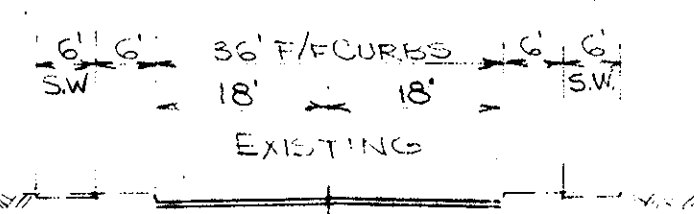


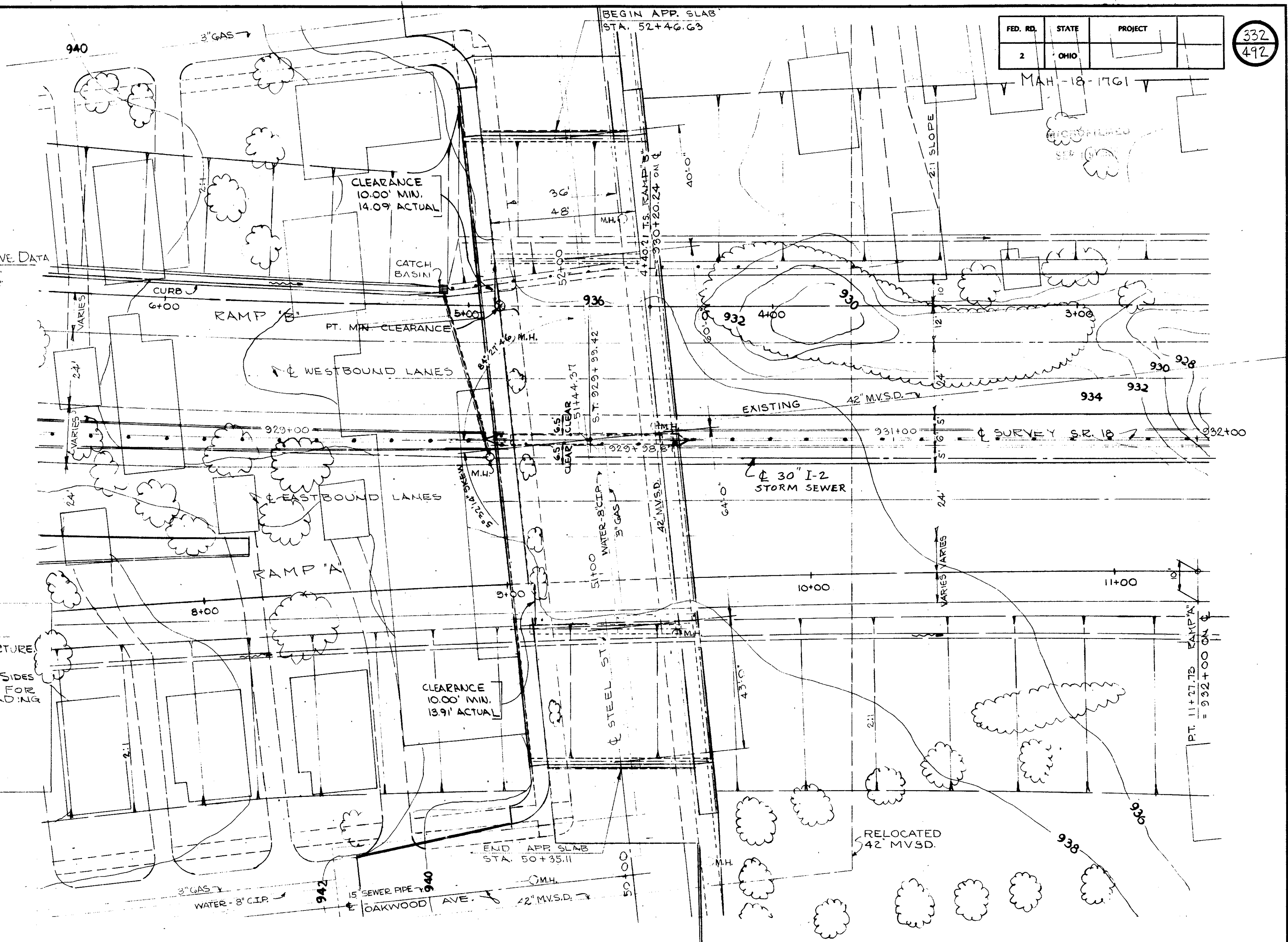
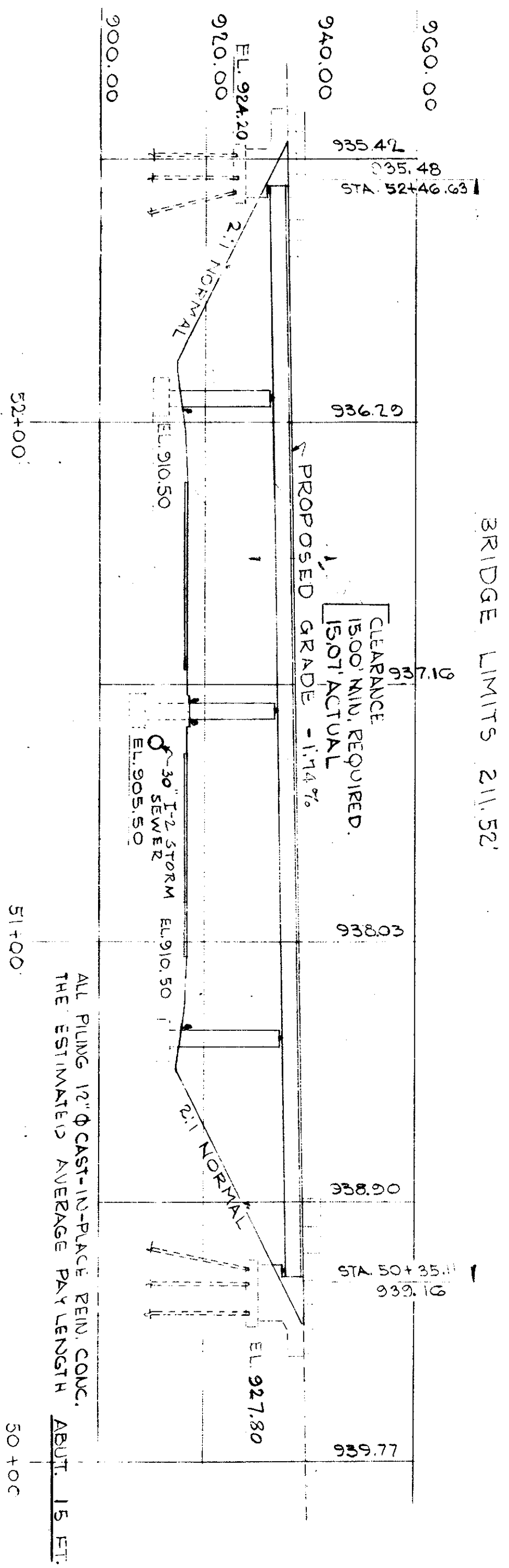
MAH-18-1761

RAMP 'A' CURVE DATA & CURVE DATA RAMP 'B' CURVE DATA

RAMP 'A' CURVE DATA		CURVE DATA		RAMP 'B' CURVE DATA	
$\Delta_c = 6^\circ 21' 00''$	$L_c = 5^\circ 30' 00''$	$\Delta_c = 4^\circ 43' 47' 40''$	$L_c = 5^\circ 30' 00''$	$\Delta_c = 5^\circ 27' 20''$	$L_c = 10^\circ 00' 00''$
$D_c = 1^\circ 00' 00''$	$R_c = 5^\circ 25' 00''$	$D_c = 104' 14''$	$R_c = 5^\circ 25' 00''$	$D_c = 10^\circ 00' 00''$	$R_c = 5^\circ 25' 00''$
$T_c = 5^\circ 25' 00''$	$T_c = 5^\circ 25' 00''$	$P_c = 11^\circ 00' 00''$	$P_c = 11^\circ 00' 00''$	$P_c = 11^\circ 00' 00''$	$P_c = 11^\circ 00' 00''$
$T_c = 5^\circ 25' 00''$	$T_c = 5^\circ 25' 00''$	$P_c = 11^\circ 00' 00''$	$P_c = 11^\circ 00' 00''$	$P_c = 11^\circ 00' 00''$	$P_c = 11^\circ 00' 00''$
$T_c = 5^\circ 25' 00''$	$T_c = 5^\circ 25' 00''$	$P_c = 11^\circ 00' 00''$	$P_c = 11^\circ 00' 00''$	$P_c = 11^\circ 00' 00''$	$P_c = 11^\circ 00' 00''$
$T_c = 5^\circ 25' 00''$	$T_c = 5^\circ 25' 00''$	$P_c = 11^\circ 00' 00''$	$P_c = 11^\circ 00' 00''$	$P_c = 11^\circ 00' 00''$	$P_c = 11^\circ 00' 00''$
$T_c = 5^\circ 25' 00''$	$T_c = 5^\circ 25' 00''$	$P_c = 11^\circ 00' 00''$	$P_c = 11^\circ 00' 00''$	$P_c = 11^\circ 00' 00''$	$P_c = 11^\circ 00' 00''$
$T_c = 5^\circ 25' 00''$	$T_c = 5^\circ 25' 00''$	$P_c = 11^\circ 00' 00''$	$P_c = 11^\circ 00' 00''$	$P_c = 11^\circ 00' 00''$	$P_c = 11^\circ 00' 00''$
$T_c = 5^\circ 25' 00''$	$T_c = 5^\circ 25' 00''$	$P_c = 11^\circ 00' 00''$	$P_c = 11^\circ 00' 00''$	$P_c = 11^\circ 00' 00''$	$P_c = 11^\circ 00' 00''$

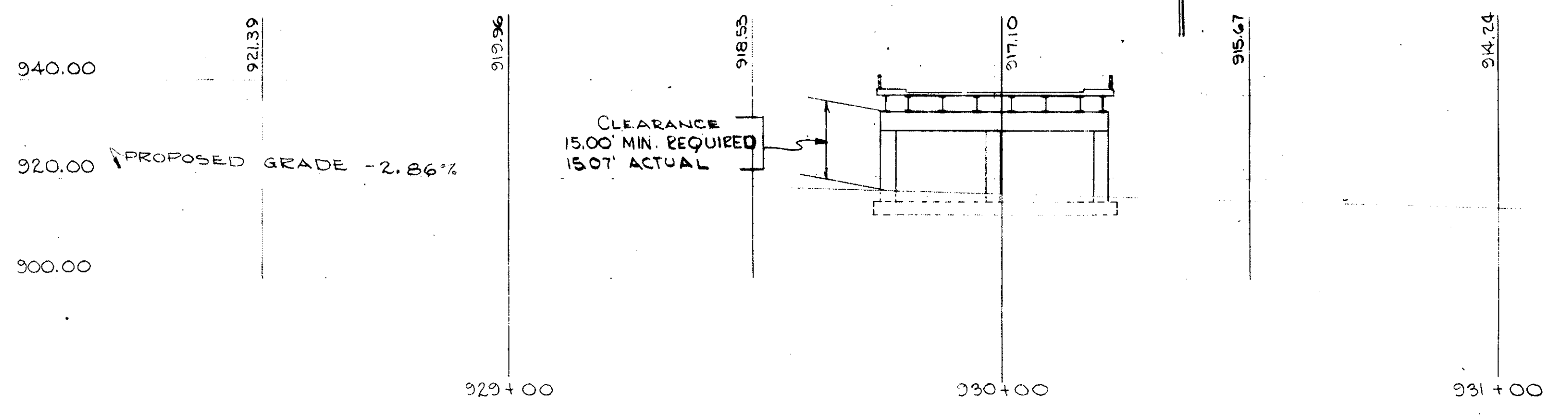


PROPOSED STRUCTURE
 TYPE: CONTINUOUS STEEL BEAM WITH REINFORCED CONCRETE DECK AND SUBSTRUCTURE
 SPAN: 40'-60'-64'-43' 1/2 BRGS.
 ROADWAY: 48'-0\"/>



FOUNDATION SOUNDING
 FOUNDATION DESIGN & FOUNDATION QUANTITIES ARE BASED ON A STUDY OF SOIL-SAMPLING SOUNDINGS MADE AT THE SITE. THIS SOUNDING INFORMATION MAY BE INSPECTED IN THE OFFICE OF THE SUPERVISOR OF BRIDGES IN COLUMBUS OR IN THE DIVISION OFFICE, BUT THE STATE DOES NOT GUARANTEE THE ACCURACY THEREOF.

