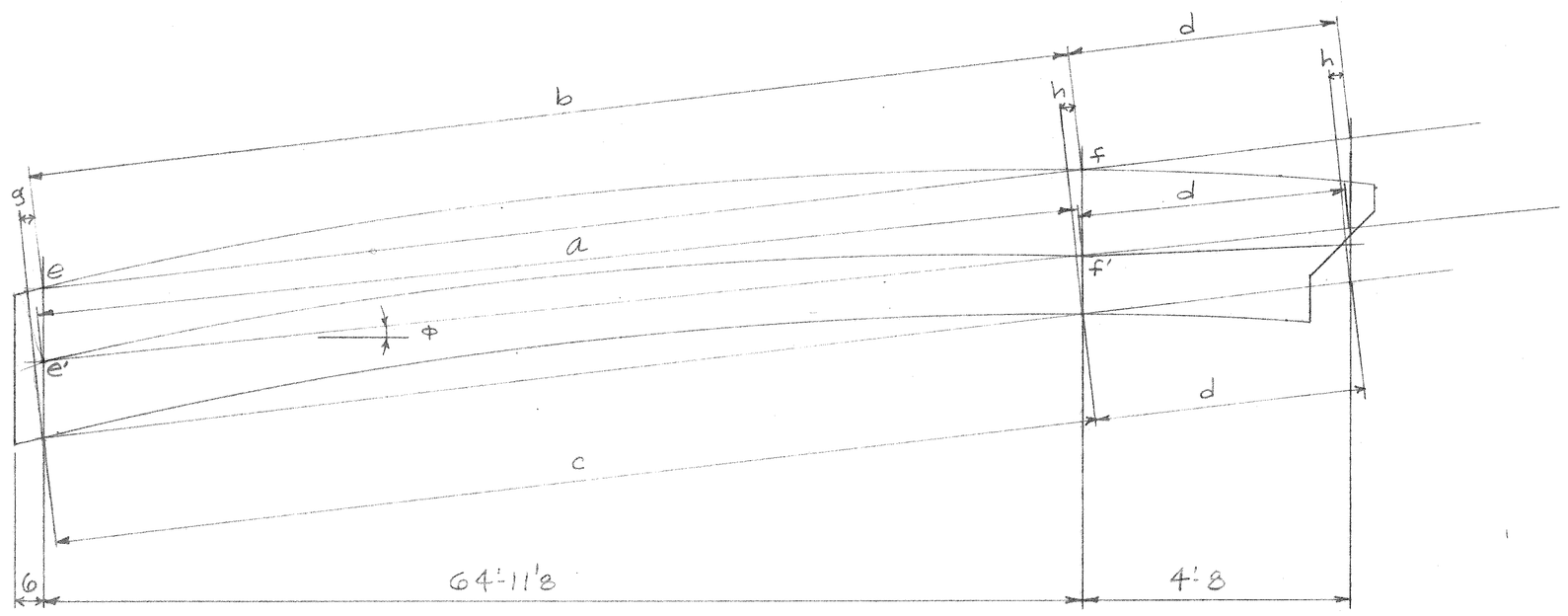
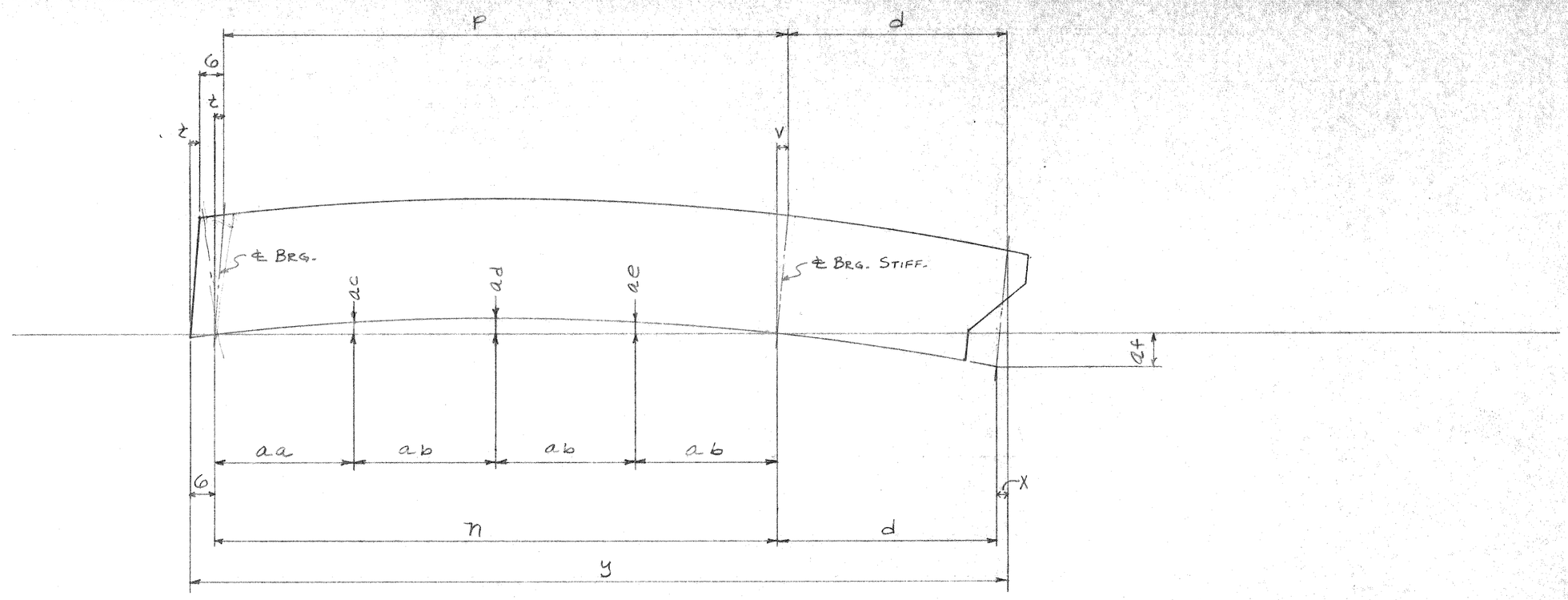


Stringer Span #1 In Final Position Under Full Dead Load

1. ℄ Bearings & Suspender Are Vertical.
2. $a = b = c$
3. $a = \sqrt{(64'\text{-}11\tfrac{1}{8}")^2 + (\text{Elev. } f' - \text{Elev. } e')^2} = \sqrt{(64'\text{-}11\tfrac{1}{8}")^2 + (\text{Elev. } f - \text{Elev. } e)^2}$
4. $d = (4'\text{-}8) \div \cos \Phi$
5. $\cos \Phi = (64'\text{-}11\tfrac{1}{8}") \div a$
6. $\tan \Phi = (\text{Elev. } f - \text{Elev. } e) \div (64'\text{-}11\tfrac{1}{8}")$
7. $g = (2.490) \tan \Phi = h$



Stringer Span #1 Camber And Cutting Details

1. $n = c - 2m$
2. $p = b + 2m$
3. $z = g - 2m$
4. $V = h + 2m = X$
5. $ad = K$
6. $p + z - V = n$

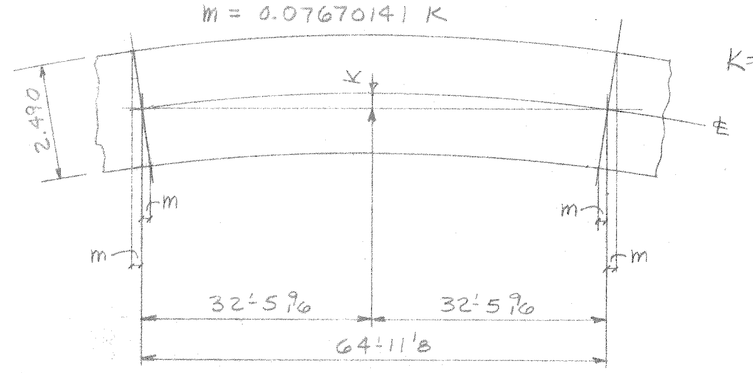
CITY OF DETROIT
CITY ENGINEERING DEPARTMENT
APPROVED
FOR COMPLIANCE WITH CONTRACT No. PW 6558
* * *
THIS APPROVAL SHALL NOT RELIEVE THE CONTRACTOR OF ANY RESPONSIBILITY COVERED BY THE CONTRACT
DATE MAR 2 1977 BY

SEE SHEET E3

LINE	a, b, c	d	Elev. e	Elev. f	g	h	Tan Φ	Cos Φ	f - e	K	m	Slope Incr. a-(64'11⅛")
A	64.9730	4.6699	131.933	134.374	0.0936	0.0936	0.037596	0.999294	2.441	1¼	0.0080	0.0459
B	64.9684	4.6696	132.204	134.520	0.0888	0.0888	0.0356708	0.9993644	2.316	1½	0.0096	0.0413
C	64.9633	4.6692	132.558	134.725	0.0831	0.0831	0.0333759	0.9994435	2.167	2⅛	0.0136	0.0362
D	64.9566	4.6687	133.016	134.975	0.0751	0.0751	0.0301723	0.9995451	1.959	2⅛	0.0136	0.0295
E	64.9548	4.6686	133.287	135.183	0.0727	0.0727	0.02920198	0.9995739	1.896	1½	0.0096	0.0277
F	64.9513	4.6683	133.599	135.371	0.0680	0.0680	0.0272921	0.9996277	1.772	1½	0.0096	0.0242
G	64.9480	4.6681	133.808	135.454	0.0631	0.0631	0.0253515	0.9996788	1.646	1⅝	0.0104	0.0209
H	64.9444	4.6678	133.954	135.454	0.0575	0.0575	0.0231028	0.9997332	1.500	1⅝	0.0104	0.0173
J	64.9417	4.6676	134.037	135.413	0.0528	0.0528	0.0211930	0.9997755	1.376	1⅝	0.0104	0.0146
K	64.9387	4.6674	134.099	135.329	0.0472	0.0472	0.0189443	0.9998206	1.230	1½	0.0096	0.0116
L	64.9365	4.6673	134.204	135.308	0.0423	0.0423	0.01700369	0.9998555	1.104	1½	0.0096	0.0094
M	64.9342	4.6671	134.370	135.329	0.0368	0.0368	0.01477041	0.9998909	0.959	1¼	0.0080	0.0071

End Rotat. $= 2m = \dfrac{4(K)(2.490)}{(64'\text{-}11\tfrac{1}{8}")} = 0.153402816\ (K)$

$m = 0.07670141\ K$



End Rotation Calculation

$K = ad - (ad \text{ Under Full D.L.})$

Use For Detail Dimensions

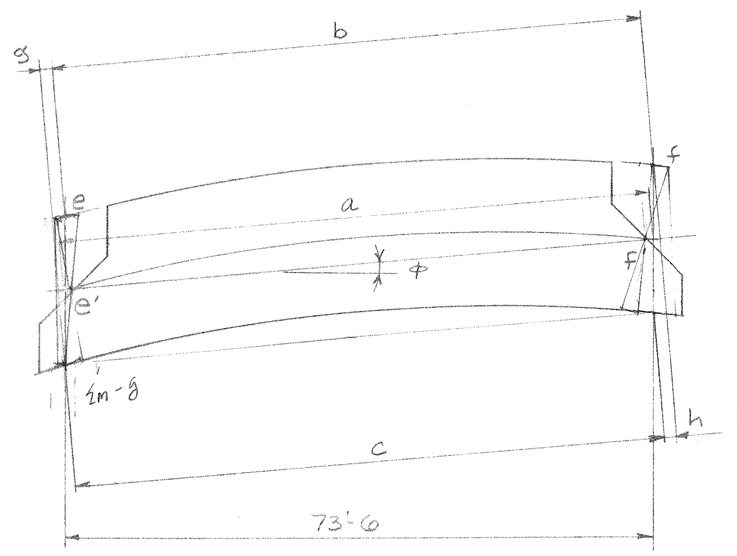
	d	n	p	t	V	X	y=6+n+d+X	y=t+6+p+d	aa	ab	ac	ad	ae	af		Under Full Dead Load ad
A	4'-8 1/16 (-)	64.9570	64.9890	0.0776	0.1096	0.1096	70.2365	70.2374	16'-2⅞	16'-2⅞	3⅛	4¼	3⅛	1⅛		3
B	4'-8 1/16 (-)	64.9492	64.9876	0.0696	0.1080	0.1080	70.2268	70.2268	16'-2¾	16'-2⅞	3⅛	4¼	3⅛	1⅛		2¾
C	4'-8 (+)	64.9361	64.9905	0.0559	0.1103	0.1103	70.2156	70.2156	16'-2 13/16	16'-2 13/16	3⅛	4¼	3⅛	1⅛		2⅝
D	4'-8 (+)	64.9294	64.9838	0.0479	0.1023	0.1023	70.2004	70.2004	16'-2⅞	16'-2¾	3⅛	4¼	3⅛	1⅛		2⅝
E	4'-8 (+)	64.9356	64.9740	0.0535	0.0919	0.0919	70.1961	70.1961	16'-2¾	16'-2 13/16	2¾	3⅝	2¾	1		2'8
F	4'-8 (+)	64.9321	64.9705	0.0488	0.0872	0.0872	70.1876	70.1876	16'-2¾	16'-2 13/16	2¾	3⅝	2¾	1		2'8
G	4'-8 (+)	64.9272	64.9688	0.0423	0.0839	0.0839	70.1792	70.1792	16'-2⅞	16'-2¾	2¾	3¾	2¾	1		2'8
H	4'-8 (+)	64.9236	64.9652	0.0367	0.0783	0.0783	70.1697	70.1697	16'-2 13/16	16'-2¾	2¾	3¾	2¾	1		2'8
J	4'-8 (+)	64.9209	64.9625	0.0320	0.0736	0.0736	70.1621	70.1621	16'-2 13/16	16'-2¾	2¾	3¾	2⅞	1		2'8
K	4'-8 (+)	64.9195	64.9579	0.0280	0.0664	0.0664	70.1533	70.1533	16'-2 13/16	16'-2¾	2¾	3¾	2¾	1		2¼
L	4'-8 (+)	64.9173	64.9557	0.0231	0.0615	0.0615	70.1461	70.1461	16'-2¾	16'-2¾	3⅛	4¼	2¾	1⅛		2¾
M	4'-8 (+)	64.9182	64.9502	0.0208	0.0528	0.0528	70.1381	70.1381	16'-2¾	16'-2¾	3⅛	4¼	2⅝	1⅛		3
								P+z-V								
A	4'-8	64'-11½"	64'-11⅞"	0 15/16	1 5/16	1 5/16	70'-2 13/16	70'-2 13/16	64'-11½"							
B	4'-8	64'-11⅜"	64'-11⅞"	0 12/16	1 5/16	1 5/16	70'-2 11/16	70'-2 11/16	64'-11⅜"							
C	4'-8	64'-11¼"	64'-11⅞"	0 1/16	1 5/16	1 5/16	70'-2 9/16	70'-2 9/16	64'-11¼"							
D	4'-8	64'-11⅛"	64'-11 13/16"	0 9/16	1¼	1¼	70'-2⅜	70'-2⅜	64'-11⅛"							
E	4'-8	64'-11 3/16"	64'-11 1/16"	0 5/16	1⅛	1⅛	70'-2 5/16	70'-2 5/16	64'-11 3/16"							
F	4'-8	64'-11 3/16"	64'-11 1/16"	0 9/16	1⅛	1⅛	70'-2¼	70'-2¼	64'-11 3/16"							
G	4'-8	64'-11⅛"	64'-11⅝"	0'-2	1	1	70'-2⅛	70'-2⅛	64'-11⅛"							
H	4'-8	64'-11 1/16"	64'-11 9/16"	0 7/16	0 15/16	0 15/16	70'-2	70'-2	64'-11 1/16"							
J	4'-8	64'-11 1/16"	64'-11 1/16"	0 3/8	0 7/8	0 7/8	70'-1 15/16	70'-1 15/16	64'-11 1/16"							
K	4'-8	64'-11 1/16"	64'-11'-2	0 3/8	0 13/16	0 13/16	70'-1⅞	70'-1⅞	64'-11 1/16"							
L	4'-8	64'-11	64'-11'-2	0'-4	0 3/4	0 3/4	70'-1 3/4	70'-1 3/4	64'-11							
M	4'-8	64'-11	64'-11 3/8	0'-4	0 5/8	0 5/8	70'-1 5/8	70'-1 5/8	64'-11							

PHILIP ZWEIG & SONS
2100 E. 5TH AVE. GARY, IND.

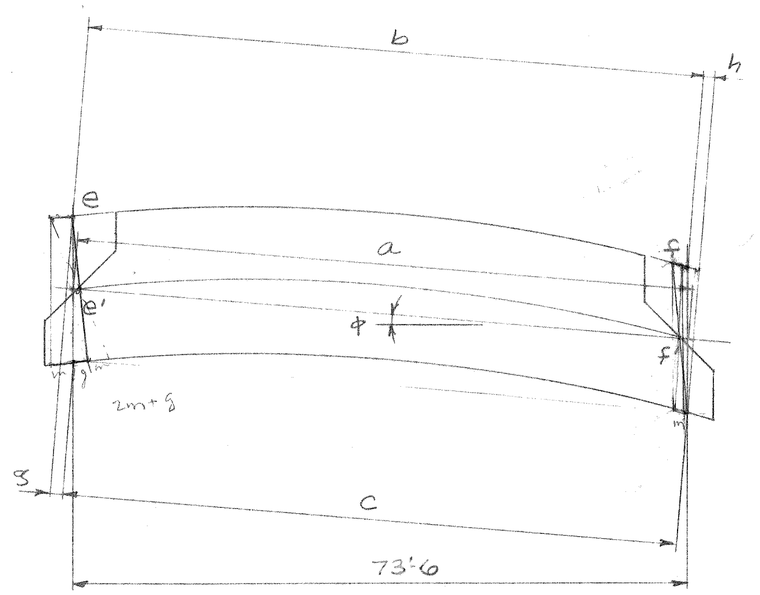
BUILDING Bagley Ave. Bridge Crossing The P.C.R.R.
OWNER City Of Detroit, Mich.
LOCATION Detriot, Mich.
CONTRACTOR Walter Toebe Construction Company
ARCHITECT City Engineering Dept., City Of Detroit, Mich.
TITLE Span 1 Beam Calculations

RIVETS	DRAWN RPJ DATE 2.1.77
HOLES	CHKD. CdC
PAINT	REV. REV.
CONTRACT 335	SHEET W81 OF 8

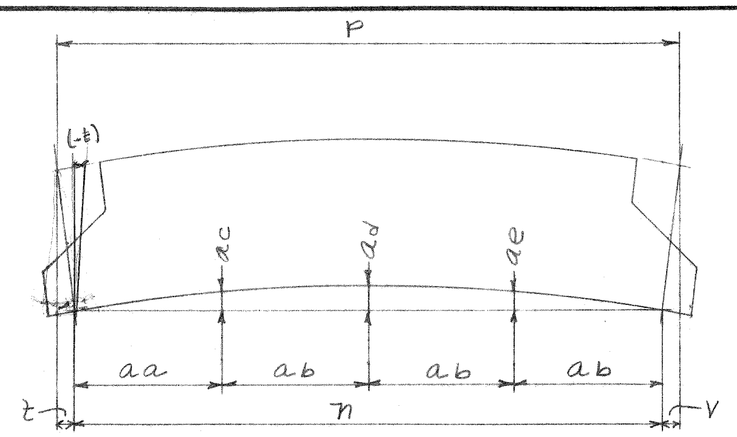
Draw Bridge Inc. #72



LINE A THRU F



LINE G THRU M



STRINGER SPAN # 2 CAMBER & CUTTING DETAILS

LINE A THRU F

1. $n = c - 2m$
2. $P = b + 2m$
3. $t = 2m - g$
4. $V = h + 2m$
5. $P = t + n + V$

LINE G THRU M

1. $n = c - 2m$
2. $P = b + 2m$
3. $t = g + 2m$
4. $V = 2m - h$
5. $P = t + n + V$

STRINGER SPAN # 2 IN FINAL POSITION UNDER FULL DEAD LOAD

1. ℄ SUSPENDERS ARE VERTICAL
2. $a = b = c$
3. $g = h$
4. $a = \sqrt{(73'\text{-}6)^2 + (\text{El. } f' - \text{El. } e')^2} = \sqrt{(73'\text{-}6)^2 + (\text{El. } f - \text{El. } e)^2}$
5. $\text{Cos } \phi = (73'\text{-}6) \div a$
6. $\text{Tan } \phi = |(\text{El. } f - \text{El. } e)| \div (73'\text{-}6)$
7. $g = (2.521)\ \text{Tan } \phi = h$

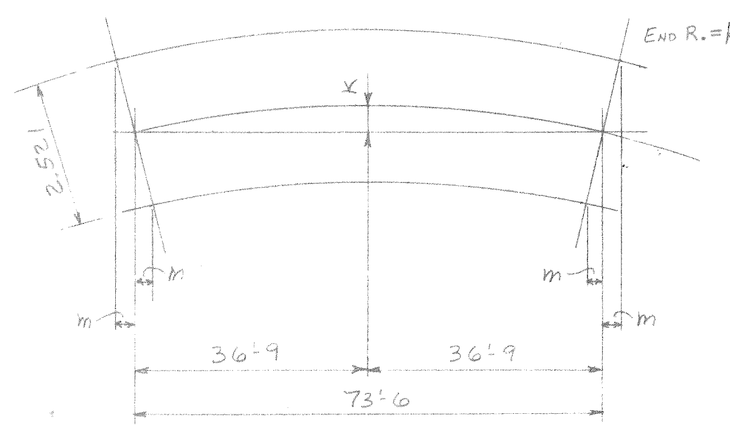
See Sheet E3

	a, b, c	El. e	El. f	g & h	Tan φ	Cos φ	f - e	K	m	2m
A	73.5051	134.456	135.318	0.0296	0.01172789	0.9999312	0.862	2'8	0.0121	.0242976
B	73.5035	134.593	135.307	0.0245	0.00971429	0.9999528	0.714	2'½	0.0143	.0285782
C	73.5021	134.787	135.336	0.0188	0.00746939	0.9999721	0.549	3'½	0.0200	.0400 2045
D	73.5011	135.022	135.431	0.0140	0.0055646	0.9999845	0.409	3'½	0.0200	.0400 2045
E	73.5004	135.236	135.491	0.0087	0.00346939	0.999994	0.255	2'½	0.0143	.0285782
F	73.5000 (+)	135.415	135.500	0.0029	0.00115646	1.0 (-)	0.085	2'½	0.0143	.0285782
G	73.5000 (+)	135.489	135.428	-0.0021	0.0008299	1.0 (-)	-(0.061)	2'5⅞	0.0150	.0300 1876
H	73.5003	135.479	135.270	-0.0072	0.0028435	0.999996	-(0.209)	2'¾	0.0157	.0314 4562
J	73.5009	135.429	135.072	-0.0122	0.004857	0.999988	-(0.357)	2'5⅞	0.0150	.0300 1876
K	73.5017	135.334	134.831	-0.0173	0.0068435	0.9999766	-(0.503)	2'5⅞	0.0150	.0300 1876
L	73.5030	135.294	134.627	-0.0229	0.0090748	0.9999588	-(0.667)	2'½	0.0143	.0285782
M	73.5045	135.304	134.490	-0.0279	0.0110748	0.9999387	-(0.814)	2'8	0.0121	.0242976

	n	P	t	V	aa	ab	ac	ad	ae	t+n+V=P	Under Full Dead Load ad
A	73.4809	73.5293	-(0.0054)	0.0538	18.3702	18.3702	4¾	6⅜	4¾	73.5293	4'4
B	73.4749	73.5321	0.0041	0.0531	18.3687	18.3687	4¾	6⅜	4¾	73.5321	3⅞
C	73.4621	73.5421	0.0212	0.0588	18.3655	18.3655	4⅝	6'4	4⅝	73.5421	2¾
D	73.4611	73.5411	0.0260	0.0540	18.3653	18.3653	4⅝	6'4	4⅝	73.5411	2¾
E	73.4718	73.5290	0.0199	0.0373	18.3680	18.3680	3⅞	5'4	3⅞	73.5290	2¾
F	73.4714	73.5286	0.0257	0.0315	18.3679	18.3679	3⅞	5'4	3⅞	73.5286	2¾
G	73.4700	73.5300	0.0321	0.0279	18.3675	18.3675	4	5⅜	4	73.5300	2¾
H	73.4689	73.5317	0.0386	0.0242	18.3672	18.3672	4'8	5'2	4'8	73.5317	2¾
J	73.4709	73.5309	0.0422	0.0178	18.3677	18.3677	4	5⅜	4	73.5309	2¾
K	73.4717	73.5317	0.0473	0.0127	18.3679	18.3679	4	5⅜	4	73.5317	2¾
L	73.4744	73.5316	0.0515	0.0057	18.3686	18.3686	4¾	6⅜	4¾	73.5316	3⅞
M	73.4803	73.5287	0.0521	-(0.0037)	18.3701	18.3701	4¾	6⅜	4¾	73.5287	4'4

Use These Dim. For All Lines - See Note 1

	73'-5⅝	73'-6⅜	⅜	⅜	18'-4⅝	18'-4⅞				
A	73'-5¾	73'-6⅜	0	⅝	18'-4⅞	18'-4⅞	4¾	6⅜	4¾	73'-6⅜
B	73'-5¾	73'-6⅜	0	⅝	18'-4⅞	18'-4⅞	4¾	6⅜	4¾	73'-6⅜
C	73'-5⅝	73'-6½	¼	⅝	18'-4⅝	18'-4⅞	4⅝	6'4	4⅝	73'-6½
D	73'-5⅝	73'-6½	¼	⅝	18'-4⅝	18'-4⅞	4⅝	6'4	4⅝	73'-6½
E	73'-5¾	73'-6⅜	¼	⅜	18'-4⅞	18'-4⅞	3⅞	5'4	3⅞	73'-6⅜
F	73'-5¾	73'-6⅜	¼	⅜	18'-4⅞	18'-4⅞	3⅞	5'4	3⅞	73'-6⅜
G	73'-5⅝	73'-6⅜	⅜	⅜	18'-4⅝	18'-4⅞	4	5⅜	4	73'-6⅜
H	73'-5⅝	73'-6⅜	½	¼	18'-4⅝	18'-4⅞	4'8	5'2	4'8	73'-6⅜
J	73'-5⅝	73'-6⅜	½	¼	18'-4⅝	18'-4⅞	4	5⅜	4	73'-6⅜
K	73'-5¾	73'-6⅜	½	⅛	18'-4⅞	18'-4⅞	4	5⅜	4	73'-6⅜
L	73'-5¾	73'-6⅜	⅝	0	18'-4⅞	18'-4⅞	4¾	6⅜	4¾	73'-6⅜
M	73'-5¾	73'-6⅜	⅝	0	18'-4⅞	18'-4⅞	4¾	6⅜	4¾	73'-6⅜



End R. = K = ad - (ad Under Full Dead Load)

$2m = \dfrac{4(K)(2.521)}{(73.50)} = 0.1371972789\ (K)$

$m = 0.0685986395\ (K)$

Calculated Detail Dimensions

Note 1

These Dimensions Have Been Rounded For Simplicity Of Detailing.

END ROTATION CALCULATION

LINE	TOTAL NO. OF PIECES ON THE SHEET	MATERIAL: NO. OF PCS. ON SHEET	MATERIAL: SHAPE	MATERIAL: LENGTH FEET	MATERIAL: LENGTH INCHES	ASSEMBLING MARK	REMARKS	ORDERED: ITEM	CALCULATED WEIGHT FOR CWT. SHIP PIECE
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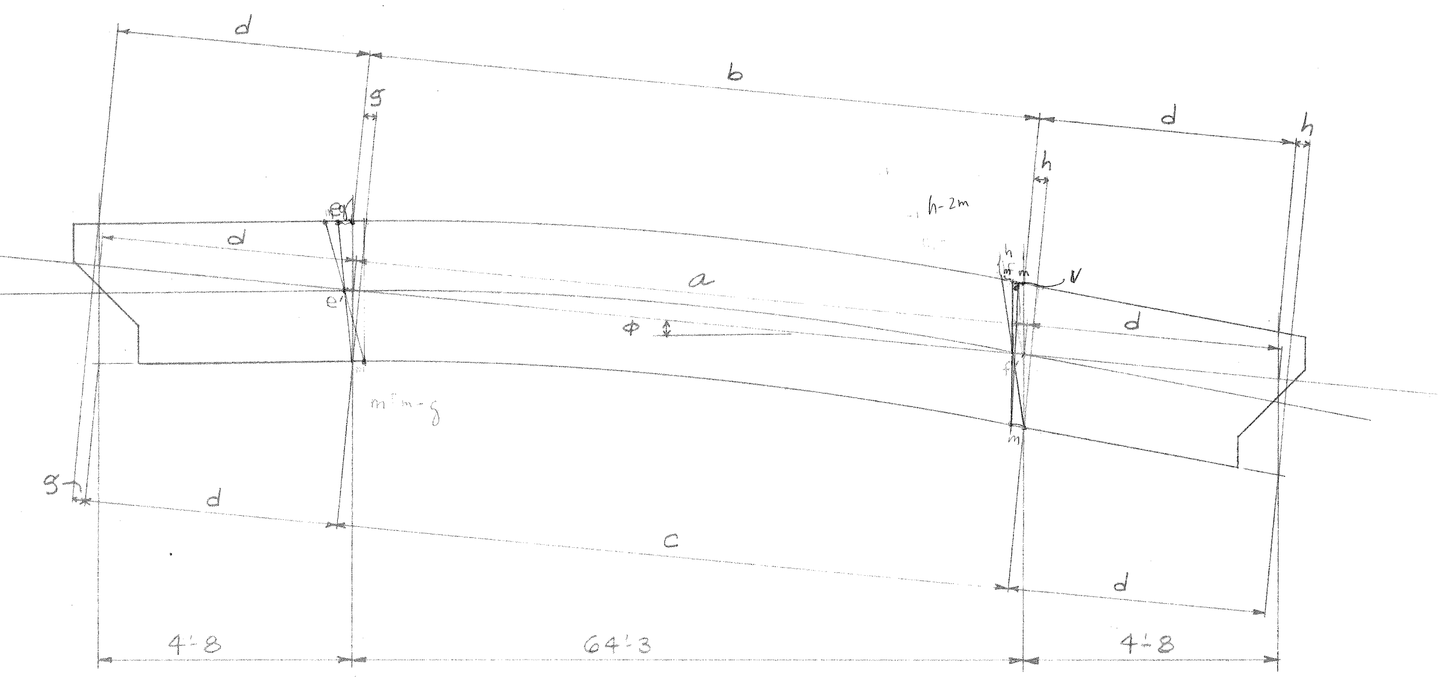
CITY OF DETROIT
CITY ENGINEERING DEPARTMENT
APPROVED
SUBJECT TO COMPLIANCE WITH CONTRACT No. PW 6558
* * * *
APPROVAL SHALL NOT RELIEVE THE CONTRACTOR OF ANY RESPONSIBILITY COVERED BY THE CONTRACT
DATE MAR 2 1977 BY

PHILIP ZWEIG & SONS
2100 E. 5TH AVE. GARY, IND.

