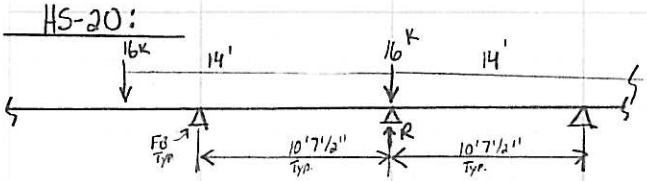
Interior Floorbeams

- Floorbeams @ 10'7½" c/c brgs.
- No Stringers

Live Load Positions → Maximize R

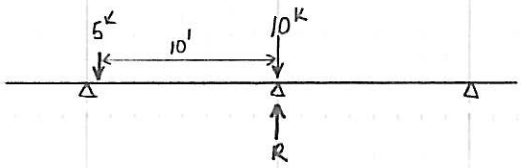
Interior Floorbeams – TRUSS Units E, F, G (Spans 5-7, 7-10, 10-12)

HS-20:



$R_{HS20} = 16^K$

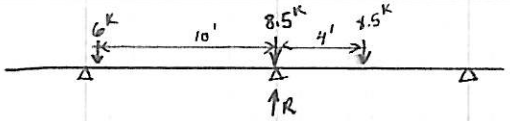
2F1:



$R_{2F1} = 10^K + 5^K\left(\frac{10.625' - 10'}{10.625'}\right)$

$R_{2F1} = 10.29^K$

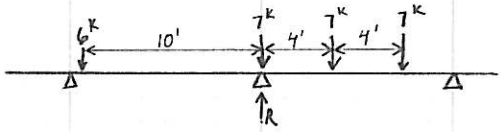
3F1:



$R_{3F1} = 8.5^K + 6^K\left(\frac{10.625'-10'}{10.625'}\right) + 8.5^K\left(\frac{10.625'-4'}{10.625'}\right)$

$R_{3F1} = 14.15^K$

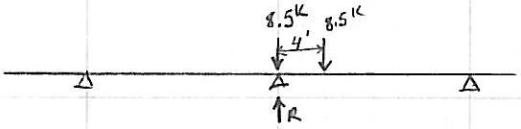
4F1:



$R_{4F1} = 7^K + \frac{6^K(10.625'-10') + 7^K(10.625'-4') + 7^K(10.625'-8')}{10.625'}$

$R_{4F1} = 13.45^K$

5C1:



$R_{5C1} = 8.5^K + 8.5^K\left(\frac{10.625'-4'}{10.625'}\right)$

$R_{5C1} = 13.8^K$

F.H.V.A. REGION	STATE	PROJECT	
5	OH10		

HAM 471-00.25

138/182

215'-0" Out/Out Measured Along Fascia

284-SE527 (283 Spa. @ 9"± = 211'-9")

4-SE551@8"

3-SE605@6" Top&Bot (See Sec.)

6-SE603@16" Bot (Lap SE501)

6-SE514@16" Bot (Lap SE504)

6-SE515@16" Top (Lap SE508)

6-SE516@16" Top (Lap SE512)

6-SE604@16" Bot (Lap SE502)

6-SE517@16" Bot (Lap SE505)

6-SE518@16" Top (Lap SE127)

6-SE510@16" Top (Lap SE509)

1-SE522@Bot

1-SE520@Bot

13-SE401@16" Top
13-SE524@16" Bot

1-SE521@Top&Bot

1-SE523@Top&Bot

1-SE607 Top&Bot

147-SE402@16" Top
147-SE525@16" Bot

1-SE608 Top&Bot

12-SE403@16" Top
12-SE526@16" Bot

17-SE404@16" Top
17-SE542@16" Bot

1-SE540@Top&Bot

1-SE541@Top&Bot

1-SE609@Bot

143-SE405@16" Top
143-SE543@16" Bot

16-SE406@16" Top
16-SE544@16" Bot

8-SE611 (See Sec.)

8-SE612 (See Sec.)

161-SE545@16"
161-SE407@16" Top

1-SE548@Bot

161-SE546@16" Top, 161-SE547@16" Bot

1-SE549@Bot

6-SE613 (See Sec.)

7-SE408@16" Top&Bot

6-SE614 (See Sec.)

7-SE409@16" Top&Bot

10-SE410 @Eq. Spa.

284-SE550 (283 SP @ 9"± = 212'-6¼")

4-SE552@8"

215'-9¼" Out/Out Measured Along Fascia

214'-10⅛" Out/Out Measured Along Face Of Curb

214'-10⅛" Out/Out Measured Along Constr. Joint

EI

Face/Parapet

℄ Pier No.7

℄ Pier No.6

℄ Pier No.5

℄ Constr. Jt.

Centerline Of Construction

Face/Sidewalk Curb

Measured Along Face Of Deck Slab

66'-4¼"

65'-2¾"

26'-6¾"

35'-8"

6'-9¾"

16'-3¼"

6'-9¾"

40'-11½"

3'-5½"

9'-1¾"

29'-4"
Stage I Construction

5'-2½"

41'-2"

11'-5¾"

10'-4½"

LAP LENGTH TABLE	
BAR SIZE	LAP LENGTH
No. 4	2'-3"
No. 5	3'-3"
No. 6	3'-11"

NOTES

1. - Work This Sheet With General Plan Sh. 4 /108 .
2. - See REINFORCING STEEL BAR LIST, Sh. 92 /108 .
3. - See MISCELLANEOUS DETAILS, Sh. 12 /108 .
4. - See GENERAL NOTES, Sh. 7 /108 Thru 11 /108 .
5. - Work This Sheet With DECORATIVE RAILING Sh. 76 /108 & 77 /108 .

PLAN

70'-6" Out/Out Of Deck Slab

29'-4"
Stage I Construction

28'-2"

13'-0"

Constr. Jt.

5'-2½"

Centerline Of Construction

Profile Grade

SE607 Or SE608

SE511, SE512 Or SE513

SE507, SE508, SE509 Or SE510

SE537, SE538 Or SE539

SE533, SE534, SE535 Or SE536

SE404, SE405 Or SE406

SE542, SE543 Or SE544

SE408 Or SE409

SE550 Or SE552 *

SE407 Or SE546

SE527 Or SE551 *

SE401, SE402 Or SE403

SE524, SE525 Or SE526

SE605 Or SE606

SE601, SE501, SE502 Or SE602

SE503, SE504, SE505 Or SE506

SE609, SE528, SE529 Or SE610

SE530, SE531 Or SE532

SE547

SE410

SE545

SE613 Or SE614

SE611 Or SE612

9'-0½"±

30'-2"

10'-5½"±

Proposed Inspection Catwalk Sh 100/108

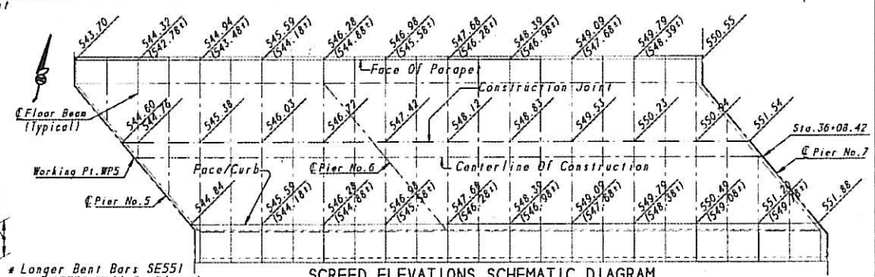
LEGEND

Existing Structure

New Work

SECTION EI-EI

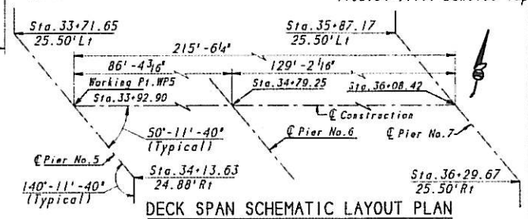
* Longer Bent Bars SE551 and SE552 Will Be Placed Typically Under All 8' Or 12' High Pylons.



SCREED ELEVATIONS SCHEMATIC DIAGRAM

(Top Of Slab At Gutters, At Construction Joint, And Above Floor Beams As Shown, Before Concrete Is Placed).

