

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

50
57

WASHINGTON COUNTY
WAS-77-0.06
0.5 MILES E. OF MARIETTA

CURVE DATA

S.R.7: PI = 125+38.05
 $\Delta = 9^\circ 56' 07''$ Rt.
 $D_c = 0^\circ 28' 00''$
 $R = 12277.67'$
 $L = 2128.99'$
 $T = 1067.17'$
 $E = 46.29'$

C-P-1	C-X-1	C-X-4	S-P-3
D = 1°30'00"	4°00'00"	1°30'00"	Ts1 = 261.75
$\Delta = 6^\circ 47' 46''$	10°51'43"	4°34'29"	$\theta_s = 23^\circ 00' 00''$
R = 3,819.72'	1,432.40'	3,819.72'	Ls = 200'
L = 453.07'	271.55'	304.98'	LT = 134.48'
E = 226.80'	136.19'	152.57'	ST = 67.71'
	6.46'	3.05'	P = 6.65'
			K = 99.47'

B.M. USGS 605.2 700' S.E.
 SILVER MOON HOTEL 42' S.E. & SR 7
 ELEV. 605.157

NOTE: FILL SLOPES ARE AS CONSTRUCTED
 ON PROJECT WAS-77-0.45

ADT. (1975): A-6680 : B & C - 1920

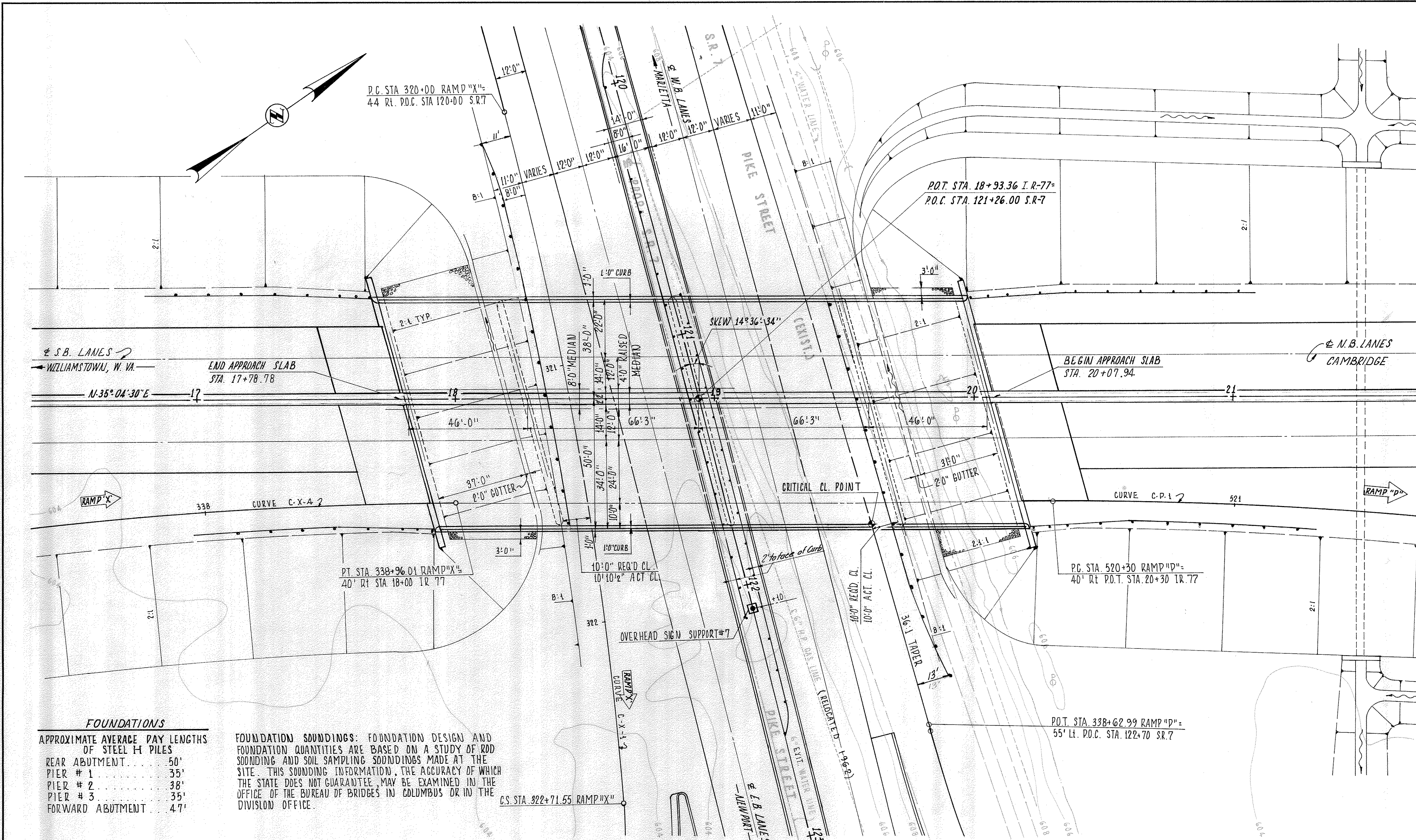
PROPOSED STRUCTURE
 TYPE: CONTINUOUS STEEL BEAM WITH R.C. DECK AND SUBSTRUCTURE.
 SPANS: 46'-0" - 66'-3" - 66'-3" - 46'-0"
 ROADWAY: 88'-0" FR CONC. PARAPETS (INCLUDING 8'-0" MEDIAN)
 LOAD FREQUENCY: CF-2000 (57) - ADEQUATE FOR AASHO ALTERNATE LOADING.
 WEARING SURFACE: 1" MONOLITHIC CONCRETE
 APPROACH SLABS: AS-1-5A (25'-0" LONG)
 ALIGNMENT: TANGENT
 SUPERELEVATION: NONE

LOUIS BERGER AND ASSOCIATES
 CONSULTING ENGINEERS
 ORANGE, N.J. COLUMBUS, OHIO HARRISBURG, PA.

SITE PLAN
 BRIDGE NO WAS-77-0034
 OVER S.R. 7
 WASHINGTON COUNTY I-77
 SEC. WAS-177-0.06 SCALE 1" = 20'
 STA. 17+78.78 TO STA. 20+07.94

PRESENT TOPOGRAPHY		PROPOSED WORK			
SURVEYED	DRAWN	DESIGNED	DRAWN	CHECKED	REVIEWED
ADTECH	P.L. & R.W.	R.V.G.	R.V.G.	R.V.G.	J.E.F.
					12-23-63

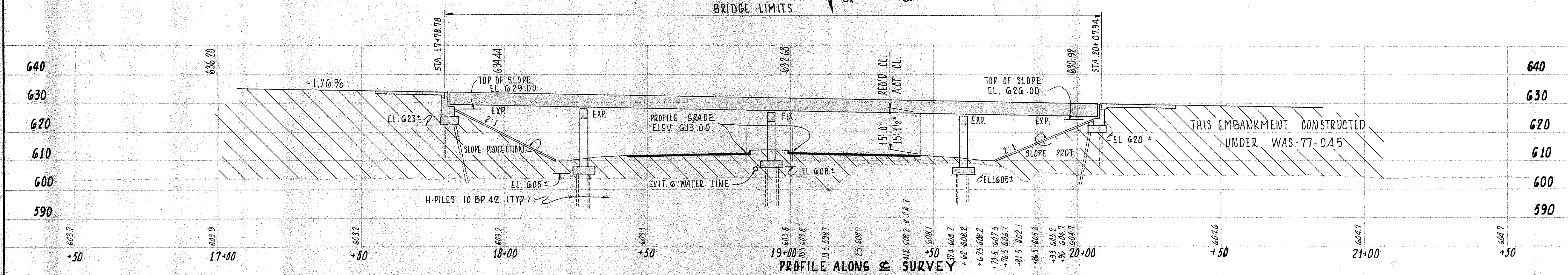
SITE PLAN



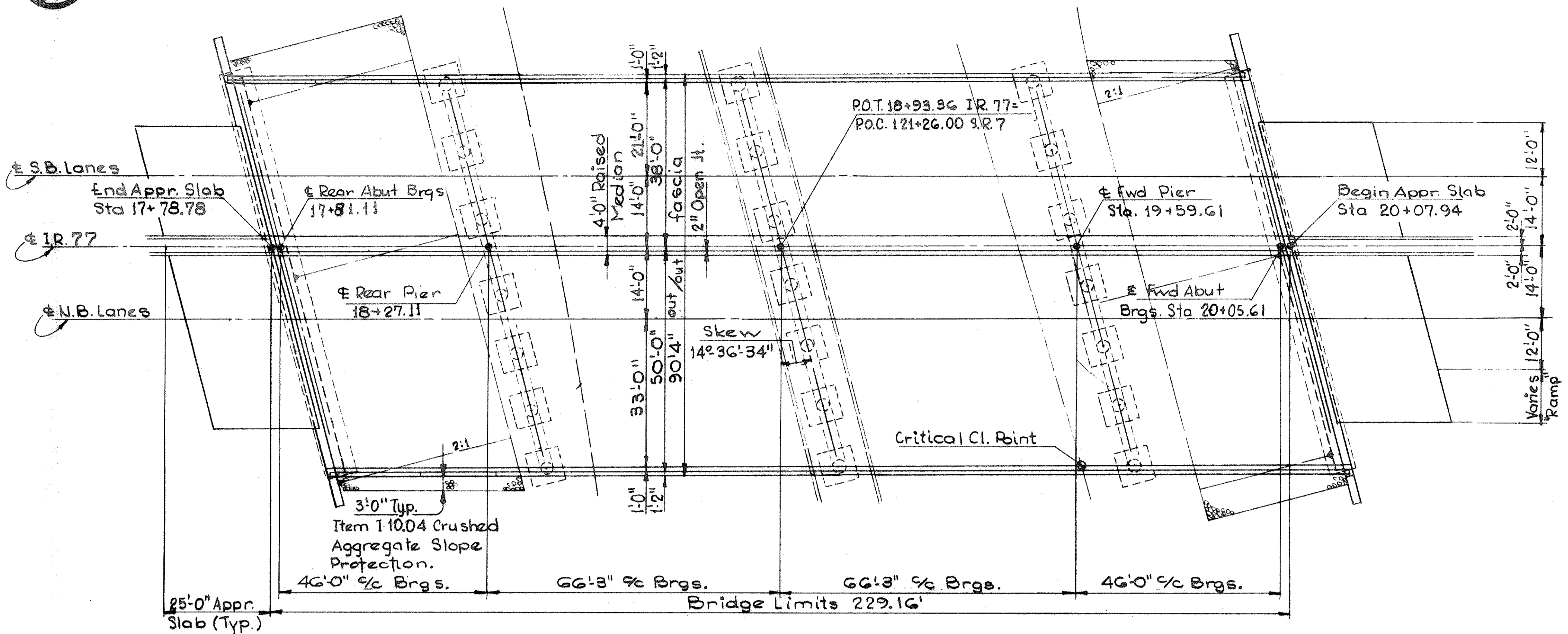
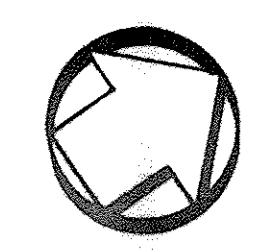
FOUNDATIONS

