



CUY-90-14.90

PID 77332/85531

APPENDIX EX-20

CUY-077-1455 PID 0.068

(Reference Document)

State of Ohio
Department of Transportation
Jolene M. Molitoris, Director

**Innerbelt Bridge
Construction Contract Group 1 (CCG1)**

71-0

MICROFILMED
JUL 20 1967

MICROFILMED
MAY 4 1964

CONVENTIONAL SIGNS

CENTER LINE	.....	.....
FENCE	.....	.....
GUARD RAIL (EXISTING)	.....	.....
GUARD RAIL (PROPOSED)	.....	.....
RAILROAD	.....	.....
UTILITY POLES	.....	.....
TREES & STUMPS (EXISTING)	.....	.....
PROPERTY LINE	.....	.....
PROPERTY LINE-SAME OWNER	.....	.....
CONTIGUOUS PARCELS OF LAND	.....	.....
EXISTING RIGHT OF WAY	.....	.....
LIMITED ACCESS ONLY	.....	.....
RIGHT OF WAY ONLY	.....	.....
LIMITED ACCESS AND RIGHT OF WAY	.....	.....
EASEMENT LINES FOR CHANNEL CHANGES, SLOPE & SEWER, & WORKING AGREEMENTS
SUBDIVISION LINE
ORIGINAL LOT LINE

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Sheets 4, 12, 15, 43, 56, 117, 119, 120, 124, 128, & 161 Revised 12-28-62
 Sheets 156 and 161 revised 3-13-63 R.E.C.
 Sheets 8 and 9 revised 4-16-63 C.E.H.
 Sheet 44 Revised 7-24-63 C.E.H.
 Sheets 155A and 155B added 9-25-63.

LINE DATA

BEGIN PROJECT STA. 87 + 04.50 TO END PROJECT STA. 107 + 77.62	= 2,073.12 LINEAL FEET
NET LENGTH OF PROJECT	= 2,073.12 LINEAL FEET = 0.392 MILES
SOUTH APPROACH WORK BEGIN WORK STA. 81 + 60 TO BEGIN PROJECT STA. 87 + 04.50	= 544.50 LINEAL FEET
NORTH APPROACH WORK END PROJECT STA. 107 + 77.62 TO END WORK STA. 110 + 35	= 257.38 LINEAL FEET
NET LENGTH OF WORK	= 2,875.00 LINEAL FEET = 0.544 MILES

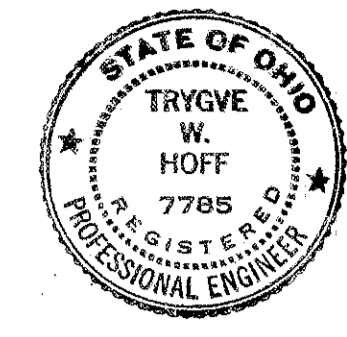
STATE OF OHIO
 DEPARTMENT OF HIGHWAYS
PROJECT CUY-21-14.55
 CITY OF CLEVELAND
 CUYAHOGA COUNTY

GRADE SEPARATION WITH THE E-L.R.R., N.K.P.R.R., N.Y.C.R.F., C.U.T. & C.T.S. CO.'S



SUPPLEMENTAL PRINTS OF STANDARD CONSTRUCTION DRAWINGS					
B-T-70-71	11-15-60	I-8 C.B. No. 3	1-26-59	AR-1-57	4-2-62
B-T-71R	3-2-53	I-8 M.H. No. 2	1-26-59	RB-1-55	2-2-59
		L-3	4-1-50	I-15 No. 1	11-15-60
FACI-1	12-27-61	L-3-A	4-1-50	I-15 NO. 2A	8-17-60
FACI-2	12-27-61	L.J. No. 1	7-1-55	T-14 G	1-22-52
G-7.07	6-1-56	RI-1	7-15-58	L-1	4-1-50
I-1	11-15-60	T-35	1-2-56	I-8 MH No. 1-A	10-2-61
I-8C.B.2-2-ABB	3-2-59	T.J.	9-12-60		

SUPPLEMENTAL SPECIFICATIONS	
S-207.10	4-25-61
S-307	8-23-60
I-12.8	7-31-59
I-12.9	R. 4-5-61
M-107.18	R. 4-3-61
M-109.2.8	R. 8-12-59



I-77-5(2)162

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	I-77-5(2)162

CUYAHOGA COUNTY
CUY-21-14.55

Plans prepared by: **TRYGVE HOFF & ASSOCIATES**
 1922 EAST 107TH STREET ENGINEERS CLEVELAND, OHIO GROUND PHOTO LAB
Trygve W. Hoff PRESIDENT *Stig O. Jorvick* CHIEF ENGINEER
J. Leslie Lees PROJECT ENGINEER

LIMITED ACCESS

This improvement is especially designed for through traffic and has been declared a limited access highway or freeway by action of the Director of Highways in accordance with the provisions of Section 5511.02 of the Revised Code of Ohio.

The standard specifications of the State of Ohio, Department of Highways, including changes and supplemental specifications listed in the proposal shall govern this improvement.

The right of way for this improvement will be provided by the State of Ohio.

I hereby approve these plans and declare that the making of this improvement will not require the closing of the highway to traffic and that provisions for the maintenance and safety of traffic will be as set forth on the plans and estimates.

- Approved *Louis L. Deasler*
Date *7/20/62* Director of Public Service, City of Cleveland
- Approved *Abraham*
Date *7/27/62* Division Deputy Director
- Approved *Angus E. Neesler*
Date *10-15-62* Deputy Director of Planning & Programming
- Approved *W. H. B...*
Date *10-2-62* Deputy Director of Right of Way
- Approved *R. H. Carrman*
Date *10-11-62* Engineer of Bridges
- Approved *W. H. ...*
Date *10-15-62* Engineer of Location & Design
- Approved *C. W. M. Coughlin*
Date *10-15-62* Deputy Director of Design & Construction
- Approved *Paul Berry*
Date *10-15-62* First Ass't. Director
- Approved *E. S. Johnston*
Date *10-15-62* Director of Highways

DEPARTMENT OF COMMERCE
 BUREAU OF PUBLIC ROADS
 APPROVED: _____
 DIVISION ENGINEER _____ DATE _____

MICROFILMED
JUL 20 1967
GROUND PHOTO LAB

File No.	PROJECT CUY-21-14.55
Date of Letting	_____
Contract No.	_____19

MICROFILMED
JUL 20 1967
GROUND PHOTO LAB

SHEET ACCT. No. 6150
CONT. No. 58019

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

2
164

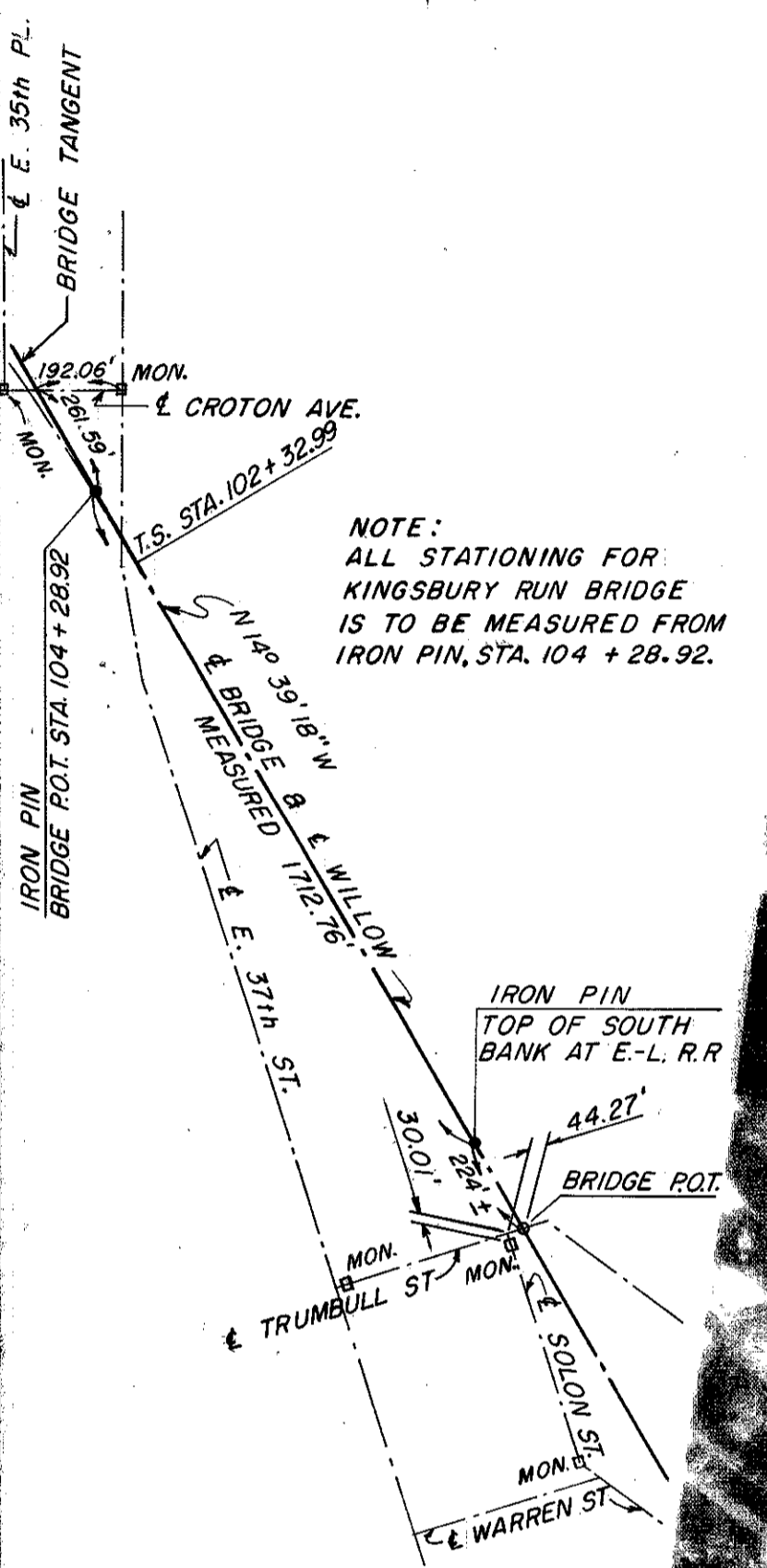
CUYAHOGA COUNTY
CUY-21-14.55

MICROFILMED
MAY 4 1984

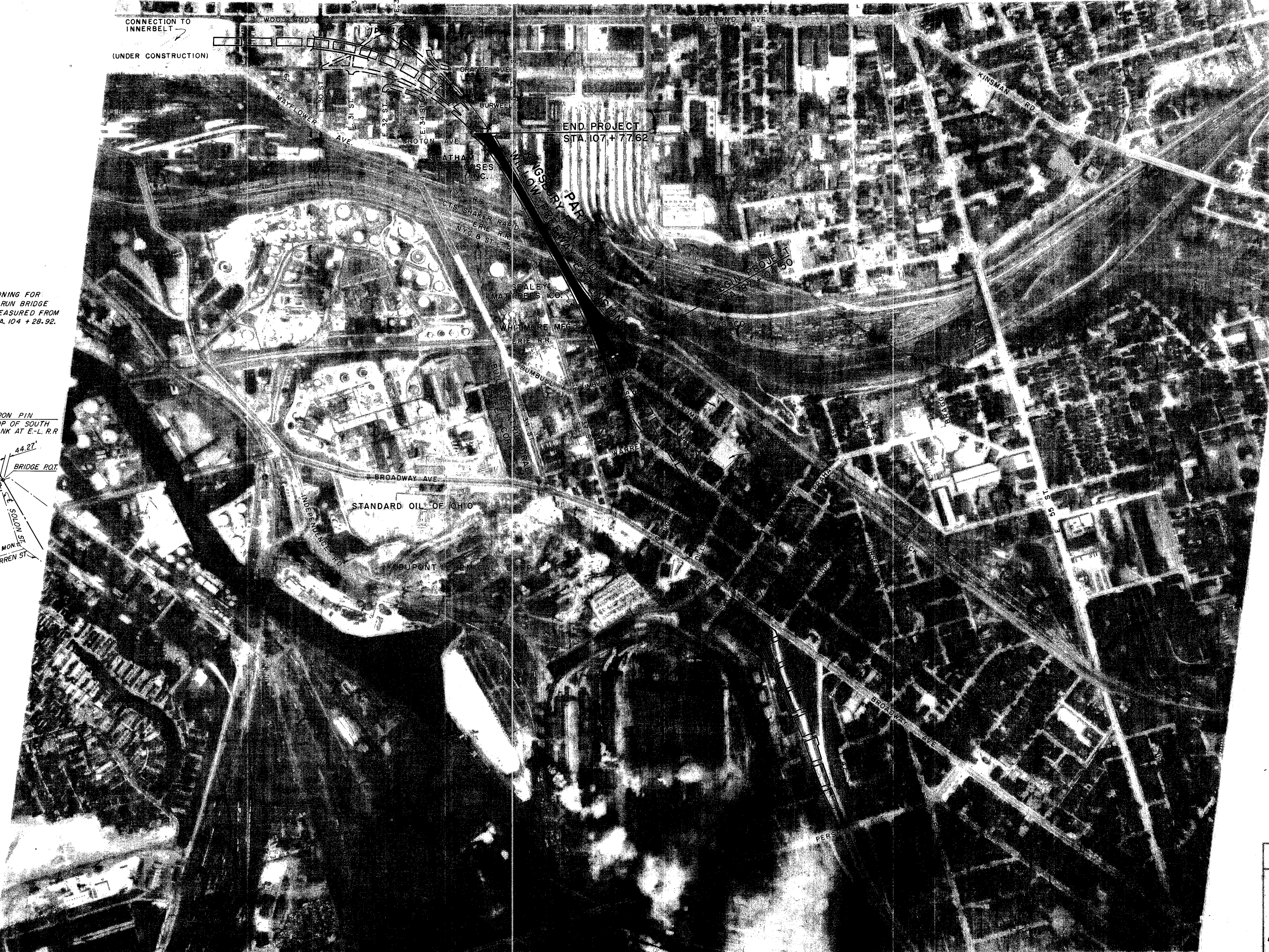
CONNECTION TO
INNERBELT
(UNDER CONSTRUCTION)

END PROJECT
STA. 107 + 77.62

NOTE:
ALL STATIONING FOR
KINGSBURY RUN BRIDGE
IS TO BE MEASURED FROM
IRON PIN, STA. 104 + 28.92.



BASIC LAYOUT FOR
CONSTRUCTION OF
KINGSBURY RUN BRIDGE



TRYGVE HOFF & ASSOCIATES
ENGINEERS
1922 EAST 107TH STREET CLEVELAND, OHIO

WILLOW FREEWAY EXTENSION
SCHEMATIC PLAN
SHOWING
BASIC LAYOUT FOR CONSTRUCTION OF
KINGSBURY RUN BRIDGE

SCALE: AS SHOWN DATE

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
-RLH	L.K.H.		CDR	T.L.L.	9/18/62	

SHEET NO. 58019
CONT. NO. 6152

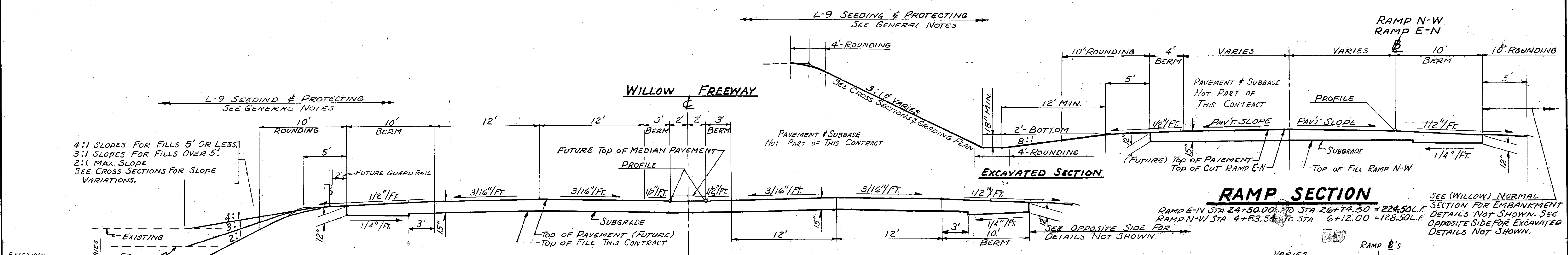
TYPICAL SECTIONS

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

3
164

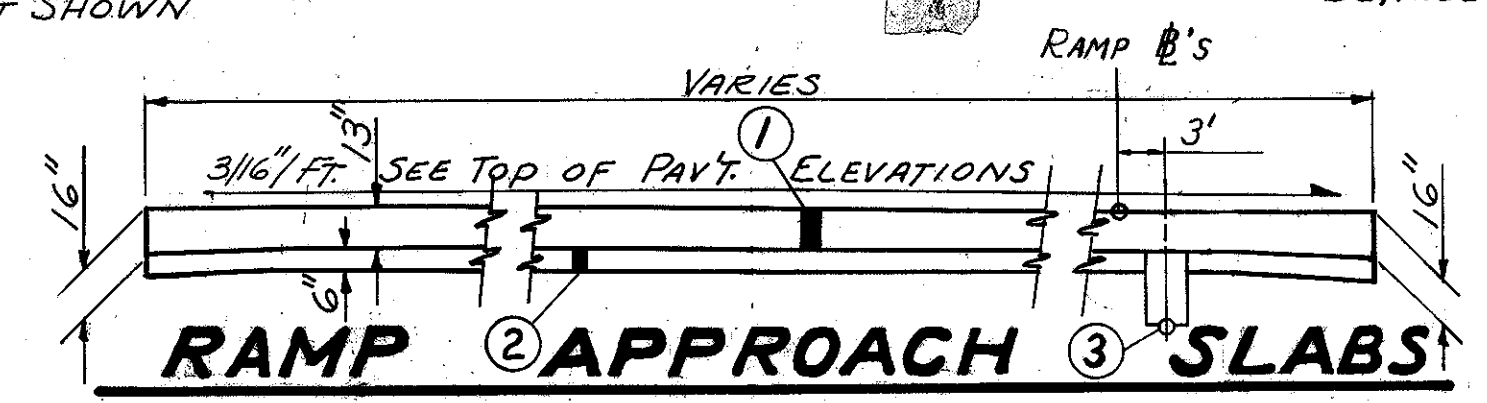
CUYAHOGA COUNTY
CUY-21-14.55

CODE 722L



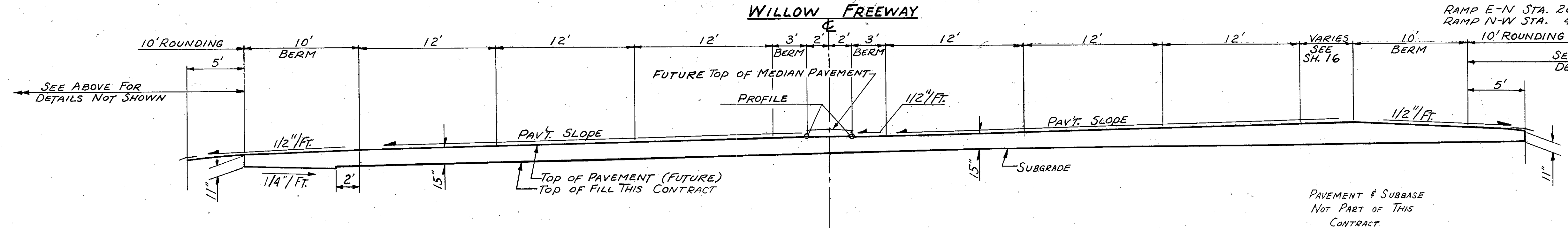
NORMAL SECTION

STA. 86+00.00 TO STA. 87+04.50 = 104.50 L.F.



SUPERELEVATED SECTION

(SKEW) STA. 107+77.62 TO STA. 108+75.00 = 97.38 L.F.



APPROACH SLABS

STA. 87+04.50 TO STA. 87+29.50 = 25.00 L.F.
 STA. 107+52.62 TO STA. 107+77.62 = 25.00 L.F.
 50.00 L.F.

BRIDGE LIMITS

STA. 87+29.50 TO STA. 107+52.62 = 203.12 L.F.

LEGEND

- ① ITEM I-7 REINFORCED CONCRETE APPROACH SLAB
- ② ITEM I-22 SUBBASE, GRADING A OR B, MODIFIED AS PER GENERAL NOTE.
- ③ ITEM I-1 6" PIPE CLASS I-3 (FOR LOCATION & DEPTH SEE PLAN & PROFILE SHEETS.)

NOTES

FOR VARIATIONS TO SLOPES SEE GRADING PLAN AND CROSS SECTIONS.
 FOR TOP OF PAV'T. ELEVATIONS SEE SHEETS 10, 11, 12, 13
 FOR APPROACH SLAB DETAILS SEE BRIDGE PLANS.

TRYGVE HOFF & ASSOCIATES
 ENGINEERS CLEVELAND, OHIO
 1922 EAST 107TH STREET

**PART I
 WILLOW FREEWAY
 TYPICAL SECTIONS**

SCALE 3/16" = 1'-0" DATE

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
RLH	RLH		C.D.R.	T.L.L.	9/18/62	

SHEET ACCT. NO. 6/51
 CONT. NO. 58019

EXCAVATION ~ EMBANKMENT ~ SEEDING			
SEE SHEET NO.	DESCRIPTION	E-1	L-9
		ROADWAY EXCAVATION METHOD "B" C.Y.	ROADWAY EMBANKMENT C.Y.
18	APPROACH WORK	25,715	19,027
22	RELOCATED IRON CT.	225	2,193
23	RELOCATED EAST 36TH ST.	880	0
14	BASEMENTS IN CUT 11X10X10X4 ÷ 27	-163	845
14 & 16	BASEMENTS IN FILL 16X10X10X4 ÷ 27		237
TOTALS		26,657	22,065

FERTILIZER ~ LIMING MATERIAL		
SEE SHEET NO.	DESCRIPTION	L-9
		COMMERCIAL FERTILIZER (12-12-12) TONS
6	22,065 X 9 X 20 ÷ 1000 X 2000	2
6	22,065 X 9 X 100 ÷ 1000 X 2000	10
TOTALS		10

SUMMARY OF EARTHWORK		
SEE SHEET NO.	DESCRIPTION	C.Y.
6	E-1 ROADWAY EXCAVATION	+ 26,657
6	ROADWAY EMBANKMENT PLUS 18 %	- 30,748
-	EXCESS EXCAVATION FROM E-2 EXCAVATION FOR STRUCTURES	+ 3,483
TOTAL, ITEM E-4 BORROW		608

E-II WATER		
SEE SHEET NO.	DESCRIPTION	M-GALLONS
6	ROADWAY EMBANKMENT 30,748 X 5 ÷ 1000	154
9	ITEM I-22 230 X 5 ÷ 1000	1
9	ITEM B-19 148 X 5 ÷ 1000	1
9	ITEM I-18 64 X 5 ÷ 1000	1
TOTAL		157

NOTE
TOTAL PAY ITEM QUANTITIES ON THIS SHEET CARRIED TO GENERAL SUMMARY SHEET.

TRYGVE HOFF & ASSOCIATES
ENGINEERS
1922 EAST 107TH STREET CLEVELAND, OHIO

CALCULATIONS
SUMMARY OF ROADWAY QUANTITIES

SCALE NONE	DATE
DESIGNED | DRAWN | TRACED | CHECKED | REVIEWED	DATE | REVIEWED
RLH | RLH	CDR | TLL 9/18/62

SUMMARY OF WATERWORK QUANTITIES

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

8'
164

CUYAHOGA COUNTY
CUY-21-14.55

SHEET No.	LOCATION			ITEM - SPECIAL															SHEET No.	LOCATION																
	FROM	TO	SIDE	6" CAST IRON PIPE & FITTINGS	8" CAST IRON PIPE & FITTINGS	12" CAST IRON PIPE & FITTINGS	FURNISHING & SETTING 6" HYD. AS PER PLAN	6" VALVE	8" VALVE	12" VALVE	NO. 2 VALVE BOX AS PER PLAN	NO. 3 VALVE BOX AS PER PLAN	NO. 4 VALVE BOX AS PER PLAN	NO. 7 VALVE BOX AS PER PLAN	PLUGGING EXIST. 1" CONN. AT MAIN	PLUGGING EXIST. 6" MAINS AND INSTALLING FLUSHING PIPE & VALVE	PLUGGING EXIST. 8" MAINS	PLUGGING EXIST. 10" MAINS	RECONNECTING EXISTING HOUSE CONNECTIONS	HYDRANTS, VALVES AND BOXES RECONNECTED	HYDRANTS AND VALVES REMOVED		FROM	TO	SIDE											
38	REL. E. 36 ST. Sta. 1+00	REL. E. 36 ST. Sta. 3+63	Rt.	11	264		1	1	2		1	2							3																	
37	CROTON AVE. Sta. 5+80	CROTON AVE. Sta. 10+04	Lt.	15	62	412	1	3	2	1	2	3	1				1		5	1	1		100% City													
37	IRON CT. Sta. 0+62	IRON CT. Sta. 3+28	Rt.	8	260		1	1			1			1	1						1															
39	TRUMBULL CT.		Lt.																		1															
39	TRUMBULL AVE.		Rt.																																	
	<i>TOTAL</i>			34	536	412	3	5	4	1	4	5	1	1	1	1	1		8	1	4															

CONT. No. 58019 SHEET ACCT. No. 6/33

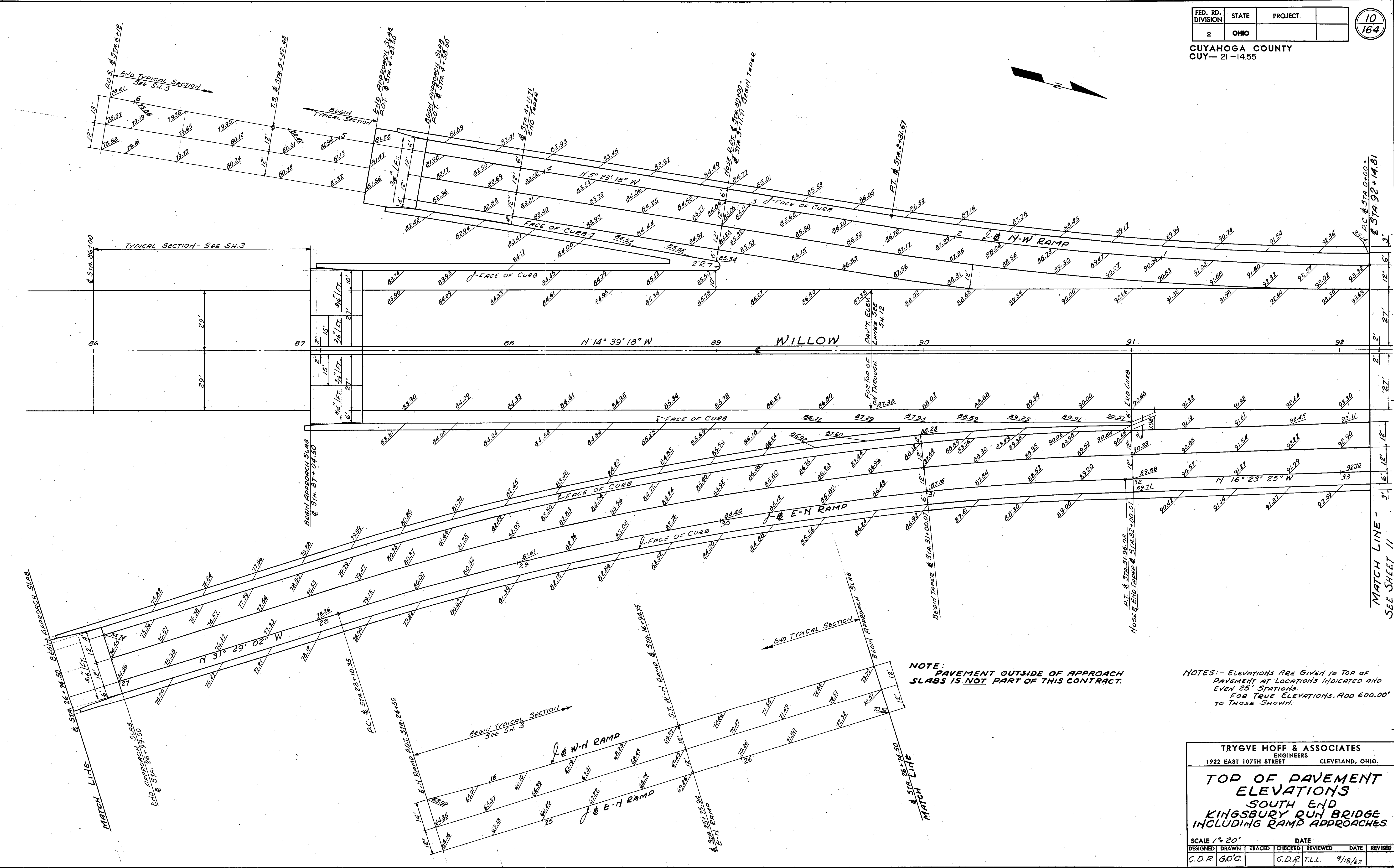
TRYGVE HOFF & ASSOCIATES
 ENGINEERS
 1922 EAST 107TH STREET CLEVELAND, OHIO

SUMMARY OF WATERWORK QUANTITIES

SCALE	DESIGNED	DRAWN	TRACED	CHECKED	DATE REVIEWED	DATE REVISID
		J.P.		RR	T.L.L 7/18/62	

Rev 4-16-63 CEH.

CUYAHOGA COUNTY
CUY-21-14.55



NOTE: PAVEMENT OUTSIDE OF APPROACH SLABS IS NOT PART OF THIS CONTRACT.

NOTES: - ELEVATIONS ARE GIVEN TO TOP OF PAVEMENT AT LOCATIONS INDICATED AND EVEN 25' STATIONS. FOR TRUE ELEVATIONS, ADD 600.00' TO THOSE SHOWN.

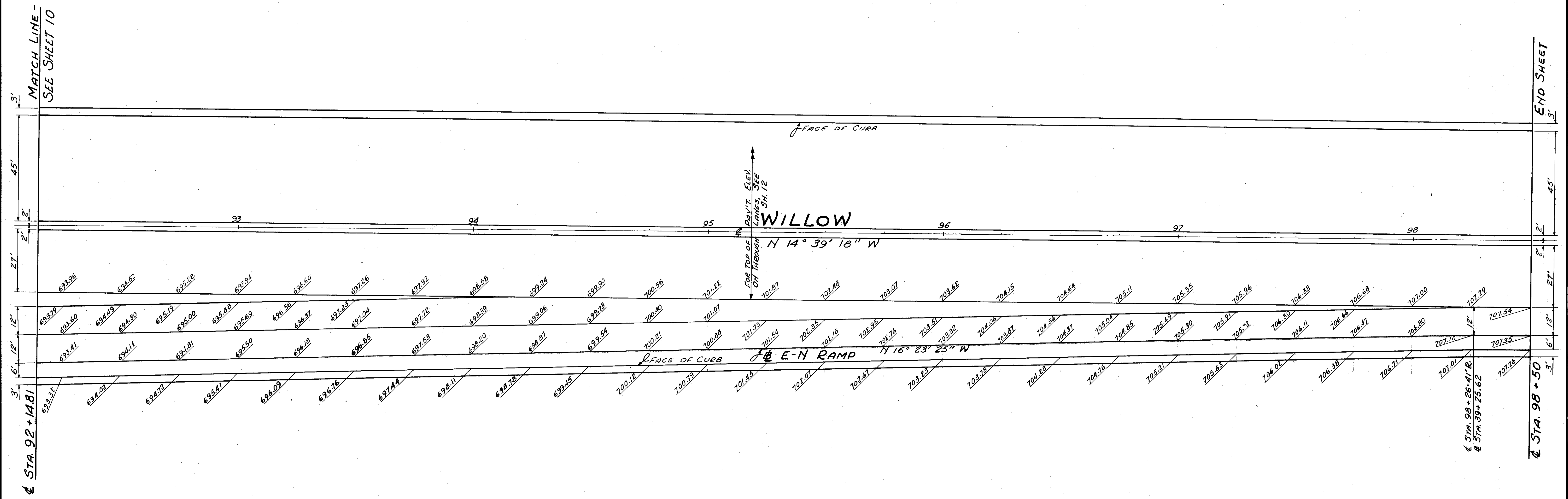
<p>TRYGVE HOFF & ASSOCIATES ENGINEERS 1922 EAST 107TH STREET CLEVELAND, OHIO</p>					
<p>TOP OF PAVEMENT ELEVATIONS SOUTH END KINGSBURY RUN BRIDGE INCLUDING RAMP APPROACHES</p>					
SCALE 1" = 20'			DATE		
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE
C.D.R.	G.O.C.		C.D.R.	T.L.L.	9/18/62

CONT. No. 58019 SHEET ACCT. No. 6155

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

11
164

CUYAHOGA COUNTY
CUY-21-14.55



COMPT. No. 58019 SHEET ACCT. No. 6156

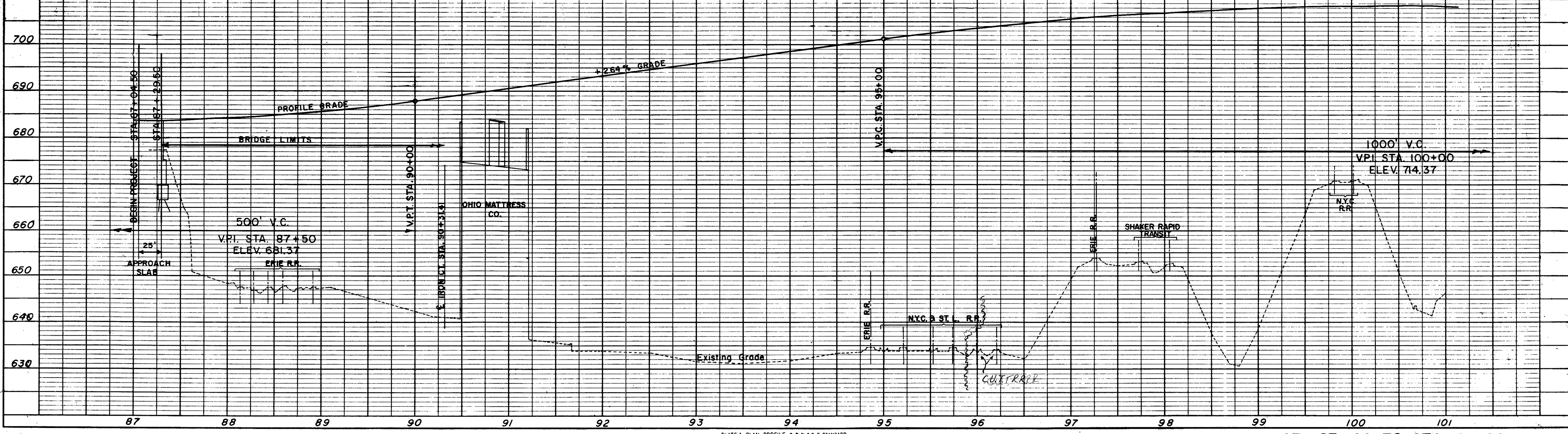
NOTES: - ELEVATIONS ARE GIVEN TO TOP OF PAVEMENT AT LOCATIONS INDICATED AND EVEN 25' STATIONS.

TRYGVE HOFF & ASSOCIATES ENGINEERS 1922 EAST 107TH STREET CLEVELAND, OHIO						
TOP OF PAVEMENT ELEVATIONS WILLOW @ STA. 92+14.81 TO STA. 98+50						
SCALE 1/2" = 20'						
DATE						
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
C.D.R.	G.O.C.		C.D.R.	T.L.L.	9/18/62	

PLAN	SURVEYED	BY	DATE
	PLOTTED		
	GRADES CHECKED		
	ALIGNMENT CHECKED		
	RT. OF WAY CHECKED		
	NO.		

PROFILE	SURVEYED	BY	DATE
	PLOTTED		
	GRADES CHECKED		
	STRUCTURE NOTATIONS CHKD.		
	NO.		

STATION	PAVED SHOULDER	3 TRAFFIC LANES NORTHBOUND	PAVED SHOULDER	PAVED DIVIDER	PAVED SHOULDER	3 TRAFFIC LANES SOUTHBOUND	PAVED SHOULDER	FACE OF CURB
87.0000	683.57	683.95	683.86	683.67	683.67	683.86	683.57	SEE SHEET 10 & 11
87.2500	683.76	683.95	683.76	683.71	683.76	683.95	683.76	SEE SHEET 10 & 11
87.5000	683.90	684.09	683.90	683.85	683.90	684.09	683.90	
87.7500	684.09	684.28	684.09	684.04	684.09	684.28	684.09	
88.0000	684.33	684.52	684.33	684.28	684.33	684.52	684.33	
88.2500	684.61	684.80	684.61	684.56	684.61	684.80	684.61	
88.5000	684.95	685.14	684.95	684.90	684.95	685.14	684.95	
88.7500	685.34	685.53	685.34	685.29	685.34	685.53	685.34	
89.0000	685.78	685.97	685.78	685.73	685.78	685.97	685.78	
89.2500	686.27	686.46	686.27	686.22	686.27	686.46	686.27	
89.5000	686.80	686.99	686.80	686.75	686.80	686.99	686.80	
89.7500	687.38	687.57	687.38	687.33	687.38	687.57	687.38	
90.0000	688.02	688.21	688.02	687.97	688.02	688.21	688.02	
90.2500	688.68	688.87	688.68	688.63	688.68	688.87	688.68	
90.5000	689.34	689.53	689.34	689.29	689.34	689.53	689.34	
90.7500	690.00	690.19	690.00	689.95	690.00	690.19	690.00	
91.0000	690.66	690.85	690.66	690.61	690.66	690.85	690.66	
91.2500	691.32	691.51	691.32	691.27	691.32	691.51	691.32	
91.5000	691.98	691.17	691.98	691.93	691.98	692.17	691.98	
91.7500	692.64	692.83	692.64	692.59	692.64	692.83	692.64	
92.0000	693.30	693.49	693.30	693.25	693.30	693.49	693.30	
92.2500	693.96	694.15	693.96	693.91	693.96	694.15	693.96	
92.5000	694.62	694.81	694.62	694.57	694.62	694.81	694.62	
92.7500	695.28	695.47	695.28	695.23	695.28	695.47	695.28	
93.0000	695.94	696.13	695.94	695.89	695.94	696.13	695.94	
93.2500	696.60	696.79	696.60	696.55	696.60	696.79	696.60	
93.5000	697.26	697.45	697.26	697.21	697.26	697.45	697.26	
93.7500	697.92	698.11	697.92	697.87	697.92	698.11	697.92	
94.0000	698.58	698.77	698.58	698.53	698.58	698.77	698.58	
94.2500	699.24	699.43	699.24	699.19	699.24	699.43	699.24	
94.5000	699.90	700.09	699.90	699.85	699.90	700.09	699.90	
94.7500	700.56	700.75	700.56	700.51	700.56	700.75	700.56	
95.0000	701.22	701.41	701.22	701.17	701.22	701.41	701.22	
95.2500	701.87	702.06	701.87	701.82	701.87	702.06	701.87	
95.5000	702.48	702.67	702.48	702.43	702.48	702.67	702.48	
95.7500	703.07	703.26	703.07	703.02	703.07	703.26	703.07	
96.0000	703.62	703.81	703.62	703.57	703.62	703.81	703.62	
96.2500	704.15	704.34	704.15	704.10	704.15	704.34	704.15	
96.5000	704.64	704.83	704.64	704.59	704.64	704.83	704.64	
96.7500	705.11	705.30	705.11	705.06	705.11	705.30	705.11	
97.0000	705.55	705.74	705.55	705.50	705.55	705.74	705.55	
97.2500	705.96	706.15	705.96	705.91	705.96	706.15	705.96	
97.5000	706.33	706.52	706.33	706.28	706.33	706.52	706.33	
97.7500	706.68	706.87	706.68	706.63	706.68	706.87	706.68	
98.0000	707.00	707.19	707.00	706.95	707.00	707.19	707.00	
98.2500	707.29	707.48	707.29	707.24	707.29	707.48	707.29	
98.5000	707.54	707.73	707.54	707.49	707.54	707.73	707.54	
98.7500	707.77	707.96	707.77	707.72	707.77	707.96	707.77	
99.0000	707.97	708.16	707.97	707.92	707.97	708.16	707.97	
99.2500	708.14	708.33	708.14	708.09	708.14	708.33	708.14	
99.5000	708.28	708.47	708.28	708.23	708.28	708.47	708.28	
99.7500	708.39	708.58	708.39	708.34	708.39	708.58	708.39	
100.0000	708.47	708.66	708.47	708.42	708.47	708.66	708.47	
100.2500	708.52	708.71	708.52	708.47	708.52	708.71	708.52	
100.5000	708.57	708.73	708.57	708.49	708.57	708.73	708.57	
100.7500	708.58	708.72	708.58	708.48	708.58	708.72	708.58	
101.0000	708.56	708.68	708.56	708.44	708.56	708.68	708.56	



Revised 12-28-62

PLAN	DATE
SURVEYED	BY
NOTE BOOK, ALIGNED CHECKED	
RT. OF WAY CHECKED	
NO.	

PROFILE	DATE
SURVEYED	BY
NOTE BOOK, GRADES CHECKED	
B. M.S. NOTED	
STRUCTURE NOTATIONS CHKD.	
NO.	

STATION	FACE OF CURB			ROADWAY			FACE OF CURB			FACE OF CURB	
	PAVED SHOULDER	3 TRAFFIC LANES NORTHBOUND	PAVED SHOULDER	PAVED DIVIDER	PAVED SHOULDER	3 TRAFFIC LANES SOUTHBOUND	PAVED SHOULDER	3 TRAFFIC LANES SOUTHBOUND	PAVED SHOULDER		
101.2500	708.36	708.41	708.51	708.61	708.42	708.37	708.42	708.61	708.42	708.23	708.14
101.5000	708.33	708.37	708.44	708.51	708.32	708.27	708.31	708.45	708.26	708.07	707.98
101.7500	708.26	708.29	708.34	708.39	708.20	708.15	708.18	708.28	708.09	707.90	707.81
102.0000	708.16	708.17	708.20	708.23	708.04	707.99	708.00	708.06	707.87	707.68	707.59
102.2500	708.03	708.03	708.04	708.04	707.85	707.80	707.80	707.81	707.62	707.43	707.34
102.5000	707.87	707.86	707.84	707.82	707.63	707.58	707.58	707.57	707.38	707.19	707.10
102.7500	707.68	707.66	707.62	707.58	707.39	707.34	707.33	707.29	707.10	706.91	706.82
103.0000	707.45	707.42	707.36	707.30	707.11	707.06	707.05	706.99	706.80	706.61	706.52
103.2500	707.19	707.15	707.07	706.99	706.80	706.75	706.73	706.65	706.46	706.27	706.18
103.5000	706.90	706.85	706.75	706.65	706.46	706.41	706.39	706.29	706.10	705.91	705.82
103.7500	706.59	706.53	706.41	706.29	706.10	706.05	706.02	705.90	705.71	705.52	705.43
104.0000	706.26	706.19	706.04	705.89	705.70	705.65	705.61	705.47	705.28	705.09	705.00
104.2500	705.89	705.81	705.64	705.47	705.28	705.23	705.19	705.02	704.83	704.64	704.55
104.5000	705.48	705.39	705.20	705.01	704.82	704.77	704.72	704.53	704.34	704.15	704.06
104.7500	705.07	704.97	704.76	704.55	704.34	704.29	704.24	704.03	703.82	703.61	703.51
105.0000	704.63	704.52	704.29	704.06	703.83	703.77	703.71	703.48	703.25	703.02	702.91
105.2500	704.17	704.05	703.80	703.55	703.30	703.24	703.18	702.93	702.68	702.43	702.31
105.5000	703.71	703.58	703.31	703.04	702.78	702.71	702.64	702.38	702.11	701.84	701.71
105.7500	703.25	703.11	702.82	702.54	702.25	702.18	702.11	701.82	701.54	701.25	701.11
106.0000	702.80	702.65	702.34	702.03	701.73	701.65	701.58	701.27	700.96	700.66	700.50
106.2500	702.34	702.18	701.86	701.53	701.20	701.12	701.04	700.72	700.39	700.06	699.90
106.5000	701.89	701.72	701.37	701.02	700.68	700.59	700.51	700.16	699.81	699.47	699.30
106.7500	701.43	701.25	700.88	700.52	700.15	700.06	699.97	699.61	699.24	698.88	698.69
107.0000	700.98	700.78	700.40	700.01	699.63	699.53	699.44	699.05	698.67	698.28	698.09
107.2500	700.52	700.32	699.92	699.51	699.10	699.00	698.90	698.50	698.09	697.68	697.48
107.5000	699.85	699.43	699.00	698.58	698.16	698.06	697.96	697.54	697.12	696.70	696.48
107.7500	699.38	698.94	698.50	698.05	697.60	697.50	697.40	696.98	696.56	696.14	695.90
108.0000	698.920	698.496	697.992	697.528	697.064	696.960	696.856	696.432	695.968	695.504	
108.2500	698.457	697.972	697.487	696.992	696.507	696.403	696.299	695.875	695.390	694.905	
108.5000	697.990	697.486	696.982	696.478	695.974	695.870	695.766	695.342	694.838	694.334	
108.7500	697.460	696.956	696.452	695.948	695.444	695.340	695.236	694.812	694.308	693.804	

SEE SHEET 16

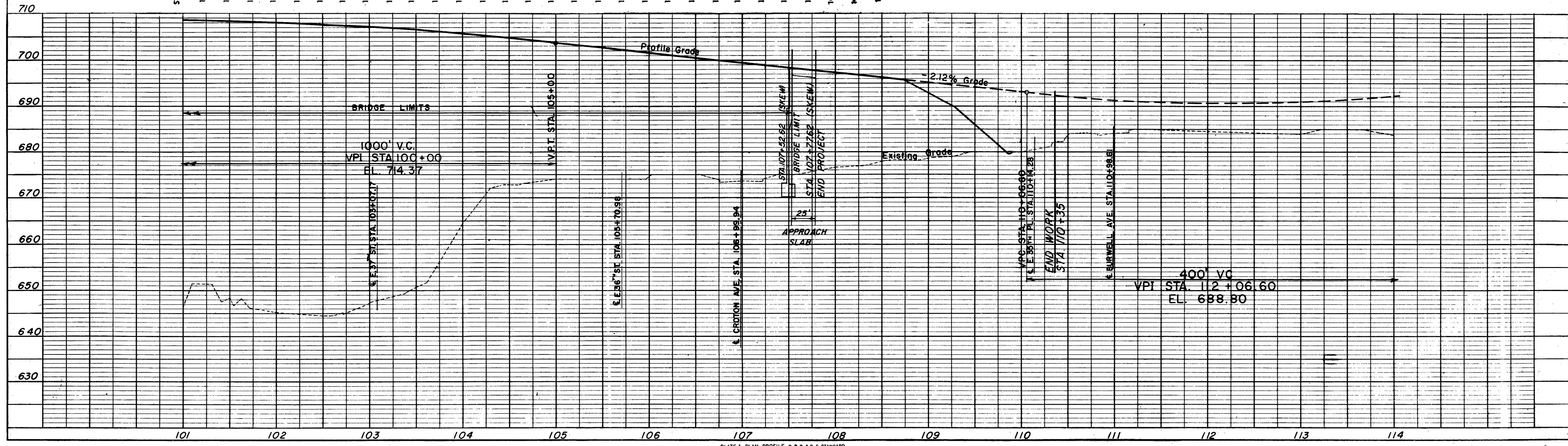
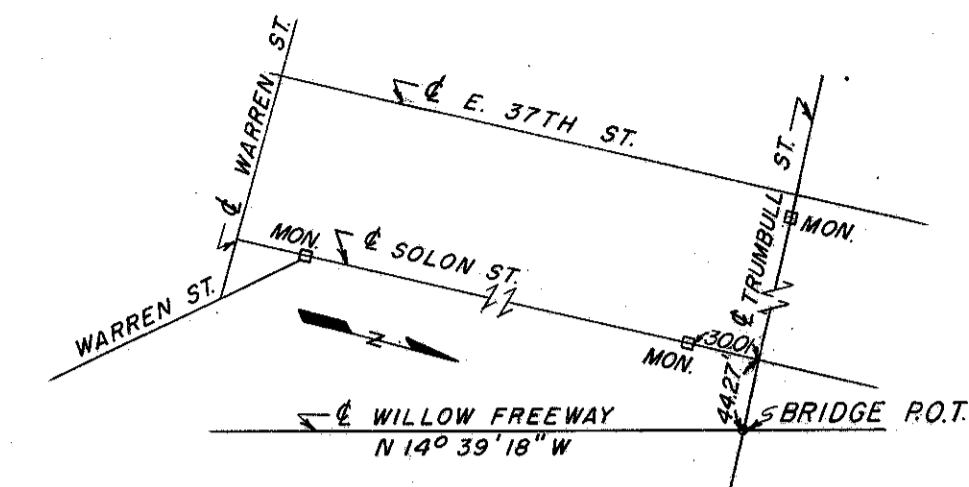


PLATE 1 - PLAN - PROFILE O.P.R. & R.E. STANDARD

PROFILE & TOP OF PAVEMENT ELEVATIONS STA. 101+25 TO STA. 108+50

CONT. No. 58019 SHEET ACCT. No. 6026



REFERENCE POINT
BRIDGE P.O.T.

NOTE:
ALL STATIONING FOR KINGSBURY RUN BRIDGE IS TO BE MEASURED FROM IRON PIN P.O.T. STA. 104 + 28.92. SEE SHEET 16.

PLAN & PROFILE NOTES

See Sheets 42, 43 For Existing Utilities
10, 11, 12, 13 For Top Of Pav't Elevations
17 For Grading & Cross Section Key Plan
50 For Proposed Structure Data

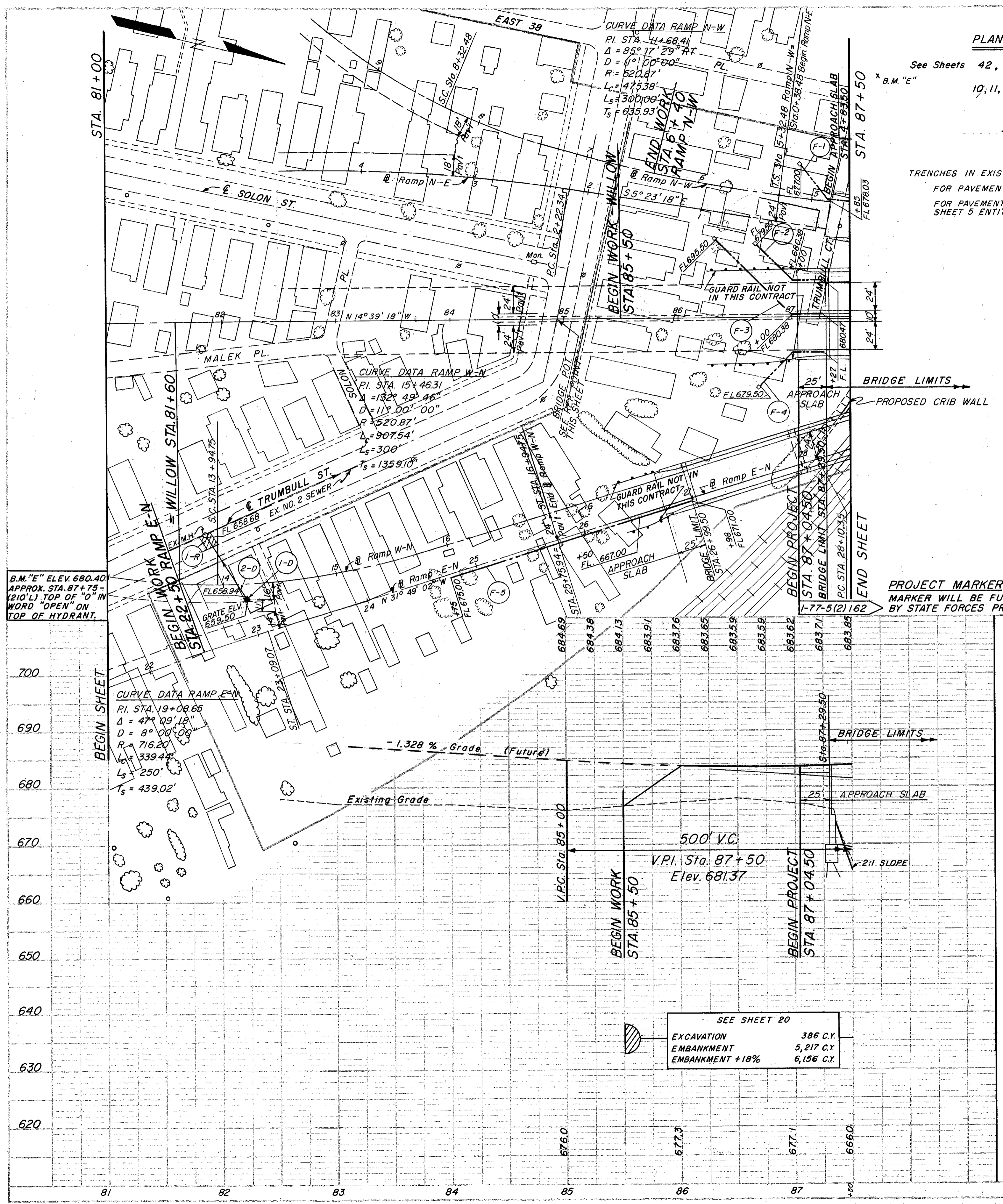
TRENCHES IN EXISTING STREETS--
FOR PAVEMENT REMOVAL QUANTITY SEE THIS SHEET.
FOR PAVEMENT REPLACEMENT QUANTITY SEE NOTE ON SHEET 5 ENTITLED "PROPOSED SEWERS IN EXISTING STREETS."

DRAINAGE QUANTITIES				
REFERENCE NO.	LOCATION	SIDE	I-8	I-1
			CATCH BASIN STD # 2-2-A MODIFIED AS PER PLAN EACH	12" PIPE CLASS A-1 SEC. M.6.6(a) OR SEC. M.6.8(b) L.F.
1-D	RAMP E-N STA. 23 + 00	33' L	1	
2-D	1-D TO NO. 2 SEWER			66

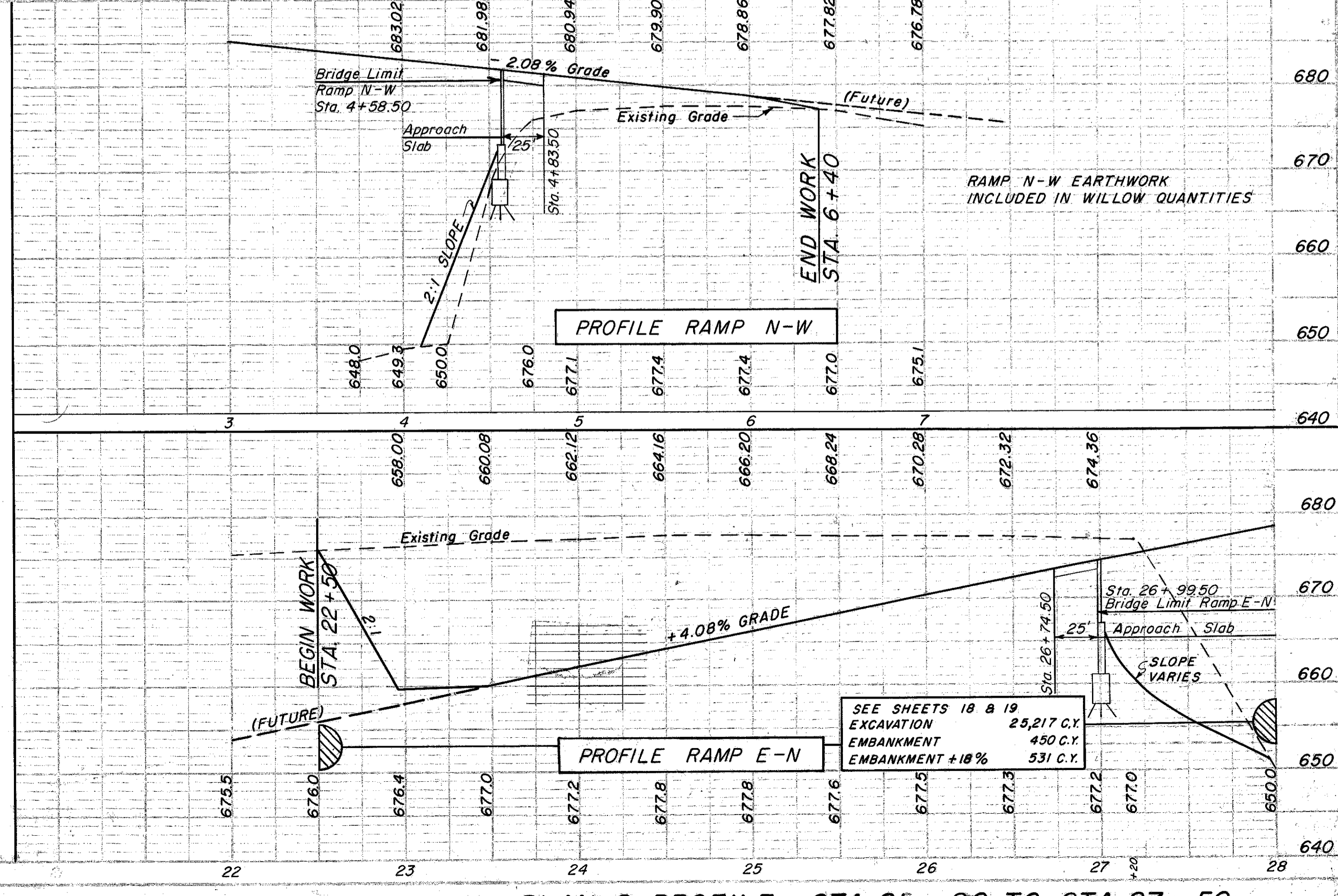
QUANTITIES CARRIED TO GENERAL SUMMARY SHEET

ROADWAY & PAVEMENT QUANTITIES				
REFERENCE NO.	LOCATION	SIDE	E-8	E-8
			REMOVAL & DISPOSAL OF EXISTING PAVEMENT S.Y.	REMOVAL FOR RE-USE OF EXISTING CURB L.F.
1-R	TRUMBULL STREET		5	10

DRAINAGE QUANTITIES					
REFERENCE NO.	LOCATION	SIDE	I-1	I-1	I-5
			6" PIPE CLASS I-3 L.F.	8" PIPE OUTLET SEC. M-6.4(G) CLASS F-1 L.F.	PIPE SPECIAL 6" 45° BENDS CLASS I-3 EACH
F-1	RAMP N-W	LT.	50	10	1
F-2	WILLOW	LT.	58	10	1
F-3	WILLOW	E	108	10	1
F-4	WILLOW	RT.	54	10	1
F-5	RAMP E-N	RT.	223		
TOTALS			493	40	4



PROJECT MARKER
MARKER WILL BE FURNISHED AND ERECTED ON THE RIGHT BY STATE FORCES PRIOR TO ACCEPTANCE OF THIS IMPROVEMENT.



SEE SHEET 20
EXCAVATION 386 C.Y.
EMBANKMENT 5,217 C.Y.
EMBANKMENT +18% 6,156 C.Y.

SEE SHEETS 18 & 19
EXCAVATION 23,217 C.Y.
EMBANKMENT 450 C.Y.
EMBANKMENT +18% 531 C.Y.

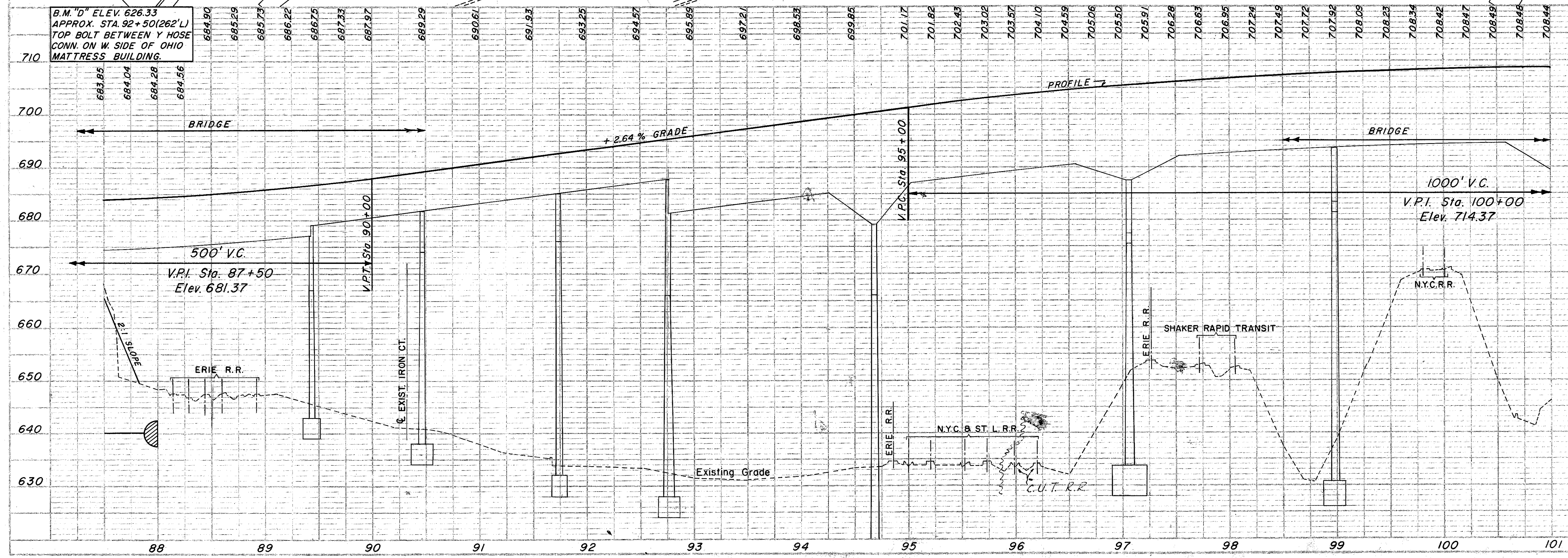
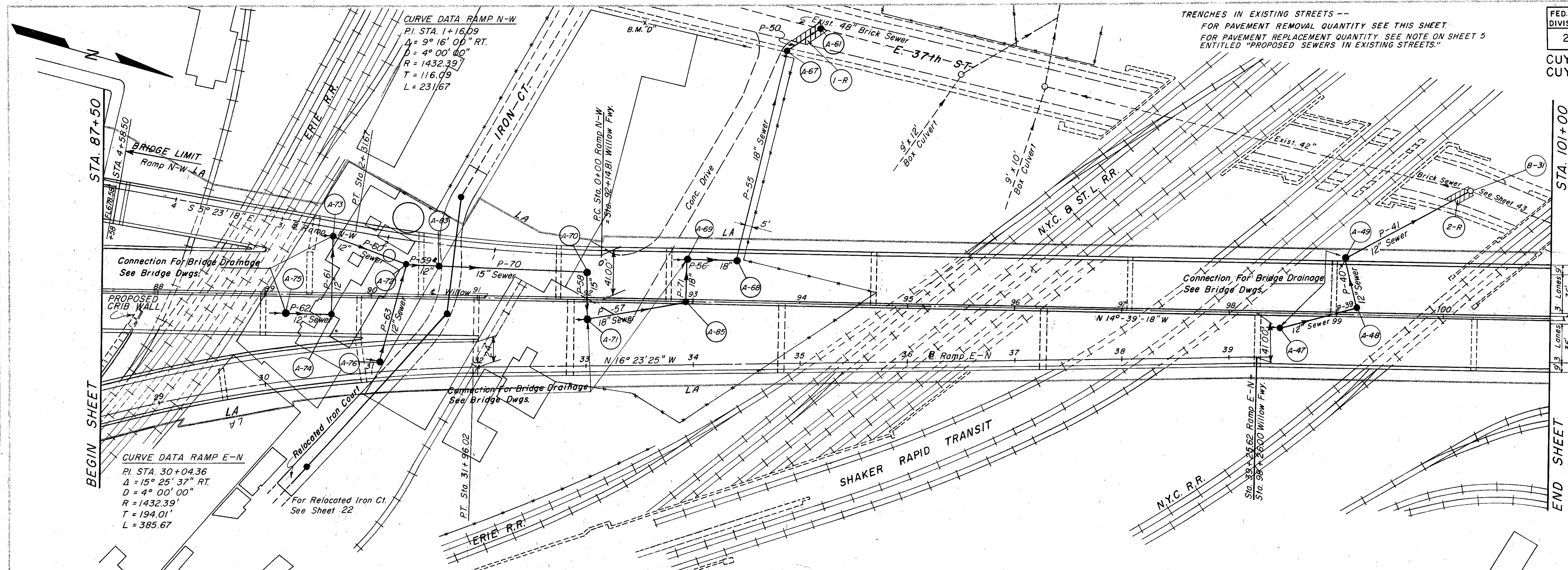
PLAN & PROFILE STA. 81 + 00 TO STA. 87 + 50

TRENCHES IN EXISTING STREETS --
FOR PAVEMENT REMOVAL QUANTITY SEE THIS SHEET.
FOR PAVEMENT REPLACEMENT QUANTITY SEE NOTE ON SHEET 5
ENTITLED "PROPOSED SEWERS IN EXISTING STREETS."

PLAN & PROFILE NOTES
SEE SHEETS 42, 43 FOR EXIST. UTILITIES
10, 11, 12, 13 FOR TOP OF PAV'T. ELEV'S
24, 25 FOR SEWER PROFILES
22 FOR IRON COURT DRAINAGE
7 FOR DRAINAGE QUANTITIES &
LOCATION OF DRAINAGE ITEMS
160 FOR FENCE LOCATION
50 For Proposed Struct. Data

ROADWAY & PAVEMENT QUANTITIES

REFERENCE NO.	LOCATION	REMOVAL & DISPOSAL OF EXISTING PAVEMENT		REMOVAL & RE-USE OF EXIST. CURB	
		S.Y.	L.F.	S.Y.	L.F.
1-R	E. 37th ST.	12	16		
2-R	E. 37th ST.	8	14		
TOTAL		20	30		



PLAN & PROFILE STA. 87+50 TO STA. 101+00

Revised 12-28-62

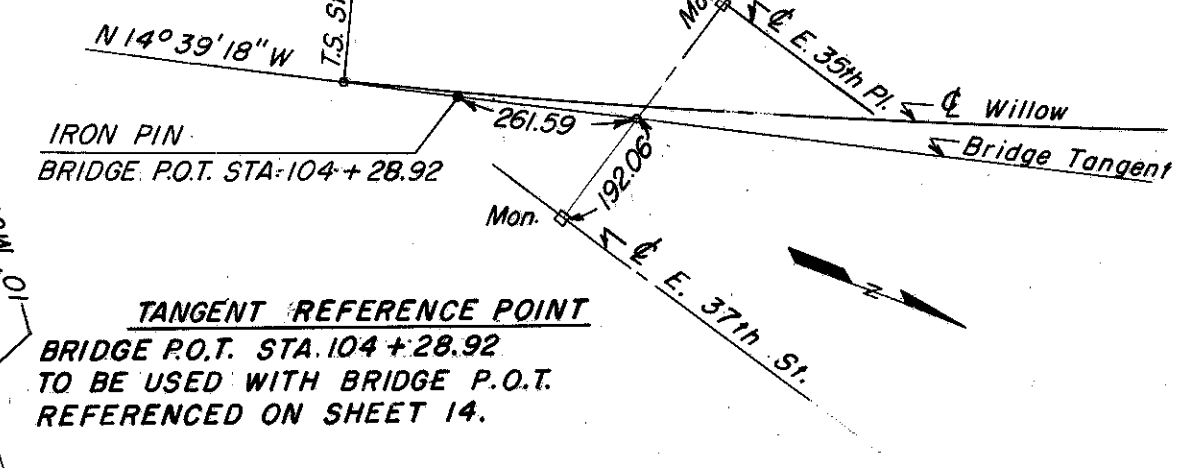
PLAN
DATE: 12-28-62
BY: [Signature]
CHECKED: [Signature]
APPROVED: [Signature]

PROFILE
DATE: 12-28-62
BY: [Signature]
CHECKED: [Signature]
APPROVED: [Signature]

58019 6036

CURVE DATA
P.I. Sta. 116 + 39.93
 $\Delta = 60^{\circ}-00'-00''$
 $D = 3^{\circ}-00'-00''$
 $R = 1909.86'$
 $L_c = 1400.00'$
 $L_s = 600.00'$
 $T_s = 1406.94'$

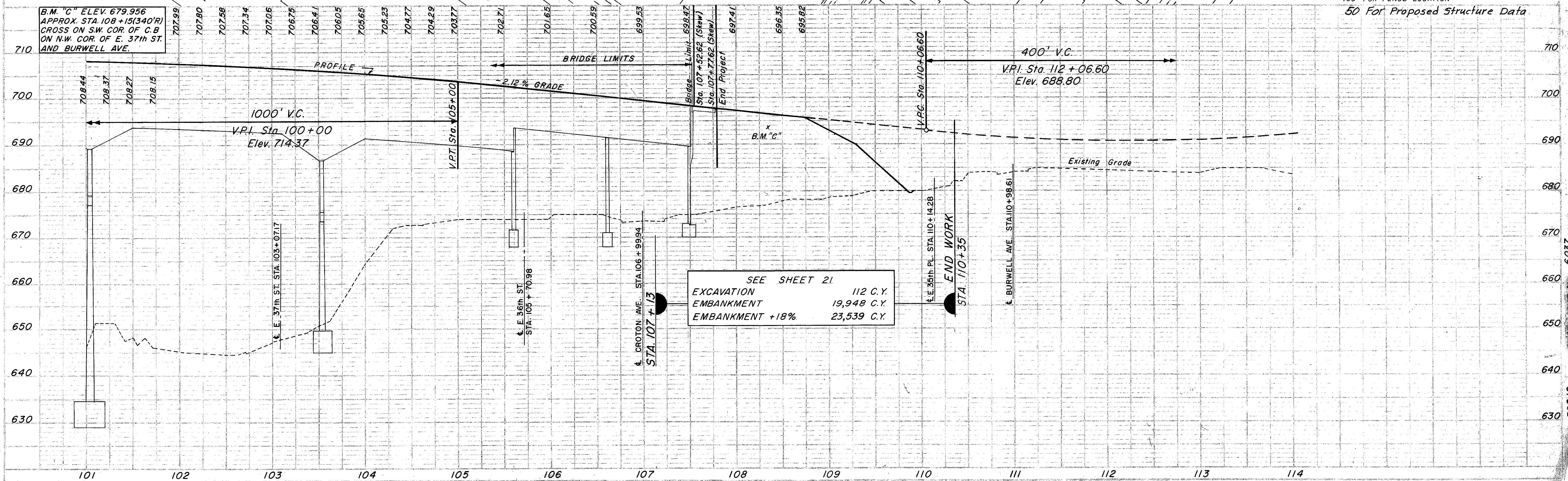
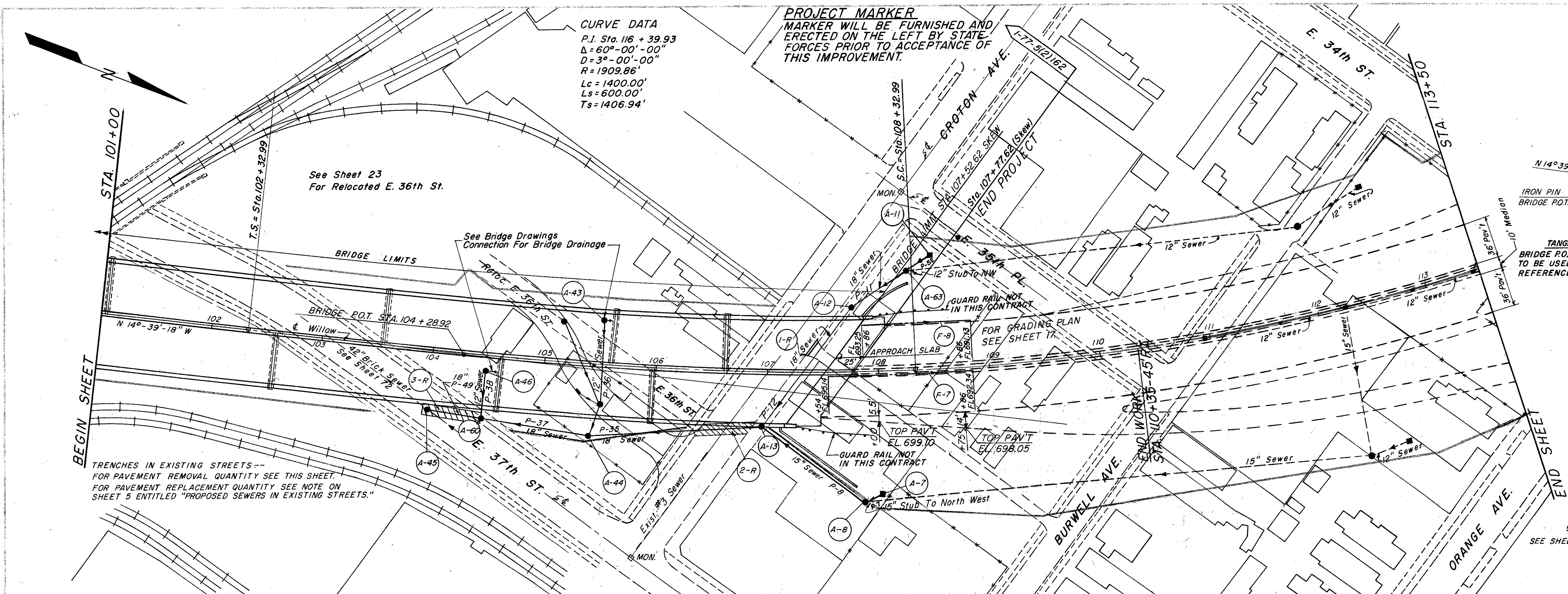
PROJECT MARKER
MARKER WILL BE FURNISHED AND
ERECTED ON THE LEFT BY STATE
FORCES PRIOR TO ACCEPTANCE OF
THIS IMPROVEMENT.



ROADWAY & PAVEMENT QUANTITIES

REFERENCE NO.	LOCATION	SIDE	T-11		E-8	
			SANDSTONE CURB 6" x 18" L.F.	S.Y.	REMOVAL OF EXIST. PAVT RE-USE OF EXIST. CURB	REMOVAL OF EXIST. CURB
1-R	STA. 107+40 - WILLOW	20'L	20			
2-R	CROTON AVE.			19	28	
3-R	E. 37th ST.			18	24	
	TOTAL		20	37	52	

PLAN & PROFILE NOTES
SEE SHEETS 10,11,12,13 FOR TOP OF PAVEMENT ELEVATIONS.
7 FOR DRAINAGE QUAN. & LOCATION OF DRAINAGE ITEMS
24 FOR SEWER PROFILES.
23 FOR RELOCATED E. 36TH STREET DRAINAGE.
43 FOR EXISTING UTILITIES.
163 FOR FENCE LOCATION
50 For Proposed Structure Data.

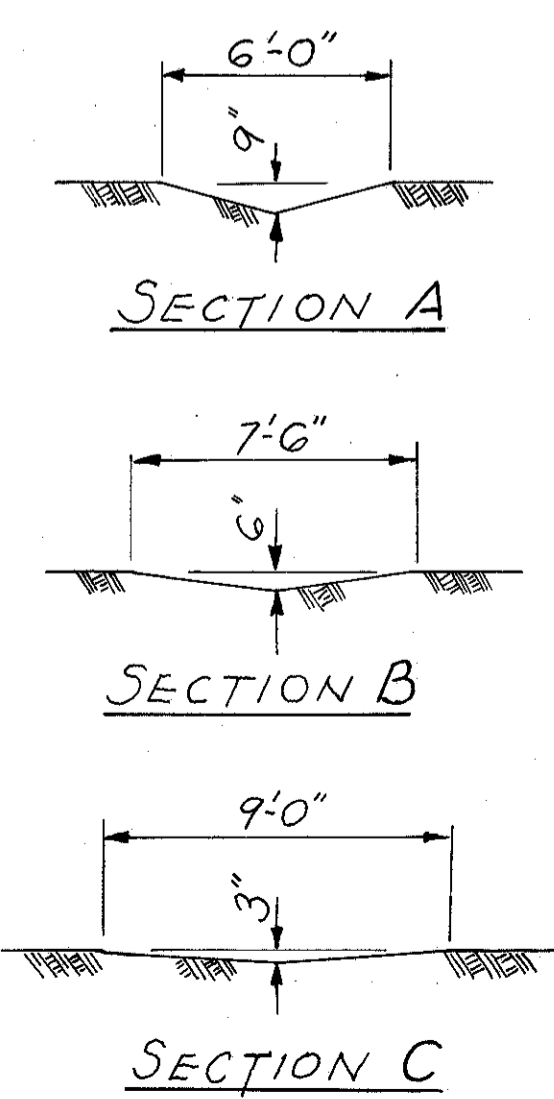
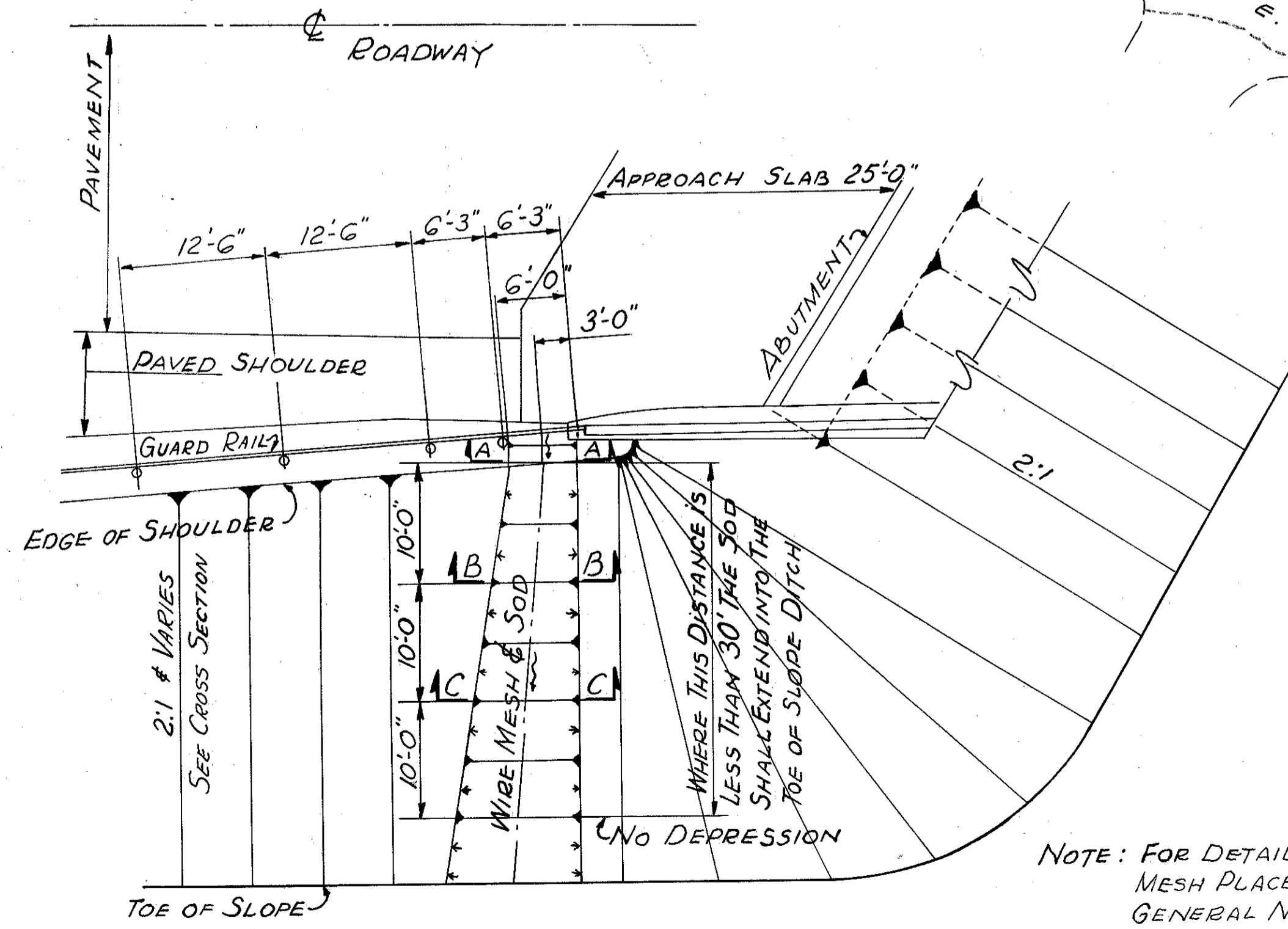
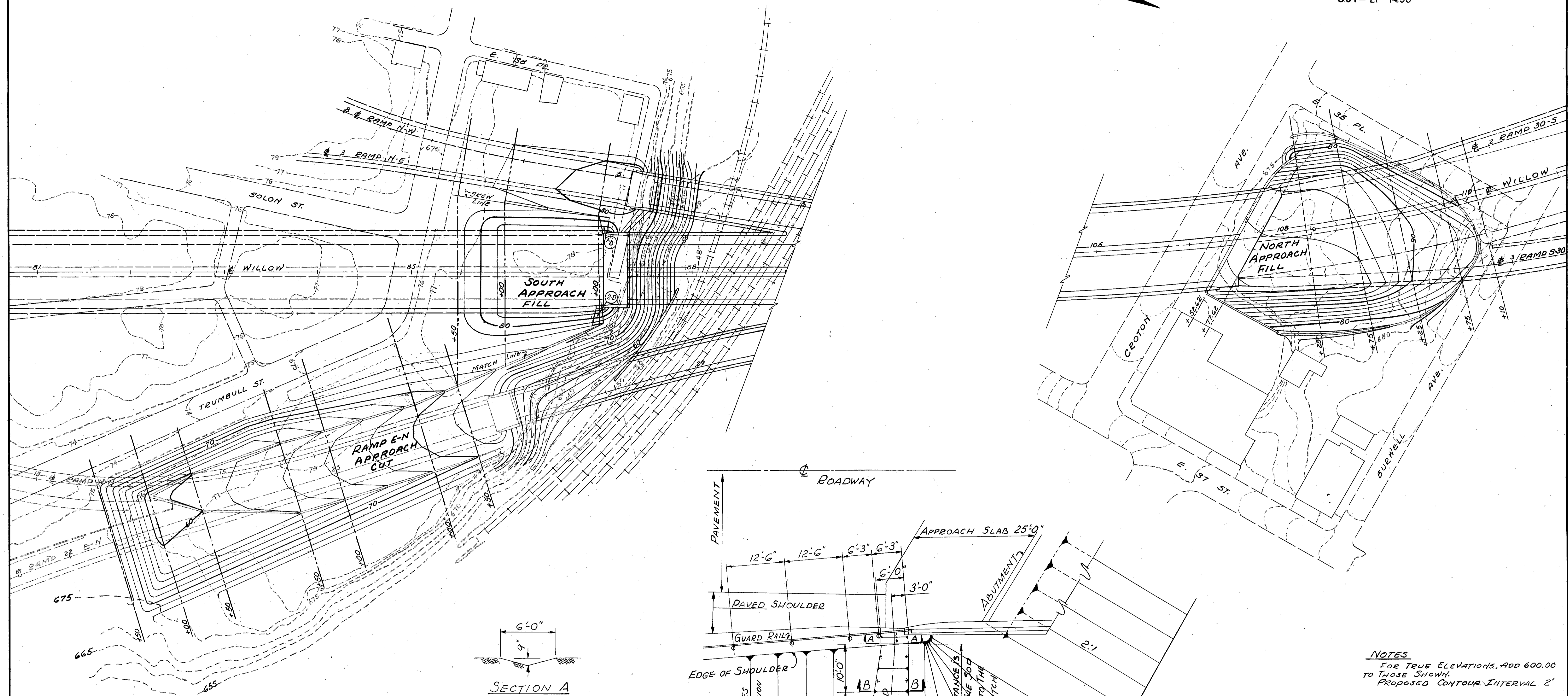


PLAN & PROFILE STA. 101+00 TO STA. 113+50

DATE: 6-15-51
DRAWN BY: G.M. GCH
CHECKED BY: G.M. GCH
NOTED BY: G.M. GCH
NO. OF WORK SHEETS: 14
NO. OF SHEETS: 14

DATE: 6-15-51
DRAWN BY: G.M. GCH
CHECKED BY: G.M. GCH
NOTED BY: G.M. GCH
NO. OF WORK SHEETS: 14
NO. OF SHEETS: 14

PROFILES DRAWN 6-2-51 AHJ
BRIDGE (NOT FINISHED) 1/13
6-15-51



NOTES
FOR TRUE ELEVATIONS, ADD 600.00 TO THOSE SHOWN.
PROPOSED CONTOUR INTERVAL 2'

DRAINAGE QUANTITY			
REFERENCE NO.	LOCATION	SIDE	L-10 SODDING FOR SPECIAL BERM & SLOPE PROTECTION S. Y.
1-D	WILLOW STA. 87+05	L	20
2-D	WILLOW STA 87+05	R	22
	TOTAL		42

NOTE: FOR DETAILS OF SOD & WIRE MESH PLACEMENT SEE GENERAL NOTES - "EROSION CONTROL AT BRIDGES"

PAYMENT FOR THIS WORK SHALL BE THE PRICE BID PER SQUARE YARD OF ITEM L-10, SODDING FOR SPECIAL BERM & SLOPE PROTECTION.

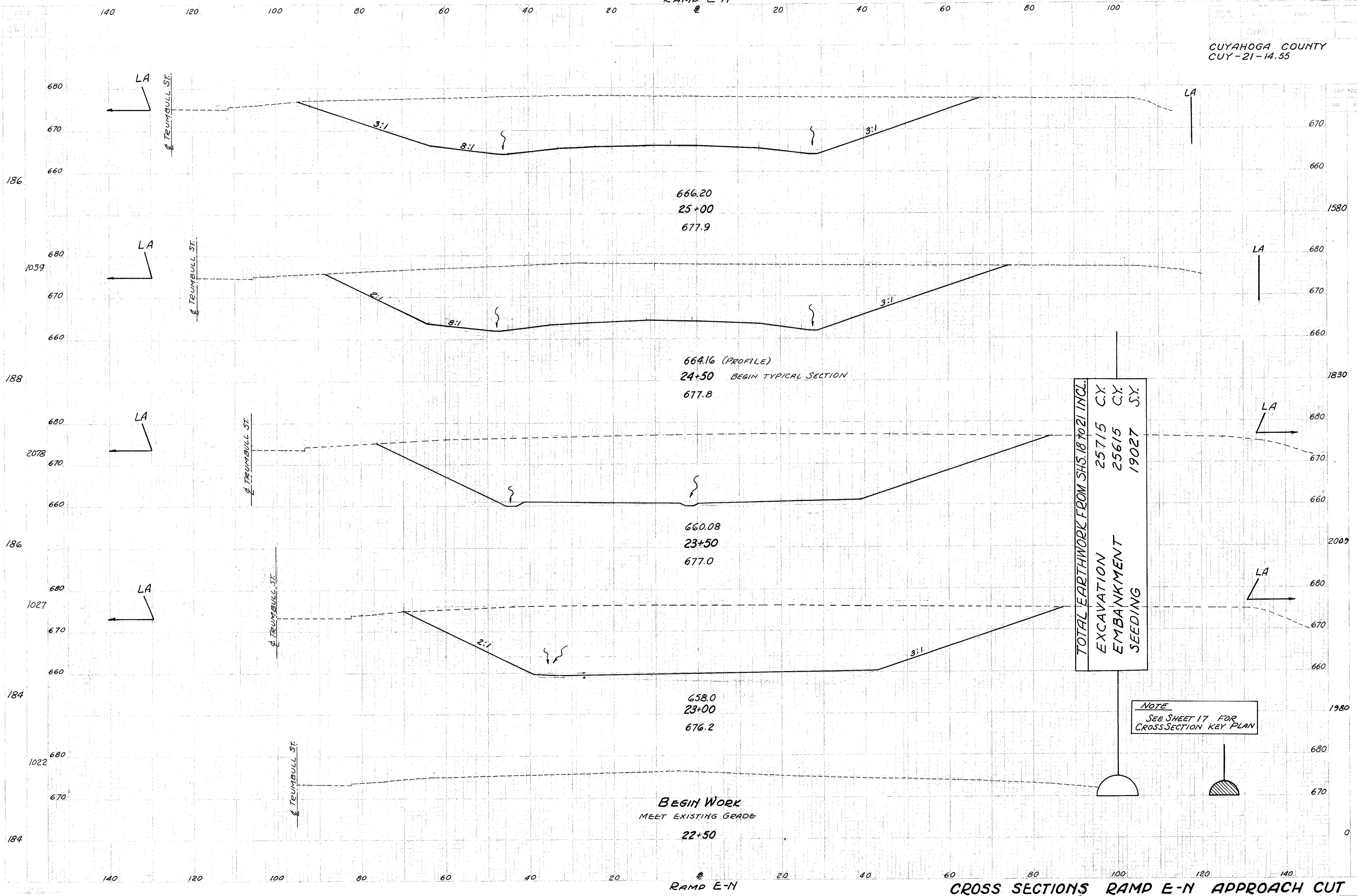
DETAIL OF EROSION CONTROL AT APPROACH SLAB
NO SCALE

TRYGVE HOFF & ASSOCIATES
ENGINEERS
1922 EAST 107TH STREET CLEVELAND, OHIO

GRADING and GROSS SECTION KEY PLAN

SCALE 1" = 50'	DATE
DESIGNED G.O.C.	DRAWN G.O.C.
TRACED	CHECKED ALH
REVIEWED T.L.L.	DATE 9/18/62
	REVISED

58019 6152



TOTAL EARTHWORK FROM SHS. 18 TO 21 INCL.

EXCAVATION	25715	C.Y.
EMBANKMENT	25615	C.Y.
SEEDING	19027	S.Y.

NOTE
SEE SHEET 17 FOR
CROSS SECTION KEY PLAN

BEGIN WORK
MEET EXISTING GRADE

22+50

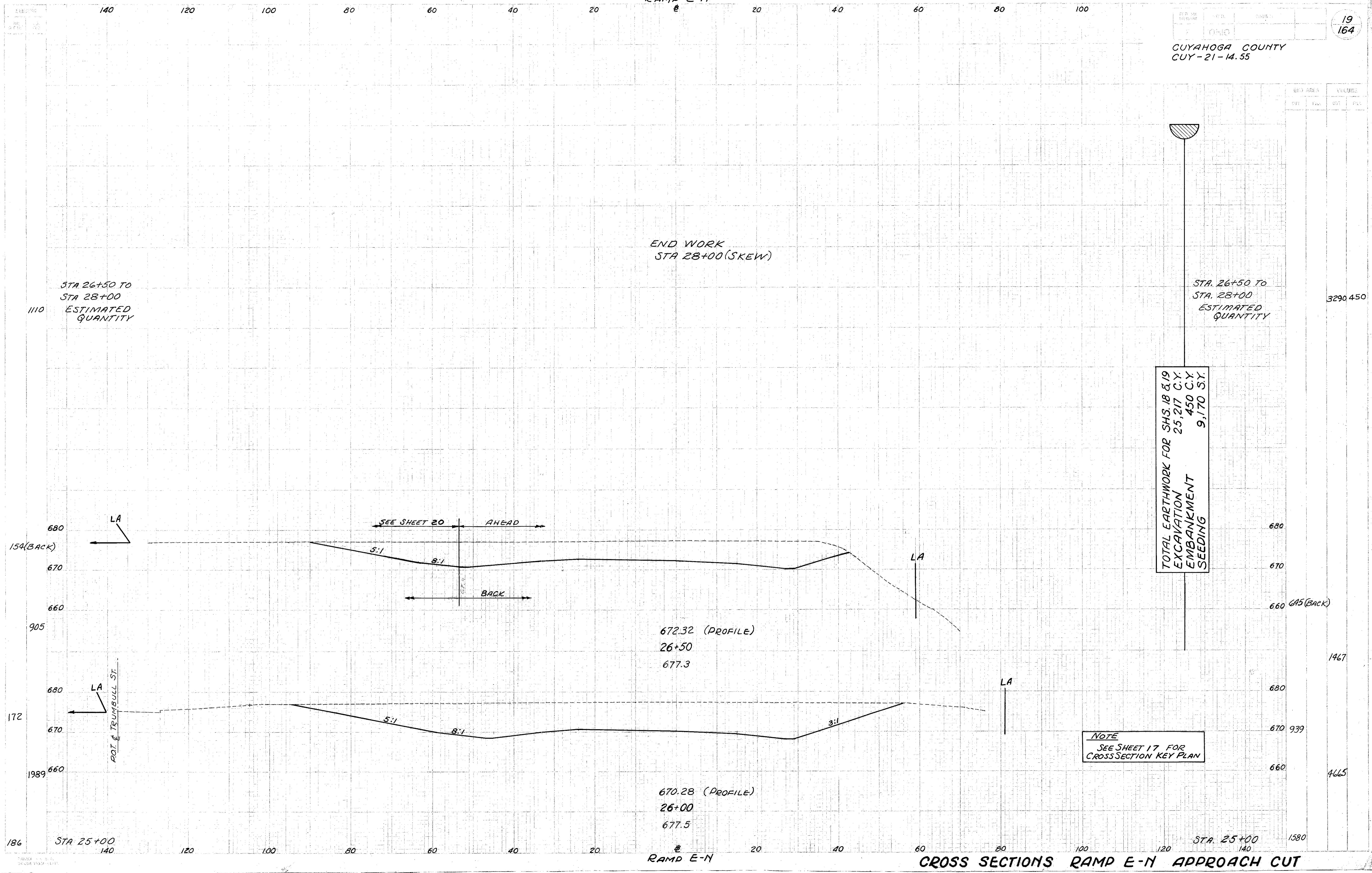
RAMP E-N

EST. AREA		VOLUME	
CUT	FILL	CUT	FILL

3290.450

TOTAL EARTHWORK FOR SHS. 18 & 19
EXCAVATION 25,217 C.Y.
EMBANKMENT 450 C.Y.
SEEDING 9,170 SY.

NOTE
SEE SHEET 17 FOR
CROSS SECTION KEY PLAN



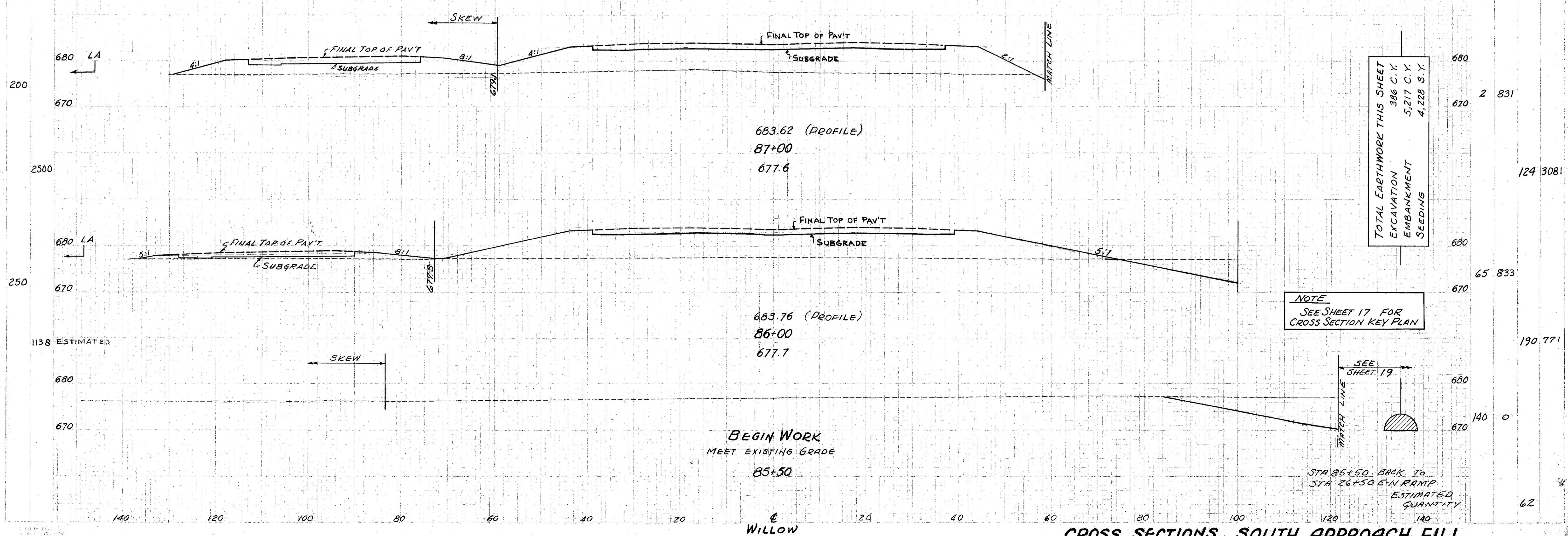
END AREA		VOLUME	
MT	FEET	CU	YD

STA 87+00 TO
 STA 88+00
 ESTIMATED QUANTITY

END WORK
 STA 88+00 (SKEW)

STA 87+00 TO
 STA 88+00
 ESTIMATED QUANTITY

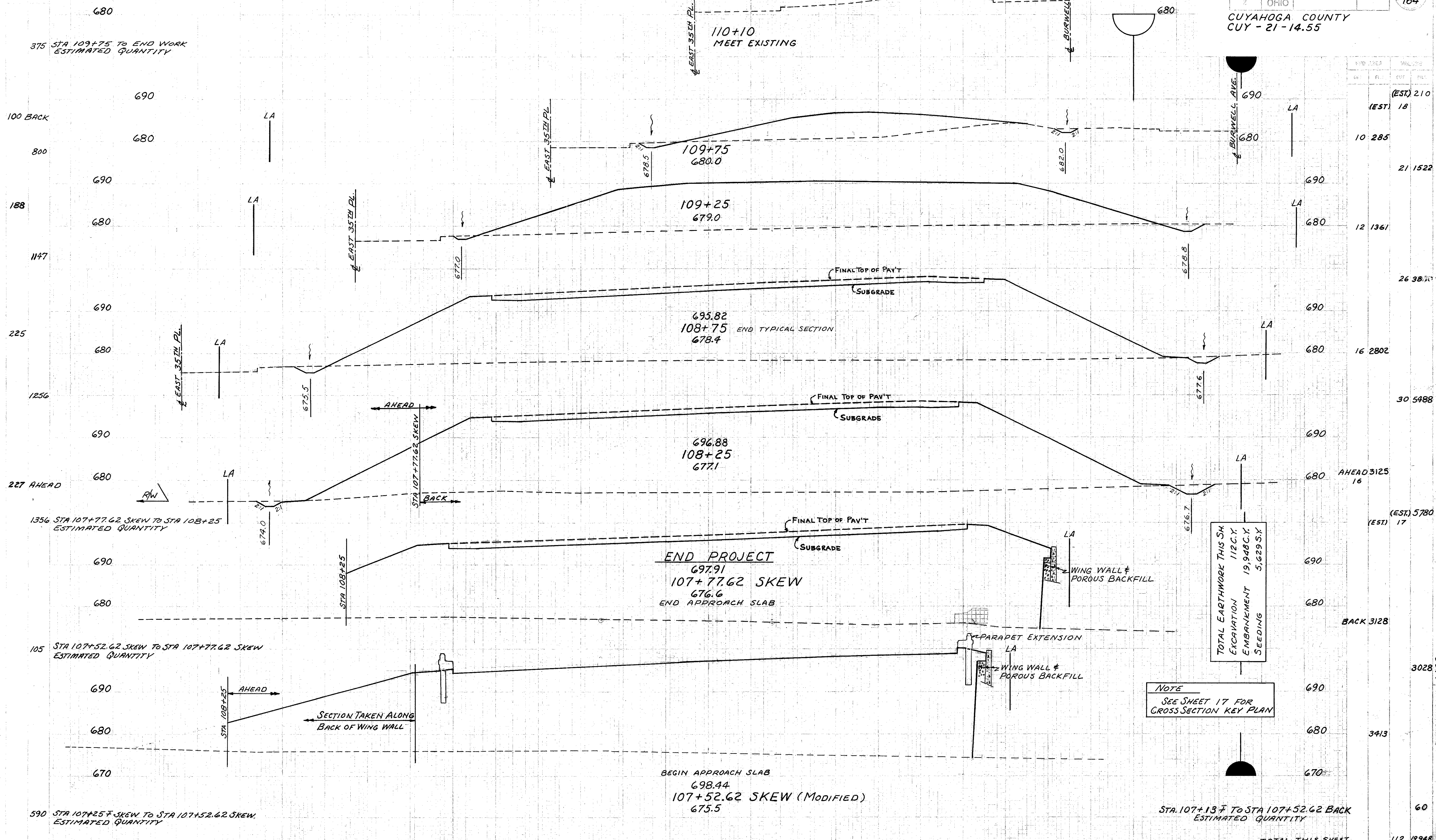
10 1365



120 100 80 60 40 20 20 40 60 80 100

WILLOW
FREEWAY
END WORK STA. 110+35

21
164
OHIO
CUYAHOGA COUNTY
CUY - 21-14.55



EST. QUANTITY	EST. QUANTITY	EST. QUANTITY	EST. QUANTITY
(EST) 210	(EST) 18	10 285	21 1522
12 1361	26 3870	16 2802	30 5488
AHEAD 3125	(EST) 17	BACK 3128	3028
			3413
			60
			112 1948

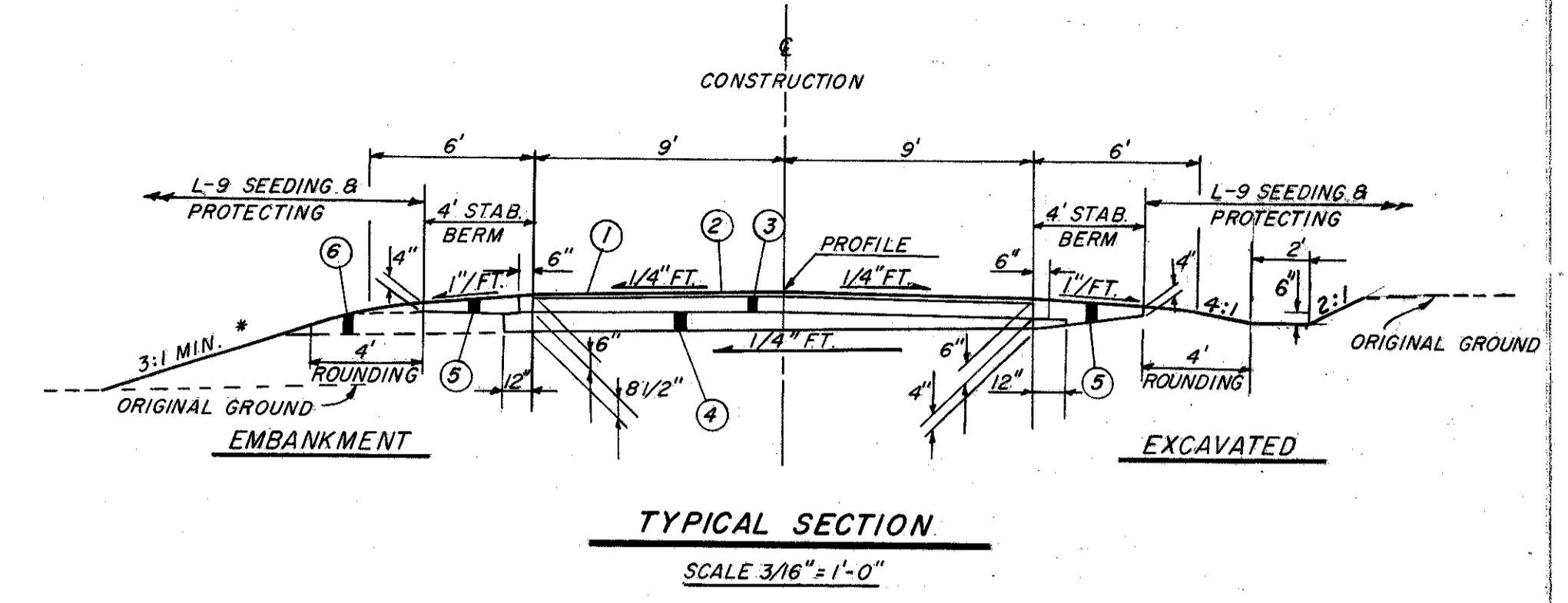
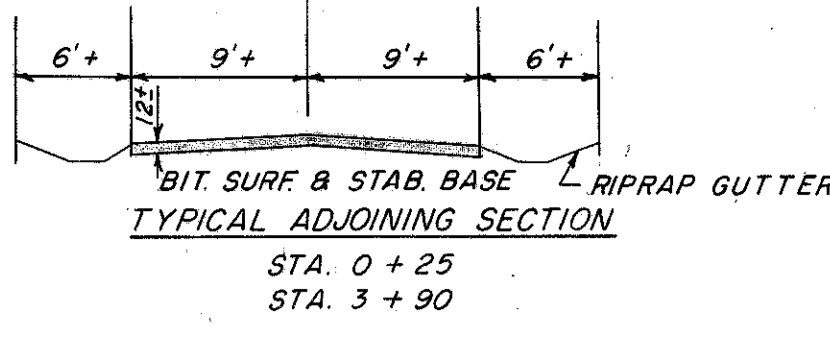
TOTAL EARTHWORK THIS SH.
EXCAVATION 112 C.Y.
EMBANKMENT 19,948 C.Y.
SEEDING 5,629 S.Y.

NOTE
SEE SHEET 17 FOR
GROSS SECTION KEY PLAN

STA. 107+137 TO STA 107+52.62 BACK
ESTIMATED QUANTITY

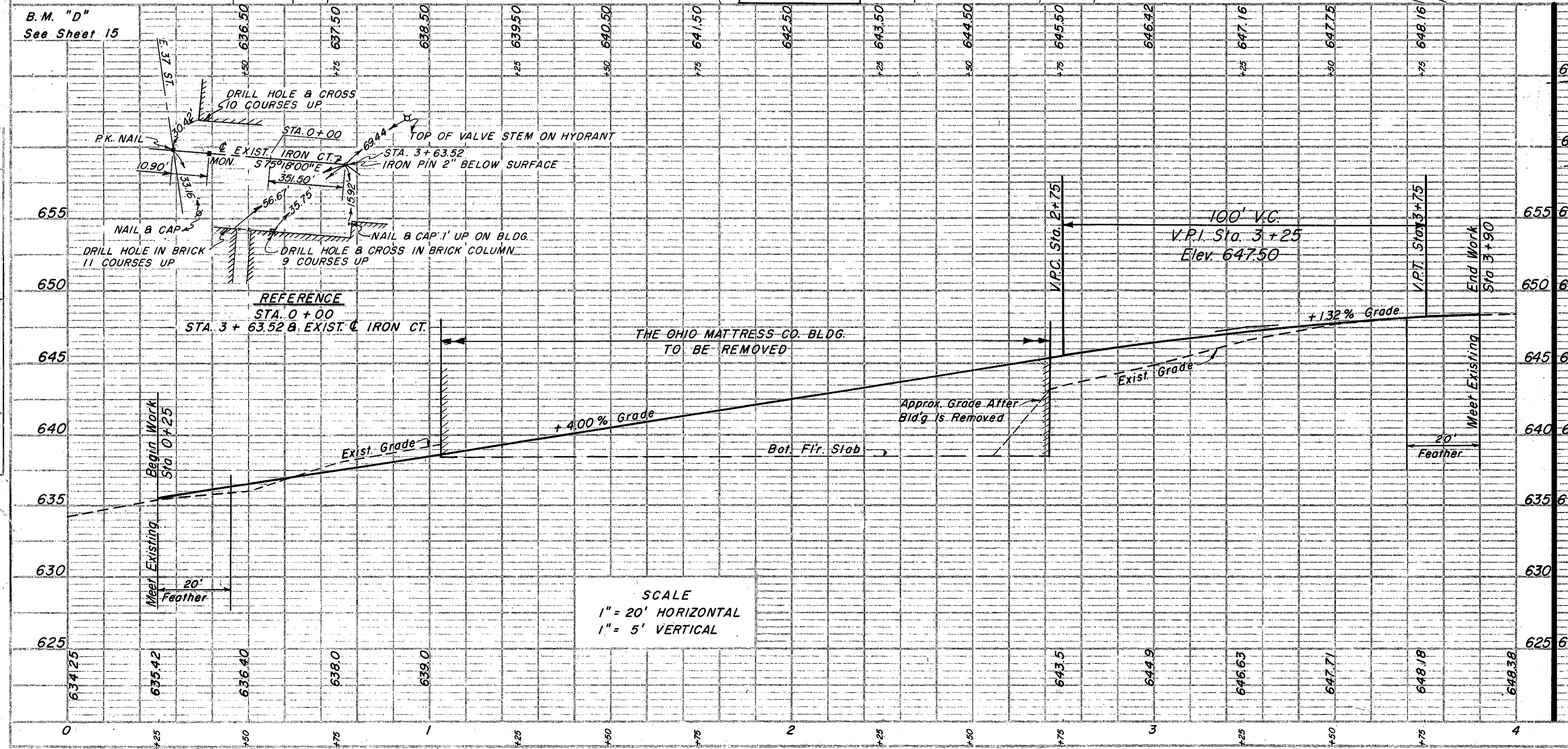
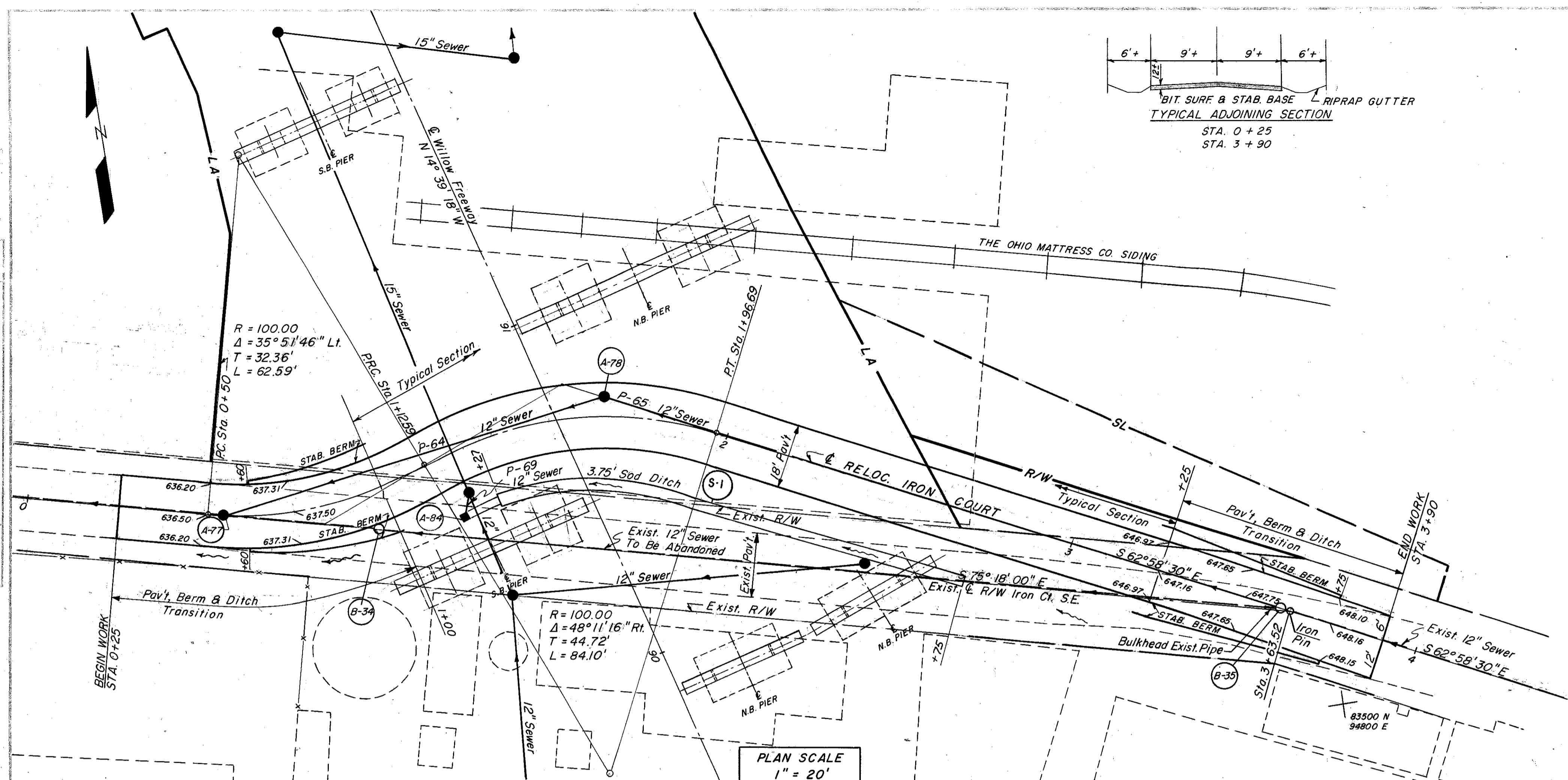
TOTAL THIS SHEET

WILLOW FREEWAY CROSS SECTIONS NORTH APPROACH FILL



- LEGEND**
- ① ITEM T-35-2" ASPHALTIC CONCRETE SURFACE COURSE (TYPE "A" 70-85) 39 C.Y.
 - ② ITEM T-30-BITUMINOUS PRIME COAT (APPLIED AT 0.4 GAL./SQ. YD. SEC. M-57 (RT-2 OR RT-3)) 292 GAL.
 - ③ ITEM B-19-AGGREGATE BASE COURSE 116 C.Y.
 - ④ ITEM I-22-SUBBASE, GRADING A OR B, MODIFIED AS PER GENERAL NOTE 125 C.Y.
 - ⑤ ITEM I-18-STABILIZED CRUSHED AGGREGATE SHOULDERS, STABILIZED WITH CALCIUM CHLORIDE (SEE NOTE IN PROPOSAL) 64 C.Y.
 - ⑥ ITEM I-9-STONE UNDERDRAINS NO. 2. SEE GENERAL NOTES FOR SPACING OF THIS ITEM. 90 L.F.
- QUANTITIES**
- NOTES**
- * SEE CROSS SECTIONS FOR VARIATION TO SLOPES.
 - ** THICKNESS SHOWN IS "DESIGNED" THICKNESS AS DESCRIBED IN SEC. T-35.01. QUANTITIES CARRIED TO GENERAL SUMMARY SHEET 9.

NOTES: FOR SEWER PROFILES SEE SHEET 25.
FOR OTHER DRAINAGE DETAILS SEE SHEET 15.
FOR DRAINAGE QUANTITIES & LOCATION OF DRAINAGE ITEMS SEE SHEET 7.
FOR EXISTING UTILITIES SEE SHEET 42.
FOR FENCE LOCATION SEE SHEET 160.

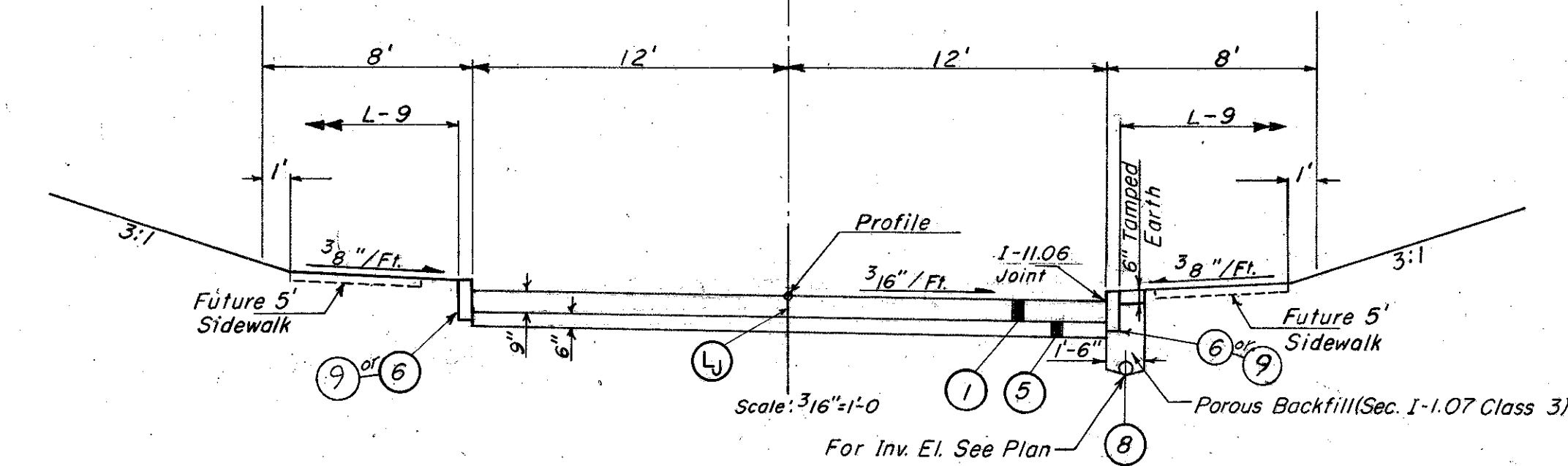
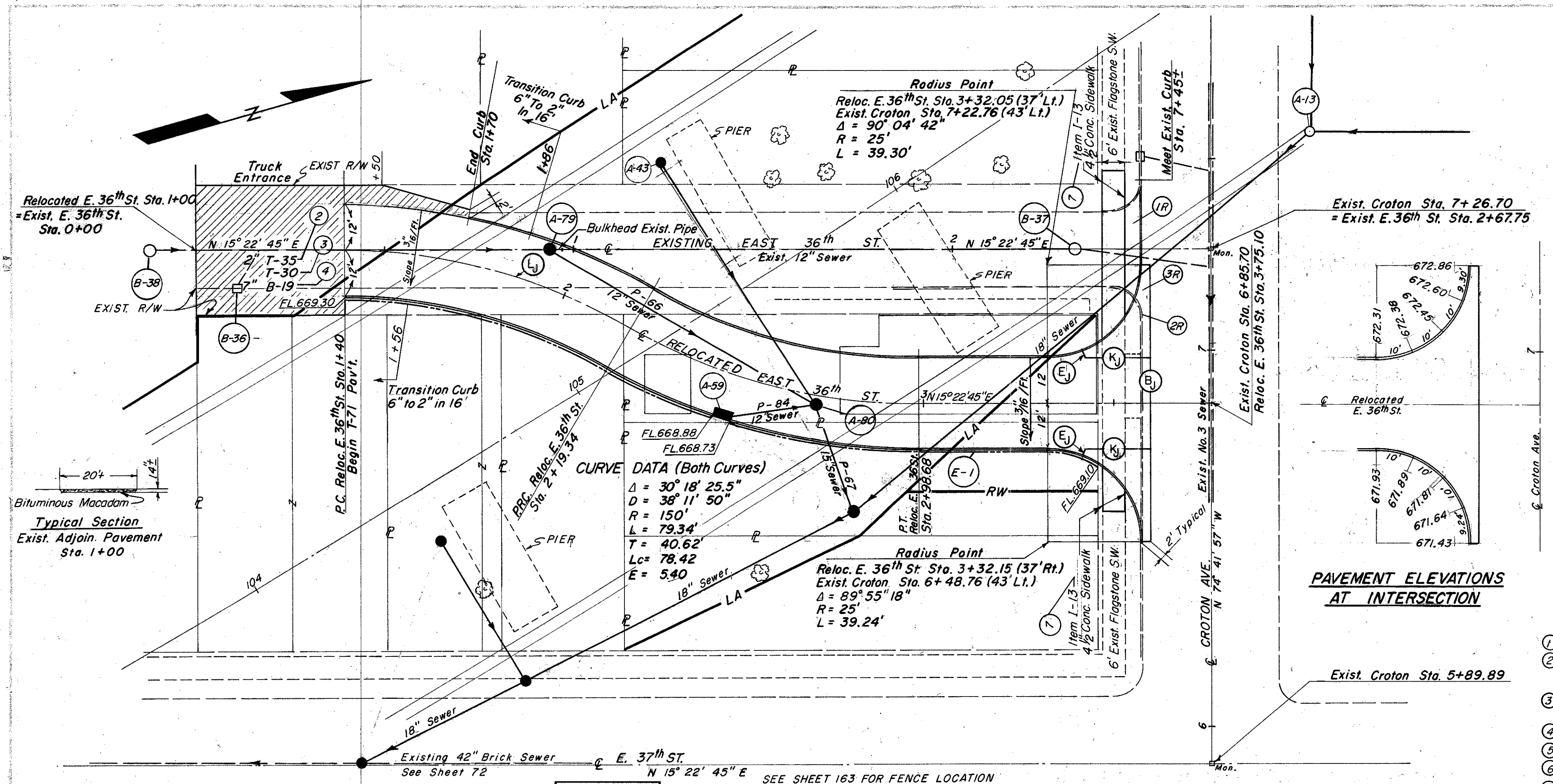


STATION	AREA	VOL.	SEEDING		STATION	CROSS SECTION	
			END WIDTH	AREA S.Y.		SCALE	Area	Vol.
12	239	0+25			1" = 10' HORIZONTAL 1" = 10' VERTICAL		
74	209	0+75					
76	406	1+00					
70	398	1+50					
73	513	2+00					
40	128	2+75					
26	189	3+00					
24	111	3+90					
RELOC. IRON CT.						EXCAVATION 225 C.Y. EMBANKMENT 206 C.Y. SEEDING 2193 S.Y.	
655	630						
650	640						
645	630						
640	640						
635	630						
630	630						
625	630						

BY
DATE
CHECKED
DATE
BY

BY
DATE
CHECKED
DATE
BY

REFERENCE NO. OR STRUCTURE NO.	EXIST. E. 36 ST. STATION TO STATION	SIDE	REMOVAL & DISPOSAL OF EXISTING CURB L.F.	E-8 REMOVAL & DISPOSAL OF EXISTING PAVEMENT S.Y.
1-R	2+37 TO 2+50	Rt. & Lt.	96	34
2-R	2+49.5	Rt. & Lt.		
3-R	2+51	Rt.		17
TOTALS			96	51



- LEGEND**
- ① ITEM T-71 9" REINF. PORTLAND CEMENT CONC. PAV'T. --- 625 S.Y.
 - ② ITEM T-35 2" ASPHALTIC CONC. SURFACE COURSE, TYPE A(TO-B5) - (THICKNESS SHOWN "DESIGNED" THICKNESS AS DESCRIBED IN SEC. T-35.01) --- 9.2 C.Y.
 - ③ ITEM T-30 BITUMINOUS PRIMECOAT, SEC. M-57 (RT-2 OR RT-3) APPLIED AT 0.4 GAL PER S.Y. --- 66 GAL.
 - ④ ITEM B-19 7" AGGREGATE BASE COURSE --- 32 C.Y.
 - ⑤ ITEM 1-22 SUBBASE, GRADING A OR B, MOD. AS PER GEN. NOTE-105 C.Y.
 - ⑥ ITEM I-11 6" x 18" SANDSTONE CURB --- 361 L.F.
 - ⑦ ITEM I-13 4-1/2" x 6" SIDEWALK --- 300 S.F.
 - ⑧ ITEM I-1 6" PIPE CLASS I-3 --- SEE DRAINAGE
 - ⑨ Item I-11 Sandstone Curb Reset --- 92 L.F.
- QUANTITY**
- ⓑ PLAIN BUTT JOINT
 - Ⓔ STANDARD EXPANSION JOINT, WITHOUT DOWELS
 - ⓓ STANDARD LONGITUDINAL KEY JOINT, WITHOUT TIE BARS
 - ⓔ STANDARD LONGITUDINAL JOINT

NOTES: Unless Otherwise Specified The Following Notes Apply.

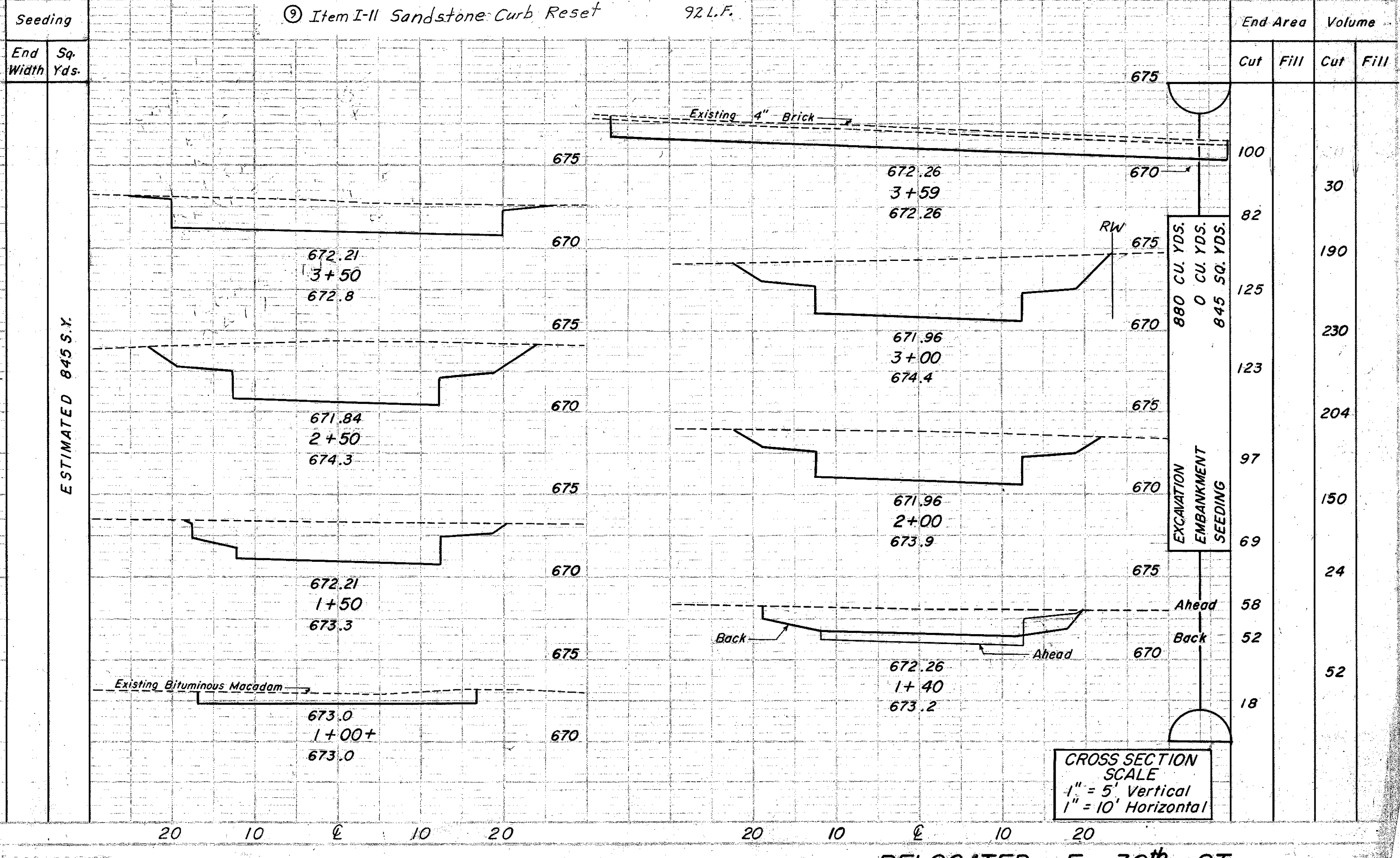
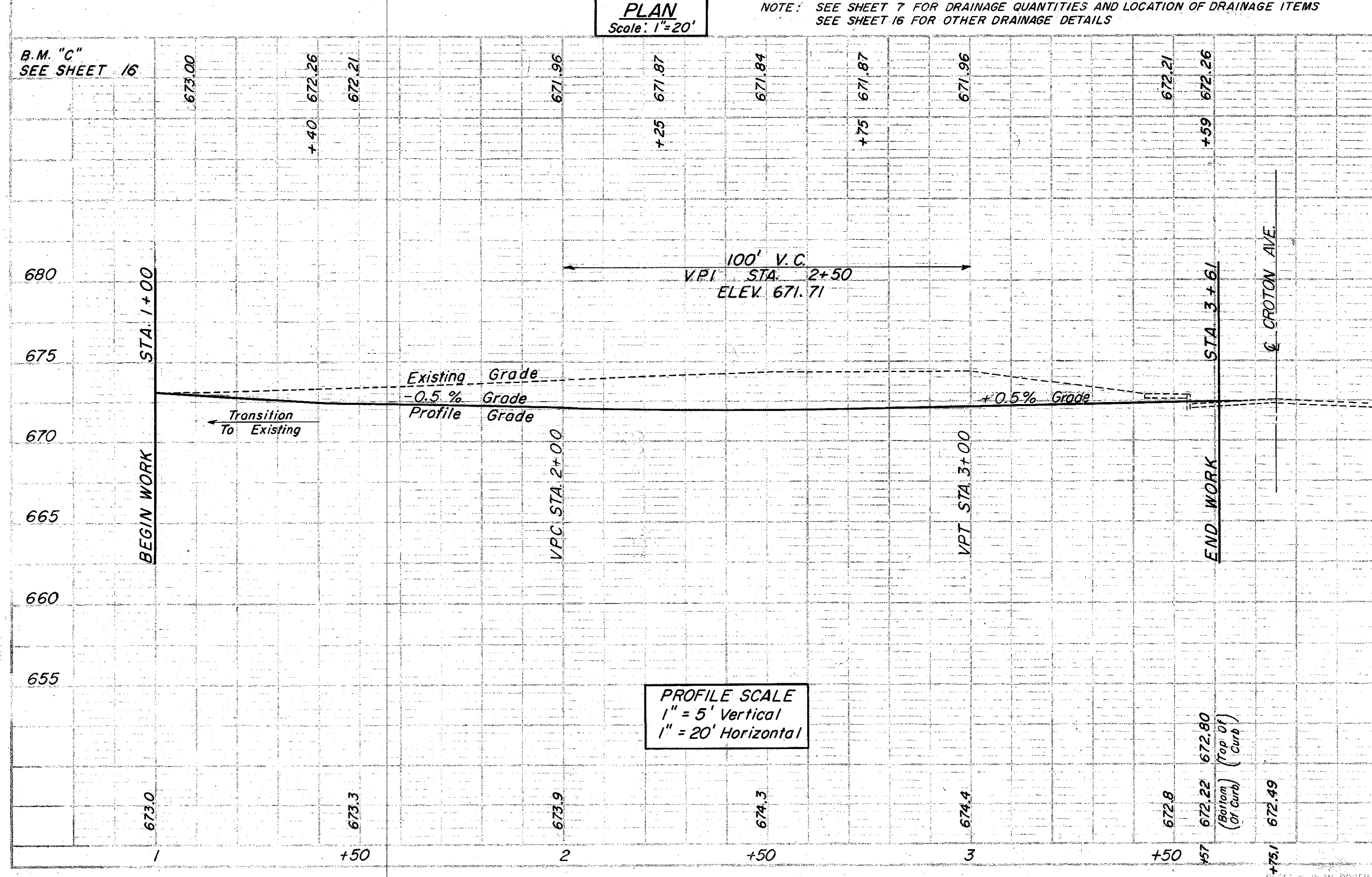
Elevations Are Given To Top Of Pavement At Joints, Edge Of Pavement Or Face Of Curb.

Dimensions Are Given To Joints, Edge Of Pavement Or Face Of Curb.

All Radii Given To Face Of Curb Or Edge Of Pavement.

Minimum Length Of Pavement Joints = 2'-0".

SEE SHEET 43 FOR EXISTING UTILITIES AND SHEETS 24 & 26 FOR SEWER PROFILES



B.M. "C"
SEE SHEET 16

673.00
+40
672.26
672.21
671.96
671.87
671.84
671.87
671.96
672.21
672.26

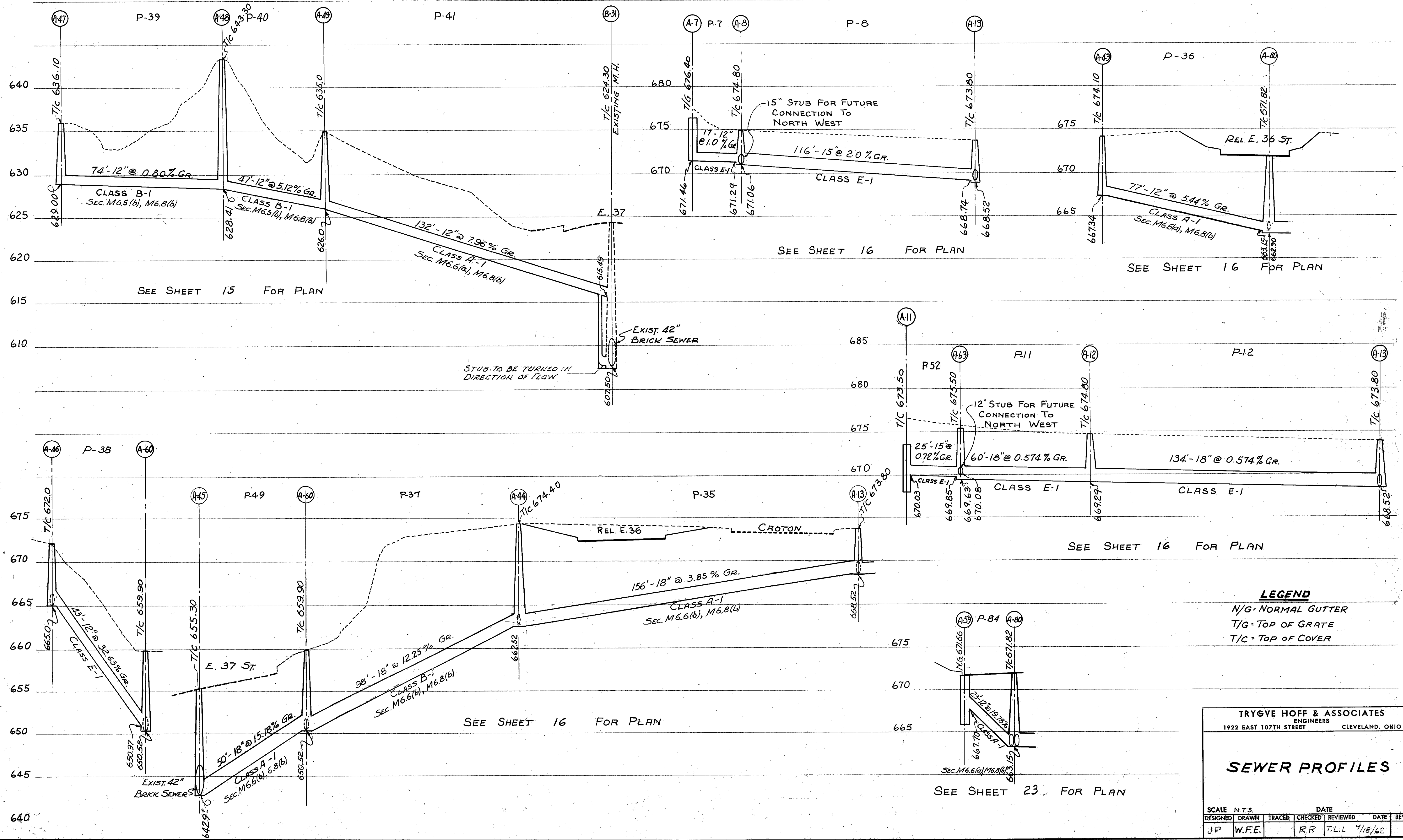
PROFILE
CHECKED
PLOTTED
NOTE BOOK GRADINGS CHECKED
B.M.S. NOTED
NO. OF STRUCTURE NOTATIONS CHECKED

0-14

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

24
164

CUYAHOGA COUNTY
CUY-21-14.55



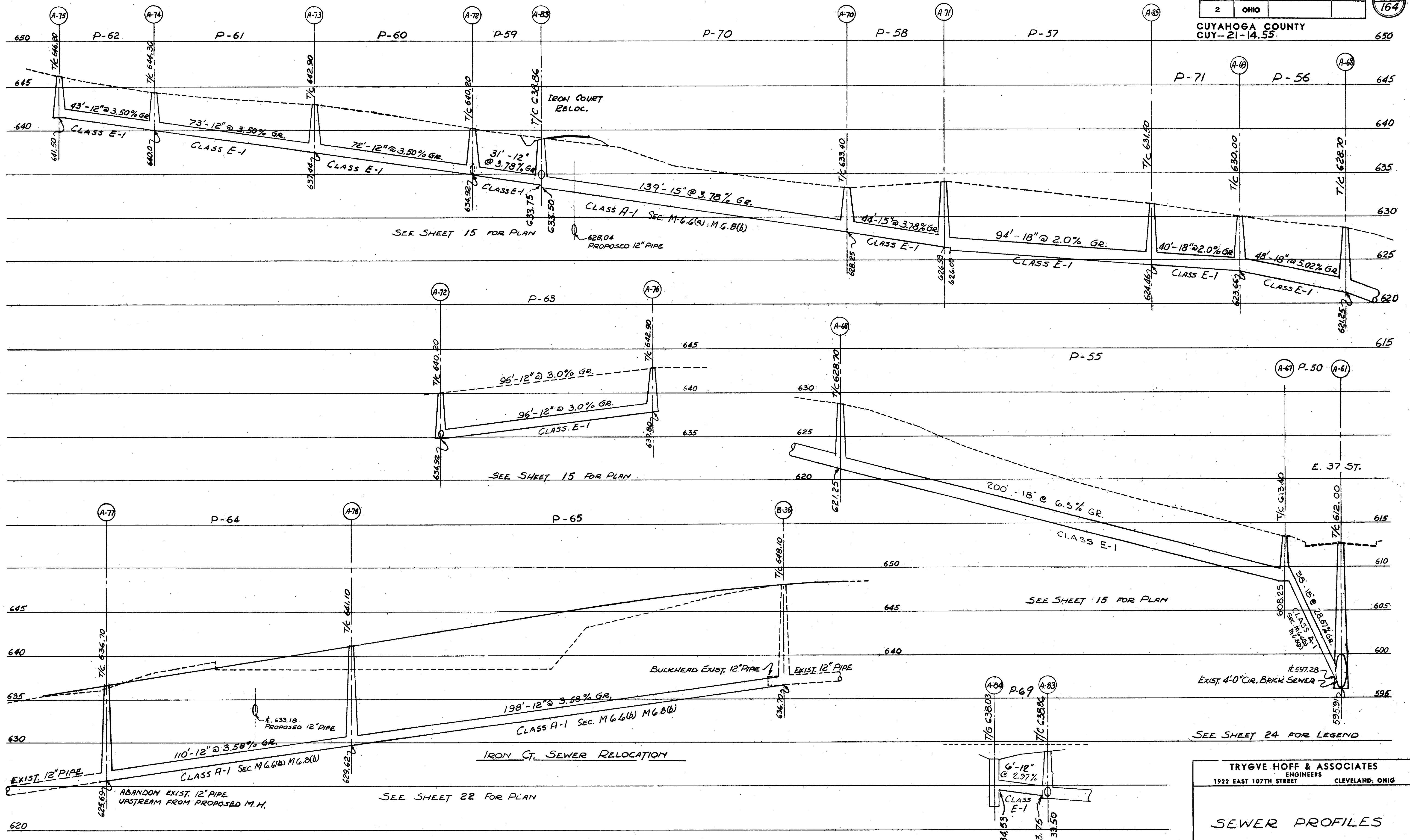
LEGEND
 N/G = NORMAL GUTTER
 T/G = TOP OF GRATE
 T/C = TOP OF COVER

TRYGVE HOFF & ASSOCIATES
 ENGINEERS
 1922 EAST 107TH STREET CLEVELAND, OHIO

SEWER PROFILES

SCALE	N.T.S.	DATE
DESIGNED	DRAWN	TRACED
CHECKED	REVIEWED	DATE
REVIS		
JP	W.F.E.	RR
		T.L.L.
		9/18/62

CONT. No. 58019 SHEET ACCT. No. 6140



CONT. No. 58019 SHEET ACCT. No. 6141

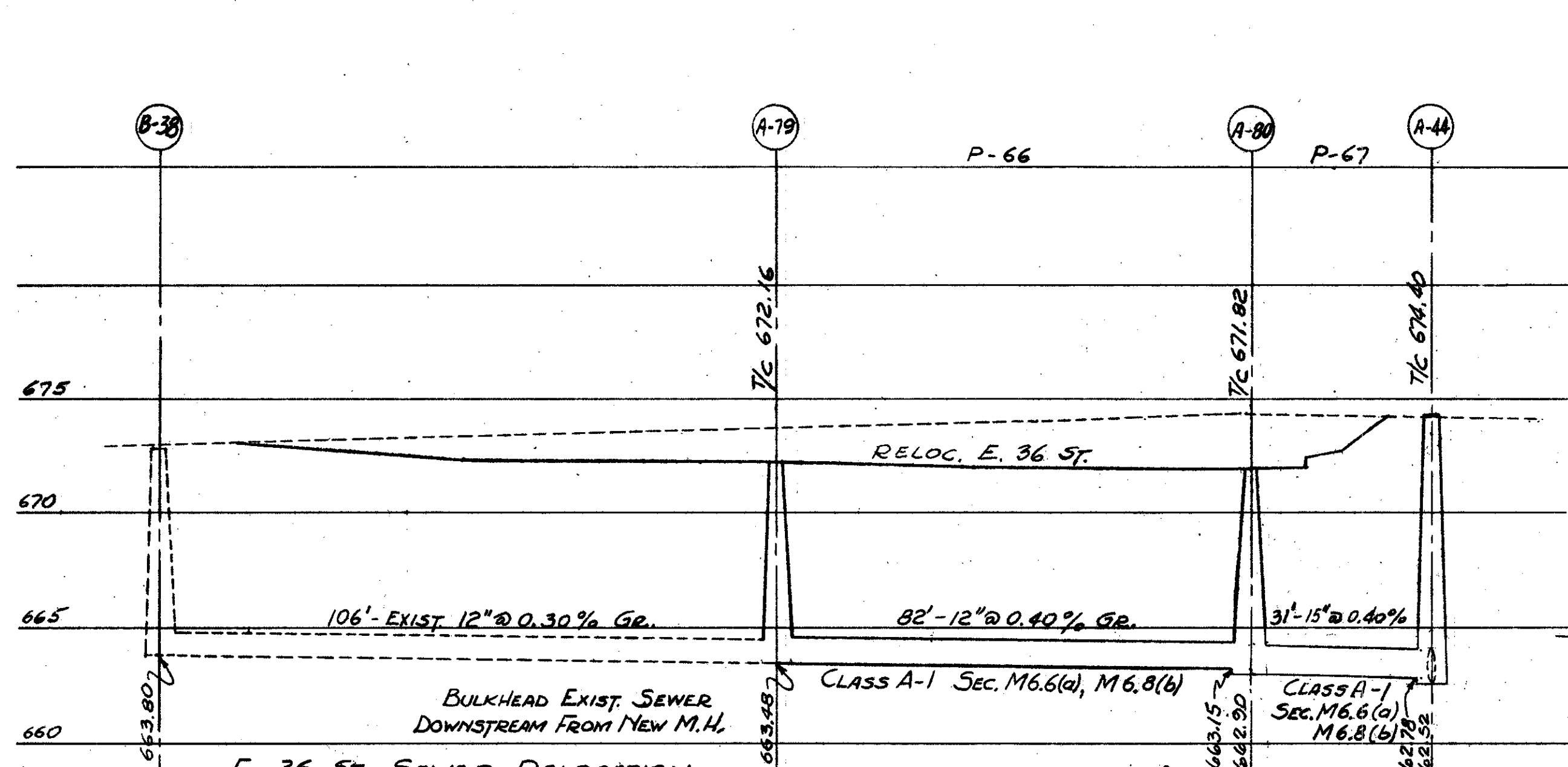
TRYGVE HOFF & ASSOCIATES
ENGINEERS
1922 EAST 107TH STREET CLEVELAND, OHIO

SEWER PROFILES

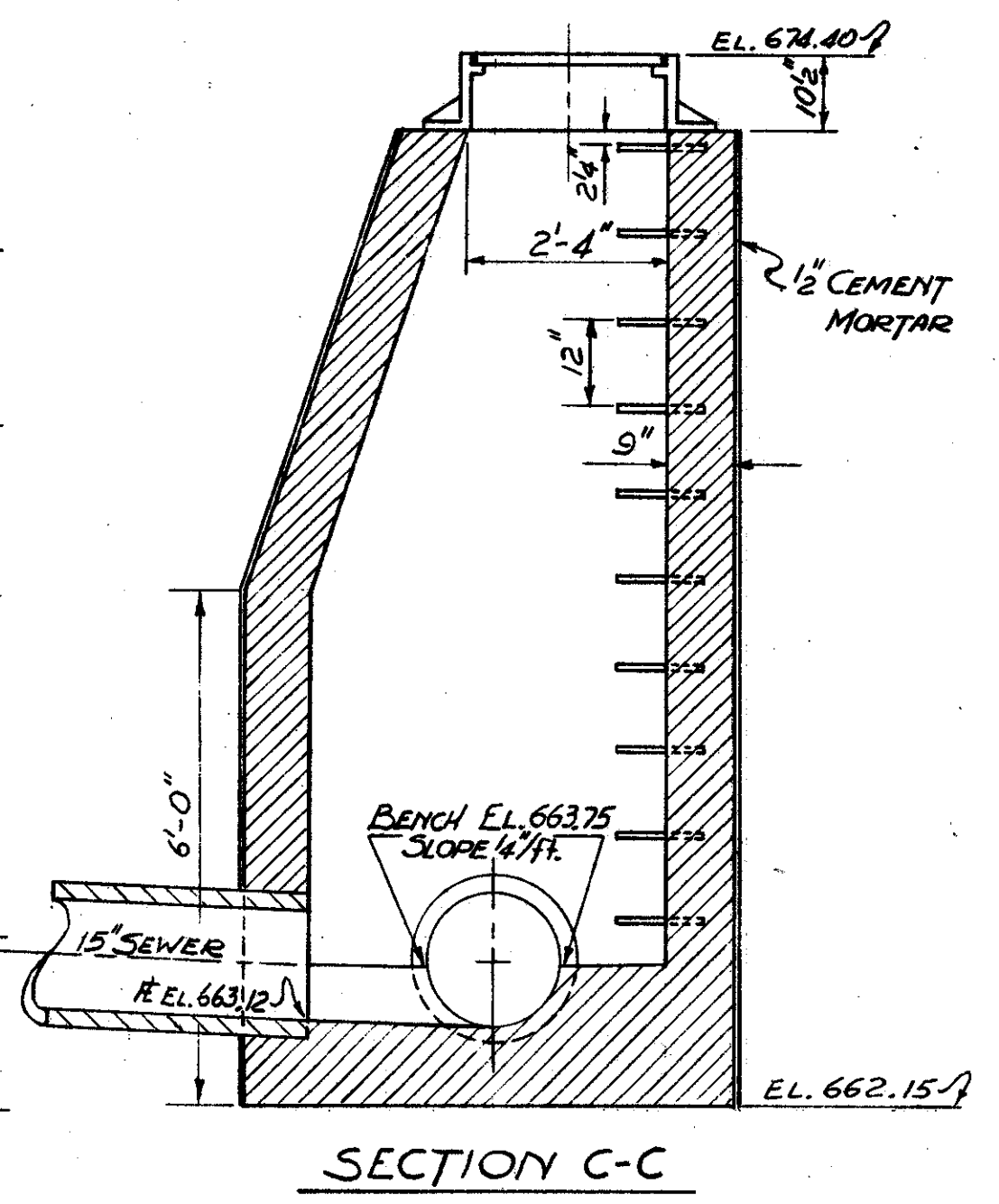
SCALE N.T.S.		DATE				
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
J.P.	C.R.		RR	T.L.L.	1/18/62	

SEE SHEET 22 FOR PLAN

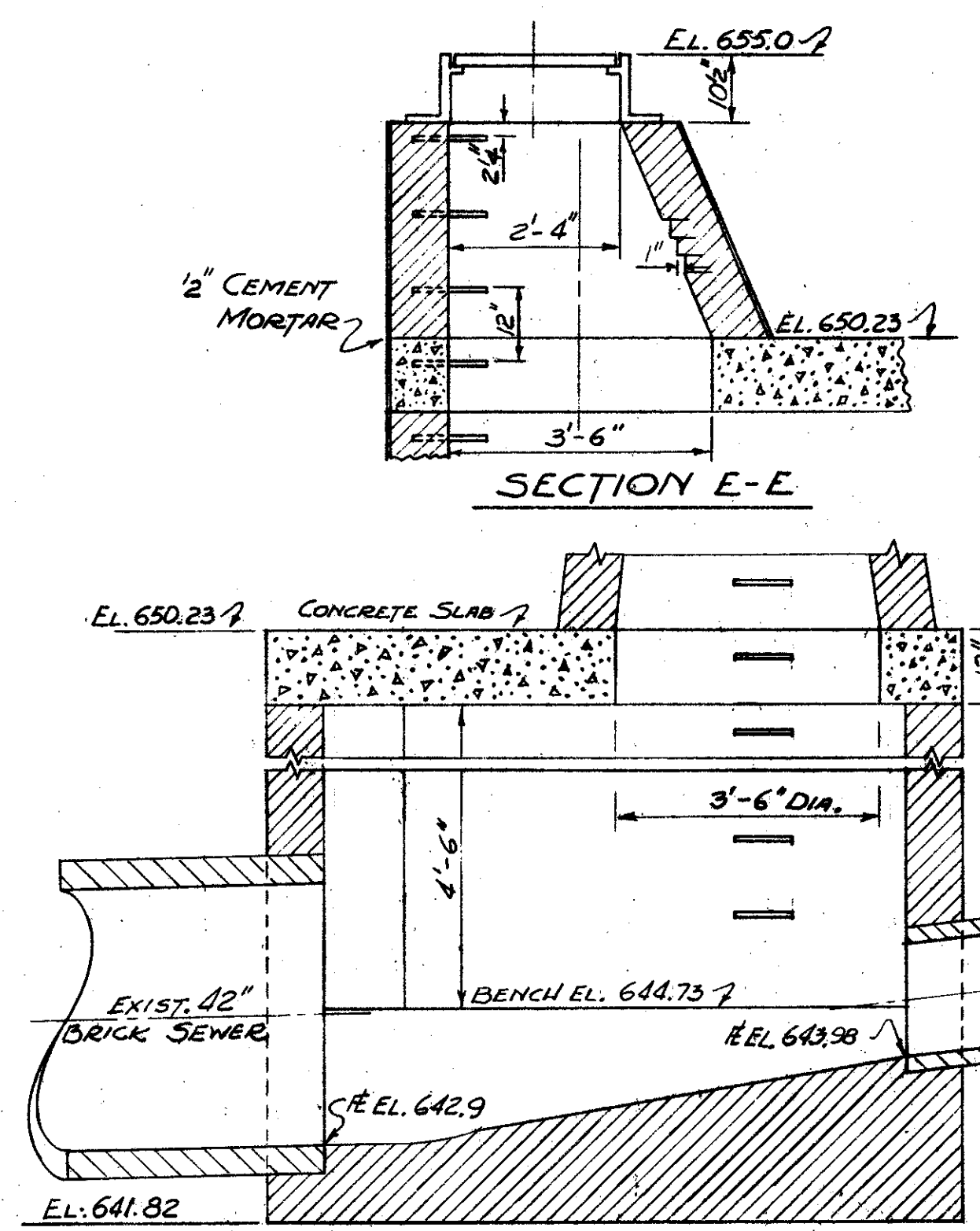
CUYAHOGA COUNTY
CUY-21-14.55



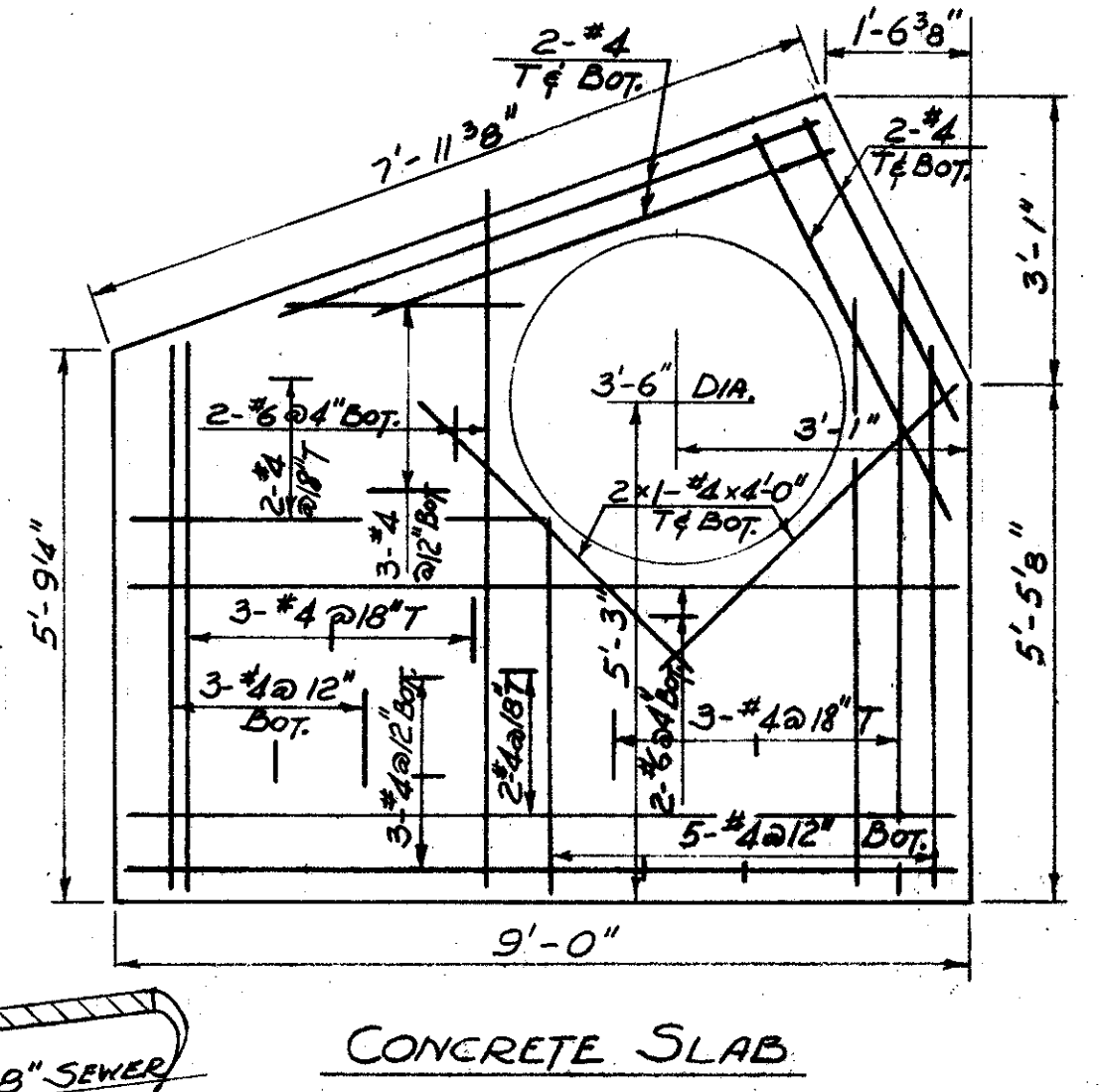
E. 36 ST. SEWER RELOCATION
SEE SHEET 23 FOR PLAN



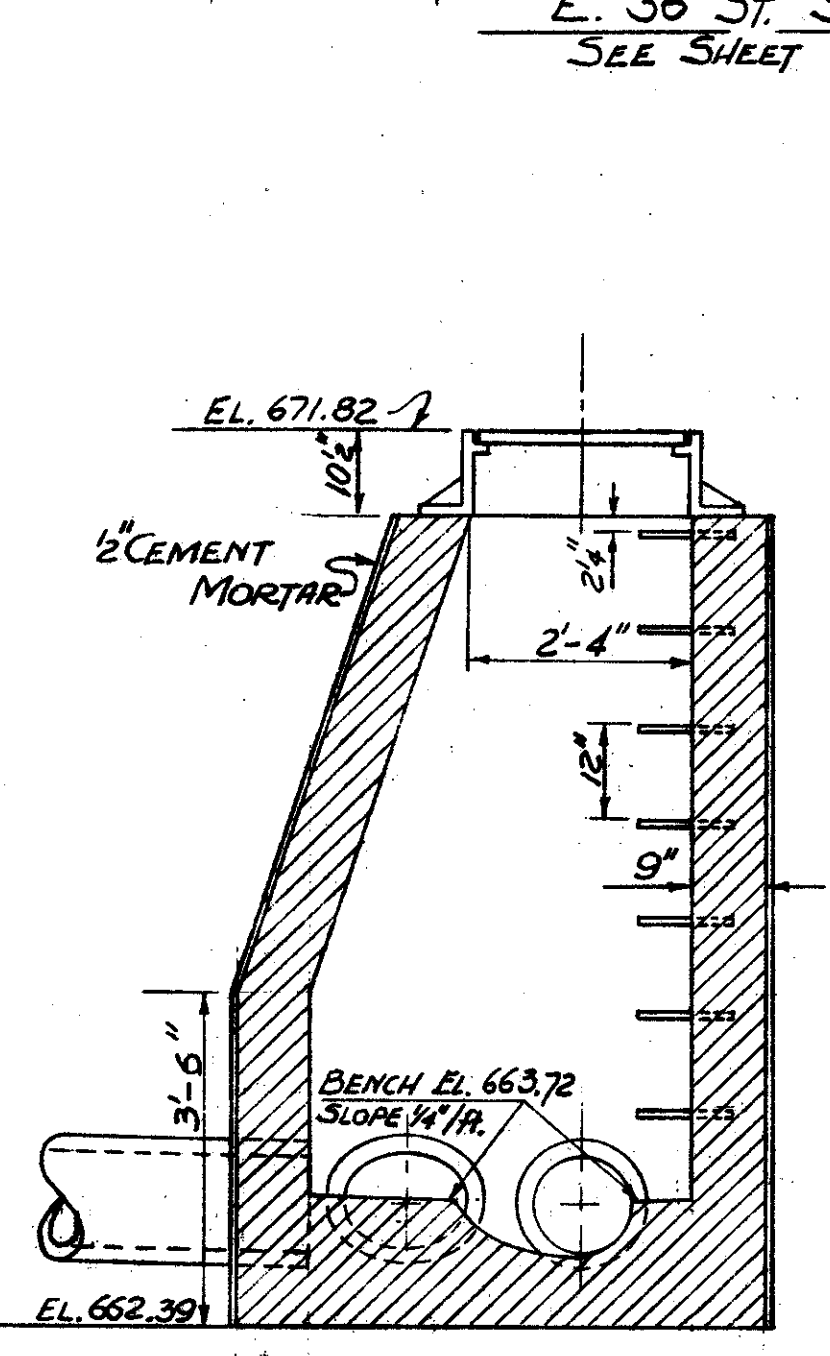
SECTION C-C



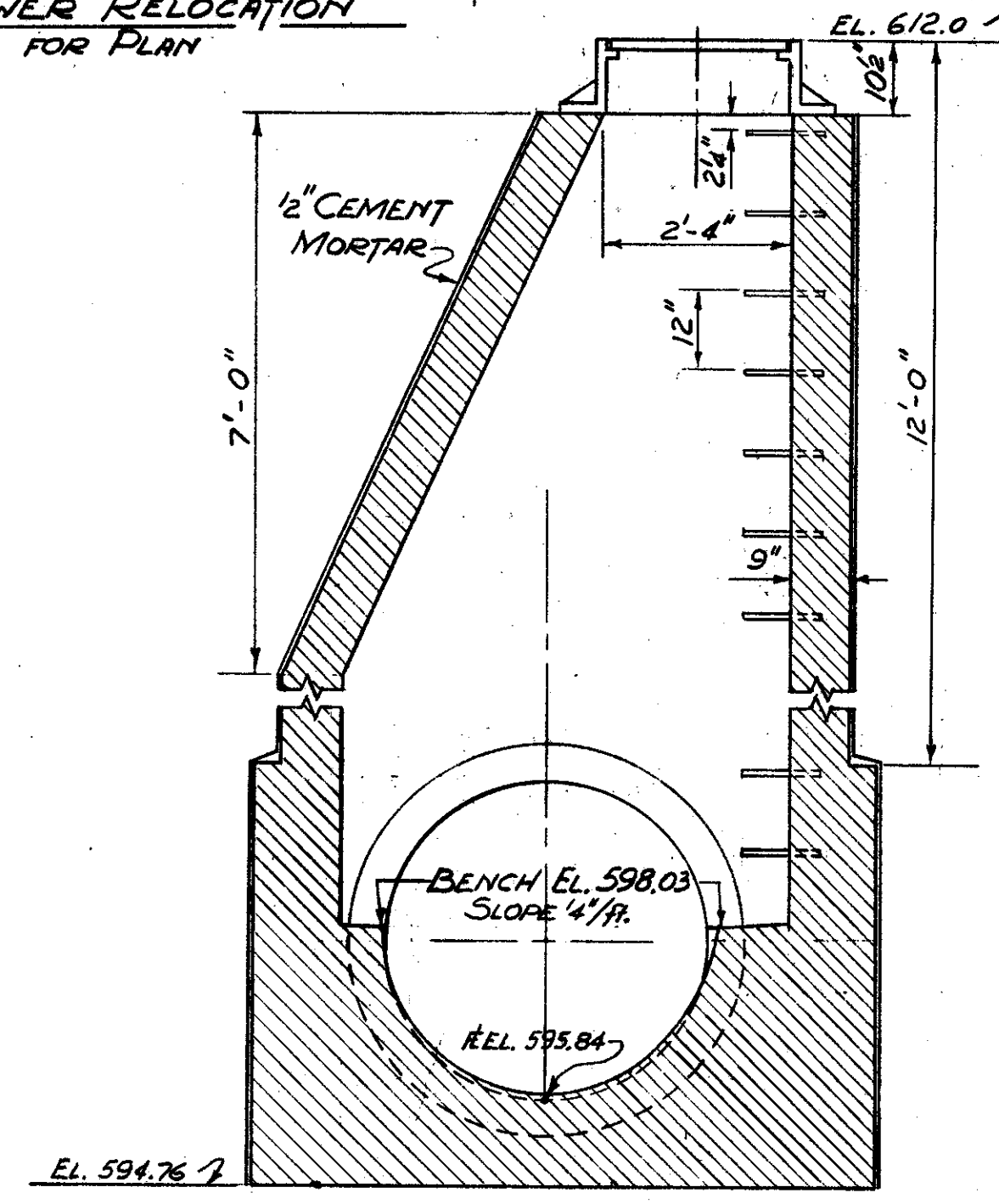
SECTION D-D



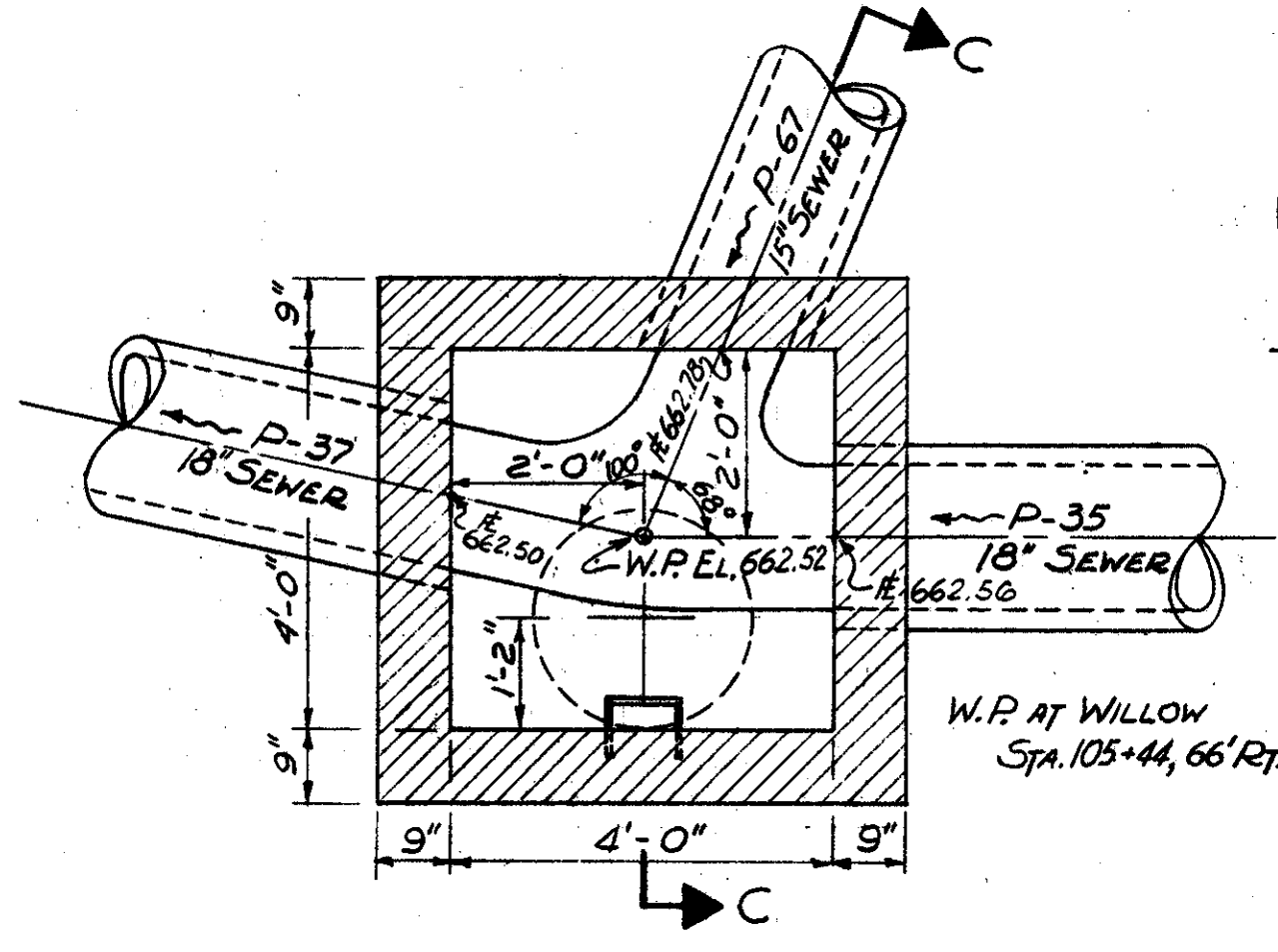
CONCRETE SLAB



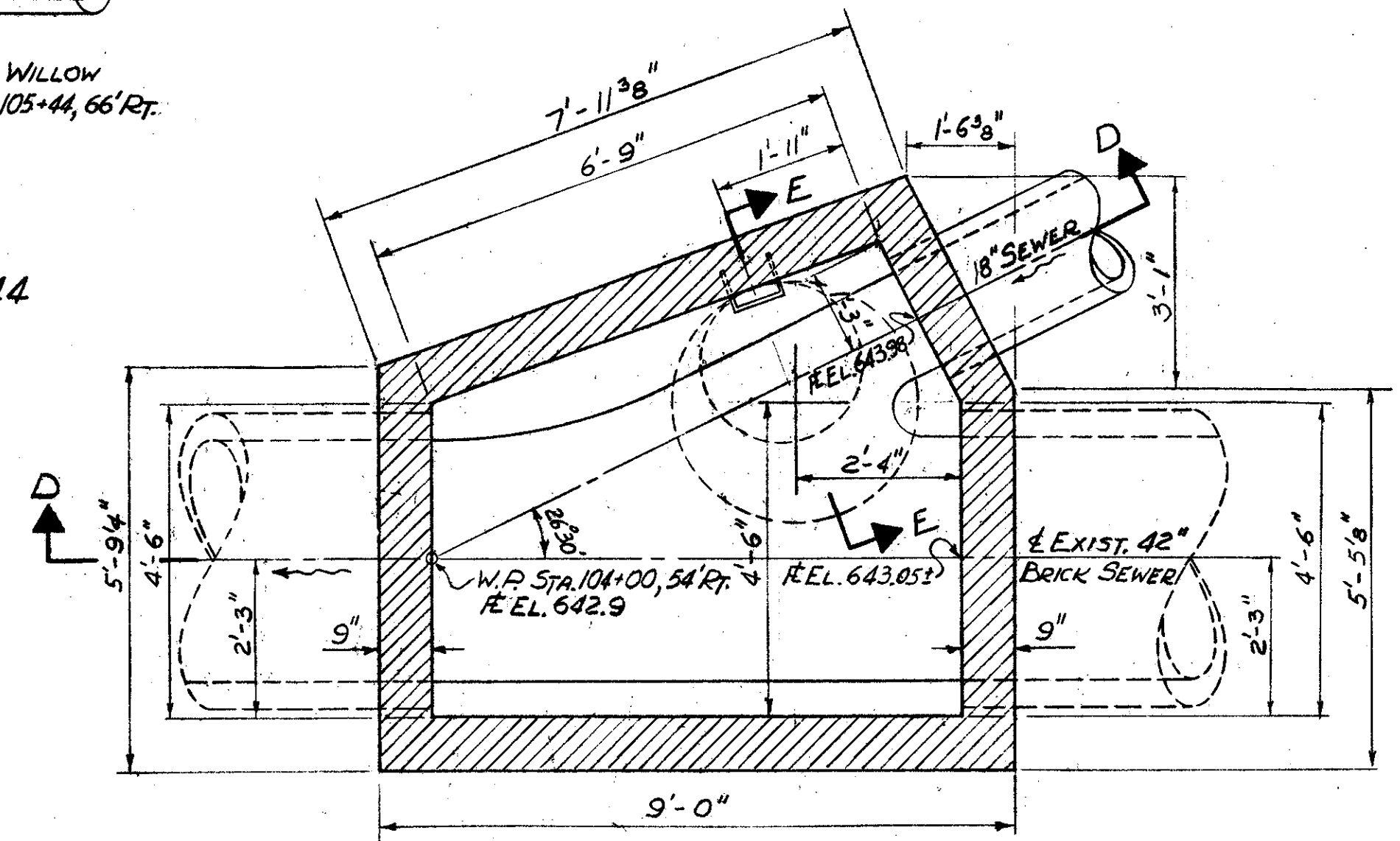
SECTION A-A



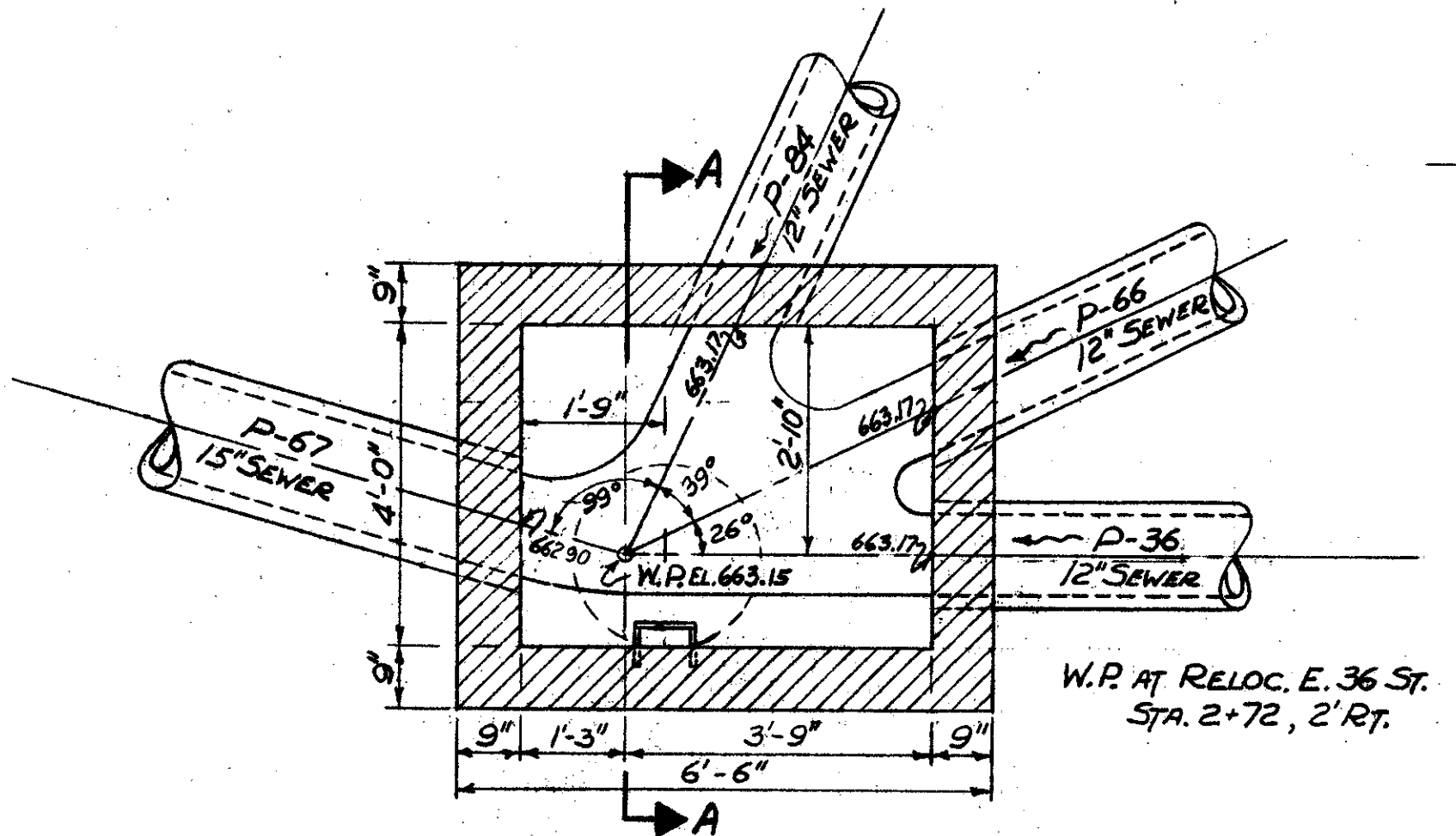
SECTION B-B



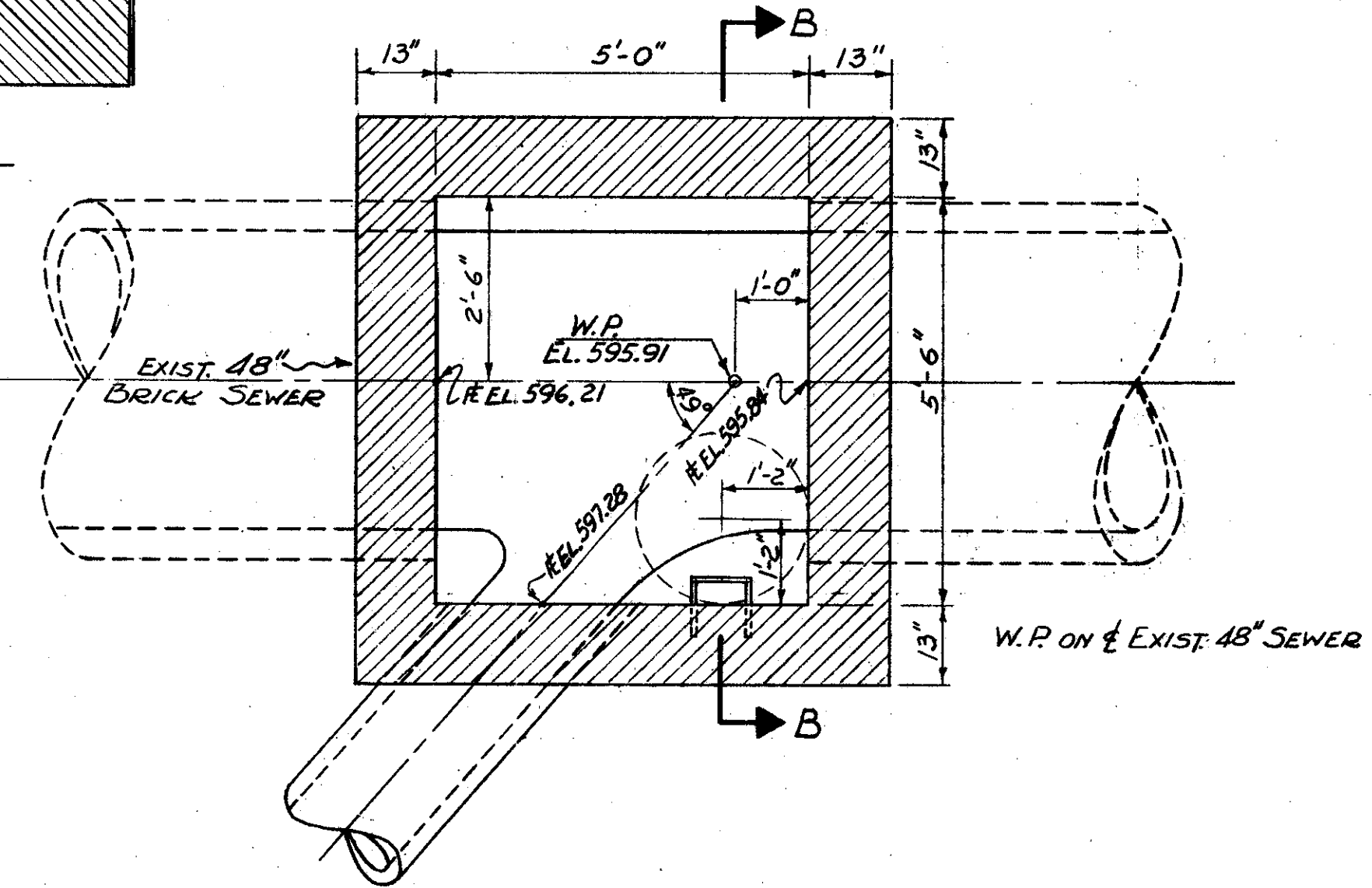
JUNCTION MANHOLE A-44
WILLOW STA. 105+44, 66' RT.
SCALE: 1/2" = 1'-0"



JUNCTION MANHOLE A-45
WILLOW STA. 104+00, 54' RT.
SCALE: 1/2" = 1'-0"



JUNCTION MANHOLE A-80
REL. E. 36 ST. STA. 2+72, 2' RT.



JUNCTION MANHOLE A-61
E. 37 ST. EXIST. 48" SEWER
SCALE: 1/2" = 1'-0"

SEE SHEET 24 FOR LEGEND

TRYGVE HOFF & ASSOCIATES
ENGINEERS
1922 EAST 107TH STREET CLEVELAND, OHIO

**SEWER PROFILES
AND
TYPICAL DETAILS**

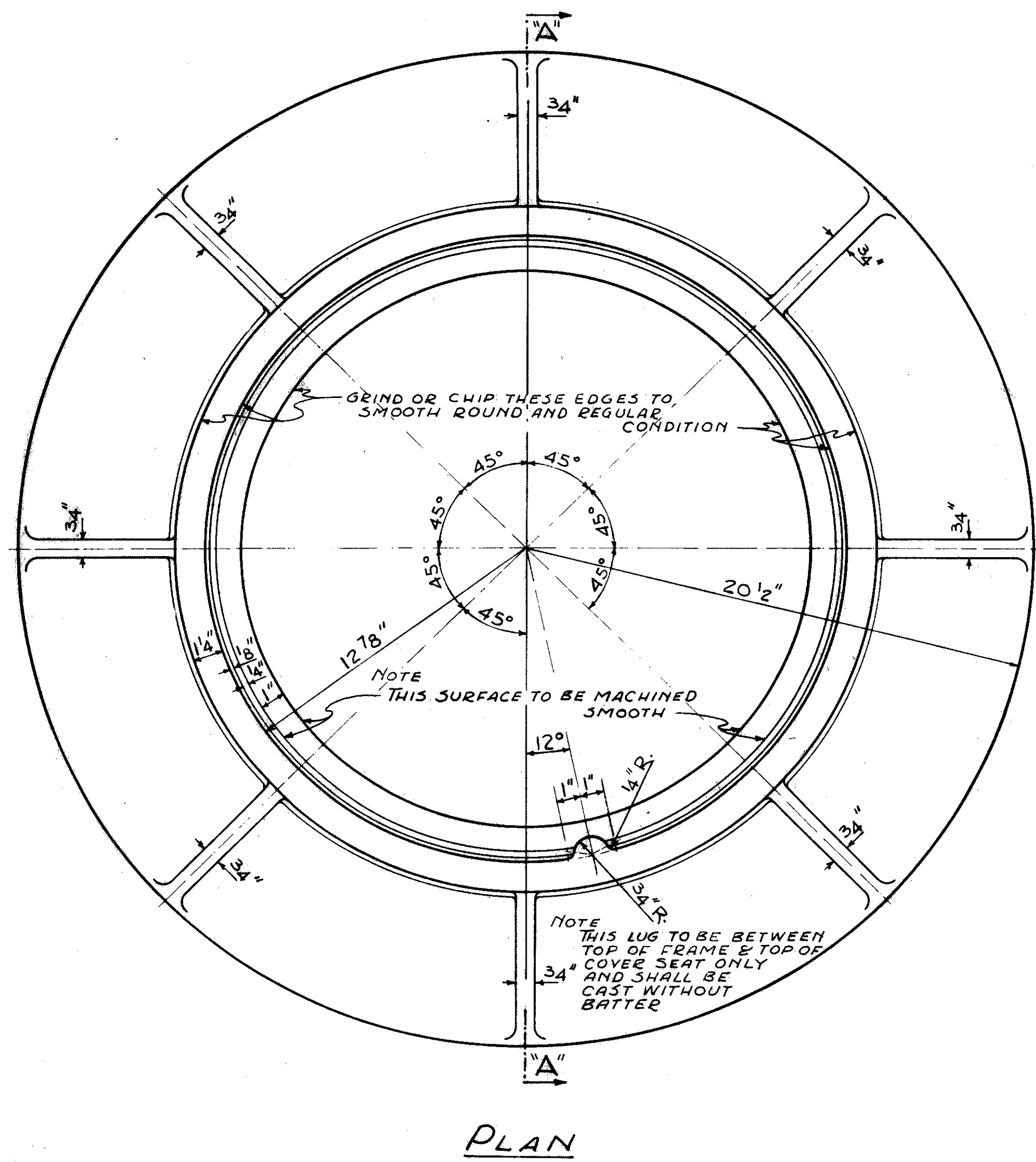
SCALE AS NOTED DATE
DESIGNED DRAWN TRACED CHECKED REVIEWED DATE REVISED
R.R. C.R. R.R. T.L.L. 7/18/62

TYPICAL DETAILS

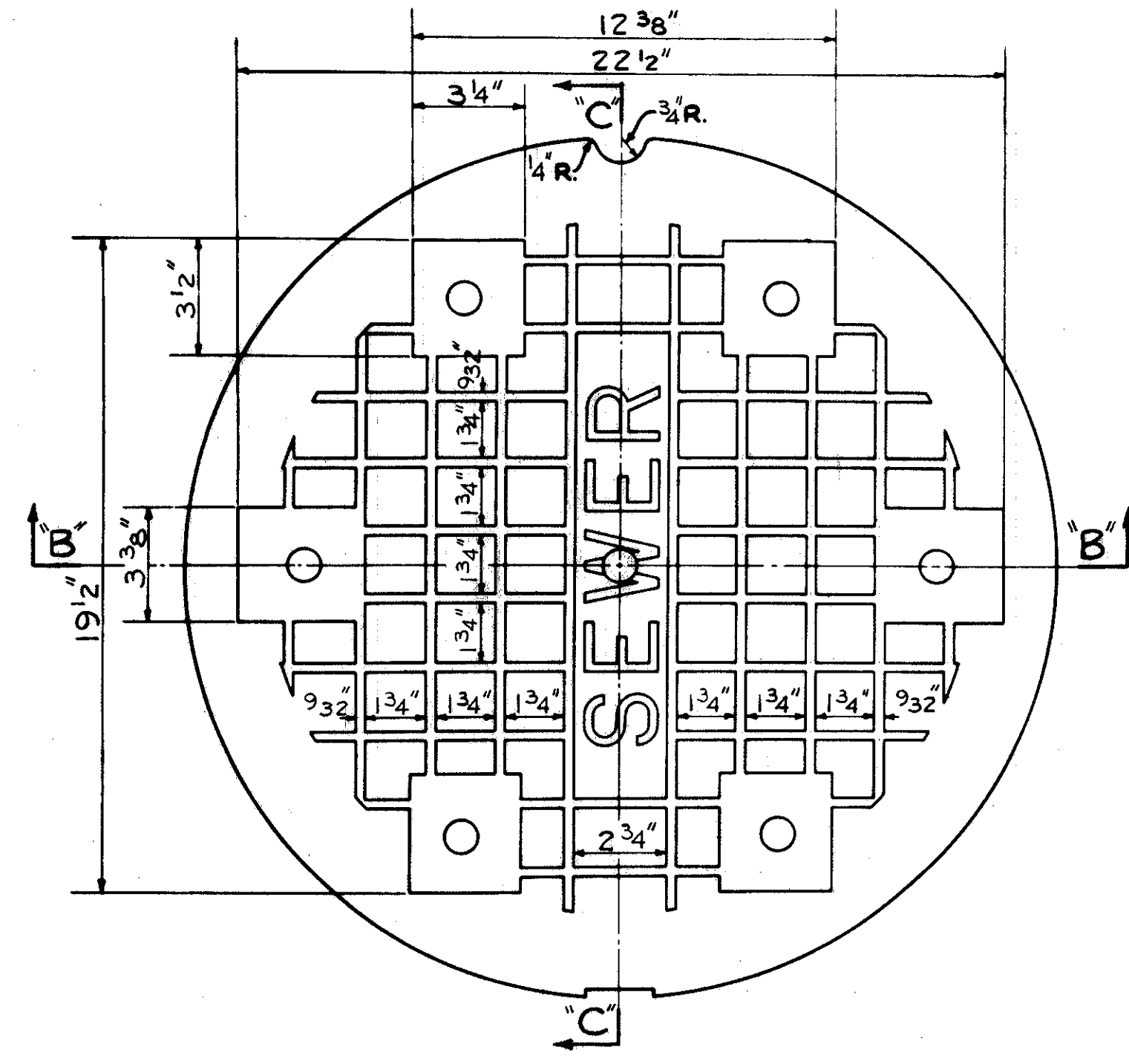
FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

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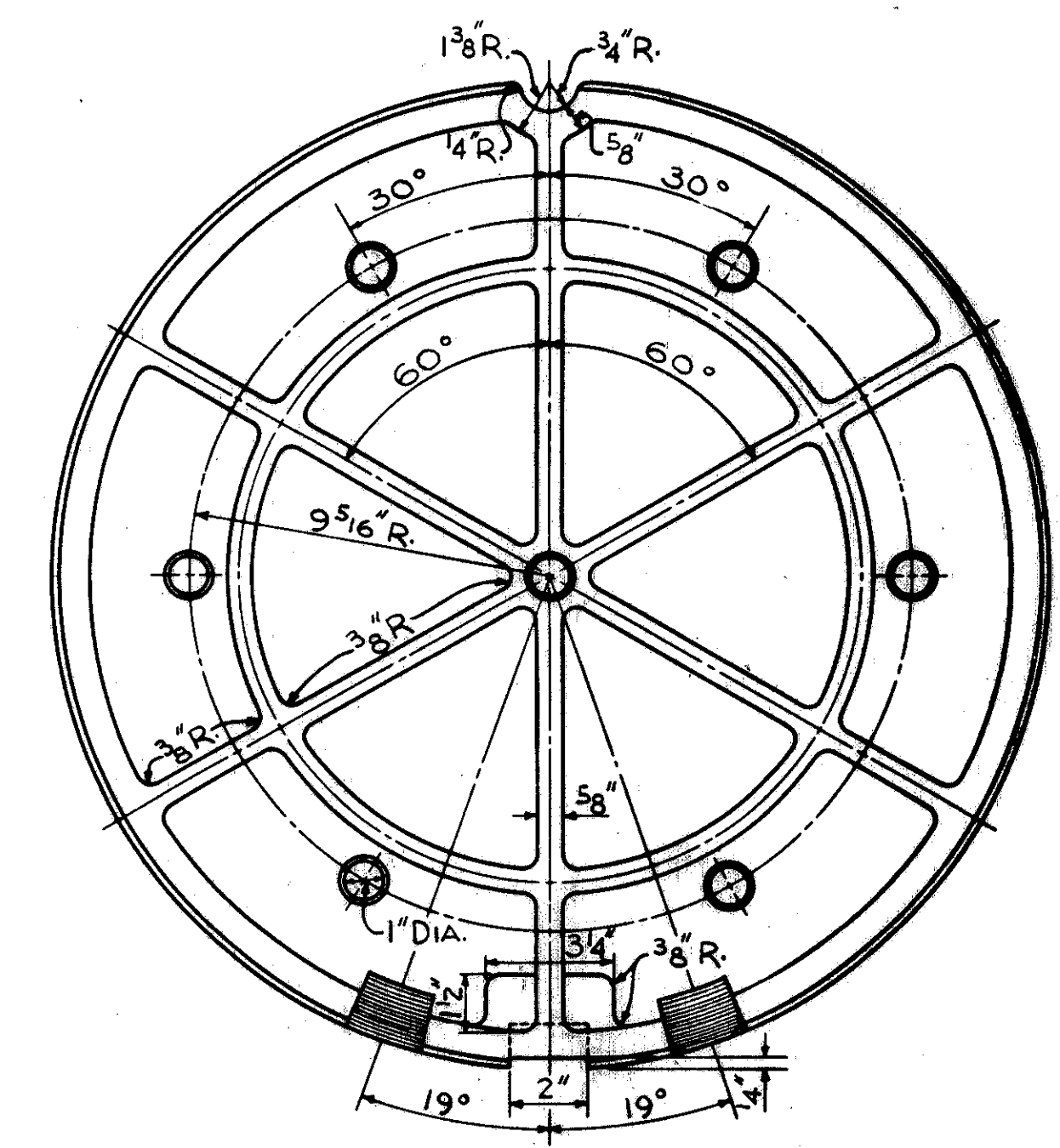
CUYAHOGA COUNTY
CUY-21-14.55



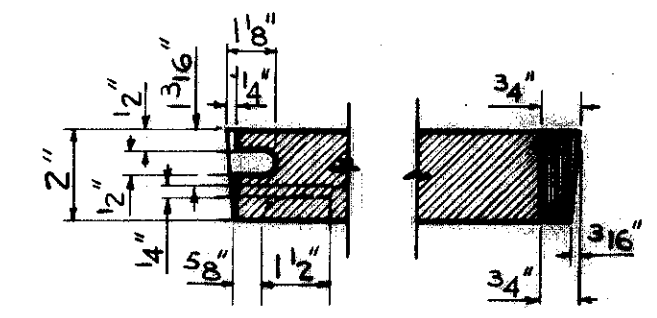
PLAN



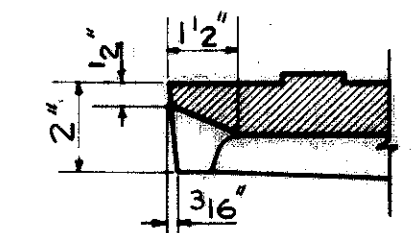
PLAN OF TOP



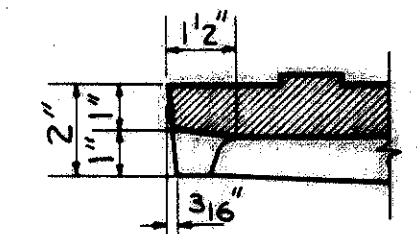
PLAN OF BOTTOM



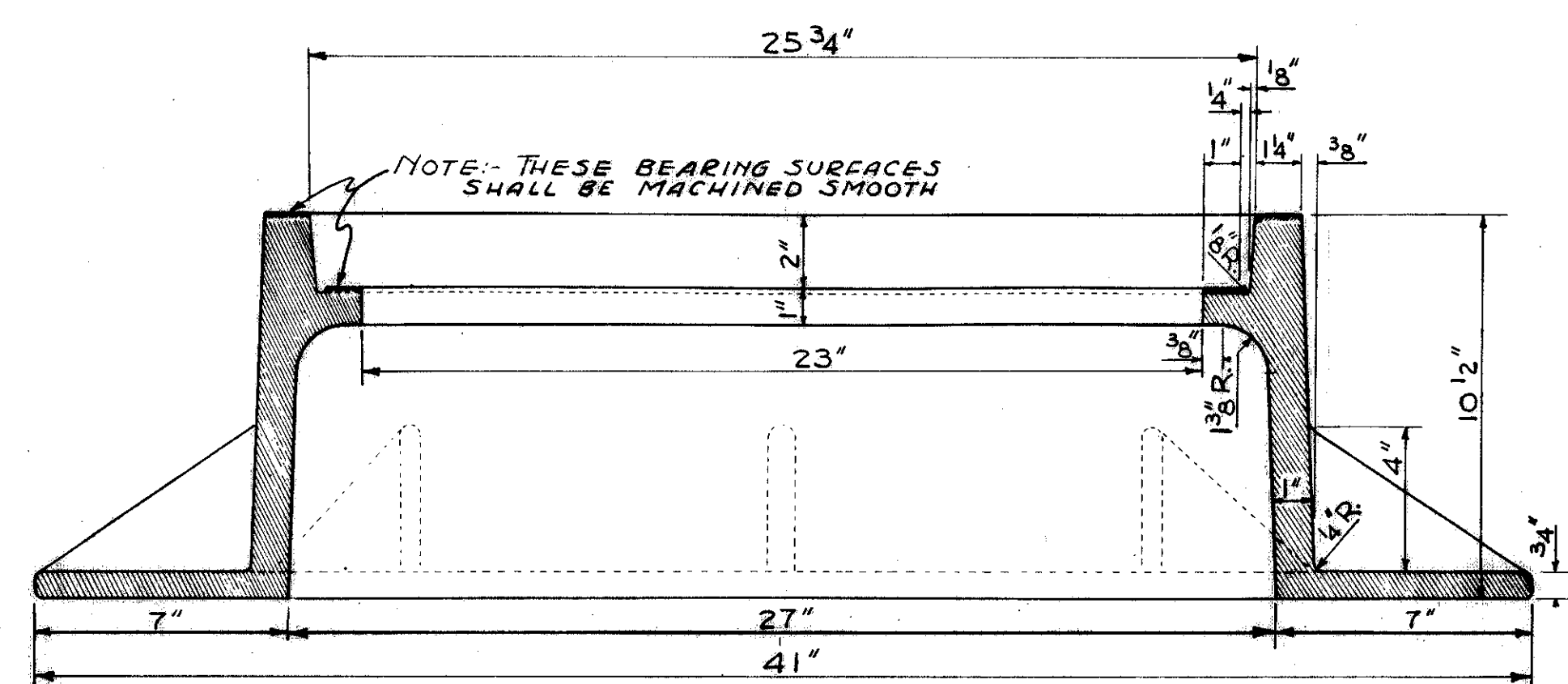
SECTION C



SECTION D

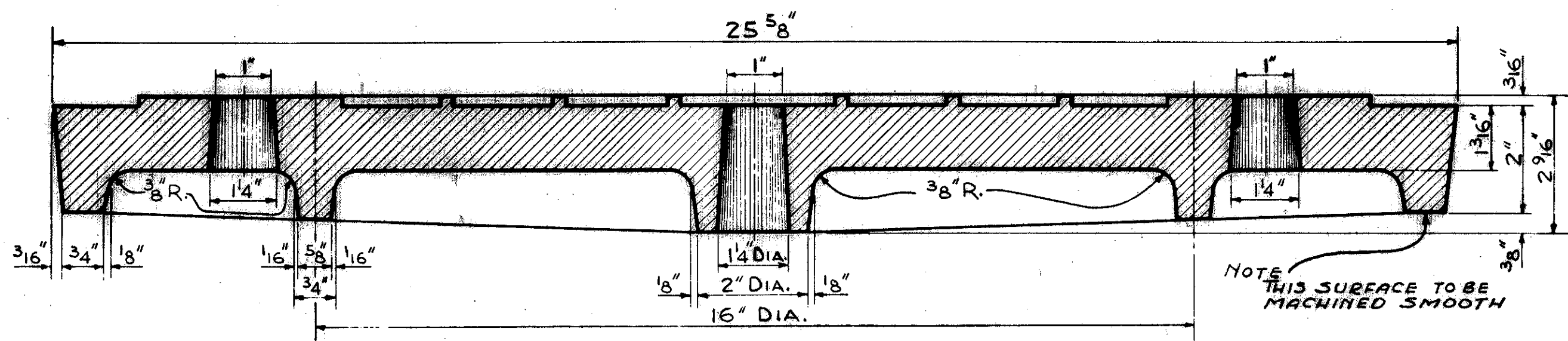


SECTION E



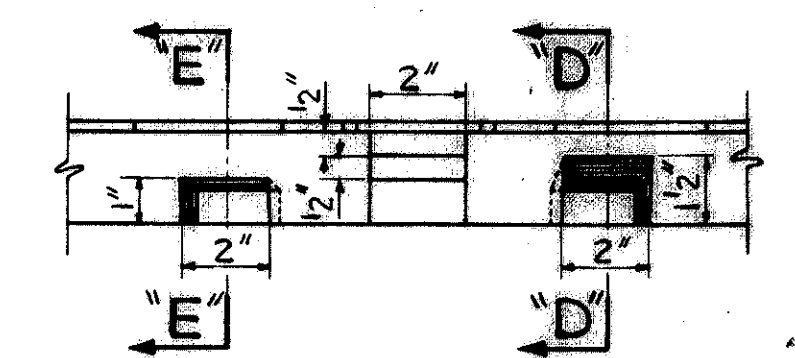
SECTION A

DETAIL OF CITY OF CLEVELAND STANDARD
MANHOLE FRAME
WEIGHT OF FRAME = 400 LBS.



SECTION B

DETAIL OF CITY OF CLEVELAND STANDARD
MANHOLE COVER
WEIGHT OF COVER = 195 LBS.



SIDE ELEVATION OF NOTCHES

CONT. No. 58019 SHEET ACCT. No. G144

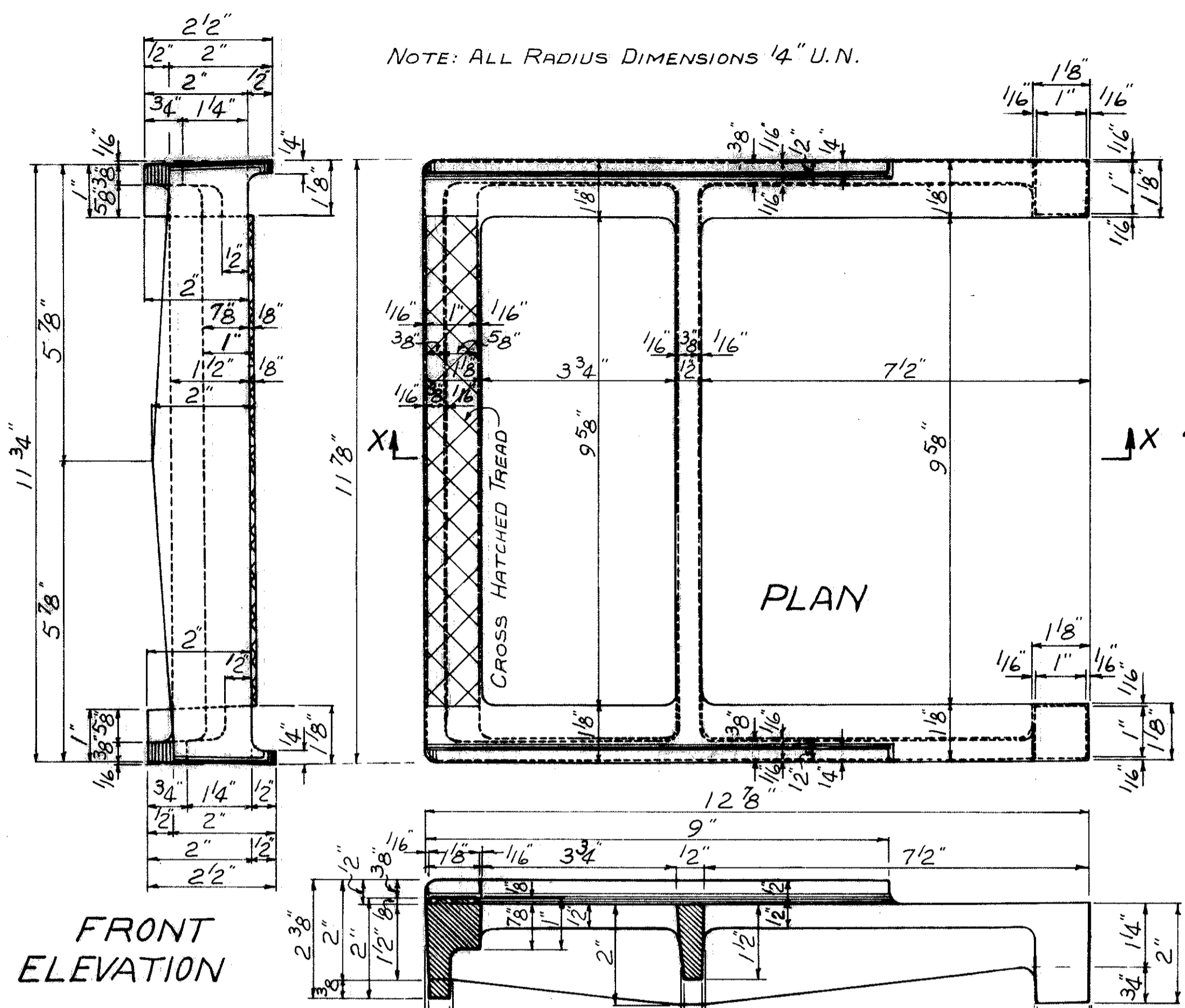
TRYGVE HOFF & ASSOCIATES
ENGINEERS
1922 EAST 107TH STREET CLEVELAND, OHIO

TYPICAL DETAILS

DATE NOV. 1918
BY J.W.P. T.L.L. 9/18/18

TYPICAL DETAILS

NOTE: ALL RADIUS DIMENSIONS 1/4" U.N.



FRONT ELEVATION

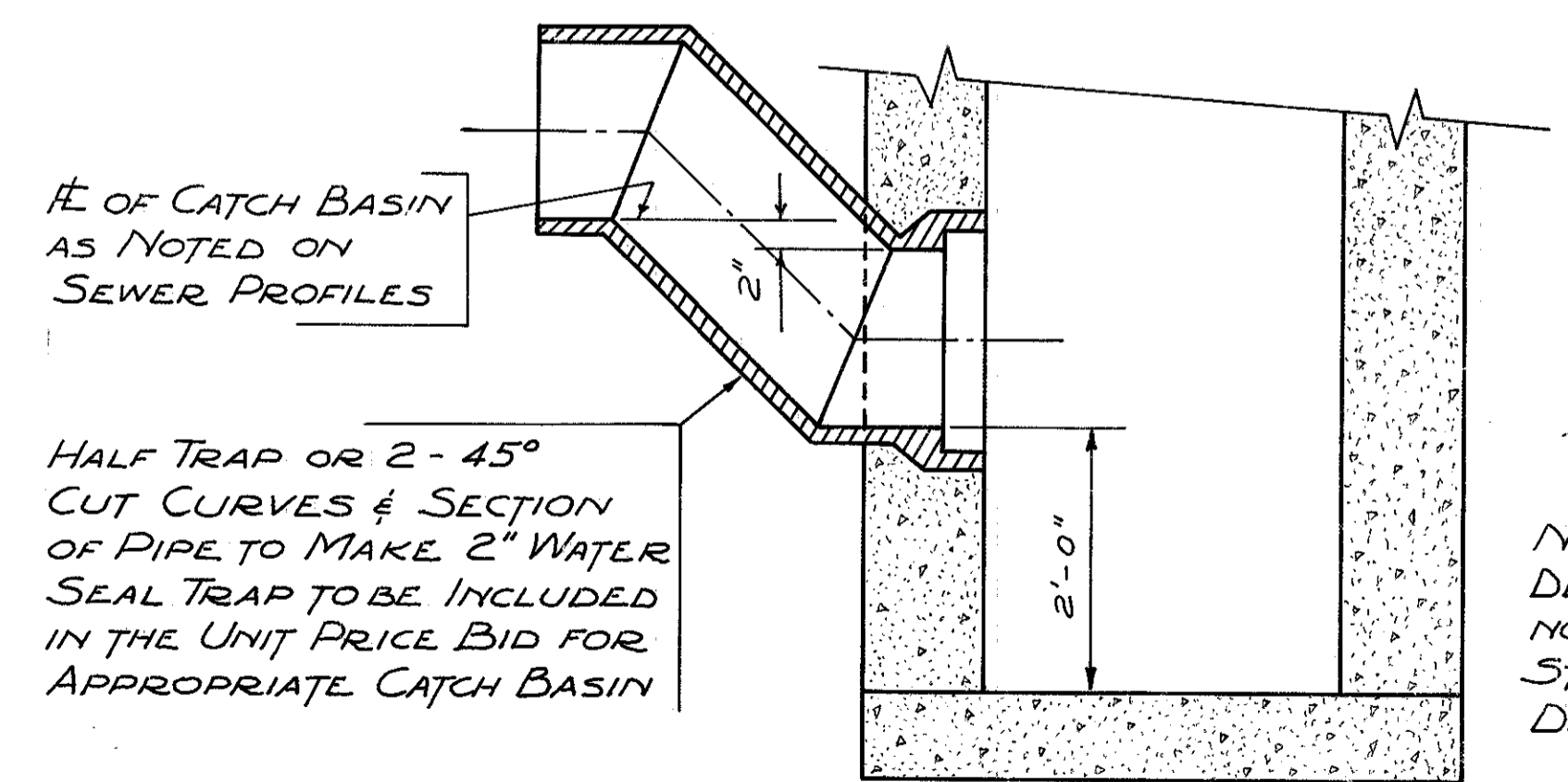
MATERIAL SPECIFICATIONS:-
Sec. O-7.33
CLASS N°30
GRAY IRON
APPROXIMATE WEIGHT 14 1/2 LBS.

SECTION X-X

DETAIL OF CITY OF CLEVELAND STANDARD CAST IRON MANHOLE STEP

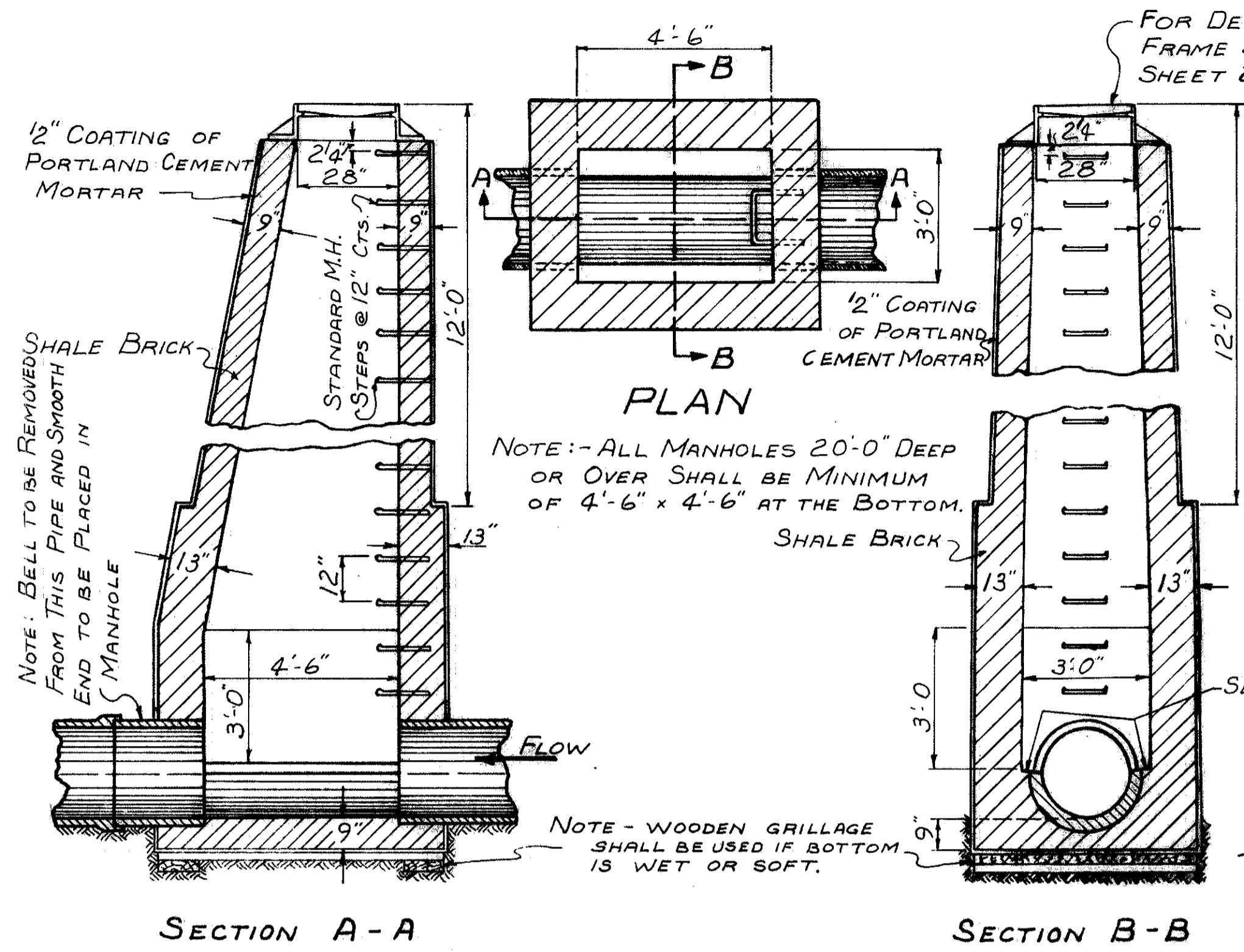
THE ABOVE IS A CITY OF CLEVELAND STANDARD AS SHOWN ON DWG. N° 104 ME (CITY OF CLEVELAND DWG.)

NOTE: THE ABOVE MANHOLE STEP IS TO BE USED IN ALL MANHOLES ON THIS PROJECT, INCLUDING OHIO HIGHWAY DEPARTMENT STANDARD MANHOLES.



DETAIL OF
STD. NO. 3 CATCH BASIN (MODIFIED)
STD. NO. 2-2-A CATCH BASIN (MODIFIED)

NOTE: FOR DIMENSIONS & DETAILS OF CATCH BASIN NOT SHOWN SEE APPROPRIATE STANDARD CONSTRUCTION DRAWING

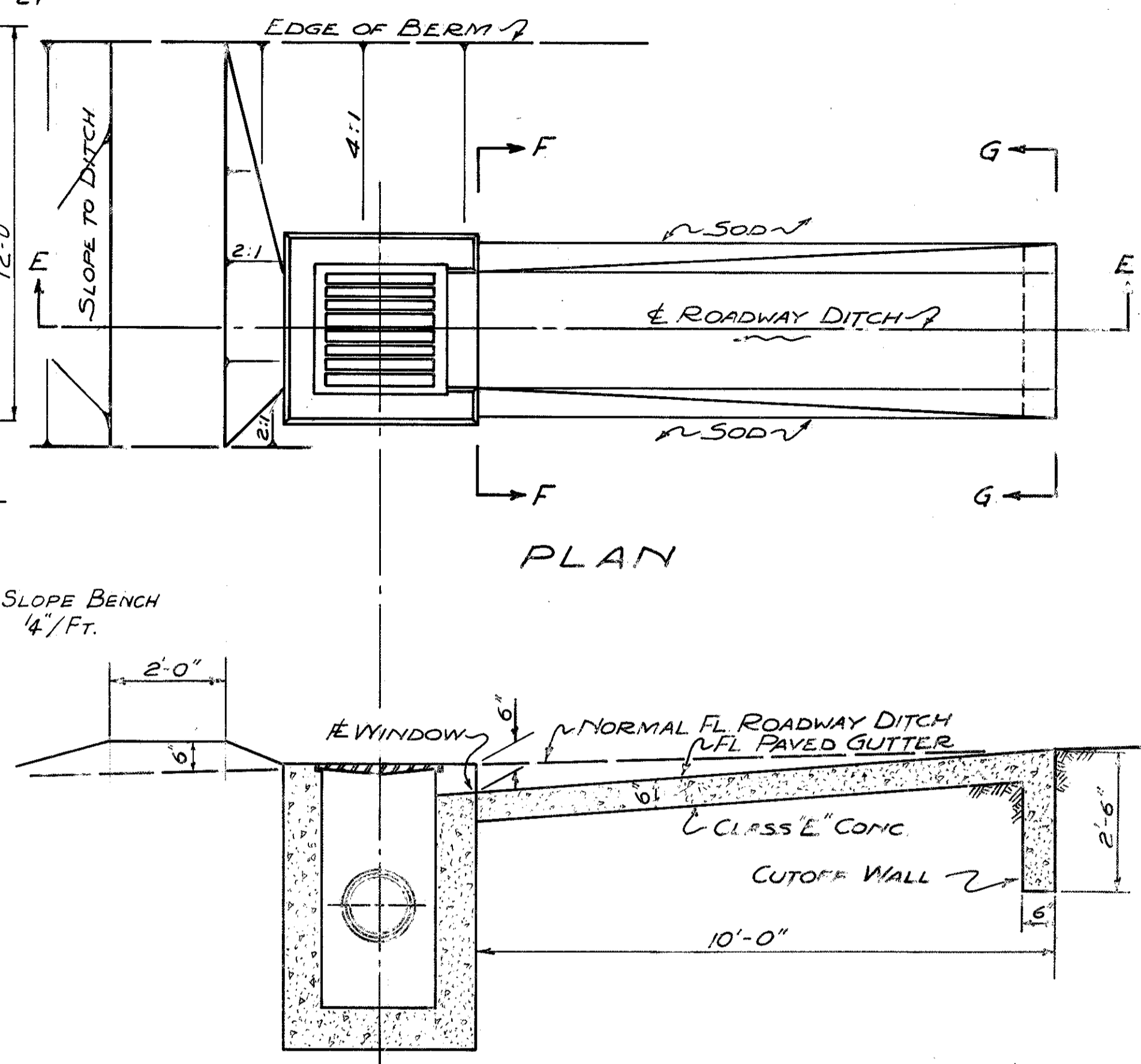


SECTION A-A

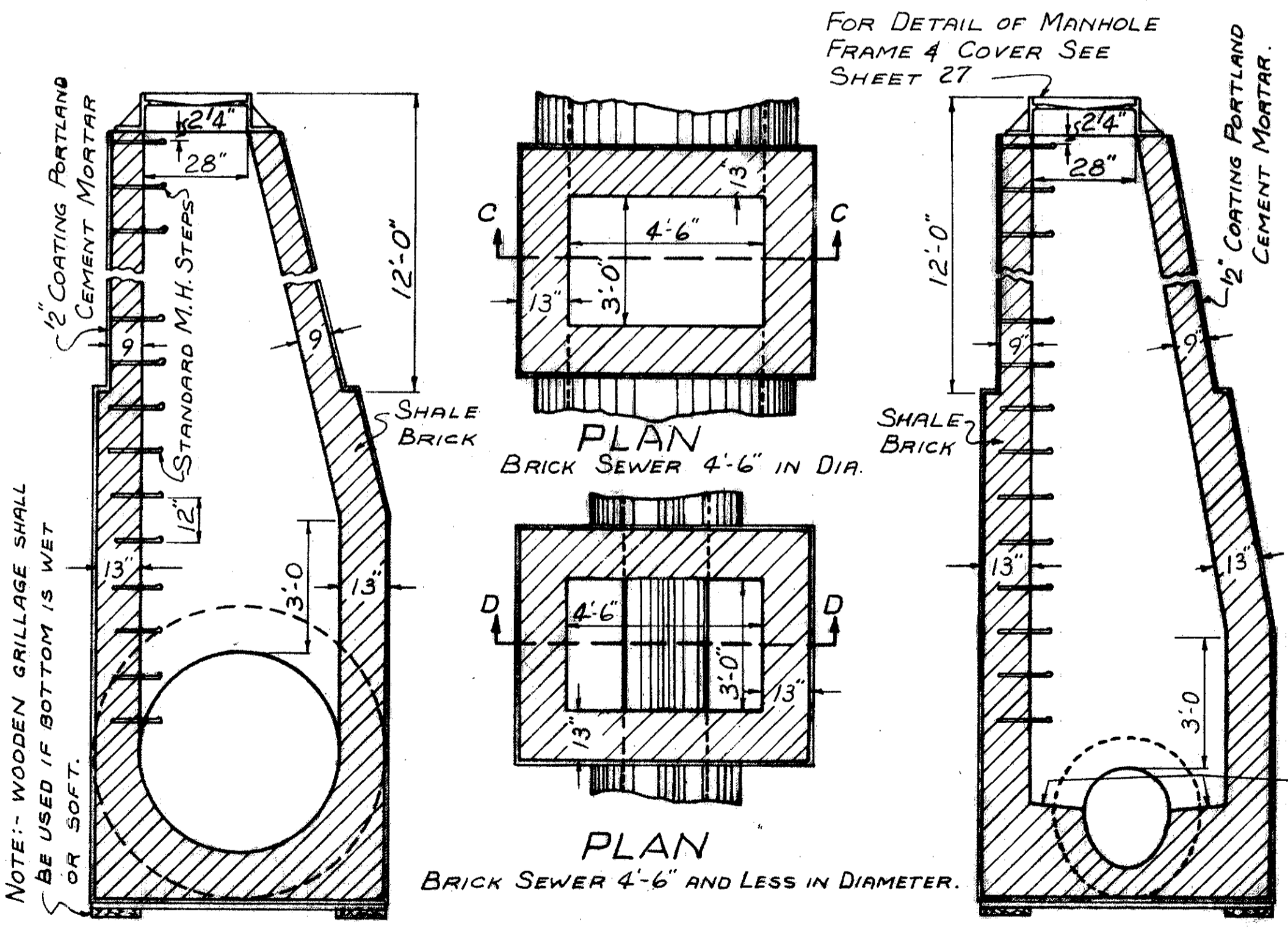
SECTION B-B

DETAIL OF SPECIAL MANHOLE TYPE A

NOTE: - ABOVE DETAIL IS CITY OF CLEVELAND STANDARD MANHOLE FOR PIPE SEWERS AS SHOWN ON FILE N° D51 (CITY OF CLEVELAND DWG.)



SECTION E-E

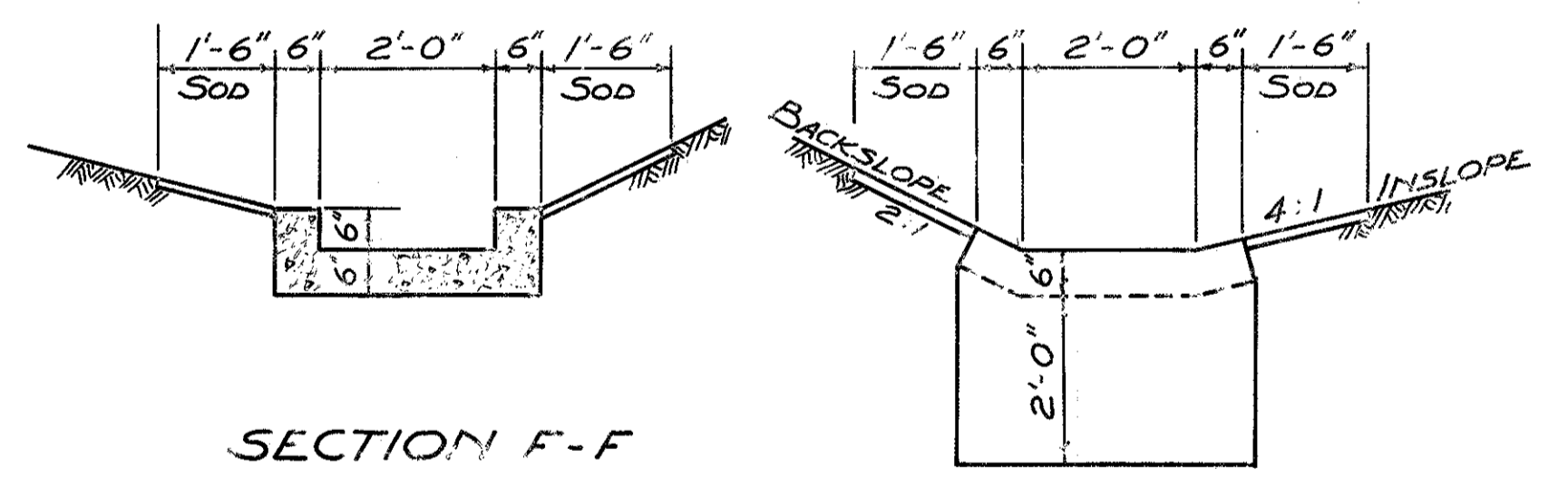


SECTION C-C

SECTION D-D

DETAIL OF SPECIAL MANHOLE TYPE B

NOTE: - ABOVE DETAIL IS CITY OF CLEVELAND STANDARD MANHOLE FOR BRICK SEWER 4'-6" DIA. OR LESS AS SHOWN ON FILE N° D-53 (CITY OF CLEVELAND DWG.)



SECTION F-F

SECTION G-G

DETAIL OF STANDARD No. 2-2-A CATCH BASIN AND PAVED GUTTER SPECIAL TYPE A AND DIKE

WATERWORK NOTES

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

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CUYAHOGA COUNTY
CUY-21-14.55

SCOPE OF WORK

THE WORK CONTEMPLATED UNDER THIS CONTRACT COMPRISES THE FURNISHING AND INSTALLING OF CEMENT LINED CAST IRON PIPE WITH ALL APPURTENANCES, COMPLETE IN ALL DETAILS, TESTED AND READY FOR OPERATION. THE CONTRACTOR SHALL DO ALL THE WORK AND FURNISH ALL THE LABOR AND MATERIALS NECESSARY FOR THE PROPER AND FINAL COMPLETION OF THIS CONTRACT IN THE MANNER AND UNDER THE CONDITIONS HEREIN SPECIFIED AND PROVIDED, AND IN ACCORDANCE WITH THE CONTRACT DRAWINGS.

ADDITIONAL WORK

(A) - ATTENTION IS CALLED TO THE FACT THAT THE WORK OF THIS CONTRACT INCLUDES CERTAIN PERFORMANCES AS INCIDENTAL TO THE ITEMIZED REQUIREMENTS HEREOF AND THOUGH NOT EXCLUSIVE AS FOLLOWS: TO PERFORM ALL EXCAVATION, BACKFILLING, SHEETING, SHORING, TEMPORARY AND FINAL REPAVING AND TO TEST THE INSTALLATION, SAND BACK-FILL SHALL BE PLACED UNDER EXISTING PAVEMENT AND SIDEWALK. FOR THE PERFORMANCES HEREIN DESCRIBED AND FOR OTHER INCIDENTAL PERFORMANCES OF LIKE NATURE, THE STATE WILL MAKE NO SPECIFIC OR SEPARATE PAYMENT OR ALLOWANCE, BUT THE COST THEREOF SHALL BE INCLUDED IN THE PRICES STIPULATED TO BE PAID FOR THE VARIOUS ITEMS OF THE WORK TO BE DONE UNDER THIS CONTRACT.

(B) - PRELIMINARY FLUSHING: BEFORE BEING PLACED IN SERVICE ALL DIRT AND FOREIGN MATTER SHALL BE REMOVED FROM THE NEW WATER MAIN OR EXTENSIONS TO EXISTING MAINS BY A THOROUGH FLUSHING THROUGH THE HYDRANTS OR BY OTHER APPROVED MEANS. EACH VALVED SECTION OF NEWLY LAID PIPE SHALL BE FLUSHED INDEPENDENTLY. THIS SHALL BE DONE AFTER THE PRESSURE TEST AND MAY BE DONE BEFORE OR AFTER THE TRENCH SHALL HAVE BEEN BACKFILLED.

(C) - CHLORINATION: FOLLOWING PRELIMINARY FLUSHING, THE NEWLY LAID WATER PIPE SHALL BE CHLORINATED. THE PROCESS OF CHLORINATING, THE METHOD OF PROCEDURE, THE CHLORINATING AGENT, AND THE RATE OF APPLICATION SHALL BE DETERMINED BY THE ENGINEER. THE CITY OF CLEVELAND WILL FURNISH THE NECESSARY LABOR AND MATERIAL REQUIRED FOR SUCH CHLORINATION AND INSTALL THE NECESSARY TAPS AT THE ENDS OF THE WATER MAIN SECTIONS TO BE CHLORINATED. THE CONTRACTOR SHALL PAY FOR CHLORINATION OR SAMPLING OF THE WATER AT THE RATE OF TEN CENTS (10) PER LINEAR FOOT FOR THE FIRST THOUSAND FEET, AND FIVE CENTS (5) PER FOOT THEREAFTER OF THE WATER MAIN PROPER, WITH A MINIMUM CHARGE OF ONE HUNDRED DOLLARS (\$100.00). THE CONTRACTOR SHALL FURNISH THE NECESSARY LABOR FOR EXCAVATING AND BACKFILLING WHICH WILL BE REQUIRED FOR THE INSTALLATION OF TAPS FOR INJECTING THE CHLORINE SOLUTION, OPERATING PUMPS AND FLUSHING MAINS. IN CASES WHERE THE WATER MAIN INSTALLATION DOES NOT EXCEED 350 FEET IN LENGTH, THE CONTRACTOR SHALL PAY A MINIMUM CHARGE OF THIRTY-FIVE DOLLARS (\$35.00) FOR FLUSHING AND SAMPLING WATER.

(D) - FINAL FLUSHING AND TEST: FOLLOWING CHLORINATION, ALL TREATED WATER SHALL BE THOROUGHLY FLUSHED FROM THE NEWLY LAID PIPE AT ITS EXTREMITIES UNTIL THE REPLACEMENT WATER THROUGHOUT ITS LENGTH SHALL, UPON TEST, BOTH CHEMICALLY AND BACTERIOLOGICALLY, BE PROVEN EQUAL TO THE WATER QUALITY SERVED THE PUBLIC FROM THE EXISTING WATER SUPPLY SYSTEM.

(E) - FOR THE PERFORMANCES DESCRIBED IN PARAGRAPHS B, C AND D, THE STATE WILL MAKE NO SPECIFIC OR SEPARATE PAYMENT OR ALLOWANCES, BUT THE COST THEREOF SHALL BE INCLUDED IN THE PRICES STIPULATED TO BE PAID FOR EACH LINEAR FOOT OF PIPE FURNISHED AND INSTALLED.

PAINTING

(A) - IT IS THE INTENTION OF THESE SPECIFICATIONS TO PROVIDE THAT ALL METAL WORK SUBJECT TO CORROSION SHALL BE SATISFACTORILY PROTECTED BY A DURABLE COATING OF PAINT OR OTHER APPROVED MATERIAL AND THAT ALL METAL SURFACES NOT BURIED IN EARTH, OR IN CONCRETE SHALL BE LEFT CLEAR AND WELL PAINTED AT THE COMPLETION OF THE CONTRACT. UNLESS OTHERWISE SPECIFIED, THE PROTECTION SHALL BE AT LEAST THAT GIVEN BY THREE (3) COATS OF APPROVED PAINT. THE FIRST COAT IS TO BE APPLIED AT THE SHOP BEFORE THE METAL HAS RUSTED AND AFTER ALL GREASE, DIRT AND SCALE HAS BEEN REMOVED. BOLTS AND NUTS SHALL NOT BE SHOP COATED, BUT SHALL RECEIVE THREE (3) COATS OF APPROVED PAINT AFTER INSTALLATION.

(B) - ALL METAL WORK WHICH HAS NOT BEEN COATED BEFORE THE ARRIVAL ON THE JOB SHALL BE GIVEN A TEMPORARY PROTECTIVE COATING OF SUCH A NATURE AS TO PERMIT THE READY ADHERENCE OF FUTURE COATINGS. THE TEMPORARY COATING SHALL BE A GOOD GRADE ASPHALTIC PAINT OR OTHER APPROVED MATERIAL. THIS TEMPORARY PROTECTION SHALL APPLY PARTICULARLY TO THE FOLLOWING MATERIAL, AND ELSEWHERE WHEN IN THE OPINION OF THE ENGINEER, SUCH PROTECTION IS NECESSARY.

MANHOLE RINGS AND COVERS
LADDERS AND LADDER RUNGS
VALVE BOXES AND COVERS
VICTAULIC TYPE COUPLINGS
DRESSER TYPE COUPLINGS

(C) - ALL SURFACES OF METAL WHICH WILL BE IN CONTACT AFTER ASSEMBLING SHALL BE

PAINTED, AT LEAST ONE COAT, BEFORE ASSEMBLING. THE FINAL COAT OF PAINT ON ALL EXPOSED WORK SHALL BE GIVEN SHORTLY BEFORE THE COMPLETION OF THE CONTRACT.

(D) - WHERE PAINTING CLAUSES APPEAR HEREINAFTER, THEY SHALL TAKE PRECEDENCE OVER THIS SECTION, EXCEPT THAT TEMPORARY PROTECTION HEREIN DESCRIBED MAY BE REQUIRED.

(E) - ALL OF THIS WORK SHALL BE INCLUDED IN THE PRICE BID FOR THE PARTICULAR ITEM REQUIRING THE PAINTING.

TESTS, INSPECTION AND REPORTS

THE CONTRACTOR SHALL PROVIDE AND PAY THE COST OF SHOP INSPECTION OF ALL MATERIALS. THIS INSPECTION SHALL BE DONE BY A RECOGNIZED INSPECTION LABORATORY APPROVED BY THE CITY OF CLEVELAND.

WORK TO BE DONE BY THE CITY

(A) - THE CLEVELAND WATER DEPARTMENT WILL FURNISH THE PIPING MATERIAL FOR AND MAKE ALL CHANGES REQUIRED IN THE LOCATION OF EXISTING HOUSE SERVICE CONNECTIONS AND METERS BUT THE CONTRACTOR SHALL DO ALL THE NECESSARY EXCAVATION, BACKFILLING AND REPAVING REQUIRED THEREFOR AND THE CITY WILL CHARGE THE CONTRACTOR FOR MATERIALS AND LABOR FURNISHED IN MAKING THESE SERVICE CONNECTIONS AND ALTERATIONS AND COSTS THEREOF SHALL BE INCLUDED IN THE UNIT PRICE BID FOR "SERVICE CONNECTIONS" OR "WATER METERS RELOCATED".

(B) - THE CLEVELAND WATER DEPARTMENT WILL INSTALL ALL BRANCH SLEEVES AND VALVES, BUT THE CONTRACTOR SHALL SUPPLY THE BRANCH SLEEVES AND VALVES, LEAD, AND DO ALL THE NECESSARY EXCAVATION, BACKFILLING AND REPAVING REQUIRED THEREFOR.

TO COVER LABOR AND INSTALLATION COSTS, THE CITY WILL CHARGE THE FOLLOWING FLAT RATES FOR THE INSTALLATION OF TAPPING SLEEVES AND VALVES. IN ADDITION TO THE ABOVE REQUIREMENTS, THE CONTRACTOR SHALL FURNISH ALL AIR COMPRESSORS REQUIRED FOR THE WORK.

SIZE OF MAIN	LABOR AND INSTALLATION BY CITY
6"	130.00
8"	140.00
10"	150.00
12"	160.00
16"	260.00
20"	310.00
24"	410.00
30"	500.00
36"	560.00

(C) - IN LOCATIONS WHERE BRANCH SLEEVES AND VALVES CANNOT BE INSTALLED, THE CONTRACTOR WILL BE REQUIRED TO CUT IN TEES AND SLEEVE-IN THE REMAINDER OF THE CUT SECTION OF THE EXISTING MAIN. TO SPEED UP THIS OPERATION, IT IS CALLED TO THE CONTRACTOR'S ATTENTION THAT THE WATER DEPARTMENT HAS ON HAND AT HARVARD YARDS MOTOR OPERATED PIPE CUTTERS WHICH ARE AVAILABLE FOR CUTTING PIPE BY CITY FORCES AT THE FOLLOWING RATES. THESE PRICES INCLUDE COST OF LABOR, USE OF PIPE CUTTING MACHINE, AND TRUCK. THE CONTRACTOR SHALL DO ALL NECESSARY EXCAVATION, BACKFILLING AND REPAVING AND ALL AIR COMPRESSOR EQUIPMENT SHALL BE FURNISHED BY THE CONTRACTOR.

SIZE OF PIPE	COST PER CUT
12"	\$ 30.00
16"	35.00
20"	45.00
24"	60.00
30"	80.00
36"	100.00
42"	120.00
48"	150.00

CHANGES IN WATER PIPES

(A) - WHEREVER IT BECOMES NECESSARY IN THE OPINION OF THE DIRECTOR OF PUBLIC UTILITIES OF THE CITY OF CLEVELAND TO CHANGE THE LOCATION OF HOUSE CONNECTIONS, SUCH CHANGES WILL BE MADE BY THE CITY AT NO EXPENSE TO THE CONTRACTOR. THE CONTRACTOR SHALL NOTIFY THE CITY IN AMPLE TIME TO PERMIT THE CITY TO MAKE SUCH CHANGES AND AVOID UNNECESSARY DELAY IN THE COMPLETION OF THE WORK. THE CONTRACTOR SHALL ALSO COOPERATE WITH THE CITY IN MAKING THESE CHANGES AND SHALL DO ALL EXCAVATING, BACKFILLING AND REPAVING AS MAY BE REQUIRED. PAYMENT FOR THIS WILL BE INCLUDED IN THE PRICE BID PER FOOT FOR THE SIZE OF MAIN BEING INSTALLED.

(B) - WHEREVER IT BECOMES NECESSARY, IN THE OPINION OF THE ENGINEER TO CHANGE THE LOCATION OR ELEVATION OF WATER MAINS AND HYDRANTS AND WHERE CONNECTIONS ARE TO BE MADE BETWEEN EXISTING DISTRIBUTION MAINS AND WATER MAINS UNDER THIS CONTRACT, THE CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL EXISTING WATER LINE MATERIALS REQUIRED TO MAKE THE CONNECTION, AND SHALL FURNISH AND INSTALL COMPLETE, ALL THE CAST IRON PIPE, FITTINGS AND VALVES TO MAKE THE CONNECTIONS INDICATED EXCEPT BRANCH SLEEVES AND VALVES WHICH WILL BE INSTALLED BY THE CITY. THE CONTRACTOR SHALL ALSO FURNISH ALL NECESSARY LABOR, MATERIALS, TOOLS AND EQUIPMENT AND MAKE THE EXCAVATION, BACKFILL AND REPAVING FOR SUCH CONNECTIONS. PAYMENT FOR THIS WILL BE INCLUDED IN PRICE BID UNDER APPROPRIATE ITEM FOR SIZE OF WATER MAIN OR CONNECTION TO BE INSTALLED.

HANDLING PIPE AND ACCESSORIES

(A) - UNLOADING: CAST IRON PIPE, FITTINGS, VALVES, HYDRANTS, AND OTHER ACCESSORIES SHALL, UNLESS OTHERWISE DIRECTED, BE UNLOADED AT THE POINT OF DELIVERY, HAULED TO AND DISTRIBUTED AT THE SITE OF THE PROJECT BY THE CONTRACTOR; THEY SHALL AT ALL TIMES BE HANDLED WITH CARE TO AVOID DAMAGE. IN LOADING AND UNLOADING THEY SHALL BE LIFTED BY HOISTS OR SLID, OR ROLLED ON SKIDWAYS IN SUCH MANNER AS TO AVOID SHOCK. UNDER NO CIRCUMSTANCES SHALL THEY BE DROPPED. PIPE HANDLED ON SKIDWAYS MUST NOT BE SKIDDED OR ROLLED AGAINST PIPE ALREADY ON THE GROUND.

(B) - AT SITE OF WORK: IN DISTRIBUTING THE MATERIAL AT THE SITE OF THE WORK, EACH PIECE SHALL BE UNLOADED OPPOSITE OR NEAR THE PLACE WHERE IT IS TO BE LAID IN THE TRENCH.

(C) - PROTECTION OF PIPE COATING: PIPE SHALL BE HANDLED IN SUCH MANNER THAT A MINIMUM AMOUNT OF DAMAGE TO THE COATING WILL RESULT. ANY CAST IRON PIPE OR FITTING, THE COATING OF WHICH HAS BEEN DAMAGED IN SHIPPING OR HANDLING, SHALL HAVE THE DAMAGED PORTION WELL CLEANED AND COVERED WITH AN ASPHALT PAINT, APPROVED BY THE ENGINEER, BEFORE BEING PLACED IN THE WORK. THE CONTRACTOR SHALL THOROUGHLY COAT ALL EXPOSED PARTS OF BOLTS AND NUTS WITH AN APPROVED ASPHALT PAINT, AFTER ALL PIPE HAS BEEN LAID AND BEFORE BACKFILLING HAS BEEN PLACED. ALL FIELD COATING SHALL BE FURNISHED BY THE CONTRACTOR.

(D) - PIPE KEPT CLEAN: THE INTERIOR OF THE PIPE, FITTINGS AND OTHER ACCESSORIES SHALL BE KEPT FREE FROM DIRT AND FOREIGN MATTER AT ALL TIMES.

(E) - FROST PROTECTION: VALVES AND HYDRANTS BEFORE INSTALLATION SHALL BE DRAINED AND STORED IN A MANNER THAT WILL PROTECT THEM FROM DAMAGE BY FREEZING.

EXCAVATION

(A) - THE CONTRACTOR SHALL REMOVE ALL EXISTING STRUCTURES, ROADWAYS, DRIVEWAYS AND OTHER SIMILAR MATERIALS AND MAKE TO THE LINES AND GRADES GIVEN, ALL EXCAVATION NECESSARY FOR THE PROPER CONSTRUCTION OF THE WATER MAIN, PIPE CONNECTIONS AND APPURTENANT STRUCTURES INCLUDING TUNNEL AND SHAFT EXCAVATION. THE EXCAVATION SHALL INCLUDE THE REMOVAL, HANDLING, REHANDLING AND DISPOSAL OF MATERIALS ENCOUNTERED IN THE WORK AND SHALL INCLUDE ALL PUMPING, BAILING, DRAINING, SHEETING AND BRACING. MOREOVER, THE CONTRACTOR MUST ASSUME ALL RESPONSIBILITY FOR ANY ADDED EXPENSE OR OTHER LIABILITY WHICH MAY ARISE BY MEANS OF QUICKSAND, OBSTACLES OR CONDITIONS FORE-SEEN OR UNFORESEEN AND ENCOUNTERED IN THE WORK OF THIS CONTRACT.

(B) - TRENCHES SHALL IN EVERY CASE BE OF SUFFICIENT WIDTH TO PERMIT SOLID PACKING OF REFILL UNDER AND AROUND PIPES, AND SATISFACTORY CONSTRUCTION OF ALL APPURTENANCES AND FOR SUCH SHEETING AND SHORING, PUMPING AND DRAINING AS MAY BE NECESSARY.

(C) - ALL SURFACING MATERIAL WITHIN THE LOCATION OF THE WORK, INCLUDING LOAM, SOD, STONE SIDEWALKS, ETC., SHALL BE REMOVED AND KEPT SEPARATE, TO BE AGAIN USED FOR SIDEWALKS OR GROUNDS, AS DIRECTED BY THE ENGINEER.

(D) - THE TRENCH SHALL BE DUG TO THE ALIGNMENT AND DEPTH REQUIRED AND ONLY SO FAR IN ADVANCE OF PIPE LAYING AS THE ENGINEER SHALL PERMIT. THE TRENCH SHALL BE SO BRACED AND DRAINED THAT WORKMEN MAY WORK THEREIN SAFELY AND EFFICIENTLY. IT IS ESSENTIAL THAT THE DISCHARGE FROM PUMPS BE LED TO NATURAL DRAINAGE CHANNELS, TO DRAINS, OR TO SEWERS.

(E) - THE TRENCH WIDTH MAY VARY WITH AND DEPEND UPON THE DEPTH OF TRENCH AND THE NATURE OF THE EXCAVATED MATERIAL ENCOUNTERED; BUT IN ANY CASE SHALL BE OF AMPLE WIDTH TO PERMIT THE PIPE TO BE LAID AND JOINTED PROPERLY AND OF THE BACKFILL TO BE PLACED AND COMPACTED PROPERLY. THE MINIMUM WIDTH OF UNSHEETED TRENCH SHALL BE EIGHTEEN (18) INCHES AND FOR PIPE TEN (10) INCHES OR LARGER, AT LEAST TWELVE (12) INCHES LARGER THEN THE OUTSIDE DIAMETER OF THE PIPE FOR CONCRETE PIPE AND EIGHTEEN (18) INCHES FOR CAST IRON AND STEEL PIPE, EXCEPT BY CONSENT OF THE ENGINEER; THE MAXIMUM CLEAR WIDTH OF TRENCH SHALL BE NOT MORE THAN TWO (2) FEET GREATER THAN THE OUTSIDE PIPE DIAMETER. WHEN SHEETING AND BRACING IS USED, THE TRENCH WIDTH SHALL BE INCREASED ACCORDINGLY.

(F) - THE TRENCH, UNLESS OTHERWISE SPECIFIED, SHALL HAVE A FLAT BOTTOM CONFORMING TO THE GRADE TO WHICH THE PIPE IS TO BE LAID. THE PIPE SHALL BE LAID UPON SOUND SOIL CUT TRUE AND EVEN, SO THAT THE BARREL OF THE PIPE WILL HAVE A BEARING FOR ITS FULL LENGTH.

TRYGVE HOFF & ASSOCIATES
ENGINEERS
1922 EAST 107TH STREET CLEVELAND, OHIO

WATERWORK NOTES

SCALE	DATE					
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
	P.H.		R.R.	J.L.L.	9/18/62	

SHEET ACCT. No. 6122
CONT. No. 58019

(F) - ONLY AFTER THE BACKFILL PREVIOUSLY MENTIONED HAS BEEN SATISFACTORILY COMPACTED, MAY WORK PROCEED IN PLACING THE REMAINING BACKFILL WHICH MUST BE CAREFULLY PLACED AND COMPACTED BY TAMPING, PUDDLING, OR ROLLING. ALL PRECAUTIONS MUST BE TAKEN TO ELIMINATE FUTURE SETTLEMENT. THE NUMBER OF MEN TAMPING SHALL BE NOT LESS THAN THE NUMBER BACKFILLING, AND ADDITIONAL MEN SHALL BE KEPT IN THE TRENCH TO SPREAD THE MATERIAL.

(G) - BACKFILLING SHALL NOT BE DONE IN FREEZING WEATHER, EXCEPT BY PERMISSION OF THE ENGINEER, AND IT SHALL NOT BE MADE WITH FROZEN MATERIAL, NOR SHALL ANY FILL BE MADE WHERE THE MATERIAL ALREADY IN THE DITCH IS FROZEN.

(H) - THE ENTIRE BACKFILL SHALL BE MADE WITH SAND WHERE PERMANENT PAVEMENTS, CURBS, DRIVEWAYS, OR SIDEWALKS, HAVE BEEN OPENED FOR OR UNDERCUT BY THE EXCAVATION.

(I) - ALL SAND TO BE USED FOR BACKFILL SHALL BE A NATURAL BANK SAND, GRADED FROM FINE TO COARSE, NOT LUMPY OR FROZEN, AND FREE FROM SLAG, CINDERS, ASHES, RUBBISH, OR OTHER DELETERIOUS OR OBJECTIONABLE MATERIAL. IT SHALL NOT CONTAIN A TOTAL OF MORE THAN 10 PER CENT BY WEIGHT OF LOAM AND CLAY, AND ALL MATERIAL MUST BE CAPABLE OF BEING PASSED THROUGH A 3/4 INCH SIEVE. NOT MORE THAN 5 PER CENT SHALL REMAIN ON A NO. 4 SIEVE.

(J) - SPECIAL TREATMENT OF THE TRENCH WILL BE REQUIRED WHERE CINDER EXCAVATION, EXCEEDING ONE FOOT MEASURED FROM THE TOP SURFACE, IS ENCOUNTERED. BEFORE LAYING THE PIPE, THE BOTTOM OF THE TRENCH SHALL BE DUG BELOW GRADE AND THEN BROUGHT TO THE GRADE OF THE PIPE IN THE FOLLOWING MANNER: A FOUR (4) INCH LAYER OF CRUSHED LIMESTONE SHALL BE PLACED ON THE ENTIRE WIDTH OF THE BOTTOM OF THE TRENCH, FOLLOWED BY A FILLER OF HYDRATED LIME AND A LAYER OF THREE (3) INCHES OF SAND. THE CRUSHED LIMESTONE SHALL BE WELL GRADED FROM FINE TO COARSE, AND FREE FROM SLAG, CINDERS, ASHES, RUBBISH OR OTHER OBJECTIONABLE MATERIAL. ALL LIMESTONE MUST BE CAPABLE OF BEING PASSED THROUGH A 3/4 INCH SIEVE. ON TOP OF THIS LAYER OF CRUSHED STONE, HYDRATED LIME SHALL BE SUPPLIED IN THE AMOUNT OF 3/8 OF A POUND PER SQUARE FOOT OF TRENCH. THIS BED OF CRUSHED LIMESTONE SHALL BE THOROUGHLY TAMPED BEFORE THE 3" LAYER OF SAND IS PLACED. THE BACKFILL AROUND AND TO THE DEPTH OF 3 INCHES ABOVE THE TOP OF THE PIPE SHALL BE MADE WITH SAND. THE CONTRACTOR MUST USE SPECIAL CARE IN PLACING THIS PORTION OF THE BACKFILL SO AS TO AVOID INJURING OR MOVING THE PIPE WHEN COMPACTING SAME. ON TOP OF THE SAND THE CONTRACTOR SHALL PLACE ANOTHER LAYER OF CRUSHED LIMESTONE FIVE (5) INCHES THICK ON THE ENTIRE WIDTH OF THE TRENCH. ON TOP OF THE COMPACTED LAYER OF LIMESTONE HYDRATED LIME SHALL BE THEN APPLIED IN THE AMOUNT OF 3/4 OF A POUND PER SQUARE FOOT OF TRENCH. THE REMAINING BACKFILL SHALL BE MADE WITH SAND, CAREFULLY PLACED AND COMPACTED BY TAMPING, PUDDLING, OR ROLLING. ALL PRECAUTIONS SHALL BE TAKEN TO ELIMINATE FUTURE SETTLEMENT. THE TREATMENT OF THE TRENCH BOTTOM, PREVIOUSLY DESCRIBED, MAY BE OMITTED WHERE THE CINDER DEPTH, MEASURED FROM THE TOP SURFACE DOES NOT EXCEED 2'-6".

ROAD SURFACES, SIDEWALKS, DRIVEWAYS, AND CURBING

(A) - THE CONTRACTOR SHALL REMOVE ALL PAVEMENTS AND ROAD SURFACES WITHIN THE LINES OF EXCAVATION. AFTER THE PIPE HAS BEEN LAID, ALL APPURTENANT WORK CONSTRUCTED AND BACKFILL COMPLETED, HE SHALL FURNISH, PLACE AND MAINTAIN, WHEREVER THE PAVEMENT OR ROAD SURFACE HAS BEEN REMOVED OR DAMAGED BY HIM, A TEMPORARY PAVEMENT IN THE PAVED PORTION OF STREETS, OR A TEMPORARY ROAD SURFACE IN THE UNPAVED PORTION OF STREETS, SO AS TO PROVIDE A SAFE AND PASSABLE ROADWAY UNTIL SUCH TIME AS THE FINAL PAVEMENT OR ROAD SURFACE IS COMPLETED.

(B) - WHEN ONLY A PORTION OF THE STREET IS PAVED AND THE LINES OF EXCAVATION ARE IN THE UNPAVED PORTION OF SAME, THE CONTRACTOR SHALL USE THE UTMOST CARE IN PREVENTING INJURY TO THE PAVEMENT. IF, IN MAKING THE EXCAVATION OR FOR ANY OTHER CAUSE, THE PAVEMENT IS REMOVED OR INJURED BY THE CONTRACTOR, HE SHALL FURNISH, PLACE AND MAINTAIN A TEMPORARY PAVEMENT WHEREVER THE PAVEMENT HAS BEEN REMOVED OR DAMAGED, SO AS TO PROVIDE A SAFE AND PASSABLE ROADWAY UNTIL SUCH TIME AS THE FINAL PAVEMENT IS COMPLETED. ALL FINAL PAVING OF ROAD SURFACES, IF SO NOTED ON CONTRACT DRAWINGS, SHALL BE DONE BY THE CONTRACTOR TO THE SATISFACTION OF THE ENGINEER AND IN CONFORMITY TO THE CITY OF CLEVELAND "STANDARD SPECIFICATIONS FOR CONSTRUCTION OF PAVEMENTS, SIDEWALKS AND SEWERS", DATED JANUARY 1950. THE CONTRACTOR SHALL BEAR THE ENTIRE COST OF THE WORK. THE BASE OF PAVEMENT OF CLASS 6 CONCRETE SHALL BE INSTALLED ON A CAREFULLY PREPARED BED (LEVEL WITH THE BOTTOM OF THE ABUTTING BASE) OVER DISTURBED AREAS AND SHALL BE OF THE THICKNESS SPECIFIED, BUT IN NO CASE LESS THAN 7" THICK. WHERE PAVEMENT OR BASE OF PAVEMENT HAS BEEN DAMAGED BY CAVE-IN, OR BY TRENCH CUT LEAVING A PORTION OR PORTIONS OF PAVEMENT 18 INCHES OR LESS IN WIDTH (BETWEEN SUCH CUT OR DAMAGE) TO CURB OR OTHER SUBSTRUCTURE, THAT REMAINING PORTION OF PAVEMENT SHALL BE REMOVED AND RESTORED MONOLITHIC WITH THE TYPE AND KIND OF PAVEMENT SPECIFIED FOR THE ADJACENT TRENCH AREA. THE WEARING COURSE OVER TRENCH OR OTHER DISTURBED AREAS SHALL BE RESTORED TO MATCH EXISTING PAVEMENT UNLESS OTHERWISE SPECIFIED. ASPHALTIC CONCRETE WEARING COURSE OVER SUCH AREAS SHALL BE NEATLY AND SQUARELY CUT, NOT LESS THAN 3 FEET WIDE, BEFORE THE INSTALLATION OF A CAREFULLY TOOTHED-IN-TO ADJACENT PAVEMENT, UNLESS OTHERWISE SPECIFIED. EXPANSION JOINTS SHALL BE INSTALLED BETWEEN BRICK WEARING COURSE (IF GROUTED) AND CURB OR OTHER SUBSTRUCTURE, WHERE SUCH RESTORATION IS REQUIRED BY THESE SPECIFICATIONS.

(C) - ALL DAMAGED OR DISPLACED CURB SHALL BE RENEWED OR RESET TO THE SATISFACTION OF THE ENGINEER. NO FAULTY CURB OR CURB LESS THAN 30" LONG WILL BE PERMITTED FOR REUSE.

(D) - AT LOCATIONS NOT SPECIFICALLY MENTIONED, THE CONTRACTOR SHALL RESTORE THE SAME TYPE OF PAVEMENT AS ENCOUNTERED.

(E) - IF PRIOR TO THE EXPIRATION OF THIS CONTRACT, ANY OF THE PAVEMENTS OR ROAD SURFACES WITHIN THE LINES OF EXCAVATION OR ADJACENT THERETO, SHALL HAVE BEEN DAMAGED OR INJURED, DUE TO UNDERMINING, OR FOR ANY OTHER CAUSE WHICH MAY BE ATTRIBUTED TO THE WORK WHICH IS BEING DONE BY THE CONTRACTOR, THEN THE CONTRACTOR SHALL REMOVE SUCH DAMAGED OR INJURED PAVEMENTS OR ROAD SURFACES, FOUNDATIONS OF SAME AND ALL LOOSE FINAL PAVEMENT OR ROAD SURFACE.

(F) - IF ANY SIDEWALKS, DRIVEWAYS OR CURBS, ARE REMOVED OR INJURED BY THE CONTRACTOR IN THE COURSE OF MAKING EXCAVATION OR HANDLING MATERIALS, OR FOR ANY OTHER REASON WHICH MAY BE ATTRIBUTED TO WORK WHICH HAS BEEN DONE BY THE CONTRACTOR, THEN HE SHALL RELAY SAME AFTER ALL WORK, INCLUDING BACK-FILLING HAS BEEN COMPLETED. IF ANY STONE SIDEWALKS, DRIVEWAYS, OR CURBS WHICH HAVE BEEN REMOVED OR INJURED, ARE UNFIT TO BE RELAID, THEN THE CONTRACTOR SHALL FURNISH NEW MATERIAL AND RELAY SAME. ALL CONCRETE OR CEMENT SIDEWALKS, DRIVEWAYS OR CURBS, WHICH ARE REMOVED OR INJURED BY THE CONTRACTOR OR SHALL BE BROKEN UP BY HIM AND HE SHALL FURNISH NEW MATERIAL AND CONSTRUCT NEW SIDEWALKS, DRIVEWAYS OR CURBS, TO REPLACE THOSE REMOVED OR INJURED. AT INTERSECTING WALKS, DRIVES, ETC., ADDITIONAL CONCRETE SLABS BEYOND THE EXCAVATION LIMITS SHALL BE REMOVED AND REPLACED WITH NEW MATERIAL, IN ORDER TO AVOID HAVING MORE JOINTS THAN IN THE ORIGINAL WORK. ALL SLABS REPLACED SHALL BE OF FULL WIDTH. THE CONTRACTOR SHALL FURNISH, PLACE AND MAINTAIN, WHEREVER THE SIDEWALK HAS BEEN REMOVED OR DAMAGED BY HIM, A TEMPORARY SIDEWALK SO AS TO PROVIDE A SAFE AND PASSABLE SIDEWALK UNTIL SUCH TIME AS THE FINAL SIDEWALK IS COMPLETED.

(G) - ALL PAVEMENTS, ROAD SURFACES, SIDEWALKS, DRIVEWAYS, OR CURBS, WHICH THE CONTRACTOR IS REQUIRED TO REPLACE OR TO HAVE REPLACED, SHALL, AT THE EXPIRATION OF THIS CONTRACT, BE IN AT LEAST AS GOOD CONDITION AS AT THE TIME OF AWARDED THE CONTRACT.

(H) - ALL WORK WHICH THE CONTRACTOR MAY DO IN CONNECTION WITH THE OPENING UP OR REPLACING OR PAVEMENTS, ROAD SURFACES, SIDEWALKS, DRIVEWAYS, OR CURBS, AS WELL AS THE FINAL REPAVING, SHALL BE DONE AT HIS EXPENSE, IN ACCORDANCE WITH THE RULES AND REQUIREMENTS OF THE STREET OR SIDEWALK DEPARTMENTS OF THE CITY OF CLEVELAND, AND IN ACCORDANCE WITH THE ADDITIONAL REQUIREMENTS OF THESE SPECIFICATIONS, AND THE CONTRACTOR SHALL FURNISH EVIDENCE TO THE ENGINEER THAT THE WORK HAS BEEN COMPLETED TO THEIR SATISFACTION.

(I) - TUNNELING WILL NOT BE PERMITTED WITHOUT PERMISSION OF THE ENGINEER. IN BACKFILLING TUNNELS, SAND SHALL BE USED AS FAR AS POSSIBLE AND BALANCE OF BACKFILLING MADE WITH CLASS E CONCRETE, RAMMED IN PLACE.

(J) - THE CONTRACTOR SHALL MAKE ALL PAVEMENT CUTS BY CHANNELING MACHINE, HAND-OPERATED PNEUMATIC TOOLS OR BY SUCH OTHER METHODS AS WILL FURNISH A CLEAN CUT IN THE PAVEMENT AND PAVEMENT BASE WITHOUT UNDUE SHATTERING. THE USE OF BALL OR WEIGHT TO BREAK THE PAVEMENT WILL NOT BE PERMITTED.

(K) - NO SPECIFIC OR SEPARATE PAYMENT WILL BE MADE FOR ALL OF THIS WORK, BUT THE COST THEREOF SHALL BE INCLUDED IN THE PRICES BID FOR THE VARIOUS ITEMS OF THE WORK TO BE DONE UNDER THIS CONTRACT. RESTORATION AS NOTED ABOVE WILL ONLY BE REQUIRED IN AREAS WHERE THE PLANS DO NOT OTHERWISE PROPOSE NEW CONSTRUCTION OF PAVEMENT, SIDEWALKS, AND CURBS, EXCEPT THAT TEMPORARY RESTORATION IN SUCH AREAS MAY BE REQUIRED BY THE ENGINEER IN ORDER TO MAINTAIN TRAFFIC OR LOCAL ACCESS PER SEC. G.4.05 AND G-7.07.

LIST AND INVOICES

(A) - THE CONTRACTOR SHALL FURNISH THE ENGINEER WITH THE LIST IN DUPLICATE OF PIECES IN EACH SHIPMENT OF PIPE AND SPECIALS, GIVING THE SERIAL NUMBER AND DESIGNATION OF EACH PIPE AND SPECIAL SENT AT THAT TIME.

(B) - THE MATERIAL SHALL BE SHIPPED IN SUCH SECTIONS AS THE ENGINEER MAY ORDER.

CAST IRON PIPE AND FITTINGS

WORK INCLUDED

(A) - THE CONTRACTOR SHALL FURNISH, UNDER ITEM 1, ALL THE MATERIALS FOR AND SHALL PROPERLY CONSTRUCT AND CONNECT IN PLACE AT THE LOCATIONS SHOWN ON THE DRAWINGS OR AS DIRECTED, ALL CAST IRON PIPE AND FITTINGS, INCLUDING ALL EXCAVATION WORK, THE CUTTING INTO AND REMOVAL OF EXISTING PIPE, BACKFILLING, SAND BACKFILL, AND REPAVING, ALL AS REQUIRED FOR THE PROPER COMPLETION OF THE WORK INCLUDED UNDER THIS CONTRACT.

(B) - IN MAKING THE CONNECTION TO EXISTING MAINS WHERE BRANCH SLEEVES CAN BE USED, THE CONTRACTOR SHALL SUPPLY THE SAME. THE DIVISION OF WATER WILL INSTALL THE BRANCH SLEEVES AND VALVES. IF THE INSTALLATION OF BRANCH SLEEVES AND VALVES CANNOT BE ACCOMPLISHED, THE CONTRACTOR WILL BE REQUIRED TO USE TEES AND SLEEVES TO COMPLETE THE CONNECTION. THE CONTRACTOR WILL BE REQUIRED TO MAKE THE NECESSARY EXCAVATION, BACKFILL AND REPAVING.

CAST IRON PIPE AND FITTINGS

(A) - ALL PIT CAST PIPE SHALL BE MANUFACTURED IN ALL RESPECTS IN ACCORDANCE WITH, AND SHALL MEET THE REQUIREMENTS OF THE LATEST "STANDARD SPECIFICATIONS FOR CAST IRON PIPE AND SPECIAL FITTINGS" AS ADOPTED BY THE AMERICAN WATER WORKS ASSOCIATION WHICH SPECIFICATIONS EXCEPT AS HEREIN MODIFIED ARE MADE A PART OF THESE SPECIFICATIONS. LUGGED PIPE AND FITTINGS SHALL BE PIT CAST AND SHALL BE USED WHERE "TIED DISTANCES" ARE SHOWN OR WHERE SPECIFICALLY NOTED ON THE ALIGNMENT DRAWINGS.

(B) - ALL PIT CAST PIPE AND FITTINGS SHALL BE CEMENT LINED AND OF THE SIZE AND CLASSES NOTED ON THE RESPECTIVE CONTRACT DRAWINGS.

(C) - IN LIEU OF PIT CAST PIPE ABOVE, THE CONTRACTOR WILL BE PERMITTED TO FURNISH EITHER CENTRIFUGAL OR HIGH STRENGTH CEMENT LINED PIPE, THE METAL SHALL HAVE A MODULUS OF RUPTURE OF NOT LESS THAN 40,000 POUNDS AND A TENSILE STRENGTH OF NOT LESS THAN 18,000 POUNDS AND SHALL BE FOR CLASS NOTED ON THE CONTRACT DRAWINGS. PIPE MAY BE FURNISHED IN 12, 16, OR 18 FOOT LENGTHS. THE CENTRIFUGALLY CAST PIPE SHALL CONFORM TO THE AMERICAN STANDARD SPECIFICATIONS A21.6-952 AND ALL SUBSEQUENT AMENDMENTS THERETO.

(C) - (1) - THE THICKNESS OF THE CENTRIFUGALLY CAST IRON PIPE SHALL CONFORM TO THE FOLLOWING TABLE:

STANDARD THICKNESS OF CENTRIFUGALLY CAST IRON PIPE

SIZE	WORKING PRESSURE	STANDARD THICKNESS	CLASS
4"	250	.41	24
6"	250	.48	25
8"	250	.52	25
10"	200	.56	25
12"	250	.56	24
16"	200	.60	25
16"	250	.68	25
		.73	26

(2) - ALL FITTINGS, SUCH AS BENDS, TEES, CROSSES, OFFSETS, HYDRANT BRANCHES, ETC., SHALL HAVE BELL OR BELL AND SPIGOT ENDS WITH CAST LEAD JOINTS. PIPE BETWEEN OFFSETS OR BENDS AND ON HYDRANT BRANCHES, SHALL ALSO BE OF BELL AND SPIGOT TYPE WITH LEAD JOINTS.

(D) - ALL PIPE SHALL HAVE BELL AND SPIGOT ENDS FOR CAST LEAD JOINTS OR A SLIP ON TYPE JOINT WITH COMPRESSED RUBBER RING INSERTS. ALL PIPE AND FITTINGS SHALL BE CEMENT LINED.

(E) - GASKETS SHALL BE OF RUBBER OR OTHER EQUALLY EFFECTIVE PROTECTION AGAINST UNEVEN DISTORTION OF THE GASKET.

(F) - WHERE FITTINGS ARE SHOWN WHICH ARE NOT COVERED BY THE ABOVE SPECIFICATIONS, THEY IN SUCH PARTICULARS AS ARE LACING THERON, SHALL CONFORM TO THE DIMENSIONS AND OTHERWISE MEET THE SPECIFICATIONS FOR THE RESPECTIVE TYPE WHICH ARE CARRIED IN THE LATEST REVISIONS TO THE CURRENT EDITION OF THE "HANDBOOK OF CAST IRON PIPE" BY THE CAST IRON PIPE RESEARCH ASSOCIATION OR WHICH ARE OTHERWISE SHOWN ON THE CONTRACT DRAWINGS.

(G) - WHEREVER CHANGES IN LINE AND GRADES OF THE MAIN AS SHOWN ON THE DRAWINGS ARE NOT STANDARD FITTING DEFLECTIONS, THE CONTRACTOR WILL BE PERMITTED TO SUBMIT DETAILS USING COMBINATIONS OF STANDARD FITTINGS AND SMALL DEFLECTIONS (NOT TO EXCEED A MAXIMUM OF ONE HALF (1/2) INCH JOINT OPENING) IN THE ADJOINING LENGTHS OF PIPE. PIPE TO BE INSTALLED WITH AIR COCKS OR DRAINS SHALL BE CAST WITH BOSSES THERON, AND DRILLED AND TAPPED FOR TWO (2) INCH CONNECTIONS, AND PLUGGED IN THE SHOP WITH CAST IRON THREADED PLUGS, BEFORE SHIPMENT.

(H) - PLUGS FOR BELL AND SPIGOT PIPE AND CAPS FOR LUGGED PIPE SHALL BE FURNISHED WITH TWO (2) PLUGGED TWO (2") INCH TAPS FOR DRAIN AND AIR COCK CONNECTIONS.

(I) - CLOSURE PIECES SHALL BE ACCURATELY MEASURED AND CUT IN THE FIELD AND INSTALLED USING SOLID TYPE PATTERN SLEEVES AS SHOWN OR AS REQUIRED.

(J) - TESTS, INSPECTION, REPORTS AND ANALYSES OF TESTS OF SAMPLES FOR ALL MATERIALS SHALL BE FURNISHED AS SET FORTH ELSEWHERE IN THESE NOTES.

(K) - BITUMASTIC COATING SHALL BE APPLIED ON THE EXTERIOR OF ALL CAST IRON PIPE AND FITTINGS IN ACCORDANCE WITH AWWA SPECIFICATIONS.

TRYGVE HOFF & ASSOCIATES
ENGINEERS
1922 EAST 107TH STREET CLEVELAND, OHIO

WATERWORK NOTES

SCALE	DATE					
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
	P.H.		R.R.	T.L.L.	9/18/62	

CHEMICAL COMPOSITION

Table with 2 columns: Element (Copper, Lead, Tin, Manganese, Aluminum, Iron, Zinc) and Range (e.g., 56.0 TO 62.0, 0.5 TO 1.5, etc.)

GRADE THREE CAST IRON BRONZE SHALL CONFORM TO THE PROPERTIES OF ASTM B 132 ALLOY B.

PHYSICAL PROPERTIES

Table with 2 columns: Property (Minimum Tensile Strength, Minimum Yield Strength, Minimum Elongation) and Value (e.g., 80,000 PSI, 32,000 PSI, 15)

CHEMICAL COMPOSITION

Table with 2 columns: Element (Copper, Lead, Tin, Manganese, Aluminum, Iron, Zinc) and Range (e.g., 55.0 TO 60.0, 0.5 TO 1.5, etc.)

GRADE FOUR ROLLED BRONZE SHALL CONFORM TO THE PROPERTIES OF ASTM B 21, ALLOY A (ONE-HALF HARD).

PHYSICAL PROPERTIES

Table with 4 columns: Diameter or Thickness (in.), Min Tensile Strength (PSI), Min. Yield Strength (PSI), Minimum Elongation in 4x Dia. or Thickness of Specimen (Percent)

CHEMICAL COMPOSITION

Table with 2 columns: Element (Copper, Tin, Lead, Zinc, Iron, Elements other than Copper, Tin, Iron, Lead and Zinc) and Range (e.g., 59.0 TO 62.0, 0.5 TO 1.0, etc.)

GRADE FIVE BRONZE SHALL BE SUFFICIENTLY MALLEABLE TO CONFORM TO DOVETAILED GROOVES WHEN PEENED OR ROLLED; AND SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH, WITHOUT DEFORMATION OF 4000 PSI, AND SHALL HAVE THE FOLLOWING CHEMICAL COMPOSITION:

Table with 2 columns: Element (Copper, Tin, Zinc, Lead) and Percentage (e.g., 91.0, 0.0, 5.0, 4.0)

SILICON BRONZE

THIS BRONZE SHALL CONFORM TO ASTM SPECIFICATION B-98, ALLOY A.

PHYSICAL PROPERTIES

Table with 2 columns: Property (Minimum Tensile Strength, Minimum Yield Strength, Minimum Elongation) and Value (e.g., 85,000, 50,000, 28)

CHEMICAL COMPOSITION

Table with 2 columns: Element (Copper, Silicon, Manganese, Iron, Lead) and Range (e.g., 94.8, 2.8 TO 3.8, 1.5, 1.6, 0.05)

STAINLESS STEEL

THE STAINLESS STEEL SHALL CONFORM TO ASTM SPECIFICATIONS A-276, TYPE 302.

PHYSICAL PROPERTIES

Table with 2 columns: Property (Minimum Tensile Strength, Minimum Yield Strength, Minimum Elongation) and Value (e.g., 90,000 PSI, 45,000 PSI, 35)

CHEMICAL COMPOSITION

Table with 2 columns: Element (Carbon, Manganese, Silicon, Phosphorus, Sulphur, Chromium, Nickel) and Range (e.g., 0.08 TO 0.20, 2.00, 1.00, 0.045, 0.030, 17.00 TO 19.00, 8.00 TO 10.00)

CAST IRON

THE CAST IRON SHALL CONFORM TO ASTM SPECIFICATION A 126 CLASS B.

PHYSICAL PROPERTIES

Table with 2 columns: Property (Minimum Tensile Strength, Transverse Strength, Deflection) and Value (e.g., 31,000 PSI, 3,300 PSI, 0.12 IN.)

CHEMICAL COMPOSITION

Table with 2 columns: Element (Phosphorous, Sulphur) and Maximum Percent (e.g., 0.75, 0.12)

(M) - OTHER MATERIALS: ALL OTHER MATERIALS USED IN THE MANUFACTURE OF THESE VALVES AND NOT SPECIFIED IN THE SPECIFICATIONS SHALL BE OF THE BEST QUALITY OF THEIR RESPECTIVE KINDS, AND SUBJECT TO INSPECTION, TESTS, AND APPROVAL BY THE ENGINEER.

(N) - CHEMICAL ANALYSIS: CHEMICAL ANALYSIS OF THE MATERIAL USED SHALL BE FURNISHED BY THE CONTRACTOR WHENEVER REQUIRED BY THE ENGINEER.

(O) - CLEANING OF CASTINGS: ALL IRON CASTINGS SHALL BE THOROUGHLY CLEANED ON THE OUTSIDE AND INSIDE SURFACES AND PROTECTED FROM RAIN OR MOISTURE UNTIL THEY ARE PAINTED.

PLACING AND TESTING

(A) - ALL VALVES SHALL BE SET ACCURATELY AND CAREFULLY TO THE LINES AND GRADES GIVEN. ALL CONNECTIONS TO PIPE SHALL HAVE THE NECESSARY FLANGE, LEAD, MECHANICAL, SCREWED, VICTAULIC OR SOLDERED ENDS AS REQUIRED UNDER THE FOLLOWING ITEMS: CAST IRON PIPE AND FITTINGS, FURNISHING AND SETTING 6" AND 4" HYDRANTS AND 2-INCH GALVANIZED WROUGHT IRON PIPE AND BRASS PIPE AND AS SHOWN ON THE VALVE SCHEDULE.

(B) - AFTER THE VALVES ARE SET IN PLACE AND READY TO OPERATE, THE CONTRACTOR SHALL TEST THEM UNDER WORKING PRESSURE AND CONDITIONS HEREIN SPECIFIED UNDER THE SPECIFICATION TESTING MAINS AND ANY VALVE FOUND TO LEAK SHALL BE MADE WATER-TIGHT AND, IF FOUND TO BE OF FAULTY DESIGN, SHALL BE SATISFACTORILY REPAIRED OR REPLACED BY THE CONTRACTOR.

PAINTING

(A) - IRON BODY VALVES SHALL EITHER BE DIPPED IN ASPHALT PAINT AND ALL BRONZE PARTS CLEANED, OR ALL IRON CASTINGS SHALL BE PAINTED INSIDE, BEFORE ASSEMBLING, WITH TWO (2) COATS OF AN APPROVED PAINT. AND, AFTER PASSING THE HYDRAULIC TEST, SHALL BE GIVEN AT LEAST TWO (2) COATS OF APPROVED PAINT OUTSIDE.

(B) - AFTER ERECTION, ALL EXPOSED METAL SURFACES OF VALVES EXCEPT BRASS OR BRONZE SHALL BE PAINTED WITH TWO (2) FIELD COATS OF COAL TAR PITCH PAINT EQUAL TO INERTOL 66 OR KOPPERS BITUMASTIC 50.

INSPECTION

THE ENGINEER, OR HIS AUTHORIZED DESIGNATE, WILL INSPECT THE MATERIAL AND WORK DONE, AS THE INTERESTS OF THE RESPECTIVE CITIES OR STATE MAY REQUIRE. SUCH OFFICER SHALL HAVE UNRESTRICTED ACCESS TO THE CONTRACTOR'S PLANT, AND TO ALL PARTS OF THE WORK AND OTHER PLACES AT WHICH THE PREPARATION OF THE MATERIAL AND THE CONSTRUCTION OF THE DIFFERENT PARTS OF THE WORK TO BE DONE UNDER THESE SPECIFICATIONS ARE CARRIED ON, AND HE SHALL RECEIVE ALL FACILITIES AND ASSISTANCE TO CARRY OUT HIS WORK OF INSPECTION AND TESTING, IN A MANNER SATISFACTORY TO THE ENGINEER. SUCH INSPECTION SHALL NOT RELIEVE THE CONTRACTOR FROM ANY OBLIGATION TO PERFORM SAID WORK STRICTLY IN ACCORDANCE WITH THE SPECIFICATIONS, OR ANY MODIFICATIONS THEREOF, AS HEREIN PROVIDED, AND WORK NOT SO CONSTRUCTED SHALL BE REMOVED AND MADE GOOD BY THE CONTRACTOR, AT HIS OWN EXPENSE.

DRAWINGS

(A) - PRIOR TO THE MANUFACTURE OF ANY VALVES, THE CONTRACTOR SHALL SUBMIT FOR THE APPROVAL OF THE ENGINEER, COMPLETE WORKING, DETAIL, AND DIMENSION DRAWINGS SHOWING THICKNESSES AND KINDS OF MATERIAL AND SIMILAR INFORMATION.

(B) - ONE PRINT OF EACH OF THE DRAWINGS SUBMITTED WILL BE RETURNED WITH THE CRITICISMS OR APPROVAL OF THE ENGINEER. IN CASE THE DRAWINGS ARE NOT APPROVED, THE CONTRACTOR SHALL AGAIN SEND FOR APPROVAL, DUPLICATE REVISED PRINTS OF THE DRAWINGS TO TAKE CARE OF THE CRITICISMS NOTED, AND AFTER THE DRAWINGS HAVE BEEN FINALLY APPROVED, THE CONTRACTOR SHALL AGAIN FURNISH TO THE ENGINEER EIGHT ADDITIONAL PRINTS, SIX (6) ON PAPER AND TWO (2) ON CLOTH, OF EACH DRAWING. NO WORK SHALL BE DONE IN THE SHOP UNTIL AFTER THE DRAWINGS HAVE BEEN FINALLY APPROVED.

PAYMENT

THE UNIT PRICE STIPULATED FOR VALVES SHALL INCLUDE THE FURNISHING, PLACING, TESTING AND PAINTING OF THE AIR COCKS, DRAIN VALVES, CHECK AND GATE VALVES, INCLUDING BY-PASS VALVES, OPERATING NUTS AND OTHER ACCESSORIES AND APPURTENANCES AND THE FURNISHING OF ALL LABOR, TOOLS AND APPLIANCES NECESSARY TO COMPLETE THE WORK AS SPECIFIED OR AS SHOWN.

BRANCH SLEEVE AND VALVES

WORK INCLUDED

(A) - THE CONTRACTOR SHALL FURNISH THE BRANCH SLEEVE AND VALVES FOR THE LOCATIONS SHOWN ON THE DRAWINGS OR ON WORKING DRAWINGS FURNISHED BY THE ENGINEER OR AS DIRECTED OF THE SIZES SHOWN OR REQUIRED FOR THE PROPER COMPLETION OF THE WORK INCLUDED UNDER THIS CONTRACT.

(B) - IN GENERAL, THE WORK OF THIS ITEM CONTEMPLATES THE FURNISHING AND DELIVERY OF THE MATERIAL TO THE PROPER LOCATION ON THE JOB. THE DIVISION OF WATER WILL INSTALL THE BRANCH SLEEVES AND VALVES, BUT THE CONTRACTOR SHALL DO ALL THE NECESSARY EXCAVATION AND BACKFILLING REQUIRED THEREFOR AND REPAVING IF SO NOTED ON THE CONTRACT DRAWINGS.

