32; 34 32 33; 35 33 11; 36 11 18; 37 18 12; 38 12 34
35. 39 34 35; 40 35 36; 41 36 37; 42 37 8; 43 8 20; 44 20 38; 45 38 9; 46 9 39
36. 47 42 14; 49 43 14; 51 44 26
37. DEFINE MATERIAL START
38. ISOTROPIC STEEL
39. E 4.176E+006
40. POISSON 0.3

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41. DENSITY 0.489024
42. ALPHA 6E-006
43. DAMP 0.03
44. END DEFINE MATERIAL
45. MEMBER PROPERTY AMERICAN
46. 17 TO 46 49 51 TABLE ST W36X150
47. 1 2 TABLE ST W8X35
48. 9 10 47 TABLE ST W14X68
49. 11 12 TABLE ST W14X90
50. 13 TO 16 TABLE ST W14X82
51. CONSTANTS
52. BETA 90 MEMB 9 10 47
53. MATERIAL STEEL ALL
54. SUPPORTS
55. 15 17 19 FIXED
56. 13 PINNED
57. DEFINE MOVING LOAD
58. *HS-15 FATIGUE TRUCK
59. TYPE 1 LOAD 23.64 23.64
60. DIST 6
61. LOAD 1 LOADTYPE LIVE TITLE 6 LANE HS-20 FB MOMENT AT COL4
62. MEMBER LOAD
63. 17 CON GY -26.8 1.73 0
64. 20 CON GY -26.8 1.06 0
65. 25 CON GY -26.8 0.21 0
66. 26 CON GY -26.8 1.14 0
67. 26 CON GY -26.8 5.14 0
68. 27 CON GY -26.8 5.72 0
69. 37 CON GY -26.8 0.63 0
70. 39 CON GY -26.8 0.79 0
71. 39 CON GY -26.8 5.79 0
72. 41 CON GY -26.8 0.08 0
73. 41 CON GY -26.8 5.08 0
74. 43 CON GY -26.8 4.18 0
75. LOAD 2 LOADTYPE LIVE TITLE 5 LANE HS-20 FB MOMENT AT COL4
76. MEMBER LOAD
77. 17 CON GY -26.8 1.73 0
78. 20 CON GY -26.8 1.06 0
79. 25 CON GY -26.8 0.21 0
80. 26 CON GY -26.8 1.14 0
81. 26 CON GY -26.8 5.14 0
82. 27 CON GY -26.8 5.72 0
83. 39 CON GY -26.8 0.79 0
84. 40 CON GY -26.8 0.94 0
85. 40 CON GY -26.8 4.94 0
86. 41 CON GY -26.8 5.08 0
87. LOAD 3 LOADTYPE LIVE TITLE 3 LANE HS-20 FB MOMENT AT COL4
88. MEMBER LOAD
89. 17 CON GY -32.1 1.73 0
90. 20 CON GY -32.1 1.06 0
91. 25 CON GY -32.1 0.21 0
92. 26 CON GY -32.1 1.14 0
93. 26 CON GY -32.1 5.14 0
94. 27 CON GY -32.1 5.72 0
95. LOAD 4 LOADTYPE LIVE TITLE 2 LANE HS-20 FB MOMENT AT COL4
96. MEMBER LOAD

97. 17 CON GY -35.7 1.73 0
98. 20 CON GY -35.7 1.06 0
99. 26 CON GY -35.7 0.14 0
100. 27 CON GY -35.7 0.72 0
101. LOAD 5 LOADTYPE LIVE TITLE 6 LANE HS-20 COL4 AXIAL LOADING
102. MEMBER LOAD
103. 17 CON GY -26.8 1.73 0
104. 20 CON GY -26.8 1.06 0
105. 23 CON GY -26.8 0.86 0
106. 25 CON GY -26.8 1.51 0
107. 26 CON GY -26.8 2.44 0
108. 27 CON GY -26.8 3.03 0
109. 37 CON GY -26.8 0.63 0
110. 39 CON GY -26.8 0.79 0
111. 39 CON GY -26.8 5.79 0
112. 41 CON GY -26.8 0.08 0
113. 41 CON GY -26.8 5.08 0
114. 43 CON GY -26.8 4.18 0
115. LOAD 6 LOADTYPE LIVE TITLE 3 LANE HS-20 COL4 AXIAL LOADING
116. MEMBER LOAD
117. 17 CON GY -32.1 1.73 0
118. 20 CON GY -32.1 1.06 0
119. 23 CON GY -32.1 0.86 0
120. 25 CON GY -32.1 1.51 0
121. 26 CON GY -32.1 2.44 0
122. 27 CON GY -32.1 3.03 0
123. LOAD 7 LOADTYPE LIVE TITLE 2 LANE HS-20 FB COL4 AXIAL LOADING
124. MEMBER LOAD
125. 17 CON GY -35.7 1.73 0
126. 20 CON GY -35.7 1.06 0
127. 23 CON GY -35.7 0.86 0
128. 25 CON GY -35.7 1.51 0
129. LOAD 8 LOADTYPE LIVE TITLE 6 LANE HS-20 FB POSITIVE MOMENT
130. MEMBER LOAD
131. 49 CON GY -26.8 4.25 0
132. 25 CON GY -26.8 0.21 0
133. 26 CON GY -26.8 0.14 0
134. 27 CON GY -26.8 0.72 0
135. 27 CON GY -26.8 5.72 0
136. 30 CON GY -26.8 0.01 0
137. 37 CON GY -26.8 0.63 0
138. 39 CON GY -26.8 0.79 0
139. 39 CON GY -26.8 5.79 0
140. 41 CON GY -26.8 0.08 0
141. 41 CON GY -26.8 5.08 0
142. 43 CON GY -26.8 4.18 0
143. LOAD 9 LOADTYPE LIVE TITLE 5 LANE HS-20 FB POSITIVE MOMENT
144. MEMBER LOAD
145. 25 CON GY -26.8 0.21 0
146. 26 CON GY -26.8 1.14 0
147. 26 CON GY -26.8 5.14 0
148. 27 CON GY -26.8 5.72 0
149. 37 CON GY -26.8 0.63 0
150. 39 CON GY -26.8 0.79 0
151. 39 CON GY -26.8 5.79 0
152. 41 CON GY -26.8 0.08 0

153. 41 CON GY -26.8 5.08 0
154. 43 CON GY -26.8 4.18 0
155. LOAD 10 LOADTYPE LIVE TITLE 3 LANE HS-20 FB POSITIVE MOMENT
156. MEMBER LOAD
157. 37 CON GY -32.1 0.63 0
158. 39 CON GY -32.1 0.79 0
159. 39 CON GY -32.1 5.79 0
160. 41 CON GY -32.1 0.08 0
161. 41 CON GY -32.1 5.08 0
162. 43 CON GY -32.1 4.18 0
163. LOAD 11 LOADTYPE LIVE TITLE 2 LANE HS-20 FB POSITIVE MOMENT
164. MEMBER LOAD
165. 25 CON GY -35.7 0.21 0
166. 26 CON GY -35.7 1.14 0
167. 26 CON GY -35.7 5.14 0
168. 27 CON GY -35.7 5.72 0
169. LOAD 12 LOADTYPE LIVE TITLE 2 LANE HS-20 FB POSITIVE MOMENT
170. MEMBER LOAD
171. 39 CON GY -35.7 0.79 0
172. 40 CON GY -35.7 0.94 0
173. 40 CON GY -35.7 4.94 0
174. 41 CON GY -35.7 5.08 0
175. LOAD 13 LOADTYPE LIVE TITLE 4 LANE HS-20 FB POSITIVE MOMENT
176. MEMBER LOAD
177. 17 CON GY -26.8 1.73 0
178. 20 CON GY -26.8 1.06 0
179. 33 CON GY -26.8 0.53 0
180. 32 CON GY -26.8 0.36 0
181. 34 CON GY -26.8 0.96 0
182. 36 CON GY -26.8 0.08 0
183. 44 CON GY -26.8 2.77 0
184. 46 CON GY -26.8 3.95 0
185. LOAD 14 LOADTYPE LIVE TITLE 3 LANE HS-20 FB POSITIVE MOMENT
186. MEMBER LOAD
187. 17 CON GY -32.1 1.73 0
188. 20 CON GY -32.1 1.06 0
189. 33 CON GY -32.1 0.53 0
190. 32 CON GY -32.1 0.36 0
191. 34 CON GY -32.1 0.96 0
192. 36 CON GY -32.1 0.08 0
193. LOAD 15 LOADTYPE LIVE TITLE 2 LANE HS-20 FB POSITIVE MOMENT
194. MEMBER LOAD
195. 33 CON GY -35.7 0.53 0
196. 32 CON GY -35.7 0.36 0
197. 34 CON GY -35.7 0.96 0
198. 36 CON GY -35.7 0.08 0
199. LOAD 16 LOADTYPE LIVE TITLE 5 LANE HS-20 FB MOMENT AT COL 3
200. MEMBER LOAD
201. 25 CON GY -26.8 0.21 0
202. 26 CON GY -26.8 1.14 0
203. 26 CON GY -26.8 5.14 0
204. 27 CON GY -26.8 5.72 0
205. 33 CON GY -26.8 0.53 0
206. 32 CON GY -26.8 0.36 0
207. 34 CON GY -26.8 0.96 0
208. 36 CON GY -26.8 0.08 0

209. 44 CON GY -26.8 2.77 0
210. 46 CON GY -26.8 3.95 0
211. LOAD 17 LOADTYPE LIVE TITLE 3 LANE HS-20 FB MOMENT AT COL 3
212. MEMBER LOAD
213. 25 CON GY -32.1 0.21 0
214. 26 CON GY -32.1 1.14 0
215. 26 CON GY -32.1 5.14 0
216. 27 CON GY -32.1 5.72 0
217. 33 CON GY -32.1 0.53 0
218. 32 CON GY -32.1 0.36 0
219. LOAD 18 LOADTYPE LIVE TITLE 2 LANE HS-20 FB MOMENT AT COL 3
220. MEMBER LOAD
221. 26 CON GY -35.7 0.14 0
222. 27 CON GY -35.7 0.72 0
223. 33 CON GY -35.7 0.53 0
224. 32 CON GY -35.7 0.36 0
225. LOAD 19 LOADTYPE LIVE TITLE 3 LANE HS-20 COL 3 AXIAL LOADING
226. MEMBER LOAD
227. 25 CON GY -32.1 2.19 0
228. 26 CON GY -32.1 3.13 0
229. 27 CON GY -32.1 3.71 0
230. 29 CON GY -32.1 2.8 0
231. 30 CON GY -32.1 2 0
232. 32 CON GY -32.1 2.15 0
233. LOAD 20 LOADTYPE LIVE TITLE 3 LANE HS-20 COL 3 AXIAL LOADING
234. MEMBER LOAD
235. 25 CON GY -32.1 4.19 0
236. 26 CON GY -32.1 5.13 0
237. 27 CON GY -32.1 5.71 0
238. 29 CON GY -32.1 4.8 0
239. 30 CON GY -32.1 4 0
240. 32 CON GY -32.1 4.15 0
241. LOAD 21 LOADTYPE LIVE TITLE 2 LANE HS-20 COL 3 AXIAL LOADING
242. MEMBER LOAD
243. 27 CON GY -35.7 3.71 0
244. 29 CON GY -35.7 2.8 0
245. 30 CON GY -35.7 2 0
246. 32 CON GY -35.7 2.15 0
247. LOAD 22 LOADTYPE LIVE TITLE 5 LANE HS-20 FB MOMENT AT COL2
248. MEMBER LOAD
249. 17 CON GY -26.8 1.73 0
250. 20 CON GY -26.8 1.06 0
251. 33 CON GY -26.8 0.53 0
252. 32 CON GY -26.8 0.36 0
253. 34 CON GY -26.8 0.96 0
254. 36 CON GY -26.8 0.08 0
255. 39 CON GY -26.8 0.79 0
256. 40 CON GY -26.8 0.94 0
257. 40 CON GY -26.8 4.94 0
258. 41 CON GY -26.8 5.08 0
259. LOAD 23 LOADTYPE LIVE TITLE 3 LANE HS-20 FB MOMENT AT COL2
260. MEMBER LOAD
261. 33 CON GY -32.1 0.53 0
262. 32 CON GY -32.1 0.36 0
263. 39 CON GY -32.1 0.79 0
264. 40 CON GY -32.1 0.94 0

265. 40 CON GY -32.1 4.94 0
266. 41 CON GY -32.1 5.08 0
267. LOAD 24 LOADTYPE LIVE TITLE 2 LANE HS-20 FB MOMENT AT COL2
268. MEMBER LOAD
269. 33 CON GY -35.7 0.53 0
270. 32 CON GY -35.7 0.36 0
271. 39 CON GY -35.7 5.79 0
272. 41 CON GY -35.7 0.08 0
273. LOAD 25 LOADTYPE LIVE TITLE 3 LANE HS-20 COL2 AXIAL LOADING
274. MEMBER LOAD
275. 34 CON GY -32.1 1.69 0
276. 36 CON GY -32.1 0.82 0
277. 37 CON GY -32.1 0 0
278. 39 CON GY -32.1 0.17 0
279. 40 CON GY -32.1 0.31 0
280. 41 CON GY -32.1 0.46 0
281. LOAD 26 LOADTYPE LIVE TITLE 2 LANE HS-20 COL2 AXIAL LOADING
282. MEMBER LOAD
283. 34 CON GY -35.7 1.69 0
284. 36 CON GY -35.7 0.8 0
285. 37 CON GY -35.7 0 0
286. 39 CON GY -35.7 0.17 0
287. LOAD 27 LOADTYPE LIVE TITLE 5 LANE HS-20 FB MOMENT AT COL 1
288. MEMBER LOAD
289. 25 CON GY -26.8 0.21 0
290. 26 CON GY -26.8 1.14 0
291. 26 CON GY -26.8 5.14 0
292. 27 CON GY -26.8 5.72 0
293. 39 CON GY -26.8 0.79 0
294. 40 CON GY -26.8 0.94 0
295. 40 CON GY -26.8 4.94 0
296. 41 CON GY -26.8 5.08 0
297. 44 CON GY -26.8 2.77 0
298. 46 CON GY -26.8 3.95 0
299. LOAD 28 LOADTYPE LIVE TITLE 3 LANE HS-20 FB MOMENT AT COL 1
300. MEMBER LOAD
301. 39 CON GY -32.1 0.79 0
302. 40 CON GY -32.1 0.94 0
303. 40 CON GY -32.1 4.94 0
304. 41 CON GY -32.1 5.08 0
305. 44 CON GY -32.1 2.77 0
306. 46 CON GY -32.1 3.95 0
307. LOAD 29 LOADTYPE LIVE TITLE 2 LANE HS-20 FB MOMENT AT COL 1
308. MEMBER LOAD
309. 39 CON GY -35.7 5.79 0
310. 41 CON GY -35.7 0.08 0
311. 44 CON GY -35.7 2.77 0
312. 46 CON GY -35.7 3.95 0
313. LOAD 30 LOADTYPE NONE TITLE 3 LANE HS-20 COL 1 AXIAL LOADING
314. MEMBER LOAD
315. 39 CON GY -32.1 2.19 0
316. 40 CON GY -32.1 2.33 0
317. 41 CON GY -32.1 2.48 0
318. 43 CON GY -32.1 1.57 0
319. 44 CON GY -32.1 2.77 0
320. 46 CON GY -32.1 3.95 0

321. LOAD 31 LOADTYPE NONE TITLE 2 LANE HS-20 COL 1 AXIAL LOADING
322. MEMBER LOAD
323. 41 CON GY -35.7 2.48 0
324. 43 CON GY -35.7 1.57 0
325. 44 CON GY -35.7 2.77 0
326. 46 CON GY -35.7 3.95 0
327. LOAD 32 LOADTYPE LIVE TITLE 8 LANES LOADED IN MEDIAN LANES
328. MEMBER LOAD
329. 49 CON GY -26.8 2.47 0
330. 23 CON GY -26.8 3.77 0
331. 25 CON GY -26.8 4.42 0
332. 26 CON GY -26.8 5.35 0
333. 28 CON GY -26.8 0.08 0
334. 30 CON GY -26.8 0.23 0
335. 33 CON GY -26.8 0.53 0
336. 32 CON GY -26.8 0.36 0
337. 34 CON GY -26.8 0.96 0
338. 36 CON GY -26.8 0.08 0
339. 37 CON GY -26.8 1.27 0
340. 39 CON GY -26.8 1.43 0
341. 40 CON GY -26.8 1.59 0
342. 41 CON GY -26.8 1.73 0
343. 43 CON GY -26.8 0.83 0
344. 44 CON GY -26.8 2.02 0
345. LOAD 33 LOADTYPE LIVE TITLE 8 LANES LOADED IN OUTSIDE LANES
346. MEMBER LOAD
347. 17 CON GY -26.8 1.73 0
348. 20 CON GY -26.8 1.06 0
349. 23 CON GY -26.8 0.86 0
350. 25 CON GY -26.8 1.51 0
351. 26 CON GY -26.8 2.44 0
352. 27 CON GY -26.8 3.03 0
353. 29 CON GY -26.8 2.13 0
354. 30 CON GY -26.8 3.32 0
355. 36 CON GY -26.8 0.82 0
356. 37 CON GY -26.8 2.02 0
357. 39 CON GY -26.8 2.19 0
358. 40 CON GY -26.8 2.33 0
359. 41 CON GY -26.8 2.48 0
360. 43 CON GY -26.8 1.57 0
361. 44 CON GY -26.8 2.77 0
362. 46 CON GY -26.8 3.95 0
363. *BEGIN 2F1 LOADING
364. LOAD 34 LOADTYPE LIVE TITLE 2F1 LOADING
365. REPEAT LOAD
366. 1 0.491062
367. LOAD 35 LOADTYPE LIVE TITLE 2F1 LOADING
368. REPEAT LOAD
369. 2 0.491062
370. LOAD 36 LOADTYPE LIVE TITLE 2F1 LOADING
371. REPEAT LOAD
372. 3 0.491062
373. LOAD 37 LOADTYPE LIVE TITLE 2F1 LOADING
374. REPEAT LOAD
375. 4 0.491062
376. LOAD 38 LOADTYPE LIVE TITLE 2F1 LOADING

377. REPEAT LOAD
378. 5 0.491062
379. LOAD 39 LOADTYPE LIVE TITLE 2F1 LOADING
380. REPEAT LOAD
381. 6 0.491062
382. LOAD 40 LOADTYPE LIVE TITLE 2F1 LOADING
383. REPEAT LOAD
384. 7 0.491062
385. LOAD 41 LOADTYPE LIVE TITLE 2F1 LOADING
386. REPEAT LOAD
387. 8 0.491062
388. LOAD 42 LOADTYPE LIVE TITLE 2F1 LOADING
389. REPEAT LOAD
390. 9 0.491062
391. LOAD 43 LOADTYPE LIVE TITLE 2F1 LOADING
392. REPEAT LOAD
393. 10 0.491062
394. LOAD 44 LOADTYPE LIVE TITLE 2F1 LOADING
395. REPEAT LOAD
396. 11 0.491062
397. LOAD 45 LOADTYPE LIVE TITLE 2F1 LOADING
398. REPEAT LOAD
399. 12 0.491062
400. LOAD 46 LOADTYPE LIVE TITLE 2F1 LOADING
401. REPEAT LOAD
402. 13 0.491062
403. LOAD 47 LOADTYPE LIVE TITLE 2F1 LOADING
404. REPEAT LOAD
405. 14 0.491062
406. LOAD 48 LOADTYPE LIVE TITLE 2F1 LOADING
407. REPEAT LOAD
408. 15 0.491062
409. LOAD 49 LOADTYPE LIVE TITLE 2F1 LOADING
410. REPEAT LOAD
411. 16 0.491062
412. LOAD 50 LOADTYPE LIVE TITLE 2F1 LOADING
413. REPEAT LOAD
414. 17 0.491062
415. LOAD 51 LOADTYPE LIVE TITLE 2F1 LOADING
416. REPEAT LOAD
417. 18 0.491062
418. LOAD 52 LOADTYPE LIVE TITLE 2F1 LOADING
419. REPEAT LOAD
420. 19 0.491062
421. LOAD 53 LOADTYPE LIVE TITLE 2F1 LOADING
422. REPEAT LOAD
423. 20 0.491062
424. LOAD 54 LOADTYPE LIVE TITLE 2F1 LOADING
425. REPEAT LOAD
426. 21 0.491062
427. LOAD 55 LOADTYPE LIVE TITLE 2F1 LOADING
428. REPEAT LOAD
429. 22 0.491062
430. LOAD 56 LOADTYPE LIVE TITLE 2F1 LOADING
431. REPEAT LOAD
432. 23 0.491062

433. LOAD 57 LOADTYPE LIVE TITLE 2F1 LOADING
434. REPEAT LOAD
435. 24 0.491062
436. LOAD 58 LOADTYPE LIVE TITLE 2F1 LOADING
437. REPEAT LOAD
438. 25 0.491062
439. LOAD 59 LOADTYPE LIVE TITLE 2F1 LOADING
440. REPEAT LOAD
441. 26 0.491062
442. LOAD 60 LOADTYPE LIVE TITLE 2F1 LOADING
443. REPEAT LOAD
444. 27 0.491062
445. LOAD 61 LOADTYPE LIVE TITLE 2F1 LOADING
446. REPEAT LOAD
447. 28 0.491062
448. LOAD 62 LOADTYPE LIVE TITLE 2F1 LOADING
449. REPEAT LOAD
450. 29 0.491062
451. LOAD 63 LOADTYPE LIVE TITLE 2F1 LOADING
452. REPEAT LOAD
453. 30 0.491062
454. LOAD 64 LOADTYPE LIVE TITLE 2F1 LOADING
455. REPEAT LOAD
456. 31 0.491062
457. LOAD 65 LOADTYPE LIVE TITLE 2F1 LOADING
458. REPEAT LOAD
459. 32 0.491062
460. LOAD 66 LOADTYPE LIVE TITLE 2F1 LOADING
461. REPEAT LOAD
462. 33 0.491062
463. *BEGIN 3F1 LOADING
464. LOAD 67 LOADTYPE LIVE TITLE 3F1 LOADING
465. REPEAT LOAD
466. 1 0.732215
467. LOAD 68 LOADTYPE LIVE TITLE 3F1 LOADING
468. REPEAT LOAD
469. 2 0.732215
470. LOAD 69 LOADTYPE LIVE TITLE 3F1 LOADING
471. REPEAT LOAD
472. 3 0.732215
473. LOAD 70 LOADTYPE LIVE TITLE 3F1 LOADING
474. REPEAT LOAD
475. 4 0.732215
476. LOAD 71 LOADTYPE LIVE TITLE 3F1 LOADING
477. REPEAT LOAD
478. 5 0.732215
479. LOAD 72 LOADTYPE LIVE TITLE 3F1 LOADING
480. REPEAT LOAD
481. 6 0.732215
482. LOAD 73 LOADTYPE LIVE TITLE 3F1 LOADING
483. REPEAT LOAD
484. 7 0.732215
485. LOAD 74 LOADTYPE LIVE TITLE 3F1 LOADING
486. REPEAT LOAD
487. 8 0.732215
488. LOAD 75 LOADTYPE LIVE TITLE 3F1 LOADING

489. REPEAT LOAD
490. 9 0.732215
491. LOAD 76 LOADTYPE LIVE TITLE 3F1 LOADING
492. REPEAT LOAD
493. 10 0.732215
494. LOAD 77 LOADTYPE LIVE TITLE 3F1 LOADING
495. REPEAT LOAD
496. 11 0.732215
497. LOAD 78 LOADTYPE LIVE TITLE 3F1 LOADING
498. REPEAT LOAD
499. 12 0.732215
500. LOAD 79 LOADTYPE LIVE TITLE 3F1 LOADING
501. REPEAT LOAD
502. 13 0.732215
503. LOAD 80 LOADTYPE LIVE TITLE 3F1 LOADING
504. REPEAT LOAD
505. 14 0.732215
506. LOAD 81 LOADTYPE LIVE TITLE 3F1 LOADING
507. REPEAT LOAD
508. 15 0.732215
509. LOAD 82 LOADTYPE LIVE TITLE 3F1 LOADING
510. REPEAT LOAD
511. 16 0.732215
512. LOAD 83 LOADTYPE LIVE TITLE 3F1 LOADING
513. REPEAT LOAD
514. 17 0.732215
515. LOAD 84 LOADTYPE LIVE TITLE 3F1 LOADING
516. REPEAT LOAD
517. 18 0.732215
518. LOAD 85 LOADTYPE LIVE TITLE 3F1 LOADING
519. REPEAT LOAD
520. 19 0.732215
521. LOAD 86 LOADTYPE LIVE TITLE 3F1 LOADING
522. REPEAT LOAD
523. 20 0.732215
524. LOAD 87 LOADTYPE LIVE TITLE 3F1 LOADING
525. REPEAT LOAD
526. 21 0.732215
527. LOAD 88 LOADTYPE LIVE TITLE 3F1 LOADING
528. REPEAT LOAD
529. 22 0.732215
530. LOAD 89 LOADTYPE LIVE TITLE 3F1 LOADING
531. REPEAT LOAD
532. 23 0.732215
533. LOAD 90 LOADTYPE LIVE TITLE 3F1 LOADING
534. REPEAT LOAD
535. 24 0.732215
536. LOAD 91 LOADTYPE LIVE TITLE 3F1 LOADING
537. REPEAT LOAD
538. 25 0.732215
539. LOAD 92 LOADTYPE LIVE TITLE 3F1 LOADING
540. REPEAT LOAD
541. 26 0.732215
542. LOAD 93 LOADTYPE LIVE TITLE 3F1 LOADING
543. REPEAT LOAD
544. 27 0.732215

545. LOAD 94 LOADTYPE LIVE TITLE 3F1 LOADING
546. REPEAT LOAD
547. 28 0.732215
548. LOAD 95 LOADTYPE LIVE TITLE 3F1 LOADING
549. REPEAT LOAD
550. 29 0.732215
551. LOAD 96 LOADTYPE LIVE TITLE 3F1 LOADING
552. REPEAT LOAD
553. 30 0.732215
554. LOAD 97 LOADTYPE LIVE TITLE 3F1 LOADING
555. REPEAT LOAD
556. 31 0.732215
557. LOAD 98 LOADTYPE LIVE TITLE 3F1 LOADING
558. REPEAT LOAD
559. 32 0.732215
560. LOAD 99 LOADTYPE LIVE TITLE 3F1 LOADING
561. REPEAT LOAD
562. 33 0.732215
563. LOAD 100 LOADTYPE LIVE TITLE 4F1 LOADING
564. REPEAT LOAD
565. 1 0.827435
566. LOAD 101 LOADTYPE LIVE TITLE 4F1 LOADING
567. REPEAT LOAD
568. 2 0.827435
569. LOAD 102 LOADTYPE LIVE TITLE 4F1 LOADING
570. REPEAT LOAD
571. 3 0.827435
572. LOAD 103 LOADTYPE LIVE TITLE 4F1 LOADING
573. REPEAT LOAD
574. 4 0.827435
575. LOAD 104 LOADTYPE LIVE TITLE 4F1 LOADING
576. REPEAT LOAD
577. 5 0.827435
578. LOAD 105 LOADTYPE LIVE TITLE 4F1 LOADING
579. REPEAT LOAD
580. 6 0.827435
581. LOAD 106 LOADTYPE LIVE TITLE 4F1 LOADING
582. REPEAT LOAD
583. 7 0.827435
584. LOAD 107 LOADTYPE LIVE TITLE 4F1 LOADING
585. REPEAT LOAD
586. 8 0.827435
587. LOAD 108 LOADTYPE LIVE TITLE 4F1 LOADING
588. REPEAT LOAD
589. 9 0.827435
590. LOAD 109 LOADTYPE LIVE TITLE 4F1 LOADING
591. REPEAT LOAD
592. 10 0.827435
593. LOAD 110 LOADTYPE LIVE TITLE 4F1 LOADING
594. REPEAT LOAD
595. 11 0.827435
596. LOAD 111 LOADTYPE LIVE TITLE 4F1 LOADING
597. REPEAT LOAD
598. 12 0.827435
599. LOAD 112 LOADTYPE LIVE TITLE 4F1 LOADING
600. REPEAT LOAD

601. 13 0.827435
602. LOAD 113 LOADTYPE LIVE TITLE 4F1 LOADING
603. REPEAT LOAD
604. 14 0.827435
605. LOAD 114 LOADTYPE LIVE TITLE 4F1 LOADING
606. REPEAT LOAD
607. 15 0.827435
608. LOAD 115 LOADTYPE LIVE TITLE 4F1 LOADING
609. REPEAT LOAD
610. 16 0.827435
611. LOAD 116 LOADTYPE LIVE TITLE 4F1 LOADING
612. REPEAT LOAD
613. 17 0.827435
614. LOAD 117 LOADTYPE LIVE TITLE 4F1 LOADING
615. REPEAT LOAD
616. 18 0.827435
617. LOAD 118 LOADTYPE LIVE TITLE 4F1 LOADING
618. REPEAT LOAD
619. 19 0.827435
620. LOAD 119 LOADTYPE LIVE TITLE 4F1 LOADING
621. REPEAT LOAD
622. 20 0.827435
623. LOAD 120 LOADTYPE LIVE TITLE 4F1 LOADING
624. REPEAT LOAD
625. 21 0.827435
626. LOAD 121 LOADTYPE LIVE TITLE 4F1 LOADING
627. REPEAT LOAD
628. 22 0.827435
629. LOAD 122 LOADTYPE LIVE TITLE 4F1 LOADING
630. REPEAT LOAD
631. 23 0.827435
632. LOAD 123 LOADTYPE LIVE TITLE 4F1 LOADING
633. REPEAT LOAD
634. 24 0.827435
635. LOAD 124 LOADTYPE LIVE TITLE 4F1 LOADING
636. REPEAT LOAD
637. 25 0.827435
638. LOAD 125 LOADTYPE LIVE TITLE 4F1 LOADING
639. REPEAT LOAD
640. 26 0.827435
641. LOAD 126 LOADTYPE LIVE TITLE 4F1 LOADING
642. REPEAT LOAD
643. 27 0.827435
644. LOAD 127 LOADTYPE LIVE TITLE 4F1 LOADING
645. REPEAT LOAD
646. 28 0.827435
647. LOAD 128 LOADTYPE LIVE TITLE 4F1 LOADING
648. REPEAT LOAD
649. 29 0.827435
650. LOAD 129 LOADTYPE LIVE TITLE 4F1 LOADING
651. REPEAT LOAD
652. 30 0.827435
653. LOAD 130 LOADTYPE LIVE TITLE 4F1 LOADING
654. REPEAT LOAD
655. 31 0.827435
656. LOAD 131 LOADTYPE LIVE TITLE 4F1 LOADING

657. REPEAT LOAD
658. 32 0.827435
659. LOAD 132 LOADTYPE LIVE TITLE 4F1 LOADING
660. REPEAT LOAD
661. 33 0.827435
662. LOAD 133 LOADTYPE LIVE TITLE 5C1 LOADING
663. REPEAT LOAD
664. 1 0.757388
665. LOAD 134 LOADTYPE LIVE TITLE 5C1 LOADING
666. REPEAT LOAD
667. 2 0.757388
668. LOAD 135 LOADTYPE LIVE TITLE 5C1 LOADING
669. REPEAT LOAD
670. 3 0.757388
671. LOAD 136 LOADTYPE LIVE TITLE 5C1 LOADING
672. REPEAT LOAD
673. 4 0.757388
674. LOAD 137 LOADTYPE LIVE TITLE 5C1 LOADING
675. REPEAT LOAD
676. 5 0.757388
677. LOAD 138 LOADTYPE LIVE TITLE 5C1 LOADING
678. REPEAT LOAD
679. 6 0.757388
680. LOAD 139 LOADTYPE LIVE TITLE 5C1 LOADING
681. REPEAT LOAD
682. 7 0.757388
683. LOAD 140 LOADTYPE LIVE TITLE 5C1 LOADING
684. REPEAT LOAD
685. 8 0.757388
686. LOAD 141 LOADTYPE LIVE TITLE 5C1 LOADING
687. REPEAT LOAD
688. 9 0.757388
689. LOAD 142 LOADTYPE LIVE TITLE 5C1 LOADING
690. REPEAT LOAD
691. 10 0.757388
692. LOAD 143 LOADTYPE LIVE TITLE 5C1 LOADING
693. REPEAT LOAD
694. 11 0.757388
695. LOAD 144 LOADTYPE LIVE TITLE 5C1 LOADING
696. REPEAT LOAD
697. 12 0.757388
698. LOAD 145 LOADTYPE LIVE TITLE 5C1 LOADING
699. REPEAT LOAD
700. 13 0.757388
701. LOAD 146 LOADTYPE LIVE TITLE 5C1 LOADING
702. REPEAT LOAD
703. 14 0.757388
704. LOAD 147 LOADTYPE LIVE TITLE 5C1 LOADING
705. REPEAT LOAD
706. 15 0.757388
707. LOAD 148 LOADTYPE LIVE TITLE 5C1 LOADING
708. REPEAT LOAD
709. 16 0.757388
710. LOAD 149 LOADTYPE LIVE TITLE 5C1 LOADING
711. REPEAT LOAD
712. 17 0.757388

713. LOAD 150 LOADTYPE LIVE TITLE 5C1 LOADING
714. REPEAT LOAD
715. 18 0.757388
716. LOAD 151 LOADTYPE LIVE TITLE 5C1 LOADING
717. REPEAT LOAD
718. 19 0.757388
719. LOAD 152 LOADTYPE LIVE TITLE 5C1 LOADING
720. REPEAT LOAD
721. 20 0.757388
722. LOAD 153 LOADTYPE LIVE TITLE 5C1 LOADING
723. REPEAT LOAD
724. 21 0.757388
725. LOAD 154 LOADTYPE LIVE TITLE 5C1 LOADING
726. REPEAT LOAD
727. 22 0.757388
728. LOAD 155 LOADTYPE LIVE TITLE 5C1 LOADING
729. REPEAT LOAD
730. 23 0.757388
731. LOAD 156 LOADTYPE LIVE TITLE 5C1 LOADING
732. REPEAT LOAD
733. 24 0.757388
734. LOAD 157 LOADTYPE LIVE TITLE 5C1 LOADING
735. REPEAT LOAD
736. 25 0.757388
737. LOAD 158 LOADTYPE LIVE TITLE 5C1 LOADING
738. REPEAT LOAD
739. 26 0.757388
740. LOAD 159 LOADTYPE LIVE TITLE 5C1 LOADING
741. REPEAT LOAD
742. 27 0.757388
743. LOAD 160 LOADTYPE LIVE TITLE 5C1 LOADING
744. REPEAT LOAD
745. 28 0.757388
746. LOAD 161 LOADTYPE LIVE TITLE 5C1 LOADING
747. REPEAT LOAD
748. 29 0.757388
749. LOAD 162 LOADTYPE LIVE TITLE 5C1 LOADING
750. REPEAT LOAD
751. 30 0.757388
752. LOAD 163 LOADTYPE LIVE TITLE 5C1 LOADING
753. REPEAT LOAD
754. 31 0.757388
755. LOAD 164 LOADTYPE LIVE TITLE 5C1 LOADING
756. REPEAT LOAD
757. 32 0.757388
758. LOAD 165 LOADTYPE LIVE TITLE 5C1 LOADING
759. REPEAT LOAD
760. 33 0.757388
761. LOAD GENERATION 43
762. TYPE 1 -27.54 22.62 0 XINC 1.02 YRANGE 1
763. LOAD GENERATION 41
764. TYPE 1 29.64 22.73 0 XINC 1.019 YRANGE 1
765. PDELTA 10 ANALYSIS

P R O B L E M S T A T I S T I C S

NUMBER OF JOINTS/MEMBER+ELEMENTS/SUPPORTS = 42/ 43/ 4

SOLVER USED IS THE OUT-OF-CORE BASIC SOLVER

ORIGINAL/FINAL BAND-WIDTH= 39/ 3/ 24 DOF
TOTAL PRIMARY LOAD CASES = 249, TOTAL DEGREES OF FREEDOM = 231
SIZE OF STIFFNESS MATRIX = 6 DOUBLE KILO-WORDS
REQRD/AVAIL. DISK SPACE = 13.2/ 514594.7 MB

++ Adjusting Displacements 12:29:11
++ Adjusting Displacements 12:29:12
++ Adjusting Displacements 12:29:12
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++ Adjusting Displacements 12:29:12
++ Adjusting Displacements 12:29:13
++ Adjusting Displacements 12:29:13
++ Adjusting Displacements 12:29:13

766. LOAD LIST 1 TO 33

767. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 17 TO 46 49 51

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
17 MAX	0.00	0.00	1	40.51	2.86	4			
	0.00	0.00	1	0.00	0.00	1	0.00	0.00	1
MIN	-35.70	2.86	7	0.00	2.86	32			
	0.00	2.86	33	0.00	2.86	33	0.07 T	2.86	7
18 MAX	0.00	0.00	8	155.42	3.22	4			
	0.00	0.00	1	0.00	0.00	1	0.00	0.00	8
MIN	-35.70	3.22	7	0.00	3.22	32			
	0.00	3.22	33	0.00	3.22	33	0.07 T	3.22	7
19 MAX	0.00	0.00	8	176.43	0.59	4			
	0.00	0.00	1	0.00	0.00	1	0.00	0.00	8
MIN	-35.70	0.59	7	0.00	0.59	32			
	0.00	0.59	33	0.00	0.59	33	0.06 T	0.59	7
20 MAX	0.00	0.00	8	223.73	1.19	4			
	0.00	0.00	1	0.00	0.00	1	0.00	0.00	8
MIN	-71.40	1.19	7	0.00	1.19	32			
	0.00	1.19	33	0.00	1.19	33	0.14 T	1.19	7
21 MAX	0.00	0.00	8	245.49	0.30	4			
	0.00	0.00	1	0.00	0.00	1	0.00	0.00	8
MIN	-71.40	0.30	7	0.00	0.30	32			
	0.00	0.30	33	0.00	0.30	33	0.14 T	0.30	7
22 MAX	47.32	0.00	6	338.39	0.00	4			
	0.00	0.00	1	0.00	0.00	1	1.24 C	0.00	15
MIN	-15.19	0.43	14	-36.44	0.43	11			
	0.00	0.43	33	0.00	0.43	33	49.04 T	0.43	7
23 MAX	47.32	0.00	6	376.21	3.85	14			
	0.00	0.00	1	0.00	0.00	1	1.24 C	0.00	15
MIN	-15.19	3.85	14	-203.11	3.85	11			
	0.00	3.85	33	0.00	3.85	33	49.11 T	3.85	7
24 MAX	76.23	0.00	3	372.20	0.00	14			
	0.00	0.00	1	0.00	0.00	1	5.55 C	0.00	11
MIN	-8.18	0.35	15	-305.23	0.35	11			
	0.00	0.35	33	0.00	0.35	33	5.14 T	0.35	14
25 MAX	76.23	0.00	3	367.69	0.00	14			
	0.00	0.00	1	0.00	0.00	1	5.54 C	0.00	11

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MIN	-8.18	5.07	15	-447.39	5.07	11			
	0.00	5.07	33	0.00	5.07	33	5.14 T	5.07	14
26 MAX	52.92	0.00	4	302.28	0.00	14			
	0.00	0.00	1	0.00	0.00	1	5.48 C	0.00	11
MIN	-44.83	5.42	17	-476.18	1.08	11			
	0.00	5.42	33	0.00	5.42	33	5.14 T	5.42	14
27 MAX	17.22	0.00	4	232.37	0.00	14			
	0.00	0.00	1	0.00	0.00	1	5.34 C	0.00	11
MIN	-80.53	5.85	11	-428.75	0.00	11			
	0.00	5.85	33	0.00	5.85	33	5.14 T	5.85	14
28 MAX	12.91	0.00	14	177.85	1.05	15			
	0.00	0.00	1	0.00	0.00	1	5.27 C	0.00	11
MIN	-80.53	1.05	11	-161.47	0.00	11			
	0.00	1.05	33	0.00	1.05	33	5.14 T	1.05	14
29 MAX	12.91	0.00	14	409.41	4.80	16			
	0.00	0.00	1	0.00	0.00	1	5.28 C	0.00	11
MIN	-97.40	4.80	20	-104.19	0.00	2			
	0.00	4.80	33	0.00	4.80	33	5.14 T	4.80	14
30 MAX	76.25	0.00	32	393.03	0.00	16			
	0.00	0.00	1	0.00	0.00	1	2.29 C	0.00	32
MIN	-11.66	4.82	12	-127.93	4.82	14			
	0.00	4.82	33	0.00	4.82	33	1.35 T	4.82	29
31 MAX	68.09	0.00	15	201.05	0.00	11			
	0.00	0.00	1	0.00	0.00	1	2.24 C	0.00	32
MIN	-11.66	1.03	12	-187.66	1.03	14			
	0.00	1.03	33	0.00	1.03	33	1.35 T	1.03	29
32 MAX	68.09	0.00	15	190.43	0.00	11			
	0.00	0.00	1	0.00	0.00	1	2.24 C	0.00	32
MIN	-11.66	5.85	12	-349.94	5.85	14			
	0.00	5.85	33	0.00	5.85	33	1.35 T	5.85	29
33 MAX	33.99	0.00	16	164.88	5.85	9			
	0.00	0.00	1	0.00	0.00	1	2.19 C	0.00	32
MIN	-29.31	5.85	23	-363.24	0.59	14			
	0.00	5.85	33	0.00	5.85	33	1.35 T	5.85	29
34 MAX	13.74	0.00	26	213.40	5.85	12			
	0.00	0.00	1	0.00	0.00	1	2.14 C	0.00	32
MIN	-40.85	5.85	22	-339.42	0.00	15			
	0.00	5.85	33	0.00	5.85	33	1.35 T	5.85	29
35 MAX	10.29	0.00	11	225.41	1.03	12			
	0.00	0.00	1	0.00	0.00	1	2.09 C	0.00	32
MIN	-40.85	1.03	22	-150.14	0.00	13			
	0.00	1.03	33	0.00	1.03	33	1.35 T	1.03	29
36 MAX	10.29	0.00	11	411.91	4.80	22			
	0.00	0.00	1	0.00	0.00	1	2.09 C	0.00	32

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MIN	-74.71	4.80	15	-119.11	0.00	13			
	0.00	4.80	33	0.00	4.80	33	1.35 T	4.80	29
37 MAX	104.72	0.00	10	428.13	0.00	22			
	0.00	0.00	1	0.00	0.00	1	4.39 C	0.00	12
MIN	-7.24	4.82	16	-82.30	4.82	9			
	0.00	4.82	33	0.00	4.82	33	3.57 T	4.82	13
38 MAX	80.55	0.00	12	174.72	0.00	15			
	0.00	0.00	1	0.00	0.00	1	4.39 C	0.00	12
MIN	-7.24	1.01	16	-142.14	1.01	9			
	0.00	1.01	33	0.00	1.01	33	3.57 T	1.01	13
39 MAX	80.55	0.00	12	170.98	5.85	13			
	0.00	0.00	1	0.00	0.00	1	4.39 C	0.00	12
MIN	-10.01	5.85	29	-426.90	5.85	12			
	0.00	5.85	33	0.00	5.85	33	3.57 T	5.85	13
40 MAX	44.85	0.00	12	199.16	5.85	13			
	0.00	0.00	1	0.00	0.00	1	4.32 C	0.00	12
MIN	-37.58	5.85	28	-503.31	4.68	12			
	0.00	5.85	33	0.00	5.85	33	3.57 T	5.85	13
41 MAX	8.60	0.00	24	227.75	5.85	16			
	0.00	0.00	1	0.00	0.00	1	4.19 C	0.00	12
MIN	-69.68	5.85	28	-481.39	0.00	12			
	0.00	5.85	33	0.00	5.85	33	3.57 T	5.85	13
42 MAX	7.94	0.00	14	235.35	1.05	16			
	0.00	0.00	1	0.00	0.00	1	4.13 C	0.00	12
MIN	-69.68	1.05	28	-298.27	0.00	12			
	0.00	1.05	33	0.00	1.05	33	3.57 T	1.05	13
43 MAX	7.94	0.00	14	400.01	4.80	29			
	0.00	0.00	1	0.00	0.00	1	4.12 C	0.00	12
MIN	-87.88	4.80	10	-232.86	0.00	12			
	0.00	4.80	33	0.00	4.80	33	3.57 T	4.80	13
44 MAX	71.40	0.00	29	412.03	0.00	31			
	0.00	0.00	1	0.00	0.00	1	0.13 C	0.00	29
MIN	0.00	4.77	32	0.00	2.39	32			
	0.00	4.77	33	0.00	4.77	33	0.00	4.77	32
45 MAX	35.70	0.00	29	142.82	0.00	31			
	0.00	0.00	1	0.00	0.00	1	0.07 C	0.00	29
MIN	0.00	0.05	32	0.00	0.05	32			
	0.00	0.05	33	0.00	0.05	33	0.00	0.05	32
46 MAX	35.70	0.00	29	141.02	0.00	31			
	0.00	0.00	1	0.00	0.00	1	0.07 C	0.00	29
MIN	0.00	5.57	33	0.00	5.57	33			
	0.00	5.57	33	0.00	5.57	33	0.00	5.57	33
49 MAX	8.21	0.00	32	336.86	4.26	4			
	0.00	0.00	1	0.00	0.00	1	0.38 C	0.00	15

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MIN	-23.13	4.26	8	-19.37	2.56	32				
	0.00	4.26	33	0.00	4.26	33	51.32 T	4.26	7	
51 MAX	76.23	0.00	3	387.10	0.00	14				
	0.00	0.00	1	0.00	0.00	1	5.54 C	0.00	11	
MIN	-8.18	1.15	15	-283.47	1.15	11				
	0.00	1.15	33	0.00	1.15	33	5.14 T	1.15	14	

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

768. *HS-20 MAX FLOOR BEAM FORCES ABOVE

769. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 9 10 47

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
9 MAX	0.00	0.00	1	0.00	0.00	1			
	5.43	0.00	11	24.23	4.38	11	158.86 C	0.00	6
MIN	0.00	4.38	33	0.00	4.38	33			
	-5.16	4.38	14	-23.06	4.38	14	8.18 T	4.38	15
10 MAX	0.00	0.00	1	0.00	0.00	1			
	5.41	0.00	11	32.28	1.50	11	158.86 C	0.00	6
MIN	0.00	1.50	33	0.00	1.50	33			
	-5.19	1.50	14	-30.75	1.50	14	8.18 T	1.50	15
47 MAX	0.00	0.00	1	0.00	0.00	1			
	4.00	0.00	14	12.56	0.00	11	64.39 C	0.00	6
MIN	0.00	4.27	33	0.00	4.27	33			
	-4.11	4.27	11	-12.09	0.00	14	5.14 T	4.27	15

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

770. *HS-20MAX COLUMN 4 FORCES ABOVE

771. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 11 12

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
11 MAX	4.55	0.00	11	43.89	15.47	14			
	0.00	0.00	1	0.00	0.00	1	154.75 C	0.00	20
MIN	-5.38	15.47	14	-39.74	0.00	14			
	0.00	15.47	33	0.00	15.47	33	13.85 T	15.47	12
12 MAX	4.55	0.00	11	69.64	4.81	14			
	0.00	0.00	1	0.00	0.00	1	154.75 C	0.00	20
MIN	-5.38	4.81	14	-59.37	4.81	11			
	0.00	4.81	33	0.00	4.81	33	13.85 T	4.81	12

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

772. *HS-20 MAX COLUMN 3 FORCES ABOVE

773. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 13 14

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
13 MAX	3.37	0.00	16	34.48	16.17	12			
	0.00	0.00	1	0.00	0.00	1	156.67 C	0.00	25
MIN	-3.80	16.17	12	-27.56	16.17	16			
	0.00	16.17	33	0.00	16.17	33	12.29 T	16.17	11
14 MAX	3.37	0.00	16	52.39	4.81	12			
	0.00	0.00	1	0.00	0.00	1	156.67 C	0.00	25
MIN	-3.80	4.81	12	-43.70	4.81	16			
	0.00	4.81	33	0.00	4.81	33	12.29 T	4.81	11

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

774. *HS-20 MAX COLUMN 2 FORCES ABOVE

775. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 15 16

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
15 MAX	4.24	0.00	12	36.89	17.99	13			
	0.00	0.00	1	0.00	0.00	1	145.32 C	0.00	30
MIN	-3.56	17.99	13	-46.27	17.99	12			
	0.00	17.99	33	0.00	17.99	33	7.94 T	17.99	14
16 MAX	4.24	0.00	12	53.74	4.81	13			
	0.00	0.00	1	0.00	0.00	1	145.32 C	0.00	30
MIN	-3.56	4.81	13	-66.22	4.81	12			
	0.00	4.81	33	0.00	4.81	33	7.94 T	4.81	14

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

776. *HS-20 MAX COLUMN 1 FORCES ABOVE

777. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 1 2

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
1 MAX	3.28	0.00	11	11.65	0.00	11			
	0.00	0.00	1	0.00	0.00	1	67.68 C	0.00	3
MIN	-3.24	6.05	14	-9.29	0.00	14			
	0.00	6.05	33	0.00	6.05	33	3.98 T	6.05	15
2 MAX	1.31	0.00	13	9.38	0.00	14			
	0.00	0.00	1	0.00	0.00	1	73.15 C	0.00	7
MIN	-1.76	6.03	11	-8.07	0.00	11			
	0.00	6.03	33	0.00	6.03	33	0.45 T	6.03	12

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

778. *HS-20 KNEE BRACE FORCES

779. LOAD LIST 34 TO 66

780. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 17 TO 46 49 51

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
17 MAX	0.00	0.00	34	19.89	2.86	37			
	0.00	0.00	34	0.00	0.00	34	0.00	0.00	34
MIN	-17.53	2.86	40	0.00	2.86	65			
	0.00	2.86	66	0.00	2.86	66	0.03 T	2.86	40
18 MAX	0.00	0.00	41	76.32	3.22	37			
	0.00	0.00	34	0.00	0.00	34	0.00	0.00	41
MIN	-17.53	3.22	40	0.00	3.22	65			
	0.00	3.22	66	0.00	3.22	66	0.03 T	3.22	40
19 MAX	0.00	0.00	41	86.64	0.59	37			
	0.00	0.00	34	0.00	0.00	34	0.00	0.00	41
MIN	-17.53	0.59	40	0.00	0.59	65			
	0.00	0.59	66	0.00	0.59	66	0.03 T	0.59	40
20 MAX	0.00	0.00	41	109.87	1.19	37			
	0.00	0.00	34	0.00	0.00	34	0.00	0.00	41
MIN	-35.06	1.19	40	0.00	1.19	65			
	0.00	1.19	66	0.00	1.19	66	0.07 T	1.19	40
21 MAX	0.00	0.00	41	120.55	0.30	37			
	0.00	0.00	34	0.00	0.00	34	0.00	0.00	41
MIN	-35.06	0.30	40	0.00	0.30	65			
	0.00	0.30	66	0.00	0.30	66	0.07 T	0.30	40
22 MAX	23.24	0.00	39	166.12	0.00	37			
	0.00	0.00	34	0.00	0.00	34	0.61 C	0.00	48
MIN	-7.42	0.43	47	-17.81	0.43	44			
	0.00	0.43	66	0.00	0.43	66	24.07 T	0.43	40
23 MAX	23.24	0.00	39	184.54	3.85	47			
	0.00	0.00	34	0.00	0.00	34	0.61 C	0.00	48
MIN	-7.42	3.85	47	-99.56	3.85	44			
	0.00	3.85	66	0.00	3.85	66	24.10 T	3.85	40
24 MAX	37.43	0.00	36	182.58	0.00	47			
	0.00	0.00	34	0.00	0.00	34	2.74 C	0.00	44
MIN	-4.01	0.35	48	-149.71	0.35	44			
	0.00	0.35	66	0.00	0.35	66	2.54 T	0.35	47
25 MAX	37.43	0.00	36	180.37	0.00	47			
	0.00	0.00	34	0.00	0.00	34	2.74 C	0.00	44

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MIN	-4.01	5.07	48	-219.55	5.07	44				
	0.00	5.07	66	0.00	5.07	66	2.54	T	5.07	47
26 MAX	25.98	0.00	37	148.30	0.00	47				
	0.00	0.00	34	0.00	0.00	34	2.70	C	0.00	44
MIN	-22.01	5.42	50	-233.69	1.08	44				
	0.00	5.42	66	0.00	5.42	66	2.54	T	5.42	47
27 MAX	8.45	0.00	37	114.03	0.00	47				
	0.00	0.00	34	0.00	0.00	34	2.64	C	0.00	44
MIN	-39.54	5.85	44	-210.44	0.00	44				
	0.00	5.85	66	0.00	5.85	66	2.54	T	5.85	47
28 MAX	6.33	0.00	47	87.30	1.05	48				
	0.00	0.00	34	0.00	0.00	34	2.60	C	0.00	44
MIN	-39.54	1.05	44	-79.24	0.00	44				
	0.00	1.05	66	0.00	1.05	66	2.54	T	1.05	47
29 MAX	6.33	0.00	47	201.00	4.80	49				
	0.00	0.00	34	0.00	0.00	34	2.61	C	0.00	44
MIN	-47.82	4.80	53	-51.13	0.00	35				
	0.00	4.80	66	0.00	4.80	66	2.54	T	4.80	47
30 MAX	37.44	0.00	65	192.98	0.00	49				
	0.00	0.00	34	0.00	0.00	34	1.13	C	0.00	65
MIN	-5.72	4.82	45	-62.75	4.82	47				
	0.00	4.82	66	0.00	4.82	66	0.66	T	4.82	37
31 MAX	33.43	0.00	48	98.64	0.00	44				
	0.00	0.00	34	0.00	0.00	34	1.11	C	0.00	65
MIN	-5.72	1.03	45	-92.09	1.03	47				
	0.00	1.03	66	0.00	1.03	66	0.66	T	1.03	37
32 MAX	33.43	0.00	48	93.42	0.00	44				
	0.00	0.00	34	0.00	0.00	34	1.11	C	0.00	65
MIN	-5.72	5.85	45	-171.79	5.85	47				
	0.00	5.85	66	0.00	5.85	66	0.66	T	5.85	37
33 MAX	16.69	0.00	49	80.92	5.85	42				
	0.00	0.00	34	0.00	0.00	34	1.08	C	0.00	65
MIN	-14.39	5.85	56	-178.32	0.59	47				
	0.00	5.85	66	0.00	5.85	66	0.66	T	5.85	37
34 MAX	6.75	0.00	59	104.74	5.85	45				
	0.00	0.00	34	0.00	0.00	34	1.06	C	0.00	65
MIN	-20.06	5.85	55	-166.65	0.00	48				
	0.00	5.85	66	0.00	5.85	66	0.66	T	5.85	37
35 MAX	5.05	0.00	44	110.63	1.03	45				
	0.00	0.00	34	0.00	0.00	34	1.03	C	0.00	65
MIN	-20.06	1.03	55	-73.72	0.00	46				
	0.00	1.03	66	0.00	1.03	66	0.66	T	1.03	37
36 MAX	5.05	0.00	44	202.25	4.80	55				
	0.00	0.00	34	0.00	0.00	34	1.03	C	0.00	65

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MIN	-36.69	4.80	48	-58.48	0.00	46				
	0.00	4.80	66	0.00	4.80	66	0.66	T	4.80	37
37 MAX	51.42	0.00	43	210.22	0.00	55				
	0.00	0.00	34	0.00	0.00	34	2.16	C	0.00	45
MIN	-3.55	4.82	49	-40.39	4.82	42				
	0.00	4.82	66	0.00	4.82	66	1.76	T	4.82	46
38 MAX	39.55	0.00	45	85.76	0.00	48				
	0.00	0.00	34	0.00	0.00	34	2.16	C	0.00	45
MIN	-3.55	1.01	49	-69.76	1.01	42				
	0.00	1.01	66	0.00	1.01	66	1.76	T	1.01	46
39 MAX	39.55	0.00	45	83.93	5.85	46				
	0.00	0.00	34	0.00	0.00	34	2.16	C	0.00	45
MIN	-4.91	5.85	62	-209.57	5.85	45				
	0.00	5.85	66	0.00	5.85	66	1.76	T	5.85	46
40 MAX	22.02	0.00	45	97.75	5.85	46				
	0.00	0.00	34	0.00	0.00	34	2.12	C	0.00	45
MIN	-18.45	5.85	61	-247.08	4.68	45				
	0.00	5.85	66	0.00	5.85	66	1.76	T	5.85	46
41 MAX	4.22	0.00	57	111.78	5.85	49				
	0.00	0.00	34	0.00	0.00	34	2.06	C	0.00	45
MIN	-34.22	5.85	61	-236.31	0.00	45				
	0.00	5.85	66	0.00	5.85	66	1.76	T	5.85	46
42 MAX	3.90	0.00	47	115.51	1.05	49				
	0.00	0.00	34	0.00	0.00	34	2.03	C	0.00	45
MIN	-34.22	1.05	61	-146.38	0.00	45				
	0.00	1.05	66	0.00	1.05	66	1.76	T	1.05	46
43 MAX	3.90	0.00	47	196.38	4.80	62				
	0.00	0.00	34	0.00	0.00	34	2.03	C	0.00	45
MIN	-43.16	4.80	43	-114.25	0.00	45				
	0.00	4.80	66	0.00	4.80	66	1.76	T	4.80	46
44 MAX	35.06	0.00	62	202.33	0.00	64				
	0.00	0.00	34	0.00	0.00	34	0.06	C	0.00	62
MIN	0.00	4.77	65	0.00	2.39	65				
	0.00	4.77	66	0.00	4.77	66	0.00		4.77	65
45 MAX	17.53	0.00	62	70.13	0.00	64				
	0.00	0.00	34	0.00	0.00	34	0.03	C	0.00	62
MIN	0.00	0.05	65	0.00	0.05	65				
	0.00	0.05	66	0.00	0.05	66	0.00		0.05	65
46 MAX	17.53	0.00	62	69.25	0.00	64				
	0.00	0.00	34	0.00	0.00	34	0.03	C	0.00	62
MIN	0.00	5.57	66	0.00	5.57	66				
	0.00	5.57	66	0.00	5.57	66	0.00		5.57	66
49 MAX	4.02	0.00	65	165.38	4.26	37				
	0.00	0.00	34	0.00	0.00	34	0.19	C	0.00	48

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MIN	-11.38	4.26	41	-9.47	2.56	65			
	0.00	4.26	66	0.00	4.26	66	25.20 T	4.26	40
51 MAX	37.43	0.00	36	189.88	0.00	47			
	0.00	0.00	34	0.00	0.00	34	2.74 C	0.00	44
MIN	-4.01	1.15	48	-139.02	1.15	44			
	0.00	1.15	66	0.00	1.15	66	2.54 T	1.15	47

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

781. *2F1 MAX FLOOR BEAM FORCES ABOVE

782. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 9 10 47

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
9 MAX	0.00	0.00	34	0.00	0.00	34			
	2.68	0.00	44	11.85	4.38	44	78.01 C	0.00	39
	0.00	4.38	66	0.00	4.38	66			
MIN	-2.55	4.38	47	-11.28	4.38	47	4.02 T	4.38	48
	0.00	0.00	34	0.00	0.00	34			
	2.67	0.00	44	15.85	1.50	44	78.01 C	0.00	39
10 MAX	0.00	1.50	66	0.00	1.50	66			
	-2.56	1.50	47	-15.10	1.50	47	4.02 T	1.50	48
	0.00	0.00	34	0.00	0.00	34			
47 MAX	1.96	0.00	47	6.16	0.00	44	31.61 C	0.00	39
	0.00	4.27	66	0.00	4.27	66			
	-2.04	4.27	44	-5.93	0.00	47	2.52 T	4.27	48

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

783. *2F1 MAX COLUMN 4 FORCES ABOVE

784. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 11 12

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/	DIST	LD	MZ/	DIST	LD	FX	DIST	LD
	FZ	DIST	LD	MY	DIST	LD			
11 MAX	2.24	0.00	44	21.55	15.47	47			
	0.00	0.00	34	0.00	0.00	34	75.99 C	0.00	53
MIN	-2.65	15.47	47	-19.54	0.00	47			
	0.00	15.47	66	0.00	15.47	66	6.80 T	15.47	45
12 MAX	2.24	0.00	44	34.27	4.81	47			
	0.00	0.00	34	0.00	0.00	34	75.99 C	0.00	53
MIN	-2.65	4.81	47	-29.26	4.81	44			
	0.00	4.81	66	0.00	4.81	66	6.80 T	4.81	45

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

785. *2F1 MAX COLUMN 3 FORCES ABOVE

786. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 13 14

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/	DIST	LD	MZ/	DIST	LD	FX	DIST	LD
	FZ	DIST	LD	MY	DIST	LD			
13 MAX	1.66	0.00	49	16.90	16.17	45			
	0.00	0.00	34	0.00	0.00	34	76.93 C	0.00	58
MIN	-1.87	16.17	45	-13.50	16.17	49			
	0.00	16.17	66	0.00	16.17	66	6.03 T	16.17	44
14 MAX	1.66	0.00	49	25.80	4.81	45			
	0.00	0.00	34	0.00	0.00	34	76.93 C	0.00	58
MIN	-1.87	4.81	45	-21.45	4.81	49			
	0.00	4.81	66	0.00	4.81	66	6.03 T	4.81	44

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

787. *2F1 MAX COLUMN 2 FORCES ABOVE

788. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 15 16

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/	DIST	LD	MZ/	DIST	LD	FX	DIST	LD
	FZ	DIST	LD	MY	DIST	LD			
15 MAX	2.08	0.00	45	18.11	17.99	46			
	0.00	0.00	34	0.00	0.00	34	71.36 C	0.00	63
MIN	-1.75	17.99	46	-22.70	17.99	45			
	0.00	17.99	66	0.00	17.99	66	3.90 T	17.99	47
16 MAX	2.08	0.00	45	26.49	4.81	46			
	0.00	0.00	34	0.00	0.00	34	71.36 C	0.00	63
MIN	-1.75	4.81	46	-32.62	4.81	45			
	0.00	4.81	66	0.00	4.81	66	3.90 T	4.81	47

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

789. *2F1 MAX COLUMN 1 FORCES ABOVE

790. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 1 2

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/	DIST	LD	MZ/	DIST	LD	FX	DIST	LD
	FZ	DIST	LD	MY	DIST	LD			
1 MAX	1.62	0.00	44	5.72	0.00	44			
	0.00	0.00	34	0.00	0.00	34	33.24 C	0.00	36
	MIN	-1.61	6.05	47	-4.56	0.00	47		
2 MAX	0.67	0.00	46	4.61	0.00	47			
	0.00	0.00	34	0.00	0.00	34	35.95 C	0.00	40
	MIN	-0.86	6.03	44	-3.96	0.00	44		
	0.00	6.03	66	0.00	6.03	66	0.22 T	6.03	45

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

791. *2F1 KNEE BRACE FORCES

792. LOAD LIST 67 TO 99

793. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 17 TO 46 49 51

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
17 MAX	0.00	0.00	67	29.66	2.86	70			
	0.00	0.00	67	0.00	0.00	67	0.00	0.00	67
MIN	-26.14	2.86	73	0.00	2.86	98			
	0.00	2.86	99	0.00	2.86	99	0.05 T	2.86	73
18 MAX	0.00	0.00	74	113.80	3.22	70			
	0.00	0.00	67	0.00	0.00	67	0.00	0.00	74
MIN	-26.14	3.22	73	0.00	3.22	98			
	0.00	3.22	99	0.00	3.22	99	0.05 T	3.22	73
19 MAX	0.00	0.00	74	129.19	0.59	70			
	0.00	0.00	67	0.00	0.00	67	0.00	0.00	74
MIN	-26.14	0.59	73	0.00	0.59	98			
	0.00	0.59	99	0.00	0.59	99	0.04 T	0.59	73
20 MAX	0.00	0.00	74	163.82	1.19	70			
	0.00	0.00	67	0.00	0.00	67	0.00	0.00	74
MIN	-52.28	1.19	73	0.00	1.19	98			
	0.00	1.19	99	0.00	1.19	99	0.10 T	1.19	73
21 MAX	0.00	0.00	74	179.75	0.30	70			
	0.00	0.00	67	0.00	0.00	67	0.00	0.00	74
MIN	-52.28	0.30	73	0.00	0.30	98			
	0.00	0.30	99	0.00	0.30	99	0.10 T	0.30	73
22 MAX	34.65	0.00	72	247.74	0.00	70			
	0.00	0.00	67	0.00	0.00	67	0.91 C	0.00	81
MIN	-11.09	0.43	80	-26.62	0.43	77			
	0.00	0.43	99	0.00	0.43	99	35.90 T	0.43	73
23 MAX	34.65	0.00	72	275.31	3.85	80			
	0.00	0.00	67	0.00	0.00	67	0.91 C	0.00	81
MIN	-11.09	3.85	80	-148.58	3.85	77			
	0.00	3.85	99	0.00	3.85	99	35.95 T	3.85	73
24 MAX	55.82	0.00	69	272.38	0.00	80			
	0.00	0.00	67	0.00	0.00	67	4.08 C	0.00	77
MIN	-5.99	0.35	81	-223.35	0.35	77			
	0.00	0.35	99	0.00	0.35	99	3.78 T	0.35	80
25 MAX	55.82	0.00	69	269.08	0.00	80			
	0.00	0.00	67	0.00	0.00	67	4.07 C	0.00	77

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MIN	-5.99	5.07	81	-327.47	5.07	77			
	0.00	5.07	99	0.00	5.07	99	3.78 T	5.07	80
26 MAX	38.75	0.00	70	221.22	0.00	80			
	0.00	0.00	67	0.00	0.00	67	4.02 C	0.00	77
MIN	-32.82	5.42	83	-348.56	1.08	77			
	0.00	5.42	99	0.00	5.42	99	3.78 T	5.42	80
27 MAX	12.61	0.00	70	170.08	0.00	80			
	0.00	0.00	67	0.00	0.00	67	3.92 C	0.00	77
MIN	-58.96	5.85	77	-313.86	0.00	77			
	0.00	5.85	99	0.00	5.85	99	3.78 T	5.85	80
28 MAX	9.44	0.00	80	130.20	1.05	81			
	0.00	0.00	67	0.00	0.00	67	3.87 C	0.00	77
MIN	-58.96	1.05	77	-118.19	0.00	77			
	0.00	1.05	99	0.00	1.05	99	3.78 T	1.05	80
29 MAX	9.44	0.00	80	299.74	4.80	82			
	0.00	0.00	67	0.00	0.00	67	3.88 C	0.00	77
MIN	-71.31	4.80	86	-76.26	0.00	68			
	0.00	4.80	99	0.00	4.80	99	3.78 T	4.80	80
30 MAX	55.83	0.00	98	287.77	0.00	82			
	0.00	0.00	67	0.00	0.00	67	1.68 C	0.00	98
MIN	-8.54	4.82	78	-93.61	4.82	80			
	0.00	4.82	99	0.00	4.82	99	0.98 T	4.82	70
31 MAX	49.85	0.00	81	147.14	0.00	77			
	0.00	0.00	67	0.00	0.00	67	1.65 C	0.00	98
MIN	-8.54	1.03	78	-137.36	1.03	80			
	0.00	1.03	99	0.00	1.03	99	0.98 T	1.03	70
32 MAX	49.85	0.00	81	139.36	0.00	77			
	0.00	0.00	67	0.00	0.00	67	1.65 C	0.00	98
MIN	-8.54	5.85	78	-256.20	5.85	80			
	0.00	5.85	99	0.00	5.85	99	0.98 T	5.85	70
33 MAX	24.89	0.00	82	120.69	5.85	75			
	0.00	0.00	67	0.00	0.00	67	1.61 C	0.00	98
MIN	-21.46	5.27	89	-265.93	0.59	80			
	0.00	5.85	99	0.00	5.85	99	0.98 T	5.85	70
34 MAX	10.06	0.00	92	156.21	5.85	78			
	0.00	0.00	67	0.00	0.00	67	1.57 C	0.00	98
MIN	-29.91	5.85	88	-248.51	0.00	81			
	0.00	5.85	99	0.00	5.85	99	0.98 T	5.85	70
35 MAX	7.53	0.00	77	165.00	1.03	78			
	0.00	0.00	67	0.00	0.00	67	1.54 C	0.00	98
MIN	-29.91	1.03	88	-109.93	0.00	79			
	0.00	1.03	99	0.00	1.03	99	0.98 T	1.03	70
36 MAX	7.53	0.00	77	301.59	4.80	88			
	0.00	0.00	67	0.00	0.00	67	1.54 C	0.00	98

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MIN	-54.71	4.80	81	-87.21	0.00	79			
	0.00	4.80	99	0.00	4.80	99	0.98 T	4.80	70
37 MAX	76.67	0.00	76	313.47	0.00	88			
	0.00	0.00	67	0.00	0.00	67	3.21 C	0.00	78
MIN	-5.29	4.82	82	-60.24	4.82	75			
	0.00	4.82	99	0.00	4.82	99	2.62 T	4.82	79
38 MAX	58.98	0.00	78	127.90	0.00	81			
	0.00	0.00	67	0.00	0.00	67	3.22 C	0.00	78
MIN	-5.29	1.01	82	-104.05	1.01	75			
	0.00	1.01	99	0.00	1.01	99	2.62 T	1.01	79
39 MAX	58.98	0.00	78	125.17	5.85	79			
	0.00	0.00	67	0.00	0.00	67	3.21 C	0.00	78
MIN	-7.33	5.85	95	-312.53	5.85	78			
	0.00	5.85	99	0.00	5.85	99	2.62 T	5.85	79
40 MAX	32.84	0.00	78	145.79	5.85	79			
	0.00	0.00	67	0.00	0.00	67	3.17 C	0.00	78
MIN	-27.52	5.85	94	-368.47	4.68	78			
	0.00	5.85	99	0.00	5.85	99	2.62 T	5.85	79
41 MAX	6.30	0.00	90	166.71	5.85	82			
	0.00	0.00	67	0.00	0.00	67	3.07 C	0.00	78
MIN	-51.02	5.85	94	-352.41	0.00	78			
	0.00	5.85	99	0.00	5.85	99	2.62 T	5.85	79
42 MAX	5.82	0.00	80	172.28	1.05	82			
	0.00	0.00	67	0.00	0.00	67	3.02 C	0.00	78
MIN	-51.02	1.05	94	-218.33	0.00	78			
	0.00	1.05	99	0.00	1.05	99	2.62 T	1.05	79
43 MAX	5.82	0.00	80	292.86	4.80	95			
	0.00	0.00	67	0.00	0.00	67	3.02 C	0.00	78
MIN	-64.35	4.80	76	-170.43	0.00	78			
	0.00	4.80	99	0.00	4.80	99	2.62 T	4.80	79
44 MAX	52.28	0.00	95	301.69	0.00	97			
	0.00	0.00	67	0.00	0.00	67	0.10 C	0.00	95
MIN	0.00	4.77	98	0.00	2.39	98			
	0.00	4.77	99	0.00	4.77	99	0.00	4.77	98
45 MAX	26.14	0.00	95	104.58	0.00	97			
	0.00	0.00	67	0.00	0.00	67	0.05 C	0.00	95
MIN	0.00	0.05	98	0.00	0.05	98			
	0.00	0.05	99	0.00	0.05	99	0.00	0.05	98
46 MAX	26.14	0.00	95	103.25	0.00	97			
	0.00	0.00	67	0.00	0.00	67	0.05 C	0.00	95
MIN	0.00	5.57	99	0.00	5.57	99			
	0.00	5.57	99	0.00	5.57	99	0.00	5.57	99
49 MAX	6.00	0.00	98	246.62	4.26	70			
	0.00	0.00	67	0.00	0.00	67	0.28 C	0.00	81

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MIN	-16.95	4.26	74	-14.15	2.56	98			
	0.00	4.26	99	0.00	4.26	99	37.58 T	4.26	73
51 MAX	55.82	0.00	69	283.28	0.00	80			
	0.00	0.00	67	0.00	0.00	67	4.07 C	0.00	77
MIN	-5.99	1.15	81	-207.42	1.15	77			
	0.00	1.15	99	0.00	1.15	99	3.78 T	1.15	80

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

794. *3F1 MAX FLOOR BEAM FORCES ABOVE

795. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 9 10 47

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
9 MAX	0.00	0.00	67	0.00	0.00	67			
	3.99	0.00	77	17.71	4.38	77	116.32 C	0.00	72
MIN	0.00	4.38	99	0.00	4.38	99			
	-3.79	4.38	80	-16.85	4.38	80	5.99 T	4.38	81
10 MAX	0.00	0.00	67	0.00	0.00	67			
	3.97	0.00	77	23.63	1.50	77	116.32 C	0.00	72
MIN	0.00	1.50	99	0.00	1.50	99			
	-3.81	1.50	80	-22.52	1.50	80	5.99 T	1.50	81
47 MAX	0.00	0.00	67	0.00	0.00	67			
	2.93	0.00	80	9.19	0.00	77	47.14 C	0.00	72
MIN	0.00	4.27	99	0.00	4.27	99			
	-3.02	4.27	77	-8.85	0.00	80	3.76 T	4.27	81

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

796. *3F1 MAX COLUMN 4 FORCES ABOVE

797. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 11 12

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
11 MAX	3.34	0.00	77	32.14	15.47	80			
	0.00	0.00	67	0.00	0.00	67	113.30 C	0.00	86
MIN	-3.95	15.47	80	-29.12	0.00	80			
	0.00	15.47	99	0.00	15.47	99	10.14 T	15.47	78
12 MAX	3.34	0.00	77	51.05	4.81	80			
	0.00	0.00	67	0.00	0.00	67	113.30 C	0.00	86
MIN	-3.95	4.81	80	-43.56	4.81	77			
	0.00	4.81	99	0.00	4.81	99	10.14 T	4.81	78

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

798. *3F1 MAX COLUMN 3 FORCES ABOVE

799. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 13 14

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
13 MAX	2.47	0.00	82	25.22	16.17	78			
	0.00	0.00	67	0.00	0.00	67	114.71 C	0.00	91
MIN	-2.78	16.17	78	-20.15	16.17	82			
	0.00	16.17	99	0.00	16.17	99	9.00 T	16.17	77
14 MAX	2.47	0.00	82	38.42	4.81	78			
	0.00	0.00	67	0.00	0.00	67	114.71 C	0.00	91
MIN	-2.78	4.81	78	-31.99	4.81	82			
	0.00	4.81	99	0.00	4.81	99	9.00 T	4.81	77

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

800. *3F1 MAX COLUMN 2 FORCES ABOVE

801. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 15 16

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
15 MAX	3.10	0.00	78	27.01	17.99	79			
	0.00	0.00	67	0.00	0.00	67	106.41 C	0.00	96
MIN	-2.61	17.99	79	-33.86	17.99	78			
	0.00	17.99	99	0.00	17.99	99	5.82 T	17.99	80
16 MAX	3.10	0.00	78	39.43	4.81	79			
	0.00	0.00	67	0.00	0.00	67	106.41 C	0.00	96
MIN	-2.61	4.81	79	-48.57	4.81	78			
	0.00	4.81	99	0.00	4.81	99	5.82 T	4.81	80

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

802. *3F1 MAX COLUMN 1 FORCES ABOVE

803. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 1 2

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
1 MAX	2.41	0.00	77	8.53	0.00	77			
	0.00	0.00	67	0.00	0.00	67	49.56 C	0.00	69
MIN	-2.39	6.05	80	-6.80	0.00	80			
	0.00	6.05	99	0.00	6.05	99	2.91 T	6.05	81
2 MAX	0.98	0.00	79	6.87	0.00	80			
	0.00	0.00	67	0.00	0.00	67	53.58 C	0.00	73
MIN	-1.29	6.03	77	-5.91	0.00	77			
	0.00	6.03	99	0.00	6.03	99	0.33 T	6.03	78

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

804. *3F1 KNEE BRACE FORCES

805. LOAD LIST 100 TO 132

806. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 17 TO 46 49 51

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
17 MAX	0.00	0.00	100	33.52	2.86	103			
	0.00	0.00	100	0.00	0.00	100	0.00	0.00	100
	-29.54	2.86	106	0.00	2.86	131			
MIN	0.00	2.86	132	0.00	2.86	132	0.05 T	2.86	103
	0.00	0.00	107	128.60	3.22	103			
	0.00	0.00	100	0.00	0.00	100	0.00	0.00	107
18 MAX	0.00	0.00	107	0.00	3.22	131			
	-29.54	3.22	106	0.00	3.22	131	0.06 T	3.22	106
	0.00	3.22	132	0.00	3.22	132			
19 MAX	0.00	0.00	107	145.99	0.59	103			
	0.00	0.00	100	0.00	0.00	100	0.00	0.00	107
	-29.54	0.59	106	0.00	0.59	131			
MIN	0.00	0.59	132	0.00	0.59	132	0.05 T	0.59	106
	0.00	0.00	107	185.13	1.19	103			
	0.00	0.00	100	0.00	0.00	100	0.00	0.00	107
20 MAX	-59.08	1.19	106	0.00	1.19	131			
	0.00	1.19	132	0.00	1.19	132	0.11 T	1.19	106
	0.00	0.00	107	203.13	0.30	103			
21 MAX	0.00	0.00	100	0.00	0.00	100	0.00	0.00	107
	-59.08	0.30	106	0.00	0.30	131			
	0.00	0.30	132	0.00	0.30	132	0.12 T	0.30	106
22 MAX	39.16	0.00	105	279.97	0.00	103			
	0.00	0.00	100	0.00	0.00	100	1.03 C	0.00	114
	-12.54	0.43	113	-30.10	0.43	110			
MIN	0.00	0.43	132	0.00	0.43	132	40.57 T	0.43	106
	39.16	0.00	105	311.17	3.85	113			
	0.00	0.00	100	0.00	0.00	100	1.03 C	0.00	114
23 MAX	-12.54	3.85	113	-167.96	3.85	110			
	0.00	3.85	132	0.00	3.85	132	40.63 T	3.85	106
	63.08	0.00	102	307.86	0.00	113			
24 MAX	0.00	0.00	100	0.00	0.00	100	4.60 C	0.00	110
	-6.77	0.35	114	-252.45	0.35	110			
	0.00	0.35	132	0.00	0.35	132	4.26 T	0.35	113
25 MAX	63.08	0.00	102	304.13	0.00	113			
	0.00	0.00	100	0.00	0.00	100	4.59 C	0.00	110

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MIN	-6.77	5.07	114	-370.10	5.07	110			
	0.00	5.07	132	0.00	5.07	132	4.27	T	5.07 113
26 MAX	43.79	0.00	103	250.04	0.00	113			
	0.00	0.00	100	0.00	0.00	100	4.54	C	0.00 110
MIN	-37.09	5.42	116	-393.93	1.08	110			
	0.00	5.42	132	0.00	5.42	132	4.27	T	5.42 113
27 MAX	14.25	0.00	103	192.23	0.00	113			
	0.00	0.00	100	0.00	0.00	100	4.43	C	0.00 110
MIN	-66.63	5.85	110	-354.70	0.00	110			
	0.00	5.85	132	0.00	5.85	132	4.27	T	5.85 113
28 MAX	10.67	0.00	113	147.14	1.05	114			
	0.00	0.00	100	0.00	0.00	100	4.37	C	0.00 110
MIN	-66.63	1.05	110	-133.57	0.00	110			
	0.00	1.05	132	0.00	1.05	132	4.26	T	1.05 113
29 MAX	10.67	0.00	113	338.73	4.80	115			
	0.00	0.00	100	0.00	0.00	100	4.38	C	0.00 110
MIN	-80.59	4.80	119	-86.19	0.00	101			
	0.00	4.80	132	0.00	4.80	132	4.27	T	4.80 113
30 MAX	63.09	0.00	131	325.20	0.00	115			
	0.00	0.00	100	0.00	0.00	100	1.90	C	0.00 131
MIN	-9.65	4.82	111	-105.81	4.82	113			
	0.00	4.82	132	0.00	4.82	132	1.11	T	4.82 128
31 MAX	56.34	0.00	114	166.30	0.00	110			
	0.00	0.00	100	0.00	0.00	100	1.86	C	0.00 131
MIN	-9.65	1.03	111	-155.24	1.03	113			
	0.00	1.03	132	0.00	1.03	132	1.11	T	1.03 128
32 MAX	56.34	0.00	114	157.51	0.00	110			
	0.00	0.00	100	0.00	0.00	100	1.86	C	0.00 131
MIN	-9.65	5.85	111	-289.53	5.85	113			
	0.00	5.85	132	0.00	5.85	132	1.11	T	5.85 128
33 MAX	28.13	0.00	115	136.40	5.85	108			
	0.00	0.00	100	0.00	0.00	100	1.82	C	0.00 131
MIN	-24.25	5.85	122	-300.53	0.59	113			
	0.00	5.85	132	0.00	5.85	132	1.11	T	5.85 128
34 MAX	11.37	0.00	125	176.54	5.85	111			
	0.00	0.00	100	0.00	0.00	100	1.78	C	0.00 131
MIN	-33.80	5.27	121	-280.83	0.00	114			
	0.00	5.85	132	0.00	5.85	132	1.11	T	5.85 128
35 MAX	8.51	0.00	110	186.48	1.03	111			
	0.00	0.00	100	0.00	0.00	100	1.74	C	0.00 131
MIN	-33.80	1.03	121	-124.23	0.00	112			
	0.00	1.03	132	0.00	1.03	132	1.11	T	1.03 128
36 MAX	8.51	0.00	110	340.81	4.80	121			
	0.00	0.00	100	0.00	0.00	100	1.74	C	0.00 131

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MIN	-61.82	4.80	114	-98.55	0.00	112				
	0.00	4.80	132	0.00	4.80	132	1.11	T	4.80	128
37 MAX	86.64	0.00	109	354.24	0.00	121				
	0.00	0.00	100	0.00	0.00	100	3.63	C	0.00	111
MIN	-5.98	4.82	115	-68.09	4.82	108				
	0.00	4.82	132	0.00	4.82	132	2.96	T	4.82	112
38 MAX	66.65	0.00	111	144.55	0.00	114				
	0.00	0.00	100	0.00	0.00	100	3.63	C	0.00	111
MIN	-5.98	1.01	115	-117.59	1.01	108				
	0.00	1.01	132	0.00	1.01	132	2.96	T	1.01	112
39 MAX	66.65	0.00	111	141.46	5.85	112				
	0.00	0.00	100	0.00	0.00	100	3.63	C	0.00	111
MIN	-8.28	5.85	128	-353.20	5.85	111				
	0.00	5.85	132	0.00	5.85	132	2.96	T	5.85	112
40 MAX	37.11	0.00	111	164.76	5.85	112				
	0.00	0.00	100	0.00	0.00	100	3.58	C	0.00	111
MIN	-31.09	5.85	127	-416.41	4.68	111				
	0.00	5.85	132	0.00	5.85	132	2.96	T	5.85	112
41 MAX	7.12	0.00	123	188.41	5.85	115				
	0.00	0.00	100	0.00	0.00	100	3.47	C	0.00	111
MIN	-57.65	5.85	127	-398.27	0.00	111				
	0.00	5.85	132	0.00	5.85	132	2.96	T	5.85	112
42 MAX	6.57	0.00	113	194.70	1.05	115				
	0.00	0.00	100	0.00	0.00	100	3.41	C	0.00	111
MIN	-57.65	1.05	127	-246.75	0.00	111				
	0.00	1.05	132	0.00	1.05	132	2.96	T	1.05	112
43 MAX	6.57	0.00	113	330.95	4.80	128				
	0.00	0.00	100	0.00	0.00	100	3.41	C	0.00	111
MIN	-72.72	4.80	109	-192.62	0.00	111				
	0.00	4.80	132	0.00	4.80	132	2.96	T	4.80	112
44 MAX	59.08	0.00	128	340.93	0.00	130				
	0.00	0.00	100	0.00	0.00	100	0.11	C	0.00	128
MIN	0.00	4.77	131	0.00	2.39	131				
	0.00	4.77	132	0.00	4.77	132	0.00		4.77	131
45 MAX	29.54	0.00	128	118.18	0.00	130				
	0.00	0.00	100	0.00	0.00	100	0.06	C	0.00	128
MIN	0.00	0.05	131	0.00	0.05	131				
	0.00	0.05	132	0.00	0.05	132	0.00		0.05	131
46 MAX	29.54	0.00	128	116.68	0.00	130				
	0.00	0.00	100	0.00	0.00	100	0.05	C	0.00	128
MIN	0.00	5.57	132	0.00	5.57	132				
	0.00	5.57	132	0.00	5.57	132	0.00		5.57	132
49 MAX	6.78	0.00	131	278.71	4.26	103				
	0.00	0.00	100	0.00	0.00	100	0.31	C	0.00	114

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MIN	-19.15	4.26	107	-16.00	2.56	131			
	0.00	4.26	132	0.00	4.26	132	42.47 T	4.26	106
51 MAX	63.08	0.00	102	320.18	0.00	113			
	0.00	0.00	100	0.00	0.00	100	4.59 C	0.00	110
MIN	-6.77	1.15	114	-234.45	1.15	110			
	0.00	1.15	132	0.00	1.15	132	4.27 T	1.15	113

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

807. *4F1 MAX FLOOR BEAM FORCES ABOVE

808. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 9 10 47

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
9 MAX	0.00	0.00	100	0.00	0.00	100			
	4.50	0.00	110	20.02	4.38	110	131.45 C	0.00	105
MIN	0.00	4.38	132	0.00	4.38	132			
	-4.28	4.38	113	-19.06	4.38	113	6.77 T	4.38	114
10 MAX	0.00	0.00	100	0.00	0.00	100			
	4.49	0.00	110	26.71	1.50	110	131.45 C	0.00	105
MIN	0.00	1.50	132	0.00	1.50	132			
	-4.30	1.50	113	-25.45	1.50	113	6.77 T	1.50	114
47 MAX	0.00	0.00	100	0.00	0.00	100			
	3.31	0.00	113	10.39	0.00	110	53.27 C	0.00	105
MIN	0.00	4.27	132	0.00	4.27	132			
	-3.41	4.27	110	-10.00	0.00	113	4.25 T	4.27	114

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

809. *4F1 MAX COLUMN 4 FORCES ABOVE

810. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 11 12

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
11 MAX	3.77	0.00	110	36.32	15.47	113			
	0.00	0.00	100	0.00	0.00	100	128.04 C	0.00	119
MIN	-4.46	15.47	113	-32.90	0.00	113			
	0.00	15.47	132	0.00	15.47	132	11.46 T	15.47	111
12 MAX	3.77	0.00	110	57.66	4.81	113			
	0.00	0.00	100	0.00	0.00	100	128.04 C	0.00	119
MIN	-4.46	4.81	113	-49.19	4.81	110			
	0.00	4.81	132	0.00	4.81	132	11.46 T	4.81	111

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

811. *4F1 MAX COLUMN 3 FORCES ABOVE

812. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 13 14

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
13 MAX	2.79	0.00	115	28.51	16.17	111			
	0.00	0.00	100	0.00	0.00	100	129.63 C	0.00	124
MIN	-3.14	16.17	111	-22.78	16.17	115			
	0.00	16.17	132	0.00	16.17	132	10.17 T	16.17	110
14 MAX	2.79	0.00	115	43.39	4.81	111			
	0.00	0.00	100	0.00	0.00	100	129.63 C	0.00	124
MIN	-3.14	4.81	111	-36.15	4.81	115			
	0.00	4.81	132	0.00	4.81	132	10.17 T	4.81	110

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

813. *4F1 MAX COLUMN 2 FORCES ABOVE

814. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 15 16

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
15 MAX	3.51	0.00	111	30.52	17.99	112			
	0.00	0.00	100	0.00	0.00	100	120.24 C	0.00	129
MIN	-2.95	17.99	112	-38.27	17.99	111			
	0.00	17.99	132	0.00	17.99	132	6.57 T	17.99	113
16 MAX	3.51	0.00	111	44.52	4.81	112			
	0.00	0.00	100	0.00	0.00	100	120.24 C	0.00	129
MIN	-2.95	4.81	112	-54.85	4.81	111			
	0.00	4.81	132	0.00	4.81	132	6.57 T	4.81	113

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

815. *4F1 MAX COLUMN 1 FORCES ABOVE

816. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 1 2

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/	DIST	LD	MZ/	DIST	LD	FX	DIST	LD
	FZ	DIST	LD	MY	DIST	LD			
1 MAX	2.72	0.00	110	9.64	0.00	110			
	0.00	0.00	100	0.00	0.00	100	56.00 C	0.00	102
MIN	-2.70	6.05	113	-7.68	0.00	113			
	0.00	6.05	132	0.00	6.05	132	3.29 T	6.05	114
2 MAX	1.10	0.00	112	7.76	0.00	113			
	0.00	0.00	100	0.00	0.00	100	60.54 C	0.00	106
MIN	-1.45	6.03	110	-6.68	0.00	110			
	0.00	6.03	132	0.00	6.03	132	0.38 T	6.03	111

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

817. *4F1 KNEE BRACE FORCES

818. LOAD LIST 133 TO 165

819. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 17 TO 46 49 51

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
17 MAX	0.00	0.00	133	30.68	2.86	136			
	0.00	0.00	133	0.00	0.00	133	0.00	0.00	133
MIN	-27.04	2.86	136	0.00	2.86	164			
	0.00	2.86	165	0.00	2.86	165	0.05 T	2.86	139
18 MAX	0.00	0.00	140	117.71	3.22	136			
	0.00	0.00	133	0.00	0.00	133	0.00	0.00	140
MIN	-27.04	3.22	139	0.00	3.22	164			
	0.00	3.22	165	0.00	3.22	165	0.05 T	3.22	139
19 MAX	0.00	0.00	140	133.63	0.59	136			
	0.00	0.00	133	0.00	0.00	133	0.00	0.00	140
MIN	-27.04	0.59	139	0.00	0.59	164			
	0.00	0.59	165	0.00	0.59	165	0.05 T	0.59	139
20 MAX	0.00	0.00	140	169.45	1.19	136			
	0.00	0.00	133	0.00	0.00	133	0.00	0.00	140
MIN	-54.08	1.07	139	0.00	1.19	164			
	0.00	1.19	165	0.00	1.19	165	0.10 T	1.19	139
21 MAX	0.00	0.00	140	185.93	0.30	136			
	0.00	0.00	133	0.00	0.00	133	0.00	0.00	140
MIN	-54.08	0.30	139	0.00	0.30	164			
	0.00	0.30	165	0.00	0.30	165	0.11 T	0.30	139
22 MAX	35.84	0.00	138	256.26	0.00	136			
	0.00	0.00	133	0.00	0.00	133	0.94 C	0.00	147
MIN	-11.47	0.43	146	-27.54	0.43	143			
	0.00	0.43	165	0.00	0.43	165	37.13 T	0.43	139
23 MAX	35.84	0.00	138	284.79	3.85	146			
	0.00	0.00	133	0.00	0.00	133	0.94 C	0.00	147
MIN	-11.47	3.85	146	-153.70	3.85	143			
	0.00	3.85	165	0.00	3.85	165	37.18 T	3.85	139
24 MAX	57.74	0.00	135	281.76	0.00	146			
	0.00	0.00	133	0.00	0.00	133	4.22 C	0.00	143
MIN	-6.19	0.35	147	-231.04	0.35	143			
	0.00	0.35	165	0.00	0.35	165	3.91 T	0.35	146
25 MAX	57.74	0.00	135	278.35	0.00	146			
	0.00	0.00	133	0.00	0.00	133	4.21 C	0.00	143

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MIN	-6.19	5.07	147	-338.74	5.07	143			
	0.00	5.07	165	0.00	5.07	165	3.91	T	5.07 146
26 MAX	40.08	0.00	136	228.84	0.00	146			
	0.00	0.00	133	0.00	0.00	133	4.16	C	0.00 143
MIN	-33.95	5.42	149	-360.55	1.08	143			
	0.00	5.42	165	0.00	5.42	165	3.91	T	5.42 146
27 MAX	13.04	0.00	136	175.94	0.00	146			
	0.00	0.00	133	0.00	0.00	133	4.06	C	0.00 143
MIN	-60.99	5.85	143	-324.65	0.00	143			
	0.00	5.85	165	0.00	5.85	165	3.91	T	5.85 146
28 MAX	9.77	0.00	146	134.68	1.05	147			
	0.00	0.00	133	0.00	0.00	133	4.01	C	0.00 143
MIN	-60.99	1.05	143	-122.26	0.00	143			
	0.00	1.05	165	0.00	1.05	165	3.91	T	1.05 146
29 MAX	9.77	0.00	146	310.05	4.80	148			
	0.00	0.00	133	0.00	0.00	133	4.01	C	0.00 143
MIN	-73.76	4.80	152	-78.89	0.00	134			
	0.00	4.80	165	0.00	4.80	165	3.91	T	4.80 146
30 MAX	57.75	0.00	164	297.66	0.00	148			
	0.00	0.00	133	0.00	0.00	133	1.74	C	0.00 164
MIN	-8.83	4.82	144	-96.84	4.82	146			
	0.00	4.82	165	0.00	4.82	165	1.02	T	4.82 136
31 MAX	51.57	0.00	147	152.21	0.00	143			
	0.00	0.00	133	0.00	0.00	133	1.70	C	0.00 164
MIN	-8.83	1.03	144	-142.08	1.03	146			
	0.00	1.03	165	0.00	1.03	165	1.02	T	1.03 136
32 MAX	51.57	0.00	147	144.16	0.00	143			
	0.00	0.00	133	0.00	0.00	133	1.70	C	0.00 164
MIN	-8.83	5.85	144	-265.01	5.85	146			
	0.00	5.85	165	0.00	5.85	165	1.02	T	5.85 136
33 MAX	25.75	0.00	148	124.84	5.85	141			
	0.00	0.00	133	0.00	0.00	133	1.67	C	0.00 164
MIN	-22.20	5.85	155	-275.08	0.59	146			
	0.00	5.85	165	0.00	5.85	165	1.02	T	5.85 136
34 MAX	10.40	0.00	158	161.58	5.85	144			
	0.00	0.00	133	0.00	0.00	133	1.63	C	0.00 164
MIN	-30.94	5.85	154	-257.05	0.00	147			
	0.00	5.85	165	0.00	5.85	165	1.02	T	5.85 136
35 MAX	7.79	0.00	143	170.68	1.03	144			
	0.00	0.00	133	0.00	0.00	133	1.59	C	0.00 164
MIN	-30.94	1.03	154	-113.71	0.00	145			
	0.00	1.03	165	0.00	1.03	165	1.02	T	1.03 136
36 MAX	7.79	0.00	143	311.96	4.80	154			
	0.00	0.00	133	0.00	0.00	133	1.59	C	0.00 164

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MIN	-56.59	4.80	147	-90.20	0.00	145			
	0.00	4.80	165	0.00	4.80	165	1.02	T	4.80 136
37 MAX	79.31	0.00	142	324.25	0.00	154			
	0.00	0.00	133	0.00	0.00	133	3.32	C	0.00 144
MIN	-5.48	4.82	148	-62.32	4.82	141			
	0.00	4.82	165	0.00	4.82	165	2.71	T	4.82 145
38 MAX	61.00	0.00	144	132.30	0.00	147			
	0.00	0.00	133	0.00	0.00	133	3.33	C	0.00 144
MIN	-5.48	1.01	148	-107.63	1.01	141			
	0.00	1.01	165	0.00	1.01	165	2.71	T	1.01 145
39 MAX	61.00	0.00	144	129.47	5.85	145			
	0.00	0.00	133	0.00	0.00	133	3.32	C	0.00 144
MIN	-7.58	5.85	161	-323.28	5.85	144			
	0.00	5.85	165	0.00	5.85	165	2.71	T	5.85 145
40 MAX	33.97	0.00	144	150.81	5.85	145			
	0.00	0.00	133	0.00	0.00	133	3.27	C	0.00 144
MIN	-28.46	5.85	160	-381.14	4.68	144			
	0.00	5.85	165	0.00	5.85	165	2.71	T	5.85 145
41 MAX	6.52	0.00	156	172.45	5.85	148			
	0.00	0.00	133	0.00	0.00	133	3.17	C	0.00 144
MIN	-52.77	5.85	160	-364.53	0.00	144			
	0.00	5.85	165	0.00	5.85	165	2.71	T	5.85 145
42 MAX	6.02	0.00	146	178.20	1.05	148			
	0.00	0.00	133	0.00	0.00	133	3.13	C	0.00 144
MIN	-52.77	1.05	160	-225.84	0.00	144			
	0.00	1.05	165	0.00	1.05	165	2.71	T	1.05 145
43 MAX	6.02	0.00	146	302.93	4.80	161			
	0.00	0.00	133	0.00	0.00	133	3.12	C	0.00 144
MIN	-66.57	4.80	142	-176.30	0.00	144			
	0.00	4.80	165	0.00	4.80	165	2.71	T	4.80 145
44 MAX	54.08	0.00	161	312.07	0.00	163			
	0.00	0.00	133	0.00	0.00	133	0.10	C	0.00 161
MIN	0.00	4.77	164	0.00	2.39	164			
	0.00	4.77	165	0.00	4.77	165	0.00		4.77 164
45 MAX	27.04	0.00	161	108.17	0.00	163			
	0.00	0.00	133	0.00	0.00	133	0.05	C	0.00 161
MIN	0.00	0.05	164	0.00	0.05	164			
	0.00	0.05	165	0.00	0.05	165	0.00		0.05 164
46 MAX	27.04	0.00	161	106.80	0.00	163			
	0.00	0.00	133	0.00	0.00	133	0.05	C	0.00 161
MIN	0.00	5.57	165	0.00	5.57	165			
	0.00	5.57	165	0.00	5.57	165	0.00		5.57 165
49 MAX	6.21	0.00	164	255.10	4.26	136			
	0.00	0.00	133	0.00	0.00	133	0.29	C	0.00 147

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MIN	-17.53	4.26	140	-14.64	2.56	164			
	0.00	4.26	165	0.00	4.26	165	38.87 T	4.26	139
51 MAX	57.74	0.00	135	293.03	0.00	146			
	0.00	0.00	133	0.00	0.00	133	4.21 C	0.00	143
MIN	-6.19	1.15	147	-214.57	1.15	143			
	0.00	1.15	165	0.00	1.15	165	3.91 T	1.15	146

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

820. *5C1 MAX FLOOR BEAM FORCES ABOVE

821. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 9 10 47

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
9 MAX	0.00	0.00	133	0.00	0.00	133			
	4.13	0.00	143	18.32	4.38	143	120.32 C	0.00	138
MIN	0.00	4.38	165	0.00	4.38	165			
	-3.92	4.38	146	-17.43	4.38	146	6.19 T	4.38	147
10 MAX	0.00	0.00	133	0.00	0.00	133			
	4.11	0.00	143	24.44	1.50	143	120.32 C	0.00	138
MIN	0.00	1.50	165	0.00	1.50	165			
	-3.94	1.50	146	-23.29	1.50	146	6.19 T	1.50	147
47 MAX	0.00	0.00	133	0.00	0.00	133			
	3.03	0.00	146	9.51	0.00	143	48.76 C	0.00	138
MIN	0.00	4.27	165	0.00	4.27	165			
	-3.13	4.27	143	-9.15	0.00	146	3.89 T	4.27	147

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

822. *5C1 MAX COLUMN 4 FORCES ABOVE

823. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 11 12

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
11 MAX	3.45	0.00	143	33.24	15.47	146			
	0.00	0.00	133	0.00	0.00	133	117.20 C	0.00	152
MIN	-4.08	15.47	146	-30.12	0.00	146			
	0.00	15.47	165	0.00	15.47	165	10.49 T	15.47	144
12 MAX	3.45	0.00	143	52.80	4.81	146			
	0.00	0.00	133	0.00	0.00	133	117.20 C	0.00	152
MIN	-4.08	4.81	146	-45.05	4.81	143			
	0.00	4.81	165	0.00	4.81	165	10.49 T	4.81	144

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

824. *5C1 MAX COLUMN 3 FORCES ABOVE

825. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 13 14

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
13 MAX	2.55	0.00	148	26.09	16.17	144			
	0.00	0.00	133	0.00	0.00	133	118.66 C	0.00	157
MIN	-2.88	16.17	144	-20.85	16.17	148			
	0.00	16.17	165	0.00	16.17	165	9.31 T	16.17	143
14 MAX	2.55	0.00	148	39.73	4.81	144			
	0.00	0.00	133	0.00	0.00	133	118.66 C	0.00	157
MIN	-2.88	4.81	144	-33.09	4.81	148			
	0.00	4.81	165	0.00	4.81	165	9.31 T	4.81	143

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

826. *5C1 MAX COLUMN 2 FORCES ABOVE

827. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 15 16

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
15 MAX	3.21	0.00	144	27.94	17.99	145			
	0.00	0.00	133	0.00	0.00	133	110.06 C	0.00	162
MIN	-2.70	17.99	145	-35.03	17.99	144			
	0.00	17.99	165	0.00	17.99	165	6.02 T	17.99	146
16 MAX	3.21	0.00	144	40.78	4.81	145			
	0.00	0.00	133	0.00	0.00	133	110.06 C	0.00	162
MIN	-2.70	4.81	145	-50.23	4.81	144			
	0.00	4.81	165	0.00	4.81	165	6.02 T	4.81	146

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

828. *5C1 MAX COLUMN 1 FORCES ABOVE

829. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 1 2

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
1 MAX	2.49	0.00	143	8.82	0.00	143			
	0.00	0.00	133	0.00	0.00	133	51.26 C	0.00	135
MIN	-2.47	6.05	146	-7.03	0.00	146			
	0.00	6.05	165	0.00	6.05	165	3.01 T	6.05	147
2 MAX	1.01	0.00	145	7.11	0.00	146			
	0.00	0.00	133	0.00	0.00	133	55.42 C	0.00	139
MIN	-1.33	6.03	143	-6.11	0.00	143			
	0.00	6.03	165	0.00	6.03	165	0.34 T	6.03	144

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

830. *5C1 KNEE BRACE FORCES

831. LOAD LIST 166 TO 249

832. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 17 TO 46 49 51

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
17 MAX	0.00	0.00	166	2.55	2.86	166			
	0.00	0.00	166	0.00	0.00	166	0.00	0.00	166
	MIN	-23.64	2.86	166	0.00	2.86	249		
	0.00	2.86	249	0.00	2.86	249	0.04 T	2.86	166
18 MAX	0.00	0.00	167	78.64	3.22	166			
	0.00	0.00	166	0.00	0.00	166	0.00	0.00	167
	MIN	-23.64	3.22	167	0.00	3.22	249		
	0.00	3.22	249	0.00	3.22	249	0.04 T	3.22	166
19 MAX	0.00	0.00	170	92.55	0.59	166			
	0.00	0.00	166	0.00	0.00	166	0.00	0.00	170
	MIN	-23.64	0.59	166	0.00	0.59	249		
	0.00	0.59	249	0.00	0.59	249	0.04 T	0.59	166
20 MAX	0.00	0.00	170	120.75	1.19	166			
	0.00	0.00	166	0.00	0.00	166	0.00	0.00	170
	MIN	-23.64	1.19	171	0.00	1.19	249		
	0.00	1.19	249	0.00	1.19	249	0.05 T	1.19	166
21 MAX	0.00	0.00	172	127.95	0.30	166			
	0.00	0.00	166	0.00	0.00	166	0.00	0.00	172
	MIN	-23.64	0.30	166	0.00	0.30	249		
	0.00	0.30	249	0.00	0.30	249	0.05 T	0.30	166
22 MAX	33.89	0.00	176	198.40	0.43	166			
	0.00	0.00	166	0.00	0.00	166	0.49 C	0.00	208
	MIN	-7.54	0.43	166	-28.45	0.43	176		
	0.00	0.43	249	0.00	0.43	249	25.61 T	0.43	166
23 MAX	33.89	0.00	176	227.29	3.85	166			
	0.00	0.00	166	0.00	0.00	166	0.49 C	0.00	208
	MIN	-10.15	3.46	173	-114.62	3.85	180		
	0.00	3.85	249	0.00	3.85	249	25.61 T	3.85	166
24 MAX	30.20	0.00	181	218.53	0.00	166			
	0.00	0.00	166	0.00	0.00	166	2.17 C	0.00	184
	MIN	-5.06	0.35	175	-150.74	0.35	181		
	0.00	0.35	249	0.00	0.35	249	2.65 T	0.35	166
25 MAX	28.23	0.00	182	214.03	0.00	166			
	0.00	0.00	166	0.00	0.00	166	2.16 C	0.00	184

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MIN	-15.10	5.07	180	-199.53	5.07	186			
	0.00	5.07	249	0.00	5.07	249	2.65	T	5.07 166
26 MAX	18.80	0.00	187	148.64	0.00	166			
	0.00	0.00	166	0.00	0.00	166	2.12	C	0.00 184
MIN	-24.84	5.42	185	-199.53	0.00	186			
	0.00	5.42	249	0.00	5.42	249	2.65	T	5.42 166
27 MAX	12.90	0.00	166	78.75	0.00	166			
	0.00	0.00	166	0.00	0.00	166	2.08	C	0.00 186
MIN	-35.28	5.85	191	-183.09	0.00	186			
	0.00	5.85	249	0.00	5.85	249	2.65	T	5.85 166
28 MAX	12.90	0.00	166	67.90	1.05	208			
	0.00	0.00	166	0.00	0.00	166	2.07	C	0.00 184
MIN	-36.81	0.95	192	-93.29	0.00	191			
	0.00	1.05	249	0.00	1.05	249	2.65	T	1.05 166
29 MAX	12.90	0.00	166	120.85	4.80	188			
	0.00	0.00	166	0.00	0.00	166	2.08	C	0.00 184
MIN	-43.50	4.80	197	-72.30	4.80	166			
	0.00	4.80	249	0.00	4.80	249	2.65	T	4.80 166
30 MAX	42.71	0.00	203	99.24	0.00	208			
	0.00	0.00	166	0.00	0.00	166	0.71	C	0.00 208
MIN	-4.49	4.82	228	-70.14	4.82	207			
	0.00	4.82	249	0.00	4.82	249	1.07	T	4.82 166
31 MAX	35.12	0.00	208	78.80	0.00	188			
	0.00	0.00	166	0.00	0.00	166	0.71	C	0.00 208
MIN	-4.49	1.03	228	-90.68	1.03	208			
	0.00	1.03	249	0.00	1.03	249	1.07	T	1.03 166
32 MAX	19.07	0.00	203	74.62	0.00	188			
	0.00	0.00	166	0.00	0.00	166	0.67	C	0.00 208
MIN	-12.16	5.85	208	-151.17	5.27	208			
	0.00	5.85	249	0.00	5.85	249	1.07	T	5.85 166
33 MAX	10.06	0.00	209	55.73	5.85	228			
	0.00	0.00	166	0.00	0.00	166	0.63	C	0.00 209
MIN	-12.16	5.85	208	-145.65	0.00	208			
	0.00	5.85	249	0.00	5.85	249	1.07	T	5.85 166
34 MAX	10.06	0.00	209	82.01	5.85	228			
	0.00	0.00	166	0.00	0.00	166	0.63	C	0.00 209
MIN	-18.16	5.27	212	-133.95	1.76	209			
	0.00	5.85	249	0.00	5.85	249	1.07	T	5.85 166
35 MAX	4.17	0.00	213	86.64	1.03	228			
	0.00	0.00	166	0.00	0.00	166	0.63	C	0.00 208
MIN	-19.47	1.03	213	-83.29	0.00	209			
	0.00	1.03	249	0.00	1.03	249	1.07	T	1.03 166
36 MAX	4.05	0.00	188	108.20	4.80	228			
	0.00	0.00	166	0.00	0.00	166	0.63	C	0.00 208

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MIN	-41.80	4.80	212	-69.30	0.00	209			
	0.00	4.80	249	0.00	4.80	249	1.07 T	4.80	166
37 MAX	43.19	0.00	219	127.99	0.00	228			
	0.00	0.00	166	0.00	0.00	166	1.68 C	0.00	232
MIN	-8.34	4.82	249	-71.85	4.82	223			
	0.00	4.82	249	0.00	4.82	249	1.74 T	4.82	249
38 MAX	36.72	0.00	224	58.59	0.00	209			
	0.00	0.00	166	0.00	0.00	166	1.68 C	0.00	232
MIN	-8.34	1.01	249	-94.05	1.01	224			
	0.00	1.01	249	0.00	1.01	249	1.74 T	1.01	249
39 MAX	35.25	0.00	225	56.00	0.00	209			
	0.00	0.00	166	0.00	0.00	166	1.68 C	0.00	232
MIN	-10.56	5.85	224	-189.33	5.85	230			
	0.00	5.85	249	0.00	5.85	249	1.74 T	5.85	249
40 MAX	25.25	0.00	231	101.24	5.85	249			
	0.00	0.00	166	0.00	0.00	166	1.68 C	0.00	232
MIN	-18.56	5.27	229	-209.05	5.85	230			
	0.00	5.85	249	0.00	5.85	249	1.74 T	5.85	249
41 MAX	16.00	0.00	236	150.06	5.85	249			
	0.00	0.00	166	0.00	0.00	166	1.63 C	0.00	232
MIN	-29.41	5.27	235	-209.05	0.00	230			
	0.00	5.85	249	0.00	5.85	249	1.74 T	5.85	249
42 MAX	4.62	0.00	242	158.82	1.05	249			
	0.00	0.00	166	0.00	0.00	166	1.59 C	0.00	232
MIN	-31.28	1.05	236	-150.40	0.00	236			
	0.00	1.05	249	0.00	1.05	249	1.73 T	1.05	249
43 MAX	2.75	0.00	243	198.88	4.80	249			
	0.00	0.00	166	0.00	0.00	166	1.59 C	0.00	232
MIN	-40.79	4.80	241	-128.96	0.00	237			
	0.00	4.80	249	0.00	4.80	249	1.74 T	4.80	249
44 MAX	47.28	0.00	248	226.50	0.00	249			
	0.00	0.00	166	0.00	0.00	166	0.09 C	0.00	248
MIN	0.00	4.29	243	0.00	0.95	242			
	0.00	4.77	249	0.00	4.77	249	0.00	4.77	246
45 MAX	23.64	0.00	247	71.39	0.00	249			
	0.00	0.00	166	0.00	0.00	166	0.05 C	0.00	247
MIN	0.00	0.05	246	0.00	0.05	246			
	0.00	0.05	249	0.00	0.05	249	0.00	0.05	246
46 MAX	23.64	0.00	247	70.19	0.00	249			
	0.00	0.00	166	0.00	0.00	166	0.04 C	0.00	247
MIN	0.00	5.57	249	0.00	5.57	249			
	0.00	5.57	249	0.00	5.57	249	0.00	5.57	249
49 MAX	10.83	0.00	172	192.50	4.26	166			
	0.00	0.00	166	0.00	0.00	166	0.12 C	0.00	209

DXF IMPORT OF 002_1441BENT_10.DXF

-- PAGE NO. 64

MIN	-30.13	4.26	169	-15.62	2.56	174			
	0.00	4.26	249	0.00	4.26	249	27.68 T	4.26	166
51 MAX	32.18	0.00	180	233.42	0.00	166			
	0.00	0.00	166	0.00	0.00	166	2.16 C	0.00	184
MIN	-3.15	1.15	208	-143.91	1.15	181			
	0.00	1.15	249	0.00	1.15	249	2.65 T	1.15	166

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

833. *FATIGUE TRUCK MAX FLOOR BEAM FORCES ABOVE

834. FINISH

***** END OF THE STAAD.Pro RUN *****

**** DATE= APR 10,2012 TIME= 12:29:58 ****

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*****
*           For questions on STAAD.Pro, please contact           *
*   Bentley Systems Offices at the following locations           *
*                                                                 *
*           Telephone                Web / Email                 *
*                                                                 *
*   USA:           +1 (714)974-2500                               *
*   UK              +44(1454)207-000                             *
*   SINGAPORE      +65 6225-6158                                 *
*   EUROPE         +31 23 5560560                               *
*   INDIA          +91(033)4006-2021                             *
*   JAPAN          +81(03)5952-6500   http://www.ctc-g.co.jp    *
*   CHINA          +86 10 5929 7000                             *
*   THAILAND       +66(0)2645-1018/19 partha.p@reisoftwareth.com *
*                                                                 *
* Worldwide       http://selectservices.bentley.com/en-US/     *
*                                                                 *
*****
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EAST APPROACH - FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/30/2012
Date 4/13/2012

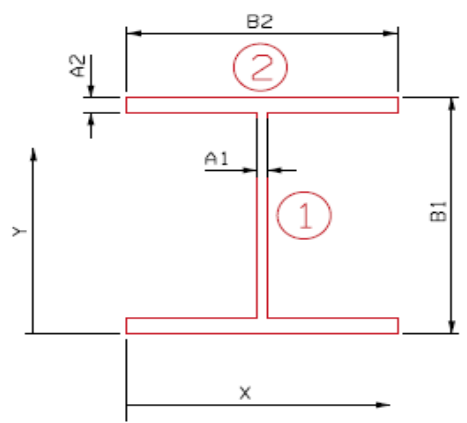
Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Red text indicates user input

Element Dimensions (without Section Losses):

$A_1 = t_w = 0.6500$ in
 $A_2 = t_f = 1.0200$ in
 $B_1 = d = 36.0000$ in
 $B_2 = b_f = 12.0000$ in
W36x160



**FB-10 @ COLUMN 410
EAST APPR. FWD SECTION**

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I _o	d	Ad ²	I _{x,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		22.0740	18.0000	397.3320	2121.4615	0.0000	0.0000	2121.4615
2	Top Flange		12.2400	35.4900	434.3976	1.0612	17.4900	3744.2172	3745.2784
	Bottom Flange		12.2400	0.5100	6.2424	1.0612	17.4900	3744.2172	3745.2784
Total			46.55		837.97	2123.58		7488.43	9612.02
Section Losses			A	y	Ay	I _o	d	Ad ²	I _{x,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties							
y-bar =	18.0000	in	S _{top} =	534.00	in ³	y-bar =	18.0000	in	S _{top} =	534.00	in ³
I _x =	9612.02	in ⁴	S _{bottom} =	534.00	in ³	I _x =	9612.02	in ⁴	S _{bottom} =	534.00	in ³
C _{top} =	18.0000	in	A =	46.5540	in ²	C _{top} =	18.0000	in	A =	46.5540	in ²
C _{bottom} =	18.0000	in	r _x =	14.3691	in	C _{bottom} =	18.0000	in	r _x =	14.3691	in
			Z =	615.56	in ³				Z =	615.56	in ³

EAST APPROACH - FORWARD SECTION



Made By FKL
 Checked By PJP

Date 3/30/2012
 Date 4/13/2012

Job No. P402110046
 Sheet No. _____

Calculations For: **CUY-2-1441**

Floorbeam Capacities

Non-composite Capacities*		
	AB	AI
M	1602.00 k-ft	1602.00 k-ft
V	460.91 k	460.91 k

$F_y =$ **36.00 ksi**

AB = As-Built
 AI = As-Inspected
 M = Moment
 V = Shear

*Noncompact Section

As-Built Moments and Shears						
	DL	HS20	2F1	3F1	4F1	5C1
M	438.28 k-ft	338.39 k-ft	166.10 k-ft	247.71 k-ft	279.93 k-ft	256.23 k-ft
V	66.46 k	8.52 k	4.21 k	6.26 k	7.07 k	6.47 k

