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STATE OF OHIO DEPARTMENT OF HIGHWAYS LOR-254-0.00-B

F-U-1115 (2)

FED. RD. DIVISION	STATE	PROJECT	1/325
2	OHIO	F-U-1115 (2)	

LORAIN COUNTY
LOR-254-0.00-B

1963 SPECIFICATIONS

LINE DATA

F-1115(2)
NET LENGTH OF PROJECT 6650.23 LIN. FT. OR 1.259 MILES
NET LENGTH OF WORK 12874.12 LIN. FT. OR 2.438 MILES

U-1115(2)
NET LENGTH OF PROJECT 1784.0 LIN. FT. OR 3.378 MILES
NET LENGTH OF WORK 21,337.70 LIN. FT. OR 4.041 MILES

TOTAL NET LENGTH OF PROJECTS 24,490.00 LIN. FT. OR 4.638 MILES
TOTAL NET LENGTH OF WORK 34,208.82 LIN. FT. OR 6.478 MILES

FOR DETAILS OF LINE DATA SEE SHEET NO. 4

CONVENTIONAL SIGNS

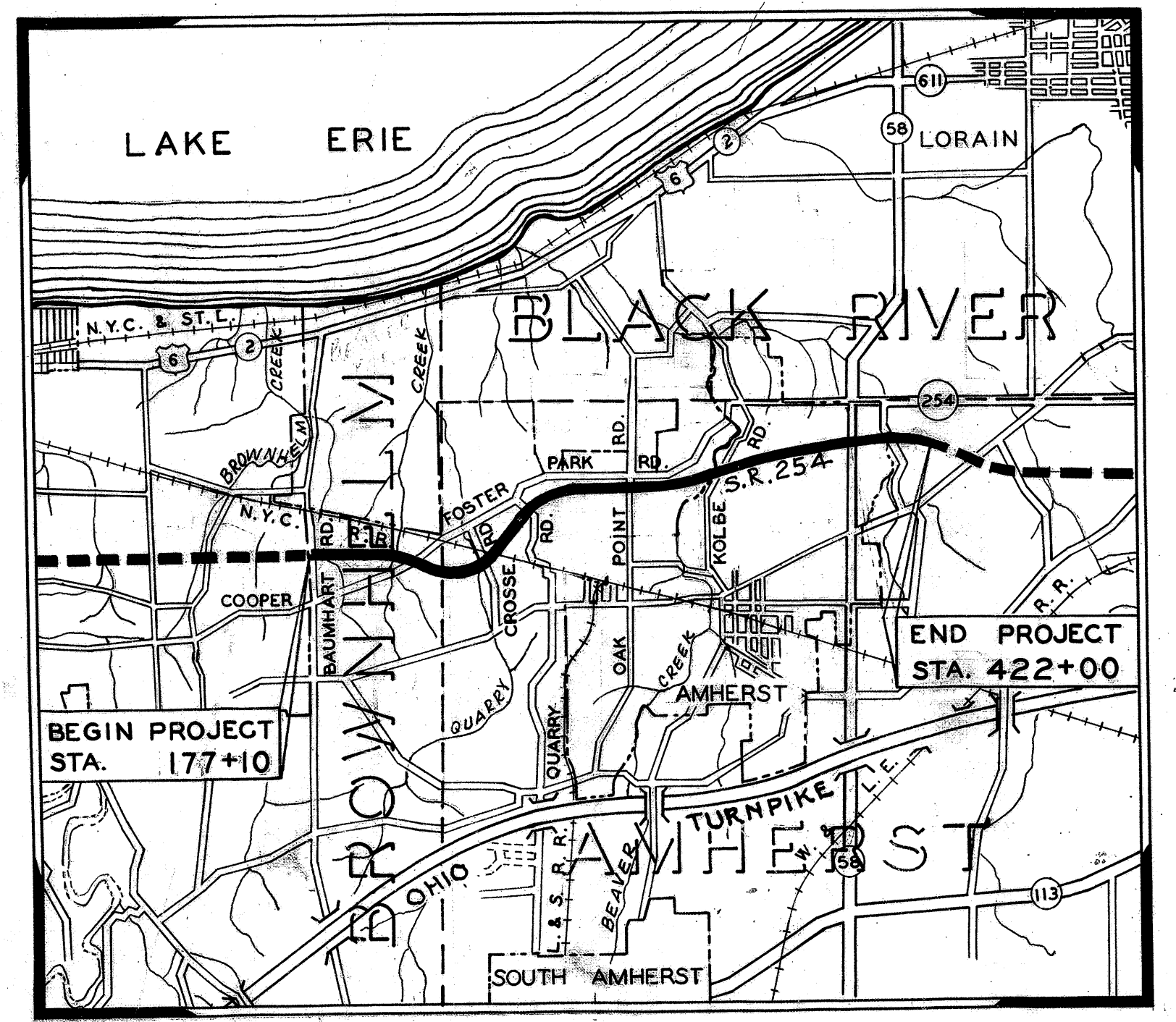
- COUNTY LINE -----
- TOWNSHIP LINE -----
- LOT LINE -----
- CORPORATION LINE -----
- CENTER LINE -----
- FENCE LINE -x-x-x-
- POLE LINE TELEPHONE ϕ POWER ϕ
- RAILROAD -----
- GUARD RAIL -----
- DRAIN PIPE -----
- RIGHT OF WAY LINE ----- R/W
- LIMITED ACCESS LINE ----- LA
- LIMITED ACCESS AND RIGHT OF WAY LINE ----- LA R/W

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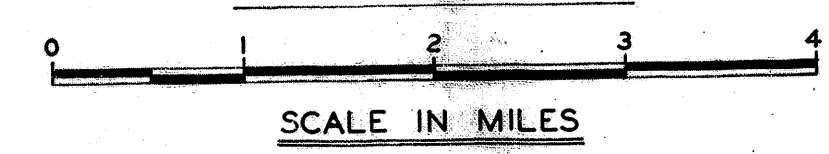
Sheet Nos. 249, 263, 264, 265, 266, 267, 268 and 269 revised 1-14-65
Sheet No. 261 revised 10-29-65

LORAIN COUNTY CITY OF AMHERST BROWNHELM & AMHERST TWP'S GRADE SEPARATION WITH THE N.Y.C. R.R. CO.



DELIVERY POINT N.Y.C. R.R.
AVERAGE HAUL FROM SIDING
AMHERST 2.7 MILES

LOCATION MAP



PORTION TO BE IMPROVED
STATE HIGHWAYS
OTHER ROADS

SCALES

PLAN 1" = 50'
PROFILE - HORIZONTAL 1" = 50'
PROFILE - VERTICAL 1" = 10'
CROSS SECTIONS 1" = 10'

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 THESE PLANS AND ESTIMATES.