QUALITY OF VALVES

THE BRANCH SLEEVE AND VALVES SHALL BE A.P. SMITH MFG. CO. OR APPROVED EQUAL. ALL SLEEVES SHALL BE OF THE CLASS AND SIZE AS SHOWN OR AS DIRECTED AND SHALL CONFORM FOR MATERIALS, TESTS, PAINTING, DRAWINGS, ETC. TO THE REQUIREMENTS OF THE ITEM CAST IRON PIPES AND FITTINGS OF THESE SPECIFICATIONS INSOFAR AS THEY APPLY. THE VALVES FURNISHED AND USED UNDER THIS ITEM SHALL COMPLY WITH THE REQUIREMENTS OF THE ITEM VALVES OF THIS CONTRACT WHENEVER THE SAME MAY BE PERTINENT. THE PROVISIONS OF THE SECTIONS (U), (V), AND (W) OF THE ITEM ON VALVES PERTAINING TO GREASE CASES SHALL APPLY TO THE BRANCH SLEEVES AND VALVES.

PAYMENT

THE UNIT PRICE STIPULATED FOR EACH BRANCH SLEEVE AND VALVE FURNISHED UNDER THIS ITEM, SHALL INCLUDE THE FURNISHING AND DELIVERY TO THE PROPER LOCATION, AND SHALL INCLUDE ALL EXCAVATION, SHEETING AND SHORING, BACKFILLING, SAND BACK-FILLING, SEEDING AND SODDING AND REPAVING, IF SO NOTED ON THE CONTRACT DRAWINGS, AND THE FURNISHING OF ALL LABOR, MATERIALS, TOOLS AND APPLIANCES NECESSARY TO COMPLETE THE WORK AS SPECIFIED OR AS SHOWN.

VALVE BOXES

MATERIALS AND SPECIFICATIONS SHALL CONFORM TO STATE OF OHIO SPECIFICATION I-8.

TRYGVE HOFF & ASSOCIATES
ENGINEERS
1922 EAST 107TH STREET CLEVELAND, OHIO

WATERWORK NOTES

Table with 2 rows: SCALE and DATE. Columns include DESIGNED, DRAWN, TRACED, CHECKED, REVIEWED, DATE, REVISED.

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

36
164

CUYAHOGA COUNTY
CUY- 21-14.55

CURB CONNECTIONS

(A) - GENERAL. IN SUCH LOCATIONS AS MAY BE INDICATED ON THE CONTRACT DRAWINGS, OR AS ORDERED BY THE ENGINEER, THE CONTRACTOR SHALL EXCAVATE FOR HOUSE CONNECTION BETWEEN THE WATER MAIN AND A POINT 3 FEET BEYOND CURB LINE. THE CONNECTION SHALL BE STANDARD EXTRA HEAVY LEAD PIPE OR COPPER CONFORMING IN ALL RESPECTS TO THE RULES FOR WATER CONNECTIONS APPLICABLE AT THE TIME OF INSTALLATION AS PUBLISHED BY THE DIVISION OF WATER OF THE CITY OF CLEVELAND. WHEREVER THE CONNECTION CROSSES AN EXISTING PAVEMENT, THE CONTRACTOR SHALL BORE OR JACK OPENINGS OF SUFFICIENT SIZE TO PERMIT THE INSTALLATION OF SERVICE CONNECTIONS. IF BORING OR JACKING IS FOUND TO BE IMPOSSIBLE, HE SHALL MAKE THE NECESSARY TRENCH EXCAVATION, SAND BACKFILL, TEMPORARY AND PERMANENT REPAVING REQUIRED FOR THE INSTALLATION OF THE SERVICE CONNECTION.

(B) - TAPPING. THE CONTRACTOR SHALL ARRANGE WITH THE DIVISION OF WATER TO MAKE THE PRESSURE TAP, INSTALL THE CORPORATION COCK AND FURNISH ANY OTHER MATERIAL WHICH THE DIVISION ELECTS TO SUPPLY. THE CONNECTION SHALL BE BLOCKED UP WITH STONE, BRICK OR CONCRETE TO INSURE A FIRM SUPPORT FOR SAID COUPLING AND RESIST ALL SETTLEMENTS IN BACKFILLING. THE BLOCKING SHALL BE HELD FIRMLY IN PLACE BY FINE DRY EARTH FIRMLY TAMPED AROUND IT. WHERE EXCAVATION IS IN SAND, CLAY OR LIGHT EARTH, THE WATER CURB CONNECTION MUST BE LAID IN A TRENCH SEPARATE FROM ANY SEWER LINES. IN ROCK OR SHALE THE WATER CURB CONNECTION MAY BE LAID IN THE SAME TRENCH WHICH CONTAINS THE SEWER PIPE PROVIDING THE TRENCH IS OF SUFFICIENT WIDTH AND AN EIGHT INCH SHELF IS PROVIDED ON WHICH TO LAY THE CONNECTION. AT THE CURB END OF THE CONNECTION, A SHUT-OFF VALVE SHALL BE CONNECTED, MOUNTED ON A BLOCKING OF STONE, BRICK OR CONCRETE TO RESIST SETTLEMENT AND WITH CURB BOX MOUNTED AND MAINTAINED PLUMB OVER THE GATE VALVE NUT, WITH THE TOP OF BOX AT THE FINISHED GRADE OF LAWN SPACE.

MEASUREMENT

THE CURB CONNECTIONS TO BE PAID FOR SHALL BE THE ACTUAL NUMBER OF EACH, LISTED AND ESTIMATED SEPARATELY, COMPLETED AND ACCEPTED.

PAYMENT

THE UNIT PRICE STIPULATED FOR EACH CURB CONNECTION UNDER THIS ITEM SHALL INCLUDE THE FURNISHING, PLACING, CONNECTING AND TESTING OF THE PIPE AND FITTINGS AND THE FURNISHING OF ALL LABOR, MATERIALS, TOOLS AND APPLIANCES NECESSARY TO COMPLETE THE WORK AS SPECIFIED OR AS SHOWN.

2" WATER LINE TAPS

WORK INCLUDED

THE CONTRACTOR SHALL FURNISH ALL THE MATERIALS FOR AND SHALL PROPERLY CONNECT IN PLACE AT THE LOCATIONS SHOWN ON THE DRAWINGS STANDARD EXTRA HEAVY LEAD PIPE OR COPPER CONFORMING IN ALL RESPECTS TO THE RULES FOR WATER CONNECTIONS APPLICABLE AT THE TIME OF INSTALLATION AS PUBLISHED BY THE DIVISION OF WATER OF THE CITY OF CLEVELAND. THE CONTRACTOR SHALL MAKE THE NECESSARY TRENCH EXCAVATION, BACKFILL AND SEEDING AS MAY BE REQUIRED.

TAPPING

THE CONTRACTOR SHALL ARRANGE WITH THE DIVISION OF WATER TO MAKE THE PRESSURE TAP, INSTALL THE CORPORATION COCK AND FURNISH ANY OTHER MATERIAL WHICH THE DIVISION ELECTS TO SUPPLY. THE CONNECTION SHALL BE BLOCKED UP WITH STONE, BRICK OR CONCRETE TO INSURE A FIRM SUPPORT FOR SAID COUPLING AND RESIST ALL SETTLEMENTS IN BACKFILLING. THE BLOCKING SHALL BE HELD FIRMLY IN PLACE BY FINE DRY EARTH FIRMLY TAMPED AROUND IT. ON THE 2" PIPE A SHUT OFF VALVE SHALL BE CONNECTED, MOUNTED ON A BLOCKING OF STONE, BRICK OR CONCRETE TO RESIST SETTLEMENT.

MEASUREMENT

THE 2" WATER LINE TAPS TO BE PAID FOR SHALL BE THE ACTUAL NUMBER OF EACH, LISTED AND ESTIMATED SEPARATELY, COMPLETED AND ACCEPTED.

BASIS OF PAYMENT

THE UNIT PRICE STIPULATED FOR EACH 2" WATER TAP CONNECTED UNDER THIS ITEM SHALL INCLUDE THE FURNISHING AND DELIVERY TO THE PROPER LOCATION, EXCAVATION, BACKFILLING, SEEDING, AND THE FURNISHING OF ALL LABOR, MATERIALS, TOOLS AND APPLIANCES NECESSARY TO COMPLETE THE WORK AS SPECIFIED OR AS SHOWN.

SERVICE CONNECTIONS AND WATER METERS RELOCATED

WORK INCLUDED

(A) - THE CLEVELAND WATER DEPARTMENT WILL FURNISH THE PIPING MATERIAL FOR AND MAKE ALL CHANGES REQUIRED IN THE LOCATION OF EXISTING HOUSE CONNECTIONS AND METERS BUT THE CONTRACTOR SHALL DO ALL THE NECESSARY EXCAVATION, BACKFILLING AND REPAVING REQUIRED THEREFORE AND THE CITY WILL CHARGE THE CONTRACTOR FOR THE MATERIALS AND LABOR FURNISHED IN MAKING THESE SERVICE CONNECTIONS AND ALTERATIONS AND COSTS THEREOF SHALL BE INCLUDED IN THE UNIT PRICE BID FOR "SERVICE CONNECTIONS" OR "WATER METERS RELOCATED".

MEASUREMENT

THE SERVICE CONNECTIONS AND WATER METERS RELOCATED TO BE PAID FOR SHALL BE THE ACTUAL NUMBER OF EACH, LISTED AND ESTIMATED SEPARATELY, COMPLETED AND ACCEPTED.

BASIS OF PAYMENT

THE UNIT PRICE STIPULATED FOR EACH SERVICE CONNECTION AND WATER METER RELOCATED UNDER THIS ITEM SHALL INCLUDE THE FURNISHING AND DELIVERY TO THE PROPER LOCATION, EXCAVATION, BACKFILLING, SEEDING AND SODDING AND REPAVING AND THE FURNISHING OF ALL LABOR, MATERIALS, TOOLS AND APPLIANCES NECESSARY TO COMPLETE THE WORK AS SPECIFIED OR AS SHOWN.

HYDRANTS AND VALVES AND BOXES RELOCATED

WORK INCLUDED

THE CONTRACTOR SHALL REMOVE THE HYDRANTS AND VALVES AND BOXES AND PROPERLY SET IN PLACE AND CONNECT AT THE LOCATIONS SHOWN ON THE DRAWINGS OR AS DIRECTED BY THE ENGINEER. THIS SHALL INCLUDE ALL EXCAVATING, BACKFILLING, SEEDING AND SODDING, AND REPAVING REQUIRED FOR THE PROPER COMPLETION OF THE WORK INCLUDED UNDER THIS CONTRACT.

MATERIALS

ALL HYDRANTS AND VALVES AND BOXES TO BE RELOCATED MUST BE IN GOOD CONDITION. ALL OTHER MATERIALS AND APPURTENANCES NECESSARY FOR THE PROPER COMPLETION OF THIS ITEM SHALL BE OF THE KIND AND GRADE CALLED FOR IN THESE NOTES FOR THE PARTICULAR KIND OF CONSTRUCTION IN WHICH THE MATERIALS ARE TO BE USED.

CONSTRUCTION METHODS

THE CONSTRUCTION METHODS SHALL CONFORM TO THE REQUIREMENTS OF THE ITEM "FURNISHING AND SETTING 6" AND 4" HYDRANTS" FOR HYDRANTS AND THE ITEM "VALVES" FOR VALVES AND BOXES AS SET FORTH ELSEWHERE IN THESE NOTES

METHOD OF MEASUREMENT

THE HYDRANTS AND VALVES AND BOXES RELOCATED TO BE PAID FOR SHALL BE THE ACTUAL NUMBER OF EACH, LISTED AND ESTIMATED SEPARATELY, COMPLETED AND ACCEPTED.

BASIS OF PAYMENT

THE UNIT PRICE STIPULATED FOR EACH HYDRANT AND VALVE AND BOX RELOCATED UNDER THIS ITEM SHALL INCLUDE REMOVING, RECONNECTING ACCORDING TO THE PROVISIONS OF THESE SPECIFICATIONS FOR THE PARTICULAR TYPE OF CONSTRUCTION CALLED FOR ON THE PLANS, AND FOR ALL EXCAVATION, BACKFILLING, SEEDING AND SODDING AND REPAVING, AND THE FURNISHING OF ALL MATERIAL, LABOR, EQUIPMENT, TOOLS AND APPLIANCES NECESSARY TO COMPLETE THE WORK AS SPECIFIED OR AS SHOWN.

HYDRANTS AND VALVES REMOVED

WORK INCLUDED

THE CONTRACTOR SHALL PERFORM ALL OPERATIONS NECESSARY TO THE PROPER REMOVAL OF THE HYDRANT AND VALVE AT THE LOCATIONS SHOWN ON THE PLANS. THIS WORK SHALL INCLUDE EXCAVATING, REMOVING, CLEANING, TRANSPORTING, STORING, BACKFILLING, SEEDING AND SODDING, AND REPAVING REQUIRED FOR THE PROPER COMPLETION OF THE WORK INCLUDED UNDER THIS CONTRACT.

REMOVING, CLEANING, TRANSPORTING AND STORING

THE HYDRANT AND VALVE SHALL BE REMOVED IN SUCH A MANNER THAT IT WILL NOT BE DAMAGED. AFTER REMOVAL THE HYDRANT AND VALVE SHALL BE CLEANED AND HAULED TO THE HARVARD YARDS.

METHOD OF MEASUREMENT

THE PAY QUANTITIES FOR THIS ITEM SHALL BE DETERMINED AFTER ALL OF THE REQUIREMENTS OF THIS ITEM SHALL HAVE BEEN PERFORMED. THE HYDRANTS AND VALVES REMOVED TO BE PAID FOR SHALL BE THE ACTUAL NUMBER OF EACH REMOVED IN ACCORDANCE WITH THE REQUIREMENTS OF THIS ITEM.

BASIS OF PAYMENT

THE ACTUAL NUMBER OF HYDRANTS AND VALVES MEASURED AS PROVIDED ABOVE SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE BID FOR "HYDRANTS AND VALVES REMOVED FOR STORAGE" OR "HYDRANTS AND VALVES REMOVED". THIS PRICE AND PAYMENT SHALL CONSTITUTE FULL COMPENSATION FOR PERFORMING ALL OF THE REQUIREMENTS OF THIS ITEM, FURNISHING ALL NECESSARY MATERIALS, LABOR, TOOLS, EQUIPMENT, SUPPLIES AND INCIDENTALS.

CONT. No. 58019 SHEET ACCT. No. 6129

TRYGVE HOFF & ASSOCIATES
ENGINEERS
1922 EAST 107TH STREET CLEVELAND, OHIO

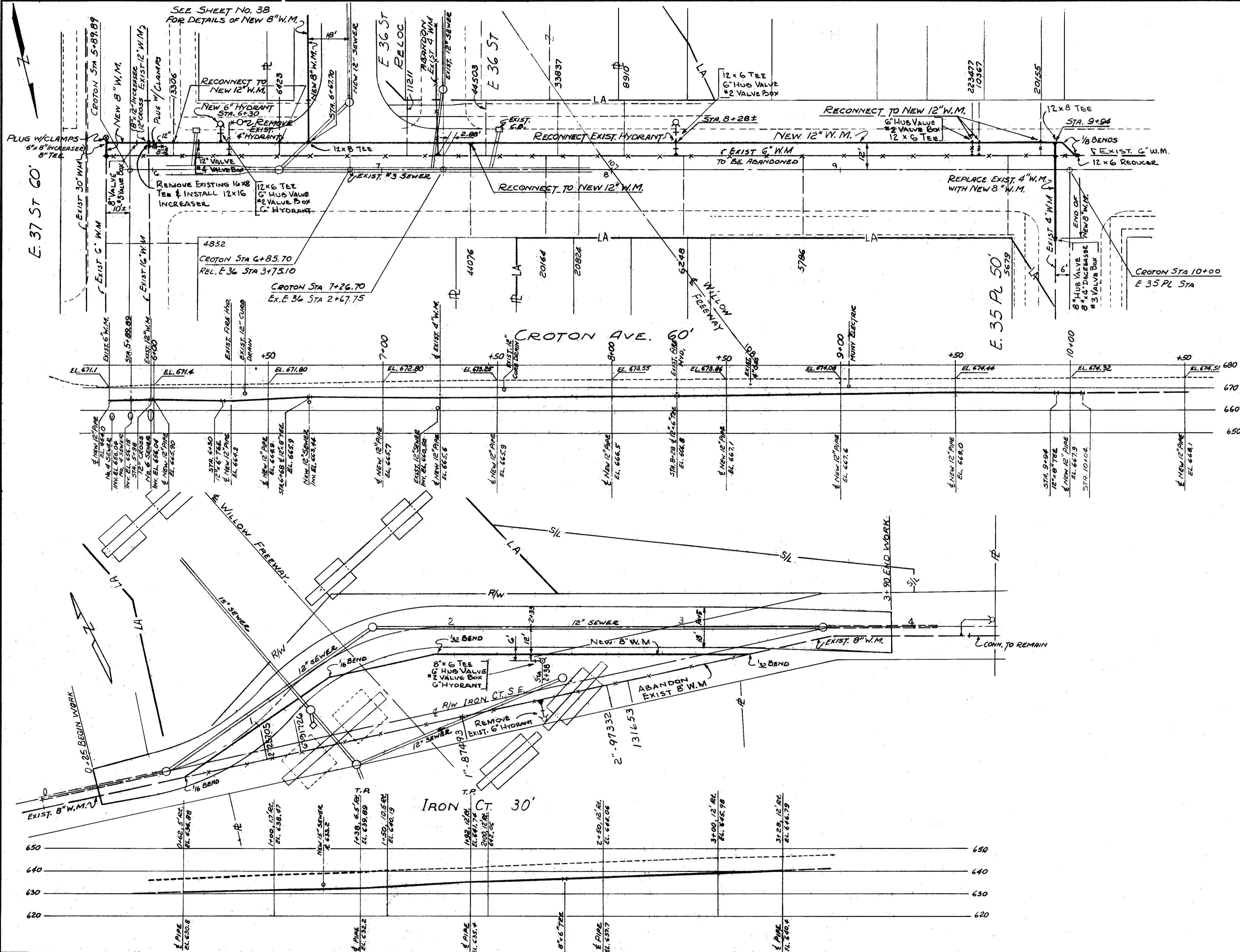
WATERWORK NOTES

SCALE				DATE			
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED	
	P.H.		R.R.	T.L.L.	9/18/62		

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

37
164

CUYAHOGA COUNTY
CUY- 21-14.55



NOTE: ALL CI PIPE TO BE CLASS 25
FITTINGS TO BE BELL & BELL OR BELL &
SPIGOT
FITTINGS & HYDRANT COUPLERS TO HAVE LEADED JOINTS
NOTE: FOR LEGEND SEE SHEET 38
FOR LOCATION OF EXISTING HOUSE
CONNECTIONS & VALVES SEE CITY OF
CLEVELAND ROLL MAPS:
4177 - IRON COURT
715 - CROTON AVE.

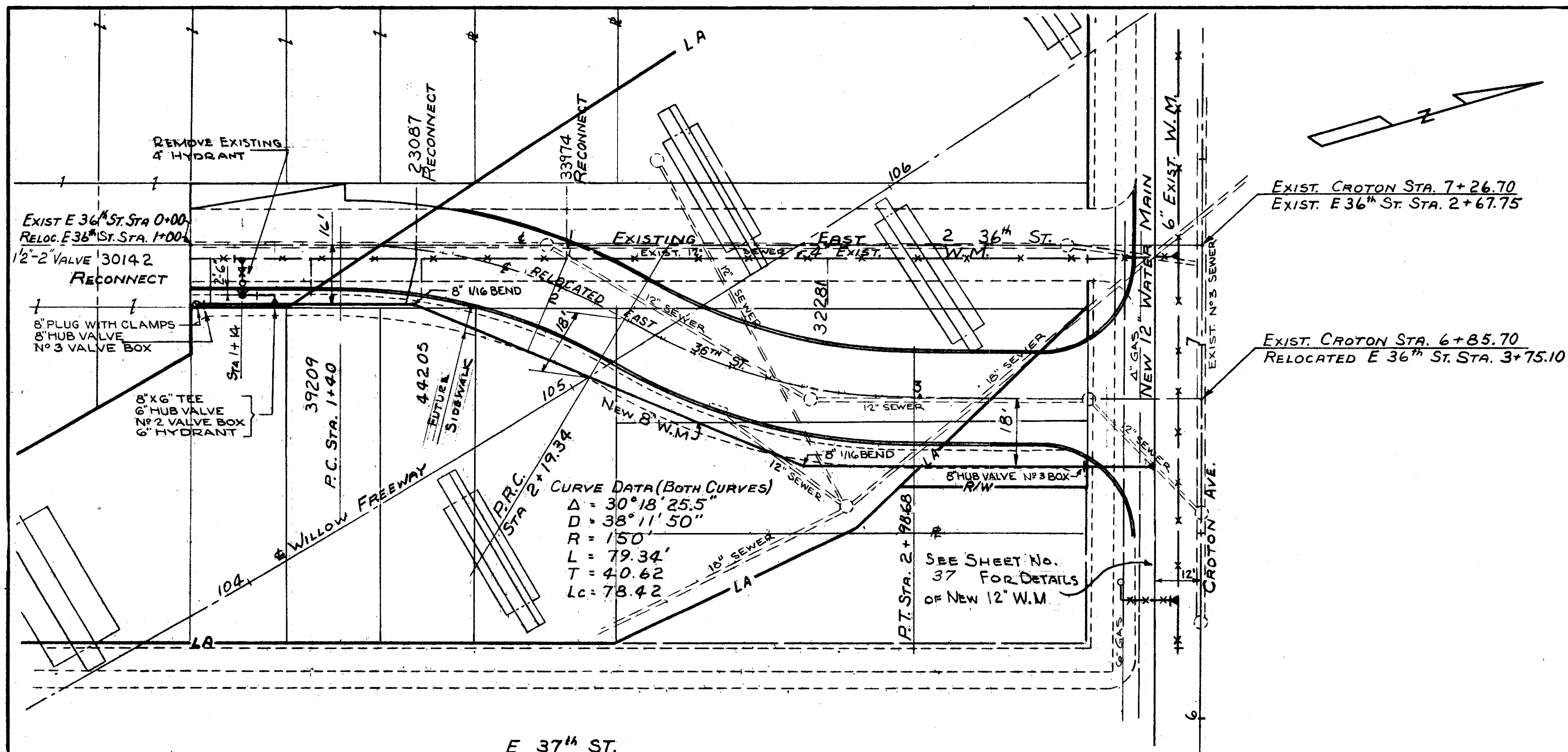
TRYGVE HOFF & ASSOCIATES
ENGINEERS
1922 EAST 107TH STREET CLEVELAND, OHIO

WATER MAINS
CROTON AVE. & IRON CT.

SCALE 1" = 20' DATE

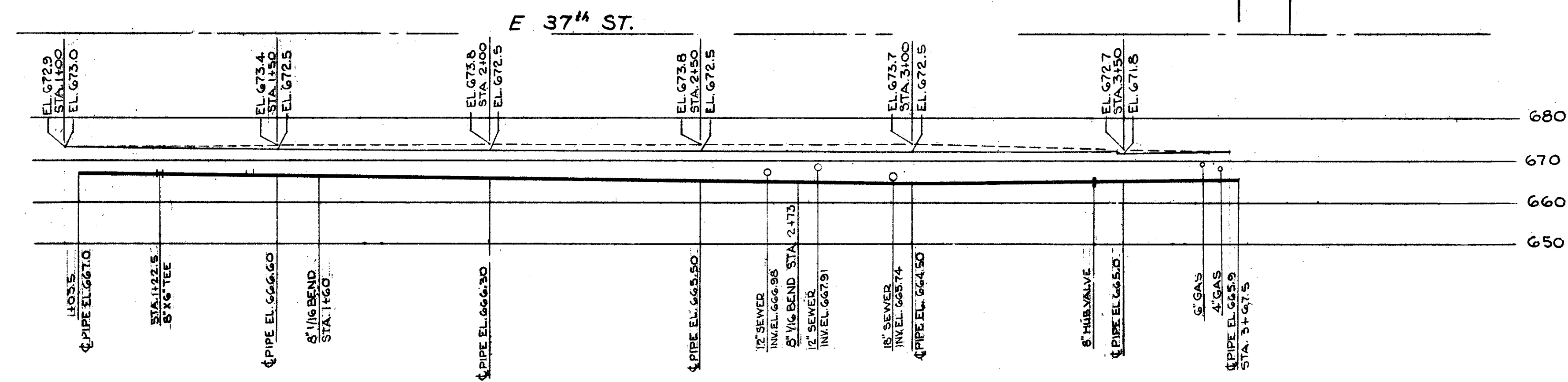
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
J.P.	C.R.		R.R.	T.L.L.	9/18/62	

CONT. No. 58019 SHEET ACCT. No. G131



CURVE DATA (BOTH CURVES)
 $\Delta = 30^\circ 18' 25.5''$
 $D = 38^\circ 11' 50''$
 $R = 150'$
 $L = 79.34'$
 $T = 40.62'$
 $Lc = 78.42'$

SEE SHEET NO. 37 FOR DETAILS OF NEW 12" W.M.



PROFILE

NOTE: ALL C.I. PIPE TO BE CLASS 25
 FITTINGS TO BE BELL & BELL OR BELL & SPIGOT
 FITTINGS & HYDRANT CONNECTION TO HAVE
 LEADED JOINTS

LEGEND

—————	- NEW WATER MAIN
- - - - -	- EXISTING WATER MAIN
× × × × ×	- " " " ABANDON
●	- CONNECTIONS TO BE PLUGGED
○	- C.I. PLUGS & CAPS.
⊕	- HYDRANT NEW
⊕	- " EXISTING

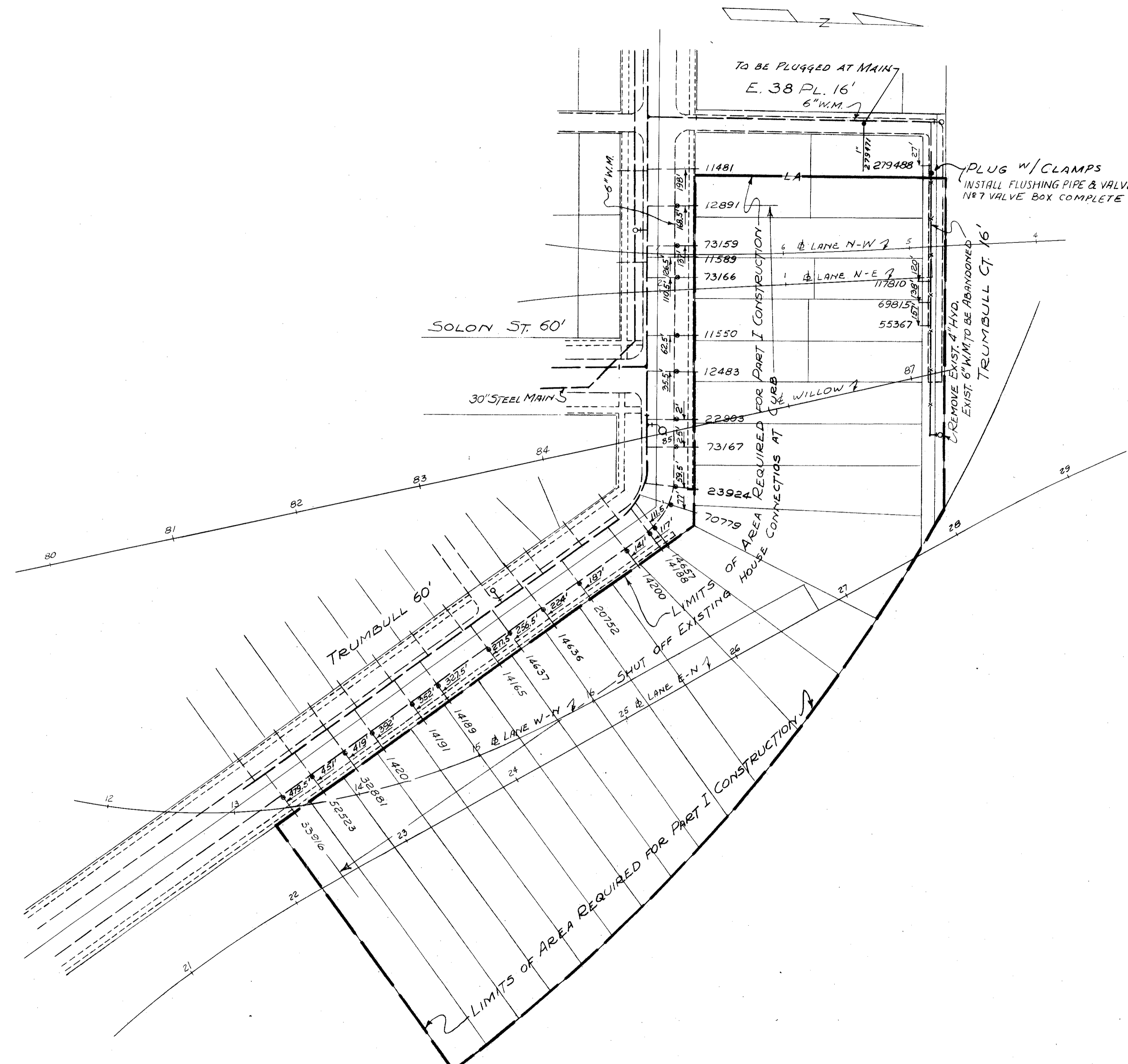
NOTE: FOR LOCATION OF EXISTING HOUSE CONNECTIONS & VALVES, SEE CITY OF CLEVELAND ROLL MAPS 3258 & 715

TRYGVE HOFF & ASSOCIATES ENGINEERS 1922 EAST 107TH STREET CLEVELAND, OHIO					
WATER MAINS NEW 8" WATER MAIN IN RELOCATED E. 36 ST					
SCALE 1" = 20'			DATE		
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE
J.P.	W.F.E.		R.R.	T.L.L.	9/18/62

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

39
164

CUYAHOGA COUNTY
CUY- 21-14.55



NOTE: FOR LEGEND SEE SHEET 38,
FOR LOCATION OF EXISTING HOUSE
CONNECTIONS SEE ROLL MAP 2288
OF THE CITY OF CLEVELAND.

TRYGVE HOFF & ASSOCIATES
ENGINEERS
1922 EAST 107TH STREET CLEVELAND, OHIO

WATER MAINS
TRUMBULL COURT & TRUMBULL AVE.
ABANDONED WATER MAIN
& PLUGGED HOUSE CONNECTIONS

SCALE 1" = 50' DATE

DESIGNED	DRAWN	TRACED	CHECKED	DATE
J.P.	C.B.		R.R.	J.L.L. 9/18/62

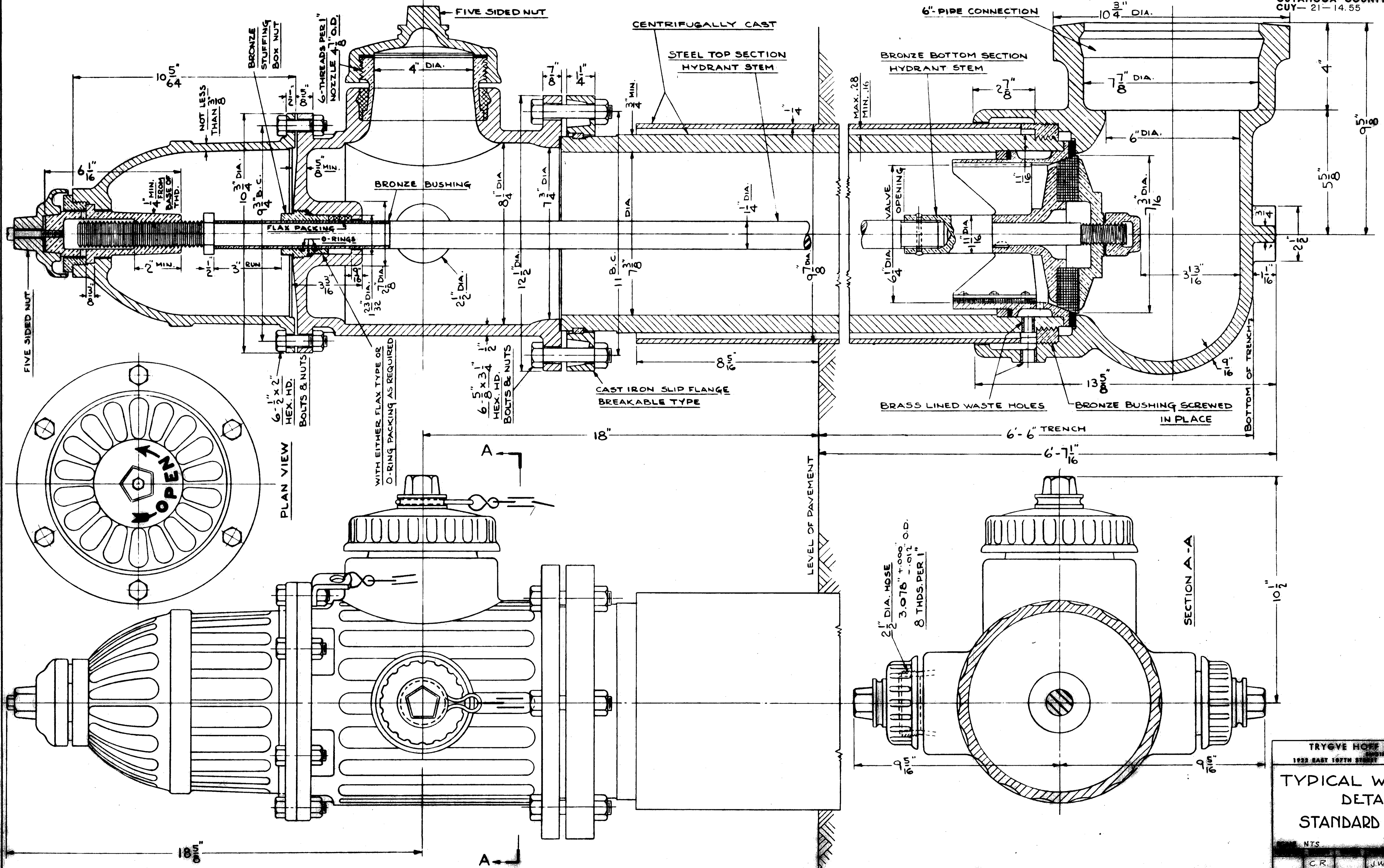
CONT. NO. 58019 SHEET ACCT. NO. G132

TYPICAL WATERWORK DETAILS

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

40
164

CUYAHOGA COUNTY
CUY-21-14.55



CONT. No. 58019 SHEET ACCT. No. 6145

TRYGVE HOEF & ASSOCIATES
1922 EAST 107TH STREET CLEVELAND, OHIO

TYPICAL WATERWORK DETAILS
STANDARD 6" HYDRANT

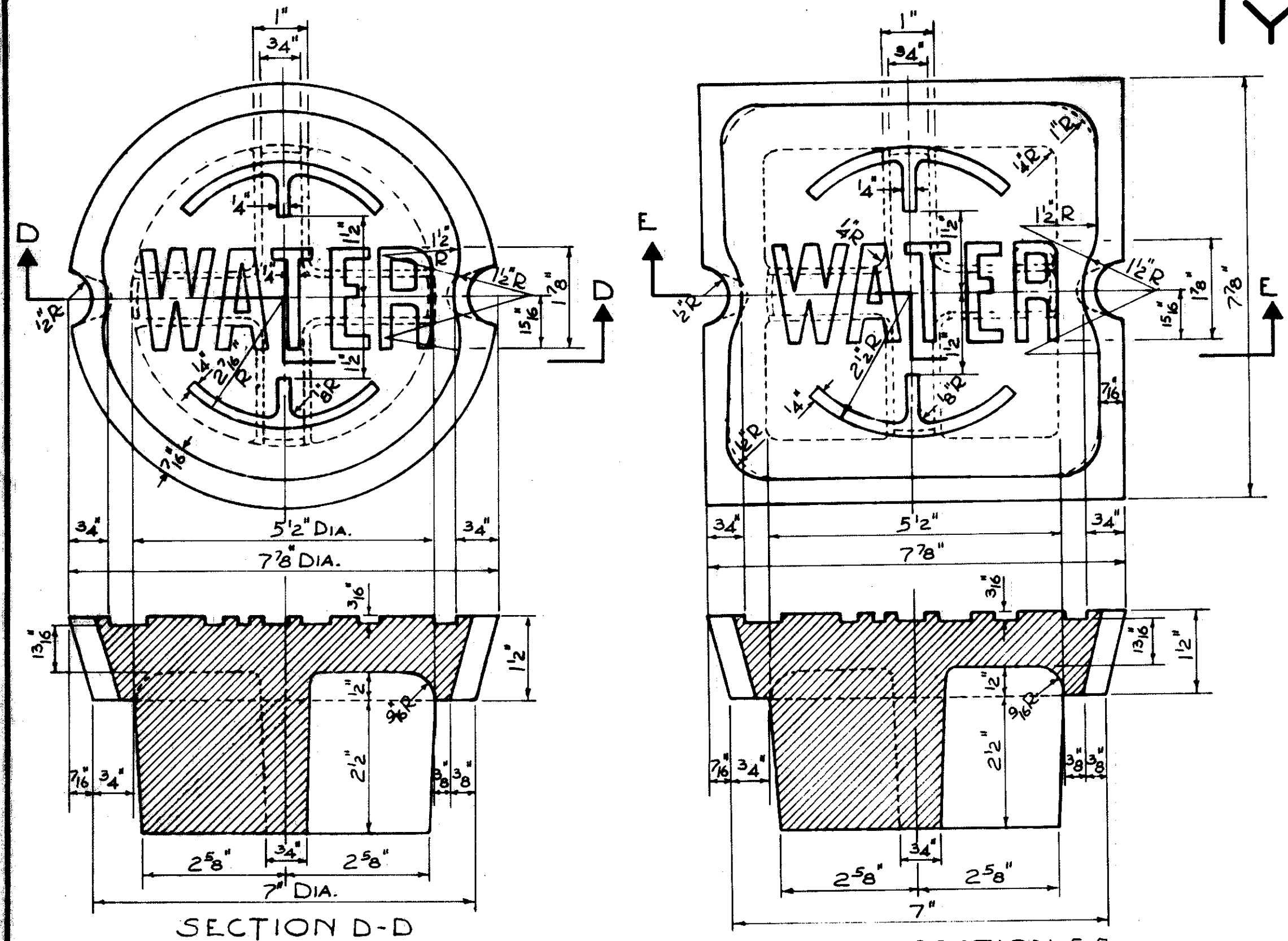
NTS
C.R. J.W.P. T.L.L. 9/18/60

TYPICAL WATERWORK DETAILS

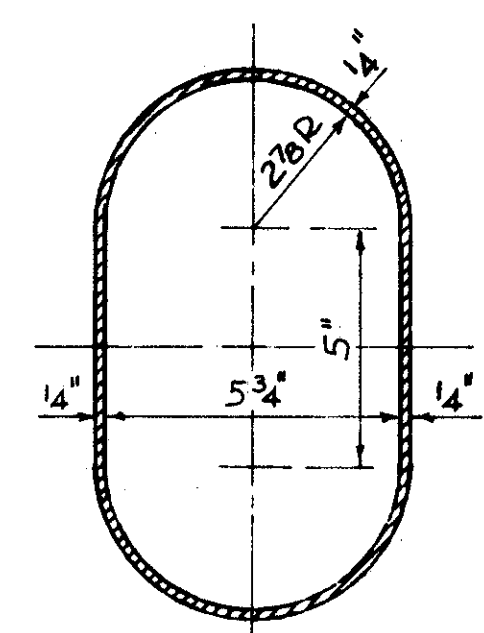
FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

41
164

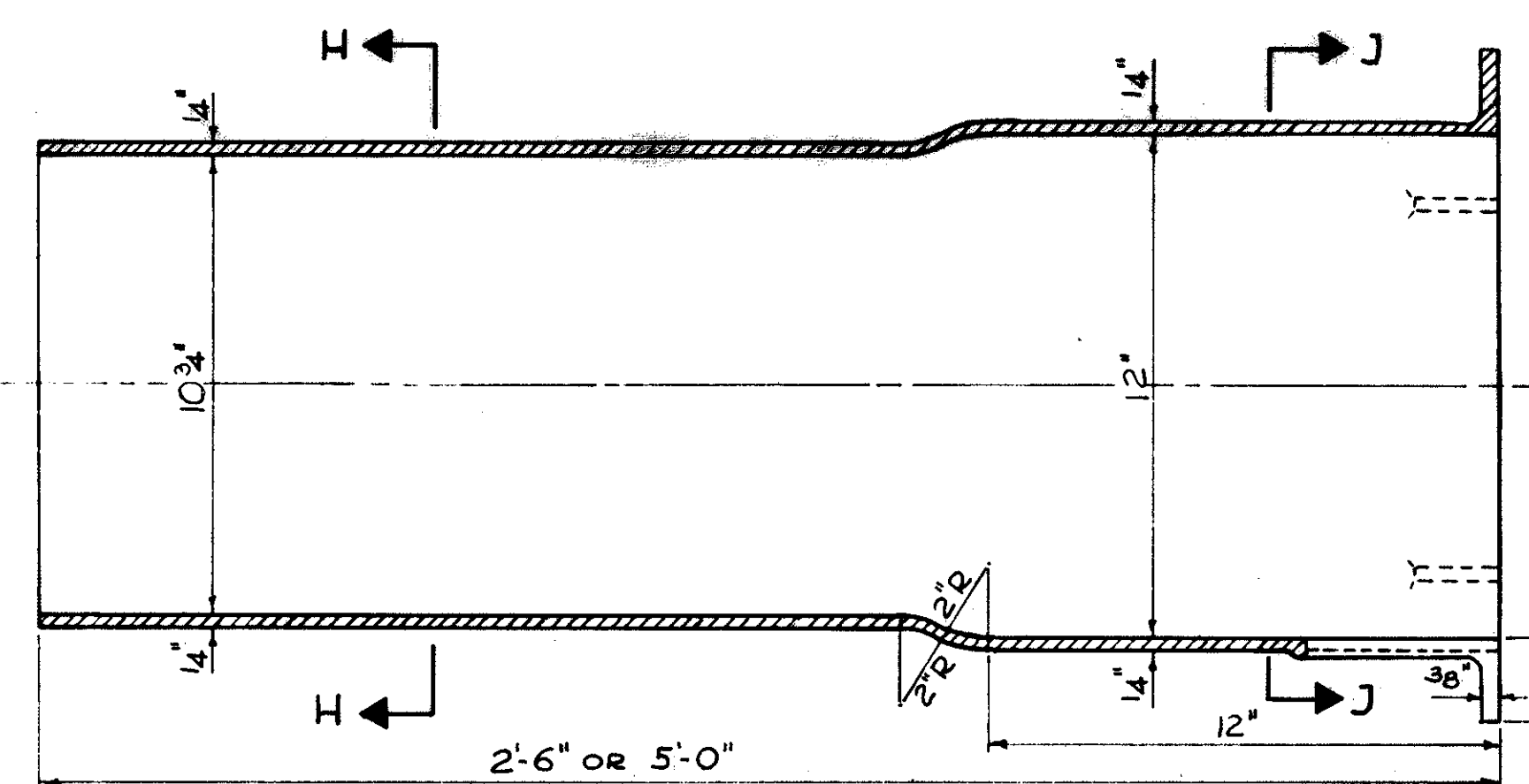
CUYAHOGA COUNTY
CUY- 21-14.55



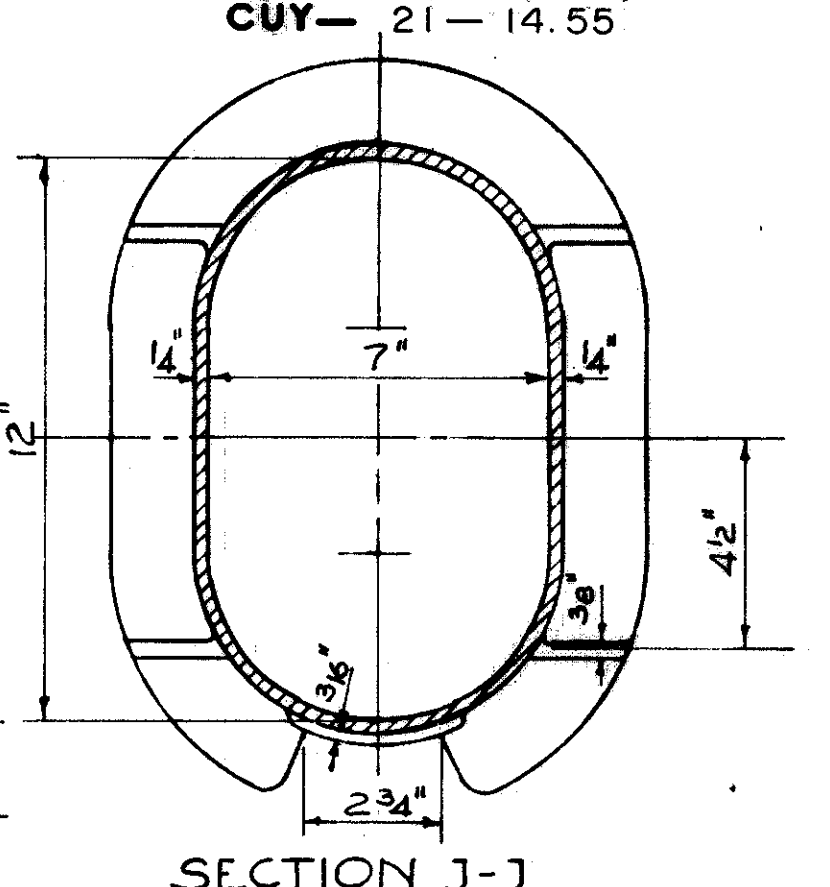
DETAIL OF ROUND COVER FOR No.1 AND 2 TOP EST. WT. 20#
DETAIL OF SQUARE COVER FOR No.3 AND 4 TOP EST. WT. 23#



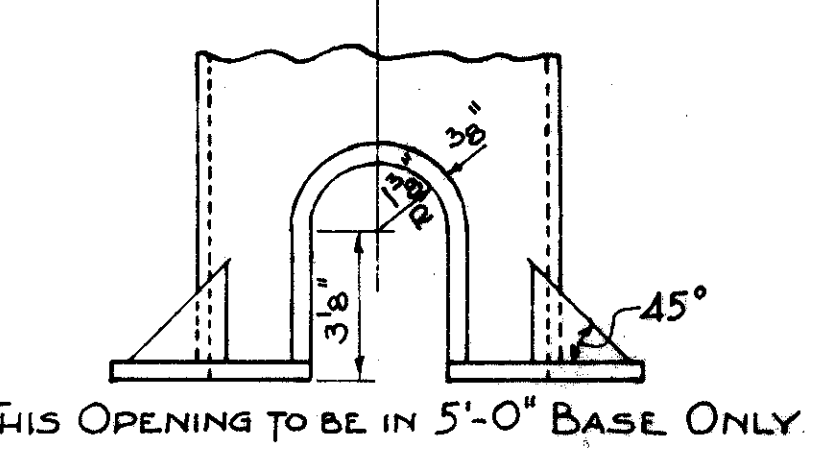
SECTION H-H



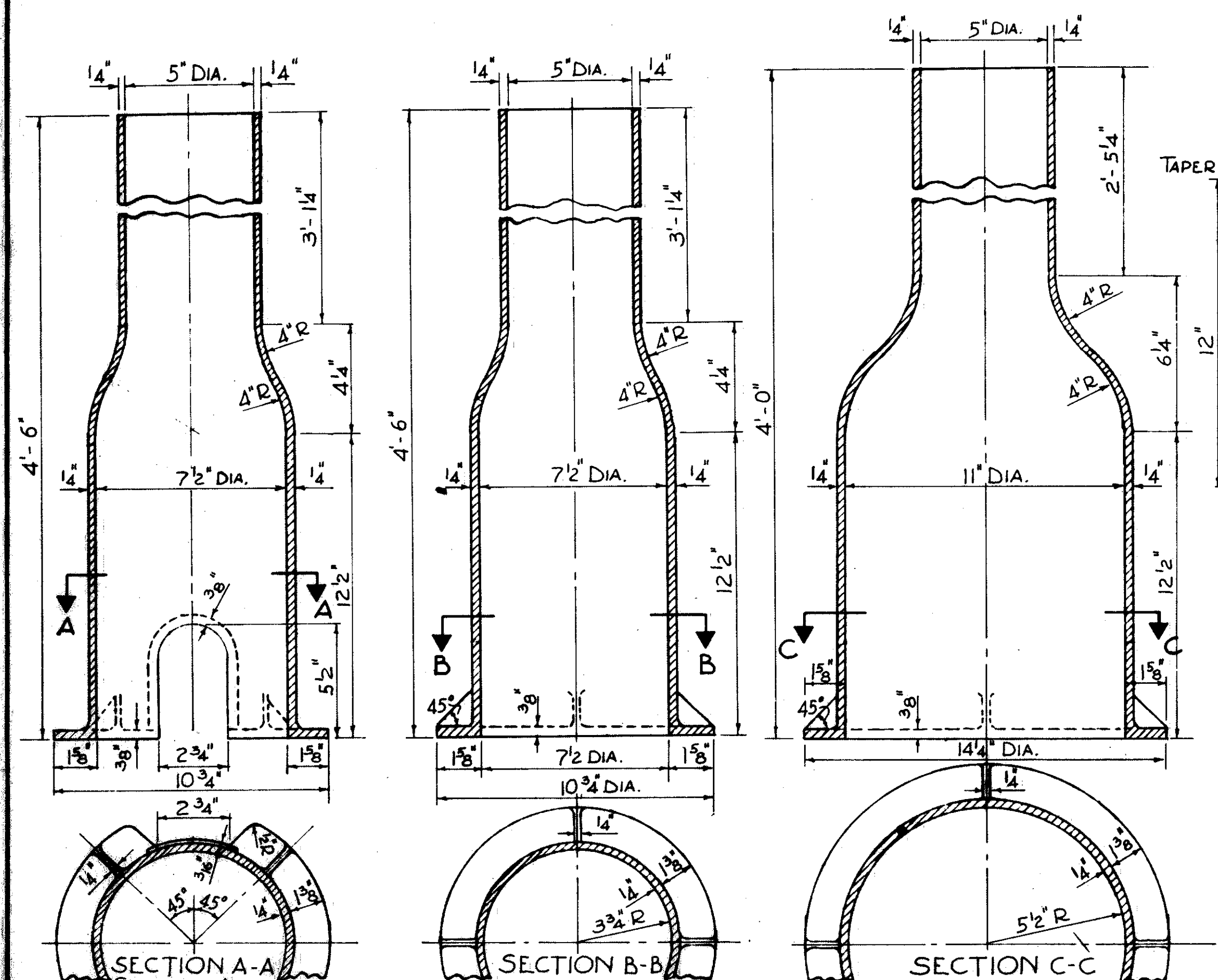
BASE
EST. WEIGHT 2'-6" LONG = 70#
EST. WEIGHT 5'-0" LONG = 126#



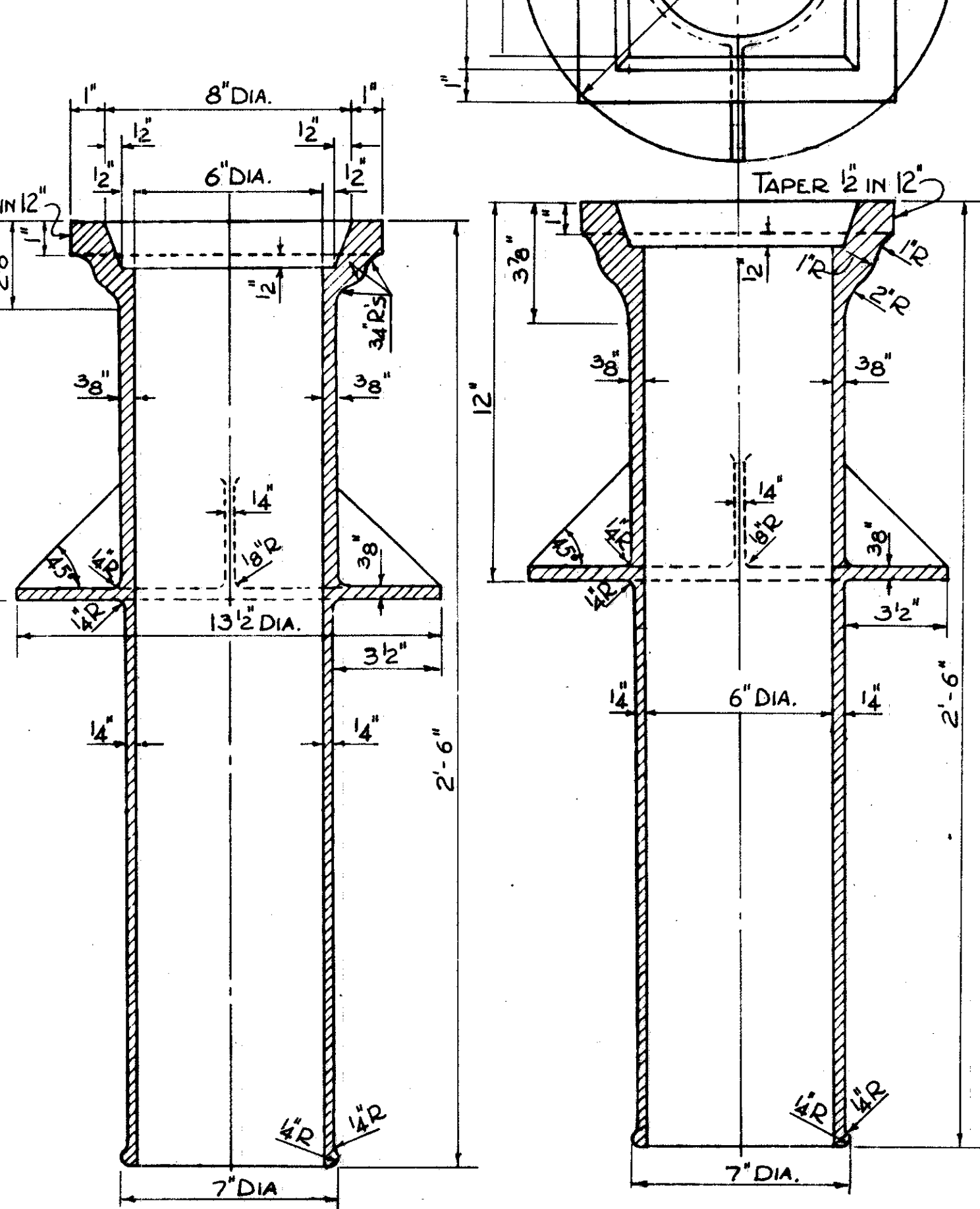
SECTION J-J



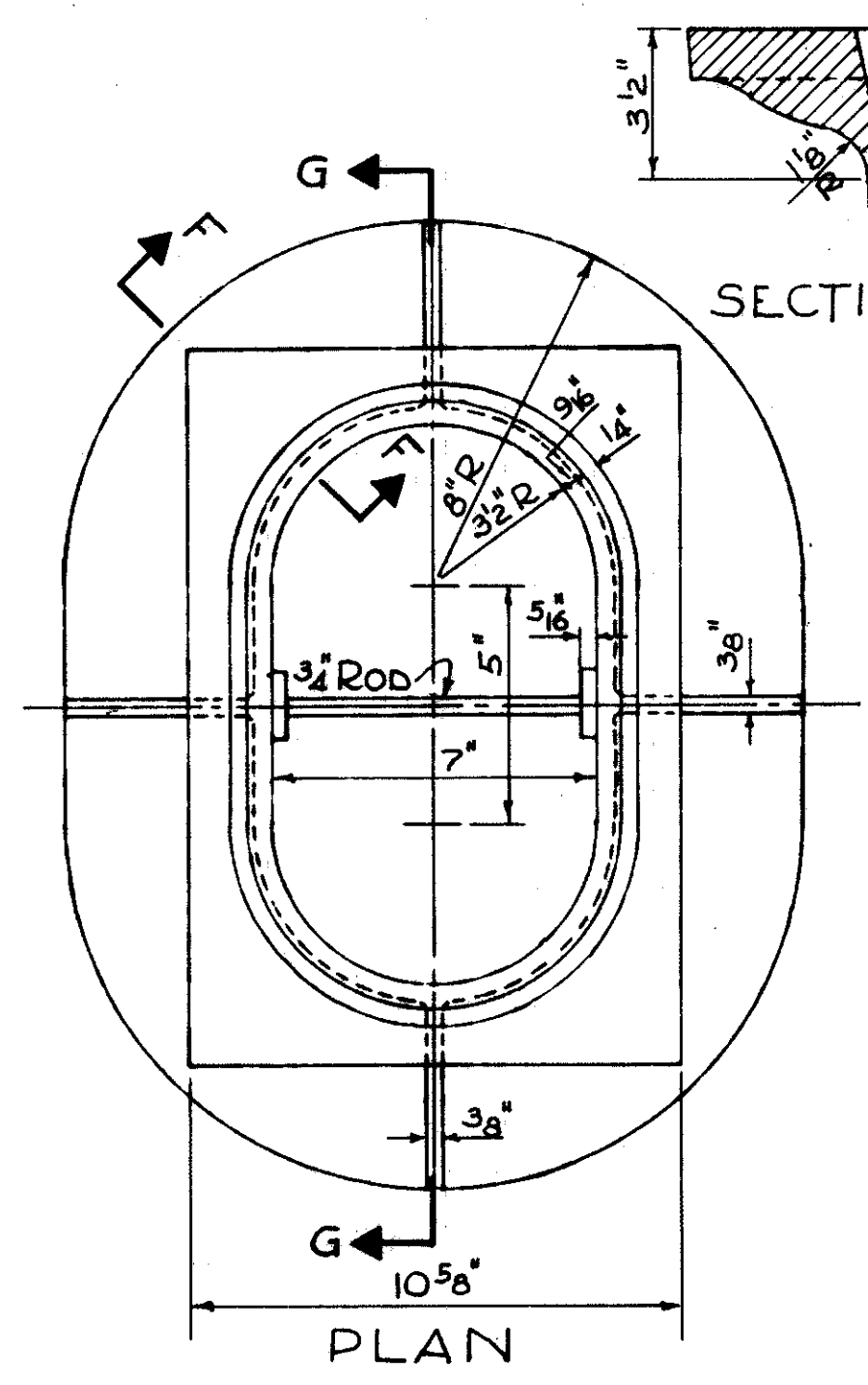
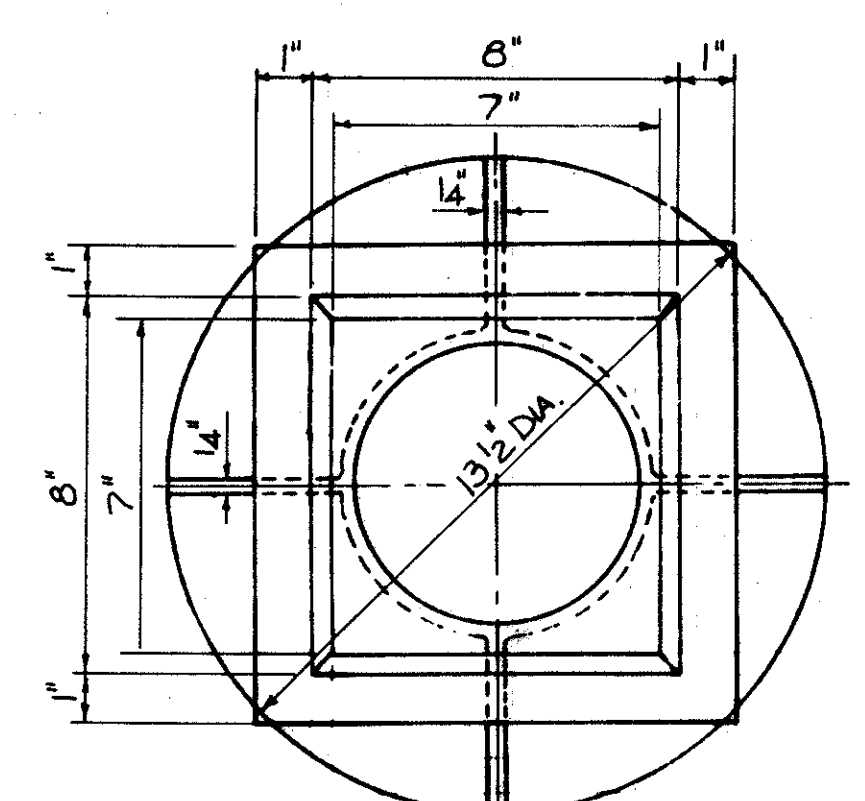
THIS OPENING TO BE IN 5'-0" BASE ONLY



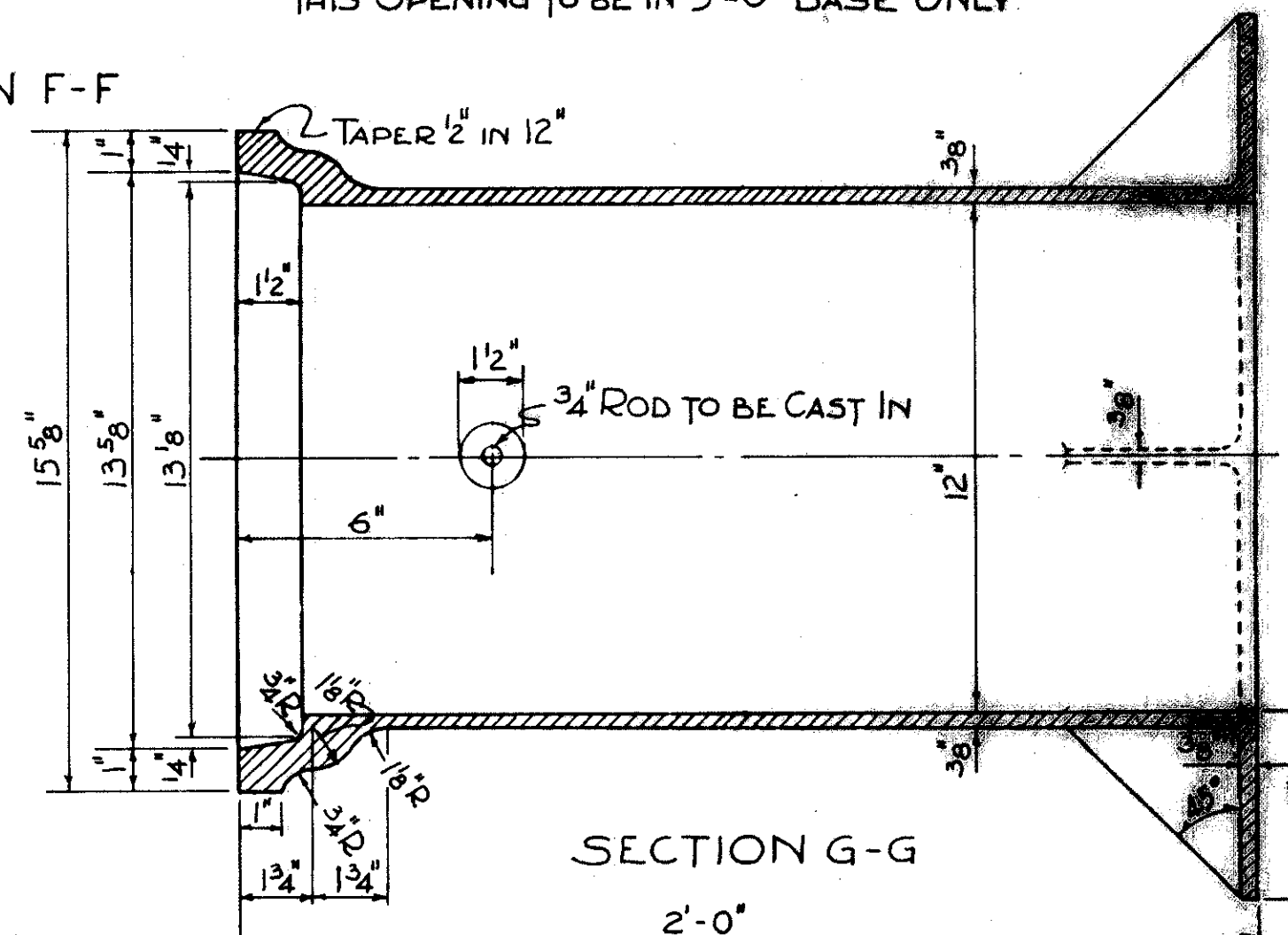
SECTION A-A SYMMETRICAL ABOUT BASE No.1 FOR 1 1/2" AND 2" VALVES EST. WEIGHT 69#
SECTION B-B BASE No.2 AND 3 FOR 3", 4", 6" AND 8" VALVES EST. WEIGHT 71#
SECTION C-C BASE No.4 FOR 10", 12" AND 16" VALVES EST. WEIGHT 79#



TOP WITH ROUND HEAD No.1 AND 2 EST. WEIGHT 73#
TOP WITH SQUARE HEAD No.3 AND 4 EST. WEIGHT 85#

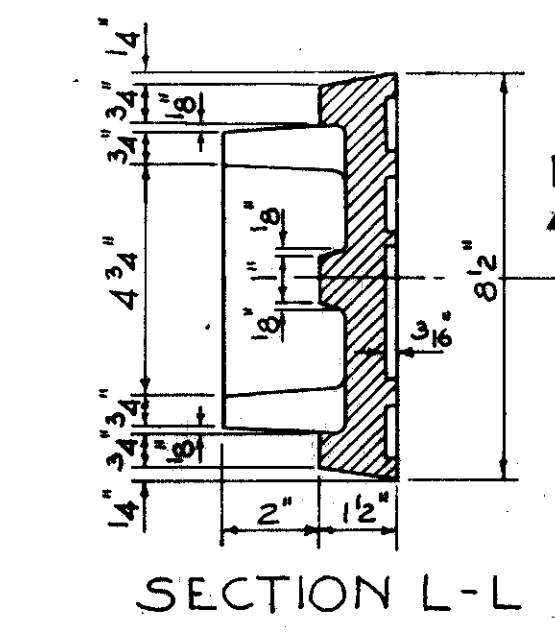


PLAN



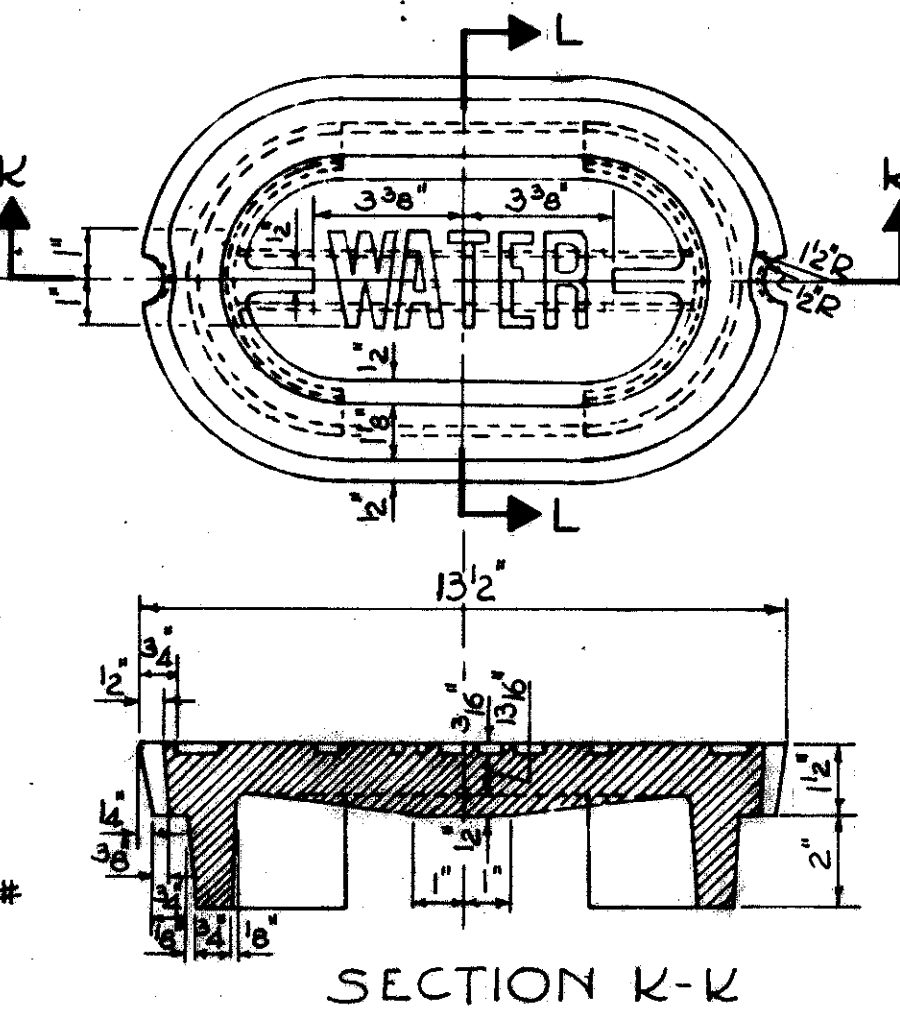
SECTION G-G

AIR COCK BOX No.5 IS TOP AND COVER
AIR COCK BOX No.6 IS TOP, BASE 2'-6" LONG AND COVER
FLUSHING BOX No.7 IS TOP, BASE 5'-0" LONG AND COVER



SECTION L-L

COVER
EST. WEIGHT 37#



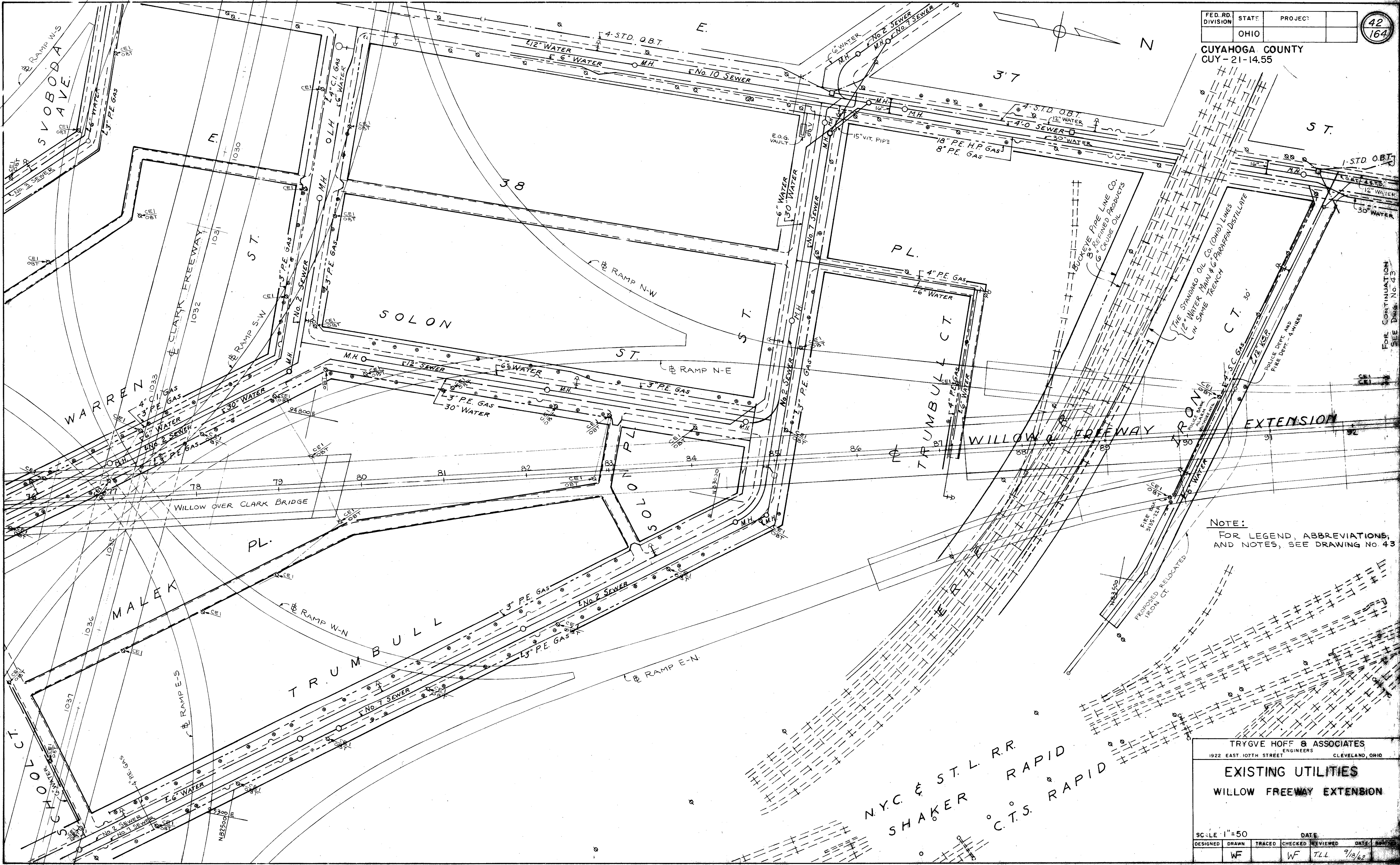
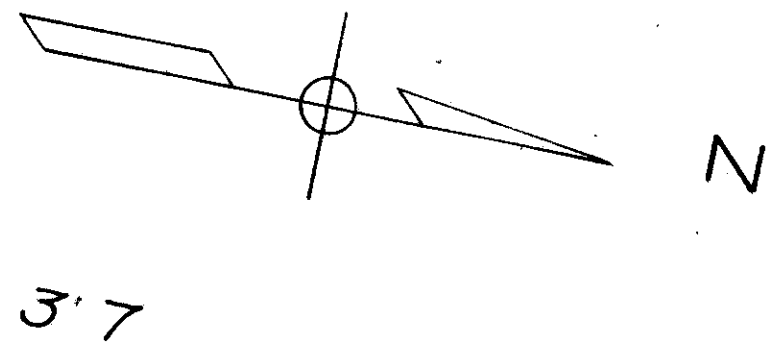
SECTION K-K

DETAIL OF AIR COCK BOX No.5 AND 6 AND FLUSHING BOX No.7

CONT. No. 58019 SHEET ACCT. No. 6146

TRYGVE HOLT & SONS
1922 EAST 107TH ST.
TYPICAL WATERWORK DETAILS
VALVE BOXES

NTS
C.R. J.W.P. 9/11/11



NOTE:
FOR LEGEND, ABBREVIATIONS,
AND NOTES, SEE DRAWING NO. 43

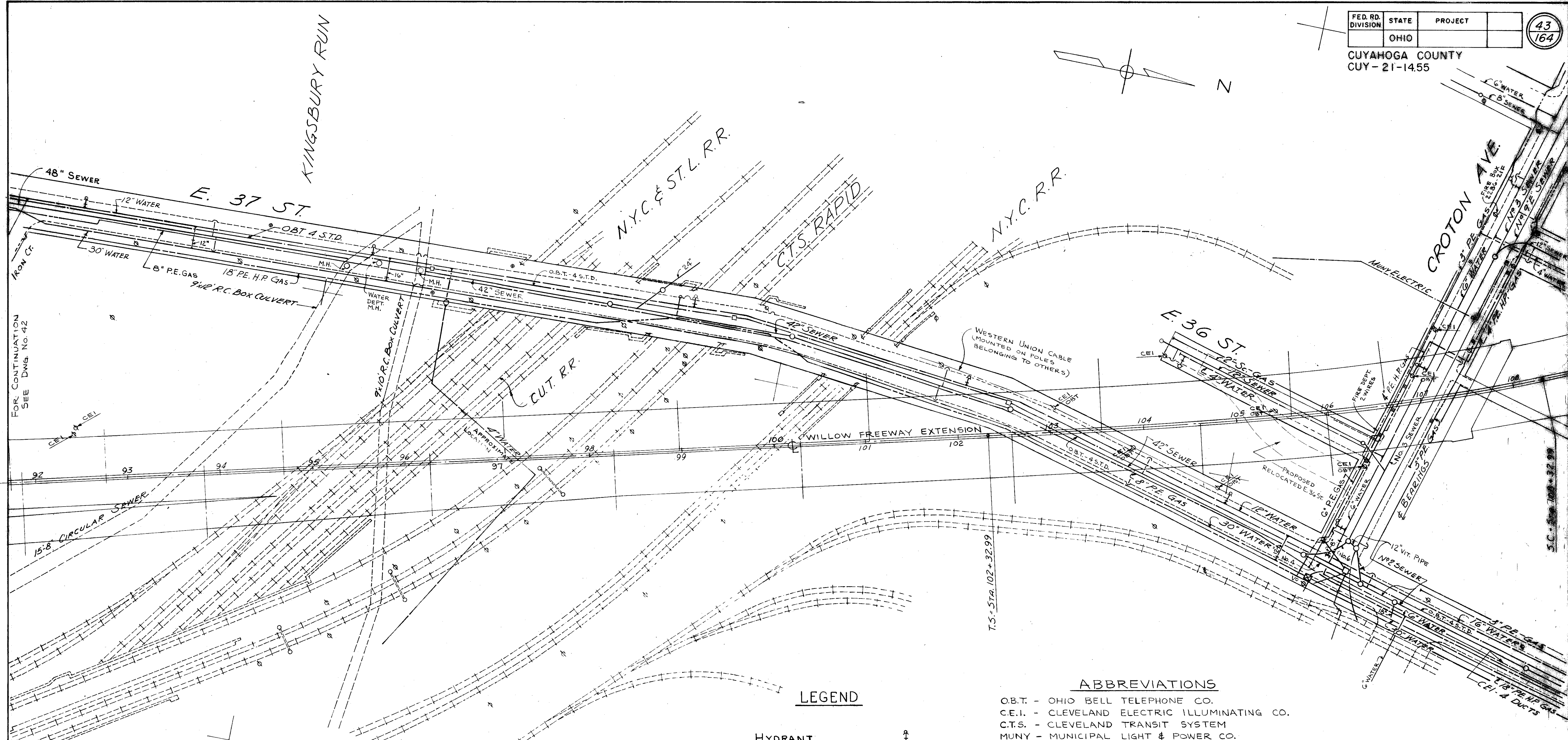
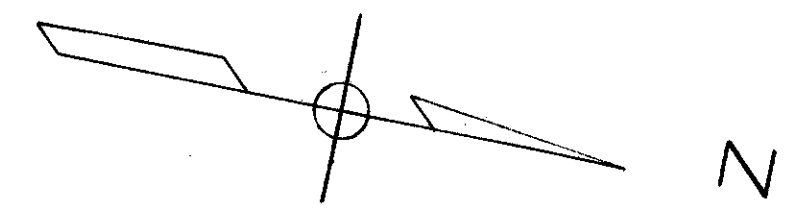
TRYGVE HOFF & ASSOCIATES
1922 EAST 107TH STREET ENGINEERS CLEVELAND, OHIO

EXISTING UTILITIES
WILLOW FREEWAY EXTENSION

SCALE 1"=50	DATE			
DESIGNED	TRACED	CHECKED	REVIEWED	DATE
WF	WF	TLL		9/18/62

CONT. No. 58019 SHEET ACCT. No. 1085

FOR CONTINUATION
SEE DRAWING NO. 43



FOR CONTINUATION
 SEE DNG. No. 42

CONT. No. 58019 SHEET ACCT. No. 1086

LEGEND

- HYDRANT
- VENT PIPES
- WATER METER VAULT
- POLE
- CURB
- SEWER
- GAS
- WATER
- O. B. T. (UNDERGROUND)
- C. E. I. (UNDERGROUND)
- MUNY ELEC. (UNDERGROUND)
- R/W
- R.R.
- MISCELLANEOUS (TYPE & OWNER AS NOTED ON PLAN)

ABBREVIATIONS

- O.B.T. - OHIO BELL TELEPHONE CO.
- C.E.I. - CLEVELAND ELECTRIC ILLUMINATING CO.
- C.T.S. - CLEVELAND TRANSIT SYSTEM
- MUNY - MUNICIPAL LIGHT & POWER CO.
- R/W - RIGHT OF WAY
- SC. - SCREW END (PIPE)
- RE. - PLAIN END (PIPE)
- RE.H.P. - PLAIN END HIGH PRESSURE
- M.H. - MANHOLE

NOTES:

1. OWNERSHIP OF POLES IN PATH OF FREEWAY CONSTRUCTION IS DESIGNATED THUS:
2. SEWER DESIGNATIONS ARE CITY OF CLEVELAND STANDARDS, AND ARE COMBINED SEWERS.

TRYGVE HOFF & ASSOCIATES
 ENGINEERS
 1922 EAST 107TH STREET CLEVELAND, OHIO

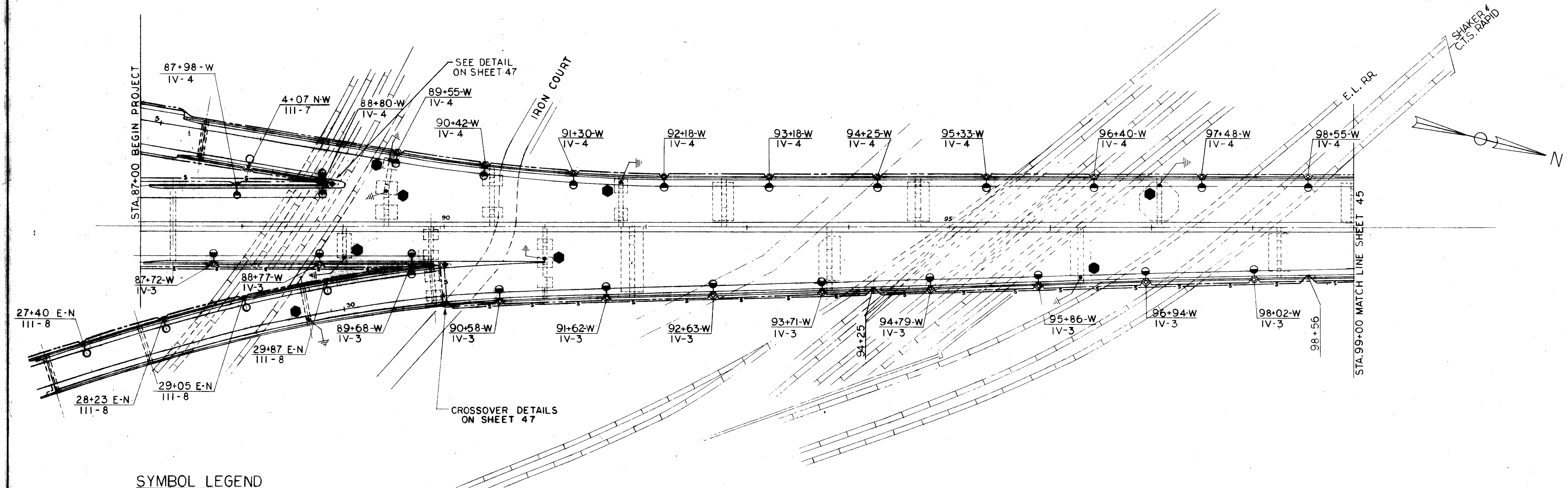
EXISTING UTILITIES
WILLOW FREEWAY EXTENSION

SCALE: 1" = 50' DATE:

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE
C.A.T.	WF	T.L.L.	9/18/62	12-28-62	

SUMMARY OF MATERIAL						SUMMARY OF MATERIAL							
ITEM	DESCRIPTION	SH. 44	SH. 45	SH. 49	UNIT	TOTAL	ITEM	DESCRIPTION	SH. 44	SH. 45	SH. 49	UNIT	TOTAL
S-25	LAMP STANDARD, TYPE "W"	2			EA.	2	S-25	FIRE & POLICE ALARM	2			EA.	** 2
S-25	LAMP STANDARD, TYPE "X"	26	16		EA.	42	S-					EA.	
S-25	BOX 24" X 12" X 12"	31	16		EA.	47	S-25	BOX 30" X 12" X 12" (ALARM)	5	2		EA.	7
S-25	CONDUIT, 2" KORDUCT	7000	4400		LIN. FT.	11400	S-25	CONDUIT, 2" KORDUCT (ALARM)	1500	1000		LIN. FT.	2500
S-25	CONDUIT, 2" GALV.	240			LIN. FT.	240	S-25	CONDUIT, 2" GALV. (ALARM)	120			LIN. FT.	120
S-25	FLUORESCENT LUMINA, MK A			4	EA.	4							
S-25	SERVICE BOX, MK S			1	EA.	1							
S-25	DISTRIBUTION BOX, MK T			2	EA.	2							
S-25	SERVICE FOR UNDERDECK LTG.				LUMP	LUMP						LUMP	LUMP
							S-25	ELECTRICAL GROUNDS				LUMP	LUMP

* 100% City Participation CUYAHOGA COUNTY CUY-21-14.55



SYMBOL LEGEND

- — FIRE ALARM AND POLICE EMERGENCY PHONE ASSEMBLY, SEE SHEET 47.
- ⊕ — RAMP LIGHTING UNIT—TYPE "X" STANDARD—BRACKET ARM 10 FT LONG. DETAILS ON SHEET 46.
- ⊕ — LIGHTING UNIT ON BRIDGE STRUCTURE—BRACKET ARM 10 FT LONG. DETAILS ON SHEET 46.
- ⊕ — DOTTED PORTION OF SYMBOL SHOWS DOUBLE LUMINAIRE AS AT STA. 88+80 SOUTHBOUND & STA. 89+68 NORTHBOUND
- S — ALARM DUCT—ONE 2" CONDUIT (FOR POLICE & FIRE SIGNAL SYSTEMS)
- — — LIGHTING DUCT—TWO 2" CONDUITS
- 116+16-W IV-2 — TOP LINE—L OR A STATION, W FOR FREEWAY OR RAMP NUMBER
BOTTOM LINE—A.S.A.I.E.S. DISTRIBUTION, CIRCUIT NUMBER
- — OTHER SYMBOLS ARE IDENTIFIED WHERE SHOWN
- — FIXED PIER TO BE GROUNDED — SEE SHEET 49 FOR DETAIL DESCRIPTION

TRYGVE HOFF & ASSOCIATES
ENGINEERS
1922 EAST 107TH STREET CLEVELAND, OHIO

LIGHTING PLAN

BRIDGE NO. CUY-21-14.55
WILLOW FREEWAY OVER KINGSBURY TUNN
CUYAHOGA COUNTY USR 21
STA. 87+00 TO STA. 98+00

SCALE 1" = 80' DATE

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED
SGF	JMW		WFE	EBW

Revised 7-24-63 C.E.H.

THIS SHEET SUPERSEDES SHEET 44.

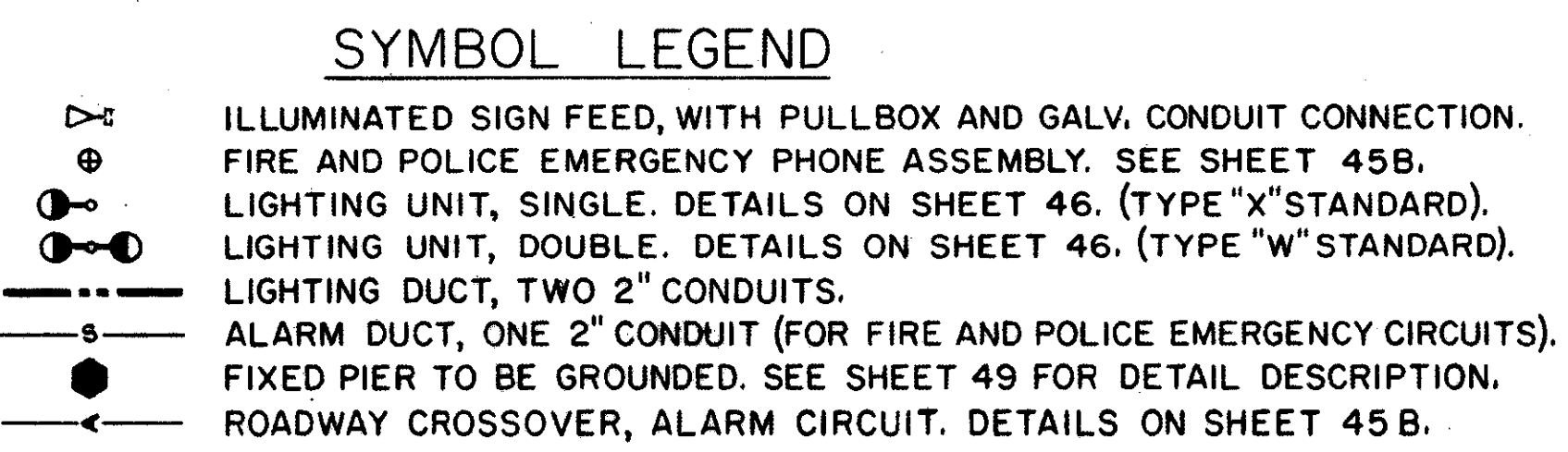
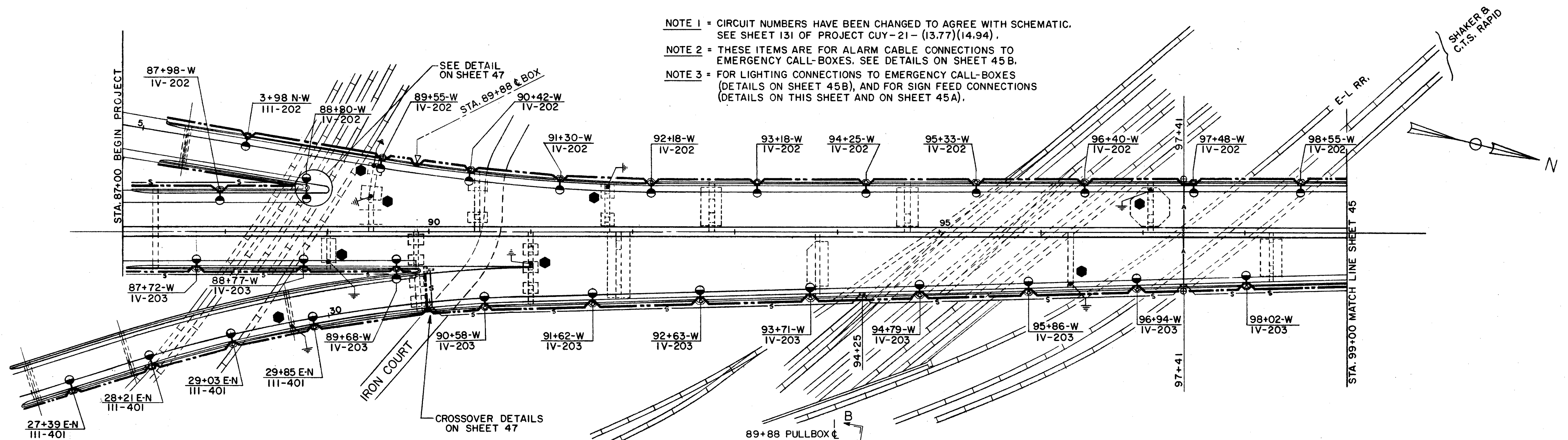
SUMMARY OF MATERIAL						SUMMARY OF MATERIAL					
ITEM	DESCRIPTION	SH. 44A	SH. 45A	SH. 49	TOTAL	ITEM	DESCRIPTION	SH. 44A	SH. 45A	SH. 49	TOTAL
S-25	LAMP STANDARD, TYPE "W"	2			EA. 2	S-25	FIRE & POLICE ALARM	2	2		EA. 4
S-25	LAMP STANDARD, TYPE "X"	26	16		EA. 42						
						S-25	BOX 30" X 12" X 12" (ALARM)	4	1		EA. 5
						S-25	CONDUIT, 2" KORDUCT (ALARM)	1500	1000		LIN. FT. 2500
						S-25	CONDUIT, 2" GALV. (ALARM)	120			LIN. FT. 120
S-25	BOX 24" X 12" X 12"	32	18		EA. 50	S-25	CONDUIT, 3/4" GALV. (ALARM)	120	120		LIN. FT. 240
						S-25	BOX 6" X 4" X 3" (ALARM)	2	2		EA. 4
S-25	CONDUIT, 2" KORDUCT	7000	4400		LIN. FT. 11400	S-25	FLEX. COND. CONNECTION	1	1		EA. 2
S-25	CONDUIT, 2" GALV.	250	20		LIN. FT. 270	S-25	BOX 30" X 12" X 12", MODIFIED	1	1		EA. 2
NOTE 3	S-25 CONDUIT, 3/4" GALV.	25	35		LIN. FT. 60	S-25	PEDESTAL	2	2		EA. 4
						S-25	SUPPORT BRACKET ASSEMBLY	2	2		EA. 4
S-25	FLUORESCENT LUMINA, MK A			4	EA. 4	S-25	CAST ALUMINUM SADDLE	2	2		EA. 4
S-25	SERVICE BOX, MK S			1	EA. 1	S-25	ANCHOR BOLT, 3/4" φ, 12" LONG	4	4		EA. 8
S-25	DISTRIBUTION BOX, MK T			2	EA. 2	S-25	ANCHOR BOLT, 3/4" φ, 9" LONG	2	2		EA. 4
S-25	SERVICE FOR UNDERDECK LTG.				LUMP LUMP LUMP	S-25	ELECTRICAL GROUNDS				LUMP LUMP LUMP

SEE SHEET 45B
NOTE 2.
NOTE 2.
NOTE 2.
SEE SHEET 45B.
SEE SHEET 45B.
SEE SHEET 45B.
SEE SHEET 45B.
SEE SHEET 45B.
SEE SHEET 45B.

NOTE 3

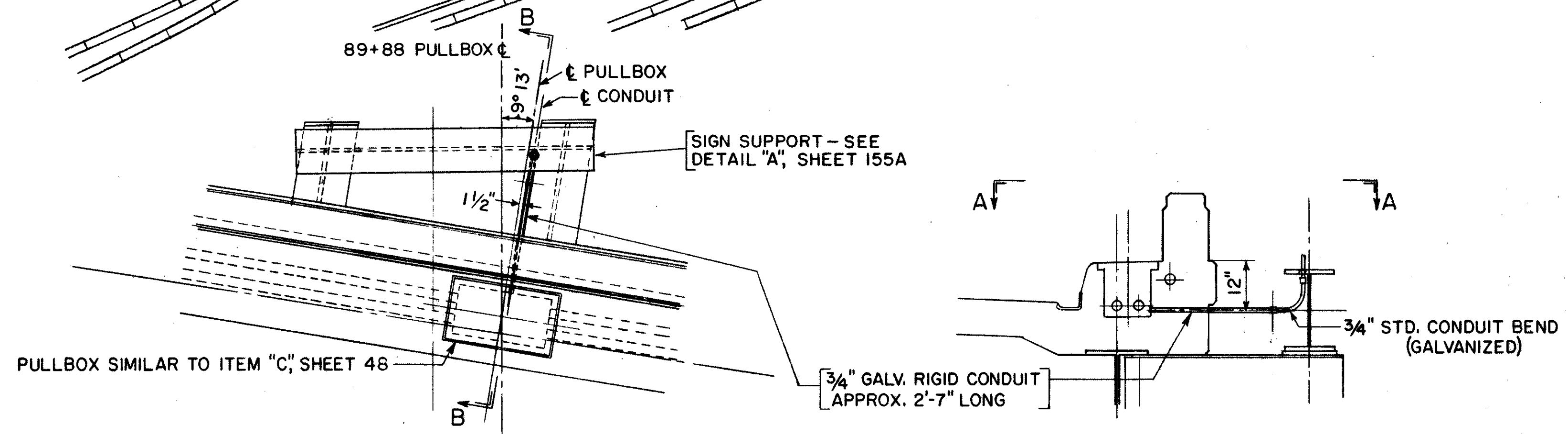
NOTE 1 = CIRCUIT NUMBERS HAVE BEEN CHANGED TO AGREE WITH SCHEMATIC. SEE SHEET 131 OF PROJECT CUY-21- (13.77)(14.94).
NOTE 2 = THESE ITEMS ARE FOR ALARM CABLE CONNECTIONS TO EMERGENCY CALL-BOXES. SEE DETAILS ON SHEET 45B.
NOTE 3 = FOR LIGHTING CONNECTIONS TO EMERGENCY CALL-BOXES (DETAILS ON SHEET 45B), AND FOR SIGN FEED CONNECTIONS (DETAILS ON THIS SHEET AND ON SHEET 45A).

CONT. No. 63050-14 SHEET ACCT. No. 5004



116+16-W TOP LINE = C OR @ STATION - W FOR FREEWAY, OR RAMP INITIALS.
IV-203 BOTTOM LINE = A.S.A./E.S. DISTRIBUTION - CIRCUIT NUMBER (SEE NOTE 1).

OTHER SYMBOLS ARE IDENTIFIED WHERE SHOWN.



PLAN SECTION A-A SCALE 1/2" = 1'-0"
SECTION B-B
DETAIL - SIGN FEED CONNECTION AT STA. 89+88

TRYGVE HOFF & ASSOCIATES
ENGINEERS
1922 EAST 107TH STREET CLEVELAND, OHIO

LIGHTING PLAN

BRIDGE NO. CUY-21-1455
WILLOW FREEWAY OVER KINGSBURY RUN
CUYAHOGA COUNTY U.S.R. 21
STA. 87+00 TO STA. 99+00

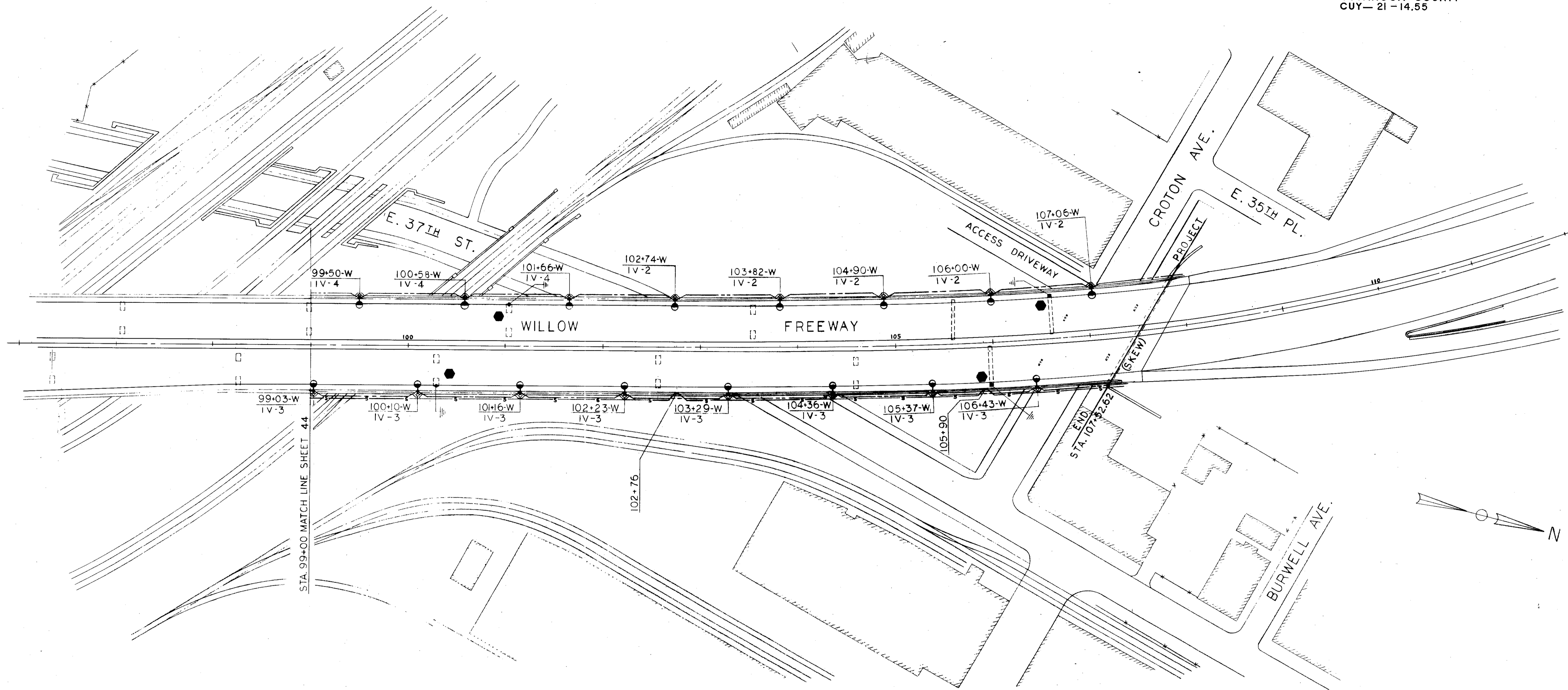
SCALE 1" = 50' DATE 11-1-63

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
SGF						

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

45
164

CUYAHOGA COUNTY
CUY-21-14.55



TRYGVE HOFF & ASSOCIATES
ENGINEERS
1922 EAST 107TH STREET CLEVELAND, OHIO

LIGHTING PLAN
BRIDGE NO CUY-21-14.55
WILLOW FREEWAY OVER KINGSBURY RUN
CUYAHOGA COUNTY U.S.R. 21
STA. 99+00 TO STA. 107+52.62 (SKEW)

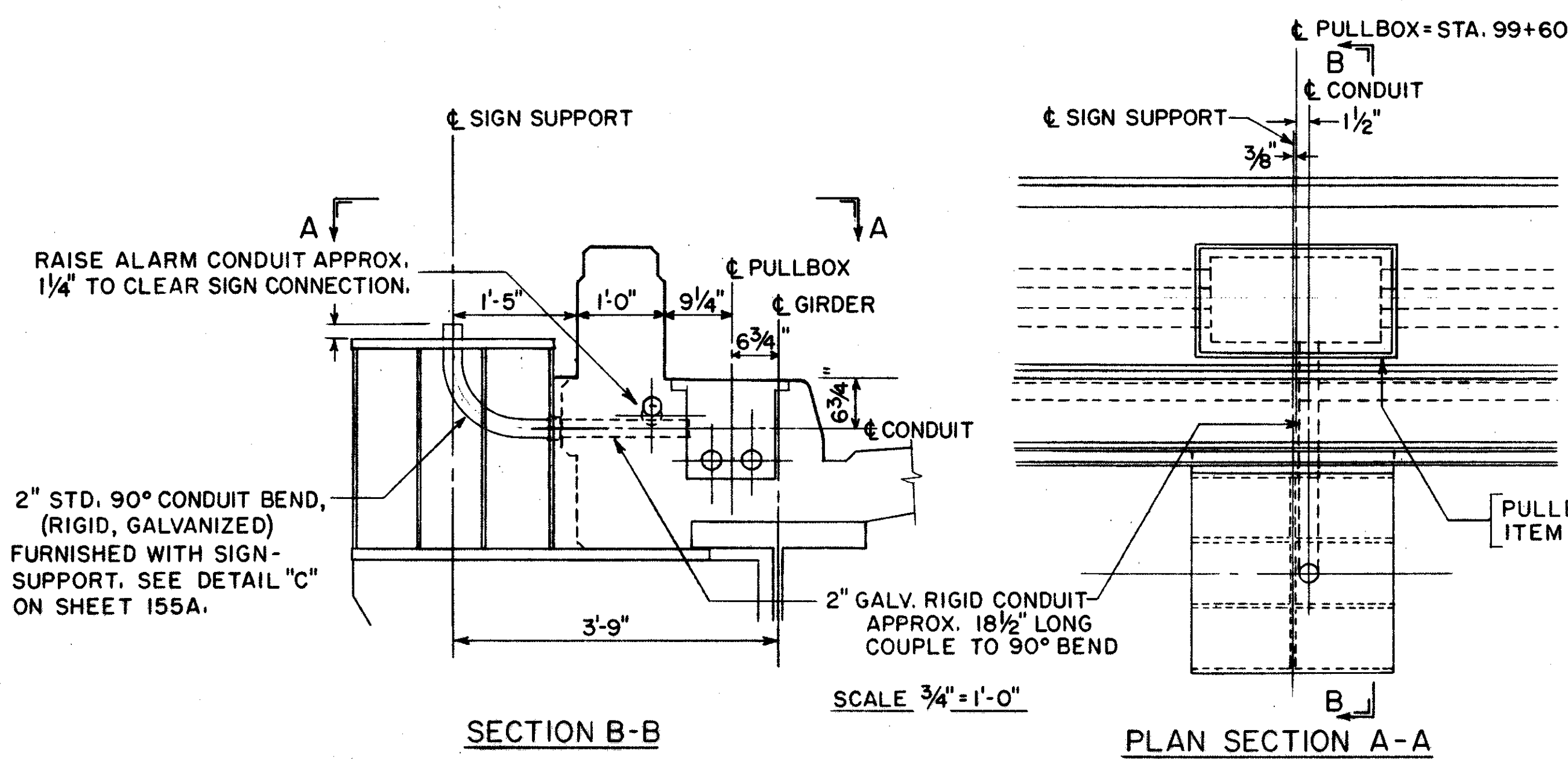
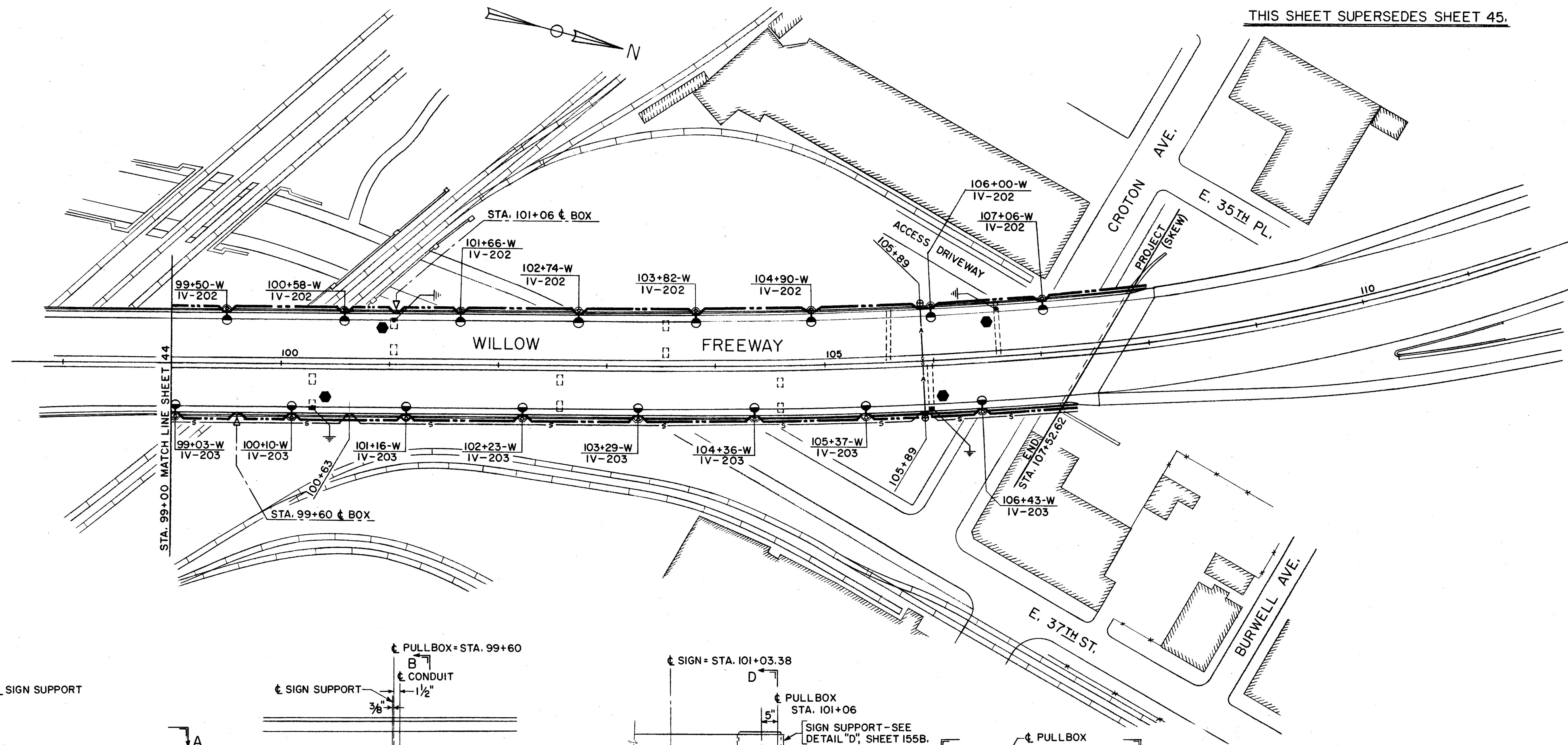
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISION
SGF	JMW		WFE	EBN	8-1-62	

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

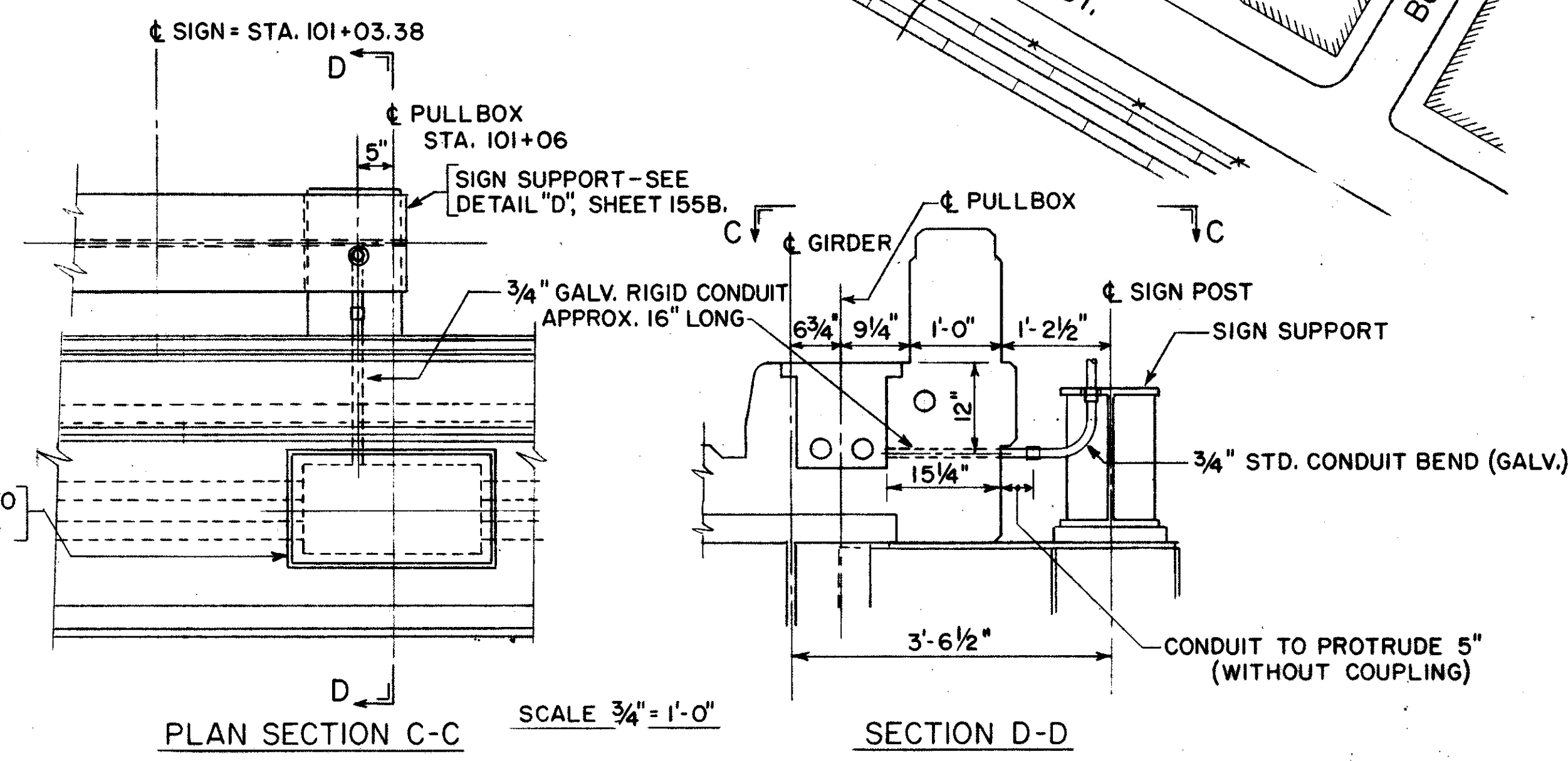
45A
164

CUYAHOGA COUNTY
CUY-21-14.55

THIS SHEET SUPERSEDES SHEET 45.



DETAIL - SIGN FEED CONNECTION AT STA. 99+60



DETAIL - SIGN FEED CONNECTION AT STA. 101+06

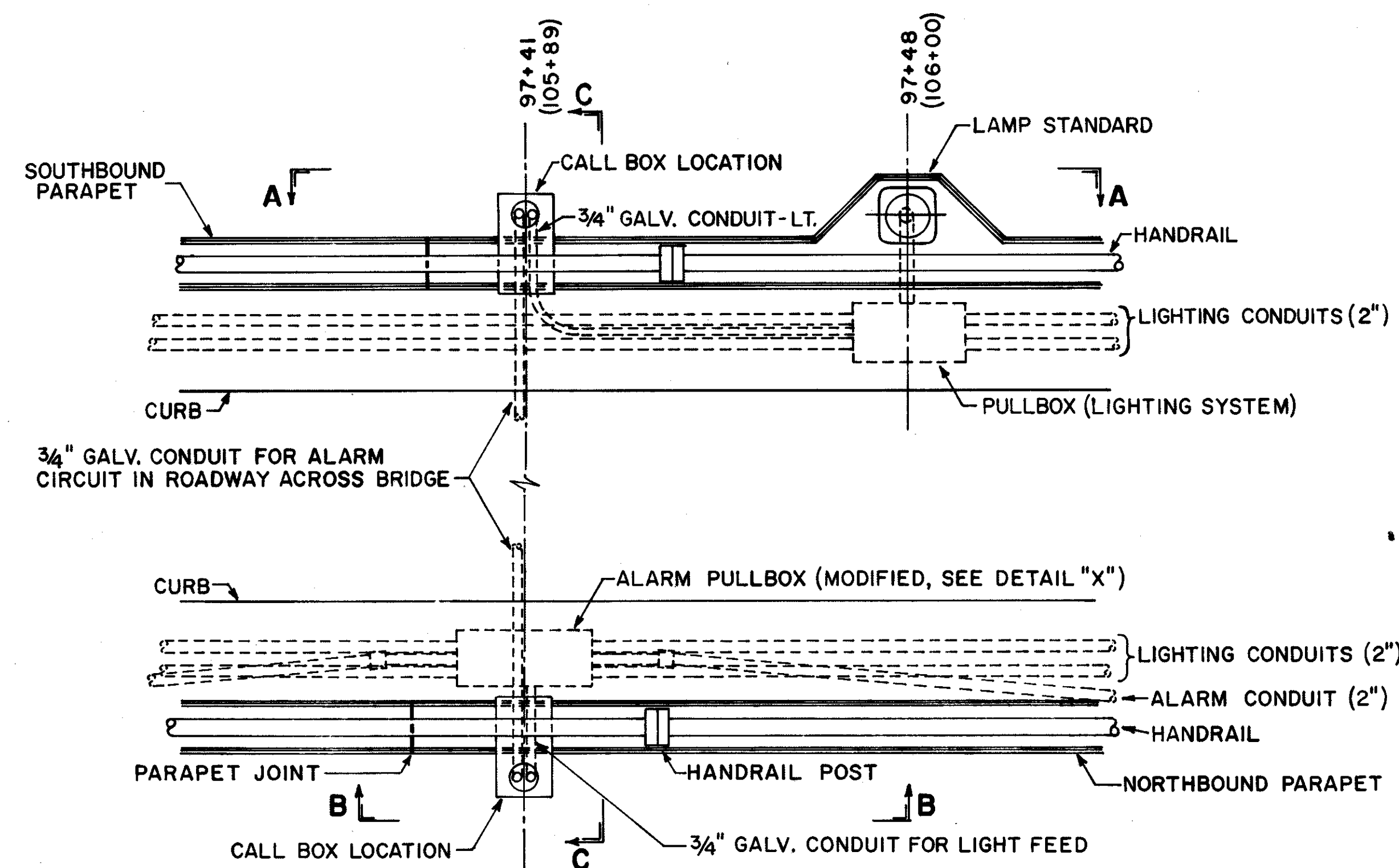
TRYGVE HOFF & ASSOCIATES						
ENGINEERS CLEVELAND, OHIO						
1922 EAST 107TH STREET						
LIGHTING PLAN						
BRIDGE NO.			CUY-21-1455			
WILLOW FREEWAY OVER KINGSBURY RUN						
CUYAHOGA COUNTY					U.S.R. 21	
STA. 99+00 TO STA. 107+52.62 (SKEW)						
SCALE 1" = 50'			DATE 11-1-63			
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
SGF						

CONT. P. 63050-14. SHEET ACCT. NO. 5005

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

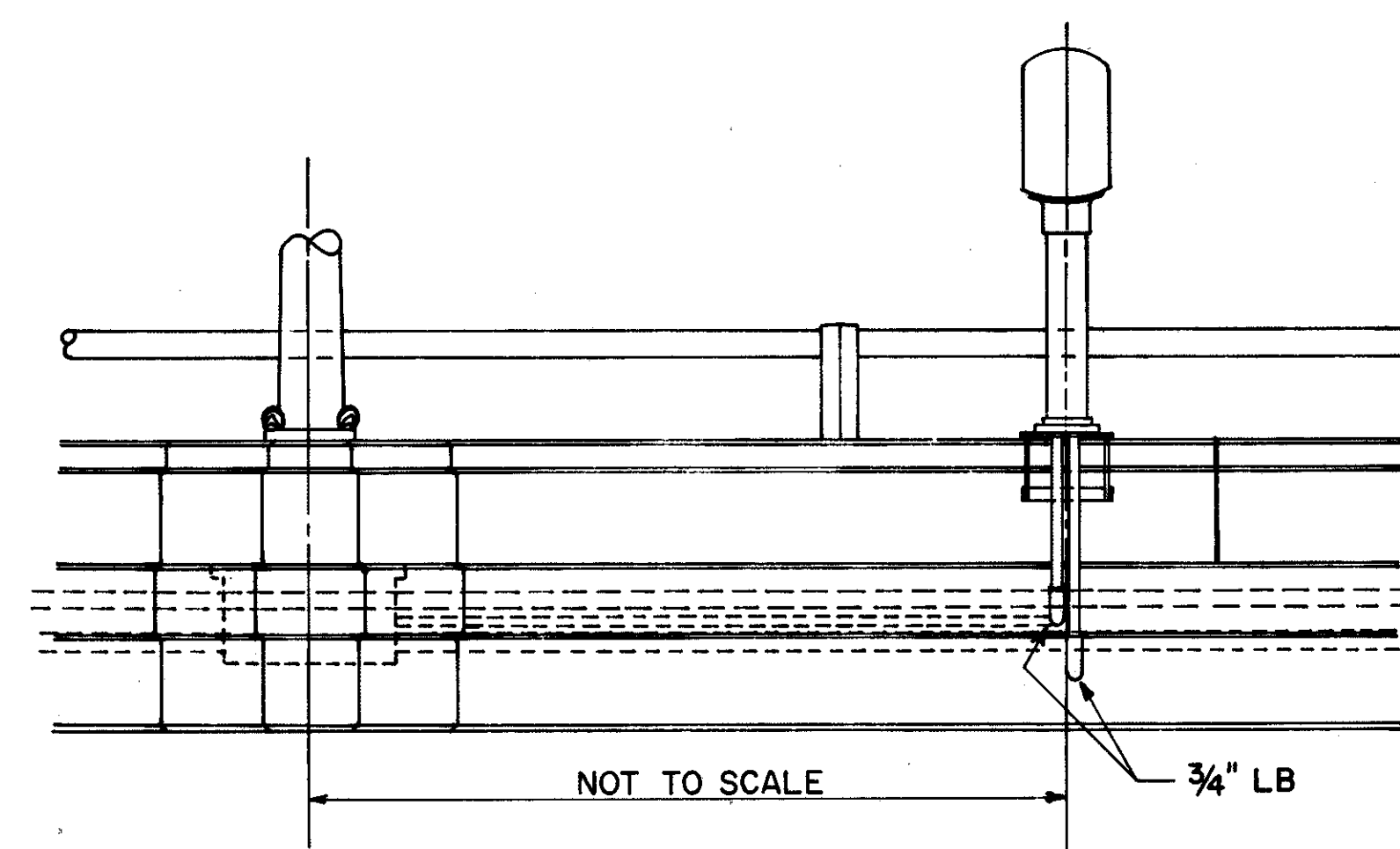
45B
164

CUYAHOGA COUNTY
CUY-21-14.55

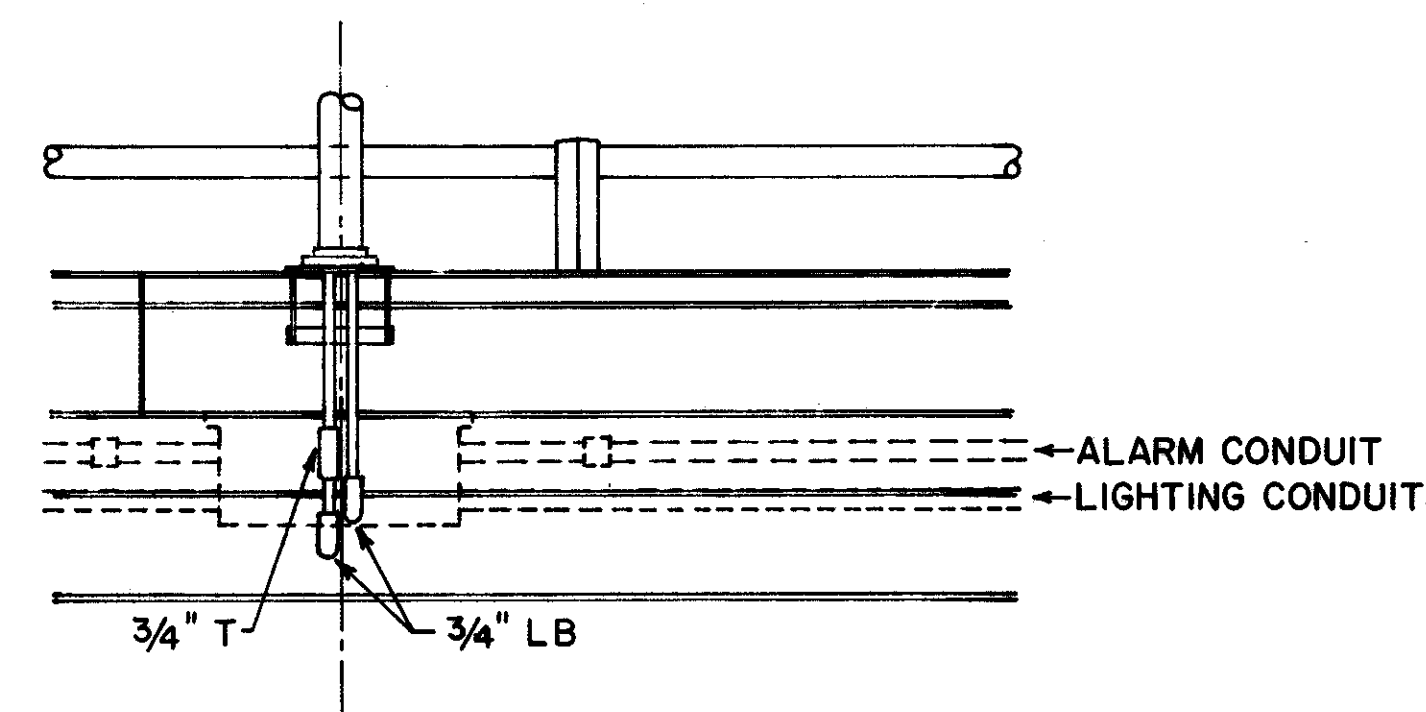


CONDUIT CONNECTIONS AT CALL BOX LOCATION - PLAN

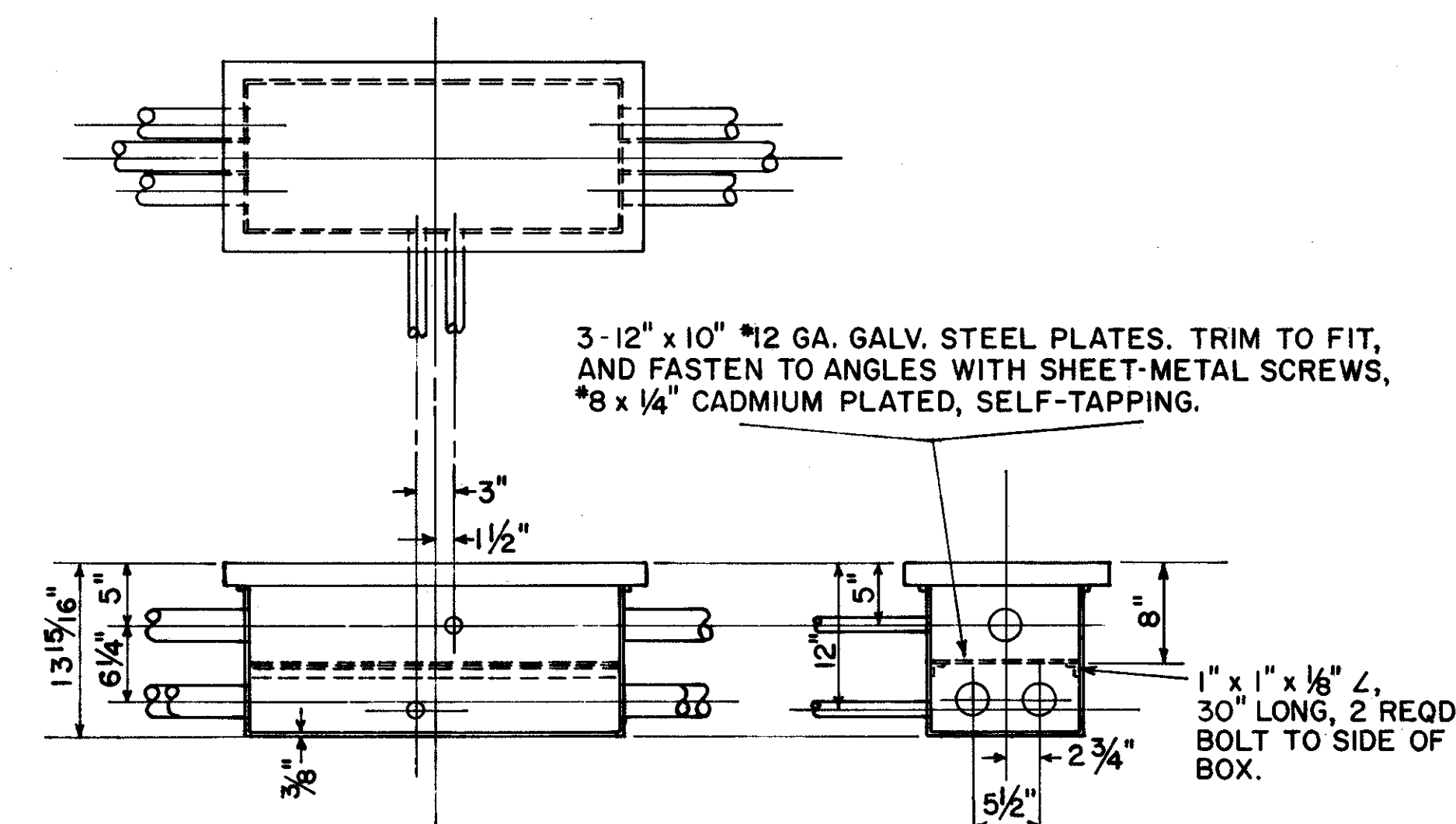
LAYOUT, AS SHOWN, IS FOR CALL-BOXES AT STA. 97+41 BUT IS TYPICAL FOR CALL-BOXES AT STA. 105+89 EXCEPT FOR LOCATIONS OF LAMP STANDARD, HANDRAIL POSTS AND PARAPET JOINTS. NOTE THAT LIGHTING CONDUITS DO NOT PASS THROUGH ALARM PULLBOX (AS SHOWN ON SHEET 46, SECTION C-C), BUT TERMINATE AT PULLBOX TO ALLOW FOR FEED CONNECTION TO LIGHT ABOVE CALL-BOX.



ELEVATION A-A (TYPICAL)

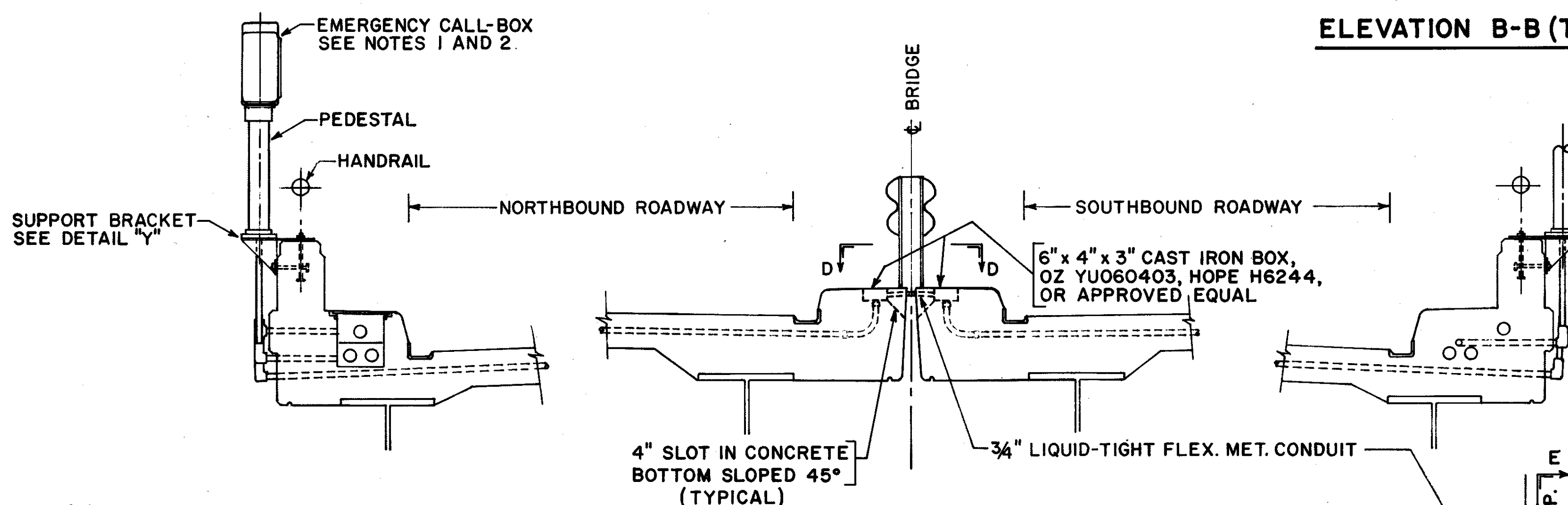


ELEVATION B-B (TYPICAL)



DETAIL "X" - MODIFIED ALARM PULLBOX

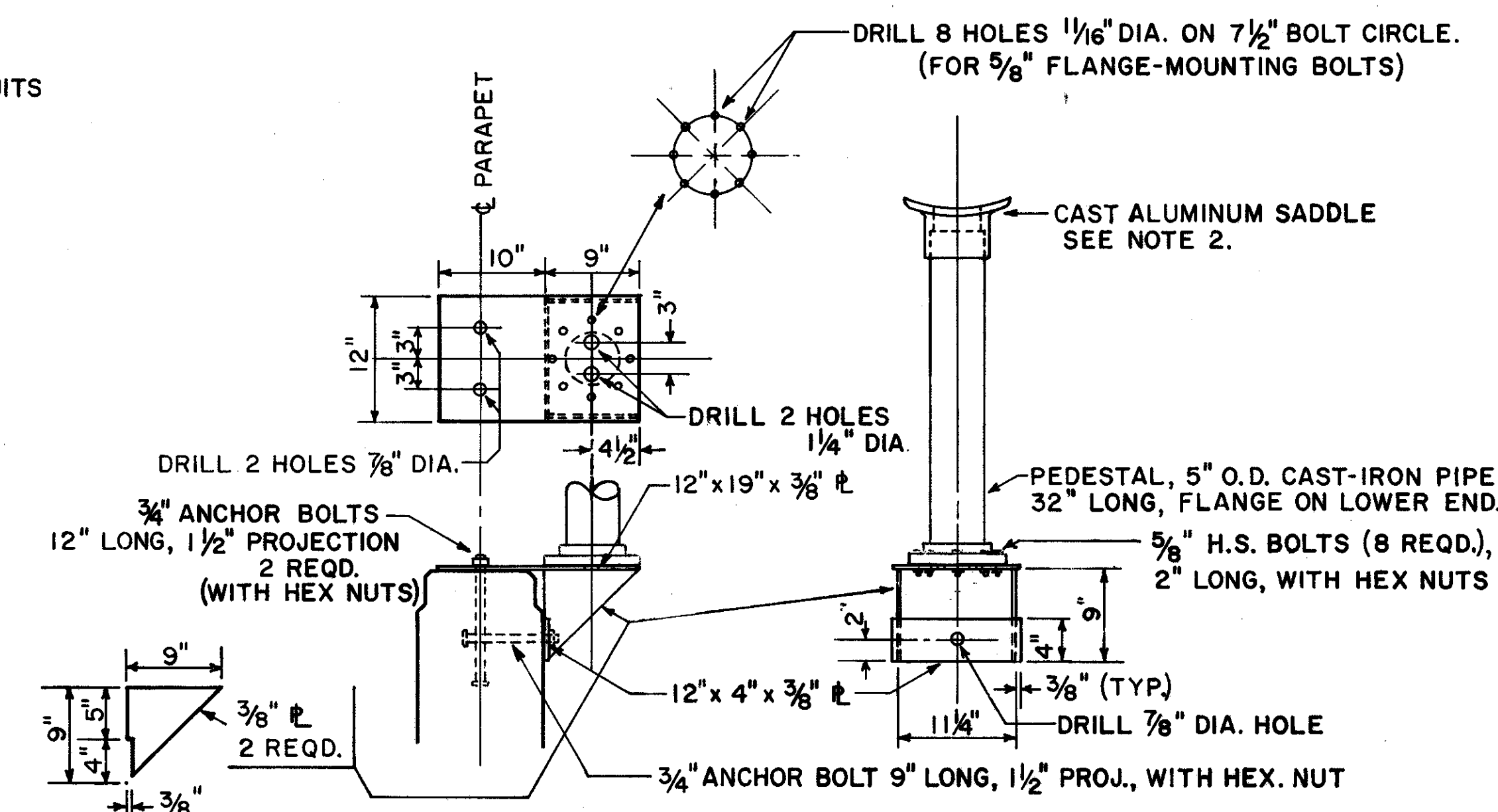
SCALE 1" = 1'-0"



SECTION C-C (TYPICAL)

NOTE 1 - EMERGENCY CALL-BOXES ARE TO BE INSTALLED AS SHOWN ON THIS SHEET, NOT AS SHOWN ON SHEET 47.

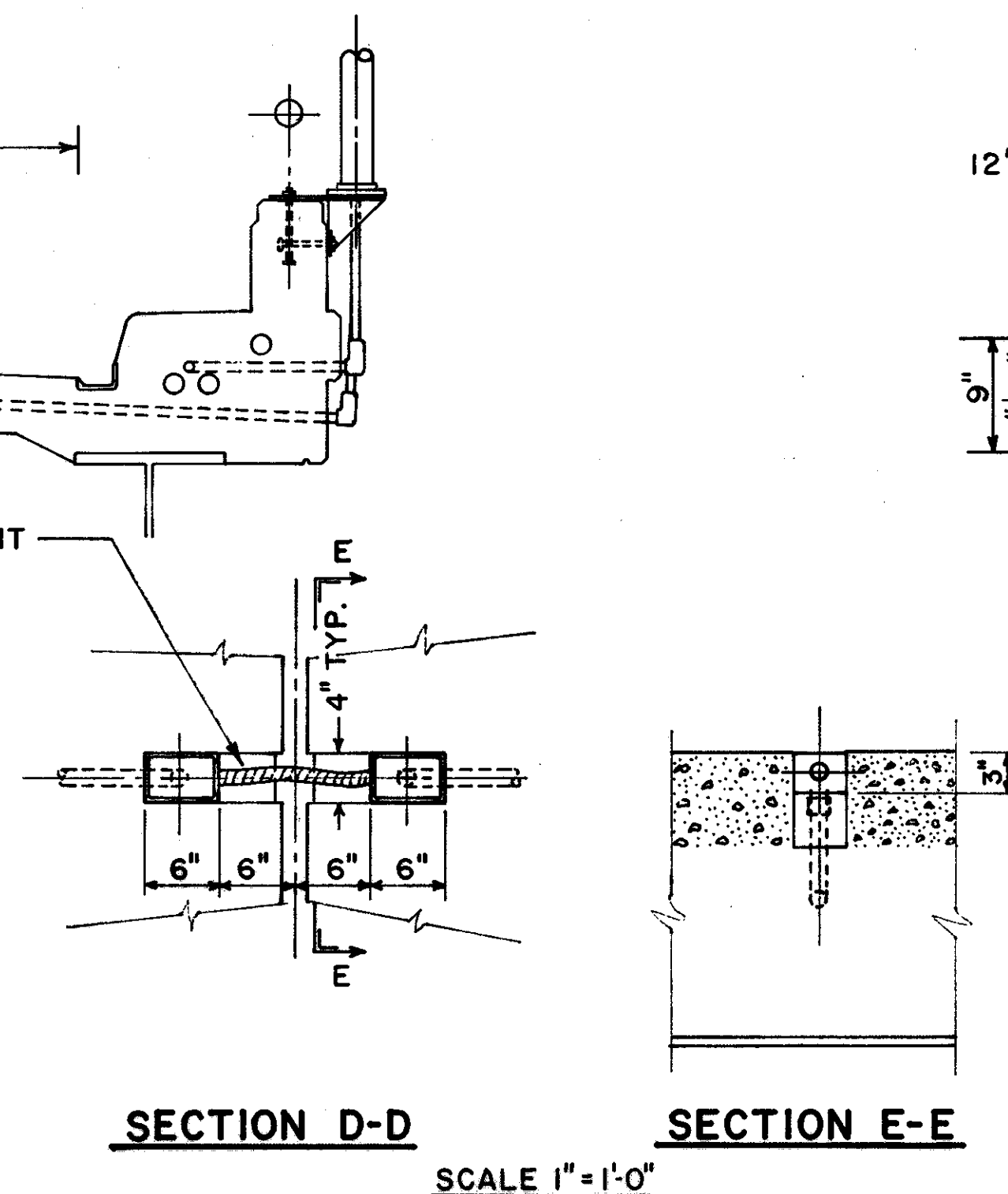
NOTE 2 - TO OBTAIN EMERGENCY CALL-BOXES AND CAST ALUMINUM SADDLES THE FIRE ALARM SIGNAL SYSTEM OF THE CITY OF CLEVELAND, AT 310 CARNEGIE AVE., SHOULD BE CONTACTED.



DETAIL "Y" - SUPPORT BRACKET FOR CALL-BOX

SCALE 1" = 1'-0"

ASSEMBLE BRACKET BY WELDING, THEN PAINT ASSEMBLED BRACKET WITH FIRST AND SECOND COAT OF RED LEAD BEFORE MOUNTING ON ANCHOR BOLTS. AFTER PEDESTAL HAS BEEN BOLTED TO PLATE, NUTS SHOULD BE TACKWELDED TO PLATE. ASSEMBLY TO BE GIVEN TWO COATS OF ALUMINUM PAINT.



SECTION D-D

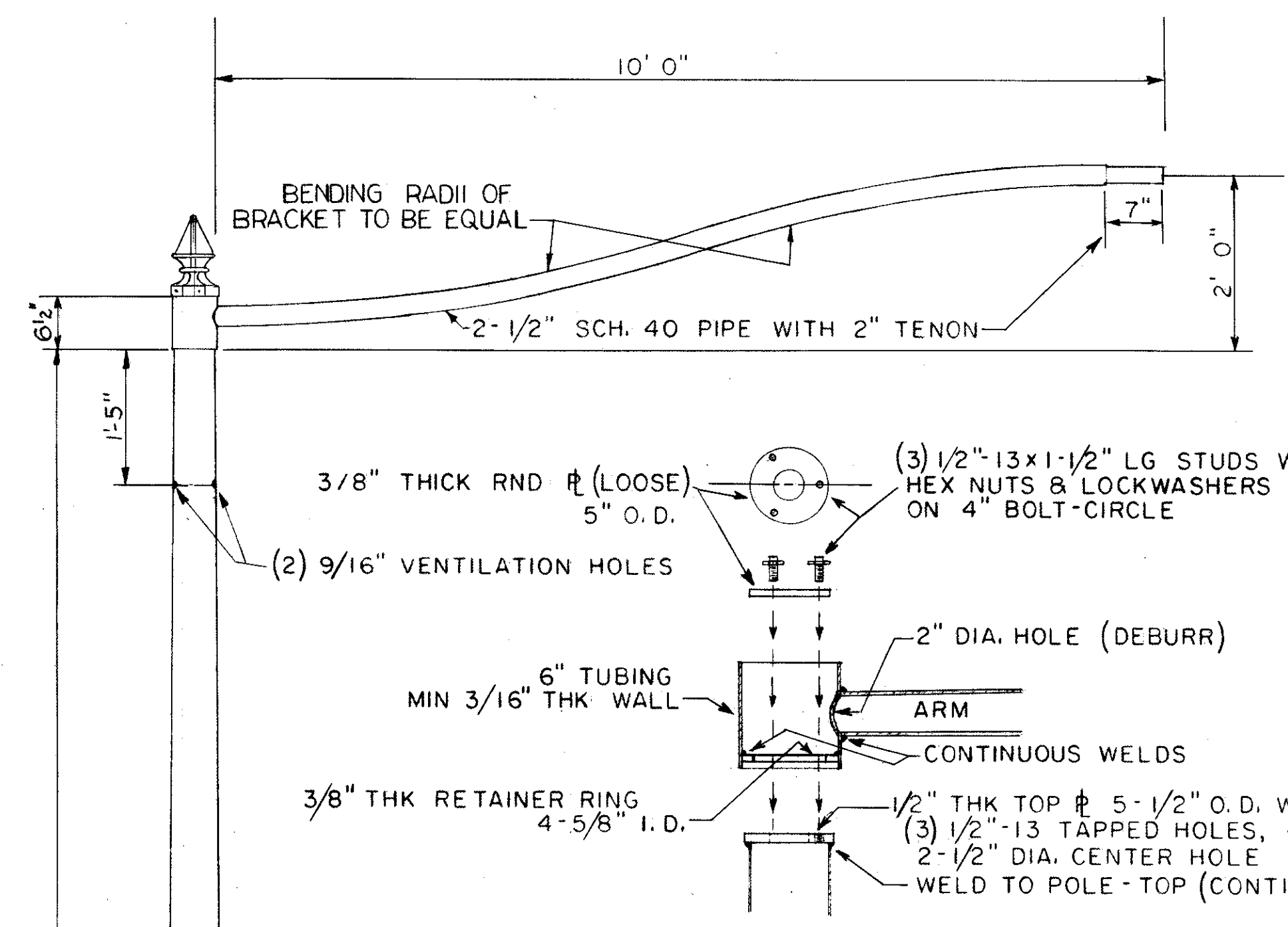
SECTION E-E

SCALE 1" = 1'-0"

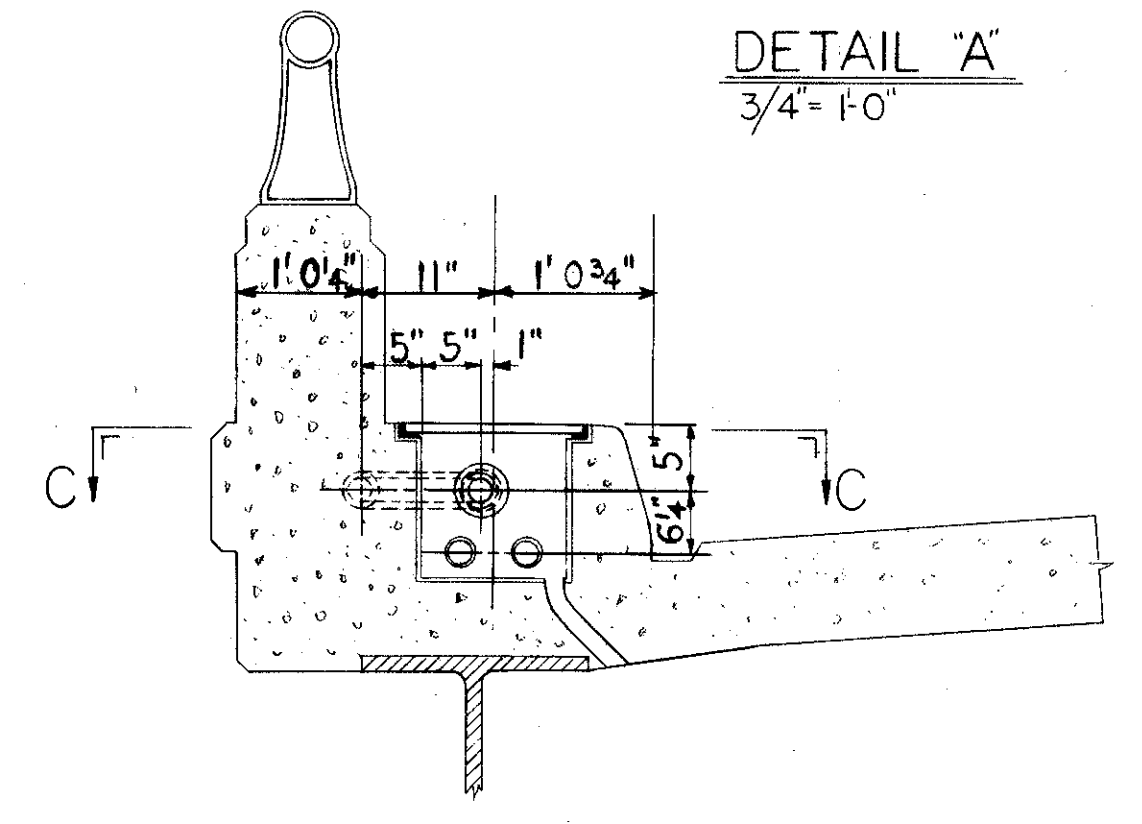
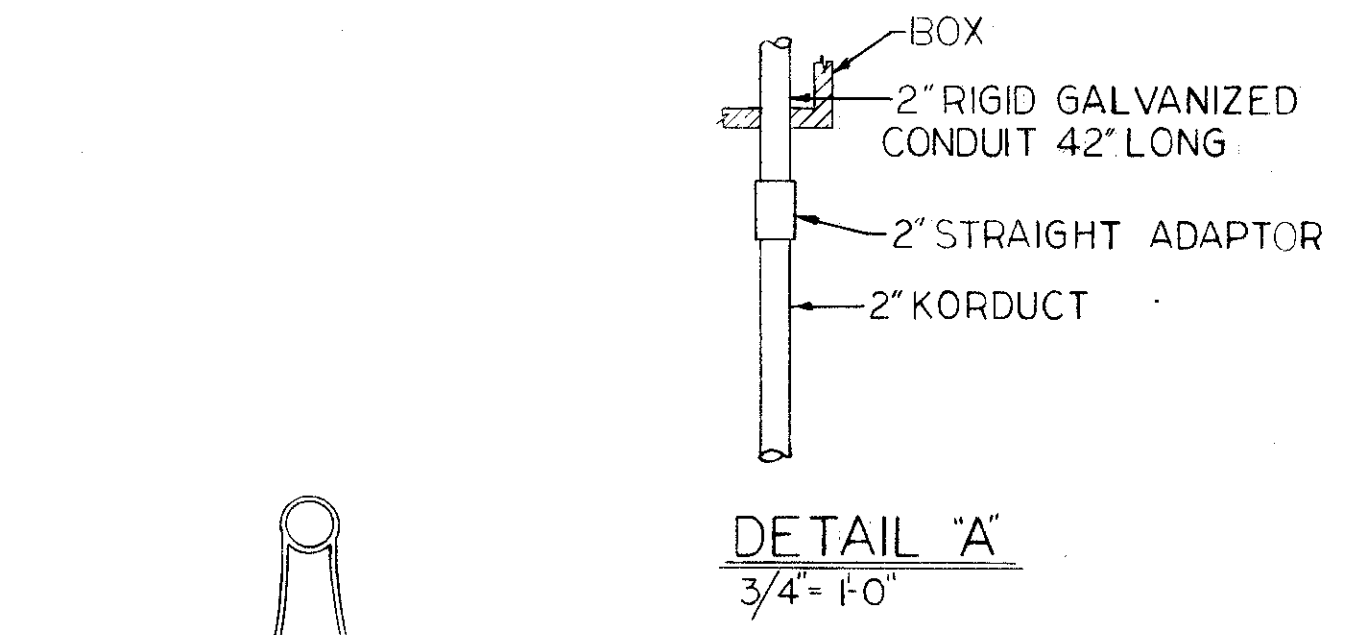
TRYGVE HOFF & ASSOCIATES ENGINEERS 1922 EAST 107TH STREET CLEVELAND, OHIO					
ELECTRICAL DETAILS					
BRIDGE NO. CUY-21-1455			WILLOW FREEWAY OVER KINGSBURY RUN CUYAHOGA COUNTY U.S.R. 21		
SCALE 1/2" = 1' 0" UNLESS NOTED DATE 11-26-63					
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE
SGF					

63050

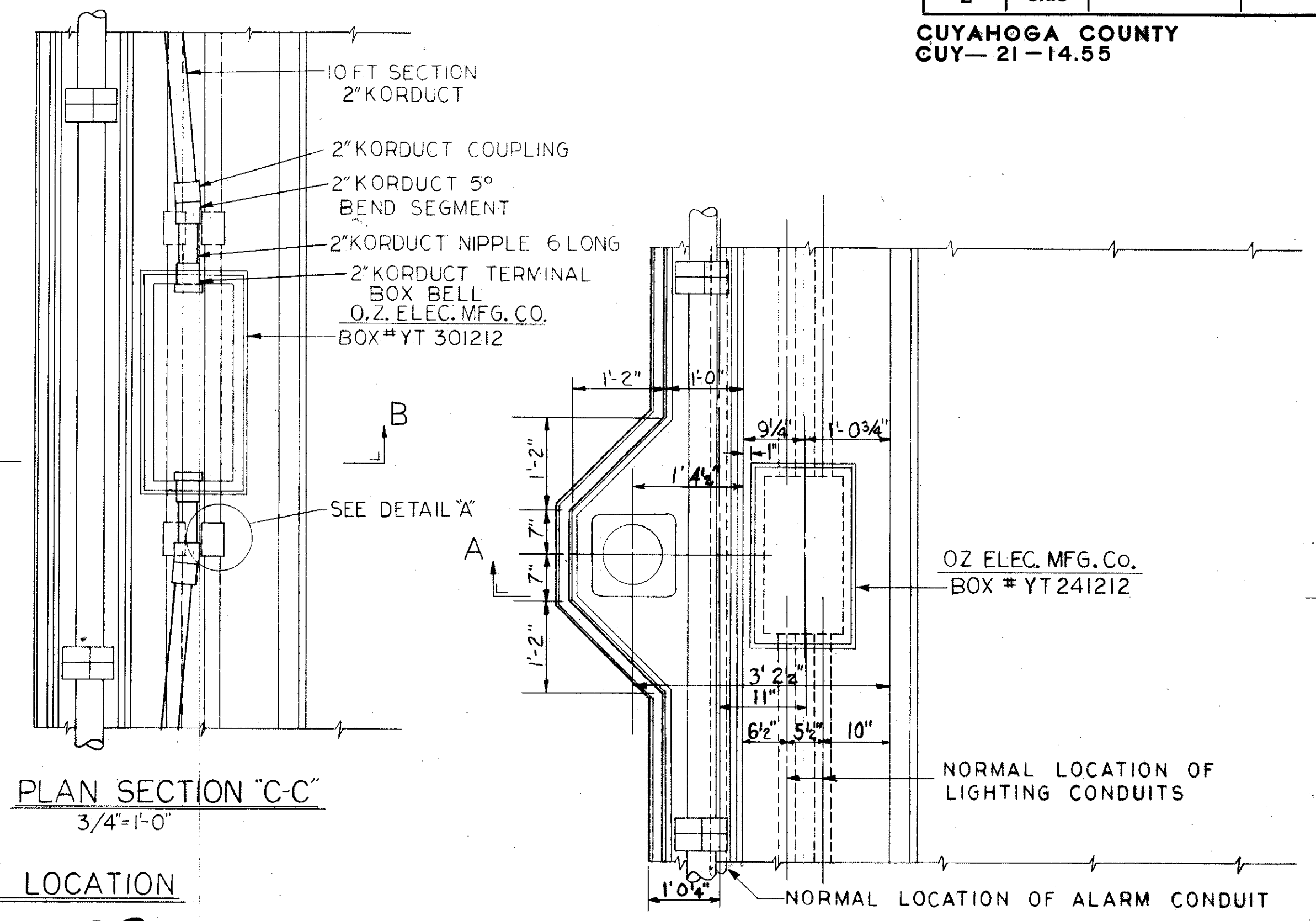
63050



HEAD CONSTRUCTION DETAIL
1-1/2" = 1'-0"



SECTION 'B-B'
3/4" = 1'-0"

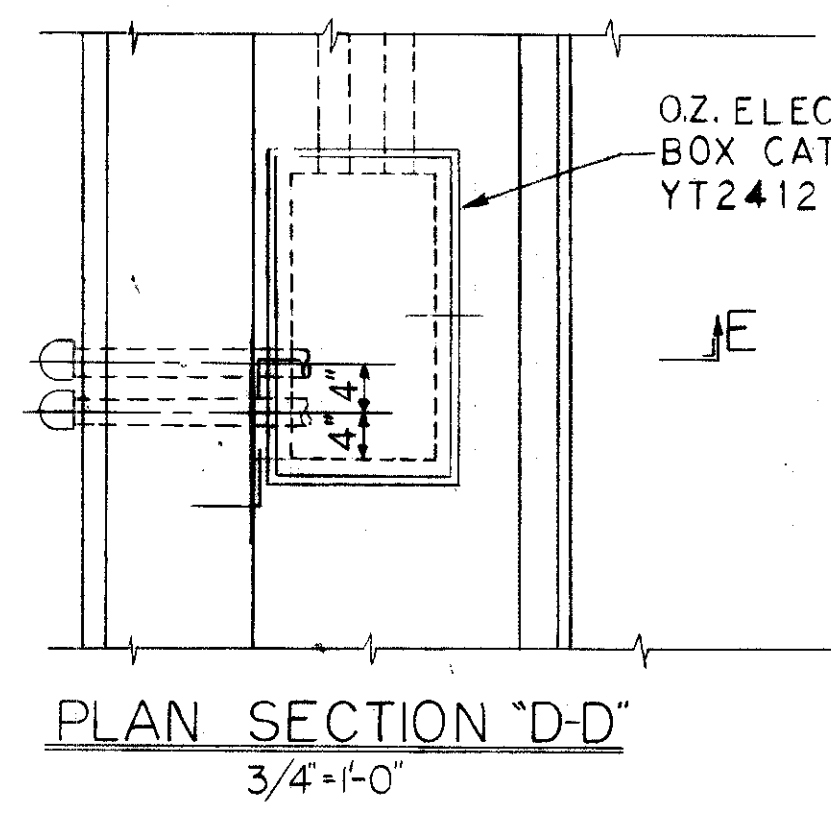


TYPICAL ALARM CIRCUIT PULLBOX LOCATION
3/4" = 1'-0"

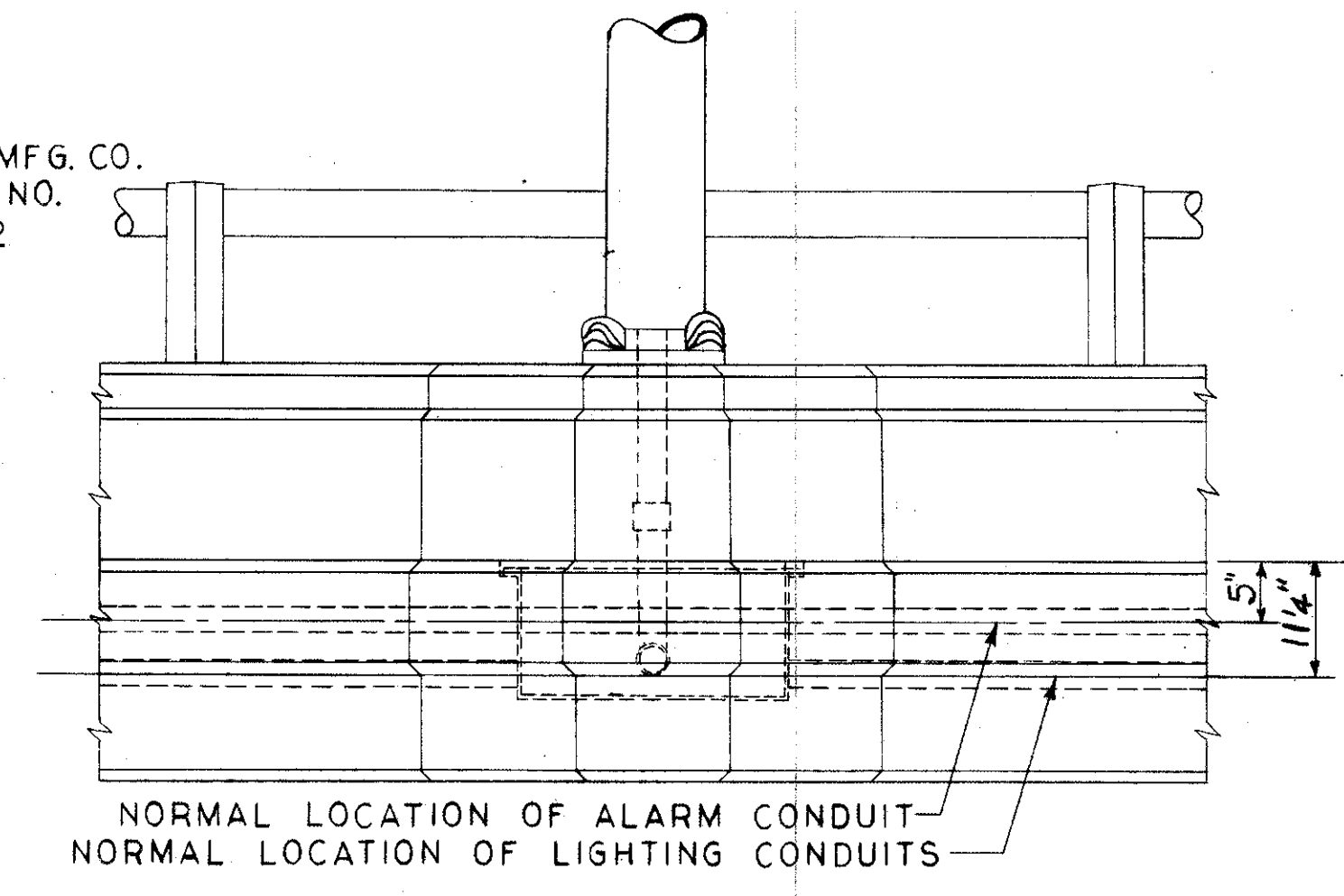
ROUND MONOTUBE POLE 9"x5.08"x28 FT LONG

REMOVABLE ORNAMENTAL BOLT COVER
4" x 6 1/2" HAND HOLE WITH REINFORCING FRAME AND COVER

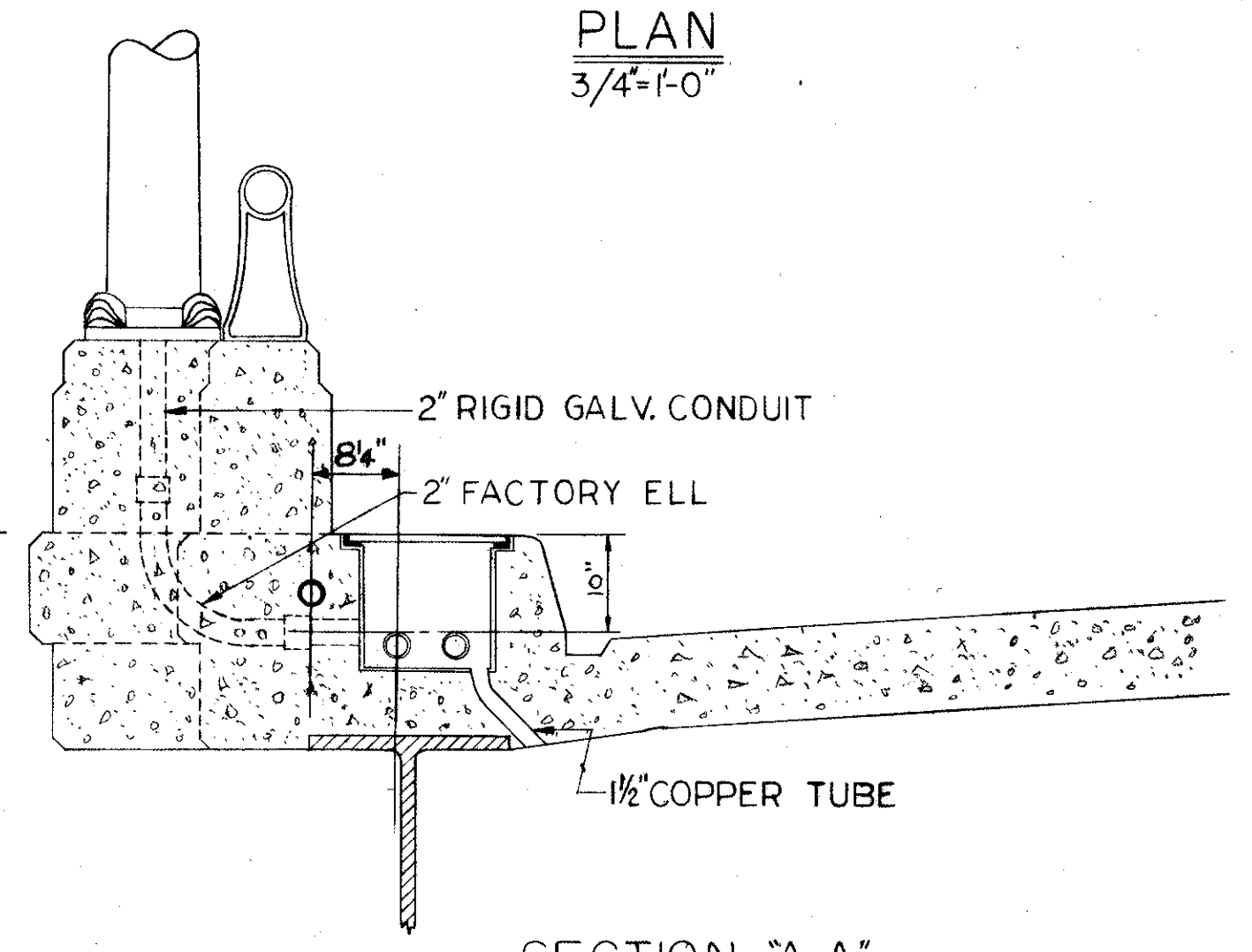
10' TWIN ARM ARRANGEMENT
TYPE "W" STANDARD



PLAN SECTION 'D-D'
3/4" = 1'-0"



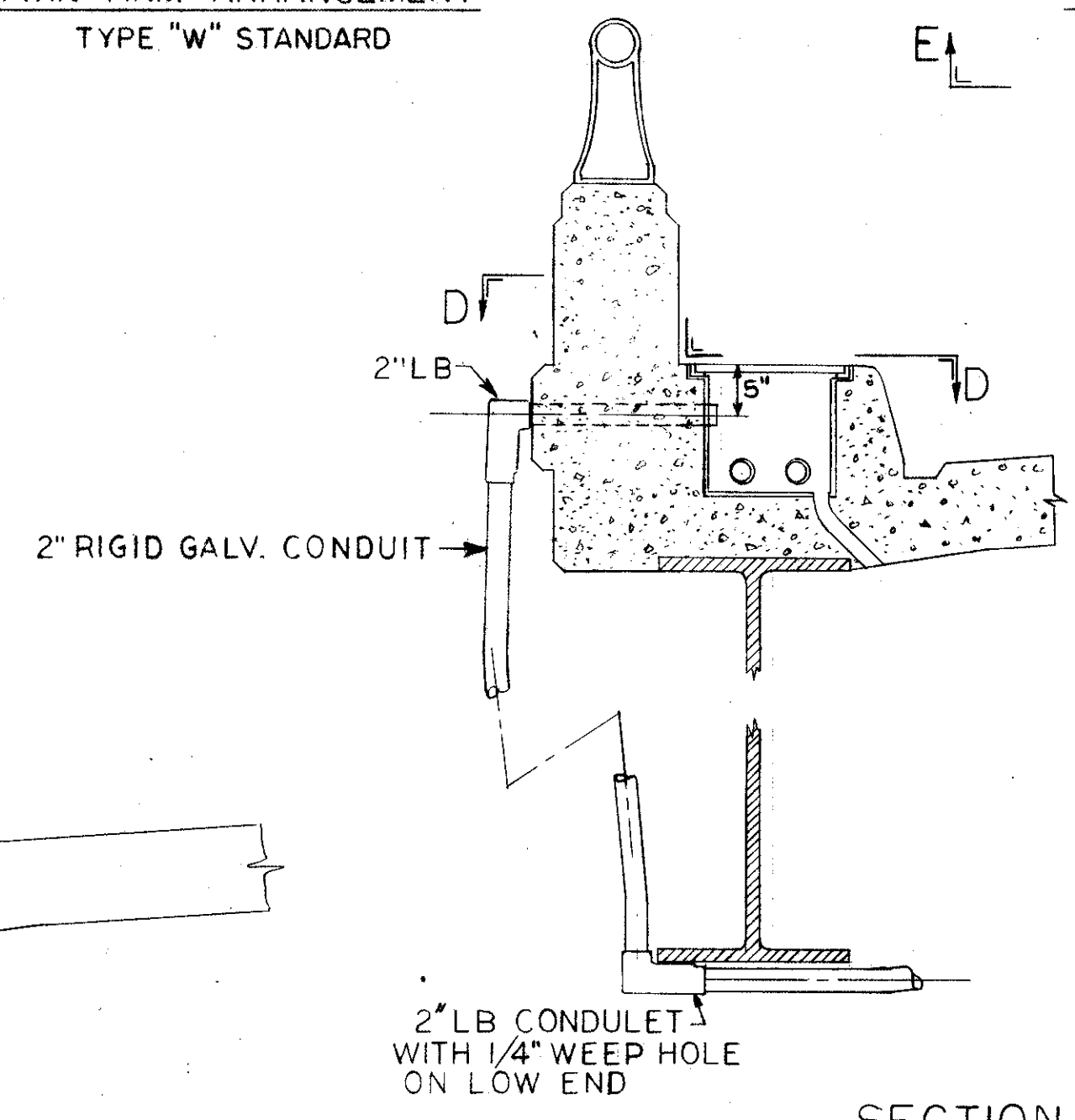
ELEVATION
3/4" = 1'-0"



SECTION 'A-A'
3/4" = 1'-0"

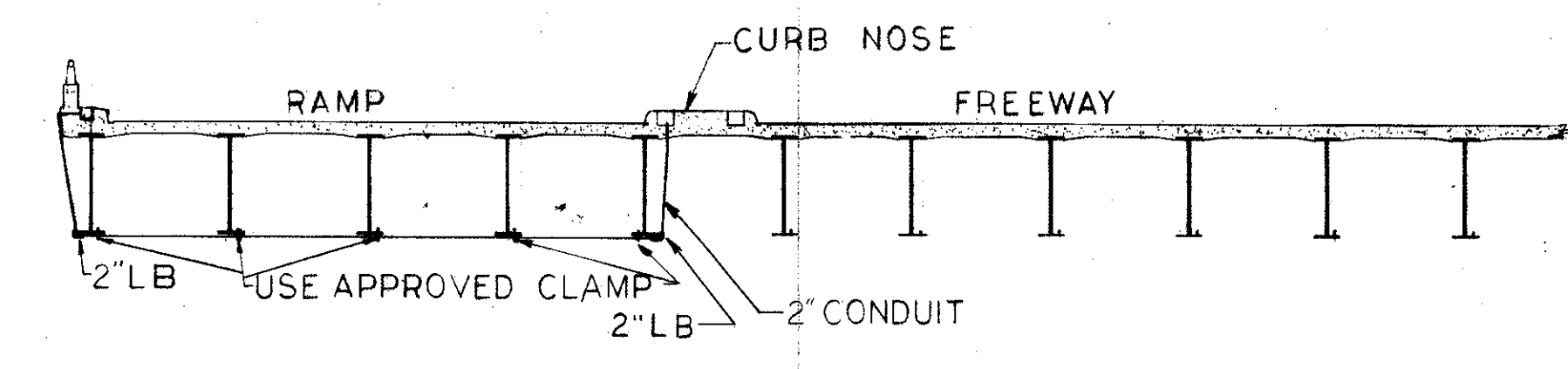
(4) 1-1/4" ANCHOR BOLTS ON 12-1/2" CIRCLE SEE DRG. NO. 104

TYPICAL LAMP STANDARD
TYPE "X" AS USED ON STRUCTURE
3/4" = 1'-0"



SECTION 'E-E'
3/4" = 1'-0"

TYPICAL CROSSOVER ON BRIDGE



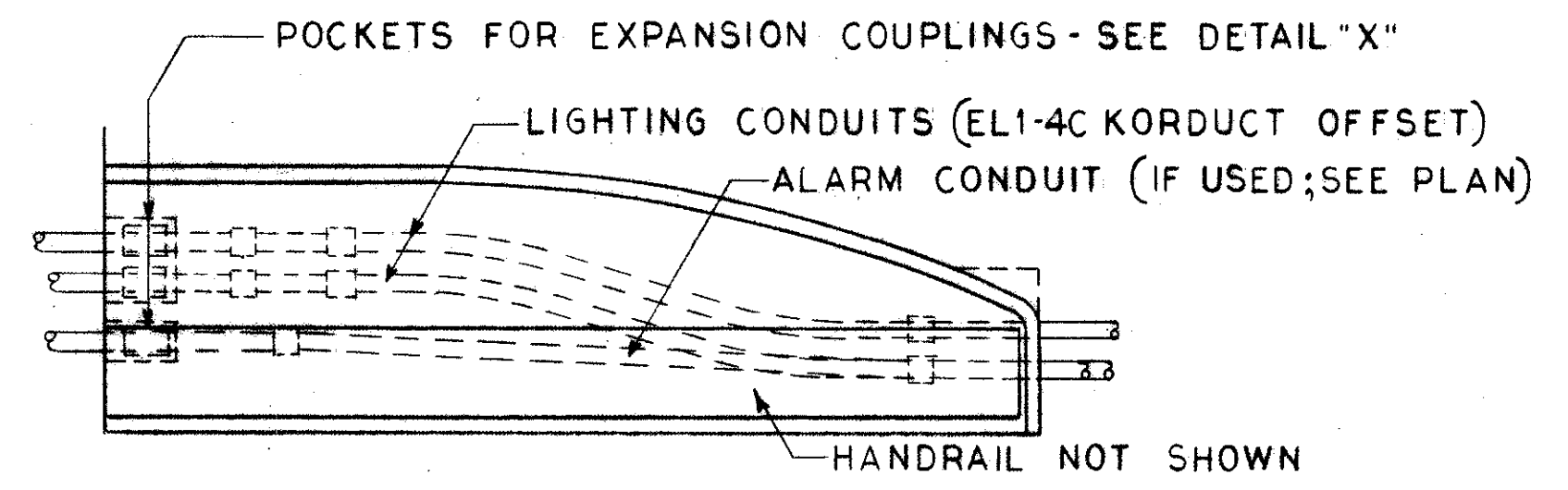
TYPICAL SECTION THRU BRIDGE AT CROSSOVER
3/32" = 1'-0"

ADDITIONAL DETAIL ON SHEET 47.

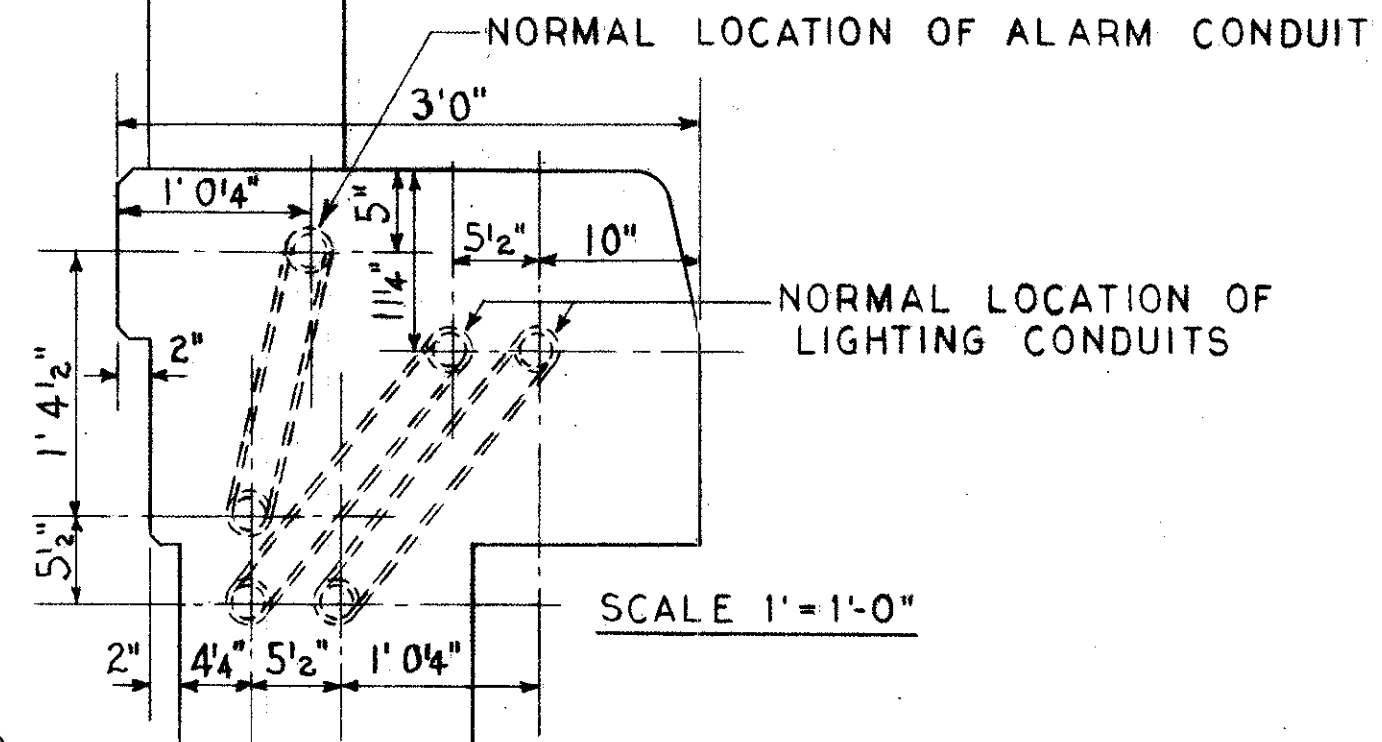
TRYGVE HOFF & ASSOCIATES
ENGINEERS
1922 EAST 107TH STREET CLEVELAND, OHIO

LIGHTING DETAILS
BRIDGE NO. CUY-21-1455
WILLOW FREEWAY OVER KINGSBURY RUN
CUYAHOGA COUNTY U.S.R. 21

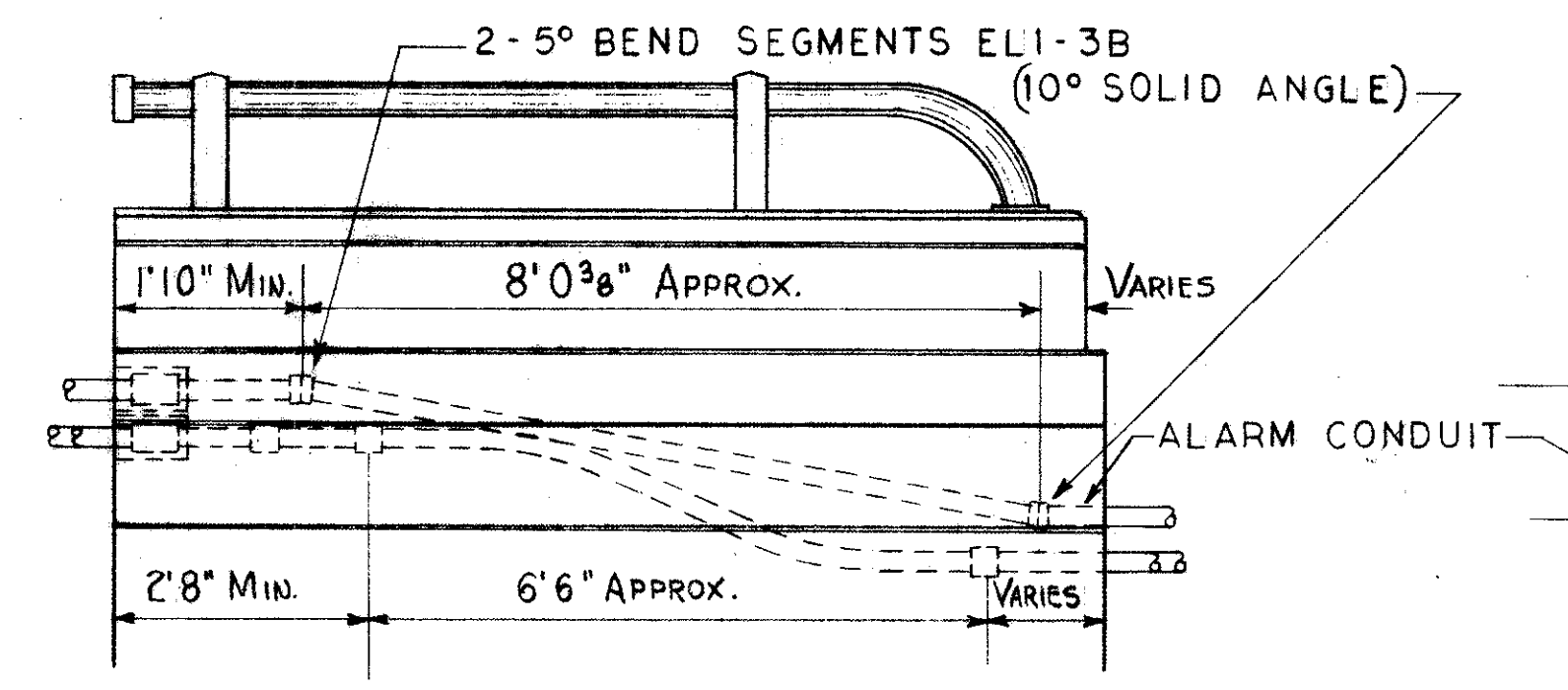
SCALE AS NOTED DATE
DESIGNED DRAWN TRACED CHECKED REVISIONS DATE
SGF J.M.W. WFE EBN 7-30-62



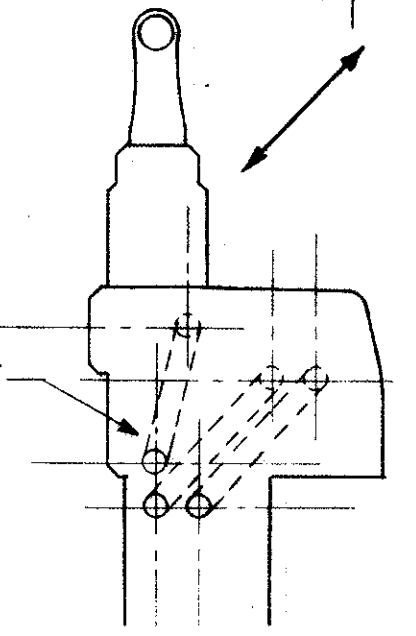
PLAN



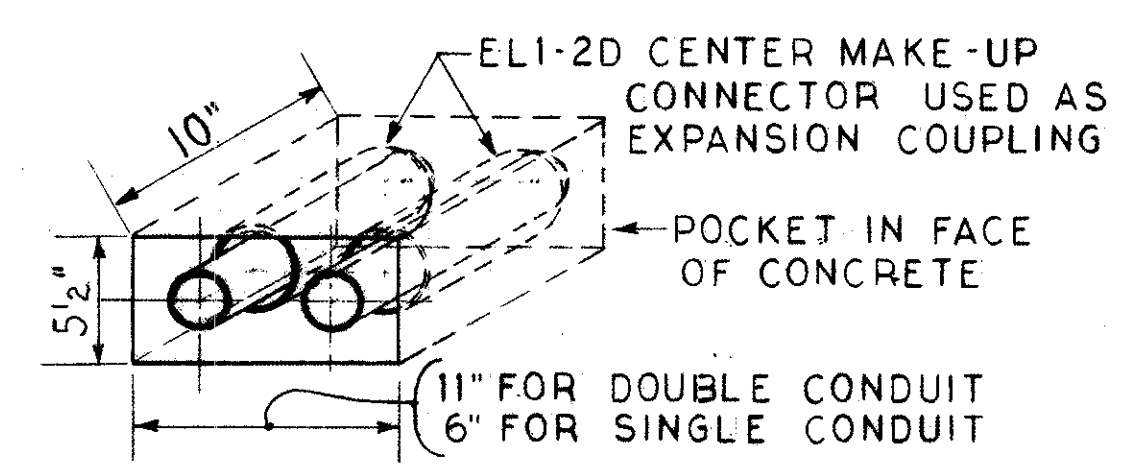
SCALE 1"=1'-0"



ELEVATION

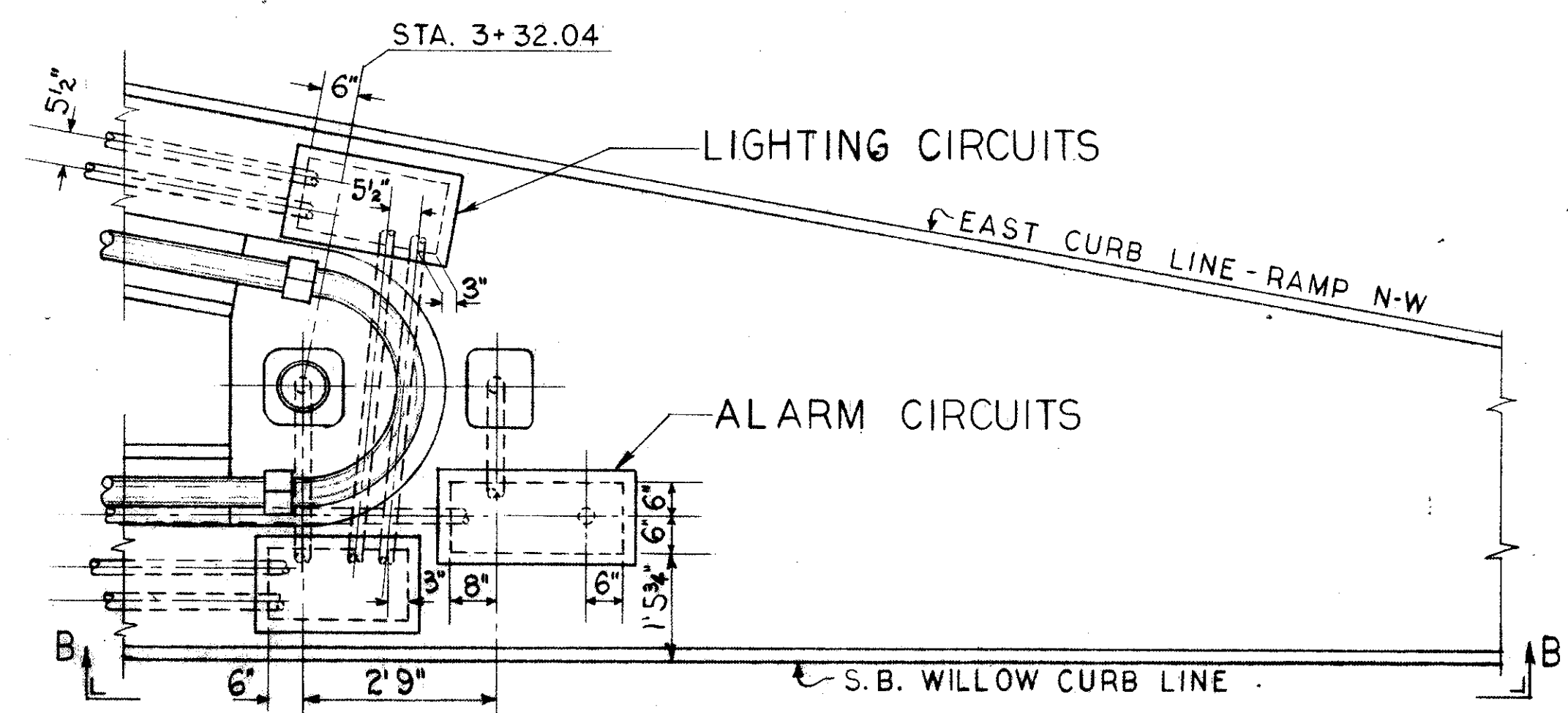


END VIEW

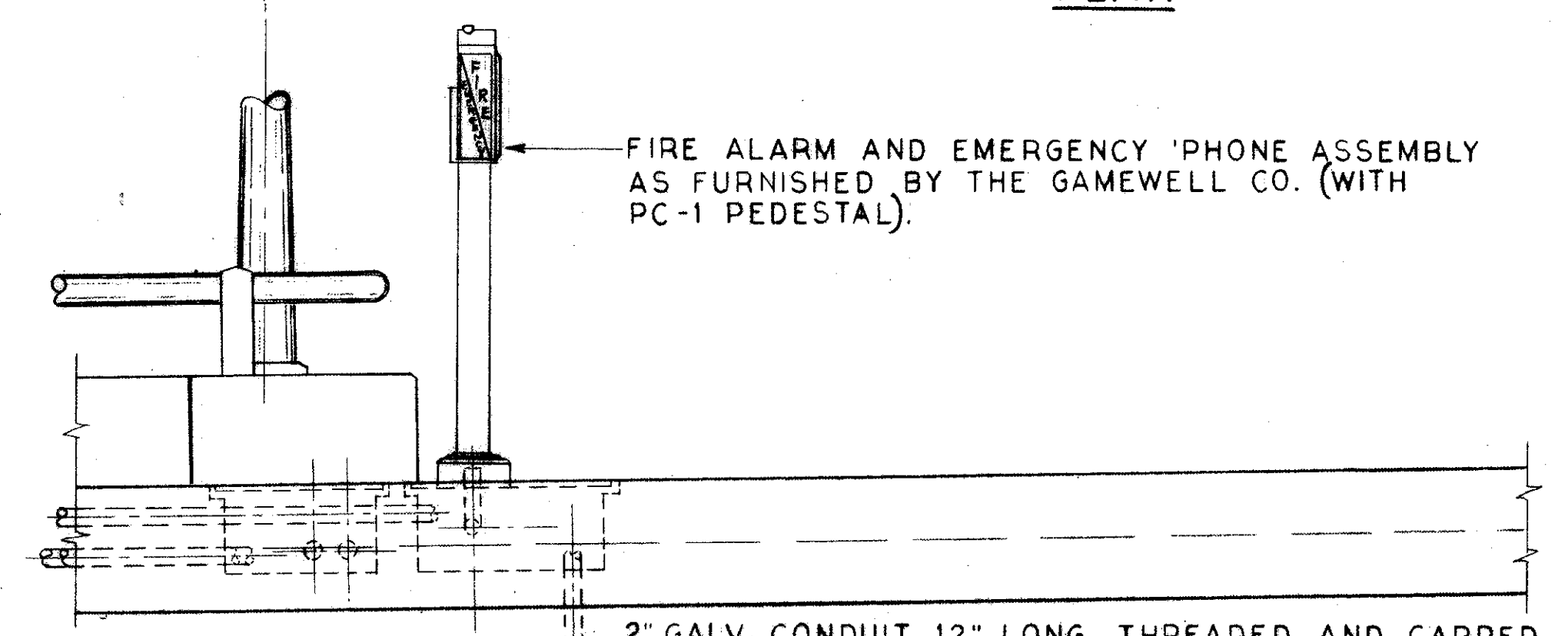


DETAIL "X"
SCALE 1 1/2"=1'-0"

TYPICAL CONDUIT RUN THRU ABUTMENT

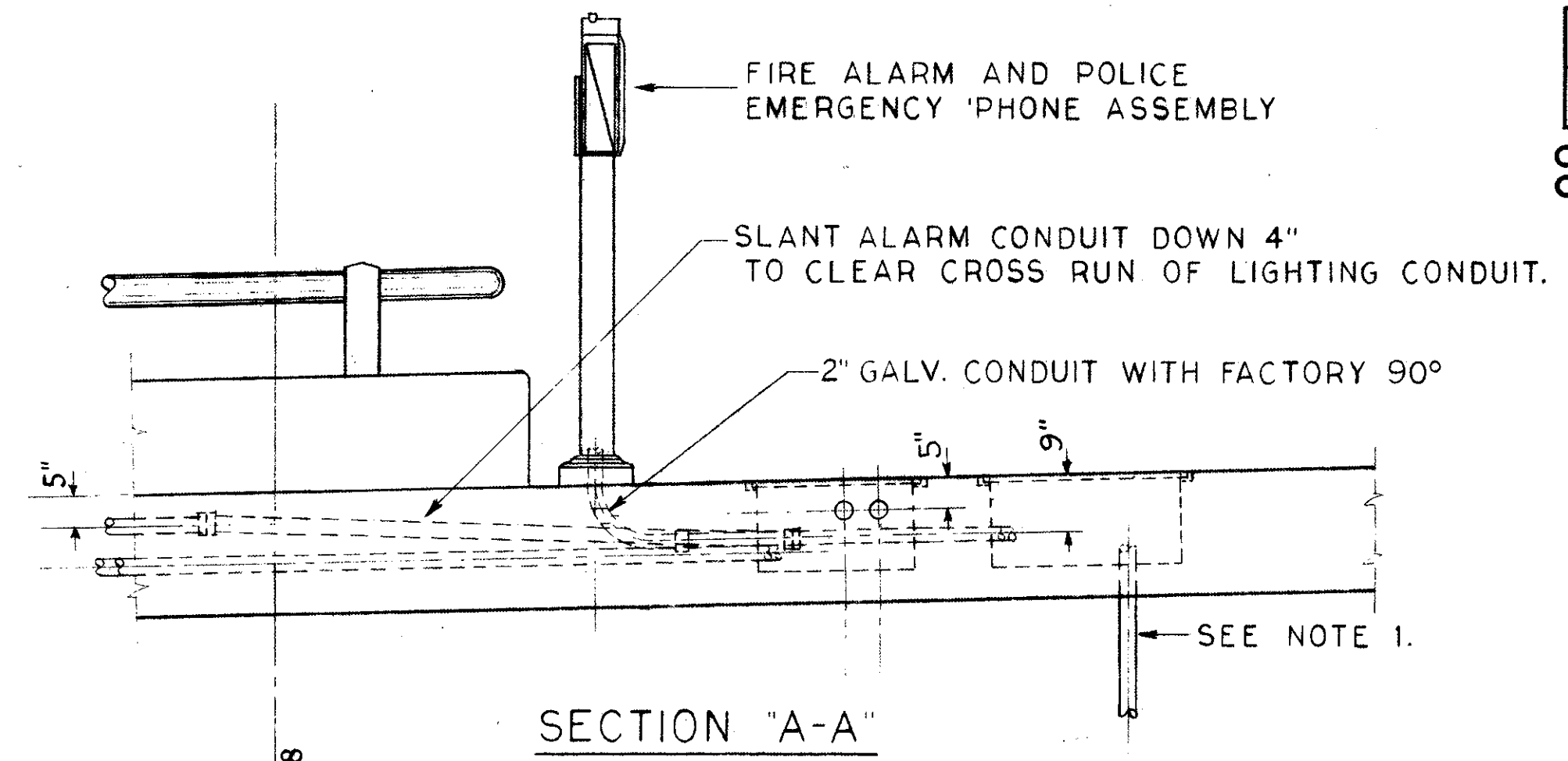


PLAN

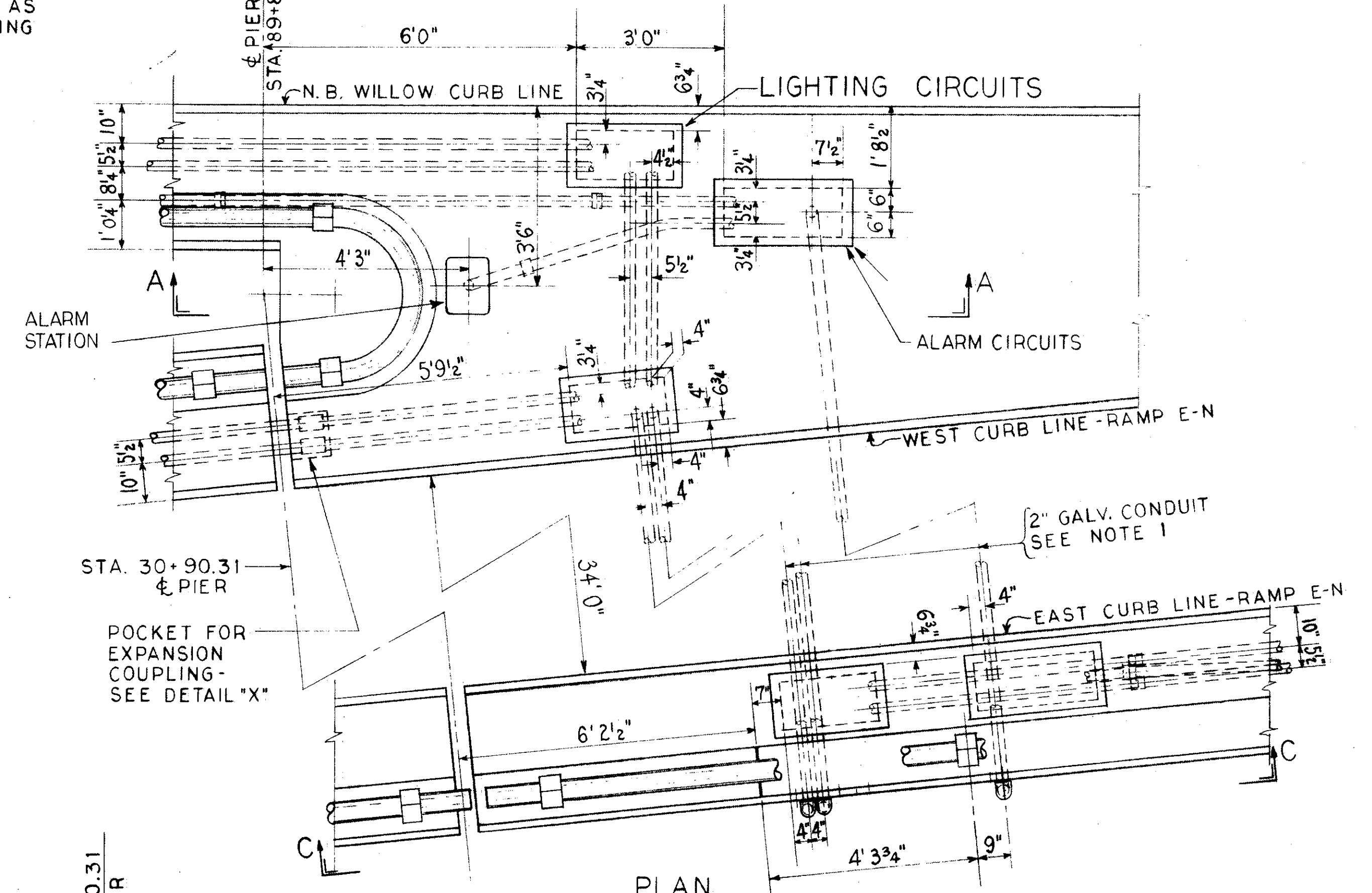


ELEVATION "B-B"

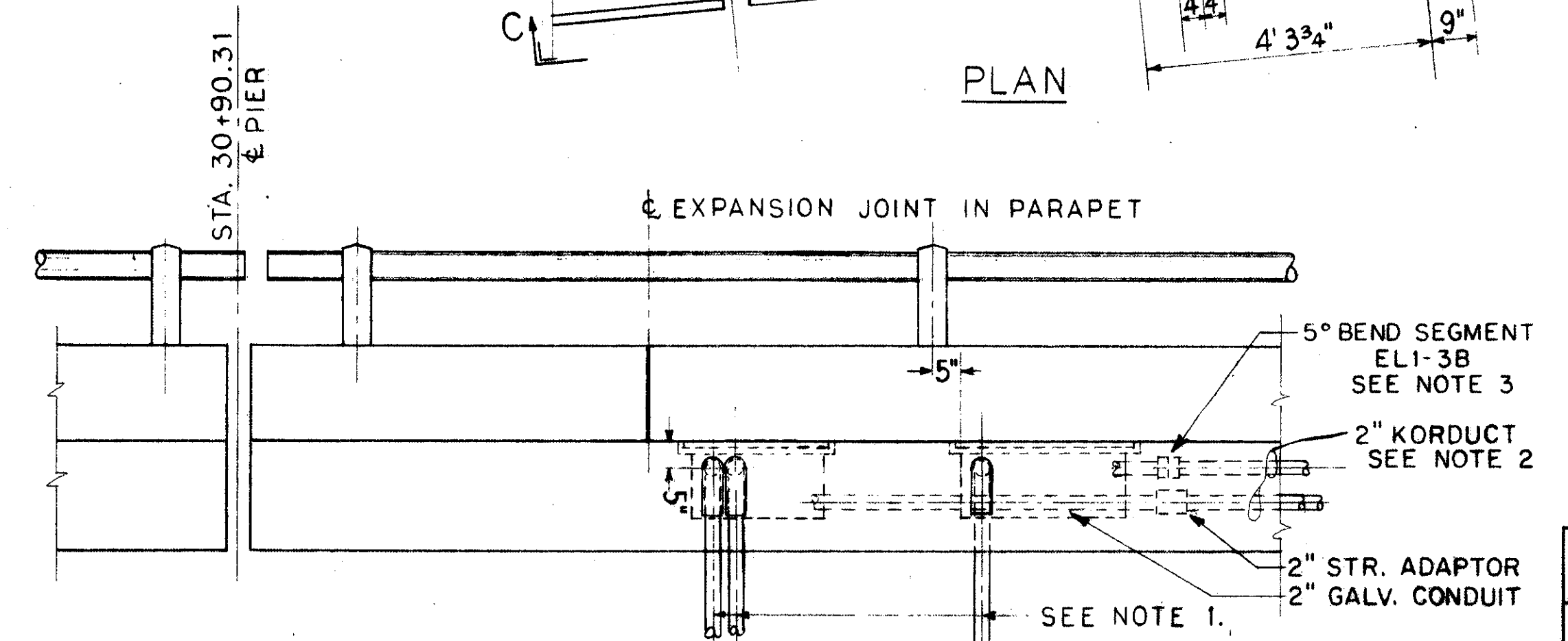
CONDUIT CONNECTIONS AT NOSE BETWEEN WILLOW FREEWAY AND RAMP N-W



SECTION "A-A"



PLAN



ELEVATION "C-C"

CONDUIT CONNECTIONS AT NOSE BETWEEN WILLOW FREEWAY AND RAMP E-N.

- NOTE 1**
CONDUITS RUN UNDER BRIDGE GIRDERS. THEY ARE NOT NECESSARILY AT RIGHT ANGLES TO CURB LINE. TERMINATION LOCATIONS SHOULD BE CAREFULLY OBSERVED. ADDITIONAL DETAILS ON SHEET 46.
- NOTE 2**
WHEN NO LOCATING DIMENSIONS ARE GIVEN, CONDUIT AND BOXES SHOULD BE LOCATED AS SHOWN IN TYPICAL VIEWS DETAILED ON SHEET 46.
- NOTE 3**
ALARM CONDUIT TO SLANT OVER TO ITS NORMAL LOCATION UNDER PARAPET.

TRYGVE HOFF & ASSOCIATES
ENGINEERS
1922 EAST 107TH STREET CLEVELAND, OHIO

LIGHTING DETAILS
BRIDGE NO. CUY-21-14.55
WILLOW FREEWAY OVER KINGSBURY RUN
CUYAHOGA COUNTY USR 21

SCALE 1/2"=1'-0" UNLESS NOTED DATE
DESIGNED: SGF DRAWN: WFE CHECKED: EDW

SGF	SGF	WFE	EDW
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ELECTRICAL NOTES

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

48

CUYAHOGA COUNTY
CUY-21-14.55

GENERAL

THIS SPECIFICATION SHALL SUPPLEMENT THE STATE OF OHIO CONSTRUCTION AND MATERIAL SPECIFICATIONS, DATED JANUARY 1, 1961, FOR THE MATERIALS USED AND FOR THE INSTALLATION OF ROADWAY LIGHTING, POLICE AND FIRE ALARM SYSTEM, AND A MULTIPLE UNDERDECK LIGHTING SYSTEM, FOR THE WILLOW FREEWAY OVER KINGSBURY RUN BRIDGE, CUY-21-14.55.

ROADWAY LIGHTING LUMINAIRES ARE NOT TO BE FURNISHED AS A PART OF THIS CONTRACT. ALSO TO BE OMITTED ARE BALLASTS OR INSULATING TRANSFORMERS, AND ALL WIRING IN CONNECTION WITH THE ROADWAY LIGHTING AND THE POLICE AND FIRE ALARM SYSTEM. THESE WILL BE INCLUDED IN A LATER CONTRACT.

THE UNDERDECK LIGHTING IS TO BE FURNISHED COMPLETE, AS INDICATED ON THE SUMMARY OF MATERIAL, DRAWING NO. 44.

THE ELECTRICAL WORK SHALL COMPLY WITH THE APPLICABLE PROVISIONS OF THE A.I.E.E. STANDARDS AND PRACTICES, I.E.S./A.S.A. STANDARDS, N.E.M.A. CODE, AND THE NATIONAL FIRE CODE, AND SHALL ALSO CONFORM TO ALL LOCAL AND SPECIAL LAWS AND/OR ORDINANCES. SHOULD THE PLANS AND DETAIL SPECIFICATIONS BE IN CONFLICT WITH THESE REQUIREMENTS, THROUGH ERROR OR OMISSION, THE CONTRACTOR SHALL CALL SUCH CONFLICT TO THE ATTENTION OF THE ENGINEER, AND SHALL MAKE THE NECESSARY CORRECTIONS AS DIRECTED BY THE ENGINEER.

THE CONTRACTOR SHALL CONSULT AND COOPERATE WITH THE CLEVELAND DIVISION OF LIGHT AND POWER AND THE CLEVELAND CITY POLICE AND FIRE DEPARTMENTS.

MATERIALS AND EQUIPMENT

LIGHT STANDARDS SHALL CONFORM TO THE SPECIFICATIONS AS SHOWN ON DRAWING NO. 46, AND SHALL HAVE TEN FOOT SINGLE AND DOUBLE BRACKET ARMS, AS SHOWN ON CITY OF CLEVELAND, DIVISION OF LIGHT AND POWER, DRAWING NO. 4954. IN GENERAL, EACH STANDARD SHALL CONSIST OF A CAST STEEL ANCHOR BASE TO WHICH SHALL BE WELDED A TAPERED STEEL POLE. AN ORNAMENTAL POLE TOP SHALL BE FASTENED TO THE POLE. ONE OR TWO BRACKETS FOR LUMINAIRE SUPPORT SHALL BE ATTACHED TO THE POLE AS DESCRIBED HEREINAFTER.

A CAST STEEL ANCHOR BASE OF ADEQUATE STRENGTH AND OF THE SHAPE AND SIZE SHOWN ON THE DRAWING SHALL BE SECURED TO THE LOWER END OF THE SHAFT BY MEANS OF A DOUBLE ELECTRIC WELD. TO OBTAIN THIS CONSTRUCTION, THE BASE SHALL TELESCOPE THE SHAFT AND ONE WELD SHALL BE ON THE INSIDE OF THE BASE AT THE END OF THE SHAFT AND THE OTHER SHALL BE ON THE OUTSIDE AT TOP OF THE BASE. THE BASE SHALL BE PROVIDED WITH FOUR HOLES TO RECEIVE THE ANCHOR RODS AND ALSO FOUR HOLES FOR VENTILATION AND WITH FOUR CAST IRON ORNAMENTAL ANCHOR BOLT COVER LEAVES WITH CAP SCREWS FOR ATTACHING THE LEAVES TO THE BASE.

* STEEL SHAFT OF THE POLE SHALL BE FABRICATED FROM NOT LESS THAN #11 MANUFACTURER'S STANDARD GAUGE SAE 1015 STEEL. THE SHAFT SHALL HAVE ONLY ONE(1) LONGITUDINAL, AUTOMATICALLY, ELECTRICALLY WELDED JOINT. ONLY ONE(1) LENGTH OF STEEL SHEET SHALL BE USED. AFTER COLD FORMING AND WELDING, THE TAPERED SHAFT SHALL BE COLD ROLLED ON A MANDREL WITH SUFFICIENT PRESSURE TO INCREASE THE YIELD STRENGTH TO A MINIMUM OF 48,000 PSI AND TO FLATTEN THE WELD. TO INSURE THAT THE THROAT OF THE WELD IS EQUAL TO THE FULL WALL THICKNESS, THE LONGITUDINAL WELDS SHALL NOT BE GROUND. THE TUBE PRODUCED SHALL BE OF TRUE TAPER WITHOUT FLAT SPOTS AND WITH A CIRCULAR CROSS SECTION. IF THE ROUND TAPERED STEEL SHAFT OF THE POLE IS MANUFACTURED BY OTHER MEANS THAN THAT SPECIFIED ABOVE, ALTERNATES WILL BE ACCEPTED PROVIDED THEY BE MADE OF A STEEL HAVING A MINIMUM SIZE 11 GAUGE (0.1106 U.S. STD.) AND A MINIMUM YIELD STRENGTH OF 48,000 P.S.I. AND MEET THE SPECIFICATIONS AS TABULATED BELOW, AND PROVIDED THEY BE SHOT-BLASTED TO REMOVE ALL MILL SCALE AND WELD SLAG PREPARATORY TO PAINTING. SHAFT SHALL BE WELDED TO A CAST STEEL BASE CONFORMING TO ASTM A-27 GRADE 65-35.

EACH TYPE "X" STANDARD SHALL HAVE A BRACKET ARM 10 FEET IN LENGTH MADE OF STANDARD PIPE OF THE SIZE SHOWN ON DRAWING NO. 46. THE INNER END OF THE BRACKET ARM SHALL BE WELDED TO A TUBULAR HEAD, AS SHOWN ON DRAWING NO. 46, SO A BLOCK CAN BE BOLTED THROUGH THE HEAD PIECE TO A PLATE WELDED TO THE TOP OF THE POLE, TO PERMIT RADIAL ADJUSTMENT OF THE BRACKET ARM. PROVISION SHALL BE MADE TO PERMIT PASSAGE OF CONCEALED WIRES TO THE BRACKET ARM. FOR TYPE "W" LAMP STANDARDS, THE HEAD BLOCK SHALL BE MODIFIED FOR TWO 10-FOOT BRACKETS WITH MOUNTING AND MATERIALS SIMILAR TO TYPE "X", AS SHOWN ON DWG. 46.

A SET OF "U" SHAPED SHIMS OF PROPER DIMENSIONS TO FIT AROUND 1-1/4 INCH DIAMETER ANCHOR RODS SHALL BE FURNISHED WITH EACH POLE FOR USE IN THE PROPER ALIGNMENT OF THE POLE. THESE SHIMS SHALL BE GALVANIZED OR CADMIUM PLATED.

EACH STANDARD SHALL HAVE TWO 9/16 INCH HOLES PROVIDED FOR VENTILATION, AS SHOWN ON DRAWING NO. 46.

LIGHTING UNITS SHALL BE PAINTED WITH A FIRST AND SECOND SHOP COAT OF RED LEAD PAINT, AS SPECIFIED IN STANDARD SPECIFICATIONS, PARAGRAPH 5-25.10. AFTER THE UNITS HAVE BEEN ERRECTED, THE EXPOSED SURFACES SHALL BE GIVEN TWO COATS OF ALUMINUM PAINT INSTEAD OF THE GREEN ENAMEL SPECIFIED IN 5-25.10.

NON-METALLIC CONDUIT SHALL BE ASBESTOS CEMENT CONFORMING TO SUPPLEMENTAL SPECIFICATION NO. M-206.14 OR FIBER CONDUIT EQUIVALENT TO ORANBERG NCRETE.

UNDERDECK LUMINAIRES SHALL BE EQUAL TO GENERAL ELECTRIC FORM 306E WITH TWO POWER GROOVE FLUORESCENT LAMPS, CAT. NO. F 72PG17/CW, WITH 115 V. DUAL BALLAST FOR EACH LUMINAIRE. THE JUNCTION BOX FOR EACH LUMINAIRE SHALL BE CAST IRON, WATERTIGHT, AND EQUAL TO O.Z. TYPE YS CAT. NO. 060603.

RIGID METAL CONDUIT FOR UNDERDECK LIGHTS SHALL BE 3/4" OR 1-1/4" GALVANIZED. CONDUIT SHALL BE FURNISHED WITH TAPERED FITTINGS AS REQUIRED, AND WITH NECESSARY SUPPORTS AND FASTENERS.

CIRCUIT CONDUCTORS IN CONDUIT FOR THE 115 VOLT FEED TO THE UNDERDECK LIGHTING UNITS SHALL BE TWO NO. 6 OR NO. 12 WIRES, AS SPECIFIED ON SHEET 49, AND IN THE BASIS OF PAYMENT, HEREINAFTER. BRANCH CONDUCTORS TO LUMINAIRES SHALL BE NO. 12 A.W.G., 600 V. STRANDED. THE CONDUCTORS SHALL BE CONTINUOUS FROM BOX TO BOX, AND NO SPLICES SHALL BE MADE EXCEPT WITHIN JUNCTION BOXES.

* SEE SPECIFICATION TABULATIONS AT RIGHT OF THIS SHEET.

CONSTRUCTION METHODS

THE INSTALLATION AS A WHOLE SHALL BE CARRIED OUT IN CONFORMANCE WITH THE REQUIREMENTS HEREIN STATED AND IMPLIED, AND UPON COMPLETION OF THE WORK SHALL PRESENT A NEAT AND WORKMANLIKE FINISHED APPEARANCE. SAFE CONSTRUCTION AND OPERATING PRACTICES MEETING THE REQUIREMENTS OF THE NATIONAL ELECTRIC SAFETY CODE SHALL BE MAINTAINED. ALL WIRING TO UNDERDECK LIGHTS IS TO BE PLACED IN RIGID METAL CONDUIT FASTENED BY SUITABLE CLAMPS.

THE POLES SHALL BE SET AS NEARLY VERTICAL AS POSSIBLE, USING THE SHIMS AS REQUIRED.

PAYMENT FOR ELECTRICAL EQUIPMENT, 5-25

PAYMENT FOR ELECTRICAL EQUIPMENT SHALL BE MADE AT THE CONTRACT UNIT PRICE BID FOR ITEMS AS INDICATED IN THE SUMMARY OF QUANTITIES, WHICH PAYMENT SHALL CONSTITUTE FULL COMPENSATION FOR FURNISHING ALL MATERIALS, LABOR, EQUIPMENT, TOOLS AND INCIDENTALS NECESSARY, WHETHER SPECIFICALLY MENTIONED OR NOT, TO COMPLETE THE ENTIRE WORK ACCORDING TO THE PLANS AND SPECIFICATIONS. PAYMENT WILL BE MADE AS FOLLOWS:

- TYPE "X" STANDARD, INCLUDING 28 FOOT POLE, BRACKET ATTACHMENTS, 10 FOOT STEEL BRACKET, SCREWS, BOLTS, NUTS AND WASHERS, AND ALL MODIFICATIONS.
- TYPE "W" STANDARD; AS ABOVE BUT WITH TWO 10 FOOT STEEL BRACKETS.
- BOX 24" X 12" X 12", CAST IRON, WATERTIGHT, AND EQUAL TO OZ TYPE YT CAT. NO. 241212. BOX TO BE FURNISHED, WITH NECESSARY CONDUIT ENTRIES AND BOSSES, AND PLACED AS SHOWN ON THE PLANS.
- CONDUIT, 2" KORDUCT, FOR ROADWAY LIGHTING CIRCUITS, SHALL INCLUDE THE FURNISHING AND PLACING OF SUCH CONDUIT, WITH THE NECESSARY COUPLINGS, BENDS, EXPANSION COUPLINGS, AND SPECIAL FITTINGS MENTIONED IN THE PLANS. THIS ITEM SHALL INCLUDE ALL ENTRIES TO PULL-BOXES AND TO LAMP STANDARDS, WITH NECESSARY FITTINGS, AND SHALL CONSTITUTE, WHEN COMBINED WITH FOLLOWING ITEM "E", A COMPLETE CONDUIT SYSTEM FOR ROADWAY LIGHTING AS SHOWN ON THE PLANS.
- CONDUIT, 2" GALVANIZED, FOR ROADWAY LIGHTING CIRCUITS, SHALL INCLUDE THE FURNISHING AND PLACING OF THAT PART OF THE CONDUIT SYSTEM WHICH IS SPECIFIED AS GALVANIZED CONDUIT ON THE PLANS, AS EXPLAINED UNDER THE PREVIOUS ITEM. ALL NECESSARY FITTINGS, BUSHINGS, COUPLINGS AND CONDUIT SUPPORTS ARE TO BE INCLUDED IN THIS ITEM.
- FLUORESCENT LUMINAIRE SHALL INCLUDE FIXTURE, TWO POWER-GROOVE LAMPS, BALLAST, BRACKETS, SUPPORT WHERE REQUIRED, GROUNDING OF FIXTURE, 6"X6"X3" JUNCTION BOX, ALL NECESSARY CONNECTIONS, INCLUDING 3/4" I.D. VINYL-JACKETED FLEXIBLE CONDUIT, FITTINGS, MOUNTING LUGS AND FASTENINGS, AS INDICATED ON DRAWING NO. 49.
- SERVICE BOX SHALL INCLUDE 12" X 12" X 10" CAST IRON JUNCTION BOX, SAFETY SWITCH, MOUNTINGS, GROUND FOR CONDUIT AND STRUCTURE, ALL NECESSARY INTERCONNECTING WIRING, TERMINALS, SPLICES, CONDUIT ADAPTORS, LOCKNUTS, INSULATING BUSHINGS, MOUNTING BOLTS, NUTS, WASHERS AND SPACERS. BOX SHALL BE PROVIDED WITH NECESSARY CONDUIT ENTRANCE HOLES & BOSSES.
- DISTRIBUTION BOX SHALL INCLUDE 8"X6"X6" CAST IRON JUNCTION BOX, CIRCUIT BREAKER, ATTACHMENTS, FITTINGS FASTENINGS, CONDUIT CONNECTIONS, AND NECESSARY WIRING, USING NO. 12 RH-RW WIRE.
- SERVICE FOR UNDERDECK LIGHTING SHALL INCLUDE RUN OF NO. 6 RH-RW WIRE, AND 2" GALVANIZED RIGID CONDUIT, WITH NECESSARY FITTINGS, TO BRING 115 VOLT POWER FROM MANHOLE ON CROTON AVENUE TO SERVICE BOX, AS SHOWN ON DRAWING NO. 49.
- FIRE AND POLICE ALARM SHALL INCLUDE FURNISHING AND MOUNTING THE COMBINATION FIRE ALARM AND POLICE EMERGENCY PHONE ASSEMBLY AS DESCRIBED ON SHEET 47.
- BOX 30"X12"X12", CAST IRON, WATERTIGHT, AND EQUAL TO OZ TYPE YT CAT. NO. 301212. BOX TO BE FURNISHED WITH NECESSARY CONDUIT ENTRIES AND BOSSES, AND PLACED AS SHOWN ON THE PLANS.
- CONDUIT, 2" KORDUCT, FOR ALARM, SHALL INCLUDE THE FURNISHING AND PLACING OF SUCH CONDUIT, ALONG WITH THE NECESSARY COUPLINGS, BENDS, EXPANSION COUPLINGS, AND SPECIAL FITTINGS MENTIONED IN THE PLANS. THIS ITEM SHALL INCLUDE ALL ENTRIES TO PULL-BOXES AND TO ALARM UNITS, WITH NECESSARY FITTINGS, AND SHALL CONSTITUTE, WHEN COMBINED WITH FOLLOWING ITEM "M", A COMPLETE CONDUIT SYSTEM FOR THE ALARM SYSTEM AS SHOWN ON THE PLANS.
- CONDUIT, 2" GALVANIZED, FOR ALARM, SHALL INCLUDE THE FURNISHING AND PLACING OF THAT PART OF THE CONDUIT SYSTEM WHICH IS SPECIFIED AS GALVANIZED CONDUIT ON THE PLANS, AS EXPLAINED UNDER THE PREVIOUS ITEM. ALL NECESSARY FITTINGS, BUSHINGS, COUPLINGS AND CONDUIT SUPPORTS ARE TO BE INCLUDED IN THIS ITEM.
- ELECTRICAL GROUNDS AS DESCRIBED ON DRAWING NO. 49.

*LIGHT POLES SHALL COMPLY WITH SPECIFICATIONS AS TABULATED BELOW:

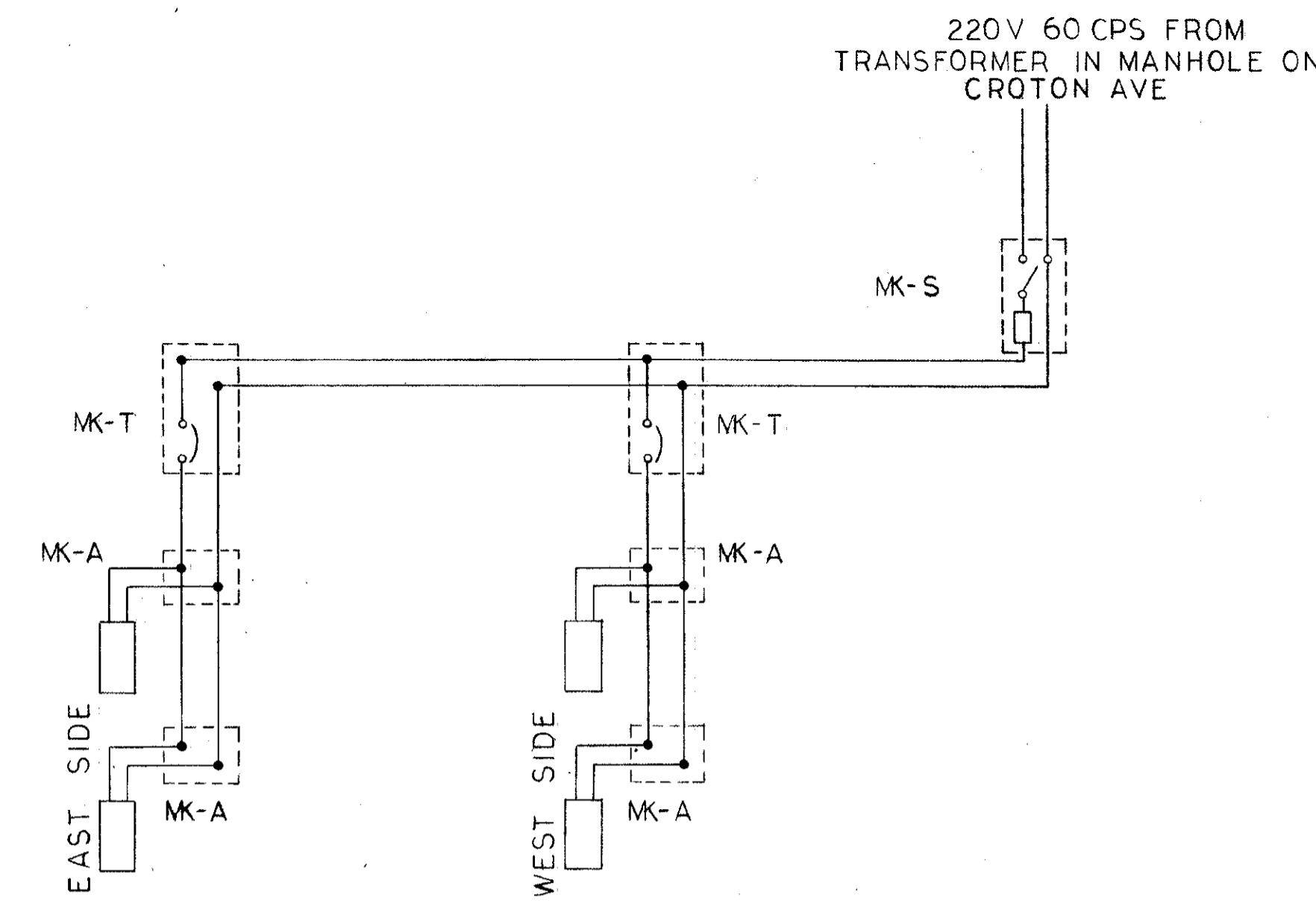
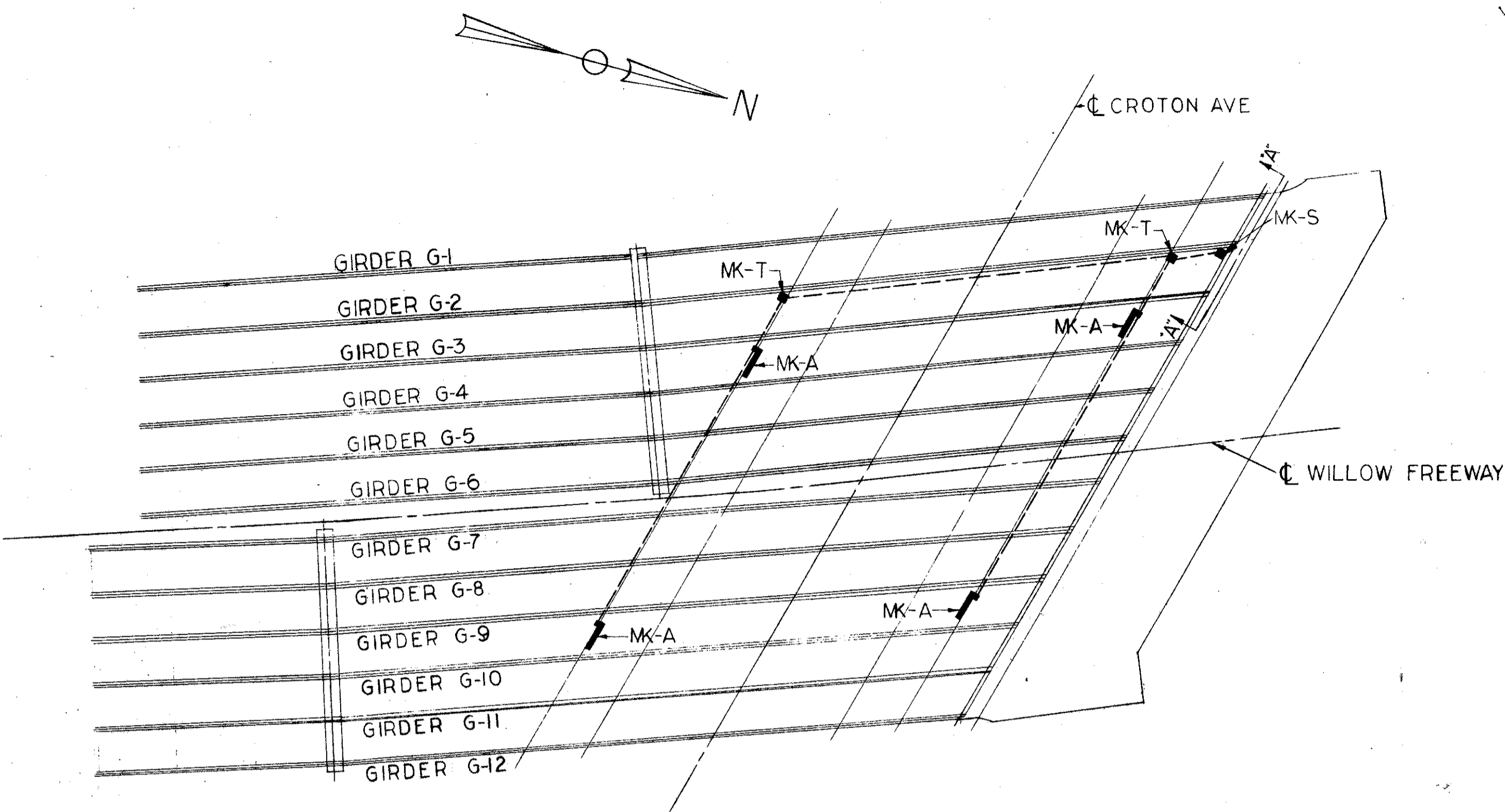
POLE SIZE (Round 11 Gauge)	ARM LENGTH	BOLT CIRCLE DIA.	ELASTIC DEPL. RATE-INCHES PER 100 LBS.	AT 2/3 OF YIELD STRESS			AT YIELD STRESS		
				LOAD IN LBS. 18" Down From Top	Total Defl. in inches. 18" down from top	Permanent Set in inches.	LOAD in LBS. 18" down from top	Total defl. in inches. 18" down from top	Permanent Set in inches. 18" down from top
9.0"x5.00"x 28'-0"	10'-0" Twin or Single	12 1/2"	1.77	6.96	12.82	.50	1045	20.85	2.35

<p>TRYGVE HOFF & ASSOCIATES ENGINEERS 1922 EAST 107TH STREET CLEVELAND, OHIO</p>					
<p>ELECTRICAL NOTES BRIDGE NO. CUY-21-14.55 WILLOW FREEWAY OVER KINGSBURY RUN CUYAHOGA COUNTY U.S.R. 21</p>					
SCALE	NONE	DATE			
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE
			SGF	E.B.V	9/18/62
					11-14-62

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

49
164

CUYAHOGA COUNTY
CUY-21-14.55



UNDERPASS LIGHTING SCHEMATIC

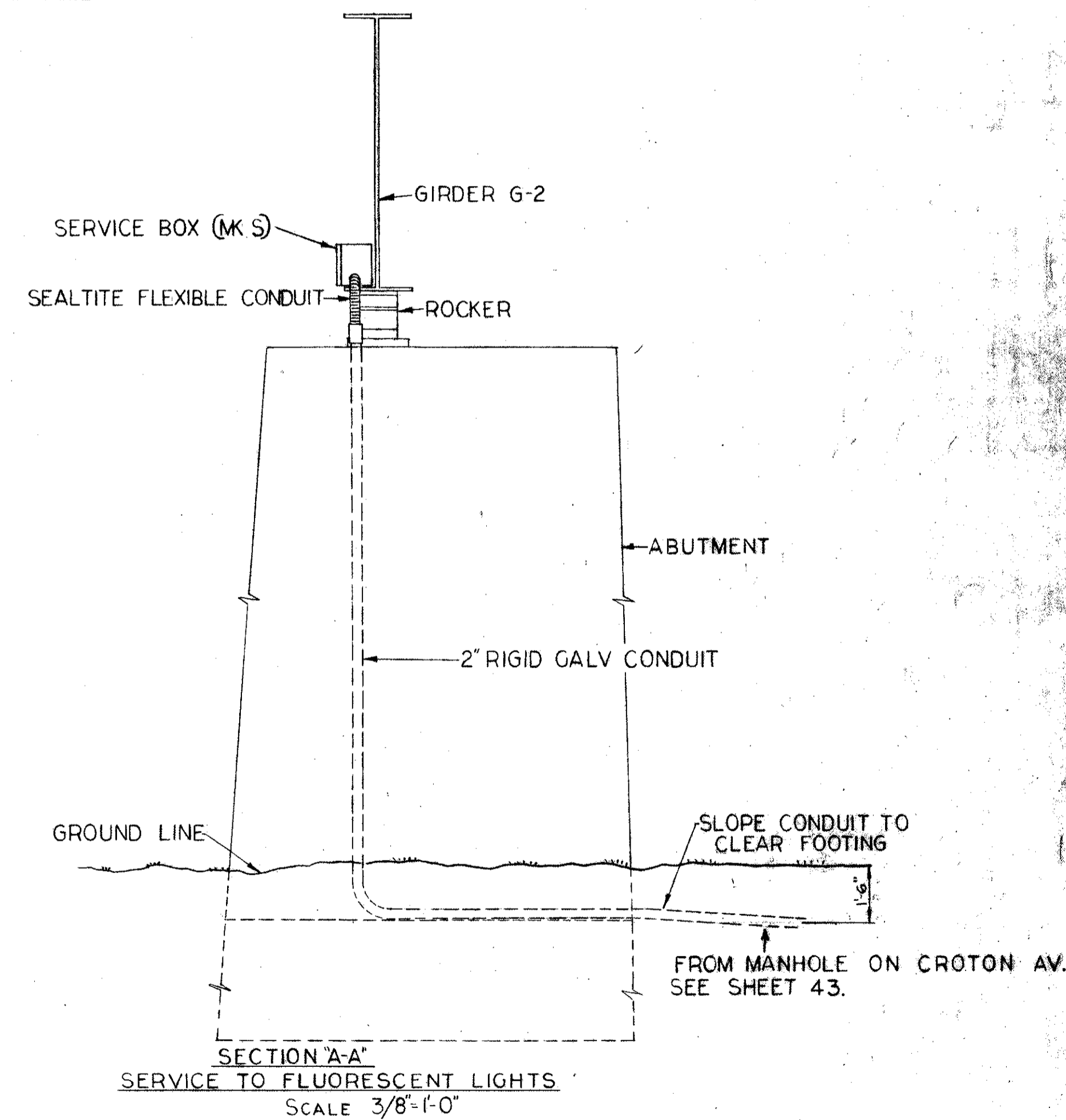
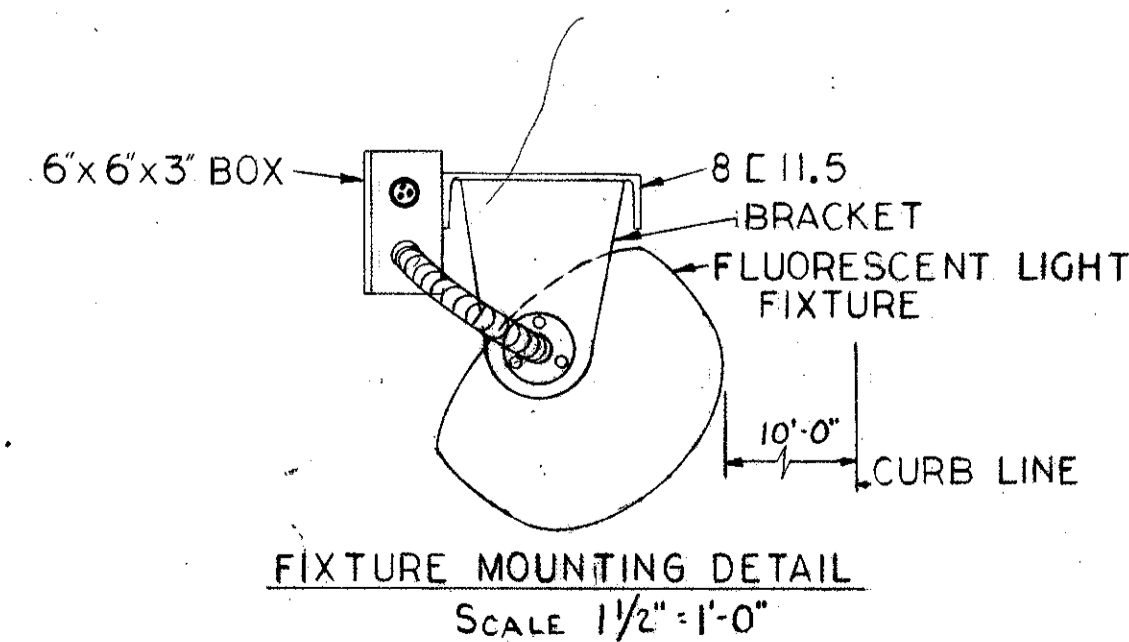
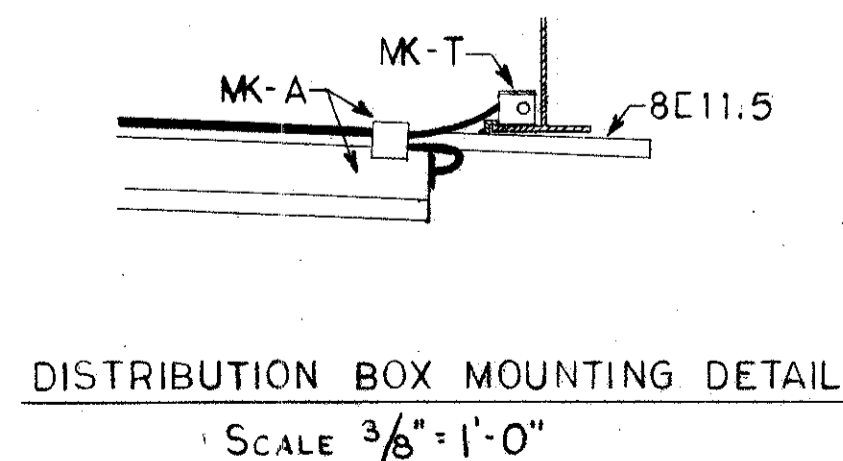
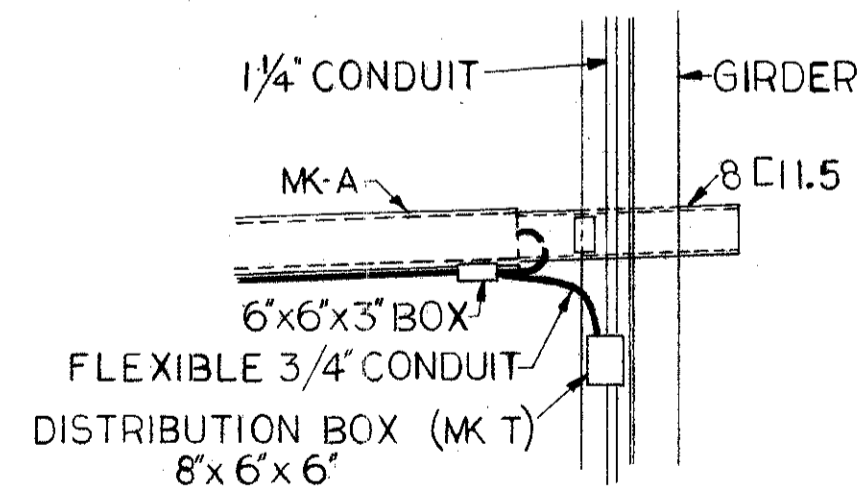
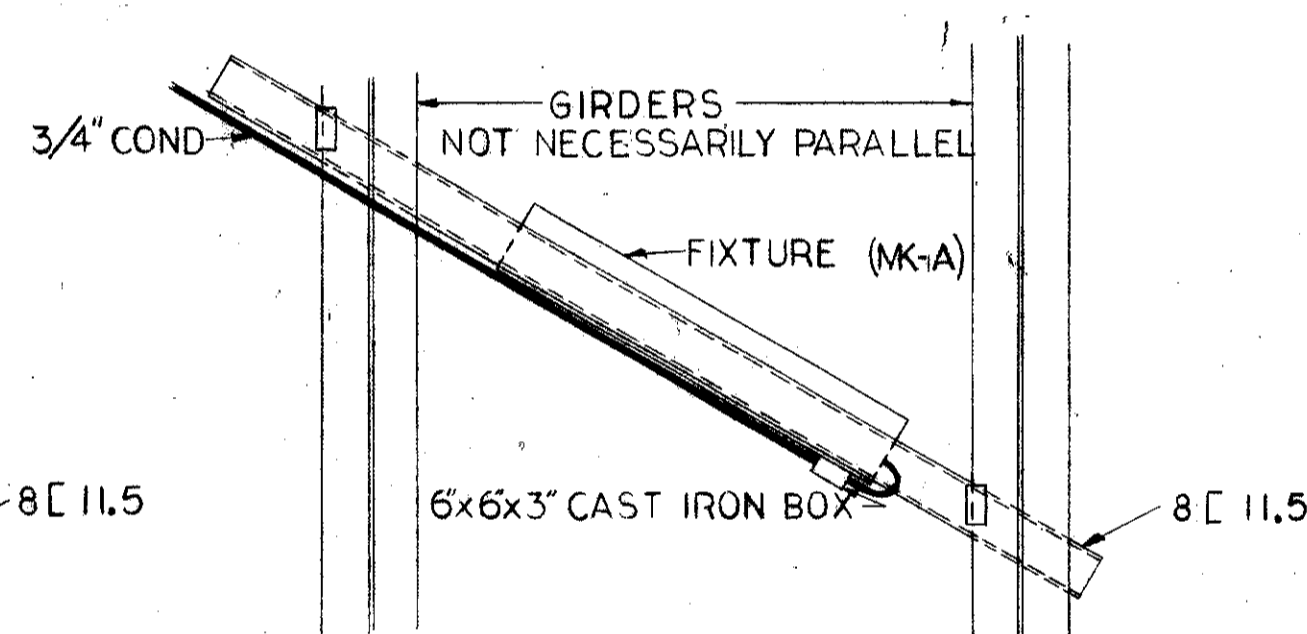
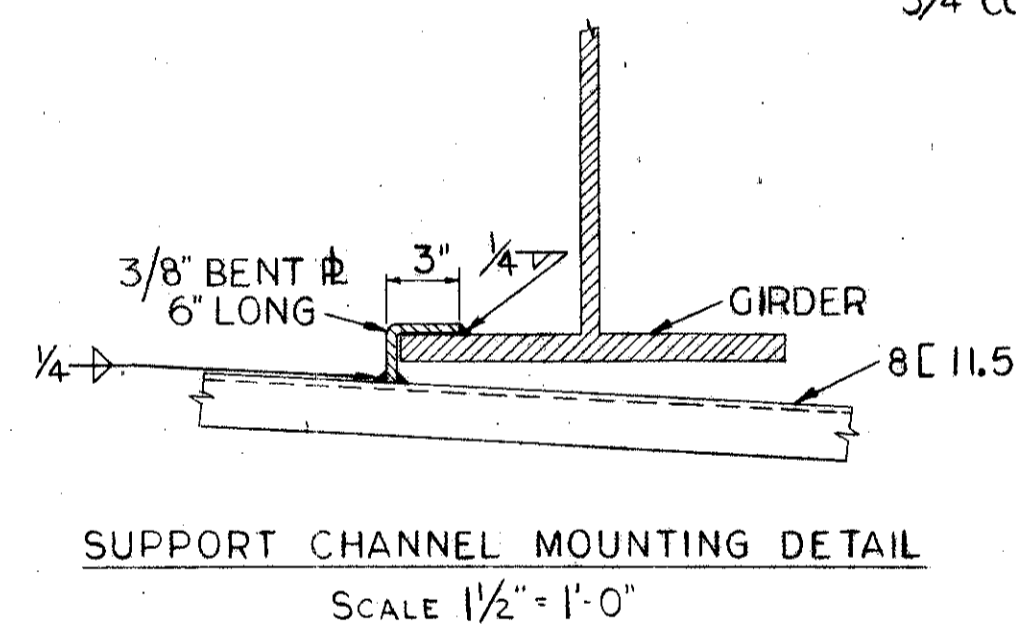
UNDERPASS LIGHTING AND CONDUIT ON BRIDGE STRUCTURE
SCALE 1"=20 FT
SEE SCHEMATIC THIS SHEET

EXPLANATION OF SYMBOLS

- MK-A FLUORESCENT UNDERDECK LIGHT, WITH 6"x6"x3" BOX O.Z. CAT. YS 060603 OR APPROVED EQUAL
- MK-S SERVICE BOX, TO BE EQUIPPED WITH SAFETY SWITCH G.E. CAT. TH3221 OR APPROVED EQUAL
- MK-T DISTRIBUTION BOX TO BE EQUIPPED WITH CIRCUIT BREAKER G.E. CAT. TE22015 OR APPROVED EQUAL

ELECTRICAL GROUNDS

A SOLID NO. 0 BARE COPPER WIRE ELECTRICAL GROUND SHALL BE EMBEDDED IN THE OUTSIDE CONCRETE COLUMN AT EACH FIXED PIER. THE LOWER END OF THE WIRE SHALL BE BRAZED TO THE STEEL SHELL OF ONE OF THE PILES, AND THE UPPER END SHALL EXTEND SUFFICIENTLY ABOVE THE TOP OF THE CONCRETE TO PROVIDE FOR A SUITABLE SPLICE TO THE SUPERSTRUCTURE CONNECTION. THIS CONNECTION SHALL BE A NO. 6 BARE, STRANDED, TINNED COPPER WIRE BRAZED OR BOLTED TO A BEAM OR A GIRDER FLANGE. ALL ELECTRICAL EQUIPMENT SHALL BE GROUNDED TO THE SUPERSTRUCTURE WITH A NO. 6 COPPER WIRE. PAYMENT FOR ELECTRICAL GROUNDS IS COVERED ON DRAWING NO. 48, ITEM "N".



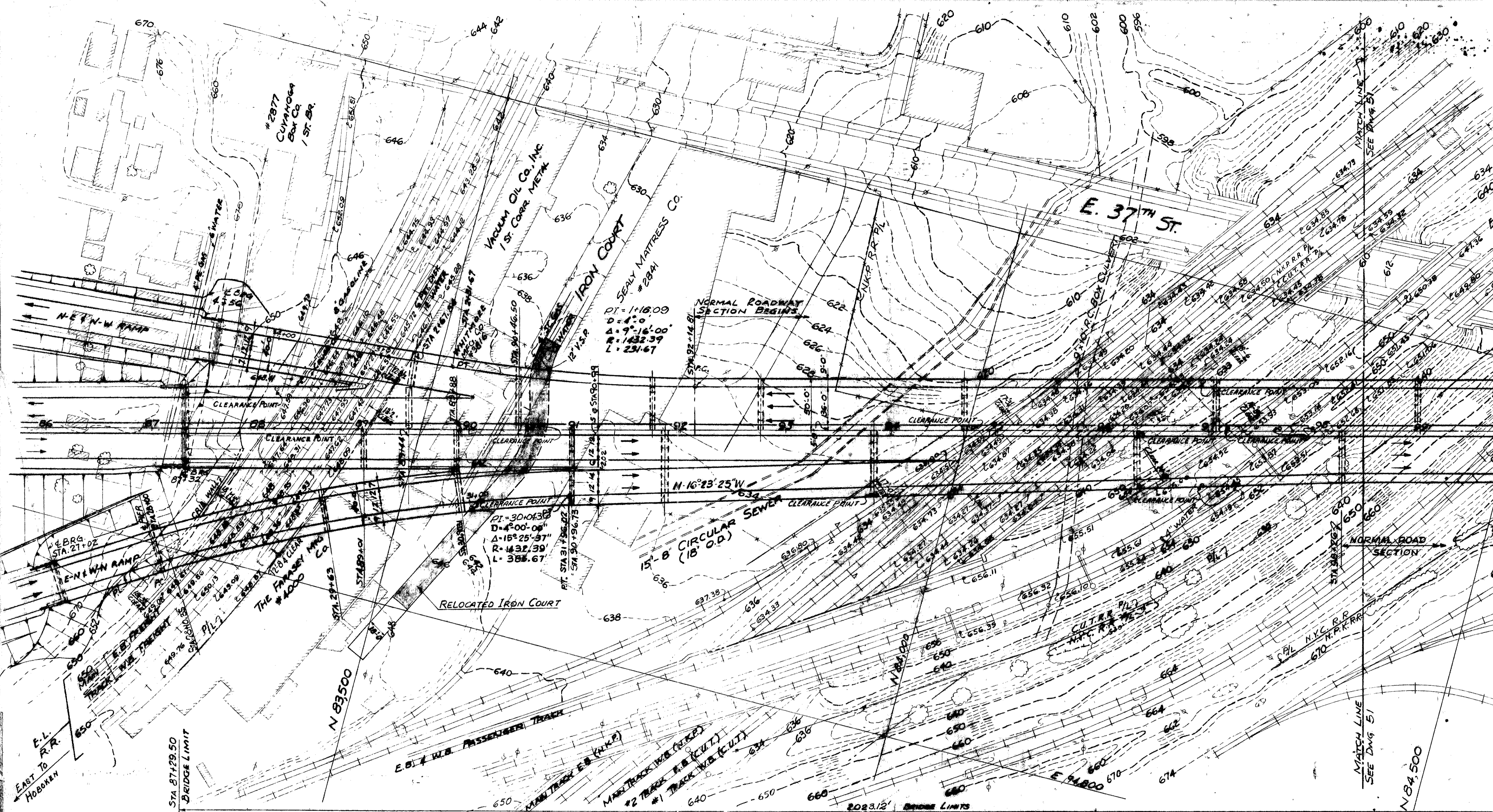
TRYGVE HOFF & ASSOCIATES ENGINEERS			
1922 EAST 107TH STREET		CLEVELAND, OHIO	
UNDERDECK LIGHTING & DETAILS			
BRIDGE NO.		CUY-21-14.55	
WILLOW FREEWAY OVER KINGSBURY RUN			
CUYAHOGA COUNTY U.S.R. 21			
SCALE AS NOTED DATE			
DESIGNED	DRAWN	TRACED	CHECKED
SGF	J.M.W.	WFE	EBN
			8-1-62

71-0

0-14

FED. RD. DIVISION	STATE	PROJECT	50 164
2	OHIO		

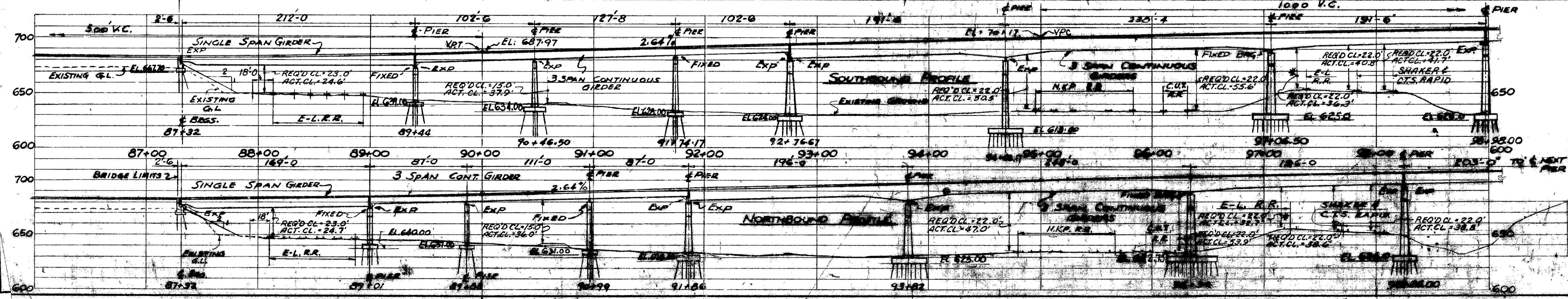
CUYAHOGA COUNTY
CUY-21-14.55



FOUNDATION SOUNDINGS
FOUNDATION DESIGN AND FOUNDATION QUANTITIES ARE BASED ON A STUDY OF BORINGS MADE AT THE SITE. THE BORING INFORMATION MAY BE INSPECTED IN THE BUREAU OF BRIDGES IN COLUMBUS OR IN THE DIVISION OFFICE, BUT THE STATE DOES NOT GUARANTEE THE ACCURACY THEREOF.

PROPOSED STRUCTURE
TYPE: SIMPLE, 2 & 3 SPAN CONTINUOUS
WELDED PLATE GIRDERS WITH REINFORCED CONC. DECK & SUBSTRUCTURE
SPANS: VARY
ROADWAY: WILLOW DUAL ROADWAYS
WIDTH F/F CURBS VARIES 33'-0" & 45'-0"
RAMPS: WIDTH F/F CURBS = 34'-0"
LOAD FREQUENCY: CF = 2000 (57) ADEQUATE FOR AASHO ALTERNATE LOADING
WEARING SURFACE: 1" MONOLITHIC CONCRETE.

WORK THIS DWG. WITH DWG. #51, #52 & #53 FOR UTILITIES NOT SHOWN SEE SHEETS 42 & 43.



* FOR VERTICAL CLEARANCE OF PIER CAP OVER 1/1 RAIL SEE DWG. NO. 57

TRYGVE HOFF & ASSOCIATES
ENGINEERS
1922 EAST 107TH STREET CLEVELAND, OHIO

SITE PLAN
STA. 87+00 TO STA. 99+00
BRIDGE NO. CUY-21-1455
WILLOW FREEWAY OVER KINGSBURY RUN
CUYAHOGA COUNTY U.S.R. 21

SCALE	DATE
DRAWN: D.V.M.	DATE: 7/2/62
TRACED	REVIEWED
CHECKED: T.S.J.	DATE: 7/2/62

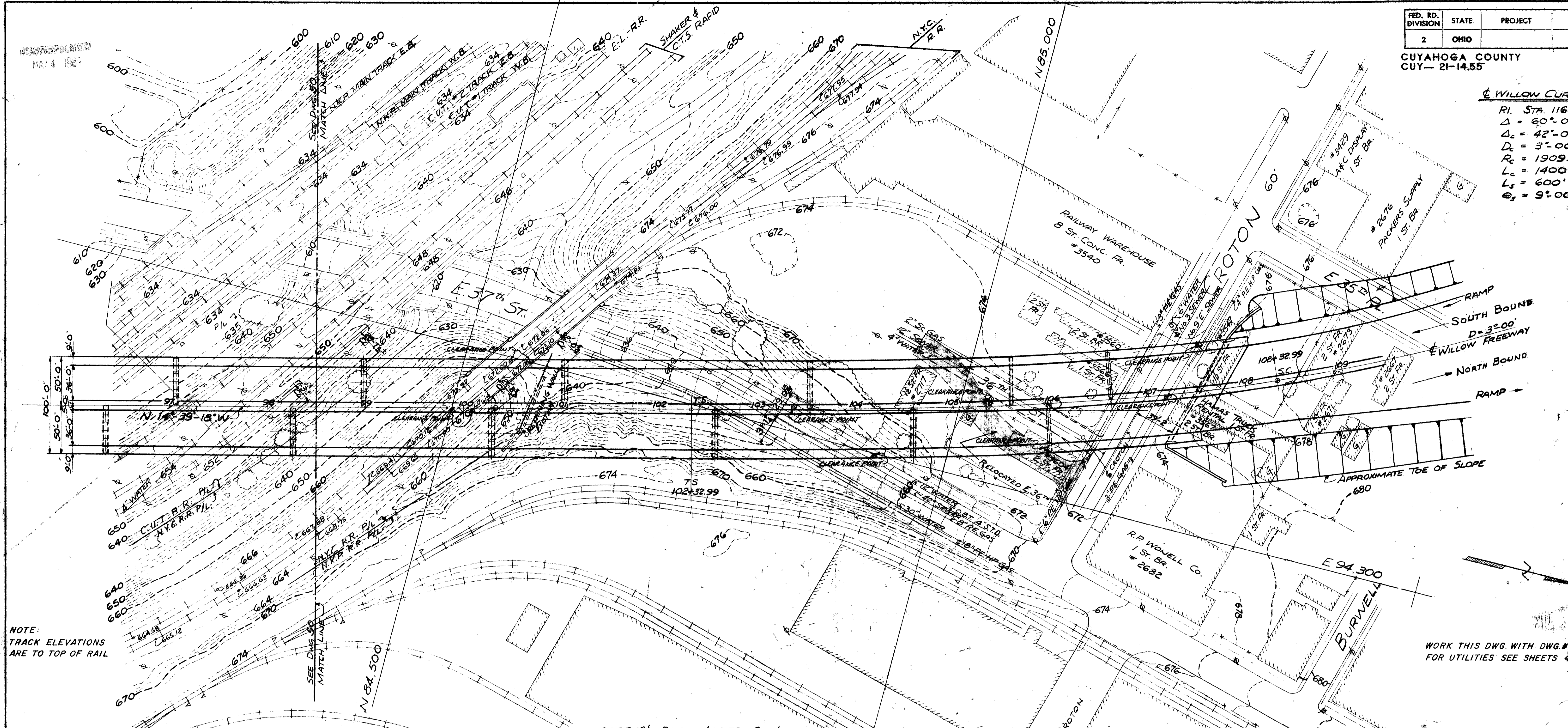
MICROFILMED
MAY 4 1967

FED. RD. DIVISION	STATE	PROJECT	51 164
2	OHIO		

CUYAHOGA COUNTY
CUY-21-14.55

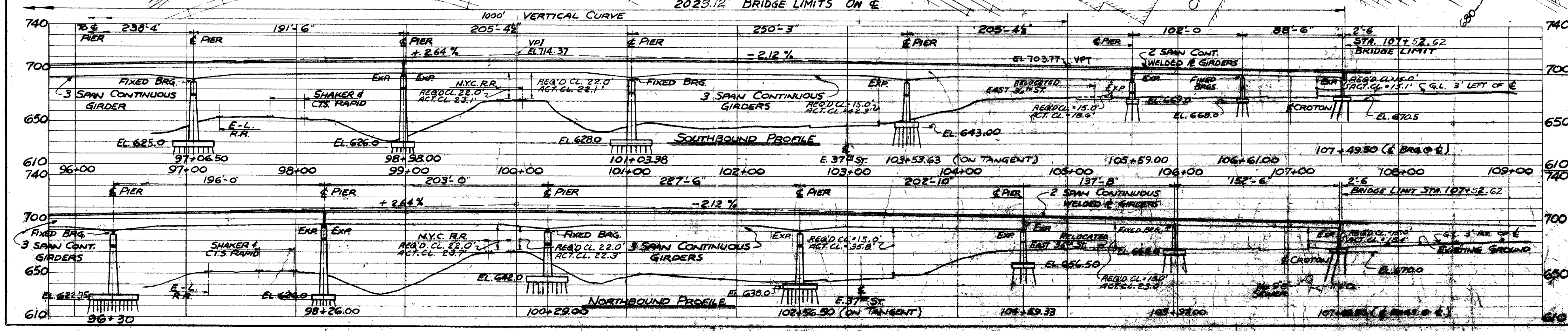
WILLOW CURVE DATA

PI. STA.	116+39.93
Δ	60°-00'
Δ_c	42°-00'
D_c	3°-00'
R_c	1909.86'
L_c	1400'
L_s	600'
θ_s	9°-00'



NOTE:
TRACK ELEVATIONS
ARE TO TOP OF RAIL

WORK THIS DWG. WITH DWG. # 50, # 52 & # 53
FOR UTILITIES SEE SHEETS 42 & 43.



NOTE:
STATIONING GIVEN ON E WILLOW
FREEWAY UNLESS NOTED.

TRYGVE HOFF & ASSOCIATES,
ENGINEERS
1922 EAST 107TH STREET CLEVELAND, OHIO

SITE PLAN
STA. 98+50 TO STA. 109+00
BRIDGE NO. CUY-21-14.55
WILLOW FREEWAY OVER KINGSBURY RUN
CUYAHOGA COUNTY U.S.R. 21

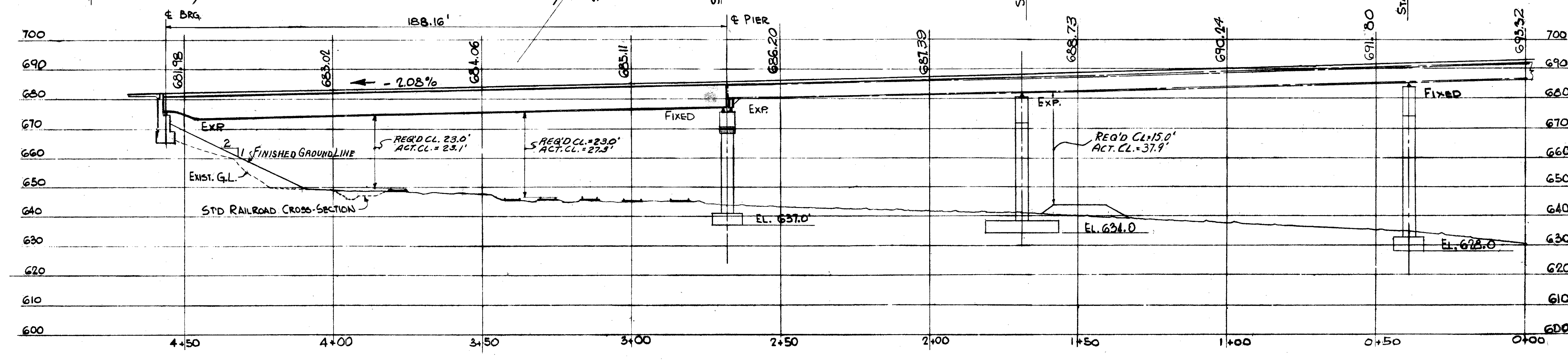
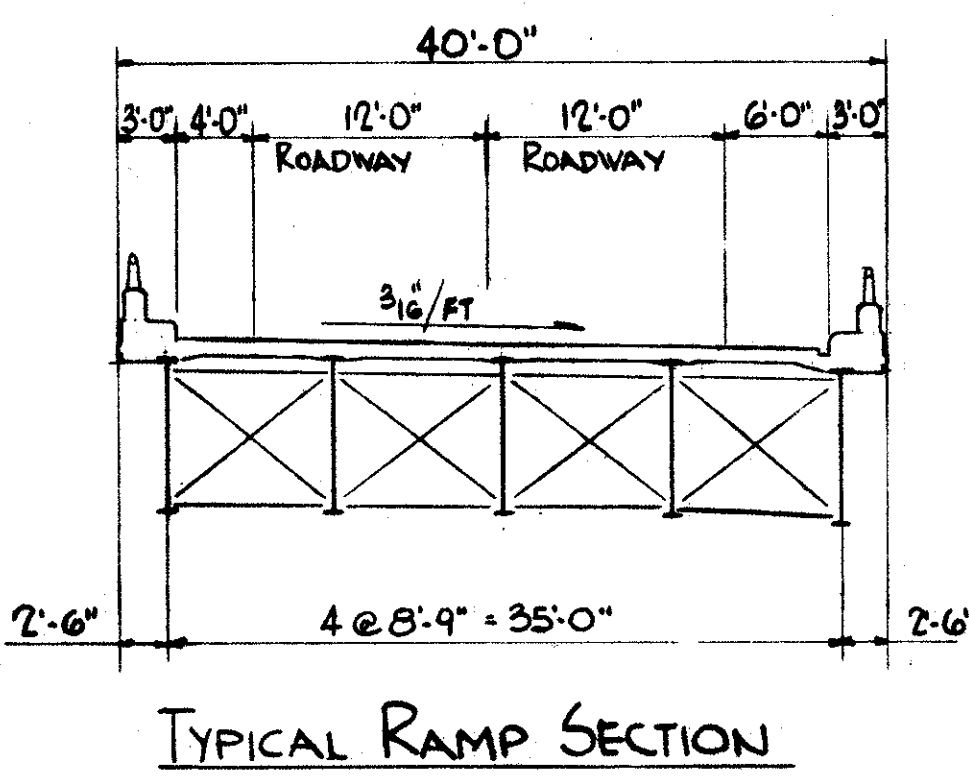
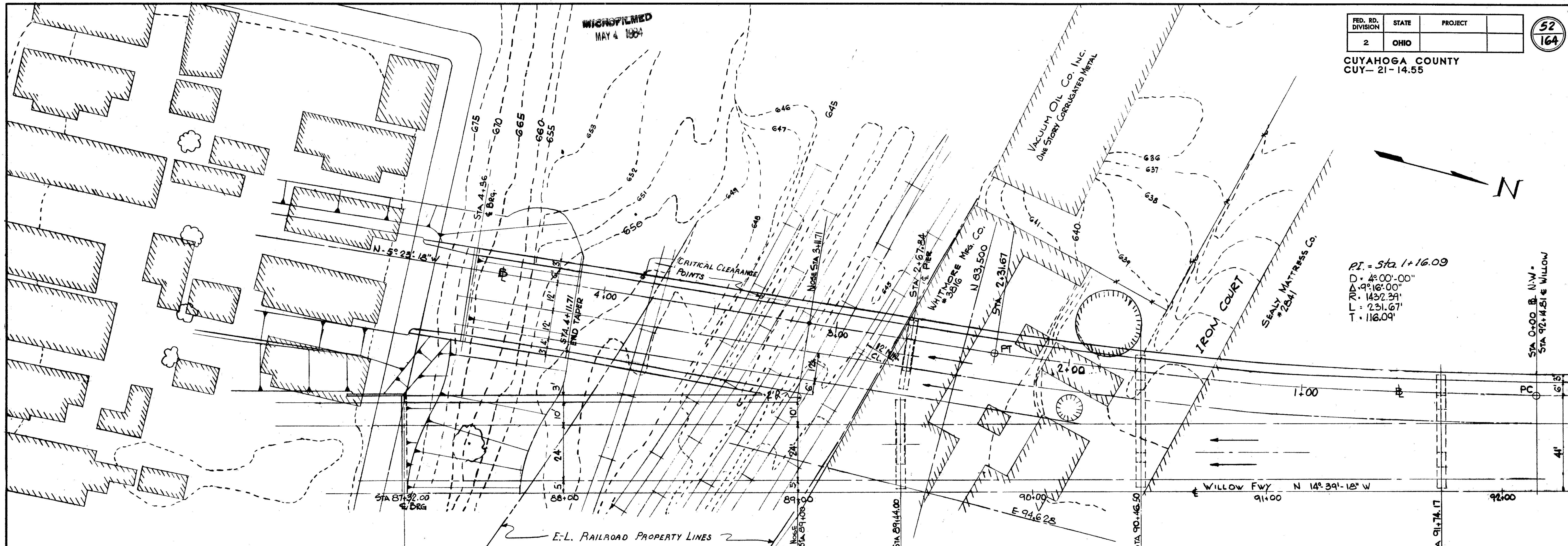
SCALE	DATE
DESIGNED	DRAWN
TRACED	CHECKED
REVIEWED	DATE

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

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164

CUYAHOGA COUNTY
CUY-21-14.55

PI = Sta. 1+16.09
D = 4° 00' 00"
Δ = 9° 16' 00"
R = 1432.39'
L = 231.67'
T = 116.09'



PROPOSED STRUCTURE
 TYPE: WELDED STEEL GIRDERS WITH REINFORCED CONCRETE DECKS & SUBSTRUCTURES
 SPAN: 188.16'
 ROADWAY: 34'-0" F/F CURBS
 ROAD FREQUENCY: CF 2000 (S7) - ADEQUATE FOR A.A.S.H.O. ALTERNATE LOADING
 WEARING SURFACE: 1" MONOLITHIC CONCRETE
 APPROACH SLAB: 25.0' LONG
 ALIGNMENT: TANGENT TO 4° CURVE

TRYGVE HOFF & ASSOCIATES
 ENGINEERS
 1922 EAST 107TH STREET CLEVELAND, OHIO

SITE PLAN
 RAMP N-W STA. 0+00 TO STA. 4+56
 BRIDGE NO. CUY-21-14.55
 WILLOW FREEWAY OVER KINGSBURY RUN
 CUYAHOGA COUNTY U.S.R. 21

SCALE	DATE					
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
	DJT		CRB	OB	7/2/62	

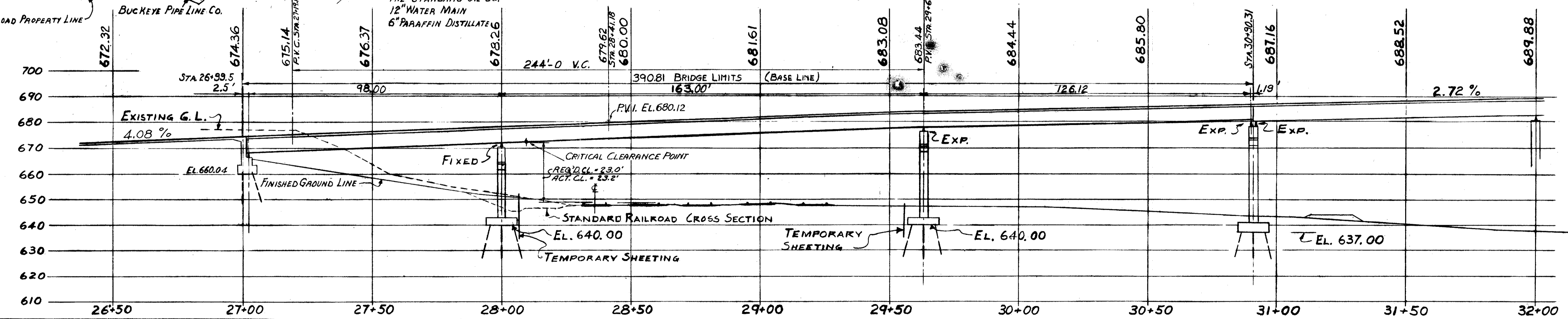
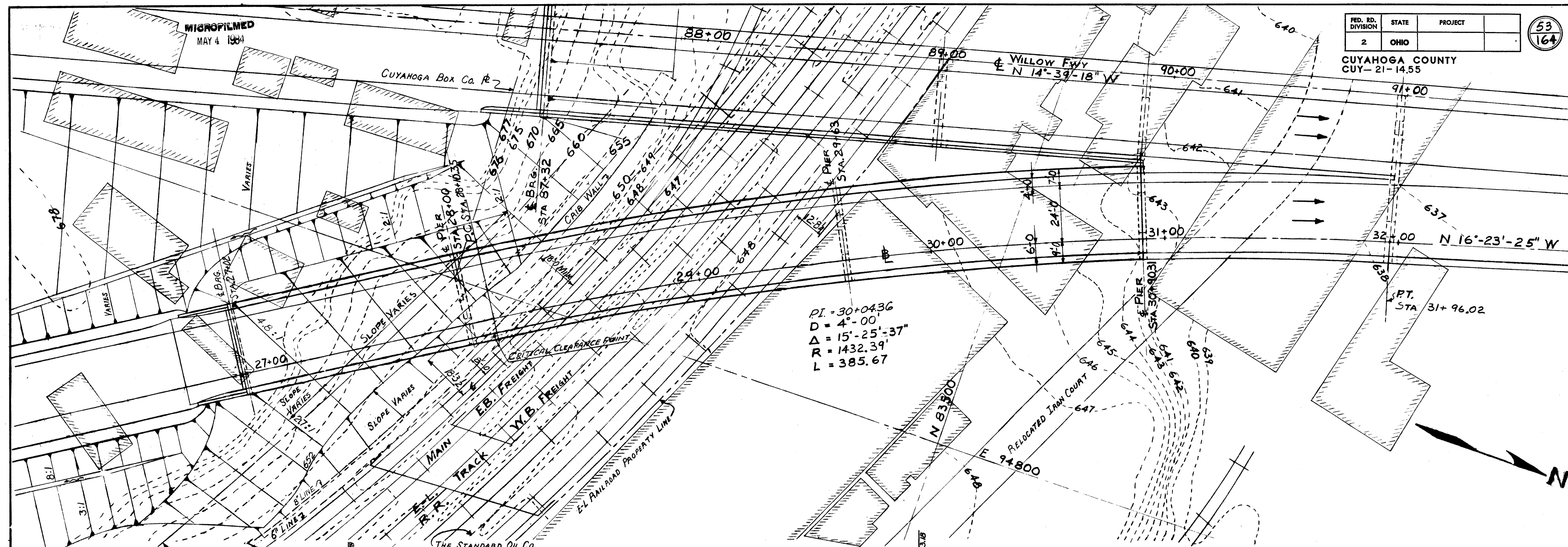
WORK THIS DRAWING WITH DWG. # 50, # 51 & # 53

MICROFILMED
MAY 4 1984

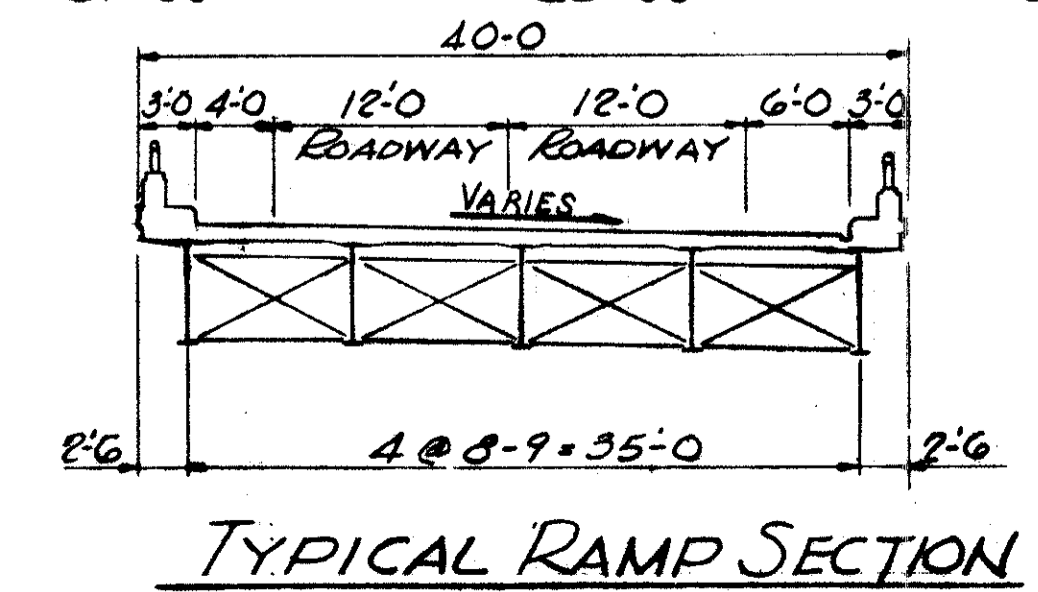
FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

CUYAHOGA COUNTY
CUY-21-1455

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164



PROPOSED STRUCTURE
 TYPE: 3 SPAN CONT. WELDED PLATE GIRDERS WITH REINF. CONC. DECKS & SUBSTRUCTURE
 SPANS: 98.00' - 163.00' - 126.12'
 ROADWAY: 34'-0" F/F CURBS
 LOAD FREQUENCY: CF = 2000 (S7) ADEQUATE FOR A.A.S.H.O. ALTERNATE LOADING
 WEARING SURFACE: 1" MONOLITHIC CONC.
 APPROACH SLAB: 25'-0" LONG
 ALIGNMENT: VARIES, SEE PLAN



WORK THIS DRAWING WITH
DWG'S 50, 51 & 52

TRYGVE HOFF & ASSOCIATES
 ENGINEERS
 1922 EAST 107TH STREET CLEVELAND, OHIO

SITE PLAN
 RAMPS E-N & W-N
 STA. 26+99.5 TO STA. 30+90.31
 BRIDGE NO. CUY-21-1455
 WILLOW FREEWAY OVER KINGSBURY RUN
 CUYAHOGA COUNTY U.S.R. 21

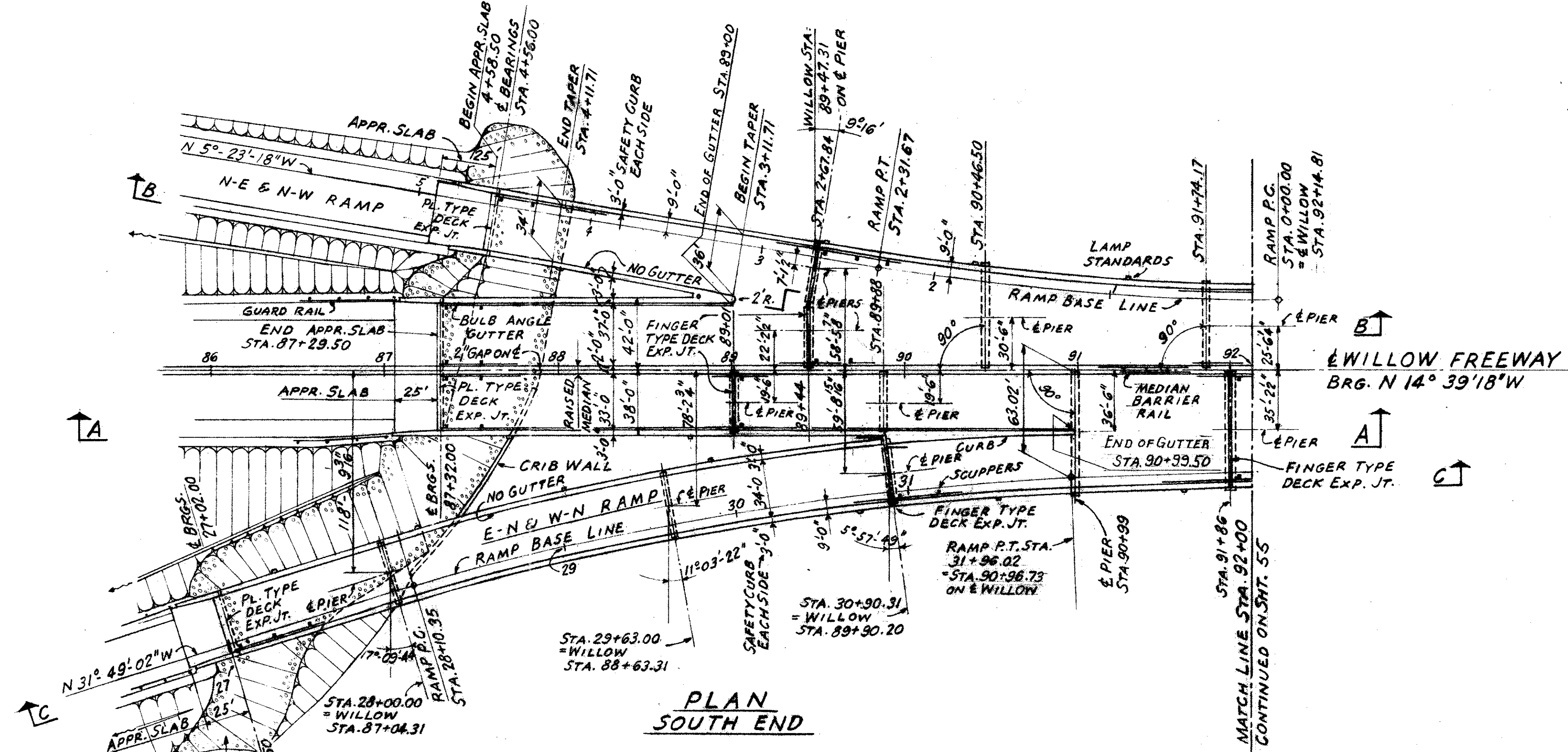
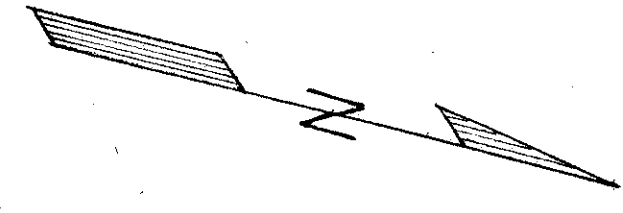
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DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
DWM	GM		DWM	CS	7/2/62	

MAY 4 1954

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

54
164

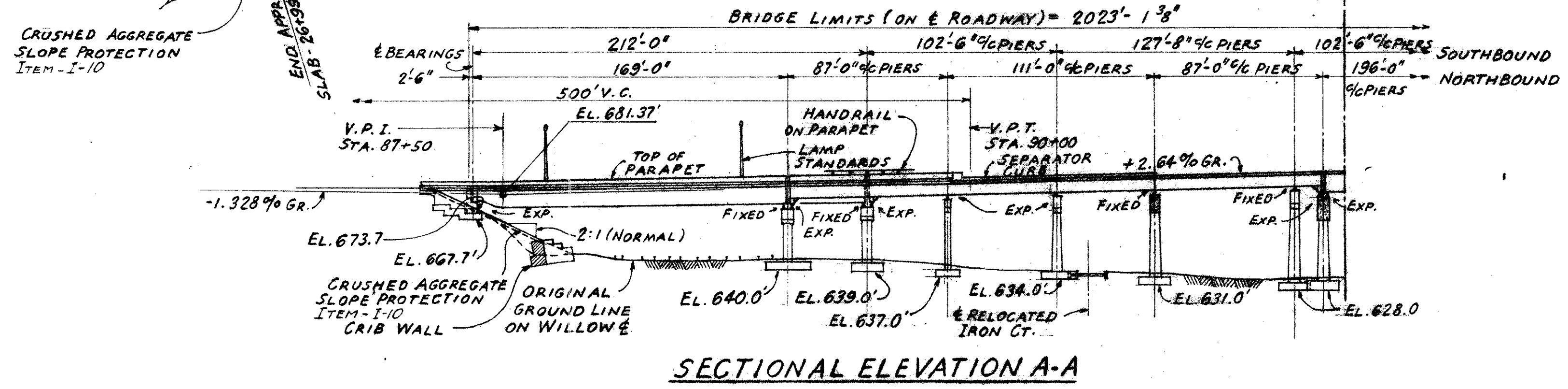
CUYAHOGA COUNTY
CUY-21-14.55



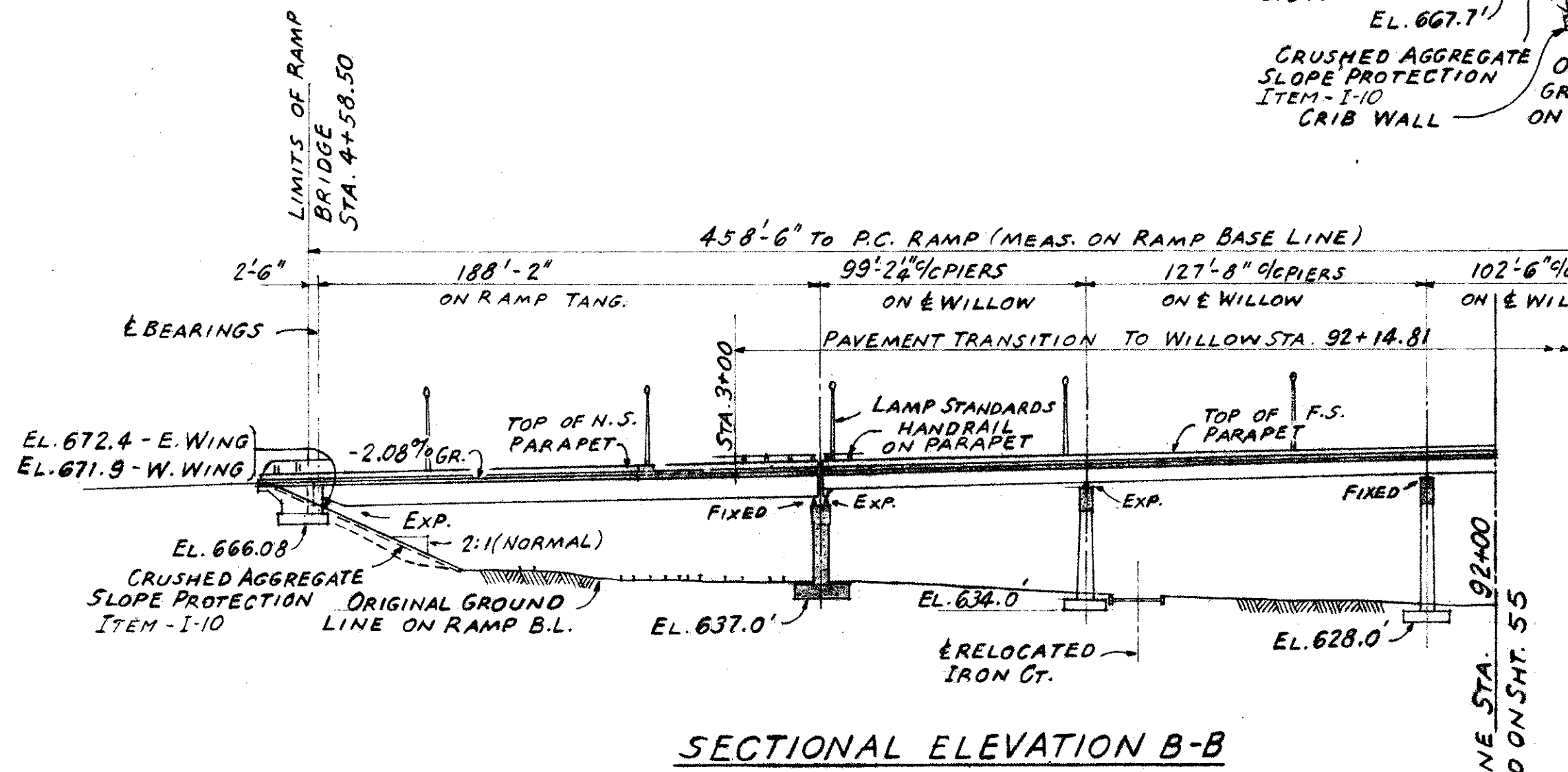
PLAN
SOUTH END

FORCE ACCOUNT WORK
by the Erie-Lackawanna Railroad
1. Engineering and inspection
2. Communications work
3. Signal Work

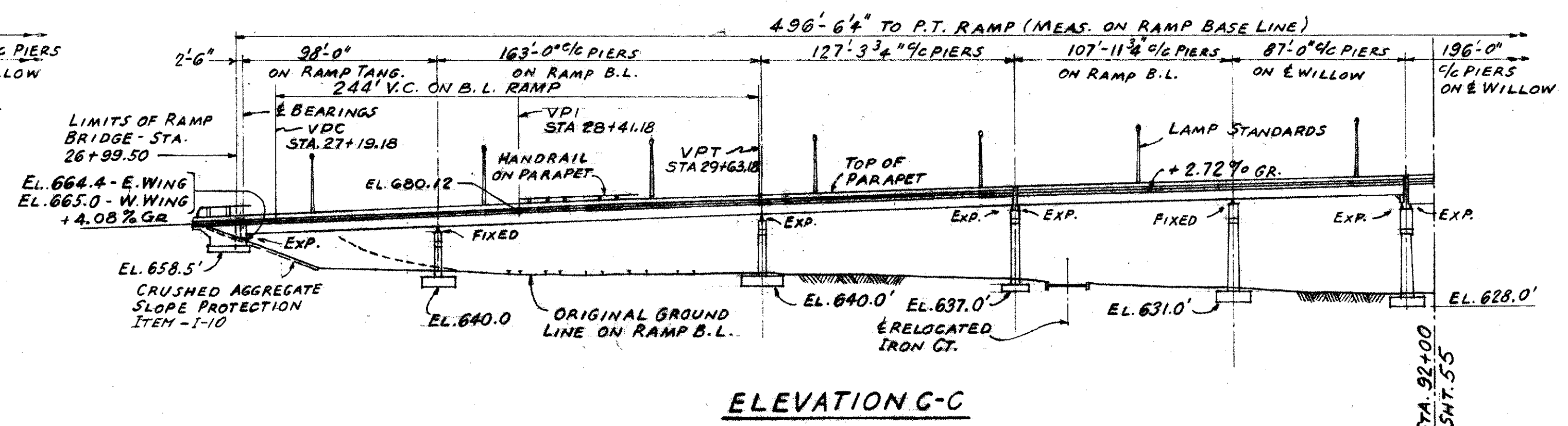
by the New York, Chicago and St. Louis Railroad
1. Track Work
2. Essential engineering services



SECTIONAL ELEVATION A-A



SECTIONAL ELEVATION B-B



ELEVATION G-G

NOTE:
PILES FOR PIERS & ABUTMENTS
NOT SHOWN

WORK THIS SHEET WITH SHEET # 55

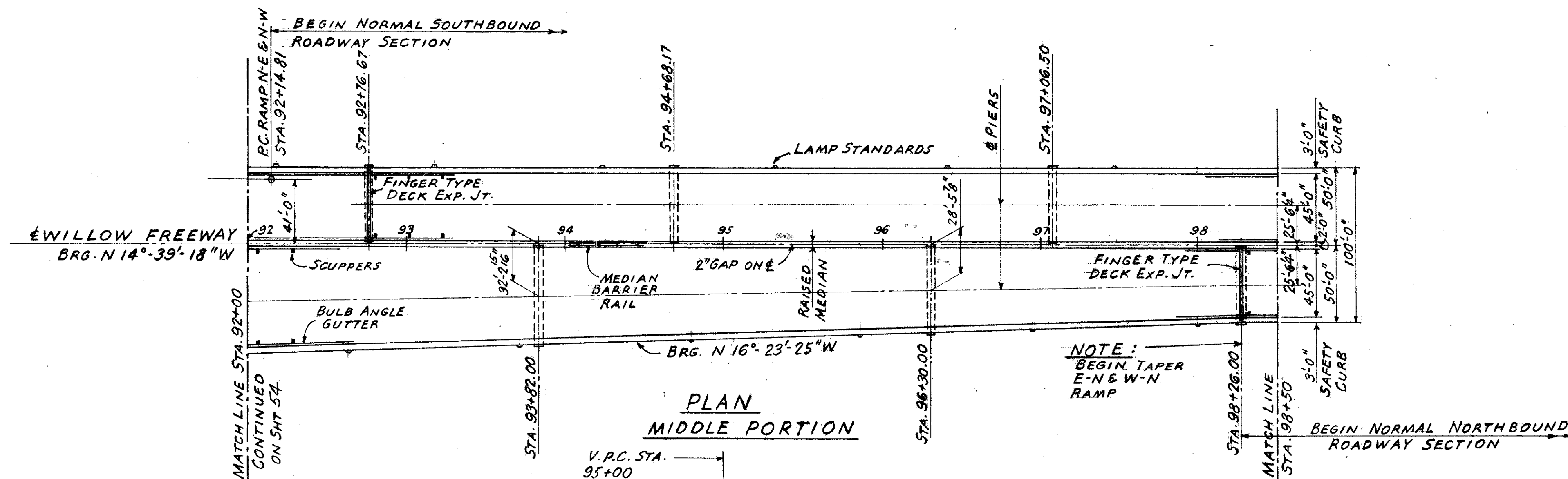
TRYGVE HOFF & ASSOCIATES ENGINEERS 1922 EAST 107TH STREET CLEVELAND, OHIO					
GENERAL PLAN & ELEVATION BRIDGE NO. CUY-21-1455 WILLOW FREEWAY OVER KINGSBURY RUN CUYAHOGA COUNTY U.S.R. 21					
SCALE	DATE				
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE
—	VBK				25.1 05 7/54

MICROFILMED
MAY 1 1964

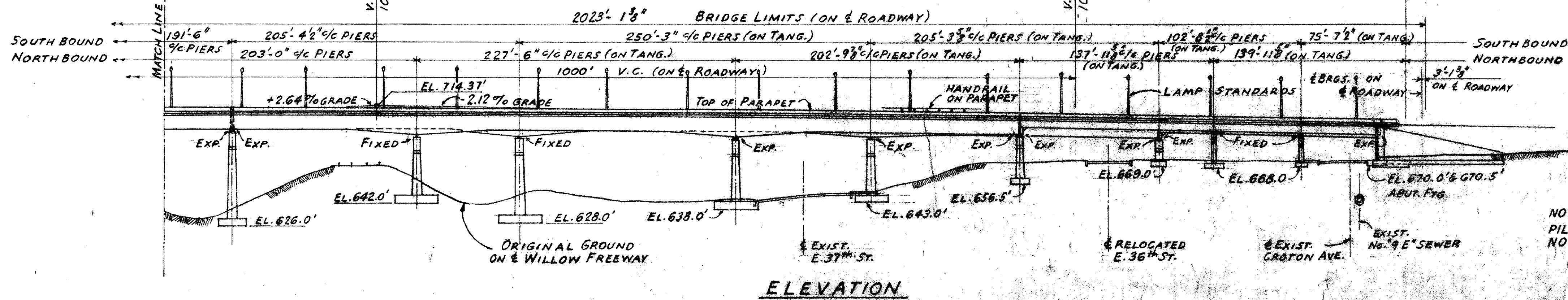
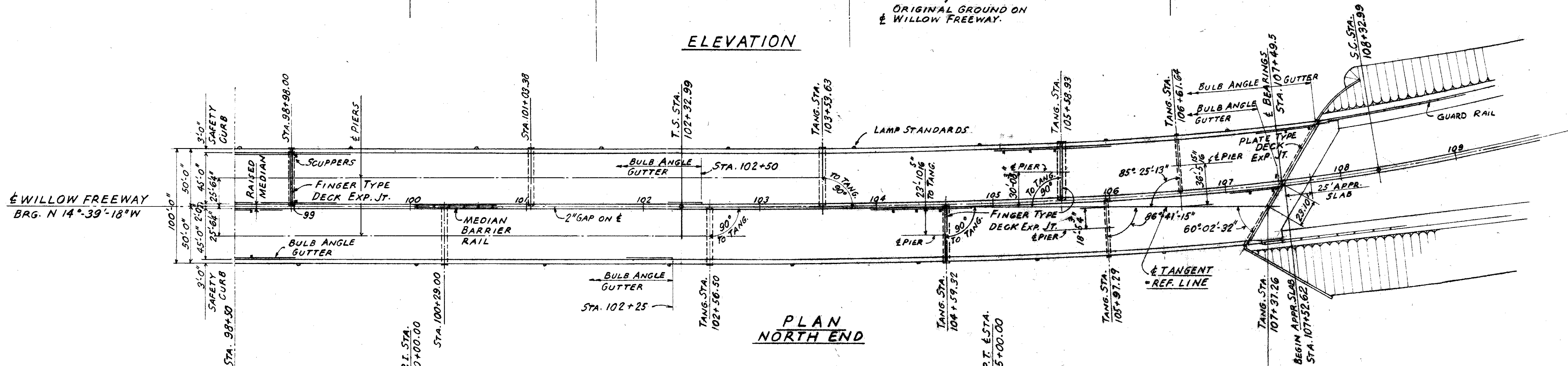
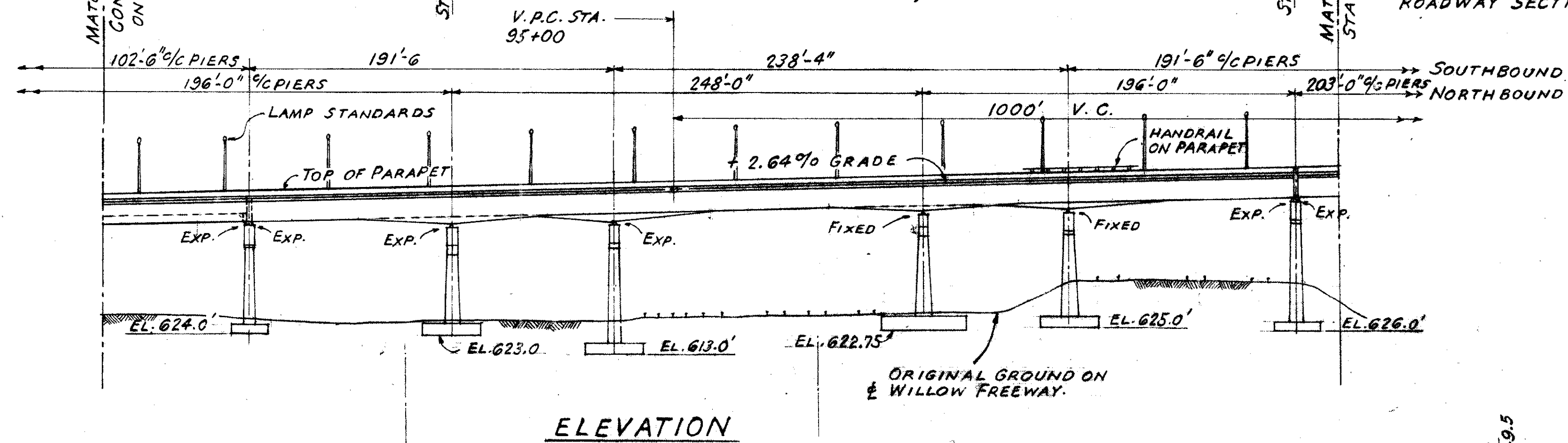
FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

55
164

CUYAHOGA COUNTY
CUY-21-14.55



NOTE:
PILES FOR PIERS & ABUTMENT NOT SHOWN



NOTE:
PILES FOR PIERS & ABUTMENT NOT SHOWN.