LEGEND
123.34.....Denotes Top Of Slab Elevation
(123.34±).... Denotes Top Of Steel Existing Elevation



DECK SPAN SCHEMATIC LAYOUT PLAN

Pflum, Klausmeier & Gehrum Consultants — CINCINNATI — OHIO

64 /108

SPAN 5-6-7
DECK SLAB UNIT E

BRIDGE No.HAM-471-0025
(COLUMBIA PARKWAY VIADUCT OVER I-471)

HAMILTON COUNTY

Sta.30+55.40
Sta.47+16.19

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
ED	ED		WDD	IEH	April 96	

File: SPANP Style: B

F.H.W.A. REGION	STATE	PROJECT	
5	OHIO		

HAM471-00.25

139/182

F1

469'-8¼" Out/Out Measured Along Fascia

3" 4-SF551@8" 9" 195-SF527 (194 Spa. @ 9"=145'-4½") 9" 4-SF551@9" 9" 221-SF527 (220 Spa. @ 9"=165'-5")

1-SF605@6"Top&Bot (See Sec.)
6-SF602@16"Bot (Lap SF501)
6-SF514@16"Bot (Lap SF504)
6-SF515@16"Top (Lap SF508)
6-SF516@16"Top (Lap SF512)
3-SF605@6"Top&Bot

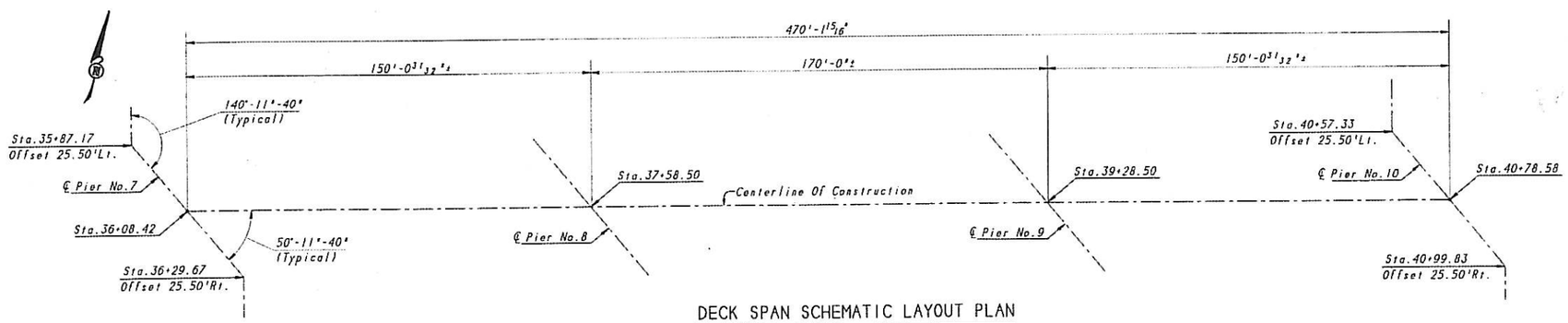
Face Of Parapet

1-SF520@Bot
13-SF401@16"Top
13-SF524@16"Bot
1-SF521@Bot
1-SF521@Top&Bot
26'-6½"
66'-0¾" Measured Along Face/Deck Slab
6'-9¾"
1-SF540@Top&Bot
1-SF540@Bot
39'-10¼"
℄ Pier No.7
3'-2¼"
10'-6¾"
1-SF548@Bot
41'-2"
70'-6" Out To Out Of Deck Slab
29'-4" (Staged Construction)
8'-11¼"
5'-2½"
15-SF601@16"Bot
15-SF507@16"Top
14-SF503@16"Bot
14-SF511@16"Top
1-SF607 Top&Bot
17-SF404@16"Top
17-SF542@16"Bot
21-SF609@16"Bot
21-SF501@16"Bot
21-SF504@16"Bot
21-SF508@16"Top
20-SF512@16"Top
21-SF508@16"Top
20-SF504@16"Bot
21-SF501@16"Bot
20-SF512@16"Top
338-SF402@16"Top
338-SF525@16"Bot
1-SF607 Top&Bot
21-SF508@16"Top
20-SF504@16"Bot
21-SF501@16"Bot
20-SF512@16"Top
1-SF607 Top&Bot
21-SF508@16"Top
20-SF504@16"Bot
21-SF501@16"Bot
20-SF512@16"Top
1-SF607 Top&Bot
Constr. Joint
Centerline Of Construction
℄ Pier No.8
21-SF508@16"Top
20-SF504@16"Bot
21-SF501@16"Bot
20-SF512@16"Top
1-SF607 Top&Bot
21-SF508@16"Top
20-SF504@16"Bot
21-SF501@16"Bot
20-SF512@16"Top
1-SF607 Top&Bot
MATCH LINE Sh. 66/108
Extended 1-SF607 Top&Bot
21-SF531@16"Top
20-SF530@16"Bot
21-SF528@16"Bot
21-SF534@16"Top
20-SF537@16"Top
20-SF531@16"Bot
20-SF530@16"Top
21-SF528@16"Bot
21-SF534@16"Top
20-SF531@16"Bot
20-SF530@16"Top
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21-SF528@16"Bot
21-SF534@16"Top
20-SF531@16"Bot
20-SF530@16"Top
21-SF528@16"Bot
21-SF534@16"Top
Extended
334-SF405@16"Top
334-SF543@16"Bot
8-SF611 (See Sec.)
Face/Curb
351-SF545@16"
351-SF407@16"Top
351-SF546@16"Top•351-SF547@16"Bot
Extended
Extended
Extended
6-SF613 (See Sec.)
7-SF408@16"Top&Bot
10-SF410 @Eq.Spa.
9"(TYP.)
3" 4-SF552@8" 9" 195-SF550 (194 Spa. @ 9"=145'-4½") 9" 4-SF552@9" 9" 221-SF552 (220 Spa. @ 9"=165'-5")
469'-8¼" Out/Out Measured Along Fascia
469'-6 7/16" Out To Out Measured Along Face Of Curb
469'-6 7/16" Out To Out Measured Along Construction Joint

PLAN (PART 1/2)

F1

LAP LENGTH TABLE	
BAR SIZE	LAP LENGTH
No. 4	2'-3"
No. 5	3'-3"
No. 6	3'-11"



DECK SPAN SCHEMATIC LAYOUT PLAN

NOTES

1. - Work This Sheet With General Plan Sh. 4/108 & Sh. 5/108.
2. - Work This Sheet With Sh. 67/108
3. - See REINFORCING STEEL BAR LIST, Sh. 93/108.
4. - See MISCELLANEOUS DETAILS, Sh. 12/108.
5. - See GENERAL NOTES, Sh. 7/108 Thru 11/108.
6. - Work This Sheet With DECORATIVE RAILING, Sh. 76/108 and Sh. 78/108
7. - For Section F1-F1 see similar section E1-E1 on Sh. 64/108 DECK SLAB SPAN 5-6-7

Pflum, Klausmeier & Gehrum Consultants — CINCINNATI OHIO — 65/108

SPAN 7-8-9-10
DECK SLAB UNIT F
1/2

BRIDGE No.HAM-471-0025
(COLUMBIA PARKWAY VIADUCT OVER I-471)

HAMILTON COUNTY — Sta.30+55.40 Sta.47+16.19

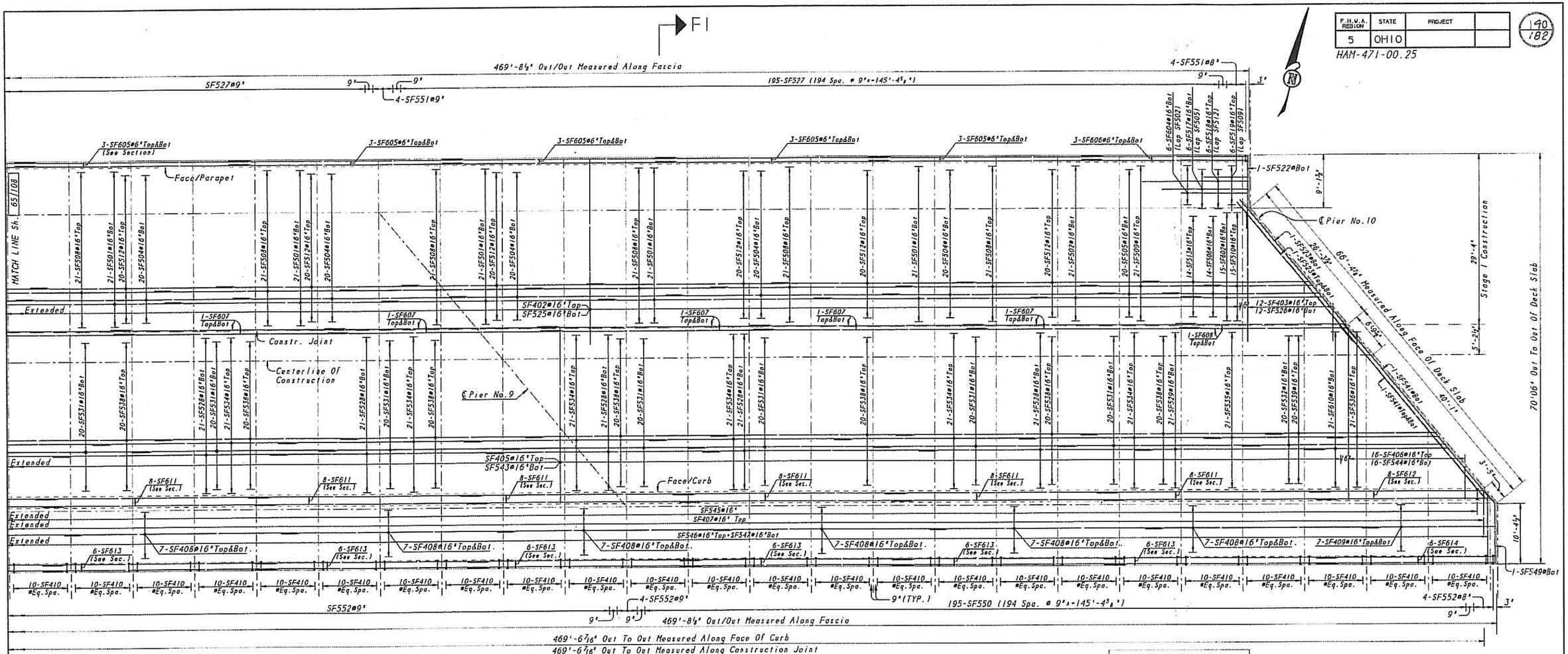
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ED	ED		WDD	IEH	April 96	