As-Built Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.41	---	---	---	---
Operating M	2.35	4.78	3.21	2.84	3.1
As-Inspected Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.41	---	---	---	---
Operating M	2.35	4.78	3.21	2.84	3.1
As-Built Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	20.26	---	---	---	---
Operating V	33.81	68.43	46.02	40.75	44.53
As-Inspected Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	20.26	---	---	---	---
Operating V	33.81	68.43	46.02	40.75	44.53

Controlling Rating Factors and Tonnage						
	HS20 Inventory	HS20 Operating	2F1 Operating	3F1 Operating	4F1 Operating	5C1 Operating
Rating Factor	1.41	2.35	4.78	3.21	2.84	3.1
Tonnage (US Tons)	50.76	84.6	71.7	73.83	76.68	124

EAST APPROACH - FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/20/2012
Date 4/13/2012

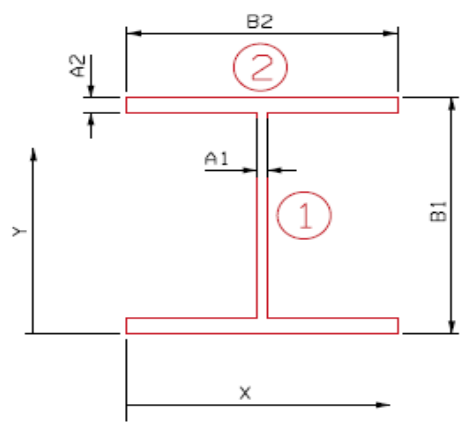
Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Red text indicates user input

Element Dimensions (without Section Losses):

$A_1 = t_w = 0.6500$ in
 $A_2 = t_f = 1.0200$ in
 $B_1 = d = 36.0000$ in
 $B_2 = b_f = 12.0000$ in
W36x160



**FB-10 @ COLUMN 210
EAST APPR. FWD SECTION**

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I _o	d	Ad ²	I _{x,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		22.0740	18.0000	397.3320	2121.4615	0.0000	0.0000	2121.4615
2	Top Flange		12.2400	35.4900	434.3976	1.0612	17.4900	3744.2172	3745.2784
	Bottom Flange		12.2400	0.5100	6.2424	1.0612	17.4900	3744.2172	3745.2784
Total			46.55		837.97	2123.58		7488.43	9612.02
Section Losses			A	y	Ay	I _o	d	Ad ²	I _{x,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	18.0000	in	S _{top} = 534.00 in ³	y-bar =	18.0000	in	S _{top} = 534.00 in ³
I _x =	9612.02	in ⁴	S _{bottom} = 534.00 in ³	I _x =	9612.02	in ⁴	S _{bottom} = 534.00 in ³
C _{top} =	18.0000	in	A = 46.5540 in ²	C _{top} =	18.0000	in	A = 46.5540 in ²
C _{bottom} =	18.0000	in	r _x = 14.3691 in	C _{bottom} =	18.0000	in	r _x = 14.3691 in
			Z = 615.56 in ³				Z = 615.56 in ³

EAST APPROACH - FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/20/2012
Date 4/13/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Floorbeam Capacities

Non-composite Capacities*		
	AB	AI
M	1602.00 k-ft	1602.00 k-ft
V	460.91 k	460.91 k

*Noncompact Section

$F_y =$	36.00 ksi
---------	------------------

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

As-Built Moments and Shears						
	DL	HS20	2F1	3F1	4F1	5C1
M	249.93 k-ft	409.41 k-ft	201.05 k-ft	299.78 k-ft	338.76 k-ft	310.08 k-ft
V	44.23 k	97.40 k	47.83 k	71.32 k	80.59 k	73.77 k

As-Built Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.44	---	---	---	---
Operating M	2.40	4.89	3.28	2.9	3.17
As-Inspected Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.44	---	---	---	---
Operating M	2.40	4.89	3.28	2.9	3.17
As-Built Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	1.91	---	---	---	---
Operating V	3.19	6.49	4.35	3.85	4.21
As-Inspected Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	1.91	---	---	---	---
Operating V	3.19	6.49	4.35	3.85	4.21

Controlling Rating Factors and Tonnage						
	HS20 Inventory	HS20 Operating	2F1 Operating	3F1 Operating	4F1 Operating	5C1 Operating
Rating Factor	1.44	2.40	4.89	3.28	2.9	3.17
Tonnage (US Tons)	51.84	86.4	73.35	75.44	78.3	126.8

EAST APPROACH - FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/20/2012
Date 4/13/2012

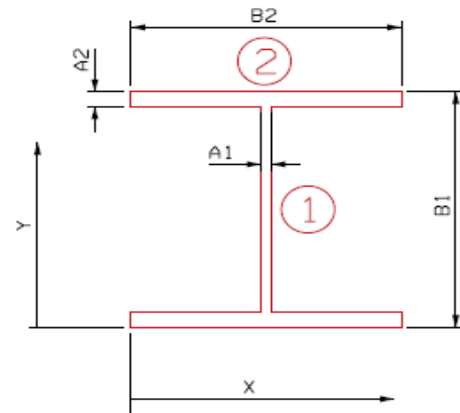
Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Red text indicates user input

Element Dimensions (without Section Losses):

$A_1 = t_w = 0.6500$ in
 $A_2 = t_f = 1.0200$ in
 $B_1 = d = 36.0000$ in
 $B_2 = b_f = 12.0000$ in
W36x160



FB-10 @ COLUMN 110
EAST APPR. FWD SECTION

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I_o	d	Ad^2	$I_{x, gross}$
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		22.0740	18.0000	397.3320	2121.4615	0.0000	0.0000	2121.4615
2	Top Flange		12.2400	35.4900	434.3976	1.0612	17.4900	3744.2172	3745.2784
	Bottom Flange		12.2400	0.5100	6.2424	1.0612	17.4900	3744.2172	3745.2784
Total			46.55		837.97	2123.58		7488.43	9612.02
Section Losses			A	y	Ay	I_o	d	Ad^2	$I_{x, loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.1250	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties							
y-bar =	18.0000	in	$S_{top} = 534.00$	in ³	y-bar =	18.0000	in	$S_{top} = 534.00$	in ³		
$I_x =$	9612.02	in ⁴	$S_{bott.} = 534.00$	in ³	$I_x =$	9612.02	in ⁴	$S_{bott.} = 534.00$	in ³		
$C_{top} =$	18.0000	in	A =	46.5540	in ²	$C_{top} =$	18.0000	in	A =	46.5540	in ²
$C_{bottom} =$	18.0000	in	$r_x =$	14.3691	in	$C_{bottom} =$	18.0000	in	$r_x =$	14.3691	in
			Z =	615.56	in ³				Z =	warning	in ³

EAST APPROACH - FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/20/2012
Date 4/13/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Floorbeam Capacities

Non-composite Capacities*		
	AB	AI
M	1602.00 k-ft	1602.00 k-ft
V	460.91 k	460.91 k

*Noncompact Section

$F_y =$	36.00 ksi
---------	------------------

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

As-Built Moments and Shears						
	DL	HS20	2F1	3F1	4F1	5C1
M	328.35 k-ft	428.13 k-ft	210.24 k-ft	313.48 k-ft	354.25 k-ft	324.26 k-ft
V	42.73 k	104.72 k	51.42 k	76.68 k	86.65 k	79.31 k

As-Built Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.26	---	---	---	---
Operating M	2.11	4.3	2.88	2.55	2.79
As-Inspected Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.26	---	---	---	---
Operating M	2.11	4.3	2.88	2.55	2.79
As-Built Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	1.78	---	---	---	---
Operating V	2.98	6.06	4.07	3.6	3.93
As-Inspected Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	1.78	---	---	---	---
Operating V	2.98	6.06	4.07	3.6	3.93

Controlling Rating Factors and Tonnage						
	HS20 Inventory	HS20 Operating	2F1 Operating	3F1 Operating	4F1 Operating	5C1 Operating
Rating Factor	1.26	2.11	4.3	2.88	2.55	2.79
Tonnage (US Tons)	45.36	75.96	64.5	66.24	68.85	111.6

EAST APPROACH - FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/20/2012
Date 4/13/2012

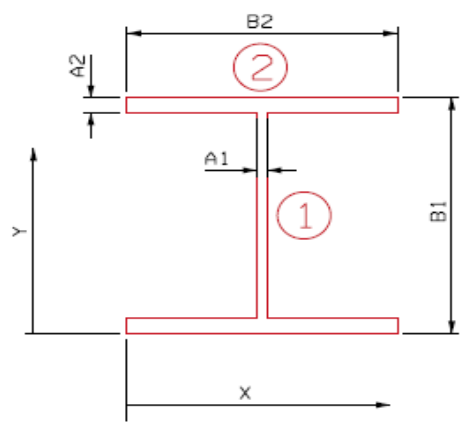
Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Red text indicates user input

Element Dimensions (without Section Losses):

$A_1 = t_w = 0.6500$ in
 $A_2 = t_f = 1.0200$ in
 $B_1 = d = 36.0000$ in
 $B_2 = b_f = 12.0000$ in
W36x160



**FB-10 Between 210 & 310
EAST APPR. FWD SECTION**

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I _o	d	Ad ²	I _{x,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		22.0740	18.0000	397.3320	2121.4615	0.0000	0.0000	2121.4615
2	Top Flange		12.2400	35.4900	434.3976	1.0612	17.4900	3744.2172	3745.2784
	Bottom Flange		12.2400	0.5100	6.2424	1.0612	17.4900	3744.2172	3745.2784
Total			46.55		837.97	2123.58		7488.43	9612.02
Section Losses			A	y	Ay	I _o	d	Ad ²	I _{x,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties							
y-bar =	18.0000	in	S _{top} =	534.00	in ³	y-bar =	18.0000	in	S _{top} =	534.00	in ³
I _x =	9612.02	in ⁴	S _{bott.} =	534.00	in ³	I _x =	9612.02	in ⁴	S _{bott.} =	534.00	in ³
C _{top} =	18.0000	in	A =	46.5540	in ²	C _{top} =	18.0000	in	A =	46.5540	in ²
C _{bottom} =	18.0000	in	r _x =	14.3691	in	C _{bottom} =	18.0000	in	r _x =	14.3691	in
			Z =	615.56	in ³				Z =	615.56	in ³

EAST APPROACH - FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/20/2012
Date 4/13/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Floorbeam Capacities

Non-composite Capacities*		
	AB	AI
M	1846.68 k-ft	1846.68 k-ft
V	460.91 k	460.91 k

*Compact Section

$F_y =$	36.00 ksi
---------	------------------

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

As-Built Moments and Shears						
	DL	HS20	2F1	3F1	4F1	5C1
M	150.59 k-ft	349.85 k-ft	171.75 k-ft	256.13 k-ft	289.45 k-ft	264.93 k-ft
V	20.95 k	25.71 k	12.63 k	18.83 k	21.28 k	19.48 k

As-Built Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	2.17	---	---	---	---
Operating M	3.63	7.39	4.96	4.39	4.79
As-Inspected Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	2.17	---	---	---	---
Operating M	3.63	7.39	4.96	4.39	4.79
As-Built Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	7.77	---	---	---	---
Operating V	12.98	26.41	17.72	15.68	17.13
As-Inspected Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	7.77	---	---	---	---
Operating V	12.98	26.41	17.72	15.68	17.13

Controlling Rating Factors and Tonnage						
	HS20 Inventory	HS20 Operating	2F1 Operating	3F1 Operating	4F1 Operating	5C1 Operating
Rating Factor	2.17	3.63	7.39	4.96	4.39	4.79
Tonnage (US Tons)	78.12	130.68	110.85	114.08	118.53	191.6

EAST APPROACH - FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/20/2012
Date 4/13/2012

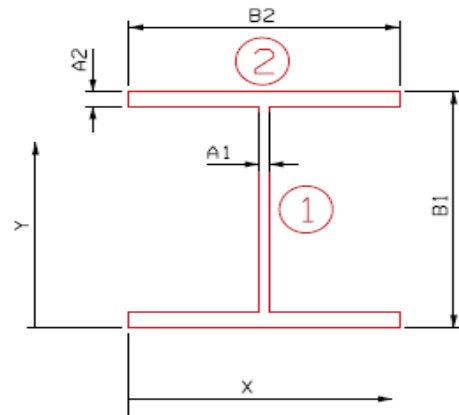
Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Red text indicates user input

Element Dimensions (without Section Losses):

$A_1 = t_w = 0.6500$ in
 $A_2 = t_f = 1.0200$ in
 $B_1 = d = 36.0000$ in
 $B_2 = b_f = 12.0000$ in
W36x160



**FB-10 @ Between 110 & 210
EAST APPR. FWD SECTION**

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I _o	d	Ad ²	I _{x,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		22.0740	18.0000	397.3320	2121.4615	0.0000	0.0000	2121.4615
2	Top Flange		12.2400	35.4900	434.3976	1.0612	17.4900	3744.2172	3745.2784
	Bottom Flange		12.2400	0.5100	6.2424	1.0612	17.4900	3744.2172	3745.2784
Total			46.55		837.97	2123.58		7488.43	9612.02
Section Losses			A	y	Ay	I _o	d	Ad ²	I _{x,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	18.0000	in	S _{top} = 534.00 in ³	y-bar =	18.0000	in	S _{top} = 534.00 in ³
I _x =	9612.02	in ⁴	S _{bott.} = 534.00 in ³	I _x =	9612.02	in ⁴	S _{bott.} = 534.00 in ³
C _{top} =	18.0000	in	A = 46.5540 in ²	C _{top} =	18.0000	in	A = 46.5540 in ²
C _{bottom} =	18.0000	in	r _x = 14.3691 in	C _{bottom} =	18.0000	in	r _x = 14.3691 in
			Z = 615.56 in ³				Z = 615.56 in ³

EAST APPROACH - FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/20/2012
Date 4/13/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Floorbeam Capacities

Non-composite Capacities*		
	AB	AI
M	1846.68 k-ft	1846.68 k-ft
V	460.91 k	460.91 k

*Compact Section

$F_y =$	36.00 ksi
---------	------------------

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

As-Built Moments and Shears						
	DL	HS20	2F1	3F1	4F1	5C1
M	105.94 k-ft	503.31 k-ft	247.16 k-ft	368.53 k-ft	416.46 k-ft	381.20 k-ft
V	18.56 k	37.58 k	18.45 k	27.52 k	31.10 k	28.46 k

As-Built Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.56	---	---	---	---
Operating M	2.61	5.32	3.57	3.16	3.45
As-Inspected Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.56	---	---	---	---
Operating M	2.61	5.32	3.57	3.16	3.45
As-Built Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	5.36	---	---	---	---
Operating V	8.94	18.21	12.21	10.81	11.8
As-Inspected Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	5.36	---	---	---	---
Operating V	8.94	18.21	12.21	10.81	11.8

Controlling Rating Factors and Tonnage						
	HS20 Inventory	HS20 Operating	2F1 Operating	3F1 Operating	4F1 Operating	5C1 Operating
Rating Factor	1.56	2.61	5.32	3.57	3.16	3.45
Tonnage (US Tons)	56.16	93.96	79.8	82.11	85.32	138



Calculated: FKL Date: 3/26/2012
 Checked: PJP Date: 4/12/2012

CUY-2-1441 Load Rating Analysis - As-Built
Main Ave Bridge
East Approach Fwd Section - Bent 10

Column: C410

Section Properties 14WF68

A =	20.000	in ²	I _x =	724.100	in ⁴
h =	14.060	in	S _x =	103.000	in ³
b _f =	10.040	in	r _x =	6.020	in
t _f =	0.718	in	I _y =	121.200	in ⁴
t _w =	0.418	in	S _y =	24.100	in ³
			r _y =	2.460	in
F _y =	33.0	ksi	Z	112.8	in ³
E =	29000	ksi			
L _{cx} =	121.80	in			
L _{cy} =	70.56	in			
K _x =	0.800	AASHTO Appendix C			
K _y =	0.800	AASHTO Appendix C			

Axial Loading

$$P_u = 0.85 A_s F_{cr}$$

AASHTO 10.54 Concentrically Loaded Columns

$$F_{cr} = F_y \left(1 - \frac{F_y}{4\pi^2 E} \left(\frac{KL_c}{r} \right)^2 \right)$$

$$\text{For: } \frac{KL_c}{r} \leq \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$F_{cr} = \frac{\pi^2 E}{\left(\frac{KL_c}{r} \right)^2}$$

$$\text{For: } \frac{KL_c}{r} > \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$KL/r_y = 22.946 < 131.706$$

$$KL/r_x = 16.186 < 131.706$$

$$F_{CR} = 32.499 \text{ ksi}$$

$$P_u = 552.5 \text{ k}$$



Calculated: FKL Date: 3/26/2012
 Checked: PJP Date: 4/12/2012

CUY-2-1441 Load Rating Analysis - As-Built

Main Ave Bridge

East Approach Fwd Section - Bent 10

Column: C410

Axial Loading and Bending

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_e}\right)} \leq 1.0$$

AASHTO 10.54.2 Combined Axial Load and Bending

$$= 0.6 + 0.4$$

$$a = 0 \quad \text{**When moment is small assume } a = 0$$

$$C = 0.600$$

$$F_e = \frac{E\pi^2}{\left(\frac{KL_c}{r}\right)^2}$$

$$F_{ex} = 1092.487 \text{ ksi}$$

$$F_{ey} = 543.589 \text{ ksi}$$

Column Moment Capacity

Weak Axis Bending

$M_u = F_y S_y$ For Non-Compact Section

$$M_{uy} = 66.3 \text{ k-ft}$$

CUY-2-1441 Load Rating Analysis - As-Built
 Main Ave Bridge
 East Approach Forward Section - Column 410 Ratings
 Column Loading



Calculated: FKL 3/19/2012
 Checked: PJP 4/12/2012

	DL	HS-20	2F1	3F1	4F1	5C1
Max Axial	130.62	158.86	78.01	116.32	131.45	120.32
Moment	0.01	0.387	0.21	3.61	0.38	0.28
Axial	129.89	77.07	30.60	56.43	63.77	58.37
Max Moment	0.12	32.28	15.10	22.52	26.71	24.44

DL Factor	LL Factor	Factored Loads				Capacities			$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_c}\right)} \leq 1.0$	Condition Equation	RF
		Axial Force		Moment		P _u	M _u	A _s F _{ev}			
		Dead Load	Max. LL + I	Dead Load	Max LL + I						
1.30	2.17 INV	1.30 OPER									
HS20 INV	C410	169.806	344.20	0.01	0.84	552.50	66.30	10871.78	1.00	1.10	
HS20 INV	C410	168.857	166.99	0.16	69.94	552.50	66.30	10871.78	1.00	0.73	
HS20 OPR	C410	169.806	206.52	0.01	0.50	552.50	66.30	10871.78	1.00	1.83	
HS20 OPR	C410	168.857	100.19	0.16	41.96	552.50	66.30	10871.78	1.00	1.21	
2F1	C410	169.806	101.41	0.01	0.27	552.50	66.30	10871.78	1.00	3.72	
2F1	C410	168.857	39.78	0.16	19.63	552.50	66.30	10871.78	1.00	2.73	
3F1	C410	169.806	151.22	0.01	4.69	552.50	66.30	10871.78	1.00	2.18	
3F1	C410	168.857	73.36	0.16	29.28	552.50	66.30	10871.78	1.00	1.71	
4F1	C410	169.806	170.89	0.01	0.49	552.50	66.30	10871.78	1.00	2.20	
4F1	C410	168.857	82.90	0.16	34.72	552.50	66.30	10871.78	1.00	1.47	
5C1	C410	169.806	156.42	0.01	0.36	552.50	66.30	10871.78	1.00	2.42	
5C1	C410	168.857	75.88	0.16	31.77	552.50	66.30	10871.78	1.00	1.60	

Knee braces added in rehabilitation cause bending about the weak axis. Original design and details probably treated this member as axial only.

Load Case	Controlling RF
HS20 INV	0.73
HS20 OPER	1.21
2F1	2.73
3F1	1.71
4F1	1.47
5C1	1.60



Calculated: FKL Date: 3/19/2012

Checked: PJP Date: 4/12/2012

CUY-2-1441 Load Rating Analysis - As-Built

Main Ave Bridge

East Approach Fwd Section - Bent 10

Column: **C310**

Section Properties	W14x90	C310 Replaced in Rehabilitation
A =	26.500 in ²	I _x = 999.000 in ⁴
h =	14.000 in	S _x = 143.000 in ³
b _f =	14.500 in	r _x = 6.140 in
t _f =	0.710 in	I _y = 362.000 in ⁴
t _w =	0.440 in	S _y = 49.900 in ³
F _y =	36.0 ksi	r _y = 3.700 in
E =	29000 ksi	Z _x = 157 in ³
L _{cx} =	243.35 in	
L _{cy} =	243.35 in	
K _x =	0.650	AASHTO Appendix C
K _y =	0.650	AASHTO Appendix C

Axial Loading

$$P_u = 0.85 A_s F_{cr}$$

AASHTO 10.54 Concentrically Loaded Columns

$$F_{cr} = F_y \left(1 - \frac{F_y}{4\pi^2 E} \left(\frac{KL_c}{r} \right)^2 \right)$$

$$\text{For: } \frac{KL_c}{r} \leq \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$F_{cr} = \frac{\pi^2 E}{\left(\frac{KL_c}{r} \right)^2}$$

$$\text{For: } \frac{KL_c}{r} > \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$KL/r_y = 42.751 < 126.099$$

$$KL/r_x = 25.762 < 126.099$$

$$F_{CR} = 33.931 \text{ ksi}$$

$$P_u = 764.3 \text{ k}$$



Calculated: FKL Date: 3/19/2012

Checked: PJP Date: 4/12/2012

CUY-2-1441 Load Rating Analysis - As-Built**Main Ave Bridge****East Approach Fwd Section - Bent 10****Column: C310**Axial Loading and Bending

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_e}\right)} \leq 1.0$$

AASHTO 10.54.2 Combined Axial Load and Bending

$$= 0.6 + 0.4$$

a = 0 **When moment is small assume a = 0

$$C = 0.600$$

$$F_e = \frac{E\pi^2}{\left(\frac{KL_c}{r}\right)^2}$$

$$F_{ex} = 431.260 \text{ ksi}$$

$$F_{ey} = 156.605 \text{ ksi}$$

Column Compactness Check $M_u = F_y Z$ For Compact Section $M_u = F_y S$ For Non-Compact Section

$$\frac{b}{t} \leq \frac{4110}{\sqrt{F_y}}$$

$$20.423 < 21.662$$

$$\frac{D}{t_w} \leq \frac{19230}{\sqrt{F_y}}$$

$$28.591 < 101.351$$

$$\frac{L}{r_y} \leq \frac{\left(3.6 - 2.2 \frac{M_1}{M_u}\right) \times 10^6}{F_y}$$

$$65.771 < 100.000$$

Column Moment Capacity

Compact Section

$$M_{uy} = 471.0 \text{ k-ft}$$

CUY-2-1441 Load Rating Analysis - As-Built

Main Ave Bridge

East Approach Forward Section - Column 310 Ratings



Calculated:

FKL 3/19/2012

Checked:

PJP 4/12/2012

Column Loading

	DL	HS-20	2F1	3F1	4F1	5C1
Max Axial	101.34	154.75	75.99	113.30	128.04	117.20
Moment	0.58	13.72	7.07	16.28	11.34	10.92
Axial	99.43	44.95	22.09	32.92	37.20	34.05
Max Moment	4.05	69.64	34.27	51.05	57.66	52.80

DL Factor

1.30

LL Factor

2.17 INV

1.30 OPER

Factored Loads

Axial Force

Moment

Capacities

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_c}\right)} \leq 1.0$$

Load Case	Member	Axial Force		Moment		P _u	M _u	A _s F _c	Condition Equation	RF
		Dead Load	Max. LL + I	Dead Load	Max LL + I					
HS20 INV	C310	131.742	335.29	0.75	29.73	764.30	471.00	11428.39	1.00	1.73
HS20 INV	C310	129.259	97.39	5.27	150.89	764.30	471.00	11428.39	1.00	2.53
HS20 OPR	C310	131.742	201.18	0.75	17.84	764.30	471.00	11428.39	1.00	2.88
HS20 OPR	C310	129.259	58.44	5.27	90.53	764.30	471.00	11428.39	1.00	4.21
2F1	C310	131.742	98.79	0.75	9.19	764.30	471.00	11428.39	1.00	5.83
2F1	C310	129.259	28.72	5.27	44.55	764.30	471.00	11428.39	1.00	8.56
3F1	C310	131.742	147.29	0.75	21.16	764.30	471.00	11428.39	1.00	3.73
3F1	C310	129.259	42.80	5.27	66.37	764.30	471.00	11428.39	1.00	5.75
4F1	C310	131.742	166.45	0.75	14.74	764.30	471.00	11428.39	1.00	3.48
4F1	C310	129.259	48.36	5.27	74.96	764.30	471.00	11428.39	1.00	5.09
5C1	C310	131.742	152.36	0.75	14.20	764.30	471.00	11428.39	1.00	3.78
5C1	C310	129.259	44.27	5.27	68.64	764.30	471.00	11428.39	1.00	5.56

Load Case	Controlling RF
HS20 INV	1.73
HS20 OPR	2.88
2F1	5.83
3F1	3.73
4F1	3.48
5C1	3.78



Calculated: FKL Date: 3/19/2012

Checked: PJP Date: 4/12/2012

CUY-2-1441 Load Rating Analysis - As-Built

Main Ave Bridge

East Approach Fwd Section - Bent 10

Column:	C210
---------	------

Section Properties 14WF78

A =	22.940	in ²	I _x =	851.200	in ⁴
h =	14.060	in	S _x =	121.100	in ³
b _f =	12.000	in	r _x =	6.090	in
t _f =	0.718	in	I _y =	206.900	in ⁴
t _w =	0.428	in	S _y =	34.500	in ³
			r _y =	3.000	in
F _y =	33.0	ksi	Z _x =	132	in ³
E =	29000	ksi			
L _{cx} =	251.76	in			
L _{cy} =	251.76	in			
K _x =	0.650	AASHTO Appendix C			
K _y =	0.650	AASHTO Appendix C			

Axial Loading

$$P_u = 0.85 A_s F_{cr}$$

AASHTO 10.54 Concentrically Loaded Columns

$$F_{cr} = F_y \left(1 - \frac{F_y}{4\pi^2 E} \left(\frac{KL_c}{r} \right)^2 \right)$$

$$\text{For: } \frac{KL_c}{r} \leq \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$F_{cr} = \frac{\pi^2 E}{\left(\frac{KL_c}{r} \right)^2}$$

$$\text{For: } \frac{KL_c}{r} > \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$KL/r_y = 54.548 < 131.706$$

$$KL/r_x = 26.871 < 131.706$$

$$F_{CR} = 30.170 \text{ ksi}$$

$P_u = 588.3 \text{ k}$



Calculated: FKL Date: 3/19/2012
 Checked: PJP Date: 4/12/2012

CUY-2-1441 Load Rating Analysis - As-Built
Main Ave Bridge

East Approach Fwd Section - Bent 10

Column: C210

Axial Loading and Bending

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_e}\right)} \leq 1.0$$

AASHTO 10.54.2 Combined Axial Load and Bending

$$= 0.6 + 0.4$$

$$a = 0 \quad \text{**When moment is small assume } a = 0$$

$$C = 0.600$$

$$F_e = \frac{E\pi^2}{\left(\frac{KL_c}{r}\right)^2} \quad \begin{matrix} F_{ex} = 396.399 \text{ ksi} \\ F_{ey} = 96.192 \text{ ksi} \end{matrix}$$

Column Compactness Check

$M_u = F_y Z$ For Compact Section

$M_u = F_y S$ For Non-Compact Section

$$\frac{b}{t} \leq \frac{4110}{\sqrt{F_y}}$$

$$16.713 < 22.625$$

$$\frac{D}{t_w} \leq \frac{19230}{\sqrt{F_y}}$$

$$29.495 < 105.858$$

$$\frac{L}{r_y} \leq \frac{\left(3.6 - 2.2 \frac{M_1}{M_u}\right) \times 10^6}{F_y}$$

$$83.920 < 109.091$$

Column Moment Capacity

Compact Section

$$M_{uy} = 363.0 \text{ k-ft}$$

CUY-2-1441 Load Rating Analysis - As-Built

Main Ave Bridge

East Approach Forward Section - Column 210 Ratings



Calculated:

FKL 3/19/2012

Checked:

PJP 4/12/2012

Column Loading

	DL	HS-20	2F1	3F1	4F1	5C1
Max Axial	108.66	156.67	76.93	114.71	129.63	118.66
Moment	5.53	12.39	9.37	13.95	15.75	14.42
Axial	106.86	92.22	63.73	67.52	76.30	69.84
Max Moment	7.16	52.39	25.80	38.42	43.39	39.73

DL Factor

1.30

LL Factor

2.17 INV

1.30 OPER

Factored Loads

Axial Force

Moment

Capacities

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_c}\right)} \leq 1.0$$

Load Case	Member	Axial Force		Moment		P _u	M _u	A _s F _c	Condition Equation	RF
		Dead Load	Max. LL + I	Dead Load	Max LL + I					
HS20 INV	C210	141.258	339.45	7.19	26.85	588.30	363.00	9093.38	1.00	1.20
HS20 INV	C210	138.918	199.81	9.31	113.51	588.30	363.00	9093.38	1.00	1.39
HS20 OPR	C210	141.258	203.67	7.19	16.11	588.30	363.00	9093.38	1.00	2.00
HS20 OPR	C210	138.918	119.89	9.31	68.11	588.30	363.00	9093.38	1.00	2.32
2F1	C210	141.258	100.01	7.19	12.18	588.30	363.00	9093.38	1.00	3.91
2F1	C210	138.918	82.85	9.31	33.54	588.30	363.00	9093.38	1.00	3.75
3F1	C210	141.258	149.12	7.19	18.14	588.30	363.00	9093.38	1.00	2.62
3F1	C210	138.918	87.78	9.31	49.95	588.30	363.00	9093.38	1.00	3.17
4F1	C210	141.258	168.52	7.19	20.48	588.30	363.00	9093.38	1.00	2.32
4F1	C210	138.918	99.19	9.31	56.41	588.30	363.00	9093.38	1.00	2.81
5C1	C210	141.258	154.26	7.19	18.75	588.30	363.00	9093.38	1.00	2.53
5C1	C210	138.918	90.79	9.31	51.65	588.30	363.00	9093.38	1.00	3.07

Load Case	Controlling RF
HS20 INV	1.20
HS20 OPER	2.00
2F1	3.75
3F1	2.62
4F1	2.32
5C1	2.53



Calculated: FKL Date: 3/19/2012
 Checked: PJP Date: 4/12/2012

CUY-2-1441 Load Rating Analysis - As-Built
Main Ave Bridge
East Approach Fwd Section - Bent 10

Column: C110

Section Properties 14WF78

A =	22.940	in ²	I _x =	851.200	in ⁴
h =	14.060	in	S _x =	121.100	in ³
b _f =	12.000	in	r _x =	6.090	in
t _f =	0.718	in	I _y =	206.900	in ⁴
t _w =	0.428	in	S _y =	34.500	in ³
			r _y =	3.000	in
F _y =	33.0	ksi	Z _x =	132	in ³
E =	29000	ksi			
L _{cx} =	273.57	in			
L _{cy} =	273.57	in			
K _x =	0.650	AASHTO Appendix C			
K _y =	0.650	AASHTO Appendix C			

Axial Loading

$$P_u = 0.85 A_s F_{cr}$$

AASHTO 10.54 Concentrically Loaded Columns

$$F_{cr} = F_y \left(1 - \frac{F_y}{4\pi^2 E} \left(\frac{KL_c}{r} \right)^2 \right)$$

$$\text{For: } \frac{KL_c}{r} \leq \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$F_{cr} = \frac{\pi^2 E}{\left(\frac{KL_c}{r} \right)^2}$$

$$\text{For: } \frac{KL_c}{r} > \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$KL/r_y = 59.274 < 131.706$$

$$KL/r_x = 29.199 < 131.706$$

$$F_{CR} = 29.658 \text{ ksi}$$

$$P_u = 578.3 \text{ k}$$



Calculated: FKL Date: 3/19/2012
 Checked: PJP Date: 4/12/2012

CUY-2-1441 Load Rating Analysis - As-Built
Main Ave Bridge

East Approach Fwd Section - Bent 10

Column: C110

Axial Loading and Bending

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_e}\right)} \leq 1.0$$

AASHTO 10.54.2 Combined Axial Load and Bending

$$= 0.6 + 0.4$$

a = 0 **When moment is small assume a = 0
 C = 0.600

$$F_e = \frac{E\pi^2}{\left(\frac{KL_c}{r}\right)^2}$$

$F_{ex} = 335.713 \text{ ksi}$
 $F_{ey} = 81.466 \text{ ksi}$

Column Compactness Check

$M_u = F_y Z$ For Compact Section

$M_u = F_y S$ For Non-Compact Section

$$\frac{b}{t} \leq \frac{4110}{\sqrt{F_y}}$$

$$16.713 < 22.625$$

$$\frac{D}{t_w} \leq \frac{19230}{\sqrt{F_y}}$$

$$29.495 < 105.858$$

$$\frac{L}{r_y} \leq \frac{\left(3.6 - 2.2 \frac{M_1}{M_u}\right) \times 10^6}{F_y}$$

$$91.190 < 109.091$$

Column Moment Capacity

Compact Section

$$M_{ux} = 363.0 \text{ k-ft}$$

CUY-2-1441 Load Rating Analysis - As-Built

Main Ave Bridge

East Approach Forward Section - Column 110 Ratings



Calculated:

FKL 3/19/2012

Checked:

PJP 4/12/2012

Column Loading

	DL	HS-20	2F1	3F1	4F1	5C1
Max Axial	110.51	145.32	71.36	106.41	120.24	110.06
Moment	1.71	6.46	5.07	7.54	5.68	7.80
Axial	108.55	62.24	30.57	45.58	51.51	47.15
Max Moment	7.06	66.22	32.62	48.57	54.85	50.23

DL Factor 1.30
LL Factor 2.17 INV
1.30 OPER

Factored Loads				Capacities		
Axial Force		Moment		P _u	M _u	A _s F _{ex}
Dead Load	Max. LL + I	Dead Load	Max LL + I			

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_c}\right)} \leq 1.0$$

Load Case	Member	kips	kips	k-ft	k-ft	kips	k-ft	kips	Condition Equation	RF
HS20 INV	C110	143.663	314.86	2.22	14.00	578.30	363.00	7701.27	1.00	1.31
HS20 INV	C110	141.115	134.85	9.18	143.48	578.30	363.00	7701.27	1.00	1.53
HS20 OPR	C110	143.663	188.92	2.22	8.40	578.30	363.00	7701.27	1.00	2.19
HS20 OPR	C110	141.115	80.91	9.18	86.09	578.30	363.00	7701.27	1.00	2.56
2F1	C110	143.663	92.77	2.22	6.59	578.30	363.00	7701.27	1.00	4.34
2F1	C110	141.115	39.74	9.18	42.41	578.30	363.00	7701.27	1.00	5.20
3F1	C110	143.663	138.33	2.22	9.80	578.30	363.00	7701.27	1.00	2.91
3F1	C110	141.115	59.25	9.18	63.14	578.30	363.00	7701.27	1.00	3.49
4F1	C110	143.663	156.31	2.22	7.38	578.30	363.00	7701.27	1.00	2.64
4F1	C110	141.115	66.96	9.18	71.31	578.30	363.00	7701.27	1.00	3.09
5C1	C110	143.663	143.08	2.22	10.14	578.30	363.00	7701.27	1.00	2.82
5C1	C110	141.115	61.30	9.18	65.30	578.30	363.00	7701.27	1.00	3.37

Load Case	Controlling RF
HS20 INV	1.31
HS20 OPR	2.19
2F1	4.34
3F1	2.91
4F1	2.64
5C1	2.82



Made By PJP
 Checked By MTN

Date 3/21/2012
 Date 4/10/2012

Job No. P402110046
 Sheet No. _____

Calculations For: **CUY-2-1441 - East Approach Forward Section**

Bent 11 Reactions

Dead Load Reactions from MDX

Unit 8		
Stringer	DL1	DL2
F1-8	10.12	1.02
S1-8	8.62	1.02
S2-8	8.77	1.02
S3-8	9.48	1.02
S4-8	9.48	1.02
S5-8	9.48	1.02
S6-8	9.48	1.02
S7-8	9.47	1.02
S8-8	9.48	1.02
S9-8	9.48	1.02
S10-8	9.48	1.02
S11-8	9.48	1.02
S12-8	9.48	1.02
S13-8	9.48	1.02
S14-8	9.20	1.02
S15-8	8.92	1.02
S16-8	9.53	1.02
S17-8	10.23	1.03
S18-8	10.23	1.03
S19-8	8.43	1.04
F2-8	7.91	1.05

Unit 9		
Stringer	DL1	DL2
F1-9	14.34	1.30
S1-9	13.34	1.30
S2-9	13.57	1.30
S3-9	14.59	1.30
S4-9	14.59	1.30
S5-9	14.59	1.30
S6-9	14.59	1.30
S7-9	14.57	1.30
S8-9	14.59	1.30
S9-9	14.59	1.30
S10-9	14.59	1.30
S11-9	14.59	1.30
S12-9	14.59	1.30
S13-9	14.59	1.30
S14-9	14.18	1.30
S15-9	13.77	1.30
S16-9	12.43	1.30
S17-9	11.08	1.30
S18-9	11.08	1.30
S19-9	11.08	1.30
S20-9	11.26	1.31
S21-9	11.26	1.31
S22-9	11.76	1.32
F2-9	11.81	1.33

Bent 11 Reaction	
Stringer	Total DL
F1-8 + F1-9	26.78
S1-8 + S1-9	24.28
S2-8 + S2-9	24.66
S3-8 + S3-9	26.39
S4-8 + S4-9	26.39
S5-8 + S5-9	26.39
S6-8 + S6-9	26.39
S7-8 + S7-9	26.36
S8-8 + S8-9	26.39
S9-8 + S9-9	26.39
S10-8 + S10-9	26.39
S11-8 + S11-9	26.39
S12-8 + S12-9	26.39
S13-8 + S13-9	26.39
S14-8 + S14-9	25.70
S15-8 + S15-9	25.01
S16-8 + S16-9	24.28
+ S17-9	12.38
S17-8 + S18-9	23.64
+ S19-9	12.38
S18-8 + S20-9	23.83
+ S21-9	12.57
S19-8 + S22-9	22.55
F2-8 + F2-9	22.10

Live Load Reactions from STAAD

	LL	Ratio to HS-20	LL+I	3 Lanes	4+ Lanes
HS-20	29.03	1.00000	37.7	33.9	28.3
2F1	13.83	0.476404	18.0		
3F1	20.52	0.706855	26.6		
4F1	23.51	0.809852	30.5		
5C1	23.79	0.819497	30.9		
Fatigue	21.77	0.75000	25.0		

Reactions per wheel line at Bent 11

Impact Factor

Span 11 31.505
 Span 12 56
 L_{avg} 43.75

Impact = 1.296
 I_{fat} = 1.150

Mult Presence Factors

3 Lane 0.9
 4 or more 0.75

```

*****
*
*          STAAD.Pro V8i SELECTseries1          *
*          Version  20.07.06.35                 *
*          Proprietary Program of              *
*          Bentley Systems, Inc.               *
*          Date=    APR 10, 2012               *
*          Time=    11:24:52                  *
*
*          USER ID: TranSystems                *
*****

```

```

1. STAAD SPACE
INPUT FILE: Bent 11 Truck Loads.STD
2. START JOB INFORMATION
3. ENGINEER DATE 3/28/11
4. JOB NAME CUY-2-1441 EAST APPROACH FWD SECTION
5. JOB CLIENT ODOT
6. JOB NO P402110046
7. JOB REV REV 0
8. JOB REF BENT 11 TRUCK LOADS
9. ENGINEER NAME PJP
10. JOB PART EAST APPRAOCH FWD SECTION
11. END JOB INFORMATION
12. INPUT WIDTH 79
13. UNIT FEET KIP
14. JOINT COORDINATES
15. 11 -87.505 0 1; 12 -56 0 1; 13 0 0 1; 14 0 -0.1 1; 15 31.505 0 1
16. 21 -87.505 0 2; 22 -56 0 2; 23 0 0 2; 24 0 -0.1 2; 25 31.505 0 2
17. 31 -87.505 0 3; 32 -56 0 3; 33 0 0 3; 34 0 -0.1 3; 35 31.505 0 3
18. 41 -87.505 0 4; 42 -56 0 4; 43 0 0 4; 44 0 -0.1 4; 45 31.505 0 4
19. 51 -87.505 0 5; 52 -56 0 5; 53 0 0 5; 54 0 -0.1 5; 55 31.505 0 5
20. MEMBER INCIDENCES
21. 11 11 12; 12 12 13; 13 13 14; 14 13 15; 21 21 22; 22 22 23; 23 23 24; 24 23 25
22. 31 31 32; 32 32 33; 33 33 34; 34 33 35; 41 41 42; 42 42 43; 43 43 44; 44 43 45
23. 51 51 52; 52 52 53; 53 53 54; 54 53 55
24. MEMBER RELEASE
25. 12 22 32 42 52 END MZ
26. 14 24 34 44 54 START MZ
27. DEFINE MATERIAL START
28. ISOTROPIC STEEL
29. E 4.176E+006
30. POISSON 0.3
31. DENSITY 0.489024
32. ALPHA 6.5E-006
33. DAMP 0.03
34. END DEFINE MATERIAL
35. MEMBER PROPERTY AMERICAN
36. 11 21 31 41 51 TABLE ST W27X84
37. 12 13 22 23 32 33 42 43 52 53 TABLE ST W27X84
38. 14 24 34 44 54 TABLE ST W24X84
39. CONSTANTS
40. MATERIAL STEEL ALL

```

STAAD SPACE

-- PAGE NO. 2

```

41. SUPPORTS
42. 14 24 34 44 54 FIXED
43. 11 12 15 21 22 25 31 32 35 41 42 45 51 52 55 FIXED BUT FX MZ
44. DEFINE MOVING LOAD
45. *HS20 TRUCK
46. TYPE 1 LOAD 16 16 4
47. DIST 14 14
48. *TYPE 2F1 TRUCK
49. TYPE 2 LOAD 10 5
50. DIST 10
51. *TYPE 3F1 TRUCK
52. TYPE 3 LOAD 8.5 8.5 6
53. DIST 4 10
54. *TYPE 4F1 TRUCK
55. TYPE 4 LOAD 7 7 7 6
56. DIST 4 4 10
57. *TYPE 5C1 TRUCK
58. TYPE 5 LOAD 8.5 8.5 8.5 8.5 6
59. DIST 4 31 4 12
60. *HS20 TRAVELING UP STATION
61. LOAD GENERATION 29
**WARNING- THIS STRUCTURE IS DISJOINTED. IGNORE IF
      MASTER/SLAVE OR IF UNCONNECTED JOINTS.
62. TYPE 1 -28 0 1 XINC 1
63. *HS20 TRAVELING DOWN STATION
64. LOAD GENERATION 29
65. TYPE 1 28 0 1 XINC -1.
66. *TYPE 2F1 TRAVELING UP STATION
67. LOAD GENERATION 11
68. TYPE 2 -10 0 2 XINC 1
69. *TYPE 2F1 TRAVELING DOWN STATION
70. LOAD GENERATION 11
71. TYPE 2 10 0 2 XINC -1.
72. *TYPE 3F1 TRAVELING UP STATION
73. LOAD GENERATION 15
74. TYPE 3 -14 0 3 XINC 1
75. *TYPE 3F1 TRAVELING DOWN STATION
76. LOAD GENERATION 15
77. TYPE 3 14 0 3 XINC -1.
78. *TYPE 4F1 TRAVELING UP STATION
79. LOAD GENERATION 19
80. TYPE 4 -18 0 4 XINC 1
81. *TYPE 4F1 TRAVELING DOWN STATION
82. LOAD GENERATION 19
83. TYPE 4 18 0 4 XINC -1.
84. *TYPE 5C1 TRAVELING UP STATION
85. LOAD GENERATION 52
86. TYPE 5 -51 0 5 XINC 1
87. *TYPE 5 TRAVELING DOWN STATION
88. LOAD GENERATION 52
**WARNING-A MOVING LOAD THAT WOULD HAVE BEEN APPLIED BEYOND THE X AND Z RANGES
      OF THE STRUCTURE HAS BEEN IGNORED. CASE= 181 WHEEL 5 OF 5
**WARNING-A MOVING LOAD THAT WOULD HAVE BEEN APPLIED BEYOND THE X AND Z RANGES
      OF THE STRUCTURE HAS BEEN IGNORED. CASE= 182 WHEEL 5 OF 5
**WARNING-A MOVING LOAD THAT WOULD HAVE BEEN APPLIED BEYOND THE X AND Z RANGES
      OF THE STRUCTURE HAS BEEN IGNORED. CASE= 183 WHEEL 5 OF 5

```

STAAD SPACE

-- PAGE NO. 3

**WARNING-A MOVING LOAD THAT WOULD HAVE BEEN APPLIED BEYOND THE X AND Z RANGES
 OF THE STRUCTURE HAS BEEN IGNORED. CASE= 184 WHEEL 5 OF 5

**WARNING-A MOVING LOAD THAT WOULD HAVE BEEN APPLIED BEYOND THE X AND Z RANGES
 OF THE STRUCTURE HAS BEEN IGNORED. CASE= 185 WHEEL 5 OF 5

**WARNING-A MOVING LOAD THAT WOULD HAVE BEEN APPLIED BEYOND THE X AND Z RANGES
 OF THE STRUCTURE HAS BEEN IGNORED. CASE= 186 WHEEL 5 OF 5

**WARNING-A MOVING LOAD THAT WOULD HAVE BEEN APPLIED BEYOND THE X AND Z RANGES
 OF THE STRUCTURE HAS BEEN IGNORED. CASE= 187 WHEEL 5 OF 5

**WARNING-A MOVING LOAD THAT WOULD HAVE BEEN APPLIED BEYOND THE X AND Z RANGES
 OF THE STRUCTURE HAS BEEN IGNORED. CASE= 188 WHEEL 5 OF 5

**WARNING-A MOVING LOAD THAT WOULD HAVE BEEN APPLIED BEYOND THE X AND Z RANGES
 OF THE STRUCTURE HAS BEEN IGNORED. CASE= 189 WHEEL 5 OF 5

**WARNING-A MOVING LOAD THAT WOULD HAVE BEEN APPLIED BEYOND THE X AND Z RANGES
 OF THE STRUCTURE HAS BEEN IGNORED. CASE= 190 WHEEL 5 OF 5

*ADDITIONAL MOVING LOAD MESSAGES SUPPRESSED

*ADDITIONAL MOVING LOAD MESSAGES SUPPRESSED

89. TYPE 5 51 0 5 XINC -1.

90. PERFORM ANALYSIS

P R O B L E M S T A T I S T I C S

NUMBER OF JOINTS/MEMBER+ELEMENTS/SUPPORTS = 25/ 20/ 20

SOLVER USED IS THE OUT-OF-CORE BASIC SOLVER

ORIGINAL/FINAL BAND-WIDTH= 2/ 2/ 8 DOF

TOTAL PRIMARY LOAD CASES = 252, TOTAL DEGREES OF FREEDOM = 60

SIZE OF STIFFNESS MATRIX = 1 DOUBLE KILO-WORDS

REQRD/AVAIL. DISK SPACE = 12.5/ 514631.8 MB

91. PRINT MAXFORCE ENVELOPE NSECTION 1 LIST 13

STAAD SPACE

-- PAGE NO. 4

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/	DIST	LD	MZ/	DIST	LD	FX	DIST	LD
	FZ	DIST	LD	MY	DIST	LD			
13 MAX	0.00	0.00	1	0.00	0.00	1	29.03 C	0.00	15
	0.00	0.00	1	0.00	0.00	1			
MIN	0.00	0.10	252	0.00	0.10	252	0.00	0.10	252
	0.00	0.10	252	0.00	0.10	252			

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

92. *HS20 MAX REACTION - LISTED ABOVE

93. PRINT MAXFORCE ENVELOPE NSECTION 1 LIST 23

STAAD SPACE

-- PAGE NO. 5

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/	DIST	LD	MZ/	DIST	LD	FX	DIST	LD
	FZ	DIST	LD	MY	DIST	LD			
23 MAX	0.00	0.00	1	0.00	0.00	1	13.83 C	0.00	80
	0.00	0.00	1	0.00	0.00	1			
MIN	0.00	0.10	252	0.00	0.10	252	0.00	0.10	252
	0.00	0.10	252	0.00	0.10	252			

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

94. *TYPE 2F1 MAX REACTION - LISTED ABOVE
 95. PRINT MAXFORCE ENVELOPE NSECTION 1 LIST 33

STAAD SPACE

-- PAGE NO. 6

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/	DIST	LD	MZ/	DIST	LD	FX	DIST	LD
	FZ	DIST	LD	MY	DIST	LD			
33 MAX	0.00	0.00	1	0.00	0.00	1	20.52 C	0.00	106
	0.00	0.00	1	0.00	0.00	1			
MIN	0.00	0.10	252	0.00	0.10	252	0.00	0.10	252
	0.00	0.10	252	0.00	0.10	252			

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

96. *TYPE 3F1 MAX REACTION - LISTED ABOVE
 97. PRINT MAXFORCE ENVELOPE NSECTION 1 LIST 43

STAAD SPACE

-- PAGE NO. 7

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/	DIST	LD	MZ/	DIST	LD	FX	DIST	LD
	FZ	DIST	LD	MY	DIST	LD			
43 MAX	0.00	0.00	1	0.00	0.00	1	23.51 C	0.00	144
	0.00	0.00	1	0.00	0.00	1			
MIN	0.00	0.10	252	0.00	0.10	252	0.00	0.10	252
	0.00	0.10	252	0.00	0.10	252			

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

98. *TYPE 4F1 MAX REACTION - LISTED ABOVE
 99. PRINT MAXFORCE ENVELOPE NSECTION 1 LIST 53

STAAD SPACE

-- PAGE NO. 8

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/	DIST	LD	MZ/	DIST	LD	FX	DIST	LD
	FZ	DIST	LD	MY	DIST	LD			
53 MAX	0.00	0.00	1	0.00	0.00	1	23.79 C	0.00	165
	0.00	0.00	1	0.00	0.00	1			
MIN	0.00	0.10	252	0.00	0.10	252	0.00	0.10	148
	0.00	0.10	252	0.00	0.10	252			

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

100. *TYPE 5C1 MAX REACTION - LISTED ABOVE

101. FINISH

***** END OF THE STAAD.Pro RUN *****

**** DATE= APR 10,2012 TIME= 11:24:55 ****

* For questions on STAAD.Pro, please contact *
* Bentley Systems Offices at the following locations *
* *
* Telephone Web / Email *
* *
* USA: +1 (714)974-2500 *
* UK +44(1454)207-000 *
* SINGAPORE +65 6225-6158 *
* EUROPE +31 23 5560560 *
* INDIA +91(033)4006-2021 *
* JAPAN +81(03)5952-6500 <http://www.ctc-g.co.jp> *
* CHINA +86 10 5929 7000 *
* THAILAND +66(0)2645-1018/19 partha.p@reisoftwareth.com *
* *
* Worldwide <http://selectservices.bentley.com/en-US/> *
* *



Job No P402110046	Sheet No 1	Rev
Part EAST APPROACH FWD SECTION		
Ref BENT 11		
By PJP	Date 27-Mar-12	Chd MTN
File BENT_11_LL.std	Date/Time 10-Apr-2012 15:58	

Software licensed to TranSystems

Job Title CUY-2-1441

Client ODOT



Y
Z-X

Load 1

```

*****
*
*          STAAD.Pro V8i SELECTseries1          *
*          Version  20.07.06.35                 *
*          Proprietary Program of              *
*          Bentley Systems, Inc.               *
*          Date=    APR 11, 2012               *
*          Time=    16: 1:26                   *
*
*          USER ID: TranSystems                *
*****

```

```

1. STAAD SPACE DXF IMPORT OF 002_1441BENT_11.DXF
INPUT FILE: BENT_11_DL.STD
2. START JOB INFORMATION
3. ENGINEER DATE 27-MAR-12
4. JOB NAME CUY-2-1441
5. JOB CLIENT ODOT
6. JOB PART EAST APPROACH FWD SECTION
7. JOB REF BENT 11
8. ENGINEER NAME PJP
9. CHECKER NAME MTN
10. CHECKER DATE 10-APR-12
11. END JOB INFORMATION
12. INPUT WIDTH 79
13. UNIT FEET KIP
14. JOINT COORDINATES
15. 1 -24.901 5.17 0; 2 -24.901 15.65 0; 3 -24.901 19.65 0; 4 -1.59896 3.99 0
16. 5 -1.59896 15.65 0; 6 -1.59896 19.65 0; 7 39.3594 1.38 0; 8 39.3594 15.65 0
17. 9 39.3594 19.65 0; 10 73.3802 0 0; 11 73.3802 15.65 0; 12 73.3802 19.65 0
18. 13 -37.3328 19.65 0; 14 -33.5306 19.65 0; 15 -30.0307 19.65 0
19. 16 -26.4914 19.65 0; 17 -22.9995 19.65 0; 18 -19.4619 19.65 0
20. 19 -15.9682 19.65 0; 20 -12.4323 19.65 0; 21 -7.01563 19.65 0
21. 22 4.25521 19.65 0; 23 10.1094 19.65 0; 24 15.9635 19.65 0; 25 21.8177 19.65 0
22. 26 27.6719 19.65 0; 27 33.526 19.65 0; 28 45.1927 19.65 0; 29 51.0469 19.65 0
23. 30 56.901 19.65 0; 31 62.7552 19.65 0; 32 68.6094 19.65 0; 33 79 19.65 0
24. MEMBER INCIDENCES
25. 1 1 2; 2 2 3; 3 4 5; 4 5 6; 5 7 8; 6 8 9; 7 10 11; 8 11 12; 9 13 14; 10 14 15
26. 11 15 16; 12 16 3; 13 3 17; 14 17 18; 15 18 19; 16 19 20; 17 20 21; 18 21 6
27. 19 6 22; 20 22 23; 21 23 24; 22 24 25; 23 25 26; 24 26 27; 25 27 9; 26 9 28
28. 27 28 29; 28 29 30; 29 30 31; 30 31 32; 31 32 12; 32 12 33
29. DEFINE MATERIAL START
30. ISOTROPIC STEEL
31. E 4.176E+006
32. POISSON 0.3
33. DENSITY 0.489024
34. ALPHA 6E-006
35. DAMP 0.03
36. END DEFINE MATERIAL
37. MEMBER PROPERTY AMERICAN
38. 9 TO 32 TABLE ST W36X247
39. 1 2 7 8 TABLE ST W14X90
40. 3 TO 6 TABLE ST W14X109

```

41. CONSTANTS
42. BETA 90 MEMB 1 2 7 8
43. MATERIAL STEEL ALL
44. SUPPORTS
45. 1 4 7 10 FIXED
46. LOAD 1 LOADTYPE DEAD TITLE DEAD LOADS
47. SELFWEIGHT Y -1.1 LIST 1 TO 32
48. JOINT LOAD
49. *F1-8 + F1-9
50. 33 FY -26.78
51. *S1-8 + S1-9
52. 12 FY -24.28
53. *S2-8 + S2-9
54. 32 FY -24.66
55. *S3-8 + S3-9
56. 31 FY -26.39
57. *S4-8 + S4-9
58. 30 FY -26.39
59. *S5-8 + S5-9
60. 29 FY -26.39
61. *S6-8 + S6-9
62. 28 FY -26.39
63. *S7-8 + S7-9
64. 9 FY -26.36
65. *S8-8 + S8-9
66. 27 FY -26.39
67. *S9-8 + S9-9
68. 26 FY -26.39
69. *S10-8 + S10-9
70. 25 FY -26.39
71. *S11-8 + S11-9
72. 24 FY -26.39
73. *S12-8 + S12-9
74. 23 FY -26.39
75. *S13-8 + S13-9
76. 22 FY -26.39
77. *S14-8 + S14-9
78. 6 FY -25.7
79. *S15-8 + S15-9
80. 21 FY -25.01
81. *S16-8 + S16-9
82. 20 FY -24.28
83. *S17-9
84. 19 FY -12.38
85. *S17-8 + S18-9
86. 18 FY -23.64
87. *S19-9
88. 17 FY -12.38
89. *S18-8 + S20-9
90. 16 FY -23.83
91. *S21-9
92. 15 FY -12.57
93. *S19-8 + S22-9
94. 14 FY -22.55
95. *F2-8 + F2-9
96. 13 FY -22.1

DXF IMPORT OF 002_1441BENT_11.DXF

-- PAGE NO. 3

97. MEMBER LOAD
 98. 1 UNI GY -0.043 0 10.48
 99. 7 UNI GY -0.043 0 15.65
 100. 3 UNI GY -0.064 0 11.66
 101. 5 UNI GY -0.064 0 14.27
 102. PDELTA 10 ANALYSIS

P R O B L E M S T A T I S T I C S

NUMBER OF JOINTS/MEMBER+ELEMENTS/SUPPORTS = 33/ 32/ 4

SOLVER USED IS THE OUT-OF-CORE BASIC SOLVER

ORIGINAL/FINAL BAND-WIDTH= 21/ 2/ 18 DOF
 TOTAL PRIMARY LOAD CASES = 1, TOTAL DEGREES OF FREEDOM = 174
 SIZE OF STIFFNESS MATRIX = 4 DOUBLE KILO-WORDS
 REQD/AVAIL. DISK SPACE = 12.1/ 515495.1 MB

++ Adjusting Displacements 16: 1:26
 ++ Adjusting Displacements 16: 1:26
 ++ Adjusting Displacements 16: 1:26
 ++ Adjusting Displacements 16: 1:26
 ++ Adjusting Displacements 16: 1:26
 ++ Adjusting Displacements 16: 1:26
 ++ Adjusting Displacements 16: 1:26
 ++ Adjusting Displacements 16: 1:26
 ++ Adjusting Displacements 16: 1:26
 ++ Adjusting Displacements 16: 1:26

103. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 9 TO 32

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
9 MAX	-22.10	0.00	1	85.99	3.80	1			
	0.00	0.00	1	0.00	0.00	1	0.00	0.00	1
MIN	-23.13	3.80	1	0.00	0.00	1			
	0.00	3.80	1	0.00	3.80	1	0.00	3.80	1
10 MAX	-45.68	0.00	1	247.52	3.50	1			
	0.00	0.00	1	0.00	0.00	1	0.00	0.00	1
MIN	-46.63	3.50	1	85.99	0.00	1			
	0.00	3.50	1	0.00	3.50	1	0.00	3.50	1
11 MAX	-59.20	0.00	1	458.73	3.54	1			
	0.00	0.00	1	0.00	0.00	1	0.00	0.00	1
MIN	-60.16	3.54	1	247.52	0.00	1			
	0.00	3.54	1	0.00	3.54	1	0.00	3.54	1
12 MAX	-83.99	0.00	1	592.65	1.59	1			
	0.00	0.00	1	0.00	0.00	1	0.00	0.00	1
MIN	-84.42	1.59	1	458.73	0.00	1			
	0.00	1.59	1	0.00	1.59	1	0.00	1.59	1
13 MAX	64.05	0.00	1	572.17	0.00	1			
	0.00	0.00	1	0.00	0.00	1	2.13 T	0.00	1
MIN	63.53	1.90	1	450.87	1.90	1			
	0.00	1.90	1	0.00	1.90	1	2.13 T	1.90	1
14 MAX	51.15	0.00	1	450.87	0.00	1			
	0.00	0.00	1	0.00	0.00	1	2.13 T	0.00	1
MIN	50.19	3.54	1	271.61	3.54	1			
	0.00	3.54	1	0.00	3.54	1	2.13 T	3.54	1
15 MAX	26.55	0.00	1	271.61	0.00	1			
	0.00	0.00	1	0.00	0.00	1	2.13 T	0.00	1
MIN	25.61	3.49	1	180.49	3.49	1			
	0.00	3.49	1	0.00	3.49	1	2.13 T	3.49	1
16 MAX	13.23	0.00	1	180.49	0.00	1			
	0.00	0.00	1	0.00	0.00	1	2.13 T	0.00	1
MIN	12.27	3.54	1	135.41	3.54	1			
	0.00	3.54	1	0.00	3.54	1	2.13 T	3.54	1
17 MAX	-12.01	0.00	1	204.44	5.42	1			
	0.00	0.00	1	0.00	0.00	1	2.13 T	0.00	1

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MIN	-13.48	5.42	1	135.41	0.00	1				
	0.00	5.42	1	0.00	5.42	1	2.13 T	5.42	1	
18 MAX	-38.49	0.00	1	416.89	5.42	1				
	0.00	0.00	1	0.00	0.00	1	2.13 T	0.00	1	
MIN	-39.95	5.42	1	204.44	0.00	1				
	0.00	5.42	1	0.00	5.42	1	2.13 T	5.42	1	
19 MAX	79.63	0.00	1	462.13	0.00	1				
	0.00	0.00	1	0.00	0.00	1	2.02 C	0.00	1	
MIN	78.04	5.85	1	0.60	5.85	1				
	0.00	5.85	1	0.00	5.85	1	2.02 C	5.85	1	
20 MAX	51.65	0.00	1	0.60	0.00	1				
	0.00	0.00	1	0.00	0.00	1	2.02 C	0.00	1	
MIN	50.07	5.85	1	-297.17	5.85	1				
	0.00	5.85	1	0.00	5.85	1	2.02 C	5.85	1	
21 MAX	23.68	0.00	1	-297.17	0.00	1				
	0.00	0.00	1	0.00	0.00	1	2.02 C	0.00	1	
MIN	22.09	5.85	1	-431.15	5.85	1				
	0.00	5.85	1	0.00	5.85	1	2.02 C	5.85	1	
22 MAX	-4.30	0.00	1	-401.35	5.85	1				
	0.00	0.00	1	0.00	0.00	1	2.02 C	0.00	1	
MIN	-5.88	5.85	1	-431.15	0.00	1				
	0.00	5.85	1	0.00	5.85	1	2.02 C	5.85	1	
23 MAX	-32.27	0.00	1	-207.77	5.85	1				
	0.00	0.00	1	0.00	0.00	1	2.02 C	0.00	1	
MIN	-33.86	5.85	1	-401.35	0.00	1				
	0.00	5.85	1	0.00	5.85	1	2.02 C	5.85	1	
24 MAX	-60.25	0.00	1	149.59	5.85	1				
	0.00	0.00	1	0.00	0.00	1	2.02 C	0.00	1	
MIN	-61.83	5.85	1	-207.77	0.00	1				
	0.00	5.85	1	0.00	5.85	1	2.02 C	5.85	1	
25 MAX	-88.22	0.00	1	668.85	5.83	1				
	0.00	0.00	1	0.00	0.00	1	2.02 C	0.00	1	
MIN	-89.80	5.83	1	149.59	0.00	1				
	0.00	5.83	1	0.00	5.83	1	2.02 C	5.83	1	
26 MAX	82.65	0.00	1	653.77	0.00	1				
	0.00	0.00	1	0.00	0.00	1	0.79 C	0.00	1	
MIN	81.07	5.83	1	176.28	5.83	1				
	0.00	5.83	1	0.00	5.83	1	0.79 C	5.83	1	
27 MAX	54.68	0.00	1	176.28	0.00	1				
	0.00	0.00	1	0.00	0.00	1	0.79 C	0.00	1	
MIN	53.09	5.85	1	-139.16	5.85	1				
	0.00	5.85	1	0.00	5.85	1	0.79 C	5.85	1	
28 MAX	26.70	0.00	1	-139.16	0.00	1				
	0.00	0.00	1	0.00	0.00	1	0.79 C	0.00	1	

DXF IMPORT OF 002_1441BENT_11.DXF

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MIN	25.11	5.85	1	-290.83	5.85	1			
	0.00	5.85	1	0.00	5.85	1	0.79 C	5.85	1
29 MAX	-1.28	0.00	1	-278.72	5.85	1			
	0.00	0.00	1	0.00	0.00	1	0.79 C	0.00	1
MIN	-2.86	5.85	1	-290.83	0.00	1			
	0.00	5.85	1	0.00	5.85	1	0.79 C	5.85	1
30 MAX	-29.25	0.00	1	-102.83	5.85	1			
	0.00	0.00	1	0.00	0.00	1	0.79 C	0.00	1
MIN	-30.84	5.85	1	-278.72	0.00	1			
	0.00	5.85	1	0.00	5.85	1	0.79 C	5.85	1
31 MAX	-55.50	0.00	1	165.02	4.77	1			
	0.00	0.00	1	0.00	0.00	1	0.79 C	0.00	1
MIN	-56.79	4.77	1	-102.83	0.00	1			
	0.00	4.77	1	0.00	4.77	1	0.79 C	4.77	1
32 MAX	28.30	0.00	1	154.78	0.00	1			
	0.00	0.00	1	0.00	0.00	1	0.00	0.00	1
MIN	26.78	5.62	1	0.00	5.62	1			
	0.00	5.62	1	0.00	5.62	1	0.00	5.62	1

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

104. *FLOOR BEAM MAXIMUM FORCE RESULTS ABOVE

105. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 1 2

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
1 MAX	0.00	0.00	1	0.00	0.00	1			
	-2.13	0.00	1	10.45	0.00	1	150.35 C	0.00	1
MIN	0.00	10.48	1	0.00	10.48	1			
	-2.13	10.48	1	-12.26	10.48	1	148.86 C	10.48	1
2 MAX	0.00	0.00	1	0.00	0.00	1			
	-2.13	0.00	1	-12.26	0.00	1	148.86 C	0.00	1
MIN	0.00	4.00	1	0.00	4.00	1			
	-2.13	4.00	1	-20.48	4.00	1	148.46 C	4.00	1

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

106. *COLUMN 411 MAXIMUM FOECE RESULTS ABOVE

107. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 3 4

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
3 MAX	-4.15	0.00	1	28.88	11.66	1			
	0.00	0.00	1	0.00	0.00	1	147.90 C	0.00	1
MIN	-4.15	11.66	1	-19.79	0.00	1			
	0.00	11.66	1	0.00	11.66	1	145.76 C	11.66	1
4 MAX	-4.15	0.00	1	45.25	4.00	1			
	0.00	0.00	1	0.00	0.00	1	145.76 C	0.00	1
MIN	-4.15	4.00	1	28.88	0.00	1			
	0.00	4.00	1	0.00	4.00	1	145.28 C	4.00	1

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

108. *COLUMN 311 MAXIMUM FOECE RESULTS ABOVE

109. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 5 6

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
5 MAX	1.23	0.00	1	7.43	0.00	1			
	0.00	0.00	1	0.00	0.00	1	201.91 C	0.00	1
MIN	1.23	14.27	1	-10.29	14.27	1			
	0.00	14.27	1	0.00	14.27	1	199.29 C	14.27	1
6 MAX	1.23	0.00	1	-10.29	0.00	1			
	0.00	0.00	1	0.00	0.00	1	199.29 C	0.00	1
MIN	1.23	4.00	1	-15.08	4.00	1			
	0.00	4.00	1	0.00	4.00	1	198.81 C	4.00	1

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

110. *COLUMN 211 MAXIMUM FOECE RESULTS ABOVE

111. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 7 8

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
7 MAX	0.00	0.00	1	0.00	0.00	1			
	-0.79	0.00	1	5.31	0.00	1	111.99 C	0.00	1
MIN	0.00	15.65	1	0.00	15.65	1			
	-0.79	15.65	1	-7.27	15.65	1	109.77 C	15.65	1
8 MAX	0.00	0.00	1	0.00	0.00	1			
	-0.79	0.00	1	-7.27	0.00	1	109.77 C	0.00	1
MIN	0.00	4.00	1	0.00	4.00	1			
	-0.79	4.00	1	-10.24	4.00	1	109.37 C	4.00	1

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

112. *COLUMN 111 MAXIMUM FOECE RESULTS ABOVE

113. FINISH

***** END OF THE STAAD.Pro RUN *****

**** DATE= APR 11,2012 TIME= 16: 1:26 ****


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*****
*           For questions on STAAD.Pro, please contact           *
*   Bentley Systems Offices at the following locations           *
*                                                                 *
*           Telephone           Web / Email           *
*                                                                 *
*   USA:           +1 (714)974-2500           *
*   UK             +44(1454)207-000           *
*   SINGAPORE     +65 6225-6158           *
*   EUROPE        +31 23 5560560           *
*   INDIA         +91(033)4006-2021           *
*   JAPAN         +81(03)5952-6500   http://www.ctc-g.co.jp   *
*   CHINA         +86 10 5929 7000           *
*   THAILAND     +66(0)2645-1018/19 partha.p@reisoftwareth.com *
*                                                                 *
*   Worldwide     http://selectservices.bentley.com/en-US/     *
*                                                                 *
*****
```



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*****
*
*          STAAD.Pro V8i SELECTseries1          *
*          Version  20.07.06.35                  *
*          Proprietary Program of                *
*          Bentley Systems, Inc.                 *
*          Date=    APR 10, 2012                 *
*          Time=    15:58:24                     *
*
*          USER ID: TranSystems                  *
*****

```

```

1. STAAD SPACE DXF IMPORT OF 002_1441BENT_11.DXF
INPUT FILE: BENT_11_LL.STD
2. START JOB INFORMATION
3. ENGINEER DATE 27-MAR-12
4. JOB NAME CUY-2-1441
5. JOB CLIENT ODOT
6. JOB PART EAST APPROACH FWD SECTION
7. JOB REF BENT 11
8. ENGINEER NAME PJP
9. JOB NO P402110046
10. CHECKER NAME MTN
11. CHECKER DATE 10-APR-12
12. END JOB INFORMATION
13. INPUT WIDTH 79
14. UNIT FEET KIP
15. JOINT COORDINATES
16. 1 -24.901 5.17 0; 2 -24.901 15.65 0; 3 -24.901 19.65 0; 4 -1.59896 3.99 0
17. 5 -1.59896 15.65 0; 6 -1.59896 19.65 0; 7 39.3594 1.38 0; 8 39.3594 15.65 0
18. 9 39.3594 19.65 0; 10 73.3802 0 0; 11 73.3802 15.65 0; 12 73.3802 19.65 0
19. 13 -37.3328 19.65 0; 14 -33.5306 19.65 0; 15 -30.0307 19.65 0
20. 16 -26.4914 19.65 0; 17 -22.9995 19.65 0; 18 -19.4619 19.65 0
21. 19 -15.9682 19.65 0; 20 -12.4323 19.65 0; 21 -7.01563 19.65 0
22. 22 4.25521 19.65 0; 23 10.1094 19.65 0; 24 15.9635 19.65 0; 25 21.8177 19.65 0
23. 26 27.6719 19.65 0; 27 33.526 19.65 0; 28 45.1927 19.65 0; 29 51.0469 19.65 0
24. 30 56.901 19.65 0; 31 62.7552 19.65 0; 32 68.6094 19.65 0; 33 79 19.65 0
25. MEMBER INCIDENCES
26. 1 1 2; 2 2 3; 3 4 5; 4 5 6; 5 7 8; 6 8 9; 7 10 11; 8 11 12; 9 13 14; 10 14 15
27. 11 15 16; 12 16 3; 13 3 17; 14 17 18; 15 18 19; 16 19 20; 17 20 21; 18 21 6
28. 19 6 22; 20 22 23; 21 23 24; 22 24 25; 23 25 26; 24 26 27; 25 27 9; 26 9 28
29. 27 28 29; 28 29 30; 29 30 31; 30 31 32; 31 32 12; 32 12 33
30. DEFINE MATERIAL START
31. ISOTROPIC STEEL
32. E 4.176E+006
33. POISSON 0.3
34. DENSITY 0.489024
35. ALPHA 6E-006
36. DAMP 0.03
37. END DEFINE MATERIAL
38. MEMBER PROPERTY AMERICAN
39. 9 TO 32 TABLE ST W36X247
40. 1 7 TABLE TB W14X90 WP 1 TH 0.0417

```

41. 2 8 TABLE ST W14X90
42. 3 5 TABLE TB W14X109 WP 1 TH 0.0625
43. 4 6 TABLE ST W14X109
44. CONSTANTS
45. BETA 90 MEMB 1 2 7 8
46. MATERIAL STEEL ALL
47. SUPPORTS
48. 1 4 7 10 FIXED
49. DEFINE MOVING LOAD
50. *HS-15 FATIGUE TRUCK
51. TYPE 1 LOAD 25 25
52. DIST 6
53. LOAD 1 LOADTYPE LIVE TITLE 6 LANE FB MOMENT AT COL 4
54. MEMBER LOAD
55. 9 CON GY -28.3 1.7285 0
56. 11 CON GY -28.3 0.4264 0
57. 14 CON GY -28.3 1.75 0
58. 16 CON GY -28.3 0.7182 0
59. 17 CON GY -28.3 1.182 0
60. 18 CON GY -28.3 1.766 0
61. 26 CON GY -28.3 3.01 0
62. 27 CON GY -28.3 3.177 0
63. 28 CON GY -28.3 2.329 0
64. 29 CON GY -28.3 2.47 0
65. 30 CON GY -28.3 1.615 0
66. 31 CON GY -28.3 1.7604 0
67. LOAD 2 LOADTYPE LIVE TITLE 5 LANE FB MOMENT AT COL 4
68. MEMBER LOAD
69. 9 CON GY -28.3 1.7285 0
70. 11 CON GY -28.3 0.4264 0
71. 14 CON GY -28.3 1.75 0
72. 16 CON GY -28.3 0.7182 0
73. 17 CON GY -28.3 1.182 0
74. 18 CON GY -28.3 1.766 0
75. 27 CON GY -28.3 3.177 0
76. 28 CON GY -28.3 3.329 0
77. 29 CON GY -28.3 1.47 0
78. 30 CON GY -28.3 1.615 0
79. LOAD 3 LOADTYPE LIVE TITLE 3 LANE FB MOMENT AT COL 4
80. MEMBER LOAD
81. 9 CON GY -33.9 1.7285 0
82. 11 CON GY -33.9 0.4264 0
83. 14 CON GY -33.9 1.75 0
84. 16 CON GY -33.9 0.7182 0
85. 17 CON GY -33.9 1.182 0
86. 18 CON GY -33.9 1.766 0
87. LOAD 4 LOADTYPE LIVE TITLE 2 LANE FB MOMENT AT COL 4
88. MEMBER LOAD
89. 9 CON GY -37.7 1.7285 0
90. 11 CON GY -37.7 0.4264 0
91. 15 CON GY -37.7 3.21 0
92. 17 CON GY -37.7 2.182 0
93. LOAD 5 LOADTYPE LIVE TITLE 6 LANE COL 4 AXIAL
94. MEMBER LOAD
95. 9 CON GY -28.3 1.7285 0
96. 11 CON GY -28.3 0.4264 0

97. 13 CON GY -28.3 1.297 0
98. 15 CON GY -28.3 1.858 0
99. 17 CON GY -28.3 0.828 0
100. 18 CON GY -28.3 1.411 0
101. 26 CON GY -28.3 3.01 0
102. 27 CON GY -28.3 3.177 0
103. 28 CON GY -28.3 2.329 0
104. 29 CON GY -28.3 2.47 0
105. 30 CON GY -28.3 1.615 0
106. 31 CON GY -28.3 1.7604 0
107. LOAD 6 LOADTYPE LIVE TITLE 5 LANE COL 4 AXIAL
108. MEMBER LOAD
109. 9 CON GY -28.3 1.7285 0
110. 11 CON GY -28.3 0.4264 0
111. 13 CON GY -28.3 1.297 0
112. 15 CON GY -28.3 1.858 0
113. 17 CON GY -28.3 0.828 0
114. 18 CON GY -28.3 1.411 0
115. 27 CON GY -28.3 3.177 0
116. 28 CON GY -28.3 3.329 0
117. 29 CON GY -28.3 1.47 0
118. 30 CON GY -28.3 1.615 0
119. LOAD 7 LOADTYPE LIVE TITLE 3 LANE COL 4 AXIAL
120. MEMBER LOAD
121. 9 CON GY -33.9 1.7285 0
122. 11 CON GY -33.9 0.4264 0
123. 13 CON GY -33.9 1.297 0
124. 15 CON GY -33.9 1.858 0
125. 17 CON GY -33.9 0.828 0
126. 18 CON GY -33.9 1.411 0
127. LOAD 8 LOADTYPE LIVE TITLE 2 LANE COL 4 AXIAL
128. MEMBER LOAD
129. 9 CON GY -37.7 1.7285 0
130. 11 CON GY -37.7 0.4264 0
131. 13 CON GY -37.7 1.297 0
132. 15 CON GY -37.7 1.858 0
133. LOAD 9 LOADTYPE LIVE TITLE 5 LANE FB POSITIVE MOMENT
134. MEMBER LOAD
135. 14 CON GY -28.3 1.75 0
136. 16 CON GY -28.3 0.7182 0
137. 17 CON GY -28.3 1.182 0
138. 18 CON GY -28.3 1.766 0
139. 26 CON GY -28.3 3.01 0
140. 27 CON GY -28.3 3.177 0
141. 28 CON GY -28.3 2.329 0
142. 29 CON GY -28.3 2.47 0
143. 30 CON GY -28.3 1.615 0
144. 31 CON GY -28.3 1.7604 0
145. LOAD 10 LOADTYPE LIVE TITLE 3 LANE FB POSITIVE MOMENT
146. MEMBER LOAD
147. 26 CON GY -33.9 3.01 0
148. 27 CON GY -33.9 3.177 0
149. 28 CON GY -33.9 2.329 0
150. 29 CON GY -33.9 2.47 0
151. 30 CON GY -33.9 1.615 0
152. 31 CON GY -33.9 1.7604 0

153. LOAD 11 LOADTYPE LIVE TITLE 3 LANE FB POSITIVE MOMENT
154. MEMBER LOAD
155. 14 CON GY -33.9 1.75 0
156. 16 CON GY -33.9 0.7182 0
157. 17 CON GY -33.9 1.182 0
158. 18 CON GY -33.9 1.766 0
159. 28 CON GY -33.9 2.329 0
160. 29 CON GY -33.9 2.47 0
161. LOAD 12 LOADTYPE LIVE TITLE 2 LANE FB POSITIVE MOMENT
162. MEMBER LOAD
163. 14 CON GY -37.7 1.75 0
164. 16 CON GY -37.7 0.7182 0
165. 17 CON GY -37.7 1.182 0
166. 18 CON GY -37.7 1.766 0
167. LOAD 13 LOADTYPE LIVE TITLE 2 LANE FB POSITIVE MOMENT
168. MEMBER LOAD
169. 27 CON GY -37.7 3.177 0
170. 28 CON GY -37.7 3.329 0
171. 29 CON GY -37.7 1.47 0
172. 30 CON GY -37.7 1.615 0
173. LOAD 14 LOADTYPE LIVE TITLE 5 LANE FB POSITIVE MOMENT
174. MEMBER LOAD
175. 9 CON GY -28.3 1.7285 0
176. 11 CON GY -28.3 0.4264 0
177. 19 CON GY -28.3 2.209 0
178. 20 CON GY -28.3 2.355 0
179. 21 CON GY -28.3 2.5 0
180. 22 CON GY -28.3 2.646 0
181. 23 CON GY -28.3 3.086 0
182. 24 CON GY -28.3 3.232 0
183. 31 CON GY -28.3 2.771 0
184. 32 CON GY -28.3 4 0
185. LOAD 15 LOADTYPE LIVE TITLE 4 LANE FB POSITIVE MOMENT
186. MEMBER LOAD
187. 9 CON GY -28.3 1.7285 0
188. 11 CON GY -28.3 0.4264 0
189. 19 CON GY -28.3 2.209 0
190. 20 CON GY -28.3 2.355 0
191. 21 CON GY -28.3 2.5 0
192. 22 CON GY -28.3 2.646 0
193. 23 CON GY -28.3 3.086 0
194. 24 CON GY -28.3 3.232 0
195. LOAD 16 LOADTYPE LIVE TITLE 3 LANE FB POSITIVE MOMENT
196. MEMBER LOAD
197. 19 CON GY -33.9 2.209 0
198. 20 CON GY -33.9 2.355 0
199. 21 CON GY -33.9 2.5 0
200. 22 CON GY -33.9 2.646 0
201. 23 CON GY -33.9 3.086 0
202. 24 CON GY -33.9 3.232 0
203. LOAD 17 LOADTYPE LIVE TITLE 2 LANE FB POSITIVE MOMENT
204. MEMBER LOAD
205. 21 CON GY -37.7 2.5 0
206. 22 CON GY -37.7 2.646 0
207. 23 CON GY -37.7 3.086 0
208. 24 CON GY -37.7 3.232 0

209. LOAD 18 LOADTYPE LIVE TITLE 6 LANE FB MOMENT AT COL 3
210. MEMBER LOAD
211. 13 CON GY -28.3 1.511 0
212. 15 CON GY -28.3 2.072 0
213. 16 CON GY -28.3 2.578 0
214. 17 CON GY -28.3 5.042 0
215. 19 CON GY -28.3 2.209 0
216. 20 CON GY -28.3 2.355 0
217. 21 CON GY -28.3 2.5 0
218. 22 CON GY -28.3 2.646 0
219. 23 CON GY -28.3 3.086 0
220. 24 CON GY -28.3 3.232 0
221. 31 CON GY -28.3 2.771 0
222. 32 CON GY -28.3 4 0
223. LOAD 19 LOADTYPE LIVE TITLE 5 LANE FB MOMENT AT COL 3
224. MEMBER LOAD
225. 13 CON GY -28.3 1.511 0
226. 15 CON GY -28.3 2.072 0
227. 16 CON GY -28.3 2.578 0
228. 17 CON GY -28.3 5.042 0
229. 19 CON GY -28.3 2.209 0
230. 20 CON GY -28.3 2.355 0
231. 21 CON GY -28.3 2.5 0
232. 22 CON GY -28.3 2.646 0
233. 23 CON GY -28.3 3.086 0
234. 24 CON GY -28.3 3.232 0
235. LOAD 20 LOADTYPE LIVE TITLE 3 LANE FB MOMENT AT COL 3
236. MEMBER LOAD
237. 15 CON GY -33.9 3.21 0
238. 17 CON GY -33.9 2.182 0
239. 19 CON GY -33.9 2.209 0
240. 20 CON GY -33.9 2.355 0
241. 21 CON GY -33.9 2.5 0
242. 22 CON GY -33.9 2.646 0
243. LOAD 21 LOADTYPE LIVE TITLE 2 LANE FB MOMENT AT COL 3
244. MEMBER LOAD
245. 15 CON GY -37.7 3.21 0
246. 17 CON GY -37.7 2.182 0
247. 21 CON GY -37.7 2.5 0
248. 22 CON GY -37.7 2.646 0
249. LOAD 22 LOADTYPE LIVE TITLE 6 LANE COL 3 AXIAL
250. MEMBER LOAD
251. 13 CON GY -28.3 1.302 0
252. 15 CON GY -28.3 1.863 0
253. 17 CON GY -28.3 0.833 0
254. 18 CON GY -28.3 1.417 0
255. 19 CON GY -28.3 0 0
256. 20 CON GY -28.3 0.146 0
257. 21 CON GY -28.3 0.292 0
258. 22 CON GY -28.3 0.438 0
259. 23 CON GY -28.3 3.086 0
260. 24 CON GY -28.3 3.232 0
261. 31 CON GY -28.3 2.771 0
262. 32 CON GY -28.3 4 0
263. LOAD 23 LOADTYPE LIVE TITLE 5 LANE COL 3 AXIAL
264. MEMBER LOAD

265. 13 CON GY -28.3 1.302 0
266. 15 CON GY -28.3 1.863 0
267. 17 CON GY -28.3 0.833 0
268. 18 CON GY -28.3 1.417 0
269. 19 CON GY -28.3 0 0
270. 20 CON GY -28.3 0.146 0
271. 21 CON GY -28.3 0.292 0
272. 22 CON GY -28.3 0.438 0
273. 23 CON GY -28.3 3.086 0
274. 24 CON GY -28.3 3.232 0
275. LOAD 24 LOADTYPE LIVE TITLE 3 LANE COL 3 AXIAL
276. MEMBER LOAD
277. 17 CON GY -33.9 0.833 0
278. 18 CON GY -33.9 1.417 0
279. 19 CON GY -33.9 0 0
280. 20 CON GY -33.9 0.146 0
281. 21 CON GY -33.9 0.292 0
282. 22 CON GY -33.9 0.438 0
283. LOAD 25 LOADTYPE LIVE TITLE 2 LANE COL 3 AXIAL
284. MEMBER LOAD
285. 17 CON GY -37.7 4.833 0
286. 19 CON GY -37.7 0 0
287. 19 CON GY -37.7 4 0
288. 20 CON GY -37.7 4.146 0
289. LOAD 26 LOADTYPE LIVE TITLE 7 LANE MOMENT AT COL 2
290. MEMBER LOAD
291. 9 CON GY -28.3 1.7285 0
292. 11 CON GY -28.3 0.4264 0
293. 19 CON GY -28.3 2.209 0
294. 20 CON GY -28.3 2.355 0
295. 21 CON GY -28.3 2.5 0
296. 22 CON GY -28.3 2.646 0
297. 23 CON GY -28.3 3.086 0
298. 24 CON GY -28.3 3.232 0
299. 26 CON GY -28.3 3.01 0
300. 27 CON GY -28.3 3.177 0
301. 28 CON GY -28.3 2.329 0
302. 29 CON GY -28.3 2.47 0
303. 30 CON GY -28.3 1.615 0
304. 31 CON GY -28.3 1.7604 0
305. LOAD 27 LOADTYPE LIVE TITLE 3 LANE MOMENT AT COL 2
306. MEMBER LOAD
307. 21 CON GY -33.9 2.5 0
308. 22 CON GY -33.9 2.646 0
309. 23 CON GY -33.9 3.086 0
310. 24 CON GY -33.9 3.232 0
311. 28 CON GY -33.9 2.329 0
312. 29 CON GY -33.9 2.47 0
313. LOAD 28 LOADTYPE LIVE TITLE 2 LANE MOMENT AT COL 2
314. MEMBER LOAD
315. 21 CON GY -37.7 2.5 0
316. 22 CON GY -37.7 2.646 0
317. 28 CON GY -37.7 2.329 0
318. 29 CON GY -37.7 2.47 0
319. LOAD 29 LOADTYPE LIVE TITLE 7 LANE COL 2 AXIAL LOADING
320. MEMBER LOAD

321. 9 CON GY -28.3 1.7285 0
322. 11 CON GY -28.3 0.4264 0
323. 19 CON GY -28.3 2.209 0
324. 20 CON GY -28.3 2.355 0
325. 21 CON GY -28.3 2.5 0
326. 22 CON GY -28.3 2.646 0
327. 24 CON GY -28.3 1.688 0
328. 25 CON GY -28.3 1.833 0
329. 26 CON GY -28.3 0 0
330. 27 CON GY -28.3 0.167 0
331. 28 CON GY -28.3 0.313 0
332. 29 CON GY -28.3 0.458 0
333. 30 CON GY -28.3 0.604 0
334. 31 CON GY -28.3 0.75 0
335. LOAD 30 LOADTYPE LIVE TITLE 3 LANE COL 2 AXIAL LOADING
336. MEMBER LOAD
337. 24 CON GY -33.9 1.688 0
338. 25 CON GY -33.9 1.833 0
339. 26 CON GY -33.9 0 0
340. 27 CON GY -33.9 0.167 0
341. 28 CON GY -33.9 0.313 0
342. 29 CON GY -33.9 0.458 0
343. LOAD 31 LOADTYPE LIVE TITLE 2 LANE COL 2 AXIAL LOADING
344. MEMBER LOAD
345. 24 CON GY -37.7 1.688 0
346. 25 CON GY -37.7 1.833 0
347. 26 CON GY -37.7 0 0
348. 27 CON GY -37.7 0.167 0
349. LOAD 32 LOADTYPE LIVE TITLE 2 LANE COL 2 AXIAL LOADING
350. MEMBER LOAD
351. 24 CON GY -37.7 5.688 0
352. 26 CON GY -37.7 0 0
353. 26 CON GY -37.7 4 0
354. 27 CON GY -37.7 4.167 0
355. LOAD 33 LOADTYPE LIVE TITLE 5 LANE FB MOMENT AT COL 1
356. MEMBER LOAD
357. 14 CON GY -28.3 1.75 0
358. 16 CON GY -28.3 0.7182 0
359. 17 CON GY -28.3 1.182 0
360. 18 CON GY -28.3 1.766 0
361. 27 CON GY -28.3 2.188 0
362. 28 CON GY -28.3 2.333 0
363. 29 CON GY -28.3 0.479 0
364. 30 CON GY -28.3 0.625 0
365. 31 CON GY -28.3 2.771 0
366. 32 CON GY -28.3 4 0
367. LOAD 34 LOADTYPE LIVE TITLE 3 LANE FB MOMENT AT COL 1
368. MEMBER LOAD
369. 27 CON GY -33.9 2.188 0
370. 28 CON GY -33.9 2.333 0
371. 29 CON GY -33.9 0.479 0
372. 30 CON GY -33.9 0.625 0
373. 31 CON GY -33.9 2.771 0
374. 32 CON GY -33.9 4 0
375. LOAD 35 LOADTYPE LIVE TITLE 2 LANE FB MOMENT AT COL 1
376. MEMBER LOAD

377. 28 CON GY -37.7 2.329 0
378. 29 CON GY -37.7 2.47 0
379. 31 CON GY -37.7 2.771 0
380. 32 CON GY -37.7 4 0
381. LOAD 36 LOADTYPE LIVE TITLE 5 LANE COL 1 AXIAL LOADING
382. MEMBER LOAD
383. 14 CON GY -28.3 1.75 0
384. 16 CON GY -28.3 0.7182 0
385. 17 CON GY -28.3 1.182 0
386. 18 CON GY -28.3 1.766 0
387. 27 CON GY -28.3 2.188 0
388. 28 CON GY -28.3 2.333 0
389. 29 CON GY -28.3 2.479 0
390. 30 CON GY -28.3 2.625 0
391. 31 CON GY -28.3 2.771 0
392. 32 CON GY -28.3 4 0
393. LOAD 37 LOADTYPE LIVE TITLE 3 LANE COL 1 AXIAL LOADING
394. MEMBER LOAD
395. 27 CON GY -33.9 2.188 0
396. 28 CON GY -33.9 2.333 0
397. 29 CON GY -33.9 2.479 0
398. 30 CON GY -33.9 2.625 0
399. 31 CON GY -33.9 2.771 0
400. 32 CON GY -33.9 4 0
401. LOAD 38 LOADTYPE LIVE TITLE 2 LANE COL 1 AXIAL LOADING
402. MEMBER LOAD
403. 29 CON GY -37.7 2.479 0
404. 30 CON GY -37.7 2.625 0
405. 31 CON GY -37.7 2.771 0
406. 32 CON GY -37.7 4 0
407. LOAD 39 LOADTYPE LIVE TITLE 8 MEDIAN LANES LOADED
408. MEMBER LOAD
409. 13 CON GY -28.3 1.511 0
410. 15 CON GY -28.3 2.072 0
411. 17 CON GY -28.3 1.042 0
412. 18 CON GY -28.3 1.625 0
413. 19 CON GY -28.3 2.209 0
414. 20 CON GY -28.3 2.355 0
415. 21 CON GY -28.3 2.5 0
416. 22 CON GY -28.3 2.646 0
417. 23 CON GY -28.3 3.086 0
418. 24 CON GY -28.3 3.232 0
419. 25 CON GY -28.3 3.377 0
420. 26 CON GY -28.3 3.544 0
421. 27 CON GY -28.3 3.711 0
422. 28 CON GY -28.3 3.857 0
423. 29 CON GY -28.3 4.002 0
424. 30 CON GY -28.3 4.148 0
425. LOAD 40 LOADTYPE LIVE TITLE 8 OUTSIDE LANES LOADED
426. MEMBER LOAD
427. 9 CON GY -28.3 1.7285 0
428. 11 CON GY -28.3 0.4264 0
429. 13 CON GY -28.3 1.297 0
430. 15 CON GY -28.3 1.858 0
431. 17 CON GY -28.3 0.828 0
432. 18 CON GY -28.3 1.411 0

433. 19 CON GY -28.3 1.995 0
434. 20 CON GY -28.3 2.141 0
435. 25 CON GY -28.3 1.854 0
436. 26 CON GY -28.3 2.021 0
437. 27 CON GY -28.3 2.188 0
438. 28 CON GY -28.3 2.333 0
439. 29 CON GY -28.3 2.479 0
440. 30 CON GY -28.3 2.625 0
441. 31 CON GY -28.3 2.771 0
442. 32 CON GY -28.3 4 0
443. *BEGIN 2F1 LOADS
444. LOAD 41 LOADTYPE LIVE TITLE 2F1 LOADING
445. REPEAT LOAD
446. 1 0.476404
447. LOAD 42 LOADTYPE LIVE TITLE 2F1 LOADING
448. REPEAT LOAD
449. 2 0.476404
450. LOAD 43 LOADTYPE LIVE TITLE 2F1 LOADING
451. REPEAT LOAD
452. 3 0.476404
453. LOAD 44 LOADTYPE LIVE TITLE 2F1 LOADING
454. REPEAT LOAD
455. 4 0.476404
456. LOAD 45 LOADTYPE LIVE TITLE 2F1 LOADING
457. REPEAT LOAD
458. 5 0.476404
459. LOAD 46 LOADTYPE LIVE TITLE 2F1 LOADING
460. REPEAT LOAD
461. 6 0.476404
462. LOAD 47 LOADTYPE LIVE TITLE 2F1 LOADING
463. REPEAT LOAD
464. 7 0.476404
465. LOAD 48 LOADTYPE LIVE TITLE 2F1 LOADING
466. REPEAT LOAD
467. 8 0.476404
468. LOAD 49 LOADTYPE LIVE TITLE 2F1 LOADING
469. REPEAT LOAD
470. 9 0.476404
471. LOAD 50 LOADTYPE LIVE TITLE 2F1 LOADING
472. REPEAT LOAD
473. 10 0.476404
474. LOAD 51 LOADTYPE LIVE TITLE 2F1 LOADING
475. REPEAT LOAD
476. 11 0.476404
477. LOAD 52 LOADTYPE LIVE TITLE 2F1 LOADING
478. REPEAT LOAD
479. 12 0.476404
480. LOAD 53 LOADTYPE LIVE TITLE 2F1 LOADING
481. REPEAT LOAD
482. 13 0.476404
483. LOAD 54 LOADTYPE LIVE TITLE 2F1 LOADING
484. REPEAT LOAD
485. 14 0.476404
486. LOAD 55 LOADTYPE LIVE TITLE 2F1 LOADING
487. REPEAT LOAD
488. 15 0.476404

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489. LOAD 56 LOADTYPE LIVE TITLE 2F1 LOADING
490. REPEAT LOAD
491. 16 0.476404
492. LOAD 57 LOADTYPE LIVE TITLE 2F1 LOADING
493. REPEAT LOAD
494. 17 0.476404
495. LOAD 58 LOADTYPE LIVE TITLE 2F1 LOADING
496. REPEAT LOAD
497. 18 0.476404
498. LOAD 59 LOADTYPE LIVE TITLE 2F1 LOADING
499. REPEAT LOAD
500. 19 0.476404
501. LOAD 60 LOADTYPE LIVE TITLE 2F1 LOADING
502. REPEAT LOAD
503. 20 0.476404
504. LOAD 61 LOADTYPE LIVE TITLE 2F1 LOADING
505. REPEAT LOAD
506. 21 0.476404
507. LOAD 62 LOADTYPE LIVE TITLE 2F1 LOADING
508. REPEAT LOAD
509. 22 0.476404
510. LOAD 63 LOADTYPE LIVE TITLE 2F1 LOADING
511. REPEAT LOAD
512. 23 0.476404
513. LOAD 64 LOADTYPE LIVE TITLE 2F1 LOADING
514. REPEAT LOAD
515. 24 0.476404
516. LOAD 65 LOADTYPE LIVE TITLE 2F1 LOADING
517. REPEAT LOAD
518. 25 0.476404
519. LOAD 66 LOADTYPE LIVE TITLE 2F1 LOADING
520. REPEAT LOAD
521. 26 0.476404
522. LOAD 67 LOADTYPE LIVE TITLE 2F1 LOADING
523. REPEAT LOAD
524. 27 0.476404
525. LOAD 68 LOADTYPE LIVE TITLE 2F1 LOADING
526. REPEAT LOAD
527. 28 0.476404
528. LOAD 69 LOADTYPE LIVE TITLE 2F1 LOADING
529. REPEAT LOAD
530. 29 0.476404
531. LOAD 70 LOADTYPE LIVE TITLE 2F1 LOADING
532. REPEAT LOAD
533. 30 0.476404
534. LOAD 71 LOADTYPE LIVE TITLE 2F1 LOADING
535. REPEAT LOAD
536. 31 0.476404
537. LOAD 72 LOADTYPE LIVE TITLE 2F1 LOADING
538. REPEAT LOAD
539. 32 0.476404
540. LOAD 73 LOADTYPE LIVE TITLE 2F1 LOADING
541. REPEAT LOAD
542. 33 0.476404
543. LOAD 74 LOADTYPE LIVE TITLE 2F1 LOADING
544. REPEAT LOAD

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545. 34 0.476404
546. LOAD 75 LOADTYPE LIVE TITLE 2F1 LOADING
547. REPEAT LOAD
548. 35 0.476404
549. LOAD 76 LOADTYPE LIVE TITLE 2F1 LOADING
550. REPEAT LOAD
551. 36 0.476404
552. LOAD 77 LOADTYPE LIVE TITLE 2F1 LOADING
553. REPEAT LOAD
554. 37 0.476404
555. LOAD 78 LOADTYPE LIVE TITLE 2F1 LOADING
556. REPEAT LOAD
557. 38 0.476404
558. LOAD 79 LOADTYPE LIVE TITLE 2F1 LOADING
559. REPEAT LOAD
560. 39 0.476404
561. LOAD 80 LOADTYPE LIVE TITLE 2F1 LOADING
562. REPEAT LOAD
563. 40 0.476404
564. *BEGIN 3F1 LOADS
565. LOAD 81 LOADTYPE LIVE TITLE 3F1 LOADING
566. REPEAT LOAD
567. 1 0.706855
568. LOAD 82 LOADTYPE LIVE TITLE 3F1 LOADING
569. REPEAT LOAD
570. 2 0.706855
571. LOAD 83 LOADTYPE LIVE TITLE 3F1 LOADING
572. REPEAT LOAD
573. 3 0.706855
574. LOAD 84 LOADTYPE LIVE TITLE 3F1 LOADING
575. REPEAT LOAD
576. 4 0.706855
577. LOAD 85 LOADTYPE LIVE TITLE 3F1 LOADING
578. REPEAT LOAD
579. 5 0.706855
580. LOAD 86 LOADTYPE LIVE TITLE 3F1 LOADING
581. REPEAT LOAD
582. 6 0.706855
583. LOAD 87 LOADTYPE LIVE TITLE 3F1 LOADING
584. REPEAT LOAD
585. 7 0.706855
586. LOAD 88 LOADTYPE LIVE TITLE 3F1 LOADING
587. REPEAT LOAD
588. 8 0.706855
589. LOAD 89 LOADTYPE LIVE TITLE 3F1 LOADING
590. REPEAT LOAD
591. 9 0.706855
592. LOAD 90 LOADTYPE LIVE TITLE 3F1 LOADING
593. REPEAT LOAD
594. 10 0.706855
595. LOAD 91 LOADTYPE LIVE TITLE 3F1 LOADING
596. REPEAT LOAD
597. 11 0.706855
598. LOAD 92 LOADTYPE LIVE TITLE 3F1 LOADING
599. REPEAT LOAD
600. 12 0.706855

601. LOAD 93 LOADTYPE LIVE TITLE 3F1 LOADING
602. REPEAT LOAD
603. 13 0.706855
604. LOAD 94 LOADTYPE LIVE TITLE 3F1 LOADING
605. REPEAT LOAD
606. 14 0.706855
607. LOAD 95 LOADTYPE LIVE TITLE 3F1 LOADING
608. REPEAT LOAD
609. 15 0.706855
610. LOAD 96 LOADTYPE LIVE TITLE 3F1 LOADING
611. REPEAT LOAD
612. 16 0.706855
613. LOAD 97 LOADTYPE LIVE TITLE 3F1 LOADING
614. REPEAT LOAD
615. 17 0.706855
616. LOAD 98 LOADTYPE LIVE TITLE 3F1 LOADING
617. REPEAT LOAD
618. 18 0.706855
619. LOAD 99 LOADTYPE LIVE TITLE 3F1 LOADING
620. REPEAT LOAD
621. 19 0.706855
622. LOAD 100 LOADTYPE LIVE TITLE 3F1 LOADING
623. REPEAT LOAD
624. 20 0.706855
625. LOAD 101 LOADTYPE LIVE TITLE 3F1 LOADING
626. REPEAT LOAD
627. 21 0.706855
628. LOAD 102 LOADTYPE LIVE TITLE 3F1 LOADING
629. REPEAT LOAD
630. 22 0.706855
631. LOAD 103 LOADTYPE LIVE TITLE 3F1 LOADING
632. REPEAT LOAD
633. 23 0.706855
634. LOAD 104 LOADTYPE LIVE TITLE 3F1 LOADING
635. REPEAT LOAD
636. 24 0.706855
637. LOAD 105 LOADTYPE LIVE TITLE 3F1 LOADING
638. REPEAT LOAD
639. 25 0.706855
640. LOAD 106 LOADTYPE LIVE TITLE 3F1 LOADING
641. REPEAT LOAD
642. 26 0.706855
643. LOAD 107 LOADTYPE LIVE TITLE 3F1 LOADING
644. REPEAT LOAD
645. 27 0.706855
646. LOAD 108 LOADTYPE LIVE TITLE 3F1 LOADING
647. REPEAT LOAD
648. 28 0.706855
649. LOAD 109 LOADTYPE LIVE TITLE 3F1 LOADING
650. REPEAT LOAD
651. 29 0.706855
652. LOAD 110 LOADTYPE LIVE TITLE 3F1 LOADING
653. REPEAT LOAD
654. 30 0.706855
655. LOAD 111 LOADTYPE LIVE TITLE 3F1 LOADING
656. REPEAT LOAD

657. 31 0.706855
658. LOAD 112 LOADTYPE LIVE TITLE 3F1 LOADING
659. REPEAT LOAD
660. 32 0.706855
661. LOAD 113 LOADTYPE LIVE TITLE 3F1 LOADING
662. REPEAT LOAD
663. 33 0.706855
664. LOAD 114 LOADTYPE LIVE TITLE 3F1 LOADING
665. REPEAT LOAD
666. 34 0.706855
667. LOAD 115 LOADTYPE LIVE TITLE 3F1 LOADING
668. REPEAT LOAD
669. 35 0.706855
670. LOAD 116 LOADTYPE LIVE TITLE 3F1 LOADING
671. REPEAT LOAD
672. 36 0.706855
673. LOAD 117 LOADTYPE LIVE TITLE 3F1 LOADING
674. REPEAT LOAD
675. 37 0.706855
676. LOAD 118 LOADTYPE LIVE TITLE 3F1 LOADING
677. REPEAT LOAD
678. 38 0.706855
679. LOAD 119 LOADTYPE LIVE TITLE 3F1 LOADING
680. REPEAT LOAD
681. 39 0.706855
682. LOAD 120 LOADTYPE LIVE TITLE 3F1 LOADING
683. REPEAT LOAD
684. 40 0.706855
685. *BEGIN 4F1 LOADING
686. LOAD 121 LOADTYPE LIVE TITLE 4F1 LOADING
687. REPEAT LOAD
688. 1 0.809852
689. LOAD 122 LOADTYPE LIVE TITLE 4F1 LOADING
690. REPEAT LOAD
691. 2 0.809852
692. LOAD 123 LOADTYPE LIVE TITLE 4F1 LOADING
693. REPEAT LOAD
694. 3 0.809852
695. LOAD 124 LOADTYPE LIVE TITLE 4F1 LOADING
696. REPEAT LOAD
697. 4 0.809852
698. LOAD 125 LOADTYPE LIVE TITLE 4F1 LOADING
699. REPEAT LOAD
700. 5 0.809852
701. LOAD 126 LOADTYPE LIVE TITLE 4F1 LOADING
702. REPEAT LOAD
703. 6 0.809852
704. LOAD 127 LOADTYPE LIVE TITLE 4F1 LOADING
705. REPEAT LOAD
706. 7 0.809852
707. LOAD 128 LOADTYPE LIVE TITLE 4F1 LOADING
708. REPEAT LOAD
709. 8 0.809852
710. LOAD 129 LOADTYPE LIVE TITLE 4F1 LOADING
711. REPEAT LOAD
712. 9 0.809852

713. LOAD 130 LOADTYPE LIVE TITLE 4F1 LOADING
714. REPEAT LOAD
715. 10 0.809852
716. LOAD 131 LOADTYPE LIVE TITLE 4F1 LOADING
717. REPEAT LOAD
718. 11 0.809852
719. LOAD 132 LOADTYPE LIVE TITLE 4F1 LOADING
720. REPEAT LOAD
721. 12 0.809852
722. LOAD 133 LOADTYPE LIVE TITLE 4F1 LOADING
723. REPEAT LOAD
724. 13 0.809852
725. LOAD 134 LOADTYPE LIVE TITLE 4F1 LOADING
726. REPEAT LOAD
727. 14 0.809852
728. LOAD 135 LOADTYPE LIVE TITLE 4F1 LOADING
729. REPEAT LOAD
730. 15 0.809852
731. LOAD 136 LOADTYPE LIVE TITLE 4F1 LOADING
732. REPEAT LOAD
733. 16 0.809852
734. LOAD 137 LOADTYPE LIVE TITLE 4F1 LOADING
735. REPEAT LOAD
736. 17 0.809852
737. LOAD 138 LOADTYPE LIVE TITLE 4F1 LOADING
738. REPEAT LOAD
739. 18 0.809852
740. LOAD 139 LOADTYPE LIVE TITLE 4F1 LOADING
741. REPEAT LOAD
742. 19 0.809852
743. LOAD 140 LOADTYPE LIVE TITLE 4F1 LOADING
744. REPEAT LOAD
745. 20 0.809852
746. LOAD 141 LOADTYPE LIVE TITLE 4F1 LOADING
747. REPEAT LOAD
748. 21 0.809852
749. LOAD 142 LOADTYPE LIVE TITLE 4F1 LOADING
750. REPEAT LOAD
751. 22 0.809852
752. LOAD 143 LOADTYPE LIVE TITLE 4F1 LOADING
753. REPEAT LOAD
754. 23 0.809852
755. LOAD 144 LOADTYPE LIVE TITLE 4F1 LOADING
756. REPEAT LOAD
757. 24 0.809852
758. LOAD 145 LOADTYPE LIVE TITLE 4F1 LOADING
759. REPEAT LOAD
760. 25 0.809852
761. LOAD 146 LOADTYPE LIVE TITLE 4F1 LOADING
762. REPEAT LOAD
763. 26 0.809852
764. LOAD 147 LOADTYPE LIVE TITLE 4F1 LOADING
765. REPEAT LOAD
766. 27 0.809852
767. LOAD 148 LOADTYPE LIVE TITLE 4F1 LOADING
768. REPEAT LOAD

769. 28 0.809852
770. LOAD 149 LOADTYPE LIVE TITLE 4F1 LOADING
771. REPEAT LOAD
772. 29 0.809852
773. LOAD 150 LOADTYPE LIVE TITLE 4F1 LOADING
774. REPEAT LOAD
775. 30 0.809852
776. LOAD 151 LOADTYPE LIVE TITLE 4F1 LOADING
777. REPEAT LOAD
778. 31 0.809852
779. LOAD 152 LOADTYPE LIVE TITLE 4F1 LOADING
780. REPEAT LOAD
781. 32 0.809852
782. LOAD 153 LOADTYPE LIVE TITLE 4F1 LOADING
783. REPEAT LOAD
784. 33 0.809852
785. LOAD 154 LOADTYPE LIVE TITLE 4F1 LOADING
786. REPEAT LOAD
787. 34 0.809852
788. LOAD 155 LOADTYPE LIVE TITLE 4F1 LOADING
789. REPEAT LOAD
790. 35 0.809852
791. LOAD 156 LOADTYPE LIVE TITLE 4F1 LOADING
792. REPEAT LOAD
793. 36 0.809852
794. LOAD 157 LOADTYPE LIVE TITLE 4F1 LOADING
795. REPEAT LOAD
796. 37 0.809852
797. LOAD 158 LOADTYPE LIVE TITLE 4F1 LOADING
798. REPEAT LOAD
799. 38 0.809852
800. LOAD 159 LOADTYPE LIVE TITLE 4F1 LOADING
801. REPEAT LOAD
802. 39 0.809852
803. LOAD 160 LOADTYPE LIVE TITLE 4F1 LOADING
804. REPEAT LOAD
805. 40 0.809852
806. *BEGIN 5C1 LOADING
807. LOAD 161 LOADTYPE LIVE TITLE 5C1 LOADING
808. REPEAT LOAD
809. 1 0.819497
810. LOAD 162 LOADTYPE LIVE TITLE 5C1 LOADING
811. REPEAT LOAD
812. 2 0.819497
813. LOAD 163 LOADTYPE LIVE TITLE 5C1 LOADING
814. REPEAT LOAD
815. 3 0.819497
816. LOAD 164 LOADTYPE LIVE TITLE 5C1 LOADING
817. REPEAT LOAD
818. 4 0.819497
819. LOAD 165 LOADTYPE LIVE TITLE 5C1 LOADING
820. REPEAT LOAD
821. 5 0.819497
822. LOAD 166 LOADTYPE LIVE TITLE 5C1 LOADING
823. REPEAT LOAD
824. 6 0.819497

825. LOAD 167 LOADTYPE LIVE TITLE 5C1 LOADING
826. REPEAT LOAD
827. 7 0.819497
828. LOAD 168 LOADTYPE LIVE TITLE 5C1 LOADING
829. REPEAT LOAD
830. 8 0.819497
831. LOAD 169 LOADTYPE LIVE TITLE 5C1 LOADING
832. REPEAT LOAD
833. 9 0.819497
834. LOAD 170 LOADTYPE LIVE TITLE 5C1 LOADING
835. REPEAT LOAD
836. 10 0.819497
837. LOAD 171 LOADTYPE LIVE TITLE 5C1 LOADING
838. REPEAT LOAD
839. 11 0.819497
840. LOAD 172 LOADTYPE LIVE TITLE 5C1 LOADING
841. REPEAT LOAD
842. 12 0.819497
843. LOAD 173 LOADTYPE LIVE TITLE 5C1 LOADING
844. REPEAT LOAD
845. 13 0.819497
846. LOAD 174 LOADTYPE LIVE TITLE 5C1 LOADING
847. REPEAT LOAD
848. 14 0.819497
849. LOAD 175 LOADTYPE LIVE TITLE 5C1 LOADING
850. REPEAT LOAD
851. 15 0.819497
852. LOAD 176 LOADTYPE LIVE TITLE 5C1 LOADING
853. REPEAT LOAD
854. 16 0.819497
855. LOAD 177 LOADTYPE LIVE TITLE 5C1 LOADING
856. REPEAT LOAD
857. 17 0.819497
858. LOAD 178 LOADTYPE LIVE TITLE 5C1 LOADING
859. REPEAT LOAD
860. 18 0.819497
861. LOAD 179 LOADTYPE LIVE TITLE 5C1 LOADING
862. REPEAT LOAD
863. 19 0.819497
864. LOAD 180 LOADTYPE LIVE TITLE 5C1 LOADING
865. REPEAT LOAD
866. 20 0.819497
867. LOAD 181 LOADTYPE LIVE TITLE 5C1 LOADING
868. REPEAT LOAD
869. 21 0.819497
870. LOAD 182 LOADTYPE LIVE TITLE 5C1 LOADING
871. REPEAT LOAD
872. 22 0.819497
873. LOAD 183 LOADTYPE LIVE TITLE 5C1 LOADING
874. REPEAT LOAD
875. 23 0.819497
876. LOAD 184 LOADTYPE LIVE TITLE 5C1 LOADING
877. REPEAT LOAD
878. 24 0.819497
879. LOAD 185 LOADTYPE LIVE TITLE 5C1 LOADING
880. REPEAT LOAD

881. 25 0.819497
882. LOAD 186 LOADTYPE LIVE TITLE 5C1 LOADING
883. REPEAT LOAD
884. 26 0.819497
885. LOAD 187 LOADTYPE LIVE TITLE 5C1 LOADING
886. REPEAT LOAD
887. 27 0.819497
888. LOAD 188 LOADTYPE LIVE TITLE 5C1 LOADING
889. REPEAT LOAD
890. 28 0.819497
891. LOAD 189 LOADTYPE LIVE TITLE 5C1 LOADING
892. REPEAT LOAD
893. 29 0.819497
894. LOAD 190 LOADTYPE LIVE TITLE 5C1 LOADING
895. REPEAT LOAD
896. 30 0.819497
897. LOAD 191 LOADTYPE LIVE TITLE 5C1 LOADING
898. REPEAT LOAD
899. 31 0.819497
900. LOAD 192 LOADTYPE LIVE TITLE 5C1 LOADING
901. REPEAT LOAD
902. 32 0.819497
903. LOAD 193 LOADTYPE LIVE TITLE 5C1 LOADING
904. REPEAT LOAD
905. 33 0.819497
906. LOAD 194 LOADTYPE LIVE TITLE 5C1 LOADING
907. REPEAT LOAD
908. 34 0.819497
909. LOAD 195 LOADTYPE LIVE TITLE 5C1 LOADING
910. REPEAT LOAD
911. 35 0.819497
912. LOAD 196 LOADTYPE LIVE TITLE 5C1 LOADING
913. REPEAT LOAD
914. 36 0.819497
915. LOAD 197 LOADTYPE LIVE TITLE 5C1 LOADING
916. REPEAT LOAD
917. 37 0.819497
918. LOAD 198 LOADTYPE LIVE TITLE 5C1 LOADING
919. REPEAT LOAD
920. 38 0.819497
921. LOAD 199 LOADTYPE LIVE TITLE 5C1 LOADING
922. REPEAT LOAD
923. 39 0.819497
924. LOAD 200 LOADTYPE LIVE TITLE 5C1 LOADING
925. REPEAT LOAD
926. 40 0.819497
927. *FATIGUE LOADING - MOVING WHEELS ACROSS THE LANES ON EACH SIDE OF MEDIAN
928. LOAD GENERATION 47
929. TYPE 1 -34.58 19.65 0 XINC 1.003 YRANGE 0.5
930. LOAD GENERATION 45
931. TYPE 1 25.91 19.65 0 XINC 1.011 YRANGE 0.5
932. PDELTA 10 ANALYSIS