SLOPE PROTECTION
 1:10 CRUSHED AGGREGATE SLOPE PROTECTION

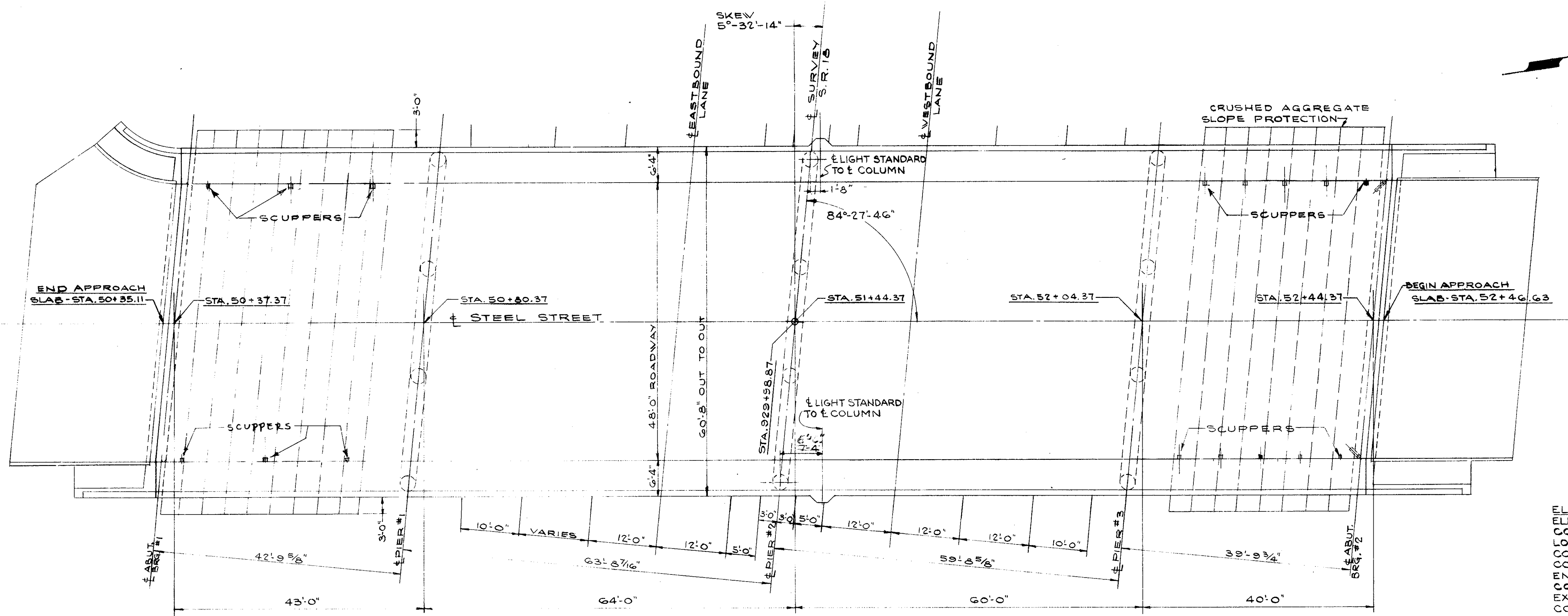
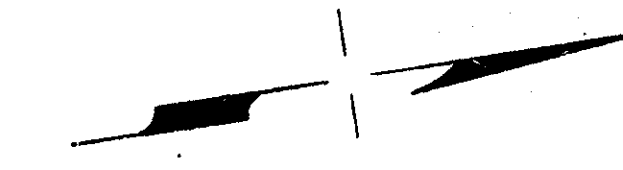


STATE OF OHIO
 DEPARTMENT OF HIGHWAYS
 BUREAU OF BRIDGES

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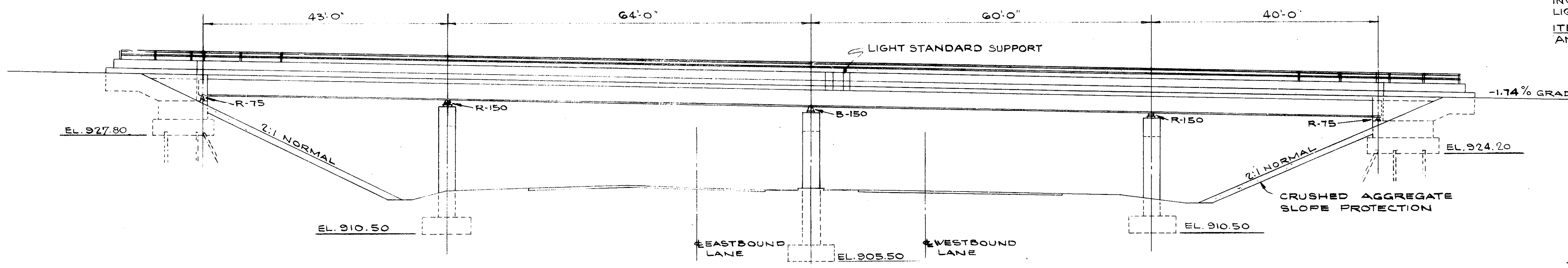
SITE PLAN
 BRIDGE No MAH-18-1761
 UNDER STEEL ST.
 YOUNGSTOWN MAHONING COUNTY
 STA. 929+98.87

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
E.A.K.	R.E.		D.G.S.	D.P.C.		



ELECTRICAL GROUNDS: A SOLID N#0 GAGE BARE COPPER WIRE ELECTRICAL GROUND SHALL BE EMBEDDED IN THE OUTSIDE COLUMN ON EACH SIDE OF THE STRUCTURE AT PIER NO. 2. THE LOWER ENDS OF WIRES SHALL TERMINATE IN A 25 FT. LENGTH COILED UNDER THE FOOTING AND SEPARATED FROM THE CONCRETE BY TWO LAYERS OF TAR PAPER AND THE UPPER ENDS SHALL EXTEND SUFFICIENTLY ABOVE THE TOP OF THE CONCRETE TO PROVIDE FOR A SUITABLE SPLICE AND EXTENSION FOR CONNECTION TO THE SUPERSTRUCTURE. THE CONNECTION TO THE SUPERSTRUCTURE SHALL BE A N#6 GAGE BARE STRANDED TINNED COPPER WIRE BRAZED OR BOLTED TO A BEAM FLANGE AND TO THE SOLID COPPER WIRE IN THE PIER SHAFT. THERE SHALL BE A TINNED N#6 GAGE COPPER WIRE BRAZED TO THE ANCHOR BOLTS OF THE LIGHT STANDARD AND THE OTHER END BRAZED OR BOLTED TO THE OUTSIDE BEAM FLANGE. PAYMENT FOR ELECTRICAL GROUNDS IS INCLUDED IN THE LUMP SUM BID FOR ITEM S-25 "ELECTRICAL LIGHTING SYSTEM."

ITEM S-25: ELECTRICAL LIGHTING SYSTEM INCLUDES 8-1/2" x 4'-1" ANCHOR BOLTS.



GENERAL NOTES

DESIGN SPECIFICATIONS: THIS STRUCTURE CONFORMS TO THE REQUIREMENTS OF DESIGN SPECIFICATIONS FOR HIGHWAY STRUCTURES OF THE STATE OF OHIO DEPARTMENT OF HIGHWAYS, DATED 9-1-57, TOGETHER WITH CURRENT REVISIONS THEREOF.

CONCRETE DECK PLACING: IN ORDER TO FACILITATE WATER CURING OF THE DECK SLAB, THE PLACING OF CONCRETE SHALL PROGRESS UPWARD. THE SLAB MAY BE PLACED IN SECTIONS BETWEEN TRANSVERSE CONSTRUCTION JOINTS WHICH ARE NORMAL TO THE CENTERLINE OF BRIDGE AND ARE LOCATED NEAR THE CENTER OF ANY SPAN.

ALL PILES TO BE 12" Ø CAST-IN-PLACE CONCRETE, DRIVEN TO A MINIMUM BEARING CAPACITY OF 40 TONS.

SLOPE PROTECTION: - CRUSHED AGGREGATE, ITEM I-10; EXTENDING FROM FACE OF ABUTMENT TO TOE OF SLOPE, SHALL BE PROVIDED AT EACH ABUTMENT FOR FULL WIDTH OF BRIDGE PLUS THREE FEET ON EACH SIDE OF BRIDGE & PARALLEL WITH & OF SUPERSTRUCTURE.

POROUS BACKFILL 2 FT. THICK FULL LENGTH OF ABUTMENT, SHALL EXTEND UP TO THE UNDERSIDE OF APPROACH SLAB, OR TO THE FINISHED GROUND SURFACE. REFERENCE SHALL BE MADE TO THE FOLLOWING STANDARD DRAWINGS

RB-1-55 DATED 2-2-59
AR-1-57 DATED 2-2-59
CSB-2-56 SHEETS 2 & 3 DATED 2-2-59
SUPPLEMENTAL SPECIFICATION S101 DATED 12-2-59

ELEVATION

EXCAVATION AND BACKFILL: EXCAVATION QUANTITY INCLUDES THE REMOVAL OF FILL MATERIAL BETWEEN THE SURFACE OF PROPOSED EMBANKMENT AND THE BOTTOM OF FOOTINGS.

PAINTING: AFTER ERECTION & AFTER THE SHOP COAT HAS BEEN CLEANED AND WHERE NECESSARY, REPAINTED IN ACCORDANCE WITH SEC. 804, AN ADDITIONAL COAT OF THE SAME PAINT AS USED IN THE SHOP SHALL BE APPLIED OVER OUTSIDE FACE OF OUTSIDE STEEL BEAMS & ALL SIDES OF BOTTOM FLANGES.

MACHINE FINISH: The concrete bridge deck shall be finished as specified in the Proposal Note, "Machine Finishing of Bridge Deck Slabs."

ESTIMATED QUANTITIES							
ITEM	TOTAL	UNIT	DESCRIPTION	SUPER.	ABUT.	PIERS	GEN.
E-2	LUMP	SUM	COPPER DAMS, CRIBS, AND SHEETING				LUMP
E-2	760	CUYDS	UNCLASSIFIED EXCAVATION		298	462	
S-1	434	CUYDS	CLASS "C" CONCRETE SUPERSTRUCTURE	434			
S-1	105	CUYDS	CLASS "E" CONC. ABUTMENTS ABOVE FOOTING		105		
S-1	126	CUYDS	CLASS "C" CONC. PIERS ABOVE FOOTINGS			126	
S-1	210	CUYDS	CLASS "E" CONC. PIER & ABUT. FOOTINGS		95	115	
S-29	16	EA	SCUPPERS	16			
S-4	1A6,957	LBS.	REINFORCING STEEL	100,914	9949	36,094	
S-25	LUMP	SUM	ELECTRICAL LIGHTING SYSTEM				
S-7	338,500	LBS.	STRUCTURAL STEEL	338,500			
S-8	338,500	LBS.	FIELD PAINTING OF STRUC. STEEL, AS PER PLAN	338,500			
S-14	472	LN. FT.	RAILING (ALUM. RAIL & SUPPORTS, CONC. PARAPETS, (REIN. STL.), Type C"	418	54		
S-16	LUMP	SUM	FIRST TEST PILE				LUMP
S-18	600	CU. YDS.	12" Ø CAST-IN-PLACE REIN. CONC. PILES		600		
S-29	40	CU. YDS.	POROUS BACKFILL		40		
I-10	592	SQ. YDS.	CRUSHED AGGREGATE SLOPE PROTECTION				592