BUILDING Bagley Ave. Bridge Crossing The P.C.R.R.
OWNER City Of Detroit, Mich.
LOCATION Detroit, Mich.
CONTRACTOR Walter Toebe Construction Company
ARCHITECT City Engineering Dept., City Of Detroit, Mich.
TITLE Span 2 Beam Calculations

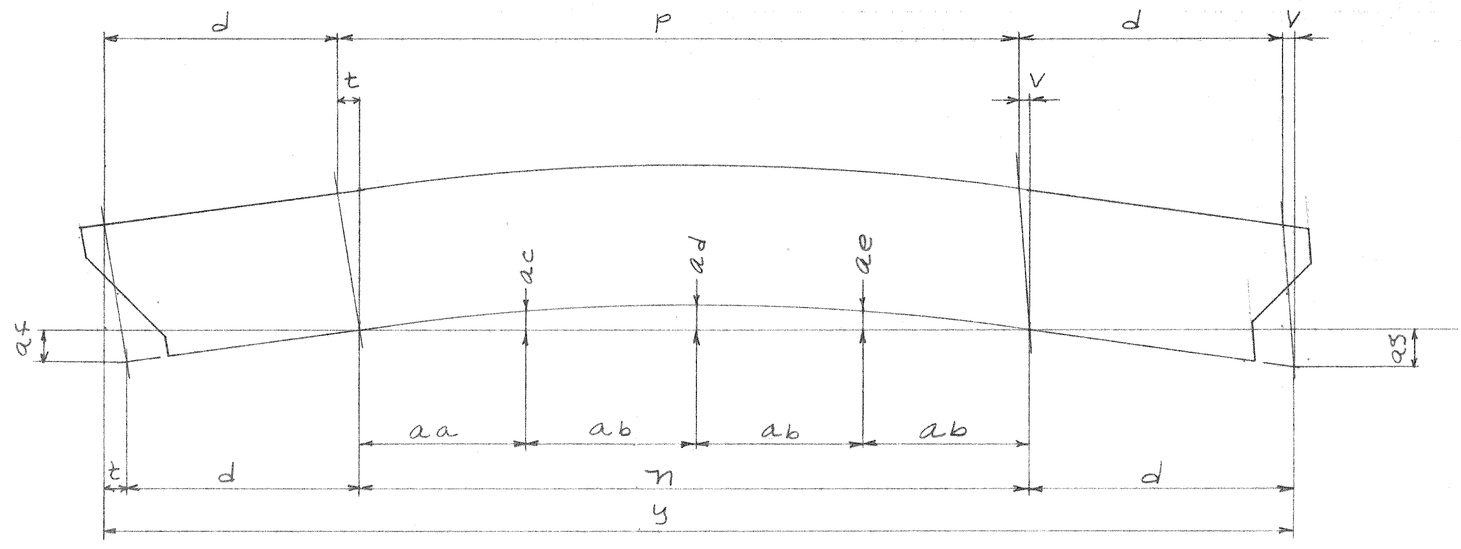
RIVETS
HOLES
PAINT
DRAWN RPJ DATE 2.1.77
CHKD. CdC
REV. REV.
CONTRACT 335
SHEET WS2 OF 8

Draw Bridge Inc. #72



STRINGER SPAN # 3 IN FINAL POSITION UNDER FULL DEAD LOAD

1. ℄ BEARINGS & SUSPENDERS ARE VERTICAL
2. a = b = c
3. $a = \sqrt{(64'3)^2 + (\text{EL.e'} - \text{EL.f'})^2} = \sqrt{(64'3)^2 + (\text{EL.e} - \text{EL.f})^2}$
4. COS Φ = (64'3) ÷ a
5. TAN Φ = (EL.e − EL.f) ÷ (64'3)
6. d = (4'8) ÷ COS Φ
7. g = (2.490) × TAN Φ = h



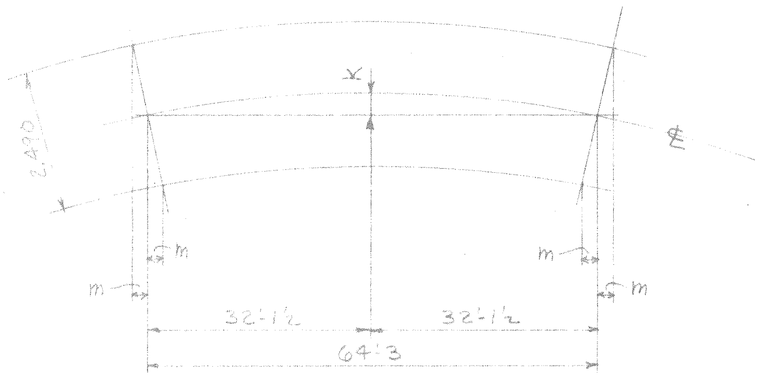
STRINGER SPAN # 3 CAMBER AND CUTTING DETAILS

1. n = c − 2m
2. p = b + 2m
3. t = g + 2m
4. V = h − 2m
5. n = p + V − t

	a, b, c	d	SEE SHEET E3 ELEV. e	ELEV. f	g & h	TAN Φ	COS Φ	e − f	k	m
A	64.2568	4.6671	135.333	134.399	0.0362	0.01453696	0.99989436	0.934	7/8	0.0057
B	64.2587	4.6672	135.313	134.253	0.0411	0.01649805	0.99986393	1.060	1 1/8	0.0073
C	64.2610	4.6675	135.333	134.146	0.0460	0.01847471	0.9998294	1.187	1 1/2	0.0097
D	64.2638	4.6676	135.417	134.083	0.0517	0.0207626	0.9997845	1.334	1 5/8	0.0105
E	64.2665	4.6678	135.458	134.000	0.0565	0.0226926	0.9997426	1.458	1 1/8	0.0073
F	64.2695	4.6680	135.458	133.875	0.0613	0.0246381	0.9996966	1.583	1 1/8	0.0073
G	64.2733	4.6683	135.375	133.646	0.0670	0.0269105	0.9996381	1.729	1 1/4	0.0081
H	64.2767	4.6685	135.208	133.354	0.0719	0.028856	0.9995839	1.854	1 1/4	0.0081
J	64.2810	4.6689	135.000	133.003	0.0774	0.0310817	0.9995173	1.997	1 1/4	0.0081
K	64.2851	4.6692	134.750	132.625	0.0824	0.0330739	0.9994535	2.125	1 1/4	0.0081
L	64.2901	4.6695	134.545	132.274	0.0880	0.0353463	0.9993759	2.271	1 1/4	0.0081
M	64.2947	4.6698	134.399	132.003	0.0929	0.0372918	0.9993054	2.396	1	0.0065

	d	n	p	t	V	y = 2d+t+n	y = 2d+p+V	aa	ab	ac	ad	ae	af	ag	p+V−t	UNDER FULL DEAD LOAD ad
A	4.6671	64.2454	64.2682	0.0476	0.0248	73.6272	73.6272	16.0614	16.0614	2 3/4	3 5/8	2 3/4	1	1	64.2454	2 3/4
B	4.6672	64.2441	64.2733	0.0557	0.0265	73.6342	73.6342	16.0610	16.0610	2 3/4	3 5/8	2 3/4	1	1	64.2441	2 1/2
C	4.6675	64.2416	64.2804	0.0654	0.0266	73.6420	73.6420	16.0604	16.0604	2 3/4	3 5/8	2 3/4	1	1	64.2416	2 1/8
D	4.6676	64.2428	64.2848	0.0727	0.0307	73.6507	73.6507	16.0607	16.0607	2 3/4	3 5/8	2 3/4	1	1	64.2428	2.
E	4.6678	64.2519	64.2811	0.0711	0.0419	73.6586	73.6586	16.0630	16.0630	2 3/8	3 1/4	2 3/8	7/8	7/8	64.2519	2 1/8
F	4.6680	64.2549	64.2841	0.0759	0.0467	73.6668	73.6668	16.0637	16.0637	2 3/8	3 1/4	2 3/8	7/8	7/8	64.2549	2 1/8
G	4.6683	64.2571	64.2895	0.0832	0.0508	73.6769	73.6769	16.0643	16.0643	2 1/2	3 3/8	2 1/2	7/8	7/8	64.2571	2 1/8
H	4.6685	64.2605	64.2929	0.0881	0.0557	73.6856	73.6856	16.0651	16.0651	2 1/2	3 3/8	2 1/2	7/8	1	64.2605	2 1/8
J	4.6689	64.2648	64.2972	0.0936	0.0612	73.6962	73.6962	16.0662	16.0662	2 1/2	3 3/8	2 1/2	7/8	1	64.2648	2 1/8
K	4.6692	64.2689	64.3013	0.0986	0.0662	73.7059	73.7059	16.0672	16.0672	2 1/2	3 3/8	2 1/2	7/8	1	64.2689	2 1/8
L	4.6695	64.2739	64.3063	0.1042	0.0718	73.7171	73.7171	16.0685	16.0685	2 7/8	3 7/8	2 7/8	1	1	64.2739	2 5/8
M	4.6698	64.2817	64.3077	0.1059	0.0799	73.7272	73.7272	16.0704	16.0704	2 7/8	3 7/8	2 7/8	1	1	64.2817	2 1/8
A	4'-8	64'-2 15/16	64'-3 3/16	9/16	5/16	73'-7 1/2	73'-7 1/2	16'-0 11/16	16'-0 3/4	2 3/4	3 5/8	2 3/4	1	1	64'-2 15/16	
B	4'-8	64'-2 15/16	64'-3 5/16	11/16	5/16	73'-7 5/8	73'-7 5/8	16'-0 11/16	16'-0 3/4	2 3/4	3 5/8	2 3/4	1	1	64'-2 15/16	
C	4'-8	64'-2 15/16	64'-3 3/8	3/4	5/16	73'-7 11/16	73'-7 11/16	16'-0 11/16	16'-0 3/4	2 3/4	3 5/8	2 3/4	1	1	64'-2 15/16	
D	4'-8	64'-2 15/16	64'-3 7/16	7/8	3/8	73'-7 13/16	73'-7 13/16	16'-0 11/16	16'-0 3/4	2 3/4	3 5/8	2 3/4	1	1	64'-2 15/16	
E	4'-8	64'-3	64'-3 3/8	7/8	1/2	73'-7 7/8	73'-7 7/8	16'-0 3/4	16'-0 3/4	2 3/8	3 1/4	2 3/8	7/8	7/8	64'-3	
F	4'-8	64'-3 1/16	64'-3 7/16	15/16	9/16	73'-8	73'-8	16'-0 13/16	16'-0 3/4	2 3/8	3 1/4	2 3/8	7/8	7/8	64'-3 1/16	
G	4'-8	64'-3 1/16	64'-3 7/16	1	5/8	73'-8 1/16	73'-8 1/16	16'-0 13/16	16'-0 3/4	2 1/2	3 3/8	2 1/2	7/8	7/8	64'-3 1/16	
H	4'-8	64'-3 1/8	64'-3 1/2	1 1/16	11/16	73'-8 3/16	73'-8 3/16	16'-0 7/8	16'-0 3/4	2 1/2	3 3/8	2 1/2	7/8	1	64'-3 1/8	
J	4'-8	64'-3 3/16	64'-3 9/16	1 1/8	3/4	73'-8 5/16	73'-8 5/16	16'-0 15/16	16'-0 3/4	2 1/2	3 3/8	2 1/2	7/8	1	64'-3 3/16	
K	4'-8	64'-3 1/4	64'-3 5/8	1 3/16	13/16	73'-8 7/16	73'-8 7/16	16'-0 13/16	16'-0 13/16	2 1/2	3 3/8	2 1/2	7/8	1	64'-3 1/4	
L	4'-8	64'-3 5/16	64'-3 11/16	1 1/4	7/8	73'-8 9/16	73'-8 9/16	16'-0 7/8	16'-0 13/16	2 7/8	3 7/8	2 7/8	1	1	64'-3 5/16	
M	4'-8	64'-3 3/8	64'-3 11/16	1 1/4	15/16	73'-8 5/8	73'-8 5/8	16'-0 15/16	16'-0 13/16	2 7/8	3 7/8	2 7/8	1	1	64'-3 3/8	

USE FOR DETAIL DIMENSIONS



END ROTATION CALCULATION

K = ad − (ad UNDER FULL DEAD LOAD)

$2m = \frac{4(K)(2.490)}{(64'3)} = 0.155019455\ (K)$

m = 0.07750972626 (K)

LINE	TOTAL NO. OF PIECES ON THIS SHEET	MATERIAL: NO. OF PCS OR SHEET	SHAPE	LENGTH: FEET	LENGTH: INCHES	ASSEM. BLING MARK	REMARKS	ORDERED: ITEM	CALCULATED WEIGHT FOR CHK. SHIP PIECE
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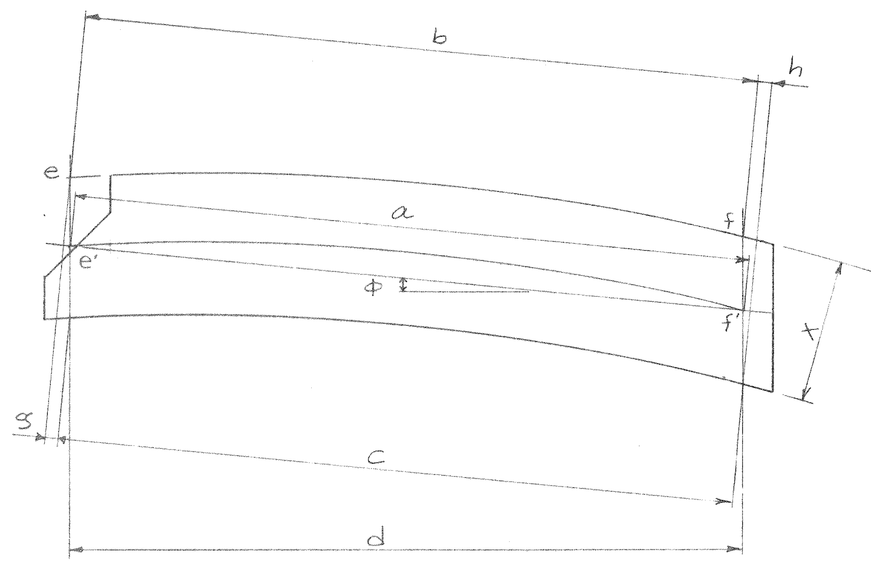
CITY OF DETROIT
CITY ENGINEERING DEPARTMENT
APPROVED
FOR COMPLIANCE WITH CONTRACT No. PW 655
* * * *
THIS APPROVAL SHALL NOT RELIEVE THE CONTRACTOR OF ANY RESPONSIBILITY COVERED BY THE CONTRACT
DATE MAR 2 1977 BY

PHILIP ZWEIG & SONS
2100 E. 5TH AVE. GARY, IND.

BUILDING Bagley Ave. Bridge Crossing The P.C.R.R.
OWNER City Of Detroit, Mich.
LOCATION Detroit, Mich.
CONTRACTOR Walter Toebe Construction Compa
ARCHITECT City Engineering Dept., City Of Detroit, T
TITLE Span 3 Beam Calculation

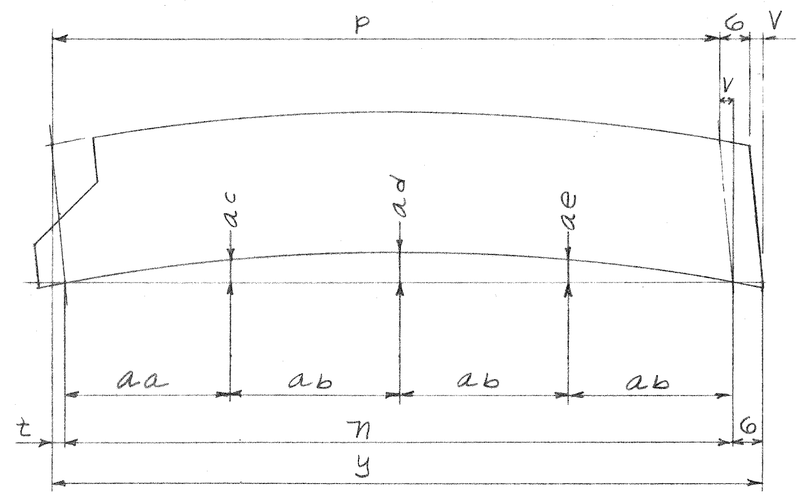
RIVETS
HOLES
PAINT
DRAWN RPJ DATE
CHKD. Cd C
REV. REV.
CONTRACT 335
SHEET WS3 OF 8

DRAW BRIDGE, INC. #72



Stringer Span # 4 In Final Position Under Full Dead Load

1. ℄ Suspender And ℄ Bearing Are Vertical
2. $a = b = c$
3. $a = \sqrt{d^2 + (El.e - El.f')^2} = \sqrt{d^2 + (El.e - El.f)^2}$
4. Tan $\phi = (El.e - El.f) \div d$
5. $g = (X) * \text{Tan } \phi = h$



Stringer Span # 4 Camber & Cutting Details

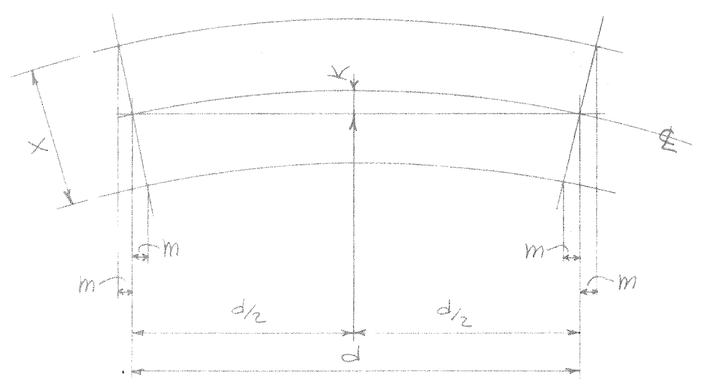
1. $n = c - 2m$
2. $p = b + 2m$
3. $t = g + 2m$
4. $V = h - 2m$
5. $y = p + G + V = t + n + G$

See Sheet E3

	a, b, c	d	Elev. e	Elev. f	g & h	Tan ϕ	e - f	K	m	X	Slope Increase a - d
A	71.9309	71.8750	134.248	131.413	0.0990	0.03944348	2.835	2 1/8	0.0124	2.510	0.0559
B	69.4031	69.3438	134.093	131.225	0.1038	0.041359	2.868	2 1/8	0.0128	2.510	0.0593
C	66.8738	66.8125	133.976	131.114	0.1071	0.04283629	2.862	2 3/4	0.0172	2.500	0.0613
D	64.3344	64.2708	133.903	131.042	0.1108	0.04451477	2.861	2 5/8	0.0170	2.490	0.0636
E	61.8059	61.7396	133.821	130.958	0.1145	0.04637218	2.863	1 3/4	0.0117	2.469	0.0663
F	59.2770	59.2083	133.687	130.833	0.1190	0.0482027	2.854	1 1/2	0.0104	2.469	0.0687
G	56.7465	56.6771	133.448	130.643	0.1222	0.04949088	2.805	1 1/2	0.0109	2.469	0.0694
H	54.2059	54.1354	133.136	130.372	0.1261	0.05105716	2.764	1 3/8	0.0105	2.469	0.0705
J	51.6758	51.6042	132.775	130.056	0.1301	0.0526895	2.719	1	0.0080	2.469	0.0716
K	49.1441	49.0729	132.387	129.743	0.1330	0.053879	2.644	1	0.0084	2.469	0.0712
L	46.6013	46.5313	132.026	129.473	0.1355	0.0548663	2.553	3/4	0.0066	2.469	0.0700
M	44.0699	44.0000	131.746	129.264	0.1393	0.0564091	2.482	1/2	0.0047	2.469	0.0699

	n	p	t	V	aa	ab	ac	ad	ae	y = p+G+V	y = t+n+G	Under Full Dead Load ad
A	71.9061	71.9557	0.1238	0.0742	17.9765	17.9765	4 5/8	6 1/4	4 5/8	72.5299	72.5299	4 1/8
B	69.3775	69.4287	0.1294	0.0782	17.3444	17.3444	4 1/8	5 1/2	4 1/8	70.0069	70.0069	3 3/8
C	66.8394	66.9082	0.1415	0.0727	16.7099	16.7099	3 3/4	5	3 3/4	67.4809	67.4809	2 1/4
D	64.3004	64.3684	0.1448	0.0768	16.0751	16.0751	3 1/2	4 3/4	3 1/2	64.9452	64.9452	2 1/8
E	61.7825	61.8293	0.1379	0.0911	15.4456	15.4456	2 3/4	3 3/4	2 3/4	62.4204	62.4204	2
F	59.2562	59.2978	0.1398	0.0982	14.8140	14.8140	2 1/2	3 3/8	2 1/2	59.8960	59.8960	1 7/8
G	56.7247	56.7683	0.1440	0.1004	14.1812	14.1812	2 3/8	3 1/8	2 3/8	57.3687	57.3687	1 5/8
H	54.1849	54.2269	0.1471	0.1051	13.5462	13.5462	2 1/8	2 3/4	2 1/8	54.8320	54.8320	1 3/8
J	51.6598	51.6918	0.1461	0.1141	12.9150	12.9150	1 3/4	2 3/8	1 3/4	52.3059	52.3059	1 3/8
K	49.1273	49.1609	0.1498	0.1162	12.2818	12.2818	1 5/8	2 1/8	1 1/2	49.7771	49.7771	1 1/8
L	46.5881	46.6145	0.1487	0.1223	11.6470	11.6470	1 1/2	2	1 3/8	47.2368	47.2368	1 1/4
M	44.0605	44.0793	0.1487	0.1299	11.0151	11.0151	1 1/4	1 5/8	1	44.7092	44.7092	1 1/8

	n	p	t	V	aa	ab	ac	ad	ae	y = p+G+V	y = t+n+G
A	71'-10 7/8	71'-11 1/2	1 1/2	7/8	17'-11 5/8	17'-11 3/4	4 5/8	6 1/4	4 5/8	72'-6 3/8	72'-6 3/8
B	69'-4 1/2	69'-5 1/8	1 9/16	15/16	17'-4 1/8	17'-4 1/8	4 1/8	5 1/2	4 1/8	70'-0 1/16	70'-0 1/16
C	66'-10	66'-10 3/8	1 3/4	7/8	16'-8 1/2	16'-8 1/2	3 3/4	5	3 3/4	67'-5 3/4	67'-5 3/4
D	64'-3 5/8	64'-4 3/8	1 3/4	1	16'-1	16'-0 7/8	3 1/2	4 3/4	3 1/2	64'-11 3/8	64'-11 3/8
E	61'-9 3/8	61'-10	1 3/4	1 1/8	15'-5 1/4	15'-5 3/8	2 3/4	3 3/4	2 3/4	62'-5 1/8	62'-5 1/8
F	59'-3	59'-3 1/2	1 11/16	1 3/16	14'-9 3/4	14'-9 3/4	2 1/2	3 3/8	2 1/2	59'-10 1/16	59'-10 1/16
G	56'-8 3/4	56'-9 1/4	1 3/4	1 1/4	14'-2 13/16	14'-2 3/16	2 3/8	3 1/8	2 3/8	57'-4 1/2	57'-4 1/2
H	54'-2 1/4	54'-2 3/4	1 3/4	1 1/4	13'-6 9/16	13'-6 9/16	2 1/8	2 3/4	2 1/8	54'-10	54'-10
J	51'-7 7/8	51'-8 1/4	1 3/4	1 3/8	12'-10 3/8	12'-11	1 3/4	2 3/8	1 3/4	52'-3 5/8	52'-3 5/8
K	49'-1 1/2	49'-1 7/8	1 3/4	1 3/8	12'-3 3/8	12'-3 3/8	1 5/8	2 1/8	1 1/2	49'-9 1/4	49'-9 1/4
L	46'-7	46'-7 3/8	1 7/8	1 1/2	11'-7 3/4	11'-7 3/4	1 1/2	2	1 3/8	47'-2 3/8	47'-2 3/8
M	44'-0 3/4	44'-1	1 13/16	1 9/16	11'-0 3/16	11'-0 3/16	1 1/4	1 5/8	1	46'-8 9/16	47'-8 9/16



End Rotation Calculation

$K = ad - (ad \text{ Under Full Dead Load})$

$2m = \frac{4(K)(x)}{d}$

$m = \frac{2(K)(x)}{d}$

Use For Detail Dimensions

LINE	Total No. of Pieces on the Sheet	Material: No. of Pcs. or Sheet	Material: Shape	Material: Length Feet	Material: Length Inches	Assembling Mark	Remarks	Ordered	Ordered: Item	Calculated for Chk. for Ship Piece
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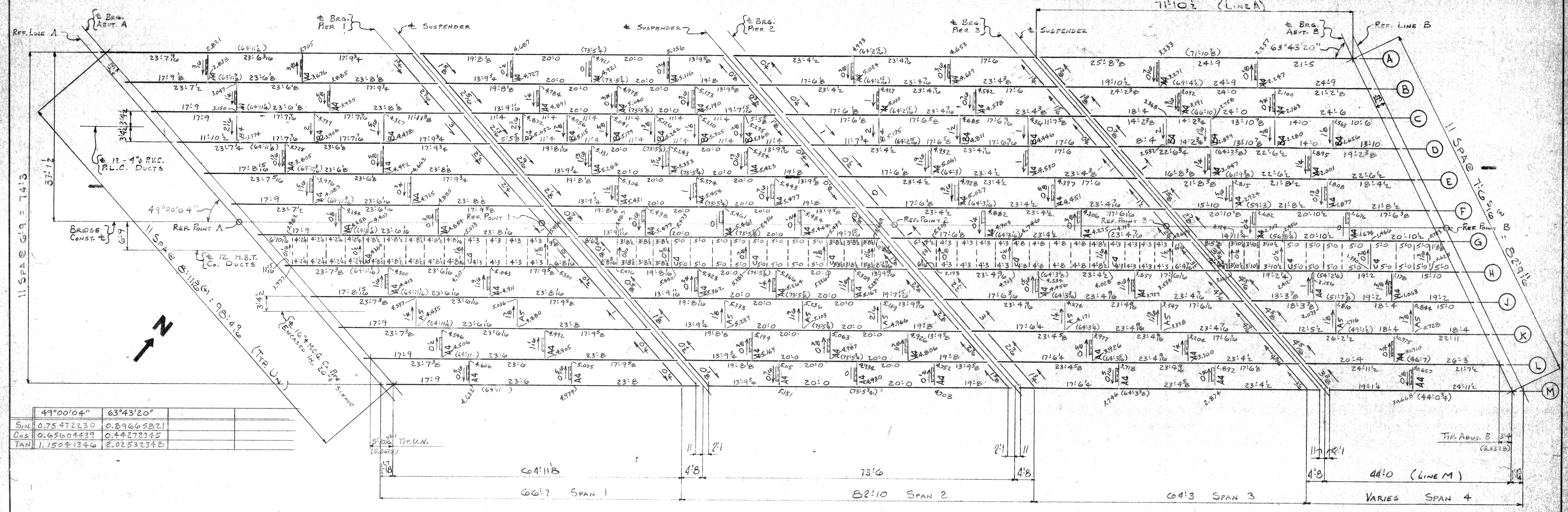
CITY OF DETROIT
CITY ENGINEERING DEPARTMENT
APPROVED
FOR COMPLIANCE WITH CONTRACT No. PW655Y
* * * *
THIS APPROVAL SHALL NOT RELIEVE THE CONTRACTOR OF ANY RESPONSIBILITY COVERED BY THE CONTRACT
DATE MAR 2 1977 BY

PHILIP ZWEIG & SONS
2100 E. 5TH AVE. GARY, IND.

BUILDING	Bagley Ave. Bridge Crossing The P.C.R.R.
OWNER	City Of Detroit, Mich.
LOCATION	Detroit, Mich.
CONTRACTOR	Walter Toebe Construction Company
ARCHITECT	City Engineering Dept., City Of Detroit, Mich.
TITLE	Span 4 Beam Calculations
RIVETS	
HOLES	
PAINT	
DRAWN	RPJ DATE 2,1,77
CHKD.	CdC
REV.	REV.
CONTRACT	335
SHEET	WS4 OF 8

Draw Bridge, Inc. #72



	49°00'04"	63°43'20"		
SIN.	0.75472230	0.89665821		
COS	0.65604439	0.44272345		
TAN	1.15041346	2.02532348		

FRAMING PLAN

1. DETAIL DIMENSIONS ARE ALONG BOTTOM OF FLANGE.
2. DETAIL DIMENSIONS ARE CORRECTED FOR GRADE AND CAMBER.
3. ARROW POINTS TO HIGHER ELEVATION.

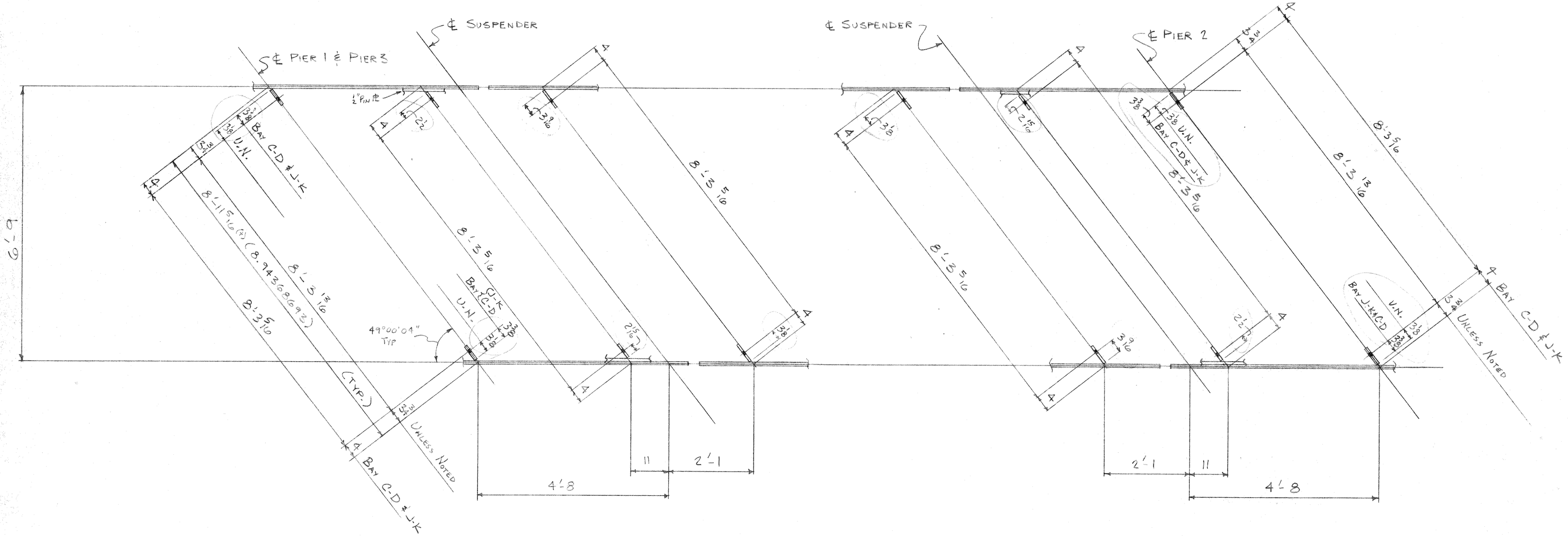
CITY OF DETROIT
CITY ENGINEERING DEPARTMENT
APPROVED
FOR COMPLIANCE WITH CONTRACT No. PW 6558
* * * *
SUCH APPROVAL SHALL NOT RELIEVE THE CONTRACTOR OF ANY RESPONSIBILITY COVERED BY THE CONTRACT
MAR 2 1977 BY

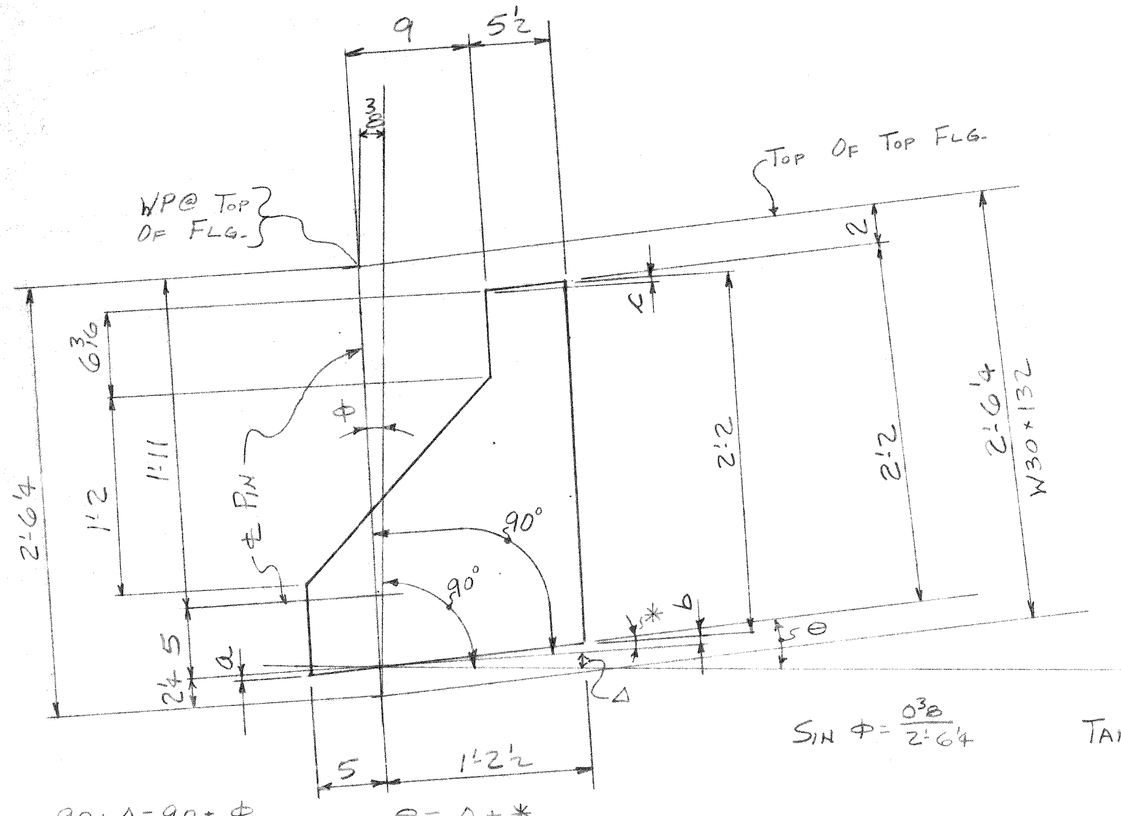
PHILIP ZWEIG & SONS
2100 E. 5TH AVE. GARY, IND.