- APPROVED: D.W. Cunniff
DATE: 7-27-64 DIVISION DEPUTY DIRECTOR
- APPROVED: A.H. Ahwater
DATE: 9-11-64 ENGINEER OF BRIDGES
- APPROVED: R.N. Rickette
DATE: 9-15-64 ENGINEER OF LOCATION & DESIGN
- APPROVED: P.E. Shultz
DATE: 9-15-64 DEPUTY DIRECTOR OF DESIGN & CONSTRUCTION
- APPROVED: T.H. Bornd
DATE: 9-7-64 DEPUTY DIRECTOR OF RIGHT OF WAY
- APPROVED: J.W. Wilam
DATE: 9-16-64 DEPUTY DIRECTOR OF PLANNING & PROGRAMMING
- APPROVED: _____
DATE: _____ FIRST ASSISTANT DIRECTOR
- APPROVED: P.B. Markel
DATE: 9/18/64 DIRECTOR OF HIGHWAYS
- APPROVED: _____
DATE: _____ DIRECTOR SERVICE - SAFETY, CITY OF AMHERST

of M

PREPARED AND RECOMMENDED BY
SHAFFER PARRETT & ASSOCIATES
CONSULTING ENGINEERS
MANSFIELD OHIO WOOSTER

DEPARTMENT OF COMMERCE
BUREAU OF PUBLIC ROADS

APPROVED: _____
DIVISION ENGINEER

DATE _____

SUPPLEMENTAL SPECIFICATIONS

T-335	10-28-63
I-212	R. 6-23-61
S-307	8-23-60
I-124	R. 3-20-61
CE-101.04	5-22-56
S-101	7-12-62
I-127	R. 1-15-62
I-128	7-31-59
I-129	R. 4-5-61
M-107.18	R. 4-3-61

STANDARD DRAWINGS

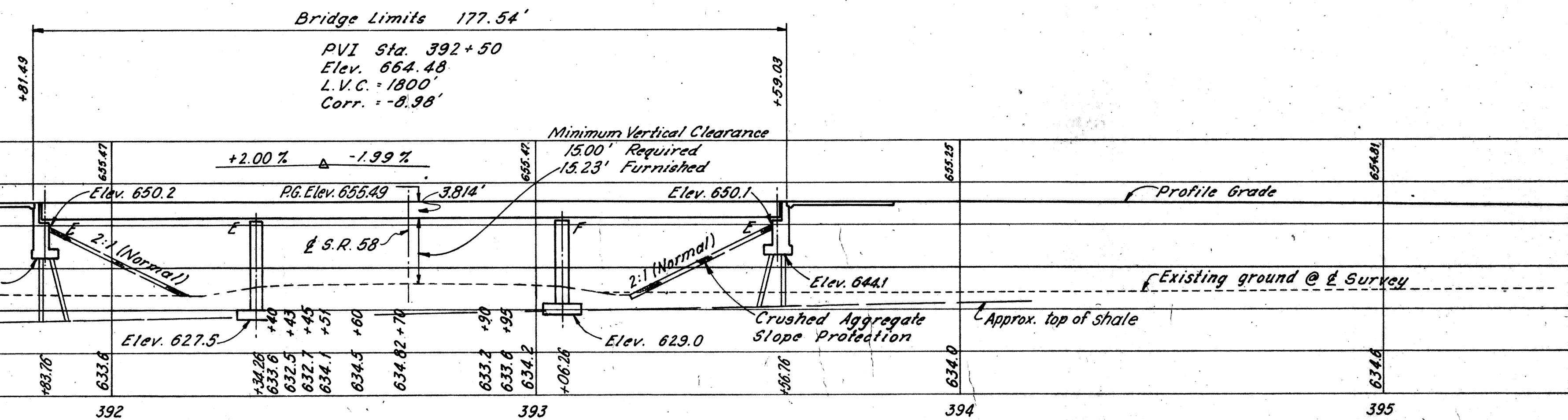
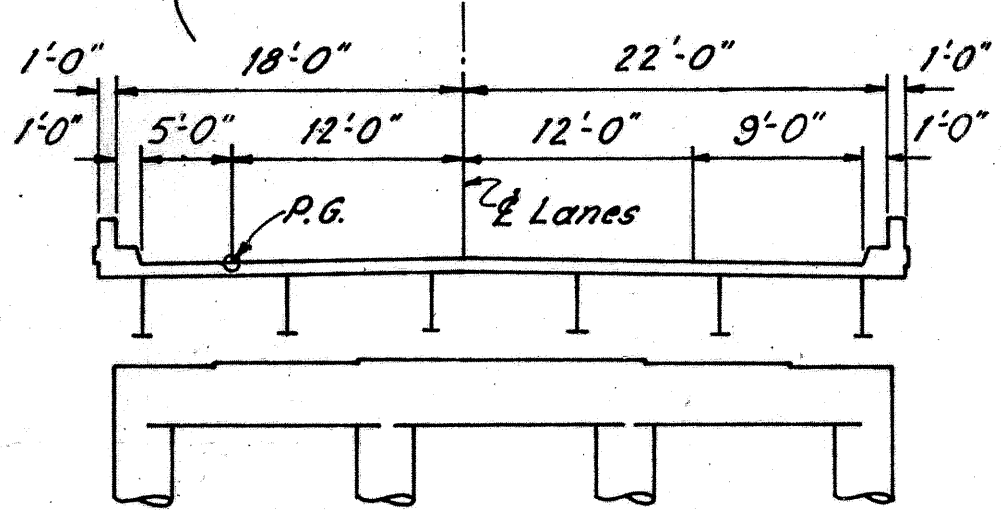
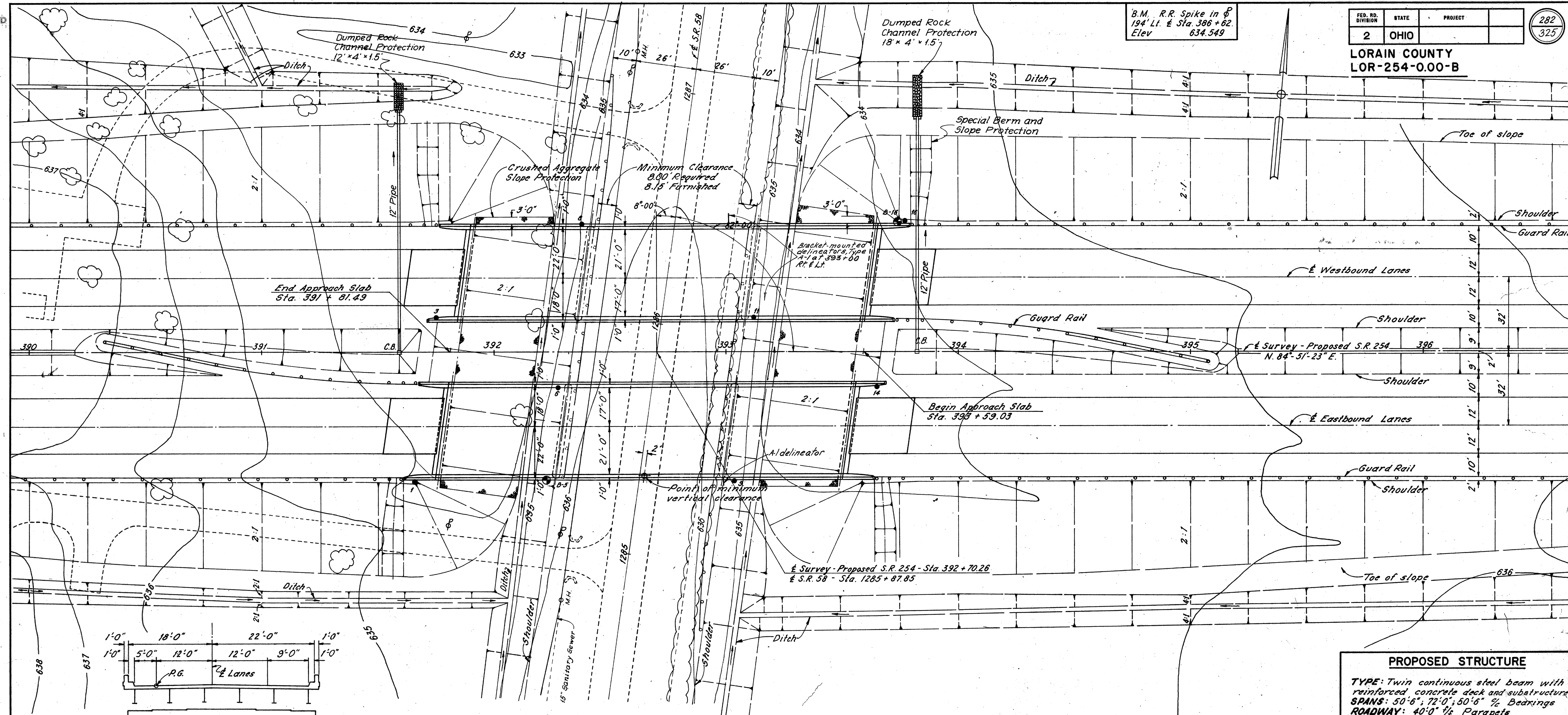
B-T-70-71	11-15-60	I-8 C.B. No. 6	2-1-63	L-1	4-1-50	FACI-2	2-25-64	AS-1-54	7-5-62
B-T-71R	3-2-53	I-8 M.H. No. 1	2-1-63	L-3	4-1-50	I-8 M.H. NO. 1-A	2-1-63	AR-1-57	4-2-62
DR-1	1-3-55	I-8 M.H. No. 2	2-1-63	L-3-A	4-1-50	I-15 NO. 5-B	2-1-63	FSB-1-62	1-15-63
G-7.07	4-1-64	I-12	2-1-63	L.J. No. 1	7-1-55	I-15 NO. 6	2-1-63	SD-1-63, SH. 1-4	11-12-63
HW-E	2-1-63	I-14 G	1-22-52	RI-1	7-15-58	T-35	1-2-56		
I-1	11-15-60	I-15 No. 1	11-15-60	SP-53	6-30-61	F-2	2-1-63		
I-8 C.B. 2-2-A & B	2-1-63	I-15 No. 2-A	8-17-60	T.J.	9-12-60	F-3	2-1-63		
I-8 C.B. 2-3 & 2-4	2-1-63	I-21-23	8-1-56	FACI-1	2-25-64	I-8 C.B. No. 7	2-1-63		