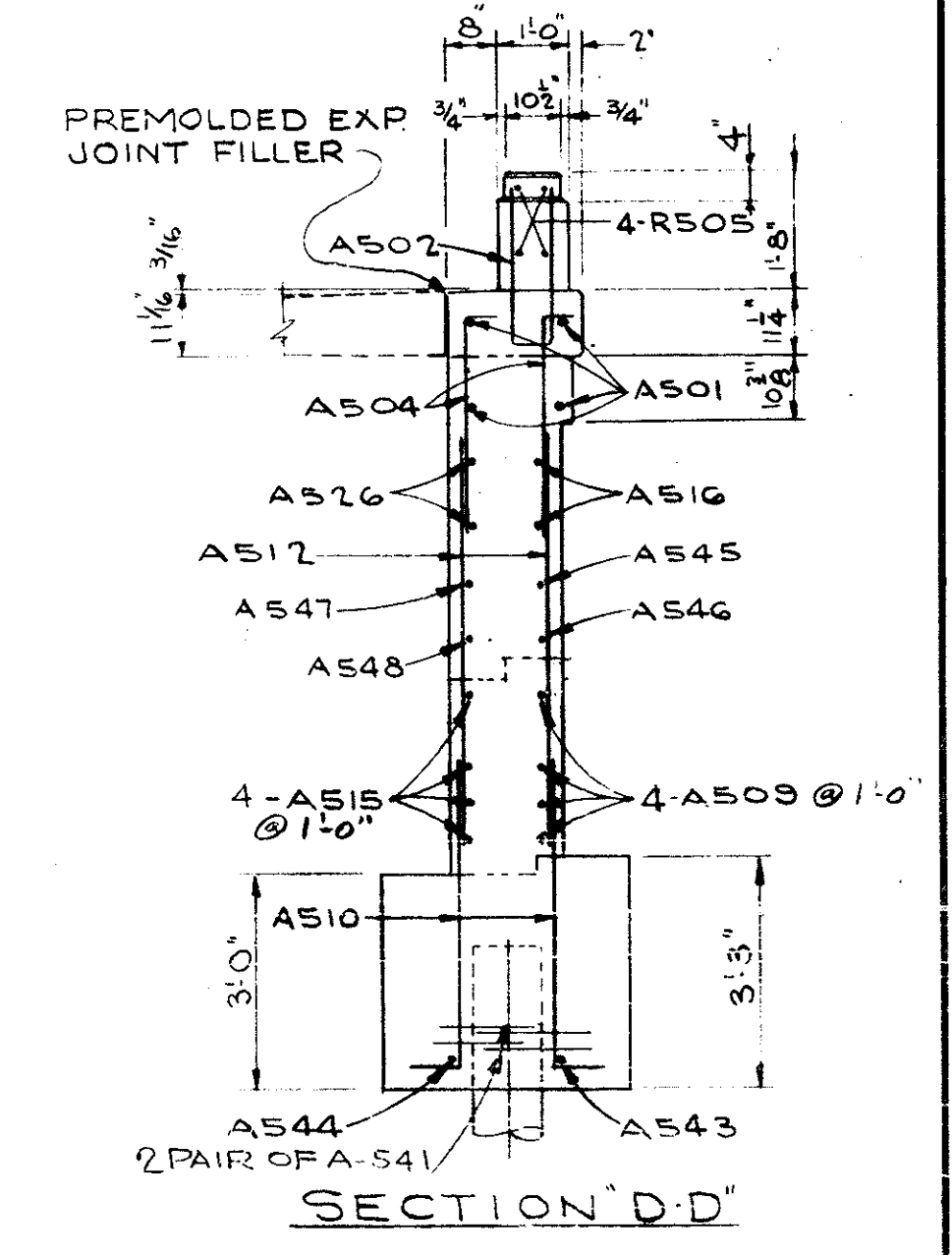
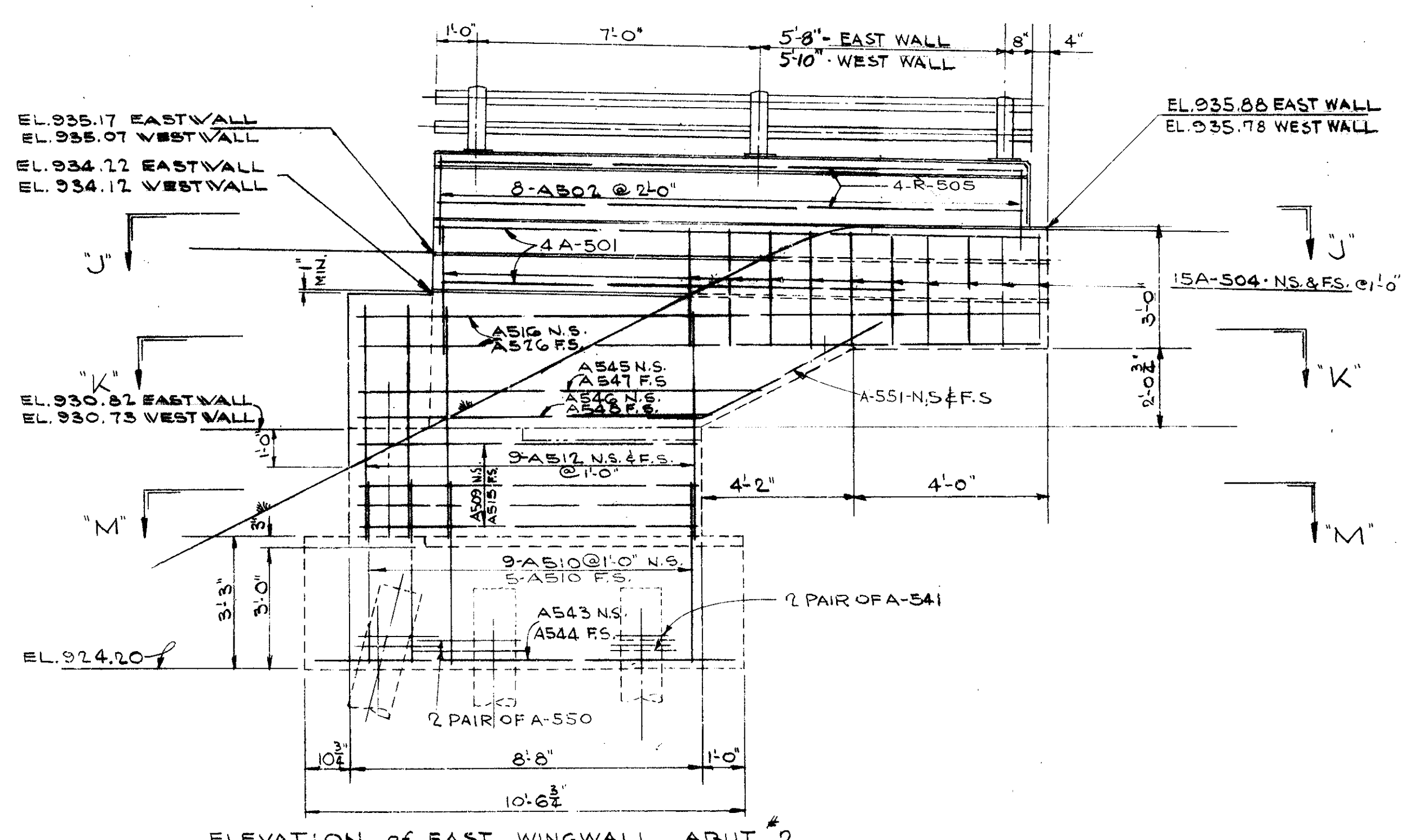
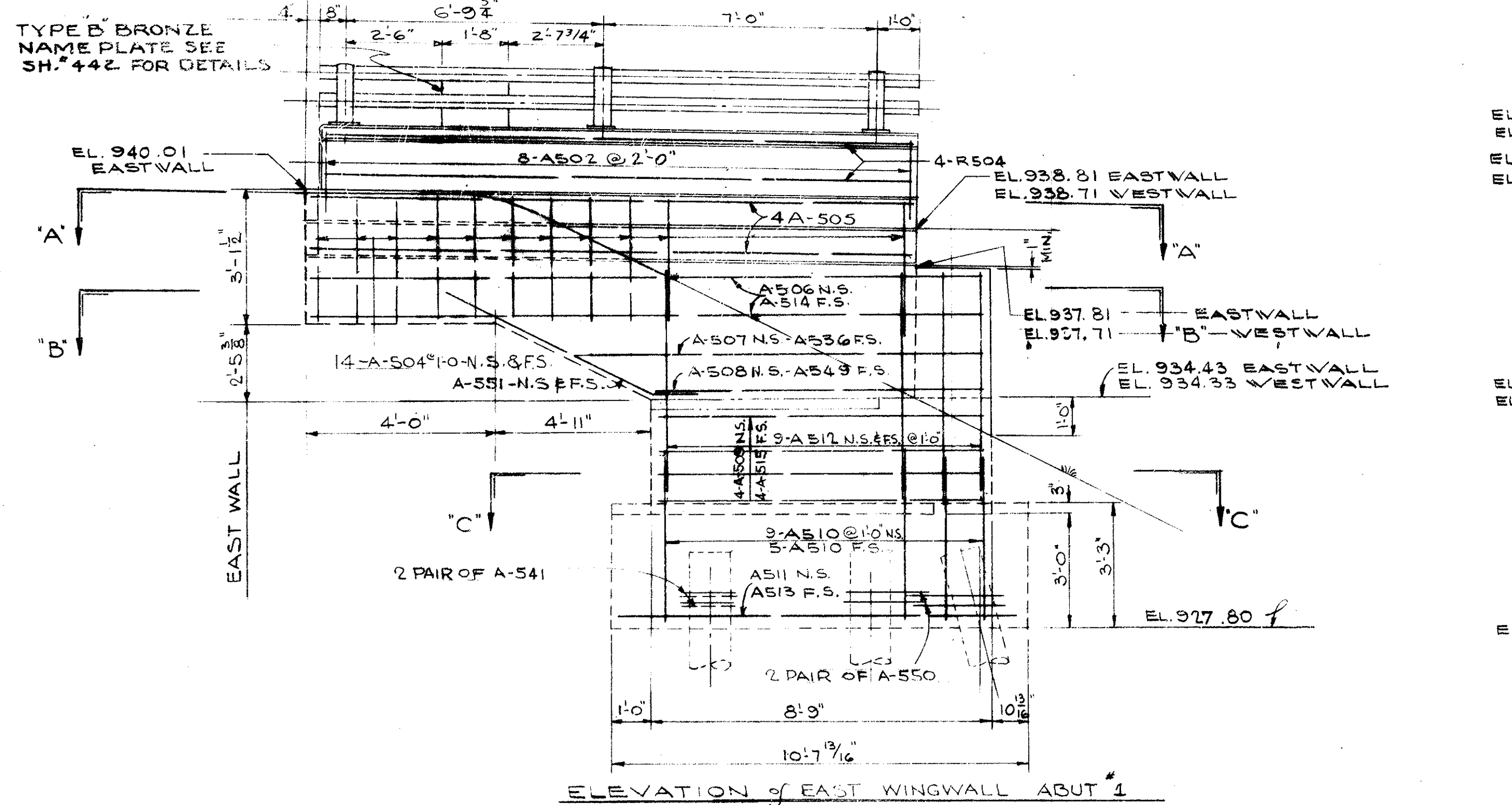
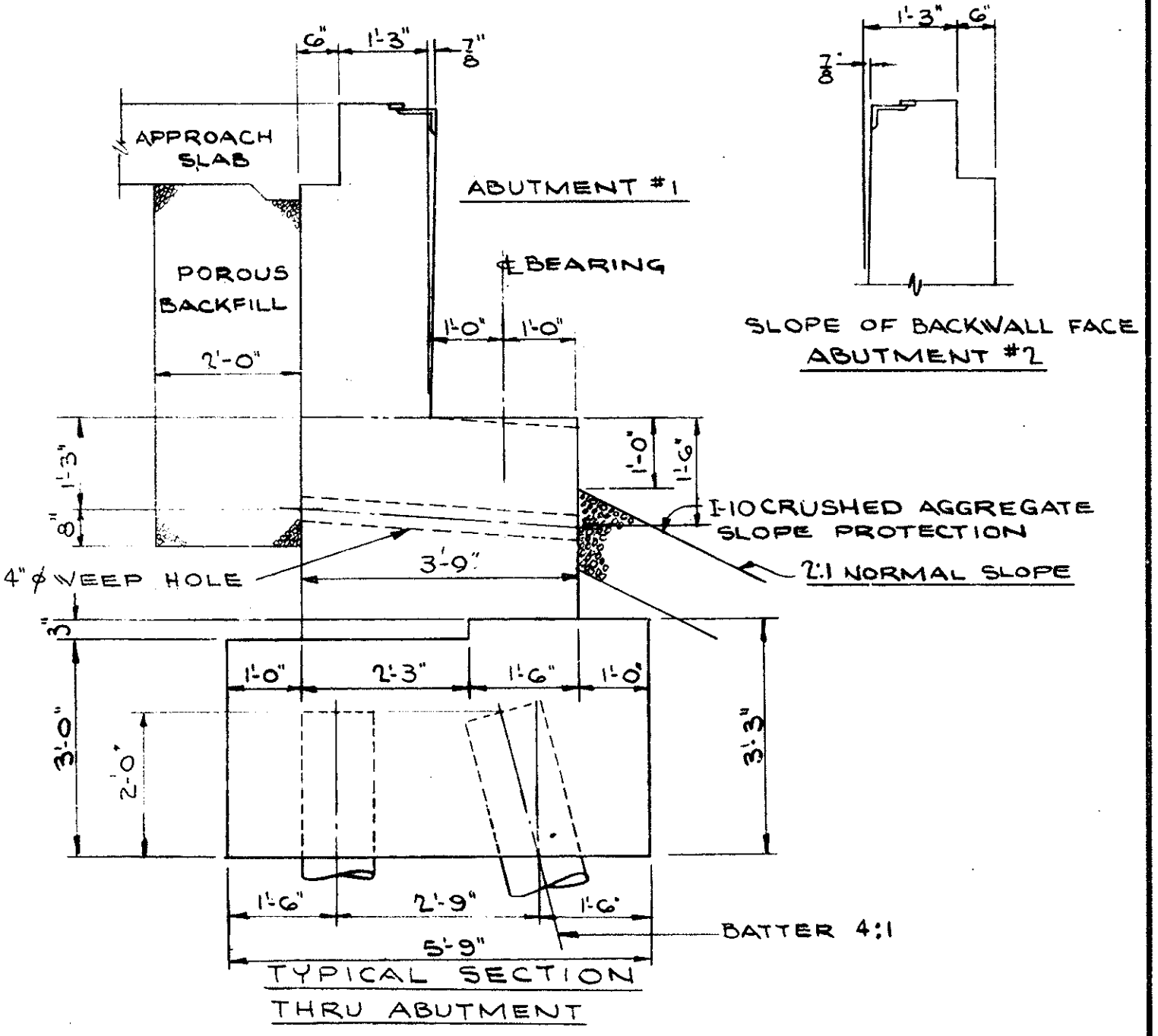
