

GENERAL NOTES

REFERENCE shall be made to Standard Drawings SD-1-65, sheets 1, 2 and 3 (dated 11-8-65); BR-1-65, sheet 1 (revised 11-24-65); RB-1-55 (revised 2-2-59); AS-1-67 (dated 1-11-68); and to Supplemental Specifications 808 (revised 1-13-67), 811 (dated 1-1-67), 825 (dated 12-19-67), 828 (revised 1-1-67), 832 (dated 5-25-67) and 931 (dated 5-25-67).

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.

DESIGN DATA: Design Loading - CF 2000 (57).

Concrete Class "C" - basic unit stress 1,333 p.s.i.
Concrete Class "E" - basic unit stress 1,133 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 p.s.i. Except, spiral reinforcement may be plain, Structural Grade with basic unit stress of 18,000 p.s.i.

EXCAVATION QUANTITY includes the removal of fill material required for construction of the abutments.

PILES for the abutments shall be driven to a minimum bearing capacity of 35 tons per pile.

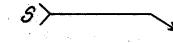
FOUNDATION BEARING PRESSURE: Pier footings are designed for a maximum bearing pressure of 2.3 tons per sq. ft.

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

UTILITY LINES: All expense involved in relocating the affected utility lines shall be borne by the owners. The Contractor and Owners are requested to cooperate by arranging their work in such a manner that inconvenience to either will be held to a minimum.

PROCEDURE: The embankment shall be placed and compacted up to the finished spill-thru slope and to the level of the subgrade for a distance of 200 feet back of the abutments, after which excavation shall be made for the abutments and the piles driven.

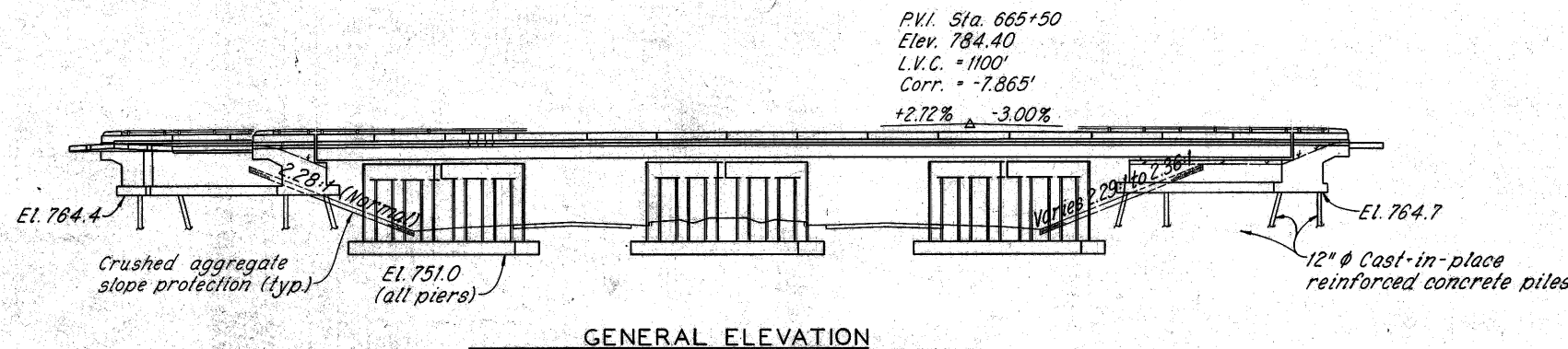
PAINTING of structural steel shall be according to Supplemental Specification 832.

WELDS on secondary stress carrying members are shown thus: 

WELDED ATTACHMENTS: No attachments shall be made by field welding to the top flanges or flange plates of continuous beams or plate girders within a distance of 0.10 of the span length on either side of the interior supports. Welding for attachments to the top flanges at other parts of the spans shall be kept at least 2" from edge of flange.

LIGHTING: For structure grounding see Standard Drawing HL-4.

LIGHT POLE BASE DETAILS: See sheet No. 297A.



ESTIMATED QUANTITIES

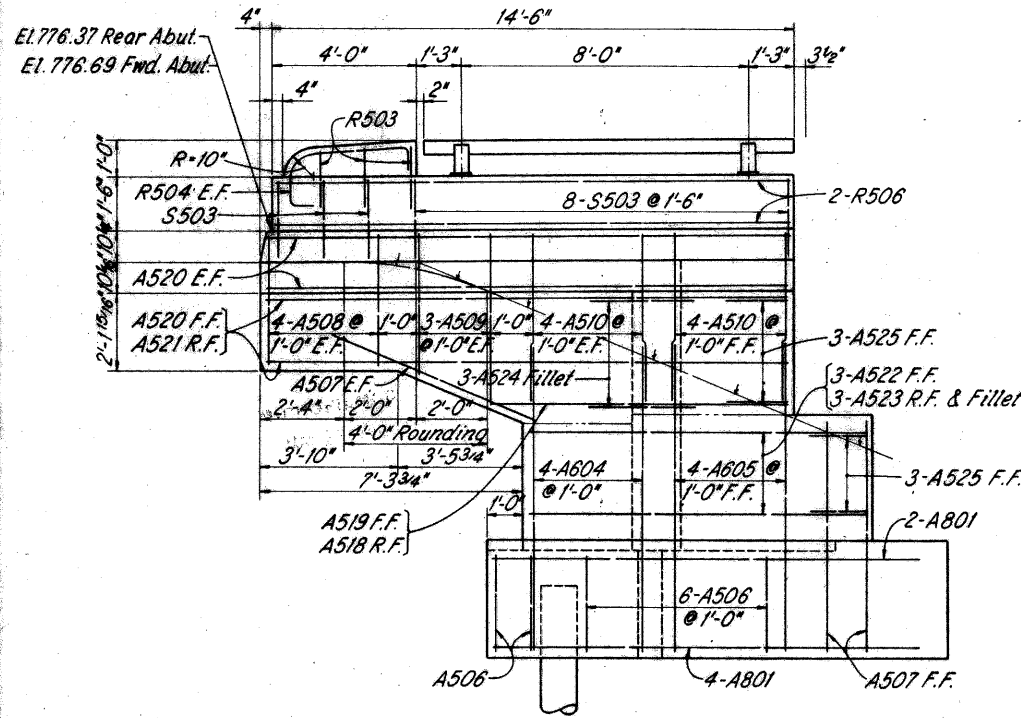
ITEM	TOTAL	UNIT	DESCRIPTION	SUPER.	ABUTS.	PIERS	GEN'L
503	805	Cu.Yds.	Unclassified excavation		350	455	
503	Lump	Sum	Cofferdams, Cribbs and sheeting				Lump
505	Lump	Sum	First test pile				Lump
507	800	Lin.Ft.	12" Cast-in-place reinf. concrete piles		800		
509	227,462	Lbs.	Reinforcing steel	139,474	18,483	69,505	
511	542	Cu.Yds.	Class "C" concrete, superstructure	542			
511	155	Cu.Yds.	Class "C" concrete, piers above footings			155	
511	182	Cu.Yds.	Class "E" concrete, pier footings			182	
511	289	Cu.Yds.	Class "E" concrete, abutments		289		
512	15	Lin.Ft.	Premolded sealing strip		15		
513	384,120	Lbs.	Structural steel	384,120			
517	497.17	Lin.Ft.	Bridge railing, type 1	437.42	59.75		
518	16	Each	Scupper, including supports	16			
518	61	Cu.Yds.	Porous backfill		61		
518	153	Lin.Ft.	6" Helical perforated CMP, 707.06, included specials		153		
518	84	Lin.Ft.	6" Helical CMP, 707.06, non-perforated		84		
601	871	Sq.Yds.	Crushed aggregate slope protection				871
625			See sheet No. 223 for Lighting Quantities				
808	541	Units	Water-reducing, set-retarding admixture	541			
825	2033	Sq.Yds.	Concrete surface treatment	1953	80		
828	150	Lin.Ft.	Joint sealer		150		
832	384,120	Lbs.	Field painting structural steel	384,120			