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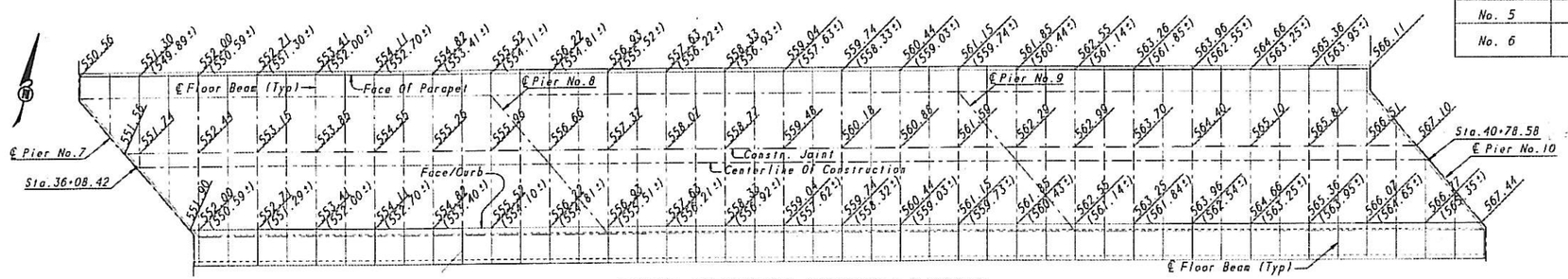
F.H.W.A. REGION	STATE	PROJECT	
5	OH10		

HAM-471-00.25

40 / 182



F1



SCREED ELEVATIONS SCHEMATIC DIAGRAM

(Top Of Slab At Gutters, At Construction Joint, And Above Floor Beams As Shown, Before Concrete Is Placed.)

LEGEND
123.45.....Denotes Top Of Slab Elevation.
(123.45')....Denotes Top Of Existing Steel Elevation.

LAP LENGTH TABLE	
BAR SIZE	LAP LENGTH
No. 4	2'-3"
No. 5	3'-3"
No. 6	3'-11"

NOTES

1. - Work This Sheet With General Plan Sh. 4 /108 & 5 /108.
2. - Work This Sheet With Sh. 65 /108.
3. - See REINFORCING STEEL BAR LIST, Sh. 93 /108.
4. - See MISCELLANEOUS DETAILS, Sh. 12 /108.
5. - See GENERAL NOTES, Sh. 7 /108 Thru 11 /108.
6. - Work This Sheet With DECORATIVE RAILING Sh. 76 /108 & 78 /108.
7. - For Section F1-F1 see similar section E1-E1 on Sh. 64 /108 DECK SLAB SPAN 5-6-7

Pflum, Klausmeier & Gehrum Consultants — CINCINNATI — 66 /108

SPAN 7-8-9-10
DECK SLAB UNIT F
2/2

BRIDGE No.HAM-471-0025
(COLUMBIA PARKWAY VIADUCT OVER I-471)

HAMILTON COUNTY — Sta.30+55.40 Sta.47+16.19

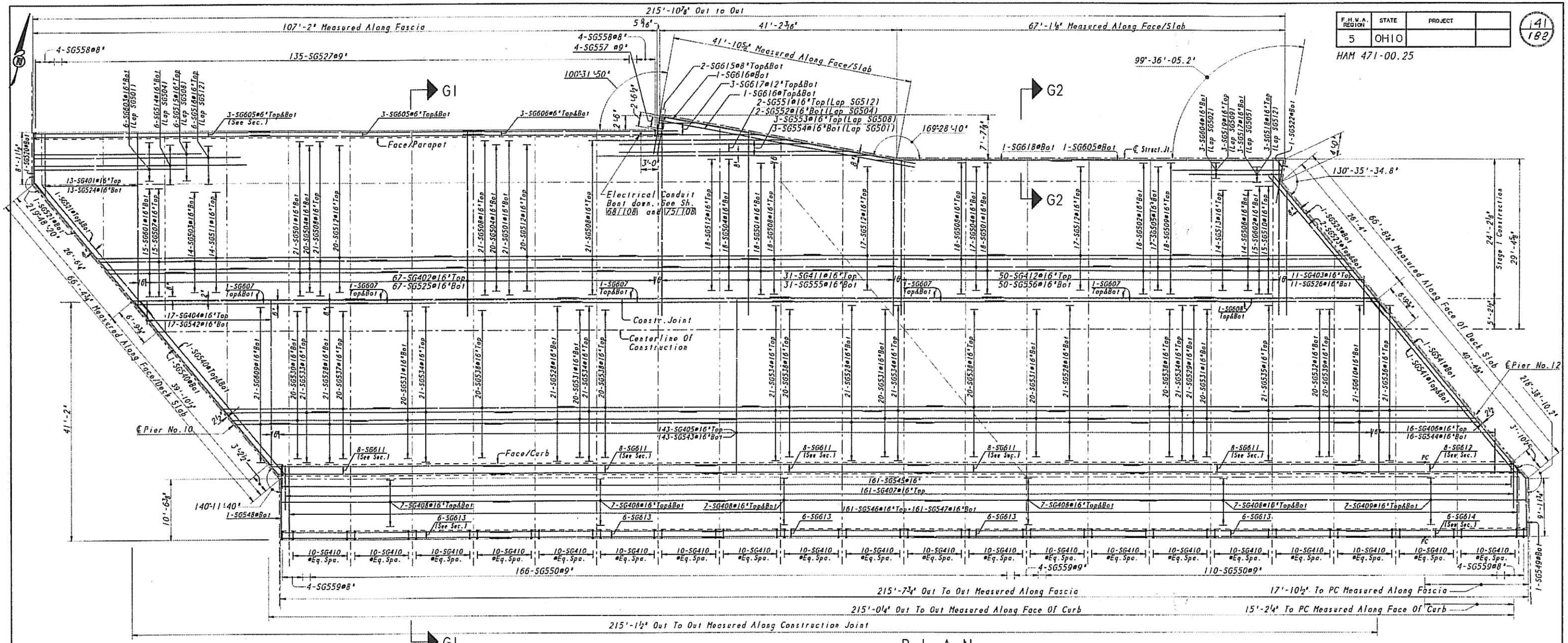
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ED	ED		WDD	JEH April 96	

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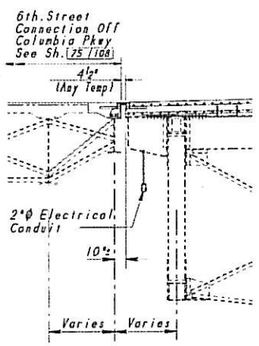
F.H.W.A. REGION	STATE	PROJECT	
5	OH10		

HAM 471-00.25

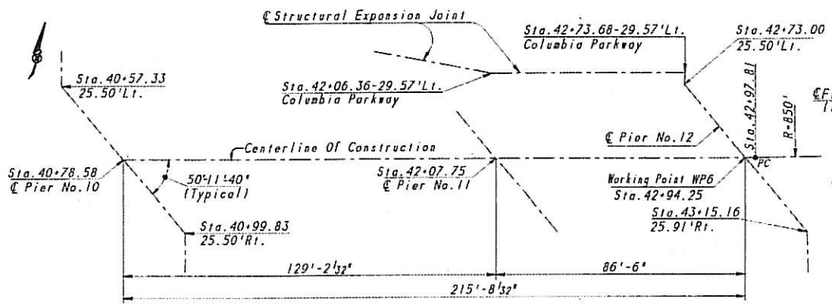
141 / 182



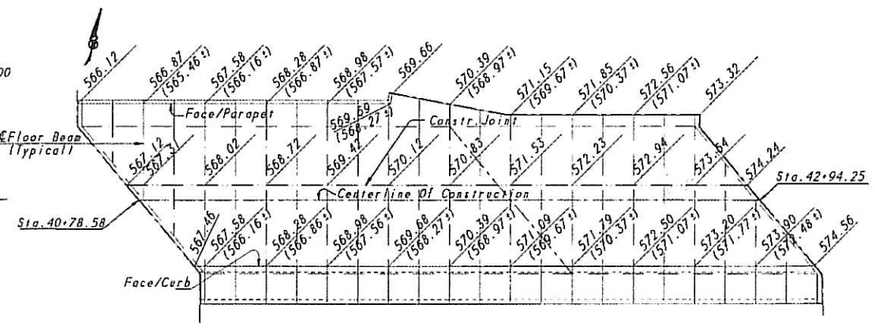
PLAN



SECTION G2-G2



DECK SPAN SCHEMATIC LAYOUT PLAN



SCREED ELEVATIONS SCHEMATIC DIAGRAM

(Top Of Slab At Gutters, At Construction Joint, And Above Floor Beams As Shown, Before Concrete Is Placed.)