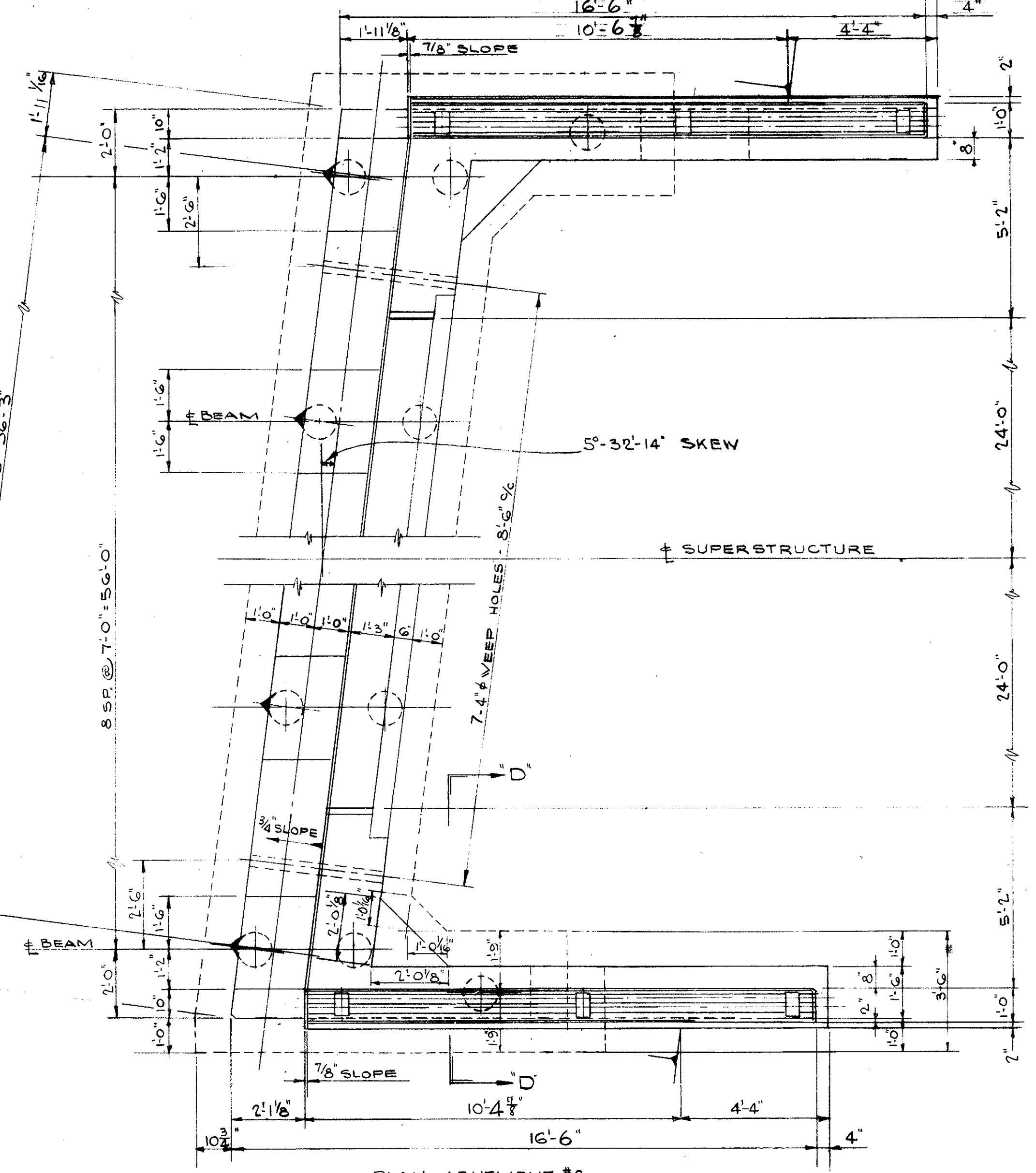
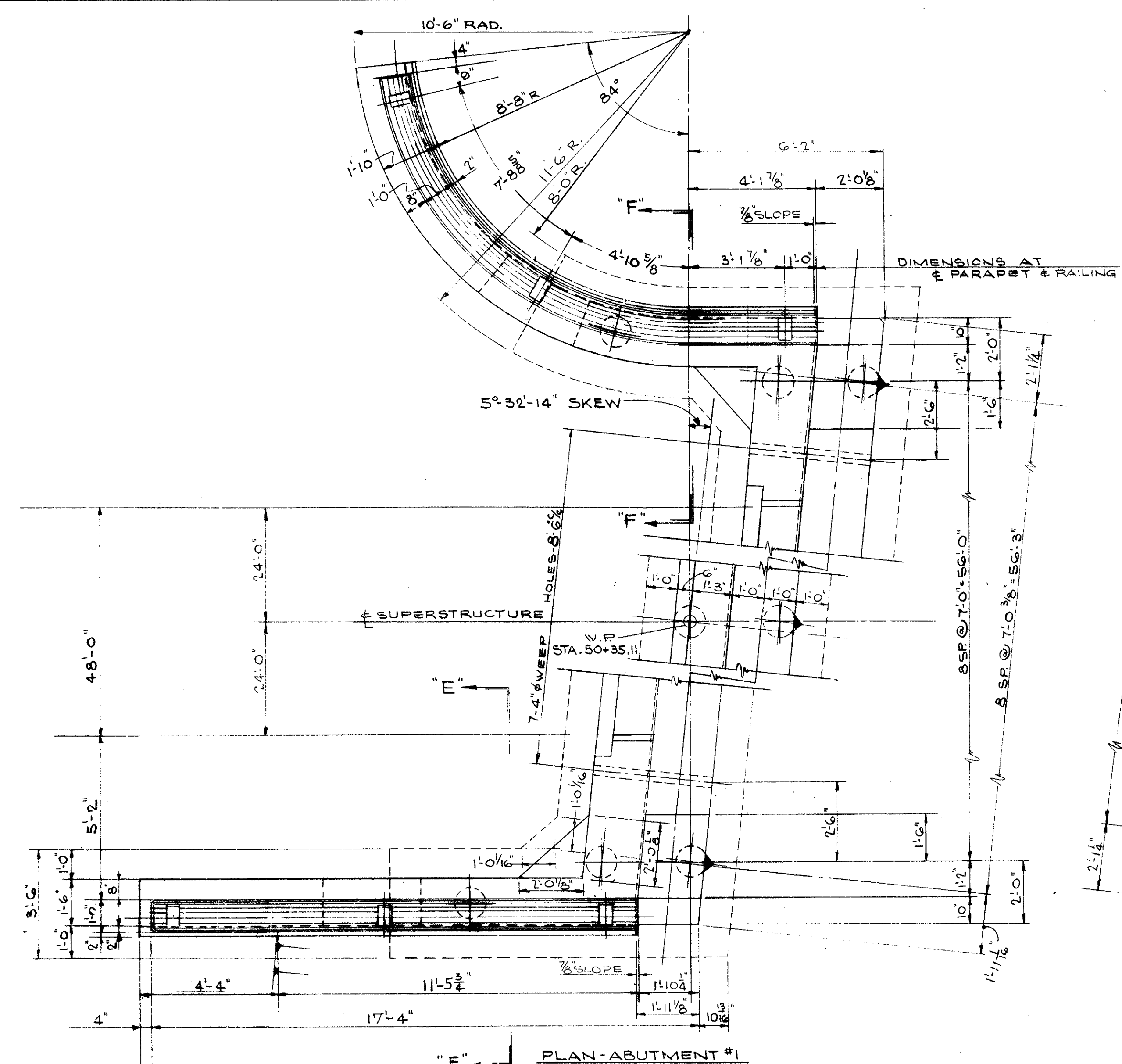
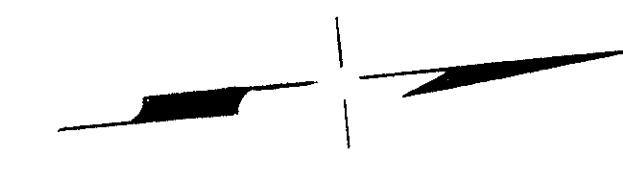
STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