APPROXIMATE AVERAGE PILE LENGTHS OF STEEL H PILES
 REAR ABUTMENT 50'
 PIER # 1 35'
 PIER # 2 38'
 PIER # 3 35'
 FORWARD ABUTMENT 47'

FOUNDATION SOUNDINGS: FOUNDATION DESIGN AND FOUNDATION QUANTITIES ARE BASED ON A STUDY OF ROD SOUNDING AND SOIL SAMPLING SOUNDINGS MADE AT THE SITE. THIS SOUNDING INFORMATION, THE ACCURACY OF WHICH THE STATE DOES NOT GUARANTEE, MAY BE EXAMINED IN THE OFFICE OF THE BUREAU OF BRIDGES IN COLUMBUS OR IN THE DIVISION OFFICE.



PROFILE ALONG SURVEY



ESTIMATED QUANTITIES

Item	Total	Unit	Description	Super.	Abut.	Piers	Gen'l
503	Lump	Sum	Cofferdams, cribs and sheeting				Lump
503	852	Cuyd.	Unclassified excavation		411	441	
505	Lump	Sum	First test pile				Lump
507	9614	lin.ft.	Steel piles, 10 BP42		2810	6804	
509	218,148	lb.	Reinforcing steel	180,534	17,375	20,239	
511	667	Cuyd.	Class "C" Concrete, superstructure	667			
511	186	Cuyd.	Class "C" Concrete, piers above footings			186	
511	181	Cuyd.	Class "E" Concrete, abutments above footings		181		
511	279	Cuyd.	Class "E" Concrete, Footings		139	140	
512	18	Lin Ft.	Premolded sealing strip			18	
513	513,600	lb.	Structural steel	513,600			
514	513,600	lb.	Field painting of structural steel	513,600			
517	459.1	lin.ft.	Railing, Type I	459.1			
517	229.16	lin.ft.	Railing, double faced deep beam rail with steel posts and bolts	229.16			
518	90	Cuyd.	Porous backfill			90	
518	183	lin.ft.	6" perforated, helical CMP including spec. 707.06			183	
518	133	lin.ft.	6" non-perforated, helical CMP, 707.06			133	
518	16	Each	Scuppers, including supports			16	
601	454	Sq.yd.	Crushed aggregate slope protection				454
808	667	Units	Water-reducing, set-retarding admixture	667			
825	2405	Sq.yds	Concrete surface treatment	2364	41		
828	169	lin.ft.	Joint sealer (end dams)	169			

RB-1-55
REV. 2-2-59

REFERENCE shall be made to Standard Drawings BR-1-G5 sht. 1 revised 11-24-65, FS-B-1-G2 revised 1-15-63, SD-1-65 dated 11-8-65, and Supplement Specifications 808 dated 2-7-66, 811 dated 3-29-65, 825 dated 4-22-65 and 828 dated 3-21-66

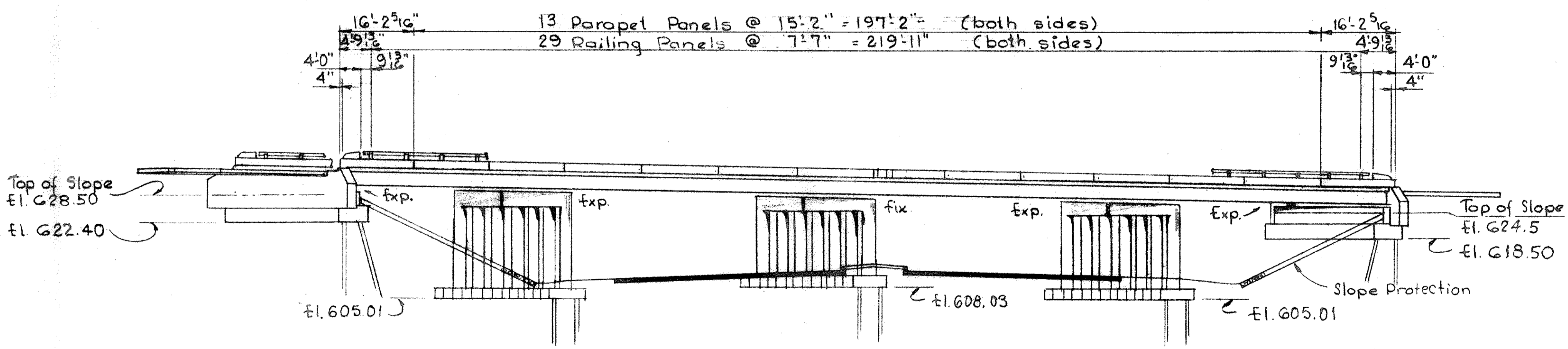
DESIGN SPECIFICATION This structure conforms to the requirements of "Design Specifications for High Structures" of the State of Ohio, Department of Highways, dated 9-1-57, together with current revisions thereof.

DESIGN DATA: Design loading - CF 2000 (57)
 Concrete Class "C" basic unit stress 1,333 p.s.i.
 Concrete Class "E" basic unit stress 1,333 p.s.i.
 Structural Steel - ASTM A36 basic unit stress 20,000 p.s.i.
 Reinforcing Steel - ASTM A15, A16, A160 Deformed, Intermediate or Hard Grade. Basic unit stress 20,000 psi. Except, spiral reinforcement may be plain, Structural Grade with basic unit stress of 18,000 p.s.i.

MACHINE FINISH: The concrete bridge deck shall be finished by the use of a finishing machine.

PILES shall be driven, with a hammer of not less than 11,000 Ft. Lbs. per blow, to firm contact with rock. If the length of penetration is approximately equal to the depth of rock according to the bridge foundation investigation report, the firm contact shall be considered as attained when the capacity according to the formula in Sec. 507.05 is not less than the following value for a pile hammer of the indicated energy rating:

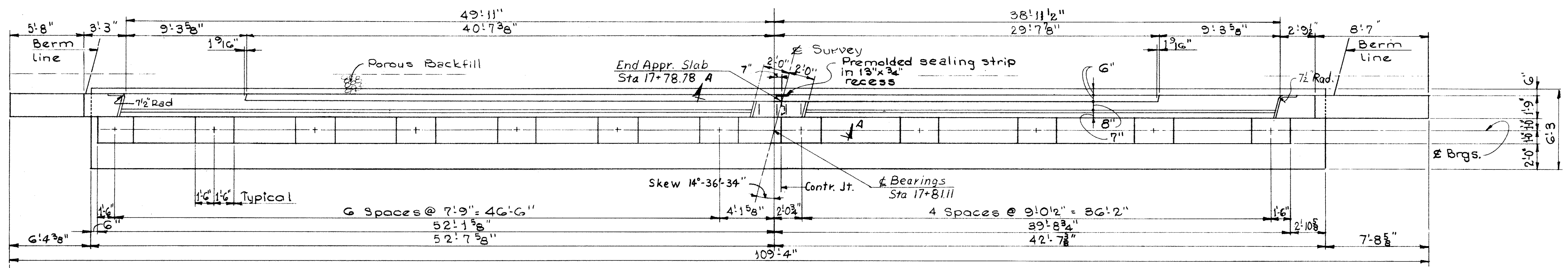
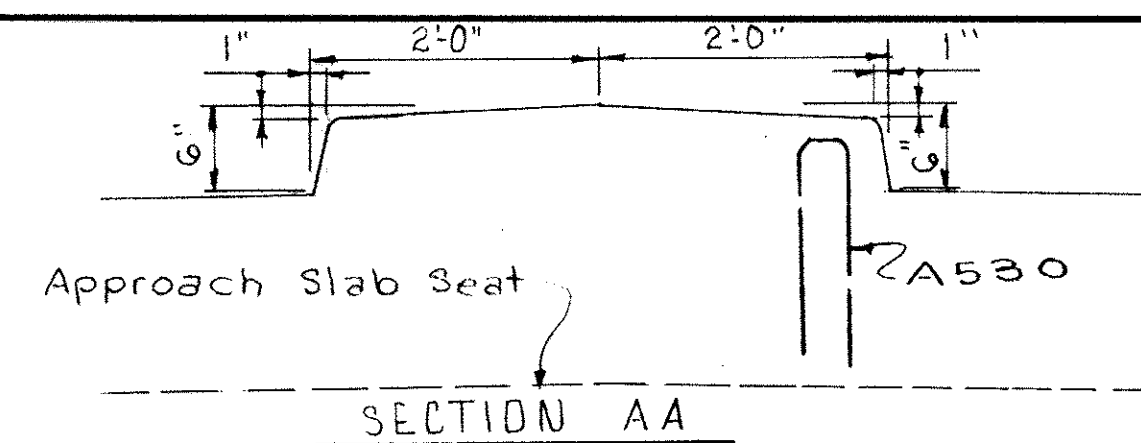
Abutment Piles.
 40 tons per pile using an 11000 ft. lb. hammer.
 35 tons per pile using a 15000 ft. lb. or greater hammer.
 Pier Piles.
 45 tons per pile using an 11000 ft. lb. hammer.
 40 tons per pile using a 15000 ft. lb. or greater hammer.
 If the energy rating of the hammer is between the rating as shown above, the required formula capacity shall be determined by interpolation. The design load is 35 tons per pile for the abutment piles and 35 tons per pile for the pier piles.