LEGEND
123.45.....Denotes Top Of Slab Elevation.
(123.45±).....Denotes Top Of Existing Steel Elevation

LEGEND

Existing Structure

New Work

NOTES

1. - Work This Sheet With General Plan Sh. 5/108.
2. - See REINFORCING STEEL BAR LIST, Sh. 94/108.
3. - See MISCELLANEOUS DETAILS, Sh. 12/108.
4. - See GENERAL NOTES, Sh. 7/108 Thru 11/108.
5. - Work This Sheet With DECORATIVE RAILING Sh. 76/108 & 79/108.
6. - For Section G1-G1 See Similar Section E1-E1 On Sh. 64/108 DECK SLAB SPAN 5-6-7

Plum, Klauamoier & Gehrum Consultants — CINCINNATI — OHIO — 67/108

SPAN 10-11-12
DECK SLAB UNIT G

BRIDGE No.HAM-471-0025
(COLUMBIA PARKWAY VIADUCT OVER I-471)

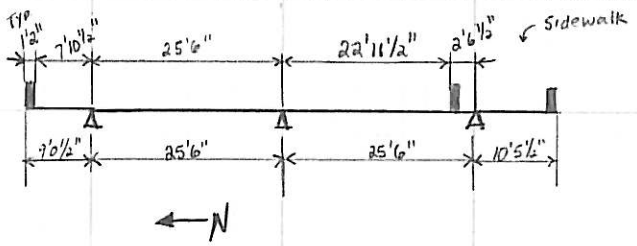
HAMILTON COUNTY

Sta.30+55.40
Sta.47+16.19

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
ED	ED		WDD	IEH	April 96	

File SP10112 Scale 8

Wheel Line Window - Interior Floorbeams - Truss (Spans 5-6-7, 7-8-9-10, 10-11-12) (Unit E, Unit F, Unit G)



Rehab Plans 1995 Sheet 64/108

Floorbeams actually 24'0 3/4" max. length

Max # of wheels for 6' axle spacing, 4' truck spacing, wheel line 2' From Parapet Minimum

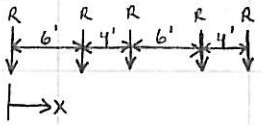
North FB ⇒ 5 wheels Max's Moment, 6 Wheels Max's Shear

South FB: 22.9583' − $\frac{(25.5' - 24.0417')}{2}$ − 2' = 20.23'

⇒ 5 wheels

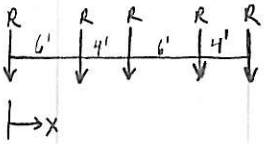
Maximum Moment Load Location

North FB



$\bar{X} = \frac{R(6' + 10' + 16' + 20')}{5R} = 10.4'$ → Place middle R .2' left of center of FB

South FB



$\bar{X} = 10.4'$

Will it fit to put $\bar{X}$ @ center?

24.0625'/2 − 2'6½" − 2' = 7.41' ⇒ NO!

∴ Place as close to barrier as possible (2' from face)

Calculations for 1/8 US Grid

SECTION C-C

SECTION D-D

SECTION G-G

SECTION H-H

BEAMS B9 & B10

BEAMS B11 & B12

END FBS @ P7 (SPAN 5-7)

END FBS @ P10 (SPAN 10-12)

VIEW J-J FOR B22-26

VIEW J-J FOR B21&B25

VIEW J-J FOR B23-27

BEAMS B21 TO B28

INTERIOR FB's

INTERIOR FB's

MARK	A	B	C	D
B13	24'-0 5/16	23'-7 7/16		24'-0 5/16
B14	24'-0 1/2	23'-7 1/2	21'-6	24'-0 1/2
B15	24'-0 7/16	23'-7 11/16		24'-0 7/16
B16	24'-0 7/16	23'-7 11/16	21'-6 3/16	24'-0 7/16
B17	24'-0 5/8	23'-7 7/8		24'-0 5/8
B18	24'-0 5/8	23'-7 7/8	21'-6 3/8	24'-0 5/8
B19	24'-0 3/4	23'-8	21'-6 1/2	24'-0 3/4
B20	24'-0 3/4	23'-8		24'-0 3/4

GENERAL NOTES:-
RIVETS:- 7/8"ø
OPEN HOLES:- 15/16"ø
MATERIAL:- Carbon steel A.S.T.M. A7-24 with .20% copper content; except were noted.
REAMING:- All holes may be punched full size except:-
(a) All holes marked R are to be subpunched 5/16" small and reamed to size in a metal template.
(b) Field connections of trusses shall be subpunched and reamed after truss is assembled.
(c) Holes in main material over 5/8" thick shall be subpunched 1/8" small and reamed to size.
(d) Holes in main material over 3/4" thick may be drilled from the solid.
CHEARED EDGES of main material over 5/8" thick shall be planed to a depth of 1/4" where noted on details.
PLANE CUT EDGES of main material shall be planed chipped or ground and present a smooth workmanlike appearance.
PAINT:- One coat of red lead paint where noted. Shop contact surfaces not painted.
[X]:- Denotes break in stringer.
No Paint on Top of Top Flgs.

REQUIRED LIST

No	DESCRIPTION	MARK	REMARKS
1	Beam	B9	
1	"	B10	
1	"	B11	
1	"	B12	
8	"	B13	
8	"	B14	
12	"	B15	
12	"	B16	
12	"	B17	
8	"	B18	
4	"	B19	
4	"	B20	
1	"	B21	
1	"	B22	
1	"	B23	
1	"	B24	
1	"	B25	
1	"	B26	
1	"	B27	
1	"	B28	

FLOOR BEAMS — SPANS 5-7 & 10-12.

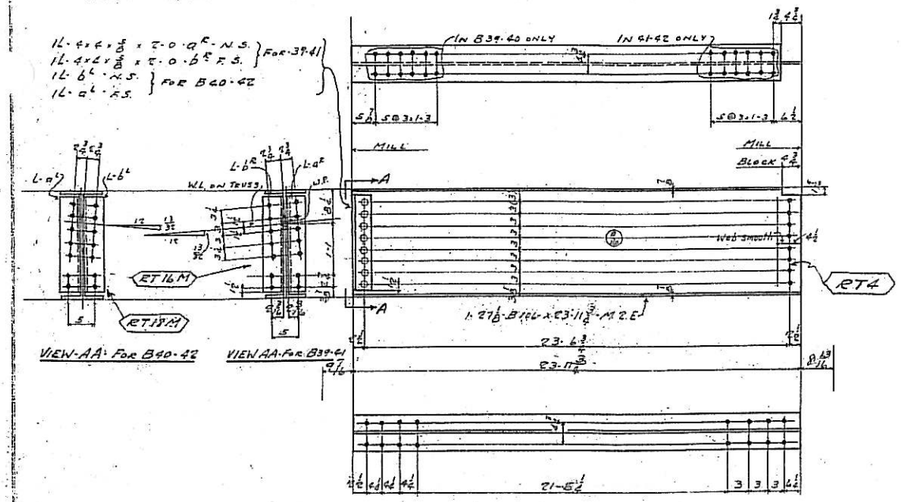
COLUMBIA AVE. VIADUCT
CINCINNATI, OHIO
CITY OF CINTI. - DEPT. PUBLIC WORKS

DESIGNED BY J.H.L. 1-31-37
DRAWN BY J.H.L. 1-31-37
CHECKED BY A.T. 2-10-37
TRACED BY W.E.B. 2-2-37
APPROVED A.T. 2-23-37
FOR FBS. 5-7 & 10-12