BUILDING Bagley Ave. Bridge Crossing The P.C.R.R.
OWNER City Of Detroit, Mich.
LOCATION Detroit, Mich.
CONTRACTOR Walter Toebe Construction Company
ARCHITECT City Engineering Dept., City Of Detroit, Mich.
TITLE Framing Plan Calculations

RIVETS	DRAWN RPJ DATE 2,1,77
HOLES	CHKD. CdC
PAINT	REV. REV.
CONTRACT 335	SHEET W55 OF 8

DRAW BRIDGE, INC. #72





$a = (0'\cdot5)\ \text{TAN}\ *$
$b = (1'\cdot2\tfrac{1}{2})\ \text{TAN}\ *$
$c = (0'\cdot5\tfrac{1}{2})\ \text{TAN}\ *$

$90+\Delta = 90+\Phi \quad \therefore\ \Delta = \Phi$

$\Theta = \Delta + *$
$\Theta - \Delta = *$

$\text{SIN}\ \Phi = \frac{0^3 8}{2'6'4}$ $\quad \text{TAN}\ \Theta \cong \frac{ac}{aa}$ OR $\frac{ae}{ab}$ (See Sht. WS2)

Diaphragm Calculations

Pin ℄ Span 2

	Sin Φ	Φ & Δ	Tan Θ	Θ	*	a	b	c	ac or ae See WS2	aa or ab See WS2	a	b	c	a	b	c
Max	0.012417	0.711453	0.021552	1.234615	0.523162	0.0038	0.0110	0.0042	4 3/4	18.3702	1/32 +	1/8	1/32 +	0	0	0
Min	0.012417	0.711453	0.017577	1.006996	0.295543	0.0021	0.0062	0.0024	3 7/8	18.3653	1/32 −	1/16	1/32			

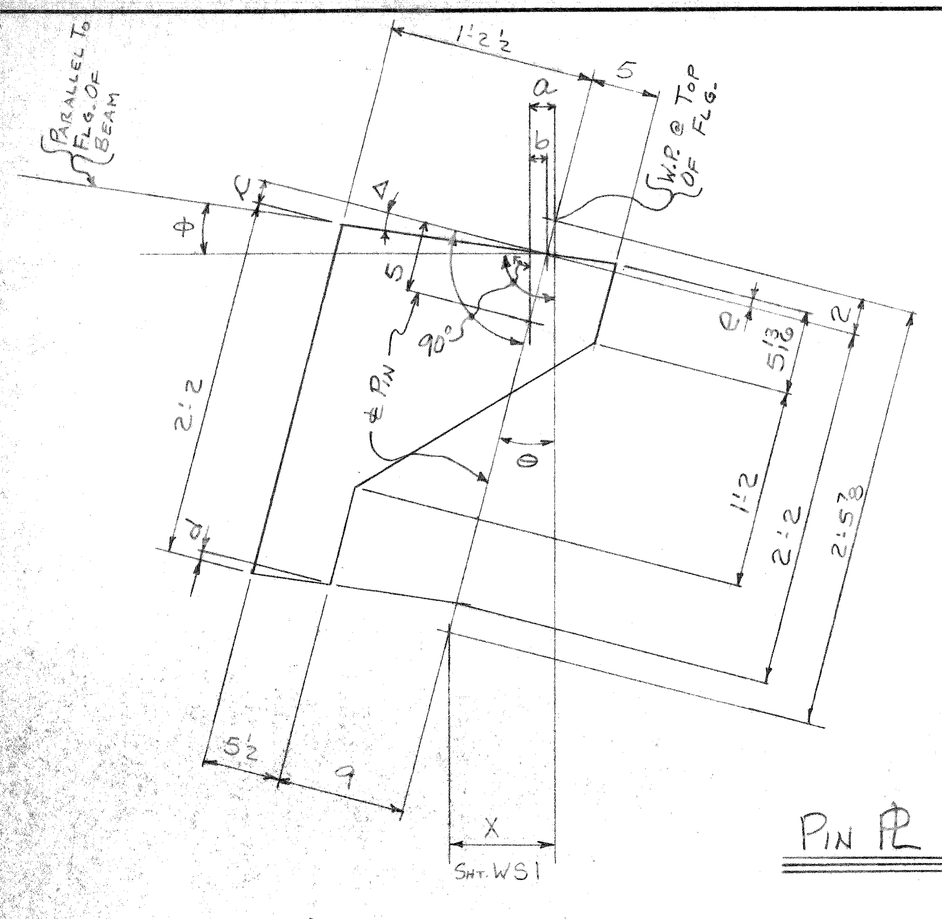
Use For Detail Dimensions

CITY OF DETROIT
CITY ENGINEERING DEPARTMENT
APPROVED
FOR COMPLIANCE WITH CONTRACT No. PW6550
* * * *
THIS APPROVAL SHALL NOT RELIEVE THE CONTRACTOR OF ANY RESPONSIBILITY COVERED BY THE CONTRACT
DATE MAR 8 1977 BY

PHILIP ZWEIG & SONS
2100 E. 5TH AVE. GARY, IND.

BUILDING Bagley Ave. Bridge Crossing The P.C.R.R.
OWNER City Of Detroit Mich.
LOCATION Detroit, Mich.
CONTRACTOR Walter Toebe Construction Company
ARCHITECT City Engineering Dept., City Of Detroit, Mich.
TITLE Skewed Diaphragm Calculations

RIVETS
HOLES
PAINT
DRAWN RPJ & BAJ DATE 2,1,77
CHKD. RPJ & CdC
REV. REV.
CONTRACT 335
SHEET WS6 OF 8



PIN PL SPAN #1

$\text{TAN } \Phi = \frac{\text{a.f. (SHT. WS1)}}{4'\text{-}8}$

$\text{SIN } \theta = \frac{X}{2'\text{-}5''8}$

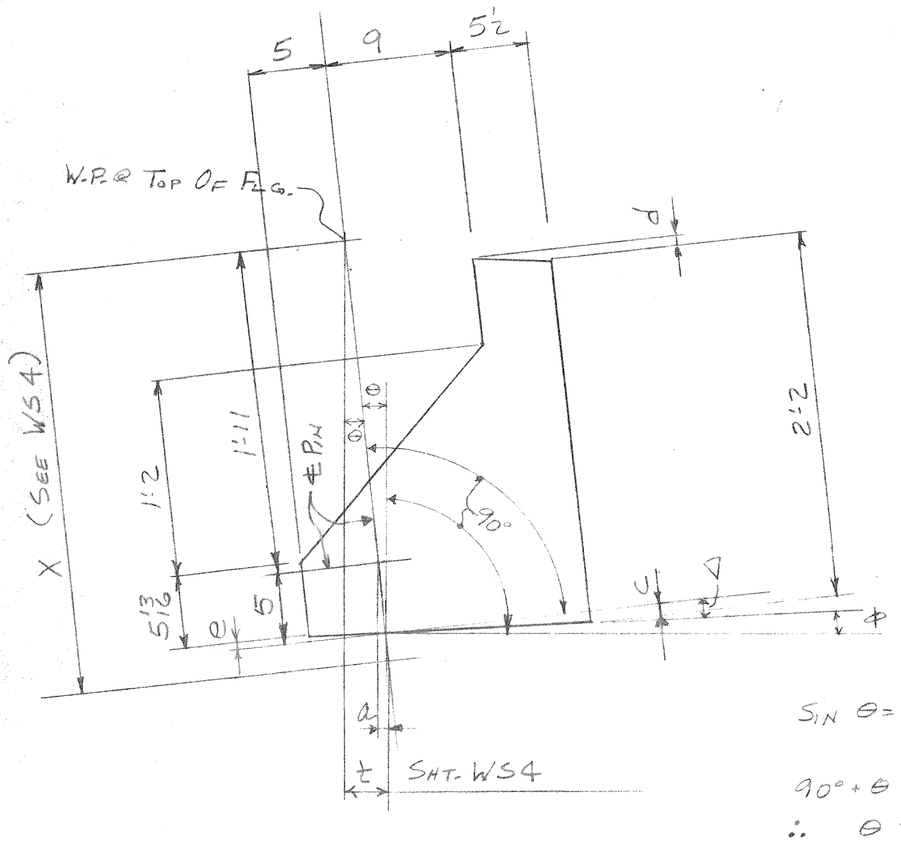
$90° + \theta = 90° + \Phi + \Delta$

$\therefore \quad \theta = \Phi + \Delta$

$c = (1'\text{-}2\tfrac{1}{2}")(\text{TAN } \Delta)$
$d = (0'\text{-}5\tfrac{1}{2}")(\text{TAN } \Delta)$
$e = (0'\text{-}5")(\text{TAN } \Delta)$
$a = (0'\text{-}7")(\text{SIN } \theta)$
$b = (0'\text{-}5")(\text{SIN } \theta)$

	TAN Φ	Φ	SIN θ	θ	Δ	a	b	c	d	e	a.f. ~ SEE SHT. WS1	X ~ SEE SHT. WS1
A	0.020100	1.151485	0.0440231	2.523151	1.371666	0.0257	0.0183	0.0289	0.0110	0.0100	1'8	0.1096
B	0.020100	1.151485	0.0433805	2.486293	1.334808	0.0253	0.0181	0.0282	0.0107	0.0100	1'8	0.1080
C	0.020100	1.151485	0.0443043	2.539275	1.387790	0.0258	0.0185	0.0293	0.0111	0.0100	1'8	0.1103
D	0.020100	1.151485	0.0410909	2.354994	1.203509	0.0240	0.0171	0.0254	0.0096	0.0088	1'8	0.1023
E	0.017850	1.022621	0.0369356	2.115463	1.092842	0.0215	0.0154	0.0230	0.0087	0.0079	1	0.0919
F	0.017850	1.022621	0.0350257	2.007232	0.984611	0.0204	0.0146	0.0208	0.0079	0.0072	1	0.0872
G	0.017850	1.022621	0.0337002	1.931240	0.908619	0.0197	0.0140	0.0192	0.0073	0.0066	1	0.0839
H	0.017850	1.022621	0.0314508	1.80229	0.779669	0.0183	0.0131	0.0164	0.0062	0.0057	1	0.0783
J	0.017850	1.022621	0.0295630	1.694076	0.671455	0.0172	0.0123	0.0142	0.0054	0.0049	1	0.0736
K	0.017850	1.022621	0.026671	1.528308	0.505687	0.0156	0.0111	0.0107	0.0040	0.0037	1	0.0664
L	0.020100	1.151485	0.0247028	1.415504	0.264019	0.0144	0.0103	0.0056	0.0021	0.0019	1'8	0.0615
M	0.020100	1.151485	0.021208	1.215215	0.06373	0.0124	0.0088	0.0073	0.0005	0.0005	1'8	0.0528

USE FOR DETAIL DIMENSIONS



PIN PL - SPAN #4

$\text{SIN } \theta = \frac{t}{X}$

$\text{TAN } \Phi \cong \frac{\text{a.c (SHT. WS4)}}{\text{a.a (SHT. WS4)}}$

$90° + \theta = 90° + \Phi + \Delta$
$\therefore \quad \theta = \Phi + \Delta$
$\& \quad \theta - \Phi = \Delta$

$a = [X - (1'\text{-}11")]\ \text{SIN } \theta$
$c = (1'\text{-}2\tfrac{1}{2}")[\text{TAN } (\ \Delta\ )]$
$d = (0'\text{-}5\tfrac{1}{2}")[\text{TAN } (\ \Delta\ )]$
$e = (0'\text{-}5")[\text{TAN } (\ \Delta\ )]$

	± ~ SEE SHT. WS4	X ~ SEE SHT. WS4	a.c ~ SEE SHT. WS4	a.a ~ SEE SHT. WS4	SIN θ	θ	TAN Φ	Φ	Δ
A	0.1238	2.510	4⅝	17.9765	0.0493227	2.827129	0.0219391	1.228181	1.598948
B	0.1294	2.510	4⅛	17.3444	0.0515537	2.955116	0.0198219	1.135562	1.819554
C	0.1415	2.500	3¾	16.7099	0.056600	3.244666	0.0187014	1.071385	2.173281
D	0.1448	2.490	3½	16.0751	0.0581526	3.333722	0.018146	1.039575	2.294147
E	0.1379	2.469	2¾	15.4456	0.0558525	3.201774	0.0148391	0.850155	2.351619
F	0.1398	2.469	2½	14.8140	0.0566221	3.245938	0.014061	0.805579	2.440359
G	0.1440	2.469	2⅜	14.1812	0.0583232	3.343564	0.013955	0.799505	2.544059
H	0.1471	2.469	2⅛	13.5462	0.0595787	3.415625	0.0130737	0.749022	2.666603
J	0.1461	2.469	1¾	12.9150	0.0591737	3.392380	0.0112891	0.646789	2.745591
K	0.1498	2.469	1⅝	12.2818	0.0606723	3.478398	0.0110244	0.631623	2.846775
L	0.1487	2.469	1½	11.6470	0.0602268	3.452827	0.0107323	0.614887	2.837940
M	0.1487	2.469	1¼	11.0151	0.0602268	3.452827	0.0094597	0.541984	2.910843

	a		c	d	e			a		c	d	e
A	0.0293		0.0337	0.0128	0.0116			⅜		⅜	⅛	⅛
B	0.0306		0.0384	0.0146	0.0132			⅜		7/16	3/16	3/16
C	0.0330		0.0458	0.0174	0.0158			⅜		9/16	3/16	3/16
D	0.0333		0.0484	0.0184	0.0167			⅜		9/16	3/16	3/16
E	0.0308		0.0496	0.0188	0.0171			⅜		⅝	¼	3/16
F	0.0313		0.0515	0.0195	0.0178			⅜		⅝	¼	3/16
G	0.0322		0.0537	0.0204	0.0185			⅜		⅝	¼	¼
H	0.0329		0.0563	0.0213	0.0194			⅜		11/16	¼	¼
J	0.0327		0.0579	0.0220	0.0200			⅜		11/16	¼	¼
K	0.0335		0.0601	0.0228	0.0207			⅜		¾	¼	¼
L	0.0333		0.0599	0.0227	0.0207			⅜		¾	¼	¼
M	0.0333		0.0614	0.0233	0.0212			⅜		¾	¼	¼

USE FOR DETAIL DIMENSIONS

LINE	TOTAL NO. OF PIECES ON THIS SHEET	MATERIAL: NO. OF PCS. ON SHEET	SHAPE	LENGTH: FEET	LENGTH: INCHES	ASSEM-BLING MARK	REMARKS	ORDERED	ITEM	CALCULATED WEIGHT FOR CHK. SHIP PIECE
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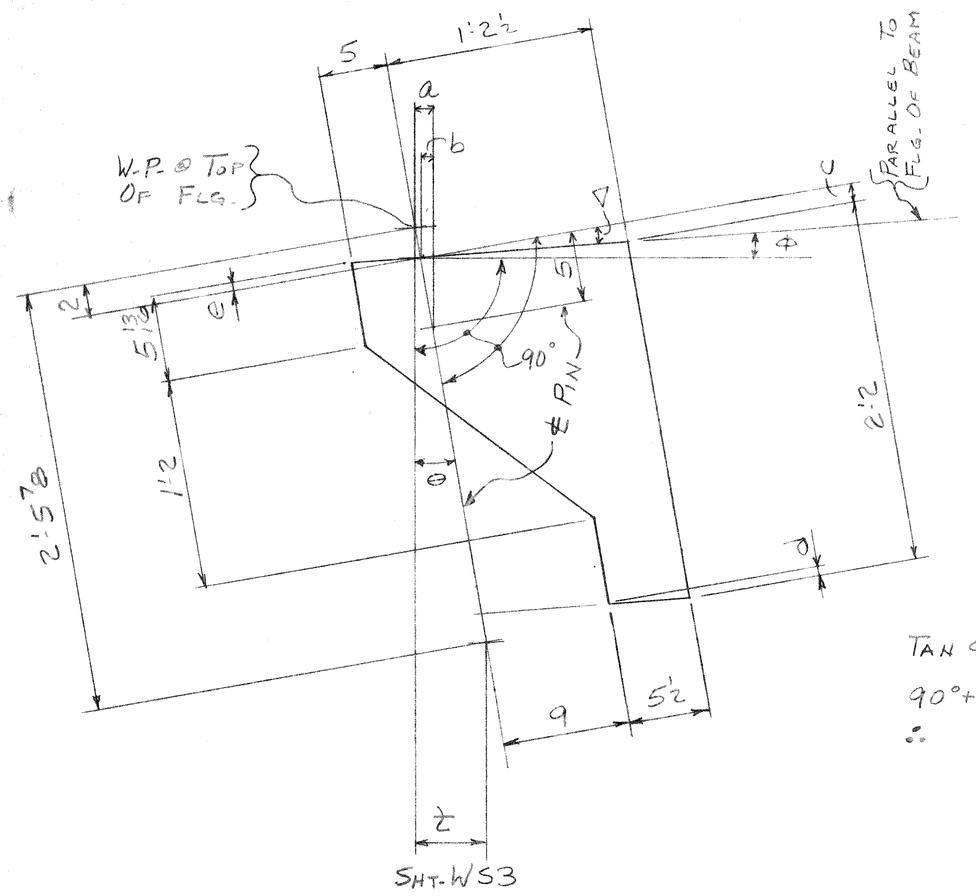
CITY OF DETROIT
CITY ENGINEERING DEPARTMENT
APPROVED
FOR COMPLIANCE WITH CONTRACT No. PW 6558
* * * *
THIS APPROVAL SHALL NOT RELIEVE THE CONTRACTOR OF ANY RESPONSIBILITY COVERED BY THE CONTRACT
DATE MAR ? 1977 BY

PHILIP ZWEIG & SONS
2100 E. 5TH AVE. GARY, IND.

BUILDING Bagley Ave Bridge crossing the R.C.R.R.
OWNER City Of Detroit Mich.
LOCATION Detroit, Mich.
CONTRACTOR Walter Toebe Construction Co.
ARCHITECT City Engineering Dept. City Of Detroit Mich.
TITLE Pin PL Calculations

RIVETS		DRAWN RPJ	DATE 2-1-78
HOLES		CHKD CdC	
PAINT		REV.	REV.
CONTRACT 335		SHEET WS7 OF 8	

Bagley Bridge No. #79



	TAN Φ	Φ	SIN Θ	Θ	Δ	a	b	c	d	e	a~ SEE SHT. WS3	t~ SEE SHT. WS3	a	b	c	d	e
A	0.0178502	1.022632	0.0191195	1.095524	0.072892	0.0112	0.0080	0.0015	0.0006	0.0005	1	0.0476	1/8	1/8	0	0	0
B	⎫	1.022632	0.022373	1.281982	0.259350	0.0131	0.0093	0.0055	0.0021	0.0019	1	0.0557	1/8	1/8	1/16	0+	0+
C	⎪	1.022632	0.026269	1.505280	0.482648	0.0153	0.0109	0.0102	0.0039	0.0035	1	0.0654	3/16	1/8	1/8	1/16	1/16
D	⎭	1.022632	0.0292014	1.673346	0.650714	0.0170	0.0122	0.0137	0.0052	0.0047	1	0.0727	3/16	1/8	3/16	1/16	1/16
E	0.0156216	0.894977	0.0285588	1.636516	0.741539	0.0167	0.0119	0.0156	0.0059	0.0054	7/8	0.0711	3/16	1/8	3/16	1/16	1/16
F	⎫	0.894977	0.0304868	1.747029	0.852052	0.0178	0.0127	0.0180	0.0068	0.0062	7/8	0.0759	3/16	1/8	3/16	1/16	1/16
G	⎪	0.894977	0.033419	1.915117	1.020140	0.0195	0.0139	0.0215	0.0082	0.0074	7/8	0.0832	1/4	3/16	1/4	1/8	1/16
H	⎪	0.894977	0.0353672	2.027956	1.132979	0.0206	0.0147	0.0239	0.0091	0.0082	7/8	0.0881	1/4	3/16	1/4	1/8	1/8
J	⎪	0.894977	0.0375964	2.154614	1.259637	0.0219	0.0157	0.0266	0.0101	0.0092	7/8	0.0936	1/4	3/16	5/16	1/8	1/8
K	⎪	0.894977	0.0396047	2.269767	1.374790	0.0231	0.0165	0.0290	0.0110	0.0100	7/8	0.0986	1/4	3/16	3/8	1/8	1/8
L	0.0178502	1.022632	0.0418541	2.398762	1.376130	0.0244	0.0174	0.0290	0.0110	0.0100	1	0.1042	5/16	3/16	3/8	1/8	1/8
M	⎭	1.022632	0.0425369	2.437918	1.415286	0.0248	0.0177	0.0299	0.0113	0.0103	1	0.1059	5/16	3/16	3/8	1/8	1/8

USE FOR DETAIL DIMENSIONS

$\text{TAN}\,\Phi = \frac{a\sim\ (\text{SHT. WS3})}{4'\text{-}8}$

$90° + \Theta = 90° + \Phi + \Delta$

$\therefore\ \Theta = \Phi + \Delta$

$\text{SIN}\,\Theta = \frac{t}{2'\text{-}5\frac{7}{8}}$

$C = (1'\text{-}2\frac{1}{2})(\text{TAN}\,\Delta)$

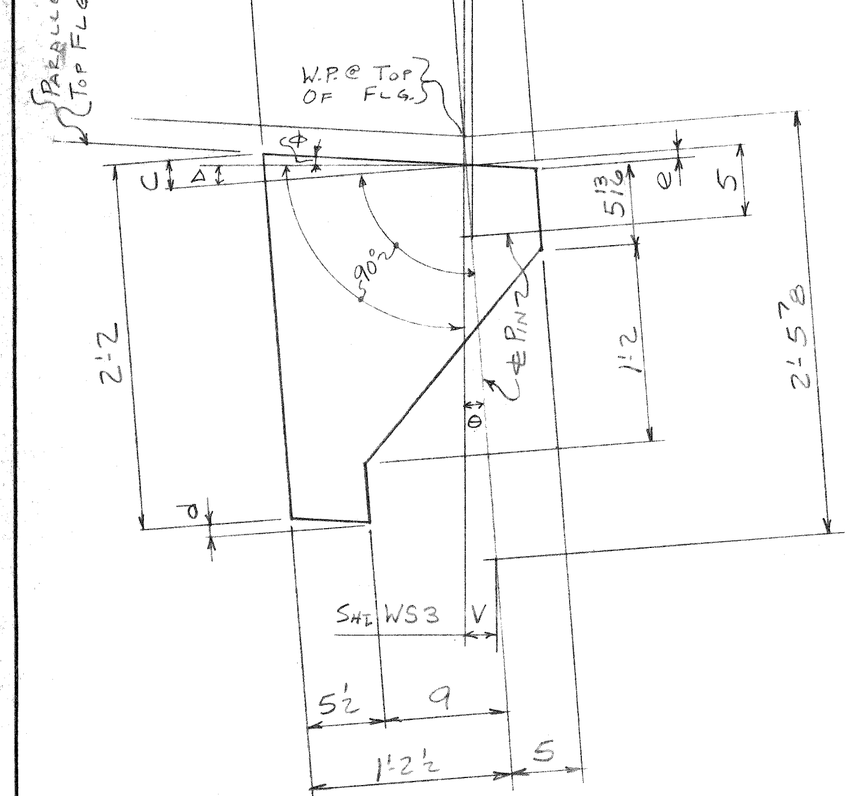
$d = (0'\text{-}5\frac{1}{2})(\text{TAN}\,\Delta)$

$e = (0'\text{-}5)(\text{TAN}\,\Delta)$

$a = (0'\text{-}7)(\text{SIN}\,\Theta)$

$b = (0'\text{-}5)(\text{SIN}\,\Theta)$

PIN ℄ - LEFT END - SPAN 3



	TAN Φ	Φ	SIN Θ	Θ ≐ Δ	Φ+Δ	a		c	d	e	a~ SEE SHT. WS3	V~ SEE SHT. WS3	a		c	d	e
A	0.0178502	1.022632	0.0099614	0.570746	1.593378	0.0058		0.0336	0.0127	0.0116	1	0.0248	1/16		3/8	1/8	1/8
B	⎫	1.022632	0.0106442	0.609873	1.632505	0.0062		0.0344	0.0131	0.0119	1	0.0265	1/16		7/16	1/8	1/8
C	⎪	1.022632	0.0106442	0.609873	1.632505	0.0062		0.0344	0.0131	0.0119	1	0.0266	1/16		7/16	1/8	1/8
D	⎭	1.022632	0.0123312	0.706537	1.729169	0.0072		0.0365	0.0138	0.0126	1	0.0307	1/16		7/16	3/16	1/8
E	0.0156216	0.894977	0.016830	0.964328	1.859305	0.0098		0.0392	0.0149	0.0135	7/8	0.0419	1/8		1/2	3/16	3/16
F	⎫	0.894977	0.018758	1.074812	1.969789	0.0109		0.0416	0.0158	0.0143	7/8	0.0467	1/8		1/2	3/16	3/16
G	⎭	0.894977	0.0204048	1.169183	2.064160	0.0119		0.0435	0.0165	0.0150	7/8	0.0508	1/8		1/2	3/16	3/16
H	0.0178502	1.022632	0.022373	1.281982	2.304614	0.0131		0.0486	0.0184	0.0168	1	0.0557	3/16		9/16	1/4	3/16
J	⎫	1.022632	0.0245822	1.408594	2.431226	0.0143		0.0513	0.0195	0.0177	1	0.0612	3/16		5/8	1/4	3/16
K	⎪	1.022632	0.0265906	1.523707	2.546339	0.0155		0.0537	0.0204	0.0185	1	0.0662	3/16		5/8	1/4	1/4
L	⎪	1.022632	0.0288399	1.652628	2.675260	0.0168		0.0565	0.0214	0.0195	1	0.0718	3/16		11/16	1/4	1/4
M	⎭	1.022632	0.0320935	1.839132	2.861764	0.0187		0.0604	0.0229	0.0208	1	0.0799	3/16		3/4	1/4	1/4

USE FOR DETAIL DIMENSIONS

$\text{TAN}\,\Phi = \frac{a\sim\ (\text{SHT. WS3})}{4'\text{-}8}$

$90° + \Phi + \Theta = 90° + \Delta + \Phi$

$\therefore\ \Theta = \Delta$

$C = (1'\text{-}2\frac{1}{2})\ \text{TAN}(\Phi+\Delta)$

$d = (0'\text{-}5\frac{1}{2})\ \text{TAN}(\Phi+\Delta)$

$e = (0'\text{-}5)\ \text{TAN}(\Phi+\Delta)$

$a = (0'\text{-}7)\ \text{SIN}\,\Theta$

$\text{SIN}\,\Theta = \frac{V}{2'\text{-}5\frac{7}{8}}$

PIN ℄ - RIGHT END - SPAN 3

LINE	TOTAL NO OF PCS(S) ON THIS SHEET	NO OF PCS. ON SHEET	MATERIAL SHAPE	MATERIAL LENGTH FEET	MATERIAL LENGTH INCHES	ASSEM-BLING MARK	REMARKS	ORDERED ITEM	CALCULATED WEIGHT PER CWK. SHIP PIECE
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CITY OF DETROIT
CITY ENGINEERING DEPARTMENT
APPROVED
FOR COMPLIANCE WITH CONTRACT No. PW 655
* * * *
THIS APPROVAL SHALL NOT RELIEVE THE CONTRACTOR OF ANY RESPONSIBILITY COVERED BY THE CONTRACT
DATE MAR 2 1977 BY

PHILIP ZWEIG & SONS
2100 E. 5TH AVE. GARY, IND.

BUILDING Bagley Ave. Bridge Crossing The P.C.R.R.
OWNER City Of Detroit, Mich.
LOCATION Detroit, Mich.
CONTRACTOR Walter Toebe Construction Company
ARCHITECT City Engineering Dept., City Of Detroit, Mich.
TITLE Pin ℄ Calculations Span 3

RIVETS None
HOLES 1⅛ ø U.N.
PAINT None
DRAWN RPJ DATE 2.1.77
CHKD. cdc
REV. REV.
CONTRACT 335
SHEET WS8 OF 8

288'-6 5/8 LINE A

64'-11 1/8 | 82'-10 | 64'-3 | 76'-6 1/2

℄ BRG. ABUT. A — 40°-59'-56" TYP. U.N. — 49°-00'-04" TYP. U.N.