WORK THIS SHEET WITH SHEET # 54

TRYGVE HOFF & ASSOCIATES
ENGINEERS
1922 EAST 107TH STREET CLEVELAND, OHIO

GENERAL PLAN & ELEVATION
BRIDGE NO. CUY-21-1455
WILLOW FREEWAY OVER KINGSBURY RUN
CUYAHOGA COUNTY U.S.R. 21

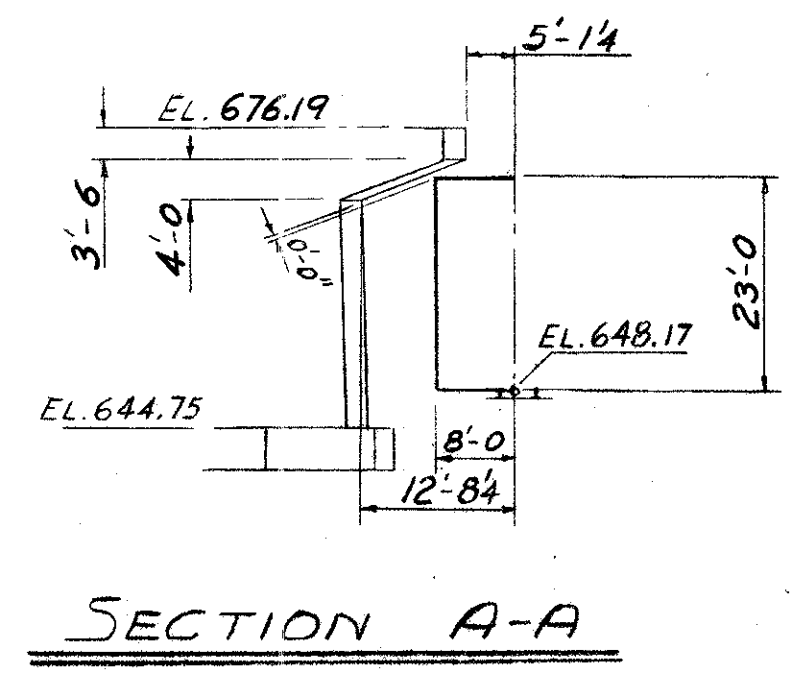
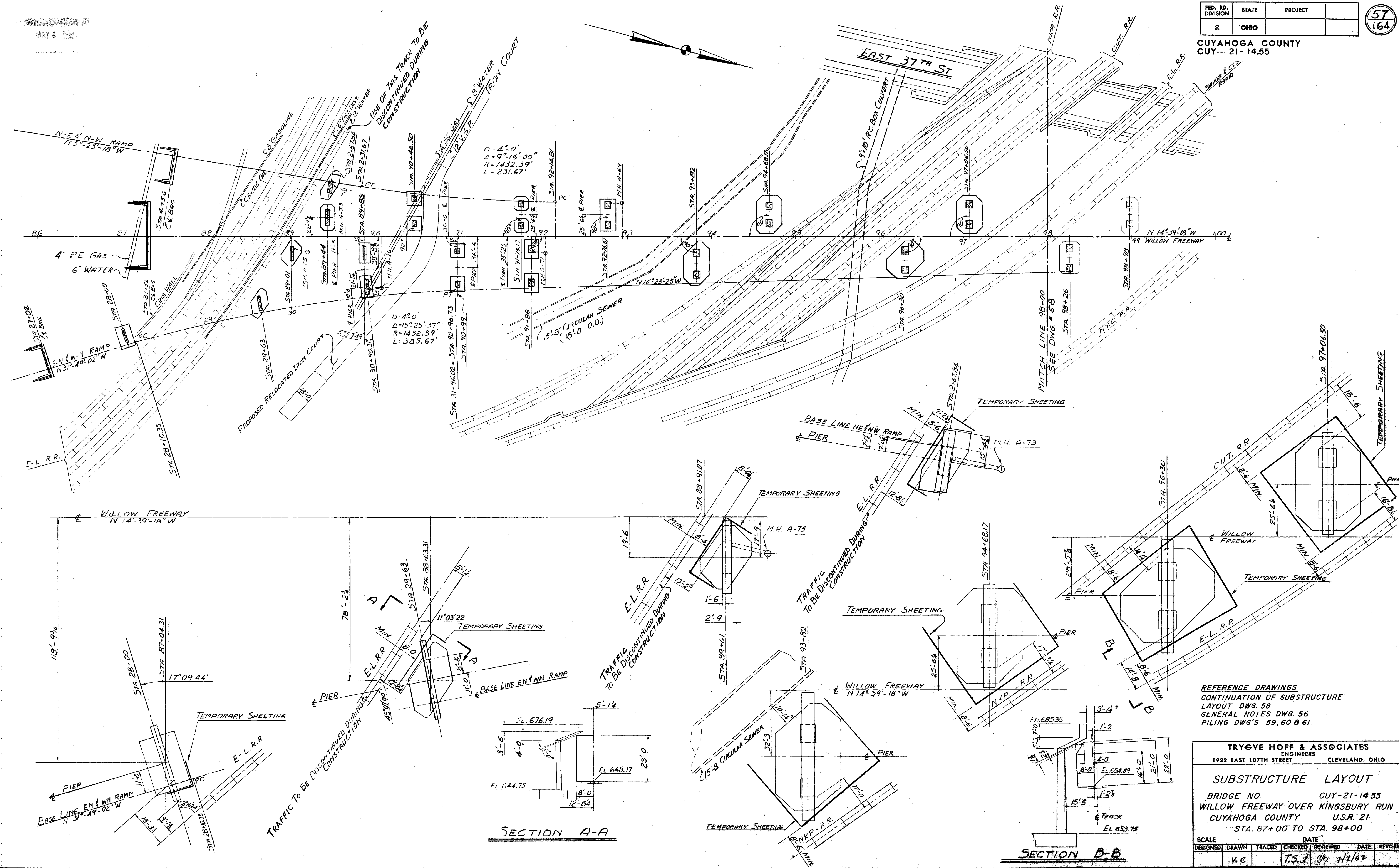
SCALE	DATE
DESIGNED DRAWN TRACED CHECKED REVIEWED	DATE
VPK	TSU 06/12/64

MAY 4 1962

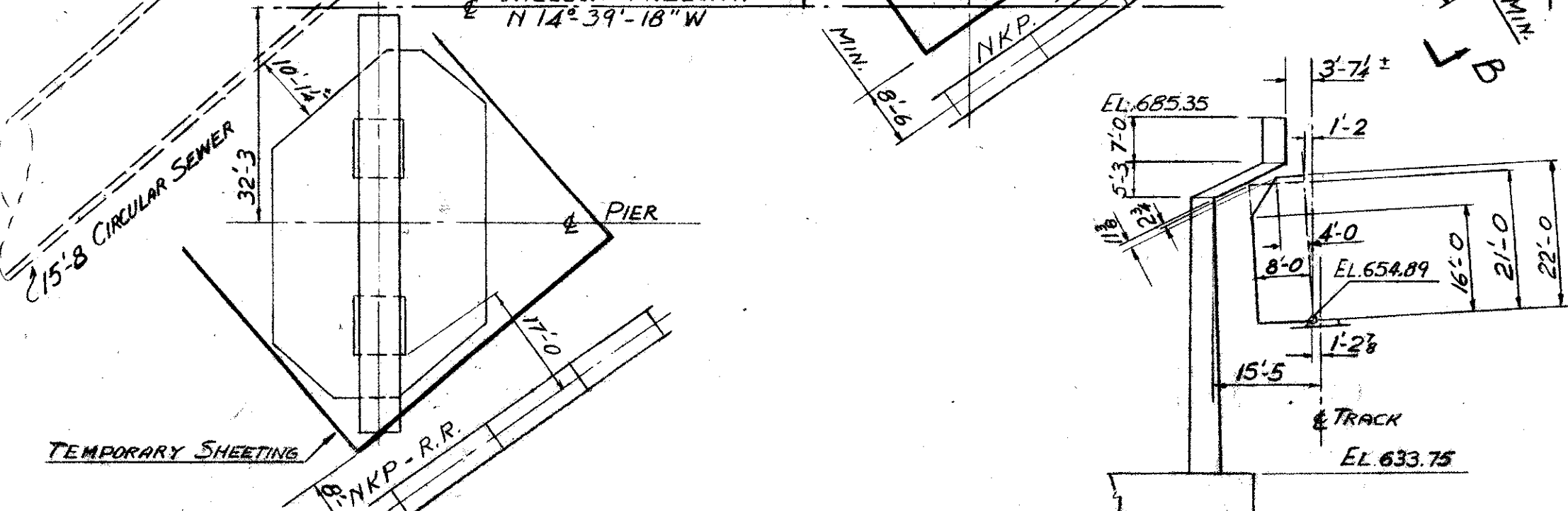
FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

CUYAHOGA COUNTY
CUY-21-14.55

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164



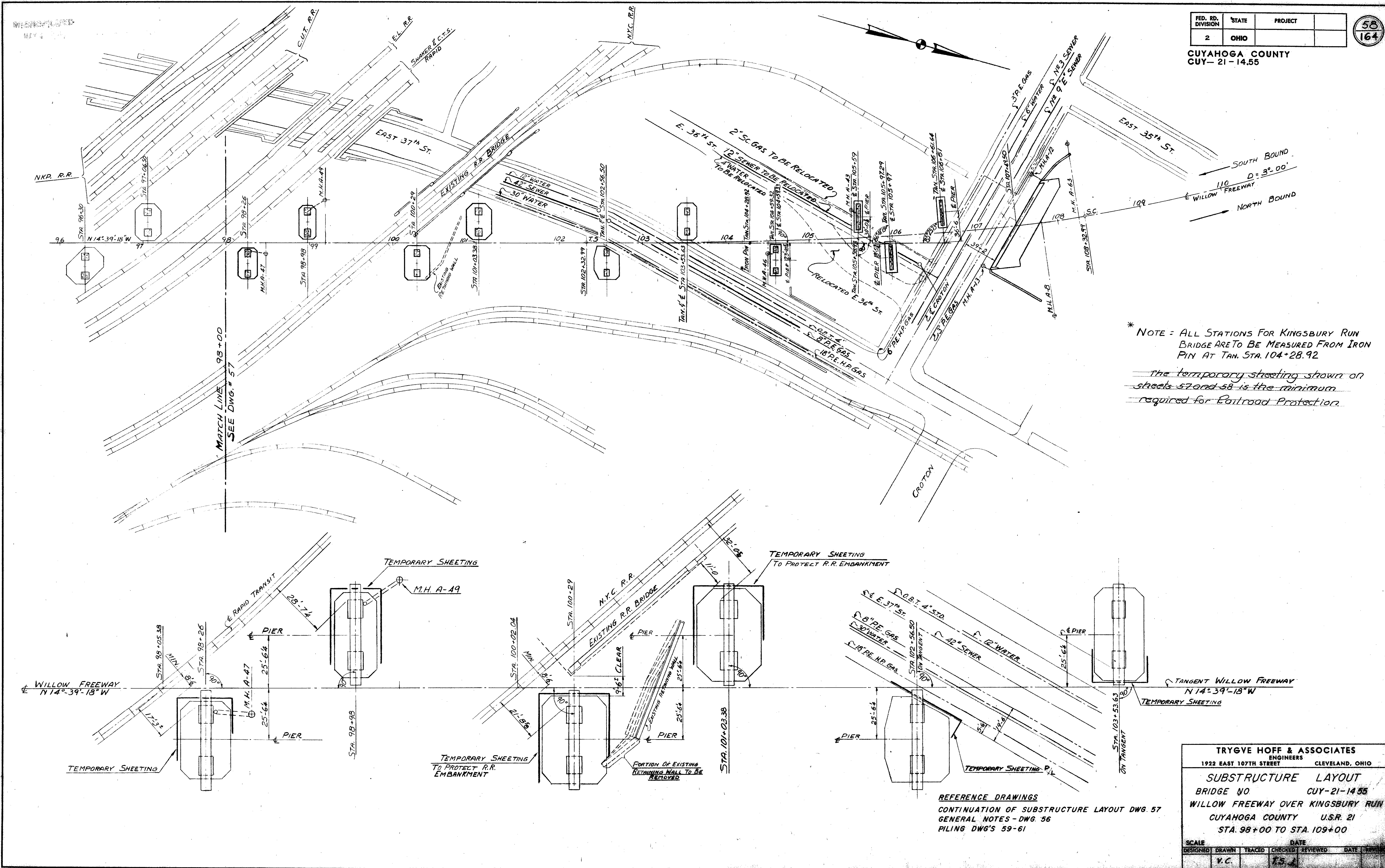
SECTION A-A



SECTION B-B

REFERENCE DRAWINGS
CONTINUATION OF SUBSTRUCTURE
LAYOUT DWG. 58
GENERAL NOTES DWG. 56
PILING DWG'S 59, 60 & 61.

TRYGVE HOFF & ASSOCIATES ENGINEERS 1922 EAST 107TH STREET CLEVELAND, OHIO					
SUBSTRUCTURE LAYOUT					
BRIDGE NO. CUY-21-14.55			WILLOW FREEWAY OVER KINGSBURY RUN		
CUYAHOGA COUNTY			U.S.R. 21		
STA. 87+00 TO STA. 98+00					
SCALE	DATE	DESIGNED	TRACED	CHECKED	REVIEWED
V.C.	T.S.J.	09	1/2/62		



* NOTE - ALL STATIONS FOR KINGSBURY RUN BRIDGE ARE TO BE MEASURED FROM IRON PIN AT TAN. STA. 104+28.92

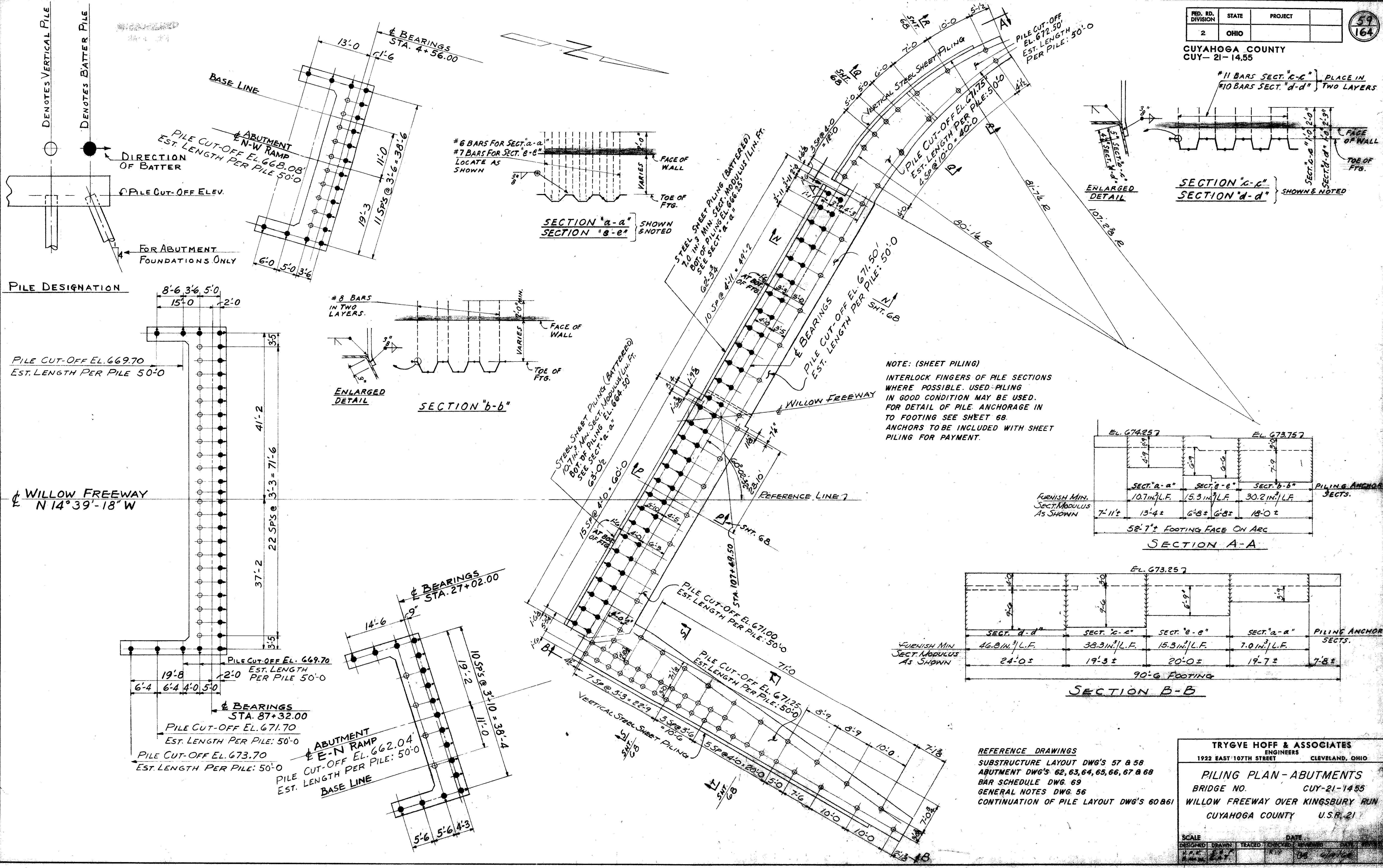
The temporary sheeting shown on sheets 57 and 58 is the minimum required for Railroad Protection.

TRYGVE HOFF & ASSOCIATES
ENGINEERS
1922 EAST 107TH STREET CLEVELAND, OHIO

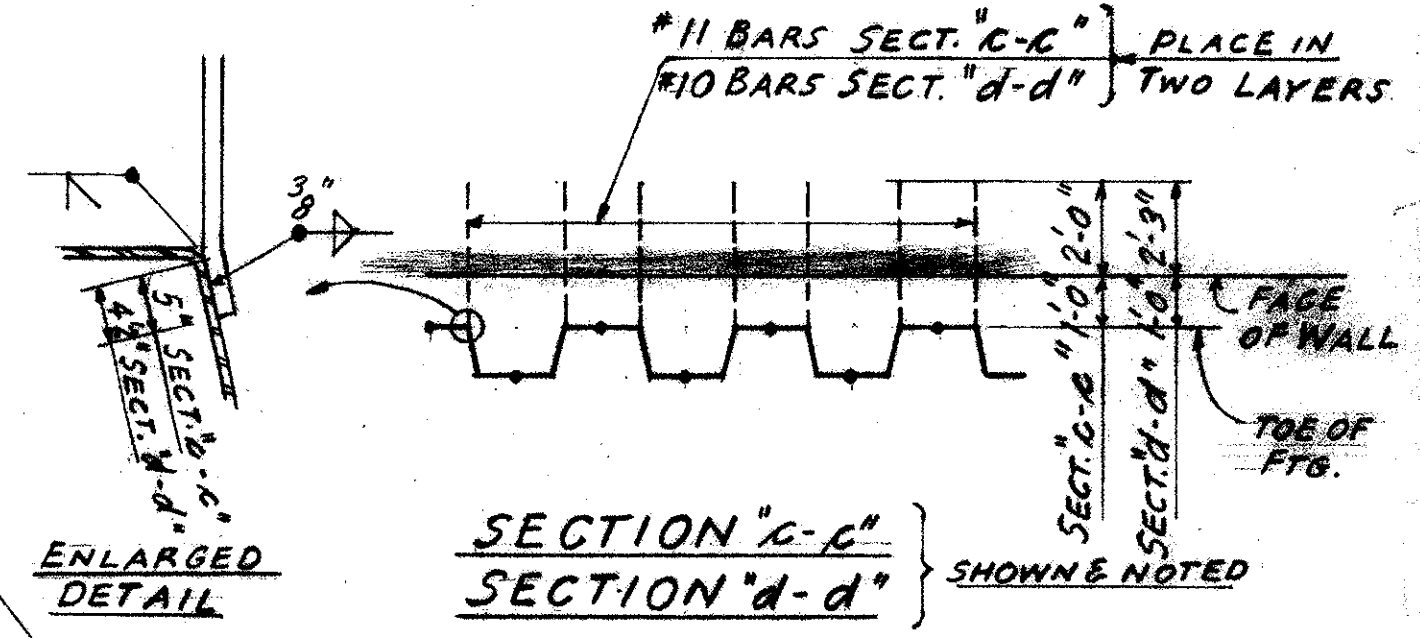
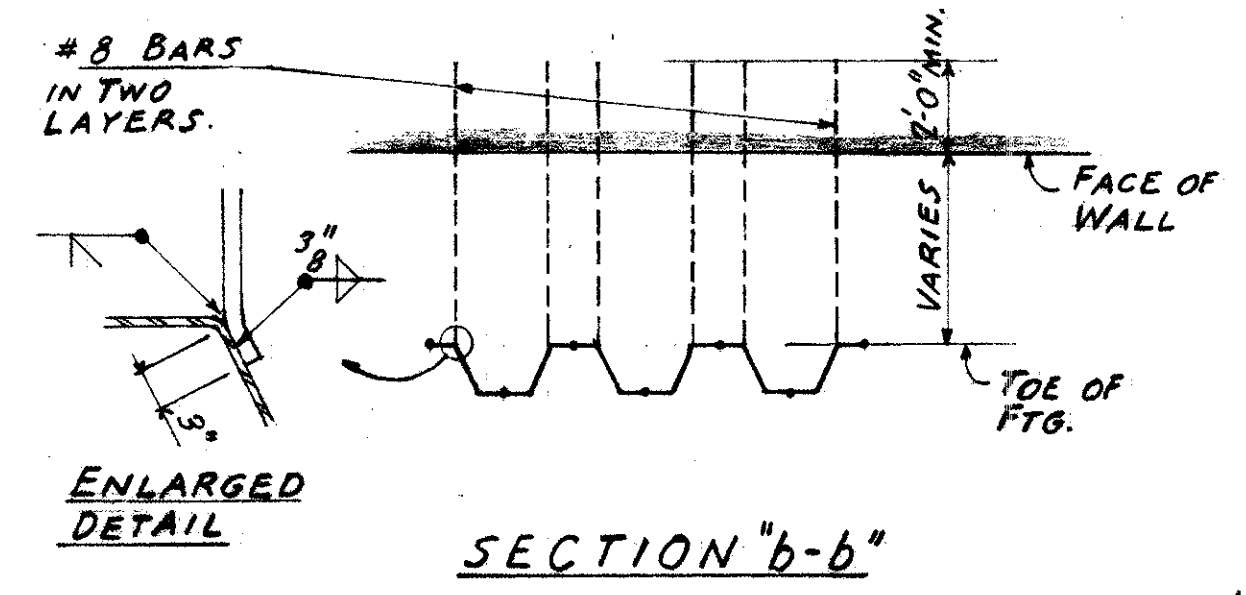
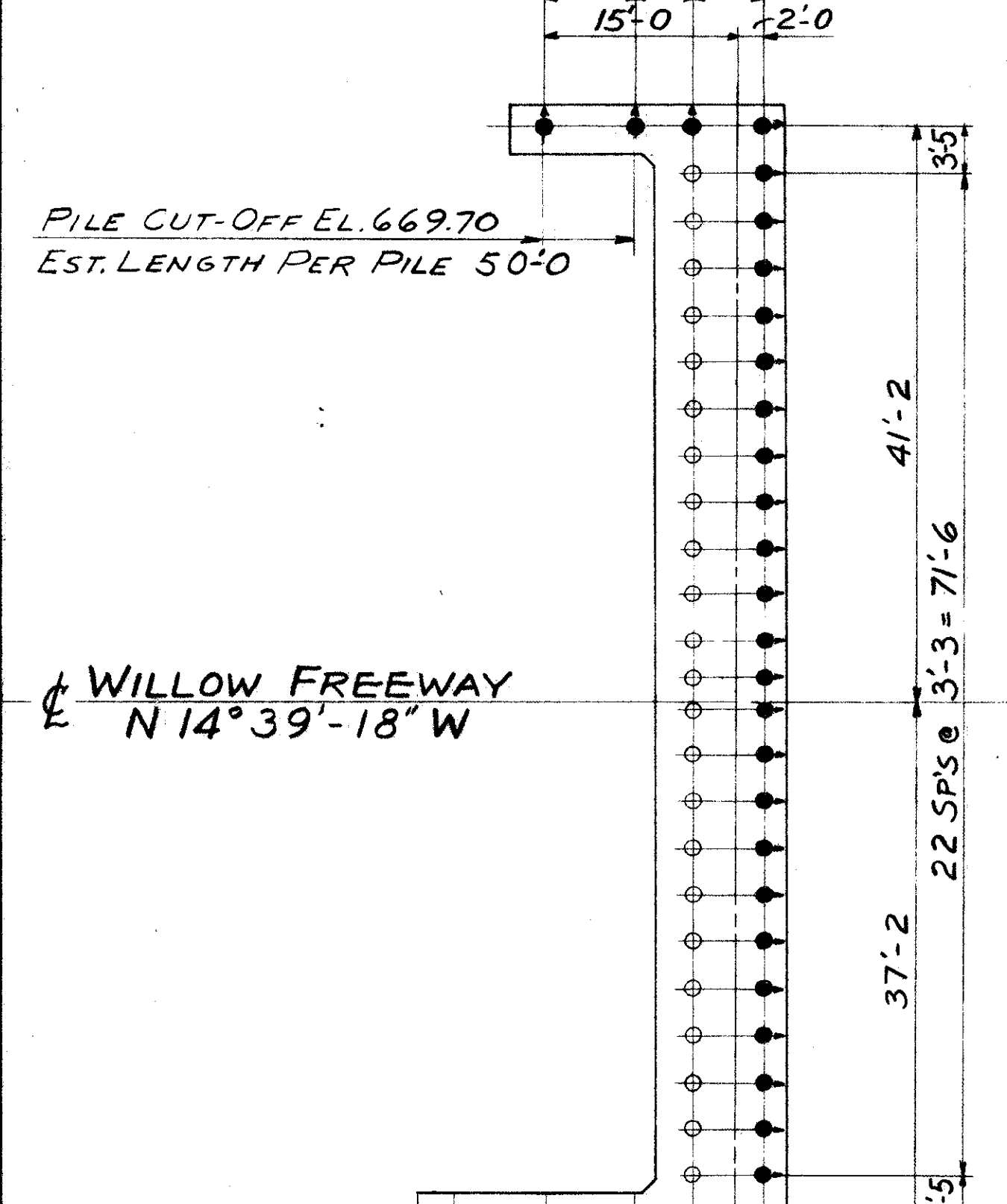
SUBSTRUCTURE LAYOUT
BRIDGE NO. CUY-21-14.55
WILLOW FREEWAY OVER KINGSBURY RUN
CUYAHOGA COUNTY U.S.R. 21
STA. 98+00 TO STA. 109+00

SCALE	DATE
DESIGNED	DRAWN
TRACED	CHECKED
REVIEWED	DATE

REFERENCE DRAWINGS
CONTINUATION OF SUBSTRUCTURE LAYOUT DWG. 57
GENERAL NOTES - DWG. 56
PILING DWG'S 59-61

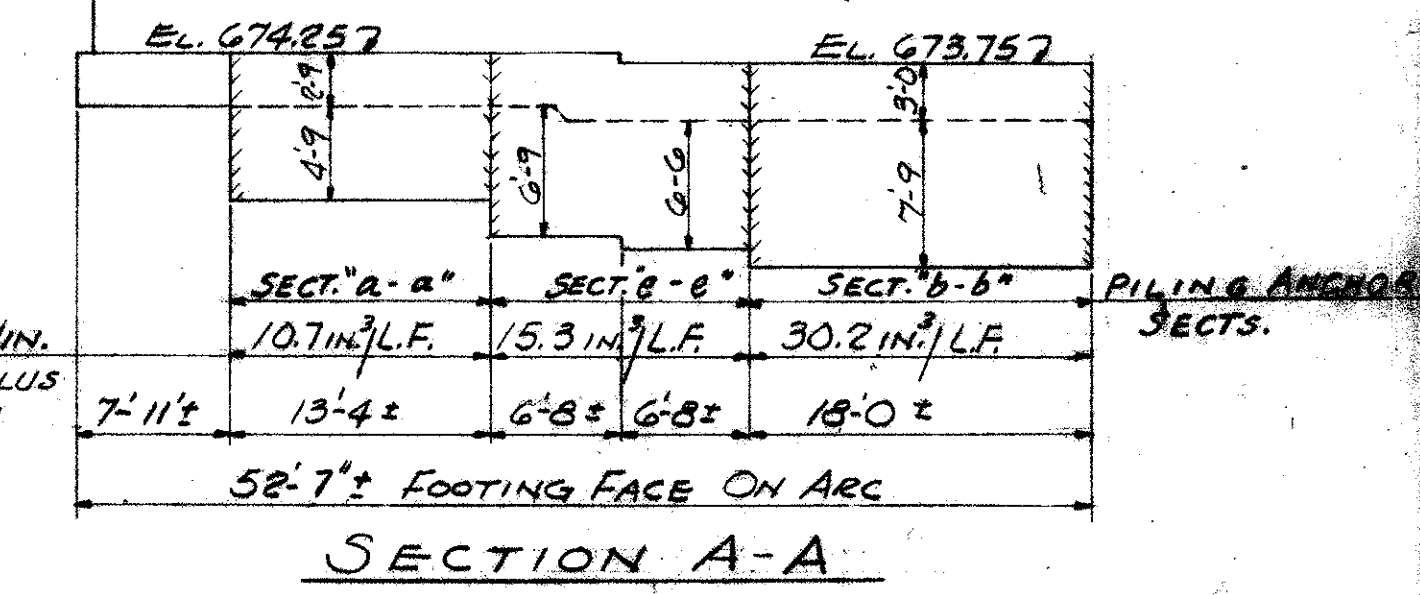


PILE DESIGNATION

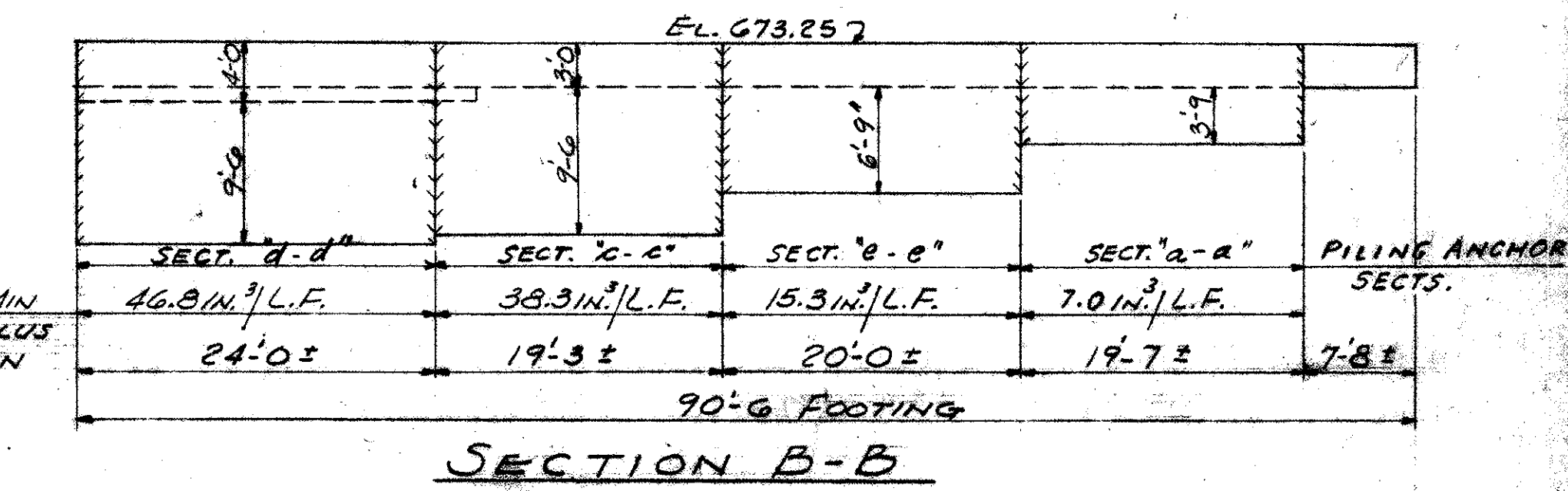


NOTE: (SHEET PILING)
INTERLOCK FINGERS OF PILE SECTIONS WHERE POSSIBLE. USED PILING IN GOOD CONDITION MAY BE USED. FOR DETAIL OF PILE ANCHORAGE IN TO FOOTING SEE SHEET 68. ANCHORS TO BE INCLUDED WITH SHEET PILING FOR PAYMENT.

FURNISH MIN. SECT. MODULUS AS SHOWN



FURNISH MIN. SECT. MODULUS AS SHOWN

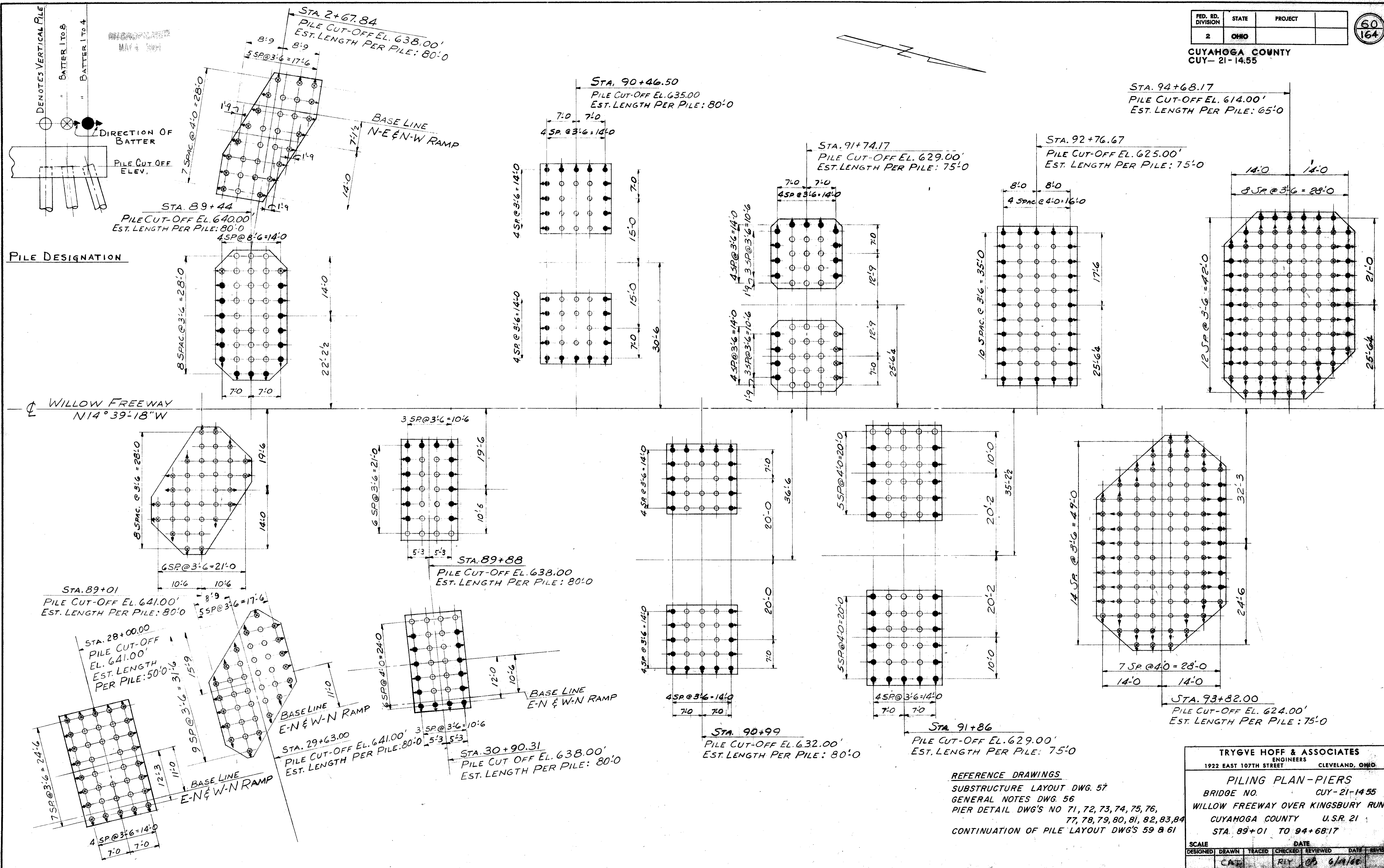


REFERENCE DRAWINGS
SUBSTRUCTURE LAYOUT DWG'S 57 & 58
ABUTMENT DWG'S 62, 63, 64, 65, 66, 67 & 68
BAR SCHEDULE DWG. 69
GENERAL NOTES DWG. 56
CONTINUATION OF PILE LAYOUT DWG'S 60 & 61

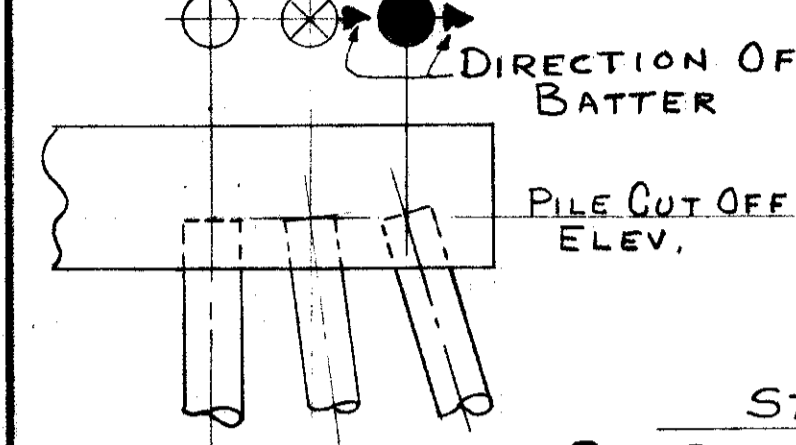
TRYGVE HOFF & ASSOCIATES
ENGINEERS
1922 EAST 107TH STREET CLEVELAND, OHIO

PILING PLAN - ABUTMENTS
BRIDGE NO. CUY-21-14.55
WILLOW FREEWAY OVER KINGSBURY RUN
CUYAHOGA COUNTY U.S.R. 21

SCALE	DATE
DESIGNED	DRAWN
TRACED	CHECKED
APPROVED	DATE



PILE DESIGNATION



WILLOW FREEWAY
N14°39'18"W

REFERENCE DRAWINGS
 SUBSTRUCTURE LAYOUT DWG. 57
 GENERAL NOTES DWG. 56
 PIER DETAIL DWG'S NO 71, 72, 73, 74, 75, 76,
 77, 78, 79, 80, 81, 82, 83, 84
 CONTINUATION OF PILE LAYOUT DWG'S 59 & 61

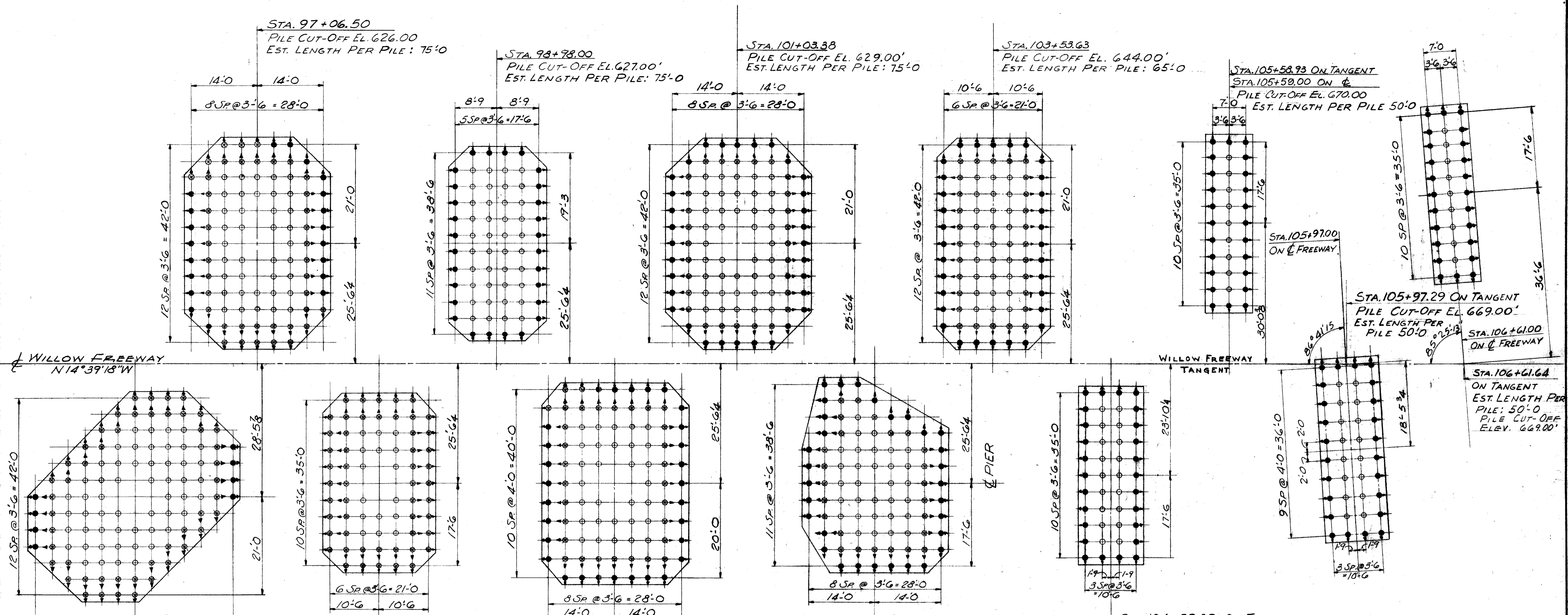
TRYGVE HOFF & ASSOCIATES ENGINEERS 1922 EAST 107TH STREET CLEVELAND, OHIO								
PILING PLAN - PIERS BRIDGE NO. CUY-21-14.55 WILLOW FREEWAY OVER KINGSBURY RUN CUYAHOGA COUNTY U.S.R. 21 STA. 89+01 TO 94+68.17								
SCALE	DATE	DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISION
		CAT	RLY	CB	6/1/55			

MICROFILMED
MAY 4 1964

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

61
164

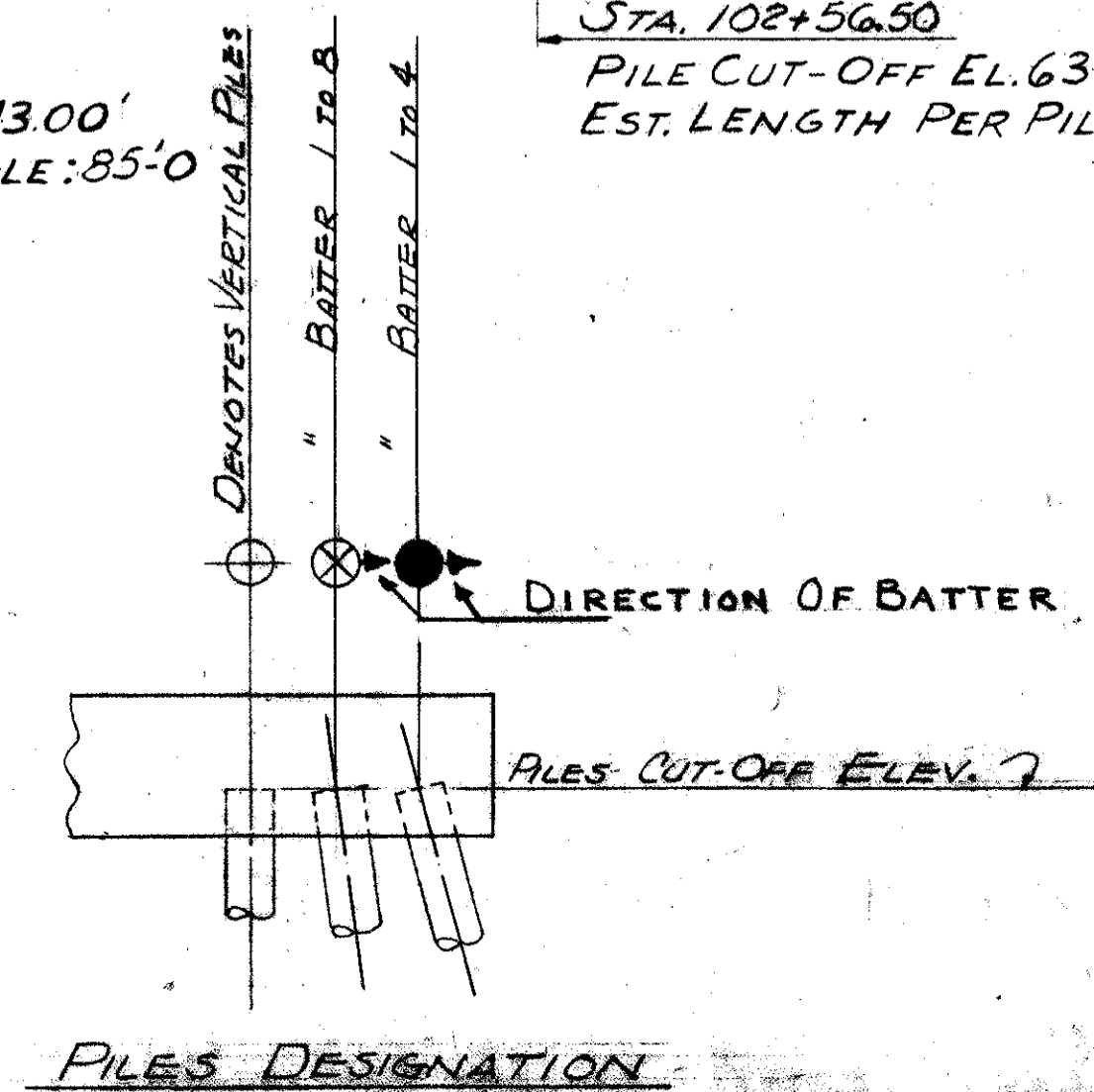
CUYAHOGA COUNTY
CUY-21-14.55



WILLOW FREEWAY
N14°39'18"W

WILLOW FREEWAY
TANGENT

PILE TEST LOADS shall be applied three days after the piles have been driven as per the Construction and Materials Specifications. In addition, test loads shall be applied to two piles ten days after they have been driven. This loading can be accomplished by loading a separate pile or by loading the same pile after a lapse of seven days from the end of the first test load. The ten-day piles shall be driven between stations 92 and 103.



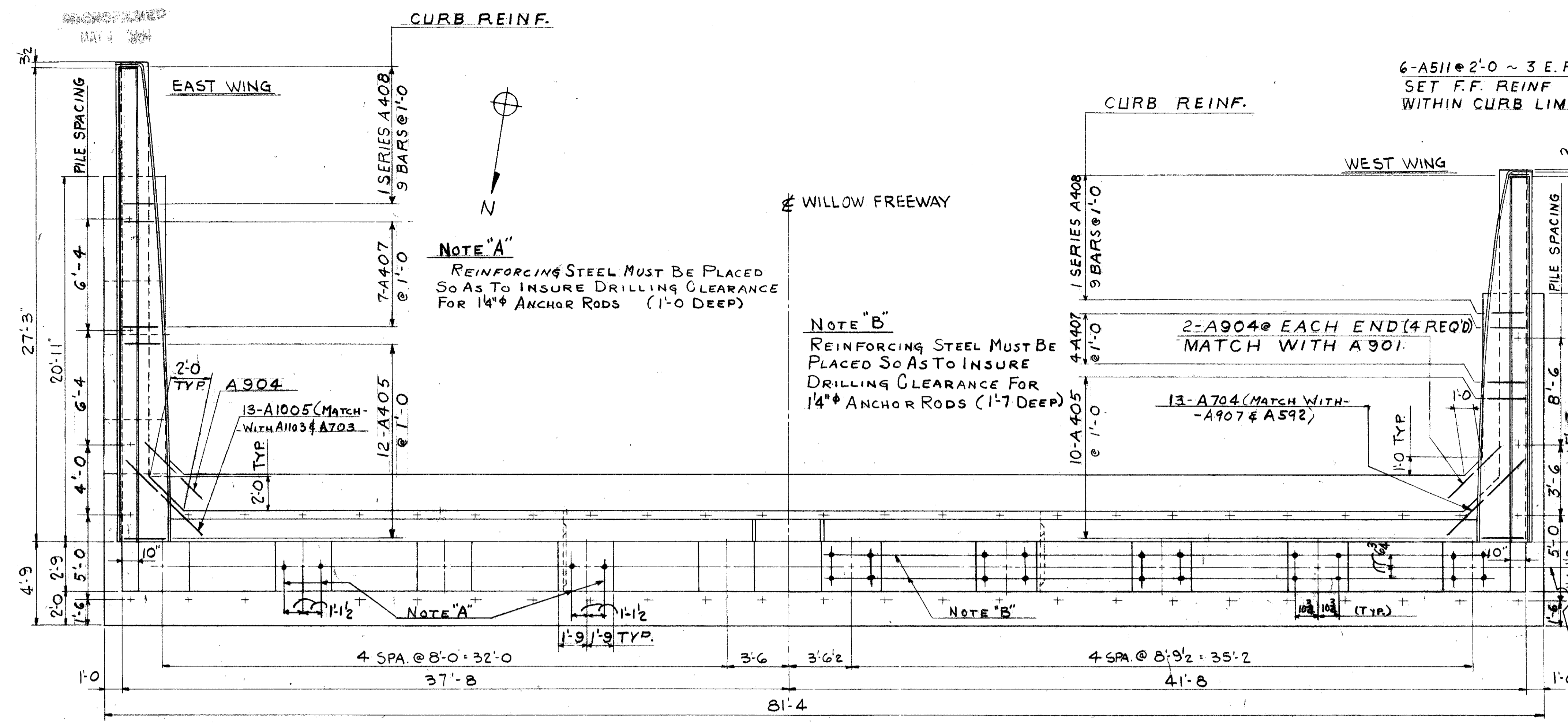
REFERENCE DRAWINGS
SUBSTRUCTURE LAYOUT DWG'S 57, 58
GENERAL NOTES DWG. 56
PIER DETAIL DWG'S 85, 86, 87, 88, 89, 90
91, 92, 93, 94, 95, 96
CONTINUATION OF PILE LAYOUT
DWG'S 59 & 60

TRYGVE HOFF & ASSOCIATES
ENGINEERS
1922 EAST 107TH STREET CLEVELAND, OHIO

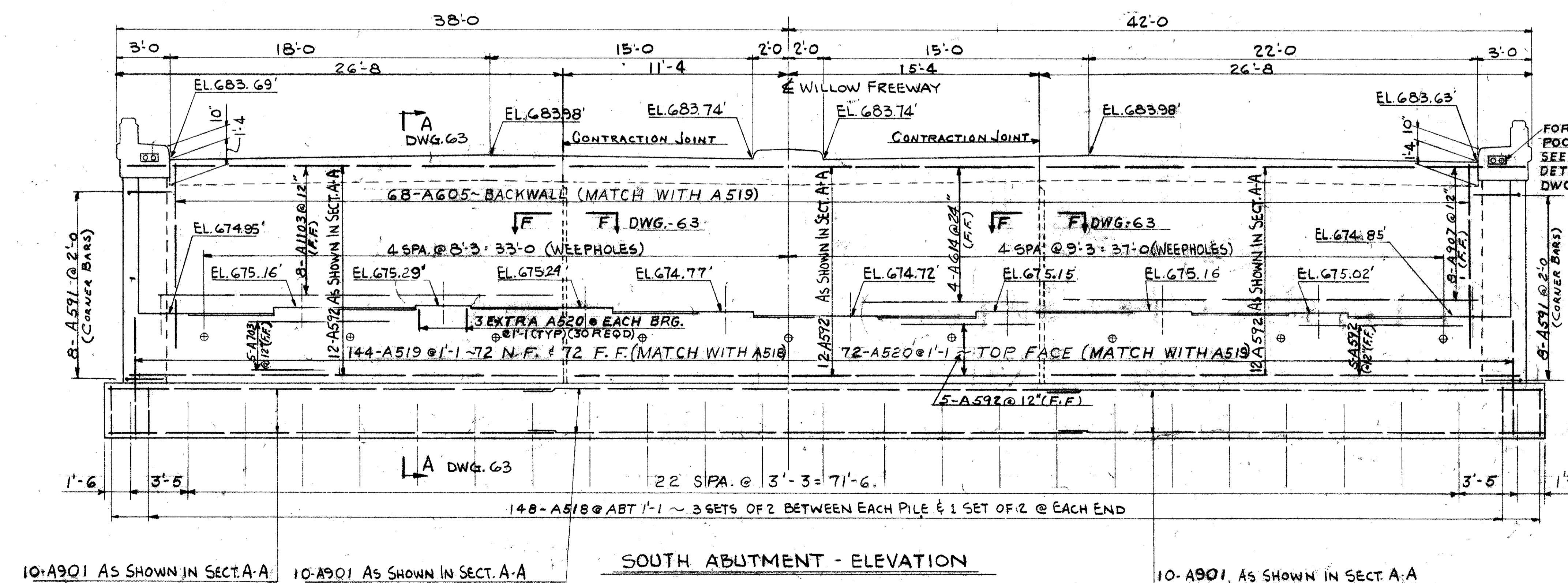
PILING PLAN - PIERS
BRIDGE NO. CUY-21-14.55
WILLOW FREEWAY OVER KINGSBURY RUN
CUYAHOGA COUNTY U.S.R. 21
STA 96+30.00 TO STA. 106+60.73

SCALE	DATE
DESIGNED	DRAWN
TRACED	CHECKED
REV	DATE
CAT	RY
	03 6/19/67

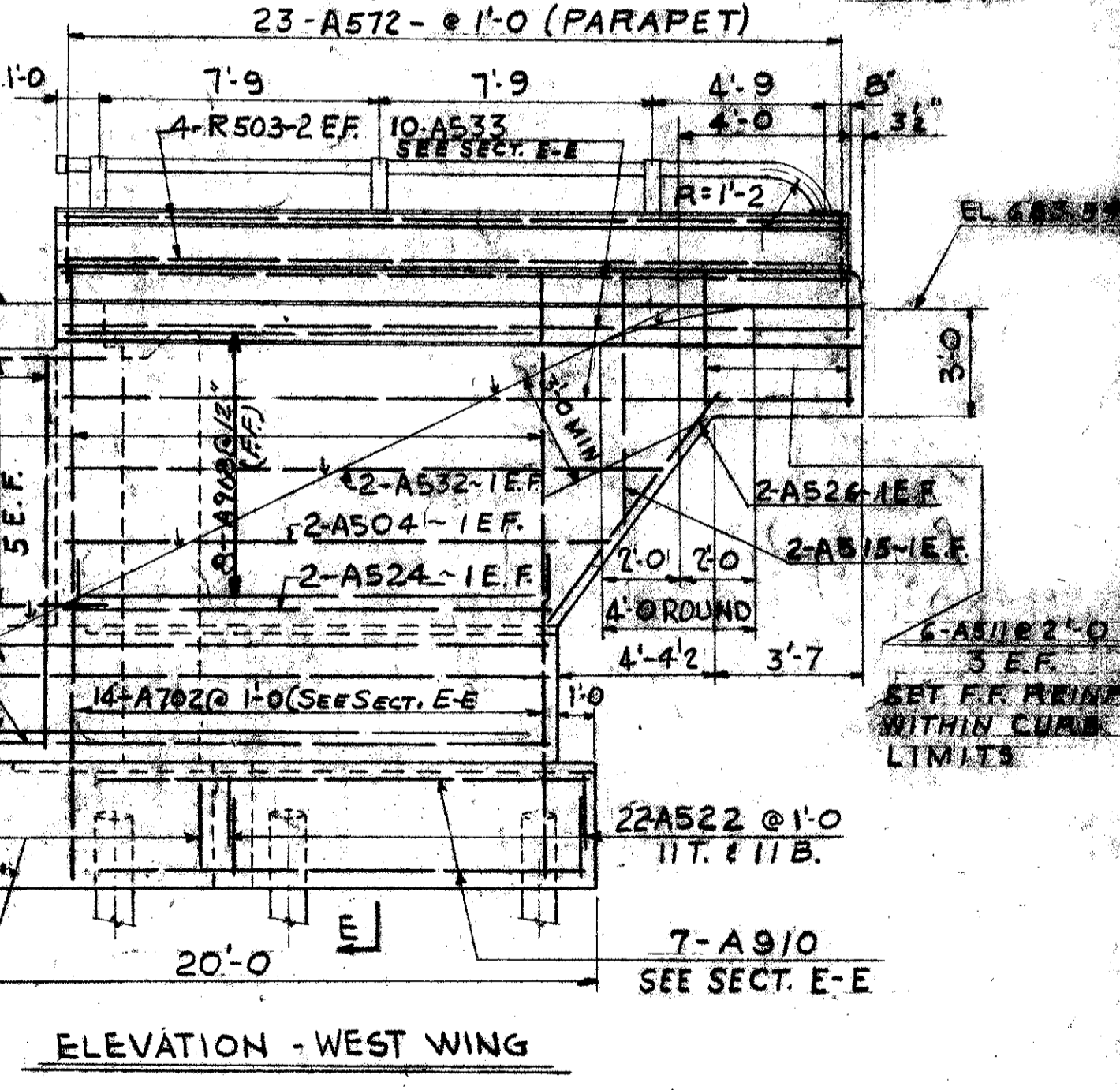
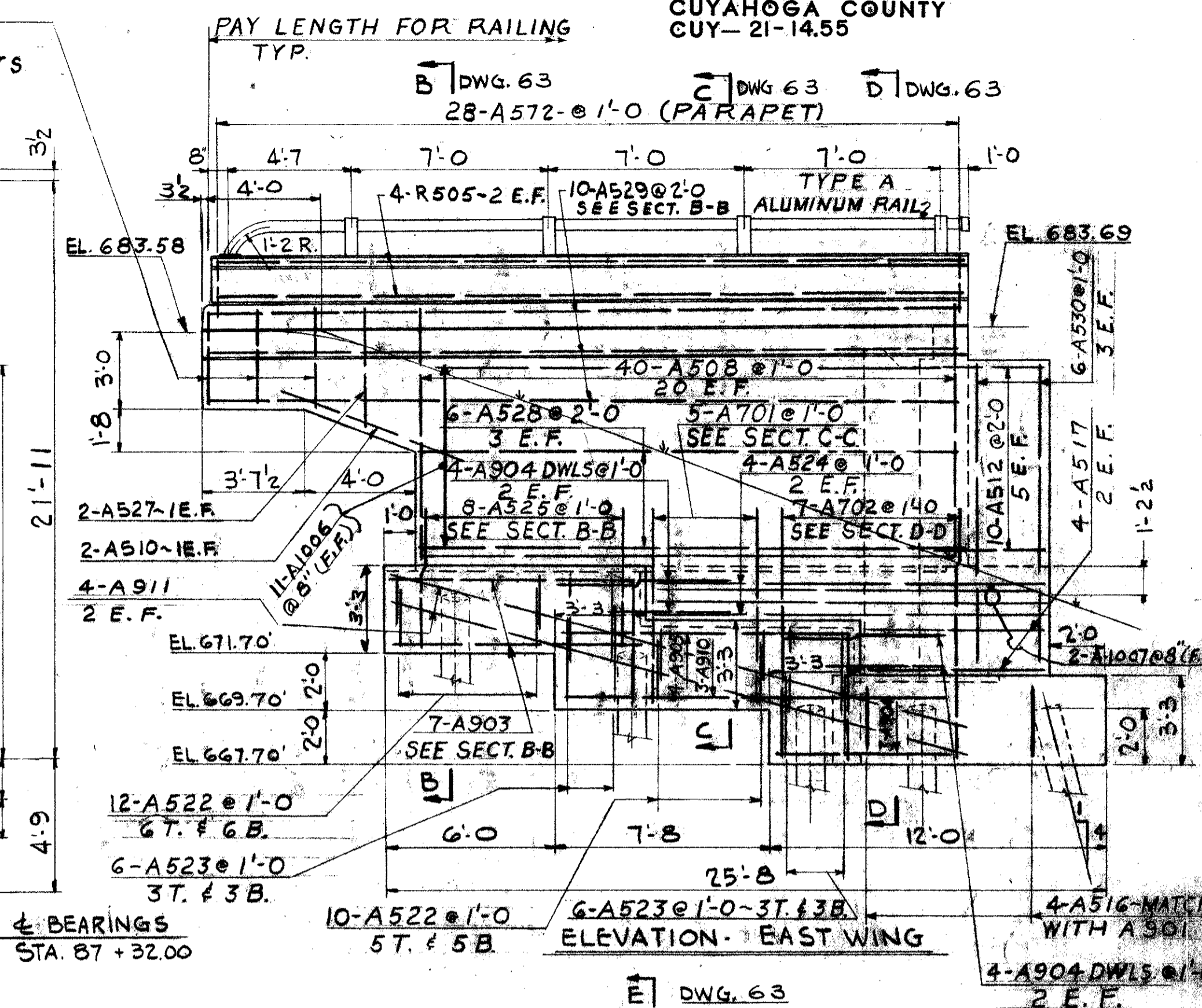
CUYAHOGA COUNTY
CUY-21-14.55



SOUTH ABUTMENT - PLAN



SOUTH ABUTMENT - ELEVATION



10-A901 AS SHOWN IN SECT. A-A 10-A901 AS SHOWN IN SECT. A-A 10-A901 AS SHOWN IN SECT. A-A

REFERENCE DRAWINGS
SUBSTRUCTURE LAYOUT DWG. 57
SECTIONS DWG. 63
ELECTRICAL DWG. 47
BAR SCHEDULE DWG. 69
PILING PLAN DWG. 59
GENERAL NOTES DWG. 56, 64

TRYGVE HOFF & ASSOCIATES
ENGINEERS
1922 EAST 107TH STREET CLEVELAND, OHIO

SOUTH ABUTMENT
BRIDGE NO. CUY-21-14.55
WILLOW FREEWAY OVER KINGSBURY RUN
CUYAHOGA COUNTY U.S.R. 21

SCALE	DATE
DESIGNED	TRACED
CHECKED	REVIEWED
DATE	DATE

MAY 4 1962

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

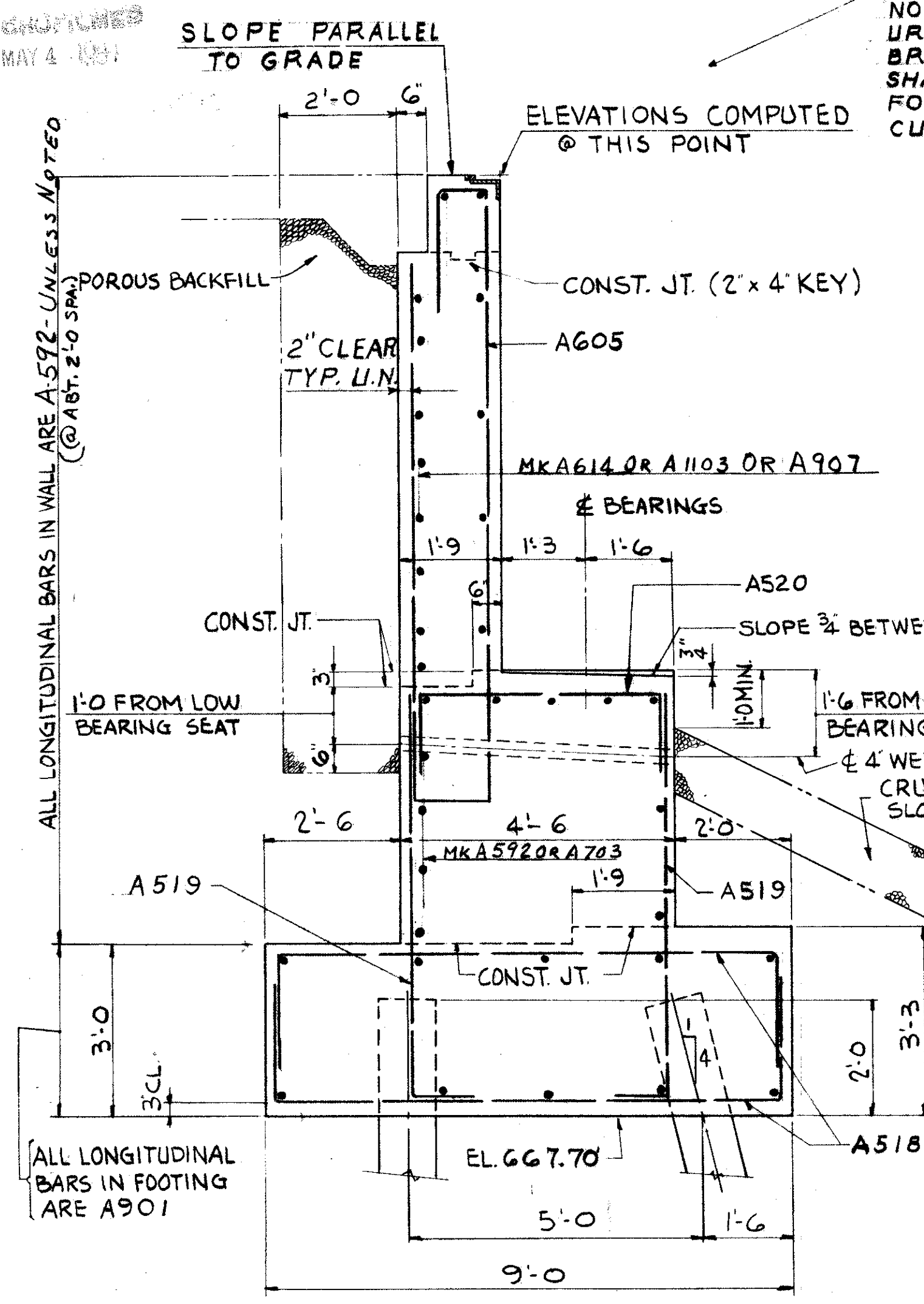
63
164

CUYAHOGA COUNTY
CUY-21-1455

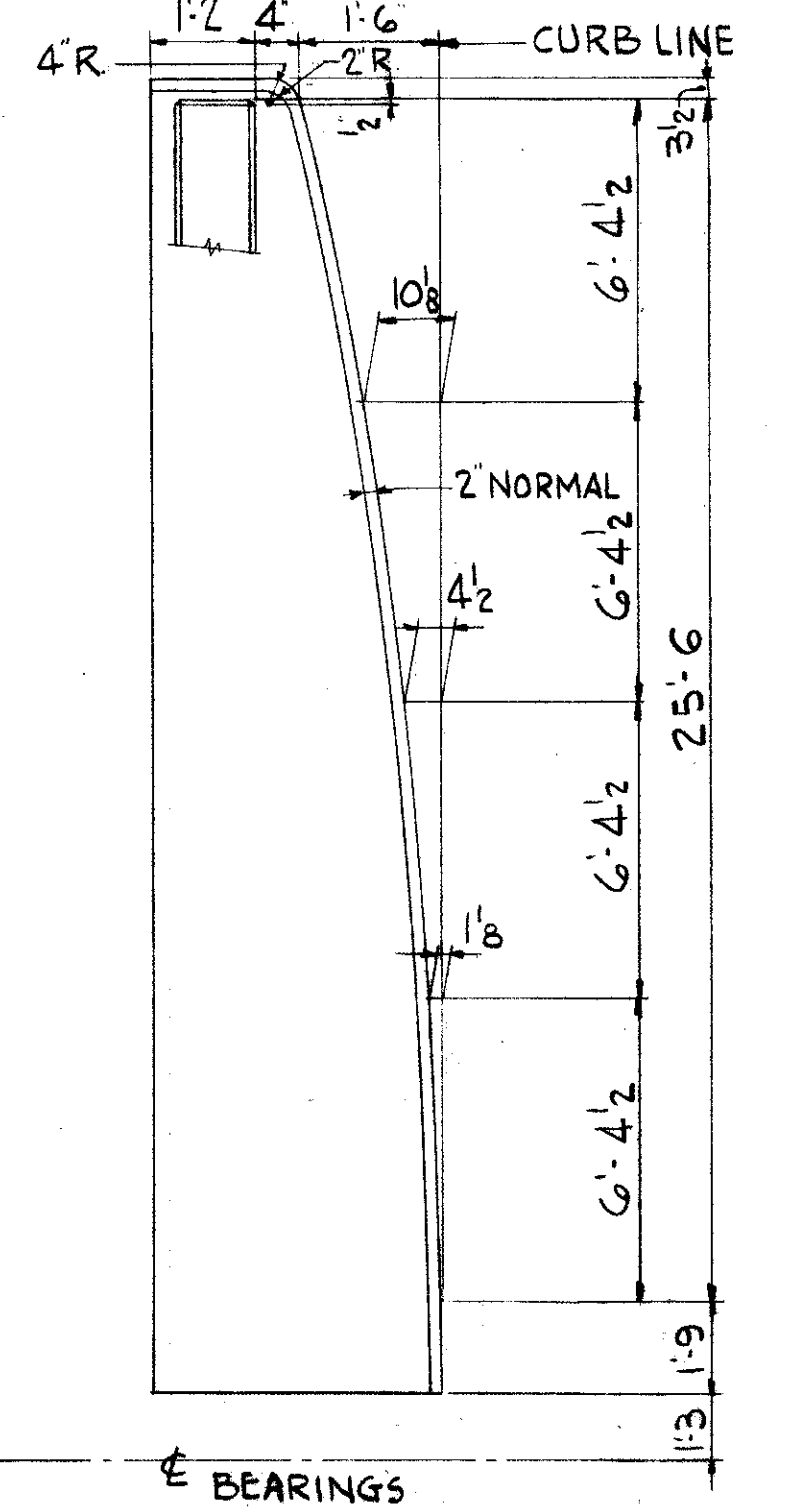
INCLUDE PARAPET
CONCRETE & R505
WITH RAILING FOR
PAYMENT.

CONCRETE IN BACKWALL SHALL
NOT BE PLACED UNTIL STRUCTURAL
STEEL IS IN PLACE.
BRIDGE DECK END FINISH
SHALL BE USED AS TEMPLATE
FOR TOP OF BACKWALL &
CURBS.

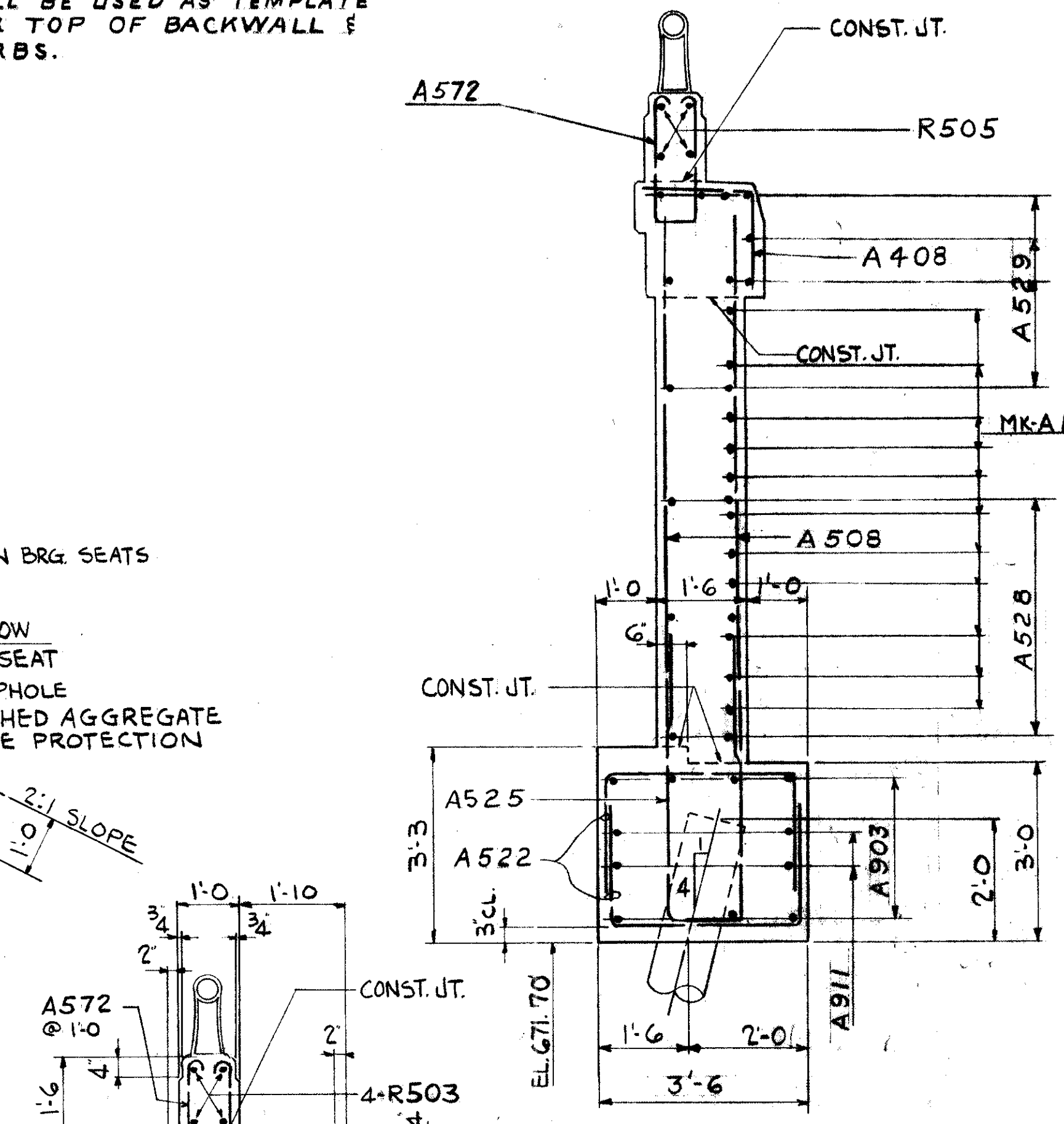
NOTE:
ALL CHAMFERS $\frac{3}{4}$ "



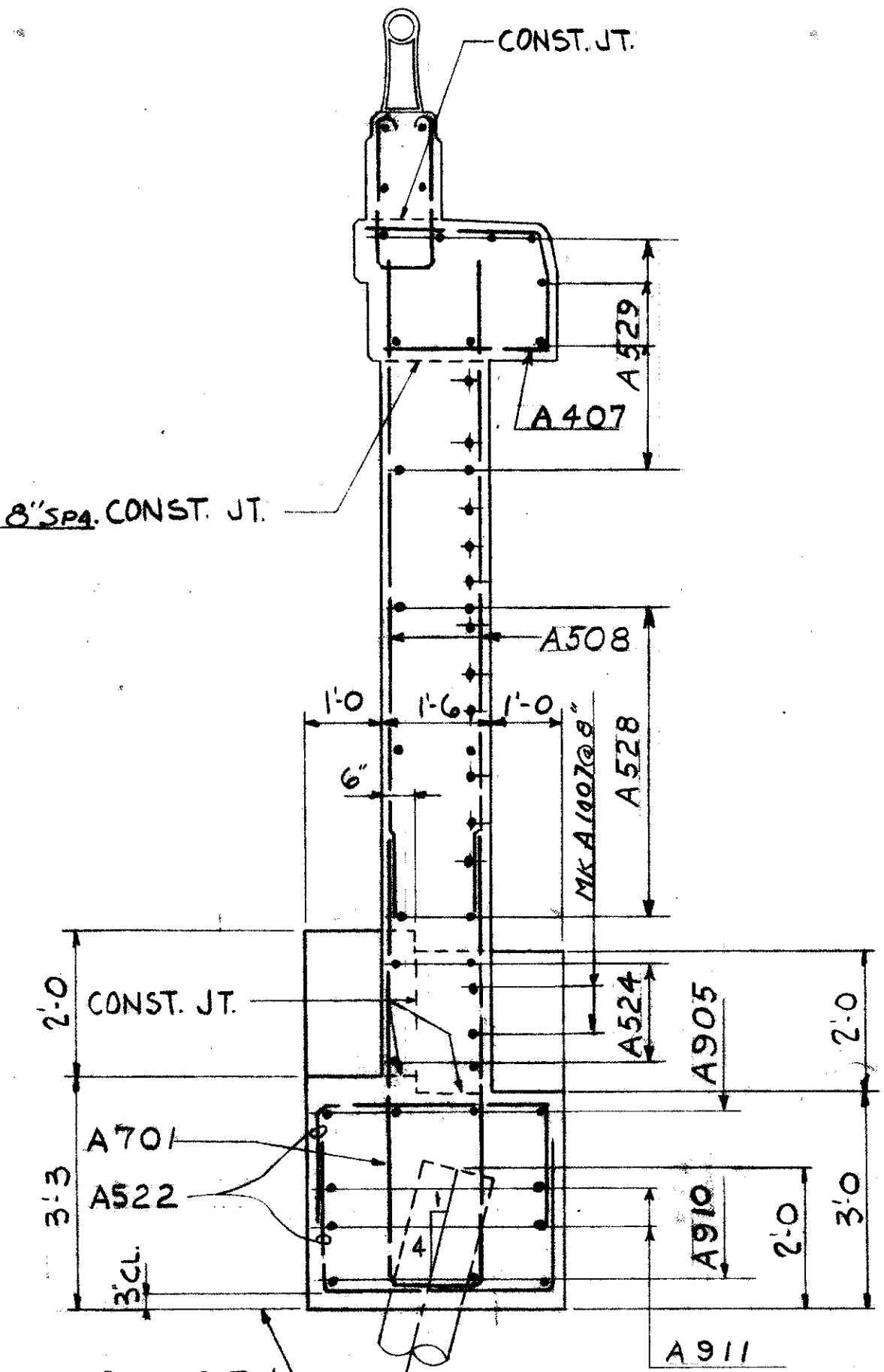
SECTION A-A (DWG. 62)



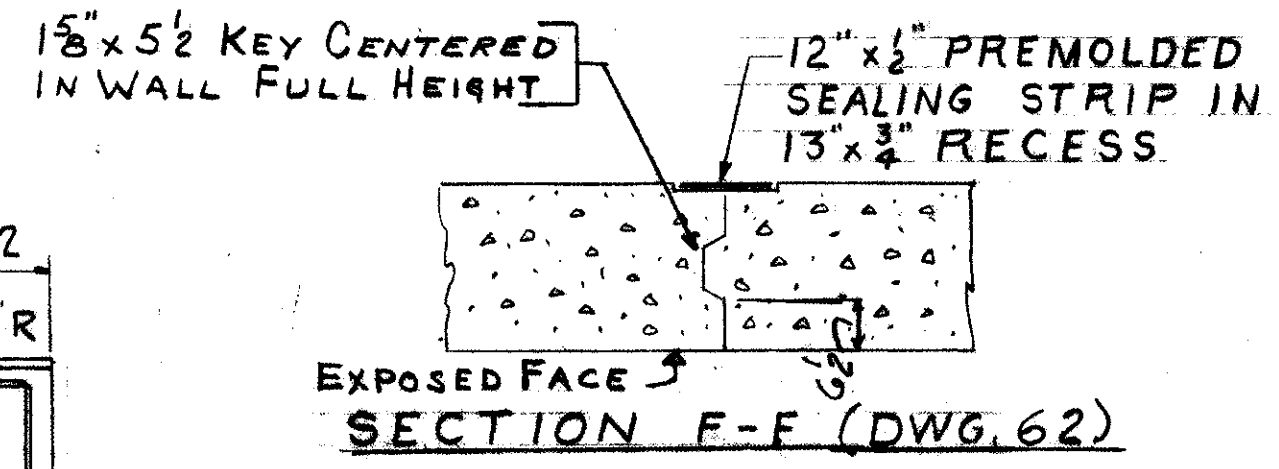
DIMENSION DIAGRAM OF EAST WING CURB



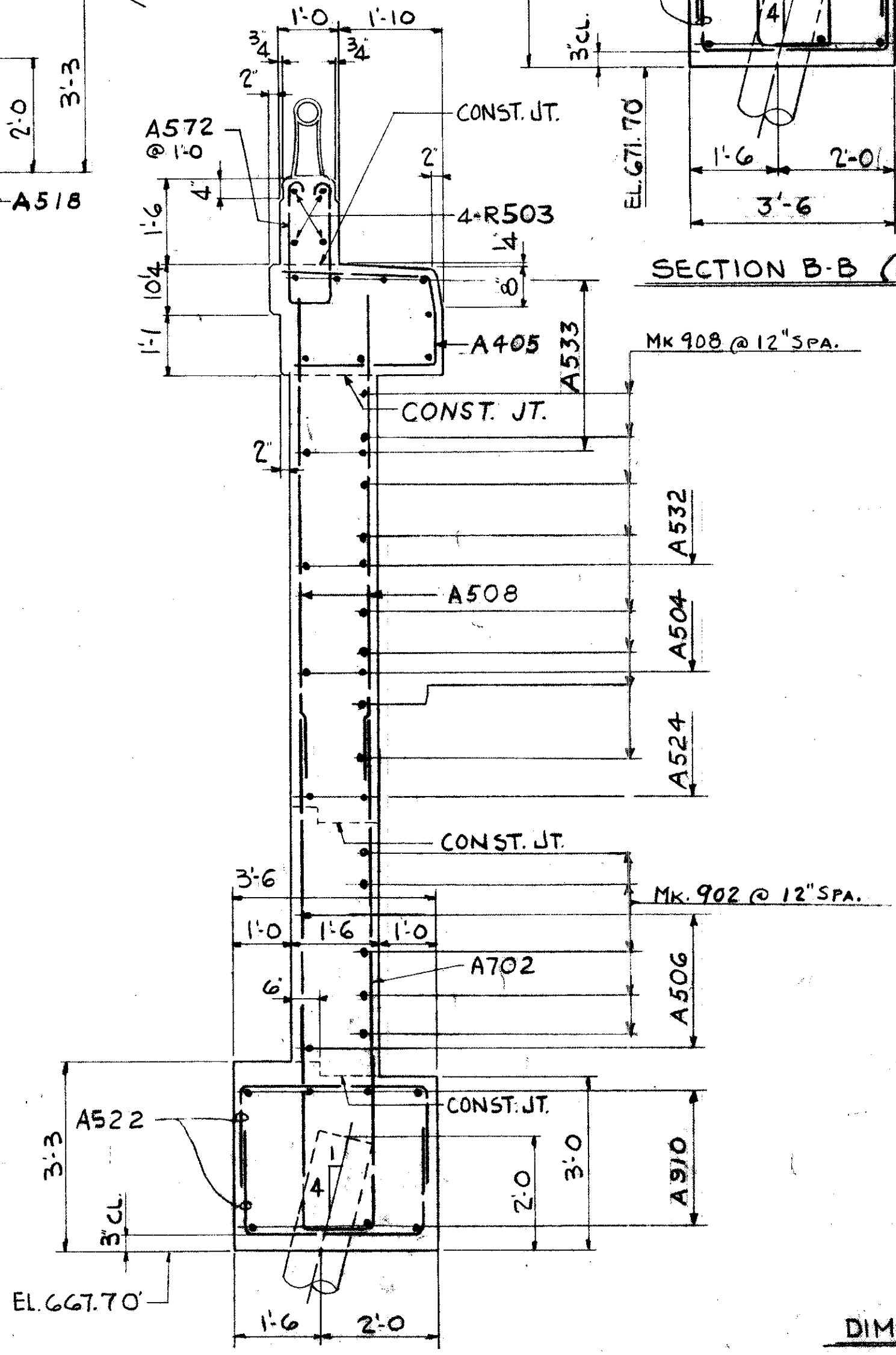
SECTION B-B (DWG. 62)



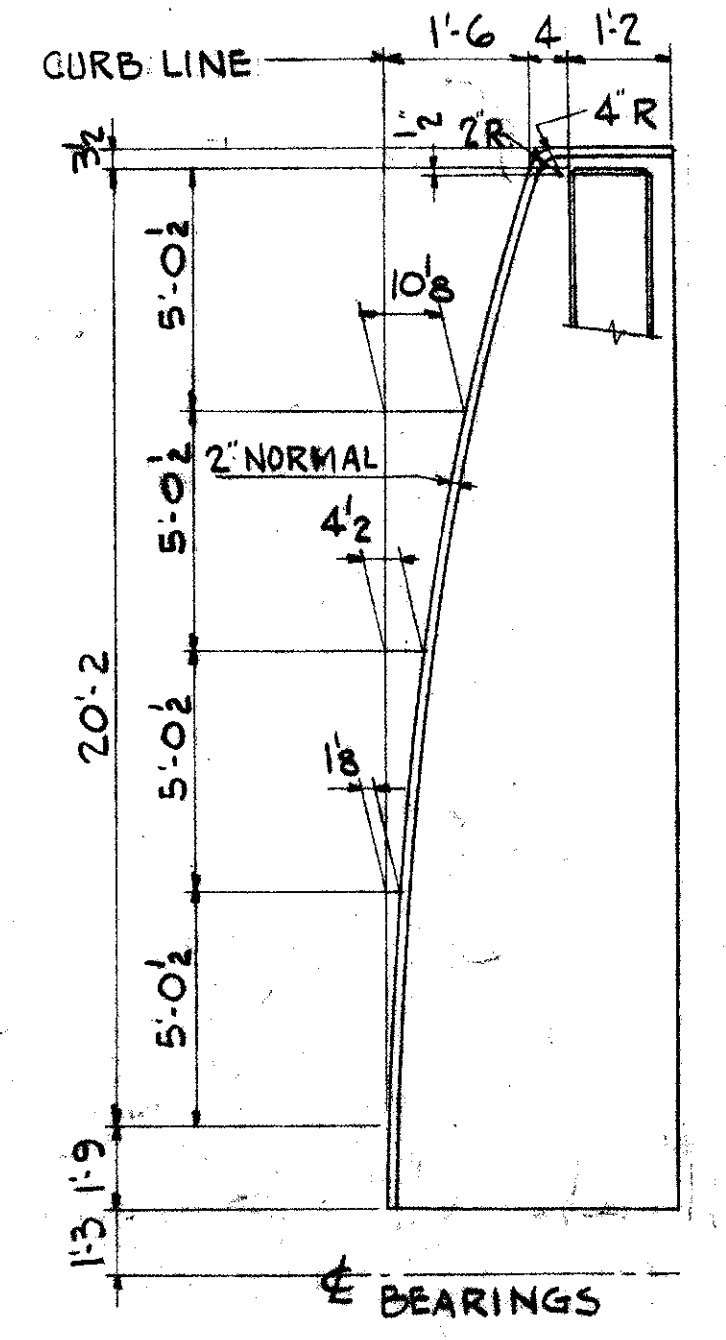
SECTION C-C (DWG. 62)



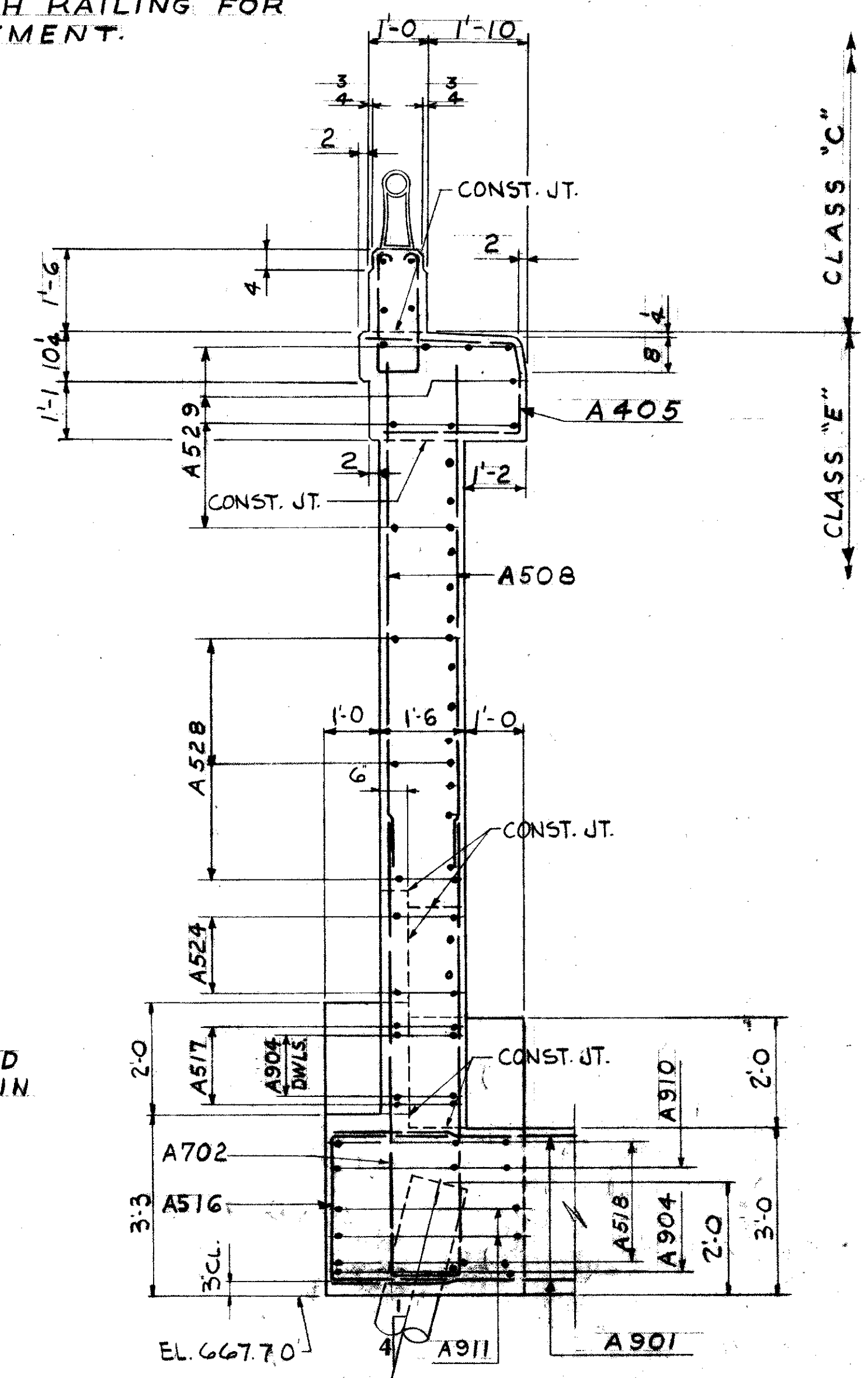
SECTION F-F (DWG. 62)



SECTION E-E (DWG. 62)



DIMENSION DIAGRAM OF WEST WING CURB



SECTION D-D (DWG. 62)

REFERENCE DRAWINGS
SUBSTRUCTURE LAYOUT DWG. 57
ABUTMENT DWG. 62
BAR SCHEDULE DWG. 69
GENERAL NOTES DWGS 56-64
PILING PLAN DWG. 59
END FINISH DWG. 110

TRYGVE HOFF & ASSOCIATES				
ENGINEERS 1922 EAST 107TH STREET CLEVELAND, OHIO				
SOUTH ABUTMENT				
BRIDGE NO.		CUY-21-1455		
WILLOW FREEWAY OVER KINGSBURY RUN				
CUYAHOGA COUNTY			U.S.R. 21	
SCALE	DRAWN	TRACED	CHECKED	DATE
D.F.	R.Y.			06/12/62

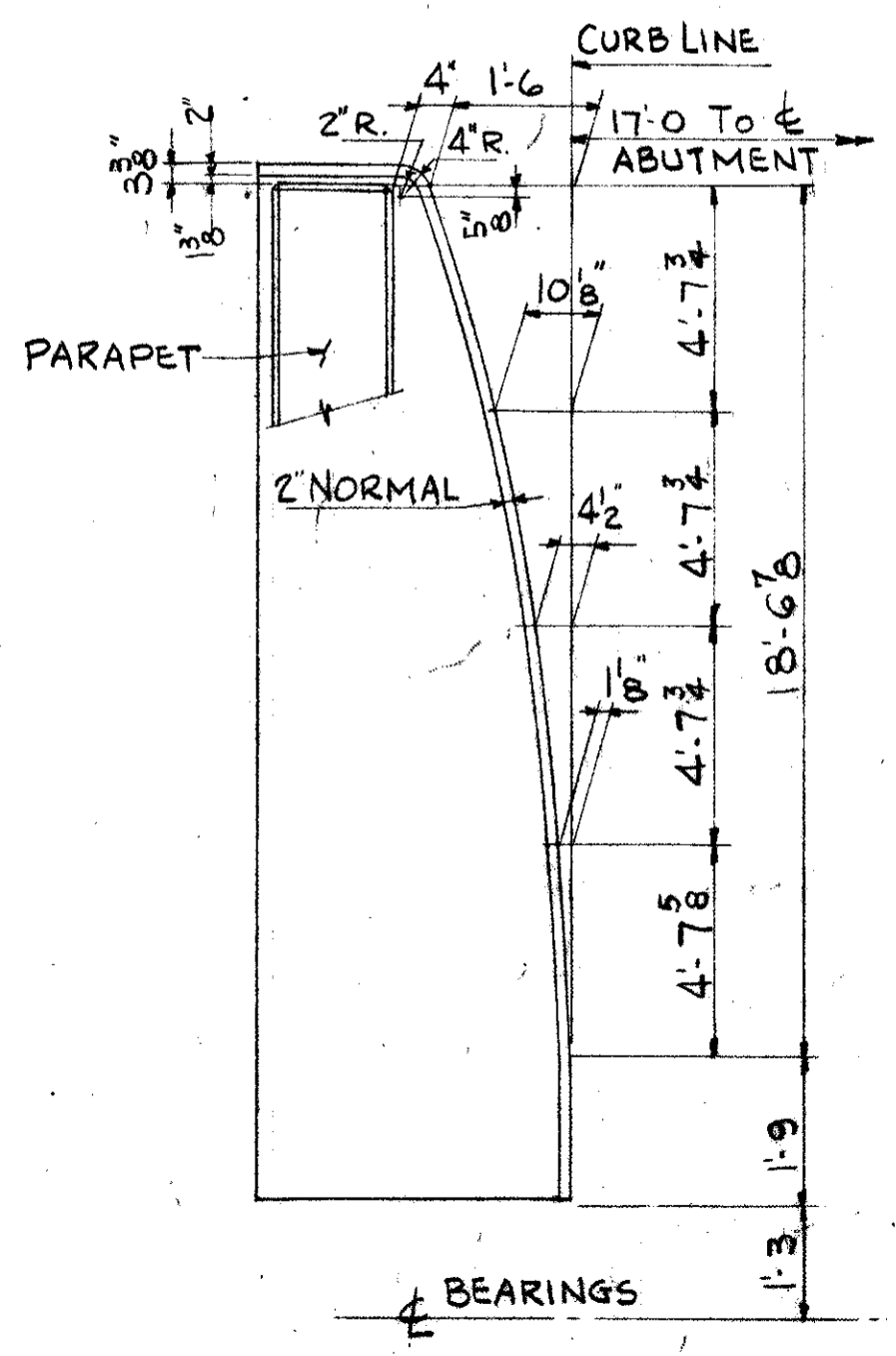
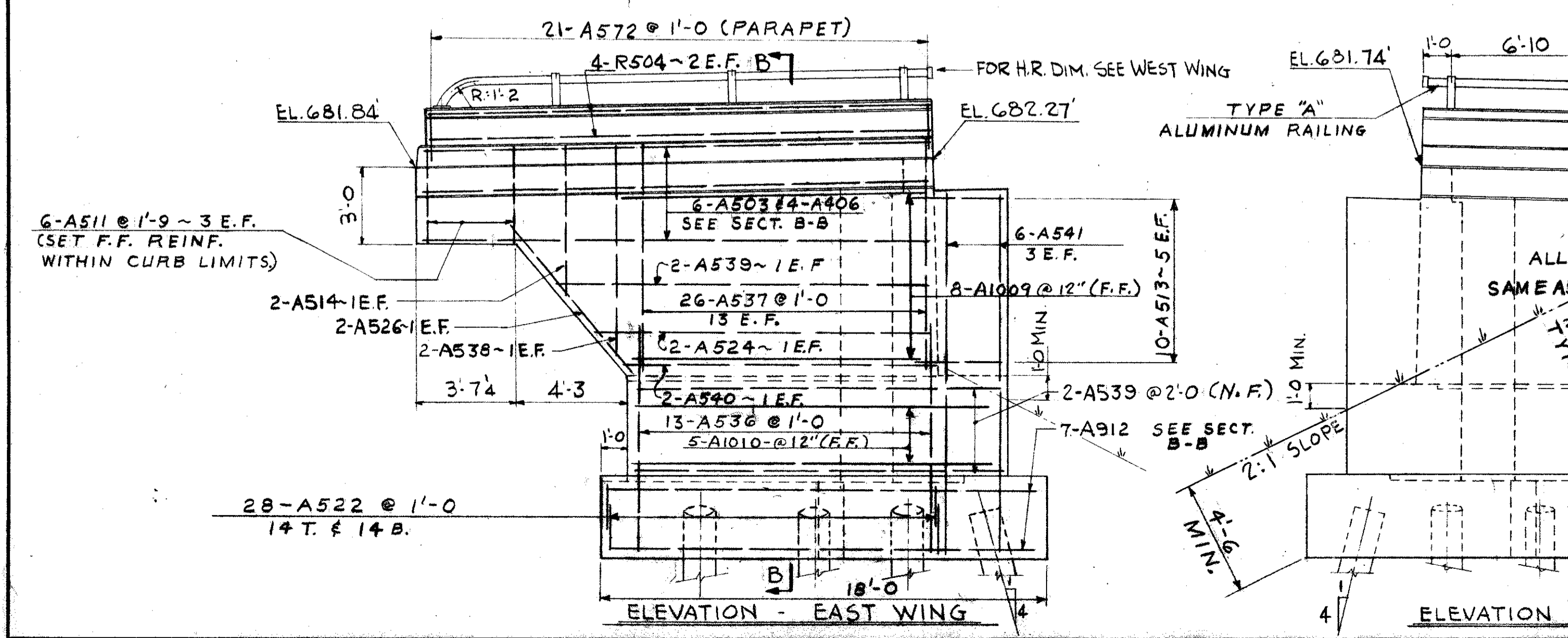
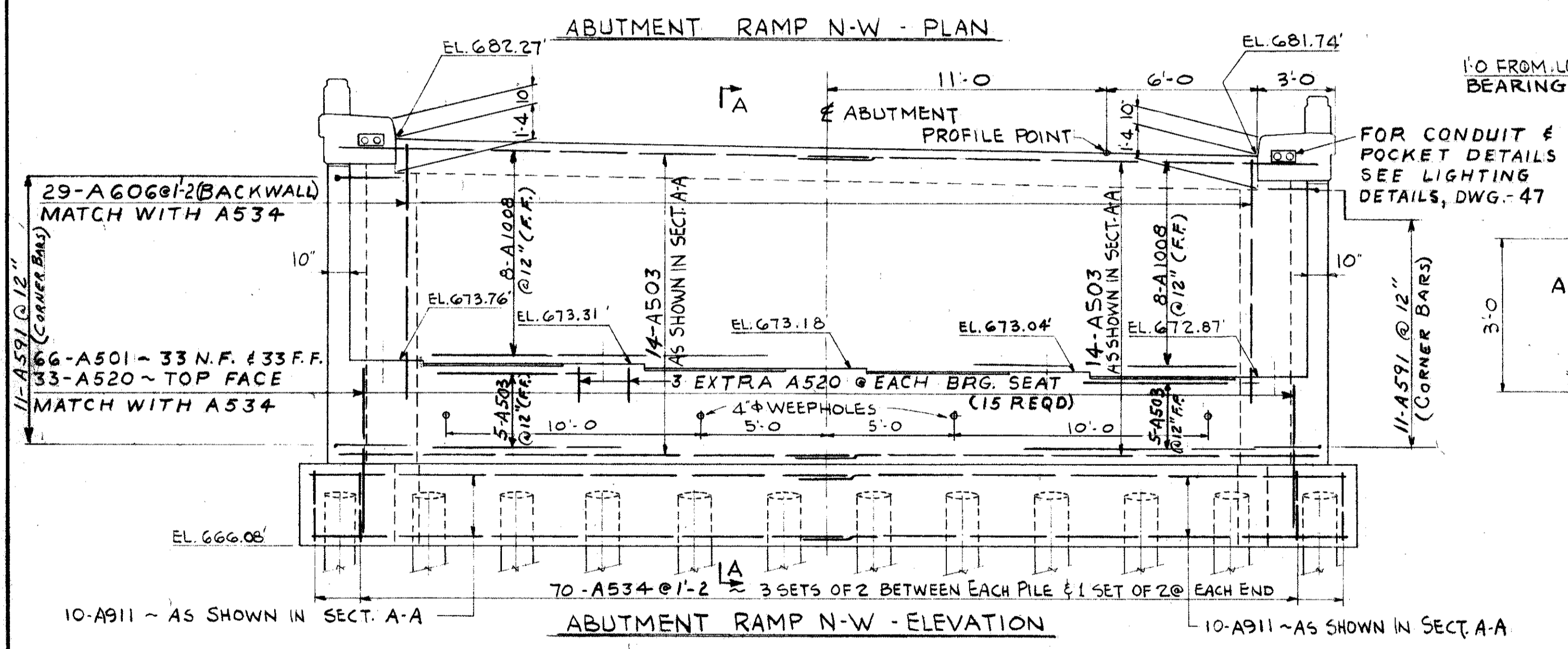
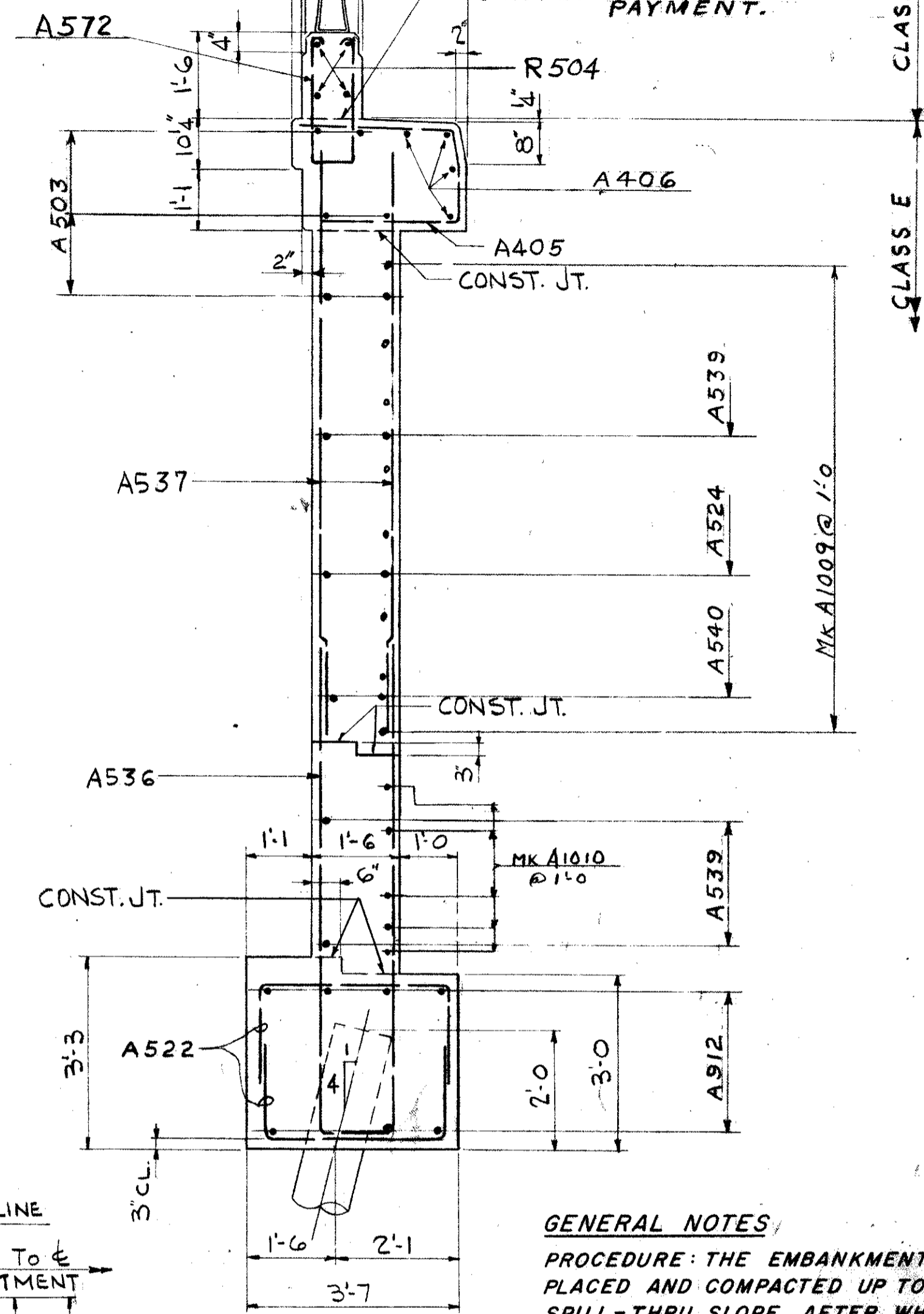
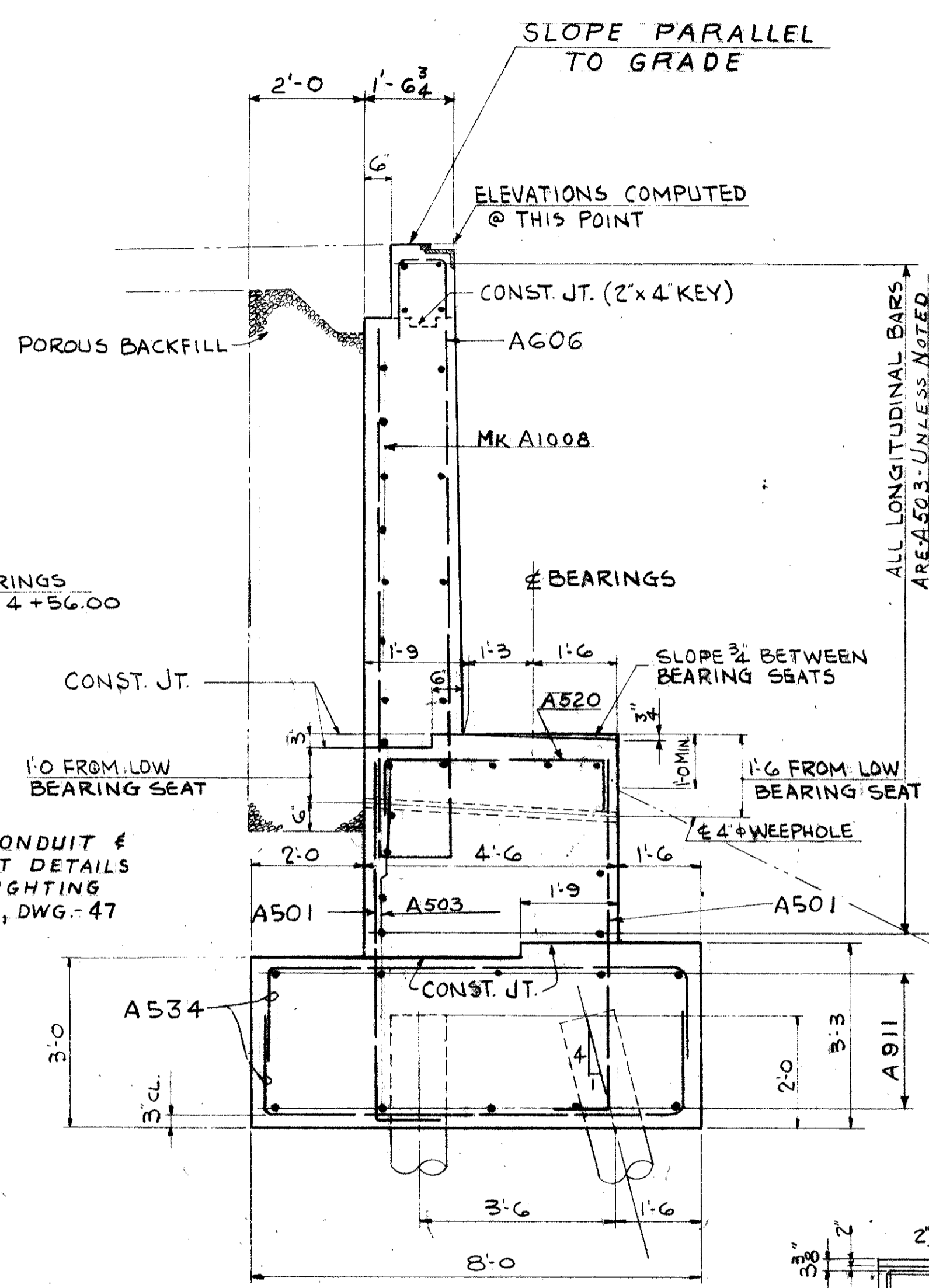
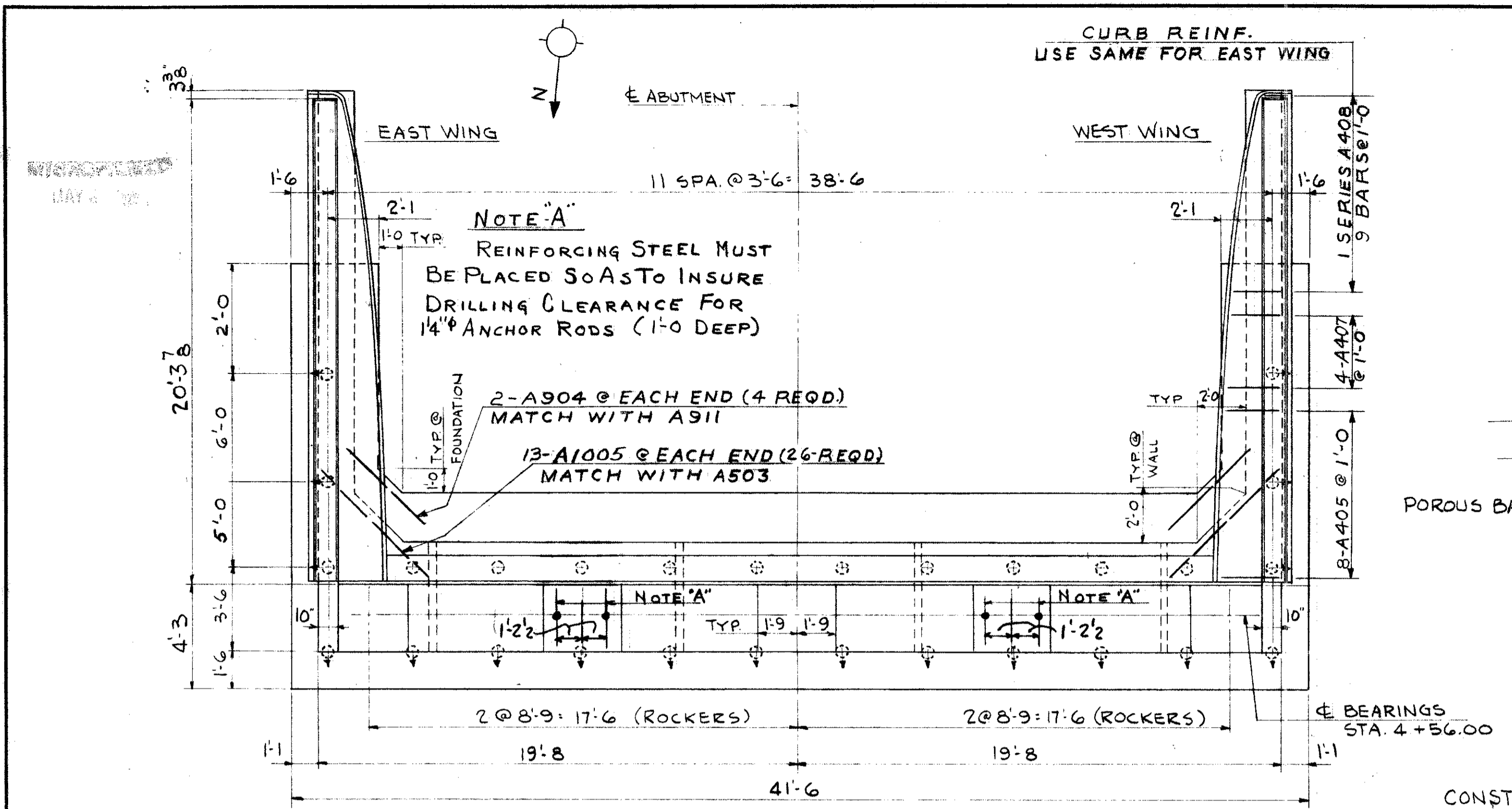
CUYAHOGA COUNTY
CUY-21-1455

INCLUDE PARAPET CONCRETE & R504 WITH RAILING FOR PAYMENT.

NOTE: ALL CHAMFERS 3"

CURB REINF. USE SAME FOR EAST WING

CONCRETE IN BACKWALL SHALL NOT BE PLACED UNTIL STRUCTURAL STEEL IS IN PLACE. BRIDGE DECK END FINISH SHALL BE USED AS TEMPLATE FOR TOP OF BACKWALL & CURBS.



GENERAL NOTES

PROCEDURE: THE EMBANKMENT SHALL BE PLACED AND COMPACTED UP TO THE FINISHED SPILL-THRU SLOPE AFTER WHICH EXCAVATION SHALL BE MADE FOR THE ABUTMENT, AND PILES DRIVEN.

POROUS BACKFILL: 2 FEET THICK FULL LENGTH OF THE ABUTMENT AND WINGS, SHALL EXTEND UP TO THE UNDER SIDE OF THE APPROACH SLAB.

EXCAVATION QUANTITY: INCLUDES THE REMOVAL OF FILL MATERIAL REQUIRED FOR CONSTRUCTION OF THE ABUTMENTS.

CONCRETE: ALL ABUTMENT CONCRETE SHALL BE CLASS "E", EXCEPT FOR RAILING PARAPET WHICH SHALL BE CLASS "C".

REFERENCE DRAWINGS

SUBSTRUCTURE LAYOUT DWG. 57

PILING PLAN DWG. 59

ELECTRICAL DWG. 47

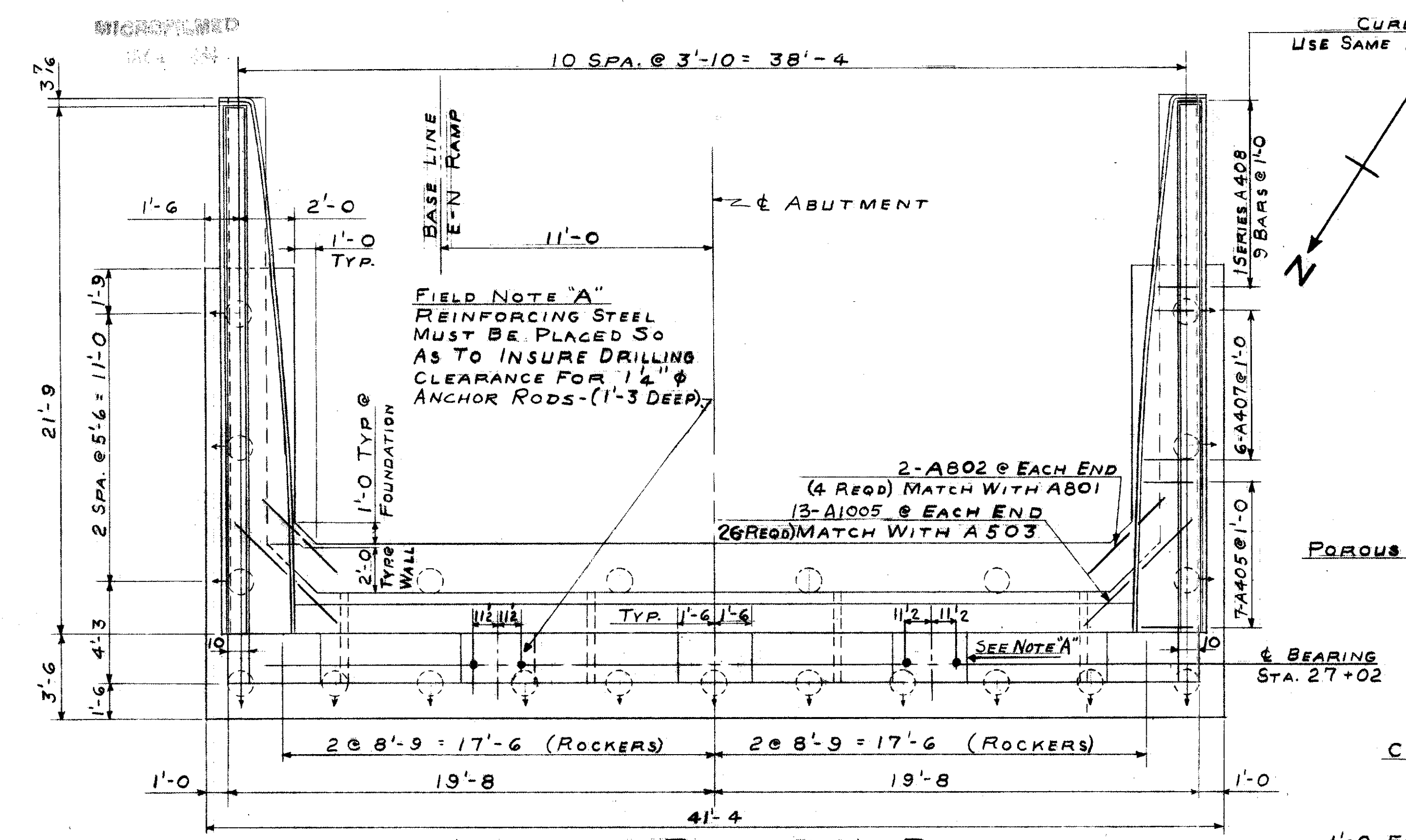
BAR SCHEDULE DWG. 69

GENERAL NOTES DWG. 56

TRYGVE HOFF & ASSOCIATES ENGINEERS 1922 EAST 107TH STREET CLEVELAND, OHIO	
N-W RAMP ABUTMENT	
BRIDGE NO.	CUY-21-1455
WILLOW FREEWAY OVER KINGSBURY RD CUYAHOGA COUNTY U.S. 21	
SCALE	DATE
DESIGNED	DRAWN
TRACED	CHECKED
REVISIONS	DATE
DE	R.L.Y. 06 7/10/55

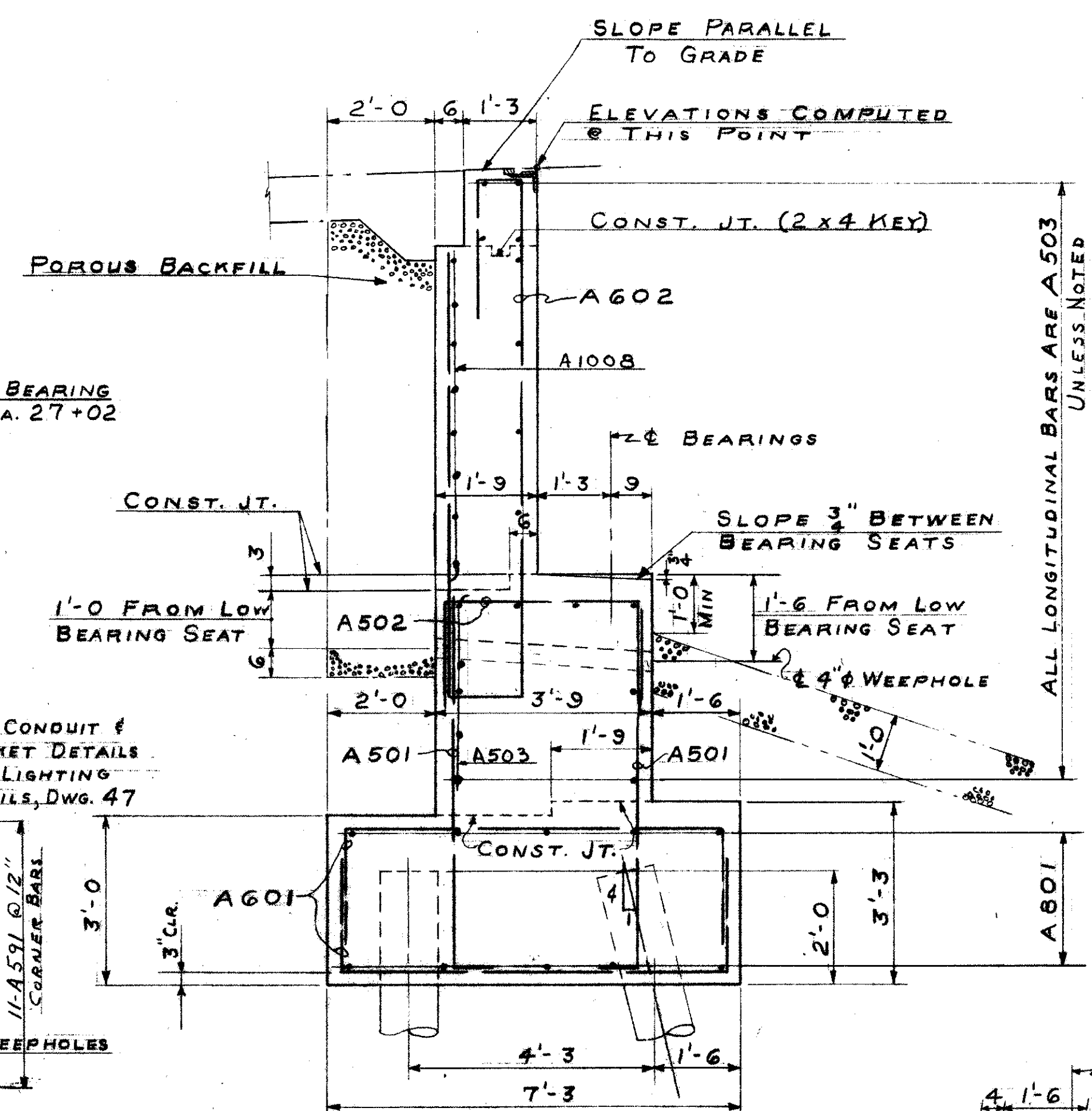
CUYAHOGA COUNTY
CUY-21-1455

INCLUDE PARAPET
CONCRETE & R506
WITH RAILING FOR
PAYMENT.

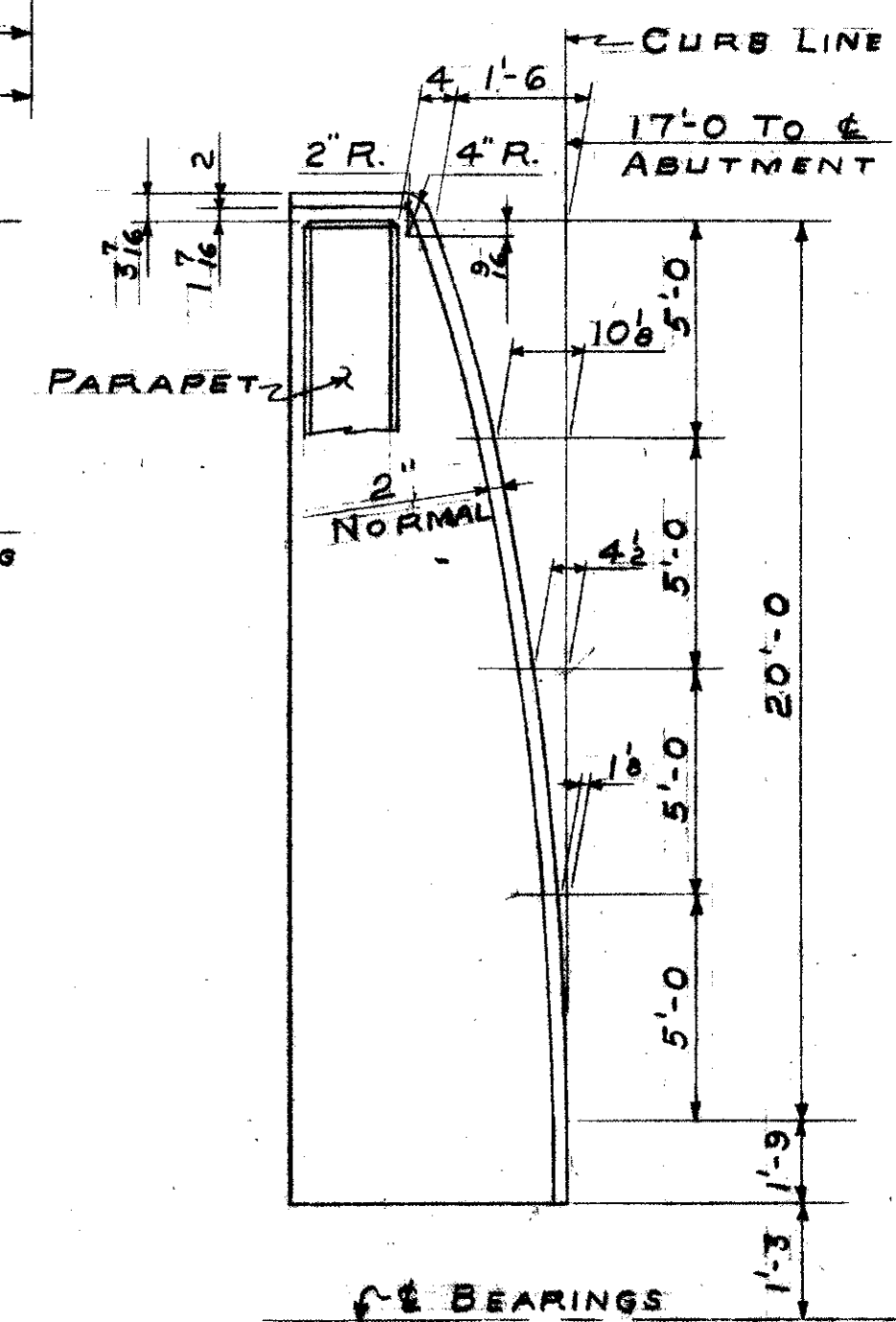
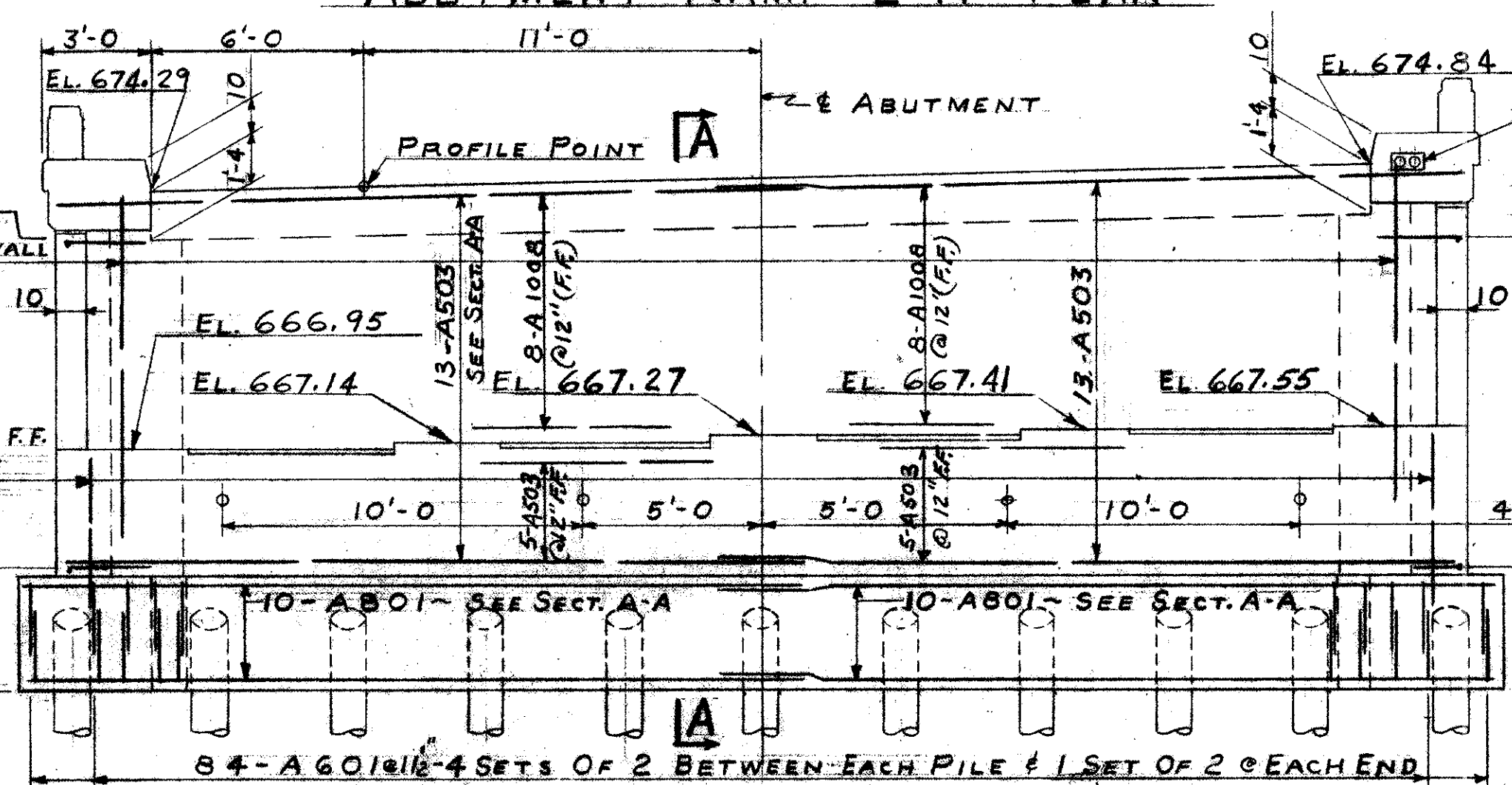
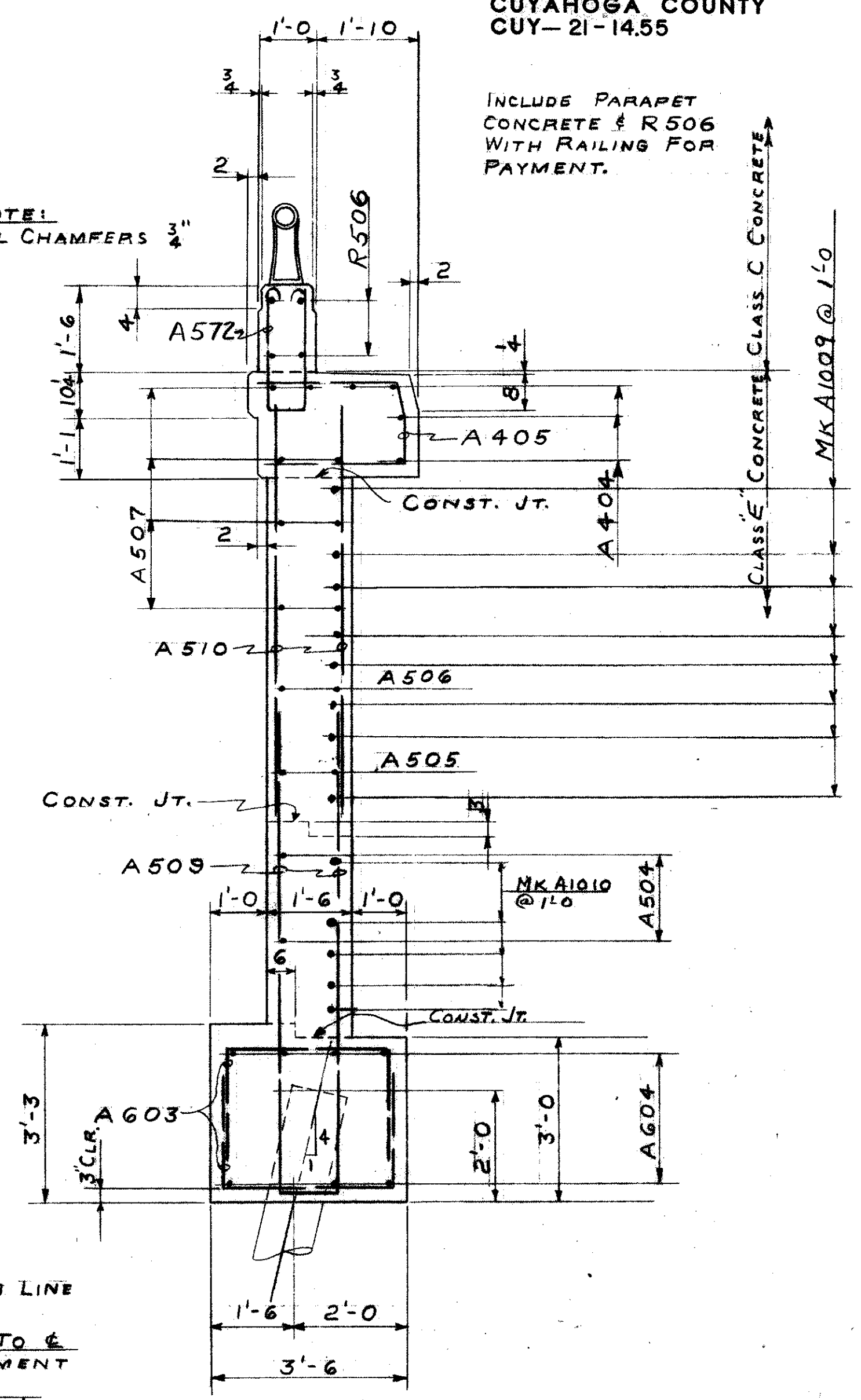


CURB REINF.
USE SAME FOR EAST WING

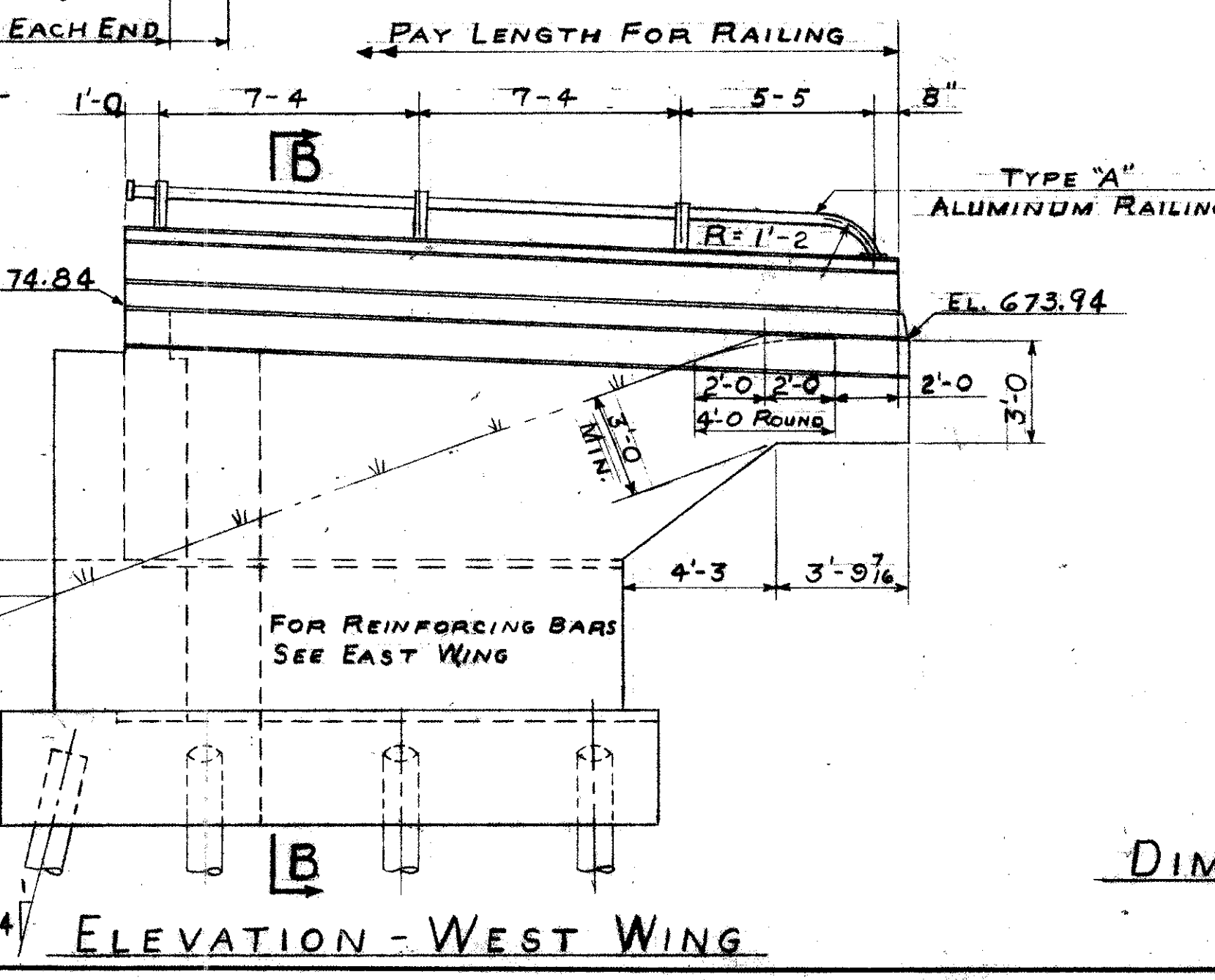
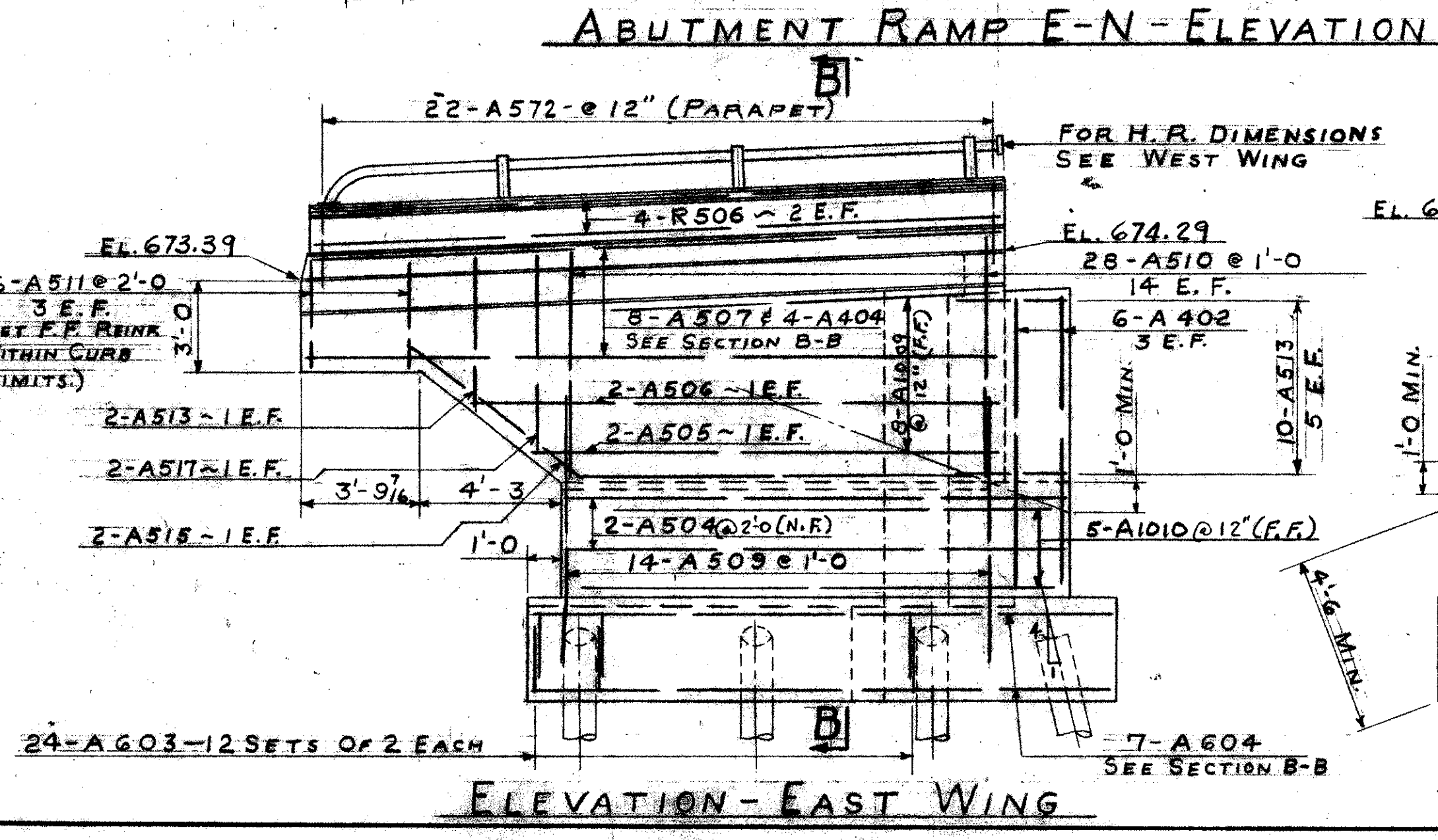
CONCRETE IN BACKWALL SHALL NOT
BE PLACED UNTIL STRUCTURAL STEEL
IS IN PLACE. BRIDGE DECK END FINISH
SHALL BE USED AS TEMPLATE FOR
TOP OF BACKWALL & CURBS.



NOTE:
ALL CHAMFERS 3"



REFERENCE DRAWINGS
SUBSTRUCTURE LAYOUT DWG. 57
PILING PLAN DWG. 58
ELECTRICAL DWG. 47
BAR SCHEDULE DWG. 69
GENERAL NOTES DWG'S 56-64
GUARD RAIL DETAIL DWG. 63



DIMENSION DIAGRAM OF EAST WING CURB
(WEST WING CURB OPPOSITE)

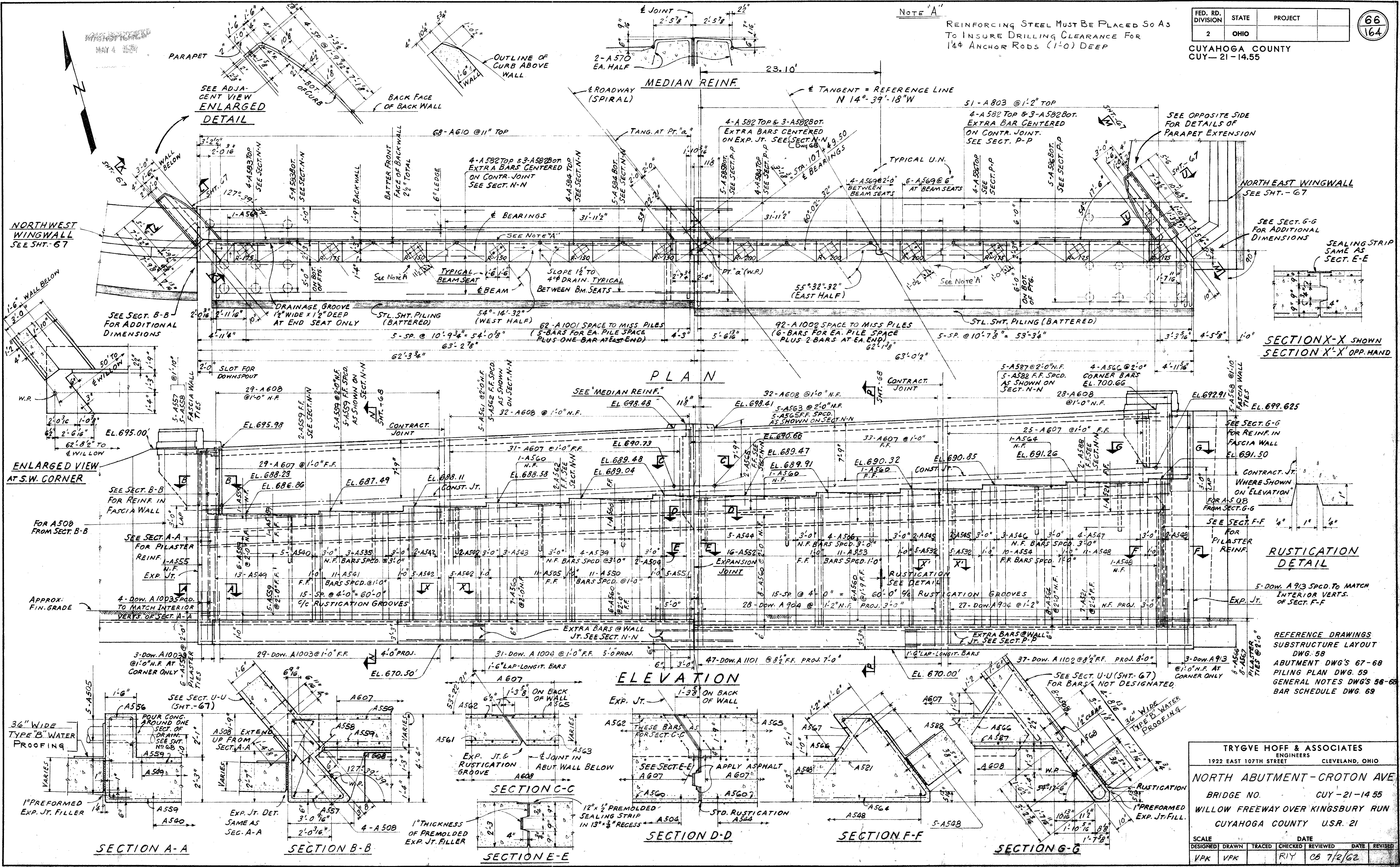
TRYGVE HOFF & ASSOCIATES
ENGINEERS
1922 EAST 107TH STREET CLEVELAND, OHIO

E-N RAMP ABUTMENT

BRIDGE NO. CUY-21-1455
WILLOW FREEWAY OVER KINGSBURY RUN
CUYAHOGA COUNTY USR-21

SCALE	DATE
DESIGNED: RJB	TRACED: RLY
CHECKED: RLY	DATE: 7/2/62

NOTE 'A'
REINFORCING STEEL MUST BE PLACED SO AS TO INSURE DRILLING CLEARANCE FOR 1/4" ANCHOR RODS (1'-0" DEEP)

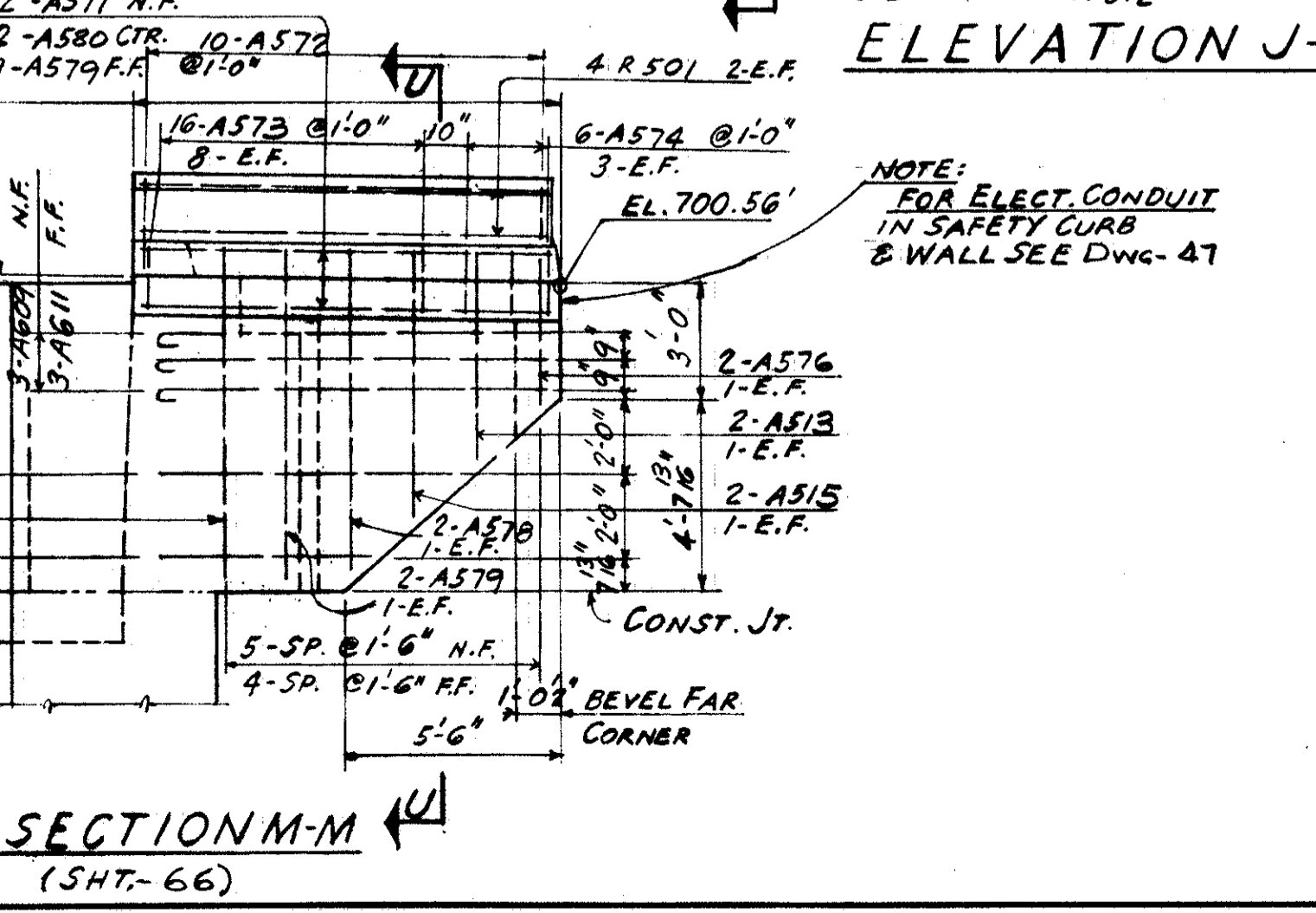
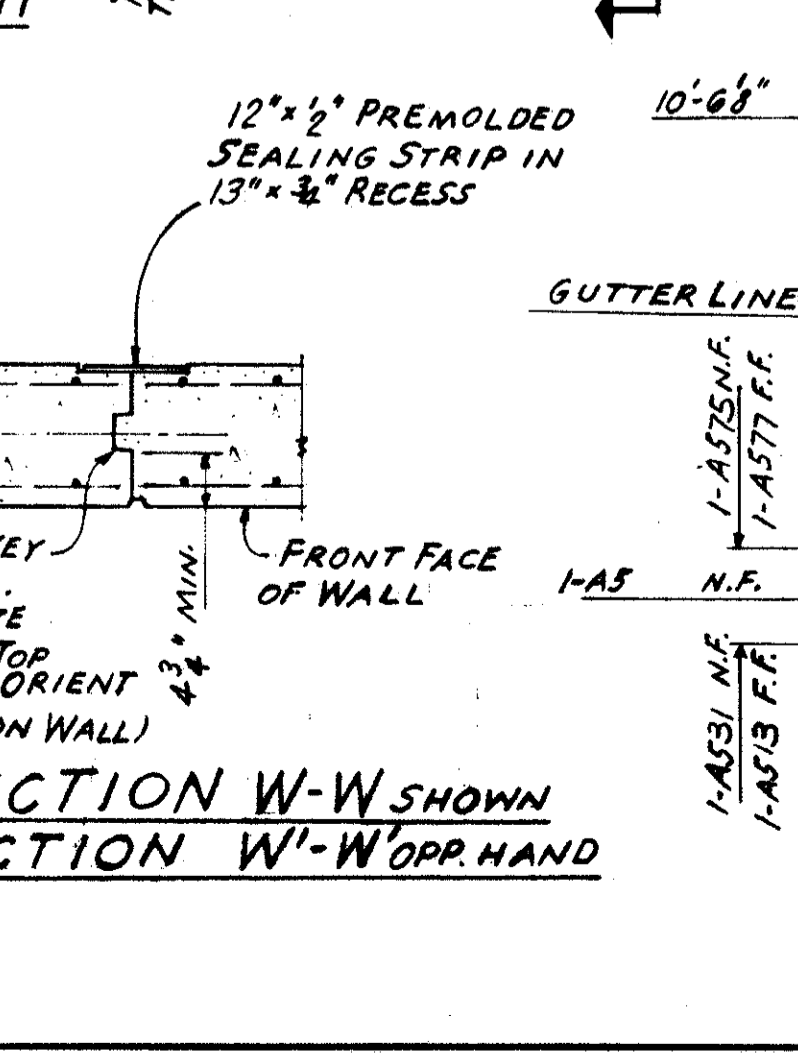
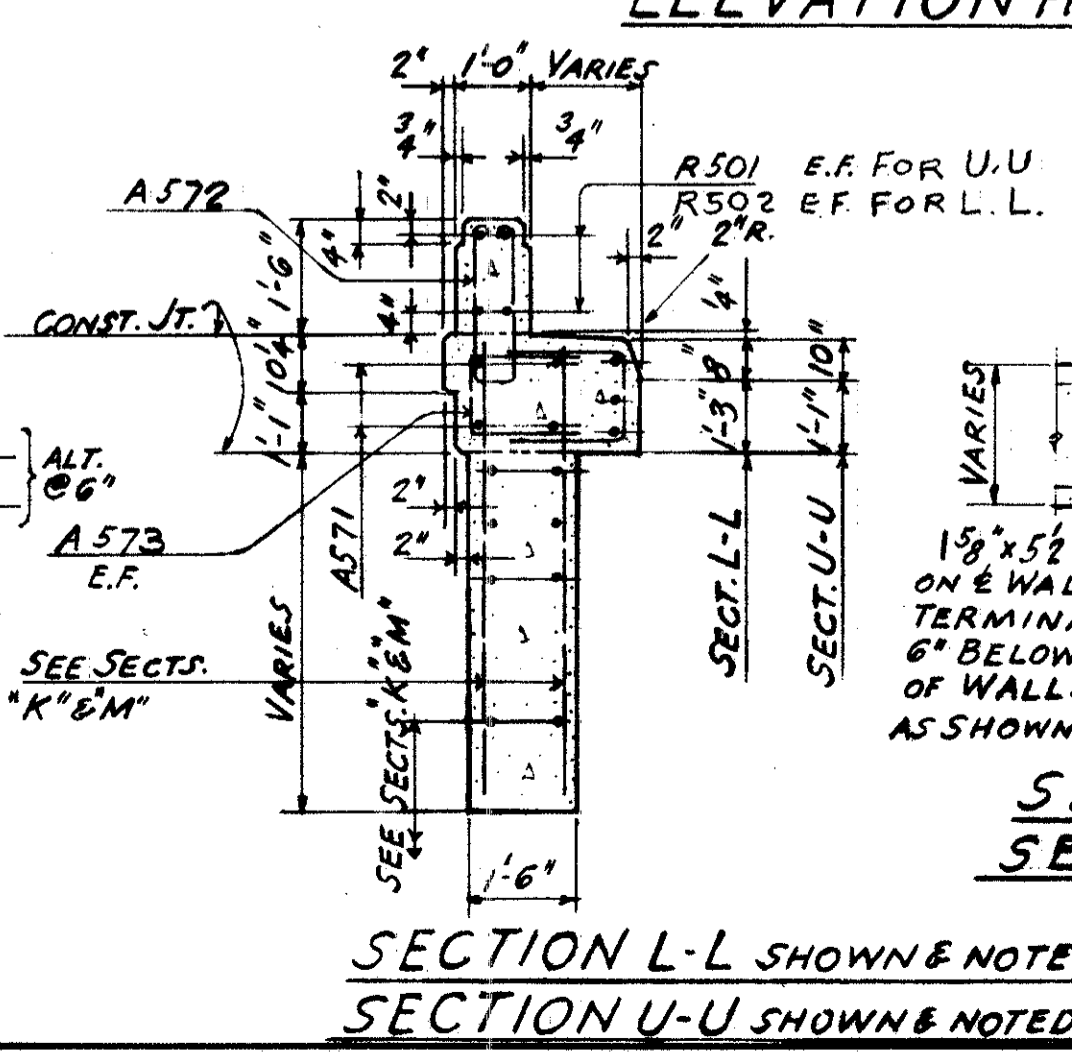
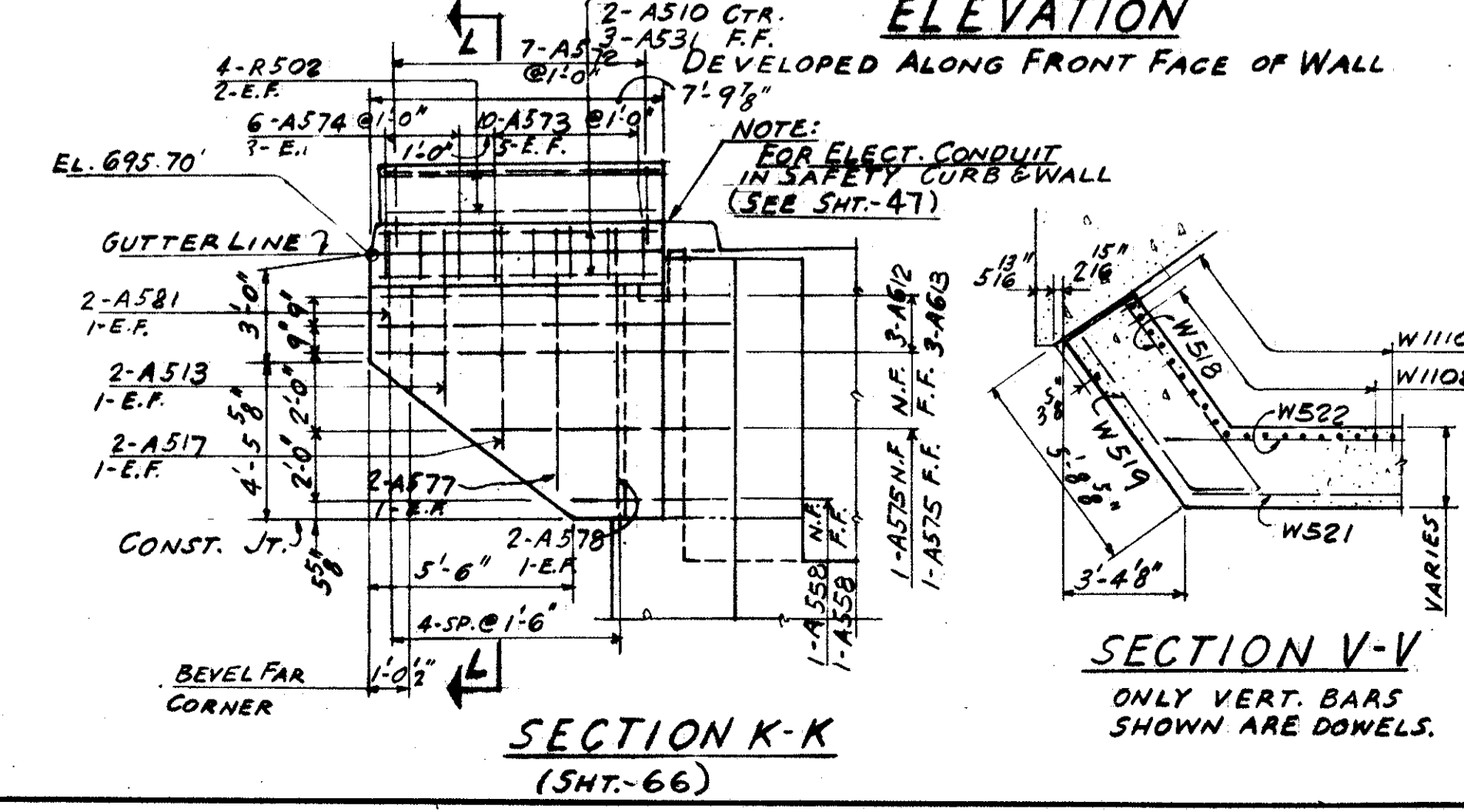
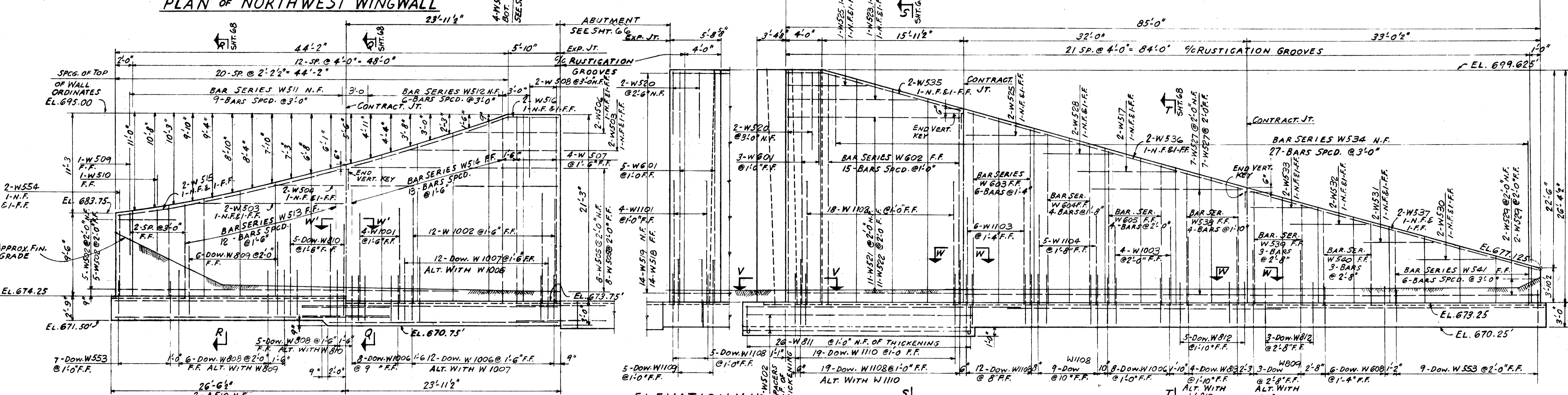
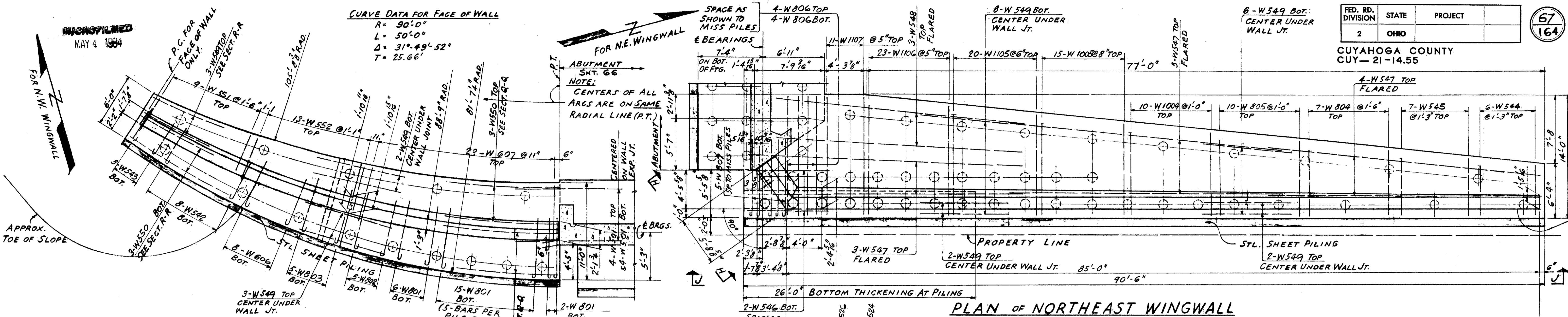


TRYGVE HOFF & ASSOCIATES
ENGINEERS
1922 EAST 107TH STREET CLEVELAND, OHIO

NORTH ABUTMENT - CROTON AVE
BRIDGE NO. CUY-21-14.55
WILLOW FREEWAY OVER KINGSBURY RUN
CUYAHOGA COUNTY U.S.R. 21

SCALE	DATE
DESIGNED	TRACED
CHECKED	REVIEWED
DATE	REVISION
VPK	VPK
RIY	08/7/62

CUYAHOGA COUNTY
CUY-21-14.55



REFERENCE DRAWINGS
 SUBSTRUCTURE LAYOUT DWG. 58
 ABUTMENT DWGS 66-68
 ELECTRICAL DWG. 47
 GENERAL NOTES DWGS 56-68
 BAR SCHEDULE DWG. 69
 PILING PLAN DWG. 59

TRYGVE HOFF & ASSOCIATES
 ENGINEERS
 1922 EAST 107TH STREET CLEVELAND, OHIO

NORTH ABUTMENT WINGWALLS
 BRIDGE NO. CUY-21-1455
 WILLOW FREEWAY OVER KINGSBURY RUN
 CUYAHOGA COUNTY U.S.R.-21

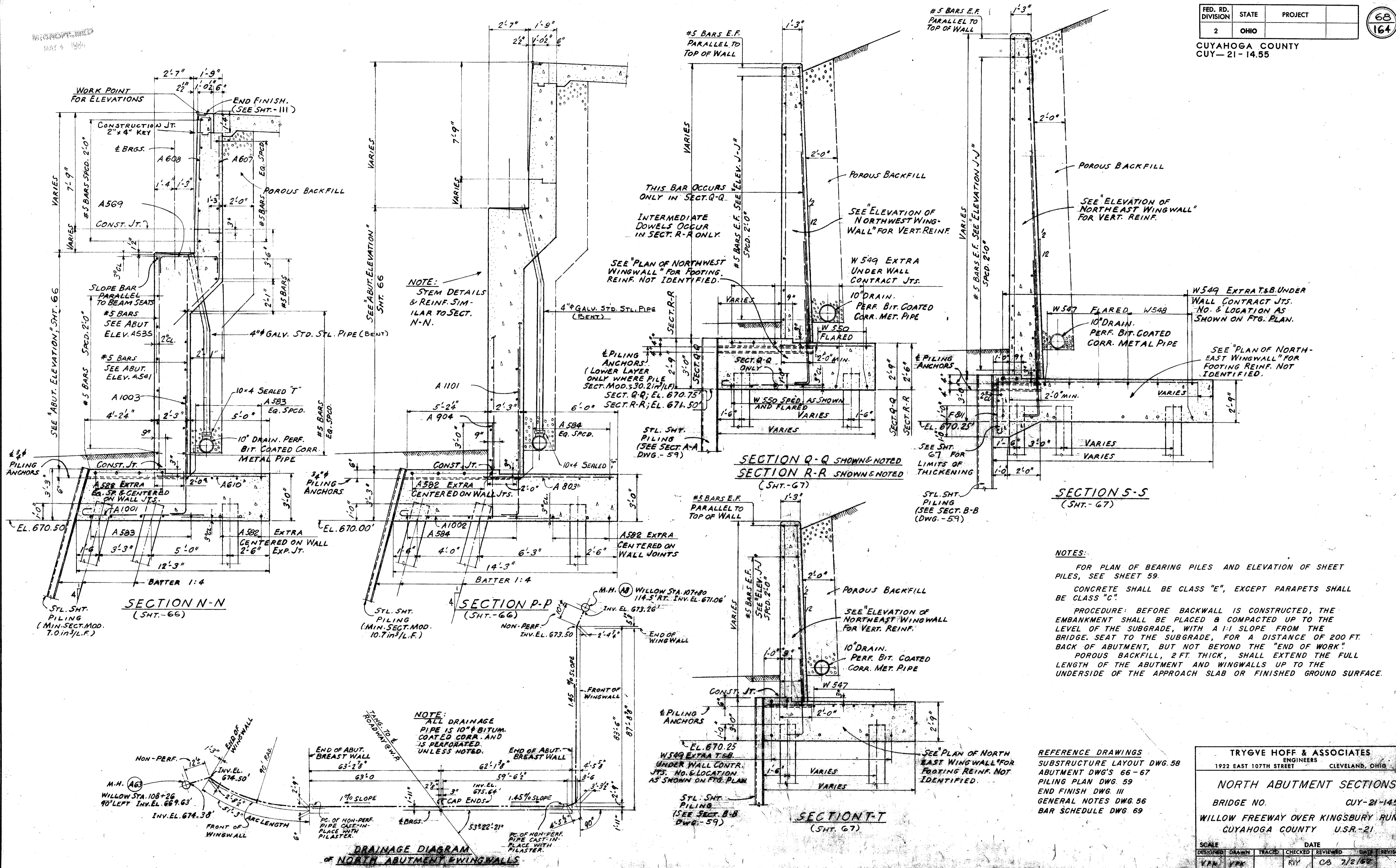
SCALE	DATE					
DESIGNED VPK	DRAWN VPK	TRACED	CHECKED RY	REVIEWED	DATE	REVISED
					08/2/62	

NOT REPRODUCED
MAY 4 1964

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

68
164

CUYAHOGA COUNTY
CUY-21-14.55



NOTE:
STEM DETAILS & REINF. SIMILAR TO SECT. N-N.

THIS BAR OCCURS ONLY IN SECT. Q-Q
INTERMEDIATE DOWELS OCCUR IN SECT. R-R ONLY.

SEE "PLAN OF NORTHWEST WINGWALL" FOR FOOTING REINF. NOT IDENTIFIED.

SEE "PLAN OF NORTHWEST WINGWALL" FOR FOOTING REINF. NOT IDENTIFIED.

STL. SHT. PILING (SEE SECT. A-A DWG. - 59)

STL. SHT. PILING (SEE SECT. B-B DWG. - 59)

NOTES:
FOR PLAN OF BEARING PILES AND ELEVATION OF SHEET PILES, SEE SHEET 59.
CONCRETE SHALL BE CLASS "E", EXCEPT PARAPETS SHALL BE CLASS "C".
PROCEDURE: BEFORE BACKWALL IS CONSTRUCTED, THE EMBANKMENT SHALL BE PLACED & COMPACTED UP TO THE LEVEL OF THE SUBGRADE, WITH A 1:1 SLOPE FROM THE BRIDGE SEAT TO THE SUBGRADE, FOR A DISTANCE OF 200 FT. BACK OF ABUTMENT, BUT NOT BEYOND THE "END OF WORK".
POROUS BACKFILL, 2 FT. THICK, SHALL EXTEND THE FULL LENGTH OF THE ABUTMENT AND WINGWALLS UP TO THE UNDERSIDE OF THE APPROACH SLAB OR FINISHED GROUND SURFACE.

REFERENCE DRAWINGS
SUBSTRUCTURE LAYOUT DWG. 58
ABUTMENT DWG'S 66-67
PILING PLAN DWG. 59
END FINISH DWG. III
GENERAL NOTES DWG. 56
BAR SCHEDULE DWG. 69

TRYGVE HOFF & ASSOCIATES ENGINEERS 1922 EAST 107TH STREET CLEVELAND, OHIO			
NORTH ABUTMENT SECTIONS		BRIDGE NO. CUY-21-14.55	
WILLOW FREEWAY OVER KINGSBURY RUN CUYAHOGA COUNTY U.S.R.-21			
SCALE	DATE	DESIGNED	REVIEWED
VAR	CB 7/2/60	RY	CB

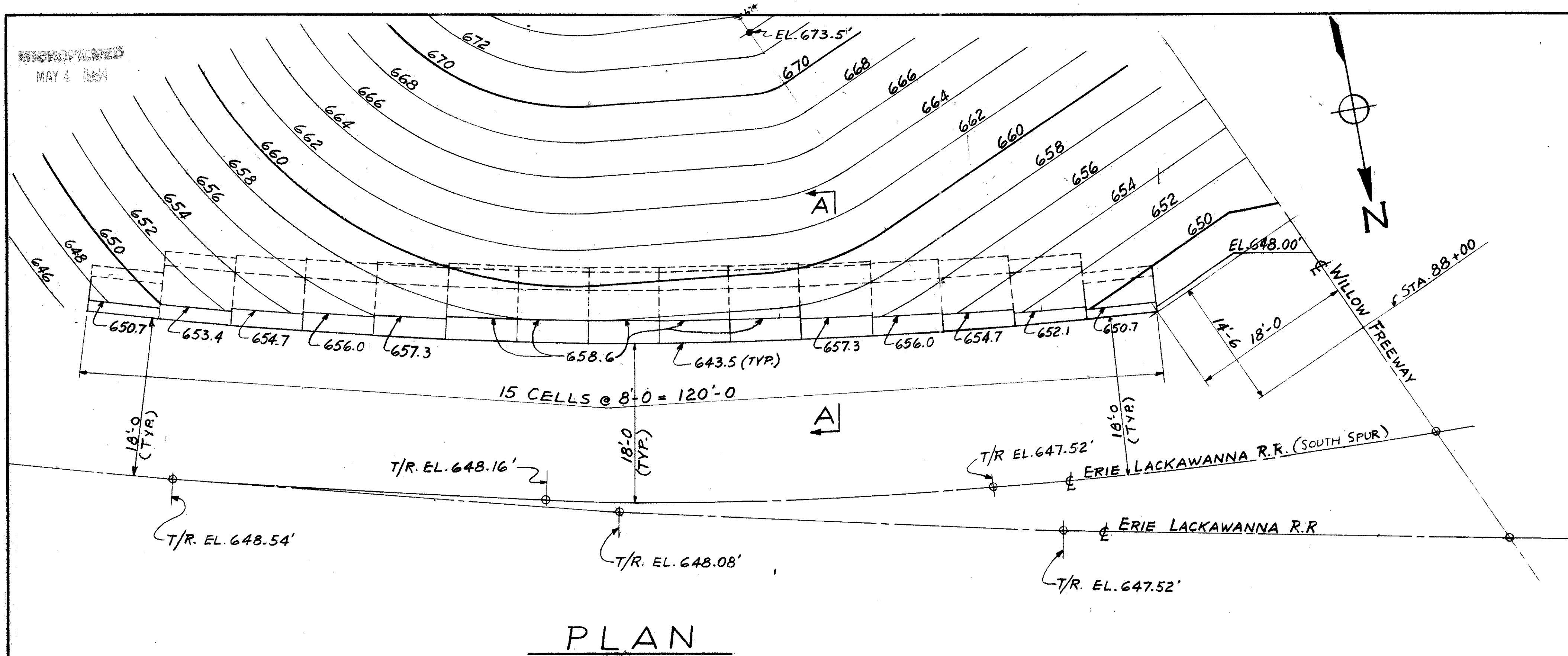
DRAINAGE DIAGRAM
OF NORTH ABUTMENT & WINGWALLS

REPRODUCTION
MAY 4 1964

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

70
164

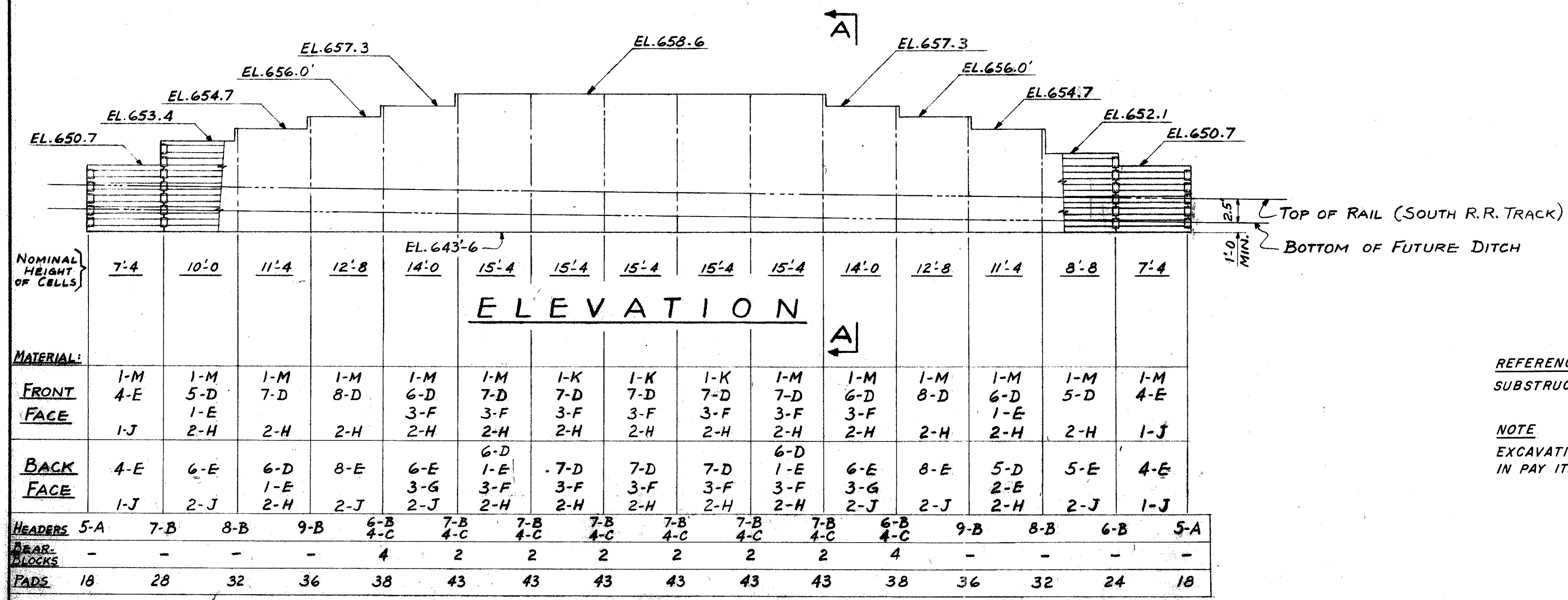
CUYAHOGA COUNTY
CUY- 21-14.55



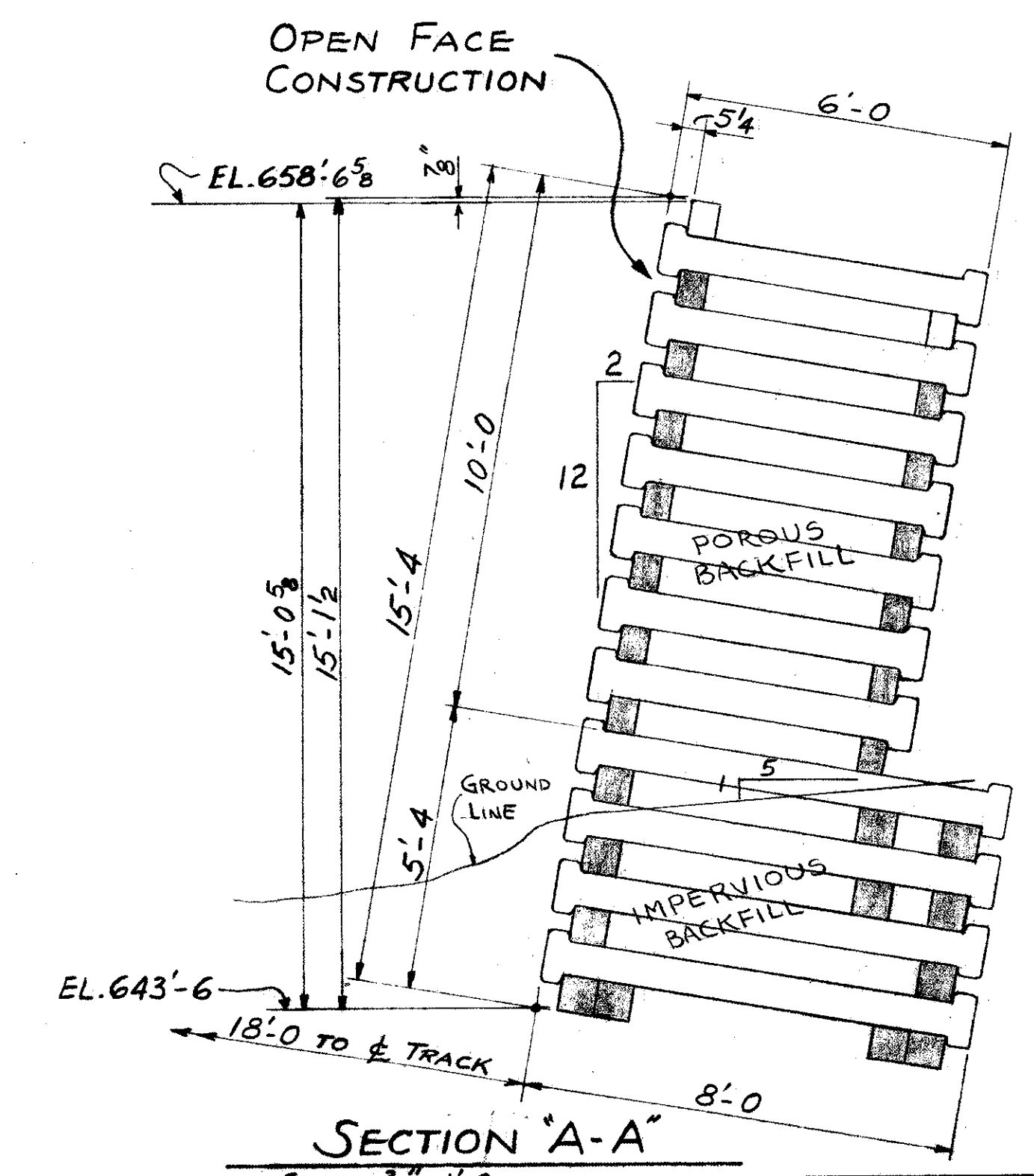
PLAN

MARK	DESCRIPTION OF MEMBERS	MEMBERS REQUIRED TOTAL
A	8" x 8" x 4'-0 HEADERS	10
B	8" x 8" x 6'-0 HEADERS	101
C	8" x 8" x 8'-0 HEADERS	32
D	8" x 6" x 8'-0 STRETCHERS	130
E	8" x 6" x 8'-4 END STRETCHERS	62
F	8" x 8" x 8'-0 STRETCHERS	36
G	8" x 8" x 8'-4 END STRETCHERS	6
H	8" x 8" x 8'-0 SILLS	40
J	8" x 8" x 8'-4 END SILLS	16
K	8" x 6" x 8'-0 COPING	3
M	8" x 6" x 8'-4 END COPING	12
N	8" x 8" x 0'-8 BEARING BLOCKS	20
P	4" x 8" x 0'-8 ASPHALT BEARING PADS	558

* WALL DIMENSIONS & MATERIAL SIZES AS GIVEN ON THIS DRAWING ARE BASED ON MATERIALS AS MANUFACTURED BY AMERICAN-MARIETTA CO. APPROVED EQUAL CONSTRUCTION MAY BE SUBSTITUTED IN CONFORMANCE WITH ITEM 1-17 OF THE OHIO CONSTRUCTION AND MATERIAL SPECIFICATIONS.



ELEVATION



SECTION A-A
SCALE: 3/8" = 1'-0

REFERENCE DRAWINGS
SUBSTRUCTURE LAYOUT DWG. 57

NOTE
EXCAVATION FOR CRIB WALL SHALL BE INCLUDED IN PAY ITEM E-2 EXCAVATION FOR STRUCTURES.

TRYGVE HOFF & ASSOCIATES
ENGINEERS
1922 EAST 107TH STREET CLEVELAND, OHIO

CRIB WALL AT SOUTH ABUTMENT
BRIDGE NO. CUY-21-1455
WILLOW FREEWAY OVER KINGSBURY RUN
CUYAHOGA COUNTY U.S.R. 21

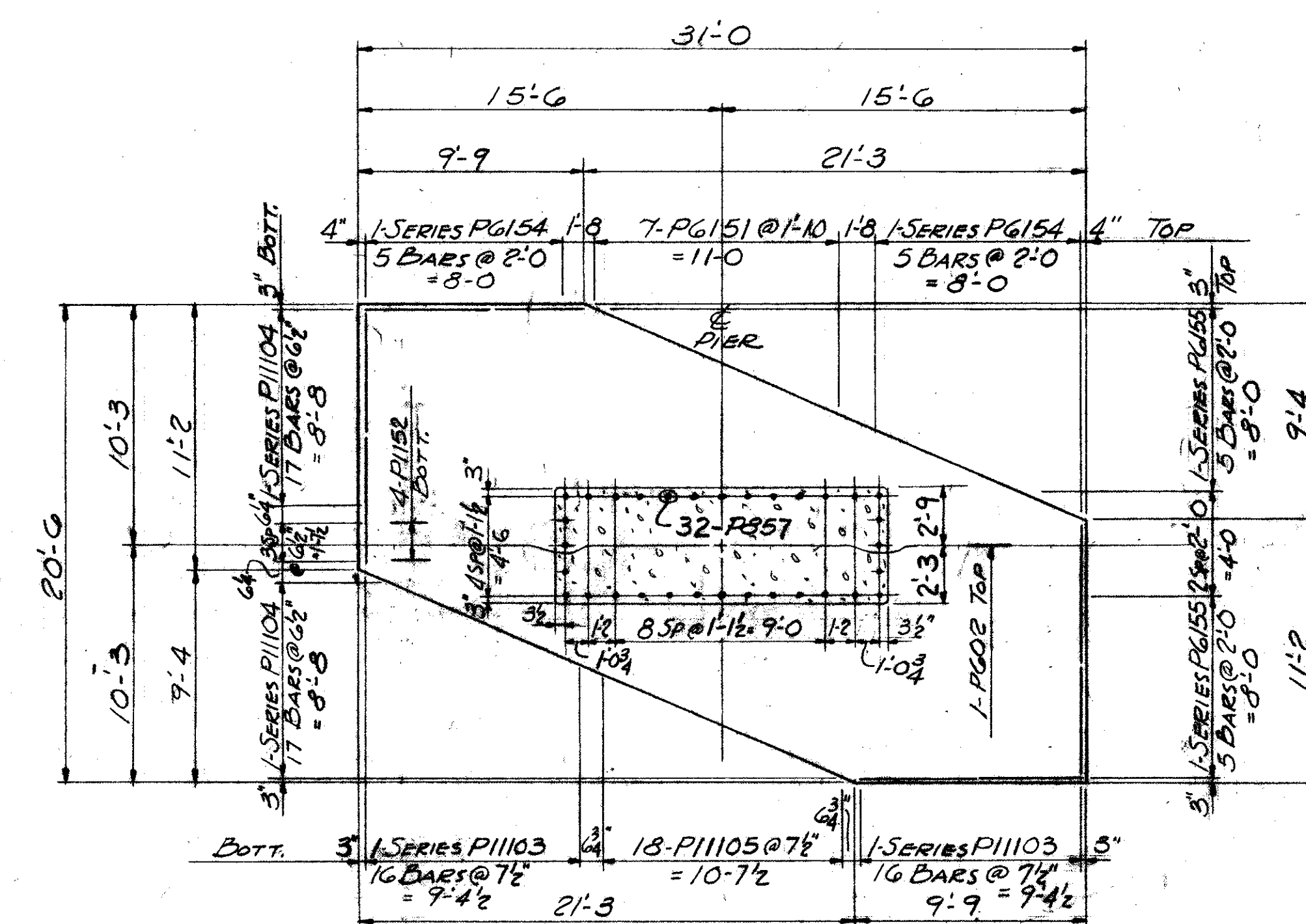
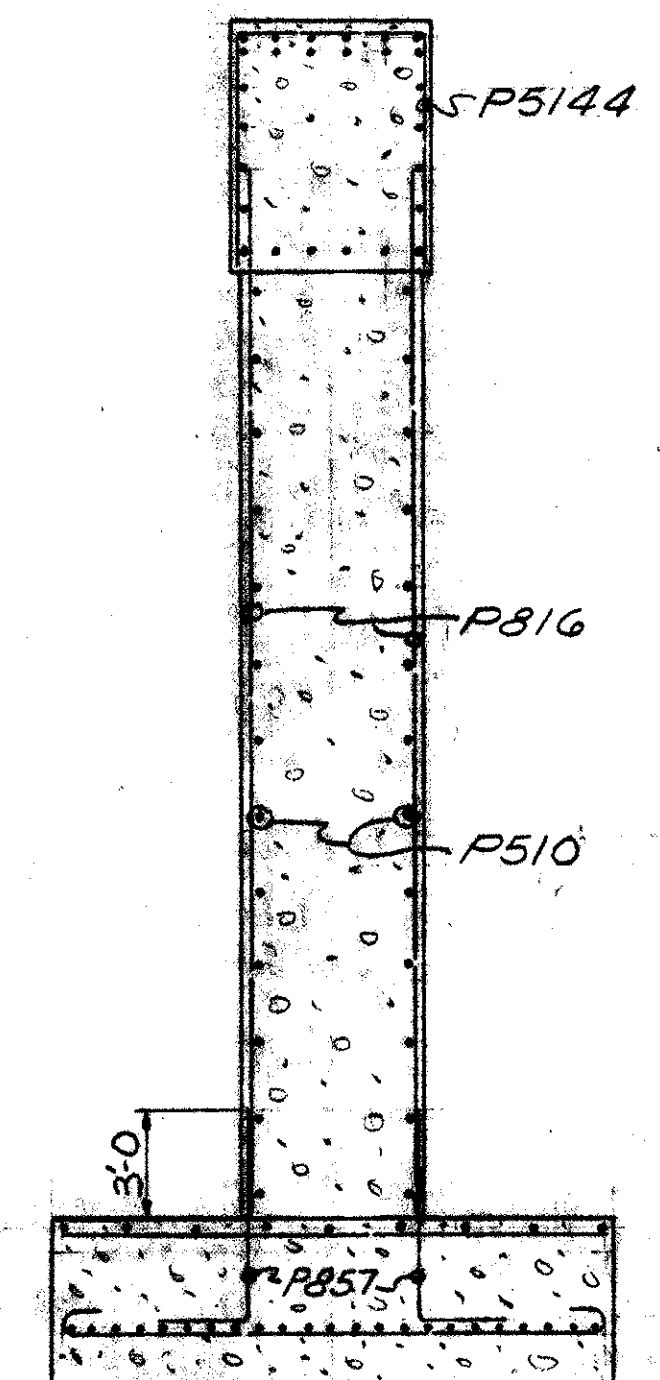
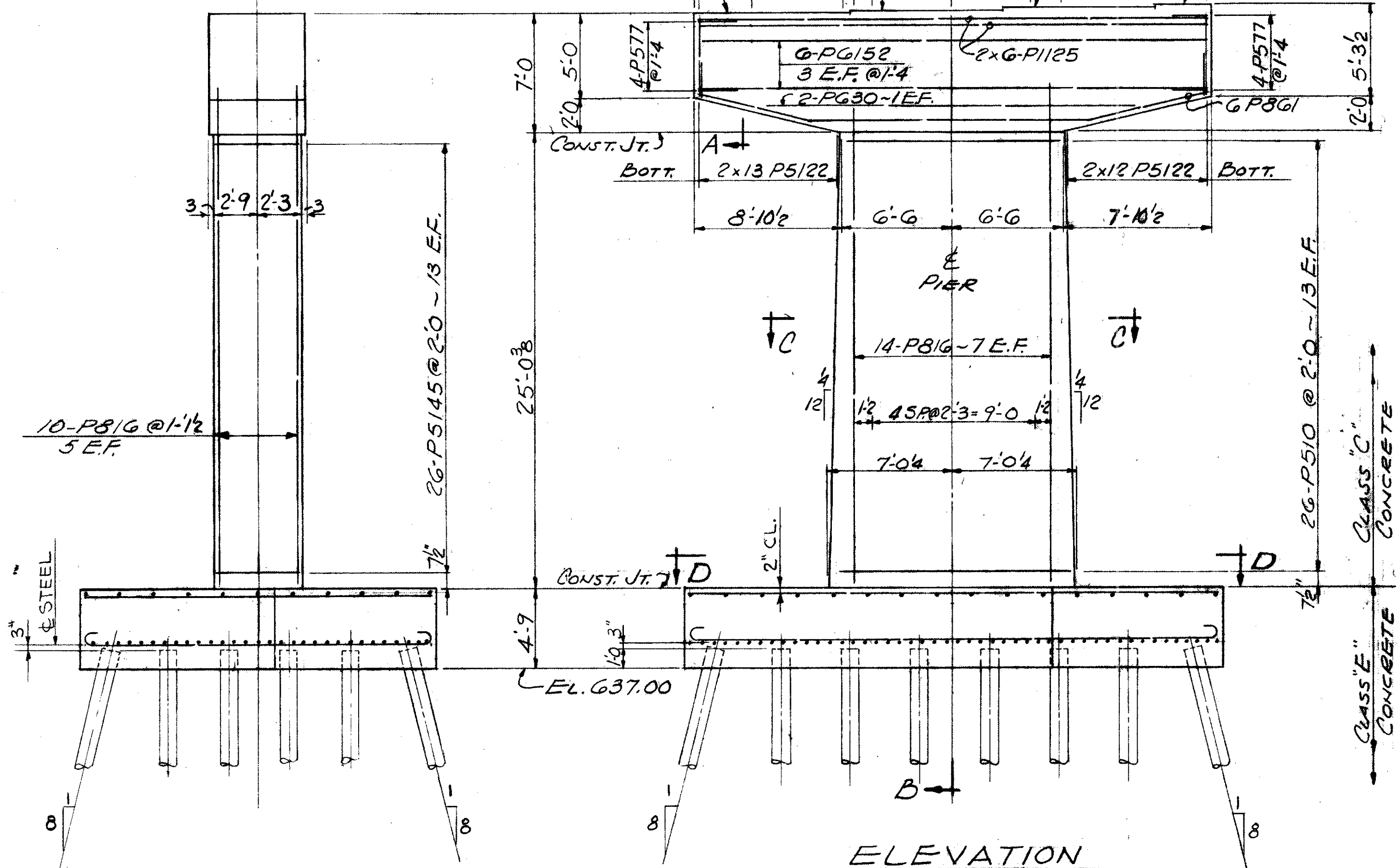
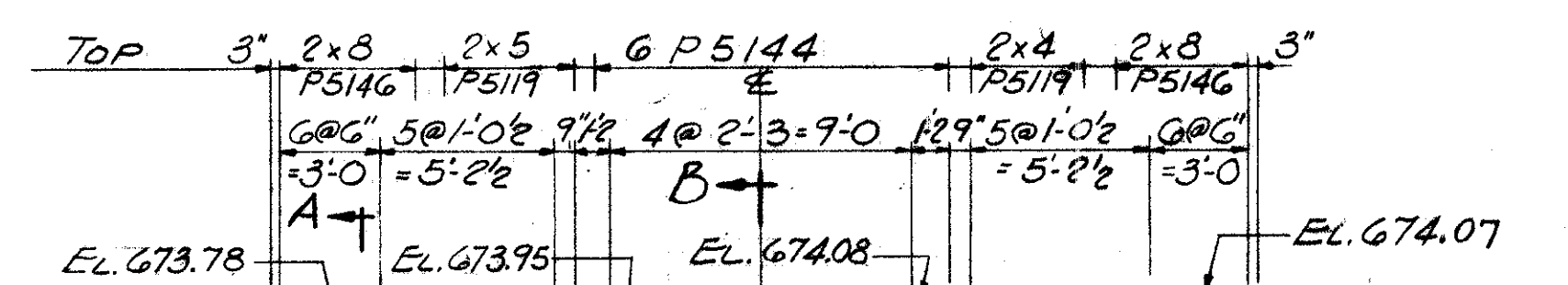
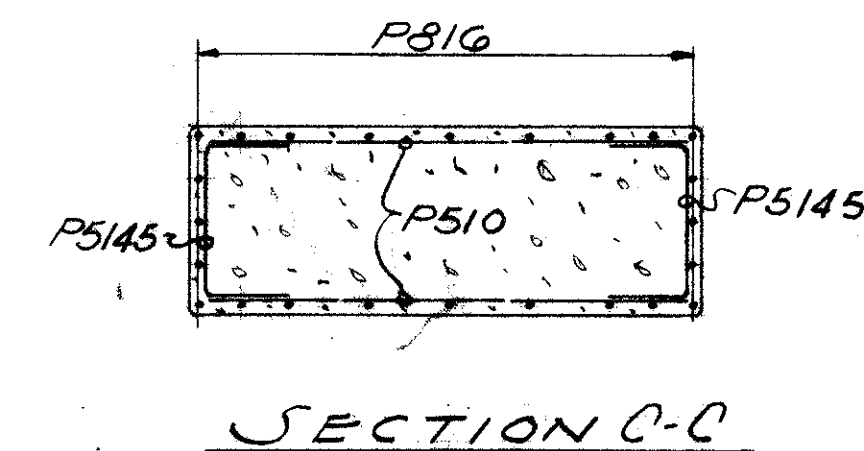
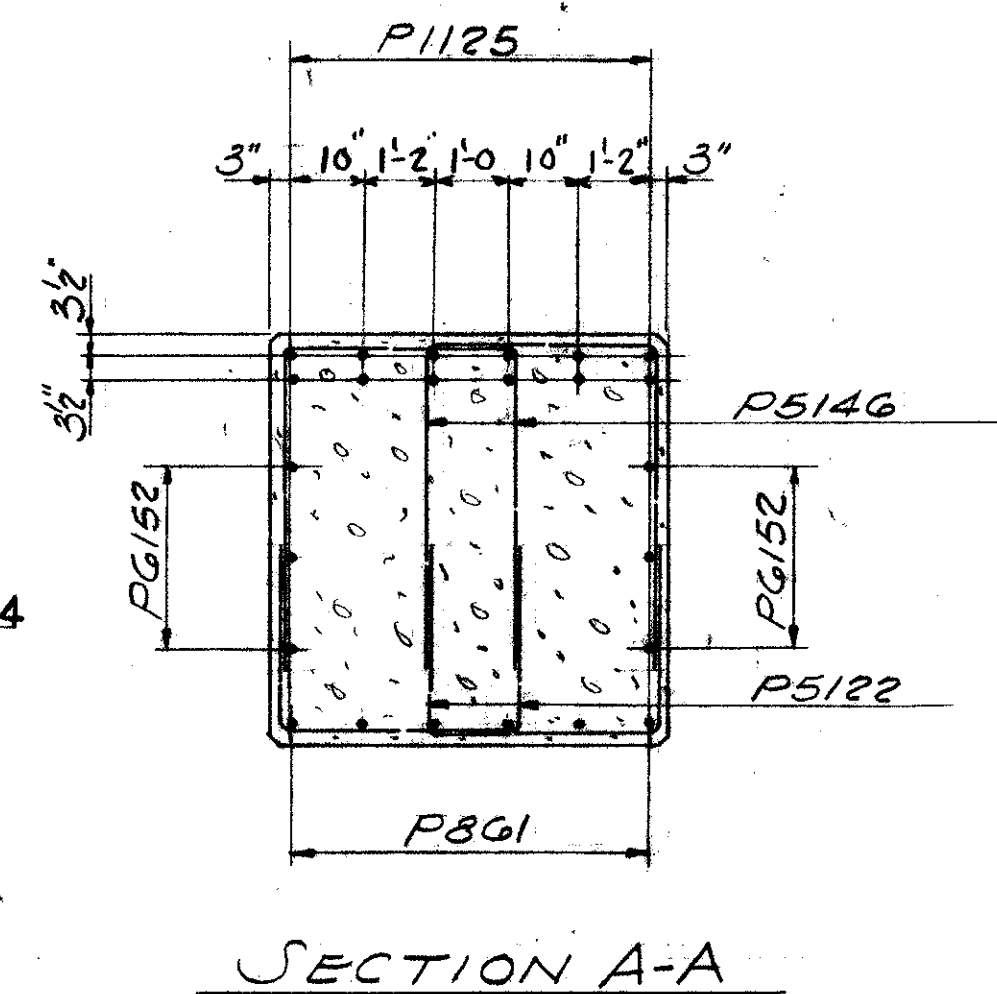
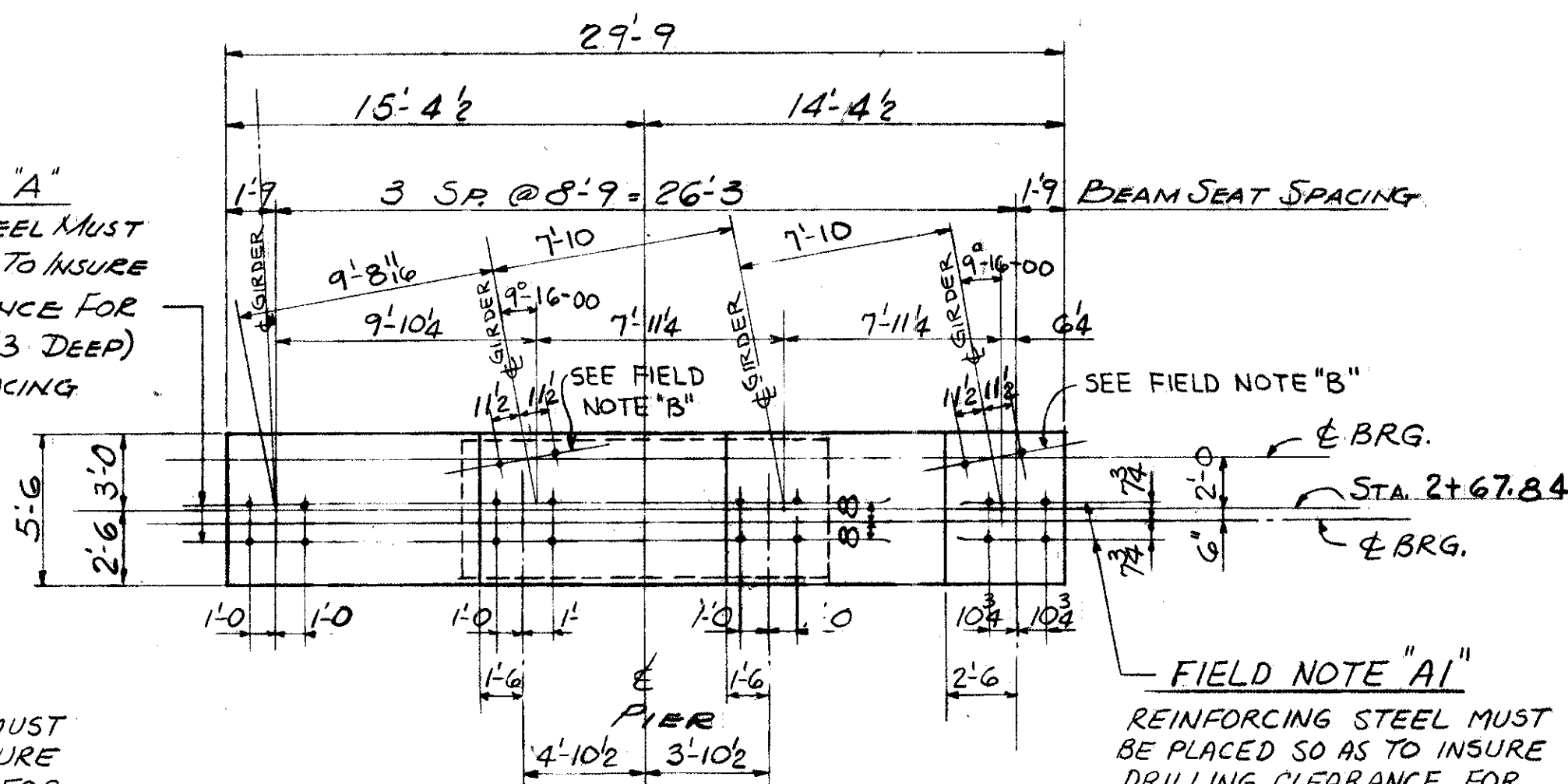
SCALE DATE
DESIGNED DRAWN TRACED CHECKED REVIEWED DATE REVISIONS
S.G.F. J.O. 08-7/2/62



FIELD NOTE "A"
REINFORCING STEEL MUST BE PLACED SO AS TO INSURE DRILLING CLEARANCE FOR 1/4" ANCHOR RODS (1'-3" DEEP) ADJUST STIRRUP SPACING LOCALLY TO SUIT.

FIELD NOTE "B"
REINFORCING STEEL MUST BE PLACED SO AS TO INSURE DRILLING CLEARANCE FOR 1/4" ANCHOR RODS (1'-0" DEEP)

FIELD NOTE "A1"
REINFORCING STEEL MUST BE PLACED SO AS TO INSURE DRILLING CLEARANCE FOR 1/4" ANCHOR RODS (1'-7" DEEP) ADJUST STIRRUP SPACING LOCALLY TO SUIT.



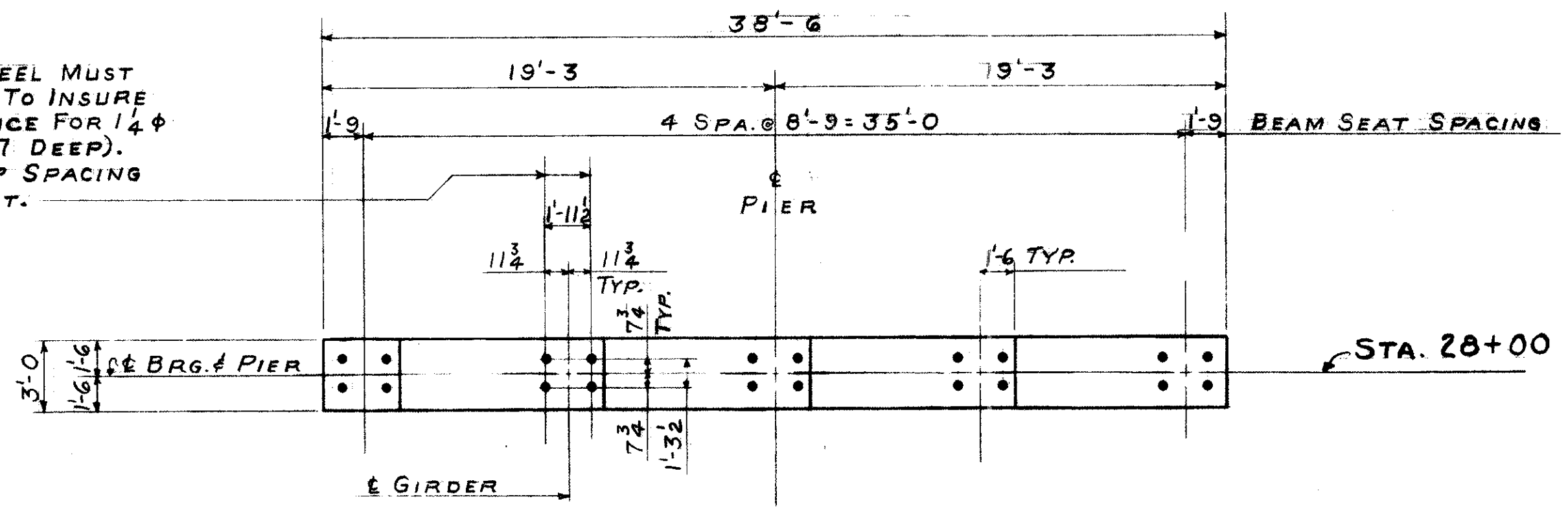
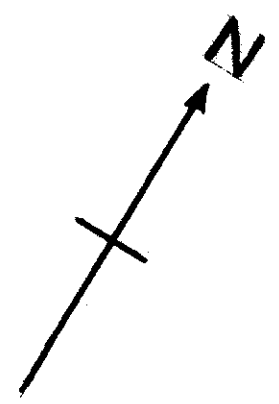
REFERENCE DRAWINGS
SUBSTRUCTURE LAYOUT - DWG. 57
PILE PLAN - DWG. 60
BAR SCHEDULE - DWGS 97, 98, 99
GENERAL NOTES - DWG. 56

TRYGVE HOFF & ASSOCIATES
ENGINEERS
1922 EAST 107TH STREET CLEVELAND, OHIO

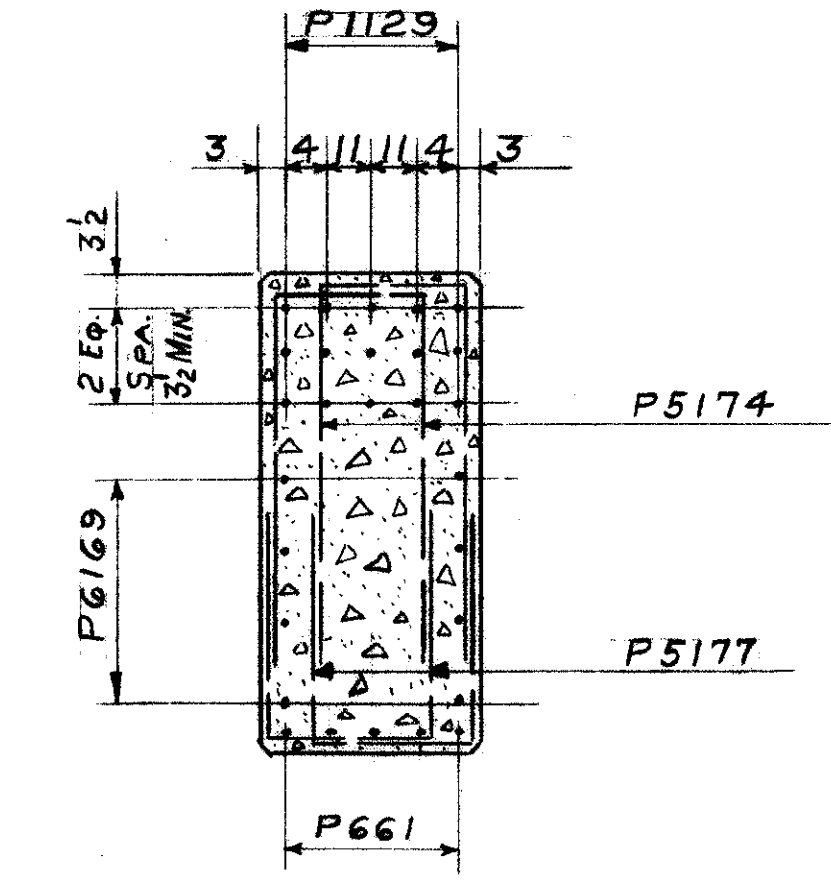
PIER DETAILS
BRIDGE NO. CUY-21-14.55
N-E & N-W RAMP OVER KINGSBURY RUN
CUYAHOGA COUNTY U.S.R. 21
STA. 2+67.84

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISION
CAT			RY	DB	7/2/84	

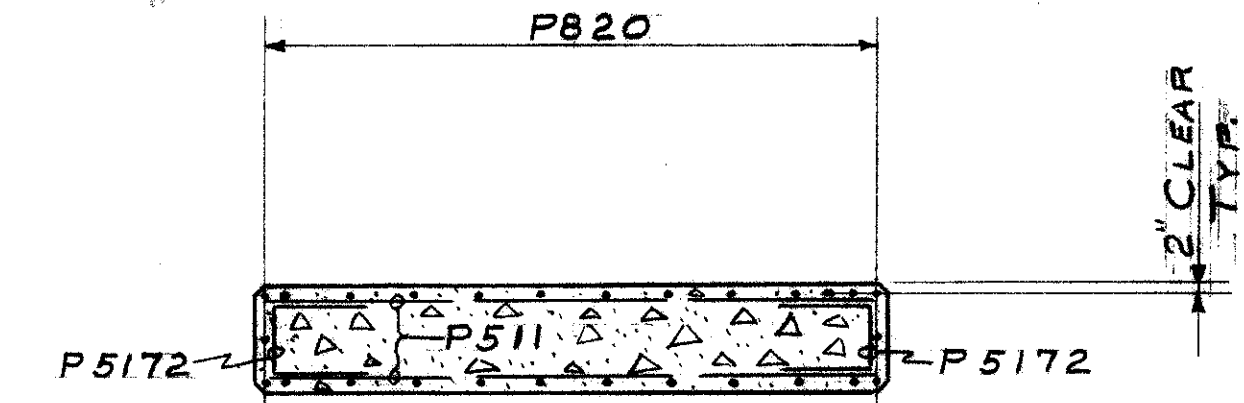
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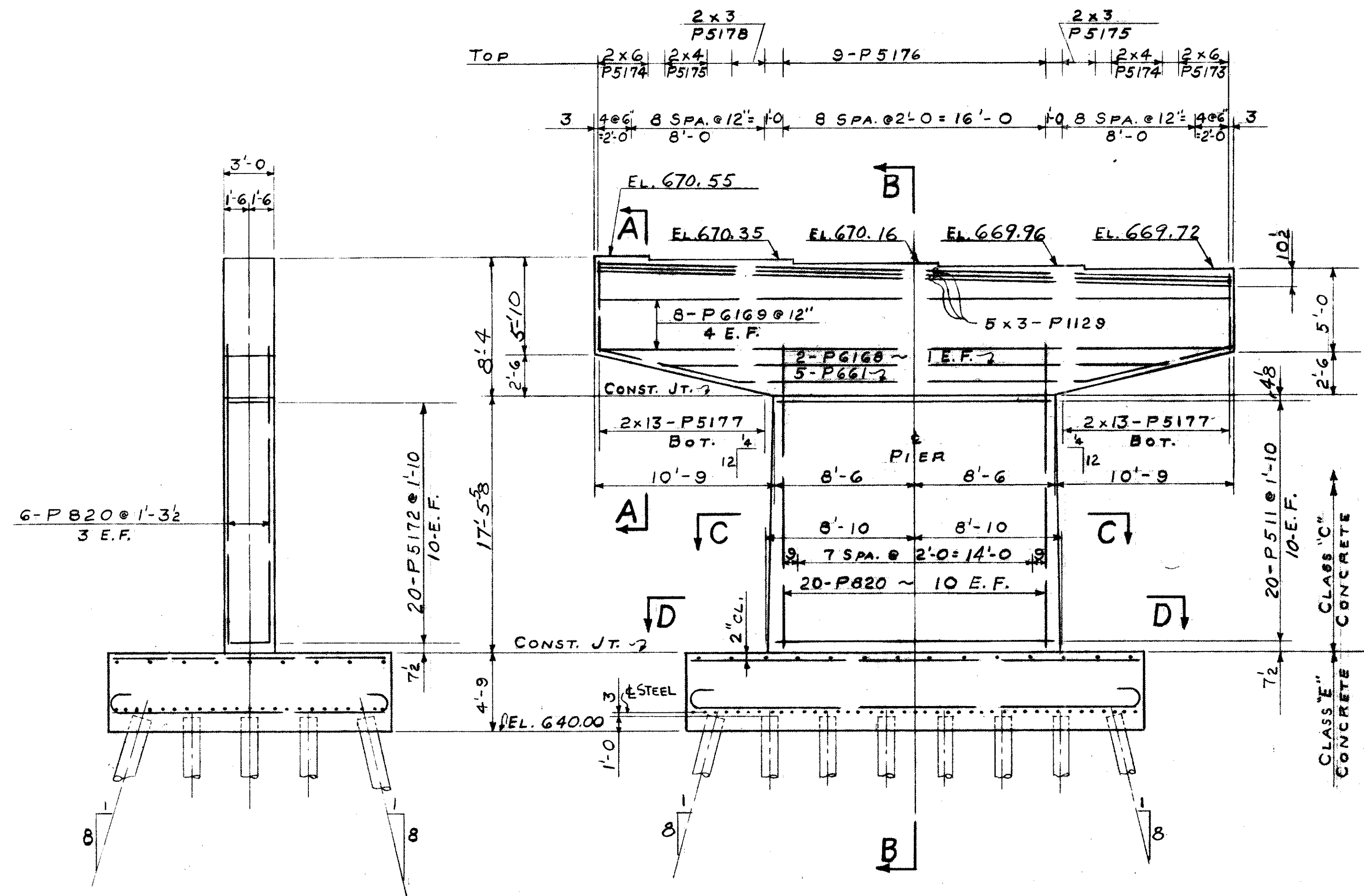
PLAN



SECTION "A-A"

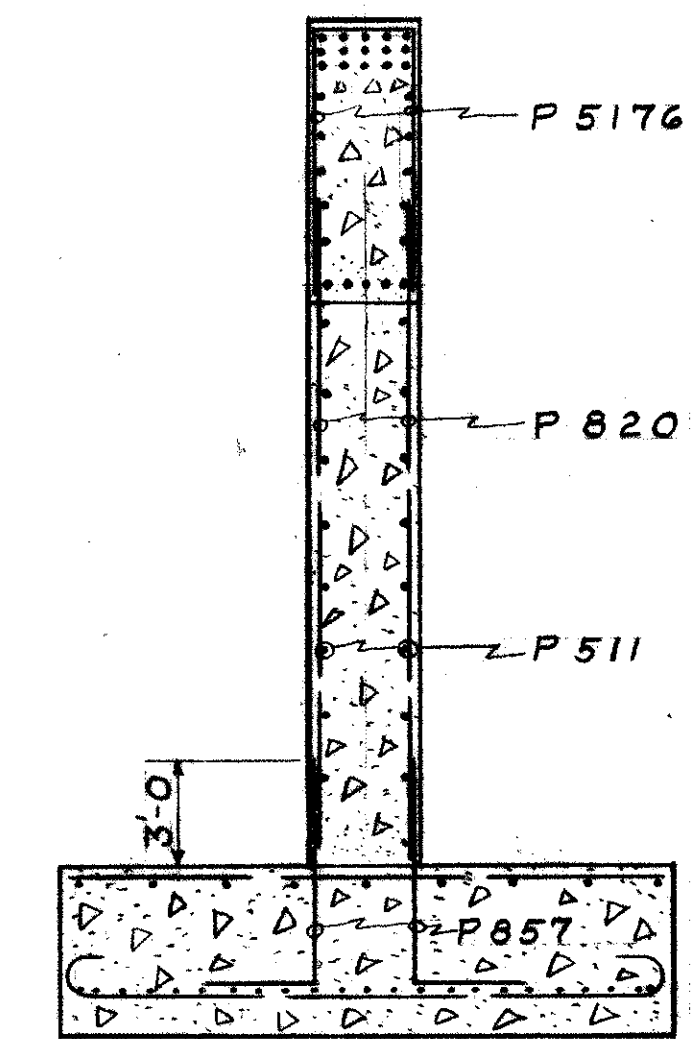


SECTION "C-C"

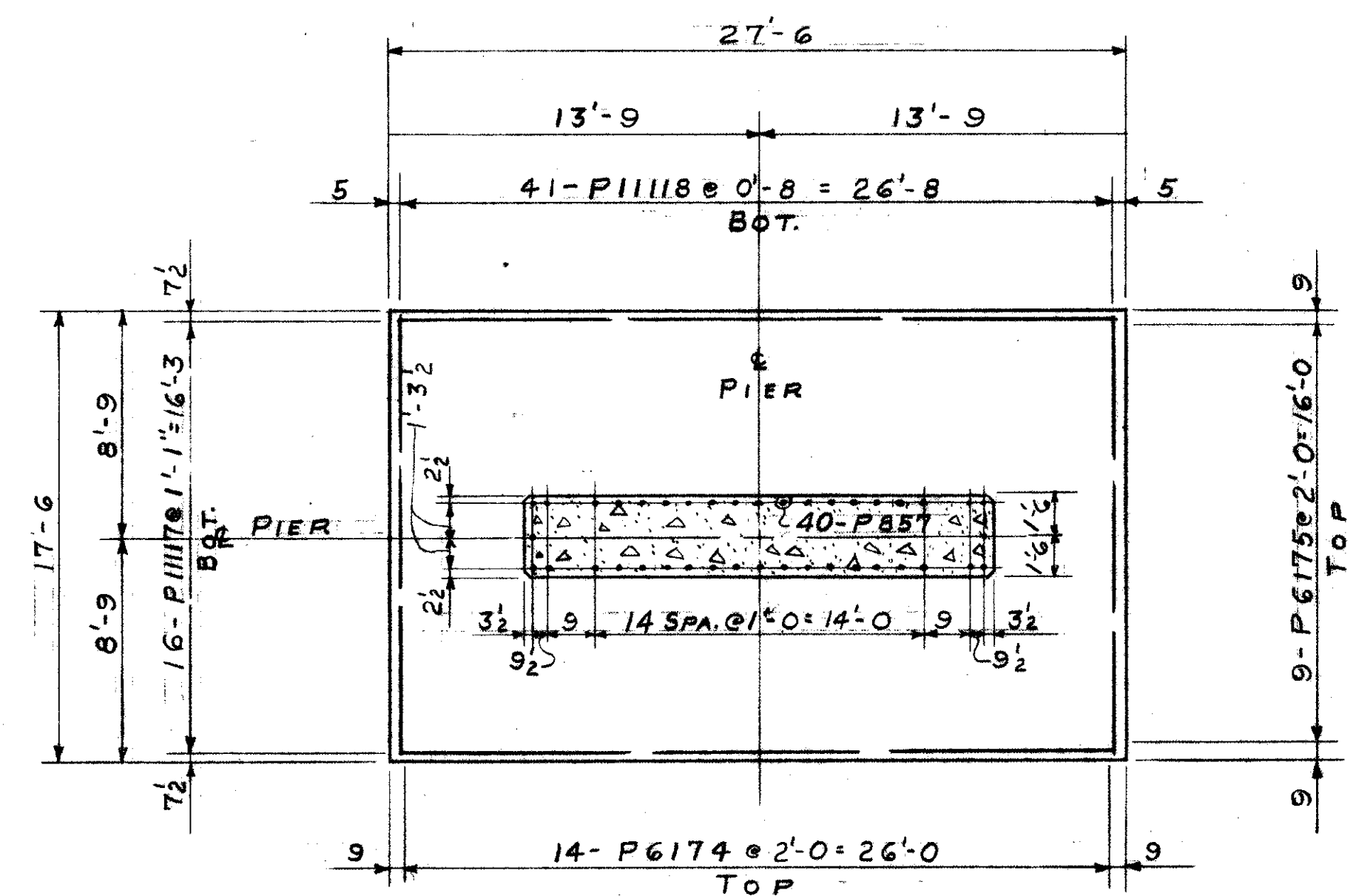


ELEVATION PIER AT

STA. 28+00 ON W-N & E-N RAMP



SECTION "B-B"

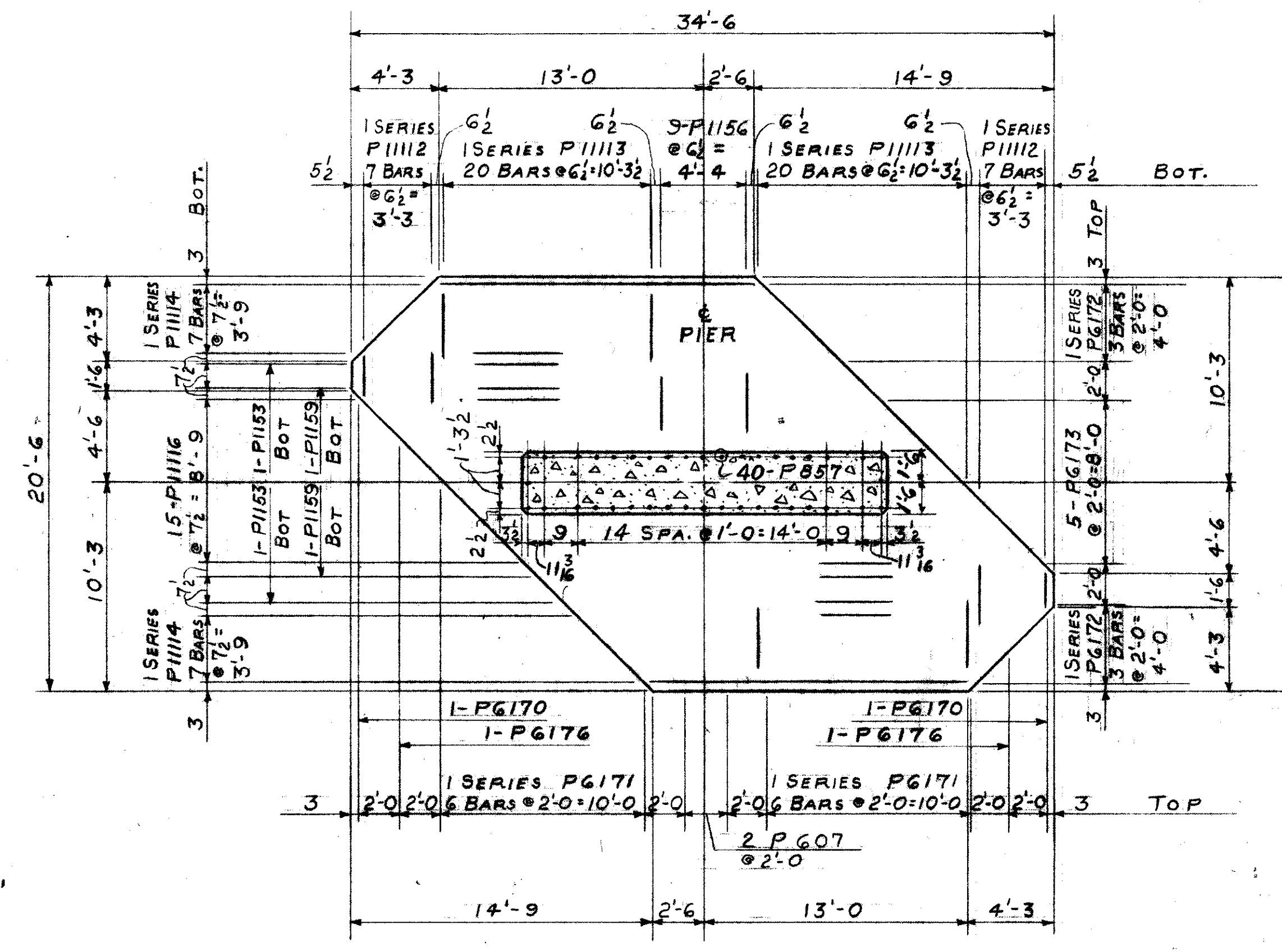
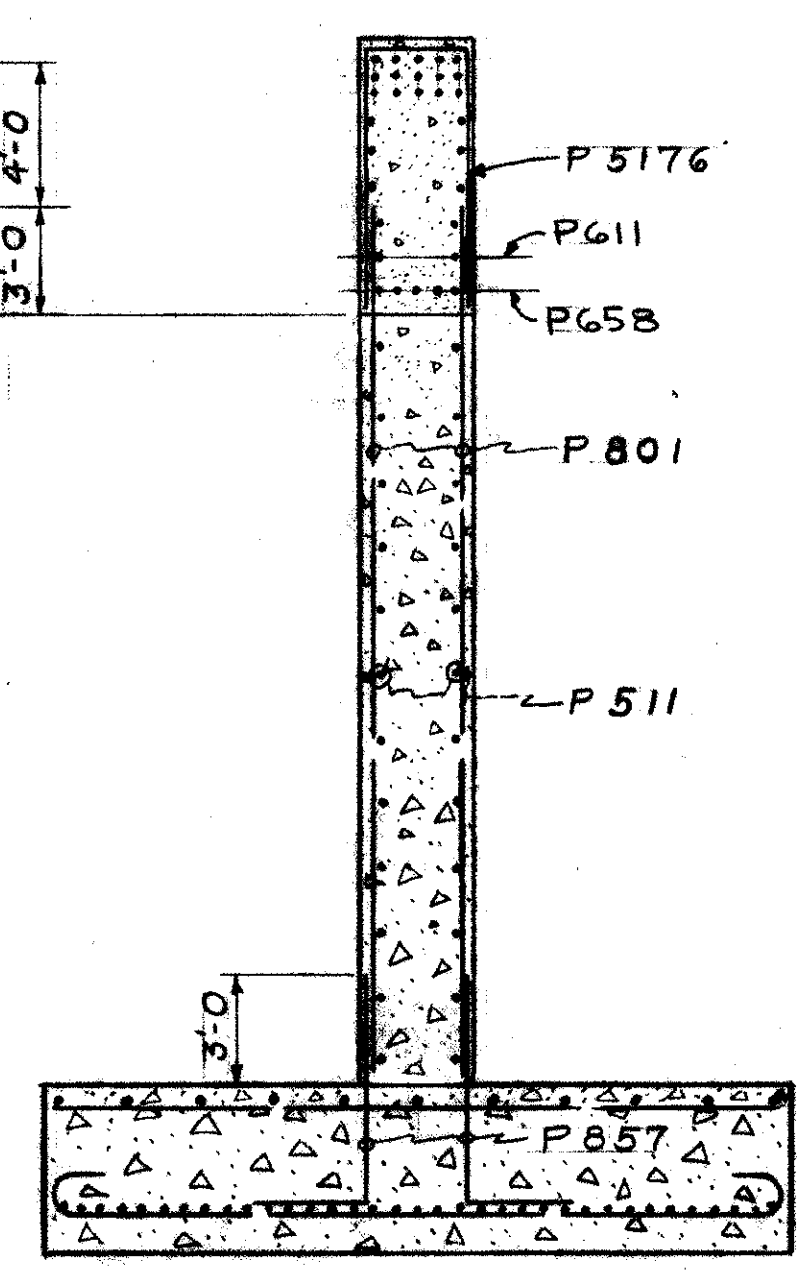
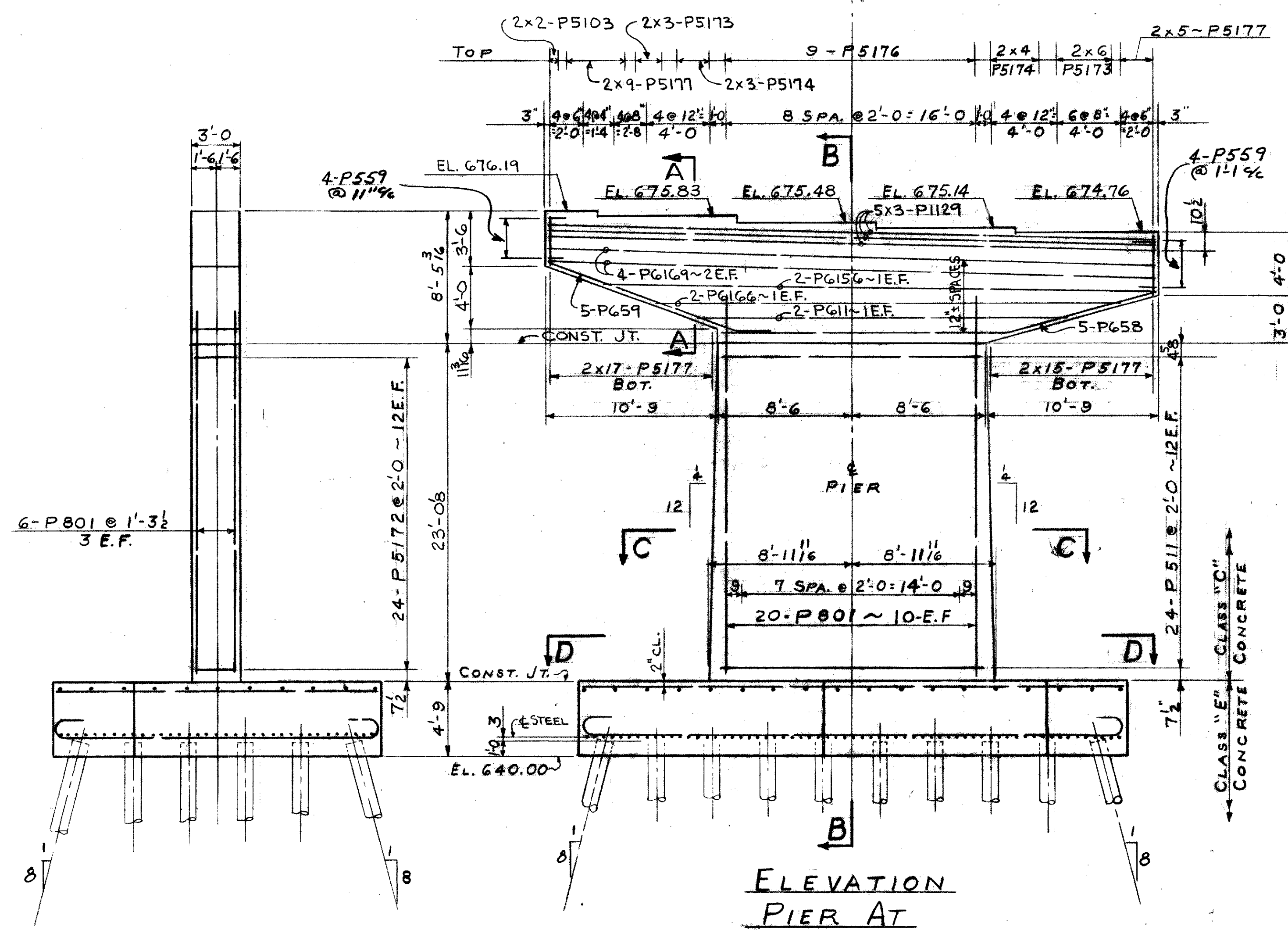
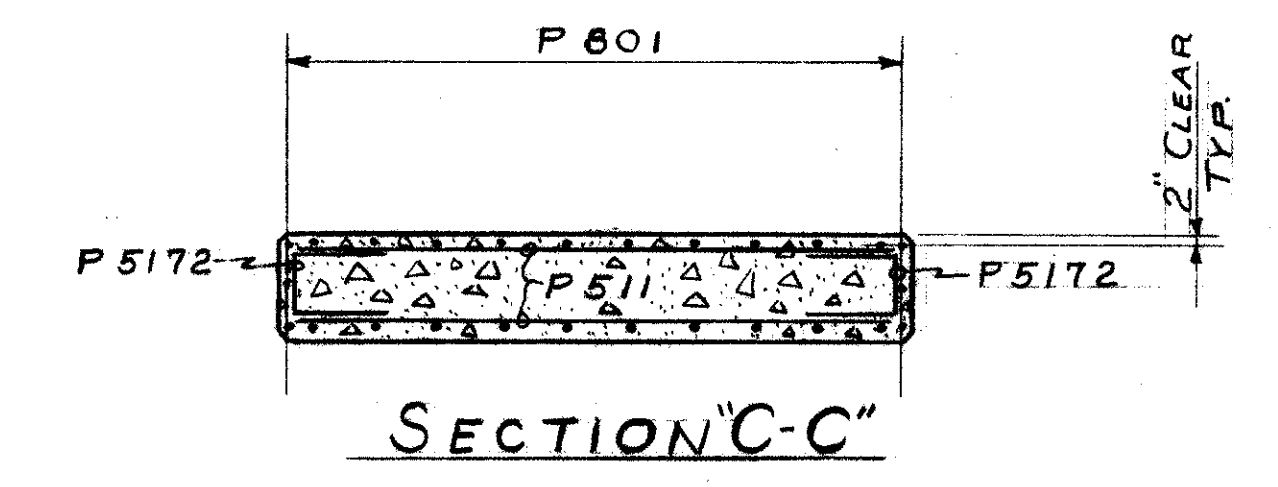
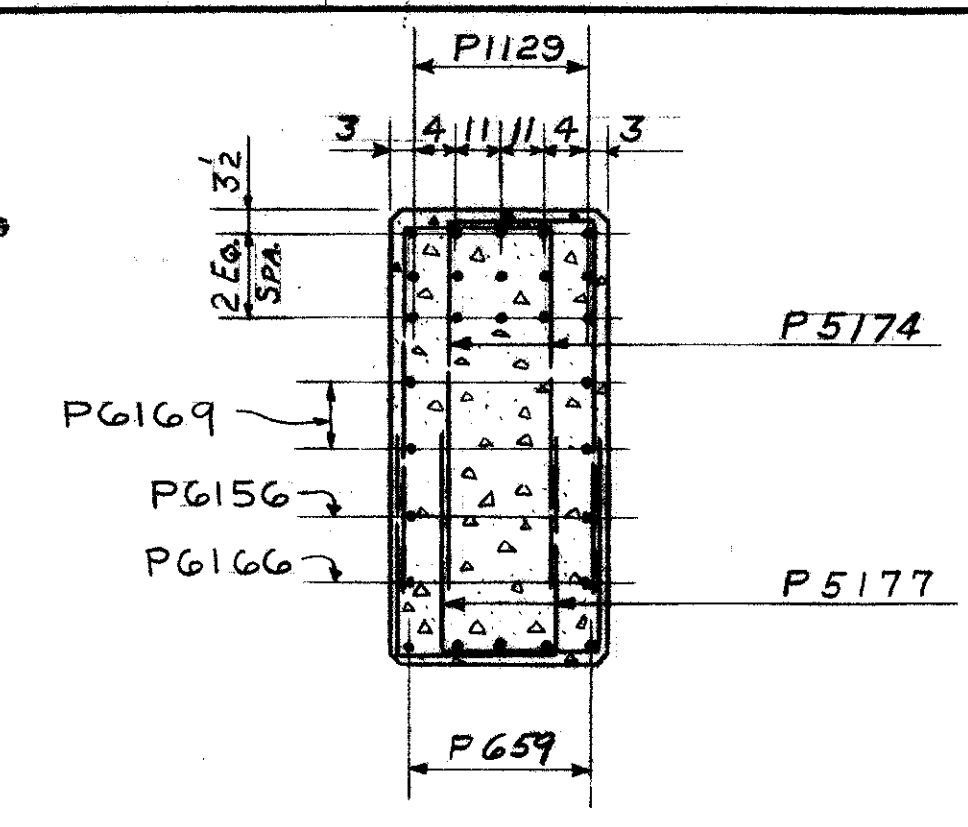
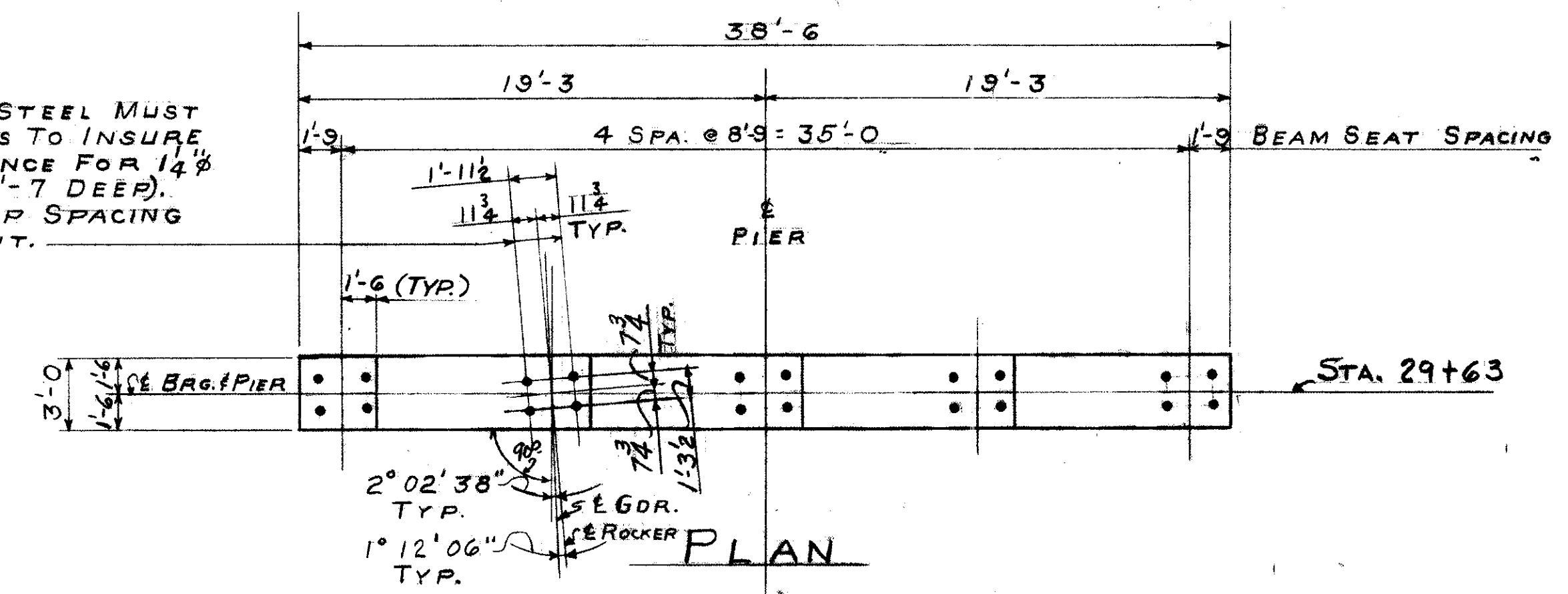


SECTION "D-D"

REFERENCE DRAWINGS
SUBSTRUCTURE LAYOUT - DWG. 57
PILE PLAN - DWG. 60
BAR SCHEDULE - DWGS 97, 98, 99
GENERAL NOTES - DWG. 56

TRYGVE HOFF & ASSOCIATES ENGINEERS 1922 EAST 107TH STREET CLEVELAND, OHIO					
PIER DETAILS					
BRIDGE NO. CUY-21-14.55			WILLOW FREEWAY OVER KINGSBURY RUN		
CUYAHOGA COUNTY U.S.R. 21			STA. 28+00 ON W-N & E-N RAMP		
SCALE					
DESIGNED	DRAWN	TRACED	CHECKED	DATE	REVIEWED
RJB	RJB	RJB	RJB	7/2/69	RJB

FIELD NOTE "A"
REINFORCING STEEL MUST BE PLACED SO AS TO INSURE DRILLING CLEARANCE FOR 1/4" ANCHOR RODS (1'-7" DEEP). ADJUST STIRRUP SPACING LOCALLY TO SUIT.

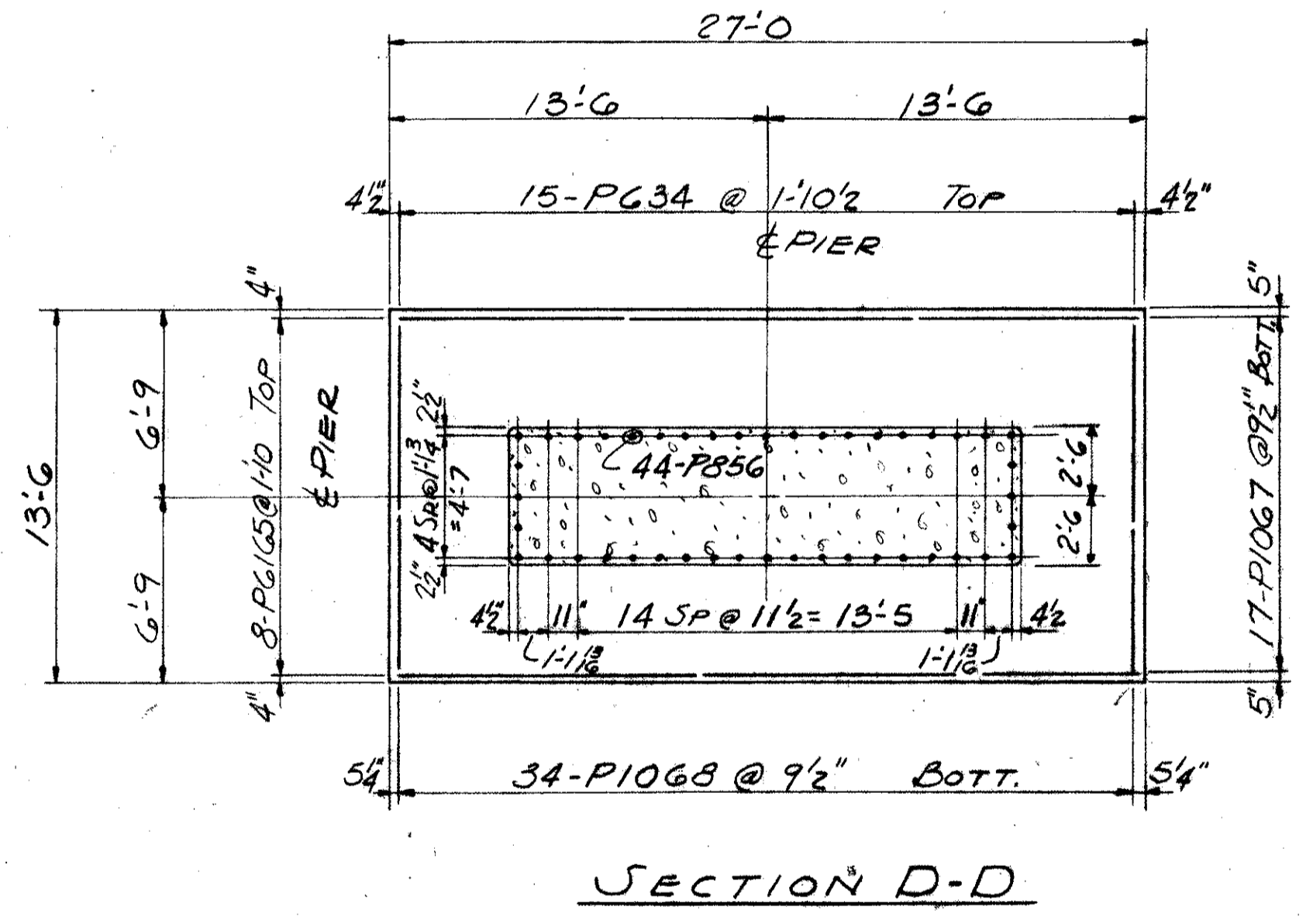
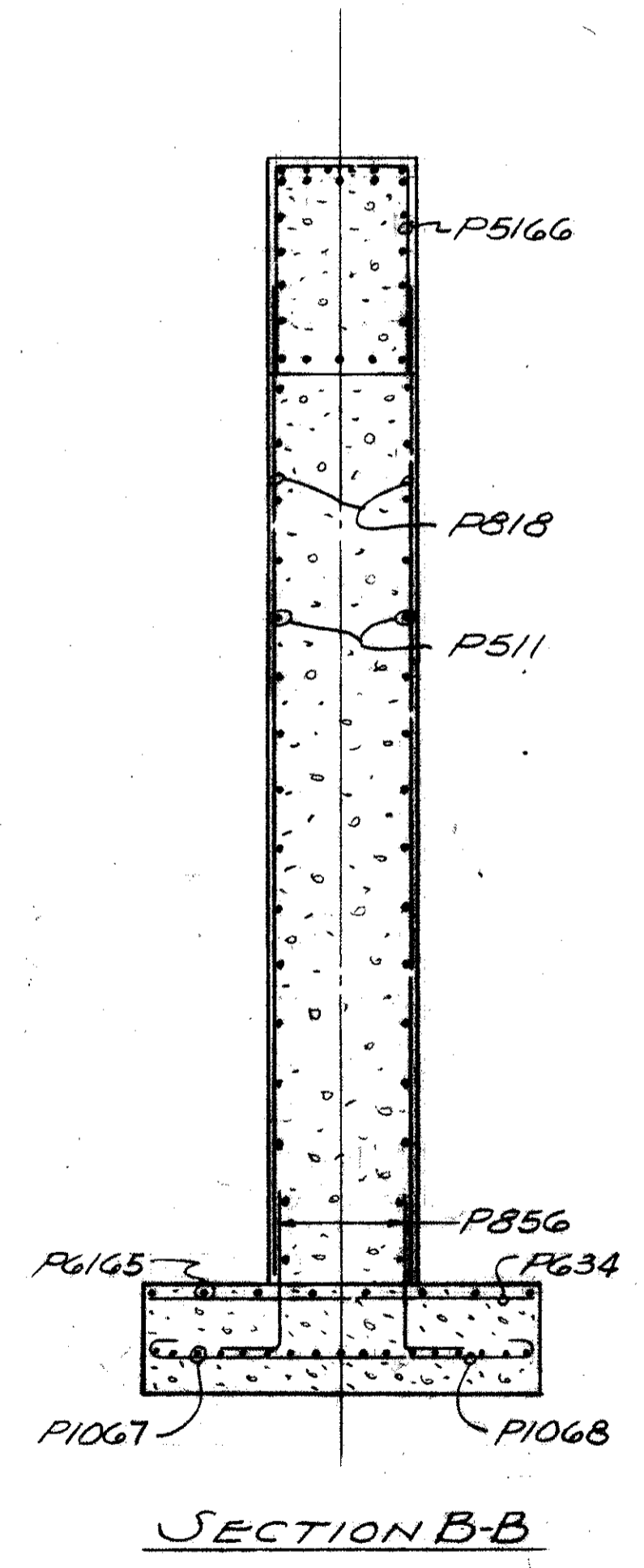
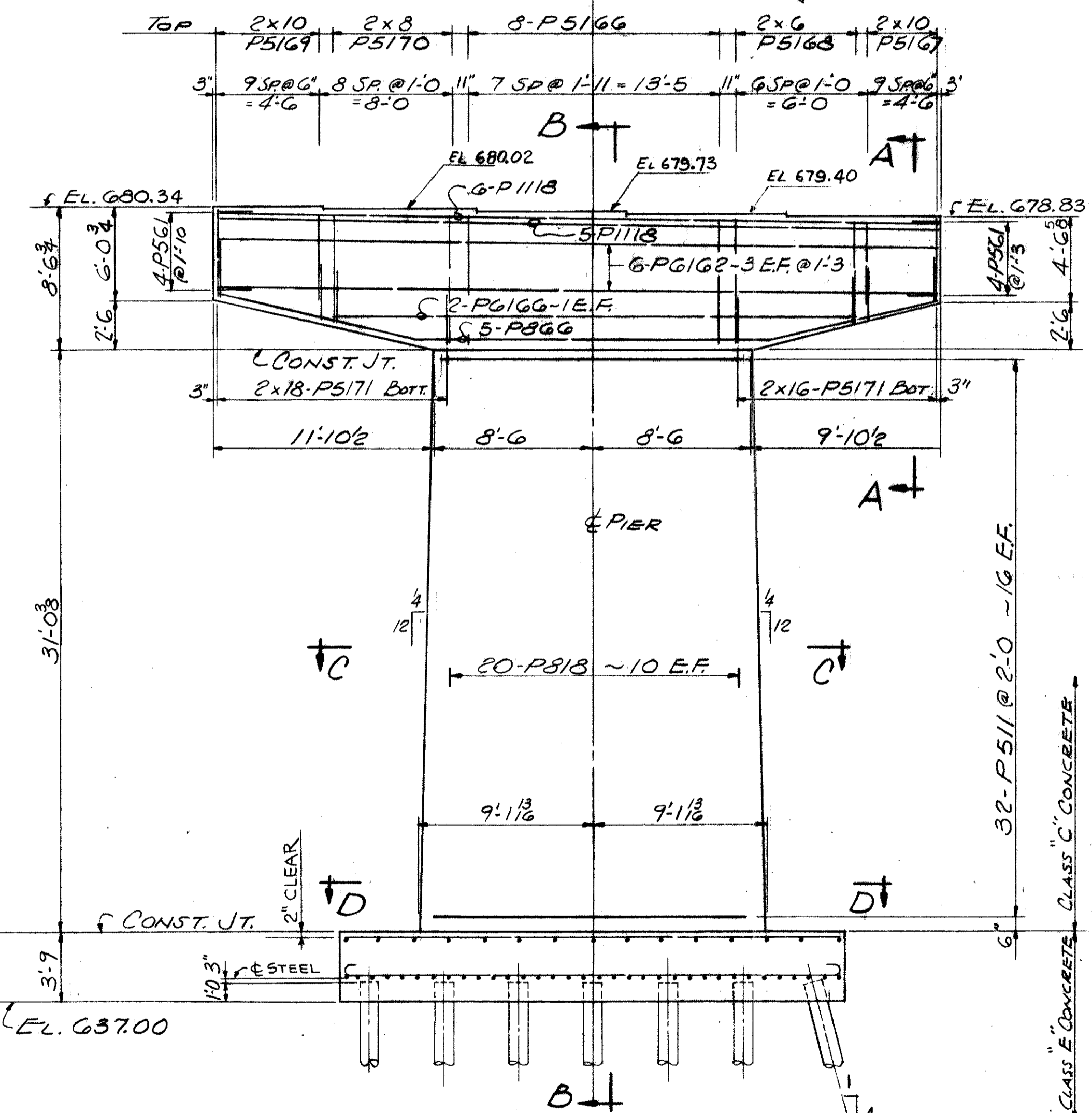
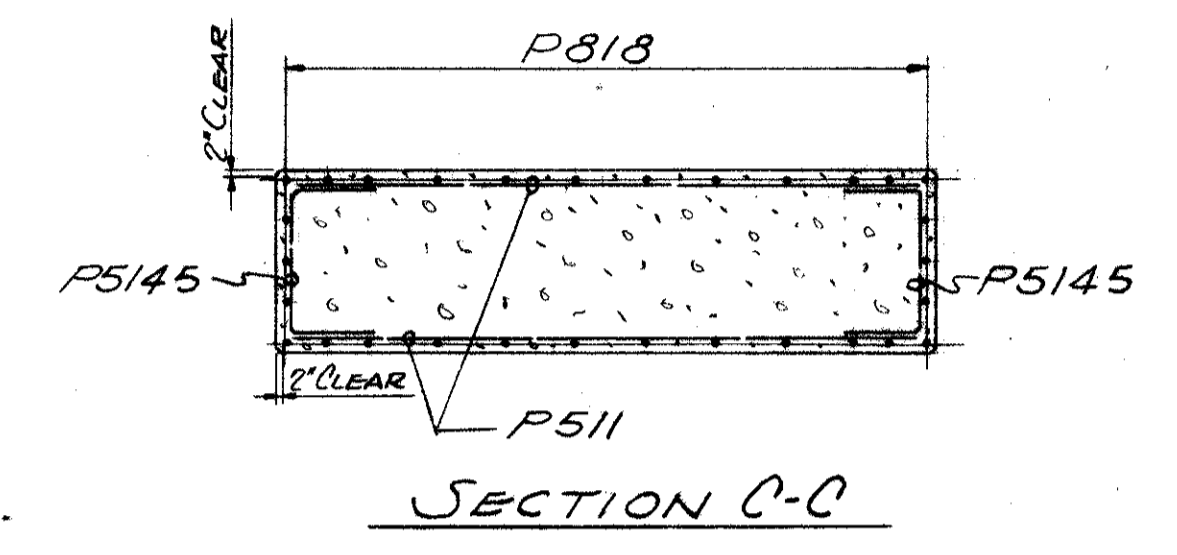
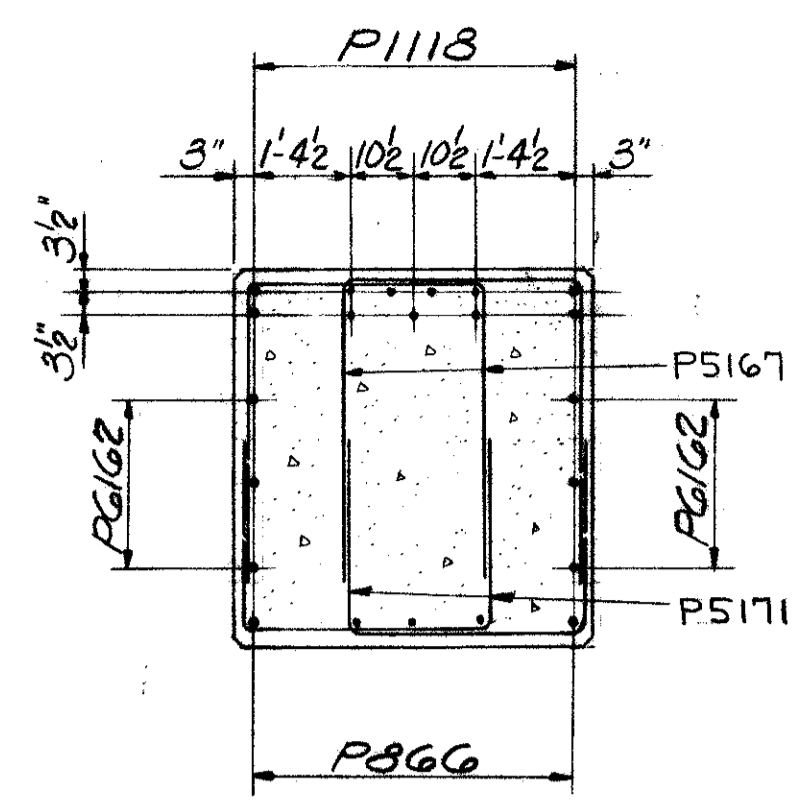
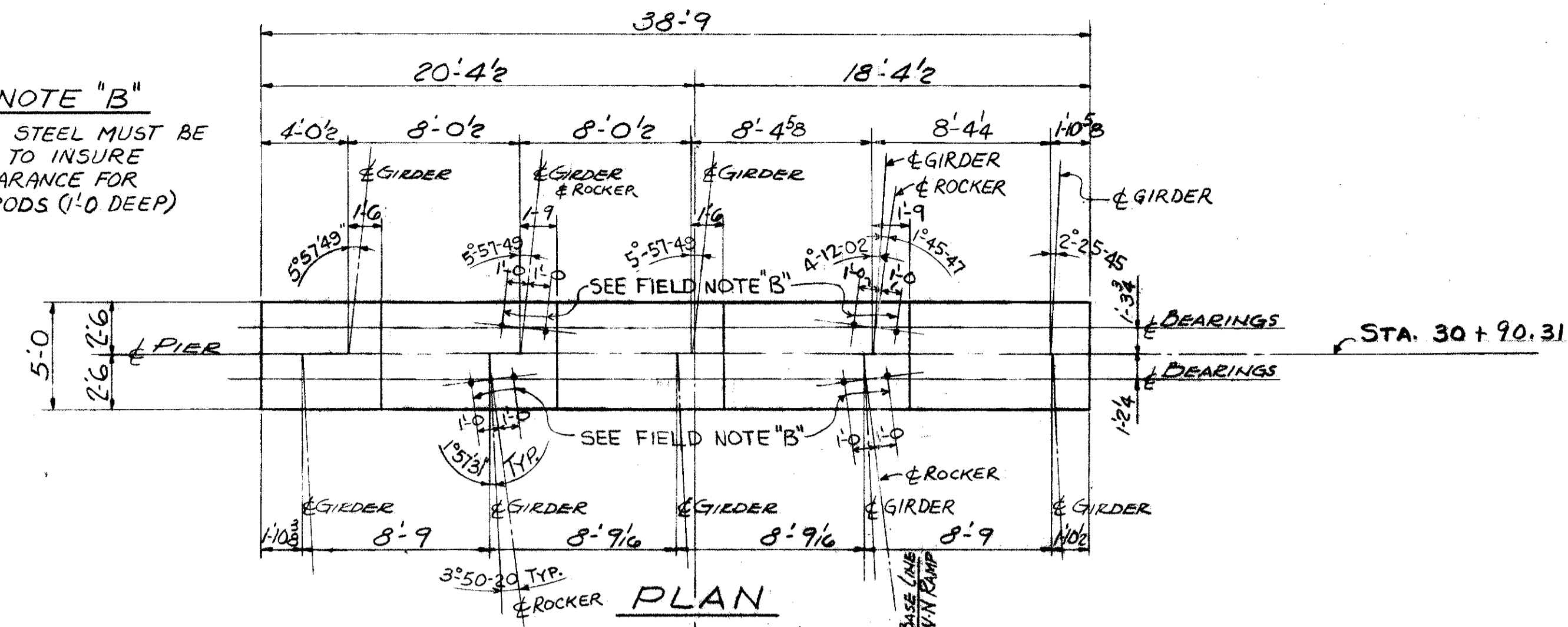
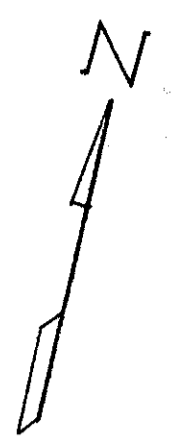


SECTION D-D

REFERENCE DRAWINGS
SUBSTRUCTURE LAYOUT - DWG. 57
PILE PLAN - DWG. 60
BAR SCHEDULE - DWG'S 97, 98, 99
GENERAL NOTES - DWG. 56

TRYGVE HOFF & ASSOCIATES ENGINEERS 1922 EAST 107TH STREET CLEVELAND, OHIO	
PIER DETAILS BRIDGE NO. CUY-21-14.55 WILLOW FREEWAY OVER KINGSBURY RUN CUYAHOGA COUNTY U.S.R. 21 STA. 29+63 ON W-N & E-N RAMP	
SCALE	DATE
DESIGNED	DRAWN
TRACED	CHECKED
REVIEWED	DATE
R.J.B.	R.L.K. 05 7/9/62

FIELD NOTE "B"
REINFORCING STEEL MUST BE PLACED SO AS TO INSURE DRILLING CLEARANCE FOR 1/4" ANCHOR RODS (1'-0" DEEP)



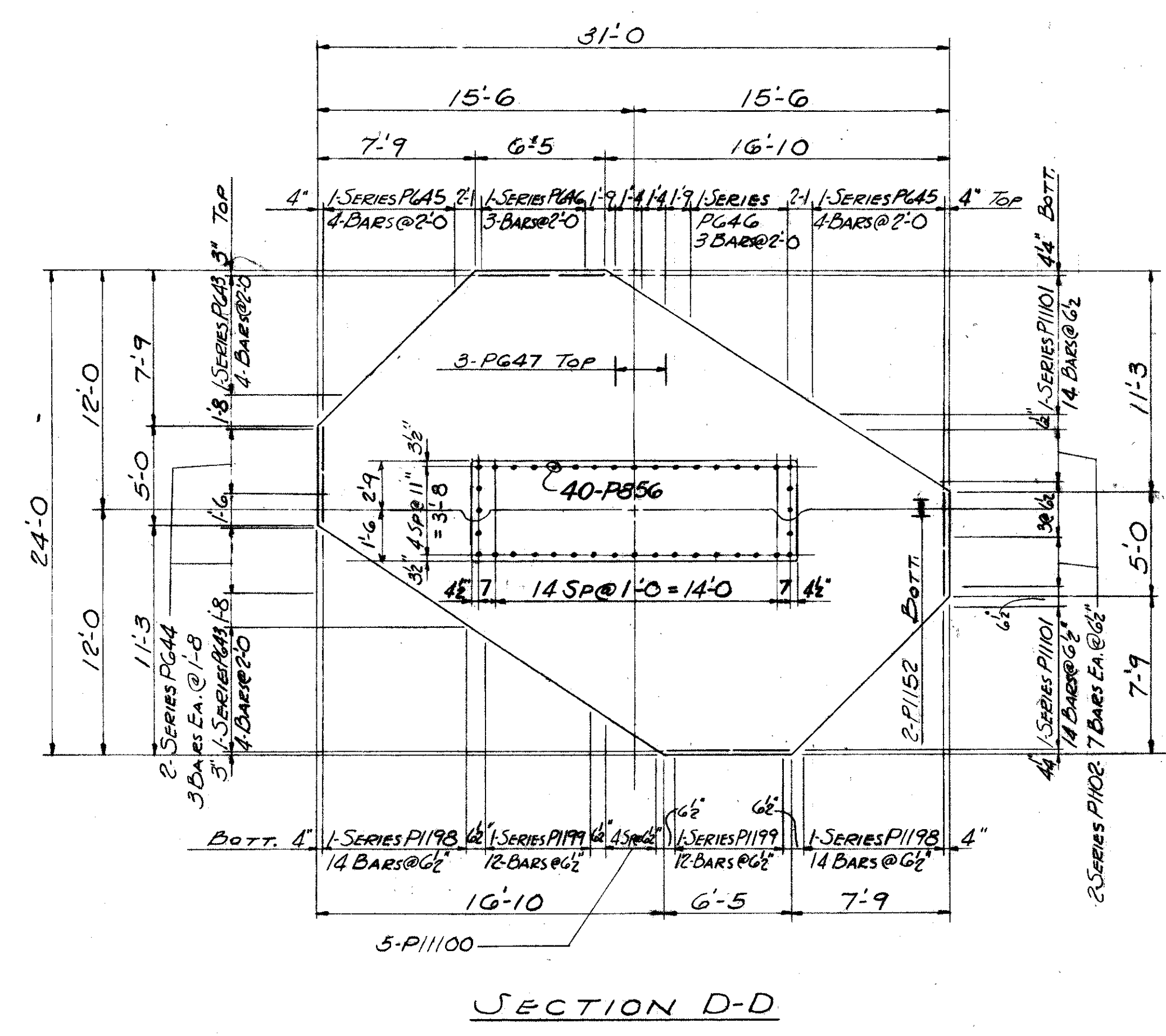
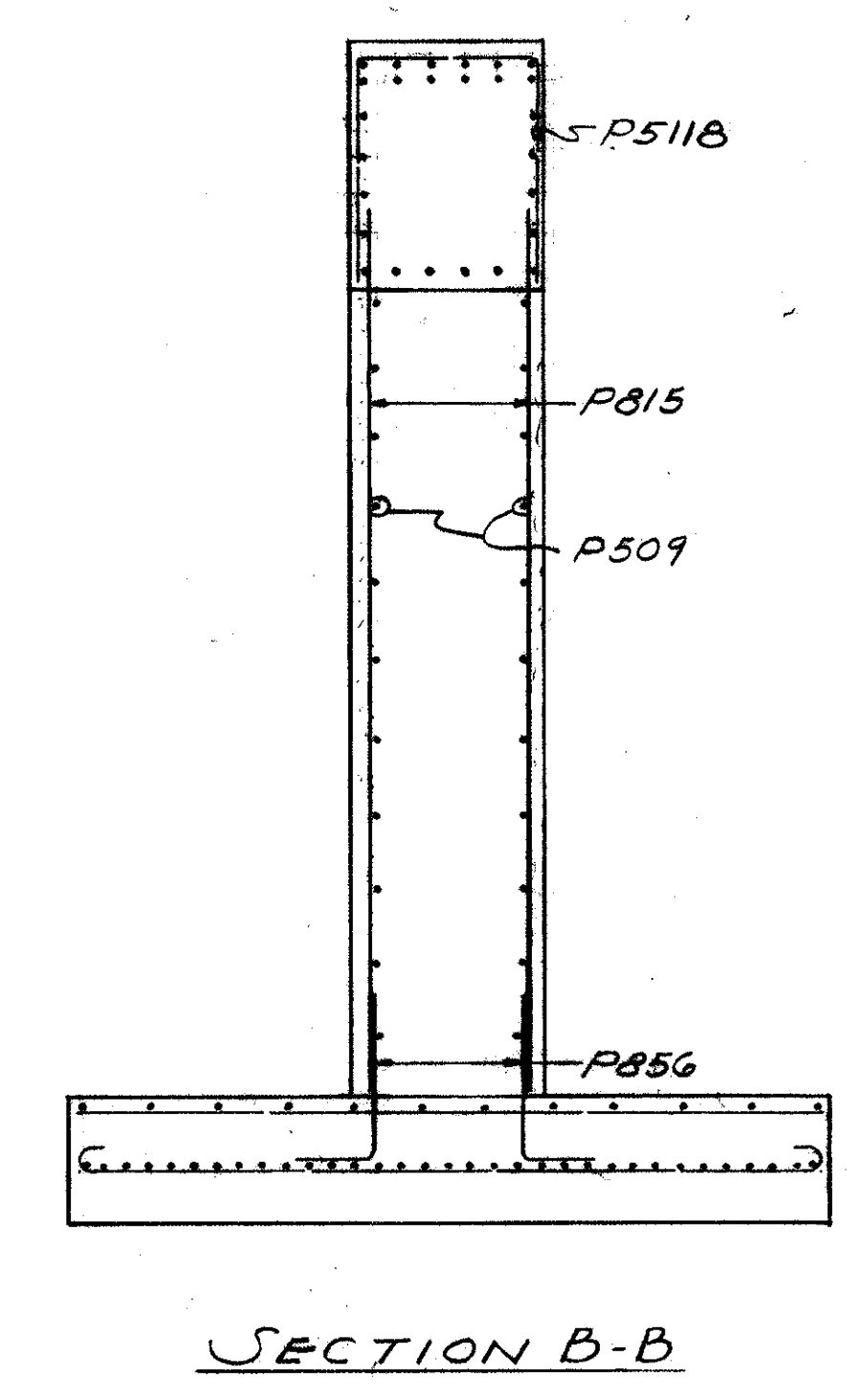
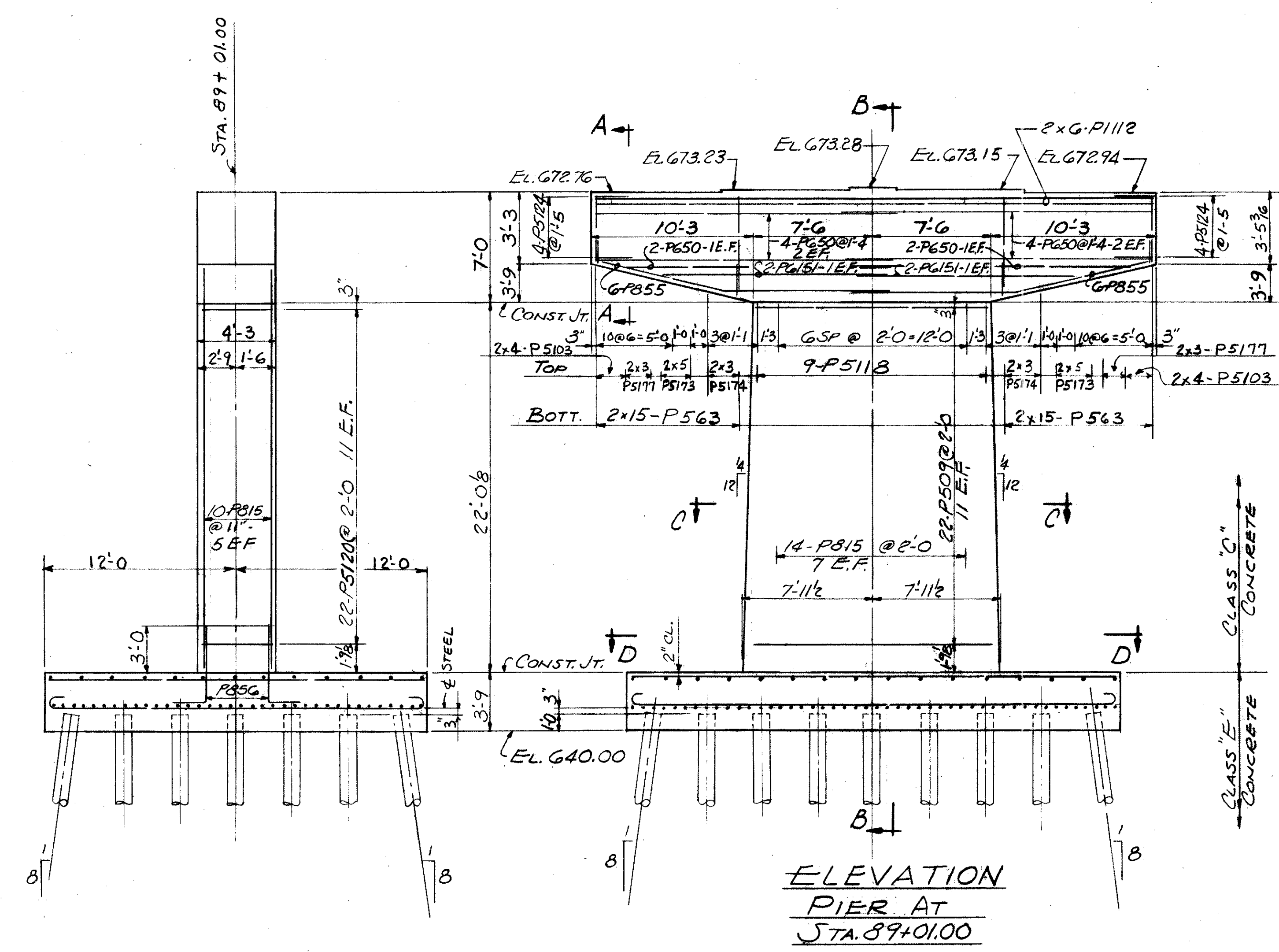
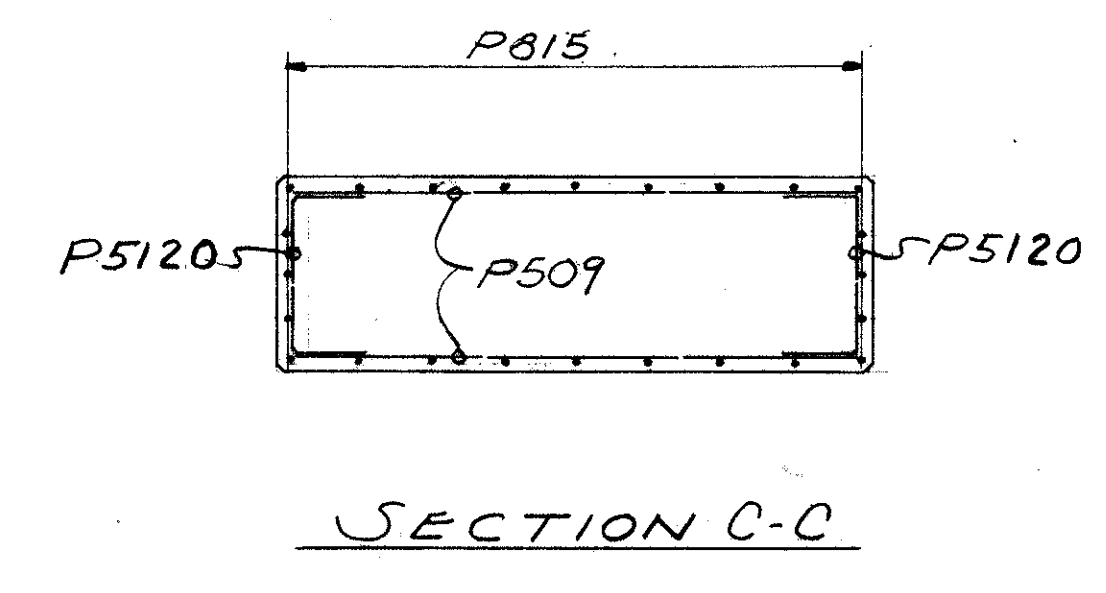
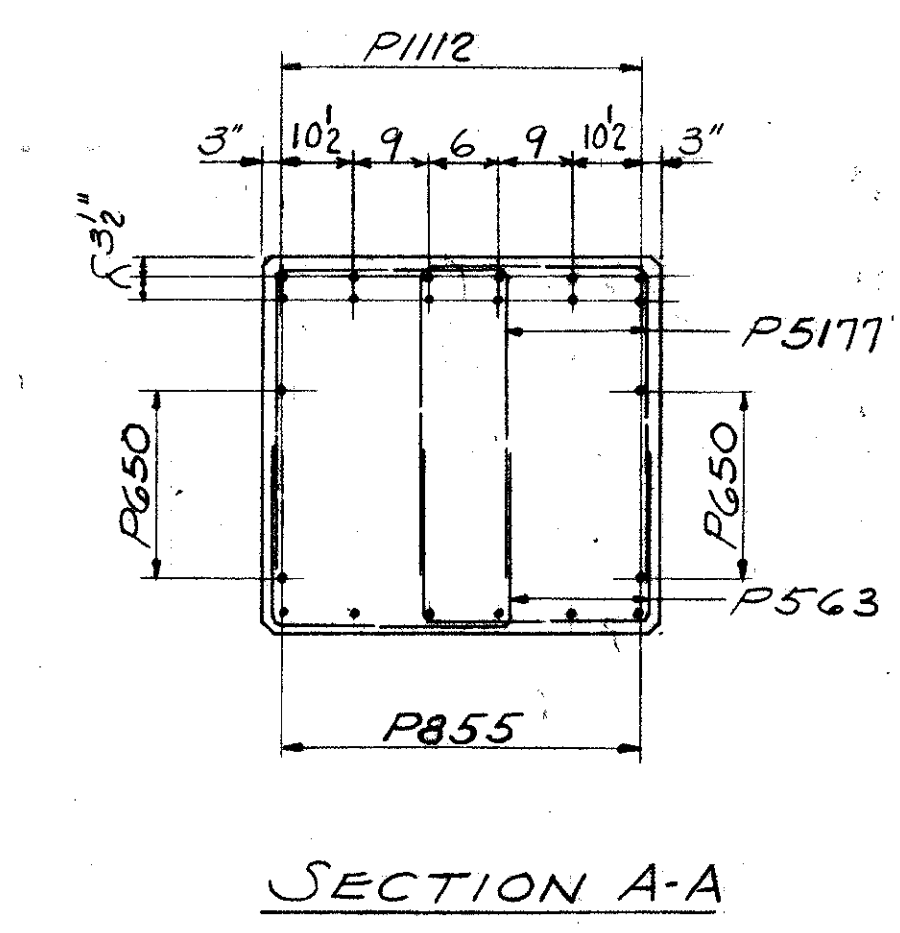
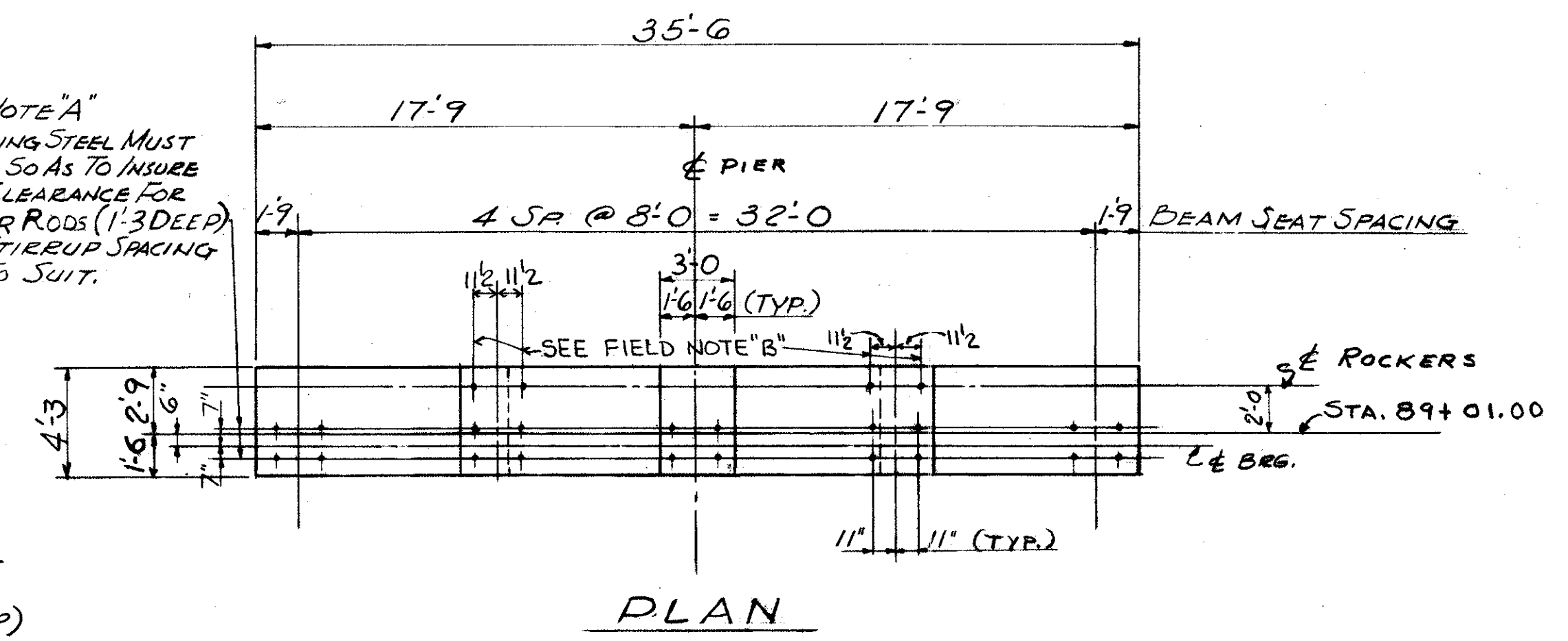
ELEVATION
PIER AT
STA. 30+90.31 EN & W-N RAMP

REFERENCE DRAWINGS
SUBSTRUCTURE LAYOUT - DWG. 57
PILE PLAN - DWG. 60
BAR SCHEDULE - DWG'S. 97, 98, 99
GENERAL NOTES - DWG. 56

TRYGVE HOFF & ASSOCIATES ENGINEERS 1922 EAST 107TH STREET CLEVELAND, OHIO					
PIER DETAILS BRIDGE NO. CUY-21-14.55 WILLOW FREEWAY OVER KINGSBURY RUN CUYAHOGA COUNTY U.S.R. 21 STA. 30+90.31 ON E-N & W-N RAMP					
SCALE	DATE				
DESIGNED	DRAWN	PLACED	CHECKED	REVIEWED	DATE
	CAT		RY	CS	7/2/62

FIELD NOTE "A"
REINFORCING STEEL MUST BE PLACED SO AS TO INSURE DRILLING CLEARANCE FOR 1/4" ANCHOR RODS (1'-3" DEEP). ADJUST STIRRUP SPACING LOCALLY TO SUIT.