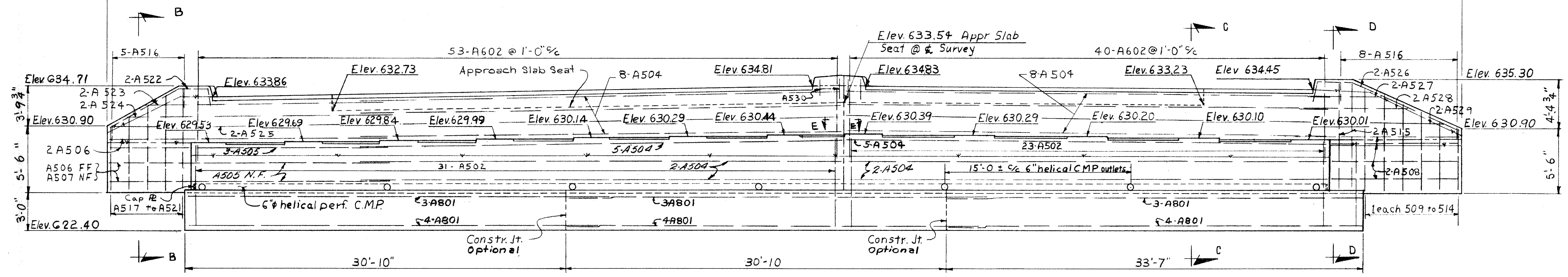
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 CONSULTING ENGINEERS
 ORANGE, N. J. COLUMBUS, OHIO HARRISBURG, PA.

GENERAL PLAN & ELEVATION
BRIDGE No WAS-77-0034
OVER S.R. 7
WASHINGTON COUNTY STA. 17+78.78
20+07.94

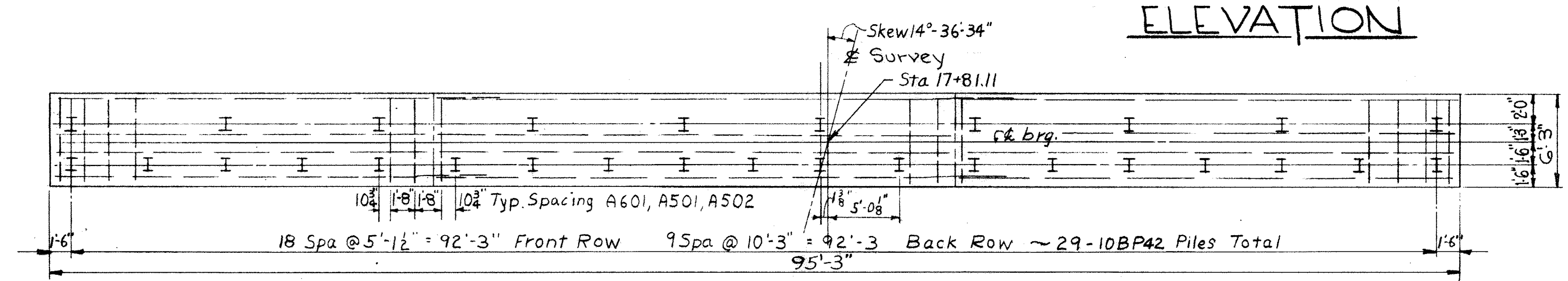
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
R.W.	R		AWR	RVC	8-17-66	12-18-66 1-26-67 3-29-67



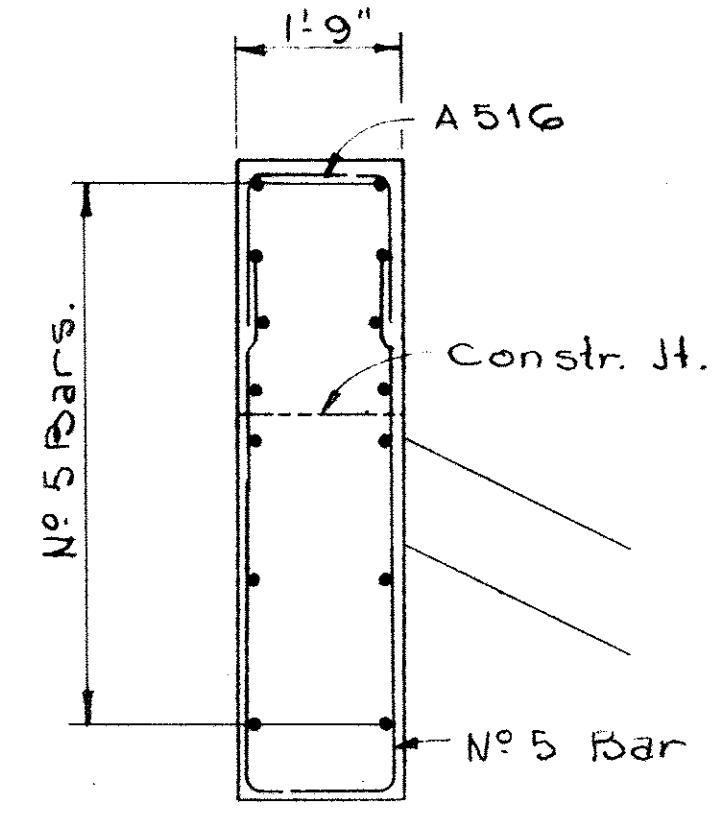
PLAN



ELEVATION



PILE LAYOUT & FOOTING PLAN



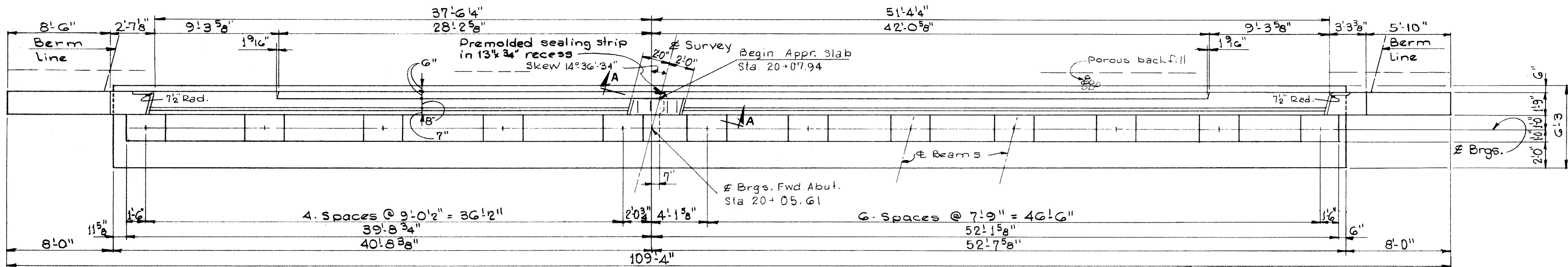
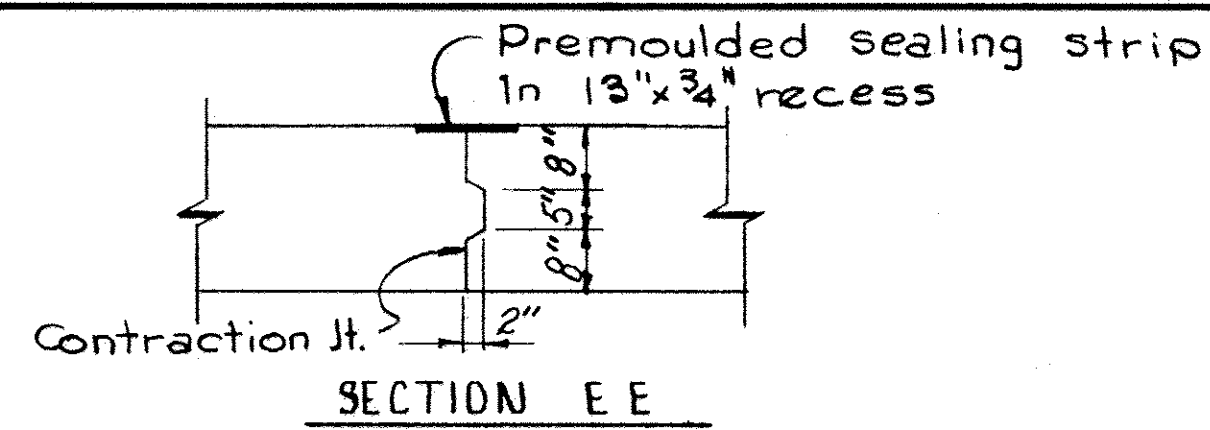
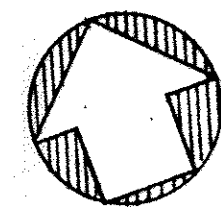
SECTION BB

POROUS BACKFILL shall extend upward to the approach slab and to the surface of the earth shoulders, and outward to the surface of the embankment slopes. Excavation therefore, in excess of that required for construction of the abutment, shall be considered as paid for in the bid price per cu.yd. paid for porous backfill.