℄ BRG. PIER 1 — ℄ BRG. PIER 2 — ℄ BRG. PIER 3 — ℄ BRG. ABUT. B — 26°-16'-40" — 63°-43'-20"

REF. LINE B — REF. LINE A — REF. POINT A — REF. POINT 1 — REF. POINT 2 — REF. POINT 3 — REF. POINT B

BRIDGE CONST. ℄

11 SPACES @ 6'-9" = 74'-3

37'-1 1/2

N

A	74'-0 1/8	74.0076
B	71'-5 3/4	71.4735
C	68'-11 1/4	68.9394
D	66'-4 7/8	66.4053
E	63'-10 1/2	63.8712
F	61'-4 1/8	61.3372
G	58'-9 5/8	58.8031
H	56'-3 1/4	56.2690
J	53'-8 7/8	53.7349
K	51'-2 3/8	51.2008
L		
M		

1'-3

TYP. @ ABUT. A: 2 3/4 PROJ. — 1'-7 3/8

TYP. @ PIER 1: 9 1/2

TYP. @ PIER 2: 9 1/2

TYP. @ PIER 3: 9 1/2

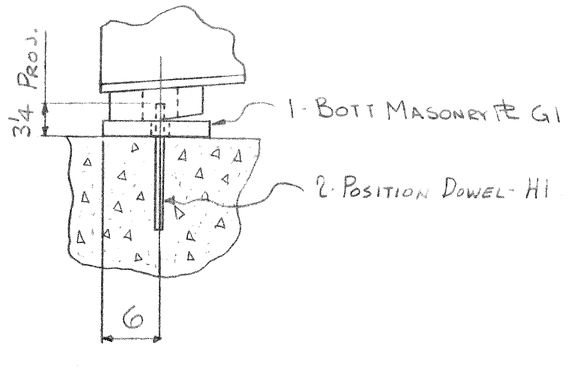
TYP. @ ABUT. B: 2 3/4 PROJ. — 1'-4 3/4

64'-11 1/8 | 82'-10 | 64'-3 | 48'-8

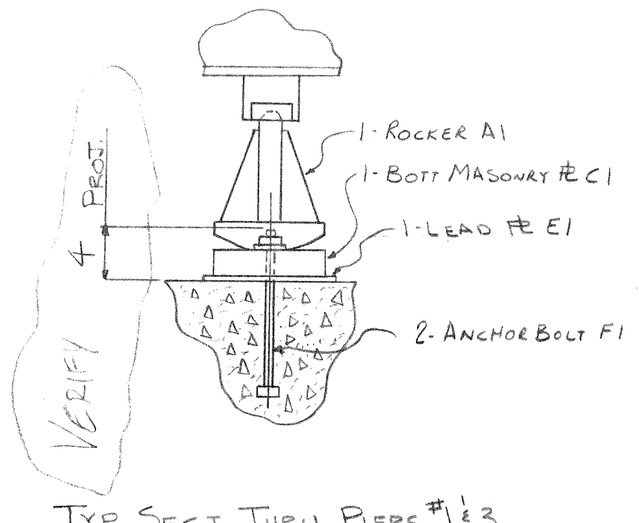
260'-8 1/8 LINE M

ANCHOR BOLT PLAN

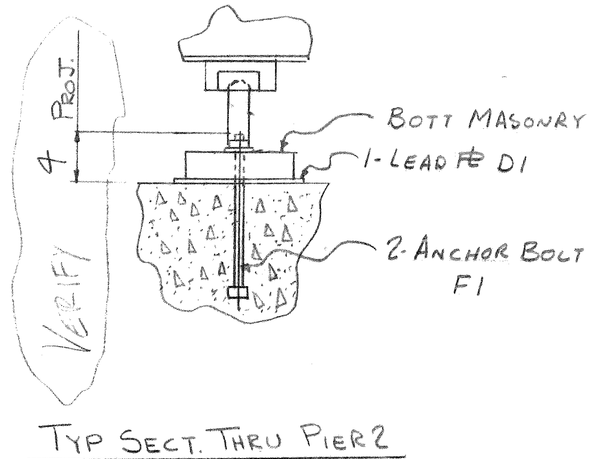
ALL DIMENSIONS ARE HORIZONTAL



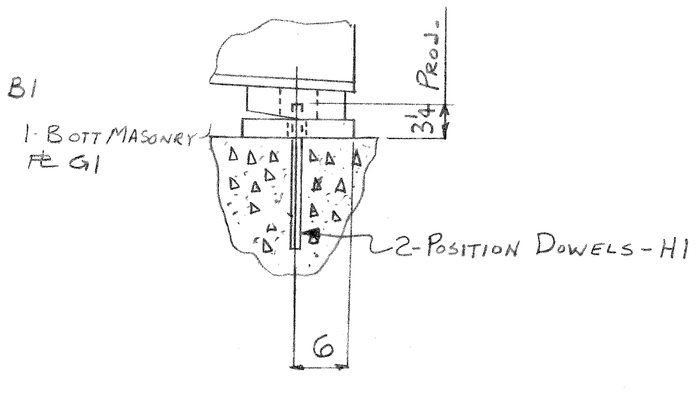
TYP SECT. THRU ABUT A



TYP SECT. THRU PIERS #1 & 3



TYP SECT. THRU PIER 2



TYP SECT. THRU ABUT. B

ENGR PLEASE REVIEW DESIGN CONFLICTS FOR ANCHOR BOLTS @ PIERS 1, 2 & 3. SEE DESIGN SHEETS 520, 521, 522 AND 524

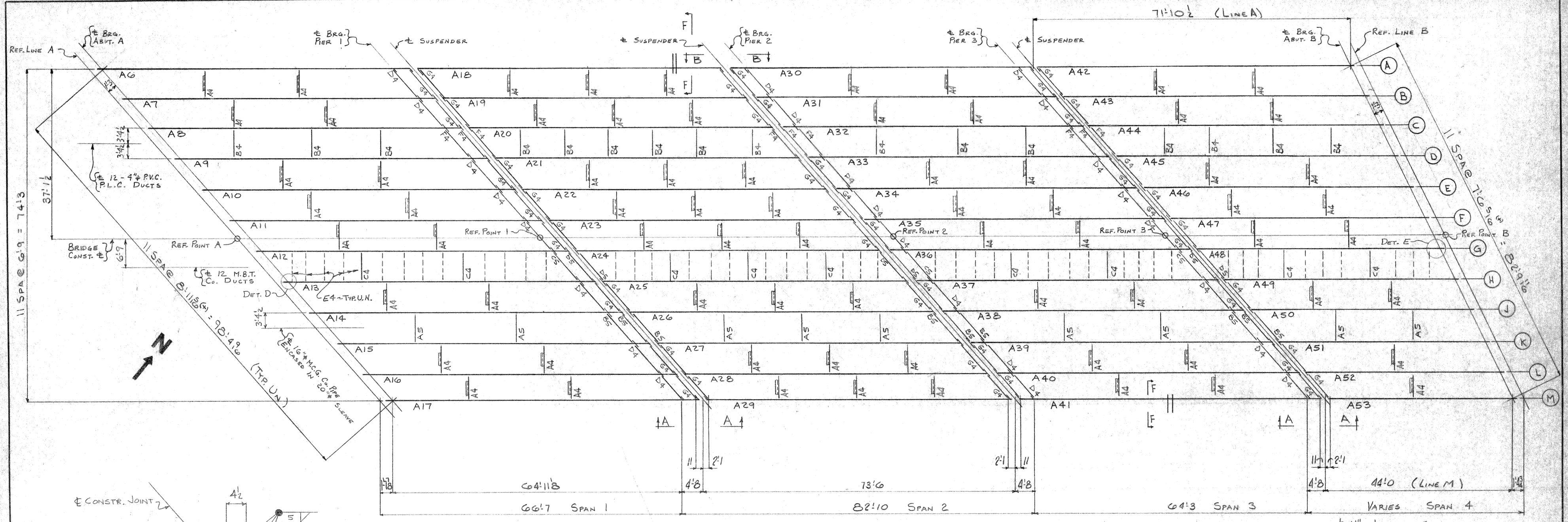
CITY OF DETROIT
CITY ENGINEERING DEPARTMENT
APPROVED
FOR COMPLIANCE WITH CONTRACT No. PW 6552
* * * *
THIS APPROVAL SHALL NOT RELIEVE THE CONTRACTOR OF ANY RESPONSIBILITY COVERED BY THE CONTRACT
DATE MAR 2 1977 BY

PHILIP ZWEIG & SONS
2100 E. 5TH AVE. GARY, IND.

BUILDING Bagley Ave. Bridge Crossing The P.C.R.R.
OWNER City Of Detroit, Mich.
LOCATION Detroit, Mich.
CONTRACTOR Walter Toebe Construction Company
ARCHITECT City Engineering Dept., City Of Detroit, Mich.
TITLE Anchor Bolt Plan

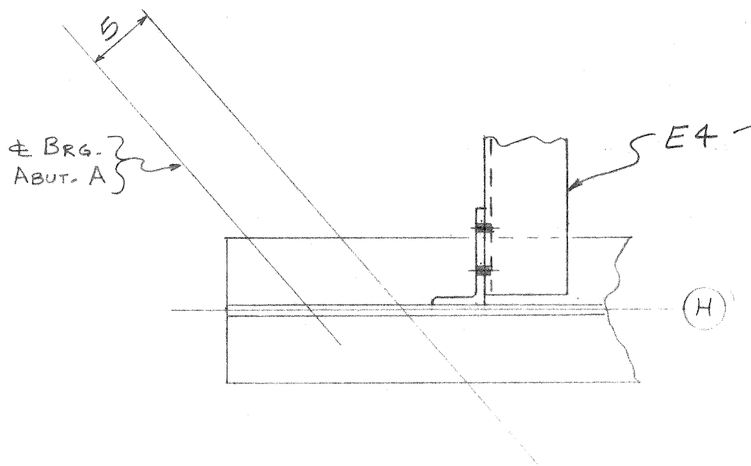
RIVETS		DRAWN JJ	DATE 2-1-77
HOLES		CHKD RPJ & BAJ	
PAINT		REV.	REV.
CONTRACT 335		SHEET E1 OF 4	

DRAW BRIDGE INC. # 72

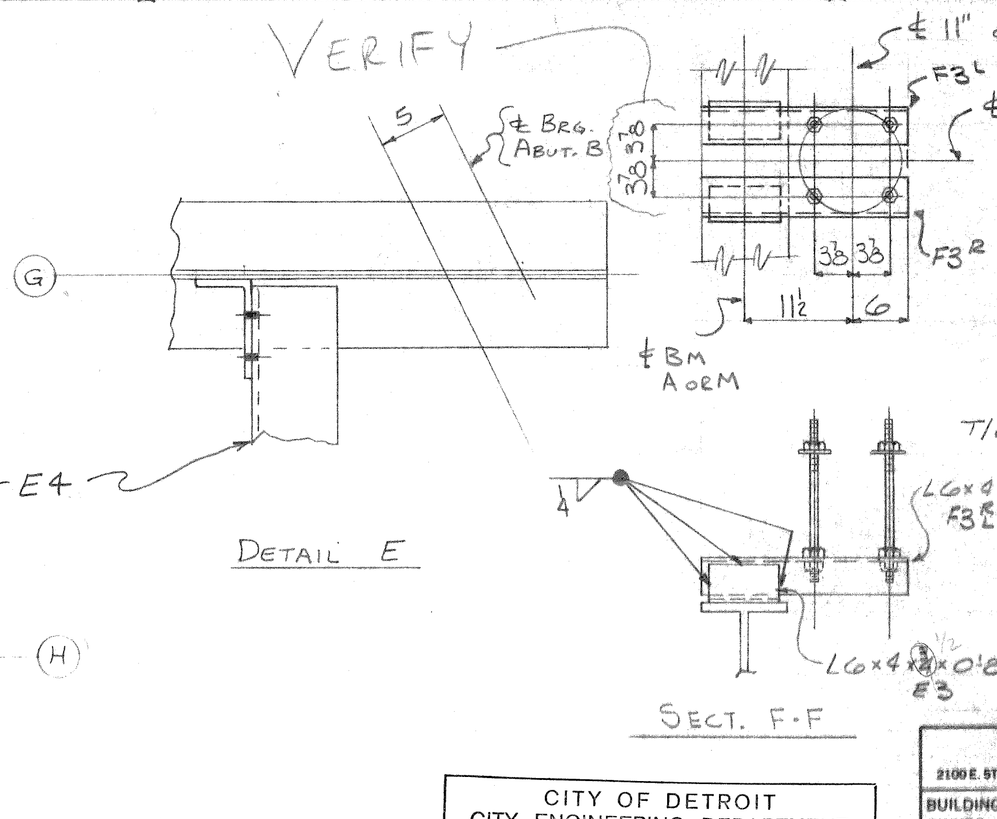


FRAMING PLAN

ALL DIMENSIONS ARE HORIZONTAL.

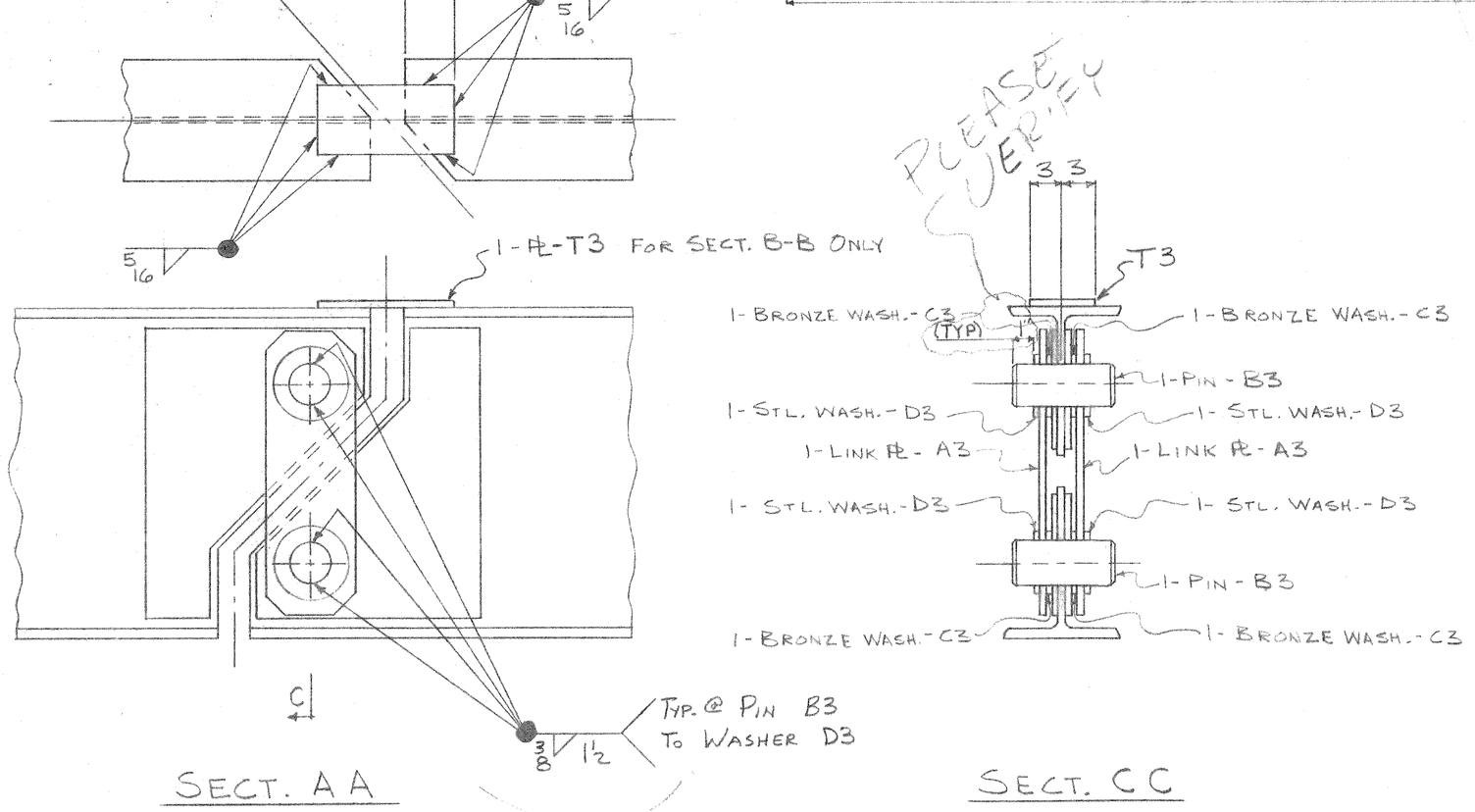


DETAIL D



DETAIL E

SECT. F-F



SECT. AA

SECT. BB

SECT. CC

FIELD WELD ℄ PER LETTER TO ZWEIG FROM MR. MCGUNAN DATED 1-5-76 & PER LETTER FROM ZWEIG TO DRAW BRIDGE DATED 1-16-77

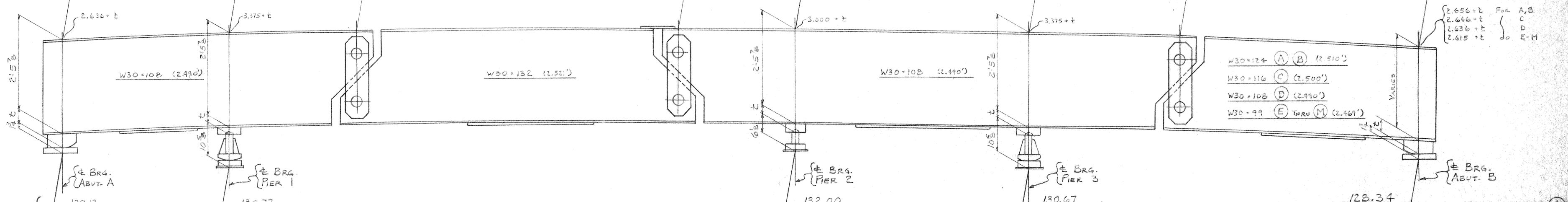
CITY OF DETROIT
CITY ENGINEERING DEPARTMENT
APPROVED AS NOTED
FOR COMPLIANCE WITH CONTRACT No. P.W. 6558
* * * *
THIS APPROVAL SHALL NOT RELIEVE THE CONTRACTOR OF ANY RESPONSIBILITY COVERED BY THE CONTRACT
DATE MAR 2 1977 BY

PHILIP ZWEIG & SONS	2100 E. 5TH AVE. GARY, IND.	
BUILDING	BAGLEY AVE. BRIDGE CROSSING THE P.C. R.R.	
OWNER	CITY OF DETROIT, MICH.	
LOCATION	DETROIT, MICH.	
CONTRACTOR	WALTER TABER CONSTRUCTION COMPANY	
ARCHITECT	CITY ENGINEERING DEPT., CITY OF DETROIT, MICH.	
TITLE	FRAMING PLAN	
RIVETS	DRAWN JJ	DATE 1-31-77
HOLES	CHKD. EGL	
PAINT	REV.	REV.
CONTRACT 335	SHEET E2 OF 4	

DRAW BRIDGE, INC. #78

ELEVATIONS ARE GIVEN TO TOP OF FLANGE. ELEVATIONS AT ℄ SUSPENDER INCLUDES CAMBER BEFORE ANY DEAD LOAD IS APPLIED.

131.933	134.374	(-1⅛)	134.456	135.318	(-1)	135.333	1.002	134.399	(-1)	134.248	131.413	A
132.204	134.520	(-1⅛)	134.593	135.307	(-1)	135.313	1.137	134.253	(-1)	134.093	131.225	B
132.558	134.725	(-1⅛)	134.787	135.336	(-1)	135.333	1.273	134.146	(-1)	133.976	131.114	C
133.016	134.975	(-1⅛)	135.022	135.431	(-1)	135.417	1.431	134.083	(-1)	133.903	131.042	D
133.287	135.183	(-1)	135.236	135.491	(-⅞)	135.458	1.564	134.000	(-⅞)	133.821	130.958	E
133.599	135.371	(-1)	135.415	135.500	(-⅞)	135.458	1.698	133.875	(-⅞)	133.687	130.833	F
133.808	135.454	(-1)	135.489	135.428	(-⅞)	135.375	1.8546	133.646	(-⅞)	133.448	130.643	G
133.954	135.454	(-1)	135.479	135.270	(-⅞)	135.208	1.9887	133.354	(-1)	133.136	130.372	H
134.037	135.413	(-1)	135.429	135.072	(-⅞)	135.000	2.1420	133.003	(-1)	132.775	130.056	J
134.099	135.329	(-1)	135.334	134.831	(-⅞)	134.750	2.2793	132.625	(-1)	132.387	129.743	K
134.204	135.308	(-1⅛)	135.294	134.627	(-1)	134.545	2.4360	132.274	(-1)	132.026	129.473	L
134.370	135.329	(-1⅛)	135.304	134.490	(-1)	134.399	2.5700	132.003	(-1)	131.746	129.264	M



129.13	130.77	132.00	130.67	128.34	A
129.13	130.77	132.00	130.67	128.34	B
129.63	131.10	132.00	130.25	128.01	C
130.13	131.10	132.00	130.25	128.01	D
130.38	131.60	132.00	130.25	128.01	E
130.63	131.60	132.00	130.25	128.01	F
130.88	131.60	132.00	127.75	127.59	G
131.13	131.60	132.00	127.75	127.59	H
131.13	131.60	131.50	127.42	126.92	J
131.13	131.60	131.50	127.00	126.92	K
131.38	131.60	131.17	128.42	126.42	L
131.38	131.60	131.17	128.42	126.42	M

ELEVATIONS ARE GIVEN TO TOP OF CONCRETE

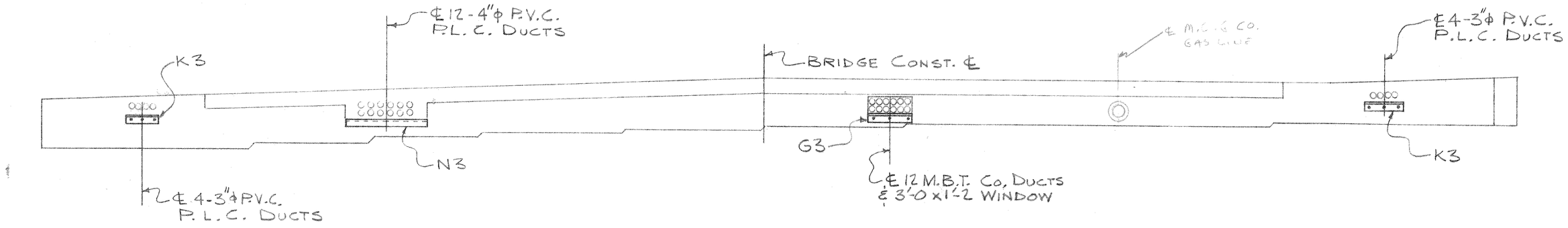
PROFILE ELEVATION

CITY OF DETROIT
CITY ENGINEERING DEPARTMENT
APPROVED
FOR COMPLIANCE WITH CONTRACT No. PW 6558
* * * *
THIS APPROVAL SHALL NOT RELIEVE THE CONTRACTOR OF ANY RESPONSIBILITY COVERED BY THE CONTRACT
DATE MAR 2 1977 BY

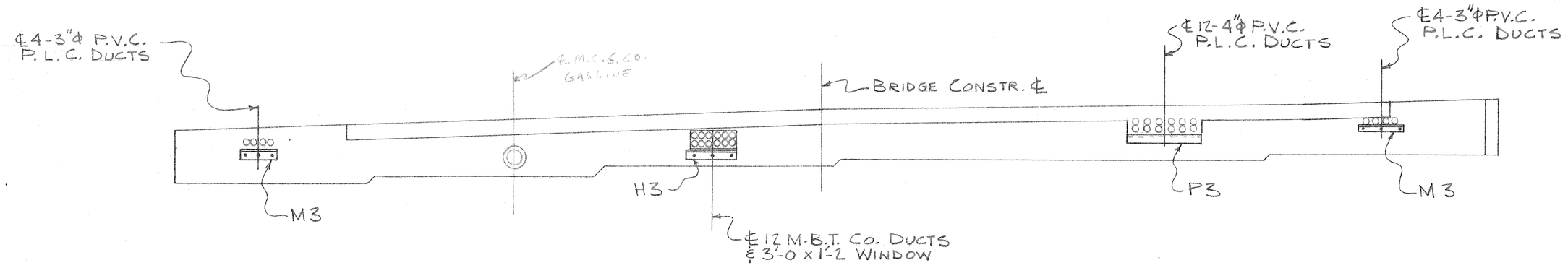
PHILIP ZWEIG & SONS
2100 E. 5TH AVE. GARY, IND.

BUILDING	BAGLEY AVE. BRIDGE CROSSING THE P.C.R.R.
OWNER	CITY OF DETROIT, MICH.
LOCATION	DETROIT, MICH.
CONTRACTOR	WALTER TOBBE CONSTRUCTION COMPANY
ARCHITECT	CITY ENGINEERING DEPT., CITY OF DETROIT, MICH.
TITLE	PROFILE ELEVATIONS
RIVETS	DRAWN JJ & RPJ DATE 2-1-77
HOLES	CHKD. BAJ
PAINT	REV. REV.
CONTRACT 335	SHEET E3 OF 4

DRAW BRIDGE INC. # 72



ELEVATION OF BACKWALL
ABUTMENT A



ELEVATION OF BACKWALL
ABUTMENT B

GENERAL NOTES

1. FABRICATION & WORKMANSHIP : MICHIGAN DEPT. OF STATE HIGHWAYS STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, 1976 EDITION.
2. STRUCTURAL STEEL : SHALL CONFORM TO ASTM A588 U.N.
3. STRUCTURAL STEEL SHALL NOT BE PAINTED. ALL SURFACES MUST BE FREE FROM GREASE, OIL, CHALK MARKS, PAINT, CONCRETE SPLATTER & SIMILAR SOILAGE (USE OF ACID FOR CLEANING WILL NOT BE PERMITTED). ERECTION MARKS MUST BE ATTACHED SO AS NOT TO CONFLICT WITH THE ABOVE CONDITIONS. MARK NUMBERS MAY BE STEEL STAMPED STENCILED TO MEMBERS. PLACE ERECTION MARK AT LEFT END OF PIECE AS DRAWN.
4. WELDING : IN ACCORDANCE WITH MICHIGAN DEPT. OF STATE HIGHWAYS SPECIFICATIONS 1976 (a). MAGNETIC PARTICLE INSPECTION OF WELDS IS REQUIRED AND SHALL CONSIST OF 100% INSPECTION OF NOT LESS THAN ONE FABRICATED SECTION SELECTED AT RANDOM FROM EACH TEN SECTIONS OR FRACTIONS THEREOF.
   As authorized in letter dtd 1-13-76
5. HANDLING LUGS: SHOP IS TO LOCATE ASTM A36 STEEL HANDLING LUGS (1" THICK) APPROX. 8 FEET EITHER SIDE OF ℄ GRAVITY OF THE STRINGER AND SHOP WELD IN PLACE. SHOP WELD OVER ℄ BEAM WITH 3/8" FILLET WELD ALL AROUND.
6. CLEANING : THE FASCIA SIDE AND BOTTOM OF ALL FASCIA BEAMS SHALL BE BLAST CLEANED IN THE SHOP IN ACCORDANCE WITH SSPC - SP10 - 63

LINE	TOTAL NO. OF PIECES ON THIS SHEET	MATERIAL: NO. OF PCS. OF SHAPE ON SHEET	SHAPE	LENGTH: FEET	LENGTH: INCHES	ASSEMBLING MARK	REMARKS	ORDERED	ITEM	CALCULATED WEIGHT FOR CHK. SHIP PIECE
1										
2										
3										
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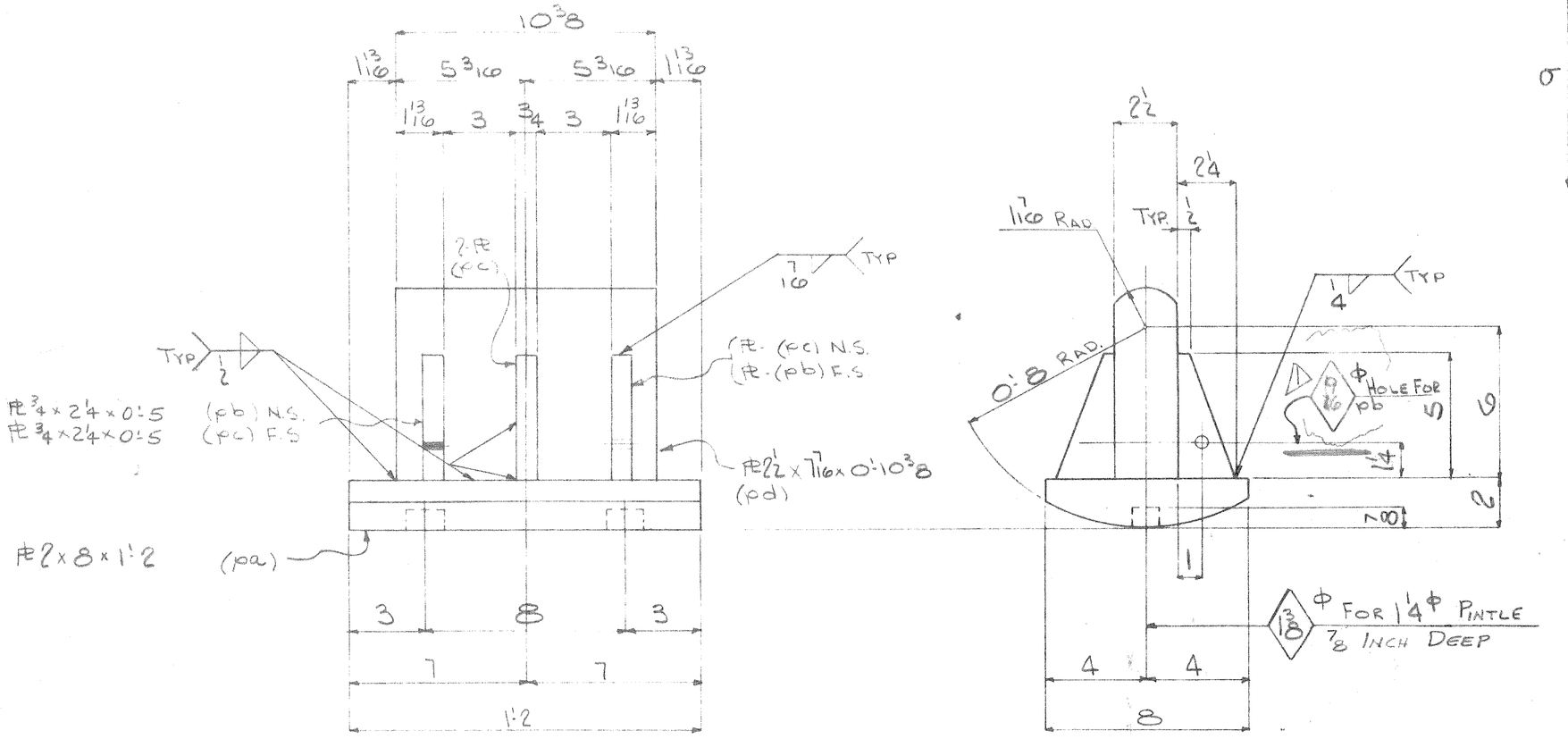
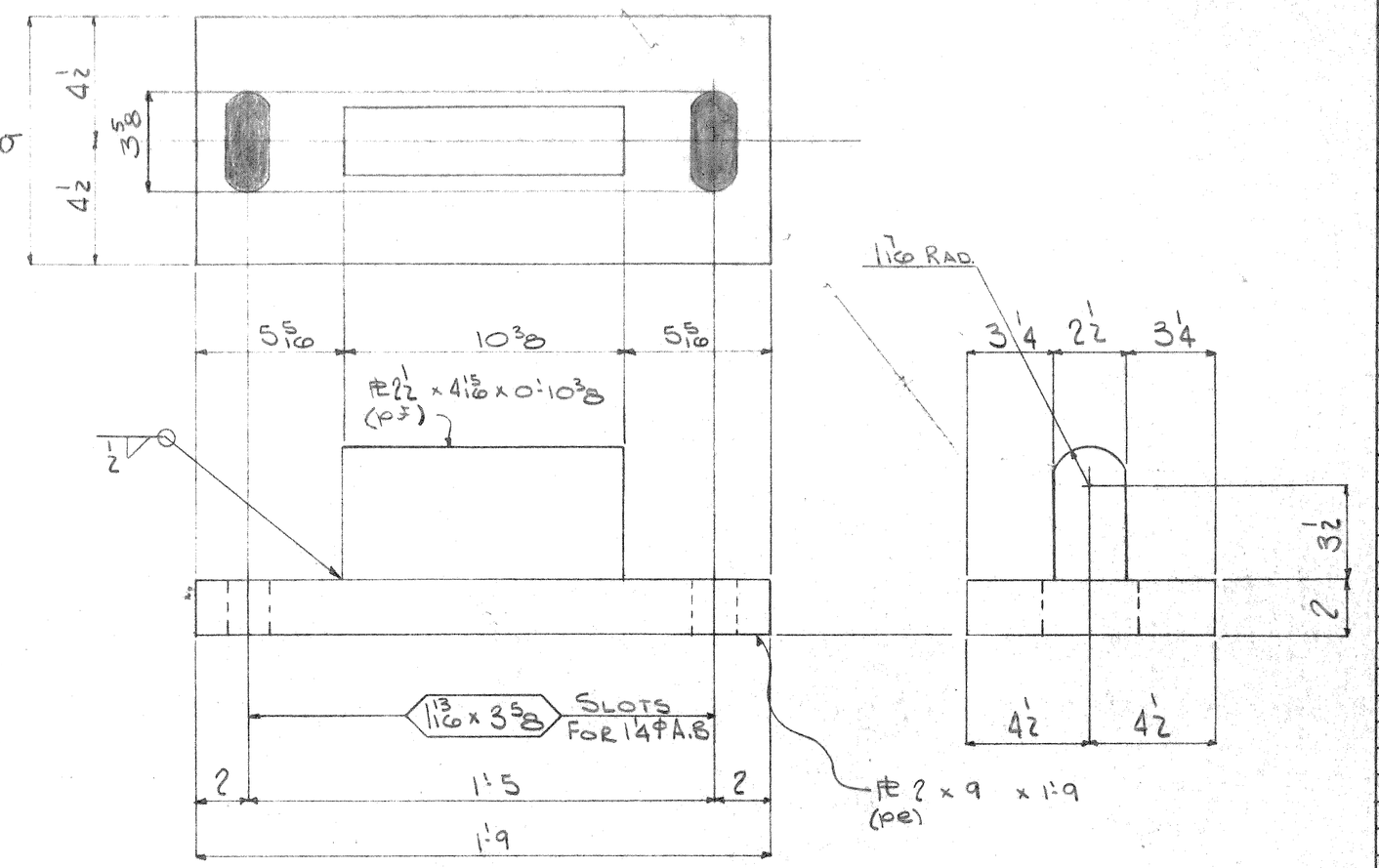
CITY OF DETROIT
CITY ENGINEERING DEPARTMENT
APPROVED AS NOTED
FOR COMPLIANCE WITH CONTRACT No. PW 655
* * * *
THIS APPROVAL SHALL NOT RELIEVE THE CONTRACTOR OF ANY RESPONSIBILITY COVERED BY THE CONTRACT
DATE MAR 2 1977 BY

PHILIP ZWEIG & SONS
2100 E. 5TH AVE. GARY, IND.