FIELD NOTE "B"
REINFORCING STEEL MUST BE PLACED SO AS TO INSURE DRILLING CLEARANCE FOR 1/4" ANCHOR RODS (1'-0" DEEP).



REFERENCE DRAWINGS
SUBSTRUCTURE LAYOUT - DWG. 57
PILE PLAN - DWG. 60
BAR SCHEDULE - DWG'S 97, 98, 99
GENERAL NOTES - DWG. 56

TRYGVE HOFF & ASSOCIATES ENGINEERS 1922 EAST 107TH STREET CLEVELAND, OHIO					
PIER DETAILS					
BRIDGE NO.			CUY-21-14.55		
WILLOW FREEWAY OVER KINGSBURY RUN					
CUYAHOGA COUNTY U.S.R. 21					
STA. 89+01.00					
SCALE	DATE				
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE
CAT.			RIY	CS	7/2/62

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

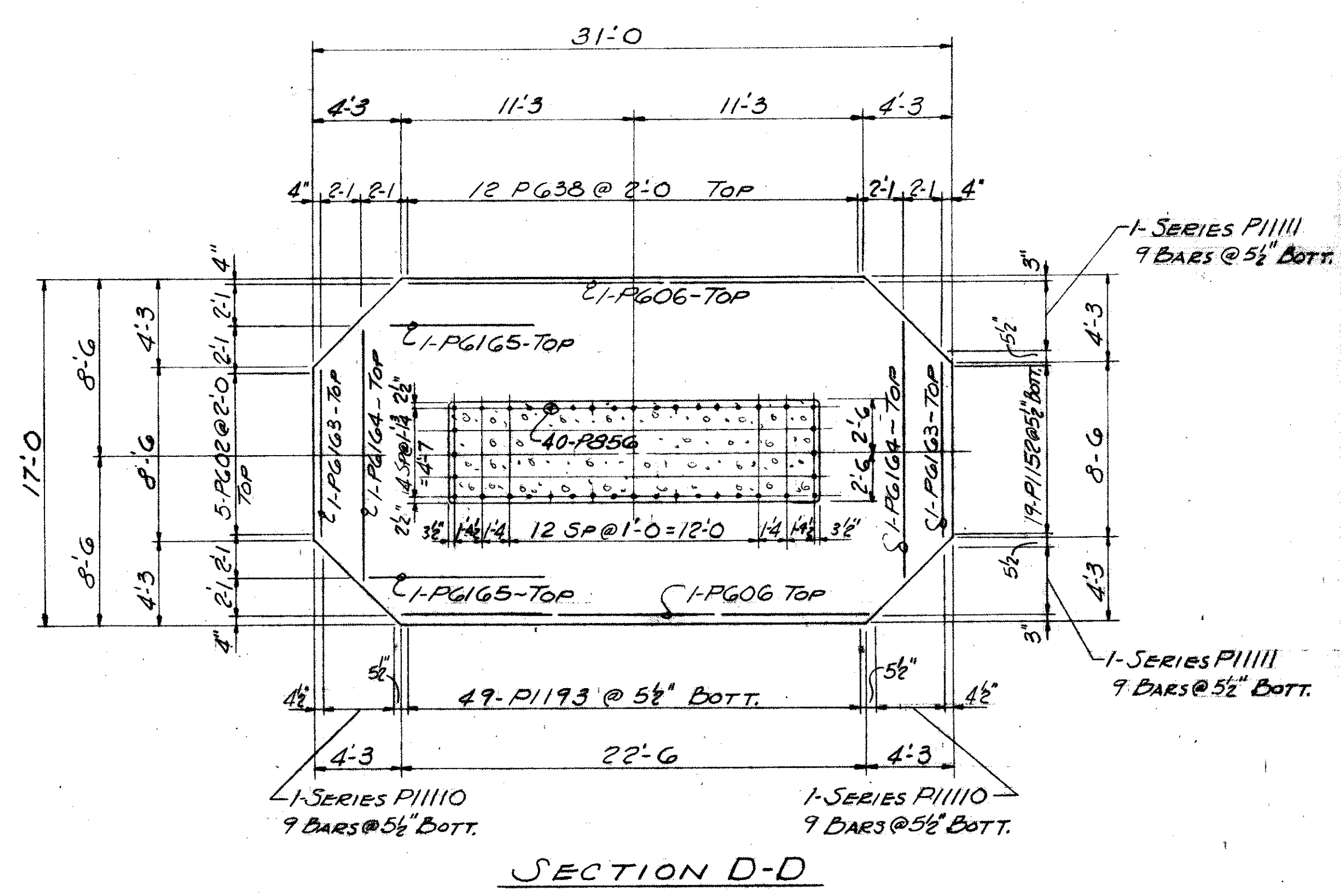
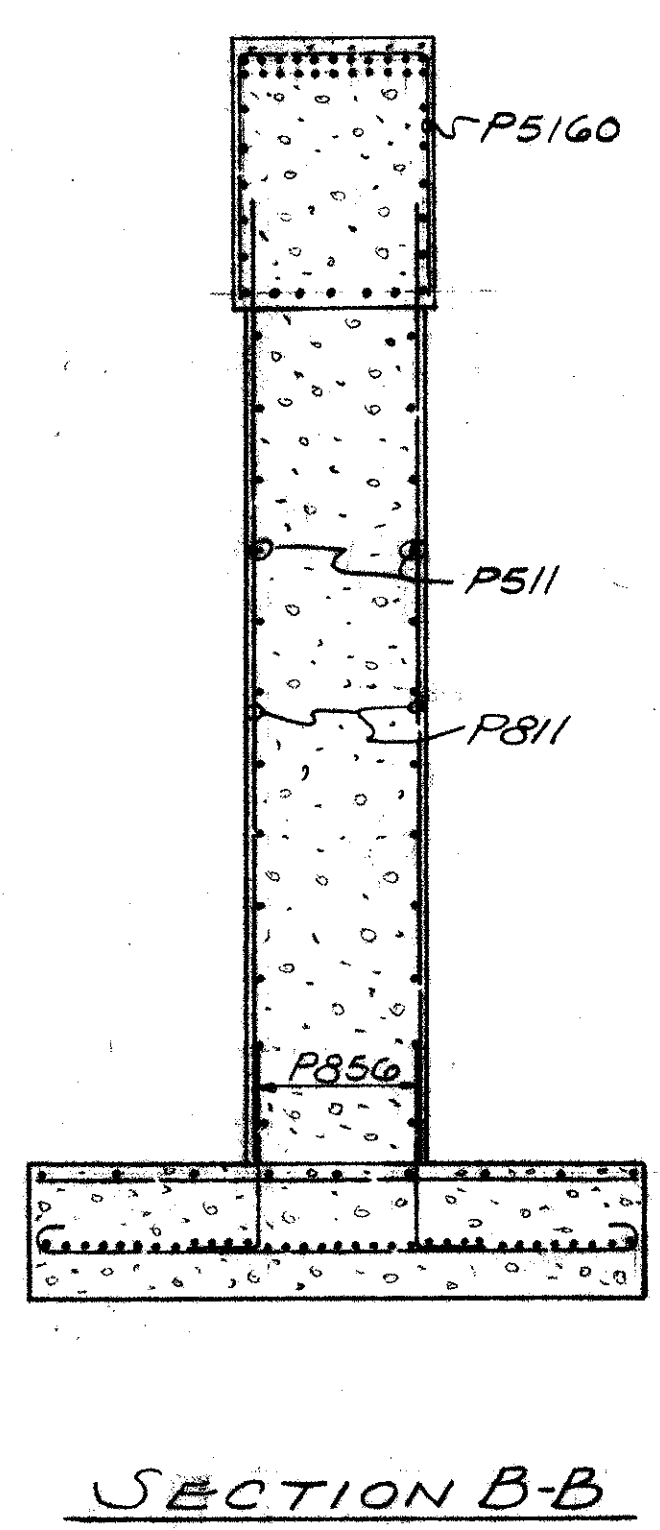
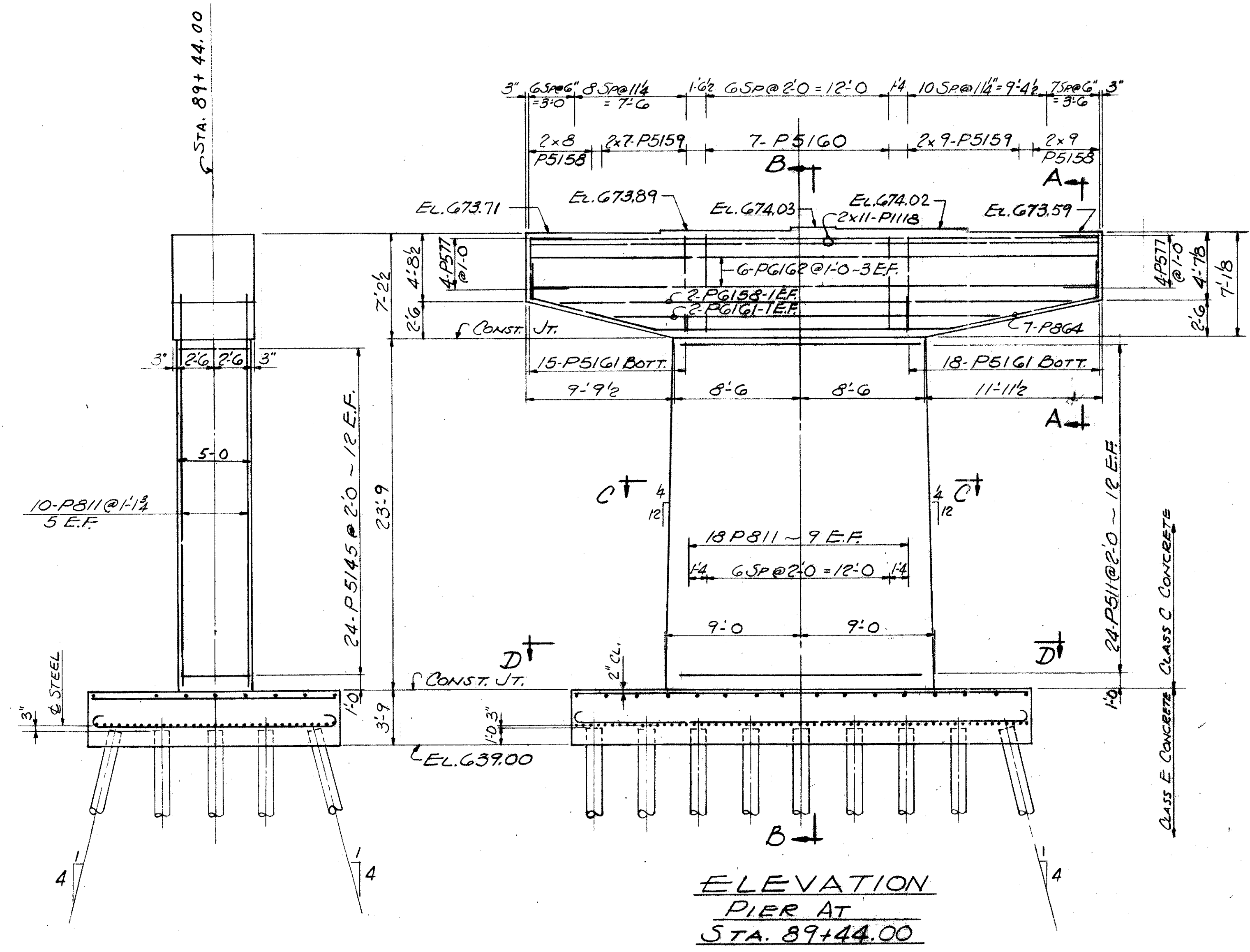
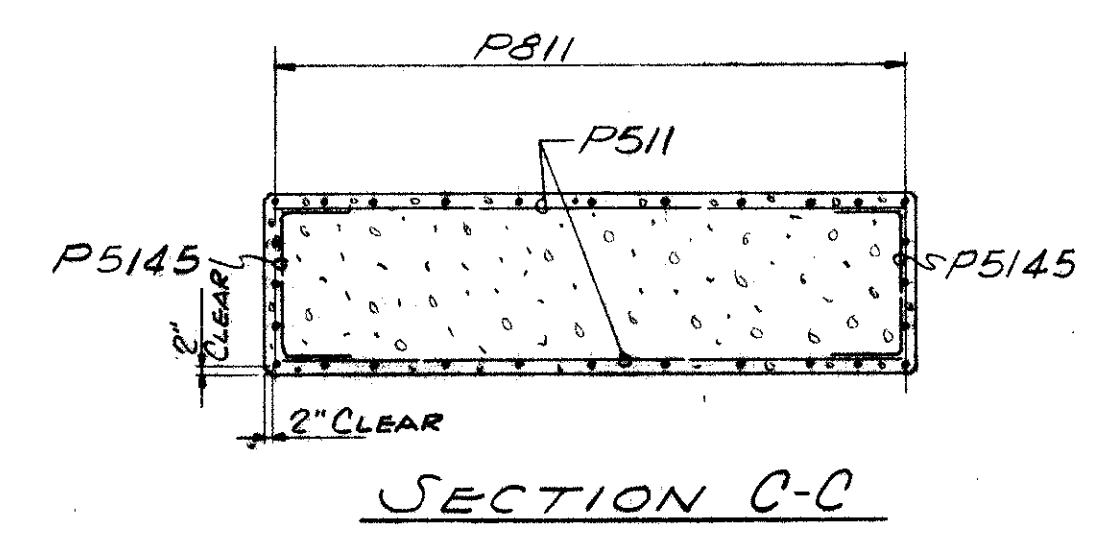
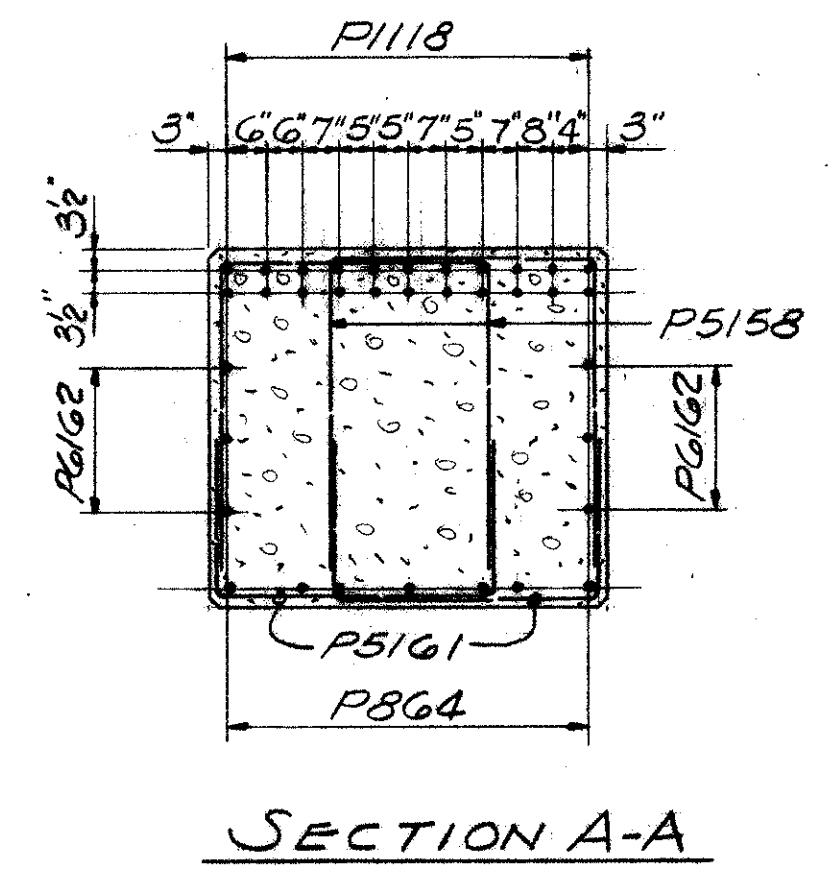
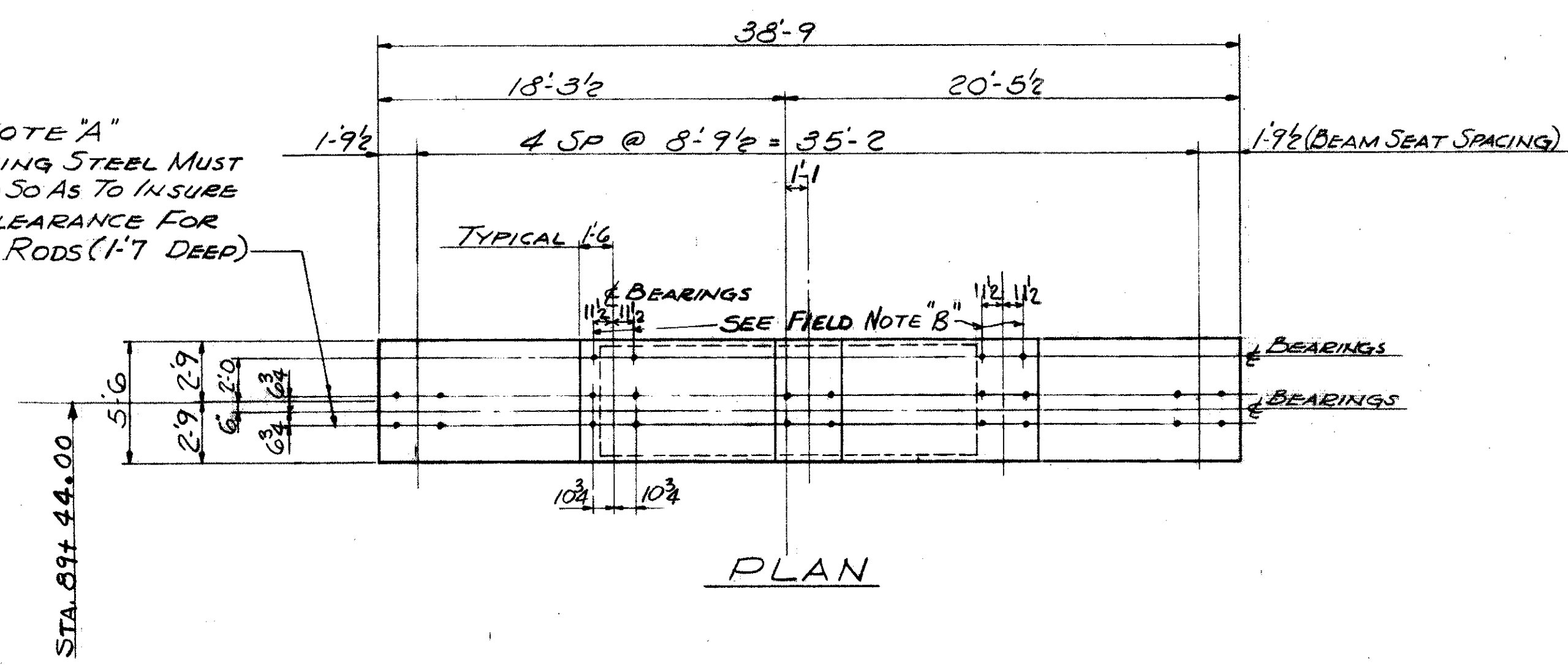
76
164

CUYAHOGA COUNTY
CUY-21-14.55



FIELD NOTE "A"
REINFORCING STEEL MUST BE PLACED SO AS TO INSURE DRILLING CLEARANCE FOR 1/4" ANCHOR RODS (1'-7" DEEP)

FIELD NOTE "B"
REINFORCING STEEL MUST BE PLACED SO AS TO INSURE DRILLING CLEARANCE FOR 1/4" ANCHOR RODS (1'-0" DEEP)



ELEVATION
PIER AT
STA. 89+44.00

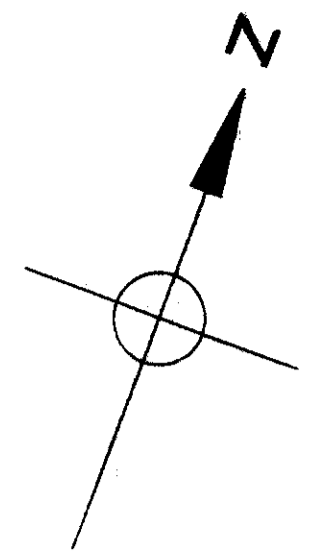
SECTION B-B

SECTION D-D

REFERENCE DRAWINGS
SUBSTRUCTURE LAYOUT - DWG. 57
PILE PLAN - DWG. 60
BAR SCHEDULE - DWG'S 97, 98, 99
GENERAL NOTES - DWG. 56

TRYGVE HOFF & ASSOCIATES ENGINEERS 1922 EAST 107TH STREET CLEVELAND, OHIO					
PIER DETAILS					
BRIDGE NO. CUY-21-14.55			WILLOW FREEWAY OVER KINGSBURY RUN, CUYAHOGA COUNTY U.S.R. 21		
STA. 89+44.00			SCALE		
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE
CAT			RY	CB	7/2/22

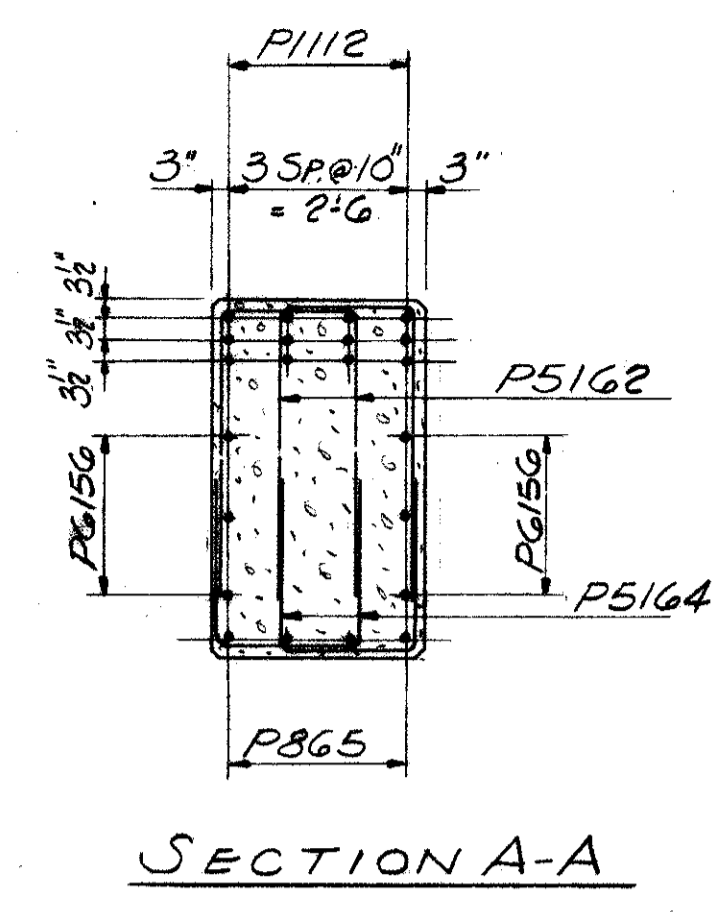
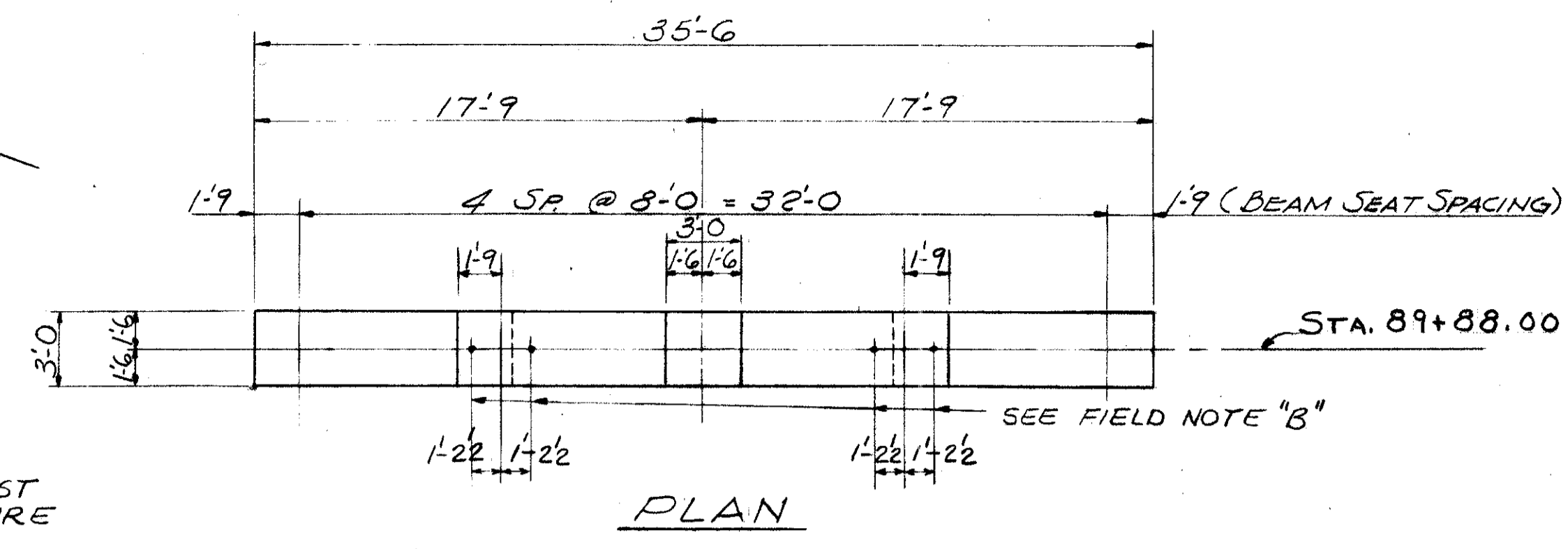
MAY 4 1955



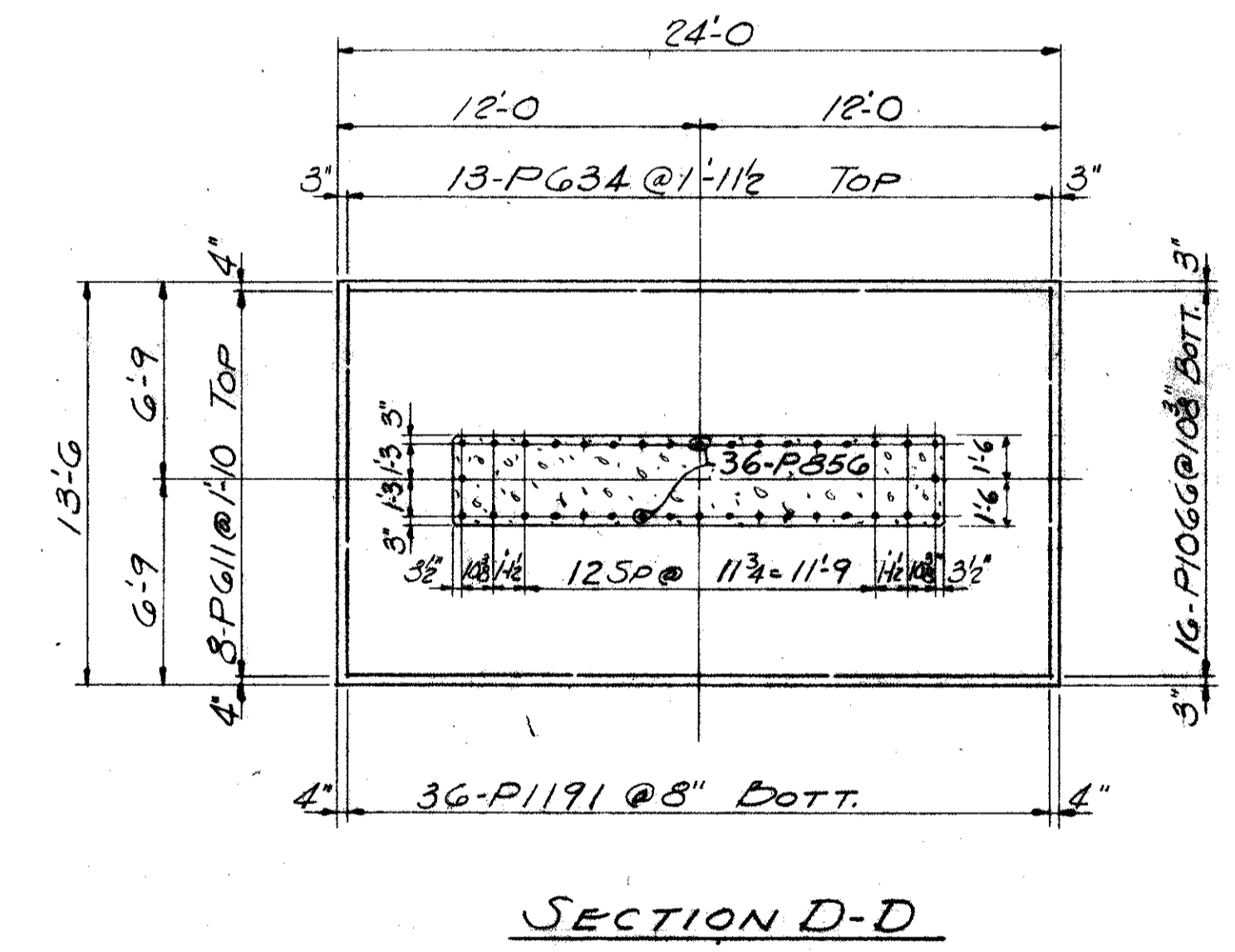
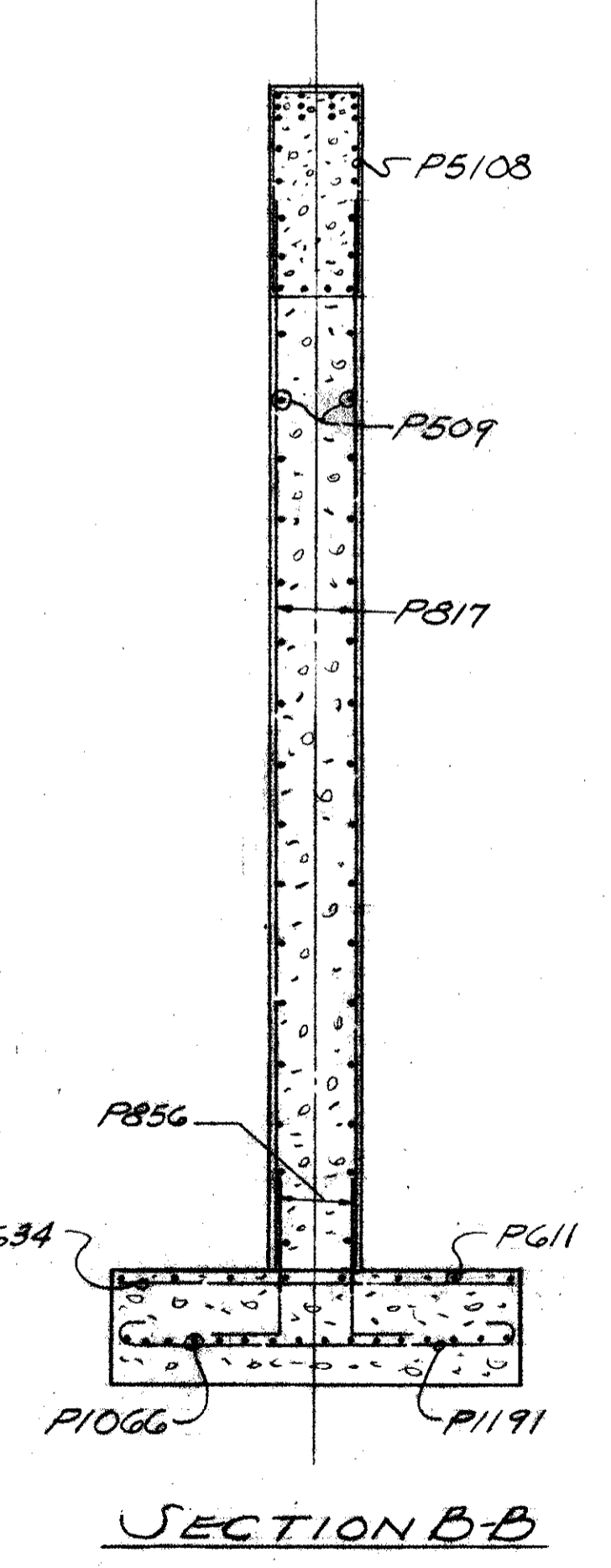
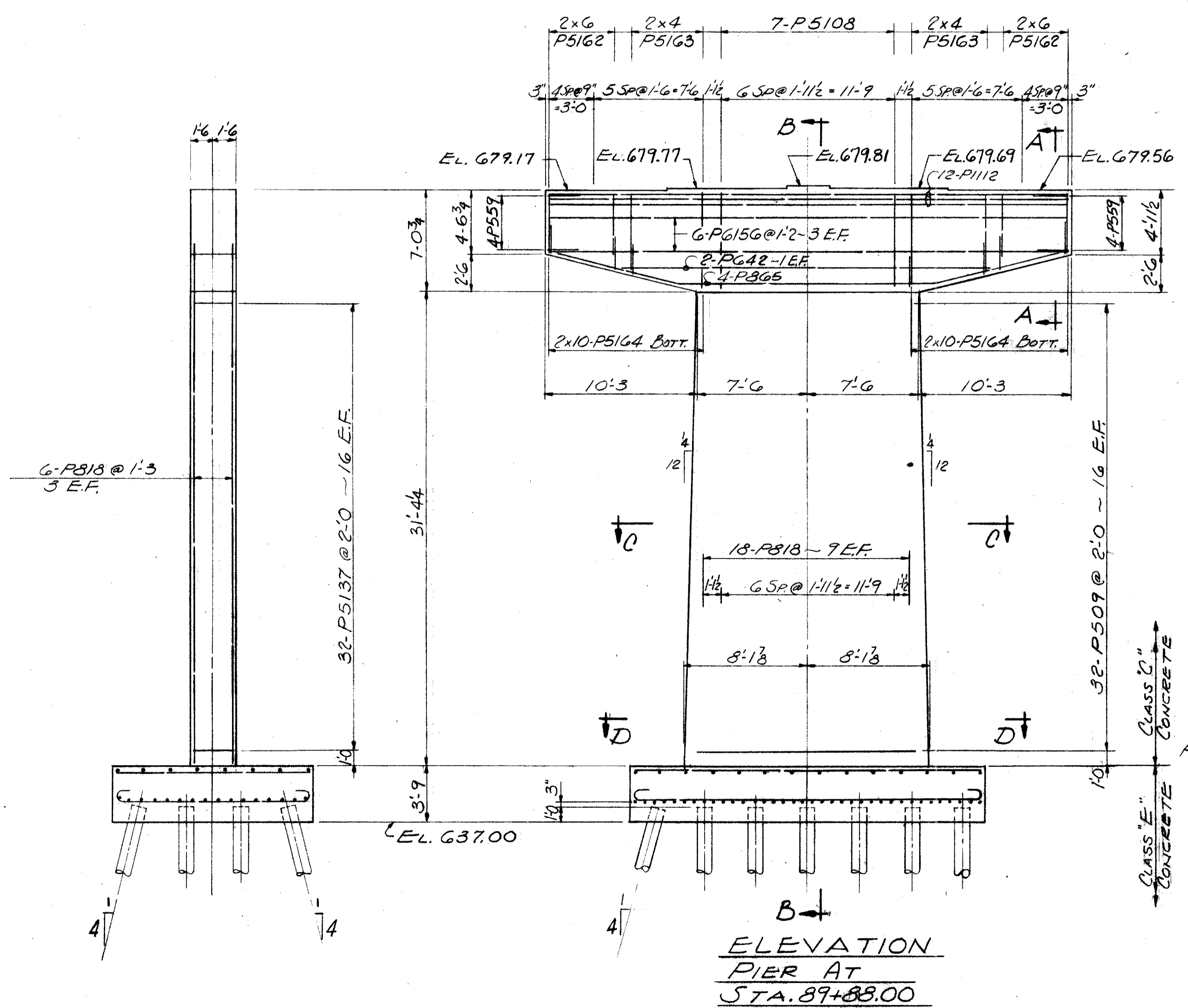
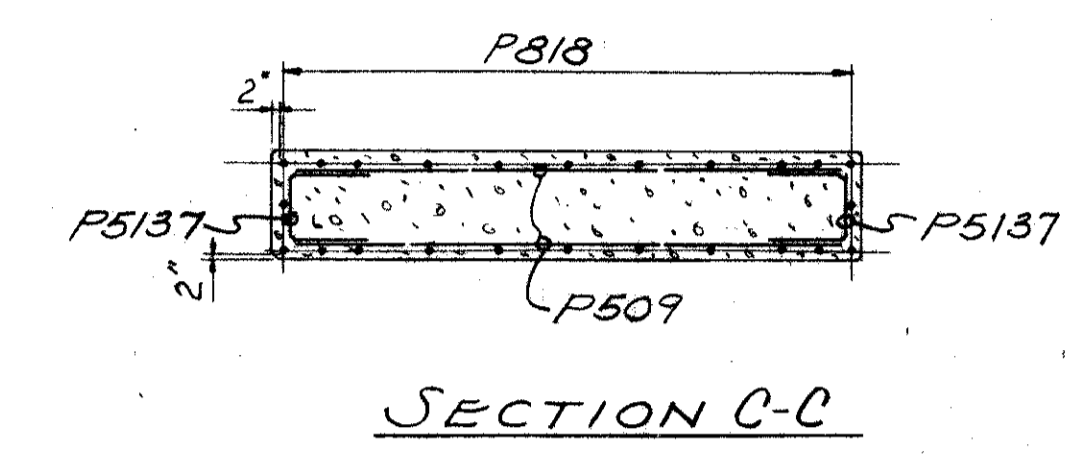
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

CUYAHOGA COUNTY
CUY-21-14.55

77
64



FIELD NOTE "B"
REINFORCING STEEL MUST BE PLACED SO AS TO INSURE DRILLING CLEARANCE FOR 1/4" ANCHOR RODS (1'-0" DEEP)



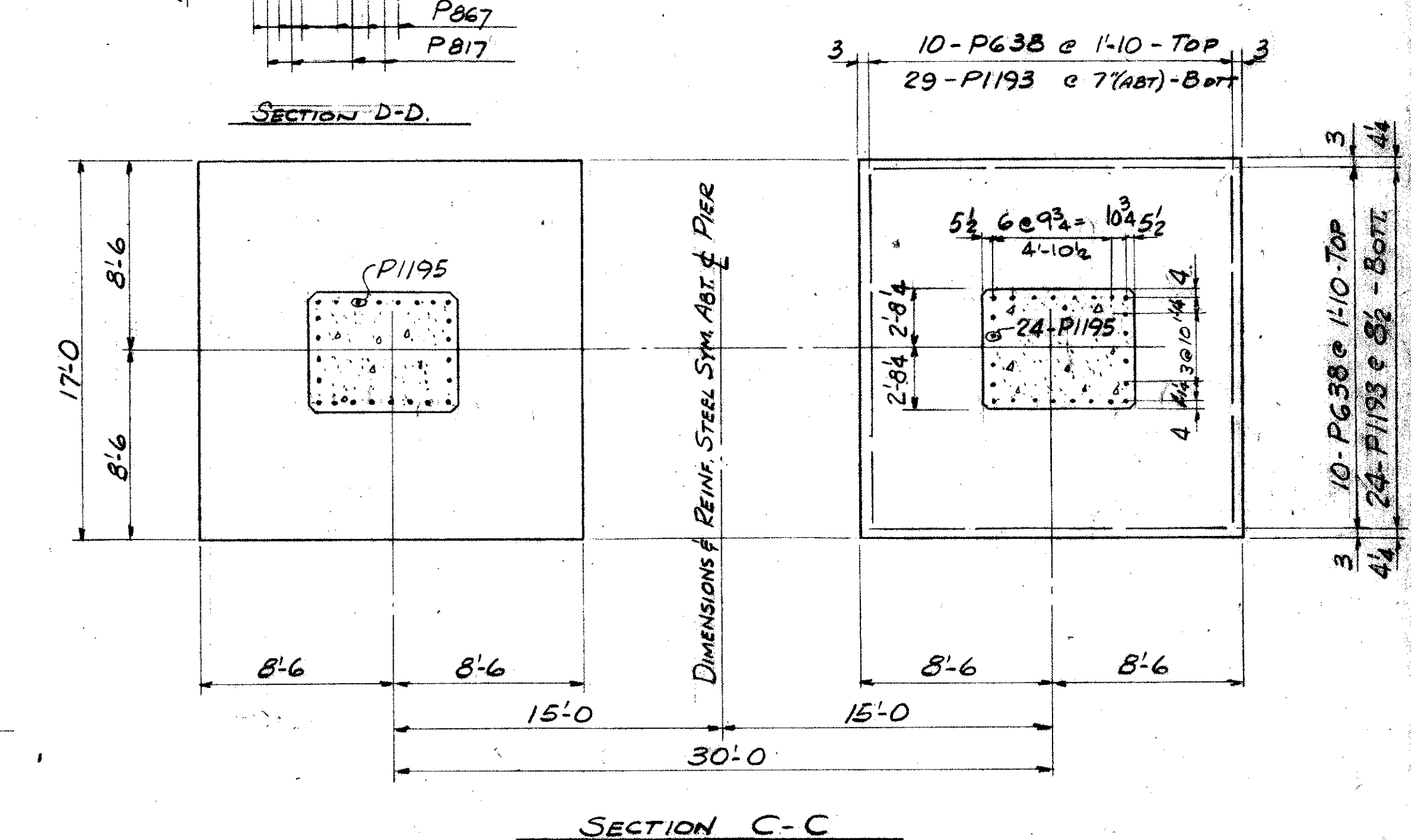
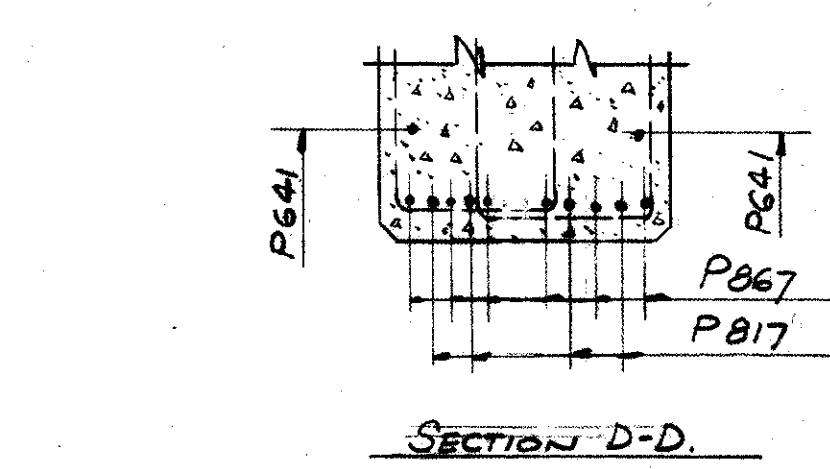
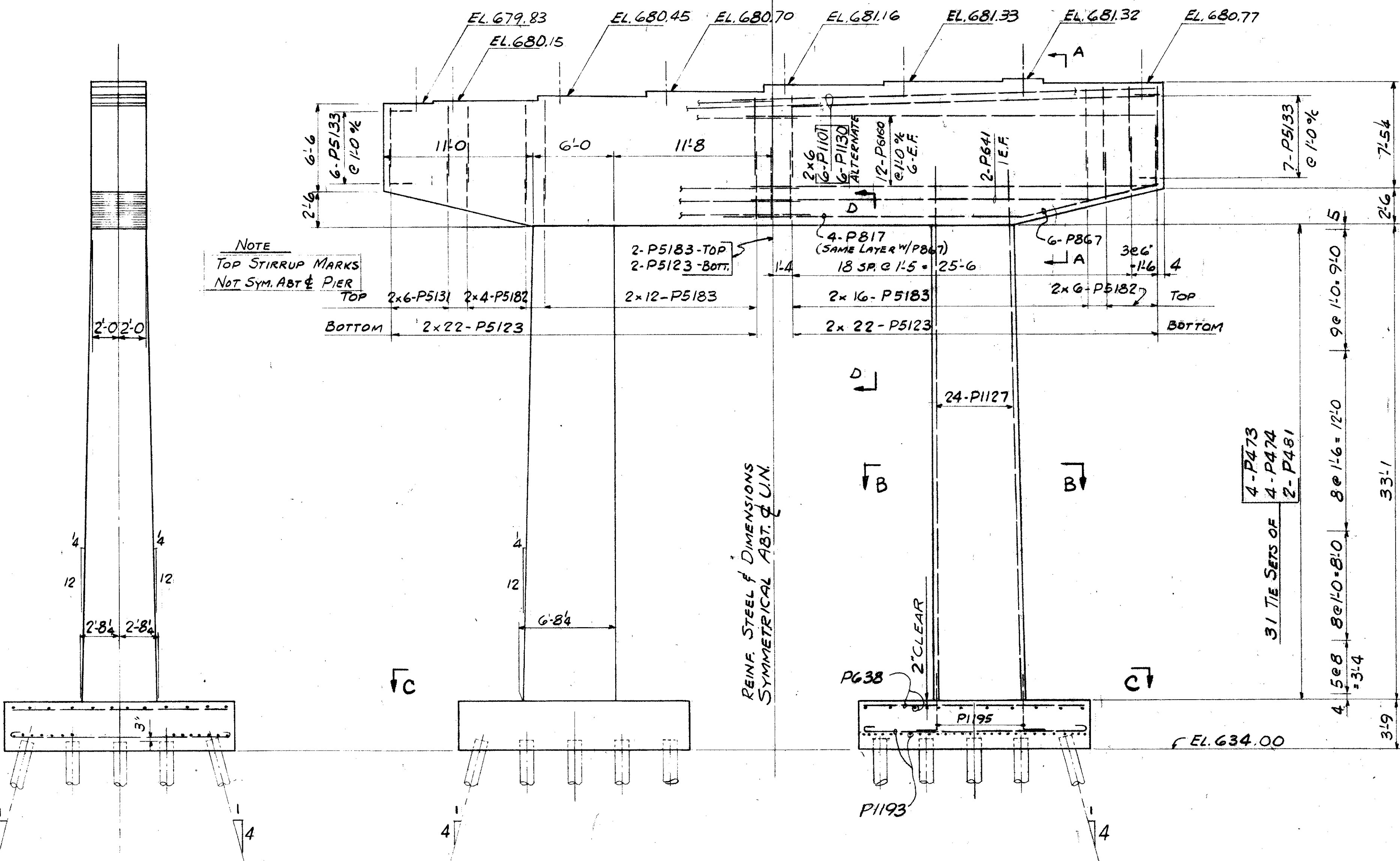
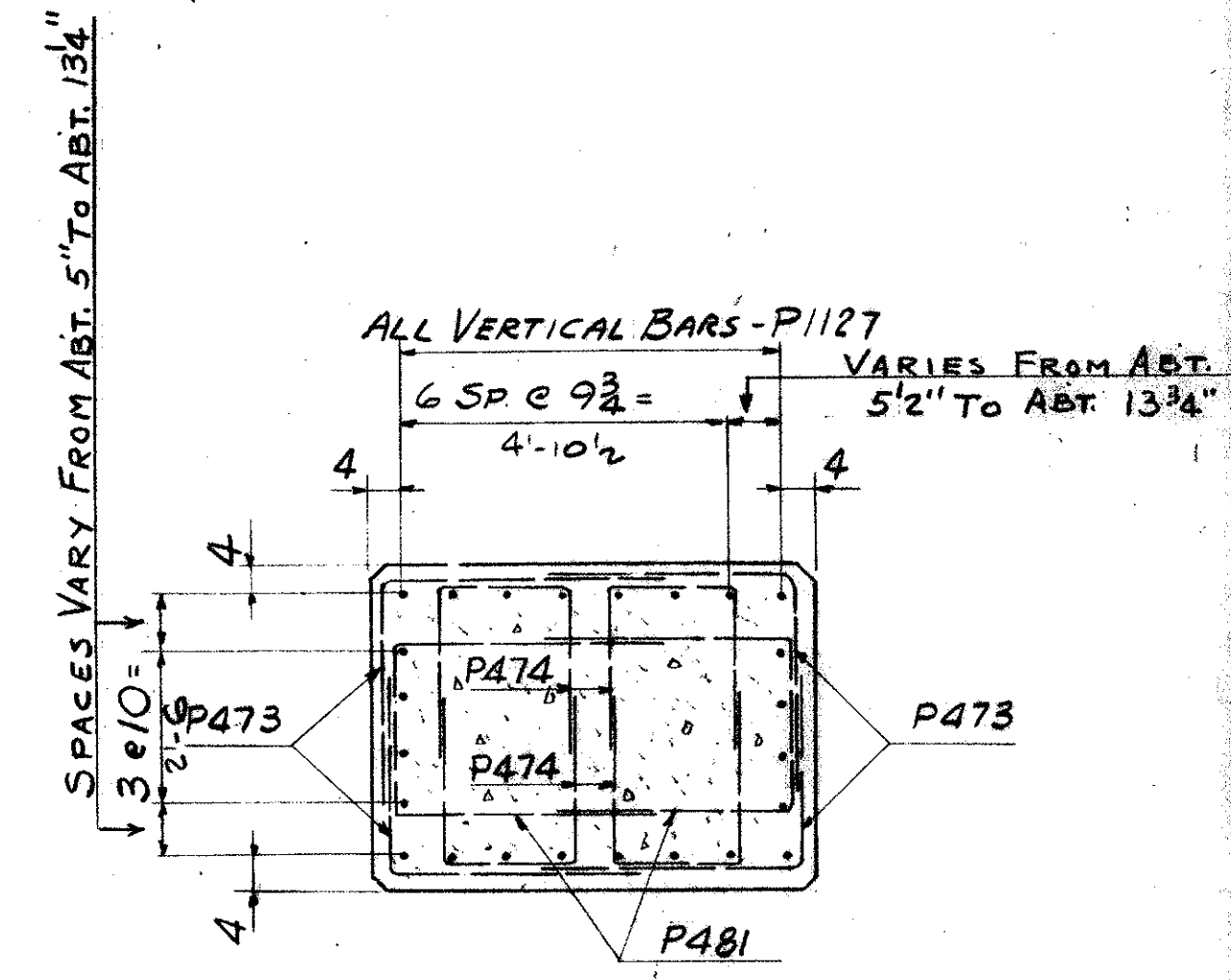
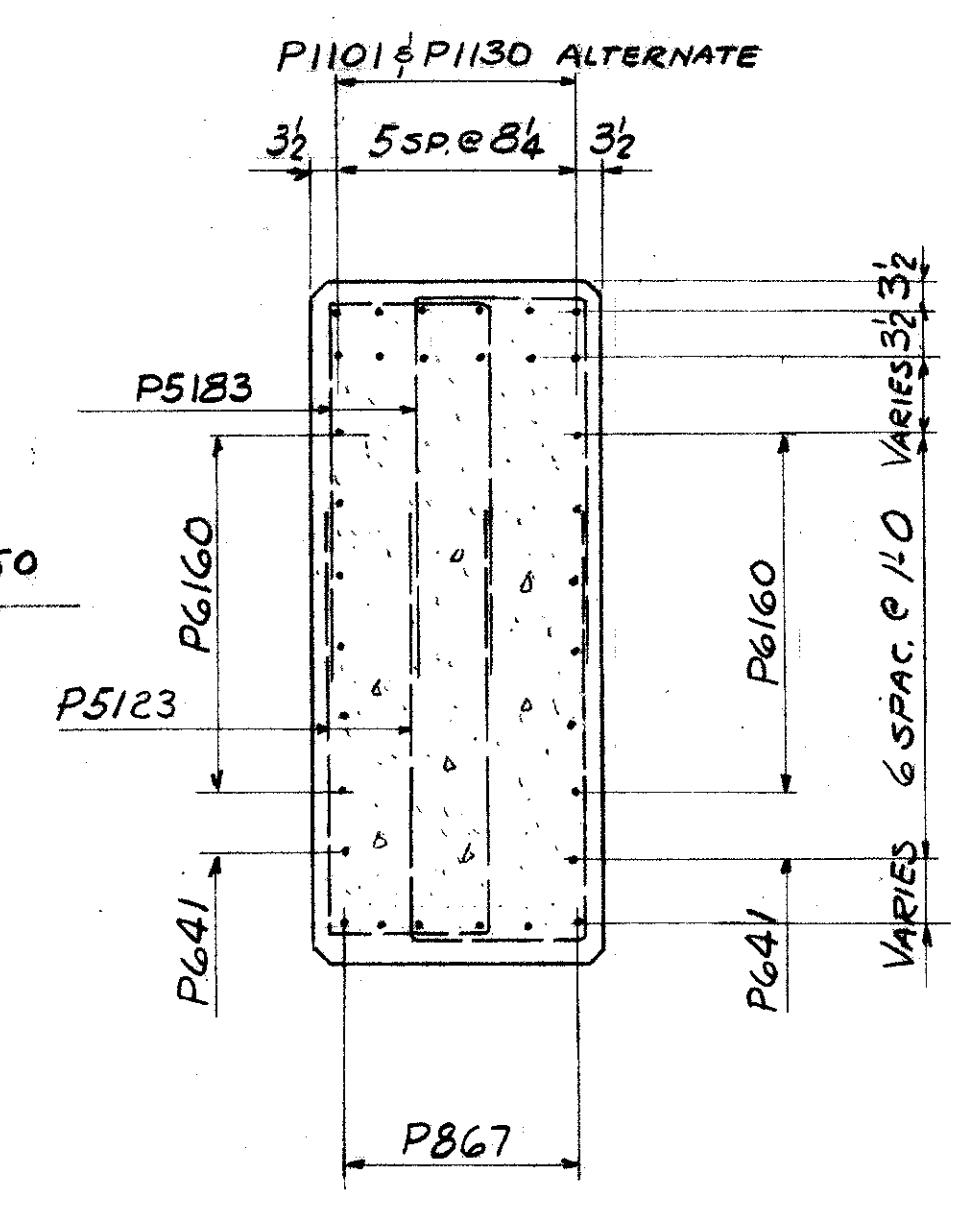
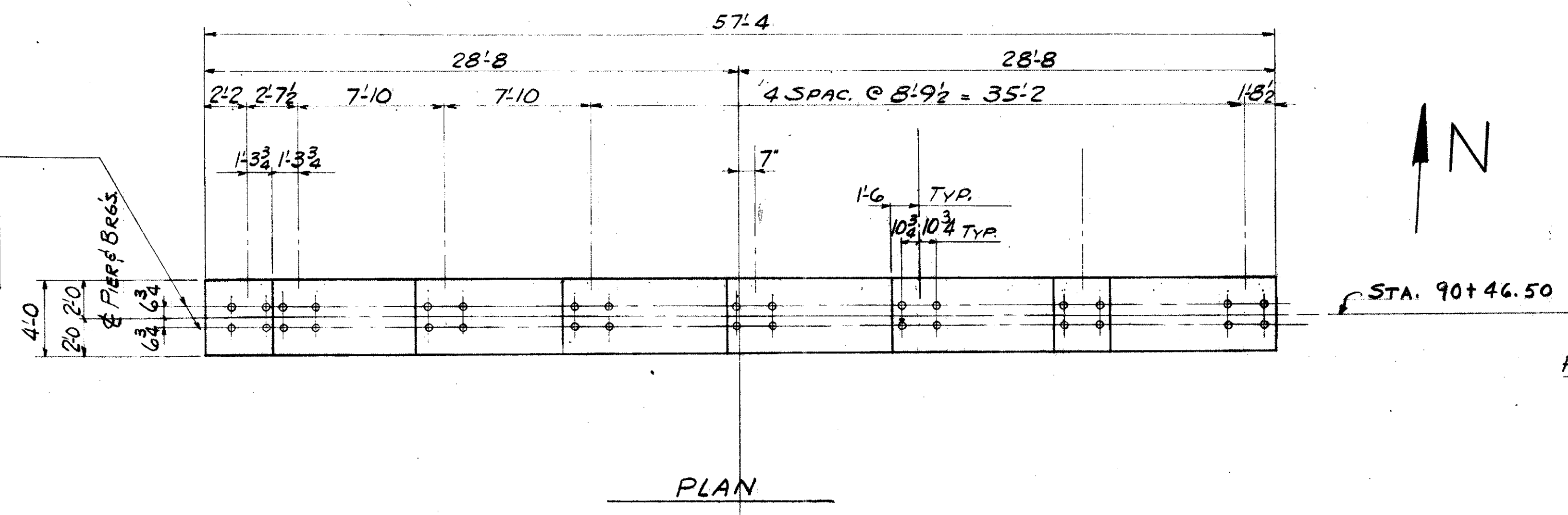
**ELEVATION
PIER AT
STA. 89+88.00**

SECTION B-B

REFERENCE DRAWINGS
SUBSTRUCTURE LAYOUT - DWG. 57
PILE PLAN - DWG. 60
BAR SCHEDULE - DWG'S 97, 98, 99
GENERAL NOTES - DWG. 56

TRYGVE HOFF & ASSOCIATES ENGINEERS 1922 EAST 107TH STREET CLEVELAND, OHIO	
BRIDGE NO. CUY-21-14.55 WILLOW FREEWAY OVER KINGSBURY RUN CUYAHOGA COUNTY USR 21 STA. 89+88.00	
SCALE	DATE
DESIGNED	DRAWN
TRACED	CHECKED
REVIEWED	DATE
CAT	KY
CB	7/2/52

FIELD NOTE "A"
 -REINFORCING STEEL MUST BE PLACED SO AS TO INSURE DRILLING CLEARANCE FOR 1/4" ANCHOR RODS (1-7" DEEP).
 -ADJUST STIRRUP SPACING LOCALLY TO SUIT.



REFERENCE DRAWINGS
 SUBSTRUCTURE LAYOUT - DWG. 57
 PILE PLAN - DWG. 60
 BAR SCHEDULE - DWG'S 97, 98, 99
 GENERAL NOTES - DWG. 56

TRYGVE HOFF & ASSOCIATES
 ENGINEERS
 1922 EAST 107TH STREET CLEVELAND, OHIO

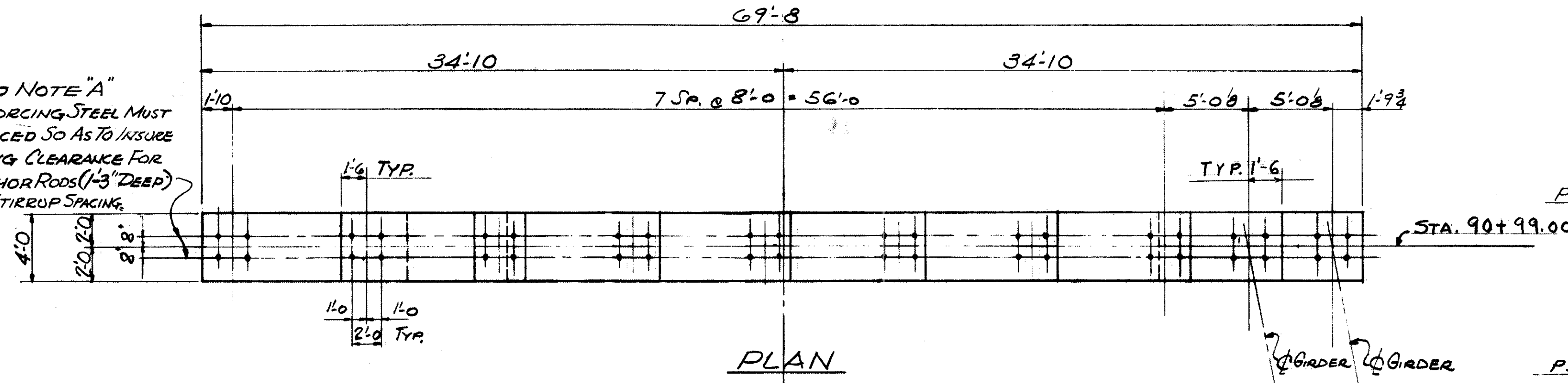
PIER DETAILS
 BRIDGE NO. CUY 21 14 55
 WILLOW FREEWAY OVER KINGSBURY RUN
 CUYAHOGA COUNTY U.S.R. 21
 STA. 90+46.5

SCALE: _____ DATE: _____
 DESIGNED: _____ DRAWN: _____ TRACED: _____ CHECKED: _____ REVIEWED: _____ DATE: _____
 E/N/mcc RY CB 7/2/62

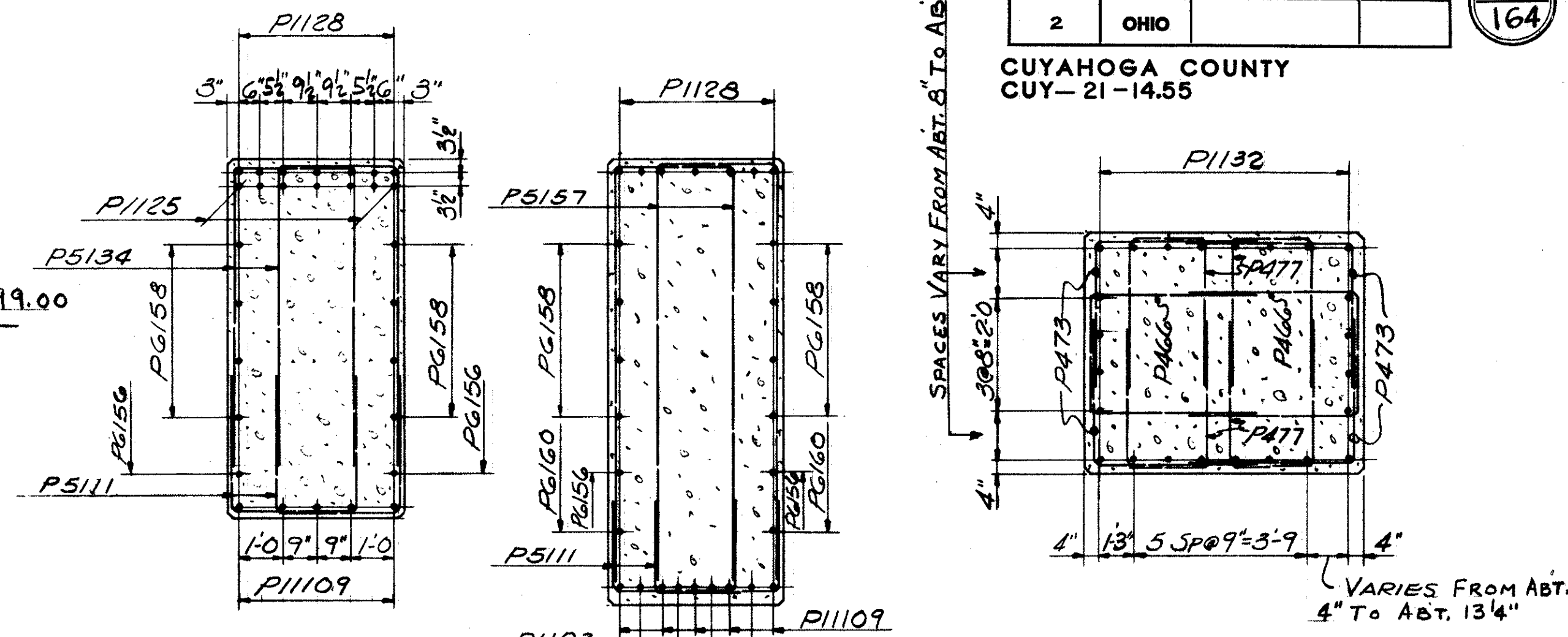
MICROFILMED
MAY 4 1984

CUYAHOGA COUNTY
CUY-21-14.55

FIELD NOTE "A"
REINFORCING STEEL MUST
BE PLACED SO AS TO INSURE
DECKING CLEARANCE FOR
1/4" ANCHOR RODS (1-3" DEEP)
ADJUST STIRRUP SPACING
LOCALLY TO SUIT.



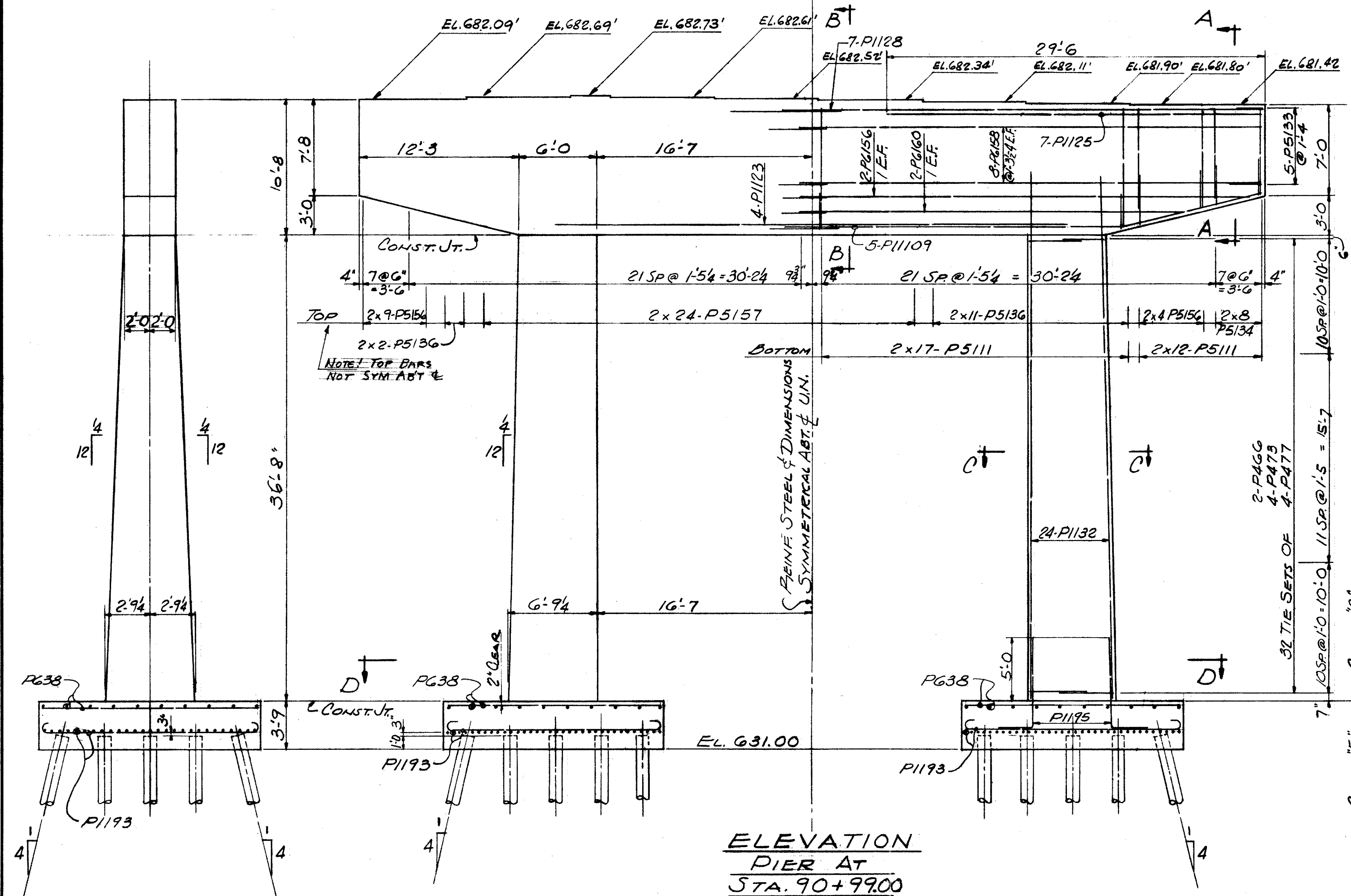
PLAN



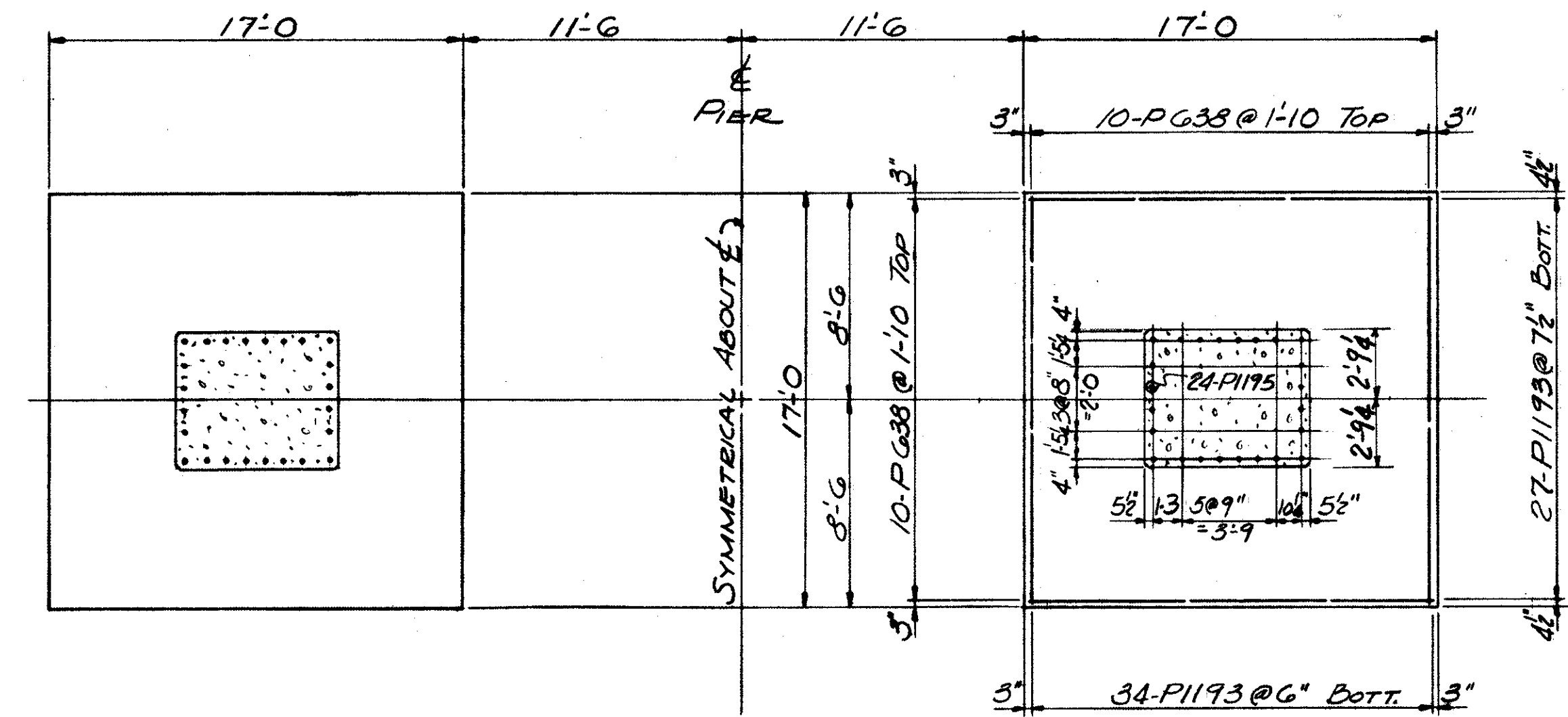
SECTION A-A

SECTION B-B

SECTION C-C



ELEVATION
PIER AT
STA. 90+99.00



SECTION D-D

REFERENCE DRAWINGS
SUBSTRUCTURE LAYOUT - DWG. 57
PILE PLAN - DWG. 60
BAR SCHEDULE - DWG'S 97, 98, 99
GENERAL NOTES - DWG. 56

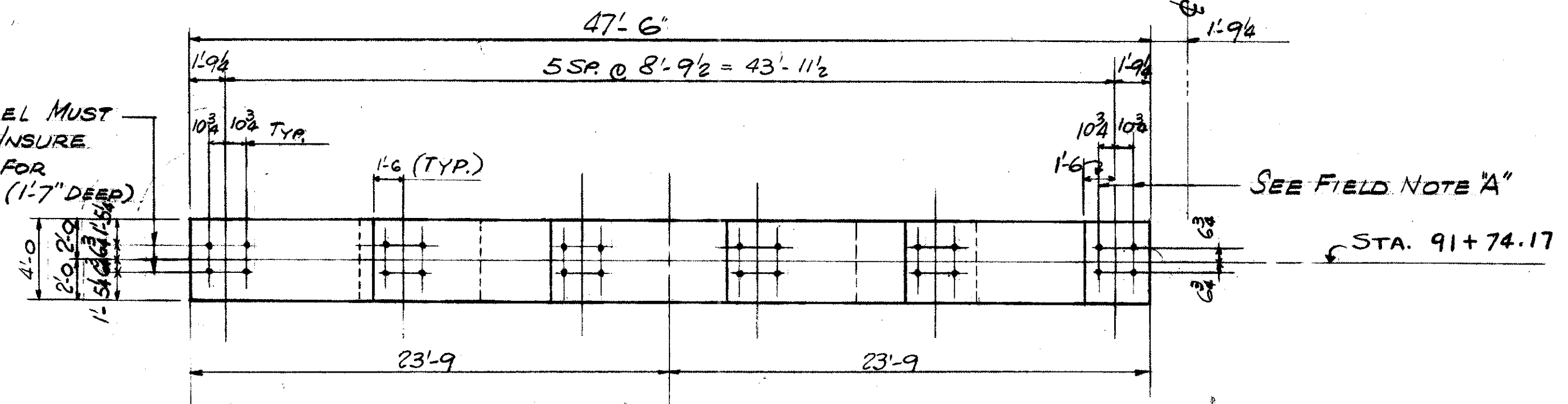
TRYGVE HOFF & ASSOCIATES
ENGINEERS
1922 EAST 107TH STREET CLEVELAND, OHIO

PIER DETAILS
BRIDGE NO. CUY-21-14.55
WILLOW FREEWAY OVER KINGSBURY RUN
CUYAHOGA COUNTY U.S.R. 21
STA. 90+99.00

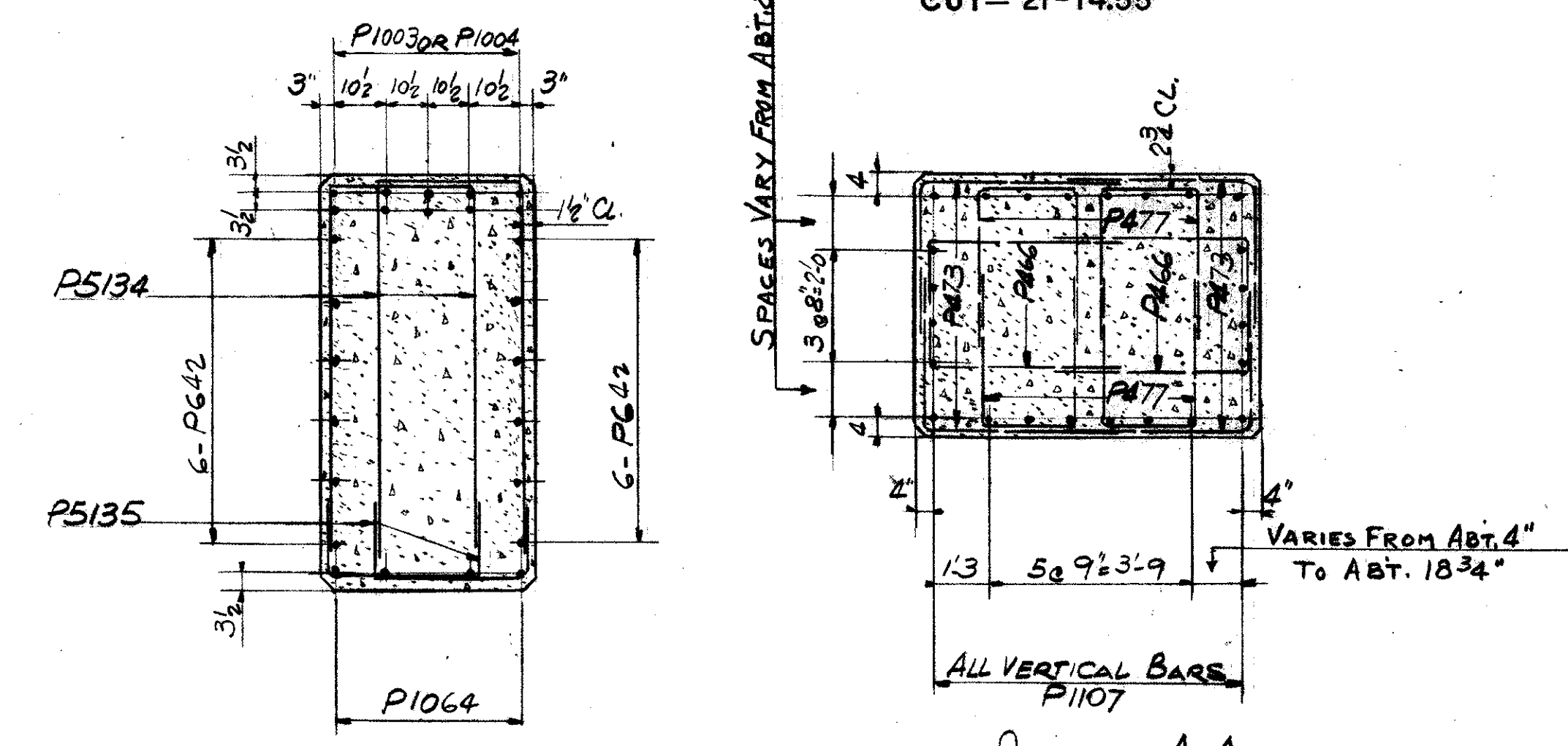
SCALE	DATE					
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
	CA.T.		RIY	CB	6/20/68	



FIELD NOTE "A"
REINFORCING STEEL MUST BE PLACED SO AS TO INSURE DRILLING CLEARANCE FOR 1/4" ANCHOR RODS (1'-7" DEEP). ADJUST STIRRUP SPACING LOCALLY TO SUIT

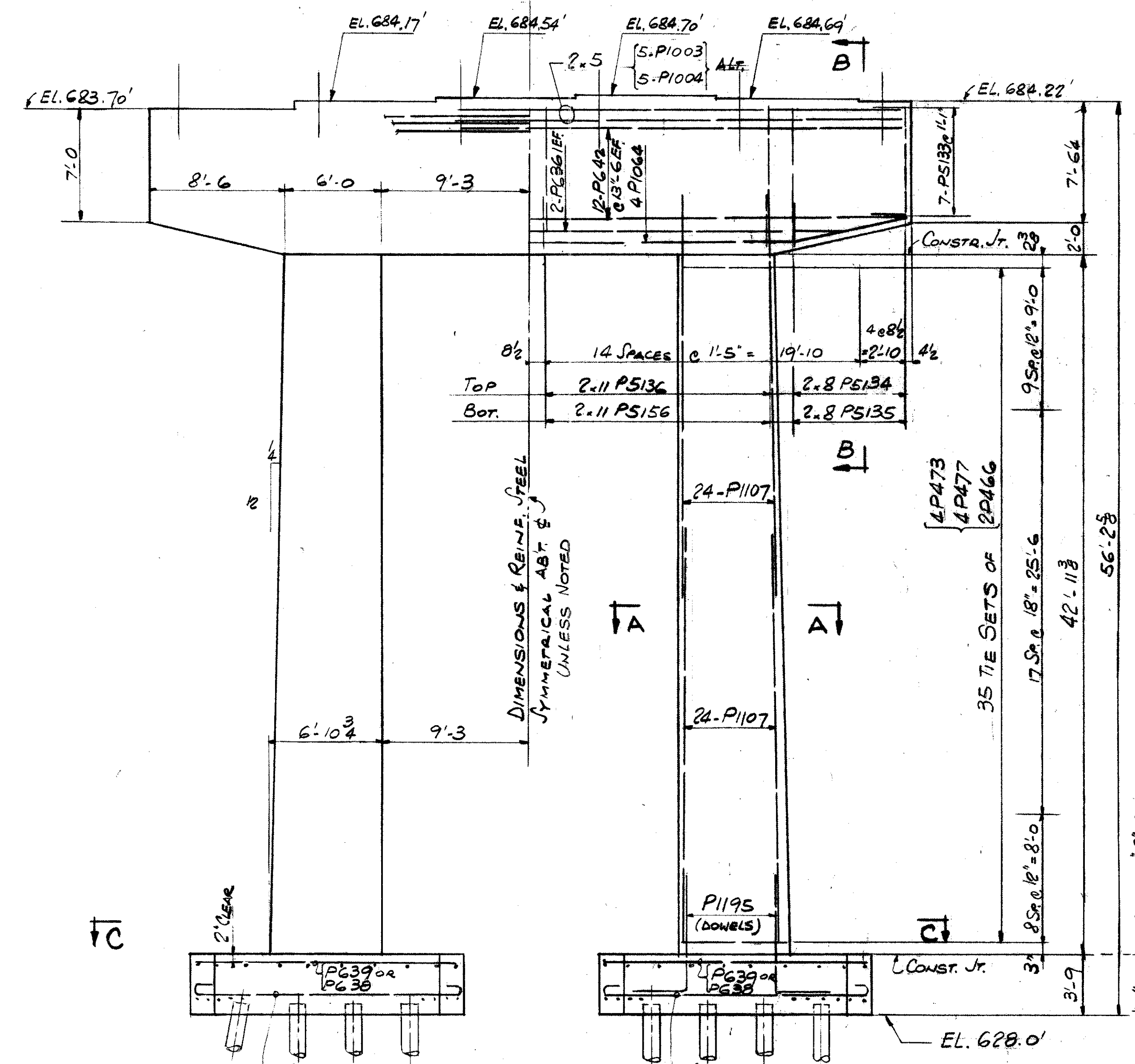
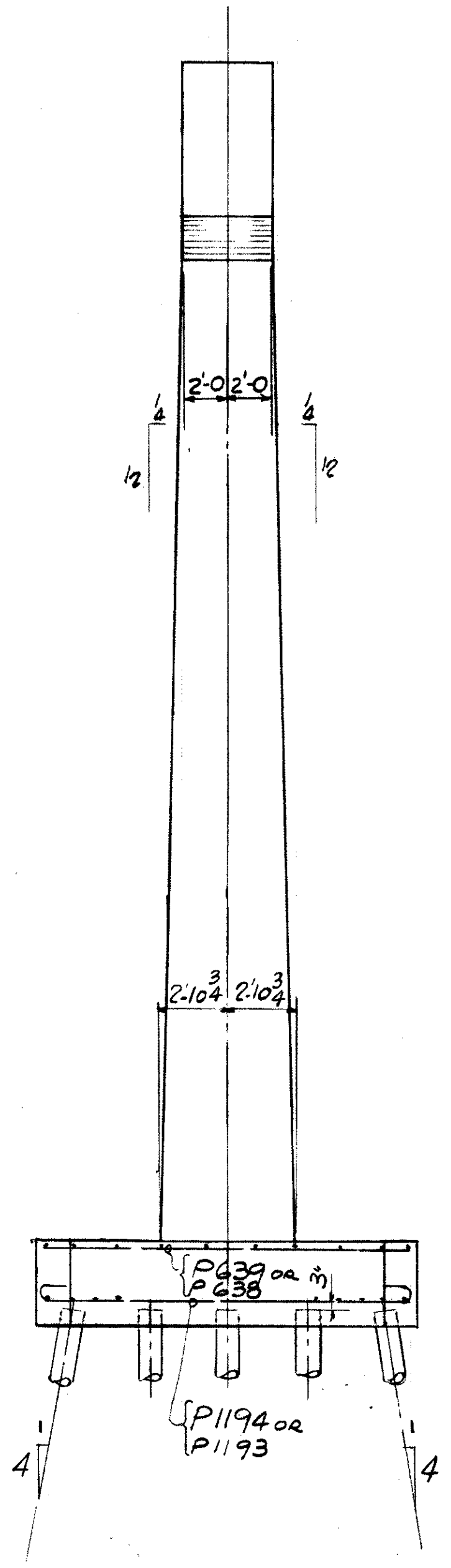


PLAN

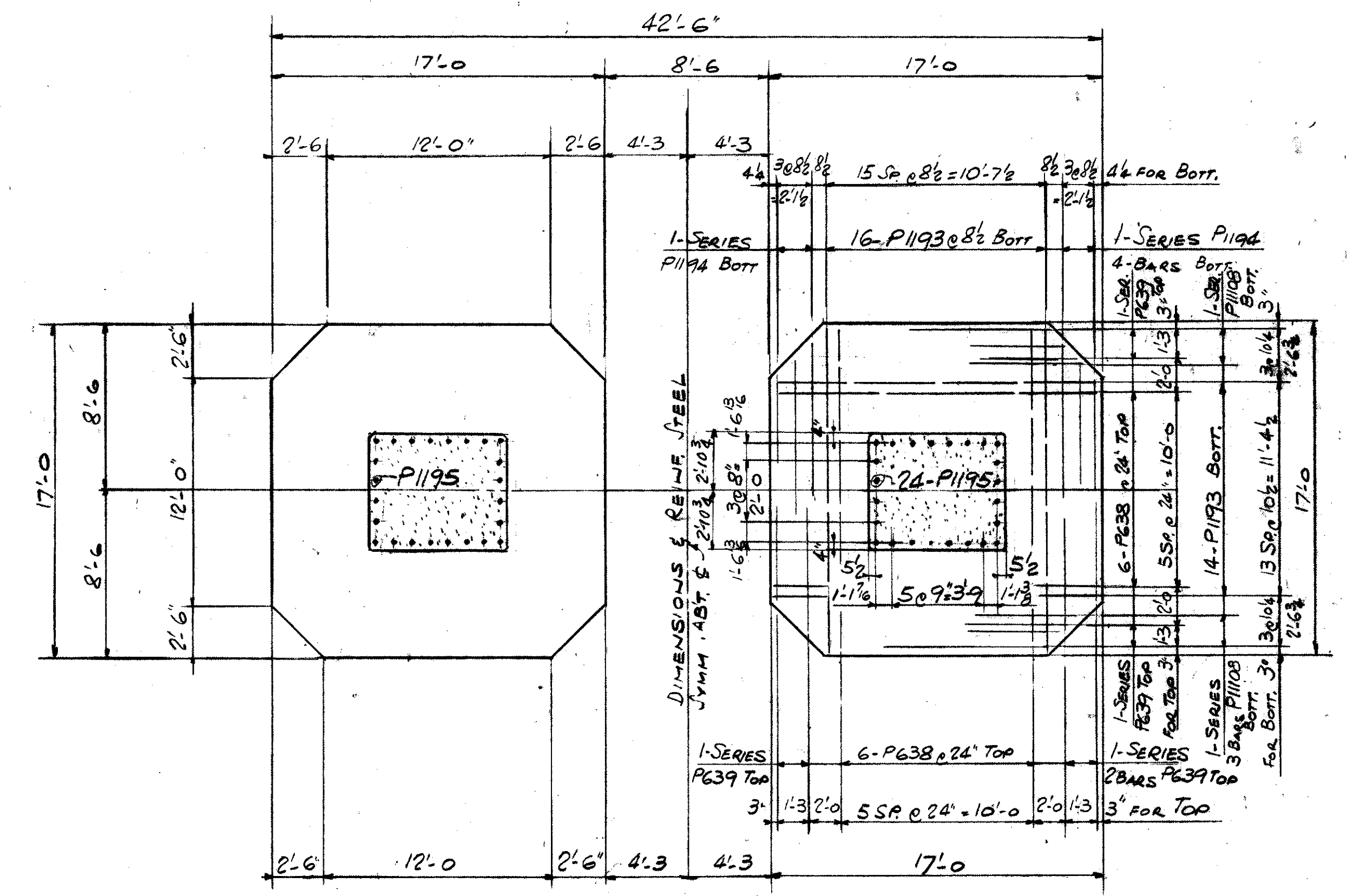


SECTION B-B

SECTION A-A



ELEVATION
PIER AT
STA. 91+74.17



SECTION C-C

REFERENCE DRAWINGS
SUBSTRUCTURE LAYOUT - DWG. 57
PILE PLAN - DWG. 60
BAR SCHEDULE - DWG'S 97, 98, 99
GENERAL NOTES - DWG. 56

TRYGVE HOFF & ASSOCIATES
ENGINEERS
1922 EAST 107TH STREET CLEVELAND, OHIO

BRIDGE NO. CUY-21-14.55
WILLOW FREEWAY OVER KINGSBURY RUN
CUYAHOGA COUNTY U.S.R. 21
STA. 91+74.17

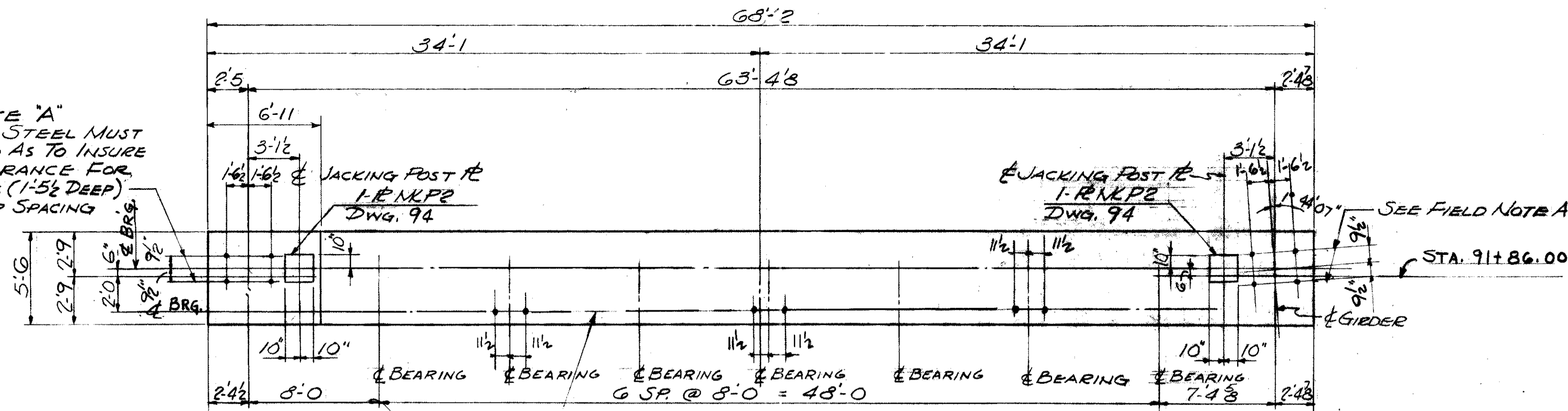
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE
	J.O.		RY	CB	6/19/62

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

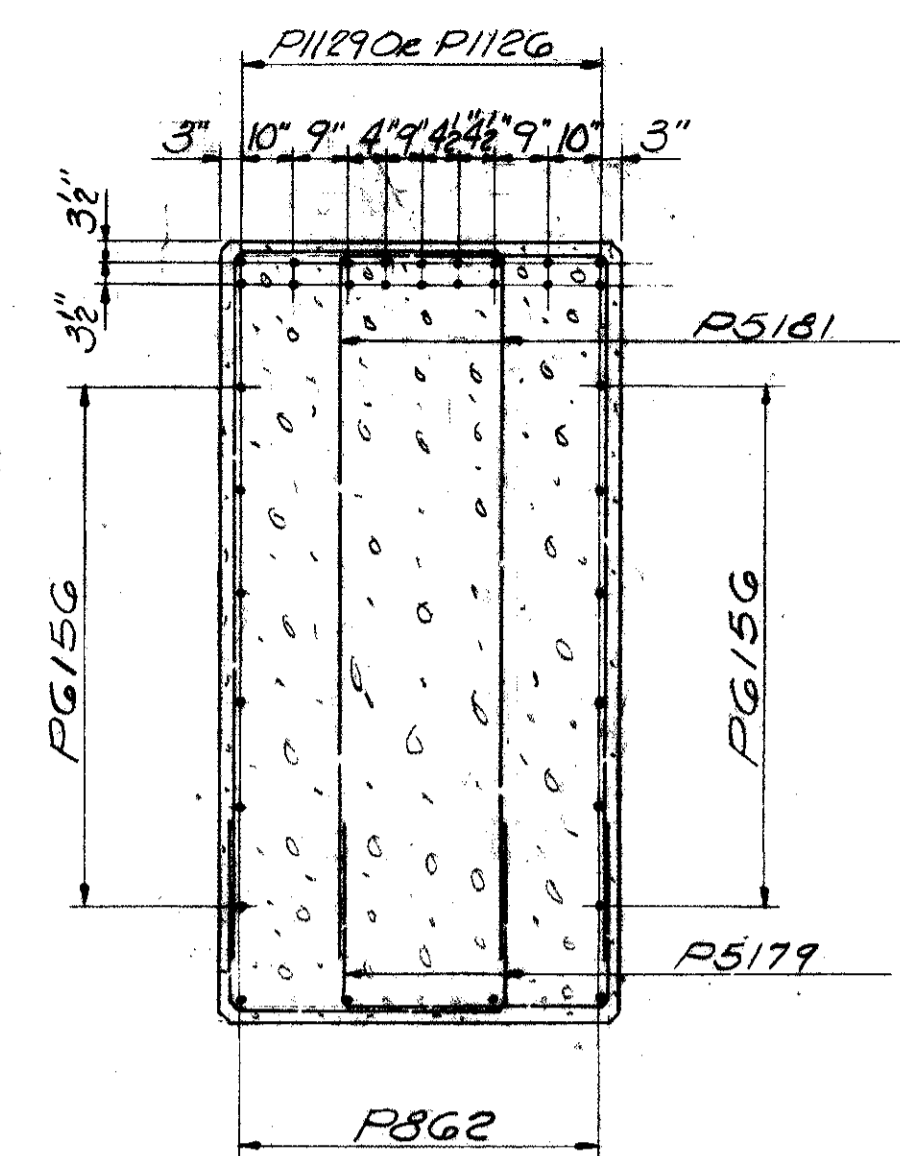
81
164

CUYAHOGA COUNTY
CUY-21-14.55

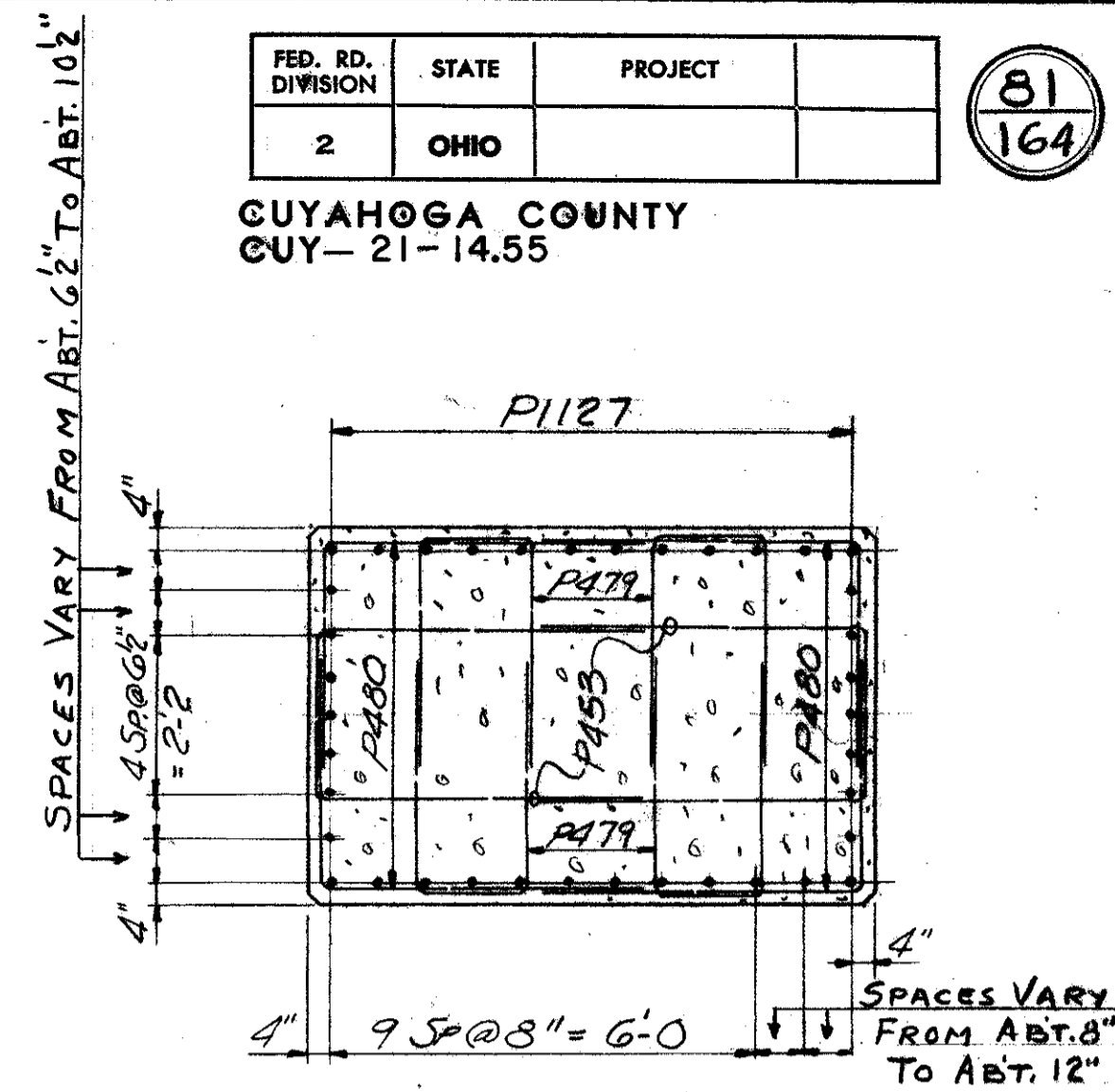
FIELD NOTE "A"
REINFORCING STEEL MUST BE PLACED SO AS TO INSURE DRILLING CLEARANCE FOR 1/4" ANCHOR RODS (1-5/8" DEEP). ADJUST STIRRUP SPACING LOCALLY TO SUIT.



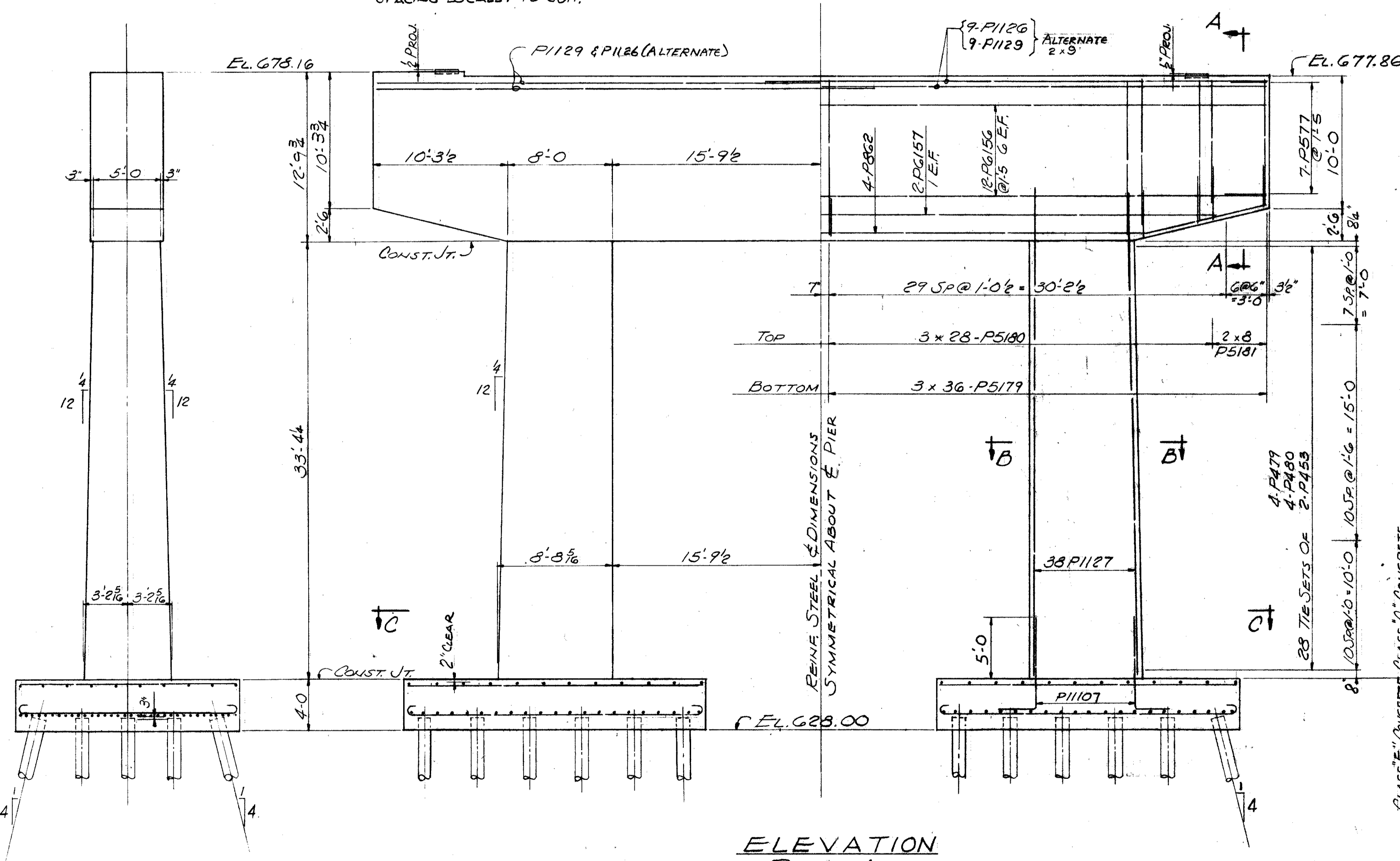
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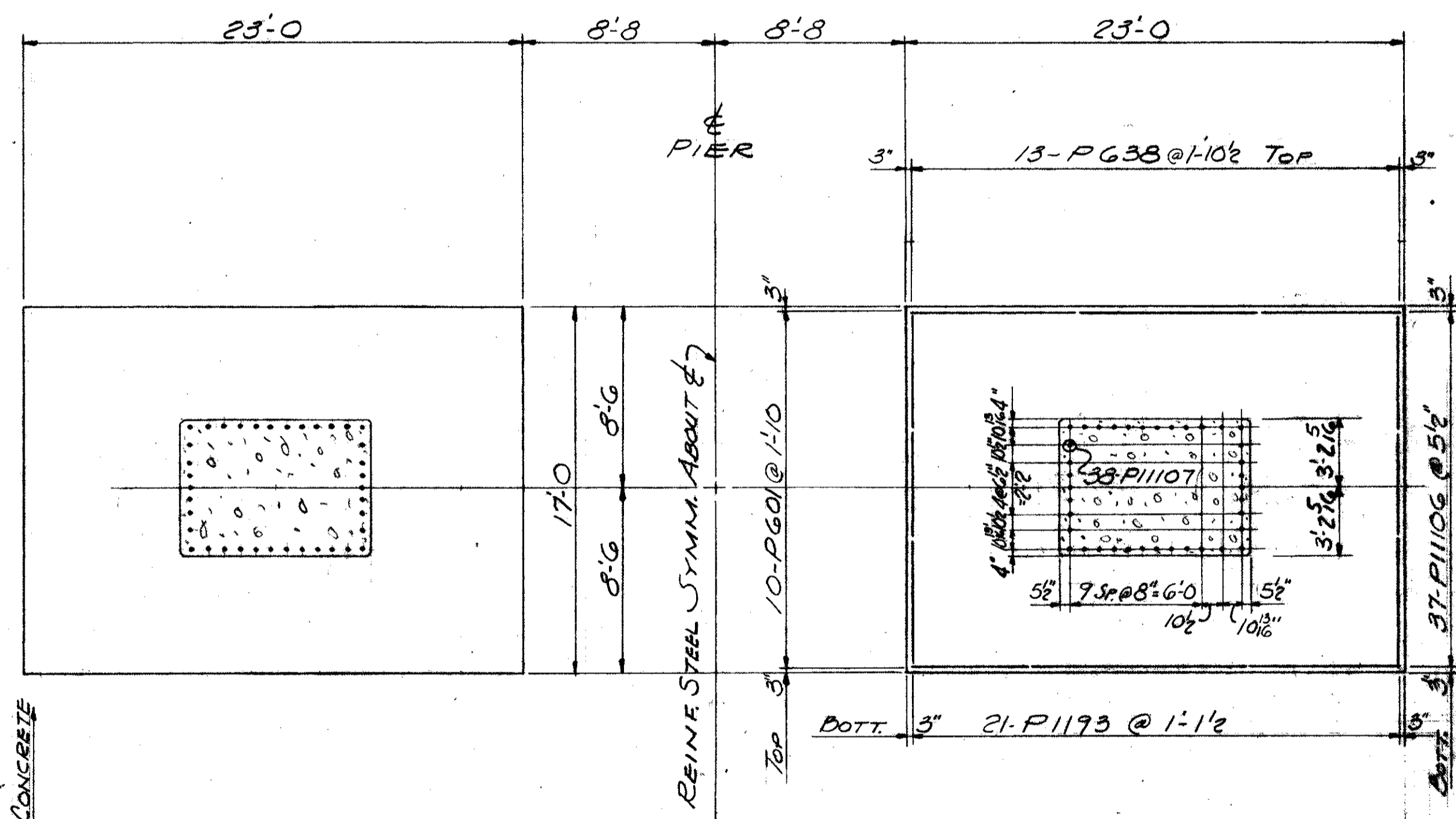
SECTION A-A



SECTION B-B



ELEVATION
PIER AT
STA. 91+86.00

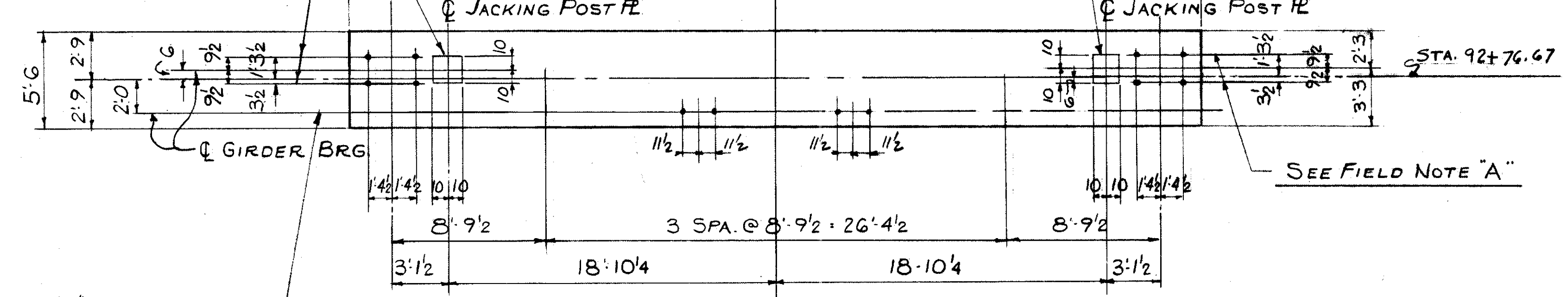


SECTION C-C

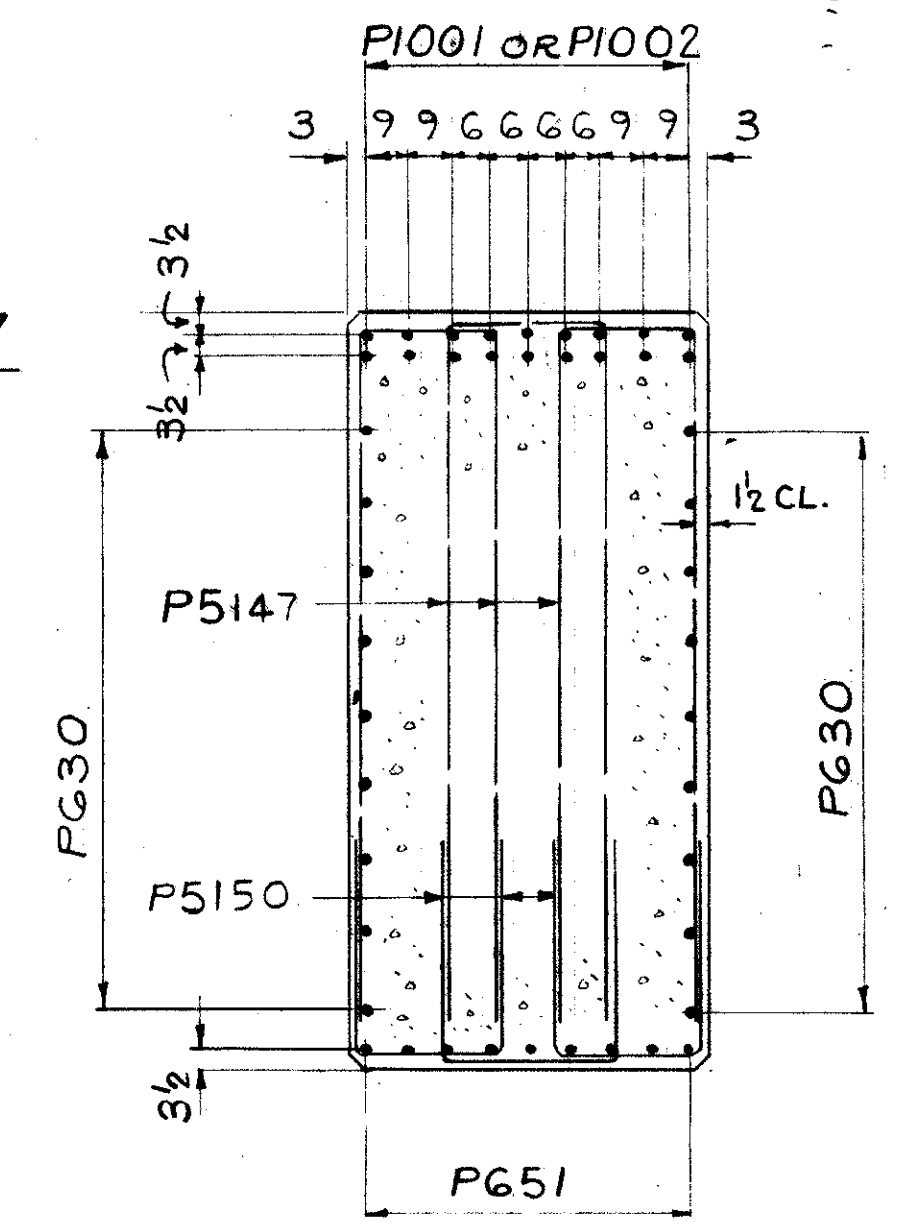
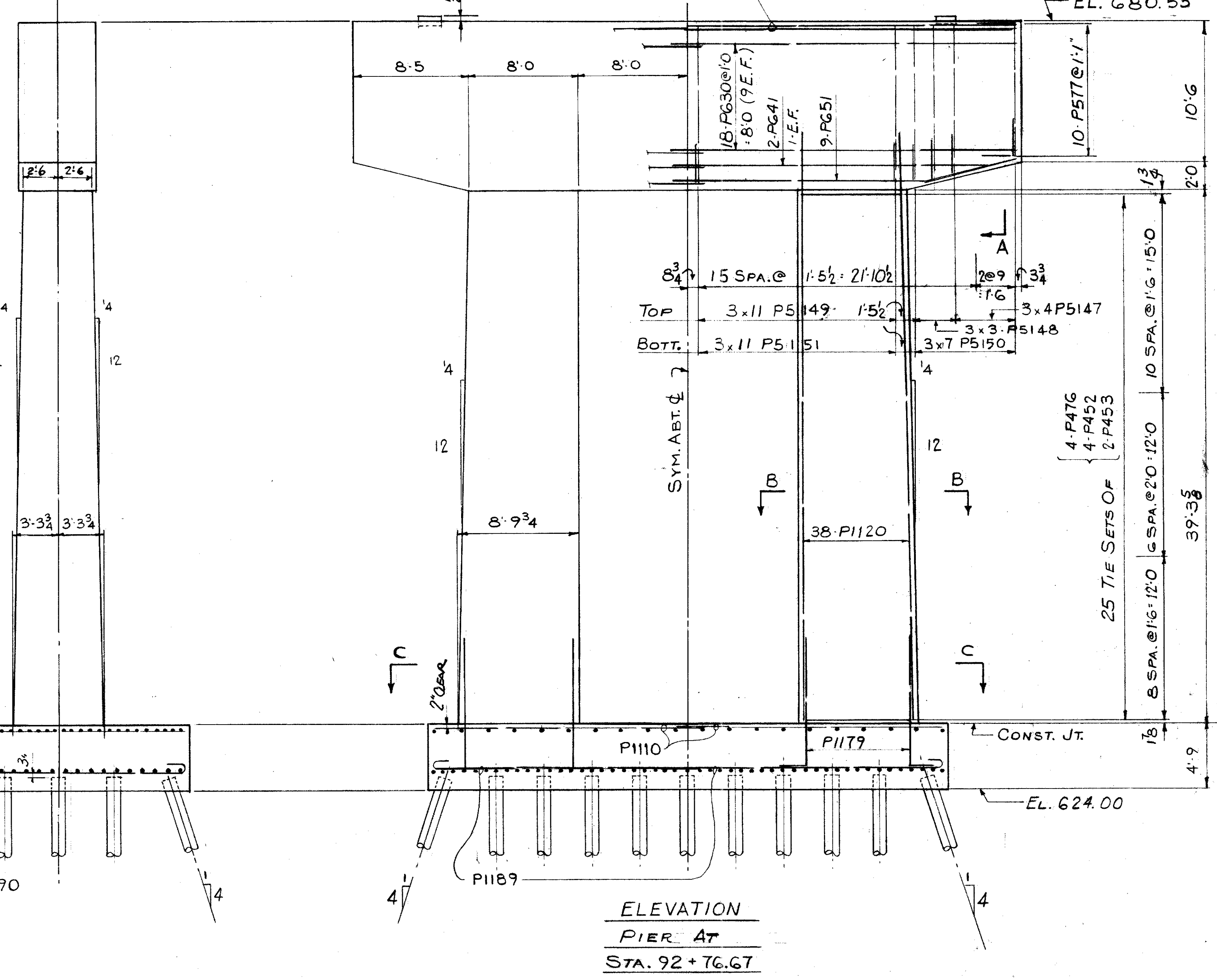
REFERENCE DRAWINGS
SUBSTRUCTURE LAYOUT - DWG. 57
PILE PLAN - DWG. 60
BAR SCHEDULE - DWG'S 97, 98, 99
GENERAL NOTES - DWG. 56

TRYGVE HOFF & ASSOCIATES ENGINEERS 1922 EAST 107TH STREET CLEVELAND, OHIO					
PIER DETAILS					
BRIDGE NO. CUY 21 14.55			WILLOW FREEWAY OVER KINGSBURY RUN CUYAHOGA COUNTY U.S.R. 21 STA. 91+86.00		
SCALE		DATE			
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE
C.A.T.			R.Y.	C.S.	6/20/62

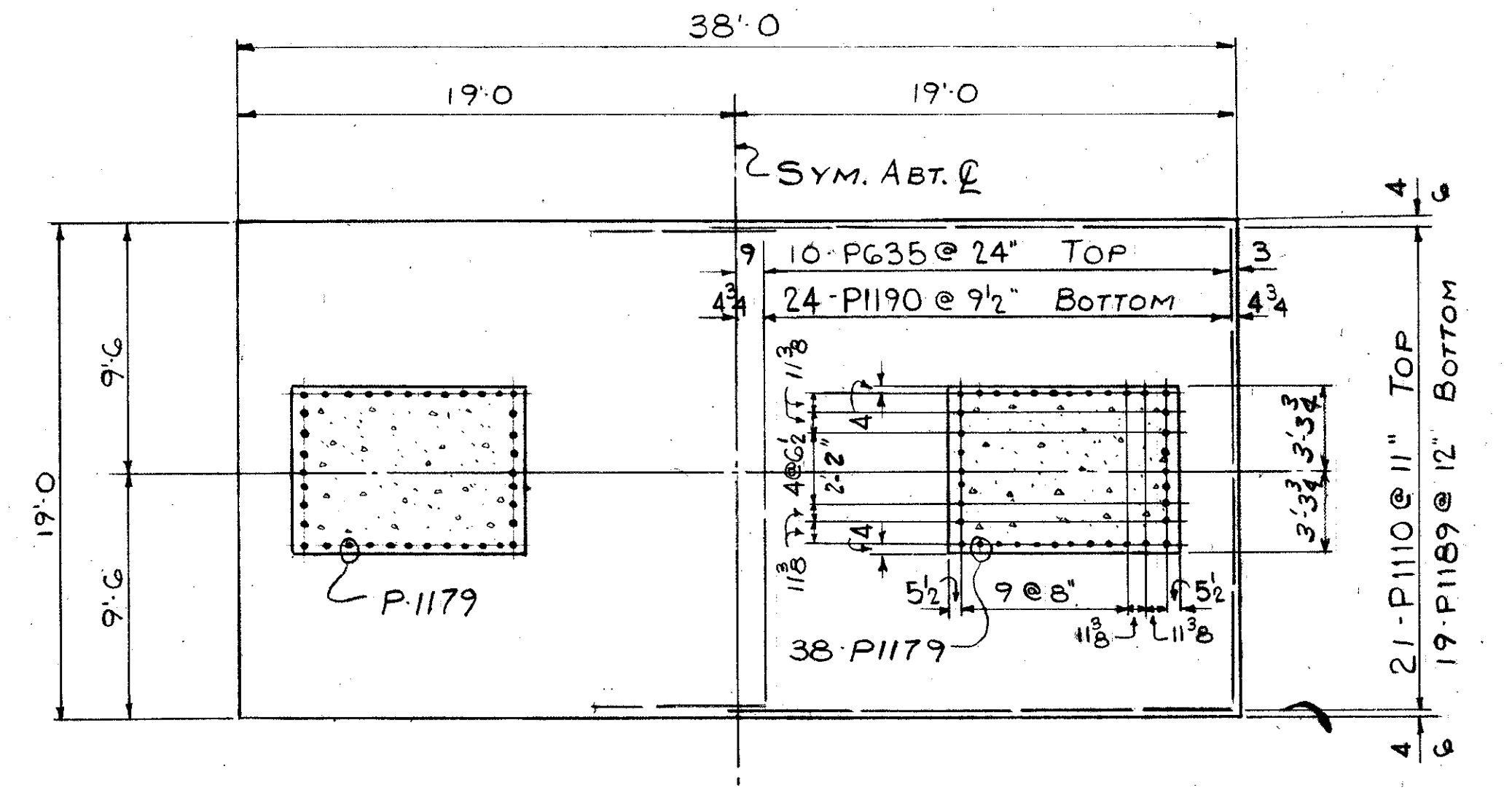
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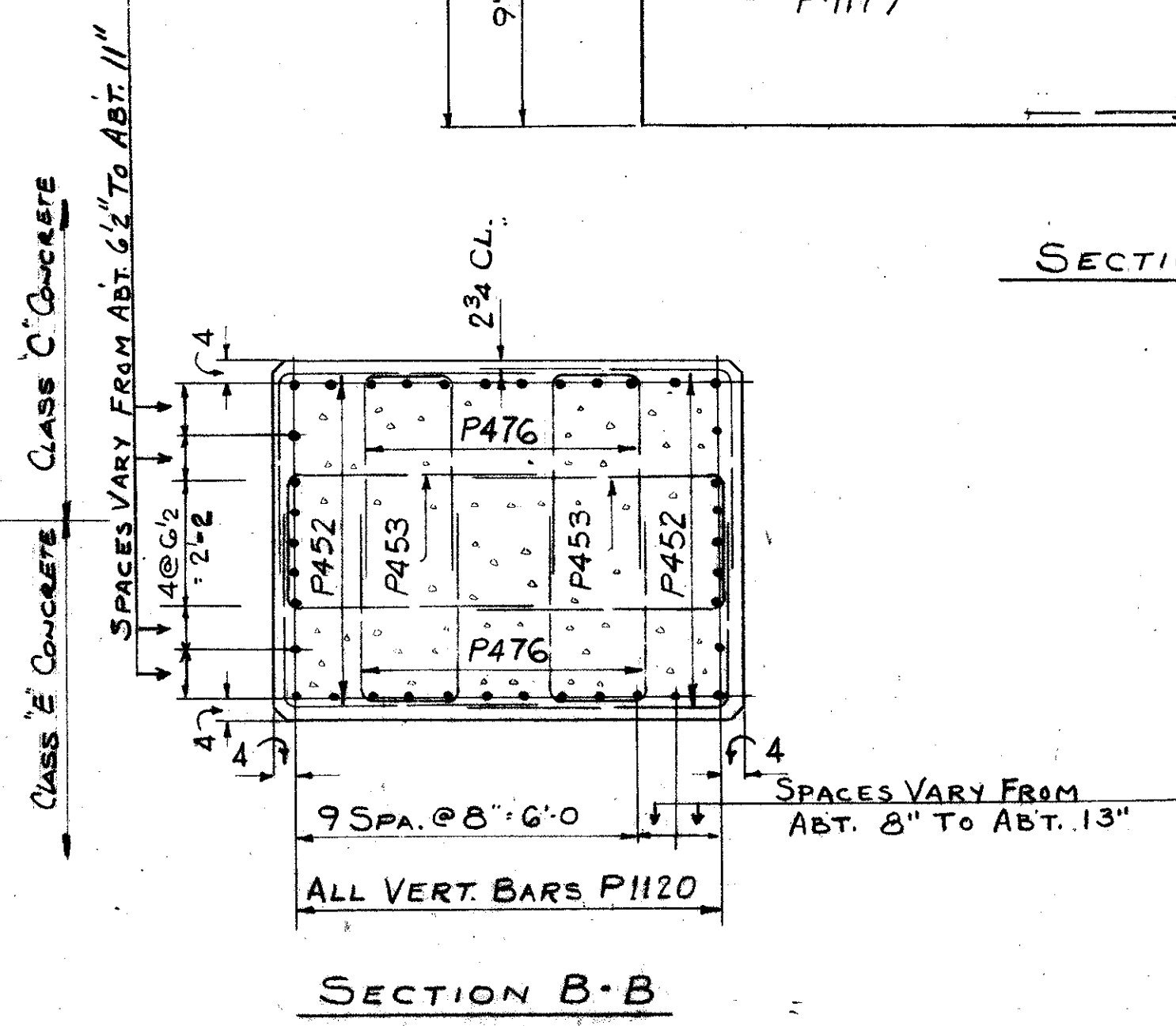
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SECTION A-A



SECTION C-C



SECTION B-B

REFERENCE DRAWINGS
SUBSTRUCTURE LAYOUT - DWG. 57
PILE PLAN - DWG. 60
BAR SCHEDULE - DWG'S 97, 98, 99
GENERAL NOTES - DWG. 56

TRYGVE HOFF & ASSOCIATES
ENGINEERS
1922 EAST 107TH STREET CLEVELAND, OHIO

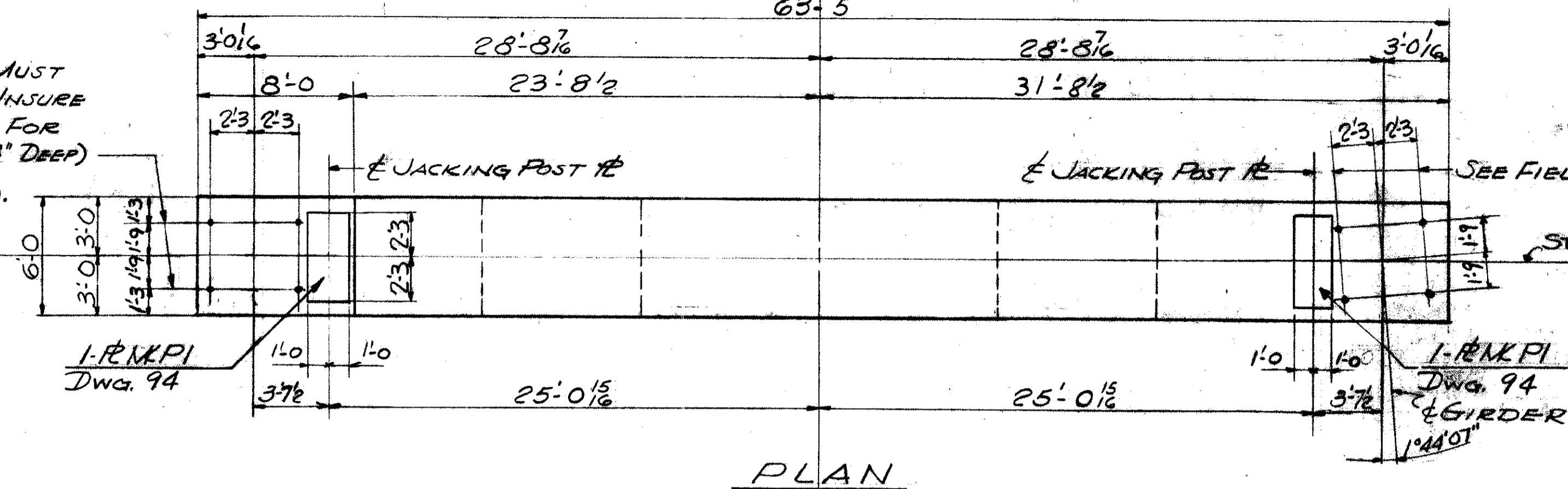
PIER DETAILS
BRIDGE NO. CUY-21-14.55
WILLOW FREEWAY OVER KINGSBURY RUN
CUYAHOGA COUNTY U.S.R. 21
STA. 92+76.67

SCALE	DATE
DESIGNED	DRAWN
TRACED	CHECKED
REVIEWED	DATE
J.L.B.	R.Y.
	C.B.
	6/20/62

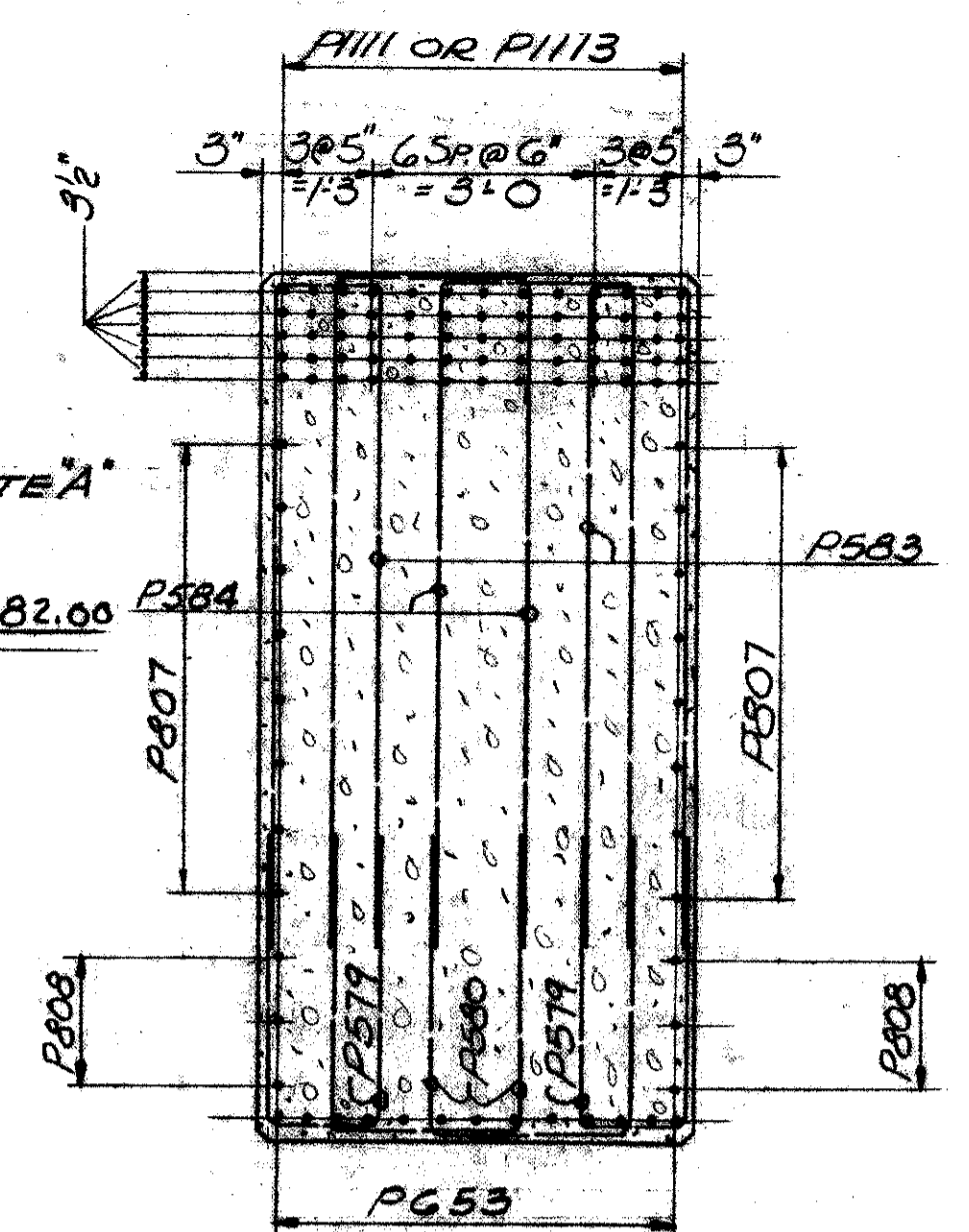
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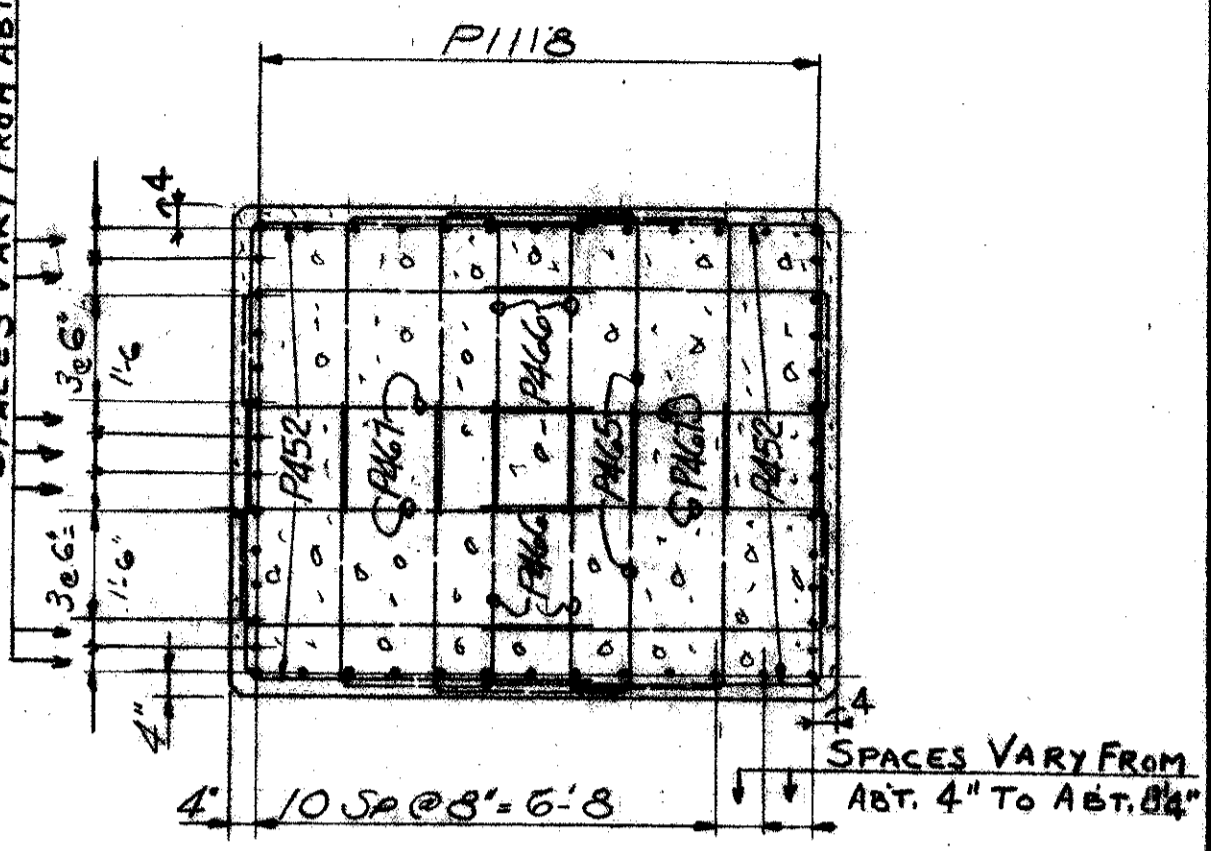
FIELD NOTE "A"
REINFORCING STEEL MUST
BE PLACED SO AS TO INSURE
DRILLING CLEARANCE FOR
2" ANCHOR RODS (2-3" DEEP)
ADJUST STIRRUP SPA.
LOCALLY TO SUIT



PLAN



SECTION A-A

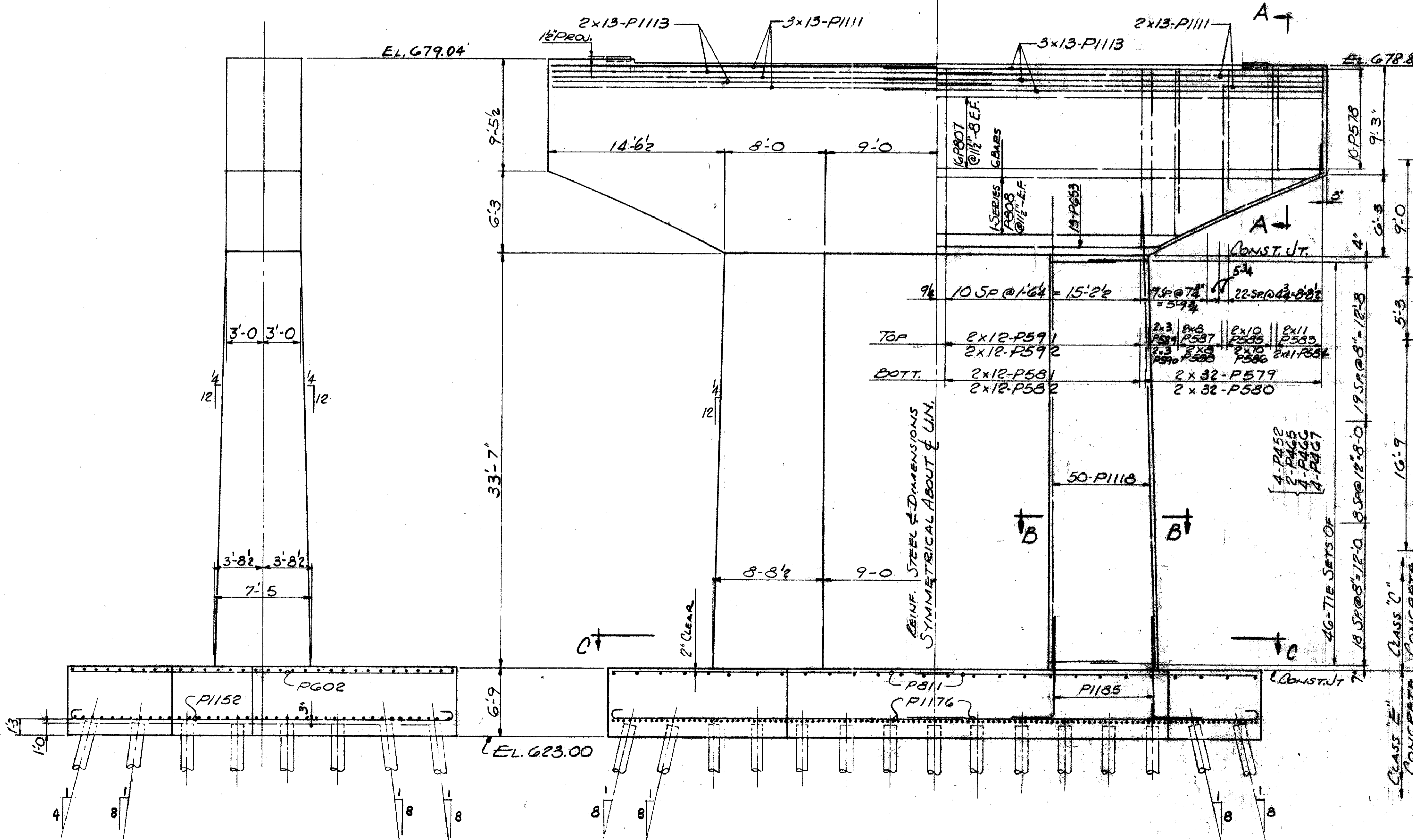


SECTION B-B

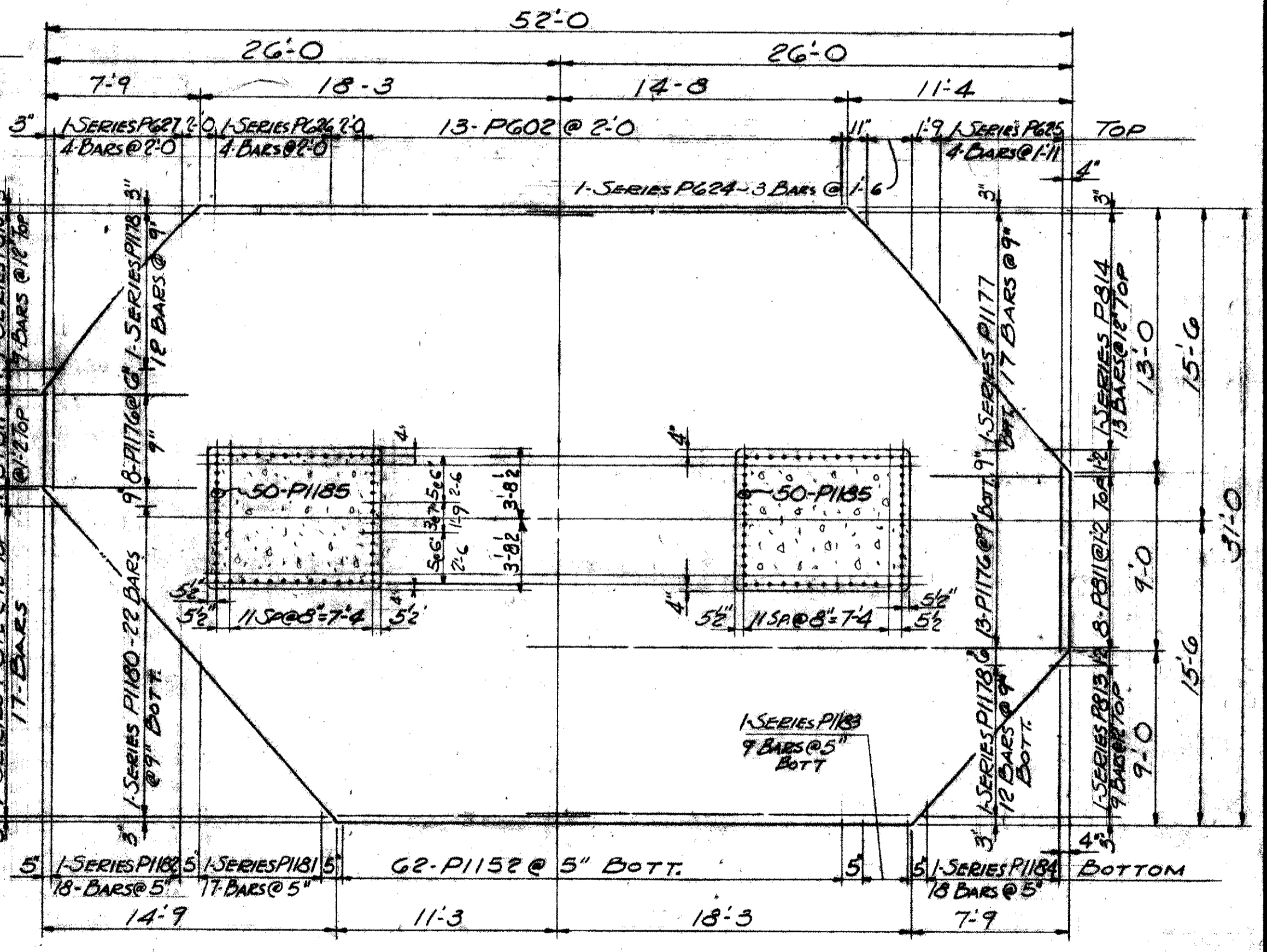
FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

CUYAHOGA COUNTY
CUY-21-14.55

83
164



ELEVATION
PIER AT
STA. 93+82.00



SECTION C-C

REFERENCE DRAWINGS
SUBSTRUCTURE LAYOUT - DWG. 57
PILE PLAN - DWG. 60
BAR SCHEDULE - DWG'S 97, 98, 99
GENERAL NOTES - DWG. 56

TRYGVE HOFF & ASSOCIATES
ENGINEERS
1922 EAST 107TH STREET CLEVELAND, OHIO

PIER DETAILS
BRIDGE NO. CUY-21-14.55
WILLOW FREEWAY OVER KINGSBURY RUN
CUYAHOGA COUNTY U.S.R. 21
STA. 93+82.00

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISION
	CAT		RIY	CS	6/20/62	

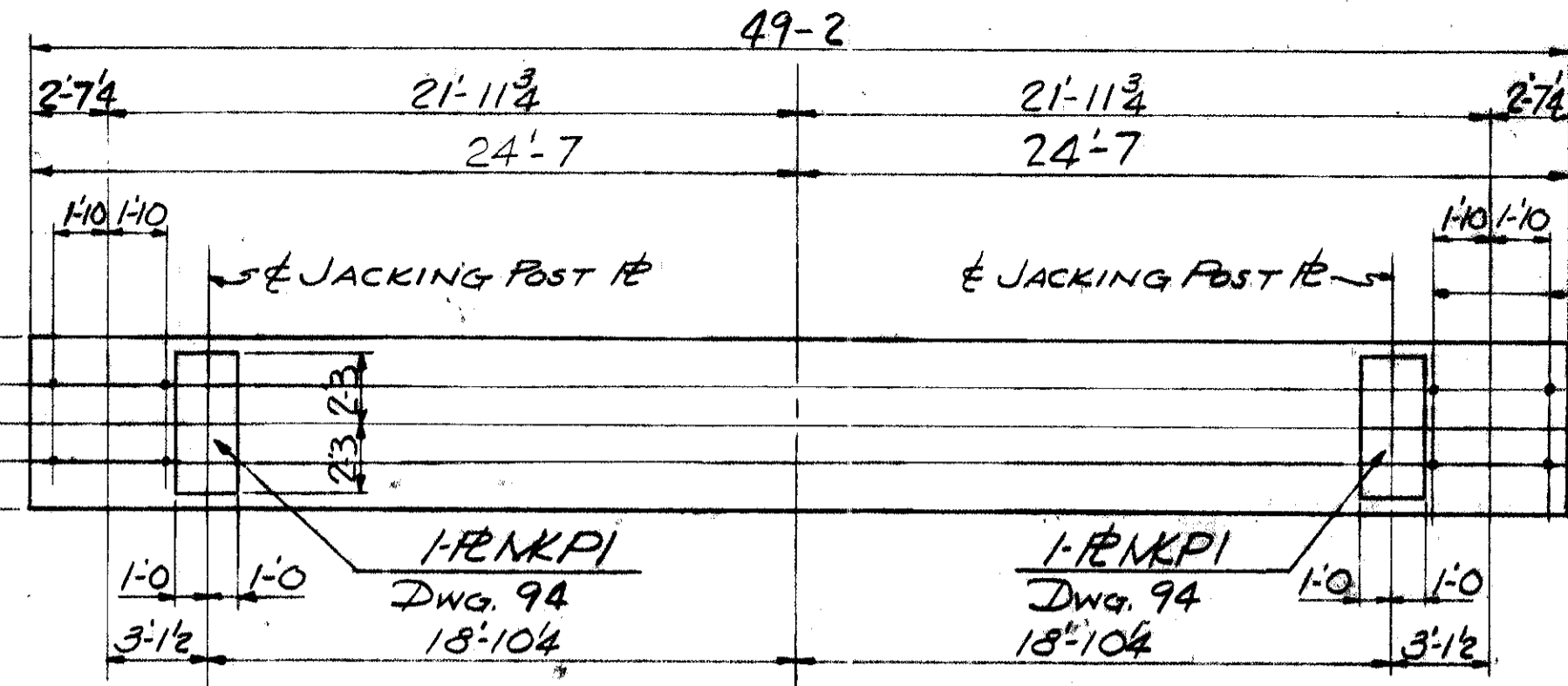
FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

84
164

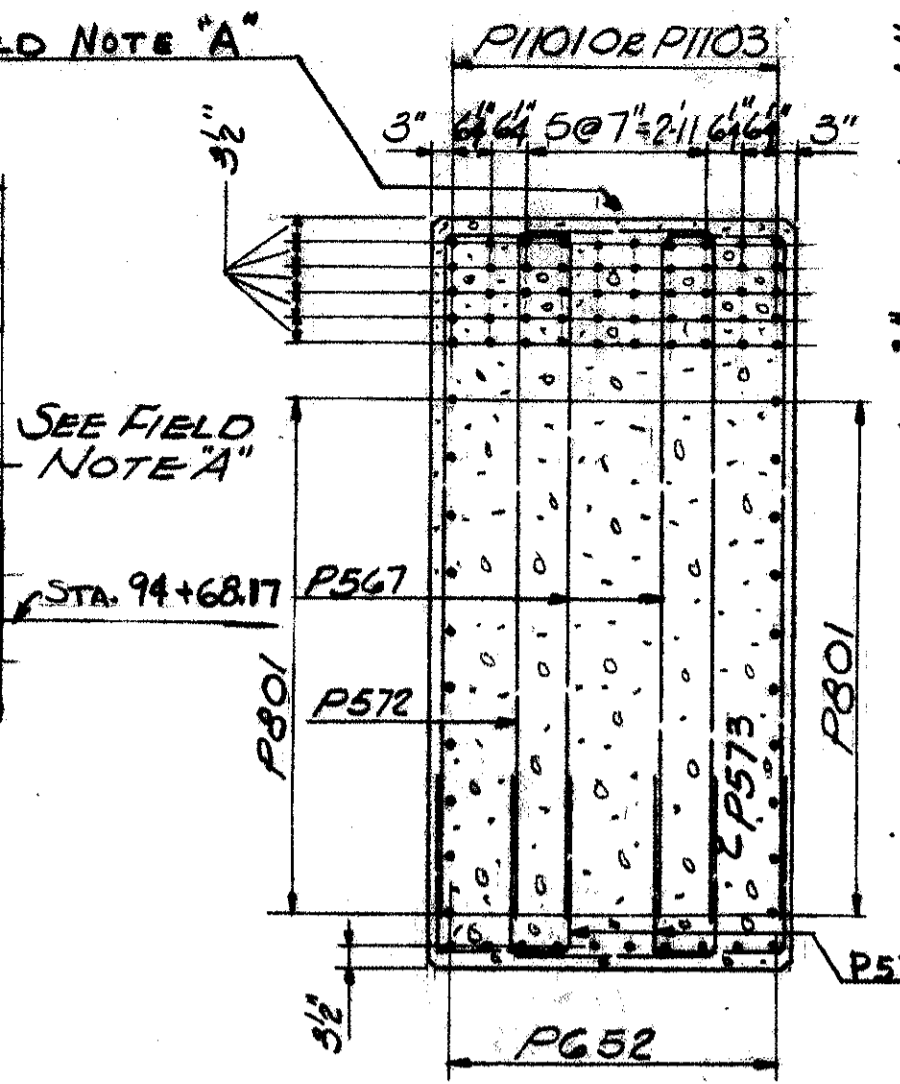
CUYAHOGA COUNTY
CUY-21-14.55



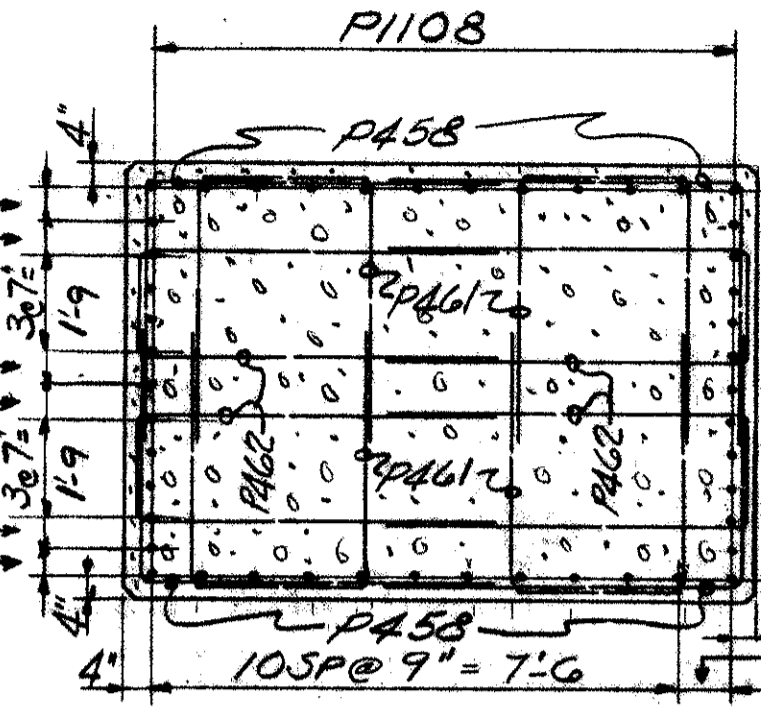
FIELD NOTE "A"
REINFORCING STEEL
MUST BE PLACED SO AS TO INSURE
DRILLING CLEARANCE FOR
2" ANCHOR RODS (2.3" DEEP)
ADJUST STIRRUP
SPACING LOCALLY
TO SUIT



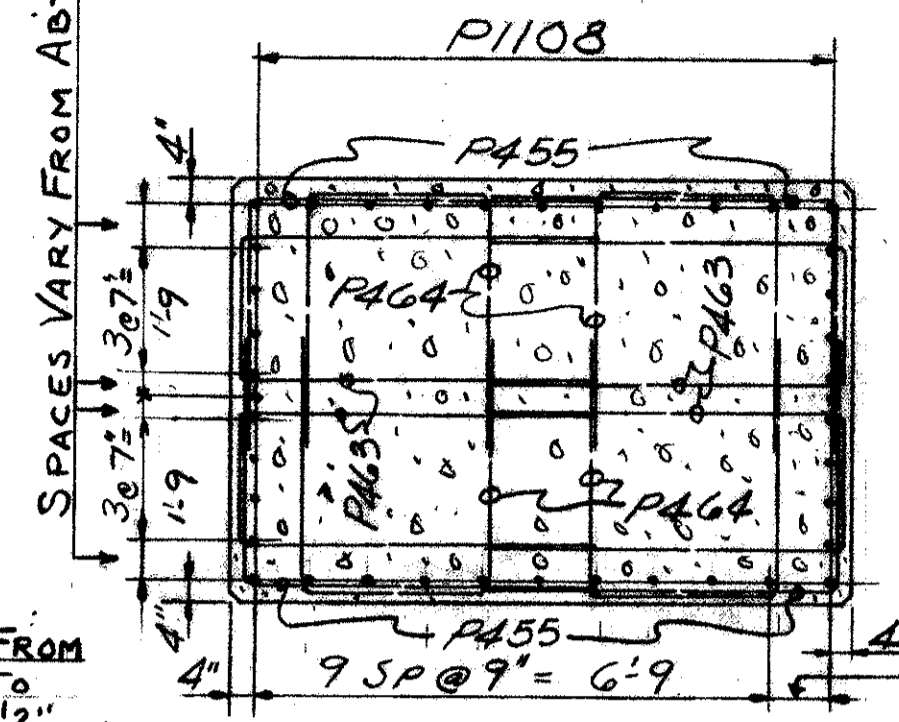
PLAN



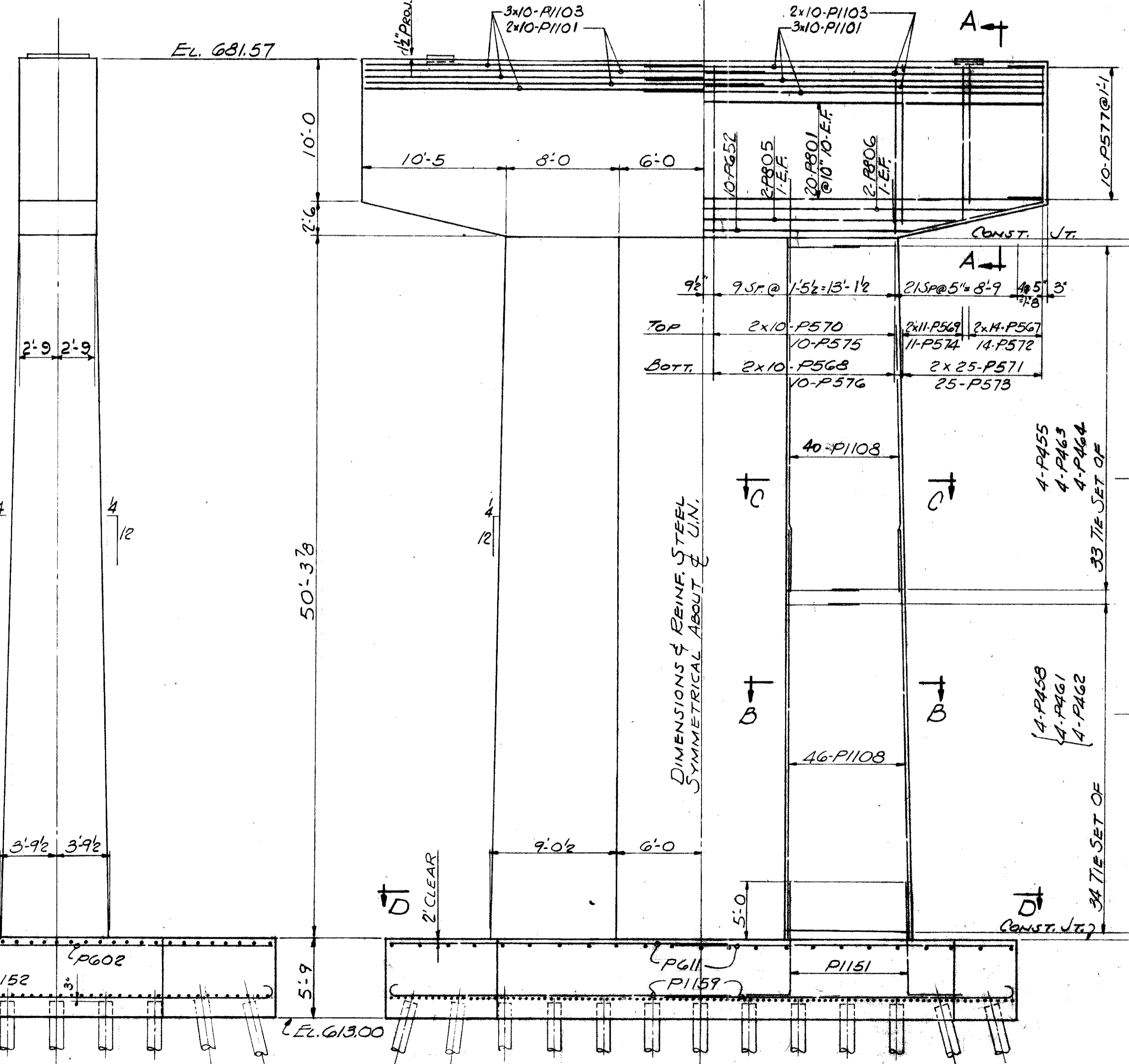
SECTION A-A



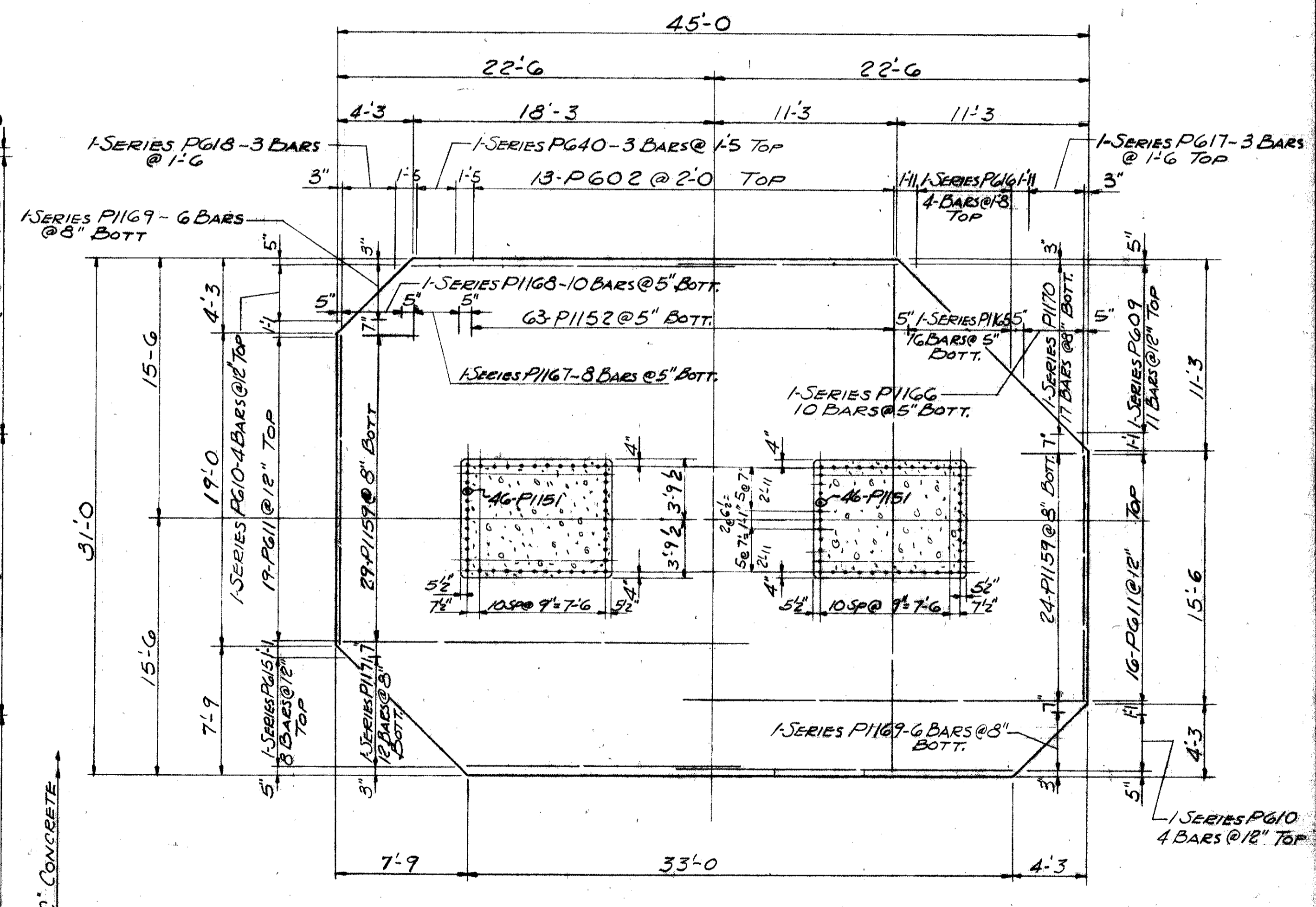
SECTION B-B



SECTION C-C



ELEVATION
PIER AT
STA. 94+68.17



SECTION D-D

REFERENCE DRAWINGS
SUBSTRUCTURE LAYOUT - DWG. 57
PILE PLAN - DWG. 60
BAR SCHEDULE - DWG'S 97, 98, 99
GENERAL NOTES - DWG 56

TRYGVE HOFF & ASSOCIATES
ENGINEERS
1922 EAST 107TH STREET CLEVELAND, OHIO

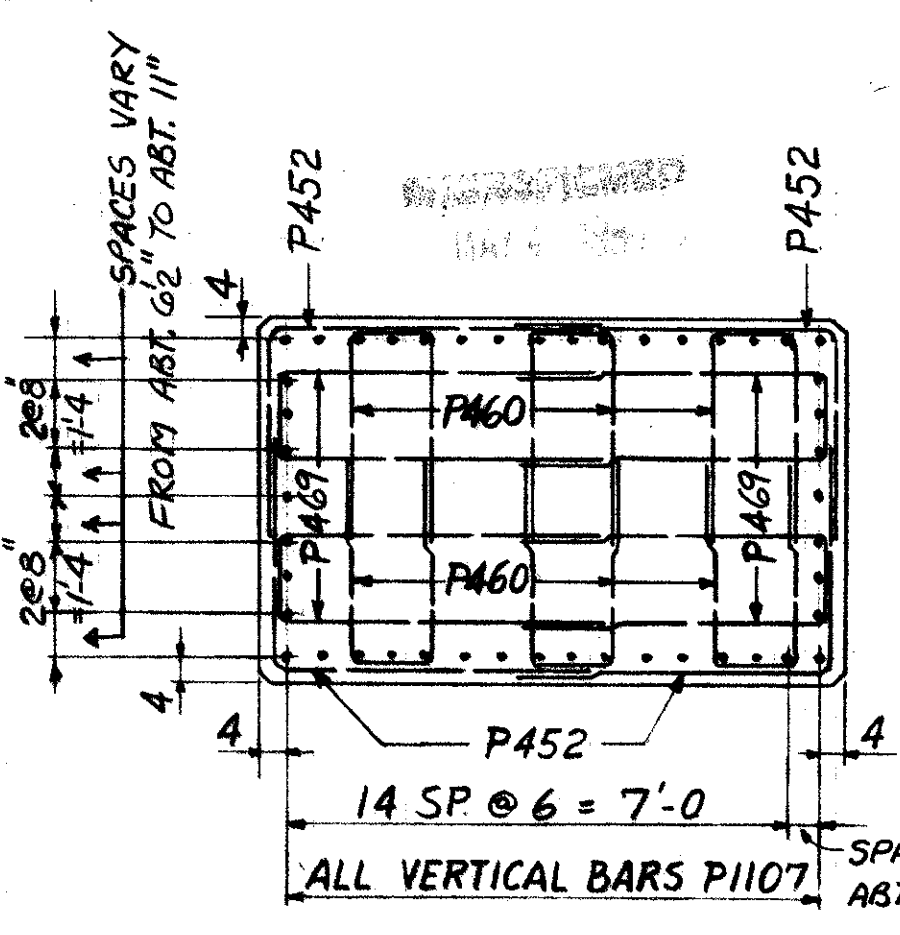
PIER DETAILS
BRIDGE NO. CUY-21-14.55
WILLOW FREEWAY OVER KINGSBURY RUN
CUYAHOGA COUNTY USR. 21
STA. 94+68.17

SCALE	DATE
DESIGNED	DRAWN
TRACED	CHECKED
REVIEWED	DATE
REV.	REV.

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

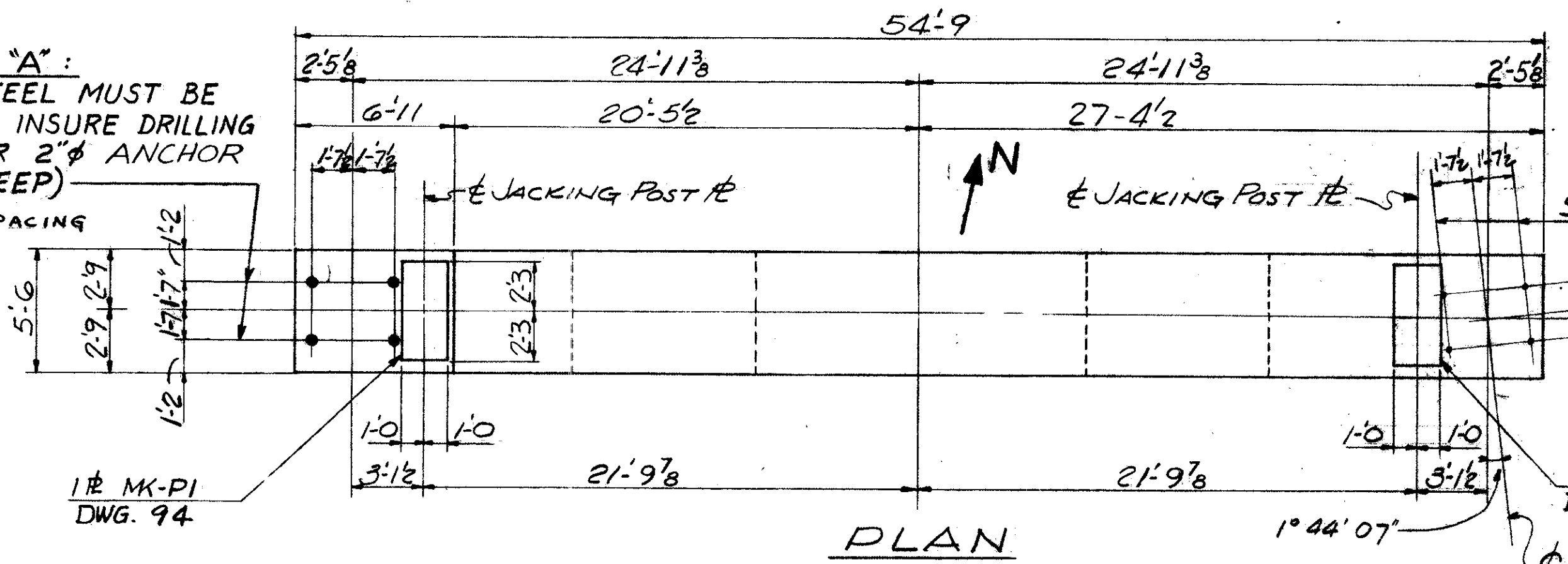
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164

CUYAHOGA COUNTY
CUY-21-14.55

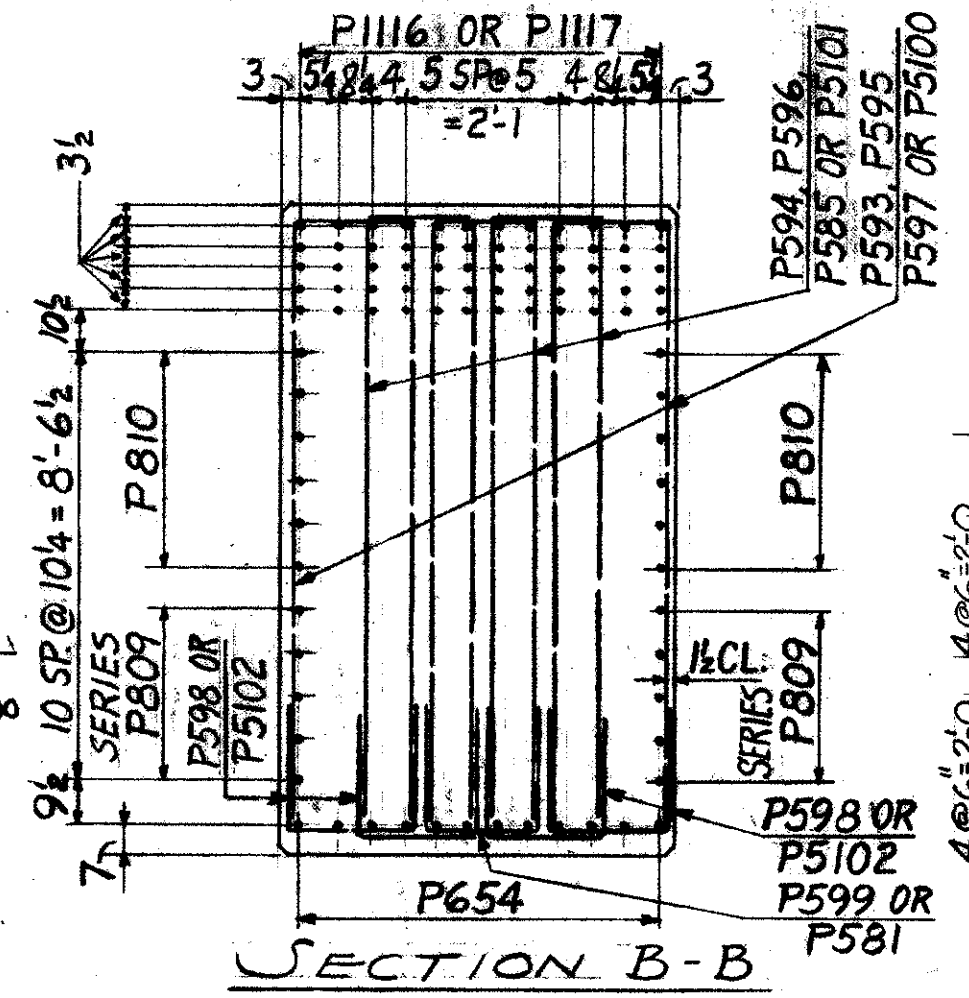


SECTION A-A

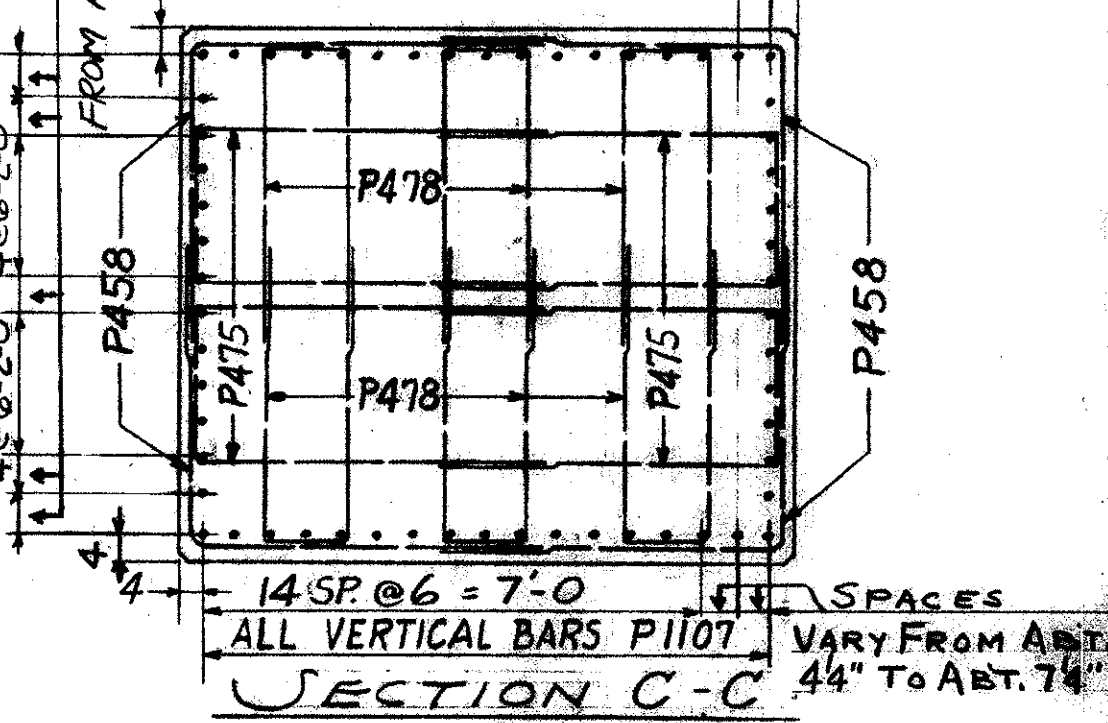
FIELD NOTE "A":
REINFORCING STEEL MUST BE PLACED SO AS TO INSURE DRILLING CLEARANCE FOR 2" ANCHOR RODS (2'-3 1/2" DEEP)
ADJUST STIRRUP SPACING LOCALLY TO SUIT



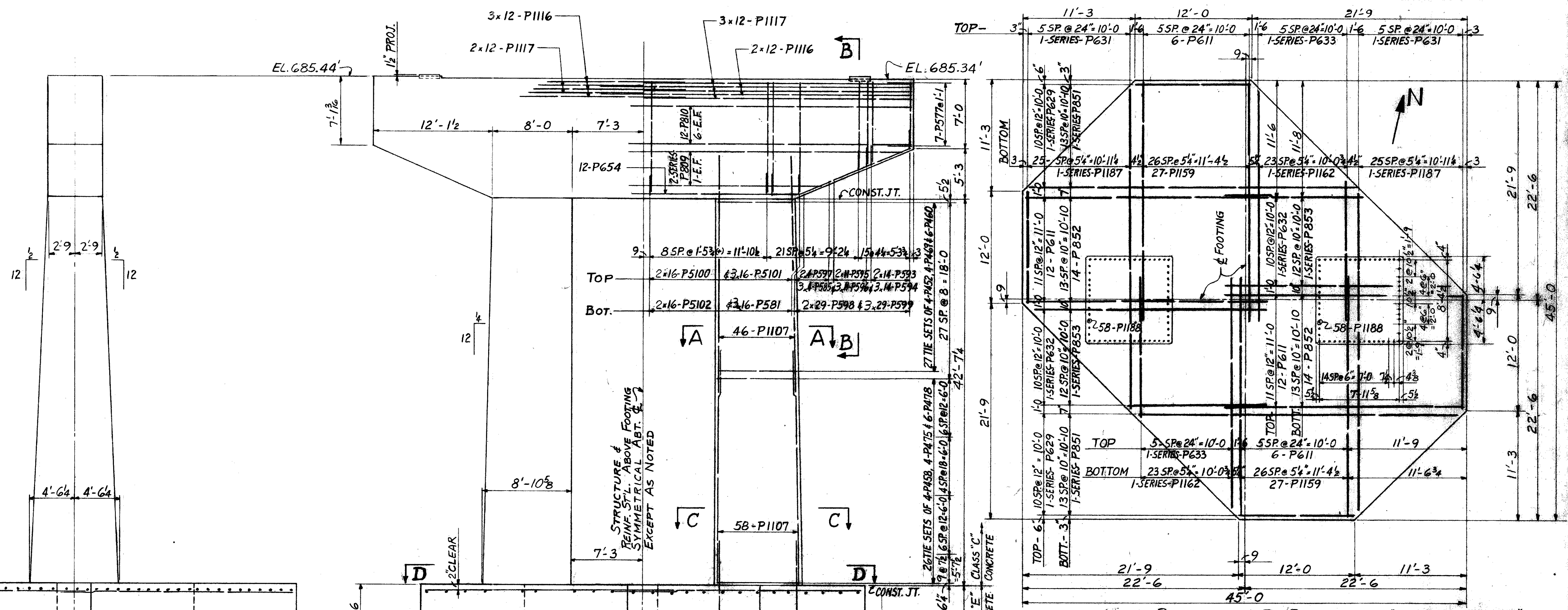
PLAN



SECTION B-B



SECTION C-C



ELEVATION
PIER AT
STA. 96+30.00

REFERENCE DRAWINGS
SUBSTRUCTURE LAYOUT - DWG. 57
PILE PLAN - DWG. 61
BAR SCHEDULE - DWG. 97, 98, 99
GENERAL NOTES - DWG. 56

NOTE: SEE "ELECTRICAL GROUNDS"
NOTE ON DWG. 86.

TRYGVE HOFF & ASSOCIATES
ENGINEERS
1922 EAST 107TH STREET CLEVELAND, OHIO
PIER DETAILS
BRIDGE NO. CUY-21-14.55
WILLOW FREEWAY OVER KINGSBURY RUN
CUYAHOGA COUNTY USR. 21
STA. 96+30.00

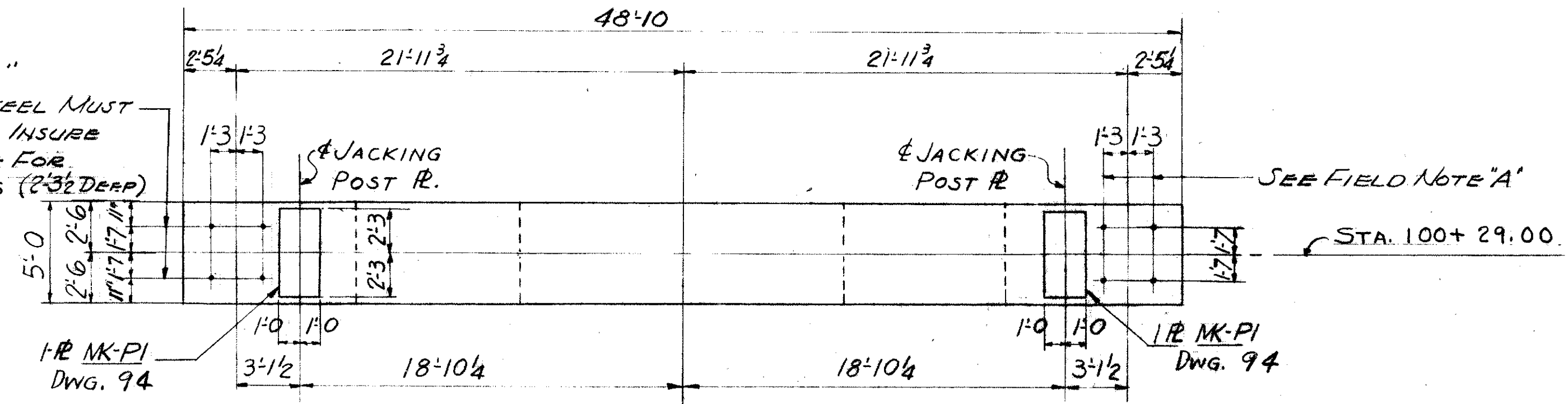
SCALE	DATE
DESIGNED	DRAWN
TRACED	CHECKED
SGF	AS

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

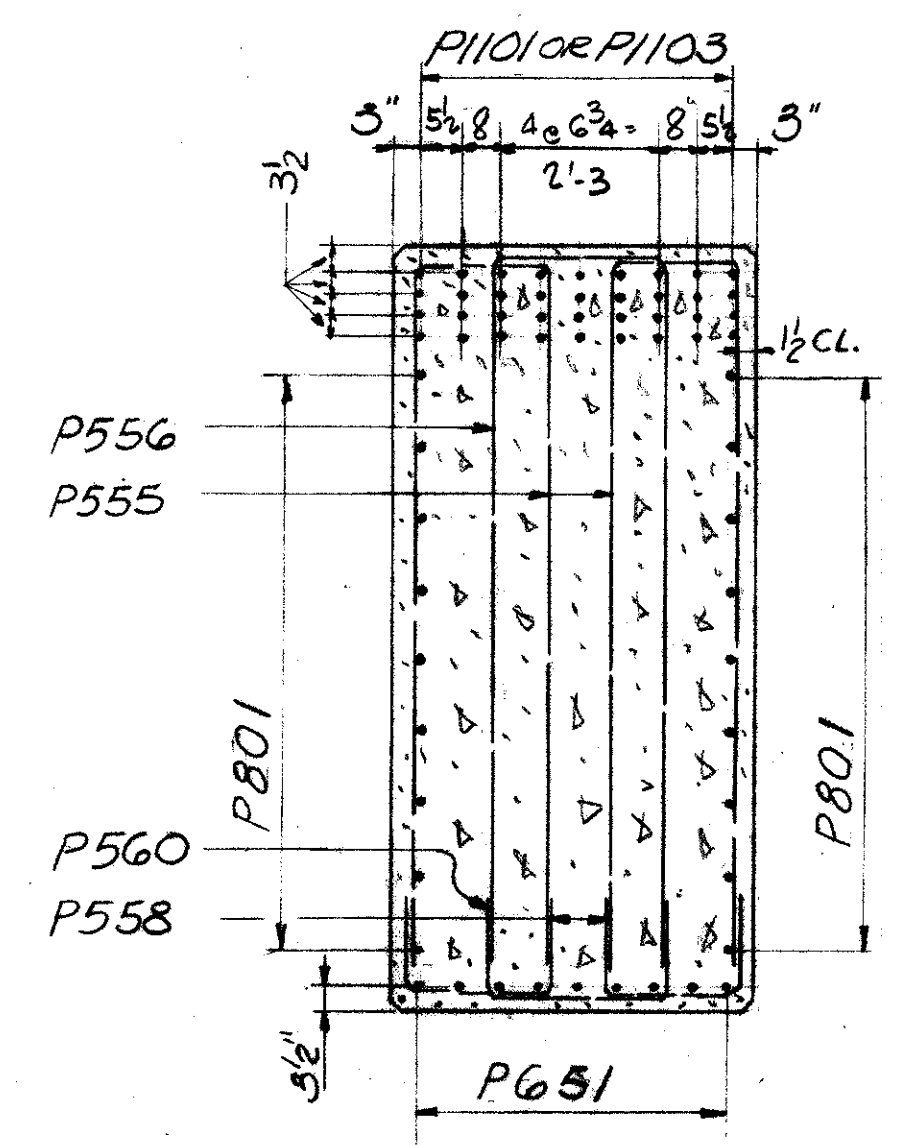
CUYAHOGA COUNTY
CUY-21-14.55



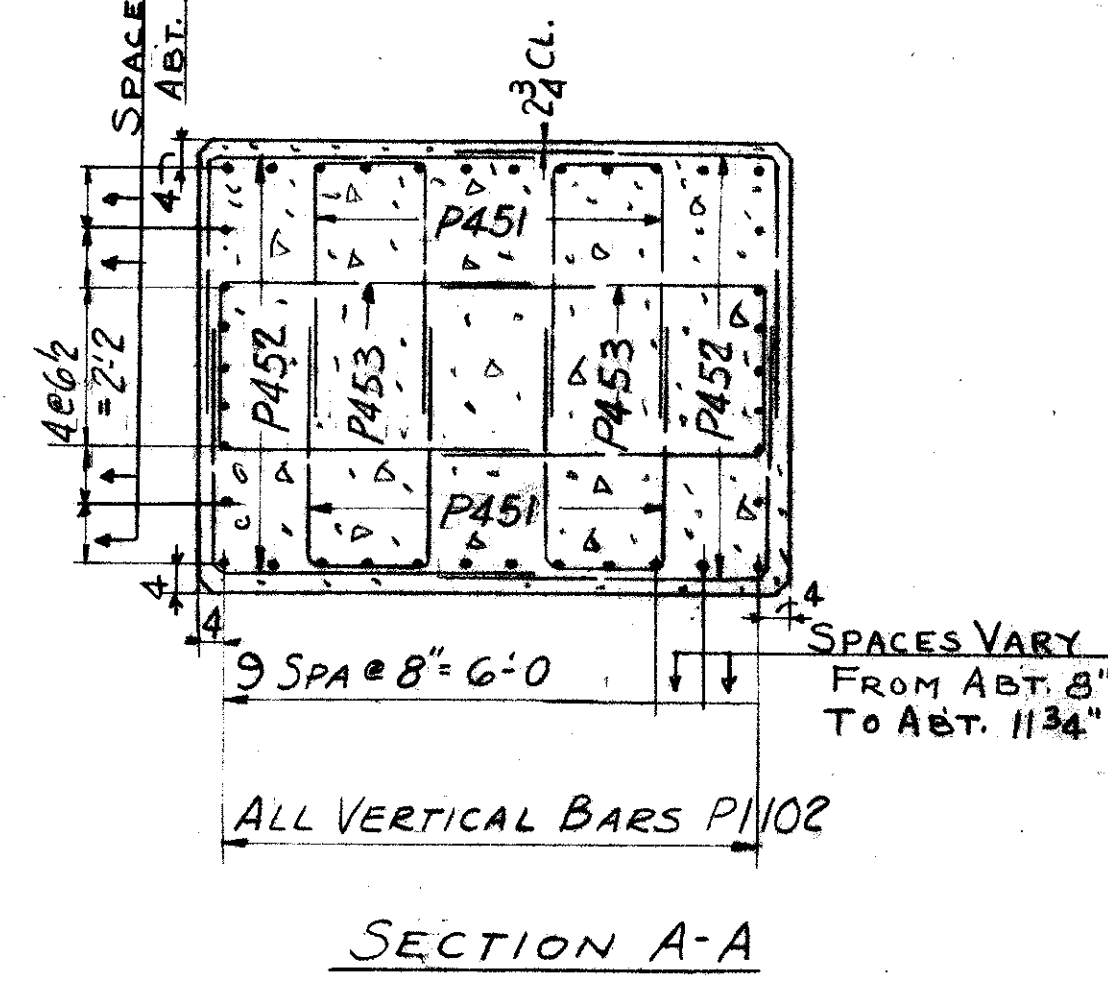
FIELD NOTE "A"
REINFORCING STEEL MUST BE PLACED SO AS TO INSURE DRILLING CLEARANCE FOR 2" ANCHOR RODS (2-3/2 DEEP). ADJUST STIRRUP SPACING LOCALLY TO SUIT.



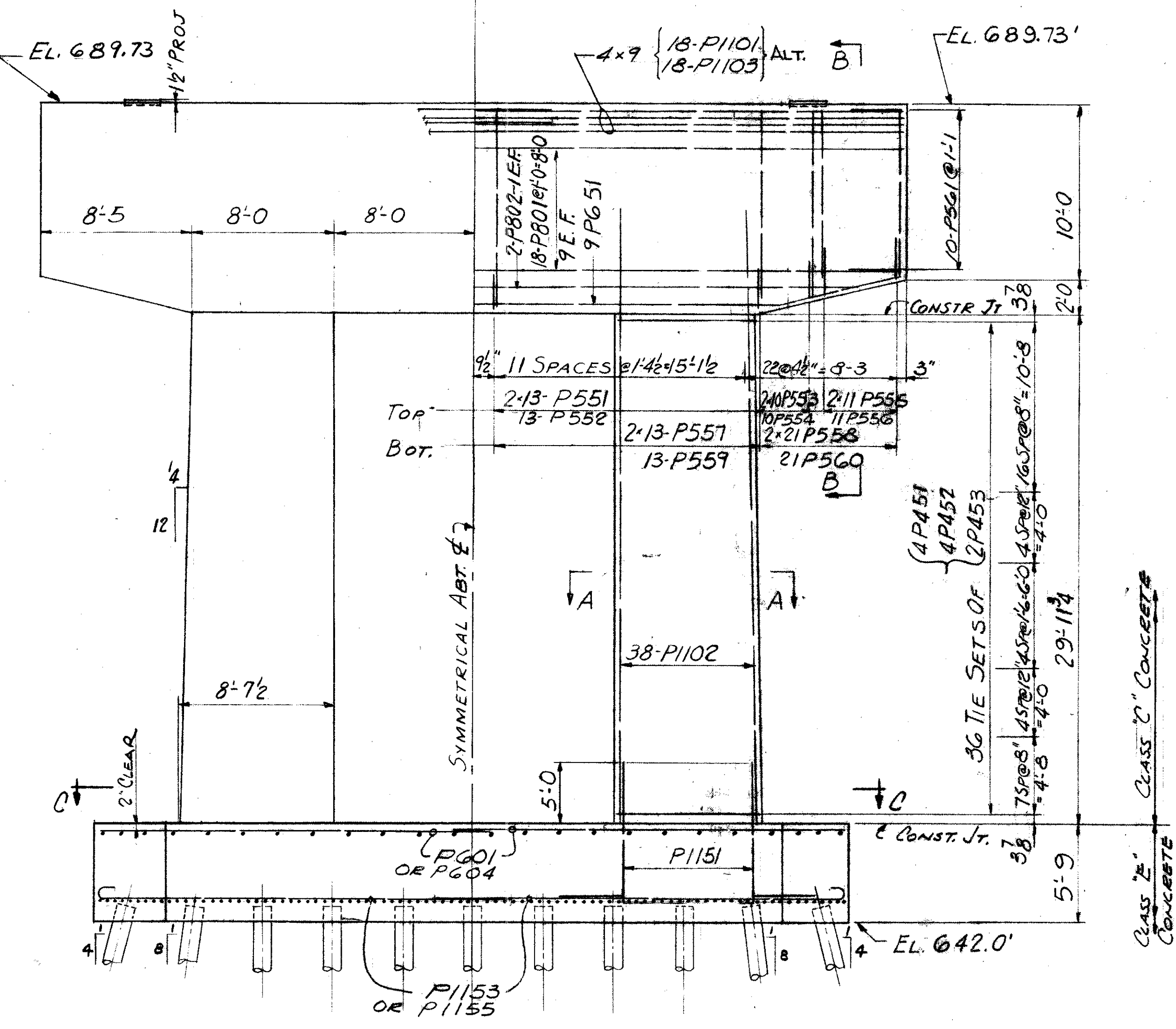
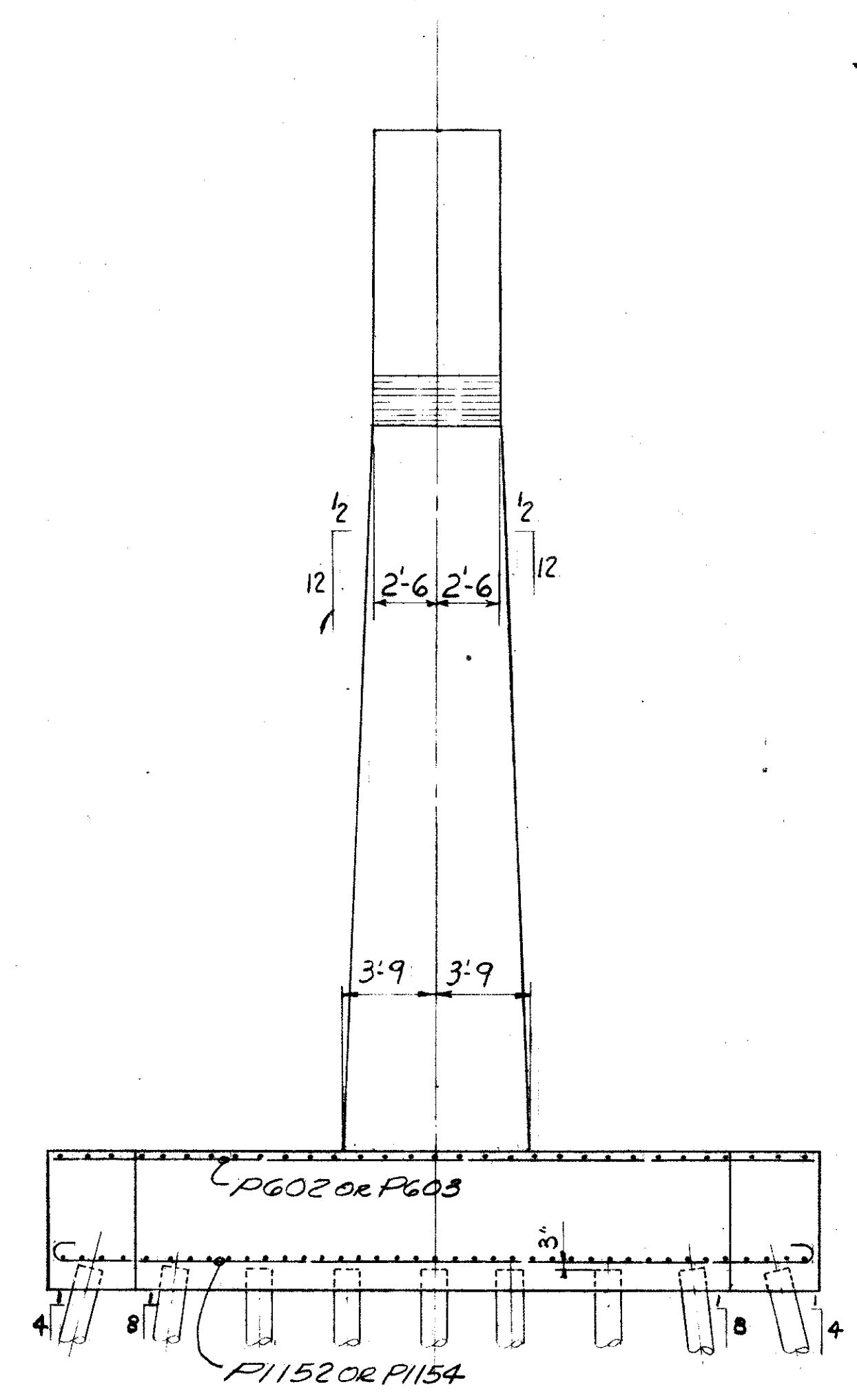
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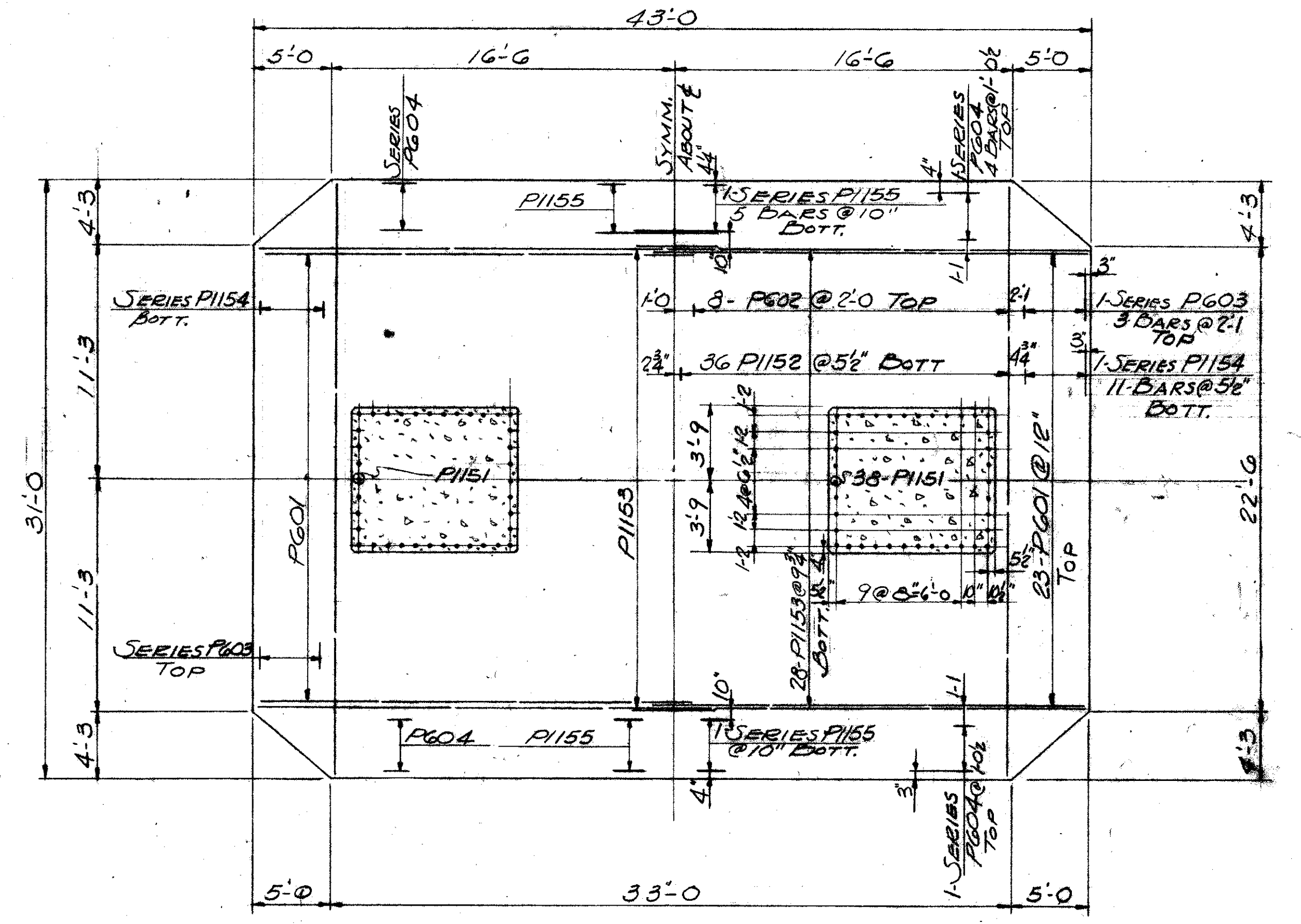
SECTION B-B



SECTION A-A



ELEVATION
PIER AT
STA. 100+29.00



SECTION C-C

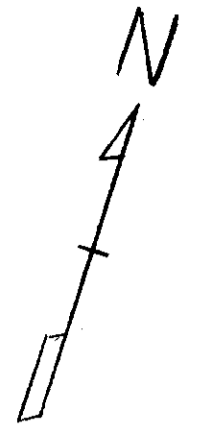
REFERENCE DRAWINGS
SUBSTRUCTURE LAYOUT - DWG. 58
PILE PLAN - DWG. 61
BAR SCHEDULE - DWG'S 97, 98, 99
GENERAL NOTES - DWG. 56

TRYGVE HOFF & ASSOCIATES
ENGINEERS
1922 EAST 107TH STREET CLEVELAND, OHIO

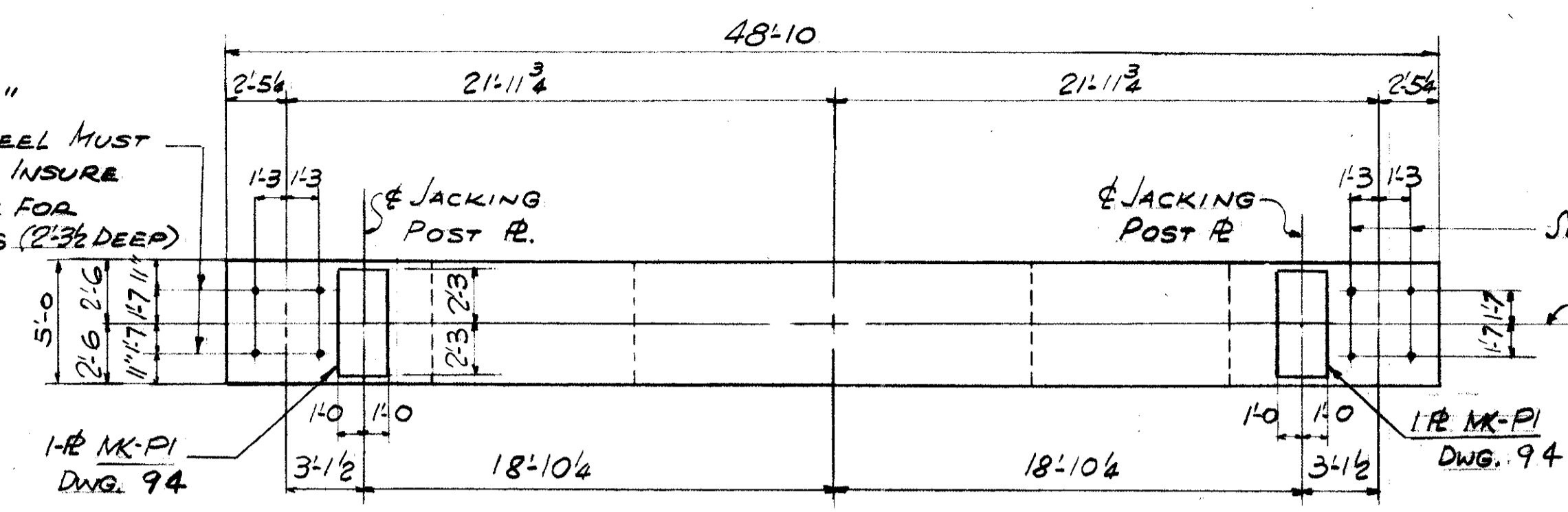
PIER DETAILS
BRIDGE NO. CUY-21-14.55
WILLOW FREEWAY OVER KINGSBURY RUN
CUYAHOGA COUNTY U.S.R. 21
STA. 100+29.00

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE
J.M. CAT	J.M. CAT	R.Y.	C.B.	C.B.	6/1/62

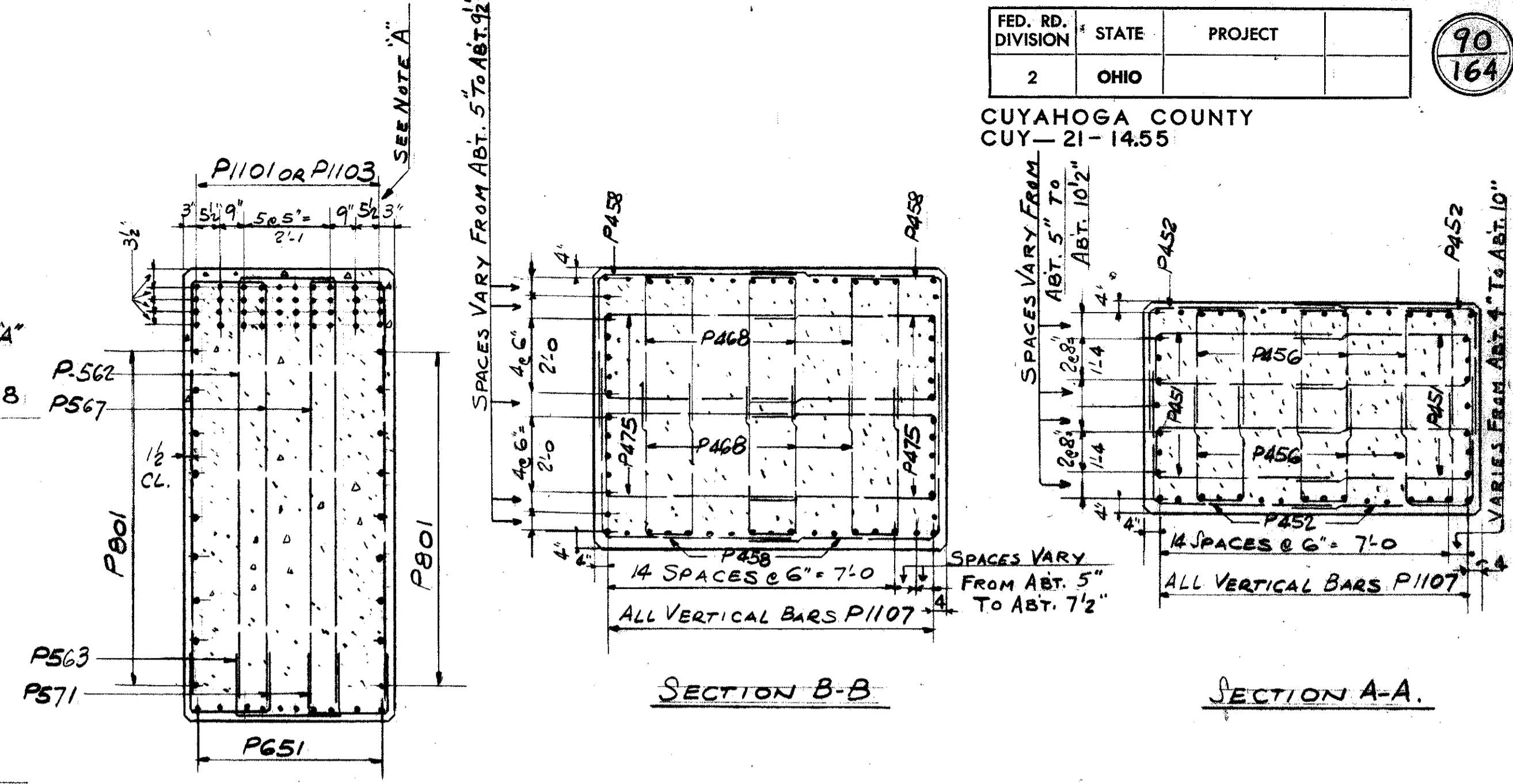
CUYAHOGA COUNTY
CUY-21-1455



FIELD NOTE "A"
REINFORCING STEEL MUST
BE PLACED SO AS TO INSURE
DRILLING CLEARANCE FOR
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ADJUST STIRRUP
SPACING LOCALLY
TO SUIT

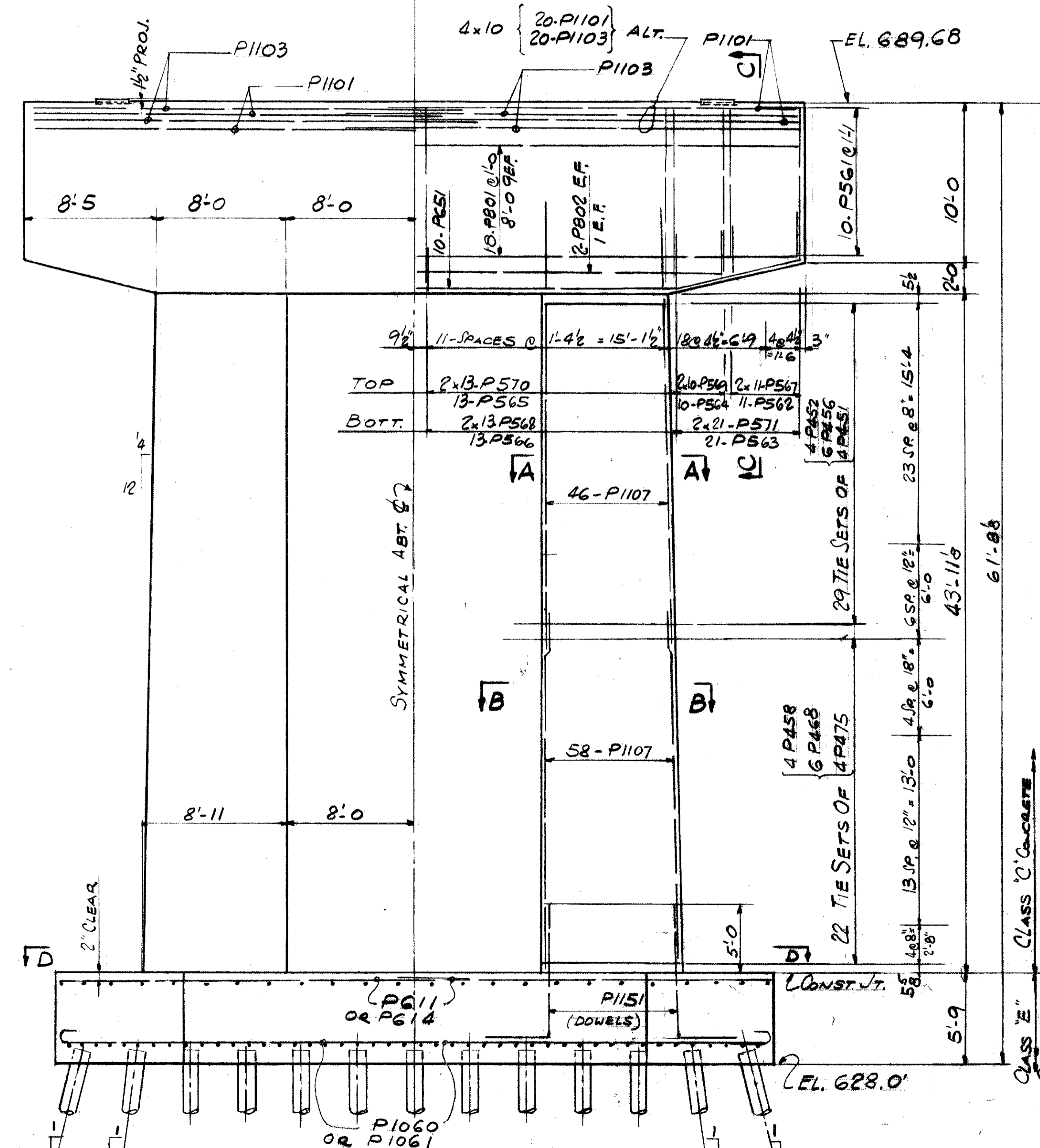


PLAN

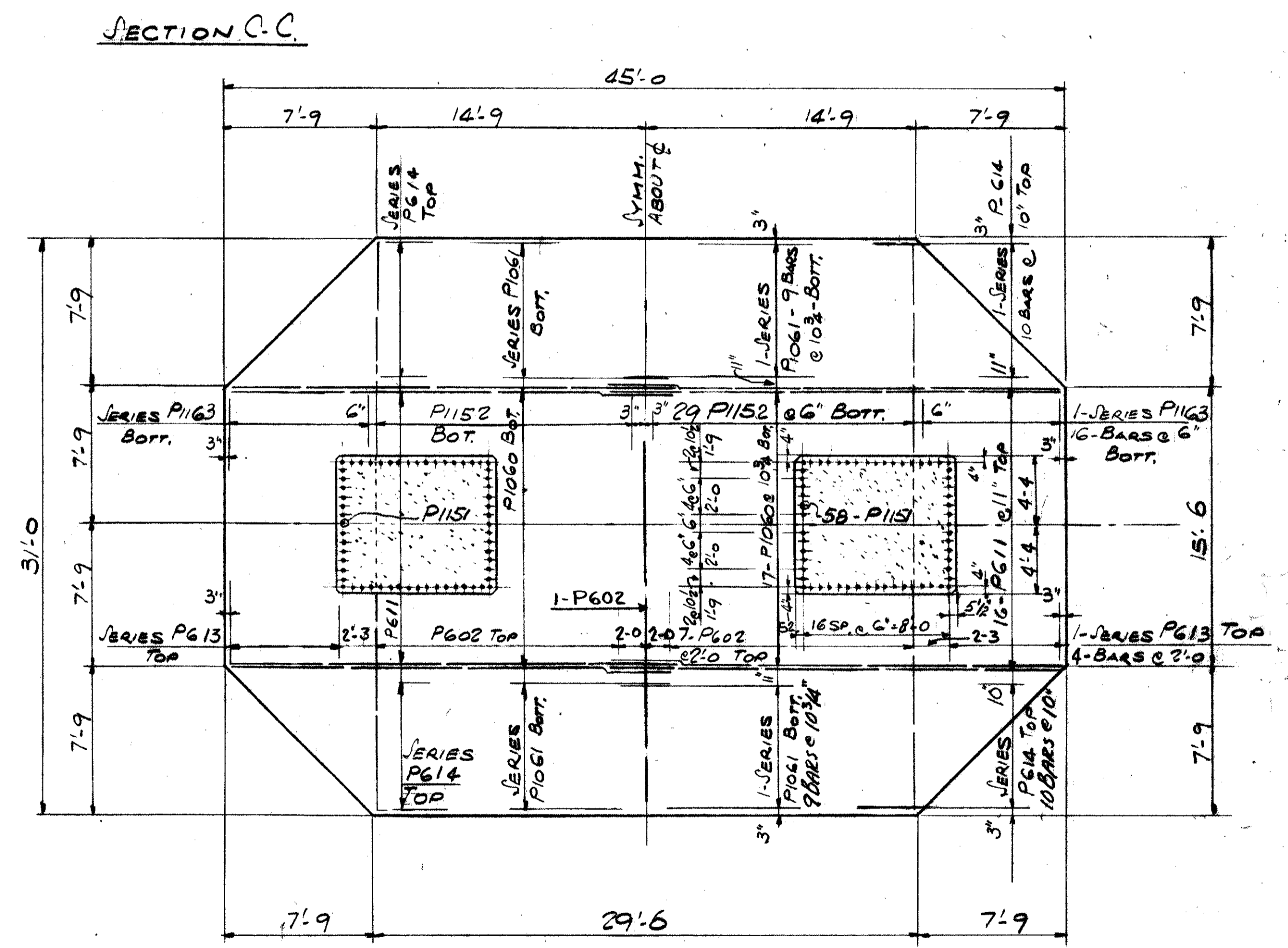


SECTION B-B

SECTION A-A



ELEVATION
PIER AT
STA. 101+03.38



SECTION C-C

SECTION D-D

REFERENCE DRAWINGS
SUBSTRUCTURE LAYOUT - DWG. 58
PILE PLAN - DWG. 61
BAR SCHEDULE - DWG'S 97, 98, 99
GENERAL NOTES - DWG. 56

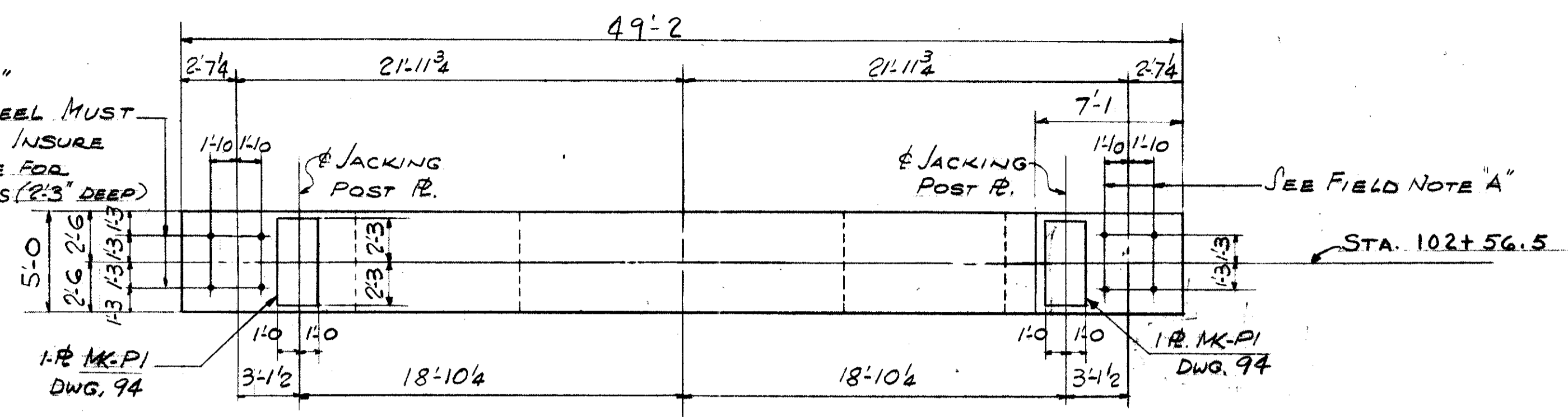
TRYGVE HOFF & ASSOCIATES
ENGINEERS
1922 EAST 107TH STREET CLEVELAND, OHIO

PIER DETAILS
BRIDGE NO. CUY-21-1455
WILLOW FREEWAY OVER KINGSBURY RUN
CUYAHOGA COUNTY U.S.R. 21
STA. 101+03.38

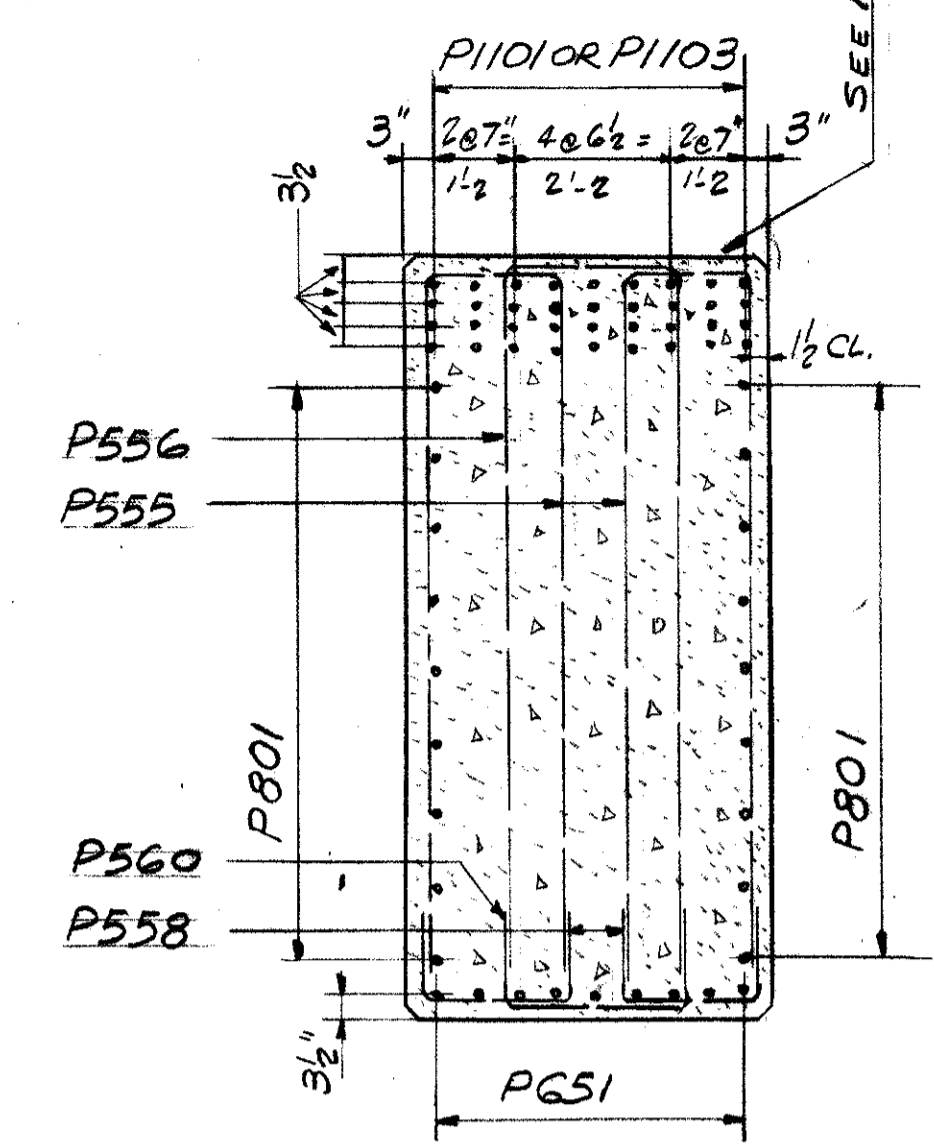
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CUYAHOGA COUNTY
CUY-21-14.55

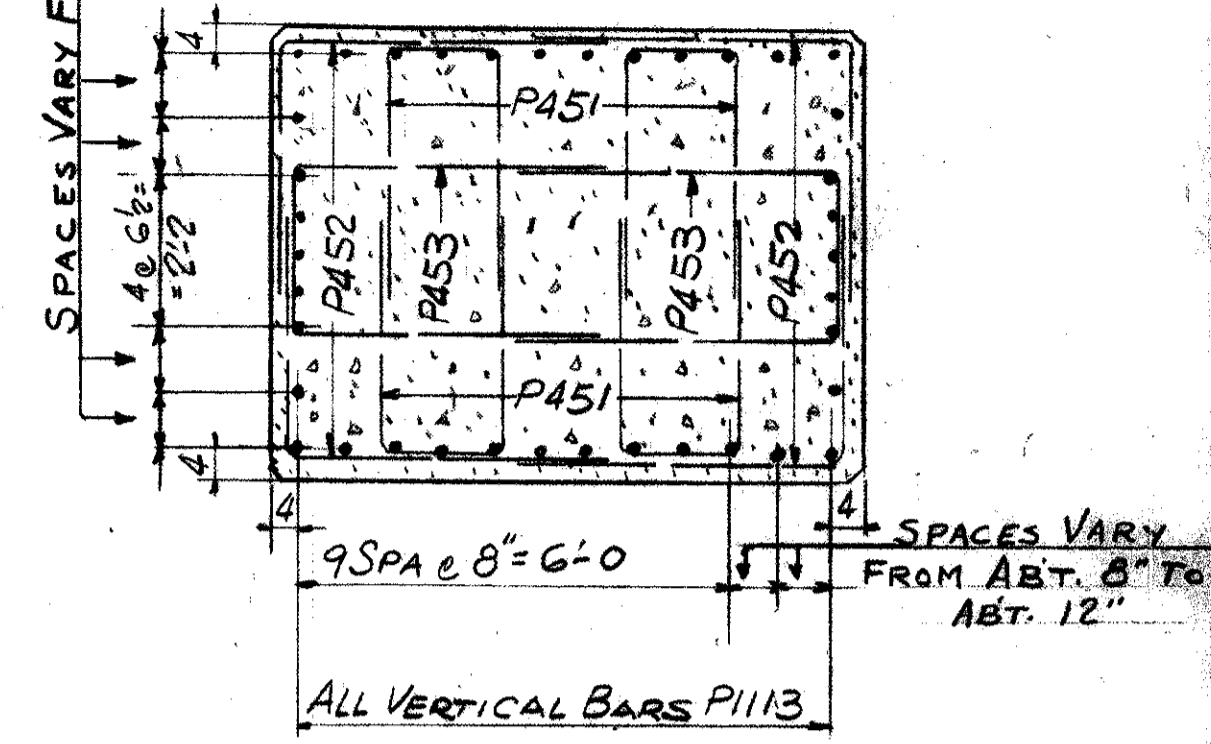
FIELD NOTE "A"
REINFORCING STEEL MUST
BE PLACED SO AS TO INSURE
DRILLING CLEARANCE FOR
2" ANCHOR RODS (2'-3" DEEP)
ADJUST STIRRUP
SPACING LOCALLY
TO SUIT



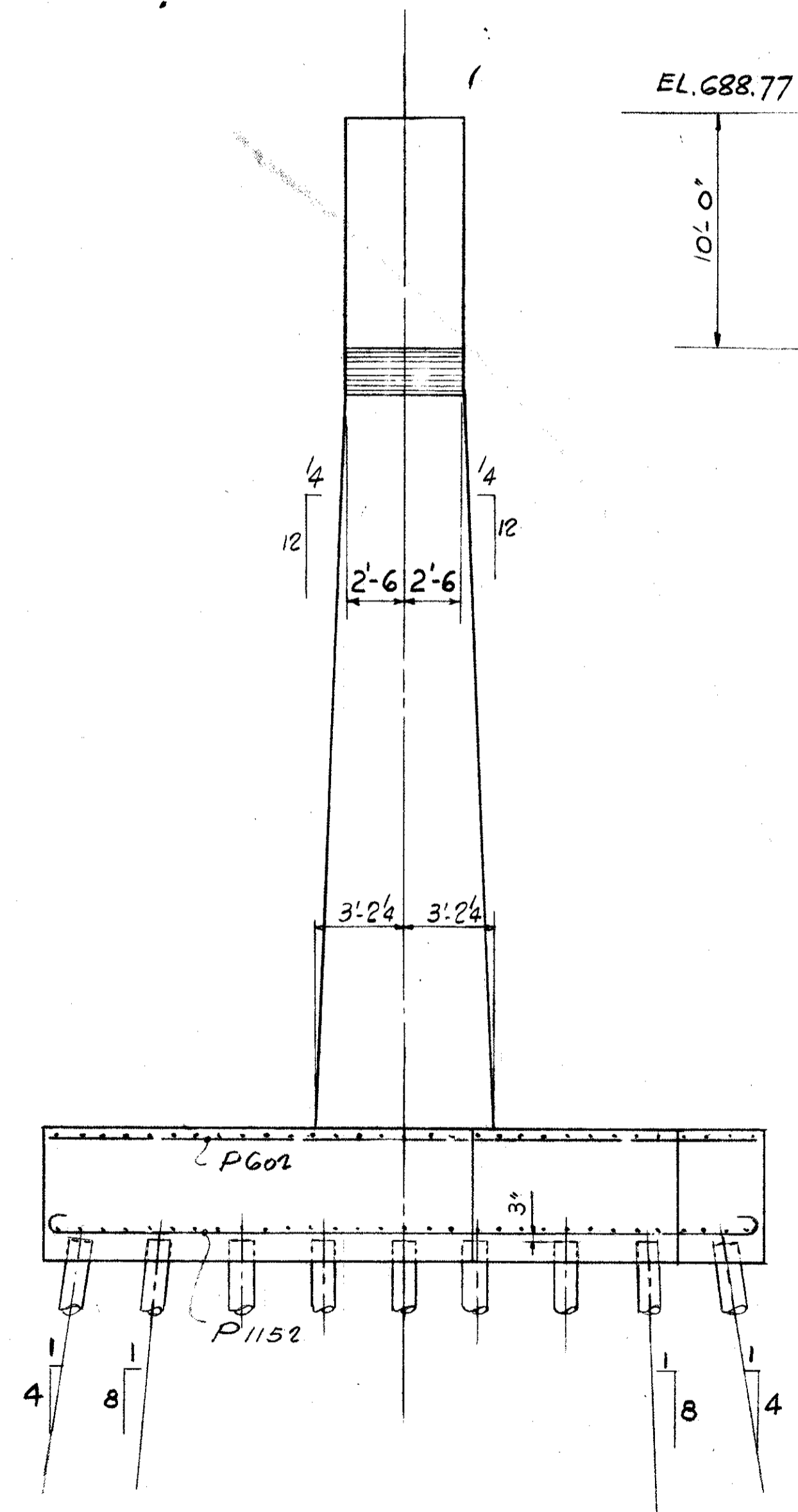
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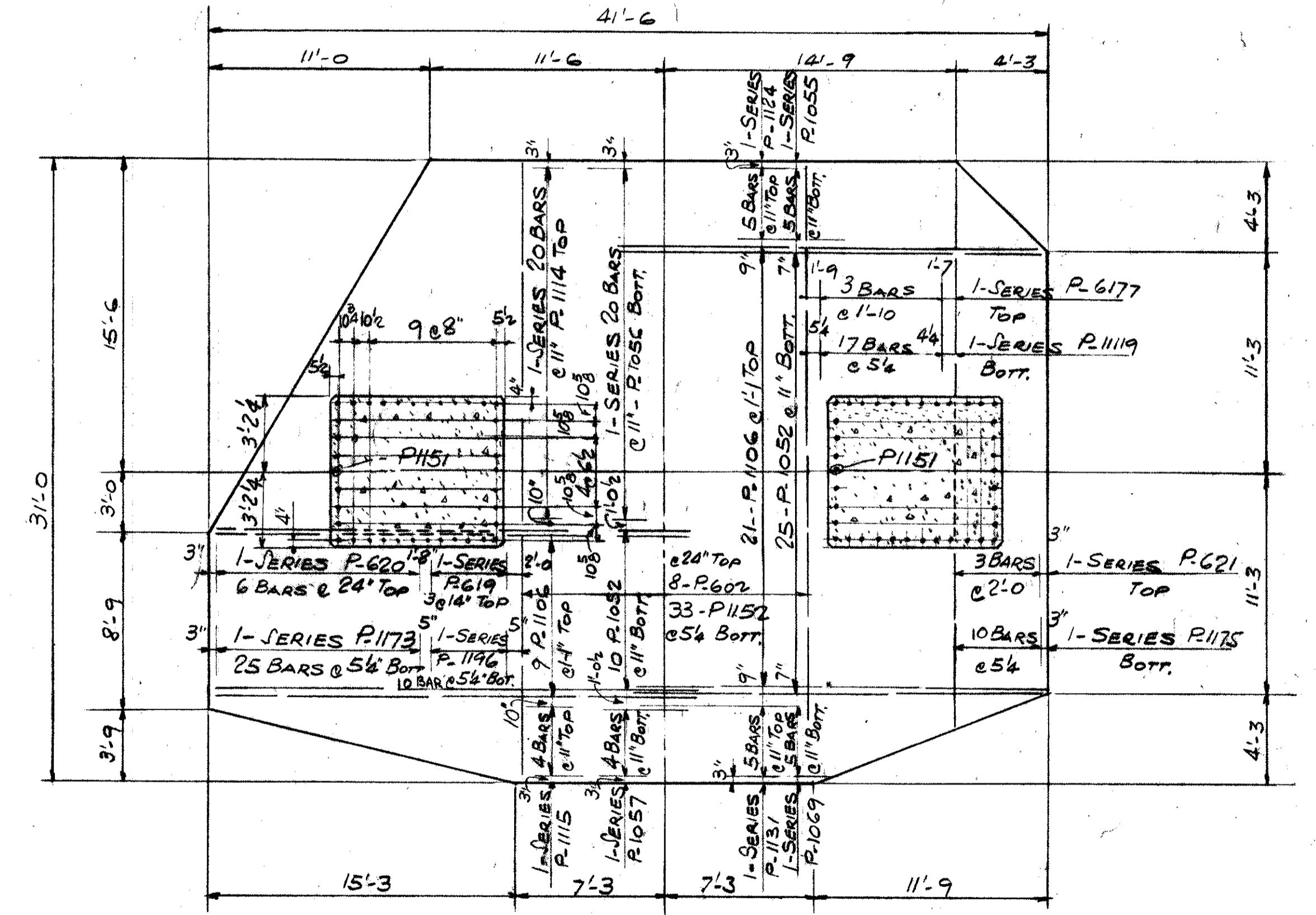
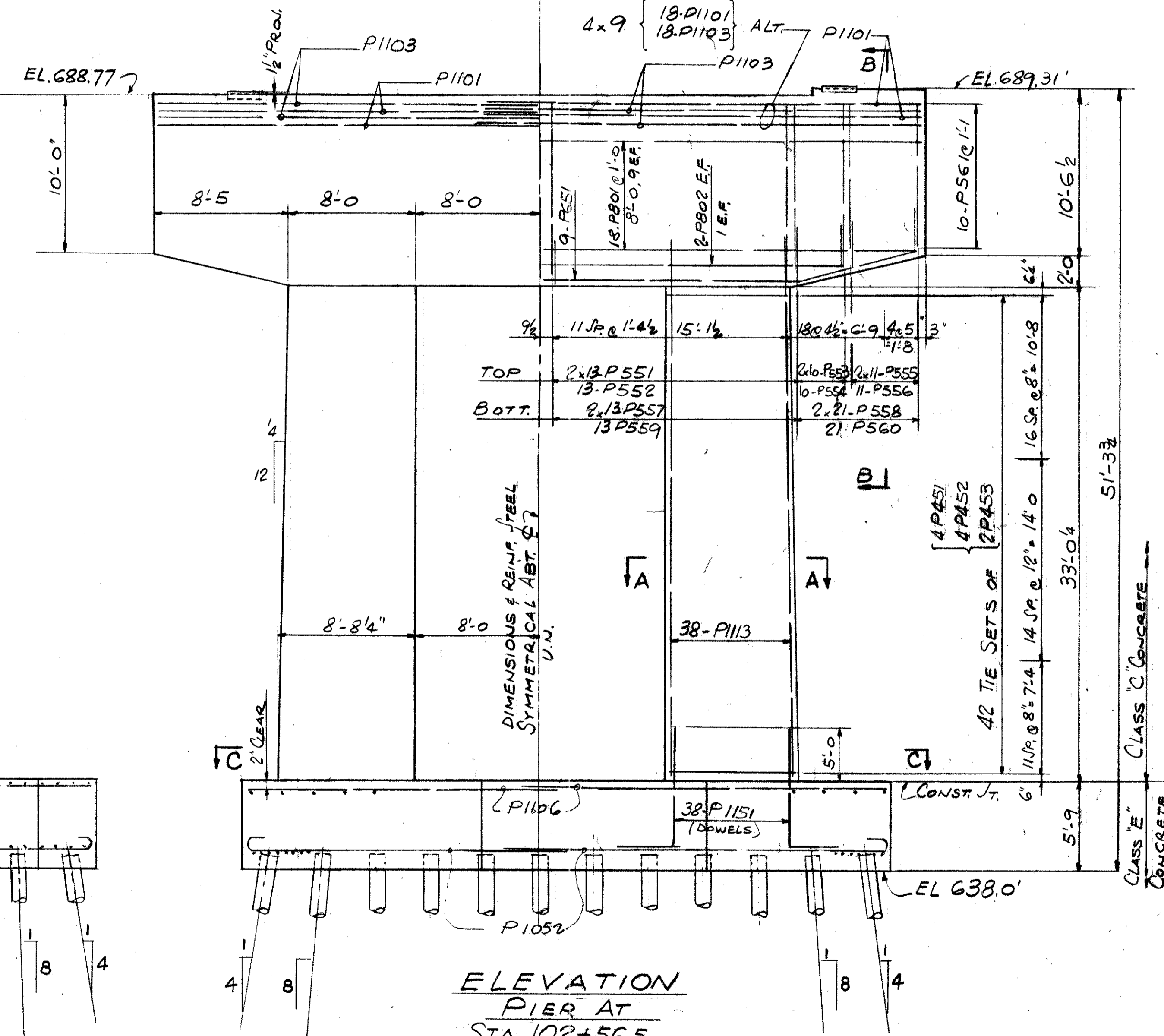
SECTION B-B



SECTION A-A



ELEVATION
PIER AT
STA. 102+56.5



SECTION C-C

REFERENCE DRAWINGS
SUBSTRUCTURE LAYOUT - DWG. 58
PILE PLAN - DWG. 61
BAR SCHEDULE - DWG'S 97, 98, 99
GENERAL NOTES - DWG. 56

TRYGVE HOFF & ASSOCIATES
ENGINEERS
1922 EAST 107TH STREET CLEVELAND, OHIO

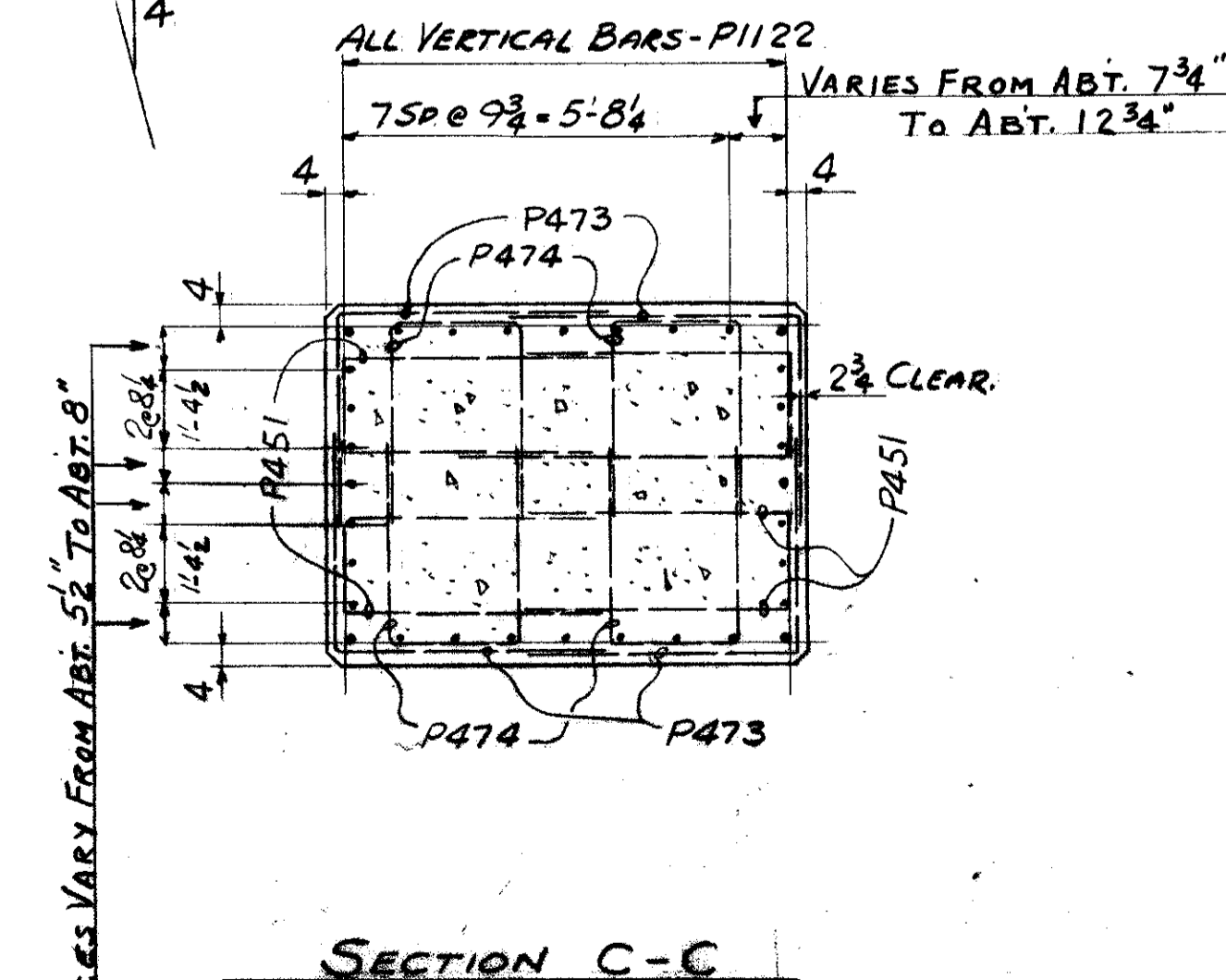
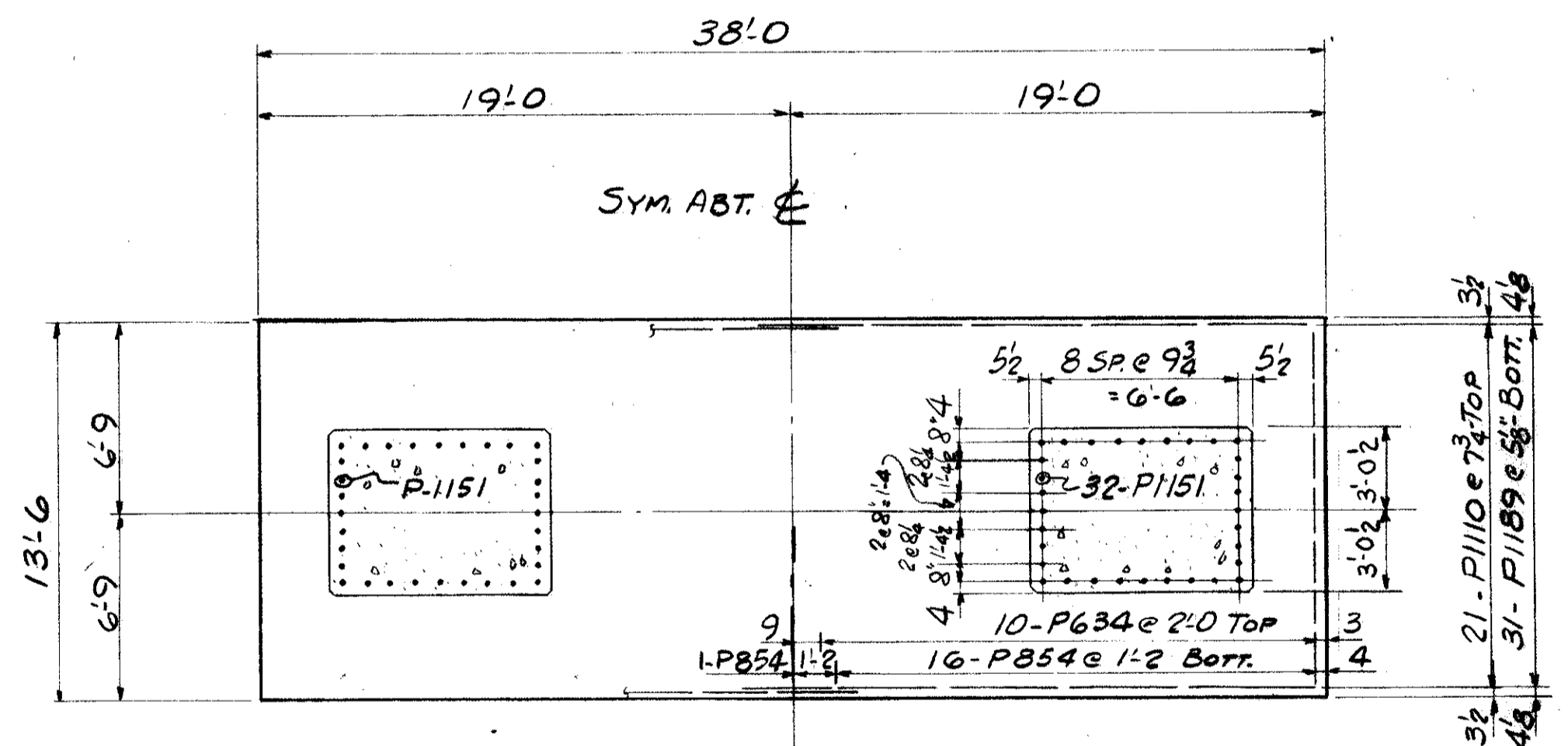
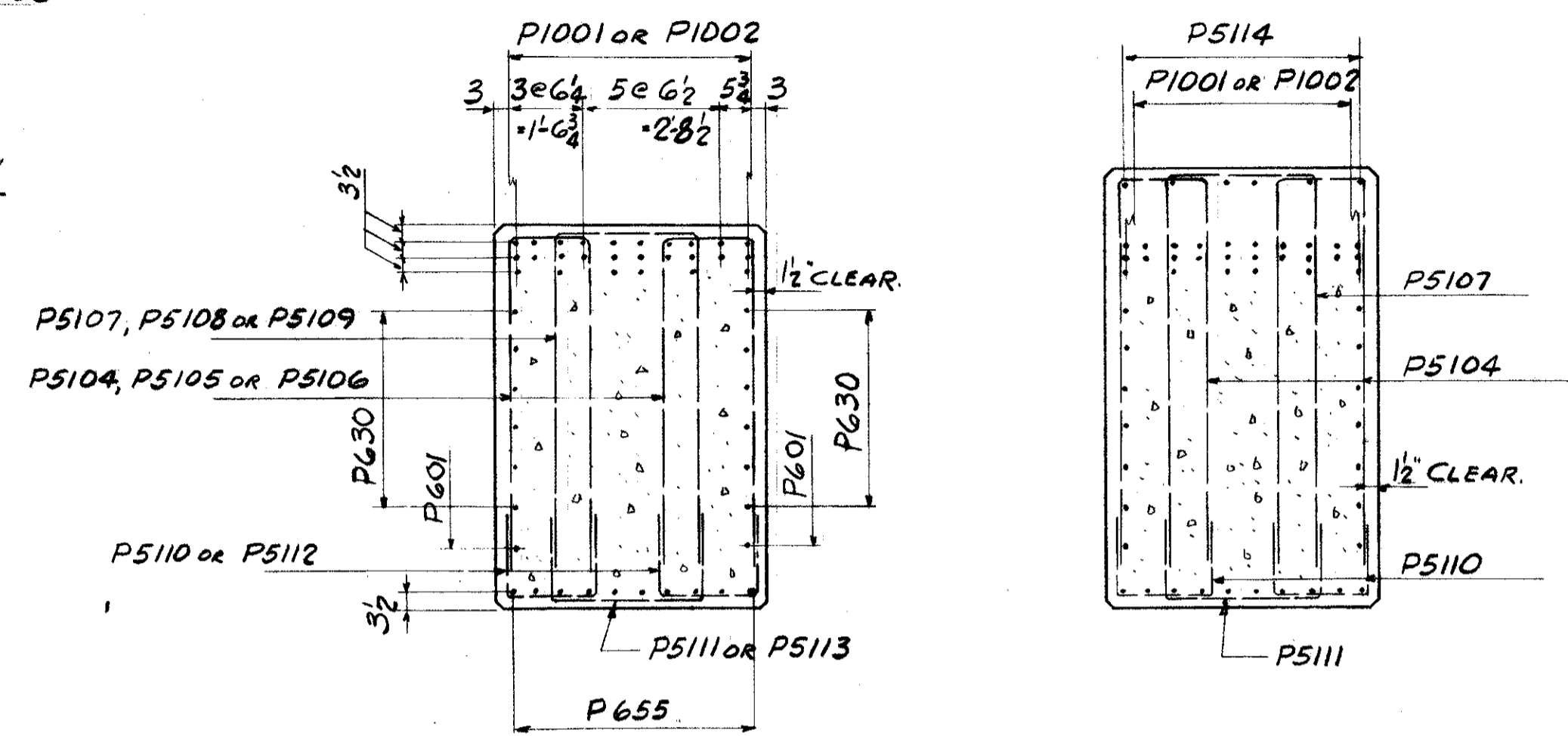
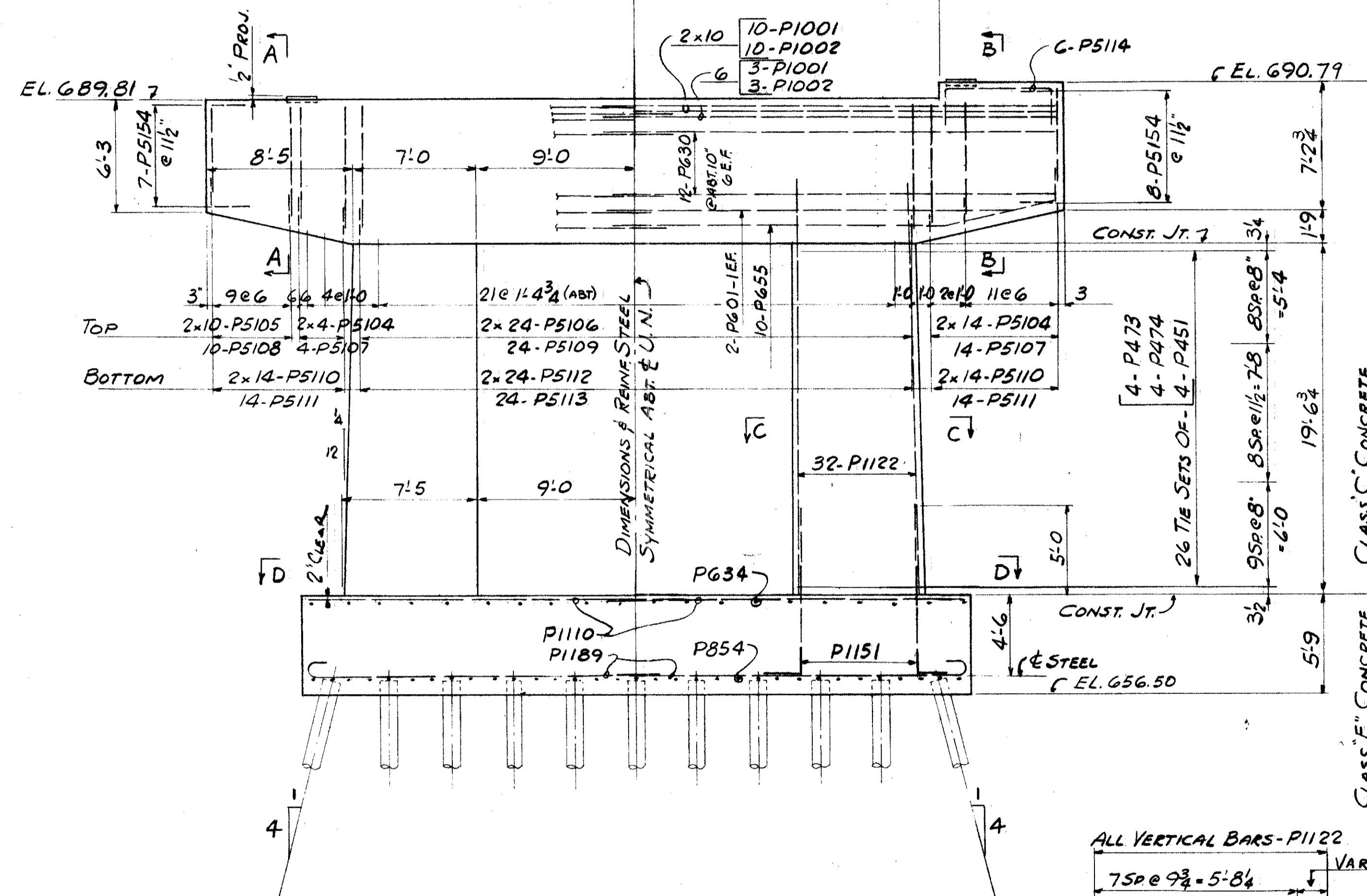
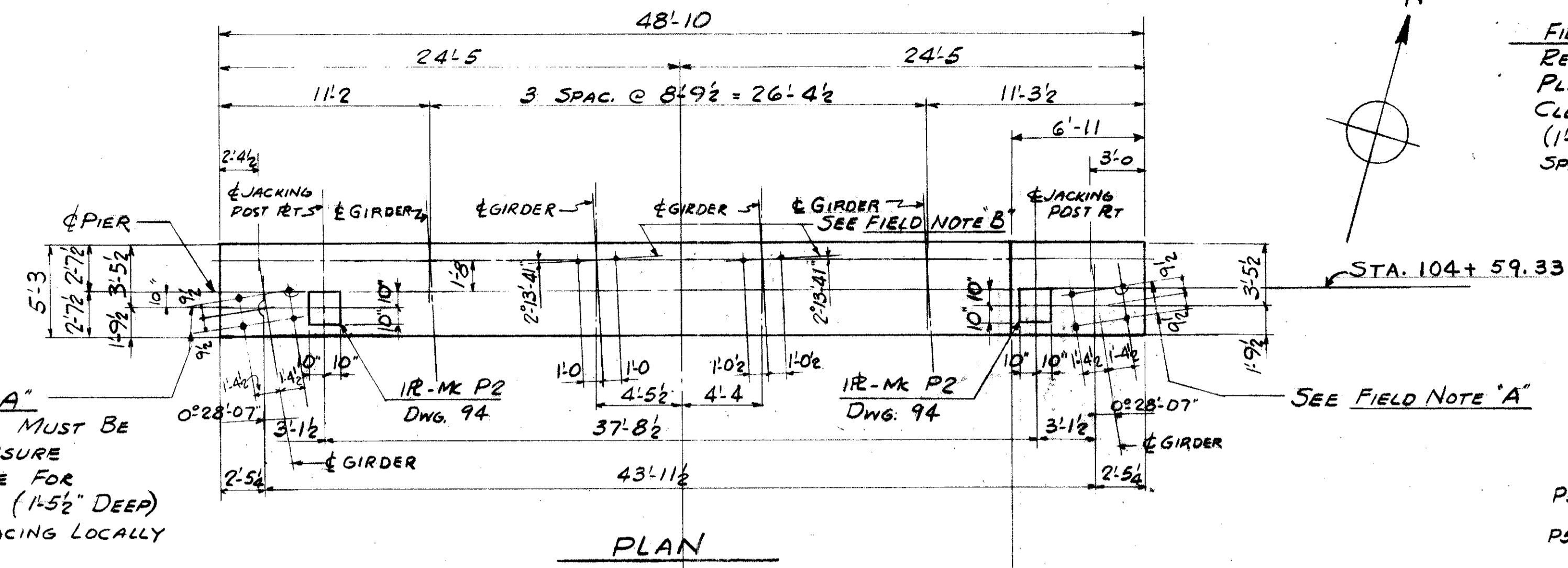
PIER-DETAILS
BRIDGE NO. CUY-21-14.55
WILLOW FREEWAY OVER KINGSBURY RUN
CUYAHOGA COUNTY U.S.R. 21
STA. 102+56.5

DESIGNED	DRAWN	TRACED	CHECKED	DATE
J.O.	RIY	CB	6/22/02	

CUYAHOGA COUNTY
CUY-21-14.55

FIELD NOTE "B"
 REINFORCING STEEL MUST BE PLACED SO AS TO INSURE DRILLING CLEARANCE FOR 1/4" ANCHOR RODS (1-0 DEEP) - ADJUST STIRRUP SPACING LOCALLY TO SUIT.

FIELD NOTE "A"
 REINFORCING STEEL MUST BE PLACED SO AS TO INSURE DRILLING CLEARANCE FOR 1/4" ANCHOR RODS (1-5/2" DEEP) - ADJUST STIRRUP SPACING LOCALLY TO SUIT.



