Dead Load Calcs: U_{10}-L_{10}

Member Wt:

From Section → $A = 37.85 in^2$

$L = 12'-6\frac{1}{2}" = 12.5417'$

$wt = (37.85 in^2)(1 ft^2/144 in^2)(12.5417 ft)(0.49 K/ft^3) = \boxed{1.6153 K}$

Rivets:

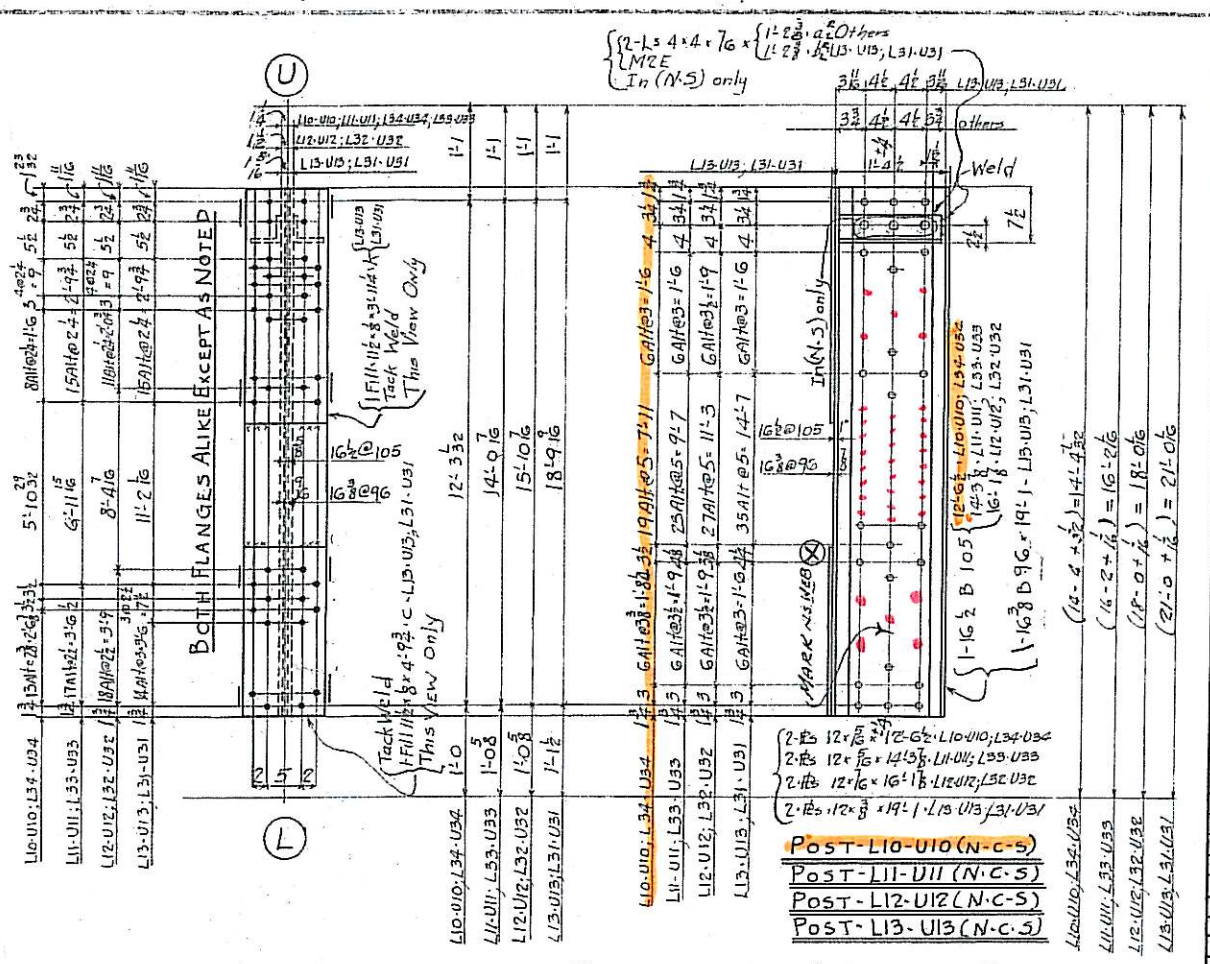
$3+2+1+2+1+2+1+2+1+2+1+2+1+2+1+2+1+2+1+2+1+2+1+2+1+2+1+2+1+2+1+2+1+2+3+3 = 59$ rivets

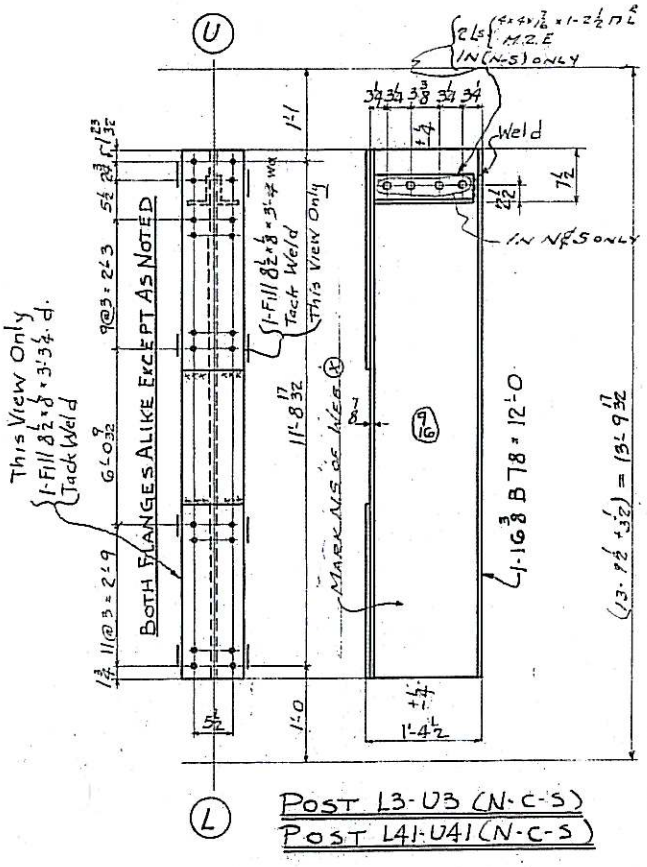
$(59 \text{ rivets})(0.0804 K/100 \text{ rivets}) = 0.0474 K$

Bump Up:

$$\frac{1.6153 K + 0.0474 K}{1.6627 K} \qquad \frac{1.6627 K}{1.6153 K} \qquad \frac{1.03}{}$$

Cons. use $\boxed{1.05}$ (to match diagonals bump up, U_8-L_7)





Shop must maintain clear distance between gussets and chords and cut in cut of web members as noted to insure ease in assembling.