P R O B L E M S T A T I S T I C S

NUMBER OF JOINTS/MEMBER+ELEMENTS/SUPPORTS = 33/ 32/ 4

SOLVER USED IS THE OUT-OF-CORE BASIC SOLVER

ORIGINAL/FINAL BAND-WIDTH= 21/ 2/ 18 DOF
TOTAL PRIMARY LOAD CASES = 292, TOTAL DEGREES OF FREEDOM = 174
SIZE OF STIFFNESS MATRIX = 4 DOUBLE KILO-WORDS
REQRD/AVAIL. DISK SPACE = 13.1/ 514582.4 MB

++ Adjusting Displacements	15:58:25
++ Adjusting Displacements	15:58:25
++ Adjusting Displacements	15:58:26
++ Adjusting Displacements	15:58:26
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++ Adjusting Displacements	15:58:26
++ Adjusting Displacements	15:58:26
++ Adjusting Displacements	15:58:26
++ Adjusting Displacements	15:58:26

933. LOAD LIST 1 TO 40

934. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 9 TO 32

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
9 MAX	0.00	0.00	1	78.18	3.80	4			
	0.00	0.00	1	0.00	0.00	1	0.00	0.00	1
MIN	-37.70	3.80	8	0.00	3.80	39			
	0.00	3.80	40	0.00	3.80	40	0.00	3.80	40
10 MAX	0.00	0.00	9	210.12	3.50	4			
	0.00	0.00	1	0.00	0.00	1	0.00	0.00	1
MIN	-37.70	3.50	8	0.00	3.50	39			
	0.00	3.50	40	0.00	3.50	40	0.00	3.50	40
11 MAX	0.00	0.00	9	460.91	3.54	4			
	0.00	0.00	1	0.00	0.00	1	0.00	0.00	1
MIN	-75.40	3.54	8	0.00	3.54	39			
	0.00	3.54	40	0.00	3.54	40	0.00	3.54	40
12 MAX	0.00	0.00	9	580.83	1.59	4			
	0.00	0.00	1	0.00	0.00	1	0.00	0.00	1
MIN	-75.40	1.59	8	0.00	1.59	39			
	0.00	1.59	40	0.00	1.59	40	0.00	1.59	40
13 MAX	94.45	0.00	7	566.91	0.00	4			
	0.00	0.00	1	0.00	0.00	1	2.25 C	0.00	12
MIN	-21.81	1.90	16	-107.98	1.90	12			
	0.00	1.90	40	0.00	1.90	40	3.21 T	1.90	26
14 MAX	85.79	0.00	3	451.74	0.00	4			
	0.00	0.00	1	0.00	0.00	1	2.25 C	0.00	12
MIN	-21.81	3.54	16	-280.09	3.54	12			
	0.00	3.54	40	0.00	3.54	40	3.21 T	3.54	26
15 MAX	60.57	0.00	4	393.69	0.00	14			
	0.00	0.00	1	0.00	0.00	1	2.25 C	0.00	12
MIN	-21.81	3.49	16	-384.91	3.49	12			
	0.00	3.49	40	0.00	3.49	40	3.21 T	3.49	26
16 MAX	51.89	0.00	3	384.91	0.00	14			
	0.00	0.00	1	0.00	0.00	1	2.25 C	0.00	12
MIN	-41.78	3.54	18	-406.12	0.71	12			
	0.00	3.54	40	0.00	3.54	40	3.21 T	3.54	26
17 MAX	26.65	0.00	7	380.09	5.42	16			
	0.00	0.00	1	0.00	0.00	1	2.25 C	0.00	12

DXF IMPORT OF 002_1441BENT_11.DXF

-- PAGE NO. 20

MIN	-70.08	5.42	18	-384.76	0.00	12				
	0.00	5.42	40	0.00	5.42	40	3.21	T	5.42	26
18 MAX	11.30	0.00	8	562.56	5.42	18				
	0.00	0.00	1	0.00	0.00	1	2.25	C	0.00	12
MIN	-83.10	5.42	12	-197.33	0.00	11				
	0.00	5.42	40	0.00	5.42	40	3.21	T	5.42	26
19 MAX	119.95	0.00	16	604.37	0.00	18				
	0.00	0.00	1	0.00	0.00	1	6.46	C	0.00	16
MIN	-11.94	5.85	10	-111.90	0.00	10				
	0.00	5.85	40	0.00	5.85	40	3.49	T	5.85	1
20 MAX	86.05	0.00	16	133.78	0.00	12				
	0.00	0.00	1	0.00	0.00	1	6.46	C	0.00	16
MIN	-11.94	5.85	10	-383.33	5.85	16				
	0.00	5.85	40	0.00	5.85	40	3.49	T	5.85	1
21 MAX	65.24	0.00	17	137.97	5.85	9				
	0.00	0.00	1	0.00	0.00	1	6.46	C	0.00	16
MIN	-11.94	5.85	10	-574.96	5.85	16				
	0.00	5.85	40	0.00	5.85	40	3.49	T	5.85	1
22 MAX	27.54	0.00	17	174.28	5.85	9				
	0.00	0.00	1	0.00	0.00	1	6.46	C	0.00	16
MIN	-35.90	5.85	28	-618.85	2.93	16				
	0.00	5.85	40	0.00	5.85	40	3.49	T	5.85	1
23 MAX	9.13	0.00	31	237.72	5.85	10				
	0.00	0.00	1	0.00	0.00	1	6.46	C	0.00	16
MIN	-52.90	5.85	26	-578.01	0.00	17				
	0.00	5.85	40	0.00	5.85	40	3.49	T	5.85	1
24 MAX	9.13	0.00	31	307.65	5.85	10				
	0.00	0.00	1	0.00	0.00	1	6.46	C	0.00	16
MIN	-85.56	5.85	17	-414.17	0.00	17				
	0.00	5.85	40	0.00	5.85	40	3.49	T	5.85	1
25 MAX	5.02	0.00	12	726.49	5.83	26				
	0.00	0.00	1	0.00	0.00	1	6.46	C	0.00	16
MIN	-102.27	5.83	39	-70.00	0.00	31				
	0.00	5.83	40	0.00	5.83	40	3.49	T	5.83	1
26 MAX	113.94	0.00	10	718.97	0.00	26				
	0.00	0.00	1	0.00	0.00	1	2.95	C	0.00	10
MIN	-0.95	5.83	12	-115.94	5.83	9				
	0.00	5.83	40	0.00	5.83	40	0.91	T	5.83	14
27 MAX	87.02	0.00	13	323.39	0.00	16				
	0.00	0.00	1	0.00	0.00	1	2.95	C	0.00	10
MIN	-8.64	5.85	32	-492.71	5.85	10				
	0.00	5.85	40	0.00	5.85	40	0.91	T	5.85	14
28 MAX	56.48	0.00	29	254.44	0.00	16				
	0.00	0.00	1	0.00	0.00	1	2.95	C	0.00	10

DXF IMPORT OF 002_1441BENT_11.DXF

-- PAGE NO. 21

MIN	-8.64	5.85	32	-678.52	5.85	13			
	0.00	5.85	40	0.00	5.85	40	0.91 T	5.85	14
29 MAX	28.18	0.00	29	185.50	0.00	16			
	0.00	0.00	1	0.00	0.00	1	2.95 C	0.00	10
MIN	-33.68	5.85	35	-692.13	1.17	13			
	0.00	5.85	40	0.00	5.85	40	0.91 T	5.85	14
30 MAX	11.78	0.00	16	134.71	0.00	14			
	0.00	0.00	1	0.00	0.00	1	2.95 C	0.00	10
MIN	-63.78	5.85	13	-600.27	0.00	10			
	0.00	5.85	40	0.00	5.85	40	0.91 T	5.85	14
31 MAX	11.78	0.00	16	165.45	4.77	35			
	0.00	0.00	1	0.00	0.00	1	2.95 C	0.00	10
MIN	-93.85	4.77	37	-329.74	0.00	10			
	0.00	4.77	40	0.00	4.77	40	0.91 T	4.77	14
32 MAX	37.70	0.00	35	150.80	0.00	35			
	0.00	0.00	1	0.00	0.00	1	0.00	0.00	1
MIN	0.00	5.62	40	0.00	4.50	37			
	0.00	5.62	40	0.00	5.62	40	0.00	5.62	40

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

935. *HS-20 FLOOR BEAM MAXIMUM FORCE RESULTS ABOVE
 936. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 1 2

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/	DIST	LD	MZ/	DIST	LD	FX	DIST	LD
	FZ	DIST	LD	MY	DIST	LD			
1 MAX	0.00	0.00	1	0.00	0.00	1			
	2.25	0.00	12	16.98	0.00	26	162.25 C	0.00	7
MIN	0.00	10.48	40	0.00	10.48	40			
	-3.21	10.48	26	-16.85	10.48	26	21.81 T	10.48	16
2 MAX	0.00	0.00	1	0.00	0.00	1			
	2.25	0.00	12	20.76	4.00	12	162.25 C	0.00	7
MIN	0.00	4.00	40	0.00	4.00	40			
	-3.21	4.00	26	-29.55	4.00	26	21.81 T	4.00	16

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

937. *HS-20 COLUMN 411 MAXIMUM FOECE RESULTS ABOVE

938. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 3 4

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/	DIST	LD	MZ/	DIST	LD	FX	DIST	LD
	FZ	DIST	LD	MY	DIST	LD			
3 MAX	4.69	0.00	9	53.63	11.66	15			
	0.00	0.00	1	0.00	0.00	1	180.85 C	0.00	22
MIN	-8.10	11.66	15	-41.10	0.00	15			
	0.00	11.66	40	0.00	11.66	40	15.66 T	11.66	10
4 MAX	4.69	0.00	9	85.82	4.00	15			
	0.00	0.00	1	0.00	0.00	1	180.85 C	0.00	22
MIN	-8.10	4.00	15	-47.69	4.00	9			
	0.00	4.00	40	0.00	4.00	40	15.66 T	4.00	10

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

939. *HS-20 COLUMN 311 MAXIMUM FOECE RESULTS ABOVE

940. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 5 6

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
5 MAX	7.10	0.00	16	53.43	14.27	10			
	0.00	0.00	1	0.00	0.00	1	199.42 C	0.00	29
MIN	-5.93	14.27	10	-58.17	14.27	16			
	0.00	14.27	40	0.00	14.27	40	5.97 T	14.27	12
6 MAX	7.10	0.00	16	76.77	4.00	10			
	0.00	0.00	1	0.00	0.00	1	199.42 C	0.00	29
MIN	-5.93	4.00	10	-86.29	4.00	16			
	0.00	4.00	40	0.00	4.00	40	5.97 T	4.00	12

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

941. *HS-20 COLUMN 211 MAXIMUM FOECE RESULTS ABOVE

942. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 7 8

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/	DIST	LD	MZ/	DIST	LD	FX	DIST	LD
	FZ	DIST	LD	MY	DIST	LD			
7 MAX	0.00	0.00	1	0.00	0.00	1			
	0.91	0.00	14	20.66	0.00	10	127.75 C	0.00	37
MIN	0.00	15.65	40	0.00	15.65	40			
	-2.95	15.65	10	-26.04	15.65	10	11.78 T	15.65	16
8 MAX	0.00	0.00	1	0.00	0.00	1			
	0.91	0.00	14	11.73	4.00	14	127.75 C	0.00	37
MIN	0.00	4.00	40	0.00	4.00	40			
	-2.95	4.00	10	-37.40	4.00	10	11.78 T	4.00	16

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

943. *HS-20 COLUMN 111 MAXIMUM FOECE RESULTS ABOVE

944. LOAD LIST 41 TO 80

945. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 9 TO 32

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
9 MAX	0.00	0.00	41	37.24	3.80	44			
	0.00	0.00	41	0.00	0.00	41	0.00	0.00	41
MIN	-17.96	3.80	48	0.00	3.80	79			
	0.00	3.80	80	0.00	3.80	80	0.00	3.80	80
10 MAX	0.00	0.00	49	100.10	3.50	44			
	0.00	0.00	41	0.00	0.00	41	0.00	0.00	41
MIN	-17.96	3.50	48	0.00	3.50	79			
	0.00	3.50	80	0.00	3.50	80	0.00	3.50	80
11 MAX	0.00	0.00	49	219.58	3.54	44			
	0.00	0.00	41	0.00	0.00	41	0.00	0.00	41
MIN	-35.92	3.54	48	0.00	3.54	79			
	0.00	3.54	80	0.00	3.54	80	0.00	3.54	80
12 MAX	0.00	0.00	49	276.71	1.59	44			
	0.00	0.00	41	0.00	0.00	41	0.00	0.00	41
MIN	-35.92	1.59	48	0.00	1.59	79			
	0.00	1.59	80	0.00	1.59	80	0.00	1.59	80
13 MAX	44.99	0.00	47	270.04	0.00	44			
	0.00	0.00	41	0.00	0.00	41	1.07 C	0.00	52
MIN	-10.39	1.90	56	-51.42	1.90	52			
	0.00	1.90	80	0.00	1.90	80	1.53 T	1.90	66
14 MAX	40.87	0.00	43	215.17	0.00	44			
	0.00	0.00	41	0.00	0.00	41	1.07 C	0.00	52
MIN	-10.39	3.54	56	-133.42	3.54	52			
	0.00	3.54	80	0.00	3.54	80	1.53 T	3.54	66
15 MAX	28.85	0.00	44	187.53	0.00	54			
	0.00	0.00	41	0.00	0.00	41	1.07 C	0.00	52
MIN	-10.39	3.49	56	-183.35	3.49	52			
	0.00	3.49	80	0.00	3.49	80	1.53 T	3.49	66
16 MAX	24.72	0.00	43	183.34	0.00	54			
	0.00	0.00	41	0.00	0.00	41	1.07 C	0.00	52
MIN	-19.90	3.54	58	-193.46	0.71	52			
	0.00	3.54	80	0.00	3.54	80	1.53 T	3.54	66
17 MAX	12.69	0.00	47	181.03	5.42	56			
	0.00	0.00	41	0.00	0.00	41	1.07 C	0.00	52

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MIN	-33.38	5.42	58	-183.28	0.00	52			
	0.00	5.42	80	0.00	5.42	80	1.53	T	5.42 66
18 MAX	5.38	0.00	48	267.97	5.42	58			
	0.00	0.00	41	0.00	0.00	41	1.07	C	0.00 52
MIN	-39.59	5.42	52	-94.00	0.00	51			
	0.00	5.42	80	0.00	5.42	80	1.53	T	5.42 66
19 MAX	57.14	0.00	56	287.92	0.00	58			
	0.00	0.00	41	0.00	0.00	41	3.08	C	0.00 56
MIN	-5.69	5.85	50	-53.29	0.00	50			
	0.00	5.85	80	0.00	5.85	80	1.66	T	5.85 41
20 MAX	40.99	0.00	56	63.72	0.00	52			
	0.00	0.00	41	0.00	0.00	41	3.08	C	0.00 56
MIN	-5.69	5.85	50	-182.59	5.85	56			
	0.00	5.85	80	0.00	5.85	80	1.66	T	5.85 41
21 MAX	31.08	0.00	57	65.72	5.85	49			
	0.00	0.00	41	0.00	0.00	41	3.08	C	0.00 56
MIN	-5.69	5.85	50	-273.87	5.85	56			
	0.00	5.85	80	0.00	5.85	80	1.66	T	5.85 41
22 MAX	13.12	0.00	57	83.01	5.85	49			
	0.00	0.00	41	0.00	0.00	41	3.08	C	0.00 56
MIN	-17.10	5.85	68	-294.78	2.93	56			
	0.00	5.85	80	0.00	5.85	80	1.66	T	5.85 41
23 MAX	4.35	0.00	71	113.21	5.85	50			
	0.00	0.00	41	0.00	0.00	41	3.08	C	0.00 56
MIN	-25.20	5.85	66	-275.33	0.00	57			
	0.00	5.85	80	0.00	5.85	80	1.66	T	5.85 41
24 MAX	4.35	0.00	71	146.51	5.85	50			
	0.00	0.00	41	0.00	0.00	41	3.08	C	0.00 56
MIN	-40.76	5.85	57	-197.28	0.00	57			
	0.00	5.85	80	0.00	5.85	80	1.66	T	5.85 41
25 MAX	2.39	0.00	52	346.07	5.83	66			
	0.00	0.00	41	0.00	0.00	41	3.08	C	0.00 56
MIN	-48.72	5.83	79	-33.34	0.00	71			
	0.00	5.83	80	0.00	5.83	80	1.66	T	5.83 41
26 MAX	54.28	0.00	50	342.51	0.00	66			
	0.00	0.00	41	0.00	0.00	41	1.41	C	0.00 50
MIN	-0.45	5.83	52	-55.21	5.83	49			
	0.00	5.83	80	0.00	5.83	80	0.43	T	5.83 54
27 MAX	41.45	0.00	53	154.03	0.00	56			
	0.00	0.00	41	0.00	0.00	41	1.41	C	0.00 50
MIN	-4.12	5.85	72	-234.68	5.85	50			
	0.00	5.85	80	0.00	5.85	80	0.43	T	5.85 54
28 MAX	26.90	0.00	69	121.19	0.00	56			
	0.00	0.00	41	0.00	0.00	41	1.41	C	0.00 50

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MIN	-4.12	5.85	72	-323.20	5.85	53			
	0.00	5.85	80	0.00	5.85	80	0.43 T	5.85	54
29 MAX	13.42	0.00	69	88.35	0.00	56			
	0.00	0.00	41	0.00	0.00	41	1.41 C	0.00	50
MIN	-16.05	5.85	75	-329.68	1.17	53			
	0.00	5.85	80	0.00	5.85	80	0.43 T	5.85	54
30 MAX	5.61	0.00	56	64.16	0.00	54			
	0.00	0.00	41	0.00	0.00	41	1.41 C	0.00	50
MIN	-30.39	5.85	53	-285.89	0.00	50			
	0.00	5.85	80	0.00	5.85	80	0.43 T	5.85	54
31 MAX	5.61	0.00	56	78.87	4.77	75			
	0.00	0.00	41	0.00	0.00	41	1.41 C	0.00	50
MIN	-44.72	4.77	77	-157.00	0.00	50			
	0.00	4.77	80	0.00	4.77	80	0.43 T	4.77	54
32 MAX	17.96	0.00	75	71.84	0.00	75			
	0.00	0.00	41	0.00	0.00	41	0.00	0.00	41
MIN	0.00	5.62	80	0.00	4.50	78			
	0.00	5.62	80	0.00	5.62	80	0.00	5.62	80

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

946. *2F1 FLOOR BEAM MAXIMUM FORCE RESULTS ABOVE
 947. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 1 2

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
1 MAX	0.00	0.00	41	0.00	0.00	41			
	1.07	0.00	52	8.07	0.00	66	77.29 C	0.00	47
	0.00	10.48	80	0.00	10.48	80			
MIN	-1.53	10.48	66	-8.01	10.48	66	10.39 T	10.48	56
	0.00	0.00	41	0.00	0.00	41			
	1.07	0.00	52	9.91	4.00	52	77.29 C	0.00	47
2 MAX	0.00	4.00	80	0.00	4.00	80			
	-1.53	4.00	66	-14.10	4.00	66	10.39 T	4.00	56

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

948. *2F1 COLUMN 411 MAXIMUM FOECE RESULTS ABOVE

949. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 3 4

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
3 MAX	2.23	0.00	49	25.53	11.66	55			
	0.00	0.00	41	0.00	0.00	41	86.16 C	0.00	62
MIN	-3.86	11.66	55	-19.56	0.00	55			
	0.00	11.66	80	0.00	11.66	80	7.46 T	11.66	50
4 MAX	2.23	0.00	49	40.93	4.00	55			
	0.00	0.00	41	0.00	0.00	41	86.16 C	0.00	62
MIN	-3.86	4.00	55	-22.72	4.00	49			
	0.00	4.00	80	0.00	4.00	80	7.46 T	4.00	50

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

950. *2F1 COLUMN 311 MAXIMUM FOECE RESULTS ABOVE

951. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 5 6

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
5 MAX	3.38	0.00	56	25.43	14.27	50			
	0.00	0.00	41	0.00	0.00	41	95.00 C	0.00	69
MIN	-2.83	14.27	50	-27.69	14.27	56			
	0.00	14.27	80	0.00	14.27	80	2.84 T	14.27	52
6 MAX	3.38	0.00	56	36.65	4.00	50			
	0.00	0.00	41	0.00	0.00	41	95.00 C	0.00	69
MIN	-2.83	4.00	50	-41.15	4.00	56			
	0.00	4.00	80	0.00	4.00	80	2.84 T	4.00	52

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

952. *2F1 COLUMN 211 MAXIMUM FOECE RESULTS ABOVE

953. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 7 8

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/	DIST	LD	MZ/	DIST	LD	FX	DIST	LD
	FZ	DIST	LD	MY	DIST	LD			
7 MAX	0.00	0.00	41	0.00	0.00	41			
	0.43	0.00	54	9.81	0.00	50	60.87 C	0.00	77
MIN	0.00	15.65	80	0.00	15.65	80			
	-1.41	15.65	50	-12.38	15.65	50	5.61 T	15.65	56
8 MAX	0.00	0.00	41	0.00	0.00	41			
	0.43	0.00	54	5.61	4.00	54	60.87 C	0.00	77
MIN	0.00	4.00	80	0.00	4.00	80			
	-1.41	4.00	50	-17.91	4.00	50	5.61 T	4.00	56

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

954. *2F1 COLUMN 111 MAXIMUM FOECE RESULTS ABOVE
 955. LOAD LIST 81 TO 120
 956. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 9 TO 32

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
9 MAX	0.00	0.00	81	55.26	3.80	84			
	0.00	0.00	81	0.00	0.00	81	0.00	0.00	81
	-26.65	3.80	88	0.00	3.80	119			
MIN	0.00	3.80	120	0.00	3.80	120	0.00	3.80	120
	0.00	0.00	89	148.53	3.50	84			
	0.00	0.00	81	0.00	0.00	81	0.00	0.00	81
10 MAX	-26.65	3.50	88	0.00	3.50	119			
	0.00	3.50	120	0.00	3.50	120	0.00	3.50	120
	0.00	0.00	89	325.80	3.54	84			
11 MAX	0.00	0.00	81	0.00	0.00	81	0.00	0.00	81
	-53.30	3.54	88	0.00	3.54	119			
	0.00	3.54	120	0.00	3.54	120	0.00	3.54	120
12 MAX	0.00	0.00	89	410.56	1.59	84			
	0.00	0.00	81	0.00	0.00	81	0.00	0.00	81
	-53.30	1.59	88	0.00	1.59	119			
MIN	0.00	1.59	120	0.00	1.59	120	0.00	1.59	120
	66.76	0.00	87	400.69	0.00	84			
	0.00	0.00	81	0.00	0.00	81	1.59 C	0.00	92
13 MAX	-15.41	1.90	96	-76.31	1.90	92			
	0.00	1.90	120	0.00	1.90	120	2.27 T	1.90	106
	0.00	0.00	83	319.28	0.00	84			
14 MAX	0.00	0.00	81	0.00	0.00	81	1.59 C	0.00	92
	-15.41	3.54	96	-197.97	3.54	92			
	0.00	3.54	120	0.00	3.54	120	2.27 T	3.54	106
15 MAX	42.81	0.00	84	278.26	0.00	94			
	0.00	0.00	81	0.00	0.00	81	1.59 C	0.00	92
	-15.41	3.49	96	-272.06	3.49	92			
MIN	0.00	3.49	120	0.00	3.49	120	2.27 T	3.49	106
	36.68	0.00	83	272.05	0.00	94			
	0.00	0.00	81	0.00	0.00	81	1.59 C	0.00	92
16 MAX	-29.53	3.18	98	-287.05	0.71	92			
	0.00	3.54	120	0.00	3.54	120	2.27 T	3.54	106
	18.84	0.00	87	268.63	5.42	96			
17 MAX	0.00	0.00	81	0.00	0.00	81	1.59 C	0.00	92

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MIN	-49.53	5.42	98	-271.95	0.00	92			
	0.00	5.42	120	0.00	5.42	120	2.27	T	5.42 106
18 MAX	7.99	0.00	88	397.62	5.42	98			
	0.00	0.00	81	0.00	0.00	81	1.59	C	0.00 92
MIN	-58.74	5.42	92	-139.47	0.00	91			
	0.00	5.42	120	0.00	5.42	120	2.27	T	5.42 106
19 MAX	84.79	0.00	96	427.20	0.00	98			
	0.00	0.00	81	0.00	0.00	81	4.56	C	0.00 96
MIN	-8.44	5.85	90	-79.08	0.00	90			
	0.00	5.85	120	0.00	5.85	120	2.47	T	5.85 81
20 MAX	60.82	0.00	96	94.56	0.00	92			
	0.00	0.00	81	0.00	0.00	81	4.56	C	0.00 96
MIN	-8.44	5.85	90	-270.93	5.85	96			
	0.00	5.85	120	0.00	5.85	120	2.47	T	5.85 81
21 MAX	46.12	0.00	97	97.52	5.85	89			
	0.00	0.00	81	0.00	0.00	81	4.56	C	0.00 96
MIN	-8.44	5.85	90	-406.38	5.85	96			
	0.00	5.85	120	0.00	5.85	120	2.47	T	5.85 81
22 MAX	19.47	0.00	97	123.17	5.85	89			
	0.00	0.00	81	0.00	0.00	81	4.56	C	0.00 96
MIN	-25.37	5.85	108	-437.40	2.93	96			
	0.00	5.85	120	0.00	5.85	120	2.47	T	5.85 81
23 MAX	6.45	0.00	111	168.00	5.85	90			
	0.00	0.00	81	0.00	0.00	81	4.56	C	0.00 96
MIN	-37.39	5.85	106	-408.54	0.00	97			
	0.00	5.85	120	0.00	5.85	120	2.47	T	5.85 81
24 MAX	6.45	0.00	111	217.42	5.85	90			
	0.00	0.00	81	0.00	0.00	81	4.56	C	0.00 96
MIN	-60.48	5.85	97	-292.73	0.00	97			
	0.00	5.85	120	0.00	5.85	120	2.47	T	5.85 81
25 MAX	3.55	0.00	92	513.50	5.83	106			
	0.00	0.00	81	0.00	0.00	81	4.56	C	0.00 96
MIN	-72.29	5.83	119	-49.47	0.00	111			
	0.00	5.83	120	0.00	5.83	120	2.47	T	5.83 81
26 MAX	80.54	0.00	90	508.20	0.00	106			
	0.00	0.00	81	0.00	0.00	81	2.09	C	0.00 90
MIN	-0.67	5.83	92	-81.93	5.83	89			
	0.00	5.83	120	0.00	5.83	120	0.64	T	5.83 94
27 MAX	61.51	0.00	93	228.56	0.00	96			
	0.00	0.00	81	0.00	0.00	81	2.09	C	0.00 90
MIN	-6.11	5.27	112	-348.23	5.85	90			
	0.00	5.85	120	0.00	5.85	120	0.64	T	5.85 94
28 MAX	39.92	0.00	109	179.83	0.00	96			
	0.00	0.00	81	0.00	0.00	81	2.09	C	0.00 90

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MIN	-6.11	5.85	112	-479.57	5.85	93			
	0.00	5.85	120	0.00	5.85	120	0.64	T	5.85 94
29 MAX	19.92	0.00	109	131.11	0.00	96			
	0.00	0.00	81	0.00	0.00	81	2.09	C	0.00 90
MIN	-23.81	5.85	115	-489.19	1.17	93			
	0.00	5.85	120	0.00	5.85	120	0.64	T	5.85 94
30 MAX	8.32	0.00	96	95.20	0.00	94			
	0.00	0.00	81	0.00	0.00	81	2.09	C	0.00 90
MIN	-45.08	5.85	93	-424.24	0.00	90			
	0.00	5.85	120	0.00	5.85	120	0.64	T	5.85 94
31 MAX	8.32	0.00	96	116.99	4.77	115			
	0.00	0.00	81	0.00	0.00	81	2.09	C	0.00 90
MIN	-66.34	4.77	117	-233.00	0.00	90			
	0.00	4.77	120	0.00	4.77	120	0.64	T	4.77 94
32 MAX	26.65	0.00	115	106.59	0.00	115			
	0.00	0.00	81	0.00	0.00	81	0.00		0.00 81
MIN	0.00	5.62	120	0.00	4.50	117			
	0.00	5.62	120	0.00	5.62	120	0.00		5.62 120

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

957. *3F1 FLOOR BEAM MAXIMUM FORCE RESULTS ABOVE
 958. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 1 2

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
1 MAX	0.00	0.00	81	0.00	0.00	81			
	1.59	0.00	92	11.99	0.00	106	114.69 C	0.00	87
MIN	0.00	10.48	120	0.00	10.48	120			
	-2.27	10.48	106	-11.89	10.48	106	15.41 T	10.48	96
2 MAX	0.00	0.00	81	0.00	0.00	81			
	1.59	0.00	92	14.69	4.00	92	114.69 C	0.00	87
MIN	0.00	4.00	120	0.00	4.00	120			
	-2.27	4.00	106	-20.90	4.00	106	15.41 T	4.00	96

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

959. *3F1 COLUMN 411 MAXIMUM FOECE RESULTS ABOVE
960. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 3 4

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/	DIST	LD	MZ/	DIST	LD	FX	DIST	LD
	FZ	DIST	LD	MY	DIST	LD			
3 MAX	3.32	0.00	89	37.89	11.66	95			
	0.00	0.00	81	0.00	0.00	81	127.83 C	0.00	102
MIN	-5.73	11.66	95	-29.04	0.00	95			
	0.00	11.66	120	0.00	11.66	120	11.07 T	11.66	90
4 MAX	3.32	0.00	89	60.70	4.00	95			
	0.00	0.00	81	0.00	0.00	81	127.83 C	0.00	102
MIN	-5.73	4.00	95	-33.71	4.00	89			
	0.00	4.00	120	0.00	4.00	120	11.07 T	4.00	90

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

961. *3F1 COLUMN 311 MAXIMUM FOECE RESULTS ABOVE
962. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 5 6

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
5 MAX	5.02	0.00	96	37.75	14.27	90			
	0.00	0.00	81	0.00	0.00	81	140.96 C	0.00	109
MIN	-4.19	14.27	90	-41.10	14.27	96			
	0.00	14.27	120	0.00	14.27	120	4.22 T	14.27	92
6 MAX	5.02	0.00	96	54.33	4.00	90			
	0.00	0.00	81	0.00	0.00	81	140.96 C	0.00	109
MIN	-4.19	4.00	90	-61.03	4.00	96			
	0.00	4.00	120	0.00	4.00	120	4.22 T	4.00	92

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

963. *3F1 COLUMN 211 MAXIMUM FOECE RESULTS ABOVE

964. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 7 8

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
7 MAX	0.00	0.00	81	0.00	0.00	81			
	0.64	0.00	94	14.58	0.00	90	90.31 C	0.00	117
MIN	0.00	15.65	120	0.00	15.65	120			
	-2.09	15.65	90	-18.38	15.65	90	8.32 T	15.65	96
8 MAX	0.00	0.00	81	0.00	0.00	81			
	0.64	0.00	94	8.31	4.00	94	90.31 C	0.00	117
MIN	0.00	4.00	120	0.00	4.00	120			
	-2.09	4.00	90	-26.52	4.00	90	8.32 T	4.00	96

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

965. *3F1 COLUMN 111 MAXIMUM FOECE RESULTS ABOVE
 966. LOAD LIST 121 TO 160
 967. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 9 TO 32

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
9 MAX	0.00	0.00	121	63.31	3.80	124			
	0.00	0.00	121	0.00	0.00	121	0.00	0.00	121
	-30.53	3.80	128	0.00	3.80	159			
MIN	0.00	3.80	160	0.00	3.80	160	0.00	3.80	160
	0.00	0.00	129	170.17	3.50	124			
	0.00	0.00	121	0.00	0.00	121	0.00	0.00	121
10 MAX	-30.53	3.50	124	0.00	3.50	159			
	0.00	3.50	160	0.00	3.50	160	0.00	3.50	160
	0.00	0.00	129	373.27	3.54	124			
11 MAX	0.00	0.00	121	0.00	0.00	121	0.00	0.00	121
	-61.06	3.54	128	0.00	3.54	159			
	0.00	3.54	160	0.00	3.54	160	0.00	3.54	160
12 MAX	0.00	0.00	129	470.39	1.59	124			
	0.00	0.00	121	0.00	0.00	121	0.00	0.00	121
	-61.06	1.59	128	0.00	1.59	159			
MIN	0.00	1.59	160	0.00	1.59	160	0.00	1.59	160
	76.49	0.00	127	459.09	0.00	124			
	0.00	0.00	121	0.00	0.00	121	1.82 C	0.00	132
13 MAX	-17.66	1.90	136	-87.43	1.90	132			
	0.00	1.90	160	0.00	1.90	160	2.60 T	1.90	146
	69.48	0.00	123	365.82	0.00	124			
14 MAX	0.00	0.00	121	0.00	0.00	121	1.82 C	0.00	132
	-17.66	3.54	136	-226.82	3.54	132			
	0.00	3.54	160	0.00	3.54	160	2.60 T	3.54	146
15 MAX	49.05	0.00	124	318.81	0.00	134			
	0.00	0.00	121	0.00	0.00	121	1.82 C	0.00	132
	-17.66	3.49	136	-311.70	3.49	132			
MIN	0.00	3.49	160	0.00	3.49	160	2.60 T	3.49	146
	42.02	0.00	123	311.70	0.00	134			
	0.00	0.00	121	0.00	0.00	121	1.82 C	0.00	132
16 MAX	-33.83	3.54	138	-328.89	0.71	132			
	0.00	3.54	160	0.00	3.54	160	2.60 T	3.54	146
	21.58	0.00	127	307.78	5.42	136			
17 MAX	0.00	0.00	121	0.00	0.00	121	1.82 C	0.00	132

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MIN	-56.75	5.42	138	-311.58	0.00	132			
	0.00	5.42	160	0.00	5.42	160	2.60	T	5.42 146
18 MAX	9.15	0.00	128	455.57	5.42	138			
	0.00	0.00	121	0.00	0.00	121	1.82	C	0.00 132
MIN	-67.30	4.88	132	-159.80	0.00	131			
	0.00	5.42	160	0.00	5.42	160	2.60	T	5.42 146
19 MAX	97.14	0.00	136	489.45	0.00	138			
	0.00	0.00	121	0.00	0.00	121	5.23	C	0.00 136
MIN	-9.67	5.85	130	-90.61	0.00	130			
	0.00	5.85	160	0.00	5.85	160	2.83	T	5.85 121
20 MAX	69.69	0.00	136	108.34	0.00	132			
	0.00	0.00	121	0.00	0.00	121	5.23	C	0.00 136
MIN	-9.67	5.85	130	-310.42	5.85	136			
	0.00	5.85	160	0.00	5.85	160	2.83	T	5.85 121
21 MAX	52.84	0.00	137	111.73	5.85	129			
	0.00	0.00	121	0.00	0.00	121	5.23	C	0.00 136
MIN	-9.67	5.85	130	-465.60	5.85	136			
	0.00	5.85	160	0.00	5.85	160	2.83	T	5.85 121
22 MAX	22.31	0.00	137	141.13	5.85	129			
	0.00	0.00	121	0.00	0.00	121	5.23	C	0.00 136
MIN	-29.07	5.85	148	-501.15	2.93	136			
	0.00	5.85	160	0.00	5.85	160	2.83	T	5.85 121
23 MAX	7.39	0.00	151	192.49	5.85	130			
	0.00	0.00	121	0.00	0.00	121	5.23	C	0.00 136
MIN	-42.84	5.85	146	-468.08	0.00	137			
	0.00	5.85	160	0.00	5.85	160	2.83	T	5.85 121
24 MAX	7.39	0.00	151	249.12	5.85	130			
	0.00	0.00	121	0.00	0.00	121	5.23	C	0.00 136
MIN	-69.29	5.85	137	-335.39	0.00	137			
	0.00	5.85	160	0.00	5.85	160	2.83	T	5.85 121
25 MAX	4.07	0.00	132	588.33	5.83	146			
	0.00	0.00	121	0.00	0.00	121	5.23	C	0.00 136
MIN	-82.82	5.83	159	-56.68	0.00	151			
	0.00	5.83	160	0.00	5.83	160	2.83	T	5.83 121
26 MAX	92.27	0.00	130	582.25	0.00	146			
	0.00	0.00	121	0.00	0.00	121	2.39	C	0.00 130
MIN	-0.77	5.83	132	-93.88	5.83	129			
	0.00	5.83	160	0.00	5.83	160	0.74	T	5.83 134
27 MAX	70.47	0.00	133	261.87	0.00	136			
	0.00	0.00	121	0.00	0.00	121	2.39	C	0.00 130
MIN	-7.00	5.27	152	-398.99	5.85	130			
	0.00	5.85	160	0.00	5.85	160	0.74	T	5.85 134
28 MAX	45.74	0.00	149	206.04	0.00	136			
	0.00	0.00	121	0.00	0.00	121	2.39	C	0.00 130

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MIN	-7.00	5.85	152	-549.47	5.85	133			
	0.00	5.85	160	0.00	5.85	160	0.74	T	5.85 134
29 MAX	22.82	0.00	149	150.22	0.00	136			
	0.00	0.00	121	0.00	0.00	121	2.39	C	0.00 130
MIN	-27.28	5.27	155	-560.49	1.17	133			
	0.00	5.85	160	0.00	5.85	160	0.74	T	5.85 134
30 MAX	9.54	0.00	136	109.08	0.00	134			
	0.00	0.00	121	0.00	0.00	121	2.39	C	0.00 130
MIN	-51.65	5.85	133	-486.08	0.00	130			
	0.00	5.85	160	0.00	5.85	160	0.74	T	5.85 134
31 MAX	9.54	0.00	136	134.02	4.77	155			
	0.00	0.00	121	0.00	0.00	121	2.39	C	0.00 130
MIN	-76.01	4.77	157	-266.99	0.00	130			
	0.00	4.77	160	0.00	4.77	160	0.74	T	4.77 134
32 MAX	30.53	0.00	158	122.13	0.00	155			
	0.00	0.00	121	0.00	0.00	121	0.00		0.00 121
MIN	0.00	5.62	160	0.00	4.50	158			
	0.00	5.62	160	0.00	5.62	160	0.00		5.62 160

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

968. *4F1 FLOOR BEAM MAXIMUM FORCE RESULTS ABOVE
969. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 1 2

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/	DIST	LD	MZ/	DIST	LD	FX	DIST	LD
	FZ	DIST	LD	MY	DIST	LD			
1 MAX	0.00	0.00	121	0.00	0.00	121			
	1.82	0.00	132	13.74	0.00	146	131.40 C	0.00	127
MIN	0.00	10.48	160	0.00	10.48	160			
	-2.60	10.48	146	-13.63	10.48	146	17.66 T	10.48	136
2 MAX	0.00	0.00	121	0.00	0.00	121			
	1.82	0.00	132	16.82	4.00	132	131.40 C	0.00	127
MIN	0.00	4.00	160	0.00	4.00	160			
	-2.60	4.00	146	-23.94	4.00	146	17.66 T	4.00	136

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

970. *4F1 COLUMN 411 MAXIMUM FOECE RESULTS ABOVE
971. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 3 4

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/	DIST	LD	MZ/	DIST	LD	FX	DIST	LD
	FZ	DIST	LD	MY	DIST	LD			
3 MAX	3.80	0.00	129	43.42	11.66	135			
	0.00	0.00	121	0.00	0.00	121	146.46 C	0.00	142
MIN	-6.56	11.66	135	-33.27	0.00	135			
	0.00	11.66	160	0.00	11.66	160	12.68 T	11.66	130
4 MAX	3.80	0.00	129	69.53	4.00	135			
	0.00	0.00	121	0.00	0.00	121	146.46 C	0.00	142
MIN	-6.56	4.00	135	-38.62	4.00	129			
	0.00	4.00	160	0.00	4.00	160	12.68 T	4.00	130

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

972. *4F1 COLUMN 311 MAXIMUM FOECE RESULTS ABOVE
973. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 5 6

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/	DIST	LD	MZ/	DIST	LD	FX	DIST	LD
	FZ	DIST	LD	MY	DIST	LD			
5 MAX	5.75	0.00	136	43.25	14.27	130			
	0.00	0.00	121	0.00	0.00	121	161.50 C	0.00	149
MIN	-4.81	14.27	130	-47.09	14.27	136			
	0.00	14.27	160	0.00	14.27	160	4.83 T	14.27	132
6 MAX	5.75	0.00	136	62.22	4.00	130			
	0.00	0.00	121	0.00	0.00	121	161.50 C	0.00	149
MIN	-4.81	4.00	130	-69.91	4.00	136			
	0.00	4.00	160	0.00	4.00	160	4.83 T	4.00	132

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

974. *4F1 COLUMN 211 MAXIMUM FOECE RESULTS ABOVE
975. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 7 8

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
7 MAX	0.00	0.00	121	0.00	0.00	121			
	0.74	0.00	134	16.71	0.00	130	103.46 C	0.00	157
MIN	0.00	15.65	160	0.00	15.65	160			
	-2.39	15.65	130	-21.07	15.65	130	9.54 T	15.65	136
8 MAX	0.00	0.00	121	0.00	0.00	121			
	0.74	0.00	134	9.51	4.00	134	103.46 C	0.00	157
MIN	0.00	4.00	160	0.00	4.00	160			
	-2.39	4.00	130	-30.35	4.00	130	9.54 T	4.00	136

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

976. *4F1 COLUMN 111 MAXIMUM FOECE RESULTS ABOVE
977. LOAD LIST 161 TO 200
978. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 9 TO 32

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
9 MAX	0.00	0.00	161	64.07	3.80	164			
	0.00	0.00	161	0.00	0.00	161	0.00	0.00	161
	-30.90	3.80	168	0.00	3.80	199			
MIN	0.00	3.80	200	0.00	3.80	200	0.00	3.80	200
	0.00	0.00	169	172.20	3.50	164			
	0.00	0.00	161	0.00	0.00	161	0.00	0.00	161
10 MAX	-30.90	3.50	164	0.00	3.50	199			
	0.00	3.50	200	0.00	3.50	200	0.00	3.50	200
	0.00	0.00	169	377.72	3.54	164			
11 MAX	0.00	0.00	161	0.00	0.00	161	0.00	0.00	161
	-61.79	3.54	168	0.00	3.54	199			
	0.00	3.54	200	0.00	3.54	200	0.00	3.54	200
12 MAX	0.00	0.00	169	475.99	1.59	164			
	0.00	0.00	161	0.00	0.00	161	0.00	0.00	161
	-61.79	1.59	168	0.00	1.59	199			
MIN	0.00	1.59	200	0.00	1.59	200	0.00	1.59	200
	77.40	0.00	167	464.56	0.00	164			
	0.00	0.00	161	0.00	0.00	161	1.84 C	0.00	172
13 MAX	-17.87	1.90	176	-88.48	1.90	172			
	0.00	1.90	200	0.00	1.90	200	2.63 T	1.90	186
	70.31	0.00	163	370.17	0.00	164			
14 MAX	0.00	0.00	161	0.00	0.00	161	1.84 C	0.00	172
	-17.87	3.54	176	-229.52	3.54	172			
	0.00	3.54	200	0.00	3.54	200	2.63 T	3.54	186
15 MAX	49.64	0.00	164	322.61	0.00	174			
	0.00	0.00	161	0.00	0.00	161	1.84 C	0.00	172
	-17.87	3.49	176	-315.42	3.49	172			
MIN	0.00	3.49	200	0.00	3.49	200	2.63 T	3.49	186
	42.53	0.00	163	315.42	0.00	174			
	0.00	0.00	161	0.00	0.00	161	1.84 C	0.00	172
16 MAX	-34.23	3.54	178	-332.80	0.71	172			
	0.00	3.54	200	0.00	3.54	200	2.63 T	3.54	186
	21.84	0.00	167	311.45	5.42	176			
17 MAX	0.00	0.00	161	0.00	0.00	161	1.84 C	0.00	172

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MIN	-57.43	5.42	178	-315.30	0.00	172			
	0.00	5.42	200	0.00	5.42	200	2.63	T	5.42 186
18 MAX	9.26	0.00	168	460.99	5.42	178			
	0.00	0.00	161	0.00	0.00	161	1.84	C	0.00 172
MIN	-68.10	5.42	172	-161.70	0.00	171			
	0.00	5.42	200	0.00	5.42	200	2.63	T	5.42 186
19 MAX	98.30	0.00	176	495.28	0.00	178			
	0.00	0.00	161	0.00	0.00	161	5.29	C	0.00 176
MIN	-9.79	5.85	170	-91.69	0.00	170			
	0.00	5.85	200	0.00	5.85	200	2.86	T	5.85 161
20 MAX	70.52	0.00	176	109.63	0.00	172			
	0.00	0.00	161	0.00	0.00	161	5.29	C	0.00 176
MIN	-9.79	5.85	170	-314.12	5.85	176			
	0.00	5.85	200	0.00	5.85	200	2.86	T	5.85 161
21 MAX	53.47	0.00	177	113.06	5.85	169			
	0.00	0.00	161	0.00	0.00	161	5.29	C	0.00 176
MIN	-9.79	5.85	170	-471.15	5.85	176			
	0.00	5.85	200	0.00	5.85	200	2.86	T	5.85 161
22 MAX	22.57	0.00	177	142.81	5.85	169			
	0.00	0.00	161	0.00	0.00	161	5.29	C	0.00 176
MIN	-29.42	5.85	188	-507.12	2.93	176			
	0.00	5.85	200	0.00	5.85	200	2.86	T	5.85 161
23 MAX	7.48	0.00	191	194.79	5.85	170			
	0.00	0.00	161	0.00	0.00	161	5.29	C	0.00 176
MIN	-43.35	5.85	186	-473.66	0.00	177			
	0.00	5.85	200	0.00	5.85	200	2.86	T	5.85 161
24 MAX	7.48	0.00	191	252.09	5.85	170			
	0.00	0.00	161	0.00	0.00	161	5.29	C	0.00 176
MIN	-70.11	5.85	177	-339.39	0.00	177			
	0.00	5.85	200	0.00	5.85	200	2.86	T	5.85 161
25 MAX	4.11	0.00	172	595.34	5.83	186			
	0.00	0.00	161	0.00	0.00	161	5.29	C	0.00 176
MIN	-83.81	5.83	199	-57.36	0.00	191			
	0.00	5.83	200	0.00	5.83	200	2.86	T	5.83 161
26 MAX	93.37	0.00	170	589.18	0.00	186			
	0.00	0.00	161	0.00	0.00	161	2.42	C	0.00 170
MIN	-0.78	5.83	172	-95.00	5.83	169			
	0.00	5.83	200	0.00	5.83	200	0.75	T	5.83 174
27 MAX	71.31	0.00	173	264.99	0.00	176			
	0.00	0.00	161	0.00	0.00	161	2.42	C	0.00 170
MIN	-7.08	5.27	192	-403.74	5.85	170			
	0.00	5.85	200	0.00	5.85	200	0.75	T	5.85 174
28 MAX	46.28	0.00	189	208.50	0.00	176			
	0.00	0.00	161	0.00	0.00	161	2.42	C	0.00 170

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MIN	-7.08	5.85	192	-556.02	5.85	173			
	0.00	5.85	200	0.00	5.85	200	0.75	T	5.85 174
29 MAX	23.09	0.00	189	152.01	0.00	176			
	0.00	0.00	161	0.00	0.00	161	2.42	C	0.00 170
MIN	-27.60	5.85	195	-567.16	1.17	173			
	0.00	5.85	200	0.00	5.85	200	0.75	T	5.85 174
30 MAX	9.65	0.00	176	110.38	0.00	174			
	0.00	0.00	161	0.00	0.00	161	2.42	C	0.00 170
MIN	-52.27	5.85	173	-491.87	0.00	170			
	0.00	5.85	200	0.00	5.85	200	0.75	T	5.85 174
31 MAX	9.65	0.00	176	135.61	4.77	195			
	0.00	0.00	161	0.00	0.00	161	2.42	C	0.00 170
MIN	-76.91	4.77	197	-270.17	0.00	170			
	0.00	4.77	200	0.00	4.77	200	0.75	T	4.77 174
32 MAX	30.90	0.00	195	123.58	0.00	195			
	0.00	0.00	161	0.00	0.00	161	0.00		0.00 161
MIN	0.00	5.06	196	0.00	4.50	200			
	0.00	5.62	200	0.00	5.62	200	0.00		5.62 200

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

979. *5C1 FLOOR BEAM MAXIMUM FORCE RESULTS ABOVE
 980. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 1 2

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/	DIST	LD	MZ/	DIST	LD	FX	DIST	LD
	FZ	DIST	LD	MY	DIST	LD			
1 MAX	0.00	0.00	161	0.00	0.00	161			
	1.84	0.00	172	13.91	0.00	186	132.96 C	0.00	167
MIN	0.00	10.48	200	0.00	10.48	200			
	-2.63	10.48	186	-13.80	10.48	186	17.87 T	10.48	176
2 MAX	0.00	0.00	161	0.00	0.00	161			
	1.84	0.00	172	17.02	4.00	172	132.96 C	0.00	167
MIN	0.00	4.00	200	0.00	4.00	200			
	-2.63	4.00	186	-24.23	4.00	186	17.87 T	4.00	176

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

981. *5C1 COLUMN 411 MAXIMUM FOECE RESULTS ABOVE
982. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 3 4

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/	DIST	LD	MZ/	DIST	LD	FX	DIST	LD
	FZ	DIST	LD	MY	DIST	LD			
3 MAX	3.84	0.00	169	43.94	11.66	175			
	0.00	0.00	161	0.00	0.00	161	148.20 C	0.00	182
MIN	-6.64	11.66	175	-33.67	0.00	175			
	0.00	11.66	200	0.00	11.66	200	12.84 T	11.66	170
4 MAX	3.84	0.00	169	70.36	4.00	175			
	0.00	0.00	161	0.00	0.00	161	148.20 C	0.00	182
MIN	-6.64	4.00	175	-39.08	4.00	169			
	0.00	4.00	200	0.00	4.00	200	12.84 T	4.00	170

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

983. *5C1 COLUMN 311 MAXIMUM FOECE RESULTS ABOVE

984. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 5 6

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
5 MAX	5.82	0.00	176	43.77	14.27	170			
	0.00	0.00	161	0.00	0.00	161	163.42 C	0.00	189
MIN	-4.86	14.27	170	-47.65	14.27	176			
	0.00	14.27	200	0.00	14.27	200	4.89 T	14.27	172
6 MAX	5.82	0.00	176	62.96	4.00	170			
	0.00	0.00	161	0.00	0.00	161	163.42 C	0.00	189
MIN	-4.86	4.00	170	-70.74	4.00	176			
	0.00	4.00	200	0.00	4.00	200	4.89 T	4.00	172

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

985. *5C1 COLUMN 211 MAXIMUM FOECE RESULTS ABOVE

986. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 7 8

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/	DIST	LD	MZ/	DIST	LD	FX	DIST	LD
	FZ	DIST	LD	MY	DIST	LD			
7 MAX	0.00	0.00	161	0.00	0.00	161			
	0.75	0.00	174	16.91	0.00	170	104.70 C	0.00	197
MIN	0.00	15.65	200	0.00	15.65	200			
	-2.42	15.65	170	-21.32	15.65	170	9.65 T	15.65	176
8 MAX	0.00	0.00	161	0.00	0.00	161			
	0.75	0.00	174	9.63	4.00	174	104.70 C	0.00	197
MIN	0.00	4.00	200	0.00	4.00	200			
	-2.42	4.00	170	-30.71	4.00	170	9.65 T	4.00	176

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

987. *5C1 COLUMN 111 MAXIMUM FOECE RESULTS ABOVE
988. LOAD LIST 201 TO 292
989. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 9 TO 32

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
9 MAX	0.00	0.00	201	26.24	3.80	201			
	0.00	0.00	201	0.00	0.00	201	0.00	0.00	201
MIN	-25.00	3.80	202	0.00	3.80	292			
	0.00	3.80	292	0.00	3.80	292	0.00	3.80	292
10 MAX	0.00	0.00	203	113.73	3.50	201			
	0.00	0.00	201	0.00	0.00	201	0.00	0.00	201
MIN	-25.00	3.50	205	0.00	3.50	292			
	0.00	3.50	292	0.00	3.50	292	0.00	3.50	292
11 MAX	0.00	0.00	206	254.43	3.54	201			
	0.00	0.00	201	0.00	0.00	201	0.00	0.00	201
MIN	-50.00	3.54	203	0.00	3.54	292			
	0.00	3.54	292	0.00	3.54	292	0.00	3.54	292
12 MAX	0.00	0.00	210	333.95	1.59	201			
	0.00	0.00	201	0.00	0.00	201	0.00	0.00	201
MIN	-50.00	1.59	204	0.00	1.59	292			
	0.00	1.59	292	0.00	1.59	292	0.00	1.59	292
13 MAX	41.46	0.00	211	318.44	0.00	201			
	0.00	0.00	201	0.00	0.00	201	0.93 C	0.00	218
MIN	-7.65	1.90	247	-63.09	1.90	213			
	0.00	1.90	292	0.00	1.90	292	1.59 T	1.90	201
14 MAX	36.53	0.00	213	288.21	0.00	201			
	0.00	0.00	201	0.00	0.00	201	0.93 C	0.00	218
MIN	-7.65	3.54	247	-149.33	3.54	216			
	0.00	3.54	292	0.00	3.54	292	1.59 T	3.54	201
15 MAX	26.97	0.00	217	231.98	0.00	201			
	0.00	0.00	201	0.00	0.00	201	0.93 C	0.00	218
MIN	-13.47	3.49	213	-178.50	3.14	219			
	0.00	3.49	292	0.00	3.49	292	1.59 T	3.49	201
16 MAX	20.19	0.00	220	176.45	0.00	201			
	0.00	0.00	201	0.00	0.00	201	0.93 C	0.00	218
MIN	-23.03	3.54	217	-179.72	0.71	220			
	0.00	3.54	292	0.00	3.54	292	1.59 T	3.54	201
17 MAX	15.89	0.00	201	132.93	5.42	247			
	0.00	0.00	201	0.00	0.00	201	0.93 C	0.00	218

DXF IMPORT OF 002_1441BENT_11.DXF

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MIN	-34.08	5.42	222	-172.82	0.00	217			
	0.00	5.42	292	0.00	5.42	292	1.59	T	5.42 201
18 MAX	15.89	0.00	201	174.39	5.42	247			
	0.00	0.00	201	0.00	0.00	201	0.93	C	0.00 218
MIN	-43.45	5.42	227	-104.36	0.00	223			
	0.00	5.42	292	0.00	5.42	292	1.59	T	5.42 201
19 MAX	47.09	0.00	234	201.80	0.00	247			
	0.00	0.00	201	0.00	0.00	201	1.99	C	0.00 247
MIN	-4.23	5.85	273	-74.82	5.85	239			
	0.00	5.85	292	0.00	5.85	292	1.13	T	5.85 270
20 MAX	40.96	0.00	240	56.38	0.00	221			
	0.00	0.00	201	0.00	0.00	201	1.99	C	0.00 247
MIN	-7.91	5.85	239	-192.29	5.85	245			
	0.00	5.85	292	0.00	5.85	292	1.13	T	5.85 270
21 MAX	33.22	0.00	246	43.96	0.00	221			
	0.00	0.00	201	0.00	0.00	201	1.99	C	0.00 247
MIN	-15.44	5.85	245	-247.21	5.85	246			
	0.00	5.85	292	0.00	5.85	292	1.13	T	5.85 270
22 MAX	11.59	0.00	248	59.06	5.85	273			
	0.00	0.00	201	0.00	0.00	201	1.99	C	0.00 247
MIN	-18.16	5.85	247	-255.20	1.17	247			
	0.00	5.85	292	0.00	5.85	292	1.13	T	5.85 270
23 MAX	11.59	0.00	248	83.83	5.85	273			
	0.00	0.00	201	0.00	0.00	201	1.99	C	0.00 247
MIN	-18.16	5.85	247	-210.56	4.10	248			
	0.00	5.85	292	0.00	5.85	292	1.13	T	5.85 270
24 MAX	9.07	0.00	250	108.59	5.85	273			
	0.00	0.00	201	0.00	0.00	201	1.99	C	0.00 247
MIN	-39.70	5.85	249	-187.00	0.00	248			
	0.00	5.85	292	0.00	5.85	292	1.13	T	5.85 270
25 MAX	2.56	0.00	256	156.00	5.83	248			
	0.00	0.00	201	0.00	0.00	201	1.99	C	0.00 247
MIN	-46.52	5.83	255	-91.01	0.00	250			
	0.00	5.83	292	0.00	5.83	292	1.13	T	5.83 270
26 MAX	46.40	0.00	262	160.08	0.00	273			
	0.00	0.00	201	0.00	0.00	201	1.06	C	0.00 278
MIN	-2.69	5.83	261	-102.11	5.83	267			
	0.00	5.83	292	0.00	5.83	292	0.28	T	5.83 248
27 MAX	39.58	0.00	268	107.07	0.00	248			
	0.00	0.00	201	0.00	0.00	201	1.06	C	0.00 278
MIN	-7.96	5.85	266	-220.46	5.85	273			
	0.00	5.85	292	0.00	5.85	292	0.28	T	5.85 248
28 MAX	32.56	0.00	273	84.12	0.00	248			
	0.00	0.00	201	0.00	0.00	201	1.06	C	0.00 278

DXF IMPORT OF 002_1441BENT_11.DXF

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MIN	-15.97	5.85	272	-271.24	5.27	278			
	0.00	5.85	292	0.00	5.85	292	0.28	T	5.85 248
29 MAX	22.99	0.00	279	61.16	0.00	248			
	0.00	0.00	201	0.00	0.00	201	1.06	C	0.00 278
MIN	-25.37	5.85	278	-277.01	2.34	275			
	0.00	5.85	292	0.00	5.85	292	0.28	T	5.85 248
30 MAX	12.61	0.00	285	38.21	0.00	248			
	0.00	0.00	201	0.00	0.00	201	1.06	C	0.00 278
MIN	-35.64	5.85	284	-261.23	0.00	279			
	0.00	5.85	292	0.00	5.85	292	0.28	T	5.85 248
31 MAX	3.92	0.00	248	74.22	4.77	292			
	0.00	0.00	201	0.00	0.00	201	1.06	C	0.00 278
MIN	-44.52	4.77	289	-158.90	0.00	284			
	0.00	4.77	292	0.00	4.77	292	0.28	T	4.77 248
32 MAX	25.00	0.00	290	75.34	0.00	292			
	0.00	0.00	201	0.00	0.00	201	0.00		0.00 201
MIN	0.00	5.62	292	0.00	4.50	292			
	0.00	5.62	292	0.00	5.62	292	0.00		5.62 292

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

990. *HS-15 FATIGUE FLOOR BEAM MAXIMUM FORCE RESULTS ABOVE
 991. FINISH

***** END OF THE STAAD.Pro RUN *****

**** DATE= APR 10,2012 TIME= 15:59:16 ****

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*****
*           For questions on STAAD.Pro, please contact           *
*   Bentley Systems Offices at the following locations           *
*                                                                 *
*           Telephone                Web / Email                *
*                                                                 *
*   USA:          +1 (714)974-2500                               *
*   UK            +44(1454)207-000                               *
*   SINGAPORE    +65 6225-6158                                   *
*   EUROPE       +31 23 5560560                                  *
*   INDIA        +91(033)4006-2021                               *
*   JAPAN        +81(03)5952-6500   http://www.ctc-g.co.jp      *
*   CHINA        +86 10 5929 7000                               *
*   THAILAND     +66(0)2645-1018/19 partha.p@reisoftwareth.com *
*                                                                 *
*   Worldwide    http://selectservices.bentley.com/en-US/      *
*                                                                 *
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EAST APPROACH - FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/30/2012
Date 4/13/2012

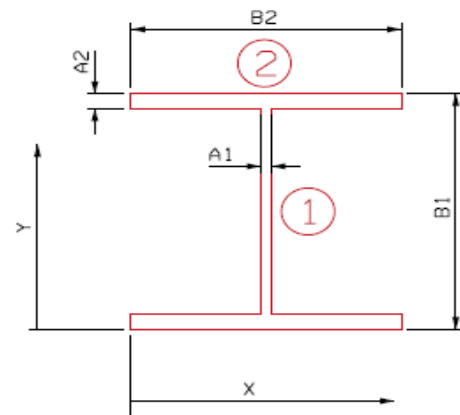
Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Red text indicates user input

Element Dimensions (without Section Losses):

$A_1 = t_w = 0.8150$ in
 $A_2 = t_f = 1.3800$ in
 $B_1 = d = 36.1200$ in
 $B_2 = b_f = 16.5250$ in
36WF250



FB-11 @ COLUMN 411
EAST APPR. FWD SECTION

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I _o	d	Ad ²	I _{x,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		27.1884	18.0600	491.0225	2521.4740	0.0000	0.0000	2521.4740
2	Top Flange		22.8045	35.4300	807.9634	3.6191	17.3700	6880.5030	6884.1221
	Bottom Flange		22.8045	0.6900	15.7351	3.6191	17.3700	6880.5030	6884.1221
Total			72.80		1314.72	2528.71		13761.01	16289.72
Section Losses			A	y	Ay	I _o	d	Ad ²	I _{x,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.1250	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar = 18.0600 in	S _{top} = 901.98 in ³			y-bar = 18.0600 in	S _{top} = 901.98 in ³		
I _x = 16289.72 in ⁴	S _{bott.} = 901.98 in ³			I _x = 16289.72 in ⁴	S _{bott.} = 901.98 in ³		
C _{top} = 18.0600 in	A = 72.7974 in ²			C _{top} = 18.0600 in	A = 72.7974 in ²		
C _{bottom} = 18.0600 in	r _x = 14.9589 in			C _{bottom} = 18.0600 in	r _x = 14.9589 in		
	Z = 1018.98 in ³				Z = warning in ³		

EAST APPROACH - FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/30/2012
Date 4/13/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Floorbeam Capacities

Non-composite Capacities*		
	AB	AI
M	2480.44 k-ft	2480.44 k-ft
V	520.39 k	520.39 k

*Noncompact Section

$F_y =$	33.00 ksi
---------	------------------

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

As-Built Moments and Shears						
	DL	HS20	2F1	3F1	4F1	5C1
M	592.65 k-ft	580.83 k-ft	276.71 k-ft	410.56 k-ft	470.39 k-ft	476.00 k-ft
V	84.42 k	75.40 k	35.92 k	53.30 k	61.06 k	61.79 k

As-Built Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.36	---	---	---	---
Operating M	2.26	4.75	3.2	2.8	2.76
As-Inspected Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.36	---	---	---	---
Operating M	2.26	4.75	3.2	2.8	2.76
As-Built Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	2.51	---	---	---	---
Operating V	4.19	8.79	5.93	5.17	5.11
As-Inspected Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	2.51	---	---	---	---
Operating V	4.19	8.79	5.93	5.17	5.11

Controlling Rating Factors and Tonnage						
	HS20 Inventory	HS20 Operating	2F1 Operating	3F1 Operating	4F1 Operating	5C1 Operating
Rating Factor	1.36	2.26	4.75	3.2	2.8	2.76
Tonnage (US Tons)	48.96	81.36	71.25	73.6	75.6	110.4

EAST APPROACH - FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/30/2012
Date 4/13/2012

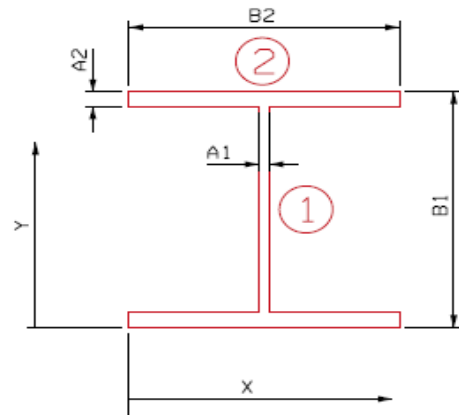
Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Red text indicates user input

Element Dimensions (without Section Losses):

$A_1 = t_w = 0.8150$ in
 $A_2 = t_f = 1.3800$ in
 $B_1 = d = 36.1200$ in
 $B_2 = b_f = 16.5250$ in
36WF250



FB-11 @ COLUMN 311
EAST APPR. FWD SECTION

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I _o	d	Ad ²	I _{x,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		27.1884	18.0600	491.0225	2521.4740	0.0000	0.0000	2521.4740
2	Top Flange		22.8045	35.4300	807.9634	3.6191	17.3700	6880.5030	6884.1221
	Bottom Flange		22.8045	0.6900	15.7351	3.6191	17.3700	6880.5030	6884.1221
Total			72.80		1314.72	2528.71		13761.01	16289.72
Section Losses			A	y	Ay	I _o	d	Ad ²	I _{x,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.1250	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	18.0600	in	S _{top} = 901.98 in ³	y-bar =	18.0600	in	S _{top} = 901.98 in ³
I _x =	16289.72	in ⁴	S _{bott.} = 901.98 in ³	I _x =	16289.72	in ⁴	S _{bott.} = 901.98 in ³
C _{top} =	18.0600	in	A = 72.7974 in ²	C _{top} =	18.0600	in	A = 72.7974 in ²
C _{bottom} =	18.0600	in	r _x = 14.9589 in	C _{bottom} =	18.0600	in	r _x = 14.9589 in
			Z = 1018.98 in ³				Z = warning in ³

EAST APPROACH - FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/30/2012
Date 4/13/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Floorbeam Capacities

Non-composite Capacities*		
	AB	AI
M	2480.44 k-ft	2480.44 k-ft
V	520.39 k	520.39 k

*Noncompact Section

$F_y =$	33.00 ksi
---------	------------------

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

As-Built Moments and Shears						
	DL	HS20	2F1	3F1	4F1	5C1
M	462.13 k-ft	604.38 k-ft	287.92 k-ft	427.20 k-ft	489.45 k-ft	495.28 k-ft
V	79.63 k	119.96 k	57.15 k	84.79 k	102.91 k	98.31 k

As-Built Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.43	---	---	---	---
Operating M	2.39	5.02	3.38	2.95	2.92
As-Inspected Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.43	---	---	---	---
Operating M	2.39	5.02	3.38	2.95	2.92
As-Built Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	1.6	---	---	---	---
Operating V	2.67	5.61	3.78	3.12	3.26
As-Inspected Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	1.6	---	---	---	---
Operating V	2.67	5.61	3.78	3.12	3.26

Controlling Rating Factors and Tonnage						
	HS20 Inventory	HS20 Operating	2F1 Operating	3F1 Operating	4F1 Operating	5C1 Operating
Rating Factor	1.43	2.39	5.02	3.38	2.95	2.92
Tonnage (US Tons)	51.48	86.04	75.3	77.74	79.65	116.8

EAST APPROACH - FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/20/2012
Date 4/13/2012

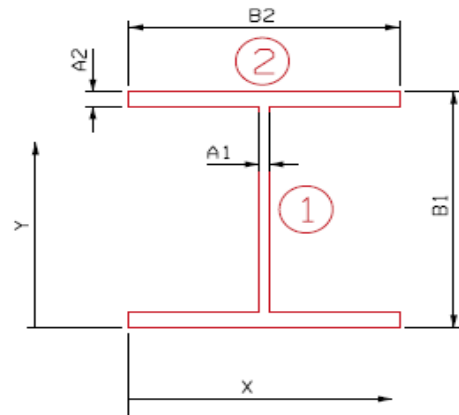
Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Red text indicates user input

Element Dimensions (without Section Losses):

$A_1 = t_w = 0.8150$ in
 $A_2 = t_f = 1.3800$ in
 $B_1 = d = 36.1200$ in
 $B_2 = b_f = 16.5250$ in
36WF250



FB-11 @ COLUMN 211
EAST APPR. FWD SECTION

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I_o	d	Ad^2	$I_{x, gross}$
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		27.1884	18.0600	491.0225	2521.4740	0.0000	0.0000	2521.4740
2	Top Flange		22.8045	35.4300	807.9634	3.6191	17.3700	6880.5030	6884.1221
	Bottom Flange		22.8045	0.6900	15.7351	3.6191	17.3700	6880.5030	6884.1221
Total			72.80		1314.72	2528.71		13761.01	16289.72
Section Losses			A	y	Ay	I_o	d	Ad^2	$I_{x, loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties							
y-bar =	18.0600	in	$S_{top} = 901.98$	in ³	y-bar =	18.0600	in	$S_{top} = 901.98$	in ³		
$I_x =$	16289.72	in ⁴	$S_{bott.} = 901.98$	in ³	$I_x =$	16289.72	in ⁴	$S_{bott.} = 901.98$	in ³		
$C_{top} =$	18.0600	in	A =	72.7974	in ²	$C_{top} =$	18.0600	in	A =	72.7974	in ²
$C_{bottom} =$	18.0600	in	$r_x =$	14.9589	in	$C_{bottom} =$	18.0600	in	$r_x =$	14.9589	in
			Z =	1018.98	in ³				Z =	1018.98	in ³

EAST APPROACH - FORWARD SECTION



Made By FKL
 Checked By PJP

Date 3/20/2012
 Date 4/13/2012

Job No. P402110046
 Sheet No. _____

Calculations For: **CUY-2-1441**

Floorbeam Capacities

Non-composite Capacities*		
	AB	AI
M	2480.44 k-ft	2480.44 k-ft
V	520.39 k	520.39 k

$F_y =$ **33.00 ksi**

AB = As-Built
 AI = As-Inspected
 M = Moment
 V = Shear

*Noncompact Section

As-Built Moments and Shears						
	DL	HS20	2F1	3F1	4F1	5C1
M	688.85 k-ft	726.47 k-ft	346.07 k-ft	513.49 k-ft	588.32 k-ft	595.33 k-ft
V	89.80 k	81.20 k	48.72 k	72.29 k	82.82 k	83.81 k

As-Built Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.01	---	---	---	---
Operating M	1.68	3.52	2.37	2.07	2.05
As-Inspected Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.01	---	---	---	---
Operating M	1.68	3.52	2.37	2.07	2.05
As-Built Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	2.29	---	---	---	---
Operating V	3.82	6.37	4.3	3.75	3.7
As-Inspected Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	2.29	---	---	---	---
Operating V	3.82	6.37	4.3	3.75	3.7

Controlling Rating Factors and Tonnage						
	HS20 Inventory	HS20 Operating	2F1 Operating	3F1 Operating	4F1 Operating	5C1 Operating
Rating Factor	1.01	1.68	3.52	2.37	2.07	2.05
Tonnage (US Tons)	36.36	60.48	52.8	54.51	55.89	82

EAST APPROACH - FORWARD SECTION



Made By FKL
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Date 3/20/2012
Date 4/13/2012

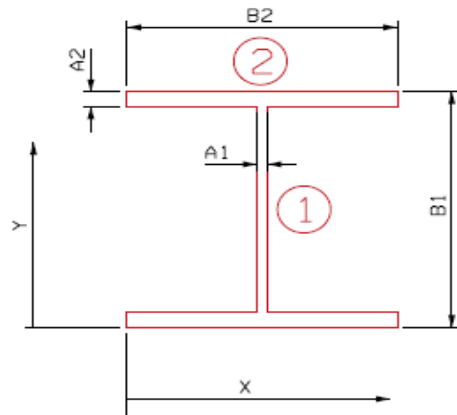
Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Red text indicates user input

Element Dimensions (without Section Losses):

$A_1 = t_w = 0.8150$ in
 $A_2 = t_f = 1.3800$ in
 $B_1 = d = 36.1200$ in
 $B_2 = b_f = 16.5250$ in
36WF250



FB-11 @ COLUMN 111
EAST APPR. FWD SECTION

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I_o	d	Ad^2	$I_{x, gross}$
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		27.1884	18.0600	491.0225	2521.4740	0.0000	0.0000	2521.4740
2	Top Flange		22.8045	35.4300	807.9634	3.6191	17.3700	6880.5030	6884.1221
	Bottom Flange		22.8045	0.6900	15.7351	3.6191	17.3700	6880.5030	6884.1221
Total			72.80		1314.72	2528.71		13761.01	16289.72
Section Losses			A	y	Ay	I_o	d	Ad^2	$I_{x, loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.1250	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties							
y-bar =	18.0600	in	$S_{top} = 901.98$	in^3	y-bar =	18.0600	in	$S_{top} = 901.98$	in^3		
$I_x =$	16289.72	in^4	$S_{bott.} = 901.98$	in^3	$I_x =$	16289.72	in^4	$S_{bott.} = 901.98$	in^3		
$C_{top} =$	18.0600	in	A =	72.7974	in^2	$C_{top} =$	18.0600	in	A =	72.7974	in^2
$C_{bottom} =$	18.0600	in	$r_x =$	14.9589	in	$C_{bottom} =$	18.0600	in	$r_x =$	14.9589	in
			Z =	1018.98	in^3				Z =	warning	in^3

EAST APPROACH - FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/20/2012
Date 4/13/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Floorbeam Capacities

Non-composite Capacities*		
	AB	AI
M	2480.44 k-ft	2480.44 k-ft
V	520.39 k	520.39 k

*Noncompact Section

$F_y =$	33.00 ksi
---------	------------------

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

As-Built Moments and Shears						
	DL	HS20	2F1	3F1	4F1	5C1
M	165.02 k-ft	165.45 k-ft	78.82 k-ft	116.95 k-ft	133.99 k-ft	135.59 k-ft
V	56.79 k	93.85 k	44.71 k	66.34 k	76.00 k	76.91 k

As-Built Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	6.31	---	---	---	---
Operating M	10.53	22.11	14.9	13.01	12.86
As-Inspected Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	6.31	---	---	---	---
Operating M	10.53	22.11	14.9	13.01	12.86
As-Built Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	2.19	---	---	---	---
Operating V	3.66	7.68	5.18	4.52	4.47
As-Inspected Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	2.19	---	---	---	---
Operating V	3.66	7.68	5.18	4.52	4.47

Controlling Rating Factors and Tonnage						
	HS20 Inventory	HS20 Operating	2F1 Operating	3F1 Operating	4F1 Operating	5C1 Operating
Rating Factor	2.19	3.66	7.68	5.18	4.52	4.47
Tonnage (US Tons)	78.84	131.76	115.2	119.14	122.04	178.8

EAST APPROACH - FORWARD SECTION



Made By FKL
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Date 3/20/2012
Date 4/13/2012

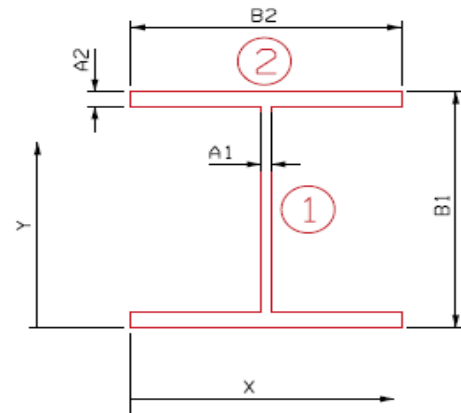
Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Red text indicates user input

Element Dimensions (without Section Losses):

$A_1 = t_w = 0.8150$ in
 $A_2 = t_f = 1.3800$ in
 $B_1 = d = 36.1200$ in
 $B_2 = b_f = 16.5250$ in
36WF250



**FB-11 @ Between 211 & 311
EAST APPR. FWD SECTION**

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I_o	d	Ad^2	$I_{x, gross}$
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		27.1884	18.0600	491.0225	2521.4740	0.0000	0.0000	2521.4740
2	Top Flange		22.8045	35.4300	807.9634	3.6191	17.3700	6880.5030	6884.1221
	Bottom Flange		22.8045	0.6900	15.7351	3.6191	17.3700	6880.5030	6884.1221
Total			72.80		1314.72	2528.71		13761.01	16289.72
Section Losses			A	y	Ay	I_o	d	Ad^2	$I_{x, loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties							
y-bar =	18.0600	in	$S_{top} = 901.98$	in ³	y-bar =	18.0600	in	$S_{top} = 901.98$	in ³		
$I_x =$	16289.72	in ⁴	$S_{bott.} = 901.98$	in ³	$I_x =$	16289.72	in ⁴	$S_{bott.} = 901.98$	in ³		
$C_{top} =$	18.0600	in	A =	72.7974	in ²	$C_{top} =$	18.0600	in	A =	72.7974	in ²
$C_{bottom} =$	18.0600	in	$r_x =$	14.9589	in	$C_{bottom} =$	18.0600	in	$r_x =$	14.9589	in
			Z =	1018.98	in ³				Z =	1018.98	in ³

EAST APPROACH - FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/20/2012
Date 4/13/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Floorbeam Capacities

Non-composite Capacities*		
	AB	AI
M	2802.20 k-ft	2802.20 k-ft
V	520.39 k	520.39 k

$F_y =$ **33.00 ksi**

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

*Compact Section

As-Built Moments and Shears						
	DL	HS20	2F1	3F1	4F1	5C1
M	431.15 k-ft	618.85 k-ft	294.82 k-ft	437.44 k-ft	501.18 k-ft	507.15 k-ft
V	22.09 k	35.90 k	17.10 k	25.38 k	29.07 k	29.42 k

As-Built Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.67	---	---	---	---
Operating M	2.79	5.85	3.94	3.44	3.4
As-Inspected Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.67	---	---	---	---
Operating M	2.79	5.85	3.94	3.44	3.4
As-Built Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	6.31	---	---	---	---
Operating V	10.54	22.11	14.9	13.01	12.86
As-Inspected Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	6.31	---	---	---	---
Operating V	10.54	22.11	14.9	13.01	12.86

Controlling Rating Factors and Tonnage						
	HS20 Inventory	HS20 Operating	2F1 Operating	3F1 Operating	4F1 Operating	5C1 Operating
Rating Factor	1.67	2.79	5.85	3.94	3.44	3.4
Tonnage (US Tons)	60.12	100.44	87.75	90.62	92.88	136

EAST APPROACH - FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/20/2012
Date 4/13/2012

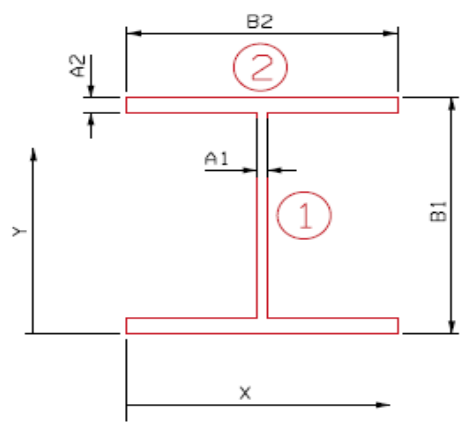
Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Red text indicates user input

Element Dimensions (without Section Losses):

- $A_1 = t_w = 0.8150$ in
 - $A_2 = t_f = 1.3800$ in
 - $B_1 = d = 36.1200$ in
 - $B_2 = b_f = 16.5250$ in
- 36WF250



**FB-11 @ Between 111 & 211
EAST APPR. FWD SECTION**

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I _o	d	Ad ²	I _{x,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		27.1884	18.0600	491.0225	2521.4740	0.0000	0.0000	2521.4740
2	Top Flange		22.8045	35.4300	807.9634	3.6191	17.3700	6880.5030	6884.1221
	Bottom Flange		22.8045	0.6900	15.7351	3.6191	17.3700	6880.5030	6884.1221
Total			72.80		1314.72	2528.71		13761.01	16289.72
Section Losses			A	y	Ay	I _o	d	Ad ²	I _{x,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar = 18.0600 in	S _{top} = 901.98 in ³			y-bar = 18.0600 in	S _{top} = 901.98 in ³		
I _x = 16289.72 in ⁴	S _{bott.} = 901.98 in ³			I _x = 16289.72 in ⁴	S _{bott.} = 901.98 in ³		
C _{top} = 18.0600 in	A = 72.7974 in ²			C _{top} = 18.0600 in	A = 72.7974 in ²		
C _{bottom} = 18.0600 in	r _x = 14.9589 in			C _{bottom} = 18.0600 in	r _x = 14.9589 in		
	Z = 1018.98 in ³				Z = 1018.98 in ³		

EAST APPROACH - FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/20/2012
Date 4/13/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Floorbeam Capacities

Non-composite Capacities*		
	AB	AI
M	2802.20 k-ft	2802.20 k-ft
V	520.39 k	520.39 k

*Compact Section

$F_y =$	33.00 ksi
---------	------------------

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

As-Built Moments and Shears						
	DL	HS20	2F1	3F1	4F1	5C1
M	290.89 k-ft	678.52 k-ft	321.67 k-ft	489.17 k-ft	560.46 k-ft	567.14 k-ft
V	25.11 k	11.67 k	16.05 k	23.81 k	27.28 k	27.60 k

As-Built Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.65	---	---	---	---
Operating M	2.75	5.8	3.81	3.33	3.29
As-Inspected Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.65	---	---	---	---
Operating M	2.75	5.8	3.81	3.33	3.29
As-Built Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	19.26	---	---	---	---
Operating V	32.15	23.38	15.76	13.75	13.59
As-Inspected Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	19.26	---	---	---	---
Operating V	32.15	23.38	15.76	13.75	13.59

Controlling Rating Factors and Tonnage						
	HS20 Inventory	HS20 Operating	2F1 Operating	3F1 Operating	4F1 Operating	5C1 Operating
Rating Factor	1.65	2.75	5.8	3.81	3.33	3.29
Tonnage (US Tons)	59.4	99	87	87.63	89.91	131.6

CUY-2-1441 Load Rating Analysis - As-Built
Main Ave Bridge

East Approach Fwd Section - Bent 11 Column: C411

Section Properties 14WF95 & New reinforcing Plates

A = 39.940 in ²	I _x = 1704.733 in ⁴
h = 15.120 in	S _x = 225.494 in ³
b _f = 14.545 in	r _x = 6.533 in
t _f = 1.248 in	I _y = 527.700 in ⁴
t _w = 0.465 in	S _y = 72.561 in ³
	r _y = 3.635 in

E = 29000 ksi
 L_{cx} = 173.76 in
 L_{cy} = 173.76 in
 K_x = 0.650 AASHTO Appendix C
 K_y = 0.650 AASHTO Appendix C

Axial Loading

$P_u = 0.85 A_s F_{cr}$

AASHTO 10.54 Concentrically Loaded Columns

$$F_{cr} = F_y \left(1 - \frac{F_y}{4\pi^2 E} \left(\frac{KL_c}{r} \right)^2 \right) \quad \text{For: } \frac{KL_c}{r} \leq \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$F_{cr} = \frac{\pi^2 E}{\left(\frac{KL_c}{r} \right)^2} \quad \text{For: } \frac{KL_c}{r} > \sqrt{\frac{2\pi^2 E}{F_y}}$$

KL/r_y = 31.072
 KL/r_x = 17.288

Combined capacity of elements

$P_u = 1118.0 \text{ k}$

Axial Loading and Bending

$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_c} \right)} \leq 1.0$

AASHTO 10.54.2 Combined Axial Load and Bending

=0.6+0.4

a = 0 **When moment is small assume a = 0
 C = 0.600

$F_c = \frac{E\pi^2}{\left(\frac{KL_c}{r} \right)^2}$

F_{ex} = 957.679 ksi
 F_{ey} = 296.449 ksi

Column Moment Capacity

Weak Axis Bending

M_u = F_yS_y

$M_{uy} = 199.5 \text{ k-ft}$

CUY-2-1441 Load Rating Analysis - As-Built
 Main Ave Bridge

East Approach Fwd Section - Bent 11 Column: C411

Section Properties 14WF95 ONLY

A =	27.940	in ²	I _x =	1063.500	in ⁴
h =	14.120	in	S _x =	150.600	in ³
b _f =	14.545	in	r _x =	6.170	in
t _f =	0.748	in	I _y =	383.700	in ⁴
t _w =	0.465	in	S _y =	52.800	in ³
			r _y =	3.710	in
F _y =	33.0	ksi	Z	164	in ³
E =	29000	ksi			
L _{cx} =	173.76	in			
L _{cy} =	173.76	in			
K _x =	0.650	AASHTO Appendix C			
K _y =	0.650	AASHTO Appendix C			

Axial Loading

$P_u = 0.85 A_s F_{cr}$

AASHTO 10.54 Concentrically Loaded Columns

$$F_{cr} = F_y \left(1 - \frac{F_y}{4\pi^2 E} \left(\frac{KL_c}{r} \right)^2 \right)$$

For:

$$\frac{KL_c}{r} \leq \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$F_{cr} = \frac{\pi^2 E}{\left(\frac{KL_c}{r} \right)^2}$$

For:

$$\frac{KL_c}{r} > \sqrt{\frac{2\pi^2 E}{F_y}}$$

KL/r _y =	31.072	<	131.706
KL/r _x =	17.288	<	131.706

F_{CR} = 32.082 ksi

P_{wf} = 761.9 k

CUY-2-1441 Load Rating Analysis - As-Built
Main Ave Bridge
East Approach Fwd Section - Bent 11

Column: C411

Section Properties 2-1/2"x12" Plates ONLY (about centroid)

A =	12.000	in ²	I _x =	641.233	in ⁴
h =	15.120	in	S _x =	84.819	in ³
b _f =	12.000	in	r _x =	7.310	in
t _f =	0.500	in	I _y =	144.000	in ⁴
t _w =	0.000	in	S _y =	24	in ³
			r _y =	3.464	in
F _{yb} =	33.0	ksi	Limited by strain compatibility		
E =	29000	ksi	F _a =	36.0	ksi
L _{cx} =	173.76	in			
L _{cy} =	173.76	in			
K _x =	0.650	AASHTO Appendix C			
K _y =	0.650	AASHTO Appendix C			

Axial Loading

$$P_u = 0.85 A_s F_{cr}$$

AASHTO 10.54 Concentrically Loaded Columns

$$F_{cr} = F_y \left(1 - \frac{F_y}{4\pi^2 E} \left(\frac{KL_c}{r} \right)^2 \right) \quad \text{For: } \frac{KL_c}{r} \leq \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$F_{cr} = \frac{\pi^2 E}{\left(\frac{KL_c}{r} \right)^2} \quad \text{For: } \frac{KL_c}{r} > \sqrt{\frac{2\pi^2 E}{F_y}}$$

KL/ry =	31.072	<	126.099
KL/rx =	17.288	<	126.099

F_{CR} = 34.907 ksi

$$P_{pl} = 356.1 \text{ k}$$

CUY-2-1441 Load Rating Analysis - As-Built
 Main Ave Bridge
 East Approach Forward Section - Column 411 Ratings
 Column Loading



Calculated: FKL 3/30/2012
 Checked: PJP 4/12/2012

	DL	HS-20	2F1	3F1	4F1	5C1
Max Axial	150.35	162.25	77.29	114.69	131.40	132.96
Moment	10.45	7.97	3.83	5.66	6.47	6.55
Axial	148.46	62.3	29.68	44.00	50.46	51.06
Max Moment	20.48	29.55	14.10	20.90	23.94	24.23

DL Factor	LL Factor	Factored Loads				Capacities			$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_c}\right)} \leq 1.0$	Condition Equation	RF
		Axial Force		Moment		P _u	M _u	A _s F _{ev}			
		Dead Load	Max. LL + I	Dead Load	Max LL + I						
1.30	2.17 INV										
	1.30 OPER										
Load Case	Member	kips	kips	k-ft	k-ft	kips	k-ft	kips			
HS20 INV	C411	195.455	351.54	13.59	17.27	1118.00	199.54	11840.19	1.00	2.11	
HS20 INV	C411	192.998	134.98	26.62	64.03	1118.00	199.54	11840.19	1.00	2.31	
HS20 OPR	C411	195.455	210.93	13.59	10.36	1118.00	199.54	11840.19	1.00	3.51	
HS20 OPR	C411	192.998	80.99	26.62	38.42	1118.00	199.54	11840.19	1.00	3.85	
2F1	C411	195.455	100.48	13.59	4.98	1118.00	199.54	11840.19	1.00	7.36	
2F1	C411	192.998	38.58	26.62	18.33	1118.00	199.54	11840.19	1.00	8.08	
3F1	C411	195.455	149.10	13.59	7.36	1118.00	199.54	11840.19	1.00	4.96	
3F1	C411	192.998	57.20	26.62	27.17	1118.00	199.54	11840.19	1.00	5.45	
4F1	C411	195.455	170.82	13.59	8.41	1118.00	199.54	11840.19	1.00	4.33	
4F1	C411	192.998	65.60	26.62	31.12	1118.00	199.54	11840.19	1.00	4.75	
5C1	C411	195.455	172.85	13.59	8.52	1118.00	199.54	11840.19	1.00	4.28	
5C1	C411	192.998	66.38	26.62	31.50	1118.00	199.54	11840.19	1.00	4.70	

Load Case	Crit. RF
HS20 INV	2.11
HS20 OPR	3.51
2F1	7.36
3F1	4.96
4F1	4.33
5C1	4.28

CUY-2-1441 Load Rating Analysis - As-Built
Main Ave Bridge
East Approach Fwd Section - Bent 11

Column: C311

<u>Section Properties</u>		14WF111 & New reinforcing Plates	
A =	50.650 in ²	I _x =	2295.265 in ⁴
h =	15.870 in	S _x =	289.258 in ³
b _f =	14.620 in	r _x =	6.732 in
t _f =	1.623 in	I _y =	670.900 in ⁴
t _w =	0.540 in	S _y =	91.778 in ³
		r _y =	3.639 in
		Z	157.8 in ³
E =	29000 ksi		
L _{cx} =	187.92 in		
L _{cy} =	187.92 in		
K _x =	0.650 AASHTO Appendix C		
K _y =	0.650 AASHTO Appendix C		

Axial Loading

$$P_u = 0.85 A_s F_{cr}$$

AASHTO 10.54 Concentrically Loaded Columns

$$F_{cr} = F_y \left(1 - \frac{F_y}{4\pi^2 E} \left(\frac{KL_c}{r} \right)^2 \right) \quad \text{For: } \frac{KL_c}{r} \leq \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$F_{cr} = \frac{\pi^2 E}{\left(\frac{KL_c}{r} \right)^2} \quad \text{For: } \frac{KL_c}{r} > \sqrt{\frac{2\pi^2 E}{F_y}}$$

KL/r_y = 33.562
 KL/r_x = 18.145

$$P_u = 1417.4 \text{ k}$$

Axial Loading and Bending

AASHTO 10.54.2 Combined Axial Load and Bending

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_c} \right)} \leq 1.0$$

= 0.6 + 0.4

a = 0 **When moment is small assume a = 0
 C = 0.600

$$F_e = \frac{E\pi^2}{\left(\frac{KL_c}{r} \right)^2} \quad \begin{matrix} F_{ex} = 869.317 \text{ ksi} \\ F_{ey} = 254.099 \text{ ksi} \end{matrix}$$

Column Moment Capacity

Strong Axis Bending

M_u = F_yS_x For Non-Compact Section

$$M_{ux} = 867.8 \text{ k-ft}$$

CUY-2-1441 Load Rating Analysis - As-Built
Main Ave Bridge

East Approach Fwd Section - Bent 11 **Column: C311**

<u>Section Properties</u>		14WF111	ONLY
A =	32.650	in ²	I _x = 1266.500 in ⁴
h =	14.370	in	S _x = 176.300 in ³
b _f =	14.620	in	r _x = 6.230 in
t _f =	0.873	in	I _y = 454.900 in ⁴
t _w =	0.540	in	S _y = 62.200 in ³
			r _y = 3.730 in
F _y =	33.0	ksi	Z = 193.8 in ³
E =	29000	ksi	
L _{cx} =	187.92	in	
L _{cy} =	187.92	in	
K _x =	0.650	AASHTO Appendix C	
K _y =	0.650	AASHTO Appendix C	

Axial Loading

$$P_u = 0.85 A_s F_{cr}$$

AASHTO 10.54 Concentrically Loaded Columns

$$F_{cr} = F_y \left(1 - \frac{F_y}{4\pi^2 E} \left(\frac{KL_c}{r} \right)^2 \right) \text{ For: } \frac{KL_c}{r} \leq \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$F_{cr} = \frac{\pi^2 E}{\left(\frac{KL_c}{r} \right)^2} \text{ For: } \frac{KL_c}{r} > \sqrt{\frac{2\pi^2 E}{F_y}}$$

KL/r_y = 33.562 < 131.706
 KL/r_x = 18.145 < 131.706

F_{CR} = 31.929 ksi

P_{wf} = 886.1 k

CUY-2-1441 Load Rating Analysis - As-Built
Main Ave Bridge

East Approach Fwd Section - Bent 11 **Column: C311**

Section Properties 2-3/4"x12" Plates ONLY

A =	18.000	in ²	I _x =	1028.765	in ⁴
h =	15.870	in	S _x =	129.649	in ³
b _f =	12.000	in	r _x =	7.560	in
t _f =	0.750	in	I _y =	216.000	in ⁴
t _w =	0.000	in	S _y =	36	in ³
			r _y =	3.464	in
F _y =	36.000	ksi	36.4	ksi	
E =	29000	ksi			
L _{cx} =	187.92	in			
L _{cy} =	187.92	in			
K _x =	0.650	AASHTO Appendix C			
K _y =	0.650	AASHTO Appendix C			

Axial Loading

$$P_u = 0.85 A_s F_{cr}$$

AASHTO 10.54 Concentrically Loaded Columns

$$F_{cr} = F_y \left(1 - \frac{F_y}{4\pi^2 E} \left(\frac{KL_c}{r} \right)^2 \right) \text{ For: } \frac{KL_c}{r} \leq \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$F_{cr} = \frac{\pi^2 E}{\left(\frac{KL_c}{r} \right)^2} \text{ For: } \frac{KL_c}{r} > \sqrt{\frac{2\pi^2 E}{F_y}}$$

KL/r_y = 33.562 < 126.099
 KL/r_x = 18.145 < 126.099

F_{CR} = 34.725 ksi

P_{pl} = 531.3 k

CUY-2-1441 Load Rating Analysis - As-Built
 Main Ave Bridge
 East Approach Forward Section - Column 311 Ratings
 Column Loading



Calculated: FKL 3/30/2012
 Checked: PJP 4/12/2012

	DL	HS-20	2F1	3F1	4F1	5C1
Max Axial	147.9	180.85	86.16	127.83	146.46	148.20
Moment	19.8	23.33	11.10	16.48	18.88	19.11
Axial	145.28	95.97	45.72	67.84	77.72	78.65
Max Moment	45.25	85.82	40.93	60.70	69.53	70.36

DL Factor 1.30
 LL Factor 2.17 INV
 1.30 OPER

Factored Loads				Capacities		
Axial Force		Moment		P _u	M _u	A _s F _{ex}
Dead Load	Max. LL + I	Dead Load	Max LL + I			

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_c}\right)} \leq 1.0$$

Load Case	Member	kips	kips	k-ft	k-ft	kips	k-ft	kips	Condition Equation	RF
HS20 INV	C311	192.27	391.84	25.74	50.55	1417.40	867.77	44030.93	1.00	2.71
HS20 INV	C311	188.864	207.94	58.83	185.94	1417.40	867.77	44030.93	1.00	2.97
HS20 OPR	C311	192.27	235.11	25.74	30.33	1417.40	867.77	44030.93	1.00	4.51
HS20 OPR	C311	188.864	124.76	58.83	111.57	1417.40	867.77	44030.93	1.00	4.95
2F1	C311	192.27	112.01	25.74	14.43	1417.40	867.77	44030.93	1.00	9.47
2F1	C311	188.864	59.44	58.83	53.21	1417.40	867.77	44030.93	1.00	10.39
3F1	C311	192.27	166.18	25.74	21.42	1417.40	867.77	44030.93	1.00	6.39
3F1	C311	188.864	88.19	58.83	78.91	1417.40	867.77	44030.93	1.00	7.01
4F1	C311	192.27	190.40	25.74	24.54	1417.40	867.77	44030.93	1.00	5.57
4F1	C311	188.864	101.04	58.83	90.39	1417.40	867.77	44030.93	1.00	6.12
5C1	C311	192.27	192.66	25.74	24.84	1417.40	867.77	44030.93	1.00	5.51
5C1	C311	188.864	102.25	58.83	91.47	1417.40	867.77	44030.93	1.00	6.04

Load Case	Crit. RF
HS20 INV	2.71
HS20 OPR	4.51
2F1	9.47
3F1	6.39
4F1	5.57
5C1	5.51

CUY-2-1441 Load Rating Analysis - As-Built
Main Ave Bridge

East Approach Fwd Section - Bent 11 Column: C211

Section Properties 14WF111 & New reinforcing Plates

A =	50.650	in ²	I _x =	2295.265	in ⁴
h =	15.870	in	S _x =	289.258	in ³
b _f =	14.620	in	r _x =	6.732	in
t _f =	1.623	in	I _y =	670.900	in ⁴
t _w =	0.540	in	S _y =	91.778	in ³
			r _y =	3.639	in
			Z	157.8	in ³
E =	29000	ksi			
L _{cx} =	219.24	in			
L _{cy} =	219.24	in			
K _x =	0.650	AASHTO Appendix C			
K _y =	0.650	AASHTO Appendix C			

Axial Loading

$P_u = 0.85 A_s F_{cr}$

AASHTO 10.54 Centrally Loaded Columns

$$F_{cr} = F_y \left(1 - \frac{F_y}{4\pi^2 E} \left(\frac{KL_c}{r} \right)^2 \right) \quad \text{For: } \frac{KL_c}{r} \leq \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$F_{cr} = \frac{\pi^2 E}{\left(\frac{KL_c}{r} \right)^2} \quad \text{For: } \frac{KL_c}{r} > \sqrt{\frac{2\pi^2 E}{F_y}}$$

KL/r_y = 39.156

KL/r_x = 21.169

$P_u = 1399.6 \text{ k}$

Axial Loading and Bending

$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_c} \right)} \leq 1.0$

AASHTO 10.54.2 Combined Axial Load and Bending

=0.6+0.4

a = 0 **When moment is small assume a = 0
 C = 0.600

$F_e = \frac{E\pi^2}{\left(\frac{KL_c}{r} \right)^2}$

F_{ex} = 638.682 ksi
 F_{ey} = 186.685 ksi

Column Moment Capacity

Strong Axis Bending

M_u = F_yS_x For Non-Compact Section

$M_{ux} = 867.8 \text{ k-ft}$

CUY-2-1441 Load Rating Analysis - As-Built
Main Ave Bridge
East Approach Fwd Section - Bent 11

Column: C211

Section Properties	14WF111	ONLY		
A =	32.650	in ²	I _x =	1266.500 in ⁴
h =	14.370	in	S _x =	176.300 in ³
b _f =	14.620	in	r _x =	6.230 in
t _f =	0.873	in	I _y =	454.900 in ⁴
t _w =	0.540	in	S _y =	62.200 in ³
			r _y =	3.730 in
F _y =	33.0	ksi	Z	193.8 in ³
E =	29000	ksi		
L _{cx} =	219.24	in		
L _{cy} =	219.24	in		
K _x =	0.650	AASHTO Appendix C		
K _y =	0.650	AASHTO Appendix C		

Axial Loading

$$P_u = 0.85 A_s F_{cr}$$

AASHTO 10.54 Centrally Loaded Columns

$$F_{cr} = F_y \left(1 - \frac{F_y}{4\pi^2 E} \left(\frac{KL_c}{r} \right)^2 \right) \quad \text{For: } \frac{KL_c}{r} \leq \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$F_{cr} = \frac{\pi^2 E}{\left(\frac{KL_c}{r} \right)^2} \quad \text{For: } \frac{KL_c}{r} > \sqrt{\frac{2\pi^2 E}{F_y}}$$

KL/r_y = 39.156 < 131.706
 KL/r_x = 21.169 < 131.706

F_{CR} = 31.542 ksi

P_u = 875.4 k

CUY-2-1441 Load Rating Analysis - As-Built
 Main Ave Bridge

East Approach Fwd Section - Bent 11 Column: C211

Section Properties 2-3/4"x12" Plates ONLY

A =	18.000	in ²	I _x =	1028.765	in ⁴
h =	15.870	in	S _x =	129.649	in ³
b _f =	12.000	in	r _x =	7.560	in
t _f =	0.750	in	I _y =	216.000	in ⁴
t _w =	0.000	in	S _y =	36	in ³
			r _y =	3.464	in
F _y =	36.000	ksi	36.4	ksi	
E =	29000	ksi			
L _{cx} =	219.24	in			
L _{cy} =	219.24	in			
K _x =	0.650	AASHTO Appendix C			
K _y =	0.650	AASHTO Appendix C			

Axial Loading

$P_u = 0.85 A_s F_{cr}$

AASHTO 10.54 Centrally Loaded Columns

$$F_{cr} = F_y \left(1 - \frac{F_y}{4\pi^2 E} \left(\frac{KL_c}{r} \right)^2 \right) \quad \text{For: } \frac{KL_c}{r} \leq \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$F_{cr} = \frac{\pi^2 E}{\left(\frac{KL_c}{r} \right)^2} \quad \text{For: } \frac{KL_c}{r} > \sqrt{\frac{2\pi^2 E}{F_y}}$$

KL/r _y =	39.156	<	126.099
KL/r _x =	21.169	<	126.099

F_{CR} = 34.264 ksi

$P_u = 524.2 \text{ k}$

CUY-2-1441 Load Rating Analysis - As-Built

Main Ave Bridge

East Approach Forward Section - Column 211 Ratings



Calculated:

FKL 3/30/2012

Checked:

PJP 4/12/2012

Column Loading

	DL	HS-20	2F1	3F1	4F1	5C1
Max Axial	201.91	199.42	95.00	140.96	161.50	163.42
Moment	7.43	5.99	2.84	4.23	4.85	4.90
Axial	198.81	125.887	45.37	67.31	77.12	78.04
Max Moment	15.08	76.775	41.15	61.03	69.91	70.74

DL Factor

1.30

LL Factor

2.17 INV

1.30 OPER

Factored Loads

Axial Force

Moment

Capacities

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_c}\right)} \leq 1.0$$

Load Case	Member	Axial Force		Moment		Capacities			Condition Equation	RF
		Dead Load	Max. LL + I	Dead Load	Max LL + I	P _u	M _u	A _s F _{ex}		
HS20 INV	C211	262.483	432.08	9.66	12.98	1399.60	867.77	32349.25	1.00	2.53
HS20 INV	C211	258.453	272.76	19.60	166.35	1399.60	867.77	32349.25	1.00	2.56
HS20 OPR	C211	262.483	259.25	9.66	7.79	1399.60	867.77	32349.25	1.00	4.22
HS20 OPR	C211	258.453	163.65	19.60	99.81	1399.60	867.77	32349.25	1.00	4.26
2F1	C211	262.483	123.50	9.66	3.69	1399.60	867.77	32349.25	1.00	8.85
2F1	C211	258.453	58.98	19.60	53.50	1399.60	867.77	32349.25	1.00	10.00
3F1	C211	262.483	183.25	9.66	5.50	1399.60	867.77	32349.25	1.00	5.96
3F1	C211	258.453	87.50	19.60	79.34	1399.60	867.77	32349.25	1.00	6.74
4F1	C211	262.483	209.95	9.66	6.31	1399.60	867.77	32349.25	1.00	5.21
4F1	C211	258.453	100.26	19.60	90.88	1399.60	867.77	32349.25	1.00	5.89
5C1	C211	262.483	212.45	9.66	6.37	1399.60	867.77	32349.25	1.00	5.14
5C1	C211	258.453	101.45	19.60	91.96	1399.60	867.77	32349.25	1.00	5.82

Load Case	Crit. RF
HS20 INV	2.53
HS20 OPR	4.22
2F1	8.85
3F1	5.96
4F1	5.21
5C1	5.14

CUY-2-1441 Load Rating Analysis - As-Built
Main Ave Bridge
East Approach Fwd Section - Bent 11

Column: C111

<u>Section Properties</u>		14WF95 & New reinforcing Plates	
A =	39.940 in ²	I _x =	1704.733 in ⁴
h =	15.120 in	S _x =	225.494 in ³
b _f =	14.620 in	r _x =	6.533 in
t _f =	1.248 in	I _y =	527.700 in ⁴
t _w =	0.540 in	S _y =	72.189 in ³
		r _y =	3.635 in

E =	29000	ksi
L _{cx} =	235.8	in
L _{cy} =	235.8	in
K _x =	0.650	AASHTO Appendix C
K _y =	0.650	AASHTO Appendix C

Axial Loading

$$P_u = 0.85 A_s F_{cr}$$

AASHTO 10.54 Concentrically Loaded Columns

$$F_{cr} = F_y \left(1 - \frac{F_y}{4\pi^2 E} \left(\frac{KL_c}{r} \right)^2 \right) \quad \text{For: } \frac{KL_c}{r} \leq \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$F_{cr} = \frac{\pi^2 E}{\left(\frac{KL_c}{r} \right)^2} \quad \text{For: } \frac{KL_c}{r} > \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$KL/r_y = 42.167$$

$$KL/r_x = 23.460$$

$$P_u = 743.6 \text{ k} \quad (P_{wf} + P_{pl})$$

Axial Loading and Bending

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_c} \right)} \leq 1.0$$

AASHTO 10.54.2 Combined Axial Load and Bending

$$= 0.6 + 0.4$$

a = 0 **When moment is small assume a = 0
 C = 0.600

$$F_c = \frac{E\pi^2}{\left(\frac{KL_c}{r} \right)^2} \quad \begin{matrix} F_{ex} = 520.034 \text{ ksi} \\ F_{ey} = 160.976 \text{ ksi} \end{matrix}$$

Column Moment Capacity

Weak Axis Bending

$$M_u = F_y S_y$$

$$M_{uy} = 198.5 \text{ k-ft}$$

CUY-2-1441 Load Rating Analysis - As-Built
Main Ave Bridge
East Approach Fwd Section - Bent 11

Column: C111

Section Properties		14WF95	ONLY		
A =	27.940	in ²		I _x =	1063.500 in ⁴
h =	14.120	in		S _x =	150.600 in ³
b _f =	14.545	in		r _x =	6.170 in
t _f =	0.748	in		I _y =	383.700 in ⁴
t _w =	0.465	in		S _y =	52.800 in ³
				r _y =	3.710 in
F _y =	33.0	ksi		Z	164 in ³
E =	29000	ksi			
L _{cx} =	235.8	in			
L _{cy} =	235.80	in			
K _x =	0.650	AASHTO Appendix C			
K _y =	0.650	AASHTO Appendix C			

Axial Loading

$$P_u = 0.85 A_s F_{cr}$$

AASHTO 10.54 Concentrically Loaded Columns

$$F_{cr} = F_y \left(1 - \frac{F_y}{4\pi^2 E} \left(\frac{KL_c}{r} \right)^2 \right)$$

For: $\frac{KL_c}{r} \leq \sqrt{\frac{2\pi^2 E}{F_y}}$

$$F_{cr} = \frac{\pi^2 E}{\left(\frac{KL_c}{r} \right)^2}$$

For: $\frac{KL_c}{r} > \sqrt{\frac{2\pi^2 E}{F_y}}$

KL/r_y = 42.167 < 131.706

KL/r_x = 23.460 < 131.706

FCR = 31.309 ksi

$$P_{pl} = 743.6 \text{ k}$$

CUY-2-1441 Load Rating Analysis - As-Built
Main Ave Bridge
East Approach Fwd Section - Bent 11

Column: C111

Section Properties 2-1/2"x12" Plates ONLY

A =	12.000	in ²	I _x =	641.233	in ⁴
h =	15.120	in	S _x =	84.819	in ³
b _f =	12.000	in	r _x =	7.310	in
t _f =	0.500	in	I _y =	144.000	in ⁴
t _w =	0.000	in	S _y =	24	in ³
			r _y =	3.464	in
F _y =	33.0	ksi	F _y limited by strain compatibility		
E =	29000	ksi	F _a =	36.0	ksi
L _{cx} =	235.80	in			
L _{cy} =	235.80	in			
K _x =	0.650	AASHTO Appendix C			
K _y =	0.650	AASHTO Appendix C			

Axial Loading

$$P_u = 0.85 A_s F_{cr}$$

AASHTO 10.54 Centrally Loaded Columns

$$F_{cr} = F_y \left(1 - \frac{F_y}{4\pi^2 E} \left(\frac{KL_c}{r} \right)^2 \right)$$

For: $\frac{KL_c}{r} \leq \sqrt{\frac{2\pi^2 E}{F_y}}$

$$F_{cr} = \frac{\pi^2 E}{\left(\frac{KL_c}{r} \right)^2}$$

For: $\frac{KL_c}{r} > \sqrt{\frac{2\pi^2 E}{F_y}}$

KL/r_y = 42.167 < 126.099

KL/r_x = 23.460 < 126.099

F_{CR} = 33.987 ksi

P_{pl} = 346.7 k

CUY-2-1441 Load Rating Analysis - As-Built

Main Ave Bridge

East Approach Forward Section - Column 111 Ratings



Calculated:

FKL 3/30/2012

Checked:

PJP 4/12/2012

Column Loading

	DL	HS-20	2F1	3F1	4F1	5C1
Max Axial	111.99	127.75	60.87	90.31	103.46	104.70
Moment	5.31	26.09	12.53	18.52	21.19	21.44
Axial	109.37	89.46	42.62	63.24	72.45	73.31
Max Moment	10.24	37.4	17.91	26.52	30.35	30.71

DL Factor
LL Factor

1.30
2.17 INV
1.30 OPER

Factored Loads

Axial Force		Moment	
Dead Load	Max. LL + I	Dead Load	Max LL + I

Capacities

P _u	M _u	A _s F _y
----------------	----------------	-------------------------------

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_c}\right)} \leq 1.0$$

Load Case	Member	kips	kips	k-ft	k-ft	kips	k-ft	kips	Condition Equation	RF
HS20 INV	C111	145.587	276.79	6.90	56.53	743.60	198.52	6429.40	1.00	1.40
HS20 INV	C111	142.181	193.83	13.31	81.03	743.60	198.52	6429.40	1.00	1.46
HS20 OPR	C111	145.587	166.08	6.90	33.92	743.60	198.52	6429.40	1.00	2.33
HS20 OPR	C111	142.181	116.30	13.31	48.62	743.60	198.52	6429.40	1.00	2.44
2F1	C111	145.587	79.13	6.90	16.29	743.60	198.52	6429.40	1.00	4.88
2F1	C111	142.181	55.41	13.31	23.28	743.60	198.52	6429.40	1.00	5.11
3F1	C111	145.587	117.40	6.90	24.08	743.60	198.52	6429.40	1.00	3.29
3F1	C111	142.181	82.21	13.31	34.48	743.60	198.52	6429.40	1.00	3.45
4F1	C111	145.587	134.50	6.90	27.55	743.60	198.52	6429.40	1.00	2.88
4F1	C111	142.181	94.19	13.31	39.46	743.60	198.52	6429.40	1.00	3.01
5C1	C111	145.587	136.11	6.90	27.87	743.60	198.52	6429.40	1.00	2.84
5C1	C111	142.181	95.30	13.31	39.92	743.60	198.52	6429.40	1.00	2.98

Load Case	Crit. RF
HS20 INV	1.40
HS20 OPR	2.33
2F1	4.88
3F1	3.29
4F1	2.88
5C1	2.84



Made By PJP
 Checked By MTN

Date 3/27/2012
 Date 4/10/2012

Job No. P402110046
 Sheet No. _____

Calculations For: **CUY-2-1441 - East Approach Forward Section**

Bent 11 Reactions

Dead Load Reactions from MDX

Unit 9		
Stringer	DL1	DL2
F1-9	36.27	3.33
S1-9	33.83	3.33
S2-9	34.41	3.33
S3-9	37.04	3.33
S4-9	37.04	3.33
S5-9	37.04	3.33
S6-9	37.04	3.33
S7-9	36.98	3.33
S8-9	37.04	3.33
S9-9	37.04	3.33
S10-9	37.04	3.33
S11-9	37.04	3.33
S12-9	37.04	3.33
S13-9	37.04	3.33
S14-9	35.99	3.33
S15-9	34.94	3.33
S16-9	33.85	3.33
S17-9	32.42	3.34
S18-9	32.42	3.34
S19-9	32.42	3.34
S20-9	33.65	3.37
S21-9	33.65	3.37
S22-9	34.13	3.39
F2-9	32.12	3.42

Live Load + Impact Reactions from MDX

	LL+I per Beam	LLDF	LL+I per Wheel	3 Lane LL+I	4 Lane LL+I
HS-20	47.21	1.064	44.37	40.00	33.30
2F1	20.57	1.064	19.33		
3F1	31.26	1.064	29.38		
4F1	36.43	1.064	34.24		
5C1	42.16	1.064	39.62		
HS-15	19.08	0.616	30.97		

	LL+I	Ratio
HS-20	47.21	1.000000
2F1	20.57	0.435713
3F1	31.26	0.662148
4F1	36.43	0.771659
5C1	42.16	0.893031

3 lane reduction 0.9
 4 lane + reduction 0.75

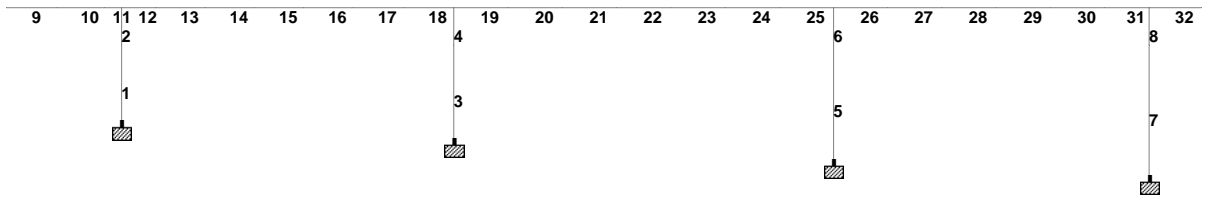


Job No P402110046	Sheet No 1	Rev
Part EAST APPR. FWD SECTION		
Ref BENT 12		
By PJP	Date 30-Mar-12	Chd MTN
File BENT 12 LL.std	Date/Time 10-Apr-2012 18:12	

Software licensed to TranSystems

Job Title CUY-2-1441

Client ODOT



Y
Z-X

Load 1

```

*****
*
*          STAAD.Pro V8i SELECTseries1          *
*          Version  20.07.06.35                 *
*          Proprietary Program of              *
*          Bentley Systems, Inc.               *
*          Date=    APR 10, 2012               *
*          Time=    12:52:45                  *
*
*          USER ID: TranSystems                *
*****