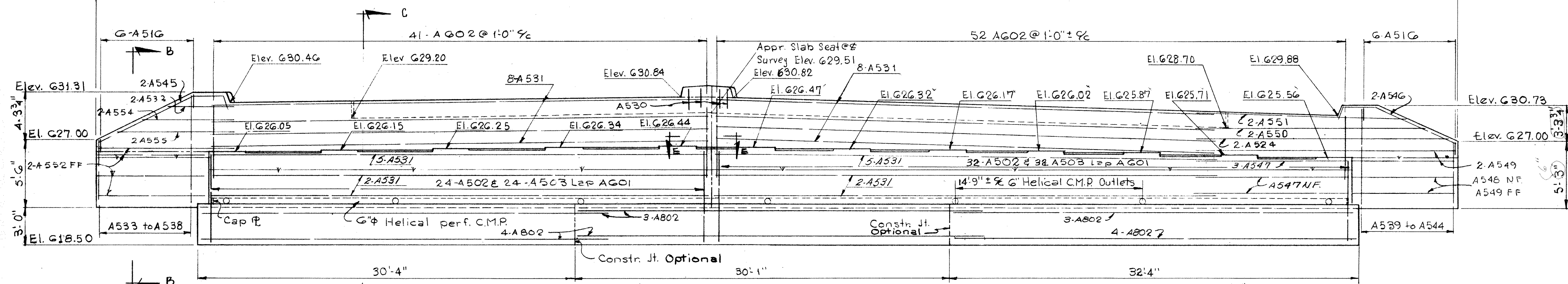
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ORANGE, N.J. COLUMBUS, OHIO HARRISBURG, PA.

ABUTMENT DETAILS
(Rear Abutment)
BRIDGE N° WAS-77-0034 OVER S.R. 7
WASHINGTON COUNTY STA. 17+78.78
STA. 20+07.94

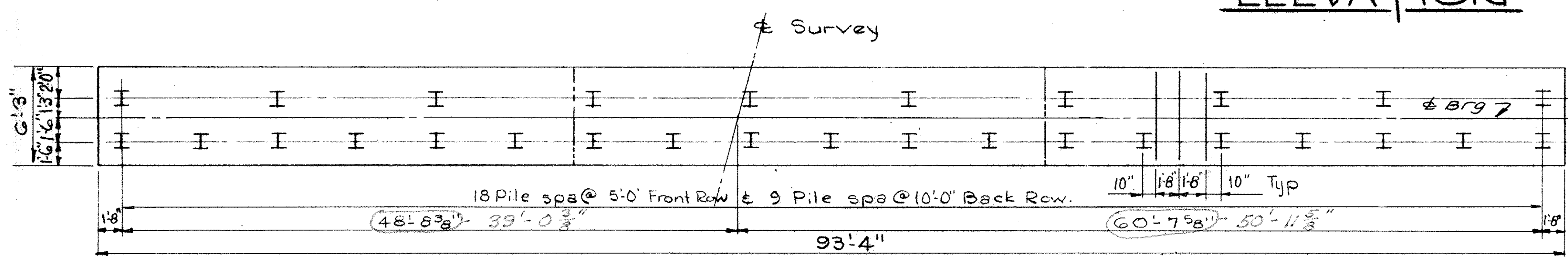
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
R.M.	R		HWR	RUC	8-17-64	



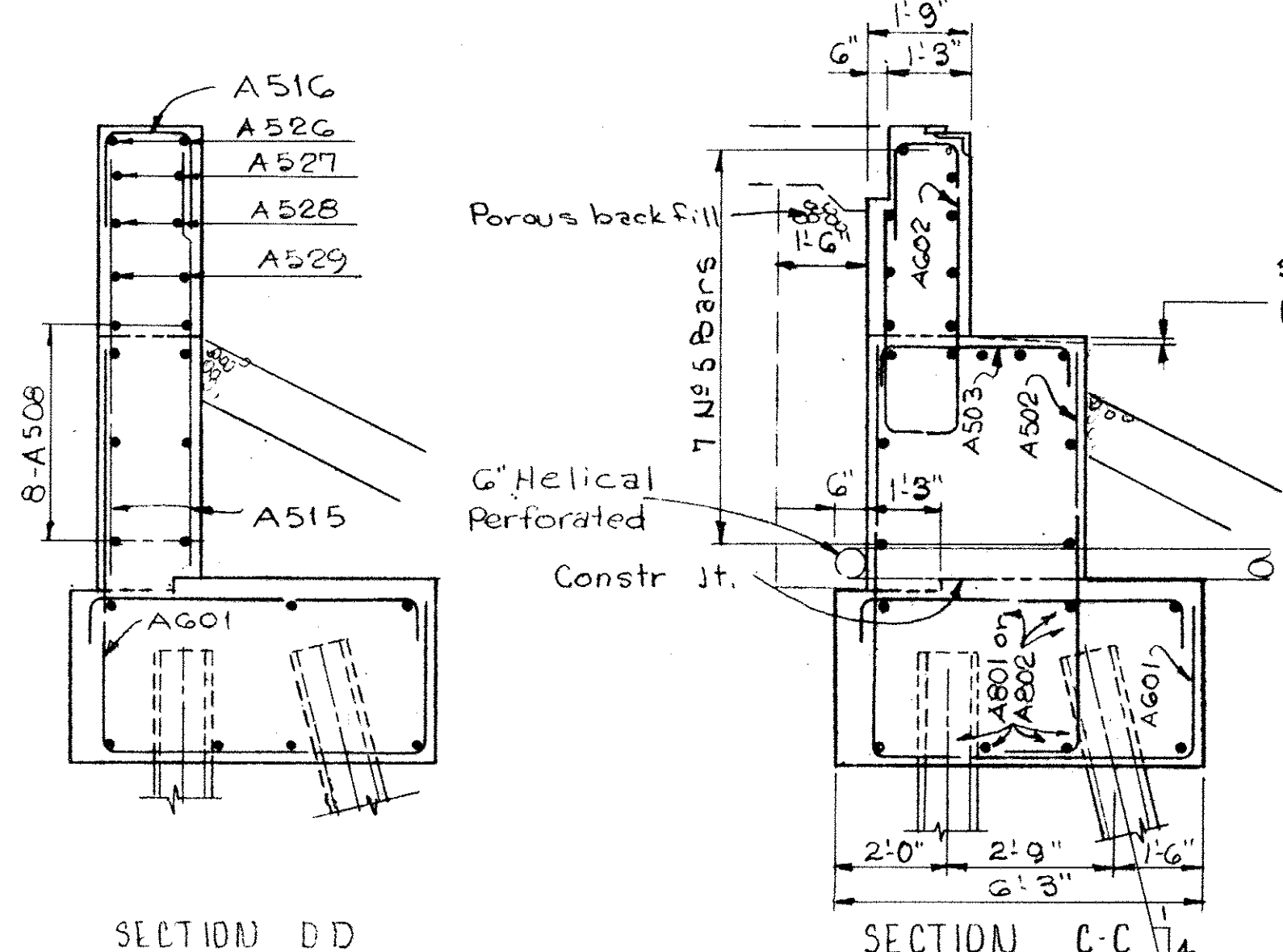
PLAN



ELEVATION



PILE LAYOUT & FOOTING PLAN

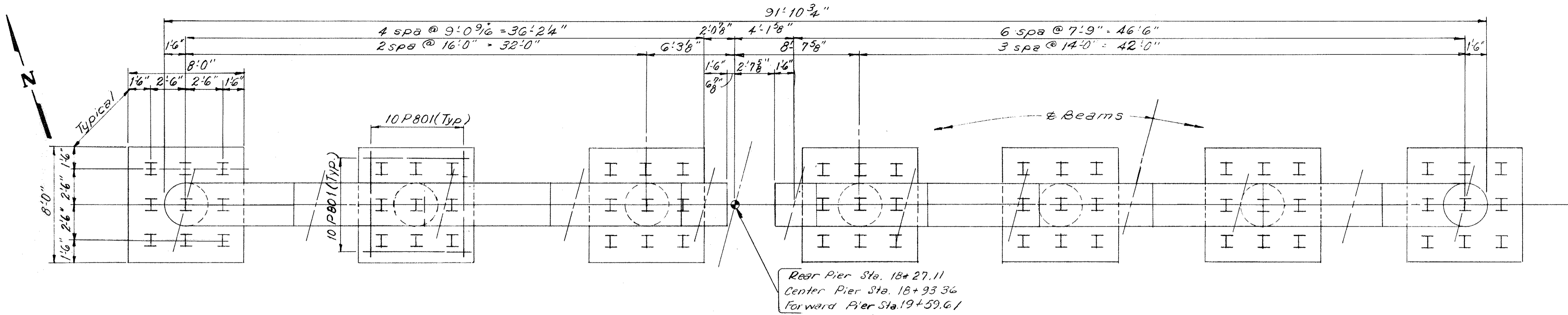


Section "DD" taken on Rear Abutment only. See Rear Abut. sheet for Detail "AA".

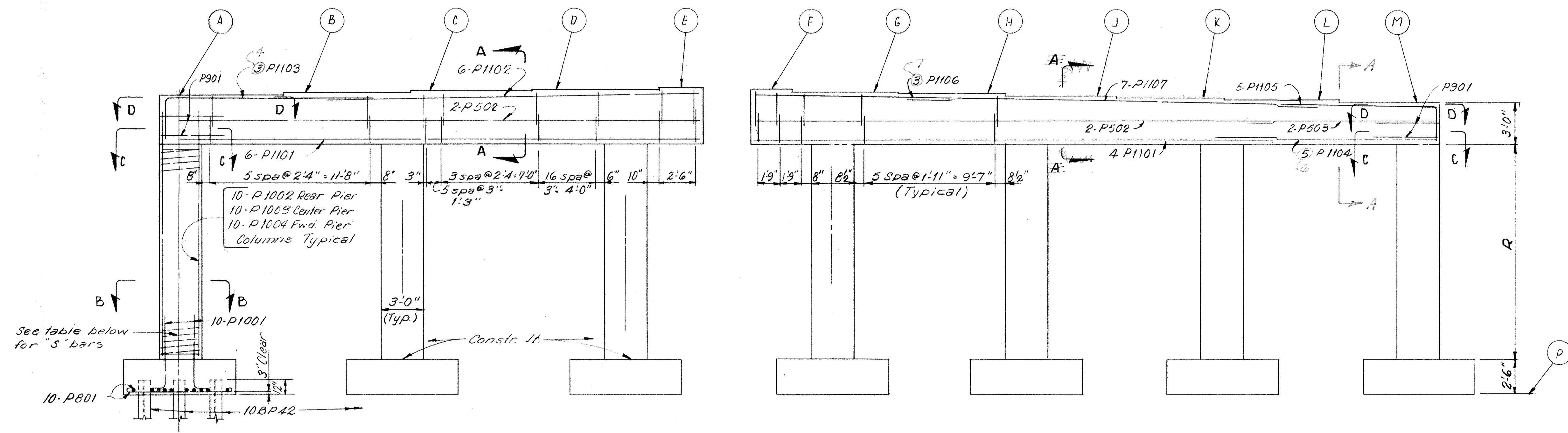
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ORANGE, N.J. COLUMBUS, OHIO HARRISBURG, PA.