GENERAL NOTES:-
RIVETS:- 3/4
OPEN HOLES:- 13/16
MATERIAL:- Carbon steel A.S.T.M. A7-34 with .2% copper content, except were noted.
REAMING:- All holes may be punched full size except:
(a) All holes marked RT are to be subpunched 1/8" small and reamed to size to a metal templet.
(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 2/4" thick shall be drilled from the solid.
SHEARED EDGES of main material over 5/8" thick shall be planed to a depth of 1/4" where noted on details.
FLAME CUT EDGES of main material shall be planed chipped or ground and present a smooth workmanlike appearance.
PAINT:- One coat of RED LEAD except where noted. Shop contact surfaces not painted.
:- Denotes break in stagger.

REQUIRED LIST

No.	DESCRIPTION	MARK
1	DIAGONAL	U1G-L
1	"	U1G-L
1	"	U1G-L
1	"	L27-L
1	"	L27-U
1	"	L27-U
1	"	L13-U
1	"	L13-U
1	"	L13-U
1	"	U30-L
1	"	U30-L
1	"	U30-L
1	"	L12-U
1	"	L12-U
1	"	L12-U
1	"	U31-L3
1	"	U31-L3
1	"	U31-L3
1	POST	L10-U1
1	"	L10-U1
1	"	L10-U1
1	"	L11-U11
1	"	L11-U11
1	"	L11-U11
1	"	L12-U12
1	"	L12-U12
1	"	L12-U12
1	"	L13-U13
1	"	L13-U13
1	"	L13-U13
1	"	L34-U34
1	"	L34-U34
1	"	L34-U34
1	"	L33-U33
1	"	L33-U33
1	"	L33-U33
1	"	L32-U32
1	"	L32-U32
1	"	L32-U32
1	"	L31-U31
1	"	L31-U31
1	"	L31-U31
1	"	L3-U3
1	"	L3-U3
1	"	L3-U3
1	"	L41-U41
1	"	L41-U41
1	"	L41-U41

TRUSS DIAGONAL & POSTS-SP

COLUMBIA AVE.
CINCINNATI,
CITY OF CINTI. - DEPT. P
BETHLEHEM STEEL
FABRICATED STEEL CON
Drawings at Bethlehem Fabrication
IN CHARGE BORN
CHECKED BY A.T.
REVISED

SHOP NO. 2 CONTRACT CC25873
EC. 7BC 5/14/37

Made By: CJM	Date: 2/3/09	Job No: HAM-471-0025
Checked By: KMW	Date: 3/18/09	Sheet No. 1/2

Dead Load Calcs: U8-L7

Span 7-10
N. Truss

Member wt:

From Section → $A = 23.77\ in^2$

$L = 14'-0\frac{1}{2}" = 14.0417'$

$WT = (23.77\ in^2)(1\ ft^2/144\ in^2)(14.0417\ ft)(0.49\ K/ft^3) = \boxed{1.1357\ K}$

Rivets:

From Shop dwg's:

$2(1+8+1+18+1+8) = 74$ rivets

wt = 74 rivets (0.0804 K/100 rivets) = $\boxed{0.0595\ K}$

Bump Up:

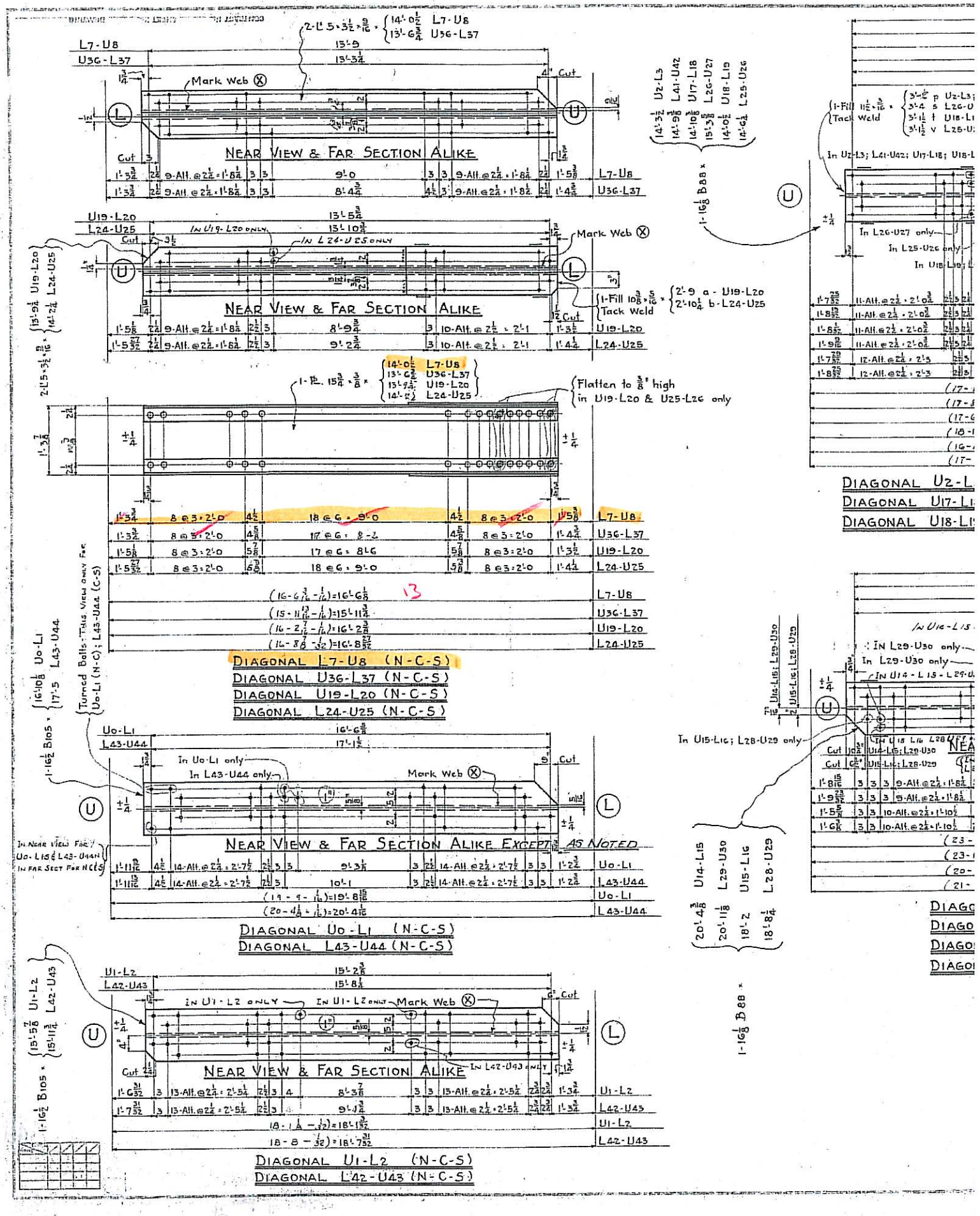
$$\begin{array}{r} 1.1357\ K \\ 0.0595\ K \\ \hline 1.1952\ K \end{array}$$