```

```

1. STAAD SPACE DXF IMPORT OF 002_1441BENT_12.DXF
INPUT FILE: BENT 12 DL.STD
2. START JOB INFORMATION
3. ENGINEER DATE 30-MAR-12
4. JOB NAME CUY-2-1441
5. JOB CLIENT ODOT
6. JOB NO P402110046
7. JOB PART EAST APPR. FWD SECTION
8. JOB REF BENT 12
9. ENGINEER NAME PJP
10. CHECKER NAME MTN
11. CHECKER DATE 10-APR-12
12. END JOB INFORMATION
13. INPUT WIDTH 79
14. UNIT FEET KIP
15. JOINT COORDINATES
16. 1 -37.4063 5.9 0; 2 -37.4063 14.1 0; 3 -37.4063 18.1 0; 4 -1.59896 4.03 0
17. 5 -1.59896 14.1 0; 6 -1.59896 18.1 0; 7 39.3594 1.78 0; 8 39.3594 14.1 0
18. 9 39.3594 18.1 0; 10 73.3802 0 0; 11 73.3802 14.1 0; 12 73.3802 18.1 0
19. 13 -49.8391 18.1 0; 14 -44.3704 18.1 0; 15 -39.2738 18.1 0; 16 -33.7065 18.1 0
20. 17 -28.3962 18.1 0; 18 -23.0694 18.1 0; 19 -17.7585 18.1 0; 20 -12.4323 18.1 0
21. 21 -7.01563 18.1 0; 22 4.25521 18.1 0; 23 10.1094 18.1 0; 24 15.9635 18.1 0
22. 25 21.8177 18.1 0; 26 27.6719 18.1 0; 27 33.526 18.1 0; 28 45.1927 18.1 0
23. 29 51.0469 18.1 0; 30 56.901 18.1 0; 31 62.7552 18.1 0; 32 68.6094 18.1 0
24. 33 79 18.1 0
25. MEMBER INCIDENCES
26. 1 1 2; 2 2 3; 3 4 5; 4 5 6; 5 7 8; 6 8 9; 7 10 11; 8 11 12; 9 13 14; 10 14 15
27. 11 15 3; 12 3 16; 13 16 17; 14 17 18; 15 18 19; 16 19 20; 17 20 21; 18 21 6
28. 19 6 22; 20 22 23; 21 23 24; 22 24 25; 23 25 26; 24 26 27; 25 27 9; 26 9 28
29. 27 28 29; 28 29 30; 29 30 31; 30 31 32; 31 32 12; 32 12 33
30. DEFINE MATERIAL START
31. ISOTROPIC STEEL
32. E 4.176E+006
33. POISSON 0.3
34. DENSITY 0.489024
35. ALPHA 6E-006
36. DAMP 0.03
37. END DEFINE MATERIAL
38. MEMBER PROPERTY AMERICAN
39. 9 TO 32 TABLE ST W36X247
40. 1 2 7 8 TABLE ST W14X90

```

41. 3 TO 6 TABLE ST W14X109
42. CONSTANTS
43. BETA 0 MEMB 4 9
44. BETA 90 MEMB 1 2 7 8
45. MATERIAL STEEL ALL
46. SUPPORTS
47. 1 4 7 10 FIXED
48. LOAD 1 LOADTYPE DEAD TITLE DEAD LOADS
49. SELFWEIGHT Y -1.1 LIST 1 TO 32
50. JOINT LOAD
51. *F1-9
52. 33 FY -39.6
53. *S1-9
54. 12 FY -37.16
55. *S2-9
56. 32 FY -37.74
57. *S3-9
58. 31 FY -40.37
59. *S4-9
60. 30 FY -40.37
61. *S5-9
62. 29 FY -40.37
63. *S6-9
64. 28 FY -40.37
65. *S7-9
66. 9 FY -40.31
67. *S8-9
68. 27 FY -40.37
69. *S9-9
70. 26 FY -40.37
71. *S10-9
72. 25 FY -40.37
73. *S11-9
74. 24 FY -40.37
75. *S12-9
76. 23 FY -40.37
77. *S13-9
78. 22 FY -40.37
79. *S14-9
80. 6 FY -39.32
81. *S15-9
82. 21 FY -38.27
83. *S16-9
84. 20 FY -37.18
85. *S17-9
86. 19 FY -35.76
87. *S18-9
88. 18 FY -35.76
89. *S19-9
90. 17 FY -35.76
91. *S20-9
92. 16 FY -37.02
93. *S21-9
94. 15 FY -37.02
95. *S22-9
96. 14 FY -37.52

97. *F2-9
98. 13 FY -35.54
99. MEMBER LOAD
100. 1 UNI GY -0.043 0 8.2
101. 7 UNI GY -0.043 0 14.1
102. 3 UNI GY -0.064 0 10.07
103. 5 UNI GY -0.064 0 12.32
104. PDELTA 10 ANALYSIS

P R O B L E M S T A T I S T I C S

NUMBER OF JOINTS/MEMBER+ELEMENTS/SUPPORTS = 33/ 32/ 4

SOLVER USED IS THE OUT-OF-CORE BASIC SOLVER

ORIGINAL/FINAL BAND-WIDTH= 21/ 2/ 18 DOF
TOTAL PRIMARY LOAD CASES = 1, TOTAL DEGREES OF FREEDOM = 174
SIZE OF STIFFNESS MATRIX = 4 DOUBLE KILO-WORDS
REQRD/AVAIL. DISK SPACE = 12.1/ 514589.2 MB

++ Adjusting Displacements 12:52:45
++ Adjusting Displacements 12:52:45
++ Adjusting Displacements 12:52:45
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++ Adjusting Displacements 12:52:45
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++ Adjusting Displacements 12:52:45
++ Adjusting Displacements 12:52:45

105. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 9 TO 32

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
9 MAX	-35.54	0.00	1	198.41	5.47	1			
	0.00	0.00	1	0.00	0.00	1	0.00	0.00	1
MIN	-37.02	5.47	1	0.00	0.00	1			
	0.00	5.47	1	0.00	5.47	1	0.00	5.47	1
10 MAX	-74.54	0.00	1	581.83	5.10	1			
	0.00	0.00	1	0.00	0.00	1	0.00	0.00	1
MIN	-75.92	5.10	1	198.41	0.00	1			
	0.00	5.10	1	0.00	5.10	1	0.00	5.10	1
11 MAX	-112.94	0.00	1	793.22	1.87	1			
	0.00	0.00	1	0.00	0.00	1	0.00	0.00	1
MIN	-113.45	1.87	1	581.83	0.00	1			
	0.00	1.87	1	0.00	1.87	1	0.00	1.87	1
12 MAX	117.50	0.00	1	787.59	0.00	1			
	0.00	0.00	1	0.00	0.00	1	0.66 T	0.00	1
MIN	116.50	3.70	1	354.71	3.70	1			
	0.00	3.70	1	0.00	3.70	1	0.66 T	3.70	1
13 MAX	79.48	0.00	1	354.71	0.00	1			
	0.00	0.00	1	0.00	0.00	1	0.66 T	0.00	1
MIN	78.04	5.31	1	-63.52	5.31	1			
	0.00	5.31	1	0.00	5.31	1	0.66 T	5.31	1
14 MAX	42.28	0.00	1	-63.52	0.00	1			
	0.00	0.00	1	0.00	0.00	1	0.66 T	0.00	1
MIN	40.84	5.33	1	-284.89	5.33	1			
	0.00	5.33	1	0.00	5.33	1	0.66 T	5.33	1
15 MAX	5.08	0.00	1	-284.89	0.00	1			
	0.00	0.00	1	0.00	0.00	1	0.66 T	0.00	1
MIN	3.64	5.31	1	-308.03	5.31	1			
	0.00	5.31	1	0.00	5.31	1	0.66 T	5.31	1
16 MAX	-32.12	0.00	1	-133.11	5.33	1			
	0.00	0.00	1	0.00	0.00	1	0.66 T	0.00	1
MIN	-33.56	5.33	1	-308.03	0.00	1			
	0.00	5.33	1	0.00	5.33	1	0.66 T	5.33	1
17 MAX	-70.74	0.00	1	254.06	5.42	1			
	0.00	0.00	1	0.00	0.00	1	0.66 T	0.00	1

DXF IMPORT OF 002_1441BENT_12.DXF

-- PAGE NO. 5

MIN	-72.21	5.42	1	-133.11	0.00	1			
	0.00	5.42	1	0.00	5.42	1	0.66 T	5.42	1
18 MAX	-110.48	0.00	1	856.46	5.42	1			
	0.00	0.00	1	0.00	0.00	1	0.66 T	0.00	1
MIN	-111.95	5.42	1	254.06	0.00	1			
	0.00	5.42	1	0.00	5.42	1	0.66 T	5.42	1
19 MAX	124.95	0.00	1	887.44	0.00	1			
	0.00	0.00	1	0.00	0.00	1	2.57 C	0.00	1
MIN	123.36	5.85	1	160.61	5.85	1			
	0.00	5.85	1	0.00	5.85	1	2.57 C	5.85	1
20 MAX	82.99	0.00	1	160.61	0.00	1			
	0.00	0.00	1	0.00	0.00	1	2.57 C	0.00	1
MIN	81.40	5.85	1	-320.62	5.85	1			
	0.00	5.85	1	0.00	5.85	1	2.57 C	5.85	1
21 MAX	41.03	0.00	1	-320.62	0.00	1			
	0.00	0.00	1	0.00	0.00	1	2.57 C	0.00	1
MIN	39.45	5.85	1	-556.21	5.85	1			
	0.00	5.85	1	0.00	5.85	1	2.57 C	5.85	1
22 MAX	-0.92	0.00	1	-546.18	5.85	1			
	0.00	0.00	1	0.00	0.00	1	2.57 C	0.00	1
MIN	-2.51	5.85	1	-556.21	0.00	1			
	0.00	5.85	1	0.00	5.85	1	2.57 C	5.85	1
23 MAX	-42.88	0.00	1	-290.52	5.85	1			
	0.00	0.00	1	0.00	0.00	1	2.57 C	0.00	1
MIN	-44.46	5.85	1	-546.18	0.00	1			
	0.00	5.85	1	0.00	5.85	1	2.57 C	5.85	1
24 MAX	-84.83	0.00	1	210.76	5.85	1			
	0.00	0.00	1	0.00	0.00	1	2.57 C	0.00	1
MIN	-86.42	5.85	1	-290.52	0.00	1			
	0.00	5.85	1	0.00	5.85	1	2.57 C	5.85	1
25 MAX	-126.79	0.00	1	954.99	5.83	1			
	0.00	0.00	1	0.00	0.00	1	2.57 C	0.00	1
MIN	-128.37	5.83	1	210.76	0.00	1			
	0.00	5.83	1	0.00	5.83	1	2.57 C	5.83	1
26 MAX	122.52	0.00	1	941.30	0.00	1			
	0.00	0.00	1	0.00	0.00	1	1.39 C	0.00	1
MIN	120.94	5.83	1	231.21	5.83	1			
	0.00	5.83	1	0.00	5.83	1	1.39 C	5.83	1
27 MAX	80.57	0.00	1	231.21	0.00	1			
	0.00	0.00	1	0.00	0.00	1	1.39 C	0.00	1
MIN	78.98	5.85	1	-235.82	5.85	1			
	0.00	5.85	1	0.00	5.85	1	1.39 C	5.85	1
28 MAX	38.61	0.00	1	-235.82	0.00	1			
	0.00	0.00	1	0.00	0.00	1	1.39 C	0.00	1

DXF IMPORT OF 002_1441BENT_12.DXF

-- PAGE NO. 6

MIN	37.03	5.85	1	-457.24	5.85	1			
	0.00	5.85	1	0.00	5.85	1	1.39 C	5.85	1
29 MAX	-3.34	0.00	1	-433.03	5.85	1			
	0.00	0.00	1	0.00	0.00	1	1.39 C	0.00	1
MIN	-4.93	5.85	1	-457.24	0.00	1			
	0.00	5.85	1	0.00	5.85	1	1.39 C	5.85	1
30 MAX	-45.30	0.00	1	-163.20	5.85	1			
	0.00	0.00	1	0.00	0.00	1	1.39 C	0.00	1
MIN	-46.88	5.85	1	-433.03	0.00	1			
	0.00	5.85	1	0.00	5.85	1	1.39 C	5.85	1
31 MAX	-84.62	0.00	1	243.61	4.77	1			
	0.00	0.00	1	0.00	0.00	1	1.39 C	0.00	1
MIN	-85.91	4.77	1	-163.20	0.00	1			
	0.00	4.77	1	0.00	4.77	1	1.39 C	4.77	1
32 MAX	41.12	0.00	1	226.82	0.00	1			
	0.00	0.00	1	0.00	0.00	1	0.00	0.00	1
MIN	39.60	5.62	1	0.00	5.62	1			
	0.00	5.62	1	0.00	5.62	1	0.00	5.62	1

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

106. *FLOOR BEAM MAXIMUM FORCE RESULTS ABOVE

107. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 1 2

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
1 MAX	0.00	0.00	1	0.00	0.00	1			
	-0.66	0.00	1	2.41	0.00	1	232.51 C	0.00	1
MIN	0.00	8.20	1	0.00	8.20	1			
	-0.66	8.20	1	-3.11	8.20	1	231.34 C	8.20	1
2 MAX	0.00	0.00	1	0.00	0.00	1			
	-0.66	0.00	1	-3.11	0.00	1	231.34 C	0.00	1
MIN	0.00	4.00	1	0.00	4.00	1			
	-0.66	4.00	1	-5.63	4.00	1	230.95 C	4.00	1

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

108. *COLUMN 412 MAXIMUM FOECE RESULTS ABOVE

109. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 3 4

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
3 MAX	-3.24	0.00	1	18.27	10.07	1			
	0.00	0.00	1	0.00	0.00	1	278.54 C	0.00	1
MIN	-3.24	10.07	1	-14.63	0.00	1			
	0.00	10.07	1	0.00	10.07	1	276.69 C	10.07	1
4 MAX	-3.24	0.00	1	30.98	4.00	1			
	0.00	0.00	1	0.00	0.00	1	276.69 C	0.00	1
MIN	-3.24	4.00	1	18.27	0.00	1			
	0.00	4.00	1	0.00	4.00	1	276.21 C	4.00	1

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

110. *COLUMN 312 MAXIMUM FOECE RESULTS ABOVE

111. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 5 6

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
5 MAX	1.18	0.00	1	5.44	0.00	1			
	0.00	0.00	1	0.00	0.00	1	293.94 C	0.00	1
MIN	1.18	12.32	1	-9.17	12.32	1			
	0.00	12.32	1	0.00	12.32	1	291.67 C	12.32	1
6 MAX	1.18	0.00	1	-9.17	0.00	1			
	0.00	0.00	1	0.00	0.00	1	291.67 C	0.00	1
MIN	1.18	4.00	1	-13.68	4.00	1			
	0.00	4.00	1	0.00	4.00	1	291.20 C	4.00	1

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

112. *COLUMN 212 MAXIMUM FOECE RESULTS ABOVE

113. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 7 8

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/	DIST	LD	MZ/	DIST	LD	FX	DIST	LD
	FZ	DIST	LD	MY	DIST	LD			
7 MAX	0.00	0.00	1	0.00	0.00	1			
	-1.39	0.00	1	8.39	0.00	1	166.59 C	0.00	1
MIN	0.00	14.10	1	0.00	14.10	1			
	-1.39	14.10	1	-11.66	14.10	1	164.59 C	14.10	1
8 MAX	0.00	0.00	1	0.00	0.00	1			
	-1.39	0.00	1	-11.66	0.00	1	164.59 C	0.00	1
MIN	0.00	4.00	1	0.00	4.00	1			
	-1.39	4.00	1	-16.79	4.00	1	164.20 C	4.00	1

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

114. *COLUMN 112 MAXIMUM FOECE RESULTS ABOVE

115. FINISH

***** END OF THE STAAD.Pro RUN *****

**** DATE= APR 10,2012 TIME= 12:52:45 ****

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*****
*           For questions on STAAD.Pro, please contact           *
*   Bentley Systems Offices at the following locations           *
*                                                                 *
*           Telephone           Web / Email           *
*                                                                 *
*   USA:           +1 (714)974-2500           *
*   UK           +44(1454)207-000           *
*   SINGAPORE +65 6225-6158           *
*   EUROPE      +31 23 5560560           *
*   INDIA       +91(033)4006-2021           *
*   JAPAN       +81(03)5952-6500   http://www.ctc-g.co.jp           *
*   CHINA       +86 10 5929 7000           *
*   THAILAND    +66(0)2645-1018/19 partha.p@reisoftwareth.com *
*                                                                 *
*   Worldwide    http://selectservices.bentley.com/en-US/ *
*                                                                 *
*****
```



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*****
*
*          STAAD.Pro V8i SELECTseries1          *
*          Version  20.07.06.35                 *
*          Proprietary Program of              *
*          Bentley Systems, Inc.                *
*          Date=    APR 10, 2012                *
*          Time=    18:12:37                   *
*
*          USER ID: TranSystems                 *
*****
```

```
1. STAAD SPACE DXF IMPORT OF 002_1441BENT_12.DXF
INPUT FILE: BENT 12 LL.STD
2. START JOB INFORMATION
3. ENGINEER DATE 30-MAR-12
4. JOB NAME CUY-2-1441
5. JOB CLIENT ODOT
6. JOB NO P402110046
7. JOB PART EAST APPR. FWD SECTION
8. JOB REF BENT 12
9. ENGINEER NAME PJP
10. CHECKER NAME MTN
11. CHECKER DATE 10-APR-12
12. END JOB INFORMATION
13. INPUT WIDTH 79
14. UNIT FEET KIP
15. JOINT COORDINATES
16. 1 -37.4063 5.9 0; 2 -37.4063 14.1 0; 3 -37.4063 18.1 0; 4 -1.59896 4.03 0
17. 5 -1.599 14.1 0; 6 -1.59896 18.1 0; 7 39.3594 1.78 0; 8 39.3594 14.1 0
18. 9 39.3594 18.1 0; 10 73.3802 0 0; 11 73.3802 14.1 0; 12 73.3802 18.1 0
19. 13 -49.8391 18.1 0; 14 -44.3704 18.1 0; 15 -39.2738 18.1 0; 16 -33.707 18.1 0
20. 17 -28.3962 18.1 0; 18 -23.069 18.1 0; 19 -17.7585 18.1 0; 20 -12.4323 18.1 0
21. 21 -7.01563 18.1 0; 22 4.25521 18.1 0; 23 10.1094 18.1 0; 24 15.9635 18.1 0
22. 25 21.8177 18.1 0; 26 27.6719 18.1 0; 27 33.526 18.1 0; 28 45.1927 18.1 0
23. 29 51.0469 18.1 0; 30 56.901 18.1 0; 31 62.7552 18.1 0; 32 68.6094 18.1 0
24. 33 79 18.1 0
25. MEMBER INCIDENCES
26. 1 1 2; 2 2 3; 3 4 5; 4 5 6; 5 7 8; 6 8 9; 7 10 11; 8 11 12; 9 13 14; 10 14 15
27. 11 15 3; 12 3 16; 13 16 17; 14 17 18; 15 18 19; 16 19 20; 17 20 21; 18 21 6
28. 19 6 22; 20 22 23; 21 23 24; 22 24 25; 23 25 26; 24 26 27; 25 27 9; 26 9 28
29. 27 28 29; 28 29 30; 29 30 31; 30 31 32; 31 32 12; 32 12 33
30. DEFINE MATERIAL START
31. ISOTROPIC STEEL
32. E 4.176E+006
33. POISSON 0.3
34. DENSITY 0.489024
35. ALPHA 6E-006
36. DAMP 0.03
37. END DEFINE MATERIAL
38. MEMBER PROPERTY AMERICAN
39. 9 TO 32 TABLE ST W36X247
40. 2 8 TABLE ST W14X90
```

41. 4 6 TABLE ST W14X109
42. 3 5 TABLE TB W14X109 WP 1 TH 0.0625
43. 1 7 TABLE TB W14X90 WP 1 TH 0.0417
44. CONSTANTS
45. BETA 90 MEMB 1 2 7 8
46. MATERIAL STEEL ALL
47. SUPPORTS
48. 1 4 7 10 FIXED
49. DEFINE MOVING LOAD
50. *HS-15 FATIGUE TRUCK
51. TYPE 1 LOAD 30.97 30.97
52. DIST 6
53. LOAD 1 LOADTYPE LIVE TITLE 7 LANE HS-20 FB MOMENT AT COL 4
54. MEMBER LOAD
55. 9 CON GY -33.3 1.746 0
56. 10 CON GY -33.3 2.277 0
57. 13 CON GY -33.3 0.204 0
58. 14 CON GY -33.3 0.894 0
59. 15 CON GY -33.3 0.567 0
60. 16 CON GY -33.3 1.256 0
61. 17 CON GY -33.3 0.93 0
62. 18 CON GY -33.3 1.513 0
63. 26 CON GY -33.3 3.01 0
64. 27 CON GY -33.3 3.177 0
65. 28 CON GY -33.3 2.329 0
66. 29 CON GY -33.3 2.47 0
67. 30 CON GY -33.3 1.615 0
68. 31 CON GY -33.3 1.7604 0
69. LOAD 2 LOADTYPE LIVE TITLE 6 LANE HS-20 FB MOMENT AT COL 4
70. MEMBER LOAD
71. 9 CON GY -33.3 1.746 0
72. 10 CON GY -33.3 2.277 0
73. 13 CON GY -33.3 0.204 0
74. 14 CON GY -33.3 0.894 0
75. 15 CON GY -33.3 0.567 0
76. 16 CON GY -33.3 1.256 0
77. 17 CON GY -33.3 0.93 0
78. 18 CON GY -33.3 1.513 0
79. 27 CON GY -33.3 3.177 0
80. 28 CON GY -33.3 3.329 0
81. 29 CON GY -33.3 1.47 0
82. 30 CON GY -33.3 1.615 0
83. LOAD 3 LOADTYPE LIVE TITLE 3 LANE HS-20 FB MOMENT AT COL 4
84. MEMBER LOAD
85. 9 CON GY -40 1.746 0
86. 10 CON GY -40 2.277 0
87. 14 CON GY -40 0.894 0
88. 15 CON GY -40 1.576 0
89. 16 CON GY -40 0.256 0
90. 17 CON GY -40 0.93 0
91. LOAD 4 LOADTYPE LIVE TITLE 2 LANE HS-20 FB MOMENT AT COL 4
92. MEMBER LOAD
93. 9 CON GY -44.4 1.746 0
94. 10 CON GY -44.4 2.277 0
95. 15 CON GY -44.4 0.567 0
96. 16 CON GY -44.4 1.256 0

97. LOAD 5 LOADTYPE LIVE TITLE 7 LANE HS-20 COL 4 AXIAL
98. MEMBER LOAD
99. 9 CON GY -33.3 1.746 0
100. 10 CON GY -33.3 2.277 0
101. 12 CON GY -33.3 1.313 0
102. 13 CON GY -33.3 3.613 0
103. 14 CON GY -33.3 4.303 0
104. 15 CON GY -33.3 4.976 0
105. 17 CON GY -33.3 0.339 0
106. 18 CON GY -33.3 0.923 0
107. 26 CON GY -33.3 3.01 0
108. 27 CON GY -33.3 3.177 0
109. 28 CON GY -33.3 2.329 0
110. 29 CON GY -33.3 2.47 0
111. 30 CON GY -33.3 1.615 0
112. 31 CON GY -33.3 1.7604 0
113. LOAD 6 LOADTYPE LIVE TITLE 6 LANE HS-20 COL 4 AXIAL
114. MEMBER LOAD
115. 9 CON GY -33.3 1.746 0
116. 10 CON GY -33.3 2.277 0
117. 12 CON GY -33.3 1.313 0
118. 13 CON GY -33.3 3.613 0
119. 14 CON GY -33.3 4.303 0
120. 15 CON GY -33.3 4.976 0
121. 17 CON GY -33.3 0.339 0
122. 18 CON GY -33.3 0.923 0
123. 27 CON GY -33.3 3.177 0
124. 28 CON GY -33.3 3.329 0
125. 29 CON GY -33.3 1.47 0
126. 30 CON GY -33.3 1.615 0
127. LOAD 7 LOADTYPE LIVE TITLE 3 LANE HS-20 COL 4 AXIAL
128. MEMBER LOAD
129. 9 CON GY -40 1.746 0
130. 10 CON GY -40 2.277 0
131. 12 CON GY -40 1.313 0
132. 13 CON GY -40 3.613 0
133. 14 CON GY -40 4.303 0
134. 15 CON GY -40 4.976 0
135. LOAD 8 LOADTYPE LIVE TITLE 2 LANE HS-20 COL 4 AXIAL
136. MEMBER LOAD
137. 9 CON GY -44.4 1.746 0
138. 10 CON GY -44.4 2.277 0
139. 12 CON GY -44.4 1.313 0
140. 13 CON GY -44.4 3.613 0
141. LOAD 9 LOADTYPE LIVE TITLE 6 LANE HS-20 FB POSITIVE MOMENT
142. MEMBER LOAD
143. 13 CON GY -33.3 0.204 0
144. 14 CON GY -33.3 0.894 0
145. 15 CON GY -33.3 0.567 0
146. 16 CON GY -33.3 1.256 0
147. 17 CON GY -33.3 0.93 0
148. 18 CON GY -33.3 1.513 0
149. 26 CON GY -33.3 3.01 0
150. 27 CON GY -33.3 3.177 0
151. 28 CON GY -33.3 2.329 0
152. 29 CON GY -33.3 2.47 0

153. 30 CON GY -33.3 1.615 0
154. 31 CON GY -33.3 1.7604 0
155. LOAD 10 LOADTYPE LIVE TITLE 3 LANE HS-20 FB POSITIVE MOMENT
156. MEMBER LOAD
157. 26 CON GY -40 3.01 0
158. 27 CON GY -40 3.177 0
159. 28 CON GY -40 2.329 0
160. 29 CON GY -40 2.47 0
161. 30 CON GY -40 1.615 0
162. 31 CON GY -40 1.7604 0
163. LOAD 11 LOADTYPE LIVE TITLE 3 LANE HS-20 FB POSITIVE MOMENT
164. MEMBER LOAD
165. 13 CON GY -40 0.204 0
166. 14 CON GY -40 0.894 0
167. 15 CON GY -40 0.567 0
168. 16 CON GY -40 1.256 0
169. 17 CON GY -40 0.93 0
170. 18 CON GY -40 1.513 0
171. LOAD 12 LOADTYPE LIVE TITLE 2 LANE HS-20 FB POSITIVE MOMENT
172. MEMBER LOAD
173. 14 CON GY -44.4 0.894 0
174. 15 CON GY -44.4 1.576 0
175. 16 CON GY -44.4 0.256 0
176. 17 CON GY -44.4 0.93 0
177. LOAD 13 LOADTYPE LIVE TITLE 2 LANE HS-20 FB POSITIVE MOMENT
178. MEMBER LOAD
179. 27 CON GY -44.4 3.177 0
180. 28 CON GY -44.4 3.329 0
181. 29 CON GY -44.4 1.47 0
182. 30 CON GY -44.4 1.615 0
183. LOAD 14 LOADTYPE LIVE TITLE 4 LANE HS-20 POSITIVE FB MOMENT
184. MEMBER LOAD
185. 9 CON GY -33.3 1.746 0
186. 10 CON GY -33.3 2.277 0
187. 20 CON GY -33.3 1.727 0
188. 21 CON GY -33.3 1.872 0
189. 22 CON GY -33.3 2.312 0
190. 23 CON GY -33.3 2.458 0
191. 24 CON GY -33.3 2.603 0
192. 25 CON GY -33.3 2.749 0
193. LOAD 15 LOADTYPE LIVE TITLE 5 LANE HS-20 FB POSITIVE MOMENT
194. MEMBER LOAD
195. 9 CON GY -33.3 1.746 0
196. 10 CON GY -33.3 2.277 0
197. 20 CON GY -33.3 1.727 0
198. 21 CON GY -33.3 1.872 0
199. 22 CON GY -33.3 2.312 0
200. 23 CON GY -33.3 2.458 0
201. 24 CON GY -33.3 2.603 0
202. 25 CON GY -33.3 2.749 0
203. 31 CON GY -33.3 2.771 0
204. 32 CON GY -33.3 4 0
205. LOAD 16 LOADTYPE LIVE TITLE 3 LANE HS-20 FB POSITIVE MOMENT
206. MEMBER LOAD
207. 20 CON GY -40 1.727 0
208. 21 CON GY -40 1.872 0

209. 22 CON GY -40 2.312 0
210. 23 CON GY -40 2.458 0
211. 24 CON GY -40 2.603 0
212. 25 CON GY -40 2.749 0
213. LOAD 17 LOADTYPE LIVE TITLE 2 LANE HS-20 FB POSITIVE MOMENT
214. MEMBER LOAD
215. 20 CON GY -44.4 1.727 0
216. 21 CON GY -44.4 1.872 0
217. 22 CON GY -44.4 2.312 0
218. 23 CON GY -44.4 2.458 0
219. LOAD 18 LOADTYPE LIVE TITLE 7 LANE HS-20 FB MOMENT AT COL 3
220. MEMBER LOAD
221. 13 CON GY -33.3 0.204 0
222. 14 CON GY -33.3 0.894 0
223. 15 CON GY -33.3 0.567 0
224. 16 CON GY -33.3 1.256 0
225. 17 CON GY -33.3 0.93 0
226. 18 CON GY -33.3 1.513 0
227. 20 CON GY -33.3 1.727 0
228. 21 CON GY -33.3 1.872 0
229. 22 CON GY -33.3 2.312 0
230. 23 CON GY -33.3 2.458 0
231. 24 CON GY -33.3 2.603 0
232. 25 CON GY -33.3 2.749 0
233. 31 CON GY -33.3 2.771 0
234. 32 CON GY -33.3 4 0
235. LOAD 19 LOADTYPE LIVE TITLE 6 LANE HS-20 FB MOMENT AT COL 3
236. MEMBER LOAD
237. 13 CON GY -33.3 0.204 0
238. 14 CON GY -33.3 0.894 0
239. 15 CON GY -33.3 0.567 0
240. 16 CON GY -33.3 1.256 0
241. 17 CON GY -33.3 0.93 0
242. 18 CON GY -33.3 1.513 0
243. 20 CON GY -33.3 1.727 0
244. 21 CON GY -33.3 1.872 0
245. 22 CON GY -33.3 2.312 0
246. 23 CON GY -33.3 2.458 0
247. 24 CON GY -33.3 2.603 0
248. 25 CON GY -33.3 2.749 0
249. LOAD 20 LOADTYPE LIVE TITLE 3 LANE HS-20 FB MOMENT AT COL 3
250. MEMBER LOAD
251. 15 CON GY -40 0.567 0
252. 16 CON GY -40 1.256 0
253. 20 CON GY -40 1.727 0
254. 21 CON GY -40 1.872 0
255. 22 CON GY -40 2.312 0
256. 23 CON GY -40 2.458 0
257. LOAD 21 LOADTYPE LIVE TITLE 3 LANE HS-20 FB MOMENT AT COL 3
258. MEMBER LOAD
259. 14 CON GY -40 0.894 0
260. 15 CON GY -40 1.576 0
261. 16 CON GY -40 0.256 0
262. 17 CON GY -40 0.93 0
263. 22 CON GY -40 2.312 0
264. 23 CON GY -40 2.458 0

265. LOAD 22 LOADTYPE LIVE TITLE 2 LANE HS-20 FB MOMENT AT COL 3
266. MEMBER LOAD
267. 15 CON GY -44.4 0.567 0
268. 16 CON GY -44.4 1.256 0
269. 22 CON GY -44.4 2.312 0
270. 23 CON GY -44.4 2.458 0
271. LOAD 23 LOADTYPE LIVE TITLE 7 LANE HS-20 COL 3 AXIAL
272. MEMBER LOAD
273. 13 CON GY -33.3 3.688 0
274. 14 CON GY -33.3 4.378 0
275. 15 CON GY -33.3 5.051 0
276. 17 CON GY -33.3 0.414 0
277. 17 CON GY -33.3 4.833 0
278. 19 CON GY -33.3 0 0
279. 19 CON GY -33.3 5.581 0
280. 20 CON GY -33.3 5.727 0
281. 22 CON GY -33.3 2.312 0
282. 23 CON GY -33.3 2.458 0
283. 24 CON GY -33.3 2.603 0
284. 25 CON GY -33.3 2.749 0
285. 31 CON GY -33.3 2.771 0
286. 32 CON GY -33.3 4 0
287. LOAD 24 LOADTYPE LIVE TITLE 6 LANE HS-20 COL 3 AXIAL
288. MEMBER LOAD
289. 13 CON GY -33.3 3.688 0
290. 14 CON GY -33.3 4.378 0
291. 15 CON GY -33.3 5.051 0
292. 17 CON GY -33.3 0.414 0
293. 17 CON GY -33.3 4.833 0
294. 19 CON GY -33.3 0 0
295. 19 CON GY -33.3 5.581 0
296. 20 CON GY -33.3 5.727 0
297. 22 CON GY -33.3 2.312 0
298. 23 CON GY -33.3 2.458 0
299. 24 CON GY -33.3 2.603 0
300. 25 CON GY -33.3 2.749 0
301. LOAD 25 LOADTYPE LIVE TITLE 3 LANE HS-20 COL 3 AXIAL
302. MEMBER LOAD
303. 15 CON GY -40 5.051 0
304. 17 CON GY -40 0.414 0
305. 17 CON GY -40 4.833 0
306. 19 CON GY -40 0 0
307. 19 CON GY -40 5.581 0
308. 20 CON GY -40 5.727 0
309. LOAD 26 LOADTYPE LIVE TITLE 2 LANE HS-20 COL 3 AXIAL
310. MEMBER LOAD
311. 17 CON GY -44.4 0.833 0
312. 18 CON GY -44.4 1.417 0
313. 19 CON GY -44.4 0 0
314. 20 CON GY -44.4 0.146 0
315. LOAD 27 LOADTYPE LIVE TITLE 7 LANE HS-20 MOMENT AT COL 2
316. MEMBER LOAD
317. 9 CON GY -33.3 1.746 0
318. 10 CON GY -33.3 2.277 0
319. 20 CON GY -33.3 1.727 0
320. 21 CON GY -33.3 1.872 0

321. 22 CON GY -33.3 2.312 0
322. 23 CON GY -33.3 2.458 0
323. 24 CON GY -33.3 2.603 0
324. 25 CON GY -33.3 2.749 0
325. 26 CON GY -33.3 4.916 0
326. 27 CON GY -33.3 5.083 0
327. 28 CON GY -33.3 4.228 0
328. 29 CON GY -33.3 4.374 0
329. 30 CON GY -33.3 3.52 0
330. 31 CON GY -33.3 3.666 0
331. LOAD 28 LOADTYPE LIVE TITLE 3 LANE HS-20 MOMENT AT COL 2
332. MEMBER LOAD
333. 20 CON GY -40 1.727 0
334. 21 CON GY -40 1.872 0
335. 22 CON GY -40 2.312 0
336. 23 CON GY -40 2.458 0
337. 28 CON GY -40 2.323 0
338. 29 CON GY -40 2.469 0
339. LOAD 29 LOADTYPE LIVE TITLE 3 LANE HS-20 MOMENT AT COL 2
340. MEMBER LOAD
341. 22 CON GY -40 2.312 0
342. 23 CON GY -40 2.458 0
343. 27 CON GY -40 3.177 0
344. 28 CON GY -40 3.323 0
345. 29 CON GY -40 1.47 0
346. 30 CON GY -40 1.615 0
347. LOAD 30 LOADTYPE LIVE TITLE 2 LANE HS-20 MOMENT AT COL 2
348. MEMBER LOAD
349. 22 CON GY -44.4 2.312 0
350. 23 CON GY -44.4 2.458 0
351. 28 CON GY -44.4 2.323 0
352. 29 CON GY -44.4 2.469 0
353. LOAD 31 LOADTYPE LIVE TITLE 7 LANE HS-20 COL 2 AXIAL LOADING
354. MEMBER LOAD
355. 9 CON GY -33.3 1.746 0
356. 10 CON GY -33.3 2.277 0
357. 20 CON GY -33.3 1.727 0
358. 21 CON GY -33.3 1.872 0
359. 22 CON GY -33.3 4.312 0
360. 23 CON GY -33.3 4.458 0
361. 24 CON GY -33.3 4.603 0
362. 25 CON GY -33.3 4.749 0
363. 26 CON GY -33.3 2.916 0
364. 27 CON GY -33.3 3.083 0
365. 28 CON GY -33.3 3.228 0
366. 29 CON GY -33.3 3.374 0
367. 30 CON GY -33.3 3.52 0
368. 31 CON GY -33.3 3.666 0
369. LOAD 32 LOADTYPE LIVE TITLE 3 LANE HS-20 COL 2 AXIAL LOADING
370. MEMBER LOAD
371. 23 CON GY -40 5.542 0
372. 24 CON GY -40 5.687 0
373. 26 CON GY -40 0 0
374. 27 CON GY -40 0.167 0
375. 27 CON GY -40 4.167 0
376. 28 CON GY -40 4.312 0

377. LOAD 33 LOADTYPE LIVE TITLE 2 LANE HS-20 COL 2 AXIAL LOADING
378. MEMBER LOAD
379. 24 CON GY -44.4 5.687 0
380. 26 CON GY -44.4 0 0
381. 26 CON GY -44.4 4 0
382. 27 CON GY -44.4 4.167 0
383. LOAD 34 LOADTYPE LIVE TITLE 6 LANE HS-20 FB MOMENT AT COL 1
384. MEMBER LOAD
385. 13 CON GY -33.3 0.204 0
386. 14 CON GY -33.3 0.894 0
387. 15 CON GY -33.3 0.567 0
388. 16 CON GY -33.3 1.256 0
389. 17 CON GY -33.3 0.93 0
390. 18 CON GY -33.3 1.513 0
391. 27 CON GY -33.3 2.188 0
392. 28 CON GY -33.3 2.333 0
393. 29 CON GY -33.3 0.479 0
394. 30 CON GY -33.3 0.625 0
395. 31 CON GY -33.3 2.771 0
396. 32 CON GY -33.3 4 0
397. LOAD 35 LOADTYPE LIVE TITLE 3 LANE HS-20 FB MOMENT AT COL 1
398. MEMBER LOAD
399. 27 CON GY -40 2.188 0
400. 28 CON GY -40 2.333 0
401. 29 CON GY -40 0.479 0
402. 30 CON GY -40 0.625 0
403. 31 CON GY -40 2.771 0
404. 32 CON GY -40 4 0
405. LOAD 36 LOADTYPE LIVE TITLE 2 LANE HS-20 FB MOMENT AT COL 1
406. MEMBER LOAD
407. 28 CON GY -44.4 2.329 0
408. 29 CON GY -44.4 2.47 0
409. 31 CON GY -44.4 2.771 0
410. 32 CON GY -44.4 4 0
411. LOAD 37 LOADTYPE LIVE TITLE 6 LANE HS-20 COL 1 AXIAL LOADING
412. MEMBER LOAD
413. 13 CON GY -33.3 0.204 0
414. 14 CON GY -33.3 0.894 0
415. 15 CON GY -33.3 0.567 0
416. 16 CON GY -33.3 1.256 0
417. 17 CON GY -33.3 0.93 0
418. 18 CON GY -33.3 1.513 0
419. 27 CON GY -33.3 2.188 0
420. 28 CON GY -33.3 2.333 0
421. 29 CON GY -33.3 2.479 0
422. 30 CON GY -33.3 2.625 0
423. 31 CON GY -33.3 2.771 0
424. 32 CON GY -33.3 4 0
425. LOAD 38 LOADTYPE LIVE TITLE 3 LANE HS-20 COL 1 AXIAL LOADING
426. MEMBER LOAD
427. 27 CON GY -40 2.188 0
428. 28 CON GY -40 2.333 0
429. 29 CON GY -40 2.479 0
430. 30 CON GY -40 2.625 0
431. 31 CON GY -40 2.771 0
432. 32 CON GY -40 4 0

433. LOAD 39 LOADTYPE LIVE TITLE 2 LANE HS-20 COL 1 AXIAL LOADING
434. MEMBER LOAD
435. 29 CON GY -44.4 2.479 0
436. 30 CON GY -44.4 2.625 0
437. 31 CON GY -44.4 2.771 0
438. 32 CON GY -44.4 4 0
439. LOAD 40 LOADTYPE LIVE TITLE 10 MEDIAN LANES HS-20 LOADED
440. MEMBER LOAD
441. 10 CON GY -33.3 2.352 0
442. 12 CON GY -33.3 1.388 0
443. 13 CON GY -33.3 3.688 0
444. 14 CON GY -33.3 4.378 0
445. 15 CON GY -33.3 5.051 0
446. 17 CON GY -33.3 0.414 0
447. 18 CON GY -33.3 0.997 0
448. 19 CON GY -33.3 1.581 0
449. 20 CON GY -33.3 1.727 0
450. 21 CON GY -33.3 1.872 0
451. 22 CON GY -33.3 2.312 0
452. 23 CON GY -33.3 2.458 0
453. 24 CON GY -33.3 2.603 0
454. 25 CON GY -33.3 2.749 0
455. 26 CON GY -33.3 2.916 0
456. 27 CON GY -33.3 3.083 0
457. 28 CON GY -33.3 3.228 0
458. 29 CON GY -33.3 3.374 0
459. 30 CON GY -33.3 3.52 0
460. 31 CON GY -33.3 3.666 0
461. LOAD 41 LOADTYPE LIVE TITLE 10 OUTSIDE LANES HS-20 LOADED
462. MEMBER LOAD
463. 9 CON GY -33.3 1.746 0
464. 10 CON GY -33.3 2.277 0
465. 12 CON GY -33.3 1.313 0
466. 13 CON GY -33.3 3.613 0
467. 14 CON GY -33.3 4.303 0
468. 15 CON GY -33.3 4.976 0
469. 17 CON GY -33.3 0.339 0
470. 18 CON GY -33.3 0.923 0
471. 19 CON GY -33.3 1.506 0
472. 20 CON GY -33.3 1.652 0
473. 23 CON GY -33.3 1.562 0
474. 24 CON GY -33.3 1.708 0
475. 25 CON GY -33.3 1.854 0
476. 26 CON GY -33.3 2.021 0
477. 27 CON GY -33.3 2.187 0
478. 28 CON GY -33.3 2.333 0
479. 29 CON GY -33.3 2.479 0
480. 30 CON GY -33.3 2.625 0
481. 31 CON GY -33.3 2.771 0
482. 32 CON GY -33.3 4 0
483. *****BEGIN 2F1 LOADING*****
484. LOAD 42 LOADTYPE LIVE TITLE 2F1 LOADING
485. REPEAT LOAD
486. 1 0.435713
487. LOAD 43 LOADTYPE LIVE TITLE 2F1 LOADING
488. REPEAT LOAD

489. 2 0.435713
490. LOAD 44 LOADTYPE LIVE TITLE 2F1 LOADING
491. REPEAT LOAD
492. 3 0.435713
493. LOAD 45 LOADTYPE LIVE TITLE 2F1 LOADING
494. REPEAT LOAD
495. 4 0.435713
496. LOAD 46 LOADTYPE LIVE TITLE 2F1 LOADING
497. REPEAT LOAD
498. 5 0.435713
499. LOAD 47 LOADTYPE LIVE TITLE 2F1 LOADING
500. REPEAT LOAD
501. 6 0.435713
502. LOAD 48 LOADTYPE LIVE TITLE 2F1 LOADING
503. REPEAT LOAD
504. 7 0.435713
505. LOAD 49 LOADTYPE LIVE TITLE 2F1 LOADING
506. REPEAT LOAD
507. 8 0.435713
508. LOAD 50 LOADTYPE LIVE TITLE 2F1 LOADING
509. REPEAT LOAD
510. 9 0.435713
511. LOAD 51 LOADTYPE LIVE TITLE 2F1 LOADING
512. REPEAT LOAD
513. 10 0.435713
514. LOAD 52 LOADTYPE LIVE TITLE 2F1 LOADING
515. REPEAT LOAD
516. 11 0.435713
517. LOAD 53 LOADTYPE LIVE TITLE 2F1 LOADING
518. REPEAT LOAD
519. 12 0.435713
520. LOAD 54 LOADTYPE LIVE TITLE 2F1 LOADING
521. REPEAT LOAD
522. 13 0.435713
523. LOAD 55 LOADTYPE LIVE TITLE 2F1 LOADING
524. REPEAT LOAD
525. 14 0.435713
526. LOAD 56 LOADTYPE LIVE TITLE 2F1 LOADING
527. REPEAT LOAD
528. 15 0.435713
529. LOAD 57 LOADTYPE LIVE TITLE 2F1 LOADING
530. REPEAT LOAD
531. 16 0.435713
532. LOAD 58 LOADTYPE LIVE TITLE 2F1 LOADING
533. REPEAT LOAD
534. 17 0.435713
535. LOAD 59 LOADTYPE LIVE TITLE 2F1 LOADING
536. REPEAT LOAD
537. 18 0.435713
538. LOAD 60 LOADTYPE LIVE TITLE 2F1 LOADING
539. REPEAT LOAD
540. 19 0.435713
541. LOAD 61 LOADTYPE LIVE TITLE 2F1 LOADING
542. REPEAT LOAD
543. 20 0.435713
544. LOAD 62 LOADTYPE LIVE TITLE 2F1 LOADING

545. REPEAT LOAD
546. 21 0.435713
547. LOAD 63 LOADTYPE LIVE TITLE 2F1 LOADING
548. REPEAT LOAD
549. 22 0.435713
550. LOAD 64 LOADTYPE LIVE TITLE 2F1 LOADING
551. REPEAT LOAD
552. 23 0.435713
553. LOAD 65 LOADTYPE LIVE TITLE 2F1 LOADING
554. REPEAT LOAD
555. 24 0.435713
556. LOAD 66 LOADTYPE LIVE TITLE 2F1 LOADING
557. REPEAT LOAD
558. 25 0.435713
559. LOAD 67 LOADTYPE LIVE TITLE 2F1 LOADING
560. REPEAT LOAD
561. 26 0.435713
562. LOAD 68 LOADTYPE LIVE TITLE 2F1 LOADING
563. REPEAT LOAD
564. 27 0.435713
565. LOAD 69 LOADTYPE LIVE TITLE 2F1 LOADING
566. REPEAT LOAD
567. 28 0.435713
568. LOAD 70 LOADTYPE LIVE TITLE 2F1 LOADING
569. REPEAT LOAD
570. 29 0.435713
571. LOAD 71 LOADTYPE LIVE TITLE 2F1 LOADING
572. REPEAT LOAD
573. 30 0.435713
574. LOAD 72 LOADTYPE LIVE TITLE 2F1 LOADING
575. REPEAT LOAD
576. 31 0.435713
577. LOAD 73 LOADTYPE LIVE TITLE 2F1 LOADING
578. REPEAT LOAD
579. 32 0.435713
580. LOAD 74 LOADTYPE LIVE TITLE 2F1 LOADING
581. REPEAT LOAD
582. 33 0.435713
583. LOAD 75 LOADTYPE LIVE TITLE 2F1 LOADING
584. REPEAT LOAD
585. 34 0.435713
586. LOAD 76 LOADTYPE LIVE TITLE 2F1 LOADING
587. REPEAT LOAD
588. 35 0.435713
589. LOAD 77 LOADTYPE LIVE TITLE 2F1 LOADING
590. REPEAT LOAD
591. 36 0.435713
592. LOAD 78 LOADTYPE LIVE TITLE 2F1 LOADING
593. REPEAT LOAD
594. 37 0.435713
595. LOAD 79 LOADTYPE LIVE TITLE 2F1 LOADING
596. REPEAT LOAD
597. 38 0.435713
598. LOAD 80 LOADTYPE LIVE TITLE 2F1 LOADING
599. REPEAT LOAD
600. 39 0.435713

601. LOAD 81 LOADTYPE LIVE TITLE 2F1 LOADING
602. REPEAT LOAD
603. 40 0.435713
604. LOAD 82 LOADTYPE LIVE TITLE 2F1 LOADING
605. REPEAT LOAD
606. 41 0.435713
607. *****BEGIN 3F1 LOADING*****
608. LOAD 83 LOADTYPE LIVE TITLE 3F1 LOADING
609. REPEAT LOAD
610. 1 0.662148
611. LOAD 84 LOADTYPE LIVE TITLE 3F1 LOADING
612. REPEAT LOAD
613. 2 0.662148
614. LOAD 85 LOADTYPE LIVE TITLE 3F1 LOADING
615. REPEAT LOAD
616. 3 0.662148
617. LOAD 86 LOADTYPE LIVE TITLE 3F1 LOADING
618. REPEAT LOAD
619. 4 0.662148
620. LOAD 87 LOADTYPE LIVE TITLE 3F1 LOADING
621. REPEAT LOAD
622. 5 0.662148
623. LOAD 88 LOADTYPE LIVE TITLE 3F1 LOADING
624. REPEAT LOAD
625. 6 0.662148
626. LOAD 89 LOADTYPE LIVE TITLE 3F1 LOADING
627. REPEAT LOAD
628. 7 0.662148
629. LOAD 90 LOADTYPE LIVE TITLE 3F1 LOADING
630. REPEAT LOAD
631. 8 0.662148
632. LOAD 91 LOADTYPE LIVE TITLE 3F1 LOADING
633. REPEAT LOAD
634. 9 0.662148
635. LOAD 92 LOADTYPE LIVE TITLE 3F1 LOADING
636. REPEAT LOAD
637. 10 0.662148
638. LOAD 93 LOADTYPE LIVE TITLE 3F1 LOADING
639. REPEAT LOAD
640. 11 0.662148
641. LOAD 94 LOADTYPE LIVE TITLE 3F1 LOADING
642. REPEAT LOAD
643. 12 0.662148
644. LOAD 95 LOADTYPE LIVE TITLE 3F1 LOADING
645. REPEAT LOAD
646. 13 0.662148
647. LOAD 96 LOADTYPE LIVE TITLE 3F1 LOADING
648. REPEAT LOAD
649. 14 0.662148
650. LOAD 97 LOADTYPE LIVE TITLE 3F1 LOADING
651. REPEAT LOAD
652. 15 0.662148
653. LOAD 98 LOADTYPE LIVE TITLE 3F1 LOADING
654. REPEAT LOAD
655. 16 0.662148
656. LOAD 99 LOADTYPE LIVE TITLE 3F1 LOADING

657. REPEAT LOAD
658. 17 0.662148
659. LOAD 100 LOADTYPE LIVE TITLE 3F1 LOADING
660. REPEAT LOAD
661. 18 0.662148
662. LOAD 101 LOADTYPE LIVE TITLE 3F1 LOADING
663. REPEAT LOAD
664. 19 0.662148
665. LOAD 102 LOADTYPE LIVE TITLE 3F1 LOADING
666. REPEAT LOAD
667. 20 0.662148
668. LOAD 103 LOADTYPE LIVE TITLE 3F1 LOADING
669. REPEAT LOAD
670. 21 0.662148
671. LOAD 104 LOADTYPE LIVE TITLE 3F1 LOADING
672. REPEAT LOAD
673. 22 0.662148
674. LOAD 105 LOADTYPE LIVE TITLE 3F1 LOADING
675. REPEAT LOAD
676. 23 0.662148
677. LOAD 106 LOADTYPE LIVE TITLE 3F1 LOADING
678. REPEAT LOAD
679. 24 0.662148
680. LOAD 107 LOADTYPE LIVE TITLE 3F1 LOADING
681. REPEAT LOAD
682. 25 0.662148
683. LOAD 108 LOADTYPE LIVE TITLE 3F1 LOADING
684. REPEAT LOAD
685. 26 0.662148
686. LOAD 109 LOADTYPE LIVE TITLE 3F1 LOADING
687. REPEAT LOAD
688. 27 0.662148
689. LOAD 110 LOADTYPE LIVE TITLE 3F1 LOADING
690. REPEAT LOAD
691. 28 0.662148
692. LOAD 111 LOADTYPE LIVE TITLE 3F1 LOADING
693. REPEAT LOAD
694. 29 0.662148
695. LOAD 112 LOADTYPE LIVE TITLE 3F1 LOADING
696. REPEAT LOAD
697. 30 0.662148
698. LOAD 113 LOADTYPE LIVE TITLE 3F1 LOADING
699. REPEAT LOAD
700. 31 0.662148
701. LOAD 114 LOADTYPE LIVE TITLE 3F1 LOADING
702. REPEAT LOAD
703. 32 0.662148
704. LOAD 115 LOADTYPE LIVE TITLE 3F1 LOADING
705. REPEAT LOAD
706. 33 0.662148
707. LOAD 116 LOADTYPE LIVE TITLE 3F1 LOADING
708. REPEAT LOAD
709. 34 0.662148
710. LOAD 117 LOADTYPE LIVE TITLE 3F1 LOADING
711. REPEAT LOAD
712. 35 0.662148

713. LOAD 118 LOADTYPE LIVE TITLE 3F1 LOADING
714. REPEAT LOAD
715. 36 0.662148
716. LOAD 119 LOADTYPE LIVE TITLE 3F1 LOADING
717. REPEAT LOAD
718. 37 0.662148
719. LOAD 120 LOADTYPE LIVE TITLE 3F1 LOADING
720. REPEAT LOAD
721. 38 0.662148
722. LOAD 121 LOADTYPE LIVE TITLE 3F1 LOADING
723. REPEAT LOAD
724. 39 0.662148
725. LOAD 122 LOADTYPE LIVE TITLE 3F1 LOADING
726. REPEAT LOAD
727. 40 0.662148
728. LOAD 123 LOADTYPE LIVE TITLE 3F1 LOADING
729. REPEAT LOAD
730. 41 0.662148
731. *****BEGIN 4F1 LOADING*****
732. LOAD 124 LOADTYPE LIVE TITLE 4F1 LOADING
733. REPEAT LOAD
734. 1 0.771659
735. LOAD 125 LOADTYPE LIVE TITLE 4F1 LOADING
736. REPEAT LOAD
737. 2 0.771659
738. LOAD 126 LOADTYPE LIVE TITLE 4F1 LOADING
739. REPEAT LOAD
740. 3 0.771659
741. LOAD 127 LOADTYPE LIVE TITLE 4F1 LOADING
742. REPEAT LOAD
743. 4 0.771659
744. LOAD 128 LOADTYPE LIVE TITLE 4F1 LOADING
745. REPEAT LOAD
746. 5 0.771659
747. LOAD 129 LOADTYPE LIVE TITLE 4F1 LOADING
748. REPEAT LOAD
749. 6 0.771659
750. LOAD 130 LOADTYPE LIVE TITLE 4F1 LOADING
751. REPEAT LOAD
752. 7 0.771659
753. LOAD 131 LOADTYPE LIVE TITLE 4F1 LOADING
754. REPEAT LOAD
755. 8 0.771659
756. LOAD 132 LOADTYPE LIVE TITLE 4F1 LOADING
757. REPEAT LOAD
758. 9 0.771659
759. LOAD 133 LOADTYPE LIVE TITLE 4F1 LOADING
760. REPEAT LOAD
761. 10 0.771659
762. LOAD 134 LOADTYPE LIVE TITLE 4F1 LOADING
763. REPEAT LOAD
764. 11 0.771659
765. LOAD 135 LOADTYPE LIVE TITLE 4F1 LOADING
766. REPEAT LOAD
767. 12 0.771659
768. LOAD 136 LOADTYPE LIVE TITLE 4F1 LOADING

769. REPEAT LOAD
770. 13 0.771659
771. LOAD 137 LOADTYPE LIVE TITLE 4F1 LOADING
772. REPEAT LOAD
773. 14 0.771659
774. LOAD 138 LOADTYPE LIVE TITLE 4F1 LOADING
775. REPEAT LOAD
776. 15 0.771659
777. LOAD 139 LOADTYPE LIVE TITLE 4F1 LOADING
778. REPEAT LOAD
779. 16 0.771659
780. LOAD 140 LOADTYPE LIVE TITLE 4F1 LOADING
781. REPEAT LOAD
782. 17 0.771659
783. LOAD 141 LOADTYPE LIVE TITLE 4F1 LOADING
784. REPEAT LOAD
785. 18 0.771659
786. LOAD 142 LOADTYPE LIVE TITLE 4F1 LOADING
787. REPEAT LOAD
788. 19 0.771659
789. LOAD 143 LOADTYPE LIVE TITLE 4F1 LOADING
790. REPEAT LOAD
791. 20 0.771659
792. LOAD 144 LOADTYPE LIVE TITLE 4F1 LOADING
793. REPEAT LOAD
794. 21 0.771659
795. LOAD 145 LOADTYPE LIVE TITLE 4F1 LOADING
796. REPEAT LOAD
797. 22 0.771659
798. LOAD 146 LOADTYPE LIVE TITLE 4F1 LOADING
799. REPEAT LOAD
800. 23 0.771659
801. LOAD 147 LOADTYPE LIVE TITLE 4F1 LOADING
802. REPEAT LOAD
803. 24 0.771659
804. LOAD 148 LOADTYPE LIVE TITLE 4F1 LOADING
805. REPEAT LOAD
806. 25 0.771659
807. LOAD 149 LOADTYPE LIVE TITLE 4F1 LOADING
808. REPEAT LOAD
809. 26 0.771659
810. LOAD 150 LOADTYPE LIVE TITLE 4F1 LOADING
811. REPEAT LOAD
812. 27 0.771659
813. LOAD 151 LOADTYPE LIVE TITLE 4F1 LOADING
814. REPEAT LOAD
815. 28 0.771659
816. LOAD 152 LOADTYPE LIVE TITLE 4F1 LOADING
817. REPEAT LOAD
818. 29 0.771659
819. LOAD 153 LOADTYPE LIVE TITLE 4F1 LOADING
820. REPEAT LOAD
821. 30 0.771659
822. LOAD 154 LOADTYPE LIVE TITLE 4F1 LOADING
823. REPEAT LOAD
824. 31 0.771659

825. LOAD 155 LOADTYPE LIVE TITLE 4F1 LOADING
826. REPEAT LOAD
827. 32 0.771659
828. LOAD 156 LOADTYPE LIVE TITLE 4F1 LOADING
829. REPEAT LOAD
830. 33 0.771659
831. LOAD 157 LOADTYPE LIVE TITLE 4F1 LOADING
832. REPEAT LOAD
833. 34 0.771659
834. LOAD 158 LOADTYPE LIVE TITLE 4F1 LOADING
835. REPEAT LOAD
836. 35 0.771659
837. LOAD 159 LOADTYPE LIVE TITLE 4F1 LOADING
838. REPEAT LOAD
839. 36 0.771659
840. LOAD 160 LOADTYPE LIVE TITLE 4F1 LOADING
841. REPEAT LOAD
842. 37 0.771659
843. LOAD 161 LOADTYPE LIVE TITLE 4F1 LOADING
844. REPEAT LOAD
845. 38 0.771659
846. LOAD 162 LOADTYPE LIVE TITLE 4F1 LOADING
847. REPEAT LOAD
848. 39 0.771659
849. LOAD 163 LOADTYPE LIVE TITLE 4F1 LOADING
850. REPEAT LOAD
851. 40 0.771659
852. LOAD 164 LOADTYPE LIVE TITLE 4F1 LOADING
853. REPEAT LOAD
854. 41 0.771659
855. *****BEGIN 5C1 LOADING*****
856. LOAD 165 LOADTYPE LIVE TITLE 5C1 LOADING
857. REPEAT LOAD
858. 1 0.893031
859. LOAD 166 LOADTYPE LIVE TITLE 5C1 LOADING
860. REPEAT LOAD
861. 2 0.893031
862. LOAD 167 LOADTYPE LIVE TITLE 5C1 LOADING
863. REPEAT LOAD
864. 3 0.893031
865. LOAD 168 LOADTYPE LIVE TITLE 5C1 LOADING
866. REPEAT LOAD
867. 4 0.893031
868. LOAD 169 LOADTYPE LIVE TITLE 5C1 LOADING
869. REPEAT LOAD
870. 5 0.893031
871. LOAD 170 LOADTYPE LIVE TITLE 5C1 LOADING
872. REPEAT LOAD
873. 6 0.893031
874. LOAD 171 LOADTYPE LIVE TITLE 5C1 LOADING
875. REPEAT LOAD
876. 7 0.893031
877. LOAD 172 LOADTYPE LIVE TITLE 5C1 LOADING
878. REPEAT LOAD
879. 8 0.893031
880. LOAD 173 LOADTYPE LIVE TITLE 5C1 LOADING

881. REPEAT LOAD
882. 9 0.893031
883. LOAD 174 LOADTYPE LIVE TITLE 5C1 LOADING
884. REPEAT LOAD
885. 10 0.893031
886. LOAD 175 LOADTYPE LIVE TITLE 5C1 LOADING
887. REPEAT LOAD
888. 11 0.893031
889. LOAD 176 LOADTYPE LIVE TITLE 5C1 LOADING
890. REPEAT LOAD
891. 12 0.893031
892. LOAD 177 LOADTYPE LIVE TITLE 5C1 LOADING
893. REPEAT LOAD
894. 13 0.893031
895. LOAD 178 LOADTYPE LIVE TITLE 5C1 LOADING
896. REPEAT LOAD
897. 14 0.893031
898. LOAD 179 LOADTYPE LIVE TITLE 5C1 LOADING
899. REPEAT LOAD
900. 15 0.893031
901. LOAD 180 LOADTYPE LIVE TITLE 5C1 LOADING
902. REPEAT LOAD
903. 16 0.893031
904. LOAD 181 LOADTYPE LIVE TITLE 5C1 LOADING
905. REPEAT LOAD
906. 17 0.893031
907. LOAD 182 LOADTYPE LIVE TITLE 5C1 LOADING
908. REPEAT LOAD
909. 18 0.893031
910. LOAD 183 LOADTYPE LIVE TITLE 5C1 LOADING
911. REPEAT LOAD
912. 19 0.893031
913. LOAD 184 LOADTYPE LIVE TITLE 5C1 LOADING
914. REPEAT LOAD
915. 20 0.893031
916. LOAD 185 LOADTYPE LIVE TITLE 5C1 LOADING
917. REPEAT LOAD
918. 21 0.893031
919. LOAD 186 LOADTYPE LIVE TITLE 5C1 LOADING
920. REPEAT LOAD
921. 22 0.893031
922. LOAD 187 LOADTYPE LIVE TITLE 5C1 LOADING
923. REPEAT LOAD
924. 23 0.893031
925. LOAD 188 LOADTYPE LIVE TITLE 5C1 LOADING
926. REPEAT LOAD
927. 24 0.893031
928. LOAD 189 LOADTYPE LIVE TITLE 5C1 LOADING
929. REPEAT LOAD
930. 25 0.893031
931. LOAD 190 LOADTYPE LIVE TITLE 5C1 LOADING
932. REPEAT LOAD
933. 26 0.893031
934. LOAD 191 LOADTYPE LIVE TITLE 5C1 LOADING
935. REPEAT LOAD
936. 27 0.893031

937. LOAD 192 LOADTYPE LIVE TITLE 5C1 LOADING
938. REPEAT LOAD
939. 28 0.893031
940. LOAD 193 LOADTYPE LIVE TITLE 5C1 LOADING
941. REPEAT LOAD
942. 29 0.893031
943. LOAD 194 LOADTYPE LIVE TITLE 5C1 LOADING
944. REPEAT LOAD
945. 30 0.893031
946. LOAD 195 LOADTYPE LIVE TITLE 5C1 LOADING
947. REPEAT LOAD
948. 31 0.893031
949. LOAD 196 LOADTYPE LIVE TITLE 5C1 LOADING
950. REPEAT LOAD
951. 32 0.893031
952. LOAD 197 LOADTYPE LIVE TITLE 5C1 LOADING
953. REPEAT LOAD
954. 33 0.893031
955. LOAD 198 LOADTYPE LIVE TITLE 5C1 LOADING
956. REPEAT LOAD
957. 34 0.893031
958. LOAD 199 LOADTYPE LIVE TITLE 5C1 LOADING
959. REPEAT LOAD
960. 35 0.893031
961. LOAD 200 LOADTYPE LIVE TITLE 5C1 LOADING
962. REPEAT LOAD
963. 36 0.893031
964. LOAD 201 LOADTYPE LIVE TITLE 5C1 LOADING
965. REPEAT LOAD
966. 37 0.893031
967. LOAD 202 LOADTYPE LIVE TITLE 5C1 LOADING
968. REPEAT LOAD
969. 38 0.893031
970. LOAD 203 LOADTYPE LIVE TITLE 5C1 LOADING
971. REPEAT LOAD
972. 39 0.893031
973. LOAD 204 LOADTYPE LIVE TITLE 5C1 LOADING
974. REPEAT LOAD
975. 40 0.893031
976. LOAD 205 LOADTYPE LIVE TITLE 5C1 LOADING
977. REPEAT LOAD
978. 41 0.893031
979. *****FATIGUE LOADS*****
980. LOAD GENERATION 52
981. TYPE 1 -47.073 18.1 0 XINC 1.02 YRANGE 1
982. LOAD GENERATION 51
983. TYPE 1 19.282 18.1 0 XINC 1.02 YRANGE 1
984. PDELTA 10 ANALYSIS

P R O B L E M S T A T I S T I C S

NUMBER OF JOINTS/MEMBER+ELEMENTS/SUPPORTS = 33/ 32/ 4

SOLVER USED IS THE OUT-OF-CORE BASIC SOLVER

ORIGINAL/FINAL BAND-WIDTH= 21/ 2/ 18 DOF
TOTAL PRIMARY LOAD CASES = 308, TOTAL DEGREES OF FREEDOM = 174
SIZE OF STIFFNESS MATRIX = 4 DOUBLE KILO-WORDS
REQRD/AVAIL. DISK SPACE = 13.1/ 514582.2 MB

++ Adjusting Displacements 18:12:38
++ Adjusting Displacements 18:12:38
++ Adjusting Displacements 18:12:39
++ Adjusting Displacements 18:12:39
++ Adjusting Displacements 18:12:39
++ Adjusting Displacements 18:12:39
++ Adjusting Displacements 18:12:39
++ Adjusting Displacements 18:12:39
++ Adjusting Displacements 18:12:39
++ Adjusting Displacements 18:12:40

985. LOAD LIST 1 TO 41

986. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 9 TO 32

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
9 MAX	0.00	0.00	1	165.29	5.47	4			
	0.00	0.00	1	0.00	0.00	1	0.00	0.00	1
MIN	-44.40	5.47	8	0.00	5.47	40			
	0.00	5.47	41	0.00	5.47	41	0.00	5.47	41
10 MAX	0.00	0.00	9	516.77	5.10	4			
	0.00	0.00	1	0.00	0.00	1	0.00	0.00	1
MIN	-88.80	5.10	8	0.00	5.10	39			
	0.00	5.10	41	0.00	5.10	41	0.00	5.10	41
11 MAX	0.00	0.00	9	682.60	1.87	4			
	0.00	0.00	1	0.00	0.00	1	0.00	0.00	1
MIN	-88.80	1.87	8	0.00	1.87	39			
	0.00	1.87	41	0.00	1.87	41	0.00	1.87	41
12 MAX	125.48	0.00	7	671.90	0.00	4			
	0.00	0.00	1	0.00	0.00	1	9.32 C	0.00	11
MIN	-13.86	3.70	16	-316.04	3.70	11			
	0.00	3.70	41	0.00	3.70	41	6.56 T	3.70	27
13 MAX	106.23	0.00	1	452.82	0.00	4			
	0.00	0.00	1	0.00	0.00	1	9.32 C	0.00	11
MIN	-13.86	5.31	16	-670.69	5.31	11			
	0.00	5.31	41	0.00	5.31	41	6.56 T	5.31	27
14 MAX	87.75	0.00	3	414.63	0.00	15			
	0.00	0.00	1	0.00	0.00	1	9.32 C	0.00	11
MIN	-13.86	5.33	16	-840.86	5.33	11			
	0.00	5.33	41	0.00	5.33	41	6.56 T	5.33	27
15 MAX	59.22	0.00	4	387.59	0.00	15			
	0.00	0.00	1	0.00	0.00	1	9.32 C	0.00	11
MIN	-44.57	5.31	23	-862.27	1.59	12			
	0.00	5.31	41	0.00	5.31	41	6.56 T	5.31	27
16 MAX	14.82	0.00	4	360.66	0.00	15			
	0.00	0.00	1	0.00	0.00	1	9.32 C	0.00	11
MIN	-58.57	5.33	20	-811.63	0.00	12			
	0.00	5.33	41	0.00	5.33	41	6.56 T	5.33	27
17 MAX	9.42	0.00	26	402.19	5.42	16			
	0.00	0.00	1	0.00	0.00	1	9.32 C	0.00	11

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MIN	-111.17	5.42	23	-543.44	0.00	11			
	0.00	5.42	41	0.00	5.42	41	6.56 T	5.42	27
18 MAX	9.26	0.00	8	900.58	5.42	18			
	0.00	0.00	1	0.00	0.00	1	9.32 C	0.00	11
MIN	-134.78	5.42	11	-150.13	0.00	5			
	0.00	5.42	41	0.00	5.42	41	6.56 T	5.42	27
19 MAX	136.51	0.00	23	900.14	0.00	18			
	0.00	0.00	1	0.00	0.00	1	9.77 C	0.00	16
MIN	-13.61	5.85	10	-126.74	5.85	31			
	0.00	5.85	41	0.00	5.85	41	6.49 T	5.85	1
20 MAX	106.82	0.00	17	395.02	0.00	11			
	0.00	0.00	1	0.00	0.00	1	9.77 C	0.00	16
MIN	-13.61	5.85	10	-504.63	5.85	17			
	0.00	5.85	41	0.00	5.85	41	6.49 T	5.85	1
21 MAX	67.56	0.00	18	307.42	0.00	11			
	0.00	0.00	1	0.00	0.00	1	9.77 C	0.00	16
MIN	-13.61	5.85	10	-705.62	5.85	16			
	0.00	5.85	41	0.00	5.85	41	6.49 T	5.85	1
22 MAX	46.91	0.00	21	283.38	0.00	9			
	0.00	0.00	1	0.00	0.00	1	9.77 C	0.00	16
MIN	-31.39	5.27	31	-765.23	2.34	16			
	0.00	5.85	41	0.00	5.85	41	6.49 T	5.85	1
23 MAX	14.96	0.00	11	280.02	5.85	10			
	0.00	0.00	1	0.00	0.00	1	9.77 C	0.00	16
MIN	-70.78	5.27	17	-715.90	0.00	16			
	0.00	5.85	41	0.00	5.85	41	6.49 T	5.85	1
24 MAX	14.96	0.00	11	359.74	5.85	10			
	0.00	0.00	1	0.00	0.00	1	9.77 C	0.00	16
MIN	-97.99	5.85	31	-497.77	0.00	16			
	0.00	5.85	41	0.00	5.85	41	6.49 T	5.85	1
25 MAX	14.96	0.00	11	896.67	5.83	27			
	0.00	0.00	1	0.00	0.00	1	9.77 C	0.00	16
MIN	-134.04	5.83	16	-130.19	5.83	11			
	0.00	5.83	41	0.00	5.83	41	6.49 T	5.83	1
26 MAX	137.46	0.00	32	878.77	0.00	27			
	0.00	0.00	1	0.00	0.00	1	4.02 C	0.00	10
MIN	-3.03	5.83	11	-182.00	5.83	9			
	0.00	5.83	41	0.00	5.83	41	1.40 T	5.83	15
27 MAX	102.42	0.00	13	414.78	0.00	16			
	0.00	0.00	1	0.00	0.00	1	4.02 C	0.00	10
MIN	-10.11	5.85	33	-580.01	5.85	10			
	0.00	5.85	41	0.00	5.85	41	1.40 T	5.85	15
28 MAX	59.65	0.00	30	326.15	0.00	16			
	0.00	0.00	1	0.00	0.00	1	4.02 C	0.00	10

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MIN	-22.54	5.85	32	-797.55	5.85	13			
	0.00	5.85	41	0.00	5.85	41	1.40 T	5.85	15
29 MAX	31.63	0.00	39	237.52	0.00	16			
	0.00	0.00	1	0.00	0.00	1	4.02 C	0.00	10
MIN	-39.71	5.85	36	-813.50	1.17	13			
	0.00	5.85	41	0.00	5.85	41	1.40 T	5.85	15
30 MAX	15.14	0.00	16	169.62	0.00	15			
	0.00	0.00	1	0.00	0.00	1	4.02 C	0.00	10
MIN	-75.18	5.85	13	-706.18	0.00	10			
	0.00	5.85	41	0.00	5.85	41	1.40 T	5.85	15
31 MAX	15.14	0.00	16	195.99	4.77	36			
	0.00	0.00	1	0.00	0.00	1	4.02 C	0.00	10
MIN	-110.80	4.77	38	-386.59	0.00	10			
	0.00	4.77	41	0.00	4.77	41	1.40 T	4.77	15
32 MAX	44.40	0.00	36	177.60	0.00	36			
	0.00	0.00	1	0.00	0.00	1	0.00	0.00	1
MIN	0.00	5.62	41	0.00	4.50	41			
	0.00	5.62	41	0.00	5.62	41	0.00	5.62	41

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

987. *HS-20 FLOOR BEAM MAXIMUM FORCE RESULTS ABOVE

988. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 1 2

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/	DIST	LD	MZ/	DIST	LD	FX	DIST	LD
	FZ	DIST	LD	MY	DIST	LD			
1 MAX	0.00	0.00	1	0.00	0.00	1			
	9.32	0.00	11	36.48	8.20	11	205.48 C	0.00	7
	0.00	8.20	41	0.00	8.20	41			
MIN	-6.56	8.20	27	-40.52	0.00	11	13.86 T	8.20	16
	0.00	0.00	1	0.00	0.00	1			
	9.32	0.00	11	73.31	4.00	11	205.48 C	0.00	7
2 MAX	0.00	0.00	1	0.00	0.00	1			
	9.32	0.00	11	73.31	4.00	11	205.48 C	0.00	7
	0.00	4.00	41	0.00	4.00	41			
MIN	-6.56	4.00	27	-51.77	4.00	27	13.86 T	4.00	16

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

989. *HS-20 COLUMN 412 MAXIMUM FORCE RESULTS ABOVE

990. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 3 4

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/	DIST	LD	MZ/	DIST	LD	FX	DIST	LD
	FZ	DIST	LD	MY	DIST	LD			
3 MAX	13.40	0.00	9	75.74	10.07	15			
	0.00	0.00	1	0.00	0.00	1	247.67 C	0.00	23
MIN	-13.86	10.07	14	-73.96	10.07	9			
	0.00	10.07	41	0.00	10.07	41	15.98 T	10.07	10
4 MAX	13.40	0.00	9	130.92	4.00	14			
	0.00	0.00	1	0.00	0.00	1	247.67 C	0.00	23
MIN	-13.85	4.00	14	-127.23	4.00	9			
	0.00	4.00	41	0.00	4.00	41	15.98 T	4.00	10

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

991. *HS-20 COLUMN 312 MAXIMUM FORCE RESULTS ABOVE

992. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 5 6

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
5 MAX	10.75	0.00	16	67.73	12.32	9			
	0.00	0.00	1	0.00	0.00	1	249.24 C	0.00	31
MIN	-9.69	12.32	1	-75.29	12.32	16			
	0.00	12.32	41	0.00	12.32	41	17.99 T	12.32	11
6 MAX	10.75	0.00	16	105.57	4.00	1			
	0.00	0.00	1	0.00	0.00	1	249.24 C	0.00	31
MIN	-9.69	4.00	1	-117.79	4.00	16			
	0.00	4.00	41	0.00	4.00	41	17.99 T	4.00	11

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

993. *HS-20 COLUMN 212 MAXIMUM FORCE RESULTS ABOVE

994. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 7 8

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/	DIST	LD	MZ/	DIST	LD	FX	DIST	LD
	FZ	DIST	LD	MY	DIST	LD			
7 MAX	0.00	0.00	1	0.00	0.00	1			
	1.40	0.00	15	25.95	0.00	10	150.80 C	0.00	38
MIN	0.00	14.10	41	0.00	14.10	41			
	-4.02	14.10	10	-31.44	14.10	10	15.14 T	14.10	16
8 MAX	0.00	0.00	1	0.00	0.00	1			
	1.40	0.00	15	16.36	4.00	15	150.80 C	0.00	38
MIN	0.00	4.00	41	0.00	4.00	41			
	-4.02	4.00	10	-46.94	4.00	10	15.14 T	4.00	16

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

995. *HS-20 COLUMN 112 MAXIMUM FORCE RESULTS ABOVE

996. LOAD LIST 42 TO 82

997. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 9 TO 32

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
9 MAX	0.00	0.00	42	72.02	5.47	45			
	0.00	0.00	42	0.00	0.00	42	0.00	0.00	42
	-19.35	5.47	49	0.00	5.47	81			
MIN	0.00	5.47	82	0.00	5.47	82	0.00	5.47	82
	0.00	0.00	50	225.16	5.10	45			
	0.00	0.00	42	0.00	0.00	42	0.00	0.00	42
10 MAX	-38.69	5.10	49	0.00	5.10	80			
	0.00	5.10	82	0.00	5.10	82	0.00	5.10	82
	0.00	0.00	50	297.42	1.87	45			
11 MAX	0.00	0.00	42	0.00	0.00	42	0.00	0.00	42
	-38.69	1.87	49	0.00	1.87	80			
	0.00	1.87	82	0.00	1.87	82	0.00	1.87	82
12 MAX	54.68	0.00	48	292.72	0.00	45			
	0.00	0.00	42	0.00	0.00	42	4.07 C	0.00	52
	-6.04	3.70	57	-137.60	3.70	52			
MIN	0.00	3.70	82	0.00	3.70	82	2.86 T	3.70	68
	46.29	0.00	42	197.27	0.00	45			
	0.00	0.00	42	0.00	0.00	42	4.07 C	0.00	52
13 MAX	-6.04	5.31	57	-292.11	5.31	52			
	0.00	5.31	82	0.00	5.31	82	2.86 T	5.31	68
	38.23	0.00	44	180.63	0.00	56			
14 MAX	0.00	0.00	42	0.00	0.00	42	4.07 C	0.00	52
	-6.04	5.33	57	-366.25	5.33	52			
	0.00	5.33	82	0.00	5.33	82	2.86 T	5.33	68
15 MAX	25.80	0.00	45	168.86	0.00	56			
	0.00	0.00	42	0.00	0.00	42	4.07 C	0.00	52
	-19.42	5.31	64	-375.61	1.59	53			
MIN	0.00	5.31	82	0.00	5.31	82	2.86 T	5.31	68
	6.46	0.00	45	157.12	0.00	56			
	0.00	0.00	42	0.00	0.00	42	4.07 C	0.00	52
16 MAX	-25.52	5.33	61	-353.56	0.00	53			
	0.00	5.33	82	0.00	5.33	82	2.86 T	5.33	68
	4.10	0.00	67	175.18	5.42	57			
17 MAX	0.00	0.00	42	0.00	0.00	42	4.07 C	0.00	52

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MIN	-48.43	5.42	64	-236.71	0.00	52				
	0.00	5.42	82	0.00	5.42	82	2.86	T	5.42	68
18 MAX	4.03	0.00	49	392.36	5.42	59				
	0.00	0.00	42	0.00	0.00	42	4.07	C	0.00	52
MIN	-58.72	4.88	52	-65.40	0.00	46				
	0.00	5.42	82	0.00	5.42	82	2.86	T	5.42	68
19 MAX	59.48	0.00	64	392.16	0.00	59				
	0.00	0.00	42	0.00	0.00	42	4.26	C	0.00	57
MIN	-5.93	5.85	51	-55.21	5.85	72				
	0.00	5.85	82	0.00	5.85	82	2.83	T	5.85	42
20 MAX	46.54	0.00	58	172.04	0.00	52				
	0.00	0.00	42	0.00	0.00	42	4.26	C	0.00	57
MIN	-5.93	5.85	51	-219.83	5.85	58				
	0.00	5.85	82	0.00	5.85	82	2.83	T	5.85	42
21 MAX	29.44	0.00	59	133.89	0.00	52				
	0.00	0.00	42	0.00	0.00	42	4.26	C	0.00	57
MIN	-5.93	5.85	51	-307.37	5.85	57				
	0.00	5.85	82	0.00	5.85	82	2.83	T	5.85	42
22 MAX	20.44	0.00	62	123.44	0.00	50				
	0.00	0.00	42	0.00	0.00	42	4.26	C	0.00	57
MIN	-13.68	5.85	72	-333.34	2.34	57				
	0.00	5.85	82	0.00	5.85	82	2.83	T	5.85	42
23 MAX	6.52	0.00	52	121.96	5.85	51				
	0.00	0.00	42	0.00	0.00	42	4.26	C	0.00	57
MIN	-30.84	5.85	58	-311.85	0.00	57				
	0.00	5.85	82	0.00	5.85	82	2.83	T	5.85	42
24 MAX	6.52	0.00	52	156.68	5.85	51				
	0.00	0.00	42	0.00	0.00	42	4.26	C	0.00	57
MIN	-42.70	5.85	72	-216.82	0.00	57				
	0.00	5.85	82	0.00	5.85	82	2.83	T	5.85	42
25 MAX	6.52	0.00	52	390.67	5.83	68				
	0.00	0.00	42	0.00	0.00	42	4.26	C	0.00	57
MIN	-58.40	5.83	57	-56.69	5.83	52				
	0.00	5.83	82	0.00	5.83	82	2.83	T	5.83	42
26 MAX	59.89	0.00	73	382.86	0.00	68				
	0.00	0.00	42	0.00	0.00	42	1.76	C	0.00	51
MIN	-1.32	5.83	52	-79.27	5.83	50				
	0.00	5.83	82	0.00	5.83	82	0.61	T	5.83	56
27 MAX	44.62	0.00	54	180.66	0.00	57				
	0.00	0.00	42	0.00	0.00	42	1.76	C	0.00	51
MIN	-4.41	5.85	74	-252.65	5.85	51				
	0.00	5.85	82	0.00	5.85	82	0.61	T	5.85	56
28 MAX	25.99	0.00	71	142.06	0.00	57				
	0.00	0.00	42	0.00	0.00	42	1.76	C	0.00	51

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MIN	-9.82	5.85	73	-347.44	5.85	54			
	0.00	5.85	82	0.00	5.85	82	0.61	T	5.85 56
29 MAX	13.78	0.00	80	103.46	0.00	57			
	0.00	0.00	42	0.00	0.00	42	1.76	C	0.00 51
MIN	-17.30	5.85	77	-354.38	1.17	54			
	0.00	5.85	82	0.00	5.85	82	0.61	T	5.85 56
30 MAX	6.59	0.00	57	73.87	0.00	56			
	0.00	0.00	42	0.00	0.00	42	1.76	C	0.00 51
MIN	-32.76	5.85	54	-307.58	0.00	51			
	0.00	5.85	82	0.00	5.85	82	0.61	T	5.85 56
31 MAX	6.59	0.00	57	85.45	4.77	77			
	0.00	0.00	42	0.00	0.00	42	1.76	C	0.00 51
MIN	-48.28	4.77	79	-168.32	0.00	51			
	0.00	4.77	82	0.00	4.77	82	0.61	T	4.77 56
32 MAX	19.35	0.00	77	77.38	0.00	77			
	0.00	0.00	42	0.00	0.00	42	0.00		0.00 42
MIN	0.00	5.62	82	0.00	4.50	82			
	0.00	5.62	82	0.00	5.62	82	0.00		5.62 82

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

998. *2F1 FLOOR BEAM MAXIMUM FORCE RESULTS ABOVE
 999. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 1 2

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/	DIST	LD	MZ/	DIST	LD	FX	DIST	LD
	FZ	DIST	LD	MY	DIST	LD			
1 MAX	0.00	0.00	42	0.00	0.00	42			
	4.07	0.00	52	15.85	8.20	52	89.53 C	0.00	48
	MIN	0.00	8.20	82	0.00	8.20	82		
1 MIN	-2.86	8.20	68	-17.61	0.00	52	6.04 T	8.20	57
	0.00	0.00	42	0.00	0.00	42			
	4.07	0.00	52	32.02	4.00	52	89.53 C	0.00	48
2 MAX	0.00	4.00	82	0.00	4.00	82			
	-2.86	4.00	68	-22.59	4.00	68	6.04 T	4.00	57

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

1000. *2F1 COLUMN 412 MAXIMUM FORCE RESULTS ABOVE
1001. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 3 4

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
3 MAX	5.84	0.00	50	32.97	10.07	56			
	0.00	0.00	42	0.00	0.00	42	107.91 C	0.00	64
MIN	-6.04	10.07	55	-32.19	10.07	50			
	0.00	10.07	82	0.00	10.07	82	6.96 T	10.07	51
4 MAX	5.84	0.00	50	57.08	4.00	55			
	0.00	0.00	42	0.00	0.00	42	107.91 C	0.00	64
MIN	-6.04	4.00	55	-55.48	4.00	50			
	0.00	4.00	82	0.00	4.00	82	6.96 T	4.00	51

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

1002. *2F1 COLUMN 312 MAXIMUM FORCE RESULTS ABOVE
 1003. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 5 6

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
5 MAX	4.69	0.00	57	29.48	12.32	50			
	0.00	0.00	42	0.00	0.00	42	108.59 C	0.00	72
MIN	-4.22	12.32	42	-32.75	12.32	57			
	0.00	12.32	82	0.00	12.32	82	7.84 T	12.32	52
6 MAX	4.69	0.00	57	46.04	4.00	42			
	0.00	0.00	42	0.00	0.00	42	108.59 C	0.00	72
MIN	-4.22	4.00	42	-51.40	4.00	57			
	0.00	4.00	82	0.00	4.00	82	7.84 T	4.00	52

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

1004. *2F1 COLUMN 212 MAXIMUM FORCE RESULTS ABOVE
1005. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 7 8

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/	DIST	LD	MZ/	DIST	LD	FX	DIST	LD
	FZ	DIST	LD	MY	DIST	LD			
7 MAX	0.00	0.00	42	0.00	0.00	42	65.71 C	0.00	79
	0.61	0.00	56	11.26	0.00	51			
MIN	0.00	14.10	82	0.00	14.10	82	6.59 T	14.10	57
	-1.76	14.10	51	-13.65	14.10	51			
8 MAX	0.00	0.00	42	0.00	0.00	42	65.71 C	0.00	79
	0.61	0.00	56	7.15	4.00	56			
MIN	0.00	4.00	82	0.00	4.00	82	6.59 T	4.00	57
	-1.76	4.00	51	-20.57	4.00	51			

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

1006. *2F1 COLUMN 112 MAXIMUM FORCE RESULTS ABOVE
1007. LOAD LIST 83 TO 123
1008. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 9 TO 32

MEMBER FORCE ENVELOPE

 ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
9 MAX	0.00	0.00	83	109.45	5.47	86			
	0.00	0.00	83	0.00	0.00	83	0.00	0.00	83
	-29.40	5.47	90	0.00	5.47	122			
MIN	0.00	5.47	123	0.00	5.47	123	0.00	5.47	123
	0.00	0.00	91	342.18	5.10	86			
	0.00	0.00	83	0.00	0.00	83	0.00	0.00	83
10 MAX	-58.80	5.10	90	0.00	5.10	121			
	0.00	5.10	123	0.00	5.10	123	0.00	5.10	123
	0.00	0.00	91	451.98	1.87	86			
11 MAX	0.00	0.00	83	0.00	0.00	83	0.00	0.00	83
	-58.80	1.87	90	0.00	1.87	121			
	0.00	1.87	123	0.00	1.87	123	0.00	1.87	123
12 MAX	83.09	0.00	89	444.87	0.00	86			
	0.00	0.00	83	0.00	0.00	83	6.18 C	0.00	93
	-9.17	3.70	98	-209.17	3.70	93			
MIN	0.00	3.70	123	0.00	3.70	123	4.35 T	3.70	109
	70.34	0.00	83	299.81	0.00	86			
	0.00	0.00	83	0.00	0.00	83	6.18 C	0.00	93
13 MAX	-9.17	5.31	98	-443.99	5.31	93			
	0.00	5.31	123	0.00	5.31	123	4.35 T	5.31	109
	58.10	0.00	85	274.52	0.00	97			
14 MAX	0.00	0.00	83	0.00	0.00	83	6.18 C	0.00	93
	-9.17	5.33	98	-556.67	5.33	93			
	0.00	5.33	123	0.00	5.33	123	4.35 T	5.33	109
15 MAX	39.21	0.00	86	256.62	0.00	97			
	0.00	0.00	83	0.00	0.00	83	6.18 C	0.00	93
	-29.51	5.31	105	-570.87	1.59	94			
MIN	0.00	5.31	123	0.00	5.31	123	4.35 T	5.31	109
	9.81	0.00	86	238.79	0.00	97			
	0.00	0.00	83	0.00	0.00	83	6.18 C	0.00	93
16 MAX	-38.78	5.33	102	-537.35	0.00	94			
	0.00	5.33	123	0.00	5.33	123	4.35 T	5.33	109
	6.24	0.00	108	266.26	5.42	98			
17 MAX	0.00	0.00	83	0.00	0.00	83	6.18 C	0.00	93

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MIN	-73.61	5.42	105	-359.77	0.00	93			
	0.00	5.42	123	0.00	5.42	123	4.35	T	5.42 109
18 MAX	6.13	0.00	90	596.29	5.42	100			
	0.00	0.00	83	0.00	0.00	83	6.18	C	0.00 93
MIN	-89.24	5.42	93	-99.39	0.00	87			
	0.00	5.42	123	0.00	5.42	123	4.35	T	5.42 109
19 MAX	90.39	0.00	105	595.99	0.00	100			
	0.00	0.00	83	0.00	0.00	83	6.47	C	0.00 98
MIN	-9.01	5.85	92	-83.91	5.85	113			
	0.00	5.85	123	0.00	5.85	123	4.30	T	5.85 83
20 MAX	70.73	0.00	99	261.49	0.00	93			
	0.00	0.00	83	0.00	0.00	83	6.47	C	0.00 98
MIN	-9.01	5.85	92	-334.10	5.85	99			
	0.00	5.85	123	0.00	5.85	123	4.30	T	5.85 83
21 MAX	44.74	0.00	100	203.51	0.00	93			
	0.00	0.00	83	0.00	0.00	83	6.47	C	0.00 98
MIN	-9.01	5.85	92	-467.16	5.85	98			
	0.00	5.85	123	0.00	5.85	123	4.30	T	5.85 83
22 MAX	31.06	0.00	103	187.61	0.00	91			
	0.00	0.00	83	0.00	0.00	83	6.47	C	0.00 98
MIN	-20.79	5.85	113	-506.62	2.34	98			
	0.00	5.85	123	0.00	5.85	123	4.30	T	5.85 83
23 MAX	9.90	0.00	93	185.37	5.85	92			
	0.00	0.00	83	0.00	0.00	83	6.47	C	0.00 98
MIN	-46.86	5.85	99	-473.96	0.00	98			
	0.00	5.85	123	0.00	5.85	123	4.30	T	5.85 83
24 MAX	9.90	0.00	93	238.14	5.85	92			
	0.00	0.00	83	0.00	0.00	83	6.47	C	0.00 98
MIN	-64.89	5.85	113	-329.54	0.00	98			
	0.00	5.85	123	0.00	5.85	123	4.30	T	5.85 83
25 MAX	9.90	0.00	93	593.71	5.83	109			
	0.00	0.00	83	0.00	0.00	83	6.47	C	0.00 98
MIN	-88.76	5.83	98	-86.18	5.83	93			
	0.00	5.83	123	0.00	5.83	123	4.30	T	5.83 83
26 MAX	91.02	0.00	114	581.85	0.00	109			
	0.00	0.00	83	0.00	0.00	83	2.67	C	0.00 92
MIN	-2.01	5.83	93	-120.48	5.83	91			
	0.00	5.83	123	0.00	5.83	123	0.93	T	5.83 97
27 MAX	67.81	0.00	95	274.58	0.00	98			
	0.00	0.00	83	0.00	0.00	83	2.67	C	0.00 92
MIN	-6.70	5.85	115	-383.99	5.85	92			
	0.00	5.85	123	0.00	5.85	123	0.93	T	5.85 97
28 MAX	39.50	0.00	112	215.91	0.00	98			
	0.00	0.00	83	0.00	0.00	83	2.67	C	0.00 92

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MIN	-14.92	5.85	114	-528.04	5.85	95			
	0.00	5.85	123	0.00	5.85	123	0.93 T	5.85	97
29 MAX	20.94	0.00	121	157.24	0.00	98			
	0.00	0.00	83	0.00	0.00	83	2.67 C	0.00	92
MIN	-26.29	5.85	118	-538.59	1.17	95			
	0.00	5.85	123	0.00	5.85	123	0.93 T	5.85	97
30 MAX	10.02	0.00	98	112.28	0.00	97			
	0.00	0.00	83	0.00	0.00	83	2.67 C	0.00	92
MIN	-49.78	5.85	95	-467.50	0.00	92			
	0.00	5.85	123	0.00	5.85	123	0.93 T	5.85	97
31 MAX	10.02	0.00	98	129.83	4.77	118			
	0.00	0.00	83	0.00	0.00	83	2.67 C	0.00	92
MIN	-73.37	4.77	120	-255.87	0.00	92			
	0.00	4.77	123	0.00	4.77	123	0.93 T	4.77	97
32 MAX	29.40	0.00	118	117.60	0.00	118			
	0.00	0.00	83	0.00	0.00	83	0.00	0.00	83
MIN	0.00	5.62	123	0.00	4.50	121			
	0.00	5.62	123	0.00	5.62	123	0.00	5.62	123

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

1009. *3F1 FLOOR BEAM MAXIMUM FORCE RESULTS ABOVE
 1010. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 1 2

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/	DIST	LD	MZ/	DIST	LD	FX	DIST	LD
	FZ	DIST	LD	MY	DIST	LD			
1 MAX	0.00	0.00	83	0.00	0.00	83			
	6.18	0.00	93	24.11	8.20	93	136.06 C	0.00	89
MIN	0.00	8.20	123	0.00	8.20	123			
	-4.35	8.20	109	-26.79	0.00	93	9.17 T	8.20	98
2 MAX	0.00	0.00	83	0.00	0.00	83			
	6.18	0.00	93	48.62	4.00	93	136.06 C	0.00	89
MIN	0.00	4.00	123	0.00	4.00	123			
	-4.35	4.00	109	-34.31	4.00	109	9.17 T	4.00	98

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

1011. *3F1 COLUMN 412 MAXIMUM FORCE RESULTS ABOVE
1012. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 3 4

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
3 MAX	8.87	0.00	91	50.12	10.07	97			
	0.00	0.00	83	0.00	0.00	83	163.99 C	0.00	105
MIN	-9.18	10.07	96	-48.94	10.07	91			
	0.00	10.07	123	0.00	10.07	123	10.58 T	10.07	92
4 MAX	8.87	0.00	91	86.72	4.00	96			
	0.00	0.00	83	0.00	0.00	83	163.99 C	0.00	105
MIN	-9.18	4.00	96	-84.28	4.00	91			
	0.00	4.00	123	0.00	4.00	123	10.58 T	4.00	92

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

1013. *3F1 COLUMN 312 MAXIMUM FORCE RESULTS ABOVE
 1014. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 5 6

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
5 MAX	7.12	0.00	98	44.82	12.32	91			
	0.00	0.00	83	0.00	0.00	83	165.03 C	0.00	113
MIN	-6.42	12.32	83	-49.80	12.32	98			
	0.00	12.32	123	0.00	12.32	123	11.91 T	12.32	93
6 MAX	7.12	0.00	98	69.94	4.00	83			
	0.00	0.00	83	0.00	0.00	83	165.03 C	0.00	113
MIN	-6.42	4.00	83	-78.06	4.00	98			
	0.00	4.00	123	0.00	4.00	123	11.91 T	4.00	93

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

1015. *3F1 COLUMN 212 MAXIMUM FORCE RESULTS ABOVE
1016. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 7 8

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/	DIST	LD	MZ/	DIST	LD	FX	DIST	LD
	FZ	DIST	LD	MY	DIST	LD			
7 MAX	0.00	0.00	83	0.00	0.00	83			
	0.93	0.00	97	17.14	0.00	92	99.86 C	0.00	120
MIN	0.00	14.10	123	0.00	14.10	123			
	-2.67	14.10	92	-20.78	14.10	92	10.02 T	14.10	98
8 MAX	0.00	0.00	83	0.00	0.00	83			
	0.93	0.00	97	10.85	4.00	97	99.86 C	0.00	120
MIN	0.00	4.00	123	0.00	4.00	123			
	-2.67	4.00	92	-31.19	4.00	92	10.02 T	4.00	98

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

1017. *3F1 COLUMN 112 MAXIMUM FORCE RESULTS ABOVE
1018. LOAD LIST 124 TO 164
1019. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 9 TO 32

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
9 MAX	0.00	0.00	124	127.55	5.47	127			
	0.00	0.00	124	0.00	0.00	124	0.00	0.00	124
	-34.26	5.47	131	0.00	5.47	163			
MIN	0.00	5.47	164	0.00	5.47	164	0.00	5.47	164
	0.00	0.00	132	398.77	5.10	127			
	0.00	0.00	124	0.00	0.00	124	0.00	0.00	124
10 MAX	-68.52	5.10	131	0.00	5.10	162			
	0.00	5.10	164	0.00	5.10	164	0.00	5.10	164
	0.00	0.00	132	526.74	1.87	127			
11 MAX	0.00	0.00	124	0.00	0.00	124	0.00	0.00	124
	-68.52	1.87	131	0.00	1.87	162			
	0.00	1.87	164	0.00	1.87	164	0.00	1.87	164
12 MAX	96.83	0.00	130	518.45	0.00	127			
	0.00	0.00	124	0.00	0.00	124	7.20 C	0.00	134
	-10.69	3.70	139	-243.80	3.70	134			
MIN	0.00	3.70	164	0.00	3.70	164	5.06 T	3.70	150
	81.98	0.00	124	349.40	0.00	127			
	0.00	0.00	124	0.00	0.00	124	7.20 C	0.00	134
13 MAX	-10.69	5.31	139	-517.46	5.31	134			
	0.00	5.31	164	0.00	5.31	164	5.06 T	5.31	150
	0.00	0.00	126	319.94	0.00	138			
14 MAX	0.00	0.00	124	0.00	0.00	124	7.20 C	0.00	134
	-10.69	5.33	139	-648.77	5.33	134			
	0.00	5.33	164	0.00	5.33	164	5.06 T	5.33	150
15 MAX	45.70	0.00	127	299.07	0.00	138			
	0.00	0.00	124	0.00	0.00	124	7.20 C	0.00	134
	-34.39	5.31	146	-665.31	1.59	135			
MIN	0.00	5.31	164	0.00	5.31	164	5.06 T	5.31	150
	11.44	0.00	127	278.29	0.00	138			
	0.00	0.00	124	0.00	0.00	124	7.20 C	0.00	134
16 MAX	-45.20	5.33	143	-626.25	0.00	135			
	0.00	5.33	164	0.00	5.33	164	5.06 T	5.33	150
	7.27	0.00	149	310.31	5.42	139			
17 MAX	0.00	0.00	124	0.00	0.00	124	7.20 C	0.00	134

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MIN	-85.78	5.42	146	-419.30	0.00	134			
	0.00	5.42	164	0.00	5.42	164	5.06	T	5.42 150
18 MAX	7.15	0.00	131	694.92	5.42	141			
	0.00	0.00	124	0.00	0.00	124	7.20	C	0.00 134
MIN	-104.00	5.42	134	-115.84	0.00	128			
	0.00	5.42	164	0.00	5.42	164	5.06	T	5.42 150
19 MAX	105.34	0.00	146	694.57	0.00	141			
	0.00	0.00	124	0.00	0.00	124	7.54	C	0.00 139
MIN	-10.50	5.85	133	-97.79	5.85	154			
	0.00	5.85	164	0.00	5.85	164	5.01	T	5.85 124
20 MAX	82.43	0.00	140	304.76	0.00	134			
	0.00	0.00	124	0.00	0.00	124	7.54	C	0.00 139
MIN	-10.50	5.85	133	-389.37	5.85	140			
	0.00	5.85	164	0.00	5.85	164	5.01	T	5.85 124
21 MAX	52.13	0.00	141	237.18	0.00	134			
	0.00	0.00	124	0.00	0.00	124	7.54	C	0.00 139
MIN	-10.50	5.85	133	-544.45	5.85	139			
	0.00	5.85	164	0.00	5.85	164	5.01	T	5.85 124
22 MAX	36.19	0.00	144	218.65	0.00	132			
	0.00	0.00	124	0.00	0.00	124	7.54	C	0.00 139
MIN	-24.22	5.85	154	-590.44	2.34	139			
	0.00	5.85	164	0.00	5.85	164	5.01	T	5.85 124
23 MAX	11.54	0.00	134	216.05	5.85	133			
	0.00	0.00	124	0.00	0.00	124	7.54	C	0.00 139
MIN	-54.61	5.85	140	-552.37	0.00	139			
	0.00	5.85	164	0.00	5.85	164	5.01	T	5.85 124
24 MAX	11.54	0.00	134	277.55	5.85	133			
	0.00	0.00	124	0.00	0.00	124	7.54	C	0.00 139
MIN	-75.62	5.85	154	-384.06	0.00	139			
	0.00	5.85	164	0.00	5.85	164	5.01	T	5.85 124
25 MAX	11.54	0.00	134	691.91	5.83	150			
	0.00	0.00	124	0.00	0.00	124	7.54	C	0.00 139
MIN	-103.44	5.83	139	-100.44	5.83	134			
	0.00	5.83	164	0.00	5.83	164	5.01	T	5.83 124
26 MAX	106.07	0.00	155	678.09	0.00	150			
	0.00	0.00	124	0.00	0.00	124	3.11	C	0.00 133
MIN	-2.34	5.83	134	-140.42	5.83	132			
	0.00	5.83	164	0.00	5.83	164	1.08	T	5.83 138
27 MAX	79.03	0.00	136	320.02	0.00	139			
	0.00	0.00	124	0.00	0.00	124	3.11	C	0.00 133
MIN	-7.80	5.27	156	-447.52	5.85	133			
	0.00	5.85	164	0.00	5.85	164	1.08	T	5.85 138
28 MAX	46.03	0.00	153	251.64	0.00	139			
	0.00	0.00	124	0.00	0.00	124	3.11	C	0.00 133

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MIN	-17.39	5.85	155	-615.39	5.85	136			
	0.00	5.85	164	0.00	5.85	164	1.08	T	5.85 138
29 MAX	24.41	0.00	162	183.26	0.00	139			
	0.00	0.00	124	0.00	0.00	124	3.11	C	0.00 133
MIN	-30.64	5.85	159	-627.69	1.17	136			
	0.00	5.85	164	0.00	5.85	164	1.08	T	5.85 138
30 MAX	11.68	0.00	139	130.86	0.00	138			
	0.00	0.00	124	0.00	0.00	124	3.11	C	0.00 133
MIN	-58.02	5.85	136	-544.85	0.00	133			
	0.00	5.85	164	0.00	5.85	164	1.08	T	5.85 138
31 MAX	11.68	0.00	139	151.28	4.77	159			
	0.00	0.00	124	0.00	0.00	124	3.11	C	0.00 133
MIN	-85.51	4.77	161	-298.23	0.00	133			
	0.00	4.77	164	0.00	4.77	164	1.08	T	4.77 138
32 MAX	34.26	0.00	159	137.05	0.00	159			
	0.00	0.00	124	0.00	0.00	124	0.00		0.00 124
MIN	0.00	5.62	164	0.00	4.50	164			
	0.00	5.62	164	0.00	5.62	164	0.00		5.62 164

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

1020. *4F1 FLOOR BEAM MAXIMUM FORCE RESULTS ABOVE
 1021. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 1 2

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
1 MAX	0.00	0.00	124	0.00	0.00	124			
	7.20	0.00	134	28.12	8.20	134	158.56 C	0.00	130
	MIN	0.00	8.20	164	0.00	8.20	164		
	-5.06	8.20	150	-31.23	0.00	134	10.69 T	8.20	139
2 MAX	0.00	0.00	124	0.00	0.00	124			
	7.20	0.00	134	56.63	4.00	134	158.56 C	0.00	130
	MIN	0.00	4.00	164	0.00	4.00	164		
	-5.06	4.00	150	-39.97	4.00	150	10.69 T	4.00	139

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

1022. *4F1 COLUMN 412 MAXIMUM FORCE RESULTS ABOVE
1023. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 3 4

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/	DIST	LD	MZ/	DIST	LD	FX	DIST	LD
	FZ	DIST	LD	MY	DIST	LD			
3 MAX	10.34	0.00	132	58.42	10.07	138			
	0.00	0.00	124	0.00	0.00	124	191.12 C	0.00	146
MIN	-10.69	10.07	137	-57.05	10.07	132			
	0.00	10.07	164	0.00	10.07	164	12.33 T	10.07	133
4 MAX	10.34	0.00	132	101.05	4.00	137			
	0.00	0.00	124	0.00	0.00	124	191.12 C	0.00	146
MIN	-10.69	4.00	137	-98.21	4.00	132			
	0.00	4.00	164	0.00	4.00	164	12.33 T	4.00	133

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

1024. *4F1 COLUMN 312 MAXIMUM FORCE RESULTS ABOVE
 1025. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 5 6

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
5 MAX	8.30	0.00	139	52.25	12.32	132			
	0.00	0.00	124	0.00	0.00	124	192.33 C	0.00	154
MIN	-7.48	12.32	124	-58.06	12.32	139			
	0.00	12.32	164	0.00	12.32	164	13.88 T	12.32	134
6 MAX	8.30	0.00	139	81.50	4.00	124			
	0.00	0.00	124	0.00	0.00	124	192.33 C	0.00	154
MIN	-7.48	4.00	124	-90.95	4.00	139			
	0.00	4.00	164	0.00	4.00	164	13.88 T	4.00	134

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

1026. *4F1 COLUMN 212 MAXIMUM FORCE RESULTS ABOVE
1027. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 7 8

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/	DIST	LD	MZ/	DIST	LD	FX	DIST	LD
	FZ	DIST	LD	MY	DIST	LD			
7 MAX	0.00	0.00	124	0.00	0.00	124			
	1.08	0.00	138	19.99	0.00	133	116.37 C	0.00	161
MIN	0.00	14.10	164	0.00	14.10	164			
	-3.11	14.10	133	-24.23	14.10	133	11.68 T	14.10	139
8 MAX	0.00	0.00	124	0.00	0.00	124			
	1.08	0.00	138	12.64	4.00	138	116.37 C	0.00	161
MIN	0.00	4.00	164	0.00	4.00	164			
	-3.11	4.00	133	-36.31	4.00	133	11.68 T	4.00	139

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

1028. *4F1 COLUMN 112 MAXIMUM FORCE RESULTS ABOVE
1029. LOAD LIST 165 TO 205
1030. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 9 TO 32

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
9 MAX	0.00	0.00	165	147.61	5.47	168			
	0.00	0.00	165	0.00	0.00	165	0.00	0.00	165
	-39.65	5.47	172	0.00	5.47	204			
MIN	0.00	5.47	205	0.00	5.47	205	0.00	5.47	205
	0.00	0.00	173	461.49	5.10	168			
	0.00	0.00	165	0.00	0.00	165	0.00	0.00	165
10 MAX	-79.30	5.10	172	0.00	5.10	203			
	0.00	5.10	205	0.00	5.10	205	0.00	5.10	205
	0.00	0.00	173	609.58	1.87	168			
11 MAX	0.00	0.00	165	0.00	0.00	165	0.00	0.00	165
	-79.30	1.87	172	0.00	1.87	203			
	0.00	1.87	205	0.00	1.87	205	0.00	1.87	205
12 MAX	112.06	0.00	171	600.02	0.00	168			
	0.00	0.00	165	0.00	0.00	165	8.33 C	0.00	175
	-12.37	3.70	180	-282.19	3.70	175			
MIN	0.00	3.70	205	0.00	3.70	205	5.86 T	3.70	191
	94.87	0.00	165	404.37	0.00	168			
	0.00	0.00	165	0.00	0.00	165	8.33 C	0.00	175
13 MAX	-12.37	5.31	180	-598.90	5.31	175			
	0.00	5.31	205	0.00	5.31	205	5.86 T	5.31	191
	0.00	0.00	167	370.27	0.00	179			
14 MAX	0.00	0.00	165	0.00	0.00	165	8.33 C	0.00	175
	-12.37	5.33	180	-750.87	5.33	175			
	0.00	5.33	205	0.00	5.33	205	5.86 T	5.33	191
15 MAX	52.89	0.00	168	346.12	0.00	179			
	0.00	0.00	165	0.00	0.00	165	8.33 C	0.00	175
	-39.80	5.31	187	-770.00	1.59	176			
MIN	0.00	5.31	205	0.00	5.31	205	5.86 T	5.31	191
	13.24	0.00	168	322.07	0.00	179			
	0.00	0.00	165	0.00	0.00	165	8.33 C	0.00	175
16 MAX	-52.30	5.33	184	-724.78	0.00	176			
	0.00	5.33	205	0.00	5.33	205	5.86 T	5.33	191
	8.41	0.00	190	359.15	5.42	180			
17 MAX	0.00	0.00	165	0.00	0.00	165	8.33 C	0.00	175

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MIN	-99.27	5.42	187	-485.28	0.00	175			
	0.00	5.42	205	0.00	5.42	205	5.86	T	5.42 191
18 MAX	8.27	0.00	172	804.23	5.42	182			
	0.00	0.00	165	0.00	0.00	165	8.33	C	0.00 175
MIN	-120.36	5.42	175	-134.06	0.00	169			
	0.00	5.42	205	0.00	5.42	205	5.86	T	5.42 191
19 MAX	121.90	0.00	187	803.84	0.00	182			
	0.00	0.00	165	0.00	0.00	165	8.72	C	0.00 180
MIN	-12.16	5.85	174	-113.18	5.85	195			
	0.00	5.85	205	0.00	5.85	205	5.79	T	5.85 165
20 MAX	95.40	0.00	181	352.73	0.00	175			
	0.00	0.00	165	0.00	0.00	165	8.72	C	0.00 180
MIN	-12.16	5.85	174	-450.63	5.85	181			
	0.00	5.85	205	0.00	5.85	205	5.79	T	5.85 165
21 MAX	60.33	0.00	182	274.51	0.00	175			
	0.00	0.00	165	0.00	0.00	165	8.72	C	0.00 180
MIN	-12.16	5.85	174	-630.11	5.85	180			
	0.00	5.85	205	0.00	5.85	205	5.79	T	5.85 165
22 MAX	41.89	0.00	185	253.05	0.00	173			
	0.00	0.00	165	0.00	0.00	165	8.72	C	0.00 180
MIN	-28.03	5.85	195	-683.34	2.34	180			
	0.00	5.85	205	0.00	5.85	205	5.79	T	5.85 165
23 MAX	13.36	0.00	175	250.05	5.85	174			
	0.00	0.00	165	0.00	0.00	165	8.72	C	0.00 180
MIN	-63.21	5.85	181	-639.29	0.00	180			
	0.00	5.85	205	0.00	5.85	205	5.79	T	5.85 165
24 MAX	13.36	0.00	175	321.23	5.85	174			
	0.00	0.00	165	0.00	0.00	165	8.72	C	0.00 180
MIN	-87.51	5.85	195	-444.50	0.00	180			
	0.00	5.85	205	0.00	5.85	205	5.79	T	5.85 165
25 MAX	13.36	0.00	175	800.75	5.83	191			
	0.00	0.00	165	0.00	0.00	165	8.72	C	0.00 180
MIN	-119.70	5.83	180	-116.25	5.83	175			
	0.00	5.83	205	0.00	5.83	205	5.79	T	5.83 165
26 MAX	122.76	0.00	196	784.76	0.00	191			
	0.00	0.00	165	0.00	0.00	165	3.59	C	0.00 174
MIN	-2.71	5.83	175	-162.52	5.83	173			
	0.00	5.83	205	0.00	5.83	205	1.25	T	5.83 179
27 MAX	91.46	0.00	177	370.38	0.00	180			
	0.00	0.00	165	0.00	0.00	165	3.59	C	0.00 174
MIN	-9.03	5.85	197	-517.94	5.85	174			
	0.00	5.85	205	0.00	5.85	205	1.25	T	5.85 179
28 MAX	53.27	0.00	194	291.24	0.00	180			
	0.00	0.00	165	0.00	0.00	165	3.59	C	0.00 174

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MIN	-20.13	5.85	196	-712.21	5.85	177			
	0.00	5.85	205	0.00	5.85	205	1.25	T	5.85 179
29 MAX	28.25	0.00	203	212.10	0.00	180			
	0.00	0.00	165	0.00	0.00	165	3.59	C	0.00 174
MIN	-35.46	5.27	200	-726.45	1.17	177			
	0.00	5.85	205	0.00	5.85	205	1.25	T	5.85 179
30 MAX	13.52	0.00	180	151.46	0.00	179			
	0.00	0.00	165	0.00	0.00	165	3.59	C	0.00 174
MIN	-67.14	5.85	177	-630.60	0.00	174			
	0.00	5.85	205	0.00	5.85	205	1.25	T	5.85 179
31 MAX	13.52	0.00	180	175.05	4.77	200			
	0.00	0.00	165	0.00	0.00	165	3.59	C	0.00 174
MIN	-98.95	4.29	202	-345.19	0.00	174			
	0.00	4.77	205	0.00	4.77	205	1.25	T	4.77 179
32 MAX	39.65	0.00	200	158.60	0.00	200			
	0.00	0.00	165	0.00	0.00	165	0.00		0.00 165
MIN	0.00	5.62	205	0.00	4.50	205			
	0.00	5.62	205	0.00	5.62	205	0.00		5.62 205

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

1031. *5C1 FLOOR BEAM MAXIMUM FORCE RESULTS ABOVE
 1032. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 1 2

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/	DIST	LD	MZ/	DIST	LD	FX	DIST	LD
	FZ	DIST	LD	MY	DIST	LD			
1 MAX	0.00	0.00	165	0.00	0.00	165			
	8.33	0.00	175	32.56	8.20	175	183.50 C	0.00	171
MIN	0.00	8.20	205	0.00	8.20	205			
	-5.86	8.20	191	-36.17	0.00	175	12.37 T	8.20	180
2 MAX	0.00	0.00	165	0.00	0.00	165			
	8.33	0.00	175	65.50	4.00	175	183.50 C	0.00	171
MIN	0.00	4.00	205	0.00	4.00	205			
	-5.86	4.00	191	-46.24	4.00	191	12.37 T	4.00	180

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

1033. *5C1 COLUMN 412 MAXIMUM FORCE RESULTS ABOVE
1034. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 3 4

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/	DIST	LD	MZ/	DIST	LD	FX	DIST	LD
	FZ	DIST	LD	MY	DIST	LD			
3 MAX	11.96	0.00	173	67.63	10.07	179			
	0.00	0.00	165	0.00	0.00	165	221.18	C	0.00 187
MIN	-12.37	10.07	178	-66.04	10.07	173			
	0.00	10.07	205	0.00	10.07	205	14.27	T	10.07 174
4 MAX	11.96	0.00	173	116.93	4.00	178			
	0.00	0.00	165	0.00	0.00	165	221.18	C	0.00 187
MIN	-12.37	4.00	178	-113.64	4.00	173			
	0.00	4.00	205	0.00	4.00	205	14.27	T	4.00 174

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

1035. *5C1 COLUMN 312 MAXIMUM FORCE RESULTS ABOVE
1036. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 5 6

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
5 MAX	9.60	0.00	180	60.48	12.32	173			
	0.00	0.00	165	0.00	0.00	165	222.58 C	0.00	195
MIN	-8.65	12.32	165	-67.21	12.32	180			
	0.00	12.32	205	0.00	12.32	205	16.07 T	12.32	175
6 MAX	9.60	0.00	180	94.29	4.00	165			
	0.00	0.00	165	0.00	0.00	165	222.58 C	0.00	195
MIN	-8.65	4.00	165	-105.22	4.00	180			
	0.00	4.00	205	0.00	4.00	205	16.07 T	4.00	175

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

1037. *5C1 COLUMN 212 MAXIMUM FORCE RESULTS ABOVE
1038. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 7 8