ABUTMENT DETAILS
(Forward Abutment)
BRIDGE No WAS-77-0034 OVER S.R. 7
WASHINGTON COUNTY STA. 20+07.94

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
R.M.	R		NWR	RVC	8-17-66	1-26-67



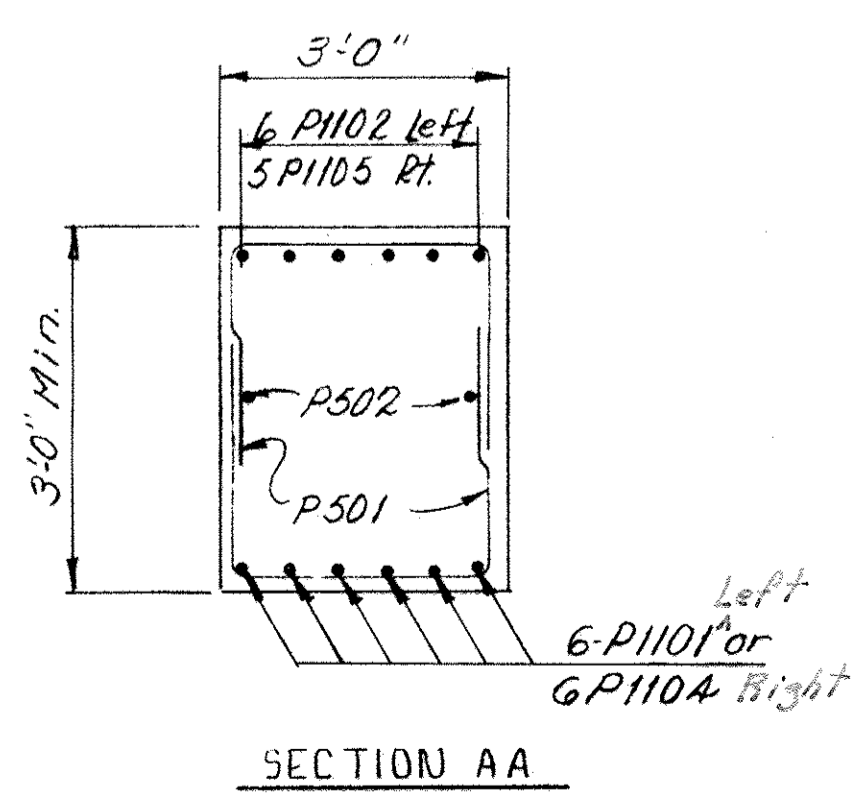
PIER CAP PLAN



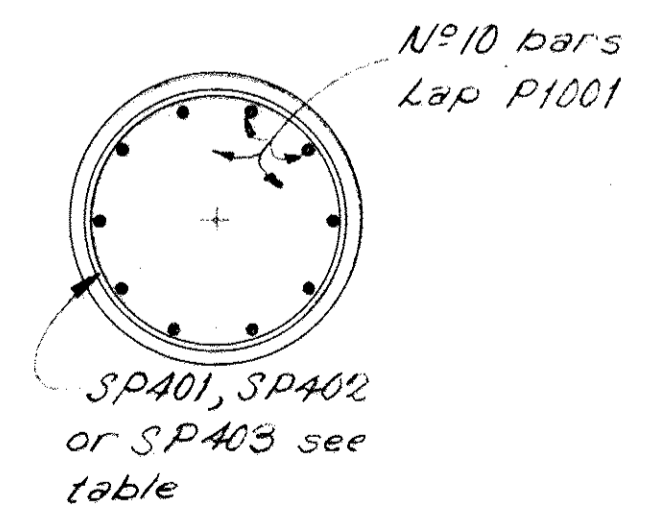
LEFT

ELEVATION

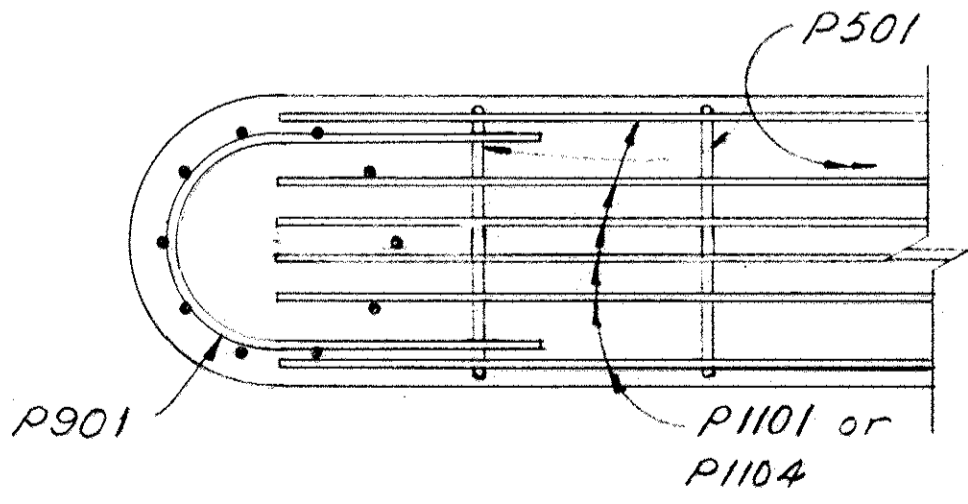
RIGHT



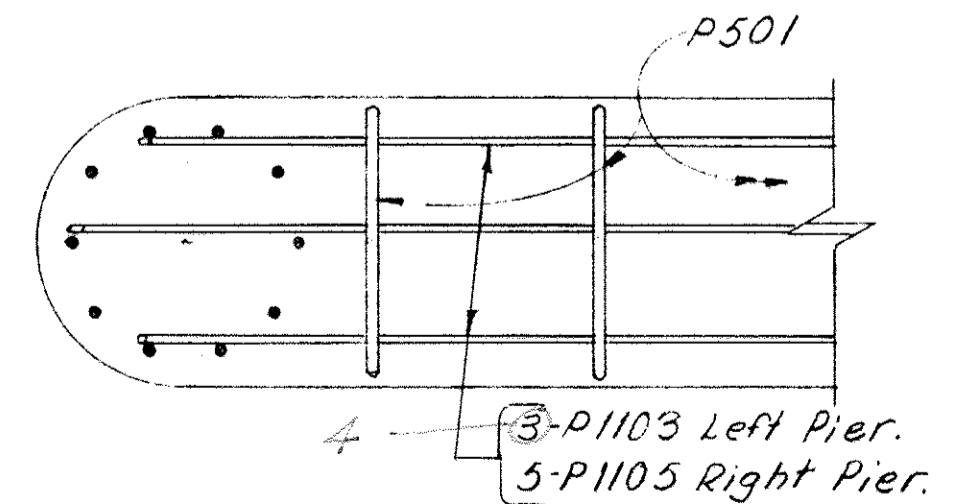
SECTION AA



SECTION BB



SECTION CC



SECTION DD

BRIDGE SEAT REINFORCING: Special care shall be taken in placing reinforcing steel for the cap on the Center Pier so as to avoid interference with the drilling of anchor bar holes.

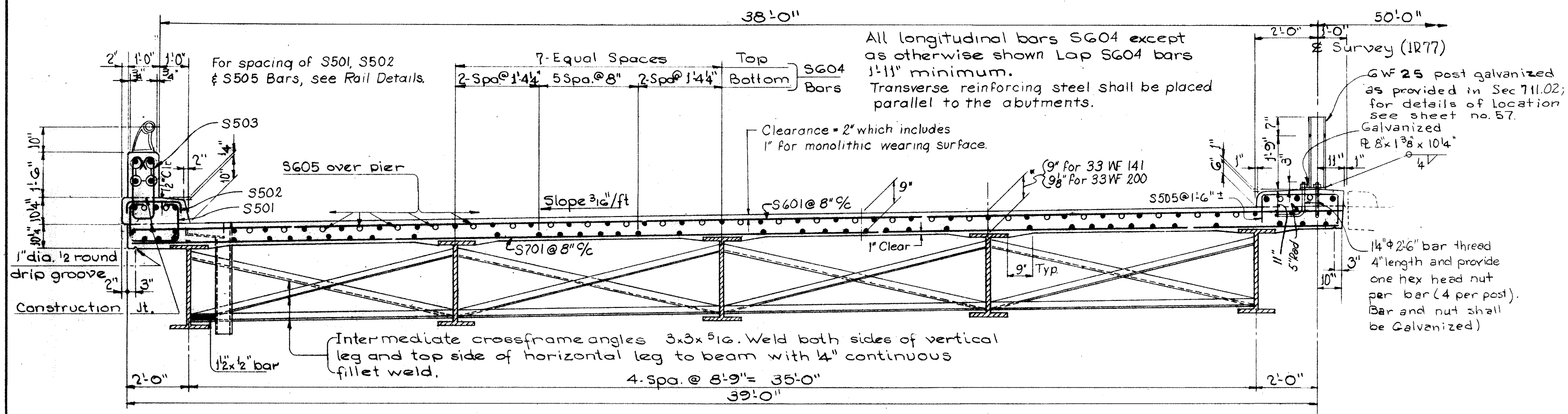
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CONSULTING ENGINEERS
ORANGE, N. J. COLUMBUS, OHIO HARRISBURG, PA.