CC25874

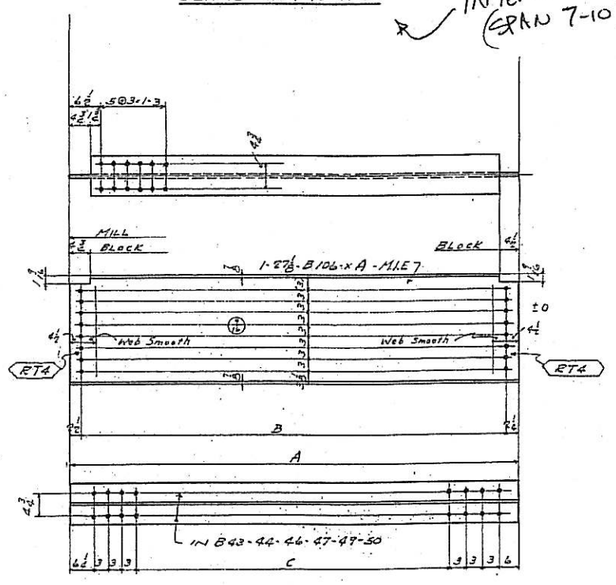
452

15-9-48



BEAMS - B39-40-41-42

* INTERIOR FB's (SPAN 7-10)



MARK	A	B	C
B43	24-0 1/2	23-7 5/16	21-5 13/16
B44 F B44 A	24-0 5/8	23-7 5/8	21-5 5/8
B45	24-0 3/4	23-7 1/16	
B46	24-0 7/8	23-7 11/16	21-6 3/16
B47 F B47 A	24-0 1/8	23-7 3/16	21-6 1/16
B48	24-0 3/8	23-7 13/16	
B49	24-0 43/64	23-8 1/16	21-6 5/16
B50 F B50 A	24-0 1/2	23-8 1/16	21-6 5/16

GENERAL NOTES:
RIVETS - 7/8"
OVER-RUN - 1/4"
MATERIAL - Carbon steel A.S.T.M. A7-24 with .25% copper content, except were noted, all holes may be punched full size except:
(a) All holes marked RT are to be subpunched 3/16" small and reamed to size in a metal template.
(b) Field connections of trusses shall be subpunched and reamed after truss is assembled.
(c) Holes in web material over 1/8" thick shall be subpunched 1/8" small and reamed to size.
(d) Holes in web material over 3/4" thick shall be drilled from the solid.
REAMED HOLES - Of web material over 5/8" thick shall be placed to depth of 3/4" where holes all thicker.
PLANE CUT EDGES - Of main members not shown to be planed, chipped or cut, shall present a smooth uniform appearance.
PAINTING - One coat of red lead paint as noted. Shop coated surfaces not painted.
Omitted from shop paint.
No paint on top flange

REQUIRED LIST			
Nº	DESCRIPTION	MARK	REMARKS
1	BEAM	B39	
1	"	B40	
1	"	B41	
1	"	B42	
8	"	B43	
8	"	B44	
16	"	B44A	
4	"	B45	
4	"	B46	
8	"	B47	
8	"	B47A	
4	"	B48	
4	"	B49	
8	"	B50	
16	"	B50A	

FLOOR BEAMS SPAN 7-10

COLUMBIA AVE. VIADUCT
CINCINNATI, OHIO
CITY OF CIN'TI. - DEPT. PUBLIC WORKS
STRUCTURAL STEEL DETAILS
FABRICATED STEEL CONSTRUCTION
Director of Public Improvements
IN CHARGE Rosen DRAWN BY J.H.M.
CHECKED BY A.T. 9-9-37 TRACED BY J.H.M. 9-10-37
REVISED LAST REVISION
CONTRACT FC. 25874 SHEET NO. 462
F.C. TBC. 8/1937

15-9-50

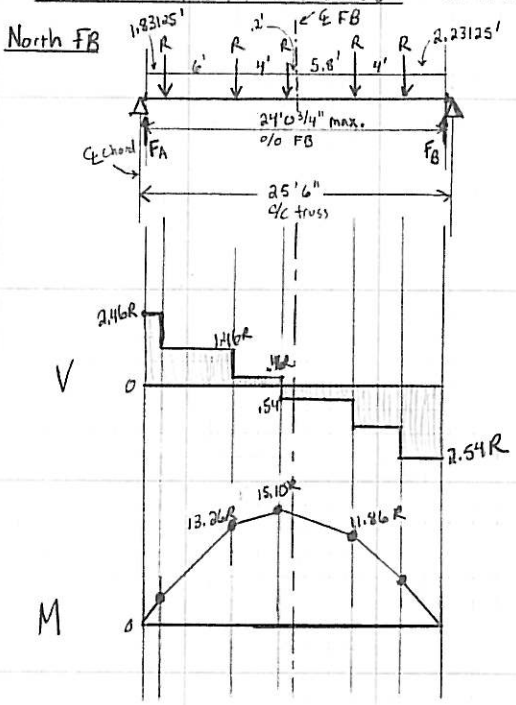
114

Interior Floorbeams – Truss Units E, F, G

NORTH FB

Maximum Moment Calculation – CM Fig 6 wheels, but 5 produces Mmax

North FB



$$F_B = \frac{R(1.83125' + 7.83125' + 11.83125' + 17.83125' + 21.83125')}{24.0625'}$$

$F_B = 2.54R$

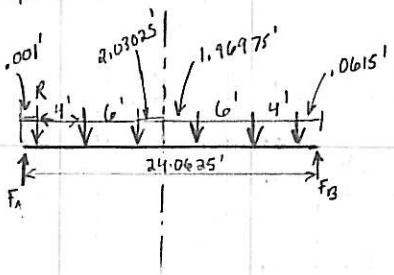
$F_A = 5R - 2.54R = 2.46R$

$\Rightarrow M_{max} = 15.10R$

Maximum Shear Calculation

6 Wheels will produce max shear

Will be max when one reaction is min, say load .001' from support



$$F_B = \frac{R(.001 + 4.001 + 10.001 + 14.001 + 20.001 + 24.001)}{24.0625'}$$

$F_B = 2.9925R$

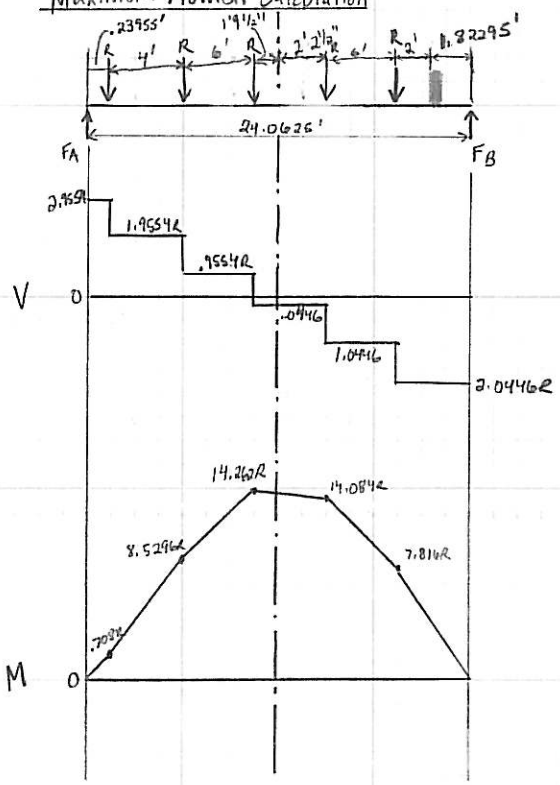
$\therefore F_A = 6R - 2.9925R = 3.0075R$

$\Rightarrow V_{max} = 3.0075R$

Interior Floorbeams - Truss Units E, F, G

SOUTH FB

Maximum Moment Calculation



$$F_B = \frac{R(.23955' + 4.23955' + 10.23955' + 14.23955' + 20.23955')}{24.0625'}$$