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FILE NO. LORAIN COUNTY - LOR-254-0.00-B

DATE OF LETTING 19

CONTRACT NO. 316-2



PROPOSED STRUCTURE

TYPE: Twin continuous steel beam with reinforced concrete deck and substructure.
SPANS: 50'-6"; 72'-0"; 50'-6" 1/2 Bearings
ROADWAY: 40'-0" 1/2 Parapets
LOAD FREQUENCY: CF 400 (57)
WEARING SURFACE: 1" Monolithic concrete
APPROACH SLABS: AS-1-54 (25' Long)
SKEW: 8°-00' L.F.
ALIGNMENT: Tangent
AVERAGE DAILY TRAFFIC: 17,800 (S.R. 254)
 6900 (S.R. 58) - 1980 figures

FOUNDATION INVESTIGATION LEGEND

- Indicates core boring
- Indicates rod sounding

SHAFFER, PARRETT AND ASSOCIATES
 Consulting Engineers
 MANSFIELD, OHIO.

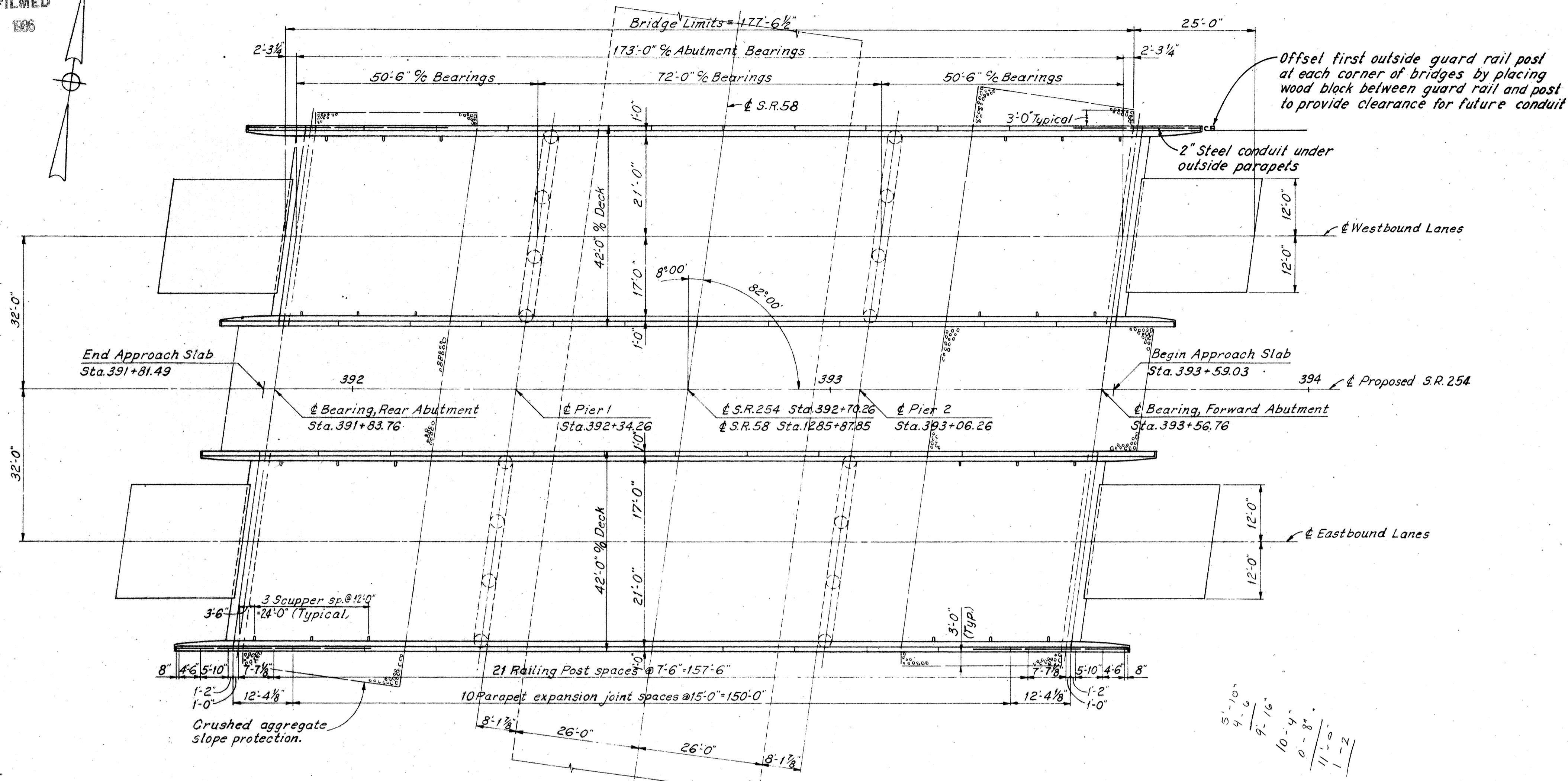
SITE PLAN
BRIDGE NO. LOR-254-0742 L & R
OVER S.R. 58