BEISWENGER, HOCH & ASSOCIATES AND ROBERT J. SCHOMER
CONSULTING ENGINEERS
3600 MARKET ST. YOUNGSTOWN, OHIO

GENERAL PLAN & ELEVATION
BRIDGE NO. MAH-18-1761
UNDER STEEL ST.
YOUNGSTOWN MAHONING COUNTY
STA. 929+98.87

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
E.A.K.	R.J.		D.H.C.	D.H.C.		1-24-59

MICROFILMED
SEP 19 1967

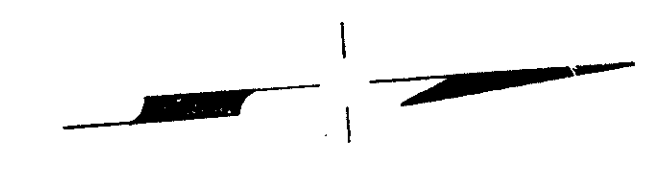
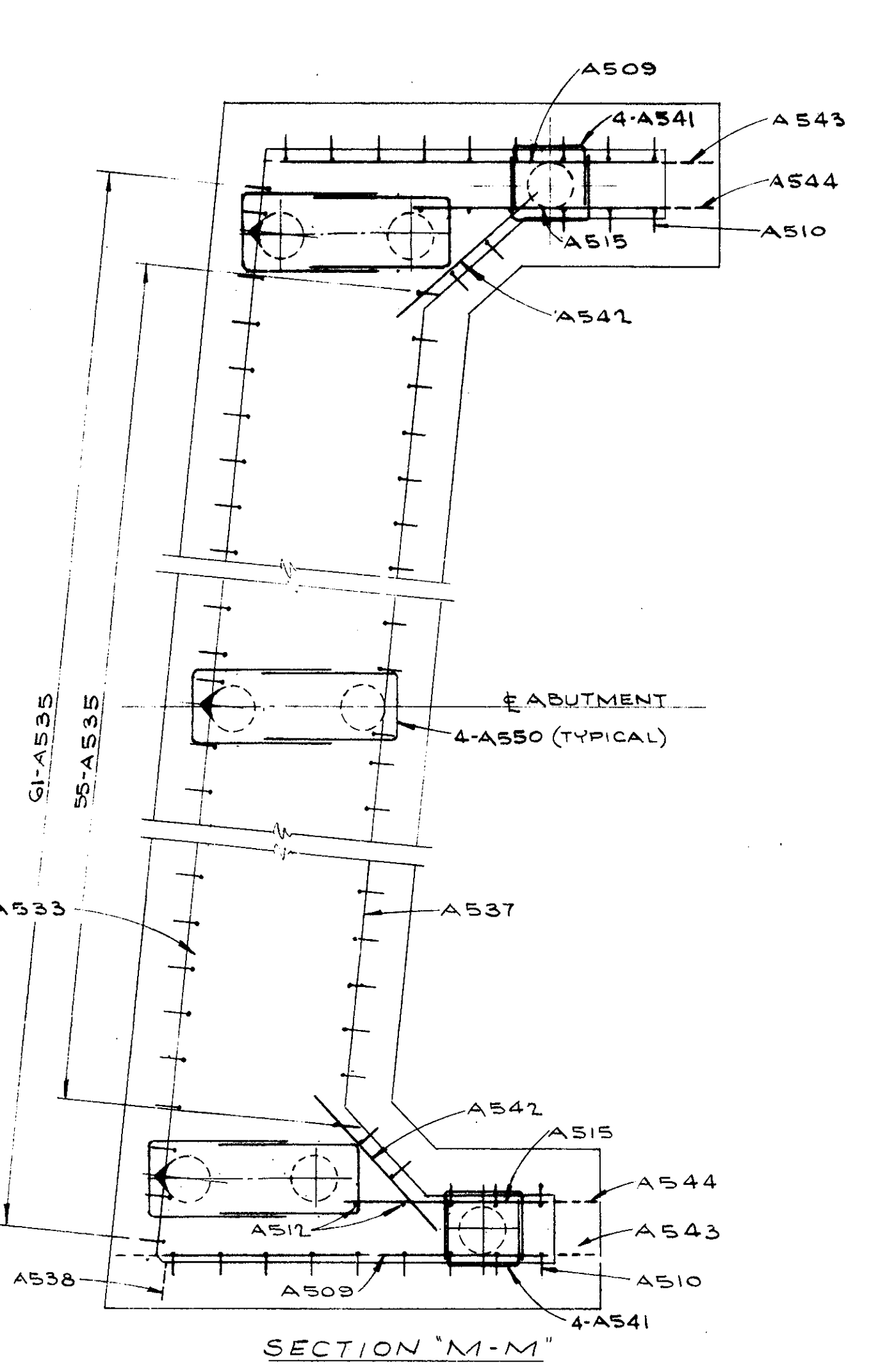
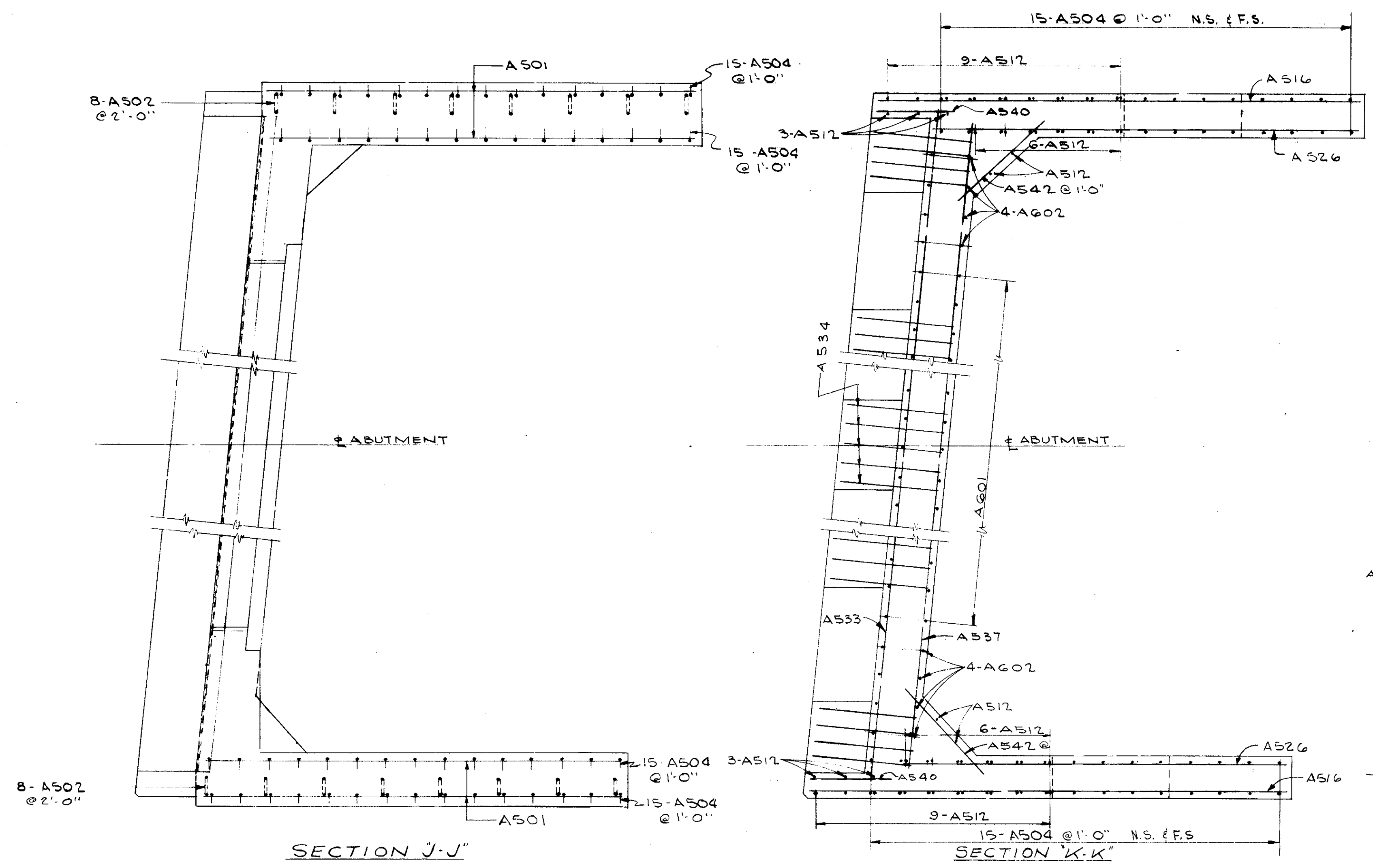


STATE OF OHIO
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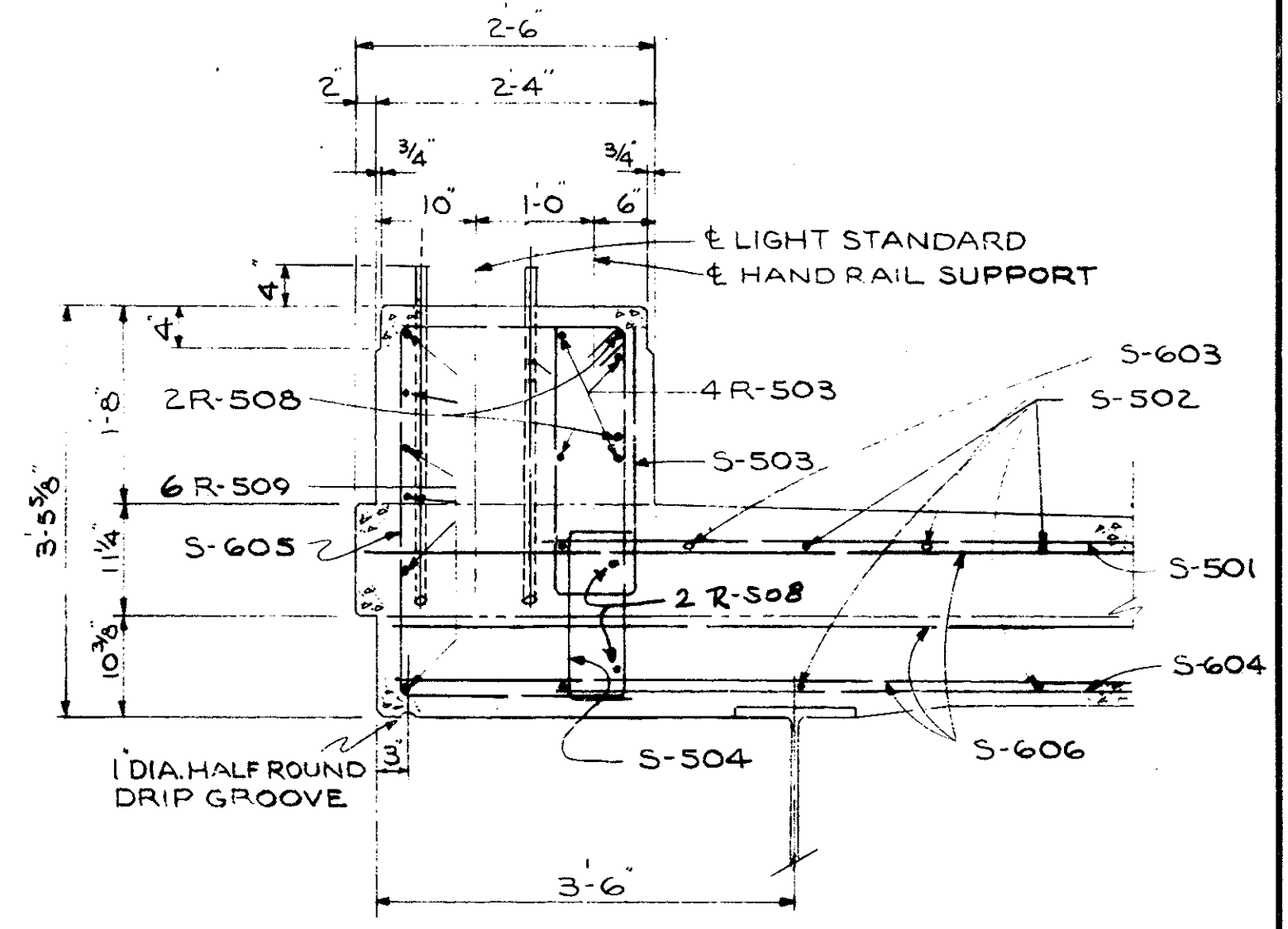
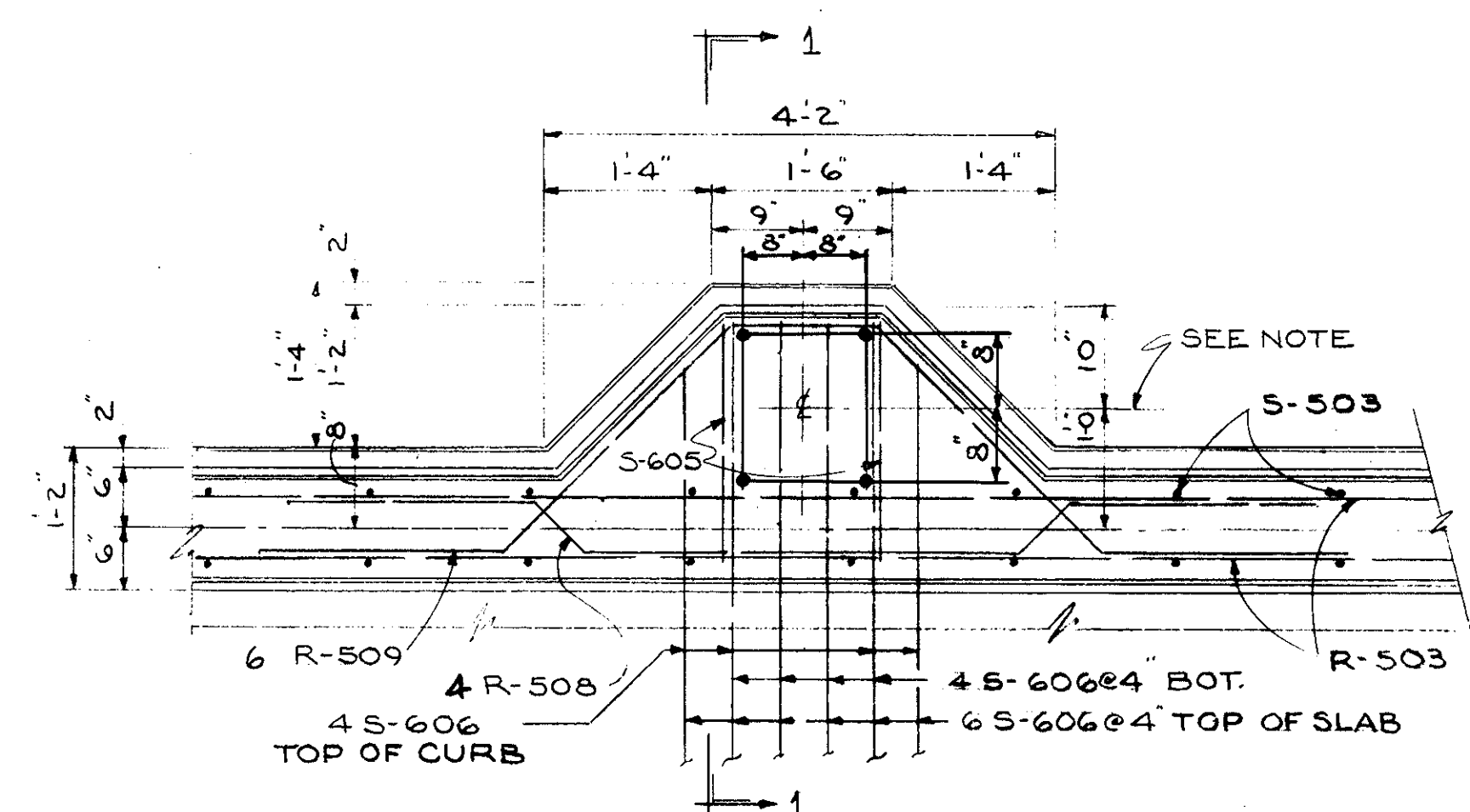
BEISWENGER, HOCH & ASSOCIATES AND ROBERT J. SCHOMER
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ABUTMENT PLAN & DETAILS
BRIDGE NO MAH-18-1761
UNDER STEEL ST.
YOUNGSTOWN MAHONING COUNTY
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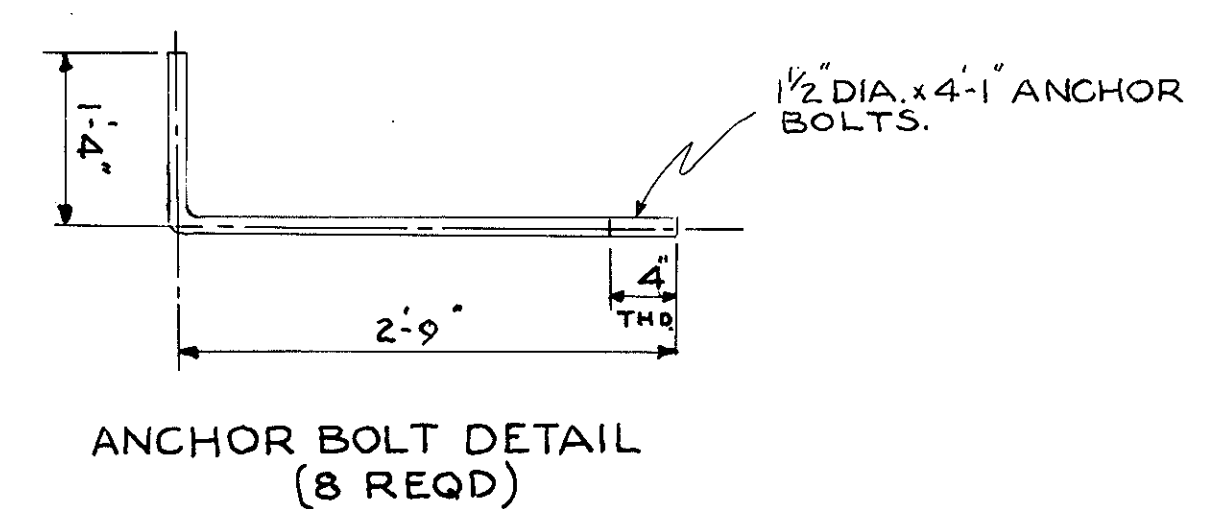
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
EAK	J.R.J.		DHC	D.R.		