REFERENCE DRAWINGS
 SUBSTRUCTURE LAYOUT - DWG. 58
 PILE PLAN - DWG. 61
 BAR SCHEDULE - DWG'S 97, 98, 99
 GENERAL NOTES - DWG. 56

TRYGVE HOFF & ASSOCIATES
 ENGINEERS
 1922 EAST 107TH STREET CLEVELAND, OHIO

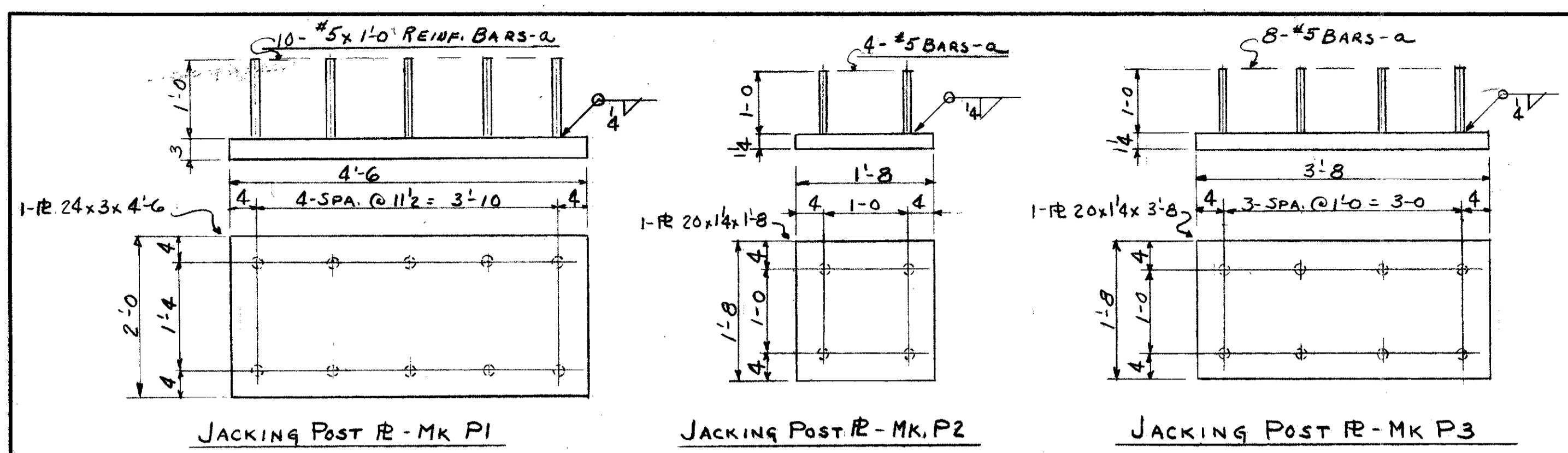
PIER-DETAILS
 BRIDGE NO. CUY-21-14.55
 WILLOW FREEWAY OVER KINGSBURY RUN
 CUYAHOGA COUNTY U.S.R. 21
 STA. 104 + 59.33

SCALE	DATE					
	DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE
	E/Nuc			RIT		08/6/22/02

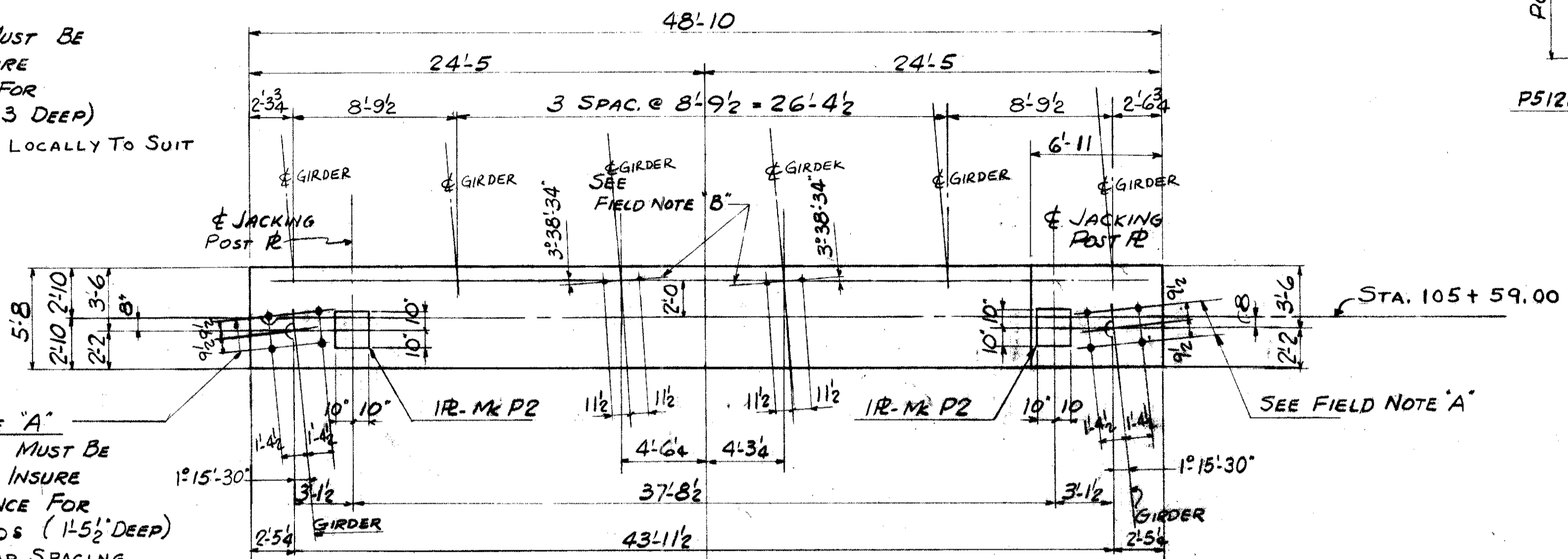
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2	OHIO	

94
164

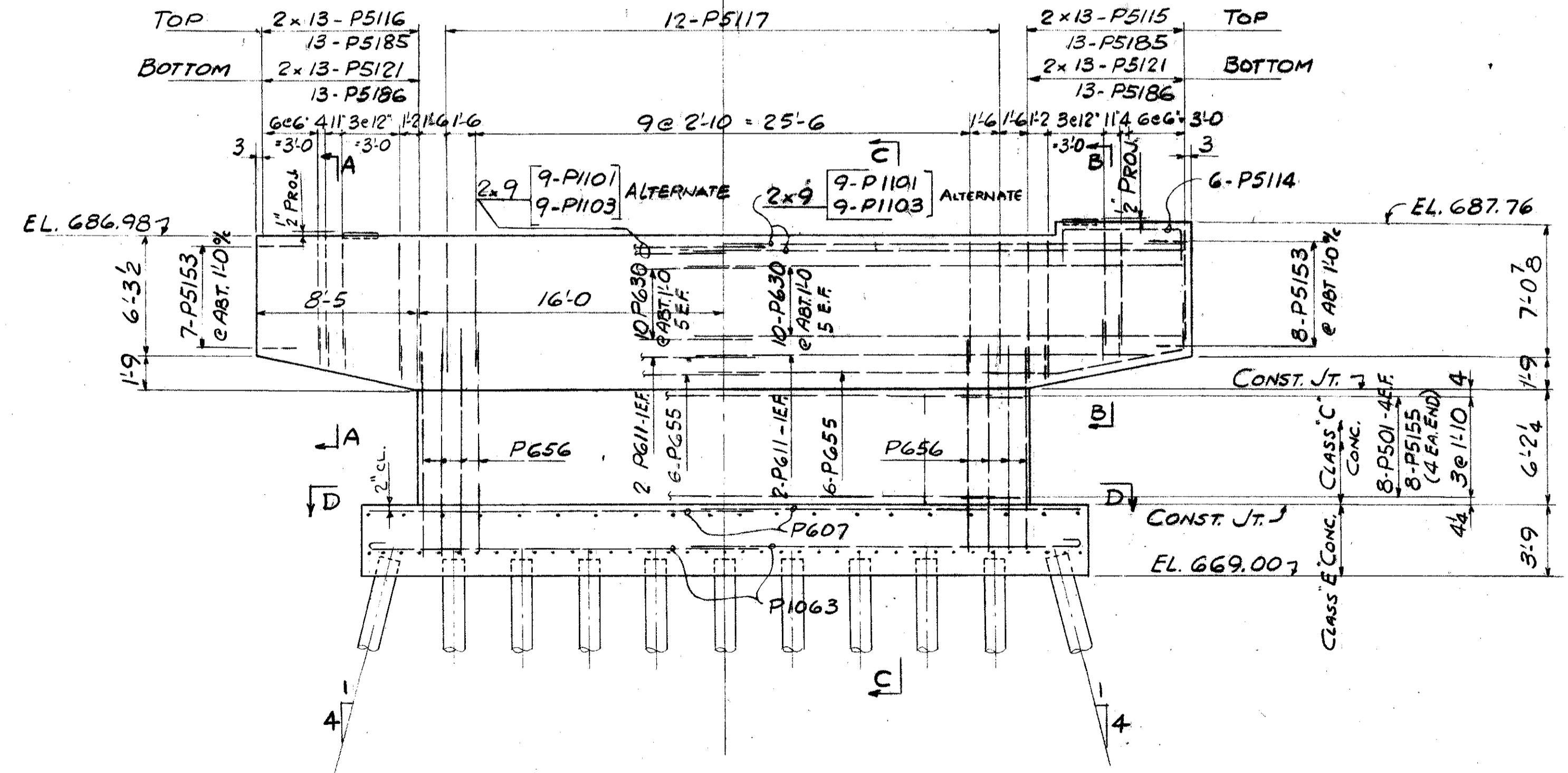
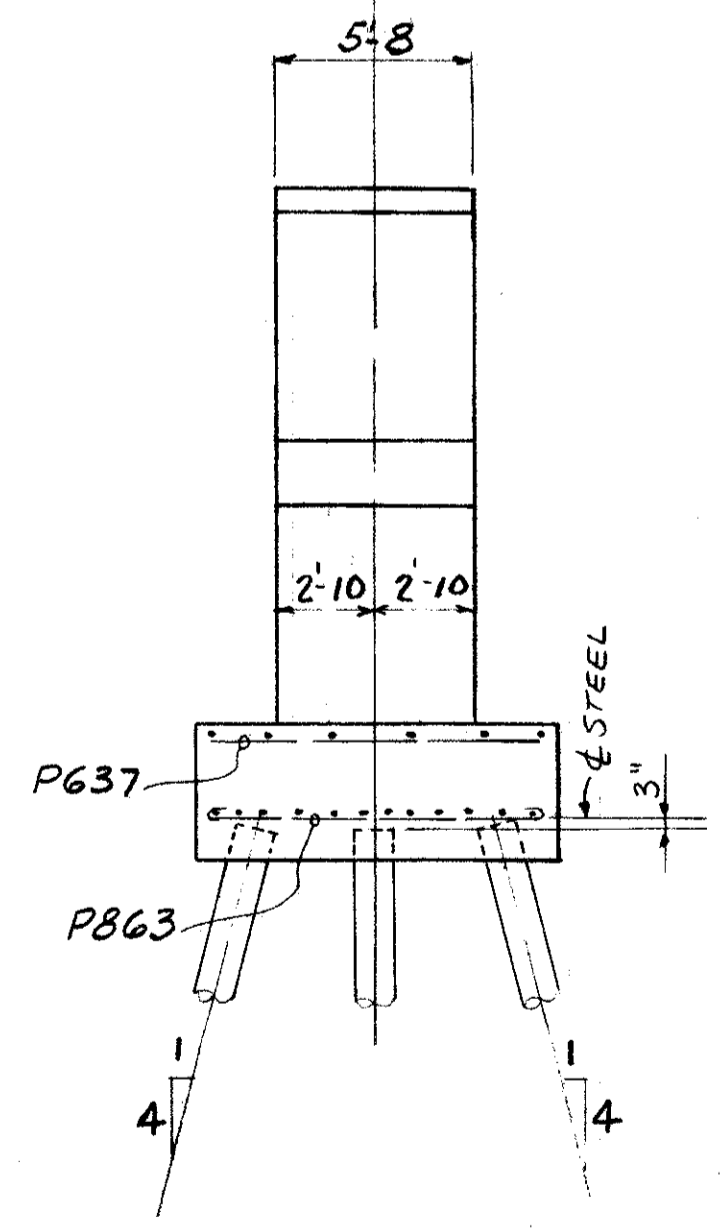
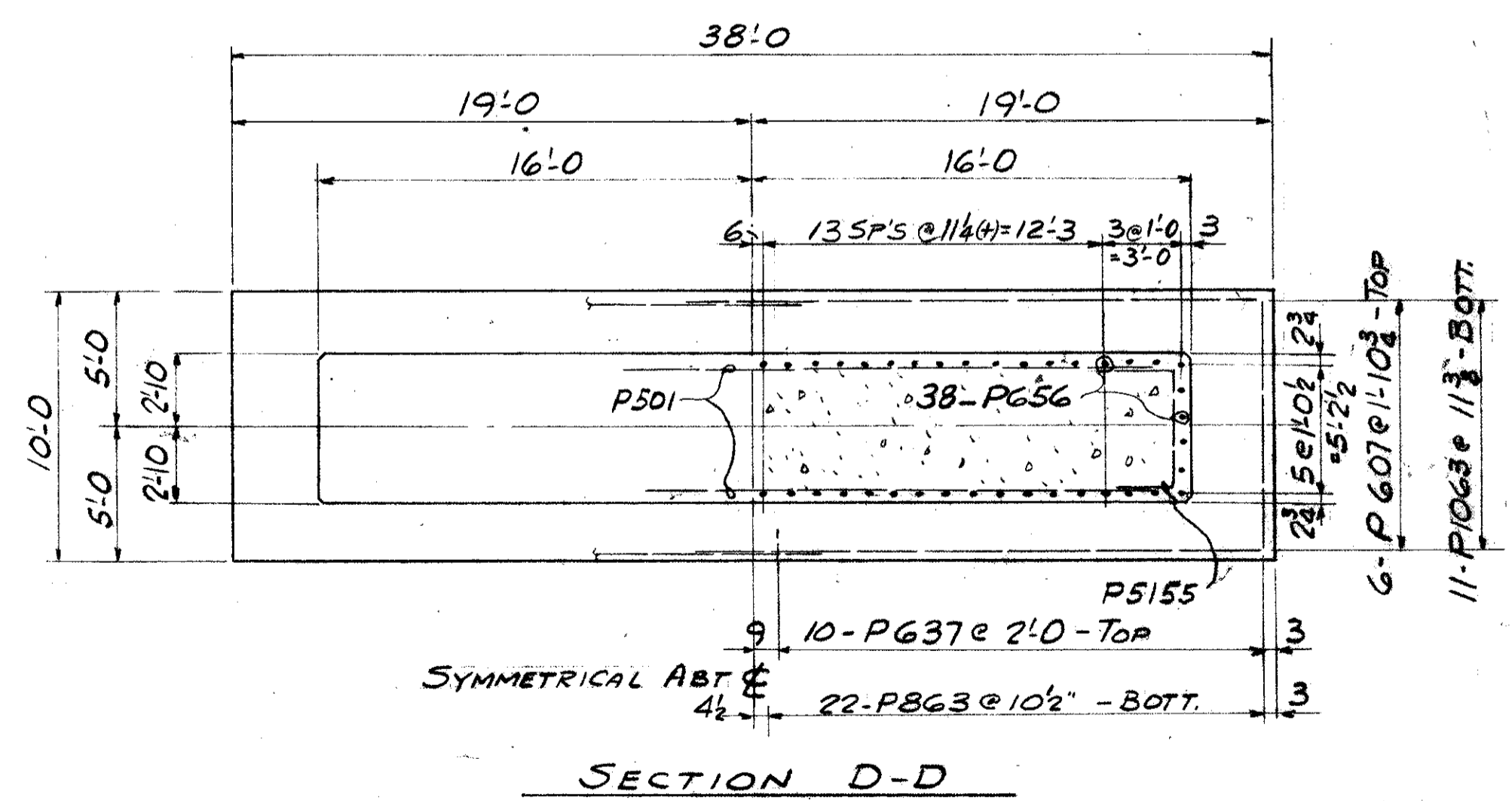
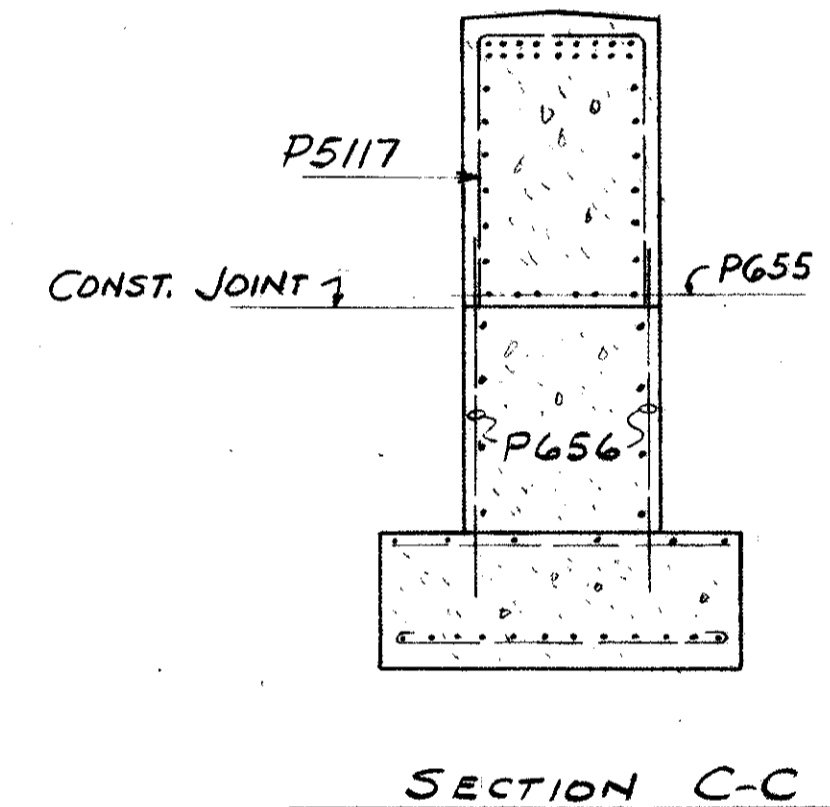
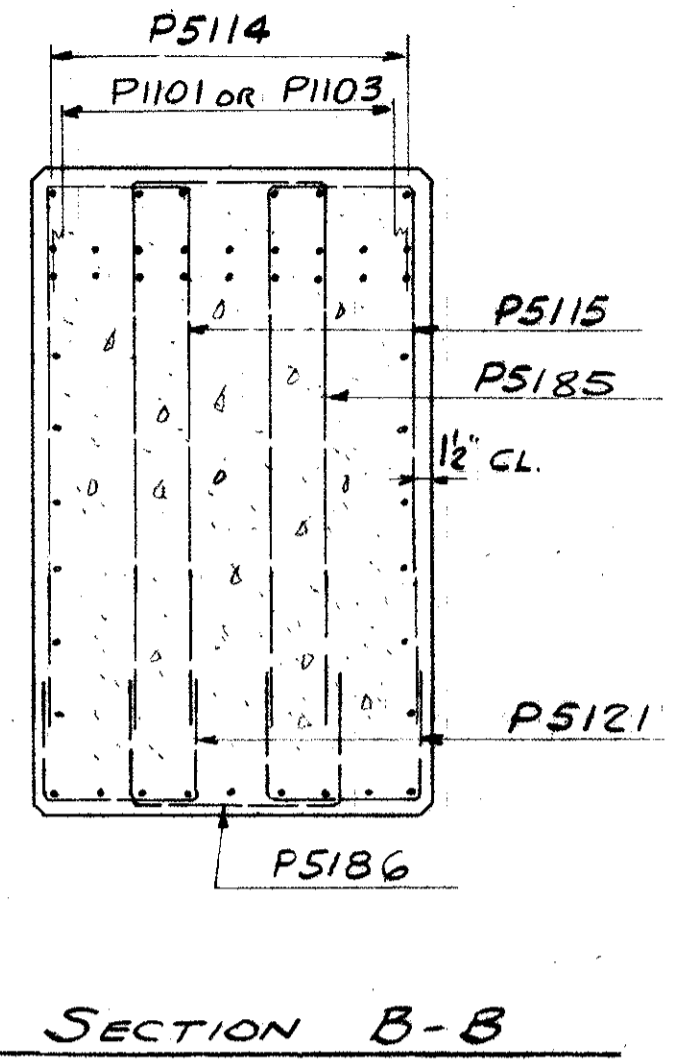
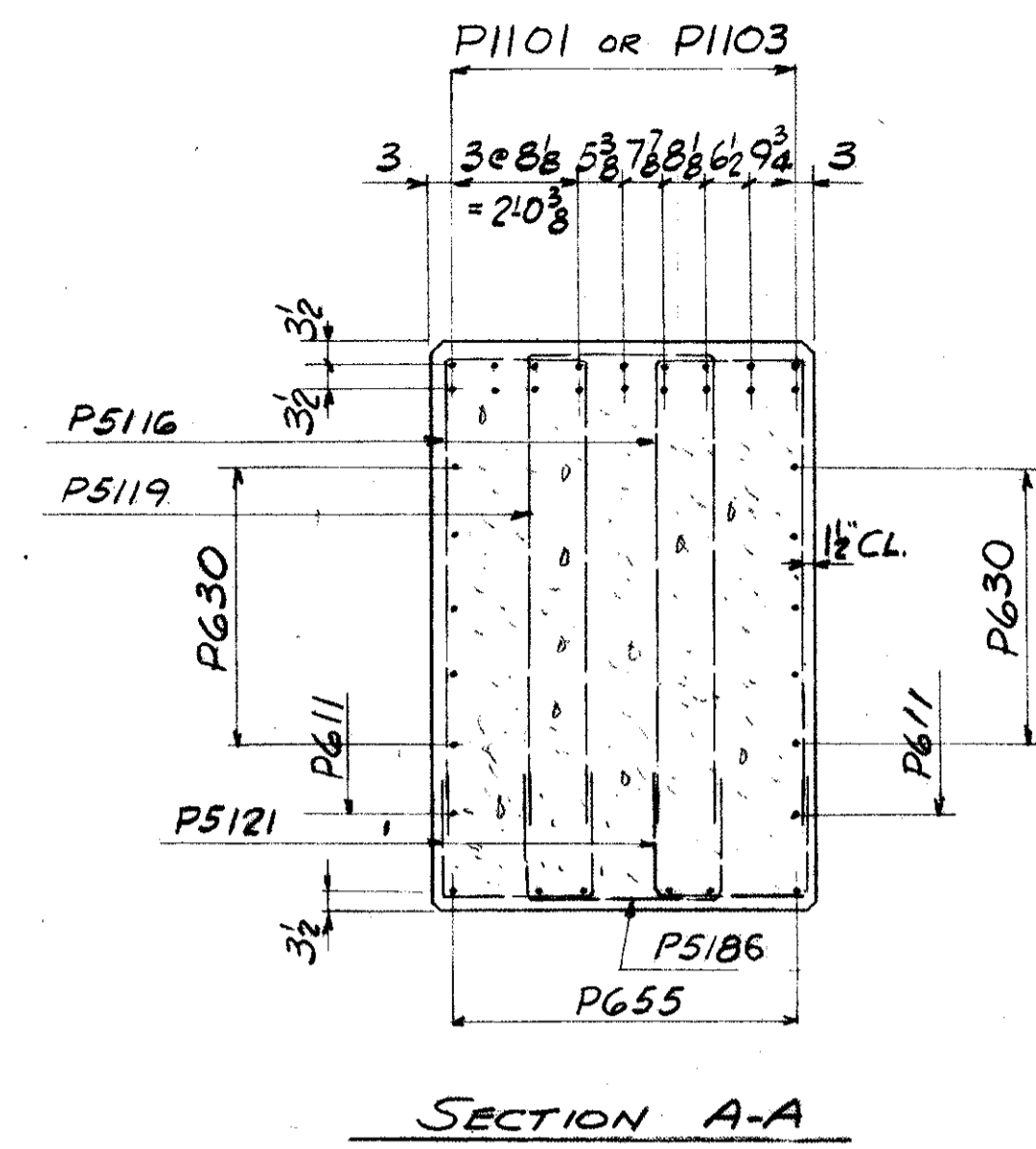
CUYAHOGA COUNTY
CUY-21-14.55



FIELD NOTE "B"
REINFORCING STEEL MUST BE PLACED SO AS TO INSURE DRILLING CLEARANCE FOR 1/4" ANCHOR RODS (1'-3" DEEP)
ADJUST STIRRUP SPACING LOCALLY TO SUIT



FIELD NOTE "A"
REINFORCING STEEL MUST BE PLACED SO AS TO INSURE DRILLING CLEARANCE FOR 1/4" ANCHOR RODS (1'-5 1/2" DEEP)
ADJUST STIRRUP SPACING LOCALLY TO SUIT



ELEVATION
PIER AT
STA. 105+59.00

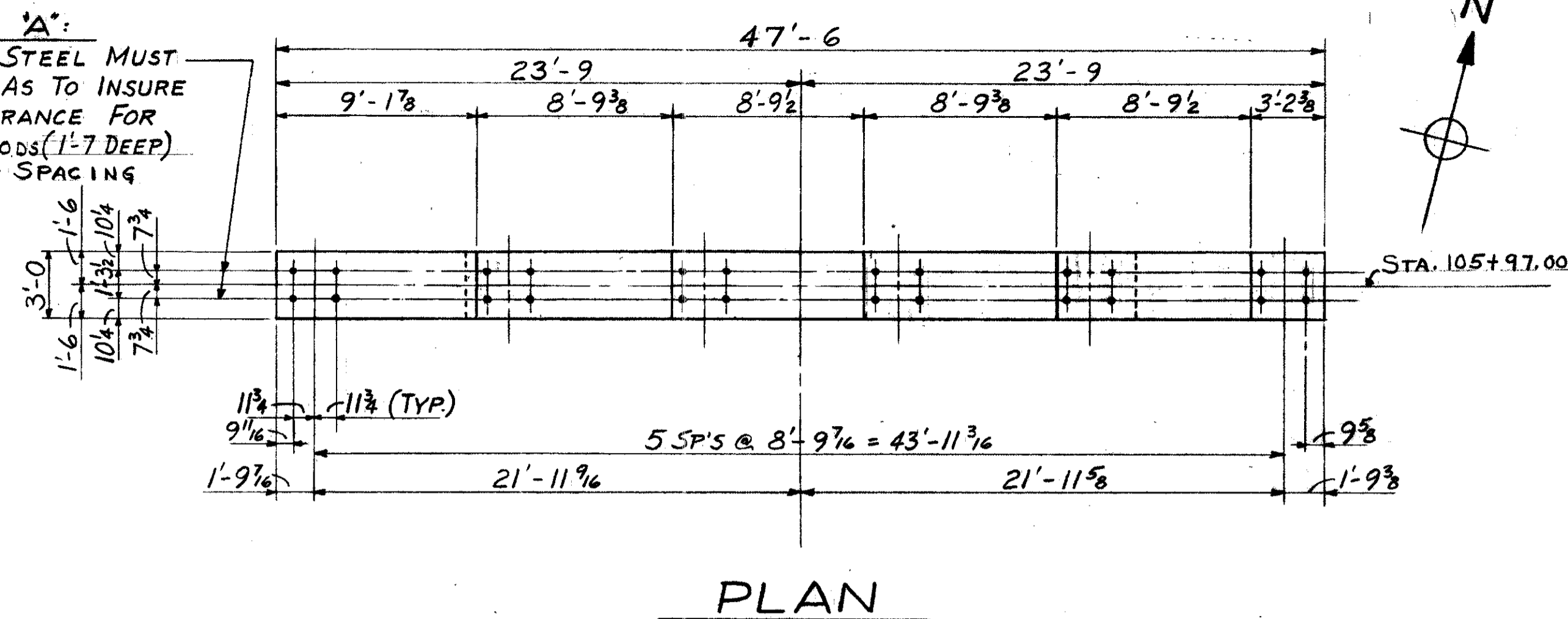
REFERENCE DRAWINGS
SUBSTRUCTURE LAYOUT - DWG. 58
PILE PLAN - DWG. 61
BAR SCHEDULE - DWG'S 97, 98, 99
GENERAL NOTES - DWG. 56

TRYGVE HOFF & ASSOCIATES
ENGINEERS
1922 EAST 107TH STREET CLEVELAND, OHIO

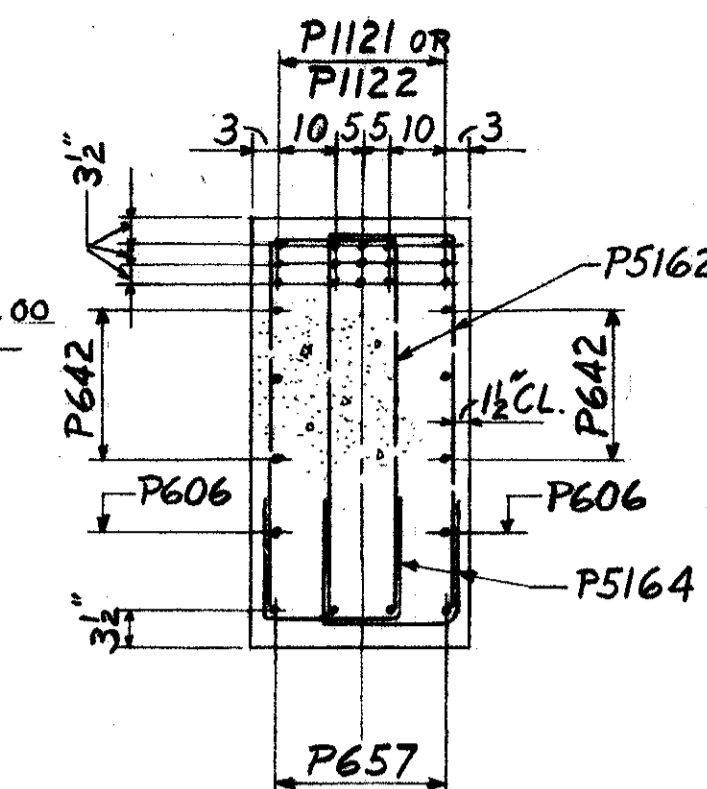
BRIDGE NO. CUY-21-14.55
WILLOW FREWAY OVER KINGSBURY RUN
CUYAHOGA COUNTY U.S.R. 21
STA. 105+59.00

SCALE	DATE
DESIGNED: [Signature]	DRAWN: [Signature]
TRACED: [Signature]	CHECKED: [Signature]
REVIEWED: [Signature]	DATE: 03/20/55

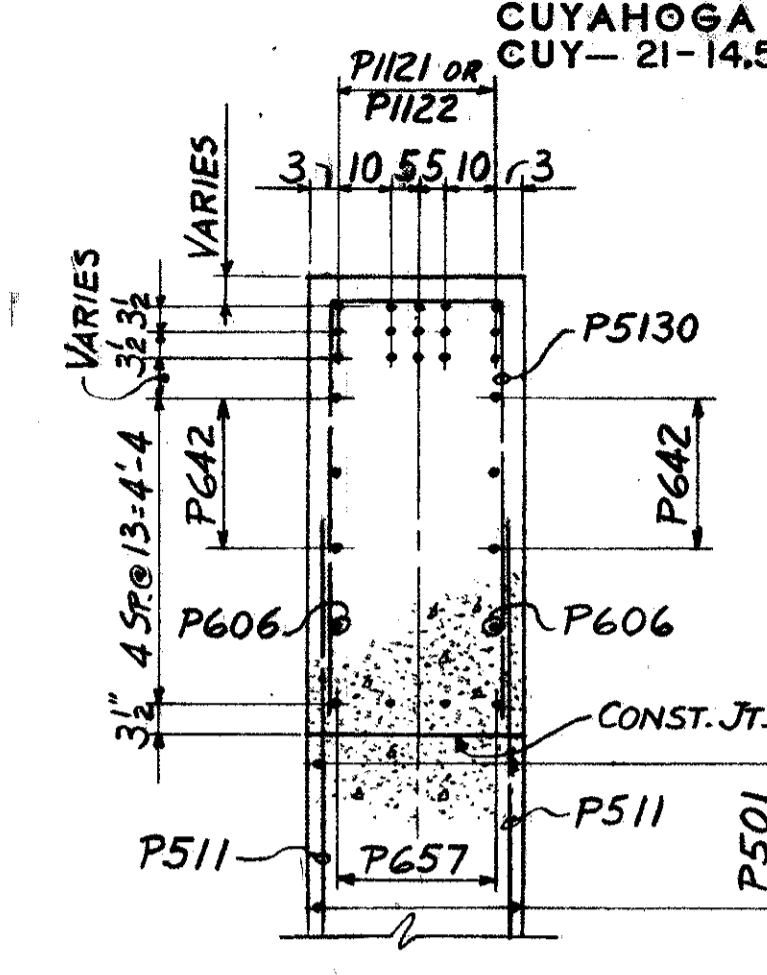
FIELD NOTE 'A':
REINFORCING STEEL MUST BE PLACED SO AS TO INSURE DRILLING CLEARANCE FOR 1/4" ANCHOR RODS (1'-7" DEEP). ADJUST STIRRUP SPACING LOCALLY TO SUIT



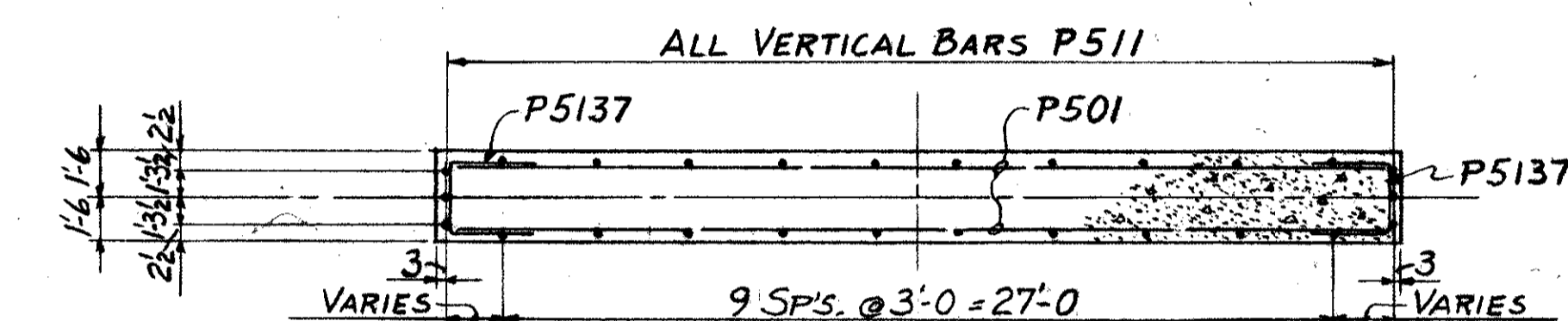
PLAN



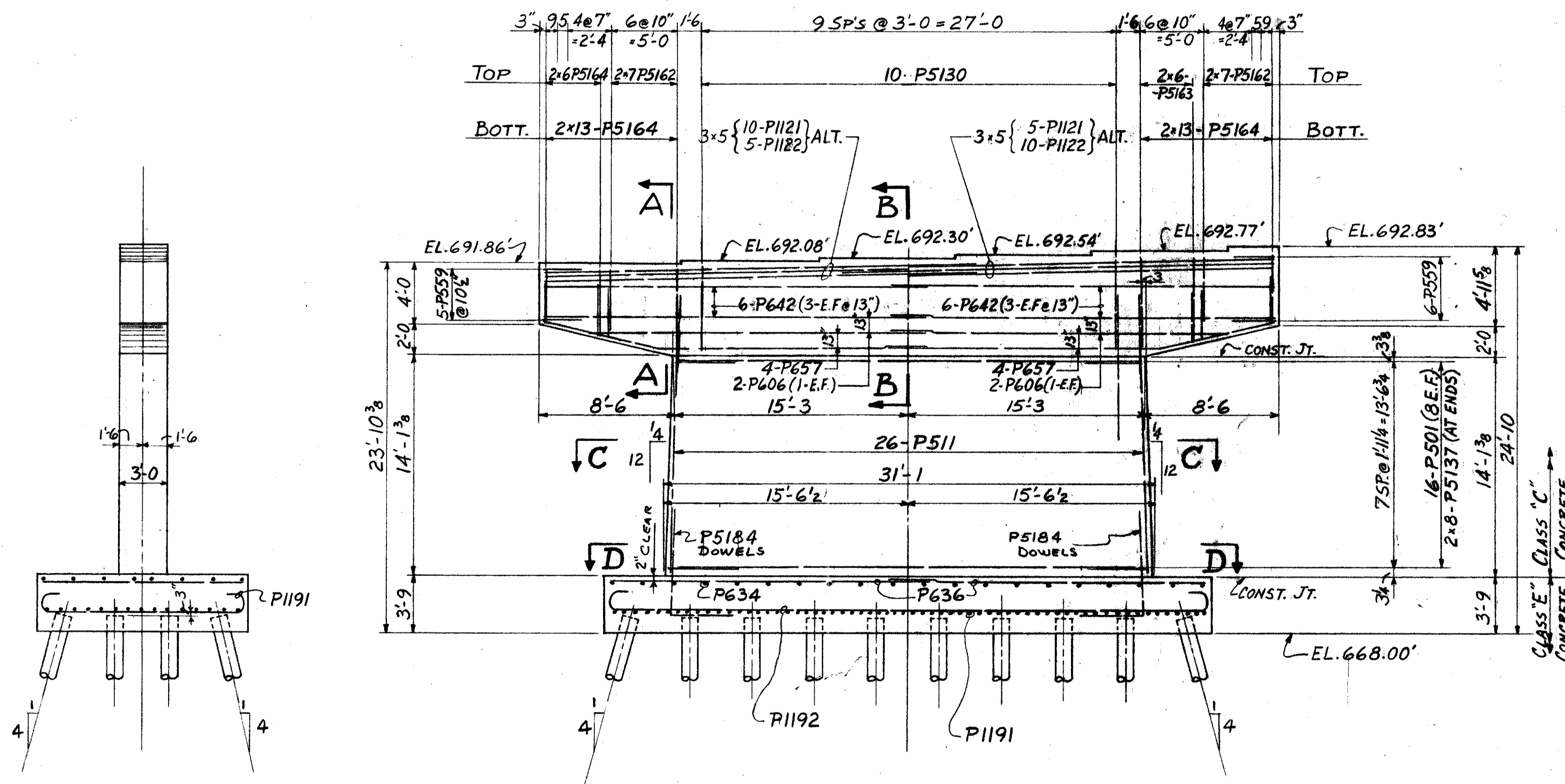
SECTION A-A



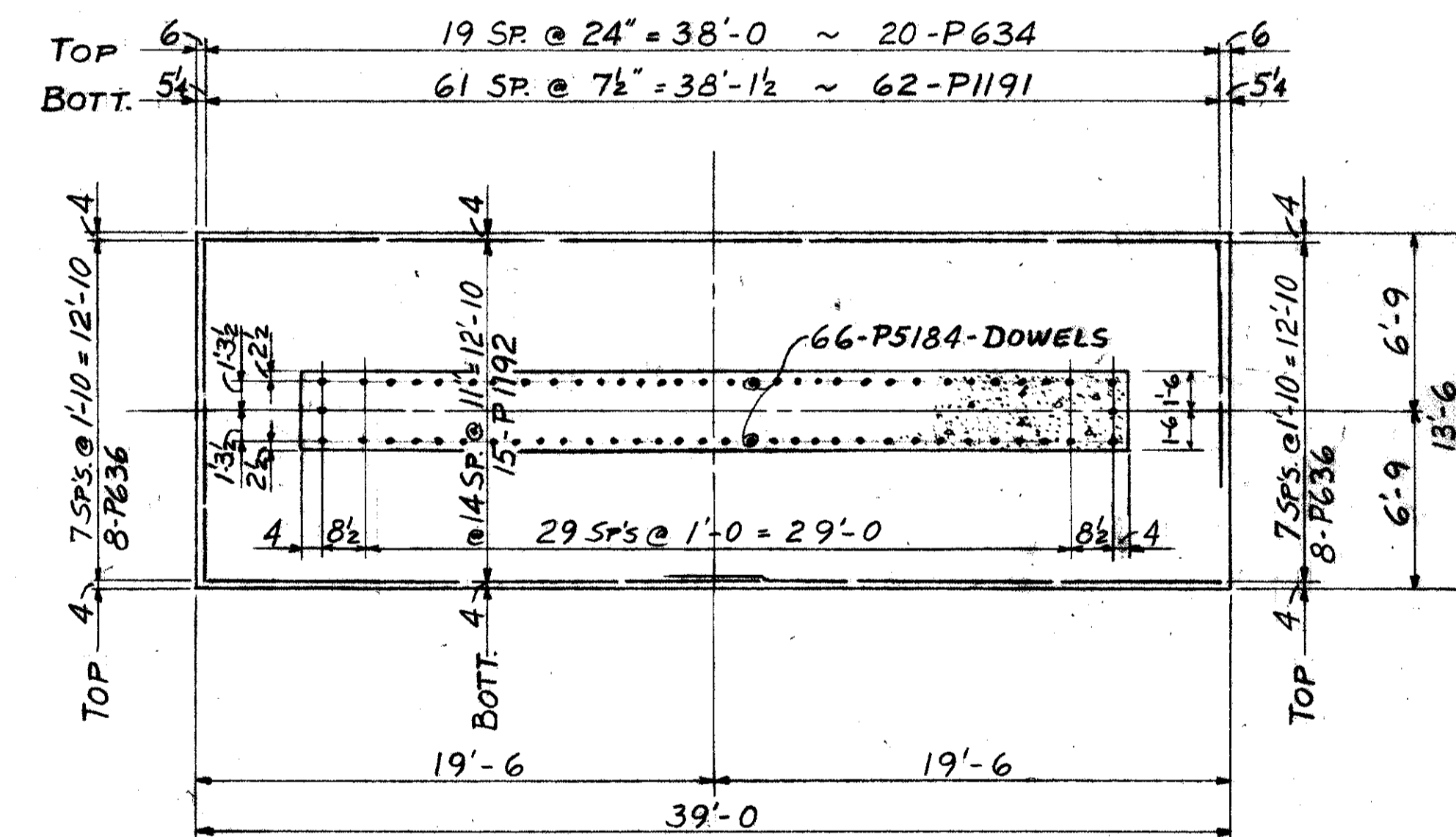
SECTION B-B



SECTION C-C



ELEVATION
PIER AT
STA. 105 + 97.00



SECTION D-D

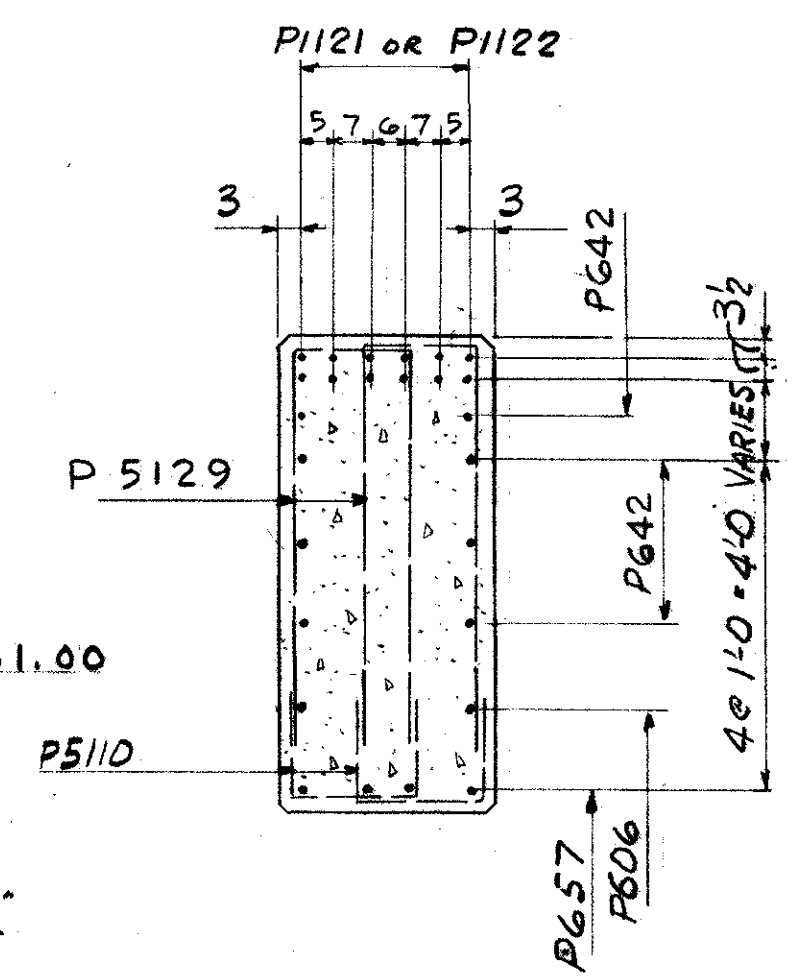
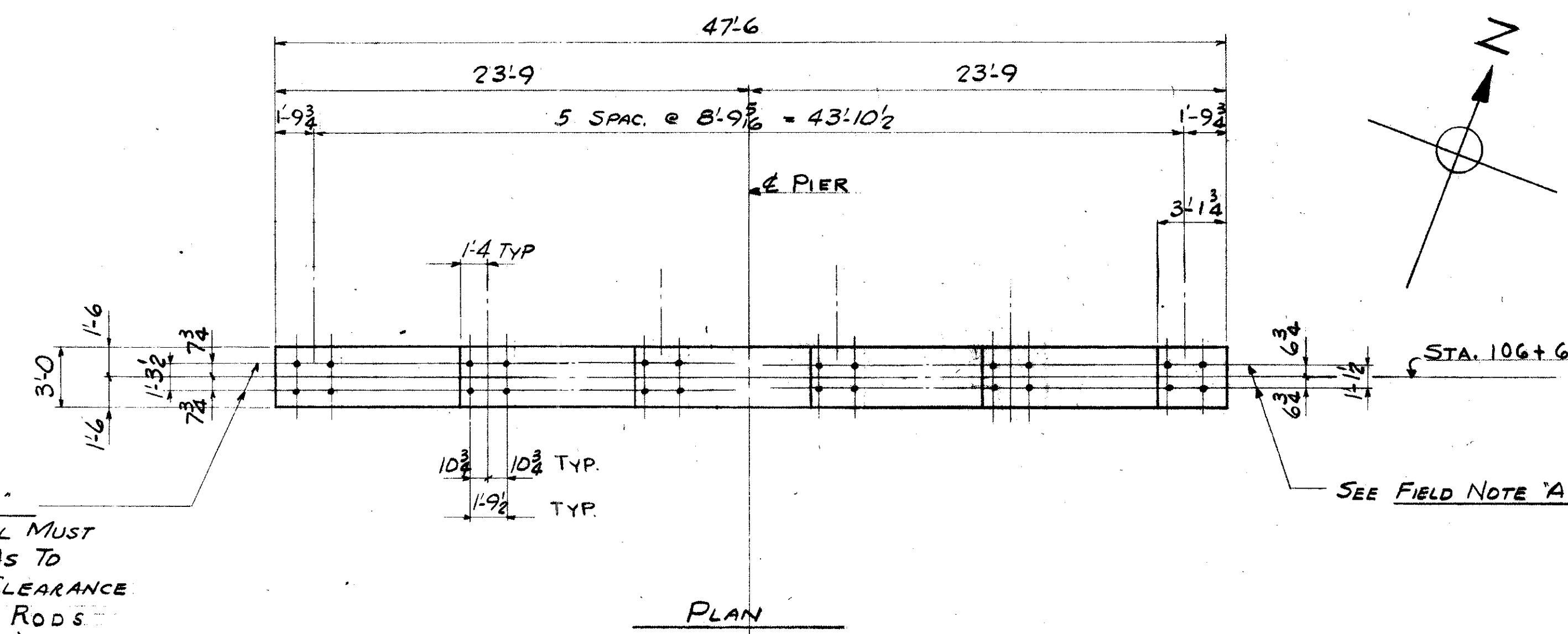
REFERENCE DRAWINGS
SUBSTRUCTURE LAYOUT - DWG. 58
PILE PLAN - DWG. 61
BAR SCHEDULE - DWG'S 97, 98, 99
GENERAL NOTES - DWG. 56

TRYGVE HOFF & ASSOCIATES ENGINEERS 1922 EAST 107TH STREET CLEVELAND, OHIO					
PIER-DETAILS					
BRIDGE NO. CUY-21-1455			WILLOW FREEWAY OVER KINGSBURY RUN		
CUYAHOGA COUNTY			U.S.R. 21		
STA. 105 + 97.00					
SCALE	DATE				
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE
	S.G.F.		R.I.Y.		08 6/22/62

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

96
164

CUYAHOGA COUNTY
CUY-21-14.55

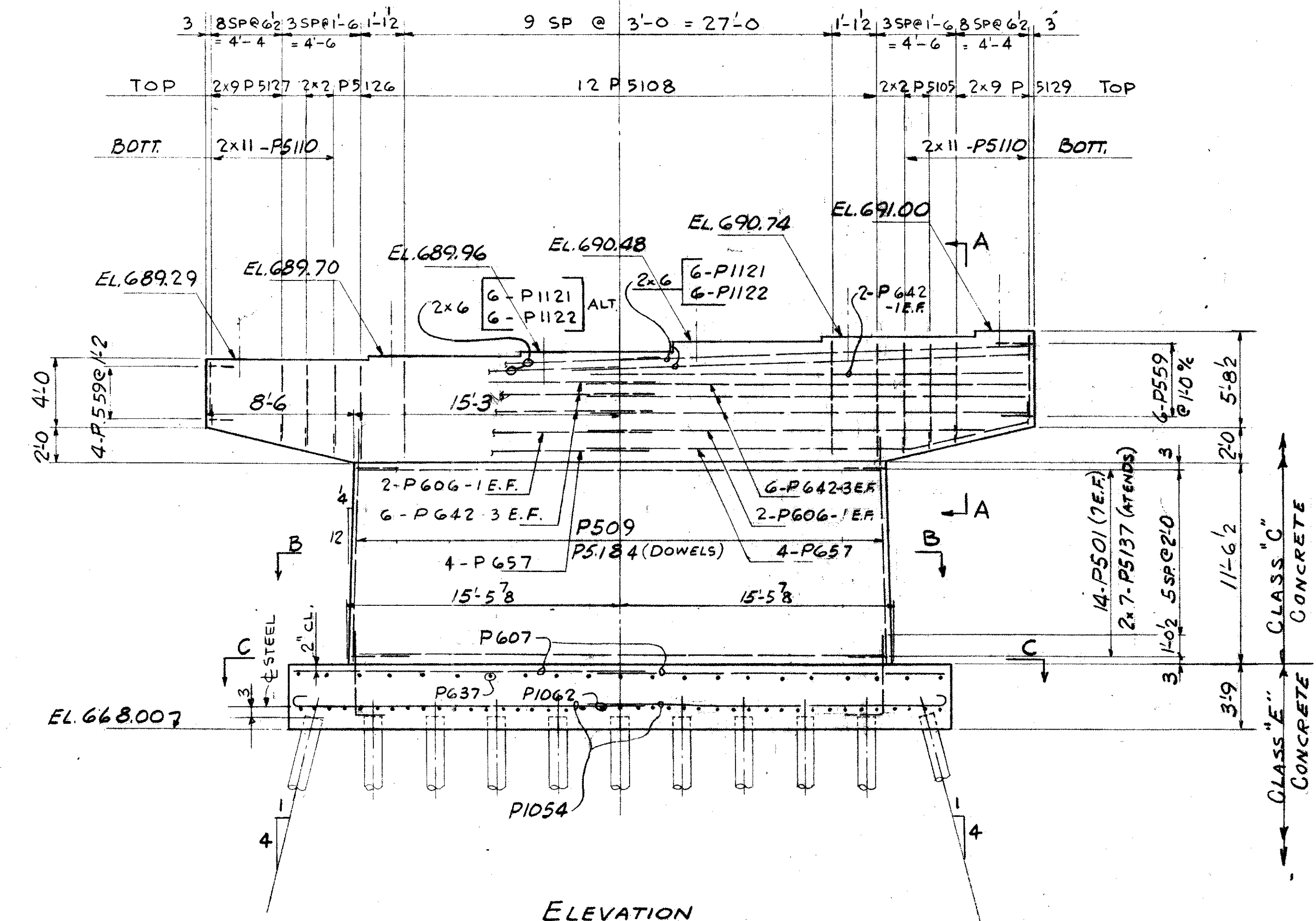


FIELD NOTE "A"
REINFORCING STEEL MUST BE PLACED SO AS TO INSURE DRILLING CLEARANCE FOR 1/4" ANCHOR RODS (1'-7" DEEP)
ADJUST STIRRUP SPACING LOCALLY TO SUIT

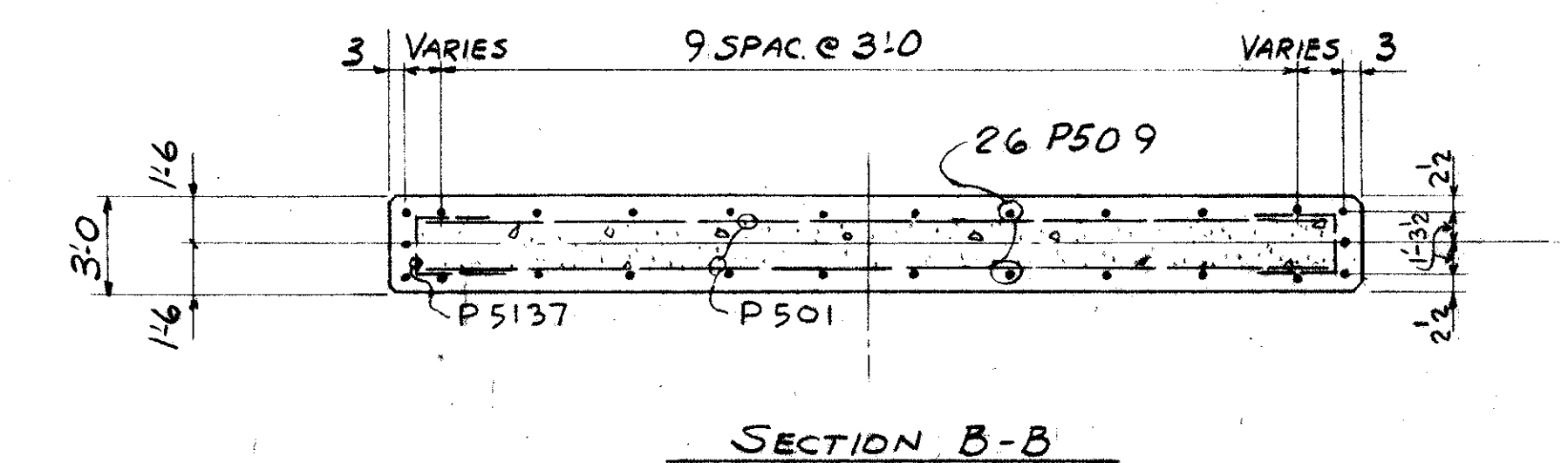
SEE FIELD NOTE "A"

PLAN

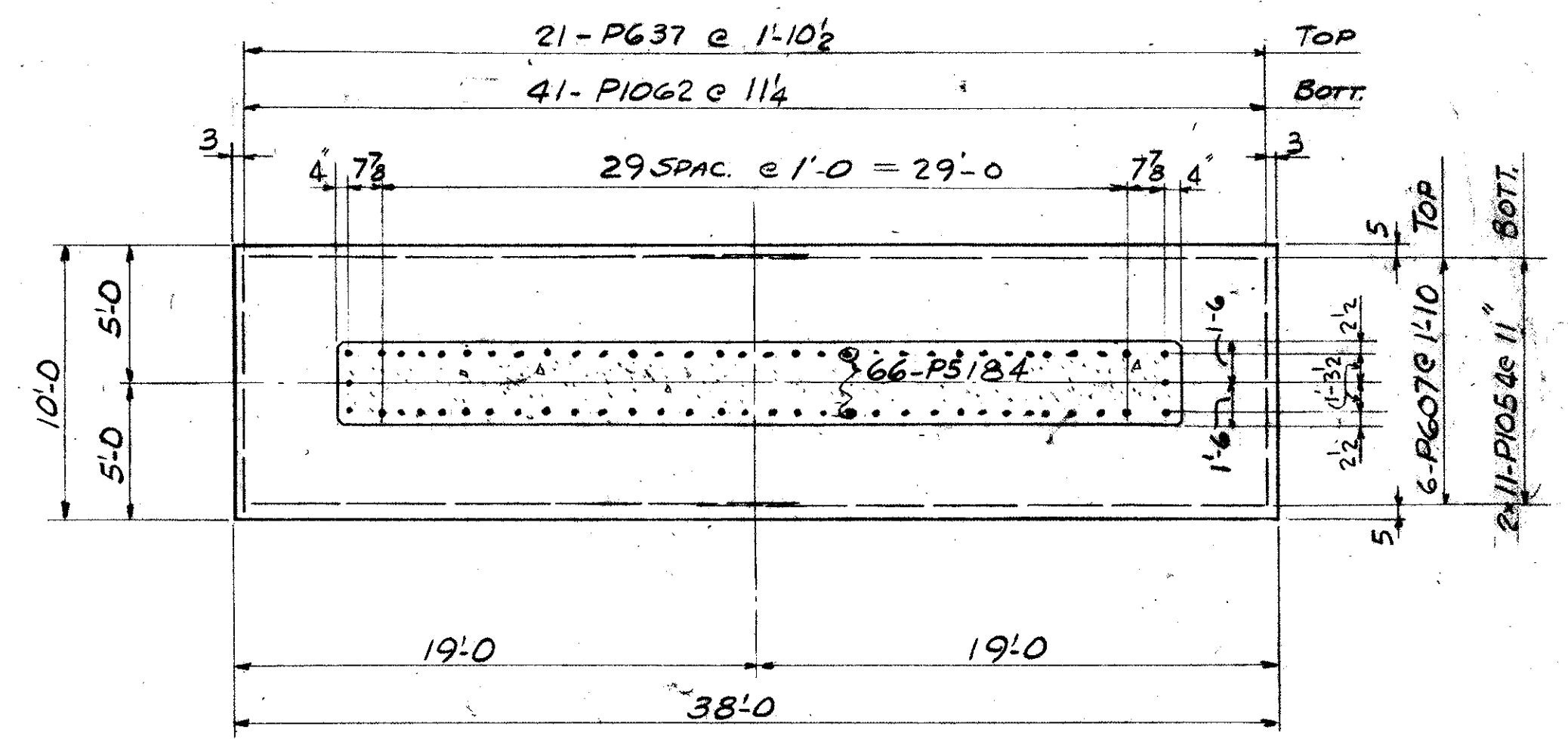
SECTION A-A



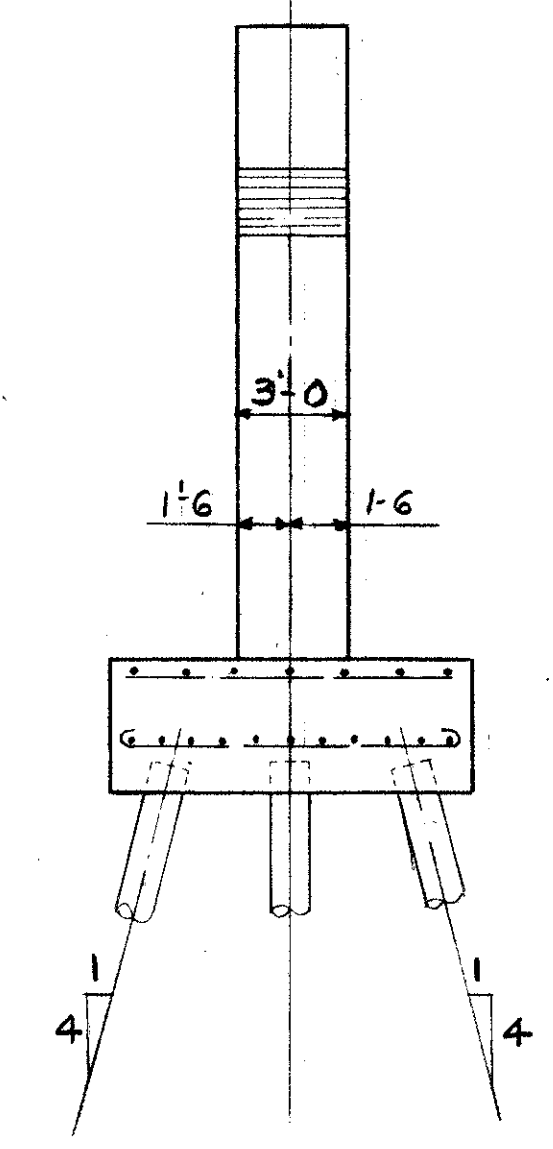
ELEVATION
PIER AT
STA. 106+61.00



SECTION B-B



SECTION C-C



REFERENCE DRAWINGS
SUBSTRUCTURE LAYOUT - DWG. 58
PILE PLAN - DWG. 61
BAR SCHEDULE - DWG'S 97, 98, 99
GENERAL NOTES - DWG. 86

TRYGVE HOFF & ASSOCIATES ENGINEERS 1922 EAST 107TH STREET CLEVELAND, OHIO					
PIER-DETAILS BRIDGE NO. CUY-21-14.55 WILLOW FREEWAY OVER KINGSBURY RUN CUYAHOGA COUNTY U.S.R. 21 STA. 106+61.00					
SCALE	DATE	DESIGNED	DRAWN	TRACED	CHECKED
		EJW	RIY	OB	6/22/62

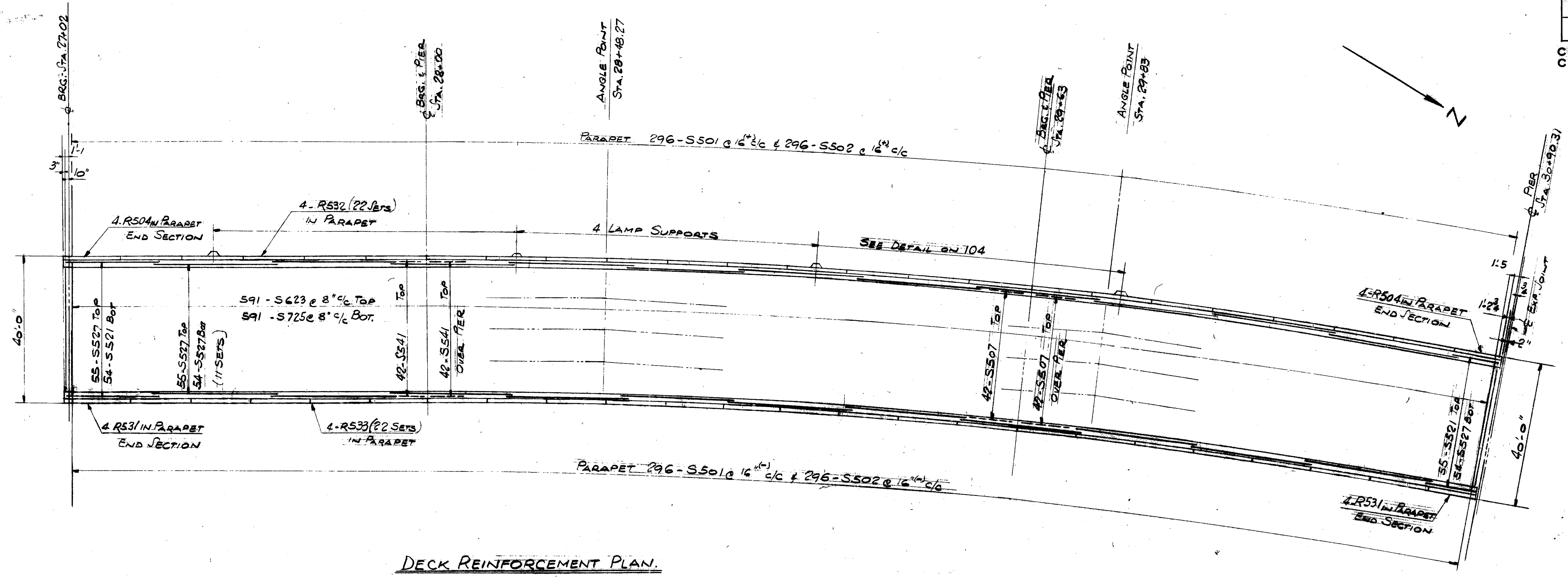
H1-0

0-14

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

100
164

CUYAHOGA COUNTY
CUY-21-14.55



DECK REINFORCEMENT PLAN.

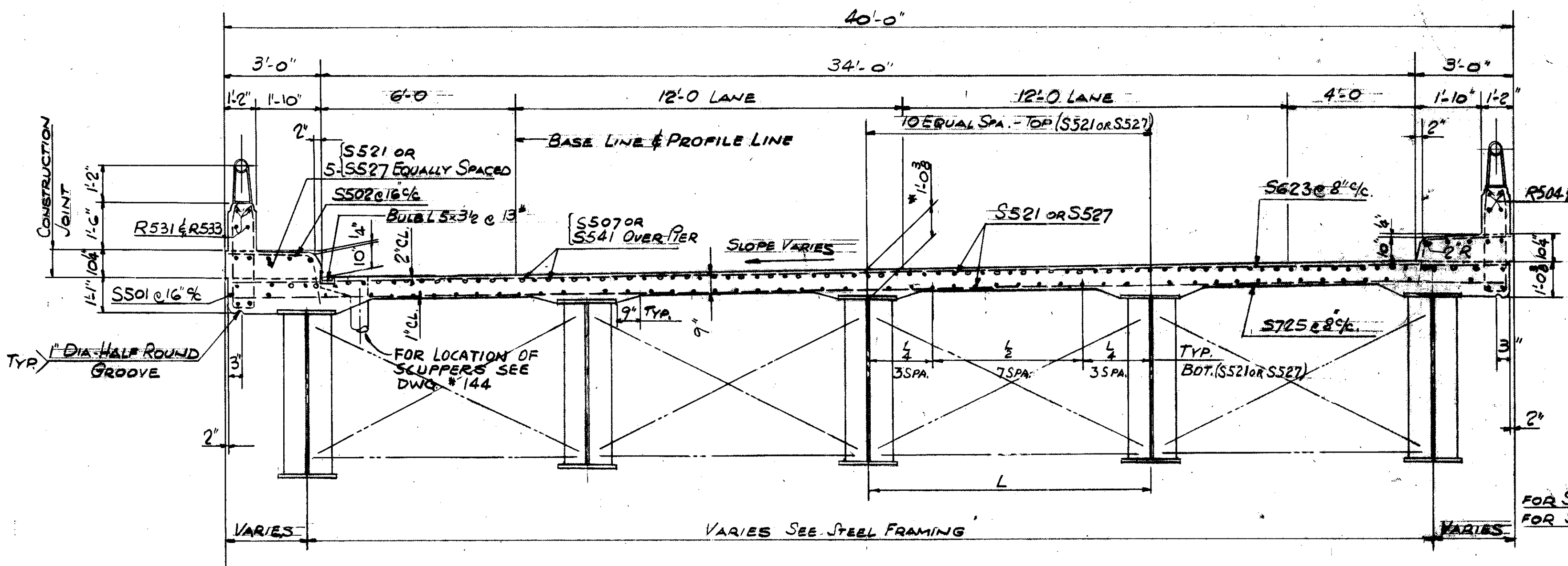
GENERAL NOTES ON CONCRETE DECK SLAB

REINFORCEMENT BARS TO BE 2" CLEAR UNLESS OTHERWISE NOTED. LAP BARS 30 DIAMETERS.
 DIMENSIONS MARKED WITH AN ASTERISK (*) ARE THE NOMINAL DIMENSIONS. THE QUANTITY OF DECK CONCRETE TO BE PAID FOR SHALL BE BASED ON THESE DIMENSIONS EVEN THOUGH DEVIATIONS FROM THEM MAY BE NECESSARY BECAUSE THE TOP FLANGE OF THE GIRDERS MAY NOT HAVE THE EXACT CAMBER OR CONFORMATION REQUIRED TO PLACE IT PARALLEL TO THE FINISHED GRADE.
 SLAB THICKNESS SHOWN INCLUDES 1" FOR MONOLITHIC WEARING SURFACE.
 THE HAUNCH IN THE DECK SLAB ADJACENT TO THE TOP OF STEEL GIRDERS, WHICH IS SHOWN AS 9" WIDE, MAY VARY FROM THIS DIMENSION BETWEEN THE LIMITS OF 6" AND 12" ON DECK WITHOUT SUPERELEVATION AND ON THE LOW SIDE OF DECK WITH SUPERELEVATION. ON THE HIGH SIDE OF DECK WITH SUPERELEVATION THIS DIMENSION MAY VARY BETWEEN THE LIMITS OF 9" AND 12". EXCEPT THAT THE MAXIMUM

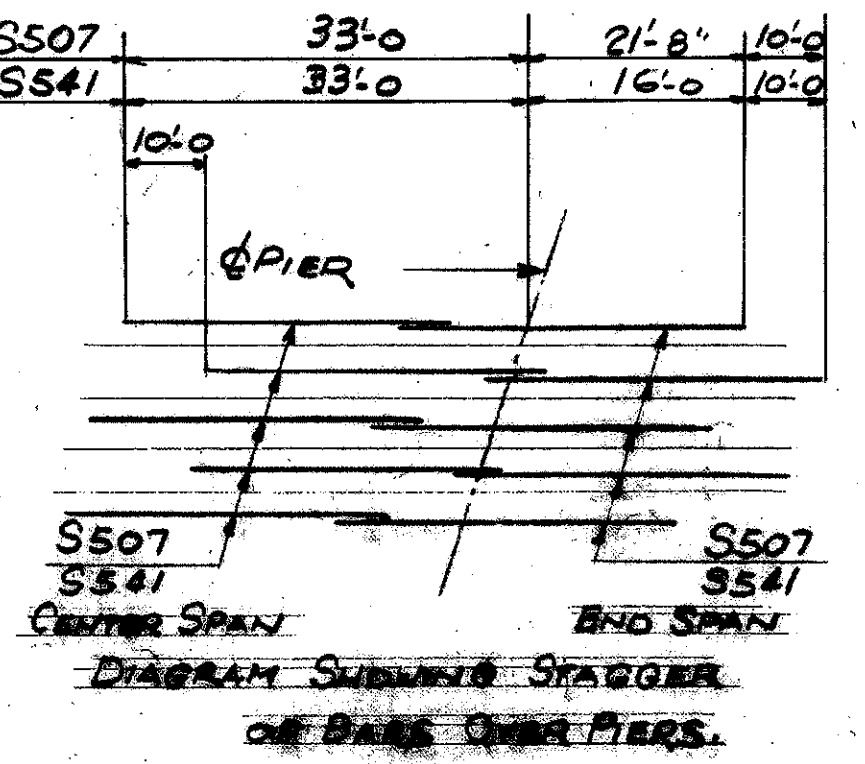
SLOPE SHALL NOT EXCEED 3" PER FOOT ON THE HIGH SIDE OF DECK WITH SUPERELEVATION AND ON DECK WITHOUT SUPERELEVATION. PAYMENT FOR DECK SLAB CONCRETE SHALL BE BASED ON THE 9" WIDTH.

IN ORDER TO FACILITATE WATER CURING OF THE CONCRETE OF THE DECK SLAB, THE PLACING OF CONCRETE SHALL PROGRESS UPGRADE. THE SLAB MAY BE PLACED IN SECTIONS, BETWEEN TRANSVERSE CONSTRUCTION JOINTS WHICH ARE PARALLEL TO TRANSVERSE REINFORCING STEEL AND ARE LOCATED NEAR THE CENTER OF ANY SPAN.

ALL CONCRETE TO BE CLASS "C"
 MACHINE FINISH: AT THE CONTRACTOR'S OPTION THE CONCRETE DECK MAY BE FINISHED BY THE USE OF A FINISHING MACHINE.
 FOR ADDITIONAL NOTES SEE SHEETS 56 & 118.



TYPICAL ROAD SECTION.
(LOOKING SOUTHEAST)

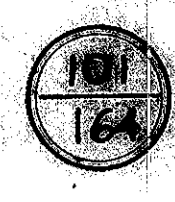


TRYGVE HOFF & ASSOCIATES
 ENGINEERS
 1922 EAST 107TH STREET CLEVELAND, OHIO

BRIDGE NO. CUY-21-14.55
 WILLOW FREEWAY OVER KINGSBURY RUN
 RAMP W-N & E-N
 CUYAHOGA COUNTY U.S.R. 21

SCALE: _____ DATE: _____

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	



CUYAHOGA COUNTY
CUY-21-14.55

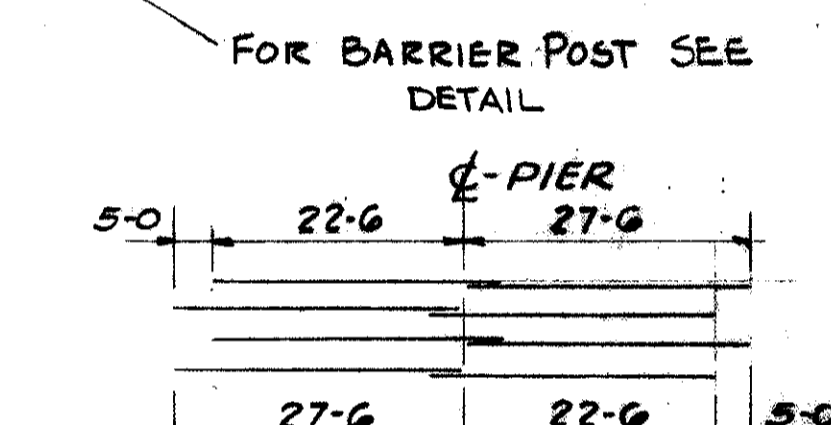
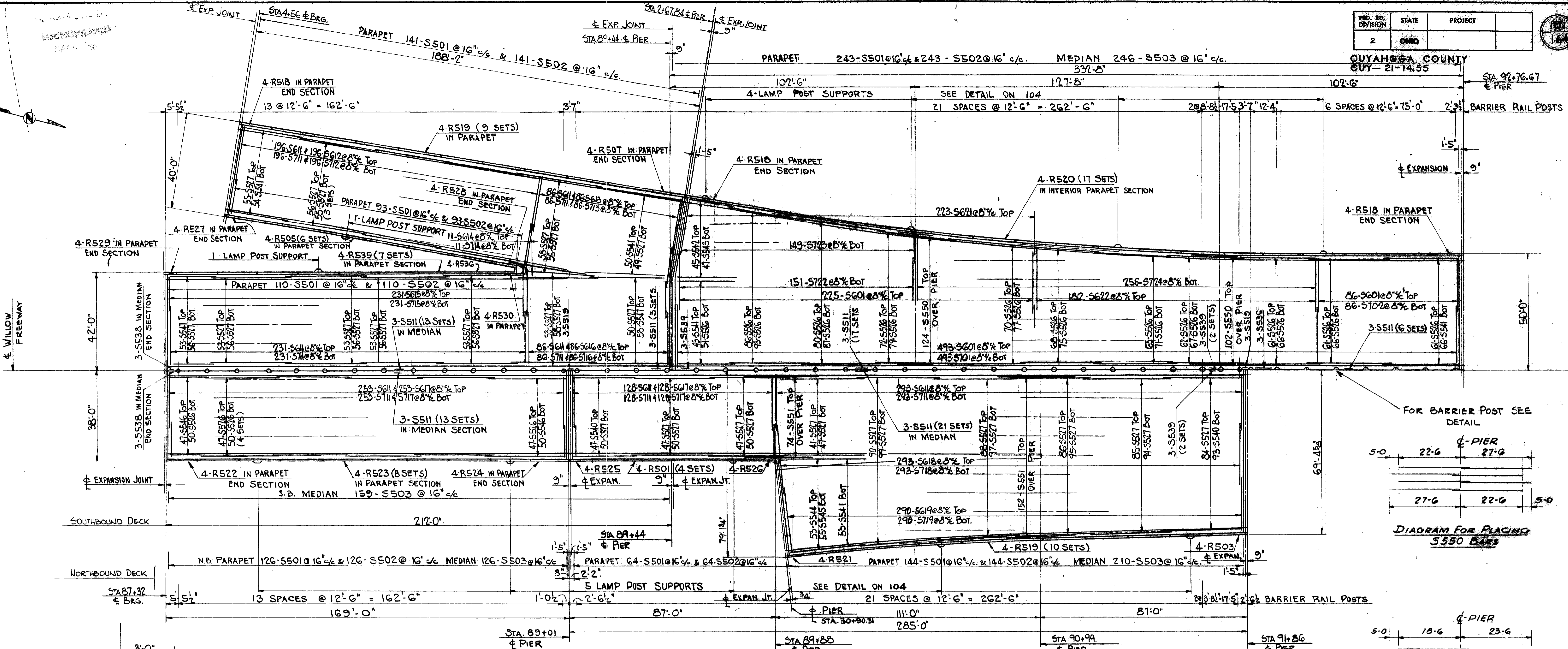


DIAGRAM FOR PLACING S550 BARS

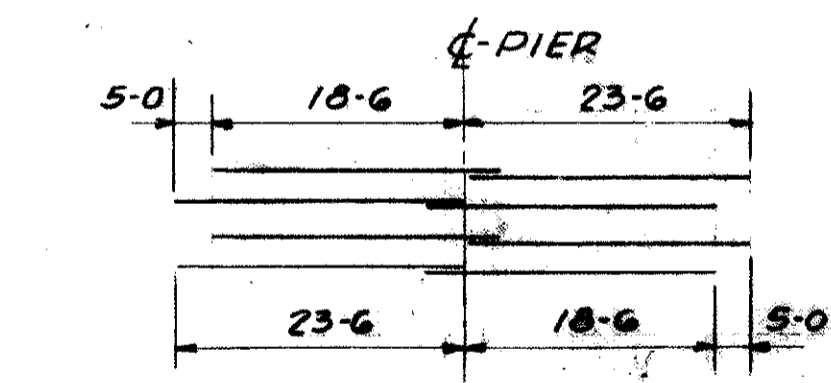
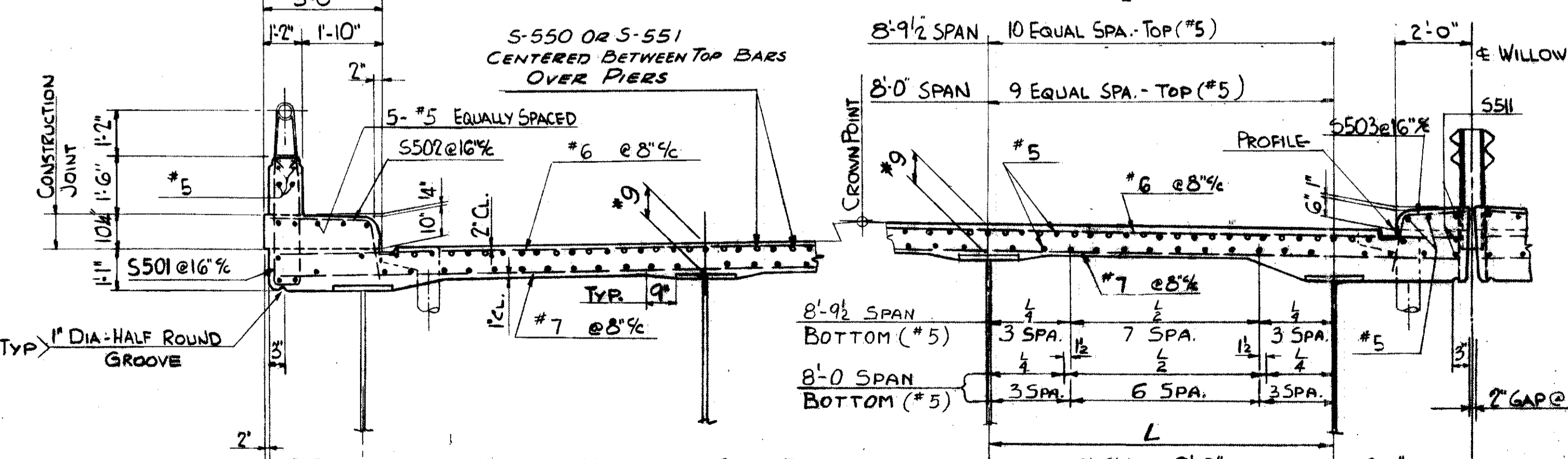
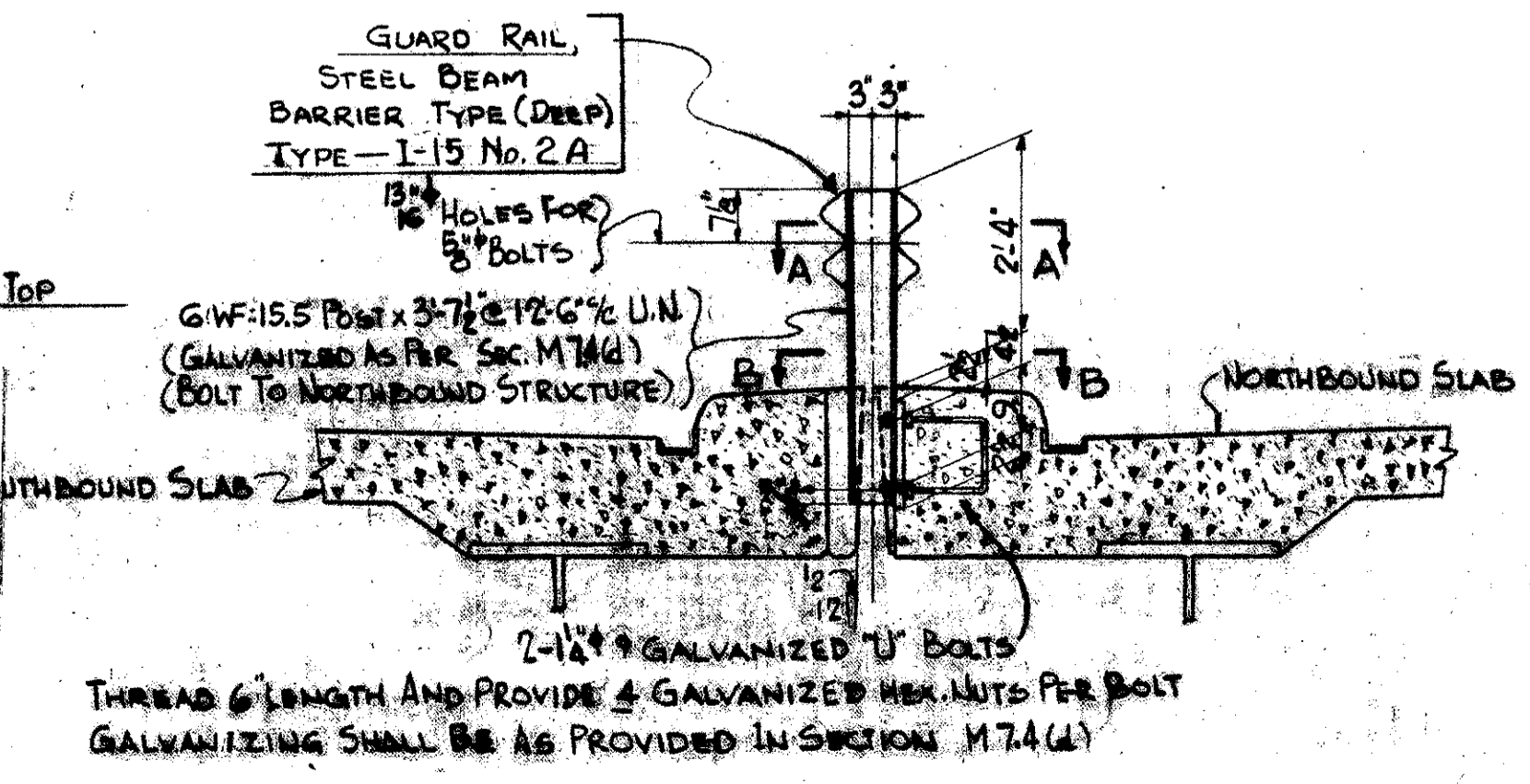


DIAGRAM FOR PLACING S551 BARS



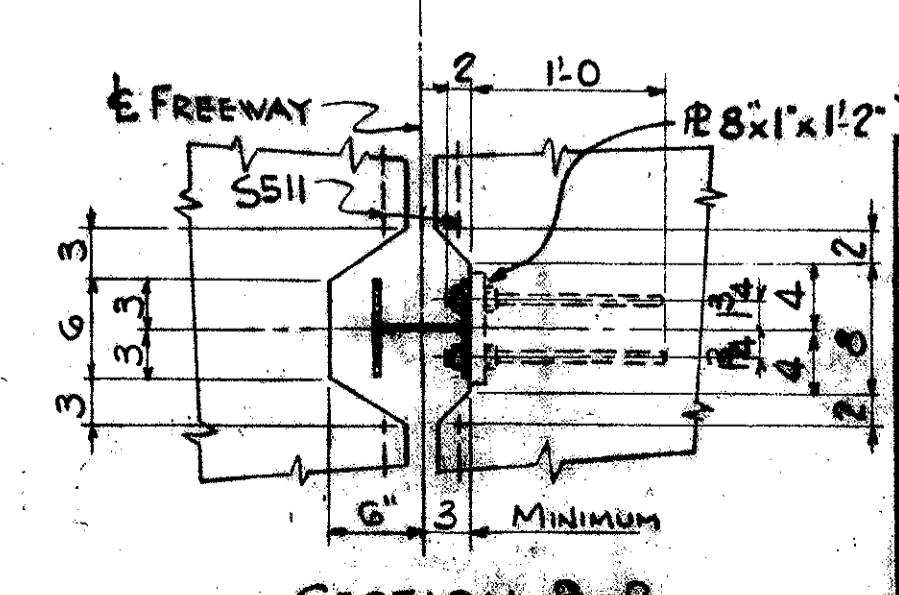
TYPICAL ROAD SECTION

FOR LOCATION OF SCUPPERS SEE DWG. #144



DETAIL BARRIER POST

SECTION A-A

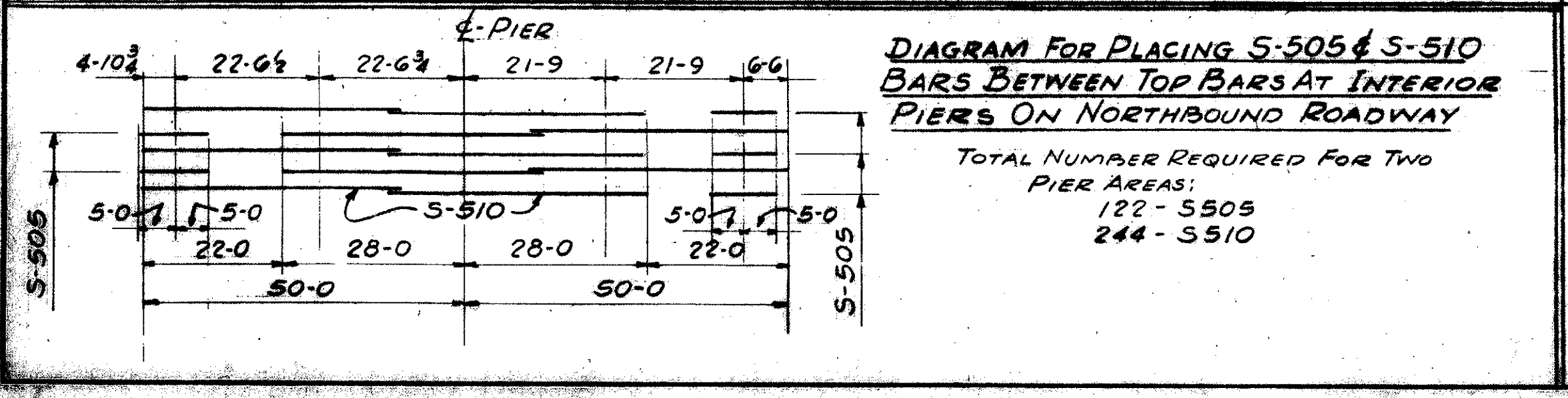
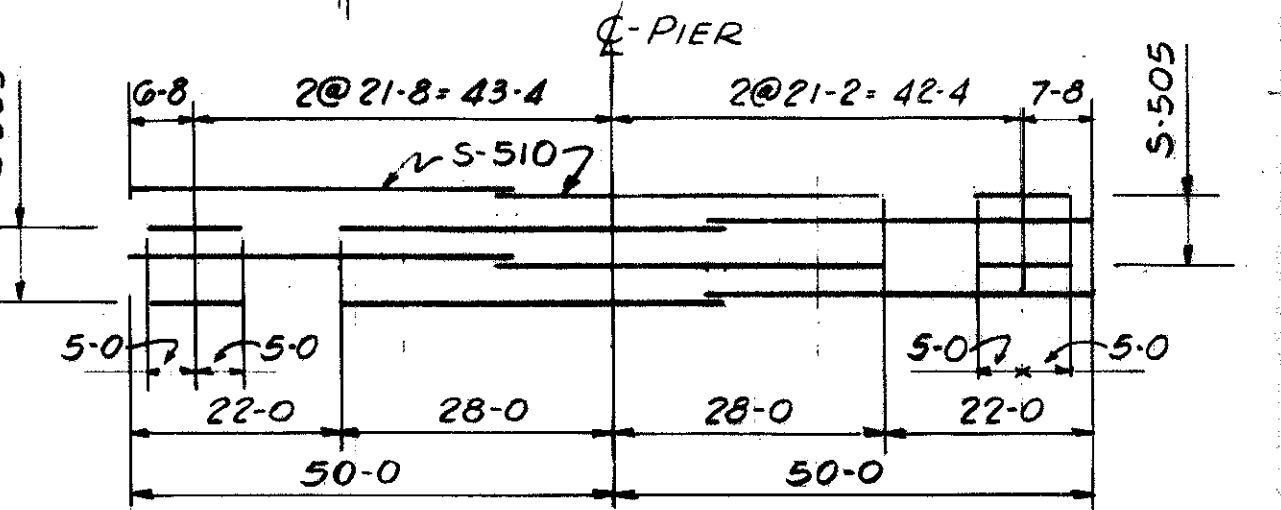
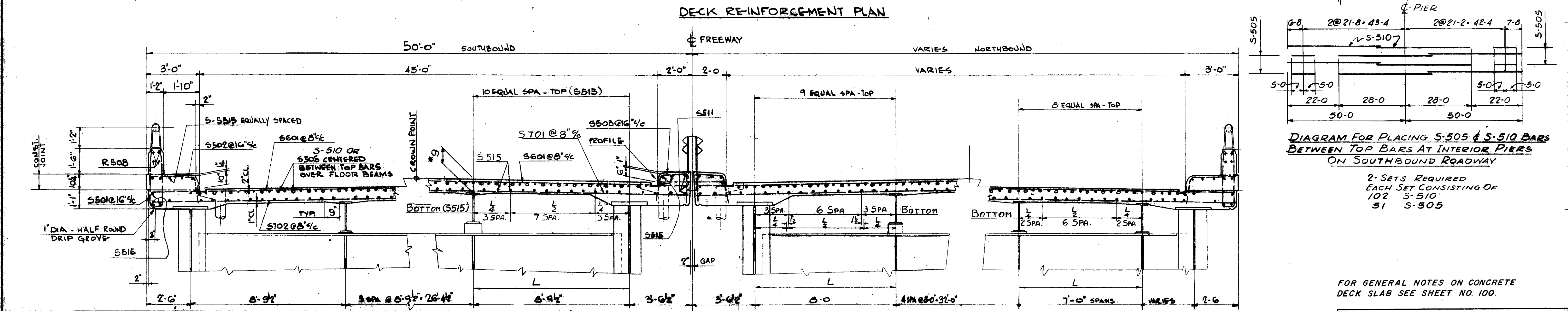
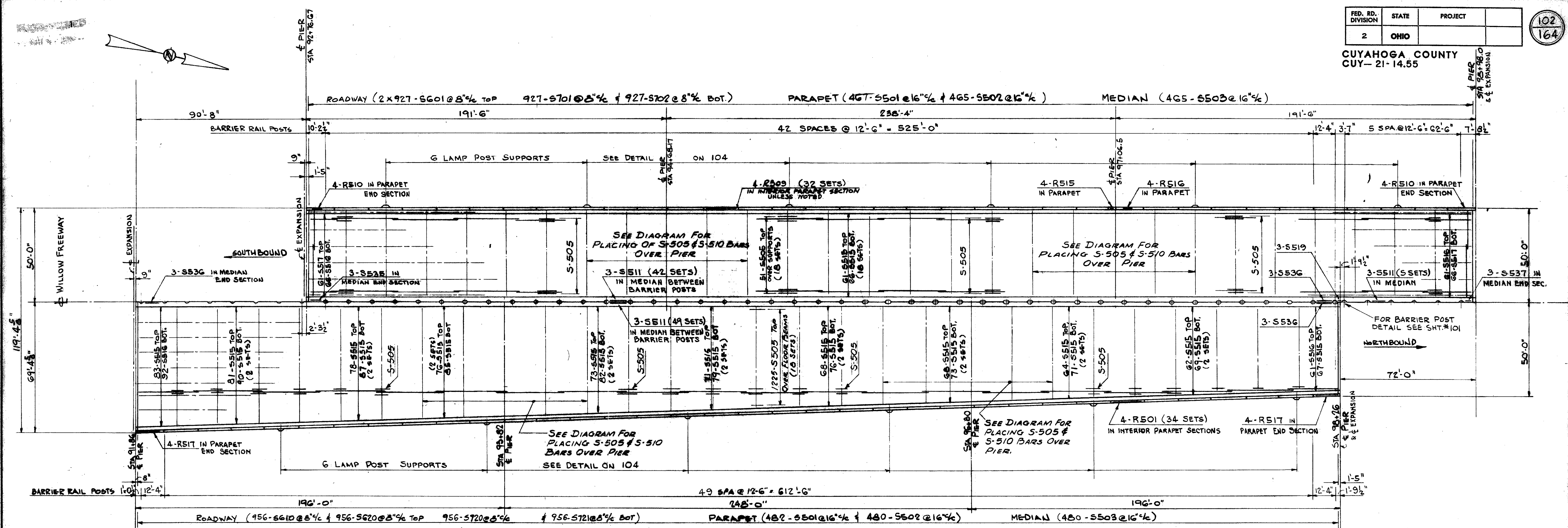


SECTION B-B

FOR GENERAL NOTES ON CONCRETE DECK SLAB SEE SHEET NO. 100

TRYGVE HOFF & ASSOCIATES
ENGINEERS
1922 EAST 10TH STREET CLEVELAND, OHIO

DECK DETAILS
BRIDGE NO. CUY-21-14.55
WILLOW FREEWAY OVER KINGSBURY RUN
CUYAHOGA COUNTY U.S.R. 21



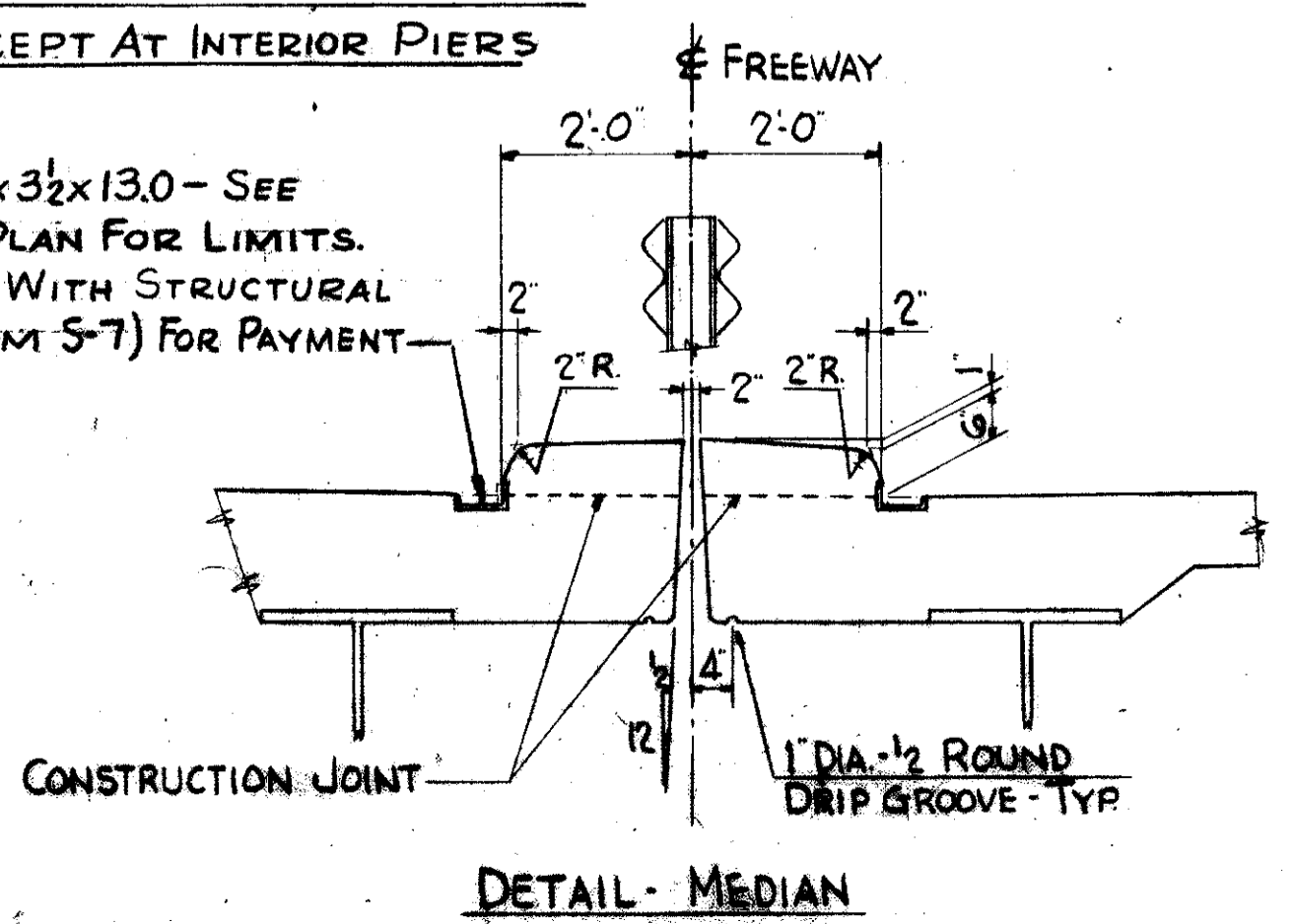
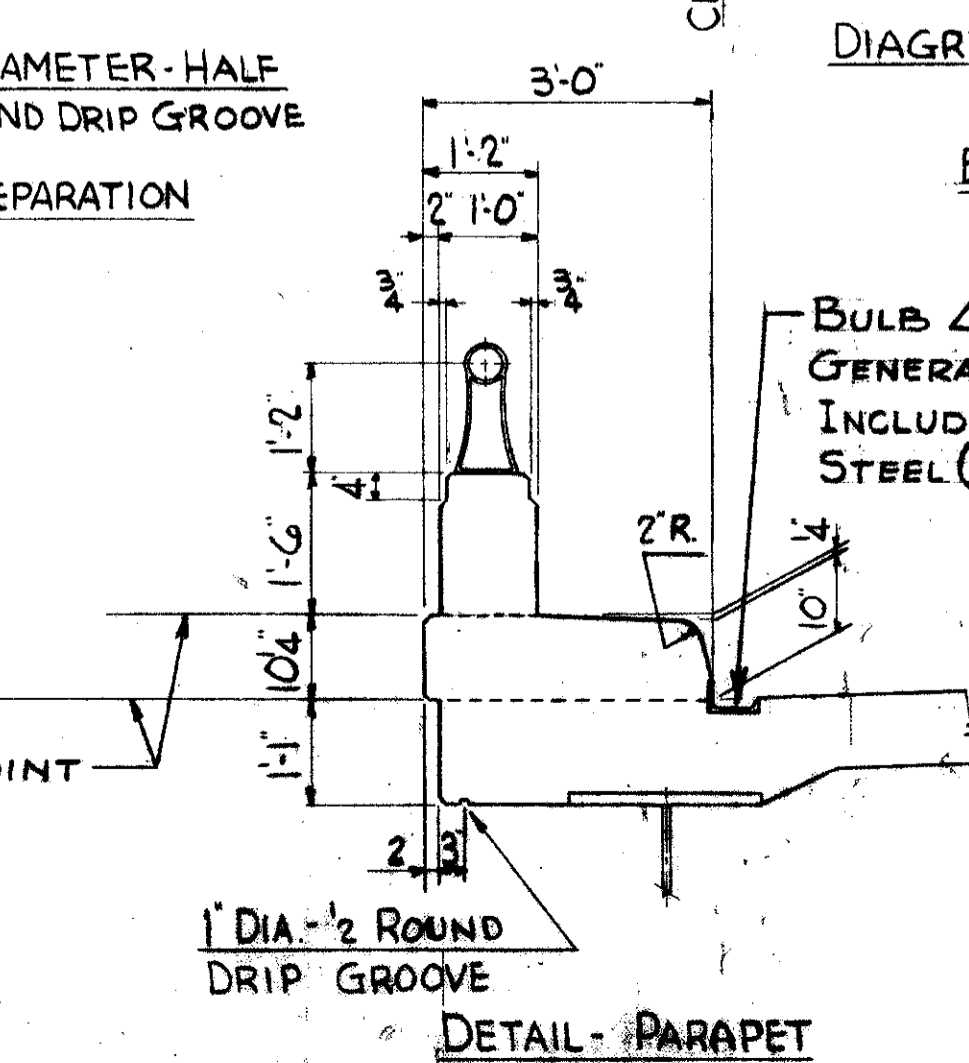
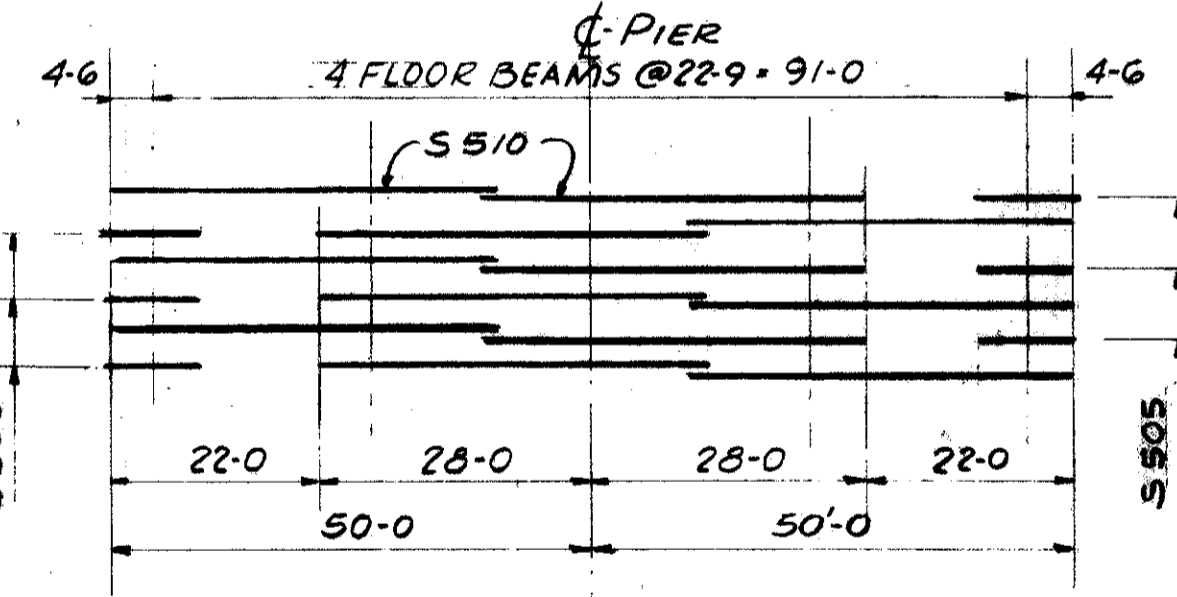
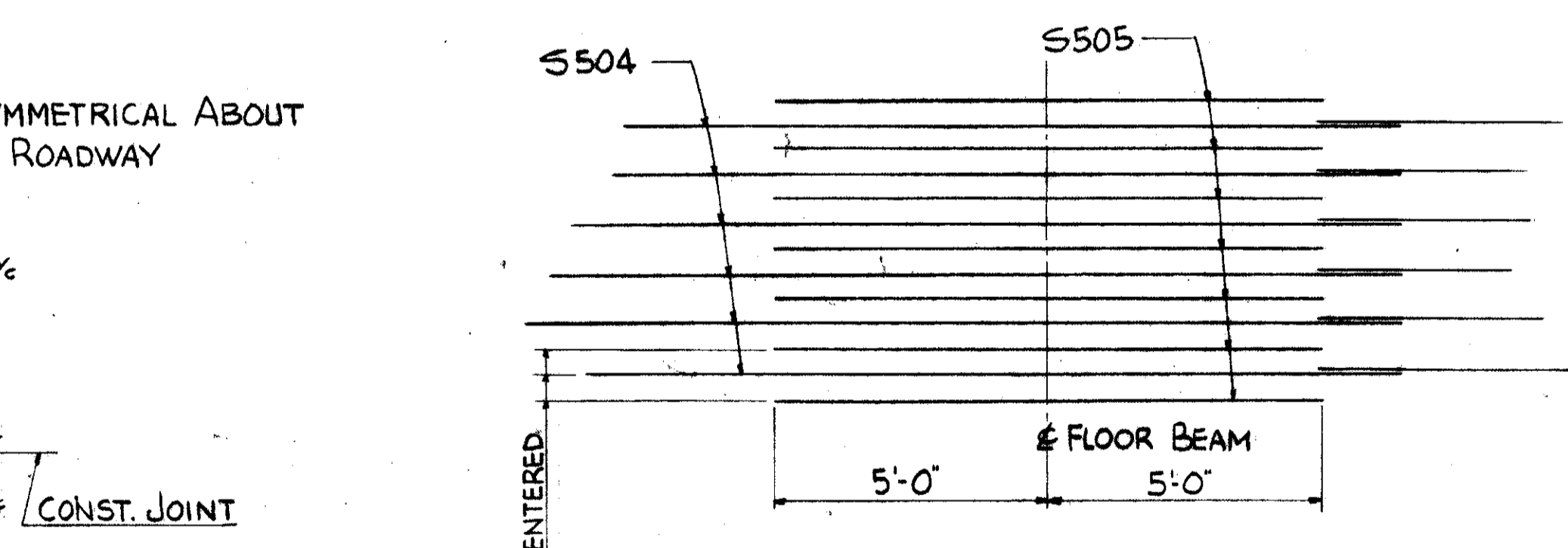
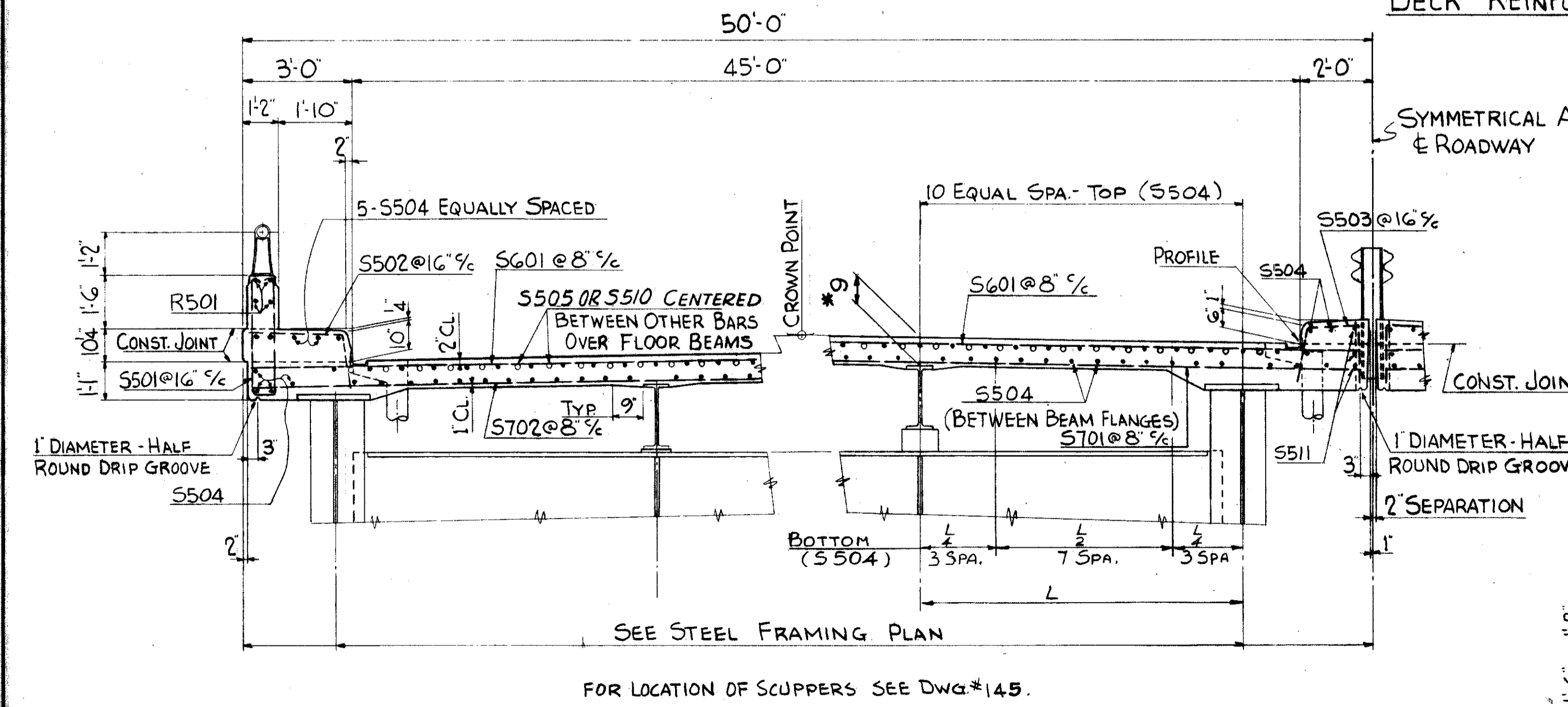
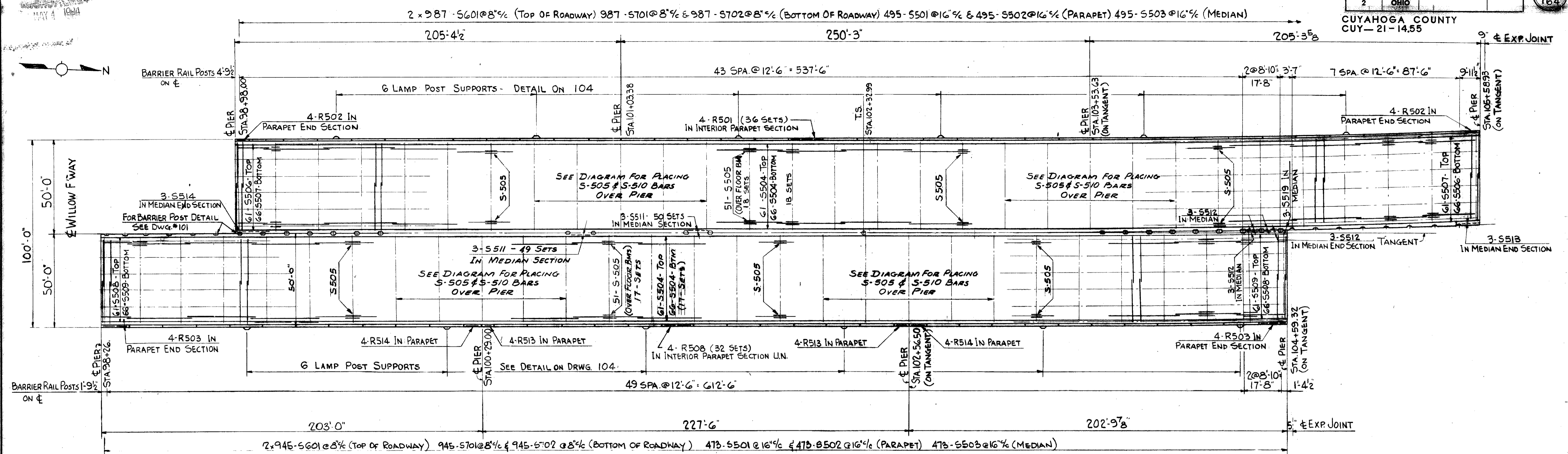
TRYGVE HOFF & ASSOCIATES
ENGINEERS
1922 EAST 107TH STREET CLEVELAND, OHIO

DECK DETAILS

BRIDGE NO. CUY-21-14.55
WILLOW FREEWAY OVER KINGSBURY RUN
CUYAHOGA COUNTY U.S.R. 21

SCALE

FED. RD. DIVISION	STATE	PROJECT	164
2	OHIO	CUYAHOGA COUNTY CUY-21-14.55	



FOR GENERAL NOTES ON CONCRETE DECK SLAB SEE SHEET NO. 100.

TRYGVE HOFF & ASSOCIATES	
ENGINEERS CLEVELAND, OHIO	
1922 EAST 107TH STREET	
DECK DETAILS	
BRIDGE NO.	CUY-21-14.55
WILLOW FREEWAY OVER KINGSBURY	
CUYAHOGA COUNTY U.S.R. #1	

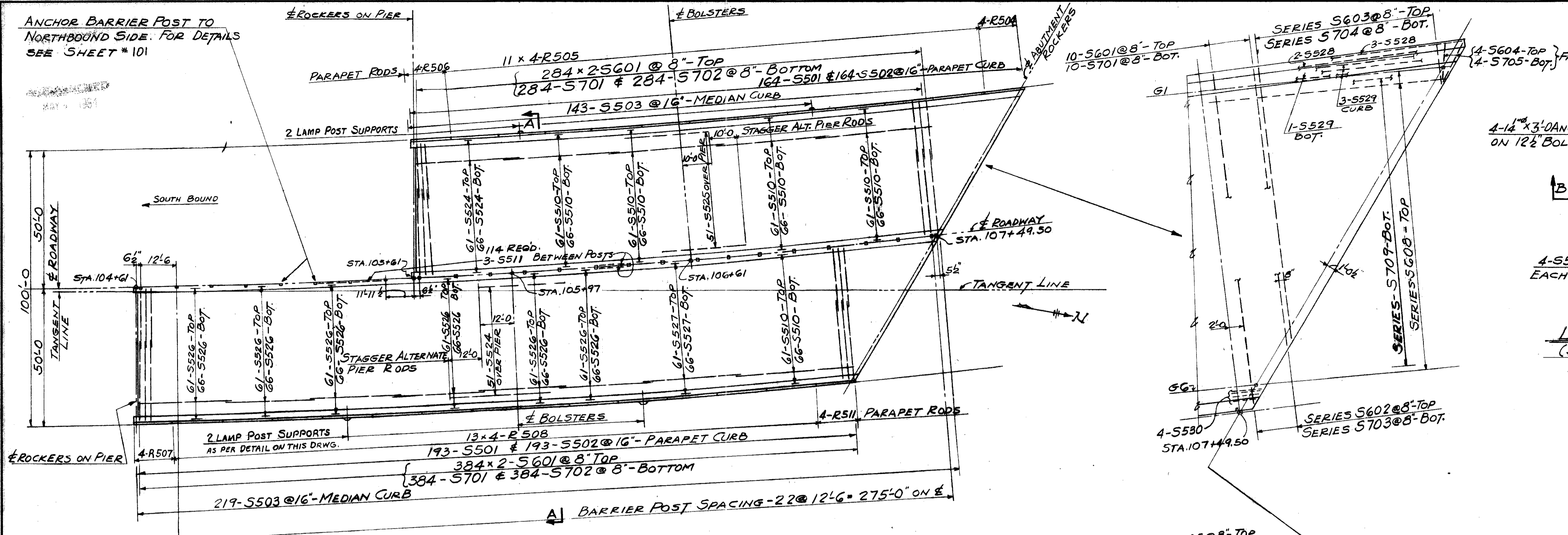
SCALE: _____

ANCHOR BARRIER POST TO NORTHBOUND SIDE. FOR DETAILS SEE SHEET #101

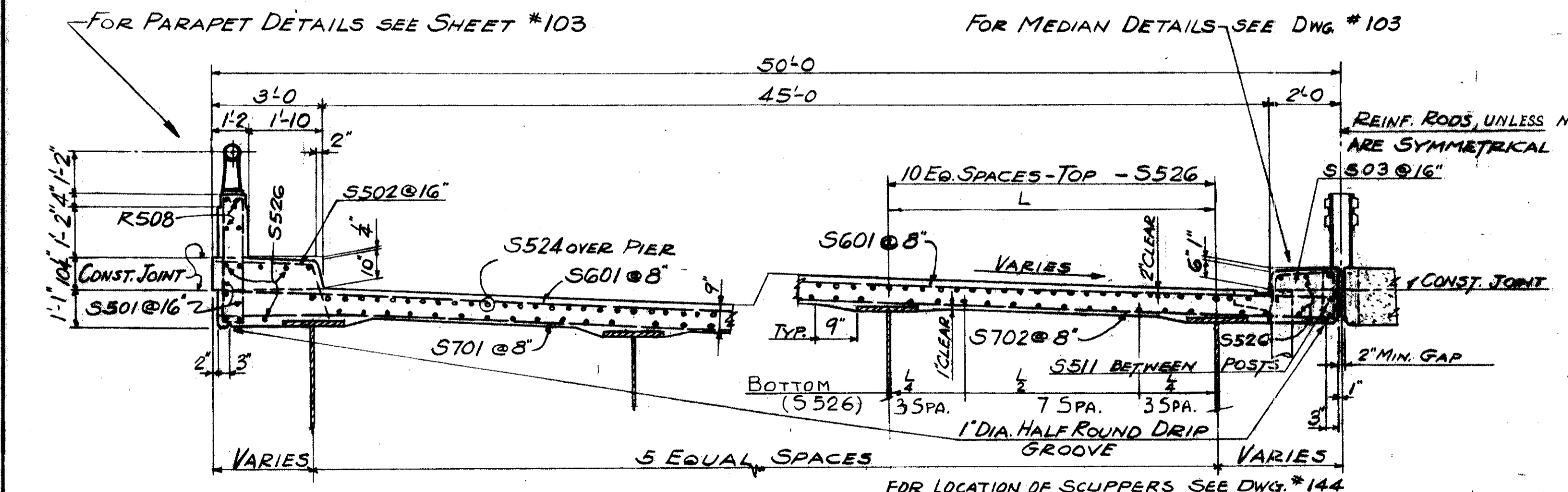
FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

CUYAHOGA COUNTY
CUY-21-14,55

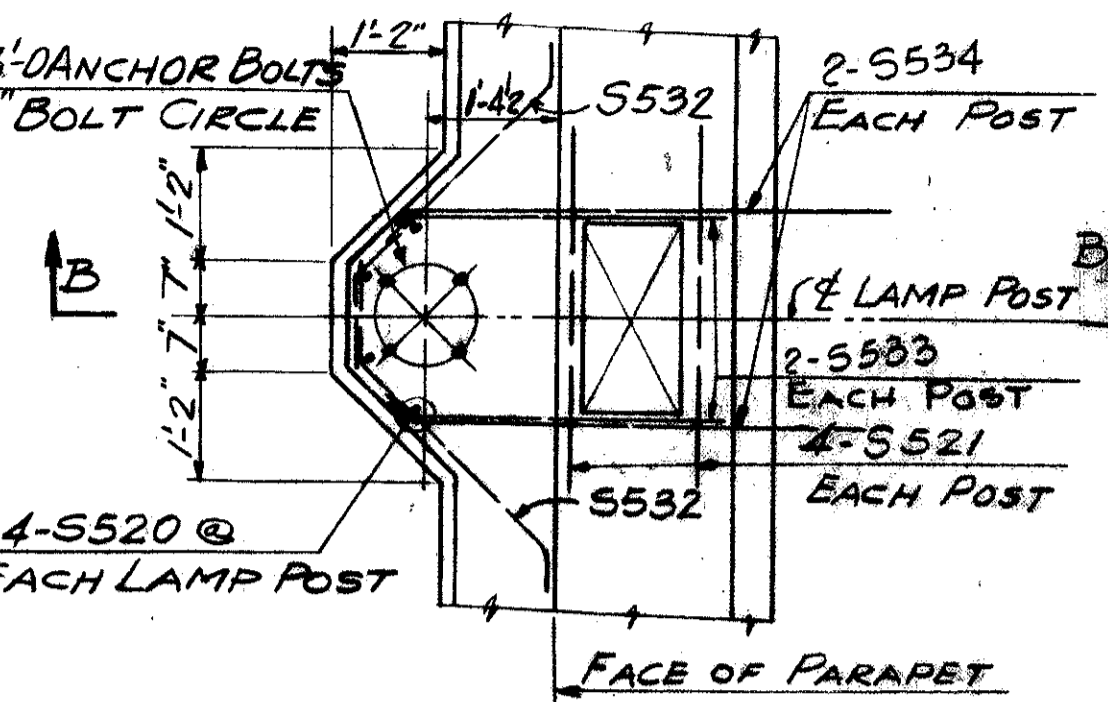
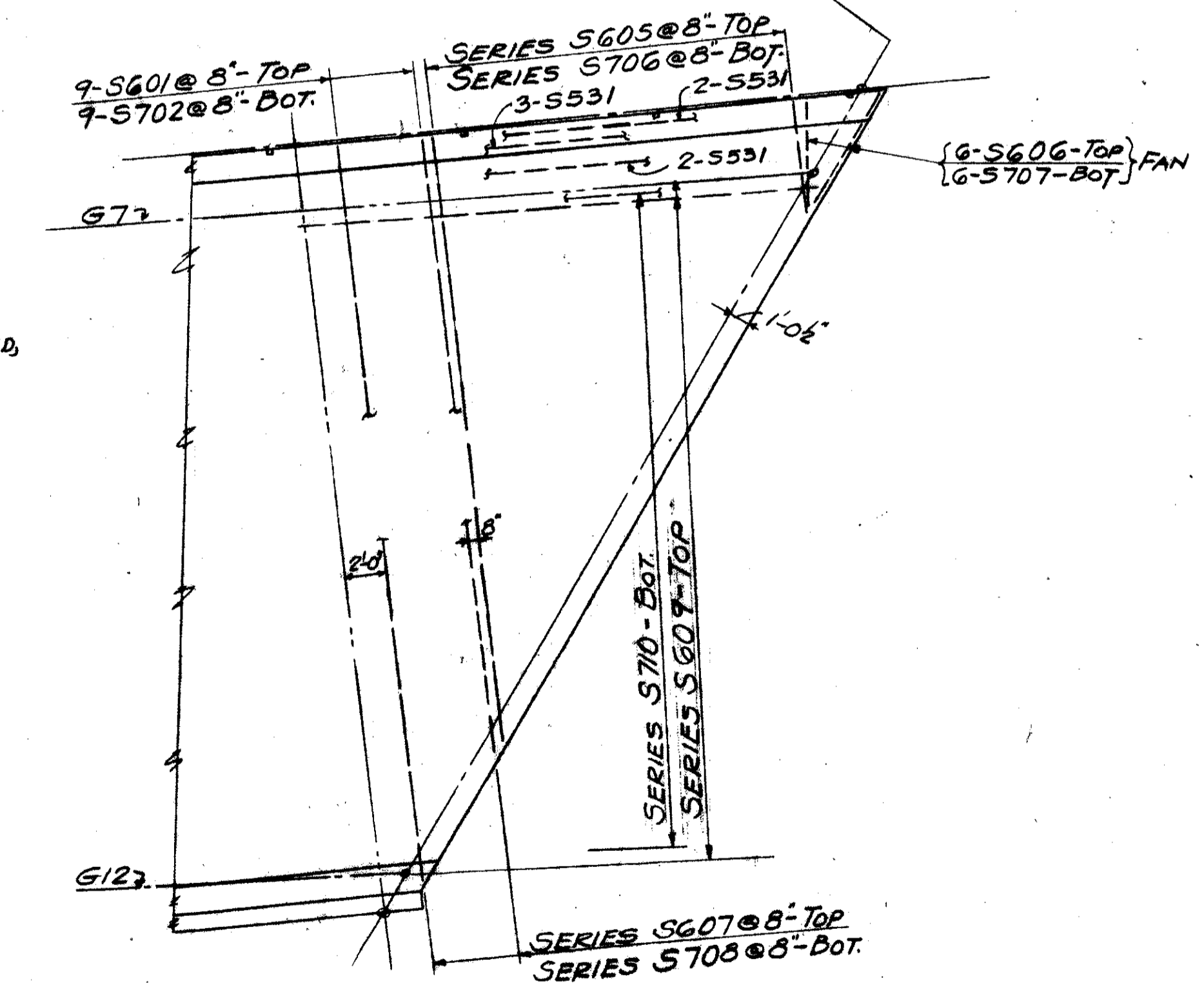
104
164



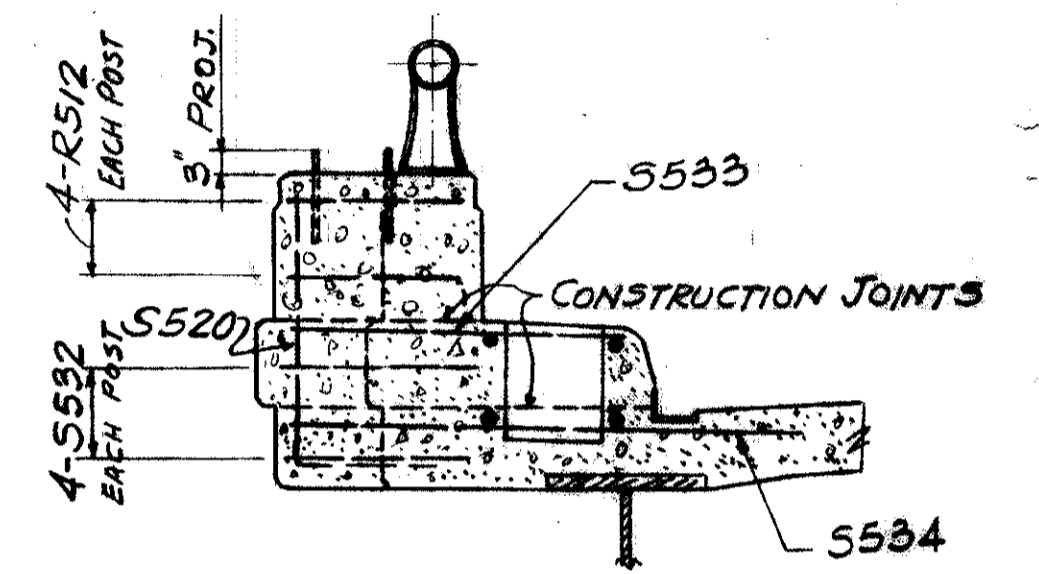
DECK REINFORCEMENT PLAN



SECTION "A-A"



LAMP POST SUPPORT - PLAN
(SEE LIGHTING DWG. #46 FOR DETAILS)



SECTION "B-B"

REQUIRED

4	LAMP POST SUPPORTS ON DRWG.	#104
12	"	" #103
12	"	" #102
11	"	" #119
4	"	" #100

FOR GENERAL NOTES ON CONCRETE DECK SLAB SEE SHEET NO. 100.

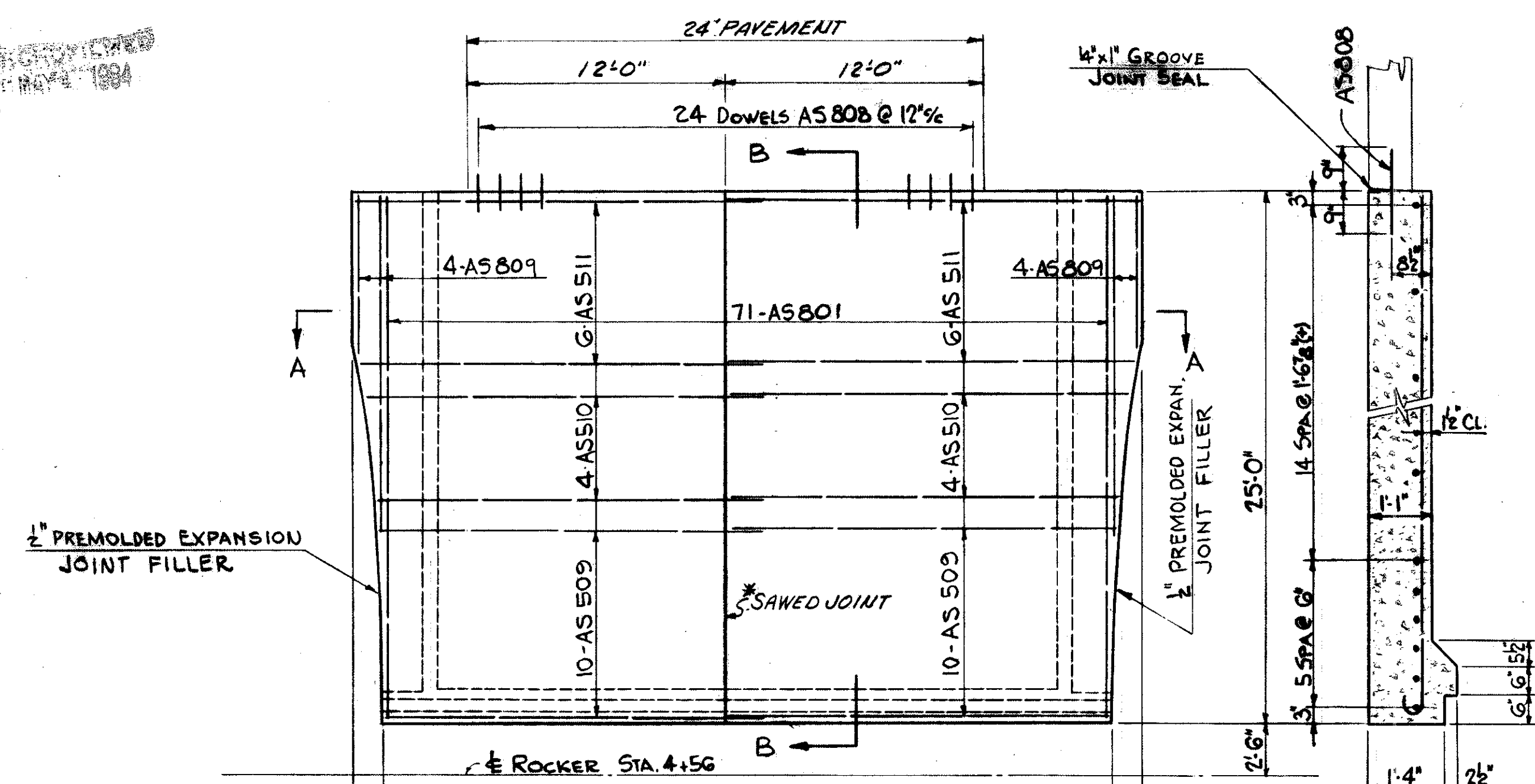
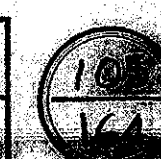
TRYGVE HOFF & ASSOCIATES
ENGINEERS
1922 EAST 107TH STREET CLEVELAND, OHIO

DECK DETAILS
BRIDGE NO. CUY-21-14,55
WILLOW FREEWAY OVER KINGSBURY
CUYAHOGA COUNTY, OHIO

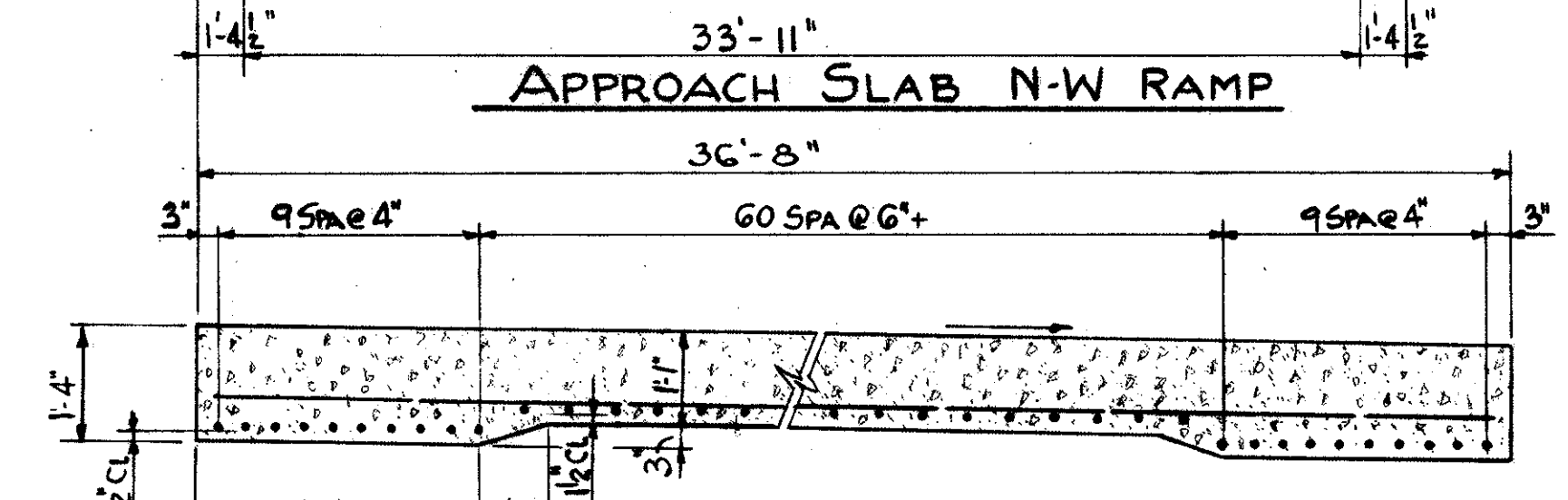
SCALE

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

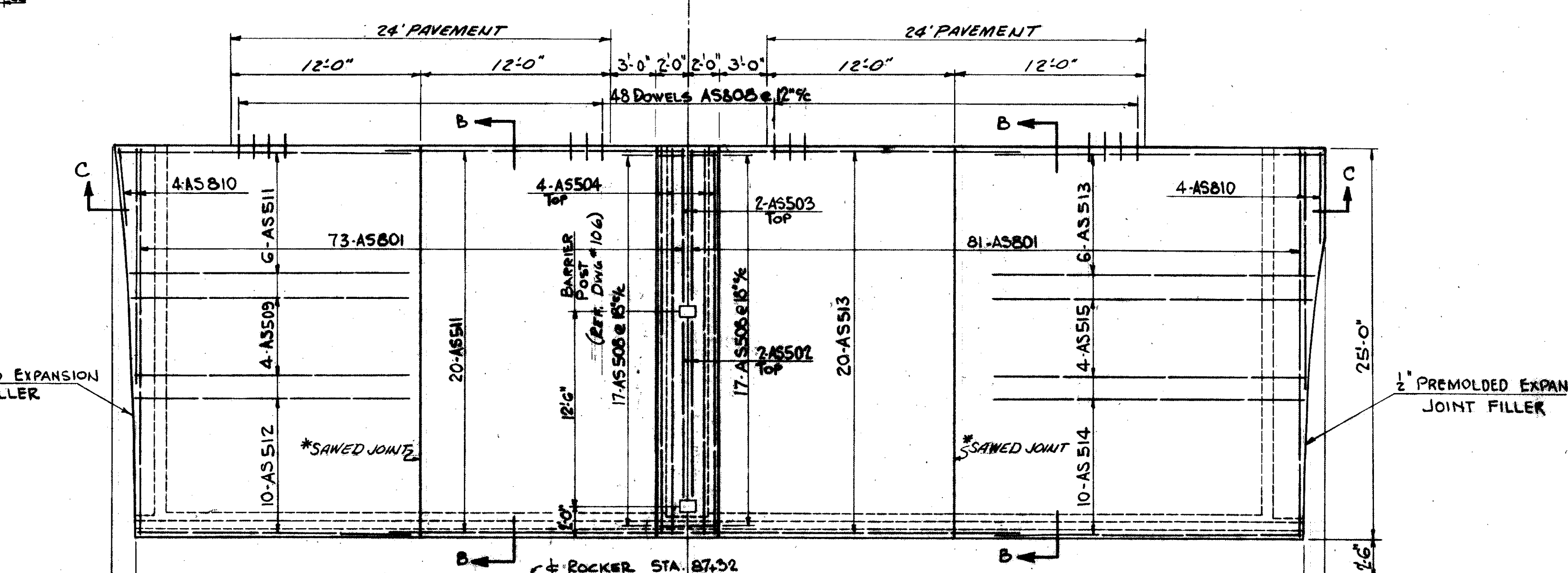
CUYAHOGA COUNTY
CUY-21-14.55



SECTION BB

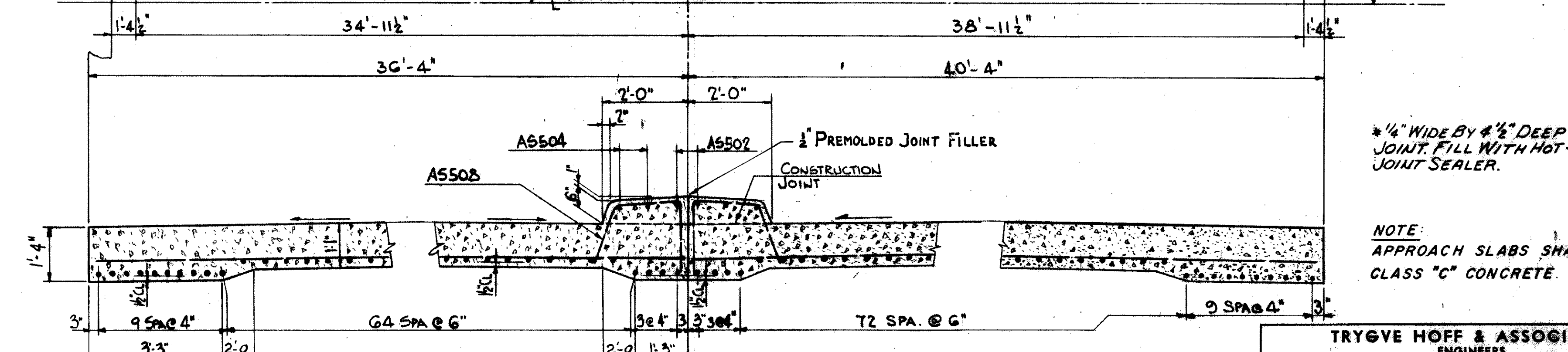


SECTION AA



1/2" PREMOLDED EXPANSION JOINT FILLER

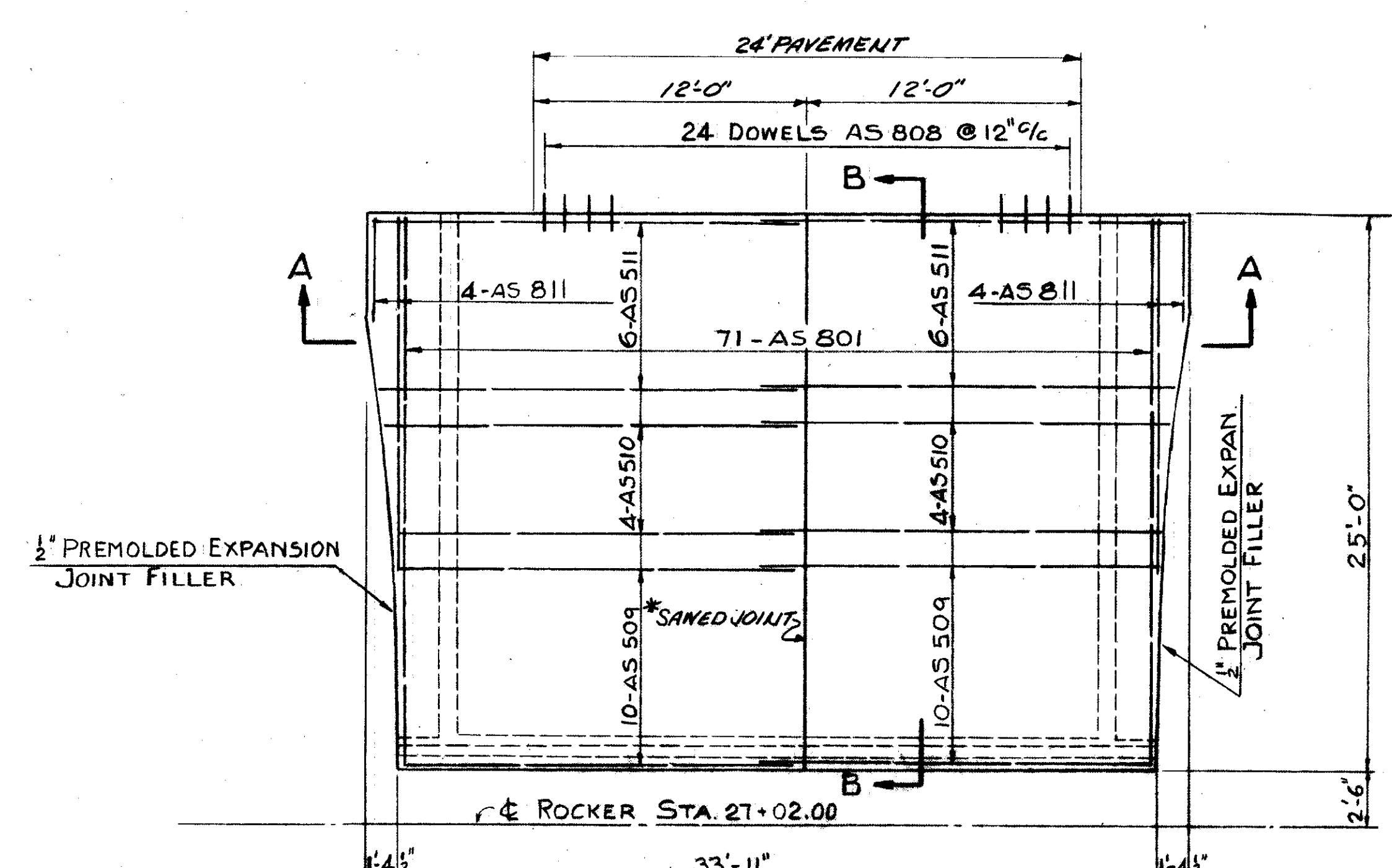
1/2" PREMOLDED EXPAN JOINT FILLER



SECTION CC

*1/4" WIDE BY 4 1/2" DEEP SAWED JOINT. FILL WITH HOT-POURED JOINT SEALER.

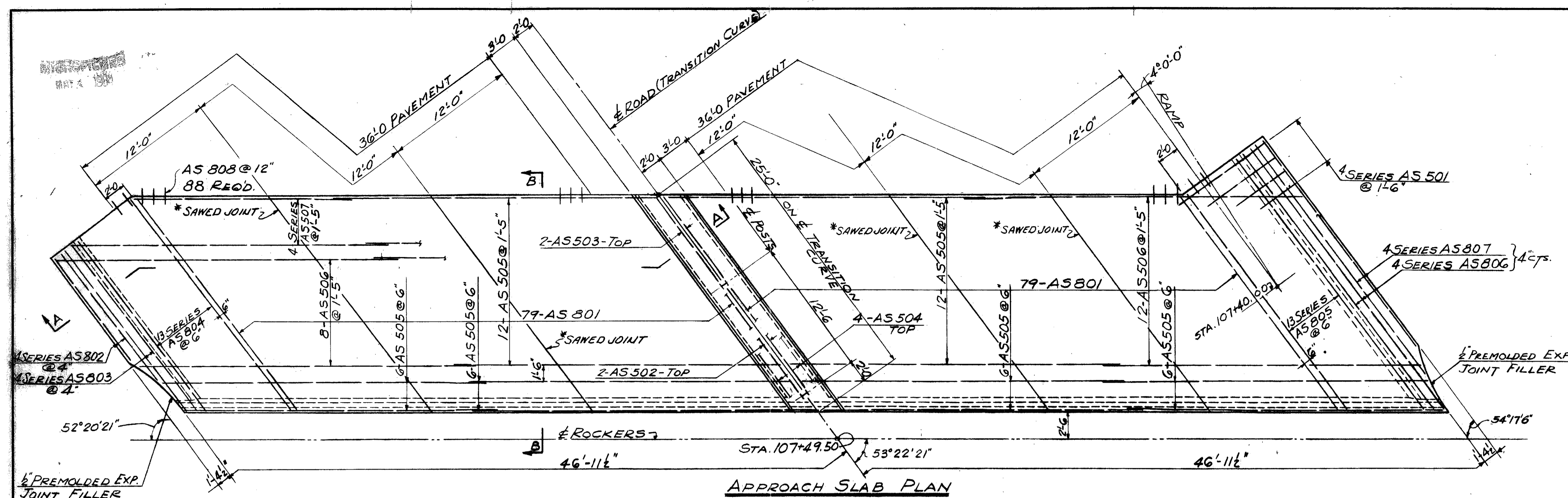
NOTE: APPROACH SLABS SHALL BE CLASS "C" CONCRETE.



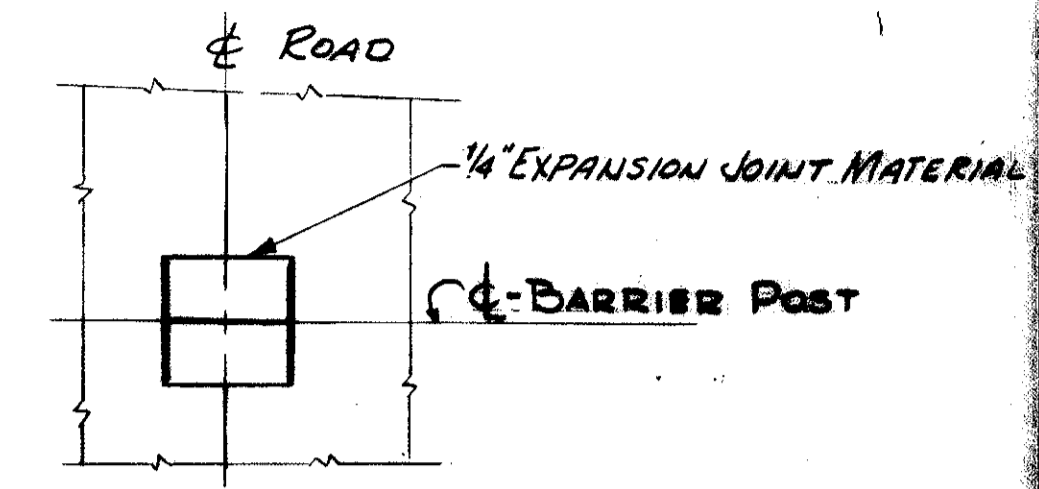
APPROACH SLAB E-N RAMP

APPROACH SLAB - WILLOW FREEWAY

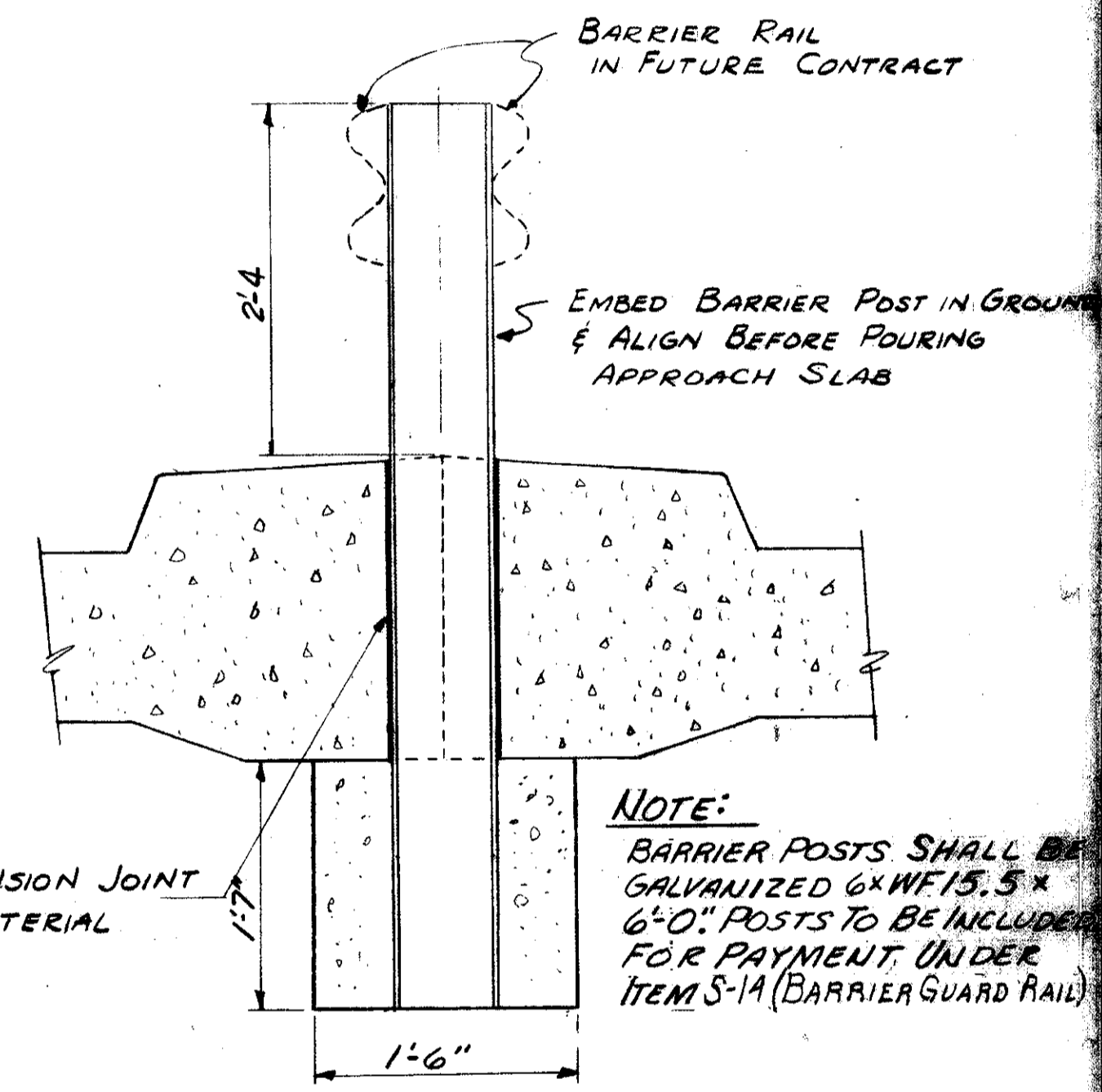
TRYGVE HOFF & ASSOCIATES
ENGINEERS
1922 EAST 107TH STREET CLEVELAND, OHIO
APPROACH SLABS-SOUTH END
BRIDGE NO. CUY-21-14.55
WILLOW FREEWAY OVER KINGSBURY ROAD
CUYAHOGA COUNTY U.S.A. 21



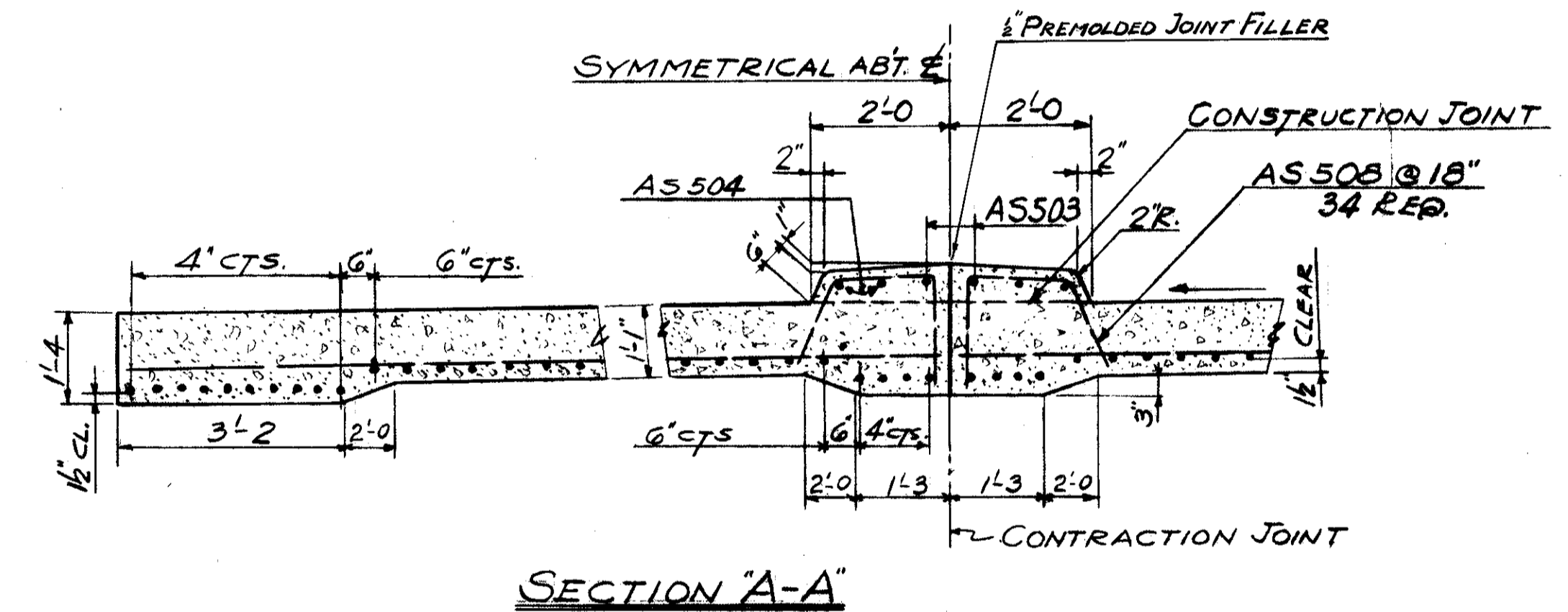
APPROACH SLAB PLAN



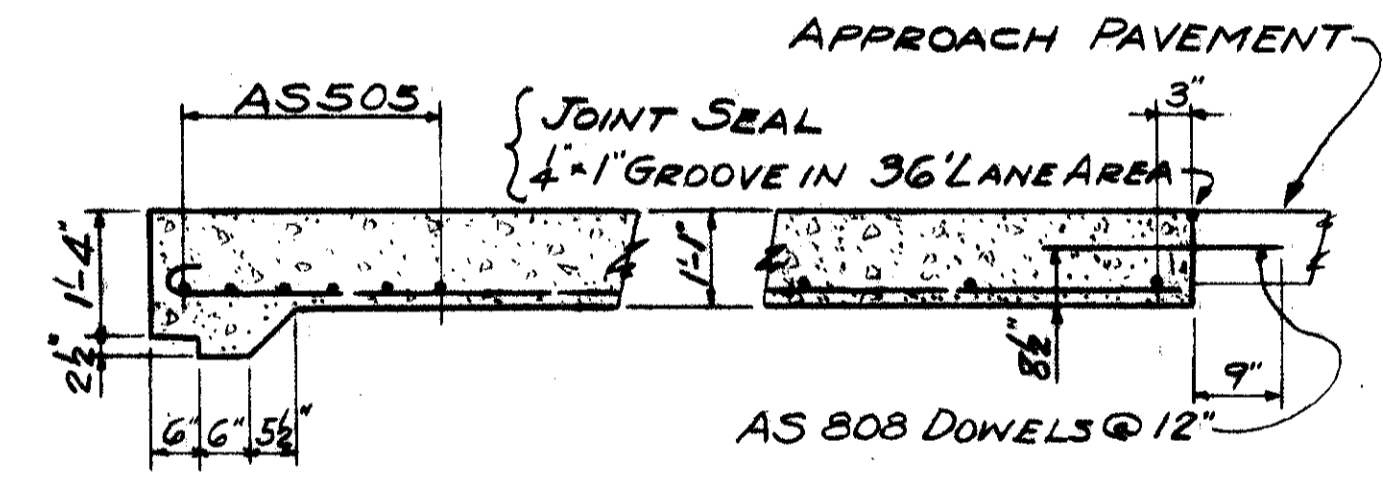
PLAN



BARRIER POST DETAIL



SECTION "A-A"



SECTION "B-B"

NOTE:
APPROACH SLAB SHALL BE CLASS "C" CONCRETE.

*1/4" WIDE BY 1/2" DEEP SAWS JOINT. FILL WITH HOT-POURED JOINT SEALER.

TRYGVE HOFF & ASSOCIATES			
ENGINEERS			
1922 EAST 107TH STREET		CLEVELAND, OHIO	
APPROACH SLAB-NORTH END			
BRIDGE NO.		CUY-21-14.55	
WILLOW FREEWAY OVER KINGSBURY RAIN			
CUYAHOGA COUNTY		U.S.R. 21	
SCALE	DATE		
DESIGNED	DRAWN	TRACED	CHECKED
	SAH		

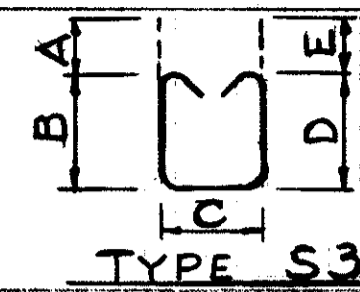
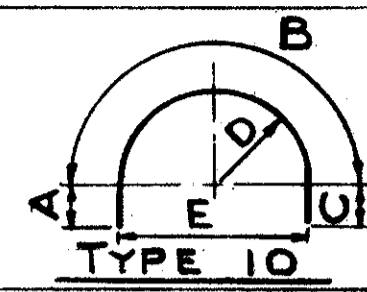
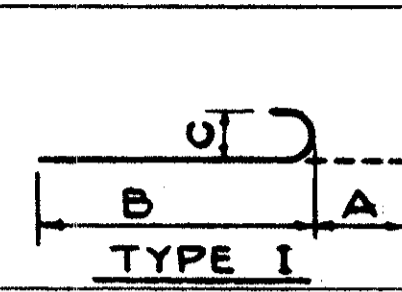
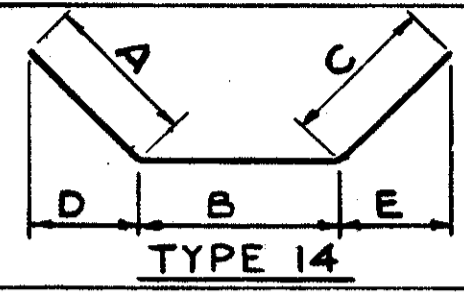
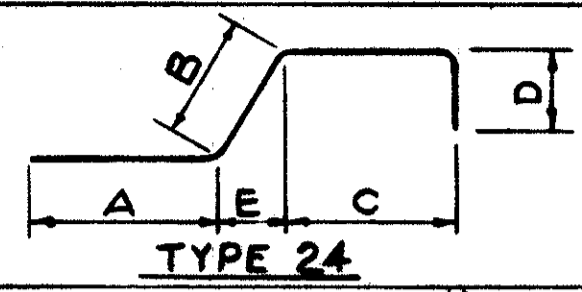
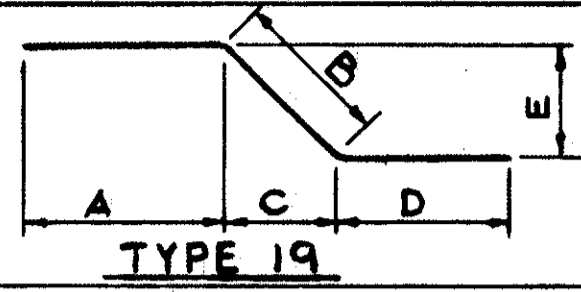
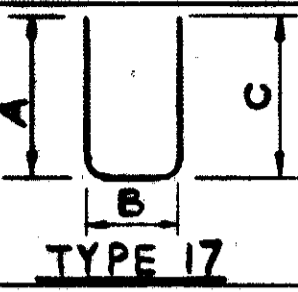
MICROFILMED
MAY 4 1984

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

107
164

CUYAHOGA COUNTY
CUY-21-1455

REINFORCING STEEL BAR SCHEDULE



MARK	No. REQ'D	LENGTH	TYPE	A	B	C	D	E	WEIGHT #
S501	3803	7'-6"	S3	5	3'-1"	8	3'-1"	5	29 749
S502	3905	3'-9"	19	2'-6"	1'-4"	3			15 273
S503	3016	4'-14"	24		1'-6"	1-5	1-5	6	12 897
S504	4445	35'-10"	STR.						166 113
S505	4234	10'-0"							44 101
S506	127	16'-10"							2 229
S507	225	28'-2"							6 611
S508	127	14'-6"							1 921
S509	127	37'-3"							4 934
S510	1491	40'-0"							62 204
S511	918	11'-4"							10 857
S512	12	7'-8"							96
S513	3	8'-7"							27
S514	3	2'-8"							8
S515	5145	33'-10"							181 540
S516	280	27'-6"							8 031
S517	127	15'-0"							1 987
S518	82	2'-7"	19	1'-4"	1'-4"	3			221
S519	12	2'-5"	STR.						30
S520	172	5'-8"	17	3'-1"	2'-9"				1 017
S521	281	5'-0"	STR.						1 466
S522	33	4'-0"							138
S523	10	23'-0"							240
S524	178	36'-0"	STR.						6 683
S525	51	30'-0"							1 596
S526	2665	32'-0"							88 947
S527	3788	34'-0"							134 330
S528	5	38'-0"							198
S529	4	37'-6"							156
S530	4	3'-3"							14
S531	7	36'-6"							266
S532	172	4'-5"	19	1'-0"	2'-7"	1'-10"	1'-0"	1'-10"	793
S533	86	3'-6"	14	0'-6"	3'-0"		0'-4"		314
S534	86	6'-3"	14	0'-6"	5'-9"		0'-4"		561
S535	3	9'-2"	STR.						29
S536	12	11'-2"							140
S537	3	6'-4"							20
S538	6	4'-10"							30
S539	12	7'-6"							94
S540	140	22'-0"							3 212
S541	352	25'-6"							9 362
S542	45	25'-6" TO 20'-0"							1 068
S543	47	32'-0" TO 27'-3"							1 452
S544	53	34'-0" TO 29'-8"							1 760
S545	55	22'-0" TO 17'-6"							1 133
S546	97	16'-6"							1 669
S547	106	17'-6"							1 935
S548	1	8'-2"	10	1'-7"	5'-0"	1'-7"	1'-8"	3'-7"	9
S549	7	2'-0"	STR.						15
S550	226	26'-0"	STR.						6 129
S551	226	22'-0"	STR.						5 186
									818 851
									542 819
									744 230
									2,105,900

APPROACH SLAB REINFORCING STEEL

APPROACH SLAB REINFORCING STEEL

BAR SIZE IS INDICATED IN THE BAR MARK
THE FIRST DIGIT WHERE THREE DIGITS ARE
USED, AND THE FIRST TWO DIGITS WHERE
FOUR ARE USED, INDICATE THE BAR SIZE
NUMBER. FOR EXAMPLE, A 700 IS A No. 7
SIZE BAR AND A1014 IS A No. 10 SIZE

ALL BARS WITH THE PREFIX "R" ARE INCLUDED WITH THE
RAILING FOR PAYMENT.

RE-501 40 5'-7 STR. }
RE-601 28 5'-11 STR. } REPLACEMENT BARS
RE-701 38 6'-3 STR. }

TRYGVE HOFF & ASSOCIATES
ENGINEERS
1922 EAST 107TH STREET CLEVELAND, OHIO

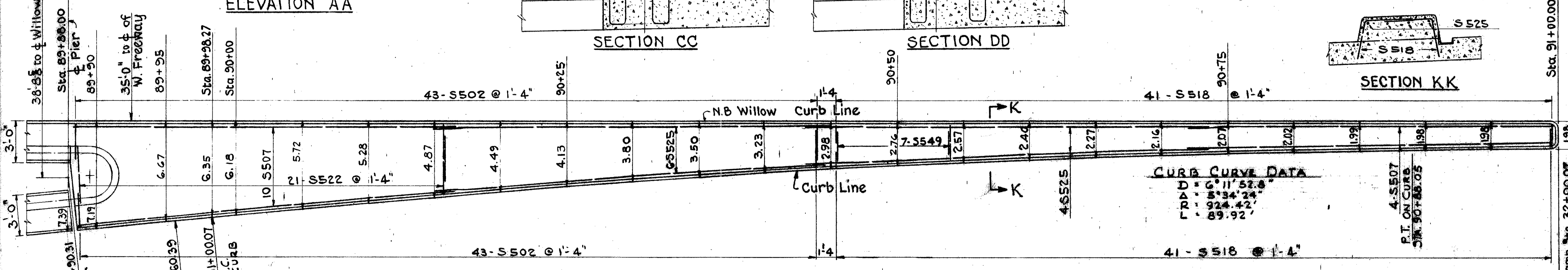
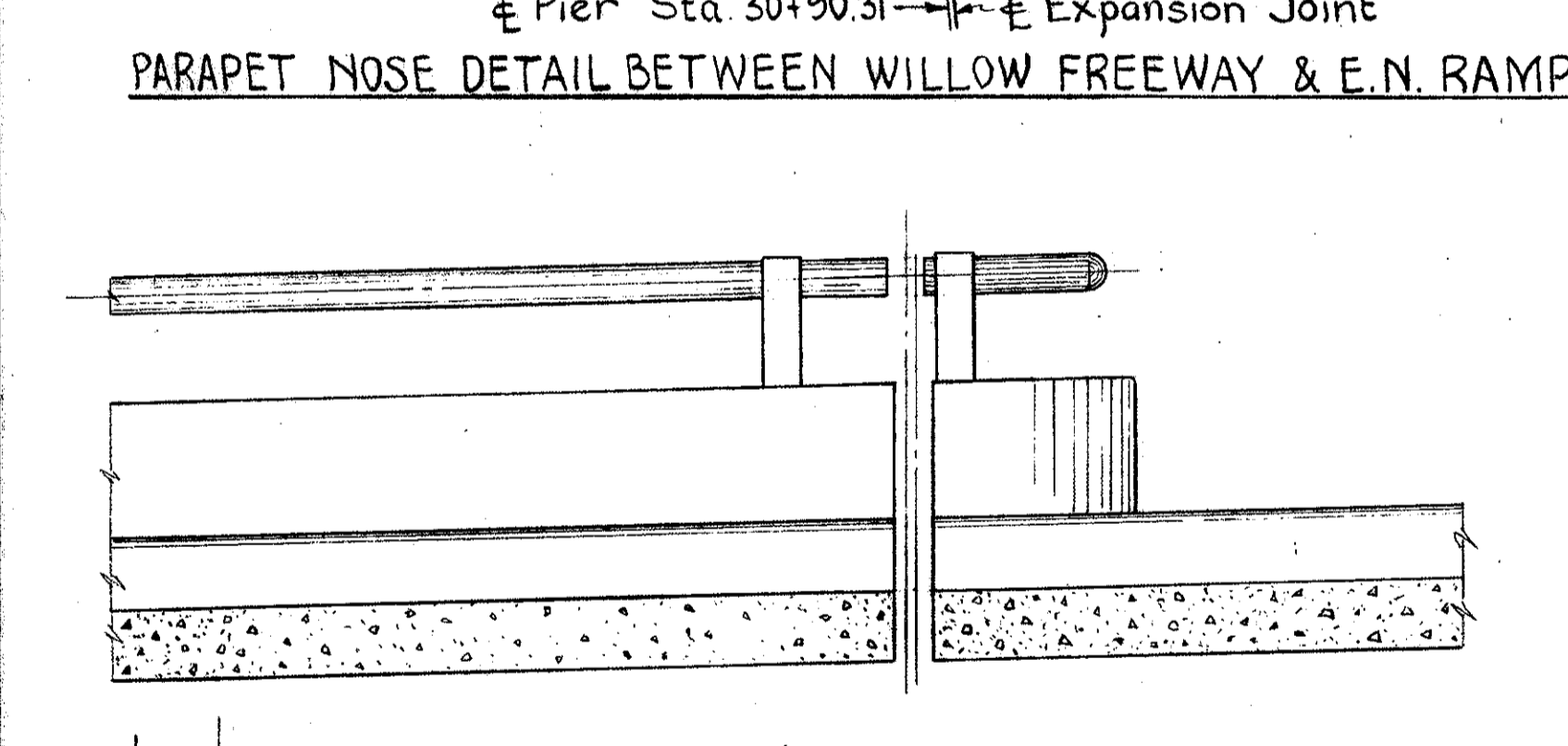
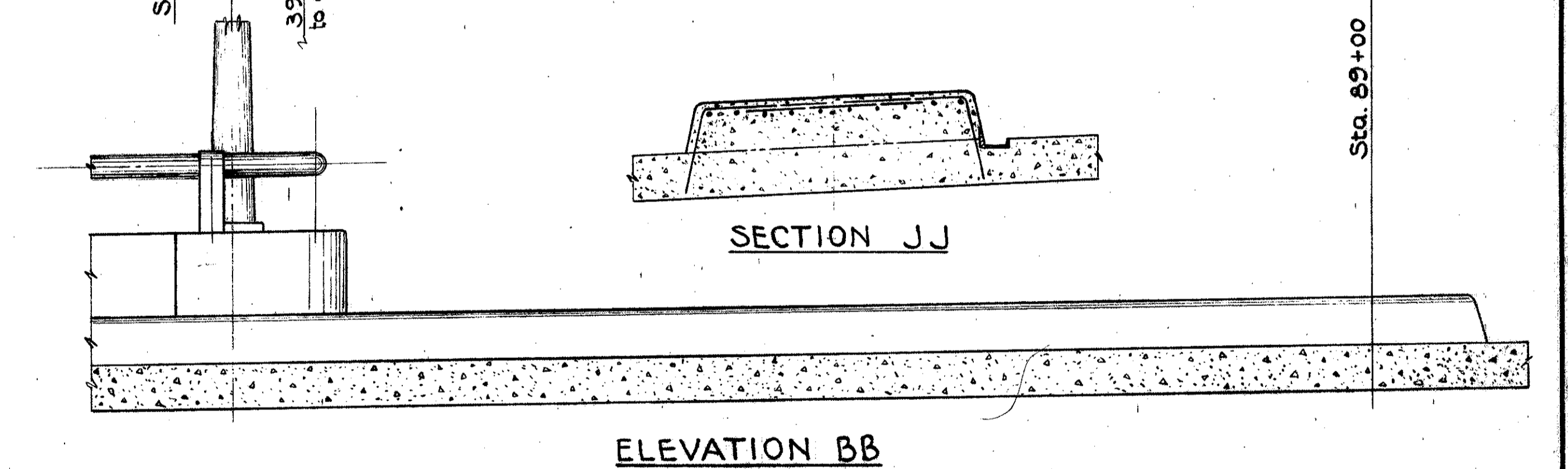
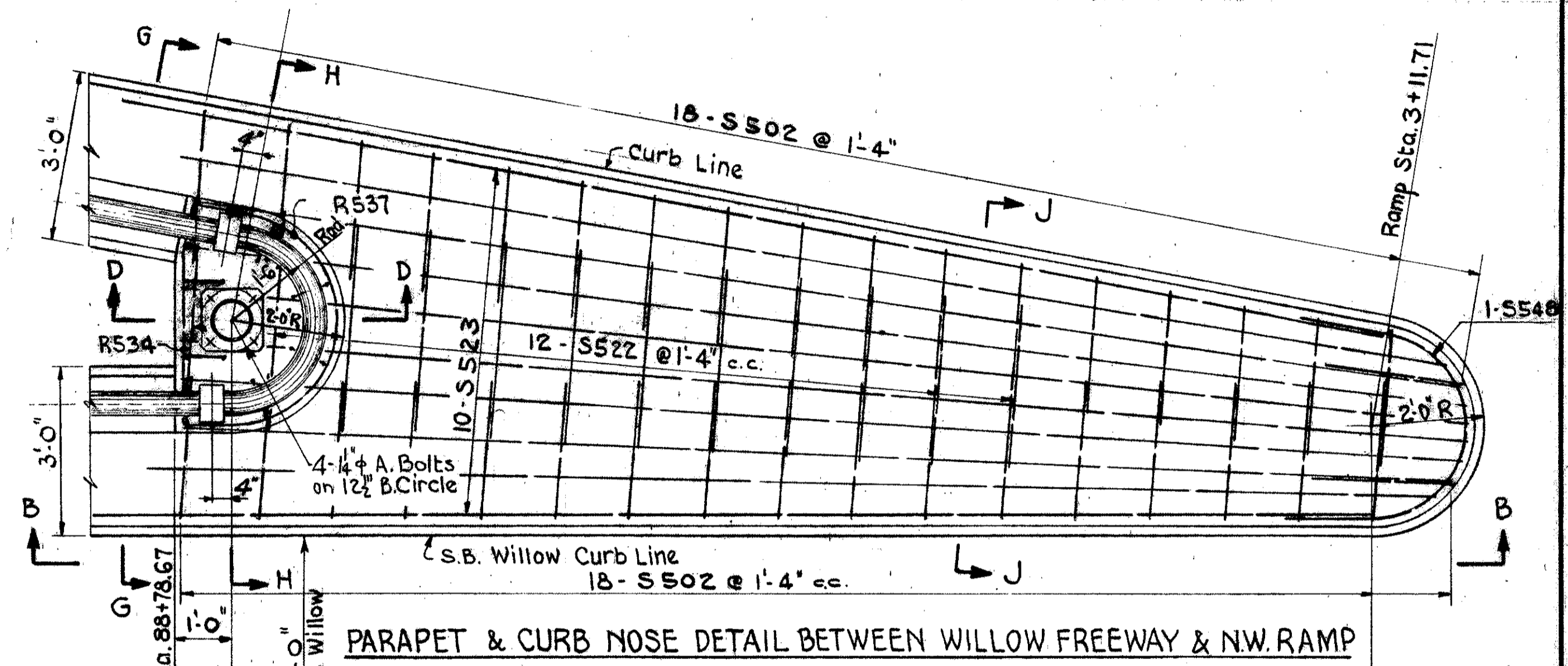
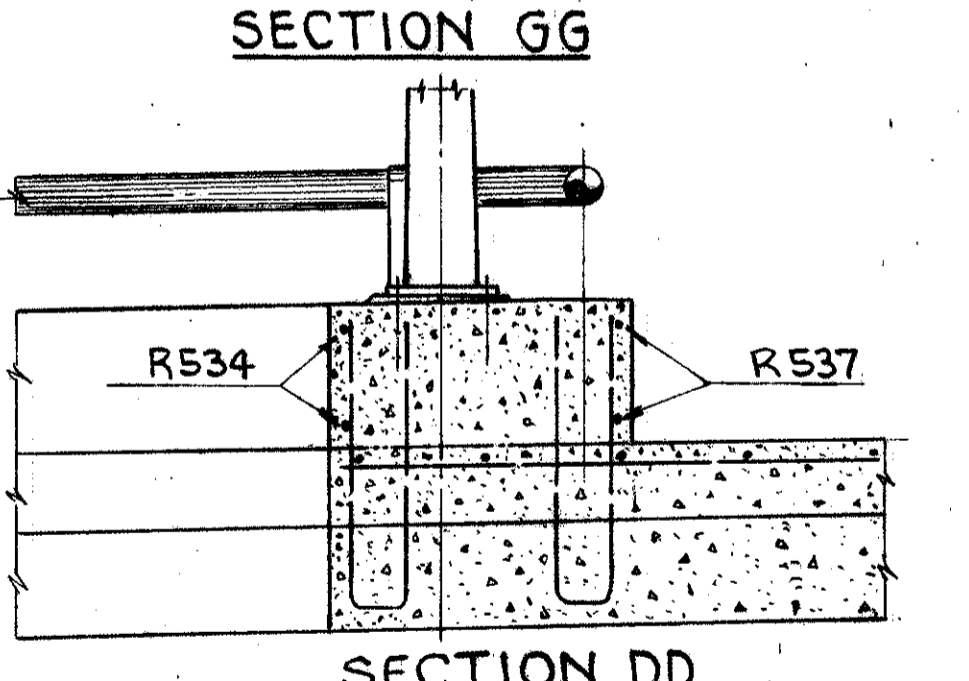
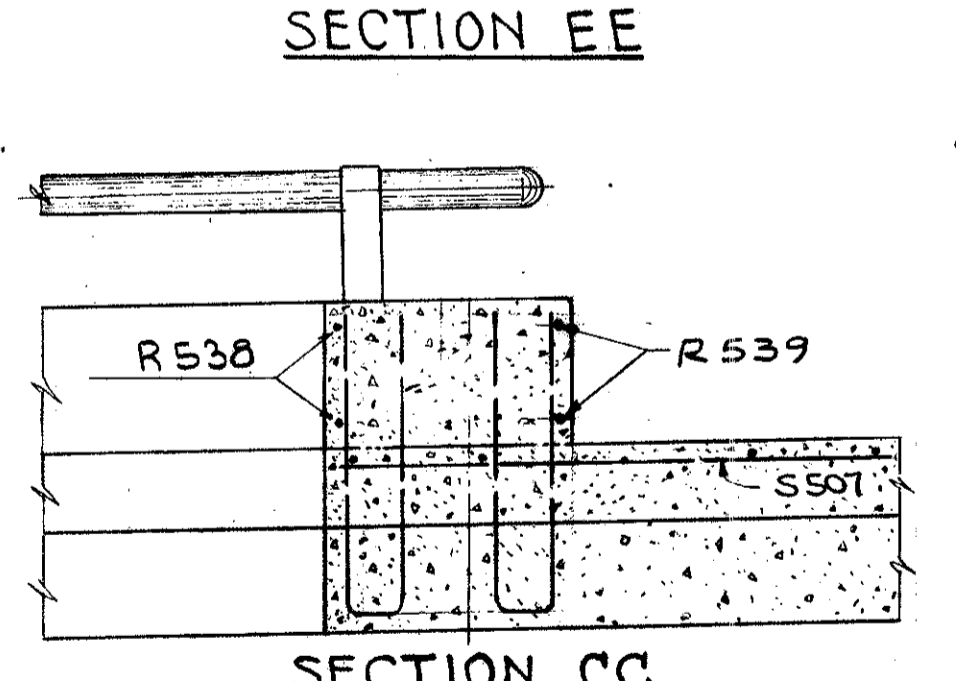
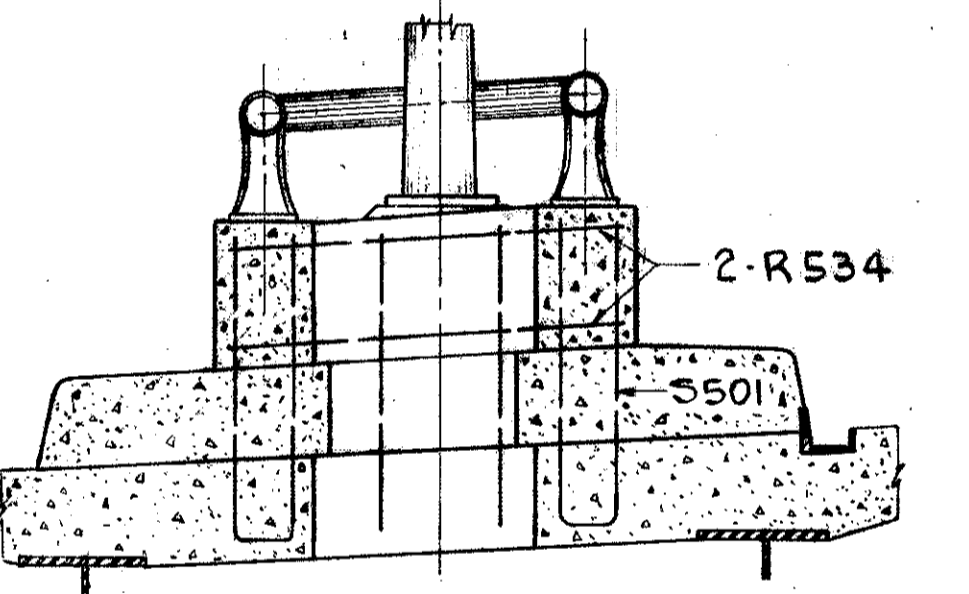
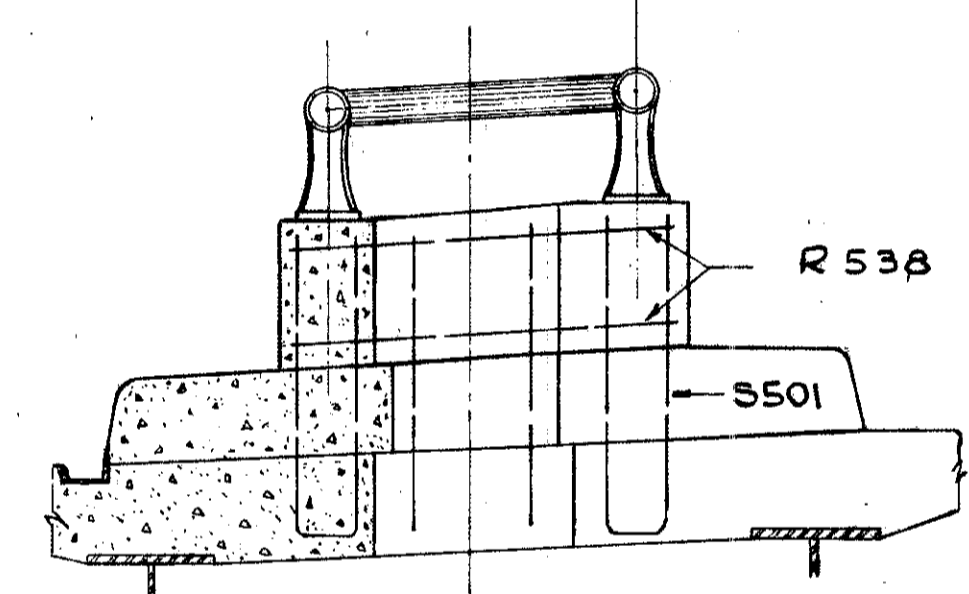
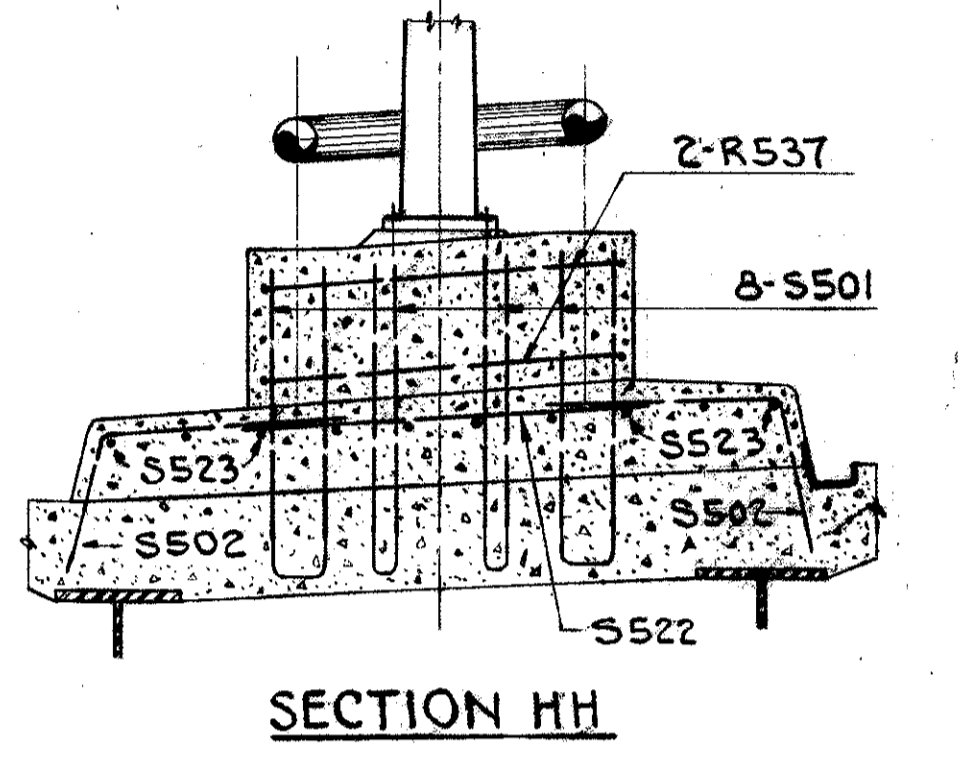
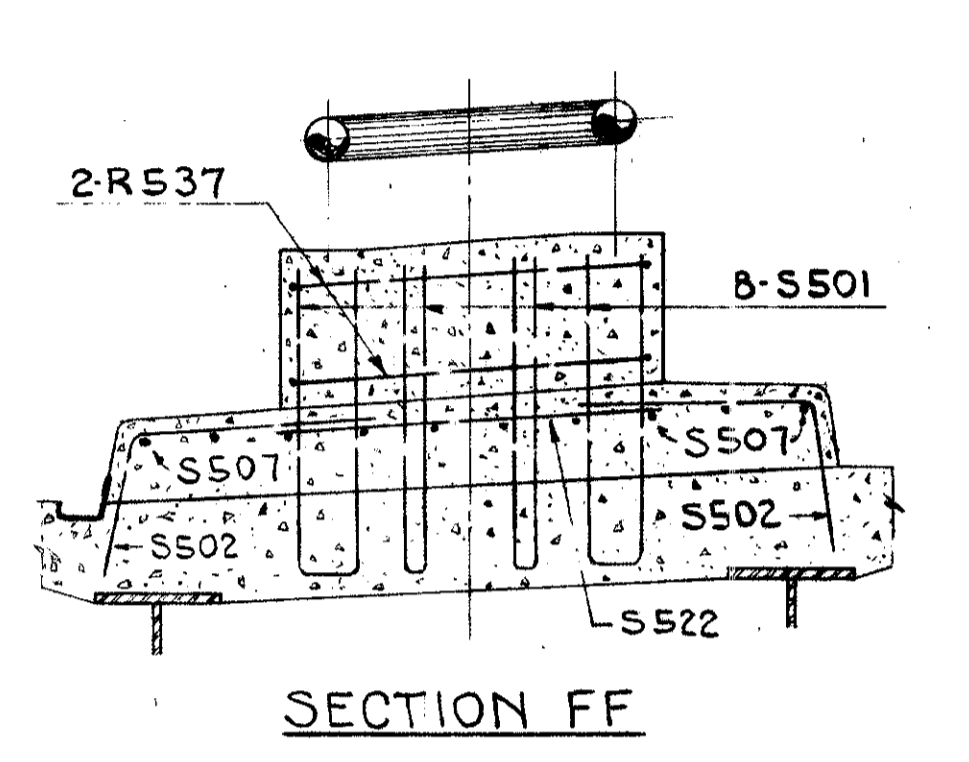
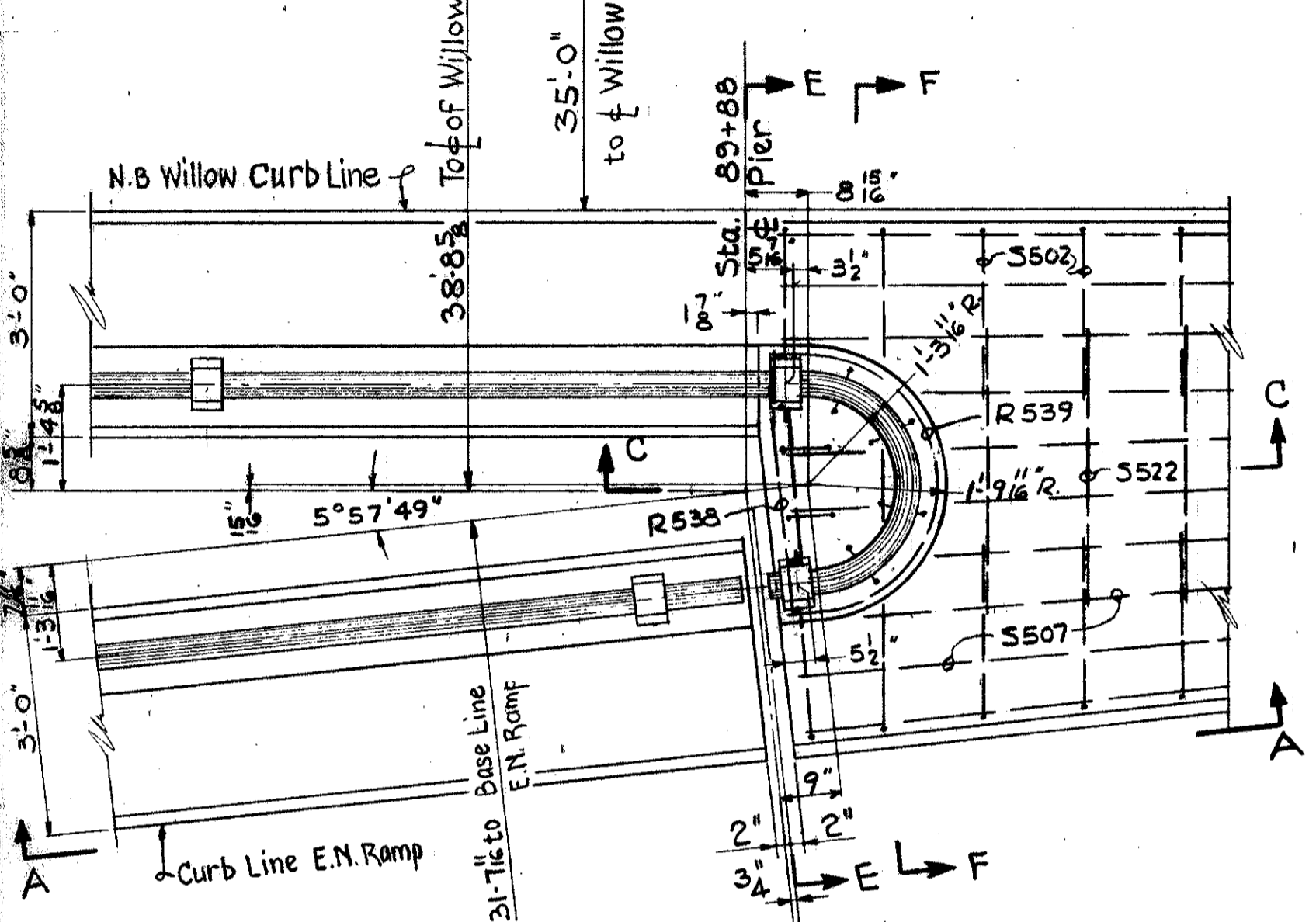
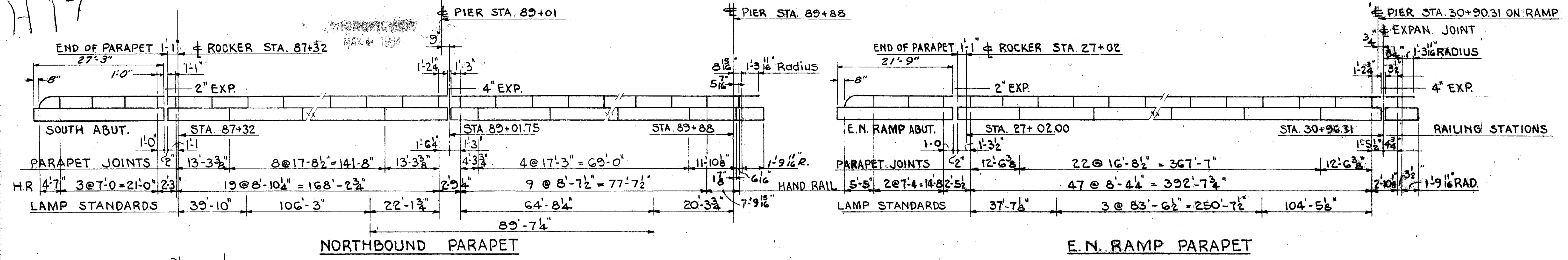
REINFORCING STEEL BAR
SCHEDULE
BRIDGE DECK & APPROACH SLAB
BRIDGE NO. CUY-21-1455
WILLOW FREEWAY OVER KINGSBURY RUN
CUYAHOGA COUNTY U.S.R. 21

SCALE	DATE
DESIGNED	DRAWN
TRACED	CHECKED
REVIEWED	DATE
REVIS	

GO WAB D.W.M. 6-7-62

H 17

CUYAHOGA COUNTY
CUY-21-14.55



CURB CURVE DATA

D = 6' 11" 52.8"

Δ = 8' 34" 24"

R = 924.42'

L = 89.92'

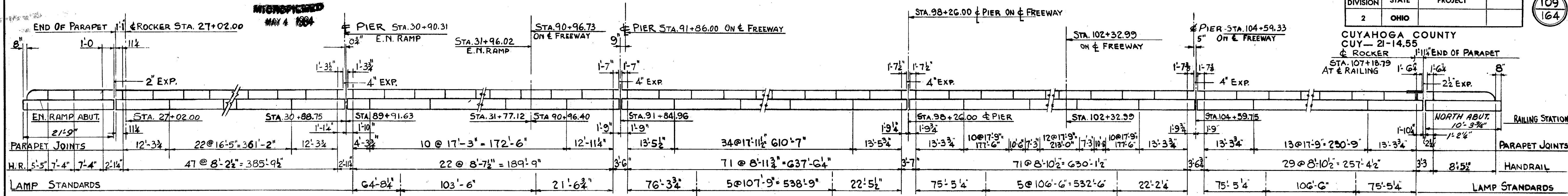
TRYGVE HOFF & ASSOCIATES
ENGINEERS
1922 EAST 107TH STREET CLEVELAND, OHIO

HANDRAIL, PARAPET & CURB
DETAILS

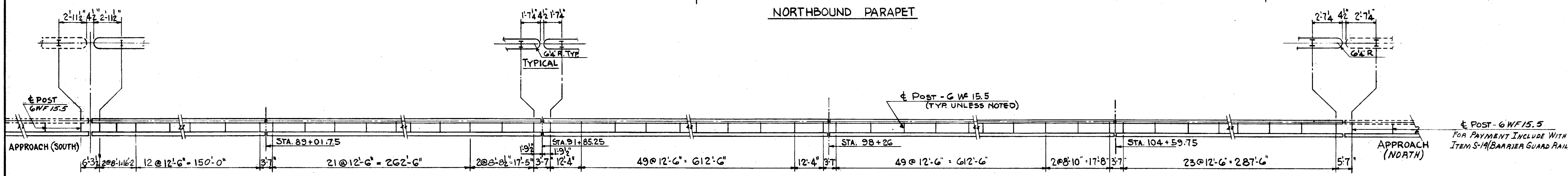
BRIDGE NO. CUY-21-14.55
WILLOW FREEWAY OVER KINGSBURY RUN
CUYAHOGA COUNTY U.S.R. 21

SCALE	DATE
DESIGNED: H.A.W.	TRACED: T.S.J.
CHECKED: M.A.D.	REVIEWED: D.W.M.
DATE	DATE

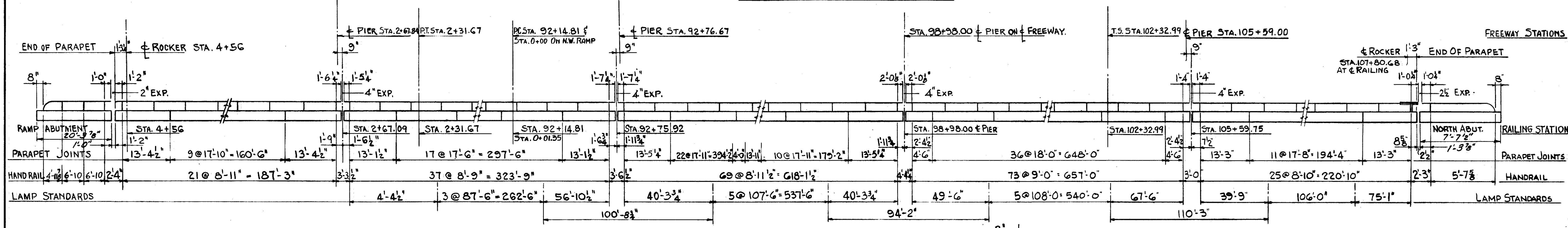
CUYAHOGA COUNTY
CUY-21-14.55
ROCKER
STA. 107+18.79
AT & RAILING



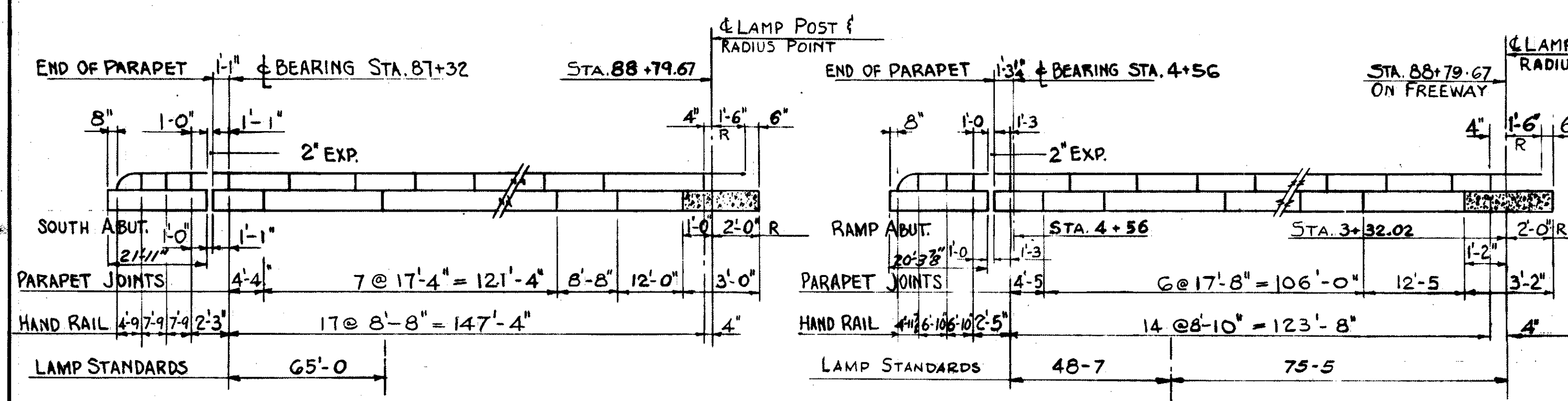
NORTHBOUND PARAPET



BARRIER RAIL (NORTHBOUND MEDIAN)

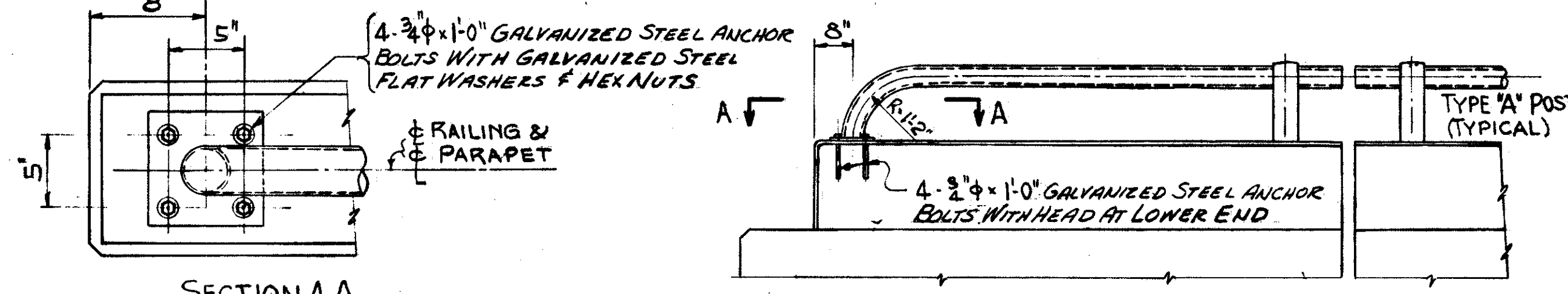


SOUTHBOUND PARAPET



SOUTHBOUND PARAPET

N.W. RAMP PARAPET



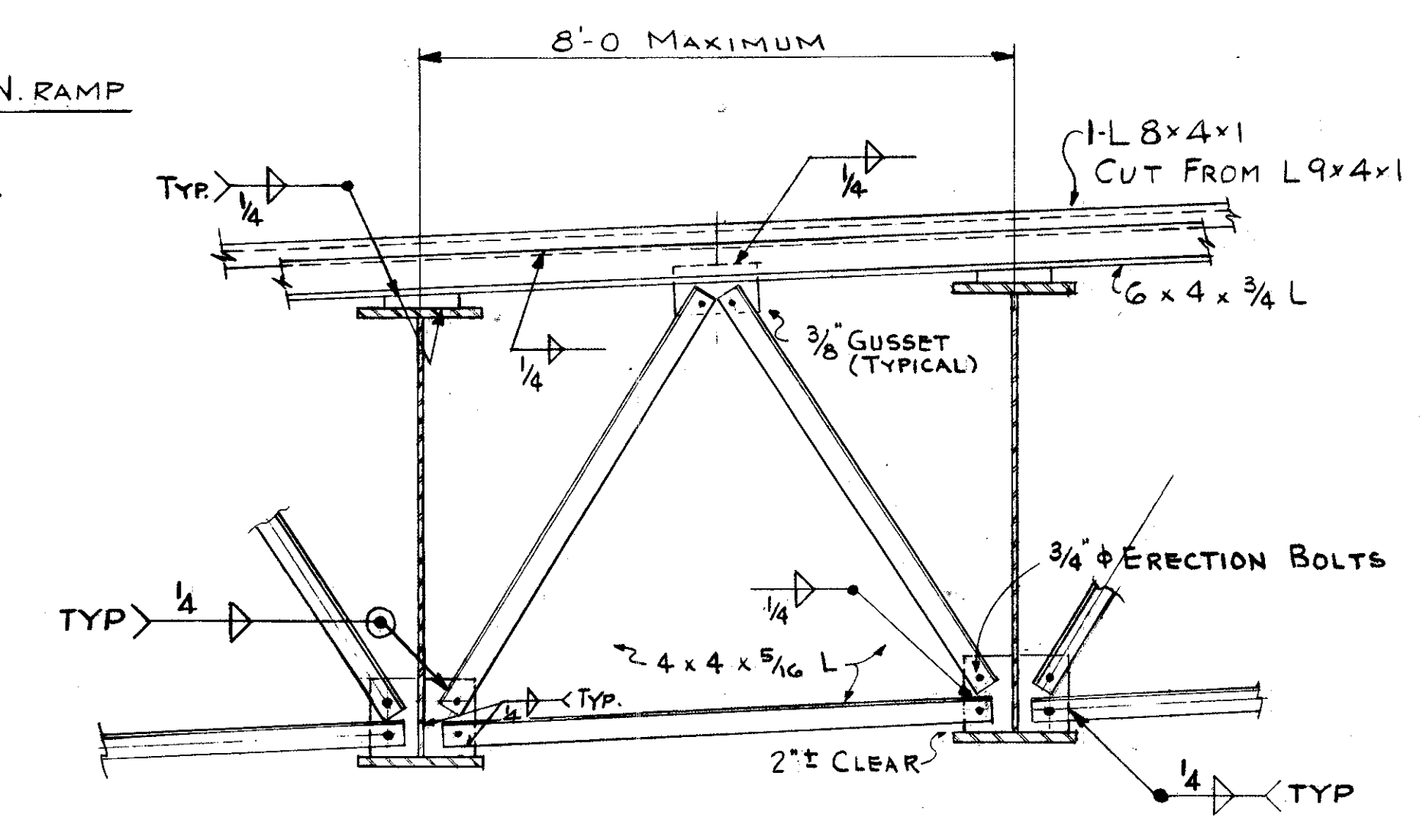
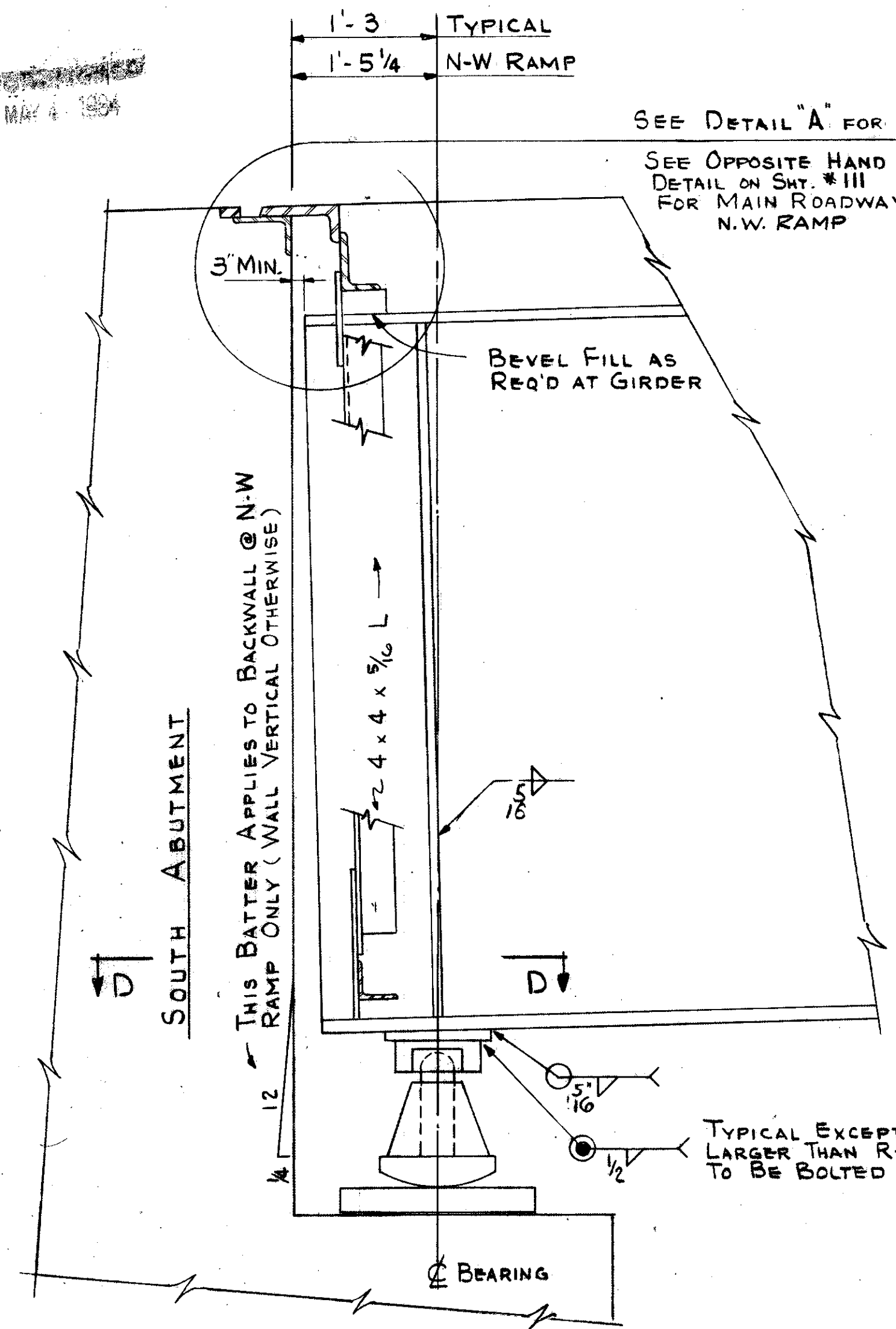
TRYGVE HOFF & ASSOCIATES
ENGINEERS
1922 EAST 107TH STREET CLEVELAND, OHIO

BARRIER-HANDRAIL & PARAPET

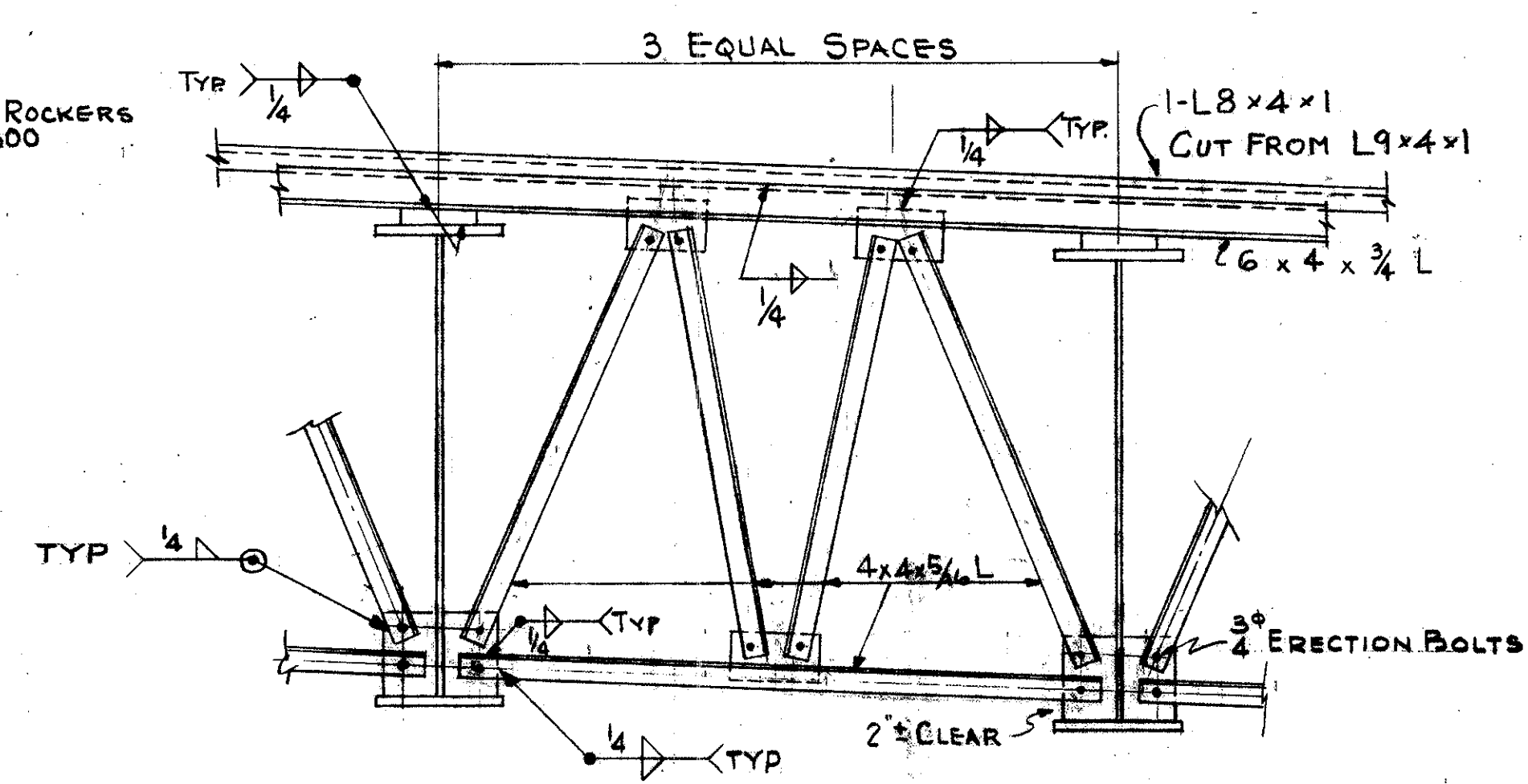
BRIDGE NO. CUY-21-14.55
WILLOW FREEWAY OVER KINGSBURY RUN
CUYAHOGA COUNTY U.S.R. 21

SCALE	DATE					
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
D.F.	T.S.J.	D.W.M.	6-7-62			

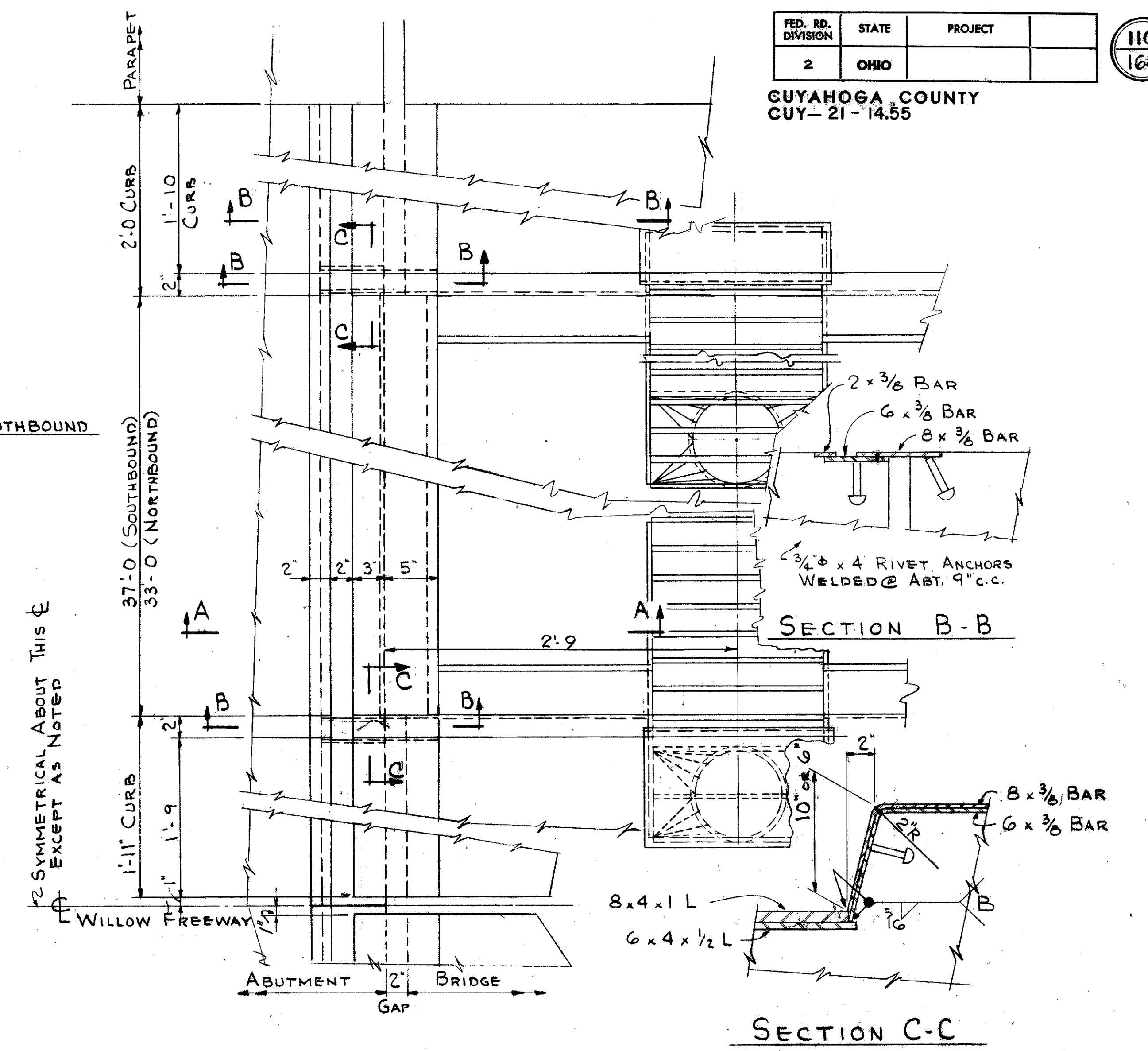
CUYAHOGA COUNTY
CUY-21-14.55



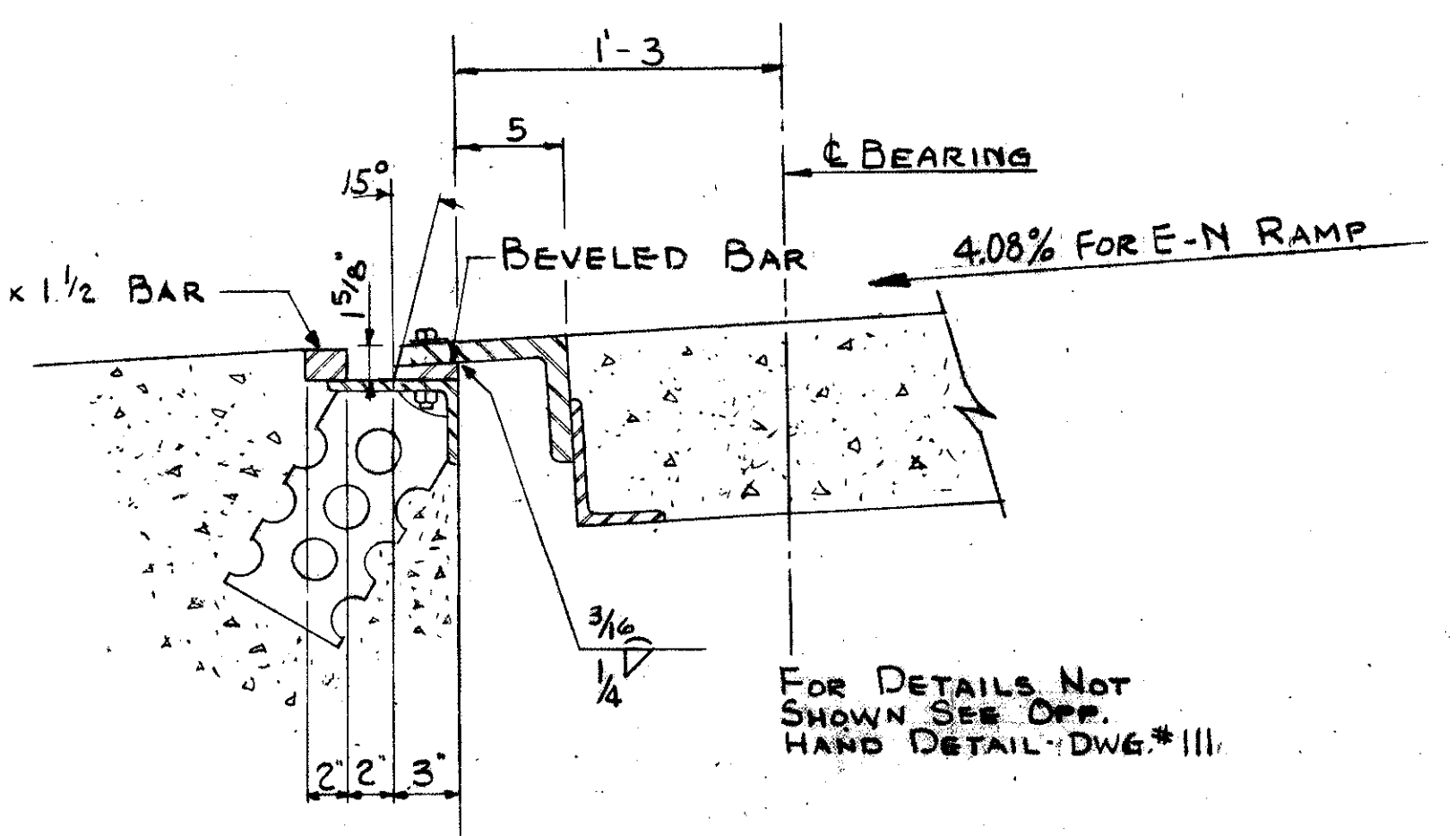
END FINISH CROSS FRAME FOR NORTHBOUND ROADWAY



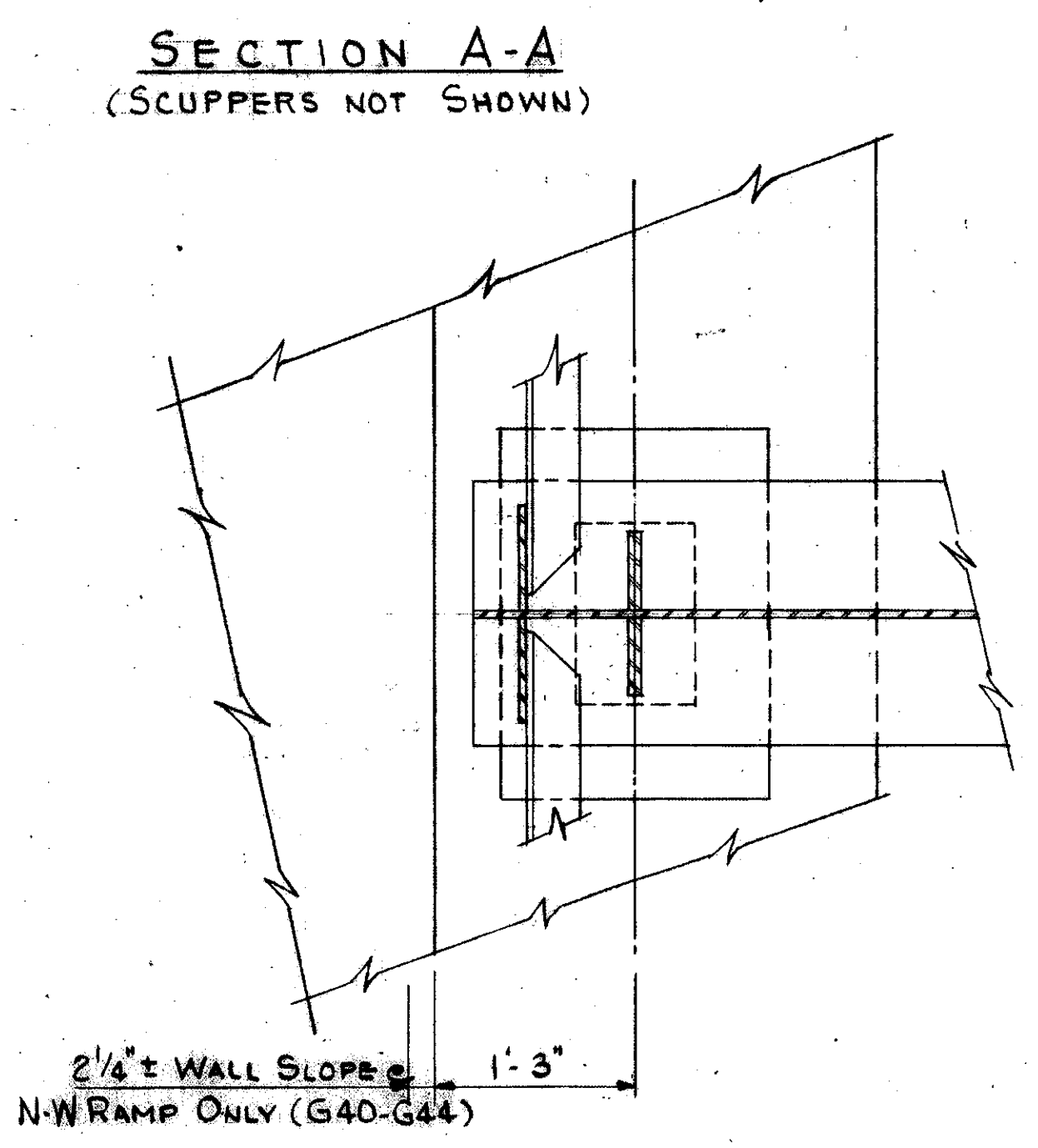
END FINISH CROSS FRAME FOR N-W RAMP, E-N RAMP, SOUTHBOUND ROADWAY



PLAN - END FINISH AT SOUTH ABUTMENT
END FINISH FOR N-W & E-N RAMP SIMILAR



DETAIL "A" FOR E-N RAMP



SECTION D-D

TRYGVE HOFF & ASSOCIATES
ENGINEERS
1922 EAST 107TH STREET CLEVELAND, OHIO

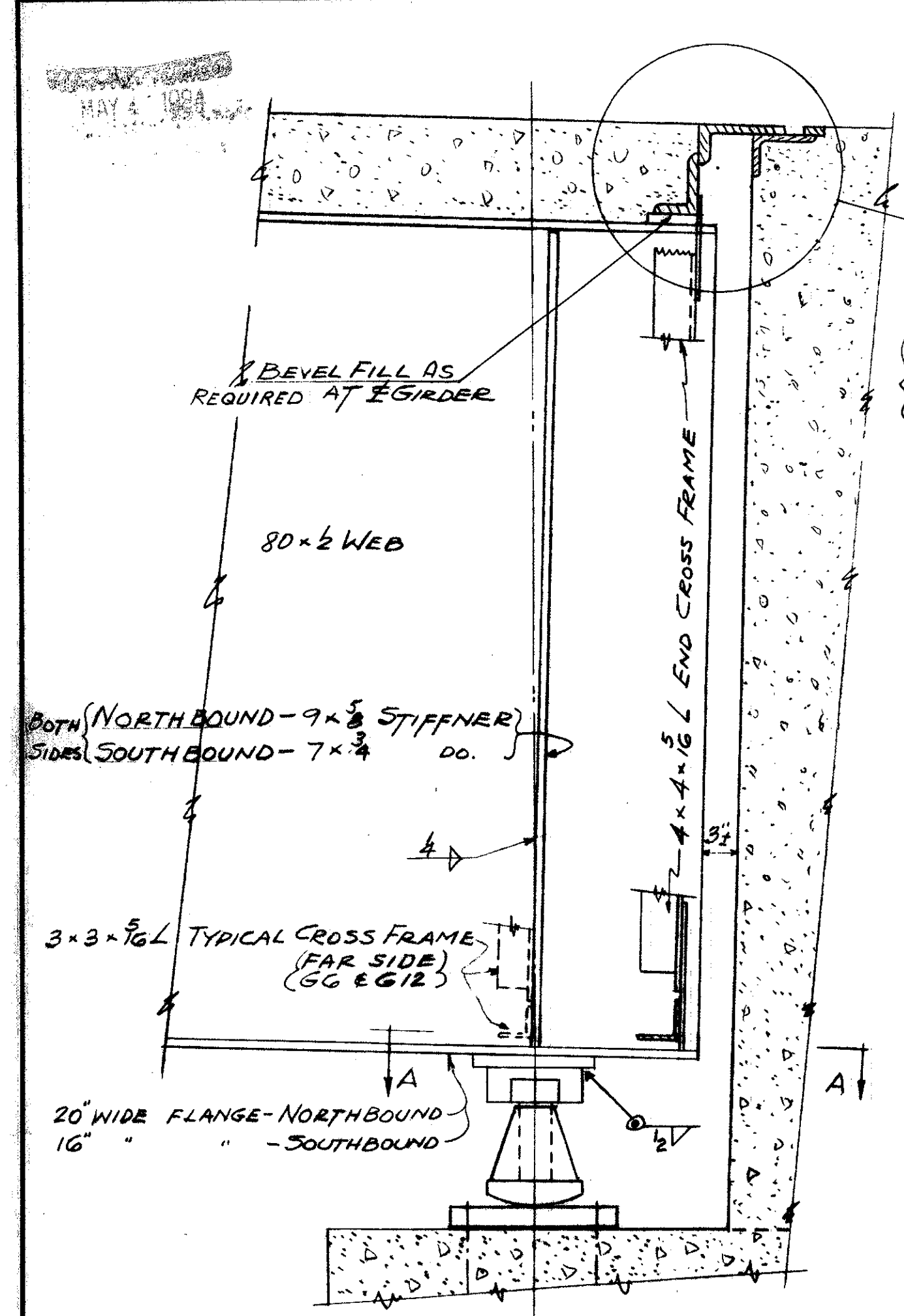
END FINISH-SOUTH ABUTMENTS
BRIDGE NO. CUY-21-14.55
WILLOW FREEWAY OVER KINGSBURY RUN
CUYAHOGA COUNTY U.S.R. 21

SCALE: 1" = 4'-0"

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

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CUYAHOGA COUNTY
CUY-21-14.55



SECTION "B-B"

THIS CONTACT SURFACE SHALL NOT BE PAINTED & SHALL BE LUBRICATED WITH FLAKE GRAPHITE PRIOR TO PLACING OF BACKWALL CONCRETE.

CONTINUOUS 8x4x1/2 CUT FROM 9x4x1/2

2x1/2x1-6 ANCHORS @ 12" WELD PARALLEL TO GIRDERS.

5x2x2 BOLTS WITH STEEL WASHERS AT NOT MORE THAN 24" CTS. WITH NUTS WELDED TO 6x4x1/2. 1 1/2" HOLES IN 8x4x1/2. CENTER BOLTS IN 1 1/2" HOLES. APPLY FLAKE GRAPHITE BETWEEN WASHERS AND ANGLE. TURN BOLT TIGHT AND RELEASE 1/2 TURN. REMOVE BOLTS AS SOON AS CONCRETE HAS SET, PREFERABLY WITHIN 2 HOURS AFTER PLACING, TO AVOID DAMAGE DUE TO TEMPERATURE EXPANSION OR CONTRACTION OF SUPERSTRUCTURE. FILL HOLES WITH BITUMINOUS MATERIAL.

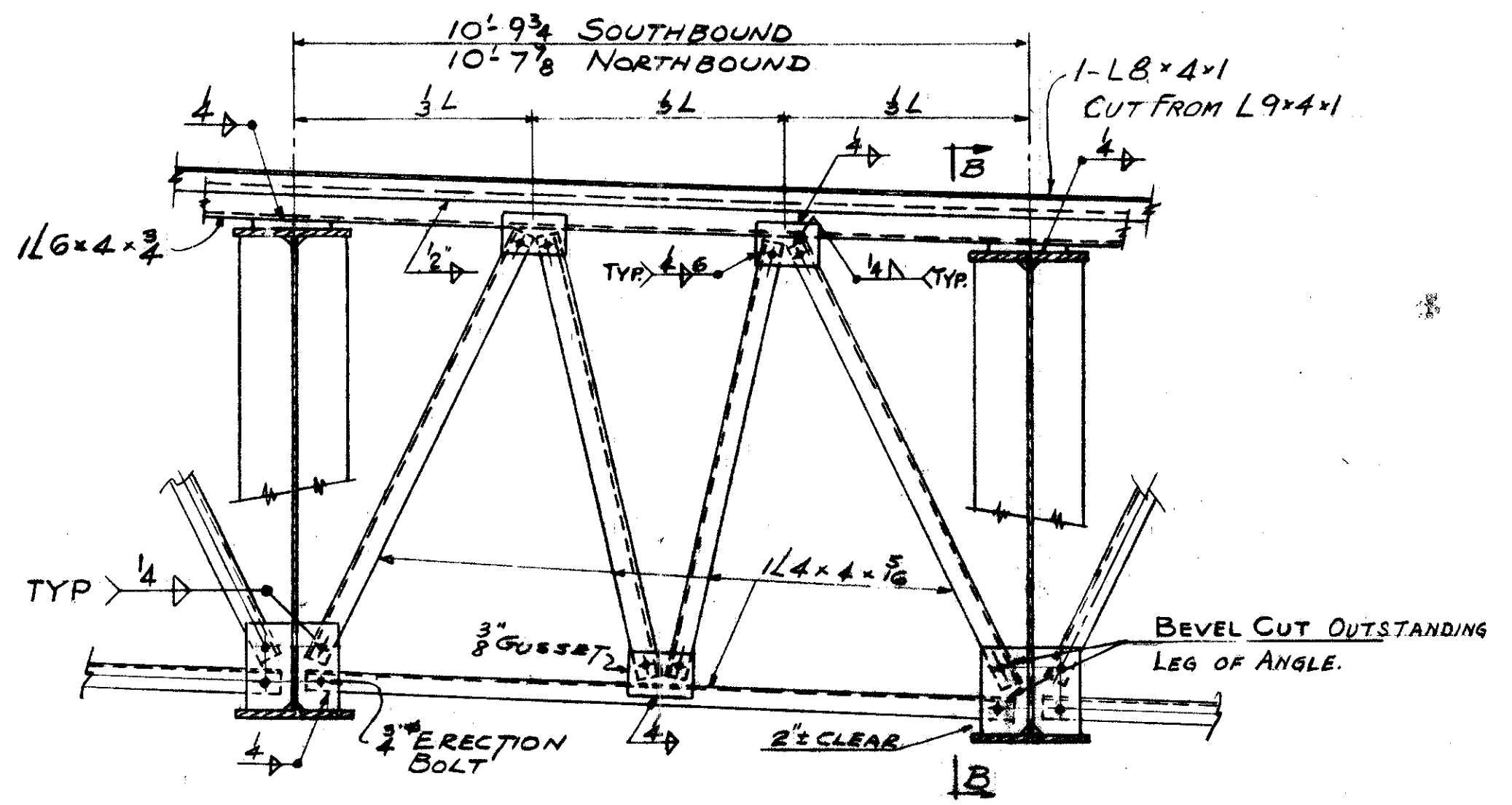
2-1 EDGE BAR (PROVIDE JOINTS IN BAR & SUPPORTING @ ROADWAY & @ JOINTS IN ABUTMENT. ADDITIONAL JOINTS MAY BE PROVIDED AT A MINIMUM SPACING OF 6'-0". JOINTS SHALL NOT BE WELDED.)

2" HOLES - 12" PITCH

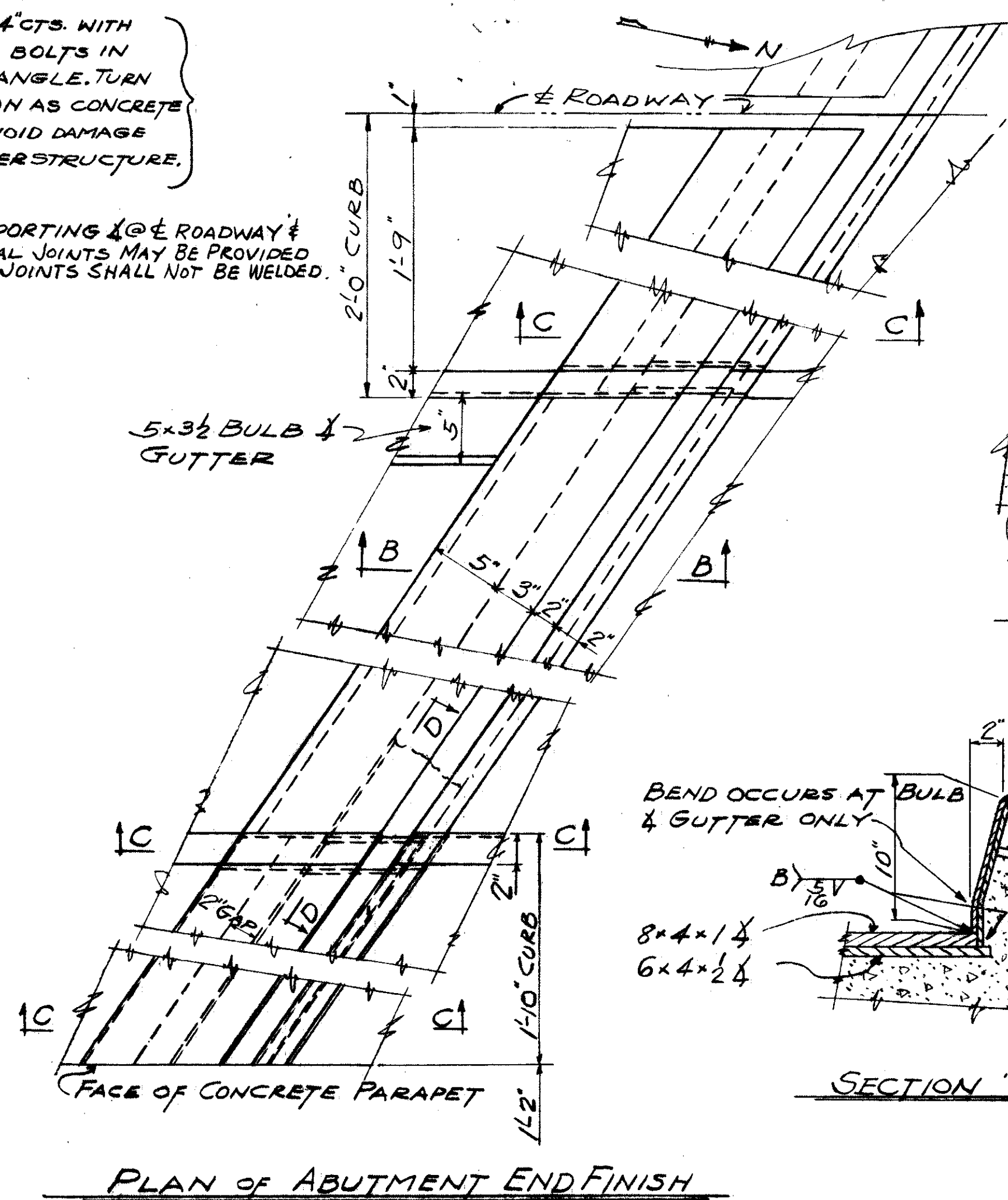
6x2x12 PL. @ 15" CTS. EXCEPT NEAR JOINTS IN THE 6x4x1/2 L, WHERE THE PLATES SHALL BE PLACED WITHIN 6" OF EACH SIDE OF THE JOINT. HOLES MAY BE BURNT IN THE PLATE.

TOP OF FORMWORK TO BE BELOW 1 1/2" HOLES.

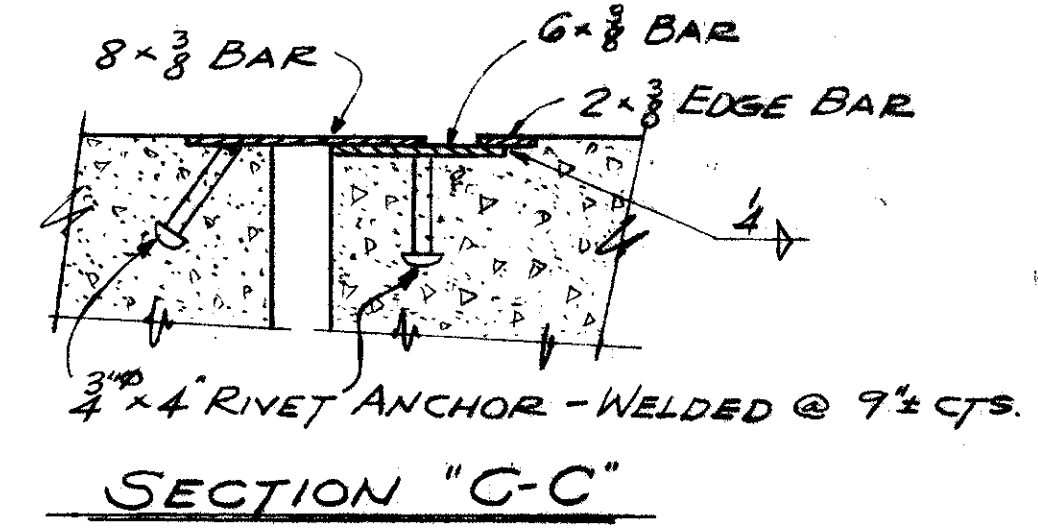
NOTE: OMIT SHOP COAT ON ALL PORTIONS OF END DAM. PORTIONS IN CONTACT WITH STEEL OR CONCRETE SHALL NOT BE PAINTED. ALL OTHER PORTIONS SHALL BE CLEANED & GIVEN THE SHOP COAT IN THE FIELD AS WELL AS THE 2 FIELD COATS.



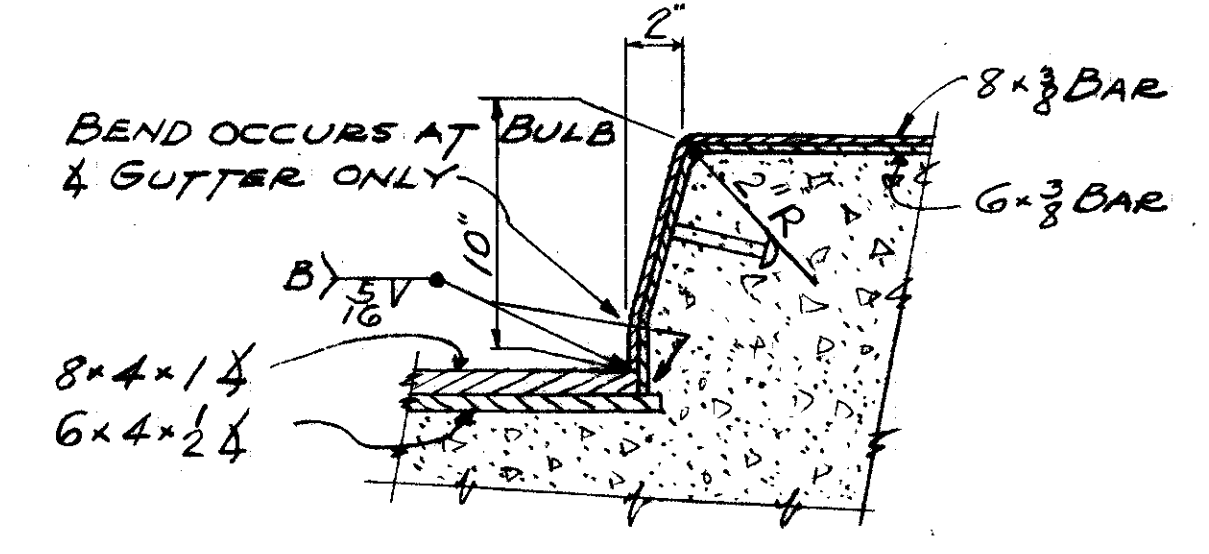
TYPICAL ABUTMENT CROSS FRAME



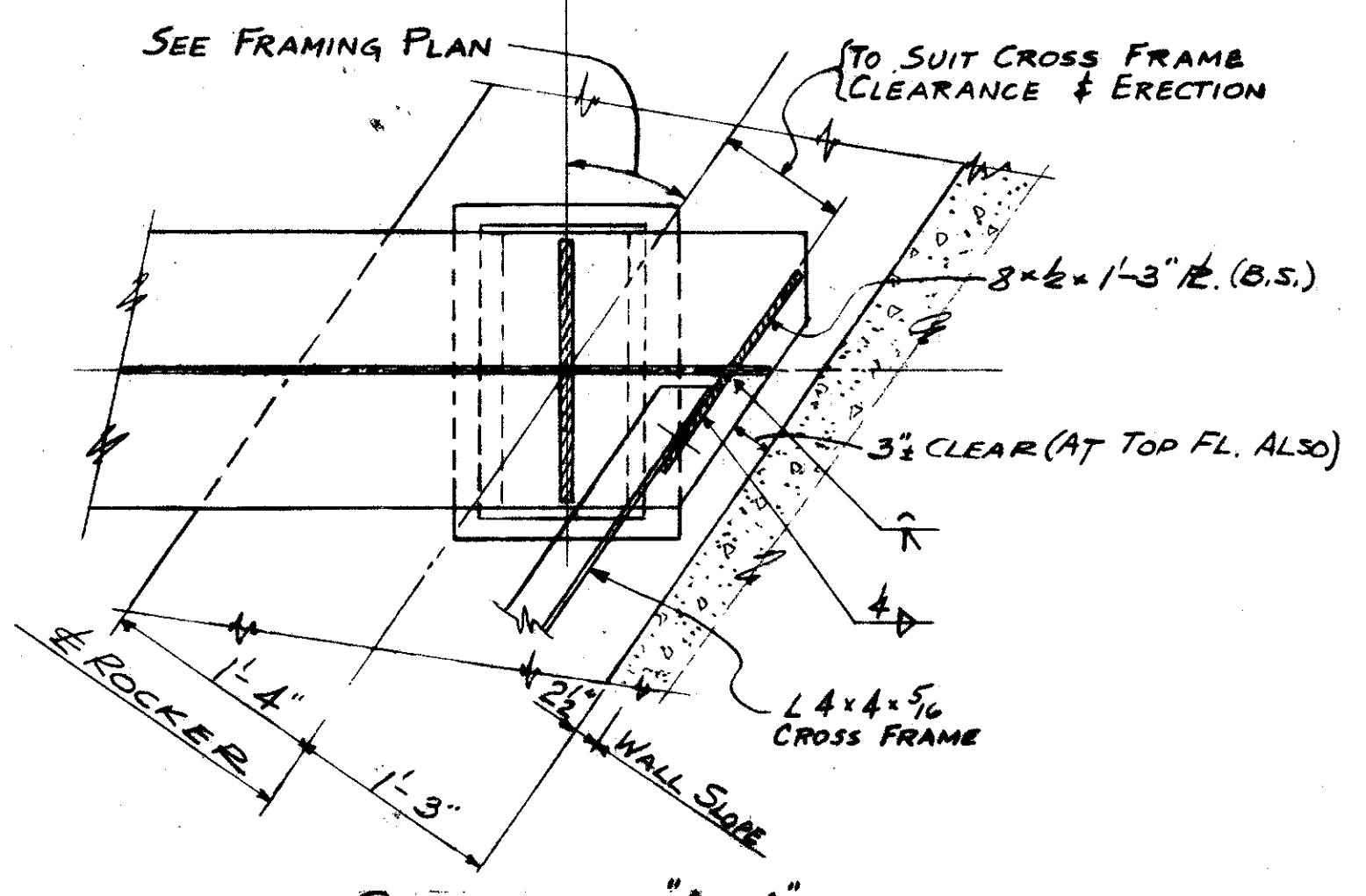
PLAN OF ABUTMENT END FINISH



SECTION "C-C"



SECTION "D-D"



SECTION "A-A"

TRYGVE HOFF & ASSOCIATES
ENGINEERS
1922 EAST 107TH STREET CLEVELAND, OHIO

END FINISH-NORTH ABUTMENT
BRIDGE NO. CUY-21-14.55
WILLOW FREEWAY OVER KINGSBURY R.
CUYAHOGA COUNTY, U.S.R. 21

SCALE

MICROFILMED
MAY 1 1984

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

112
164

CUYAHOGA COUNTY
CUY-21-14.55

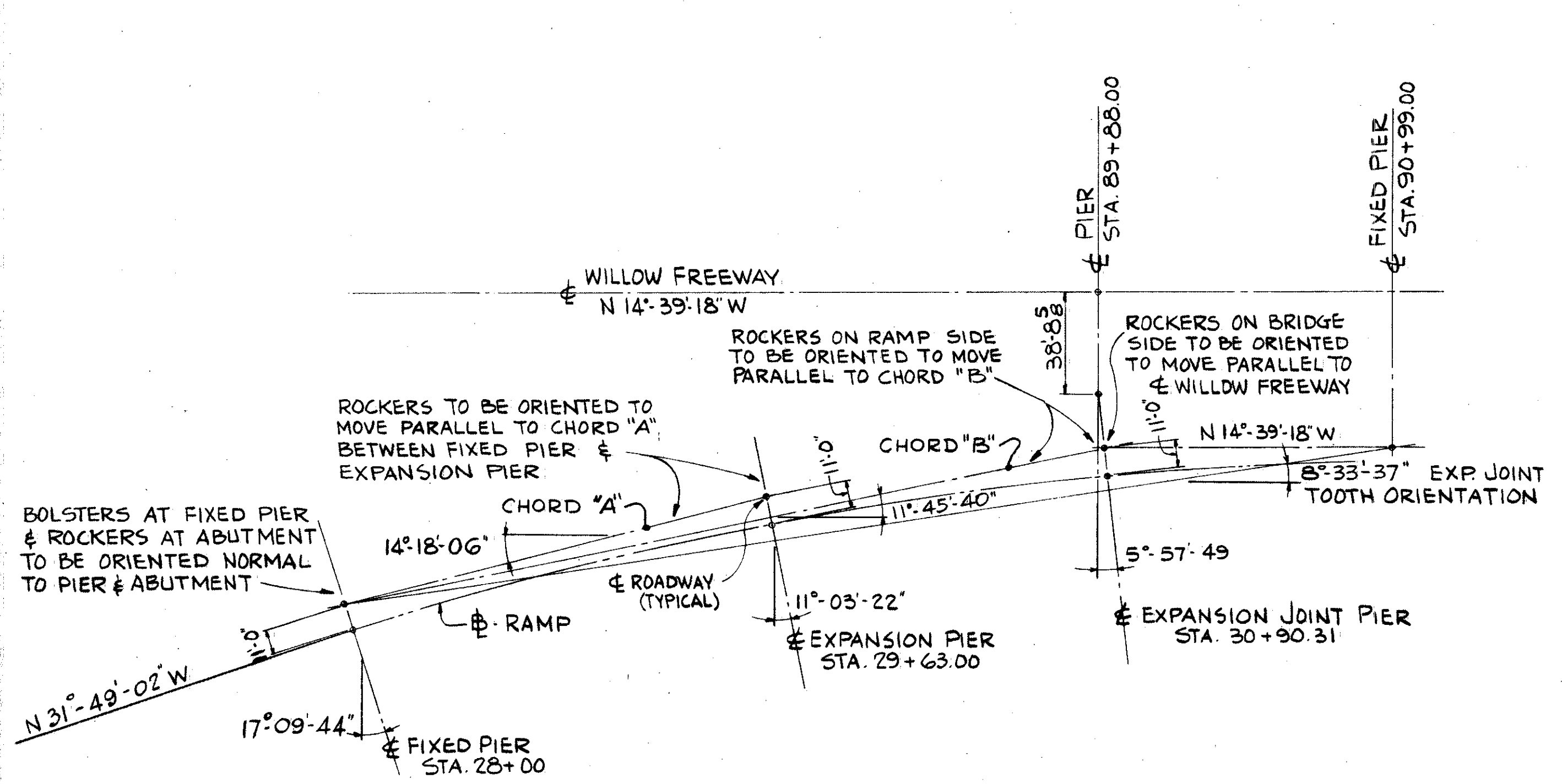
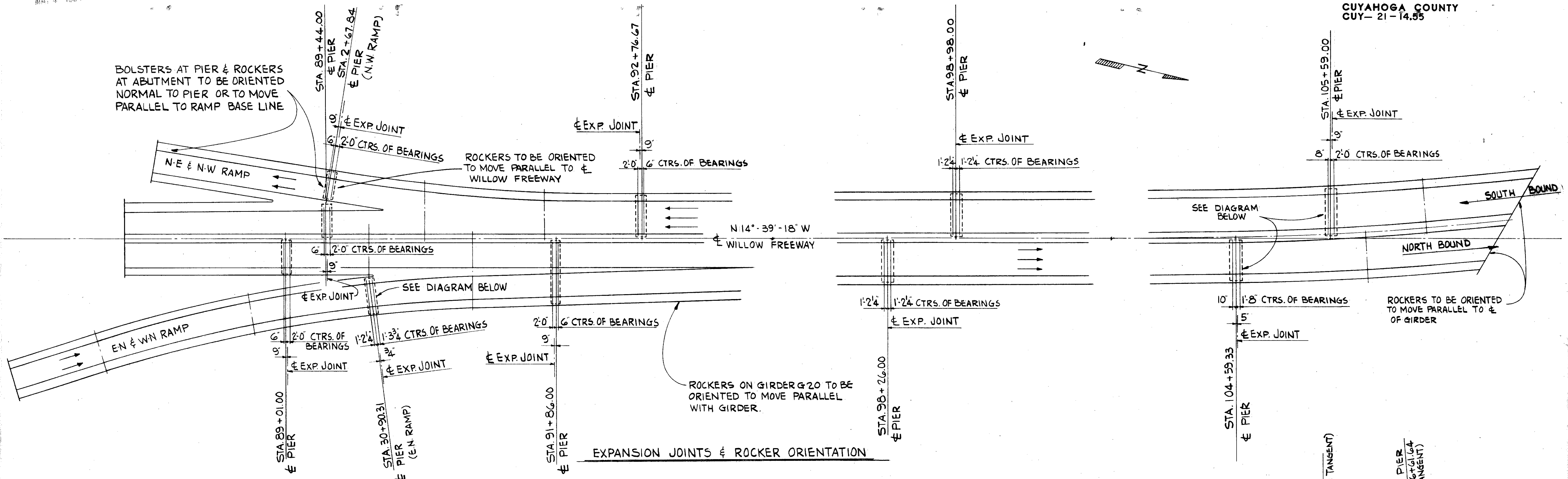


DIAGRAM FOR ORIENTING ROCKERS
ON E-N-W-N RAMP

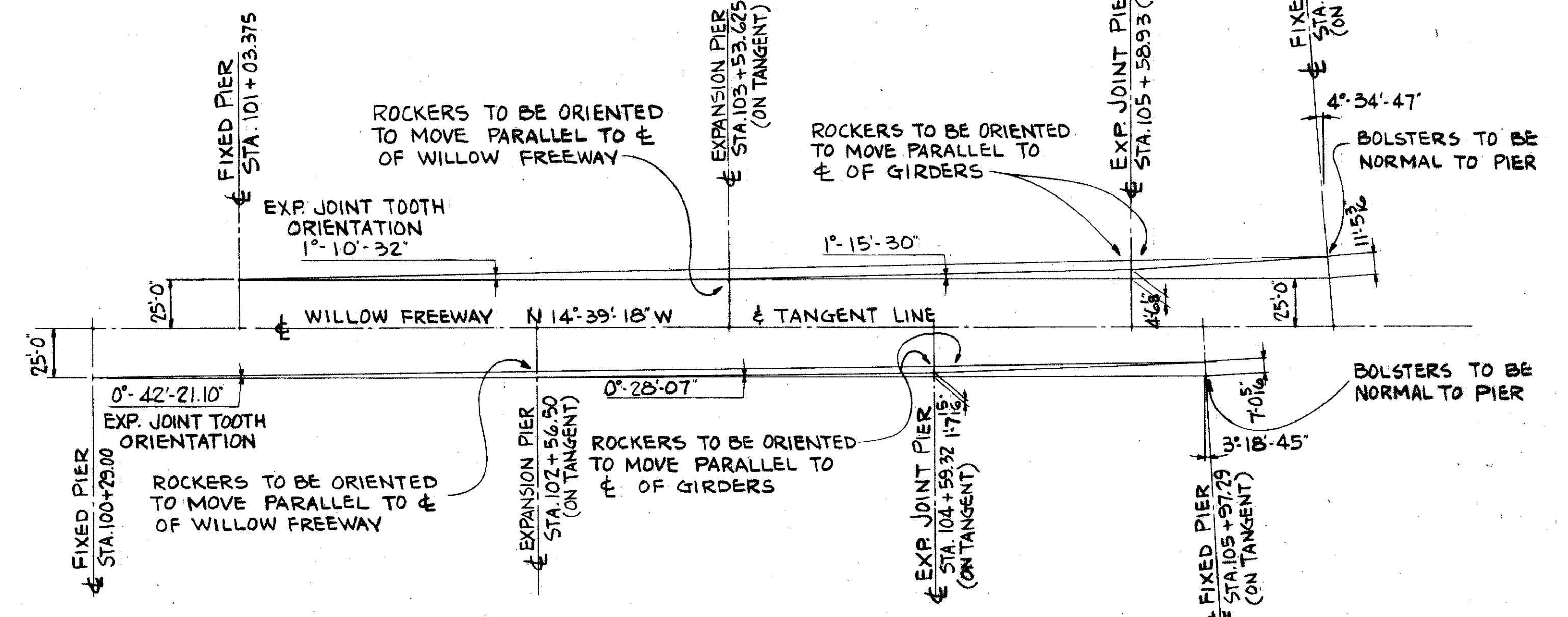


DIAGRAM FOR ORIENTING ROCKERS
AT NORTH END OF BRIDGE

NOTE: EXCEPT AS NOTED ON THIS DRAWING OR SHOWN ON THE DIAGRAMS, ALL ROCKERS ARE TO BE ORIENTED TO MOVE PARALLEL TO CENTERLINE OF WILLOW FREEWAY.

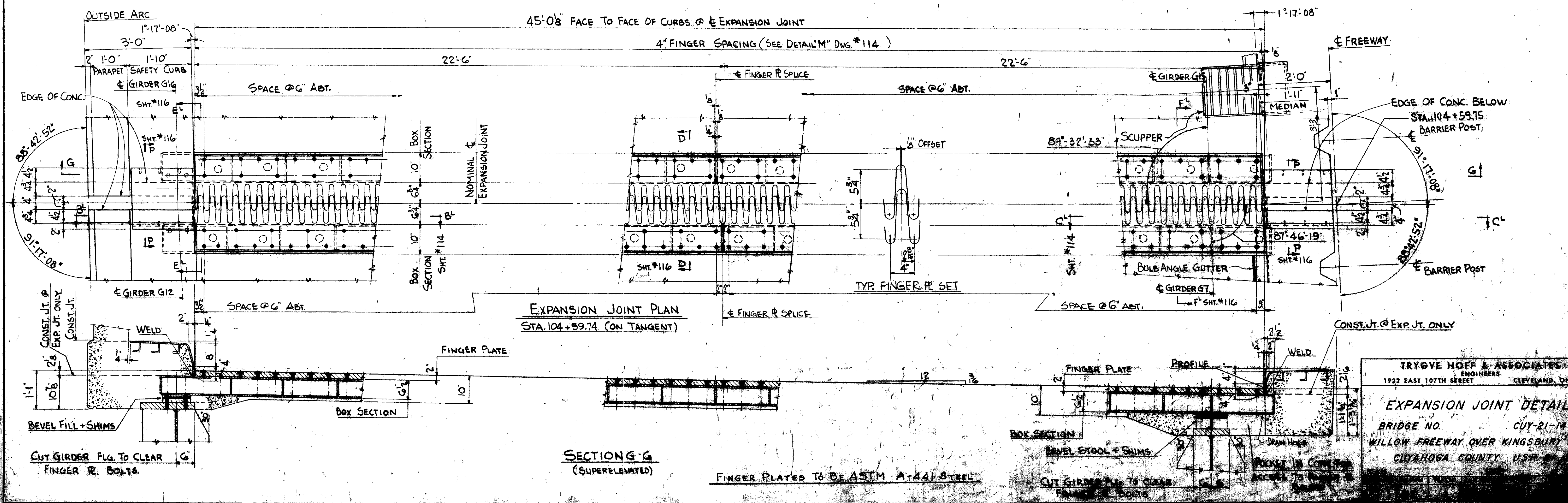
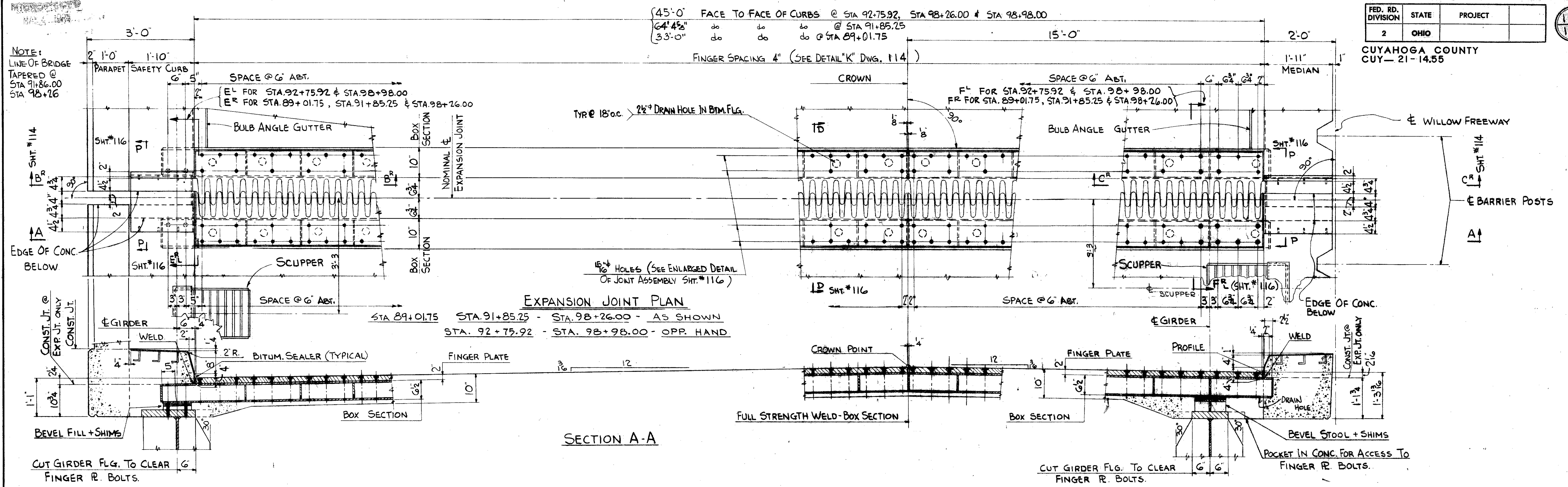
TRYGVE HOFF & ASSOCIATES
ENGINEERS
1922 EAST 107TH STREET CLEVELAND, OHIO

EXPANSION JOINTS & ROCKER ORIENTATION
BRIDGE NO. CUY-21-14.55
WILLOW FREEWAY OVER KINGSBURY RUN
CUYAHOGA COUNTY U.S.R. 21

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

113
164

CUYAHOGA COUNTY
CUY-21-14.55

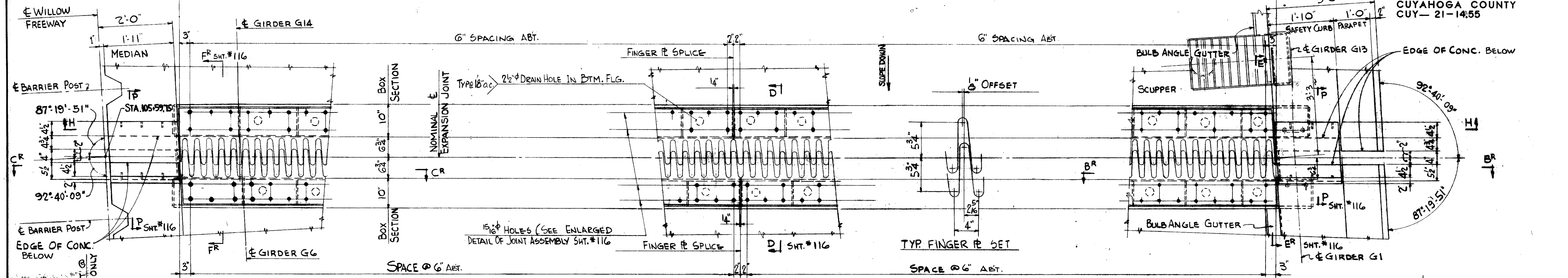


TRYGVE HOFF & ASSOCIATES
ENGINEERS
1922 EAST 107TH STREET CLEVELAND, OHIO

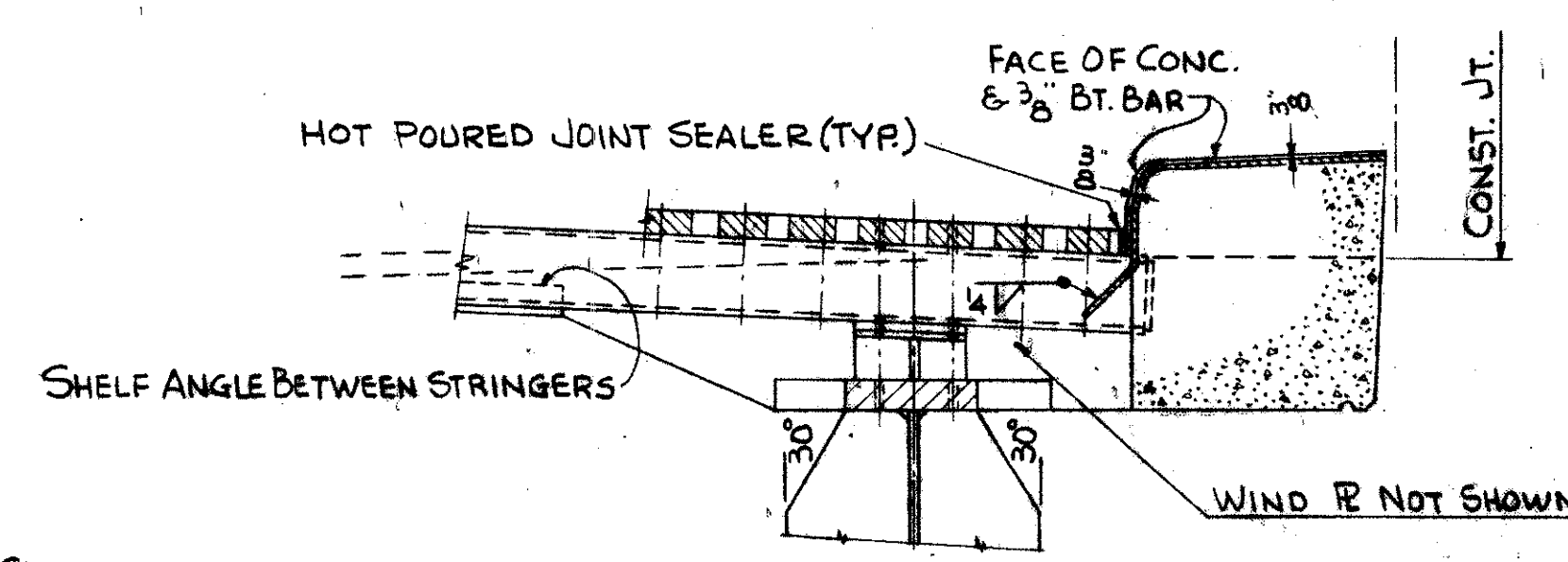
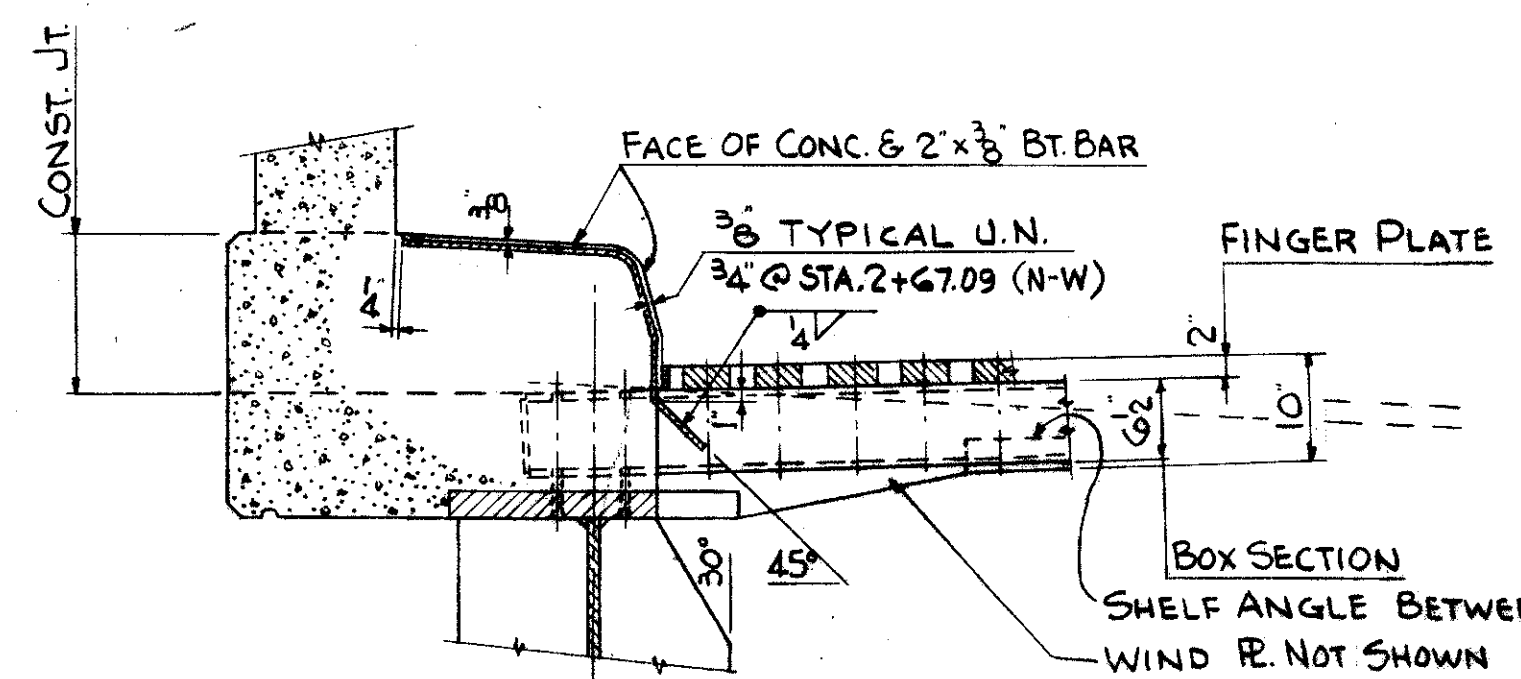
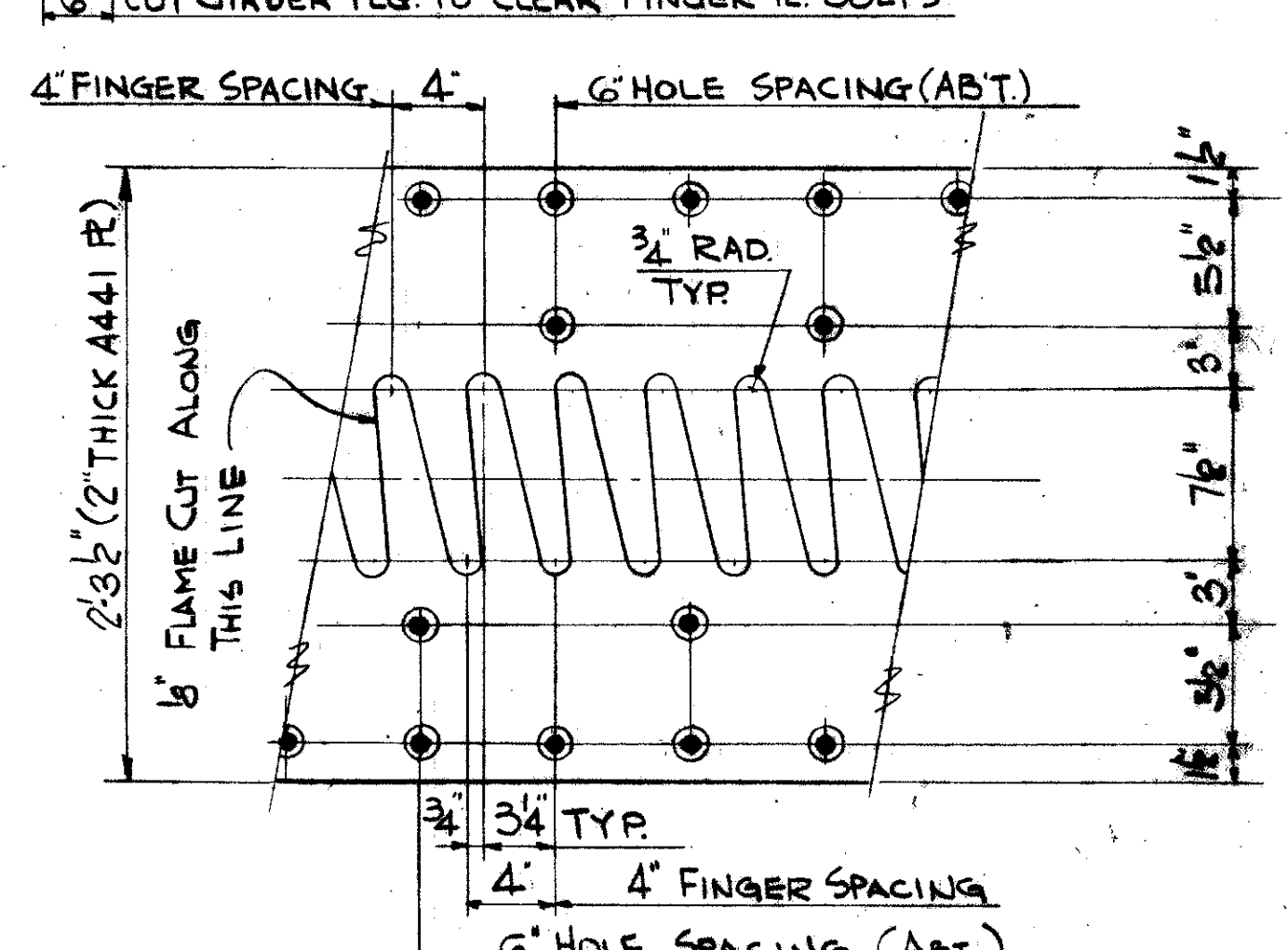
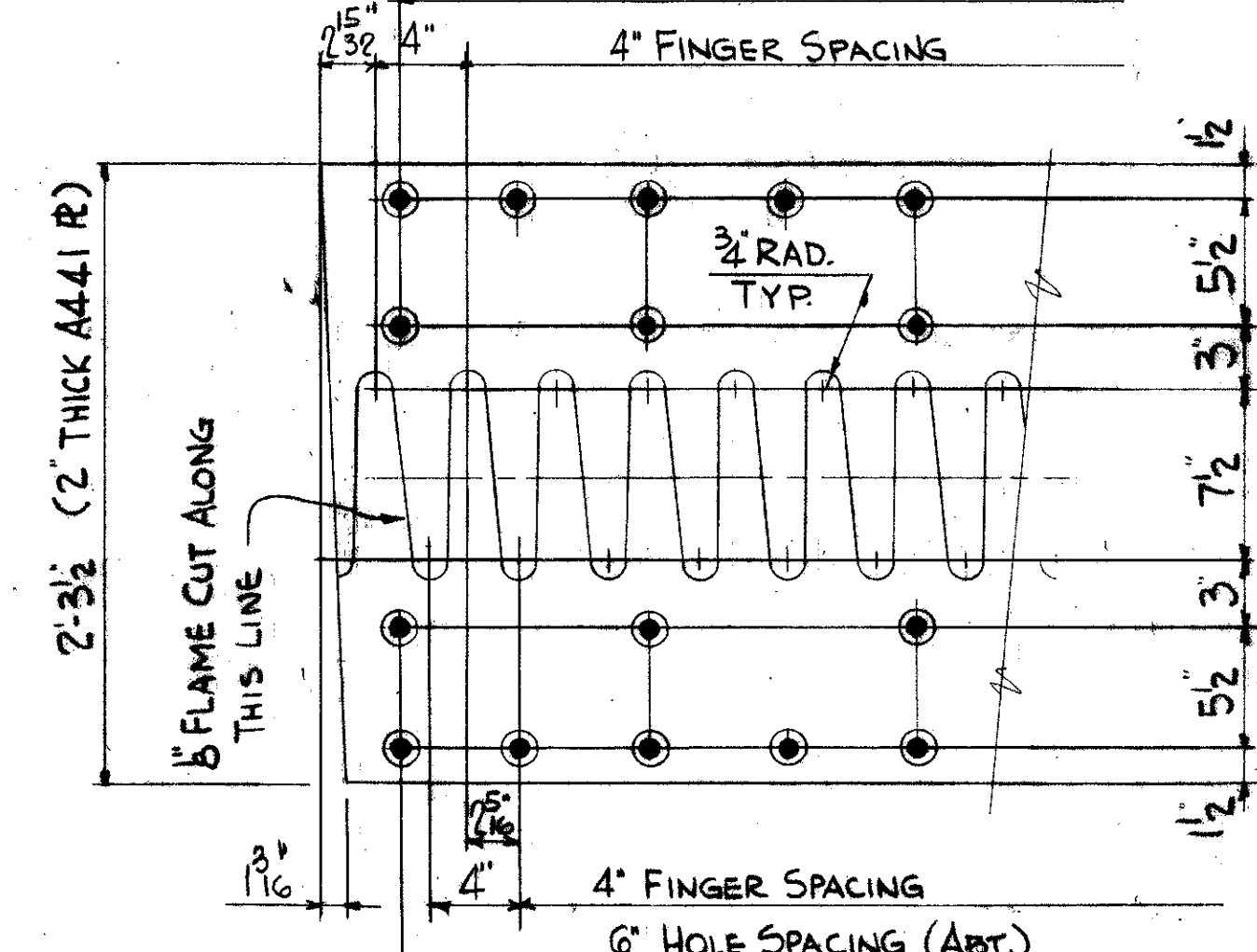
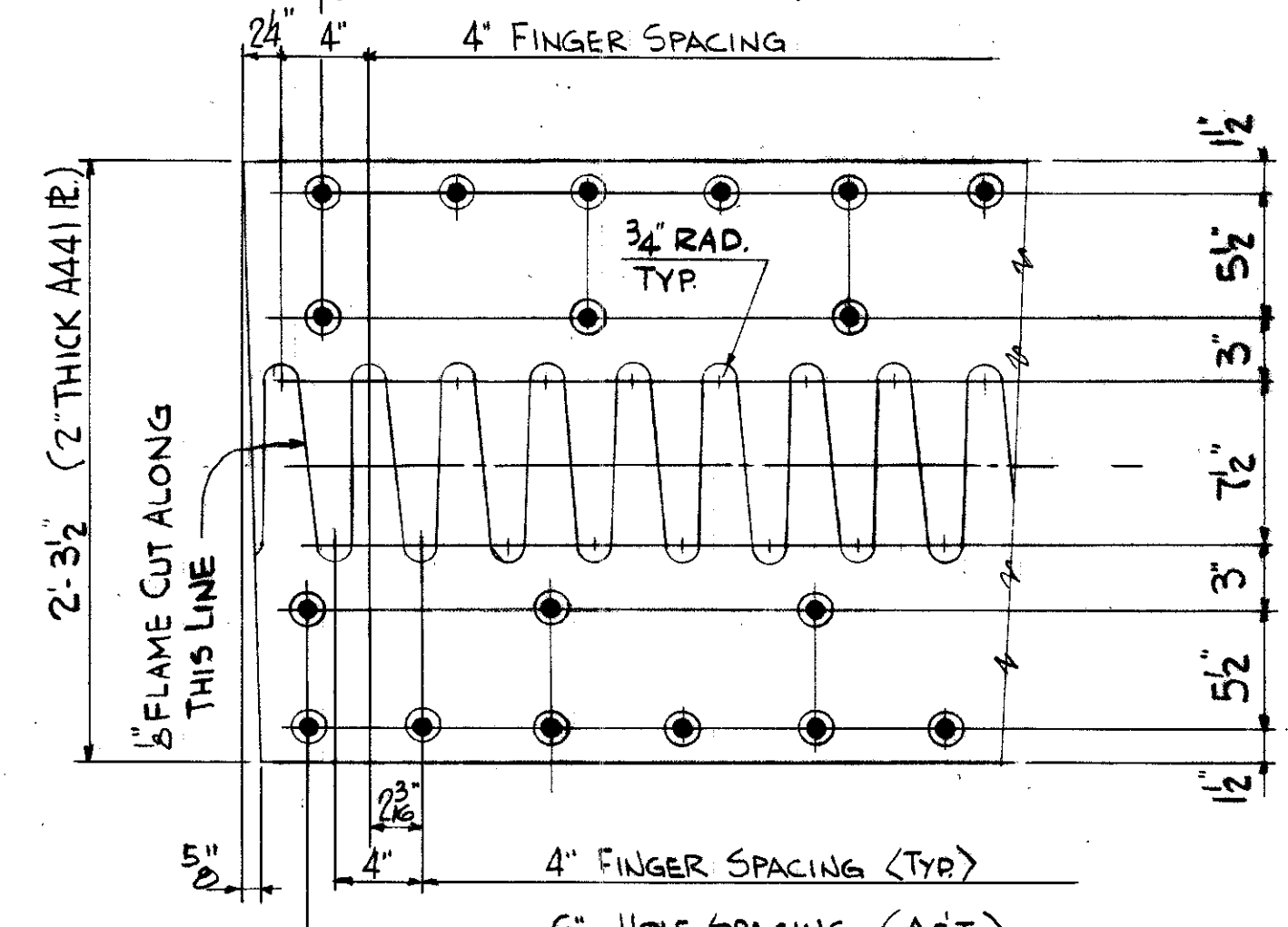
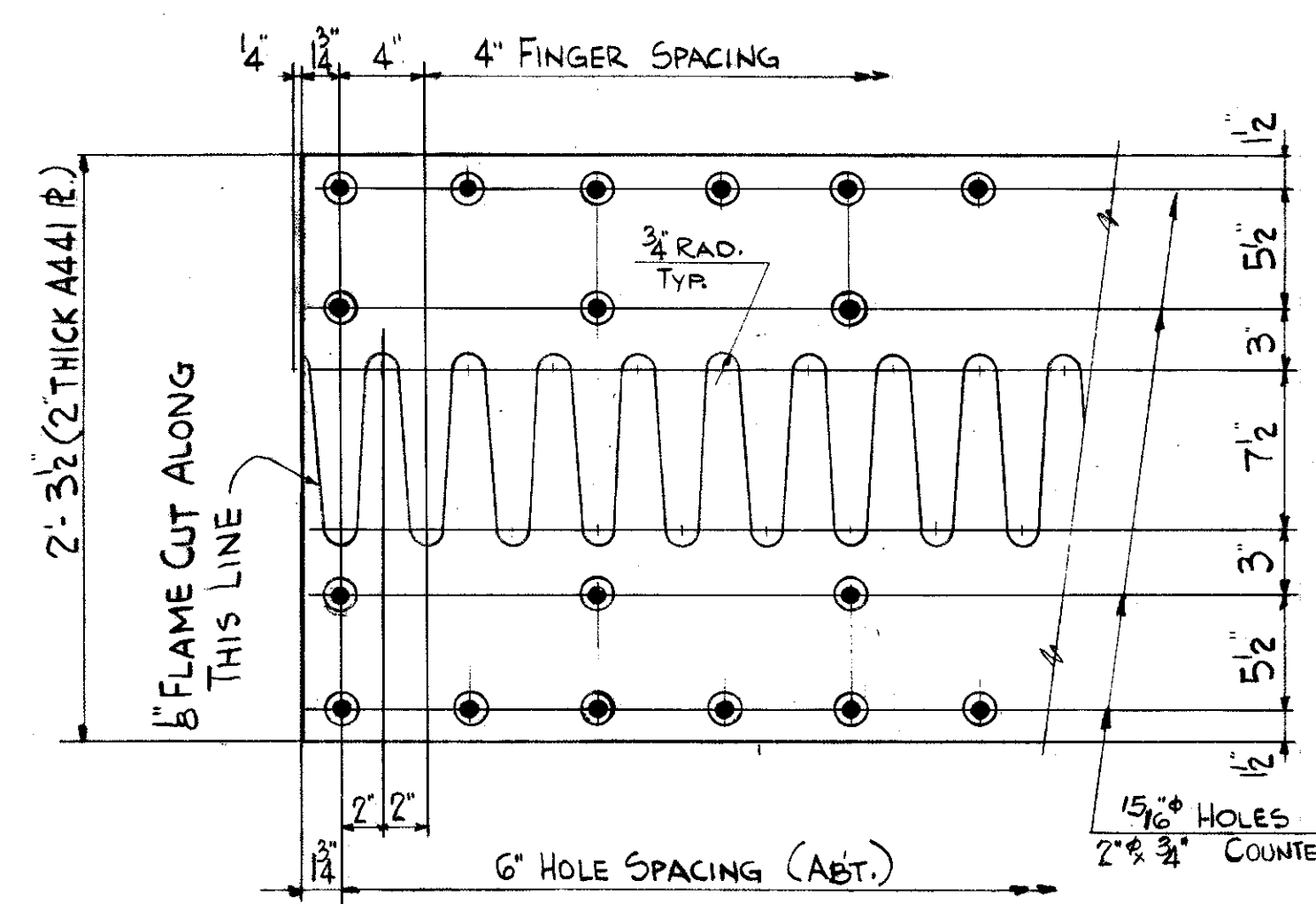
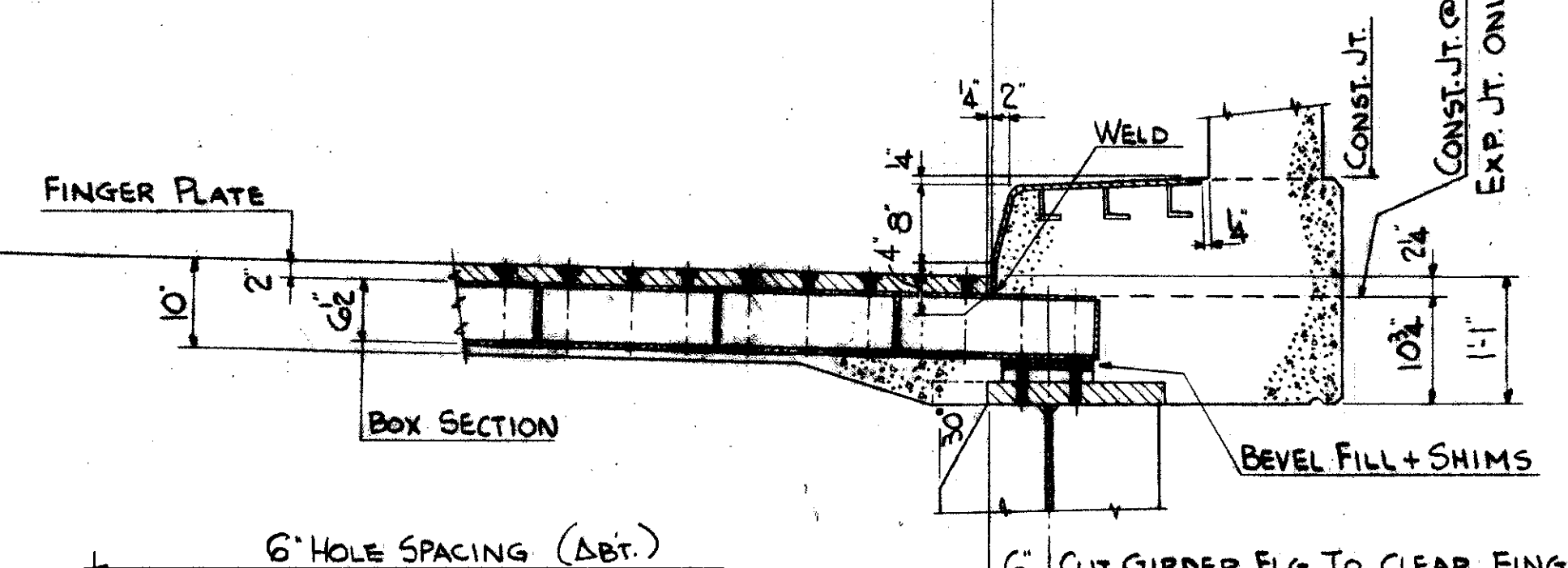
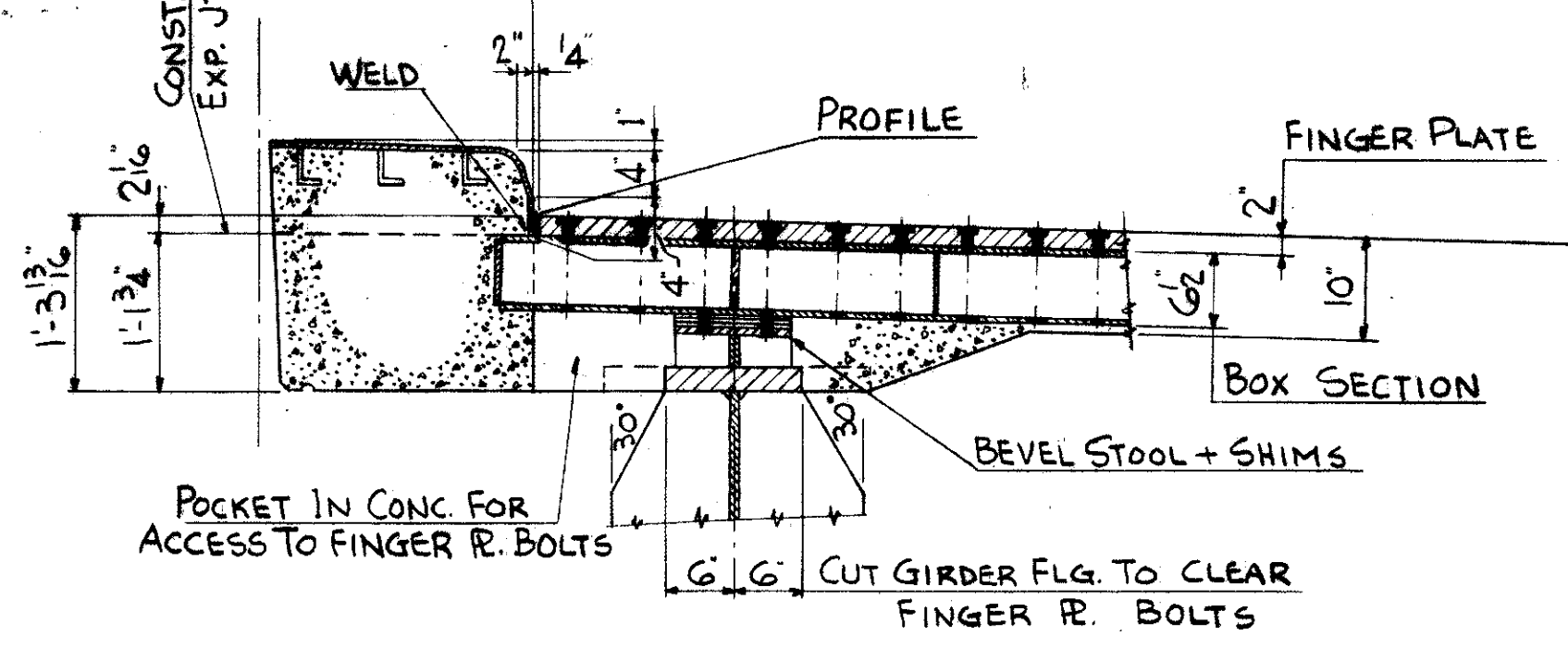
EXPANSION JOINT DETAILS
BRIDGE NO. CUY-21-14.55
WILLOW FREEWAY OVER KINGSBURY
CUYAHOGA COUNTY, O.H.