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Consulting Engineers
MANSFIELD WOOSTER OHIO

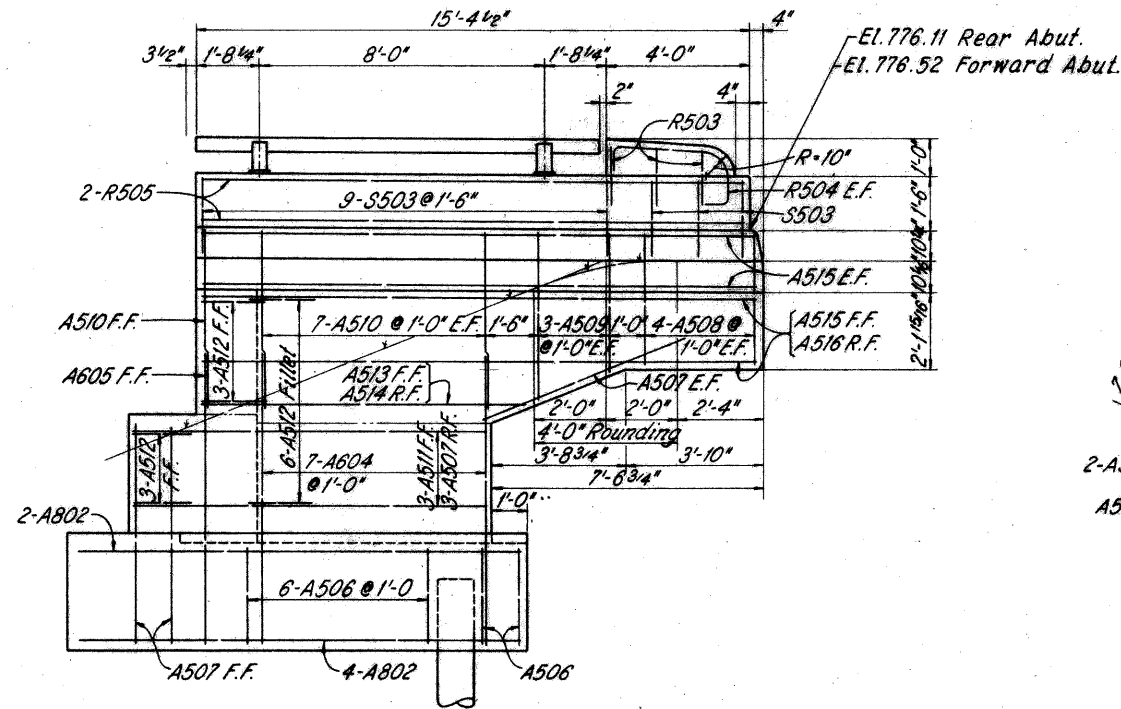
GENERAL PLAN, GENERAL NOTES AND ESTIMATED QUANTITIES
BRIDGE NO. LOR-20-1303
UNDER S.R. 301
LORAIN COUNTY U.S.R. 20
STA. 686+74.94