NOTE:
1-11" I.D. x 1/2" THK. x 3'-0" Lg. SOCKET EAST SIDE OF STRUCTURE, 1-9" I.D. x 1/2" THK. x 3'-0" Lg. SOCKET WEST SIDE OF STRUCTURE, ITEM 3-25.



DETAIL OF LIGHT STANDARD SUPPORT
2 REQUIRED



ELEVATIONS													
	A	B	C	D	E	F	G	H	J	K	L	P	
ABUTMENT #1	934.43	934.51	934.61	934.72	934.82	934.70	934.53	934.45	934.33	938.72	939.06	936.64	937.39
ABUTMENT #2	930.81	930.92	931.02	931.12	931.10	930.97	930.85	930.73	935.08	935.42	935.00	933.75	

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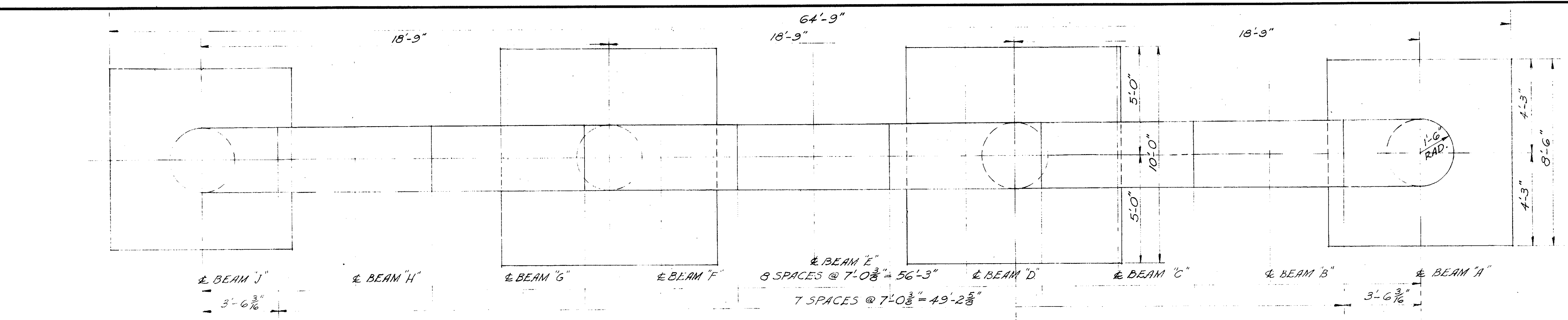
ABUTMENT DETAILS
BRIDGE NO MAH-18-1761
UNDER STEEL ST.
YOUNGSTOWN MAHONING COUNTY
STA. 929+98.87

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
E.A.K.	R.J.		D.H.C.	D.H.C.		

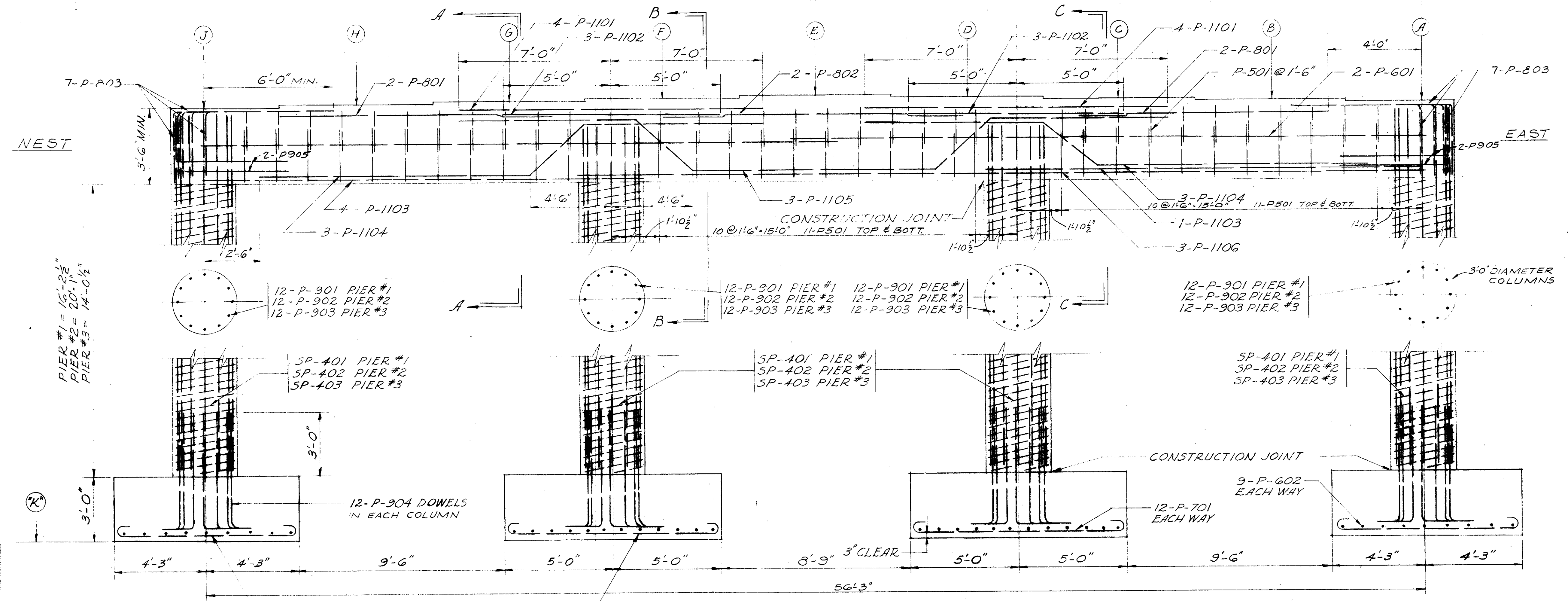
PROPOSED
SEP 19 1935

CARE SHALL BE TAKEN IN PLACING REINFORCING STEEL SO AS TO AVOID INTERFERENCE WITH ANCHOR BOLTS.

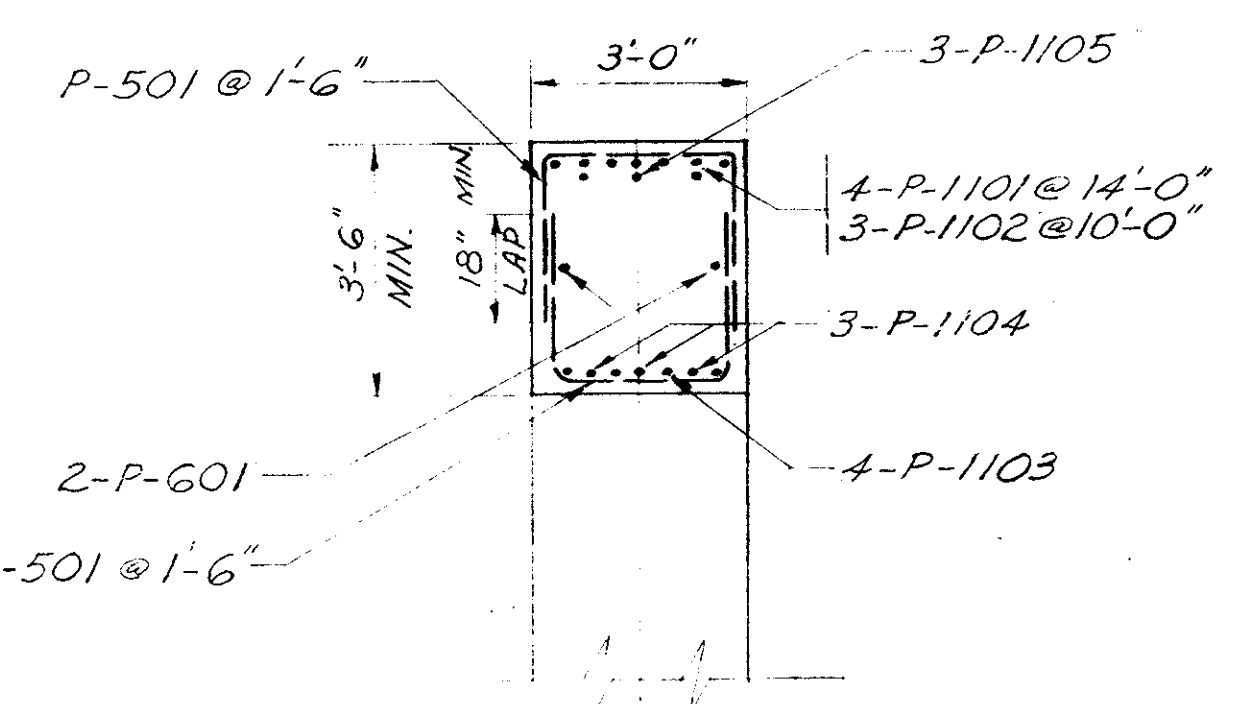
MAXIMUM SOIL LOADING UNDER PIER FOOTINGS = 2.50 TONS PER SQ. FOOT



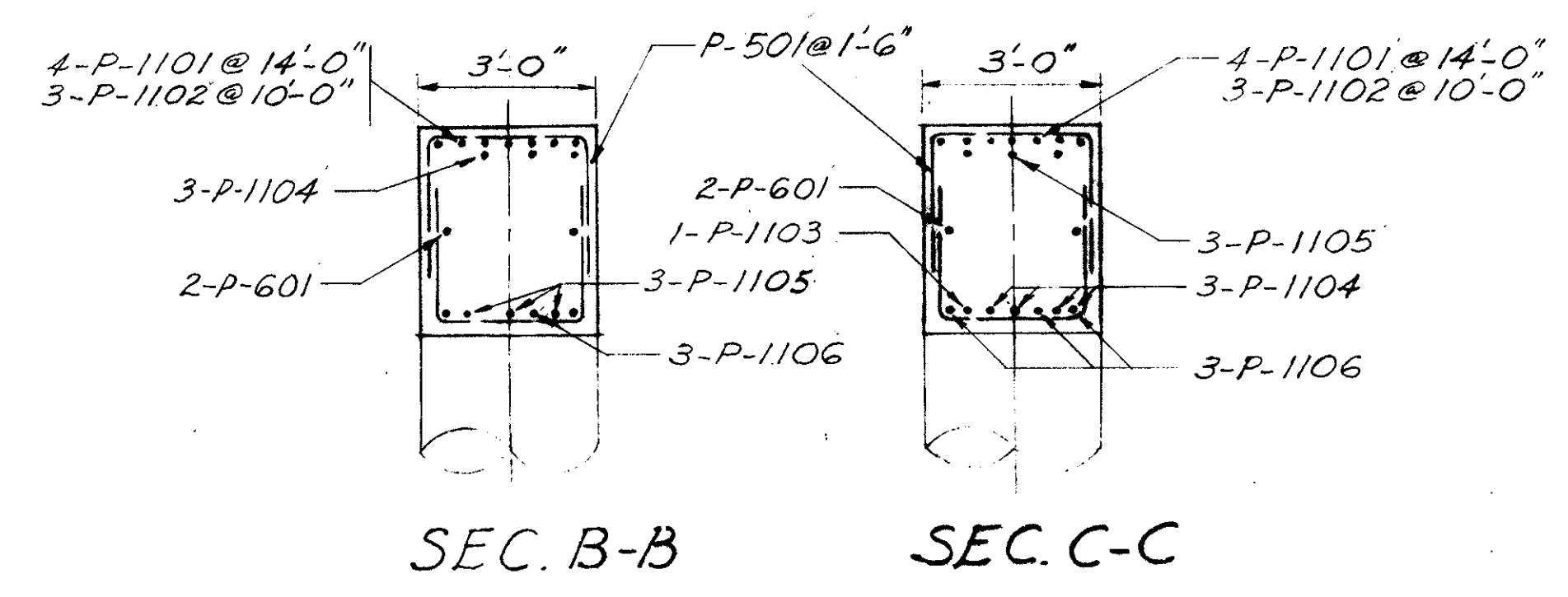
PLAN



ELEVATION



SECTION A-A



SEC. B-B

SEC. C-C

PIER ELEVATION TABLE

	A	B	C	D	E	F	G	H	J
PIER #1	933.29	933.39	933.49	933.59	933.69	933.77	933.45	933.32	933.20
PIER #2	932.18	932.28	932.37	932.47	932.57	932.45	932.33	932.21	932.09
PIER #3	931.13	931.22	931.32	931.42	931.52	931.40	931.28	931.16	931.04