LORAIN COUNTY S.R. 254
 STA. 391+81.49 TO STA. 393+59.03

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
RAK	JEG	Ed	JEG			

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LORAIN COUNTY
LOR - 254 - 0.00 - B



GENERAL NOTES

UNIT STRESSES

Design Loading - CF-400(57)
Concrete Class C - basic unit stress 1,333 psi.
Concrete Class E - basic unit stress 1,133 psi.
Structural Steel - ASTM A36 - basic unit stress 20,000 psi. (except piling) ASTM A7 and A373 steel not permitted.
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 psi.

REFERENCE shall be made to Standard Drawings AS-1-54 (Revised 7-5-62) AR-1-57 (Revised 4-2-62), FSB-1-62 (Revised 1-15-63), SD-1-63, Sheets 1 thru 4 (dated 11-12-63) and to Supplemental Specifications 5-101 (dated 7-12-62), and 5.307 (dated 8-23-60) and I-12.7 of 1-15-62.

DESIGN SPECIFICATIONS: These structures conform 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 concrete of the deck slab, the placing of concrete shall progress up grade. 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.

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.

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

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

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.

ABUTMENT PILES shall be driven to firm contact with shale. If the length of penetration is approximately equal to the depth to shale according to the bridge foundation investigation report, the firm contact shall be considered as attained when the capacity according to the formula in Sec 5-18.05 is not less than the following value for a pile hammer of the indicated energy rating: 55 tons per pile using a 7000 ft. lb. hammer, 50 tons per pile using an 11,000 ft. lb. hammer, or 45 tons per pile using a 15,000 ft. lb. or greater hammer.

If the energy rating of the hammer is between the ratings as shown above, the required formula capacity shall be determined by interpolation. The design load is 38 tons per pile.

PIER FOOTINGS shall extend a minimum of 3" into undisturbed shale or to the elevation shown, whichever is lower.

FOUNDATION BEARING PRESSURE: Pier footings are designed for a maximum bearing pressure of 4.7 tons per sq. ft.

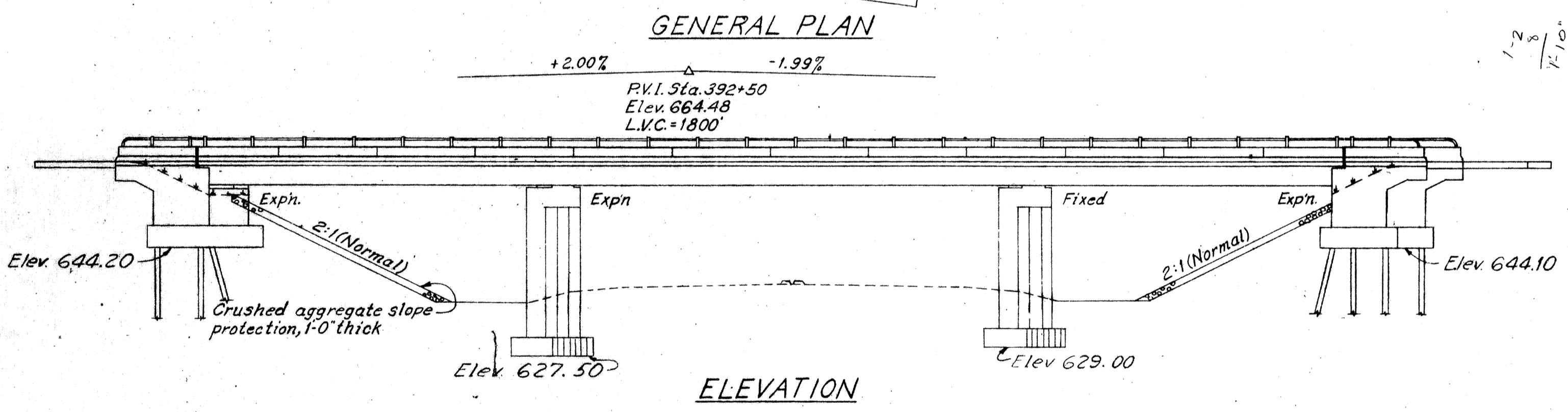
CONTINUOUS BEAM SHOP ASSEMBLY: Reference paragraph 4, Sec. 5-7.12 of the Construction and Material Specifications, if rolled beams are field spliced only at supports, for the purpose of checking the fit-up of weld joint preparation, only two adjacent beams need be shop assembled at a time in their correct unloaded positions. All beams shall be assembled and match marked.

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.

MAINTENANCE AND PROTECTION OF TRAFFIC: Four lanes of traffic with a minimum horizontal width of 54'-0" shall be maintained on S.R. 58 at all times. The Contractor shall safeguard the travelling public by providing platforms, nets or other suitable protection above the travelled lanes. A minimum vertical clearance of 13'-6" shall be provided at all times.

SURFACE FINISH OF CONCRETE: The requirements of Sec. S-1.22, Rubbed Finish, shall apply to the entire superstructure except the top and bottom surfaces of safety curbs and roadway and the entire surface of piers and abutments except bridge seats, backwalls and the face of spill-through abutments between outside beams.