CUYAHOGA COUNTY
CUY-21-1455

45'-0 5/8" FACE TO FACE OF CURBS @ EXPANSION JOINT
4" FINGER SPACING (SEE DETAIL "N")

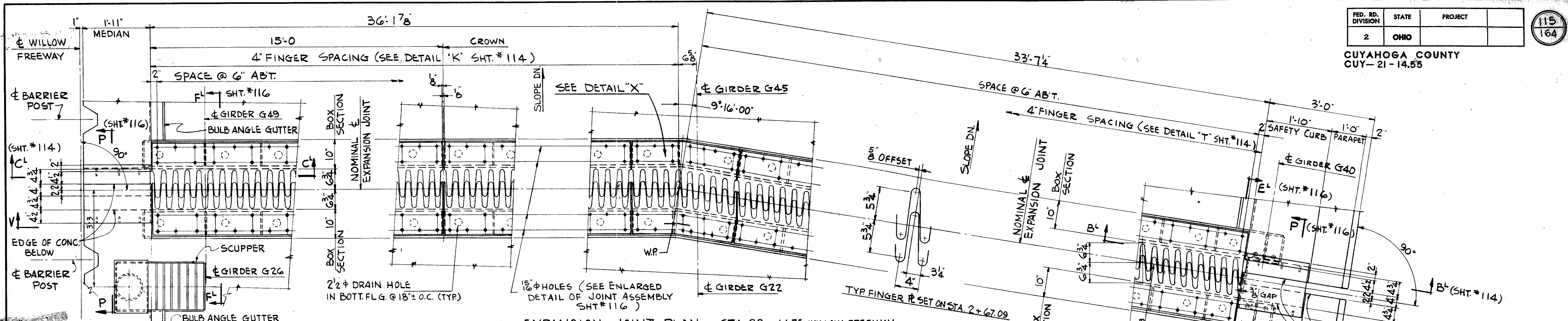


EXPANSION JOINT PLAN
STA. 105+59:68 (ON TANGENT)

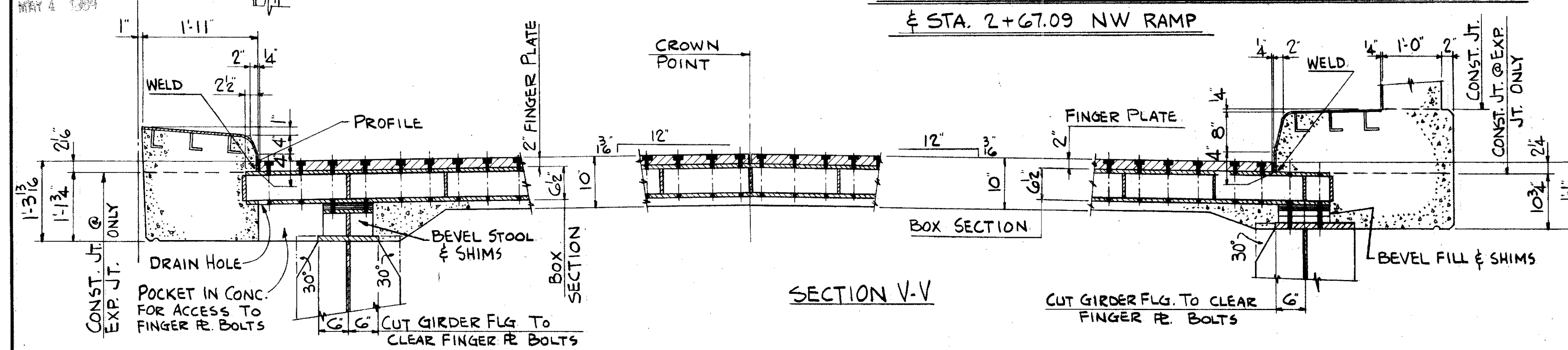


FINGER PLATES TO BE ASTM A-441 STEEL

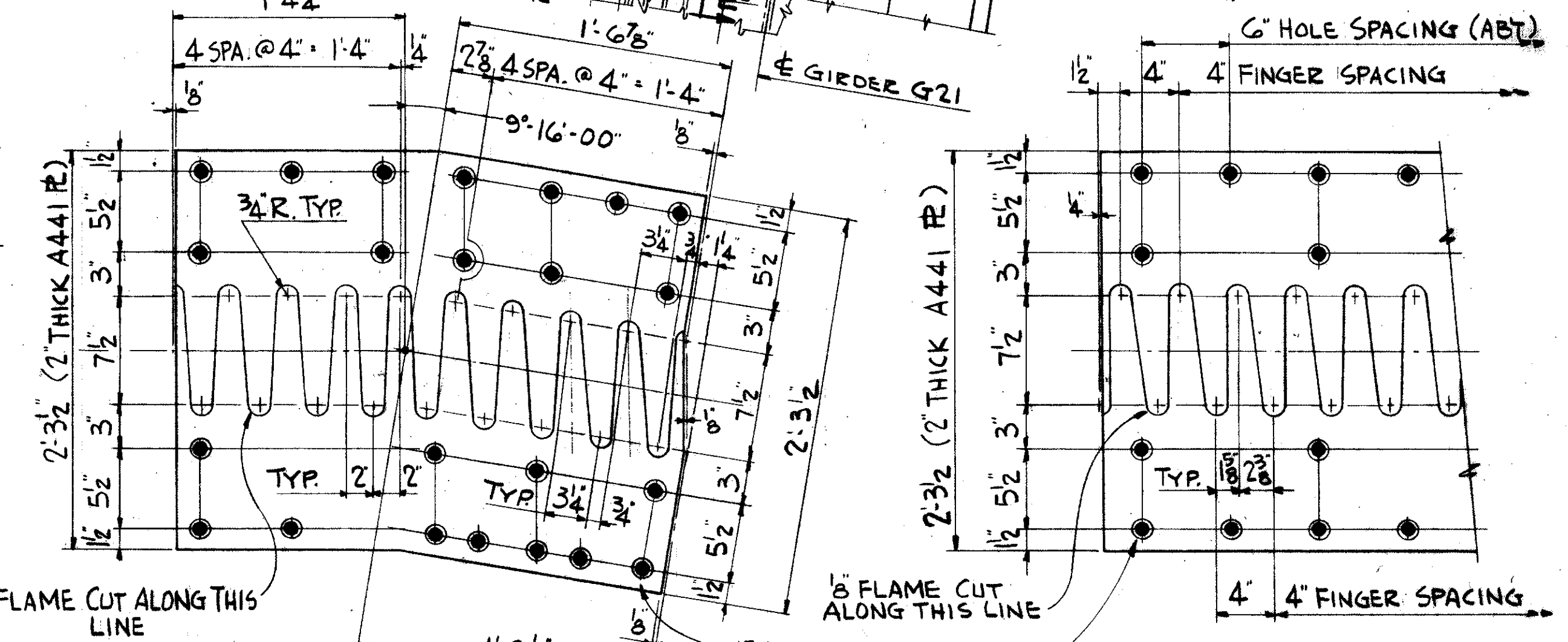
TRYGVE HOFF & ASSOCIATES
ENGINEERS
1922 EAST 107TH STREET CLEVELAND, OHIO
EXPANSION JOINT DETAILS
BRIDGE NO. CUY-21-1455
WILLOW FREEWAY OVER KINGSBURY
CUYAHOGA COUNTY, U.S.R. 21



EXPANSION JOINT PLAN - STA. 89+44.75 WILLOW FREEWAY
& STA. 2+67.09 NW RAMP

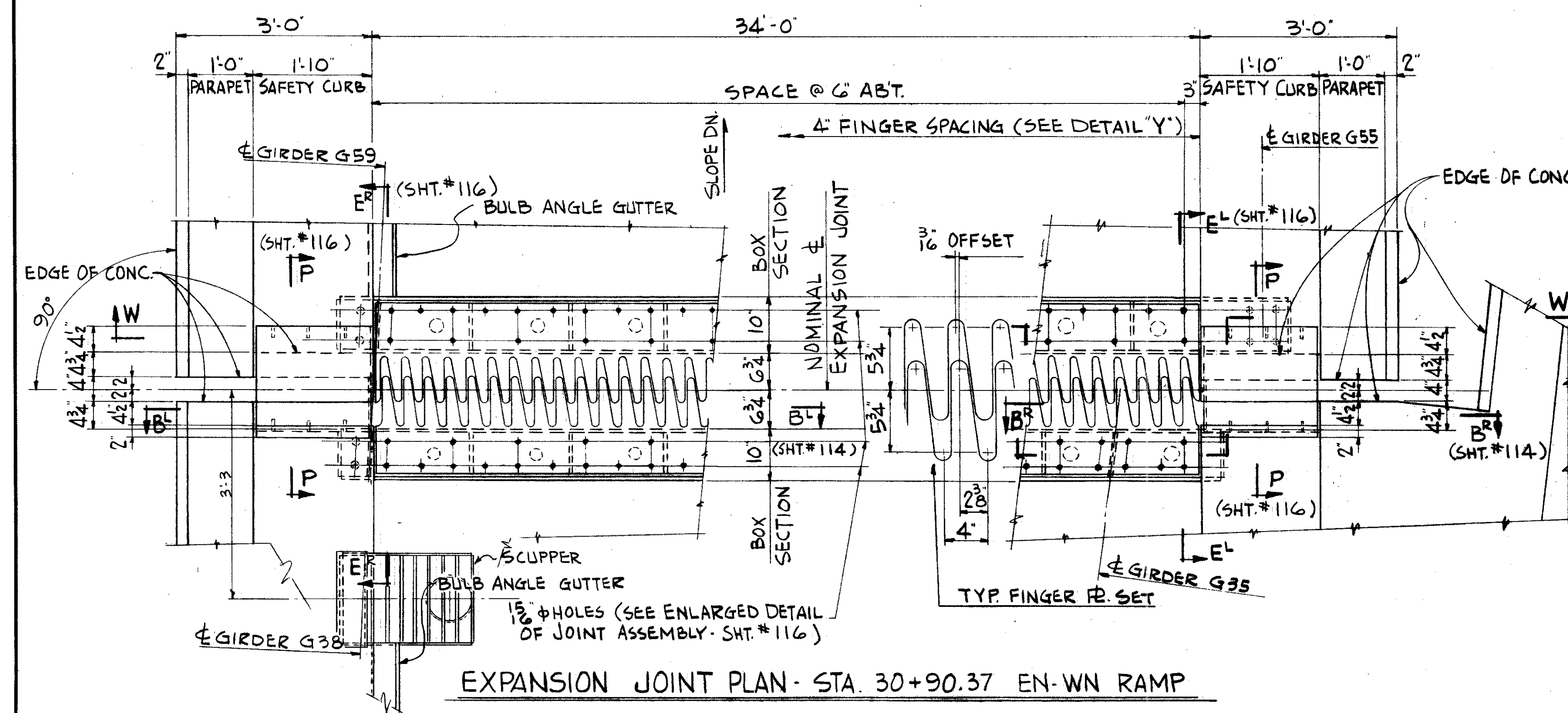


SECTION V-V

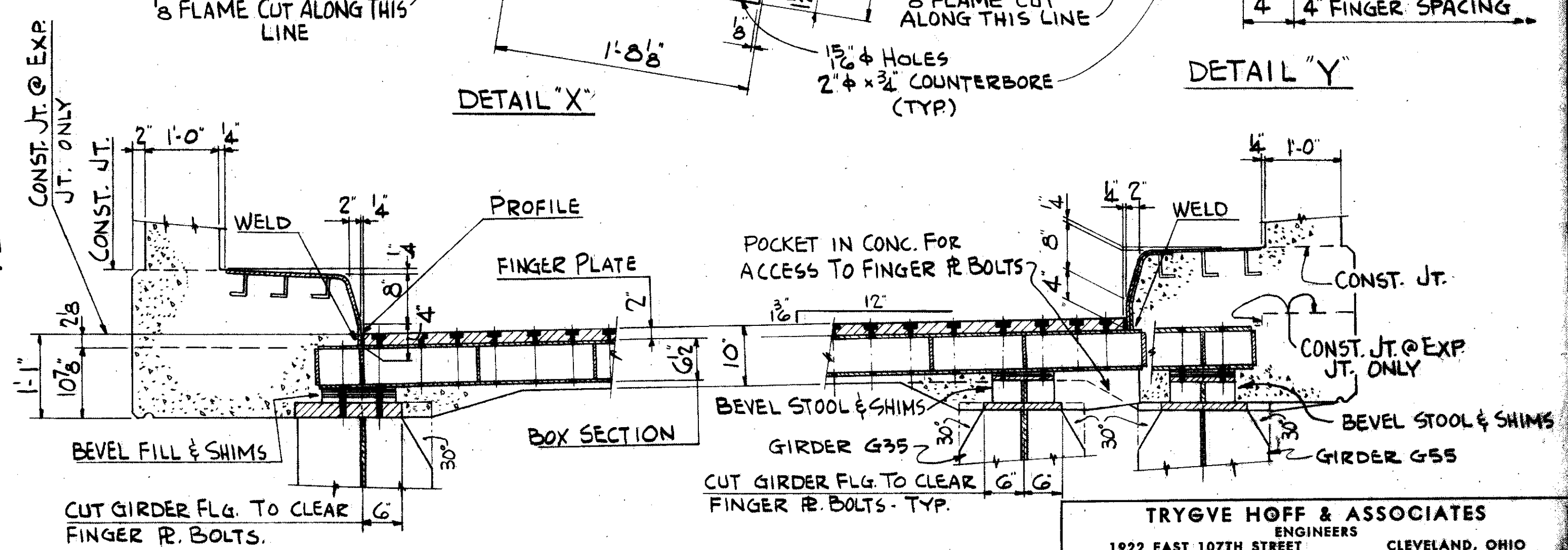


DETAIL "X"

DETAIL "Y"



EXPANSION JOINT PLAN - STA. 30+90.37 EN-WN RAMP



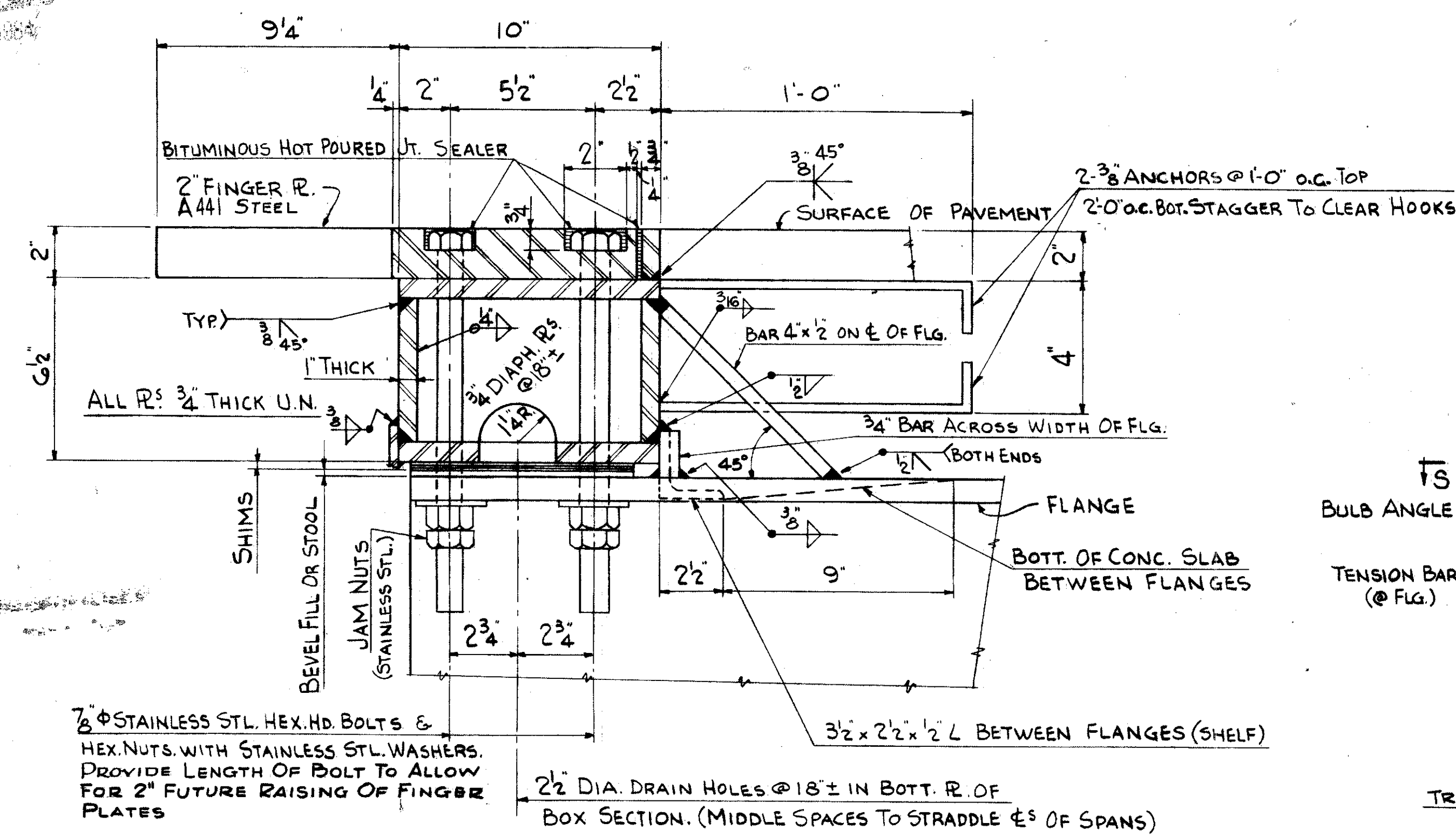
SECTION W-W

FINGER PLATES TO BE ASTM A-441 STEEL

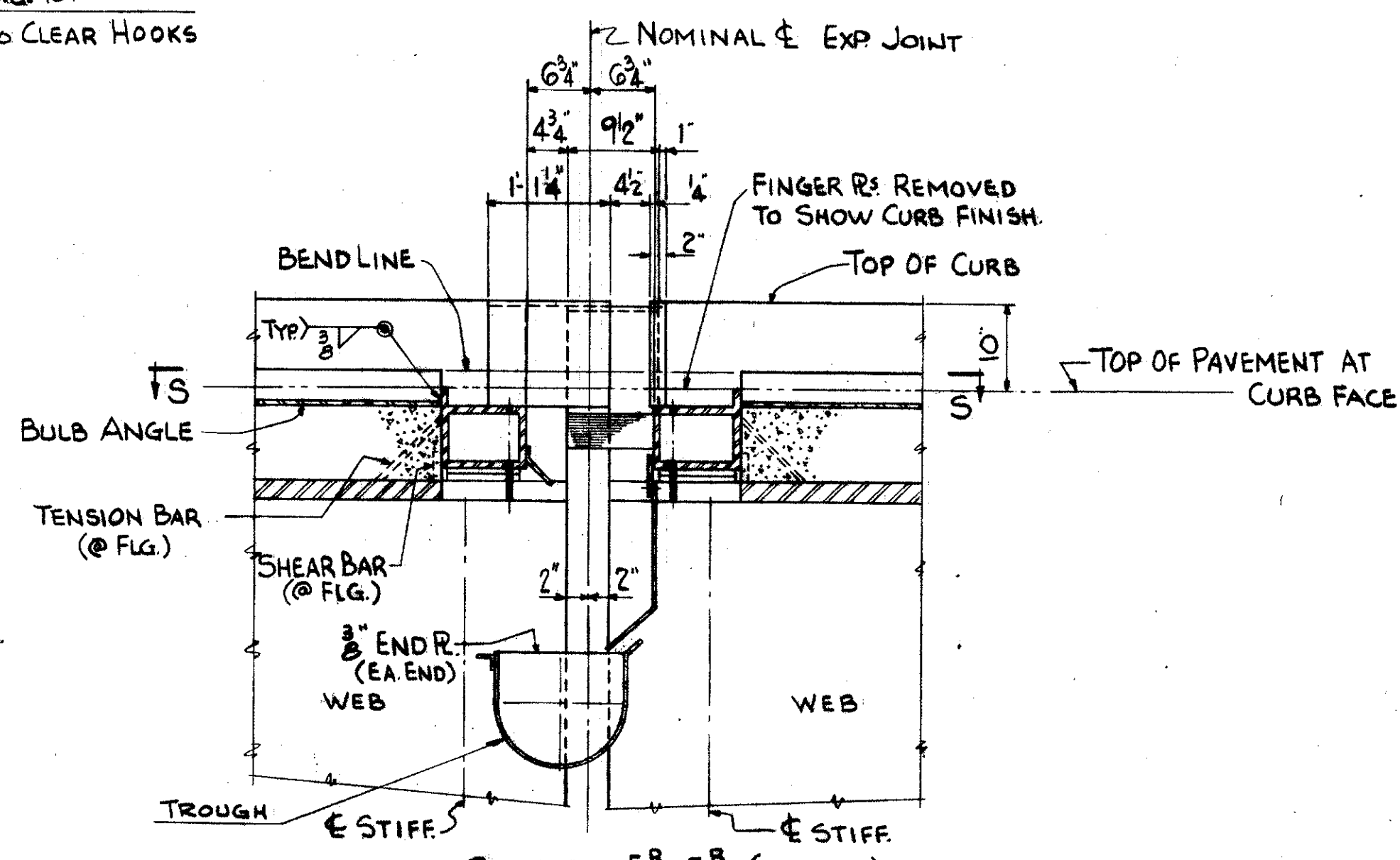
TRYGVE HOFF & ASSOCIATES
ENGINEERS
1922 EAST 107TH STREET CLEVELAND, OHIO

EXPANSION JOINT DETAILS
BRIDGE NO. CUY-21-14.55
WILLOW FREEWAY OVER KINGSBURY RUN
CUYAHOGA COUNTY U.S.R. 21

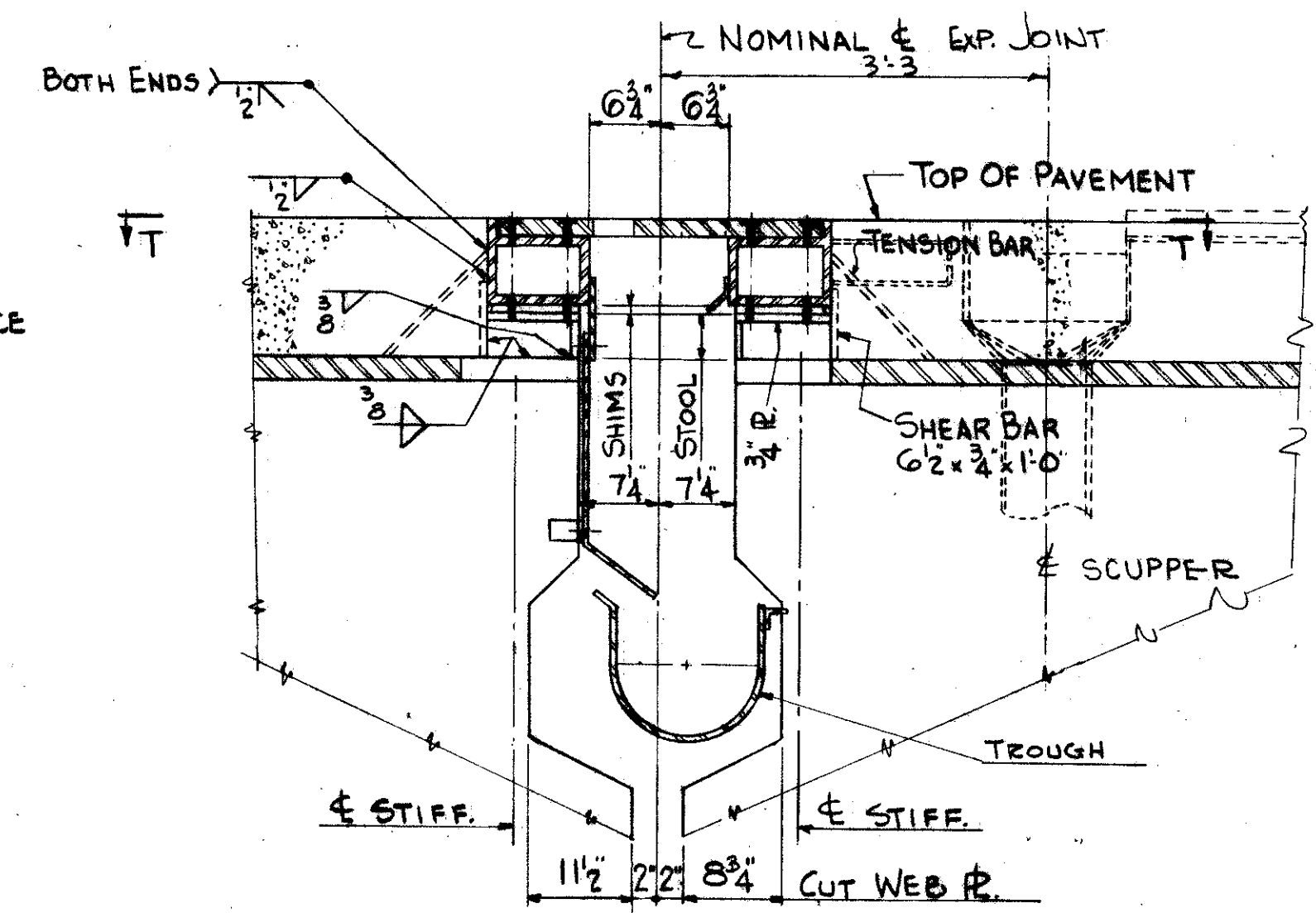
SCALE: _____ DATE: _____
DESIGNED: _____ TRACED: _____ CHECKED: _____ REVIEWED: _____
D.F. D.F. T.S.J. D.W.M. 6-7



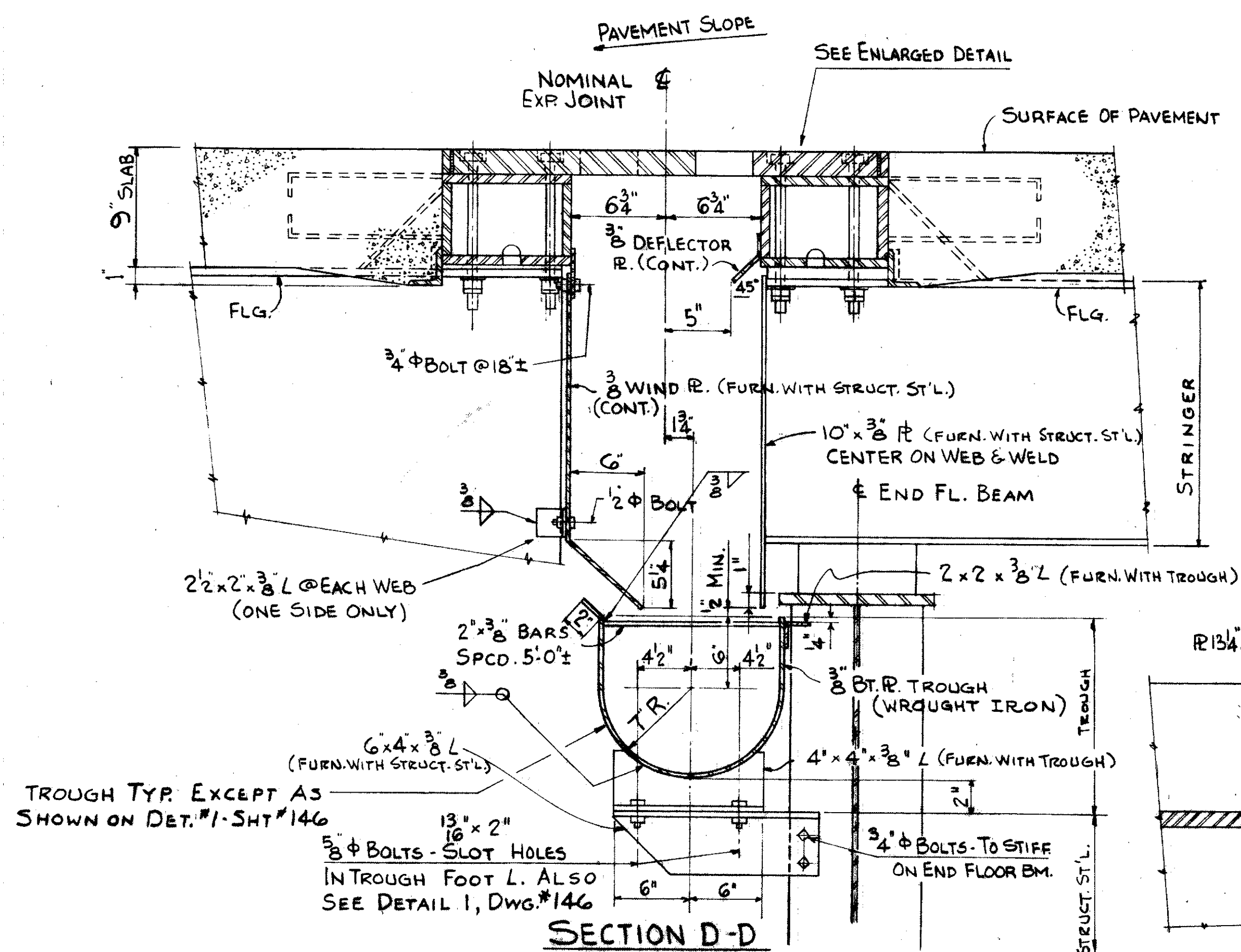
ENLARGED DETAIL OF EXPANSION JOINT ASSEMBLY



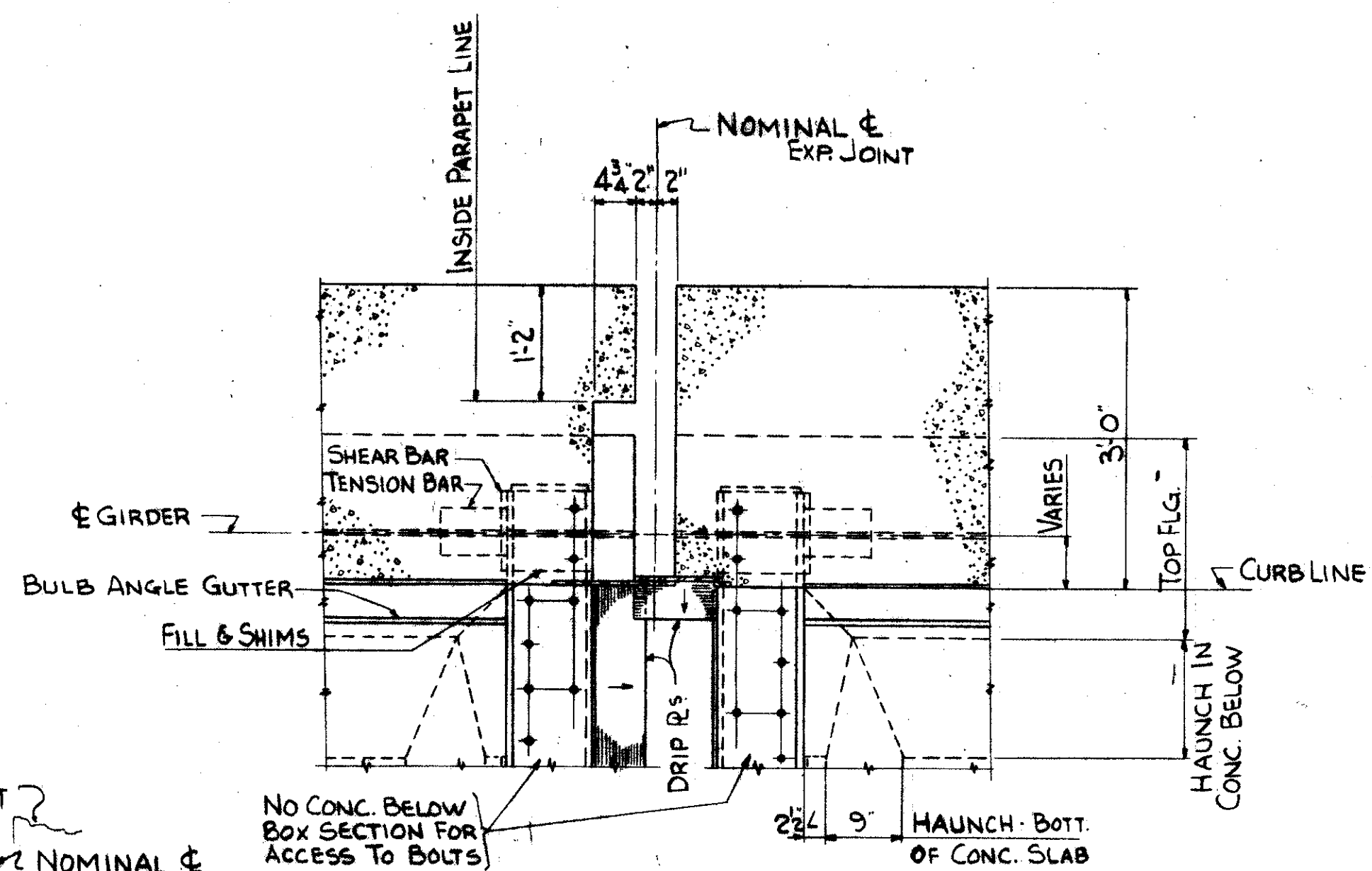
SECTION E-R-E' (SHOWN)
SECTION E-L-E' (OPP.)



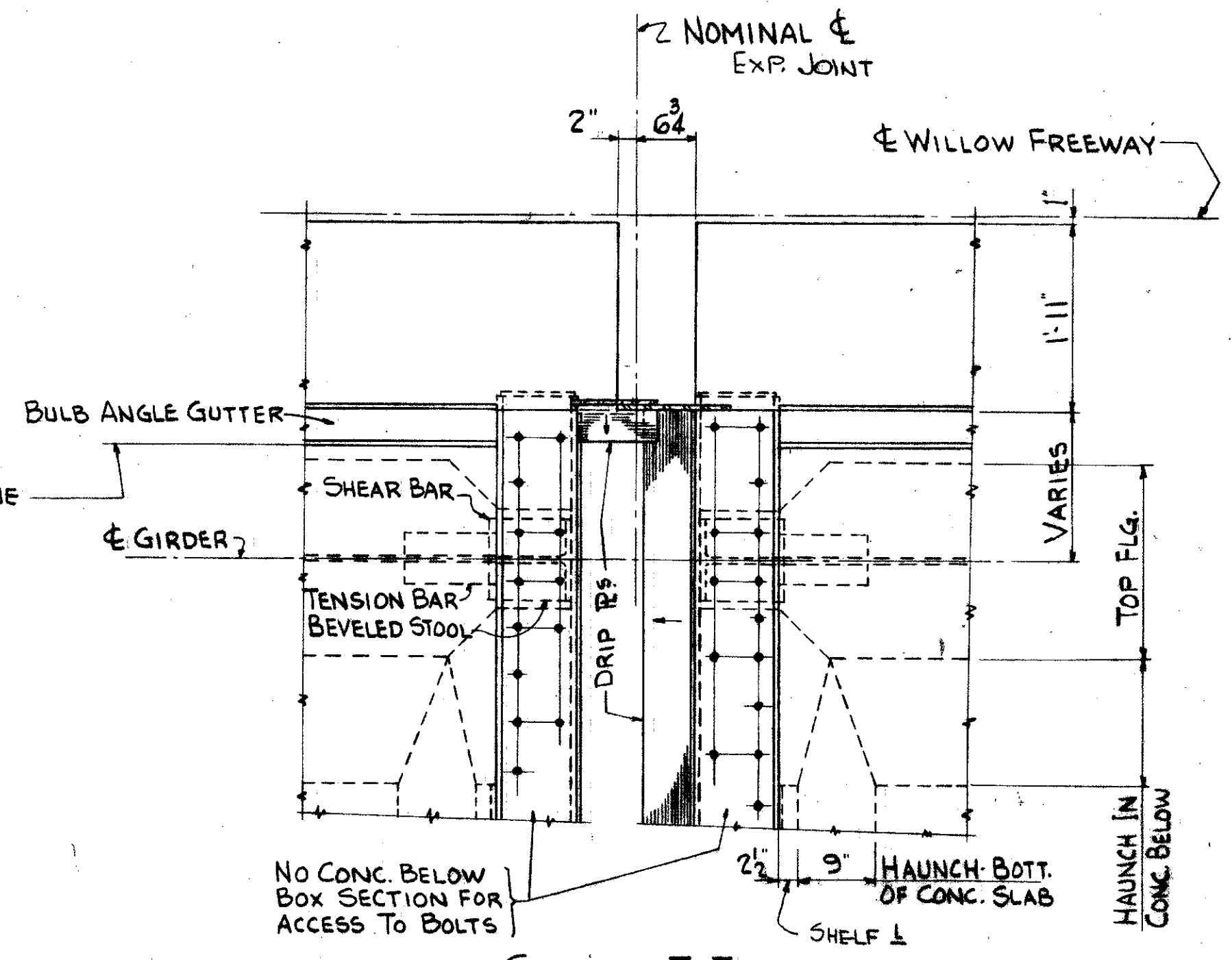
SECTION F-R-F' (SHOWN)
SECTION F-L-F' (OPP.)



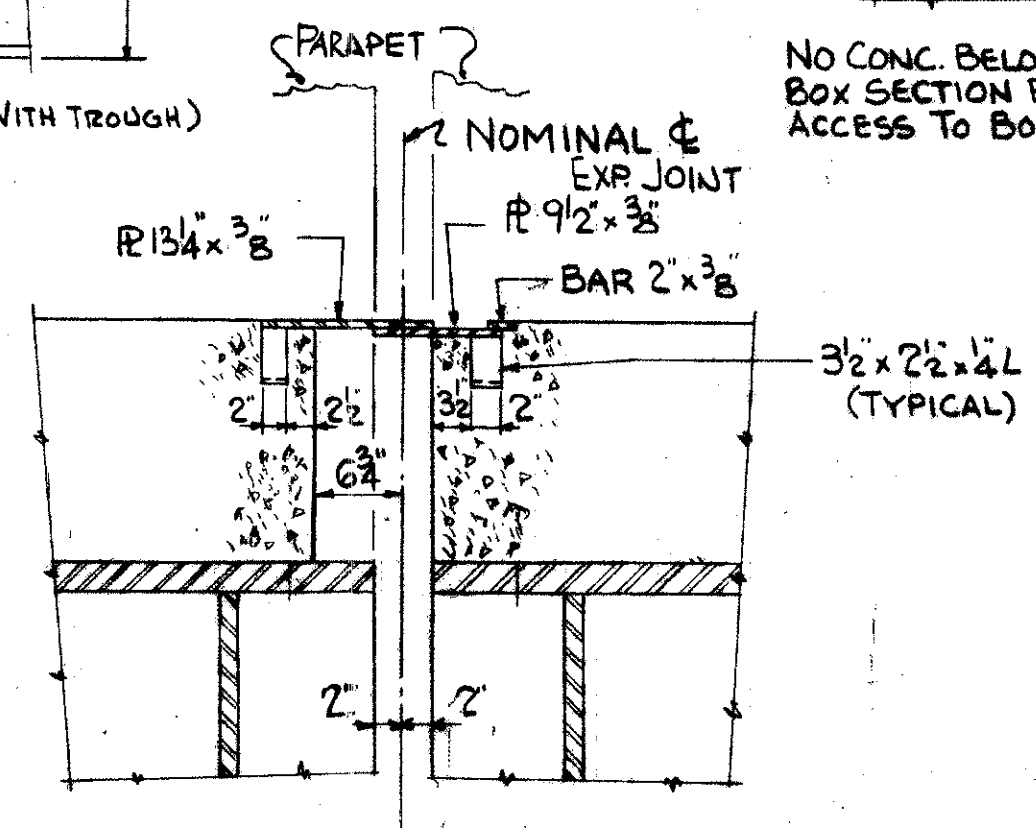
SECTION D-D



SECTION S-S



SECTION T-T

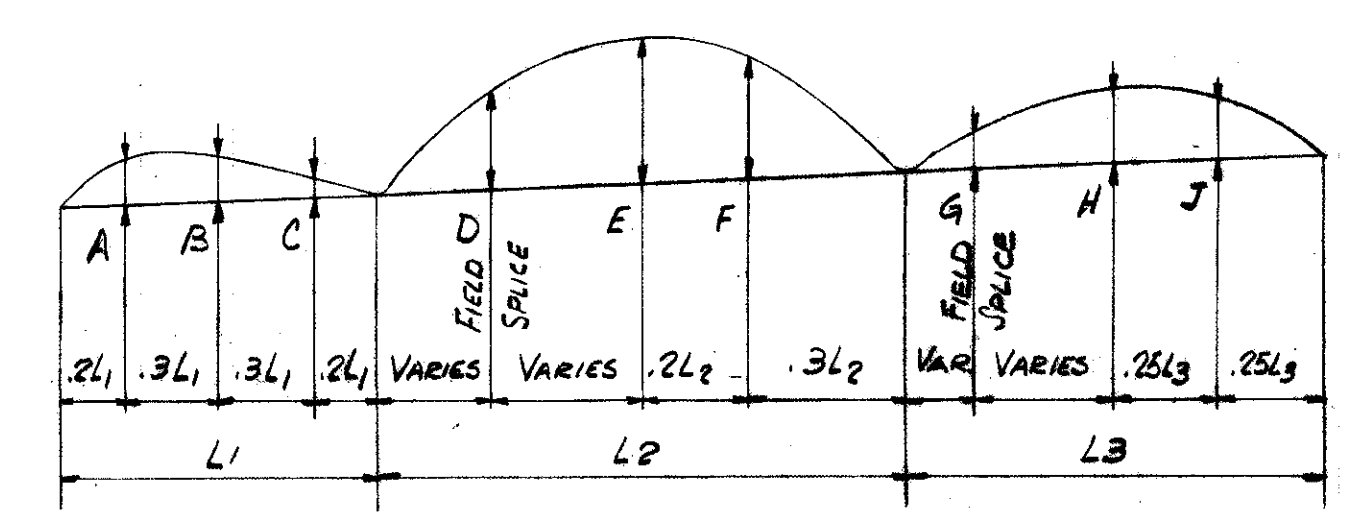
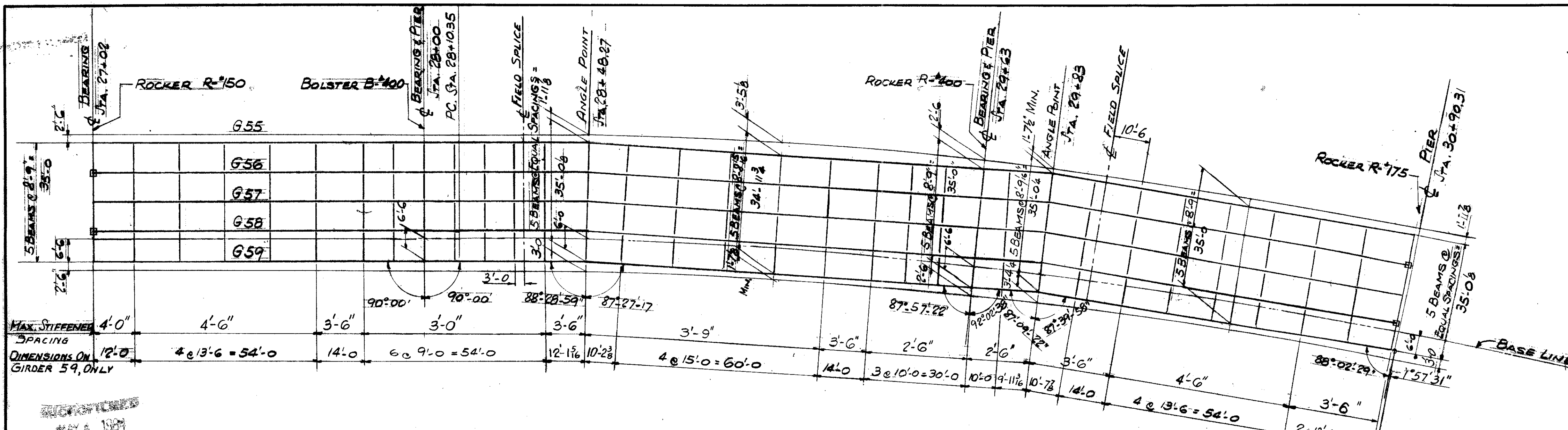


SECTION P-P

TRYGVE HOFF & ASSOCIATES
ENGINEERS
1922 EAST 107TH STREET CLEVELAND, OHIO

EXPANSION JOINT DETAILS
BRIDGE NO. CUY-21-1455
WILLOW FREEWAY OVER KINGSBURY RUN
CUYAHOGA COUNTY U.S.R. 21

SCALE DATE
DESIGN DRAWN TRACKED
DE OX

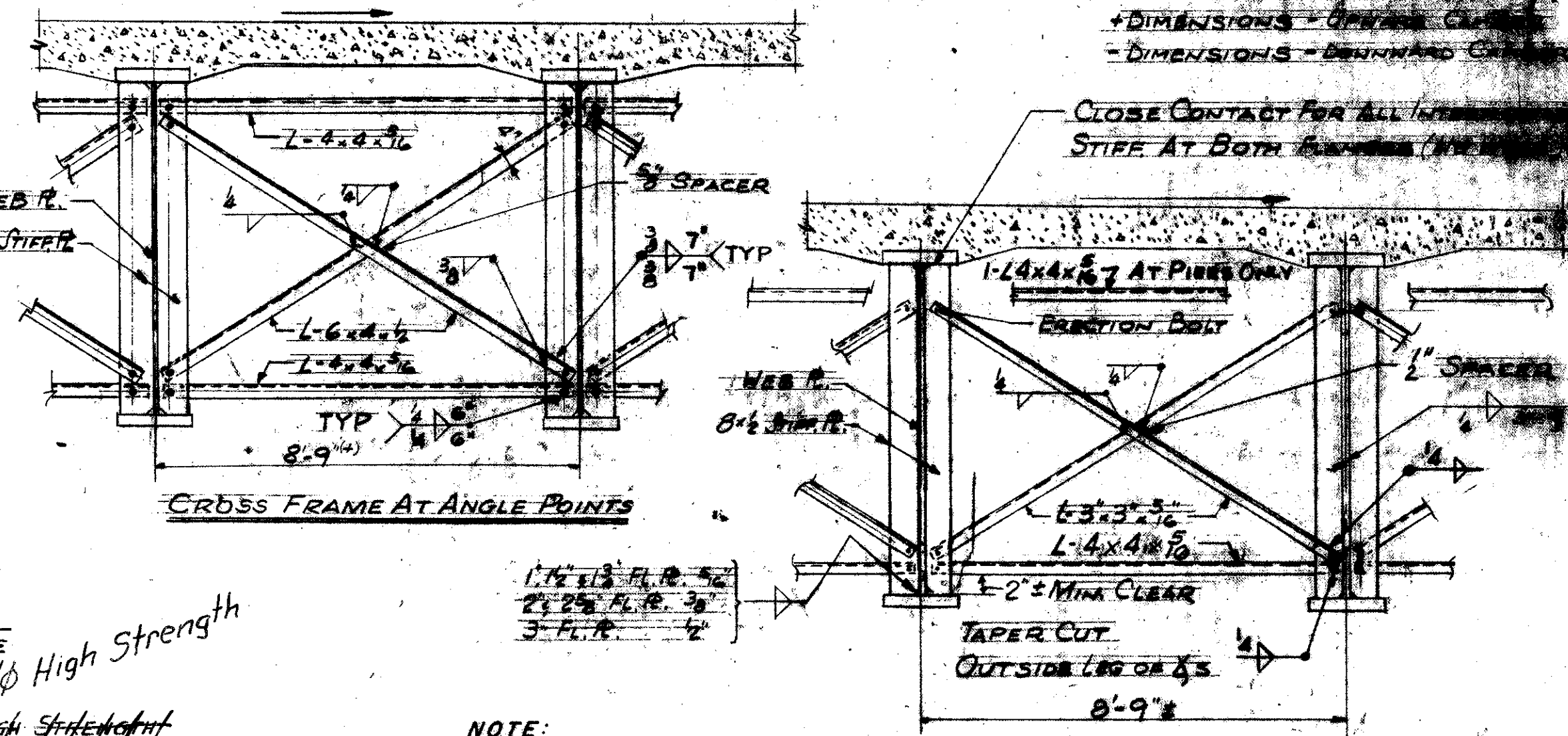
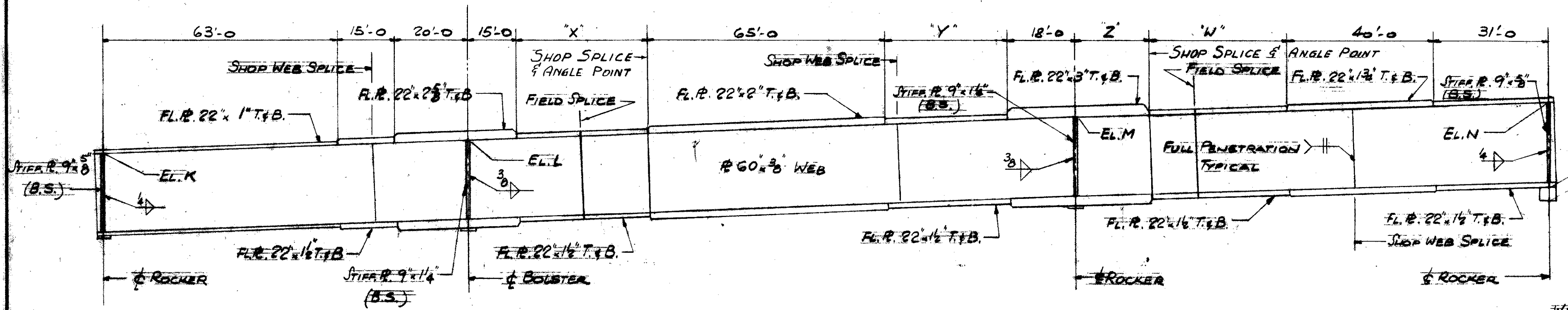


DEFLECTION AND CAMBER (SEE TABLE BELOW)

STEEL FRAMING PLAN.

THE USE OF THE SYMBOL □ INDICATES LOCATION OF MODIFIED ROCKER BASE PLATE. FOR DETAIL SEE SHEET NO. 131.

DEFLECTION AND CAMBER	A	B	C	D	E	F	G	H	J
DEFLECTION DUE TO WEIGHT OF STEEL	+1/16	0	0	+4	+9/16	+1/16	+8	+4	+4
DEFLECTION DUE TO REMAINING DEAD LOAD	+3/8	+2	-1/16	-1/16	-1/16	+1/16	+8	+8	+1/16
CONVEXITY REQUIRED FOR VERTICAL CURVE	G55 - 1/8	- 1/8	- 2/8	+3/8	+2/8	- 1/8	- 1/8	- 1/8	- 1/8
G56	+5/8	+4	+2/16	+2/8	+2/8	- 1/8	- 1/8	- 1/8	- 1/8
G57	+4	+8	+4	+1/16	+2/8	+1/8	+8	+4	+8
G58	+5	+8	+8	+1/16	+2/16	+1/8	0	- 1/8	0
G59	+5	+1	+2	+1/16	+1/16	0	0	0	0
SUM OF DEFLECTION & CONVEXITY	G55 +4	+4	-1/16	+3/16	+5/8	+1/16	+6	+2	+1/16
G56	+8	+8	+1/16	+3/8	+5	+3/8	+4	+2	+1/16
G57	+9	+8	+9/16	+2/8	+5	+3/8	+8	+4	+1/16
G58	+9	+9	+1/16	+2/8	+4/8	+3/8	+8	+4	+1/16
G59	+9	+1/16	+2	+2/16	+1/16	+3/8	+8	+4	+1/16
CAMBER REQUIRED	G55 +8	+4	+4	+3/8	+5	+3/8	+4	+2	+1/16
G56	+8	+4	+4	+3/8	+5	+3/8	+4	+2	+1/16
G57	+8	+4	+4	+3/8	+5	+3/8	+4	+2	+1/16
G58	+8	+4	+4	+3/8	+5	+3/8	+4	+2	+1/16
G59	+8	+4	+4	+3/8	+5	+3/8	+4	+2	+1/16

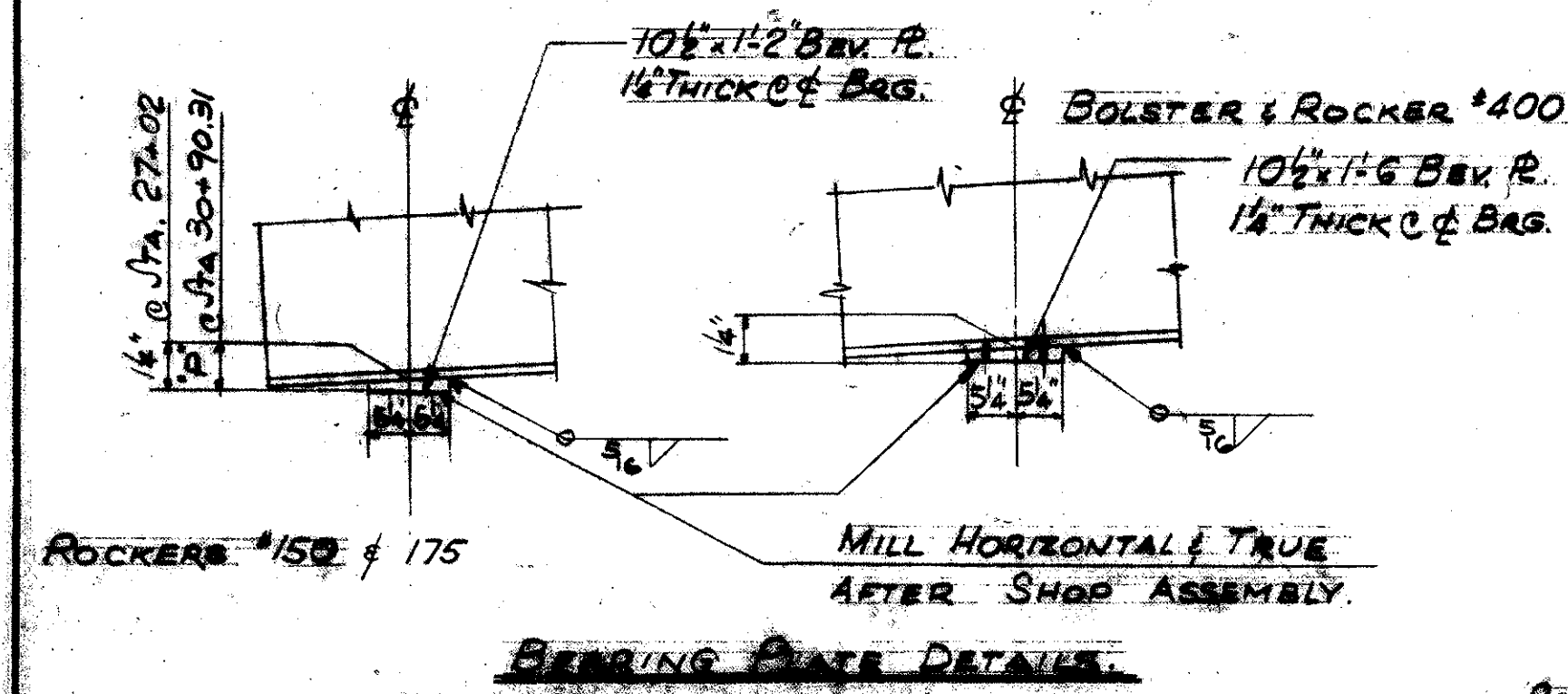


NOTE:
FOR GENERAL NOTES SEE SHEET NO. 118
FOR DETAILS OF SHOP FLANGE SPLICES SEE SKETCH ON SHEET NO. 124
FOR DETAILS OF END DAMS AND END CROSS FRAMES SEE SH. NO. 110
FOR DETAILS OF ROCKERS & BOLSTERS SEE SHEET NO. 139 & STD. DWG. RB-1-55

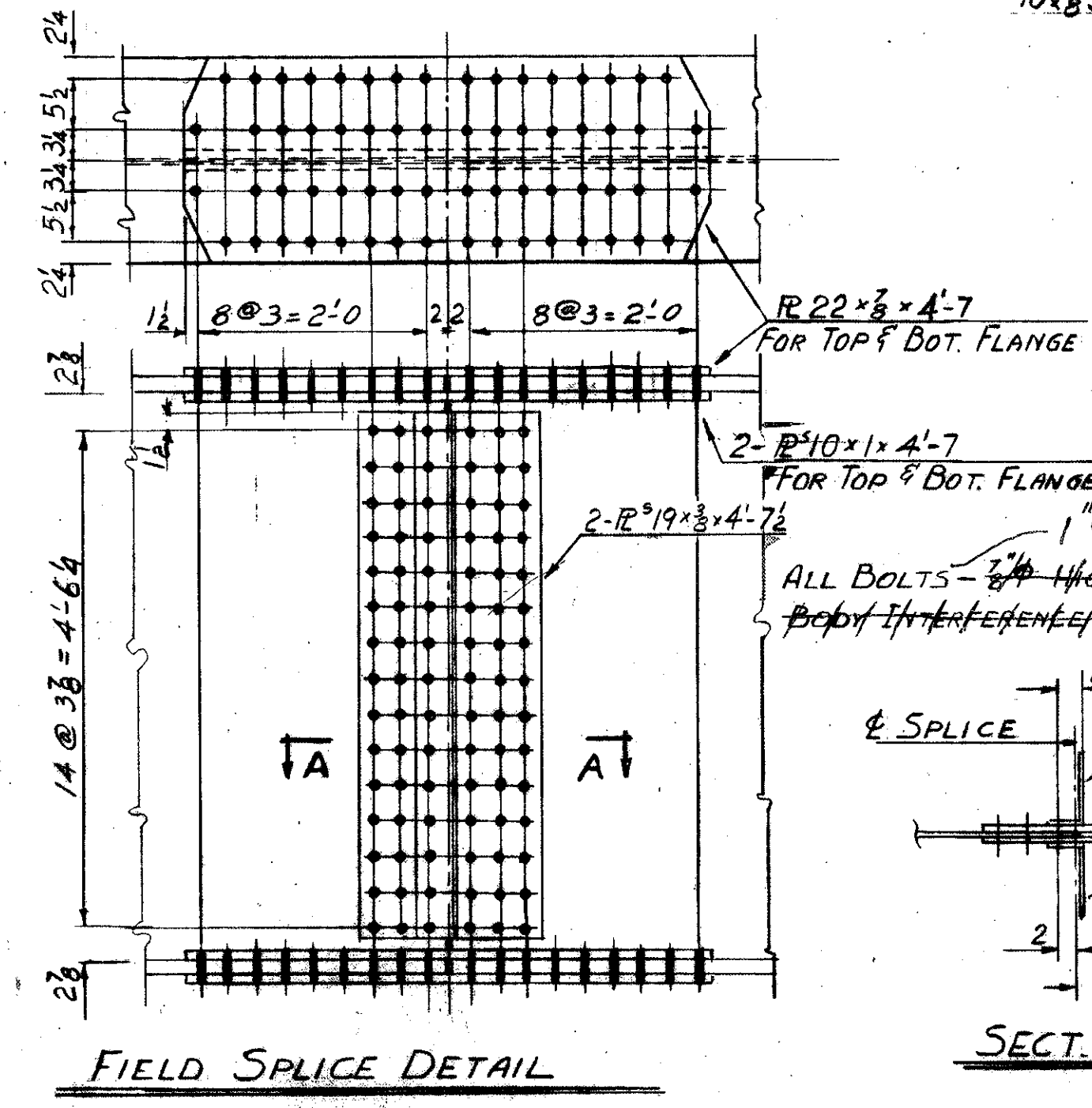
TRYGVE HOFF & ASSOCIATES
ENGINEERS
1922 EAST 107TH STREET CLEVELAND, OHIO

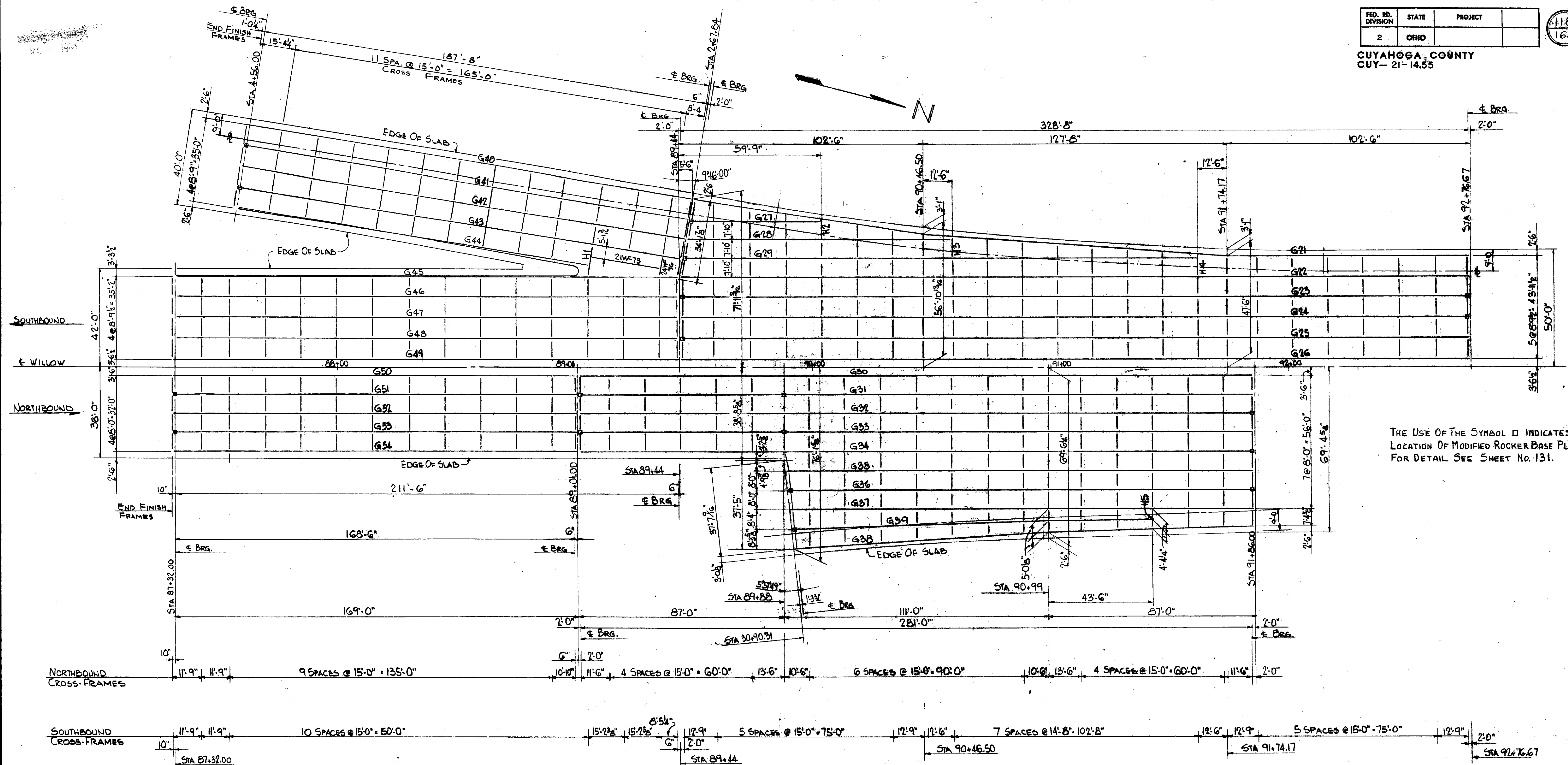
SUPERSTRUCTURE DETAILS
BRIDGE NO. CUY-21-14.55
RAMP W-N & E-N OVER E-L RAILROAD
CUYAHOGA COUNTY U.S.R.-21

GIRDER DETAILS									
GIRDER	X	Y	Z	W	K	L	M	N	P
G55	34'-0"	34'-0"	20'-3 1/2"	37'-3 1/2"	673.86	677.87	683.54	686.99	3"
G56	33'-9"	33'-3 1/2"	20'-3 1/2"	36'-7 1/2"	673.72	677.67	683.19	686.64	2 1/2"
G57	33'-6 1/2"	32'-7 1/2"	20'-2 1/2"	35'-11 1/2"	673.58	677.48	682.84	686.29	2"
G58	33'-4 1/2"	31'-10 1/2"	20'-0 1/2"	35'-3 1/2"	673.45	677.28	682.49	685.94	1 1/2"
G59	33'-1 1/2"	31'-2 1/2"	19'-11 1/2"	34'-7 1/2"	673.27	677.04	682.11	685.54	3 1/4"



LOCATION	α
Sta. 27+02	90°00'00"
Sta. 28+00	90°00'00"
Sta. 29+23	91°12'00"
Sta. 30+00	93°50'20"





THE USE OF THE SYMBOL \square INDICATES LOCATION OF MODIFIED ROCKER BASE PLATE FOR DETAIL SEE SHEET NO. 131.

GENERAL NOTES - STRUCTURAL STEEL

- STRUCTURAL STEEL SHALL BE COPPER BEARING AND SHALL CONFORM TO ITEM M-7, SECT. M-7.4(b) OF THE CONSTRUCTION AND MATERIALS SPECIFICATIONS.
- ALL MATERIAL THAT IS FABRICATED OR CONNECTED BY WELDING SHALL CONFORM TO ASTM DESIGNATION A-373
- FIELD CONNECTIONS OTHER THAN WELDED ARE TO BE MADE WITH ONE INCH DIAMETER (1") HIGH STRENGTH BOLTS.
- SHOP SPLICES: IF ADDITIONAL SHOP SPLICES ARE NECESSARY, THEIR LOCATION AND DETAIL SHALL BE SUBMITTED TO THE DIRECTOR FOR APPROVAL PRIOR TO ORDERING MATERIAL.

- ERECTION PROCEDURE: THREE PRINTS OF THE PROPOSED ERECTION PROCEDURE FOR THE GIRDERS SHALL BE SUBMITTED TO THE DIRECTOR FOR APPROVAL.
- WELDING OF STRUCTURAL STEEL SHALL BE CLASS "A" EXCEPT AS OTHERWISE SHOWN. WELDS SHOWN AS FIELD WELDS MAY, AT THE OPTION OF THE CONTRACTOR, BE MADE IN THE SHOP.
- BUTT WELDS SHALL BE RADIOGRAPHICALLY EXAMINED AS REQUIRED AND IN ACCORDANCE WITH SUPPLEMENTAL SPECIFICATION NO. S-307, DATED 8-23-60.
- ERECTION BOLTS = TACK WELD NUTS IF LEFT IN PLACE.

- SHOP PAINTING OF STEEL: THE SURFACE PREPARATION OF ALL STEEL, REQUIRING SHOP PAINTING AS PER THE PLANS & SPECIFICATIONS, SHALL BE ACCOMPLISHED BY BLAST CLEANING OR POWER TOOL CLEANING, EXCEPT AS NOTED IN THE SPECIFICATIONS REGARDING THE USE OF CHROMATE PRIMERS.

- THE DRILLING OF HOLES IN THE SUBSTRUCTURE FOR ANCHOR BARS & BOLTS SHALL BE PAID FOR UNDER ITEM 5-7 - STRUCTURAL STEEL (A7-A373)

FOR ADDITIONAL NOTES SEE SHEETS * 56 & * 100

TRYGVE HOFF & ASSOCIATES
ENGINEERS
1922 EAST 107TH STREET CLEVELAND, OHIO

SUPERSTRUCTURE DETAILS
BRIDGE NO. CUY-21-14.55
WILLOW FREEWAY OVER KINGSBURY RUN
CUYAHOGA COUNTY U.S.R. 21

SCALE: _____ DATE: _____

GIRDER	A	B	C	D	E	F	G	H	J	JA	K	KA	L	LA*	M	MA*	N	NA*	P	PA	Q	R	RA	S	SA	T	TA	U	UA	V	VA	W	WA	X	XA	Y	Z	BOLSTER	ROCKER	GIRDER	
RAMP G40	187'-8"	4'-8 3/4"	5'-7 1/8"	9'-0"	6'-0"	3'-0"	6'-0"	187'-7 1/2"	3'-0"	3'-0"	7'-0"	3'-6"	15'-0"	5'-0"	142'-7 1/2"	6'-0"	20'-0"	5'-0"	1 x 8	1/2 x 8	5/8 x 4	G40	18'-9 1/2"	1 1/2 x 20	19'-0"	2 1/2 x 20	19'-0"	2 1/2 x 28	74'-0"	2 1/2 x 28	19'-0"	2 1/2 x 28	19'-0"	2 1/2 x 20	18'-9 1/2"	1 1/2 x 20	44'-4"	143'-3 3/4"	B-300	R-300	G40
G41	187'-8"	4'-10 1/4"	5'-9 1/8"	9'-0"	6'-0"	3'-0"	6'-0"	187'-7 1/2"	3'-0"	3'-0"	7'-0"	3'-6"	15'-0"	5'-0"	142'-7 1/2"	6'-0"	20'-0"	5'-0"	1 x 8	1/2 x 8	5/8 x 4	G41	18'-9 1/2"	1 1/2 x 20	19'-0"	2 1/2 x 20	19'-0"	2 1/2 x 28	74'-0"	2 1/2 x 28	19'-0"	2 1/2 x 28	19'-0"	2 1/2 x 20	18'-9 1/2"	1 1/2 x 20	44'-4"	143'-3 3/4"	B-300	R-300	G41
G42	187'-8"	4'-11 1/8"	5'-10 3/8"	9'-0"	6'-0"	3'-0"	6'-0"	187'-7 1/2"	3'-0"	3'-0"	7'-0"	3'-6"	15'-0"	5'-0"	142'-7 1/2"	6'-0"	20'-0"	5'-0"	1 x 8	1/2 x 8	5/8 x 4	G42	18'-9 1/2"	1 1/2 x 20	19'-0"	2 1/2 x 20	19'-0"	2 1/2 x 28	74'-0"	2 1/2 x 28	19'-0"	2 1/2 x 28	19'-0"	2 1/2 x 20	18'-9 1/2"	1 1/2 x 20	44'-4"	143'-3 3/4"	B-300	R-300	G42
G43	187'-8"	5'-1 1/2"	6'-0 3/8"	9'-0"	6'-0"	3'-0"	6'-0"	187'-7 1/2"	3'-0"	3'-0"	7'-0"	3'-6"	15'-0"	5'-0"	134'-7 1/2"	6'-0"	28'-0"	4'-0"	1 x 8	1/2 x 8	5/8 x 4	G43	18'-9 1/2"	1 1/2 x 20	21'-0"	2 1/2 x 20	17'-0"	2 1/2 x 28	78'-0"	3 x 28	23'-0"	2 1/2 x 28	14'-9 1/2"	1 1/2 x 20	44'-4"	143'-3 3/4"	B-350	R-300	G43		
G44	149'-10"	5'-2 3/8"	6'-1 3/8"	9'-0"	6'-0"	3'-0"	6'-0"	149'-9 1/2"	3'-0"	3'-0"	7'-0"	3'-6"	15'-0"	5'-0"	124'-9 1/2"	6'-0"	-	-	1 x 8	1/2 x 8	5/8 x 4	G44	34'-9 1/2"	1 x 20	-	-	-	-	60'-0"	1 1/2 x 20	-	-	-	-	34'-9 1/2"	1 x 20	-	-	NONE	R-175	G44
SOU'B'D G45	211'-6"	6'-6 3/8"	5'-5 1/8"	10'-0"	6'-0"	3'-0"	8'-0"	211'-5 1/2"	3'-0"	3'-0"	8'-0"	4'-0"	10'-0"	5'-0"	170'-5 1/2"	6'-0"	20'-0"	5'-0"	1 x 8	1/2 x 8	5/8 x 4	G45	19'-8 1/2"	1 1/2 x 20	22'-0"	2 1/2 x 20	27'-0"	2 1/2 x 28	74'-0"	3 x 28	32'-0"	2 1/2 x 28	19'-0"	2 1/2 x 20	17'-8 1/2"	1 1/2 x 20	52'-8"	158'-9 9/16"	B-325	R-325	G45
G46	211'-6"	6'-8 3/8"	5'-7 1/8"	10'-0"	6'-0"	3'-0"	8'-0"	211'-5 1/2"	3'-0"	3'-0"	8'-0"	4'-0"	10'-0"	5'-0"	170'-5 1/2"	6'-0"	20'-0"	5'-0"	1 x 8	1/2 x 8	5/8 x 4	G46	19'-8 1/2"	1 1/2 x 20	22'-0"	2 1/2 x 20	27'-0"	2 1/2 x 28	74'-0"	3 x 28	27'-0"	2 1/2 x 28	22'-0"	2 1/2 x 20	19'-8 1/2"	1 1/2 x 20	52'-8"	158'-9 9/16"	B-325	R-325	G46
G47	211'-6"	6'-10 3/8"	5'-8 1/8"	10'-0"	6'-0"	3'-0"	8'-0"	211'-5 1/2"	3'-0"	3'-0"	8'-0"	4'-0"	10'-0"	5'-0"	170'-5 1/2"	6'-0"	20'-0"	5'-0"	1 x 8	1/2 x 8	5/8 x 4	G47	19'-8 1/2"	1 1/2 x 20	22'-0"	2 1/2 x 20	27'-0"	2 1/2 x 28	74'-0"	3 x 28	27'-0"	2 1/2 x 28	22'-0"	2 1/2 x 20	19'-8 1/2"	1 1/2 x 20	52'-8"	158'-9 9/16"	B-325	R-325	G47
G48	211'-6"	6'-10 3/8"	5'-8 1/8"	10'-0"	6'-0"	3'-0"	8'-0"	211'-5 1/2"	3'-0"	3'-0"	8'-0"	4'-0"	10'-0"	5'-0"	170'-5 1/2"	6'-0"	20'-0"	5'-0"	1 x 8	1/2 x 8	5/8 x 4	G48	19'-8 1/2"	1 1/2 x 20	22'-0"	2 1/2 x 20	27'-0"	2 1/2 x 28	74'-0"	3 x 28	27'-0"	2 1/2 x 28	22'-0"	2 1/2 x 20	19'-8 1/2"	1 1/2 x 20	52'-8"	158'-9 9/16"	B-325	R-325	G48
G49	211'-6"	6'-5 3/8"	5'-3 3/8"	10'-0"	6'-0"	3'-0"	8'-0"	211'-5 1/2"	3'-0"	3'-0"	8'-0"	4'-0"	10'-0"	5'-0"	170'-5 1/2"	6'-0"	20'-0"	5'-0"	1 x 8	1/2 x 8	5/8 x 4	G49	19'-8 1/2"	1 1/2 x 20	22'-0"	2 1/2 x 20	27'-0"	2 1/2 x 28	74'-0"	3 x 28	27'-0"	2 1/2 x 28	22'-0"	2 1/2 x 20	19'-8 1/2"	1 1/2 x 20	52'-8"	158'-9 9/16"	B-325	R-325	G49
NTH'D G50	168'-6"	6'-5 3/8"	4'-5 1/8"	10'-0"	6'-0"	3'-0"	8'-0"	168'-5 1/2"	3'-0"	3'-0"	8'-0"	4'-0"	-	-	157'-5 1/2"	6'-0"	-	-	3/4 x 8	1/2 x 8	5/8 x 4	G50	26'-2 3/8"	1 x 20	-	-	24'-0"	1 3/4 x 20	68'-0"	2 1/2 x 20	24'-0"	1 3/4 x 20	-	-	26'-3 3/8"	1 x 20	37'-8"	130'-9 9/16"	B-250	R-250	G50
G51	168'-6"	6'-10 3/8"	4'-10 3/8"	10'-0"	6'-0"	3'-0"	8'-0"	168'-5 1/2"	3'-0"	3'-0"	8'-0"	4'-0"	-	-	157'-5 1/2"	6'-0"	-	-	3/4 x 8	1/2 x 8	5/8 x 4	G51	26'-2 3/8"	1 x 20	-	-	24'-0"	1 3/4 x 20	68'-0"	2 1/2 x 20	24'-0"	1 3/4 x 20	-	-	26'-3 3/8"	1 x 20	37'-8"	130'-9 9/16"	B-250	R-250	G51
G52	168'-6"	6'-11 1/2"	4'-11 3/8"	10'-0"	6'-0"	3'-0"	8'-0"	168'-5 1/2"	3'-0"	3'-0"	8'-0"	4'-0"	-	-	157'-5 1/2"	6'-0"	-	-	3/4 x 8	1/2 x 8	5/8 x 4	G52	26'-2 3/8"	1 x 20	-	-	24'-0"	1 3/4 x 20	68'-0"	2 1/2 x 20	24'-0"	1 3/4 x 20	-	-	26'-3 3/8"	1 x 20	37'-8"	130'-9 9/16"	B-250	R-250	G52
G53	168'-6"	6'-9 1/8"	4'-9 3/8"	10'-0"	6'-0"	3'-0"	8'-0"	168'-5 1/2"	3'-0"	3'-0"	8'-0"	4'-0"	-	-	157'-5 1/2"	6'-0"	-	-	3/4 x 8	1/2 x 8	5/8 x 4	G53	26'-2 3/8"	1 x 20	-	-	24'-0"	1 3/4 x 20	68'-0"	2 1/2 x 20	24'-0"	1 3/4 x 20	-	-	26'-3 3/8"	1 x 20	37'-8"	130'-9 9/16"	B-250	R-250	G53
G54	168'-6"	6'-7 1/8"	4'-7 3/8"	10'-0"	6'-0"	3'-0"	8'-0"	168'-5 1/2"	3'-0"	3'-0"	8'-0"	4'-0"	-	-	157'-5 1/2"	6'-0"	-	-	3/4 x 8	1/2 x 8	5/8 x 4	G54	26'-2 3/8"	1 x 20	-	-	24'-0"	1 3/4 x 20	68'-0"	2 1/2 x 20	24'-0"	1 3/4 x 20	-	-	26'-3 3/8"	1 x 20	37'-8"	130'-9 9/16"	B-250	R-250	G54

NOTE: WHERE FLG. WIDTH EXCEEDS 24" USE 5/8" x 10"

GIRDER	G40	G41	G42	G43	G44	G45	G46	G47	G48	G49	G50	G51	G52	G53	G54
DEFLECTION DUE TO WEIGHT OF STEEL	1 5/8	1 5/8	1 5/8	1 1/2	1 1/2	1 13/16	1 1/8	1 1/8	1 1/8	1 1/8	1 3/8	7/8	7/8	7/8	1 1/8
DEFLECTION DUE TO REMAINING DEAD LOAD	2 1/4	2 1/4	2 1/4	1 1/4	1 1/4	3/4	2 7/8	2 1/4	2 1/4	2 7/8	2 1/8	1 1/2	1 1/2	1 1/2	1 7/8
CONVEXITY REQUIRED FOR VERTICAL CURVE	0	0	0	0	0	-5'	-5'	-5'	-5'	-5'	-3 3/4	-3 3/4	-3 3/4	-3 3/4	-3 3/4
SUM OF DEFLECTION & CONVEXITY	3 9/16	3 3/8	3 3/8	2 3/4	2 3/8	-3 3/8	-1 1/8	-1 1/8	-1 1/8	-1 1/8	-1 1/2	-1	-1	-1	-3 3/4
CAMBER REQ'D	3 1/4	3 1/4	3 1/4	3 1/4	**	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1

** CAMBER G44 TO MATCH G43

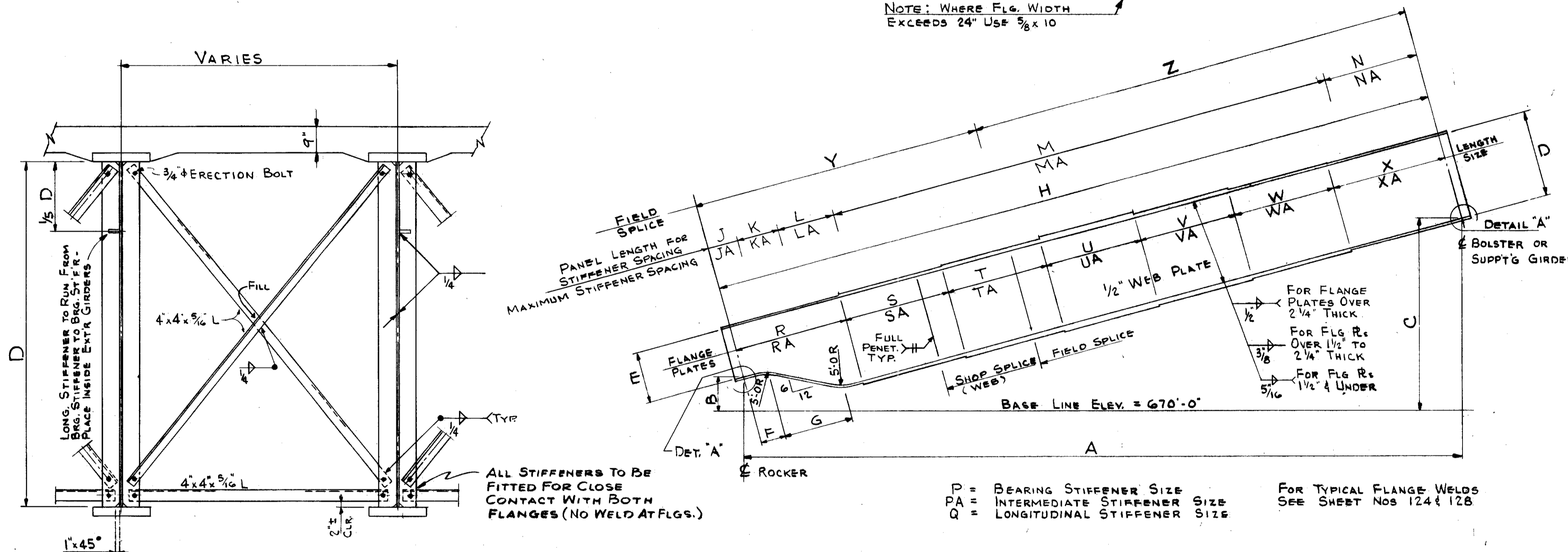
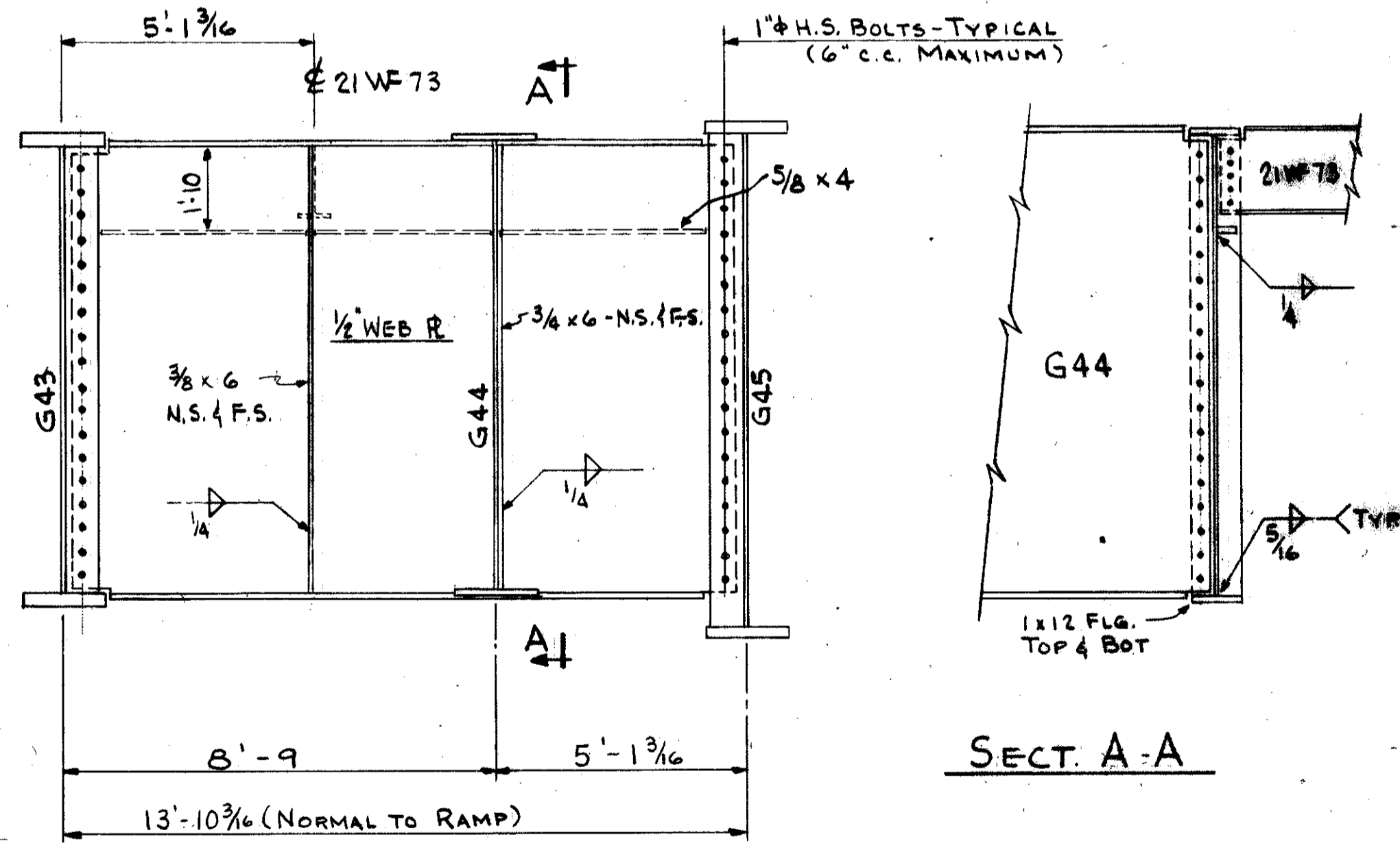


DIAGRAM FOR GIRDER DETAILS

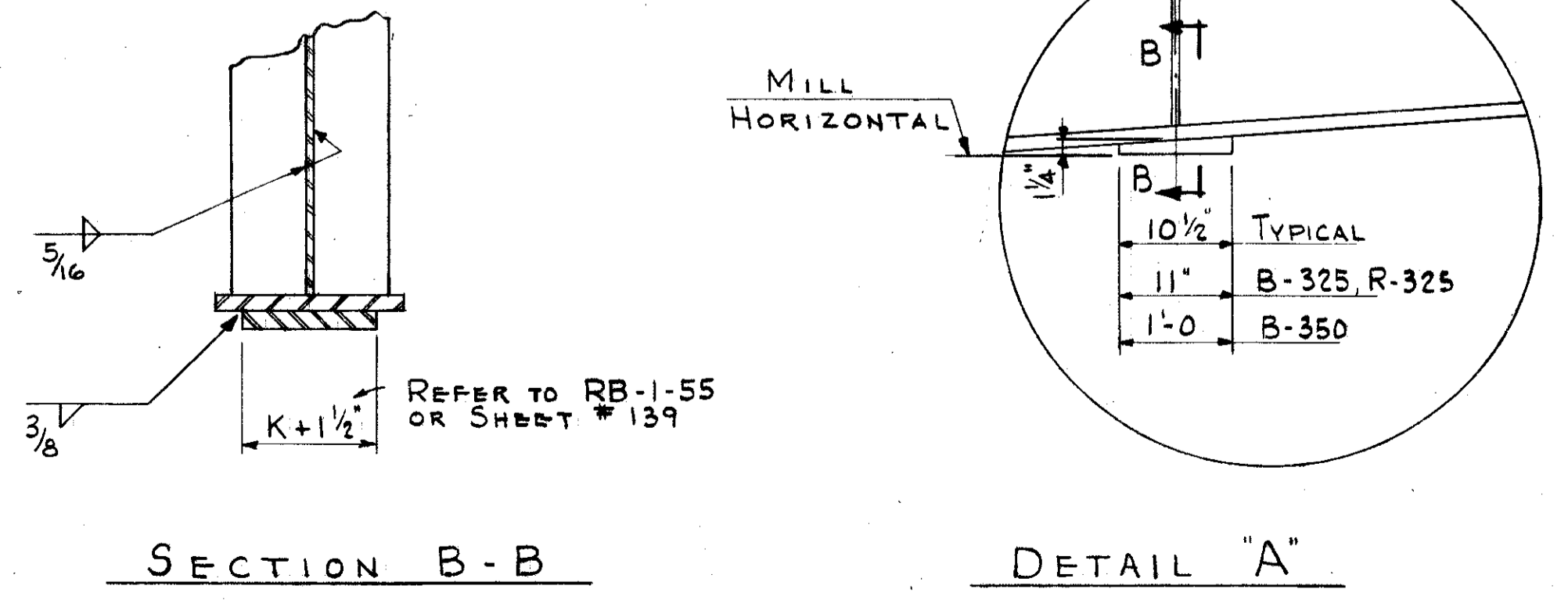
P = BEARING STIFFENER SIZE
PA = INTERMEDIATE STIFFENER SIZE
Q = LONGITUDINAL STIFFENER SIZE

FOR TYPICAL FLANGE WELDS SEE SHEET NOS 124 & 128

TYPICAL CROSS SECTION (SHOWING INTERIOR GIRDERS)

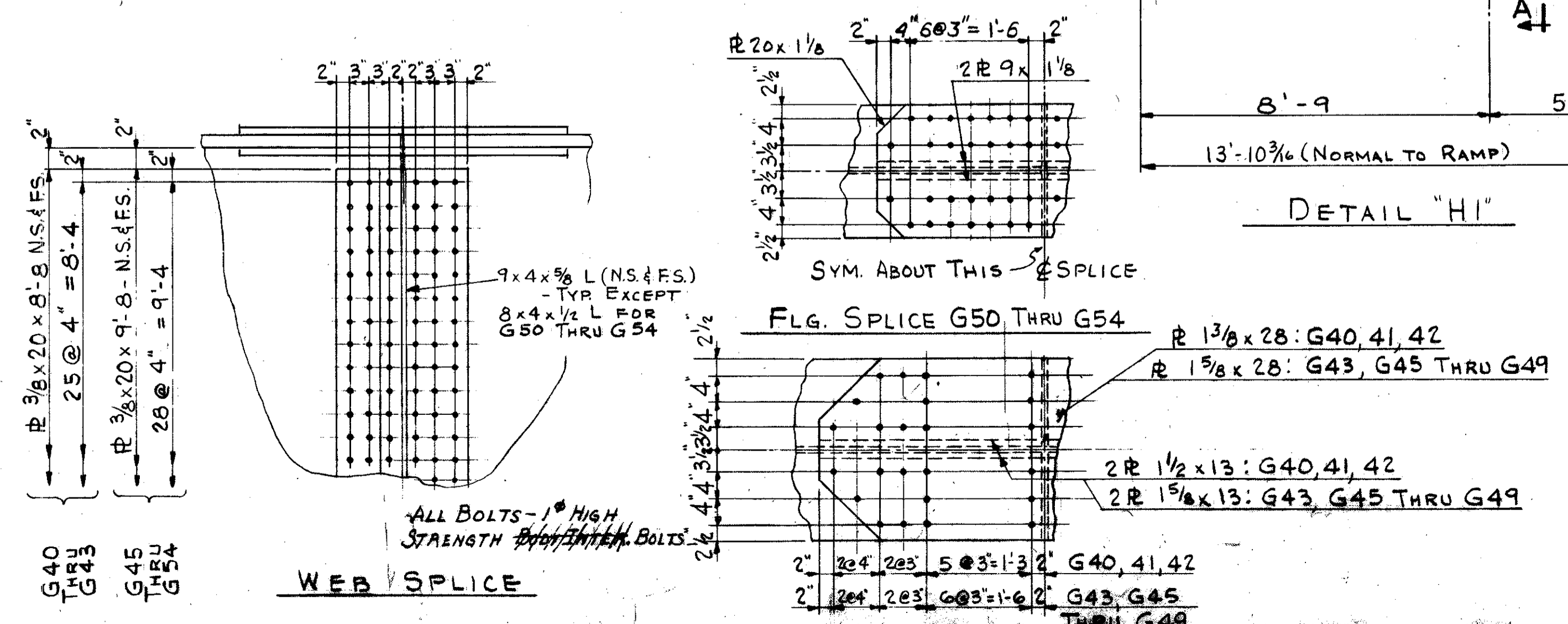


SECTION A-A



SECTION B-B

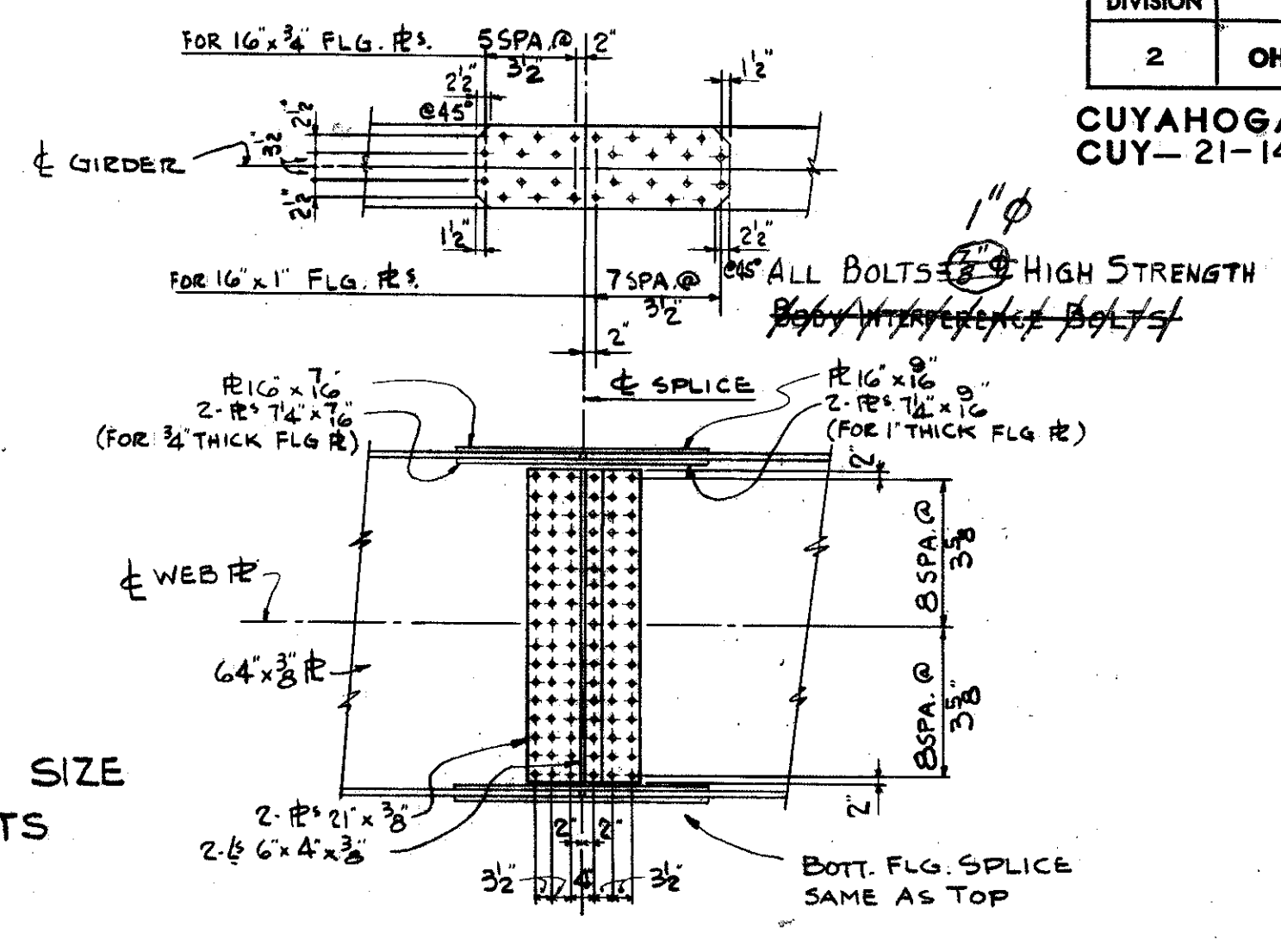
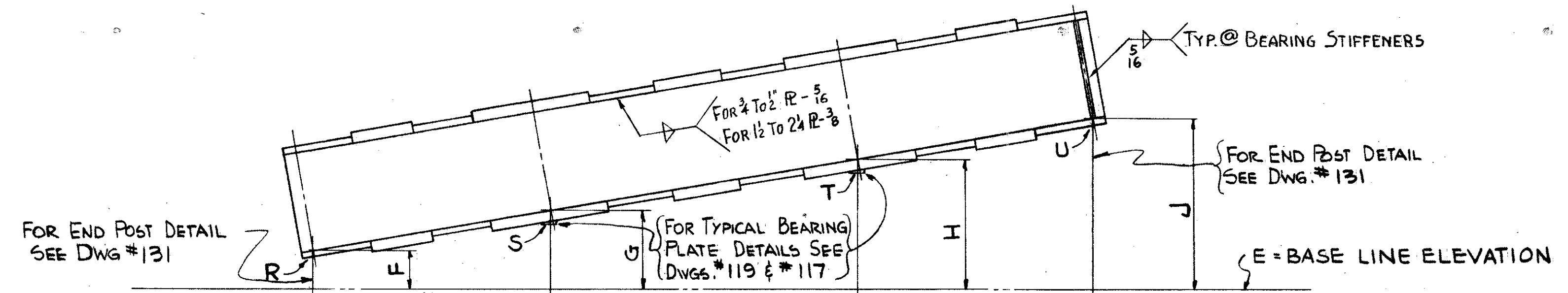
DETAIL A



WEB SPLICE

FOR GENERAL NOTES SEE SHEET NO. 118

CUYAHOGA COUNTY
CUY-21-14.55



FLANGE PLATES	AA	AB	AC	AD	AE	AF	AG	AH	AJ	AK	AM	PLATE LENGTH																						
	BA	BB	BC	BD	BE	BF	BG	BH	BJ	BK	BM	PLATE SIZE																						
WEB STIFFENERS	CA	CB	CC	CD	CE	CF	CG	CH	CJ	CK	CM	CN	CO	CP	CQ	CR	CS	CT	CU	CV	CW	CX	CY	PANEL LENGTH										
	DA	DB	DC	DD	DE	DF	DG	DH	DJ	DK	DM	DN	DO	DP	DQ	DR	DS	DT	DV	DW	DX	DY	No OF EQUAL SPACES											
FIELD SPLICES	M											N											P											
BEARING	B											C											D											
	SOUTH SPAN											BEARING											BEARING											
	A																																	

- Q = WEB PLATE SIZE
- EA = END BEARING STIFFENER SIZE
- EB = INTERIOR BEARING STIFFENER SIZE
- EC = STIFFENER SIZE @ BRACING POINTS
- ED = INTERMEDIATE STIFFENER SIZE
- R, S, T, U = ROCKER OR BOLSTER SIZE

NOTE: FOR TYPICAL FLANGE WELDS SEE DETAILS ON SHEETS 124 & 128

TYPICAL FIELD SPLICE FOR GIRDERS G21 THRU G26 & G29 THRU G38

DIMENSION	GIRDER No																																					
	G21	G22	G23	G24	G25	G26	G27	G28	G29	G30	G31	G32	G33	G34	G35	G36	G37	G38	G39	G21	G22	G23	G24	G25	G26	G27	G28	G29	G30	G31	G32	G33	G34	G35	G36	G37	G38	G39
A	323'-2 1/2	328'-8	328'-8	328'-8	328'-8	328'-8	53'-9 1/2	110'-3 1/2	214'-2 1/2	281'-0	281'-0	281'-0	281'-0	281'-0	194'-2 1/2	193'-4 1/2	192'-6 1/2	190'-9 1/2	150'-11 1/2	323'-2 1/2	328'-8	328'-8	328'-8	328'-8	328'-8	53'-9 1/2	110'-3 1/2	214'-2 1/2	281'-0	281'-0	281'-0	281'-0	281'-0	194'-2 1/2	193'-4 1/2	192'-6 1/2	190'-9 1/2	150'-11 1/2

DIMENSION	GIRDER No																																					
	G21	G22	G23	G24	G25	G26	G27	G28	G29	G30	G31	G32	G33	G34	G35	G36	G37	G38	G39	G21	G22	G23	G24	G25	G26	G27	G28	G29	G30	G31	G32	G33	G34	G35	G36	G37	G38	G39
CA	7'-3 3/4	12'-9	12'-9	12'-9	12'-9	12'-9	8'-9 1/2	10'-0 1/2	11'-3 3/4	11'-6	11'-6	11'-6	11'-6	11'-6						7'-3 3/4	12'-9	12'-9	12'-9	12'-9	12'-9	8'-9 1/2	10'-0 1/2	11'-3 3/4	11'-6	11'-6	11'-6	11'-6	11'-6					

NOTE: ALL HORIZONTAL DIMENSIONS PARALLEL TO & WILLOW FREEWAY.

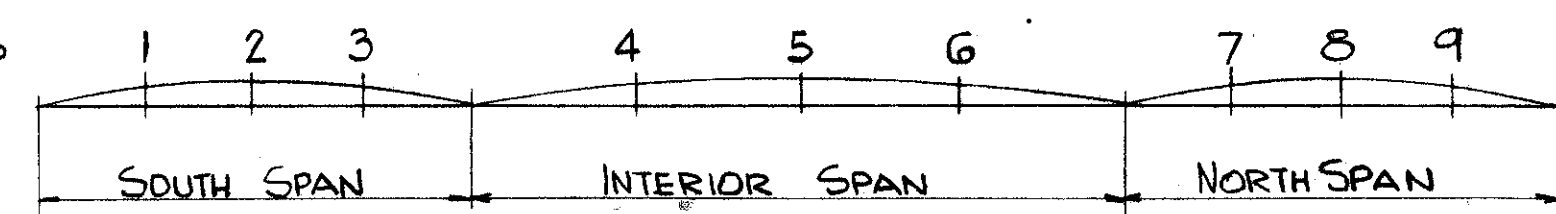
TRYGVE HOFF & ASSOCIATES
ENGINEERS
1922 EAST 107TH STREET CLEVELAND, OHIO

SUPERSTRUCTURE DETAILS
BRIDGE NO. CUY-21-1455
WILLOW FREEWAY OVER KINGSBURY RUN
CUYAHOGA COUNTY U.S.R. 21

SCALE	DATE				
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE
	D.F.		DJT	C.B.	6/21/62

SEVEN STAR
MAY 4 1955

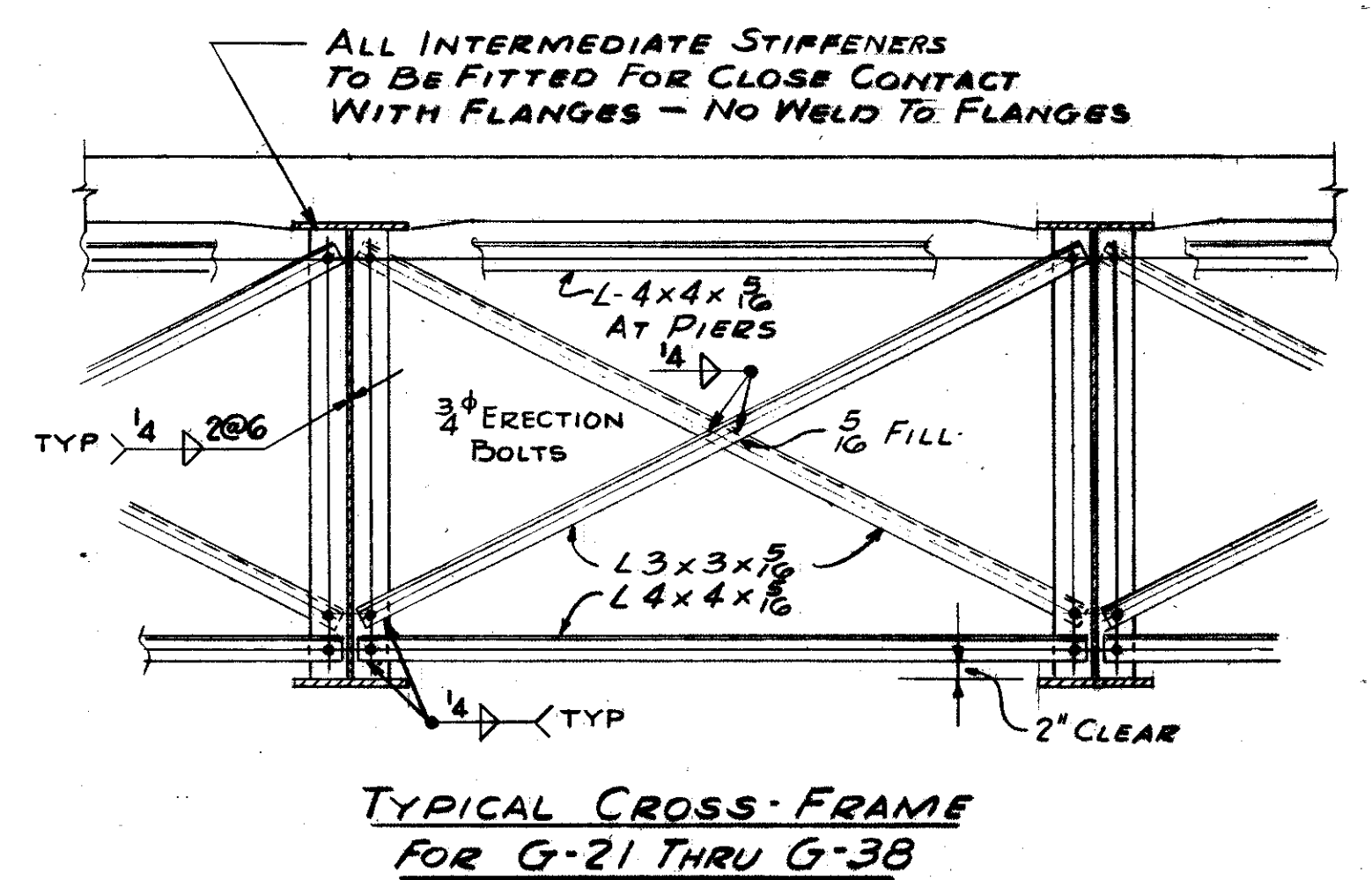
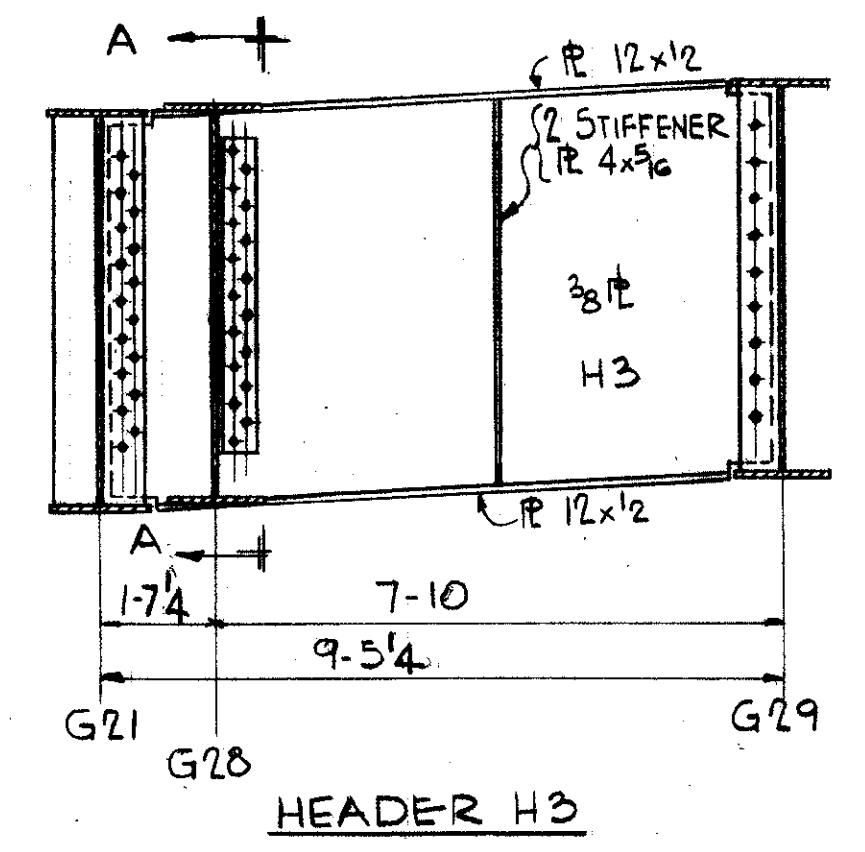
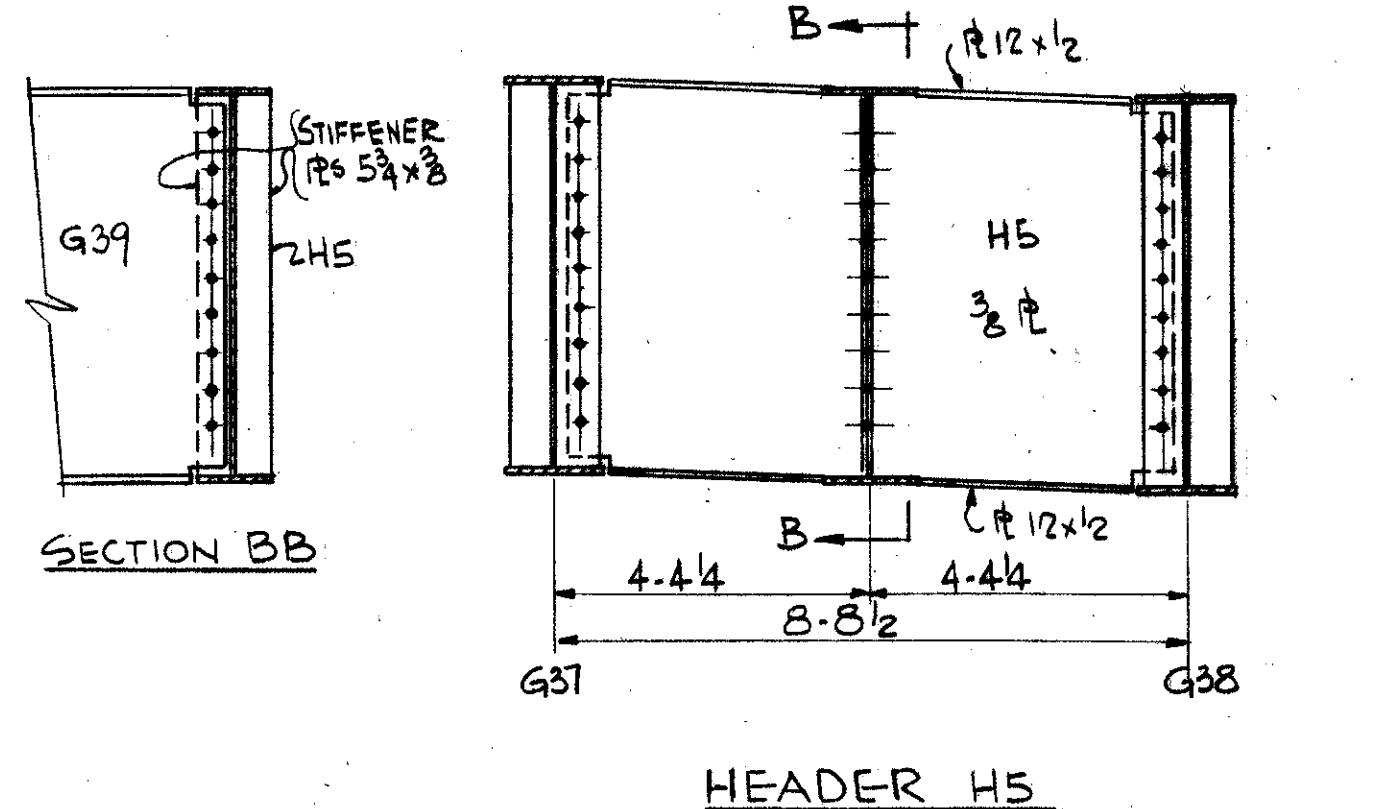
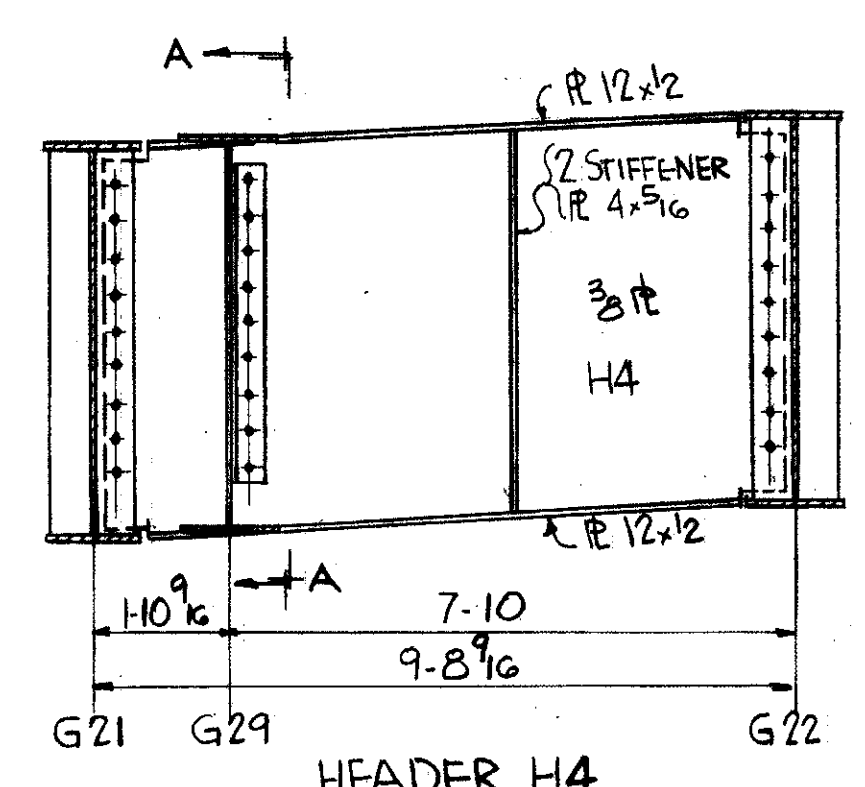
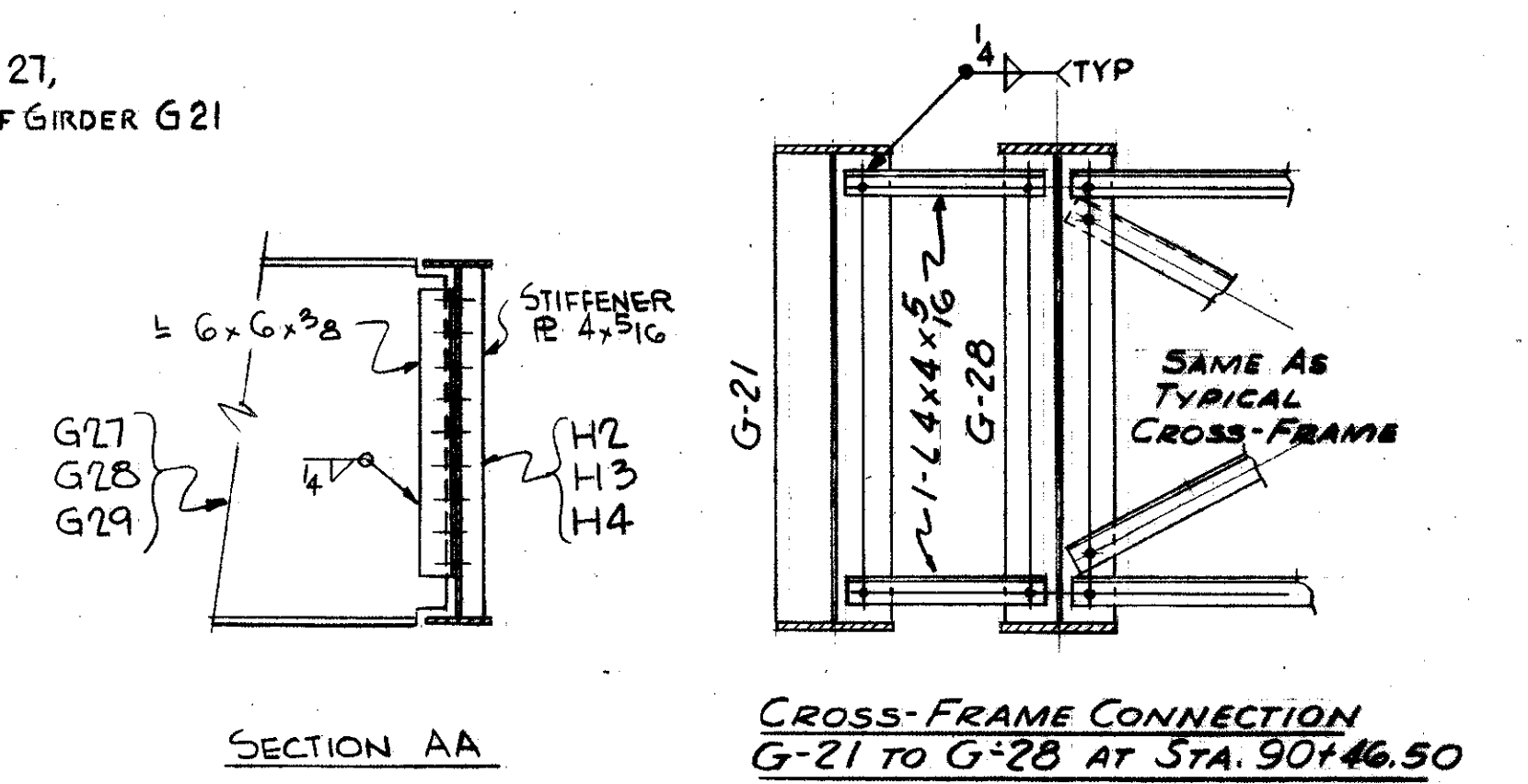
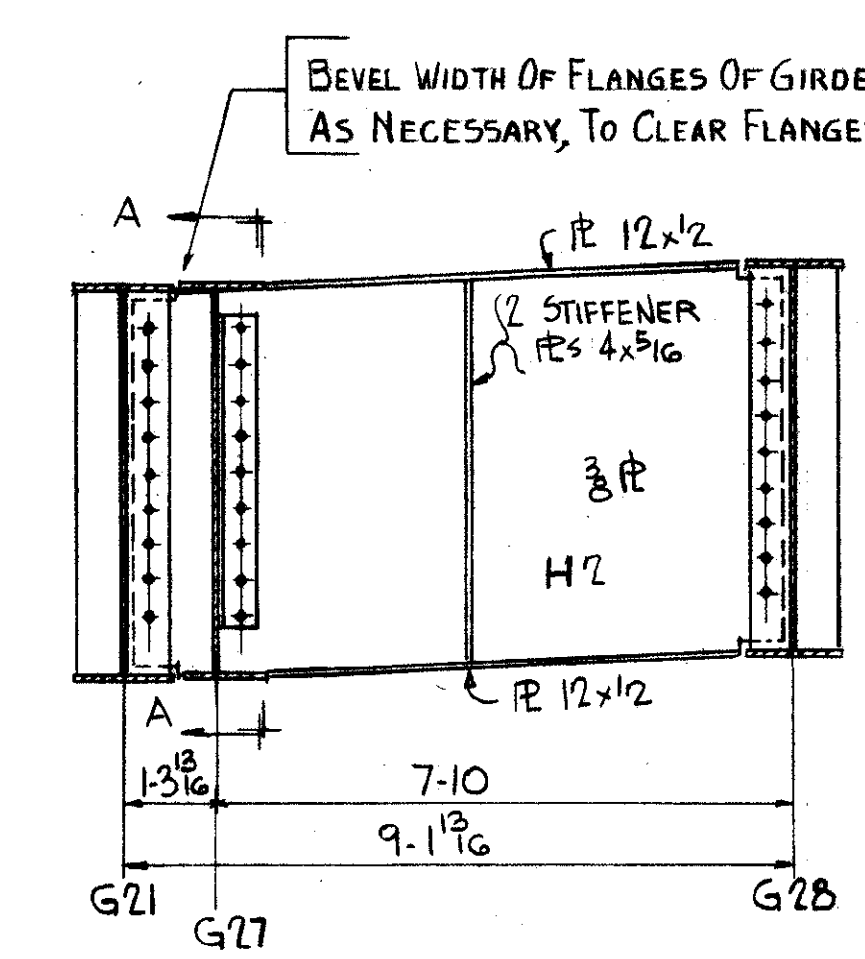
DEFLECTION POINTS @ 4 SPANS



DEFLECTION & CAMBER

CUYAHOGA COUNTY
CUY-21-14.55

GIRDER	# POINT	GIRDER 1									GIRDER	# POINT	GIRDER 2											
		1	2	3	4	5	6	7	8	9			1	2	3	4	5	6	7	8	9			
G21	ST	1/4	5/16	3/16	0	3/16	1/8	1/8	1/8	3/16	G30	ST	1/16	1/16	0	1/8	1/8	1/8	0	1/16	1/16			
	DL	15/16	14	34	-1/16	9/16	7/16	12	1	13/16		DL	3/8	7/16	3/16	1/2	13/16	1/2	3/16	7/16	3/8			
	CO	-9/16	-13/16	-5/8	-1/16	-1/16	-5/8	3/16	3/8	9/16		CO	-9/16	-13/16	-3/4	0	0	0	0	0	0	0		
	SU	5/8	3/4	5/16	-1/8	-7/16	-1/16	13/16	1/2	19/16		SU	-1/8	-3/16	-9/16	5/8	15/16	5/8	3/16	1/2	7/16			
	CA		3/4		-1/8			7/8	1/2	15/8		CA					1							
G27	ST	1/16									G31	ST	1/16	1/16	0	1/8	1/8	1/8	0	1/16	1/16			
	DL	1/8										DL	1/4	5/16	1/8	3/8	5/8	3/8	1/8	5/16	1/4			
	CO	0										CO	-3/8	-13/16	-3/4	0	0	0	0	0	0	0		
	SU	3/16										SU	-1/16	-7/16	-5/8	1/2	3/4	1/2	1/8	3/8	5/16			
	CA											CA					3/4							
G28	ST	3/16	3/16	1/8							G32	ST												
	DL	5/8	15/16	7/16								DL			SAME AS G31									
	CO	3/8	-1/8	0								CO			SAME AS G31									
	SU	13/16	1	9/16								SU			SAME AS G31									
	CA	1/4	1									CA			SAME AS G31									
G29	ST	1/8	1/8	1/16	1/8	5/16	1/4				G33	ST												
	DL	7/16	9/16	1/16	1/2	1/8	7/8					DL			SAME AS G31									
	CO	0	-1/8	1/8	-1/8	-1/8	-15/16					CO			SAME AS G31									
	SU	9/16	9/16	1/4	-1/2	1/16	3/16					SU			SAME AS G31									
	CA											CA			SAME AS G31									
G22	ST	1/8	1/8	1/8	1/8	3/16	1/8	1/8	1/8	1/8	G34	ST	1/16	1/16	0	1/8	1/8	1/8	0	1/16	1/16			
	DL	7/16	1/2	1/4	7/16	3/4	7/16	1/4	9/16	1/2		DL	1/4	1/4	1/16	1/2	7/8	1/2	1/8	1/4	1/4			
	CO	1/4	3/8	3/8	0	-1/2	1/4	0	3/8	1/4		CO	-3/8	-13/16	-3/4	0	0	0	0	0	0	0		
	SU	13/16	1	3/4	9/16	7/16	13/16	3/8	1/16	7/8		SU	-1/16	-1/2	-11/16	5/8	1	-5/8	1/8	5/16	5/16			
	CA	7/8	1	3/4			7/8		1/8	7/8		CA												
G23	ST	1/8	1/8	1/8	1/8	3/16	1/8	1/8	1/8	1/8	G35	ST				1/4	1/4	1/8	0	0	0			
	DL	1/2	9/16	1/4	1/2	13/16	1/2	1/4	9/16	1/2		DL				7/8	11/8	5/8	0	1/8	1/8			
	CO	-5/8	-5/8	-3/8	0	0	0	0	0	0		CO				0	0	0	0	-1/4	-1/8			
	SU	0	1/16	0	5/8	1	5/8	3/8	11/16	5/8		SU				11/8	13/8	3/4	0	-1/8	0			
	CA											CA				11/8	13/8	3/4						
G24	ST										G36	ST				1/4	1/4	1/8	0	0	0			
	DL											DL				7/8	11/8	5/8	1/16	1/4	3/16			
	CO											CO				-1/8	-1/2	-1/4	0	-1/4	-1/8			
	SU											SU				1	7/8	1/2	1/16	0	3/16			
	CA											CA				1	7/8							
G25	ST										G37	ST				3/16	1/4	1/8	0	0	0			
	DL											DL				3/4	15/16	1/2	1/16	1/4	1/4			
	CO											CO				-1	-5/8	-1/4	-1/8	-1/2	1/4			
	SU											SU				-1/16	-9/16	3/8	-1/16	-1/4	-1/2			
	CA											CA												
G26	ST	1/8	1/8	1/16	1/8	3/16	1/8	1/16	1/8	1/8	G38	ST				3/16	1/4	1/8	0	0	0			
	DL	1/2	5/8	1/4	1/2	7/8	1/2	1/4	5/8	1/2		DL				7/8	11/8	11/16	0	1/8	1/8			
	CO	-5/8	-11/16	-3/8	0	0	0	0	0	0		CO				-3/4	-7/8	-3/4	0	0	0			
	SU	0	-3/16	-1/16	5/8	11/16	5/8	5/16	3/4	5/8		SU				5/16	1/2	1/16		-1/8				
	CA					1/8			3/4			CA												
*	ST										G38	ST				3/16	1/4	1/8	0	0	0			
	DL											DL				1	1/4	11/16	0	1/8	1/8			
	CO											CO				0	0	0	0	0	0			
	SU											SU				13/16	1/2	13/16	0	1/8	1/8			
	CA											CA				1/4	1/2	7/8						

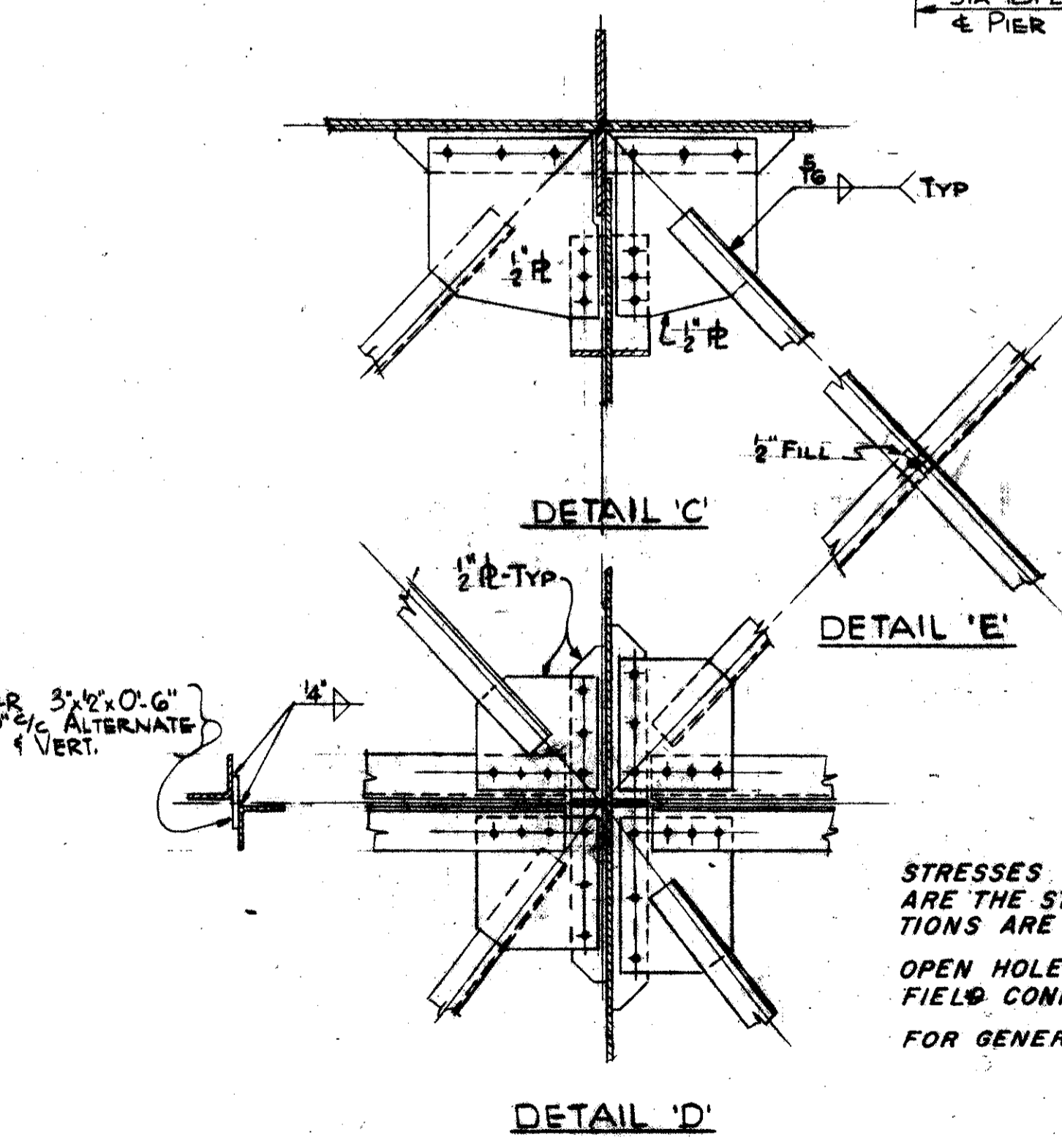
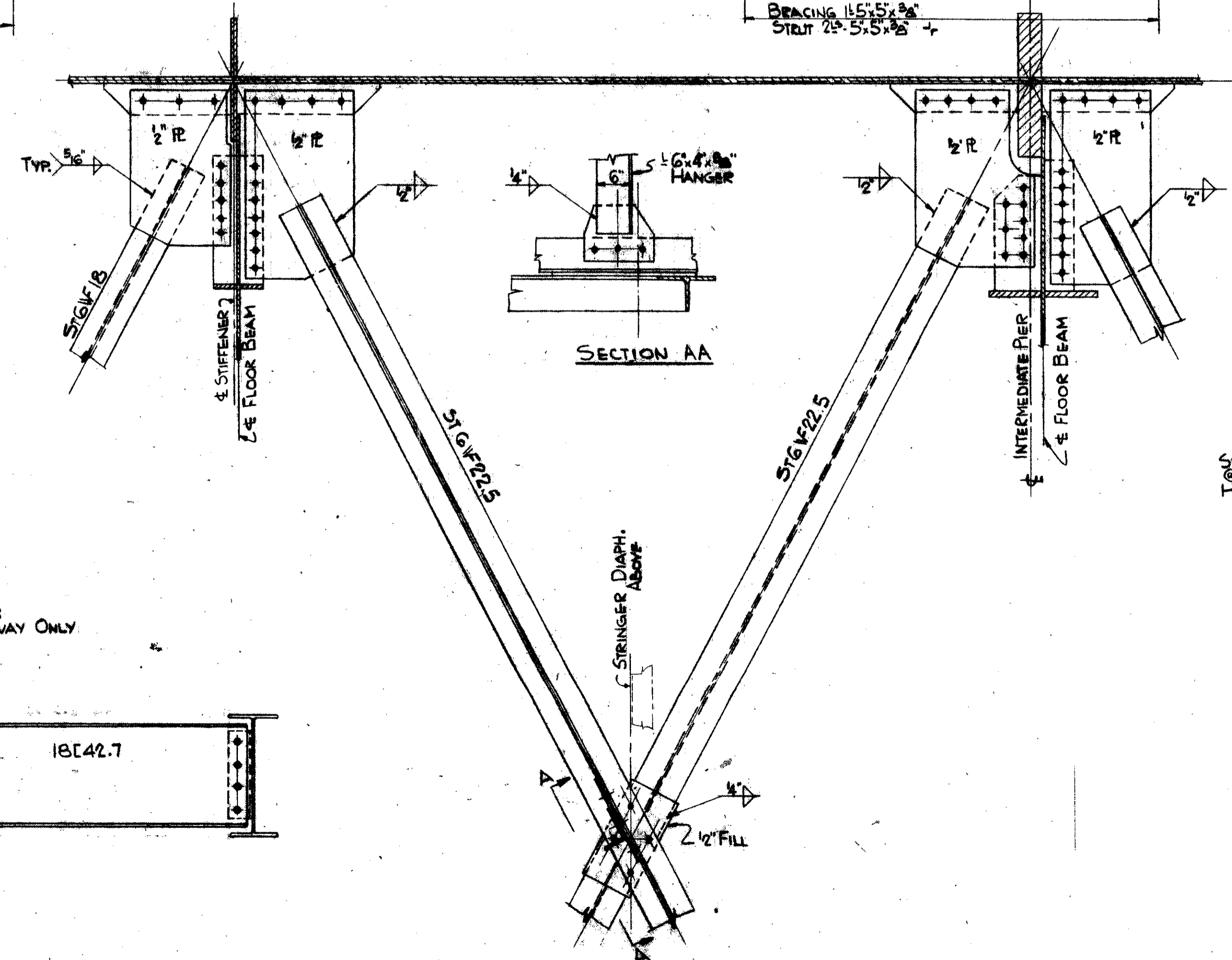
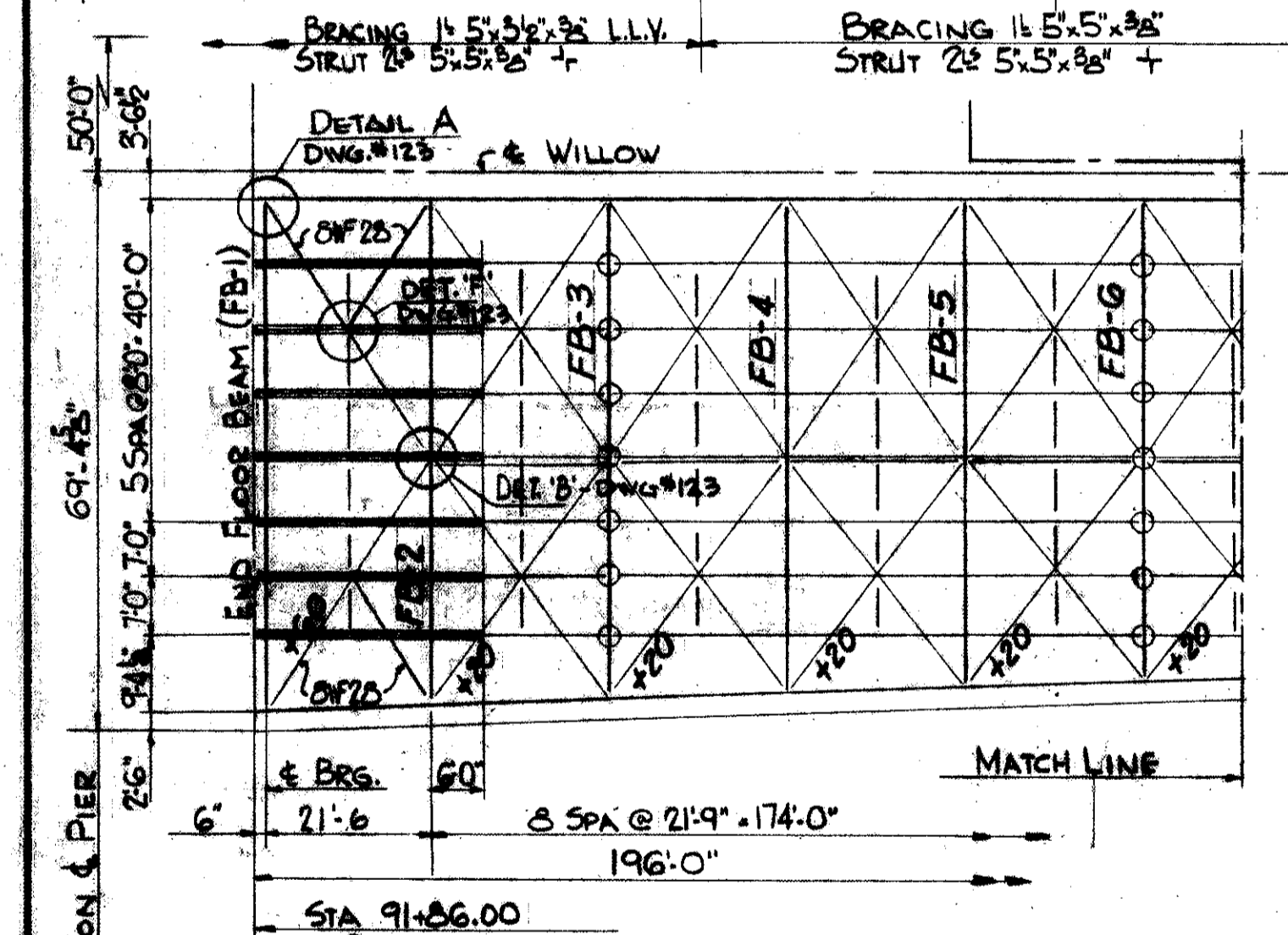
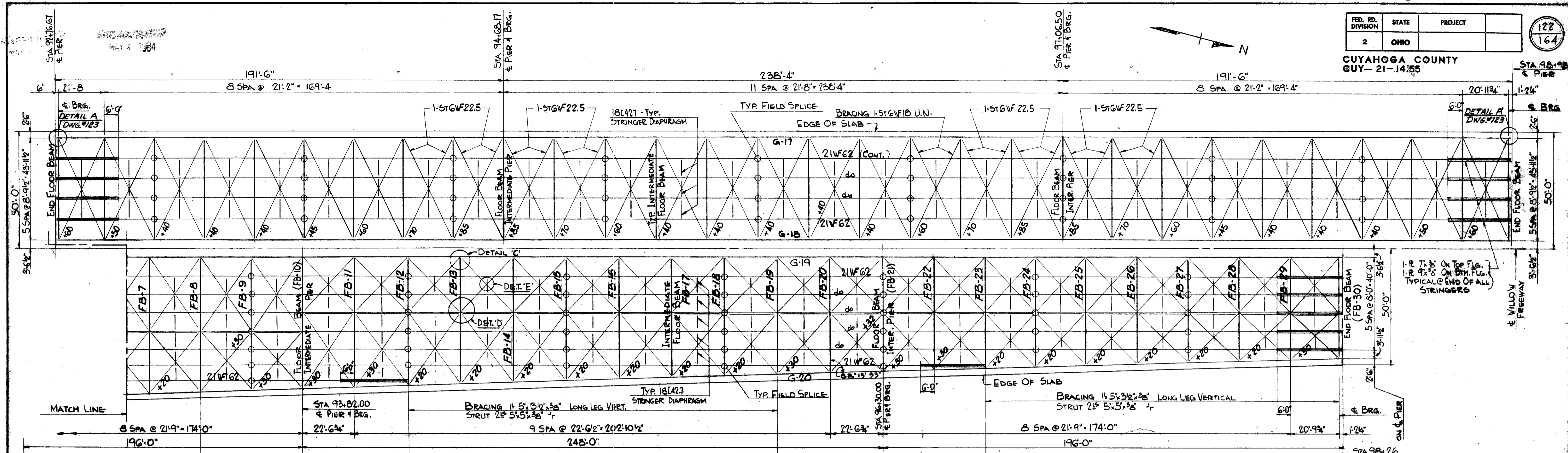
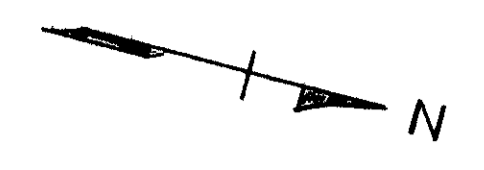


TRYGVE HOFF & ASSOCIATES
ENGINEERS
1922 EAST 107TH STREET CLEVELAND, OHIO

SUPERSTRUCTURE DETAILS
BRIDGE NO. CUY-21-1455
WILLOW FREEWAY OVER KINGSBURY RUN
CUYAHOGA COUNTY U.S.R. 21

SCALE	DATE
DESIGNED	DRAWN
TRACED	CHECKED
REVIEWED	DATE

DJT CLS CB 4/1/60



STRESSES SHOWN FOR THE WIND BRACING ARE THE STRESSES FOR WHICH THE CONNECTIONS ARE TO BE MADE.
OPEN HOLES 1/8" FIELD CONNECTIONS 1" H.S. BOLTS
FOR GENERAL NOTES SEE SHEET NO. 14

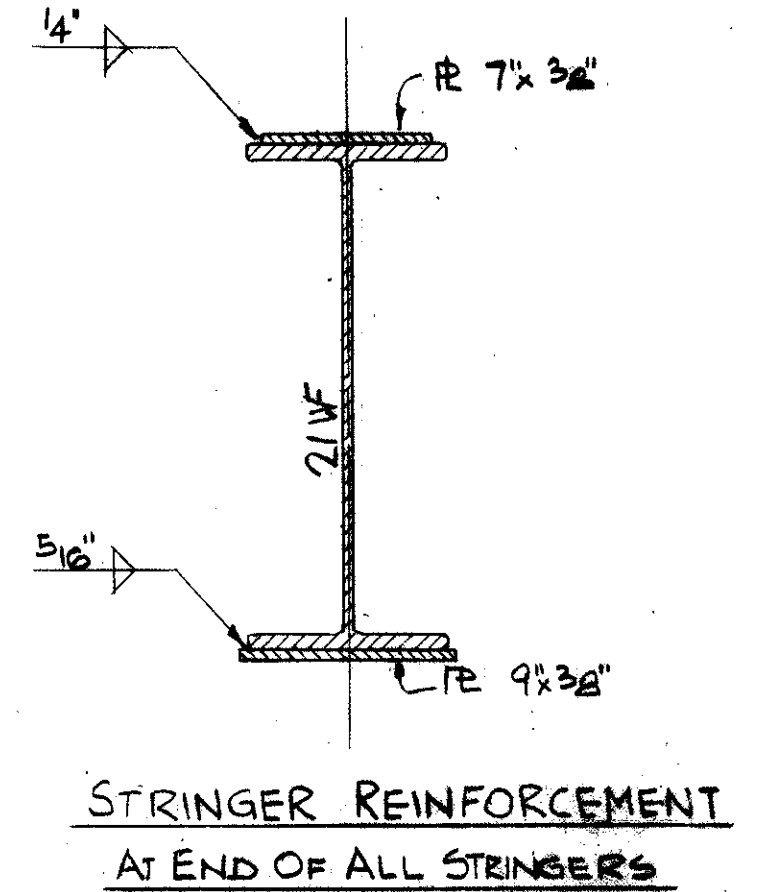
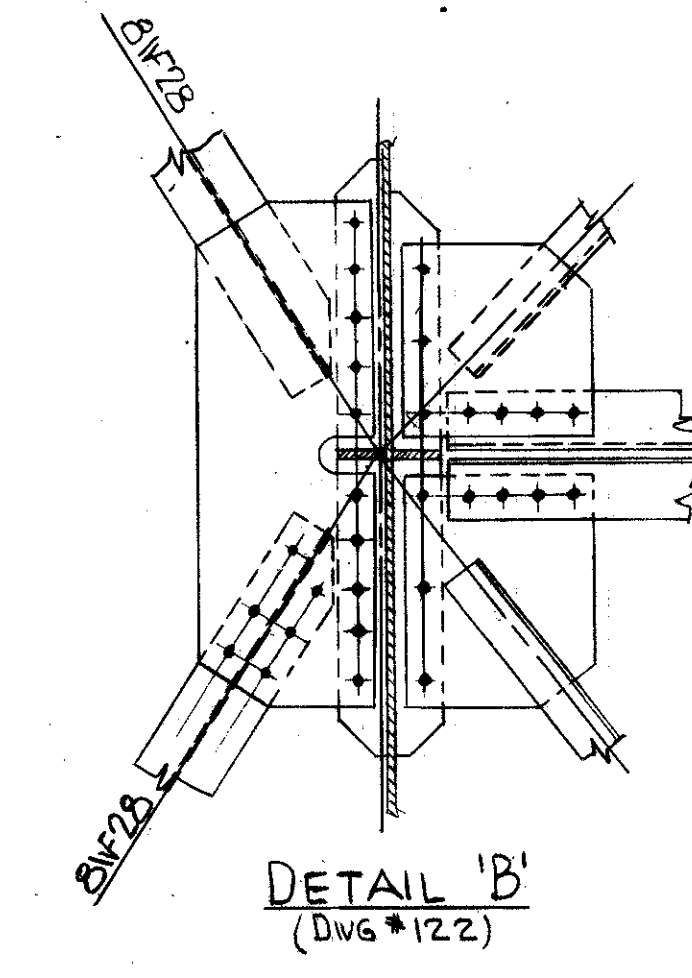
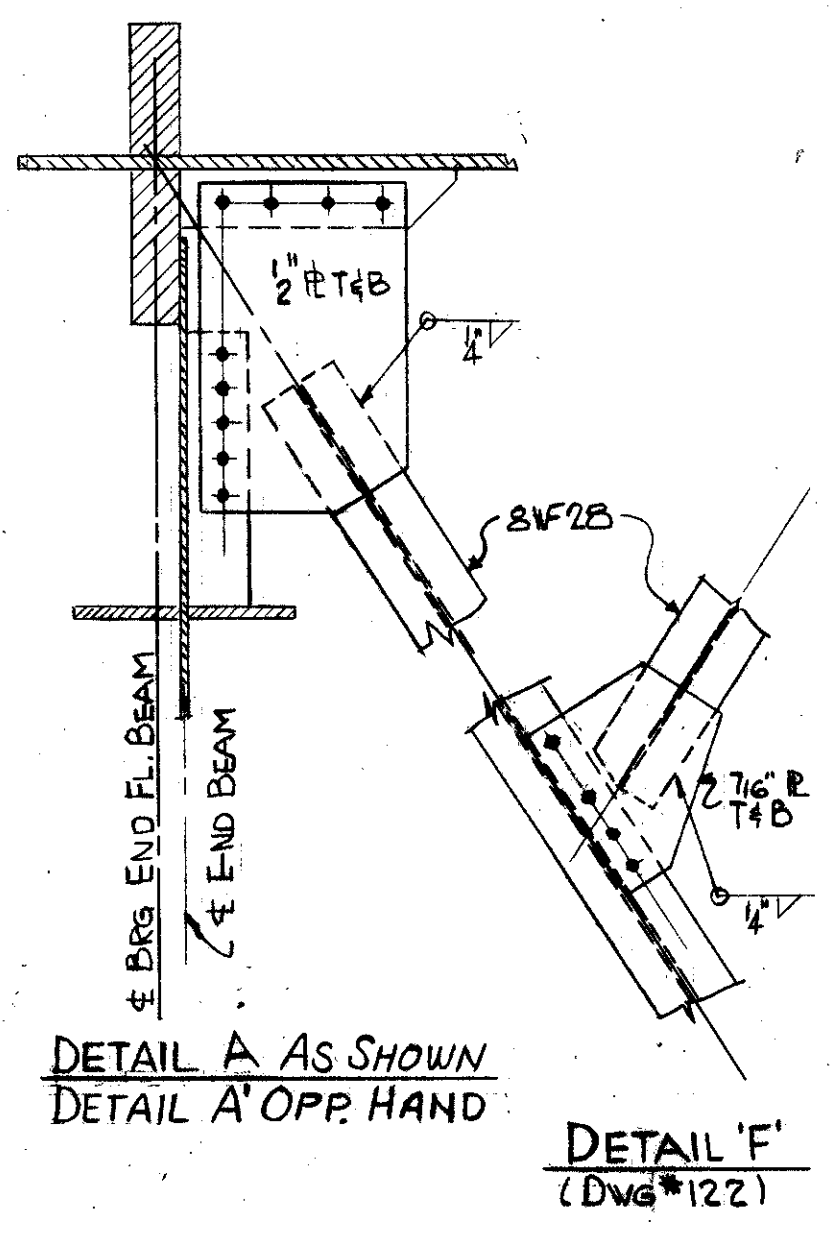
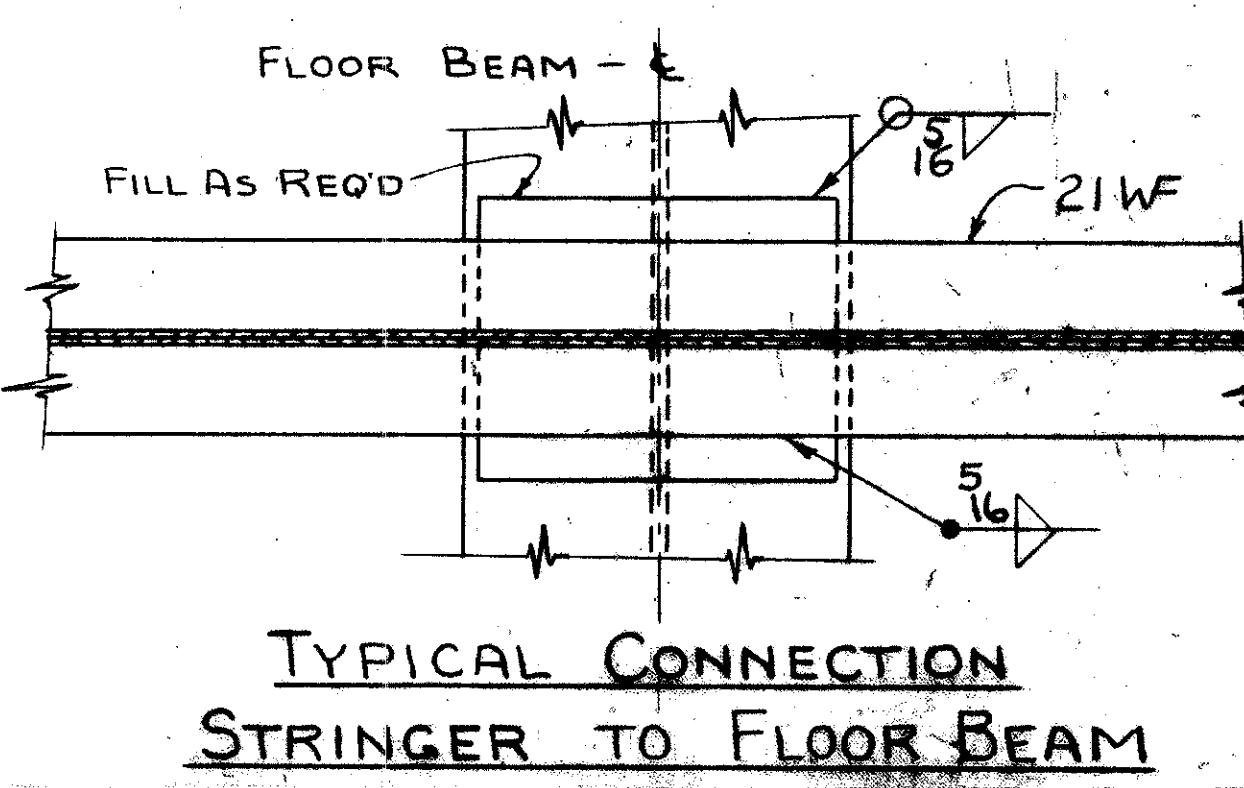
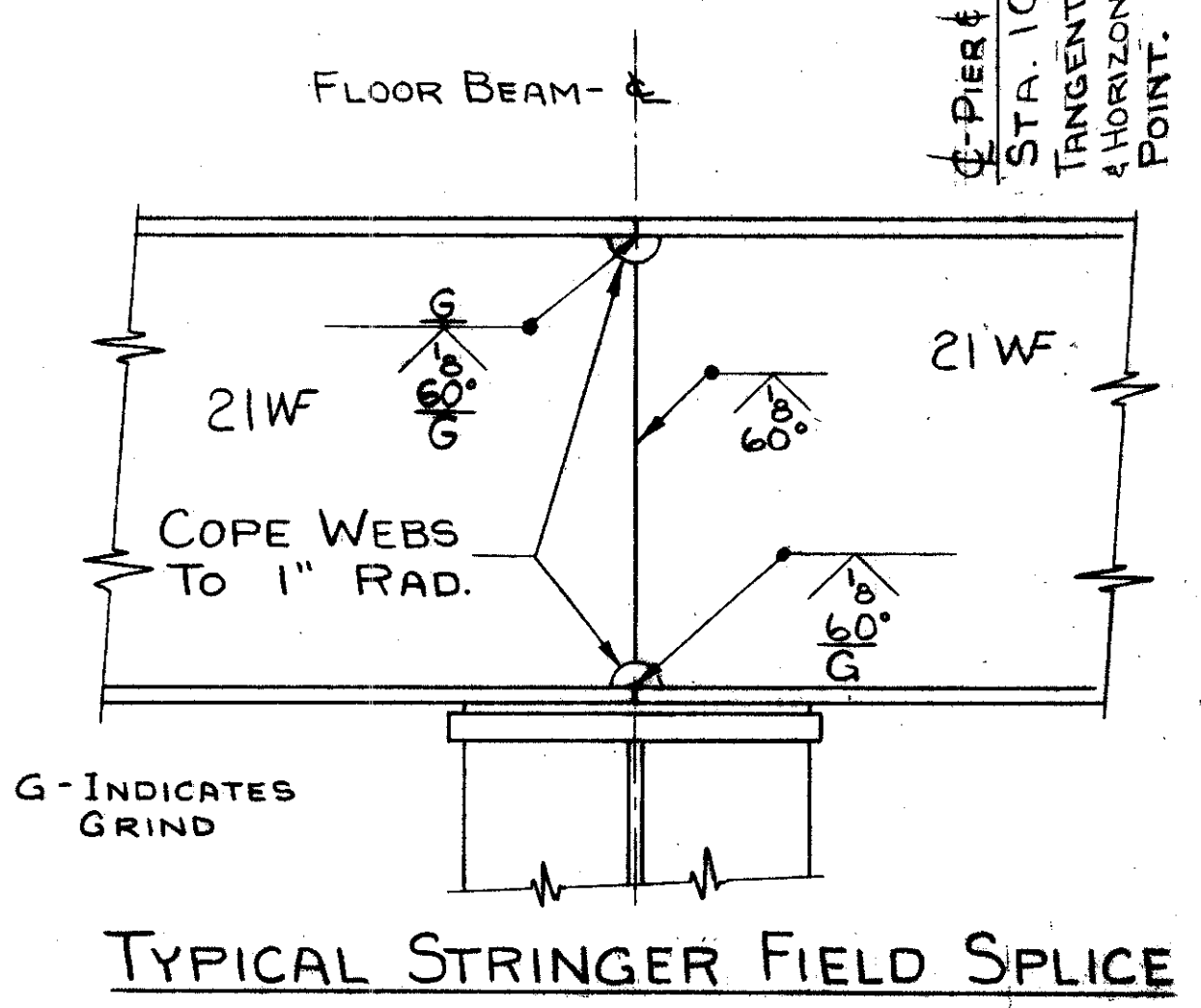
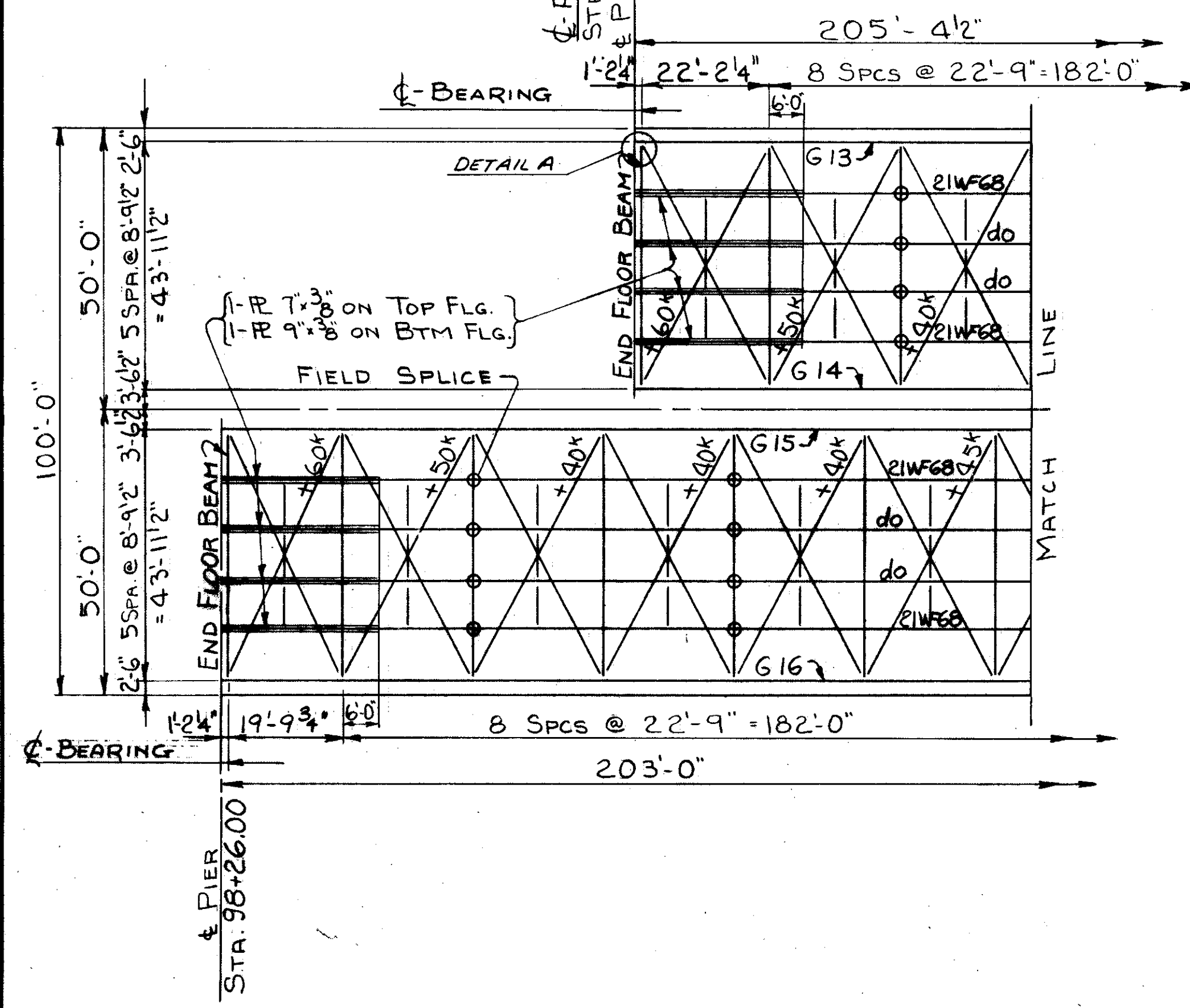
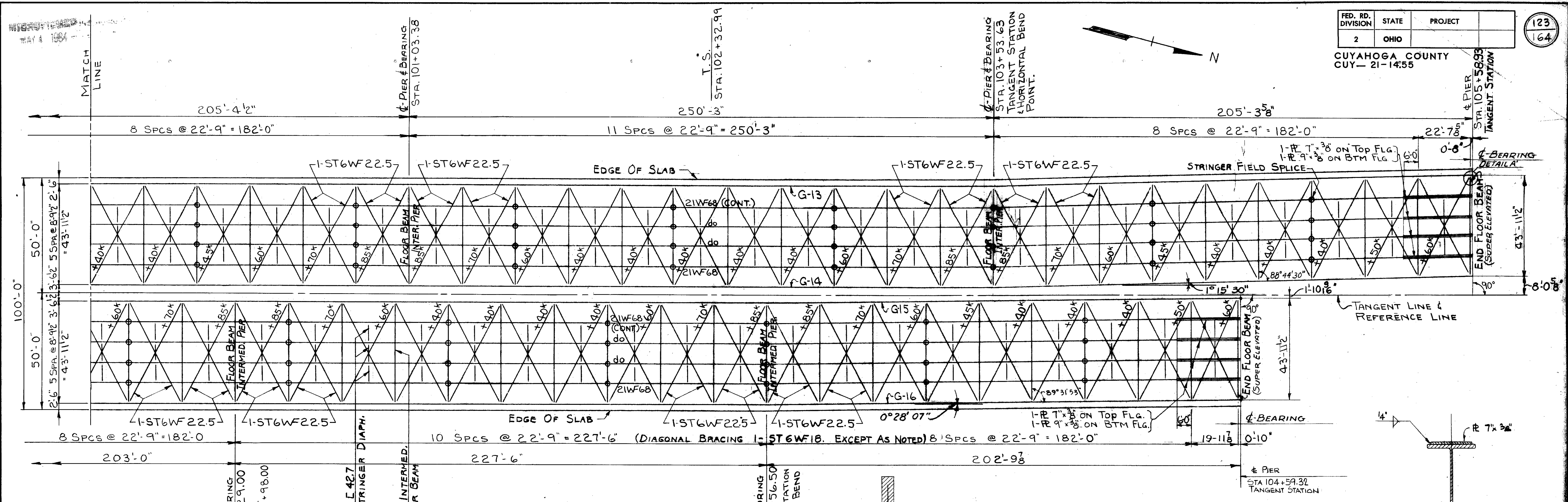
TRYGVE HOFF & ASSOCIATES
ENGINEERS
1922 EAST 107TH STREET CLEVELAND, OHIO

SUPERSTRUCTURE DETAILS
BRIDGE NO. CUY-21-14.55
WILLOW FREEWAY OVER KINGSBURN
CUYAHOGA COUNTY U.S.R. 21

SCALE: _____

TYP. STRINGER DIAPHRAGM

TYPICAL BRACING @ 50'-0" ROADWAY

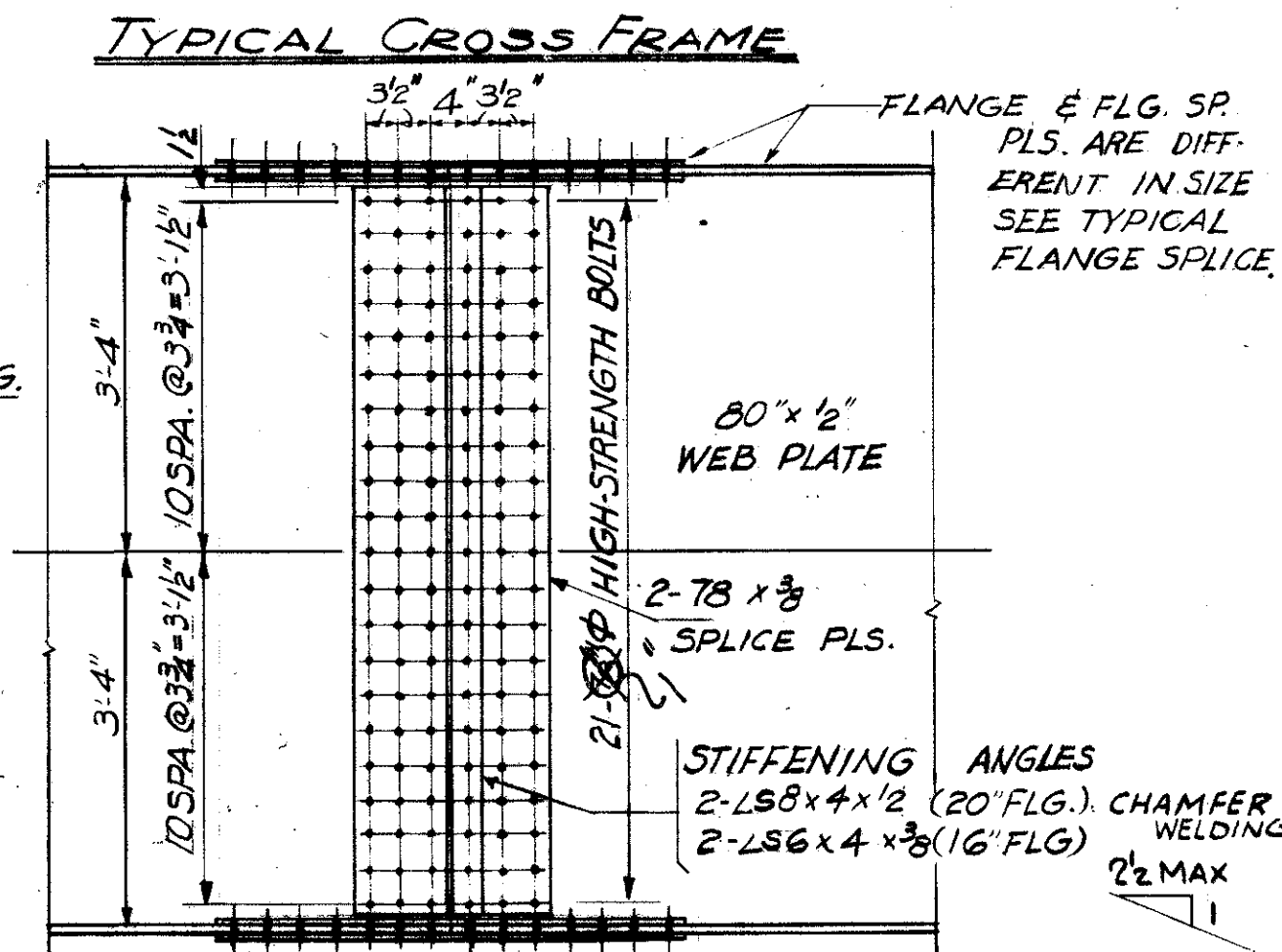
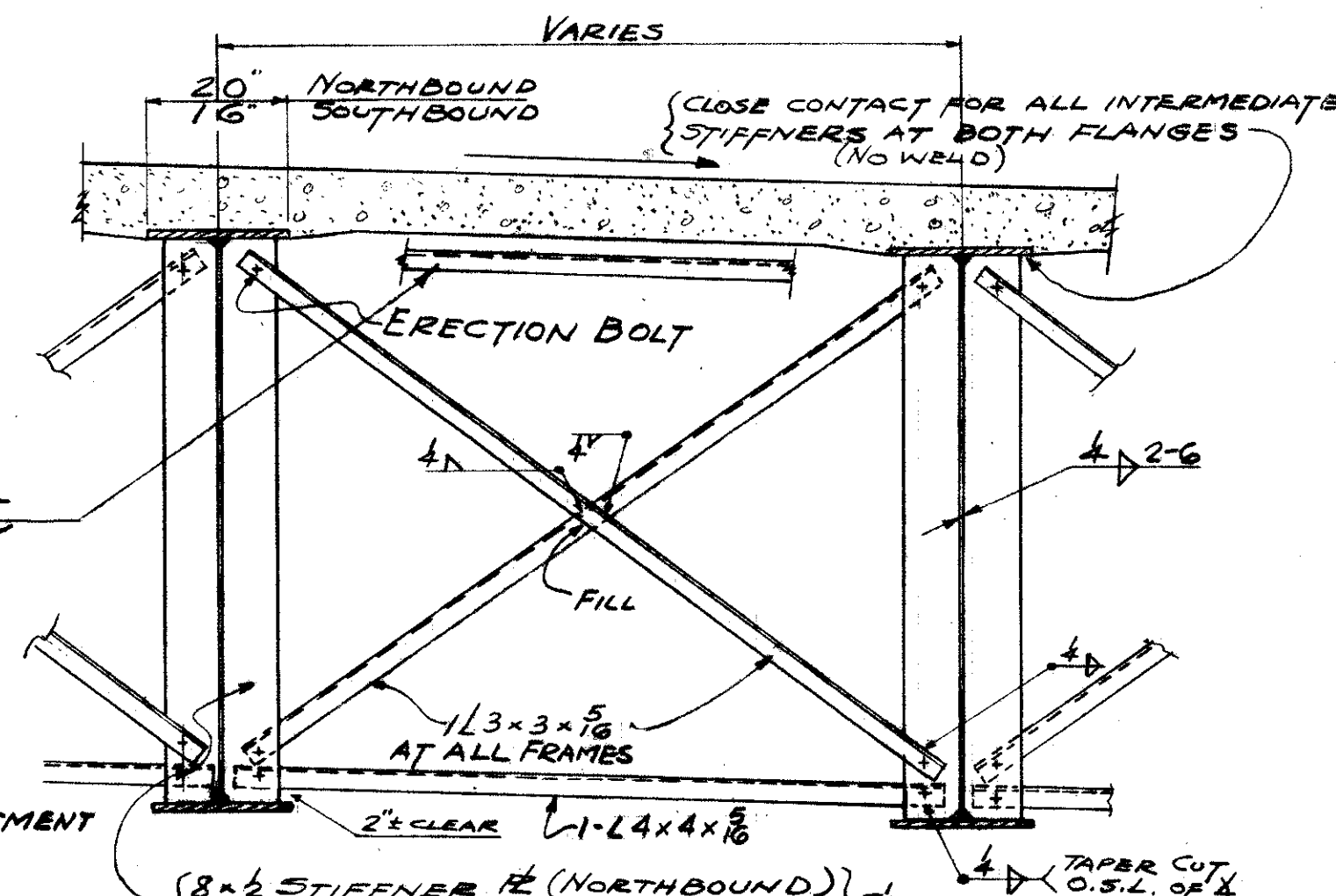
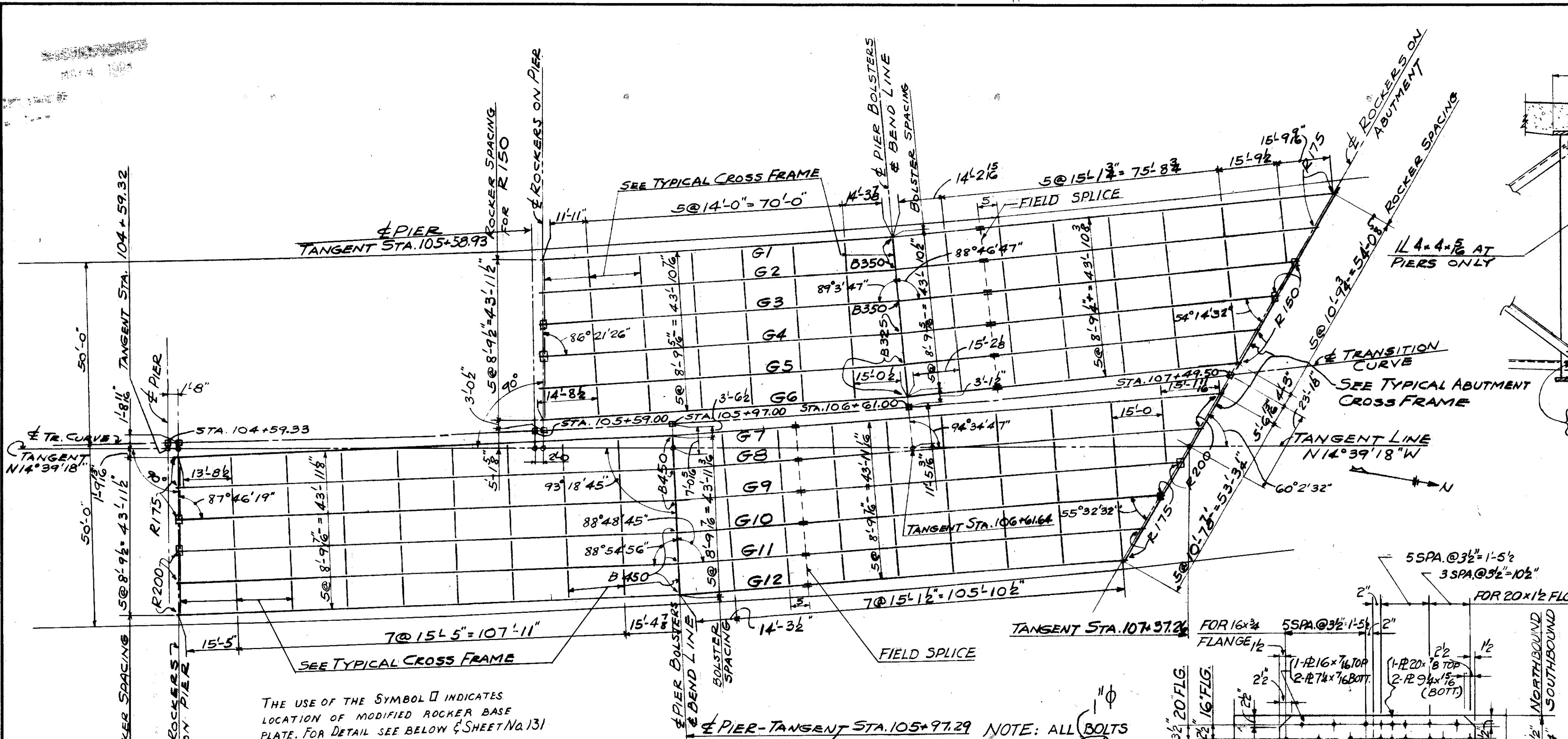


STRESSES SHOWN FOR WIND BRACING ARE THE STRESSES FOR WHICH THE CONNECTIONS ARE TO BE MADE.
OPEN HOLES 1/16" Ø
FIELD CONNECTIONS 1" Ø H.S. BOLTS

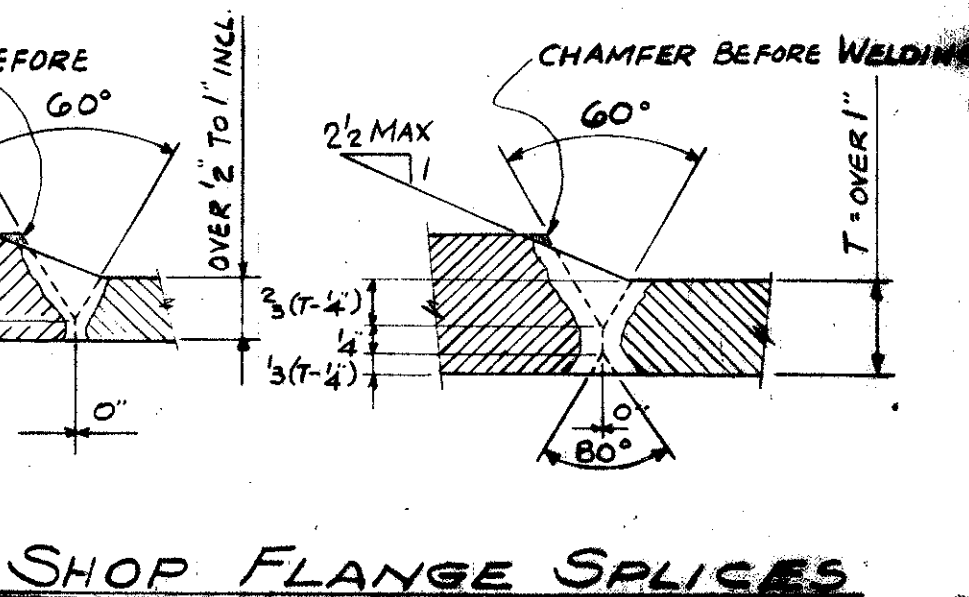
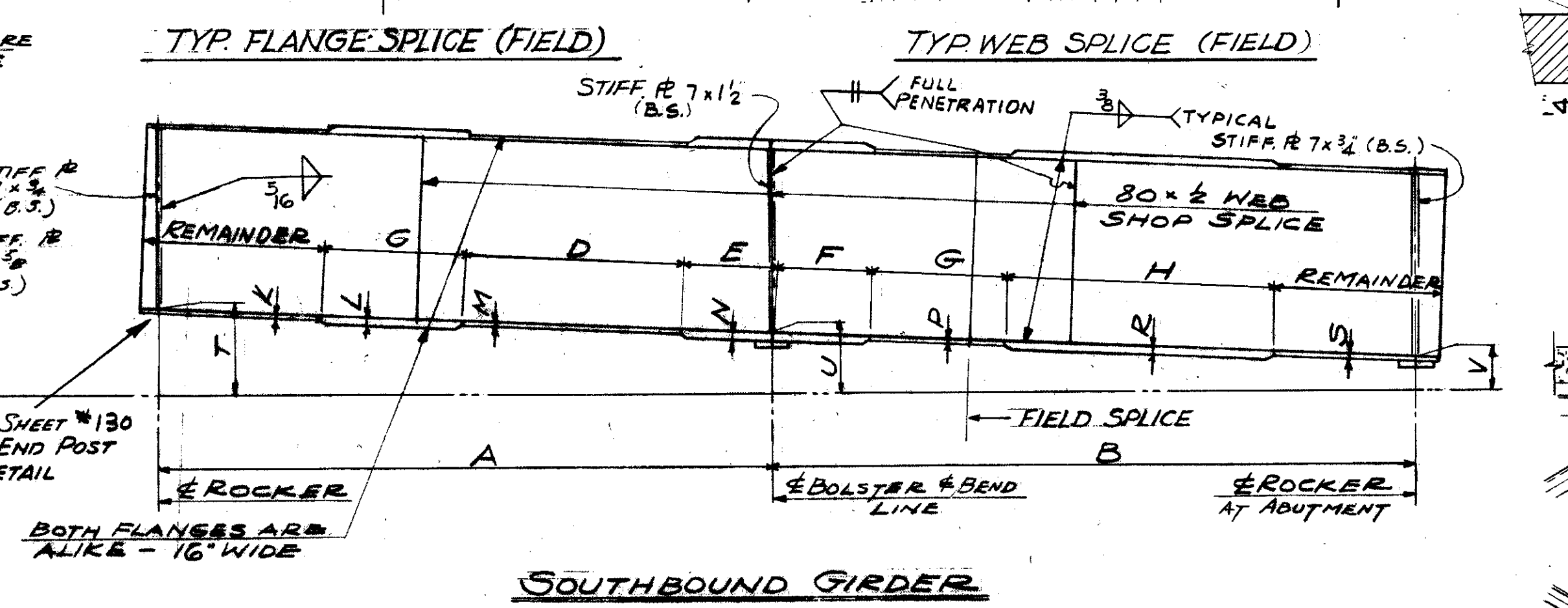
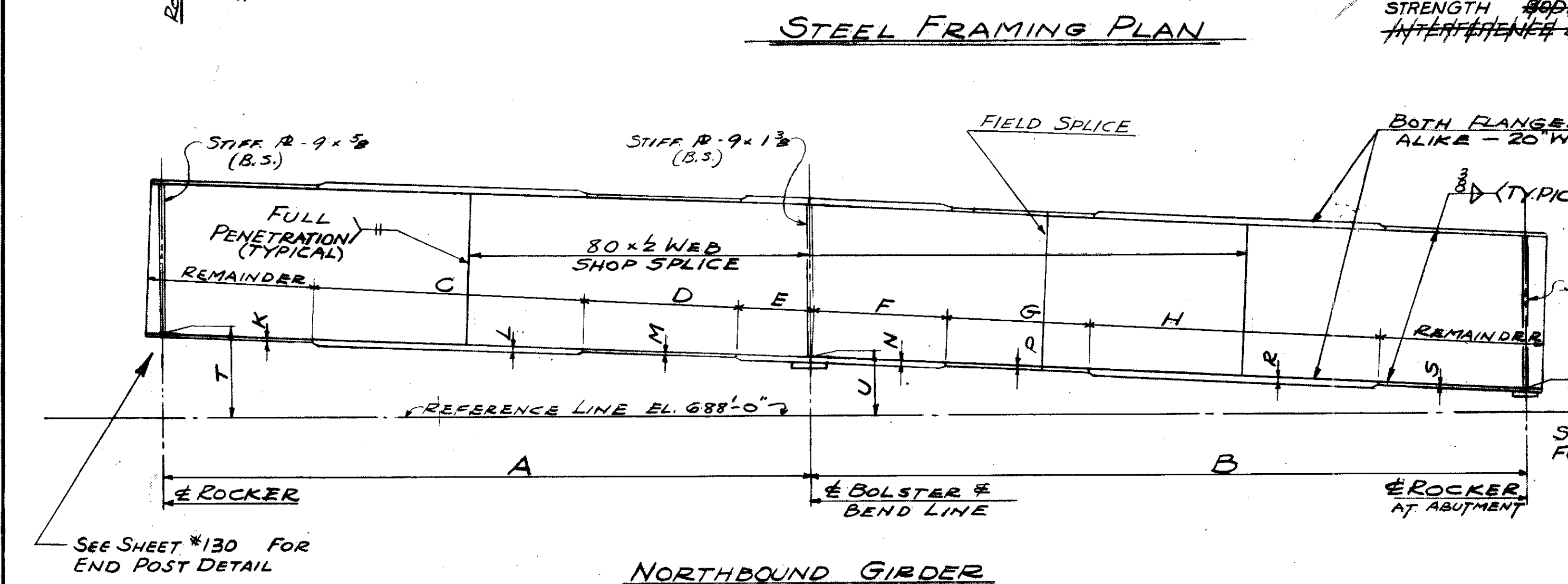
TRYGVE HOFF & ASSOCIATES
ENGINEERS
1922 EAST 107TH STREET CLEVELAND, OHIO

SUPERSTRUCTURE DETAILS
BRIDGE NO. CUY-21-1455
WILLOW FREEWAY OVER KINGSBURY RUN
CUYAHOGA COUNTY U.S.R. 21

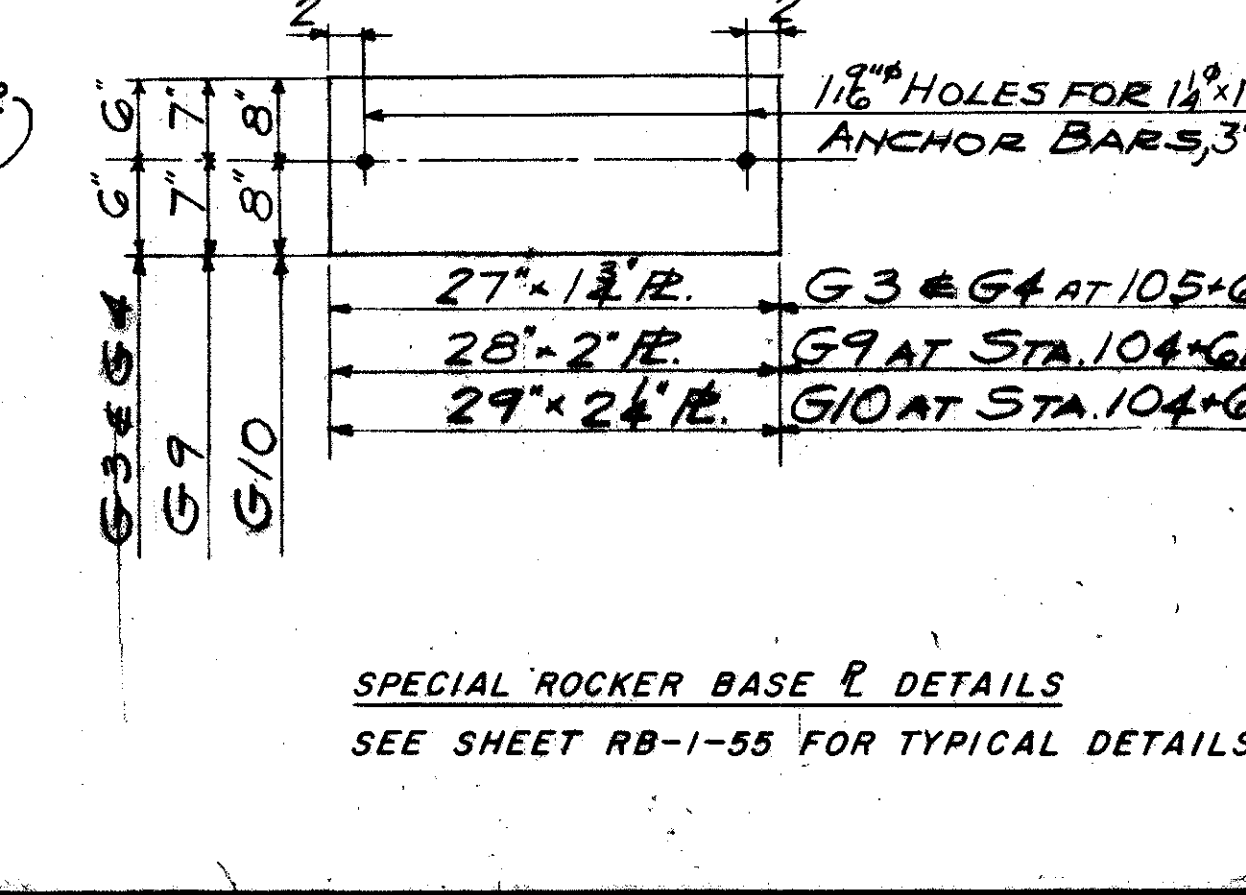
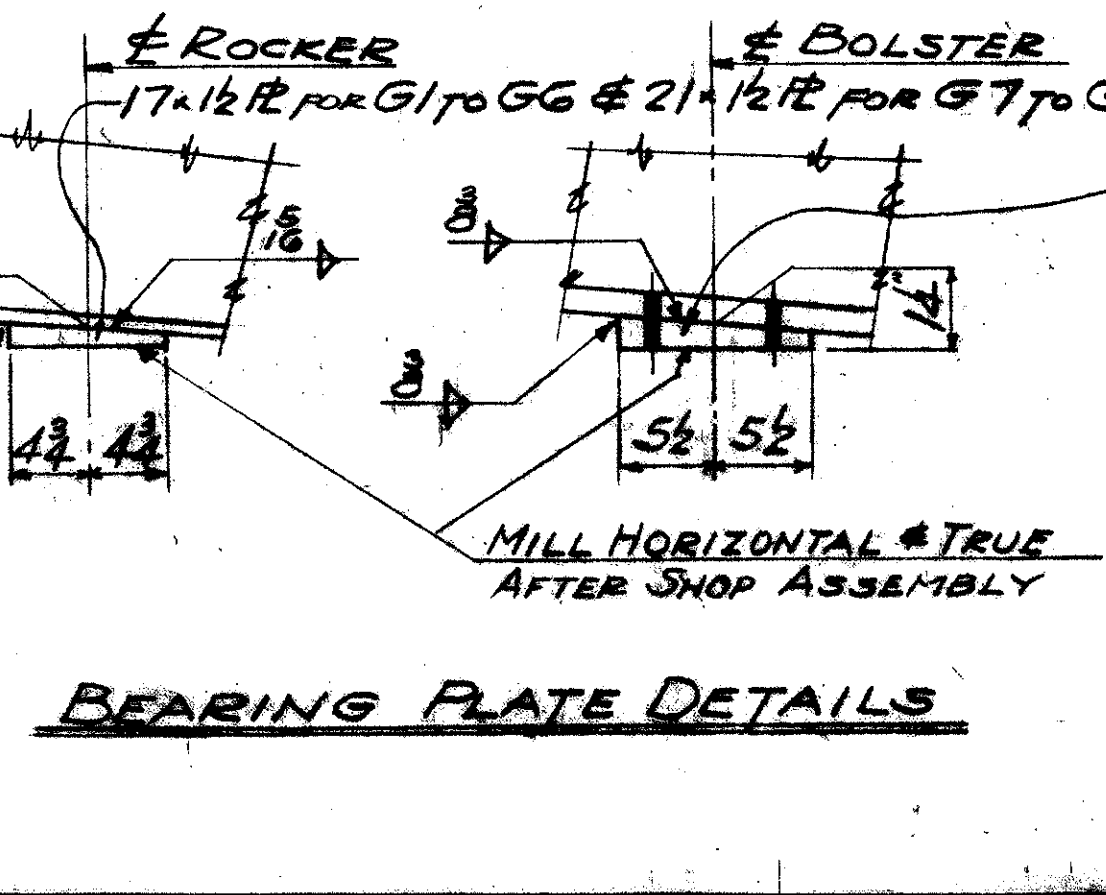
SCALE _____ DATE _____
DESIGNED BY _____ DRAWN BY _____ TRACED BY _____ CHECKED BY _____



GIRDER	SOUTH SPAN				NORTH SPAN			
	DEFLECTION DUE TO WEIGHT OF STEEL	DEFLECTION DUE TO REMAINING DEADLOAD	CONVEXITY REQUIRED FOR VERTICAL CURVE	SUM OF DEFLECTION & CONVEXITY REQUIRED CAMBER	DEFLECTION DUE TO WEIGHT OF STEEL	DEFLECTION DUE TO REMAINING DEADLOAD	CONVEXITY REQUIRED FOR VERTICAL CURVE	SUM OF DEFLECTION & CONVEXITY REQUIRED CAMBER
G1	16"	8"	-	16"	4"	16"	16"	1"
G2	8"	16"	-	16"	4"	8"	16"	1"
G3	8"	16"	-	16"	0"	16"	16"	1"
G4	8"	16"	-	16"	0"	16"	16"	1"
G5	8"	16"	-	16"	0"	16"	16"	1"
G6	8"	16"	-	16"	0"	16"	16"	1"
G7	16"	8"	16"	2"	16"	16"	16"	16"
G8	16"	16"	16"	24"	16"	16"	16"	16"
G9	16"	16"	16"	24"	16"	16"	16"	16"
G10	16"	16"	16"	24"	16"	16"	16"	16"
G11	16"	16"	16"	24"	16"	16"	16"	16"
G12	16"	16"	16"	24"	16"	16"	16"	16"



GIRDER	GIRDER DETAILS																	
	A	B	C	D	E	F	G	H	K	L	M	N	P	R	S	T	U	V
G1	76'-2 1/2"	121'-6 3/4"			22'-0"	12'-0"	27'-0"	65'-0"	2"			18"	3"	18"	3"	5'-7 1/2"	3'-3 3/8"	0'-3 1/2"
G2	76'-11 1/8"	115'-5 1/8"			23'-0"	12'-0"	28'-0"	58'-0"	3"			18"	3"	18"	3"	6'-0"	3'-8 1/4"	0'-11 1/8"
G3	97'-7 1/2"	109'-3 3/8"			24'-0"	12'-0"	27'-0"	51'-0"	3"			18"	3"	14"	3"	6'-2 1/2"	3'-11 1/8"	1'-4 1/8"
G4	98'-4 1/2"	103'-2 1/2"	26'-0"	22'-0"	24'-0"	12'-0"	30'-0"	39'-0"	16"	3"	1 1/2"	12"	16"	1"	16"	6'-5 1/2"	4'-2 1/2"	1'-10 1/8"
G5	99'-0 1/2"	97'-0 1/2"	32'-0"	19'-0"	25'-0"	10'-0"	37'-0"	23'-0"	16"	3"	1 1/2"	13"	16"	3"	16"	6'-7 3/8"	4'-5 1/2"	2'-3 3/8"
G6	99'-9"	90'-10 1/8"	34'-0"	17'-0"	26'-0"	10'-0"			16"	3"	1 1/2"	13"	16"	3"	16"	6'-10 1/2"	4'-8 1/2"	2'-9 1/2"
G7	136'-2 1/2"	149'-4 1/2"	51'-0"	38'-0"	20'-0"	20'-0"	28'-0"	77'-0"	1"	1 1/2"	1"	24"	12"	1 1/2"	1"	8'-9 3/8"	6'-1 1/2"	3'-0 3/8"
G8	136'-8 1/2"	143'-6 1/2"	58'-0"	34'-0"	20'-0"	20'-0"	30'-0"	72'-0"	1"	1 1/2"	1"	24"	12"	1 1/2"	1"	8'-11 1/8"	6'-4 1/2"	3'-5 1/8"
G9	137'-2 1/2"	137'-5 1/2"	62'-0"	33'-0"	18'-0"	20'-0"	94'-0"		1"	1 1/2"	1"	24"	12"	1 1/2"	1"	9'-1 1/2"	6'-7 1/2"	3'-10"
G10	137'-8 1/2"	131'-10 1/8"	65'-0"	33'-0"	16'-0"	20'-0"	90'-0"		1"	1 1/2"	1"	24"	12"	1 1/2"	1"	9'-3 1/2"	6'-9 3/8"	4'-3 3/8"
G11	138'-2 1/2"	126'-0 1/2"	70'-0"	32'-0"	14'-0"	20'-0"	83'-0"		1"	1 1/2"	1"	2"	18"	3"	8"	9'-4 1/2"	7'-0 1/2"	4'-8 1/2"
G12	138'-8 1/2"	120'-2 1/2"	72'-0"	31'-0"	14'-0"	20'-0"	72'-0"		1"	1 1/2"	1"	2"	18"	3"	8"	9'-4 1/2"	7'-1 1/2"	4'-11 1/2"



TRYGVE HOFF & ASSOCIATES
ENGINEERS
1922 EAST 107TH STREET CLEVELAND, OHIO

SUPERSTRUCTURE DETAILS

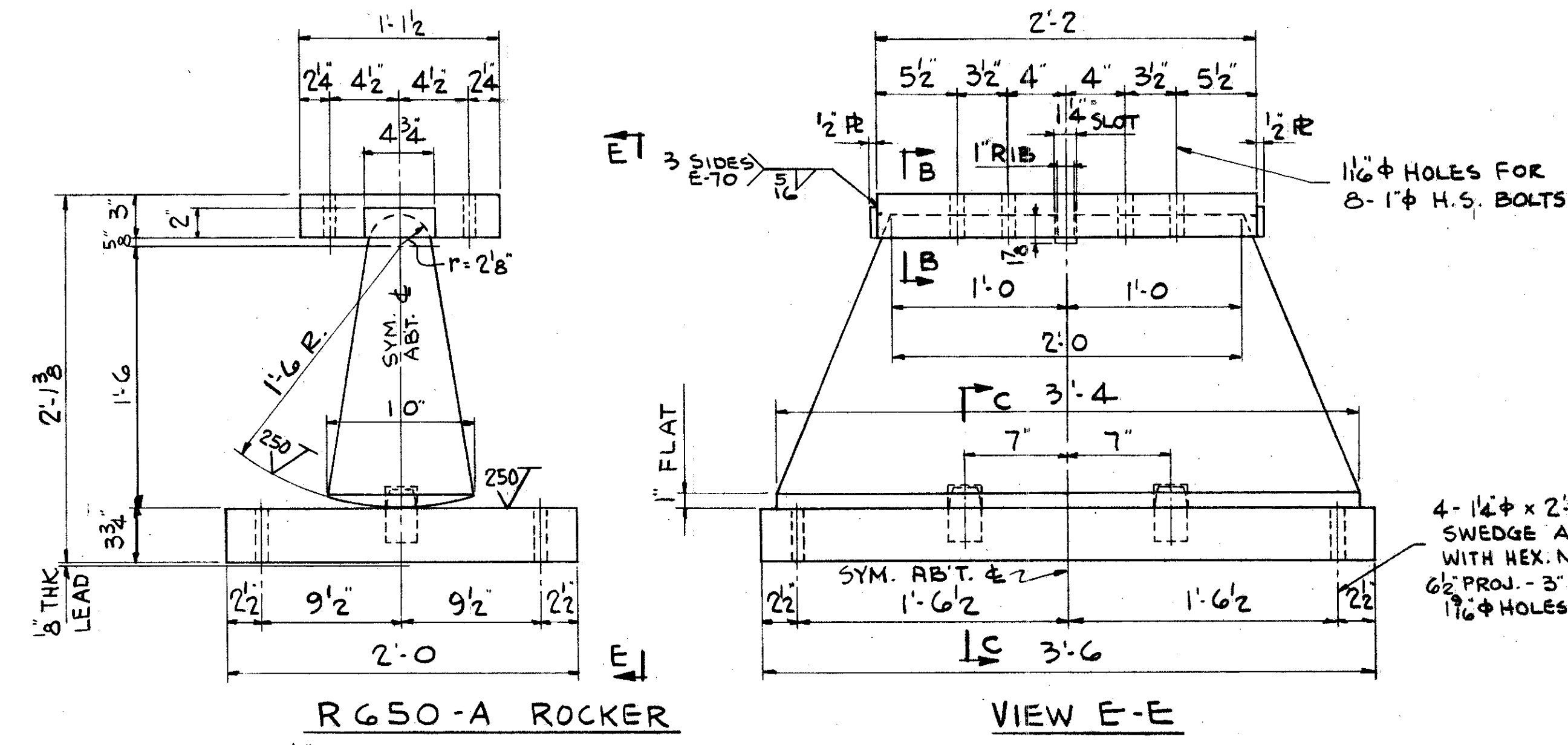
BRIDGE NO. CUY-21-14.55

WILLOW FREEWAY OVER KINGSBURY RUN
CUYAHOGA COUNTY U.S.R. 21

SCALE DATE

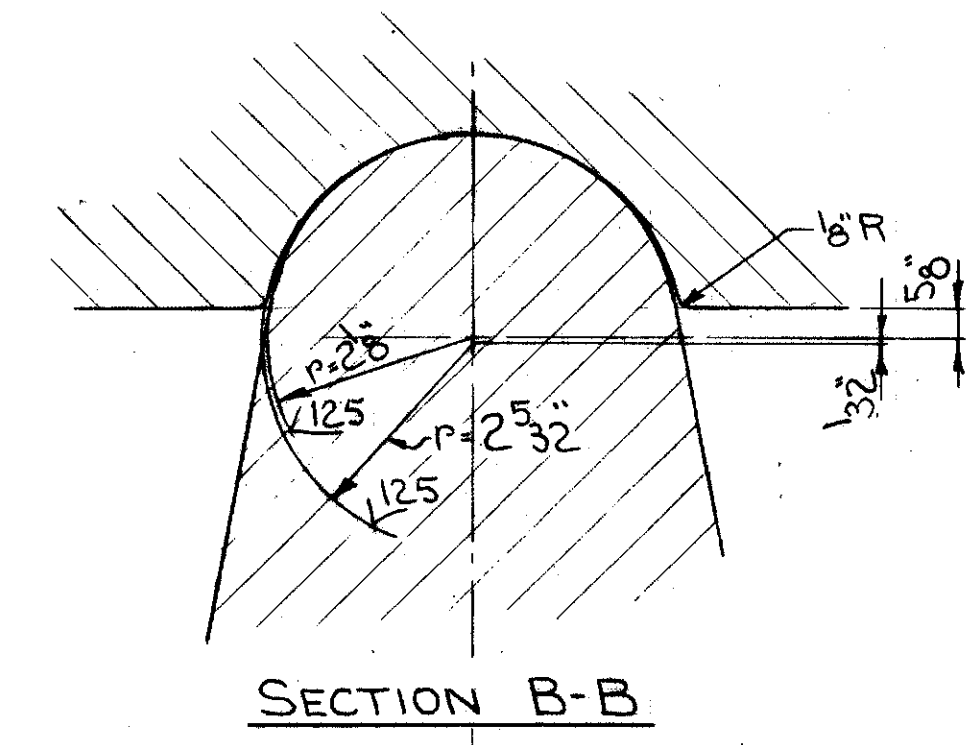
DESIGNED DRAWN TRACED CHECKED REVIEWED

CWT CS 9/10/11

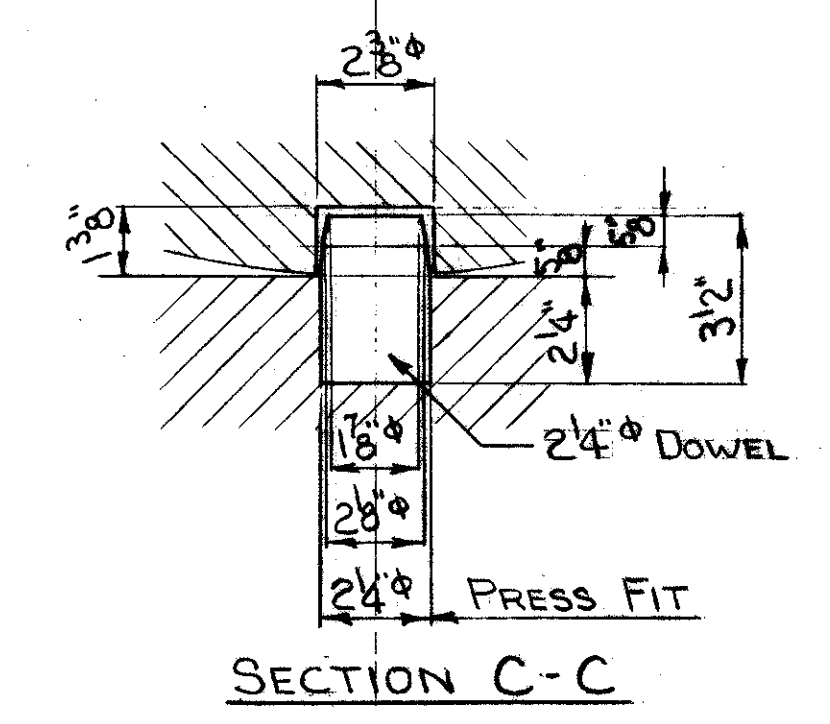


R650-A ROCKER
FOR 2 1/2" MAXIMUM MOVEMENT EACH WAY
CAPACITY - 650,000# VERTICAL LOAD
WEIGHT - 2740#

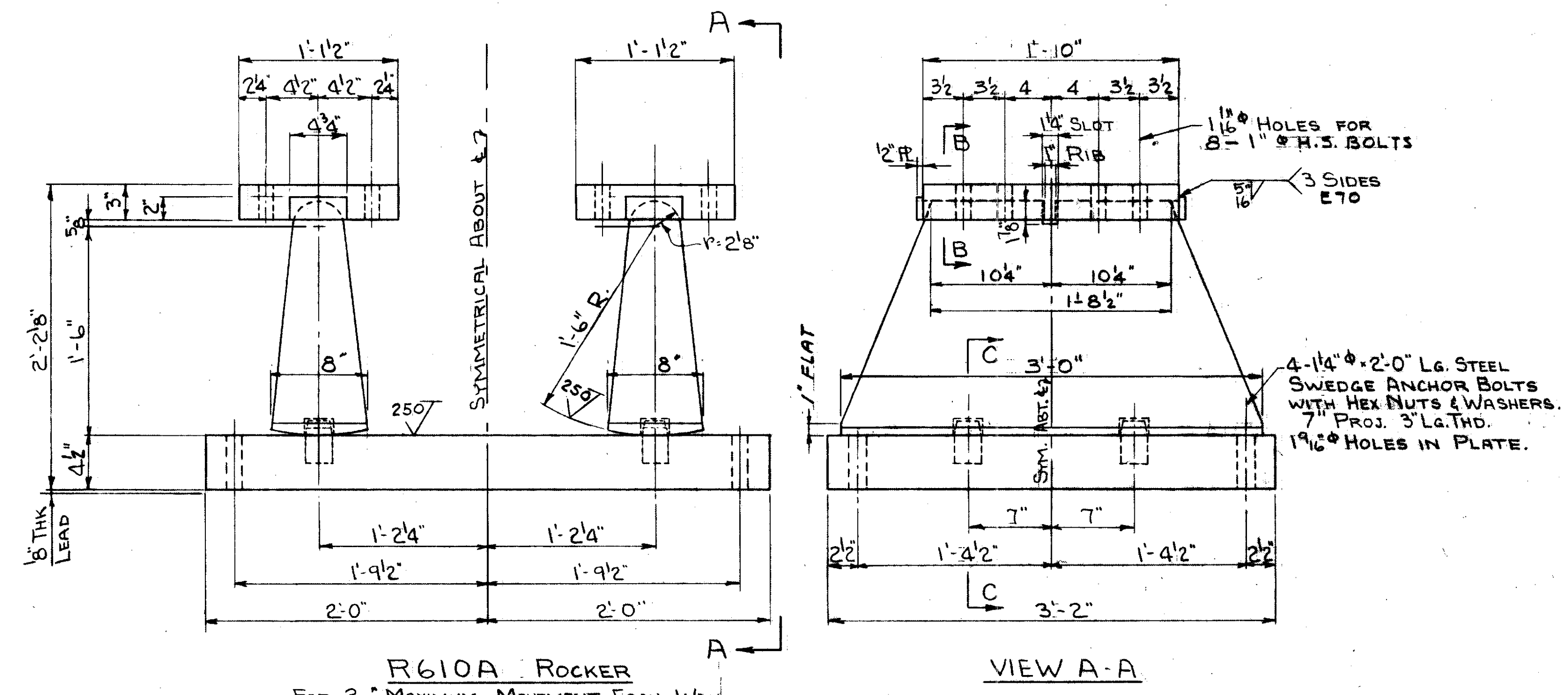
4-1 1/4" x 2'-0" LG. STEEL SWEDGE ANCHOR BOLTS WITH HEX. NUTS & WASHERS. 6" PROJ. 3" LG. THRD. 1 1/16" HOLES IN PLATE.



SECTION B-B

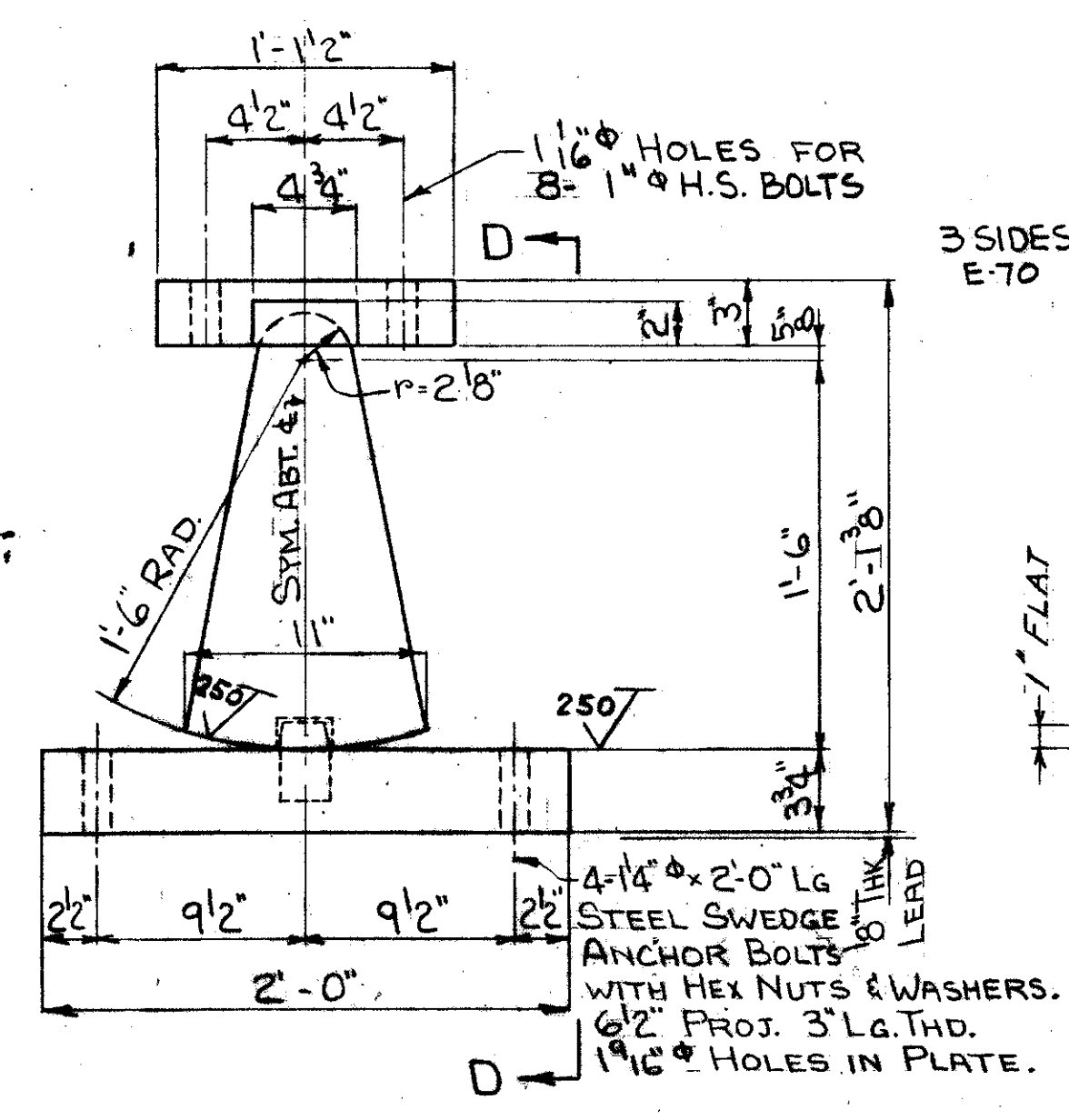


SECTION C-C



R610A ROCKER
FOR 2" MAXIMUM MOVEMENT EACH WAY
CAPACITY - 600,000# EACH ROCKER
WEIGHT - 4850#

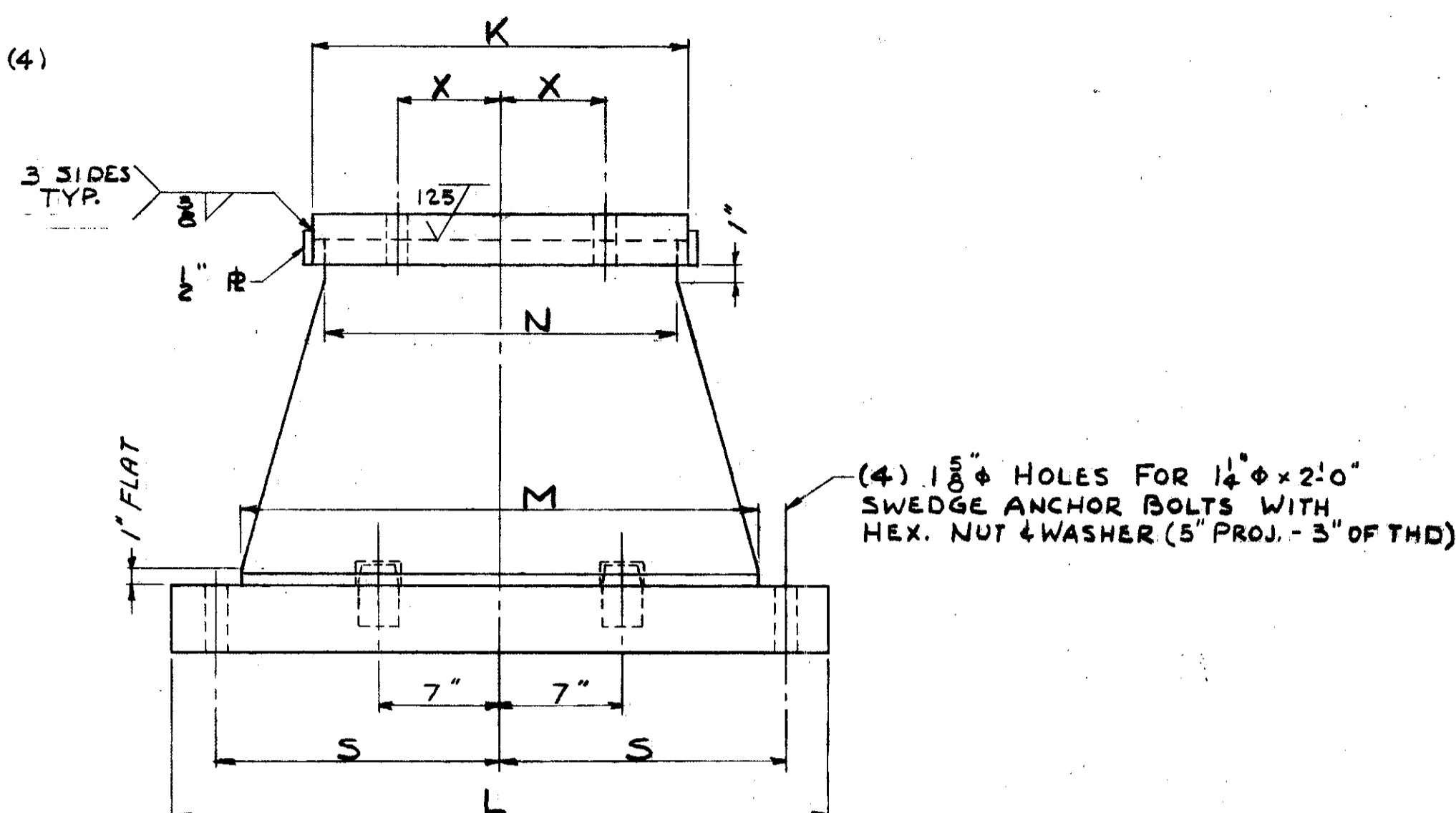
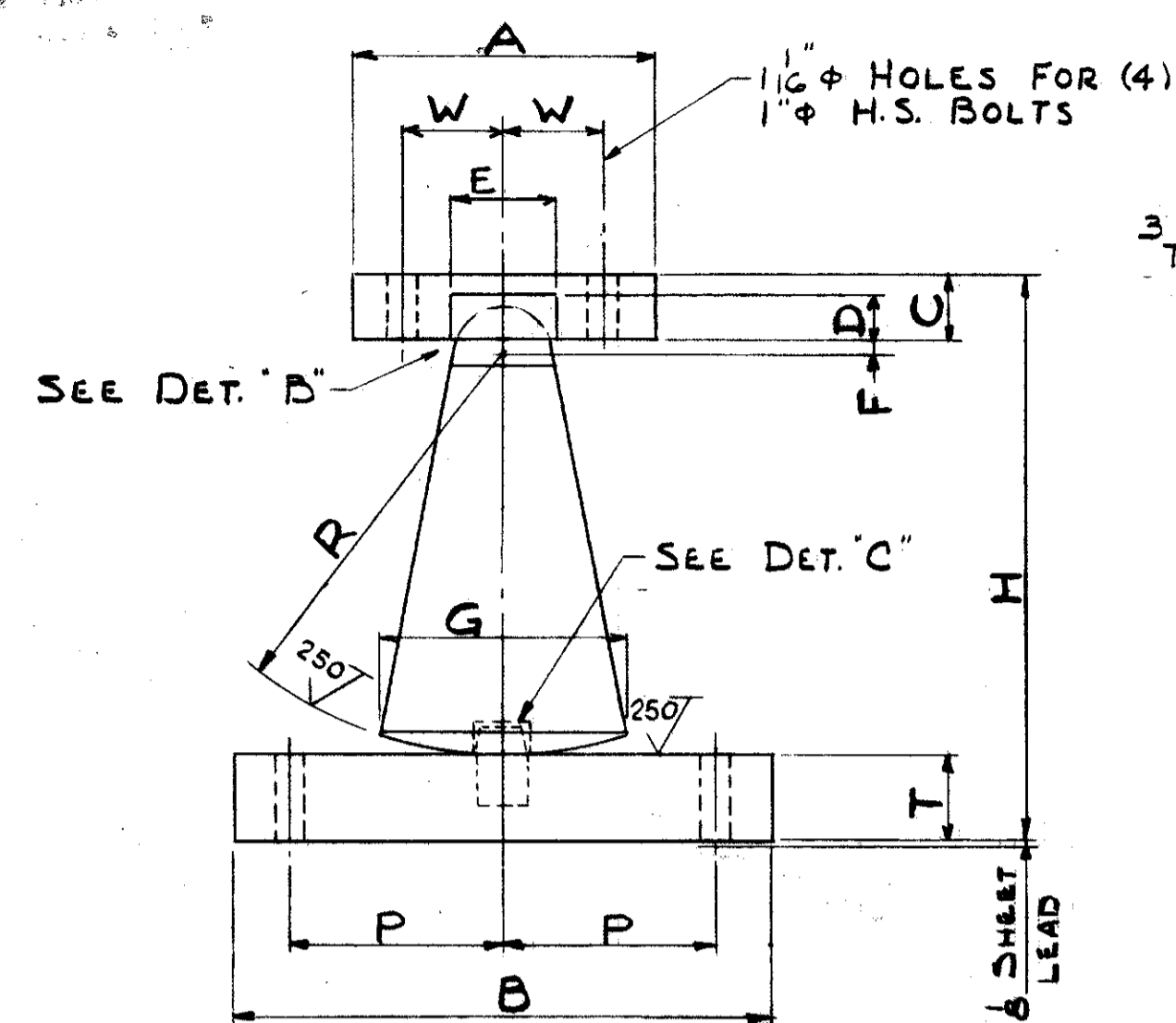
4-1 1/4" x 2'-0" LG. STEEL SWEDGE ANCHOR BOLTS WITH HEX. NUTS & WASHERS. 7" PROJ. 3" LG. THD. 1 9/16" HOLES IN PLATE.



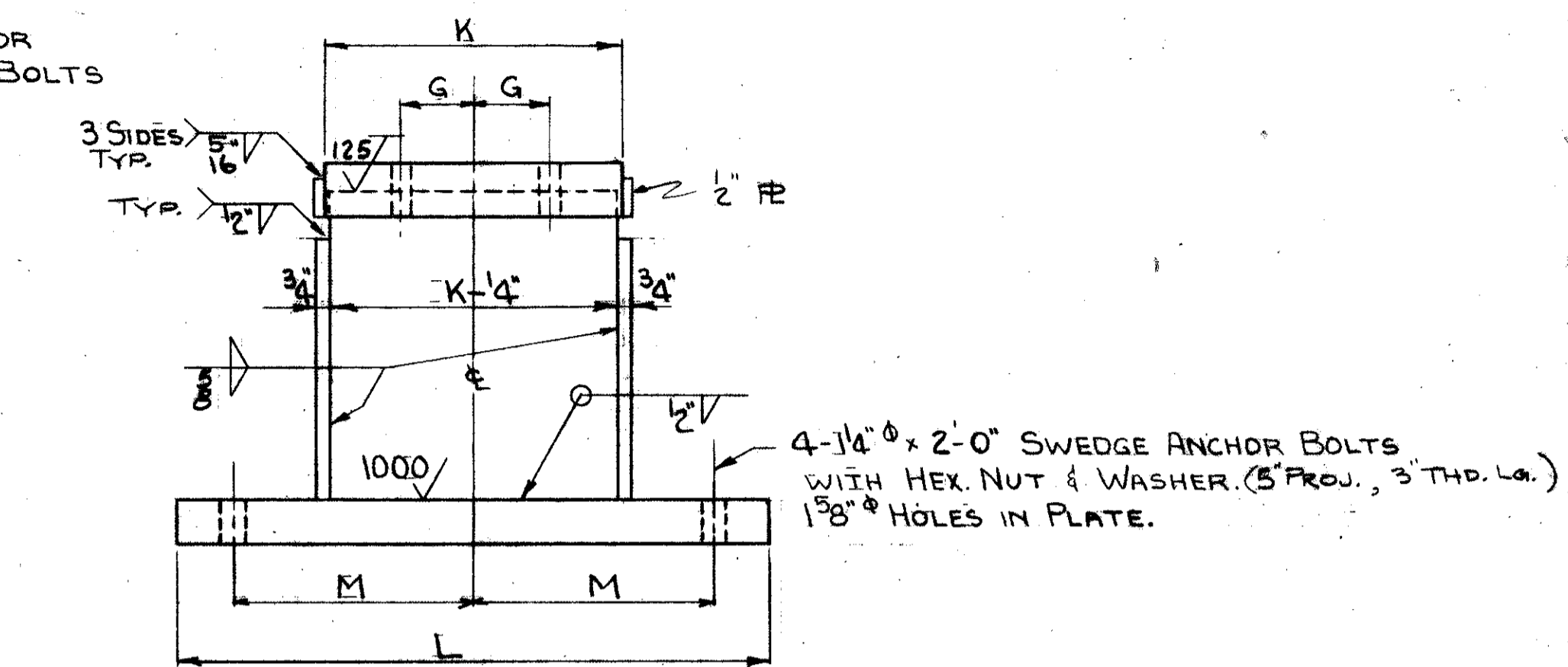
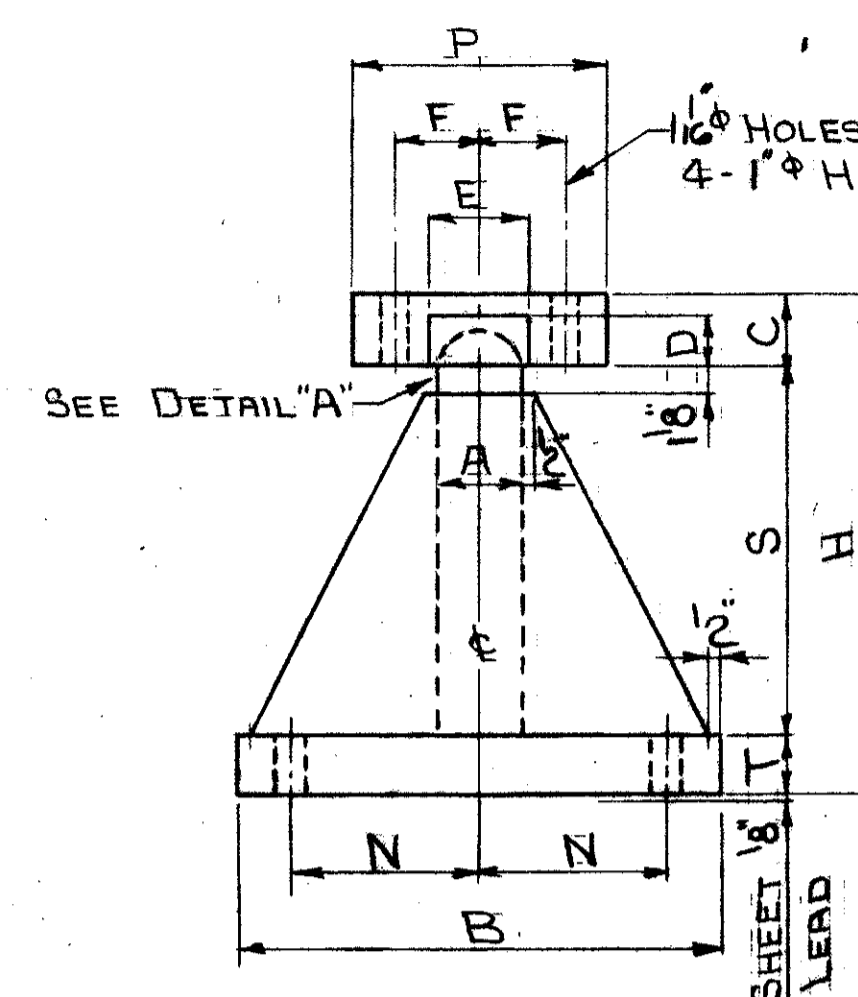
R600A ROCKER
FOR 3.0" MAXIMUM MOVEMENT EACH WAY
CAPACITY - 600,000# VERTICAL LOAD
WEIGHT - 2,530#

NOTE:
ALL PARTS, EXCEPT ROCKER, LEAD & ANCHOR BOLTS TO BE HIGH STRENGTH STEEL ASTM A 242-60 (42,000 PSI YIELD) OR EQUAL.
ROCKER TO BE FORGED STEEL ASTM A 237-55, CLASS "A" (50,000 PSI YIELD) OR EQUAL ANNEAL FORGING BEFORE MACHINING.

TRYGVE HOFF & ASSOCIATES ENGINEERS 1922 EAST 107TH STREET CLEVELAND, OHIO				
ROCKERS				
BRIDGE NO.		GUY-21-14 55		
WILLOW FREEWAY OVER KINGSBURY RUN CUYAHOGA COUNTY U.S.R. 21				
SCALE				DATE 4-2-59
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED
JAW			ADH	CB 4/11/59



STEEL ROCKER



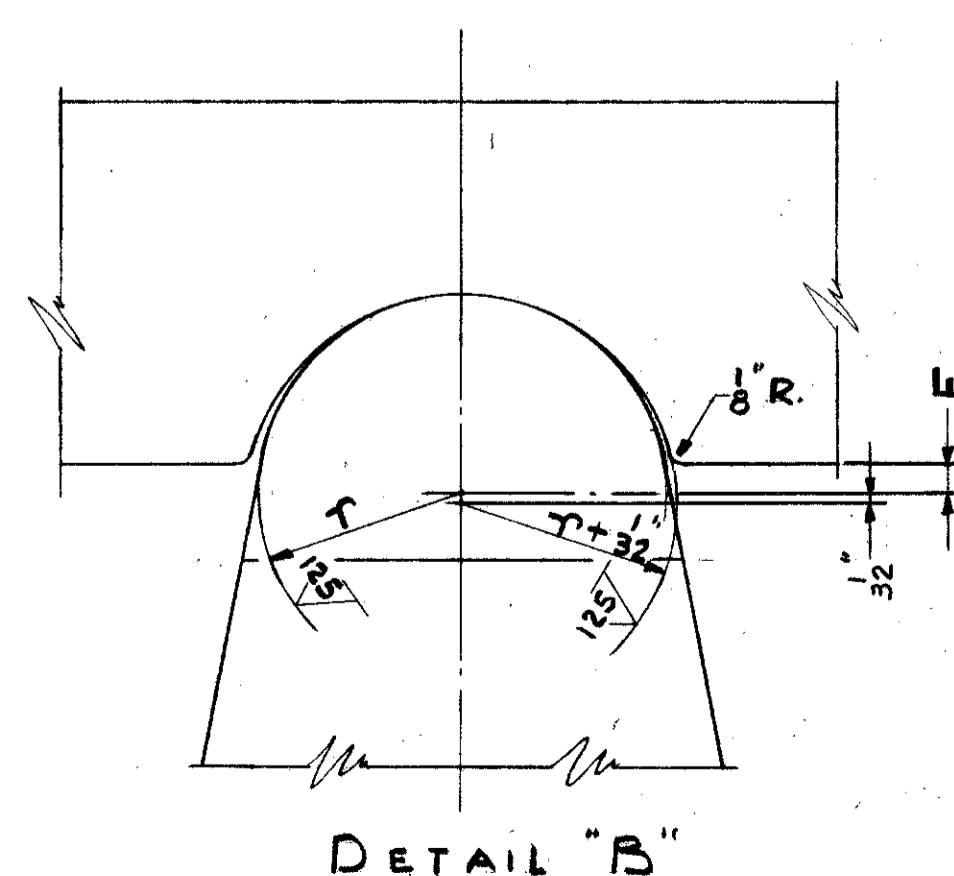
STEEL BOLSTER

ROCKER DATA

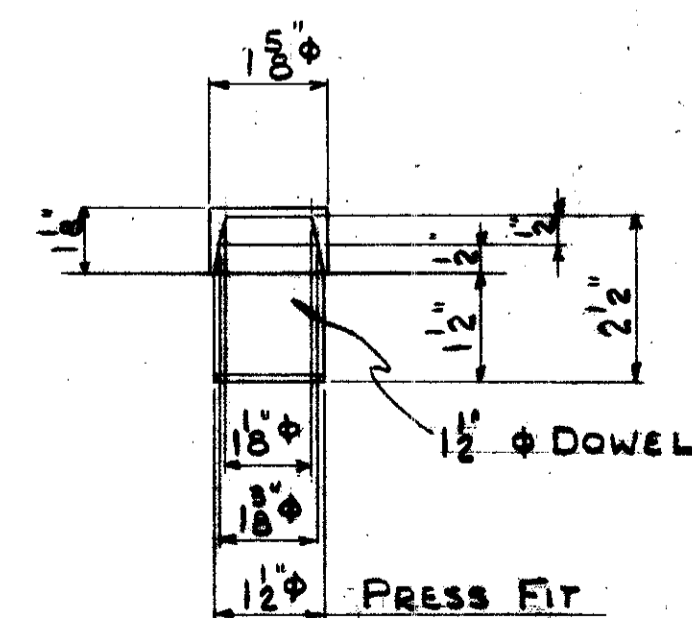
NUMBER	DIMENSIONS (INCHES)																	VERTICAL CAPACITY (KIPS)	WEIGHT (LBS)		
	A	B	C	D	E	F	G	H	K	L	M	N	P	R	S	T	W			X	Y
R325	9 1/2	18	2 1/2	1 1/2	4	3/8	7	17 3/8	16 1/2	29	27	16 1/4	6 3/4	12	10 3/4	3	3 1/4	4	1 3/4	325	1010
R350	10 1/2	20	2 3/4	1 1/2	4	3/8	7	20 3/8	17 1/2	29	27	17 1/4	7 3/4	14 3/4	10 3/4	3 1/2	3 1/2	4	1 3/4	350	1280
R400	10 1/2	20	2 3/4	1 1/2	4	3/8	7	23 3/8	19 1/2	30	27	19 1/4	7 3/4	17 1/4	11 3/4	3 1/2	3 1/2	6	1 3/4	400	1425
R450	11	20	2 3/4	1 3/4	4 1/2	3/8	7	26 7/8	21	31	28	20 3/4	7 3/4	20 1/4	11 3/4	3 1/2	3 1/2	6	1 3/4	450	1625
R500	12	20	2 3/4	1 3/4	4 1/2	1/2	8	29 3/8	21 1/2	34	30	21 1/4	7 3/4	23	11 3/4	3 1/2	3 3/4	6	2	500	1980

BOLSTER DATA

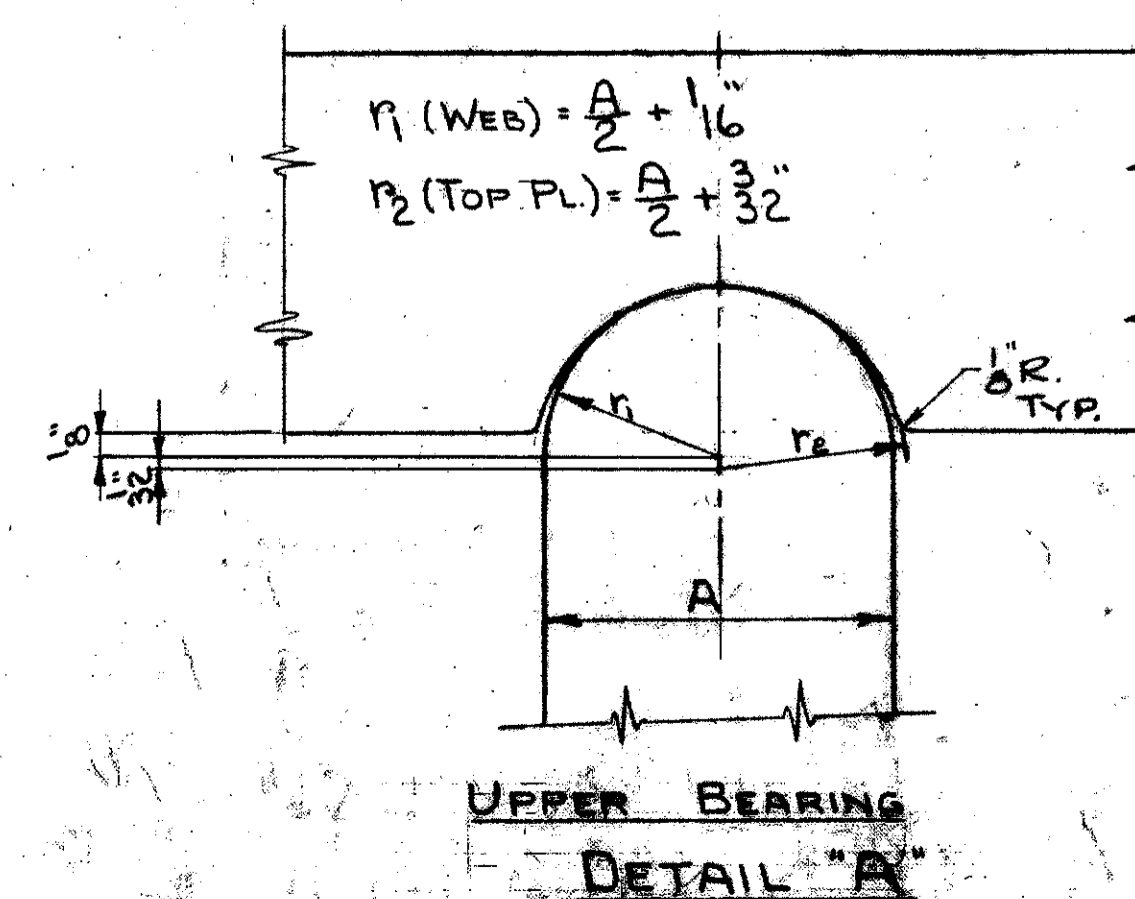
NUMBER	DIMENSIONS (INCHES)																	MAX. LOADS (KIPS)			WEIGHT (LBS)		
	A	B	C	D	E	F	G	H	K	L	M	N	P	S	T				SINGLE VERT	COMBINED			
																			VERT	VERT		LAT	LONG
B325	32	18	2 1/4	2	4	3/4	4	17 3/8	16	26	10 3/4	6 3/4	9 1/2	12 5/8	2 1/2				325	240	10	10	750
B350	32	20	3	2	4	3/2	4	20 3/8	16	26	10 3/4	7 3/4	10 1/2	15 3/8	2 1/2				350	280	10	10	875
B400	32	20	3	2	4	3/2	6	23 3/8	18	28	11 3/4	7 3/4	10 1/2	18 3/8	2 1/2				400	320	10	15	1020
B450	32	20	3 1/4	2	4	3/2	6	23 3/8	18	28	11 3/4	7 3/4	10 1/2	17 3/8	2 3/4				450	360	15	15	1065
B500	32	20	3 1/4	2	4	3 3/4	6	29 3/8	18	28	11 3/4	7 3/4	11 1/2	23 3/8	2 3/4				500	400	15	15	1215



DETAIL "B"



DETAIL "C"



UPPER BEARING
DETAIL "A"

NOTES:
WEIGHTS GIVEN ARE FOR ONE ROCKER OR BOLSTER COMPLETE (INCLUDING ANCHOR BOLTS & SHEET LEAD).
ROCKERS ARE DESIGNED FOR MAX. MOVEMENT OF 2 IN. IN EITHER DIRECTION.
DIMENSION "C" BASED ON GIRDERS WITH FULL WIDTH STIFFENERS ON E BOLSTER OR ROCKER.

TRYGVE HOFF & ASSOCIATES
ENGINEERS
1922 EAST 107TH STREET CLEVELAND, OHIO

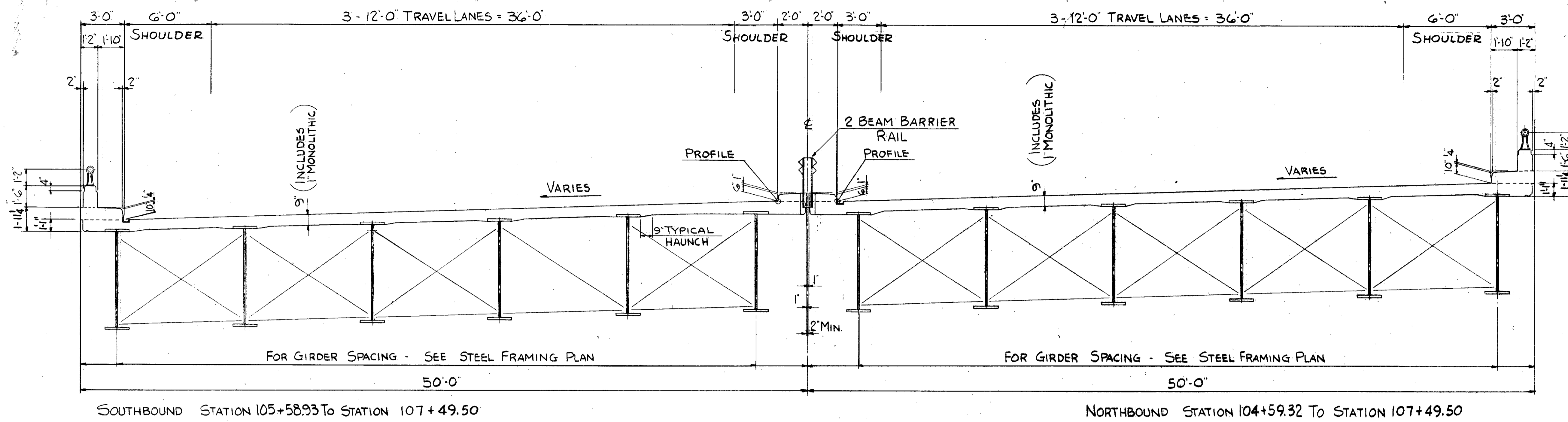
ROCKERS & BOLSTERS
BRIDGE NO. CUY-21-14.55
WILLOW FREEWAY OVER KINGSBURY RD
CUYAHOGA COUNTY U.S.R. 21

SCALE: DRAWN: TRACED: CHECKED: REVIEWED: DATE: 1/24/55
JAW: ADH: 08/6/55

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

138
164

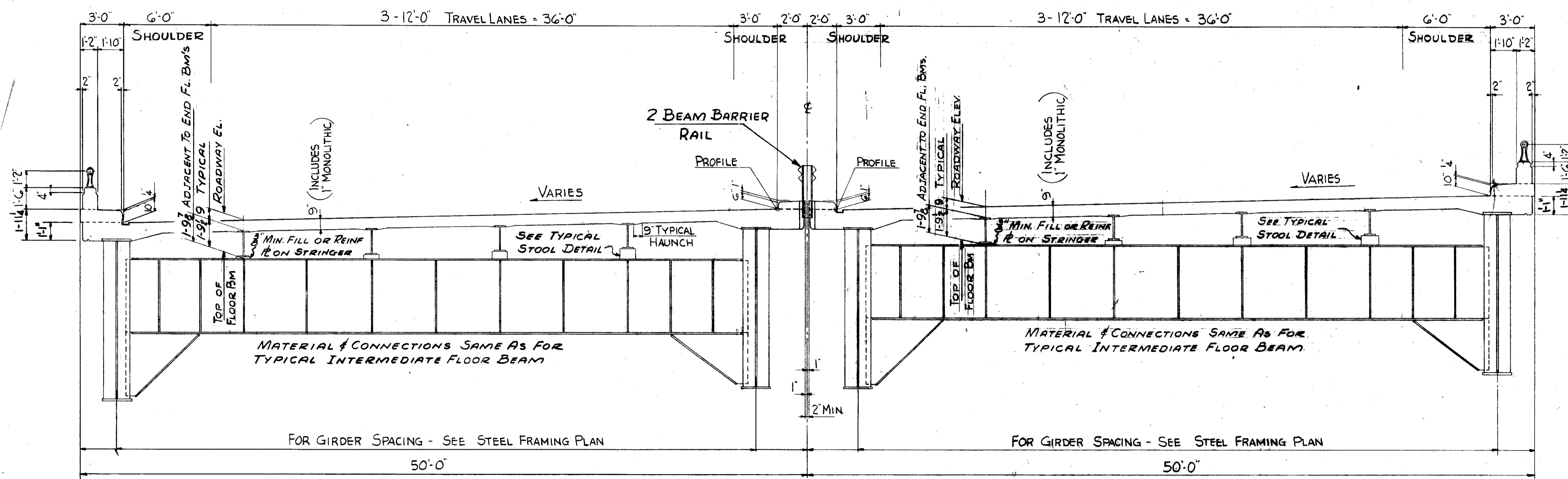
CUYAHOGA COUNTY
CUY-21-14.55



SOUTHBOUND STATION 105+58.93 TO STATION 107+49.50

NORTHBOUND STATION 104+59.32 TO STATION 107+49.50

SUPERELEVATED CROSS SECTION - 6 GIRDER SPAN



SOUTHBOUND STATION 102+32.99 TO STATION 105+58.93

NORTHBOUND STATION 102+32.99 TO STATION 104+59.32

INTERMEDIATE FLOOR BEAMS WITH SUPERELEVATED ROADWAY

FOR GENERAL NOTES SEE SHEET NO. 118

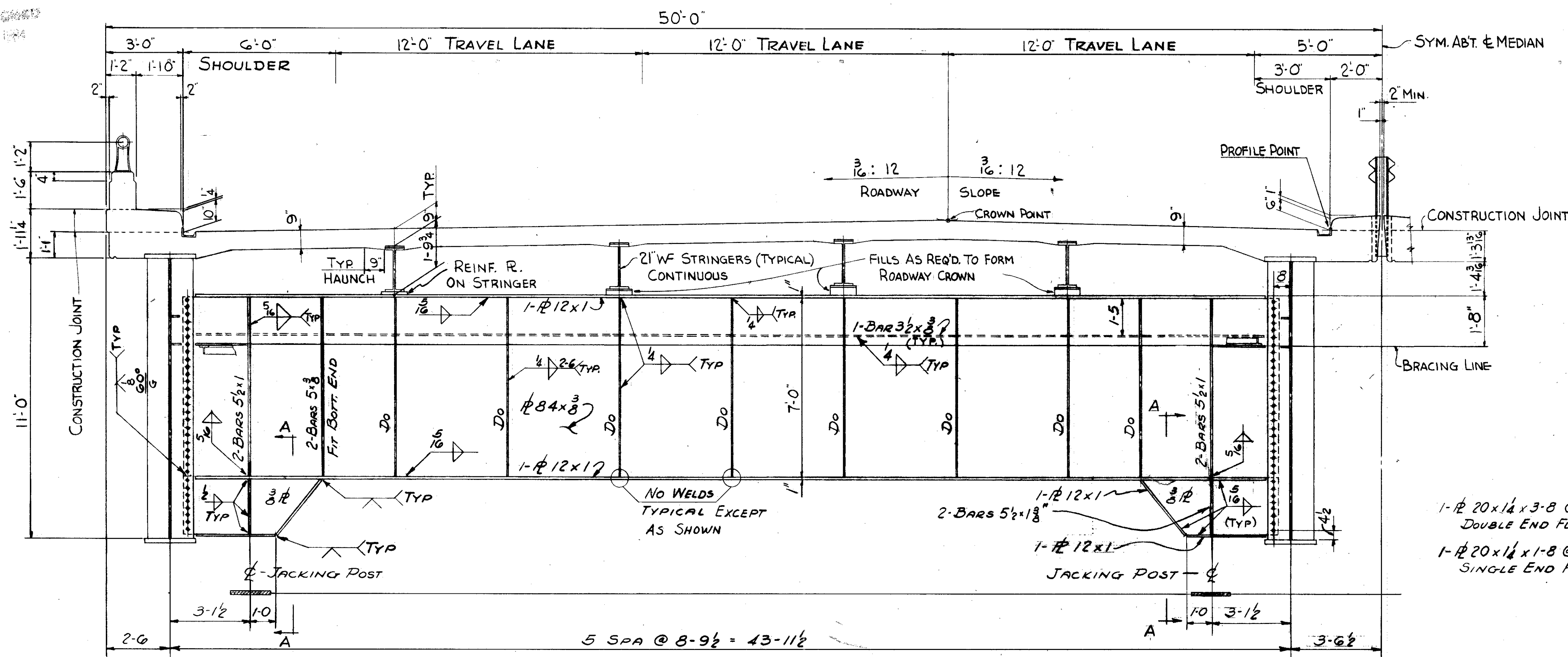
TRYGVE HOFF & ASSOCIATES
ENGINEERS
1922 EAST 107TH STREET CLEVELAND, OHIO

SUPERSTRUCTURE DETAILS
BRIDGE NO. CUY-21-14.55
WILLOW FREEWAY OVER KINGSBURY RUN
CUYAHOGA COUNTY U.S.R. 21

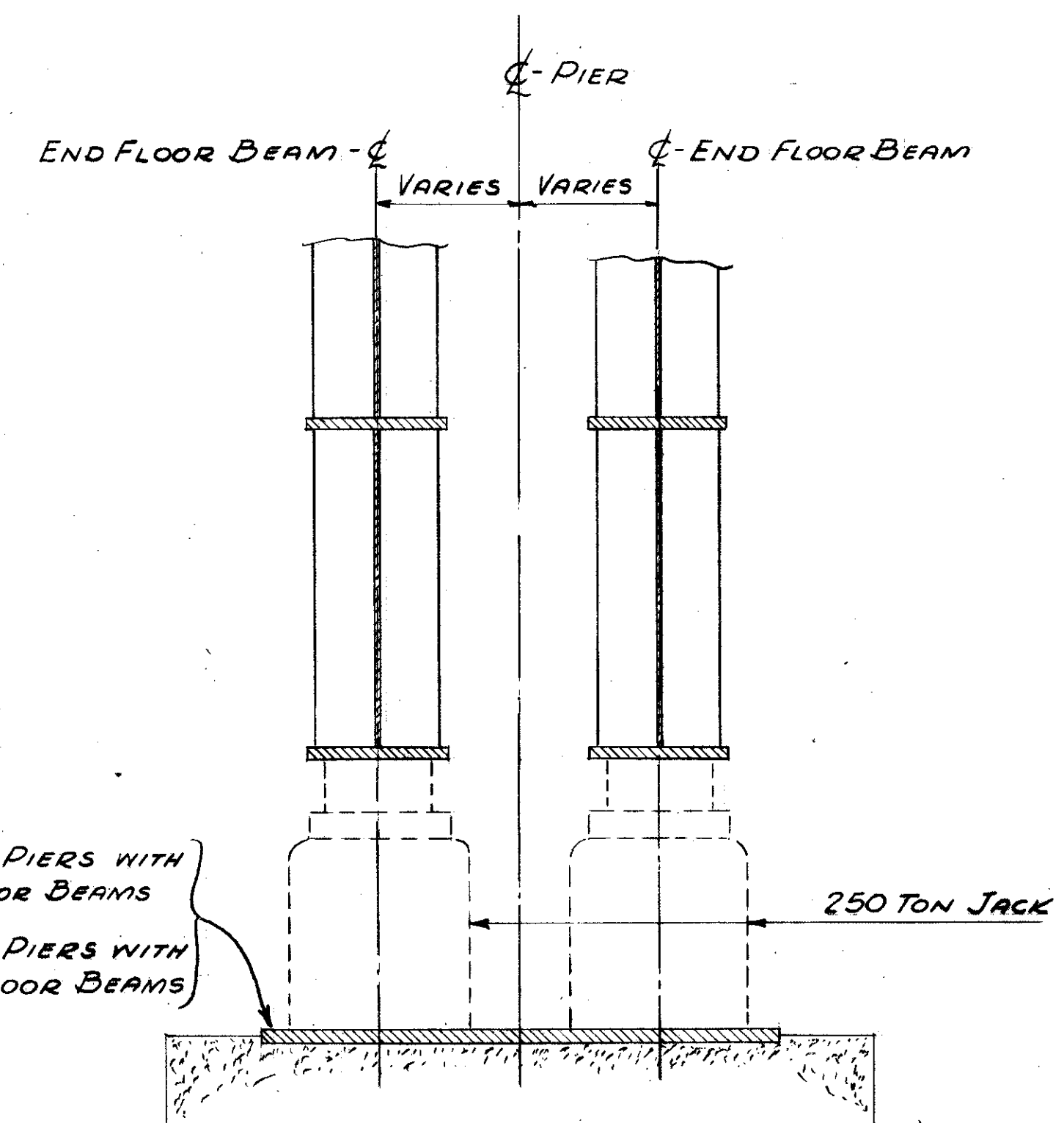
SCALE	DATE
DESIGNED	DRAWN
TRACED	CHECKED
REVIEWED	

CRB D.F. 6/20

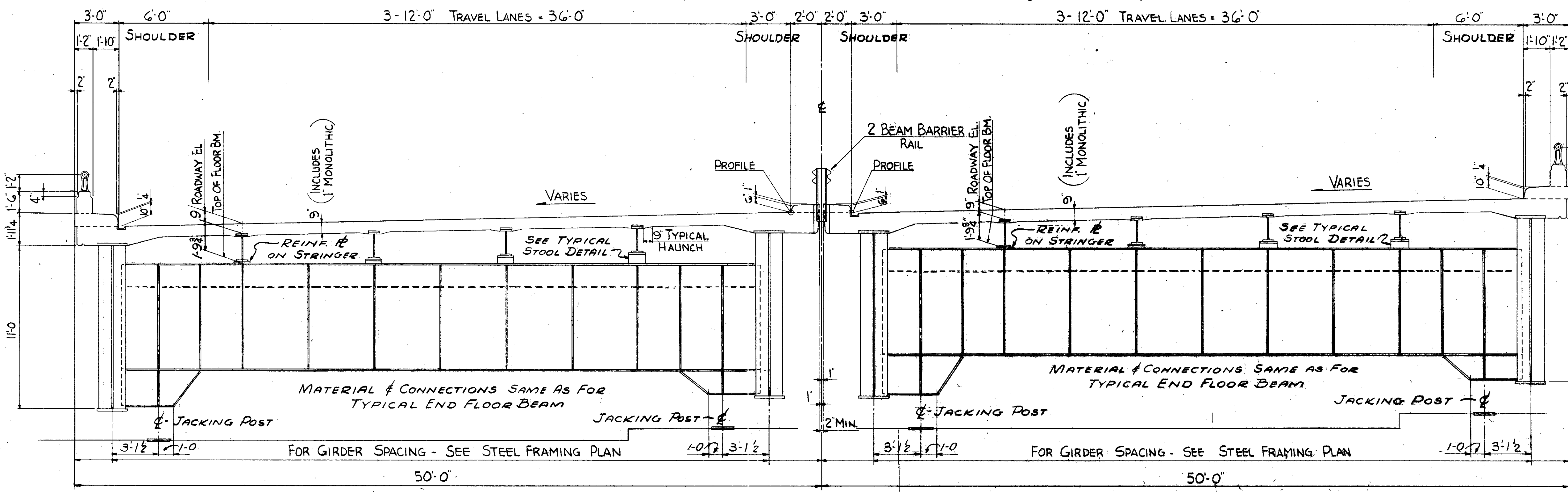
CUYAHOGA COUNTY
CUY-21-14.55



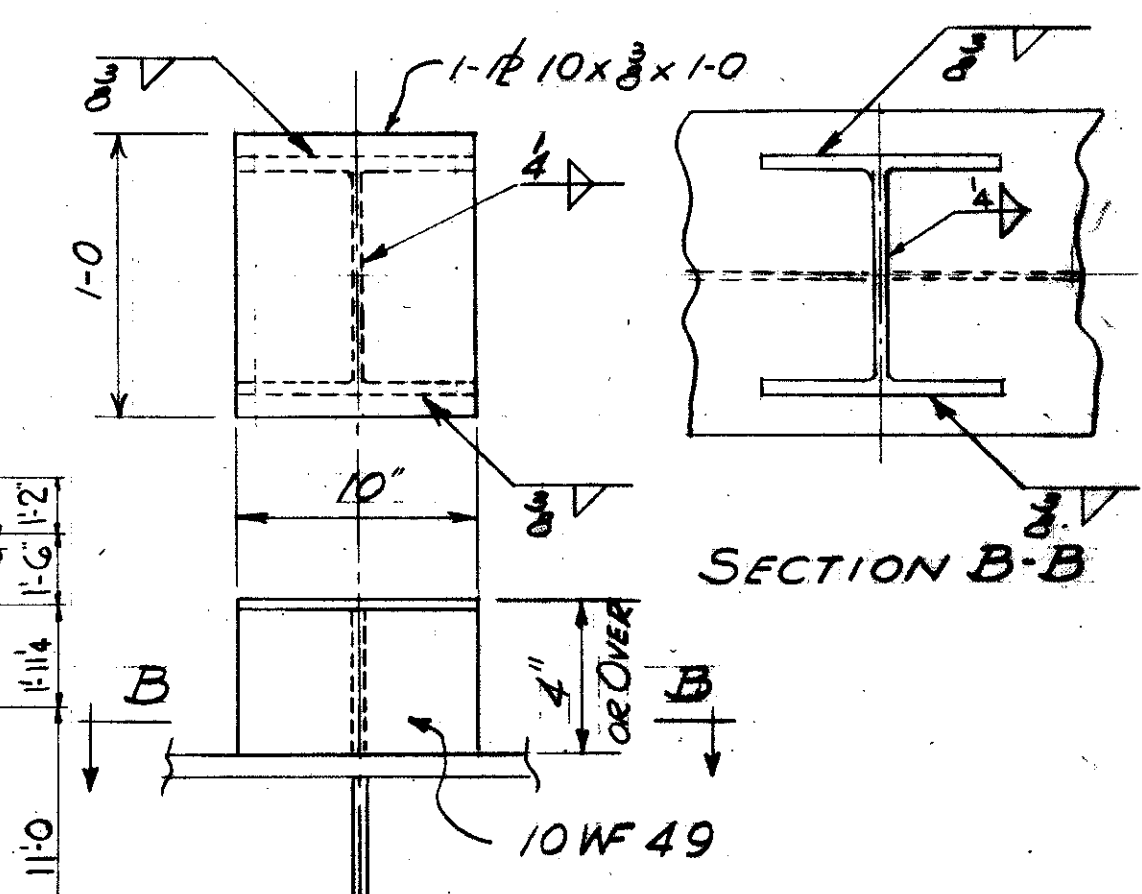
TYPICAL END FLOOR BEAM NORTHBOUND - STA. 98+27.19
SOUTHBOUND - STA. 92+77.19; STA. 98+96.81; STA. 98+99.19



SECTION A-A & FUTURE JACKING SCHEME



END FLOOR BEAMS WITH SUPERELEVATED ROADWAY



TYPICAL STOOL DETAIL FOR 4" OR OVER FILL UNDER STRINGERS

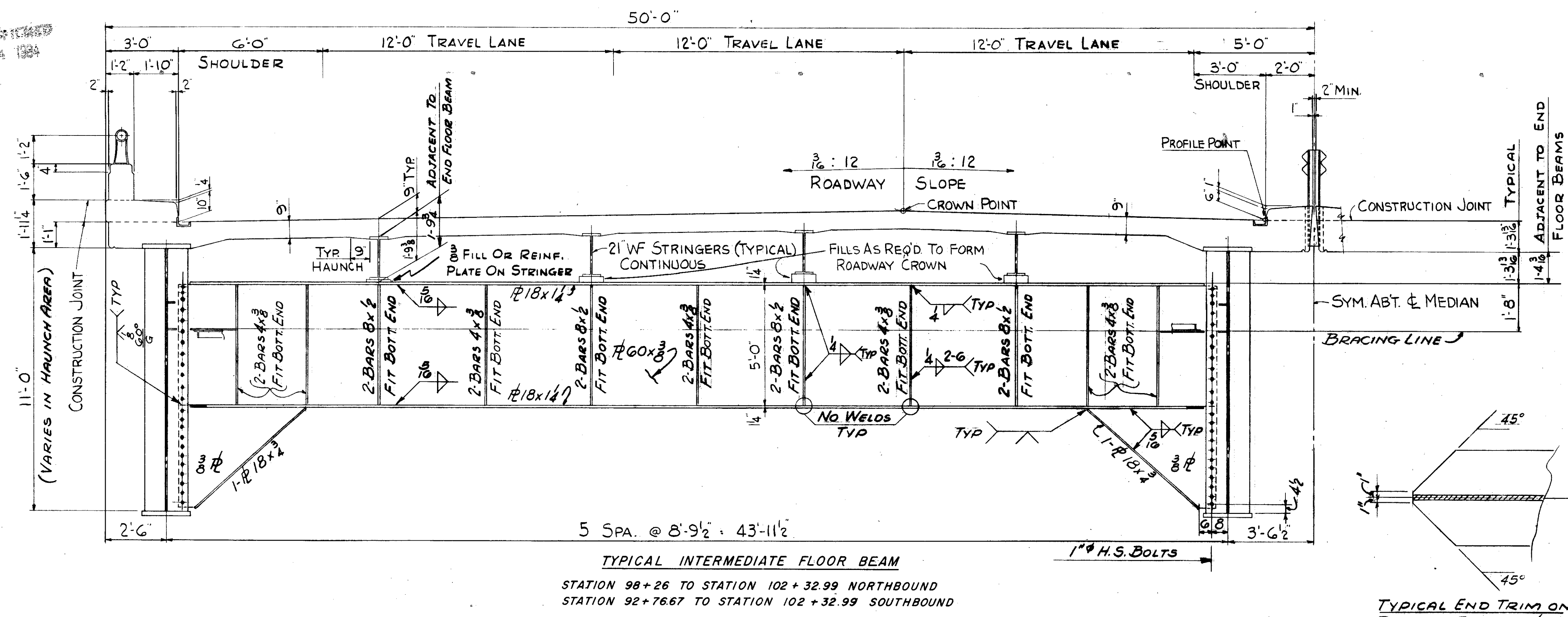
FOR GENERAL NOTES SEE SHEET NO. 118

TRYGVE HOFF & ASSOCIATES
ENGINEERS
1922 EAST 107TH STREET CLEVELAND, OHIO

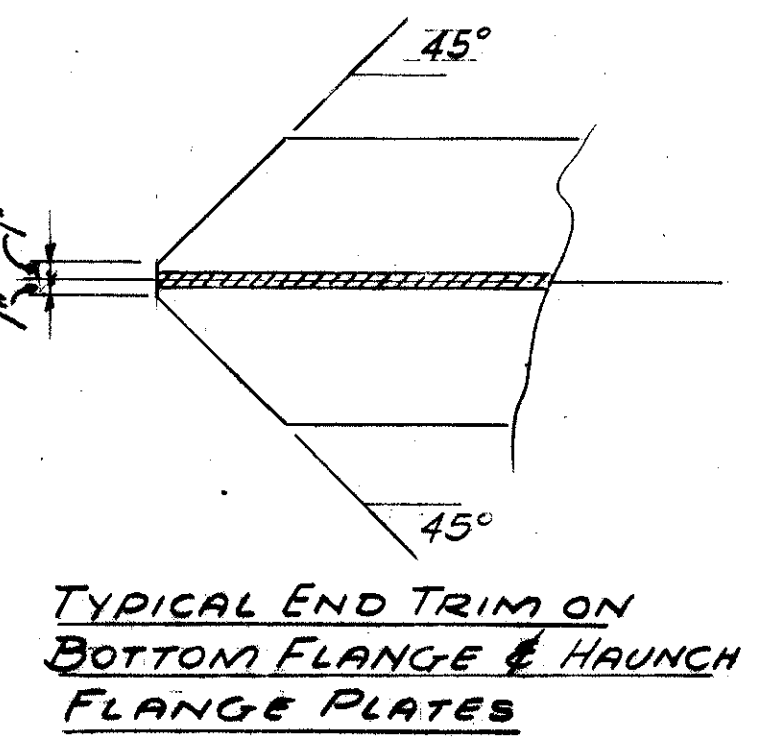
SUPERSTRUCTURE DETAILS
BRIDGE NO. CUY-21-14.55
WILLOW FREEWAY OVER KINGSBURY BLVD
CUYAHOGA COUNTY U.S.R. 2

SCALE	DATE
DRAWN BY	TRACED
CHECKED	REVIEWED

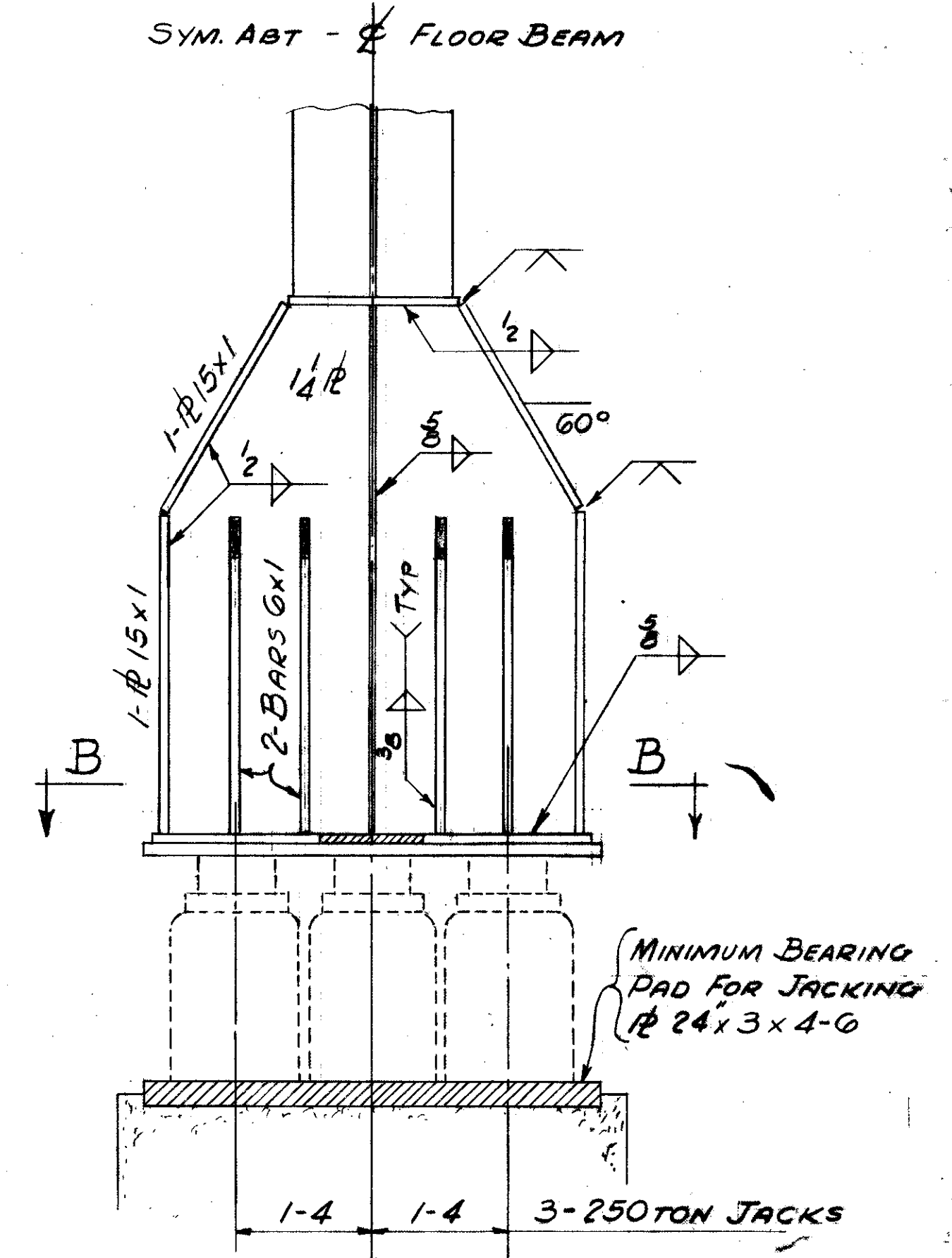
CUYAHOGA COUNTY
CUY-21-14.55



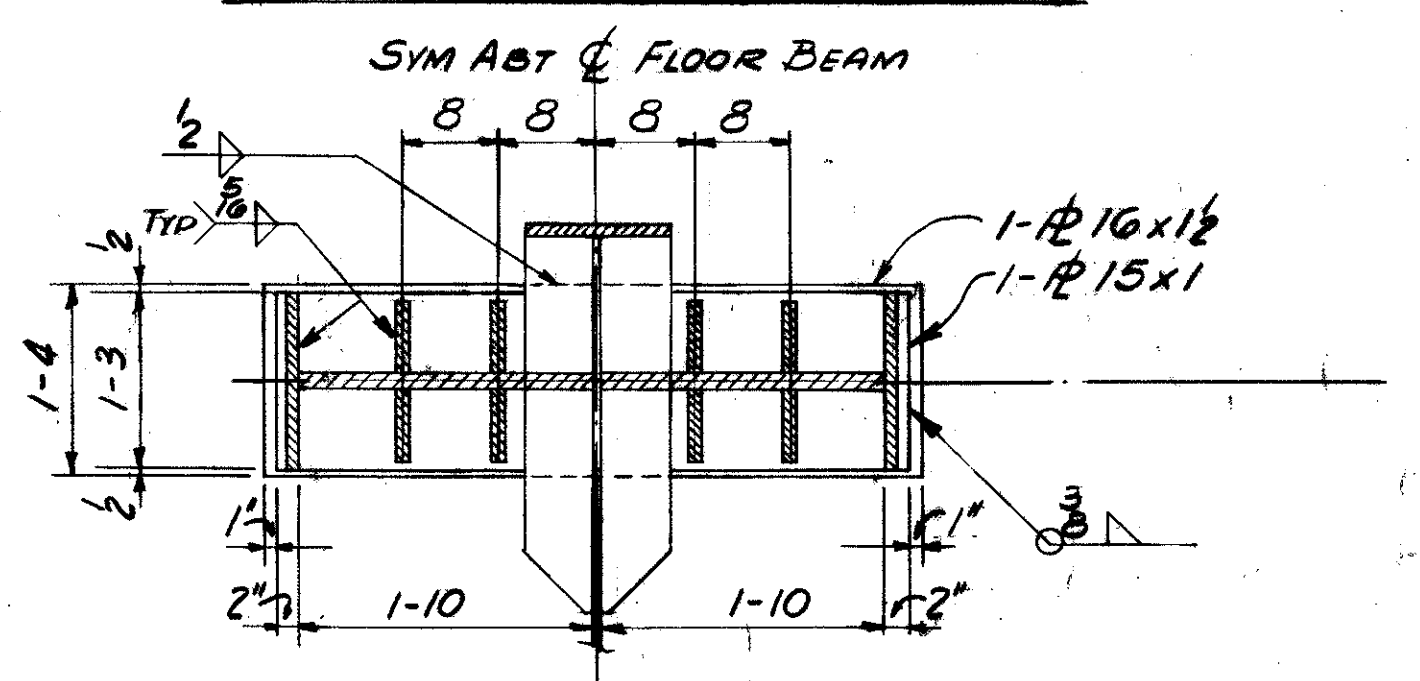
TYPICAL INTERMEDIATE FLOOR BEAM
STATION 98+26 TO STATION 102+32.99 NORTHBOUND
STATION 92+76.67 TO STATION 102+32.99 SOUTHBOUND



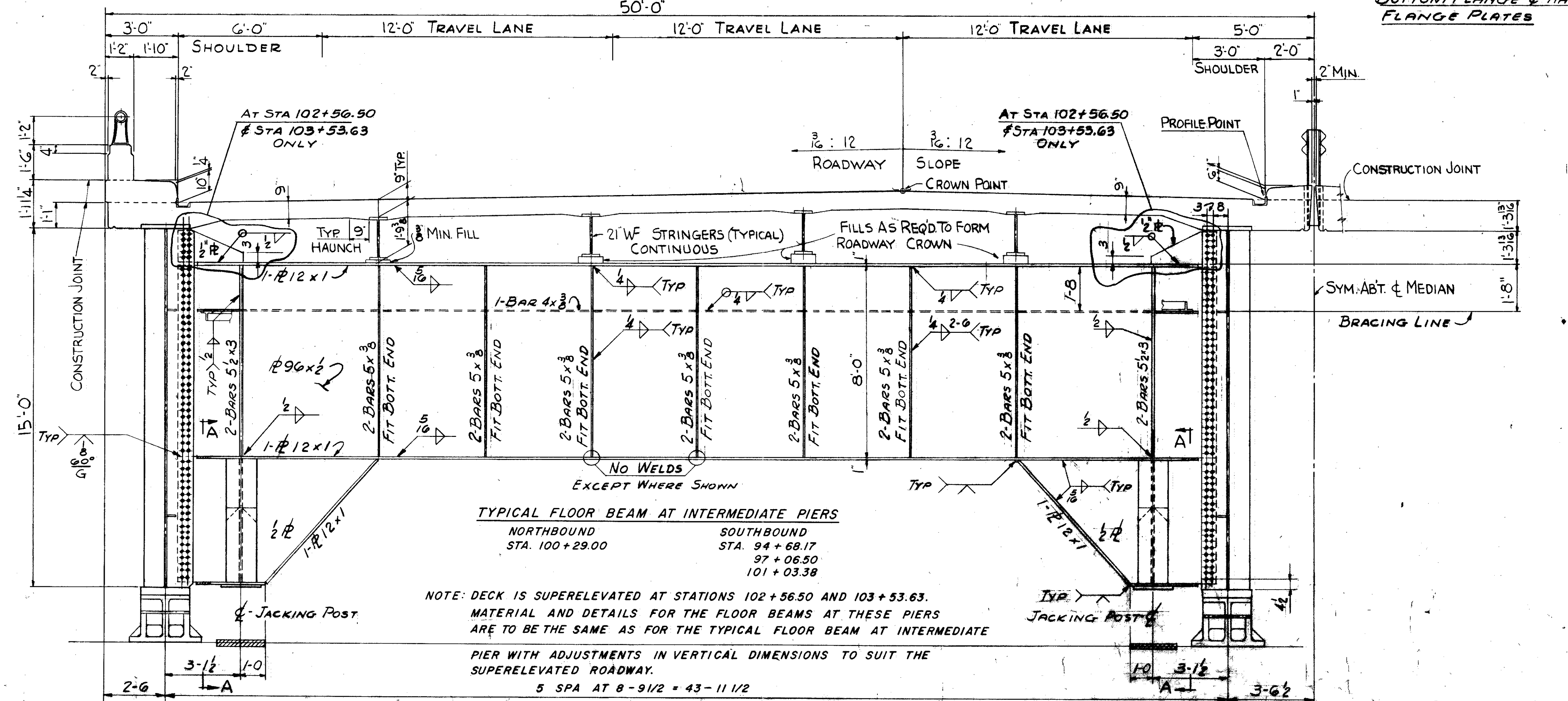
TYPICAL END TRIM ON BOTTOM FLANGE & HAUNCH FLANGE PLATES



SECTION A-A & FUTURE JACKING SCHEME



SECTION B-B



TYPICAL FLOOR BEAM AT INTERMEDIATE PIERS
NORTHBOUND STA. 100+29.00
SOUTHBOUND STA. 94+68.17
97+06.50
101+03.38

NOTE: DECK IS SUPERELEVATED AT STATIONS 102+56.50 AND 103+53.63. MATERIAL AND DETAILS FOR THE FLOOR BEAMS AT THESE PIERS ARE TO BE THE SAME AS FOR THE TYPICAL FLOOR BEAM AT INTERMEDIATE PIERS WITH ADJUSTMENTS IN VERTICAL DIMENSIONS TO SUIT THE SUPERELEVATED ROADWAY.