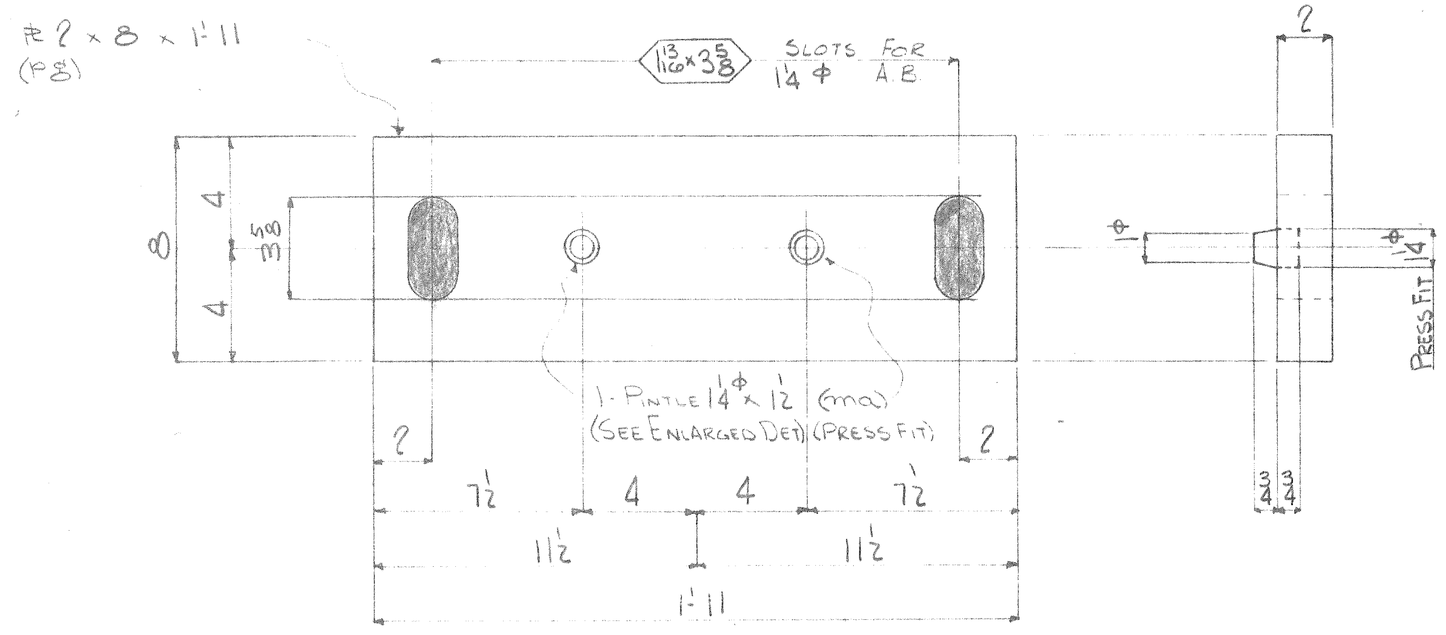
BUILDING Bagley Ave. Bridge Crossing The P.C.R.R.	
OWNER City Of Detroit, Mich.	
LOCATION Detroit, Mich.	
CONTRACTOR Walter Toebe Construction Company.	
ARCHITECT City Engineering Dept., City Of Detroit, Mich.	
TITLE Ledge Angle Sections & General Notes	
RIVETS	DRAWN BAJ DATE 2-1-77
HOLES	CHKD. RPJ
PAINT	REV. REV.
CONTRACT 335	SHEET E4 OF 4

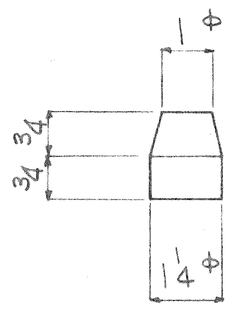




24 - ROCKER - A1

NOTE 2 → (GALV)





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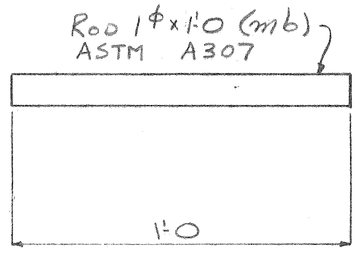
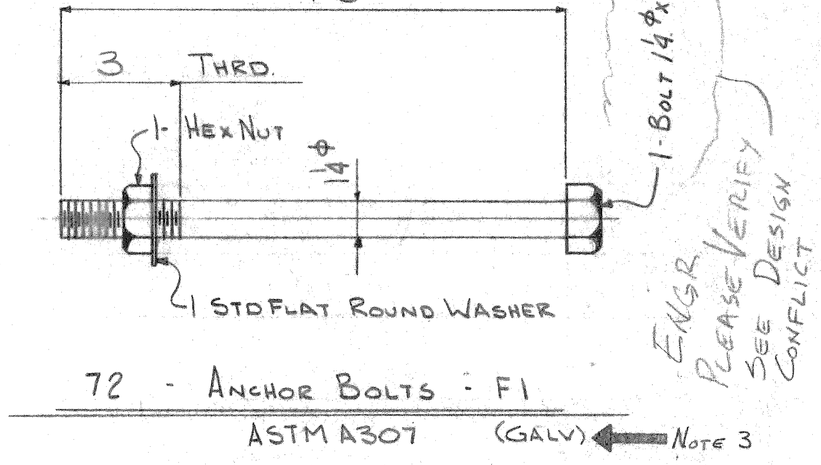


12 - MASONRY PLATE - B1

NOTE 2 → (GALV)

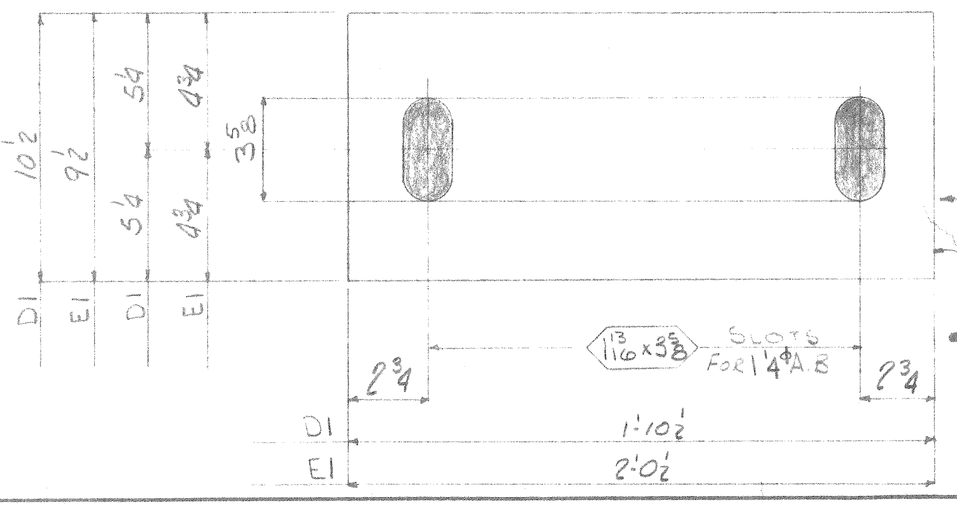


72 - ANCHOR BOLTS - F1

ASTM A307 (GALV) ← NOTE 3

24 - MASONRY PLATE - C1

NOTE 2 → (GALV)

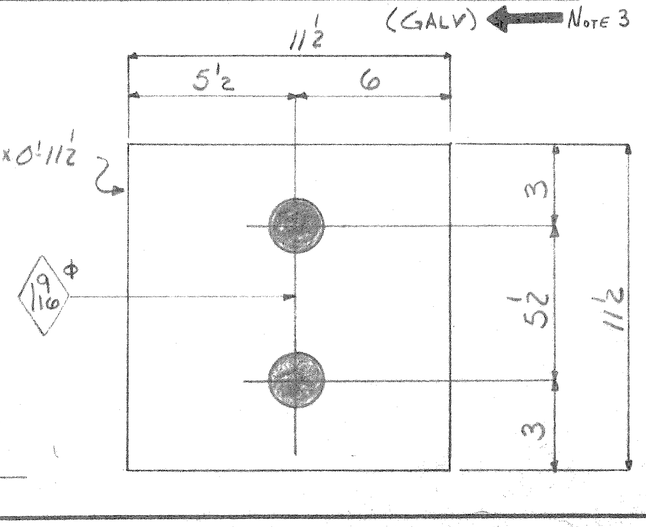


12 - LEAD PLATE - D1

24 - " - E1

48 - POSITION DOWEL - H1

(GALV) ← NOTE 3



24 - MASONRY PLATES - G1

(GALV.) ← NOTE 2

SHOP NOTES

1. ALL MATERIAL ASTM A36 UNLESS NOTED.
2. MATERIAL FOR A1, B1, C1 AND G1 ARE TO BE GALVANIZED IN ACCORDANCE WITH ASTM DESIGNATION A123. GALVANIZING SHALL BE APPLIED AFTER FABRICATION OF THE BEARING. MILL SCALE AND FOREIGN MATERIAL SHALL BE REMOVED PRIOR TO GALVANIZING.
3. MATERIAL FOR F1 AND H1 (INCLUDING NUTS AND WASHERS) SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM DESIGNATION A-153.
4. SEE SHEET E4 FOR GENERAL NOTES.

LINE	TOTAL NO OF PIECES ON SHEET	MATERIAL NO OF PCS ON SHEET	MATERIAL SHAPE	MATERIAL LENGTH FEET	MATERIAL LENGTH INCHES	ASSEMBLING MARK	REMARKS	ORDERED ITEM	CALCULATED WEIGHT FOR ONE SHIP PIECE
1	24		ROCKERS			A1	GALV.		
2		24	PL 2 x 8	1	2	pa		7/9	
3		48	PL 3/4 x 24	0	5	pb		7/11	
4		96	PL 3/4 x 2 1/4	0	5	pc		7/11	
5		24	PL 2 1/2 x 7/16	0	10 3/8	pd		7/10	
6									
7									
8	12		MASONRY PLATE			B1	GALV.		
9		12	PL 2 x 9	1	9	pe		7/21	
10		12	PL 2 1/2 x 4 15/16	0	10 3/8	pj		7/22	
11									
12									
13	24		MASONRY PLATE			C1	GALV.		
14		24	PL 2 x 8	1	11	pa		7/8	
15		48	PINTLE 1 1/4Ø	0	1 1/2	ma		7/12	
16									
17									
18	12		LEAD PLATE			D1	ASTM B29		
19	24		LEAD PLATE			E1	ASTM B29		
20		12	PL 1/8 x 10 1/2	1	10 1/2	mc	FOR D1	7/23	
21		24	PL 1/8 x 9 1/2	2	0 1/2	md	FOR E1	7/13	
22									
23									
24	72		ANCHOR BOLTS			F1	GALV. ASTM A307		
25		72	BOLTS 1 1/4Ø	1	6			7/14	
26		72	HEX NUT FOR 1 1/4Ø BOLT					7/24	
27		72	STD FLAT ROUND WASHER FOR 1 1/4Ø BOLT					7/14 7/24	
28									
29									
30	48		POSITION DOWEL			H1	GALV.		
31		48	1Ø ROD	1	0	mb	ASTM A307	7/3	
32									
33									
34	24		MASONRY PLATE			G1	GALV.		
35		24	PL 1 3/4 x 11 1/2	0	11 1/2	pm		7/2	
36									
37									
38									
39									
40									
41									
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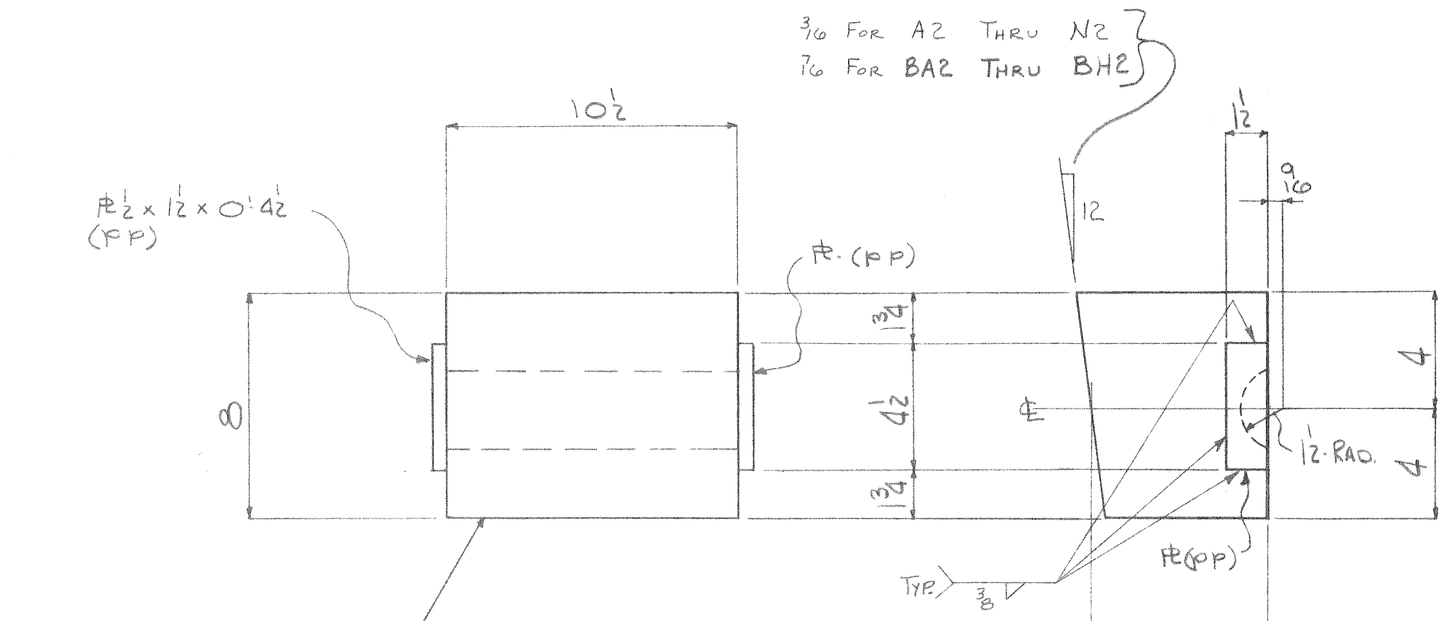
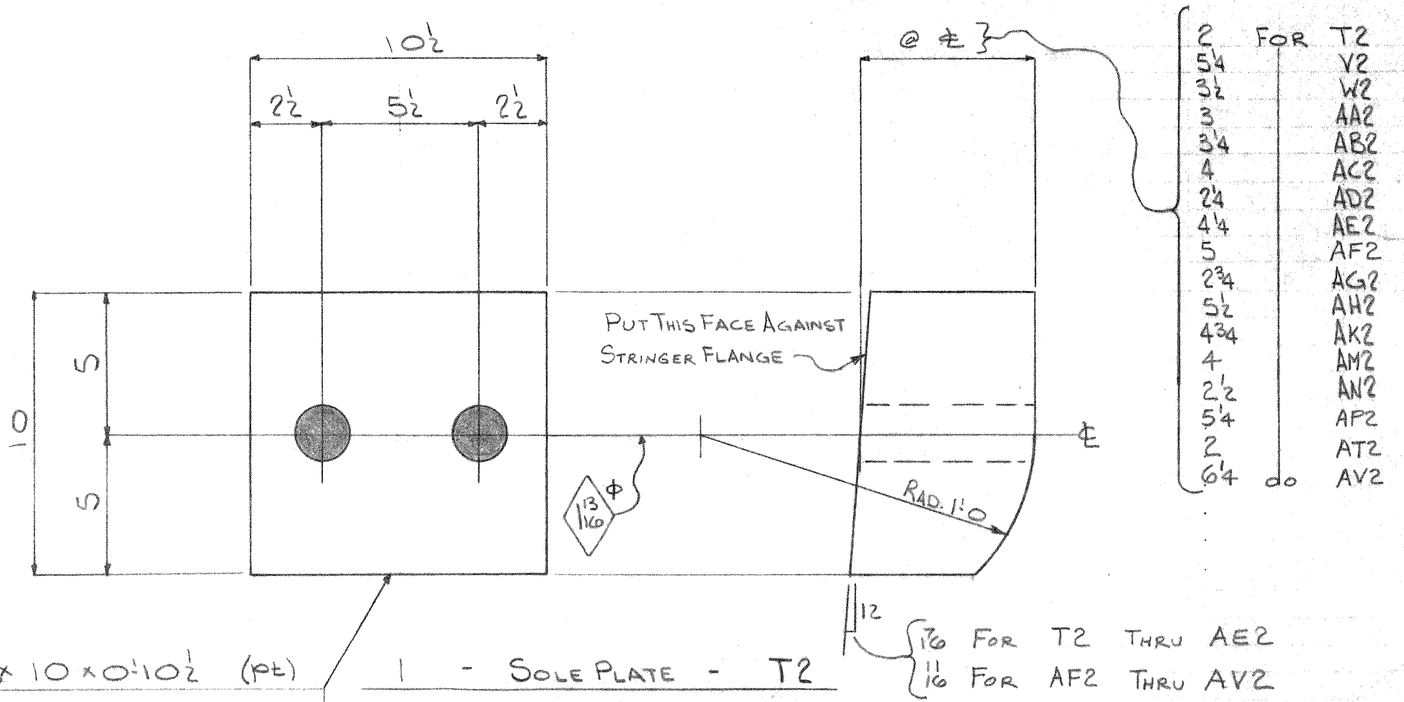
CITY OF DETROIT
CITY ENGINEERING DEPARTMENT
APPROVED
FOR COMPLIANCE WITH CONTRACT No. PW 6557
* * *
THIS APPROVAL SHALL NOT RELIEVE THE CONTRACTOR OF ANY RESPONSIBILITY COVERED BY THE CONTRACT
DATE MAR 2 1977 BY

PHILIP ZWEIG & SONS
2100 E. 5TH AVE. GARY, IND.

BUILDING	BAGLEY AVE. BRIDGE CROSSING THE P.C.R.R.
OWNER	CITY OF DETROIT, MICH.
LOCATION	DETROIT, MICH.
CONTRACTOR	WALTER TOBBE CONSTRUCTION COMPANY
ARCHITECT	CITY ENGINEERING DEPT., CITY OF DETROIT, MICH.
TITLE	BEARING MATERIAL
RIVETS	NONE
HOLES	AS NOTED
PAINT	NONE
DRAWN	JJ RPJ DATE 2-1-77
CHKD	RPJ EAJ
REV	RPJ 2-7-77 REV.
CONTRACT	335
SHEET	1 OF 53

DRAW BRIDGE INC. #72





PL 2 13/16 × 8 × 0'-10½			(paa)
PL 4 9/16 ×	×		(pab)
PL 3 1/16 ×	×		(pac)
PL 6 1/16 ×	×		(pad)
PL 2 9/16 ×	×		(pae)
PL 4 13/16 ×	×		(paf)
PL 5 13/16 ×	×		(pag)
PL 5 5/16 ×	×		(pah)
PL 4 5/16 ×	×		(pak)
PL 5 1/16 ×	×		(pam)
PL 5 9/16 ×	×		(pan)
PL 4 3/8 ×	×		(PBA)
PL 2 5/8 ×	×		(PBB)
PL 6 3/8 ×	×		(PBC)
PL 5 5/8 ×	×		(PBD)
PL 4 5/8 ×	×		(PBE)
PL 3 1/8 ×	×		(PBF)
PL 2 7/8 ×	×		(PBG)
PL 5 7/8 × do ×	do		(PBH)

2 - SOLE PLATE -			A2	2¾ A2
3 -		-	B2	4½ B2
2 -		-	C2	3 C2
2 -		-	D2	6 D2
2 -		-	E2	2½ E2
1 -		-	F2	4¾ F2
2 -		-	G2	5¾ G2
1 -		-	H2	5¼ H2
2 -		-	J2	4¼ J2
3 -		-	K2	4 K2
1 -		-	L2	3¾ L2
1 -		-	M2	5 M2
2 -		-	N2	5½ N2
1 -		-	BA2	4¼ BA2
3 -		-	BB2	2½ BB2
2 -		-	BC2	6¼ BC2
1 -		-	BD2	5½ BD2
1 -		-	BE2	4½ BE2
2 -		-	BF2	3 BF2
1 -		-	BG2	2¾ BG2
1 -	do	-	BH2	5¾ BH2

PL 2 3/16 × 10 × 0'-10½			(pt)	1 - SOLE PLATE - T2
PL 5 7/16 ×	×		(pv)	1 - V2
PL 3 11/16 ×	×		(pw)	2 - W2
PL 3 3/16 ×	×		(paa)	1 - AA2
PL 3 7/16 ×	×		(pab)	2 - AB2
PL 4 3/16 ×	×		(pac)	2 - AC2
PL 2 7/16 ×	×		(pad)	2 - AD2
PL 4 7/16 ×	×		(pae)	1 - AE2
PL 5 5/16 ×	×		(paf)	1 - AF2
PL 3 1/16 ×	×		(pag)	2 - AG2
PL 5 13/16 ×	×		(pah)	1 - AH2
PL 5 1/16 ×	×		(pak)	1 - AK2
PL 4 5/16 ×	×		(pam)	1 - AM2
PL 2 13/16 ×	×		(pan)	2 - AN2
PL 5 9/16 ×	×		(pap)	2 - AP2
PL 2 5/16 ×	×		(pat)	1 - AT2
PL 6 9/16 × do ×	do		(pav)	1 - do - AV2

SHOP NOTES

1. ALL MATERIAL ON THIS SHEET IS TO BE SHOP ASSEMBLED WITH STRINGERS FOR SHIPPING AS SHOWN ON STRINGER DETAILS.
2. SOLE PLATES 3 INCHES OR MORE IN THICKNESS MAY BE BUILT UP BY WELDING TOGETHER PLATES NOT LESS THAN 1/2 INCHES IN THICKNESS. EDGES MUST BE BEVELED 1/4 INCH AND WELDED WITH A CONTINUOUS WELD FOR THE FULL PERIMETER. WELDS SHALL BE GROUND FLUSH WITH THE FACE OF THE PLATES.
3. ALL MATERIAL THIS SHEET IS TO BE ASTM A-588.
4. SEE SHEET E4 FOR GENERAL NOTES.

LINE	TOTAL NO. OF PCS ON THE SHEET	NO. OF PCS ON SHEET	MATERIAL SHAPE	LENGTH FEET	LENGTH INCHES	ASSEMBLING MARK	REMARKS	ORDERED ITEM	CALCULATED WEIGHT FOR CHG SHIP PIECE
1			SOLE PLATES						
2		2	PL 2 13/16 8	0	10½	pa	FOR A2	5/22 6/3	
3		3	PL 4 9/16 8	0	10½	pb	B2	5/20 6/7	
4		2	PL 3 1/16 8	0	10½	pc	C2	5/23 6/4	
5		2	PL 6 1/16 8	0	10½	pd	D2	5/30 6/10	
6		2	PL 2 9/16 8	0	10½	pe	E2	5/21 6/2	
7		1	PL 4 13/16 8	0	10½	pf	F2	5/27	
8		2	PL 5 13/16 8	0	10½	pg	G2	5/29	
9		1	PL 5 5/16 8	0	10½	ph	H2	5/28	
10		2	PL 4 5/16 8	0	10½	pj	J2	5/25	
11		3	PL 4 1/16 8	0	10½	pk	K2	5/24 6/10	
12		1	PL 3 13/16 8	0	10½	pl	L2	6/5	
13		1	PL 5 1/16 8	0	10½	pm	M2	6/8	
14		2	PL 5 9/16 8	0	10½	pn	do N2	6/9	
15									
16		48	PL 1/2 12	0	4½	PP		6/21	
17									
18									
19									
20			SOLE PLATES						
21		1	PL 2 3/16 10	0	10½	pt	FOR T2	5/2	
22		1	PL 5 7/16 10	0	10½	pv	V2	5/9	
23		2	PL 3 11/16 10	0	10½	pw	W2	5/6	
24		1	PL 3 3/16 10	0	10½	paa	AA2	5/4	
25		2	PL 3 7/16 10	0	10½	pab	AB2	5/5	
26		2	PL 4 3/16 10	0	10½	pac	AC2	5/7	
27		2	PL 2 7/16 10	0	10½	pad	AD2	5/3	
28		1	PL 4 7/16 10	0	10½	pae	AE2	5/8	
29		1	PL 5 5/16 10	0	10½	paf	AF2	5/16	
30		2	PL 3 1/16 10	0	10½	pag	AG2	5/13	
31		1	PL 5 13/16 10	0	10½	pah	AH2	5/18	
32		1	PL 5 1/16 10	0	10½	pak	AK2	5/15	
33		1	PL 4 5/16 10	0	10½	pam	AM2	5/14	
34		2	PL 2 13/16 10	0	10½	pan	AN2	5/12	
35		2	PL 5 9/16 10	0	10½	pap	AP2	5/17	
36		1	PL 2 5/16 10	0	10½	pat	AT2	5/11	
37		1	PL 6 9/16 10	0	10½	pav	do AV2	5/19	
38									
39									
40									
41									
42									
43									
44			SOLE PLATES						
45		1	PL 4 3/8 8	0	10½	pba	FOR BA2	6/15	
46		3	PL 2 5/8 8	0	10½	pbb	BB2	6/12	
47		2	PL 6 3/8 8	0	10½	pbc	BC2	6/19	
48		1	PL 5 5/8 8	0	10½	pbd	BD2	6/17	
49		1	PL 4 5/8 8	0	10½	pbe	BE2	6/16	
50		2	PL 3 1/8 8	0	10½	pbf	BF2	6/14	
51		1	PL 2 7/8 8	0	10½	pbg	BG2	6/13	
52		1	PL 5 7/8 8	0	10½	pbh	do BH2	6/18	
53									
54		24	PL			PP		6/21	
55									
56									
57									
58									
59									
60									
61									
62									
63									
64									
65									
66									
67									

CITY OF DETROIT
CITY ENGINEERING DEPARTMENT
APPROVED
FOR COMPLIANCE WITH CONTRACT No. PW 6550
* * *
THIS APPROVAL SHALL NOT RELIEVE THE CONTRACTOR OF ANY RESPONSIBILITY COVERED BY THE CONTRACT
DATE MAR 2 1977 BY

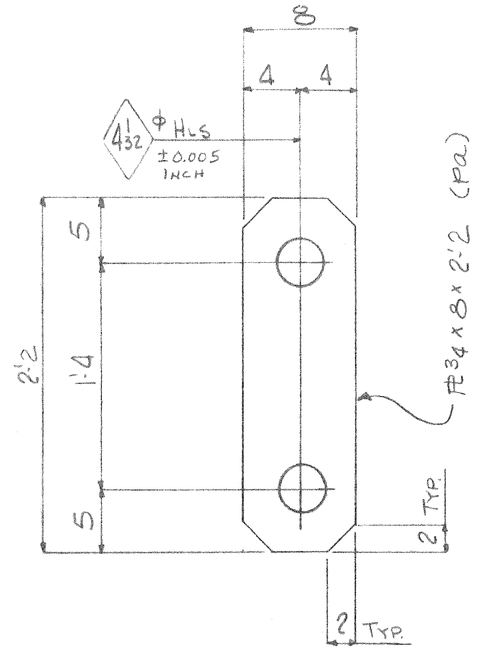
PHILIP ZWEIG & SONS
2100 E. 5TH AVE. GARY, IND.

BUILDING Bagley Ave. Bridge Crossing The P.C.R.R.
OWNER City Of Detroit, Mich.
LOCATION Detroit, Mich.
CONTRACTOR Walter Toebe Construction Company
ARCHITECT City Engineering Dept., City Of Detroit, Mich.
TITLE Bearing Sole Plates

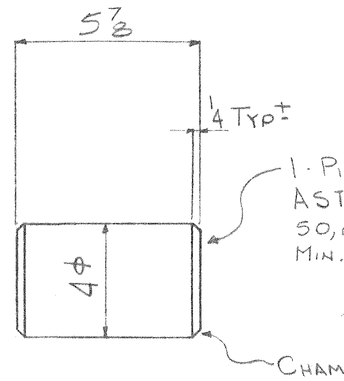
RIVETS None
HOLES As Noted
PAINT None
DRAWN JJ & RPJ DATE 2-11-77
CHKD. BAJ
REV. REV.