$$\frac{1.1952\ K}{1.1357\ K} = \boxed{1.05}$$

---

* For Built up sections, use 5% bump up, 1.05 to account for rivets

Calculations for 1/8 US Grid


L7-U8
U36-L37
Mark Web
Cut
NEAR VIEW & FAR SECTION ALIKE
U19-L20
L24-U25
IN U19-L20 ONLY
IN L24-U25 ONLY
1-Fill Tack Weld
NEAR VIEW & FAR SECTION ALIKE
Flatten to 3/8" high in U19-L20 & U25-L26 only
DIAGONAL L7-U8 (N-C-S)
DIAGONAL U36-L37 (N-C-S)
DIAGONAL U19-L20 (N-C-S)
DIAGONAL L24-U25 (N-C-S)
Turned Bolts-This View only For U0-L1 (N-C); L43-U44 (C-S)
U0-L1
L43-U44
In U0-L1 only
In L43-U44 only
In Near View For U0-L1 & L43-U44 In Far Sect For Nces
NEAR VIEW & FAR SECTION ALIKE EXCEPT AS NOTED
DIAGONAL U0-L1 (N-C-S)
DIAGONAL L43-U44 (N-C-S)
U1-L2
L42-U43
IN U1-L2 ONLY
IN L42-U43 ONLY
NEAR VIEW & FAR SECTION ALIKE
DIAGONAL U1-L2 (N-C-S)
DIAGONAL L42-U43 (N-C-S)
U2-L3
L41-U42
U17-L18
L26-U27
U18-L19
L25-U26
In U2-L3; L41-U42; U17-L18; U18-L19
In L26-U27 only
In L25-U26 only
In U15-L16; L28-U29 only
U14-L15
L29-U30
U15-L16
L28-U29
In U14-L15; L29-U30
In L29-U30 only

Dead Load Calcs: Secondary Members

Span 5-7 | Span 7-10

Sway Bracing:

Use Largest Bracing for dead load weight:

From shop drawings TD31, TD32, TD33, TH11

1-∠	3½ x 3 x 5/16 x 26'-1"	Long diagonal
1-∠	3½ x 3 x 5/16 x 12'-8¾"	Top short diagonal
1-∠	3½ x 3 x 5/16 x 15'-7"	Bottom short diagonal
1-∠	3½ x 3 x 5/16 x 8'-3¼"	hanger

wt: 6.65 lb/ft for 3½ x 3 x 5/16 ∠

L = 26'-1" + 12'-8¾" + 15'-7" + 8'-3¼" = 62'-8" = 62.6667'

wt = (62.6667 ft)(6.65 lb/ft)(1K/1000 lb) = 0.4167 K

Middle Gusset: use TD1: 19¼ x 3/8" x 3'-2"

wt = (19.25")(0.375")(38")(1ft³/1728in³)(0.49 K/ft³) = 0.0778 K

Brackets: use BR-18:

1 PL: 17 x 3/8 x 1'-2 5/8" → (17")(0.375")(14.625")(1ft³/1728in³)(0.49 K/ft³) = 0.0264 K
2 L's: 6 x 4 x 3/8 x 11½" → 2 (12.2 lb/ft)(0.9583 ft)(1K/1000 lb) = 0.0234 K
2 L's: 3½ x 3½ x 3/8 x 1'-5" → 2(8.51 lb/ft)(1.4167 ft)(1K/1000 lb) = 0.0241 K

wt = 0.0264 + 0.0234 + 0.0241 = 0.0739 K/bracket

Bottom Gusset: 1 PL 13½ x ½ x 1'-1½"

(13.5")(0.5")(13.5")(1ft³/1728in³)(0.49 K/ft³) = 0.0258 K

Bottom ∠: 2 ∠'s 4 x 3½ x 5/16 x 23'-10 5/8"

2 (7.65 lb/ft)(23.8854 ft)(1K/1000 lb) = 0.3654 K

Total: ∠'s → 0.4167 K
Middle Gusset → 0.0778 K
Brackets → 0.0739 K x 4 brackets = 0.2956 K
Bottom Gusset → 0.0258 K
Bottom angle → 0.3654 K
Rivets (say 100) → 0.0804 K
1.2617 K

Main members = ∠'s + Bottom ∠'s

Bump up = 1.2617 K / (0.4167 + 0.3654) = 1.61

Dead Load Calcs:

Sway Bracing:

Using Smallest Bracket:

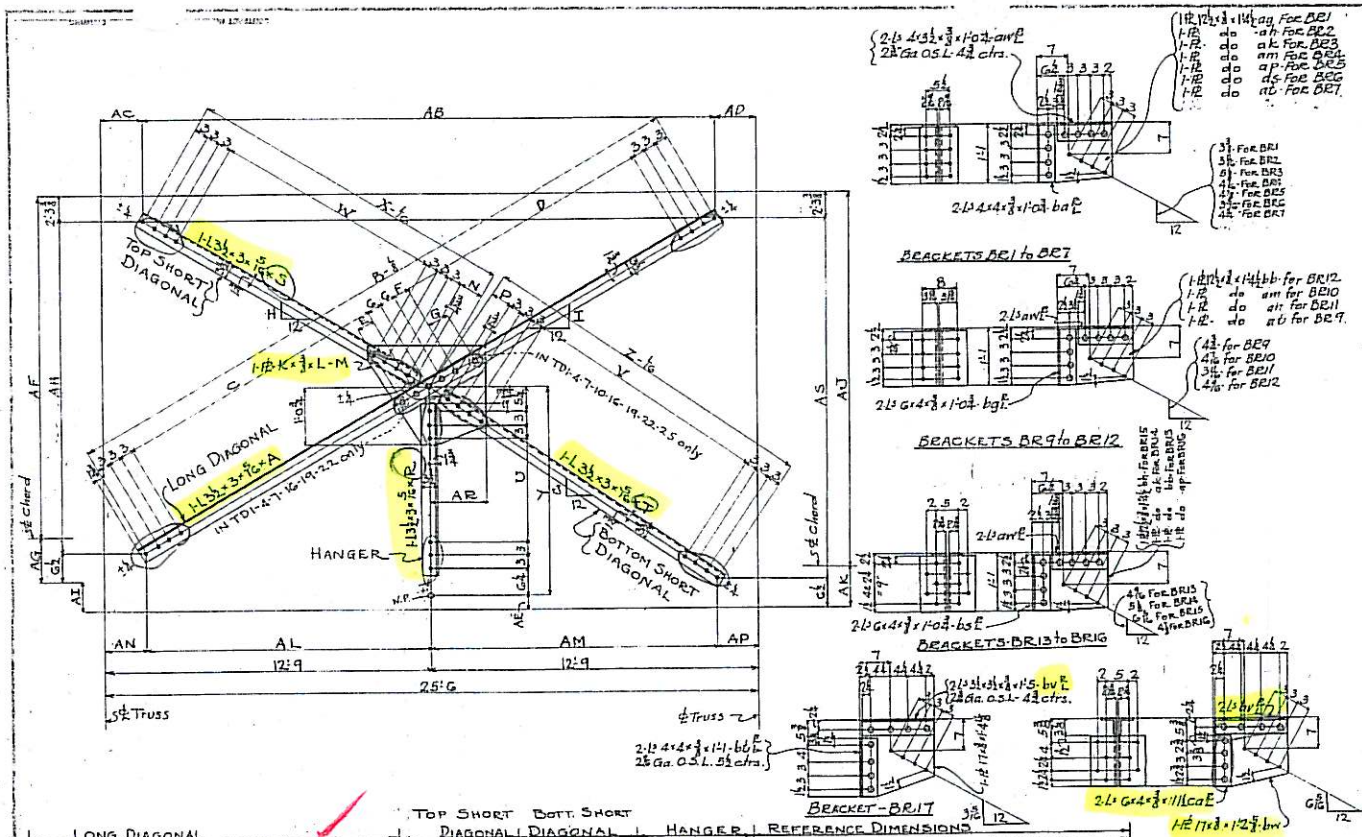
Long Diagonal → 1 ∠ 3½ x 3 x 5/16 x 24'-0"
Top short Diagonal → 1 ∠ 3½ x 3 x 5/16 x 11'-4½"
Bottom short Diagonal → 1 ∠ 3½ x 3 x 5/16 x 11'-5¾"
Hanger → 1 ∠ 3½ x 3 x 5/16 x 3'-1¼"

wt = 6.65 lb/ft
L = 24 + 11.375 + 11.4792 + 3.1042 = 49.9584'
wt = (49.9584 ft)(6.65 lb/ft)(1K/1000lb) = 0.3322K

Use same conn. wt as largest bracing!

Middle Gus → 0.0778K
Brackets → (0.0739K) 4 = 0.2956K
Bottom Gus → 0.0258K
Bottom L's → 0.3654K
* New Member wt → 0.3322K
Rivets (say 100) → 0.0804K
1.1772K

$$\frac{1.1772\ K}{(0.3322 + 0.3654)} = \boxed{1.69}$$



REQUIRED LIST

No	DESCRIPTION	MARK	REMARKS
4	DIAGONAL	TD1	
4	"	TD2	
4	"	TD3	
2	"	TD4	
4	"	TD5	
4	"	TD6	
4	"	TD7	
4	"	TD8	
4	"	TD9	
4	"	TD10	
4	"	TD11	
4	"	TD12	
4	"	TD13	
4	"	TD14	
4	"	TD15	
4	"	TD16	
4	"	TD17	
4	"	TD18	
4	"	TD19	
4	"	TD20	
4	"	TD21	
4	"	TD22	
4	"	TD23	
4	"	TD24	
4	"	TD25	
4	"	TD26	
4	"	TD27	
4	"	TD28	
4	"	TD29	
4	"	TD30	
4	"	TD31	
4	"	TD32	
4	HANGER	TH1	
4	"	TH2	
4	"	TH3	
4	"	TH4	
4	"	TH5	
4	"	TH6	
4	"	TH7	
4	"	TH8	
4	"	TH9	
4	"	TH10	
4	"	TH11	
8	BRACKETS	BR1	
4	"	BR2	
4	"	BR3	
12	"	BR4	
4	"	BR5	
4	"	BR6	
4	"	BR7	
4	"	BR9	
4	"	BR10	
4	"	BR11	
4	"	BR12	
4	"	BR13	
4	"	BR14	
4	"	BR15	
4	"	BR16	
4	"	BR17	
4	"	BR18	

LONG DIAGONAL / TOP SHORT DIAGONAL / BOTT. SHORT DIAGONAL / HANGER. REFERENCE DIMENSIONS

MARK	A	B	C	D	E	F	G	H	I	J	K	L	M	N	P
TD1	14'6	12'3	10'6	8'9	4	6½	6½	5½	5½	3½	19½	5'2	a	9°	8½
TD4	14'6	12'3	10'6	8'9	4	5½	5½	3½	3½	4	19½	5'6	b	8½	8½
TD7	14'6	12'3	10'6	8'9	3½	4	4	3½	3½	9½	19½	5'10	c	8½	6½
TD10	14'6	12'3	10'6	8'9		3½	3½	4½	4½	7	20½	6'2	d	6½	5½
TD13	15'2	12'9	11'0	9'3		6		5½	5½	11½	20½	6'6	f	6½	9½
TD16	14'6	12'3	10'6	8'9	2½	4½	4½	4½	4½	5½	20½	7'1	g	7½	6½
TD19	14'6	12'3	10'6	8'9	2½	4½	4½	4½	4½	9½	20½	7'5	h	7½	6½
TD22	14'6	12'3	10'6	8'9	2½	4½	4½	4½	4½	9½	20½	7'9	k	7½	6½
TD25	14'6	12'3	10'6	8'9		3½	3½	4½	4½	13½	21½	8'2	m	6½	9½
TD28	15'2	12'9	11'0	9'3		4½		6½	6½	11½	21½	8'6	p	5½	4½
TD31	15'2	12'9	11'0	9'3		4½		6½	6½	11½	21½	8'6	b	5½	4½

MARK	S	W
TD2	4'4	4'7
TD5	4'5	4'8
TD8	4'6	4'9
TD11	4'8	4'11
TD14	4'9	5'0
TD17	4'10	5'1
TD20	4'11	5'2
TD23	5'0	5'3
TD26	5'1	5'4
TD29	5'2	5'5
TD32	5'3	5'6

MARK	T	V
TD3	5'1	5'11
TD6	5'2	6'0
TD9	5'3	6'1
TD12	5'4	6'2
TD15	5'5	6'3
TD18	5'5	6'3
TD21	5'6	6'4
TD24	5'7	6'5
TD27	5'8	6'6
TD30	5'9	6'7
TD33	5'7	6'5