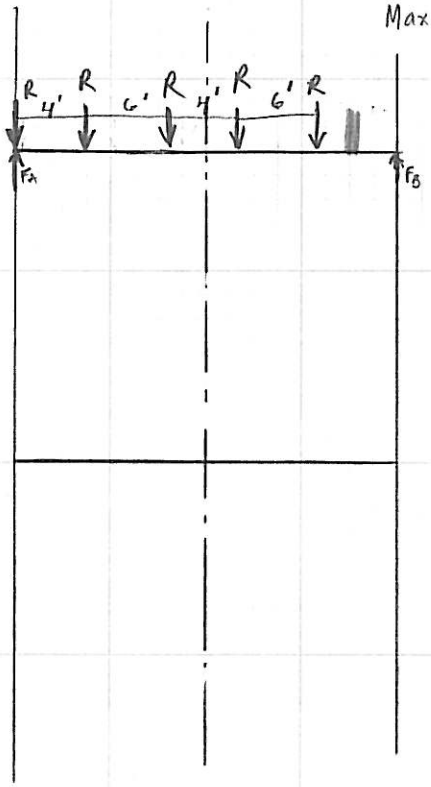
$F_B = 2.0446R$

$\therefore F_A = 2.9554R$

$\Rightarrow M_{max} = 14.26R$

Maximum Shear Calculation

Max shear @ A when B is minimized



$$F_B = \frac{R(4' + 10' + 14' + 20')}{24.0625'}$$

$F_B = 1.9948R$

$\therefore F_A = 5R - 1.9948R$

$\Rightarrow V_{max} = 3.0052R$

Interior Floorbeams - Live Loads

TRUSS UNITS E, F, G

	North FB	South FB
HS20:	$M_{max} = 15.1(16) = 241.6$ K-ft $V_{max} = 3.01(16) = 48.16$ K	$M_{max} = 14.26(16) = 228.16$ K-ft $V_{max} = 3.005(16) = 48.08$ K
2FI:	$M_{max} = 15.1(10.29) = 155.38$ K-ft $V_{max} = 3.01(10.29) = 30.97$ K	$M_{max} = 14.26(10.29) = 146.74$ K-ft $V_{max} = 3.005(10.29) = 30.92$ K
3FI:	$M_{max} = 15.1(14.15) = 213.67$ K-ft $V_{max} = 3.01(14.15) = 42.59$ K	$M_{max} = 14.26(14.15) = 201.78$ K-ft $V_{max} = 3.005(14.15) = 42.52$ K
4FI:	$M_{max} = 15.1(13.45) = 203.10$ K-ft $V_{max} = 3.01(13.45) = 40.48$ K	$M_{max} = 14.26(13.45) = 191.80$ K-ft $V_{max} = 3.005(13.45) = 40.42$ K
5CI:	$M_{max} = 15.1(13.8) = 208.38$ K-ft $V_{max} = 3.01(13.8) = 41.54$ K	$M_{max} = 14.26(13.9) = 196.79$ K-ft $V_{max} = 3.005(13.8) = 41.47$ K

Interior Floorbeams - Truss E, F, G

Dead Loads

*See CJM Dead Load Calcs Binder BKC

Self Weight

CJM → FB = 24'0 1/2" SAY OK

Int FB = 2.8391 K *

∴ 2.8391 K / 24.0625' = .118 K/A Self Weight distributed load

▲ see next sheet BKC/CJM Table

Catwalk - South FB ONLY

Span 5-7 (10-12): 1.2778 K/FB *
Span 7-10: 1.2069 K/FB *
} ⇒ be conservative apply 1.28 K per FB / 2 = .64 K per hanger

→ Apply to FB as 2 point Loads @ .854' and 3.5' from North end of beam

Deck

North FB: Deck + haunches ⇒ 1.3684 K/A *
North rail ⇒ .071 K/A ▲
} Total = 1.439 K/A

▲ Assumed distributed equally along North + South FB's

South FB: Deck, haunches, 1 rail, + sidewalk

Deck + haunches ⇒ 1.3684 K/A *
Curb rail ⇒ .067 K/ft ▲
Sidewalk ⇒ .074 K/A ▲

∴ Deck ⇒ 1.466 K/A

Calculations for 1/8 US Grid

Made By BKC Date 3/25/2009 Job No. P410070010

Checked By CJM Date 3/26/2009 Sheet No.

Calculations For: ***Columbis Parkway, Dead Load Calculations***

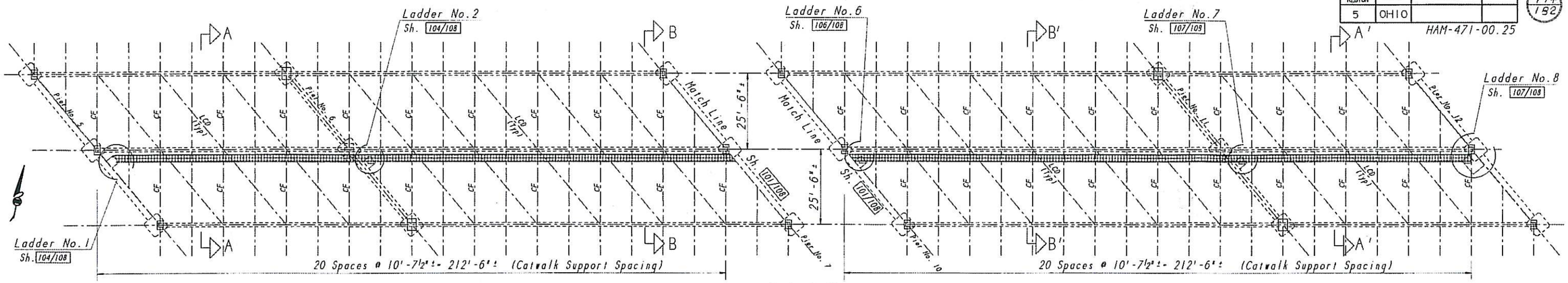
	Uniform Floorbeam Dead Loads					
	Deck and Haunch	North Rail	Curb Rail	Side Walk Distribute	Light Pole Distribute	Total
Interior FB Spans 5-7	1.368	0.071	0.067	0.148	0.001	1.66 k/ft
Exterior FB Spans 5-7	0.737	0.035	0.034	0.074	0.001	0.88 k/ft
Interior FB Spans 7-10	1.368	0.074	0.067	0.148	0.001	1.66 k/ft
Exterior FB Spans 7-10	0.737	0.037	0.034	0.074	0.001	0.88 k/ft
Interior FB Spans 10-12	1.368	0.074	0.067	0.148	0.001	1.66 k/ft
Exterior FB Spans 10-12	0.737	0.037	0.034	0.074	0.001	0.88 k/ft

600 TO 620 700 TO 720 801 TO 819
800 820 900 TO 907
621 TO 665 721 TO 765 821 TO 864
821 865 910 TO 917
666 TO 686 766 TO 786 867 TO 885
866 886 920 TO 927

F.H.W.A. REGION	STATE	PROJECT	
5	OHIO		

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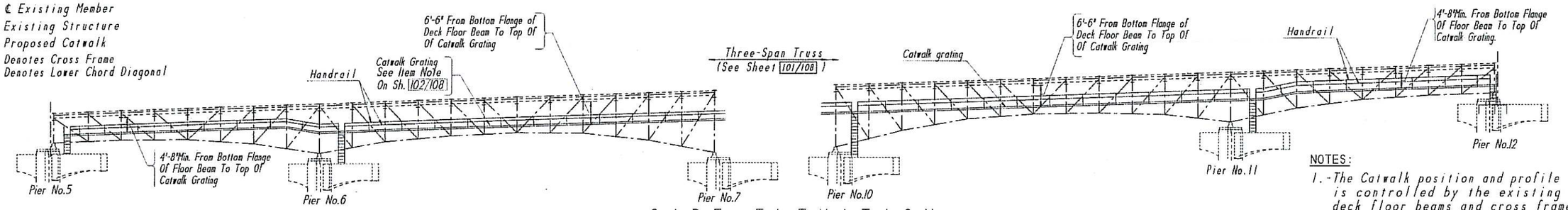
HAM-471-00.25



TWO SPAN TRUSS (REAR) — PLAN — TWO SPAN TRUSS (FORWARD)

LEGEND

- ℄ Existing Member
- Existing Structure
- Proposed Catwalk
- CF Denotes Cross Frame
- LCD Denotes Lower Chord Diagonal



SIDE ELEVATION

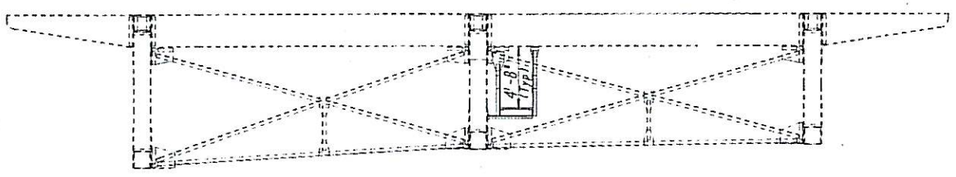
(Looking North)

NOTES:

1.-The Catwalk position and profile is controlled by the existing deck floor beams and cross frame combination at the shallowest depth of the truss.

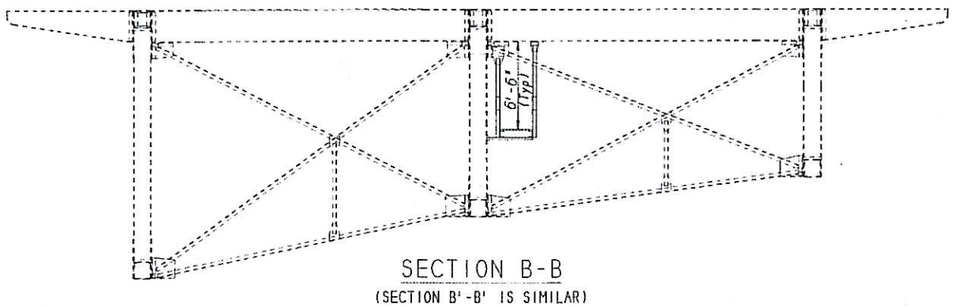
2.-Representation of the existing structure is approximate.