CONTRACT 335
SHEET 2 OF 53

DRAW BRIDGE INC. #72

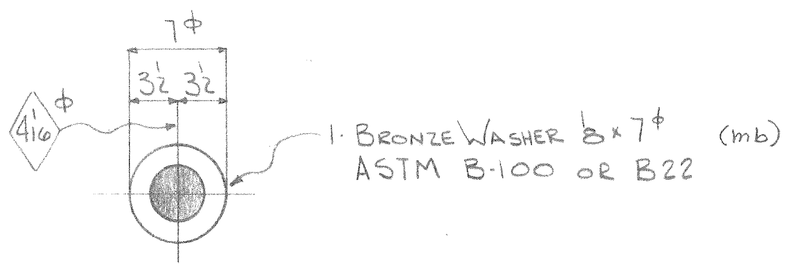


72 - Link Plates - A3

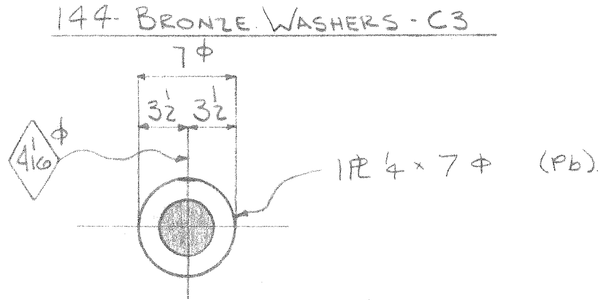


OK per letter from Mr. McSowan to Zweig dated 1-5-76 and per letter from Zweig to Draw Bridge dated 1-10-77

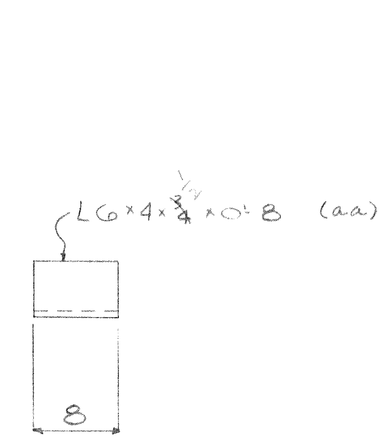
72 - Pin - B3



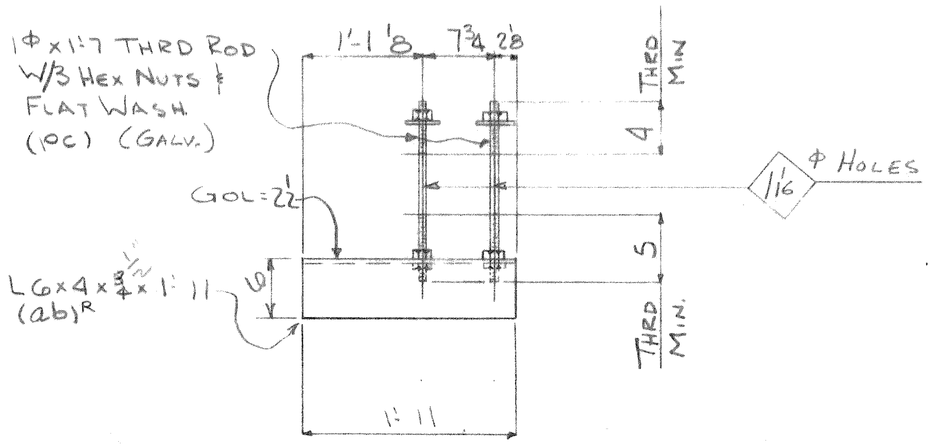
144 - Bronze Washers - C3



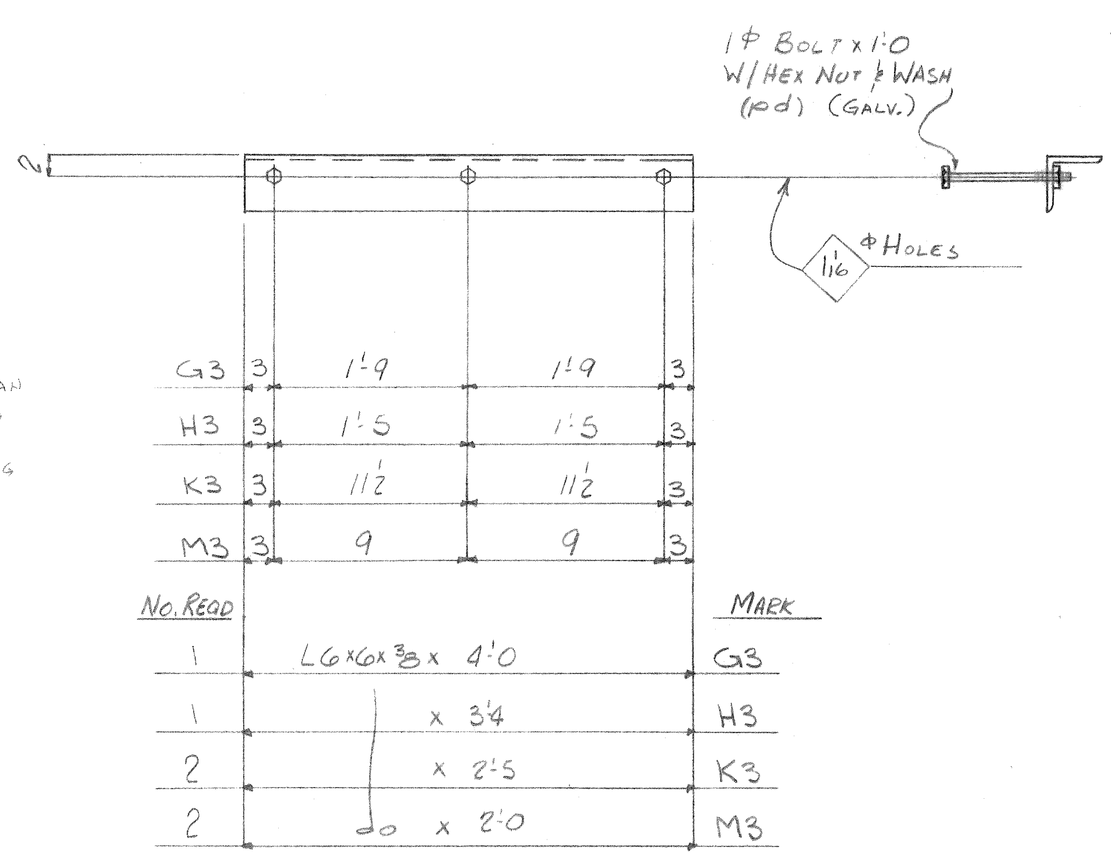
144 - Washers - D3

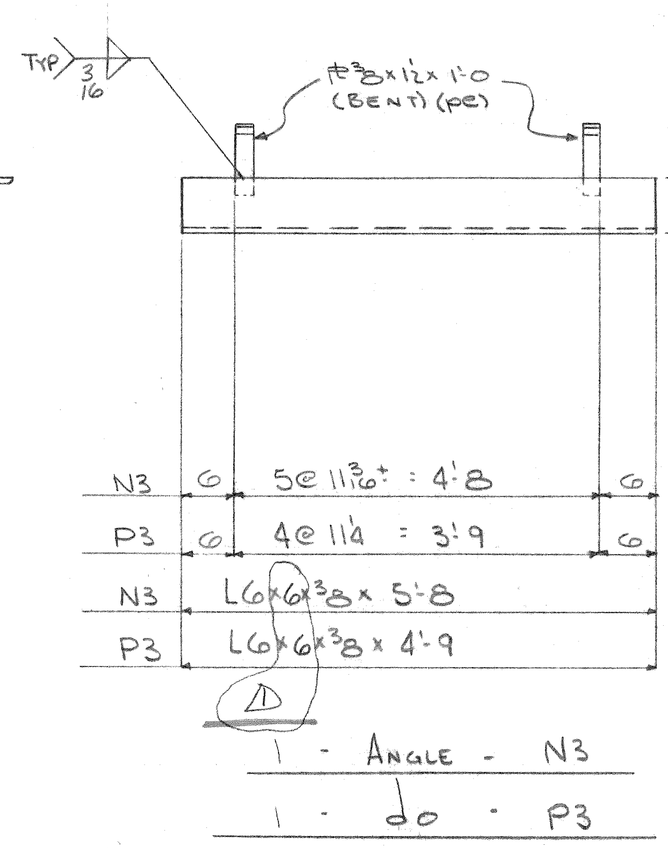


4 - Angles - E3



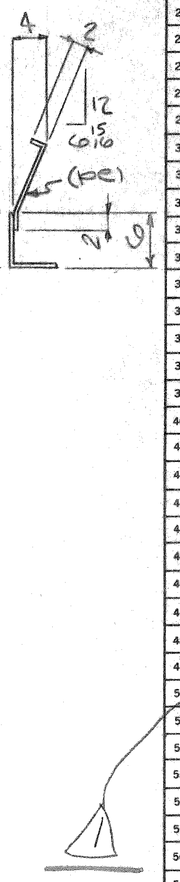
4 - Bracket - F3 R=2 L=2

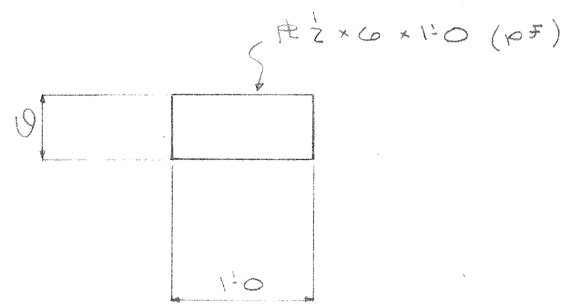




1 - Angle - N3

1 - do - P3





12 - Plates - F3

Shop Notes

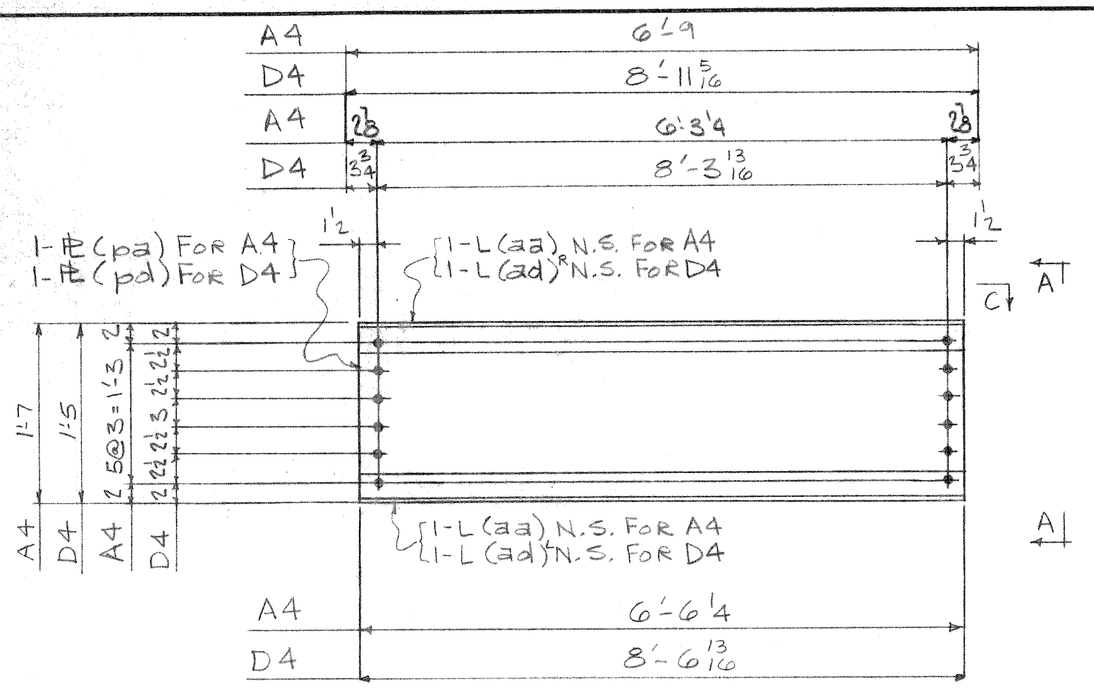
1. See Sheet E4 for General Notes.
2. Mat'l: A588 U.N.

LINE	TOTAL NO. OF PIECES ON THIS SHEET	MATERIAL: NO. OF PCS. ON SHEET	SHAPE	LENGTH: FEET	LENGTH: INCHES	ASSEMBLING MARK	REMARKS	ORDERED: ITEM	CALCULATED WEIGHT FOR ONE SHIP PIECE
1									
2	72		LINK PLATES			A3			
3		72	PL 3/4 x 8	2	2	pa	CVN	4/15	
4									
5									
6									
7	72		PINS			B3			
8		72	PIN 4Φ	0	5 3/8	ma	A108 + Min. Yld. 50,000 PSI	4/18	
9									
10									
11									
12	144		BRONZE WASH			C3			
13		144	BRZE. PL 1/8 x 7Φ	–	–	mb	ASTM B100 OR B22	4/20	
14									
15									
16									
17	144		STL. WASH			D3			
18		144	PL 1/4 x 7Φ	–	–	Pb		4/16	
19									
20									
21	4		ANGLES W3			E3			
22		4	L 6 4 3/4	0	8	aa		3/26	
23									
24									
25									
26	2		BRACKET			F3R			
27	2		BRACKET W2			F3L			
28		4	L 6 4 3/4	1	11	abR		3/25	
29		8	ROD 1Φ	1	7		A307 Galv. A153	3/27	
30		8	WASHER FOR 1Φ BOLT				do	3/28	
31		24	HEX NUT FOR 1Φ BOLT				do	3/29	
32									
33									
34									
35									
36									
37	1		ANGLE			G3			
38	1		do			H3			
39	2		do			K3			
40	2		do			M3			
41		1	L 6 6 3/8	4	0		FOR G3	4/5	
42		1	L 6 6 3/8	3	4		H3	4/4	
43		2	L 6 6 3/8	2	5		K3	4/3	
44		2	L 6 6 3/8	2	0		do M3	4/2	
45		18	BOLTS 1Φ	1	0	pd	GALV A153	4/9	
46		18	HEX NUT & WASHER FOR 1Φ BOLT				A307 STL.	4/9	
47									
48									
49									
50									
51	1		ANGLE			N3			
52	1		do			P3			
53		1	L 6 6 3/8	5	8		N3	4/6	
54		1	L 6 6 3/8	4	9		P3	4/7	
55		11	PL 3/8 11 1/2	1	0	pe	BEND	4/8	
56									
57									
58									
59	12		PLATES			T3			
60		12	PL 1/2 6	1	0	Pf		4/17	
61									
62									
63									
64									
65									
66									
67									

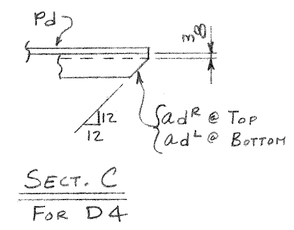
CITY OF DETROIT
CITY ENGINEERING DEPARTMENT
APPROVED AS NOTED
FOR COMPLIANCE WITH CONTRACT No. PW 655
* * * *
THIS APPROVAL SHALL NOT RELIEVE THE CONTRACTOR OF ANY RESPONSIBILITY COVERED BY THE CONTRACT
DATE MAR 2 1977 BY

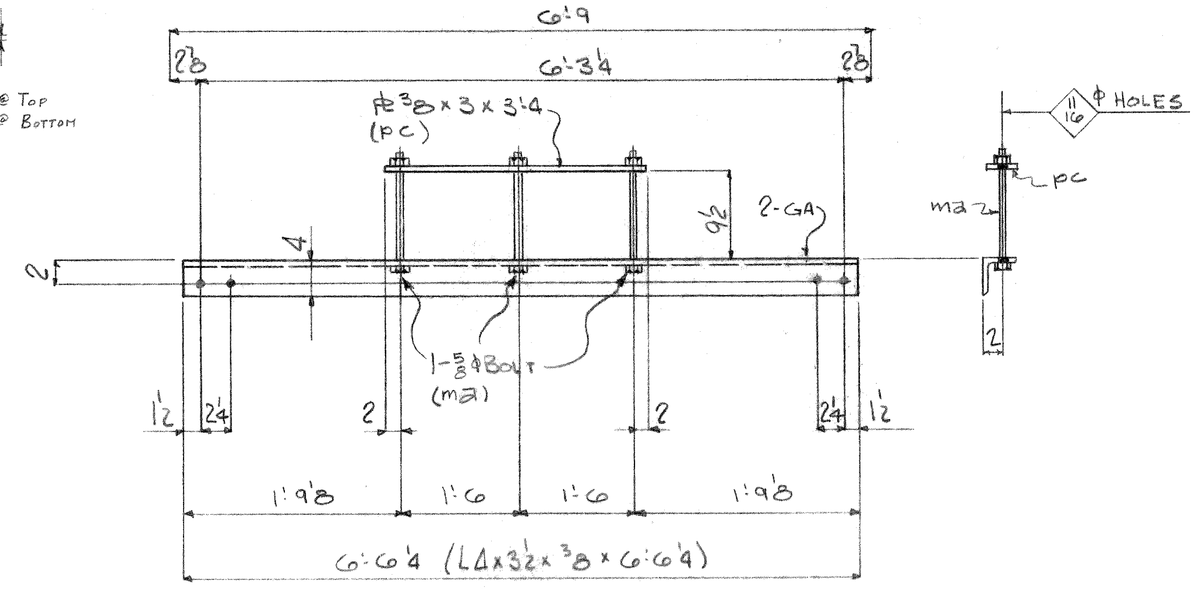
PHILIP ZWEIG & SONS
2100 E. 5TH AVE. GARY, IND.

BUILDING Bagley Ave. Bridge Crossing The P.C.R.R.
OWNER City Of Detroit, Mich.
LOCATION Detroit, Mich.
CONTRACTOR Walter Toebe Construction Company
ARCHITECT City Engineering Dept., City Of Detroit, Mich.
TITLE Hinge Material & Miscellaneous
RIVETS None
HOLES As Noted
PAINT None
DRAWN JJ & BAJ DATE 2-1-77
CHKD. RPJ
REV. Δ RPJ 2-7-77 REV.
CONTRACT 335
SHEET 3 OF 53

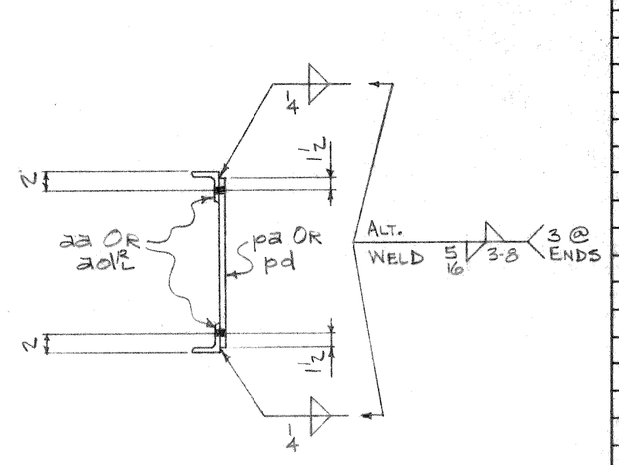


70 - DIAPHRAGMS - A4 (D1)
24 - DIAPHRAGMS - D4 (D2)

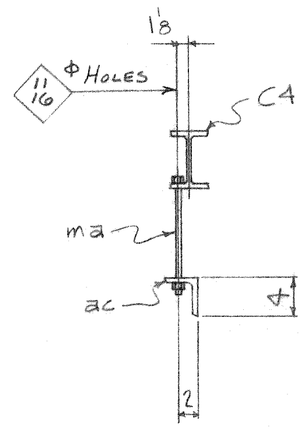




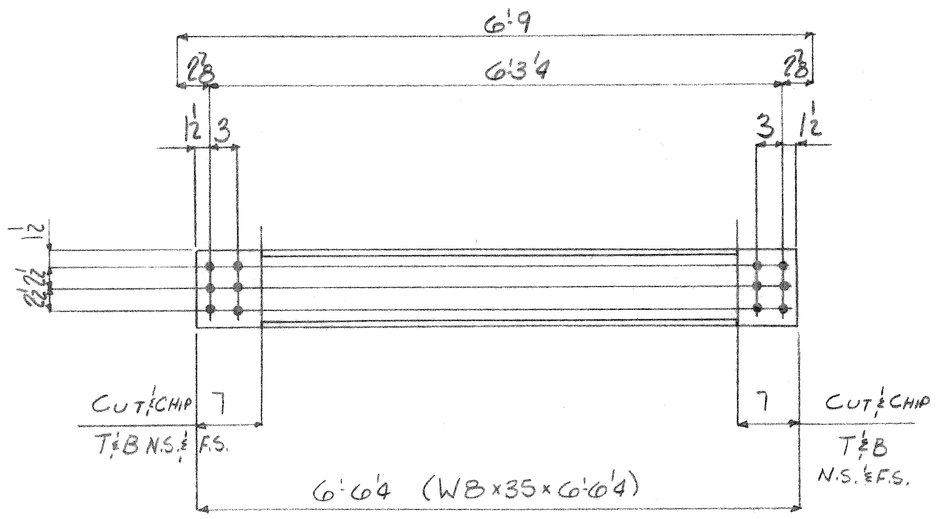
45 - DIAPHRAGM - E4 (D10)



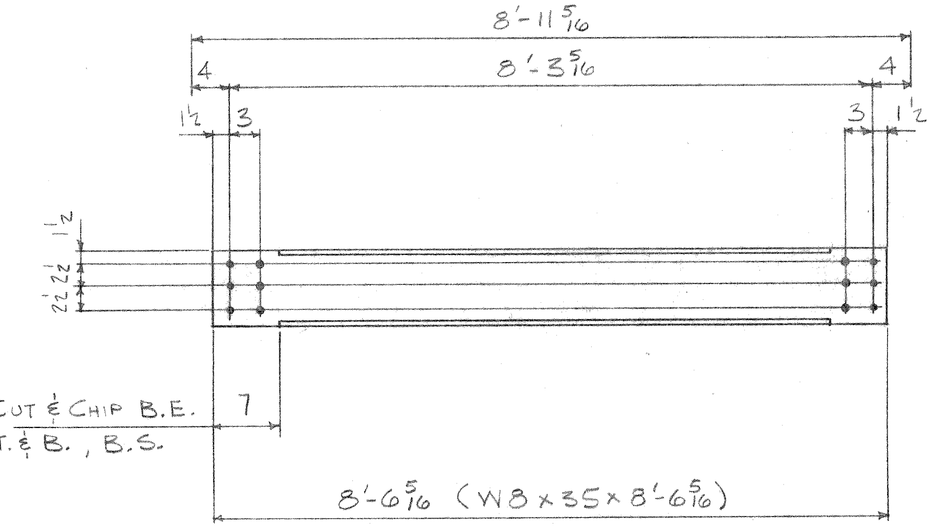
SECT. AA



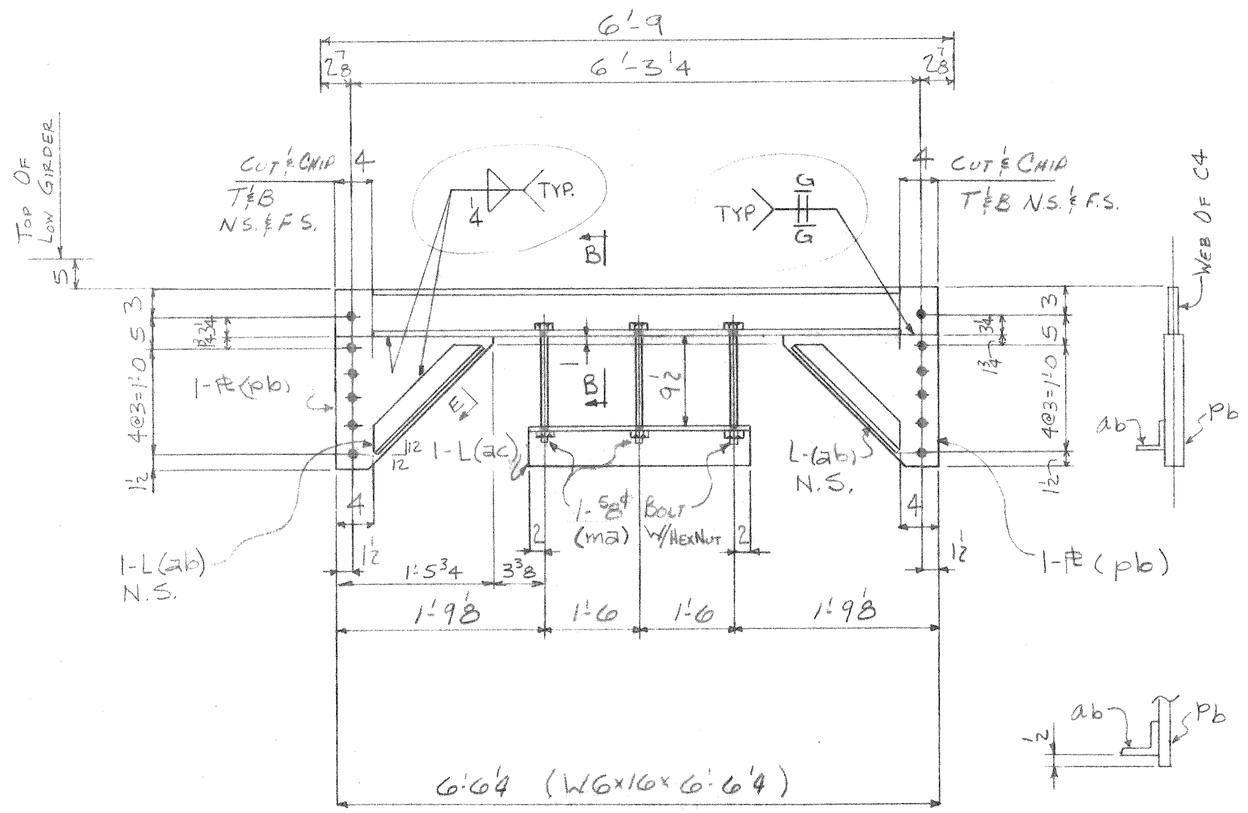
SECT. BB



16 - DIAPHRAGMS - B4 (D11)

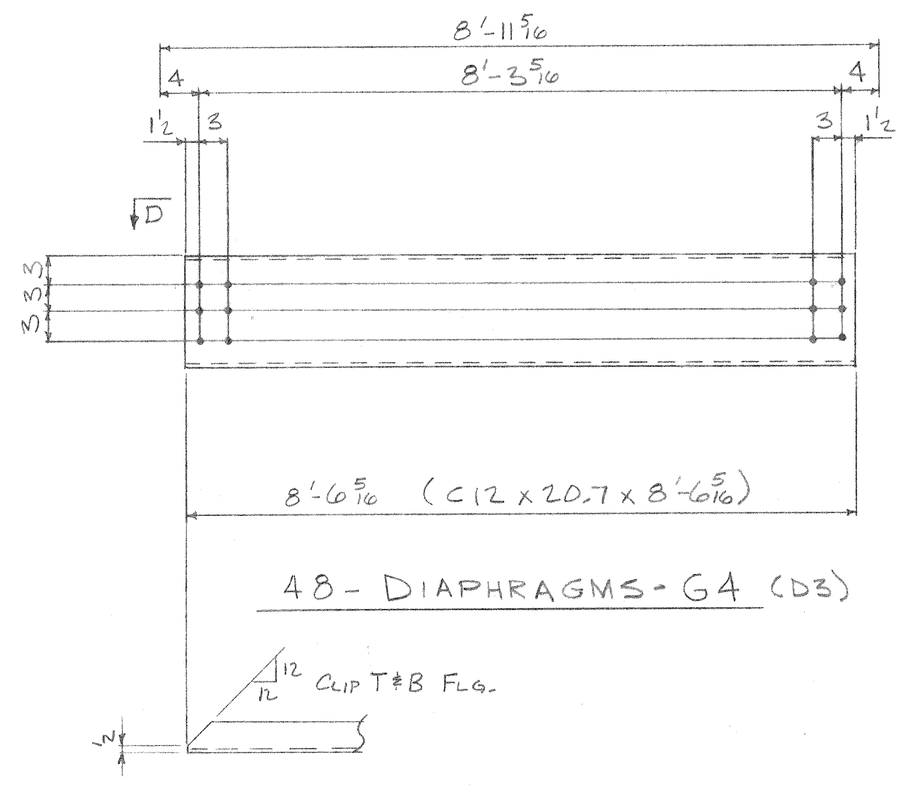


9 - DIAPHRAGMS - F4 (D12, D13)



9 - DIAPHRAGMS - C4 (D7)

SECT. E



48 - DIAPHRAGMS - G4 (D3)

SECT. D

FIELD BOLT LOCATION LIST

ACTUAL No. REQ'D	KIND	DIA.	GRIP	LENGTH	LOCATION
752	H.S. BOLTS	3/4	7/8	2 1/4	A4 & D4
376			1 1/4	2 1/2	A4 & D4
300			13/16	2	B4, F4
348			7/8	2 1/4	C4, A5, B5, C5, D5
84			3/4	2	C4, A5, B5, C5, D5
180			3/4	2	E4
576	do	do	13/16	2	G4
2616	HARD STL. WASHERS FOR 3/4 ϕ BOLT				ONE PER BOLT

LINE	TOTAL NO. OF PIECES ON THIS SHEET	NO. OF PCS. OR SHEET	SHAPE	LENGTH FEET	LENGTH INCHES	ASSEMBLING MARK	REMARKS	ORDERED ITEM	CALCULATED WEIGHT FOR CHK. SHIP PIECE
1									
2	70	DIAPHRAGMS				A4			
3		70	PL 3/8 18	6	6 1/4	pa		2/12	
4		140	L 3 3 3/8	6	6 1/4	aa		2/14	
5									
6									
7									
8	24	DIAPHRAGMS				D4			
9		24	PL 3/8 16	8	6 13/16	pd		2/13	
10		48	L 3 3 3/8	8	6 13/16	ad R		2/15	
11									
12									
13									
14	16	DIAPHRAGMS				B4			
15		16	W 8 x 35	6	6 1/4			2/14	
16									
17									
18									
19	9	DIAPHRAGMS				C4			
20		9	W 6 16	6	6 1/4			3/5	
21		18	PL 3/8 15 1/4	1	5 3/4	pb		3/8	
22		18	L 3 3 3/8	1	5 3/8	ab		3/9	
23		9	L 4 3 1/2 3/8	3	4	ac		3/10	
24		27	BOLT 5/8 ϕ	0	11 1/4	ma	GALV. A-153	3/19	
25		27	HEX NUTS FOR 5/8 ϕ BOLTS				A307 STL.	3/19	
26									
27									
28									
29	45	DIAPHRAGMS				E4			
30		45	L 4 3 1/2 3/8	6	6 1/4			2/126	
31		45	PL 3/8 3		3 4	pc		2/127	
32		135	BOLT 5/8 ϕ	0	11 1/4	ma	GALV. A153	2/132	
33		135	HEX NUTS FOR 5/8 ϕ BOLTS				A307 STL.	2/132	
34									
35									
36									
37	9	DIAPHRAGMS				F4			
38		9	W 8 x 35	8	6 5/16		-	2/15 2/16	
39									
40									
41									
42	48	DIAPHRAGMS				G4			
43		48	C 12 x 20.7	8	6 5/16			2/13	
44									
45									
46									
47									
48									
49									
50									
51	FIELD BOLT SHIPPING LIST								
52	(INCLUDES 5% EXTRA)								
53	A325 SPECIFICATION - TYPE III - WEATHERING								
54									
55	1197		H.S. B. x 3/4 ϕ	0	2		2/21	3/15 2/87	
56	1155		H.S. B. x 3/4 ϕ	0	2 1/4			3/10 2/88	
57	395		H.S. B. x 3/4 ϕ	0	2 1/2			2/10	
58									
59									
60	2747		HARD STL. WASHER FOR 3/4 ϕ BOLT				2/8 2/29 2/21 2/10	3/15 3/16	
61									
62									
63									
64									
65									
66									
67									

SHOP NOTES

1. SEE SHEET E4 FOR GENERAL NOTES.
2. MAT'L: A588 U.N.

CITY OF DETROIT
CITY ENGINEERING DEPARTMENT
APPROVED
FOR COMPLIANCE WITH CONTRACT No. PW 6558
* * *
THIS APPROVAL SHALL NOT RELIEVE THE CONTRACTOR OF ANY RESPONSIBILITY COVERED BY THE CONTRACT
DATE MAR 2 1977 BY

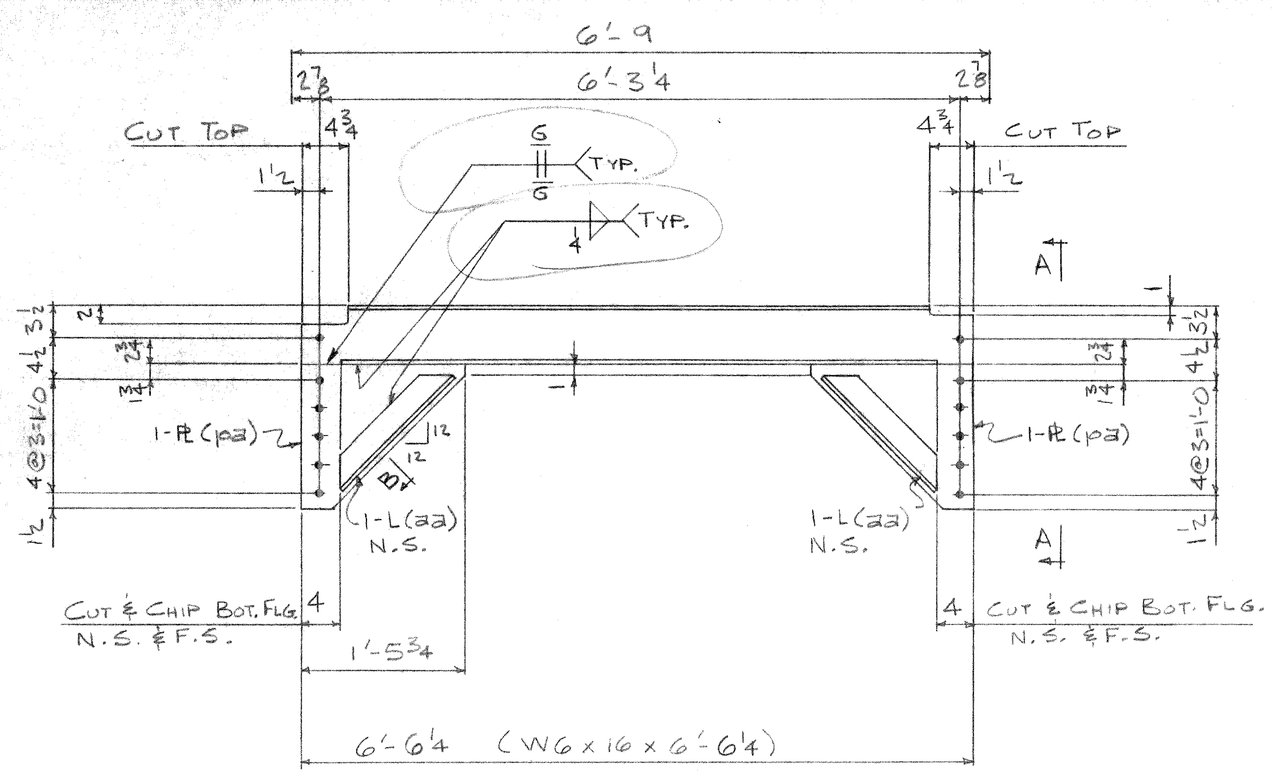
PHILIP ZWEIG & SONS
2100 E. 5TH AVE. GARY, IND.