MARK	R	U
TH1	1'6	1'8
TH2	1'5	1'7
TH3	1'4	1'6
TH4	1'3	1'5
TH5	1'2	1'4
TH6	1'1	1'3
TH7	1'0	1'2
TH8	0'11	1'1
TH9	0'10	1'0
TH10	0'9	0'11
TH11	0'8	0'10

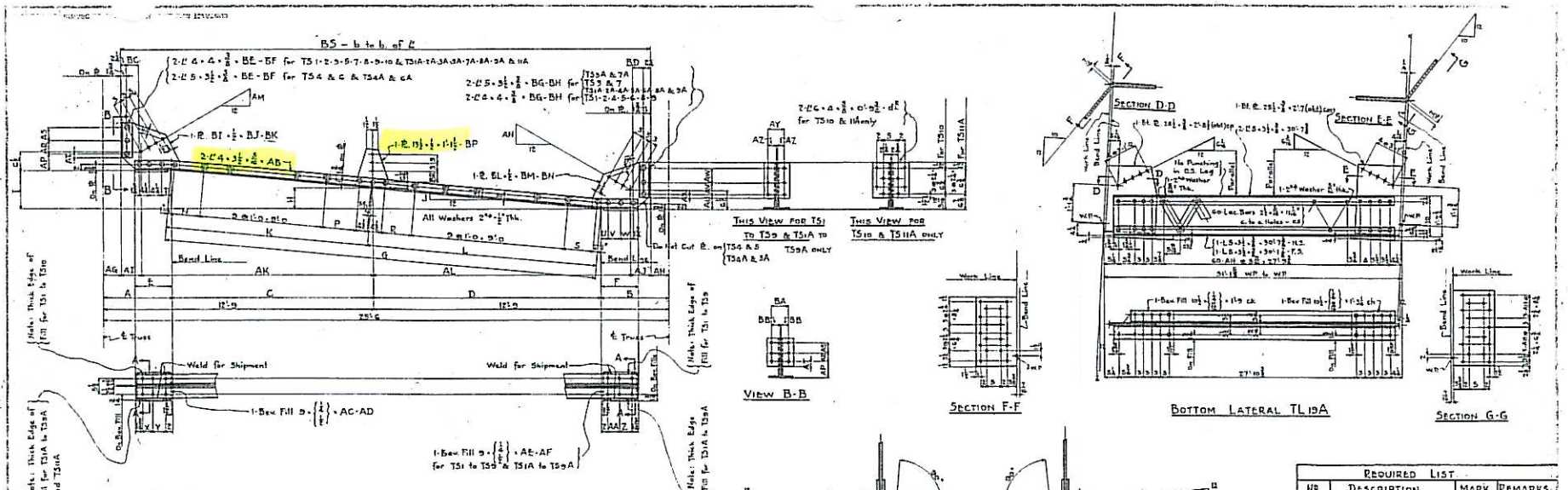
MARK	X	Y	Z	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AP	AR	AS
BR1	1'4	1'5	1'6	1'7	1'8	1'9	1'10	1'11	2'0	2'1	2'2	2'3	2'4	2'5	2'6	2'7	2'8	2'9	2'10
BR2	1'4	1'5	1'6	1'7	1'8	1'9	1'10	1'11	2'0	2'1	2'2	2'3	2'4	2'5	2'6	2'7	2'8	2'9	2'10
BR3	1'4	1'5	1'6	1'7	1'8	1'9	1'10	1'11	2'0	2'1	2'2	2'3	2'4	2'5	2'6	2'7	2'8	2'9	2'10
BR4	1'4	1'5	1'6	1'7	1'8	1'9	1'10	1'11	2'0	2'1	2'2	2'3	2'4	2'5	2'6	2'7	2'8	2'9	2'10
BR5	1'4	1'5	1'6	1'7	1'8	1'9	1'10	1'11	2'0	2'1	2'2	2'3	2'4	2'5	2'6	2'7	2'8	2'9	2'10
BR6	1'4	1'5	1'6	1'7	1'8	1'9	1'10	1'11	2'0	2'1	2'2	2'3	2'4	2'5	2'6	2'7	2'8	2'9	2'10
BR7	1'4	1'5	1'6	1'7	1'8	1'9	1'10	1'11	2'0	2'1	2'2	2'3	2'4	2'5	2'6	2'7	2'8	2'9	2'10
BR9	1'4	1'5	1'6	1'7	1'8	1'9	1'10	1'11	2'0	2'1	2'2	2'3	2'4	2'5	2'6	2'7	2'8	2'9	2'10
BR10	1'4	1'5	1'6	1'7	1'8	1'9	1'10	1'11	2'0	2'1	2'2	2'3	2'4	2'5	2'6	2'7	2'8	2'9	2'10
BR11	1'4	1'5	1'6	1'7	1'8	1'9	1'10	1'11	2'0	2'1	2'2	2'3	2'4	2'5	2'6	2'7	2'8	2'9	2'10
BR12	1'4	1'5	1'6	1'7	1'8	1'9	1'10	1'11	2'0	2'1	2'2	2'3	2'4	2'5	2'6	2'7	2'8	2'9	2'10
BR13	1'4	1'5	1'6	1'7	1'8	1'9	1'10	1'11	2'0	2'1	2'2	2'3	2'4	2'5	2'6	2'7	2'8	2'9	2'10
BR14	1'4	1'5	1'6	1'7	1'8	1'9	1'10	1'11	2'0	2'1	2'2	2'3	2'4	2'5	2'6	2'7	2'8	2'9	2'10
BR15	1'4	1'5	1'6	1'7	1'8	1'9	1'10	1'11	2'0	2'1	2'2	2'3	2'4	2'5	2'6	2'7	2'8	2'9	2'10
BR16	1'4	1'5	1'6	1'7	1'8	1'9	1'10	1'11	2'0	2'1	2'2	2'3	2'4	2'5	2'6	2'7	2'8	2'9	2'10
BR17	1'4	1'5	1'6	1'7	1'8	1'9	1'10	1'11	2'0	2'1	2'2	2'3	2'4	2'5	2'6	2'7	2'8	2'9	2'10
BR18	1'4	1'5	1'6	1'7	1'8	1'9	1'10	1'11	2'0	2'1	2'2	2'3	2'4	2'5	2'6	2'7	2'8	2'9	2'10

DIAGONALS
HANGERS & BRACKETS - SPANS 5-7 & 10-12

COLUMBIA AVE. VIADUCT
CINCINNATI, OHIO
CITY OF CINCI. - DEPT. PUBLIC WORKS
THE CHAS. L. STEEL COMPANY
DRAWN BY BORN TRACED BY [illegible] CHECKED BY AT
CONTRACT NO. CC25875