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/	DIST	LD	MZ/	DIST	LD	FX	DIST	LD
	FZ	DIST	LD	MY	DIST	LD			
7 MAX	0.00	0.00	165	0.00	0.00	165			
	1.25	0.00	179	23.16	0.00	174	134.67 C	0.00	202
MIN	0.00	14.10	205	0.00	14.10	205			
	-3.59	14.10	174	-28.06	14.10	174	13.52 T	14.10	180
8 MAX	0.00	0.00	165	0.00	0.00	165			
	1.25	0.00	179	14.62	4.00	179	134.67 C	0.00	202
MIN	0.00	4.00	205	0.00	4.00	205			
	-3.59	4.00	174	-41.96	4.00	174	13.52 T	4.00	180

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

1039. *5C1 COLUMN 112 MAXIMUM FORCE RESULTS ABOVE
1040. LOAD LIST 206 TO 308
1041. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 9 TO 32

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
9 MAX	0.00	0.00	206	83.70	5.47	206			
	0.00	0.00	206	0.00	0.00	206	0.00	0.00	206
MIN	-30.97	5.47	207	0.00	5.47	308			
	0.00	5.47	308	0.00	5.47	308	0.00	5.47	308
10 MAX	0.00	0.00	209	297.26	5.10	206			
	0.00	0.00	206	0.00	0.00	206	0.00	0.00	206
MIN	-61.94	4.59	207	0.00	5.10	308			
	0.00	5.10	308	0.00	5.10	308	0.00	5.10	308
11 MAX	0.00	0.00	214	412.94	1.87	206			
	0.00	0.00	206	0.00	0.00	206	0.00	0.00	206
MIN	-61.94	1.87	209	0.00	1.87	308			
	0.00	1.87	308	0.00	1.87	308	0.00	1.87	308
12 MAX	54.52	0.00	216	384.23	0.00	206			
	0.00	0.00	206	0.00	0.00	206	3.30 C	0.00	228
MIN	-4.49	3.70	257	-156.82	3.70	219			
	0.00	3.70	308	0.00	3.70	308	3.46 T	3.70	206
13 MAX	46.10	0.00	220	334.54	0.00	206			
	0.00	0.00	206	0.00	0.00	206	3.30 C	0.00	228
MIN	-11.65	5.31	218	-305.64	5.31	224			
	0.00	5.31	308	0.00	5.31	308	3.46 T	5.31	206
14 MAX	35.77	0.00	225	263.22	0.00	206			
	0.00	0.00	206	0.00	0.00	206	3.30 C	0.00	228
MIN	-22.11	5.33	223	-358.34	4.79	229			
	0.00	5.33	308	0.00	5.33	308	3.46 T	5.33	206
15 MAX	25.98	0.00	230	191.68	0.00	206			
	0.00	0.00	206	0.00	0.00	206	3.30 C	0.00	228
MIN	-32.16	5.31	228	-358.93	0.53	230			
	0.00	5.31	308	0.00	5.31	308	3.46 T	5.31	206
16 MAX	17.04	0.00	235	120.37	0.00	206			
	0.00	0.00	206	0.00	0.00	206	3.30 C	0.00	228
MIN	-43.21	5.33	234	-340.18	0.00	229			
	0.00	5.33	308	0.00	5.33	308	3.46 T	5.33	206
17 MAX	13.43	0.00	206	129.00	5.42	257			
	0.00	0.00	206	0.00	0.00	206	3.30 C	0.00	228

DXF IMPORT OF 002_1441BENT_12.DXF

-- PAGE NO. 56

MIN	-51.22	5.42	239	-254.67	0.00	234			
	0.00	5.42	308	0.00	5.42	308	3.46	T	5.42 206
18 MAX	13.43	0.00	206	215.31	5.42	233			
	0.00	0.00	206	0.00	0.00	206	3.30	C	0.00 228
MIN	-57.76	5.42	244	-102.28	0.00	240			
	0.00	5.42	308	0.00	5.42	308	3.46	T	5.42 206
19 MAX	57.76	0.00	251	188.11	0.00	257			
	0.00	0.00	206	0.00	0.00	206	3.31	C	0.00 258
MIN	-5.05	5.85	289	-112.69	5.85	256			
	0.00	5.85	308	0.00	5.85	308	1.72	T	5.85 287
20 MAX	49.42	0.00	257	141.92	0.00	233			
	0.00	0.00	206	0.00	0.00	206	3.31	C	0.00 258
MIN	-11.02	5.85	256	-230.67	5.85	257			
	0.00	5.85	308	0.00	5.85	308	1.72	T	5.85 287
21 MAX	24.91	0.00	258	110.34	0.00	233			
	0.00	0.00	206	0.00	0.00	206	3.31	C	0.00 258
MIN	-12.52	5.85	257	-251.58	5.85	258			
	0.00	5.85	308	0.00	5.85	308	1.72	T	5.85 287
22 MAX	24.91	0.00	258	78.77	0.00	233			
	0.00	0.00	206	0.00	0.00	206	3.31	C	0.00 258
MIN	-12.52	5.85	257	-333.07	3.51	258			
	0.00	5.85	308	0.00	5.85	308	1.72	T	5.85 287
23 MAX	19.68	0.00	261	103.57	5.85	289			
	0.00	0.00	206	0.00	0.00	206	3.31	C	0.00 258
MIN	-40.56	5.85	260	-318.88	0.00	258			
	0.00	5.85	308	0.00	5.85	308	1.72	T	5.85 287
24 MAX	10.06	0.00	267	133.17	5.85	289			
	0.00	0.00	206	0.00	0.00	206	3.31	C	0.00 258
MIN	-50.42	5.85	266	-252.95	0.00	261			
	0.00	5.85	308	0.00	5.85	308	1.72	T	5.85 287
25 MAX	5.39	0.00	233	224.35	5.83	259			
	0.00	0.00	206	0.00	0.00	206	3.31	C	0.00 258
MIN	-57.31	5.83	271	-112.14	0.00	266			
	0.00	5.83	308	0.00	5.83	308	1.72	T	5.83 287
26 MAX	57.93	0.00	278	198.35	0.00	290			
	0.00	0.00	206	0.00	0.00	206	1.52	C	0.00 294
MIN	-2.89	5.83	277	-122.54	5.83	283			
	0.00	5.83	308	0.00	5.83	308	0.42	T	5.83 262
27 MAX	49.54	0.00	284	150.99	0.00	259			
	0.00	0.00	206	0.00	0.00	206	1.52	C	0.00 294
MIN	-10.85	5.85	283	-274.39	5.85	289			
	0.00	5.85	308	0.00	5.85	308	0.42	T	5.85 262
28 MAX	38.95	0.00	290	118.63	0.00	259			
	0.00	0.00	206	0.00	0.00	206	1.52	C	0.00 294

DXF IMPORT OF 002_1441BENT_12.DXF

-- PAGE NO. 57

MIN	-19.28	5.85	288	-334.67	5.27	294			
	0.00	5.85	308	0.00	5.85	308	0.42	T	5.85 262
29 MAX	28.91	0.00	295	86.28	0.00	259			
	0.00	0.00	206	0.00	0.00	206	1.52	C	0.00 294
MIN	-30.98	5.85	294	-343.13	2.93	292			
	0.00	5.85	308	0.00	5.85	308	0.42	T	5.85 262
30 MAX	15.97	0.00	301	53.93	0.00	259			
	0.00	0.00	206	0.00	0.00	206	1.52	C	0.00 294
MIN	-43.79	5.85	300	-324.98	0.00	295			
	0.00	5.85	308	0.00	5.85	308	0.42	T	5.85 262
31 MAX	5.53	0.00	259	88.72	4.77	308			
	0.00	0.00	206	0.00	0.00	206	1.52	C	0.00 294
MIN	-54.87	4.77	305	-193.99	0.00	300			
	0.00	4.77	308	0.00	4.77	308	0.42	T	4.77 262
32 MAX	30.97	0.00	306	89.87	0.00	308			
	0.00	0.00	206	0.00	0.00	206	0.00		0.00 206
MIN	0.00	5.62	308	0.00	4.50	308			
	0.00	5.62	308	0.00	5.62	308	0.00		5.62 308

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

1042. *HS-15 FATIGUE FLOOR BEAM MAXIMUM FORCE RESULTS ABOVE
 1043. FINISH

***** END OF THE STAAD.Pro RUN *****

**** DATE= APR 10,2012 TIME= 18:13:32 ****

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*****
*           For questions on STAAD.Pro, please contact           *
*   Bentley Systems Offices at the following locations           *
*                                                                 *
*           Telephone           Web / Email                       *
*                                                                 *
*   USA:           +1 (714)974-2500                               *
*   UK             +44(1454)207-000                               *
*   SINGAPORE     +65 6225-6158                                  *
*   EUROPE        +31 23 5560560                                 *
*   INDIA         +91(033)4006-2021                               *
*   JAPAN         +81(03)5952-6500   http://www.ctc-g.co.jp     *
*   CHINA         +86 10 5929 7000                               *
*   THAILAND     +66(0)2645-1018/19 partha.p@reisoftwareth.com *
*                                                                 *
*   Worldwide     http://selectservices.bentley.com/en-US/     *
*                                                                 *
*****
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EAST APPROACH - FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/30/2012
Date 4/13/2012

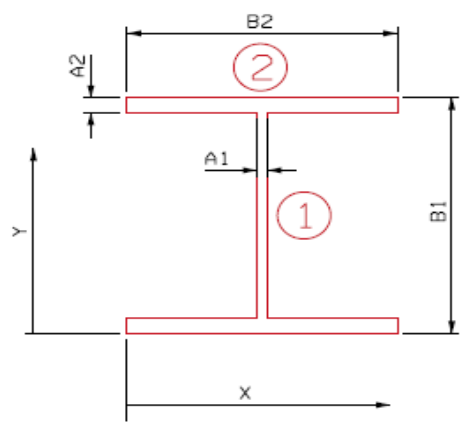
Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Red text indicates user input

Element Dimensions (without Section Losses):

- $A_1 = t_w = 0.8150$ in
 - $A_2 = t_f = 1.3800$ in
 - $B_1 = d = 36.1200$ in
 - $B_2 = b_f = 16.5250$ in
- 36WF250



FB-12 @ COLUMN 412
EAST APPR. FWD SECTION

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I _o	d	Ad ²	I _{x,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		27.1884	18.0600	491.0225	2521.4740	0.0000	0.0000	2521.4740
2	Top Flange		22.8045	35.4300	807.9634	3.6191	17.3700	6880.5030	6884.1221
	Bottom Flange		22.8045	0.6900	15.7351	3.6191	17.3700	6880.5030	6884.1221
Total			72.80		1314.72	2528.71		13761.01	16289.72
Section Losses			A	y	Ay	I _o	d	Ad ²	I _{x,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	12.0000	0.0625	-0.7500	0.0313	-0.0234	-0.0002	18.2962	-251.0633	-251.0636
2	0.0625	6.0000	-0.3750	3.0000	-1.1250	-1.1250	15.3275	-88.0991	-89.2241
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			-1.13		-1.15	-1.13		-339.16	-340.29

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	18.0600	in	S _{top} = 901.98 in ³	y-bar =	18.3275	in	S _{top} = 896.41 in ³
I _x =	16289.72	in ⁴	S _{bottom} = 901.98 in ³	I _x =	15949.43	in ⁴	S _{bottom} = 870.25 in ³
C _{top} =	18.0600	in	A = 72.7974 in ²	C _{top} =	17.7925	in	A = 71.6724 in ²
C _{bottom} =	18.0600	in	r _x = 14.9589 in	C _{bottom} =	18.3275	in	r _x = 14.9175 in
			Z = 1018.98 in ³				Z = warning in ³

EAST APPROACH - FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/30/2012
Date 4/13/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Floorbeam Capacities

Non-composite Capacities*		
	AB	AI
M	2480.44 k-ft	2393.18 k-ft
V	520.39 k	513.21 k

*Noncompact Section

$F_y =$	33.00 ksi
---------	------------------

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

As-Built Moments and Shears						
	DL	HS20	2F1	3F1	4F1	5C1
M	793.22 k-ft	682.60 k-ft	297.42 k-ft	451.98 k-ft	526.74 k-ft	609.58 k-ft
V	113.45 k	88.80 k	38.69 k	58.80 k	68.52 k	79.30 k

As-Built Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	0.98	---	---	---	---
Operating M	1.63	3.75	2.47	2.12	1.83
As-Inspected Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	0.92	---	---	---	---
Operating M	1.53	3.52	2.32	1.99	1.72
As-Built Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	1.94	---	---	---	---
Operating V	3.23	7.41	4.88	4.19	3.62
As-Inspected Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	1.9	---	---	---	---
Operating V	3.17	7.27	4.78	4.11	3.55

Controlling Rating Factors and Tonnage						
	HS20 Inventory	HS20 Operating	2F1 Operating	3F1 Operating	4F1 Operating	5C1 Operating
Rating Factor	0.92	1.53	3.52	2.32	1.99	1.72
Tonnage (US Tons)	33.12	55.08	52.8	53.36	53.73	68.8

EAST APPROACH - FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/30/2012
Date 4/13/2012

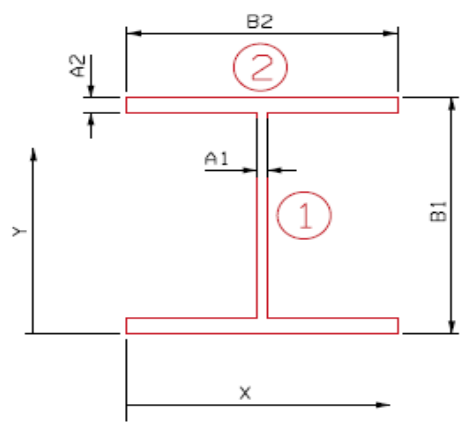
Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Red text indicates user input

Element Dimensions (without Section Losses):

- $A_1 = t_w = 0.8150$ in
 - $A_2 = t_f = 1.3800$ in
 - $B_1 = d = 36.1200$ in
 - $B_2 = b_f = 16.5250$ in
- 36WF250



**FB-12 @ COLUMN 312
EAST APPR. FWD SECTION**

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I _o	d	Ad ²	I _{x,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		27.1884	18.0600	491.0225	2521.4740	0.0000	0.0000	2521.4740
2	Top Flange		22.8045	35.4300	807.9634	3.6191	17.3700	6880.5030	6884.1221
	Bottom Flange		22.8045	0.6900	15.7351	3.6191	17.3700	6880.5030	6884.1221
Total			72.80		1314.72	2528.71		13761.01	16289.72
Section Losses			A	y	Ay	I _o	d	Ad ²	I _{x,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.1250	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar = 18.0600 in	S _{top} = 901.98 in ³			y-bar = 18.0600 in	S _{top} = 901.98 in ³		
I _x = 16289.72 in ⁴	S _{bott.} = 901.98 in ³			I _x = 16289.72 in ⁴	S _{bott.} = 901.98 in ³		
C _{top} = 18.0600 in	A = 72.7974 in ²			C _{top} = 18.0600 in	A = 72.7974 in ²		
C _{bottom} = 18.0600 in	r _x = 14.9589 in			C _{bottom} = 18.0600 in	r _x = 14.9589 in		
	Z = 1018.98 in ³				Z = warning in ³		

EAST APPROACH - FORWARD SECTION



Made By FKL
 Checked By PJP

Date 3/30/2012
 Date 4/13/2012

Job No. P402110046
 Sheet No. _____

Calculations For: **CUY-2-1441**

Floorbeam Capacities

Non-composite Capacities*		
	AB	AI
M	2480.44 k-ft	2480.44 k-ft
V	520.39 k	520.39 k

$F_y =$ **33.00 ksi**

AB = As-Built
 AI = As-Inspected
 M = Moment
 V = Shear

*Noncompact Section

As-Built Moments and Shears						
	DL	HS20	2F1	3F1	4F1	5C1
M	887.47 k-ft	900.58 k-ft	392.39 k-ft	596.32 k-ft	694.94 k-ft	804.25 k-ft
V	124.95 k	134.78 k	58.73 k	89.24 k	104.00 k	120.36 k

As-Built Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	0.68	---	---	---	---
Operating M	1.13	2.6	1.71	1.47	1.27
As-Inspected Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	0.68	---	---	---	---
Operating M	1.13	2.6	1.71	1.47	1.27
As-Built Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	1.22	---	---	---	---
Operating V	2.04	4.69	3.09	2.65	2.29
As-Inspected Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	1.22	---	---	---	---
Operating V	2.04	4.69	3.09	2.65	2.29

Controlling Rating Factors and Tonnage						
	HS20 Inventory	HS20 Operating	2F1 Operating	3F1 Operating	4F1 Operating	5C1 Operating
Rating Factor	0.68	1.13	2.6	1.71	1.47	1.27
Tonnage (US Tons)	24.48	40.68	39	39.33	39.69	50.8

EAST APPROACH - FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/20/2012
Date 4/13/2012

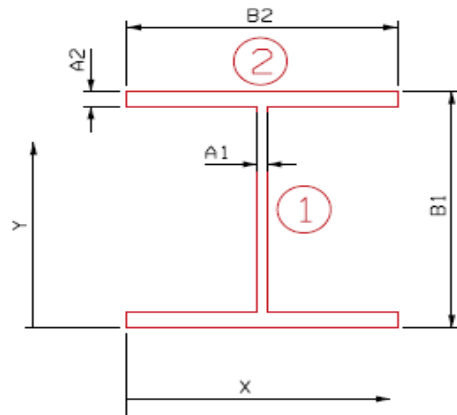
Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Red text indicates user input

Element Dimensions (without Section Losses):

$A_1 = t_w = 0.8150$ in
 $A_2 = t_f = 1.3800$ in
 $B_1 = d = 36.1200$ in
 $B_2 = b_f = 16.5250$ in
36WF250



**FB-12 @ COLUMN 212
EAST APPR. FWD SECTION**

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I _o	d	Ad ²	I _{x,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		27.1884	18.0600	491.0225	2521.4740	0.0000	0.0000	2521.4740
2	Top Flange		22.8045	35.4300	807.9634	3.6191	17.3700	6880.5030	6884.1221
	Bottom Flange		22.8045	0.6900	15.7351	3.6191	17.3700	6880.5030	6884.1221
Total			72.80		1314.72	2528.71		13761.01	16289.72
Section Losses			A	y	Ay	I _o	d	Ad ²	I _{x,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	18.0600 in	S _{top} =	901.98 in ³	y-bar =	18.0600 in	S _{top} =	901.98 in ³
I _x =	16289.72 in ⁴	S _{bott.} =	901.98 in ³	I _x =	16289.72 in ⁴	S _{bott.} =	901.98 in ³
C _{top} =	18.0600 in	A =	72.7974 in ²	C _{top} =	18.0600 in	A =	72.7974 in ²
C _{bottom} =	18.0600 in	r _x =	14.9589 in	C _{bottom} =	18.0600 in	r _x =	14.9589 in
		Z =	1018.98 in ³			Z =	1018.98 in ³

EAST APPROACH - FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/20/2012
Date 4/13/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Floorbeam Capacities

Non-composite Capacities*		
	AB	AI
M	2480.44 k-ft	2480.44 k-ft
V	520.39 k	520.39 k

*Noncompact Section

$F_y =$	33.00 ksi
---------	------------------

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

As-Built Moments and Shears						
	DL	HS20	2F1	3F1	4F1	5C1
M	954.97 k-ft	896.66 k-ft	390.66 k-ft	593.70 k-ft	691.90 k-ft	800.73 k-ft
V	128.37 k	125.41 k	54.64 k	83.04 k	96.77 k	112.00 k

As-Built Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	0.64	---	---	---	---
Operating M	1.06	2.44	1.61	1.38	1.19
As-Inspected Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	0.64	---	---	---	---
Operating M	1.06	2.44	1.61	1.38	1.19
As-Built Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	1.3	---	---	---	---
Operating V	2.17	4.98	3.27	2.81	2.43
As-Inspected Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	1.3	---	---	---	---
Operating V	2.17	4.98	3.27	2.81	2.43

Controlling Rating Factors and Tonnage						
	HS20 Inventory	HS20 Operating	2F1 Operating	3F1 Operating	4F1 Operating	5C1 Operating
Rating Factor	0.64	1.06	2.44	1.61	1.38	1.19
Tonnage (US Tons)	23.04	38.16	36.6	37.03	37.26	47.6

EAST APPROACH - FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/20/2012
Date 4/13/2012

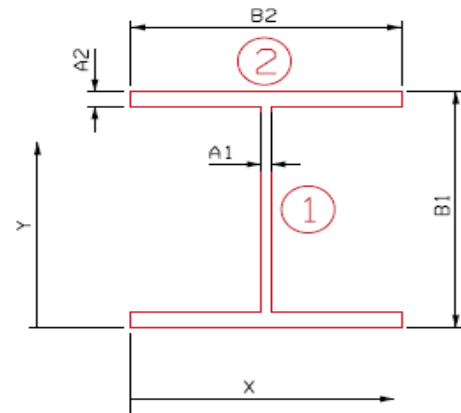
Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Red text indicates user input

Element Dimensions (without Section Losses):

$A_1 = t_w = 0.8150$ in
 $A_2 = t_f = 1.3800$ in
 $B_1 = d = 36.1200$ in
 $B_2 = b_f = 16.5250$ in
36WF250



FB-12 @ COLUMN 112
EAST APPR. FWD SECTION

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I_o	d	Ad^2	$I_{x, gross}$
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		27.1884	18.0600	491.0225	2521.4740	0.0000	0.0000	2521.4740
2	Top Flange		22.8045	35.4300	807.9634	3.6191	17.3700	6880.5030	6884.1221
	Bottom Flange		22.8045	0.6900	15.7351	3.6191	17.3700	6880.5030	6884.1221
Total			72.80		1314.72	2528.71		13761.01	16289.72
Section Losses			A	y	Ay	I_o	d	Ad^2	$I_{x, loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.1250	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar = 18.0600 in	$S_{top} = 901.98$ in ³			y-bar = 18.0600 in	$S_{top} = 901.98$ in ³		
$I_x = 16289.72$ in ⁴	$S_{bott.} = 901.98$ in ³			$I_x = 16289.72$ in ⁴	$S_{bott.} = 901.98$ in ³		
$C_{top} = 18.0600$ in	A = 72.7974 in ²			$C_{top} = 18.0600$ in	A = 72.7974 in ²		
$C_{bottom} = 18.0600$ in	$r_x = 14.9589$ in			$C_{bottom} = 18.0600$ in	$r_x = 14.9589$ in		
	Z = 1018.98 in ³				Z = warning in ³		

EAST APPROACH - FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/20/2012
Date 4/13/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Floorbeam Capacities

Non-composite Capacities*		
	AB	AI
M	2480.44 k-ft	2480.44 k-ft
V	520.39 k	520.39 k

$F_y =$ **33.00 ksi**

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

*Noncompact Section

As-Built Moments and Shears						
	DL	HS20	2F1	3F1	4F1	5C1
M	243.70 k-ft	386.49 k-ft	168.30 k-ft	255.83 k-ft	298.17 k-ft	345.11 k-ft
V	85.92 k	65.63 k	28.60 k	43.46 k	50.65 k	58.61 k

As-Built Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	2.58	---	---	---	---
Operating M	4.31	9.89	6.51	5.58	4.82
As-Inspected Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	2.58	---	---	---	---
Operating M	4.31	9.89	6.51	5.58	4.82
As-Built Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	2.87	---	---	---	---
Operating V	4.79	10.99	7.23	6.21	5.36
As-Inspected Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	2.87	---	---	---	---
Operating V	4.79	10.99	7.23	6.21	5.36

Controlling Rating Factors and Tonnage						
	HS20 Inventory	HS20 Operating	2F1 Operating	3F1 Operating	4F1 Operating	5C1 Operating
Rating Factor	2.58	4.31	9.89	6.51	5.58	4.82
Tonnage (US Tons)	92.88	155.16	148.35	149.73	150.66	192.8

EAST APPROACH - FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/20/2012
Date 4/13/2012

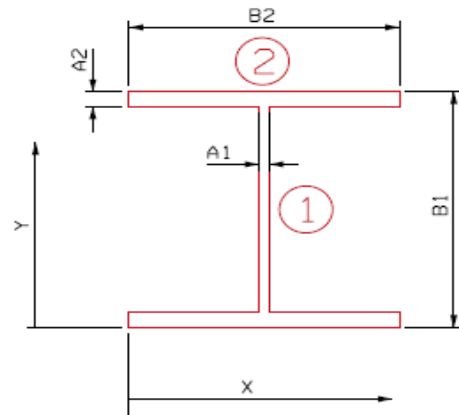
Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Red text indicates user input

Element Dimensions (without Section Losses):

$A_1 = t_w = 0.8150$ in
 $A_2 = t_f = 1.3800$ in
 $B_1 = d = 36.1200$ in
 $B_2 = b_f = 16.5250$ in
36WF250



**FB-12 @ Between 412 & 312
EAST APPR. FWD SECTION**

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I _o	d	Ad ²	I _{x,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		27.1884	18.0600	491.0225	2521.4740	0.0000	0.0000	2521.4740
2	Top Flange		22.8045	35.4300	807.9634	3.6191	17.3700	6880.5030	6884.1221
	Bottom Flange		22.8045	0.6900	15.7351	3.6191	17.3700	6880.5030	6884.1221
Total			72.80		1314.72	2528.71		13761.01	16289.72
Section Losses			A	y	Ay	I _o	d	Ad ²	I _{x,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar = 18.0600 in	S _{top} = 901.98 in ³			y-bar = 18.0600 in	S _{top} = 901.98 in ³		
I _x = 16289.72 in ⁴	S _{bott.} = 901.98 in ³			I _x = 16289.72 in ⁴	S _{bott.} = 901.98 in ³		
C _{top} = 18.0600 in	A = 72.7974 in ²			C _{top} = 18.0600 in	A = 72.7974 in ²		
C _{bottom} = 18.0600 in	r _x = 14.9589 in			C _{bottom} = 18.0600 in	r _x = 14.9589 in		
	Z = 1018.98 in ³				Z = 1018.98 in ³		

EAST APPROACH - FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/20/2012
Date 4/13/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Floorbeam Capacities

Non-composite Capacities*		
	AB	AI
M	2802.20 k-ft	2802.20 k-ft
V	520.39 k	520.39 k

*Compact Section

$F_y =$	33.00 ksi
---------	------------------

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

As-Built Moments and Shears						
	DL	HS20	2F1	3F1	4F1	5C1
M	308.03 k-ft	862.27 k-ft	375.70 k-ft	570.95 k-ft	665.38 k-ft	770.03 k-ft
V	3.64 k	44.57 k	19.42 k	29.51 k	34.39 k	39.80 k

As-Built Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.28	---	---	---	---
Operating M	2.14	4.92	3.24	2.78	2.4
As-Inspected Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.28	---	---	---	---
Operating M	2.14	4.92	3.24	2.78	2.4
As-Built Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	5.33	---	---	---	---
Operating V	8.9	20.43	13.44	11.53	9.97
As-Inspected Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	5.33	---	---	---	---
Operating V	8.9	20.43	13.44	11.53	9.97

Controlling Rating Factors and Tonnage						
	HS20 Inventory	HS20 Operating	2F1 Operating	3F1 Operating	4F1 Operating	5C1 Operating
Rating Factor	1.28	2.14	4.92	3.24	2.78	2.4
Tonnage (US Tons)	46.08	77.04	73.8	74.52	75.06	96

EAST APPROACH - FORWARD SECTION



Made By FKL
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Date 3/20/2012
Date 4/13/2012

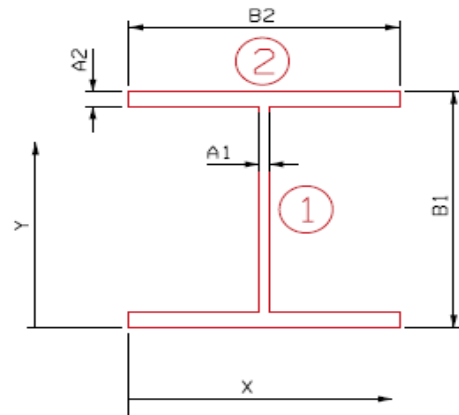
Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Red text indicates user input

Element Dimensions (without Section Losses):

$A_1 = t_w = 0.8150$ in
 $A_2 = t_f = 1.3800$ in
 $B_1 = d = 36.1200$ in
 $B_2 = b_f = 16.5250$ in
36WF250



**FB-12 @ Between 312 & 212
EAST APPR. FWD SECTION**

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I _o	d	Ad ²	I _{x,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		27.1884	18.0600	491.0225	2521.4740	0.0000	0.0000	2521.4740
2	Top Flange		22.8045	35.4300	807.9634	3.6191	17.3700	6880.5030	6884.1221
	Bottom Flange		22.8045	0.6900	15.7351	3.6191	17.3700	6880.5030	6884.1221
Total			72.80		1314.72	2528.71		13761.01	16289.72
Section Losses			A	y	Ay	I _o	d	Ad ²	I _{x,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	18.0600	in	S _{top} = 901.98 in ³	y-bar =	18.0600	in	S _{top} = 901.98 in ³
I _x =	16289.72	in ⁴	S _{bott.} = 901.98 in ³	I _x =	16289.72	in ⁴	S _{bott.} = 901.98 in ³
C _{top} =	18.0600	in	A = 72.7974 in ²	C _{top} =	18.0600	in	A = 72.7974 in ²
C _{bottom} =	18.0600	in	r _x = 14.9589 in	C _{bottom} =	18.0600	in	r _x = 14.9589 in
			Z = 1018.98 in ³				Z = 1018.98 in ³

EAST APPROACH - FORWARD SECTION



Made By FKL
 Checked By PJP

Date 3/20/2012
 Date 4/13/2012

Job No. P402110046
 Sheet No. _____

Calculations For: **CUY-2-1441**

Floorbeam Capacities

Non-composite Capacities*		
	AB	AI
M	2802.20 k-ft	2802.20 k-ft
V	520.39 k	520.39 k

F_y = 33.00 ksi

AB = As-Built
 AI = As-Inspected
 M = Moment
 V = Shear

*Compact Section

As-Built Moments and Shears						
	DL	HS20	2F1	3F1	4F1	5C1
M	556.20 k-ft	765.23 k-ft	333.42 k-ft	506.70 k-ft	590.50 k-ft	683.37 k-ft
V	0.92 k	46.96 k	20.46 k	31.09 k	36.24 k	41.94 k

As-Built Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.25	---	---	---	---
Operating M	2.09	4.8	3.16	2.71	2.34
As-Inspected Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.25	---	---	---	---
Operating M	2.09	4.8	3.16	2.71	2.34
As-Built Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	5.09	---	---	---	---
Operating V	8.5	19.52	12.84	11.02	9.52
As-Inspected Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	5.09	---	---	---	---
Operating V	8.5	19.52	12.84	11.02	9.52

Controlling Rating Factors and Tonnage						
	HS20 Inventory	HS20 Operating	2F1 Operating	3F1 Operating	4F1 Operating	5C1 Operating
Rating Factor	1.25	2.09	4.8	3.16	2.71	2.34
Tonnage (US Tons)	45	75.24	72	72.68	73.17	93.6

EAST APPROACH - FORWARD SECTION



Made By FKL
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Date 3/20/2012
Date 4/13/2012

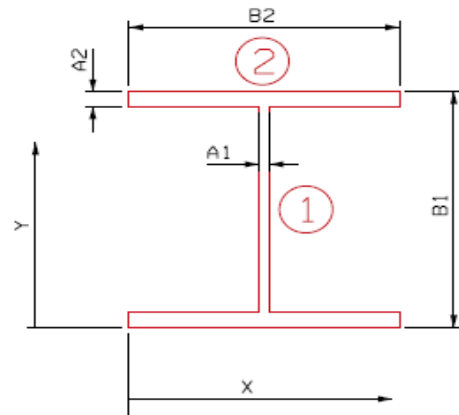
Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Red text indicates user input

Element Dimensions (without Section Losses):

$A_1 = t_w = 0.8150$ in
 $A_2 = t_f = 1.3800$ in
 $B_1 = d = 36.1200$ in
 $B_2 = b_f = 16.5250$ in
36WF250



FB-12 @ Between 212 & 112
EAST APPR. FWD SECTION

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I _o	d	Ad ²	I _{x,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		27.1884	18.0600	491.0225	2521.4740	0.0000	0.0000	2521.4740
2	Top Flange		22.8045	35.4300	807.9634	3.6191	17.3700	6880.5030	6884.1221
	Bottom Flange		22.8045	0.6900	15.7351	3.6191	17.3700	6880.5030	6884.1221
Total			72.80		1314.72	2528.71		13761.01	16289.72
Section Losses			A	y	Ay	I _o	d	Ad ²	I _{x,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties							
y-bar =	18.0600	in	S _{top} =	901.98	in ³	y-bar =	18.0600	in	S _{top} =	901.98	in ³
I _x =	16289.72	in ⁴	S _{bott.} =	901.98	in ³	I _x =	16289.72	in ⁴	S _{bott.} =	901.98	in ³
C _{top} =	18.0600	in	A =	72.7974	in ²	C _{top} =	18.0600	in	A =	72.7974	in ²
C _{bottom} =	18.0600	in	r _x =	14.9589	in	C _{bottom} =	18.0600	in	r _x =	14.9589	in
			Z =	1018.98	in ³				Z =	1018.98	in ³

EAST APPROACH - FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/20/2012
Date 4/13/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Floorbeam Capacities

Non-composite Capacities*		
	AB	AI
M	2802.20 k-ft	2802.20 k-ft
V	520.39 k	520.39 k

*Compact Section

$F_y =$	33.00 ksi
---------	------------------

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

As-Built Moments and Shears						
	DL	HS20	2F1	3F1	4F1	5C1
M	457.21 k-ft	813.50 k-ft	354.45 k-ft	538.66 k-ft	627.74 k-ft	726.48 k-ft
V	3.35 k	39.71 k	17.30 k	26.29 k	30.64 k	35.46 k

As-Built Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.25	---	---	---	---
Operating M	2.09	4.79	3.15	2.71	2.34
As-Inspected Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.25	---	---	---	---
Operating M	2.09	4.79	3.15	2.71	2.34
As-Built Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	5.99	---	---	---	---
Operating V	10	22.94	15.1	12.95	11.19
As-Inspected Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	5.99	---	---	---	---
Operating V	10	22.94	15.1	12.95	11.19

Controlling Rating Factors and Tonnage						
	HS20 Inventory	HS20 Operating	2F1 Operating	3F1 Operating	4F1 Operating	5C1 Operating
Rating Factor	1.25	2.09	4.79	3.15	2.71	2.34
Tonnage (US Tons)	45	75.24	71.85	72.45	73.17	93.6

CUY-2-1441 Load Rating Analysis - As-Built
Main Ave Bridge
East Approach Fwd Section - Bent 12

Column: C412

<u>Section Properties</u>		14WF95 & New reinforcing Plates	
A =	39.940 in ²	I _x =	1704.733 in ⁴
h =	15.120 in	S _x =	225.494 in ³
b _f =	14.545 in	r _x =	6.533 in
t _f =	1.248 in	I _y =	527.700 in ⁴
t _w =	0.465 in	S _y =	72.561 in ³
		r _y =	3.635 in

E =	29000	ksi
L _{cx} =	146.40	in
L _{cy} =	146.40	in
K _x =	0.650	AASHTO Appendix C
K _y =	0.650	AASHTO Appendix C

Axial Loading

$$P_u = 0.85 A_s F_{cr}$$

AASHTO 10.54 Concentrically Loaded Columns

$$F_{cr} = F_y \left(1 - \frac{F_y}{4\pi^2 E} \left(\frac{KL_c}{r} \right)^2 \right) \quad \text{For: } \frac{KL_c}{r} \leq \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$F_{cr} = \frac{\pi^2 E}{\left(\frac{KL_c}{r} \right)^2} \quad \text{For: } \frac{KL_c}{r} > \sqrt{\frac{2\pi^2 E}{F_y}}$$

KL/r_y = 26.180
 KL/r_x = 14.566

Combined Capacity of Elements

$$P_u = 1127.5 \text{ k} \quad (P_{wf} + P_{pl})$$

Axial Loading and Bending

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_c} \right)} \leq 1.0$$

AASHTO 10.54.2 Combined Axial Load and Bending

= 0.6 + 0.4

a = 0 **When moment is small assume a = 0
 C = 0.600

$$F_e = \frac{E\pi^2}{\left(\frac{KL_c}{r} \right)^2} \quad \begin{matrix} F_{ex} = 1349.079 \text{ ksi} \\ F_{ey} = 417.607 \text{ ksi} \end{matrix}$$

Column Moment Capacity

Weak Axis Bending

M_u = F_yS_y

$$M_{uy} = 0.0 \text{ k-ft}$$

CUY-2-1441 Load Rating Analysis - As-Built
Main Ave Bridge
East Approach Fwd Section - Bent 12

Column: C412

Section Properties		14WF95 ONLY	
A =	27.940 in ²	I _x =	1063.500 in ⁴
h =	14.120 in	S _x =	150.600 in ³
b _f =	14.545 in	r _x =	6.170 in
t _f =	0.748 in	I _y =	383.700 in ⁴
t _w =	0.465 in	S _y =	52.800 in ³
		r _y =	3.710 in
F _y =	33.0 ksi	Z	164 in ³
E =	29000 ksi		
L _{cx} =	146.40 in		
L _{cy} =	146.40 in		
K _x =	0.650 AASHTO Appendix C		
K _y =	0.650 AASHTO Appendix C		

Axial Loading

$$P_u = 0.85 A_s F_{cr}$$

AASHTO 10.54 Centrally Loaded Columns

$$F_{cr} = F_y \left(1 - \frac{F_y}{4\pi^2 E} \left(\frac{KL_c}{r} \right)^2 \right) \quad \text{For: } \frac{KL_c}{r} \leq \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$F_{cr} = \frac{\pi^2 E}{\left(\frac{KL_c}{r} \right)^2} \quad \text{For: } \frac{KL_c}{r} > \sqrt{\frac{2\pi^2 E}{F_y}}$$

KL/r_y = 26.180 < 131.706
 KL/r_x = 14.566 < 131.706

F_{CR} = 32.348 ksi

P_{wf} = 768.2 k

CUY-2-1441 Load Rating Analysis - As-Built
Main Ave Bridge
East Approach Fwd Section - Bent 12

Column: C412

<u>Section Properties</u>		2-1/2"x12" Plates ONLY (about centroid)	
A =	12.000 in ²	I _x =	641.233 in ⁴
h =	15.120 in	S _x =	84.819 in ³
b _f =	12.000 in	r _x =	7.310 in
t _f =	0.500 in	I _y =	144.000 in ⁴
t _w =	0.000 in	S _y =	24 in ³
		r _y =	3.464 in
F _{yb} =	33.0 ksi	F _{yb} limited by strain compatibility	
E =	29000 ksi	F _a =	36.0 ksi
L _{cx} =	146.40 in		
L _{cy} =	146.40 in		
K _x =	0.650	AASHTO Appendix C	
K _y =	0.650	AASHTO Appendix C	

Axial Loading

$$P_u = 0.85 A_s F_{cr}$$

AASHTO 10.54 Centrically Loaded Columns

$$F_{cr} = F_y \left(1 - \frac{F_y}{4\pi^2 E} \left(\frac{KL_c}{r} \right)^2 \right) \quad \text{For: } \frac{KL_c}{r} \leq \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$F_{cr} = \frac{\pi^2 E}{\left(\frac{KL_c}{r} \right)^2} \quad \text{For: } \frac{KL_c}{r} > \sqrt{\frac{2\pi^2 E}{F_y}}$$

KL/r_y = 26.180 < 126.099
 KL/r_x = 14.566 < 126.099

F_{CR} = 35.224 ksi

P_{pl} = 359.3 k

CUY-2-1441 Load Rating Analysis - As-Built

Main Ave Bridge

East Approach Forward Section - Column 412 Ratings



Calculated
Checked:

FKL
PJP

3/30/2012
4/12/2012

Column Loading

	DL	HS-20	2F1	3F1	4F1	5C1
Max Axial	232.51	205.485	89.53	136.06	158.56	183.50
Moment	2.41	7.34	3.20	4.86	5.67	6.55
Axial	230.95	105.22	45.85	69.67	81.20	93.96
Max Moment	5.65	73.31	32.02	48.62	56.63	65.50

DL Factor 1.30
LL Factor 2.17 INV
1.30 OPER

Factored Loads				Capacities		
Axial Force		Moment		P _u	M _u	A _s F _{ev}
Dead Load	Max. LL + I	Dead Load	Max LL + I			

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_c}\right)} \leq 1.0$$

Load Case	Member	kips	kips	k-ft	k-ft	kips	k-ft	kips	Condition Equation	RF
HS20 INV	C412	302.263	445.22	3.13	15.90	1127.50	0.00	16679.23	#DIV/0!	1.62
HS20 INV	C412	300.235	227.98	7.35	158.84	1127.50	0.00	16679.23	#DIV/0!	1.02
HS20 OPR	C412	302.263	267.13	3.13	9.54	1127.50	0.00	16679.23	#DIV/0!	2.70
HS20 OPR	C412	300.235	136.79	7.35	95.30	1127.50	0.00	16679.23	#DIV/0!	1.70
2F1	C412	302.263	116.39	3.13	4.16	1127.50	0.00	16679.23	#DIV/0!	6.19
2F1	C412	300.235	59.61	7.35	41.63	1127.50	0.00	16679.23	#DIV/0!	3.90
3F1	C412	302.263	176.88	3.13	6.32	1127.50	0.00	16679.23	#DIV/0!	4.08
3F1	C412	300.235	90.57	7.35	63.21	1127.50	0.00	16679.23	#DIV/0!	2.57
4F1	C412	302.263	206.13	3.13	7.37	1127.50	0.00	16679.23	#DIV/0!	3.50
4F1	C412	300.235	105.56	7.35	73.62	1127.50	0.00	16679.23	#DIV/0!	2.21
5C1	C412	302.263	238.55	3.13	8.52	1127.50	0.00	16679.23	#DIV/0!	3.02
5C1	C412	300.235	122.15	7.35	85.15	1127.50	0.00	16679.23	#DIV/0!	1.91

Load Case	Controlling RF
HS20 INV	1.62
HS20 OPR	1.70
2F1	3.90
3F1	2.57
4F1	2.21
5C1	1.91

CUY-2-1441 Load Rating Analysis - As-Built
Main Ave Bridge
East Approach Fwd Section - Bent 12 **Column: C312**
Section Properties 14WF111 & New reinforcing Plates

A =	50.650	in ²	I _x =	2295.265	in ⁴
h =	15.870	in	S _x =	289.258	in ³
b _f =	14.620	in	r _x =	6.732	in
t _f =	1.623	in	I _y =	670.900	in ⁴
t _w =	0.540	in	S _y =	91.778	in ³
			r _y =	3.639	in
F _y =	33.0	ksi	Z	157.8	in ³
E =	29000	ksi			
L _{cx} =	168.84	in			
L _{cy} =	168.84	in			
K _x =	0.650	AASHTO Appendix C			
K _y =	0.650	AASHTO Appendix C			

Axial Loading

$$P_u = 0.85 A_s F_{cr}$$

AASHTO 10.54 Centrally Loaded Columns

$$F_{cr} = F_y \left(1 - \frac{F_y}{4\pi^2 E} \left(\frac{KL_c}{r} \right)^2 \right) \quad \text{For: } \frac{KL_c}{r} \leq \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$F_{cr} = \frac{\pi^2 E}{\left(\frac{KL_c}{r} \right)^2} \quad \text{For: } \frac{KL_c}{r} > \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$KL/r_y = 30.154$$

$$KL/r_x = 16.303$$

Combined Capacity of Elements

$$P_u = 1426.9 \text{ k} \quad (P_{wf} + P_{pl})$$

Axial Loading and Bending

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_e} \right)} \leq 1.0$$

AASHTO 10.54.2 Combined Axial Load and Bending

$$= 0.6 + 0.4$$

$$a = 0 \quad \text{**When moment is small assume } a = 0$$

$$C = 0.600$$

$$F_e = \frac{E\pi^2}{\left(\frac{KL_c}{r} \right)^2} \quad F_{ex} = 1076.896 \text{ ksi}$$

$$F_{ey} = 314.774 \text{ ksi}$$

Column Moment Capacity

Strong Axis Bending

 $M_u = F_y S_x$ For Non-Compact Section
 Holes in tension flange limit capacity to Elastic

$$M_{ux} = 867.8 \text{ k-ft}$$

CUY-2-1441 Load Rating Analysis - As-Built
 Main Ave Bridge

East Approach Fwd Section - Bent 12 Column: C312

Section Properties	14WF111	ONLY		
A =	32.650	in ²	I _x =	1266.500 in ⁴
h =	14.370	in	S _x =	176.300 in ³
b _f =	14.620	in	r _x =	6.230 in
t _f =	0.873	in	I _y =	454.900 in ⁴
t _w =	0.540	in	S _y =	62.200 in ³
			r _y =	3.730 in
F _y =	33.0	ksi		
E =	29000	ksi		
L _{cx} =	168.84	in		
L _{cy} =	168.84	in		
K _x =	0.650	AASHTO Appendix C		
K _y =	0.650	AASHTO Appendix C		

Axial Loading

$P_u = 0.85 A_s F_{cr}$

AASHTO 10.54 Centrally Loaded Columns

$$F_{cr} = F_y \left(1 - \frac{F_y}{4\pi^2 E} \left(\frac{KL_c}{r} \right)^2 \right)$$

For:

$$\frac{KL_c}{r} \leq \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$F_{cr} = \frac{\pi^2 E}{\left(\frac{KL_c}{r} \right)^2}$$

For:

$$\frac{KL_c}{r} > \sqrt{\frac{2\pi^2 E}{F_y}}$$

KL/r _y =	30.154	<	131.706
KL/r _x =	16.303	<	131.706

F_{CR} = 32.135 ksi

P_{wf} = 891.8 k

CUY-2-1441 Load Rating Analysis - As-Built
Main Ave Bridge

East Approach Fwd Section - Bent 12 Column: C312

Section Properties 2-3/4"x12" Plates ONLY

A =	18.000	in ²	I _x =	1028.765	in ⁴
h =	15.870	in	S _x =	129.649	in ³
b _f =	12.000	in	r _x =	7.560	in
t _f =	0.750	in	I _y =	216.000	in ⁴
t _w =	0.000	in	S _y =	36	in ³
			r _y =	3.464	in
F _y =	36.000	ksi	36.4	ksi	
E =	29000	ksi			
L _{cx} =	168.84	in			
L _{cy} =	168.84	in			
K _x =	0.650	AASHTO Appendix C			
K _y =	0.650	AASHTO Appendix C			

Axial Loading

$P_u = 0.85 A_s F_{cr}$

AASHTO 10.54 Centrally Loaded Columns

$$F_{cr} = F_y \left(1 - \frac{F_y}{4\pi^2 E} \left(\frac{KL_c}{r} \right)^2 \right)$$

For:

$$\frac{KL_c}{r} \leq \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$F_{cr} = \frac{\pi^2 E}{\left(\frac{KL_c}{r} \right)^2}$$

For:

$$\frac{KL_c}{r} > \sqrt{\frac{2\pi^2 E}{F_y}}$$

KL/r _y =	30.154	<	126.099
KL/r _x =	16.303	<	126.099

F_{CR} = 34.971 ksi

P_{pl} = 535.1 k

CUY-2-1441 Load Rating Analysis - As-Built

Main Ave Bridge

East Approach Forward Section - Column 312 Ratings



Calculated:

FKL 3/30/2012

Checked:

PJP 4/12/2012

Column Loading

	DL	HS-20	2F1	3F1	4F1	5C1
Max Axial	278.54	247.67	107.91	164.00	191.12	221.18
Moment	14.65	2.15	0.93	1.42	1.65	1.92
Axial	276.21	111.355	35.02	53.21	62.02	71.77
Max Moment	31.04	127.23	57.08	86.72	101.05	116.93

DL Factor
LL Factor

1.30
2.17 INV
1.30 OPER

Factored Loads				Capacities		
Axial Force		Moment		P _u	M _u	A _s F _{ex}
Dead Load	Max. LL + I	Dead Load	Max LL + I			

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_x}\right)} \leq 1.0$$

Load Case	Member	Dead Load kips	Max. LL + I kips	Dead Load k-ft	Max LL + I k-ft	P _u kips	M _u k-ft	A _s F _{ex} kips	Condition Equation	RF
HS20 INV	C312	362.102	536.62	19.05	4.66	1426.90	867.77	54544.77	1.00	1.93
HS20 INV	C312	359.073	241.27	40.35	275.67	1426.90	867.77	54544.77	1.00	1.99
HS20 OPR	C312	362.102	321.97	19.05	2.80	1426.90	867.77	54544.77	1.00	3.22
HS20 OPR	C312	359.073	144.76	40.35	165.40	1426.90	867.77	54544.77	1.00	3.31
2F1	C312	362.102	140.28	19.05	1.21	1426.90	867.77	54544.77	1.00	7.39
2F1	C312	359.073	45.53	40.35	74.20	1426.90	867.77	54544.77	1.00	8.58
3F1	C312	362.102	213.20	19.05	1.85	1426.90	867.77	54544.77	1.00	4.86
3F1	C312	359.073	69.17	40.35	112.74	1426.90	867.77	54544.77	1.00	5.65
4F1	C312	362.102	248.46	19.05	2.15	1426.90	867.77	54544.77	1.00	4.17
4F1	C312	359.073	80.63	40.35	131.37	1426.90	867.77	54544.77	1.00	4.85
5C1	C312	362.102	287.53	19.05	2.50	1426.90	867.77	54544.77	1.00	3.60
5C1	C312	359.073	93.30	40.35	152.01	1426.90	867.77	54544.77	1.00	4.19

Load Case	Controlling RF
HS20 INV	1.93
HS20 OPER	3.22
2F1	7.39
3F1	4.86
4F1	4.17
5C1	3.60

CUY-2-1441 Load Rating Analysis - As-Built
Main Ave Bridge
East Approach Fwd Section - Bent 12

Column: C212

Section Properties 14WF111 & New reinforcing Plates

A = 50.650 in ²	I _x = 2295.265 in ⁴
h = 15.870 in	S _x = 289.258 in ³
b _f = 14.620 in	r _x = 6.732 in
t _f = 1.623 in	I _y = 670.900 in ⁴
t _w = 0.540 in	S _y = 91.778 in ³
	r _y = 3.639 in
E = 29000 ksi	
L _{cx} = 195.84 in	
L _{cy} = 195.84 in	
K _x = 0.650	AASHTO Appendix C
K _y = 0.650	AASHTO Appendix C

Axial Loading

$$P_u = 0.85 A_s F_{cr}$$

AASHTO 10.54 Concentrically Loaded Columns

$$F_{cr} = F_y \left(1 - \frac{F_y}{4\pi^2 E} \left(\frac{KL_c}{r} \right)^2 \right) \quad \text{For: } \frac{KL_c}{r} \leq \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$F_{cr} = \frac{\pi^2 E}{\left(\frac{KL_c}{r} \right)^2} \quad \text{For: } \frac{KL_c}{r} > \sqrt{\frac{2\pi^2 E}{F_y}}$$

KL/r_y = 34.976
 KL/r_x = 18.910

$$P_u = 1413.1 \text{ k}$$

Axial Loading and Bending

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_c} \right)} \leq 1.0$$

AASHTO 10.54.2 Combined Axial Load and Bending

= 0.6 + 0.4

a = 0 **When moment is small assume a = 0
 C = 0.600

$$F_e = \frac{E\pi^2}{\left(\frac{KL_c}{r} \right)^2} \quad \begin{matrix} F_{ex} = 800.427 \text{ ksi} \\ F_{ey} = 233.963 \text{ ksi} \end{matrix}$$

Column Moment Capacity

Strong Axis Bending

M_u = F_yS_x For Non-Compact Section

$$M_{ux} = 867.8 \text{ k-ft}$$

CUY-2-1441 Load Rating Analysis - As-Built
Main Ave Bridge
East Approach Fwd Section - Bent 12

Column: C212

<u>Section Properties</u>	14WF111	ONLY		
A =	32.650	in ²	I _x =	1266.500 in ⁴
h =	14.370	in	S _x =	176.300 in ³
b _f =	14.620	in	r _x =	6.230 in
t _f =	0.873	in	I _y =	454.900 in ⁴
t _w =	0.540	in	S _y =	62.200 in ³
			r _y =	3.730 in
F _y =	33.0	ksi	Z	193.8 in ³
E =	29000	ksi		
L _{cx} =	195.84	in		
L _{cy} =	195.84	in		
K _x =	0.650	AASHTO Appendix C		
K _y =	0.650	AASHTO Appendix C		

Axial Loading

$$P_u = 0.85 A_s F_{cr}$$

AASHTO 10.54 Concentrically Loaded Columns

$$F_{cr} = F_y \left(1 - \frac{F_y}{4\pi^2 E} \left(\frac{KL_c}{r} \right)^2 \right) \quad \text{For: } \frac{KL_c}{r} \leq \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$F_{cr} = \frac{\pi^2 E}{\left(\frac{KL_c}{r} \right)^2} \quad \text{For: } \frac{KL_c}{r} > \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$KL/r_y = 34.976 < 131.706$$

$$KL/r_x = 18.910 < 131.706$$

$$F_{CR} = 31.836 \text{ ksi}$$

$$P_u = 883.5 \text{ k}$$

CUY-2-1441 Load Rating Analysis - As-Built
Main Ave Bridge

East Approach Fwd Section - Bent 12 **Column: C212**

Section Properties 2-3/4"x12" Plates ONLY

A =	18.000	in ²		I _x =	1028.765	in ⁴
h =	15.870	in		S _x =	129.649	in ³
b _f =	12.000	in		r _x =	7.560	in
t _f =	0.750	in		I _y =	216.000	in ⁴
t _w =	0.000	in		S _y =	36	in ³
				r _y =	3.464	in
F _y =	36.000	ksi	36.4	ksi		
E =	29000	ksi				
L _{cx} =	195.84	in				
L _{cy} =	195.84	in				
K _x =	0.650	AASHTO Appendix C				
K _y =	0.650	AASHTO Appendix C				

Axial Loading

$P_u = 0.85 A_s F_{cr}$

AASHTO 10.54 Concentrically Loaded Columns

$$F_{cr} = F_y \left(1 - \frac{F_y}{4\pi^2 E} \left(\frac{KL_c}{r} \right)^2 \right) \quad \text{For: } \frac{KL_c}{r} \leq \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$F_{cr} = \frac{\pi^2 E}{\left(\frac{KL_c}{r} \right)^2} \quad \text{For: } \frac{KL_c}{r} > \sqrt{\frac{2\pi^2 E}{F_y}}$$

KL/r_y = 34.976 < 126.099
 KL/r_x = 18.910 < 126.099

F_{CR} = 34.615 ksi

P_u = 529.6 k

CUY-2-1441 Load Rating Analysis - As-Built

Main Ave Bridge

East Approach Forward Section - Column 212 Ratings



Calculated:

FKL 3/30/2012

Checked:

PJP 4/12/2012

Column Loading

	DL	HS-20	2F1	3F1	4F1	5C1
Max Axial	293.94	249.24	108.59	165.03	192.33	222.58
Moment	5.44	14.94	6.51	9.90	11.53	8.23
Axial	291.2	149.18	65.00	98.78	115.12	133.22
Max Moment	13.68	117.79	51.40	78.10	91.00	105.22

DL Factor

1.30

LL Factor

2.17 INV

1.30 OPER

Factored Loads

Capacities

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_e}\right)} \leq 1.0$$

Load Case	Member	Axial Force		Moment		P _u	M _u	A _s F _e	Condition Equation	RF
		Dead Load	Max. LL + I	Dead Load	Max LL + I					
HS20 INV	C212	382.122	540.02	7.07	32.37	1413.10	867.77	40541.61	1.00	1.79
HS20 INV	C212	378.56	323.22	17.78	255.21	1413.10	867.77	40541.61	1.00	1.76
HS20 OPR	C212	382.122	324.01	7.07	19.42	1413.10	867.77	40541.61	1.00	2.98
HS20 OPR	C212	378.56	193.93	17.78	153.13	1413.10	867.77	40541.61	1.00	2.93
2F1	C212	382.122	141.17	7.07	8.46	1413.10	867.77	40541.61	1.00	6.84
2F1	C212	378.56	84.50	17.78	66.82	1413.10	867.77	40541.61	1.00	6.72
3F1	C212	382.122	214.54	7.07	12.87	1413.10	867.77	40541.61	1.00	4.50
3F1	C212	378.56	128.41	17.78	101.53	1413.10	867.77	40541.61	1.00	4.42
4F1	C212	382.122	250.03	7.07	14.99	1413.10	867.77	40541.61	1.00	3.86
4F1	C212	378.56	149.66	17.78	118.30	1413.10	867.77	40541.61	1.00	3.79
5C1	C212	382.122	289.35	7.07	10.70	1413.10	867.77	40541.61	1.00	3.41
5C1	C212	378.56	173.19	17.78	136.79	1413.10	867.77	40541.61	1.00	3.28

Load Case	Controlling RF
HS20 INV	1.76
HS20 OPR	2.93
2F1	6.72
3F1	4.42
4F1	3.79
5C1	3.28

CUY-2-1441 Load Rating Analysis - As-Built
Main Ave Bridge
East Approach Fwd Section - Bent 12

Column: C112

<u>Section Properties</u>		14WF95 & New reinforcing Plates	
A =	39.940 in ²	I _x =	1704.733 in ⁴
h =	15.120 in	S _x =	225.494 in ³
b _f =	14.545 in	r _x =	6.533 in
t _f =	1.248 in	I _y =	527.700 in ⁴
t _w =	0.540 in	S _y =	72.561 in ³
		r _y =	3.635 in

E =	29000	ksi
L _{cx} =	217.20	in
L _{cy} =	217.20	in
K _x =	0.650	AASHTO Appendix C
K _y =	0.650	AASHTO Appendix C

Axial Loading

$$P_u = 0.85 A_s F_{cr}$$

AASHTO 10.54 Concentrically Loaded Columns

$$F_{cr} = F_y \left(1 - \frac{F_y}{4\pi^2 E} \left(\frac{KL_c}{r} \right)^2 \right) \quad \text{For: } \frac{KL_c}{r} \leq \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$F_{cr} = \frac{\pi^2 E}{\left(\frac{KL_c}{r} \right)^2} \quad \text{For: } \frac{KL_c}{r} > \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$KL/r_y = 38.840$$

$$KL/r_x = 21.610$$

$$P_u = 1099.4 \text{ k}$$

Axial Loading and Bending

AASHTO 10.54.2 Combined Axial Load and Bending

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_c} \right)} \leq 1.0$$

$$= 0.6 + 0.4$$

a = 0 **When moment is small assume a = 0
 C = 0.600

$$F_c = \frac{E\pi^2}{\left(\frac{KL_c}{r} \right)^2} \quad \begin{matrix} F_{ex} = 612.914 \text{ ksi} \\ F_{ey} = 189.728 \text{ ksi} \end{matrix}$$

Column Moment Capacity

Weak Axis Bending
 M_u = F_y S_y

$$M_{uy} = 199.5 \text{ k-ft}$$

CUY-2-1441 Load Rating Analysis - As-Built
Main Ave Bridge
East Approach Fwd Section - Bent 12

Column: C112

Section Properties		14WF95	ONLY		
A =	27.940	in ²		I _x =	1063.500 in ⁴
h =	14.120	in		S _x =	150.600 in ³
b _f =	14.545	in		r _x =	6.170 in
t _f =	0.748	in		I _y =	383.700 in ⁴
t _w =	0.465	in		S _y =	52.800 in ³
				r _y =	3.710 in
F _y =	33.0	ksi		Z	164 in ³
E =	29000	ksi			
L _{cx} =	217.20	in			
L _{cy} =	217.20	in			
K _x =	0.650	AASHTO Appendix C			
K _y =	0.650	AASHTO Appendix C			

Axial Loading

$$P_u = 0.85 A_s F_{cr}$$

AASHTO 10.54 Centrally Loaded Columns

$$F_{cr} = F_y \left(1 - \frac{F_y}{4\pi^2 E} \left(\frac{KL_c}{r} \right)^2 \right)$$

For: $\frac{KL_c}{r} \leq \sqrt{\frac{2\pi^2 E}{F_y}}$

$$F_{cr} = \frac{\pi^2 E}{\left(\frac{KL_c}{r} \right)^2}$$

For: $\frac{KL_c}{r} > \sqrt{\frac{2\pi^2 E}{F_y}}$

KL/r_y = 38.840 < 131.706

KL/r_x = 21.610 < 131.706

F_{CR} = 31.565 ksi

P_{wf} = 749.6 k

CUY-2-1441 Load Rating Analysis - As-Built
Main Ave Bridge
East Approach Fwd Section - Bent 12

Column: C112

Section Properties 2-1/2"x12" Plates ONLY

A =	12.000	in ²	I _x =	641.233	in ⁴
h =	15.120	in	S _x =	84.819	in ³
b _f =	12.000	in	r _x =	7.310	in
t _f =	0.500	in	I _y =	144.000	in ⁴
t _w =	0.000	in	S _y =	24	in ³
			r _y =	3.464	in
F _{yb} =	33.0	ksi	F _{yb} limited by strain compatibility		
E =	29000	ksi	F _a =	36.0	ksi
L _{cx} =	217.20	in			
L _{cy} =	217.20	in			
K _x =	0.650	AASHTO Appendix C			
K _y =	0.650	AASHTO Appendix C			

Axial Loading

$$P_u = 0.85 A_s F_{cr}$$

AASHTO 10.54 Centrally Loaded Columns

$$F_{cr} = F_y \left(1 - \frac{F_y}{4\pi^2 E} \left(\frac{KL_c}{r} \right)^2 \right)$$

For: $\frac{KL_c}{r} \leq \sqrt{\frac{2\pi^2 E}{F_y}}$

$$F_{cr} = \frac{\pi^2 E}{\left(\frac{KL_c}{r} \right)^2}$$

For: $\frac{KL_c}{r} > \sqrt{\frac{2\pi^2 E}{F_y}}$

KL/r_y = 38.840 < 126.099

KL/r_x = 21.610 < 126.099

F_{CR} = 34.292 ksi

P_{pl} = 349.8 k

CUY-2-1441 Load Rating Analysis - As-Built

Main Ave Bridge

East Approach Forward Section - Column 112 Ratings



Calculated:

FKL

3/30/2012

Checked:

PJP

4/12/2012

Column Loading

	DL	HS-20	2F1	3F1	4F1	5C1
Max Axial	166.59	150.8	65.71	99.86	116.37	134.68
Moment	8.39	32.89	14.43	21.86	25.45	29.41
Axial	164.2	105.62	46.02	69.94	81.51	94.33
Max Moment	16.79	46.94	20.60	31.24	36.37	42.05

DL Factor

1.30

LL Factor

2.17 INV

1.30 OPER

Factored Loads

Capacities

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_e}\right)} \leq 1.0$$

Load Case	Member	Axial Force		Moment		P _u	M _u	A _s F _{ey}	Condition Equation	RF
		Dead Load	Max. LL + I	Dead Load	Max LL + I					
HS20 INV	C112	216.567	326.73	10.91	71.26	1099.40	199.54	7577.72	1.00	1.44
HS20 INV	C112	213.46	228.84	21.83	101.70	1099.40	199.54	7577.72	1.00	1.37
HS20 OPR	C112	216.567	196.04	10.91	42.76	1099.40	199.54	7577.72	1.00	2.40
HS20 OPR	C112	213.46	137.31	21.83	61.02	1099.40	199.54	7577.72	1.00	2.28
2F1	C112	216.567	85.42	10.91	18.76	1099.40	199.54	7577.72	1.00	5.49
2F1	C112	213.46	59.83	21.83	26.78	1099.40	199.54	7577.72	1.00	5.22
3F1	C112	216.567	129.82	10.91	28.42	1099.40	199.54	7577.72	1.00	3.62
3F1	C112	213.46	90.92	21.83	40.61	1099.40	199.54	7577.72	1.00	3.44
4F1	C112	216.567	151.28	10.91	33.09	1099.40	199.54	7577.72	1.00	3.11
4F1	C112	213.46	105.96	21.83	47.28	1099.40	199.54	7577.72	1.00	2.95
5C1	C112	216.567	175.08	10.91	38.23	1099.40	199.54	7577.72	1.00	2.69
5C1	C112	213.46	122.63	21.83	54.67	1099.40	199.54	7577.72	1.00	2.55

Load Case	Controlling RF
HS20 INV	1.37
HS20 OPER	2.28
2F1	5.22
3F1	3.44
4F1	2.95
5C1	2.55



Made By PJP
 Checked By MTN

Date 3/31/2012
 Date 4/10/2012

Job No. P402110046
 Sheet No. _____

Calculations For: **CUY-2-1441 - East Approach Forward Section**

Bent 13 Reactions

Dead Load Reactions from MDX

Unit 9		
Stringer	DL1	DL2
F1-9	4.18	0.36
S1-9	3.87	0.36
S2-9	3.94	0.36
S3-9	4.23	0.36
S4-9	4.23	0.36
S5-9	4.23	0.36
S6-9	4.23	0.36
S7-9	4.22	0.36
S8-9	4.23	0.36
S9-9	4.23	0.36
S10-9	4.23	0.36
S11-9	4.23	0.36
S12-9	4.23	0.36
S13-9	4.23	0.36
S14-9	4.11	0.36
S15-9	4.00	0.36
S16-9	4.66	0.36
S17-9	5.33	0.36
S18-9	5.33	0.36
S19-9	5.33	0.36
S20-9	5.56	0.37
S21-9	5.56	0.37
S22-9	5.38	0.37
F2-9	4.40	0.37

Unit 10		
Stringer	DL1	DL2
F1-10	8.95	0.96
S1-10	9.39	0.96
S2-10	9.56	0.96
S3-10	10.32	0.96
S4-10	10.32	0.96
S5-10	10.32	0.96
S6-10	10.32	0.96
S7-10	10.32	0.96
S8-10	10.27	0.95
S9-10	10.06	0.93
S10-10	9.84	0.91
S11-10	9.46	0.89
S12-10	9.26	0.87
S13-10	9.05	0.86
S14-10	8.54	0.84
S15-10	8.43	0.82
S16-10	8.88	0.80
S17-10	9.18	0.77
S18-10	8.33	0.72
S19-10	7.86	0.68
S20-10	7.29	0.64
S21-10	6.75	0.60
S22-10	6.25	0.56
F2-10	5.08	0.52

Bent 13 Reaction	
Stringer	Total DL
F1-9 + F1-10	14.45
S1-9 + S1-10	14.58
S2-9 + S2-10	14.82
S3-9 + S3-10	15.87
S4-9 + S4-10	15.87
S5-9 + S5-10	15.87
S6-9 + S6-10	15.87
S7-9 + S7-10	15.86
S8-9 + S8-10	15.81
S9-9 + S9-10	15.58
S10-9 + S10-10	15.34
S11-9 + S11-10	14.94
S12-9 + S12-10	14.72
S13-9 + S13-10	14.50
S14-9 + S14-10	13.85
S15-9 + S15-10	13.61
S16-9 + S16-10	14.70
S17-9 + S17-10	15.64
S18-9 + S18-10	14.74
S19-9 + S19-10	14.23
S20-9 + S20-10	13.86
S21-9 + S21-10	13.28
S22-9 + S22-10	12.56
F2-9 + F2-10	10.37

Live Load Reactions from STAAD

	LL	Ratio to HS-20	LL+I	3 LANE	4+ Lanes
HS-20	27.31	1.000000	35.6	32.0	26.7
2F1	13.51	0.494691	17.6		
3F1	19.95	0.730502	26.0		
4F1	22.63	0.828634	29.5		
5C1	19.36	0.708898	25.2		
Fatigue	20.48	0.750000	23.6		

Reactions per wheel line at Bent 13

Impact Factor

Span 13 31.505
 Span 14 33.65
 L_{avg} 32.58

Impact = 1.300
 I_{fat} = 1.150

Mult Presence Factors

3 Lane 0.9
 4 or more 0.75


```
*****
*
*          STAAD.Pro V8i SELECTseries1          *
*          Version  20.07.06.35                  *
*          Proprietary Program of                *
*          Bentley Systems, Inc.                 *
*          Date=    APR 10, 2012                 *
*          Time=    18:38:35                     *
*
*          USER ID: TranSystems                  *
*****
```

```
1. STAAD SPACE
INPUT FILE: Bent 13 Truck LoadsWB.STD
2. START JOB INFORMATION
3. ENGINEER DATE 3/31/12
4. JOB NAME CUY-2-1441 EAST APPROACH FWD SECTION
5. JOB CLIENT ODOT
6. JOB NO P402110046
7. JOB REF BENT 13 TRUCK LOADS WB LANES
8. ENGINEER NAME PJP
9. JOB PART EAST APPROACH FWD SECTION
10. CHECKER NAME MTN
11. CHECKER DATE 4/10/12
12. END JOB INFORMATION
13. INPUT WIDTH 79
14. UNIT FEET KIP
15. JOINT COORDINATES
16. 11 -87.505 0 1; 12 -31.505 0 1; 13 0 0 1; 14 0 -0.1 1; 15 33.65 0 1
17. 21 -87.505 0 2; 22 -31.505 0 2; 23 0 0 2; 24 0 -0.1 2; 25 33.65 0 2
18. 31 -87.505 0 3; 32 -31.505 0 3; 33 0 0 3; 34 0 -0.1 3; 35 33.65 0 3
19. 41 -87.505 0 4; 42 -31.505 0 4; 43 0 0 4; 44 0 -0.1 4; 45 33.65 0 4
20. 51 -87.505 0 5; 52 -31.505 0 5; 53 0 0 5; 54 0 -0.1 5; 55 33.65 0 5
21. MEMBER INCIDENCES
22. 11 11 12; 12 12 13; 13 13 14; 14 13 15; 21 21 22; 22 22 23; 23 23 24; 24 23 25
23. 31 31 32; 32 32 33; 33 33 34; 34 33 35; 41 41 42; 42 42 43; 43 43 44; 44 43 45
24. 51 51 52; 52 52 53; 53 53 54; 54 53 55
25. MEMBER RELEASE
26. 12 22 32 42 52 END MZ
27. 14 24 34 44 54 START MZ
28. DEFINE MATERIAL START
29. ISOTROPIC STEEL
30. E 4.176E+006
31. POISSON 0.3
32. DENSITY 0.489024
33. ALPHA 6.5E-006
34. DAMP 0.03
35. END DEFINE MATERIAL
36. MEMBER PROPERTY AMERICAN
37. 11 21 31 41 51 TABLE ST W27X84
38. 12 13 22 23 32 33 42 43 52 53 TABLE ST W27X84
39. 14 24 34 44 54 TABLE ST W24X84
40. CONSTANTS
```

STAAD SPACE

-- PAGE NO. 2

41. MATERIAL STEEL ALL
42. SUPPORTS
43. 14 24 34 44 54 FIXED
44. 11 12 15 21 22 25 31 32 35 41 42 45 51 52 55 FIXED BUT FX MZ
45. DEFINE MOVING LOAD
46. *HS20 TRUCK
47. TYPE 1 LOAD 16 16 4
48. DIST 14 14
49. *TYPE 2F1 TRUCK
50. TYPE 2 LOAD 10 5
51. DIST 10
52. *TYPE 3F1 TRUCK
53. TYPE 3 LOAD 8.5 8.5 6
54. DIST 4 10
55. *TYPE 4F1 TRUCK
56. TYPE 4 LOAD 7 7 7 6
57. DIST 4 4 10
58. *TYPE 5C1 TRUCK
59. TYPE 5 LOAD 8.5 8.5 8.5 8.5 6
60. DIST 4 31 4 12
61. *HS20 TRAVELING UP STATION
62. LOAD GENERATION 29
**WARNING- THIS STRUCTURE IS DISJOINTED. IGNORE IF
MASTER/SLAVE OR IF UNCONNECTED JOINTS.
63. TYPE 1 -28 0 1 XINC 1
64. *HS20 TRAVELING DOWN STATION
65. LOAD GENERATION 29
66. TYPE 1 28 0 1 XINC -1.
67. *TYPE 2F1 TRAVELING UP STATION
68. LOAD GENERATION 11
69. TYPE 2 -10 0 2 XINC 1
70. *TYPE 2F1 TRAVELING DOWN STATION
71. LOAD GENERATION 11
72. TYPE 2 10 0 2 XINC -1.
73. *TYPE 3F1 TRAVELING UP STATION
74. LOAD GENERATION 15
75. TYPE 3 -14 0 3 XINC 1
76. *TYPE 3F1 TRAVELING DOWN STATION
77. LOAD GENERATION 15
78. TYPE 3 14 0 3 XINC -1.
79. *TYPE 4F1 TRAVELING UP STATION
80. LOAD GENERATION 19
81. TYPE 4 -18 0 4 XINC 1
82. *TYPE 4F1 TRAVELING DOWN STATION
83. LOAD GENERATION 19
84. TYPE 4 18 0 4 XINC -1.
85. *TYPE 5C1 TRAVELING UP STATION
86. LOAD GENERATION 52
87. TYPE 5 -51 0 5 XINC 1
88. *TYPE 5 TRAVELING DOWN STATION
89. LOAD GENERATION 52
**WARNING-A MOVING LOAD THAT WOULD HAVE BEEN APPLIED BEYOND THE X AND Z RANGES
OF THE STRUCTURE HAS BEEN IGNORED. CASE= 183 WHEEL 5 OF 5
**WARNING-A MOVING LOAD THAT WOULD HAVE BEEN APPLIED BEYOND THE X AND Z RANGES
OF THE STRUCTURE HAS BEEN IGNORED. CASE= 184 WHEEL 5 OF 5

STAAD SPACE

-- PAGE NO. 3

**WARNING-A MOVING LOAD THAT WOULD HAVE BEEN APPLIED BEYOND THE X AND Z RANGES
 OF THE STRUCTURE HAS BEEN IGNORED. CASE= 185 WHEEL 5 OF 5
 **WARNING-A MOVING LOAD THAT WOULD HAVE BEEN APPLIED BEYOND THE X AND Z RANGES
 OF THE STRUCTURE HAS BEEN IGNORED. CASE= 186 WHEEL 5 OF 5
 **WARNING-A MOVING LOAD THAT WOULD HAVE BEEN APPLIED BEYOND THE X AND Z RANGES
 OF THE STRUCTURE HAS BEEN IGNORED. CASE= 187 WHEEL 5 OF 5
 **WARNING-A MOVING LOAD THAT WOULD HAVE BEEN APPLIED BEYOND THE X AND Z RANGES
 OF THE STRUCTURE HAS BEEN IGNORED. CASE= 188 WHEEL 5 OF 5
 **WARNING-A MOVING LOAD THAT WOULD HAVE BEEN APPLIED BEYOND THE X AND Z RANGES
 OF THE STRUCTURE HAS BEEN IGNORED. CASE= 189 WHEEL 5 OF 5
 **WARNING-A MOVING LOAD THAT WOULD HAVE BEEN APPLIED BEYOND THE X AND Z RANGES
 OF THE STRUCTURE HAS BEEN IGNORED. CASE= 190 WHEEL 5 OF 5
 **WARNING-A MOVING LOAD THAT WOULD HAVE BEEN APPLIED BEYOND THE X AND Z RANGES
 OF THE STRUCTURE HAS BEEN IGNORED. CASE= 191 WHEEL 5 OF 5
 **WARNING-A MOVING LOAD THAT WOULD HAVE BEEN APPLIED BEYOND THE X AND Z RANGES
 OF THE STRUCTURE HAS BEEN IGNORED. CASE= 192 WHEEL 5 OF 5
 *ADDITIONAL MOVING LOAD MESSAGES SUPPRESSED
 *ADDITIONAL MOVING LOAD MESSAGES SUPPRESSED
 90. TYPE 5 51 0 5 XINC -1.
 91. PERFORM ANALYSIS

P R O B L E M S T A T I S T I C S

NUMBER OF JOINTS/MEMBER+ELEMENTS/SUPPORTS = 25/ 20/ 20

SOLVER USED IS THE OUT-OF-CORE BASIC SOLVER

ORIGINAL/FINAL BAND-WIDTH= 2/ 2/ 8 DOF
 TOTAL PRIMARY LOAD CASES = 252, TOTAL DEGREES OF FREEDOM = 60
 SIZE OF STIFFNESS MATRIX = 1 DOUBLE KILO-WORDS
 REQD/AVAIL. DISK SPACE = 12.5/ 514579.8 MB

92. PRINT MAXFORCE ENVELOPE NSECTION 1 LIST 13

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
13 MAX	0.00	0.00	1	0.00	0.00	1			
	0.00	0.00	1	0.00	0.00	1	27.31 C	0.00	44
MIN	0.00	0.10	252	0.00	0.10	252			
	0.00	0.10	252	0.00	0.10	252	0.00	0.10	252

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

- 93. *HS20 MAX REACTION - LISTED ABOVE
- 94. PRINT MAXFORCE ENVELOPE NSECTION 1 LIST 23

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/	DIST	LD	MZ/	DIST	LD	FX	DIST	LD
	FZ	DIST	LD	MY	DIST	LD			
23 MAX	0.00	0.00	1	0.00	0.00	1	13.51 C	0.00	69
	0.00	0.00	1	0.00	0.00	1			
MIN	0.00	0.10	252	0.00	0.10	252	0.00	0.10	252
	0.00	0.10	252	0.00	0.10	252			

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

- 95. *TYPE 2F1 MAX REACTION - LISTED ABOVE
- 96. PRINT MAXFORCE ENVELOPE NSECTION 1 LIST 33

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/	DIST	LD	MZ/	DIST	LD	FX	DIST	LD
	FZ	DIST	LD	MY	DIST	LD			
33 MAX	0.00	0.00	1	0.00	0.00	1	19.95 C	0.00	91
	0.00	0.00	1	0.00	0.00	1			
MIN	0.00	0.10	252	0.00	0.10	252	0.00	0.10	252
	0.00	0.10	252	0.00	0.10	252			

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

- 97. *TYPE 3F1 MAX REACTION - LISTED ABOVE
- 98. PRINT MAXFORCE ENVELOPE NSECTION 1 LIST 43

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
43 MAX	0.00	0.00	1	0.00	0.00	1			
	0.00	0.00	1	0.00	0.00	1	22.63 C	0.00	125
MIN	0.00	0.10	252	0.00	0.10	252			
	0.00	0.10	252	0.00	0.10	252	0.00	0.10	252

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

- 99. *TYPE 4F1 MAX REACTION - LISTED ABOVE
- 100. PRINT MAXFORCE ENVELOPE NSECTION 1 LIST 53

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/	DIST	LD	MZ/	DIST	LD	FX	DIST	LD
	FZ	DIST	LD	MY	DIST	LD			
53 MAX	0.00	0.00	1	0.00	0.00	1	19.36 C	0.00	213
	0.00	0.00	1	0.00	0.00	1			
MIN	0.00	0.10	252	0.00	0.10	252	0.00	0.10	148
	0.00	0.10	252	0.00	0.10	252			

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

101. *TYPE 5C1 MAX REACTION - LISTED ABOVE

102. FINISH

***** END OF THE STAAD.Pro RUN *****

**** DATE= APR 10,2012 TIME= 18:38:38 ****


```
*****
*           For questions on STAAD.Pro, please contact           *
*   Bentley Systems Offices at the following locations           *
*                                                                 *
*           Telephone           Web / Email           *
*                                                                 *
*   USA:           +1 (714)974-2500           *
*   UK           +44(1454)207-000           *
*   SINGAPORE +65 6225-6158           *
*   EUROPE      +31 23 5560560           *
*   INDIA       +91(033)4006-2021           *
*   JAPAN       +81(03)5952-6500   http://www.ctc-g.co.jp   *
*   CHINA       +86 10 5929 7000           *
*   THAILAND    +66(0)2645-1018/19 partha.p@reisoftwareth.com *
*                                                                 *
*   Worldwide    http://selectservices.bentley.com/en-US/   *
*                                                                 *
*****
```




Software licensed to TranSystems

Job Title CUY-2-1441

Client ODOT

Job No
P402110046

Sheet No

1

Rev

Part/EAST APPROACH FWD SECTION

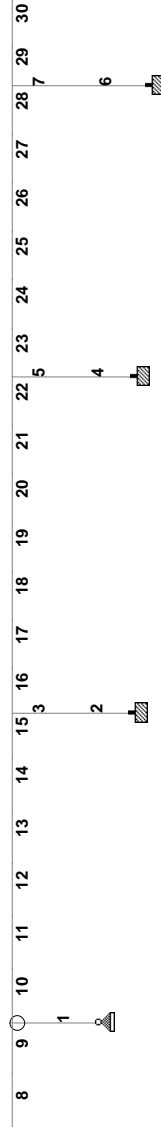
Ref BENT 13

By PJP

Date 31-Mar-12

Chd MTN

File BENT_13_LL.std Date/Time 11-Apr-2012 09:56



Load 1

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*****
*
*          STAAD.Pro V8i SELECTseries1          *
*          Version  20.07.06.35                 *
*          Proprietary Program of              *
*          Bentley Systems, Inc.                *
*          Date=    APR 10, 2012                *
*          Time=    18:57:21                    *
*
*          USER ID: TranSystems                 *
*****
```

```
1. STAAD SPACE DXF IMPORT OF 002_1441BENT_13.DXF
INPUT FILE: BENT_13_DL.STD
2. START JOB INFORMATION
3. ENGINEER DATE 31-MAR-12
4. JOB NAME CUY-2-1441
5. JOB CLIENT ODOT
6. JOB NO P402110046
7. JOB PART EAST APPROACH FWD SECTION
8. JOB REF BENT 13
9. ENGINEER NAME PJP
10. CHECKER NAME MTN
11. CHECKER DATE 10-APR-12
12. END JOB INFORMATION
13. INPUT WIDTH 79
14. UNIT FEET KIP
15. JOINT COORDINATES
16. 1 -44.3704 6.1 0; 2 -44.3704 16.07 0; 3 -7.01563 2.08 0; 4 -7.01563 12.07 0
17. 5 -7.01563 16.07 0; 6 33.526 1.89 0; 7 33.526 12.07 0; 8 33.526 16.07 0
18. 9 68.6094 0 0; 10 68.6094 12.07 0; 11 68.6094 16.07 0; 12 -56.875 16.07 0
19. 13 -50.4688 16.07 0; 14 -37.7656 16.07 0; 15 -31.4323 16.07 0
20. 16 -25.099 16.07 0; 17 -18.7656 16.07 0; 18 -12.4323 16.07 0
21. 19 -1.59896 16.07 0; 20 4.25521 16.07 0; 21 10.1094 16.07 0
22. 22 15.9635 16.07 0; 23 21.8177 16.07 0; 24 27.6719 16.07 0; 25 39.3594 16.07 0
23. 26 45.1927 16.07 0; 27 51.0469 16.07 0; 28 56.901 16.07 0; 29 62.7552 16.07 0
24. 30 73.3802 16.07 0; 31 79 16.07 0
25. MEMBER INCIDENCES
26. 1 1 2; 2 3 4; 3 4 5; 4 6 7; 5 7 8; 6 9 10; 7 10 11; 8 12 13; 9 13 2; 10 2 14
27. 11 14 15; 12 15 16; 13 16 17; 14 17 18; 15 18 5; 16 5 19; 17 19 20; 18 20 21
28. 19 21 22; 20 22 23; 21 23 24; 22 24 8; 23 8 25; 24 25 26; 25 26 27; 26 27 28
29. 27 28 29; 28 29 11; 29 11 30; 30 30 31
30. DEFINE MATERIAL START
31. ISOTROPIC STEEL
32. E 4.176E+006
33. POISSON 0.3
34. DENSITY 0.489024
35. ALPHA 6E-006
36. DAMP 0.03
37. END DEFINE MATERIAL
38. MEMBER PROPERTY AMERICAN
39. 8 TO 30 TABLE ST W36X194
40. 1 TABLE ST W14X68
```

41. 4 TO 7 TABLE ST W14X90
42. 2 3 TABLE ST W14X109
43. CONSTANTS
44. BETA 90 MEMB 1
45. MATERIAL STEEL ALL
46. MEMBER RELEASE
47. 1 END MY
48. SUPPORTS
49. 3 6 9 FIXED
50. 1 PINNED
51. LOAD 1 LOADTYPE DEAD TITLE DEAD LOADS
52. SELFWEIGHT Y -1.1 LIST 1 TO 30
53. JOINT LOAD
54. *F1-9 + F1-10
55. 31 FY -14.45
56. *S1-9 + S1-10
57. 30 FY -14.58
58. *S2-9 + S2-10
59. 11 FY -14.82
60. *S3-9 + S3-10
61. 29 FY -15.87
62. *S4-9 + S4-10
63. 28 FY -15.87
64. *S5-9 + S5-10
65. 27 FY -15.87
66. *S6-9 + S6-10
67. 26 FY -15.87
68. *S7-9 + S7-10
69. 25 FY -15.86
70. *S8-9 + S8-10
71. 8 FY -15.81
72. *S9-9 + S9-10
73. 24 FY -15.58
74. *S10-9 + S10-10
75. 23 FY -15.34
76. *S11-9 + S11-10
77. 22 FY -14.94
78. *S12-9 + S12-10
79. 21 FY -14.72
80. *S13-9 + S13-10
81. 20 FY -14.5
82. *S14-9 + S14-10
83. 19 FY -13.85
84. *S15-9 + S15-10
85. 5 FY -13.61
86. *S16-9 + S16-10
87. 18 FY -14.7
88. *S17-9 + S17-10
89. 17 FY -15.64
90. *S18-9 + S18-10
91. 16 FY -14.74
92. *S19-9 + S19-10
93. 15 FY -14.23
94. *S20-9 + S20-10
95. 14 FY -13.86
96. *S21-9 + S21-10

MEMBER FORCE ENVELOPE

 ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
8 MAX	-10.37	0.00	1	70.80	6.41	1			
	0.00	0.00	1	0.00	0.00	1	0.00	0.00	1
MIN	-11.73	6.41	1	0.00	0.00	1			
	0.00	6.41	1	0.00	6.41	1	0.00	6.41	1
9 MAX	-24.29	0.00	1	222.92	6.10	1			
	0.00	0.00	1	0.00	0.00	1	0.00	0.00	1
MIN	-25.59	6.10	1	70.80	0.00	1			
	0.00	6.10	1	0.00	6.10	1	0.00	6.10	1
10 MAX	35.56	0.00	1	222.92	0.00	1			
	0.00	0.00	1	0.00	0.00	1	0.00 T	0.00	1
MIN	34.16	6.60	1	-7.33	6.60	1			
	0.00	6.60	1	0.00	6.60	1	0.00 T	6.60	1
11 MAX	20.30	0.00	1	-7.33	0.00	1			
	0.00	0.00	1	0.00	0.00	1	0.00 T	0.00	1
MIN	18.95	6.33	1	-131.62	6.33	1			
	0.00	6.33	1	0.00	6.33	1	0.00 T	6.33	1
12 MAX	4.72	0.00	1	-131.62	0.00	1			
	0.00	0.00	1	0.00	0.00	1	0.00 T	0.00	1
MIN	3.37	6.33	1	-157.23	6.33	1			
	0.00	6.33	1	0.00	6.33	1	0.00 T	6.33	1
13 MAX	-11.37	0.00	1	-80.96	6.33	1			
	0.00	0.00	1	0.00	0.00	1	0.00 T	0.00	1
MIN	-12.72	6.33	1	-157.23	0.00	1			
	0.00	6.33	1	0.00	6.33	1	0.00 T	6.33	1
14 MAX	-28.36	0.00	1	102.91	6.33	1			
	0.00	0.00	1	0.00	0.00	1	0.00 T	0.00	1
MIN	-29.71	6.33	1	-80.96	0.00	1			
	0.00	6.33	1	0.00	6.33	1	0.00 T	6.33	1
15 MAX	-44.41	0.00	1	346.57	5.42	1			
	0.00	0.00	1	0.00	0.00	1	0.00 T	0.00	1
MIN	-45.56	5.42	1	102.91	0.00	1			
	0.00	5.42	1	0.00	5.42	1	0.00 T	5.42	1
16 MAX	48.54	0.00	1	356.31	0.00	1			
	0.00	0.00	1	0.00	0.00	1	1.05 C	0.00	1

DXF IMPORT OF 002_1441BENT_13.DXF

-- PAGE NO. 5

MIN	47.39	5.42	1	96.49	5.42	1			
	0.00	5.42	1	0.00	5.42	1	1.05 C	5.42	1
17 MAX	33.54	0.00	1	96.49	0.00	1			
	0.00	0.00	1	0.00	0.00	1	1.05 C	0.00	1
MIN	32.29	5.85	1	-96.21	5.85	1			
	0.00	5.85	1	0.00	5.85	1	1.05 C	5.85	1
18 MAX	17.79	0.00	1	-96.21	0.00	1			
	0.00	0.00	1	0.00	0.00	1	1.05 C	0.00	1
MIN	16.55	5.85	1	-196.72	5.85	1			
	0.00	5.85	1	0.00	5.85	1	1.05 C	5.85	1
19 MAX	1.83	0.00	1	-196.72	0.00	1			
	0.00	0.00	1	0.00	0.00	1	1.05 C	0.00	1
MIN	0.58	5.85	1	-203.77	5.85	1			
	0.00	5.85	1	0.00	5.85	1	1.05 C	5.85	1
20 MAX	-14.36	0.00	1	-116.05	5.85	1			
	0.00	0.00	1	0.00	0.00	1	1.05 C	0.00	1
MIN	-15.61	5.85	1	-203.77	0.00	1			
	0.00	5.85	1	0.00	5.85	1	1.05 C	5.85	1
21 MAX	-30.95	0.00	1	68.78	5.85	1			
	0.00	0.00	1	0.00	0.00	1	1.05 C	0.00	1
MIN	-32.19	5.85	1	-116.05	0.00	1			
	0.00	5.85	1	0.00	5.85	1	1.05 C	5.85	1
22 MAX	-47.77	0.00	1	352.10	5.85	1			
	0.00	0.00	1	0.00	0.00	1	1.05 C	0.00	1
MIN	-49.02	5.85	1	68.78	0.00	1			
	0.00	5.85	1	0.00	5.85	1	1.05 C	5.85	1
23 MAX	46.55	0.00	1	346.20	0.00	1			
	0.00	0.00	1	0.00	0.00	1	0.50 C	0.00	1
MIN	45.31	5.83	1	78.28	5.83	1			
	0.00	5.83	1	0.00	5.83	1	0.50 C	5.83	1
24 MAX	29.45	0.00	1	78.28	0.00	1			
	0.00	0.00	1	0.00	0.00	1	0.50 C	0.00	1
MIN	28.20	5.83	1	-89.87	5.83	1			
	0.00	5.83	1	0.00	5.83	1	0.50 C	5.83	1
25 MAX	12.33	0.00	1	-89.87	0.00	1			
	0.00	0.00	1	0.00	0.00	1	0.50 C	0.00	1
MIN	11.09	5.85	1	-158.43	5.85	1			
	0.00	5.85	1	0.00	5.85	1	0.50 C	5.85	1
26 MAX	-4.78	0.00	1	-126.79	5.85	1			
	0.00	0.00	1	0.00	0.00	1	0.50 C	0.00	1
MIN	-6.03	5.85	1	-158.43	0.00	1			
	0.00	5.85	1	0.00	5.85	1	0.50 C	5.85	1
27 MAX	-21.90	0.00	1	5.05	5.85	1			
	0.00	0.00	1	0.00	0.00	1	0.50 C	0.00	1

DXF IMPORT OF 002_1441BENT_13.DXF							-- PAGE NO. 6			
MIN	-23.14	5.85	1	-126.79	0.00	1				
	0.00	5.85	1	0.00	5.85	1	0.50 C	5.85	1	
28 MAX	-39.01	0.00	1	237.10	5.85	1				
	0.00	0.00	1	0.00	0.00	1	0.50 C	0.00	1	
MIN	-40.26	5.85	1	5.05	0.00	1				
	0.00	5.85	1	0.00	5.85	1	0.50 C	5.85	1	
29 MAX	31.24	0.00	1	231.20	0.00	1				
	0.00	0.00	1	0.00	0.00	1	0.00	0.00	1	
MIN	30.23	4.77	1	84.57	4.77	1				
	0.00	4.77	1	0.00	4.77	1	0.00	4.77	1	
30 MAX	15.65	0.00	1	84.57	0.00	1				
	0.00	0.00	1	0.00	0.00	1	0.00	0.00	1	
MIN	14.45	5.62	1	0.00	5.62	1				
	0.00	5.62	1	0.00	5.62	1	0.00	5.62	1	

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

- 104. *FLOOR BEAM MAXIMUM FORCE RESULTS ABOVE
- 105. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 1

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
1 MAX	0.00	0.00	1	0.00	0.00	1			
	0.00	0.00	1	0.00	0.00	1	75.18 C	0.00	1
MIN	0.00	9.97	1	0.00	9.97	1			
	0.00	9.97	1	0.00	9.97	1	74.44 C	9.97	1

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

- 106. *COLUMN 413 MAXIMUM FORCE RESULTS ABOVE
- 107. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 2 3

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
2 MAX	-1.05	0.00	1	5.54	9.99	1			
	0.00	0.00	1	0.00	0.00	1	109.38 C	0.00	1
MIN	-1.05	9.99	1	-5.04	0.00	1			
	0.00	9.99	1	0.00	9.99	1	108.19 C	9.99	1
3 MAX	-1.05	0.00	1	9.74	4.00	1			
	0.00	0.00	1	0.00	0.00	1	108.19 C	0.00	1
MIN	-1.05	4.00	1	5.54	0.00	1			
	0.00	4.00	1	0.00	4.00	1	107.71 C	4.00	1

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

- 108. *COLUMN 313 MAXIMUM FORCE RESULTS ABOVE
- 109. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 4 5

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
4 MAX	0.55	0.00	1	1.91	0.00	1			
	0.00	0.00	1	0.00	0.00	1	112.78 C	0.00	1
MIN	0.55	10.18	1	-3.73	10.18	1			
	0.00	10.18	1	0.00	10.18	1	111.78 C	10.18	1
5 MAX	0.55	0.00	1	-3.73	0.00	1			
	0.00	0.00	1	0.00	0.00	1	111.78 C	0.00	1
MIN	0.55	4.00	1	-5.90	4.00	1			
	0.00	4.00	1	0.00	4.00	1	111.38 C	4.00	1

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

- 110. *COLUMN 213 MAXIMUM FORCE RESULTS ABOVE
- 111. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 6 7

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
6 MAX	0.50	0.00	1	2.11	0.00	1			
	0.00	0.00	1	0.00	0.00	1	87.91 C	0.00	1
	MIN	0.50	12.07	1	-3.94	12.07	1		
	0.00	12.07	1	0.00	12.07	1	86.72 C	12.07	1
7 MAX	0.50	0.00	1	-3.94	0.00	1			
	0.00	0.00	1	0.00	0.00	1	86.72 C	0.00	1
	MIN	0.50	4.00	1	-5.91	4.00	1		
	0.00	4.00	1	0.00	4.00	1	86.32 C	4.00	1

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

112. *COLUMN 113 MAXIMUM FORCE RESULTS ABOVE
 113. FINISH

***** END OF THE STAAD.Pro RUN *****

**** DATE= APR 10,2012 TIME= 18:57:21 ****

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*****
*           For questions on STAAD.Pro, please contact           *
*   Bentley Systems Offices at the following locations           *
*                                                                 *
*           Telephone           Web / Email           *
*                                                                 *
*   USA:           +1 (714)974-2500           *
*   UK           +44(1454)207-000           *
*   SINGAPORE +65 6225-6158           *
*   EUROPE      +31 23 5560560           *
*   INDIA       +91(033)4006-2021           *
*   JAPAN       +81(03)5952-6500   http://www.ctc-g.co.jp   *
*   CHINA       +86 10 5929 7000           *
*   THAILAND    +66(0)2645-1018/19 partha.p@reisoftwareth.com *
*                                                                 *
*   Worldwide   http://selectservices.bentley.com/en-US/   *
*                                                                 *
*****
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*****
*
*          STAAD.Pro V8i SELECTseries1          *
*          Version  20.07.06.35                 *
*          Proprietary Program of              *
*          Bentley Systems, Inc.               *
*          Date=    APR 11, 2012                *
*          Time=    9:56:22                    *
*
*          USER ID: TranSystems                 *
*****
    
```

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1. STAAD SPACE DXF IMPORT OF 002_1441BENT_13.DXF
INPUT FILE: BENT_13_LL.STD
2. START JOB INFORMATION
3. ENGINEER DATE 31-MAR-12
4. JOB NAME CUY-2-1441
5. JOB CLIENT ODOT
6. JOB NO P402110046
7. JOB PART EAST APPROACH FWD SECTION
8. JOB REF BENT 13
9. ENGINEER NAME PJP
10. CHECKER NAME MTN
11. CHECKER DATE 10-APR-12
12. END JOB INFORMATION
13. INPUT WIDTH 79
14. UNIT FEET KIP
15. JOINT COORDINATES
16. 1 -44.3704 6.1 0; 2 -44.3704 16.07 0; 3 -7.01563 2.08 0; 4 -7.01563 12.07 0
17. 5 -7.016 16.07 0; 6 33.526 1.89 0; 7 33.526 12.07 0; 8 33.526 16.07 0
18. 9 68.6094 0 0; 10 68.6094 12.07 0; 11 68.6094 16.07 0; 12 -56.875 16.07 0
19. 13 -50.4688 16.07 0; 14 -37.7656 16.07 0; 15 -31.4323 16.07 0
20. 16 -25.099 16.07 0; 17 -18.7656 16.07 0; 18 -12.4323 16.07 0
21. 19 -1.59896 16.07 0; 20 4.25521 16.07 0; 21 10.1094 16.07 0
22. 22 15.9635 16.07 0; 23 21.8177 16.07 0; 24 27.6719 16.07 0; 25 39.3594 16.07 0
23. 26 45.1927 16.07 0; 27 51.0469 16.07 0; 28 56.901 16.07 0; 29 62.7552 16.07 0
24. 30 73.3802 16.07 0; 31 79 16.07 0
25. MEMBER INCIDENCES
26. 1 1 2; 2 3 4; 3 4 5; 4 6 7; 5 7 8; 6 9 10; 7 10 11; 8 12 13; 9 13 2; 10 2 14
27. 11 14 15; 12 15 16; 13 16 17; 14 17 18; 15 18 5; 16 5 19; 17 19 20; 18 20 21
28. 19 21 22; 20 22 23; 21 23 24; 22 24 8; 23 8 25; 24 25 26; 25 26 27; 26 27 28
29. 27 28 29; 28 29 11; 29 11 30; 30 30 31
30. MEMBER RELEASE
31. 1 END MY
32. DEFINE MATERIAL START
33. ISOTROPIC STEEL
34. E 4.176E+006
35. POISSON 0.3
36. DENSITY 0.489024
37. ALPHA 6E-006
38. DAMP 0.03
39. END DEFINE MATERIAL
40. MEMBER PROPERTY AMERICAN
    