CONDUIT: Two-inch rigid galvanized steel conduit and fittings shall meet American Association Specifications for Rigid Steel Conduit, Designation C801, and shall be installed under parapets as shown. One #10 galvanized steel pull wire shall be installed in each conduit. All conduit and fittings shall be galvanized after threading. If field threads are required, they shall be painted with a zinc rich base paint prior to assembly. Connect conduit to ground rod outside bridge limits using one No. 1/0 7-strand soft annealed insulated copper cable with exothermic welded connections. Ground straps shall be used where electrical continuity of metal conduit is interrupted. Conduit shall be placed at the end of the structure by location or direction so that it will clear pavement and when extended will clear guard rail post. Ground rod to be solid wrought iron 1" x 10'-0". If a ground resistance of 15 ohms maximum is not obtained, either additional rods shall be driven 6' apart or sectional rods may be employed to obtain the specified low resistance ground at greater depth. Rods to be connected to conduit in parallel. The cost and installation of all conduit, fittings, ground cable, pull wire and ground rods shall be considered as paid for in the lump sum bid price paid for item 5-25.



GENERAL PLAN

ELEVATION

ESTIMATED QUANTITIES - 2 BRIDGES				SUPER	ABUTS.	PIERS	GEN'L.
ITEM	TOTAL	UNIT	DESCRIPTION				
E-2	692	Cu. Yds.	Unclassified excavation			435	257
E-2	22	Cu. Yds.	Shale excavation				22
E-2	Lump	Sum	Cofferdams, cribs and sheeting				Lump
S-1	437	Cu. Yds.	Class C concrete, superstructure	437			
S-1	127	Cu. Yds.	Class C concrete, piers above footings			127	
S-1	75	Cu. Yds.	Class E concrete, pier footings			75	
S-1	315	Cu. Yds.	Class E concrete, abutments		315		
S-4	174,756	Lbs.	Reinforcing steel	121,145	18,916	34,695	
S-7	375,000	Lbs.	Structural steel	375,000			
S-8	375,000	Lbs.	Field painting of structural steel	375,000			
S-14	794.75	Lin. Ft.	Railing, L.P.S. A (aluminum rail supports and concrete parapet)	698.75	96.00		
S-16	Lump	Sum	First rest pile				Lump
S-18	660	Lin. Ft.	Steel piles - 12 BP53		660		
S-25	375	Lin. Ft.	Electric lighting system (2 galvanized steel conduit)	350		25	
S-29	61	Cu. Yds.	Porous backfill			61	
S-29	24	Each	Scuppers, including supports	24			
S-101	437	Each	Water-reducing, set-retarding admixture	437			
I-10	1014	Sq. Yds.	Crushed aggregate slope protection				1014
I-127	2	Each	Delineators, bracket-mounted, Type A-1	2			

SHAFER, PARRETT AND ASSOCIATES,
Consulting Engineers
MANSFIELD, OHIO.

**GENERAL PLAN, GENERAL NOTES
AND ESTIMATED QUANTITIES**
BRIDGE NO. LOR-254-0742 L & R
OVER S.R. 58
LORAIN COUNTY S.R. 254

STA. 391 + 81.49 TO STA. 393 + 59.03

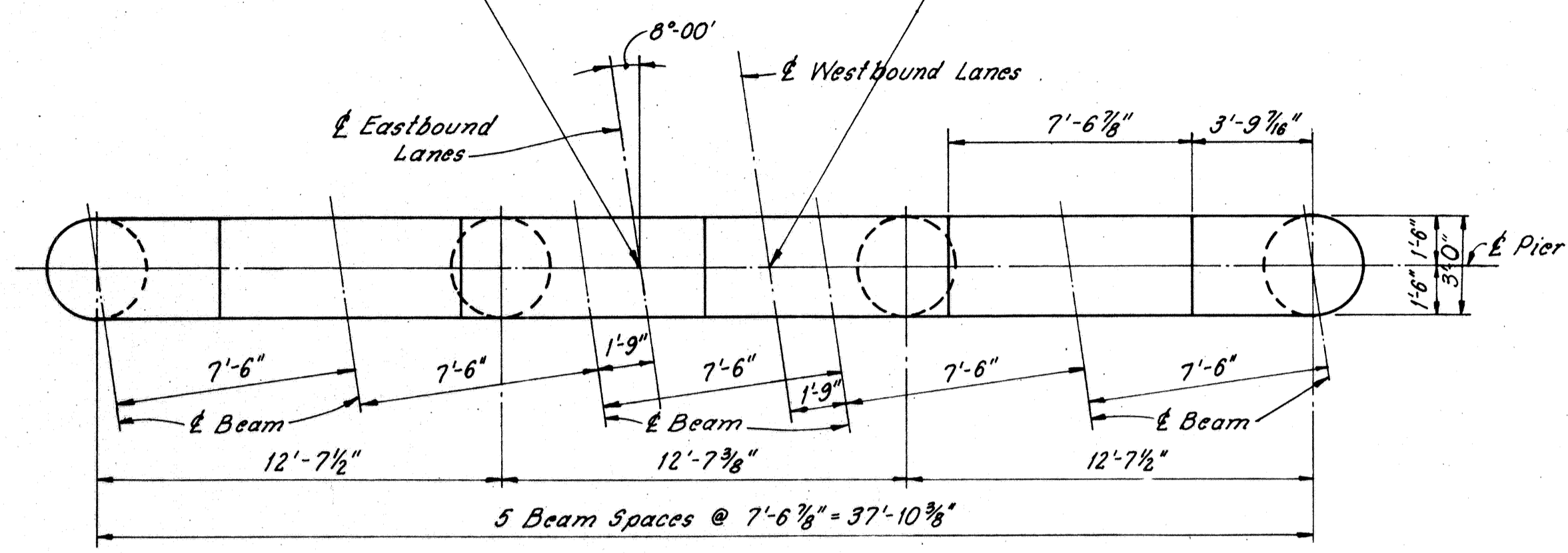
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RAK	J.C.Z.	J.R.B.	J.E.G.			