15-9-57

3/4



REFERENCE FIGURES — MAIN ANGLES

MARK	A	B	C	D	E	F	G	H	I	J	K	L	M	N	P	R	S	T	U	V	W	X	Y	Z	AA	AB	MARK
T51 T51A	1'-2 1/2	1'-2	10'-6 1/2	10'-6	11'-0 1/2	11'-0	11'-6 1/2	11'-6	1'-2	1/2	10'-6 1/2	10'-6	0	6 1/2	6 1/2	6 1/2	6 1/2	2	5 1/2	4 1/2	4 1/2	4 1/2	4 1/2	5	5	23°-12 1/2	T51 T51A
T52 T52A	1'-3	1'-2 1/2	10'-6	10'-5 1/2	11'-1	11'-0 1/2	11'-7	11'-6 1/2	1'-3	1/2	10'-6 1/2	10'-6	1/2	6 1/2	6 1/2	6 1/2	6 1/2	3 1/2	5 1/2	4 1/2	4 1/2	4 1/2	4 1/2	5	5	5	5	T52 T52A
T53 T53A	1'-3 1/2	1'-3	10'-6	10'-5	11'-1 1/2	11'-1	11'-7 1/2	11'-7	1'-3 1/2	1/2	10'-6 1/2	10'-6	1/2	6 1/2	6 1/2	6 1/2	6 1/2	3 1/2	5 1/2	4 1/2	4 1/2	4 1/2	4 1/2	5	5	5	5	T53 T53A
T54 T54A	1'-4	1'-3 1/2	10'-6	10'-5	11'-2	11'-1 1/2	11'-8	11'-7 1/2	1'-4	1/2	10'-6 1/2	10'-6	3/4	7 1/2	6 1/2	8	6 1/2	3 1/2	5 1/2	4 1/2	4 1/2	4 1/2	4 1/2	5	5	6 1/2	6 1/2	23°-10 1/2	T54 T54A
T55 T55A	1'-4 1/2	1'-4	10'-6	10'-5	11'-2 1/2	11'-2	11'-8 1/2	11'-8	1'-4 1/2	1/2	10'-6 1/2	10'-6	1	7 1/2	7 1/2	9 1/2	7 1/2	3 1/2	5 1/2	4 1/2	4 1/2	4 1/2	4 1/2	5	5	6 1/2	6 1/2	23°-9	T55 T55A
T56 T56A	1'-5	1'-4 1/2	10'-6	10'-5	11'-3	11'-2 1/2	11'-9	11'-8 1/2	1'-5	1/2	10'-6 1/2	10'-6	1 1/4	8 1/2	8 1/2	10 1/2	8 1/2	4	5 1/2	4 1/2	4 1/2	4 1/2	4 1/2	5	5	6 1/2	6 1/2	23°-7 1/2	T56 T56A
T57 T57A	1'-5 1/2	1'-5	10'-6	10'-5	11'-3 1/2	11'-3	11'-9 1/2	11'-9	1'-5 1/2	1/2	10'-6 1/2	10'-6	1 1/2	9 1/2	9 1/2	11 1/2	9 1/2	4 1/2	5 1/2	4 1/2	4 1/2	4 1/2	4 1/2	5	5	5	5	23°-5 1/2	T57 T57A
T58 T58A	1'-6	1'-5 1/2	10'-6	10'-5	11'-4	11'-3 1/2	11'-10	11'-9 1/2	1'-6	1/2	10'-6 1/2	10'-6	1 3/4	10 1/2	10 1/2	12 1/2	10 1/2	5	5 1/2	4 1/2	4 1/2	4 1/2	4 1/2	5	5	5	5	23°-3 1/2	T58 T58A
T59 T59A	1'-6 1/2	1'-6	10'-6	10'-5	11'-4 1/2	11'-4	11'-10 1/2	11'-10	1'-6 1/2	1/2	10'-6 1/2	10'-6	2	11 1/2	11 1/2	13 1/2	11 1/2	5 1/2	5 1/2	4 1/2	4 1/2	4 1/2	4 1/2	5	5	5	5	23°-1 1/2	T59 T59A
T510	1'-7	1'-6 1/2	10'-6	10'-5	11'-5	11'-4 1/2	11'-11	11'-10 1/2	1'-7	1/2	10'-6 1/2	10'-6	2 1/2	12 1/2	12 1/2	14 1/2	12 1/2	6	5 1/2	4 1/2	4 1/2	4 1/2	4 1/2	5	5	5	5	22°-11 1/2	T510
T511A	1'-7 1/2	1'-7	10'-6	10'-5	11'-5 1/2	11'-5	11'-11 1/2	11'-11	1'-7 1/2	1/2	10'-6 1/2	10'-6	2 3/4	13 1/2	13 1/2	15 1/2	13 1/2	6 1/2	5 1/2	4 1/2	4 1/2	4 1/2	4 1/2	5	5	5	5	22°-10 1/2	T511A