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
DGC	RWH	RWH		RAK	7-12-68	

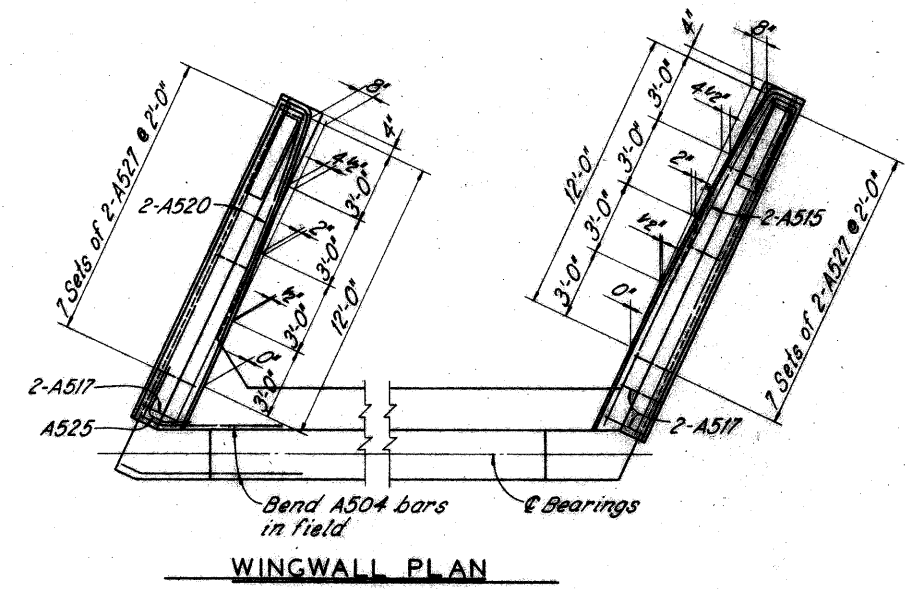
LOR-20-12.62



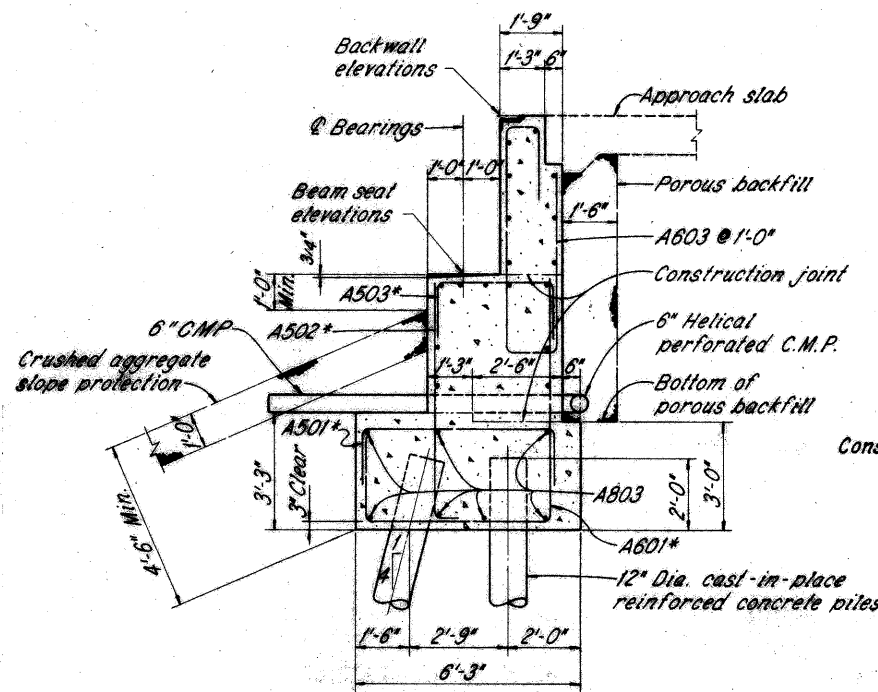
WALL "A"



WALL "B"

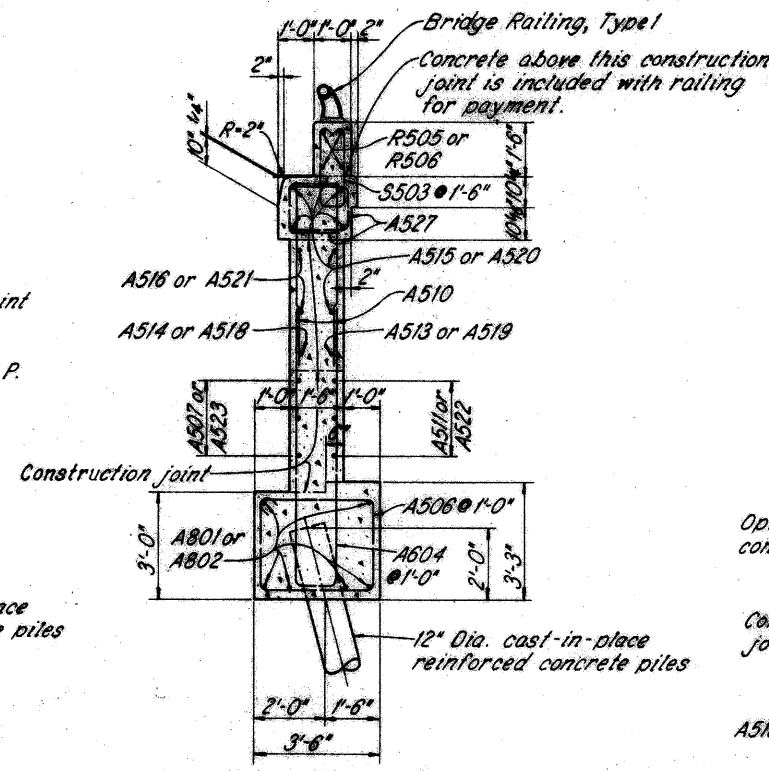


WINGWALL PLAN

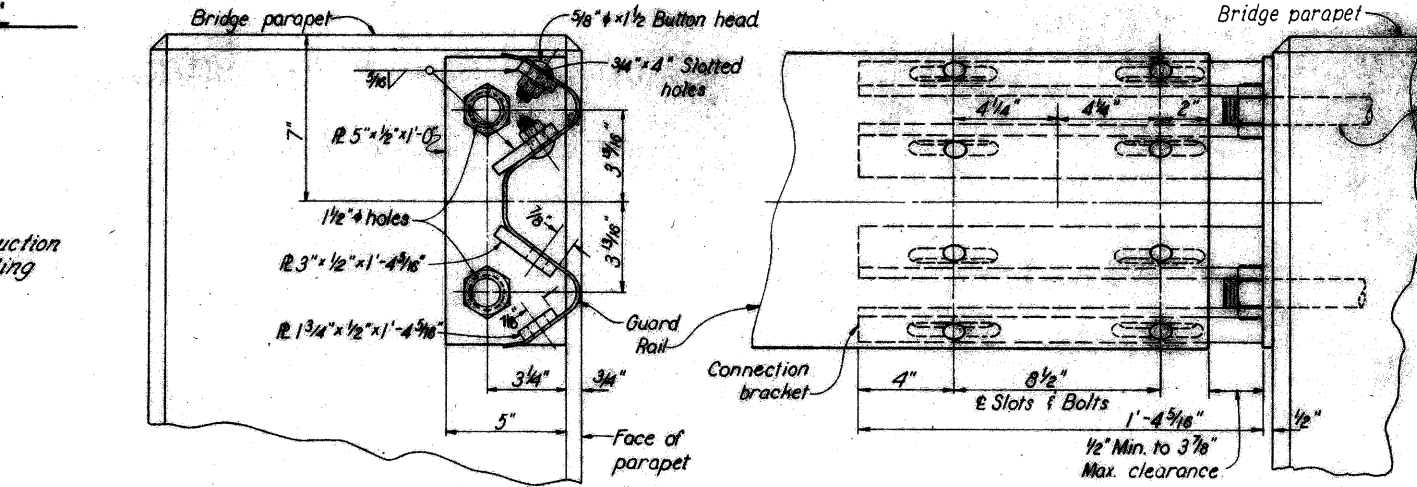


Note: All longitudinal bars above footing are A504 or A505.