PIER DETAILS
BRIDGE # WAS-77-0034 OVER SR 7
WASHINGTON COUNTY STA 17+78.78
to STA 20+07.94

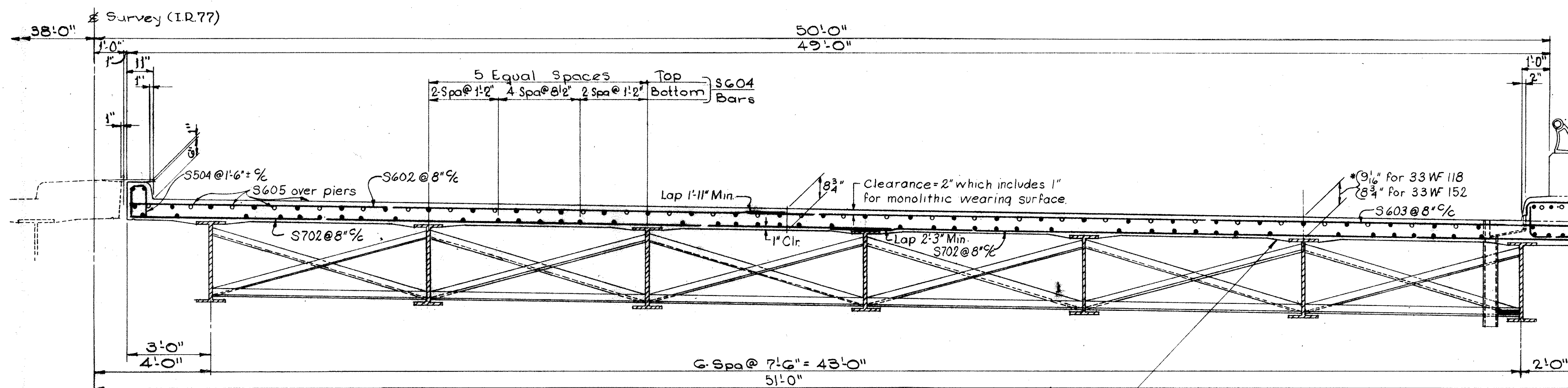
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
NWE	FEW		EVC	NWE	8-17-66	1-26-67

TABLE OF ELEVATIONS, DIMENSIONS & REINFORCING.

LOCATION	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	S	T
Rear Pier	628.78	628.87	628.97	629.07	629.17	629.25	629.10	628.95	628.80	628.65	628.50	628.34	625.34	605.01	17'-10"	SP401	P1002
Center Pier	627.51	627.61	627.70	627.80	627.90	627.94	627.79	627.63	627.48	627.33	627.18	627.03	624.03	608.03	15'-6"	SP402	P1003
Forward Pier	626.44	626.54	626.64	626.73	626.83	626.92	626.77	626.62	626.47	626.32	626.16	626.01	623.01	603.01	15'-6"	SP403	P1004



TRANSVERSE SECTION
Left Side



TRANSVERSE SECTION
Right Side
For details not shown see Left Side

*This is the nominal dimension. The quantity of deck concrete to be paid for shall be based on this dimension, even though deviation from it may be necessary because the top flange of the beam may not have the exact camber or conformation required to place it parallel to the finished grade. Deduction shall be made for volume of excess steel plates as per sec. 511.19 of the Construction and Material Specifications.

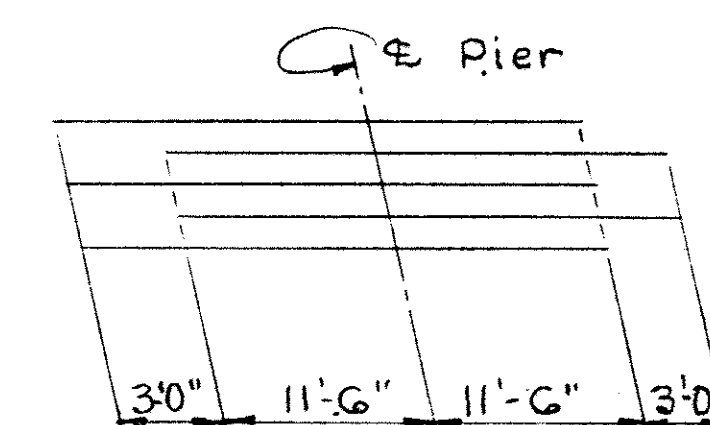
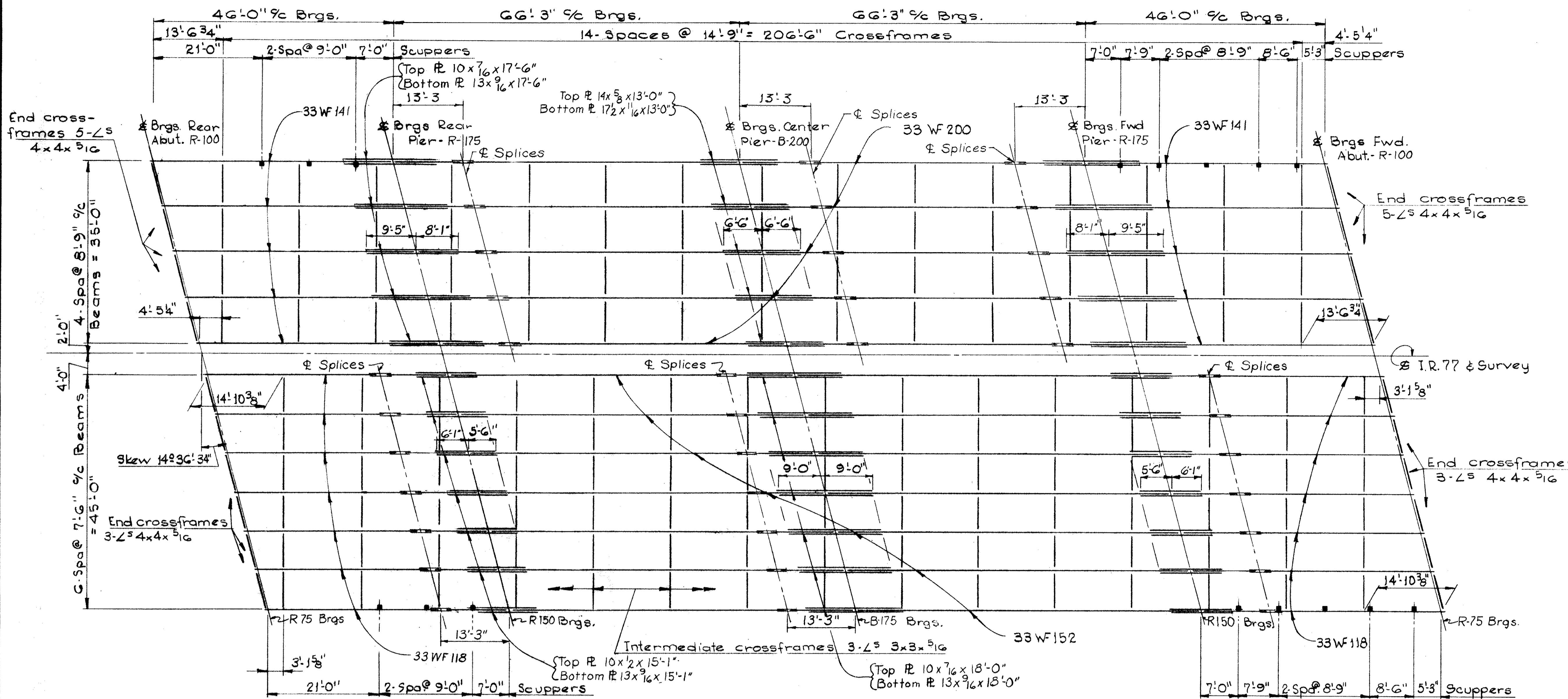


Diagram of Stagger of 605 Bars Over Piers

A typical haunch width of 9" shall be used for computing quantity of concrete. However the haunch width may vary between 6" and 12" provided that the slope shall be not more 1:4 for a haunch less than 9" in width.

LOUIS BERGER AND ASSOCIATES CONSULTING ENGINEERS ORANGE, N.J. COLUMBUS, OHIO HARRISBURG, PA.						
SUPERSTRUCTURE DETAILS						
BRIDGE N° WAS-77-0034						
OVER S.R. 7						
WASHINGTON COUNTY STA. 17+78.78 20+07.94						
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
RWT	RWT		NWR	RVC	8-17-66	