BUILDING Bagley Ave Bridge Crossing The PC.R.R.
OWNER City Of Detroit, Mich.
LOCATION Detroit, Mich.
CONTRACTOR Walter Toebe Construction Company
ARCHITECT City Engineering Dept., City Of Detroit, Mich.
TITLE Diaphragms

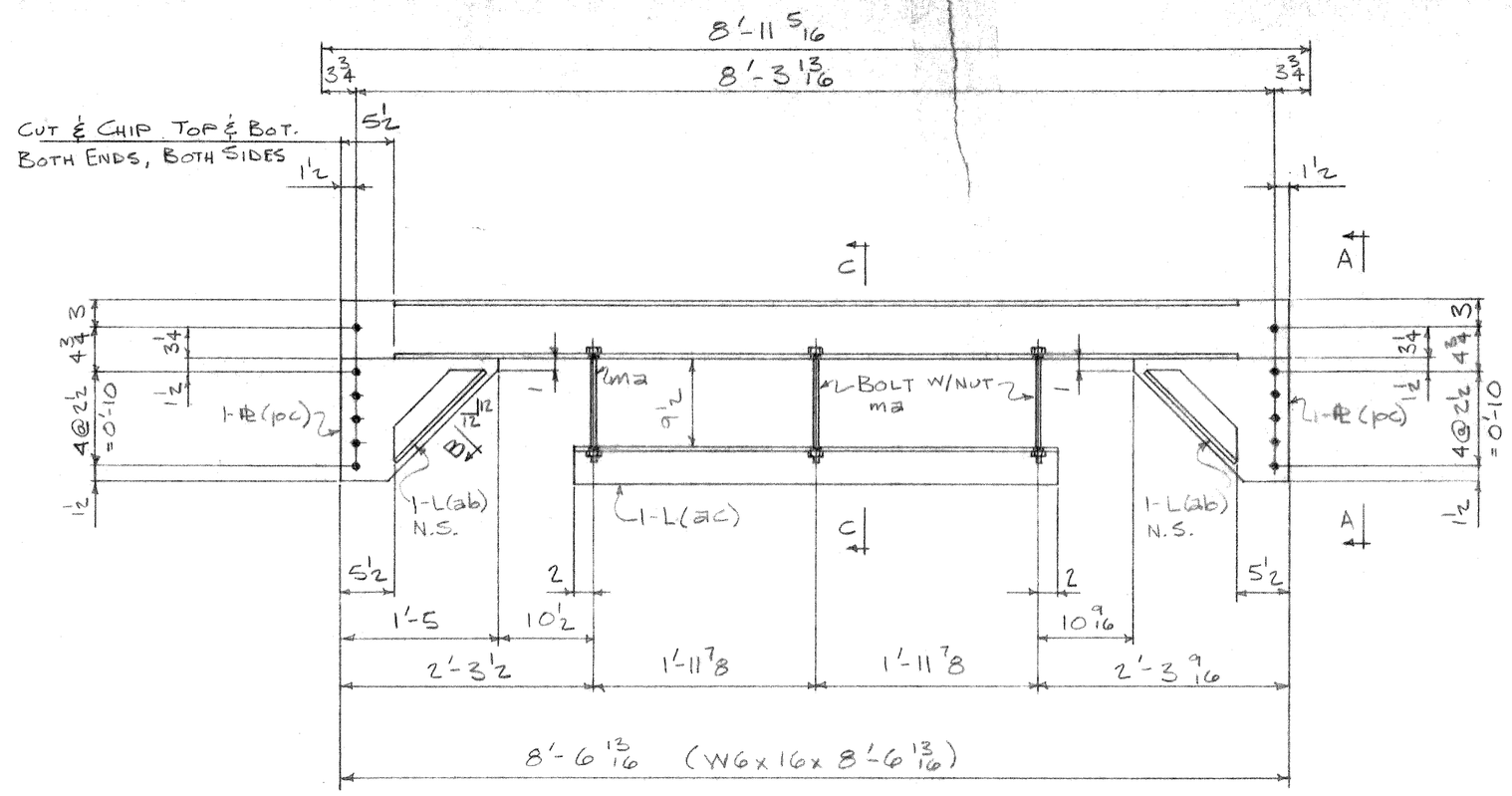
RIVETS None
HOLES 13/16 & U.N.
PAINT None

DRAWN JJ & BAJ DATE 2-1-77
CHKD. RPJ
REV. REV.

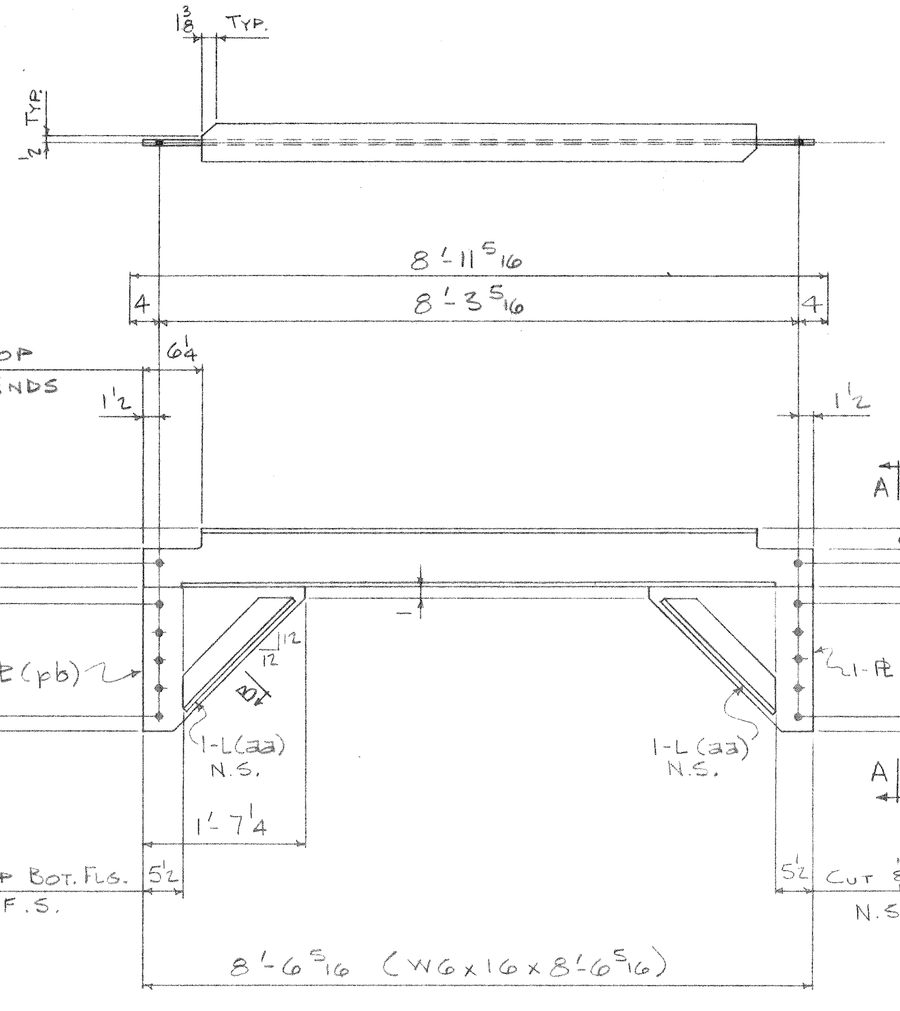
CONTRACT 335
SHEET 4 OF 53



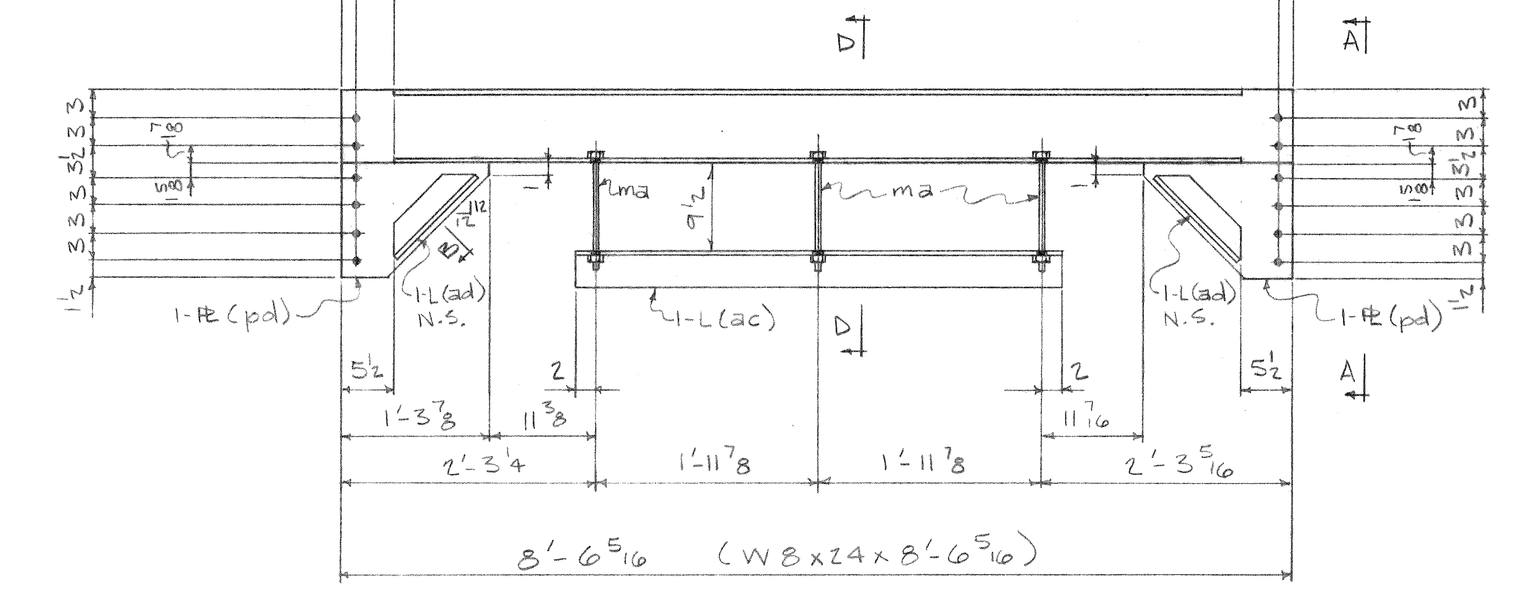
9 - DIAPHRAGMS - A5 (D4)



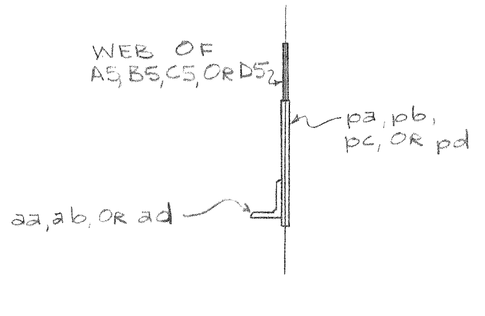
3 - DIAPHRAGMS - C5 (D8)



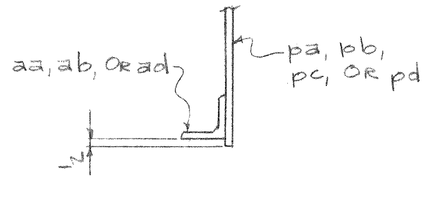
9 - DIAPHRAGMS - B5 (D5, D6)



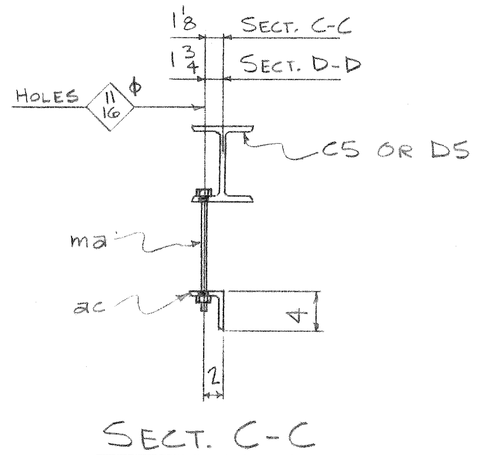
6 - DIAPHRAGMS - D5 (D9)



SECT. A-A



SECT. B



SECT. C-C
SECT. D-D

SHOP NOTES

1. SEE SHEET E4 FOR GENERAL NOTES.

2. MATERIAL: A588 U.N.

LINE	TOTAL NO. OF PIECES ON THE SHEET	MATERIAL: NO. OF PCS. ON SHEET	SHAPE				LENGTH: FEET	LENGTH: INCHES	ASSEM-BLING MARK	REMARKS	ORDERED: ITEM	CALCULATED WEIGHT FOR ONE SHIP PIECE
1												
2	9	DIAPHRAGMS							A5			
3		9	W	6	x	16	6	6 1/4			3/2	
4		18	PL	3/8		15 1/4	1	5 3/4	pa		3/8	
5		18	L	3	3	3/8	1	5 3/4	aa		3/9	
6												
7												
8												
9												
10	9	DIAPHRAGMS							B5			
11		9	W	6	x	16	8	6 5/16			3/2	
12		18	PL	3/8		15 1/4	1	7 1/4	pb		3/8	
13		18	L						aa		3/9	
14												
15												
16												
17												
18	3	DIAPHRAGMS							C5			
19		3	W	6	x	16	8	6 13/16			3/6	
20		6	PL	3/8		13	1	5	pc		3/8	
21		6	L	3	3	3/8	1	2 4	ab		3/9	
22		3	L	4	3 1/2	3/8	4	3 3/4	ac		3/11	
23		9	BOLT	5/8 ϕ			0	11 1/4	ma	GALV. A153	3/19	
24		9	HEX NUTS FOR 5/8 ϕ BOLTS							A307 STL.	3/19	
25												
26												
27												
28												
29	6	DIAPHRAGMS							D5			
30		6	W	8	x	24	8	6 3/8			3/7	
31		12	PL	3/8		12 3/8	1	3 3/8	pd		3/8	
32		12	L	3	3	3/8	1	1	ad		3/9	
33		6	L						ac		3/11	
34		18	BOLT	5/8 ϕ			0	11 1/4	ma	GALV. A153	3/19	
35		18	HEX NUTS FOR 5/8 ϕ BOLT							A307 STL.	3/19	
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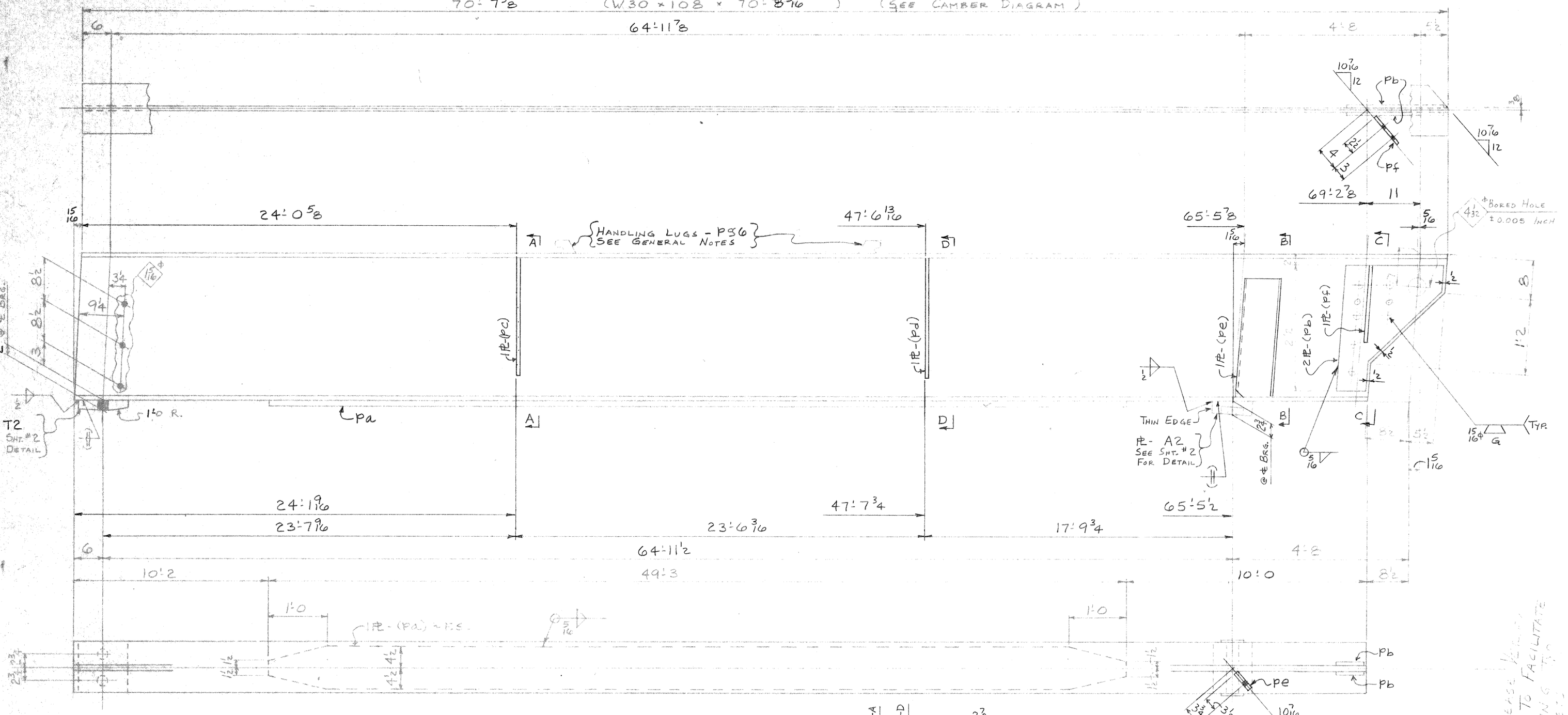
CITY OF DETROIT
CITY ENGINEERING DEPARTMENT
APPROVED
FOR COMPLIANCE WITH CONTRACT No. PW6552
* * * *
THIS APPROVAL SHALL NOT RELIEVE THE CONTRACTOR OF ANY RESPONSIBILITY COVERED BY THE CONTRACT
DATE MAR 2 1977 BY

PHILIP ZWEIG & SONS
2100 E. 5TH AVE. GARY, IND.

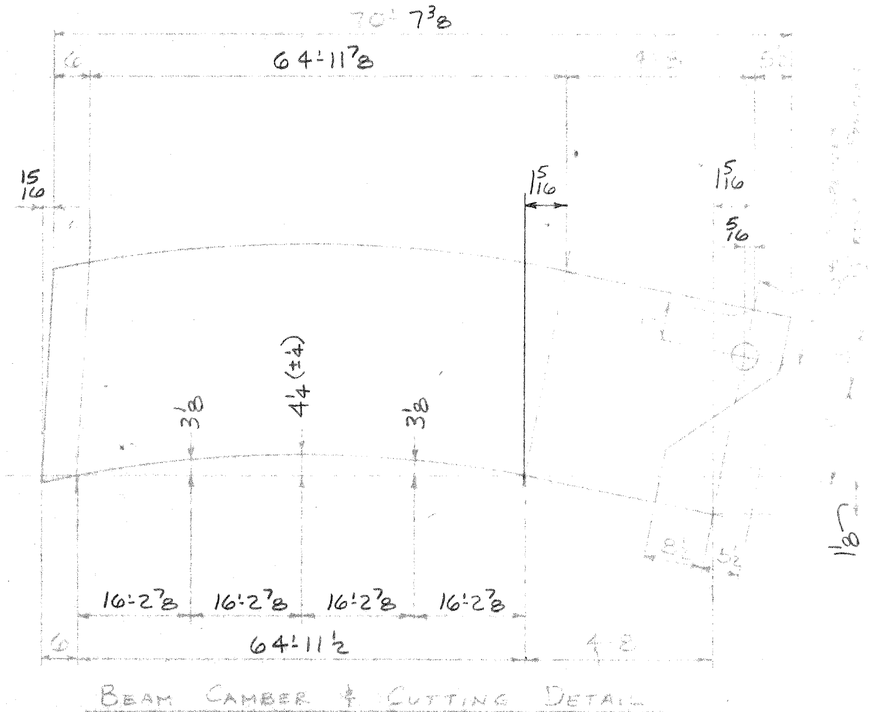
BUILDING Bagley Ave. Bridge Crossing The P.C.R.R.
OWNER City Of Detroit, Mich.
LOCATION Detroit, Mich.
CONTRACTOR Walter Toebe Construction Co.
ARCHITECT City Engineering Dept., City Of Detroit, Mich.
TITLE Diaphragm

RIVETS None	DRAWN BAN DATE 2-1-77
HOLES 13/16 ϕ U.N.	CHKD. RPJ
PAINT None	REV. REV.
CONTRACT 335	SHEET 5 OF 53

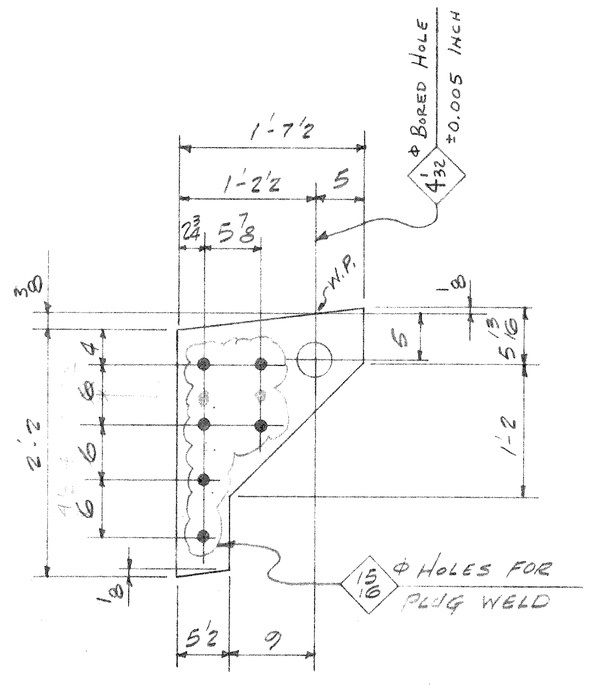
DRAW BRIDGE, INC. # 72



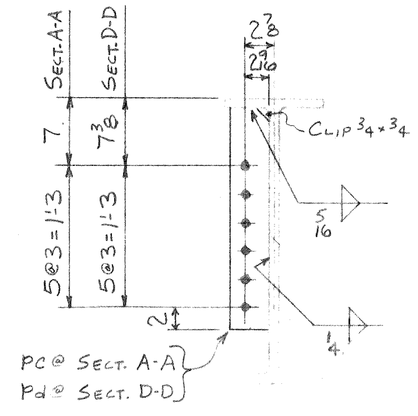
ONE - STRINGER - A6
LINE A SPAN 1



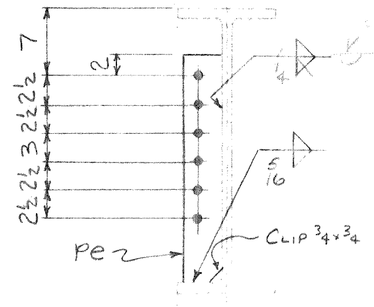
BEAM CAMBER & CUTTING DETAIL



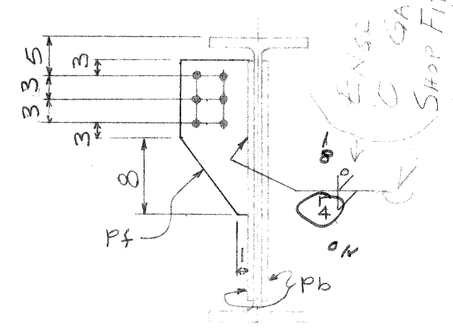
PIN PL-(Pb)- CUTTING DETAIL



SECT. D-D



(SHOWN DEVELOPED)



(SHOWN DEVELOPED)

EDGE PLATES WELDED TO CAP TO FACILITATE SHOP FITTING & ERECTION

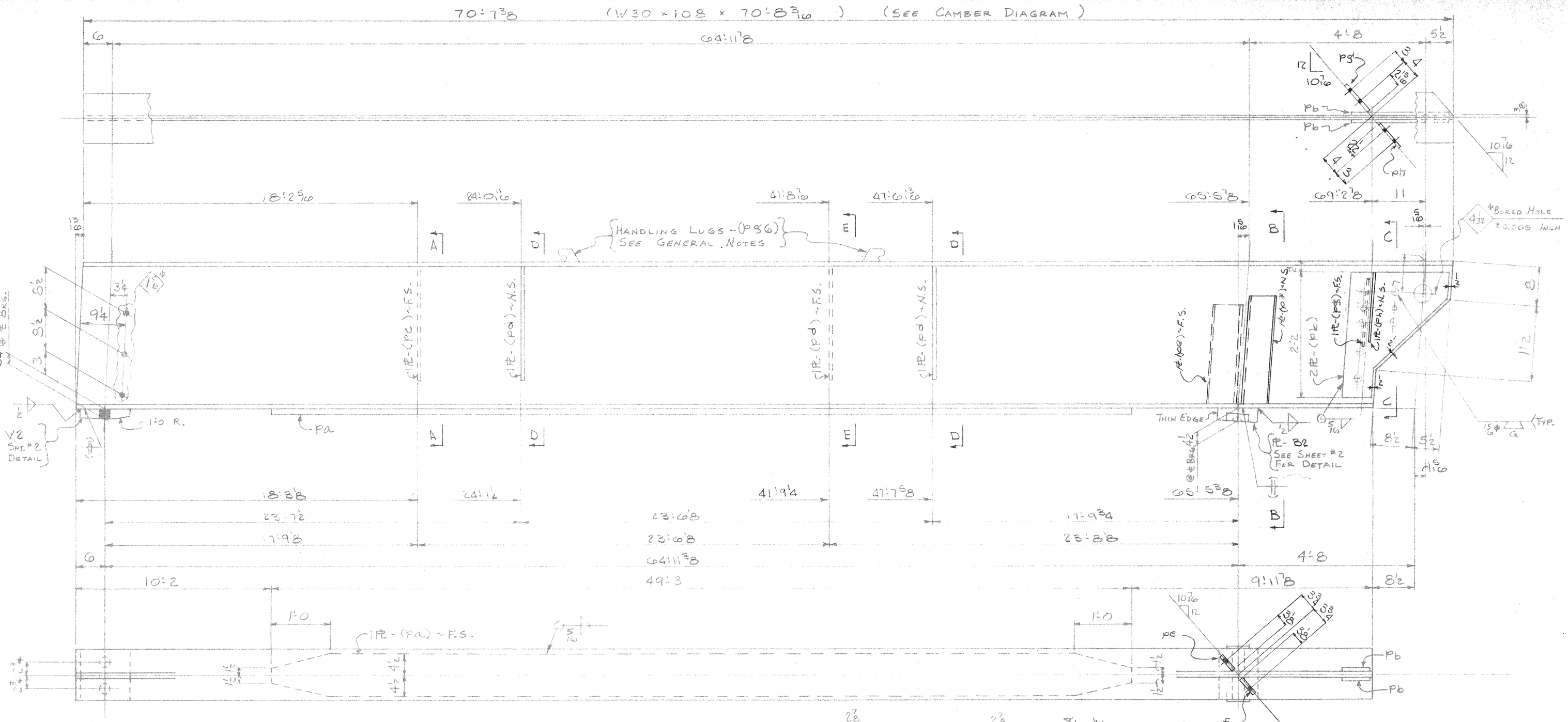
SHOP NOTES
1. SEE SHEET E4 FOR GENERAL NOTES.
2. MAT'L: A588 U.N.

LINE	TOTAL NO. OF PIECES ON SHEET	NO. OF PCS. ON SHEET	SHAPE	LENGTH FEET	LENGTH INCHES	ASSEM. BLING MARK	REMARKS	ORDERED ITEM	CALCULATED WEIGHT FOR EACH SHIP PIECE
1	1		STRINGER			A6			
2		1	W 30 x 108	70	8 5/16		CVN	1/2	
3		1	PL 1/2 9	49	3	Pa	CVN	1/17	
4		2	PL 1/2 19 1/2	2	2 1/2	Pb	CVN	1/30	
5		1	PL 1/2 4	1	11 1/4	Pc		2/6	
6		1	PL 1/2 4	1	11 5/8	Pd		2/6	
7		1	PL 1/2 4 3/4	2	0 1/8	Pe		2/7	
8		1	PL 1/2 7	1	8	Pf		2/17	
9		2	PL 1 4 3/8	0	6 1/16	PS6			
10		1	SOLE PL			T2	SEE SHT. 2		
11		1	SOLE PL			A2	FOR DET.		

CITY OF DETROIT
CITY ENGINEERING DEPARTMENT
APPROVED AS NOTED
FOR COMPLIANCE WITH CONTRACT No. PW 6552
* * * *
THIS APPROVAL SHALL NOT RELIEVE THE CONTRACTOR OF ANY RESPONSIBILITY COVERED BY THE CONTRACT
DATE MAR 2 1977 BY

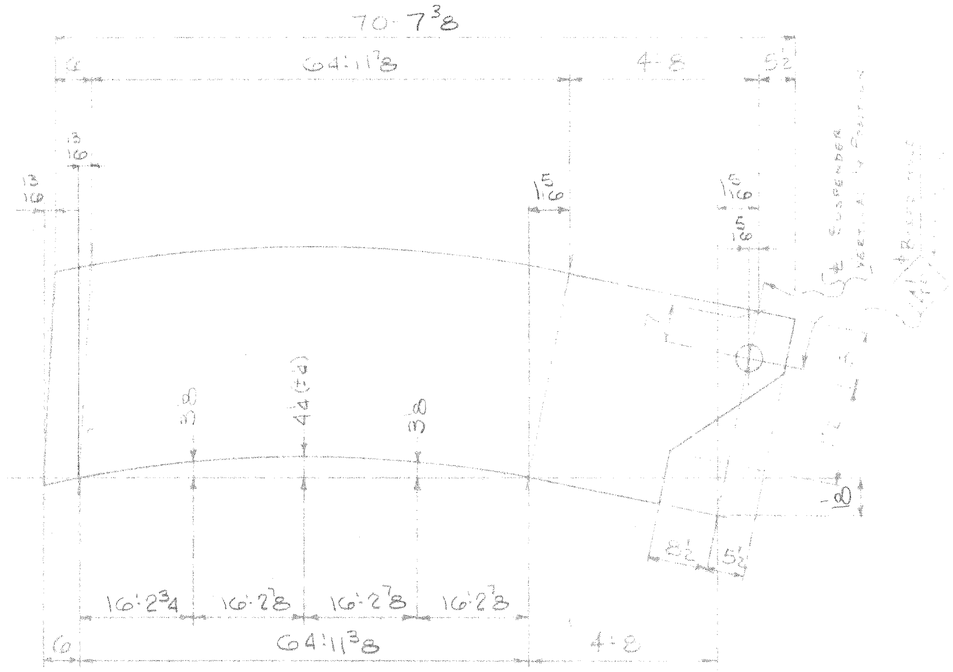
PHILIP ZWEIG & SONS
2100 E. 9TH AVE. GARY, IND.