3.-Work this sheet with sh. 101/108



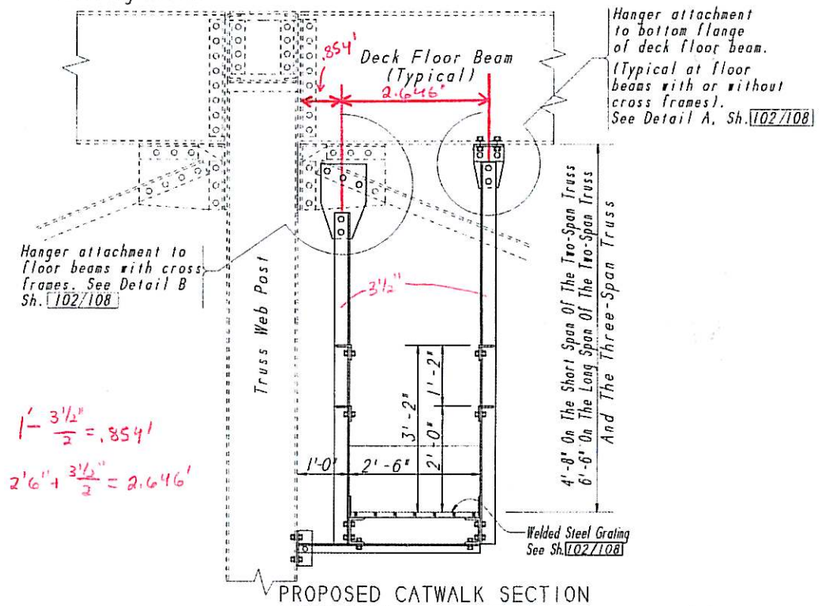
SECTION A-A

(SECTION A'-A' IS SIMILAR)



SECTION B-B

(SECTION B'-B' IS SIMILAR)



PROPOSED CATWALK SECTION

(See Details On Sh 102/108)

PROPOSED CATWALK STRUCTURE

TYPE: Rolled Sections Of Structural Steel On Bolted Connections Supported On Existing Steel Structure.

SPANS: Multi-Span @ 10'-7½"± Center To Center Of Supports.

WIDTH: 2'-6" Face To Face Of Handrails

WEARING SURFACE: Welded Steel Grating

LOADING: 85 Pounds Per Square Foot.

Pflum, Klausmeier & Gehrum Consultants — CINCINNATI OHIO — 100/108

CATWALK PLAN AND ELEVATION 1/2

BRIDGE No. HAM-471-0025
(Columbia Parkway Viaduct Over I-471)

HAMILTON COUNTY

Sta. 30+55.40
Sta. 47+16.19

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
ED	ED		WDD	IEH	April 96	

WALKY Scale 16

LEGEND

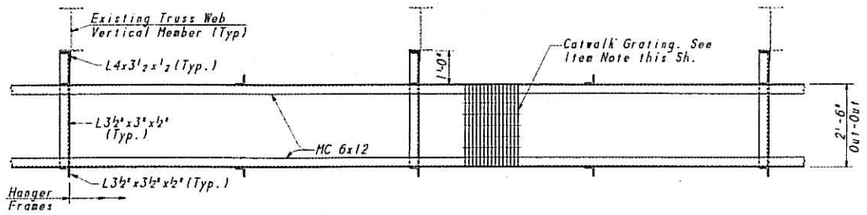
Existing Structure

New Work

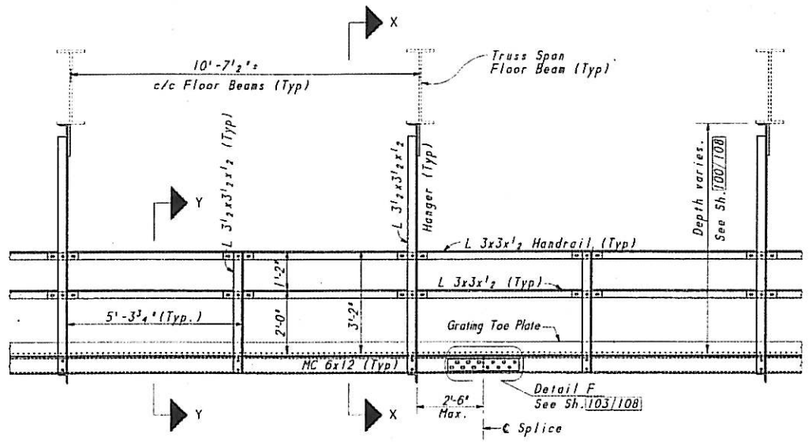
F.H.W.A. REGION	STATE	PROJECT	
5	OHIO		

HAM-471-00.25

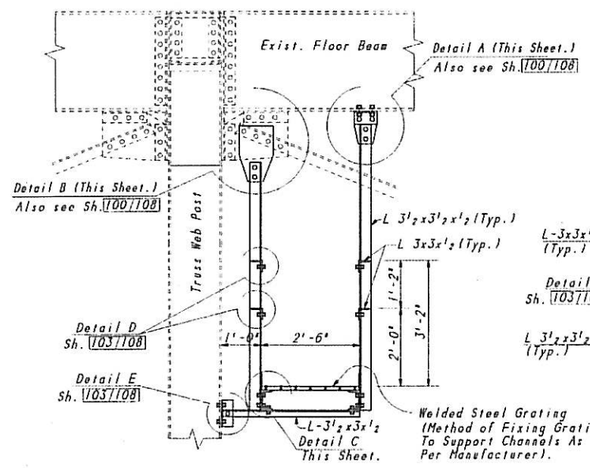
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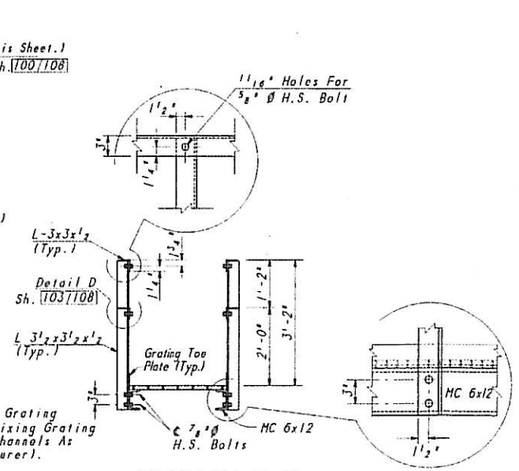
CATWALK PARTIAL PLAN
(FOR THE FULL PLAN)



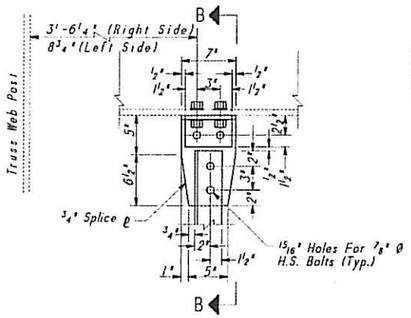
CATWALK PARTIAL ELEVATION
(FOR THE FULL ELEVATION)



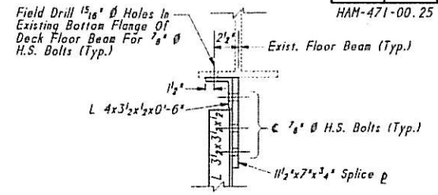
SECTION X-X



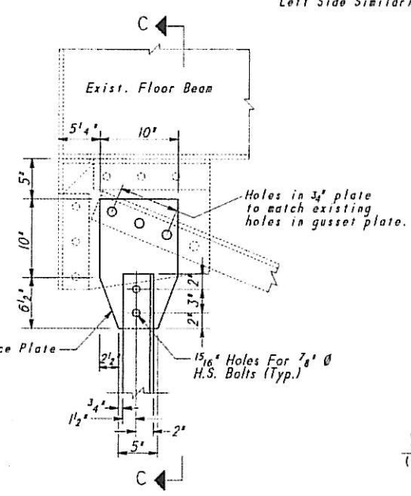
SECTION Y-Y



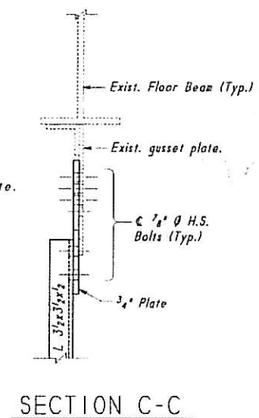
DETAIL A
(Right Side Shown, Left Side Similar)