```


41. 8 TO 30 TABLE ST W36X194
42. 4 TO 7 TABLE ST W14X90
43. 1 TABLE ST W14X68
44. 2 3 TABLE ST W14X109
45. CONSTANTS
46. BETA 90 MEMB 1
47. MATERIAL STEEL ALL
48. SUPPORTS
49. 3 6 9 FIXED
50. 1 PINNED
51. DEFINE MOVING LOAD
52. *HS-15 FATIGUE TRUCK
53. TYPE 1 LOAD 23.6 23.6
54. DIST 6
55. LOAD 1 LOADTYPE LIVE TITLE 7 LANE HS-20 FB MOMENT AT COL 4
56. MEMBER LOAD
57. 8 CON GY -26.7 2.417 0
58. 9 CON GY -26.7 2.01 0
59. 10 CON GY -26.7 4.677 0
60. 11 CON GY -26.7 4.073 0
61. 12 CON GY -26.7 2.739 0
62. 13 CON GY -26.7 2.406 0
63. 14 CON GY -26.7 1.073 0
64. 15 CON GY -26.7 0.739 0
65. 23 CON GY -26.7 3.521 0
66. 24 CON GY -26.7 3.688 0
67. 25 CON GY -26.7 2.854 0
68. 26 CON GY -26.7 3 0
69. 27 CON GY -26.7 2.146 0
70. 28 CON GY -26.7 2.292 0
71. LOAD 2 LOADTYPE LIVE TITLE 6 LANE HS-20 FB MOMENT AT COL 4
72. MEMBER LOAD
73. 8 CON GY -26.7 2.417 0
74. 9 CON GY -26.7 2.01 0
75. 10 CON GY -26.7 4.677 0
76. 11 CON GY -26.7 4.073 0
77. 12 CON GY -26.7 2.739 0
78. 13 CON GY -26.7 2.406 0
79. 14 CON GY -26.7 1.073 0
80. 15 CON GY -26.7 0.739 0
81. 24 CON GY -26.7 3.688 0
82. 25 CON GY -26.7 3.854 0
83. 26 CON GY -26.7 2 0
84. 27 CON GY -26.7 2.146 0
85. LOAD 3 LOADTYPE LIVE TITLE 3 LANE HS-20 FB MOMENT AT COL 4
86. MEMBER LOAD
87. 8 CON GY -32 2.417 0
88. 9 CON GY -32 2.01 0
89. 11 CON GY -32 4.073 0
90. 12 CON GY -32 3.739 0
91. 13 CON GY -32 1.406 0
92. 14 CON GY -32 1.073 0
93. LOAD 4 LOADTYPE LIVE TITLE 2 LANE HS-20 FB MOMENT AT COL 4
94. MEMBER LOAD
95. 8 CON GY -35.6 2.417 0
96. 9 CON GY -35.6 2.01 0

97. 12 CON GY -35.6 2.739 0
98. 13 CON GY -35.6 2.406 0
99. LOAD 5 LOADTYPE LIVE TITLE 7 LANE HS-20 COL 4 AXIAL
100. MEMBER LOAD
101. 8 CON GY -26.7 2.417 0
102. 9 CON GY -26.7 2.01 0
103. 10 CON GY -26.7 1.912 0
104. 11 CON GY -26.7 1.307 0
105. 12 CON GY -26.7 0.974 0
106. 13 CON GY -26.7 0.64 0
107. 14 CON GY -26.7 0.307 0
108. 14 CON GY -26.7 6.307 0
109. 23 CON GY -26.7 3.521 0
110. 24 CON GY -26.7 3.688 0
111. 25 CON GY -26.7 2.854 0
112. 26 CON GY -26.7 3 0
113. 27 CON GY -26.7 2.146 0
114. 28 CON GY -26.7 2.292 0
115. LOAD 6 LOADTYPE LIVE TITLE 3 LANE HS-20 COL 4 AXIAL
116. MEMBER LOAD
117. 8 CON GY -32 2.417 0
118. 9 CON GY -32 2.01 0
119. 10 CON GY -32 1.912 0
120. 11 CON GY -32 1.307 0
121. 12 CON GY -32 0.974 0
122. 13 CON GY -32 0.64 0
123. LOAD 7 LOADTYPE LIVE TITLE 2 LANE HS-20 COL 4 AXIAL
124. MEMBER LOAD
125. 8 CON GY -35.6 2.417 0
126. 9 CON GY -35.6 2.01 0
127. 10 CON GY -35.6 1.912 0
128. 11 CON GY -35.6 1.307 0
129. LOAD 8 LOADTYPE LIVE TITLE 6 LANE HS-20 POSITIVE FB MOMENT
130. MEMBER LOAD
131. 10 CON GY -26.7 4.677 0
132. 11 CON GY -26.7 4.073 0
133. 12 CON GY -26.7 2.739 0
134. 13 CON GY -26.7 2.406 0
135. 14 CON GY -26.7 1.073 0
136. 15 CON GY -26.7 0.739 0
137. 23 CON GY -26.7 3.521 0
138. 24 CON GY -26.7 3.688 0
139. 25 CON GY -26.7 2.854 0
140. 26 CON GY -26.7 3 0
141. 27 CON GY -26.7 2.146 0
142. 28 CON GY -26.7 2.292 0
143. LOAD 9 LOADTYPE LIVE TITLE 3 LANE HS-20 POSITIVE FB MOMENT
144. MEMBER LOAD
145. 10 CON GY -32 4.677 0
146. 11 CON GY -32 4.073 0
147. 12 CON GY -32 2.739 0
148. 13 CON GY -32 2.406 0
149. 14 CON GY -32 1.073 0
150. 15 CON GY -32 0.739 0
151. LOAD 10 LOADTYPE LIVE TITLE 3 LANE HS-20 POSITIVE FB MOMENT
152. MEMBER LOAD

153. 23 CON GY -32 3.521 0
154. 24 CON GY -32 3.688 0
155. 25 CON GY -32 2.854 0
156. 26 CON GY -32 3 0
157. 27 CON GY -32 2.146 0
158. 28 CON GY -32 2.292 0
159. LOAD 11 LOADTYPE LIVE TITLE 2 LANE HS-20 POSITIVE FB MOMENT
160. MEMBER LOAD
161. 11 CON GY -35.6 4.073 0
162. 12 CON GY -35.6 3.739 0
163. 13 CON GY -35.6 1.406 0
164. 14 CON GY -35.6 1.073 0
165. LOAD 12 LOADTYPE LIVE TITLE 2 LANE HS-20 POSITIVE FB MOMENT
166. MEMBER LOAD
167. 24 CON GY -35.6 3.688 0
168. 25 CON GY -35.6 3.854 0
169. 26 CON GY -35.6 2 0
170. 27 CON GY -35.6 2.146 0
171. LOAD 13 LOADTYPE LIVE TITLE 5 LANE HS-20 FB POSITIVE MOMENT
172. MEMBER LOAD
173. 8 CON GY -26.7 2.417 0
174. 9 CON GY -26.7 2.01 0
175. 17 CON GY -26.7 3.852 0
176. 18 CON GY -26.7 3.998 0
177. 19 CON GY -26.7 4.437 0
178. 20 CON GY -26.7 4.583 0
179. 21 CON GY -26.7 4.729 0
180. 22 CON GY -26.7 4.875 0
181. 29 CON GY -26.7 2.771 0
182. 30 CON GY -26.7 4 0
183. LOAD 14 LOADTYPE LIVE TITLE 3 LANE HS-20 FB POSITIVE MOMENT
184. MEMBER LOAD
185. 17 CON GY -32 3.852 0
186. 18 CON GY -32 3.998 0
187. 19 CON GY -32 4.437 0
188. 20 CON GY -32 4.583 0
189. 21 CON GY -32 4.729 0
190. 22 CON GY -32 4.875 0
191. LOAD 15 LOADTYPE LIVE TITLE 2 LANE HS-20 FB POSITIVE MOMENT
192. MEMBER LOAD
193. 17 CON GY -35.6 3.852 0
194. 18 CON GY -35.6 3.998 0
195. 19 CON GY -35.6 4.437 0
196. 20 CON GY -35.6 4.583 0
197. LOAD 16 LOADTYPE LIVE TITLE 7 LANE HS-20 FB MOMENT AT COL 3
198. MEMBER LOAD
199. 10 CON GY -26.7 4.677 0
200. 11 CON GY -26.7 4.073 0
201. 12 CON GY -26.7 2.739 0
202. 13 CON GY -26.7 2.406 0
203. 14 CON GY -26.7 1.073 0
204. 15 CON GY -26.7 0.739 0
205. 17 CON GY -26.7 3.852 0
206. 18 CON GY -26.7 3.998 0
207. 19 CON GY -26.7 4.437 0
208. 20 CON GY -26.7 4.583 0

209. 21 CON GY -26.7 4.729 0
210. 22 CON GY -26.7 4.875 0
211. 29 CON GY -26.7 2.771 0
212. 30 CON GY -26.7 4 0
213. LOAD 17 LOADTYPE LIVE TITLE 3 LANE HS-20 FB MOMENT AT COL 3
214. MEMBER LOAD
215. 11 CON GY -32 4.073 0
216. 12 CON GY -32 3.739 0
217. 13 CON GY -32 1.406 0
218. 14 CON GY -32 1.073 0
219. 19 CON GY -32 4.437 0
220. 20 CON GY -32 4.583 0
221. LOAD 18 LOADTYPE LIVE TITLE 3 LANE HS-20 FB MOMENT AT COL 3
222. MEMBER LOAD
223. 12 CON GY -35.6 2.739 0
224. 13 CON GY -35.6 2.406 0
225. 19 CON GY -35.6 4.437 0
226. 20 CON GY -35.6 4.583 0
227. LOAD 19 LOADTYPE LIVE TITLE 7 LANE HS-20 COL 3 AXIAL LOADING
228. MEMBER LOAD
229. 11 CON GY -26.7 0.75 0
230. 12 CON GY -26.7 0.417 0
231. 13 CON GY -26.7 0.083 0
232. 13 CON GY -26.7 6.083 0
233. 14 CON GY -26.7 5.75 0
234. 16 CON GY -26.7 0 0
235. 16 CON GY -26.7 4 0
236. 17 CON GY -26.7 4.583 0
237. 19 CON GY -26.7 4.437 0
238. 20 CON GY -26.7 4.583 0
239. 21 CON GY -26.7 4.729 0
240. 22 CON GY -26.7 4.875 0
241. 29 CON GY -26.7 2.771 0
242. 30 CON GY -26.7 4 0
243. LOAD 20 LOADTYPE LIVE TITLE 3 LANE HS-20 COL 3 AXIAL LOADING
244. MEMBER LOAD
245. 13 CON GY -32 0.083 0
246. 13 CON GY -32 6.083 0
247. 14 CON GY -32 5.75 0
248. 16 CON GY -32 0 0
249. 16 CON GY -32 4 0
250. 17 CON GY -32 4.583 0
251. LOAD 21 LOADTYPE LIVE TITLE 2 LANE HS-20 COL 3 AXIAL LOADING
252. MEMBER LOAD
253. 14 CON GY -35.6 1.75 0
254. 15 CON GY -35.6 1.417 0
255. 16 CON GY -35.6 0 0
256. 17 CON GY -35.6 0.583 0
257. LOAD 22 LOADTYPE LIVE TITLE 7 LANE HS-20 FB MOMENT AT COL 2
258. MEMBER LOAD
259. 8 CON GY -26.7 2.417 0
260. 9 CON GY -26.7 2.01 0
261. 17 CON GY -26.7 3.852 0
262. 18 CON GY -26.7 3.998 0
263. 19 CON GY -26.7 4.437 0
264. 20 CON GY -26.7 4.583 0

265. 21 CON GY -26.7 4.729 0
266. 22 CON GY -26.7 4.875 0
267. 24 CON GY -26.7 1.187 0
268. 25 CON GY -26.7 1.354 0
269. 25 CON GY -26.7 5.354 0
270. 26 CON GY -26.7 5.5 0
271. 27 CON GY -26.7 5.645 0
272. 28 CON GY -26.7 5.791 0
273. LOAD 23 LOADTYPE LIVE TITLE 3 LANE HS-20 FB MOMENT AT COL 2
274. MEMBER LOAD
275. 19 CON GY -32 4.437 0
276. 20 CON GY -32 4.583 0
277. 24 CON GY -32 3.688 0
278. 25 CON GY -32 3.854 0
279. 26 CON GY -32 2 0
280. 27 CON GY -32 2.146 0
281. LOAD 24 LOADTYPE LIVE TITLE 2 LANE HS-20 FB MOMENT AT COL 2
282. MEMBER LOAD
283. 19 CON GY -35.6 4.437 0
284. 20 CON GY -35.6 4.583 0
285. 25 CON GY -35.6 2.854 0
286. 26 CON GY -35.6 3 0
287. LOAD 25 LOADTYPE LIVE TITLE 7 LANE HS-20 COL 2 AXIAL LOADING
288. MEMBER LOAD
289. 8 CON GY -26.7 2.417 0
290. 9 CON GY -26.7 2.01 0
291. 17 CON GY -26.7 3.852 0
292. 18 CON GY -26.7 3.998 0
293. 20 CON GY -26.7 0.583 0
294. 21 CON GY -26.7 0.729 0
295. 21 CON GY -26.7 5.708 0
296. 23 CON GY -26.7 0 0
297. 23 CON GY -26.7 5.02 0
298. 24 CON GY -26.7 5.187 0
299. 25 CON GY -26.7 5.354 0
300. 26 CON GY -26.7 5.5 0
301. 27 CON GY -26.7 5.645 0
302. 28 CON GY -26.7 5.791 0
303. LOAD 26 LOADTYPE LIVE TITLE 3 LANE HS-20 COL 2 AXIAL LOADING
304. MEMBER LOAD
305. 20 CON GY -32 5.562 0
306. 21 CON GY -32 5.708 0
307. 23 CON GY -32 0 0
308. 24 CON GY -32 0.167 0
309. 24 CON GY -32 4.167 0
310. 25 CON GY -32 4.333 0
311. LOAD 27 LOADTYPE LIVE TITLE 2 LANE HS-20 COL 2 AXIAL LOADING
312. MEMBER LOAD
313. 21 CON GY -35.6 5.708 0
314. 23 CON GY -35.6 0 0
315. 23 CON GY -35.6 4 0
316. 24 CON GY -35.6 4.167 0
317. LOAD 28 LOADTYPE LIVE TITLE 7 LANE HS-20 FB MOMENT AT COL 1
318. MEMBER LOAD
319. 10 CON GY -26.7 4.677 0
320. 11 CON GY -26.7 4.073 0

321. 12 CON GY -26.7 2.739 0
322. 13 CON GY -26.7 2.406 0
323. 14 CON GY -26.7 1.073 0
324. 15 CON GY -26.7 0.739 0
325. 23 CON GY -26.7 1.854 0
326. 24 CON GY -26.7 2.021 0
327. 25 CON GY -26.7 2.187 0
328. 26 CON GY -26.7 2.333 0
329. 27 CON GY -26.7 0.479 0
330. 28 CON GY -26.7 0.625 0
331. 29 CON GY -26.7 2.771 0
332. 30 CON GY -26.7 4 0
333. LOAD 29 LOADTYPE LIVE TITLE 3 LANE HS-20 FB MOMENT AT COL 1
334. MEMBER LOAD
335. 24 CON GY -32 3.688 0
336. 25 CON GY -32 3.854 0
337. 26 CON GY -32 2 0
338. 27 CON GY -32 2.146 0
339. 29 CON GY -32 2.771 0
340. 30 CON GY -32 4 0
341. LOAD 30 LOADTYPE LIVE TITLE 2 LANE HS-20 FB MOMENT AT COL 1
342. MEMBER LOAD
343. 25 CON GY -35.6 2.854 0
344. 26 CON GY -35.6 3 0
345. 29 CON GY -35.6 2.771 0
346. 30 CON GY -35.6 4 0
347. LOAD 31 LOADTYPE LIVE TITLE 7 LANE HS-20 COL 1 AXIAL LOADING
348. MEMBER LOAD
349. 10 CON GY -26.7 4.677 0
350. 11 CON GY -26.7 4.073 0
351. 12 CON GY -26.7 2.739 0
352. 13 CON GY -26.7 2.406 0
353. 14 CON GY -26.7 1.073 0
354. 15 CON GY -26.7 0.739 0
355. 23 CON GY -26.7 1.854 0
356. 24 CON GY -26.7 2.021 0
357. 25 CON GY -26.7 2.187 0
358. 26 CON GY -26.7 2.333 0
359. 27 CON GY -26.7 2.479 0
360. 28 CON GY -26.7 2.625 0
361. 29 CON GY -26.7 2.771 0
362. 30 CON GY -26.7 4 0
363. LOAD 32 LOADTYPE LIVE TITLE 3 LANE HS-20 COL 1 AXIAL LOADING
364. MEMBER LOAD
365. 25 CON GY -32 2.187 0
366. 26 CON GY -32 2.333 0
367. 27 CON GY -32 2.479 0
368. 28 CON GY -32 2.625 0
369. 29 CON GY -32 2.771 0
370. 30 CON GY -32 4 0
371. LOAD 33 LOADTYPE LIVE TITLE 2 LANE HS-20 COL 1 AXIAL LOADING
372. MEMBER LOAD
373. 27 CON GY -35.6 2.479 0
374. 28 CON GY -35.6 2.625 0
375. 29 CON GY -35.6 2.771 0
376. 30 CON GY -35.6 4 0

377. LOAD 34 LOADTYPE LIVE TITLE 10 MEDIAN LANES HS-20
378. MEMBER LOAD
379. 9 CON GY -26.7 4.722 0
380. 10 CON GY -26.7 4.623 0
381. 11 CON GY -26.7 4.018 0
382. 12 CON GY -26.7 3.685 0
383. 13 CON GY -26.7 3.352 0
384. 14 CON GY -26.7 3.018 0
385. 15 CON GY -26.7 2.685 0
386. 16 CON GY -26.7 3.268 0
387. 17 CON GY -26.7 3.852 0
388. 18 CON GY -26.7 3.998 0
389. 19 CON GY -26.7 4.437 0
390. 20 CON GY -26.7 4.583 0
391. 21 CON GY -26.7 4.729 0
392. 22 CON GY -26.7 4.875 0
393. 23 CON GY -26.7 5.02 0
394. 24 CON GY -26.7 5.187 0
395. 25 CON GY -26.7 5.354 0
396. 26 CON GY -26.7 5.5 0
397. 27 CON GY -26.7 5.645 0
398. 28 CON GY -26.7 5.791 0
399. LOAD 35 LOADTYPE LIVE TITLE 10 OUTSIDE LANES HS-20
400. MEMBER LOAD
401. 8 CON GY -26.7 2.417 0
402. 9 CON GY -26.7 2.01 0
403. 10 CON GY -26.7 1.912 0
404. 11 CON GY -26.7 1.307 0
405. 12 CON GY -26.7 0.974 0
406. 13 CON GY -26.7 0.64 0
407. 14 CON GY -26.7 0.307 0
408. 14 CON GY -26.7 6.307 0
409. 16 CON GY -26.7 0.557 0
410. 17 CON GY -26.7 1.14 0
411. 21 CON GY -26.7 1.562 0
412. 22 CON GY -26.7 1.708 0
413. 23 CON GY -26.7 1.854 0
414. 24 CON GY -26.7 2.021 0
415. 25 CON GY -26.7 2.187 0
416. 26 CON GY -26.7 2.333 0
417. 27 CON GY -26.7 2.479 0
418. 28 CON GY -26.7 2.625 0
419. 29 CON GY -26.7 2.771 0
420. 30 CON GY -26.7 4 0
421. *BEGIN 2F1 LOADING
422. LOAD 36 LOADTYPE LIVE TITLE 2F1 LOADING
423. REPEAT LOAD
424. 1 0.494691
425. LOAD 37 LOADTYPE LIVE TITLE 2F1 LOADING
426. REPEAT LOAD
427. 2 0.494691
428. LOAD 38 LOADTYPE LIVE TITLE 2F1 LOADING
429. REPEAT LOAD
430. 3 0.494691
431. LOAD 39 LOADTYPE LIVE TITLE 2F1 LOADING
432. REPEAT LOAD

433. 4 0.494691
434. LOAD 40 LOADTYPE LIVE TITLE 2F1 LOADING
435. REPEAT LOAD
436. 5 0.494691
437. LOAD 41 LOADTYPE LIVE TITLE 2F1 LOADING
438. REPEAT LOAD
439. 6 0.494691
440. LOAD 42 LOADTYPE LIVE TITLE 2F1 LOADING
441. REPEAT LOAD
442. 7 0.494691
443. LOAD 43 LOADTYPE LIVE TITLE 2F1 LOADING
444. REPEAT LOAD
445. 8 0.494691
446. LOAD 44 LOADTYPE LIVE TITLE 2F1 LOADING
447. REPEAT LOAD
448. 9 0.494691
449. LOAD 45 LOADTYPE LIVE TITLE 2F1 LOADING
450. REPEAT LOAD
451. 10 0.494691
452. LOAD 46 LOADTYPE LIVE TITLE 2F1 LOADING
453. REPEAT LOAD
454. 11 0.494691
455. LOAD 47 LOADTYPE LIVE TITLE 2F1 LOADING
456. REPEAT LOAD
457. 12 0.494691
458. LOAD 48 LOADTYPE LIVE TITLE 2F1 LOADING
459. REPEAT LOAD
460. 13 0.494691
461. LOAD 49 LOADTYPE LIVE TITLE 2F1 LOADING
462. REPEAT LOAD
463. 14 0.494691
464. LOAD 50 LOADTYPE LIVE TITLE 2F1 LOADING
465. REPEAT LOAD
466. 15 0.494691
467. LOAD 51 LOADTYPE LIVE TITLE 2F1 LOADING
468. REPEAT LOAD
469. 16 0.494691
470. LOAD 52 LOADTYPE LIVE TITLE 2F1 LOADING
471. REPEAT LOAD
472. 17 0.494691
473. LOAD 53 LOADTYPE LIVE TITLE 2F1 LOADING
474. REPEAT LOAD
475. 18 0.494691
476. LOAD 54 LOADTYPE LIVE TITLE 2F1 LOADING
477. REPEAT LOAD
478. 19 0.494691
479. LOAD 55 LOADTYPE LIVE TITLE 2F1 LOADING
480. REPEAT LOAD
481. 20 0.494691
482. LOAD 56 LOADTYPE LIVE TITLE 2F1 LOADING
483. REPEAT LOAD
484. 21 0.494691
485. LOAD 57 LOADTYPE LIVE TITLE 2F1 LOADING
486. REPEAT LOAD
487. 22 0.494691
488. LOAD 58 LOADTYPE LIVE TITLE 2F1 LOADING

489. REPEAT LOAD
490. 23 0.494691
491. LOAD 59 LOADTYPE LIVE TITLE 2F1 LOADING
492. REPEAT LOAD
493. 24 0.494691
494. LOAD 60 LOADTYPE LIVE TITLE 2F1 LOADING
495. REPEAT LOAD
496. 25 0.494691
497. LOAD 61 LOADTYPE LIVE TITLE 2F1 LOADING
498. REPEAT LOAD
499. 26 0.494691
500. LOAD 62 LOADTYPE LIVE TITLE 2F1 LOADING
501. REPEAT LOAD
502. 27 0.494691
503. LOAD 63 LOADTYPE LIVE TITLE 2F1 LOADING
504. REPEAT LOAD
505. 28 0.494691
506. LOAD 64 LOADTYPE LIVE TITLE 2F1 LOADING
507. REPEAT LOAD
508. 29 0.494691
509. LOAD 65 LOADTYPE LIVE TITLE 2F1 LOADING
510. REPEAT LOAD
511. 30 0.494691
512. LOAD 66 LOADTYPE LIVE TITLE 2F1 LOADING
513. REPEAT LOAD
514. 31 0.494691
515. LOAD 67 LOADTYPE LIVE TITLE 2F1 LOADING
516. REPEAT LOAD
517. 32 0.494691
518. LOAD 68 LOADTYPE LIVE TITLE 2F1 LOADING
519. REPEAT LOAD
520. 33 0.494691
521. LOAD 69 LOADTYPE LIVE TITLE 2F1 LOADING
522. REPEAT LOAD
523. 34 0.494691
524. LOAD 70 LOADTYPE LIVE TITLE 2F1 LOADING
525. REPEAT LOAD
526. 35 0.494691
527. *BEGIN 3F1 LOADING
528. LOAD 71 LOADTYPE LIVE TITLE 3F1 LOADING
529. REPEAT LOAD
530. 1 0.730502
531. LOAD 72 LOADTYPE LIVE TITLE 3F1 LOADING
532. REPEAT LOAD
533. 2 0.730502
534. LOAD 73 LOADTYPE LIVE TITLE 3F1 LOADING
535. REPEAT LOAD
536. 3 0.730502
537. LOAD 74 LOADTYPE LIVE TITLE 3F1 LOADING
538. REPEAT LOAD
539. 4 0.730502
540. LOAD 75 LOADTYPE LIVE TITLE 3F1 LOADING
541. REPEAT LOAD
542. 5 0.730502
543. LOAD 76 LOADTYPE LIVE TITLE 3F1 LOADING
544. REPEAT LOAD

545. 6 0.730502
546. LOAD 77 LOADTYPE LIVE TITLE 3F1 LOADING
547. REPEAT LOAD
548. 7 0.730502
549. LOAD 78 LOADTYPE LIVE TITLE 3F1 LOADING
550. REPEAT LOAD
551. 8 0.730502
552. LOAD 79 LOADTYPE LIVE TITLE 3F1 LOADING
553. REPEAT LOAD
554. 9 0.730502
555. LOAD 80 LOADTYPE LIVE TITLE 3F1 LOADING
556. REPEAT LOAD
557. 10 0.730502
558. LOAD 81 LOADTYPE LIVE TITLE 3F1 LOADING
559. REPEAT LOAD
560. 11 0.730502
561. LOAD 82 LOADTYPE LIVE TITLE 3F1 LOADING
562. REPEAT LOAD
563. 12 0.730502
564. LOAD 83 LOADTYPE LIVE TITLE 3F1 LOADING
565. REPEAT LOAD
566. 13 0.730502
567. LOAD 84 LOADTYPE LIVE TITLE 3F1 LOADING
568. REPEAT LOAD
569. 14 0.730502
570. LOAD 85 LOADTYPE LIVE TITLE 3F1 LOADING
571. REPEAT LOAD
572. 15 0.730502
573. LOAD 86 LOADTYPE LIVE TITLE 3F1 LOADING
574. REPEAT LOAD
575. 16 0.730502
576. LOAD 87 LOADTYPE LIVE TITLE 3F1 LOADING
577. REPEAT LOAD
578. 17 0.730502
579. LOAD 88 LOADTYPE LIVE TITLE 3F1 LOADING
580. REPEAT LOAD
581. 18 0.730502
582. LOAD 89 LOADTYPE LIVE TITLE 3F1 LOADING
583. REPEAT LOAD
584. 19 0.730502
585. LOAD 90 LOADTYPE LIVE TITLE 3F1 LOADING
586. REPEAT LOAD
587. 20 0.730502
588. LOAD 91 LOADTYPE LIVE TITLE 3F1 LOADING
589. REPEAT LOAD
590. 21 0.730502
591. LOAD 92 LOADTYPE LIVE TITLE 3F1 LOADING
592. REPEAT LOAD
593. 22 0.730502
594. LOAD 93 LOADTYPE LIVE TITLE 3F1 LOADING
595. REPEAT LOAD
596. 23 0.730502
597. LOAD 94 LOADTYPE LIVE TITLE 3F1 LOADING
598. REPEAT LOAD
599. 24 0.730502
600. LOAD 95 LOADTYPE LIVE TITLE 3F1 LOADING

601. REPEAT LOAD
602. 25 0.730502
603. LOAD 96 LOADTYPE LIVE TITLE 3F1 LOADING
604. REPEAT LOAD
605. 26 0.730502
606. LOAD 97 LOADTYPE LIVE TITLE 3F1 LOADING
607. REPEAT LOAD
608. 27 0.730502
609. LOAD 98 LOADTYPE LIVE TITLE 3F1 LOADING
610. REPEAT LOAD
611. 28 0.730502
612. LOAD 99 LOADTYPE LIVE TITLE 3F1 LOADING
613. REPEAT LOAD
614. 29 0.730502
615. LOAD 100 LOADTYPE LIVE TITLE 3F1 LOADING
616. REPEAT LOAD
617. 30 0.730502
618. LOAD 101 LOADTYPE LIVE TITLE 3F1 LOADING
619. REPEAT LOAD
620. 31 0.730502
621. LOAD 102 LOADTYPE LIVE TITLE 3F1 LOADING
622. REPEAT LOAD
623. 32 0.730502
624. LOAD 103 LOADTYPE LIVE TITLE 3F1 LOADING
625. REPEAT LOAD
626. 33 0.730502
627. LOAD 104 LOADTYPE LIVE TITLE 3F1 LOADING
628. REPEAT LOAD
629. 34 0.730502
630. LOAD 105 LOADTYPE LIVE TITLE 3F1 LOADING
631. REPEAT LOAD
632. 35 0.730502
633. *BEGIN 4F1 LOADING
634. LOAD 106 LOADTYPE LIVE TITLE 4F1 LOADING
635. REPEAT LOAD
636. 1 0.828634
637. LOAD 107 LOADTYPE LIVE TITLE 4F1 LOADING
638. REPEAT LOAD
639. 2 0.828634
640. LOAD 108 LOADTYPE LIVE TITLE 4F1 LOADING
641. REPEAT LOAD
642. 3 0.828634
643. LOAD 109 LOADTYPE LIVE TITLE 4F1 LOADING
644. REPEAT LOAD
645. 4 0.828634
646. LOAD 110 LOADTYPE LIVE TITLE 4F1 LOADING
647. REPEAT LOAD
648. 5 0.828634
649. LOAD 111 LOADTYPE LIVE TITLE 4F1 LOADING
650. REPEAT LOAD
651. 6 0.828634
652. LOAD 112 LOADTYPE LIVE TITLE 4F1 LOADING
653. REPEAT LOAD
654. 7 0.828634
655. LOAD 113 LOADTYPE LIVE TITLE 4F1 LOADING
656. REPEAT LOAD

657. 8 0.828634
658. LOAD 114 LOADTYPE LIVE TITLE 4F1 LOADING
659. REPEAT LOAD
660. 9 0.828634
661. LOAD 115 LOADTYPE LIVE TITLE 4F1 LOADING
662. REPEAT LOAD
663. 10 0.828634
664. LOAD 116 LOADTYPE LIVE TITLE 4F1 LOADING
665. REPEAT LOAD
666. 11 0.828634
667. LOAD 117 LOADTYPE LIVE TITLE 4F1 LOADING
668. REPEAT LOAD
669. 12 0.828634
670. LOAD 118 LOADTYPE LIVE TITLE 4F1 LOADING
671. REPEAT LOAD
672. 13 0.828634
673. LOAD 119 LOADTYPE LIVE TITLE 4F1 LOADING
674. REPEAT LOAD
675. 14 0.828634
676. LOAD 120 LOADTYPE LIVE TITLE 4F1 LOADING
677. REPEAT LOAD
678. 15 0.828634
679. LOAD 121 LOADTYPE LIVE TITLE 4F1 LOADING
680. REPEAT LOAD
681. 16 0.828634
682. LOAD 122 LOADTYPE LIVE TITLE 4F1 LOADING
683. REPEAT LOAD
684. 17 0.828634
685. LOAD 123 LOADTYPE LIVE TITLE 4F1 LOADING
686. REPEAT LOAD
687. 18 0.828634
688. LOAD 124 LOADTYPE LIVE TITLE 4F1 LOADING
689. REPEAT LOAD
690. 19 0.828634
691. LOAD 125 LOADTYPE LIVE TITLE 4F1 LOADING
692. REPEAT LOAD
693. 20 0.828634
694. LOAD 126 LOADTYPE LIVE TITLE 4F1 LOADING
695. REPEAT LOAD
696. 21 0.828634
697. LOAD 127 LOADTYPE LIVE TITLE 4F1 LOADING
698. REPEAT LOAD
699. 22 0.828634
700. LOAD 128 LOADTYPE LIVE TITLE 4F1 LOADING
701. REPEAT LOAD
702. 23 0.828634
703. LOAD 129 LOADTYPE LIVE TITLE 4F1 LOADING
704. REPEAT LOAD
705. 24 0.828634
706. LOAD 130 LOADTYPE LIVE TITLE 4F1 LOADING
707. REPEAT LOAD
708. 25 0.828634
709. LOAD 131 LOADTYPE LIVE TITLE 4F1 LOADING
710. REPEAT LOAD
711. 26 0.828634
712. LOAD 132 LOADTYPE LIVE TITLE 4F1 LOADING

713. REPEAT LOAD
714. 27 0.828634
715. LOAD 133 LOADTYPE LIVE TITLE 4F1 LOADING
716. REPEAT LOAD
717. 28 0.828634
718. LOAD 134 LOADTYPE LIVE TITLE 4F1 LOADING
719. REPEAT LOAD
720. 29 0.828634
721. LOAD 135 LOADTYPE LIVE TITLE 4F1 LOADING
722. REPEAT LOAD
723. 30 0.828634
724. LOAD 136 LOADTYPE LIVE TITLE 4F1 LOADING
725. REPEAT LOAD
726. 31 0.828634
727. LOAD 137 LOADTYPE LIVE TITLE 4F1 LOADING
728. REPEAT LOAD
729. 32 0.828634
730. LOAD 138 LOADTYPE LIVE TITLE 4F1 LOADING
731. REPEAT LOAD
732. 33 0.828634
733. LOAD 139 LOADTYPE LIVE TITLE 4F1 LOADING
734. REPEAT LOAD
735. 34 0.828634
736. LOAD 140 LOADTYPE LIVE TITLE 4F1 LOADING
737. REPEAT LOAD
738. 35 0.828634
739. *BEGIN 5C1 LOADING
740. LOAD 141 LOADTYPE LIVE TITLE 5C1 LOADING
741. REPEAT LOAD
742. 1 0.708898
743. LOAD 142 LOADTYPE LIVE TITLE 5C1 LOADING
744. REPEAT LOAD
745. 2 0.708898
746. LOAD 143 LOADTYPE LIVE TITLE 5C1 LOADING
747. REPEAT LOAD
748. 3 0.708898
749. LOAD 144 LOADTYPE LIVE TITLE 5C1 LOADING
750. REPEAT LOAD
751. 4 0.708898
752. LOAD 145 LOADTYPE LIVE TITLE 5C1 LOADING
753. REPEAT LOAD
754. 5 0.708898
755. LOAD 146 LOADTYPE LIVE TITLE 5C1 LOADING
756. REPEAT LOAD
757. 6 0.708898
758. LOAD 147 LOADTYPE LIVE TITLE 5C1 LOADING
759. REPEAT LOAD
760. 7 0.708898
761. LOAD 148 LOADTYPE LIVE TITLE 5C1 LOADING
762. REPEAT LOAD
763. 8 0.708898
764. LOAD 149 LOADTYPE LIVE TITLE 5C1 LOADING
765. REPEAT LOAD
766. 9 0.708898
767. LOAD 150 LOADTYPE LIVE TITLE 5C1 LOADING
768. REPEAT LOAD

769. 10 0.708898
770. LOAD 151 LOADTYPE LIVE TITLE 5C1 LOADING
771. REPEAT LOAD
772. 11 0.708898
773. LOAD 152 LOADTYPE LIVE TITLE 5C1 LOADING
774. REPEAT LOAD
775. 12 0.708898
776. LOAD 153 LOADTYPE LIVE TITLE 5C1 LOADING
777. REPEAT LOAD
778. 13 0.708898
779. LOAD 154 LOADTYPE LIVE TITLE 5C1 LOADING
780. REPEAT LOAD
781. 14 0.708898
782. LOAD 155 LOADTYPE LIVE TITLE 5C1 LOADING
783. REPEAT LOAD
784. 15 0.708898
785. LOAD 156 LOADTYPE LIVE TITLE 5C1 LOADING
786. REPEAT LOAD
787. 16 0.708898
788. LOAD 157 LOADTYPE LIVE TITLE 5C1 LOADING
789. REPEAT LOAD
790. 17 0.708898
791. LOAD 158 LOADTYPE LIVE TITLE 5C1 LOADING
792. REPEAT LOAD
793. 18 0.708898
794. LOAD 159 LOADTYPE LIVE TITLE 5C1 LOADING
795. REPEAT LOAD
796. 19 0.708898
797. LOAD 160 LOADTYPE LIVE TITLE 5C1 LOADING
798. REPEAT LOAD
799. 20 0.708898
800. LOAD 161 LOADTYPE LIVE TITLE 5C1 LOADING
801. REPEAT LOAD
802. 21 0.708898
803. LOAD 162 LOADTYPE LIVE TITLE 5C1 LOADING
804. REPEAT LOAD
805. 22 0.708898
806. LOAD 163 LOADTYPE LIVE TITLE 5C1 LOADING
807. REPEAT LOAD
808. 23 0.708898
809. LOAD 164 LOADTYPE LIVE TITLE 5C1 LOADING
810. REPEAT LOAD
811. 24 0.708898
812. LOAD 165 LOADTYPE LIVE TITLE 5C1 LOADING
813. REPEAT LOAD
814. 25 0.708898
815. LOAD 166 LOADTYPE LIVE TITLE 5C1 LOADING
816. REPEAT LOAD
817. 26 0.708898
818. LOAD 167 LOADTYPE LIVE TITLE 5C1 LOADING
819. REPEAT LOAD
820. 27 0.708898
821. LOAD 168 LOADTYPE LIVE TITLE 5C1 LOADING
822. REPEAT LOAD
823. 28 0.708898
824. LOAD 169 LOADTYPE LIVE TITLE 5C1 LOADING

825. REPEAT LOAD
 826. 29 0.708898
 827. LOAD 170 LOADTYPE LIVE TITLE 5C1 LOADING
 828. REPEAT LOAD
 829. 30 0.708898
 830. LOAD 171 LOADTYPE LIVE TITLE 5C1 LOADING
 831. REPEAT LOAD
 832. 31 0.708898
 833. LOAD 172 LOADTYPE LIVE TITLE 5C1 LOADING
 834. REPEAT LOAD
 835. 32 0.708898
 836. LOAD 173 LOADTYPE LIVE TITLE 5C1 LOADING
 837. REPEAT LOAD
 838. 33 0.708898
 839. LOAD 174 LOADTYPE LIVE TITLE 5C1 LOADING
 840. REPEAT LOAD
 841. 34 0.708898
 842. LOAD 175 LOADTYPE LIVE TITLE 5C1 LOADING
 843. REPEAT LOAD
 844. 35 0.708898
 845. *BEGIN FATIGUE LOADING
 846. LOAD GENERATION 55
 847. TYPE 1 -53.438 16.07 0 XINC 1.012 YRANGE 0.5
 848. LOAD GENERATION 55
 849. TYPE 1 15.553 16.07 0 XINC 1.01 YRANGE 0.5
 850. PDELTA 10 ANALYSIS

P R O B L E M S T A T I S T I C S

NUMBER OF JOINTS/MEMBER+ELEMENTS/SUPPORTS = 31/ 30/ 4

SOLVER USED IS THE OUT-OF-CORE BASIC SOLVER

ORIGINAL/FINAL BAND-WIDTH= 19/ 2/ 18 DOF
 TOTAL PRIMARY LOAD CASES = 285, TOTAL DEGREES OF FREEDOM = 165
 SIZE OF STIFFNESS MATRIX = 3 DOUBLE KILO-WORDS
 REQD/AVAIL. DISK SPACE = 13.0/ 514923.6 MB

++ Adjusting Displacements 9:56:23
 ++ Adjusting Displacements 9:56:23
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 ++ Adjusting Displacements 9:56:23
 ++ Adjusting Displacements 9:56:23
 ++ Adjusting Displacements 9:56:23
 ++ Adjusting Displacements 9:56:24
 ++ Adjusting Displacements 9:56:24
 ++ Adjusting Displacements 9:56:24

851. LOAD LIST 1 TO 35

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852. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 8 TO 30

MEMBER FORCE ENVELOPE

 ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
8 MAX	0.00	0.00	1	142.02	6.41	4			
	0.00	0.00	1	0.00	0.00	1	0.00	0.00	1
	MIN	-35.60	6.41	7	0.00	6.41	34		
	0.00	6.41	35	0.00	6.41	35	0.00	6.41	35
9 MAX	0.00	0.00	8	504.67	6.10	4			
	0.00	0.00	1	0.00	0.00	1	0.00	0.00	1
	MIN	-71.20	6.10	7	0.00	6.10	33		
	0.00	6.10	35	0.00	6.10	35	0.00	6.10	35
10 MAX	97.38	0.00	6	504.67	0.00	4			
	0.00	0.00	1	0.00	0.00	1	0.03 C	0.00	13
	MIN	-9.10	6.60	14	-475.15	6.60	9		
	0.00	6.60	35	0.00	6.60	35	0.08 T	6.60	1
11 MAX	67.33	0.00	3	347.06	0.00	13			
	0.00	0.00	1	0.00	0.00	1	0.03 C	0.00	13
	MIN	-9.10	6.33	14	-714.93	6.33	9		
	0.00	6.33	35	0.00	6.33	35	0.08 T	6.33	1
12 MAX	45.42	0.00	4	316.91	0.00	13			
	0.00	0.00	1	0.00	0.00	1	0.03 C	0.00	13
	MIN	-21.22	6.33	34	-758.70	2.53	9		
	0.00	6.33	35	0.00	6.33	35	0.08 T	6.33	1
13 MAX	18.93	0.00	20	286.77	0.00	13			
	0.00	0.00	1	0.00	0.00	1	0.03 C	0.00	13
	MIN	-60.36	6.33	19	-717.92	0.00	11		
	0.00	6.33	35	0.00	6.33	35	0.08 T	6.33	1
14 MAX	7.18	0.00	25	290.59	6.33	14			
	0.00	0.00	1	0.00	0.00	1	0.03 C	0.00	13
	MIN	-87.06	6.33	19	-490.45	0.00	9		
	0.00	6.33	35	0.00	6.33	35	0.08 T	6.33	1
15 MAX	7.18	0.00	25	756.57	5.42	16			
	0.00	0.00	1	0.00	0.00	1	0.03 C	0.00	13
	MIN	-110.72	5.42	9	-112.01	0.00	5		
	0.00	5.42	35	0.00	5.42	35	0.08 T	5.42	1
16 MAX	108.32	0.00	19	747.51	0.00	16			
	0.00	0.00	1	0.00	0.00	1	9.39 C	0.00	14

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MIN	-10.86	5.42	10	-87.62	0.00	10			
	0.00	5.42	35	0.00	5.42	35	8.99	T	5.42 28
17 MAX	78.00	0.00	15	372.51	0.00	9			
	0.00	0.00	1	0.00	0.00	1	9.39	C	0.00 14
MIN	-10.86	5.85	10	-373.81	5.85	15			
	0.00	5.85	35	0.00	5.85	35	8.99	T	5.85 28
18 MAX	49.23	0.00	16	288.60	0.00	9			
	0.00	0.00	1	0.00	0.00	1	9.39	C	0.00 14
MIN	-10.86	5.85	10	-556.05	5.85	15			
	0.00	5.85	35	0.00	5.85	35	8.99	T	5.85 28
19 MAX	35.55	0.00	17	252.88	0.00	8			
	0.00	0.00	1	0.00	0.00	1	9.39	C	0.00 14
MIN	-28.80	5.85	15	-584.58	4.10	14			
	0.00	5.85	35	0.00	5.85	35	8.99	T	5.85 28
20 MAX	14.33	0.00	9	235.93	0.00	8			
	0.00	0.00	1	0.00	0.00	1	9.39	C	0.00 14
MIN	-64.40	5.85	15	-558.80	0.00	14			
	0.00	5.85	35	0.00	5.85	35	8.99	T	5.85 28
21 MAX	14.33	0.00	9	289.10	5.85	10			
	0.00	0.00	1	0.00	0.00	1	9.39	C	0.00 14
MIN	-85.50	5.85	25	-395.96	0.00	14			
	0.00	5.85	35	0.00	5.85	35	8.99	T	5.85 28
22 MAX	14.33	0.00	9	704.76	5.85	22			
	0.00	0.00	1	0.00	0.00	1	9.39	C	0.00 14
MIN	-116.86	5.85	14	-130.62	5.85	9			
	0.00	5.85	35	0.00	5.85	35	8.99	T	5.85 28
23 MAX	112.01	0.00	25	688.82	0.00	22			
	0.00	0.00	1	0.00	0.00	1	9.97	C	0.00 10
MIN	-2.56	5.83	19	-140.38	5.83	31			
	0.00	5.83	35	0.00	5.83	35	6.95	T	5.83 16
24 MAX	83.26	0.00	22	307.77	0.00	14			
	0.00	0.00	1	0.00	0.00	1	9.97	C	0.00 10
MIN	-8.23	5.25	27	-451.67	5.83	10			
	0.00	5.83	35	0.00	5.83	35	6.95	T	5.83 16
25 MAX	56.56	0.00	22	255.15	0.00	13			
	0.00	0.00	1	0.00	0.00	1	9.97	C	0.00 10
MIN	-18.17	5.85	26	-628.53	5.85	12			
	0.00	5.85	35	0.00	5.85	35	6.95	T	5.85 16
26 MAX	13.79	0.00	23	253.17	0.00	13			
	0.00	0.00	1	0.00	0.00	1	9.97	C	0.00 10
MIN	-43.13	5.85	30	-644.58	1.76	12			
	0.00	5.85	35	0.00	5.85	35	6.95	T	5.85 16
27 MAX	11.26	0.00	14	251.20	0.00	13			
	0.00	0.00	1	0.00	0.00	1	9.97	C	0.00 10

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MIN	-67.03	5.85	29	-566.54	0.00	10			
	0.00	5.85	35	0.00	5.85	35	6.95 T	5.85	16
28 MAX	11.26	0.00	14	409.96	5.85	29			
	0.00	0.00	1	0.00	0.00	1	9.97 C	0.00	10
MIN	-88.37	5.85	32	-317.85	0.00	10			
	0.00	5.85	35	0.00	5.85	35	6.95 T	5.85	16
29 MAX	71.20	0.00	30	410.89	0.00	30			
	0.00	0.00	1	0.00	0.00	1	0.00	0.00	1
MIN	0.00	4.77	34	0.00	4.77	34			
	0.00	4.77	35	0.00	4.77	35	0.00	4.77	35
30 MAX	35.60	0.00	30	142.40	0.00	30			
	0.00	0.00	1	0.00	0.00	1	0.00	0.00	1
MIN	0.00	5.62	35	0.00	4.50	35			
	0.00	5.62	35	0.00	5.62	35	0.00	5.62	35

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

853. *HS-20 FLOOR BEAM MAXIMUM FORCE RESULTS ABOVE

854. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 1

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
1 MAX	0.00	0.00	1	0.00	0.00	1			
	0.00	0.00	1	0.00	0.00	1	161.38 C	0.00	6
MIN	0.00	9.97	35	0.00	9.97	35			
	0.00	9.97	35	0.00	9.97	35	9.10 T	9.97	14

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

855. *HS-20 COLUMN 413 MAXIMUM FORCE RESULTS ABOVE

856. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 2 3

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/	DIST	LD	MZ/	DIST	LD	FX	DIST	LD
	FZ	DIST	LD	MY	DIST	LD			
2 MAX	8.96	0.00	28	60.39	9.99	14			
	0.00	0.00	1	0.00	0.00	1	195.38	C	0.00 19
MIN	-9.39	9.99	14	-65.78	9.99	9			
	0.00	9.99	35	0.00	9.99	35	12.89	T	9.99 10
3 MAX	8.95	0.00	28	97.66	4.00	14			
	0.00	0.00	1	0.00	0.00	1	195.38	C	0.00 19
MIN	-9.40	4.00	14	-99.89	4.00	28			
	0.00	4.00	35	0.00	4.00	35	12.89	T	4.00 10

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

857. *HS-20 COLUMN 313 MAXIMUM FORCE RESULTS ABOVE
 858. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 4 5

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
4	MAX	12.95	0.00	13	71.07	10.18	8		
		0.00	0.00	1	0.00	0.00	1	197.50 C	0.00 25
	MIN	-14.37	10.18	8	-75.96	0.00	8		
		0.00	10.18	35	0.00	10.18	35	16.15 T	10.18 9
5	MAX	12.95	0.00	13	128.36	4.00	8		
		0.00	0.00	1	0.00	0.00	1	197.50 C	0.00 25
	MIN	-14.37	4.00	8	-118.21	4.00	13		
		0.00	4.00	35	0.00	4.00	35	16.15 T	4.00 9

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

859. *HS-20 COLUMN 213 MAXIMUM FORCE RESULTS ABOVE
 860. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 6 7

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
6 MAX	9.97	0.00	10	47.46	12.07	16			
	0.00	0.00	1	0.00	0.00	1	152.37 C	0.00	32
MIN	-6.95	12.07	16	-74.21	12.07	10			
	0.00	12.07	35	0.00	12.07	35	11.26 T	12.07	14
7 MAX	9.97	0.00	10	75.08	4.00	16			
	0.00	0.00	1	0.00	0.00	1	152.37 C	0.00	32
MIN	-6.95	4.00	16	-113.55	4.00	10			
	0.00	4.00	35	0.00	4.00	35	11.26 T	4.00	14

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

- 861. *HS-20 COLUMN 113 MAXIMUM FORCE RESULTS ABOVE
- 862. LOAD LIST 36 TO 70
- 863. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 8 TO 30

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
8 MAX	0.00	0.00	36	70.25	6.41	39			
	0.00	0.00	36	0.00	0.00	36	0.00	0.00	36
	-17.61	6.41	42	0.00	6.41	69			
MIN	0.00	6.41	70	0.00	6.41	70	0.00	6.41	70
	0.00	0.00	43	249.65	6.10	39			
	0.00	0.00	36	0.00	0.00	36	0.00	0.00	36
9 MAX	-35.22	6.10	42	0.00	6.10	68			
	0.00	6.10	70	0.00	6.10	70	0.00	6.10	70
	0.00	0.00	41	249.65	0.00	39			
10 MAX	0.00	0.00	36	0.00	0.00	36	0.01 C	0.00	48
	-4.50	6.60	49	-235.04	6.60	44			
	0.00	6.60	70	0.00	6.60	70	0.02 T	6.60	36
11 MAX	33.31	0.00	38	171.67	0.00	48			
	0.00	0.00	36	0.00	0.00	36	0.01 C	0.00	48
	-4.50	6.33	49	-353.65	6.33	44			
MIN	0.00	6.33	70	0.00	6.33	70	0.02 T	6.33	36
	22.47	0.00	39	156.75	0.00	48			
	0.00	0.00	36	0.00	0.00	36	0.01 C	0.00	48
12 MAX	-10.50	6.33	69	-375.30	2.53	44			
	0.00	6.33	70	0.00	6.33	70	0.02 T	6.33	36
	0.00	0.00	55	141.82	0.00	48			
13 MAX	0.00	0.00	36	0.00	0.00	36	0.01 C	0.00	48
	-29.86	6.33	54	-355.13	0.00	46			
	0.00	6.33	70	0.00	6.33	70	0.02 T	6.33	36
14 MAX	3.55	0.00	60	143.69	6.33	49			
	0.00	0.00	36	0.00	0.00	36	0.01 C	0.00	48
	-43.07	6.33	54	-242.58	0.00	44			
MIN	0.00	6.33	70	0.00	6.33	70	0.02 T	6.33	36
	3.55	0.00	60	374.28	5.42	51			
	0.00	0.00	36	0.00	0.00	36	0.01 C	0.00	48
15 MAX	-54.77	5.42	44	-55.35	0.00	40			
	0.00	5.42	70	0.00	5.42	70	0.02 T	5.42	36
	53.58	0.00	54	369.76	0.00	51			
16 MAX	0.00	0.00	36	0.00	0.00	36	4.65 C	0.00	49

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MIN	-5.37	5.42	45	-43.33	0.00	45			
	0.00	5.42	70	0.00	5.42	70	4.45	T	5.42 63
17 MAX	38.59	0.00	50	184.21	0.00	44			
	0.00	0.00	36	0.00	0.00	36	4.65	C	0.00 49
MIN	-5.37	5.85	45	-184.87	5.85	50			
	0.00	5.85	70	0.00	5.85	70	4.45	T	5.85 63
18 MAX	24.35	0.00	51	142.73	0.00	44			
	0.00	0.00	36	0.00	0.00	36	4.65	C	0.00 49
MIN	-5.37	5.85	45	-275.00	5.85	50			
	0.00	5.85	70	0.00	5.85	70	4.45	T	5.85 63
19 MAX	17.58	0.00	52	125.07	0.00	43			
	0.00	0.00	36	0.00	0.00	36	4.65	C	0.00 49
MIN	-14.24	5.27	50	-289.11	4.10	49			
	0.00	5.85	70	0.00	5.85	70	4.45	T	5.85 63
20 MAX	7.08	0.00	44	116.69	0.00	43			
	0.00	0.00	36	0.00	0.00	36	4.65	C	0.00 49
MIN	-31.86	5.85	50	-276.35	0.00	49			
	0.00	5.85	70	0.00	5.85	70	4.45	T	5.85 63
21 MAX	7.08	0.00	44	142.95	5.85	45			
	0.00	0.00	36	0.00	0.00	36	4.65	C	0.00 49
MIN	-42.29	5.85	60	-195.82	0.00	49			
	0.00	5.85	70	0.00	5.85	70	4.45	T	5.85 63
22 MAX	7.08	0.00	44	348.59	5.85	57			
	0.00	0.00	36	0.00	0.00	36	4.65	C	0.00 49
MIN	-57.81	5.85	49	-64.59	5.85	44			
	0.00	5.85	70	0.00	5.85	70	4.45	T	5.85 63
23 MAX	55.41	0.00	60	340.72	0.00	57			
	0.00	0.00	36	0.00	0.00	36	4.93	C	0.00 45
MIN	-1.27	5.83	54	-69.46	5.83	66			
	0.00	5.83	70	0.00	5.83	70	3.44	T	5.83 51
24 MAX	41.18	0.00	57	152.19	0.00	49			
	0.00	0.00	36	0.00	0.00	36	4.93	C	0.00 45
MIN	-4.07	5.83	62	-223.36	5.83	45			
	0.00	5.83	70	0.00	5.83	70	3.44	T	5.83 51
25 MAX	27.98	0.00	57	126.18	0.00	48			
	0.00	0.00	36	0.00	0.00	36	4.93	C	0.00 45
MIN	-8.99	5.85	61	-310.83	5.85	47			
	0.00	5.85	70	0.00	5.85	70	3.44	T	5.85 51
26 MAX	6.82	0.00	58	125.20	0.00	48			
	0.00	0.00	36	0.00	0.00	36	4.93	C	0.00 45
MIN	-21.34	5.85	65	-318.77	1.76	47			
	0.00	5.85	70	0.00	5.85	70	3.44	T	5.85 51
27 MAX	5.57	0.00	49	124.22	0.00	48			
	0.00	0.00	36	0.00	0.00	36	4.93	C	0.00 45

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MIN	-33.16	5.85	64	-280.14	0.00	45			
	0.00	5.85	70	0.00	5.85	70	3.44 T	5.85	51
28 MAX	5.57	0.00	49	202.85	5.85	64			
	0.00	0.00	36	0.00	0.00	36	4.93 C	0.00	45
MIN	-43.72	5.85	67	-157.12	0.00	45			
	0.00	5.85	70	0.00	5.85	70	3.44 T	5.85	51
29 MAX	35.22	0.00	65	203.26	0.00	65			
	0.00	0.00	36	0.00	0.00	36	0.00	0.00	36
MIN	0.00	4.77	69	0.00	4.77	69			
	0.00	4.77	70	0.00	4.77	70	0.00	4.77	70
30 MAX	17.61	0.00	65	70.44	0.00	65			
	0.00	0.00	36	0.00	0.00	36	0.00	0.00	36
MIN	0.00	5.62	70	0.00	4.50	68			
	0.00	5.62	70	0.00	5.62	70	0.00	5.62	70

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

864. *2F1 FLOOR BEAM MAXIMUM FORCE RESULTS ABOVE

865. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 1

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
1 MAX	0.00	0.00	36	0.00	0.00	36			
	0.00	0.00	36	0.00	0.00	36	79.84 C	0.00	41
MIN	0.00	9.97	70	0.00	9.97	70			
	0.00	9.97	70	0.00	9.97	70	4.50 T	9.97	49

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

866. *2F1 COLUMN 413 MAXIMUM FORCE RESULTS ABOVE
 867. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 2 3

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
2 MAX	4.44	0.00	63	29.86	9.99	49			
	0.00	0.00	36	0.00	0.00	36	96.65 C	0.00	54
MIN	-4.65	9.99	49	-32.53	9.99	44			
	0.00	9.99	70	0.00	9.99	70	6.37 T	9.99	45
3 MAX	4.43	0.00	63	48.39	4.00	49			
	0.00	0.00	36	0.00	0.00	36	96.65 C	0.00	54
MIN	-4.65	4.00	49	-49.58	4.00	63			
	0.00	4.00	70	0.00	4.00	70	6.37 T	4.00	45

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

868. *2F1 COLUMN 313 MAXIMUM FORCE RESULTS ABOVE
 869. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 4 5

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
4 MAX	6.41	0.00	48	35.08	10.18	43			
	0.00	0.00	36	0.00	0.00	36	97.70 C	0.00	60
MIN	-7.11	10.18	43	-37.45	0.00	43			
	0.00	10.18	70	0.00	10.18	70	7.99 T	10.18	44
5 MAX	6.41	0.00	48	63.46	4.00	43			
	0.00	0.00	36	0.00	0.00	36	97.70 C	0.00	60
MIN	-7.11	4.00	43	-58.48	4.00	48			
	0.00	4.00	70	0.00	4.00	70	7.99 T	4.00	44

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

870. *2F1 COLUMN 213 MAXIMUM FORCE RESULTS ABOVE
 871. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 6 7

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
6 MAX	4.93	0.00	45	23.46	12.07	51			
	0.00	0.00	36	0.00	0.00	36	75.38 C	0.00	67
MIN	-3.44	12.07	51	-36.67	12.07	45			
	0.00	12.07	70	0.00	12.07	70	5.57 T	12.07	49
7 MAX	4.93	0.00	45	37.17	4.00	51			
	0.00	0.00	36	0.00	0.00	36	75.38 C	0.00	67
MIN	-3.44	4.00	51	-56.27	4.00	45			
	0.00	4.00	70	0.00	4.00	70	5.57 T	4.00	49

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

- 872. *2F1 COLUMN 113 MAXIMUM FORCE RESULTS ABOVE
- 873. LOAD LIST 71 TO 105
- 874. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 8 TO 30

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
8 MAX	0.00	0.00	71	103.74	6.41	74			
	0.00	0.00	71	0.00	0.00	71	0.00	0.00	71
	MIN	-26.01	6.41	77	0.00	6.41	104		
	0.00	6.41	105	0.00	6.41	105	0.00	6.41	105
9 MAX	0.00	0.00	78	368.66	6.10	74			
	0.00	0.00	71	0.00	0.00	71	0.00	0.00	71
	MIN	-52.01	6.10	77	0.00	6.10	103		
	0.00	6.10	105	0.00	6.10	105	0.00	6.10	105
10 MAX	71.14	0.00	76	368.66	0.00	74			
	0.00	0.00	71	0.00	0.00	71	0.02 C	0.00	83
	MIN	-6.64	6.60	84	-347.09	6.60	79		
	0.00	6.60	105	0.00	6.60	105	0.04 T	6.60	71
11 MAX	49.18	0.00	73	253.52	0.00	83			
	0.00	0.00	71	0.00	0.00	71	0.02 C	0.00	83
	MIN	-6.64	6.33	84	-522.24	6.33	79		
	0.00	6.33	105	0.00	6.33	105	0.04 T	6.33	71
12 MAX	33.18	0.00	74	231.48	0.00	83			
	0.00	0.00	71	0.00	0.00	71	0.02 C	0.00	83
	MIN	-15.50	6.33	104	-554.22	2.53	79		
	0.00	6.33	105	0.00	6.33	105	0.04 T	6.33	71
13 MAX	13.83	0.00	90	209.45	0.00	83			
	0.00	0.00	71	0.00	0.00	71	0.02 C	0.00	83
	MIN	-44.09	6.33	89	-524.43	0.00	81		
	0.00	6.33	105	0.00	6.33	105	0.04 T	6.33	71
14 MAX	5.25	0.00	95	212.22	6.33	84			
	0.00	0.00	71	0.00	0.00	71	0.02 C	0.00	83
	MIN	-63.60	6.33	89	-358.24	0.00	79		
	0.00	6.33	105	0.00	6.33	105	0.04 T	6.33	71
15 MAX	5.25	0.00	95	552.69	5.42	86			
	0.00	0.00	71	0.00	0.00	71	0.02 C	0.00	83
	MIN	-80.88	5.42	79	-81.77	0.00	75		
	0.00	5.42	105	0.00	5.42	105	0.04 T	5.42	71
16 MAX	79.13	0.00	89	546.04	0.00	86			
	0.00	0.00	71	0.00	0.00	71	6.86 C	0.00	84

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MIN	-7.93	5.42	80	-63.99	0.00	80			
	0.00	5.42	105	0.00	5.42	105	6.57	T	5.42 98
17 MAX	56.98	0.00	85	272.07	0.00	79			
	0.00	0.00	71	0.00	0.00	71	6.86	C	0.00 84
MIN	-7.93	5.85	80	-273.03	5.85	85			
	0.00	5.85	105	0.00	5.85	105	6.57	T	5.85 98
18 MAX	35.96	0.00	86	210.80	0.00	79			
	0.00	0.00	71	0.00	0.00	71	6.86	C	0.00 84
MIN	-7.93	5.85	80	-406.14	5.85	85			
	0.00	5.85	105	0.00	5.85	105	6.57	T	5.85 98
19 MAX	25.96	0.00	87	184.71	0.00	78			
	0.00	0.00	71	0.00	0.00	71	6.86	C	0.00 84
MIN	-21.03	5.85	85	-426.97	4.10	84			
	0.00	5.85	105	0.00	5.85	105	6.57	T	5.85 98
20 MAX	10.46	0.00	79	172.33	0.00	78			
	0.00	0.00	71	0.00	0.00	71	6.86	C	0.00 84
MIN	-47.04	5.85	85	-408.14	0.00	84			
	0.00	5.85	105	0.00	5.85	105	6.57	T	5.85 98
21 MAX	10.46	0.00	79	211.13	5.85	80			
	0.00	0.00	71	0.00	0.00	71	6.86	C	0.00 84
MIN	-62.45	5.85	95	-289.20	0.00	84			
	0.00	5.85	105	0.00	5.85	105	6.57	T	5.85 98
22 MAX	10.46	0.00	79	514.79	5.85	92			
	0.00	0.00	71	0.00	0.00	71	6.86	C	0.00 84
MIN	-85.36	5.85	84	-95.39	5.85	79			
	0.00	5.85	105	0.00	5.85	105	6.57	T	5.85 98
23 MAX	81.82	0.00	95	503.16	0.00	92			
	0.00	0.00	71	0.00	0.00	71	7.28	C	0.00 80
MIN	-1.87	5.83	89	-102.56	5.83	101			
	0.00	5.83	105	0.00	5.83	105	5.08	T	5.83 86
24 MAX	60.82	0.00	92	224.78	0.00	84			
	0.00	0.00	71	0.00	0.00	71	7.28	C	0.00 80
MIN	-6.01	5.83	97	-329.88	5.83	80			
	0.00	5.83	105	0.00	5.83	105	5.08	T	5.83 86
25 MAX	41.31	0.00	92	186.36	0.00	83			
	0.00	0.00	71	0.00	0.00	71	7.28	C	0.00 80
MIN	-13.27	5.85	96	-459.07	5.85	82			
	0.00	5.85	105	0.00	5.85	105	5.08	T	5.85 86
26 MAX	10.08	0.00	93	184.91	0.00	83			
	0.00	0.00	71	0.00	0.00	71	7.28	C	0.00 80
MIN	-31.51	5.85	100	-470.79	1.76	82			
	0.00	5.85	105	0.00	5.85	105	5.08	T	5.85 86
27 MAX	8.23	0.00	84	183.46	0.00	83			
	0.00	0.00	71	0.00	0.00	71	7.28	C	0.00 80

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MIN	-48.97	5.85	99	-413.76	0.00	80			
	0.00	5.85	105	0.00	5.85	105	5.08 T	5.85	86
28 MAX	8.23	0.00	84	299.51	5.85	99			
	0.00	0.00	71	0.00	0.00	71	7.28 C	0.00	80
MIN	-64.55	5.27	102	-232.10	0.00	80			
	0.00	5.85	105	0.00	5.85	105	5.08 T	5.85	86
29 MAX	52.01	0.00	100	300.15	0.00	100			
	0.00	0.00	71	0.00	0.00	71	0.00	0.00	71
MIN	0.00	4.77	104	0.00	4.77	104			
	0.00	4.77	105	0.00	4.77	105	0.00	4.77	105
30 MAX	26.01	0.00	100	104.02	0.00	100			
	0.00	0.00	71	0.00	0.00	71	0.00	0.00	71
MIN	0.00	5.62	105	0.00	4.50	103			
	0.00	5.62	105	0.00	5.62	105	0.00	5.62	105

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

875. *3F1 FLOOR BEAM MAXIMUM FORCE RESULTS ABOVE

876. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 1

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
1 MAX	0.00	0.00	71	0.00	0.00	71			
	0.00	0.00	71	0.00	0.00	71	117.89 C	0.00	76
MIN	0.00	9.97	105	0.00	9.97	105			
	0.00	9.97	105	0.00	9.97	105	6.64 T	9.97	84

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

877. *3F1 COLUMN 413 MAXIMUM FORCE RESULTS ABOVE
 878. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 2 3

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
2 MAX	6.55	0.00	98	44.10	9.99	84			
	0.00	0.00	71	0.00	0.00	71	142.72 C	0.00	89
MIN	-6.86	9.99	84	-48.04	9.99	79			
	0.00	9.99	105	0.00	9.99	105	9.41 T	9.99	80
3 MAX	6.54	0.00	98	71.40	4.00	84			
	0.00	0.00	71	0.00	0.00	71	142.72 C	0.00	89
MIN	-6.87	4.00	84	-73.10	4.00	98			
	0.00	4.00	105	0.00	4.00	105	9.41 T	4.00	80

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

879. *3F1 COLUMN 313 MAXIMUM FORCE RESULTS ABOVE
 880. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 4 5

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
4 MAX	9.46	0.00	83	51.86	10.18	78			
	0.00	0.00	71	0.00	0.00	71	144.27 C	0.00	95
	MIN	-10.50	10.18	78	-55.39	0.00	78		
	0.00	10.18	105	0.00	10.18	105	11.80 T	10.18	79
5 MAX	9.46	0.00	83	93.73	4.00	78			
	0.00	0.00	71	0.00	0.00	71	144.27 C	0.00	95
	MIN	-10.50	4.00	78	-86.36	4.00	83		
	0.00	4.00	105	0.00	4.00	105	11.80 T	4.00	79

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

881. *3F1 COLUMN 213 MAXIMUM FORCE RESULTS ABOVE
 882. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 6 7

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
6 MAX	7.28	0.00	80	34.65	12.07	86			
	0.00	0.00	71	0.00	0.00	71	111.31 C	0.00	102
MIN	-5.08	12.07	86	-54.18	12.07	80			
	0.00	12.07	105	0.00	12.07	105	8.23 T	12.07	84
7 MAX	7.28	0.00	80	54.87	4.00	86			
	0.00	0.00	71	0.00	0.00	71	111.31 C	0.00	102
MIN	-5.08	4.00	86	-83.02	4.00	80			
	0.00	4.00	105	0.00	4.00	105	8.23 T	4.00	84

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

- 883. *3F1 COLUMN 113 MAXIMUM FORCE RESULTS ABOVE
- 884. LOAD LIST 106 TO 140
- 885. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 8 TO 30

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
8 MAX	0.00	0.00	106	117.68	6.41	109			
	0.00	0.00	106	0.00	0.00	106	0.00	0.00	106
MIN	-29.50	6.41	112	0.00	6.41	139			
	0.00	6.41	140	0.00	6.41	140	0.00	6.41	140
9 MAX	0.00	0.00	113	418.18	6.10	109			
	0.00	0.00	106	0.00	0.00	106	0.00	0.00	106
MIN	-59.00	6.10	112	0.00	6.10	138			
	0.00	6.10	140	0.00	6.10	140	0.00	6.10	140
10 MAX	80.70	0.00	111	418.18	0.00	109			
	0.00	0.00	106	0.00	0.00	106	0.02 C	0.00	118
MIN	-7.54	6.60	119	-393.72	6.60	114			
	0.00	6.60	140	0.00	6.60	140	0.06 T	6.60	106
11 MAX	55.79	0.00	108	287.58	0.00	118			
	0.00	0.00	106	0.00	0.00	106	0.02 C	0.00	118
MIN	-7.54	6.33	119	-592.40	6.33	114			
	0.00	6.33	140	0.00	6.33	140	0.06 T	6.33	106
12 MAX	37.63	0.00	109	262.59	0.00	118			
	0.00	0.00	106	0.00	0.00	106	0.02 C	0.00	118
MIN	-17.58	6.33	139	-628.67	2.53	114			
	0.00	6.33	140	0.00	6.33	140	0.06 T	6.33	106
13 MAX	15.68	0.00	125	237.60	0.00	118			
	0.00	0.00	106	0.00	0.00	106	0.02 C	0.00	118
MIN	-50.01	6.33	124	-594.89	0.00	116			
	0.00	6.33	140	0.00	6.33	140	0.06 T	6.33	106
14 MAX	5.95	0.00	130	240.75	6.33	119			
	0.00	0.00	106	0.00	0.00	106	0.02 C	0.00	118
MIN	-72.14	6.33	124	-406.38	0.00	114			
	0.00	6.33	140	0.00	6.33	140	0.06 T	6.33	106
15 MAX	5.95	0.00	130	626.93	5.42	121			
	0.00	0.00	106	0.00	0.00	106	0.02 C	0.00	118
MIN	-91.75	5.42	114	-92.78	0.00	110			
	0.00	5.42	140	0.00	5.42	140	0.06 T	5.42	106
16 MAX	89.76	0.00	124	619.40	0.00	121			
	0.00	0.00	106	0.00	0.00	106	7.78 C	0.00	119

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MIN	-9.00	5.42	115	-72.59	0.00	115			
	0.00	5.42	140	0.00	5.42	140	7.45	T	5.42 133
17 MAX	64.64	0.00	120	308.64	0.00	114			
	0.00	0.00	106	0.00	0.00	106	7.78	C	0.00 119
MIN	-9.00	5.85	115	-309.72	5.85	120			
	0.00	5.85	140	0.00	5.85	140	7.45	T	5.85 133
18 MAX	40.79	0.00	121	239.12	0.00	114			
	0.00	0.00	106	0.00	0.00	106	7.78	C	0.00 119
MIN	-9.00	5.85	115	-460.72	5.85	120			
	0.00	5.85	140	0.00	5.85	140	7.45	T	5.85 133
19 MAX	29.45	0.00	122	209.53	0.00	113			
	0.00	0.00	106	0.00	0.00	106	7.78	C	0.00 119
MIN	-23.86	5.85	120	-484.35	4.10	119			
	0.00	5.85	140	0.00	5.85	140	7.45	T	5.85 133
20 MAX	11.87	0.00	114	195.49	0.00	113			
	0.00	0.00	106	0.00	0.00	106	7.78	C	0.00 119
MIN	-53.36	5.85	120	-462.99	0.00	119			
	0.00	5.85	140	0.00	5.85	140	7.45	T	5.85 133
21 MAX	11.87	0.00	114	239.52	5.85	115			
	0.00	0.00	106	0.00	0.00	106	7.78	C	0.00 119
MIN	-70.84	5.85	130	-328.07	0.00	119			
	0.00	5.85	140	0.00	5.85	140	7.45	T	5.85 133
22 MAX	11.87	0.00	114	583.96	5.85	127			
	0.00	0.00	106	0.00	0.00	106	7.78	C	0.00 119
MIN	-96.83	5.85	119	-108.22	5.85	114			
	0.00	5.85	140	0.00	5.85	140	7.45	T	5.85 133
23 MAX	92.81	0.00	130	570.76	0.00	127			
	0.00	0.00	106	0.00	0.00	106	8.26	C	0.00 115
MIN	-2.12	5.83	124	-116.33	5.83	136			
	0.00	5.83	140	0.00	5.83	140	5.76	T	5.83 121
24 MAX	68.99	0.00	127	254.99	0.00	119			
	0.00	0.00	106	0.00	0.00	106	8.26	C	0.00 115
MIN	-6.82	5.25	132	-374.22	5.83	115			
	0.00	5.83	140	0.00	5.83	140	5.76	T	5.83 121
25 MAX	46.86	0.00	127	211.40	0.00	118			
	0.00	0.00	106	0.00	0.00	106	8.26	C	0.00 115
MIN	-15.05	5.27	131	-520.77	5.85	117			
	0.00	5.85	140	0.00	5.85	140	5.76	T	5.85 121
26 MAX	11.43	0.00	128	209.76	0.00	118			
	0.00	0.00	106	0.00	0.00	106	8.26	C	0.00 115
MIN	-35.74	5.85	135	-534.06	1.76	117			
	0.00	5.85	140	0.00	5.85	140	5.76	T	5.85 121
27 MAX	9.33	0.00	119	208.13	0.00	118			
	0.00	0.00	106	0.00	0.00	106	8.26	C	0.00 115

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MIN	-55.55	5.85	134	-469.38	0.00	115			
	0.00	5.85	140	0.00	5.85	140	5.76 T	5.85	121
28 MAX	9.33	0.00	119	339.73	5.85	134			
	0.00	0.00	106	0.00	0.00	106	8.26 C	0.00	115
MIN	-73.23	5.85	137	-263.32	0.00	115			
	0.00	5.85	140	0.00	5.85	140	5.76 T	5.85	121
29 MAX	59.00	0.00	135	340.48	0.00	135			
	0.00	0.00	106	0.00	0.00	106	0.00	0.00	106
MIN	0.00	4.77	139	0.00	4.77	139			
	0.00	4.77	140	0.00	4.77	140	0.00	4.77	140
30 MAX	29.50	0.00	135	118.00	0.00	135			
	0.00	0.00	106	0.00	0.00	106	0.00	0.00	106
MIN	0.00	5.06	140	0.00	4.50	124			
	0.00	5.62	140	0.00	5.62	140	0.00	5.62	140

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

886. *4F1 FLOOR BEAM MAXIMUM FORCE RESULTS ABOVE
 887. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 1

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
1 MAX	0.00	0.00	106	0.00	0.00	106			
	0.00	0.00	106	0.00	0.00	106	133.73 C	0.00	111
MIN	0.00	9.97	140	0.00	9.97	140			
	0.00	9.97	140	0.00	9.97	140	7.54 T	9.97	119

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

888. *4F1 COLUMN 413 MAXIMUM FORCE RESULTS ABOVE
 889. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 2 3

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
2 MAX	7.43	0.00	133	50.03	9.99	119			
	0.00	0.00	106	0.00	0.00	106	161.89 C	0.00	124
MIN	-7.79	9.99	119	-54.50	9.99	114			
	0.00	9.99	140	0.00	9.99	140	10.68 T	9.99	115
3 MAX	7.42	0.00	133	80.97	4.00	119			
	0.00	0.00	106	0.00	0.00	106	161.89 C	0.00	124
MIN	-7.79	4.00	119	-82.87	4.00	133			
	0.00	4.00	140	0.00	4.00	140	10.68 T	4.00	115

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

890. *4F1 COLUMN 313 MAXIMUM FORCE RESULTS ABOVE
 891. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 4 5

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
4	MAX	10.73	0.00	118	58.85	10.18	113		
		0.00	0.00	106	0.00	0.00	106	163.65 C	0.00 130
	MIN	-11.91	10.18	113	-62.87	0.00	113		
		0.00	10.18	140	0.00	10.18	140	13.38 T	10.18 114
5	MAX	10.73	0.00	118	106.34	4.00	113		
		0.00	0.00	106	0.00	0.00	106	163.65 C	0.00 130
	MIN	-11.91	4.00	113	-97.96	4.00	118		
		0.00	4.00	140	0.00	4.00	140	13.38 T	4.00 114

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

892. *4F1 COLUMN 213 MAXIMUM FORCE RESULTS ABOVE
 893. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 6 7

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
6 MAX	8.26	0.00	115	39.31	12.07	121			
	0.00	0.00	106	0.00	0.00	106	126.26 C	0.00	137
MIN	-5.76	12.07	121	-61.47	12.07	115			
	0.00	12.07	140	0.00	12.07	140	9.33 T	12.07	119
7 MAX	8.26	0.00	115	62.23	4.00	121			
	0.00	0.00	106	0.00	0.00	106	126.26 C	0.00	137
MIN	-5.76	4.00	121	-94.15	4.00	115			
	0.00	4.00	140	0.00	4.00	140	9.33 T	4.00	119

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

- 894. *4F1 COLUMN 113 MAXIMUM FORCE RESULTS ABOVE
- 895. LOAD LIST 141 TO 175
- 896. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 8 TO 30

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
8 MAX	0.00	0.00	141	100.67	6.41	144			
	0.00	0.00	141	0.00	0.00	141	0.00	0.00	141
	MIN -25.24	6.41	147	0.00	6.41	174			
	0.00	6.41	175	0.00	6.41	175	0.00	6.41	175
9 MAX	0.00	0.00	148	357.76	6.10	144			
	0.00	0.00	141	0.00	0.00	141	0.00	0.00	141
	MIN -50.47	6.10	147	0.00	6.10	173			
	0.00	6.10	175	0.00	6.10	175	0.00	6.10	175
10 MAX	69.04	0.00	146	357.76	0.00	144			
	0.00	0.00	141	0.00	0.00	141	0.01 C	0.00	153
	MIN -6.45	6.60	154	-336.82	6.60	149			
	0.00	6.60	175	0.00	6.60	175	0.04 T	6.60	141
11 MAX	47.73	0.00	143	246.02	0.00	153			
	0.00	0.00	141	0.00	0.00	141	0.01 C	0.00	153
	MIN -6.45	6.33	154	-506.79	6.33	149			
	0.00	6.33	175	0.00	6.33	175	0.04 T	6.33	141
12 MAX	32.20	0.00	144	224.64	0.00	153			
	0.00	0.00	141	0.00	0.00	141	0.01 C	0.00	153
	MIN -15.04	6.33	174	-537.82	2.53	149			
	0.00	6.33	175	0.00	6.33	175	0.04 T	6.33	141
13 MAX	13.42	0.00	160	203.25	0.00	153			
	0.00	0.00	141	0.00	0.00	141	0.01 C	0.00	153
	MIN -42.79	6.33	159	-508.92	0.00	151			
	0.00	6.33	175	0.00	6.33	175	0.04 T	6.33	141
14 MAX	5.09	0.00	165	205.94	6.33	154			
	0.00	0.00	141	0.00	0.00	141	0.01 C	0.00	153
	MIN -61.71	6.33	159	-347.64	0.00	149			
	0.00	6.33	175	0.00	6.33	175	0.04 T	6.33	141
15 MAX	5.09	0.00	165	536.34	5.42	156			
	0.00	0.00	141	0.00	0.00	141	0.01 C	0.00	153
	MIN -78.49	5.42	149	-79.35	0.00	145			
	0.00	5.42	175	0.00	5.42	175	0.04 T	5.42	141
16 MAX	76.79	0.00	159	529.89	0.00	156			
	0.00	0.00	141	0.00	0.00	141	6.66 C	0.00	154

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MIN	-7.70	5.42	150	-62.10	0.00	150			
	0.00	5.42	175	0.00	5.42	175	6.37	T	5.42 168
17 MAX	55.30	0.00	155	264.02	0.00	149			
	0.00	0.00	141	0.00	0.00	141	6.66	C	0.00 154
MIN	-7.70	5.85	150	-264.95	5.85	155			
	0.00	5.85	175	0.00	5.85	175	6.37	T	5.85 168
18 MAX	34.90	0.00	156	204.56	0.00	149			
	0.00	0.00	141	0.00	0.00	141	6.66	C	0.00 154
MIN	-7.70	5.85	150	-394.13	5.85	155			
	0.00	5.85	175	0.00	5.85	175	6.37	T	5.85 168
19 MAX	25.20	0.00	157	179.24	0.00	148			
	0.00	0.00	141	0.00	0.00	141	6.66	C	0.00 154
MIN	-20.41	5.85	155	-414.34	4.10	154			
	0.00	5.85	175	0.00	5.85	175	6.37	T	5.85 168
20 MAX	10.15	0.00	149	167.23	0.00	148			
	0.00	0.00	141	0.00	0.00	141	6.66	C	0.00 154
MIN	-45.65	5.85	155	-396.07	0.00	154			
	0.00	5.85	175	0.00	5.85	175	6.37	T	5.85 168
21 MAX	10.15	0.00	149	204.89	5.85	150			
	0.00	0.00	141	0.00	0.00	141	6.66	C	0.00 154
MIN	-60.61	5.85	165	-280.65	0.00	154			
	0.00	5.85	175	0.00	5.85	175	6.37	T	5.85 168
22 MAX	10.15	0.00	149	499.56	5.85	162			
	0.00	0.00	141	0.00	0.00	141	6.66	C	0.00 154
MIN	-82.84	5.85	154	-92.57	5.85	149			
	0.00	5.85	175	0.00	5.85	175	6.37	T	5.85 168
23 MAX	79.40	0.00	165	488.28	0.00	162			
	0.00	0.00	141	0.00	0.00	141	7.07	C	0.00 150
MIN	-1.82	5.83	159	-99.52	5.83	171			
	0.00	5.83	175	0.00	5.83	175	4.93	T	5.83 156
24 MAX	59.02	0.00	162	218.13	0.00	154			
	0.00	0.00	141	0.00	0.00	141	7.07	C	0.00 150
MIN	-5.84	5.25	167	-320.12	5.83	150			
	0.00	5.83	175	0.00	5.83	175	4.93	T	5.83 156
25 MAX	40.09	0.00	162	180.84	0.00	153			
	0.00	0.00	141	0.00	0.00	141	7.07	C	0.00 150
MIN	-12.88	5.27	166	-445.49	5.85	152			
	0.00	5.85	175	0.00	5.85	175	4.93	T	5.85 156
26 MAX	9.78	0.00	163	179.44	0.00	153			
	0.00	0.00	141	0.00	0.00	141	7.07	C	0.00 150
MIN	-30.57	5.27	170	-456.86	1.76	152			
	0.00	5.85	175	0.00	5.85	175	4.93	T	5.85 156
27 MAX	7.98	0.00	154	178.03	0.00	153			
	0.00	0.00	141	0.00	0.00	141	7.07	C	0.00 150

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MIN	-47.52	5.85	169	-401.51	0.00	150			
	0.00	5.85	175	0.00	5.85	175	4.93 T	5.85	156
28 MAX	7.98	0.00	154	290.65	5.85	169			
	0.00	0.00	141	0.00	0.00	141	7.07 C	0.00	150
MIN	-62.64	5.85	172	-225.23	0.00	150			
	0.00	5.85	175	0.00	5.85	175	4.93 T	5.85	156
29 MAX	50.47	0.00	170	291.28	0.00	170			
	0.00	0.00	141	0.00	0.00	141	0.00	0.00	141
MIN	0.00	4.77	174	0.00	4.77	174			
	0.00	4.77	175	0.00	4.77	175	0.00	4.77	175
30 MAX	25.24	0.00	170	100.95	0.00	170			
	0.00	0.00	141	0.00	0.00	141	0.00	0.00	141
MIN	0.00	5.62	175	0.00	4.50	175			
	0.00	5.62	175	0.00	5.62	175	0.00	5.62	175

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

897. *5C1 FLOOR BEAM MAXIMUM FORCE RESULTS ABOVE

898. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 1

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/	DIST	LD	MZ/	DIST	LD	FX	DIST	LD
	FZ	DIST	LD	MY	DIST	LD			
1 MAX	0.00	0.00	141	0.00	0.00	141	114.41 C	0.00	146
	0.00	0.00	141	0.00	0.00	141			
MIN	0.00	9.97	175	0.00	9.97	175	6.45 T	9.97	154
	0.00	9.97	175	0.00	9.97	175			

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

899. *5C1 COLUMN 413 MAXIMUM FORCE RESULTS ABOVE
 900. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 2 3

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
2 MAX	6.35	0.00	168	42.80	9.99	154			
	0.00	0.00	141	0.00	0.00	141	138.50 C	0.00	159
MIN	-6.66	9.99	154	-46.62	9.99	149			
	0.00	9.99	175	0.00	9.99	175	9.13 T	9.99	150
3 MAX	6.35	0.00	168	69.29	4.00	154			
	0.00	0.00	141	0.00	0.00	141	138.50 C	0.00	159
MIN	-6.67	4.00	154	-70.95	4.00	168			
	0.00	4.00	175	0.00	4.00	175	9.13 T	4.00	150

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

- 901. *5C1 COLUMN 313 MAXIMUM FORCE RESULTS ABOVE
- 902. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 4 5

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
4 MAX	9.18	0.00	153	50.32	10.18	148			
	0.00	0.00	141	0.00	0.00	141	140.01 C	0.00	165
MIN	-10.18	10.18	148	-53.74	0.00	148			
	0.00	10.18	175	0.00	10.18	175	11.45 T	10.18	149
5 MAX	9.18	0.00	153	90.96	4.00	148			
	0.00	0.00	141	0.00	0.00	141	140.01 C	0.00	165
MIN	-10.18	4.00	148	-83.80	4.00	153			
	0.00	4.00	175	0.00	4.00	175	11.45 T	4.00	149

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

- 903. *5C1 COLUMN 213 MAXIMUM FORCE RESULTS ABOVE
- 904. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 6 7

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/	DIST	LD	MZ/	DIST	LD	FX	DIST	LD
	FZ	DIST	LD	MY	DIST	LD			
6 MAX	7.07	0.00	150	33.63	12.07	156			
	0.00	0.00	141	0.00	0.00	141	108.01 C	0.00	172
MIN	-4.93	12.07	156	-52.57	12.07	150			
	0.00	12.07	175	0.00	12.07	175	7.98 T	12.07	154
7 MAX	7.07	0.00	150	53.25	4.00	156			
	0.00	0.00	141	0.00	0.00	141	108.01 C	0.00	172
MIN	-4.93	4.00	156	-80.58	4.00	150			
	0.00	4.00	175	0.00	4.00	175	7.98 T	4.00	154

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

- 905. *5C1 COLUMN 113 MAXIMUM FORCE RESULTS ABOVE
- 906. LOAD LIST 176 TO 285
- 907. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 8 TO 30

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
8 MAX	0.00	0.00	176	70.07	6.41	176			
	0.00	0.00	176	0.00	0.00	176	0.00	0.00	176
	-23.60	6.41	178	0.00	6.41	285			
MIN	0.00	6.41	285	0.00	6.41	285	0.00	6.41	285
	0.00	0.00	179	286.39	6.10	176			
	0.00	0.00	176	0.00	0.00	176	0.00	0.00	176
9 MIN	-47.20	5.49	178	0.00	6.10	285			
	0.00	6.10	285	0.00	6.10	285	0.00	6.10	285
	0.00	0.00	185	286.39	0.00	176			
10 MAX	42.27	0.00	185	286.39	0.00	176			
	0.00	0.00	176	0.00	0.00	176	0.00 C	0.00	176
	-4.93	6.60	185	-205.92	6.60	192			
MIN	0.00	6.60	285	0.00	6.60	285	0.00 T	6.60	195
	31.18	0.00	192	222.79	0.00	176			
	0.00	0.00	176	0.00	0.00	176	0.00 C	0.00	176
11 MIN	-14.48	6.33	191	-288.57	6.33	197			
	0.00	6.33	285	0.00	6.33	285	0.00 T	6.33	195
	22.25	0.00	198	161.81	0.00	176			
12 MAX	0.00	0.00	176	0.00	0.00	176	0.00 C	0.00	176
	-24.95	6.33	198	-296.16	1.27	199			
	0.00	6.33	285	0.00	6.33	285	0.00 T	6.33	195
13 MAX	13.01	0.00	205	100.83	0.00	176			
	0.00	0.00	176	0.00	0.00	176	0.00 C	0.00	176
	-32.97	6.33	204	-283.69	0.00	198			
MIN	0.00	6.33	285	0.00	6.33	285	0.00 T	6.33	195
	9.63	0.00	176	102.45	6.33	230			
	0.00	0.00	176	0.00	0.00	176	0.00 C	0.00	176
14 MIN	-39.77	6.33	210	-207.38	0.00	205			
	0.00	6.33	285	0.00	6.33	285	0.00 T	6.33	195
	9.63	0.00	176	181.56	5.42	203			
15 MAX	0.00	0.00	176	0.00	0.00	176	0.00 C	0.00	176
	-44.24	5.42	215	-74.37	0.00	211			
	0.00	5.42	285	0.00	5.42	285	0.00 T	5.42	195
16 MAX	44.20	0.00	222	151.24	0.00	230			
	0.00	0.00	176	0.00	0.00	176	2.86 C	0.00	230

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MIN	-3.80	5.42	261	-78.60	5.42	227			
	0.00	5.42	285	0.00	5.42	285	2.85	T	5.42 203
17 MAX	37.85	0.00	228	122.95	0.00	203			
	0.00	0.00	176	0.00	0.00	176	2.86	C	0.00 230
MIN	-8.20	5.85	227	-175.83	5.85	230			
	0.00	5.85	285	0.00	5.85	285	2.85	T	5.85 203
18 MAX	16.32	0.00	231	95.23	0.00	203			
	0.00	0.00	176	0.00	0.00	176	2.86	C	0.00 230
MIN	-11.81	5.85	230	-210.36	2.93	230			
	0.00	5.85	285	0.00	5.85	285	2.85	T	5.85 203
19 MAX	16.32	0.00	231	67.53	0.00	203			
	0.00	0.00	176	0.00	0.00	176	2.86	C	0.00 230
MIN	-11.81	5.85	230	-240.50	5.27	231			
	0.00	5.85	285	0.00	5.85	285	2.85	T	5.85 203
20 MAX	15.02	0.00	232	78.34	5.85	261			
	0.00	0.00	176	0.00	0.00	176	2.86	C	0.00 230
MIN	-30.88	5.85	231	-240.36	0.00	231			
	0.00	5.85	285	0.00	5.85	285	2.85	T	5.85 203
21 MAX	7.71	0.00	238	100.62	5.85	261			
	0.00	0.00	176	0.00	0.00	176	2.86	C	0.00 230
MIN	-38.37	5.85	237	-191.46	0.00	231			
	0.00	5.85	285	0.00	5.85	285	2.85	T	5.85 203
22 MAX	4.73	0.00	203	170.16	5.85	231			
	0.00	0.00	176	0.00	0.00	176	2.86	C	0.00 230
MIN	-43.60	5.85	242	-85.58	0.00	237			
	0.00	5.85	285	0.00	5.85	285	2.85	T	5.85 203
23 MAX	44.19	0.00	249	156.91	0.00	261			
	0.00	0.00	176	0.00	0.00	176	3.45	C	0.00 266
MIN	-6.42	5.83	285	-88.64	5.83	254			
	0.00	5.83	285	0.00	5.83	285	2.64	T	5.83 285
24 MAX	37.89	0.00	255	110.95	0.00	231			
	0.00	0.00	176	0.00	0.00	176	3.45	C	0.00 266
MIN	-8.16	5.83	254	-202.02	5.83	260			
	0.00	5.83	285	0.00	5.83	285	2.64	T	5.83 285
25 MAX	30.03	0.00	261	86.93	0.00	231			
	0.00	0.00	176	0.00	0.00	176	3.45	C	0.00 266
MIN	-15.79	5.85	260	-252.69	5.85	266			
	0.00	5.85	285	0.00	5.85	285	2.64	T	5.85 285
26 MAX	21.17	0.00	267	105.11	5.85	285			
	0.00	0.00	176	0.00	0.00	176	3.45	C	0.00 266
MIN	-23.01	5.85	265	-255.79	3.51	264			
	0.00	5.85	285	0.00	5.85	285	2.64	T	5.85 285
27 MAX	13.39	0.00	272	142.69	5.85	285			
	0.00	0.00	176	0.00	0.00	176	3.45	C	0.00 266

DXF IMPORT OF 002_1441BENT_13.DXF

-- PAGE NO. 55

MIN	-32.25	5.85	271	-247.34	0.00	266			
	0.00	5.85	285	0.00	5.85	285	2.64	T	5.85 285
28 MAX	4.12	0.00	231	180.28	5.85	285			
	0.00	0.00	176	0.00	0.00	176	3.45	C	0.00 266
MIN	-41.61	5.85	277	-159.45	0.00	272			
	0.00	5.85	285	0.00	5.85	285	2.64	T	5.85 285
29 MAX	47.20	0.00	284	211.63	0.00	285			
	0.00	0.00	176	0.00	0.00	176	0.00		0.00 176
MIN	0.00	4.77	282	0.00	2.86	278			
	0.00	4.77	285	0.00	4.77	285	0.00		4.77 285
30 MAX	23.60	0.00	283	64.02	0.00	285			
	0.00	0.00	176	0.00	0.00	176	0.00		0.00 176
MIN	0.00	5.62	285	0.00	4.50	283			
	0.00	5.62	285	0.00	5.62	285	0.00		5.62 285

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

908. *FATIGUE TRUCK FLOOR BEAM MAXIMUM FORCE RESULTS ABOVE
 909. FINISH

***** END OF THE STAAD.Pro RUN *****

**** DATE= APR 11,2012 TIME= 9:57:12 ****

```
*****
*           For questions on STAAD.Pro, please contact           *
*   Bentley Systems Offices at the following locations           *
*                                                                 *
*           Telephone           Web / Email           *
*                                                                 *
*   USA:           +1 (714)974-2500           *
*   UK           +44(1454)207-000           *
*   SINGAPORE +65 6225-6158           *
*   EUROPE      +31 23 5560560           *
*   INDIA       +91(033)4006-2021           *
*   JAPAN       +81(03)5952-6500   http://www.ctc-g.co.jp   *
*   CHINA       +86 10 5929 7000           *
*   THAILAND    +66(0)2645-1018/19 partha.p@reisoftwareth.com *
*                                                                 *
*   Worldwide    http://selectservices.bentley.com/en-US/   *
*                                                                 *
*****
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EAST APPROACH - FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/30/2012
Date 4/13/2012

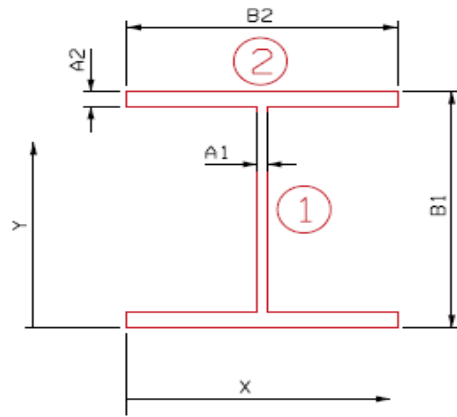
Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Red text indicates user input

Element Dimensions (without Section Losses):

$A_1 = t_w = 0.7700$ in
 $A_2 = t_f = 1.2600$ in
 $B_1 = d = 36.4800$ in
 $B_2 = b_f = 12.1170$ in
36WF194



FB-13 @ COLUMN 413
EAST APPR. FWD SECTION

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I _o	d	Ad ²	I _{x,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		26.1492	18.2400	476.9614	2513.1159	0.0000	0.0000	2513.1159
2	Top Flange		15.2674	35.8500	547.3370	2.0199	17.6100	4734.6117	4736.6316
	Bottom Flange		15.2674	0.6300	9.6185	2.0199	17.6100	4734.6117	4736.6316
Total			56.68		1033.92	2517.16		9469.22	11986.38
Section Losses			A	y	Ay	I _o	d	Ad ²	I _{x,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.1250	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	18.2400	in	S _{top} = 657.15 in ³	y-bar =	18.2400	in	S _{top} = 657.15 in ³
I _x =	11986.38	in ⁴	S _{bottom} = 657.15 in ³	I _x =	11986.38	in ⁴	S _{bottom} = 657.15 in ³
C _{top} =	18.2400	in	A = 56.6840 in ²	C _{top} =	18.2400	in	A = 56.6840 in ²
C _{bottom} =	18.2400	in	r _x = 14.5416 in	C _{bottom} =	18.2400	in	r _x = 14.5416 in
			Z = 759.73 in ³				Z = warning in ³

EAST APPROACH - FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/30/2012
Date 4/13/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Floorbeam Capacities

Non-composite Capacities*		
	AB	AI
M	1807.16 k-ft	1807.16 k-ft
V	500.50 k	500.50 k

*Noncompact Section

$F_y =$	33.00 ksi
---------	------------------

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

As-Built Moments and Shears						
	DL	HS20	2F1	3F1	4F1	5C1
M	222.92 k-ft	504.67 k-ft	249.65 k-ft	368.66 k-ft	418.18 k-ft	357.76 k-ft
V	25.59 k	76.27 k	48.17 k	71.14 k	80.70 k	69.04 k

As-Built Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.39	---	---	---	---
Operating M	2.31	4.68	3.17	2.79	3.26
As-Inspected Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.39	---	---	---	---
Operating M	2.31	4.68	3.17	2.79	3.26
As-Built Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	2.82	---	---	---	---
Operating V	4.71	7.46	5.05	4.45	5.21
As-Inspected Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	2.82	---	---	---	---
Operating V	4.71	7.46	5.05	4.45	5.21

Controlling Rating Factors and Tonnage						
	HS20 Inventory	HS20 Operating	2F1 Operating	3F1 Operating	4F1 Operating	5C1 Operating
Rating Factor	1.39	2.31	4.68	3.17	2.79	3.26
Tonnage (US Tons)	50.04	83.16	70.2	72.91	75.33	130.4

EAST APPROACH - FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/30/2012
Date 4/13/2012

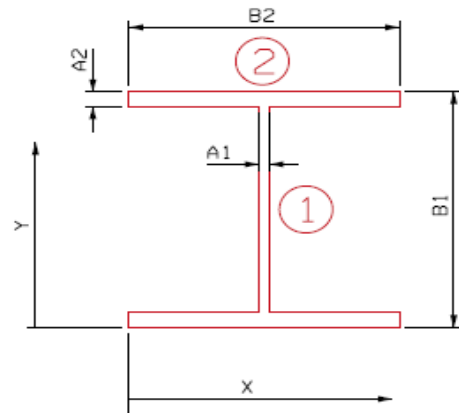
Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Red text indicates user input

Element Dimensions (without Section Losses):

$A_1 = t_w = 0.7700$ in
 $A_2 = t_f = 1.2600$ in
 $B_1 = d = 36.4800$ in
 $B_2 = b_f = 12.1170$ in
36WF194



FB-13 @ COLUMN 313
EAST APPR. FWD SECTION

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I _o	d	Ad ²	I _{x,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		26.1492	18.2400	476.9614	2513.1159	0.0000	0.0000	2513.1159
2	Top Flange		15.2674	35.8500	547.3370	2.0199	17.6100	4734.6117	4736.6316
	Bottom Flange		15.2674	0.6300	9.6185	2.0199	17.6100	4734.6117	4736.6316
Total			56.68		1033.92	2517.16		9469.22	11986.38
Section Losses			A	y	Ay	I _o	d	Ad ²	I _{x,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.1250	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar = 18.2400 in	S _{top} = 657.15 in ³			y-bar = 18.2400 in	S _{top} = 657.15 in ³		
I _x = 11986.38 in ⁴	S _{bottom} = 657.15 in ³			I _x = 11986.38 in ⁴	S _{bottom} = 657.15 in ³		
C _{top} = 18.2400 in	A = 56.6840 in ²			C _{top} = 18.2400 in	A = 56.6840 in ²		
C _{bottom} = 18.2400 in	r _x = 14.5416 in			C _{bottom} = 18.2400 in	r _x = 14.5416 in		
	Z = 759.73 in ³				Z = warning in ³		

EAST APPROACH - FORWARD SECTION



Made By FKL
 Checked By PJP

Date 3/30/2012
 Date 4/13/2012

Job No. P402110046
 Sheet No. _____

Calculations For: **CUY-2-1441**

Floorbeam Capacities

Non-composite Capacities*		
	AB	AI
M	1807.16 k-ft	1807.16 k-ft
V	500.50 k	500.50 k

F_y = 33.00 ksi

AB = As-Built
 AI = As-Inspected
 M = Moment
 V = Shear

*Noncompact Section

As-Built Moments and Shears						
	DL	HS20	2F1	3F1	4F1	5C1
M	356.31 k-ft	756.57 k-ft	374.28 k-ft	552.69 k-ft	626.93 k-ft	536.34 k-ft
V	48.54 k	110.72 k	54.77 k	80.88 k	91.75 k	78.49 k

As-Built Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	0.82	---	---	---	---
Operating M	1.37	2.76	1.87	1.65	1.93
As-Inspected Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	0.82	---	---	---	---
Operating M	1.37	2.76	1.87	1.65	1.93
As-Built Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	1.82	---	---	---	---
Operating V	3.04	6.14	4.16	3.67	4.29
As-Inspected Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	1.82	---	---	---	---
Operating V	3.04	6.14	4.16	3.67	4.29

Controlling Rating Factors and Tonnage						
	HS20 Inventory	HS20 Operating	2F1 Operating	3F1 Operating	4F1 Operating	5C1 Operating
Rating Factor	0.82	1.37	2.76	1.87	1.65	1.93
Tonnage (US Tons)	29.52	49.32	41.4	43.01	44.55	77.2

EAST APPROACH - FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/20/2012
Date 4/13/2012

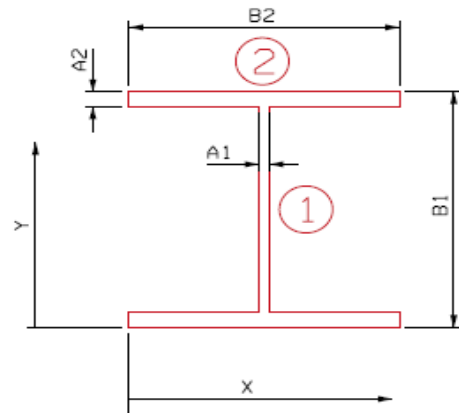
Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Red text indicates user input

Element Dimensions (without Section Losses):

$A_1 = t_w = 0.7700$ in
 $A_2 = t_f = 1.2600$ in
 $B_1 = d = 36.4800$ in
 $B_2 = b_f = 12.1170$ in
36WF194



FB-13 @ COLUMN 213
EAST APPR. FWD SECTION

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I _o	d	Ad ²	I _{x,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		26.1492	18.2400	476.9614	2513.1159	0.0000	0.0000	2513.1159
2	Top Flange		15.2674	35.8500	547.3370	2.0199	17.6100	4734.6117	4736.6316
	Bottom Flange		15.2674	0.6300	9.6185	2.0199	17.6100	4734.6117	4736.6316
Total			56.68		1033.92	2517.16		9469.22	11986.38
Section Losses			A	y	Ay	I _o	d	Ad ²	I _{x,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	18.2400	in	S _{top} = 657.15 in ³	y-bar =	18.2400	in	S _{top} = 657.15 in ³
I _x =	11986.38	in ⁴	S _{bottom} = 657.15 in ³	I _x =	11986.38	in ⁴	S _{bottom} = 657.15 in ³
C _{top} =	18.2400	in	A = 56.6840 in ²	C _{top} =	18.2400	in	A = 56.6840 in ²
C _{bottom} =	18.2400	in	r _x = 14.5416 in	C _{bottom} =	18.2400	in	r _x = 14.5416 in
			Z = 759.73 in ³				Z = 759.73 in ³

EAST APPROACH - FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/20/2012
Date 4/13/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Floorbeam Capacities

Non-composite Capacities*		
	AB	AI
M	1807.16 k-ft	1807.16 k-ft
V	500.50 k	500.50 k

*Noncompact Section

$F_y =$	33.00 ksi
---------	------------------

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

As-Built Moments and Shears						
	DL	HS20	2F1	3F1	4F1	5C1
M	352.10 k-ft	704.75 k-ft	348.59 k-ft	514.78 k-ft	583.95 k-ft	499.55 k-ft
V	49.02 k	108.77 k	57.81 k	85.38 k	96.85 k	82.85 k

As-Built Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	0.88	---	---	---	---
Operating M	1.47	2.98	2.02	1.78	2.08
As-Inspected Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	0.88	---	---	---	---
Operating M	1.47	2.98	2.02	1.78	2.08
As-Built Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	1.85	---	---	---	---
Operating V	3.09	5.81	3.94	3.47	4.06
As-Inspected Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	1.85	---	---	---	---
Operating V	3.09	5.81	3.94	3.47	4.06

Controlling Rating Factors and Tonnage						
	HS20 Inventory	HS20 Operating	2F1 Operating	3F1 Operating	4F1 Operating	5C1 Operating
Rating Factor	0.88	1.47	2.98	2.02	1.78	2.08
Tonnage (US Tons)	31.68	52.92	44.7	46.46	48.06	83.2

EAST APPROACH - FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/20/2012
Date 4/13/2012

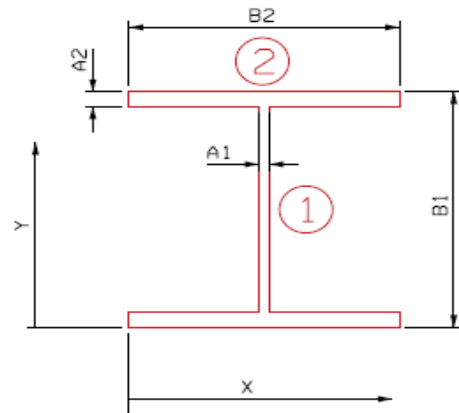
Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Red text indicates user input

Element Dimensions (without Section Losses):

$A_1 = t_w = 0.7700$ in
 $A_2 = t_f = 1.2600$ in
 $B_1 = d = 36.4800$ in
 $B_2 = b_f = 12.1170$ in
36WF194



FB-13 @ COLUMN 113
EAST APPR. FWD SECTION

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I_o	d	Ad^2	$I_{x, gross}$
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		26.1492	18.2400	476.9614	2513.1159	0.0000	0.0000	2513.1159
2	Top Flange		15.2674	35.8500	547.3370	2.0199	17.6100	4734.6117	4736.6316
	Bottom Flange		15.2674	0.6300	9.6185	2.0199	17.6100	4734.6117	4736.6316
Total			56.68		1033.92	2517.16		9469.22	11986.38
Section Losses			A	y	Ay	I_o	d	Ad^2	$I_{x, loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.1250	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar = 18.2400 in	$S_{top} = 657.15$ in ³			y-bar = 18.2400 in	$S_{top} = 657.15$ in ³		
$I_x = 11986.38$ in ⁴	$S_{bott.} = 657.15$ in ³			$I_x = 11986.38$ in ⁴	$S_{bott.} = 657.15$ in ³		
$C_{top} = 18.2400$ in	A = 56.6840 in ²			$C_{top} = 18.2400$ in	A = 56.6840 in ²		
$C_{bottom} = 18.2400$ in	$r_x = 14.5416$ in			$C_{bottom} = 18.2400$ in	$r_x = 14.5416$ in		
	Z = 759.73 in ³				Z = warning in ³		

EAST APPROACH - FORWARD SECTION



Made By FKL
 Checked By PJP

Date 3/20/2012
 Date 4/13/2012

Job No. P402110046
 Sheet No. _____

Calculations For: **CUY-2-1441**

Floorbeam Capacities

Non-composite Capacities*		
	AB	AI
M	1807.16 k-ft	1807.16 k-ft
V	500.50 k	500.50 k

*Noncompact Section

$F_y =$	33.00 ksi
---------	------------------

AB = As-Built
 AI = As-Inspected
 M = Moment
 V = Shear

As-Built Moments and Shears						
	DL	HS20	2F1	3F1	4F1	5C1
M	237.11 k-ft	410.90 k-ft	203.26 k-ft	300.15 k-ft	340.48 k-ft	291.28 k-ft
V	40.26 k	71.20 k	35.22 k	52.01 k	59.00 k	50.47 k

As-Built Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.68	---	---	---	---
Operating M	2.81	5.67	3.84	3.39	3.96
As-Inspected Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.68	---	---	---	---
Operating M	2.81	5.67	3.84	3.39	3.96
As-Built Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	2.9	---	---	---	---
Operating V	4.84	9.79	6.63	5.84	6.83
As-Inspected Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	2.9	---	---	---	---
Operating V	4.84	9.79	6.63	5.84	6.83

Controlling Rating Factors and Tonnage						
	HS20 Inventory	HS20 Operating	2F1 Operating	3F1 Operating	4F1 Operating	5C1 Operating
Rating Factor	1.68	2.81	5.67	3.84	3.39	3.96
Tonnage (US Tons)	60.48	101.16	85.05	88.32	91.53	158.4

EAST APPROACH - FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/20/2012
Date 4/13/2012

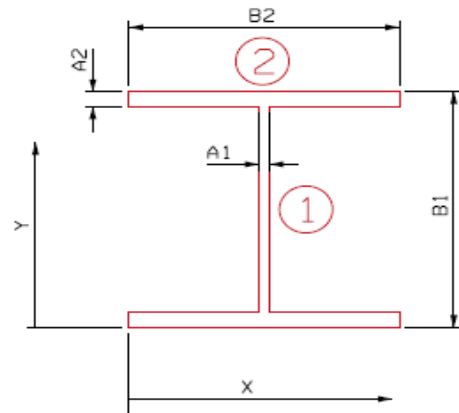
Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Red text indicates user input

Element Dimensions (without Section Losses):

$A_1 = t_w = 0.7700$ in
 $A_2 = t_f = 1.2600$ in
 $B_1 = d = 36.4800$ in
 $B_2 = b_f = 12.1170$ in
36WF194



FB-13 @ Between 413 & 313
EAST APPR. FWD SECTION

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I_o	d	Ad^2	$I_{x, gross}$
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		26.1492	18.2400	476.9614	2513.1159	0.0000	0.0000	2513.1159
2	Top Flange		15.2674	35.8500	547.3370	2.0199	17.6100	4734.6117	4736.6316
	Bottom Flange		15.2674	0.6300	9.6185	2.0199	17.6100	4734.6117	4736.6316
Total			56.68		1033.92	2517.16		9469.22	11986.38
Section Losses			A	y	Ay	I_o	d	Ad^2	$I_{x, loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar = 18.2400 in	$S_{top} = 657.15$ in ³			y-bar = 18.2400 in	$S_{top} = 657.15$ in ³		
$I_x = 11986.38$ in ⁴	$S_{bott.} = 657.15$ in ³			$I_x = 11986.38$ in ⁴	$S_{bott.} = 657.15$ in ³		
$C_{top} = 18.2400$ in	A = 56.6840 in ²			$C_{top} = 18.2400$ in	A = 56.6840 in ²		
$C_{bottom} = 18.2400$ in	$r_x = 14.5416$ in			$C_{bottom} = 18.2400$ in	$r_x = 14.5416$ in		
	Z = 759.73 in ³				Z = 759.73 in ³		

EAST APPROACH - FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/20/2012
Date 4/13/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Floorbeam Capacities

Non-composite Capacities*		
	AB	AI
M	2089.26 k-ft	2089.26 k-ft
V	500.50 k	500.50 k

*Compact Section

$F_y =$	33.00 ksi
---------	------------------

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

As-Built Moments and Shears						
	DL	HS20	2F1	3F1	4F1	5C1
M	157.24 k-ft	758.70 k-ft	375.32 k-ft	554.23 k-ft	628.68 k-ft	537.84 k-ft
V	11.37 k	21.22 k	10.50 k	15.50 k	17.58 k	15.04 k

As-Built Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.14	---	---	---	---
Operating M	1.91	3.86	2.62	2.31	2.7
As-Inspected Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.14	---	---	---	---
Operating M	1.91	3.86	2.62	2.31	2.7
As-Built Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	10.55	---	---	---	---
Operating V	17.61	35.59	24.1	21.25	24.84
As-Inspected Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	10.55	---	---	---	---
Operating V	17.61	35.59	24.1	21.25	24.84

Controlling Rating Factors and Tonnage						
	HS20 Inventory	HS20 Operating	2F1 Operating	3F1 Operating	4F1 Operating	5C1 Operating
Rating Factor	1.14	1.91	3.86	2.62	2.31	2.7
Tonnage (US Tons)	41.04	68.76	57.9	60.26	62.37	108

EAST APPROACH - FORWARD SECTION



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Date 3/20/2012
Date 4/13/2012

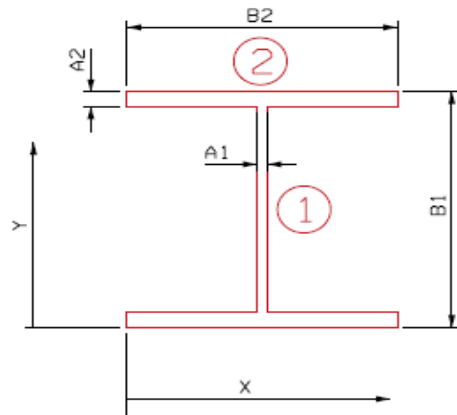
Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Red text indicates user input

Element Dimensions (without Section Losses):

$A_1 = t_w = 0.7700$ in
 $A_2 = t_f = 1.2600$ in
 $B_1 = d = 36.4800$ in
 $B_2 = b_f = 12.1170$ in
36WF194



FB-13 @ Between 213 & 313
EAST APPR. FWD SECTION

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I _o	d	Ad ²	I _{x,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		26.1492	18.2400	476.9614	2513.1159	0.0000	0.0000	2513.1159
2	Top Flange		15.2674	35.8500	547.3370	2.0199	17.6100	4734.6117	4736.6316
	Bottom Flange		15.2674	0.6300	9.6185	2.0199	17.6100	4734.6117	4736.6316
Total			56.68		1033.92	2517.16		9469.22	11986.38
Section Losses			A	y	Ay	I _o	d	Ad ²	I _{x,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	18.2400	in	S _{top} = 657.15 in ³	y-bar =	18.2400	in	S _{top} = 657.15 in ³
I _x =	11986.38	in ⁴	S _{bottom} = 657.15 in ³	I _x =	11986.38	in ⁴	S _{bottom} = 657.15 in ³
C _{top} =	18.2400	in	A = 56.6840 in ²	C _{top} =	18.2400	in	A = 56.6840 in ²
C _{bottom} =	18.2400	in	r _x = 14.5416 in	C _{bottom} =	18.2400	in	r _x = 14.5416 in
			Z = 759.73 in ³				Z = 759.73 in ³

EAST APPROACH - FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/20/2012
Date 4/13/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Floorbeam Capacities

Non-composite Capacities*		
	AB	AI
M	2089.26 k-ft	2089.26 k-ft
V	500.50 k	500.50 k

*Compact Section

$F_y =$	33.00 ksi
---------	------------------

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

As-Built Moments and Shears						
	DL	HS20	2F1	3F1	4F1	5C1
M	203.76 k-ft	584.58 k-ft	289.19 k-ft	427.04 k-ft	484.40 k-ft	414.41 k-ft
V	14.36 k	28.80 k	14.25 k	21.04 k	23.86 k	20.42 k

As-Built Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.44	---	---	---	---
Operating M	2.4	4.85	3.29	2.9	3.39
As-Inspected Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.44	---	---	---	---
Operating M	2.4	4.85	3.29	2.9	3.39
As-Built Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	7.71	---	---	---	---
Operating V	12.87	26.02	17.62	15.53	18.15
As-Inspected Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	7.71	---	---	---	---
Operating V	12.87	26.02	17.62	15.53	18.15

Controlling Rating Factors and Tonnage						
	HS20 Inventory	HS20 Operating	2F1 Operating	3F1 Operating	4F1 Operating	5C1 Operating
Rating Factor	1.44	2.4	4.85	3.29	2.9	3.39
Tonnage (US Tons)	51.84	86.4	72.75	75.67	78.3	135.6

EAST APPROACH - FORWARD SECTION



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Date 3/20/2012
Date 4/13/2012

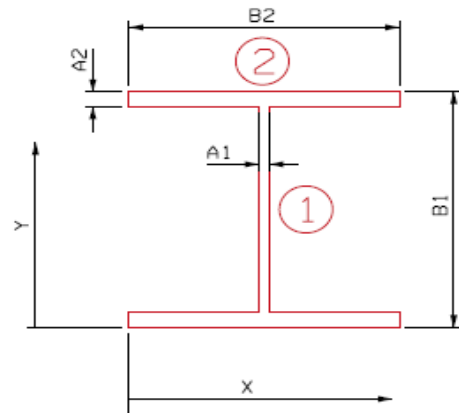
Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Red text indicates user input

Element Dimensions (without Section Losses):

$A_1 = t_w = 0.7700$ in
 $A_2 = t_f = 1.2600$ in
 $B_1 = d = 36.4800$ in
 $B_2 = b_f = 12.1170$ in
36WF194



FB-13 @ Between 113 & 213
EAST APPR. FWD SECTION

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I _o	d	Ad ²	I _{x,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		26.1492	18.2400	476.9614	2513.1159	0.0000	0.0000	2513.1159
2	Top Flange		15.2674	35.8500	547.3370	2.0199	17.6100	4734.6117	4736.6316
	Bottom Flange		15.2674	0.6300	9.6185	2.0199	17.6100	4734.6117	4736.6316
Total			56.68		1033.92	2517.16		9469.22	11986.38
Section Losses			A	y	Ay	I _o	d	Ad ²	I _{x,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	18.2400	in	S _{top} = 657.15 in ³	y-bar =	18.2400	in	S _{top} = 657.15 in ³
I _x =	11986.38	in ⁴	S _{bottom} = 657.15 in ³	I _x =	11986.38	in ⁴	S _{bottom} = 657.15 in ³
C _{top} =	18.2400	in	A = 56.6840 in ²	C _{top} =	18.2400	in	A = 56.6840 in ²
C _{bottom} =	18.2400	in	r _x = 14.5416 in	C _{bottom} =	18.2400	in	r _x = 14.5416 in
			Z = 759.73 in ³				Z = 759.73 in ³

EAST APPROACH - FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/20/2012
Date 4/13/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Floorbeam Capacities

Non-composite Capacities*		
	AB	AI
M	2089.26 k-ft	2089.26 k-ft
V	500.50 k	500.50 k

*Compact Section

$F_y =$	33.00 ksi
---------	------------------

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

As-Built Moments and Shears						
	DL	HS20	2F1	3F1	4F1	5C1
M	158.44 k-ft	644.58 k-ft	318.87 k-ft	470.87 k-ft	534.12 k-ft	456.94 k-ft
V	11.09 k	43.13 k	21.34 k	31.51 k	35.74 k	30.57 k

As-Built Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.35	---	---	---	---
Operating M	2.25	4.54	3.08	2.71	3.17
As-Inspected Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.35	---	---	---	---
Operating M	2.25	4.54	3.08	2.71	3.17
As-Built Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	5.19	---	---	---	---
Operating V	8.67	17.52	11.87	10.46	12.23
As-Inspected Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	5.19	---	---	---	---
Operating V	8.67	17.52	11.87	10.46	12.23

Controlling Rating Factors and Tonnage						
	HS20 Inventory	HS20 Operating	2F1 Operating	3F1 Operating	4F1 Operating	5C1 Operating
Rating Factor	1.35	2.25	4.54	3.08	2.71	3.17
Tonnage (US Tons)	48.6	81	68.1	70.84	73.17	126.8



Calculated: FKL Date: 3/29/2012
 Checked: PJP Date: 4/12/2012

CUY-2-1441 Load Rating Analysis - As-Built
Main Ave Bridge
East Approach Fwd Section - Bent 13

Column: C413

Section Properties 14WF68

A =	20.000	in ²	I _x =	724.100	in ⁴
h =	14.060	in	S _x =	103.000	in ³
b _f =	10.040	in	r _x =	6.020	in
t _f =	0.718	in	I _y =	121.200	in ⁴
t _w =	0.418	in	S _y =	24.100	in ³
			r _y =	2.460	in
F _y =	33.0	ksi	Z _x =	112.8	in ³
E =	29000	ksi			
L _{cx} =	119.64	in			
L _{cy} =	119.64	in			
K _x =	1.000	AASHTO Appendix C			
K _y =	1.000	AASHTO Appendix C			

Axial Loading

$$P_u = 0.85 A_s F_{cr}$$

AASHTO 10.54 Concentrically Loaded Columns

$$F_{cr} = F_y \left(1 - \frac{F_y}{4\pi^2 E} \left(\frac{KL_c}{r} \right)^2 \right)$$

$$\text{For: } \frac{KL_c}{r} \leq \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$F_{cr} = \frac{\pi^2 E}{\left(\frac{KL_c}{r} \right)^2}$$

$$\text{For: } \frac{KL_c}{r} > \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$KL/r_y = 48.634 < 131.706$$

$$KL/r_x = 19.874 < 131.706$$

$$F_{CR} = 30.750 \text{ ksi}$$

$$P_u = 522.8 \text{ k}$$



Calculated: FKL Date: 3/29/2012
 Checked: PJP Date: 4/12/2012

CUY-2-1441 Load Rating Analysis - As-Built
Main Ave Bridge

East Approach Fwd Section - Bent 13

Column: C413

Axial Loading and Bending

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_e}\right)} \leq 1.0$$

AASHTO 10.54.2 Combined Axial Load and Bending

$$= 0.6 + 0.4$$

a = 0 **When moment is small assume a = 0
 C = 0.600

$$F_e = \frac{E\pi^2}{\left(\frac{KL_c}{r}\right)^2}$$

$F_{ex} = 724.666 \text{ ksi}$
 $F_{ey} = 121.008 \text{ ksi}$

Column Compactness Check

$M_u = F_y Z$ For Compact Section

$M_u = F_y S$ For Non-Compact Section

$$\frac{b}{t} \leq \frac{4110}{\sqrt{F_y}}$$

13.983 < 22.625

$$\frac{D}{t_w} \leq \frac{19230}{\sqrt{F_y}}$$

30.201 < 105.858

$$\frac{L}{r_y} \leq \frac{\left(3.6 - 2.2 \frac{M_1}{M_u}\right) \times 10^6}{F_y}$$

48.634 < 109.091

Column Moment Capacity

Compact Section

$$M_{uy} = 66.3 \text{ k-ft}$$

CUY-2-1441 Load Rating Analysis - As-Built
 Main Ave Bridge
 East Approach Forward Section - Column 413 Ratings
 Column Loading



Calculated
 Checked:

FKL
 PJP

3/19/2012
 4/12/2012

	DL	HS-20	2F1	3F1	4F1	5C1
Max Axial	75.18	161.38	79.84	117.89	133.73	114.41
Moment	0.01	0.01	0.01	0.01	0.01	0.01
Axial	75.18	161.38	79.84	117.89	133.73	114.41
Max Mom	0.01	0.01	0.01	0.01	0.01	0.01

DL Factor 1.30
 LL Factor 2.17 INV
 1.30 OPER

Factored Loads				Capacities		
Axial Force		Moment		P _u	M _u	A _s F _{ev}
Dead Load	Max. LL + I	Dead Load	Max LL + I			

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_c}\right)} \leq 1.0$$

Load Case	Member	kips	kips	k-ft	k-ft	kips	k-ft	kips	Condition Equation	RF
HS20 INV	C413	97.734	349.66	0.01	0.02	522.80	66.30	2420.17	1.00	1.22
HS20 INV	C413	97.734	349.66	0.01	0.02	522.80	66.30	2420.17	1.00	1.21
HS20 OPR	C413	97.734	209.79	0.01	0.01	522.80	66.30	2420.17	1.00	2.03
HS20 OPR	C413	97.734	209.79	0.01	0.01	522.80	66.30	2420.17	1.00	2.02
2F1	C413	97.734	103.79	0.01	0.01	522.80	66.30	2420.17	1.00	4.10
2F1	C413	97.734	103.79	0.01	0.01	522.80	66.30	2420.17	1.00	4.09
3F1	C413	97.734	153.26	0.01	0.01	522.80	66.30	2420.17	1.00	2.77
3F1	C413	97.734	153.26	0.01	0.01	522.80	66.30	2420.17	1.00	2.77
4F1	C413	97.734	173.85	0.01	0.01	522.80	66.30	2420.17	1.00	2.45
4F1	C413	97.734	173.85	0.01	0.01	522.80	66.30	2420.17	1.00	2.44
5C1	C413	97.734	148.73	0.01	0.01	522.80	66.30	2420.17	1.00	2.86
5C1	C413	97.734	148.73	0.01	0.01	522.80	66.30	2420.17	1.00	2.86

Load Case	Controlling RF
HS20 INV	1.21
HS20 OPR	2.02
2F1	4.09
3F1	2.77
4F1	2.44
5C1	2.86



Calculated: FKL Date: 3/29/2012

Checked: PJP Date: 4/12/2012

CUY-2-1441 Load Rating Analysis - As-Built

Main Ave Bridge

East Approach Fwd Section - Bent 13

Column: C313

Section Properties 14WF111

A =	32.650	in ²	I _x =	1266.500	in ⁴
h =	14.370	in	S _x =	176.300	in ³
b _f =	14.620	in	r _x =	6.230	in
t _f =	0.873	in	I _y =	454.900	in ⁴
t _w =	0.540	in	S _y =	62.200	in ³
			r _y =	3.730	in
F _y =	33.0	ksi	Z _x =	193.8	in ³
E =	29000	ksi			
L _{cx} =	167.88	in			
L _{cy} =	167.88	in			
K _x =	0.650	AASHTO Appendix C			
K _y =	0.650	AASHTO Appendix C			

Axial Loading

$$P_u = 0.85 A_s F_{cr}$$

AASHTO 10.54 Concentrically Loaded Columns

$$F_{cr} = F_y \left(1 - \frac{F_y}{4\pi^2 E} \left(\frac{KL_c}{r} \right)^2 \right)$$

$$\text{For: } \frac{KL_c}{r} \leq \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$F_{cr} = \frac{\pi^2 E}{\left(\frac{KL_c}{r} \right)^2}$$

$$\text{For: } \frac{KL_c}{r} > \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$KL/r_y = 29.255 < 131.706$$

$$KL/r_x = 17.516 < 131.706$$

$$F_{CR} = 32.186 \text{ ksi}$$

$$P_u = 893.2 \text{ k}$$



Calculated: FKL Date: 3/29/2012

Checked: PJP Date: 4/12/2012

CUY-2-1441 Load Rating Analysis - As-Built**Main Ave Bridge****East Approach Fwd Section - Bent 13****Column: C313**Axial Loading and Bending

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_e}\right)} \leq 1.0$$

AASHTO 10.54.2 Combined Axial Load and Bending

$$= 0.6 + 0.4$$

$$a = 0 \quad \text{**When moment is small assume } a = 0$$

$$C = 0.600$$

$$F_e = \frac{E\pi^2}{\left(\frac{KL_c}{r}\right)^2} \quad \begin{array}{l} F_{ex} = 932.930 \text{ ksi} \\ F_{ey} = 334.419 \text{ ksi} \end{array}$$

Column Compactness Check $M_u = F_y Z$ For Compact Section $M_u = F_y S$ For Non-Compact Section

$$\frac{b}{t} \leq \frac{4110}{\sqrt{F_y}}$$

$$16.747 < 22.625$$

$$\frac{D}{t_w} \leq \frac{19230}{\sqrt{F_y}}$$

$$23.378 < 105.858$$

$$\frac{L}{r_y} \leq \frac{\left(3.6 - 2.2 \frac{M_1}{M_u}\right) \times 10^6}{F_y}$$

$$45.008 < 109.091$$

Column Moment Capacity

Compact Section

$$M_{ux} = 533.0 \text{ k-ft}$$

CUY-2-1441 Load Rating Analysis - As-Built
 Main Ave Bridge
 East Approach Forward Section - Column 313 Ratings
 Column Loading



Calculated: FKL 3/19/2012
 Checked: PJP 4/12/2012

	DL	HS-20	2F1	3F1	4F1	5C1
Max Axial	109.38	195.38	96.65	142.72	161.89	138.50
Moment	5.04	10.58	5.27	7.75	8.79	7.53
Axial	107.71	125.046	47.21	69.71	79.08	67.65
Max Mom	9.74	99.618	49.58	73.10	82.87	70.95

DL Factor 1.30
 LL Factor 2.17 INV
 1.30 OPER

Factored Loads				Capacities		
Axial Force		Moment		P _u	M _u	A _s F _{ex}
Dead Load	Max. LL + I	Dead Load	Max LL + I			

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_c}\right)} \leq 1.0$$

Load Case	Member	kips	kips	k-ft	k-ft	kips	k-ft	kips	Condition Equation	RF
HS20 INV	C313	142.194	423.32	6.55	22.92	893.20	533.00	30460.17	1.00	1.66
HS20 INV	C313	140.023	270.93	12.66	215.84	893.20	533.00	30460.17	1.00	1.50
HS20 OPR	C313	142.194	253.99	6.55	13.75	893.20	533.00	30460.17	1.00	2.77
HS20 OPR	C313	140.023	162.56	12.66	129.50	893.20	533.00	30460.17	1.00	2.51
2F1	C313	142.194	125.65	6.55	6.85	893.20	533.00	30460.17	1.00	5.61
2F1	C313	140.023	61.37	12.66	64.45	893.20	533.00	30460.17	1.00	5.82
3F1	C313	142.194	185.54	6.55	10.08	893.20	533.00	30460.17	1.00	3.80
3F1	C313	140.023	90.62	12.66	95.03	893.20	533.00	30460.17	1.00	3.94
4F1	C313	142.194	210.46	6.55	11.43	893.20	533.00	30460.17	1.00	3.35
4F1	C313	140.023	102.80	12.66	107.73	893.20	533.00	30460.17	1.00	3.48
5C1	C313	142.194	180.05	6.55	9.79	893.20	533.00	30460.17	1.00	3.91
5C1	C313	140.023	87.95	12.66	92.24	893.20	533.00	30460.17	1.00	4.06

Load Case	Controlling RF
HS20 INV	1.50
HS20 OPR	2.51
2F1	5.61
3F1	3.80
4F1	3.35
5C1	3.91



Calculated: FKL Date: 3/29/2012

Checked: PJP Date: 4/12/2012

CUY-2-1441 Load Rating Analysis - As-Built

Main Ave Bridge

East Approach Fwd Section - Bent 13

Column: C213

Section Properties 14WF95

A =	27.940	in ²	I _x =	1063.500	in ⁴
h =	14.120	in	S _x =	150.600	in ³
b _f =	14.545	in	r _x =	6.170	in
t _f =	0.748	in	I _y =	383.700	in ⁴
t _w =	0.465	in	S _y =	52.800	in ³
			r _y =	3.710	in
F _y =	33.0	ksi	Z _x =	164	in ³
E =	29000	ksi			
L _{cx} =	170.16	in			
L _{cy} =	170.16	in			
K _x =	0.650	AASHTO Appendix C			
K _y =	0.650	AASHTO Appendix C			