MARK	AC	AD	AE	AF	AG	AH	AT	AJ	AK	AL	AM	AN	AP	AR	AS	AT	AU	AV	AW	AX	AY	AZ	BA	BB	BC	BD	BE	BF	BG	BH	BI	BJ	BK	BL	BM	BN	BP	BR	BS	MARK
T51 T51A	1'-1	0	0'-1	b	9 3/4	9 3/4	C12	C12	11'-4 3/4	11'-5 1/2	3	5 1/2	6 1/2	5 1/2	5 1/2	1 1/2	6 1/2	4 1/2	5 1/2	2 1/2	5 1/2	7 1/2	5 1/2	7 1/2	4 1/2	4 1/2	3 1/2	F	1'-2	G	13 1/2	11'-7	ab	17 1/2	11'-8 1/2	ev	b@	4 1/2	26'-10 1/2	T51 T51A
T52 T52A	1'-1	b	0'-1	b	8 1/2	8 1/2	C11	C12	11'-5 1/2	11'-5 1/2	3 1/2	4	6 1/2	4 1/2	5 1/2	2 1/2	5 1/2	4 1/2	5 1/2	1 1/2	5 1/2	7 1/2	5 1/2	7 1/2	4 1/2	4 1/2	3 1/2	F	1'-2	G	13 1/2	11'-7	ac	17 1/2	11'-8 1/2	ew	b@	4 1/2	24°-10 1/2	T52 T52A
T53 T53A	1'-1	b	0'-1	b	8 1/2	8 1/2	C11	C12	11'-5 1/2	11'-5 1/2	3 1/2	5 1/2	6 1/2	5 1/2	4 1/2	1 1/2	7 1/2	5	5 1/2	2	5 1/2	7 1/2	5 1/2	7 1/2	4 1/2	4 1/2	3 1/2	F	1'-2	G	13 1/2	11'-7	ad	17 1/2	11'-8 1/2	ex	b@	4 1/2	24°-10 1/2	T53 T53A
T54 T54A	1'-1	b	0'-1	c	9 1/2	9 1/2	C11	C12	11'-5 1/2	11'-5	4 1/2	9	7 1/2	7	5	3 1/2	6 1/2	4 1/2	4 1/2	1 1/2	5 1/2	7 1/2	5 1/2	8	4 1/2	4 1/2	3 1/2	F	1'-2	G	13 1/2	11'-7	ae	17 1/2	11'-8 1/2	ey	b@	4 1/2	23°-11 1/2	T54 T54A
T55 T55A	1'-1	b	0'-1 1/2	c	9 1/2	9 1/2	C11	C12	11'-5 1/2	11'-5	5 1/2	8 1/2	6 1/2	5	6 1/2	1 1/2	6 1/2	4 1/2	4 1/2	1 1/2	5 1/2	7 1/2	5 1/2	8 1/2	4 1/2	4 1/2	3 1/2	F	1'-2	G	13 1/2	11'-7	af	16 1/2	11'-7 1/2	ez	b@	4 1/2	23°-11 1/2	T55 T55A
T56 T56A	1'-1	b	0'-1	b	9 1/2	9 1/2	C11	C12	11'-5 1/2	11'-5 1/2	6	8 1/2	6 1/2	5	6 1/2	2	6 1/2	4 1/2	4 1/2	1 1/2	5 1/2	7 1/2	5 1/2	8 1/2	4 1/2	4 1/2	3 1/2	F	1'-2	G	13 1/2	11'-7	ag	16 1/2	11'-7 1/2	bc	b@	4 1/2	23°-11 1/2	T56 T56A
T57 T57A	1'-1	b	0'-1	b	9 1/2	9 1/2	C11	C12	11'-5 1/2	11'-5 1/2	6 1/2	8 1/2	6 1/2	4 1/2	5 1/2	2 1/2	5 1/2	4 1/2	5	2	5 1/2	7 1/2	5 1/2	8 1/2	4 1/2	4 1/2	3 1/2	F	1'-2	G	13 1/2	11'-7	ah	17 1/2	11'-8 1/2	bf	cb	4 1/2	23°-11 1/2	T57 T57A
T58 T58A	1'-1	b	0'-1	b	9 1/2	9 1/2	C11	C12	11'-5 1/2	11'-5 1/2	6 1/2	8 1/2	6 1/2	4 1/2	5 1/2	3	5 1/2	4 1/2	4	2 1/2	5 1/2	7 1/2	5 1/2	8 1/2	4 1/2	4 1/2	3 1/2	F	1'-2	G	13 1/2	11'-7	ai	17 1/2	11'-8 1/2	bg	cc	4 1/2	23°-11 1/2	T58 T58A
T59 T59A	1'-1	b	0'-1	b	9 1/2	9 1/2	C11	C12	11'-5 1/2	11'-5 1/2	6 1/2	8 1/2	6 1/2	4 1/2	5 1/2	3 1/2	5 1/2	4 1/2	3 1/2	3	5 1/2	7 1/2	5 1/2	8 1/2	4 1/2	4 1/2	3 1/2	F	1'-2	G	13 1/2	11'-7	aj	17 1/2	11'-8 1/2	bh	cd	4 1/2	23°-11 1/2	T59 T59A
T510	1'-1	b	0'-1		9 1/2	10	C11	C12	11'-5 1/2	11'-5 1/2	6 1/2	8 1/2	7	5 1/2	6 1/2	4	5 1/2	4 1/2	3 1/2	3 1/2	5 1/2	7 1/2	5 1/2	8 1/2	4 1/2	4 1/2	3 1/2	F	1'-2	G	13 1/2	11'-7	ak	16	11'-6 1/2	bi	ce	4 1/2	23°-11	T510
T511A	1'-1	b	0'-1		8 1/2	10 1/2	C11	C12	11'-5 1/2	11'-5 1/2	6 1/2	8 1/2	7	5 1/2	6 1/2	4	5 1/2	4 1/2	3 1/2	3 1/2	5 1/2	7 1/2	5 1/2	8 1/2	4 1/2	4 1/2	3 1/2	F	1'-2	G	13 1/2	11'-7	al	16 1/2	11'-6 1/2	bj	cf	4 1/2	23°-11	T511A

REQUIRED LIST

№	DESCRIPTION	MARK	REMARKS
2	Bottom Struts	T51	
2	" "	T52	
2	" "	T53	
2	" "	T54	
2	" "	T55	
2	" "	T56	
2	" "	T57	
2	" "	T58	
2	" "	T59	
2	" "	T510	
2	" "	T511A	
2	" "	T51A	
2	" "	T52A	
2	" "	T53A	
2	" "	T54A	
2	" "	T55A	
2	" "	T56A	
2	" "	T57A	
2	" "	T58A	
2	" "	T59A	
2	Bottom Laterals	TL19A	

GENERAL NOTES:-
STEEL:- ASTM A7 and A36
WELDING:- AWS D2.0-48
MATERIAL:- Carbon steel A.S.T.M. A7-36 with .25% copper content, except were noted. All holes may be punched full size except:-
(a) Bill holes marked BT are to be subpunched 1/8" small and reamed to size after truss is assembled.
(b) Field connections of bracing shall be subpunched and reamed after truss is assembled.
(c) Holes in main material over 3/4" thick shall be drilled from the solid.
(d) Holes in main material over 3/4" thick shall be punched to a depth of 1/4" more than the material, then reamed to size.
ROUGHED EDGES:- All main material over 3/4" thick shall be planed.
PLACE FOR STAMPS:- All main material shall be placed stamped to approval and present a smooth workmanlike appearance.
PAINT:- Two coats of RED LEAD except where noted. Shop contact surfaces not painted.
WELDS:- Denotes break in shop.