BUILDING	
OWNER	
LOCATION	
CONTRACTOR	
ARCHITECT	CITY ENGINEERING DEPT. CITY OF DETROIT, MICH.
TITLE	STRINGER SPAN 1
RIVETS NONE	DRAWN RPJ DATE 2-1-77
HOLES 13/16 ℄ U.N.	CHKD RPJ
PAINT NONE	REV REV
CONTRACT 335	SHEET 6 OF 53

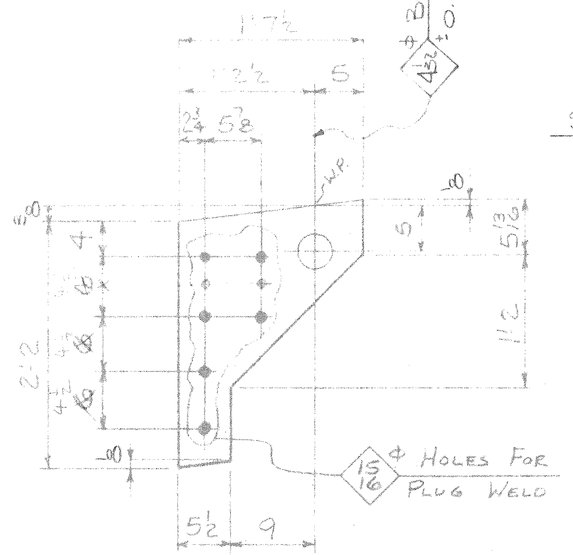


ONE - STRINGER - A7

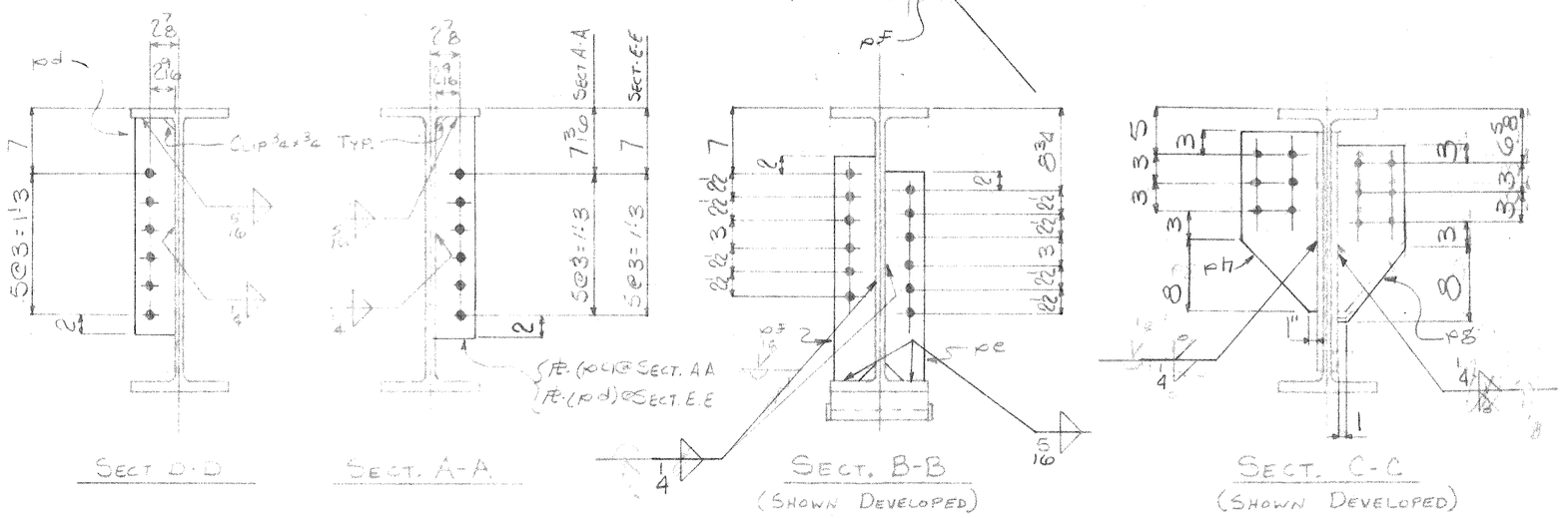
LINE B SPAN 1



BEAM CAMBER & CUTTING DETAIL



PIN PL-(Pb)- CUTTING DETAIL



LINE	ITEM NO. OF PCS. ON SHT.	NO. OF PCS. ON THIS SHEET	MATERIAL SHAPE	LENGTH FEET	LENGTH INCHES	ASSEM. BLING MARK	REMARKS	ORDERED ITEM	CALCULATED WEIGHT PER ITEM SHT. PIECE
1	1		STRINGER			A7			
2		1	W 30 x 108	70	8 3/16		CVN		1/2
3		1	PL 1/2 9	49	3	Pa	CVN		1/17
4		2	PL 1/2 19 1/2	2	2 1/2	Pb	CVN		1/30
5		1	PL 1/2 4	1	11 7/16	Pc			2/0
6		3	PL 1/2 4	1	11 1/4	Pd			2/0
7		1	PL 1/2 4 3/4	1	10 3/8	Pe			2/7
8		1	PL 1/2 4 3/4	2	0 8	Pf			2/7
9		1	PL 1/2 7 1/2	1	8	Pg			2/17
10		1	PL 1/2 7	1	8	Ph			2/17
11									
12									
13		1	SOLE PL			V2	SEE SHT. 2		
14		1	SOLE PL			B2	FOR DET.		
15		2	PL 1 4 1/2	0	6 1/16	Pg			
16									
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CITY OF DETROIT
CITY ENGINEERING DEPARTMENT
APPROVED AS NOTED
FOR COMPLIANCE WITH CONTRACT No. PW 6552
* * * *
THIS APPROVAL SHALL NOT RELIEVE THE CONTRACTOR OF ANY RESPONSIBILITY COVERED BY THE CONTRACT
DATE MAR 2 1977 BY

SHOP NOTES

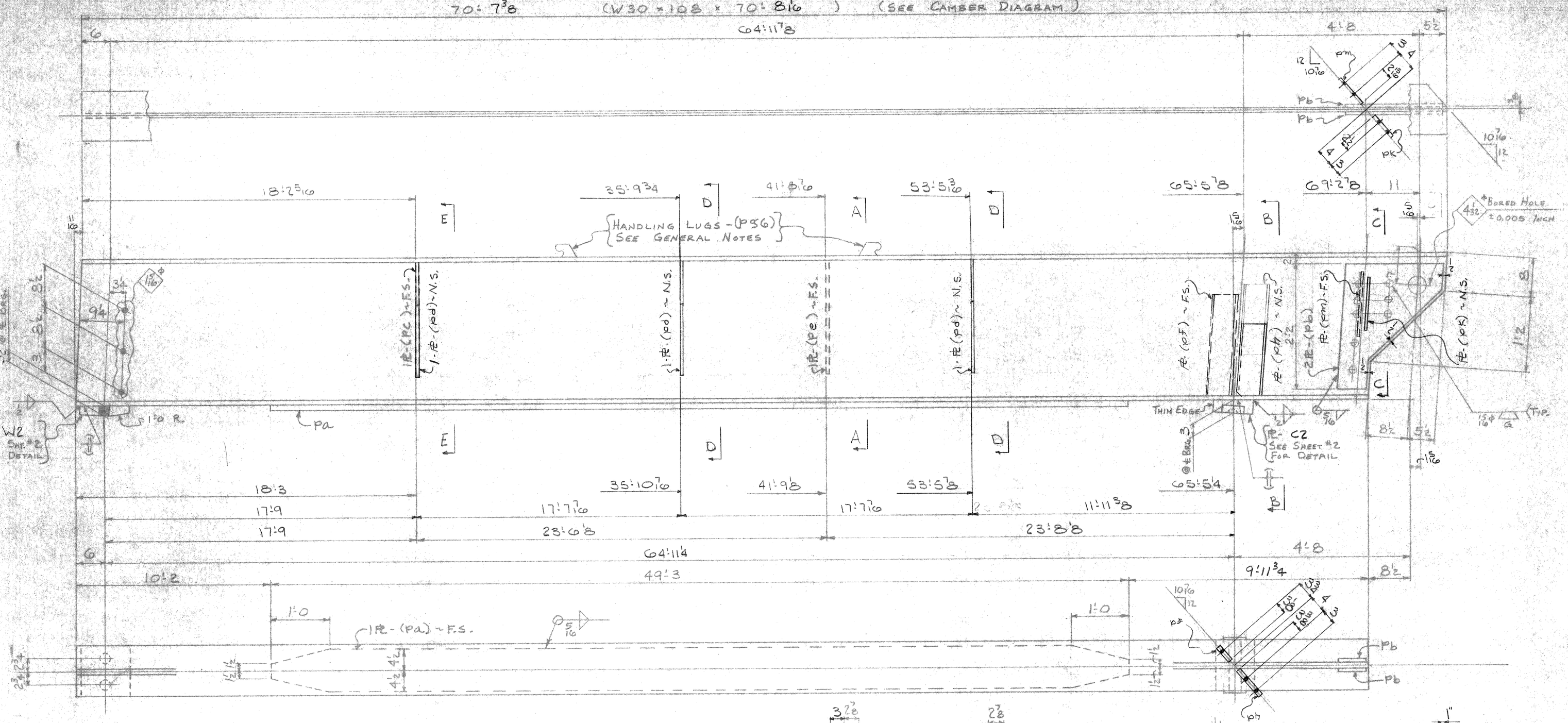
1. SEE SHEET E4 FOR GENERAL NOTES.
2. MAT'L : A588 U.N.

PHILIP ZWEIG & SONS
2100 E. 5TH AVE. GARY, IND.

BUILDING Bagley Ave. Bridge Crossing The P.C.R.R.
OWNER City Of Detroit, Mich.
LOCATION Detroit, Mich.
CONTRACTOR Walter Tobbe Construction Company
ARCHITECT City Engineering Dept. City Of Detroit, Mich.
TITLE Stringer Span 1

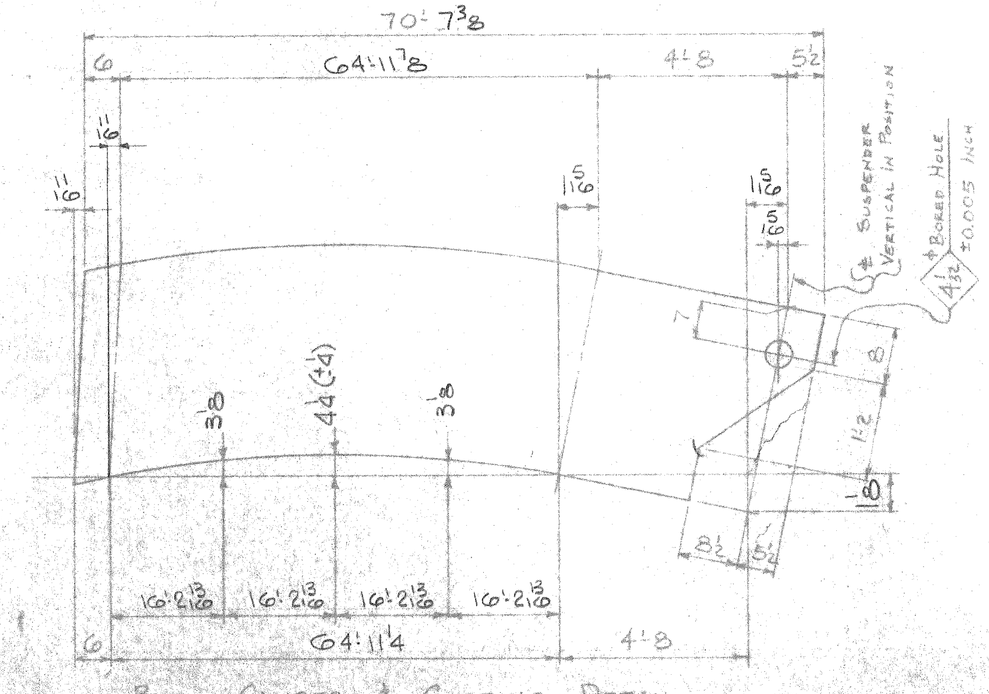
RIVETS None
HOLES 13/16 ø U.N.
PAINT None
DRAWN JJ DATE 2-1-77
CHKD. RPJ
REV. REV.
CONTRACT 335
SHEET 7 OF 53

70'-7 3/8 (W30 x 108 x 70'-8 1/16) (SEE CAMBER DIAGRAM)

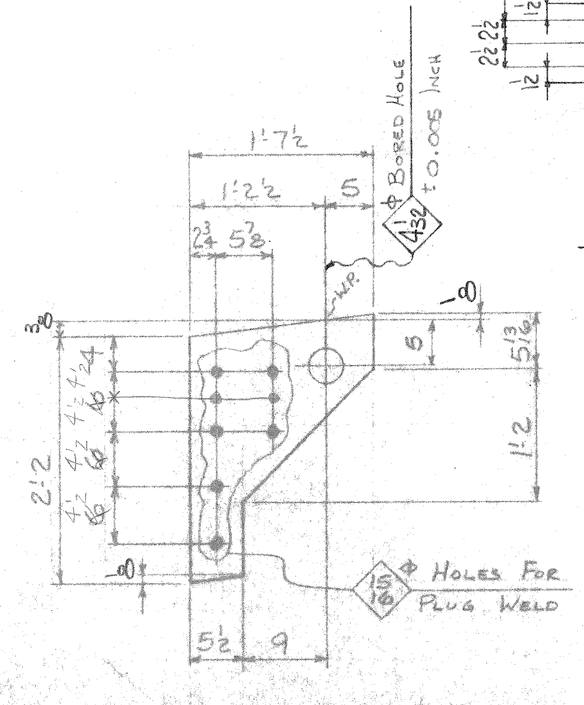


ONE - STRINGER - A8

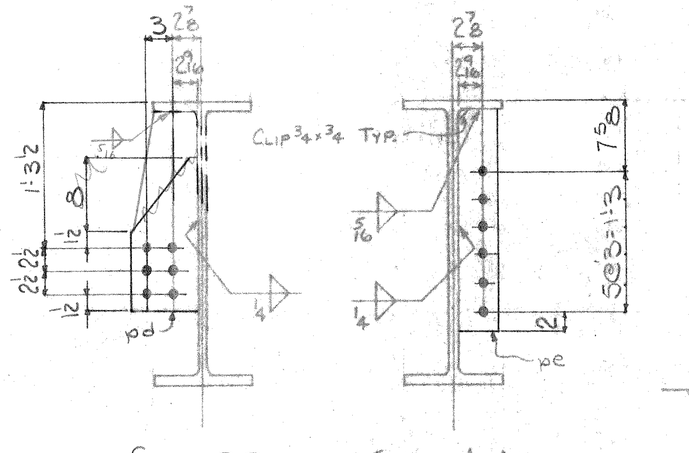
LINE C SPAN 1



BEAM CAMBER & CUTTING DETAIL

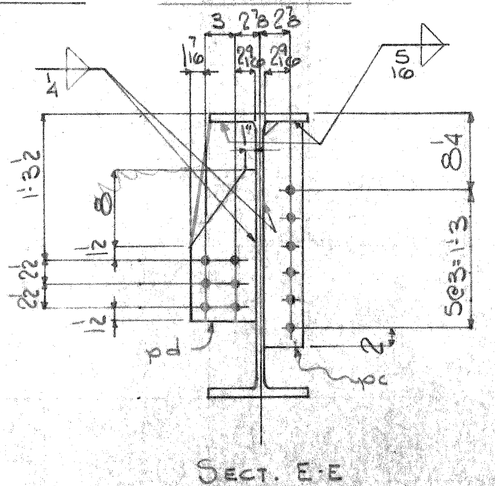


PIN PL-(Pb)-CUTTING DETAIL

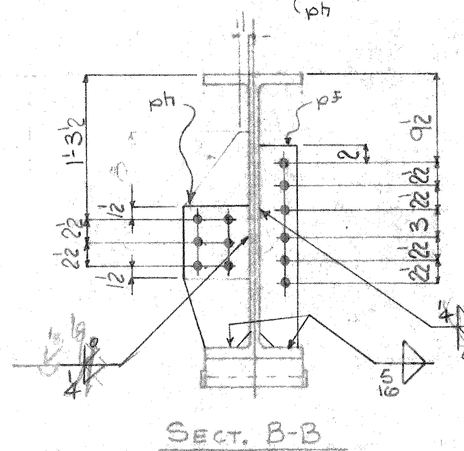


SECT. D-D

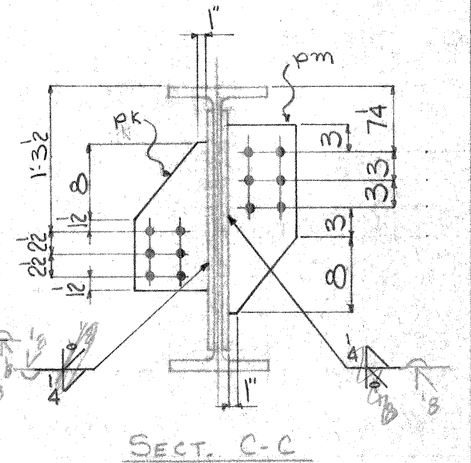
SECT. A-A



SECT. E-E



SECT. B-B (SHOWN DEVELOPED)



SECT. C-C (SHOWN DEVELOPED)

SHOP NOTES

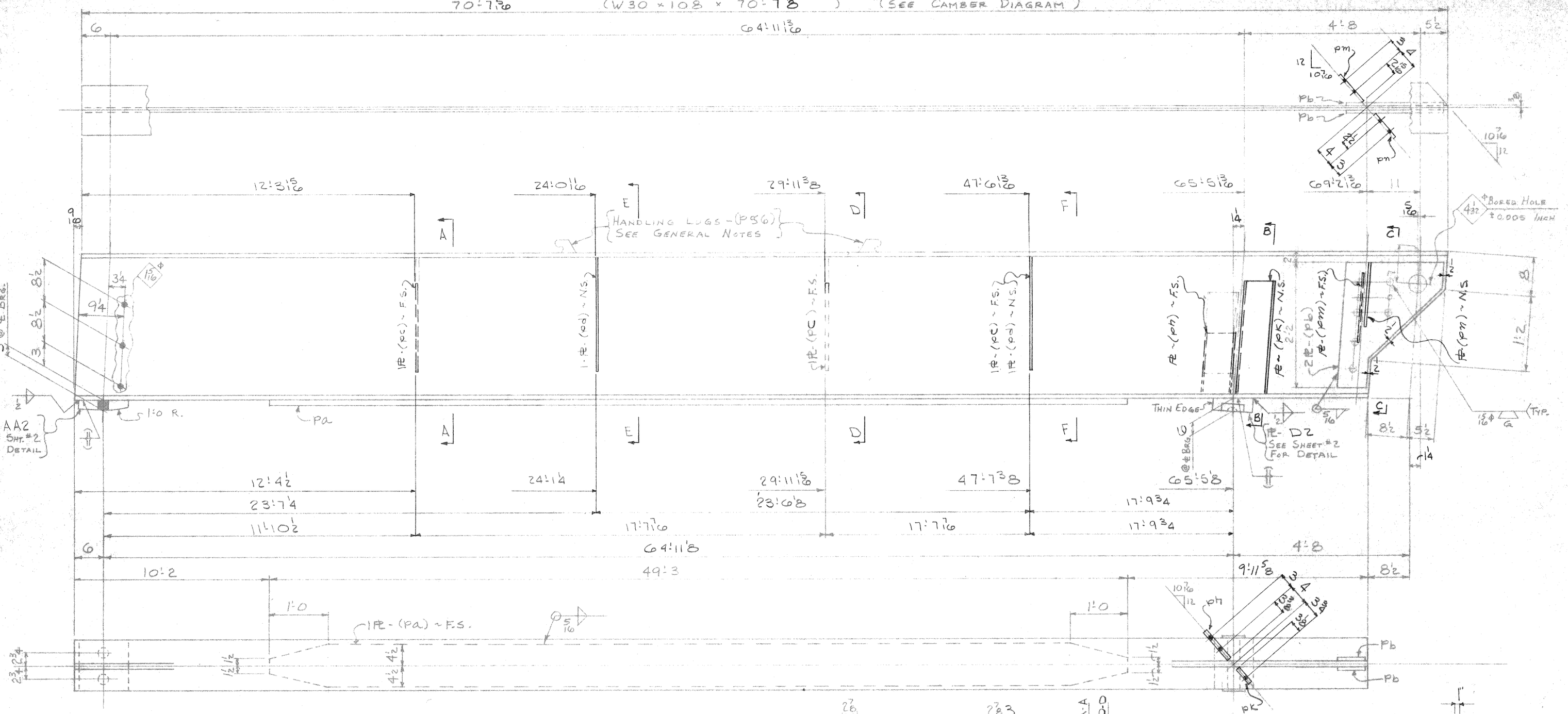
1. SEE SHEET E4 FOR GENERAL NOTES.
2. MAT'L : A588 U.N.

LINE	SPACE NO. OF THIS SHEET	NO. OF PIECES	MATERIAL SHAPE	LENGTH FT.	LENGTH IN.	LENGTH FRACT.	ASSEMBLING MARK	REMARKS	ORDERED PIECES	CALCULATED WEIGHT FOR ONE SHEET
1	1	S	TRINGER				A8			
2		1	W 30 x 108	70	8	1/16		CVN	1/2	
3		1	PL 1/2 x 9	49	3		Pa	CVN	1/17	
4		2	PL 1/2 x 14	2	2	1/2	Pb	CVN	1/30	
5		1	PL 1/2 x 4	2	0	1/2	PC		2/16	
6		3	PL 1/2 x 7	1	4		Pd		2/17	
7		1	PL 1/2 x 4	1	11	7/8	Pe		2/16	
8		1	PL 1/2 x 4 3/8	1	9	5/8	Pf		2/17	
9		1	PL 1/2 x 8	1	3	5/8	Pg		2/17	
10		1	PL 1/2 x 7	1	4		Ph		2/17	
11		1	PL 1/2 x 7 1/2	1	8		Pm		2/17	
12										
13		1	SOLE PL				W2	SEE SHT. 2 FOR DET.		
14		1	SOLE PL				C2			
15		2	PL 1 x 4 3/8	0	6	1/16	PS6			

CITY OF DETROIT
CITY ENGINEERING DEPARTMENT
APPROVED AS NOTED
FOR COMPLIANCE WITH CONTRACT No. PW 6550
* * * *
THIS APPROVAL SHALL NOT RELIEVE THE CONTRACTOR OF ANY RESPONSIBILITY COVERED BY THE CONTRACT
DATE MAR 2 1977 BY

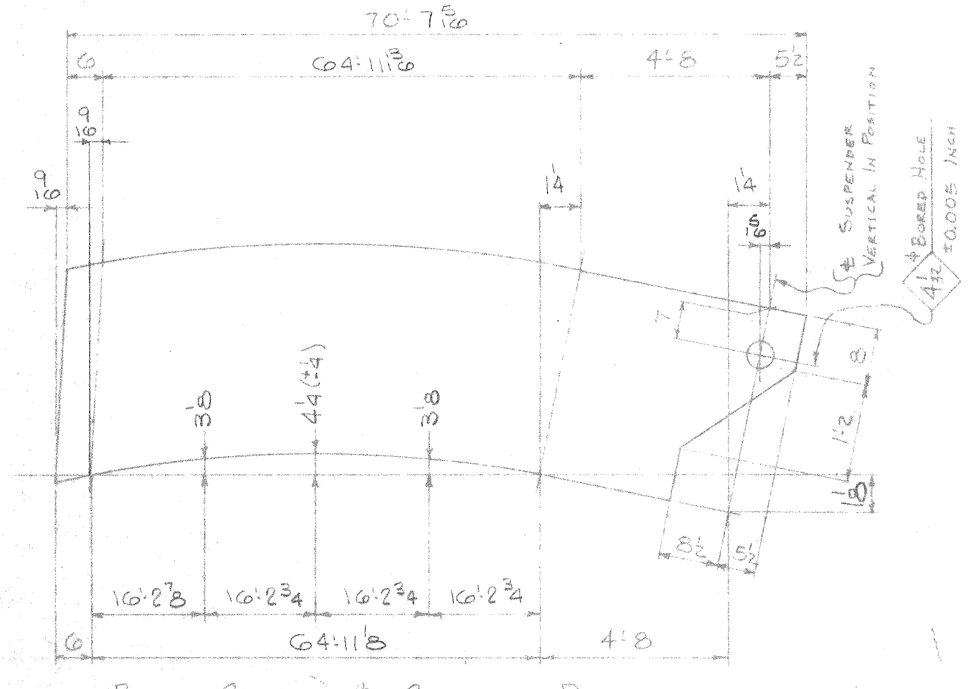
PHILIP ZWEIG & SONS
2100 E. 5TH AVE. GARY, IND.

BUILDING Bagley Ave. Bridge Crossing The P.C.R.R.
OWNER City Of Detroit, Mich.
LOCATION Detroit, Mich.
CONTRACTOR Walter Toebe Construction Company
ARCHITECT City Engineering Dept., City Of Detroit, Mich.
TITLE Stringer Span 1
RIVETS None
HOLES 15/16 ø U.N.
PAINT None
DRAWN JJ DATE 2-1-77
CHKD. RPJ
REV. REV.
CONTRACT 335
SHEET 8 OF 53

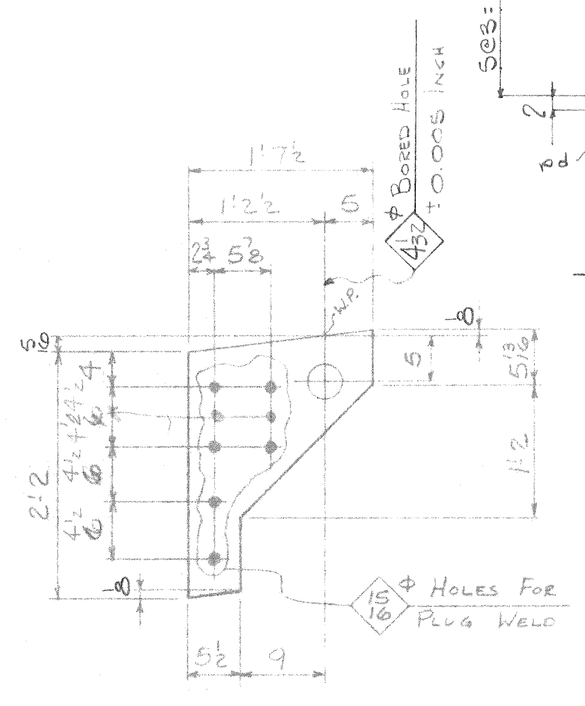


ONE - STRINGER - A9

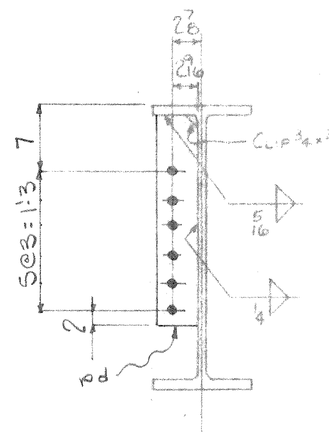
LINE D SPAN 1



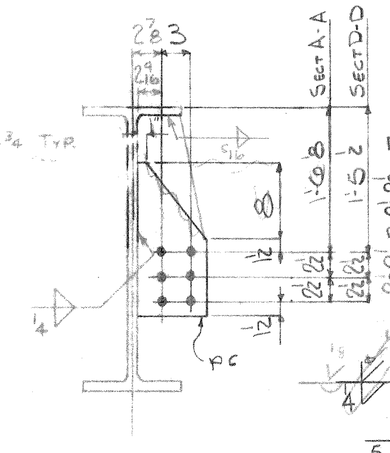
BEAM CAMBER & CUTTING DETAIL

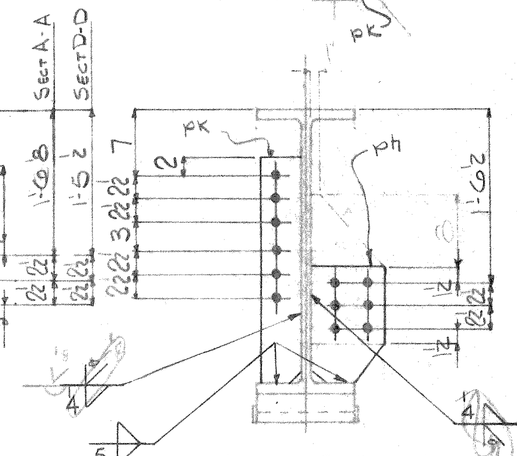


PIN PL-(PB)- CUTTING DETAIL

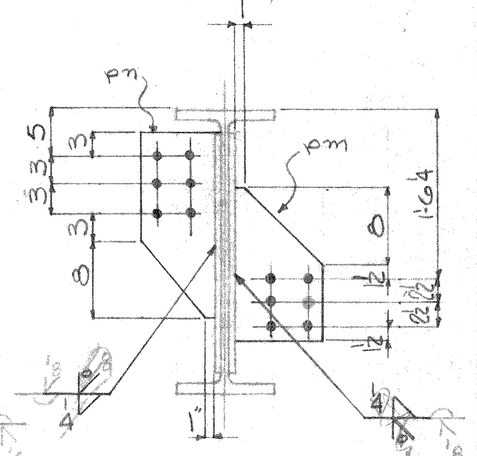


SECT. E-E

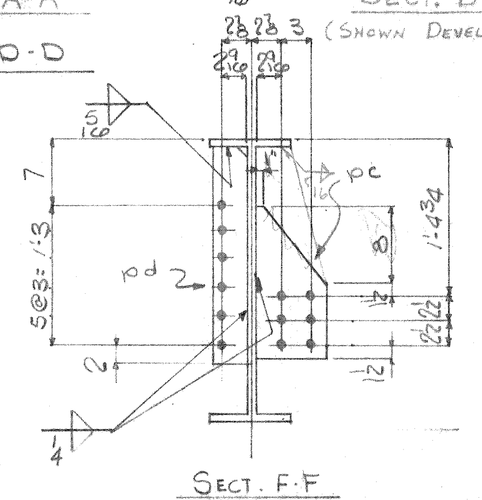




SECT. B-B (SHOWN DEVELOPED)



SECT. C-C (SHOWN DEVELOPED)



SECT. F-F

SHOP NOTES

1. SEE SHEET E4 FOR GENERAL NOTES.
2. MAT'L : A588 U.N.

LINE	TOTAL NO. OF PCS. OF THIS SHAPE	NO. OF PCS. OF THIS SHEET	MATERIAL SHAPE	LENGTH FEET	LENGTH INCHES	ASSEMBLING MARK	REMARKS	ORDERED ITEM	CALCULATED FOR CONSTRUCTION PURPOSES ITEM
1	1		STRINGER			A9			
2		1	W 30 x 108	70	7 7/8		CVN		1/12
3		1	PL 1/2 x 9	49	3	PA	CVN		1/17
4		2	PL 1/2 x 19 1/2	2	2 7/16	PB	CVN		1/30
5		3	PL 1/2 x 7	1	11 3/4	PC			2/18
6		2	PL 1/2 x 4	1	11 3/4	PD			2/6
7		1	PL 1/2 x 8	1	0 5/8	PH			2/19
8		1	PL 1/2 x 4 3/4	2	0 5/8	PK			2/7
9		1	PL 1/2 x 7 1/2	1	4	PM			2/17
10		1	PL 1/2 x 7	1	8	PN			3/17
11									
12									
13		1	SOLE PL			AA2	SEE SHT. 2		
14		1	SOLE PL			DZ	FOR DET.		
15		2	PL 1 x 4 1/2	0	6 1/16	PG6			
16									
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CITY OF DETROIT
CITY ENGINEERING DEPARTMENT
APPROVED AS NOTED
FOR COMPLIANCE WITH CONTRACT No. PW 6552
* * * *
THIS APPROVAL SHALL NOT RELIEVE THE CONTRACTOR OF ANY RESPONSIBILITY COVERED BY THE CONTRACT
DATE MAR 2 1977 BY

PHILIP ZWEIG & SONS
2100 E. 5TH AVE. GARY, IND.

BUILDING	Bailey Ave. Bridge Crossing the P.C.R.R.
OWNER	City Of Detroit, Mich.
LOCATION	Detroit, Mich.
CONTRACTOR	Walter Toebe Construction Company
ARCHITECT	City Engineering Dept., City Of Detroit, Mich.
TITLE	Stringer Span 1
RIVETS	None
HOLES	13/16 ø U.N.
PAINT	None
DRAWN	JJ
DATE	2-1-77
CHKD.	RPJ
REV.	
REV.	
CONTRACT	335
SHEET	9 OF 53