WASHINGTON COUNTY
WAS-77-0.06

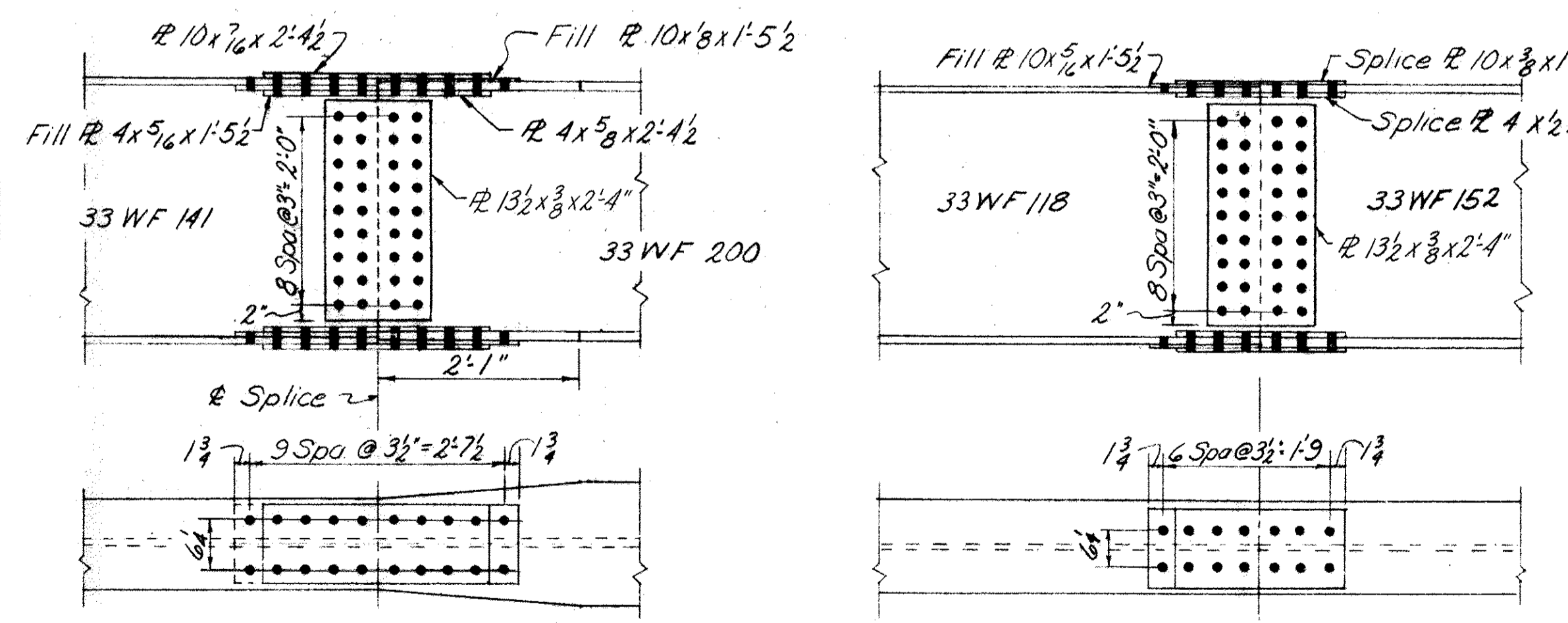


DECK ELEVATIONS AT CURB LINES BEFORE CONCRETE IS PLACED

POINT	STATION		ELEVATION	
	LEFT CURB	RIGHT CURB	LEFT CURB	RIGHT CURB
Br. Rr. Abut	17+71.47	17+80.59	634.43	634.81
A	17+82.97	17+92.09	634.34	634.72
B	17+94.47	18+03.59	634.16	634.44
C	18+05.97	18+15.09	633.87	634.25
Br. Rr. Pier	18+17.47	18+26.59	633.62	634.01
D	18+30.72	18+39.84	633.53	633.92
E	18+50.60	18+59.71	633.33	633.71
F	18+67.16	18+76.27	632.90	633.28
Br. Cent. Pier	18+83.22	18+92.84	632.45	632.84
G	18+96.97	19+06.09	632.37	632.71
H	19+16.84	19+25.96	632.16	632.55
D	19+36.72	19+45.83	631.65	631.57
Br. Fwd Pier	19+49.97	19+59.09	631.28	631.67
C	19+61.47	19+70.59	631.12	631.51
B	19+72.97	19+82.09	631.01	631.41
A	19+84.47	19+93.59	630.72	631.11
Br. Fwd Abut	19+95.97	20+05.09	630.47	630.86
Br. Rr. Abut	17+81.35	17+93.88	634.75	633.84
H	17+92.85	18+05.38	634.66	633.75
J	18+04.35	18+16.88	634.48	633.57
K	18+14.10	18+26.63	634.22	633.35
Br. Rear Pier	18+27.35	18+39.88	633.95	633.03
L	18+43.91	18+56.44	633.80	632.88
M	18+60.47	18+73.00	633.66	632.73
N	18+80.34	18+92.87	633.17	632.25
Br. Cent. Pier	18+93.60	19+06.13	632.79	631.87
O	19+01.16	19+22.69	632.75	631.73
M	19+12.72	19+39.25	632.50	631.58
L	19+43.28	19+55.81	632.06	631.14
Br. Fwd Pier	19+59.85	19+72.38	631.62	630.70
K	19+73.10	19+85.63	631.50	630.58
J	19+82.85	19+95.38	631.35	630.43
H	19+94.35	19+06.88	631.06	630.14
Br. Rear Abut	20+05.85	20+18.38	630.81	629.89

STEEL FRAMING PLAN

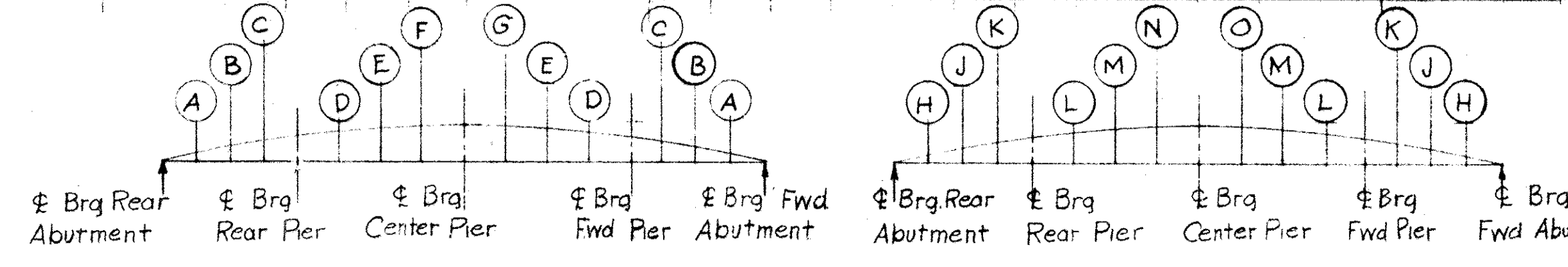
Notes
CROSS FRAMES may be shifted, if necessary, to avoid beam web splices.



BEAM SPLICE DETAILS
For dimensions and details not shown see SD-1-65 (11-8-65)

Location	DEFLECTION AND CAMBER															
	Left Bridge								Right Bridge							
	Interior Beam				Fascia Beam and Median Curb Beam				Interior Beam				Fascia Beam and Median Curb Beam			
	End Span	Center Span			End Span	Center Span			End Span	Center Span			End Span	Center Span		
Deflection due to weight of steel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Deflection due to remaining dead load	1/8"	1/8"	0	5/16"	3/16"	1/8"	0	1/8"	3/16"	3/16"	1/8"	1/4"	1/8"	1/8"	1/8"	5/16"
Convexity required for vertical curve	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Required Shop Camber	1/8"	1/8"	0	3/8"	3/16"	1/8"	0	1/8"	3/16"	3/16"	1/8"	5/16"	1/8"	1/8"	1/8"	9/16"

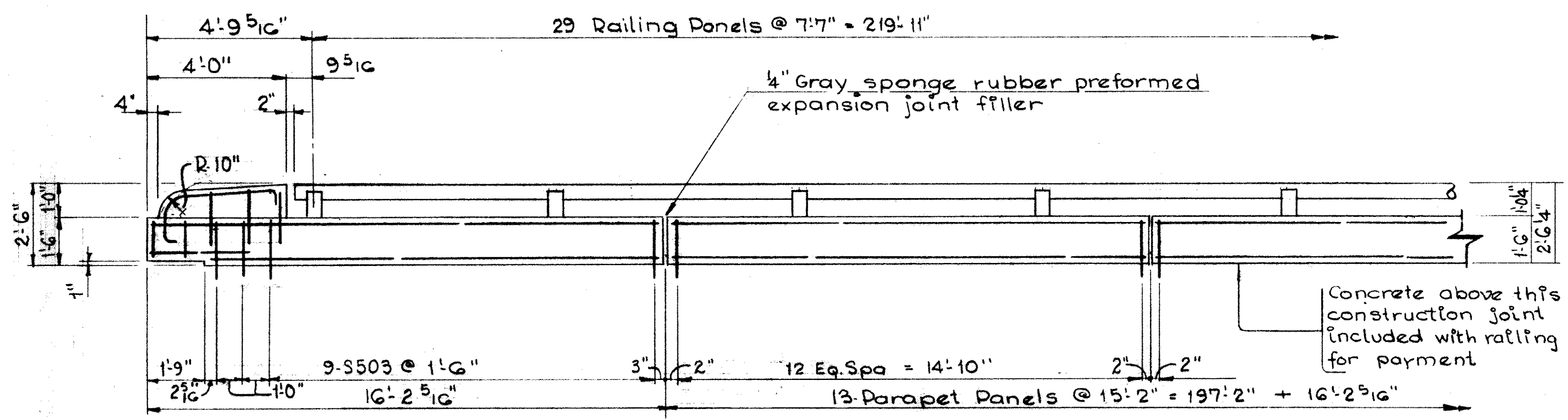
Left Bridge
Point (F) = 3/4 Point
Point (G) = Splice Point
Right Bridge
Point (N) = Splice Point
Point (O) = 3/4 Point