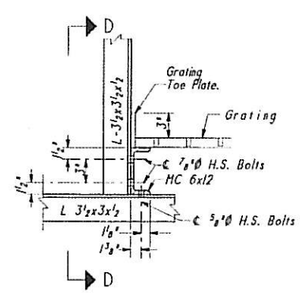
SECTION B-B



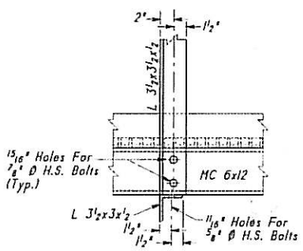
DETAIL B



SECTION C-C
(EXIST ANGLES NOT SHOWN)



DETAIL C
(OTHER SIDE SIMILAR)



SECTION D-D

ITEM 513.- CATWALK GRATING.
This Item includes all labor, material, equipment, tools, and incidentals necessary to fabricate and install a welded steel grating system in the areas and on the length and position described on Structural Steel Catwalk Plan Sheets 100/108 thru 108/108.
Prior to grating installation, the Contractor shall inspect supports for correct size, layout and alignment, and take field measurements prior to preparation of the required shop drawings. Prior to grating installation the Contractor shall submit detailed shop drawings to the Engineer for review and approval. After installation, the Contractor shall submit as-built drawings to the Engineer to ensure that the drawings depict the steel grating as actually incorporated into the work. The steel grating described in this Item shall be capable of a load bearing capacity of 85 pounds per square foot on a span indicated on the catwalk plan, and shall not exceed a depth of 1 inch, and a maximum deflection of 0.112 inches on a 2'-6" span. The shop drawings prepared by the Contractor shall include plans, elevations, and details of sections and connections, as well as type and location of all fasteners. The Contractor shall submit the grating manufacturer's specifications, load tables, anchor details and standard installation details. The grating installation shall be in accordance with the approved shop drawings and the standard installation clearances as recommended by the National Association Of Architectural Metal Manufacturers (NAAMM) Metal Bar Grating Manual. The Contractor shall perform all cutting and fitting required for installation. The Item includes the use of anchorage devices (saddle clips, grating clamps, anchor blocks, plank clips, Z clips, countersunk (and) toe plates and fasteners to secure grating to the supporting members. Grating shall be placed such that cross bars align.

TYPE AND MATERIAL: The grating shall be type 19W4 light duty welded steel grating 1"x1/8"bar, 5.15psf as manufactured by Ohio Gratings Inc., 5299 Southway, S.W., Canton, Ohio 44706 or type GW-100A 1"x1/8"bar, 5.2psf as manufactured by McNichols Co., 489 NEO Parkway, Cleveland, Ohio 44128-3195, and shall comply with the applicable provisions of NAAMM Metal Bar Grating Manual and the American National Standard Institute (ANSI) MGB 531 Light Duty Steel Grating. The material shall be Light Duty Steel ASTM A569 hot rolled carbon steel sheet and strip.

FINISH: Galvanized

METHOD OF PAYMENT: The pay quantity for grating will be based on the actual area out-to-out of grating installed, inspected, approved, and accepted by the Engineer.

BASIS OF PAYMENT: Payment will be made at the Contract unit price bid per square foot for Item 513, CATWALK GRATING.

NOTES:

1.- See General Notes, Sh. 7/108 Thru Sh. 11/108.

Pflum, Klausmeier & Gehrum Consultants — CINCINNATI — OHIO — 102/108

CATWALK DETAILS 1/2

BRIDGE No. HAM-471-0025
(Columbia Parkway Viaduct Over I-471)

HAMILTON COUNTY

Sta.30+55.40
Sta.47+16.19

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
ED	PLF		WDD	IEH	April 96	

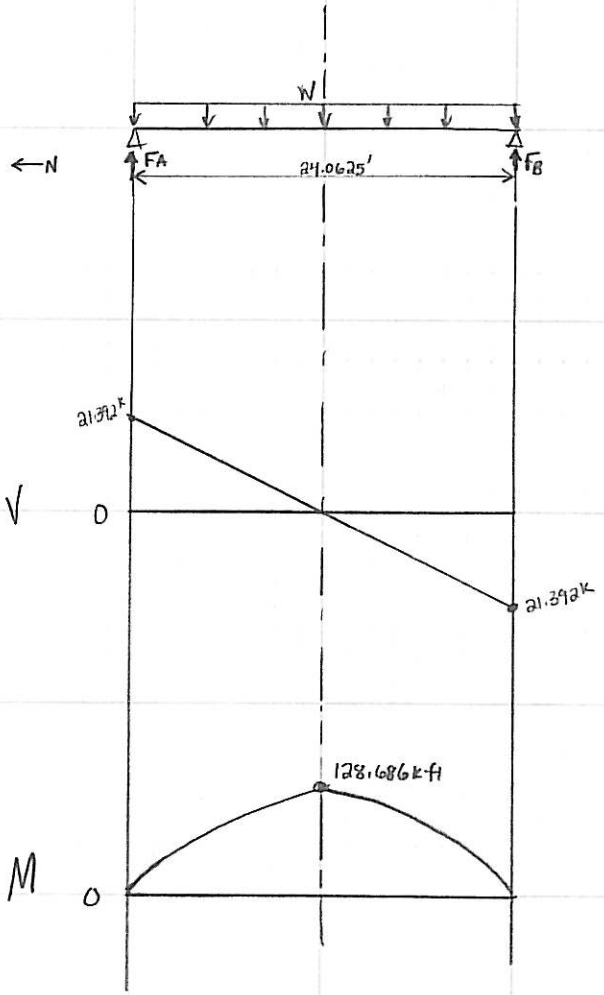
WALKYSEC Scale 1.333

Interior FB's Truss

Dead Loads

- North FB

Total load $w = .118^K/_{ft} + 1.66^K/_{ft} = 1.778^K/_{ft}$



$F_A = F_B = \frac{WL}{2} = \frac{(1.778^K/_{ft})(24.0625')}{2} = 21.392^K$

$V_{max} = 21.392^K$

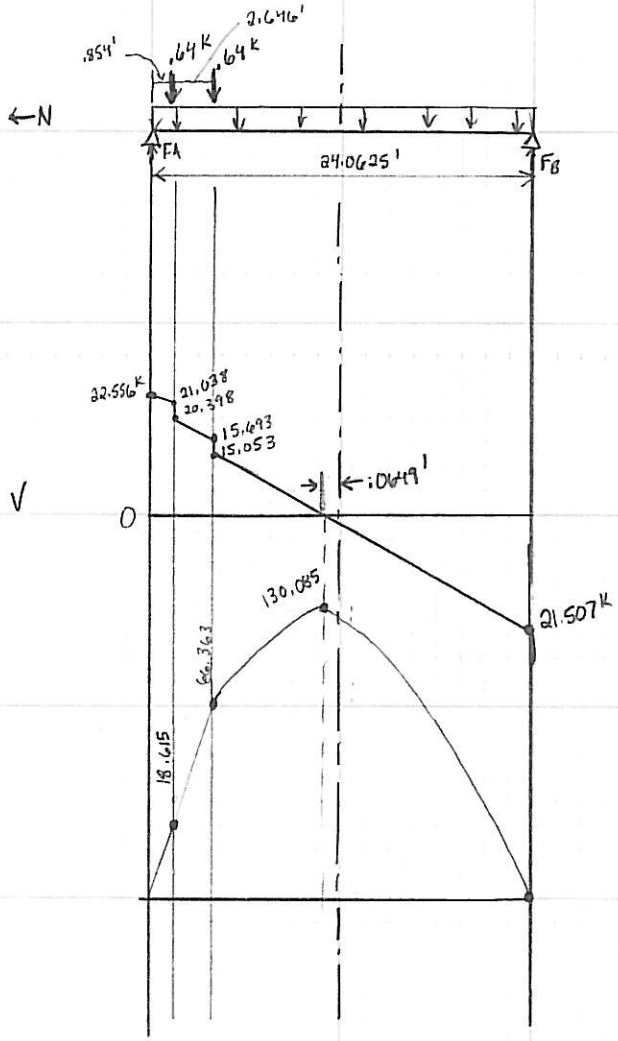
$M_{max} = 128.686\ K\text{-}ft$

Interior FB's Truss — South FB

Dead Loads

Total W = .118 K/ft + 1.66 K/ft = 1.778 K/ft

Pt. loads = .64 K @ .854' & 3.5'



$$F_B = \frac{.64^K(.854') + .64^K(3.5') + 1.778^K/_{ft}(24.0625')\left(\frac{24.0625'}{2}\right)}{24.0625'}$$

$F_B = 21.507^K$

$\therefore F_A = 1.778^K/_{ft}(24.0625') + .64^K + .64^K - 21.507^K$

$F_A = 22.556^K$

$V_{max} = 22.556^K$

$M_{max} = 130.085\ K\text{-ft}$