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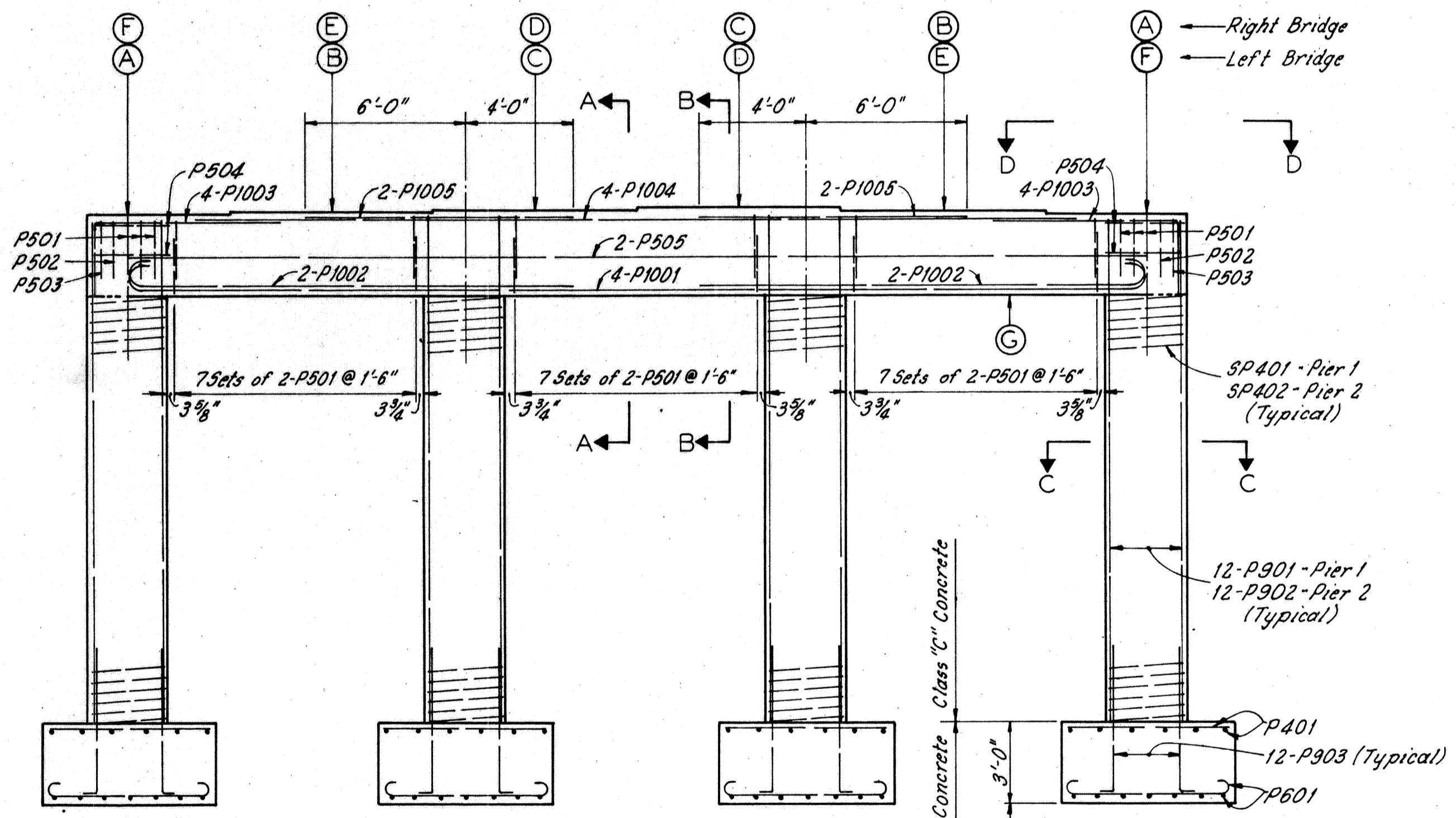
FED. RD. DIVISION	STATE	PROJECT	285
2	OHIO		325

LORAIN COUNTY
LOR - 254 - 0.00 - B

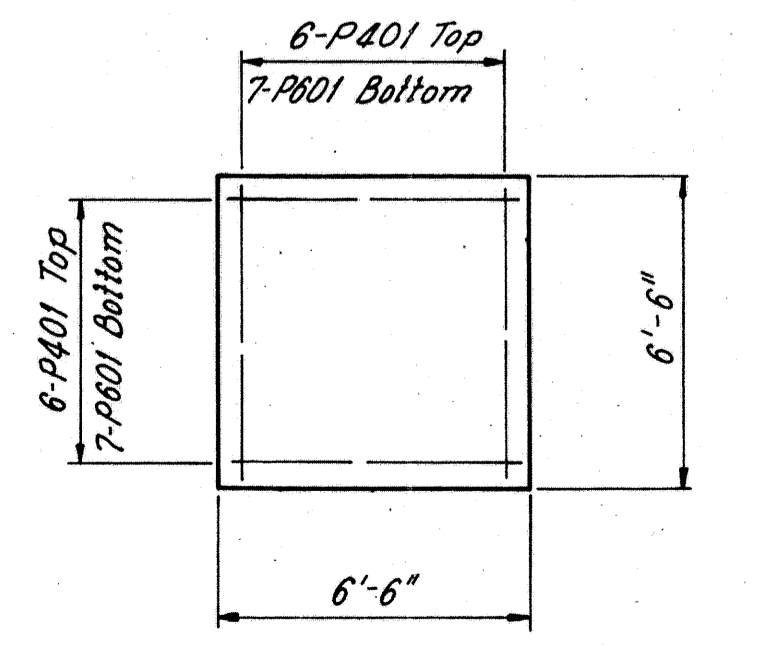
Pier 1 - Sta. 392+29.76 (32' Rt.) Right Bridge
 Pier 2 - Sta. 393+01.76 (32' Rt.) Right Bridge
 Pier 1 - Sta. 392+38.76 (32' Lt.) Left Bridge
 Pier 2 - Sta. 393+10.76 (32' Lt.) Left Bridge