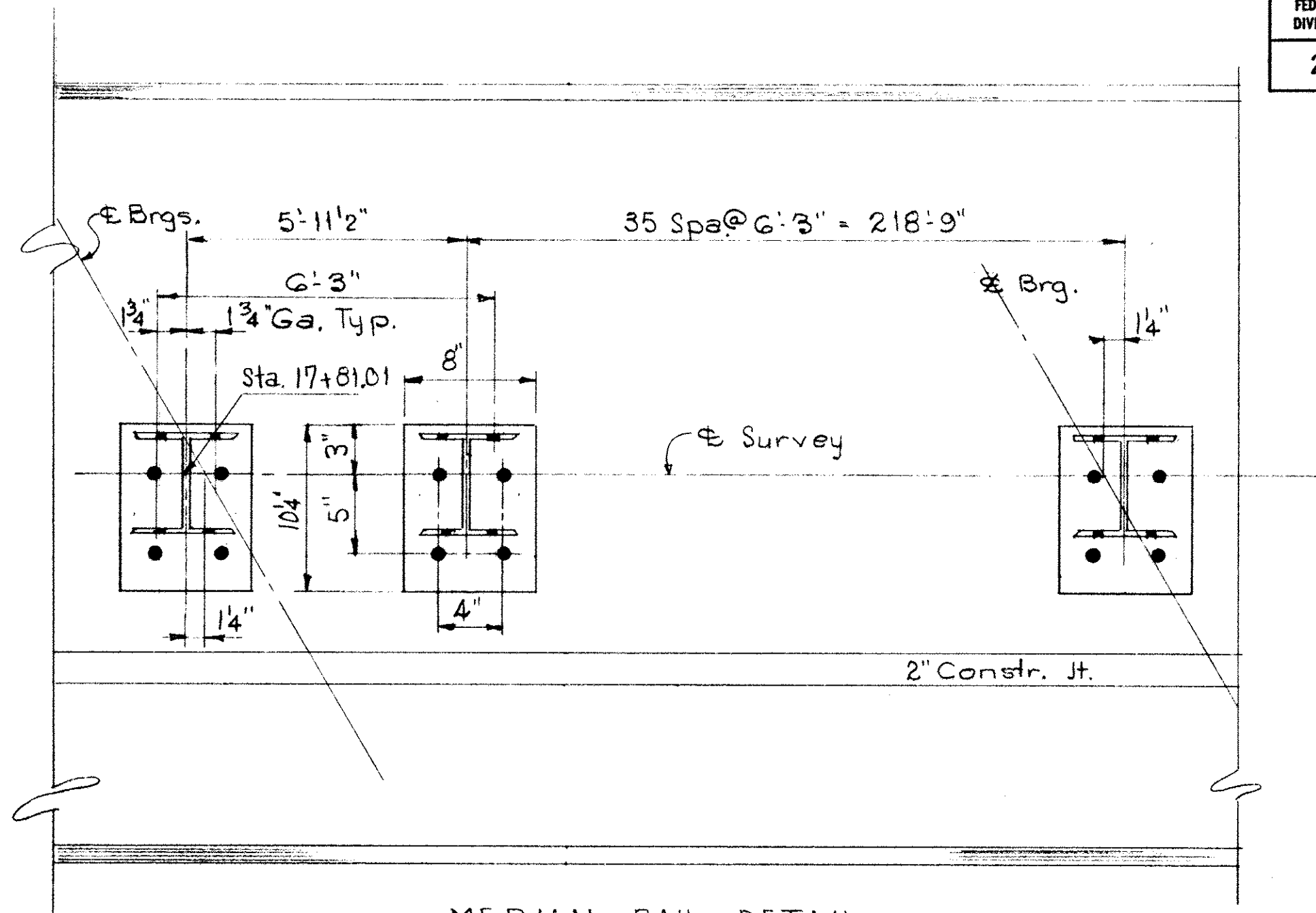
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CONSULTING ENGINEERS
ORANGE, N.J. COLUMBUS, OHIO HARRISBURG, PA.

SUPERSTRUCTURE DETAILS
BRIDGE N° WAS-77-0034
OVER S.R. 7
WASHINGTON COUNTY STA. 17+78.78
20+07.94

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
			HWR	RVG	8-17-66	

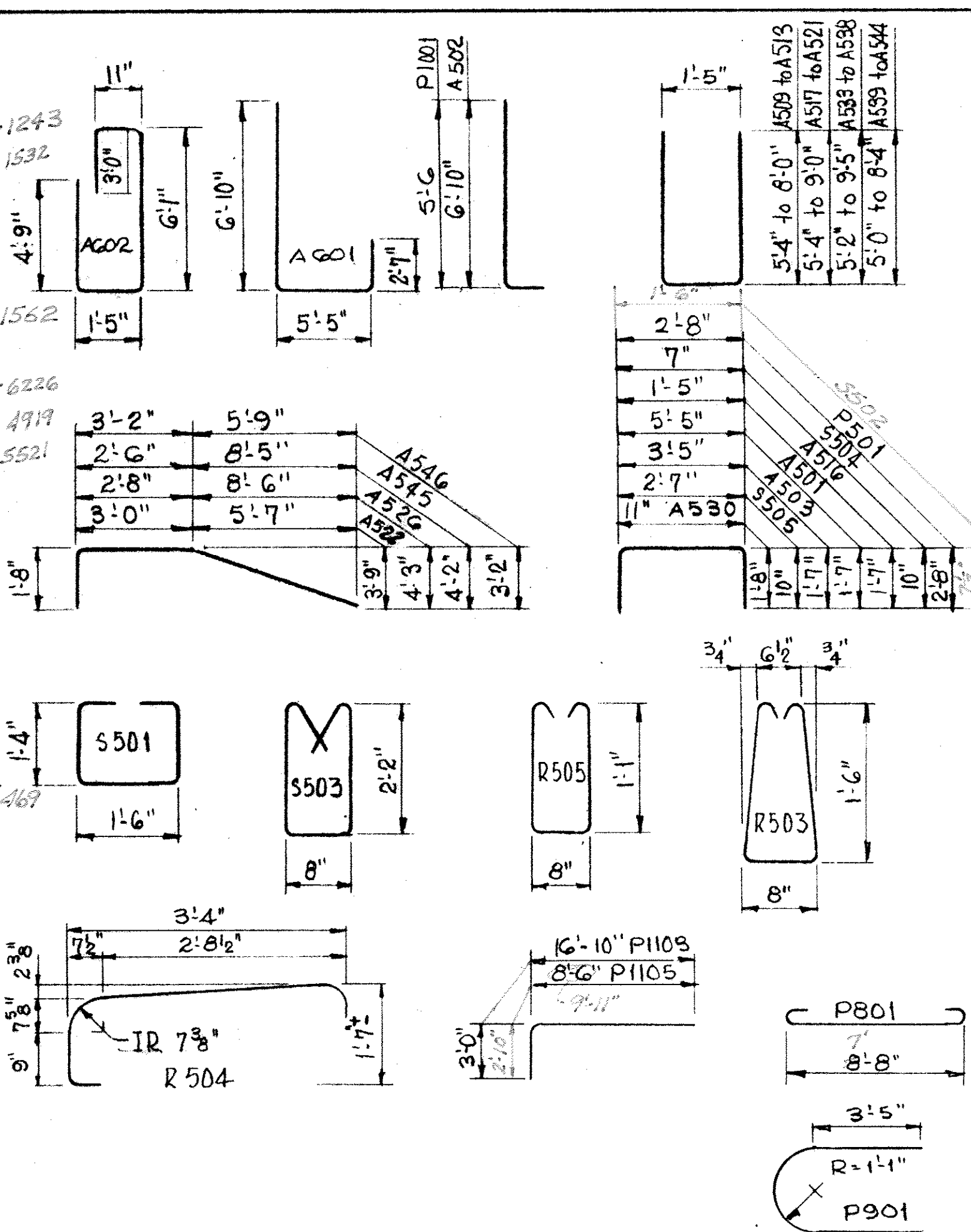


TYPICAL END PARPET PANEL TYPICAL INTERIOR PANEL
PARAPET & RAILING DETAIL



MEDIAN RAIL DETAIL

MARK	Nº	LENGTH	WEIGHT	SHP.	MARK	Nº	LENGTH	WEIGHT	SHP.	MARK	Nº	LENGTH	WEIGHT	SHP.
ABUTMENTS					SUPERSTRUCTURE									
A539		11'-3" to			PIER									
A801	21	33'-3"	1864	S	A544	2	13'-5"	28	B	S 701	338	40'-10"	28,211	S
A802	21	32'-8"	1832	S	A545	2	11'-3"	23	B	S 702	676	26'-9"	36,961	S
					A546	2	11'-3"	23	B	P1101	30	37'-6"	5977	S
AG01	112	14'-6"	2439	B	A547	5	12'-10"	67	S	P1102	18	25'-0"	2391	S
AG02	186	15'-6"	4330	B	A548	2	8'-2"	17	S	P1103	9	19'-10"	966	S
					A549	6	21'-4"	134	S	P1104	158	15'-11"	1268	S
A501	112	8'-4"	973	B	A550	2	18'-6"	39	S	P1105	15	12'-5"	991	B
A502	108	7'-2"	806	B	A551	2	17'-0"	35	S	P1106	9	14'-0"	669	S
A503	108	6'-4"	713	B	A552	5	10'-5"	54	S	P1107	21	25'-3"	2817	S
A504	34	38'-10"	1377	S	A553	2	9'-6"	20	S					
A505	5	15'-4"	80	S						S 501	302	4'-11"	1,549	B
A506	6	22'-2"	139	S						S 502	302	2'-6"	787	B
A507	2	7'-3"	15	S						S 503	382	5'-7"	2,225	B
A508	8	12'-3"	102	S						S 504	302	2'-0"	630	B
A509		11'-10" to								S 505	302	4'-0"	1,260	B
A514		6'-2" inc.												
A515	4	9'-9"	41	S						P1001	240	6'-2"	636	B
A516	26	4'-4"	1183	B						P1002	70	17'-6"	527	S
A517		11'-10" to								P1003	70	13'-2"	397	S
A521		11" inc.								P1004	70	15'-2"	457	S
A522	42	10'-9"	45	B						P901	12	10'-2"	415	B
A523	2	19'-0"	40	S										
A524	4	20'-6"	86	S						P801	420	10'-10"	1214	B
A525	2	21'-8"	45	S										
A526	42	18'-8"	2957	B										
A527	2	6'-0"	13	S										
A528	2	8'-0"	17	S										
A529	2	10'-9"	22	S										
A530	8	4'-0"	33	B										
A531	34	40'-0"	1418	S										
A532	2	5'-3"	11	S										
A533		11'-6" to												
A538		8'-2" inc.												



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, A700 is a number 7 size bar and A1014 is a number 10 size.

SPIRAL REINFORCING BARS: The "Length" shown in the steel list for the spiral bars is the distance from the top of the footing to the bottom of the pier cap. The "No. of Turns" shown is the "Length" divided by the pitch, plus 3 turns (total number of closed coils), expressed bars shall not have deformations but shall in other respects conform to Item 509, 1/2 closed coils shall be provided at the end of each spiral unit. Four steel channel, tee or angle spacers, weighing approximately 0.68 lbs per lin. ft. of spacer, shall be provided for each spiral unit. They shall be equally spaced along the periphery of the coil. The number of pounds of these spacers, based on 0.68 lb. per lin. ft., will be paid for as reinforcing steel and is included in the tabulated quantity of spiral bars.

LOUIS BERGER AND ASSOCIATES
CONSULTING ENGINEERS
ORANGE, N. J. COLUMBUS, OHIO HARRISBURG, PA.

REINFORCING STEEL LIST and PARAPET DETAILS
BRIDGE Nº WAS-77-0034 over SR 7
WASHINGTON COUNTY STA. 17+78.78
to STA. 20+07.94

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
R.W.	R.C.W.		H.W.R.	R.V.G.	8-17-66	12-18-68 1-26-67