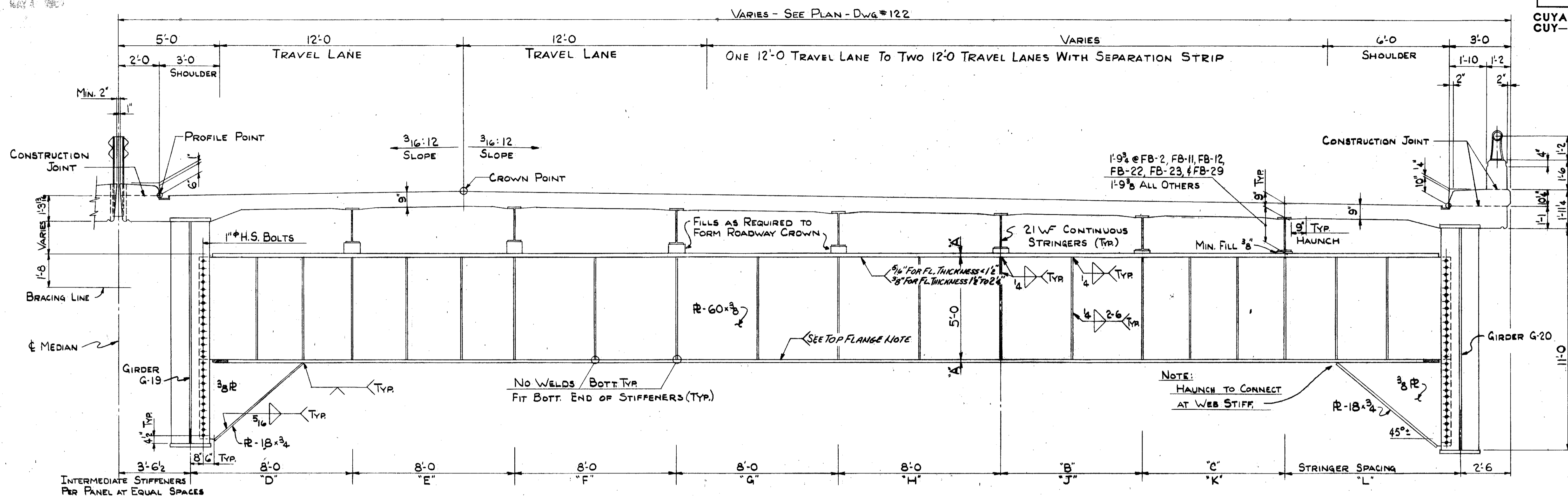
5 SPA AT 8'-9 1/2" = 43'-11 1/2"

FOR GENERAL NOTES SEE SHEET NO. 118

TRYGVE HOFF & ASSOCIATES
ENGINEERS
1922 EAST 107TH STREET CLEVELAND, OHIO.

SUPERSTRUCTURE DETAILS
BRIDGE NO. CUY-21-14.55
WILLOW FREEWAY OVER KINGSBURY RUN
CUYAHOGA COUNTY, U.S.R. 21

SCALE	DATE
DESIGNED	DRAWN
TRACED	CHECKED
REVIEWED	DATE
CRB	DF



TYPICAL INTERMEDIATE FLOOR BEAM (FB-2 SHOWN)
NORTH BOUND BRIDGE STA. 91+86 TO STA. 98+26

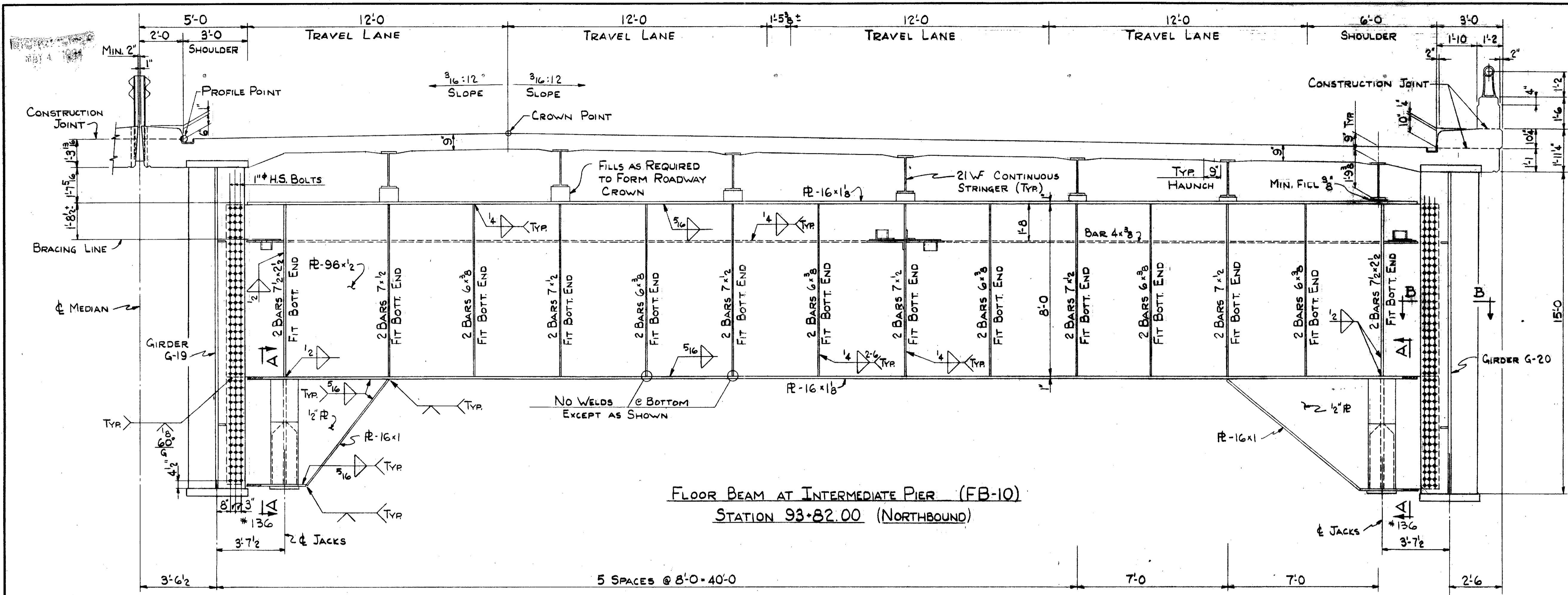
FLOOR BEAM	FLG. SIZE	"A"	"B"	"C"	"D"	"E"	"F"	"G"	"H"	"J"	"K"	"L"
FB-2	18 x 2 1/8"	7'-0"	7'-0"	2	2	1	1	1	1	1	2	2
FB-3	18 x 2 1/8"	7'-0"	7'-0"	2	2	1	1	1	1	1	2	2
FB-4	18 x 2 1/8"	7'-0"	7'-0"	2	2	1	1	1	1	1	2	2
FB-5	18 x 2 1/8"	7'-0"	7'-0"	2	2	1	1	1	1	1	2	2
FB-6	18 x 2 1/8"	7'-0"	7'-0"	2	2	1	1	1	1	1	2	2
FB-7	18 x 2 1/8"	7'-0"	7'-0"	2	2	1	1	1	1	1	2	1
FB-8	18 x 2 1/8"	7'-0"	7'-0"	2	2	1	1	1	1	1	2	1
FB-9	18 x 2 1/8"	7'-0"	7'-0"	2	2	1	1	1	1	1	2	1
FB-11	18 x 1 3/8"	7'-0"	7'-0"	2	2	1	1	1	1	1	2	—
FB-12	18 x 1 3/8"	7'-0"	7'-0"	2	2	1	1	1	1	1	2	—
FB-13	18 x 1 3/8"	7'-0"	—	2	2	1	1	1	1	2	—	2
FB-14	18 x 1 3/8"	7'-0"	—	2	2	1	1	1	1	2	—	2
FB-15	18 x 1 3/8"	7'-0"	—	2	2	1	1	1	1	2	—	2
FB-16	18 x 1 3/8"	7'-0"	—	2	2	1	1	1	1	2	—	2
FB-17	18 x 1 3/8"	7'-0"	—	2	2	1	1	1	1	2	—	2
FB-18	18 x 1 3/8"	7'-0"	—	2	2	1	1	1	1	2	—	1
FB-19	18 x 1 3/8"	7'-0"	—	2	2	1	1	1	1	2	—	1
FB-20	18 x 1 3/8"	7'-0"	—	2	2	1	1	1	1	2	—	—
FB-22	18 x 1 3/8"	7'-0"	—	2	1	1	1	1	1	2	—	—
FB-23	18 x 1 3/8"	7'-0"	—	2	1	1	1	1	1	2	—	—
FB-24	18 x 1 3/8"	—	—	2	1	1	1	1	1	—	—	2
FB-25	18 x 1 3/8"	—	—	2	1	1	1	1	1	—	—	2
FB-26	18 x 1 3/8"	—	—	2	1	1	1	1	1	—	—	1
FB-27	18 x 1 3/8"	—	—	2	1	1	1	1	1	—	—	1
FB-28	18 x 1 3/8"	—	—	2	1	1	1	1	1	—	—	1
FB-29	18 x 1 3/8"	—	—	2	1	1	1	1	1	—	—	—

GENERAL NOTES:
 FLOOR BEAMS ARE NUMBERED CONSECUTIVELY BEGINNING AT SOUTH END OF BRIDGE AT STA. 91+86.
 ALL STIFFENERS UNDER STRINGERS TO BE 2 BARS - 8 x 1/2".
 ALL INTERMEDIATE STIFFENERS TO BE 2 BARS - 6 x 3/8".
 FIT BOTTOM END OF VERTICAL STIFFENERS WELD STIFFENERS AS NOTED.
 ALL INTERIOR FLOOR BEAMS TO BE PERPENDICULAR TO TOP FLANGE OF GIRDERS G-19 & G-20.
 ANY DETAIL NOT TABULATED IS SIMILAR AS SHOWN FOR ALL INTERIOR FLOOR BEAMS.
 FOR ADDITIONAL GENERAL NOTES SEE SHEET NO. 118.

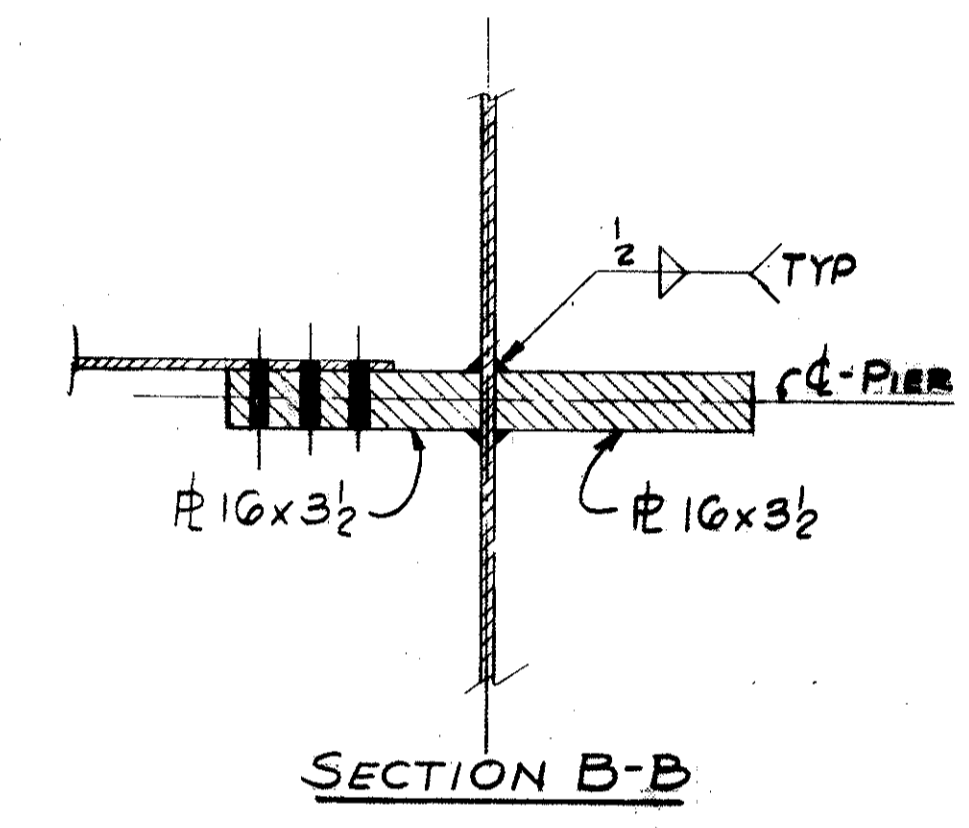
TRYGVE HOFF & ASSOCIATES
 ENGINEERS
 1922 EAST 107TH STREET CLEVELAND, OHIO

SUPERSTRUCTURE DETAILS
 BRIDGE NO. CUY-21-1455
 WILLOW FREEWAY OVER KINGSBURY RUN
 CUYAHOGA COUNTY U.S.R. 21

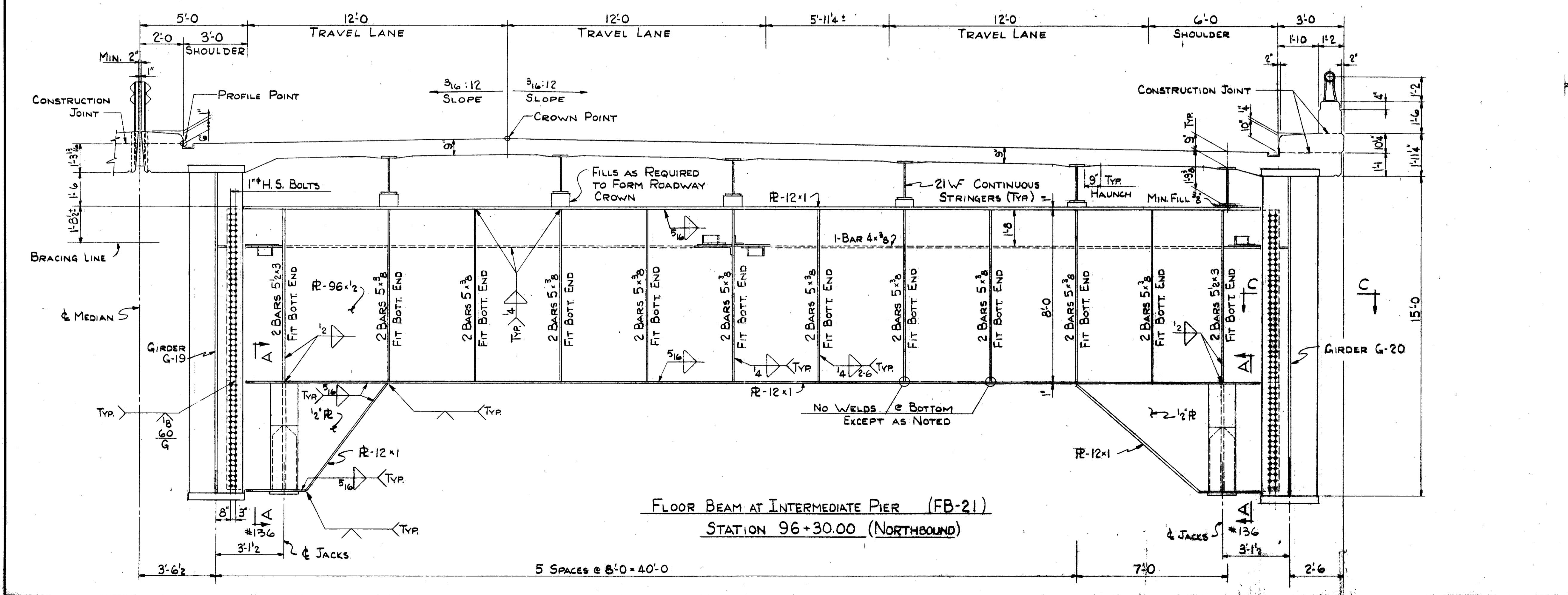
SCALE	DATE
DRAWN	TRACED
CHECKED	APPROVED
R.D.M.E.H.	C.W.T. CB 6/27/55



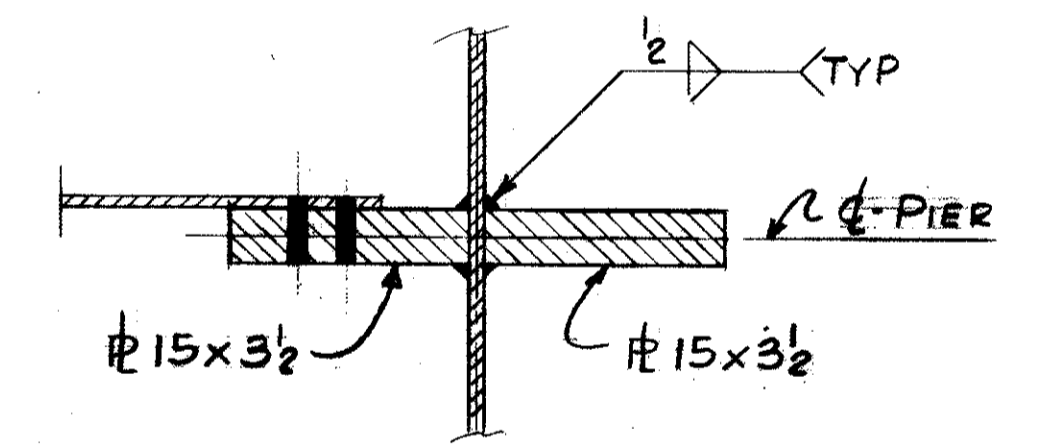
FLOOR BEAM AT INTERMEDIATE PIER (FB-10)
STATION 93+82.00 (NORTHBOUND)



SECTION B-B



FLOOR BEAM AT INTERMEDIATE PIER (FB-21)
STATION 96+30.00 (NORTHBOUND)



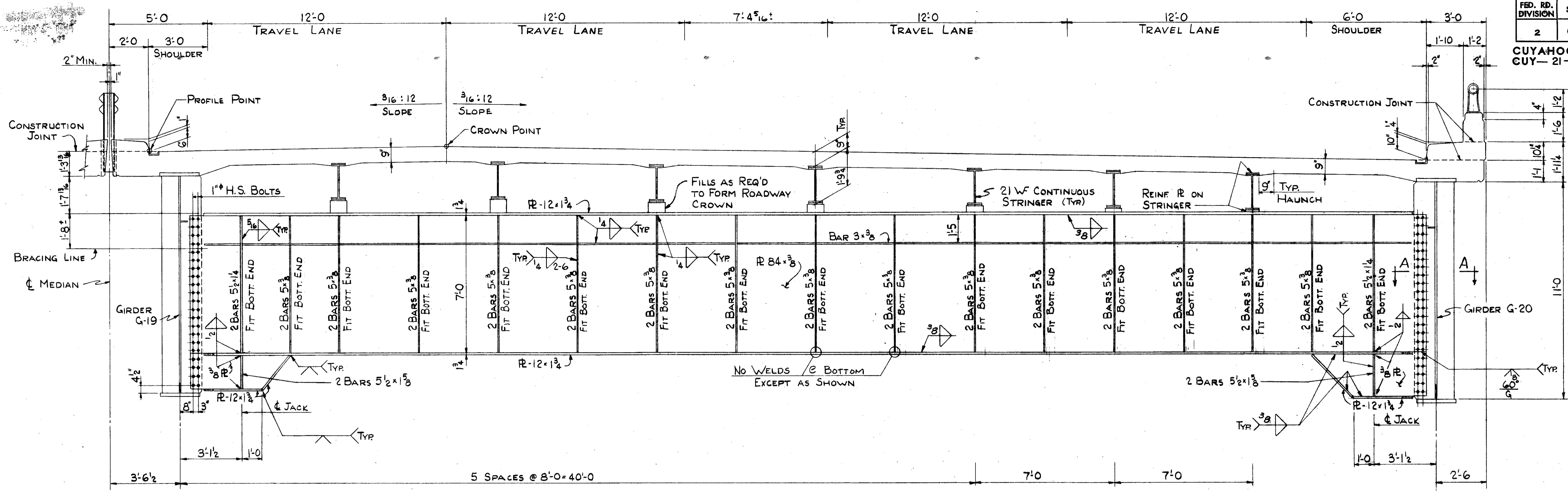
SECTION C-C

FOR GENERAL NOTES SEE SHEET NO. 118

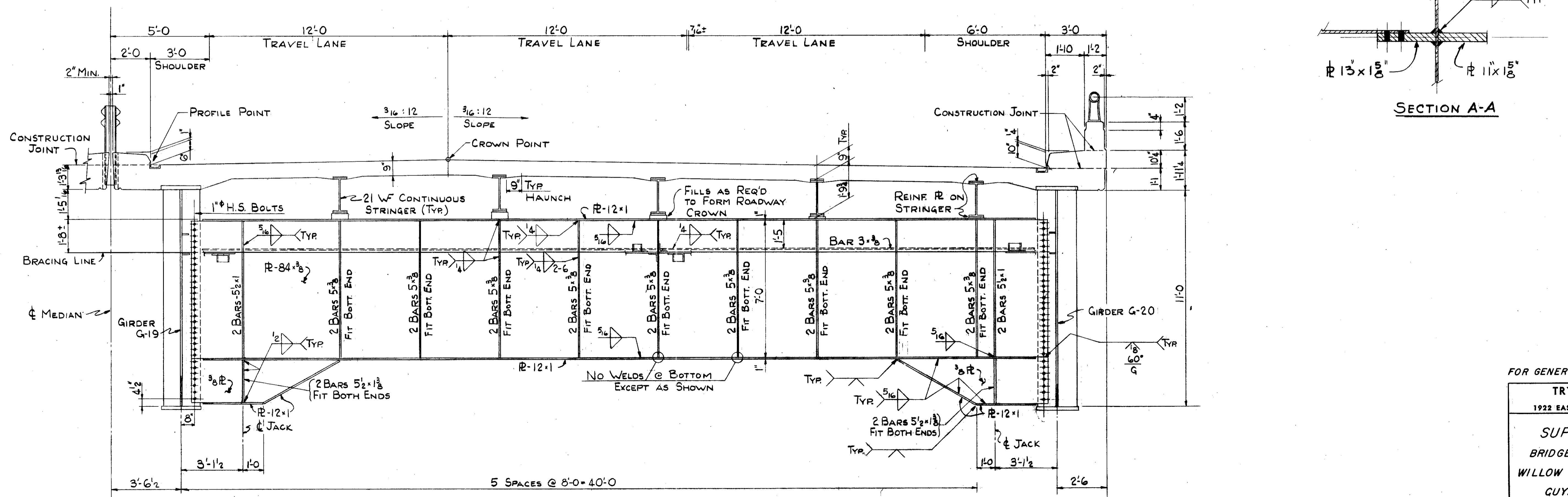
TRYGVE HOFF & ASSOCIATES
ENGINEERS
1922 EAST 107TH STREET CLEVELAND, OHIO

SUPERSTRUCTURE DETAILS
BRIDGE NO. CUY-21-1455
WILLOW FREEWAY OVER KINGSBURY RUN
CUYAHOGA COUNTY U.S.R. 21

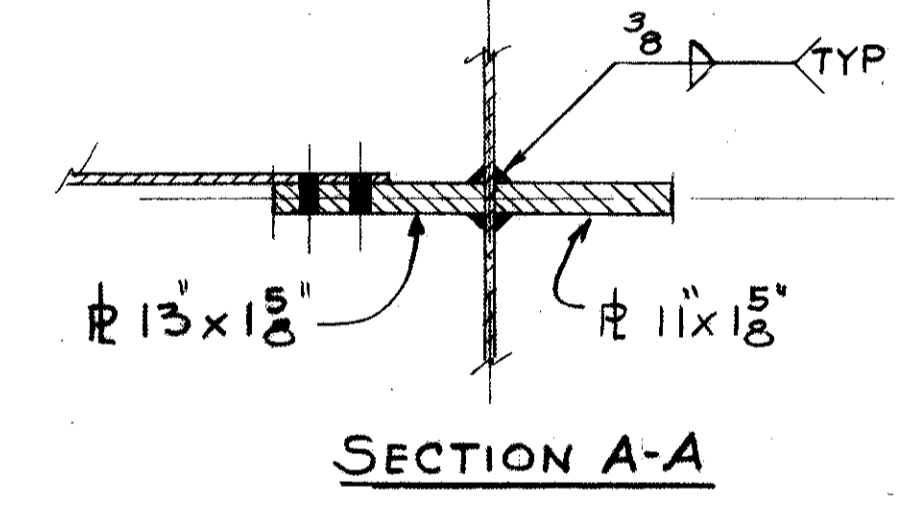
SCALE	DATE
DRAWN	TRACED
CHECKED	REVIEWED
RDH	RDH
CWT	CB 6/25/55



END FLOOR BEAM AT STATION 91+86.50 (FB-1)
(NORTHBOUND)



END FLOOR BEAM AT STATION 98+25.81 (FB-30)
(NORTHBOUND)



FOR GENERAL NOTES SEE SHEET NO. 118

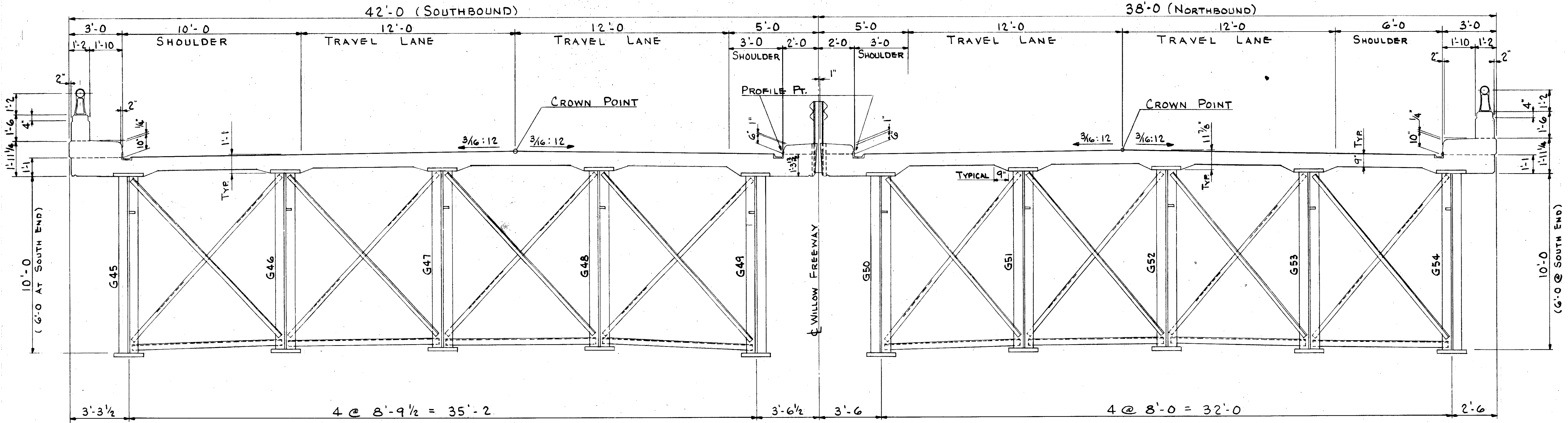
TRYGVE HOFF & ASSOCIATES
ENGINEERS
1922 EAST 107TH STREET CLEVELAND, OHIO

SUPERSTRUCTURE DETAILS
BRIDGE NO. CUY-21-1455
WILLOW FREEWAY OVER KINGSBURY RUN
CUYAHOGA COUNTY U.S.R. 21

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISION
R.D.H.	R.D.H.		C.W.F.	CB	6/27/62	

MAY 4 1964

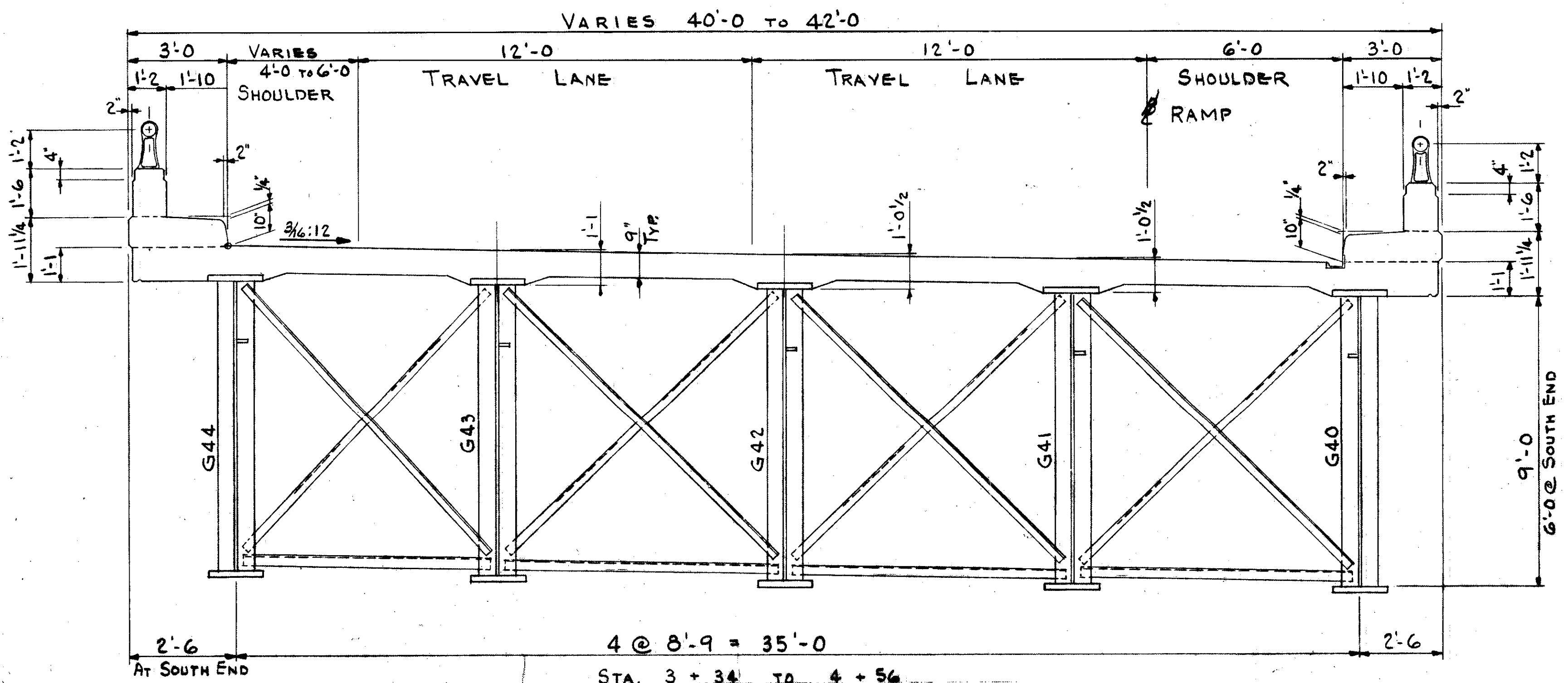
CUYAHOGA COUNTY
CUY-21-1455



SOUTHBOUND STA. 87+32 TO STA. 88+78

NORTHBOUND STA. 87+32 TO STA. 89+01

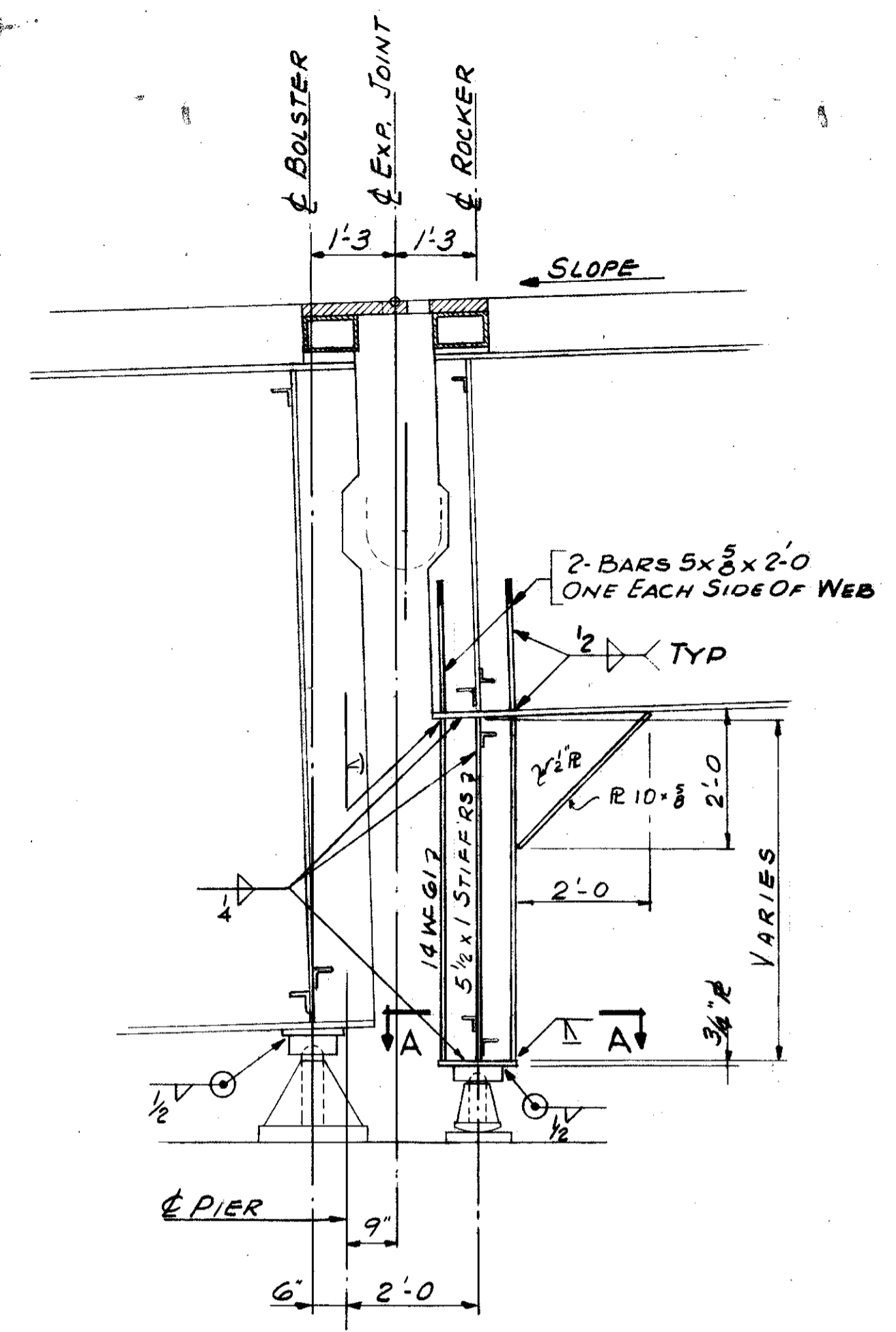
TYPICAL SECTION LOOKING NORTH



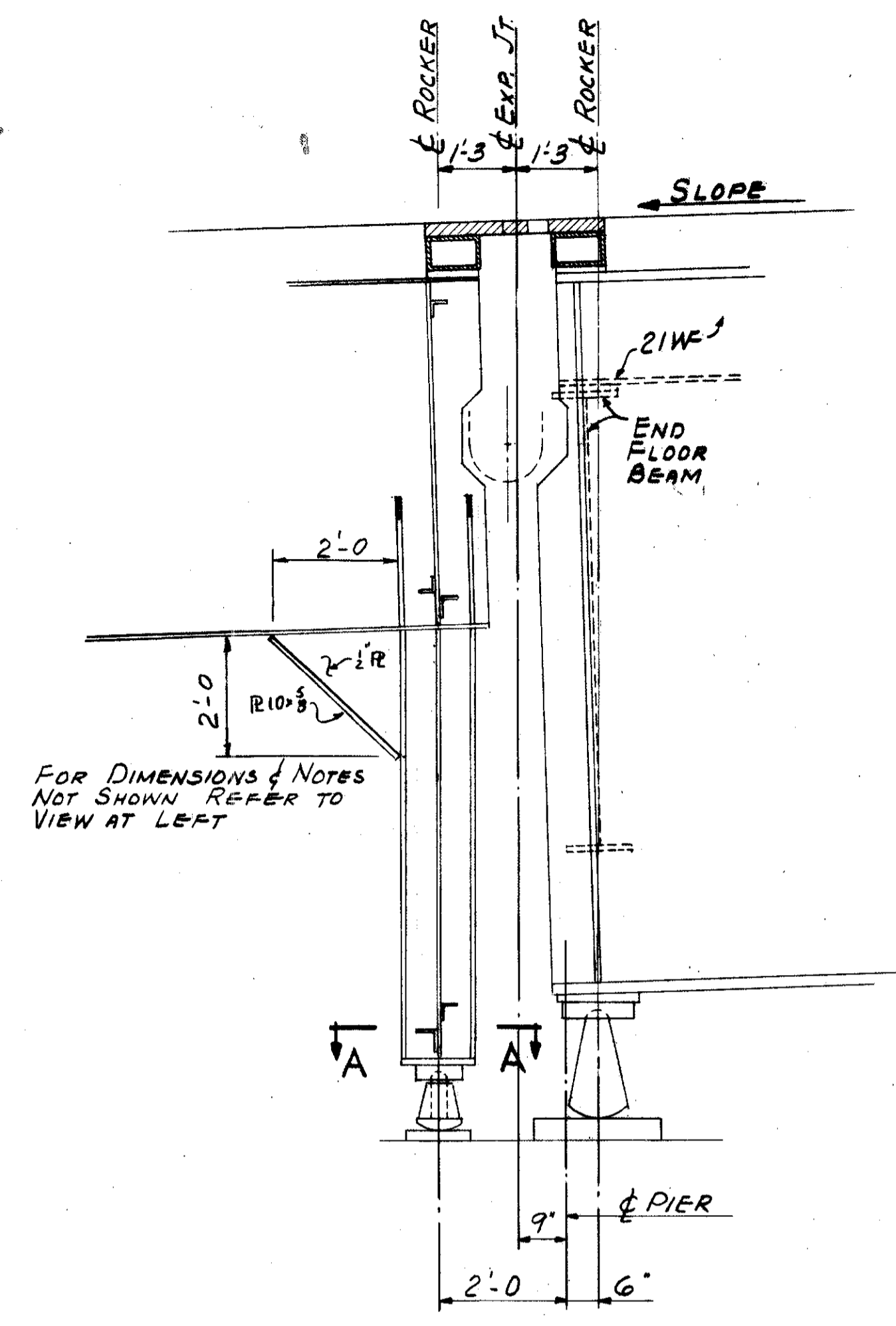
TYPICAL SECTION N-E & N-W RAMP

FOR GENERAL NOTES SEE SHEET NO. 118

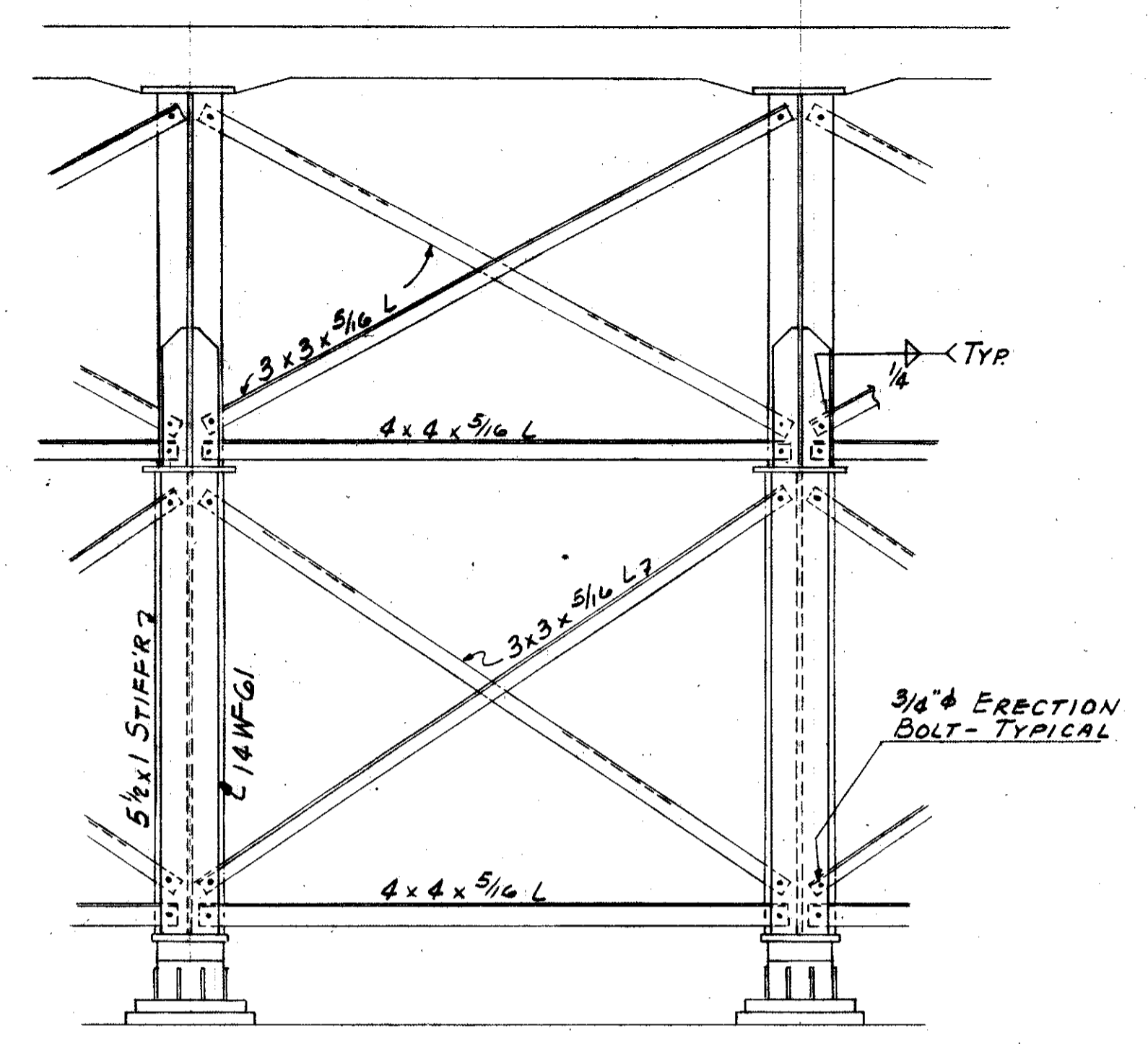
TRYGVE HOFF & ASSOCIATES			
ENGINEERS			
1922 EAST 107TH STREET		CLEVELAND, OHIO	
SUPERSTRUCTURE DETAILS			
BRIDGE NO.		CUY-21-1455	
WILLOW FREEWAY OVER KINGSBURY RUN			
CUYAHOGA COUNTY U.S.R. 21			
SCALE	DATE		
DESIGNED	DRAWN	TRACED	CHECKED



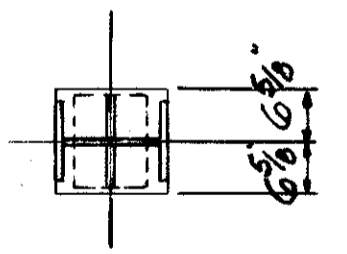
SECTION AT PIERS
STA 2+67.84; 89+44; 89+01



SECTION AT PIERS
STA 92+76.67; 91+86

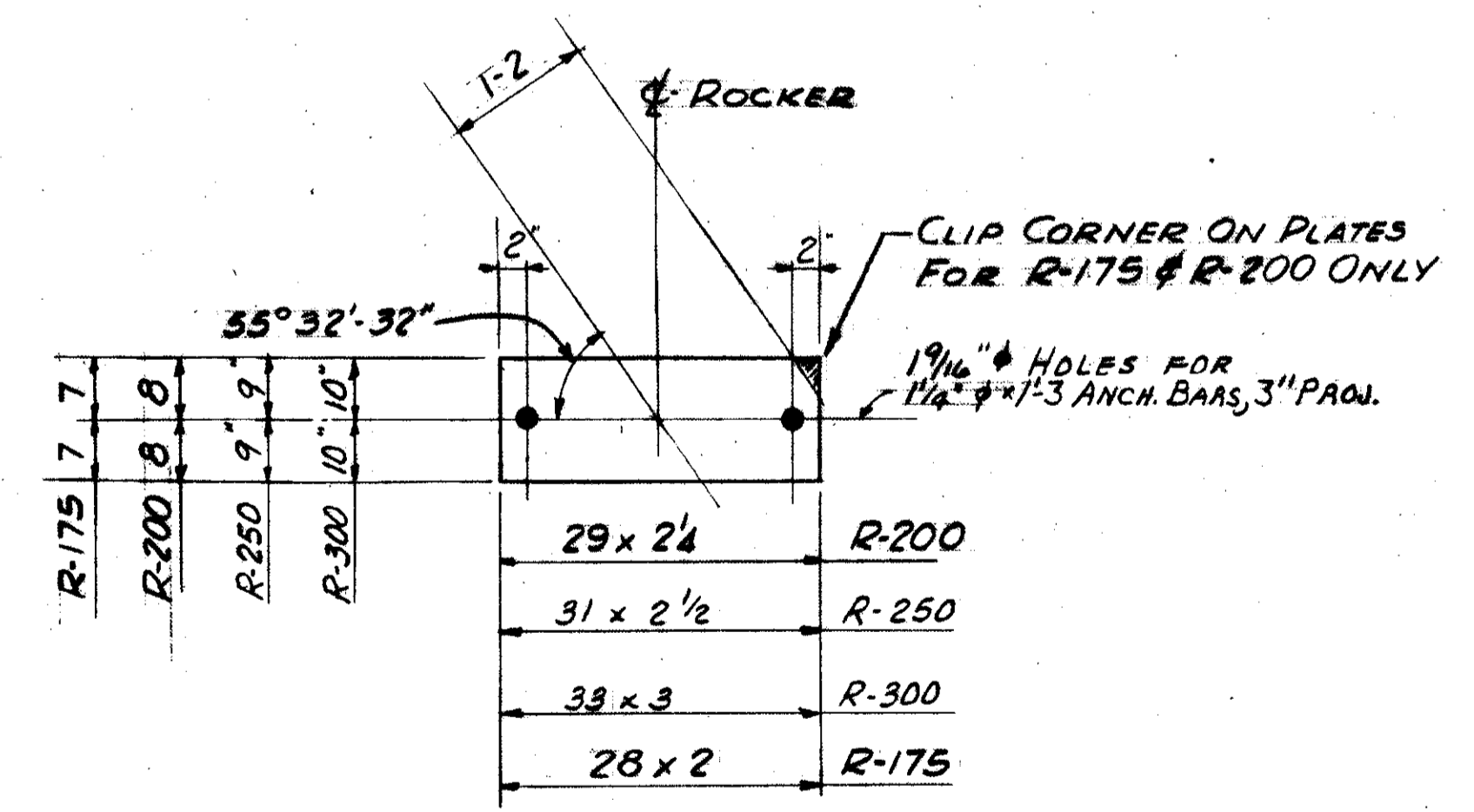


BRACING FOR PEDESTAL
ENDS OF STRINGER SYSTEMS



SECTION A-A

SPECIAL ROCKER BASE PLATES			
GIRDER	PIER STATION	ROCKER SIZE	DETAIL SAME AS
G3	NORTH ABUT	R-150	G3&G4 @ 105+61 ON 124
G4	Do	Do	Do
G9	Do	R-200	THIS SHEET
G10	Do	R-175	Do
G27	2+67.84	R-150	G3&G4 @ 105+61 ON 124
G29	Do	Do	Do
G23	89+44	Do	Do
G25	Do	Do	Do
G23	92+76.67	Do	Do
G24	Do	Do	Do
G31	89+01	Do	Do
G33	Do	Do	Do
G31	89+88	R-300	THIS SHEET
G33	Do	Do	Do
G36	30+90.31	R-175	G-9 @ 104+61 ON 124
G39	Do	Do	Do
G32	91+86	R-150	G3&G4 @ 104+61 ON 124
G34	Do	Do	Do
G36	Do	Do	Do
G41	4+56	R-300	THIS SHEET
G43	Do	Do	Do
G51	87+32	R-250	Do
G53	Do	Do	Do
G56	30+90.31	R-175	G9 @ 104+61 ON 124
G58	Do	Do	Do
G56	27+02	R-150	G3&G4 @ 105+61 ON 124
G58	Do	Do	Do

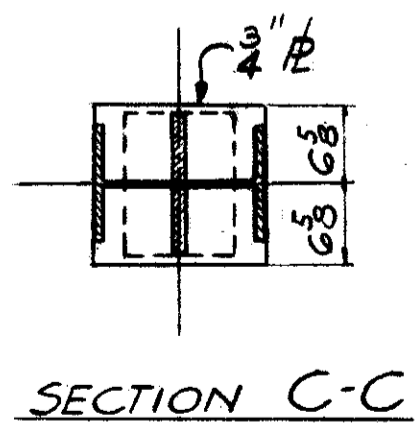
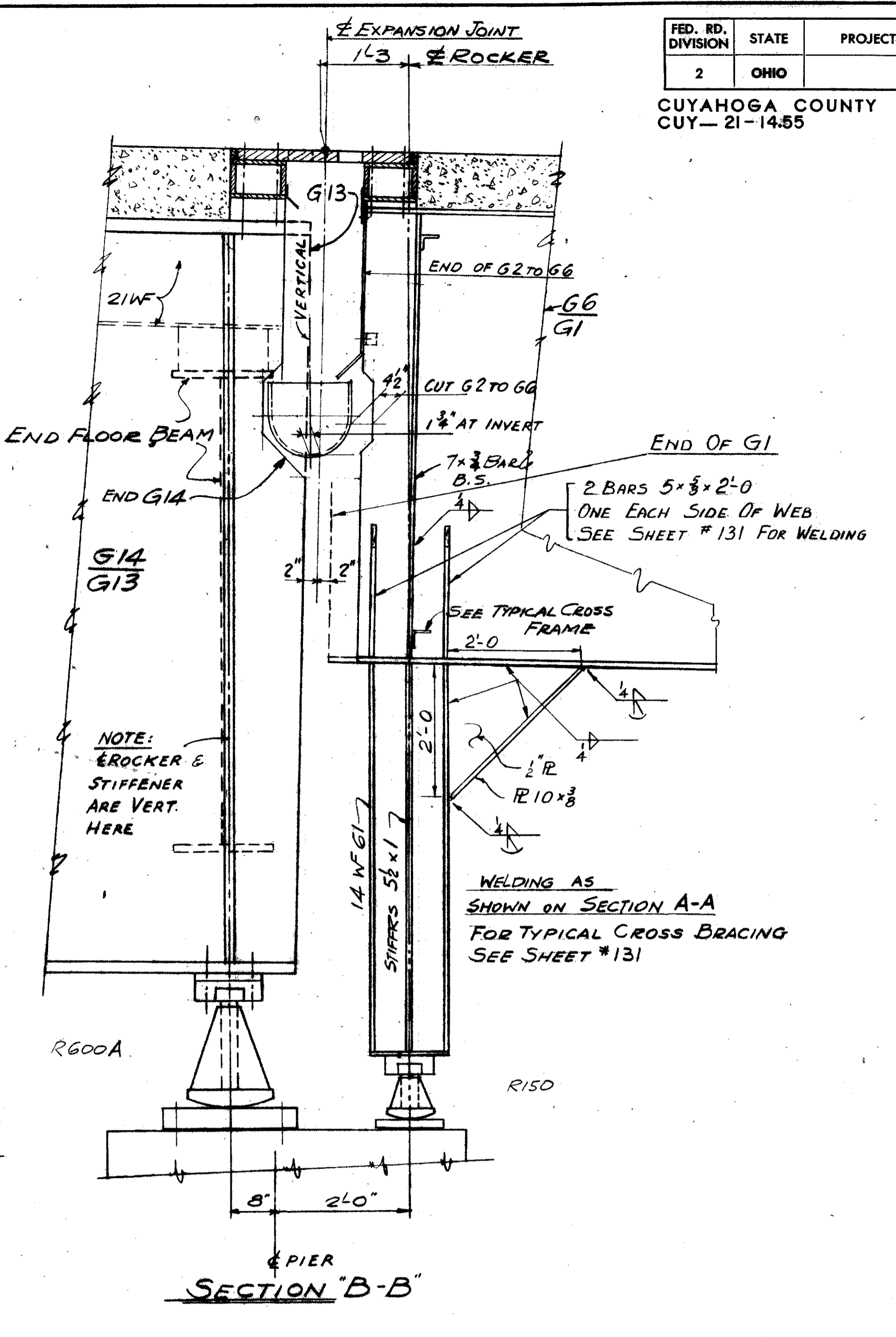
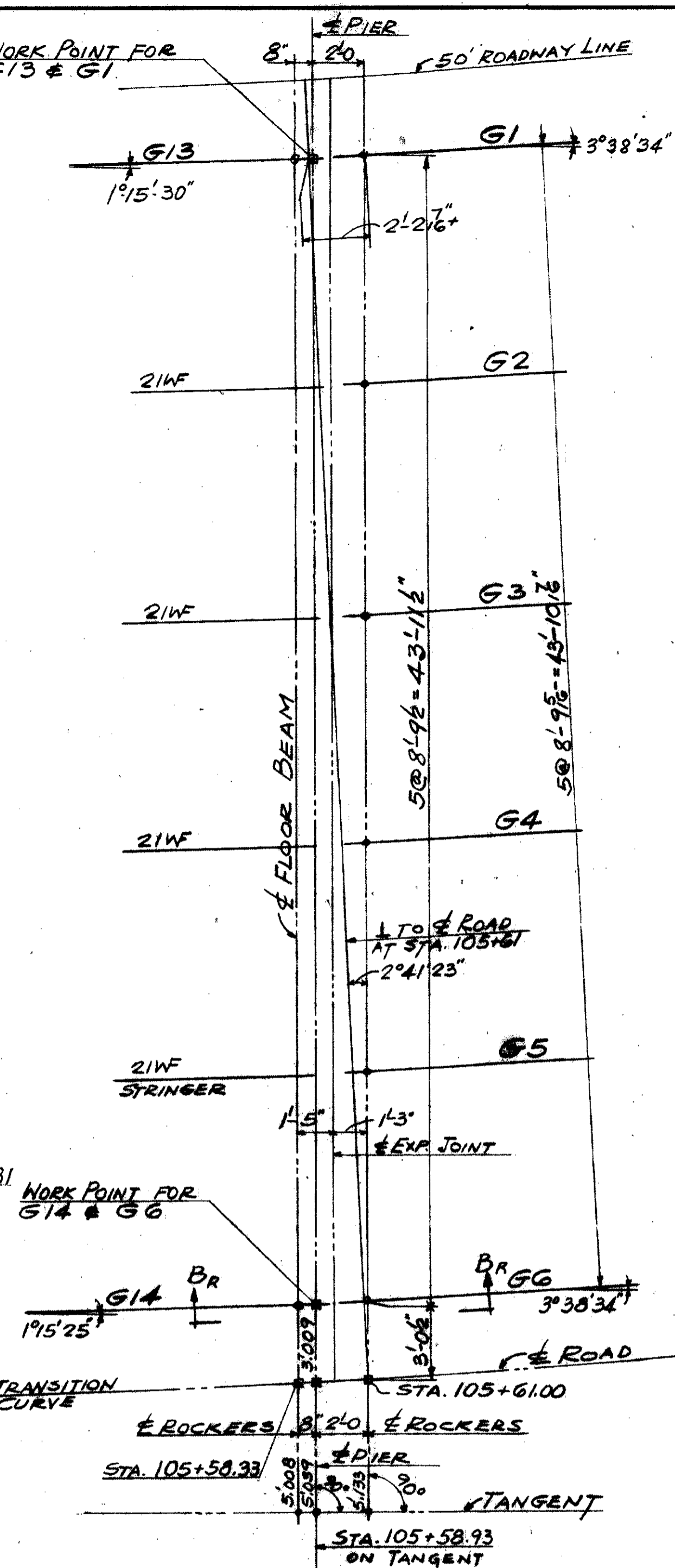
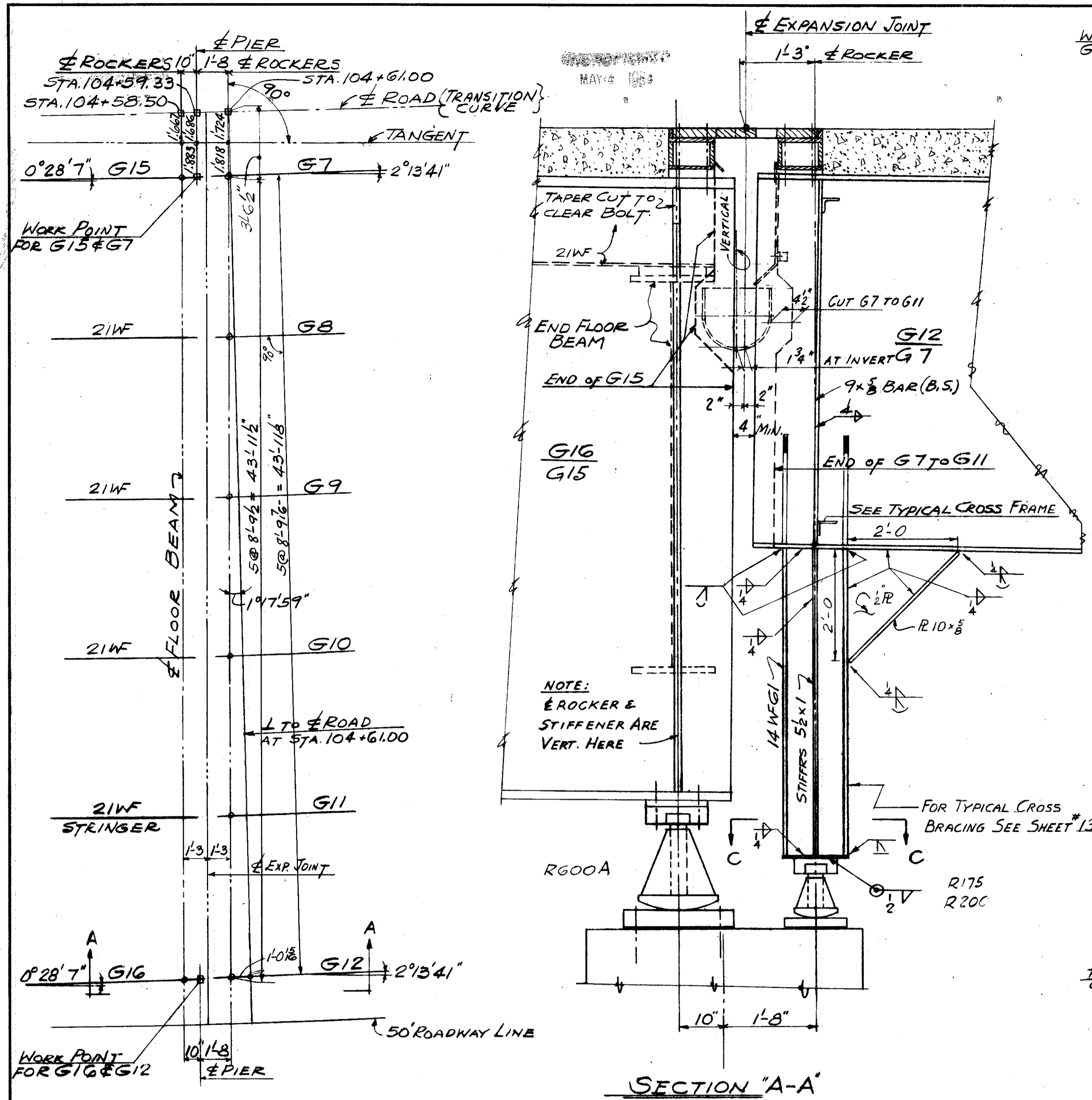


SPECIAL ROCKER BASE PLATE DETAILS
(SEE STANDARD SHEET RB-1-55 FOR REMAINING DETAILS NOT SHOWN)

TRYGVE HOFF & ASSOCIATES
ENGINEERS
1922 EAST 107TH STREET CLEVELAND, OHIO

EXPANSION JOINT FRAMING
BRIDGE NO. CUY-21-1455
WILLOW FREEWAY OVER KINGSBURY RUN
CUYAHOGA COUNTY U.S.R. 21

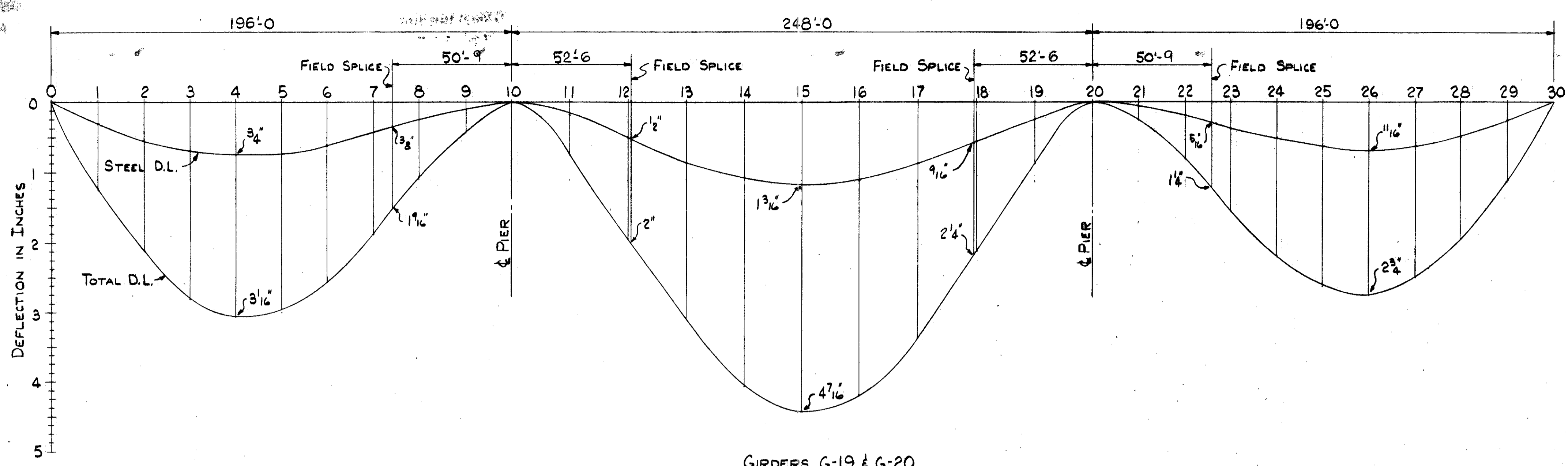
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE
	TC		CRB	CB	4/27/62



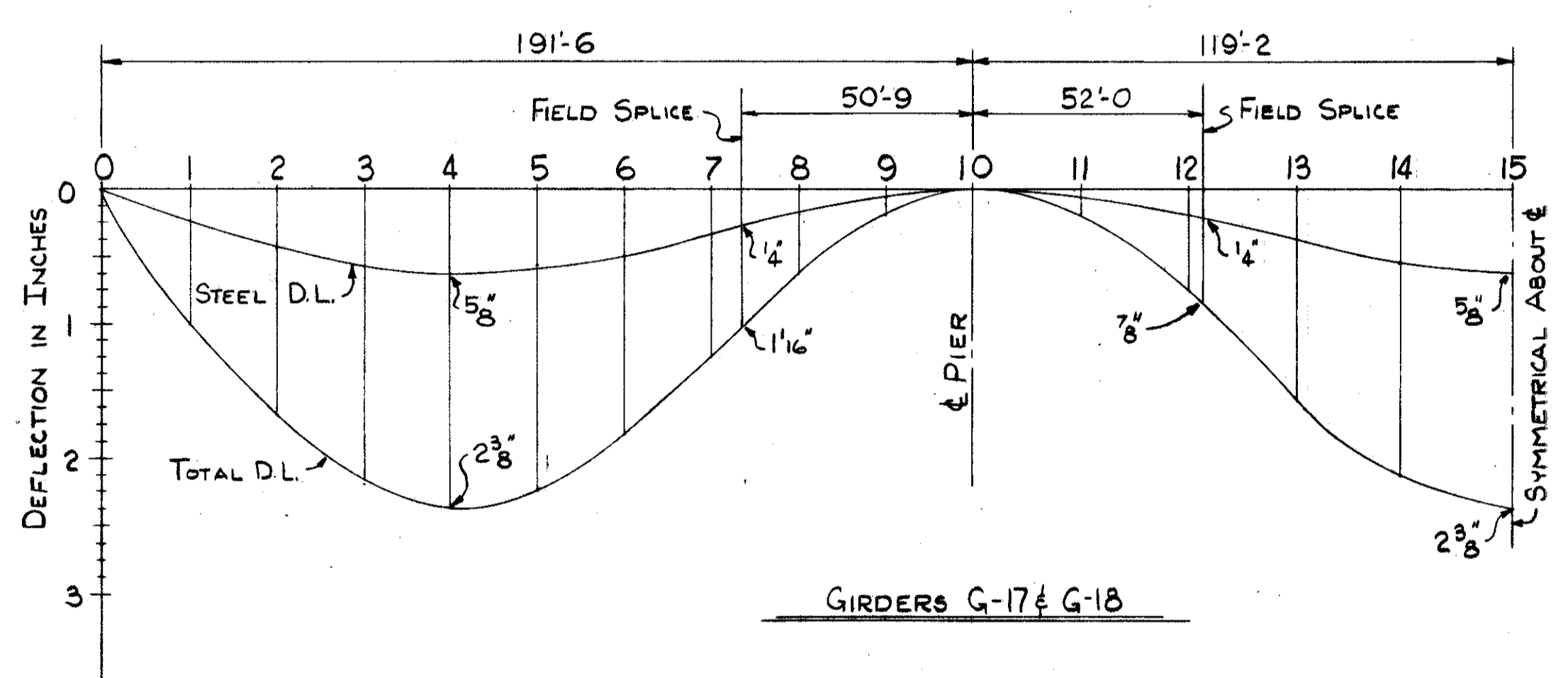
EXPANSION JOINT FRAMING-NORTHBOUND

EXPANSION JOINT FRAMING-SOUTHBOUND

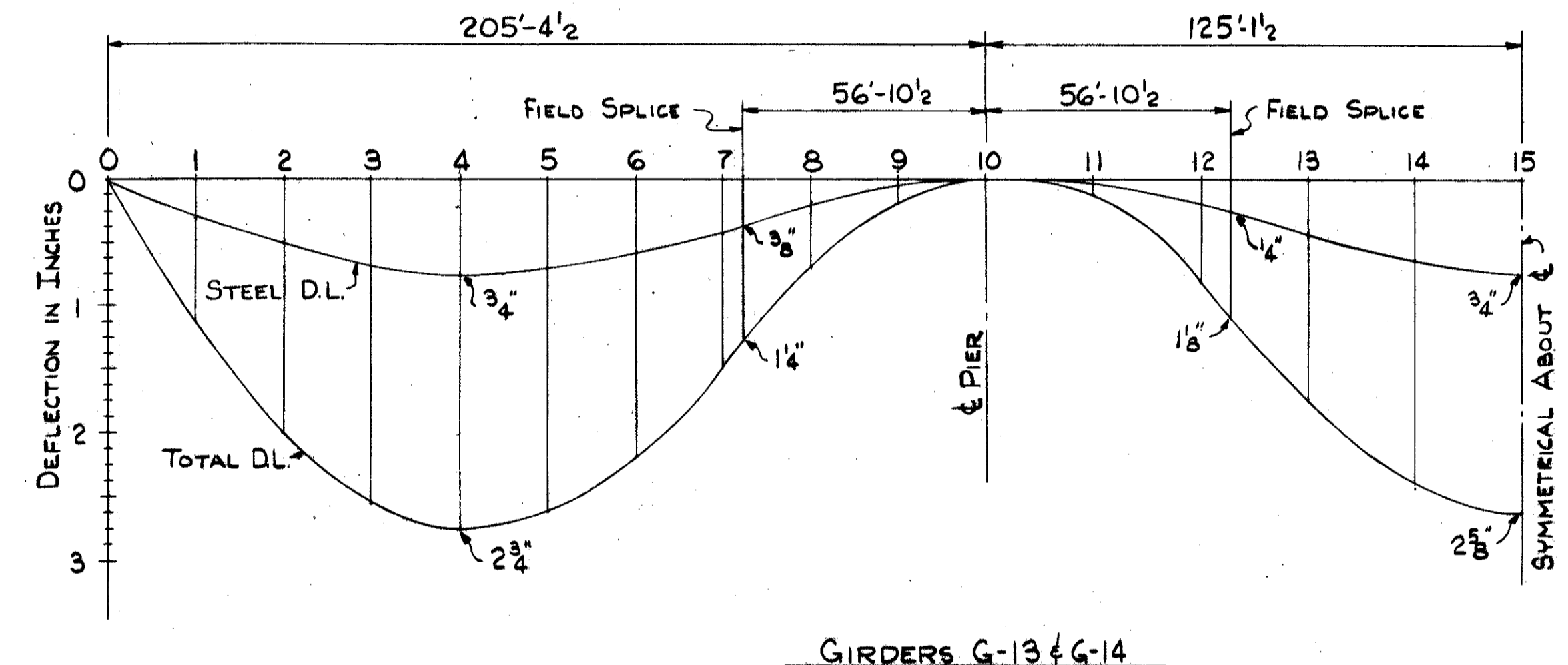
TRYGVE HOFF & ASSOCIATES ENGINEERS 1922 EAST 107TH STREET CLEVELAND, OHIO			
EXPANSION JOINT FRAMING			
BRIDGE NO.		CUY-21-1455	
WILLOW FREEWAY OVER KINGSBURY RUN CUYAHOGA COUNTY, U.S.R. 21			
SCALE	DRAWN	TRACED	DATE
	SAE		7.5.06



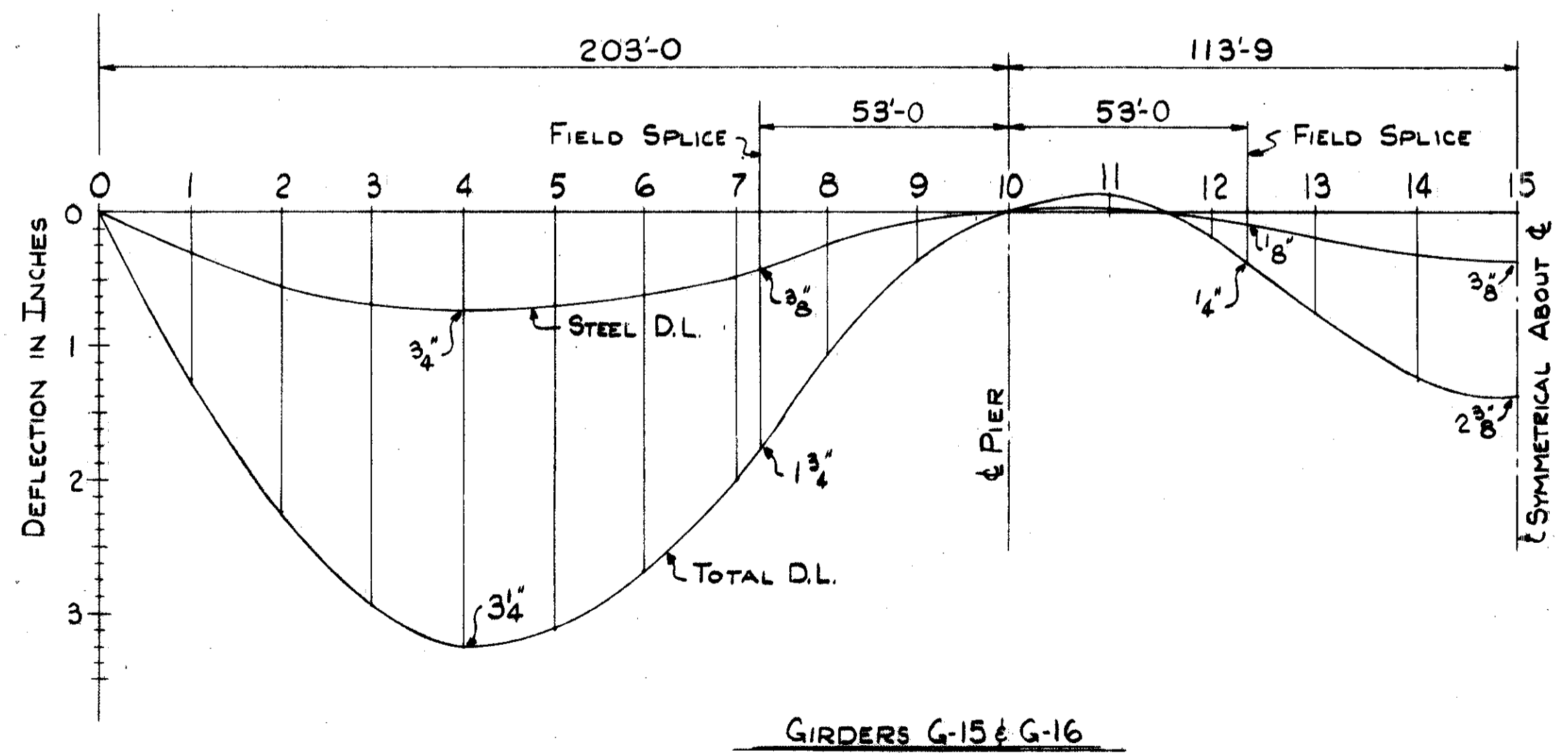
GIRDERS G-19 & G-20



GIRDERS G-17 & G-18



GIRDERS G-13 & G-14



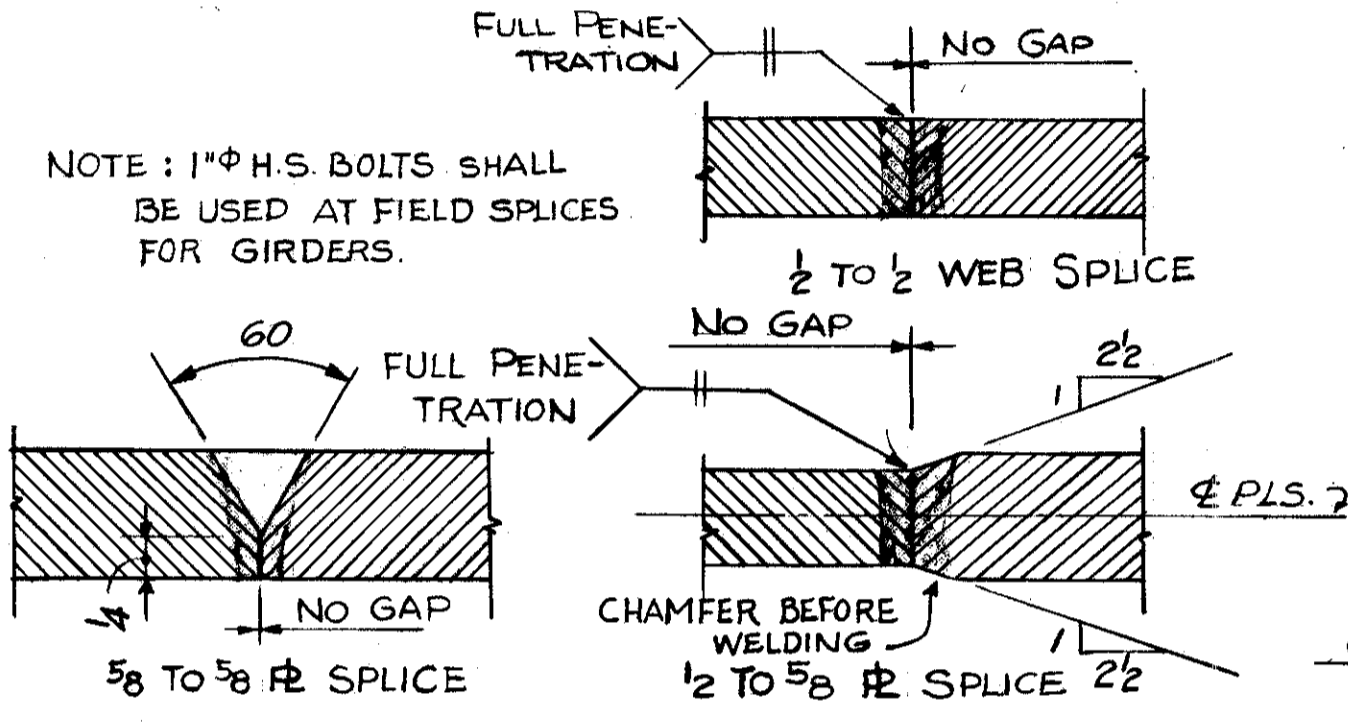
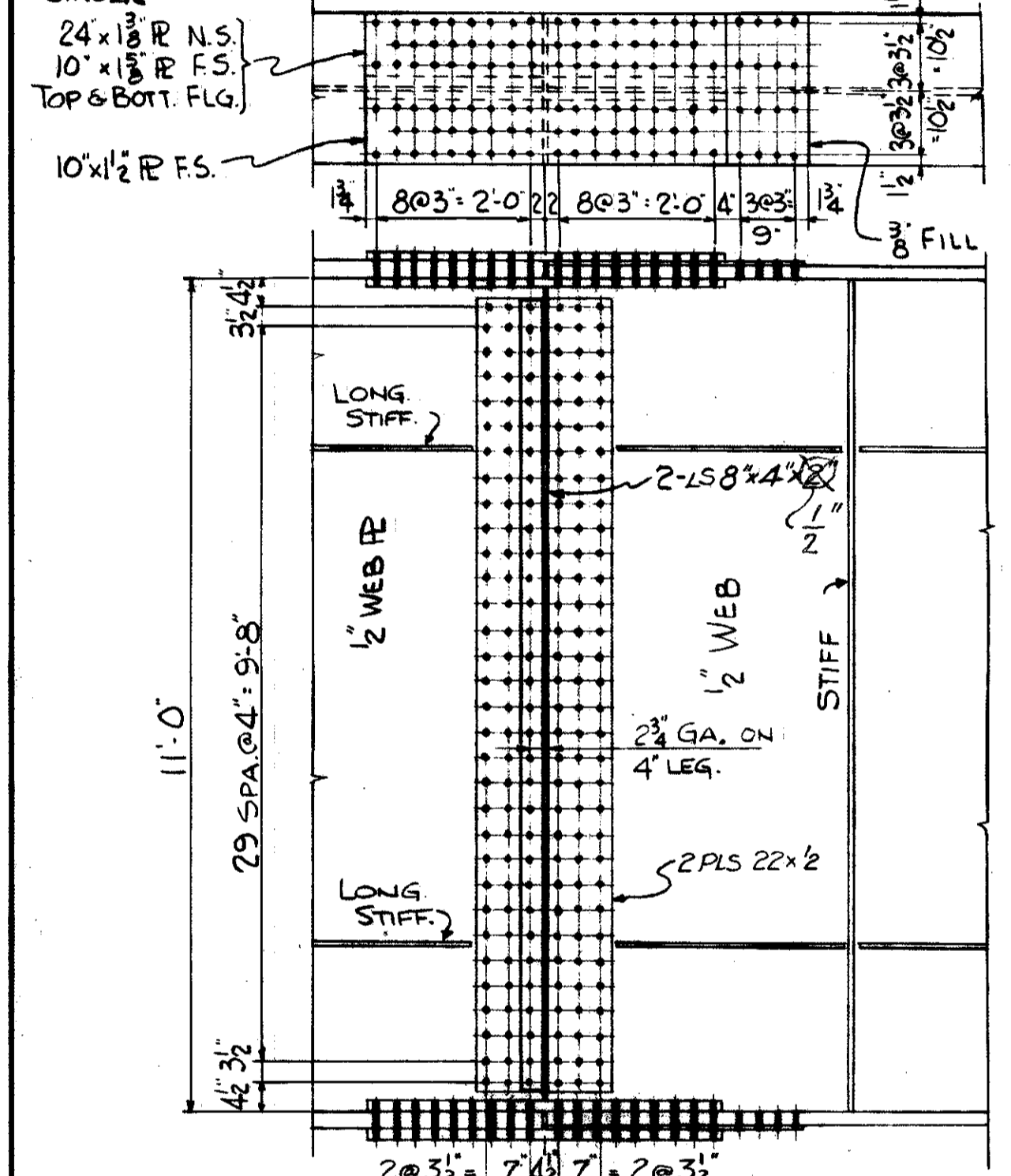
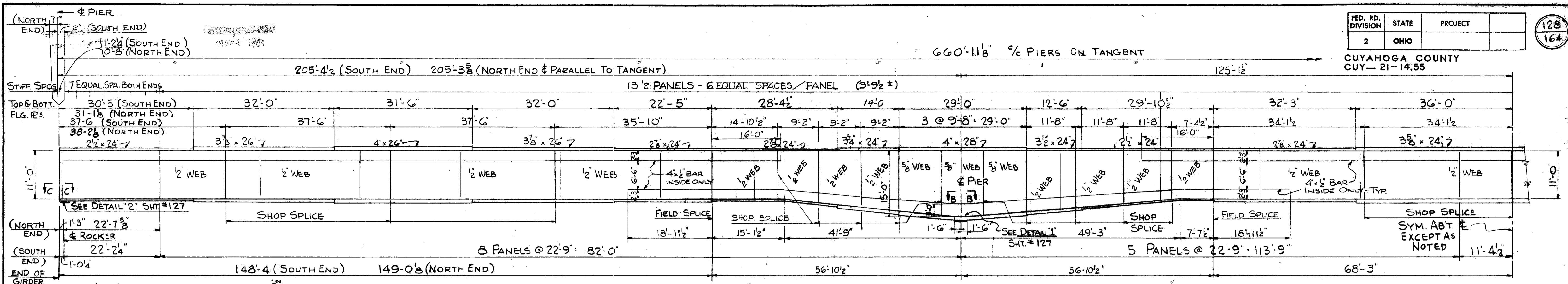
GIRDERS G-15 & G-16

TRYGVE HOFF & ASSOCIATES
ENGINEERS
1922 EAST 107TH STREET CLEVELAND, OHIO

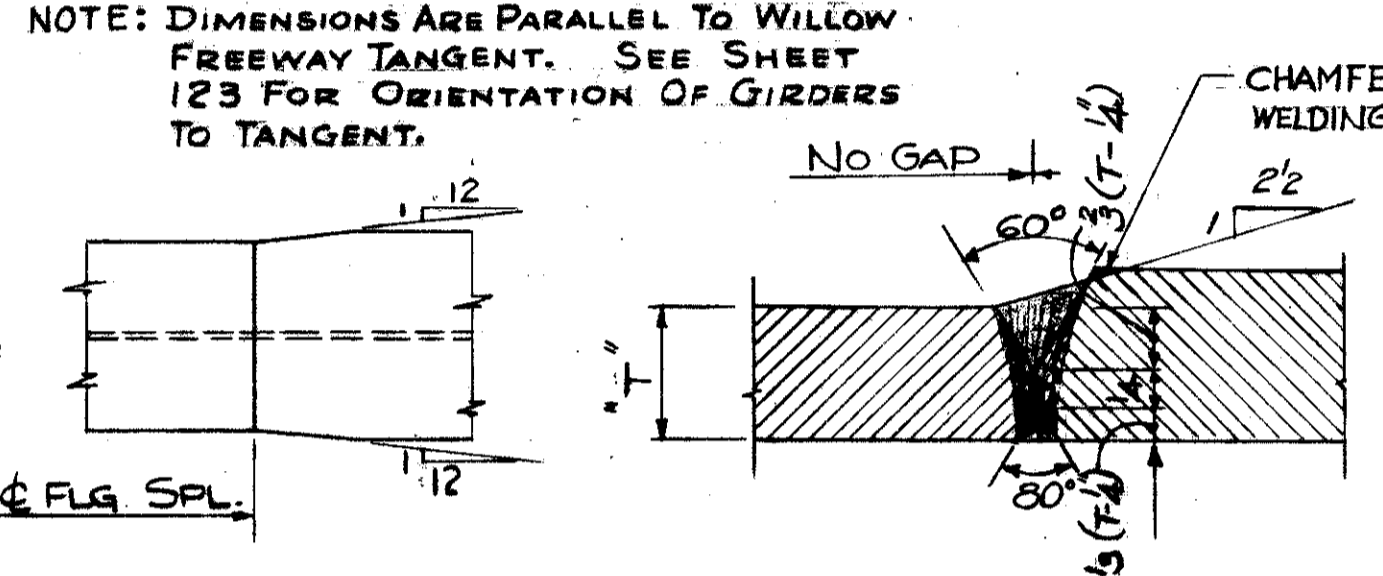
D.L. DEFLECTION CURVES

BRIDGE NO. CUY-21-14.55
WILLOW FREEWAY OVER KINGSBURY RUN
CUYAHOGA COUNTY U.S.R. 21

SCALE	DRAWN	TRACED	CHECKED	DATE
	EDM		CAB	03 4/26/62



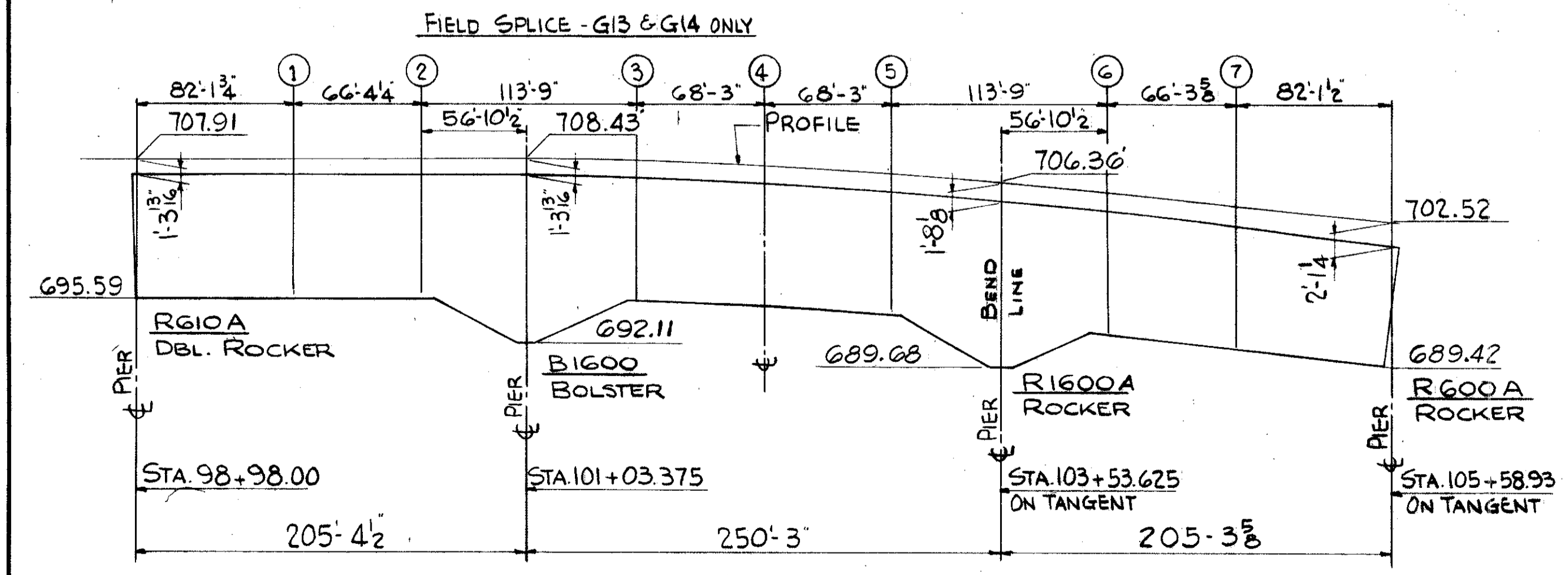
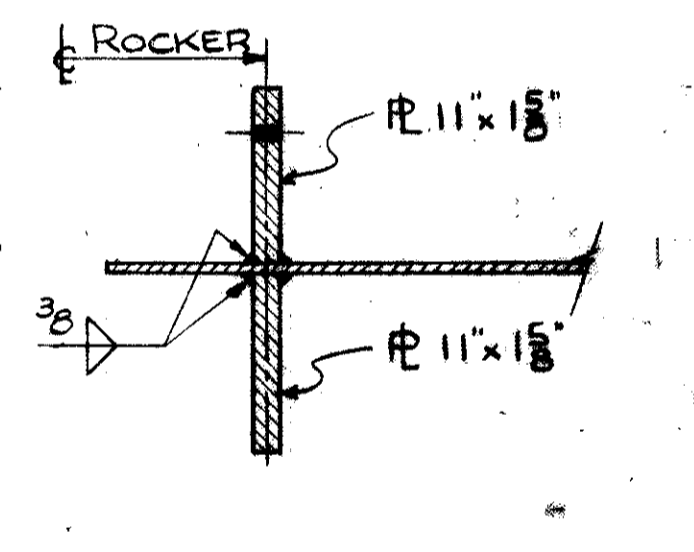
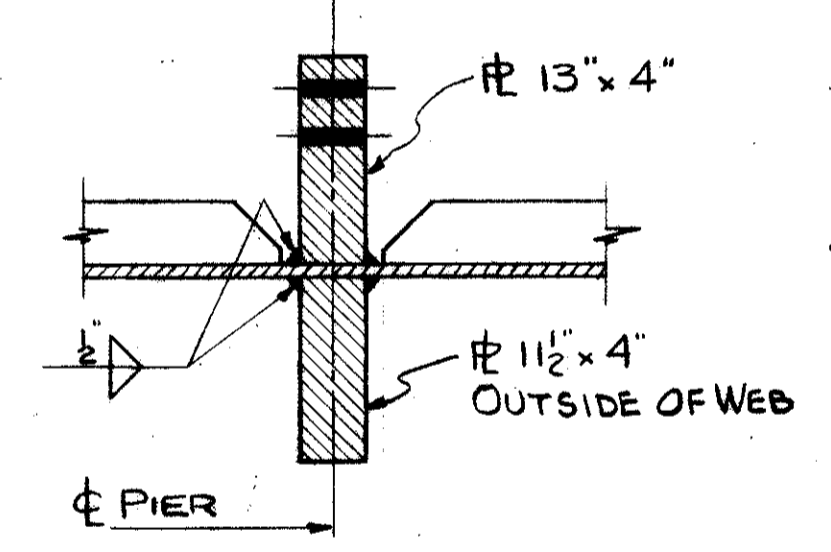
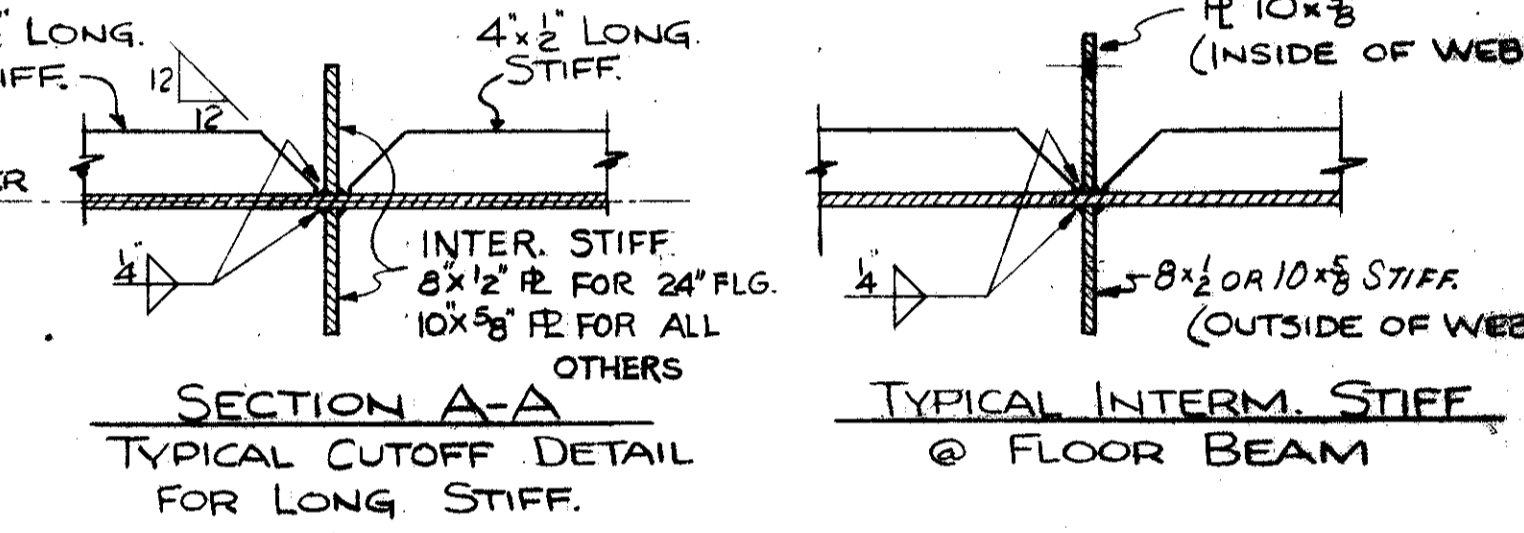
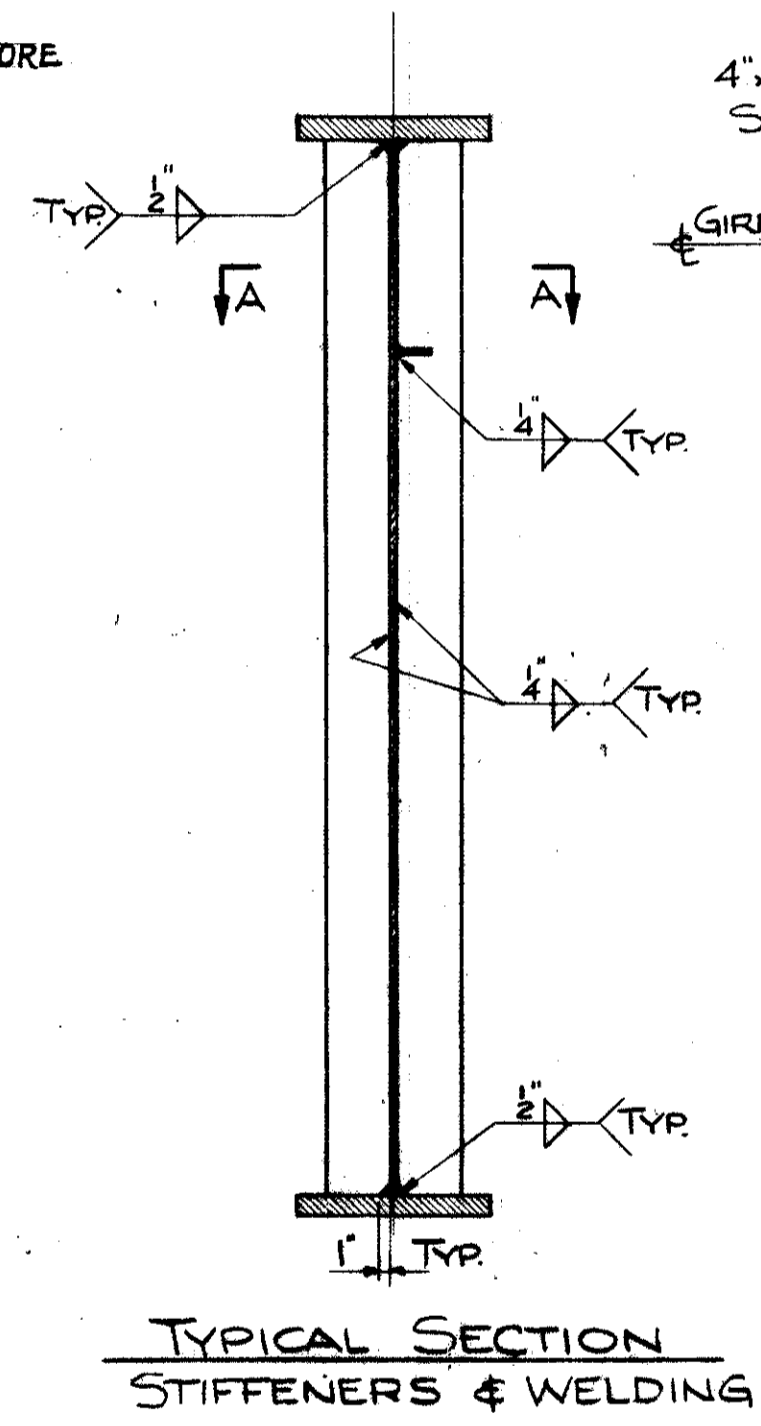
GIRDER G13 & G14



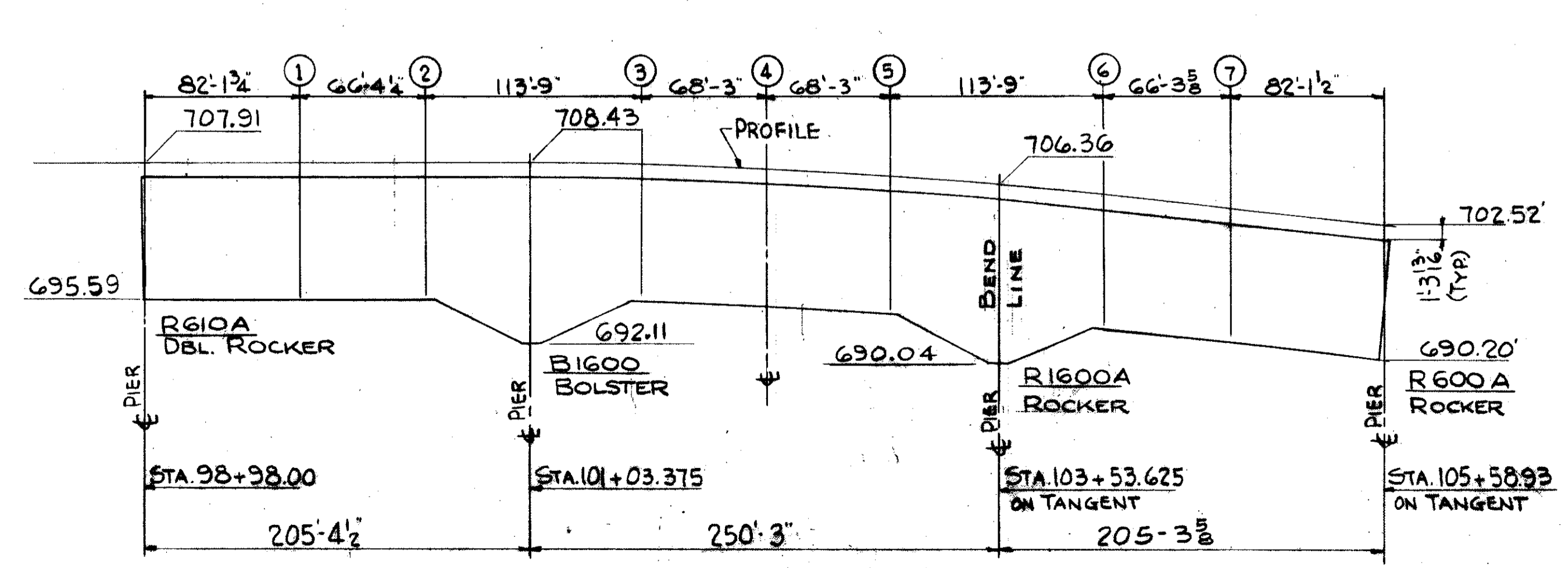
CAMBERING OF GIRDERS IS REQUIRED IN ACCORDANCE WITH THE FOLLOWING TABLE

LOCATION	1	2	3	4	5	6	7	
GIRDER NO	G13	G14	G13	G14	G13	G14	G13	G14
DEFLECTION DUE TO WEIGHT OF STEEL	3/4	3/4	3/8	3/8	4	4	3/4	3/4
DEFLECTION DUE TO REMAINING DEAD LOAD	2	2	3/8	3/8	1 1/8	1 1/8	3/8	3/8
CONVEXITY REQUIRED FOR VERTICAL CURVE	3	3	2 3/8	2 3/8	3 1/8	3 1/8	4	4
CAMBER REQUIRED	5 3/4	5 3/4	3 3/8	3 3/8	4 1/4	4 1/4	0 3/8	7 1/8

NOTE: CAMBER MEASURED VERTICALLY ABOVE A STRAIGHT LINE CONNECTING THE INTERSECTION OF THE C.O.P. OF PIERS AT THE UNDERSIDE OF THE TOP FLANGES.



GIRDER G13
ALL ELEVATIONS & DIMENSIONS, U.N., ARE TO INSIDE OF GIRDER FLANGES



GIRDER G14
ALL ELEVATIONS & DIMENSIONS, UNLESS NOTED ARE TO INSIDE OF GIRDER FLANGES

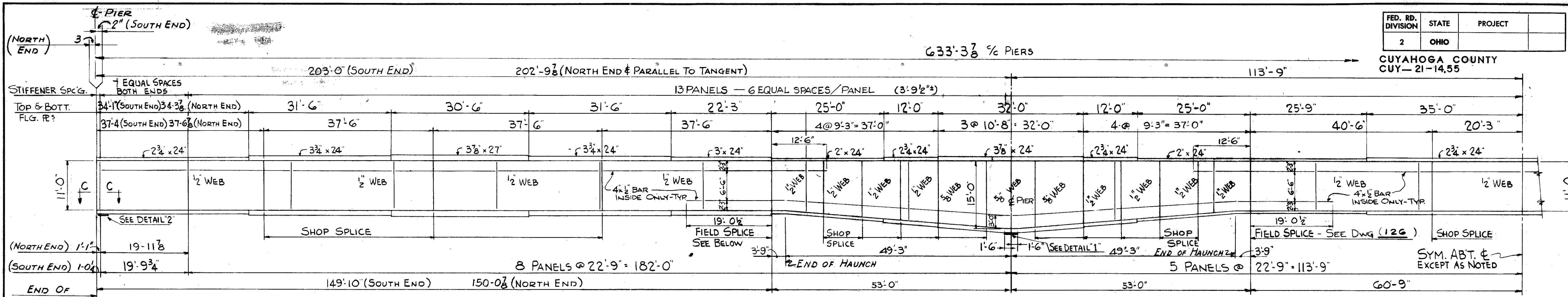
NOTES:
FIT BOTH ENDS OF ALL TRANSVERSE STIFFENERS. ALL FLOOR BEAMS ARE TO BE PERPENDICULAR TO THE TOP FLANGE, EXCEPT THE END FLOOR BEAMS AT STA. 105+58.93 & 104+59.32 WHICH ARE TO BE VERTICAL.
FOR ADDITIONAL NOTES, SEE SHEET NO. 118.
FOR ADDITIONAL DETAILS, SEE SHEET NO. 127.

TRYGVE HOFF & ASSOCIATES
ENGINEERS
1922 EAST 107TH STREET CLEVELAND, OHIO

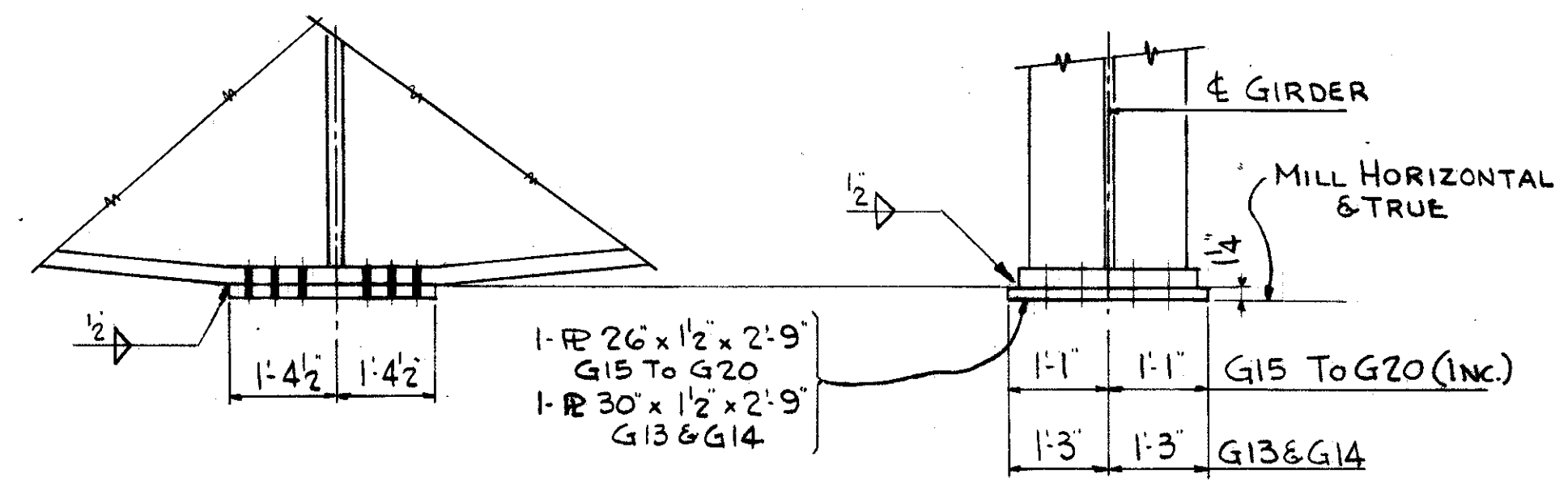
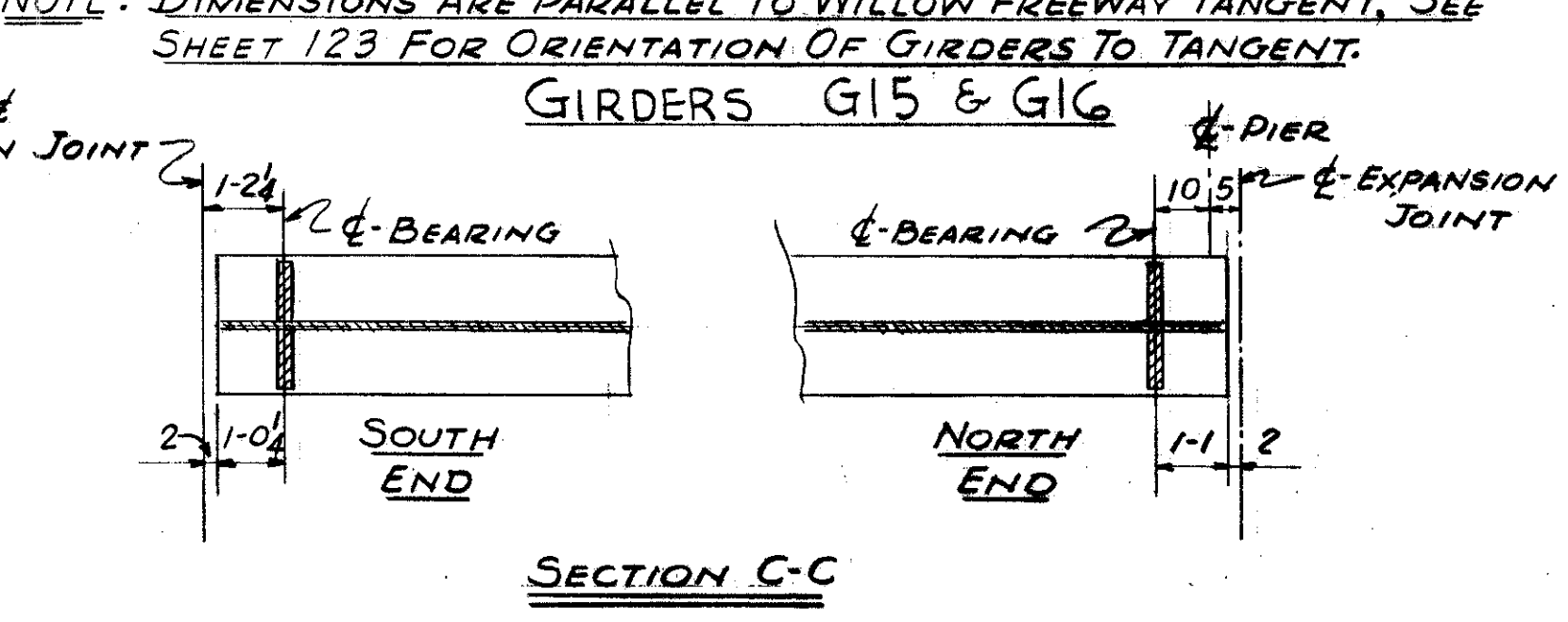
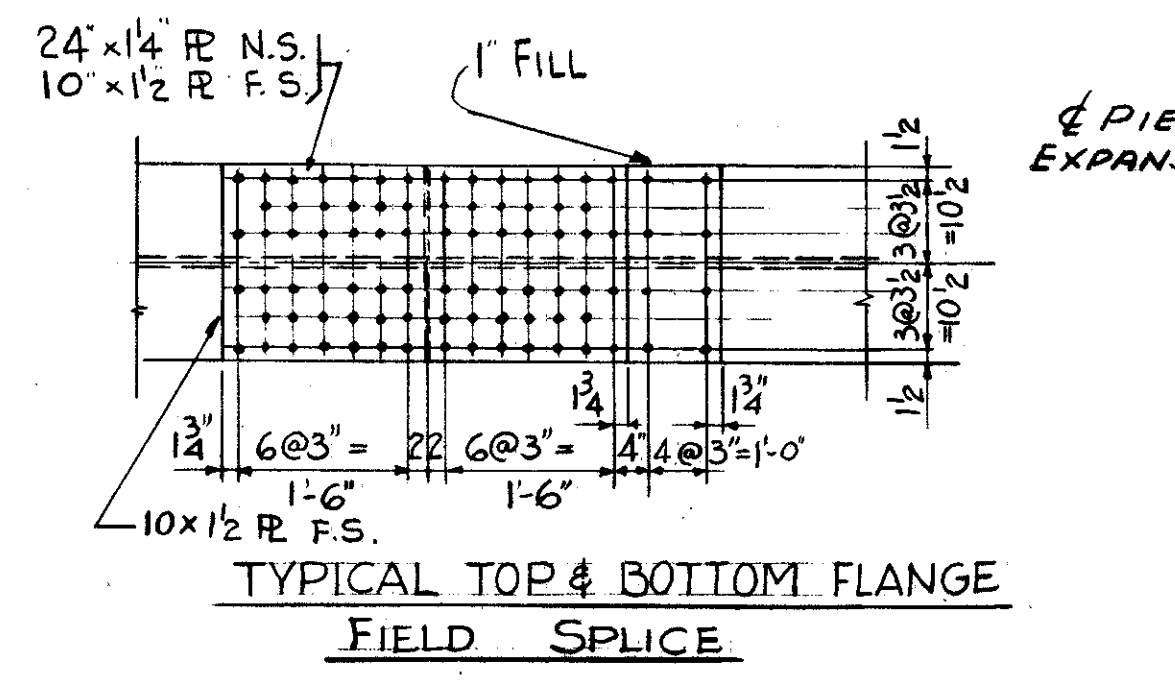
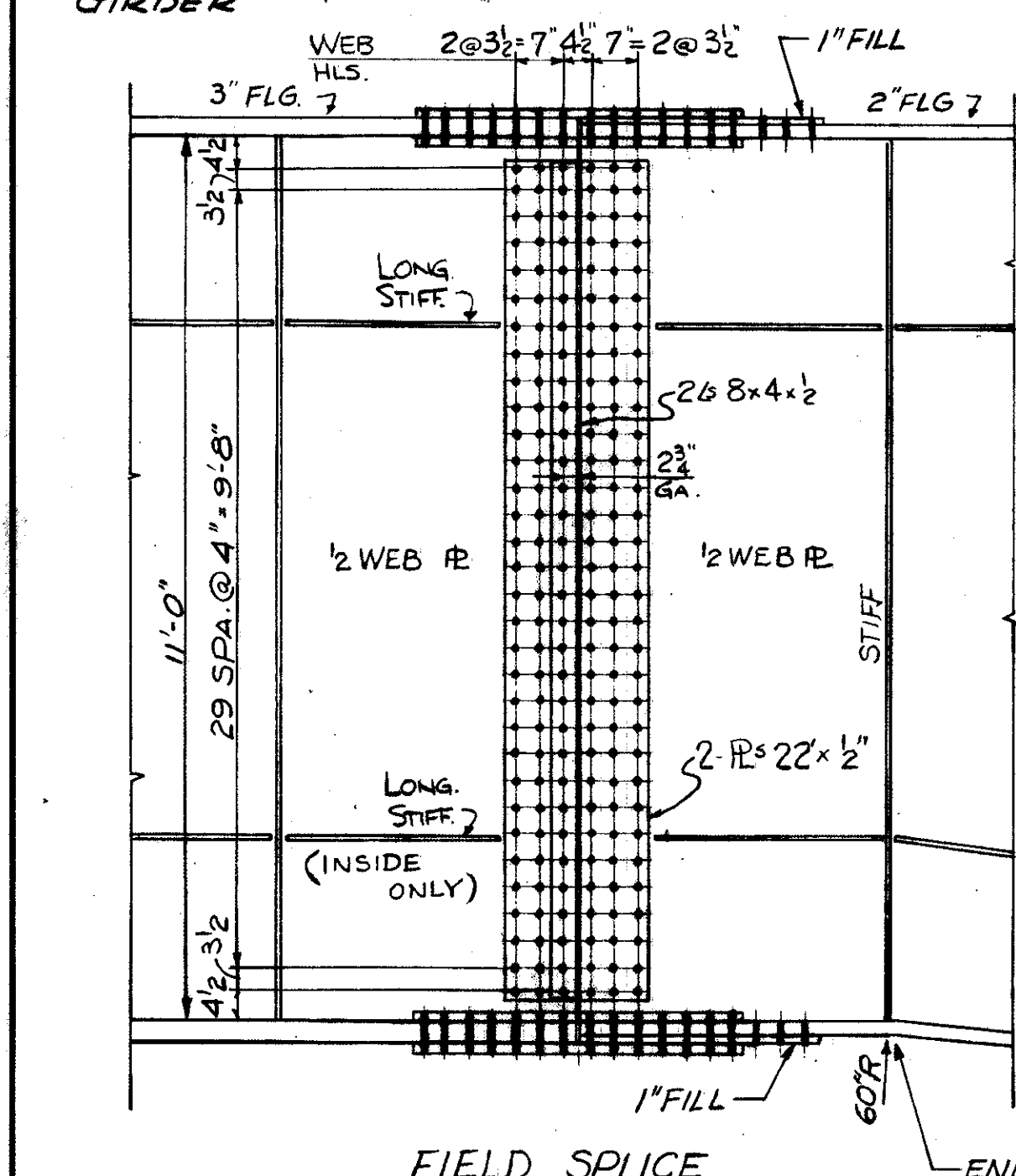
GIRDER DETAILS

BRIDGE NO. CUY-21-14.55
WILLOW FREEWAY OVER KINGSBURY BLVD
CUYAHOGA COUNTY U.S.R. 21

SCALE: _____ DATE: _____



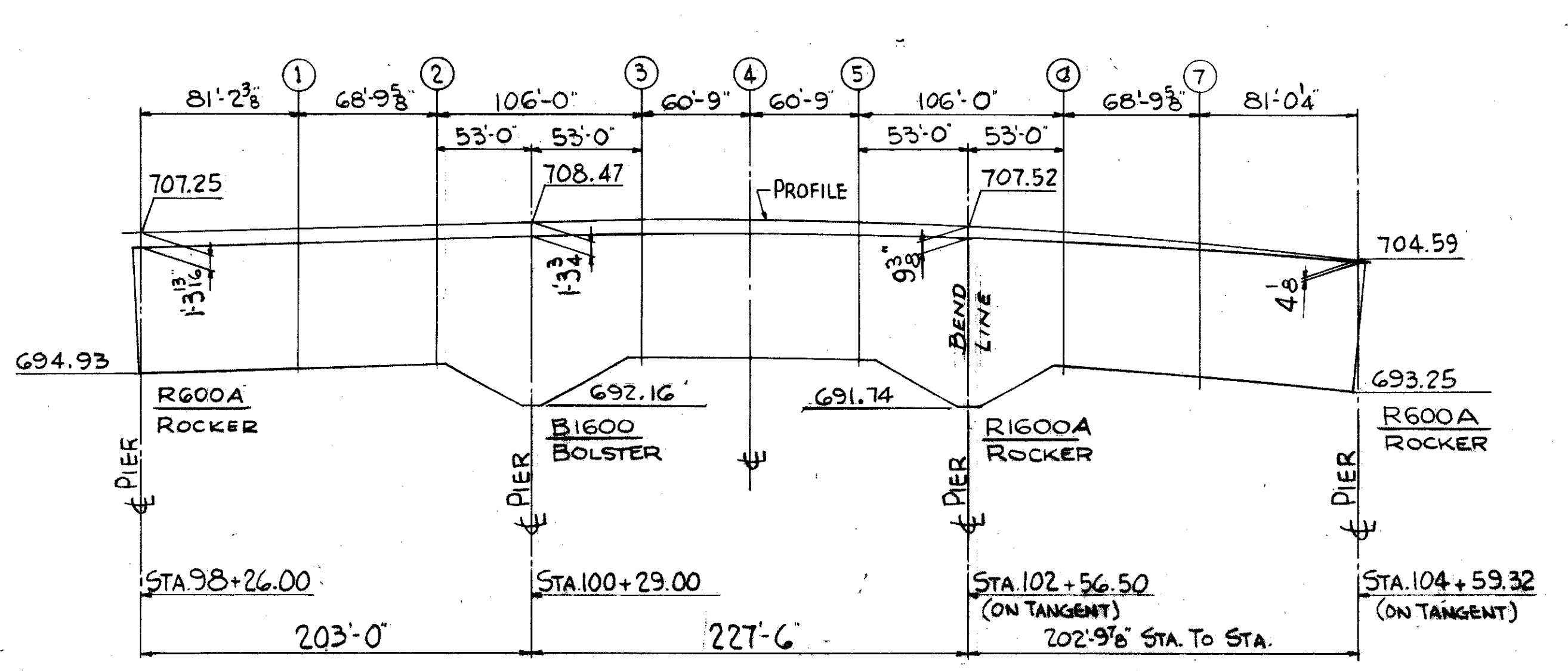
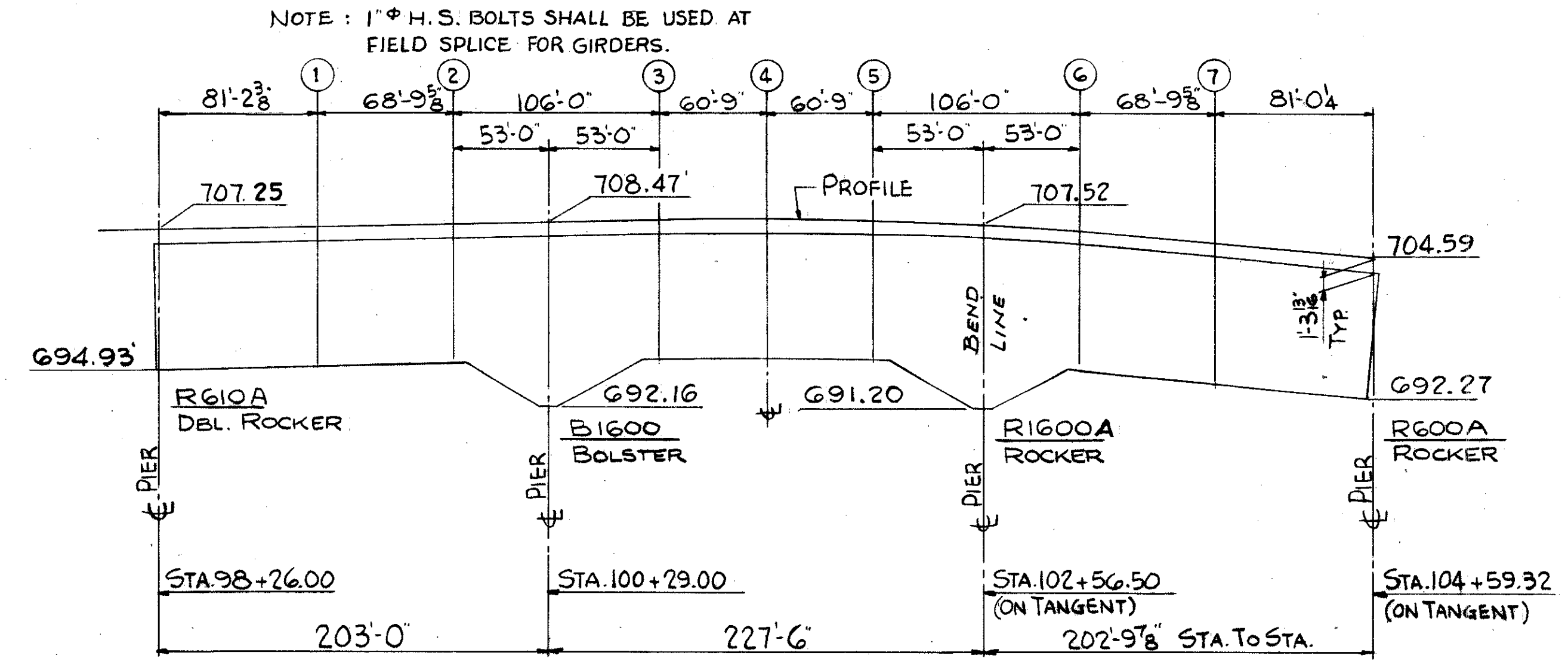
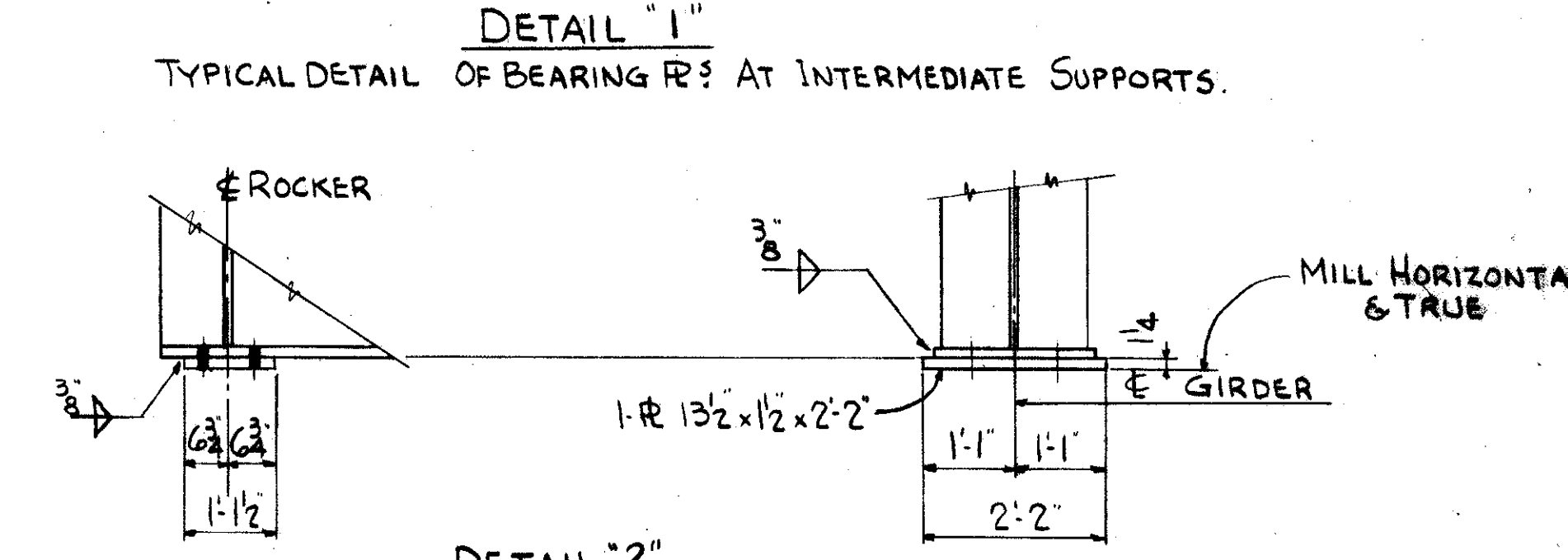
NOTE: DIMENSIONS ARE PARALLEL TO WILLOW FREEWAY TANGENT. SEE SHEET 123 FOR ORIENTATION OF GIRDERS TO TANGENT.



CAMBERING OF GIRDERS IS REQUIRED IN ACCORDANCE WITH THE FOLLOWING TABLE

LOCATION	1	2	3	4	5	6	7	
GIRDER NO	G15	G16	G15	G16	G15	G16	G15	G16
DEFLECTION DUE TO WEIGHT OF STEEL	3/8"	3/8"	3/8"	3/8"	3/8"	3/8"	3/8"	3/8"
DEFLECTION DUE TO REMAINING DEAD LOAD	2 1/2"	2 1/2"	1 3/8"	1 3/8"	1 1/8"	1 1/8"	1 1/8"	1 1/8"
CONVEXITY REQUIRED FOR VERTICAL CURVE	2 3/8"	2 3/8"	2 1/4"	2 1/4"	2 1/8"	2 1/8"	2 1/8"	2 1/8"
CAMBER REQUIRED	5 1/8"	5 1/8"	4"	4"	2 7/8"	3"	5 1/4"	5"

NOTE: CAMBER MEASURED VERTICALLY ABOVE A STRAIGHT LINE CONNECTING THE INTERSECTION OF THE CENTER OF PIERS AND THE UNDERSIDE OF FLANGES.

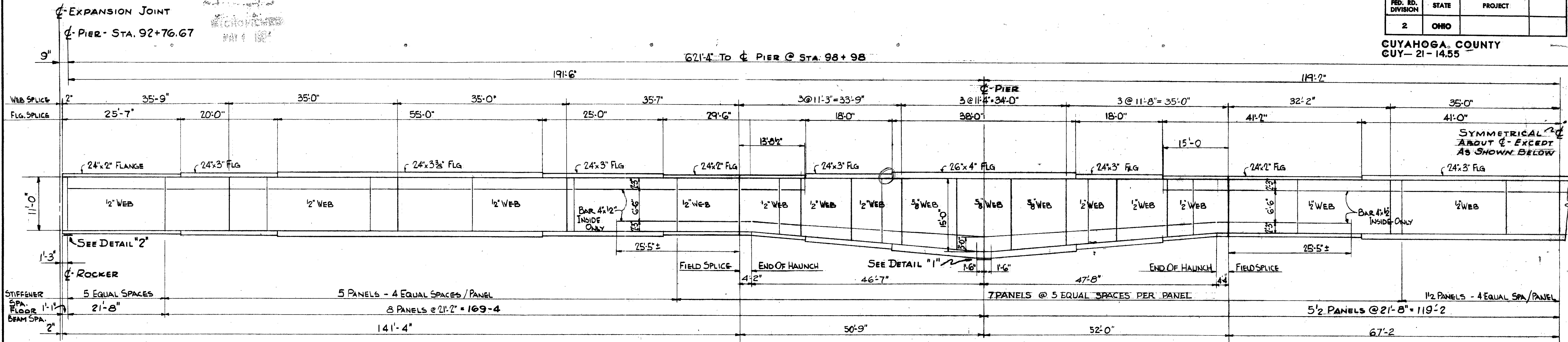


GIRDER G15
ALL ELEVATIONS & DIMENSIONS, U.N., ARE TO INSIDE OF GIRDER FLANGES

GIRDER G16
ALL ELEVATIONS & DIMENSIONS, UNLESS NOTED ARE TO INSIDE OF GIRDER FLANGES

NOTE: FOR TYPICAL DETAILS, SEE DWG. NO. 128 FOR GENERAL NOTES, SEE DWGS NO. 118 & NO. 128.

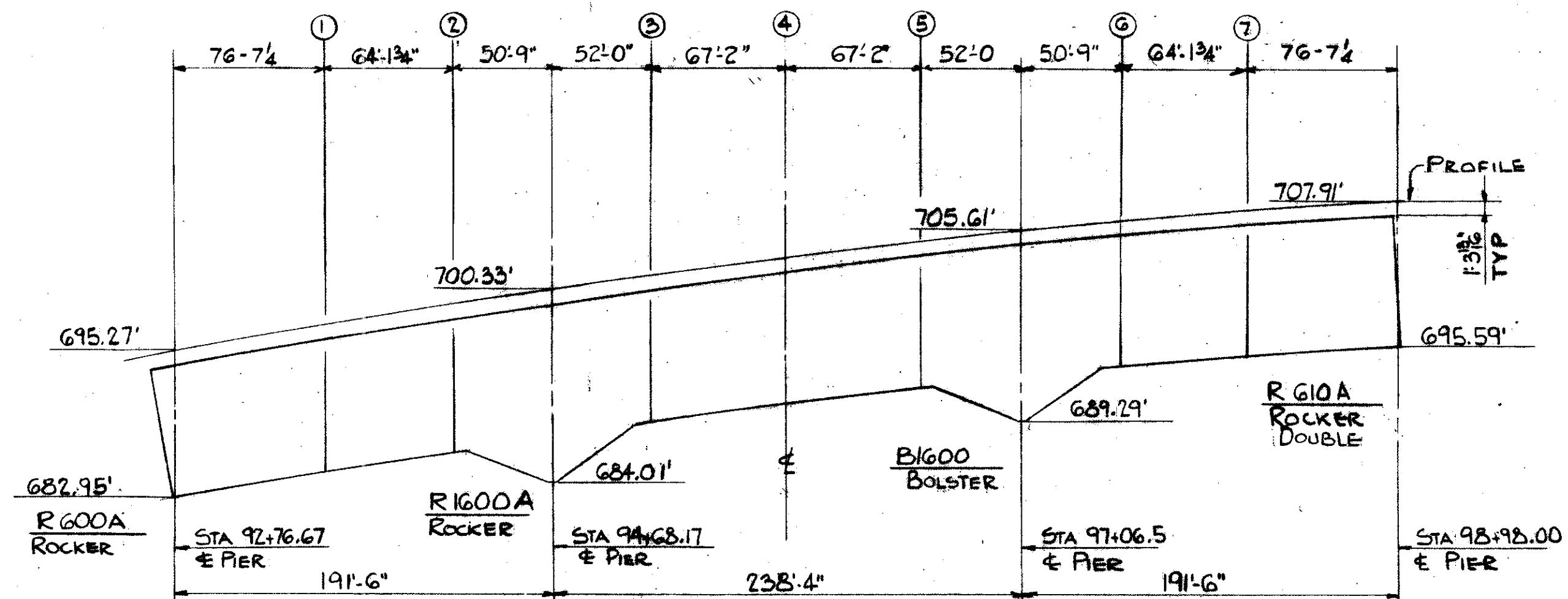
TRYGVE HOFF & ASSOCIATES ENGINEERS 1922 EAST 107TH STREET CLEVELAND, OHIO			
GIRDER DETAILS			
BRIDGE NO.		CUY-21-14.55	
WILLOW FREEWAY OVER KINGSBURY RUN CUYAHOGA COUNTY U.S.R. 21			
SCALE	DATE	DESIGNED	TRACED
R1Y GJK	06/23/71	DK GJK	DJT



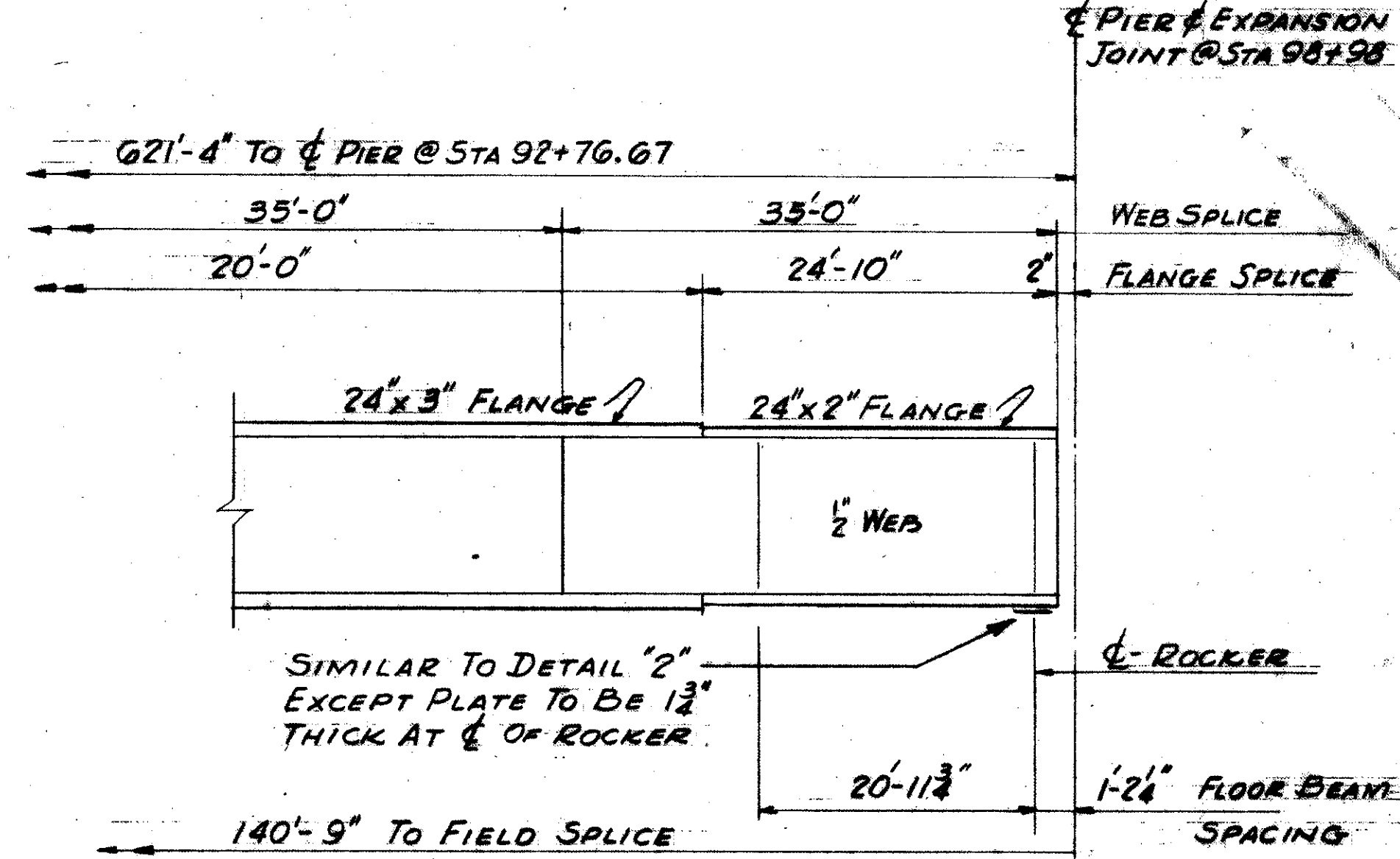
GIRDERS G17 & G18

LOCATION	1	2	3	4	5	6	7
DEFLECTION DUE TO WEIGHT OF STEEL	5/8"	4/4"	4/4"	5/8"	4/4"	4/4"	5/8"
DEFLECTION DUE TO REMAINING DEAD LOAD	1 3/4"	3/4"	5/8"	1 3/4"	5/8"	3/4"	1 3/4"
CONVEXITY REQUIRED FOR VERTICAL CURVE	0"	0"	2/2"	3/8"	2/8"	2"	2 1/2"
REQUIRED CAMBER	2 3/8"	1"	3 3/8"	6 1/4"	3 1/2"	3"	4 1/8"

NOTE: CAMBER MEASURED VERTICALLY ABOVE A STRAIGHT LINE CONNECTING THE INTERSECTION OF THE C OF PIERS AT THE UNDERSIDE OF THE TOP FLANGES.

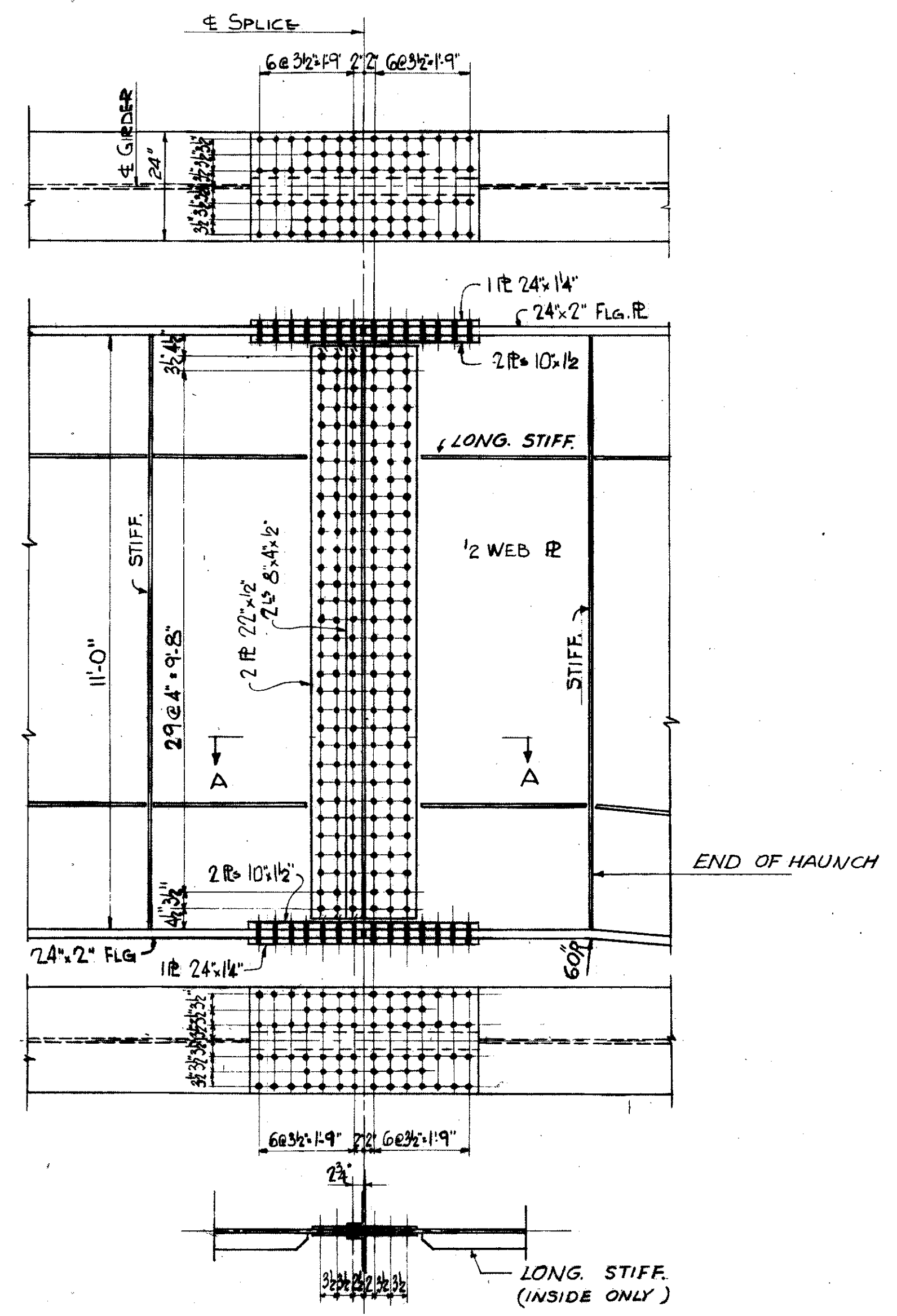


NOTE: ALL ELEVATIONS & DIMENSIONS ARE TO INSIDE OF GIRDER FLANGES UNLESS NOTED.



DETAIL AT NORTH END OF GIRDERS G-17 & G-18

FOR TYPICAL DETAILS SEE DRAWINGS NO. 127 & NO. 128.
FOR GENERAL NOTES SEE DRAWINGS NO. 118 & NO. 128.

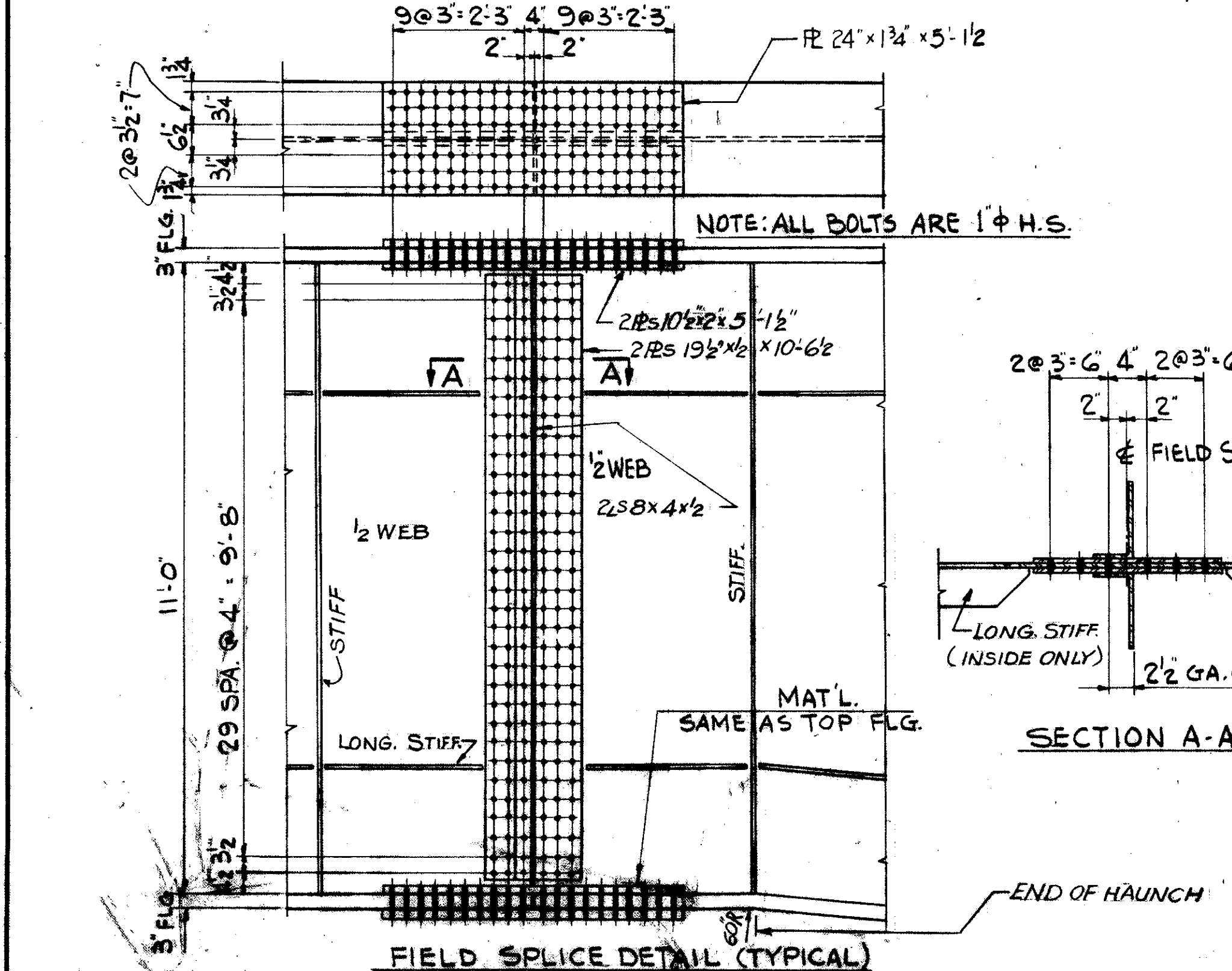
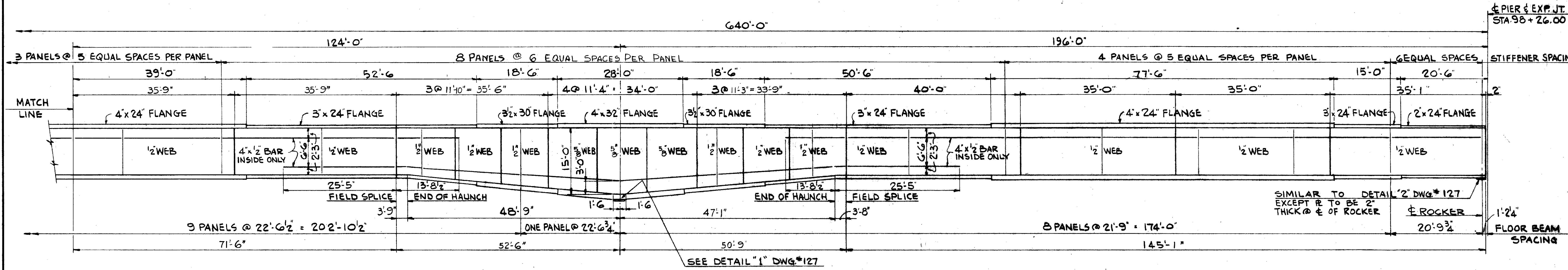
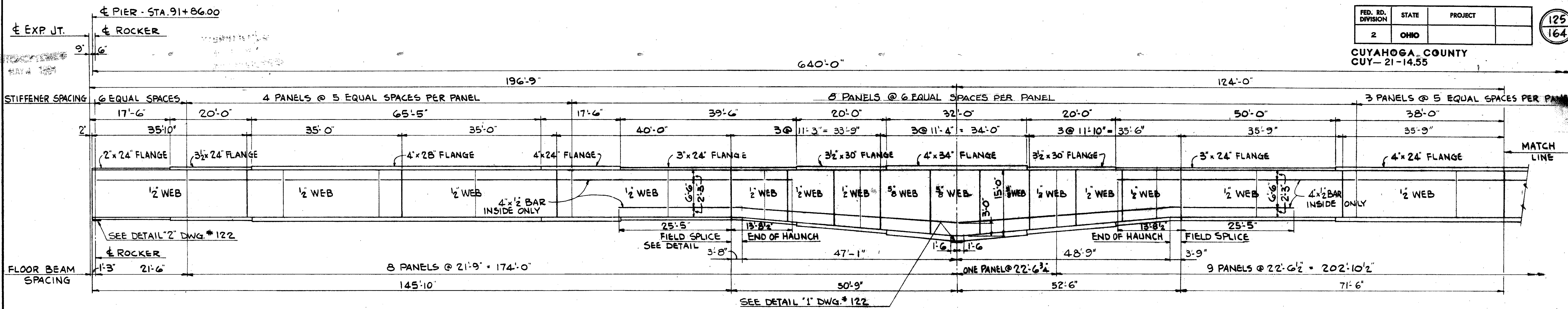


TYPICAL FIELD SPLICE

TRYGVE HOFF & ASSOCIATES
ENGINEERS
1922 EAST 107TH STREET CLEVELAND, OHIO

GIRDER DETAILS
BRIDGE NO. CUY-21-1455
WILLOW FREEWAY OVER KINGSBURY RUN
CUYAHOGA COUNTY U.S.R. 21

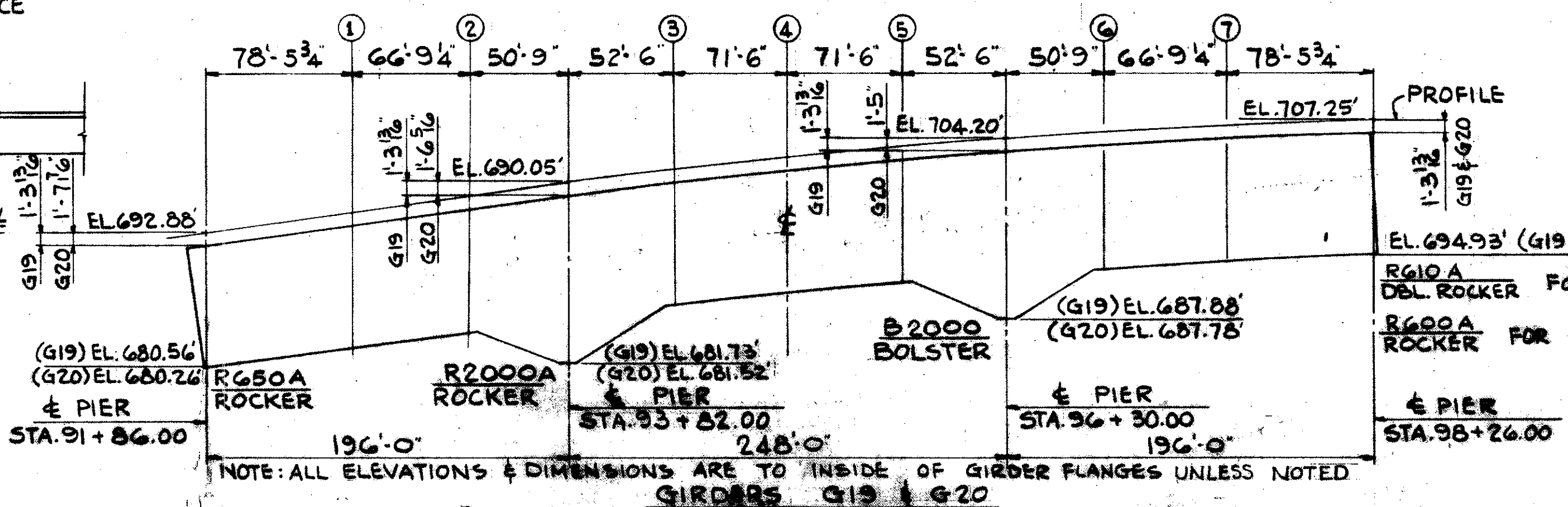
DESIGNED	DRAWN	CHECKED	DATE
R.H.	D.J.T.	G.C.	04/06/55



CAMBERING OF GIRDERS IS REQUIRED IN ACCORDANCE WITH THE FOLLOWING TABLE.

LOCATION	1	2	3	4	5	6	7	
GIRDER NO	G19	G20	G19	G20	G19	G20	G19	G20
DEFLECTION DUE TO WEIGHT OF STEEL	3/4	3/4	3/8	3/8	1/2	1/2	1 1/2	1 1/2
DEFLECTION DUE TO REMAINING DEAD LOAD	2 1/8	2 1/8	1 1/8	1 1/8	1 1/2	1 1/2	3 1/4	3 1/4
CONVEXITY REQUIRED FOR VERTICAL CURVE	0	0	0	0	1 5/16	1 5/16	2 3/8	2 3/8
CAMBER REQUIRED	3 1/8	3 1/8	1 1/8	1 1/8	2 1/8	2 1/8	6 1/8	6 1/8

NOTE: CAMBER IS MEASURED VERTICALLY ABOVE A STRAIGHT LINE CONNECTING THE INTERSECTION OF THE PERS AT THE UNDERSIDE OF THE TOP FLANGES.



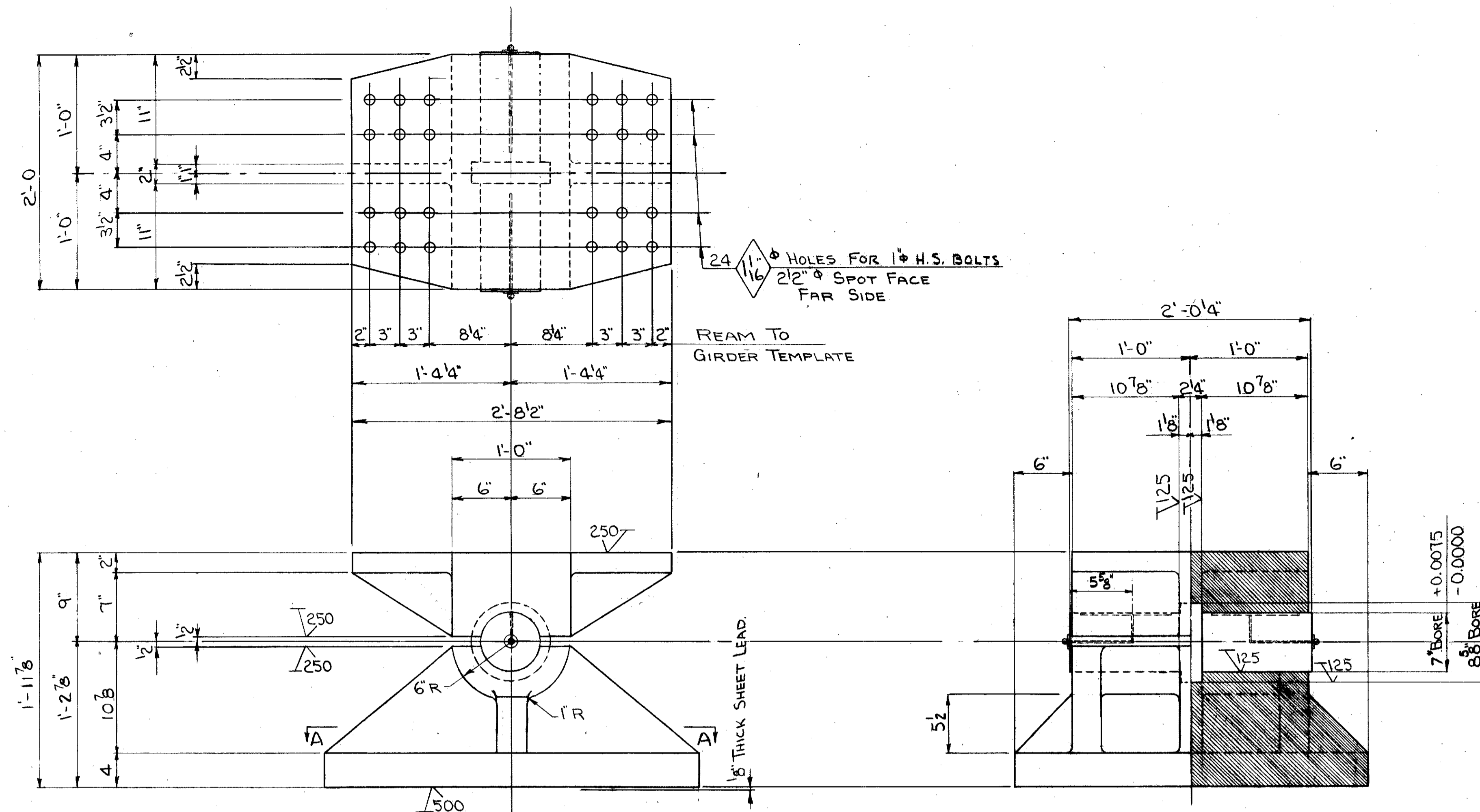
NOTE:
ALL DIMENSIONS ARE PARALLEL TO CENTERLINE OF ROADWAY.
SEE DWG. NO. 122 FOR ORIENTATION OF GIRDER G20.
FOR TYPICAL DETAILS, SEE SHEET NO. 127 AND NO. 128.
FOR GENERAL NOTES, SEE SHEET NO. 118 AND NO. 128.

TRYGVE HOFF & ASSOCIATES
ENGINEERS
1922 EAST 107TH STREET CLEVELAND, OHIO

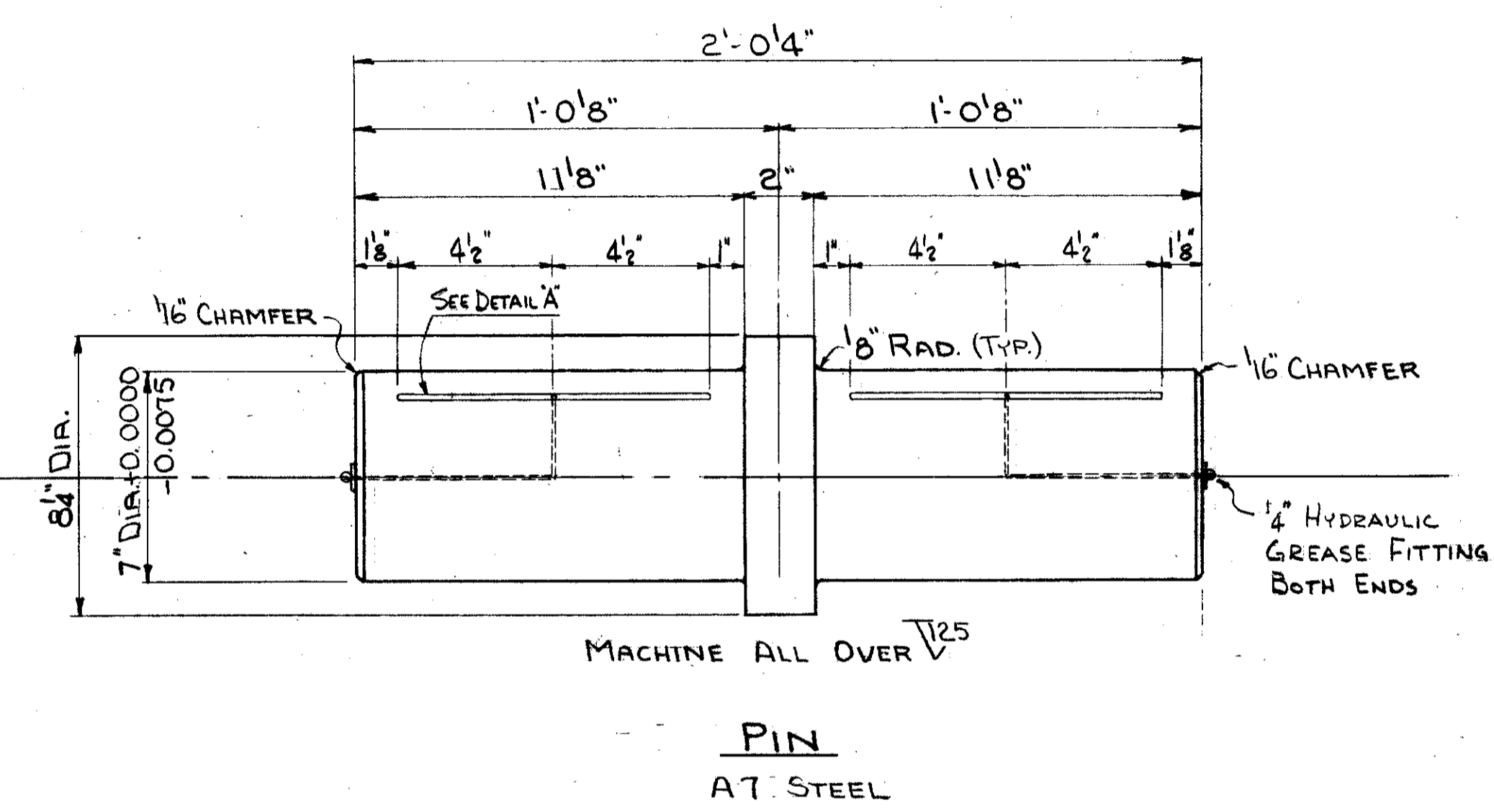
GIRDER DETAILS

BRIDGE NO. CUY-21-14.55
WILLOW FREEWAY OVER KINGSBURY RUN
CUYAHOGA COUNTY U.S.R. 21

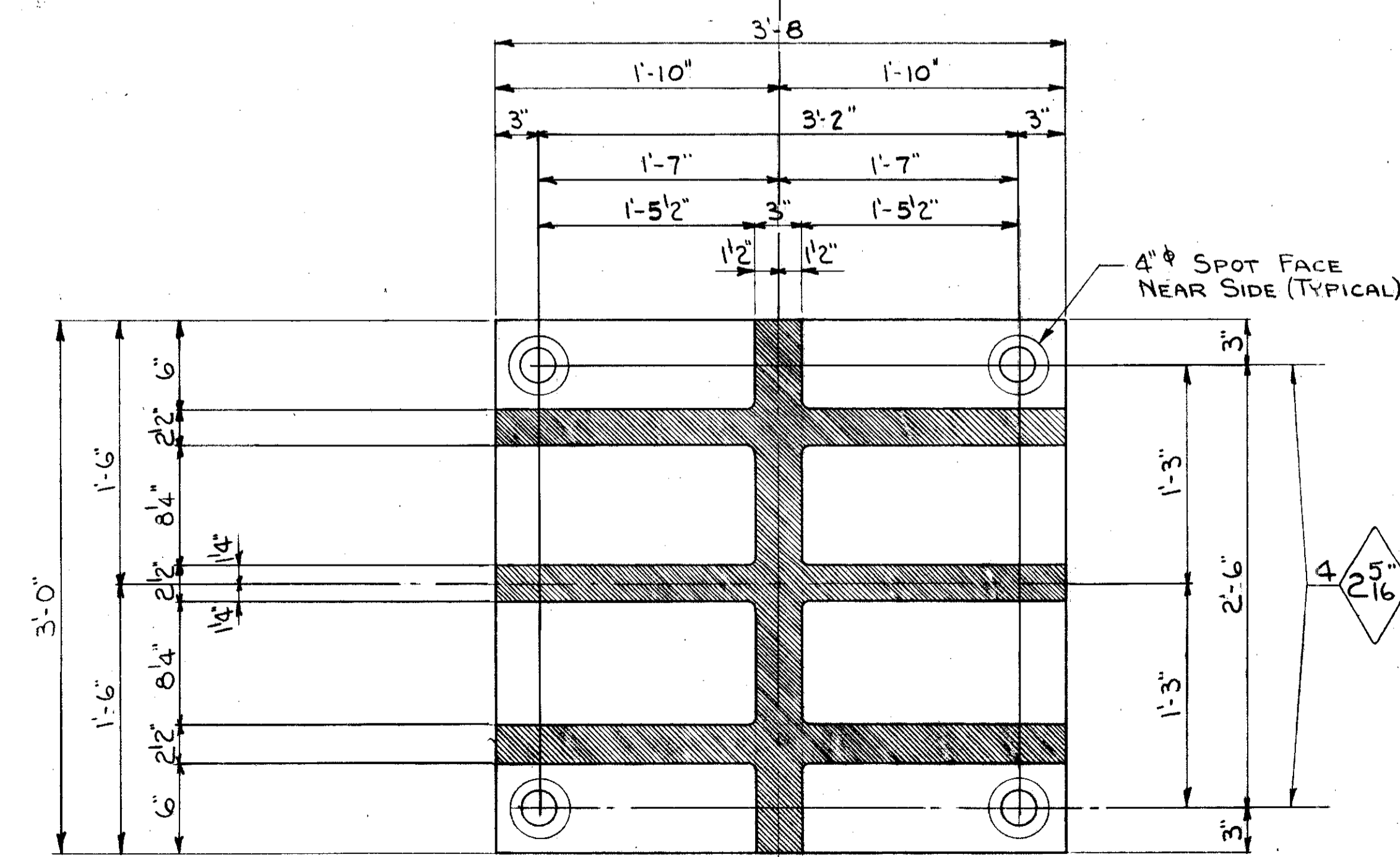
SCALE: _____ DATE: _____
DESIGNED: D.F. DRAWN: _____ TRACED: _____ CHECKED: _____ REVIEWED: _____ DATE: 6/23/62



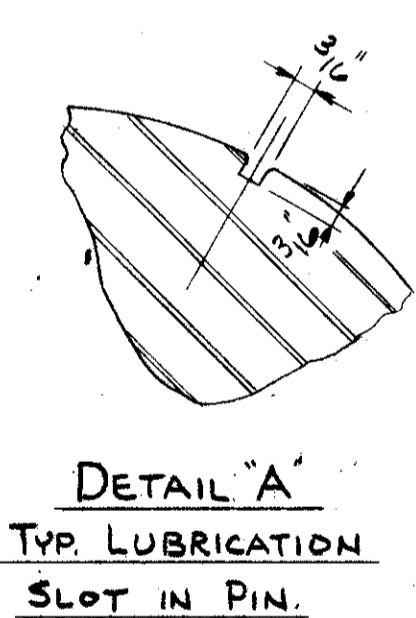
FIXED BEARING PEDESTAL B-1600
STEEL CASTINGS - ASTM A27, GRADE G5-35
CAPACITY - B1600 - 1,600,000# VERTICAL LOAD



PIN
A7 STEEL



SECTION A-A



WEIGHT - FINISHED CASTINGS	3540 #
WEIGHT - PIN	275 #
WEIGHT - ANCHOR BOLTS & LEAD	205 #
TOTAL WEIGHT	4020 #

ALL FILLETS 1/2" RADIUS U.N.

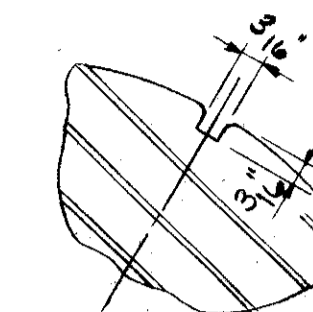
B 1600 BOLSTER

TRYGVE HOFF & ASSOCIATES
ENGINEERS
1922 EAST 107TH STREET CLEVELAND, OHIO

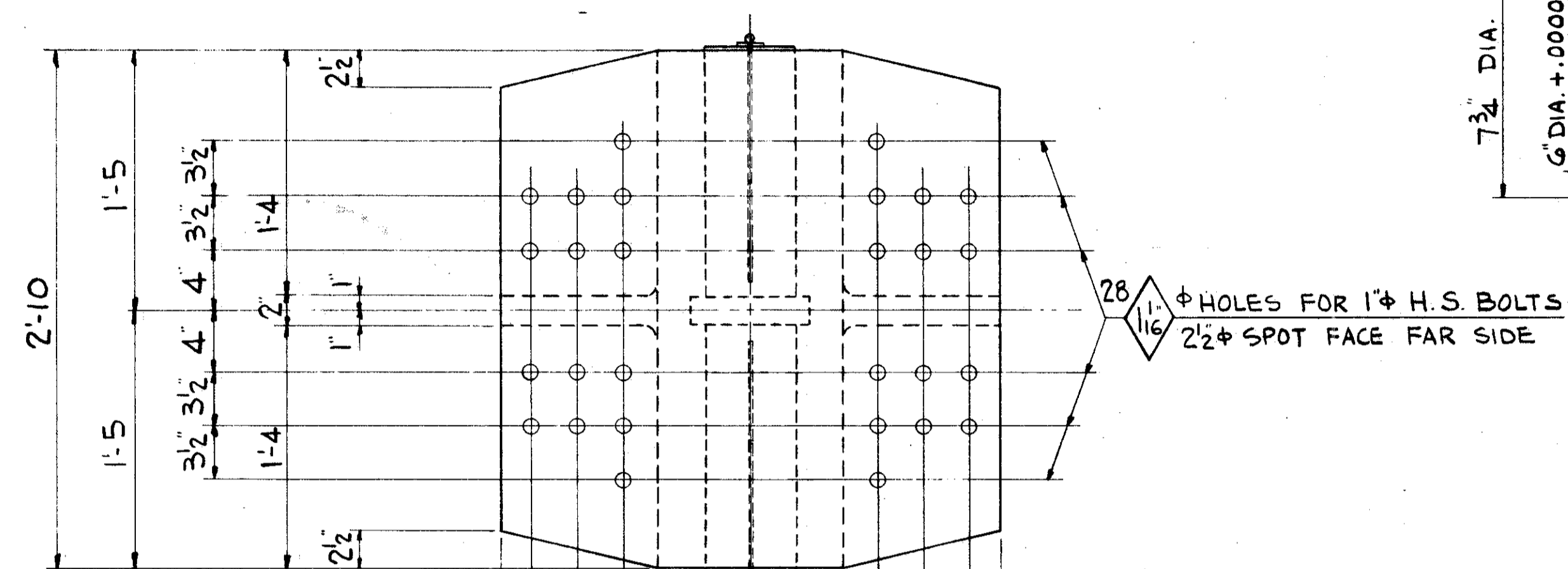
BOLSTERS

BRIDGE NO. CUY-21-14.55
WILLOW FREEWAY OVER KINGSBURY RUM
CUYAHOGA COUNTY U.S.R. 21

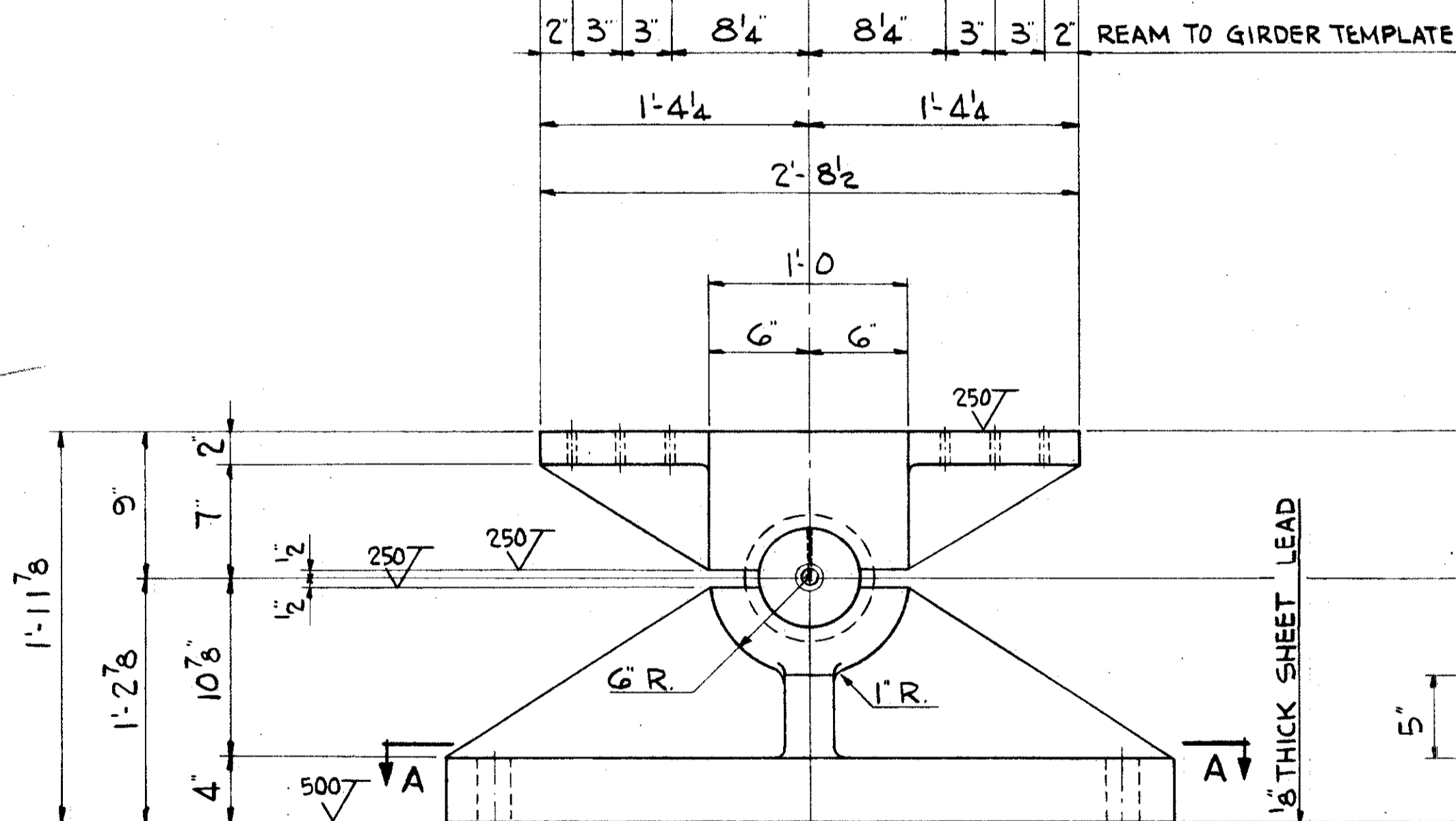
SCALE: DATE 3-27-55
DESIGNED DRAWN TRACED CHECKED APPROVED
JAW [signature] ADH [signature]



DETAIL 'A'
TYP. LUBRICATION
SLOT IN PIN



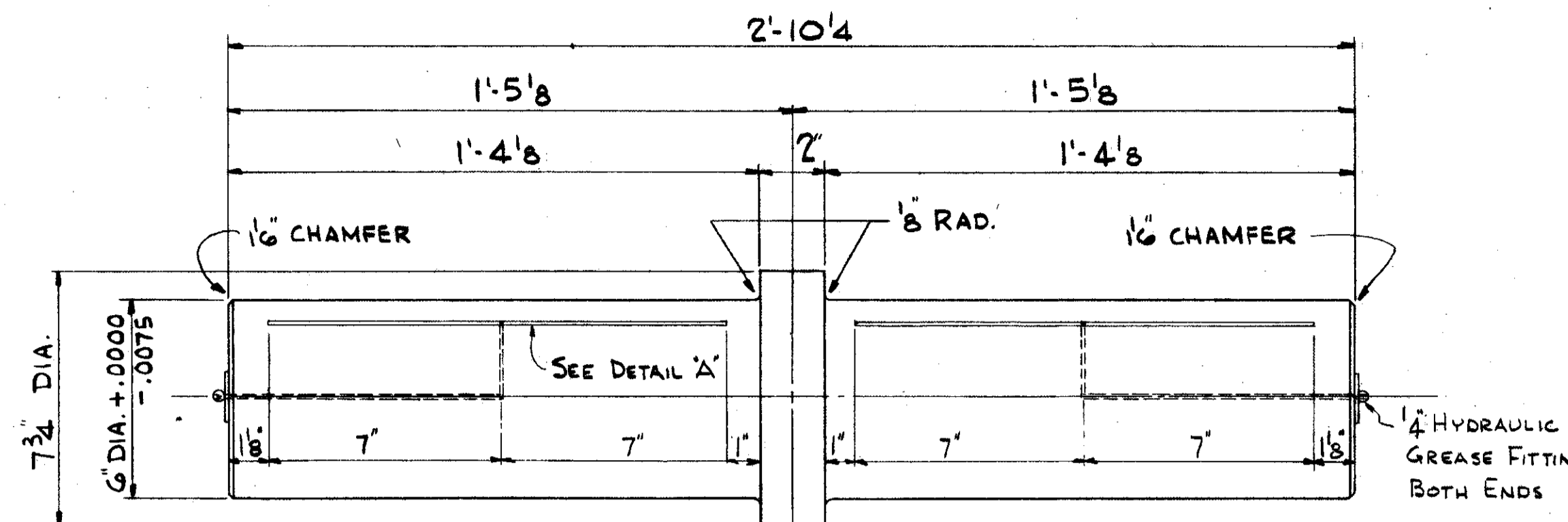
28 $\frac{11}{16}$ ϕ HOLES FOR 1" H.S. BOLTS
2 1/2" SPOT FACE FAR SIDE



NOTE: ALL FILLETS 1/2" RAD. U.N.

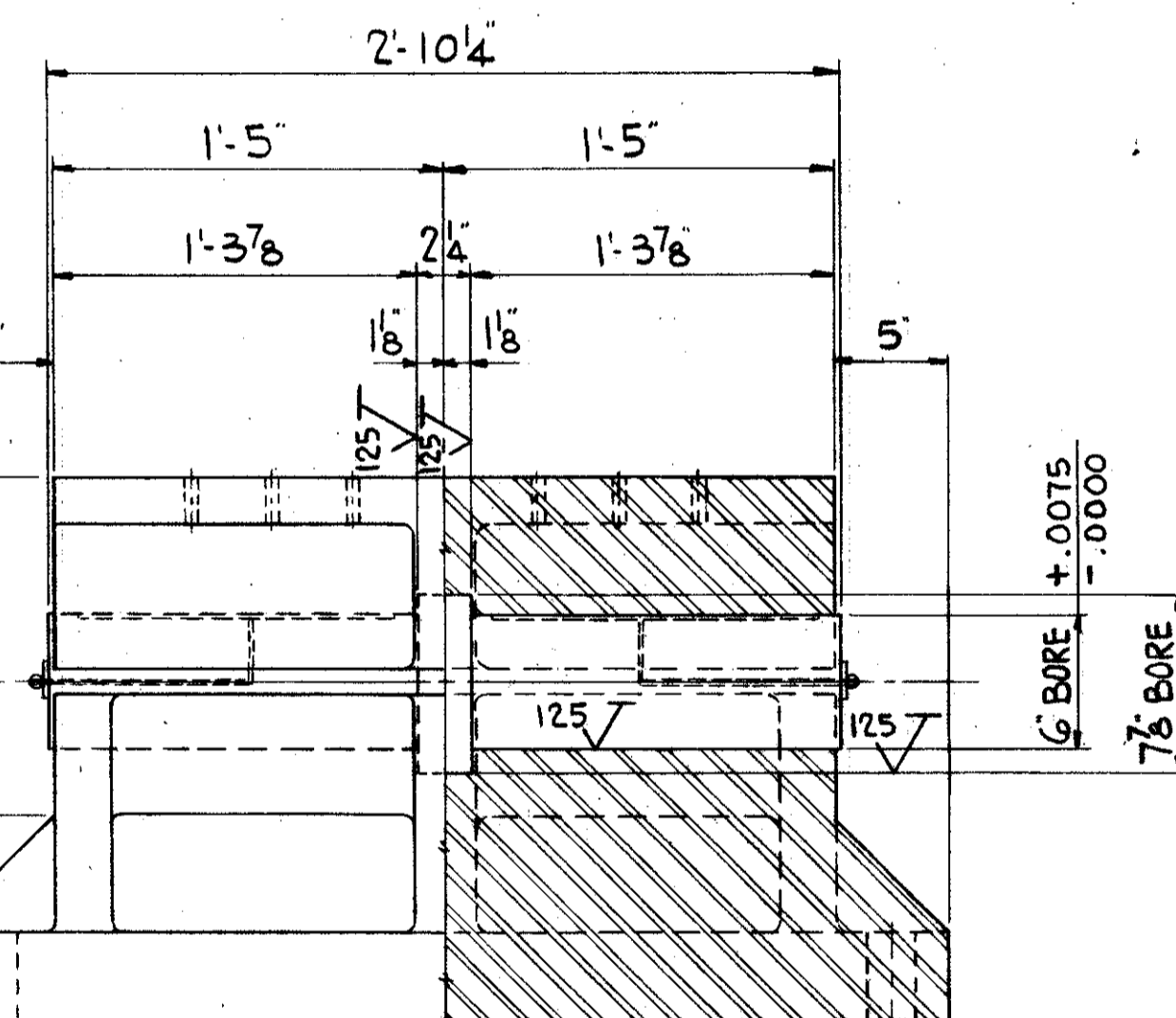
FIXED BEARING PEDESTAL B-2000

STEEL CASTING - ASTM A27, GRADE 65-35
CAPACITY - B2000 - 2,000,000* VERTICAL LOAD



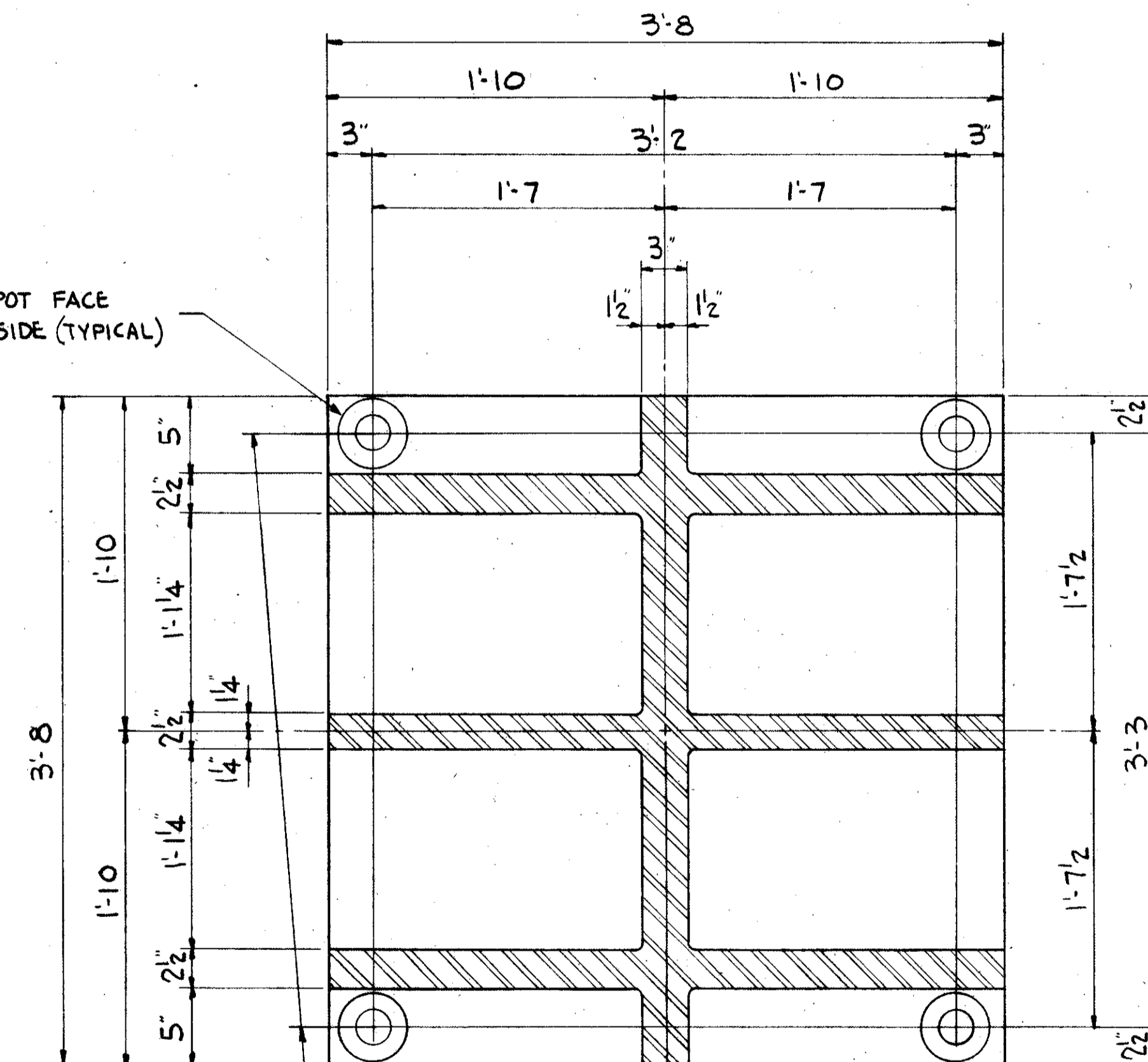
MACHINE ALL OVER $\frac{125}{16}$

PIN
A7 STEEL



4 1/2" ϕ SPOT FACE
NEAR SIDE (TYPICAL)

4 $\frac{5}{16}$ ϕ HOLES - FOR 2" x 2'-10" LONG
SWEDGE BOLTS (6 1/2" PROJ.)
3" THREAD WITH HEX. NUT &
CUT WASHER.



SECTION A-A

WEIGHT - FINISHED CASTING	-	4460*
WEIGHT - PIN	-	285*
WEIGHT - ANCHOR BOLTS & LEAD	-	235*
TOTAL WEIGHT	-	4980*

B 2000 BOLSTER

TRYGVE HOFF & ASSOCIATES
ENGINEERS
1922 EAST 107TH STREET CLEVELAND, OHIO

BOLSTERS

BRIDGE NO. CUY-21-14.55
WILLOW FREEWAY OVER KINGSBURY RUN
CUYAHOGA COUNTY U.S.R. 21

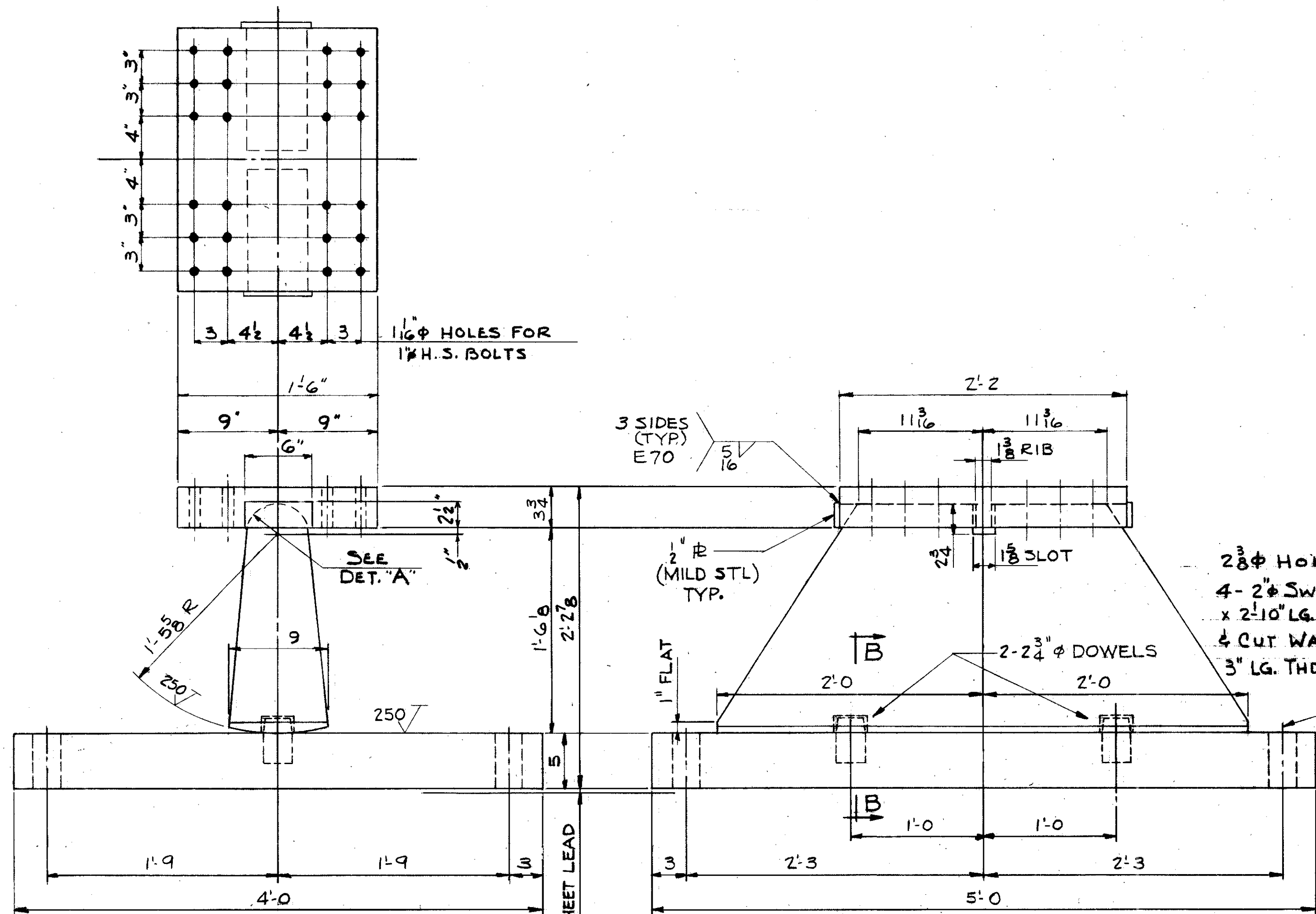
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE
D.F.	ADH	CB	6/29/55		

UNRECORDED
MAY 1, 1954

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

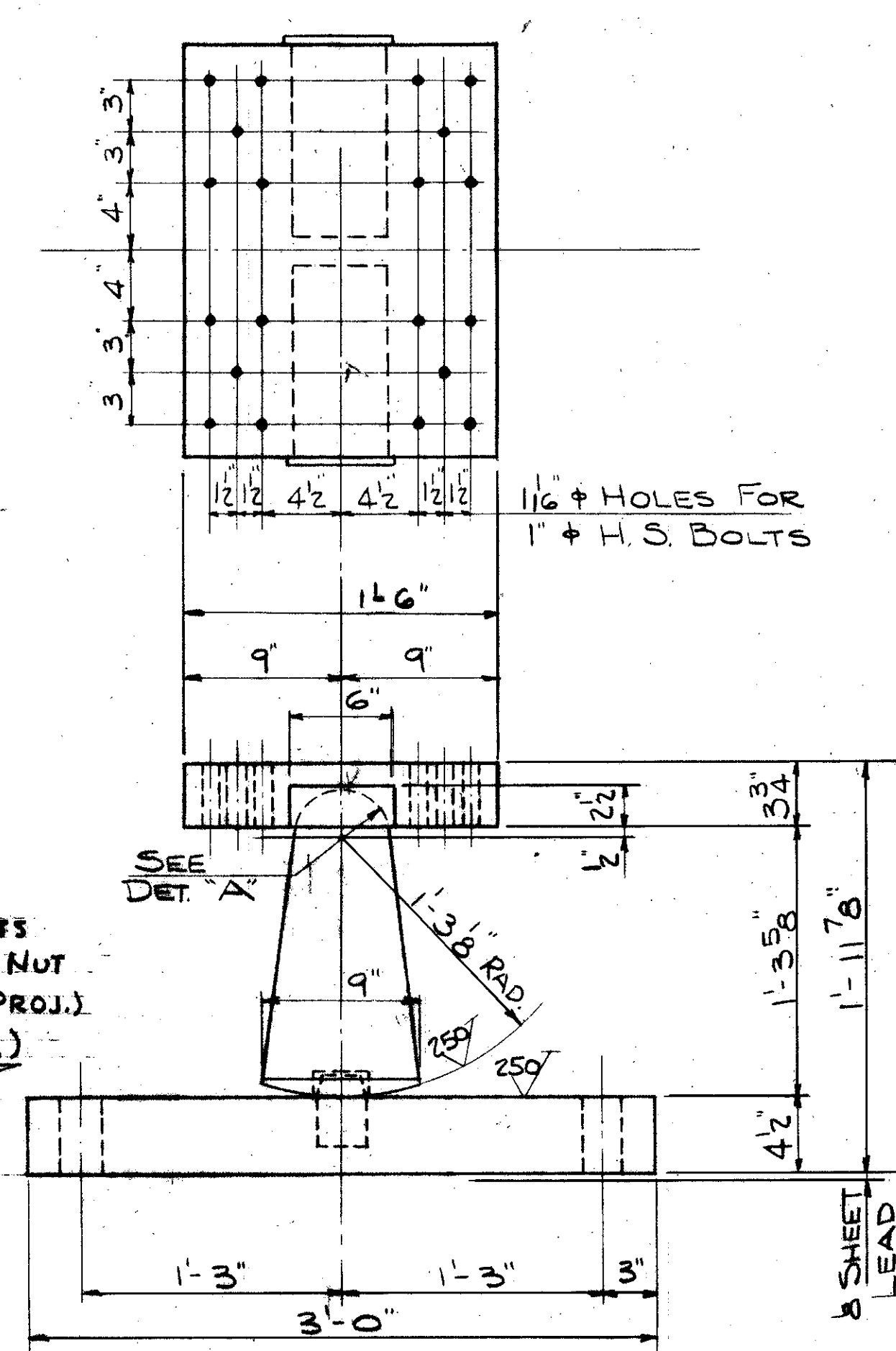
143
164

CUYAHOGA COUNTY
CUY-21-14.55



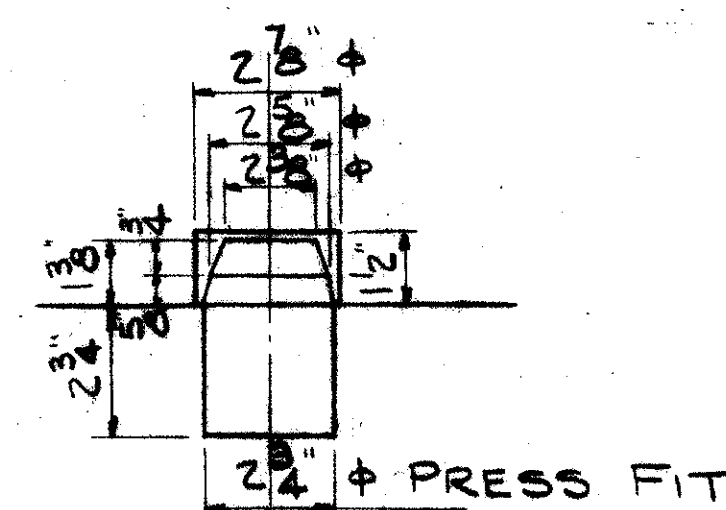
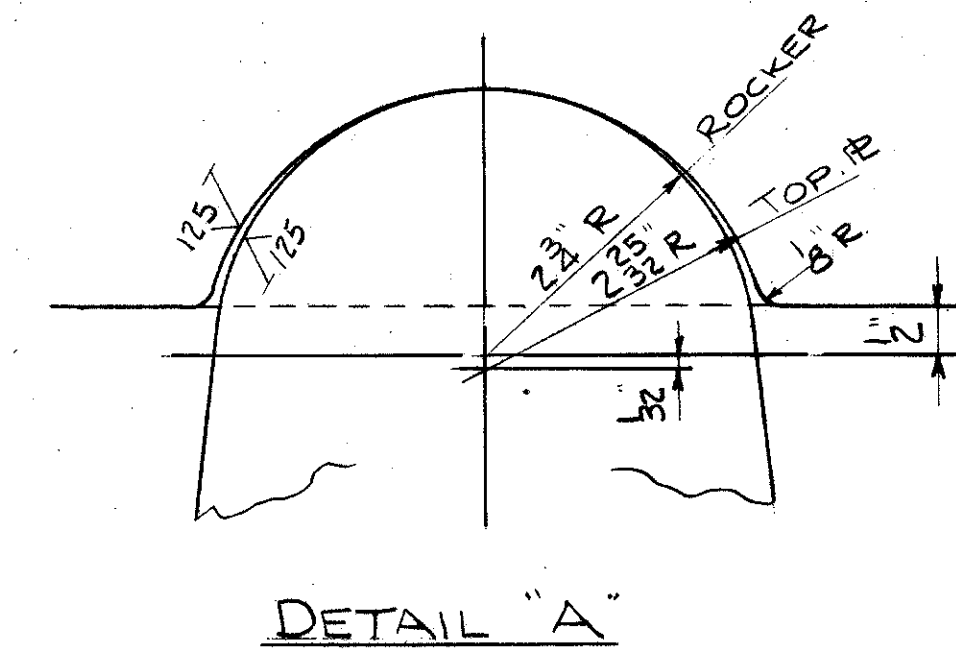
R 2000A ROCKER

MAX. MOV. 2.0" EA. SIDE
WGT. 6000#



R 1600A ROCKER

MAX. MOV. 2.0" EA. SIDE
WGT. 3940#



SECTION BB

NOTE:
ALL PARTS EXCEPT 1/2" COVER PLATE, SHEET LEAD & ANG. BOLTS TO BE FORGED STL-NORMALIZED, QUENCHED & TEMPERED TO 130,000 PSI. ULT. & 105,000 PSI. YIELD STRENGTH & TO CONFORM TO ASTM A237 CLASS "C".

TRYGVE HOFF & ASSOCIATES
ENGINEERS
1922 EAST 107TH STREET CLEVELAND, OHIO

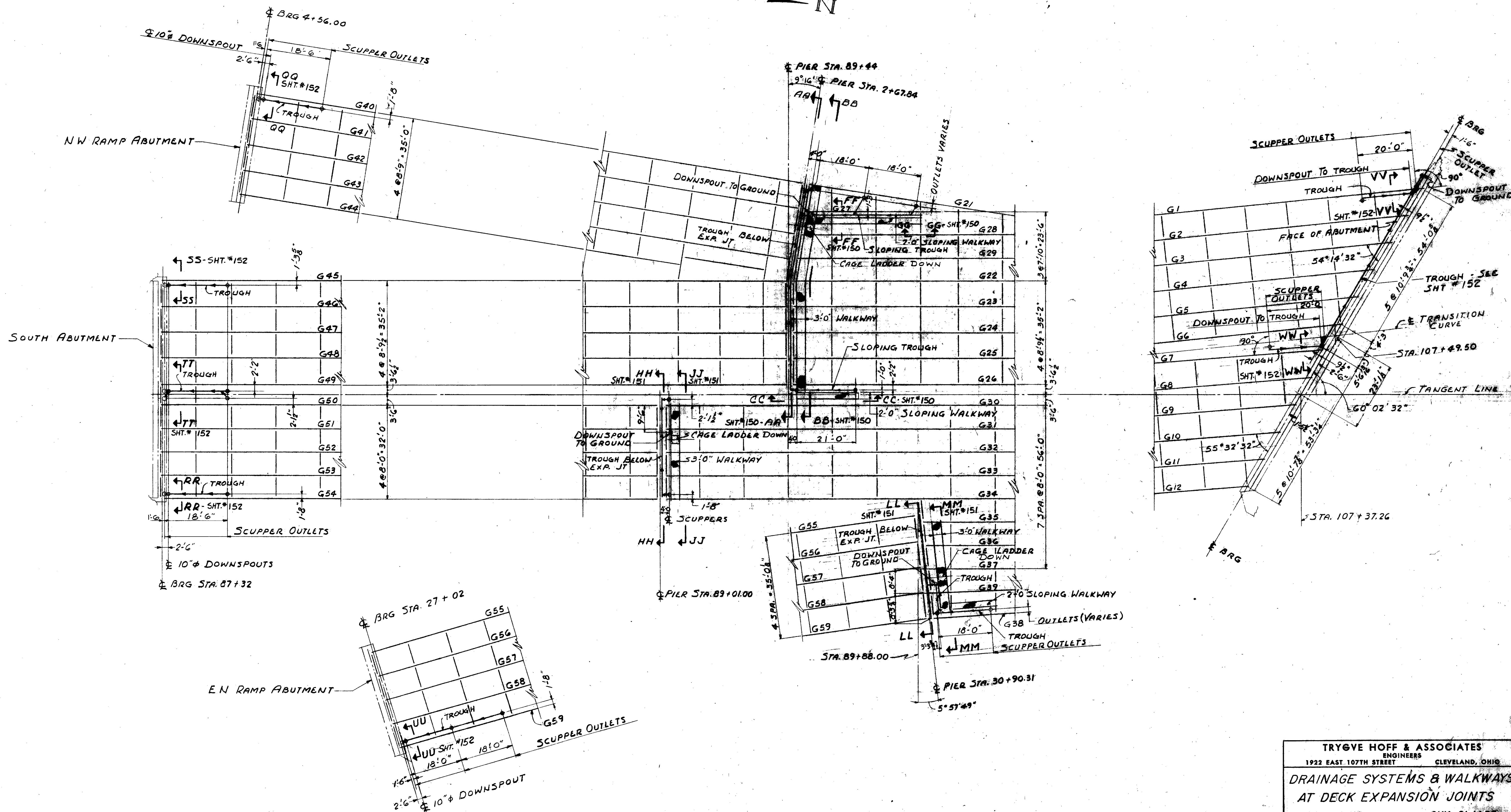
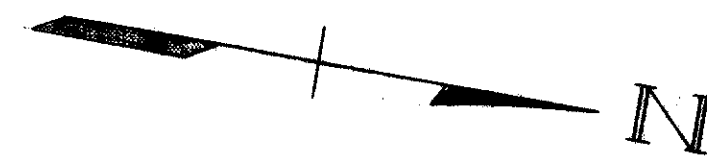
ROCKER
BRIDGE NO. CUY-21-14.55
WILLOW FREEWAY OVER KINGSBURY RUN
CUYAHOGA COUNTY U.S.R. 21

SCALE: DATE 4-1-59

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

164

CUYAHOGA COUNTY
CUY-21-14.55

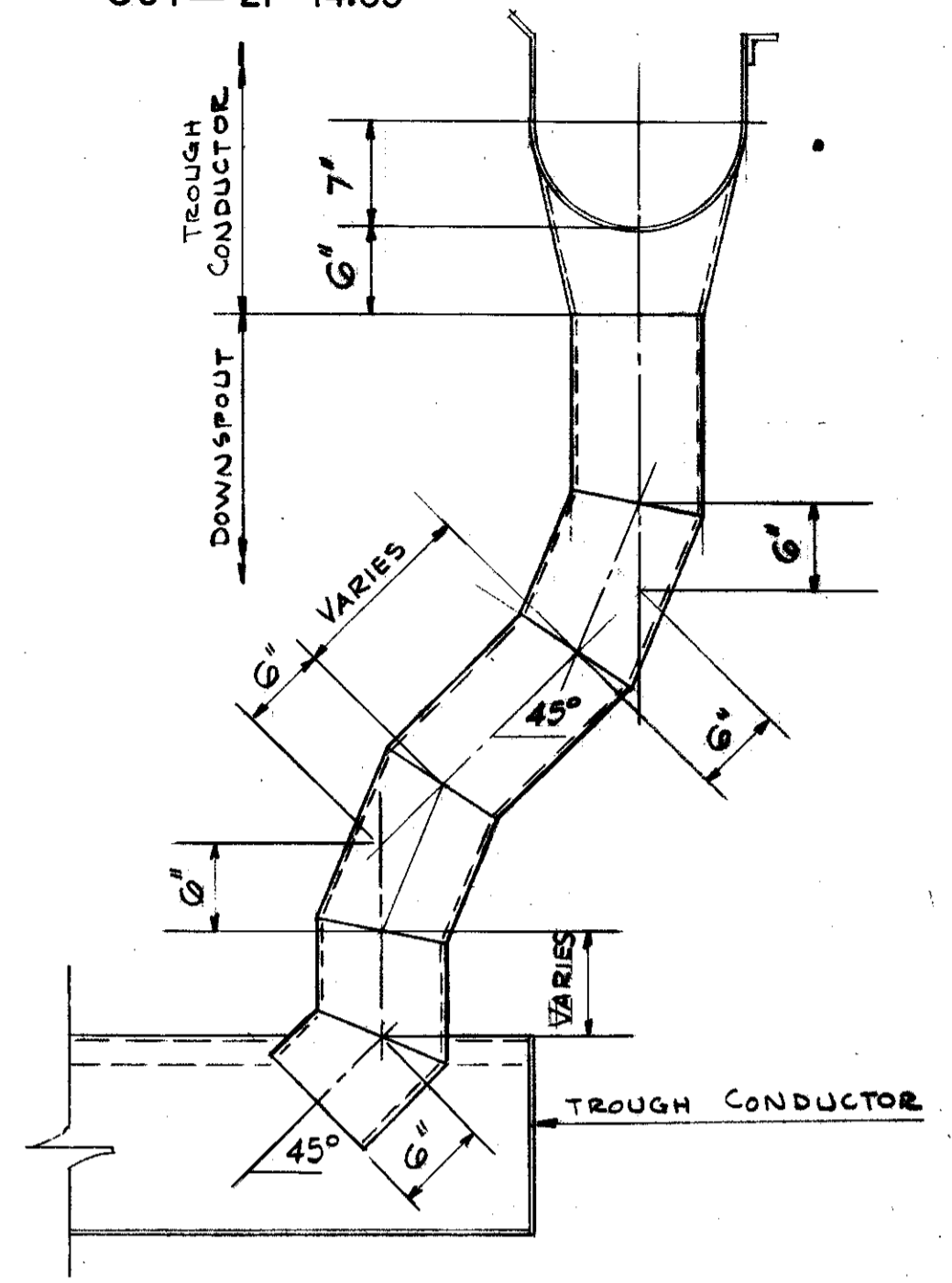
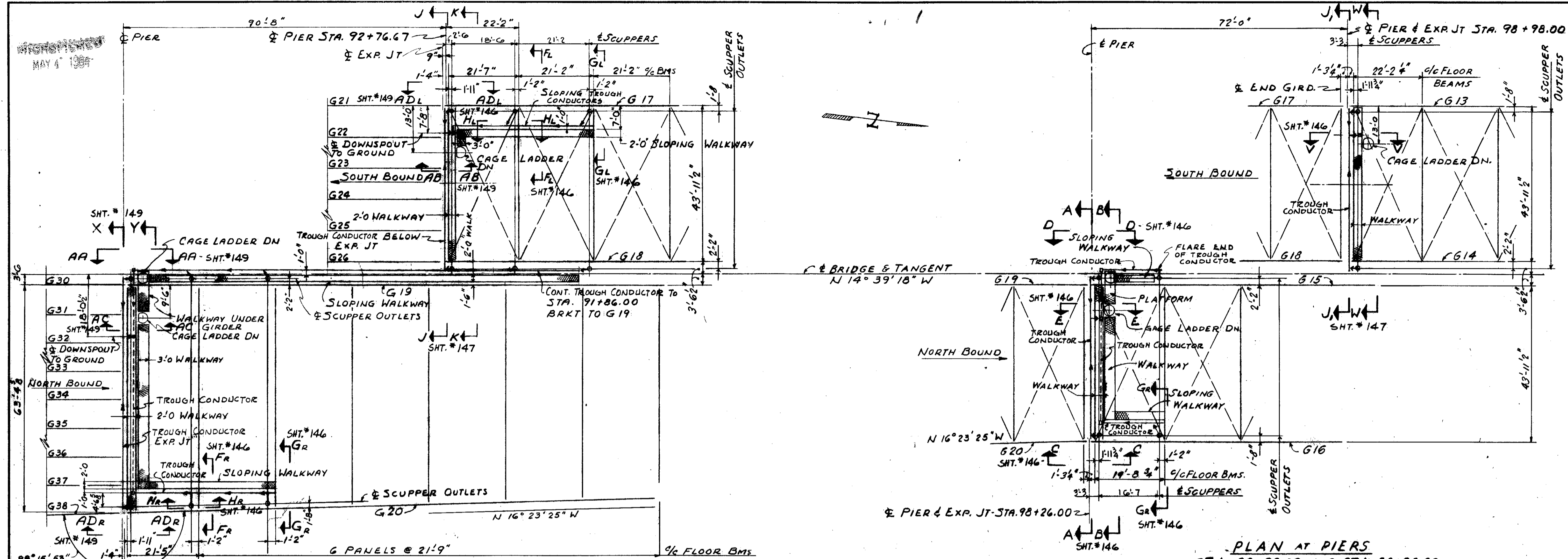


TRYGVE HOFF & ASSOCIATES
ENGINEERS
1922 EAST 107TH STREET CLEVELAND, OHIO

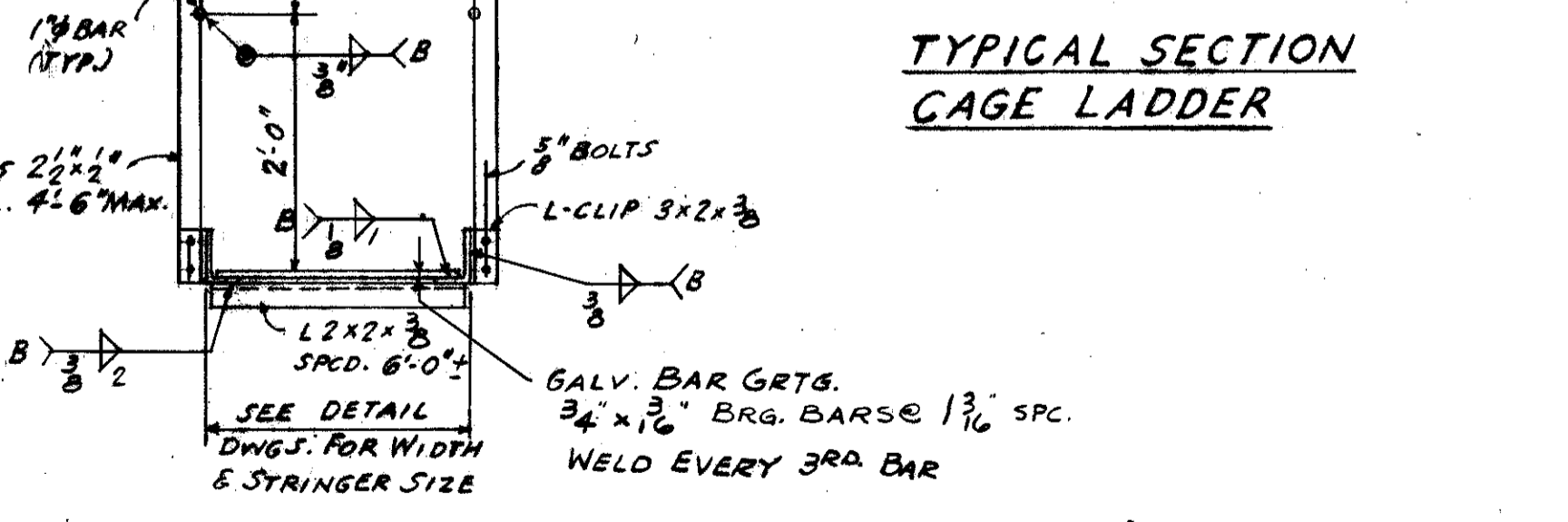
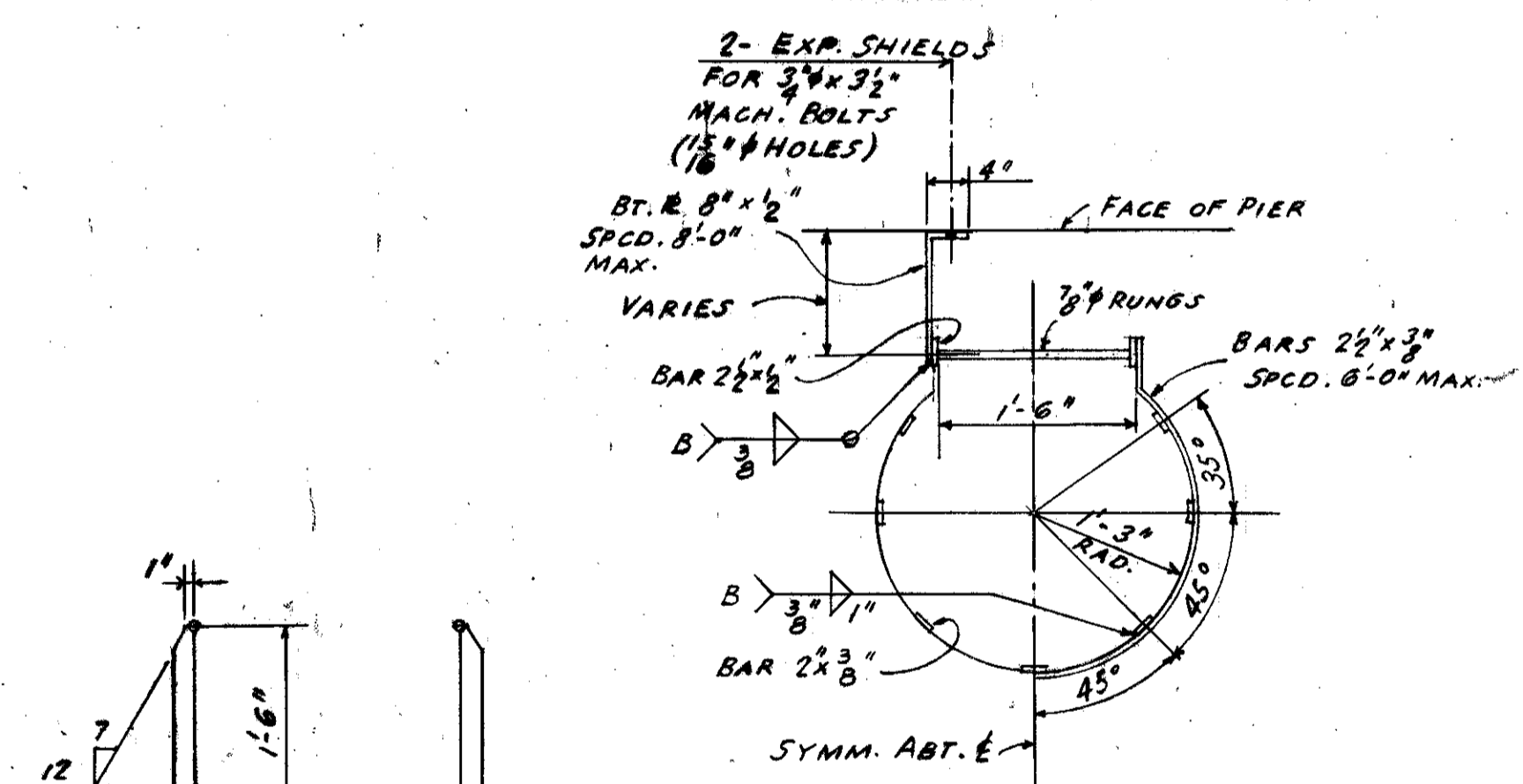
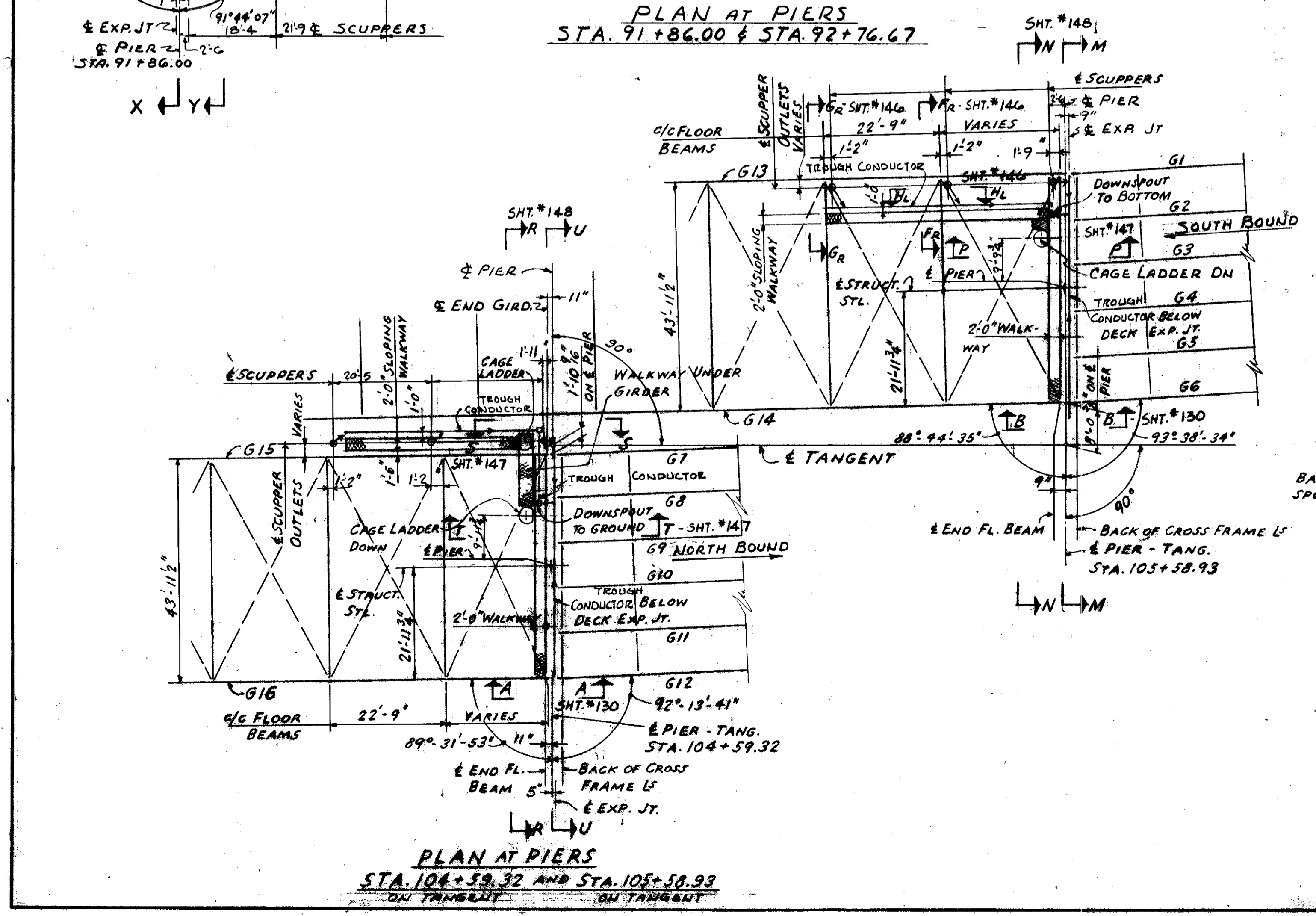
**DRAINAGE SYSTEMS & WALKWAYS
AT DECK EXPANSION JOINTS**

BRIDGE NO. CUY-21-14.55
WILLOW FREEWAY OVER KINGSBURY RUN
CUYAHOG COUNTY U.S.R. 21

SCALE	DATE
DESIGNED BY	TRACED
CHECKED	



TYPICAL PIPE JOINT DETAILS
FOR
DOWNSPOUTS BETWEEN TROUGHS

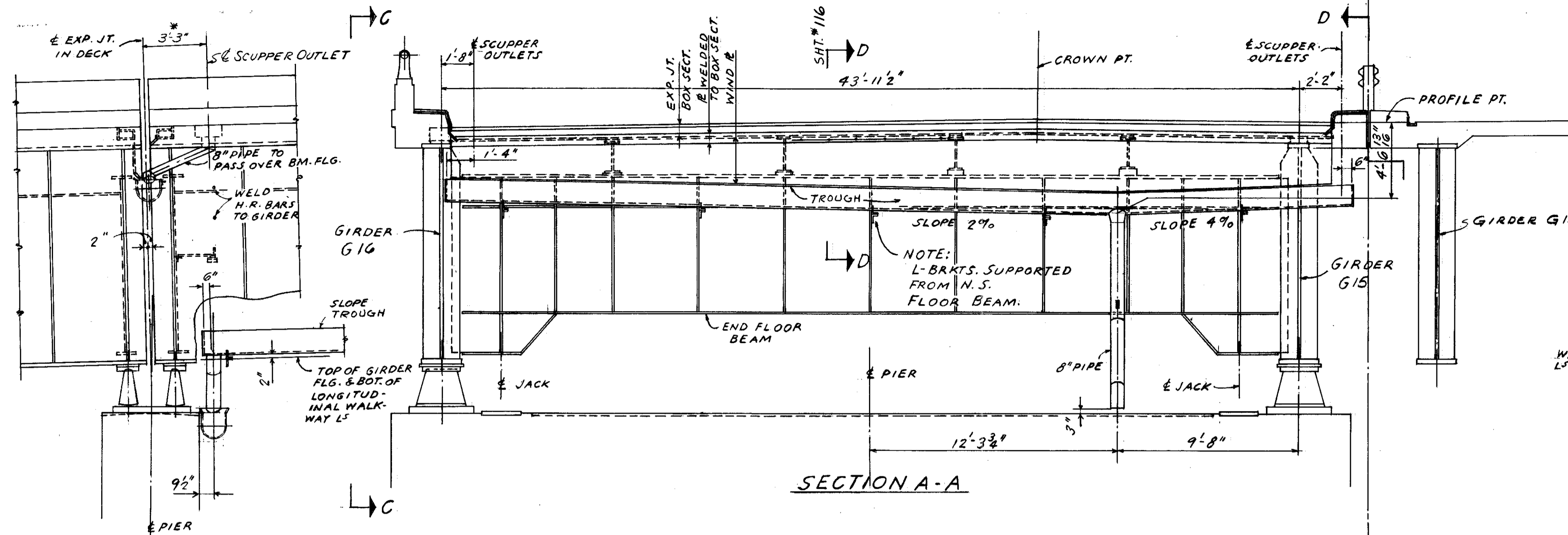


- NOTES:
1. WALKWAY FRAMING SHALL BE SHOP ASSEMBLED IN PRACTICABLE SHIPPING LENGTHS WITH BAR GRATING WELDED IN PLACE.
 2. SHOP CONNECTIONS TO BE WELDED (CLASS A WELDS UNLESS NOTED)
 3. FIELD CONNECTIONS TO BE BOLTED WITH 3/4" UNFINISHED BOLTS (13/16" HOLE UNLESS NOTED)
 4. ALSO SEE NOTES ON DWG. NO. 153.
 5. MINIMUM WELD TO BE 3/8". IF STITCH (OR INTERMITTENT) WELDS ARE USED THE FAYING SURFACES BETWEEN STITCHES ARE TO BE SEALED BY WELDING.

TRYGVE HOFF & ASSOCIATES
ENGINEERS
1922 EAST 107TH STREET CLEVELAND, OHIO

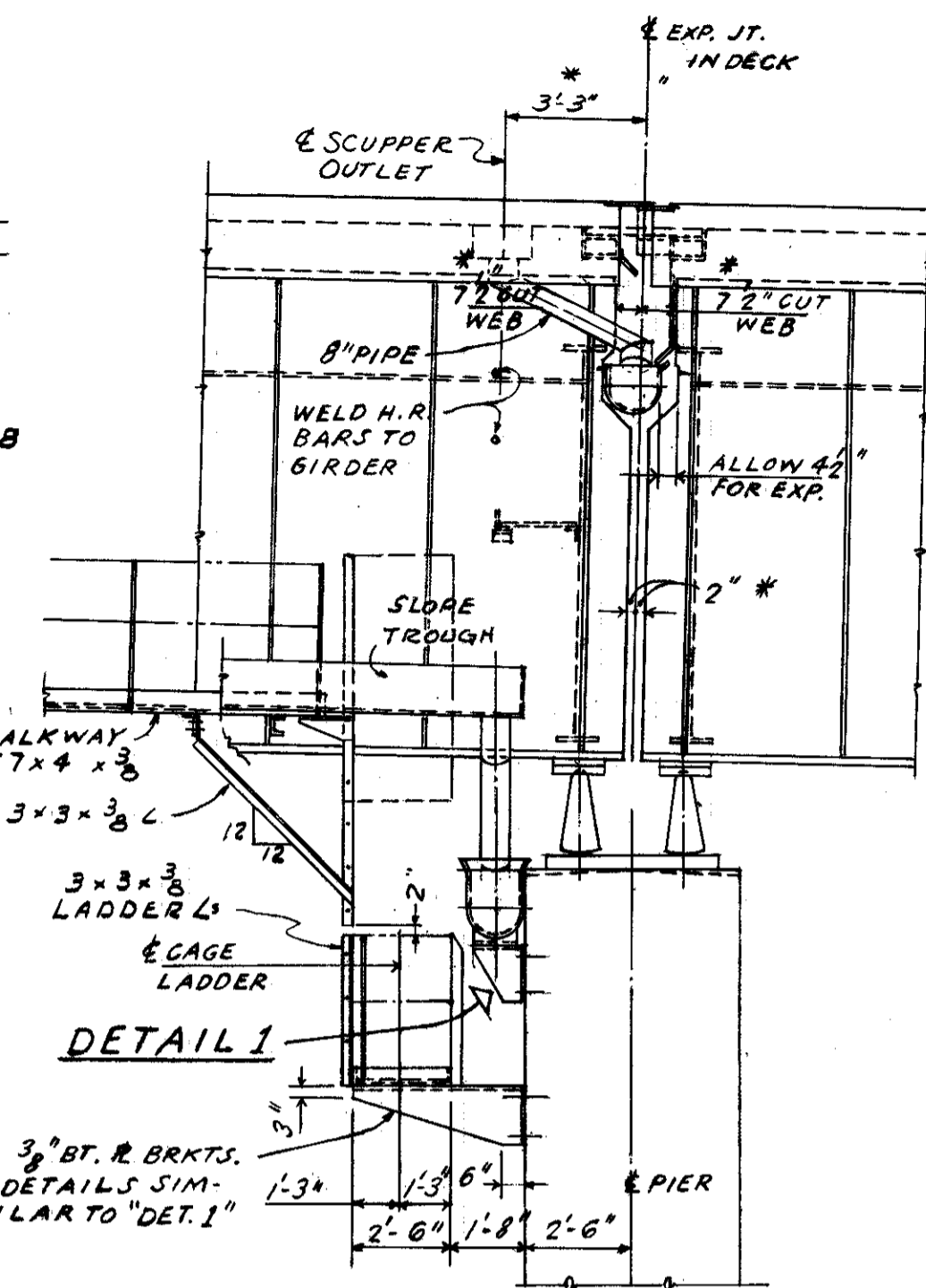
DRAINAGE SYSTEMS & WALKWAYS
AT DECK EXPANSION JOINTS
BRIDGE NO. CUY-21-14.55
WILLOW FREEWAY OVER KINGSBURY RUN
CUYAHOGA COUNTY U.S.R.

SCALE	DATE
DESIGNED	TRACED
CHECKED	REVIEWED
DATE	DATE



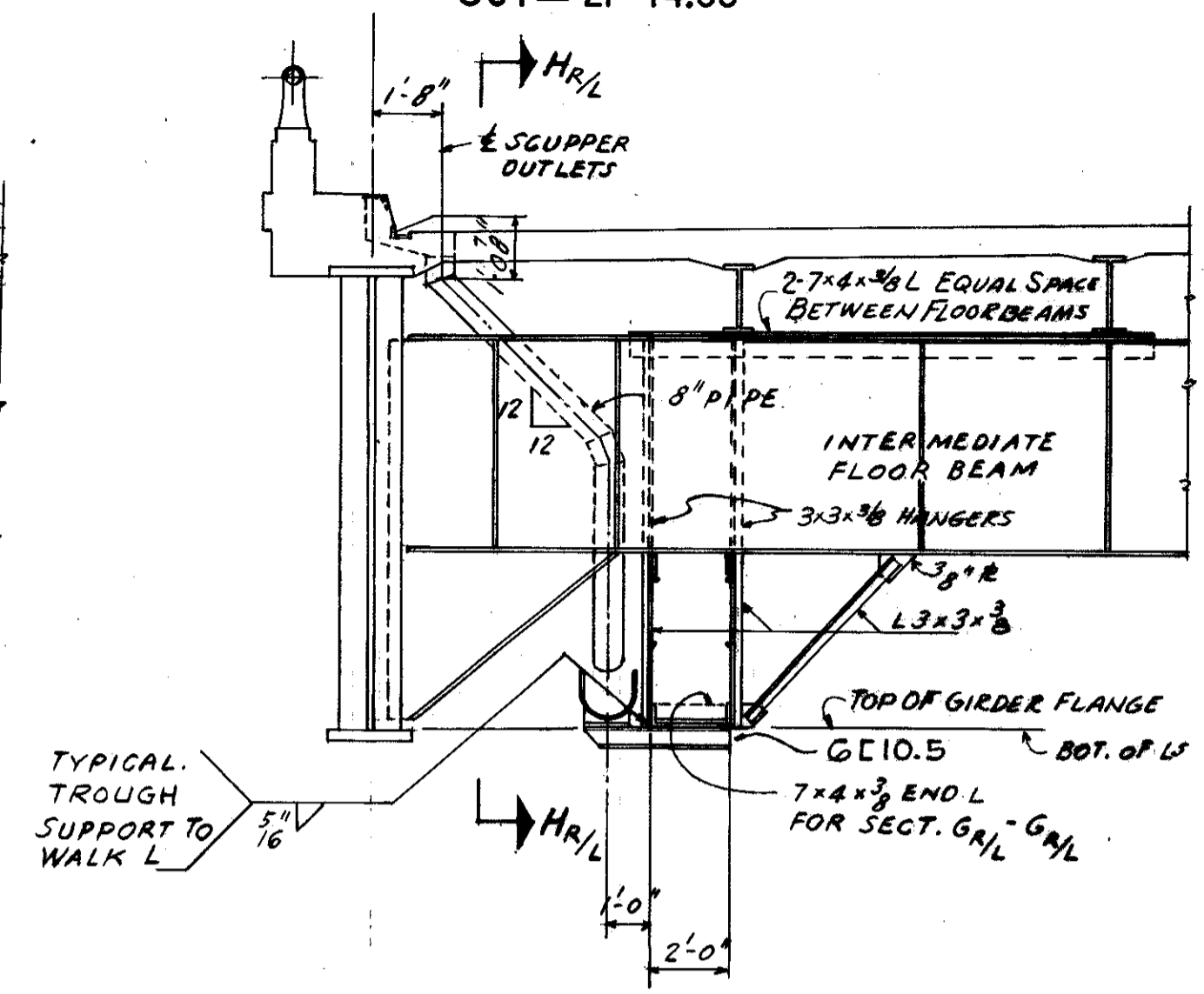
SECTION A-A

ELEVATION C-C

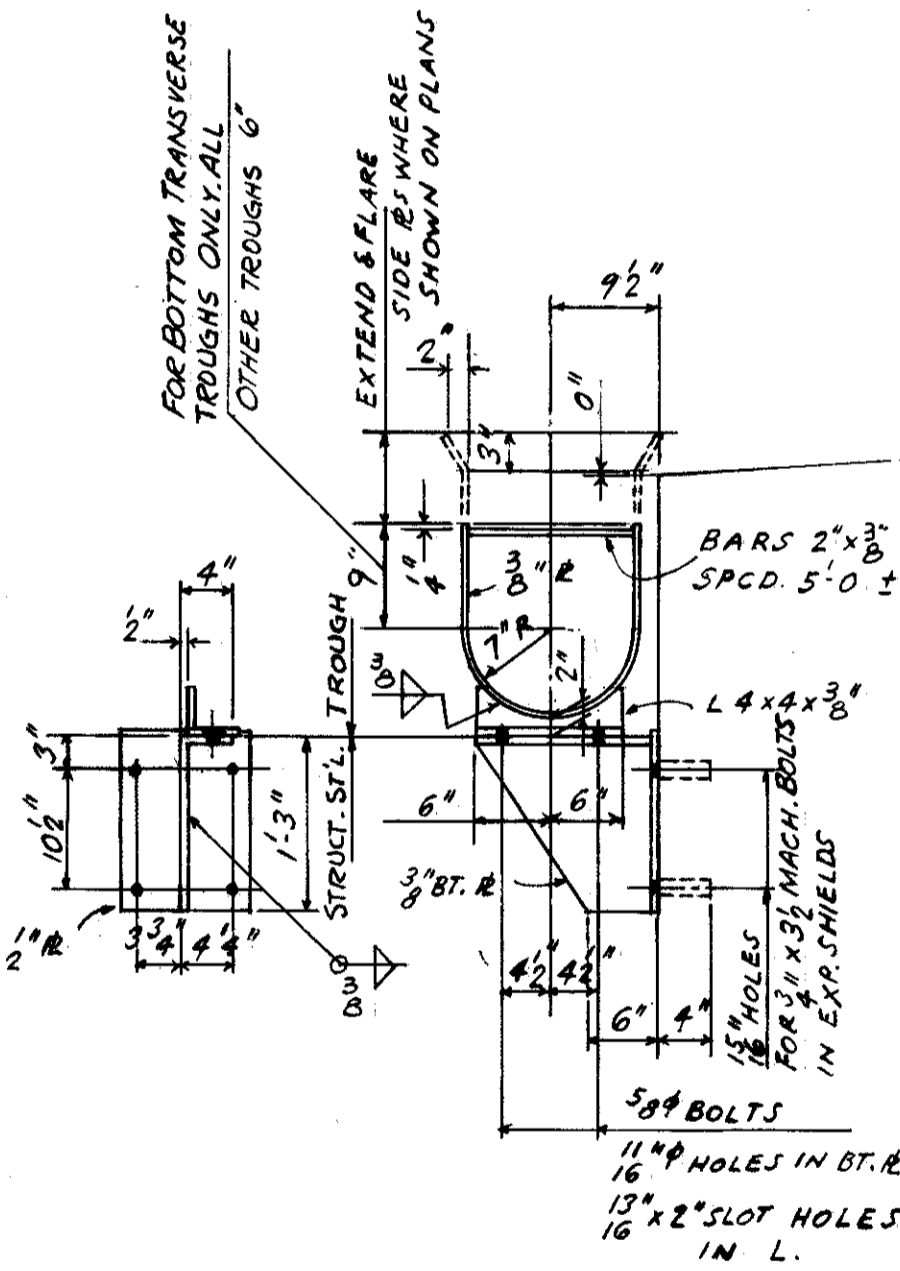


SECTION D-D

DETAIL 1

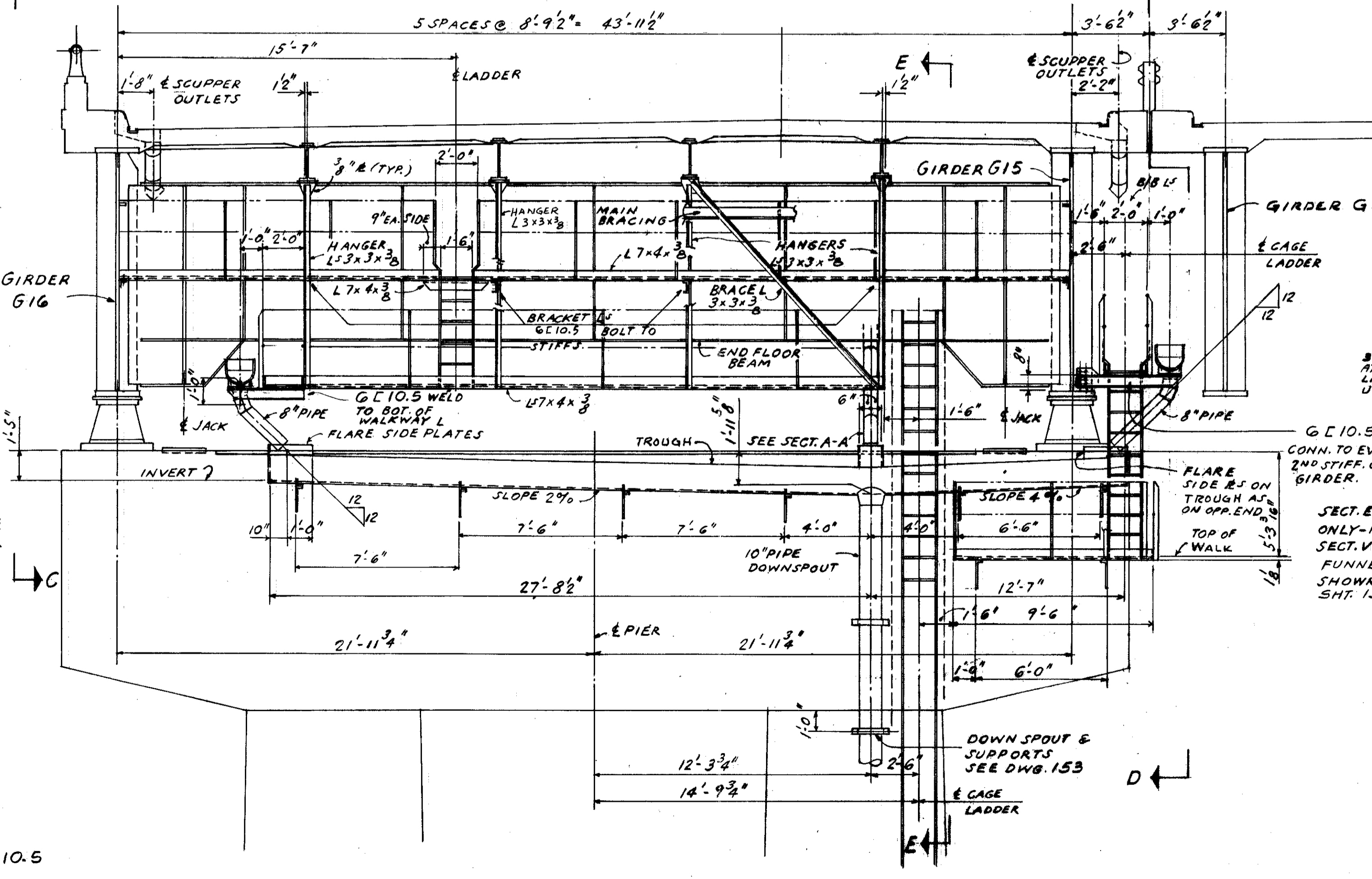


SECTION FR-FR SHOWN
SECTION GR-GR SHOWN & NOTED
SECTION FL-FL OPP.
SECTION GL-GL OPP. & NOTED

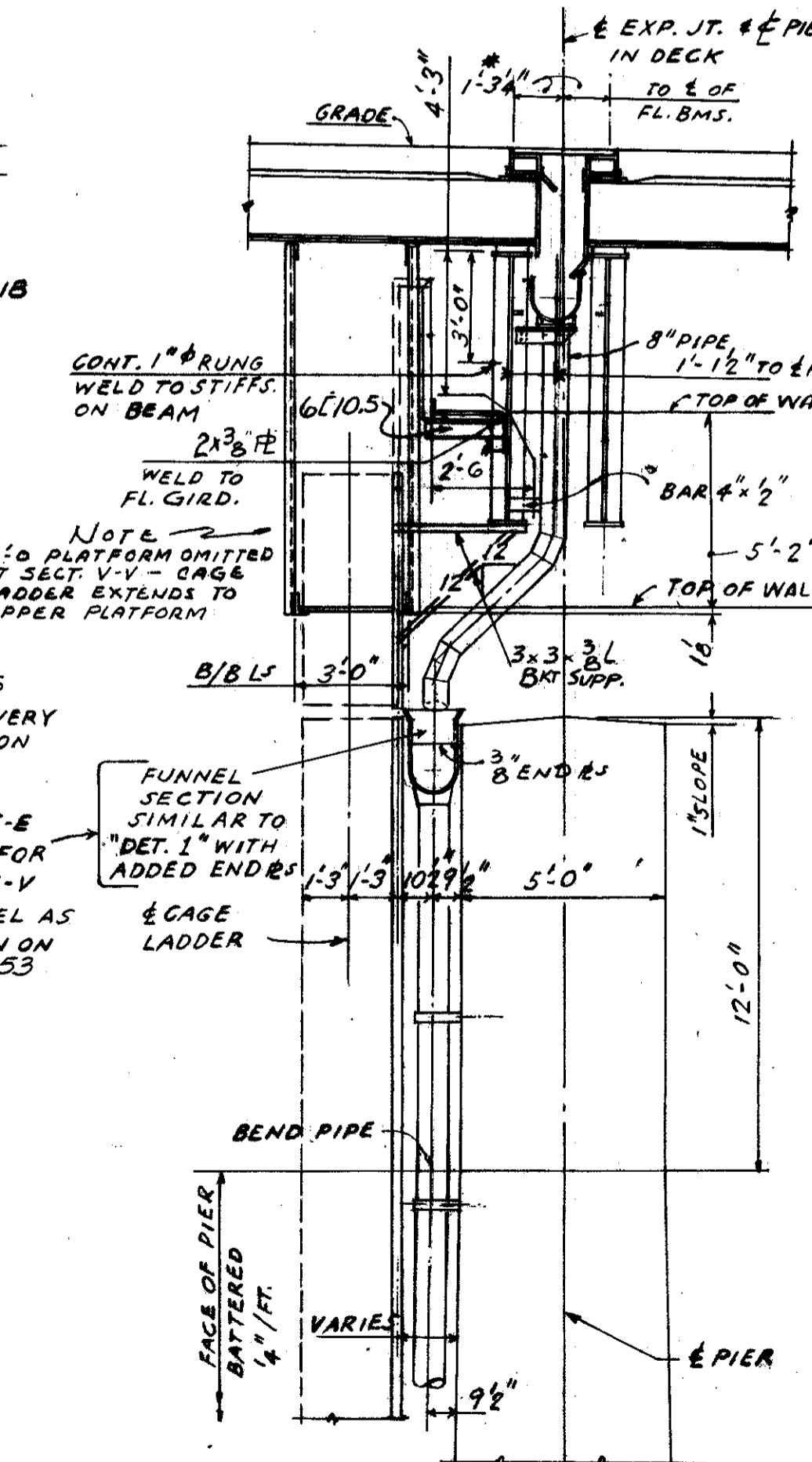


DETAIL 1

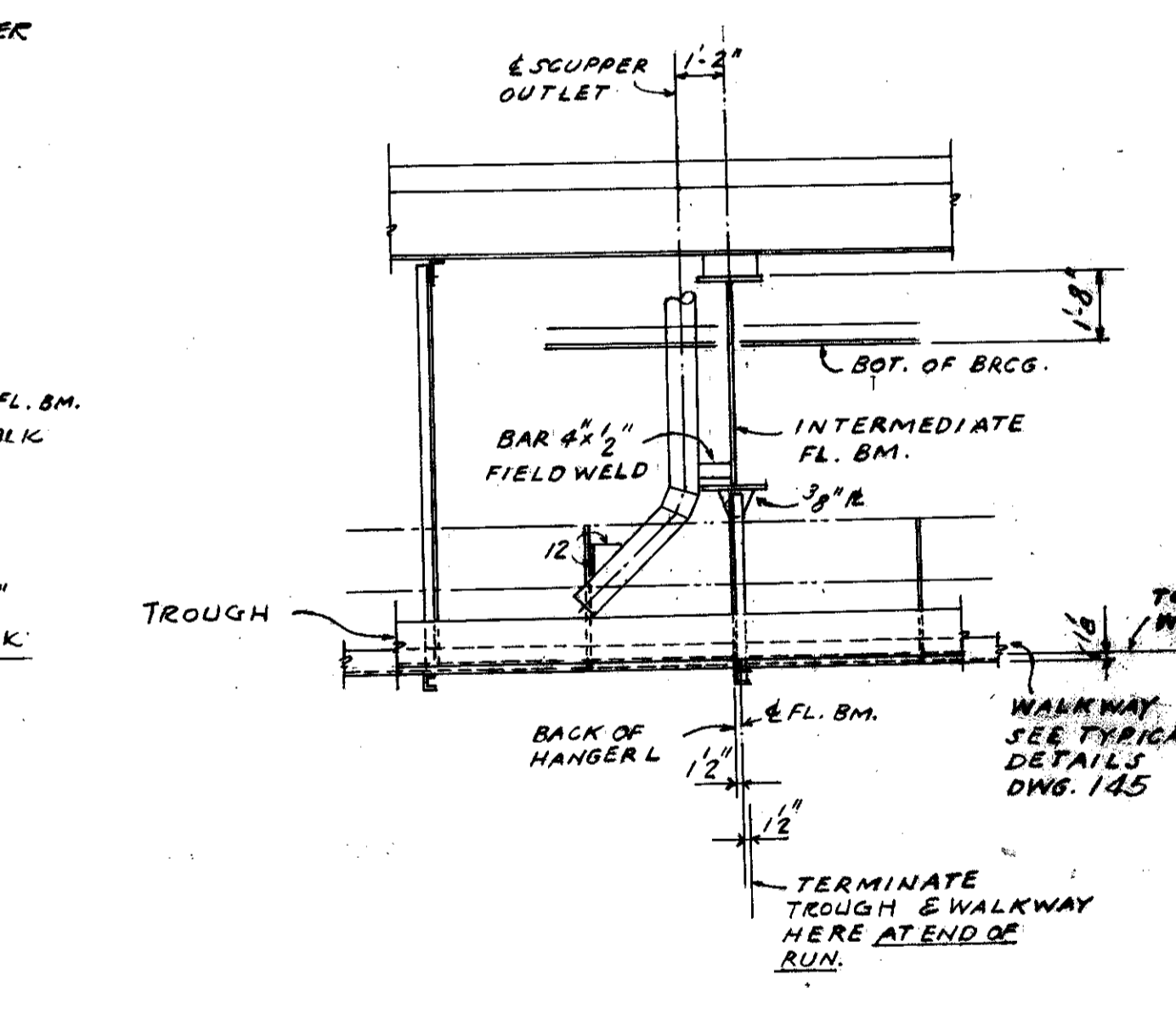
TYPICAL CONNECTION FOR WALK BRACKET



SECTION B-B



SECTION E-E SHOWN & NOTED
SECTION V-V SHOWN & NOTED



SECTION HR-HR SHOWN
SECTION HL-HL OPP.

1. DIMENSIONS MARKED WITH AN ASTERISK VARY WITH EXPANSION OR CONTRACTION; ARE TRUE ONLY FOR INITIAL DESIGN TEMP.
2. SEE NOTES ON DWG. #145

TRYGVE HOFF & ASSOCIATES
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1922 EAST 107TH STREET CLEVELAND, OHIO

DRAINAGE SYSTEMS & WALKWAYS

SECTIONS & DETAILS

BRIDGE NO. CUY-21-14.55
WILLOW FREEWAY OVER KINGSBURY RUN
CUYAHOGA COUNTY U.S.R. 21

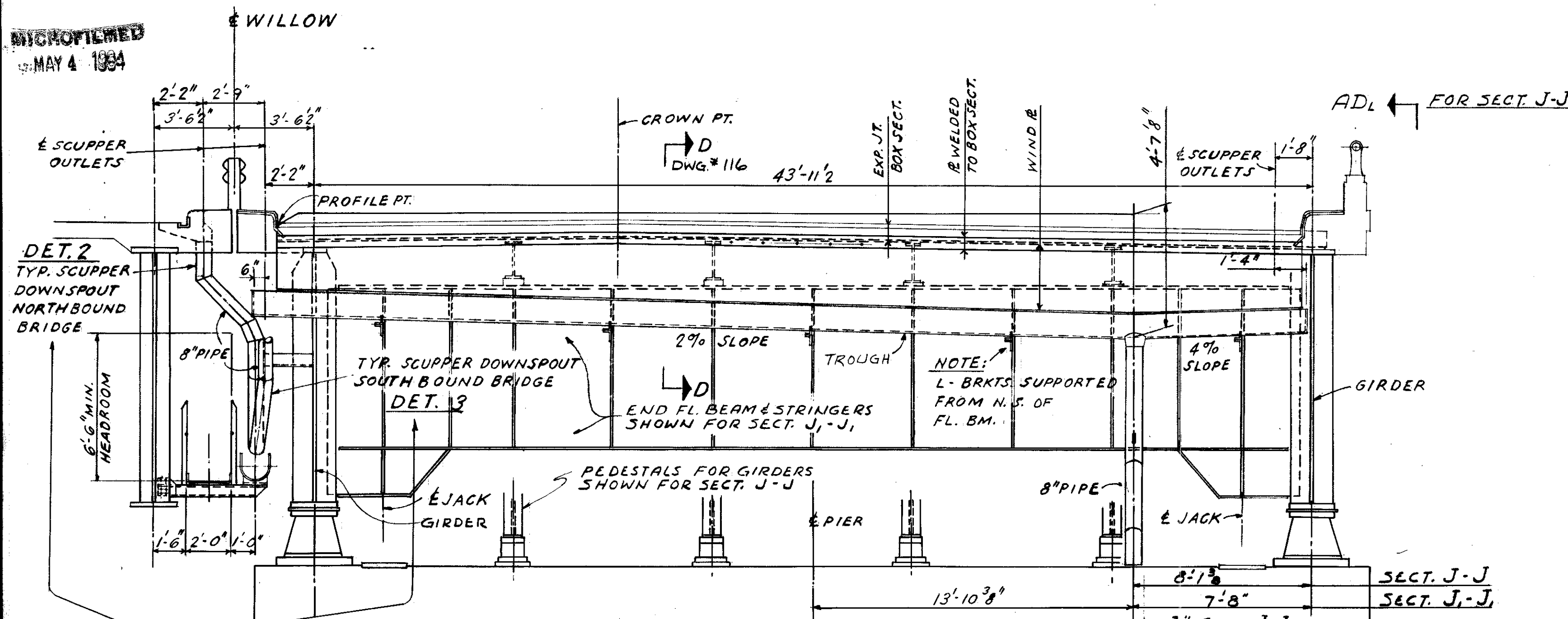
SCALE	DATE
DESIGNED	DRAWN
TRACED	CHECKED
REVIEWED	DATE

MICROFILMED
MAY 4 1984

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

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164

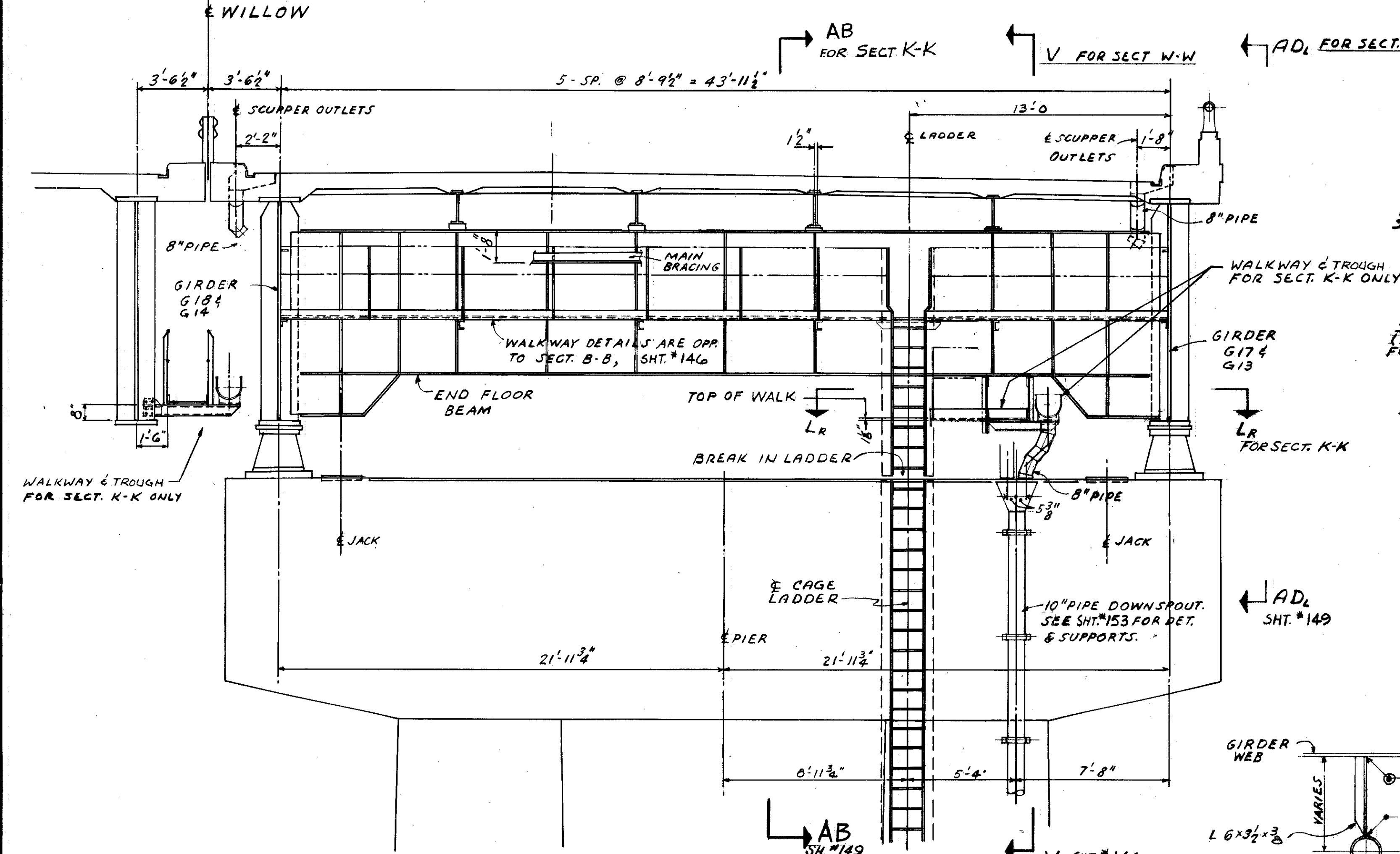
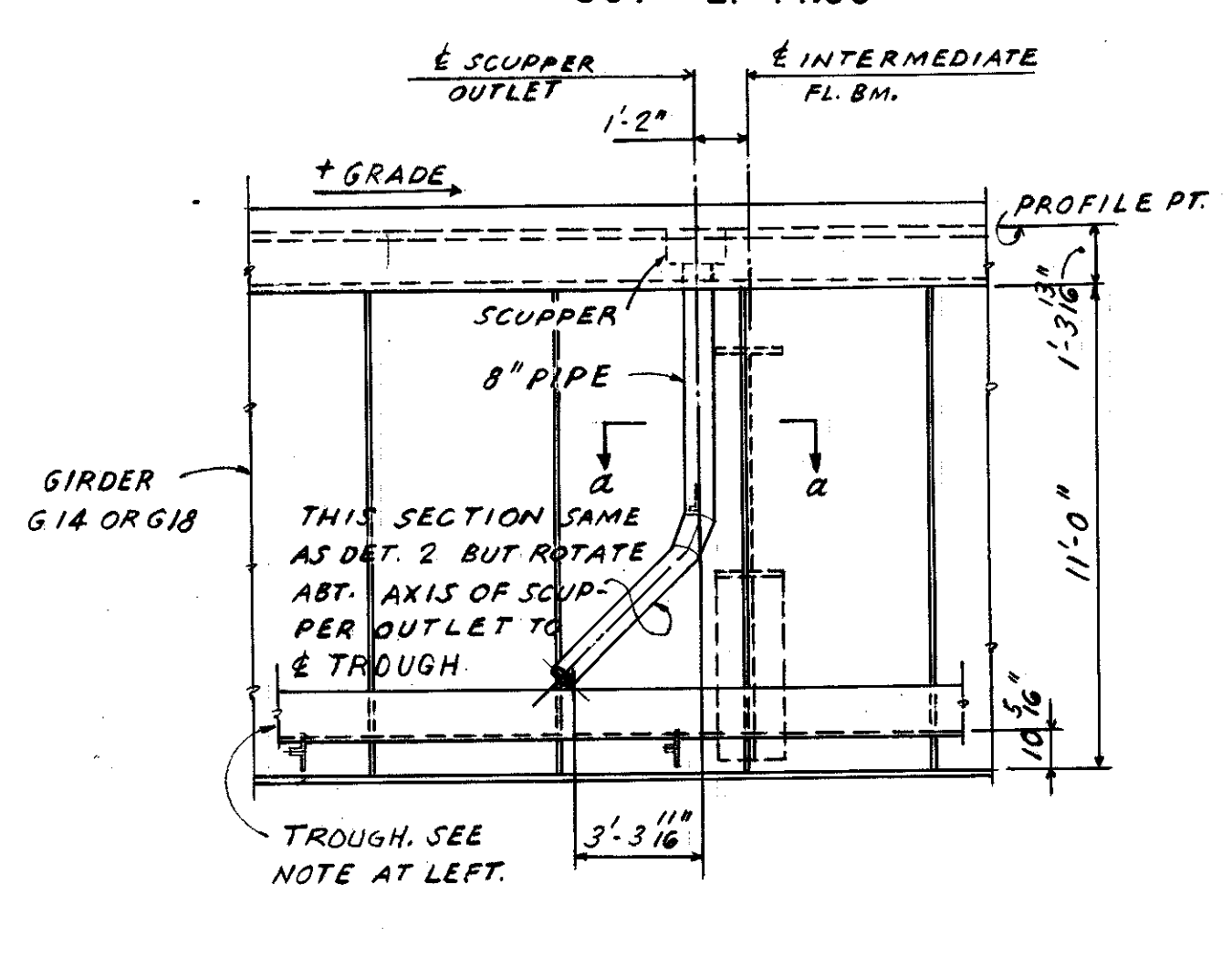
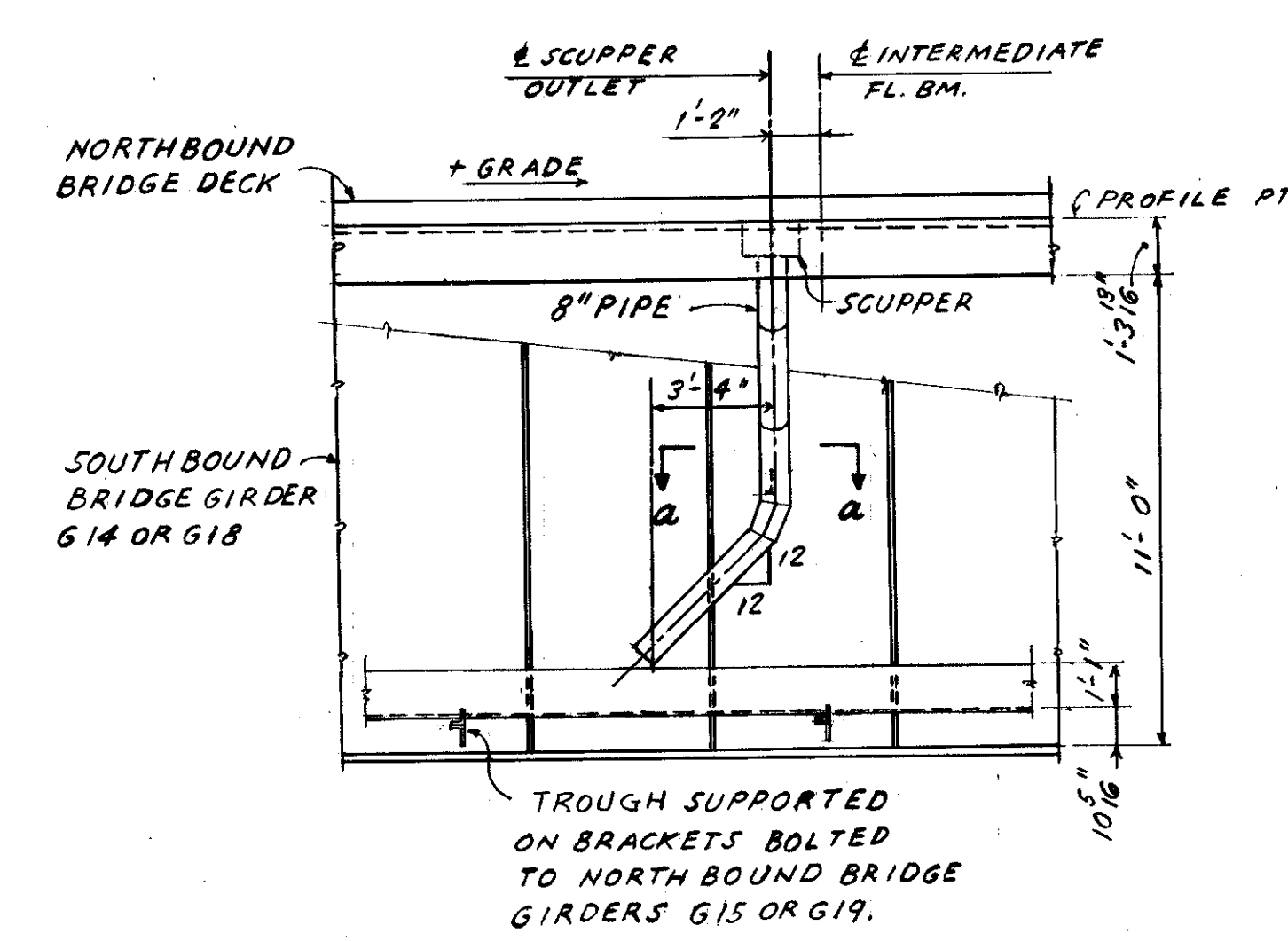
CUYAHOGA COUNTY
CUY-21 14.55



NOTE: SCUPPER DOWNSPOUTS SHOWN DO NOT OCCUR IN IMMEDIATE VICINITY OF SECTIONS - SEE DWG. #145 FOR LOCATIONS.

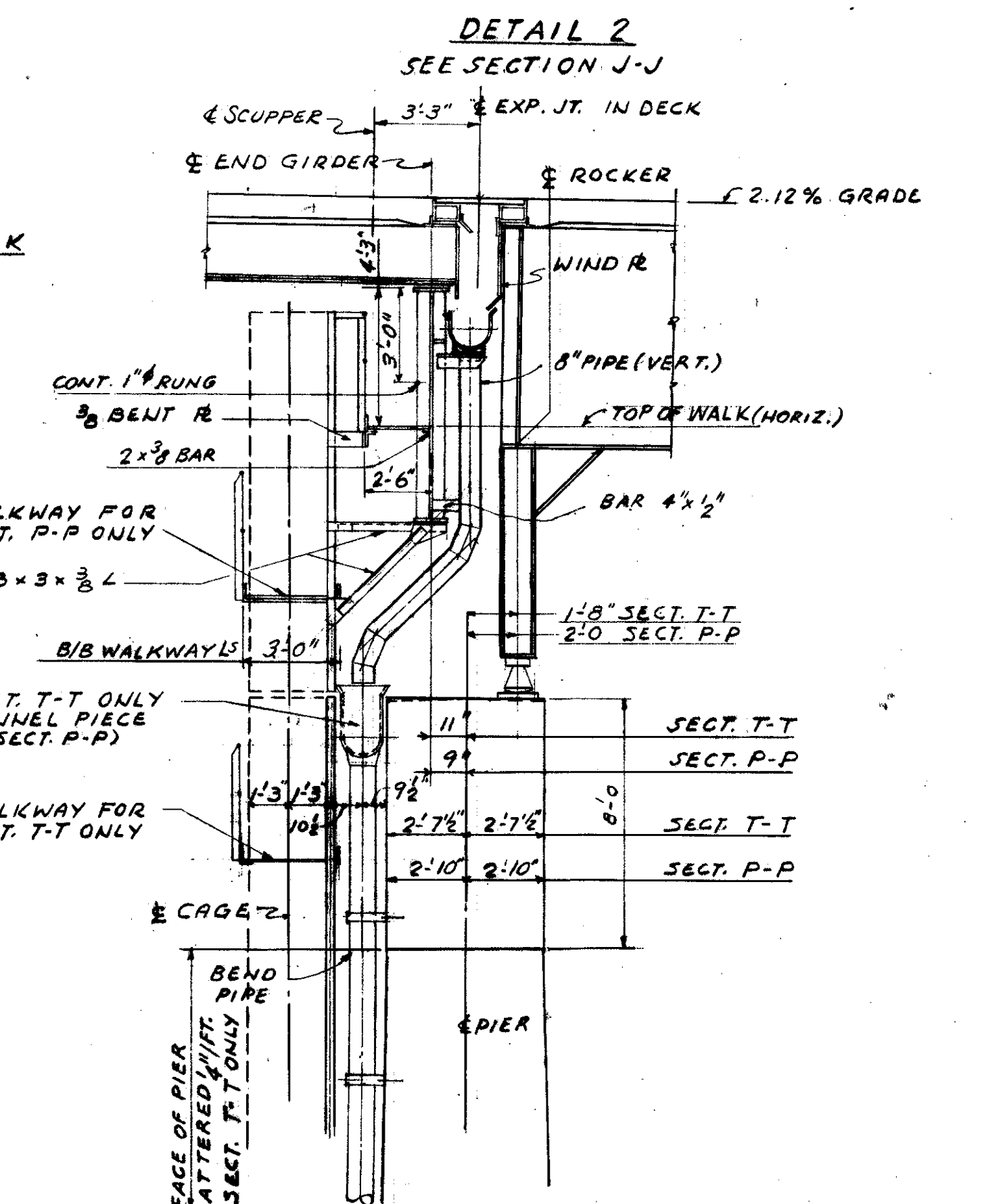
SECTION J-J As shown & noted
SECTION J-J₁ As shown & noted

ADL ← FOR SECT. J-J
ADL ← DWG. #149



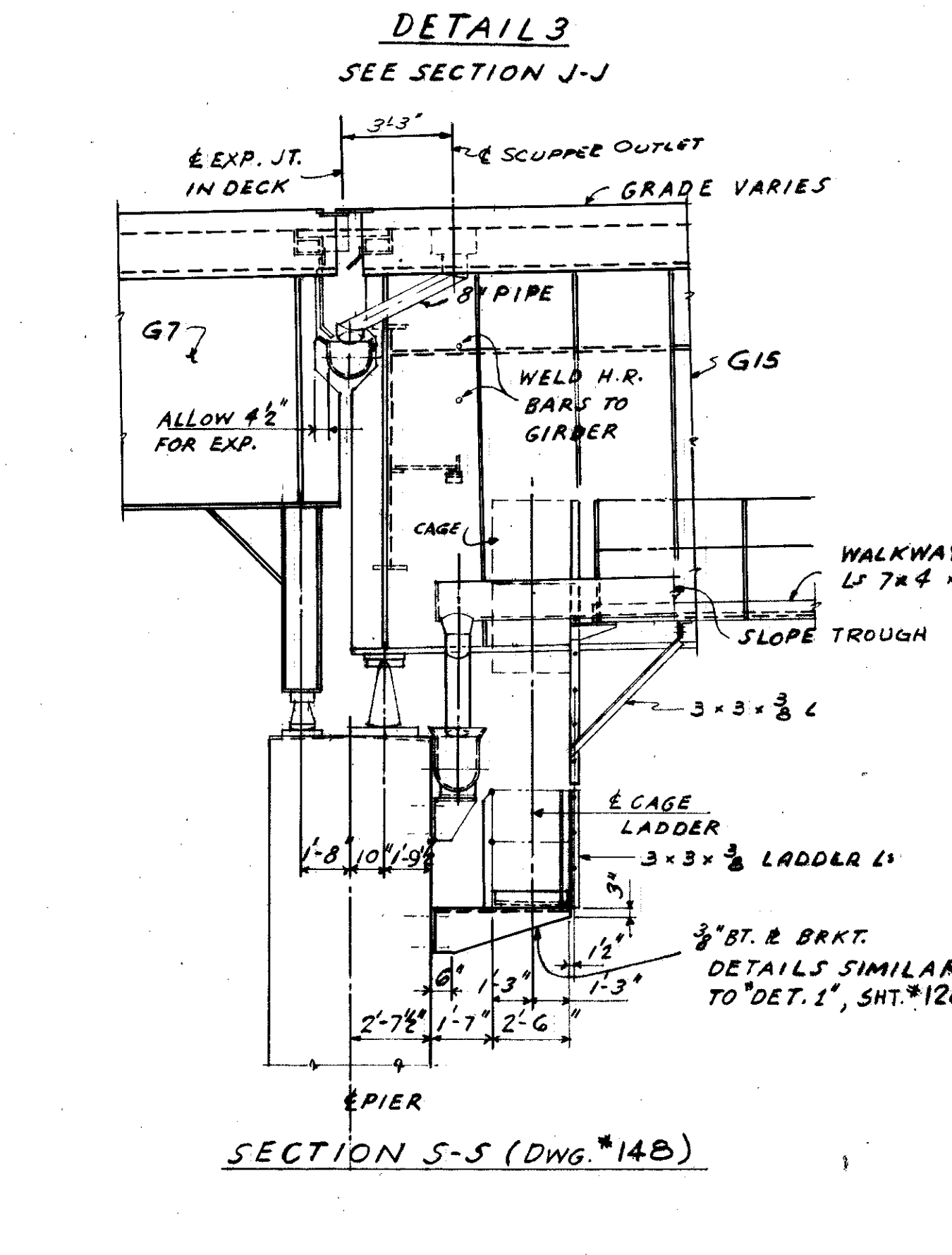
SECTION K-K SHOWN & NOTED
SECTION W-W SHOWN & NOTED

ADL ← SHT. #149

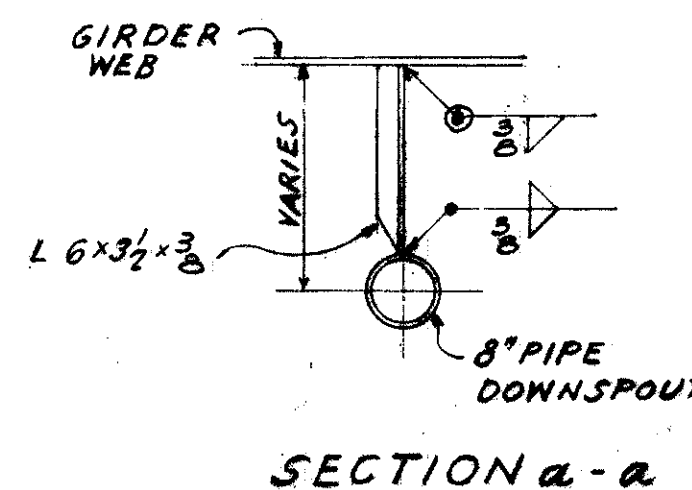


SECTION P-P SHOWN & NOTED
SECTION T-T SHOWN & NOTED

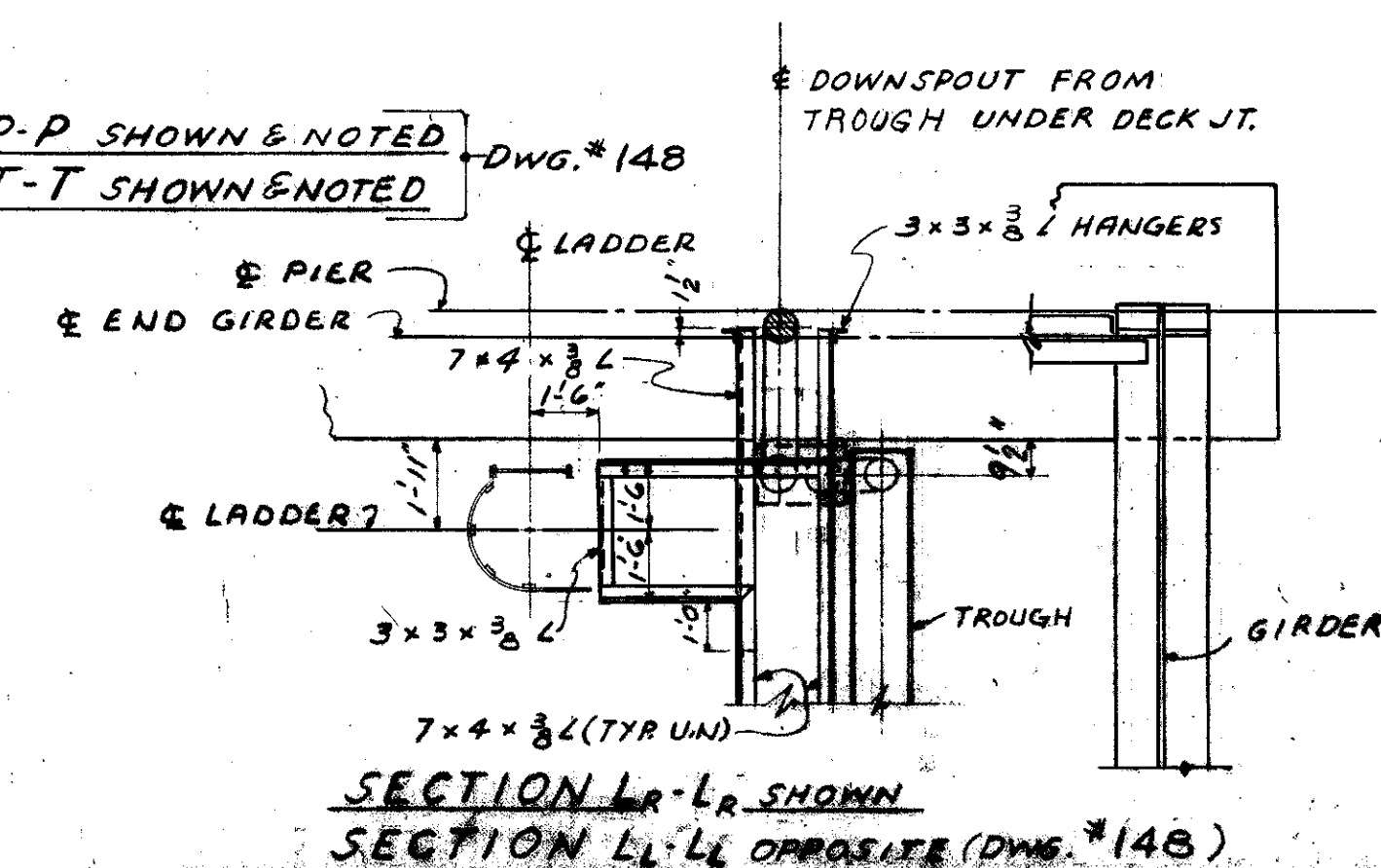
DWG. #148



SECTION S-S (DWG. #14B)



SECTION a-a



SECTION L-L SHOWN
SECTION L-L OPPOSITE (DWG. #14B)

TRYGVE HOFF & ASSOCIATES
ENGINEERS
1922 EAST 107TH STREET CLEVELAND, OHIO

DRAINAGE SYSTEMS & WALKWAYS
SECTIONS & DETAILS

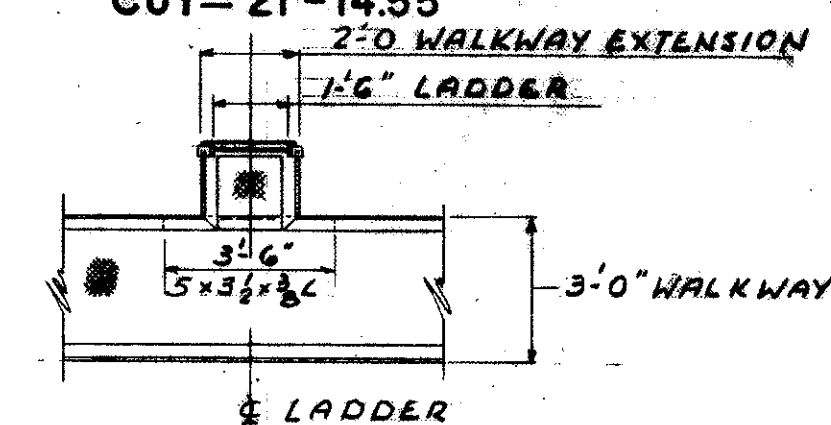
BRIDGE NO. CUY-21-14.55
WILLOW FREEWAY OVER KINGSBURY RD.
CUYAHOGA COUNTY U.S.R. 21.