SECTION A-A



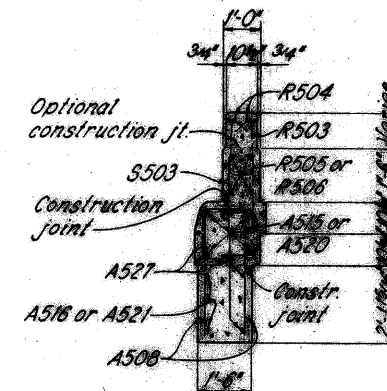
SECTION B-B



CONNECTION BRACKET DETAIL
GUARDRAIL TO BRIDGE CONNECTION

The connection bracket shall be galvanized after welding and shall be included with guard rail for payment.

Note: Guard rail shall be connected at all four corners of bridge.



SECTION C-C

ABUTMENT NOTES: See sheet 3/8

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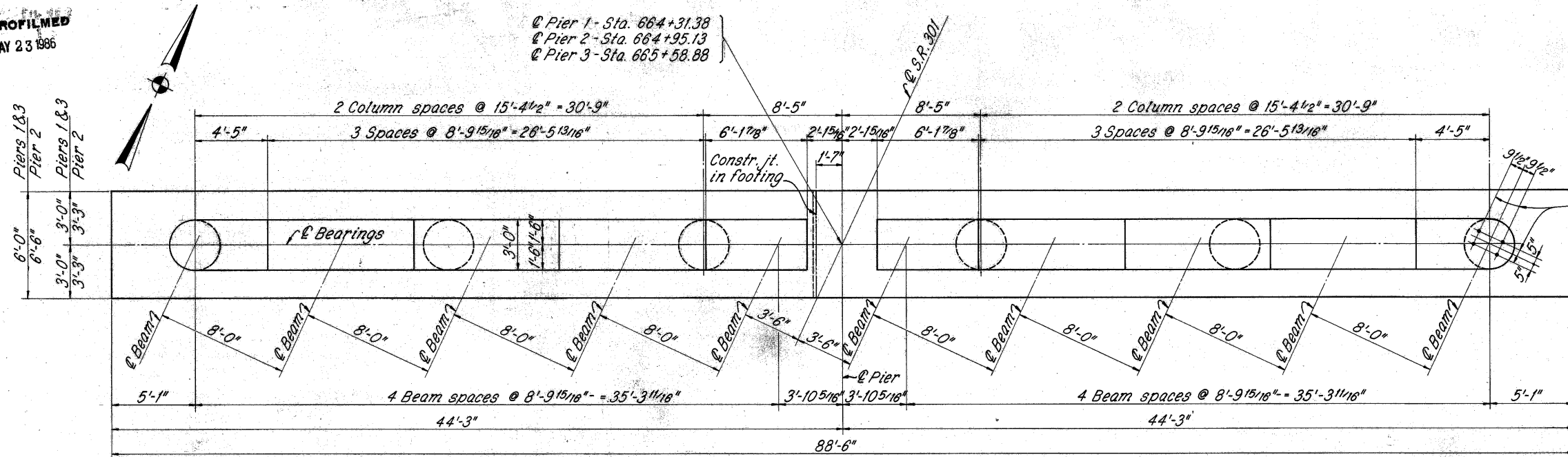
ABUTMENTS - 2
BRIDGE NO. LOR-20-1262
UNDER S.R. 201
LORAIN COUNTY OHIO U.S. 20