Axial Loading

$$P_u = 0.85 A_s F_{cr}$$

AASHTO 10.54 Concentrically Loaded Columns

$$F_{cr} = F_y \left(1 - \frac{F_y}{4\pi^2 E} \left(\frac{KL_c}{r} \right)^2 \right)$$

$$\text{For: } \frac{KL_c}{r} \leq \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$F_{cr} = \frac{\pi^2 E}{\left(\frac{KL_c}{r} \right)^2}$$

$$\text{For: } \frac{KL_c}{r} > \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$KL/r_y = 29.812 < 131.706$$

$$KL/r_x = 17.926 < 131.706$$

$$F_{CR} = 32.155 \text{ ksi}$$

$$P_u = 763.6 \text{ k}$$



Calculated: FKL Date: 3/29/2012

Checked: PJP Date: 4/12/2012

CUY-2-1441 Load Rating Analysis - As-Built**Main Ave Bridge****East Approach Fwd Section - Bent 13****Column: C213**Axial Loading and Bending

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_e}\right)} \leq 1.0$$

AASHTO 10.54.2 Combined Axial Load and Bending

$$= 0.6 + 0.4$$

$$a = 0 \quad \text{**When moment is small assume } a = 0$$

$$C = 0.600$$

$$F_e = \frac{E\pi^2}{\left(\frac{KL_c}{r}\right)^2} \quad \begin{array}{l} F_{ex} = 890.690 \text{ ksi} \\ F_{ey} = 322.036 \text{ ksi} \end{array}$$

Column Compactness Check $M_u = F_y Z$ For Compact Section $M_u = F_y S$ For Non-Compact Section

$$\frac{b}{t} \leq \frac{4110}{\sqrt{F_y}}$$

$$19.445 < 22.625$$

$$\frac{D}{t_w} \leq \frac{19230}{\sqrt{F_y}}$$

$$27.148 < 105.858$$

$$\frac{L}{r_y} \leq \frac{\left(3.6 - 2.2 \frac{M_1}{M_u}\right) \times 10^6}{F_y}$$

$$45.865 < 109.091$$

Column Moment Capacity

Compact Section

$$M_{ux} = 451.0 \text{ k-ft}$$

CUY-2-1441 Load Rating Analysis - As-Built
 Main Ave Bridge
 East Approach Forward Section - Column 213 Ratings
 Column Loading



Calculated: FKL
 Checked: PJP
 3/19/2012
 4/12/2012

	DL	HS-20	2F1	3F1	4F1	5C1
Max Axial	112.78	197.5	97.70	144.27	163.65	140.01
Moment	1.91	7.87	7.37	7.54	12.36	10.57
Axial	111.38	99.106	41.49	61.27	69.50	70.26
Max Mom	5.90	118.21	63.46	93.73	106.34	83.80

DL Factor 1.30
 LL Factor 2.17 INV
 1.30 OPER

Factored Loads				Capacities		
Axial Force		Moment		P _u	M _u	A _s F _{ex}
Dead Load	Max. LL + I	Dead Load	Max LL + I			

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_c}\right)} \leq 1.0$$

Load Case	Member	kips	kips	k-ft	k-ft	kips	k-ft	kips	Condition Equation	RF
HS20 INV	C213	146.614	427.92	2.48	17.05	763.60	451.00	24885.87	1.00	1.38
HS20 INV	C213	144.794	214.73	7.67	256.12	763.60	451.00	24885.87	1.00	1.27
HS20 OPR	C213	146.614	256.75	2.48	10.23	763.60	451.00	24885.87	1.00	2.30
HS20 OPR	C213	144.794	128.84	7.67	153.67	763.60	451.00	24885.87	1.00	2.12
2F1	C213	146.614	127.01	2.48	9.58	763.60	451.00	24885.87	1.00	4.48
2F1	C213	144.794	53.94	7.67	82.50	763.60	451.00	24885.87	1.00	4.39
3F1	C213	146.614	187.55	2.48	9.80	763.60	451.00	24885.87	1.00	3.11
3F1	C213	144.794	79.65	7.67	121.85	763.60	451.00	24885.87	1.00	2.97
4F1	C213	146.614	212.75	2.48	16.07	763.60	451.00	24885.87	1.00	2.68
4F1	C213	144.794	90.35	7.67	138.24	763.60	451.00	24885.87	1.00	2.62
5C1	C213	146.614	182.01	2.48	13.74	763.60	451.00	24885.87	1.00	3.13
5C1	C213	144.794	91.34	7.67	108.94	763.60	451.00	24885.87	1.00	3.00

Load Case	Controlling RF
HS20 INV	1.27
HS20 OPR	2.12
2F1	4.39
3F1	2.97
4F1	2.62
5C1	3.00



Calculated: FKL Date: 3/29/2012
 Checked: PJP Date: 4/12/2012

CUY-2-1441 Load Rating Analysis - As-Built
Main Ave Bridge
East Approach Fwd Section - Bent 13

Column: C113

Section Properties 14WF95

A =	27.940	in ²	I _x =	1063.500	in ⁴
h =	14.120	in	S _x =	150.600	in ³
b _f =	14.545	in	r _x =	6.170	in
t _f =	0.748	in	I _y =	383.700	in ⁴
t _w =	0.465	in	S _y =	52.800	in ³
			r _y =	3.710	in
F _y =	33.0	ksi	Z _x =	164	in ³
E =	29000	ksi			
L _{cx} =	192.84	in			
L _{cy} =	192.84	in			
K _x =	0.650	AASHTO Appendix C			
K _y =	0.650	AASHTO Appendix C			

Axial Loading

$$P_u = 0.85 A_s F_{cr}$$

AASHTO 10.54 Concentrically Loaded Columns

$$F_{cr} = F_y \left(1 - \frac{F_y}{4\pi^2 E} \left(\frac{KL_c}{r} \right)^2 \right)$$

$$\text{For: } \frac{KL_c}{r} \leq \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$F_{cr} = \frac{\pi^2 E}{\left(\frac{KL_c}{r} \right)^2}$$

$$\text{For: } \frac{KL_c}{r} > \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$KL/r_y = 33.786 < 131.706$$

$$KL/r_x = 20.315 < 131.706$$

$$F_{CR} = 31.914 \text{ ksi}$$

$$P_u = 757.9 \text{ k}$$



Calculated: FKL Date: 3/29/2012
Checked: PJP Date: 4/12/2012

CUY-2-1441 Load Rating Analysis - As-Built
Main Ave Bridge

East Approach Fwd Section - Bent 13

Column: C113

Axial Loading and Bending

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_e}\right)} \leq 1.0$$

AASHTO 10.54.2 Combined Axial Load and Bending

$$= 0.6 + 0.4$$

a = 0 **When moment is small assume a = 0
C = 0.600

$$F_e = \frac{E\pi^2}{\left(\frac{KL_c}{r}\right)^2}$$

$F_{ex} = 693.501 \text{ ksi}$
 $F_{ey} = 250.741 \text{ ksi}$

Column Compactness Check

$M_u = F_y Z$ For Compact Section

$M_u = F_y S$ For Non-Compact Section

$$\frac{b}{t} \leq \frac{4110}{\sqrt{F_y}}$$

19.445 < 22.625

$$\frac{D}{t_w} \leq \frac{19230}{\sqrt{F_y}}$$

27.148 < 105.858

$$\frac{L}{r_y} \leq \frac{\left(3.6 - 2.2 \frac{M_1}{M_u}\right) \times 10^6}{F_y}$$

51.978 < 109.091

Column Moment Capacity

Compact Section

$$M_{ux} = 451.0 \text{ k-ft}$$

CUY-2-1441 Load Rating Analysis - As-Built

Main Ave Bridge

East Approach Forward Section - Column 113 Ratings



Calculated
Checked:

FKL
PJP

3/19/2012
4/12/2012

Column Loading

	DL	HS-20	2F1	3F1	4F1	5C1
Max Axial	87.91	152.37	75.38	111.31	126.26	108.01
Moment	2.11	21.18	16.37	24.16	17.54	23.44
Axial	86.32	86.19	42.64	63.00	71.42	50.21
Max Mom	5.91	113.64	56.27	83.02	94.15	80.58

DL Factor 1.30
LL Factor 2.17 INV
1.30 OPER

Factored Loads				Capacities		
Axial Force		Moment		P _u	M _u	A _s F _{ex}
Dead Load	Max. LL + I	Dead Load	Max LL + I			

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_c}\right)} \leq 1.0$$

Load Case	Member	kips	kips	k-ft	k-ft	kips	k-ft	kips	Condition Equation	RF
HS20 INV	C113	114.283	330.14	2.74	45.89	757.90	451.00	19376.42	1.00	1.69
HS20 INV	C113	112.216	186.75	7.68	246.22	757.90	451.00	19376.42	1.00	1.45
HS20 OPR	C113	114.283	198.08	2.74	27.53	757.90	451.00	19376.42	1.00	2.82
HS20 OPR	C113	112.216	112.05	7.68	147.73	757.90	451.00	19376.42	1.00	2.42
2F1	C113	114.283	97.99	2.74	21.28	757.90	451.00	19376.42	1.00	5.33
2F1	C113	112.216	55.43	7.68	73.15	757.90	451.00	19376.42	1.00	4.88
3F1	C113	114.283	144.70	2.74	31.41	757.90	451.00	19376.42	1.00	3.61
3F1	C113	112.216	81.90	7.68	107.93	757.90	451.00	19376.42	1.00	3.30
4F1	C113	114.283	164.14	2.74	22.80	757.90	451.00	19376.42	1.00	3.41
4F1	C113	112.216	92.85	7.68	122.40	757.90	451.00	19376.42	1.00	2.91
5C1	C113	114.283	140.41	2.74	30.47	757.90	451.00	19376.42	1.00	3.72
5C1	C113	112.216	65.27	7.68	104.75	757.90	451.00	19376.42	1.00	3.69

Load Case	Controlling RF
HS20 INV	1.45
HS20 OPR	2.42
2F1	4.88
3F1	3.30
4F1	2.91
5C1	3.69



Made By PJP
Checked By MTN

Date 3/31/2012
Date 4/10/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441 - East Approach Forward Section**

Bent 14 Reactions

Dead Load Reactions from MDX

Bent 14 Reaction		
Stringer	DL1	DL2
F1-10	8.95	0.96
S1-10	9.39	0.96
S2-10	9.56	0.96
S3-10	10.32	0.96
S4-10	10.32	0.96
S5-10	10.32	0.96
S6-10	10.32	0.96
S7-10	10.32	0.96
S8-10	10.27	0.95
S9-10	10.06	0.93
S10-10	9.84	0.91
S11-10	9.46	0.89
S12-10	9.26	0.87
S13-10	9.05	0.86
S14-10	8.54	0.84
S15-10	8.43	0.82
S16-10	9.28	0.80
S17-10	9.64	0.77
S18-10	8.33	0.72
S19-10	7.86	0.68
S20-10	7.29	0.64
S21-10	6.75	0.60
S22-10	6.25	0.56
F2-10	5.08	0.52



Made By PJP Date 3/31/2012
 Checked By MTN Date 4/10/2012

Job No. P402110046
 Sheet No. _____

Calculations For: **CUY-2-1441 - East Approach Forward Section**

Bent 14 Reactions

Live Load Reactions from STAAD

	LL	Ratio to HS-20	LL+I	3 LANE	4+ Lanes
HS-20	27.08	1.00000	35.3	31.7	26.5
2F1	13.96	0.51551	18.2		
3F1	20.18	0.74520	26.3		
4F1	22.10	0.81610	28.8		
5C1	19.82	0.73191	25.8		
Fatigue	20.31	0.75000	23.4		

Reactions per wheel line at Bent 14 for North and Lakefront Lanes

Impact Factor

Span 14 33.65 Impact = 1.300
 L_{avg} 33.65 $I_{fat} = 1.150$

Mult Presence Factors

3 Lane 0.9
 4 or more 0.75

Live Load Reactions from STAAD

	LL	Ratio to HS-20	LL+I	3 LANE	4+ Lanes
HS-20	23.49	1.00000	30.6	27.5	23.0
2F1	13.45	0.572584	17.5		
3F1	18.79	0.799915	24.5		
4F1	19.68	0.837803	25.6		
5C1	18.26	0.777352	23.8		
Fatigue	17.62	0.75000	20.3		

Reactions per wheel line at Bent 14 for South Lanes

Average length of Stringers S18-10 to S22-10 is 22.56'

Impact Factor

Span 14 22.56 Impact = 1.300
 L_{avg} 22.56 $I_{fat} = 1.150$

Mult Presence Factors

3 Lane 0.9
 4 or more 0.75

```
*****
*
*          STAAD.Pro V8i SELECTseries1          *
*          Version  20.07.06.35                  *
*          Proprietary Program of               *
*          Bentley Systems, Inc.                *
*          Date=    APR 11, 2012                 *
*          Time=    12:23: 1                    *
*
*          USER ID: TranSystems                 *
*****
```

```
1. STAAD SPACE
INPUT FILE: Bent 14 Truck Loads North Ramp.STD
2. START JOB INFORMATION
3. ENGINEER DATE 3/31/12
4. JOB NAME CUY-2-1441 EAST APPROACH FWD SECTION
5. JOB CLIENT ODOT
6. JOB NO P402110046
7. JOB REF BENT 14 TRUCK LOADS NORTH RAMP LANES
8. ENGINEER NAME PJP
9. JOB PART EAST APPROACH FWD SECTION
10. CHECKER NAME MTN
11. CHECKER DATE 4/11/12
12. JOB COMMENT STRINGERS S1-10 TO S7-10
13. END JOB INFORMATION
14. INPUT WIDTH 79
15. UNIT FEET KIP
16. JOINT COORDINATES
17. 12 -1 0 1; 13 0 0 1; 14 0 -0.1 1; 15 33.65 0 1; 22 -1 0 2; 23 0 0 2
18. 24 0 -0.1 2; 25 33.65 0 2; 32 -1 0 3; 33 0 0 3; 34 0 -0.1 3; 35 33.65 0 3
19. 42 -1 0 4; 43 0 0 4; 44 0 -0.1 4; 45 33.65 0 4; 52 -1 0 5; 53 0 0 5
20. 54 0 -0.1 5; 55 33.65 0 5
21. MEMBER INCIDENCES
22. 12 12 13; 13 13 14; 14 13 15; 22 22 23; 23 23 24; 24 23 25; 32 32 33; 33 33 34
23. 34 33 35; 42 42 43; 43 43 44; 44 43 45; 52 52 53; 53 53 54; 54 53 55
24. DEFINE MATERIAL START
25. ISOTROPIC STEEL
26. E 4.176E+006
27. POISSON 0.3
28. DENSITY 0.489024
29. ALPHA 6.5E-006
30. DAMP 0.03
31. END DEFINE MATERIAL
32. MEMBER PROPERTY AMERICAN
33. 12 22 32 42 52 TABLE ST W24X94
34. 14 24 34 44 54 TABLE ST W24X94
35. 13 23 33 43 53 TABLE ST W24X94
36. CONSTANTS
37. MATERIAL STEEL ALL
38. SUPPORTS
39. 14 24 34 44 54 FIXED
40. 15 25 35 45 55 FIXED BUT FX MZ
```

STAAD SPACE

-- PAGE NO. 2

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41. MEMBER RELEASE
42. 13 23 33 43 53 START MZ
43. DEFINE MOVING LOAD
44. *HS20 TRUCK
45. TYPE 1 LOAD 16 16 4
46. DIST 14 14
47. *TYPE 2F1 TRUCK
48. TYPE 2 LOAD 10 5
49. DIST 10
50. *TYPE 3F1 TRUCK
51. TYPE 3 LOAD 8.5 8.5 6
52. DIST 4 10
53. *TYPE 4F1 TRUCK
54. TYPE 4 LOAD 7 7 7 6
55. DIST 4 4 10
56. *TYPE 5C1 TRUCK
57. TYPE 5 LOAD 8.5 8.5 8.5 8.5 6
58. DIST 4 31 4 12
59. *HS20 TRAVELING UP STATION
60. LOAD GENERATION 29
**WARNING- THIS STRUCTURE IS DISJOINTED. IGNORE IF
      MASTER/SLAVE OR IF UNCONNECTED JOINTS.
61. TYPE 1 -28 0 1 XINC 1
62. *HS20 TRAVELING DOWN STATION
63. LOAD GENERATION 29
**WARNING-A MOVING LOAD THAT WOULD HAVE BEEN APPLIED BEYOND THE X AND Z RANGES
      OF THE STRUCTURE HAS BEEN IGNORED. CASE= 1 WHEEL 1 OF 3
**WARNING-A MOVING LOAD THAT WOULD HAVE BEEN APPLIED BEYOND THE X AND Z RANGES
      OF THE STRUCTURE HAS BEEN IGNORED. CASE= 1 WHEEL 2 OF 3
**WARNING-A MOVING LOAD THAT WOULD HAVE BEEN APPLIED BEYOND THE X AND Z RANGES
      OF THE STRUCTURE HAS BEEN IGNORED. CASE= 2 WHEEL 1 OF 3
**WARNING-A MOVING LOAD THAT WOULD HAVE BEEN APPLIED BEYOND THE X AND Z RANGES
      OF THE STRUCTURE HAS BEEN IGNORED. CASE= 2 WHEEL 2 OF 3
**WARNING-A MOVING LOAD THAT WOULD HAVE BEEN APPLIED BEYOND THE X AND Z RANGES
      OF THE STRUCTURE HAS BEEN IGNORED. CASE= 3 WHEEL 1 OF 3
**WARNING-A MOVING LOAD THAT WOULD HAVE BEEN APPLIED BEYOND THE X AND Z RANGES
      OF THE STRUCTURE HAS BEEN IGNORED. CASE= 3 WHEEL 2 OF 3
**WARNING-A MOVING LOAD THAT WOULD HAVE BEEN APPLIED BEYOND THE X AND Z RANGES
      OF THE STRUCTURE HAS BEEN IGNORED. CASE= 4 WHEEL 1 OF 3
**WARNING-A MOVING LOAD THAT WOULD HAVE BEEN APPLIED BEYOND THE X AND Z RANGES
      OF THE STRUCTURE HAS BEEN IGNORED. CASE= 4 WHEEL 2 OF 3
**WARNING-A MOVING LOAD THAT WOULD HAVE BEEN APPLIED BEYOND THE X AND Z RANGES
      OF THE STRUCTURE HAS BEEN IGNORED. CASE= 5 WHEEL 1 OF 3
**WARNING-A MOVING LOAD THAT WOULD HAVE BEEN APPLIED BEYOND THE X AND Z RANGES
      OF THE STRUCTURE HAS BEEN IGNORED. CASE= 5 WHEEL 2 OF 3
*ADDITIONAL MOVING LOAD MESSAGES SUPPRESSED
*ADDITIONAL MOVING LOAD MESSAGES SUPPRESSED
64. TYPE 1 28 0 1 XINC -1.
65. *TYPE 2F1 TRAVELING UP STATION
66. LOAD GENERATION 11
67. TYPE 2 -10 0 2 XINC 1
68. *TYPE 2F1 TRAVELING DOWN STATION
69. LOAD GENERATION 11
70. TYPE 2 10 0 2 XINC -1.
71. *TYPE 3F1 TRAVELING UP STATION
72. LOAD GENERATION 15

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STAAD SPACE

-- PAGE NO. 3

73. TYPE 3 -14 0 3 XINC 1
74. *TYPE 3F1 TRAVELING DOWN STATION
75. LOAD GENERATION 15
76. TYPE 3 14 0 3 XINC -1.
77. *TYPE 4F1 TRAVELING UP STATION
78. LOAD GENERATION 19
79. TYPE 4 -18 0 4 XINC 1
80. *TYPE 4F1 TRAVELING DOWN STATION
81. LOAD GENERATION 19
82. TYPE 4 18 0 4 XINC -1.
83. *TYPE 5C1 TRAVELING UP STATION
84. LOAD GENERATION 52
85. TYPE 5 -51 0 5 XINC 1
86. *TYPE 5 TRAVELING DOWN STATION
87. LOAD GENERATION 52
88. TYPE 5 51 0 5 XINC -1.
89. PERFORM ANALYSIS

P R O B L E M S T A T I S T I C S

NUMBER OF JOINTS/MEMBER+ELEMENTS/SUPPORTS = 20/ 15/ 10

SOLVER USED IS THE OUT-OF-CORE BASIC SOLVER

ORIGINAL/FINAL BAND-WIDTH= 2/ 2/ 12 DOF
TOTAL PRIMARY LOAD CASES = 252, TOTAL DEGREES OF FREEDOM = 70
SIZE OF STIFFNESS MATRIX = 1 DOUBLE KILO-WORDS
REQRD/AVAIL. DISK SPACE = 12.4/ 515502.1 MB

90. PRINT MAXFORCE ENVELOPE NSECTION 1 LIST 13

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/	DIST	LD	MZ/	DIST	LD	FX	DIST	LD
	FZ	DIST	LD	MY	DIST	LD			
13 MAX	0.00	0.00	1	0.00	0.00	1	27.08 C	0.00	28
	0.00	0.00	1	0.00	0.00	1			
MIN	0.00	0.10	252	0.00	0.10	252	0.00	0.10	252
	0.00	0.10	252	0.00	0.10	252			

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

- 91. *HS20 MAX REACTION - LISTED ABOVE
- 92. PRINT MAXFORCE ENVELOPE NSECTION 1 LIST 23

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/	DIST	LD	MZ/	DIST	LD	FX	DIST	LD
	FZ	DIST	LD	MY	DIST	LD			
23 MAX	0.00	0.00	1	0.00	0.00	1	13.96 C	0.00	68
	0.00	0.00	1	0.00	0.00	1			
MIN	0.00	0.10	252	0.00	0.10	252	0.00	0.10	252
	0.00	0.10	252	0.00	0.10	252			

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

- 93. *TYPE 2F1 MAX REACTION - LISTED ABOVE
- 94. PRINT MAXFORCE ENVELOPE NSECTION 1 LIST 33

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/	DIST	LD	MZ/	DIST	LD	FX	DIST	LD
	FZ	DIST	LD	MY	DIST	LD			
33 MAX	0.00	0.00	1	0.00	0.00	1	20.18 C	0.00	94
	0.00	0.00	1	0.00	0.00	1			
MIN	0.00	0.10	252	0.00	0.10	252	0.00	0.10	252
	0.00	0.10	252	0.00	0.10	252			

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

- 95. *TYPE 3F1 MAX REACTION - LISTED ABOVE
- 96. PRINT MAXFORCE ENVELOPE NSECTION 1 LIST 43

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
43 MAX	0.00	0.00	1	0.00	0.00	1			
	0.00	0.00	1	0.00	0.00	1	22.10 C	0.00	128
MIN	0.00	0.10	252	0.00	0.10	252			
	0.00	0.10	252	0.00	0.10	252	0.00	0.10	252

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

- 97. *TYPE 4F1 MAX REACTION - LISTED ABOVE
- 98. PRINT MAXFORCE ENVELOPE NSECTION 1 LIST 53

STAAD SPACE

-- PAGE NO. 8

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/	DIST	LD	MZ/	DIST	LD	FX	DIST	LD
	FZ	DIST	LD	MY	DIST	LD			
53 MAX	0.00	0.00	1	0.00	0.00	1	19.82 C	0.00	164
	0.00	0.00	1	0.00	0.00	1			
MIN	0.00	0.10	252	0.00	0.10	252	0.00	0.10	148
	0.00	0.10	252	0.00	0.10	252			

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

99. *TYPE 5C1 MAX REACTION - LISTED ABOVE

100. FINISH

***** END OF THE STAAD.Pro RUN *****

**** DATE= APR 11,2012 TIME= 12:23: 3 ****

```
*****
*           For questions on STAAD.Pro, please contact           *
*   Bentley Systems Offices at the following locations           *
*                                                                 *
*           Telephone           Web / Email           *
*                                                                 *
* USA:           +1 (714)974-2500           *
* UK             +44(1454)207-000           *
* SINGAPORE     +65 6225-6158           *
* EUROPE        +31 23 5560560           *
* INDIA         +91(033)4006-2021           *
* JAPAN         +81(03)5952-6500   http://www.ctc-g.co.jp   *
* CHINA         +86 10 5929 7000           *
* THAILAND     +66(0)2645-1018/19 partha.p@reisoftwareth.com *
*                                                                 *
* Worldwide     http://selectservices.bentley.com/en-US/     *
*                                                                 *
*****
```



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*****
*
*          STAAD.Pro V8i SELECTseries1          *
*          Version  20.07.06.35                *
*          Proprietary Program of              *
*          Bentley Systems, Inc.                *
*          Date=    APR 11, 2012                *
*          Time=    12:16:46                    *
*
*          USER ID: TranSystems                 *
*****
```

1. STAAD SPACE
- INPUT FILE: Bent 14 Truck Loads South Ramp.STD
2. START JOB INFORMATION
3. ENGINEER DATE 3/31/12
4. JOB NAME CUY-2-1441 EAST APPROACH FWD SECTION
5. JOB CLIENT ODOT
6. JOB NO P402110046
7. JOB REF BENT 14 TRUCK LOADS SOUTH RAMP LANES
8. ENGINEER NAME PJP
9. JOB PART EAST APPROACH FWD SECTION
10. CHECKER NAME MTN
11. CHECKER DATE 4/11/12
12. JOB COMMENT AVERAGE LENGTH OF STRINGERS S18-10 THROUGH S22-10 = 22.555'
13. END JOB INFORMATION
14. INPUT WIDTH 79
15. UNIT FEET KIP
16. JOINT COORDINATES
17. 12 -1 0 1; 13 0 0 1; 14 0 -0.1 1; 15 22.555 0 1; 22 -1 0 2; 23 0 0 2
18. 24 0 -0.1 2; 25 22.555 0 2; 32 -1 0 3; 33 0 0 3; 34 0 -0.1 3; 35 22.555 0 3
19. 42 -1 0 4; 43 0 0 4; 44 0 -0.1 4; 45 22.555 0 4; 52 -1 0 5; 53 0 0 5
20. 54 0 -0.1 5; 55 22.555 0 5
21. MEMBER INCIDENCES
22. 12 12 13; 13 13 14; 14 13 15; 22 22 23; 23 23 24; 24 23 25; 32 32 33; 33 33 34
23. 34 33 35; 42 42 43; 43 43 44; 44 43 45; 52 52 53; 53 53 54; 54 53 55
24. DEFINE MATERIAL START
25. ISOTROPIC STEEL
26. E 4.176E+006
27. POISSON 0.3
28. DENSITY 0.489024
29. ALPHA 6.5E-006
30. DAMP 0.03
31. END DEFINE MATERIAL
32. MEMBER PROPERTY AMERICAN
33. 12 22 32 42 52 TABLE ST W24X94
34. 14 24 34 44 54 TABLE ST W24X94
35. 13 23 33 43 53 TABLE ST W24X94
36. CONSTANTS
37. MATERIAL STEEL ALL
38. SUPPORTS
39. 14 24 34 44 54 FIXED
40. 15 25 35 45 55 FIXED BUT FX MZ

STAAD SPACE

-- PAGE NO. 2

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41. MEMBER RELEASE
42. 13 23 33 43 53 START MZ
43. DEFINE MOVING LOAD
44. *HS20 TRUCK
45. TYPE 1 LOAD 16 16 4
46. DIST 14 14
47. *TYPE 2F1 TRUCK
48. TYPE 2 LOAD 10 5
49. DIST 10
50. *TYPE 3F1 TRUCK
51. TYPE 3 LOAD 8.5 8.5 6
52. DIST 4 10
53. *TYPE 4F1 TRUCK
54. TYPE 4 LOAD 7 7 7 6
55. DIST 4 4 10
56. *TYPE 5C1 TRUCK
57. TYPE 5 LOAD 8.5 8.5 8.5 8.5 6
58. DIST 4 31 4 12
59. *HS20 TRAVELING UP STATION
60. LOAD GENERATION 29
**WARNING- THIS STRUCTURE IS DISJOINTED. IGNORE IF
      MASTER/SLAVE OR IF UNCONNECTED JOINTS.
61. TYPE 1 -28 0 1 XINC 1
62. *HS20 TRAVELING DOWN STATION
63. LOAD GENERATION 29
**WARNING-A MOVING LOAD THAT WOULD HAVE BEEN APPLIED BEYOND THE X AND Z RANGES
      OF THE STRUCTURE HAS BEEN IGNORED. CASE= 1 WHEEL 1 OF 3
**WARNING-A MOVING LOAD THAT WOULD HAVE BEEN APPLIED BEYOND THE X AND Z RANGES
      OF THE STRUCTURE HAS BEEN IGNORED. CASE= 1 WHEEL 2 OF 3
**WARNING-A MOVING LOAD THAT WOULD HAVE BEEN APPLIED BEYOND THE X AND Z RANGES
      OF THE STRUCTURE HAS BEEN IGNORED. CASE= 2 WHEEL 1 OF 3
**WARNING-A MOVING LOAD THAT WOULD HAVE BEEN APPLIED BEYOND THE X AND Z RANGES
      OF THE STRUCTURE HAS BEEN IGNORED. CASE= 2 WHEEL 2 OF 3
**WARNING-A MOVING LOAD THAT WOULD HAVE BEEN APPLIED BEYOND THE X AND Z RANGES
      OF THE STRUCTURE HAS BEEN IGNORED. CASE= 3 WHEEL 1 OF 3
**WARNING-A MOVING LOAD THAT WOULD HAVE BEEN APPLIED BEYOND THE X AND Z RANGES
      OF THE STRUCTURE HAS BEEN IGNORED. CASE= 3 WHEEL 2 OF 3
**WARNING-A MOVING LOAD THAT WOULD HAVE BEEN APPLIED BEYOND THE X AND Z RANGES
      OF THE STRUCTURE HAS BEEN IGNORED. CASE= 4 WHEEL 1 OF 3
**WARNING-A MOVING LOAD THAT WOULD HAVE BEEN APPLIED BEYOND THE X AND Z RANGES
      OF THE STRUCTURE HAS BEEN IGNORED. CASE= 4 WHEEL 2 OF 3
**WARNING-A MOVING LOAD THAT WOULD HAVE BEEN APPLIED BEYOND THE X AND Z RANGES
      OF THE STRUCTURE HAS BEEN IGNORED. CASE= 5 WHEEL 1 OF 3
**WARNING-A MOVING LOAD THAT WOULD HAVE BEEN APPLIED BEYOND THE X AND Z RANGES
      OF THE STRUCTURE HAS BEEN IGNORED. CASE= 5 WHEEL 2 OF 3
*ADDITIONAL MOVING LOAD MESSAGES SUPPRESSED
*ADDITIONAL MOVING LOAD MESSAGES SUPPRESSED
64. TYPE 1 28 0 1 XINC -1.
65. *TYPE 2F1 TRAVELING UP STATION
66. LOAD GENERATION 11
67. TYPE 2 -10 0 2 XINC 1
68. *TYPE 2F1 TRAVELING DOWN STATION
69. LOAD GENERATION 11
70. TYPE 2 10 0 2 XINC -1.
71. *TYPE 3F1 TRAVELING UP STATION
72. LOAD GENERATION 15

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STAAD SPACE

-- PAGE NO. 3

73. TYPE 3 -14 0 3 XINC 1
74. *TYPE 3F1 TRAVELING DOWN STATION
75. LOAD GENERATION 15
76. TYPE 3 14 0 3 XINC -1.
77. *TYPE 4F1 TRAVELING UP STATION
78. LOAD GENERATION 19
79. TYPE 4 -18 0 4 XINC 1
80. *TYPE 4F1 TRAVELING DOWN STATION
81. LOAD GENERATION 19
82. TYPE 4 18 0 4 XINC -1.
83. *TYPE 5C1 TRAVELING UP STATION
84. LOAD GENERATION 52
85. TYPE 5 -51 0 5 XINC 1
86. *TYPE 5 TRAVELING DOWN STATION
87. LOAD GENERATION 52
88. TYPE 5 51 0 5 XINC -1.
89. PERFORM ANALYSIS

P R O B L E M S T A T I S T I C S

NUMBER OF JOINTS/MEMBER+ELEMENTS/SUPPORTS = 20/ 15/ 10

SOLVER USED IS THE OUT-OF-CORE BASIC SOLVER

ORIGINAL/FINAL BAND-WIDTH= 2/ 2/ 12 DOF
TOTAL PRIMARY LOAD CASES = 252, TOTAL DEGREES OF FREEDOM = 70
SIZE OF STIFFNESS MATRIX = 1 DOUBLE KILO-WORDS
REQRD/AVAIL. DISK SPACE = 12.4/ 515502.2 MB

90. PRINT MAXFORCE ENVELOPE NSECTION 1 LIST 13

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
13 MAX	0.00	0.00	1	0.00	0.00	1			
	0.00	0.00	1	0.00	0.00	1	23.49 C	0.00	28
MIN	0.00	0.10	252	0.00	0.10	252			
	0.00	0.10	252	0.00	0.10	252	0.00	0.10	252

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

- 91. *HS20 MAX REACTION - LISTED ABOVE
- 92. PRINT MAXFORCE ENVELOPE NSECTION 1 LIST 23

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/	DIST	LD	MZ/	DIST	LD	FX	DIST	LD
	FZ	DIST	LD	MY	DIST	LD			
23 MAX	0.00	0.00	1	0.00	0.00	1	13.45 C	0.00	68
	0.00	0.00	1	0.00	0.00	1			
MIN	0.00	0.10	252	0.00	0.10	252	0.00	0.10	252
	0.00	0.10	252	0.00	0.10	252			

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

- 93. *TYPE 2F1 MAX REACTION - LISTED ABOVE
- 94. PRINT MAXFORCE ENVELOPE NSECTION 1 LIST 33

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/	DIST	LD	MZ/	DIST	LD	FX	DIST	LD
	FZ	DIST	LD	MY	DIST	LD			
33 MAX	0.00	0.00	1	0.00	0.00	1	18.79 C	0.00	94
	0.00	0.00	1	0.00	0.00	1			
MIN	0.00	0.10	252	0.00	0.10	252	0.00	0.10	252
	0.00	0.10	252	0.00	0.10	252			

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

- 95. *TYPE 3F1 MAX REACTION - LISTED ABOVE
- 96. PRINT MAXFORCE ENVELOPE NSECTION 1 LIST 43

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/	DIST	LD	MZ/	DIST	LD	FX	DIST	LD
	FZ	DIST	LD	MY	DIST	LD			
43 MAX	0.00	0.00	1	0.00	0.00	1	19.68 C	0.00	128
	0.00	0.00	1	0.00	0.00	1			
MIN	0.00	0.10	252	0.00	0.10	252	0.00	0.10	252
	0.00	0.10	252	0.00	0.10	252			

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

- 97. *TYPE 4F1 MAX REACTION - LISTED ABOVE
- 98. PRINT MAXFORCE ENVELOPE NSECTION 1 LIST 53

STAAD SPACE

-- PAGE NO. 8

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/	DIST	LD	MZ/	DIST	LD	FX	DIST	LD
	FZ	DIST	LD	MY	DIST	LD			
53 MAX	0.00	0.00	1	0.00	0.00	1	18.26 C	0.00	164
	0.00	0.00	1	0.00	0.00	1			
MIN	0.00	0.10	252	0.00	0.10	252	0.00	0.10	225
	0.00	0.10	252	0.00	0.10	252			

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

99. *TYPE 5C1 MAX REACTION - LISTED ABOVE

100. FINISH

***** END OF THE STAAD.Pro RUN *****

**** DATE= APR 11,2012 TIME= 12:16:49 ****

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*****
*           For questions on STAAD.Pro, please contact           *
*   Bentley Systems Offices at the following locations           *
*                                                                 *
*           Telephone           Web / Email           *
*                                                                 *
*   USA:           +1 (714)974-2500           *
*   UK           +44(1454)207-000           *
*   SINGAPORE +65 6225-6158           *
*   EUROPE      +31 23 5560560           *
*   INDIA       +91(033)4006-2021           *
*   JAPAN       +81(03)5952-6500   http://www.ctc-g.co.jp   *
*   CHINA       +86 10 5929 7000           *
*   THAILAND    +66(0)2645-1018/19 partha.p@reisoftwareth.com *
*                                                                 *
*   Worldwide    http://selectservices.bentley.com/en-US/     *
*                                                                 *
*****
```




Software licensed to TranSystems

Job Title CUY-2-1441

Client ODOT

Job No P402110046	Sheet No 1	Rev
Part EAST APPROACH FORWARD SECTION		
Ref BENT 14		
By PJP	Date 03-Apr-12	Chd MTN
File BENT_14_LL.std	Date/Time 11-Apr-2012 15:08	



Load 1

```
*****
*
*          STAAD.Pro V8i SELECTseries1          *
*          Version  20.07.06.35                  *
*          Proprietary Program of                *
*          Bentley Systems, Inc.                 *
*          Date=    APR 11, 2012                 *
*          Time=    11:59:49                     *
*
*          USER ID: TranSystems                  *
*****
```

1. STAAD SPACE DXF IMPORT OF 002_1441BENT_14.DXF
- INPUT FILE: BENT_14_DL.STD
2. START JOB INFORMATION
3. ENGINEER DATE 03-APR-12
4. JOB NAME CUY-2-1441
5. JOB CLIENT ODOT
6. JOB NO P402110046
7. JOB PART EAST APPROACH FORWARD SECTION
8. JOB REF BENT 14
9. ENGINEER NAME PJP
10. CHECKER NAME MTN
11. CHECKER DATE 11-APR-12
12. END JOB INFORMATION
13. INPUT WIDTH 79
14. UNIT FEET KIP
15. JOINT COORDINATES
16. 1 -51.8906 5 0; 2 -51.8906 13.4844 0; 3 -28.4739 5 0; 4 -28.4739 13.4844 0
17. 5 -9.93749 0 0; 6 -9.93749 13.4389 0; 7 25.0625 0 0; 8 25.0625 13.2795 0
18. 9 45.1927 0 0; 10 45.1927 13.234 0; 11 68.6094 0 0; 12 68.6094 13.234 0
19. 13 -63.0052 13.4844 0; 14 -56.151 13.4844 0; 15 -49.401 13.4844 0
20. 16 -42.651 13.4844 0; 17 -35.901 13.4844 0; 18 -29.151 13.4844 0
21. 19 -22.401 13.4844 0; 20 -19.9375 13.4844 0; 21 -13.9375 13.4571 0
22. 22 -7.35416 13.4271 0; 23 -1.90016 13.4023 0; 24 3.99484 13.3754 0
23. 25 9.88984 13.3486 0; 26 15.7848 13.3218 0; 27 21.6798 13.2949 0
24. 28 27.5748 13.2681 0; 29 33.4698 13.2413 0; 30 35.0625 13.234 0
25. 31 39.3594 13.234 0; 32 51.0469 13.234 0; 33 56.901 13.234 0
26. 34 62.7552 13.234 0; 35 73.3802 13.234 0; 36 79.099 13.234 0
27. MEMBER INCIDENCES
28. 1 1 2; 2 3 4; 3 5 6; 4 7 8; 5 9 10; 6 11 12; 7 13 14; 8 14 2; 9 2 15; 10 15 16
29. 11 16 17; 12 17 18; 13 18 4; 14 4 19; 15 19 20; 16 20 21; 17 21 6; 18 6 22
30. 19 22 23; 20 23 24; 21 24 25; 22 25 26; 23 26 27; 24 27 8; 25 8 28; 26 28 29
31. 27 29 30; 28 30 31; 29 31 10; 30 10 32; 31 32 33; 32 33 34; 33 34 12; 34 12 35
32. 35 35 36
33. DEFINE MATERIAL START
34. ISOTROPIC STEEL
35. E 4.176E+006
36. POISSON 0.3
37. DENSITY 0.489024
38. ALPHA 6E-006
39. DAMP 0.03
40. END DEFINE MATERIAL

41. MEMBER PROPERTY AMERICAN
42. 7 TO 15 27 TO 35 TABLE ST W33X130
43. 16 TO 26 TABLE ST W36X182
44. 1 2 TABLE ST W14X68
45. 3 TO 6 TABLE ST W14X74
46. CONSTANTS
47. MATERIAL STEEL ALL
48. SUPPORTS
49. 5 7 9 11 FIXED
50. 1 3 PINNED
51. MEMBER RELEASE
52. 15 END MZ
53. 27 END MZ
54. LOAD 1 LOADTYPE DEAD TITLE DEAD LOAD
55. JOINT LOAD
56. *F1-10
57. 36 FY -9.91
58. *S1-10
59. 35 FY -10.35
60. *S2-10
61. 12 FY -10.52
62. *S3-10
63. 34 FY -11.28
64. *S4-10
65. 33 FY -11.28
66. *S5-10
67. 32 FY -11.28
68. *S6-10
69. 10 FY -11.28
70. *S7-10
71. 31 FY -11.28
72. *S8-10
73. 29 FY -11.22
74. *S9-10
75. 28 FY -10.99
76. *S10-10
77. 27 FY -10.75
78. *S11-10
79. 26 FY -10.35
80. *S12-10
81. 25 FY -10.13
82. *S13-10
83. 24 FY -9.91
84. *S14-10
85. 23 FY -9.38
86. *S15-10
87. 22 FY -9.25
88. *S16-10
89. 21 FY -10.08
90. *S17-10
91. 19 FY -10.41
92. *S18-10
93. 18 FY -9.05
94. *S19-10
95. 17 FY -8.54
96. *S20-10

DXF IMPORT OF 002_1441BENT_14.DXF

-- PAGE NO. 3

- 97. 16 FY -7.93
- 98. *S21-10
- 99. 15 FY -7.35
- 100. *S22-10
- 101. 14 FY -6.81
- 102. *F2-10
- 103. 13 FY -5.6
- 104. SELFWEIGHT Y -1.1 LIST 1 TO 35
- 105. PDELTA 10 ANALYSIS

P R O B L E M S T A T I S T I C S

NUMBER OF JOINTS/MEMBER+ELEMENTS/SUPPORTS = 36/ 35/ 6

SOLVER USED IS THE OUT-OF-CORE BASIC SOLVER

ORIGINAL/FINAL BAND-WIDTH= 23/ 2/ 18 DOF
 TOTAL PRIMARY LOAD CASES = 1, TOTAL DEGREES OF FREEDOM = 186
 SIZE OF STIFFNESS MATRIX = 4 DOUBLE KILO-WORDS
 REQD/AVAIL. DISK SPACE = 12.1/ 514913.8 MB

- ++ Adjusting Displacements 11:59:49
- ++ Adjusting Displacements 11:59:49
- ++ Adjusting Displacements 11:59:49
- ++ Adjusting Displacements 11:59:49
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- ++ Adjusting Displacements 11:59:49
- ++ Adjusting Displacements 11:59:49

- 106. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 7 TO 15

MEMBER FORCE ENVELOPE

 ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
7 MAX	-5.60	0.00	1	41.74	6.85	1			
	0.00	0.00	1	0.00	0.00	1	0.00	0.00	1
MIN	-6.58	6.85	1	0.00	0.00	1			
	0.00	6.85	1	0.00	6.85	1	0.00	6.85	1
8 MAX	-13.39	0.00	1	100.09	4.26	1			
	0.00	0.00	1	0.00	0.00	1	0.00	0.00	1
MIN	-14.00	4.26	1	41.74	0.00	1			
	0.00	4.26	1	0.00	4.26	1	0.00	4.26	1
9 MAX	19.22	0.00	1	94.90	0.00	1			
	0.00	0.00	1	0.00	0.00	1	0.61 T	0.00	1
MIN	18.87	2.49	1	47.48	2.49	1			
	0.00	2.49	1	0.00	2.49	1	0.61 T	2.49	1
10 MAX	11.52	0.00	1	47.48	0.00	1			
	0.00	0.00	1	0.00	0.00	1	0.61 T	0.00	1
MIN	10.55	6.75	1	-27.01	6.75	1			
	0.00	6.75	1	0.00	6.75	1	0.61 T	6.75	1
11 MAX	2.62	0.00	1	-27.01	0.00	1			
	0.00	0.00	1	0.00	0.00	1	0.61 T	0.00	1
MIN	1.66	6.75	1	-41.46	6.75	1			
	0.00	6.75	1	0.00	6.75	1	0.61 T	6.75	1
12 MAX	-6.88	0.00	1	8.26	6.75	1			
	0.00	0.00	1	0.00	0.00	1	0.61 T	0.00	1
MIN	-7.85	6.75	1	-41.46	0.00	1			
	0.00	6.75	1	0.00	6.75	1	0.61 T	6.75	1
13 MAX	-16.90	0.00	1	19.74	0.68	1			
	0.00	0.00	1	0.00	0.00	1	0.61 T	0.00	1
MIN	-17.00	0.68	1	8.26	0.00	1			
	0.00	0.68	1	0.00	0.68	1	0.61 T	0.68	1
14 MAX	4.91	0.00	1	11.04	0.00	1			
	0.00	0.00	1	0.00	0.00	1	1.64 T	0.00	1
MIN	4.04	6.07	1	-16.13	6.07	1			
	0.00	6.07	1	0.00	6.07	1	1.64 T	6.07	1
15 MAX	-6.37	0.00	1	0.00	2.46	1			
	0.00	0.00	1	0.00	0.00	1	1.64 T	0.00	1

DXF IMPORT OF 002_1441BENT_14.DXF

-- PAGE NO. 5

MIN	-6.72	2.46	1	-16.13	0.00	1				
	0.00	2.46	1	0.00	2.46	1	1.64 T	2.46	1	

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

- 107. *FLOOR BEAM FB-14A DEADLOAD FORCE RESULTS ABOVE
- 108. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 16 TO 27

MEMBER FORCE ENVELOPE

 ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
16 MAX	-6.73	0.00	1	43.99	6.00	1			
	0.00	0.00	1	0.00	0.00	1	1.60 T	6.00	1
MIN	-7.93	6.00	1	0.00	0.00	1			
	0.00	6.00	1	0.00	6.00	1	1.61 T	0.00	1
17 MAX	-18.01	0.00	1	117.64	4.00	1			
	0.00	0.00	1	0.00	0.00	1	1.55 T	4.00	1
MIN	-18.81	4.00	1	43.99	0.00	1			
	0.00	4.00	1	0.00	4.00	1	1.55 T	0.00	1
18 MAX	32.39	0.00	1	133.94	0.00	1			
	0.00	0.00	1	0.00	0.00	1	0.06 T	2.58	1
MIN	31.88	2.58	1	50.92	2.58	1			
	0.00	2.58	1	0.00	2.58	1	0.06 T	0.00	1
19 MAX	22.63	0.00	1	50.92	0.00	1			
	0.00	0.00	1	0.00	0.00	1	0.01 T	5.45	1
MIN	21.53	5.45	1	-69.50	5.45	1			
	0.00	5.45	1	0.00	5.45	1	0.02 T	0.00	1
20 MAX	12.15	0.00	1	-69.50	0.00	1			
	0.00	0.00	1	0.00	0.00	1	0.04 C	5.90	1
MIN	10.97	5.90	1	-137.67	5.90	1			
	0.00	5.90	1	0.00	5.90	1	0.03 C	0.00	1
21 MAX	1.06	0.00	1	-137.67	0.00	1			
	0.00	0.00	1	0.00	0.00	1	0.09 C	5.90	1
MIN	-0.12	5.90	1	-140.49	5.31	1			
	0.00	5.90	1	0.00	5.90	1	0.08 C	0.00	1
22 MAX	-10.25	0.00	1	-76.57	5.90	1			
	0.00	0.00	1	0.00	0.00	1	0.14 C	5.90	1
MIN	-11.43	5.90	1	-140.45	0.00	1			
	0.00	5.90	1	0.00	5.90	1	0.13 C	0.00	1
23 MAX	-21.78	0.00	1	55.29	5.90	1			
	0.00	0.00	1	0.00	0.00	1	0.19 C	5.90	1
MIN	-22.96	5.90	1	-76.57	0.00	1			
	0.00	5.90	1	0.00	5.90	1	0.19 C	0.00	1
24 MAX	-33.71	0.00	1	170.46	3.38	1			
	0.00	0.00	1	0.00	0.00	1	0.24 C	3.38	1

DXF IMPORT OF 002_1441BENT_14.DXF							-- PAGE NO. 7			
MIN	-34.38	3.38	1	55.29	0.00	1				
	0.00	3.38	1	0.00	3.38	1	0.24 C	0.00	1	
25 MAX	26.69	0.00	1	156.80	0.00	1				
	0.00	0.00	1	0.00	0.00	1	1.55 T	2.51	1	
MIN	26.19	2.51	1	90.38	2.51	1				
	0.00	2.51	1	0.00	2.51	1	1.55 T	0.00	1	
26 MAX	15.20	0.00	1	90.38	0.00	1				
	0.00	0.00	1	0.00	0.00	1	1.50 T	5.90	1	
MIN	14.02	5.90	1	4.27	5.90	1				
	0.00	5.90	1	0.00	5.90	1	1.50 T	0.00	1	
27 MAX	2.80	0.00	1	4.27	0.00	1				
	0.00	0.00	1	0.00	0.00	1	1.45 T	1.59	1	
MIN	2.57	1.59	1	0.00	1.59	1				
	0.00	1.59	1	0.00	1.59	1	1.45 T	0.00	1	

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

- 109. *FLOOR BEAM FB-14B DEADLOAD FORCE RESULTS ABOVE
- 110. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 28 TO 35

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
28 MAX	2.58	0.00	1	0.00	0.00	1			
	0.00	0.00	1	0.00	0.00	1	1.43 T	0.00	1
	MIN	1.96	4.30	1	-9.74	4.30	1		
	0.00	4.30	1	0.00	4.30	1	1.43 T	4.30	1
29 MAX	-9.32	0.00	1	47.05	5.83	1			
	0.00	0.00	1	0.00	0.00	1	1.43 T	0.00	1
	MIN	-10.15	5.83	1	-9.74	0.00	1		
	0.00	5.83	1	0.00	5.83	1	1.43 T	5.83	1
30 MAX	14.31	0.00	1	49.91	0.00	1			
	0.00	0.00	1	0.00	0.00	1	1.16 T	0.00	1
	MIN	13.48	5.85	1	-31.42	5.85	1		
	0.00	5.85	1	0.00	5.85	1	1.16 T	5.85	1
31 MAX	2.20	0.00	1	-31.42	0.00	1			
	0.00	0.00	1	0.00	0.00	1	1.16 T	0.00	1
	MIN	1.36	5.85	1	-41.82	5.85	1		
	0.00	5.85	1	0.00	5.85	1	1.16 T	5.85	1
32 MAX	-9.92	0.00	1	18.71	5.85	1			
	0.00	0.00	1	0.00	0.00	1	1.16 T	0.00	1
	MIN	-10.76	5.85	1	-41.82	0.00	1		
	0.00	5.85	1	0.00	5.85	1	1.16 T	5.85	1
33 MAX	-22.04	0.00	1	150.19	5.85	1			
	0.00	0.00	1	0.00	0.00	1	1.16 T	0.00	1
	MIN	-22.88	5.85	1	18.71	0.00	1		
	0.00	5.85	1	0.00	5.85	1	1.16 T	5.85	1
34 MAX	21.76	0.00	1	161.20	0.00	1			
	0.00	0.00	1	0.00	0.00	1	0.00	0.00	1
	MIN	21.08	4.77	1	59.01	4.77	1		
	0.00	4.77	1	0.00	4.77	1	0.00	4.77	1
35 MAX	10.73	0.00	1	59.01	0.00	1			
	0.00	0.00	1	0.00	0.00	1	0.00	0.00	1
	MIN	9.91	5.72	1	0.00	5.72	1		
	0.00	5.72	1	0.00	5.72	1	0.00	5.72	1

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

- 111. *FLOOR BEAM FB-14C DEADLOAD FORCE RESULTS ABOVE
- 112. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 1

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
1 MAX	0.61	0.00	1	0.00	0.00	1			
	0.00	0.00	1	0.00	0.00	1	33.86 C	0.00	1
MIN	0.61	8.48	1	-5.19	8.48	1			
	0.00	8.48	1	0.00	8.48	1	33.23 C	8.48	1

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

- 113. *COLUMN 614 DEADLOAD FORCE RESULTS ABOVE
- 114. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 2

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
2 MAX	1.02	0.00	1	0.00	0.00	1			
	0.00	0.00	1	0.00	0.00	1	22.54 C	0.00	1
MIN	1.02	8.48	1	-8.70	8.48	1			
	0.00	8.48	1	0.00	8.48	1	21.90 C	8.48	1

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

- 115. *COLUMN 514 DEADLOAD FORCE RESULTS ABOVE
- 116. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 3

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
3 MAX	-1.72	0.00	1	16.29	13.44	1			
	0.00	0.00	1	0.00	0.00	1	52.29 C	0.00	1
MIN	-1.72	13.44	1	-6.85	0.00	1			
	0.00	13.44	1	0.00	13.44	1	51.20 C	13.44	1

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

- 117. *COLUMN 414 DEADLOADFORCE RESULTS ABOVE
- 118. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 4

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
4 MAX	1.52	0.00	1	6.54	0.00	1			
	0.00	0.00	1	0.00	0.00	1	62.16 C	0.00	1
MIN	1.52	13.28	1	-13.66	13.28	1			
	0.00	13.28	1	0.00	13.28	1	61.08 C	13.28	1

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

- 119. *COLUMN 314 DEADLOAD FORCE RESULTS ABOVE
- 120. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 5

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
5 MAX	-0.27	0.00	1	2.86	13.23	1			
	0.00	0.00	1	0.00	0.00	1	36.82 C	0.00	1
MIN	-0.27	13.23	1	-0.76	0.00	1			
	0.00	13.23	1	0.00	13.23	1	35.75 C	13.23	1

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

- 121. *COLUMN 214 DEADLOAD FORCE RESULTS ABOVE
- 122. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 6

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
6 MAX	-1.16	0.00	1	11.01	13.23	1			
	0.00	0.00	1	0.00	0.00	1	56.24 C	0.00	1
MIN	-1.16	13.23	1	-4.33	0.00	1			
	0.00	13.23	1	0.00	13.23	1	55.16 C	13.23	1

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

123. *COLUMN 114 DEADLOAD FORCE RESULTS ABOVE

124. FINISH

***** END OF THE STAAD.Pro RUN *****

**** DATE= APR 11,2012 TIME= 11:59:49 ****


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*****
*           For questions on STAAD.Pro, please contact           *
*   Bentley Systems Offices at the following locations           *
*                                                                 *
*           Telephone           Web / Email           *
*                                                                 *
*   USA:           +1 (714)974-2500           *
*   UK           +44(1454)207-000           *
*   SINGAPORE +65 6225-6158           *
*   EUROPE      +31 23 5560560           *
*   INDIA       +91(033)4006-2021           *
*   JAPAN       +81(03)5952-6500   http://www.ctc-g.co.jp   *
*   CHINA       +86 10 5929 7000           *
*   THAILAND    +66(0)2645-1018/19 partha.p@reisoftwareth.com *
*                                                                 *
*   Worldwide   http://selectservices.bentley.com/en-US/   *
*                                                                 *
*****
```



```
*****
*
*          STAAD.Pro V8i SELECTseries1          *
*          Version  20.07.06.35                 *
*          Proprietary Program of              *
*          Bentley Systems, Inc.                *
*          Date=    APR 11, 2012                *
*          Time=    15: 8:40                    *
*
*          USER ID: TranSystems                 *
*****
```