"K" BASE ELEVATIONS

LOC.	ELEV.
PIER #1	910.50
PIER #2	905.50
PIER #3	910.50

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

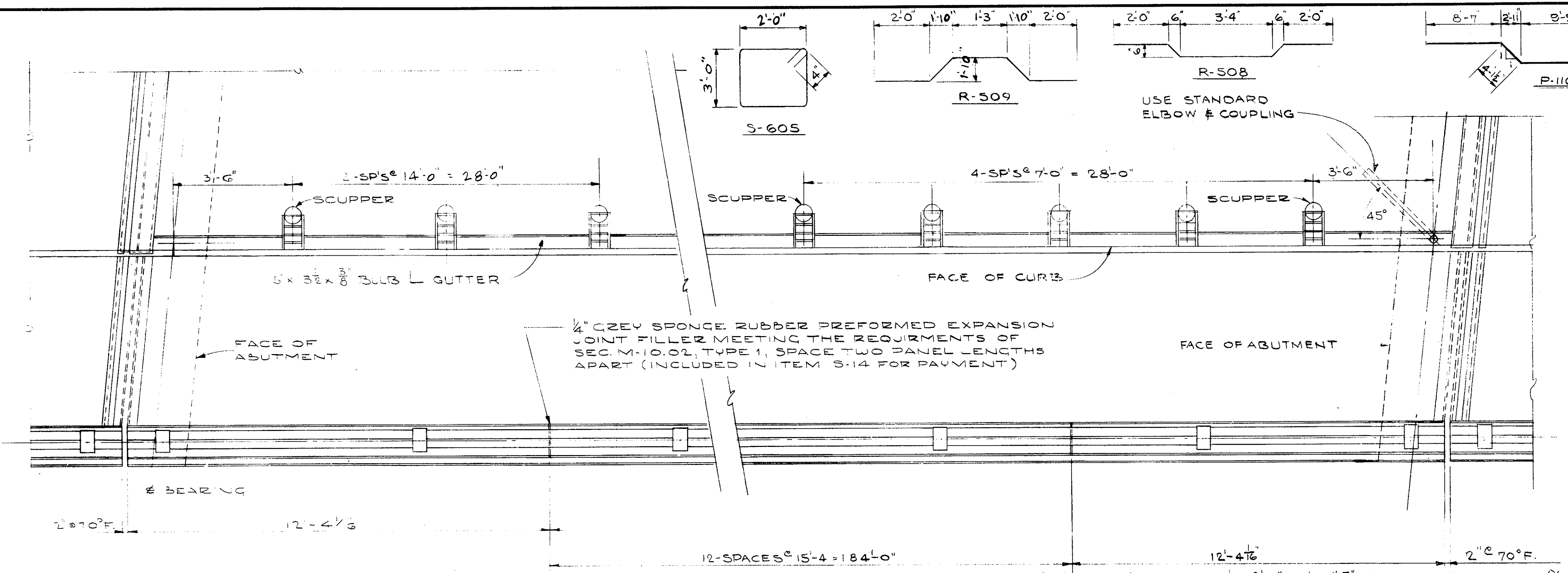
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PIER DETAILS
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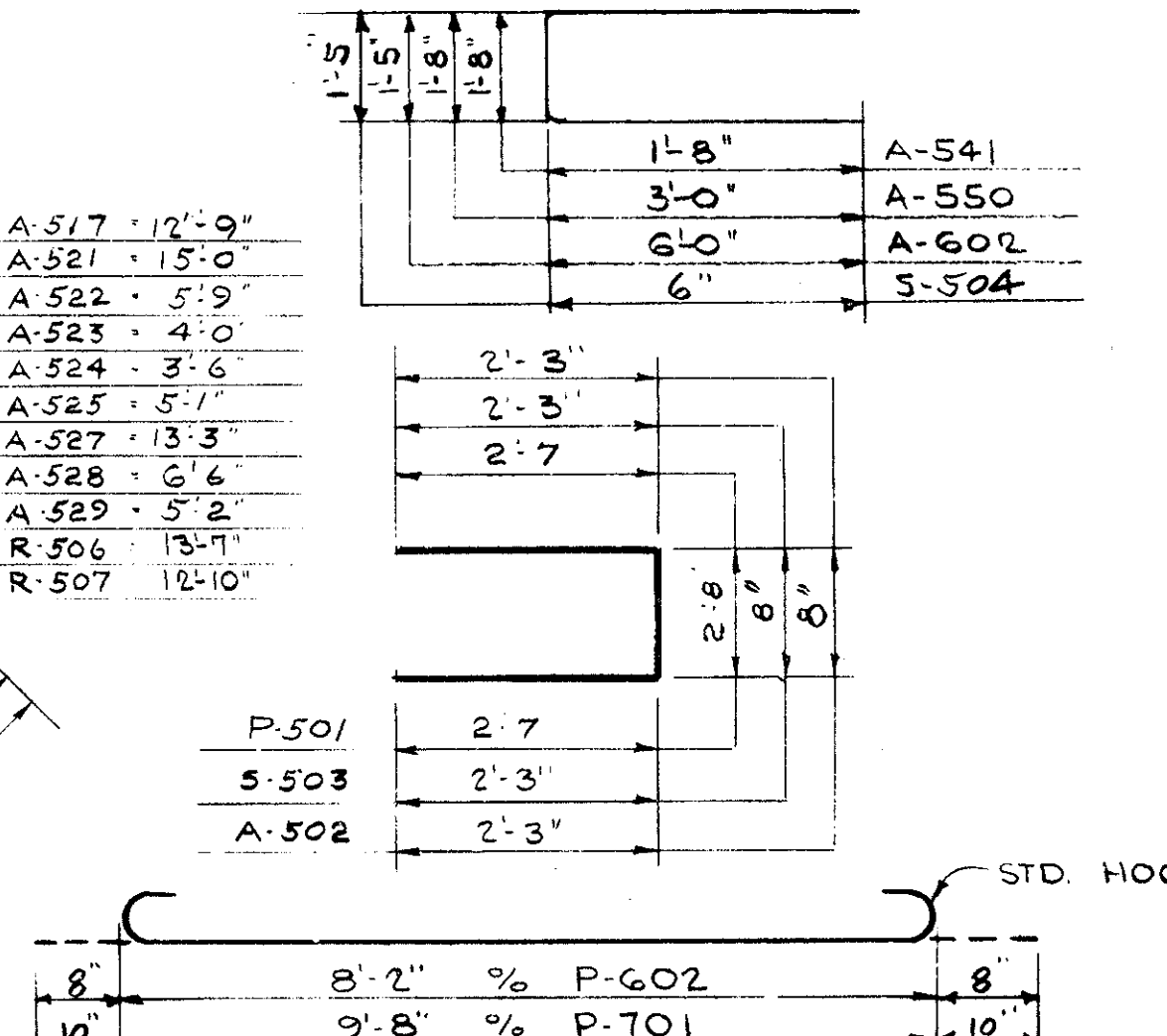
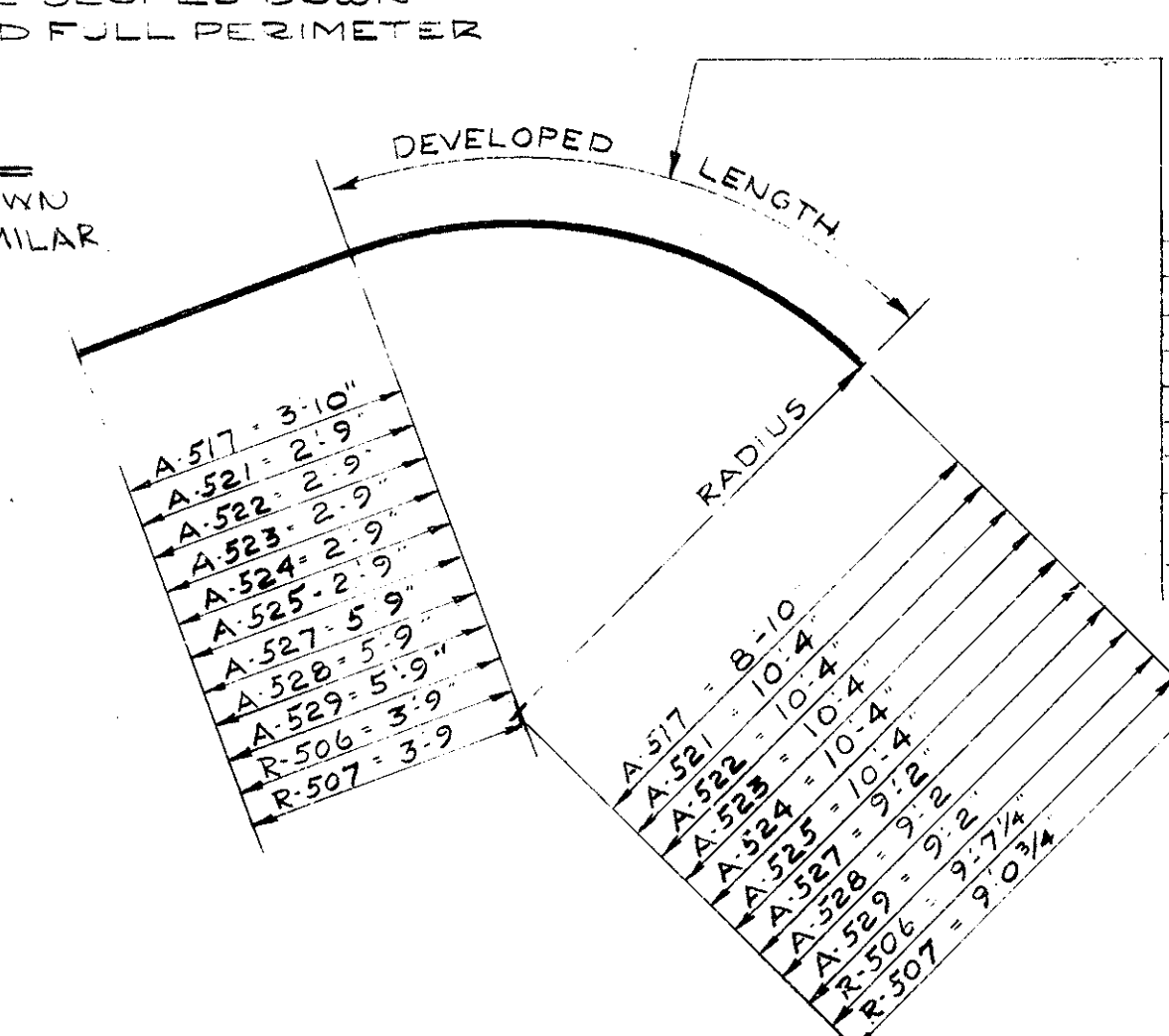
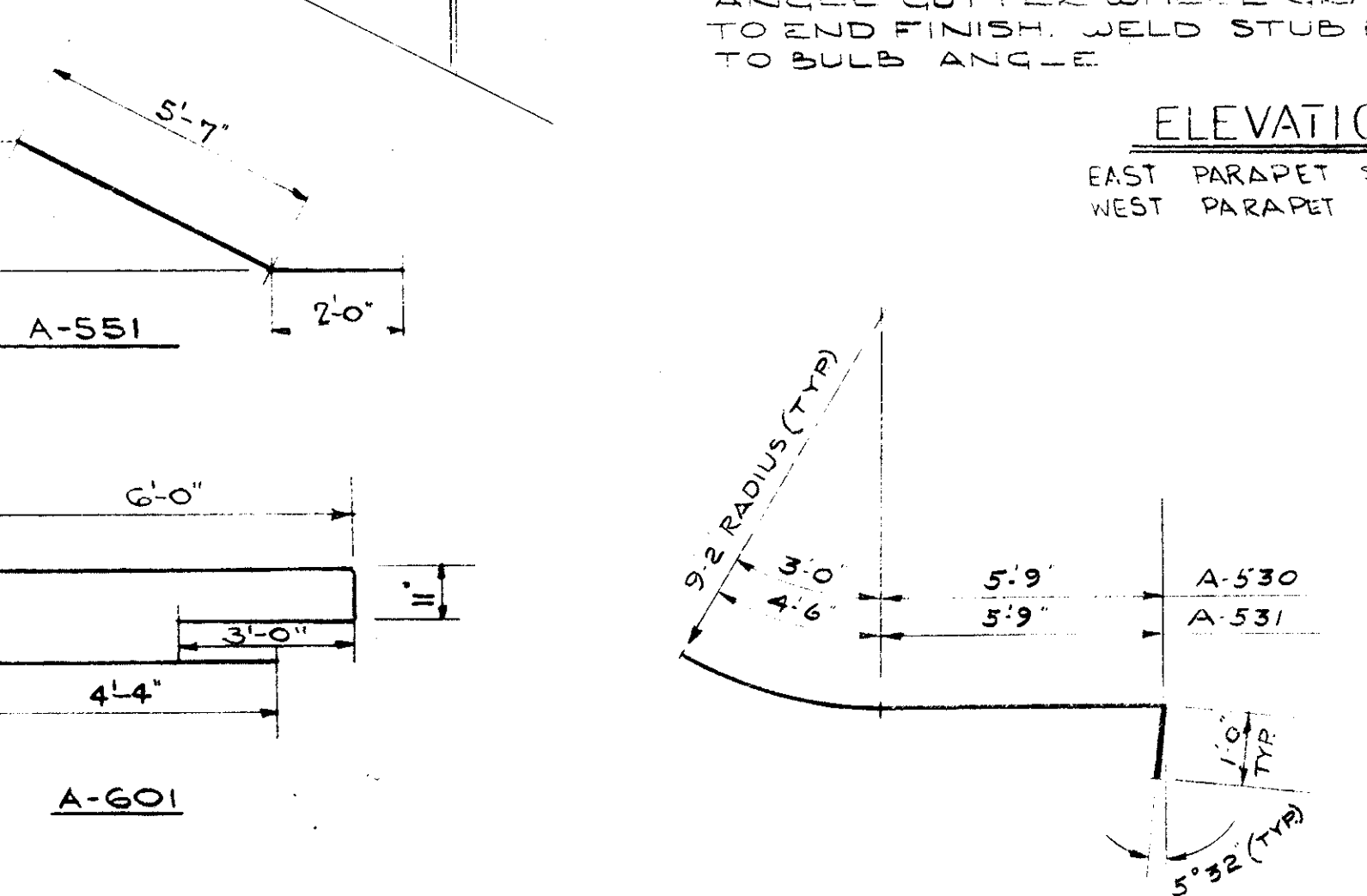
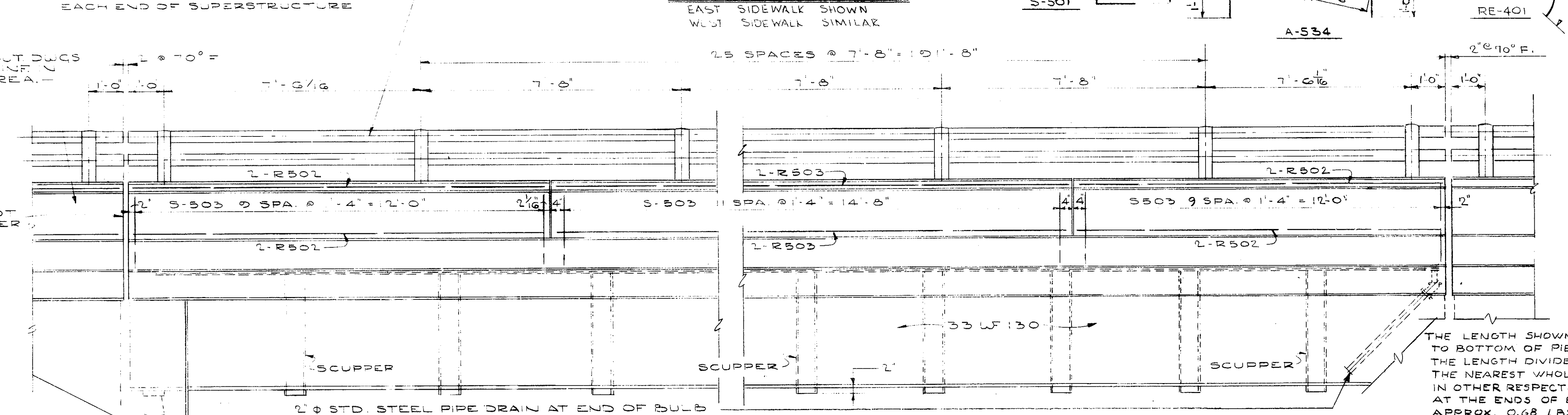
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
E.A.K.	E.S.S.		D.H.C.	D.R.C.		