DATE: 7-12-65
RAK 7-12-65

MICROFILMED
MAY 23 1986

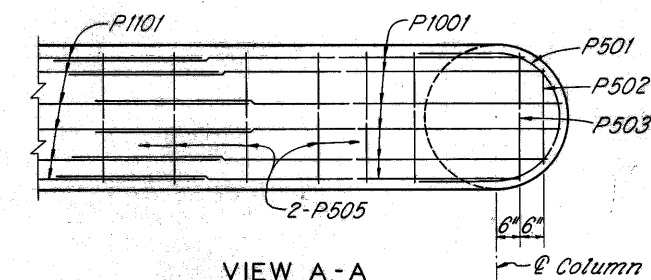
LOR-20-12.62

@ Pier 1 - Sta. 664+31.38
 @ Pier 2 - Sta. 664+95.13
 @ Pier 3 - Sta. 665+58.88

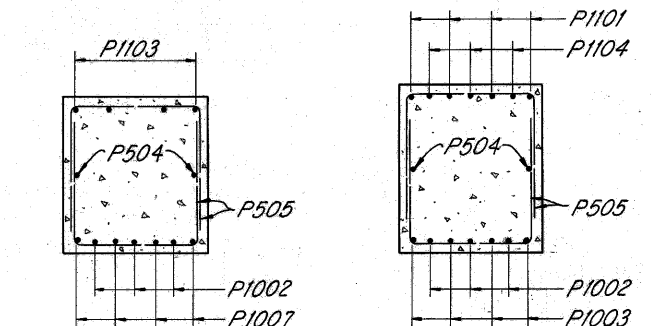


HALF PLAN PIERS 1 AND 3

HALF PLAN PIER 2

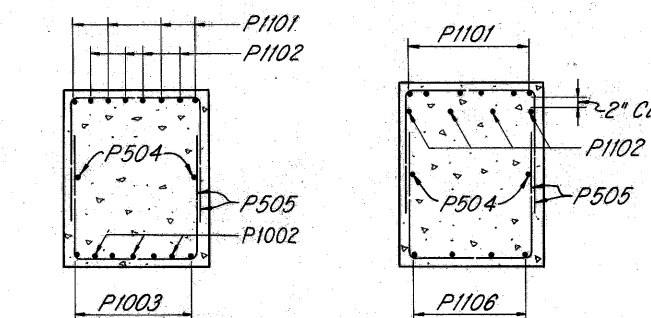


VIEW A-A



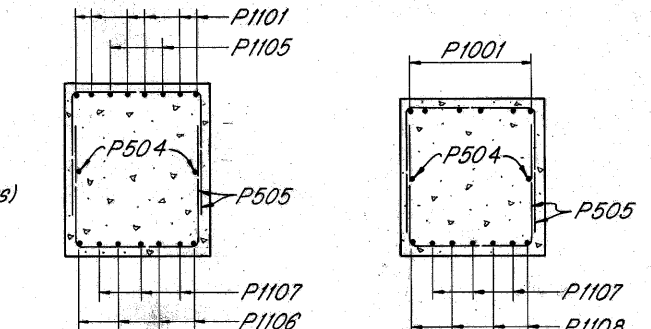
SECTION B-B

SECTION C-C



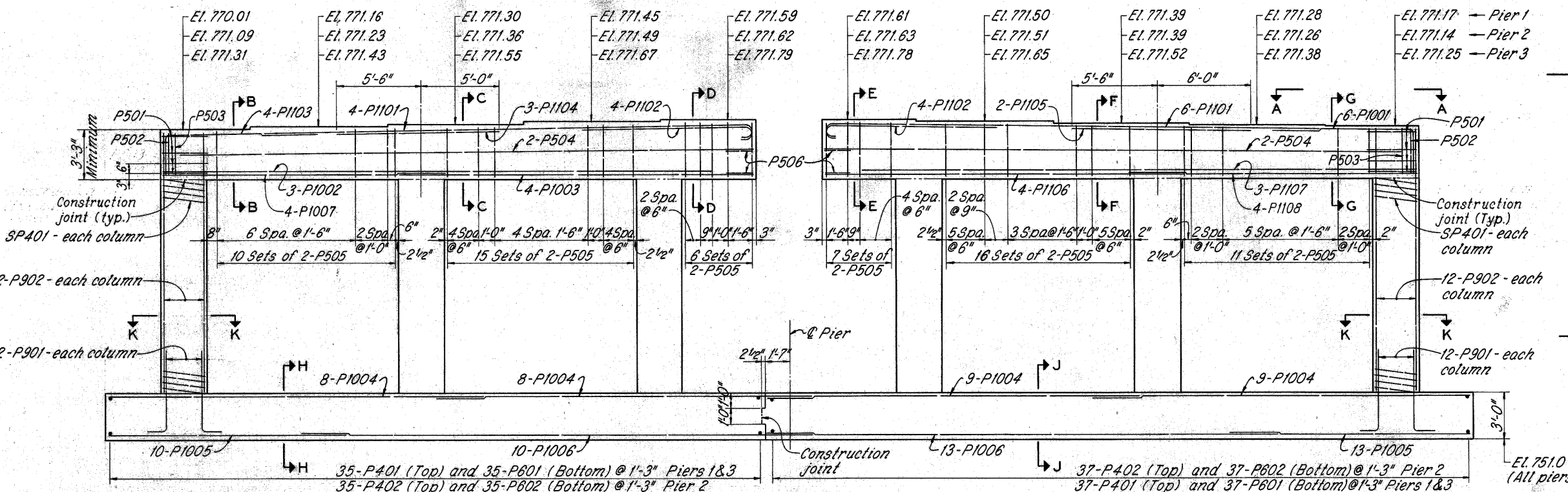
SECTION D-D

SECTION E-E



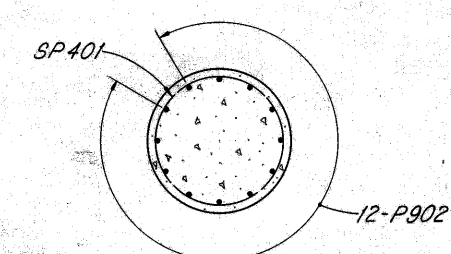
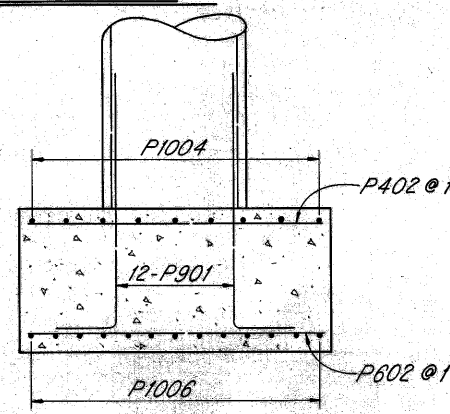
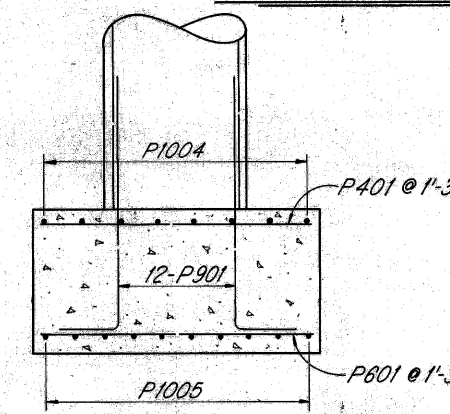
SECTION F-F