```
1. STAAD SPACE DXF IMPORT OF 002_1441BENT_14.DXF
INPUT FILE: BENT_14_LL.STD
2. START JOB INFORMATION
3. ENGINEER DATE 03-APR-12
4. JOB NAME CUY-2-1441
5. JOB CLIENT ODOT
6. JOB NO P402110046
7. JOB PART EAST APPROACH FORWARD SECTION
8. JOB REF BENT 14
9. ENGINEER NAME PJP
10. CHECKER NAME MTN
11. CHECKER DATE 11-APR-12
12. END JOB INFORMATION
13. INPUT WIDTH 79
14. UNIT FEET KIP
15. JOINT COORDINATES
16. 1 -51.8906 5 0; 2 -51.8906 13.4844 0; 3 -28.4739 5 0; 4 -28.4739 13.4844 0
17. 5 -9.93749 0 0; 6 -9.93749 13.4389 0; 7 25.0625 0 0; 8 25.0625 13.2795 0
18. 9 45.1927 0 0; 10 45.1927 13.234 0; 11 68.6094 0 0; 12 68.6094 13.234 0
19. 13 -63.0052 13.4844 0; 14 -56.151 13.4844 0; 15 -49.401 13.4844 0
20. 16 -42.651 13.4844 0; 17 -35.901 13.4844 0; 18 -29.151 13.4844 0
21. 19 -22.401 13.4844 0; 20 -19.9375 13.4844 0; 21 -13.9375 13.4571 0
22. 22 -7.35416 13.4271 0; 23 -1.90016 13.4023 0; 24 3.99484 13.3754 0
23. 25 9.88984 13.3486 0; 26 15.7848 13.3218 0; 27 21.6798 13.2949 0
24. 28 27.5748 13.2681 0; 29 33.4698 13.2413 0; 30 35.0625 13.234 0
25. 31 39.3594 13.234 0; 32 51.0469 13.234 0; 33 56.901 13.234 0
26. 34 62.7552 13.234 0; 35 73.3802 13.234 0; 36 79.099 13.234 0
27. MEMBER INCIDENCES
28. 1 1 2; 2 3 4; 3 5 6; 4 7 8; 5 9 10; 6 11 12; 7 13 14; 8 14 2; 9 2 15; 10 15 16
29. 11 16 17; 12 17 18; 13 18 4; 14 4 19; 15 19 20; 16 20 21; 17 21 6; 18 6 22
30. 19 22 23; 20 23 24; 21 24 25; 22 25 26; 23 26 27; 24 27 8; 25 8 28; 26 28 29
31. 27 29 30; 28 30 31; 29 31 10; 30 10 32; 31 32 33; 32 33 34; 33 34 12; 34 12 35
32. 35 35 36
33. DEFINE MATERIAL START
34. ISOTROPIC STEEL
35. E 4.176E+006
36. POISSON 0.3
37. DENSITY 0.489024
38. ALPHA 6E-006
39. DAMP 0.03
40. END DEFINE MATERIAL
```

41. MEMBER PROPERTY AMERICAN
42. 7 TO 15 27 TO 35 TABLE ST W33X130
43. 16 TO 26 TABLE ST W36X182
44. 1 2 TABLE ST W14X68
45. 3 TO 6 TABLE ST W14X74
46. CONSTANTS
47. MATERIAL STEEL ALL
48. SUPPORTS
49. 5 7 9 11 FIXED
50. 1 3 PINNED
51. MEMBER RELEASE
52. 15 END MZ
53. 27 END MZ
54. DEFINE MOVING LOAD
55. *HS-15 FATIGUE TRUCK IN NORTH AND LAKEFRONT LANES
56. TYPE 1 LOAD 23.4 23.4
57. DIST 6
58. *HS-15 FATIGUE TRUCK IN SOUTH RAMP LANES
59. TYPE 2 LOAD 20.3 20.3
60. DIST 6
61. LOAD 1 LOADTYPE LIVE TITLE 7 LANE HS-20 FB MOMENT AT COL 6
62. MEMBER LOAD
63. 7 CON GY -23 3.395 0
64. 8 CON GY -23 2.54 0
65. 10 CON GY -23 3.79 0
66. 11 CON GY -23 3.04 0
67. 12 CON GY -23 0.29 0
68. 12 CON GY -23 6.29 0
69. 20 CON GY -26.5 0.338 0
70. 21 CON GY -26.5 0.443 0
71. 22 CON GY -26.5 0.798 0
72. 23 CON GY -26.5 0.903 0
73. 30 CON GY -26.5 3.708 0
74. 31 CON GY -26.5 3.854 0
75. 32 CON GY -26.5 2 0
76. 33 CON GY -26.5 2.146 0
77. LOAD 2 LOADTYPE LIVE TITLE 3 LANE HS-20 FB MOMENT AT COL 6
78. MEMBER LOAD
79. 7 CON GY -27.5 3.395 0
80. 8 CON GY -27.5 2.54 0
81. 10 CON GY -27.5 3.79 0
82. 11 CON GY -27.5 3.04 0
83. 12 CON GY -27.5 0.29 0
84. 12 CON GY -27.5 6.29 0
85. LOAD 3 LOADTYPE LIVE TITLE 2 LANE HS-20 FB MOMENT AT COL 6
86. MEMBER LOAD
87. 7 CON GY -30.6 3.395 0
88. 8 CON GY -30.6 2.54 0
89. 10 CON GY -30.6 6.219 0
90. 11 CON GY -30.6 5.469 0
91. LOAD 4 LOADTYPE LIVE TITLE 7 LANE HS-20 AXIAL LOADING AT COL 6
92. MEMBER LOAD
93. 7 CON GY -23 3.395 0
94. 8 CON GY -23 2.54 0
95. 10 CON GY -23 1.79 0
96. 11 CON GY -23 1.04 0

97. 12 CON GY -23 0.29 0
98. 12 CON GY -23 6.29 0
99. 20 CON GY -26.5 0.338 0
100. 21 CON GY -26.5 0.443 0
101. 22 CON GY -26.5 0.798 0
102. 23 CON GY -26.5 0.903 0
103. 30 CON GY -26.5 3.708 0
104. 31 CON GY -26.5 3.854 0
105. 32 CON GY -26.5 2 0
106. 33 CON GY -26.5 2.146 0
107. LOAD 5 LOADTYPE LIVE TITLE 3 LANE HS-20 AXIAL LOADING AT COL 6
108. MEMBER LOAD
109. 7 CON GY -27.5 3.395 0
110. 8 CON GY -27.5 2.54 0
111. 10 CON GY -27.5 1.79 0
112. 11 CON GY -27.5 1.04 0
113. 12 CON GY -27.5 0.29 0
114. 12 CON GY -27.5 6.29 0
115. LOAD 6 LOADTYPE LIVE TITLE 2 LANE HS-20 AXIAL LOADING AT COL 6
116. MEMBER LOAD
117. 7 CON GY -30.6 3.395 0
118. 8 CON GY -30.6 2.54 0
119. 10 CON GY -30.6 1.79 0
120. 11 CON GY -30.6 1.04 0
121. LOAD 7 LOADTYPE LIVE TITLE 6 LANE HS-20 FB MOMENT (POSITIVE)
122. MEMBER LOAD
123. 10 CON GY -23 1.219 0
124. 11 CON GY -23 0.469 0
125. 11 CON GY -23 4.469 0
126. 12 CON GY -23 3.719 0
127. 20 CON GY -26.5 0.338 0
128. 21 CON GY -26.5 0.443 0
129. 22 CON GY -26.5 0.798 0
130. 23 CON GY -26.5 0.903 0
131. 30 CON GY -26.5 3.708 0
132. 31 CON GY -26.5 3.854 0
133. 32 CON GY -26.5 2 0
134. 33 CON GY -26.5 2.146 0
135. LOAD 8 LOADTYPE LIVE TITLE 2 LANE HS-20 FB MOMENT (POSITIVE)
136. MEMBER LOAD
137. 10 CON GY -30.6 1.219 0
138. 11 CON GY -30.6 0.469 0
139. 11 CON GY -30.6 4.469 0
140. 12 CON GY -30.6 3.719 0
141. LOAD 9 LOADTYPE LIVE TITLE 2 LANE HS-20 FB MOMENT (POSITIVE)
142. MEMBER LOAD
143. 20 CON GY -35.3 0.338 0
144. 21 CON GY -35.3 0.443 0
145. 22 CON GY -35.3 0.798 0
146. 23 CON GY -35.3 0.903 0
147. LOAD 10 LOADTYPE LIVE TITLE 2 LANE HS-20 FB MOMENT (POSITIVE)
148. MEMBER LOAD
149. 30 CON GY -35.3 3.708 0
150. 31 CON GY -35.3 3.854 0
151. 32 CON GY -35.3 2 0
152. 33 CON GY -35.3 2.146 0

153. LOAD 11 LOADTYPE LIVE TITLE 6 LANE HS-20 FB CANTILEVER MOMENT
154. MEMBER LOAD
155. 7 CON GY -23 3.395 0
156. 8 CON GY -23 2.54 0
157. 13 CON GY -23 0.089 0
158. 14 CON GY -23 5.411 0
159. 16 CON GY -26.5 3.125 0
160. 17 CON GY -26.5 3.125 0
161. 25 CON GY -26.5 0.875 0
162. 26 CON GY -26.5 4.363 0
163. 28 CON GY -26.5 3.125 0
164. 29 CON GY -26.5 4.828 0
165. 34 CON GY -26.5 1.724 0
166. 35 CON GY -26.5 2.953 0
167. LOAD 12 LOADTYPE LIVE TITLE 3 LANE HS-20 FB CANTILEVER MOMENT
168. MEMBER LOAD
169. 7 CON GY -27.5 3.395 0
170. 8 CON GY -27.5 2.54 0
171. 13 CON GY -27.5 0.089 0
172. 14 CON GY -27.5 5.411 0
173. 16 CON GY -31.7 3.125 0
174. 17 CON GY -31.7 3.125 0
175. LOAD 13 LOADTYPE LIVE TITLE 3 LANE HS-20 FB CANTILEVER MOMENT
176. MEMBER LOAD
177. 25 CON GY -31.7 0.875 0
178. 26 CON GY -31.7 4.363 0
179. 28 CON GY -31.7 3.125 0
180. 29 CON GY -31.7 4.828 0
181. 34 CON GY -31.7 1.724 0
182. 35 CON GY -31.7 2.953 0
183. LOAD 14 LOADTYPE LIVE TITLE 2 LANE HS-20 FB CANTILEVER MOMENT
184. MEMBER LOAD
185. 13 CON GY -30.6 0.089 0
186. 14 CON GY -30.6 5.411 0
187. 16 CON GY -35.3 3.125 0
188. 17 CON GY -35.3 3.125 0
189. LOAD 15 LOADTYPE LIVE TITLE 2 LANE HS-20 FB CANTILEVER MOMENT
190. MEMBER LOAD
191. 25 CON GY -35.3 0.875 0
192. 26 CON GY -35.3 4.363 0
193. 28 CON GY -35.3 3.125 0
194. 29 CON GY -35.3 4.828 0
195. LOAD 16 LOADTYPE LIVE TITLE 6 LANE HS-20 FB MOMENT AT COL 5
196. MEMBER LOAD
197. 10 CON GY -23 6.219 0
198. 11 CON GY -23 5.469 0
199. 13 CON GY -23 0.089 0
200. 14 CON GY -23 5.411 0
201. 16 CON GY -26.5 3.125 0
202. 17 CON GY -26.5 3.125 0
203. 25 CON GY -26.5 0.875 0
204. 26 CON GY -26.5 4.363 0
205. 28 CON GY -26.5 3.125 0
206. 29 CON GY -26.5 4.828 0
207. 34 CON GY -26.5 1.724 0
208. 35 CON GY -26.5 2.953 0

209. LOAD 17 LOADTYPE LIVE TITLE 3 LANE HS-20 FB MOMENT AT COL 5
210. MEMBER LOAD
211. 10 CON GY -27.5 6.219 0
212. 11 CON GY -27.5 5.469 0
213. 13 CON GY -27.5 0.089 0
214. 14 CON GY -27.5 5.411 0
215. 16 CON GY -31.7 3.125 0
216. 17 CON GY -31.7 3.125 0
217. LOAD 18 LOADTYPE LIVE TITLE 2 LANE HS-20 FB MOMENT AT COL 5
218. MEMBER LOAD
219. 10 CON GY -30.6 6.219 0
220. 11 CON GY -30.6 5.469 0
221. 13 CON GY -30.6 0.089 0
222. 14 CON GY -30.6 5.411 0
223. LOAD 19 LOADTYPE LIVE TITLE 6 LANE HS-20 AXIAL AT COL 5
224. MEMBER LOAD
225. 11 CON GY -23 1.589 0
226. 12 CON GY -23 0.839 0
227. 13 CON GY -23 0.089 0
228. 14 CON GY -23 5.411 0
229. 16 CON GY -26.5 3.125 0
230. 17 CON GY -26.5 3.125 0
231. 25 CON GY -26.5 0.875 0
232. 26 CON GY -26.5 4.363 0
233. 28 CON GY -26.5 3.125 0
234. 29 CON GY -26.5 4.828 0
235. 34 CON GY -26.5 1.724 0
236. 35 CON GY -26.5 2.953 0
237. LOAD 20 LOADTYPE LIVE TITLE 3 LANE HS-20 AXIAL AT COL 5
238. MEMBER LOAD
239. 11 CON GY -27.5 1.589 0
240. 12 CON GY -27.5 0.839 0
241. 13 CON GY -27.5 0.089 0
242. 14 CON GY -27.5 5.411 0
243. 16 CON GY -31.7 3.125 0
244. 17 CON GY -31.7 3.125 0
245. LOAD 21 LOADTYPE LIVE TITLE 2 LANE HS-20 AXIAL AT COL 5
246. MEMBER LOAD
247. 11 CON GY -30.6 1.589 0
248. 12 CON GY -30.6 0.839 0
249. 13 CON GY -30.6 0.089 0
250. 14 CON GY -30.6 5.411 0
251. LOAD 22 LOADTYPE LIVE TITLE 7 LANE HS-20 FB MOMENT AT COL 4
252. MEMBER LOAD
253. 7 CON GY -23 3.395 0
254. 8 CON GY -23 2.54 0
255. 13 CON GY -23 0.089 0
256. 14 CON GY -23 5.411 0
257. 16 CON GY -26.5 3.125 0
258. 17 CON GY -26.5 3.125 0
259. 20 CON GY -26.5 0.338 0
260. 21 CON GY -26.5 0.443 0
261. 22 CON GY -26.5 0.798 0
262. 23 CON GY -26.5 0.903 0
263. 30 CON GY -26.5 3.708 0
264. 31 CON GY -26.5 3.854 0

265. 32 CON GY -26.5 2 0
266. 33 CON GY -26.5 2.146 0
267. LOAD 23 LOADTYPE LIVE TITLE 3 LANE HS-20 FB MOMENT AT COL 4
268. MEMBER LOAD
269. 13 CON GY -27.5 0.089 0
270. 14 CON GY -27.5 5.411 0
271. 16 CON GY -31.7 3.125 0
272. 17 CON GY -31.7 3.125 0
273. 20 CON GY -31.7 0.338 0
274. 21 CON GY -31.7 0.443 0
275. LOAD 24 LOADTYPE LIVE TITLE 3 LANE HS-20 FB MOMENT AT COL 4
276. MEMBER LOAD
277. 16 CON GY -31.7 3.125 0
278. 17 CON GY -31.7 3.125 0
279. 20 CON GY -31.7 0.338 0
280. 21 CON GY -31.7 0.443 0
281. 22 CON GY -31.7 0.798 0
282. 23 CON GY -31.7 0.903 0
283. LOAD 25 LOADTYPE LIVE TITLE 2 LANE HS-20 FB MOMENT AT COL 4
284. MEMBER LOAD
285. 16 CON GY -35.3 3.125 0
286. 17 CON GY -35.3 3.125 0
287. 20 CON GY -35.3 0.338 0
288. 21 CON GY -35.3 0.443 0
289. LOAD 26 LOADTYPE LIVE TITLE 7 LANE HS-20 AXIAL AT COL 4
290. MEMBER LOAD
291. 7 CON GY -23 3.395 0
292. 8 CON GY -23 2.54 0
293. 13 CON GY -23 0.089 0
294. 14 CON GY -23 5.411 0
295. 16 CON GY -26.5 4 0
296. 17 CON GY -26.5 4 0
297. 19 CON GY -26.5 2.542 0
298. 20 CON GY -26.5 3.088 0
299. 22 CON GY -26.5 0.798 0
300. 23 CON GY -26.5 0.903 0
301. 30 CON GY -26.5 3.708 0
302. 31 CON GY -26.5 3.854 0
303. 32 CON GY -26.5 2 0
304. 33 CON GY -26.5 2.146 0
305. LOAD 27 LOADTYPE LIVE TITLE 3 LANE HS-20 AXIAL AT COL 4
306. MEMBER LOAD
307. 16 CON GY -31.7 4 0
308. 17 CON GY -31.7 4 0
309. 19 CON GY -31.7 2.542 0
310. 20 CON GY -31.7 3.088 0
311. 22 CON GY -31.7 0.798 0
312. 23 CON GY -31.7 0.903 0
313. LOAD 28 LOADTYPE LIVE TITLE 2 LANE HS-20 AXIAL AT COL 4
314. MEMBER LOAD
315. 16 CON GY -35.3 4 0
316. 17 CON GY -35.3 4 0
317. 19 CON GY -35.3 2.542 0
318. 20 CON GY -35.3 3.088 0
319. LOAD 29 LOADTYPE LIVE TITLE 7 LANE HS-20 FB MOMENT AT COL 3
320. MEMBER LOAD

321. 10 CON GY -23 1.219 0
322. 11 CON GY -23 0.469 0
323. 11 CON GY -23 4.469 0
324. 12 CON GY -23 3.719 0
325. 20 CON GY -26.5 0.338 0
326. 21 CON GY -26.5 0.443 0
327. 22 CON GY -26.5 0.798 0
328. 23 CON GY -26.5 0.903 0
329. 25 CON GY -26.5 0.875 0
330. 26 CON GY -26.5 4.363 0
331. 28 CON GY -26.5 3.125 0
332. 29 CON GY -26.5 4.828 0
333. 34 CON GY -26.5 1.724 0
334. 35 CON GY -26.5 2.953 0
335. LOAD 30 LOADTYPE LIVE TITLE 3 LANE HS-20 FB MOMENT AT COL 3
336. MEMBER LOAD
337. 20 CON GY -31.7 0.338 0
338. 21 CON GY -31.7 0.443 0
339. 22 CON GY -31.7 0.798 0
340. 23 CON GY -31.7 0.903 0
341. 25 CON GY -31.7 0.875 0
342. 26 CON GY -31.7 4.363 0
343. LOAD 31 LOADTYPE LIVE TITLE 3 LANE HS-20 FB MOMENT AT COL 3
344. MEMBER LOAD
345. 22 CON GY -31.7 0.798 0
346. 23 CON GY -31.7 0.903 0
347. 25 CON GY -31.7 0.875 0
348. 26 CON GY -31.7 4.363 0
349. 28 CON GY -31.7 3.125 0
350. 29 CON GY -31.7 4.828 0
351. LOAD 32 LOADTYPE LIVE TITLE 2 LANE HS-20 FB MOMENT AT COL 3
352. MEMBER LOAD
353. 22 CON GY -35.3 0.798 0
354. 23 CON GY -35.3 0.903 0
355. 25 CON GY -35.3 0.875 0
356. 26 CON GY -35.3 4.363 0
357. LOAD 33 LOADTYPE LIVE TITLE 7 LANE HS-20 AXIAL AT COL 3
358. MEMBER LOAD
359. 10 CON GY -23 1.219 0
360. 11 CON GY -23 0.469 0
361. 11 CON GY -23 4.469 0
362. 12 CON GY -23 3.719 0
363. 20 CON GY -26.5 0.338 0
364. 21 CON GY -26.5 0.443 0
365. 22 CON GY -26.5 4.048 0
366. 23 CON GY -26.5 4.153 0
367. 25 CON GY -26.5 0 0
368. 26 CON GY -26.5 3.488 0
369. 28 CON GY -26.5 3.125 0
370. 29 CON GY -26.5 4.828 0
371. 34 CON GY -26.5 1.724 0
372. 35 CON GY -26.5 2.953 0
373. LOAD 34 LOADTYPE LIVE TITLE 3 LANE HS-20 AXIAL AT COL 3
374. MEMBER LOAD
375. 20 CON GY -31.7 0.338 0
376. 21 CON GY -31.7 0.443 0

377. 22 CON GY -31.7 4.048 0
378. 23 CON GY -31.7 4.153 0
379. 25 CON GY -31.7 0 0
380. 26 CON GY -31.7 3.488 0
381. LOAD 35 LOADTYPE LIVE TITLE 3 LANE HS-20 AXIAL AT COL 3
382. MEMBER LOAD
383. 22 CON GY -31.7 4.048 0
384. 23 CON GY -31.7 4.153 0
385. 25 CON GY -31.7 0 0
386. 26 CON GY -31.7 3.488 0
387. 28 CON GY -31.7 3.125 0
388. 29 CON GY -31.7 4.828 0
389. LOAD 36 LOADTYPE LIVE TITLE 2 LANE HS-20 AXIAL AT COL 3
390. MEMBER LOAD
391. 22 CON GY -35.3 4.048 0
392. 23 CON GY -35.3 4.153 0
393. 25 CON GY -35.3 0 0
394. 26 CON GY -35.3 3.488 0
395. LOAD 37 LOADTYPE LIVE TITLE 7 LANE HS-20 FB MOMENT AT COL 2
396. MEMBER LOAD
397. 7 CON GY -23 3.395 0
398. 8 CON GY -23 2.54 0
399. 13 CON GY -23 0.089 0
400. 14 CON GY -23 5.411 0
401. 16 CON GY -26.5 3.125 0
402. 17 CON GY -26.5 3.125 0
403. 25 CON GY -26.5 0.875 0
404. 26 CON GY -26.5 4.363 0
405. 28 CON GY -26.5 3.125 0
406. 29 CON GY -26.5 4.828 0
407. 31 CON GY -26.5 1.141 0
408. 32 CON GY -26.5 1.286 0
409. 32 CON GY -26.5 5.286 0
410. 33 CON GY -26.5 5.432 0
411. LOAD 38 LOADTYPE LIVE TITLE 3 LANE HS-20 FB MOMENT AT COL 2
412. MEMBER LOAD
413. 25 CON GY -31.7 0.875 0
414. 26 CON GY -31.7 4.363 0
415. 28 CON GY -31.7 3.125 0
416. 29 CON GY -31.7 4.828 0
417. 31 CON GY -31.7 2.854 0
418. 32 CON GY -31.7 3 0
419. LOAD 39 LOADTYPE LIVE TITLE 3 LANE HS-20 FB MOMENT AT COL 2
420. MEMBER LOAD
421. 28 CON GY -31.7 3.125 0
422. 29 CON GY -31.7 4.828 0
423. 31 CON GY -31.7 1.141 0
424. 32 CON GY -31.7 1.286 0
425. 32 CON GY -31.7 5.286 0
426. 33 CON GY -31.7 5.432 0
427. LOAD 40 LOADTYPE LIVE TITLE 2 LANE HS-20 FB MOMENT AT COL 2
428. MEMBER LOAD
429. 28 CON GY -35.3 3.125 0
430. 29 CON GY -35.3 4.828 0
431. 31 CON GY -35.3 2.854 0
432. 32 CON GY -35.3 3 0

433. LOAD 41 LOADTYPE LIVE TITLE 7 LANE HS-20 AXIAL AT COL 2
434. MEMBER LOAD
435. 7 CON GY -23 3.395 0
436. 8 CON GY -23 2.54 0
437. 13 CON GY -23 0.089 0
438. 14 CON GY -23 5.411 0
439. 16 CON GY -26.5 3.125 0
440. 17 CON GY -26.5 3.125 0
441. 25 CON GY -26.5 0.875 0
442. 26 CON GY -26.5 4.363 0
443. 28 CON GY -26.5 4.13 0
444. 29 CON GY -26.5 5.833 0
445. 30 CON GY -26.5 4.995 0
446. 31 CON GY -26.5 5.141 0
447. 32 CON GY -26.5 5.286 0
448. 33 CON GY -26.5 5.432 0
449. LOAD 42 LOADTYPE LIVE TITLE 3 LANE HS-20 AXIAL AT COL 2
450. MEMBER LOAD
451. 25 CON GY -31.7 0.875 0
452. 26 CON GY -31.7 4.363 0
453. 28 CON GY -31.7 4.13 0
454. 29 CON GY -31.7 5.833 0
455. 30 CON GY -31.7 4.995 0
456. 31 CON GY -31.7 5.141 0
457. LOAD 43 LOADTYPE LIVE TITLE 3 LANE HS-20 AXIAL AT COL 2
458. MEMBER LOAD
459. 28 CON GY -31.7 4.13 0
460. 29 CON GY -31.7 5.833 0
461. 30 CON GY -31.7 4.995 0
462. 31 CON GY -31.7 5.141 0
463. 32 CON GY -31.7 5.286 0
464. 33 CON GY -31.7 5.432 0
465. LOAD 44 LOADTYPE LIVE TITLE 2 LANE HS-20 AXIAL AT COL 2
466. MEMBER LOAD
467. 28 CON GY -35.3 4.13 0
468. 29 CON GY -35.3 5.833 0
469. 30 CON GY -35.3 4.995 0
470. 31 CON GY -35.3 5.141 0
471. LOAD 45 LOADTYPE LIVE TITLE 7 LANE HS-20 FB MOMENT AT COL 1
472. MEMBER LOAD
473. 10 CON GY -23 1.219 0
474. 11 CON GY -23 0.469 0
475. 11 CON GY -23 4.469 0
476. 12 CON GY -23 3.719 0
477. 20 CON GY -26.5 0.338 0
478. 21 CON GY -26.5 0.443 0
479. 22 CON GY -26.5 0.798 0
480. 23 CON GY -26.5 0.903 0
481. 30 CON GY -26.5 1.141 0
482. 31 CON GY -26.5 1.286 0
483. 31 CON GY -26.5 5.286 0
484. 32 CON GY -26.5 5.432 0
485. 34 CON GY -26.5 1.724 0
486. 35 CON GY -26.5 2.953 0
487. LOAD 46 LOADTYPE LIVE TITLE 3 LANE HS-20 FB MOMENT AT COL 1
488. MEMBER LOAD

489. 30 CON GY -31.7 1.141 0
490. 31 CON GY -31.7 1.286 0
491. 31 CON GY -31.7 5.286 0
492. 32 CON GY -31.7 5.432 0
493. 34 CON GY -31.7 1.724 0
494. 35 CON GY -31.7 2.953 0
495. LOAD 47 LOADTYPE LIVE TITLE 2 LANE HS-20 FB MOMENT AT COL 1
496. MEMBER LOAD
497. 31 CON GY -35.3 2.854 0
498. 32 CON GY -35.3 3 0
499. 34 CON GY -35.3 1.724 0
500. 35 CON GY -35.3 2.953 0
501. LOAD 48 LOADTYPE LIVE TITLE 7 LANE HS-20 AXIAL AT COL 1
502. MEMBER LOAD
503. 10 CON GY -23 1.219 0
504. 11 CON GY -23 0.469 0
505. 11 CON GY -23 4.469 0
506. 12 CON GY -23 3.719 0
507. 20 CON GY -26.5 0.338 0
508. 21 CON GY -26.5 0.443 0
509. 22 CON GY -26.5 0.798 0
510. 23 CON GY -26.5 0.903 0
511. 30 CON GY -26.5 1.141 0
512. 31 CON GY -26.5 1.286 0
513. 32 CON GY -26.5 1.432 0
514. 33 CON GY -26.5 1.578 0
515. 34 CON GY -26.5 1.724 0
516. 35 CON GY -26.5 2.953 0
517. LOAD 49 LOADTYPE LIVE TITLE 3 LANE HS-20 AXIAL AT COL 1
518. MEMBER LOAD
519. 30 CON GY -31.7 1.141 0
520. 31 CON GY -31.7 1.286 0
521. 32 CON GY -31.7 1.432 0
522. 33 CON GY -31.7 1.578 0
523. 34 CON GY -31.7 1.724 0
524. 35 CON GY -31.7 2.953 0
525. LOAD 50 LOADTYPE LIVE TITLE 2 LANE HS-20 AXIAL AT COL 1
526. MEMBER LOAD
527. 32 CON GY -35.3 1.432 0
528. 33 CON GY -35.3 1.578 0
529. 34 CON GY -35.3 1.724 0
530. 35 CON GY -35.3 2.953 0
531. LOAD 51 LOADTYPE LIVE TITLE 10 LANE HS-20 OUTSIDE LANES
532. MEMBER LOAD
533. 7 CON GY -23 3.395 0
534. 8 CON GY -23 2.54 0
535. 10 CON GY -23 1.79 0
536. 11 CON GY -23 1.04 0
537. 12 CON GY -23 0.29 0
538. 12 CON GY -23 6.29 0
539. 16 CON GY -26.5 3.125 0
540. 17 CON GY -26.5 3.125 0
541. 19 CON GY -26.5 2.542 0
542. 20 CON GY -26.5 3.088 0
543. 22 CON GY -26.5 4.048 0
544. 23 CON GY -26.5 4.153 0

545. 25 CON GY -26.5 0.875 0
546. 26 CON GY -26.5 4.363 0
547. 30 CON GY -26.5 1.141 0
548. 31 CON GY -26.5 1.286 0
549. 32 CON GY -26.5 1.432 0
550. 33 CON GY -26.5 1.578 0
551. 34 CON GY -26.5 1.724 0
552. 35 CON GY -26.5 2.953 0
553. LOAD 52 LOADTYPE LIVE TITLE 10 LANE HS-20 INSIDE LANES
554. MEMBER LOAD
555. 8 CON GY -23 3.089 0
556. 10 CON GY -23 2.339 0
557. 11 CON GY -23 1.589 0
558. 12 CON GY -23 0.839 0
559. 13 CON GY -23 0.089 0
560. 14 CON GY -23 5.411 0
561. 17 CON GY -26.5 0.375 0
562. 18 CON GY -26.5 2.375 0
563. 20 CON GY -26.5 0.338 0
564. 21 CON GY -26.5 0.443 0
565. 22 CON GY -26.5 0.798 0
566. 23 CON GY -26.5 0.903 0
567. 24 CON GY -26.5 1.008 0
568. 26 CON GY -26.5 1.113 0
569. 28 CON GY -26.5 3.125 0
570. 29 CON GY -26.5 4.828 0
571. 30 CON GY -26.5 4.995 0
572. 31 CON GY -26.5 5.141 0
573. 32 CON GY -26.5 5.286 0
574. 33 CON GY -26.5 5.432 0
575. *BEGIN 2F1 LOADING
576. LOAD 53 LOADTYPE LIVE TITLE 2F1 LOADING
577. REPEAT LOAD
578. 1 0.572584
579. LOAD 54 LOADTYPE LIVE TITLE 2F1 LOADING
580. REPEAT LOAD
581. 2 0.572584
582. LOAD 55 LOADTYPE LIVE TITLE 2F1 LOADING
583. REPEAT LOAD
584. 3 0.572584
585. LOAD 56 LOADTYPE LIVE TITLE 2F1 LOADING
586. REPEAT LOAD
587. 4 0.572584
588. LOAD 57 LOADTYPE LIVE TITLE 2F1 LOADING
589. REPEAT LOAD
590. 5 0.572584
591. LOAD 58 LOADTYPE LIVE TITLE 2F1 LOADING
592. REPEAT LOAD
593. 6 0.572584
594. LOAD 59 LOADTYPE LIVE TITLE 2F1 LOADING
595. REPEAT LOAD
596. 7 0.572584
597. LOAD 60 LOADTYPE LIVE TITLE 2F1 LOADING
598. REPEAT LOAD
599. 8 0.572584
600. LOAD 61 LOADTYPE LIVE TITLE 2F1 LOADING

601. REPEAT LOAD
602. 9 0.572584
603. LOAD 62 LOADTYPE LIVE TITLE 2F1 LOADING
604. REPEAT LOAD
605. 10 0.572584
606. LOAD 63 LOADTYPE LIVE TITLE 2F1 LOADING
607. REPEAT LOAD
608. 11 0.572584
609. LOAD 64 LOADTYPE LIVE TITLE 2F1 LOADING
610. REPEAT LOAD
611. 12 0.572584
612. LOAD 65 LOADTYPE LIVE TITLE 2F1 LOADING
613. REPEAT LOAD
614. 13 0.572584
615. LOAD 66 LOADTYPE LIVE TITLE 2F1 LOADING
616. REPEAT LOAD
617. 14 0.572584
618. LOAD 67 LOADTYPE LIVE TITLE 2F1 LOADING
619. REPEAT LOAD
620. 15 0.572584
621. LOAD 68 LOADTYPE LIVE TITLE 2F1 LOADING
622. REPEAT LOAD
623. 16 0.572584
624. LOAD 69 LOADTYPE LIVE TITLE 2F1 LOADING
625. REPEAT LOAD
626. 17 0.572584
627. LOAD 70 LOADTYPE LIVE TITLE 2F1 LOADING
628. REPEAT LOAD
629. 18 0.572584
630. LOAD 71 LOADTYPE LIVE TITLE 2F1 LOADING
631. REPEAT LOAD
632. 19 0.572584
633. LOAD 72 LOADTYPE LIVE TITLE 2F1 LOADING
634. REPEAT LOAD
635. 20 0.572584
636. LOAD 73 LOADTYPE LIVE TITLE 2F1 LOADING
637. REPEAT LOAD
638. 21 0.572584
639. LOAD 74 LOADTYPE LIVE TITLE 2F1 LOADING
640. REPEAT LOAD
641. 22 0.572584
642. LOAD 75 LOADTYPE LIVE TITLE 2F1 LOADING
643. REPEAT LOAD
644. 23 0.572584
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710. 45 0.572584
711. LOAD 98 LOADTYPE LIVE TITLE 2F1 LOADING
712. REPEAT LOAD

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-- PAGE NO. 14

713. 46 0.572584
714. LOAD 99 LOADTYPE LIVE TITLE 2F1 LOADING
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1201. REPEAT LOAD
1202. 52 0.777352
1203. *FATIGUE TRUCK IN SOUTH RAMP
1204. LOAD GENERATION 29
1205. TYPE 2 -58.611 13.484 0 XINC 1.02 YRANGE 0.5
1206. *FATIGUE TRUCK IN LAKEFRONT LANES
1207. LOAD GENERATION 14
1208. TYPE 1 -15.813 13.466 0 XINC 1.02 YRANGE 0.5
1209. LOAD GENERATION 14
1210. TYPE 1 11.688 13.34 0 XINC 1.02 YRANGE 0.5
1211. *FATIGUE TRUCK IN NORTH RAMP
1212. LOAD GENERATION 31
1213. TYPE 1 39.188 13.234 0 XINC 1.005 YRANGE 0.5
1214. PDELTA 10 ANALYSIS

P R O B L E M S T A T I S T I C S

NUMBER OF JOINTS/MEMBER+ELEMENTS/SUPPORTS = 36/ 35/ 6

SOLVER USED IS THE OUT-OF-CORE BASIC SOLVER

ORIGINAL/FINAL BAND-WIDTH= 23/ 2/ 18 DOF
TOTAL PRIMARY LOAD CASES = 348, TOTAL DEGREES OF FREEDOM = 186
SIZE OF STIFFNESS MATRIX = 4 DOUBLE KILO-WORDS
REQRD/AVAIL. DISK SPACE = 13.4/ 515502.4 MB

++ Adjusting Displacements 15: 8:41
++ Adjusting Displacements 15: 8:41
++ Adjusting Displacements 15: 8:41
++ Adjusting Displacements 15: 8:42
++ Adjusting Displacements 15: 8:42
++ Adjusting Displacements 15: 8:42
++ Adjusting Displacements 15: 8:42
++ Adjusting Displacements 15: 8:42
++ Adjusting Displacements 15: 8:42
++ Adjusting Displacements 15: 8:43

1215. LOAD LIST 1 TO 52

1216. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 7 TO 15

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
7 MAX	0.00	0.00	1	105.85	6.85	3			
	0.00	0.00	1	0.00	0.00	1	0.00	0.00	1
	MIN -30.60	6.85	6	0.00	6.85	52			
	0.00	6.85	52	0.00	6.85	52	0.00	6.85	52
8 MAX	0.00	0.00	7	288.86	4.26	3			
	0.00	0.00	1	0.00	0.00	1	0.00	0.00	1
	MIN -61.20	4.26	6	0.00	4.26	50			
	0.00	4.26	52	0.00	4.26	52	0.00	4.26	52
9 MAX	57.30	0.00	8	276.28	0.00	3			
	0.00	0.00	1	0.00	0.00	1	7.79 C	0.00	8
	MIN -7.08	2.49	14	-76.69	2.49	8			
	0.00	2.49	52	0.00	2.49	52	7.04 T	2.49	12
10 MAX	57.30	0.00	8	188.86	0.00	12			
	0.00	0.00	1	0.00	0.00	1	7.79 C	0.00	8
	MIN -8.64	6.75	16	-294.28	6.75	8			
	0.00	6.75	52	0.00	6.75	52	7.04 T	6.75	12
11 MAX	29.34	0.00	4	158.79	0.00	12			
	0.00	0.00	1	0.00	0.00	1	7.79 C	0.00	8
	MIN -36.10	6.75	17	-306.00	0.68	8			
	0.00	6.75	52	0.00	6.75	52	7.04 T	6.75	12
12 MAX	9.80	0.00	26	201.54	6.75	17			
	0.00	0.00	1	0.00	0.00	1	7.79 C	0.00	8
	MIN -65.10	6.75	8	-238.79	0.00	7			
	0.00	6.75	52	0.00	6.75	52	7.04 T	6.75	12
13 MAX	9.80	0.00	26	242.16	0.68	17			
	0.00	0.00	1	0.00	0.00	1	7.79 C	0.00	8
	MIN -71.94	0.68	21	-149.61	0.68	9			
	0.00	0.68	52	0.00	0.68	52	7.04 T	0.68	12
14 MAX	39.01	0.00	20	247.09	0.00	20			
	0.00	0.00	1	0.00	0.00	1	3.59 C	0.00	14
	MIN -22.18	6.07	9	-189.28	0.00	9			
	0.00	6.07	52	0.00	6.07	52	3.96 T	6.07	1
15 MAX	12.45	0.00	19	30.67	0.00	19			
	0.00	0.00	1	0.00	0.00	1	3.59 C	0.00	14

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MIN	-22.17	2.46	9	-54.62	0.00	9				
	0.00	2.46	52	0.00	2.46	52	3.96 T	2.46	1	

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

1217. *FLOOR BEAM FB-14A HS-20 FORCE RESULTS ABOVE
1218. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 16 TO 27

MEMBER FORCE ENVELOPE

 ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
16 MAX	12.46	0.00	19	168.81	6.00	22			
	0.00	0.00	1	0.00	0.00	1	3.72 C	6.00	14
	-42.56	6.00	26	-67.28	6.00	8			
MIN	0.00	6.00	52	0.00	6.00	52	3.91 T	6.00	1
	11.21	0.00	8	359.75	4.00	22			
	0.00	0.00	1	0.00	0.00	1	3.88 C	4.00	14
17 MIN	-71.11	4.00	27	-112.14	4.00	8			
	0.00	4.00	52	0.00	4.00	52	3.91 T	4.00	1
	79.26	0.00	52	399.11	0.00	22			
18 MAX	0.00	0.00	1	0.00	0.00	1	7.26 C	0.00	7
	-8.93	2.58	13	-96.16	0.00	8			
	0.00	2.58	52	0.00	2.58	52	6.05 T	2.58	11
19 MAX	72.75	0.00	27	238.84	0.00	22			
	0.00	0.00	1	0.00	0.00	1	7.26 C	0.00	7
	-8.93	5.45	13	-276.07	5.45	9			
MIN	0.00	5.45	52	0.00	5.45	52	6.05 T	5.45	11
	71.84	0.00	9	139.79	5.90	11			
	0.00	0.00	1	0.00	0.00	1	7.38 C	5.90	7
20 MIN	-12.06	5.90	28	-503.47	5.90	9			
	0.00	5.90	52	0.00	5.90	52	6.05 T	5.90	11
	36.54	0.00	9	152.78	5.90	11			
21 MAX	0.00	0.00	1	0.00	0.00	1	7.50 C	5.90	7
	-17.71	5.90	25	-526.44	5.90	9			
	0.00	5.90	52	0.00	5.90	52	6.05 T	5.90	11
22 MAX	18.07	0.00	32	175.09	5.90	13			
	0.00	0.00	1	0.00	0.00	1	7.62 C	5.90	7
	-39.84	5.31	33	-527.17	0.59	9			
MIN	0.00	5.90	52	0.00	5.90	52	6.05 T	5.90	11
	6.29	0.00	12	227.72	5.90	13			
	0.00	0.00	1	0.00	0.00	1	7.74 C	5.90	7
23 MIN	-71.41	5.90	34	-353.80	0.00	9			
	0.00	5.90	52	0.00	5.90	52	6.05 T	5.90	11
	6.29	0.00	12	423.80	3.38	29			
24 MAX	0.00	0.00	1	0.00	0.00	1	7.74 C	0.00	7

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MIN	-79.74	3.38	52	-108.76	3.38	10			
	0.00	3.38	52	0.00	3.38	52	6.05 T	3.38	11
25 MAX	76.34	0.00	35	394.19	0.00	29			
	0.00	0.00	1	0.00	0.00	1	4.11 C	2.51	15
MIN	-12.64	2.51	10	-126.43	0.00	10			
	0.00	2.51	52	0.00	2.51	52	4.05 T	2.51	45
26 MAX	45.97	0.00	33	256.99	0.00	29			
	0.00	0.00	1	0.00	0.00	1	4.27 C	5.90	15
MIN	-12.64	5.90	10	-94.67	0.00	10			
	0.00	5.90	52	0.00	5.90	52	4.05 T	5.90	45
27 MAX	19.47	0.00	33	31.00	0.00	33			
	0.00	0.00	1	0.00	0.00	1	4.27 C	0.00	15
MIN	-12.64	1.59	10	-20.14	0.00	10			
	0.00	1.59	52	0.00	1.59	52	4.05 T	1.59	45

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

- 1219. *FLOOR BEAM FB-14B HS-20 FORCE RESULTS ABOVE
- 1220. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 28 TO 35

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
28 MAX	19.47	0.00	33	63.12	4.30	37			
	0.00	0.00	1	0.00	0.00	1	4.29 C	0.00	15
MIN	-38.41	4.30	42	-75.68	4.30	9			
	0.00	4.30	52	0.00	4.30	52	4.02 T	4.30	45
29 MAX	17.62	0.00	9	294.27	5.83	38			
	0.00	0.00	1	0.00	0.00	1	4.29 C	0.00	15
MIN	-70.11	5.83	42	-178.41	5.83	9			
	0.00	5.83	52	0.00	5.83	52	4.02 T	5.83	45
30 MAX	75.71	0.00	10	291.05	0.00	37			
	0.00	0.00	1	0.00	0.00	1	7.57 C	0.00	10
MIN	-9.32	5.85	33	-215.23	5.85	7			
	0.00	5.85	52	0.00	5.85	52	6.96 T	5.85	13
31 MAX	53.80	0.00	39	179.62	5.85	13			
	0.00	0.00	1	0.00	0.00	1	7.57 C	0.00	10
MIN	-27.06	5.85	45	-342.43	5.85	10			
	0.00	5.85	52	0.00	5.85	52	6.96 T	5.85	13
32 MAX	22.68	0.00	37	206.04	5.85	13			
	0.00	0.00	1	0.00	0.00	1	7.57 C	0.00	10
MIN	-57.67	5.85	46	-351.41	1.76	10			
	0.00	5.85	52	0.00	5.85	52	6.96 T	5.85	13
33 MAX	8.90	0.00	15	317.64	5.85	47			
	0.00	0.00	1	0.00	0.00	1	7.57 C	0.00	10
MIN	-73.00	5.85	39	-236.27	0.00	10			
	0.00	5.85	52	0.00	5.85	52	6.96 T	5.85	13
34 MAX	70.60	0.00	47	333.51	0.00	47			
	0.00	0.00	1	0.00	0.00	1	0.00	0.00	1
MIN	0.00	4.77	52	0.00	4.77	52			
	0.00	4.77	52	0.00	4.77	52	0.00	4.77	52
35 MAX	35.30	0.00	47	104.24	0.00	47			
	0.00	0.00	1	0.00	0.00	1	0.00	0.00	1
MIN	0.00	5.72	52	0.00	3.43	51			
	0.00	5.72	52	0.00	5.72	52	0.00	5.72	52

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

1221. *FLOOR BEAM FB-14C HS-20 FORCE RESULTS ABOVE
1222. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 1

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
1 MAX	7.04	0.00	12	66.00	8.48	8			
	0.00	0.00	1	0.00	0.00	1	113.86 C	0.00	6
MIN	-7.79	8.48	8	-59.64	8.48	12			
	0.00	8.48	52	0.00	8.48	52	7.08 T	8.48	14

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

- 1223. *COLUMN 614 HS-20 FORCE RESULTS ABOVE
- 1224. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 2

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
2 MAX	9.47	0.00	45	60.11	8.48	12			
	0.00	0.00	1	0.00	0.00	1	107.70 C	0.00	20
MIN	-7.08	8.48	12	-80.39	8.48	45			
	0.00	8.48	52	0.00	8.48	52	29.21 T	8.48	9

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

- 1225. *COLUMN 514 HS-20 FORCE RESULTS ABOVE
- 1226. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 3

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
3 MAX	4.94	0.00	11	80.13	13.44	1			
	0.00	0.00	1	0.00	0.00	1	143.83 C	0.00	27
MIN	-8.93	13.44	1	-45.31	13.44	11			
	0.00	13.44	52	0.00	13.44	52	14.53 T	13.44	8

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

- 1227. *COLUMN 414 HS-20 FORCE RESULTS ABOVE
- 1228. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 4

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
4 MAX	9.11	0.00	45	53.24	13.28	15			
	0.00	0.00	1	0.00	0.00	1	140.79 C	0.00	34
MIN	-5.73	13.28	15	-82.11	13.28	45			
	0.00	13.28	52	0.00	13.28	52	16.44 T	13.28	10

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

- 1229. *COLUMN 314 HS-20 FORCE RESULTS ABOVE
- 1230. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 5

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
5 MAX	7.73	0.00	13	79.87	13.23	1			
	0.00	0.00	1	0.00	0.00	1	121.63 C	0.00	42
MIN	-9.04	13.23	1	-67.67	13.23	13			
	0.00	13.23	52	0.00	13.23	52	24.07 T	13.23	9

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

- 1231. *COLUMN 214 HS-20 FORCE RESULTS ABOVE
- 1232. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 6

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
6 MAX	7.57	0.00	10	66.99	13.23	13			
	0.00	0.00	1	0.00	0.00	1	131.00 C	0.00	50
MIN	-6.96	13.23	13	-71.43	13.23	10			
	0.00	13.23	52	0.00	13.23	52	8.90 T	13.23	15

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

- 1233. *COLUMN 114 HS-20 FORCE RESULTS ABOVE
- 1234. LOAD LIST 53 TO 104
- 1235. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 7 TO 15

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
7 MAX	0.00	0.00	53	60.61	6.85	55			
	0.00	0.00	53	0.00	0.00	53	0.00	0.00	53
MIN	-17.52	6.85	58	0.00	6.85	104			
	0.00	6.85	104	0.00	6.85	104	0.00	6.85	104
8 MAX	0.00	0.00	59	165.40	4.26	55			
	0.00	0.00	53	0.00	0.00	53	0.00	0.00	53
MIN	-35.04	4.26	58	0.00	4.26	102			
	0.00	4.26	104	0.00	4.26	104	0.00	4.26	104
9 MAX	32.81	0.00	60	158.18	0.00	55			
	0.00	0.00	53	0.00	0.00	53	4.46 C	0.00	60
MIN	-4.05	2.49	66	-43.88	2.49	60			
	0.00	2.49	104	0.00	2.49	104	4.03 T	2.49	64
10 MAX	32.81	0.00	60	108.12	0.00	64			
	0.00	0.00	53	0.00	0.00	53	4.46 C	0.00	60
MIN	-4.95	6.75	68	-168.46	6.75	60			
	0.00	6.75	104	0.00	6.75	104	4.03 T	6.75	64
11 MAX	16.80	0.00	56	90.91	0.00	64			
	0.00	0.00	53	0.00	0.00	53	4.46 C	0.00	60
MIN	-20.67	6.75	69	-175.17	0.68	60			
	0.00	6.75	104	0.00	6.75	104	4.03 T	6.75	64
12 MAX	5.61	0.00	78	115.39	6.75	69			
	0.00	0.00	53	0.00	0.00	53	4.46 C	0.00	60
MIN	-37.27	6.75	60	-136.69	0.00	59			
	0.00	6.75	104	0.00	6.75	104	4.03 T	6.75	64
13 MAX	5.61	0.00	78	138.64	0.68	69			
	0.00	0.00	53	0.00	0.00	53	4.46 C	0.00	60
MIN	-41.19	0.61	73	-85.65	0.68	61			
	0.00	0.68	104	0.00	0.68	104	4.03 T	0.68	64
14 MAX	22.34	0.00	72	141.47	0.00	72			
	0.00	0.00	53	0.00	0.00	53	2.06 C	0.00	66
MIN	-12.69	6.07	61	-108.35	0.00	61			
	0.00	6.07	104	0.00	6.07	104	2.27 T	6.07	53
15 MAX	7.13	0.00	71	17.56	0.00	71			
	0.00	0.00	53	0.00	0.00	53	2.06 C	0.00	66

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MIN	-12.69	2.46	61	-31.27	0.00	61				
	0.00	2.46	104	0.00	2.46	104	2.27 T	2.46	53	

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

1236. *FLOOR BEAM FB-14A 2F1 FORCE RESULTS ABOVE
1237. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 16 TO 27

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
16 MAX	7.13	0.00	71	96.65	6.00	74			
	0.00	0.00	53	0.00	0.00	53	2.13 C	6.00	66
	-24.37	6.00	78	-38.51	6.00	60			
MIN	0.00	6.00	104	0.00	6.00	104	2.24 T	6.00	53
	6.42	0.00	60	205.97	4.00	74			
	0.00	0.00	53	0.00	0.00	53	2.22 C	4.00	66
17 MAX	-40.71	4.00	79	-64.19	4.00	60			
	0.00	4.00	104	0.00	4.00	104	2.24 T	4.00	53
	45.38	0.00	104	228.53	0.00	74			
18 MAX	0.00	0.00	53	0.00	0.00	53	4.16 C	0.00	59
	-5.11	2.58	65	-55.04	0.00	60			
	0.00	2.58	104	0.00	2.58	104	3.46 T	2.58	63
19 MAX	41.66	0.00	79	136.76	0.00	74			
	0.00	0.00	53	0.00	0.00	53	4.16 C	0.00	59
	-5.11	5.45	65	-158.04	5.45	61			
MIN	0.00	5.45	104	0.00	5.45	104	3.46 T	5.45	63
	41.14	0.00	61	80.04	5.90	63			
	0.00	0.00	53	0.00	0.00	53	4.23 C	5.90	59
20 MAX	-6.90	5.90	80	-288.23	5.90	61			
	0.00	5.90	104	0.00	5.90	104	3.46 T	5.90	63
	20.92	0.00	61	87.48	5.90	63			
21 MAX	0.00	0.00	53	0.00	0.00	53	4.30 C	5.90	59
	-10.14	5.31	77	-301.38	5.90	61			
	0.00	5.90	104	0.00	5.90	104	3.46 T	5.90	63
22 MAX	10.35	0.00	84	100.23	5.90	65			
	0.00	0.00	53	0.00	0.00	53	4.37 C	5.90	59
	-22.81	5.90	85	-301.80	0.59	61			
MIN	0.00	5.90	104	0.00	5.90	104	3.46 T	5.90	63
	3.60	0.00	64	130.36	5.90	65			
	0.00	0.00	53	0.00	0.00	53	4.43 C	5.90	59
23 MAX	-40.89	5.90	86	-202.54	0.00	61			
	0.00	5.90	104	0.00	5.90	104	3.46 T	5.90	63
	24 MAX	3.60	0.00	64	242.66	3.38	81		
MIN	0.00	0.00	53	0.00	0.00	53	4.43 C	0.00	59

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MIN	-45.66	3.38	104	-62.25	3.38	62			
	0.00	3.38	104	0.00	3.38	104	3.46	T	3.38 63
25 MAX	43.71	0.00	87	225.70	0.00	81			
	0.00	0.00	53	0.00	0.00	53	2.36	C	2.51 67
MIN	-7.24	2.51	62	-72.36	0.00	62			
	0.00	2.51	104	0.00	2.51	104	2.32	T	2.51 97
26 MAX	26.32	0.00	85	147.14	0.00	81			
	0.00	0.00	53	0.00	0.00	53	2.45	C	5.90 67
MIN	-7.24	5.90	62	-54.18	0.00	62			
	0.00	5.90	104	0.00	5.90	104	2.32	T	5.90 97
27 MAX	11.15	0.00	85	17.75	0.00	85			
	0.00	0.00	53	0.00	0.00	53	2.45	C	0.00 67
MIN	-7.24	1.59	62	-11.53	0.00	62			
	0.00	1.59	104	0.00	1.59	104	2.32	T	1.59 97

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

1238. *FLOOR BEAM FB-14B 2F1 FORCE RESULTS ABOVE
 1239. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 28 TO 35

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
28 MAX	11.15	0.00	85	36.14	4.30	89			
	0.00	0.00	53	0.00	0.00	53	2.46 C	0.00	67
	MIN	-21.99	4.30	94	-43.32	4.30	61		
	0.00	4.30	104	0.00	4.30	104	2.30 T	4.30	97
29 MAX	10.08	0.00	61	168.48	5.83	90			
	0.00	0.00	53	0.00	0.00	53	2.46 C	0.00	67
	MIN	-40.14	5.83	94	-102.13	5.83	61		
	0.00	5.83	104	0.00	5.83	104	2.30 T	5.83	97
30 MAX	43.35	0.00	62	166.63	0.00	89			
	0.00	0.00	53	0.00	0.00	53	4.34 C	0.00	62
	MIN	-5.33	5.85	85	-123.20	5.85	59		
	0.00	5.85	104	0.00	5.85	104	3.99 T	5.85	65
31 MAX	30.80	0.00	91	102.83	5.85	65			
	0.00	0.00	53	0.00	0.00	53	4.34 C	0.00	62
	MIN	-15.49	5.85	97	-196.02	5.85	62		
	0.00	5.85	104	0.00	5.85	104	3.99 T	5.85	65
32 MAX	12.98	0.00	89	117.95	5.85	65			
	0.00	0.00	53	0.00	0.00	53	4.34 C	0.00	62
	MIN	-33.02	5.85	98	-201.16	1.76	62		
	0.00	5.85	104	0.00	5.85	104	3.99 T	5.85	65
33 MAX	5.10	0.00	67	181.85	5.85	99			
	0.00	0.00	53	0.00	0.00	53	4.34 C	0.00	62
	MIN	-41.80	5.85	91	-135.24	0.00	62		
	0.00	5.85	104	0.00	5.85	104	3.99 T	5.85	65
34 MAX	40.42	0.00	99	190.96	0.00	99			
	0.00	0.00	53	0.00	0.00	53	0.00	0.00	53
	MIN	0.00	4.77	104	0.00	4.77	104		
	0.00	4.77	104	0.00	4.77	104	0.00	4.77	104
35 MAX	20.21	0.00	99	59.69	0.00	99			
	0.00	0.00	53	0.00	0.00	53	0.00	0.00	53
	MIN	0.00	5.72	104	0.00	3.43	101		
	0.00	5.72	104	0.00	5.72	104	0.00	5.72	104

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

1240. *FLOOR BEAM FB-14C 2F1 FORCE RESULTS ABOVE
1241. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 1

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
1 MAX	4.03	0.00	64	37.81	8.48	60			
	0.00	0.00	53	0.00	0.00	53	65.20 C	0.00	58
MIN	-4.46	8.48	60	-34.18	8.48	64			
	0.00	8.48	104	0.00	8.48	104	4.05 T	8.48	66

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

- 1242. *COLUMN 614 2F1 FORCE RESULTS ABOVE
- 1243. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 2

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
2 MAX	5.42	0.00	97	34.43	8.48	64			
	0.00	0.00	53	0.00	0.00	53	61.67 C	0.00	72
MIN	-4.06	8.48	64	-46.03	8.48	97			
	0.00	8.48	104	0.00	8.48	104	16.72 T	8.48	61

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

- 1244. *COLUMN 514 2F1 FORCE RESULTS ABOVE
- 1245. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 3

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
3 MAX	2.83	0.00	63	45.91	13.44	53			
	0.00	0.00	53	0.00	0.00	53	82.35 C	0.00	79
MIN	-5.12	13.44	53	-25.96	13.44	63			
	0.00	13.44	104	0.00	13.44	104	8.31 T	13.44	60

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

- 1246. *COLUMN 414 2F1 FORCE RESULTS ABOVE
- 1247. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 4

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
4 MAX	5.22	0.00	97	30.52	13.28	67			
	0.00	0.00	53	0.00	0.00	53	80.61 C	0.00	86
MIN	-3.28	13.28	67	-47.05	13.28	97			
	0.00	13.28	104	0.00	13.28	104	9.41 T	13.28	62

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

- 1248. *COLUMN 314 2F1 FORCE RESULTS ABOVE
- 1249. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 5

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
5 MAX	4.43	0.00	65	45.74	13.23	53			
	0.00	0.00	53	0.00	0.00	53	69.64 C	0.00	94
MIN	-5.18	13.23	53	-38.77	13.23	65			
	0.00	13.23	104	0.00	13.23	104	13.78 T	13.23	61

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

1250. *COLUMN 214 2F1 FORCE RESULTS ABOVE
 1251. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 6

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
6 MAX	4.34	0.00	62	38.40	13.23	65			
	0.00	0.00	53	0.00	0.00	53	75.01 C	0.00	102
MIN	-3.99	13.23	65	-40.94	13.23	62			
	0.00	13.23	104	0.00	13.23	104	5.10 T	13.23	67

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

- 1252. *COLUMN 114 2F1 FORCE RESULTS ABOVE
- 1253. LOAD LIST 105 TO 156
- 1254. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 7 TO 15

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
7 MAX	0.00	0.00	105	84.67	6.85	107			
	0.00	0.00	105	0.00	0.00	105	0.00	0.00	105
	-24.48	6.85	110	0.00	6.85	156			
MIN	0.00	6.85	156	0.00	6.85	156	0.00	6.85	156
	0.00	0.00	111	231.07	4.26	107			
	0.00	0.00	105	0.00	0.00	105	0.00	0.00	105
8 MAX	-48.95	4.26	110	0.00	4.26	154			
	0.00	4.26	156	0.00	4.26	156	0.00	4.26	156
	0.00	0.00	112	221.00	0.00	107			
9 MAX	0.00	0.00	105	0.00	0.00	105	6.23 C	0.00	112
	-5.66	2.49	118	-61.33	2.49	112			
	0.00	2.49	156	0.00	2.49	156	5.63 T	2.49	116
10 MAX	45.84	0.00	112	151.06	0.00	116			
	0.00	0.00	105	0.00	0.00	105	6.23 C	0.00	112
	-6.91	6.75	120	-235.37	6.75	112			
MIN	0.00	6.75	156	0.00	6.75	156	5.63 T	6.75	116
	23.47	0.00	108	127.01	0.00	116			
	0.00	0.00	105	0.00	0.00	105	6.23 C	0.00	112
11 MAX	-28.87	6.75	121	-244.75	0.68	112			
	0.00	6.75	156	0.00	6.75	156	5.63 T	6.75	116
	0.00	0.00	130	161.21	6.75	121			
12 MAX	0.00	0.00	105	0.00	0.00	105	6.23 C	0.00	112
	-52.07	6.75	112	-190.98	0.00	111			
	0.00	6.75	156	0.00	6.75	156	5.63 T	6.75	116
13 MAX	7.84	0.00	130	193.70	0.68	121			
	0.00	0.00	105	0.00	0.00	105	6.23 C	0.00	112
	-57.55	0.68	125	-119.66	0.68	113			
MIN	0.00	0.68	156	0.00	0.68	156	5.63 T	0.68	116
	31.21	0.00	124	197.65	0.00	124			
	0.00	0.00	105	0.00	0.00	105	2.87 C	0.00	118
14 MAX	-17.74	6.07	113	-151.39	0.00	113			
	0.00	6.07	156	0.00	6.07	156	3.17 T	6.07	105
	9.96	0.00	123	24.53	0.00	123			
15 MAX	0.00	0.00	105	0.00	0.00	105	2.87 C	0.00	118

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MIN	-17.73	2.46	113	-43.69	0.00	113				
	0.00	2.46	156	0.00	2.46	156	3.17 T	2.46	105	

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

1255. *FLOOR BEAM FB-14A 3F1 FORCE RESULTS ABOVE
1256. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 16 TO 27

MEMBER FORCE ENVELOPE

 ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
16 MAX	9.96	0.00	123	135.03	6.00	126			
	0.00	0.00	105	0.00	0.00	105	2.98 C	6.00	118
	-34.04	6.00	130	-53.81	6.00	112			
MIN	0.00	6.00	156	0.00	6.00	156	3.13 T	6.00	105
	8.97	0.00	112	287.76	4.00	126			
	0.00	0.00	105	0.00	0.00	105	3.11 C	4.00	118
17 MIN	-56.88	4.00	131	-89.69	4.00	112			
	0.00	4.00	156	0.00	4.00	156	3.13 T	4.00	105
	63.40	0.00	156	319.26	0.00	126			
18 MAX	0.00	0.00	105	0.00	0.00	105	5.81 C	0.00	111
	-7.14	2.58	117	-76.91	0.00	112			
	0.00	2.58	156	0.00	2.58	156	4.84 T	2.58	115
19 MAX	58.19	0.00	131	191.05	0.00	126			
	0.00	0.00	105	0.00	0.00	105	5.81 C	0.00	111
	-7.14	5.45	117	-220.81	5.45	113			
MIN	0.00	5.45	156	0.00	5.45	156	4.84 T	5.45	115
	57.47	0.00	113	111.82	5.90	115			
	0.00	0.00	105	0.00	0.00	105	5.90 C	5.90	111
20 MIN	-9.64	5.31	132	-402.70	5.90	113			
	0.00	5.90	156	0.00	5.90	156	4.84 T	5.90	115
	29.23	0.00	113	122.21	5.90	115			
21 MAX	0.00	0.00	105	0.00	0.00	105	6.00 C	5.90	111
	-14.16	5.90	129	-421.08	5.90	113			
	0.00	5.90	156	0.00	5.90	156	4.84 T	5.90	115
22 MAX	14.45	0.00	136	140.04	5.90	117			
	0.00	0.00	105	0.00	0.00	105	6.10 C	5.90	111
	-31.87	5.31	137	-421.66	0.59	113			
MIN	0.00	5.90	156	0.00	5.90	156	4.84 T	5.90	115
	5.03	0.00	116	182.14	5.90	117			
	0.00	0.00	105	0.00	0.00	105	6.19 C	5.90	111
23 MIN	-57.12	5.90	138	-282.98	0.00	113			
	0.00	5.90	156	0.00	5.90	156	4.84 T	5.90	115
	5.03	0.00	116	339.01	3.38	133			
24 MAX	0.00	0.00	105	0.00	0.00	105	6.19 C	0.00	111

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MIN	-63.78	3.38	156	-86.98	3.38	114			
	0.00	3.38	156	0.00	3.38	156	4.84	T	3.38 115
25 MAX	61.07	0.00	139	315.31	0.00	133			
	0.00	0.00	105	0.00	0.00	105	3.29	C	2.51 119
MIN	-10.11	2.51	114	-101.12	0.00	114			
	0.00	2.51	156	0.00	2.51	156	3.24	T	2.51 149
26 MAX	36.77	0.00	137	205.57	0.00	133			
	0.00	0.00	105	0.00	0.00	105	3.42	C	5.90 119
MIN	-10.11	5.90	114	-75.71	0.00	114			
	0.00	5.90	156	0.00	5.90	156	3.24	T	5.90 149
27 MAX	15.57	0.00	137	24.80	0.00	137			
	0.00	0.00	105	0.00	0.00	105	3.42	C	0.00 119
MIN	-10.11	1.59	114	-16.10	0.00	114			
	0.00	1.59	156	0.00	1.59	156	3.24	T	1.59 149

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

1257. *FLOOR BEAM FB-14B 3F1 FORCE RESULTS ABOVE
 1258. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 28 TO 35

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
28 MAX	15.58	0.00	137	50.49	4.30	141			
	0.00	0.00	105	0.00	0.00	105	3.43 C	0.00	119
	MIN	-30.73	4.30	146	-60.53	4.30	113		
	0.00	4.30	156	0.00	4.30	156	3.21 T	4.30	149
29 MAX	14.09	0.00	113	235.39	5.83	142			
	0.00	0.00	105	0.00	0.00	105	3.43 C	0.00	119
	MIN	-56.08	5.83	146	-142.70	5.83	113		
	0.00	5.83	156	0.00	5.83	156	3.21 T	5.83	149
30 MAX	60.56	0.00	114	232.80	0.00	141			
	0.00	0.00	105	0.00	0.00	105	6.06 C	0.00	114
	MIN	-7.45	5.85	137	-172.14	5.85	111		
	0.00	5.85	156	0.00	5.85	156	5.57 T	5.85	117
31 MAX	43.03	0.00	143	143.67	5.85	117			
	0.00	0.00	105	0.00	0.00	105	6.06 C	0.00	114
	MIN	-21.64	5.85	149	-273.88	5.85	114		
	0.00	5.85	156	0.00	5.85	156	5.57 T	5.85	117
32 MAX	18.14	0.00	141	164.80	5.85	117			
	0.00	0.00	105	0.00	0.00	105	6.06 C	0.00	114
	MIN	-46.13	5.85	150	-281.06	1.76	114		
	0.00	5.85	156	0.00	5.85	156	5.57 T	5.85	117
33 MAX	7.12	0.00	119	254.07	5.85	151			
	0.00	0.00	105	0.00	0.00	105	6.06 C	0.00	114
	MIN	-58.40	5.85	143	-188.97	0.00	114		
	0.00	5.85	156	0.00	5.85	156	5.57 T	5.85	117
34 MAX	56.47	0.00	151	266.78	0.00	151			
	0.00	0.00	105	0.00	0.00	105	0.00	0.00	105
	MIN	0.00	4.77	156	0.00	4.77	156		
	0.00	4.77	156	0.00	4.77	156	0.00	4.77	156
35 MAX	28.24	0.00	151	83.38	0.00	151			
	0.00	0.00	105	0.00	0.00	105	0.00	0.00	105
	MIN	0.00	5.72	156	0.00	3.43	154		
	0.00	5.72	156	0.00	5.72	156	0.00	5.72	156

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

1259. *FLOOR BEAM FB-14C 3F1 FORCE RESULTS ABOVE
1260. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 1

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
1 MAX	5.63	0.00	116	52.81	8.48	112			
	0.00	0.00	105	0.00	0.00	105	91.08 C	0.00	110
MIN	-6.23	8.48	112	-47.72	8.48	116			
	0.00	8.48	156	0.00	8.48	156	5.66 T	8.48	118

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

- 1261. *COLUMN 614 3F1 FORCE RESULTS ABOVE
- 1262. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 2

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
2 MAX	7.58	0.00	149	48.09	8.48	116			
	0.00	0.00	105	0.00	0.00	105	86.15 C	0.00	124
MIN	-5.66	8.48	116	-64.30	8.48	149			
	0.00	8.48	156	0.00	8.48	156	23.36 T	8.48	113

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

- 1263. *COLUMN 514 3F1 FORCE RESULTS ABOVE
- 1264. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 3

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
3 MAX	3.95	0.00	115	64.11	13.44	105			
	0.00	0.00	105	0.00	0.00	105	115.05 C	0.00	131
MIN	-7.15	13.44	105	-36.26	13.44	115			
	0.00	13.44	156	0.00	13.44	156	11.62 T	13.44	112

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

- 1265. *COLUMN 414 3F1 FORCE RESULTS ABOVE
- 1266. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 4

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
4 MAX	7.28	0.00	149	42.61	13.28	119			
	0.00	0.00	105	0.00	0.00	105	112.62 C	0.00	138
MIN	-4.59	13.28	119	-65.70	13.28	149			
	0.00	13.28	156	0.00	13.28	156	13.15 T	13.28	114

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

- 1267. *COLUMN 314 3F1 FORCE RESULTS ABOVE
- 1268. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 5

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
5 MAX	6.18	0.00	117	63.89	13.23	105			
	0.00	0.00	105	0.00	0.00	105	97.29 C	0.00	146
MIN	-7.23	13.23	105	-54.14	13.23	117			
	0.00	13.23	156	0.00	13.23	156	19.25 T	13.23	113

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

1269. *COLUMN 214 3F1 FORCE RESULTS ABOVE
 1270. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 6

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
6 MAX	6.06	0.00	114	53.62	13.23	117			
	0.00	0.00	105	0.00	0.00	105	104.79 C	0.00	154
MIN	-5.57	13.23	117	-57.16	13.23	114			
	0.00	13.23	156	0.00	13.23	156	7.12 T	13.23	119

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

- 1271. *COLUMN 114 3F1 FORCE RESULTS ABOVE
- 1272. LOAD LIST 157 TO 208
- 1273. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 7 TO 15

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
7 MAX	0.00	0.00	157	88.68	6.85	159			
	0.00	0.00	157	0.00	0.00	157	0.00	0.00	157
	MIN	-25.64	6.85	162	0.00	6.85	208		
	0.00	6.85	208	0.00	6.85	208	0.00	6.85	208
8 MAX	0.00	0.00	163	242.01	4.26	159			
	0.00	0.00	157	0.00	0.00	157	0.00	0.00	157
	MIN	-51.27	4.26	162	0.00	4.26	206		
	0.00	4.26	208	0.00	4.26	208	0.00	4.26	208
9 MAX	48.01	0.00	164	231.46	0.00	159			
	0.00	0.00	157	0.00	0.00	157	6.52 C	0.00	164
	MIN	-5.93	2.49	170	-64.24	2.49	164		
	0.00	2.49	208	0.00	2.49	208	5.90 T	2.49	168
10 MAX	48.01	0.00	164	158.22	0.00	168			
	0.00	0.00	157	0.00	0.00	157	6.52 C	0.00	164
	MIN	-7.24	6.75	172	-246.52	6.75	164		
	0.00	6.75	208	0.00	6.75	208	5.90 T	6.75	168
11 MAX	24.58	0.00	160	133.03	0.00	168			
	0.00	0.00	157	0.00	0.00	157	6.52 C	0.00	164
	MIN	-30.24	6.75	173	-256.34	0.68	164		
	0.00	6.75	208	0.00	6.75	208	5.90 T	6.75	168
12 MAX	8.21	0.00	182	168.85	6.75	173			
	0.00	0.00	157	0.00	0.00	157	6.52 C	0.00	164
	MIN	-54.54	6.75	164	-200.04	0.00	163		
	0.00	6.75	208	0.00	6.75	208	5.90 T	6.75	168
13 MAX	8.21	0.00	182	202.87	0.68	173			
	0.00	0.00	157	0.00	0.00	157	6.52 C	0.00	164
	MIN	-60.27	0.68	177	-125.33	0.68	165		
	0.00	0.68	208	0.00	0.68	208	5.90 T	0.68	168
14 MAX	32.68	0.00	176	207.01	0.00	176			
	0.00	0.00	157	0.00	0.00	157	3.01 C	0.00	170
	MIN	-18.58	6.07	165	-158.56	0.00	165		
	0.00	6.07	208	0.00	6.07	208	3.32 T	6.07	157
15 MAX	10.43	0.00	175	25.70	0.00	175			
	0.00	0.00	157	0.00	0.00	157	3.01 C	0.00	170

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MIN	-18.57	2.46	165	-45.76	0.00	165				
	0.00	2.46	208	0.00	2.46	208	3.32 T	2.46	157	

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

1274. *FLOOR BEAM FB-14A 4F1 FORCE RESULTS ABOVE
1275. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 16 TO 27

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
16 MAX	10.44	0.00	175	141.43	6.00	178			
	0.00	0.00	157	0.00	0.00	157	3.12 C	6.00	170
	MIN	-35.65	6.00	182	-56.36	6.00	164		
	0.00	6.00	208	0.00	6.00	208	3.27 T	6.00	157
17 MAX	9.39	0.00	164	301.39	4.00	178			
	0.00	0.00	157	0.00	0.00	157	3.25 C	4.00	170
	MIN	-59.57	4.00	183	-93.94	4.00	164		
	0.00	4.00	208	0.00	4.00	208	3.27 T	4.00	157
18 MAX	66.41	0.00	208	334.38	0.00	178			
	0.00	0.00	157	0.00	0.00	157	6.08 C	0.00	163
	MIN	-7.48	2.58	169	-80.55	0.00	164		
	0.00	2.58	208	0.00	2.58	208	5.07 T	2.58	167
19 MAX	60.95	0.00	183	200.10	0.00	178			
	0.00	0.00	157	0.00	0.00	157	6.08 C	0.00	163
	MIN	-7.48	5.45	169	-231.28	5.45	165		
	0.00	5.45	208	0.00	5.45	208	5.07 T	5.45	167
20 MAX	60.19	0.00	165	117.11	5.90	167			
	0.00	0.00	157	0.00	0.00	157	6.18 C	5.90	163
	MIN	-10.10	5.90	184	-421.78	5.90	165		
	0.00	5.90	208	0.00	5.90	208	5.07 T	5.90	167
21 MAX	30.62	0.00	165	128.00	5.90	167			
	0.00	0.00	157	0.00	0.00	157	6.29 C	5.90	163
	MIN	-14.83	5.90	181	-441.03	5.90	165		
	0.00	5.90	208	0.00	5.90	208	5.07 T	5.90	167
22 MAX	15.14	0.00	188	146.68	5.90	169			
	0.00	0.00	157	0.00	0.00	157	6.39 C	5.90	163
	MIN	-33.38	5.90	189	-441.64	0.59	165		
	0.00	5.90	208	0.00	5.90	208	5.07 T	5.90	167
23 MAX	5.27	0.00	168	190.77	5.90	169			
	0.00	0.00	157	0.00	0.00	157	6.49 C	5.90	163
	MIN	-59.83	5.31	190	-296.39	0.00	165		
	0.00	5.90	208	0.00	5.90	208	5.07 T	5.90	167
24 MAX	5.27	0.00	168	355.06	3.38	185			
	0.00	0.00	157	0.00	0.00	157	6.49 C	0.00	163

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MIN	-66.80	3.38	208	-91.10	3.38	166			
	0.00	3.38	208	0.00	3.38	208	5.07	T	3.38 167
25 MAX	63.96	0.00	191	330.25	0.00	185			
	0.00	0.00	157	0.00	0.00	157	3.45	C	2.51 171
MIN	-10.59	2.51	166	-105.91	0.00	166			
	0.00	2.51	208	0.00	2.51	208	3.39	T	2.51 201
26 MAX	38.51	0.00	189	215.31	0.00	185			
	0.00	0.00	157	0.00	0.00	157	3.58	C	5.90 171
MIN	-10.59	5.90	166	-79.30	0.00	166			
	0.00	5.90	208	0.00	5.90	208	3.39	T	5.90 201
27 MAX	16.31	0.00	189	25.97	0.00	189			
	0.00	0.00	157	0.00	0.00	157	3.58	C	0.00 171
MIN	-10.59	1.59	166	-16.87	0.00	166			
	0.00	1.59	208	0.00	1.59	208	3.39	T	1.59 201

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

1276. *FLOOR BEAM FB-14B 4F1 FORCE RESULTS ABOVE
 1277. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 28 TO 35

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD	
28 MAX	16.31	0.00	189	52.88	4.30	193				
	0.00	0.00	157	0.00	0.00	157	3.59 C	0.00	171	
	MIN	-32.18	4.30	198	-63.39	4.30	165			
		0.00	4.30	208	0.00	4.30	208	3.36 T	4.30	201
29 MAX	14.76	0.00	165	246.54	5.83	194				
	0.00	0.00	157	0.00	0.00	157	3.59 C	0.00	171	
	MIN	-58.74	5.83	198	-149.46	5.83	165			
		0.00	5.83	208	0.00	5.83	208	3.36 T	5.83	201
30 MAX	63.43	0.00	166	243.83	0.00	193				
	0.00	0.00	157	0.00	0.00	157	6.35 C	0.00	166	
	MIN	-7.81	5.85	189	-180.30	5.85	163			
		0.00	5.85	208	0.00	5.85	208	5.83 T	5.85	169
31 MAX	45.07	0.00	195	150.48	5.85	169				
	0.00	0.00	157	0.00	0.00	157	6.35 C	0.00	166	
	MIN	-22.67	5.85	201	-286.86	5.85	166			
		0.00	5.85	208	0.00	5.85	208	5.83 T	5.85	169
32 MAX	19.00	0.00	193	172.61	5.85	169				
	0.00	0.00	157	0.00	0.00	157	6.35 C	0.00	166	
	MIN	-48.32	5.85	202	-294.38	1.76	166			
		0.00	5.85	208	0.00	5.85	208	5.83 T	5.85	169
33 MAX	7.46	0.00	171	266.11	5.85	203				
	0.00	0.00	157	0.00	0.00	157	6.35 C	0.00	166	
	MIN	-61.16	5.85	195	-197.92	0.00	166			
		0.00	5.85	208	0.00	5.85	208	5.83 T	5.85	169
34 MAX	59.15	0.00	203	279.41	0.00	203				
	0.00	0.00	157	0.00	0.00	157	0.00	0.00	157	
	MIN	0.00	4.77	208	0.00	4.77	208			
		0.00	4.77	208	0.00	4.77	208	0.00	4.77	208
35 MAX	29.57	0.00	203	87.33	0.00	203				
	0.00	0.00	157	0.00	0.00	157	0.00	0.00	157	
	MIN	0.00	5.72	208	0.00	3.43	205			
		0.00	5.72	208	0.00	5.72	208	0.00	5.72	208

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

1278. *FLOOR BEAM FB-14C 4F1 FORCE RESULTS ABOVE
1279. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 1

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
1 MAX	5.90	0.00	168	55.31	8.48	164			
	0.00	0.00	157	0.00	0.00	157	95.39 C	0.00	162
MIN	-6.52	8.48	164	-49.98	8.48	168			
	0.00	8.48	208	0.00	8.48	208	5.93 T	8.48	170

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

1280. *COLUMN 614 4F1 FORCE RESULTS ABOVE
 1281. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 2

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
2 MAX	7.94	0.00	201	50.37	8.48	168			
	0.00	0.00	157	0.00	0.00	157	90.23 C	0.00	176
MIN	-5.93	8.48	168	-67.35	8.48	201			
	0.00	8.48	208	0.00	8.48	208	24.47 T	8.48	165

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

- 1282. *COLUMN 514 4F1 FORCE RESULTS ABOVE
- 1283. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 3

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
3 MAX	4.14	0.00	167	67.15	13.44	157			
	0.00	0.00	157	0.00	0.00	157	120.50 C	0.00	183
MIN	-7.49	13.44	157	-37.97	13.44	167			
	0.00	13.44	208	0.00	13.44	208	12.17 T	13.44	164

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

- 1284. *COLUMN 414 4F1 FORCE RESULTS ABOVE
- 1285. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 4

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
4 MAX	7.63	0.00	201	44.62	13.28	171			
	0.00	0.00	157	0.00	0.00	157	117.95 C	0.00	190
MIN	-4.80	13.28	171	-68.81	13.28	201			
	0.00	13.28	208	0.00	13.28	208	13.77 T	13.28	166

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

- 1286. *COLUMN 314 4F1 FORCE RESULTS ABOVE
- 1287. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 5

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
5 MAX	6.47	0.00	169	66.92	13.23	157			
	0.00	0.00	157	0.00	0.00	157	101.90 C	0.00	198
MIN	-7.57	13.23	157	-56.71	13.23	169			
	0.00	13.23	208	0.00	13.23	208	20.16 T	13.23	165

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

- 1288. *COLUMN 214 4F1 FORCE RESULTS ABOVE
- 1289. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 6

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
6 MAX	6.35	0.00	166	56.15	13.23	169			
	0.00	0.00	157	0.00	0.00	157	109.75 C	0.00	206
MIN	-5.83	13.23	169	-59.87	13.23	166			
	0.00	13.23	208	0.00	13.23	208	7.46 T	13.23	171

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

- 1290. *COLUMN 114 4F1 FORCE RESULTS ABOVE
- 1291. LOAD LIST 209 TO 260
- 1292. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 7 TO 15

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
7 MAX	0.00	0.00	209	82.28	6.85	211			
	0.00	0.00	209	0.00	0.00	209	0.00	0.00	209
	-23.79	6.85	214	0.00	6.85	260			
MIN	0.00	6.85	260	0.00	6.85	260	0.00	6.85	260
	0.00	0.00	215	224.55	4.26	211			
	0.00	0.00	209	0.00	0.00	209	0.00	0.00	209
8 MAX	-47.57	4.26	214	0.00	4.26	258			
	0.00	4.26	260	0.00	4.26	260	0.00	4.26	260
	0.00	0.00	216	214.76	0.00	211			
9 MAX	0.00	0.00	209	0.00	0.00	209	6.05 C	0.00	216
	-5.50	2.49	222	-59.59	2.49	216			
	0.00	2.49	260	0.00	2.49	260	5.47 T	2.49	220
10 MAX	44.54	0.00	216	146.80	0.00	220			
	0.00	0.00	209	0.00	0.00	209	6.05 C	0.00	216
	-6.72	6.75	224	-228.73	6.75	216			
MIN	0.00	6.75	260	0.00	6.75	260	5.47 T	6.75	220
	22.80	0.00	212	123.43	0.00	220			
	0.00	0.00	209	0.00	0.00	209	6.05 C	0.00	216
11 MAX	-28.06	6.75	225	-237.84	0.68	216			
	0.00	6.75	260	0.00	6.75	260	5.47 T	6.75	220
	0.00	0.00	234	156.66	6.75	225			
12 MAX	0.00	0.00	209	0.00	0.00	209	6.05 C	0.00	216
	-50.61	6.75	216	-185.60	0.00	215			
	0.00	6.75	260	0.00	6.75	260	5.47 T	6.75	220
13 MAX	7.62	0.00	234	188.23	0.68	225			
	0.00	0.00	209	0.00	0.00	209	6.05 C	0.00	216
	-55.92	0.68	229	-116.29	0.68	217			
MIN	0.00	0.68	260	0.00	0.68	260	5.47 T	0.68	220
	30.33	0.00	228	192.07	0.00	228			
	0.00	0.00	209	0.00	0.00	209	2.79 C	0.00	222
14 MAX	-17.24	6.07	217	-147.11	0.00	217			
	0.00	6.07	260	0.00	6.07	260	3.08 T	6.07	209
	9.68	0.00	227	23.84	0.00	227			
15 MAX	0.00	0.00	209	0.00	0.00	209	2.79 C	0.00	222

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MIN	-17.23	2.46	217	-42.45	0.00	217				
	0.00	2.46	260	0.00	2.46	260	3.08 T	2.46	209	

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

1293. *FLOOR BEAM FB-14A 5C1 FORCE RESULTS ABOVE
1294. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 16 TO 27

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
16 MAX	9.68	0.00	227	131.22	6.00	230			
	0.00	0.00	209	0.00	0.00	209	2.89 C	6.00	222
	-33.08	6.00	234	-52.29	6.00	216			
MIN	0.00	6.00	260	0.00	6.00	260	3.04 T	6.00	209
	8.72	0.00	216	279.64	4.00	230			
	0.00	0.00	209	0.00	0.00	209	3.02 C	4.00	222
17 MIN	-55.27	4.00	235	-87.16	4.00	216			
	0.00	4.00	260	0.00	4.00	260	3.04 T	4.00	209
	61.61	0.00	260	310.25	0.00	230			
18 MAX	0.00	0.00	209	0.00	0.00	209	5.64 C	0.00	215
	-6.94	2.58	221	-74.73	0.00	216			
	0.00	2.58	260	0.00	2.58	260	4.70 T	2.58	219
19 MAX	56.55	0.00	235	185.67	0.00	230			
	0.00	0.00	209	0.00	0.00	209	5.64 C	0.00	215
	-6.94	5.45	221	-214.58	5.45	217			
MIN	0.00	5.45	260	0.00	5.45	260	4.70 T	5.45	219
	55.85	0.00	217	108.66	5.90	219			
	0.00	0.00	209	0.00	0.00	209	5.74 C	5.90	215
20 MIN	-9.37	5.90	236	-391.34	5.90	217			
	0.00	5.90	260	0.00	5.90	260	4.70 T	5.90	219
	28.41	0.00	217	118.76	5.90	219			
21 MAX	0.00	0.00	209	0.00	0.00	209	5.83 C	5.90	215
	-13.76	5.90	233	-409.20	5.90	217			
	0.00	5.90	260	0.00	5.90	260	4.70 T	5.90	219
22 MAX	14.05	0.00	240	136.09	5.90	221			
	0.00	0.00	209	0.00	0.00	209	5.93 C	5.90	215
	-30.97	5.90	241	-409.76	0.59	217			
MIN	0.00	5.90	260	0.00	5.90	260	4.70 T	5.90	219
	4.89	0.00	220	177.00	5.90	221			
	0.00	0.00	209	0.00	0.00	209	6.02 C	5.90	215
23 MIN	-55.51	5.90	242	-275.00	0.00	217			
	0.00	5.90	260	0.00	5.90	260	4.70 T	5.90	219
	4.89	0.00	220	329.44	3.38	237			
24 MAX	0.00	0.00	209	0.00	0.00	209	6.02 C	0.00	215

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MIN	-61.98	3.38	260	-84.52	3.38	218			
	0.00	3.38	260	0.00	3.38	260	4.70	T	3.38 219
25 MAX	59.34	0.00	243	306.42	0.00	237			
	0.00	0.00	209	0.00	0.00	209	3.20	C	2.51 223
MIN	-9.83	2.51	218	-98.26	0.00	218			
	0.00	2.51	260	0.00	2.51	260	3.15	T	2.51 253
26 MAX	35.73	0.00	241	199.77	0.00	237			
	0.00	0.00	209	0.00	0.00	209	3.32	C	5.90 223
MIN	-9.83	5.90	218	-73.58	0.00	218			
	0.00	5.90	260	0.00	5.90	260	3.15	T	5.90 253
27 MAX	15.13	0.00	241	24.10	0.00	241			
	0.00	0.00	209	0.00	0.00	209	3.32	C	0.00 223
MIN	-9.83	1.59	218	-15.65	0.00	218			
	0.00	1.59	260	0.00	1.59	260	3.15	T	1.59 253

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

- 1295. *FLOOR BEAM FB-14B 5C1 FORCE RESULTS ABOVE
- 1296. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 28 TO 35

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
28 MAX	15.14	0.00	241	49.06	4.30	245			
	0.00	0.00	209	0.00	0.00	209	3.34 C	0.00	223
	MIN	-29.86	4.30	250	-58.82	4.30	217		
0.00		4.30	260	0.00	4.30	260	3.12 T	4.30	253
29 MAX	13.69	0.00	217	228.75	5.83	246			
	0.00	0.00	209	0.00	0.00	209	3.34 C	0.00	223
	MIN	-54.50	5.83	250	-138.67	5.83	217		
0.00		5.83	260	0.00	5.83	260	3.12 T	5.83	253
30 MAX	58.85	0.00	218	226.24	0.00	245			
	0.00	0.00	209	0.00	0.00	209	5.89 C	0.00	218
	MIN	-7.24	5.85	241	-167.28	5.85	215		
0.00		5.85	260	0.00	5.85	260	5.41 T	5.85	221
31 MAX	41.82	0.00	247	139.62	5.85	221			
	0.00	0.00	209	0.00	0.00	209	5.89 C	0.00	218
	MIN	-21.03	5.85	253	-266.15	5.85	218		
0.00		5.85	260	0.00	5.85	260	5.41 T	5.85	221
32 MAX	17.63	0.00	245	160.15	5.85	221			
	0.00	0.00	209	0.00	0.00	209	5.89 C	0.00	218
	MIN	-44.83	5.85	254	-273.13	1.76	218		
0.00		5.85	260	0.00	5.85	260	5.41 T	5.85	221
33 MAX	6.92	0.00	223	246.90	5.85	255			
	0.00	0.00	209	0.00	0.00	209	5.89 C	0.00	218
	MIN	-56.75	5.85	247	-183.63	0.00	218		
0.00		5.85	260	0.00	5.85	260	5.41 T	5.85	221
34 MAX	54.88	0.00	255	259.25	0.00	255			
	0.00	0.00	209	0.00	0.00	209	0.00	0.00	209
	MIN	0.00	4.77	260	0.00	4.77	260		
0.00		4.77	260	0.00	4.77	260	0.00	4.77	260
35 MAX	27.44	0.00	255	81.03	0.00	255			
	0.00	0.00	209	0.00	0.00	209	0.00	0.00	209
	MIN	0.00	5.72	260	0.00	3.43	258		
0.00		5.72	260	0.00	5.72	260	0.00	5.72	260

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

1297. *FLOOR BEAM FB-14C 5C1 FORCE RESULTS ABOVE
1298. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 1

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
1 MAX	5.47	0.00	220	51.32	8.48	216			
	0.00	0.00	209	0.00	0.00	209	88.51 C	0.00	214
MIN	-6.05	8.48	216	-46.38	8.48	220			
	0.00	8.48	260	0.00	8.48	260	5.50 T	8.48	222

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

1299. *COLUMN 614 5C1 FORCE RESULTS ABOVE
 1300. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 2

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
2 MAX	7.36	0.00	253	46.73	8.48	220			
	0.00	0.00	209	0.00	0.00	209	83.72 C	0.00	228
MIN	-5.50	8.48	220	-62.49	8.48	253			
	0.00	8.48	260	0.00	8.48	260	22.70 T	8.48	217

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

- 1301. *COLUMN 514 5C1 FORCE RESULTS ABOVE
- 1302. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 3

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
3 MAX	3.84	0.00	219	62.31	13.44	209			
	0.00	0.00	209	0.00	0.00	209	111.81 C	0.00	235
MIN	-6.95	13.44	209	-35.24	13.44	219			
	0.00	13.44	260	0.00	13.44	260	11.29 T	13.44	216

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

- 1303. *COLUMN 414 5C1 FORCE RESULTS ABOVE
- 1304. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 4

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
4 MAX	7.08	0.00	253	41.41	13.28	223			
	0.00	0.00	209	0.00	0.00	209	109.44 C	0.00	242
MIN	-4.46	13.28	223	-63.85	13.28	253			
	0.00	13.28	260	0.00	13.28	260	12.77 T	13.28	218

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

- 1305. *COLUMN 314 5C1 FORCE RESULTS ABOVE
- 1306. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 5

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
5 MAX	6.01	0.00	221	62.09	13.23	209			
	0.00	0.00	209	0.00	0.00	209	94.55 C	0.00	250
MIN	-7.03	13.23	209	-52.62	13.23	221			
	0.00	13.23	260	0.00	13.23	260	18.71 T	13.23	217

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

- 1307. *COLUMN 214 5C1 FORCE RESULTS ABOVE
- 1308. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 6

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
6 MAX	5.89	0.00	218	52.11	13.23	221			
	0.00	0.00	209	0.00	0.00	209	101.83 C	0.00	258
MIN	-5.41	13.23	221	-55.55	13.23	218			
	0.00	13.23	260	0.00	13.23	260	6.92 T	13.23	223

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

- 1309. *COLUMN 114 5C1 FORCE RESULTS ABOVE
- 1310. LOAD LIST 261 TO 348
- 1311. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 7 TO 15

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
7 MAX	0.00	0.00	261	49.94	6.85	261			
	0.00	0.00	261	0.00	0.00	261	0.00	0.00	261
	MIN -20.30	6.85	263	0.00	6.85	348			
	0.00	6.85	348	0.00	6.85	348	0.00	6.85	348
8 MAX	0.00	0.00	264	151.05	4.26	261			
	0.00	0.00	261	0.00	0.00	261	0.00	0.00	261
	MIN -40.60	4.26	261	0.00	4.26	348			
	0.00	4.26	348	0.00	4.26	348	0.00	4.26	348
9 MAX	34.16	0.00	268	123.01	0.00	261			
	0.00	0.00	261	0.00	0.00	261	3.25 C	0.00	274
	MIN -2.31	2.49	290	-53.44	2.49	270			
	0.00	2.49	348	0.00	2.49	348	3.31 T	2.49	261
10 MAX	28.46	0.00	271	107.42	0.00	261			
	0.00	0.00	261	0.00	0.00	261	3.25 C	0.00	274
	MIN -10.25	6.75	270	-134.67	6.08	276			
	0.00	6.75	348	0.00	6.75	348	3.31 T	6.75	261
11 MAX	17.05	0.00	277	65.15	0.00	261			
	0.00	0.00	261	0.00	0.00	261	3.25 C	0.00	274
	MIN -23.55	6.75	277	-136.34	0.68	277			
	0.00	6.75	348	0.00	6.75	348	3.31 T	6.75	261
12 MAX	6.26	0.00	261	50.78	6.75	276			
	0.00	0.00	261	0.00	0.00	261	3.25 C	0.00	274
	MIN -35.21	6.75	284	-109.69	0.00	278			
	0.00	6.75	348	0.00	6.75	348	3.31 T	6.75	261
13 MAX	6.26	0.00	261	66.23	0.68	277			
	0.00	0.00	261	0.00	0.00	261	3.25 C	0.00	274
	MIN -35.21	0.68	284	-53.23	0.68	303			
	0.00	0.68	348	0.00	0.68	348	3.31 T	0.68	261
14 MAX	21.84	0.00	285	63.03	0.00	290			
	0.00	0.00	261	0.00	0.00	261	1.07 C	0.00	290
	MIN -8.03	6.07	303	-68.52	0.00	303			
	0.00	6.07	348	0.00	6.07	348	1.88 T	6.07	261
15 MAX	7.38	0.00	290	18.19	0.00	290			
	0.00	0.00	261	0.00	0.00	261	1.07 C	0.00	290

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MIN	-8.03	2.46	303	-19.77	0.00	303				
	0.00	2.46	348	0.00	2.46	348	1.88 T	2.46	261	

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

1312. *FLOOR BEAM FB-14A FATIGUE TRUCK FORCE RESULTS ABOVE
1313. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 16 TO 27

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
16 MAX	7.39	0.00	290	48.21	6.00	303			
	0.00	0.00	261	0.00	0.00	261	1.14 C	6.00	290
MIN	-18.04	6.00	291	-29.26	4.20	290			
	0.00	6.00	348	0.00	6.00	348	1.88 T	6.00	261
17 MAX	4.77	0.00	277	80.34	4.00	303			
	0.00	0.00	261	0.00	0.00	261	1.14 C	0.00	290
MIN	-24.86	4.00	295	-47.66	4.00	277			
	0.00	4.00	348	0.00	4.00	348	1.88 T	4.00	261
18 MAX	42.90	0.00	296	108.89	0.00	303			
	0.00	0.00	261	0.00	0.00	261	1.78 C	0.00	304
MIN	-2.26	2.58	318	-40.66	0.00	277			
	0.00	2.58	348	0.00	2.58	348	1.63 T	2.58	261
19 MAX	39.40	0.00	299	45.33	0.00	304			
	0.00	0.00	261	0.00	0.00	261	1.78 C	0.00	304
MIN	-5.02	5.45	297	-149.72	5.45	303			
	0.00	5.45	348	0.00	5.45	348	1.63 T	5.45	261
20 MAX	17.21	0.00	298	36.23	0.00	290			
	0.00	0.00	261	0.00	0.00	261	1.85 C	5.90	303
MIN	-12.72	5.90	303	-206.36	5.31	303			
	0.00	5.90	348	0.00	5.90	348	1.63 T	5.90	261
21 MAX	13.47	0.00	304	31.04	5.90	318			
	0.00	0.00	261	0.00	0.00	261	1.85 C	0.00	303
MIN	-12.72	5.90	303	-199.84	0.00	303			
	0.00	5.90	348	0.00	5.90	348	1.63 T	5.90	261
22 MAX	13.47	0.00	304	44.37	5.90	318			
	0.00	0.00	261	0.00	0.00	261	1.88 C	5.90	304
MIN	-15.48	5.90	308	-210.81	1.77	304			
	0.00	5.90	348	0.00	5.90	348	1.63 T	5.90	261
23 MAX	6.63	0.00	309	57.70	5.90	318			
	0.00	0.00	261	0.00	0.00	261	1.99 C	5.90	304
MIN	-37.56	5.90	307	-170.53	0.00	304			
	0.00	5.90	348	0.00	5.90	348	1.63 T	5.90	261
24 MAX	1.62	0.00	290	94.17	3.38	304			
	0.00	0.00	261	0.00	0.00	261	1.99 C	0.00	304

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MIN	-42.66	3.38	311	-60.99	0.00	308			
	0.00	3.38	348	0.00	3.38	348	1.63	T	3.38 261
25 MAX	24.55	0.00	312	78.85	0.00	318			
	0.00	0.00	261	0.00	0.00	261	1.13	C	0.00 318
MIN	-5.40	2.51	331	-53.99	0.00	331			
	0.00	2.51	348	0.00	2.51	348	1.85	T	2.51 348
26 MAX	22.01	0.00	314	59.04	0.00	318			
	0.00	0.00	261	0.00	0.00	261	1.13	C	0.00 318
MIN	-6.03	5.31	317	-40.42	0.00	331			
	0.00	5.90	348	0.00	5.90	348	1.85	T	5.90 348
27 MAX	7.88	0.00	318	12.56	0.00	318			
	0.00	0.00	261	0.00	0.00	261	1.13	C	0.00 318
MIN	-6.03	1.59	317	-9.61	0.00	317			
	0.00	1.59	348	0.00	1.59	348	1.85	T	1.59 348

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

- 1314. *FLOOR BEAM FB-14B FATIGUE TRUCK FORCE RESULTS ABOVE
- 1315. PRINT MAXFORCE ENVELOPE NSECTION 10 LIST 28 TO 35

MEMBER FORCE ENVELOPE

ALL UNITS ARE KIP FEET

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB	FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
28 MAX	7.88	0.00	318	25.94	4.30	317			
	0.00	0.00	261	0.00	0.00	261	1.16 C	0.00	318
	MIN	-15.52	4.30	318	-30.47	3.87	318		
	0.00	4.30	348	0.00	4.30	348	1.84 T	4.30	348
29 MAX	6.44	0.00	304	61.16	5.83	317			
	0.00	0.00	261	0.00	0.00	261	1.16 C	0.00	318
	MIN	-38.92	5.83	318	-65.23	5.83	304		
	0.00	5.83	348	0.00	5.83	348	1.84 T	5.83	348
30 MAX	41.67	0.00	324	80.83	0.00	331			
	0.00	0.00	261	0.00	0.00	261	3.19 C	0.00	334
	MIN	-7.24	5.85	348	-102.18	5.85	330		
	0.00	5.85	348	0.00	5.85	348	3.28 T	5.85	348
31 MAX	30.99	0.00	330	57.93	5.85	348			
	0.00	0.00	261	0.00	0.00	261	3.19 C	0.00	334
	MIN	-13.88	5.27	329	-154.68	5.27	335		
	0.00	5.85	348	0.00	5.85	348	3.28 T	5.85	348
32 MAX	18.29	0.00	336	100.31	5.85	348			
	0.00	0.00	261	0.00	0.00	261	3.19 C	0.00	334
	MIN	-26.36	5.85	335	-157.41	2.34	332		
	0.00	5.85	348	0.00	5.85	348	3.28 T	5.85	348
33 MAX	5.21	0.00	342	142.71	5.85	348			
	0.00	0.00	261	0.00	0.00	261	3.19 C	0.00	334
	MIN	-39.48	5.85	341	-125.67	0.00	336		
	0.00	5.85	348	0.00	5.85	348	3.28 T	5.85	348
34 MAX	46.80	0.00	348	174.50	0.00	348			
	0.00	0.00	261	0.00	0.00	261	0.00	0.00	261
	MIN	0.00	4.77	346	0.00	2.86	344		
	0.00	4.77	348	0.00	4.77	348	0.00	4.77	348
35 MAX	23.40	0.00	347	45.81	0.00	348			
	0.00	0.00	261	0.00	0.00	261	0.00	0.00	261
	MIN	0.00	5.72	348	0.00	3.43	348		
	0.00	5.72	348	0.00	5.72	348	0.00	5.72	348

***** END OF FORCE ENVELOPE FROM INTERNAL STORAGE *****

1316. *FLOOR BEAM FB-14C FATIGUE TRUCK FORCE RESULTS ABOVE
1317. FINISH

***** END OF THE STAAD.Pro RUN *****

**** DATE= APR 11,2012 TIME= 15:10:36 ****

 * For questions on STAAD.Pro, please contact *
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 * *
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 * *



Calculated: FKL Date: 3/19/2012
Checked: PJP Date: 4/12/2012

CUY-2-1441 Load Rating Analysis - As-Built
Main Ave Bridge
East Approach Fwd Section - Bent 14

Column: C614

Section Properties 14WF68

A =	20.000	in ²	I _x =	724.100	in ⁴
h =	14.060	in	S _x =	103.000	in ³
b _f =	10.040	in	r _x =	6.020	in
t _f =	0.718	in	I _y =	121.200	in ⁴
t _w =	0.418	in	S _y =	24.100	in ³
			r _y =	2.460	in
F _y =	33.0	ksi	Z	112.8	in ³
E =	29000	ksi			
L _{cx} =	101.81	in			
L _{cy} =	101.81	in			
K _x =	0.800	AASHTO Appendix C			
K _y =	0.800	AASHTO Appendix C			

Axial Loading

$$P_u = 0.85 A_s F_{cr}$$

AASHTO 10.54 Concentrically Loaded Columns

$$F_{cr} = F_y \left(1 - \frac{F_y}{4\pi^2 E} \left(\frac{KL_c}{r} \right)^2 \right)$$

$$\text{For: } \frac{KL_c}{r} \leq \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$F_{cr} = \frac{\pi^2 E}{\left(\frac{KL_c}{r} \right)^2}$$

$$\text{For: } \frac{KL_c}{r} > \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$KL/r_y = 33.110 < 131.706$$

$$KL/r_x = 13.530 < 131.706$$

$$F_{CR} = 31.957 \text{ ksi}$$

$$P_u = 543.3 \text{ k}$$



Calculated: FKL Date: 3/19/2012
 Checked: PJP Date: 4/12/2012

CUY-2-1441 Load Rating Analysis - As-Built
Main Ave Bridge

East Approach Fwd Section - Bent 14

Axial Loading and Bending

Column: C614

AASHTO 10.54.2 Combined Axial Load and Bending

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_e}\right)} \leq 1.0$$

$$= 0.6 + 0.4$$

a = 0 **When moment is small assume a = 0
 C = 0.600

$$F_e = \frac{E\pi^2}{\left(\frac{KL_c}{r}\right)^2}$$

$F_{ex} = 1563.529 \text{ ksi}$
 $F_{ey} = 261.086 \text{ ksi}$

Column Moment Capacity

Strong Axis Bending

$M_u = F_y Z$ For Compact Section

$M_{ux} = 310.2 \text{ k-ft}$

CUY-2-1441 Load Rating Analysis - As-Built

Main Ave Bridge

East Approach Forward Section - Column 614 Ratings



Calculated
Checked:

FKL
PJP

3/19/2012
4/12/2012

Column Loading

	DL	HS-20	2F1	3F1	4F1	5C1
Max Axial	33.86	113.86	65.20	91.08	95.39	88.51
Moment	0.01	14.5	8.32	11.61	12.16	11.28
Axial	33.23	57.3	32.81	45.84	48.00	44.54
Max Moment	5.19	66	37.81	52.81	55.31	51.32

DL Factor 1.30
LL Factor 2.17 INV
1.30 OPER

Factored Loads				Capacities		
Axial Force		Moment		P _u	M _u	A _s F _{ex}
Dead Load	Max. LL + I	Dead Load	Max LL + I			

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_c}\right)} \leq 1.0$$

Load Case	Member	kips	kips	k-ft	k-ft	kips	k-ft	kips	Condition Equation	RF
HS20 INV	C614	44.018	246.70	0.01	31.42	543.30	310.20	31270.58	1.00	1.78
HS20 INV	C614	43.199	124.15	6.75	143.00	543.30	310.20	31270.58	1.00	1.79
HS20 OPR	C614	44.018	148.02	0.01	18.85	543.30	310.20	31270.58	1.00	2.97
HS20 OPR	C614	43.199	74.49	6.75	85.80	543.30	310.20	31270.58	1.00	2.98
2F1	C614	44.018	84.76	0.01	10.82	543.30	310.20	31270.58	1.00	5.18
2F1	C614	43.199	42.65	6.75	49.15	543.30	310.20	31270.58	1.00	5.20
3F1	C614	44.018	118.40	0.01	15.09	543.30	310.20	31270.58	1.00	3.71
3F1	C614	43.199	59.59	6.75	68.65	543.30	310.20	31270.58	1.00	3.72
4F1	C614	44.018	124.01	0.01	15.81	543.30	310.20	31270.58	1.00	3.54
4F1	C614	43.199	62.40	6.75	71.90	543.30	310.20	31270.58	1.00	3.56
5C1	C614	44.018	115.06	0.01	14.66	543.30	310.20	31270.58	1.00	3.82
5C1	C614	43.199	57.90	6.75	66.72	543.30	310.20	31270.58	1.00	3.83

Load Case	Controlling RF
HS20 INV	1.78
HS20 OPR	2.97
2F1	5.18
3F1	3.71
4F1	3.54
5C1	3.82



Calculated: FKL Date: 3/19/2012
 Checked: PJP Date: 4/12/2012

CUY-2-1441 Load Rating Analysis - As-Built

Main Ave Bridge

East Approach Fwd Section - Bent 14

Column: **C514**

Section Properties 14WF68

A =	20.000	in ²	I _x =	724.100	in ⁴
h =	14.060	in	S _x =	103.000	in ³
b _f =	10.040	in	r _x =	6.020	in
t _f =	0.718	in	I _y =	121.200	in ⁴
t _w =	0.418	in	S _y =	24.100	in ³
			r _y =	2.460	in
F _y =	33.0	ksi	Z	112.8	in ³
E =	29000	ksi			
L _{cx} =	101.81	in			
L _{cy} =	101.81	in			
K _x =	0.800	AASHTO Appendix C			
K _y =	0.800	AASHTO Appendix C			

Axial Loading

$$P_u = 0.85 A_s F_{cr}$$

AASHTO 10.54 Concentrically Loaded Columns

$$F_{cr} = F_y \left(1 - \frac{F_y}{4\pi^2 E} \left(\frac{KL_c}{r} \right)^2 \right)$$

$$\text{For: } \frac{KL_c}{r} \leq \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$F_{cr} = \frac{\pi^2 E}{\left(\frac{KL_c}{r} \right)^2}$$

$$\text{For: } \frac{KL_c}{r} > \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$KL/r_y = 33.110 < 131.706$$

$$KL/r_x = 13.530 < 131.706$$

$$F_{CR} = 31.957 \text{ ksi}$$

$$P_u = 543.3 \text{ k}$$



Calculated: FKL Date: 3/19/2012
 Checked: PJP Date: 4/12/2012

CUY-2-1441 Load Rating Analysis - As-Built
Main Ave Bridge

East Approach Fwd Section - Bent 14

Axial Loading and Bending

Column: C514

AASHTO 10.54.2 Combined Axial Load and Bending

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_e}\right)} \leq 1.0$$

$$= 0.6 + 0.4$$

a = 0 **When moment is small assume a = 0
 C = 0.600

$$F_e = \frac{E\pi^2}{\left(\frac{KL_c}{r}\right)^2}$$

$F_{ex} = 1563.529 \text{ ksi}$
 $F_{ey} = 261.086 \text{ ksi}$

Column Moment Capacity

Strong Axis Bending

$M_u = F_y Z$ For Compact Section

$M_{ux} = 310.2 \text{ k-ft}$

CUY-2-1441 Load Rating Analysis - As-Built

Main Ave Bridge

East Approach Forward Section - Column 514 Ratings



Calculated
Checked:

FKL
PJP

3/19/2012
4/12/2012

Column Loading

	DL	HS-20	2F1	3F1	4F1	5C1
Max Axial	22.54	107.7	61.67	86.15	90.23	83.72
Moment	0.01	5.04	2.90	4.00	4.20	3.92
Axial	21.9	34.38	19.69	27.50	28.80	26.73
Max Moment	8.7	80.39	46.03	64.30	67.35	62.49

DL Factor 1.30
LL Factor 2.17 INV
1.30 OPER

Factored Loads				Capacities		
Axial Force		Moment		P _u	M _u	A _s F _{eX}
Dead Load	Max. LL + I	Dead Load	Max LL + I			

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_c}\right)} \leq 1.0$$

Load Case	Member	kips	kips	k-ft	k-ft	kips	k-ft	kips	Condition Equation	RF
HS20 INV	C514	29.302	233.35	0.01	10.92	543.30	310.20	31270.58	1.00	2.10
HS20 INV	C514	28.47	74.49	11.31	174.18	543.30	310.20	31270.58	1.00	1.95
HS20 OPR	C514	29.302	140.01	0.01	6.55	543.30	310.20	31270.58	1.00	3.50
HS20 OPR	C514	28.47	44.69	11.31	104.51	543.30	310.20	31270.58	1.00	3.24
2F1	C514	29.302	80.17	0.01	3.77	543.30	310.20	31270.58	1.00	6.10
2F1	C514	28.47	25.60	11.31	59.84	543.30	310.20	31270.58	1.00	5.66
3F1	C514	29.302	112.00	0.01	5.20	543.30	310.20	31270.58	1.00	4.37
3F1	C514	28.47	35.75	11.31	83.59	543.30	310.20	31270.58	1.00	4.05
4F1	C514	29.302	117.30	0.01	5.46	543.30	310.20	31270.58	1.00	4.17
4F1	C514	28.47	37.44	11.31	87.56	543.30	310.20	31270.58	1.00	3.87
5C1	C514	29.302	108.84	0.01	5.09	543.30	310.20	31270.58	1.00	4.50
5C1	C514	28.47	34.74	11.31	81.24	543.30	310.20	31270.58	1.00	4.17

Load Case	Controlling RF
HS20 INV	1.95
HS20 OPR	3.24
2F1	5.66
3F1	4.05
4F1	3.87
5C1	4.17



Calculated: FKL Date: 3/19/2012
 Checked: PJP Date: 4/12/2012

CUY-2-1441 Load Rating Analysis - As-Built
Main Ave Bridge
East Approach Fwd Section - Bent 14

Column: C414

Section Properties 14WF78

A =	22.940	in ²	I _x =	851.200	in ⁴
h =	14.060	in	S _x =	121.100	in ³
b _f =	12.000	in	r _x =	6.090	in
t _f =	0.718	in	I _y =	206.900	in ⁴
t _w =	0.428	in	S _y =	34.500	in ³
			r _y =	3.000	in
F _y =	33.0	ksi	Z	132	in ³
E =	29000	ksi			
L _{cx} =	161.27	in			
L _{cy} =	161.27	in			
K _x =	0.650	AASHTO Appendix C			
K _y =	0.650	AASHTO Appendix C			

Axial Loading

$$P_u = 0.85 A_s F_{cr}$$

AASHTO 10.54 Concentrically Loaded Columns

$$F_{cr} = F_y \left(1 - \frac{F_y}{4\pi^2 E} \left(\frac{KL_c}{r} \right)^2 \right)$$

$$\text{For: } \frac{KL_c}{r} \leq \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$F_{cr} = \frac{\pi^2 E}{\left(\frac{KL_c}{r} \right)^2}$$

$$\text{For: } \frac{KL_c}{r} > \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$KL/r_y = 34.941 < 131.706$$

$$KL/r_x = 17.212 < 131.706$$

$$F_{CR} = 31.839 \text{ ksi}$$

$$P_u = 620.8 \text{ k}$$



Calculated: FKL Date: 3/19/2012
 Checked: PJP Date: 4/12/2012

CUY-2-1441 Load Rating Analysis - As-Built
Main Ave Bridge

East Approach Fwd Section - Bent 14

Axial Loading and Bending

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_e}\right)} \leq 1.0$$

Column: C414

AASHTO 10.54.2 Combined Axial Load and Bending

$$=0.6+0.4$$

a = 0 **When moment is small assume a = 0
 C = 0.600

$$F_e = \frac{E\pi^2}{\left(\frac{KL_c}{r}\right)^2} \quad \begin{array}{l} F_{ex} = 966.086 \text{ ksi} \\ F_{ey} = 234.436 \text{ ksi} \end{array}$$

Column Moment Capacity

Strong Axis Bending

$M_u = F_y Z$ For Compact Section

$$M_{ux} = 363.0 \text{ k-ft}$$

CUY-2-1441 Load Rating Analysis - As-Built

Main Ave Bridge

East Approach Forward Section - Column 414 Ratings



Calculated
Checked:

FKL
PJP

3/19/2012
4/12/2012

Column Loading

	DL	HS-20	2F1	3F1	4F1	5C1
Max Axial	52.29	143.83	82.35	115.05	120.50	111.81
Moment	6.85	49.30	28.24	39.47	41.33	38.36
Axial	51.2	67.04	38.38	53.62	56.16	52.11
Max Moment	16.29	80.13	45.91	64.11	67.15	62.31

DL Factor 1.30
LL Factor 2.17 INV
1.30 OPER

Factored Loads				Capacities		
Axial Force		Moment		P _u	M _u	A _s F _{ex}
Dead Load	Max. LL + I	Dead Load	Max LL + I			

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_c}\right)} \leq 1.0$$

Load Case	Member	kips	kips	k-ft	k-ft	kips	k-ft	kips	Condition Equation	RF
HS20 INV	C414	67.977	311.63	8.91	106.81	620.80	363.00	22162.01	1.00	1.28
HS20 INV	C414	66.56	145.25	21.18	173.62	620.80	363.00	22162.01	1.00	1.63
HS20 OPR	C414	67.977	186.98	8.91	64.08	620.80	363.00	22162.01	1.00	2.14
HS20 OPR	C414	66.56	87.15	21.18	104.17	620.80	363.00	22162.01	1.00	2.72
2F1	C414	67.977	107.06	8.91	36.71	620.80	363.00	22162.01	1.00	3.73
2F1	C414	66.56	49.89	21.18	59.68	620.80	363.00	22162.01	1.00	4.75
3F1	C414	67.977	149.57	8.91	51.31	620.80	363.00	22162.01	1.00	2.67
3F1	C414	66.56	69.71	21.18	83.34	620.80	363.00	22162.01	1.00	3.40
4F1	C414	67.977	156.65	8.91	53.73	620.80	363.00	22162.01	1.00	2.55
4F1	C414	66.56	73.01	21.18	87.30	620.80	363.00	22162.01	1.00	3.25
5C1	C414	67.977	145.35	8.91	49.87	620.80	363.00	22162.01	1.00	2.75
5C1	C414	66.56	67.74	21.18	81.00	620.80	363.00	22162.01	1.00	3.50

Load Case	Controlling RF
HS20 INV	1.28
HS20 OPR	2.14
2F1	3.73
3F1	2.67
4F1	2.55
5C1	2.75



Calculated: FKL Date: 3/19/2012
 Checked: PJP Date: 4/12/2012

CUY-2-1441 Load Rating Analysis - As-Built
Main Ave Bridge
East Approach Fwd Section - Bent 14

Column: C314

Section Properties 14WF78

A =	22.940	in ²	I _x =	851.200	in ⁴
h =	14.060	in	S _x =	121.100	in ³
b _f =	12.000	in	r _x =	6.090	in
t _f =	0.718	in	I _y =	206.900	in ⁴
t _w =	0.428	in	S _y =	34.500	in ³
			r _y =	3.000	in
F _y =	33.0	ksi	Z	132	in ³
E =	29000	ksi			
L _{cx} =	159.35	in			
L _{cy} =	159.35	in			
K _x =	0.650	AASHTO Appendix C			
K _y =	0.650	AASHTO Appendix C			

Axial Loading

$$P_u = 0.85 A_s F_{cr}$$

AASHTO 10.54 Concentrically Loaded Columns

$$F_{cr} = F_y \left(1 - \frac{F_y}{4\pi^2 E} \left(\frac{KL_c}{r} \right)^2 \right)$$

For: $\frac{KL_c}{r} \leq \sqrt{\frac{2\pi^2 E}{F_y}}$

$$F_{cr} = \frac{\pi^2 E}{\left(\frac{KL_c}{r} \right)^2}$$

For: $\frac{KL_c}{r} > \sqrt{\frac{2\pi^2 E}{F_y}}$

$$KL/r_y = 34.527 < 131.706$$

$$KL/r_x = 17.008 < 131.706$$

$$F_{CR} = 31.866 \text{ ksi}$$

$$P_u = 621.4 \text{ k}$$



Calculated: FKL Date: 3/19/2012
 Checked: PJP Date: 4/12/2012

CUY-2-1441 Load Rating Analysis - As-Built
Main Ave Bridge

East Approach Fwd Section - Bent 14

Column: C314

Axial Loading and Bending

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_e}\right)} \leq 1.0$$

AASHTO 10.54.2 Combined Axial Load and Bending

$$= 0.6 + 0.4$$

a = 0 **When moment is small assume a = 0
 C = 0.600

$$F_e = \frac{E\pi^2}{\left(\frac{KL_c}{r}\right)^2}$$

$F_{ex} = 989.418 \text{ ksi}$
 $F_{ey} = 240.097 \text{ ksi}$

Column Compactness Check

$M_u = F_y Z$ For Compact Section

$M_u = F_y S$ For Non-Compact Section

$$\frac{b}{t} \leq \frac{4110}{\sqrt{F_y}}$$

$$16.713 < 22.625$$

$$\frac{D}{t_w} \leq \frac{19230}{\sqrt{F_y}}$$

$$29.495 < 105.858$$

$$\frac{L}{r_y} \leq \frac{\left(3.6 - 2.2 \frac{M_1}{M_u}\right) \times 10^6}{F_y}$$

$$53.118 < 109.091$$

Column Moment Capacity

Strong Axis Bending

Compact Section

$$M_{ux} = 363.0 \text{ k-ft}$$

CUY-2-1441 Load Rating Analysis - As-Built

Main Ave Bridge

East Approach Forward Section - Column 314 Ratings



Calculated
Checked:

FKL
PJP

3/19/2012
4/12/2012

Column Loading

	DL	HS-20	2F1	3F1	4F1	5C1
Max Axial	62.16	140.79	80.61	112.62	117.95	109.44
Moment	6.54	48.83	28.02	39.10	40.94	38.00
Axial	61.08	87	34.48	48.17	50.45	62.63
Max Moment	13.66	81.85	47.05	65.70	68.81	63.67

DL Factor 1.30
LL Factor 2.17 INV
1.30 OPER

Factored Loads				Capacities		
Axial Force		Moment		P _u	M _u	A _s F _{ex}
Dead Load	Max. LL + I	Dead Load	Max LL + I			

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_c}\right)} \leq 1.0$$

Load Case	Member	kips	kips	k-ft	k-ft	kips	k-ft	kips	Condition Equation	RF
HS20 INV	C314	80.808	305.05	8.50	105.80	621.40	363.00	22697.24	1.00	1.28
HS20 INV	C314	79.404	188.50	17.76	177.34	621.40	363.00	22697.24	1.00	1.40
HS20 OPR	C314	80.808	183.03	8.50	63.48	621.40	363.00	22697.24	1.00	2.13
HS20 OPR	C314	79.404	113.10	17.76	106.41	621.40	363.00	22697.24	1.00	2.34
2F1	C314	80.808	104.79	8.50	36.43	621.40	363.00	22697.24	1.00	3.72
2F1	C314	79.404	44.82	17.76	61.17	621.40	363.00	22697.24	1.00	4.83
3F1	C314	80.808	146.41	8.50	50.83	621.40	363.00	22697.24	1.00	2.66
3F1	C314	79.404	62.62	17.76	85.41	621.40	363.00	22697.24	1.00	3.46
4F1	C314	80.808	153.34	8.50	53.22	621.40	363.00	22697.24	1.00	2.54
4F1	C314	79.404	65.59	17.76	89.45	621.40	363.00	22697.24	1.00	3.30
5C1	C314	80.808	142.27	8.50	49.39	621.40	363.00	22697.24	1.00	2.74
5C1	C314	79.404	81.42	17.76	82.77	621.40	363.00	22697.24	1.00	3.12

Load Case	Controlling RF
HS20 INV	1.28
HS20 OPR	2.13
2F1	3.72
3F1	2.66
4F1	2.54
5C1	2.74



Calculated: FKL Date: 3/19/2012
 Checked: PJP Date: 4/12/2012

CUY-2-1441 Load Rating Analysis - As-Built
Main Ave Bridge
East Approach Fwd Section - Bent 14

Column: C214

Section Properties 14WF78

A =	22.940	in ²	I _x =	851.200	in ⁴
h =	14.060	in	S _x =	121.100	in ³
b _f =	12.000	in	r _x =	6.090	in
t _f =	0.718	in	I _y =	206.900	in ⁴
t _w =	0.428	in	S _y =	34.500	in ³
			r _y =	3.000	in
F _y =	33.0	ksi	Z	132	in ³
E =	29000	ksi			
L _{cx} =	158.81	in			
L _{cy} =	158.81	in			
K _x =	0.650	AASHTO Appendix C			
K _y =	0.650	AASHTO Appendix C			

Axial Loading

$$P_u = 0.85 A_s F_{cr}$$

AASHTO 10.54 Concentrically Loaded Columns

$$F_{cr} = F_y \left(1 - \frac{F_y}{4\pi^2 E} \left(\frac{KL_c}{r} \right)^2 \right)$$

For: $\frac{KL_c}{r} \leq \sqrt{\frac{2\pi^2 E}{F_y}}$

$$F_{cr} = \frac{\pi^2 E}{\left(\frac{KL_c}{r} \right)^2}$$

For: $\frac{KL_c}{r} > \sqrt{\frac{2\pi^2 E}{F_y}}$

$$KL/r_y = 34.408 < 131.706$$

$$KL/r_x = 16.950 < 131.706$$

$$F_{CR} = 31.874 \text{ ksi}$$

$$P_u = 621.5 \text{ k}$$



Calculated: FKL Date: 3/19/2012
 Checked: PJP Date: 4/12/2012

CUY-2-1441 Load Rating Analysis - As-Built
Main Ave Bridge

East Approach Fwd Section - Bent 14

Column: C214

Axial Loading and Bending

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_e}\right)} \leq 1.0$$

AASHTO 10.54.2 Combined Axial Load and Bending

$$= 0.6 + 0.4$$

a = 0 **When moment is small assume a = 0
 C = 0.600

$$F_e = \frac{E\pi^2}{\left(\frac{KL_c}{r}\right)^2}$$

$F_{ex} = 996.233 \text{ ksi}$
 $F_{ey} = 241.751 \text{ ksi}$

Column Compactness Check

$M_u = F_y Z$ For Compact Section

$M_u = F_y S$ For Non-Compact Section

$$\frac{b}{t} \leq \frac{4110}{\sqrt{F_y}}$$

$$16.713 < 22.625$$

$$\frac{D}{t_w} \leq \frac{19230}{\sqrt{F_y}}$$

$$29.495 < 105.858$$

$$\frac{L}{r_y} \leq \frac{\left(3.6 - 2.2 \frac{M_1}{M_u}\right) \times 10^6}{F_y}$$

$$52.936 < 109.091$$

Column Moment Capacity

Strong Axis Bending

Compact Section

$$M_{ux} = 363.0 \text{ k-ft}$$

CUY-2-1441 Load Rating Analysis - As-Built

Main Ave Bridge

East Approach Forward Section - Column 214 Ratings



Calculated
Checked:

FKL
PJP

3/19/2012
4/12/2012

Column Loading

	DL	HS-20	2F1	3F1	4F1	5C1
Max Axial	36.82	121.63	69.64	97.29	101.90	93.53
Moment	0.76	7.87	4.52	6.30	6.60	20.09
Axial	35.75	47.46	27.18	37.96	39.76	36.89
Max Moment	2.86	79.87	45.74	63.89	66.92	62.09

DL Factor 1.30
LL Factor 2.17 INV
1.30 OPER

Factored Loads				Capacities		
Axial Force		Moment		P _u	M _u	A _s F _{ex}
Dead Load	Max. LL + I	Dead Load	Max LL + I			

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_c}\right)} \leq 1.0$$

Load Case	Member	kips	kips	k-ft	k-ft	kips	k-ft	kips	Condition Equation	RF
HS20 INV	C214	47.866	263.53	0.99	17.05	621.50	363.00	22853.58	1.00	2.03
HS20 INV	C214	46.475	102.83	3.72	173.05	621.50	363.00	22853.58	1.00	2.02
HS20 OPR	C214	47.866	158.12	0.99	10.23	621.50	363.00	22853.58	1.00	3.39
HS20 OPR	C214	46.475	61.70	3.72	103.83	621.50	363.00	22853.58	1.00	3.37
2F1	C214	47.866	90.53	0.99	5.88	621.50	363.00	22853.58	1.00	5.92
2F1	C214	46.475	35.33	3.72	59.46	621.50	363.00	22853.58	1.00	5.88
3F1	C214	47.866	126.48	0.99	8.19	621.50	363.00	22853.58	1.00	4.24
3F1	C214	46.475	49.35	3.72	83.06	621.50	363.00	22853.58	1.00	4.21
4F1	C214	47.866	132.47	0.99	8.58	621.50	363.00	22853.58	1.00	4.05
4F1	C214	46.475	51.69	3.72	87.00	621.50	363.00	22853.58	1.00	4.02
5C1	C214	47.866	121.59	0.99	26.11	621.50	363.00	22853.58	1.00	3.84
5C1	C214	46.475	47.96	3.72	80.72	621.50	363.00	22853.58	1.00	4.33

Load Case	Controlling RF
HS20 INV	2.02
HS20 OPR	3.37
2F1	5.88
3F1	4.21
4F1	4.02
5C1	3.84



Calculated: FKL Date: 3/19/2012
 Checked: PJP Date: 4/12/2012

CUY-2-1441 Load Rating Analysis - As-Built
Main Ave Bridge
East Approach Fwd Section - Bent 14

Column: C114

Section Properties 14WF78

A =	22.940	in ²	I _x =	851.200	in ⁴
h =	14.060	in	S _x =	121.100	in ³
b _f =	12.000	in	r _x =	6.090	in
t _f =	0.718	in	I _y =	206.900	in ⁴
t _w =	0.428	in	S _y =	34.500	in ³
			r _y =	3.000	in
F _y =	33.0	ksi	Z	132	in ³
E =	29000	ksi			
L _{cx} =	158.81	in			
L _{cy} =	158.81	in			
K _x =	0.650	AASHTO Appendix C			
K _y =	0.650	AASHTO Appendix C			

Axial Loading

$$P_u = 0.85 A_s F_{cr}$$

AASHTO 10.54 Concentrically Loaded Columns

$$F_{cr} = F_y \left(1 - \frac{F_y}{4\pi^2 E} \left(\frac{KL_c}{r} \right)^2 \right)$$

$$\text{For: } \frac{KL_c}{r} \leq \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$F_{cr} = \frac{\pi^2 E}{\left(\frac{KL_c}{r} \right)^2}$$

$$\text{For: } \frac{KL_c}{r} > \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$KL/r_y = 34.408 < 131.706$$

$$KL/r_x = 16.950 < 131.706$$

$$F_{CR} = 31.874 \text{ ksi}$$

$$P_u = 621.5 \text{ k}$$



Calculated: FKL Date: 3/19/2012
 Checked: PJP Date: 4/12/2012

CUY-2-1441 Load Rating Analysis - As-Built
Main Ave Bridge

East Approach Fwd Section - Bent 14

Column: C114

Axial Loading and Bending

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_e}\right)} \leq 1.0$$

AASHTO 10.54.2 Combined Axial Load and Bending

$$= 0.6 + 0.4$$

a = 0 **When moment is small assume a = 0
 C = 0.600

$$F_e = \frac{E\pi^2}{\left(\frac{KL_c}{r}\right)^2}$$

$F_{ex} = 996.233 \text{ ksi}$
 $F_{ey} = 241.751 \text{ ksi}$

Column Compactness Check

$M_u = F_y Z$ For Compact Section

$M_u = F_y S$ For Non-Compact Section

$$\frac{b}{t} \leq \frac{4110}{\sqrt{F_y}}$$

$$16.713 < 22.625$$

$$\frac{D}{t_w} \leq \frac{19230}{\sqrt{F_y}}$$

$$29.495 < 105.858$$

$$\frac{L}{r_y} \leq \frac{\left(3.6 - 2.2 \frac{M_1}{M_u}\right) \times 10^6}{F_y}$$

$$52.936 < 109.091$$

Column Moment Capacity

Strong Axis Bending

Compact Section

$$M_{ux} = 363.0 \text{ k-ft}$$

CUY-2-1441 Load Rating Analysis - As-Built

Main Ave Bridge

East Approach Forward Section - Column 114 Ratings



Calculated:

FKL

3/19/2012

Checked:

PJP

4/12/2012

Column Loading

	DL	HS-20	2F1	3F1	4F1	5C1
Max Axial	56.24	131	75.01	104.79	109.75	101.83
Moment	4.33	18.667	10.71	14.95	15.65	14.53
Axial	55.16	65.49	37.50	52.39	54.87	50.91
Max Moment	11.01	71.43	40.94	57.16	59.87	55.55

DL Factor

1.30

LL Factor

2.17 INV

1.30 OPER

Factored Loads

Axial Force

Moment

Capacities

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_c}\right)} \leq 1.0$$

Load Case	Member	Axial Force		Moment		P _u	M _u	A _s F _{ex}	Condition Equation	RF
		Dead Load	Max. LL + I	Dead Load	Max LL + I					
HS20 INV	C114	73.112	283.83	5.63	40.45	621.50	363.00	22853.58	1.00	1.66
HS20 INV	C114	71.708	141.90	14.31	154.77	621.50	363.00	22853.58	1.00	1.76
HS20 OPR	C114	73.112	170.30	5.63	24.27	621.50	363.00	22853.58	1.00	2.77
HS20 OPR	C114	71.708	85.14	14.31	92.86	621.50	363.00	22853.58	1.00	2.94
2F1	C114	73.112	97.51	5.63	13.93	621.50	363.00	22853.58	1.00	4.84
2F1	C114	71.708	48.75	14.31	53.22	621.50	363.00	22853.58	1.00	5.13
3F1	C114	73.112	136.23	5.63	19.43	621.50	363.00	22853.58	1.00	3.46
3F1	C114	71.708	68.11	14.31	74.31	621.50	363.00	22853.58	1.00	3.68
4F1	C114	73.112	142.68	5.63	20.35	621.50	363.00	22853.58	1.00	3.31
4F1	C114	71.708	71.33	14.31	77.83	621.50	363.00	22853.58	1.00	3.51
5C1	C114	73.112	132.38	5.63	18.89	621.50	363.00	22853.58	1.00	3.56
5C1	C114	71.708	66.18	14.31	72.22	621.50	363.00	22853.58	1.00	3.78

Load Case	Controlling RF
HS20 INV	1.66
HS20 OPR	2.77
2F1	4.84
3F1	3.46
4F1	3.31
5C1	3.56



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Checked By FKL

Date 4/11/2012
Date 4/12/2012

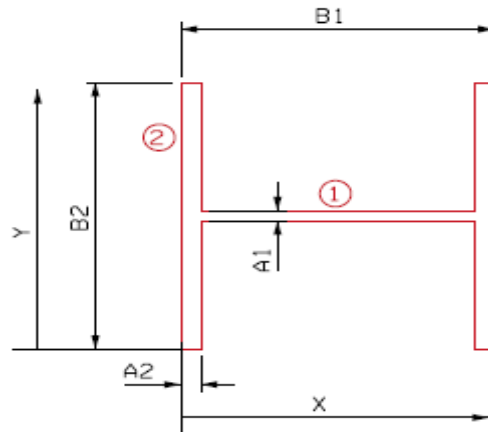
Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441 East Approach Forward Section**

Element Dimensions (without Section Losses):

Rolled Beam

- $A_1 = t_w = 0.4500$ in
- $A_2 = t_f = 0.7830$ in
- $B_1 = d = 14.1900$ in
- $B_2 = b_f = 10.0720$ in



Column 314

Y-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I_o	d	Ad^2	$I_{y,gross}$
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		5.6808	5.0360	28.6085	0.0959	0.0000	0.0000	0.0959
2	Flange Plates		15.7728	5.0360	79.4316	133.3391	0.0000	0.0000	133.3391
Total			21.45		108.04	133.44		0.00	133.44
Section Losses			A	y	Ay	I_o	d	Ad^2	$I_{y,loss}$
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	12.6240	0.0625	-0.7890	5.2298	-4.1263	-0.0003	0.0045	0.0000	-0.0003
2	12.6240	0.1600	-2.0198	4.8910	-9.8790	-0.0043	0.3343	-0.2257	-0.2300
3	0.1250	4.8110	-0.6014	2.4055	-1.4466	-1.1599	2.8198	-4.7816	-5.9416
4	0.6580	1.0000	-0.6580	2.4055	-1.5828	-0.0548	2.8198	-5.2319	-5.2867
5	0.0625	4.8110	-0.3007	7.6665	-2.3052	-0.5800	2.4412	-1.7920	-2.3719
6	0.1250	10.0720	-1.2590	5.0360	-6.3403	-10.6433	0.1893	-0.0451	-10.6884
7	0.1750	10.0720	-1.7626	5.0360	-8.8765	-14.9006	0.1893	-0.0631	-14.9638
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			-7.39		-34.56	-27.34		-12.14	-39.48

As-Built Section Properties				As-Inspected Section Properties							
x-bar =	5.0360	in	$S_{top} = 26.50$	in ³	x-bar =	5.2253	in	$S_{top} = 19.38$	in ³		
$I_y =$	133.44	in ⁴	$S_{bott.} = 26.50$	in ³	$I_y =$	93.95	in ⁴	$S_{bott.} = 17.98$	in ³		
$C_{top} =$	5.0360	in	A =	21.4536	in ²	$C_{top} =$	4.8467	in	A =	14.0630	in ²
$C_{bottom} =$	5.0360	in	$r_y =$	2.4939	in	$C_{bottom} =$	5.2253	in	$r_y =$	2.5847	in



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Date 4/11/2012
Date 4/12/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441 East Approach Forward Section**

X-Axis Section Properties:

Gross Section (without Losses)			A	x	Ax	I _o	d	Ad ²	I _{x, gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web Plate		5.6808	7.0950	40.3053	75.4436	0.0000	0.0000	75.4436
2	Left Flange		7.8864	0.3915	3.0875	0.4029	6.7035	354.3894	354.7923
	Right Flange		7.8864	13.7985	108.8202	0.4029	6.7035	354.3894	354.7923
Total			21.45		152.21	76.25		708.78	785.03
Section Losses			A	x	Ax	I _o	d	Ad ²	I _{x, loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0625	12.6240	-0.7890	7.0950	-5.5980	-10.4783	1.0030	-0.7937	-11.2719
2	0.1600	12.6240	-2.0198	7.0950	-14.3308	-26.8244	1.0030	-2.0318	-28.8562
3	4.8110	0.1250	-0.6014	0.7205	-0.4333	-0.0008	7.3775	-32.7309	-32.7317
4	1.0000	0.6580	-0.6580	0.3290	-0.2165	-0.0237	7.7690	-39.7146	-39.7384
5	4.8110	0.0625	-0.3007	0.7518	-0.2260	-0.0001	7.3462	-16.2271	-16.2272
6	10.0720	0.1250	-1.2590	13.7985	-17.3723	-0.0016	5.7005	-40.9128	-40.9144
7	10.0720	0.1750	-1.7626	0.0875	-0.1542	-0.0045	8.0105	-113.1013	-113.1058
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			-7.39		-38.33	-37.33		-245.51	-282.85

As-Built Section Properties					As-Inspected Section Properties						
y-bar =	7.0950	in	S _{right} =	110.65	in ³	y-bar =	8.0980	in	S _{right} =	82.43	in ³
I _x =	785.03	in ⁴	S _{left} =	110.65	in ³	I _x =	502.18	in ⁴	S _{left} =	62.01	in ³
C _{right} =	7.0950	in	A =	21.4536	in ²	C _{right} =	6.0920	in	A =	14.0630	in ²
C _{left} =	7.0950	in	r _y =	6.0491	in	C _{left} =	8.0980	in	r _y =	5.9757	in



Calculated: FKL Date: 3/19/2012
 Checked: PJP Date: 4/12/2012

CUY-2-1441 Load Rating Analysis - As-Inspected

Main Ave Bridge

East Approach Fwd Section - Bent 14

Column: **C314**

Section Properties 14WF78

A =	14.063	in ²	I _x =	502.180	in ⁴
h =	14.060	in	S _x =	62.010	in ³
b _f =	12.000	in	r _x =	5.976	in
t _f =	0.718	in	I _y =	93.950	in ⁴
t _w =	0.428	in	S _y =	17.980	in ³
			r _y =	2.585	in
F _y =	33.0	ksi			
E =	29000	ksi			
L _{cx} =	159.35	in			
L _{cy} =	159.35	in			
K _x =	0.650	AASHTO Appendix C			
K _y =	0.650	AASHTO Appendix C			

Axial Loading

$$P_u = 0.85 A_s F_{cr}$$

AASHTO 10.54 Concentrically Loaded Columns

$$F_{cr} = F_y \left(1 - \frac{F_y}{4\pi^2 E} \left(\frac{KL_c}{r} \right)^2 \right) \quad \text{For: } \frac{KL_c}{r} \leq \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$F_{cr} = \frac{\pi^2 E}{\left(\frac{KL_c}{r} \right)^2} \quad \text{For: } \frac{KL_c}{r} > \sqrt{\frac{2\pi^2 E}{F_y}}$$

$$\begin{aligned} KL/r_y &= 40.074 < 131.706 \\ KL/r_x &= 17.334 < 131.706 \end{aligned}$$

$$F_{CR} = 31.472 \text{ ksi}$$

$$P_u = 376.2 \text{ k}$$



Calculated: FKL Date: 3/19/2012
 Checked: PJP Date: 4/12/2012

CUY-2-1441 Load Rating Analysis - As-Inspected
Main Ave Bridge

East Approach Fwd Section - Bent 14

Column: C314

Axial Loading and Bending

AASHTO 10.54.2 Combined Axial Load and Bending

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_e}\right)} \leq 1.0$$

=0.6+0.4

a = 0 **When moment is small assume a = 0
 C = 0.600

$$F_e = \frac{E\pi^2}{\left(\frac{KL_c}{r}\right)^2}$$

F_{ex} = 952.627 ksi
 F_{ey} = 178.224 ksi

Column Compactness Check

M_u=F_yZ For Compact Section
 M_u=F_yS For Non-Compact Section

$\frac{b}{t} \leq \frac{4110}{\sqrt{F_y}}$	16.713	<	22.625
--------------------------------------------	--------	---	--------

$\frac{D}{t_w} \leq \frac{19230}{\sqrt{F_y}}$	29.495	<	105.858
-----------------------------------------------	--------	---	---------

$\frac{L}{r_y} \leq \frac{\left(3.6 - 2.2 \frac{M_1}{M_u}\right) \times 10^6}{F_y}$	61.653	<	109.091
-------------------------------------------------------------------------------------	--------	---	---------

Column Moment Capacity

Strong Axis Bending
 Non-Compact Section

M_{ux} = 170.5 k-ft

CUY-2-1441 Load Rating Analysis - As-Inspected

Main Ave Bridge

East Approach Forward Section - Column 314 Ratings



Calculated
Checked:

FKL
PJP

3/19/2012
4/12/2012

Column Loading

	DL	HS-20	2F1	3F1	4F1	5C1
Max Axial	62.16	140.79	80.61	112.62	117.95	109.44
Moment	6.54	48.83	28.02	39.10	40.94	38.00
Axial	61.08	87	34.48	48.17	50.45	62.63
Max Mom.	13.66	81.85	47.05	65.70	68.81	63.67

DL Factor 1.30
LL Factor 2.17 INV
1.30 OPER

Factored Loads				Capacities		
Axial Force		Moment		P _u	M _u	A _s F _{ex}
Dead Load	Max. LL + I	Dead Load	Max LL + I			

$$\frac{P}{P_u} + \frac{MC}{M_u \left(1 - \frac{P}{A_s F_c}\right)} \leq 1.0$$

Load Case	Member	Dead Load kips	Max. LL + I kips	Dead Load k-ft	Max LL + I k-ft	P _u kips	M _u k-ft	A _s F _{ex} kips	Condition Equation	RF
HS20 INV	C314	80.808	305.05	8.50	105.80	376.20	170.50	13396.79	1.00	0.63
HS20 INV	C314	79.404	188.50	17.76	177.34	376.20	170.50	13396.79	1.00	0.64
HS20 OPR	C314	80.808	183.03	8.50	63.48	376.20	170.50	13396.79	1.00	1.06
HS20 OPR	C314	79.404	113.10	17.76	106.41	376.20	170.50	13396.79	1.00	1.07
2F1	C314	80.808	104.79	8.50	36.43	376.20	170.50	13396.79	1.00	1.84
2F1	C314	79.404	44.82	17.76	61.17	376.20	170.50	13396.79	1.00	2.15
3F1	C314	80.808	146.41	8.50	50.83	376.20	170.50	13396.79	1.00	1.32
3F1	C314	79.404	62.62	17.76	85.41	376.20	170.50	13396.79	1.00	1.54
4F1	C314	80.808	153.34	8.50	53.22	376.20	170.50	13396.79	1.00	1.26
4F1	C314	79.404	65.59	17.76	89.45	376.20	170.50	13396.79	1.00	1.47
5C1	C314	80.808	142.27	8.50	49.39	376.20	170.50	13396.79	1.00	1.36
5C1	C314	79.404	81.42	17.76	82.77	376.20	170.50	13396.79	1.00	1.42

Load Case	Controlling RF
HS20 INV	0.63
HS20 OPR	1.06
2F1	1.84
3F1	1.32
4F1	1.26
5C1	1.36

EAST APPROACH - FORWARD SECTION



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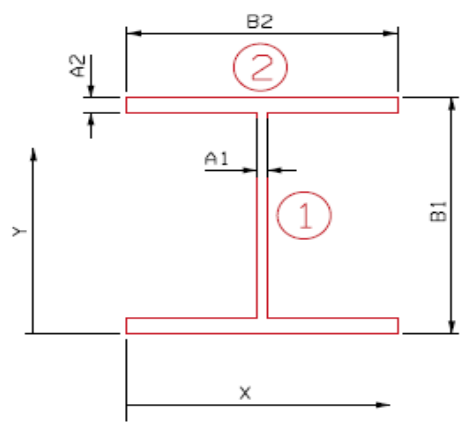
Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Red text indicates user input

Element Dimensions (without Section Losses):

$A_1 = t_w = 0.5800$ in
 $A_2 = t_f = 0.8550$ in
 $B_1 = d = 33.1000$ in
 $B_2 = b_f = 11.5000$ in
W33x130



**FB-14 @ COLUMN 614
EAST APPR. FWD SECTION**

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I _o	d	Ad ²	I _{x,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		18.2062	16.5500	301.3126	1494.9294	0.0000	0.0000	1494.9294
2	Top Flange		9.8325	32.6725	321.2524	0.5990	16.1225	2555.8109	2556.4099
	Bottom Flange		9.8325	0.4275	4.2034	0.5990	16.1225	2555.8109	2556.4099
Total			37.87		626.77	1496.13		5111.62	6607.75
Section Losses			A	y	Ay	I _o	d	Ad ²	I _{x,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.1250	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	16.5500	in	S _{top} = 399.26 in ³	y-bar =	16.5500	in	S _{top} = 399.26 in ³
I _x =	6607.75	in ⁴	S _{bott.} = 399.26 in ³	I _x =	6607.75	in ⁴	S _{bott.} = 399.26 in ³
C _{top} =	16.5500	in	A = 37.8712 in ²	C _{top} =	16.5500	in	A = 37.8712 in ²
C _{bottom} =	16.5500	in	r _x = 13.2091 in	C _{bottom} =	16.5500	in	r _x = 13.2091 in
			Z = 459.92 in ³				Z = warning in ³

EAST APPROACH - FORWARD SECTION



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Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Floorbeam Capacities

Non-composite Capacities*		
	AB	AI
M	1197.78 k-ft	1197.78 k-ft
V	380.15 k	380.15 k

*Noncompact Section

$F_y =$	36.00 ksi
---------	------------------

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

As-Built Moments and Shears						
	DL	HS20	2F1	3F1	4F1	5C1
M	100.09 k-ft	288.86 k-ft	165.40 k-ft	231.07 k-ft	242.01 k-ft	224.92 k-ft
V	14.00 k	61.20 k	35.04 k	48.95 k	51.27 k	47.65 k

As-Built Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.70	---	---	---	---
Operating M	2.84	4.97	3.55	3.39	3.65
As-Inspected Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.70	---	---	---	---
Operating M	2.84	4.97	3.55	3.39	3.65
As-Built Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	2.73	---	---	---	---
Operating V	4.55	7.95	5.69	5.43	5.84
As-Inspected Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	2.73	---	---	---	---
Operating V	4.55	7.95	5.69	5.43	5.84

Controlling Rating Factors and Tonnage						
	HS20 Inventory	HS20 Operating	2F1 Operating	3F1 Operating	4F1 Operating	5C1 Operating
Rating Factor	1.70	2.84	4.97	3.55	3.39	3.65
Tonnage (US Tons)	61.2	102.24	74.55	81.65	91.53	146

EAST APPROACH - FORWARD SECTION



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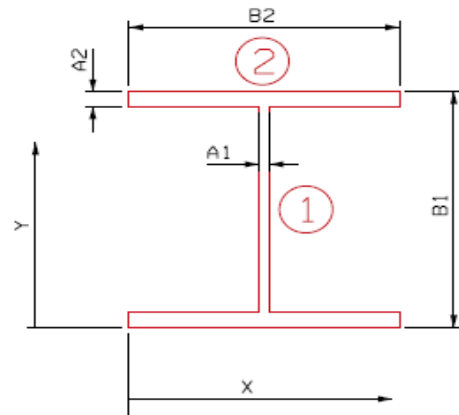
Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Red text indicates user input

Element Dimensions (without Section Losses):

$A_1 = t_w = 0.5800$ in
 $A_2 = t_f = 0.8550$ in
 $B_1 = d = 33.1000$ in
 $B_2 = b_f = 11.5000$ in
W33x130



FB-14 @ COLUMN 514
EAST APPR. FWD SECTION

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I _o	d	Ad ²	I _{x,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		18.2062	16.5500	301.3126	1494.9294	0.0000	0.0000	1494.9294
2	Top Flange		9.8325	32.6725	321.2524	0.5990	16.1225	2555.8109	2556.4099
	Bottom Flange		9.8325	0.4275	4.2034	0.5990	16.1225	2555.8109	2556.4099
Total			37.87		626.77	1496.13		5111.62	6607.75
Section Losses			A	y	Ay	I _o	d	Ad ²	I _{x,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.1250	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	16.5500	in	S _{top} = 399.26 in ³	y-bar =	16.5500	in	S _{top} = 399.26 in ³
I _x =	6607.75	in ⁴	S _{bott.} = 399.26 in ³	I _x =	6607.75	in ⁴	S _{bott.} = 399.26 in ³
C _{top} =	16.5500	in	A = 37.8712 in ²	C _{top} =	16.5500	in	A = 37.8712 in ²
C _{bottom} =	16.5500	in	r _x = 13.2091 in	C _{bottom} =	16.5500	in	r _x = 13.2091 in
			Z = 459.92 in ³				Z = warning in ³

EAST APPROACH - FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/20/2012
Date 4/13/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Floorbeam Capacities

Non-composite Capacities*		
	AB	AI
M	1197.78 k-ft	1197.78 k-ft
V	380.15 k	380.15 k

*Noncompact Section

$F_y =$	36.00 ksi
---------	------------------

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

As-Built Moments and Shears						
	DL	HS20	2F1	3F1	4F1	5C1
M	41.46 k-ft	247.09 k-ft	141.47 k-ft	197.65 k-ft	207.00 k-ft	192.39 k-ft
V	6.88 k	39.01 k	22.34 k	31.21 k	32.68 k	30.38 k

As-Built Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	2.13	---	---	---	---
Operating M	3.56	6.22	4.45	4.25	4.57
As-Inspected Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	2.13	---	---	---	---
Operating M	3.56	6.22	4.45	4.25	4.57
As-Built Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	4.39	---	---	---	---
Operating V	7.32	12.78	9.15	8.74	9.4
As-Inspected Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	4.39	---	---	---	---
Operating V	7.32	12.78	9.15	8.74	9.4

Controlling Rating Factors and Tonnage						
	HS20 Inventory	HS20 Operating	2F1 Operating	3F1 Operating	4F1 Operating	5C1 Operating
Rating Factor	2.13	3.56	6.22	4.45	4.25	4.57
Tonnage (US Tons)	76.68	128.16	93.3	102.35	114.75	182.8

EAST APPROACH - FORWARD SECTION



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Checked By PJP

Date 3/20/2012
Date 4/13/2012

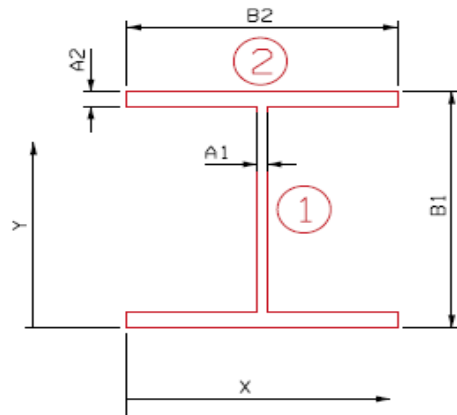
Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Red text indicates user input

Element Dimensions (without Section Losses):

$A_1 = t_w = 0.7250$ in
 $A_2 = t_f = 1.1800$ in
 $B_1 = d = 36.3200$ in
 $B_2 = b_f = 12.0720$ in
36WFB182



FB-14 @ COLUMN 414
EAST APPR. FWD SECTION

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I _o	d	Ad ²	I _{x,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		24.6210	18.1600	447.1174	2366.2455	0.0000	0.0000	2366.2455
2	Top Flange		14.2450	35.7300	508.9724	1.6529	17.5700	4397.4890	4399.1418
	Bottom Flange		14.2450	0.5900	8.4045	1.6529	17.5700	4397.4890	4399.1418
Total			53.11		964.49	2369.55		8794.98	11164.53
Section Losses			A	y	Ay	I _o	d	Ad ²	I _{x,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.1250	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar = 18.1600 in	S _{top} = 614.79 in ³			y-bar = 18.1600 in	S _{top} = 614.79 in ³		
I _x = 11164.53 in ⁴	S _{bottom} = 614.79 in ³			I _x = 11164.53 in ⁴	S _{bottom} = 614.79 in ³		
C _{top} = 18.1600 in	A = 53.1109 in ²			C _{top} = 18.1600 in	A = 53.1109 in ²		
C _{bottom} = 18.1600 in	r _x = 14.4987 in			C _{bottom} = 18.1600 in	r _x = 14.4987 in		
	Z = 709.60 in ³				Z = warning in ³		

EAST APPROACH - FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/20/2012
Date 4/13/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Floorbeam Capacities

Non-composite Capacities*		
	AB	AI
M	1690.66 k-ft	1690.66 k-ft
V	471.25 k	471.25 k

*Noncompact Section

$F_y =$	33.00 ksi
---------	------------------

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

As-Built Moments and Shears						
	DL	HS20	2F1	3F1	4F1	5C1
M	133.98 k-ft	399.11 k-ft	228.53 k-ft	319.26 k-ft	334.38 k-ft	310.76 k-ft
V	32.39 k	62.04 k	35.52 k	49.63 k	51.98 k	48.31 k

As-Built Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.75	---	---	---	---
Operating M	2.92	5.1	3.65	3.49	3.75
As-Inspected Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.75	---	---	---	---
Operating M	2.92	5.1	3.65	3.49	3.75
As-Built Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	3.19	---	---	---	---
Operating V	5.32	9.29	6.65	6.35	6.83
As-Inspected Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	3.19	---	---	---	---
Operating V	5.32	9.29	6.65	6.35	6.83

Controlling Rating Factors and Tonnage						
	HS20 Inventory	HS20 Operating	2F1 Operating	3F1 Operating	4F1 Operating	5C1 Operating
Rating Factor	1.75	2.92	5.1	3.65	3.49	3.75
Tonnage (US Tons)	63	105.12	76.5	83.95	94.23	150

EAST APPROACH - FORWARD SECTION



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Date 3/20/2012
Date 4/13/2012

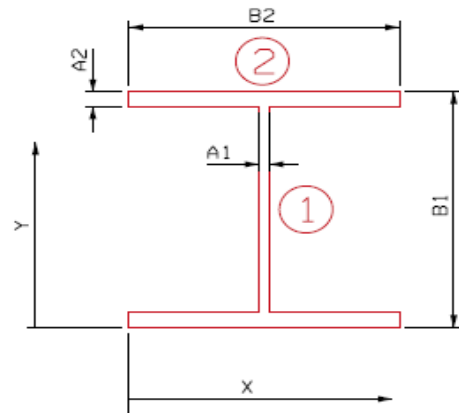
Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Red text indicates user input

Element Dimensions (without Section Losses):

$A_1 = t_w = 0.7250$ in
 $A_2 = t_f = 1.1800$ in
 $B_1 = d = 36.3200$ in
 $B_2 = b_f = 12.0720$ in
36WFB182



FB-14@ COLUMN 314
EAST APPR. FWD SECTION

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I _o	d	Ad ²	I _{x,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		24.6210	18.1600	447.1174	2366.2455	0.0000	0.0000	2366.2455
2	Top Flange		14.2450	35.7300	508.9724	1.6529	17.5700	4397.4890	4399.1418
	Bottom Flange		14.2450	0.5900	8.4045	1.6529	17.5700	4397.4890	4399.1418
Total			53.11		964.49	2369.55		8794.98	11164.53
Section Losses			A	y	Ay	I _o	d	Ad ²	I _{x,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.1250	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	18.1600	in	S _{top} = 614.79 in ³	y-bar =	18.1600	in	S _{top} = 614.79 in ³
I _x =	11164.53	in ⁴	S _{bottom} = 614.79 in ³	I _x =	11164.53	in ⁴	S _{bottom} = 614.79 in ³
C _{top} =	18.1600	in	A = 53.1109 in ²	C _{top} =	18.1600	in	A = 53.1109 in ²
C _{bottom} =	18.1600	in	r _x = 14.4987 in	C _{bottom} =	18.1600	in	r _x = 14.4987 in
			Z = 709.60 in ³				Z = warning in ³

EAST APPROACH - FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/20/2012
Date 4/13/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Floorbeam Capacities

Non-composite Capacities*		
	AB	AI
M	1690.66 k-ft	1690.66 k-ft
V	471.25 k	471.25 k

*Noncompact Section

$F_y =$	33.00 ksi
---------	------------------

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

As-Built Moments and Shears						
	DL	HS20	2F1	3F1	4F1	5C1
M	170.00 k-ft	423.80 k-ft	242.66 k-ft	339.01 k-ft	355.06 k-ft	329.98 k-ft
V	34.39 k	62.00 k	35.51 k	49.60 k	51.95 k	48.28 k

As-Built Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.60	---	---	---	---
Operating M	2.67	4.66	3.33	3.18	3.43
As-Inspected Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.60	---	---	---	---
Operating M	2.67	4.66	3.33	3.18	3.43
As-Built Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	3.17	---	---	---	---
Operating V	5.29	9.24	6.62	6.32	6.8
As-Inspected Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	3.17	---	---	---	---
Operating V	5.29	9.24	6.62	6.32	6.8

Controlling Rating Factors and Tonnage						
	HS20 Inventory	HS20 Operating	2F1 Operating	3F1 Operating	4F1 Operating	5C1 Operating
Rating Factor	1.60	2.67	4.66	3.33	3.18	3.43
Tonnage (US Tons)	57.6	96.12	69.9	76.59	85.86	137.2

EAST APPROACH - FORWARD SECTION



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Date 3/20/2012
Date 4/13/2012

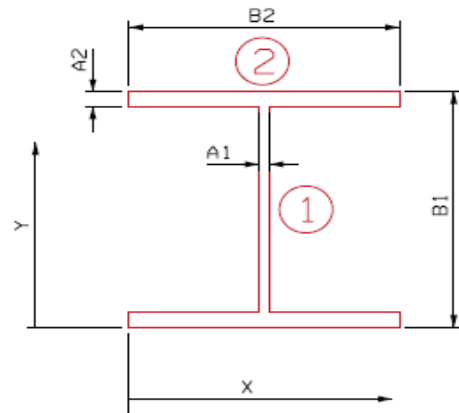
Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Red text indicates user input

Element Dimensions (without Section Losses):

$A_1 = t_w = 0.5800$ in
 $A_2 = t_f = 0.8550$ in
 $B_1 = d = 33.1000$ in
 $B_2 = b_f = 11.5000$ in
W33x130



FB-14 @ COLUMN 214
EAST APPR. FWD SECTION

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I _o	d	Ad ²	I _{x,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		18.2062	16.5500	301.3126	1494.9294	0.0000	0.0000	1494.9294
2	Top Flange		9.8325	32.6725	321.2524	0.5990	16.1225	2555.8109	2556.4099
	Bottom Flange		9.8325	0.4275	4.2034	0.5990	16.1225	2555.8109	2556.4099
Total			37.87		626.77	1496.13		5111.62	6607.75
Section Losses			A	y	Ay	I _o	d	Ad ²	I _{x,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	16.5500	in	S _{top} = 399.26 in ³	y-bar =	16.5500	in	S _{top} = 399.26 in ³
I _x =	6607.75	in ⁴	S _{bott.} = 399.26 in ³	I _x =	6607.75	in ⁴	S _{bott.} = 399.26 in ³
C _{top} =	16.5500	in	A = 37.8712 in ²	C _{top} =	16.5500	in	A = 37.8712 in ²
C _{bottom} =	16.5500	in	r _x = 13.2091 in	C _{bottom} =	16.5500	in	r _x = 13.2091 in
			Z = 459.92 in ³				Z = 459.92 in ³

EAST APPROACH - FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/20/2012
Date 4/13/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Floorbeam Capacities

Non-composite Capacities*		
	AB	AI
M	1197.78 k-ft	1197.78 k-ft
V	380.15 k	380.15 k

$F_y =$ **36.00 ksi**

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

*Noncompact Section

As-Built Moments and Shears						
	DL	HS20	2F1	3F1	4F1	5C1
M	49.91 k-ft	294.27 k-ft	168.48 k-ft	235.39 k-ft	246.54 k-ft	229.12 k-ft
V	14.31 k	67.38 k	38.58 k	53.90 k	56.45 k	52.46 k

As-Built Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.77	---	---	---	---
Operating M	2.96	5.17	3.7	3.53	3.8
As-Inspected Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.77	---	---	---	---
Operating M	2.96	5.17	3.7	3.53	3.8
As-Built Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	2.47	---	---	---	---
Operating V	4.13	7.21	5.16	4.93	5.3
As-Inspected Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	2.47	---	---	---	---
Operating V	4.13	7.21	5.16	4.93	5.3

Controlling Rating Factors and Tonnage						
	HS20 Inventory	HS20 Operating	2F1 Operating	3F1 Operating	4F1 Operating	5C1 Operating
Rating Factor	1.77	2.96	5.17	3.7	3.53	3.8
Tonnage (US Tons)	63.72	106.56	77.55	85.1	95.31	152

EAST APPROACH - FORWARD SECTION



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Checked By PJP

Date 3/20/2012
Date 4/13/2012

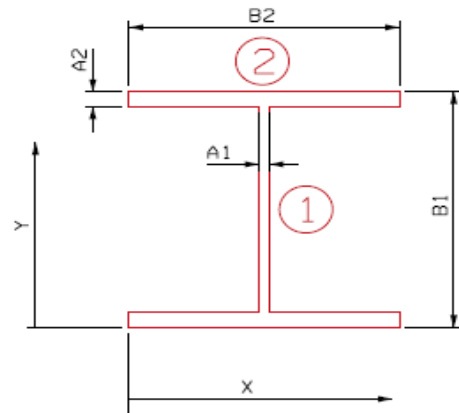
Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Red text indicates user input

Element Dimensions (without Section Losses):

$A_1 = t_w = 0.5800$ in
 $A_2 = t_f = 0.8550$ in
 $B_1 = d = 33.1000$ in
 $B_2 = b_f = 11.5000$ in
W33x130



FB-14 @ COLUMN 114
EAST APPR. FWD SECTION

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I _o	d	Ad ²	I _{x,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		18.2062	16.5500	301.3126	1494.9294	0.0000	0.0000	1494.9294
2	Top Flange		9.8325	32.6725	321.2524	0.5990	16.1225	2555.8109	2556.4099
	Bottom Flange		9.8325	0.4275	4.2034	0.5990	16.1225	2555.8109	2556.4099
Total			37.87		626.77	1496.13		5111.62	6607.75
Section Losses			A	y	Ay	I _o	d	Ad ²	I _{x,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.1250	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	16.5500	in	S _{top} = 399.26 in ³	y-bar =	16.5500	in	S _{top} = 399.26 in ³
I _x =	6607.75	in ⁴	S _{bott.} = 399.26 in ³	I _x =	6607.75	in ⁴	S _{bott.} = 399.26 in ³
C _{top} =	16.5500	in	A = 37.8712 in ²	C _{top} =	16.5500	in	A = 37.8712 in ²
C _{bottom} =	16.5500	in	r _x = 13.2091 in	C _{bottom} =	16.5500	in	r _x = 13.2091 in
			Z = 459.92 in ³				Z = warning in ³

EAST APPROACH - FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/20/2012
Date 4/13/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Floorbeam Capacities

Non-composite Capacities*		
	AB	AI
M	1197.78 k-ft	1197.78 k-ft
V	380.15 k	380.15 k

*Noncompact Section

$F_y =$	36.00 ksi
---------	------------------

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

As-Built Moments and Shears						
	DL	HS20	2F1	3F1	4F1	5C1
M	161.20 k-ft	333.51 k-ft	190.96 k-ft	266.78 k-ft	279.41 k-ft	259.68 k-ft
V	21.76 k	70.60 k	40.42 k	56.47 k	59.15 k	54.97 k

As-Built Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.37	---	---	---	---
Operating M	2.28	3.98	2.85	2.72	2.93
As-Inspected Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.37	---	---	---	---
Operating M	2.28	3.98	2.85	2.72	2.93
As-Built Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	2.3	---	---	---	---
Operating V	3.83	6.7	4.79	4.58	4.92
As-Inspected Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	2.3	---	---	---	---
Operating V	3.83	6.7	4.79	4.58	4.92

Controlling Rating Factors and Tonnage						
	HS20 Inventory	HS20 Operating	2F1 Operating	3F1 Operating	4F1 Operating	5C1 Operating
Rating Factor	1.37	2.28	3.98	2.85	2.72	2.93
Tonnage (US Tons)	49.32	82.08	59.7	65.55	73.44	117.2

EAST APPROACH - FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/20/2012
Date 4/13/2012

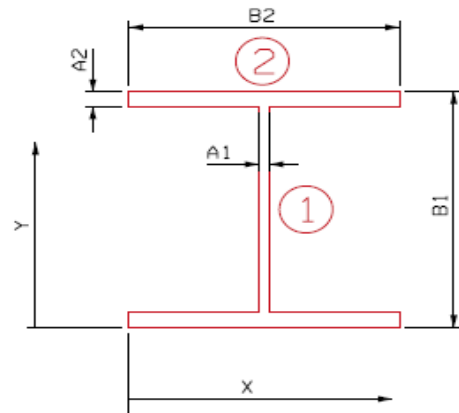
Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Red text indicates user input

Element Dimensions (without Section Losses):

$A_1 = t_w = 0.5800$ in
 $A_2 = t_f = 0.8550$ in
 $B_1 = d = 33.1000$ in
 $B_2 = b_f = 11.5000$ in
W33x130



**FB-14 @ Between 514 & 614
EAST APPR. FWD SECTION**

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I _o	d	Ad ²	I _{x,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		18.2062	16.5500	301.3126	1494.9294	0.0000	0.0000	1494.9294
2	Top Flange		9.8325	32.6725	321.2524	0.5990	16.1225	2555.8109	2556.4099
	Bottom Flange		9.8325	0.4275	4.2034	0.5990	16.1225	2555.8109	2556.4099
Total			37.87		626.77	1496.13		5111.62	6607.75
Section Losses			A	y	Ay	I _o	d	Ad ²	I _{x,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	16.5500	in	S _{top} = 399.26 in ³	y-bar =	16.5500	in	S _{top} = 399.26 in ³
I _x =	6607.75	in ⁴	S _{bott.} = 399.26 in ³	I _x =	6607.75	in ⁴	S _{bott.} = 399.26 in ³
C _{top} =	16.5500	in	A = 37.8712 in ²	C _{top} =	16.5500	in	A = 37.8712 in ²
C _{bottom} =	16.5500	in	r _x = 13.2091 in	C _{bottom} =	16.5500	in	r _x = 13.2091 in
			Z = 459.92 in ³				Z = 459.92 in ³

EAST APPROACH - FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/20/2012
Date 4/13/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Floorbeam Capacities

Non-composite Capacities*		
	AB	AI
M	1379.76 k-ft	1197.78 k-ft
V	380.15 k	380.15 k

$F_y = 36.00 \text{ ksi}$

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

*Compact Section

As-Built Moments and Shears						
	DL	HS20	2F1	3F1	4F1	5C1
M	47.48 k-ft	294.28 k-ft	168.46 k-ft	235.37 k-ft	246.52 k-ft	229.11 k-ft
V	11.52 k	26.70 k	15.29 k	21.36 k	22.37 k	20.79 k

As-Built Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	2.06	---	---	---	---
Operating M	3.45	6.02	4.31	4.11	4.43
As-Inspected Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.78	---	---	---	---
Operating M	2.97	5.19	3.71	3.54	3.81
As-Built Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	6.3	---	---	---	---
Operating V	10.52	18.37	13.15	12.56	13.51
As-Inspected Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	6.3	---	---	---	---
Operating V	10.52	18.37	13.15	12.56	13.51

Controlling Rating Factors and Tonnage						
	HS20 Inventory	HS20 Operating	2F1 Operating	3F1 Operating	4F1 Operating	5C1 Operating
Rating Factor	1.78	2.97	5.19	3.71	3.54	3.81
Tonnage (US Tons)	64.08	106.92	77.85	85.33	95.58	152.4

EAST APPROACH - FORWARD SECTION



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Checked By PJP

Date 3/20/2012
Date 4/13/2012

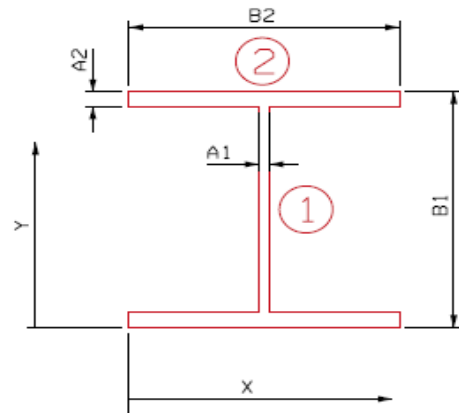
Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Red text indicates user input

Element Dimensions (without Section Losses):

$A_1 = t_w = 0.7250$ in
 $A_2 = t_f = 1.1800$ in
 $B_1 = d = 36.3200$ in
 $B_2 = b_f = 12.0720$ in
36WFB182



FB-14 @ Between 314 & 414
EAST APPR. FWD SECTION

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I _o	d	Ad ²	I _{x,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		24.6210	18.1600	447.1174	2366.2455	0.0000	0.0000	2366.2455
2	Top Flange		14.2450	35.7300	508.9724	1.6529	17.5700	4397.4890	4399.1418
	Bottom Flange		14.2450	0.5900	8.4045	1.6529	17.5700	4397.4890	4399.1418
Total			53.11		964.49	2369.55		8794.98	11164.53
Section Losses			A	y	Ay	I _o	d	Ad ²	I _{x,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	6.0000	0.1625	-0.9750	0.0813	-0.0792	-0.0021	15.3778	-230.5638	-230.5660
2	0.3750	8.0000	-3.0000	29.0000	-87.0000	-16.0000	13.5410	-550.0747	-566.0747
3	0.3125	10.0000	-3.1250	28.0000	-87.5000	-26.0417	12.5410	-491.4883	-517.5300
4	0.3300	2.0000	-0.6600	32.0000	-21.1200	-0.2200	16.5410	-180.5787	-180.7987
5	0.5800	2.0000	-1.1600	32.0000	-37.1200	-0.3867	16.5410	-317.3808	-317.7674
6	0.3300	2.0000	-0.6600	32.0000	-21.1200	-0.2200	16.5410	-180.5787	-180.7987
7	0.5175	1.0000	-0.5175	32.5000	-16.8188	-0.0431	17.0410	-150.2795	-150.3226
8	0.3300	6.0000	-1.9800	30.0000	-59.4000	-5.9400	14.5410	-418.6516	-424.5916
Total			-12.08		-330.16	-48.85		-2519.60	-2568.45

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	18.1600	in	S _{top} = 614.79 in ³	y-bar =	15.4590	in	S _{top} = 412.06 in ³
I _x =	11164.53	in ⁴	S _{bottom} = 614.79 in ³	I _x =	8596.08	in ⁴	S _{bottom} = 556.06 in ³
C _{top} =	18.1600	in	A = 53.1109 in ²	C _{top} =	20.8610	in	A = 41.0334 in ²
C _{bottom} =	18.1600	in	r _x = 14.4987 in	C _{bottom} =	15.4590	in	r _x = 14.4738 in
			Z = 709.60 in ³				Z = warning in ³

EAST APPROACH - FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/20/2012
Date 4/13/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Floorbeam Capacities

Non-composite Capacities*		
	AB	AI
M	1951.40 k-ft	1133.18 k-ft
V	471.25 k	258.74 k

*Compact Section

$F_y =$	33.00 ksi
---------	------------------

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

As-Built Moments and Shears						
	DL	HS20	2F1	3F1	4F1	5C1
M	140.45 k-ft	526.44 k-ft	301.38 k-ft	421.08 k-ft	441.03 k-ft	409.87 k-ft
V	0.12 k	1.24 k	0.71 k	1.00 k	1.04 k	0.97 k

As-Built Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.55	---	---	---	---
Operating M	2.58	4.51	3.23	3.09	3.32
As-Inspected Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	0.83	---	---	---	---
Operating M	1.39	2.43	1.74	1.66	1.78
As-Built Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	175.08	---	---	---	---
Operating V	292.24	510.39	362.38	348.44	373.59
As-Inspected Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	96.1	---	---	---	---
Operating V	160.41	280.16	198.91	191.26	205.06

Controlling Rating Factors and Tonnage						
	HS20 Inventory	HS20 Operating	2F1 Operating	3F1 Operating	4F1 Operating	5C1 Operating
Rating Factor	0.83	1.39	2.43	1.74	1.66	1.78
Tonnage (US Tons)	29.88	50.04	36.45	40.02	44.82	71.2

EAST APPROACH - FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/20/2012
Date 4/13/2012

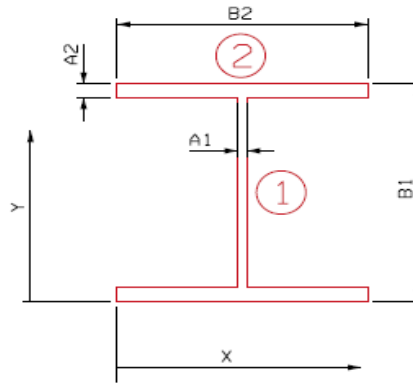
Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Red text indicates user input

Element Dimensions (without Section Losses):

$A_1 = t_w = 0.5800$ in
 $A_2 = t_f = 0.8550$ in
 $B_1 = d = 33.1000$ in
 $B_2 = b_f = 11.5000$ in
W33x130



**FB-14 @ Between 114 & 214
EAST APPR. FWD SECTION**

X-Axis Section Properties:

Gross Section (without Losses)			A	y	Ay	I _o	d	Ad ²	I _{x,gross}
Element	Description		(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	Web plate		18.2062	16.5500	301.3126	1494.9294	0.0000	0.0000	1494.9294
2	Top Flange		9.8325	32.6725	321.2524	0.5990	16.1225	2555.8109	2556.4099
	Bottom Flange		9.8325	0.4275	4.2034	0.5990	16.1225	2555.8109	2556.4099
Total			37.87		626.77	1496.13		5111.62	6607.75
Section Losses			A	y	Ay	I _o	d	Ad ²	I _{x,loss}
Loss #	b (in)	h (in)	(in ²)	(in)	(in ³)	(in ⁴)	(in)	(in ⁴)	(in ⁴)
1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total			0.00		0.00	0.00		0.00	0.00

As-Built Section Properties				As-Inspected Section Properties			
y-bar =	16.5500	in	S _{top} = 399.26 in ³	y-bar =	16.5500	in	S _{top} = 399.26 in ³
I _x =	6607.75	in ⁴	S _{bott.} = 399.26 in ³	I _x =	6607.75	in ⁴	S _{bott.} = 399.26 in ³
C _{top} =	16.5500	in	A = 37.8712 in ²	C _{top} =	16.5500	in	A = 37.8712 in ²
C _{bottom} =	16.5500	in	r _x = 13.2091 in	C _{bottom} =	16.5500	in	r _x = 13.2091 in
			Z = 459.92 in ⁵				Z = 459.92 in ⁵

EAST APPROACH - FORWARD SECTION



Made By FKL
Checked By PJP

Date 3/20/2012
Date 4/13/2012

Job No. P402110046
Sheet No. _____

Calculations For: **CUY-2-1441**

Floorbeam Capacities

Non-composite Capacities*		
	AB	AI
M	1379.76 k-ft	1379.76 k-ft
V	380.15 k	380.15 k

*Compact Section

$F_y =$	36.00 ksi
---------	------------------

AB = As-Built
AI = As-Inspected
M = Moment
V = Shear

As-Built Moments and Shears						
	DL	HS20	2F1	3F1	4F1	5C1
M	41.82 k-ft	342.43 k-ft	196.02 k-ft	273.88 k-ft	286.86 k-ft	266.59 k-ft
V	1.36 k	5.11 k	2.93 k	4.10 k	4.28 k	3.98 k

As-Built Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.78	---	---	---	---
Operating M	2.98	5.2	3.72	3.55	3.82
As-Inspected Moment Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory M	1.78	---	---	---	---
Operating M	2.98	5.2	3.72	3.55	3.82
As-Built Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	34.12	---	---	---	---
Operating V	56.96	99.34	70.99	68.01	73.13
As-Inspected Shear Rating Factors					
	HS20	2F1	3F1	4F1	5C1
Inventory V	34.12	---	---	---	---
Operating V	56.96	99.34	70.99	68.01	73.13

Controlling Rating Factors and Tonnage						
	HS20	HS20	2F1	3F1	4F1	5C1
	Inventory	Operating	Operating	Operating	Operating	Operating
Rating Factor	1.78	2.98	5.2	3.72	3.55	3.82
Tonnage (US Tons)	64.08	107.28	78	85.56	95.85	152.8