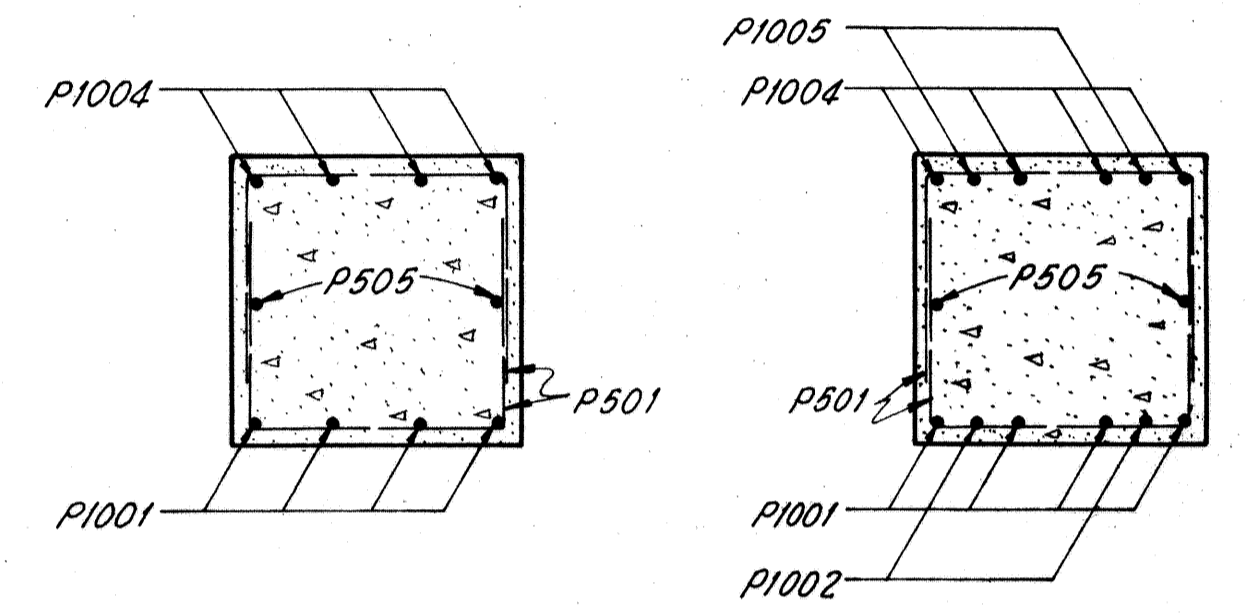
PLAN



ELEVATION

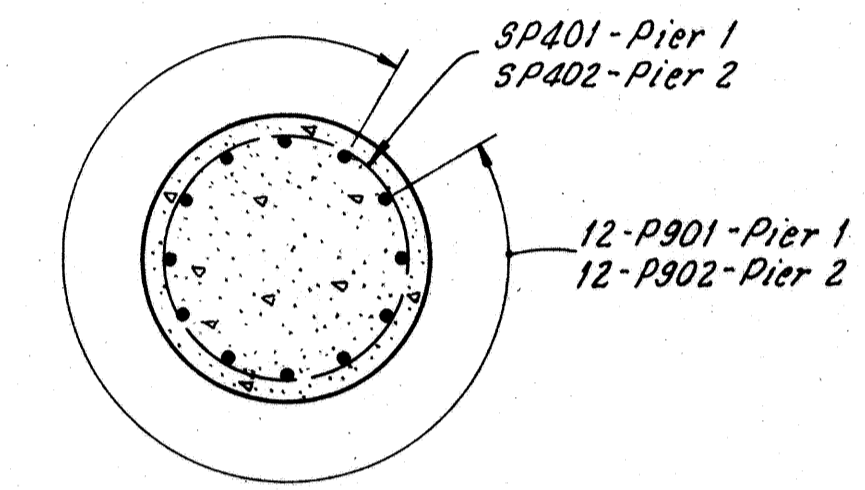


PLAN OF TYPICAL FOOTING

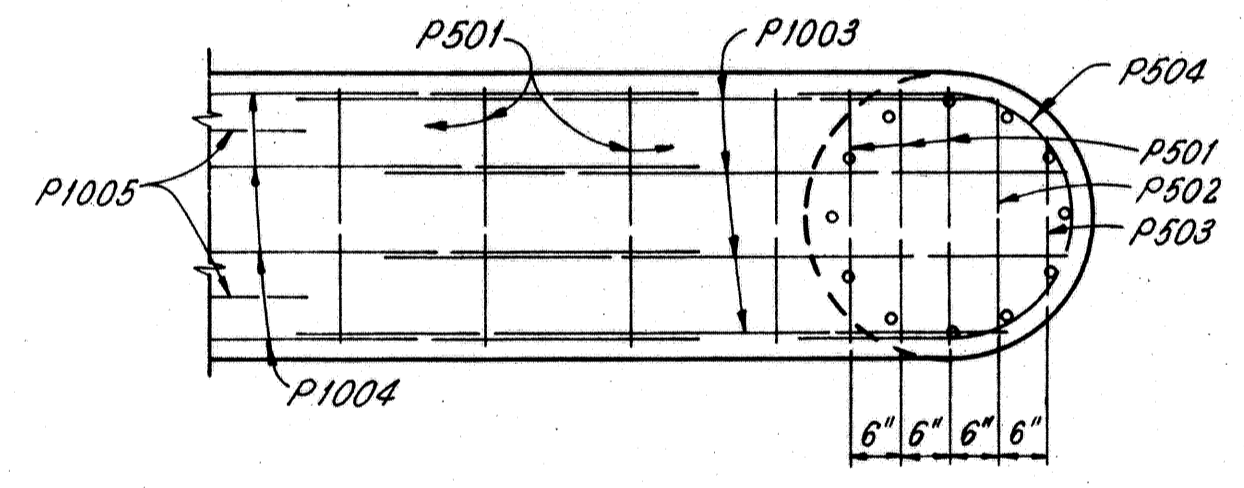


SECTION A-A

SECTION B-B



SECTION C-C



VIEW D-D

NOTES:

CONCRETE: All concrete for pier footings shall be Class "E." All pier concrete 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 drilling of anchor bar holes.

GENERAL NOTES: See Sheet 283.

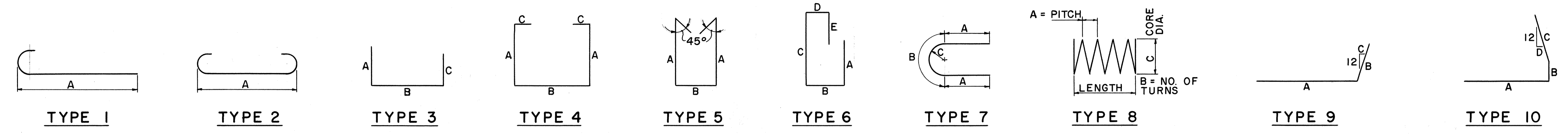
LOCATION	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)
LEFT BRIDGE PIER 1	651.27	651.39	651.50	651.57	651.45	651.33	648.27	627.50
LEFT BRIDGE PIER 2	650.94	651.06	651.18	651.24	651.12	651.07	647.94	629.00
RIGHT BRIDGE PIER 1	651.26	651.38	651.50	651.56	651.45	651.33	648.26	627.50
RIGHT BRIDGE PIER 2	650.95	651.07	651.19	651.25	651.13	651.01	647.95	629.00

SHAFER, PARRETT AND ASSOCIATES
 Consulting Engineers
 Mansfield, Ohio.

PIERS
 BRIDGE NO. LOR-254-0742 L & R
 OVER S.R. 58

LORAIN COUNTY S.R. 254
 STA. 391+81.49 TO STA. 393+59.03

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
R.A.K.	R.A.K.	J.E.G.	J.E.G.			