Bottom Struts – Spans 5-7 & 10-12

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

DESIGNED BY: [illegible]
CHECKED BY: [illegible]
SHOP NO. 1
CONTRACT NO. CC25875
552

15-9-58

TranSystems

Made By: CJM Date: 3/9/09 Job No: HAM-471-C025

Checked By: KMW Date: 3/24/09 Sheet No. 1/2

Dead Load Calcs: Secondary Members

Span 5-7 | Span 7-10

Bottom Laterals: Use TL19

4 L's 5 x 3½ x ⅜ x 30'-7 5/8" (10.4 lb/ft)

Wt: 4 (10.4 lb/ft)(30.6354 ft)(1K/1000lb) = 1.2744K

Batton Plates: 1 PL 24½ x ⅝ x 2'-7", 1 PL 25½ x ⅝ x 2'-8¾

$[(24.5")(0.625")(31") + (25.5")(0.625")(32.75")](1ft^3/1728in^3)(0.49 K/ft^3) =$

$(474.6875 + 521.9531)(\frac{0.49}{1728}) =$ 0.2826K

Lacing Bars: 60 bars 2½ x 5/16 x 11 9/16"

$Wt = (60\ bars)(2.5")(0.3125")(11.5625")(1ft^3/1728in^3)(0.49\ K/ft^3) =$ 0.1537K

Rivets: 60 + 8 + 8 = 76 say 80 rivets (0.0804 K/100 rivets) = 0.0643K

Total wt = L's → 1.2744K

Batton Plates → 0.2826K

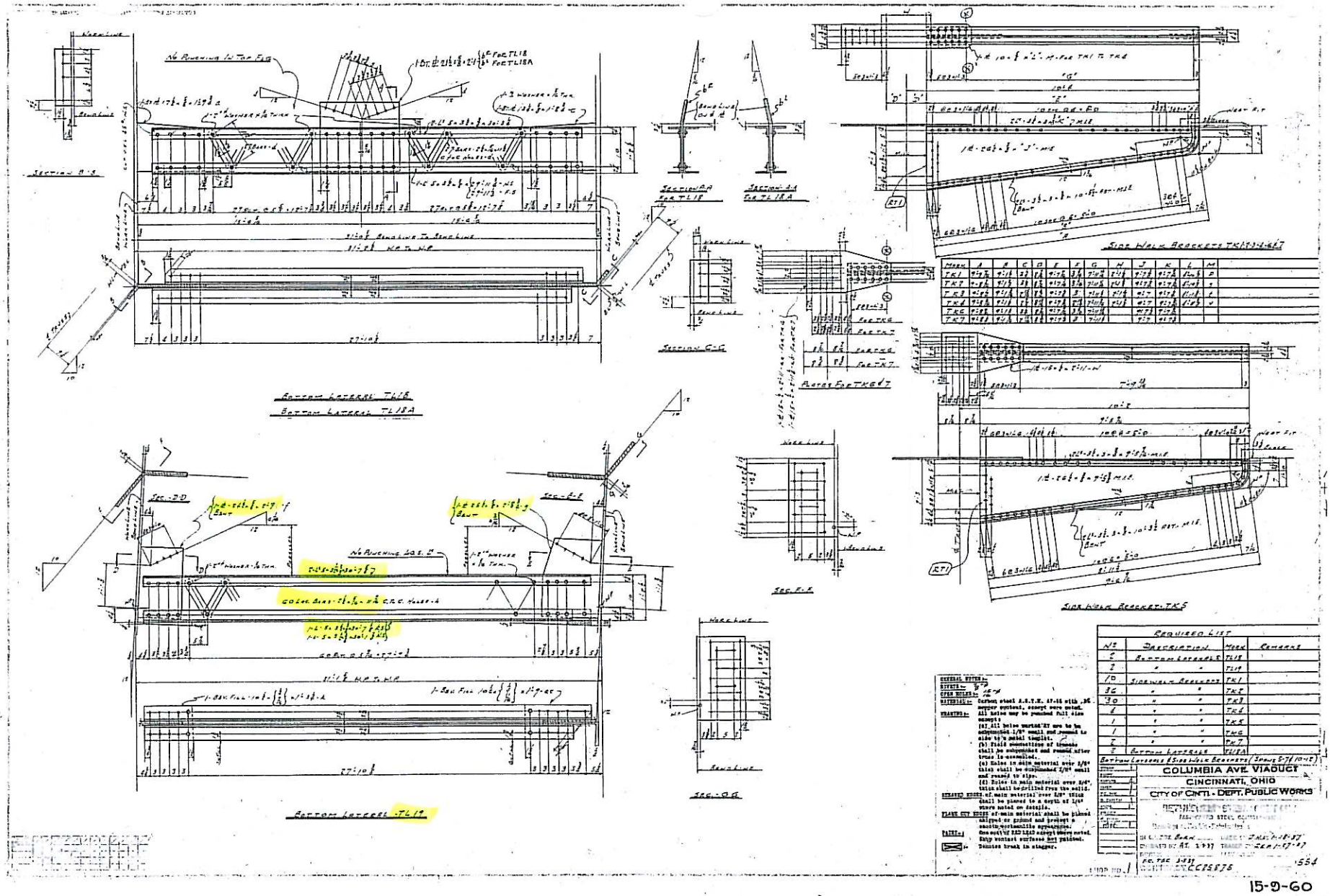
Lacing Bars → 0.1537K

Rivets → 0.0643K

1.775K

Bump Up = $\frac{1.775\ K}{1.2744\ K} =$ 1.39

Calculations for 1/8 US Grid



Section B-B
No Punching In Top Flg
Section A-A For TL18
Section A-A For TL18A
Section C-C
Plates For TK6 & 7
Side Walk Brackets TK1-2-3-4-6&7
Bottom Lateral TL18
Bottom Lateral TL18A
Sec. D-D
Sec. E-E
No Punching Lgs. 2
Sec. F-F
Sec. G-G
Side Walk Bracket TK5
Bottom Lateral TL19
Required List
No. | Description | Mark | Remarks
2 | Bottom Lateral | TL18
2 | " " | TL19
10 | Side Walk Brackets | TK1
36 | " " | TK2
30 | " " | TK3
4 | " " | TK4
1 | " " | TK5
1 | " " | TK6
2 | " " | TK7
2 | Bottom Lateral | TL18A
Bottom Lateral & Side Walk Brackets (Spans 5-7 & 10-12)
General Notes:
Rivets:
Open Holes:
Material:
Carbon steel A.S.T.M. A7-55 with .25 copper content, except were noted.
Drawings:
All holes may be punched full size except:
(a) All holes marked "A" are to be subpunched 1/8" small and reamed to size to a metal template.
(b) Field connections of trusses shall be subpunched and reamed after truss is assembled.
(c) Holes in main material over 3/8" thick shall be subpunched 1/8" small and reamed to size.
(d) Holes in main material over 3/4" thick shall be drilled from the solid.
Sheared Edges of main material over 3/8" thick shall be planed to a depth of 1/4" where noted on details.
Plane Cut Edges of main material shall be planed shipped or ground and present a smooth workmanlike appearance.
Paint:
One coat of RED LEAD except where noted. Keep contact surfaces not painted.
Denotes break in stagger.
COLUMBIA AVE. VIADUCT
CINCINNATI, OHIO
CITY OF CINTI. - DEPT. PUBLIC WORKS
Designed by AS 1-9-37
Checked by
Rec. TSC 3-5-37
Contract CC25875
554

15-9-60

2/2