REINFORCING STEEL SCHEDULE

MARK	NO	LTH	WEIGHT	SHP	MARK	NO	LTH	WEIGHT	SHP	MARK	NO	LTH	WEIGHT	SHP		
ABUTMENTS					SUPERSTRUCTURE											
A-501	8	14'-2"	118	ST	A-545	2	10'-2"	21	ST							
A-502	33	5'-4"	184	BT	A-546	2	8'-10"	10	ST							
A-503					A-547	2	7'-2"	15	ST							
A-504	123	3'-6"	449	BT	A-548	2	5'-10"	12	ST	S-501	312	8'-0"	2604	BT		
A-505	4	15'-4"	64	ST	A-549	1	5'-6"	6	ST	S-502	84	3'-6"	3154	ST		
A-506	2	17'-4"	36	ST	A-550	72	7'-6"	563	BT	S-503	328	5'-4"	1824	BT		
A-507	1	10'-6"	11	ST	A-551	6	7'-7"	47	BT	S-504	312	2'-4"	760	BT		
A-508	1	8'-9"	9	ST	A-601	98	15'-3"	2,245	BT	S-601	624	26'-6"	24,837	ST		
A-509	12	9'-2"	115	BT	A-602	16	13'-3"	318	BT	S-602	522	3'-3"	28,422	ST		
A-510	57	5'-0"	297	BT	TOTAL ABUT'S					9,949	#	S-603	126	2'-6"	4921	ST
A-511	1	10'-4"	11	ST	PIERS							S-604	312	10'-0"	4686	ST
A-512	73	6'-0"	457	ST	P-501	198	7'-8"	1583	BT	S-605	4	10'-3"	62	BT		
A-513	1	7'-0"	7	ST	P-601	12	29'-7"	533	ST	S-606	28	7'-4"	308	ST		
A-514	2	14'-6"	30	ST	P-602	108	9'-6"	1541	BT	TOTAL SUPERST. 109914						
A-515	12	6'-0"	75	ST	RAILING #											
A-516	4	16'-6"	70	ST	R-502	16	12'-0"		ST							
A-517	2	16'-7"	35	BT	R-503	96	15'-0"		ST							
A-518				BT	R-504	4	15'-2"		ST							
A-519				BT	R-505	8	14'-0"		ST							
A-520				BT	R-506	2	17'-4"		BT							
A-521	4	17'-9"	74	BT	R-507	2	16'-7"		BT							
A-522	1	8'-6"	9	BT	R-508	8	8'-8"		BT							
A-523	1	6'-9"	7	BT	R-509	12	10'-4"		BT							
A-524	4	6'-3"	26	BT	REPLACEMENT BARS											
A-525	1	7'-10"	8	BT	RE-401	1	5'-3"		SPIRAL	BT						
A-526	4	14'-0"	58	ST	RE-501	2	5'-6"		ST							
A-527	2	19'-0"	40	BT	RE-601	4	5'-11"		ST							
A-528	1	12'-3"	13	BT	RE-701	2	6'-3"		ST							
A-529	1	10'-11"	11	BT	RE-801	1	6'-6"		ST							
A-530	4	9'-8"	40	BT	RE-901	1	6'-10"		ST							
A-531	1	11'-2"	12	BT	RE-1101	1	7'-6"		ST							
A-532	4	26'-8"	111	ST	TOTAL PIER'S INCLUDING SPIRALS 36,094											
A-533	32	31'-0"	1035	ST	SPIRAL REINFORCING LIST											
A-534	86	5'-9"	516	BT	MARK	NO	CORE DIA. OF SPIRAL	LENGTH	PITCH	NO OF TURNS	WEIGHT					
A-535	226	6'-2"	1454	BT	A-536	1	7'-6"	8	ST							
A-536	1	7'-6"	8	ST	A-537	24	29'-9"	745	ST							
A-537	24	29'-9"	745	ST	A-538	4	31'-7"	132	ST							
A-538	4	31'-7"	132	ST	A-539	4	30'-7"	128	ST							
A-539	4	30'-7"	128	ST	A-540	16	3'-6"	58	ST							
A-540	16	3'-6"	58	ST	A-541	16	4'-10"	81	BT							
A-541	16	4'-10"	81	BT	A-542	32	4'-0"	134	ST							
A-542	32	4'-0"	134	ST	A-543	2	10'-3"	22	ST							
A-543	2	10'-3"	22	ST	A-544	2	6'-0"	13	ST							
A-544	2	6'-0"	13	ST	TOTAL 3701											
GRAND TOTAL 146,957																



PARTIAL DECK PLAN



SPIRAL REINFORCING NOTES

THE LENGTH SHOWN IN THE STEEL LIST FOR THE SPIRAL BARS IS THE DISTANCE FROM THE TOP OF THE FOOTING TO BOTTOM OF PIER CAPS. THE NUMBER OF TURNS SHOWN IN THE STEEL LIST FOR THE SPIRAL BARS IS THE LENGTH DIVIDED BY THE PITCH PLUS THREE TURNS (TOTAL NUMBER OF CLOSED COILS) EXPRESSED AS THE NEAREST WHOLE NUMBER. SPIRAL REINFORCING BARS SHALL NOT HAVE DEFORMATIONS BUT SHALL IN OTHER RESPECTS CONFORM TO ITEM S-4. ONE AND ONE HALF CLOSED COILS SHALL BE PROVIDED AT THE ENDS OF EACH SPIRAL UNIT. FOUR (4) STEEL CHANNEL, TEE OR ANGLE SPACERS WEIGHING APPROX. 0.68 LBS. PER LINEAL FT. OF SPACERS SHALL BE PROVIDED FOR EACH SPIRAL UNIT. THEY SHALL BE EQUALLY SPACED ALONG THE PERIPHERY OF EACH COIL. THE NUMBER OF POUNDS OF THESE SPACERS, BASED ON 0.68 LBS PER LINEAL FT. WILL BE PAID FOR AS REINFORCING STEEL AND IS INCLUDED IN THE TABULATED QUANTITY OF SPIRAL BARS.

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 A-1014 IS A NO 10 SIZE BAR.

REPLACEMENT BARS: IF REINFORCING BARS ARE FABRICATED FROM STOCK WHICH HAS PREVIOUSLY BEEN TESTED AND APPROVED BY THE OHIO HIGHWAY TESTING LABORATORY, TEST SAMPLES AS PROVIDED IN SECTION S-4.02 NEED NOT BE FURNISHED AND REPLACEMENT BARS WILL NOT BE REQUIRED.

RAILING REINFORCEMENT BARS WILL BE INCLUDED AS PART OF ITEM S-14 FOR PAYMENT.

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

BEISWENGER, HOCH & ASSOCIATES AND ROBERT J. SCHOMER
CONSULTING ENGINEERS
3600 MARKET ST. YOUNGSTOWN, OHIO

RAILING, DRAINAGE DETAILS & REINFORCING SCHEDULE
BRIDGE NO MAH-18-1761
UNDER STEEL ST
YOUNGSTOWN MAHONING COUNTY,
STA. 929+98.87

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
E.A.K.	A.C.		D.H.C.	J.P.		