SECTION G-G



HALF ELEVATION PIERS 1 AND 3

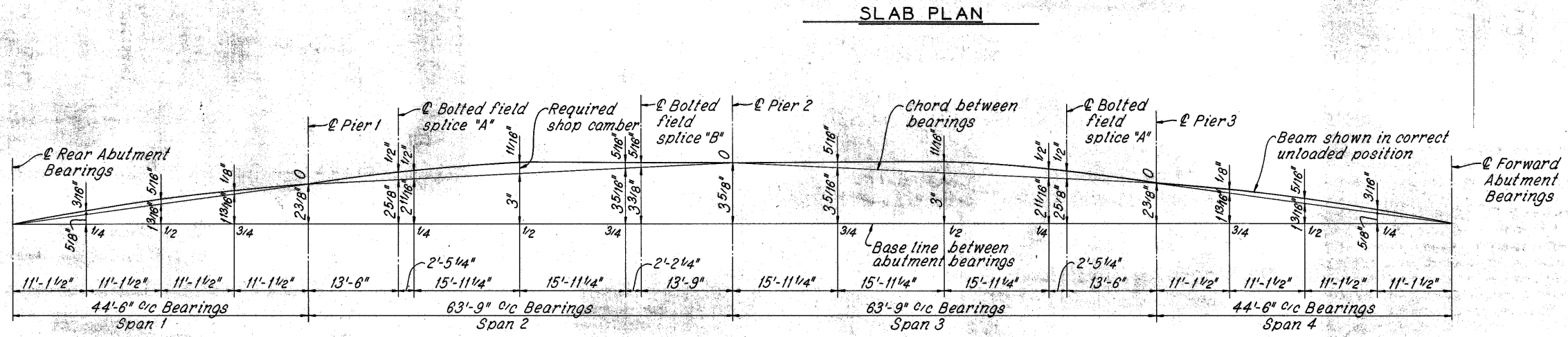
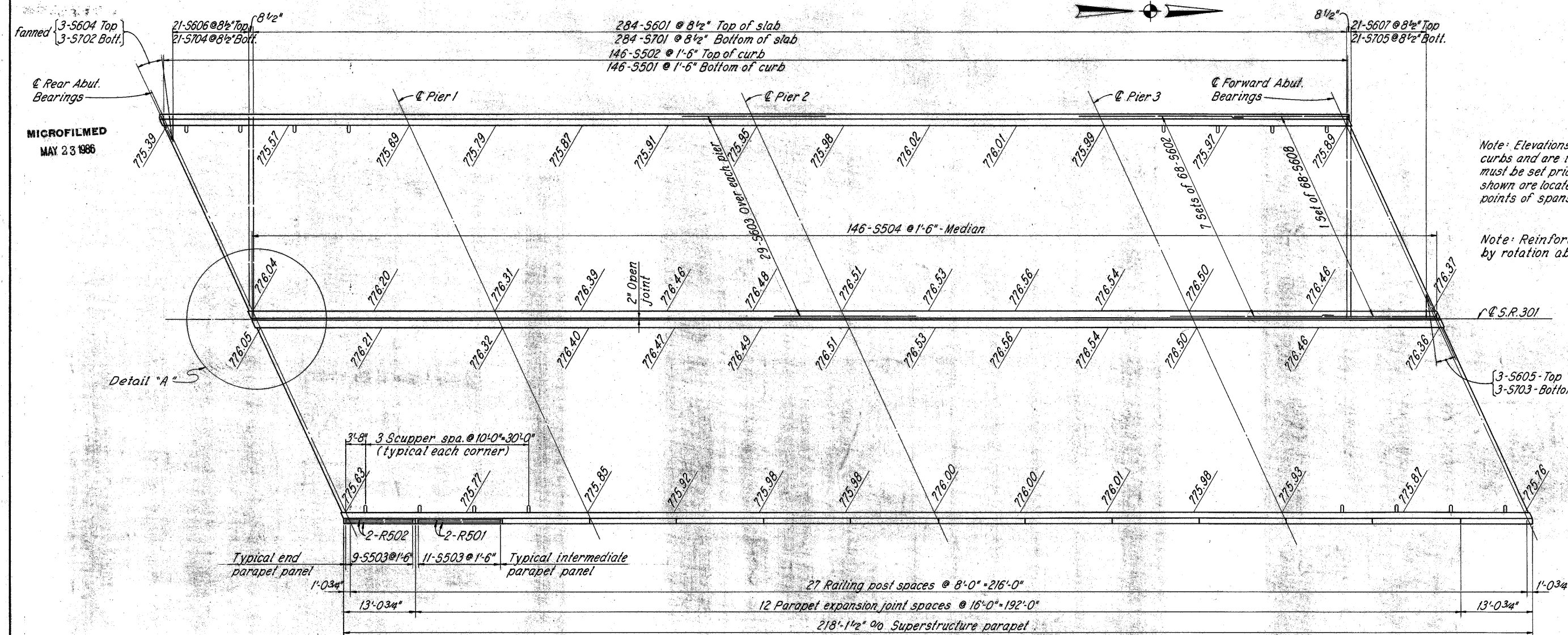
HALF ELEVATION PIER 2



PIER NOTES:
CONCRETE: All concrete for pier footings shall be Class "E". All concrete for piers above footings shall be Class "C".
BRIDGE SEAT REINFORCING: Special care shall be taken in placing reinforcing steel in the vicinity of the bridge seat so as to avoid interference with the drilling of anchor bolt holes at Pier 2.
GENERAL NOTES: See sheet 2/8

SHAFER, SHAFER & JOHNSTON, INC. 5/8
 LICHENWALTER AND ASSOCIATES, INC.
 Consulting Engineers
 MANSFIELD, OHIO WOOSTER, OHIO
PIERS
 BRIDGE NO. LOR-20-1303
 UNDER S.R. 301
 LORAIN COUNTY U.S.R. 20
 STA. 686 + 74.94
 DESIGNED DGC DRAWN DGC TRACED RWH CHECKED RAK REVIEWED DATE 7-12-68 REVISED

LOR-20-12.62



CAMBERING of beams is required in accordance with the following table:

Span location →	END SPANS				INTERIOR SPANS			
	1/4	1/2	3/4	C SPLICE "A"	1/4	1/2	3/4	C SPLICE "B"
Deflection due to weight of steel	0	0	0	1/16"	1/16"	1/16"	0	0
Deflection due to remaining dead load	1/8"	3/16"	1/16"	3/16"	3/16"	5/16"	1/16"	1/16"
Adjustment required for vertical curve	1/16"	1/8"	1/16"	1/4"	1/4"	5/16"	1/4"	1/4"
Required shop camber	3/16"	5/16"	1/8"	1/2"	1/2"	1 1/16"	5/16"	5/16"

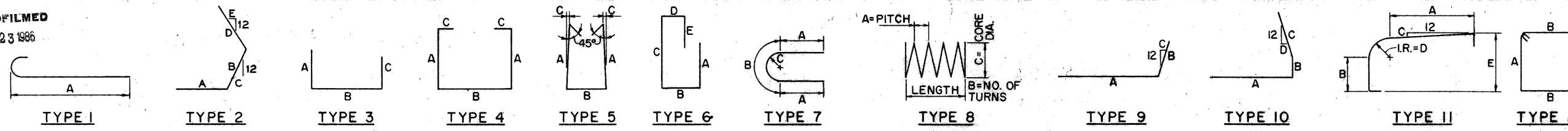
DETAIL "A": See sheet 8 / 8
 SUPERSTRUCTURE NOTES: See sheet 6 / 8

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 Consulting Engineers
 MANSFIELD WOODSTER WOODSTER OHIO