ABUTMENTS									
MARK	NO.	LENGTH	TYPE	A	B	C	D	E	WEIGHT
R501	64	5'-9"	5	2'-3"	8"				384
R504	32	11'-8"	Str.						*
A401	24	2'-9"	3	8"	1'-8"	8"			44
A402	24	4'-2"	4	1'-3"	1'-8"	4"			69
A403	48	(2)	3	8"	(1)	8"			76
A404	48	(3)	4	1'-3"	(1)	4"			127
A501	240	9'-4"	3	2'-2"	5'-3"	2'-2"			2,336
A502	116	6'-11"	3	6'-6"	6"	0"			837
A503	204	6'-10"	3	1'-10"	3'-5"	1'-10"			1,454
A504	64	41'-8"	Str.						2,781
A505	32	11'-0"	Str.						367
A506	40	3'-5"	3	4"	3'-0"	4"			143
A507	32	9'-10"	3	4'-4"	1'-2"	4'-7"			328
A508	56	8'-6"	Str.						496
A509	32	8'-9"	Str.						292
A510	80	3'-6"	Str.						292
A511	16	6'-9"	Str.						113
A512	16	4'-8"	Str.						79
A513	24	7'-5"	3	3'-7"	6"	3'-7"			186
A514	12	10'-3"	10	8'-3"	7"	1'-7"	1 1/16		128
A515	12	7'-1"	9	2'-8"	4'-6"	10 3/8			89
A516	12	7'-9"	9	6'-3"	1'-7"	1 1/16			97
A517	12	8'-2"	9	3'-0"	5'-3"	13 5/16			102
A518	4	9'-1"	10	7'-1"	7"	1'-7"	1 1/16		38
A519	4	9'-0"	9	4'-7"	4'-6"	10 3/8			38
A520	4	8'-6"	9	7'-0"	1'-7"	1 1/16			35
A521	4	8'-11"	9	3'-9"	5'-3"	13 5/16			37
A522	16	13'-11"	10	11'-11"	7"	1'-7"	1 1/16		232
A523	8	12'-7"	9	8'-2"	4'-6"	10 3/8	Bend in field		105
A524	8	11'-8"	Str.	Bend in field					97
A525	16	13'-1"	9	11'-7"	1'-7"	1 1/16			218
A526	8	13'-6"	9	8'-4"	5'-3"	13 5/16			113
A527	8	11'-11"	Str.	Bend in field					99
A601	64	14'-6"	6	4'-8"	1'-4"	6'-2"	10"	2'-2"	1,394
A602	116	6'-10"	3	6'-6"	6"	0"			1,191
A603	52	13'-5"	3	6'-2"	1'-4"	6'-2"			1,048
A801	56	23'-1"	Str.						3,451
TOTAL WEIGHT									18,916

- (1) 1'-7" to 1'-0" Vary 16 each by 3/2"
- (2) 2'-8" to 2'-1" Vary 16 each by 3/2"
- (3) 4'-3" to 3'-8" Vary 16 each by 3/2"

PIERS									
MARK	NO.	LENGTH	TYPE	A	B	C	D	E	WEIGHT
P401	192	6'-0"	Str.						770
P501	192	6'-9"	3	2'-2"	2'-8"	2'-2"			1,352
P502	8	6'-7"	3	2'-2"	2'-6"	2'-2"			55
P503	8	6'-0"	3	2'-2"	1'-11"	2'-2"			50
P504	16	7'-4"	7	1'-7"	4'-2"	1'-4"			122
P505	8	37'-10"	Str.						316
P601	224	7'-4"	2	6'-0"					2,467
P901	96	20'-7"	Str.						6,178
P902	96	18'-9"	Str.						6,120
P903	192	5'-11"	3	5'-6"	6"	0"			3,862
P1001	16	40'-8"	2	37'-10"					2,800
P1002	16	18'-0"	1	16'-7"					1,239
P1003	32	9'-9"	3	7'-0"	2'-10"	0"			1,343
P1004	16	32'-9"	Str.						2,255
P1005	16	10'-0"	Str.						688
SP401	8	17'-9"	8	4 1/2"	51	32"			2,671
SP402	8	15'-11"	8	4 1/2"	46	32"			2,407
TOTAL WEIGHT									34,695

REPLACEMENT BARS		
MARK	NO.	LENGTH
RE 400	1	5'-3"
RE 500	1	5'-7"
RE 600	4	5'-11"
RE 700	3	6'-3"
RE 800	1	6'-6"
RE 900	1	6'-10"
RE 1000	1	7'-2"

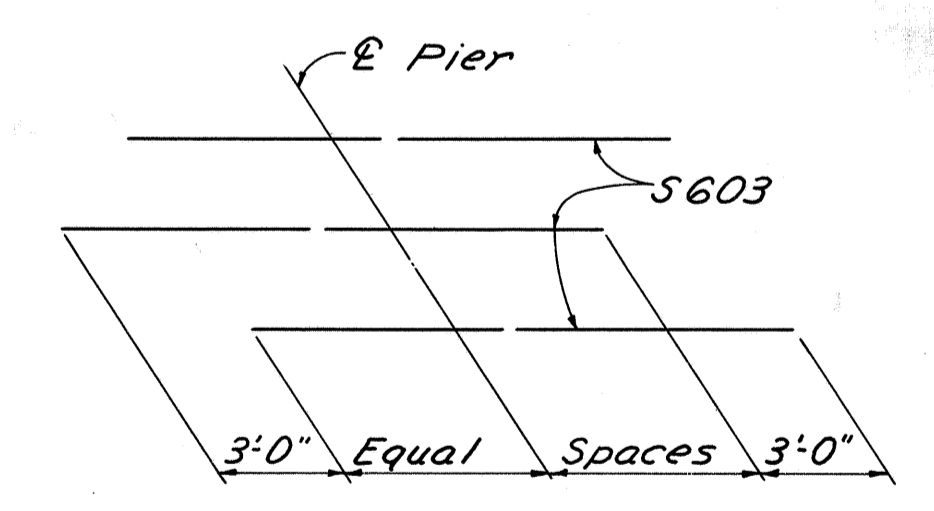


DIAGRAM SHOWING STAGGER OF S603 BARS OVER PIERS

SUPERSTRUCTURE									
MARK	NO.	LENGTH	TYPE	A	B	C	D	E	WEIGHT
R501	512	5'-9"	5	2'-3"	8"				3,071
R502	160	14'-8"	Str.						*
R503	32	12'-0"	Str.						*
S401	468	2'-9"	3	8"	1'-8"	8"			860
S402	468	4'-4"	4	1'-3"	1'-8"	4"			1,355
S601	932	22'-0"	Str.						30,797
S602	700	36'-5"	Str.						38,289
S603	116	27'-0"	Str.						4,704
S701	932	22'-1"	Str.						42,069
TOTAL WEIGHT									121,145

* These railing bars are included with Item S-14 for pavement.

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: A506 is a No. 5 size bar and P1001 is a No. 10 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 the nearest whole number. Spiral reinforcing bars shall not have deformations but shall in other respects conform to Item S-4. 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 lb. 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.

SHAFFER, PARRETT AND ASSOCIATES
Consulting Engineers
MANSFIELD, OHIO.

REINFORCING STEEL
BRIDGE NO. LOR-254-0742 L&R
OVER S.R. 58

LORAIN COUNTY S.R. 254
STA. 391 + 81.49 TO STA. 393 + 59.03

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
RAK	J.R.B.	J.R.B.	J.E.G.			