SCALE	DATE
DESIGNED DRAWN TRACED CHECKED REVIEWED	
V.P.S. V.P.S.	T.S.J. D.W.M. 8-3-57

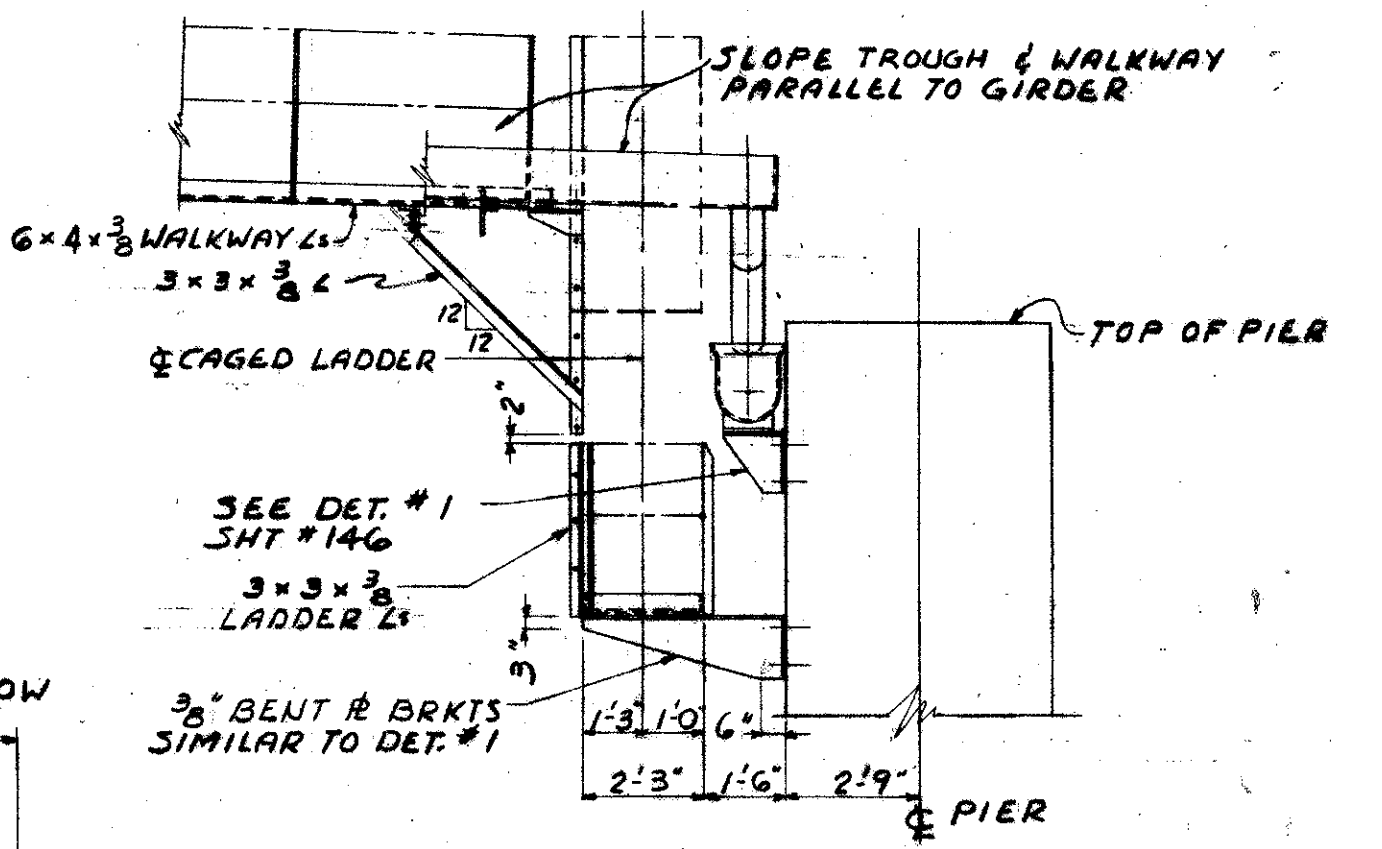
FED. RD. DIVISION	STATE	PROJECT
2	OHIO	



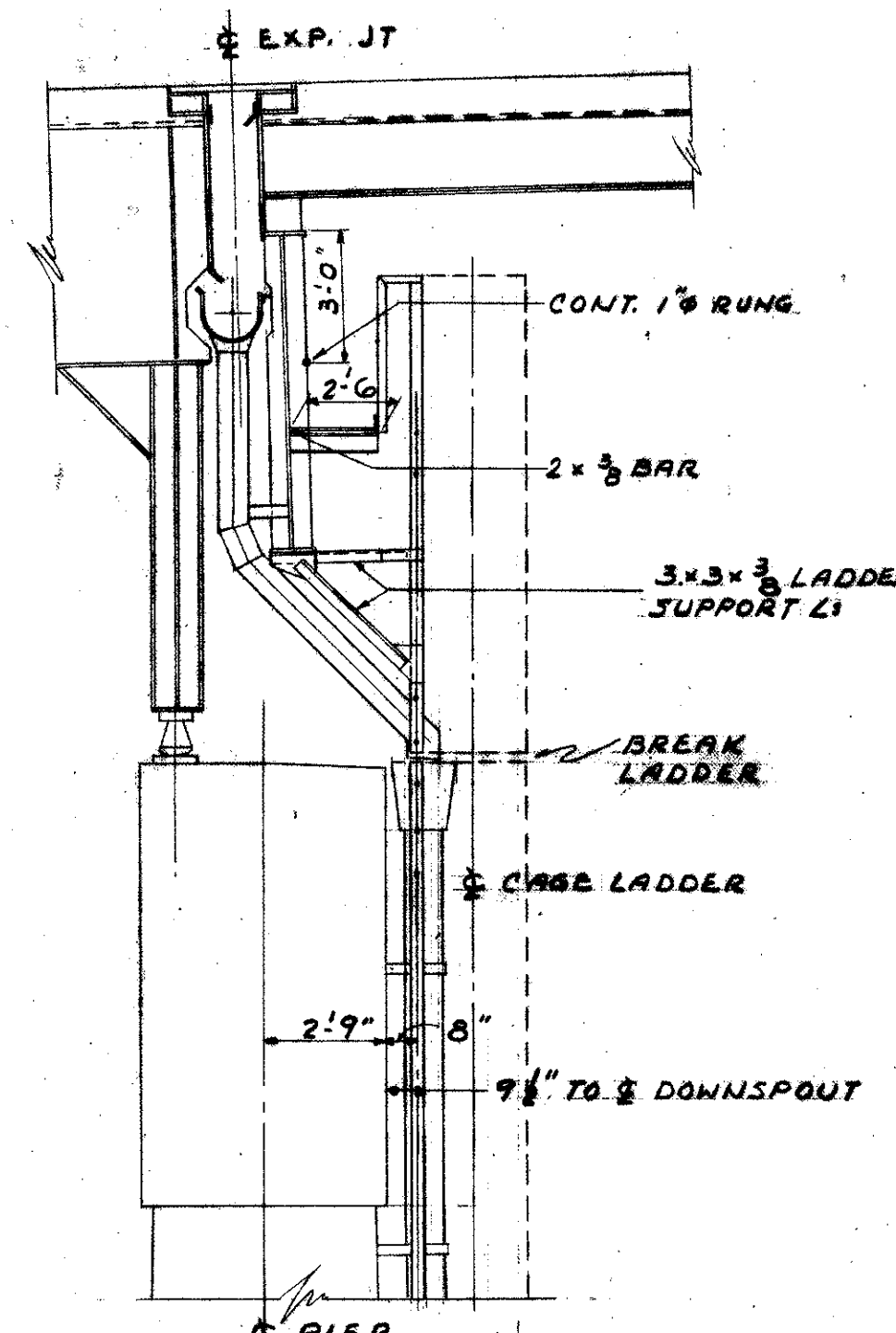
CUYAHOGA COUNTY
CUY-21-14.55



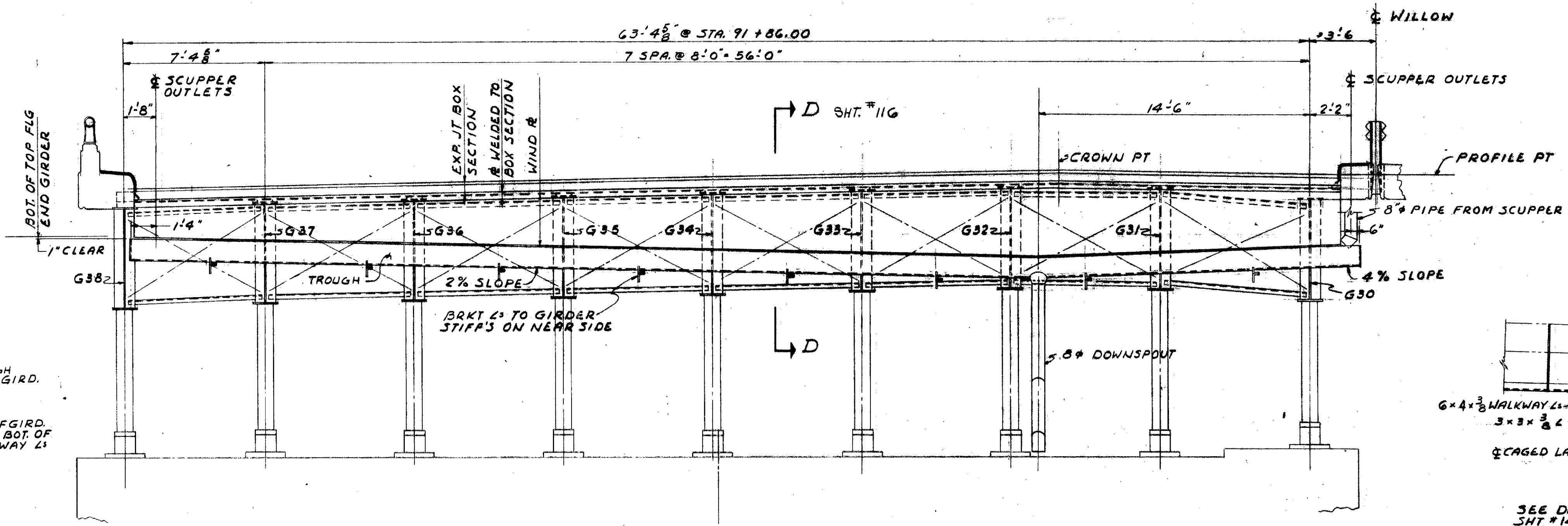
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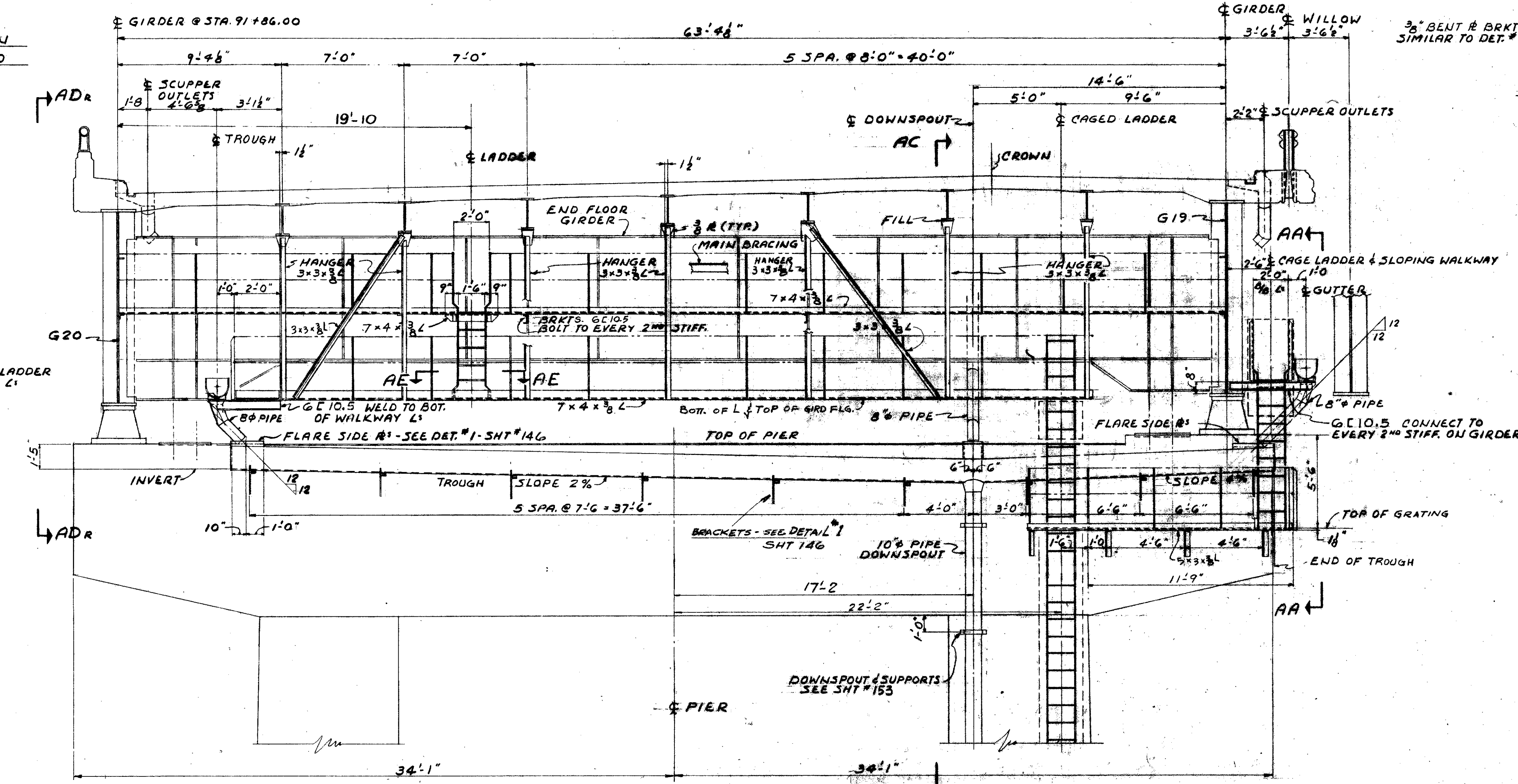
SECTION AA-AA



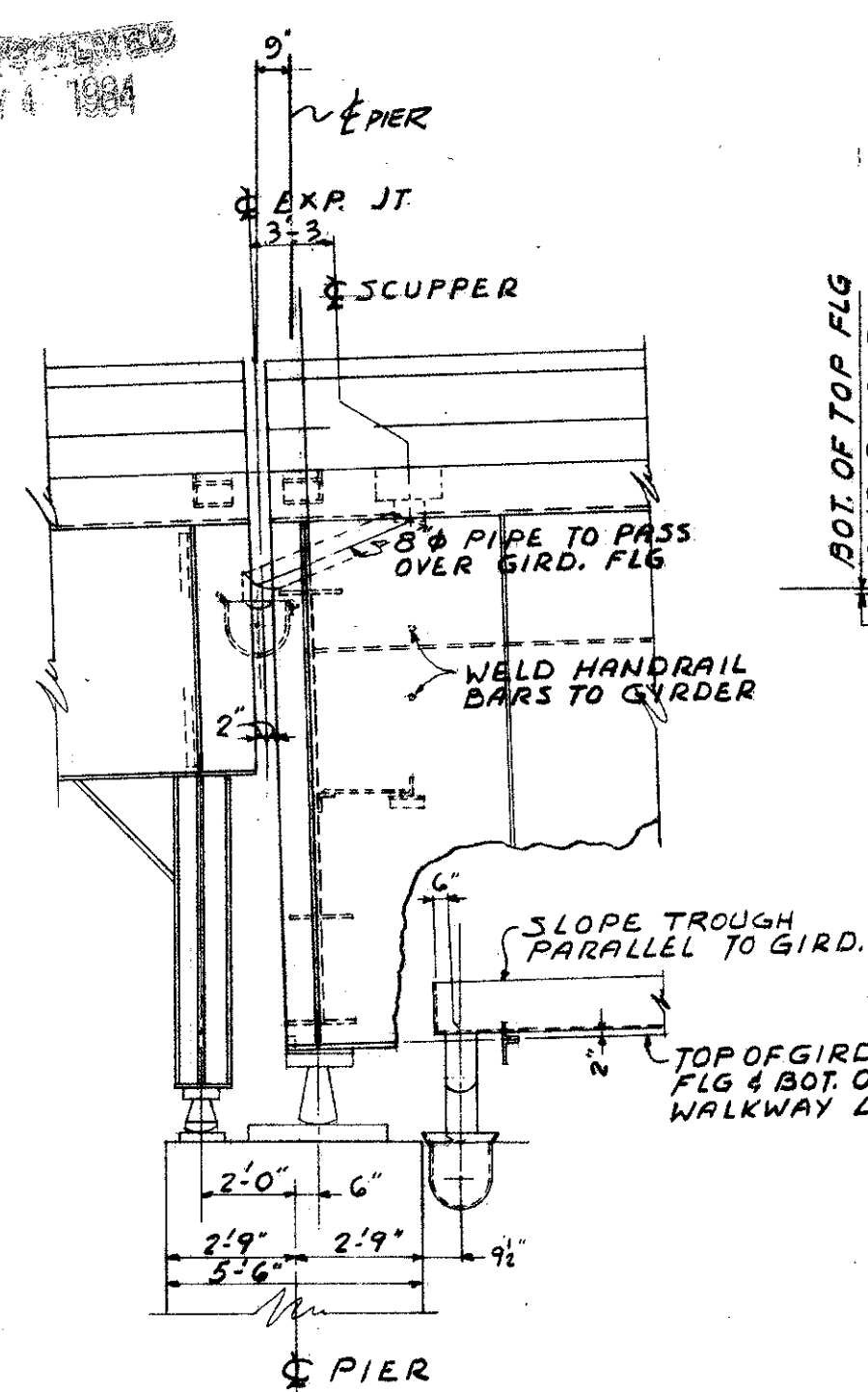
SECTION AB-AB



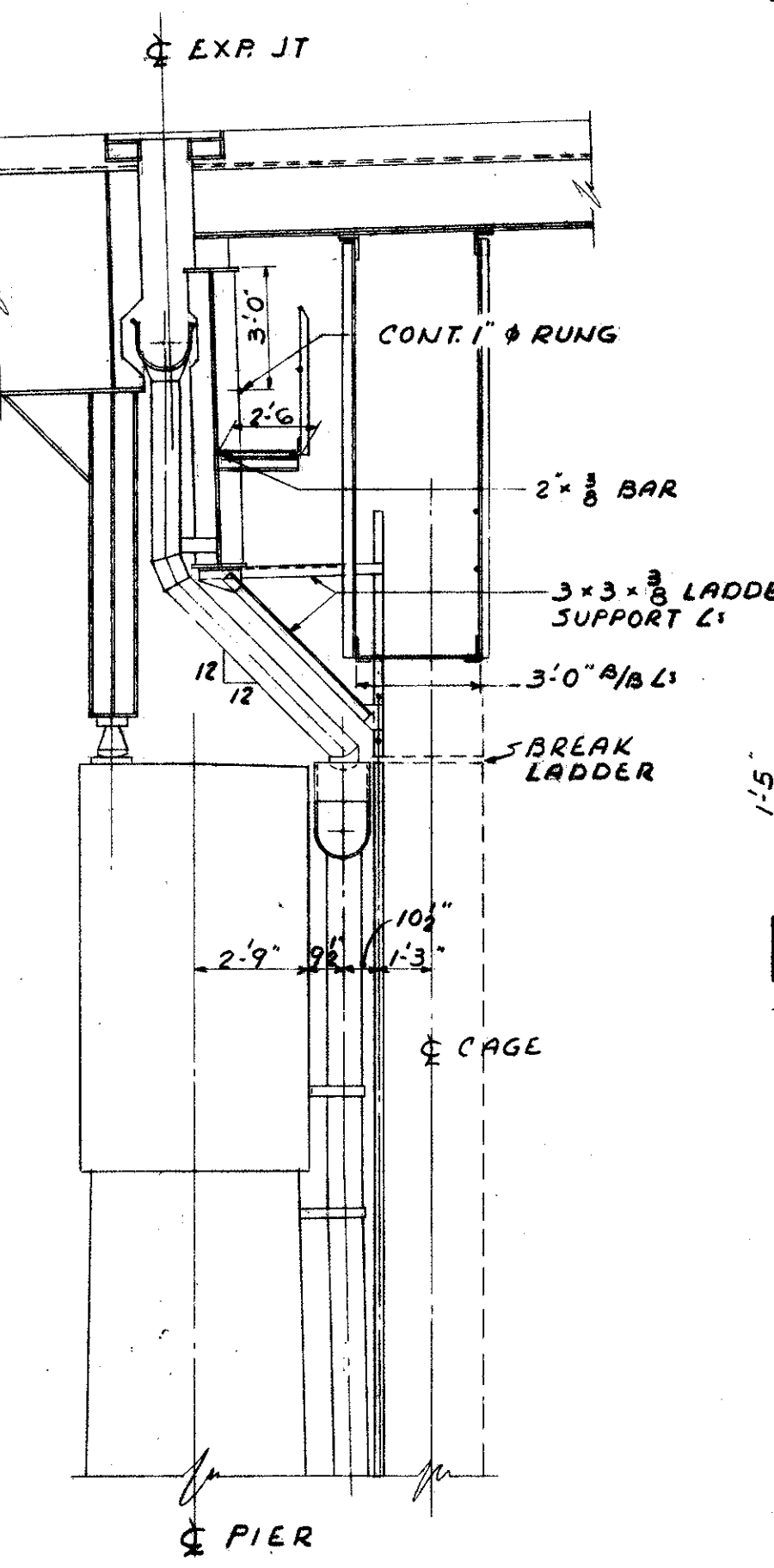
SECTION X-X



SECTION Y-Y



SECTION ADr-ADr AS SHOWN
SECTION ADl-ADl OPP. HAND



SECTION AC-AC

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ENGINEERS
1922 EAST 107TH STREET CLEVELAND, OHIO

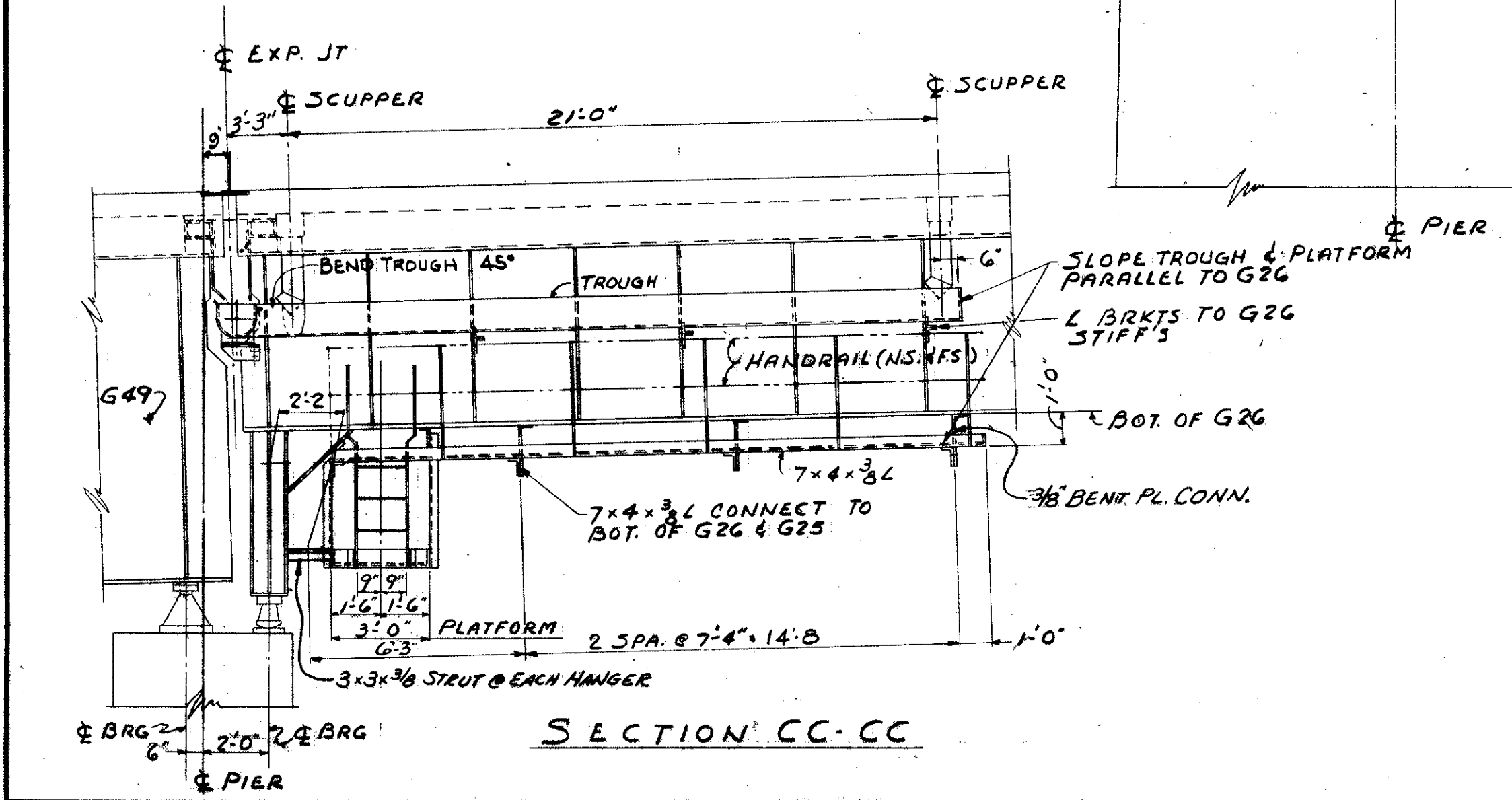
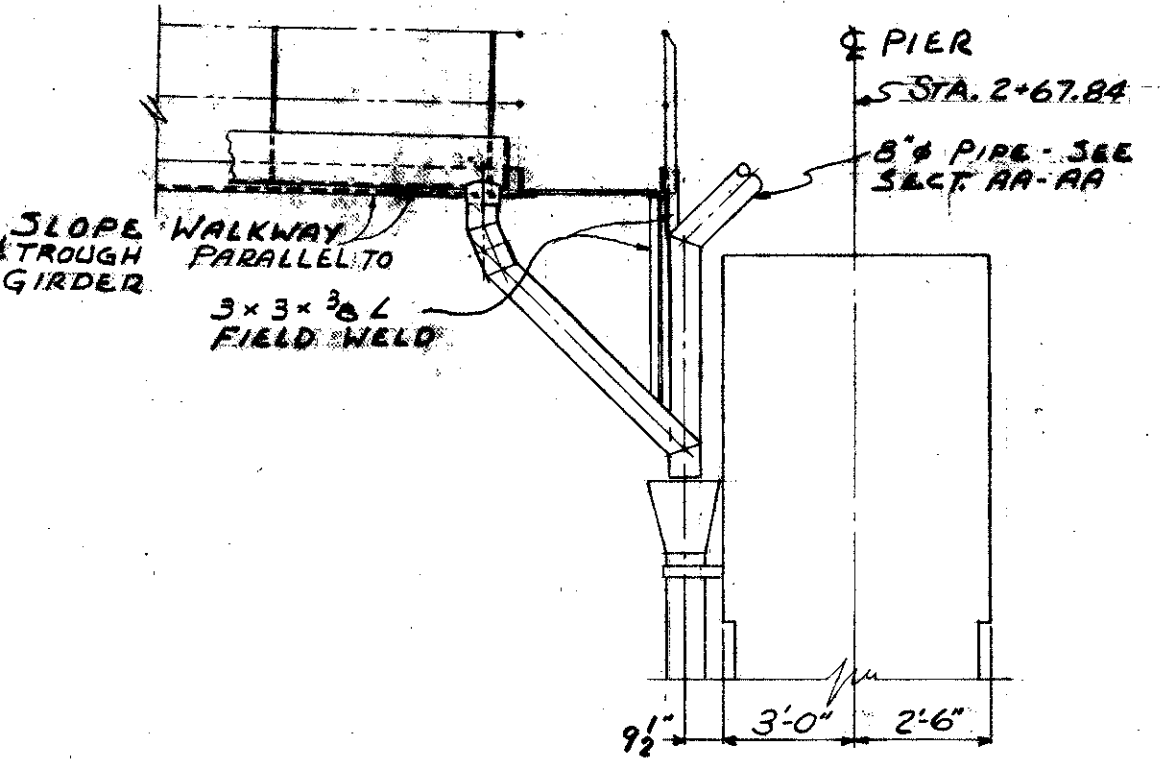
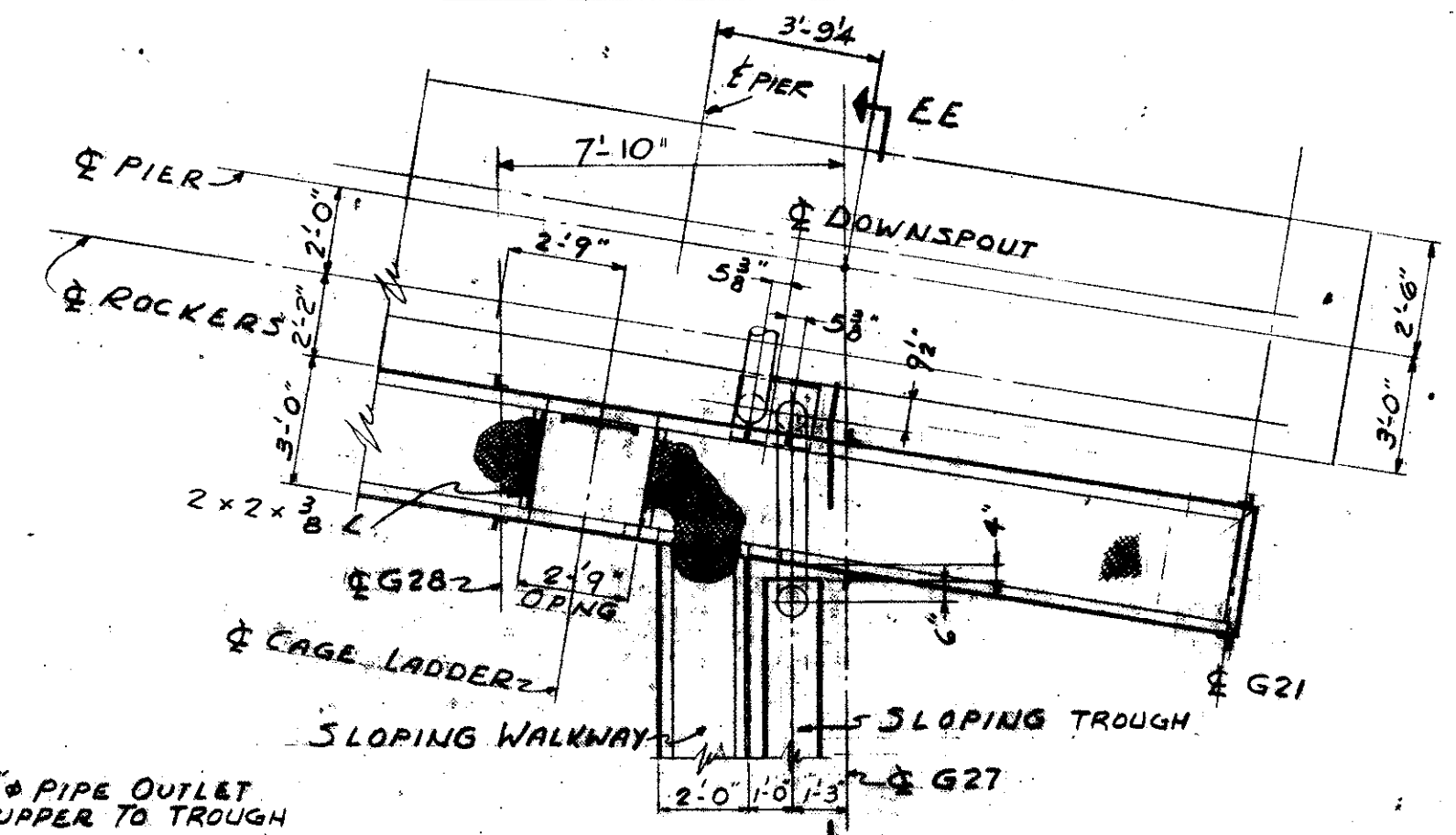
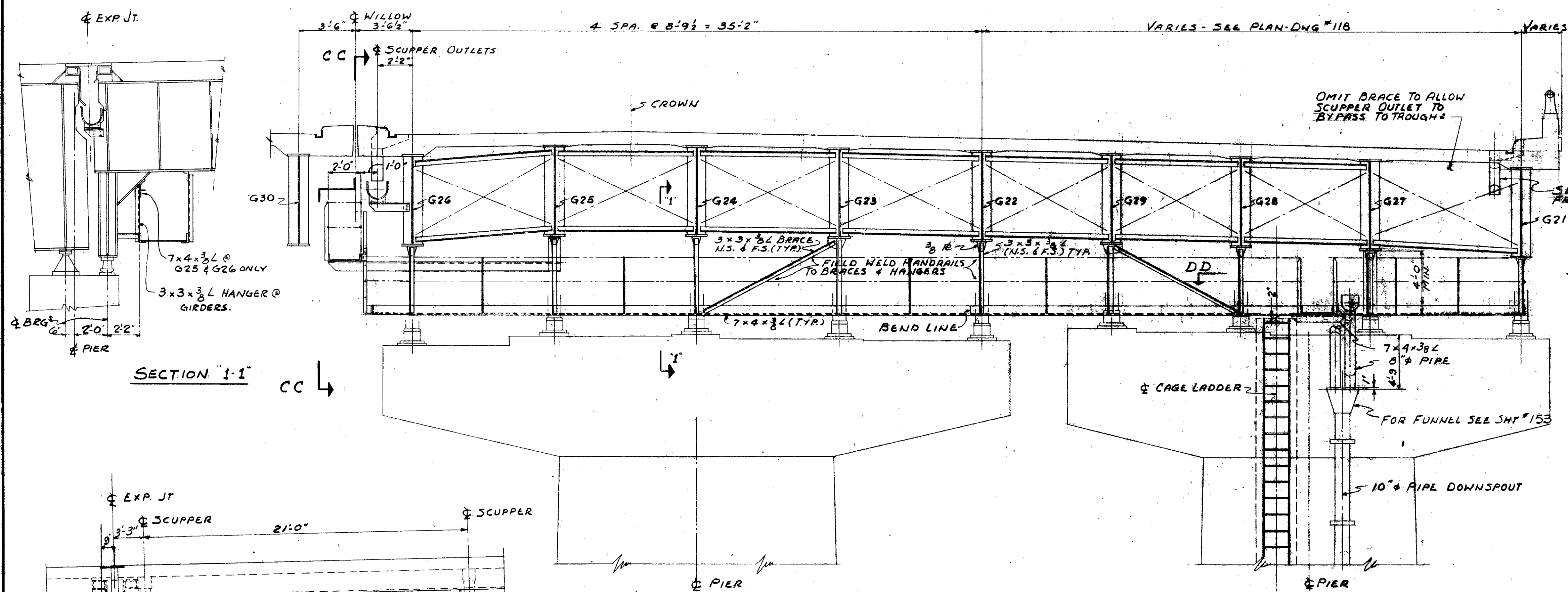
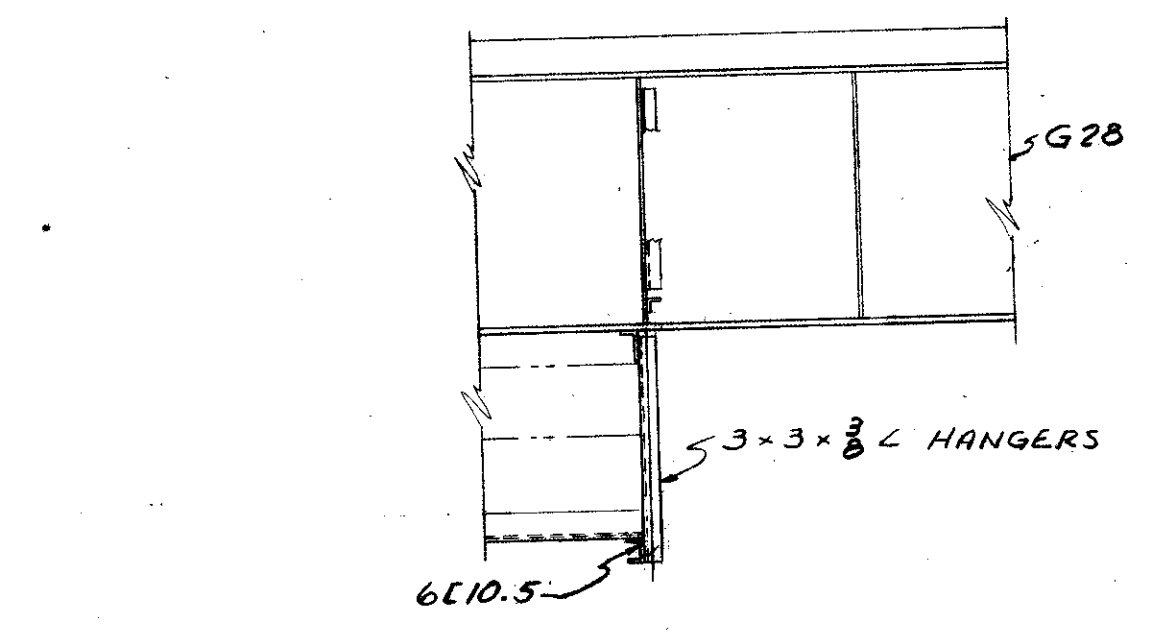
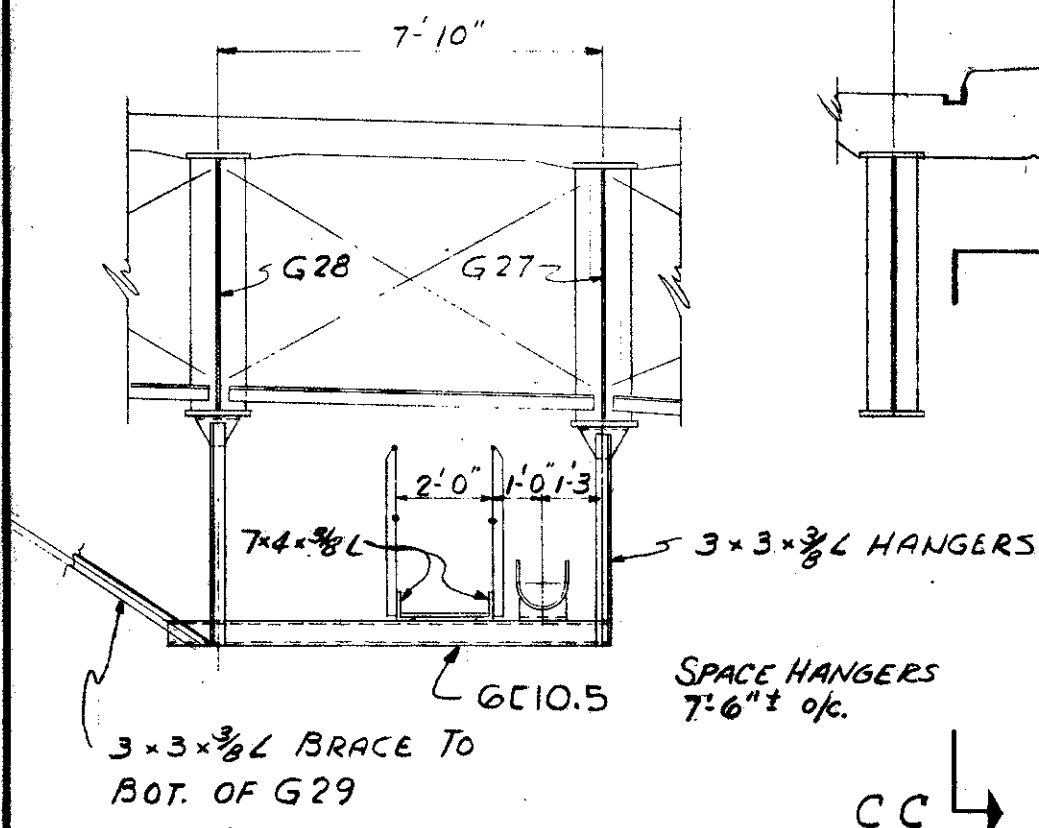
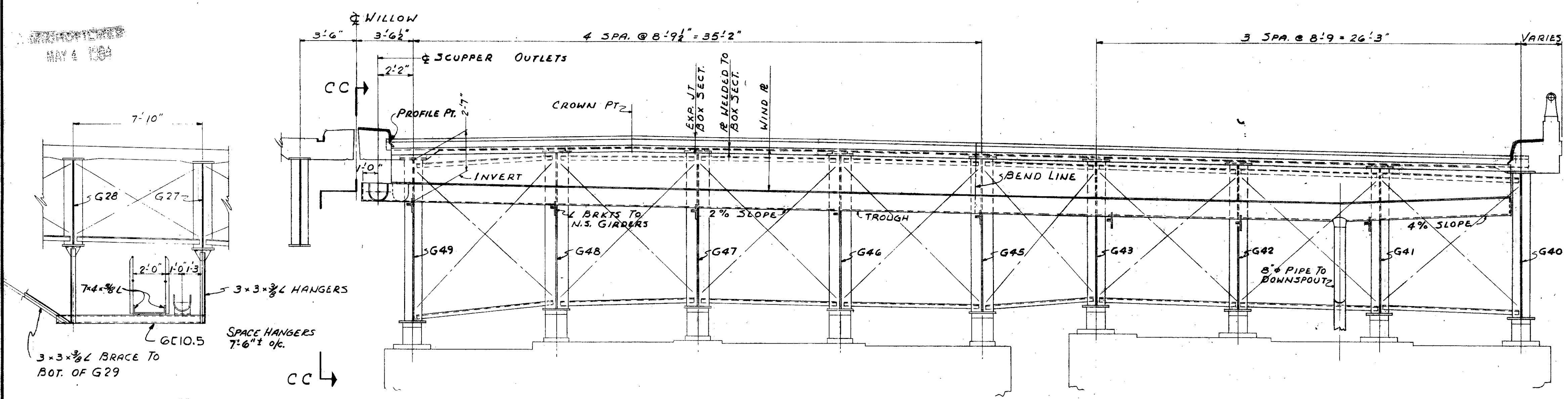
DRAINAGE SYSTEMS & WALKWAYS
AT DECK EXPANSION JOINTS
BRIDGE NO. CUY-21-14.55
WILLOW FREEWAY OVER KINGSBURY RUN
CUYAHOGA COUNTY U.S.R. 21

SCALE: _____ DATE: _____
DESIGNED BY: _____ CHECKED BY: _____
DRAWN BY: _____

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

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CUYAHOGA COUNTY
CUY-21-14.55



TRYGVE HOFF & ASSOCIATES
ENGINEERS
1922 EAST 107TH STREET CLEVELAND, OHIO

DRAINAGE SYSTEMS & WALKWAYS
SECTIONS & DETAILS
BRIDGE NO. CUY-21-14.55
WILLOW FREEWAY OVER KINGSBURY RUN
CUYAHOGA COUNTY U.S.R. 21

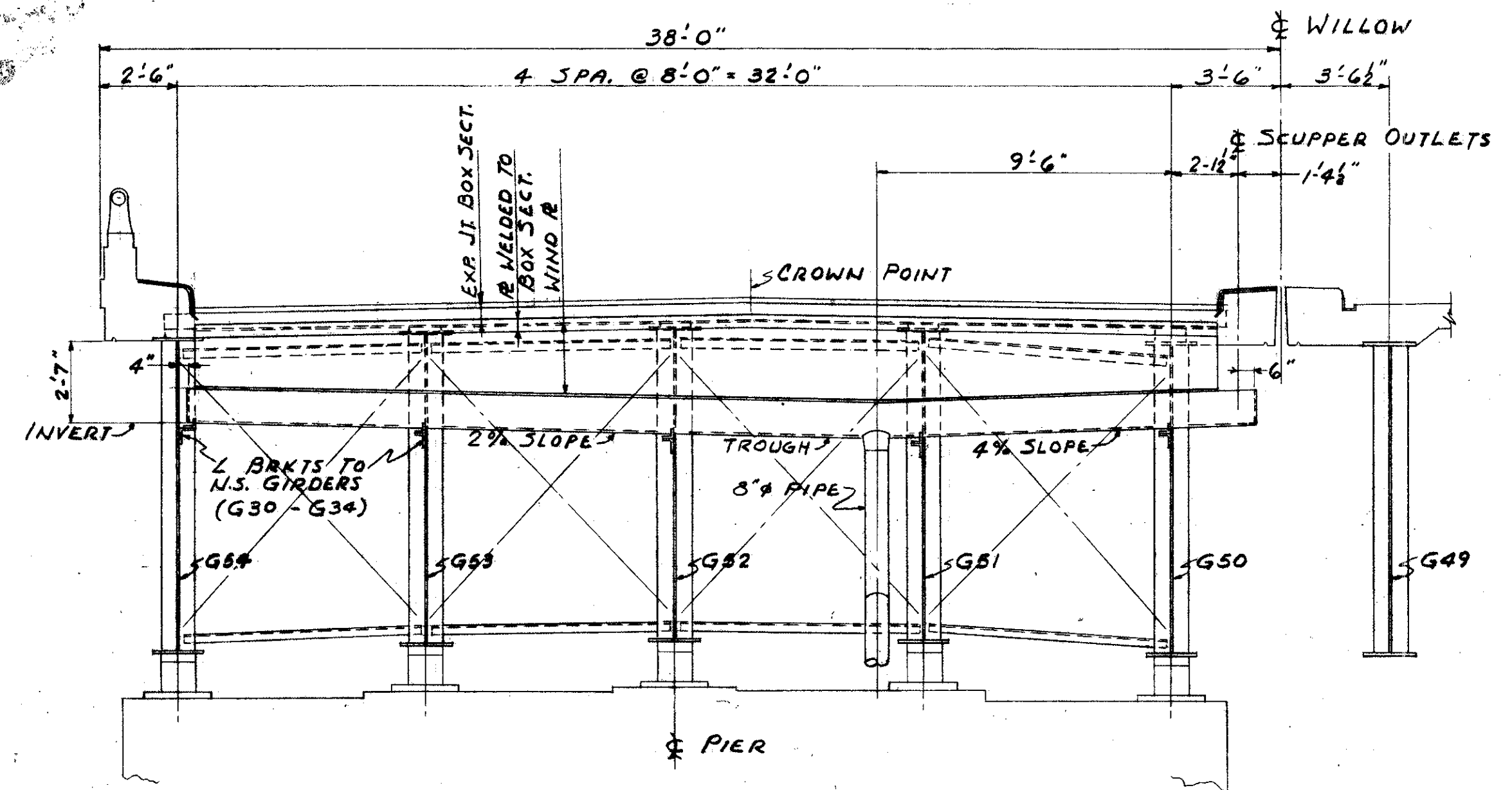
DESIGNED	DRAWN	TRACED	CHECKED	REVISION

REPRODUCTION
MAY 4 1964

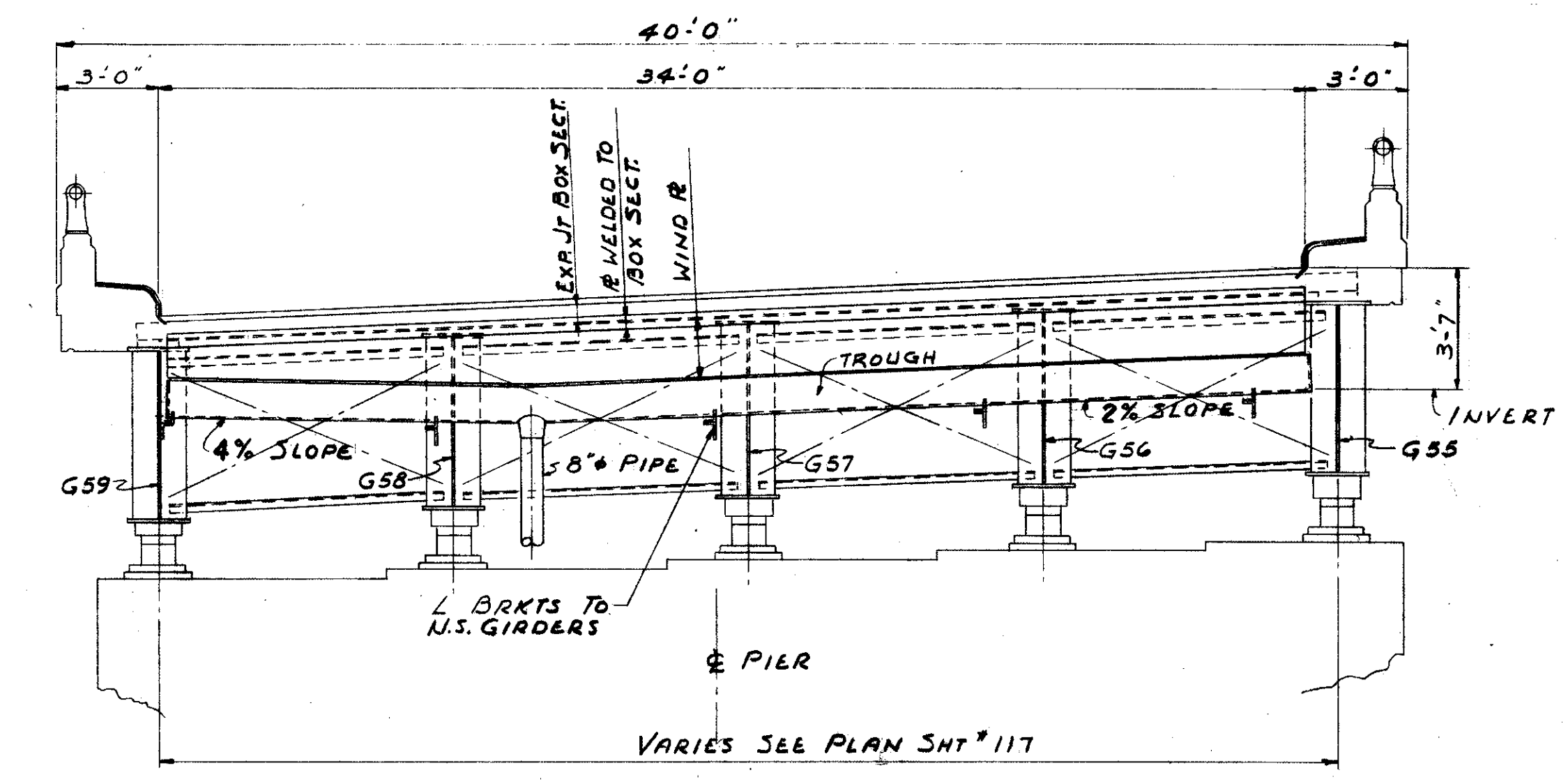
FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

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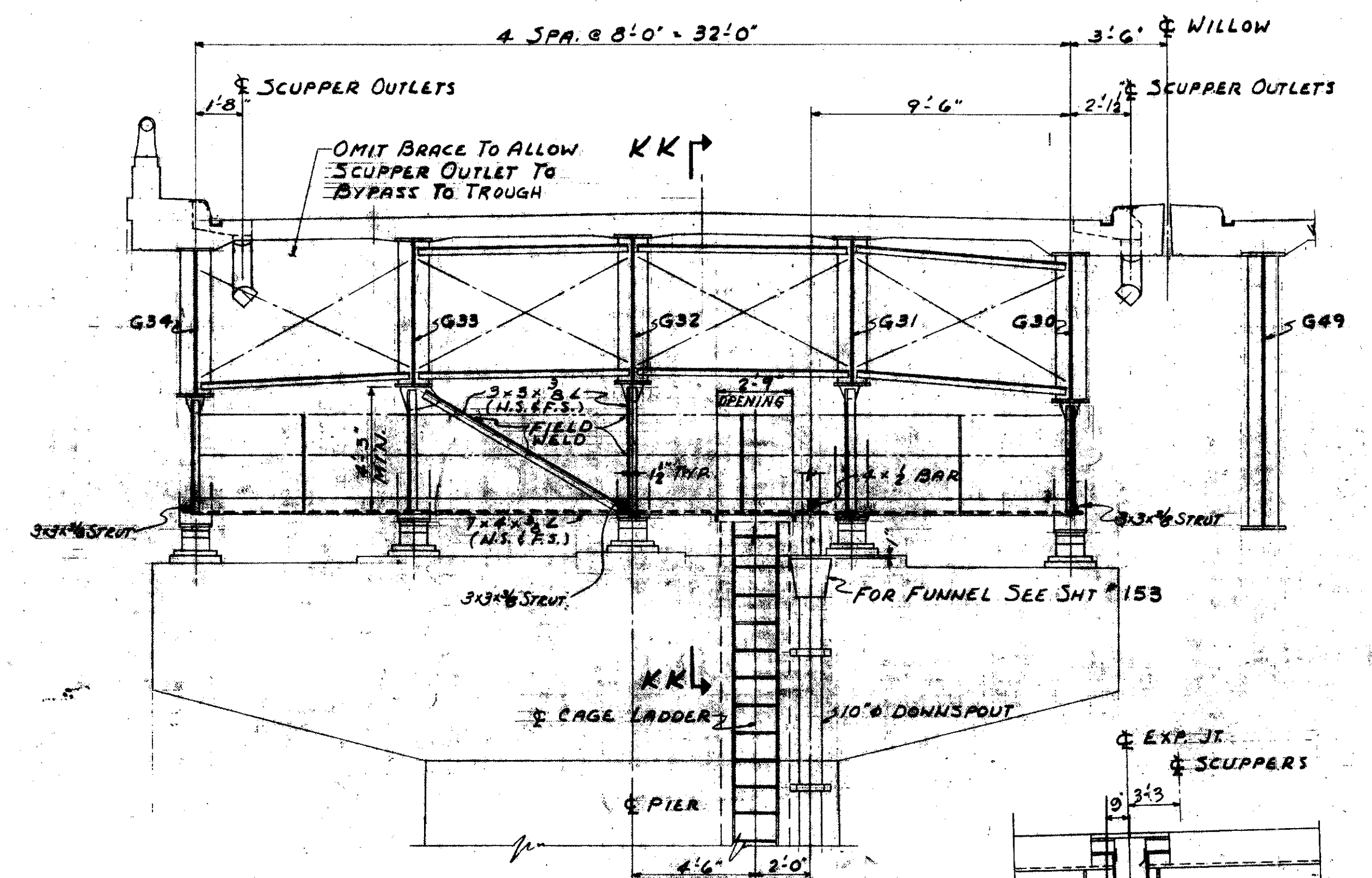
CUYAHOGA COUNTY
CUY-21-14.55



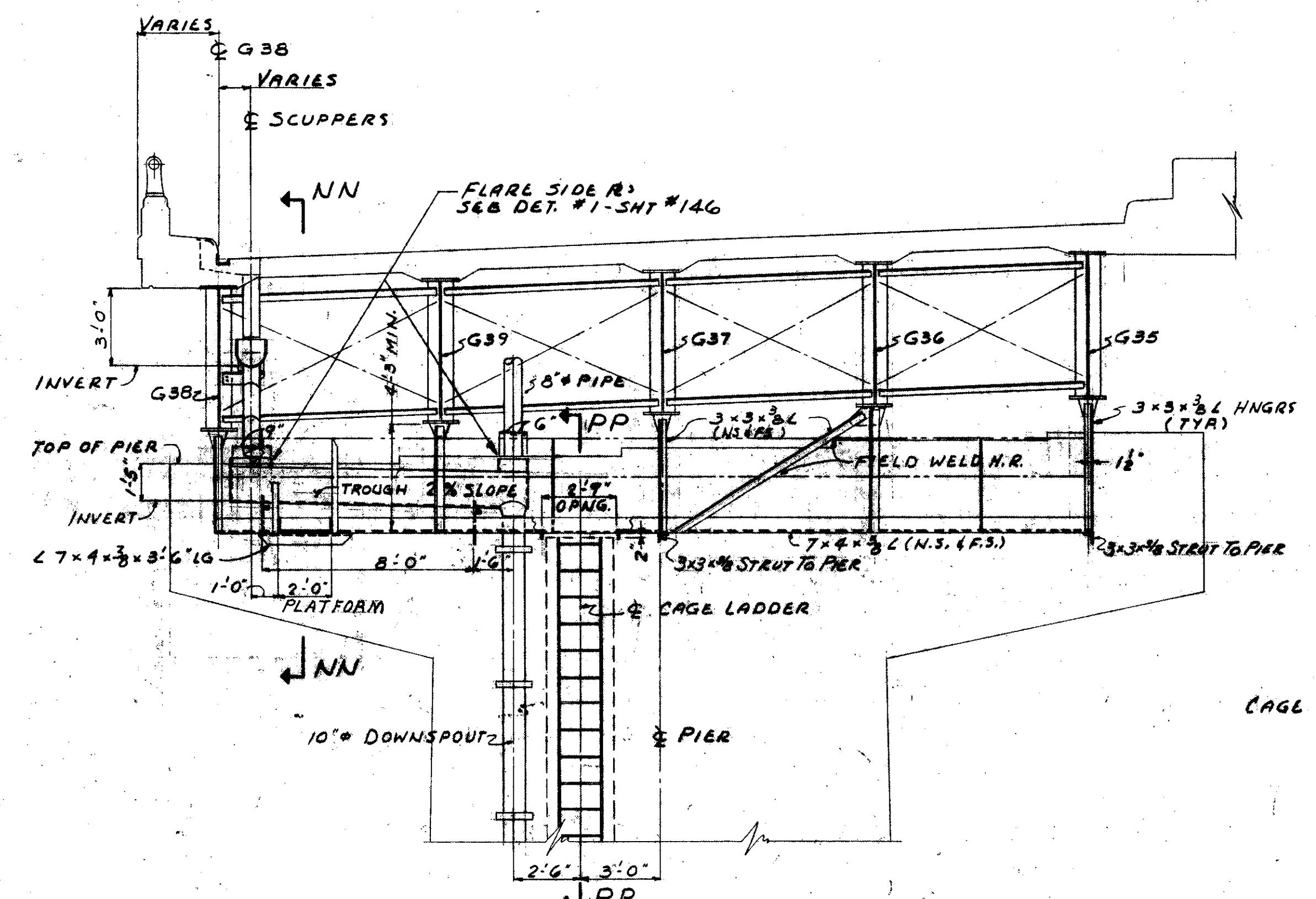
SECTION HH-HH



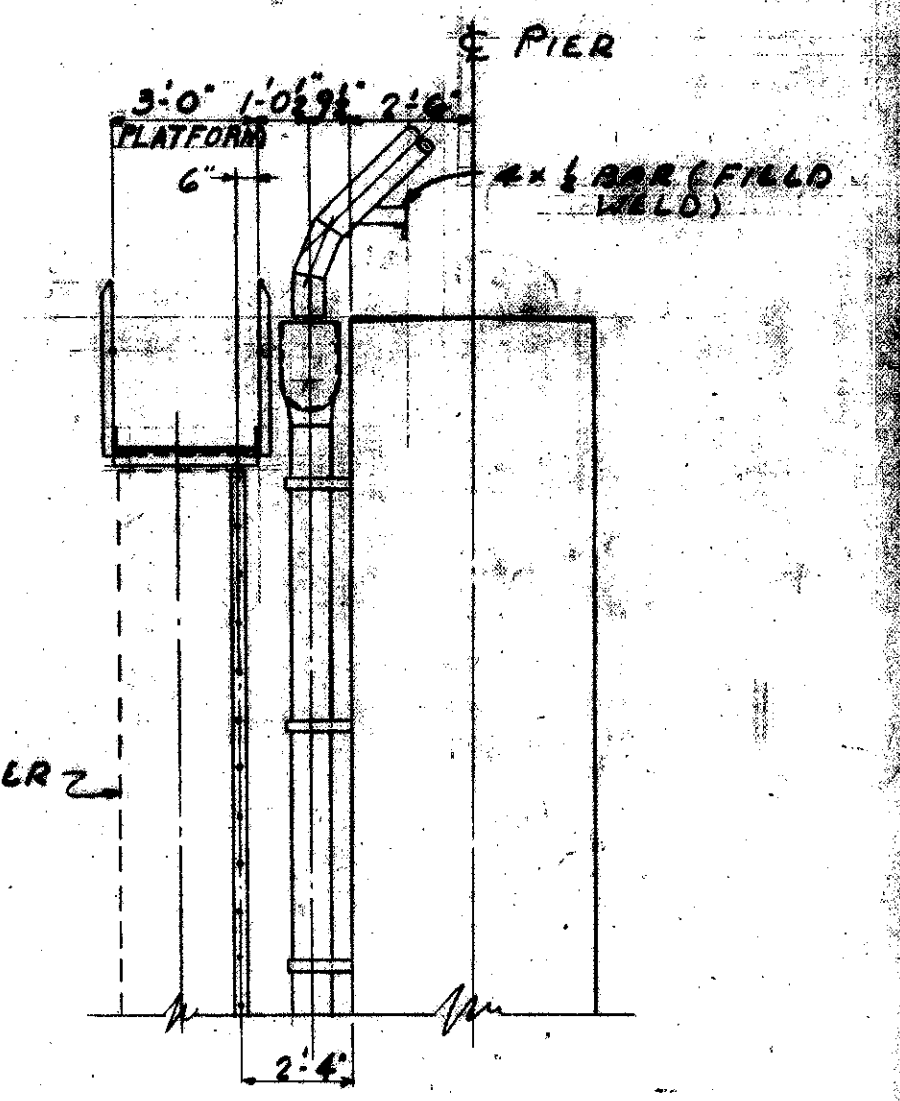
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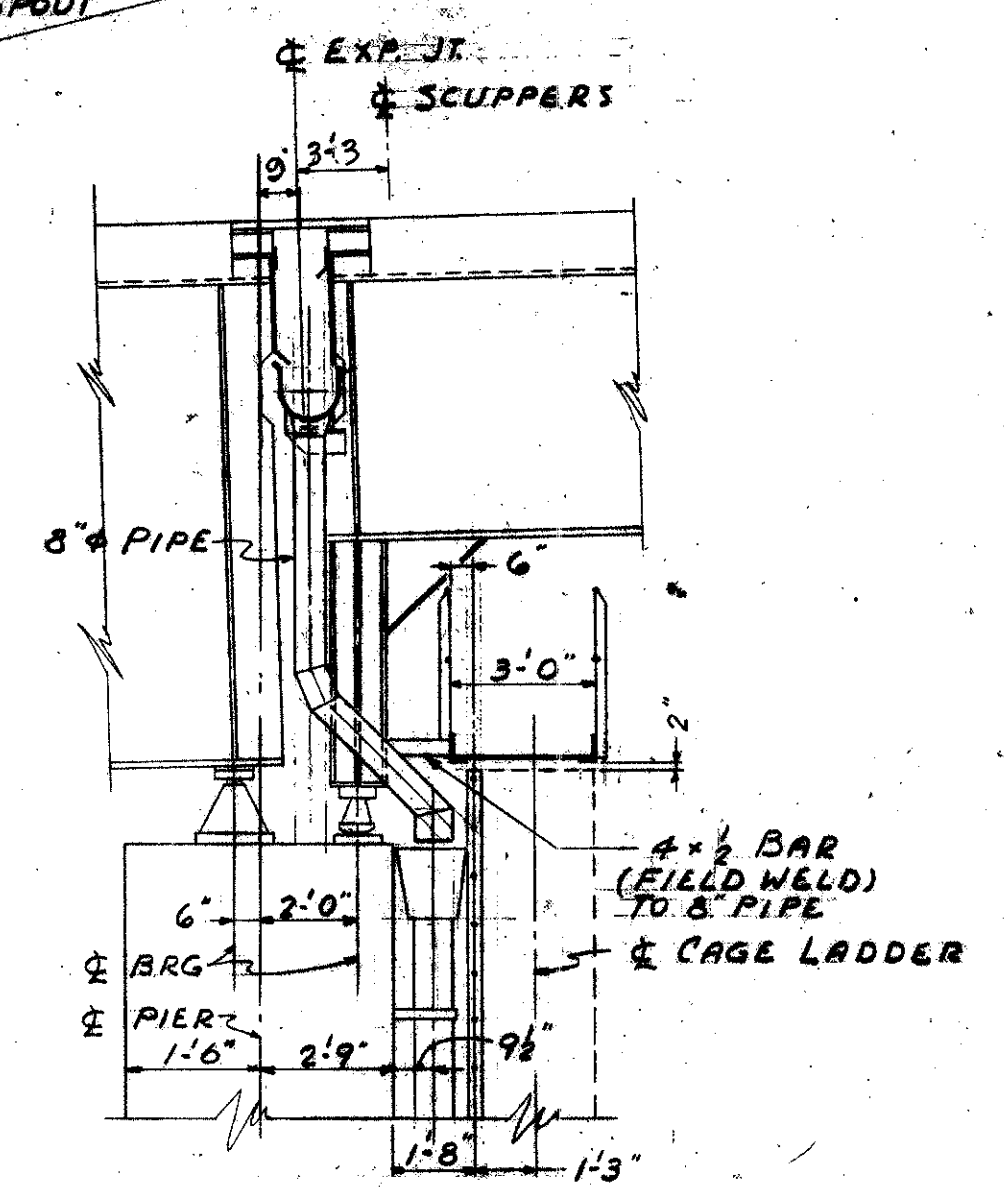
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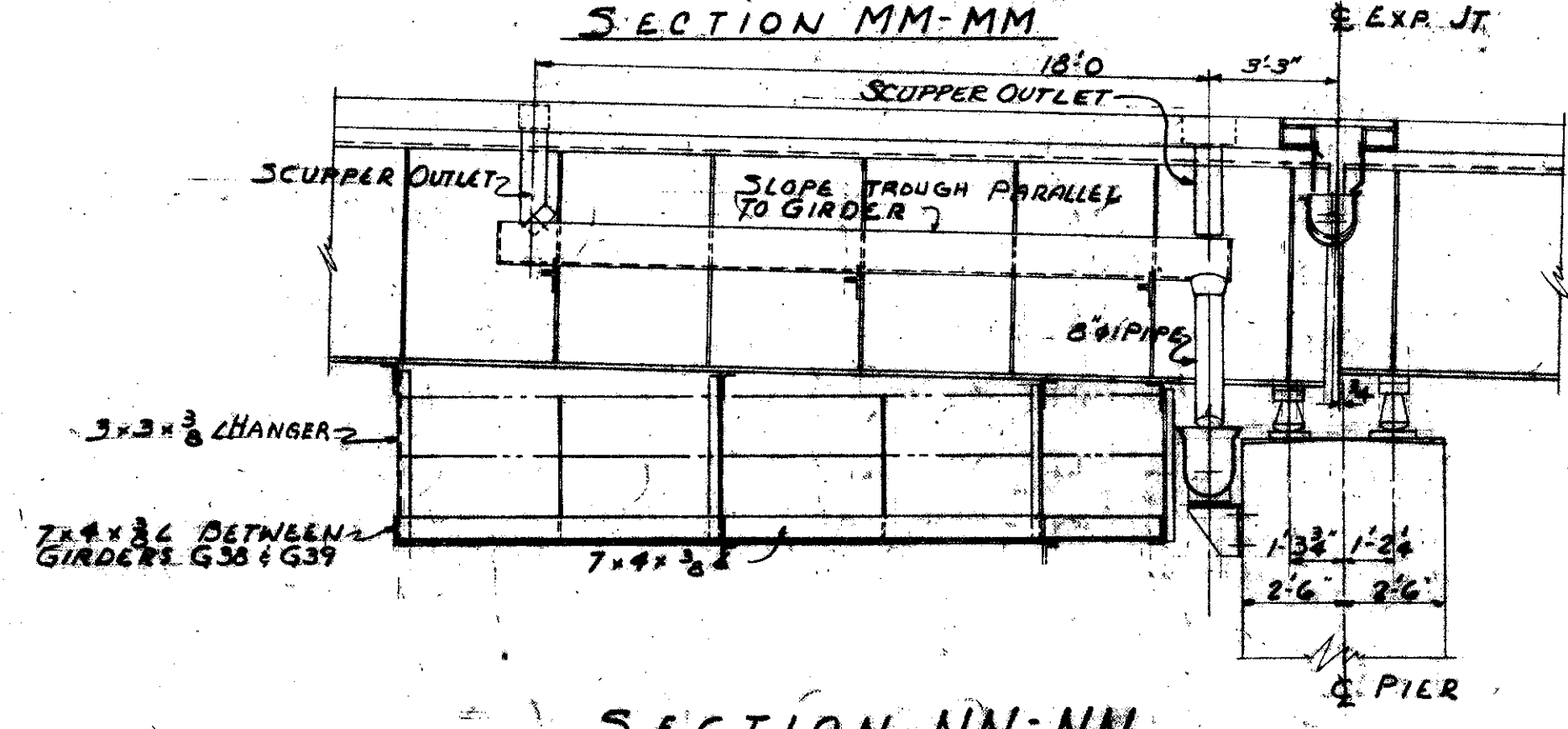
SECTION MM-MM



SECTION PP-PP



SECTION KK-KK



SECTION NN-NN

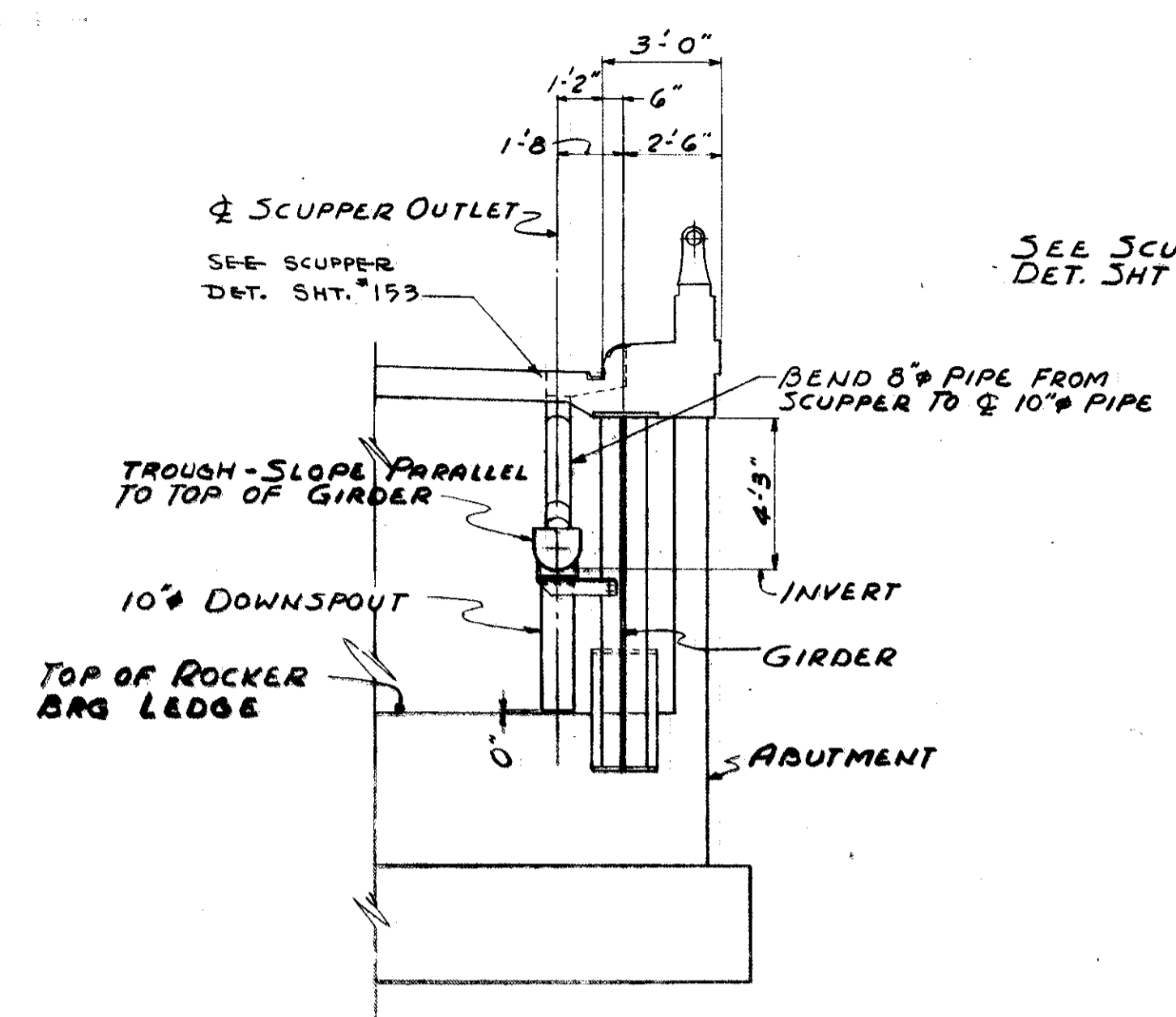
TRYGVE HOFF & ASSOCIATES
ENGINEERS
1922 EAST TENTH STREET CLEVELAND, OHIO

DRAINAGE SYSTEMS & WALKWAYS
SECTIONS & DETAILS
BRIDGE NO. CUY-21-14.55
WILLOW FREEWAY OVER KINGSBURY RUN
CUYAHOGA COUNTY U.S.R. 21

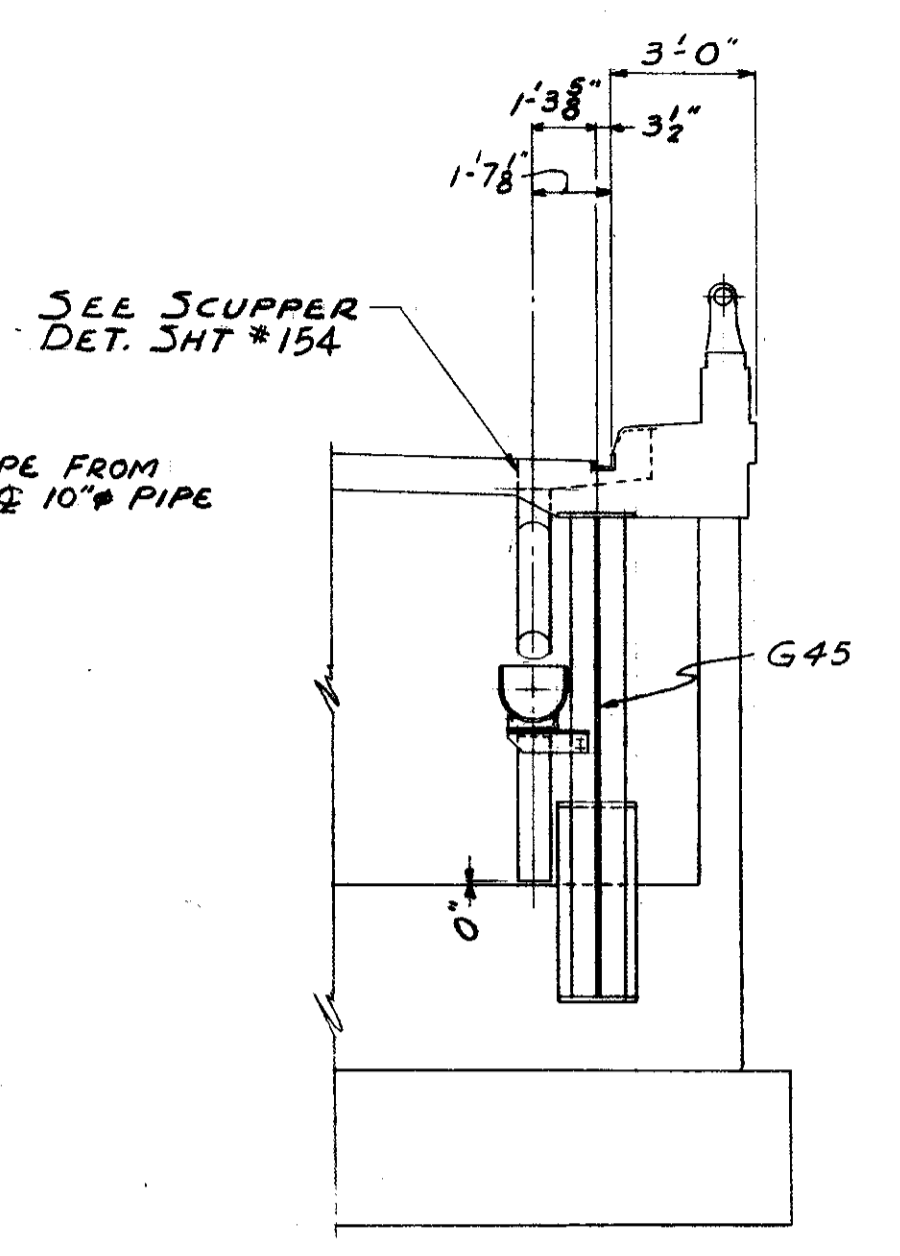
FED. RD. DIVISION	STATE	PROJECT
2	OHIO	



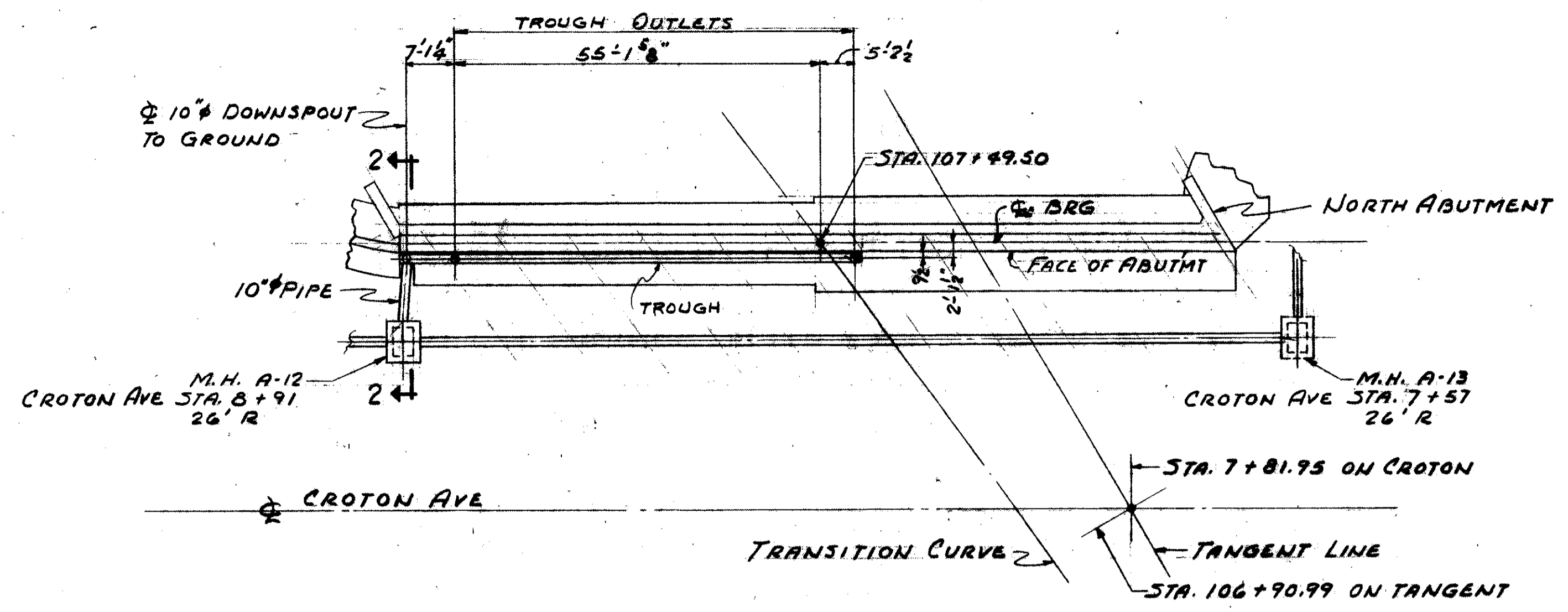
CUYAHOGA COUNTY
CUY-21-14.55



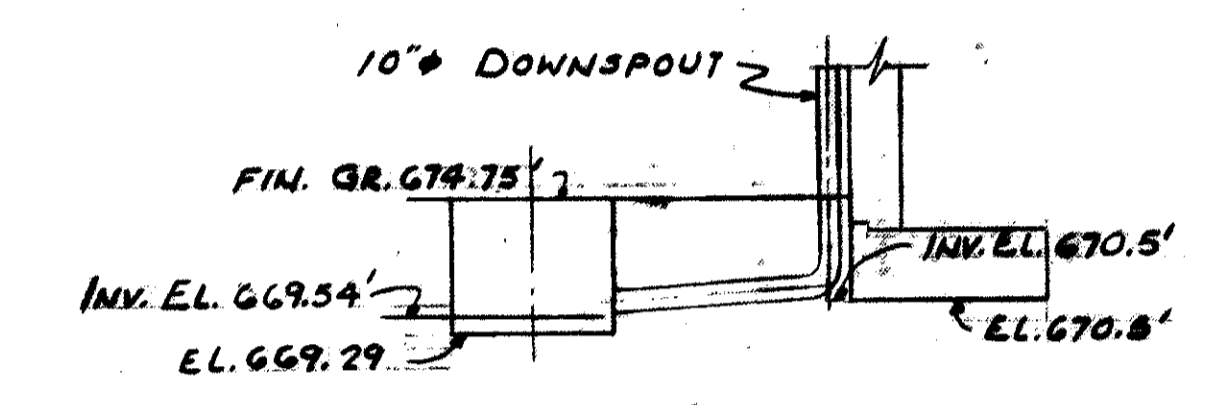
SECTION QQ-QQ AS SHOWN
SECTION RR-RR OPP. HAND



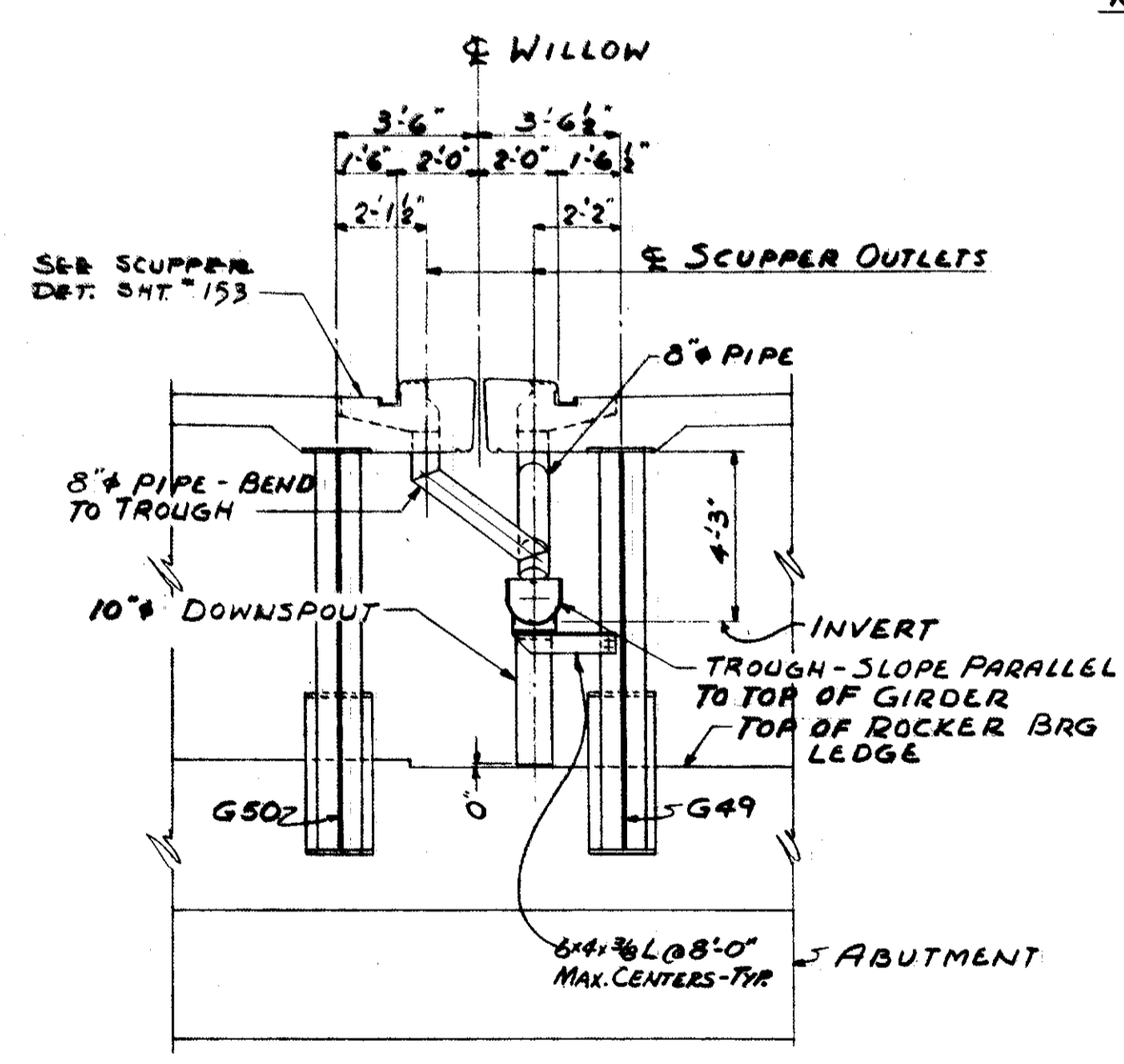
SECTION SS-SS
NOTE: DETAILS & NOTES SAME AS SECTION QQ-QQ UNLESS OTHERWISE NOTED



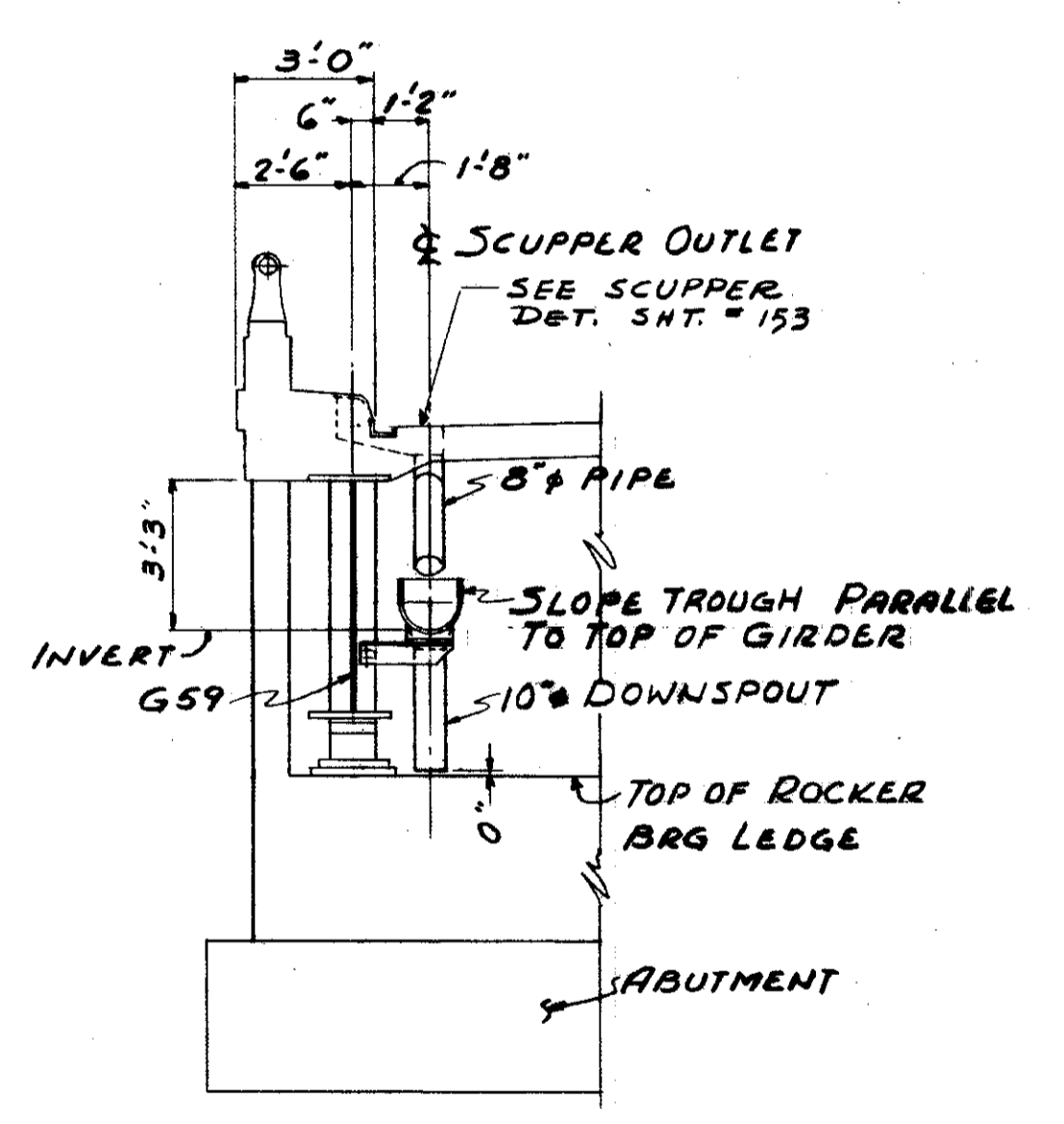
SECTION 1-1



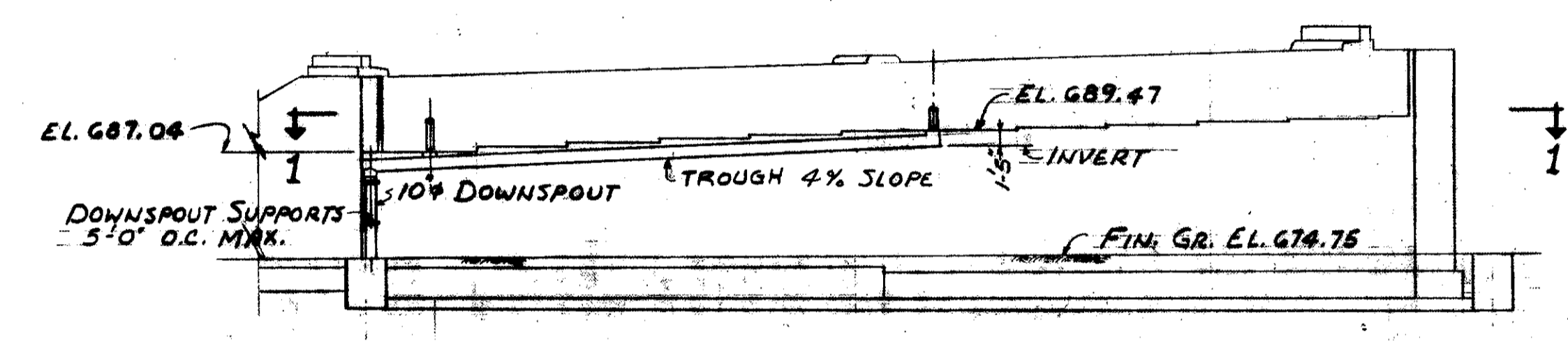
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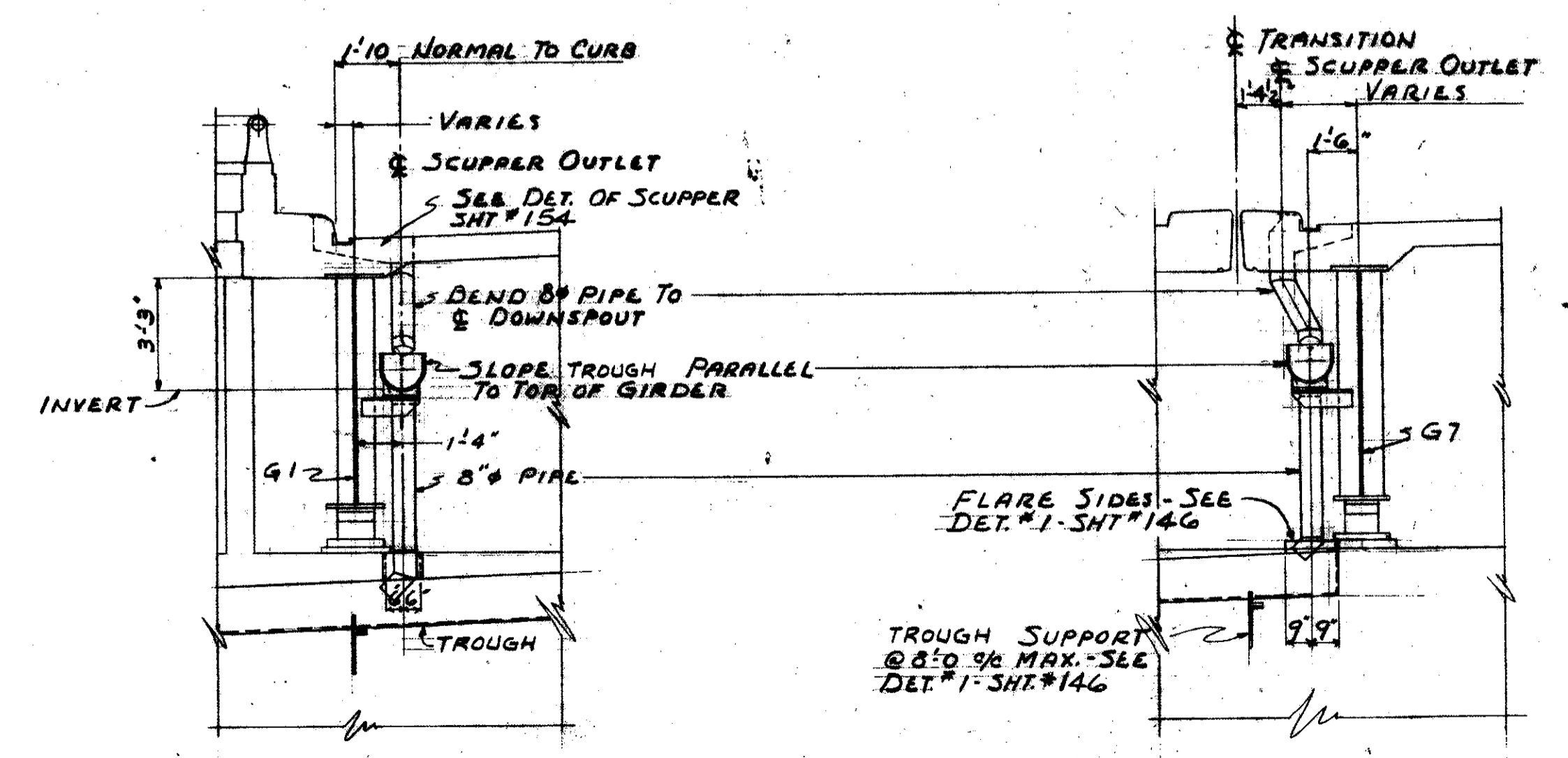
SECTION TT-TT



SECTION UU-UU



ELEVATION DOWNSPOUTS - NORTH ABUTMENT
STA. 107+49.50



SECTION VV-VV

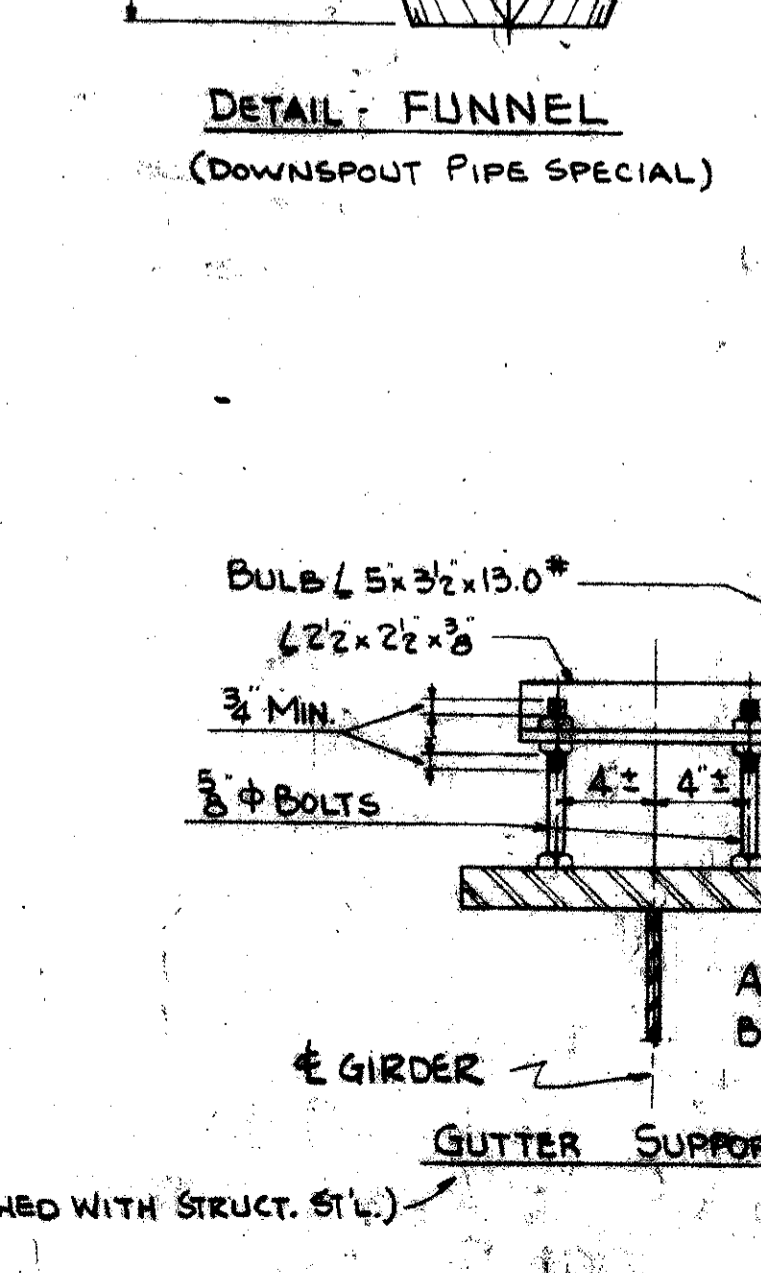
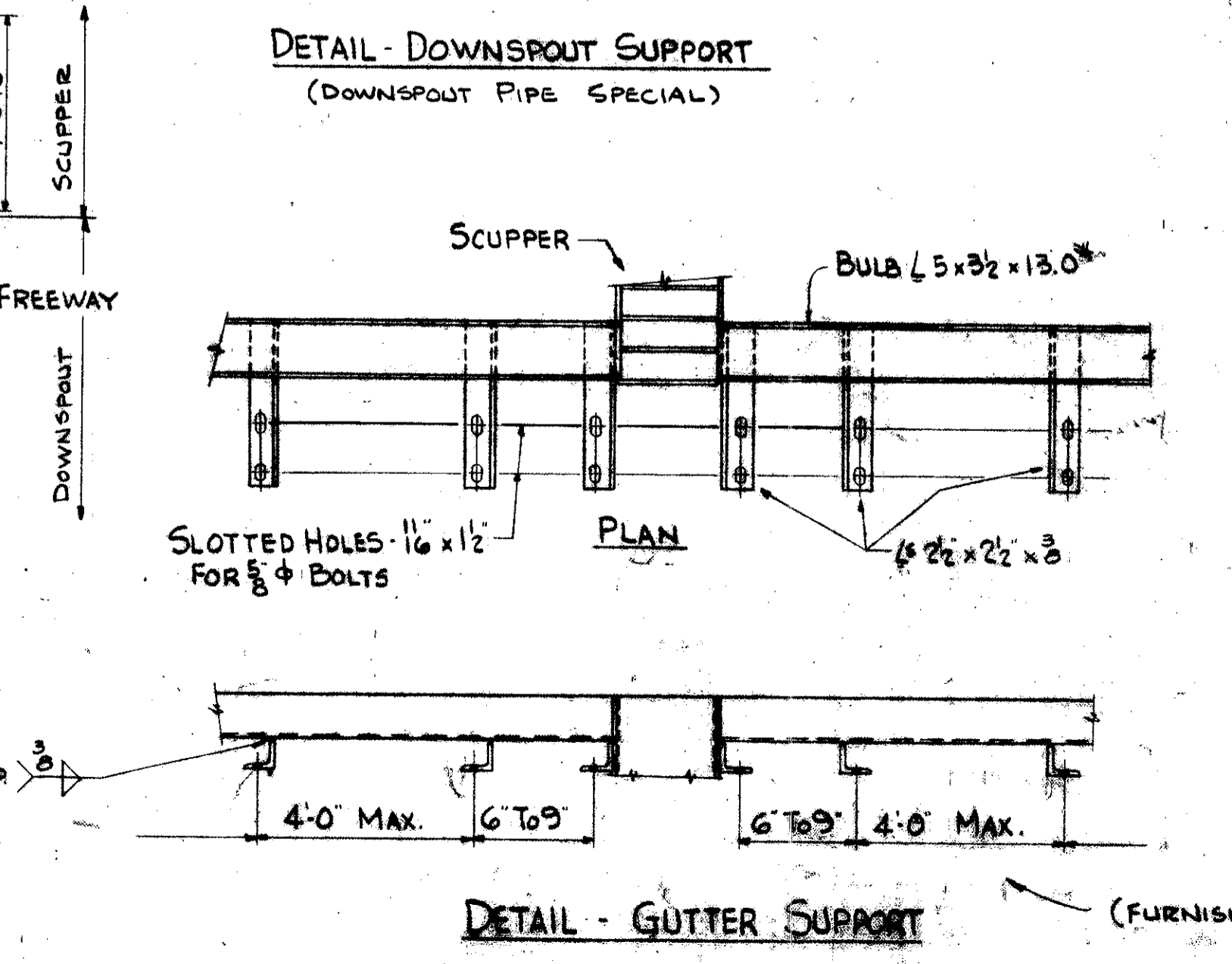
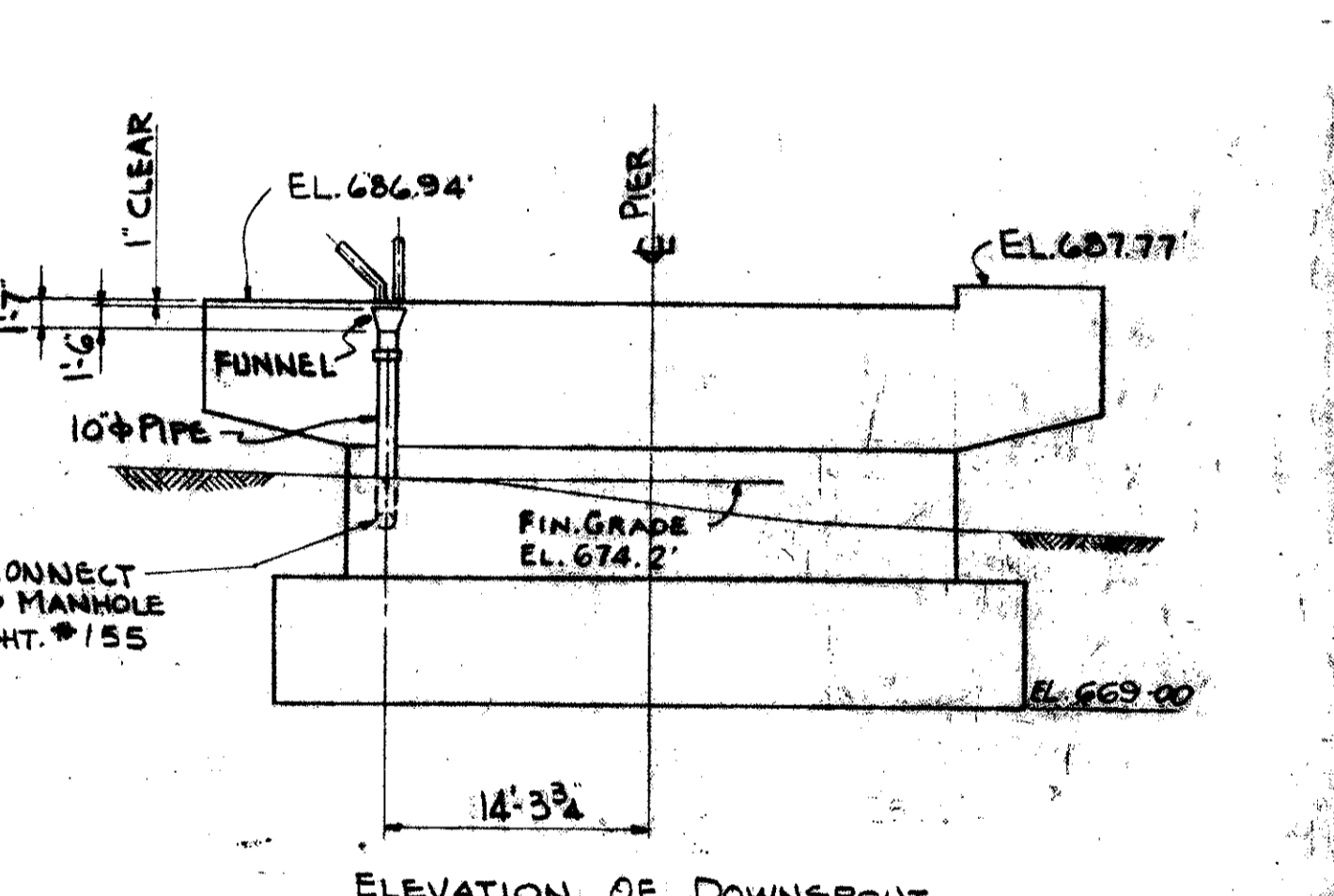
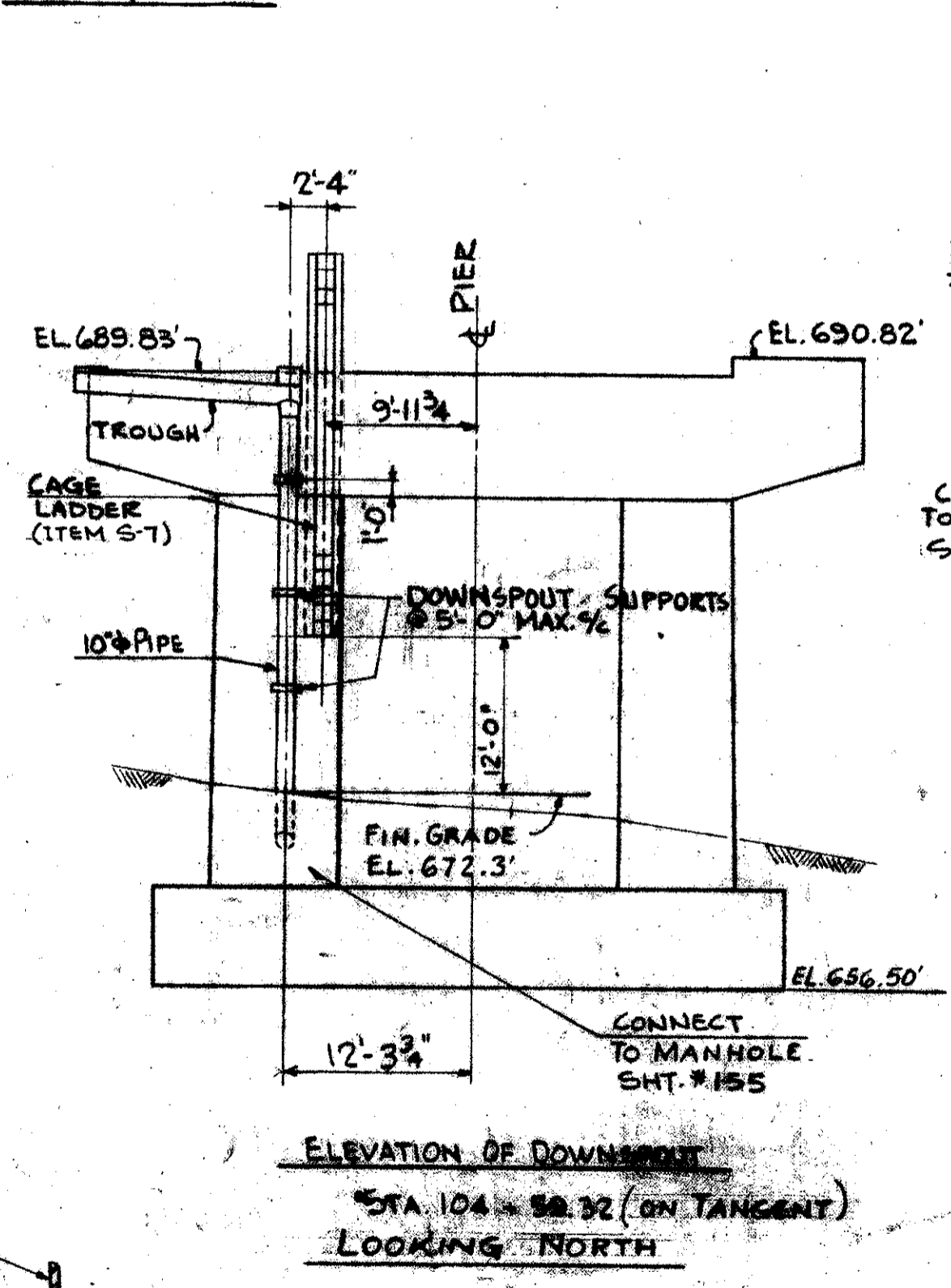
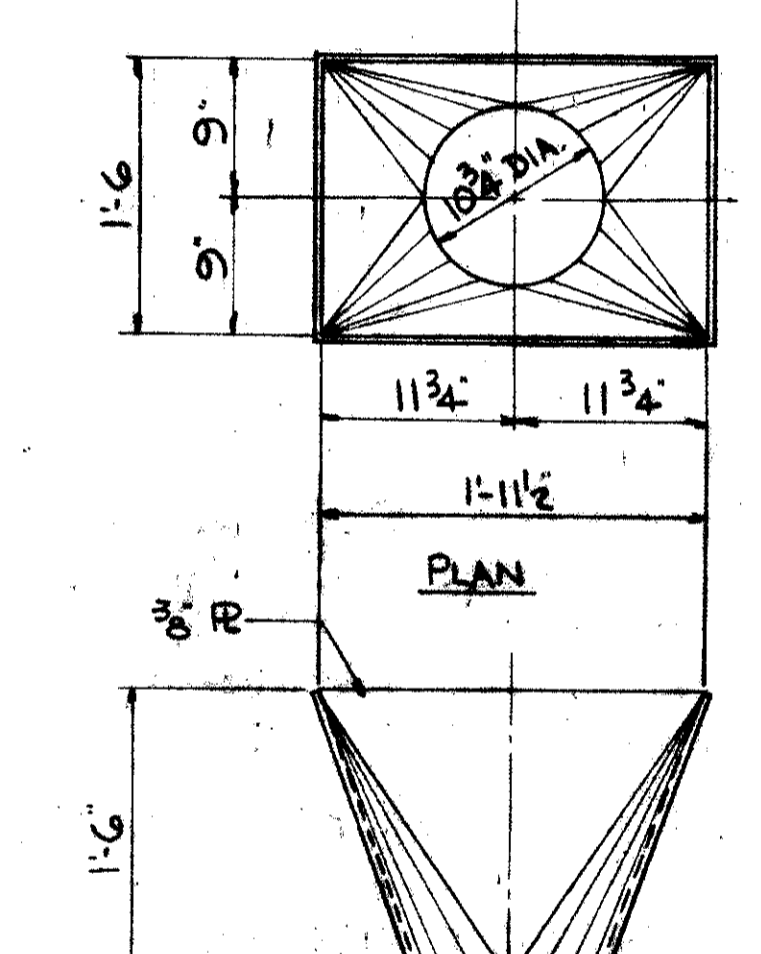
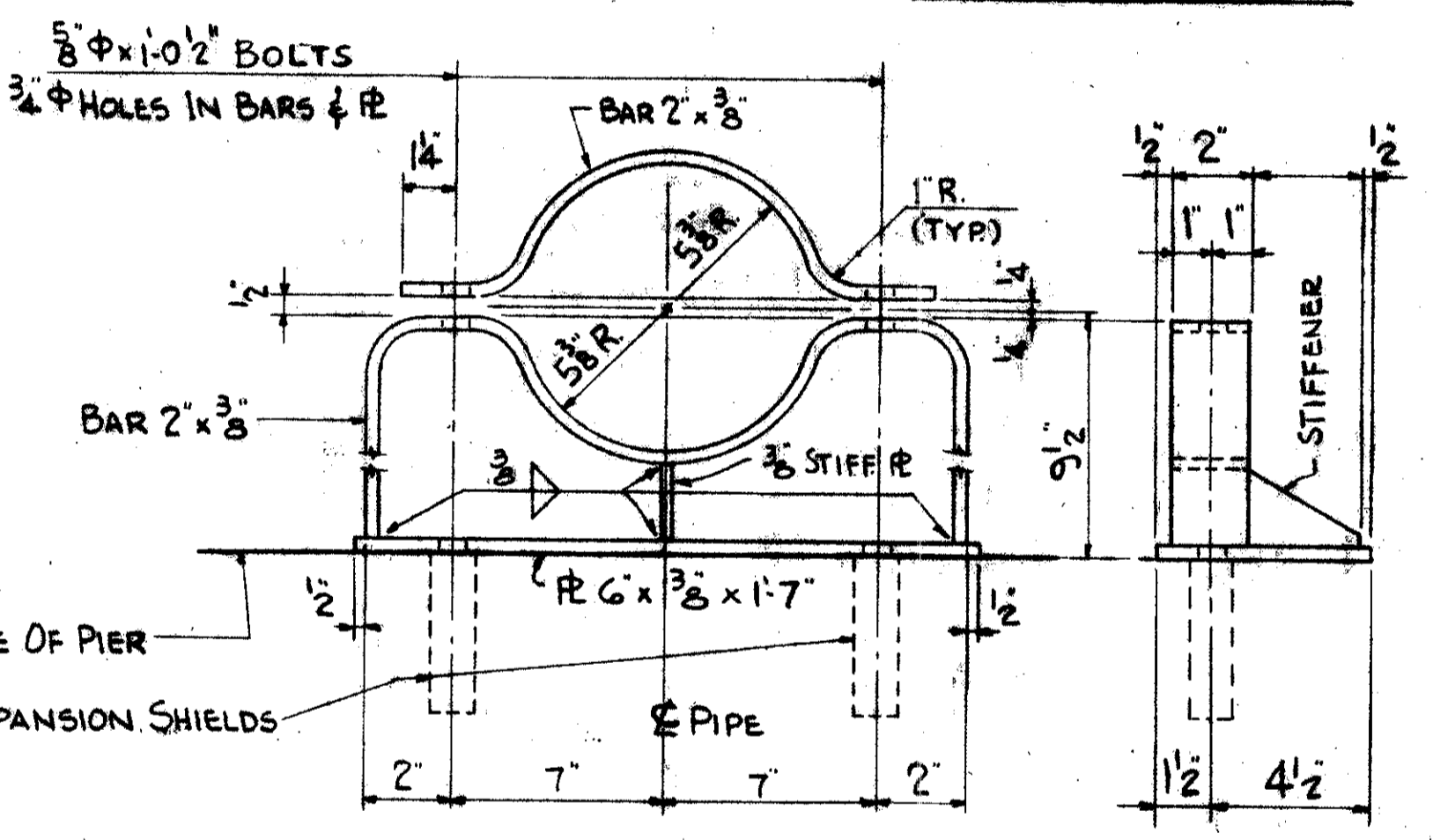
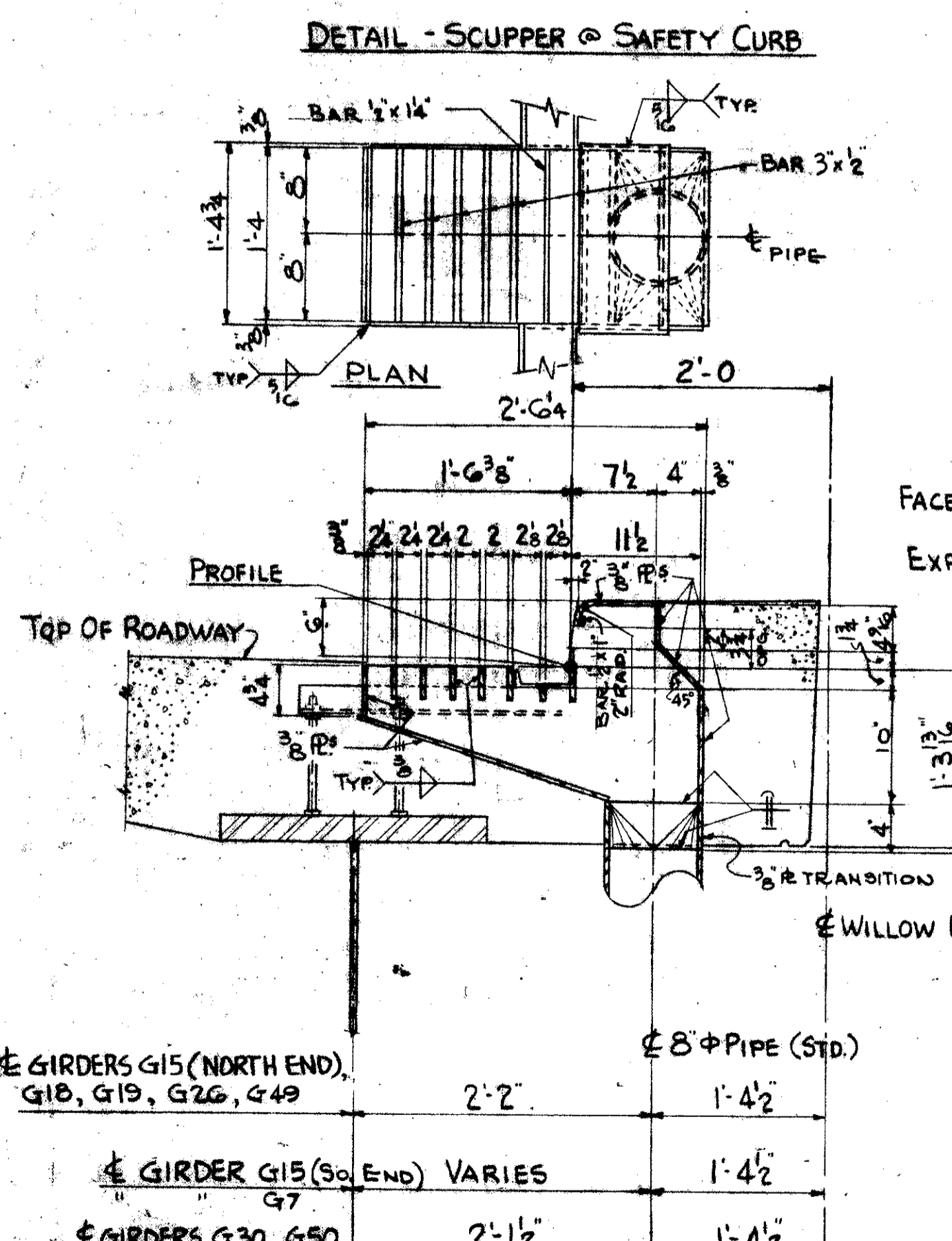
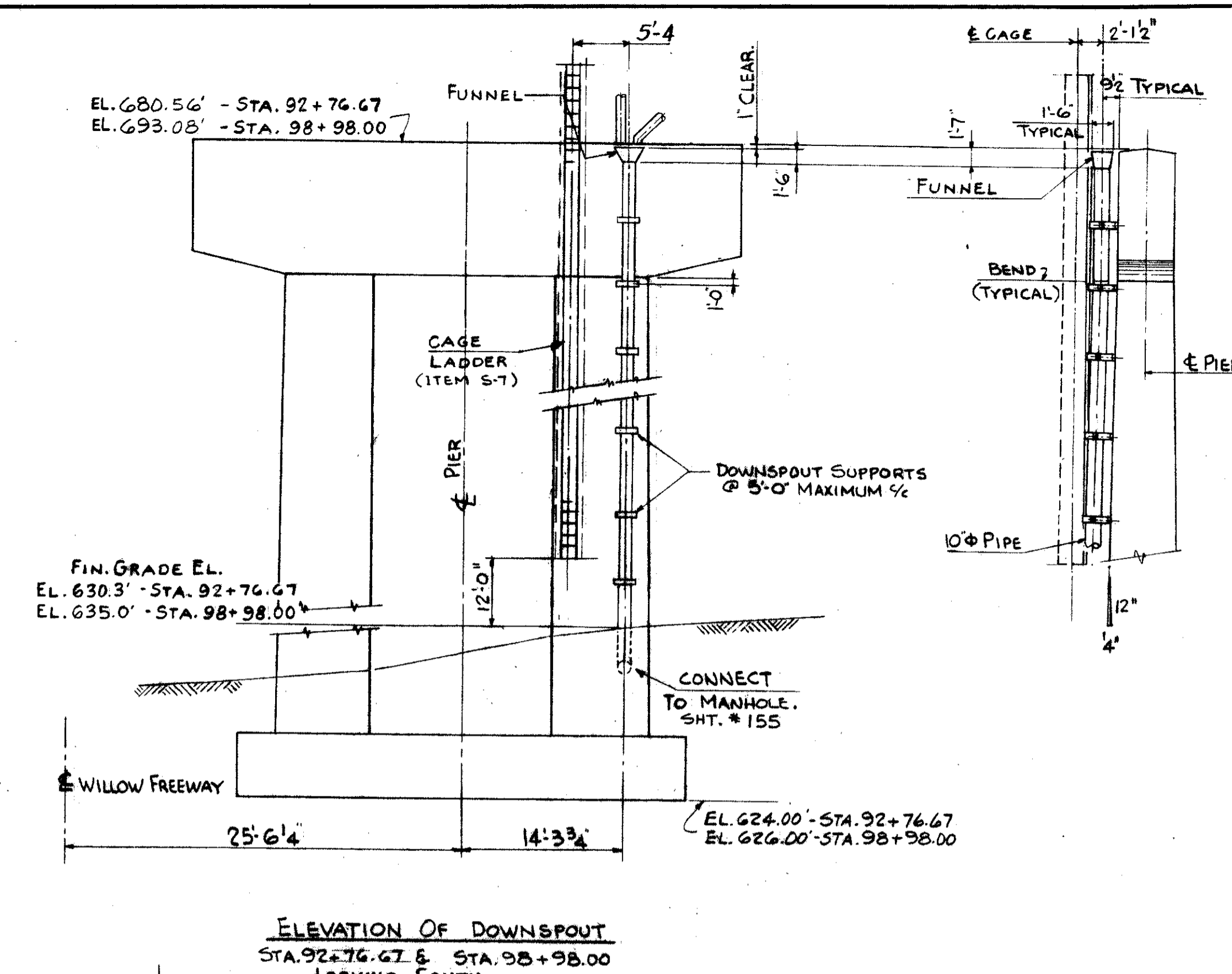
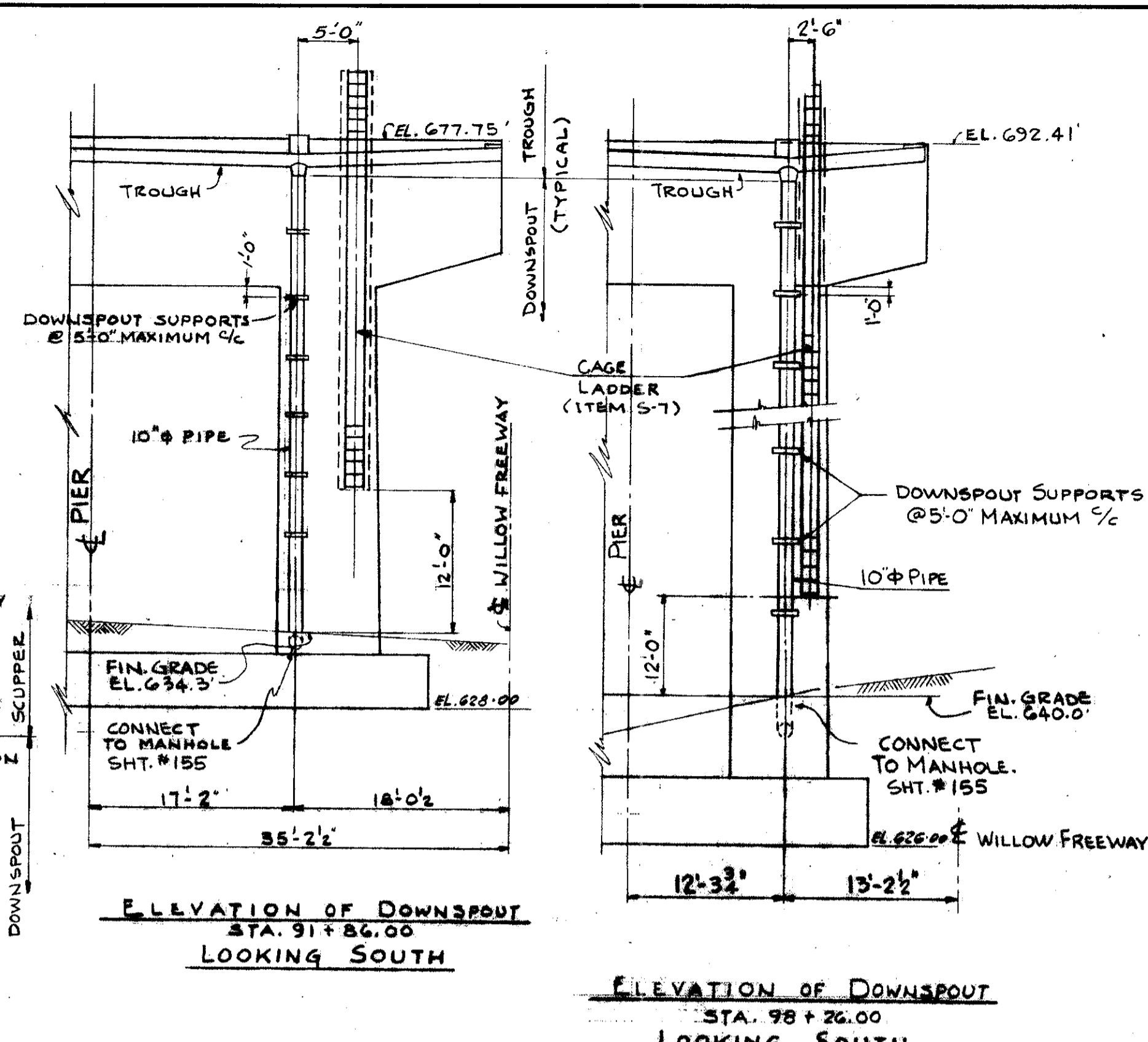
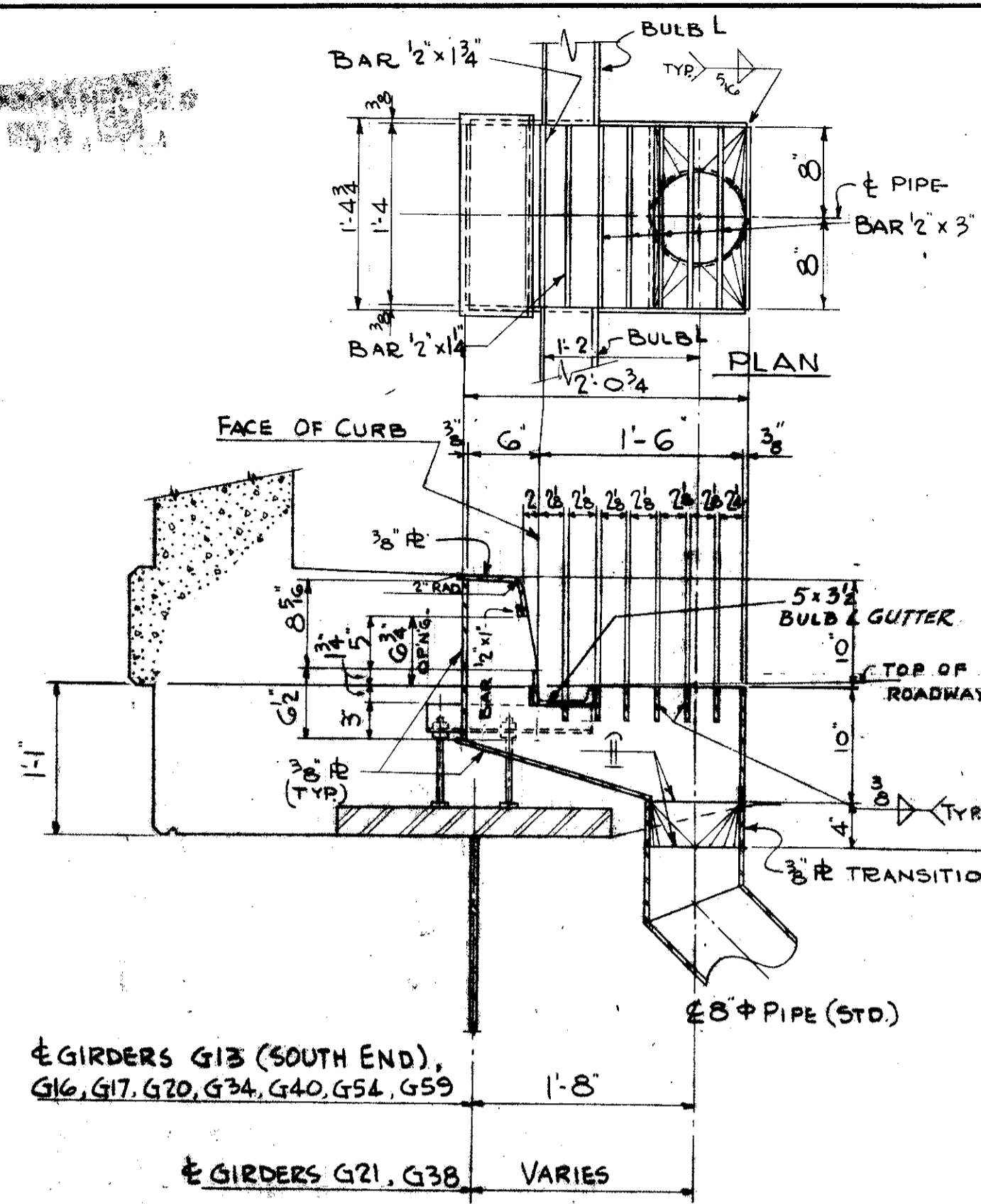
SECTION WW-WW

TRYGVE HOFF & ASSOCIATES
ENGINEERS
1922 EAST 107TH STREET CLEVELAND, OHIO

DRAINAGE SYSTEMS & WALKWAYS
SECTIONS & DETAILS
BRIDGE NO. CUY-21-14.55
WILLOW FREEWAY OVER KINGSBURY BLVD
CUYAHOGA COUNTY U.S.R. #1

SCALE	DATE
1" = 1'-0"	7-20-55

CUYAHOGA COUNTY
CUY-21-14.55



- GENERAL NOTES**
1. DOWNSPOUTS SHALL BE STANDARD WROUGHT IRON OR HOT DIPPED GALVANIZED STEEL PIPE. JOINTS SHALL BE MADE BY VICTAULIC OR BY VICTAULIC COUPLINGS OR BY AN APPROVED EQUIVALENT. ANY WELDING SHALL BE DONE BEFORE GALVANIZING. BARS AND BOLTS FOR MOUNTING DOWNSPOUTS SHALL BE GALVANIZED STEEL. GALVANIZING FOR BOLTS PER SECTION M-10.35 SHALL BE CONSIDERED SUFFICIENT. PIPE SPECIALS SHALL BE IRON OR HOT DIPPED GALVANIZED STEEL.
 2. DIMENSIONS SHOWING LOCATION OF SCUPPERS AND DOWNSPOUTS MAY BE ADJUSTED TO CLEAR STEEL WORK.

NOTES:
MILLED JOINTS WILL BE PERMITTED IN BULB ANGLES, BUT INDIVIDUAL LENGTHS SHALL BE MADE AS LONG AS PRACTICABLE. SUPPORTS SHALL BE PLACED 6" TO 9" ON EACH SIDE OF JOINTS.
GUTTERS SHALL BE ACCURATELY ADJUSTED FOR ALIGNMENT AND GRADE, WITH ALLOWANCE FOR DEAD LOAD DEFLECTION, BEFORE CONCRETE IS PLACED.
TROUGHS SHALL BE WROUGHT IRON.

TRYGVE HOFF & ASSOCIATES
ENGINEERS
1922 EAST 107TH STREET CLEVELAND, OHIO

SCUPPER & DOWNSPOUT DETAILS
BRIDGE NO. CUY-21-14.55
WILLOW FREEWAY OVER KINGSBORO ROAD
CUYAHOGA COUNTY U.S.R. 21

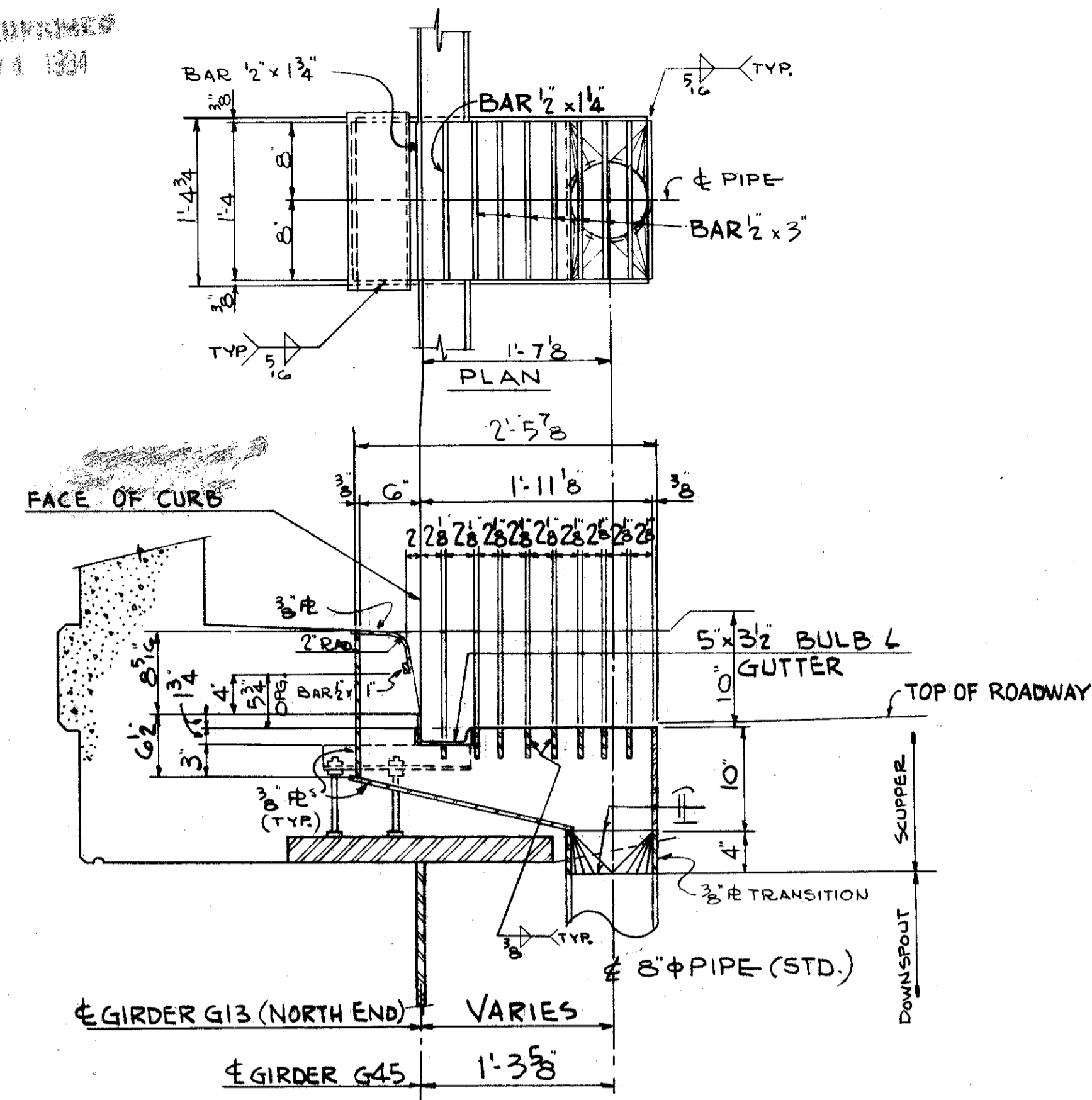
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REVISIONS
MAY 1 1984

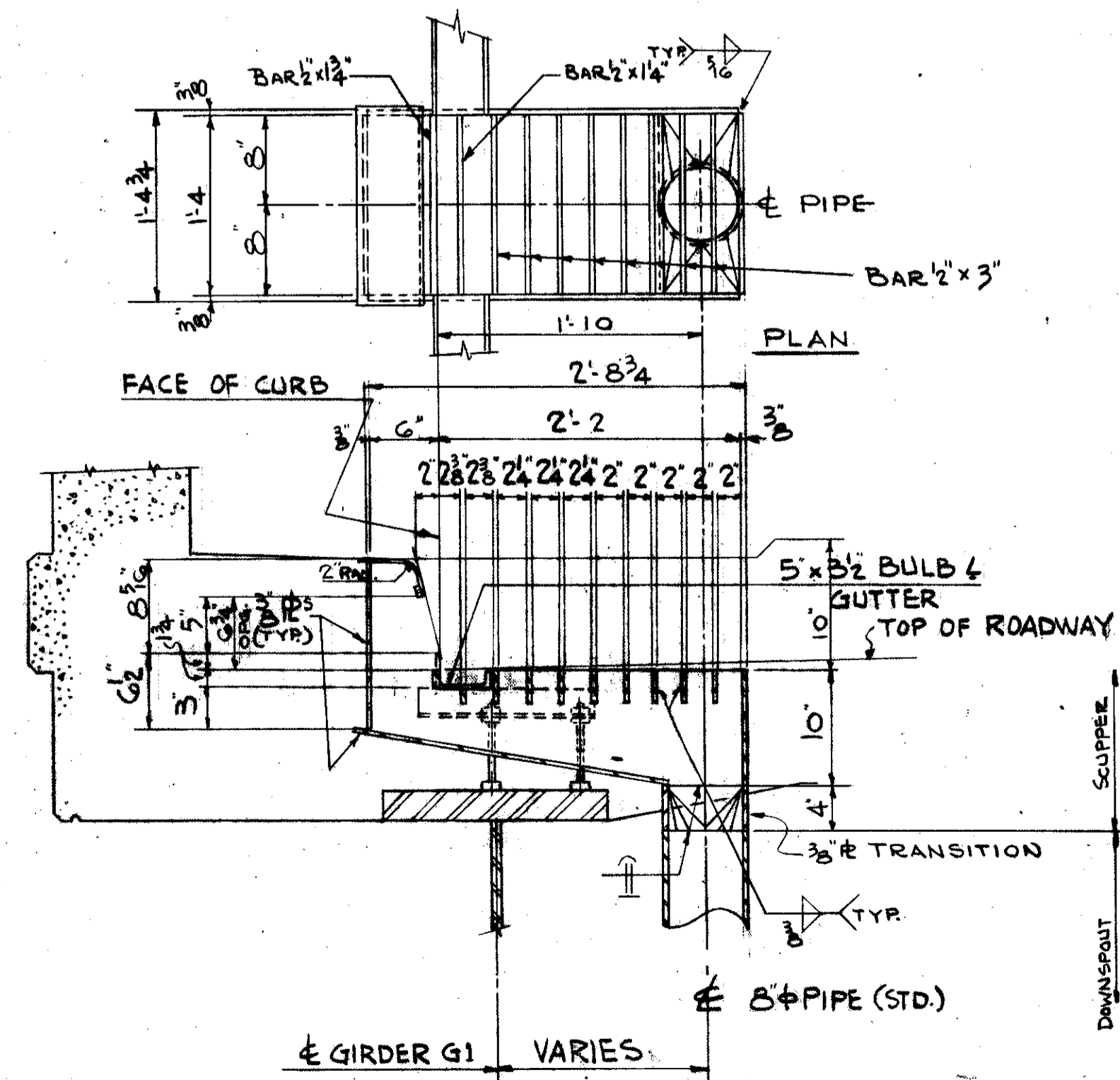
FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

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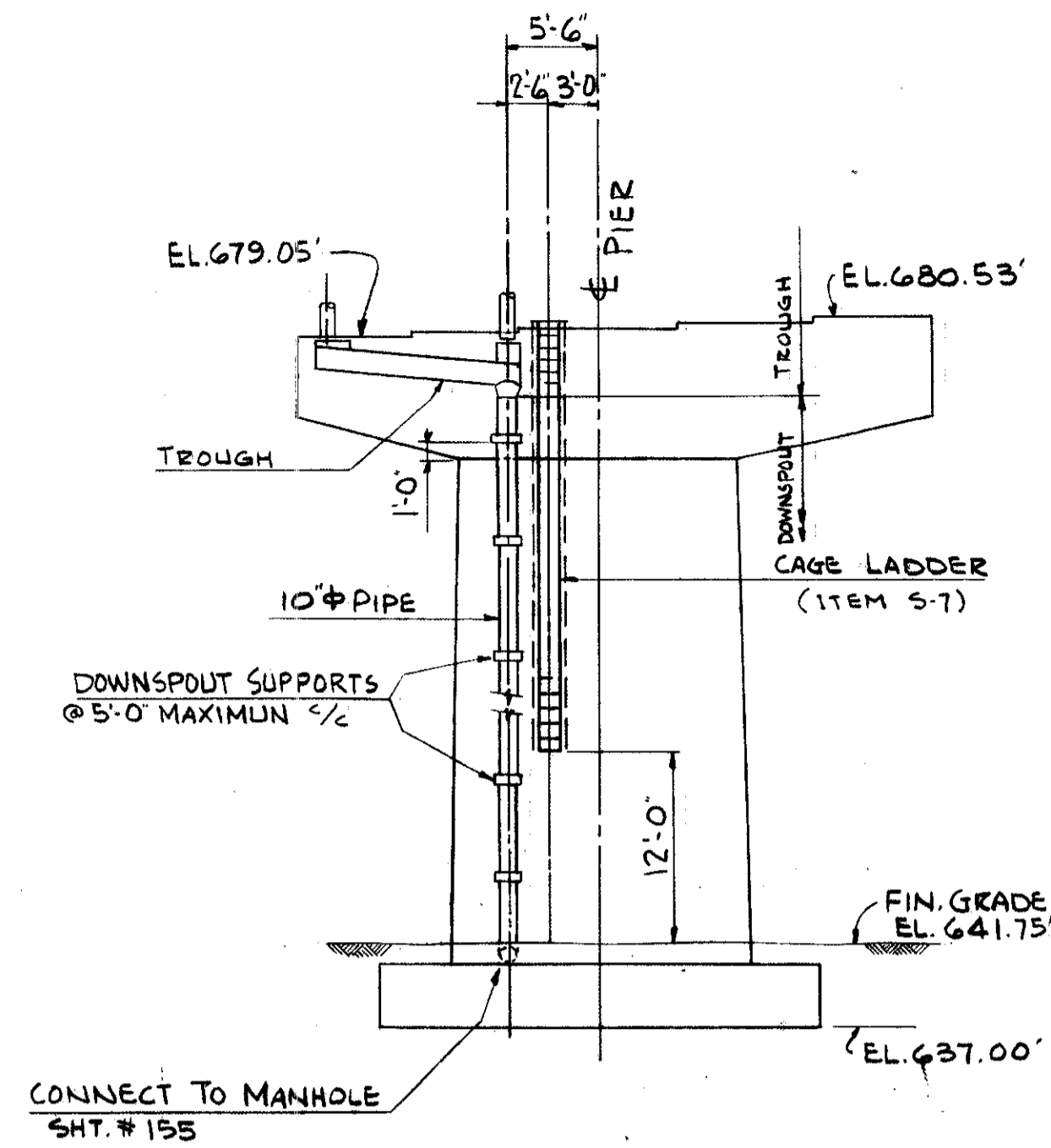
CUYAHOGA COUNTY
CUY-21-14.55



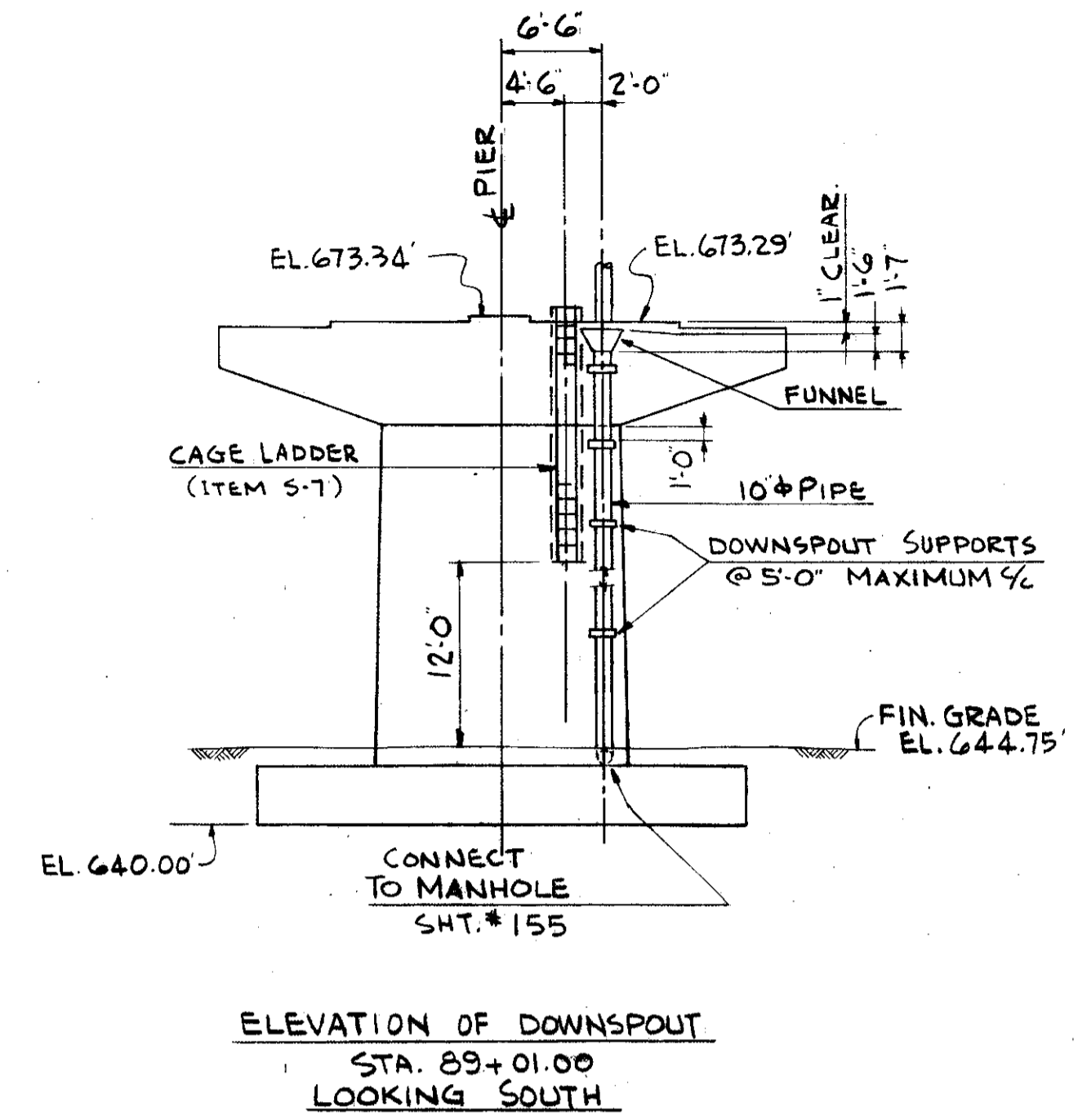
DETAIL - SCUPPER @ SAFETY CURB



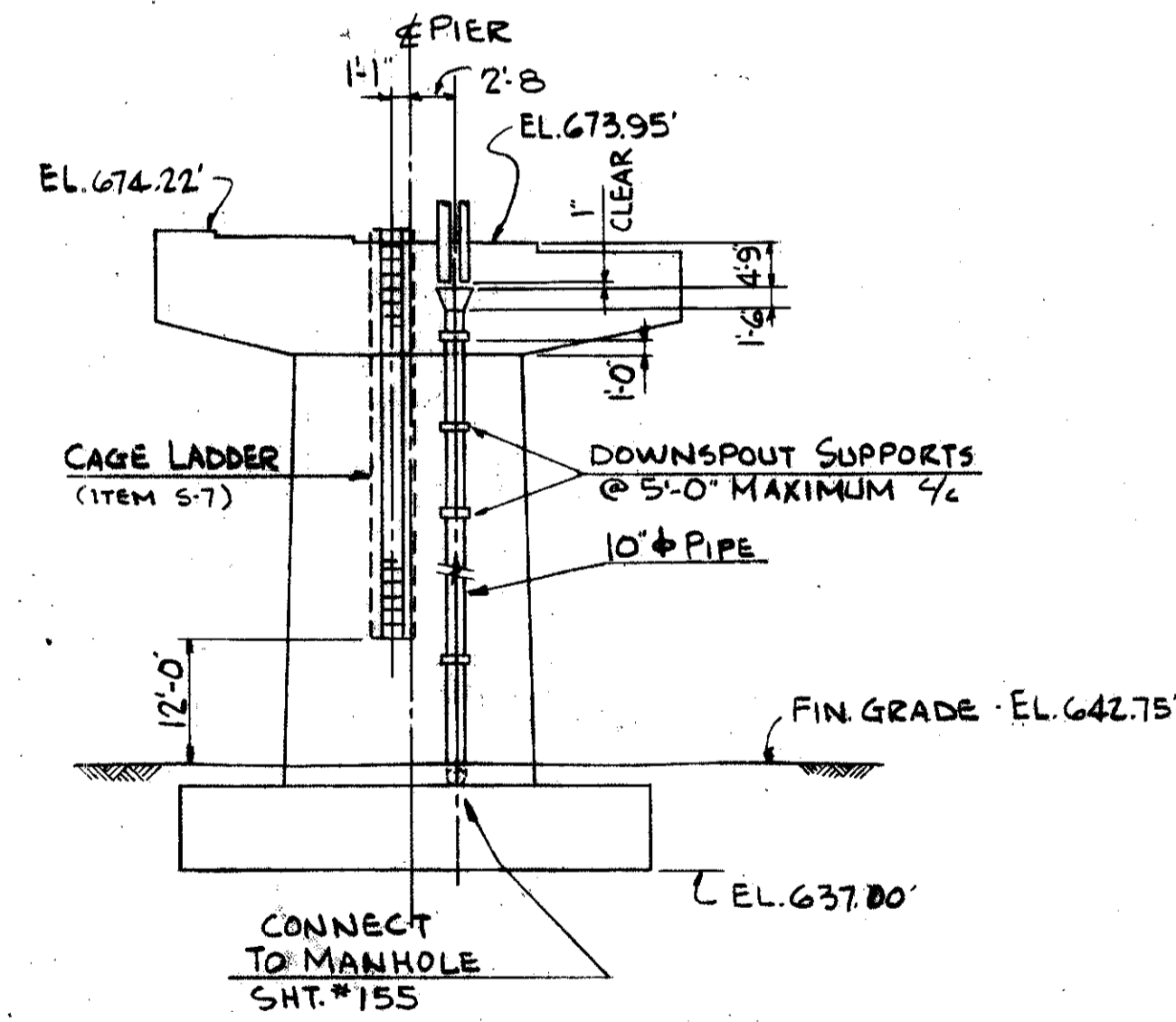
DETAIL - SCUPPER @ SAFETY CURB



ELEVATION OF DOWNSPOUT
STA. 30+90.31
LOOKING SOUTH



ELEVATION OF DOWNSPOUT
STA. 89+01.00
LOOKING SOUTH



ELEVATION OF DOWNSPOUT
STA. 2+67.84
LOOKING SOUTH

SEE SHEET # 153 FOR DETAILS & NOTES

TRYGVE HOFF & ASSOCIATES
ENGINEERS
1922 EAST 107TH STREET CLEVELAND, OHIO

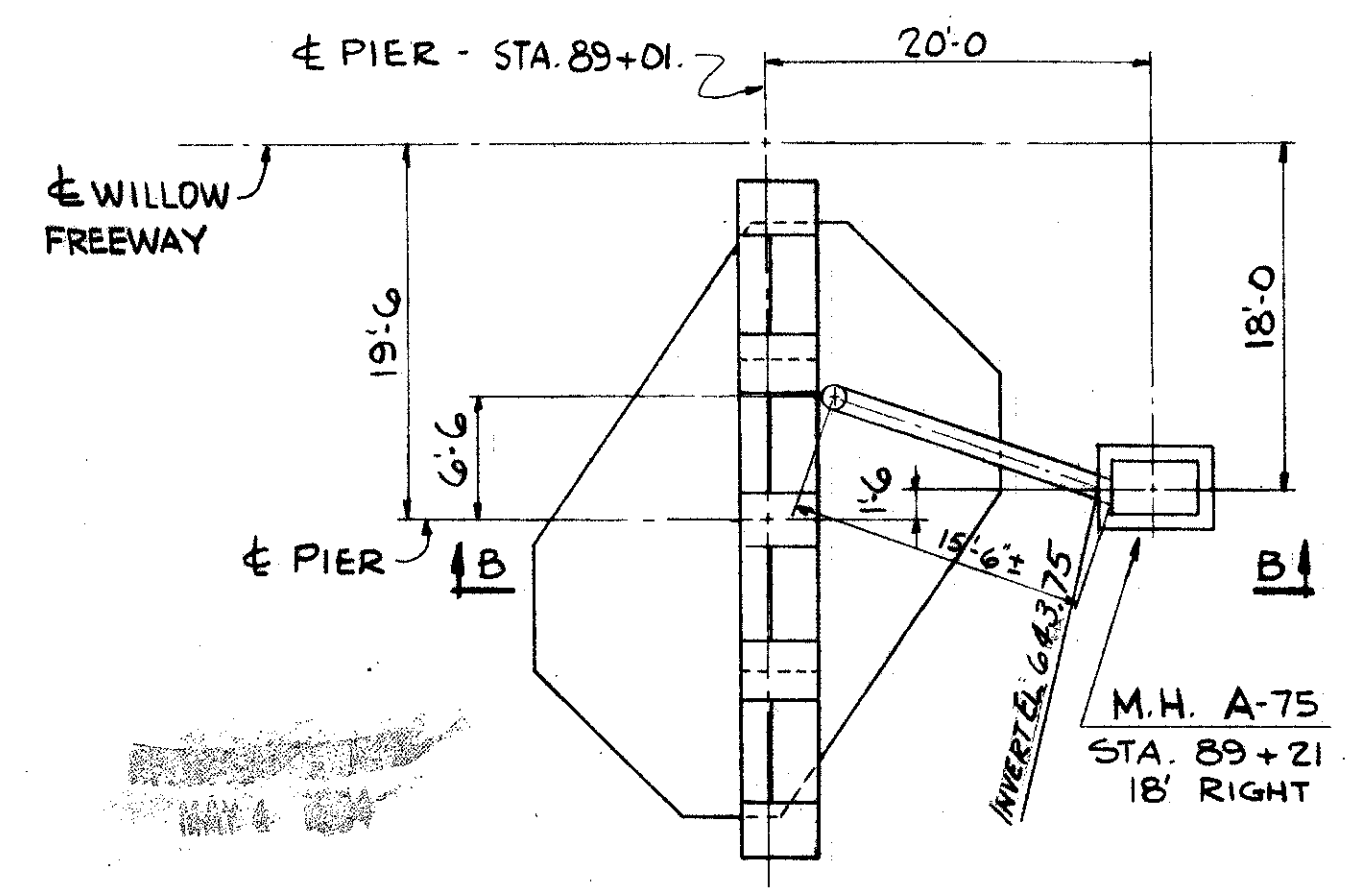
SCUPPER & DOWNSPOUT DETAILS
BRIDGE NO. CUY-21-14.55
WILLOW FREEWAY OVER KINGSBURY RUN
CUYAHOGA COUNTY U.S.R. 21

SCALE

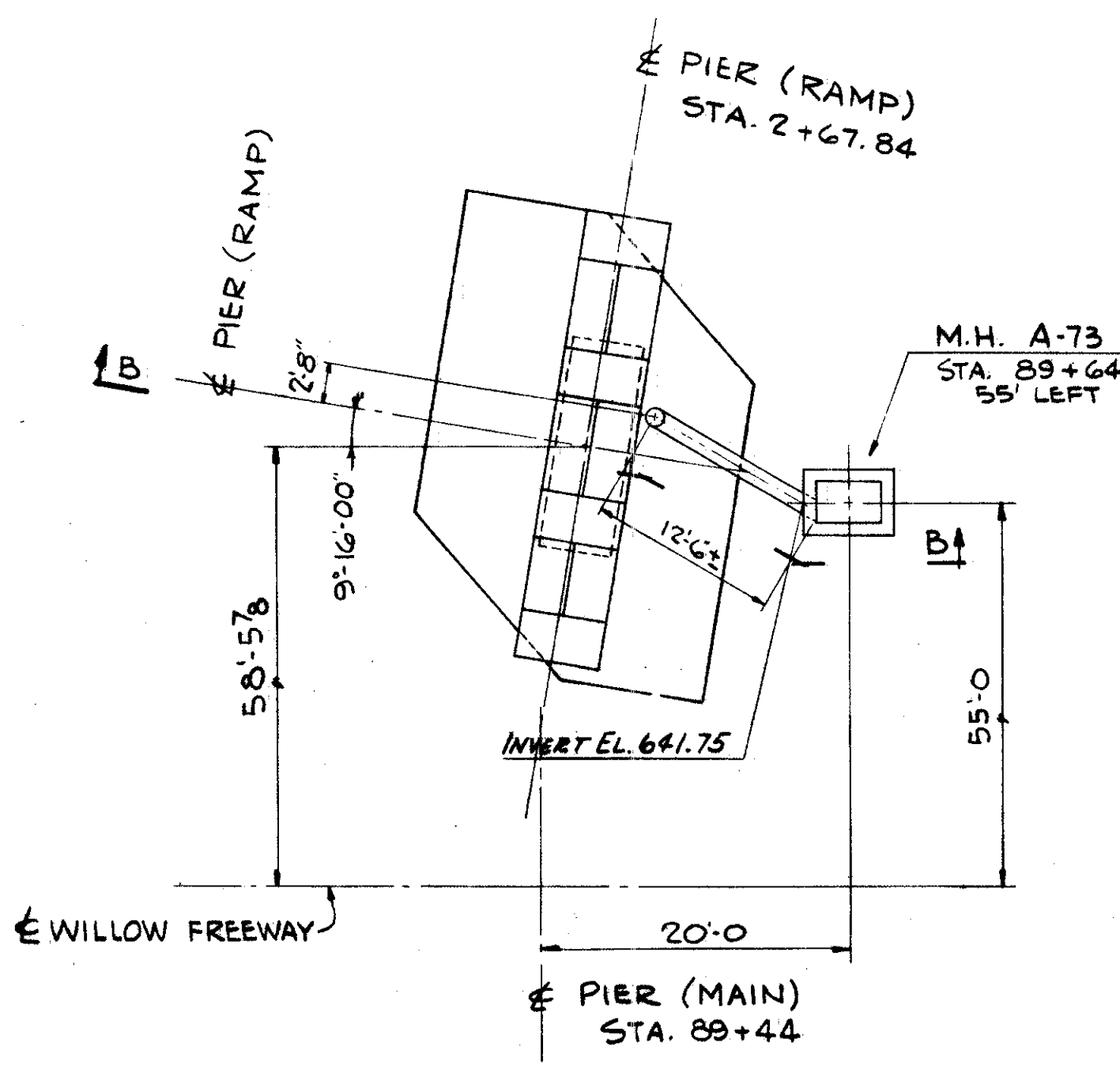
FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

155
164

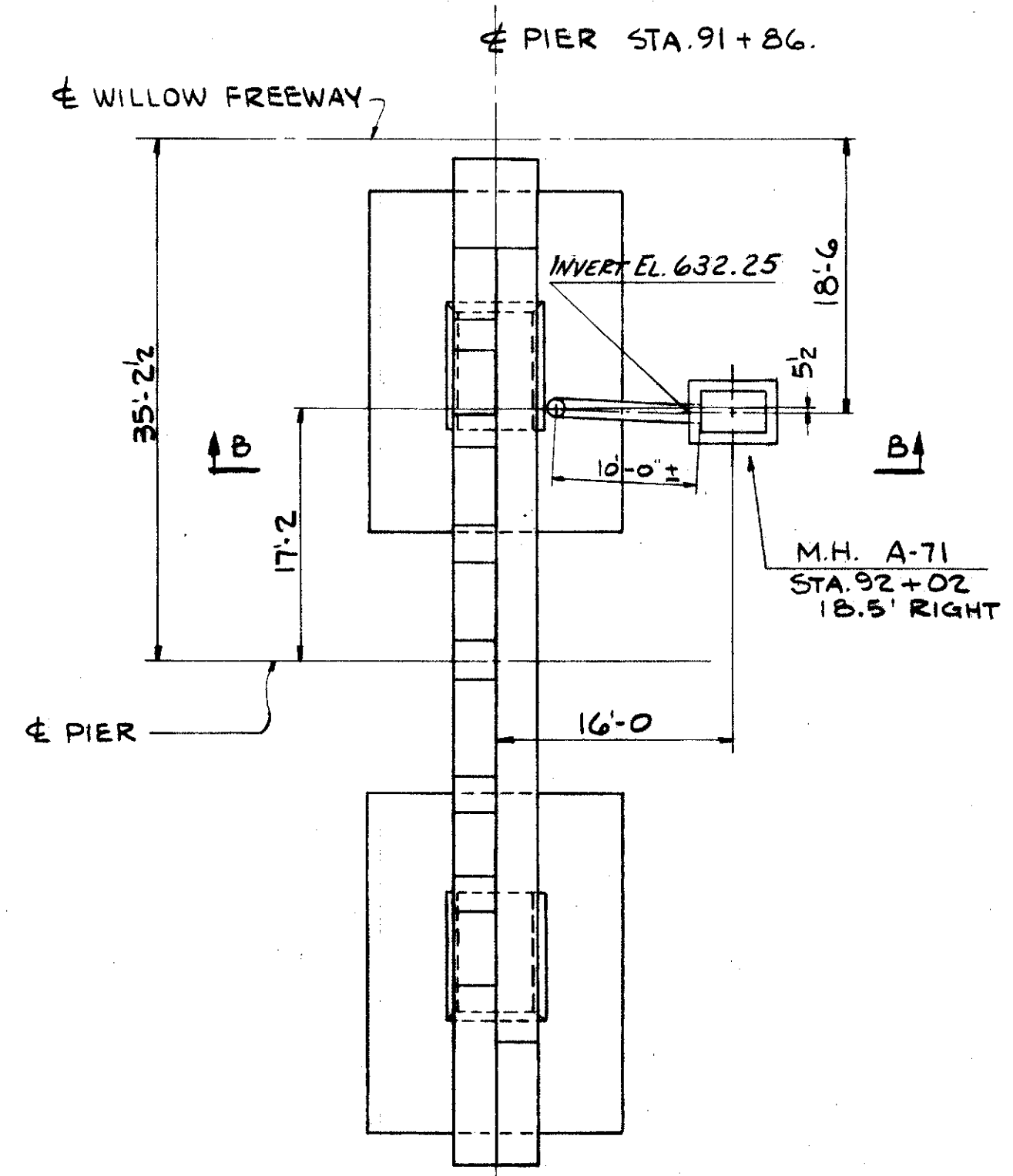
CUYAHOGA COUNTY
CUY-21-14.55



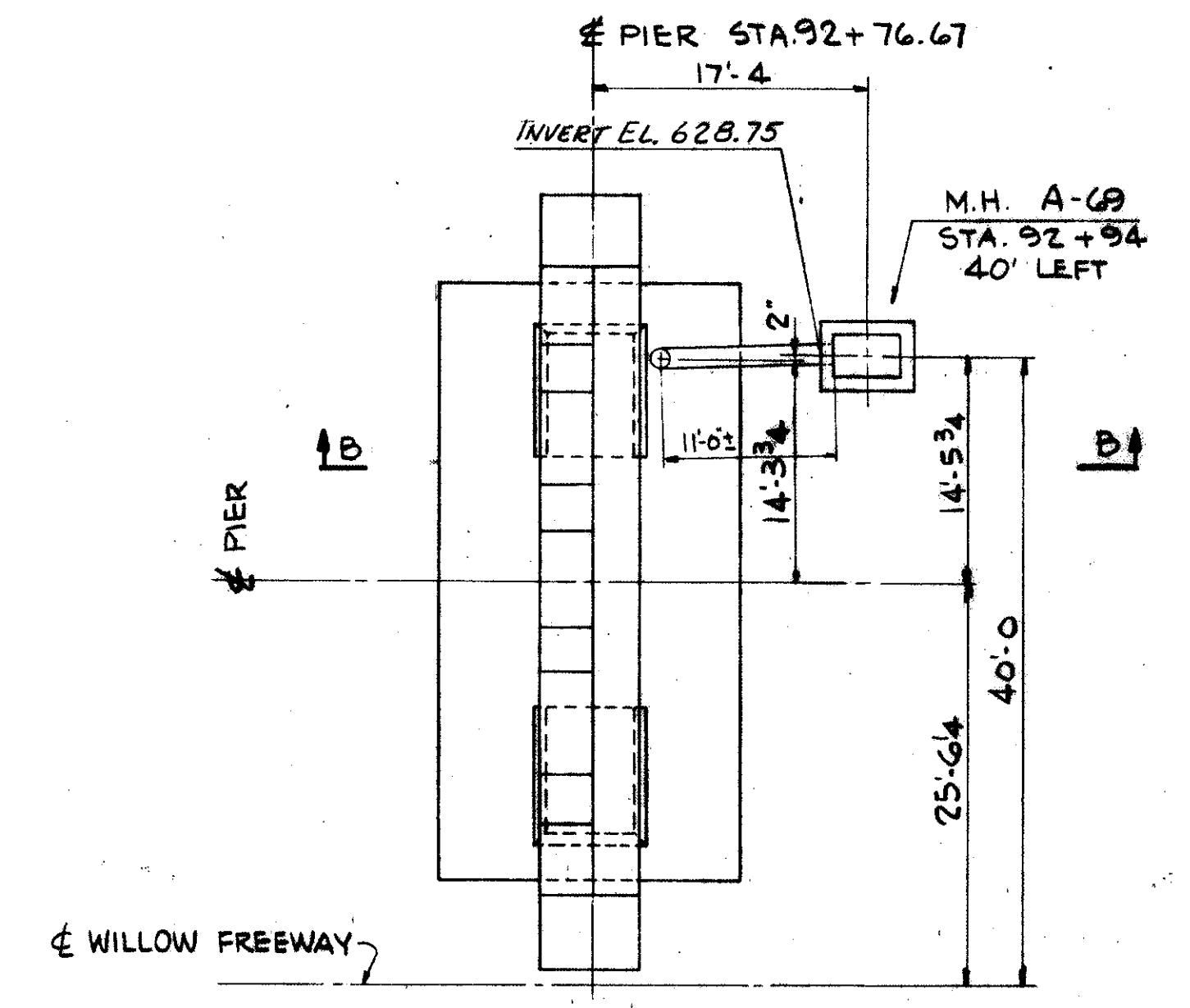
PLAN @ PIER STA. 89+01.



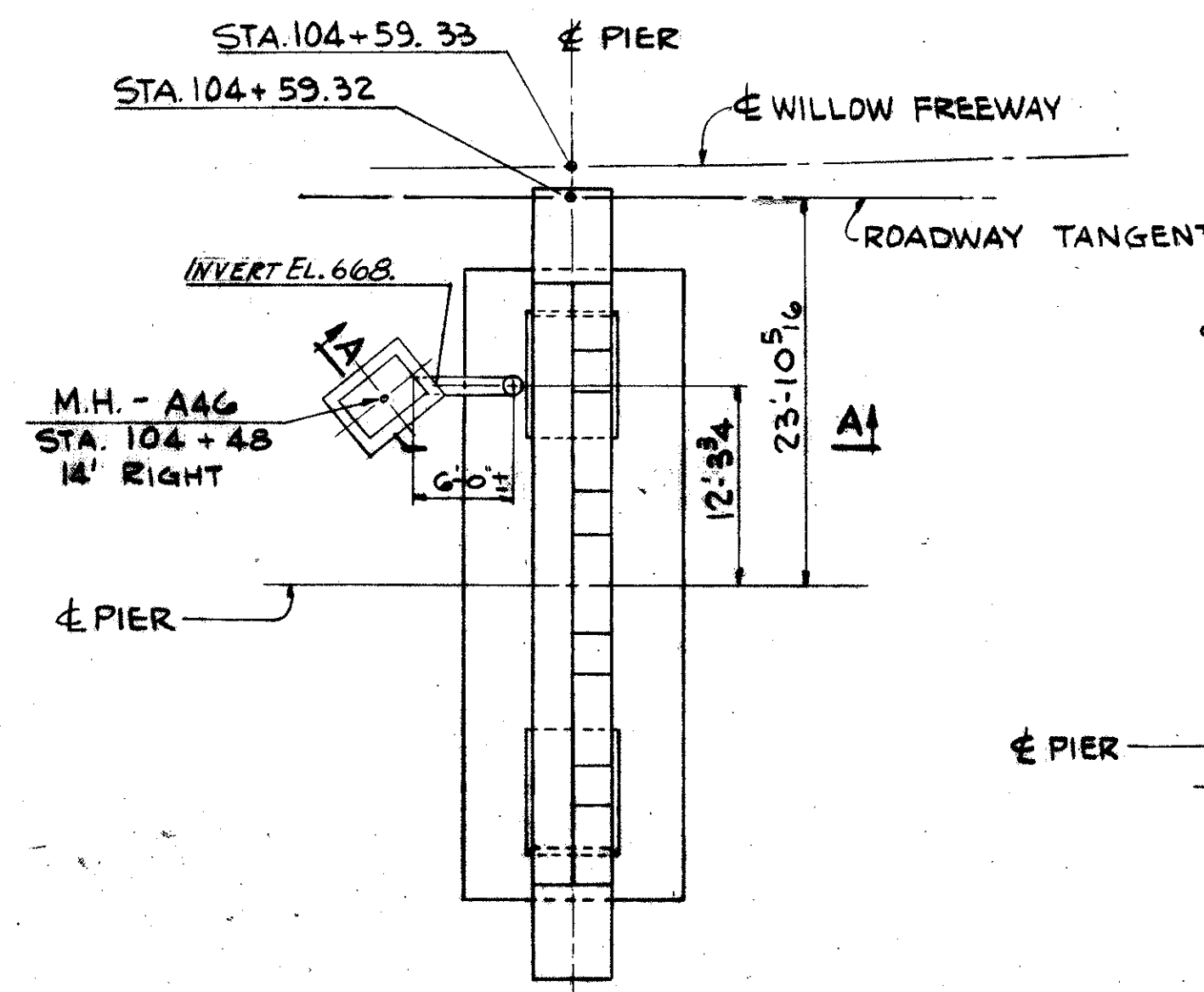
PLAN @ PIER - STA. 2+67.84 (RAMP)



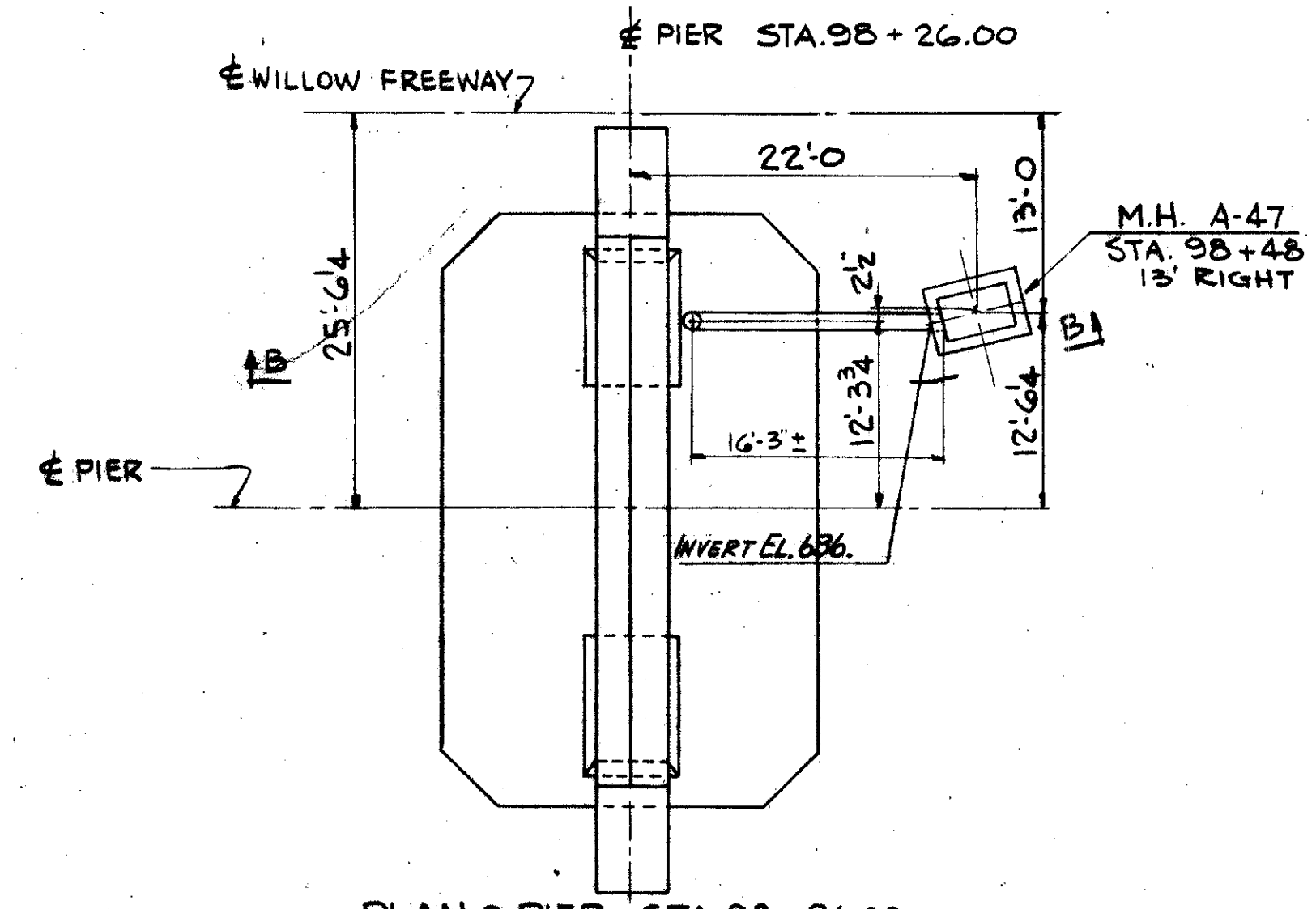
PLAN @ PIER - STA. 91+86.



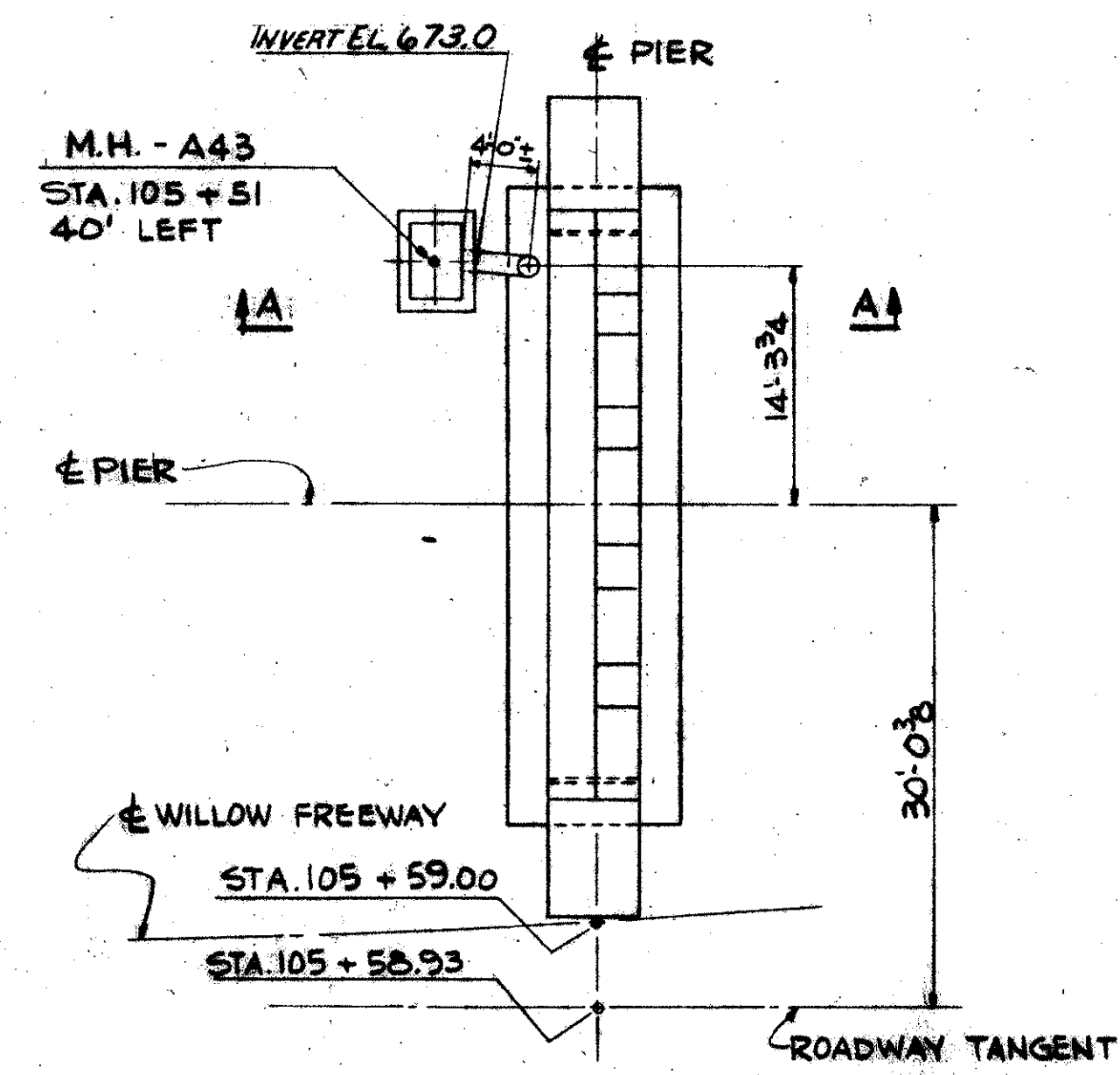
PLAN @ PIER - STA. 92+76.67



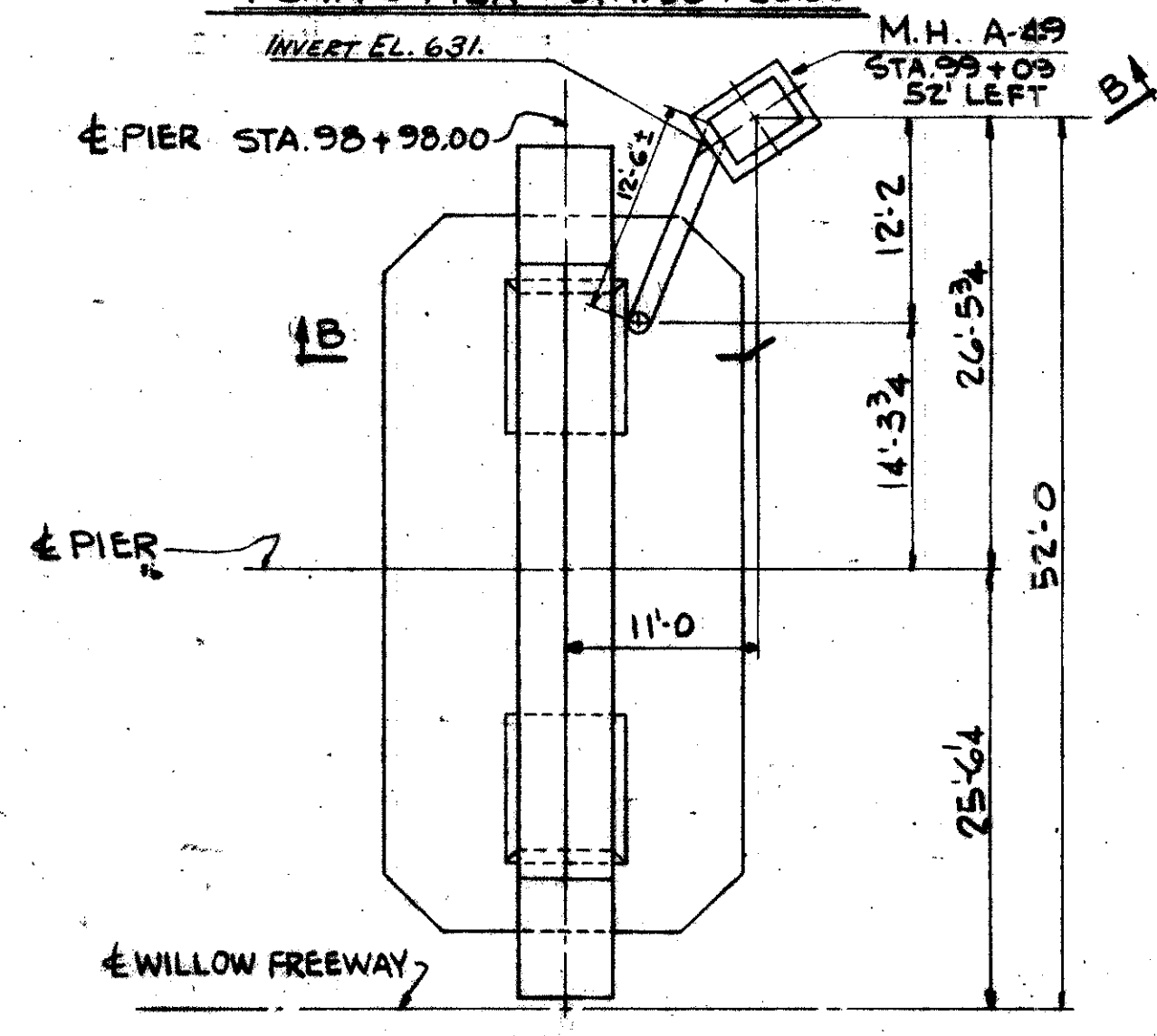
PLAN @ PIER - STA. 104+59.33



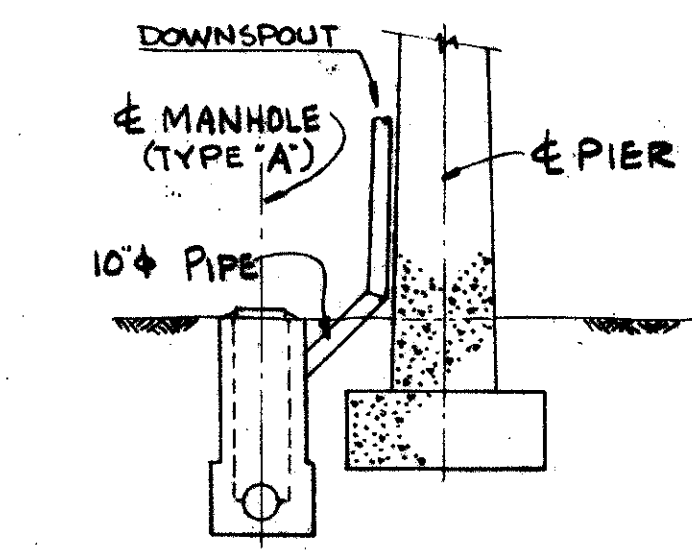
PLAN @ PIER - STA. 98+26.00



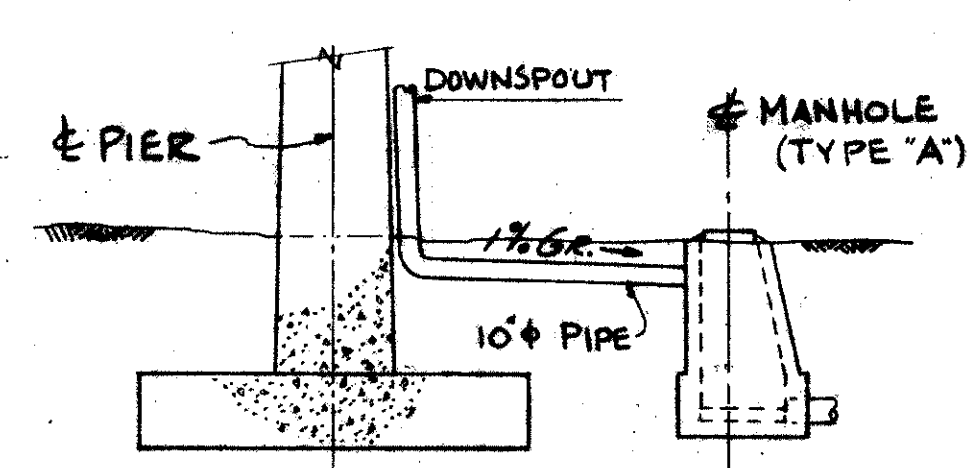
PLAN @ PIER - STA. 105+59.00



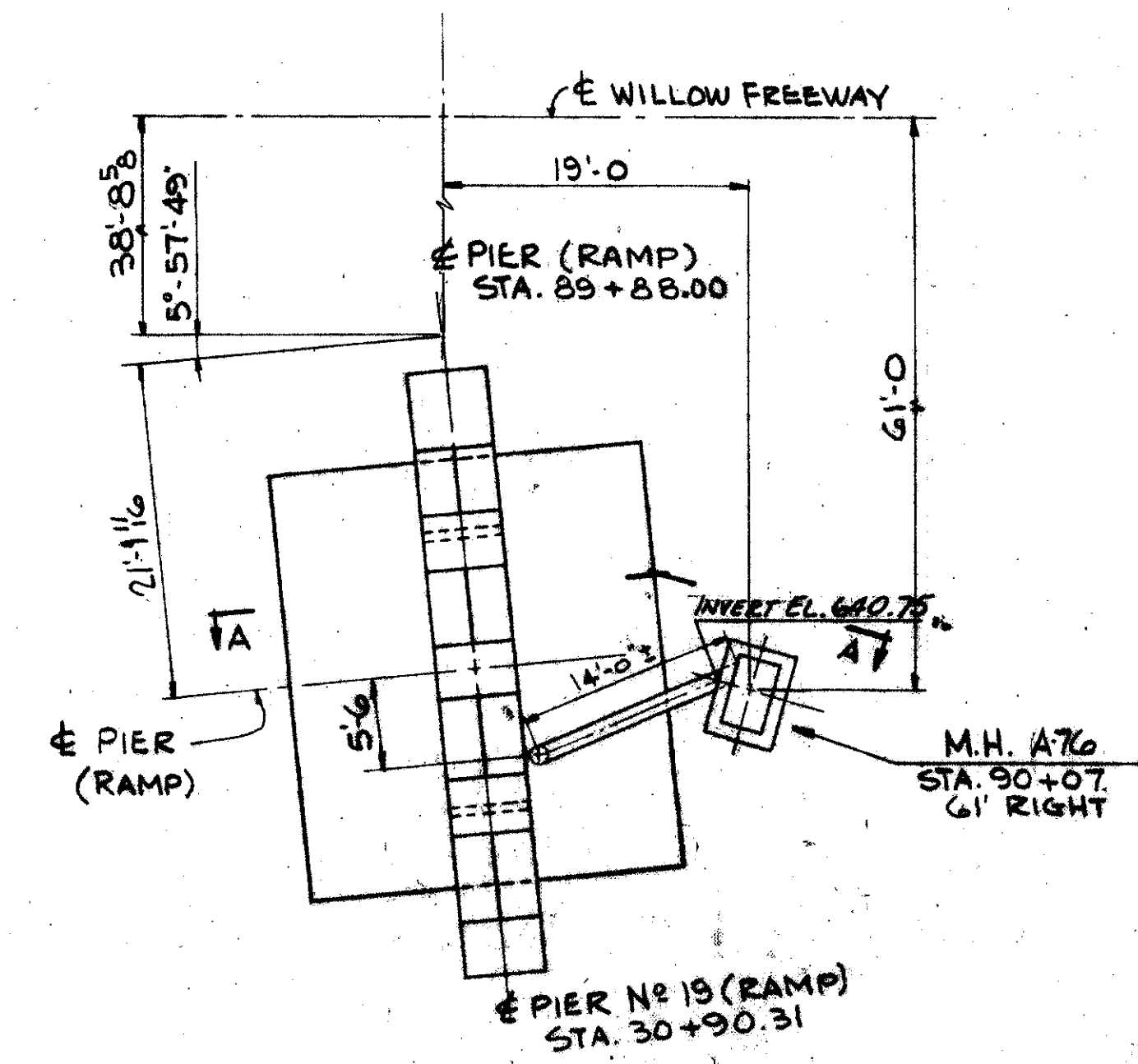
PLAN @ PIER - STA. 98+98.00



SECTION A-A



SECTION B-B



PLAN @ PIER - STA. 30+90.31 (RAMP)

NOTE:
FOR NORTH ABUTMENT DRAINAGE
CONNECTION TO SEWER SEE
SHT. #152



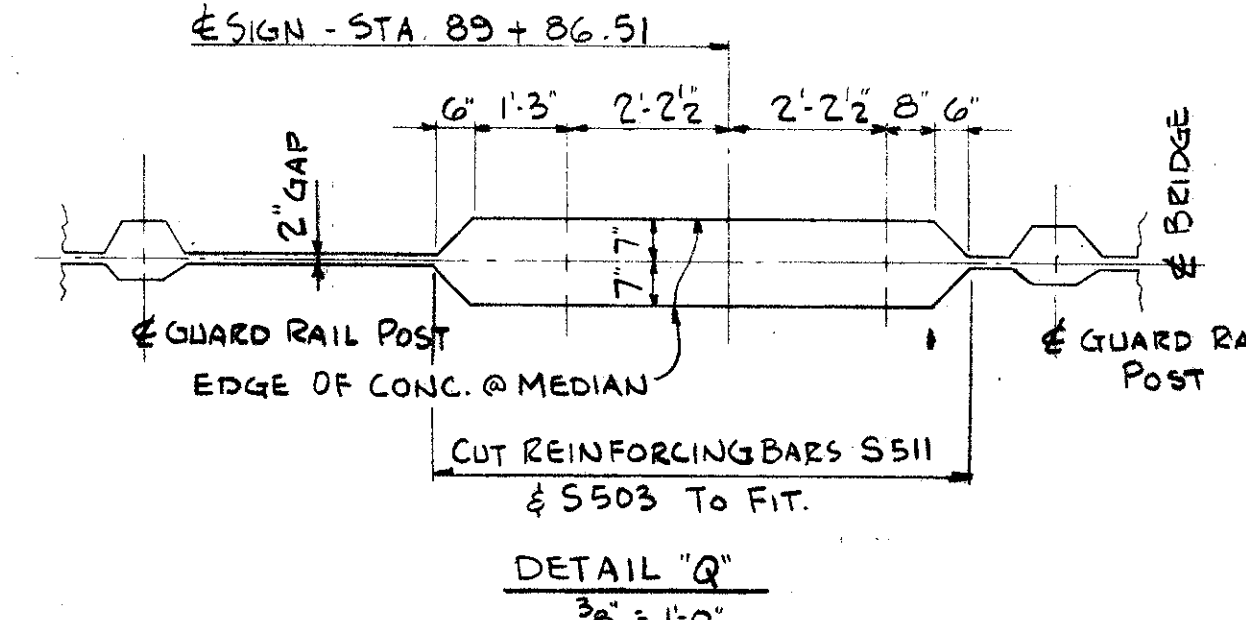
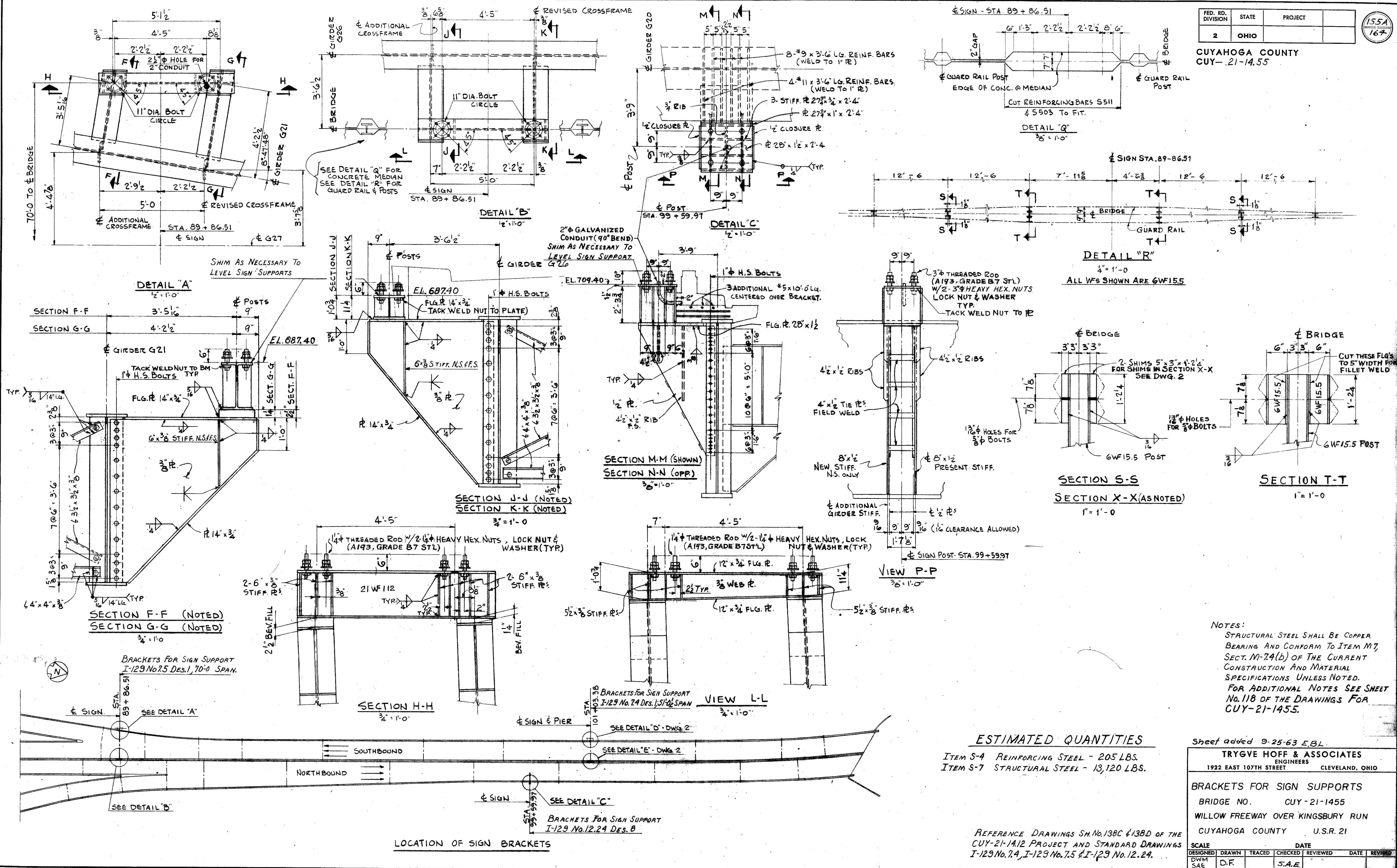
TRYGVE HOFF & ASSOCIATES
ENGINEERS
1922 EAST 107TH STREET CLEVELAND, OHIO

DRAINAGE CONNECTION TO SEWER

BRIDGE NO. CUY-21-14.55
WILLOW FREEWAY OVER KINGSBURY RUN
CUYAHOGA COUNTY U.S.R. #1

SCALE: AS SHOWN
DATE: 1955
DESIGNED BY: H.S.J. DW.M. 83

CUYAHOGA COUNTY
CUY-21-1455



NOTES:
STRUCTURAL STEEL SHALL BE COPPER BEARING AND CONFORM TO ITEM M7, SECT. M-7.4(b) OF THE CURRENT CONSTRUCTION AND MATERIAL SPECIFICATIONS UNLESS NOTED.
FOR ADDITIONAL NOTES SEE SHEET No. 118 OF THE DRAWINGS FOR CUY-21-1455.

ESTIMATED QUANTITIES

ITEM S-4	REINFORCING STEEL - 205 LBS.
ITEM S-7	STRUCTURAL STEEL - 13,120 LBS.

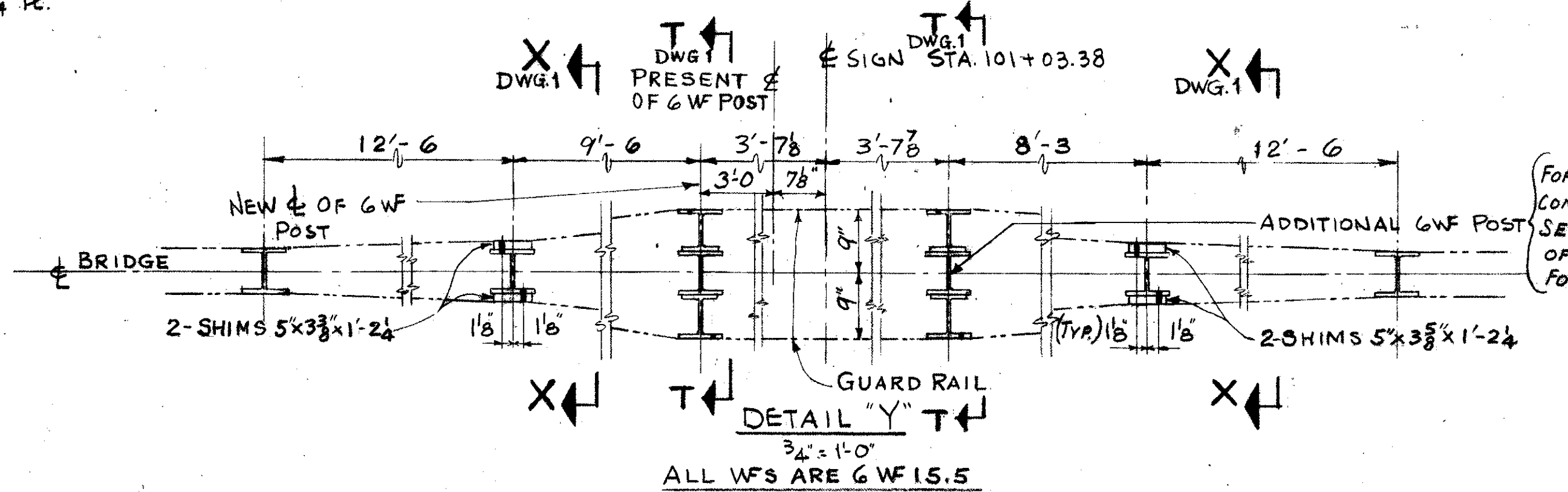
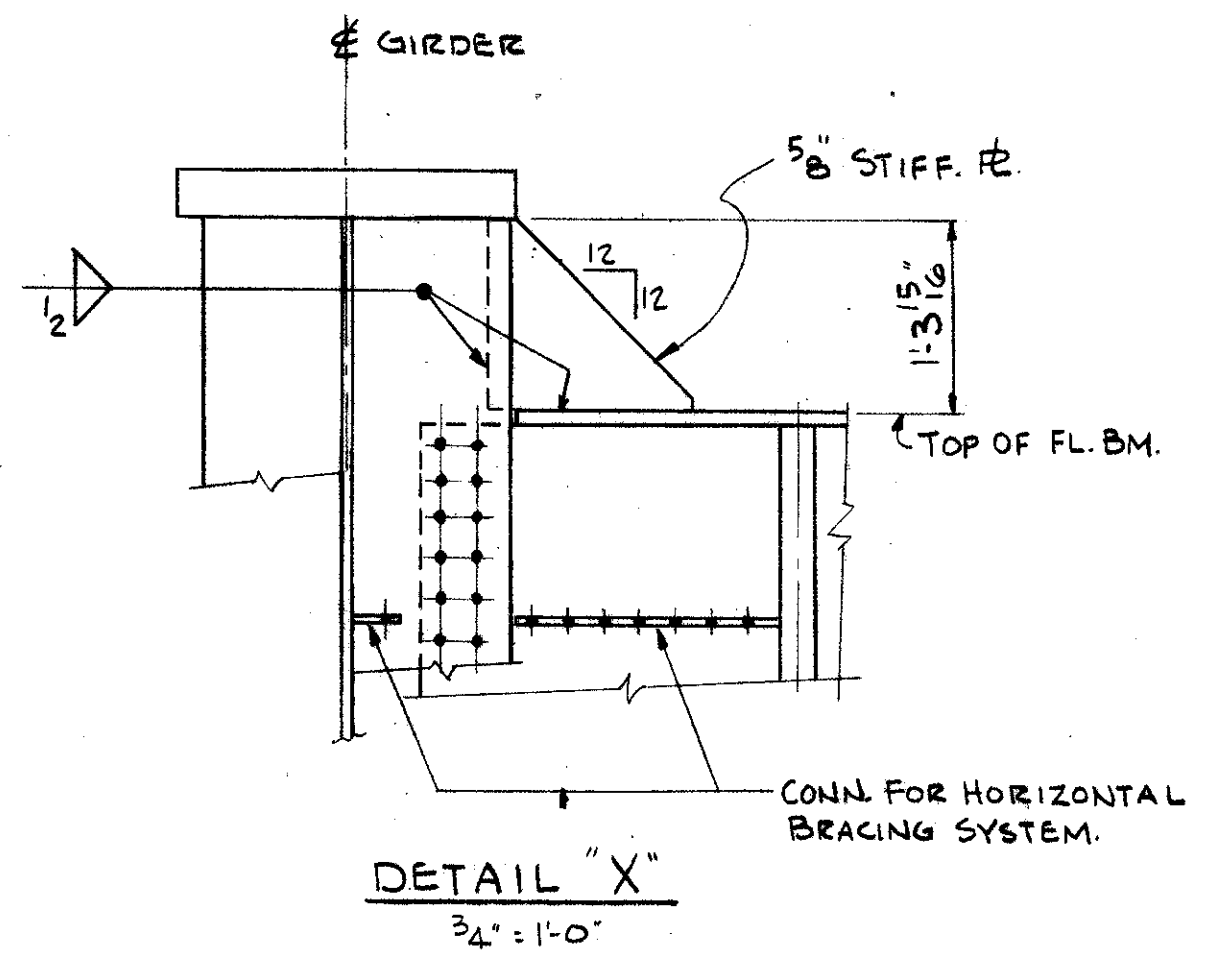
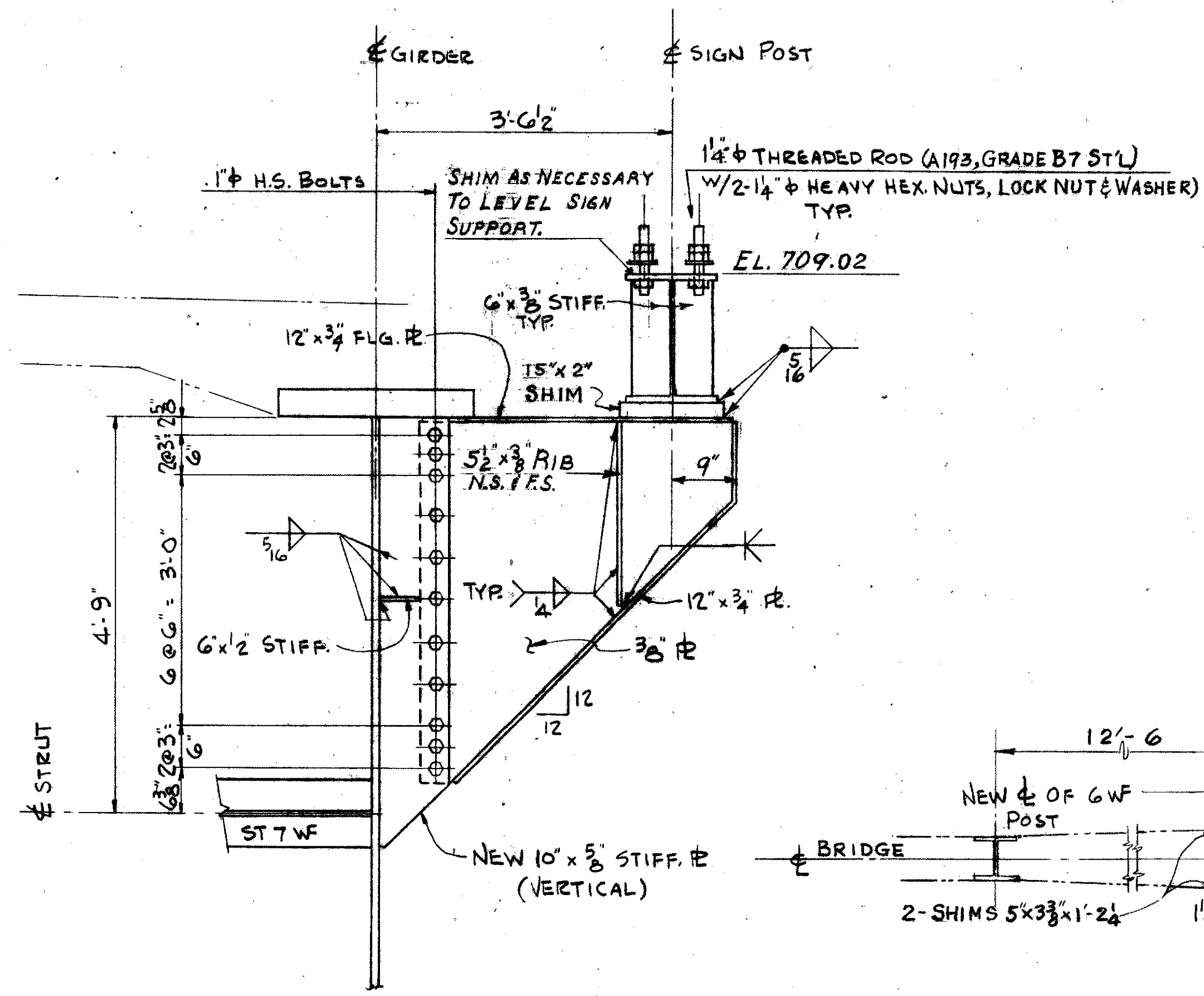
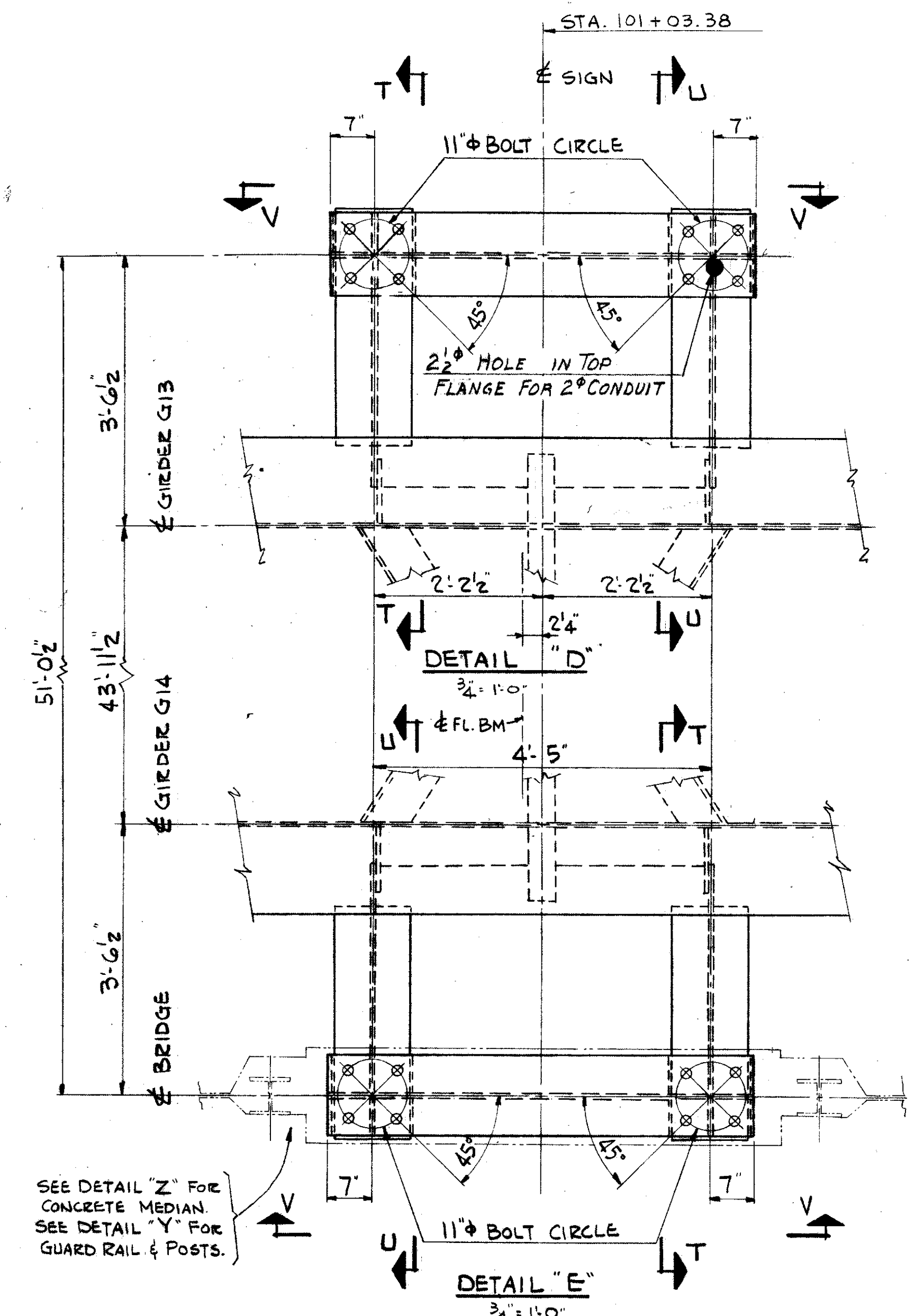
Sheet added 9-25-63 E.B.L.

TRYGVE HOFF & ASSOCIATES
ENGINEERS
1922 EAST 107TH STREET CLEVELAND, OHIO

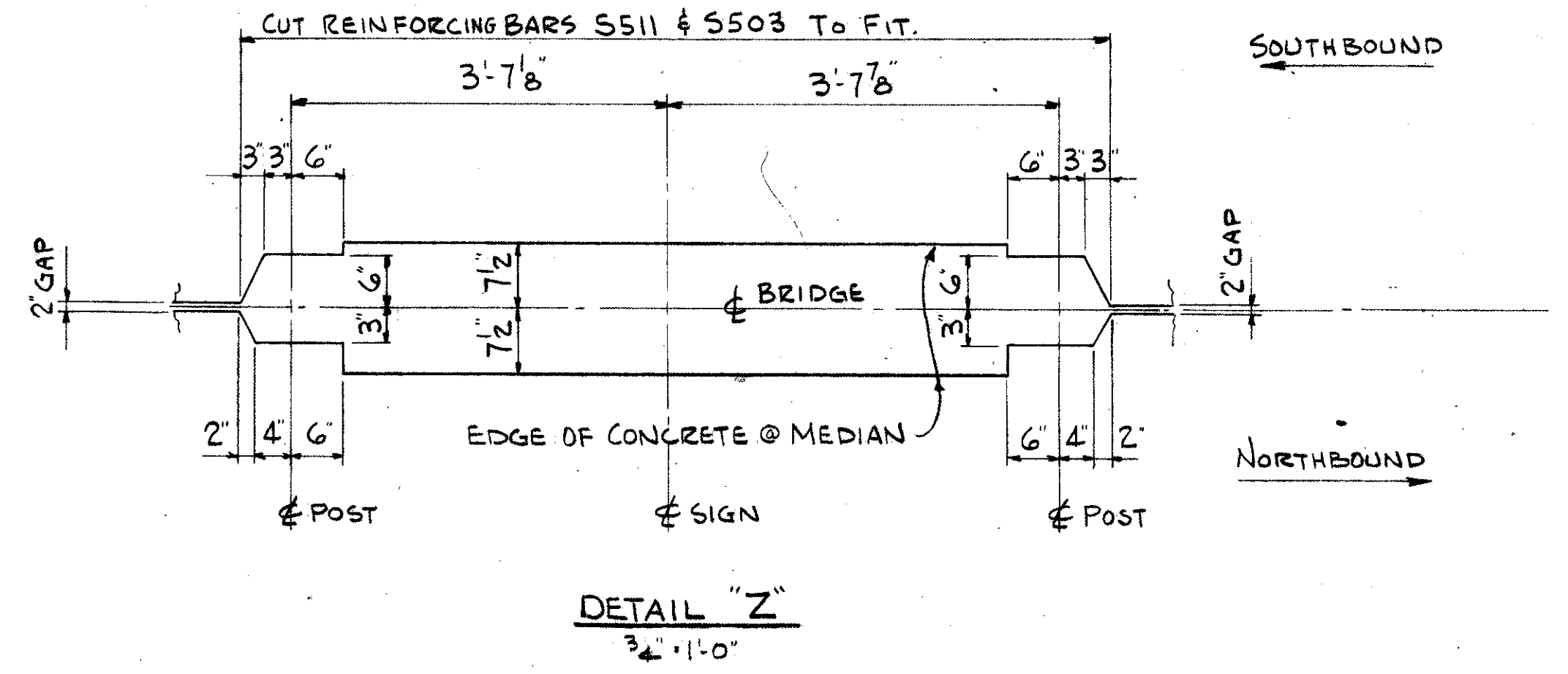
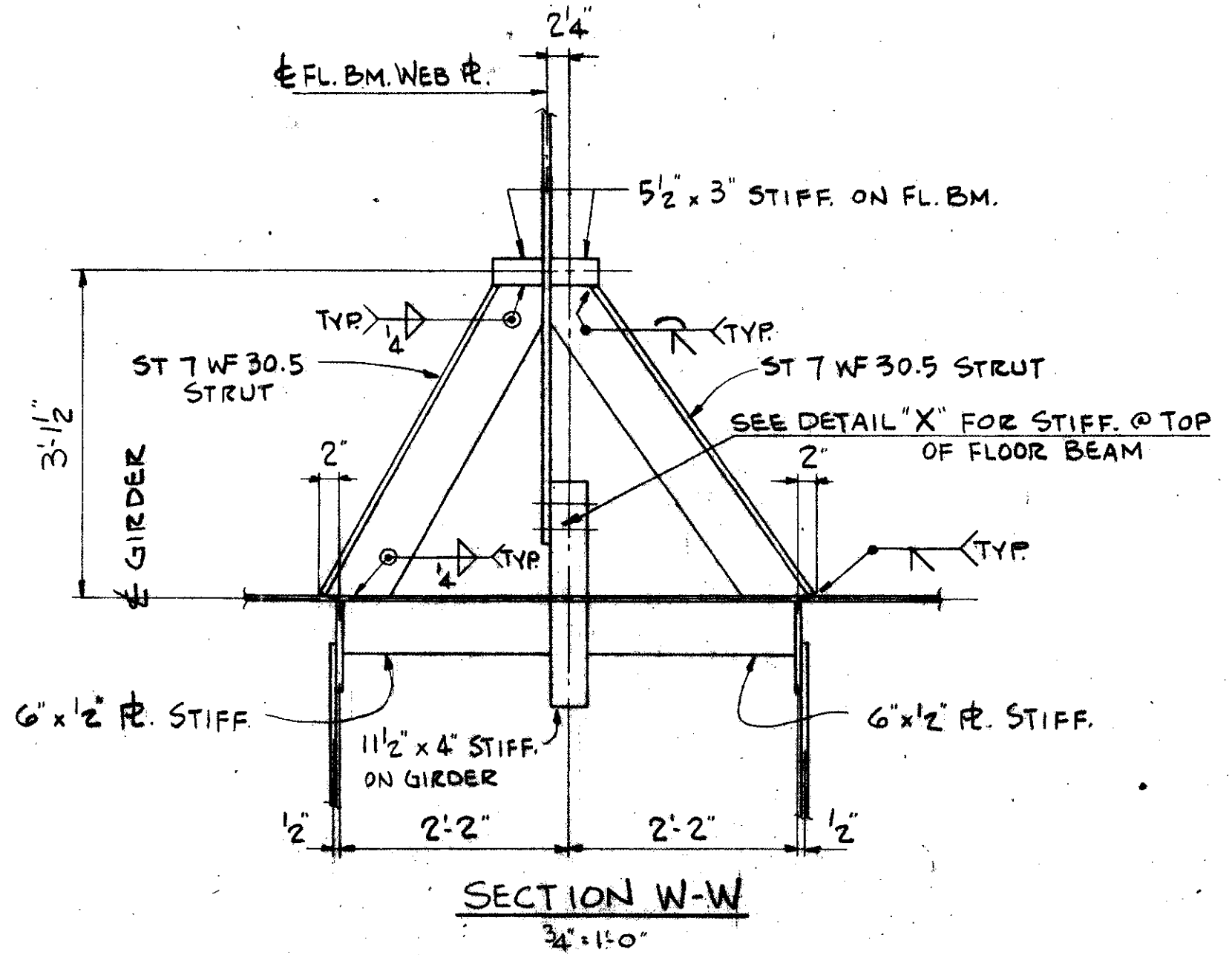
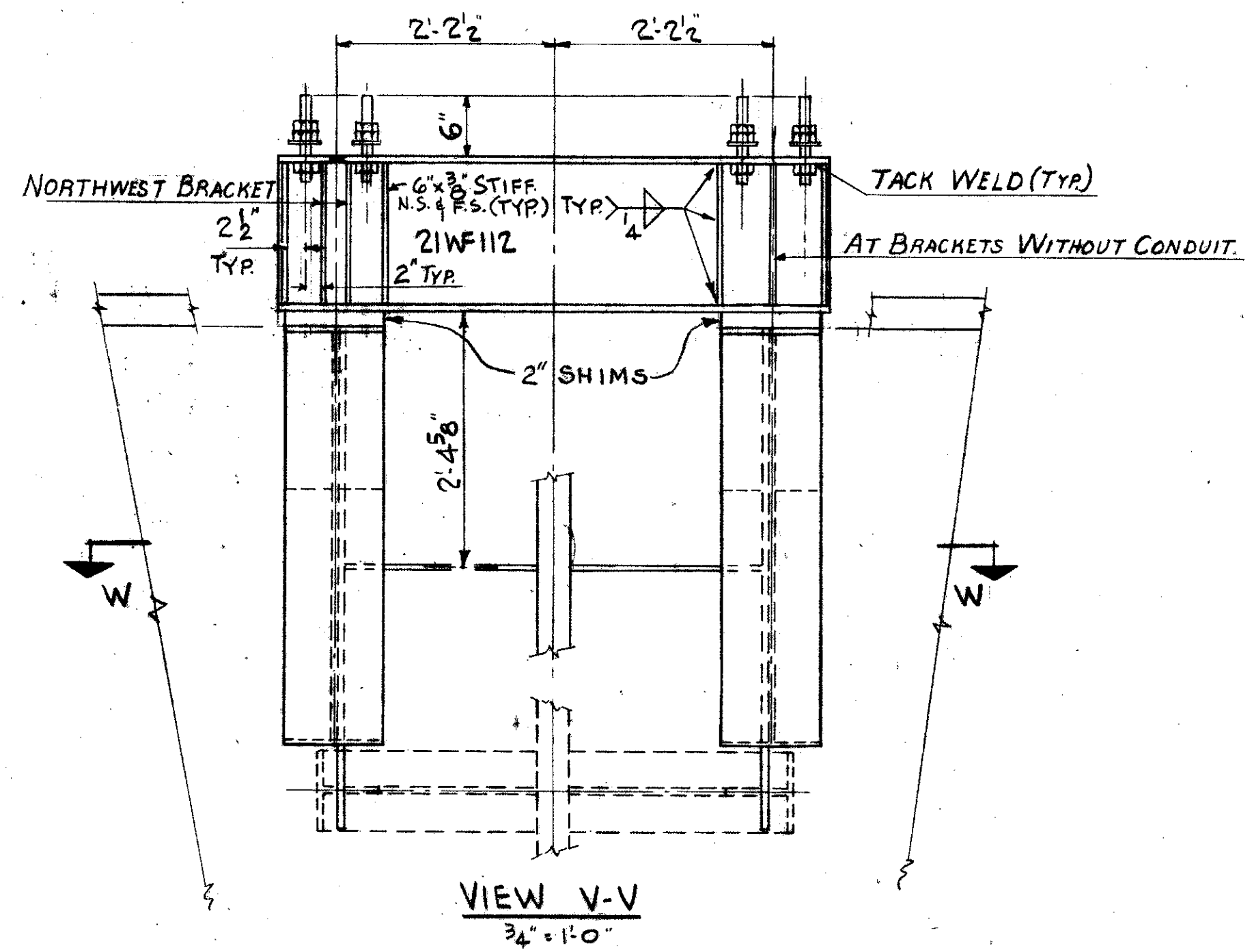
BRACKETS FOR SIGN SUPPORTS
BRIDGE NO. CUY-21-1455
WILLOW FREEWAY OVER KINGSBURY RUN
CUYAHOGA COUNTY U.S.R. 21

SCALE	DATE
DESIGNED DWM	TRACED
SAE	CHECKED J.A.E.
	REVIEWED
	DATE
	REVIEWED

SHEET ACCT. NO. 7001
CONF. NO. 63038



FOR DETAILS AND CONNECTION TO SLAB SEE SH. NO. 101 OF THE DRAWINGS FOR CUY-21-1455.



Sheet Added 9-25-63 E.B.L.

TRYGVE HOFF & ASSOCIATES
 ENGINEERS
 1922 EAST 107TH STREET CLEVELAND, OHIO

BRACKETS FOR SIGN SUPPORTS
 BRIDGE NO. CUY-21-1455
 WILLOW FREEWAY OVER KINGSBURY RUN
 CUYAHOGA COUNTY U.S.R. 21

SCALE	DATE
DESIGNED	DRAWN
TRACED	CHECKED
REVIEWED	DATE
SAE	D.F.
SAE	SAE

SHEET ACCT. NO. 1002
 CONT. NO. 63038

9-33

EE-5

SUMMARY OF ADDITIONAL RIGHT OF WAY REQUIRED

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

156
164

CUYAHOGA COUNTY
CUY-21-14.55

1
9

CUY-77-14.55 PART 1

PARCEL NO.	ACQUIRED AS PARCEL NO.	OWNER	AREA TO BE ACQUIRED SQ. FT.	EXIST BLDG	SHEET NO.	RESIDUAL AREA LEFT OF E SQ. FT.	RESIDUAL AREA RIGHT OF E SQ. FT.	REMARKS
927 LA		BENLEY REALTY COMPANY	4,104	---	164	---	---	Also Owner of Parcel 933LA & 937LA
928 LA		FRANK DINDIA	4,104	---	164	---	---	
929 LA		QUALITY GAGE COMPANY	4,104	YES	164	---	---	
930 LA		AGNEW & E. BROWN	4,104	YES	164	---	---	
931 LA		ALBERT FRIEDL	4,104	YES	164	---	---	
932 LA		CHATHAM WAREHOUSES, INCORPORATED	12,312	YES	164	---	---	Also, Owner of Parcel 951 & 959 LA
933 LA		BENLEY REALTY COMPANY	3,676	---	164	---	2,574	See Parcel # 927LA
934 LA		MAX BASSICHIS	460	---	164	---	14,971	
935 LA		P. G. WITZMAN ET AL	3,125	---	164	---	---	
936 LA		F. HANZLIK & R. J. HOFFMAN	3,125	YES	164	---	---	
937 LA		BENLEY REALTY COMPANY	3,125	---	164	---	---	See Parcel # 927LA
938 S		SHIRLEY BASSICHIS ET AL.	---	---	164	---	---	10 Ft. x 125 Ft. Sewer Easement.
951 LA		CHATHAM WAREHOUSES, INC.	6,544	YES	163	956	---	See Parcel 932 LA.
952 LA		STANLEY POCIORKA	3,278	YES	163	---	---	
952			472	---	---	---	---	
953 LA		FLOSIE KYR ET AL	2,333	---	163	---	680	
953			737	---	---	---	---	
954 LA		MORRIS FRIEDMAN	930	---	163	---	2,820	
955 LA		RENA TASLITT	2,948	---	163	---	---	Previously recommended for total takes
956 LA		AGNES SEVERSON	2,700	YES	163	---	---	(See R/W Field Report July 19, 1960)
957 LA		EVA L. SNYDER	4,500	---	163	---	---	
958 LA		JOSEPH C. HANZLIK ET AL	465	---	163	2,933	---	
959 LA		CHATHAM WAREHOUSES, INC.	5,216	---	163	---	---	See Parcel 932 LA.
959A LA			150	---	---	---	---	
960 LA		MARTIN DONO	1,439	YES	163	2,311	---	
971 AR		NEW YORK CHICAGO & ST. LOUIS R. R. CO.	20,448	---	160	---	---	Also owner of Parcel 974
971 A WD		" " " " " "	101	---	162	---	---	
971 B WD		" " " " " "	1,418	---	162	---	---	
971 C WD		" " " " " "	1,212	---	162	---	---	
972 AR		NEW YORK CENTRAL R. R. CO.	22,848	---	160	---	---	
972 A WD		" " " " " "	587	---	162	---	---	
972 B WD		" " " " " "	115	---	162	---	---	
972 C WD		" " " " " "	1,330	---	162	---	---	
972 D S		" " " " " "	1,714	---	162	---	---	Sewer Easement
972 E S		" " " " " "	532	---	162	---	---	Sewer Easement
973 AR		CLEVELAND UNION TERMINALS CO.	22,819	---	160	---	---	
973 A WD		" " " " " "	1,570	---	161	---	---	
973 B WD		" " " " " "	1,412	---	162	---	---	
973 C WD		" " " " " "	878	---	"	---	---	
973 D WD		" " " " " "	345	---	"	---	---	
973 E S		" " " " " "	663	---	"	---	---	Sewer Easement
973 F S		" " " " " "	1,855	---	"	---	---	Sewer Easement
974 AR		NEW YORK CHICAGO & ST. LOUIS R. R. CO.	23,996	---	160	---	---	See Parcel # 971
974 A WD		" " " " " "	1,267	---	161	---	---	
974 B WD		" " " " " "	274	---	"	---	---	
974 A-AR		" " " " " "	12,958	---	"	---	---	
975 LA		THE OHIO MATTRESS CO.	50,759	YES	159	44,750	36,212	
975			1,166	YES	---	---	---	
975 SL			3,186	YES	159	---	---	10 Ft. Wide Sewer Easement
975 S			---	---	---	---	---	
976 LA		THE J. D. FARASEY MANUFACTURING CO.	3,379	YES	159	---	50,940	
977 LA		THE WHITMORE MANUFACTURING CO.	20,659	YES	159	---	---	
978 AR		ERIE LACKAWANNA R. R. CO.	28,605	---	158	---	---	Additional Easements From This Owner
978 A WD		" " " " " "	3,041	---	161	---	---	Will Also Be Required For Interchange
978 B WD		" " " " " "	23	---	"	---	---	Construction.
978 C WD		" " " " " "	87	---	"	---	---	
978 D WD		" " " " " "	94	---	"	---	---	
978 E SL		" " " " " "	586	---	"	---	---	
978 F SL		" " " " " "	3,664	---	"	---	---	

PARCEL NO.	ACQUIRED AS PARCEL NO.	OWNER	AREA TO BE ACQUIRED SQ. FT.	EXIST BLDG.	SHEET NO.	RESIDUAL AREA LEFT OF E SQ. FT.	RESIDUAL AREA RIGHT OF E SQ. FT.	REMARKS
1001 LA		RITA LURIE & MARCELLA NEWMARK	15,978	---	157	41,729	---	
1006 WL		ANNA WALTERS	2,970	YES	157	---	---	
1007 WL		JOSEPH PONIKVAR	5,944	YES	157	---	---	Also Owner of Parcel 1128 LA (Father)
1007A WL		JOSEPH PONIKVAR	2,974	YES	157	---	---	(Son)
1008 WL		FRANK & M. PELC	2,805	YES	157	---	---	
1009 WL		JOS & ELLA FRONEK	3,140	YES	157	---	---	
1010 WL	1010 LA	JAN & PAULINE DUTKA	5,946	YES	157	---	---	
1011 LA		CLARENCE S. NELKES	2,977	---	157	---	---	
1012 WL	1012 LA	FRED C. WRIGHT	2,970	YES	157	---	---	
1013 WL	1013 LA	MARY K. RALPH ET AL	5,947	YES	157	---	---	
1014 WL	1014 LA	FRANK & MARY PROCHASKA	5,948	YES	157	---	---	
1015 WL		WILMA VIROVEC	6,534	YES	157	---	---	
1016 WL		MIKE FAIKEN	10,890	YES	157	---	---	
1017 WL		BLDRS. STRUCT. STL. CORP.	5,517	---	157	---	---	Also, Owner of 1225 WL
1018 WL		JOS & MARY BASTYR	5,518	YES	157	---	---	
1019 WL		MICHAEL & HELEN FERREK	5,518	YES	157	---	---	
1020 WL		JOHN & ANNA KORMOS	6,480	YES	157	---	---	
1021 WL		AARON & G. PERRYMAN	6,588	YES	157	---	---	
1022 WL		EDWARD GADAMSKI	7,132	YES	157	---	---	
1023 WL		YARD SINDELAR	7,241	YES	157	---	---	
1024 WL		PETER FALLETTA	7,350	YES	157	---	---	
1025 WL		GASPARE TORNABE	7,459	YES	157	---	---	
1026 WL		BEN ABATE	7,568	YES	157	---	---	
1027 WL		KATHERINE SLATER	7,677	YES	157	---	---	
1028 WL		CLARENCE F. SR. & CHRISTIAN D. CURETON	7,786	---	157	---	---	
1029 WL		JOHN PIORUNEK	7,895	YES	157	---	---	

Rec'd P-27-62 Sheets No 1 thru No 9 Inclusive

SHEET ACCT. No. 6075A

BY	REVISIONS	Date
A.M.	Area changed from 268' to 274' (Parcel 974B-WD)	10/1/62
A.M.	Parcel 973 AR Area changed from 35,717' to 22,819'	3/20/63
A.M.	Parcel 974A-AR added	3/20/63

TRYGVE HOFF & ASSOCIATES
ENGINEERS
1922 EAST 107TH STREET CLEVELAND, OHIO

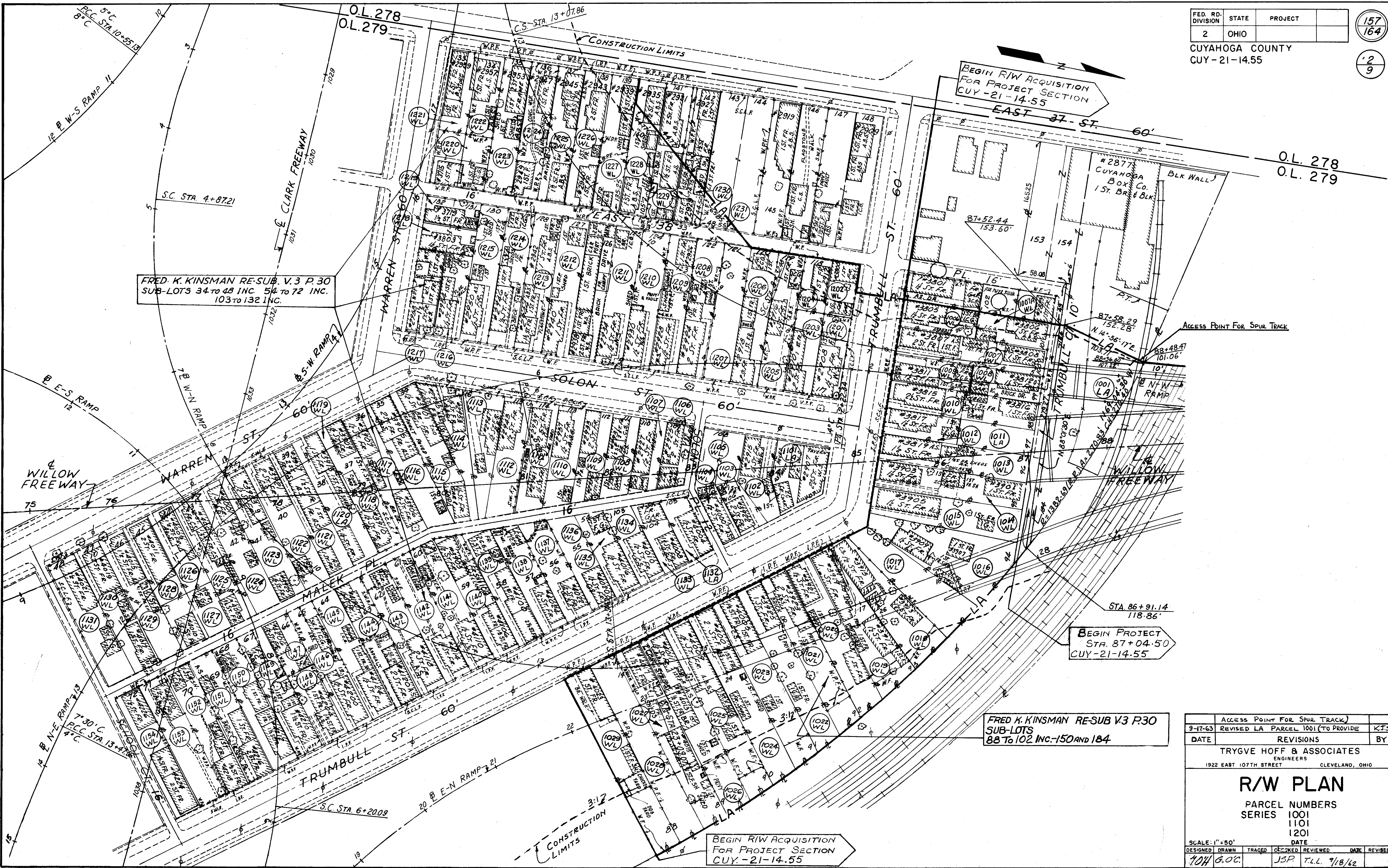
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
JSP	P.H.		JSP	T.L.L.	9/18/62	

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

157
164

CUYAHOGA COUNTY
CUY-21-14.55

2
9



BEGIN R/W ACQUISITION
FOR PROJECT SECTION
CUY-21-14.55

FRED K. KINSMAN RE-SUB. V.3 P.30
SUB-LOTS 34 TO 48 INC. 54 TO 72 INC.
103 TO 132 INC.

FRED K. KINSMAN RE-SUB V3 P30
SUB-LOTS
88 TO 102 INC.-150 AND 184

BEGIN PROJECT
STA. 87+04.50
CUY-21-14.55

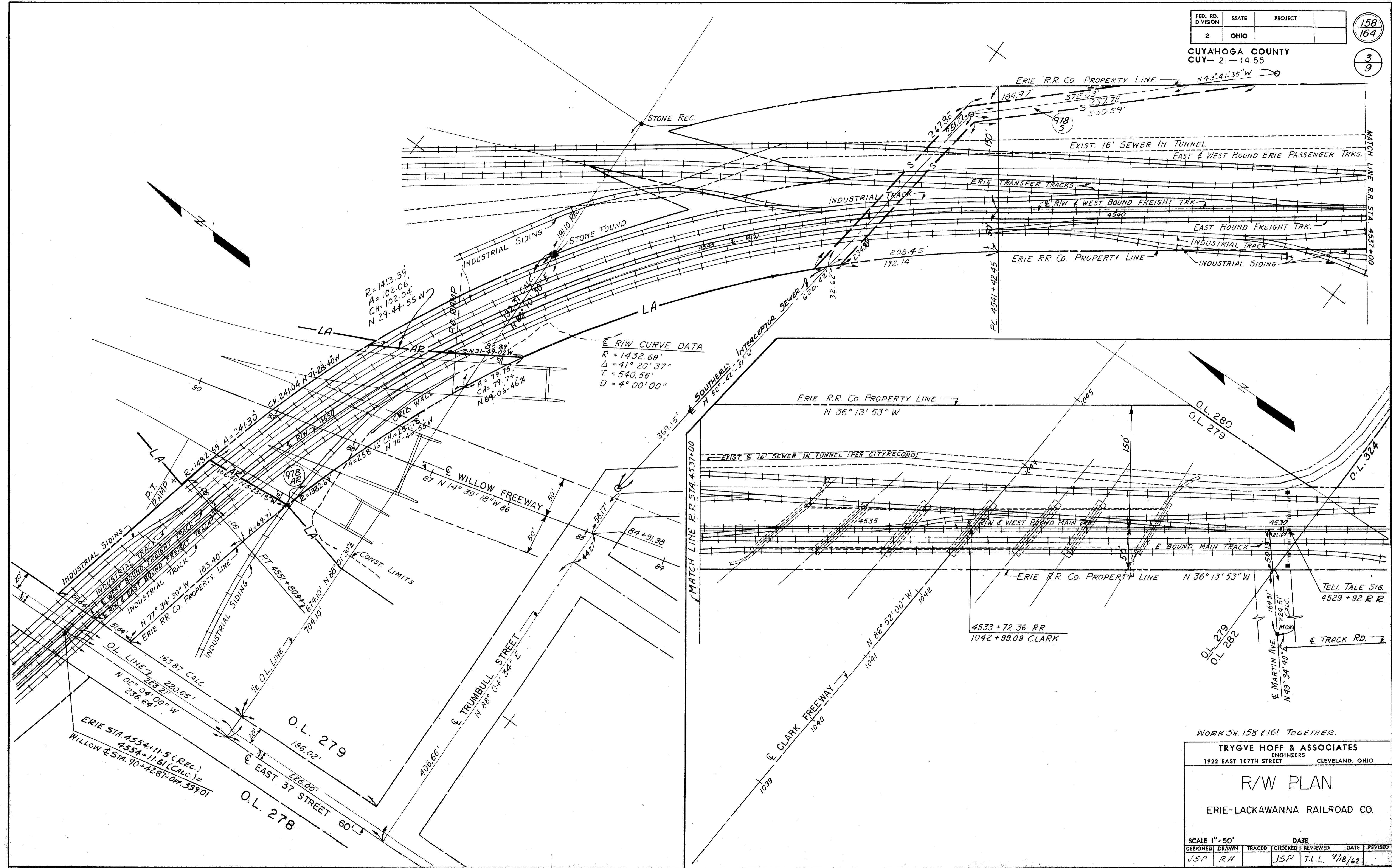
BEGIN R/W ACQUISITION
FOR PROJECT SECTION
CUY-21-14.55

9-17-63	ACCESS POINT FOR SPUR TRACK	
	REVISED LA PARCEL 1001 (TO PROVIDE)	K.J.S.
DATE	REVISIONS	BY
	TRYGVE HOFF & ASSOCIATES	
	ENGINEERS	
	1922 EAST 107TH STREET	CLEVELAND, OHIO

R/W PLAN

PARCEL NUMBERS
SERIES 1001
1101
1201

SCALE: 1" = 50'	DATE
DESIGNED: G.O.C.	TRACED: J.S.P.
CHECKED: J.S.P.	REVIEWED: T.L.L.
DATE: 7/18/62	



CONT. No. 58019 SHEET ACCT. No. 6057

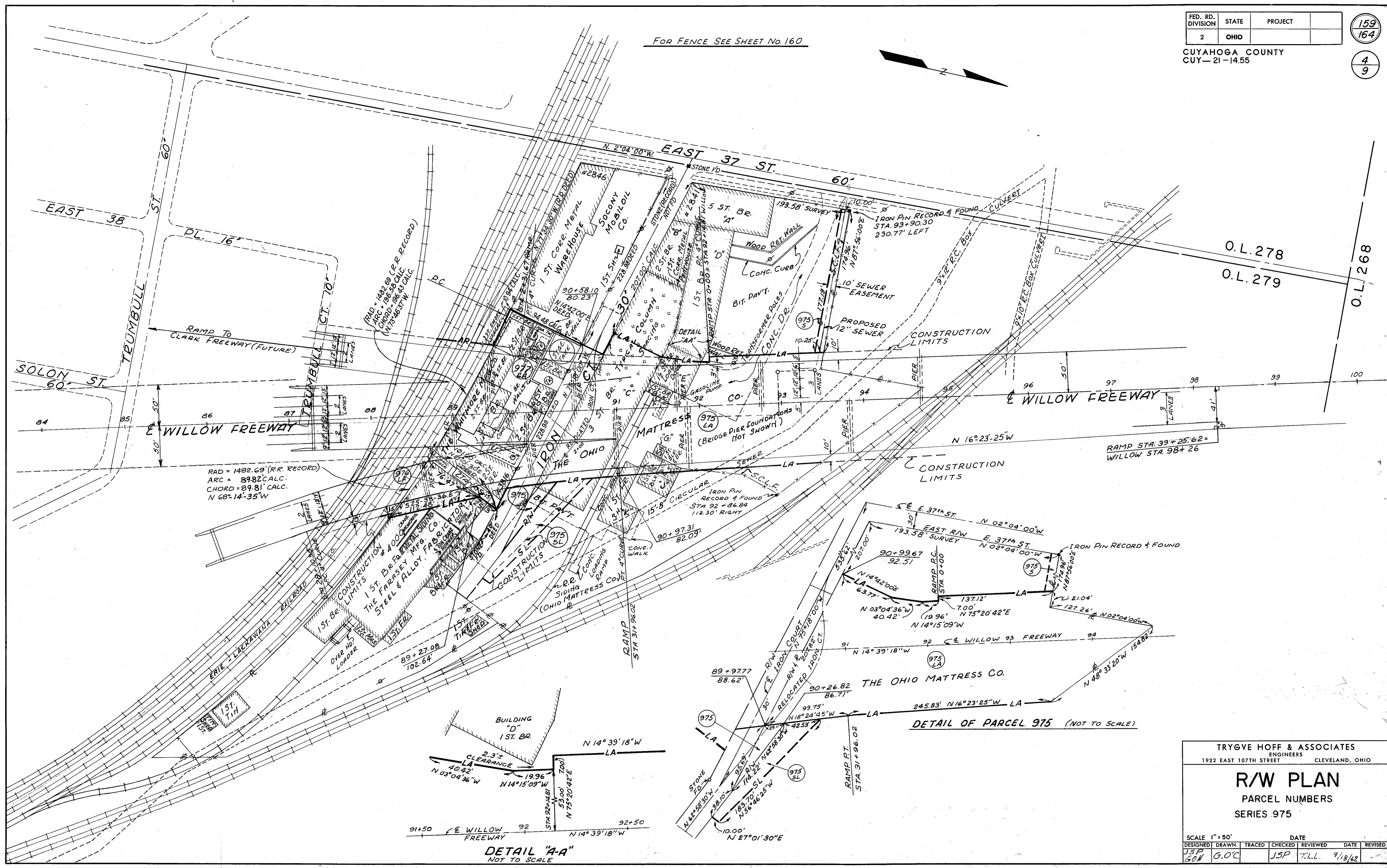
WORK SH. 158 & 161 TOGETHER.

TRYGVE HOFF & ASSOCIATES
ENGINEERS
1922 EAST 107TH STREET CLEVELAND, OHIO

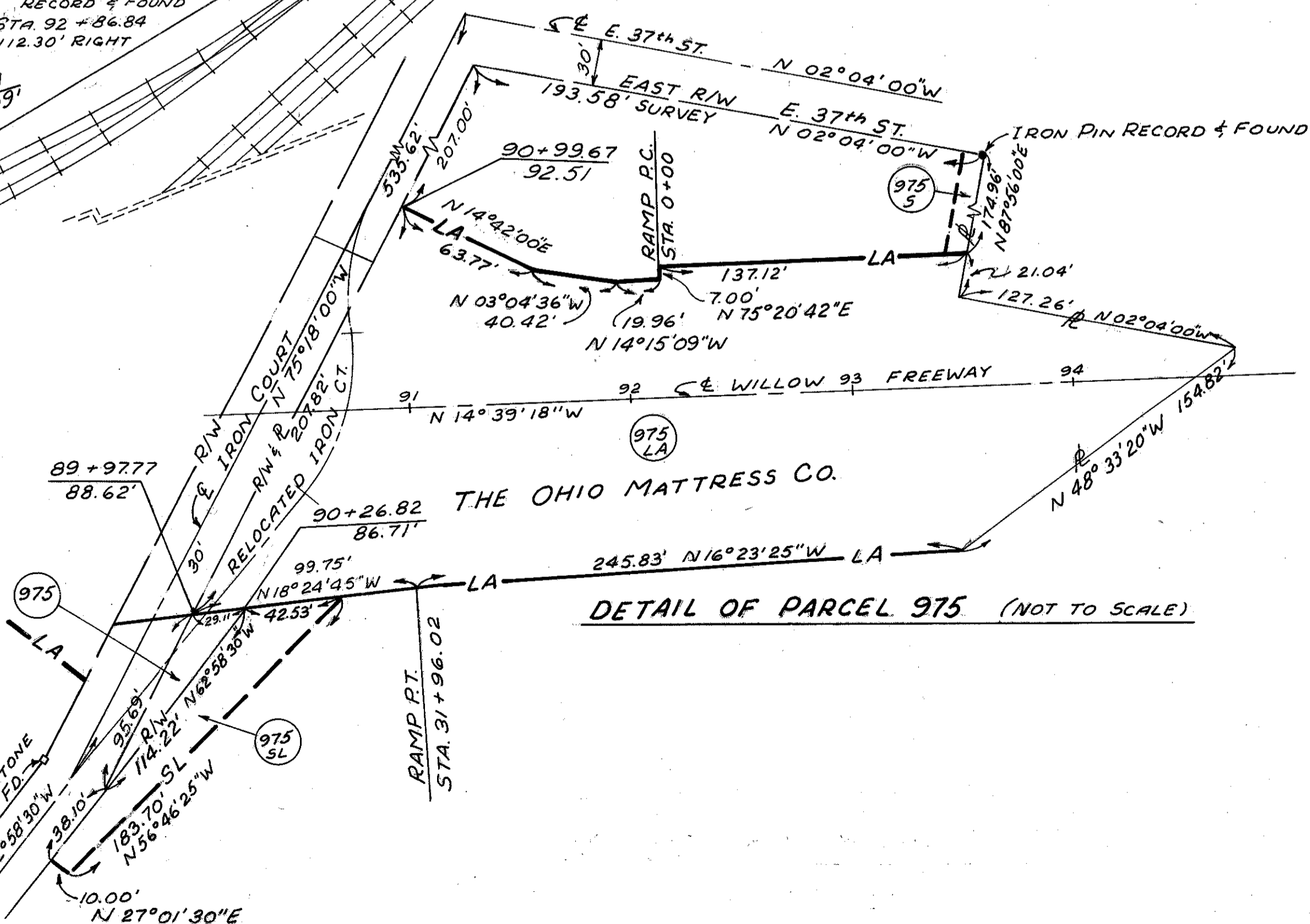
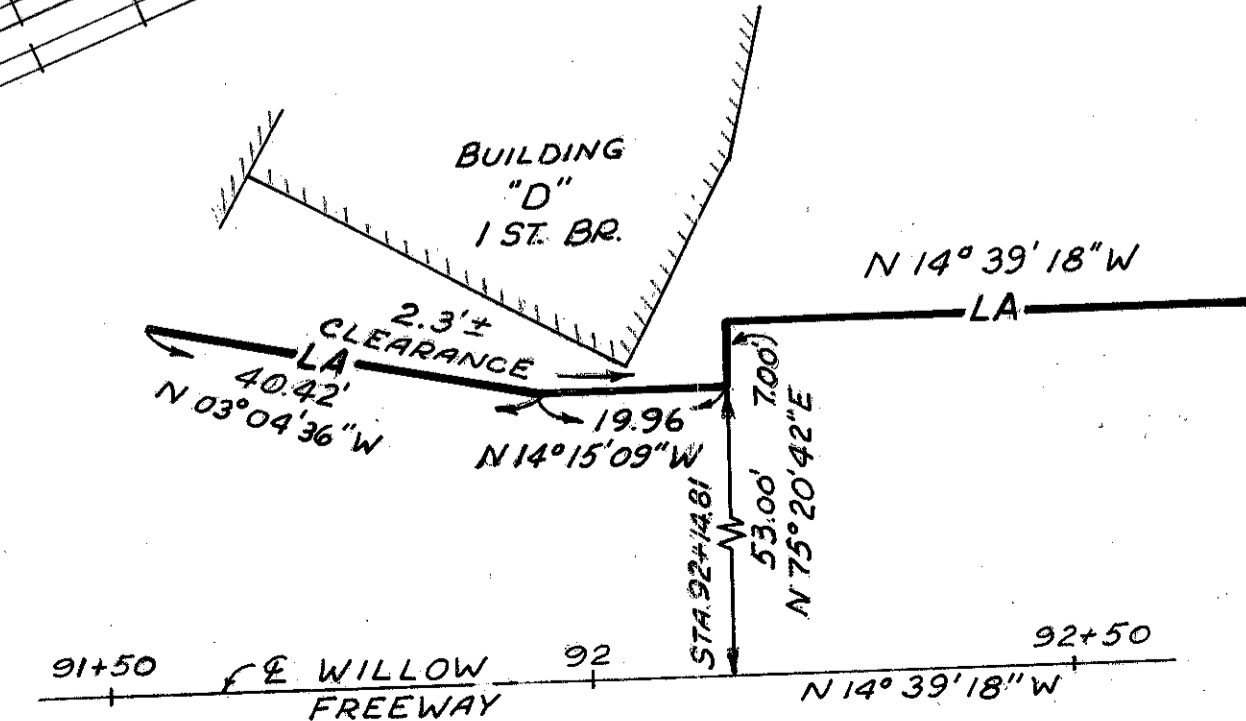
R/W PLAN
ERIE-LACKAWANNA RAILROAD CO.

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
JSP	RA		JSP	T.L.L.	9/18/62	

FOR FENCE SEE SHEET No. 160



RAD = 1482.69 (R.R. RECORD)
ARC = 89.82' CALC.
CHORD = 89.81' CALC.
N 68° 14' 35" W



TRYGVE HOFF & ASSOCIATES
ENGINEERS
1922 EAST 107TH STREET CLEVELAND, OHIO

R/W PLAN
PARCEL NUMBERS
SERIES 975

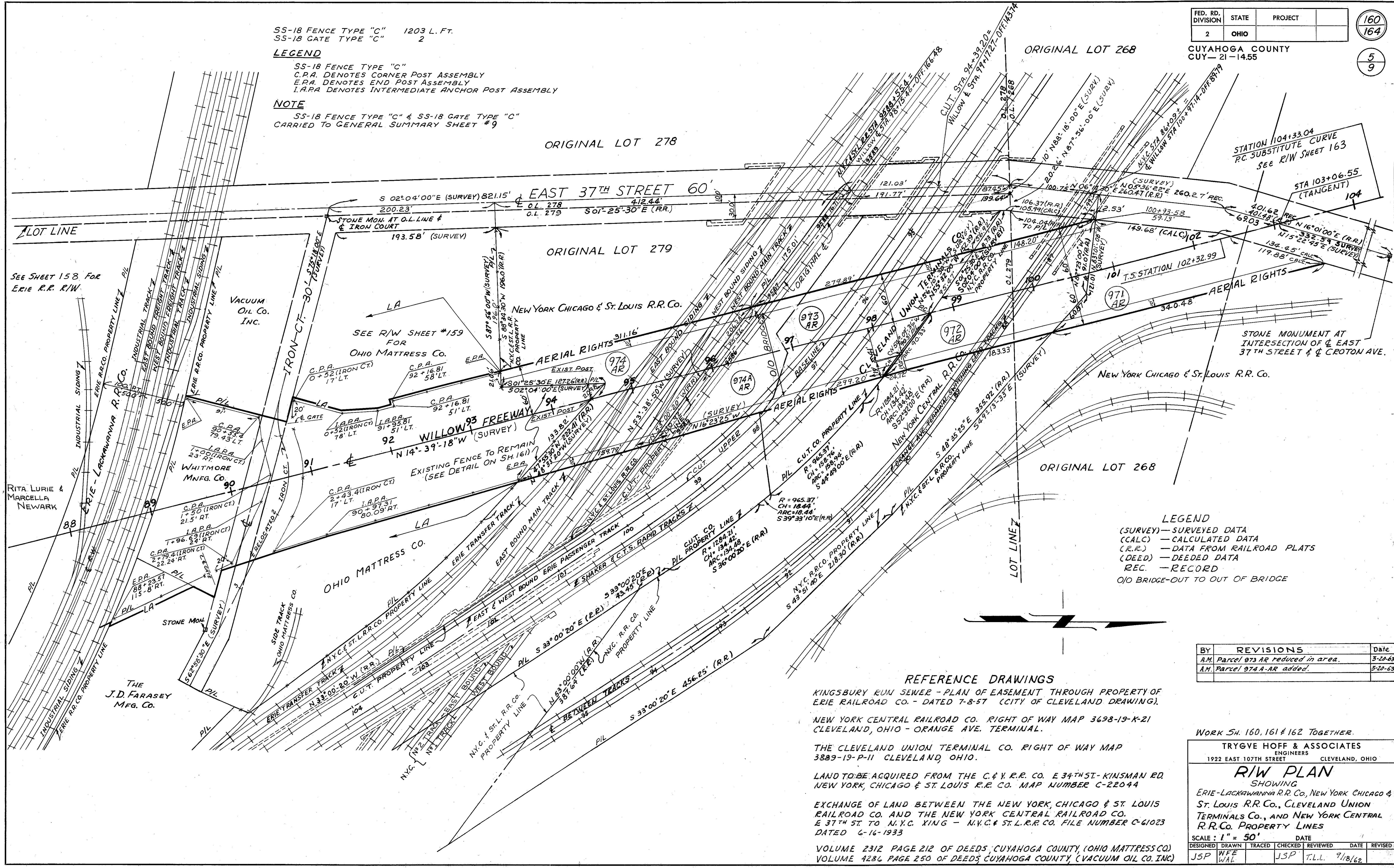
SCALE 1" = 50'	DATE
DESIGNED JSP	DRAWN G.O.C.
TRACED JSP	CHECKED T.L.L.
REVIEWED	DATE 9/18/62
REVISED	

60029 ACCT. No. 6068

SS-18 FENCE TYPE "C" 1203 L. FT.
 SS-18 GATE TYPE "C" 2

LEGEND
 SS-18 FENCE TYPE "C"
 C.P.A. DENOTES CORNER POST ASSEMBLY
 E.P.A. DENOTES END POST ASSEMBLY
 I.A.P.A. DENOTES INTERMEDIATE ANCHOR POST ASSEMBLY

NOTE
 SS-18 FENCE TYPE "C" & SS-18 GATE TYPE "C"
 CARRIED TO GENERAL SUMMARY SHEET #9



LEGEND
 (SURVEY) — SURVEYED DATA
 (CALC) — CALCULATED DATA
 (R.R.) — DATA FROM RAILROAD PLATS
 (DEED) — DEEDED DATA
 REC. — RECORD
 O/O BRIDGE-OUT TO OUT OF BRIDGE

BY	REVISIONS	Date
A.M.	Parcel 973 AR reduced in area.	3-20-63
A.M.	Parcel 974A-AR added.	3-20-63

REFERENCE DRAWINGS
 KINGSBURY RUN SEWER - PLAN OF EASEMENT THROUGH PROPERTY OF ERIE RAILROAD CO. - DATED 7-8-57 (CITY OF CLEVELAND DRAWING).
 NEW YORK CENTRAL RAILROAD CO. RIGHT OF WAY MAP 3698-19-K-21 CLEVELAND, OHIO - ORANGE AVE. TERMINAL.
 THE CLEVELAND UNION TERMINAL CO. RIGHT OF WAY MAP 3889-19-P-11 CLEVELAND, OHIO.
 LAND TO BE ACQUIRED FROM THE C. & Y. R.R. CO. E 34th ST. - KINSMAN RD. NEW YORK, CHICAGO & ST. LOUIS R.R. CO. MAP NUMBER C-22044
 EXCHANGE OF LAND BETWEEN THE NEW YORK, CHICAGO & ST. LOUIS RAILROAD CO. AND THE NEW YORK CENTRAL RAILROAD CO. E 37th ST. TO N.Y.C. & ST. L. R.R. CO. FILE NUMBER C-61023 DATED 6-16-1933
 VOLUME 2312 PAGE 212 OF DEEDS, CUYAHOGA COUNTY, (OHIO MATTRESS CO.)
 VOLUME 4286 PAGE 250 OF DEEDS, CUYAHOGA COUNTY, (VACUUM OIL CO. INC.)

WORK SH. 160, 161 & 162 TOGETHER.

TRYGVE HOFF & ASSOCIATES
 ENGINEERS
 1922 EAST 107TH STREET CLEVELAND, OHIO

R/W PLAN
 SHOWING
 ERIE-LACKAWANNA R.R. CO., NEW YORK CHICAGO & ST. LOUIS R.R. CO., CLEVELAND UNION TERMINALS CO., AND NEW YORK CENTRAL R.R. CO. PROPERTY LINES

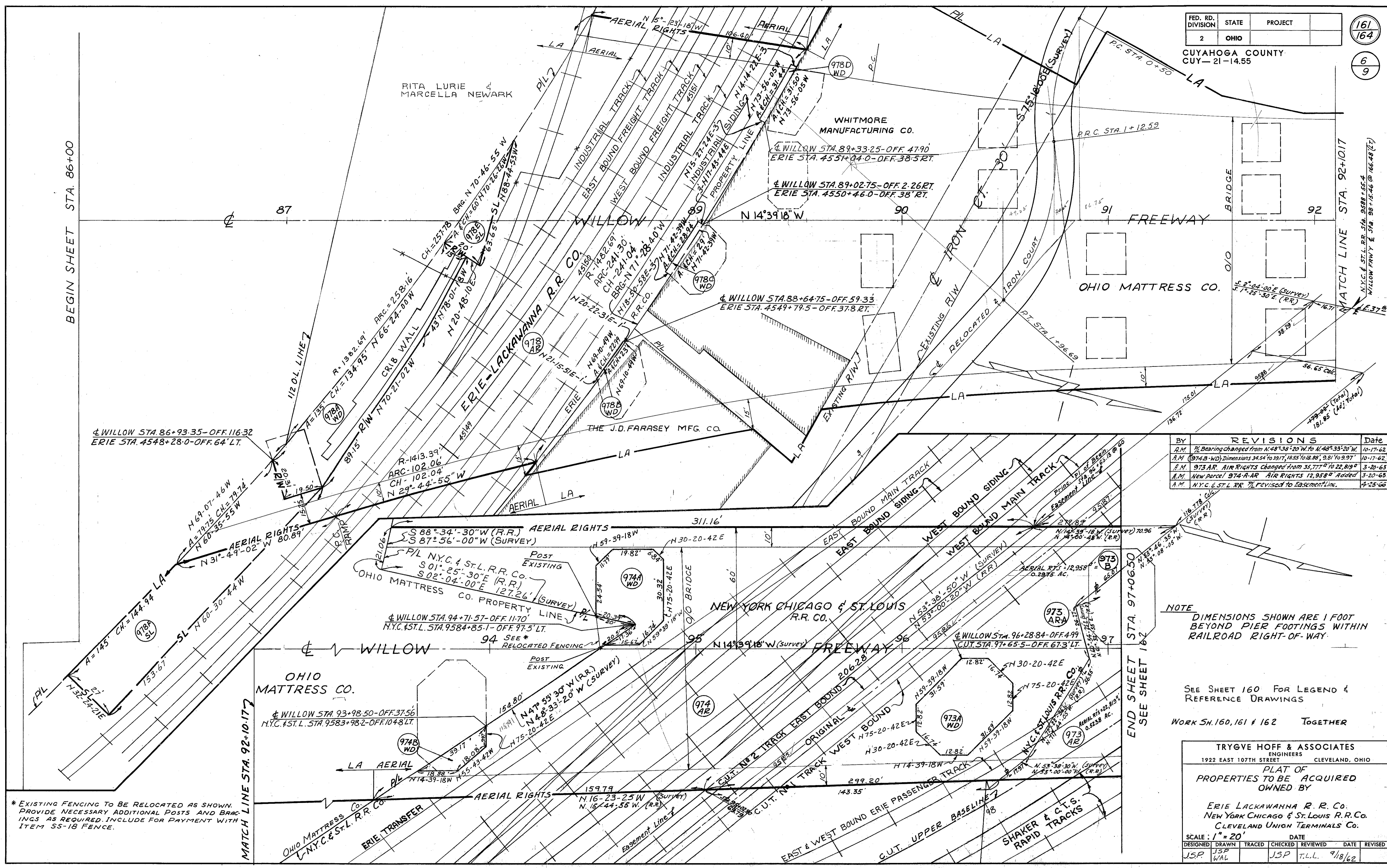
SCALE: 1" = 50'
 DATE: 9/18/62

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
JSP	WFE		JSP	T.L.L.	9/18/62	

58019 6058

BEGIN SHEET STA. 86+00

MATCH LINE STA. 92+10.17



BY	REVISIONS	Date
A.M.	% Bearing changed from N 48° 38' 20" W to N 48° 35' 20" W	10-17-62
A.M.	(974-B-WD) Dimensions 34.54 to 39.17, 18.55 to 18.88, 9.81 to 9.97	10-17-62
A.M.	973 AR AIR RIGHTS Changed from 35,777' to 22,819'	3-20-63
A.M.	New parcel 974-A-R AIR RIGHTS 12,958' Added	3-20-63
A.M.	N.Y.C. & ST.L. RR. % revised to Easement Line	4-25-66

NOTE
DIMENSIONS SHOWN ARE 1 FOOT BEYOND PIER FOOTINGS WITHIN RAILROAD RIGHT-OF-WAY.

SEE SHEET 160 FOR LEGEND & REFERENCE DRAWINGS

WORK SH. 160, 161 & 162 TOGETHER

TRYGVE HOFF & ASSOCIATES
ENGINEERS
1922 EAST 107TH STREET CLEVELAND, OHIO

PLAT OF
PROPERTIES TO BE ACQUIRED
OWNED BY

ERIE LACKAWANNA R. R. Co.
NEW YORK CHICAGO & ST. LOUIS R.R. Co.
CLEVELAND UNION TERMINALS Co.

SCALE: 1" = 20'

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
JSP	JSP	WAL	JSP	T.L.L.	9/18/62	

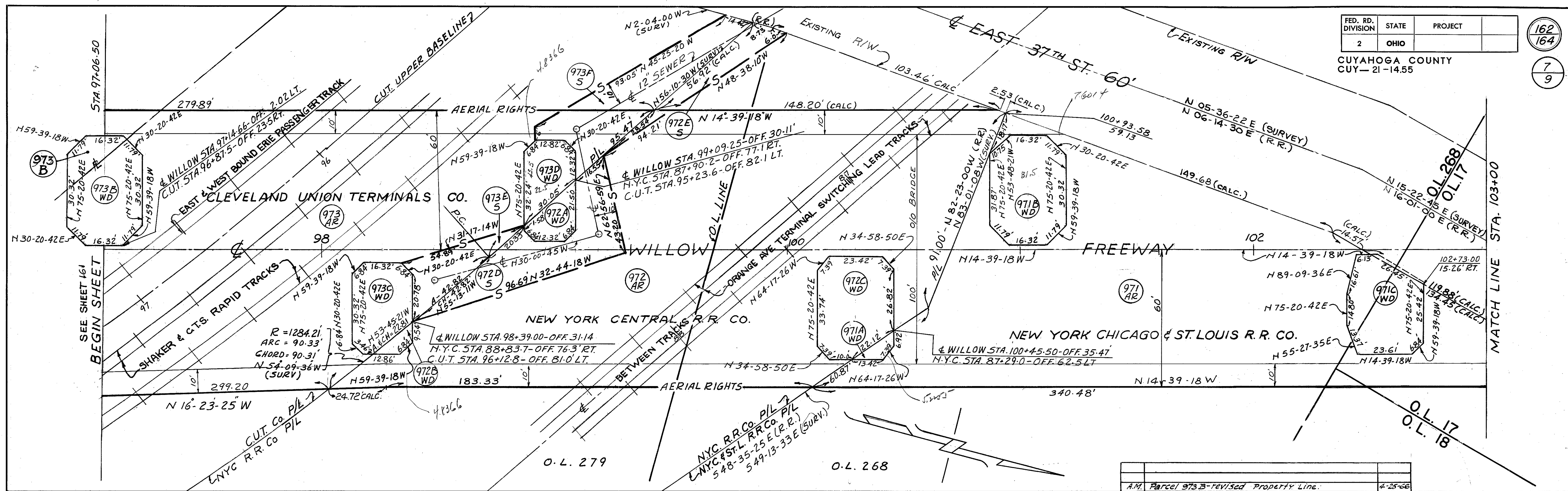
* EXISTING FENCING TO BE RELOCATED AS SHOWN. PROVIDE NECESSARY ADDITIONAL POSTS AND BRACINGS AS REQUIRED. INCLUDE FOR PAYMENT WITH ITEM 55-18 FENCE.

58019 6053

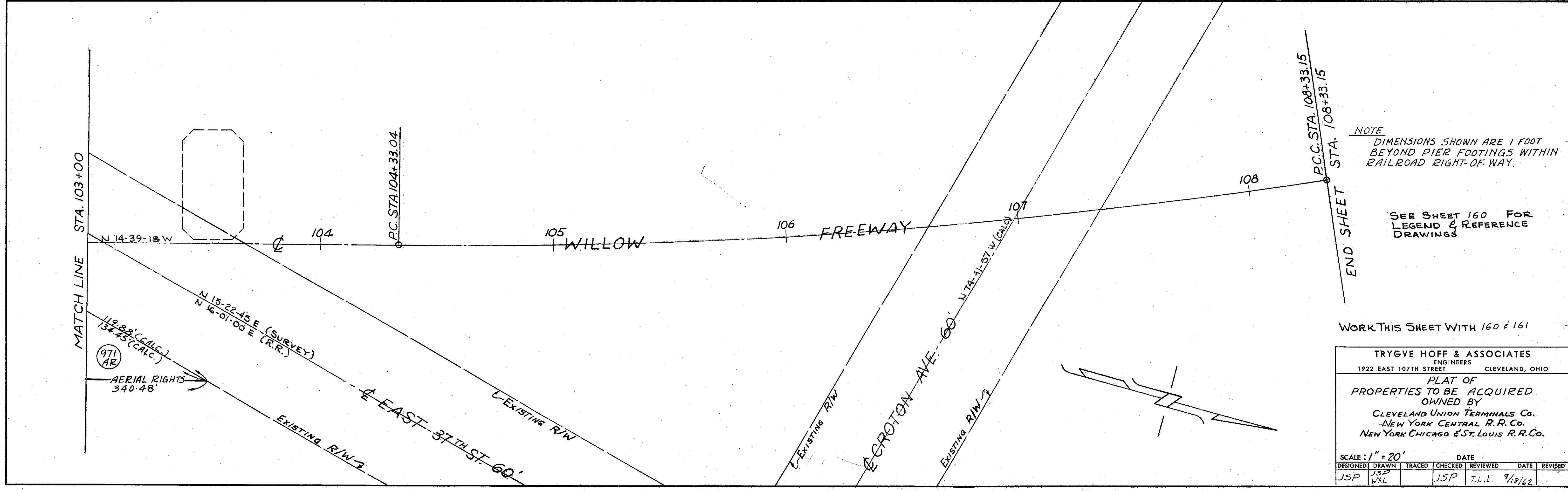
FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

CUYAHOGA COUNTY
CUY-21-14.55

162
164
7
9



A.M. Parcel 973 B - Revised Property Line.	4-25-66
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NOTE
DIMENSIONS SHOWN ARE 1 FOOT BEYOND PIER FOOTINGS WITHIN RAILROAD RIGHT-OF-WAY.

SEE SHEET 160 FOR LEGEND & REFERENCE DRAWINGS

WORK THIS SHEET WITH 160 & 161

TRYGVE HOFF & ASSOCIATES
ENGINEERS
1922 EAST 107TH STREET CLEVELAND, OHIO

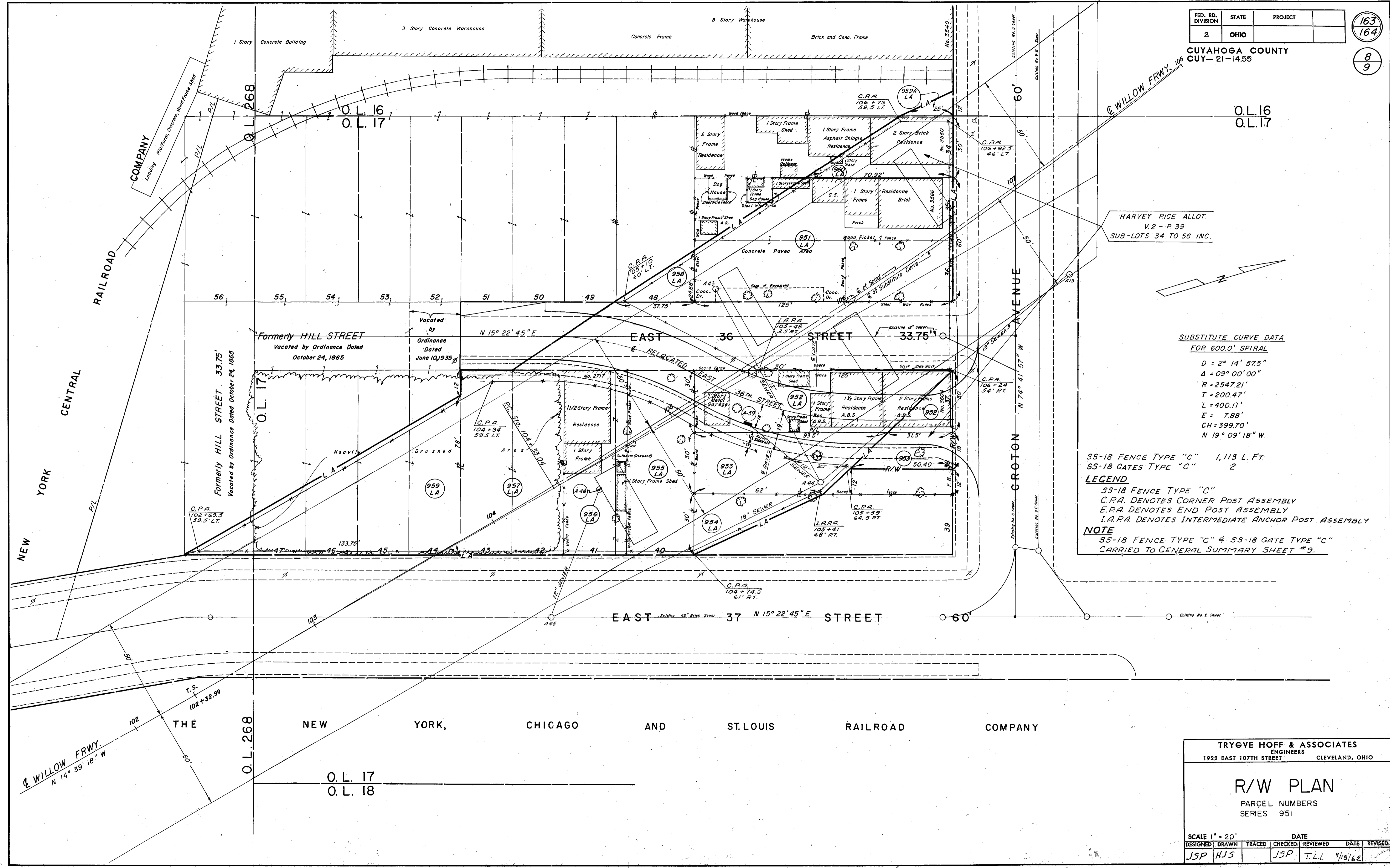
PLAT OF
PROPERTIES TO BE ACQUIRED
OWNED BY
CLEVELAND UNION TERMINALS Co.
NEW YORK CENTRAL R.R. Co.
NEW YORK CHICAGO & ST. LOUIS R.R. Co.

SCALE: 1" = 20'	DATE
DESIGNED: JSP	TRACED: WAL
CHECKED: JSP	REVIEWED: T.L.L.
DATE: 9/18/62	REVISED:

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

163
164
8
9

CUYAHOGA COUNTY
CUY-21-14.55



HARVEY RICE ALLOT.
V.2 - P.39
SUB-LOTS 34 TO 56 INC.

**SUBSTITUTE CURVE DATA
FOR 600.0' SPIRAL**

D = 2° 14' 57.5"
Δ = 09° 00' 00"
R = 2547.21'
T = 200.47'
L = 400.11'
E = 7.88'
CH = 399.70'
N 19° 09' 18" W

SS-18 FENCE TYPE "C" 1,113 L. FT.
SS-18 GATES TYPE "C" 2

LEGEND

SS-18 FENCE TYPE "C"
C.P.A. DENOTES CORNER POST ASSEMBLY
E.P.A. DENOTES END POST ASSEMBLY
I.A.P.A. DENOTES INTERMEDIATE ANCHOR POST ASSEMBLY

NOTE

SS-18 FENCE TYPE "C" & SS-18 GATE TYPE "C"
CARRIED TO GENERAL SUMMARY SHEET #9.

CONT. No. 58012 SHEET ACCT. No. 6060

TRYGVE HOFF & ASSOCIATES
ENGINEERS
1922 EAST 107TH STREET CLEVELAND, OHIO

R/W PLAN
PARCEL NUMBERS
SERIES 951

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
JSP	HJS		JSP	T.L.L.	7/18/62	

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

CUYAHOGA COUNTY
CUY-21-14.55

164
164
9
9



CURVE DATA

D = 3°00'
 Δ = 42°00'00"
 R = 1909.86'
 T = 733.13'
 L = 1400.0'
 E = 135.88'
 CH = 1368.87'
 N 44°39'18" W

SUBSTITUTE CURVE DATA FOR 600.0' SPIRAL

D = 2°14'57.5"
 Δ = 09°00'00"
 R = 2547.21'
 T = 200.47'
 L = 400.11'
 E = 7.88'
 CH = 399.70'
 N 19°09'18" W

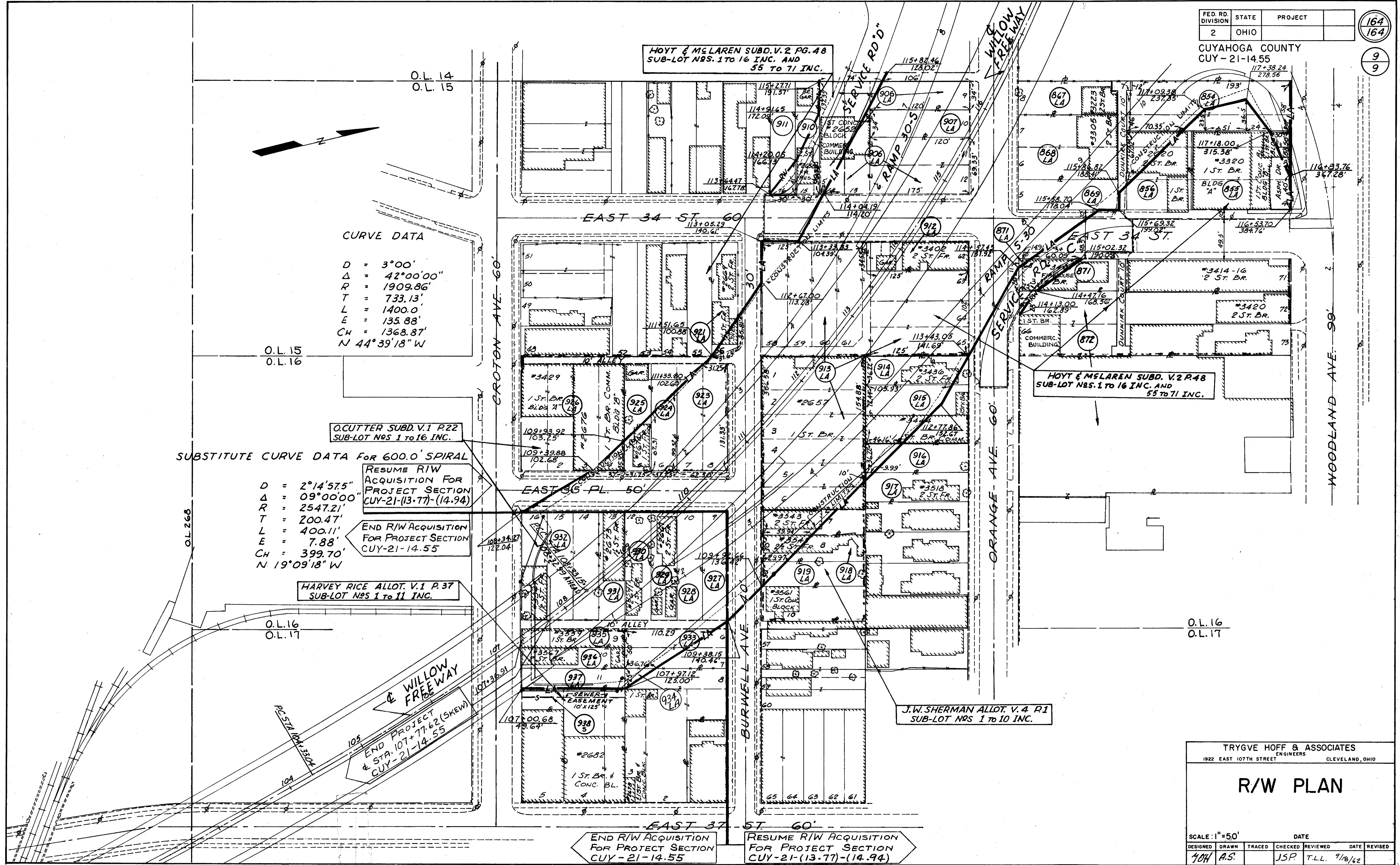
RESUME R/W ACQUISITION FOR PROJECT SECTION CUY-21-(13.77)-(14.94)
 END R/W ACQUISITION FOR PROJECT SECTION CUY-21-14.55

HARVEY RICE ALLOT. V.1 P.37
SUB-LOT NOS 1 TO 11 INC.

HOYT & MELAREN SUBD. V.2 PG.48
SUB-LOT NOS. 1 TO 16 INC. AND 55 TO 71 INC.

HOYT & MELAREN SUBD. V.2 P.48
SUB-LOT NOS. 1 TO 16 INC. AND 55 TO 71 INC.

J.W. SHERMAN ALLOT. V.4 P.1
SUB-LOT NOS 1 TO 10 INC.



CONT. No. 580.9 SHEET ACCY 6066

TRYGVE HOFF & ASSOCIATES
1922 EAST 107TH STREET ENGINEERS CLEVELAND, OHIO

R/W PLAN

SCALE: 1"=50'	DATE					
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
70H	A.S.		JSP	T.L.L.	9/18/62	

00247

TRYGVE HOFF & ASSOCIATES

Engineers

1922 EAST 107TH STREET CLEVELAND 6, OHIO

Date: June 16, 1964

To: Mr. Walter G. Spilburg
Engineer of Location & Design
Ohio Department of Highways
P. O. Box 1795, Newburg Station
Cleveland, Ohio Zone 5

Re: Kingsbury Run Bridge
Project CUY-21-14.55
Modified Drawings
Hoff File #63050

Attention: Mr. Joseph Rodgers; Mr. Eugene Canfield

The following ^{TRACINGS} ~~prints~~ of Trygve Hoff & Associates drawings
are being sent to you via messenger :

Drawing No.	Rev. No.	No. Each	Remarks
44A		1	Modified, Replaces Sheet 44
45A		1	Modified, Replaces Sheet 45
45B		1	New Drawing
			Included are changes in Emergency Call, Box Locations, and Addition of Connections for Signs. See Letters, Oct. 22 and Dec. 11, 1963, from Mr. R.W. Ricketts to Mr. Louis Drasler.

lh

- cc: J.E. Wagner
A. Nichols
F. Hudson
T. L. Lees
G. C. Woolley

Proj. 722-62
C.O. 17

Very truly yours,
TRYGVE HOFF & ASSOCIATES

S. G. Flack
S. G. Flack