SUPERSTRUCTURE-2
 BRIDGE NO. LOR-20-1303
 UNDER S.R. 301

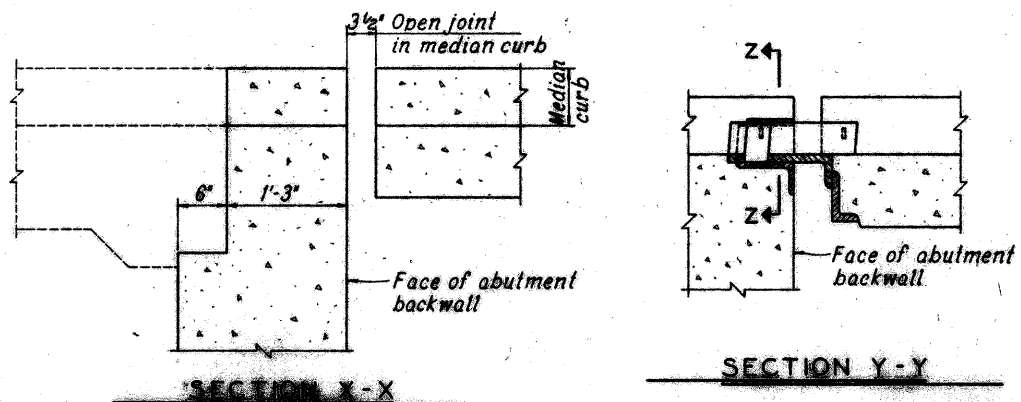
LORAIN COUNTY U.S.R. 20
 STA. 666 + 74.94

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
DGC	DGC	RWH		RAK	7-12-68	

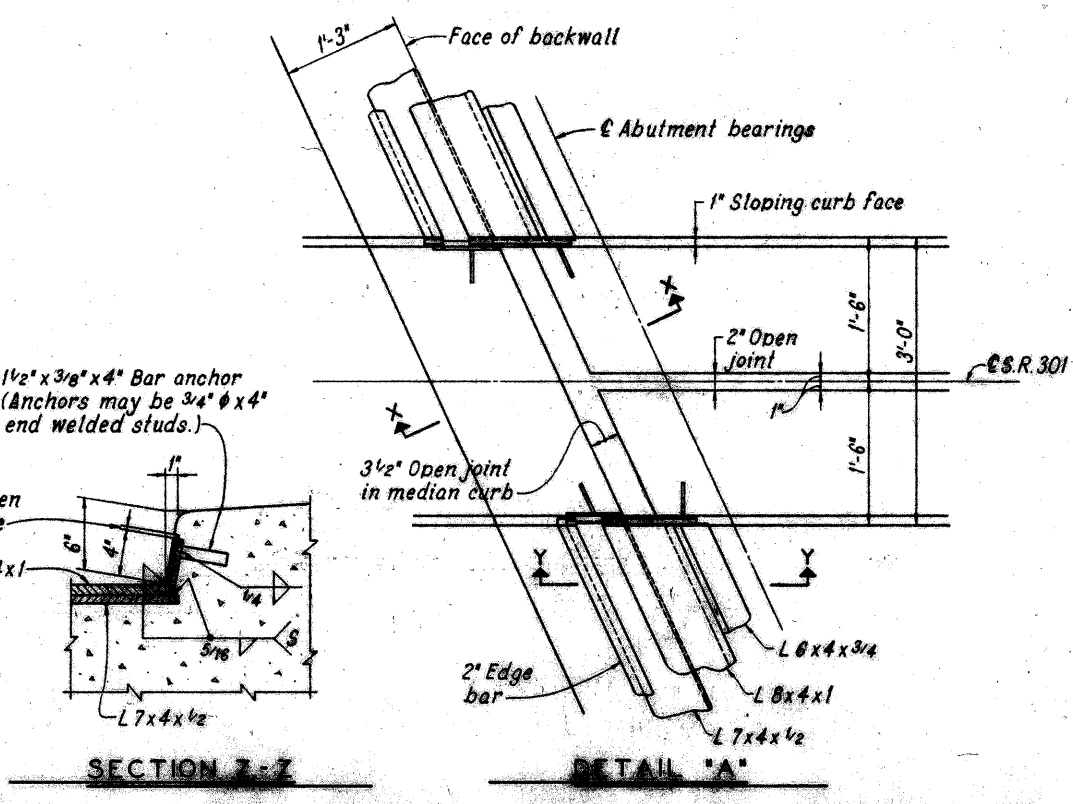


ABUTMENTS									
MARK	NO.	LENGTH	TYPE	A	B	C	D	E	WEIGHT
R503	12	4'-2"	5	1'-6"	8"	3/4"			*
R504	8	5'-4"	11	2'-8 1/2"	9"	3/4"	7 3/8"	1'-7"	*
R505	8	15'-0"	Str.						*
R506	8	14'-2"	Str.						*
S503	46	5'-7"	5	2'-2"	8"	0			268
A501	112	8'-3"	3	1'-7"	5'-4"	1'-7"			964
A502	114	6'-9"	3	7 1/2"	6'-3"	0			803
A503	114	6'-4"	3	1'-7"	3'-5"	1'-7"			753
A504	102	21'-2"	Str.						2252
A505	34	22'-11"	Str.						813
A506	32	11'-8"	12	2'-7"	3'-0"				389
A507	22	6'-3"	Str.						143
A508	32	3'-5"	Str.						114
A509	24	Varies	Str.	3'-9" to 4'-6"	Vary 8 each by 4 1/2"				103
A510	54	4'-9"	Str.						268
A511	6	9'-7"	Str.						60
A512	24	3'-1"	9	1'-7"	1'-7"	5 5/8"			77
A513	2	8'-10"	Str.						18
A514	2	7'-4"	Str.						15
A515	12	15'-4"	Str.						192
A516	4	13'-9"	Str.						57
A517	12	4'-3"	3	1'-7"	1'-4"	1'-7"			53
A518	2	3'-11"	Str.						8
A519	2	8'-0"	Str.						17
A520	12	14'-4"	Str.						179
A521	4	10'-2"	Str.						42
A522	6	9'-4"	Str.						58
A523	6	7'-0"	2	3'-0"	2'-7"	7 5/8"	1'-7"	5 5/8"	44
A524	6	5'-7"	2	1'-7"	2'-7"	7 5/8"	1'-7"	5 5/8"	35
A525	12	3'-1"	10	1'-7"	8"	1'-0"	5 5/8"		39
A526	8	4'-2"	3	1'-7"	1'-3"	1'-7"			35
A527	56	②	3	①	1'-4"	①			204
A601	112	13'-10"	3	2'-7"	5'-4"	6'-3"			2327
A602	44	12'-11"	3	5'-11"	1'-5"	5'-11"			854
A603	118	14'-2"	6	4'-7"	1'-5"	5'-11"	11"	2'-0"	2511
A604	22	17'-0"	3	8'-7"	1'-2"	8'-1"			562
A605	10	8'-9"	3	8'-1"	10"	0			131
A801	12	11'-9"	Str.						376
A802	12	12'-3"	Str.						392
A803	42	29'-8"	Str.						3327
TOTAL WEIGHT									18,483

① Varies 10" to 1'-7"; Vary 8 each by 1/2"
 ② Varies 2'-9" to 4'-3"; Vary 8 each by 3"
 *- These railing bars are included with Item 517 for payment.

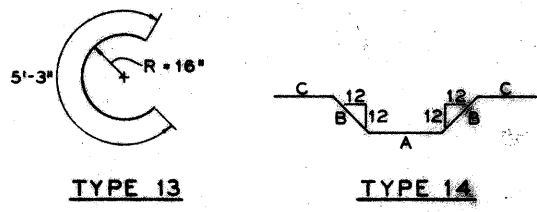


PIERS									
MARK	NO.	LENGTH	TYPE	A	B	C	D	E	WEIGHT
P401	144	5'-6"	Str.						529
P402	72	6'-0"	Str.						289
P501	24	7'-4"	7	1'-7"	4'-2"	1'-4"			184
P502	6	7'-9"	3	3'-1"	1'-10"	3'-1"			48
P503	6	8'-5"	3	3'-1"	2'-6"	3'-1"			53
P504	12	36'-11"	Str.						462
P505	384	7'-7"	3	2'-7"	2'-8"	2'-7"			3037
P506	12	5'-7"	3	1'-7"	2'-8"	1'-7"			70
P601	144	5'-6"	Str.						1190
P602	72	6'-0"	Str.						649
P901	216	6'-7"	3	5'-7"	1'-3"	0			4835
P902	216	16'-10"	Str.						12,362
P1001	12	12'-3"	3	3'-0"	9'-7"	0			633
P1002	12	35'-3"	Str.						1820
P1003	16	23'-1"	Str.						1589
P1004	100	24'-5"	Str.						10,507
P1005	66	15'-7"	Str.						4426
P1006	66	33'-2"	Str.						9419
P1007	16	18'-3"	Str.						1256
P1101	28	33'-4"	1	31'-9"					4959
P1102	24	12'-6"	1	10'-11"					1594
P1103	16	12'-7"	3	3'-0"	9'-11"	0			1070
P1104	12	10'-6"	Str.						669
P1105	4	11'-6"	Str.						244
P1106	8	23'-3"	Str.						988
P1107	6	35'-7"	Str.						1134
P1108	8	18'-5"	Str.						783
SP401	18	13'-9"	8	4 1/2"	40	2'-8"			4706
TOTAL WEIGHT									63,505

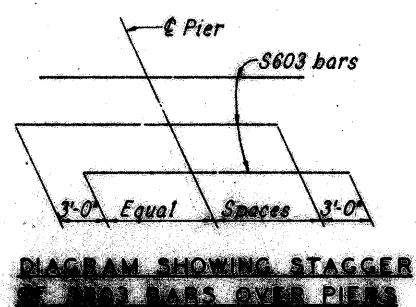


SUPERSTRUCTURE									
MARK	NO.	LENGTH	TYPE	A	B	C	D	E	WEIGHT
R501	96	15'-8"	Str.						*
R502	16	12'-8"	Str.						*
S501	292	4'-11"	4	7'-4"	1'-8"	7 1/2"			1497
S502	292	2'-6"	3	7 1/2"	1'-8"	7 1/2"			761
S503	300	5'-7"	5	2'-2"	8"	0			1747
S504	292	3'-1"	3	1'-2"	1'-0"	1'-2"			939
S601	568	37'-0"	Str.						31,566
S602	952	30'-0"	Str.						42,897
S603	174	28'-0"	Str.						6795
S604	6	5'-0"	Str.						25
S605	6	4'-0"	Str.						25
S606	42	Varies	Str.	35'-4" to 5'-0"	Vary 2 each by 1'-6 3/8"				1272
S607	42	Varies	Str.	34'-3" to 4'-0"	Vary 2 each by 1'-6 3/8"				1500
S608	136	20'-11"	Str.						4273
S701	568	37'-0"	Str.						42,897
S702	6	5'-0"	Str.						25
S703	6	4'-0"	Str.						25
S704	42	Varies	Str.	35'-4" to 5'-0"	Vary 2 each by 1'-6 3/8"				1772
S705	42	Varies	Str.	34'-3" to 4'-0"	Vary 2 each by 1'-6 3/8"				1600
L501	4	9'-5"	14	1'-3"	4'-2"	0			20
L502	4	9'-9"	14	1'-3"	2'-11"	1'-8"			20
L503	4	4'-11"	3	1'-2"	2'-10"	1'-2"			20
L504	4	6'-9"	3	2'-1"	2'-10"	2'-1"			20
TOTAL WEIGHT									139,602

REPLACEMENT BARS			
MARK	NO.	LENGTH	TYPE
RE400	1	6'-3"	13
RE500	1	6'-7"	Str.
RE600	5	6'-11"	Str.
RE700	3	7'-2"	Str.
RE800	1	7'-6"	Str.
RE900	1	7'-10"	Str.
RE1000	2	8'-2"	Str.
RE1100	1	8'-8"	Str.



NOTES:
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: A300 is a No. 5 size bar and P1102 is a No. 11 size bar.
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 as nearest whole number. Spiral reinforcing bars shall not have deformations but shall in other respects conform to Item 509. 1 1/2 closed coils shall be provided at the ends of each spiral unit. Four steel channel, tee or angle spacers, weighing approximately 0.68 lbs. per lin. ft. of spacers, 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 lbs. per lin. ft. will be paid for as reinforcing steel and is included in the tabulated quantity of spiral bars.



SHAFER, JOHNSTON, LICHENWALTER AND ASSOCIATES, INC. Consulting Engineers
 MANSFIELD OHIO REGISTERED
REINFORCING STEEL
 BRIDGE NO. LOR-20-1262 UNDER S.R. 301
 LORAIN COUNTY OHIO U.S.A.
 STA. 688+74.94
 DESIGNED BY: RAK
 CHECKED BY: RAK
 REVISIONS: RAK 7-12-68