

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION

LOR-511-14.18

OHIO

FHWA
REGION 5

FEDERAL
PROJECT

1
21

LORAIN COUNTY
LOR-511-14.18

BRS-426 (10)

DESIGN DESIGNATION

Current Year ADT (1991) = 2860
Design Year ADT (2011) = 4000
D H V = 400
D = 55%
T = 2%
V (Design Speed) = 50 mph
Legal Speed = 50 mph

Functional }
Classification } RURAL MAJOR COLLECTOR

PID 03828
C No. 910990

LOR-511-14.18

VILLAGE OF KIPTON

LORAIN COUNTY

DESIGN EXCEPTION: BRIDGE WIDTH: REQUIRED 32' PROPOSED 30'
STOPPING SIGHT DISTANCE (VERTICAL) 400'
APPROVED: NOVEMBER 29, 1990 316' (44 mph)

CONVENTIONAL SIGNS

County Line _____ Limited Access (only) _____ LA
Township Line _____ Right of Way (only) _____ RW
Section Line _____ Limited Access & Right of Way _____ LA&RW
Corporation Line _____ or _____ EX RW
Fence Line (existing) _____ (proposed) _____
Center Line _____ (in existing fence) _____
Trees _____ Stumps _____ (to be removed) _____
Utility Poles: Telephone _____, Power _____, Light _____
Guardrail (existing) _____ (proposed) _____

INDEX OF SHEETS

TITLE SHEET	1
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RIGHT-OF-WAY PLAN	19-21

LINE DATA

BEGIN PROJECT..... STA. 749+09.42
END PROJECT..... STA. 750+42.58

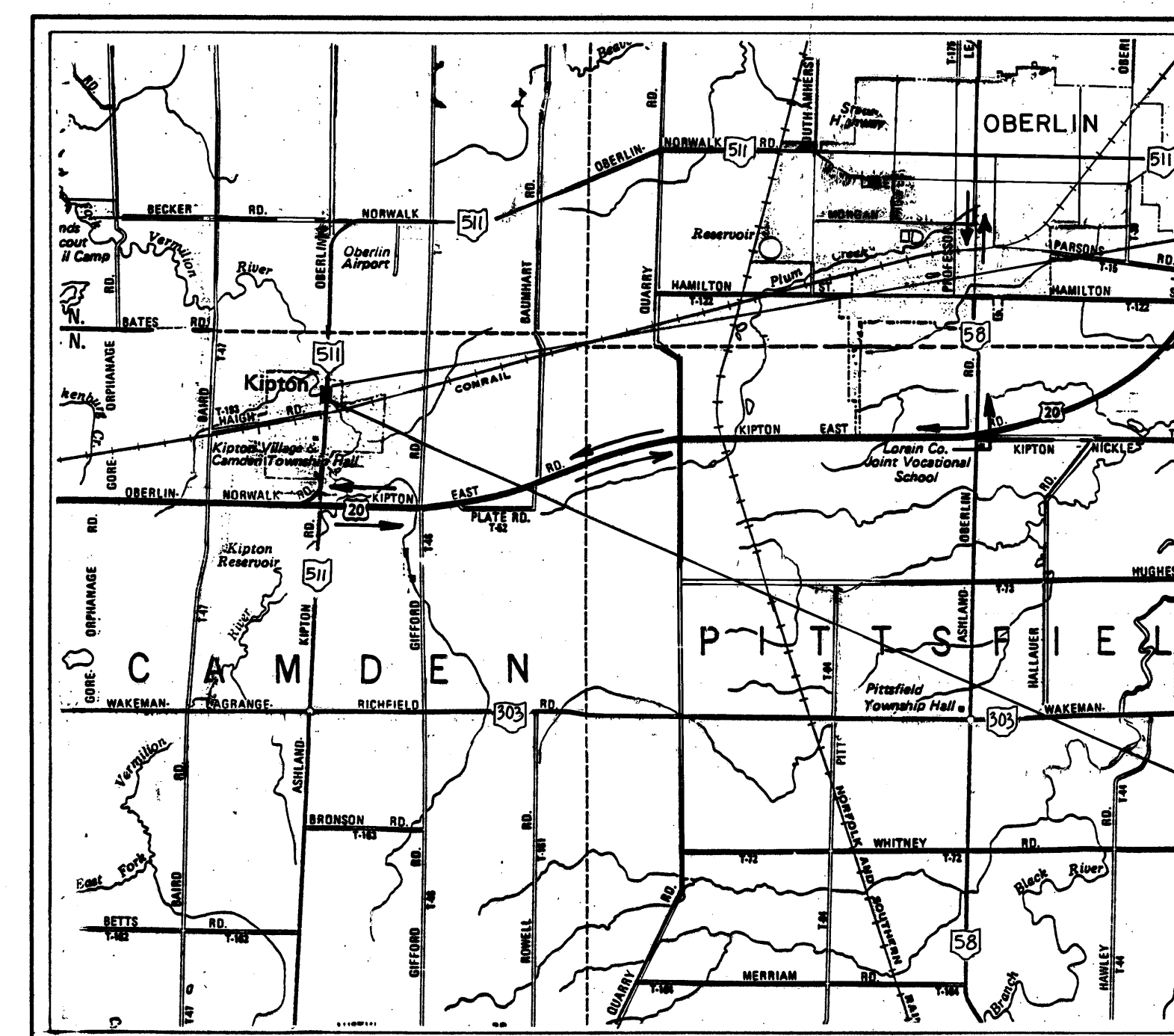
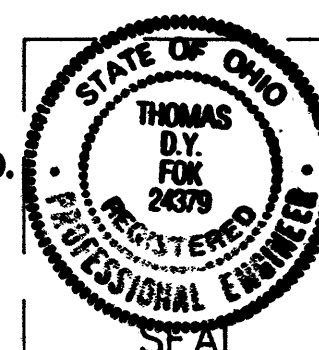
LENGTH OF PROJECT 133.16 LF = 0.025 MI.

BEGIN WORK STA. 748+40
END WORK STA. 750+95

LENGTH OF WORK 255 LF = 0.048 MI.

STRUCTURE PLANS REVIEWED BY:
Burgess & Niple, Limited
Engineers and Architects

Plan Prepared By:
THOMAS FOX & ASSOCIATES, LTD.
3896 MAHONING AVE.
YOUNGSTOWN, OHIO 44515
216-799-1501



LOCATION MAP

SCALE IN MILES

Portion to be Improved
State & Federal Routes
Other Roads
Detour Route

SCALES

Plan _____
Profile _____ Horizontal _____ Vertical _____
Cross Section Horiz _____ Vertical _____

END PROJECT
STA. 750+42.58

BEGIN PROJECT
STA. 749+09.42

SUPPLEMENTAL SPECIFICATIONS

802	4-13-90
942	11-27-89
944	5-13-91
836	11-12-85

Approved _____
Date 5-17-91 District Deputy Director
of Transportation

Approved _____
Date 2/12/91 Engineer, Bureau of Bridges and
Structural Design

Approved _____
Date 8-20-91 Deputy Director, Planning and Design

Approved _____
Date 8-21-91 Director, Department of Transportation

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
APPROVED

DIVISION ADMINISTRATOR DATE

Project LOR-511-14.18 LORAIN COUNTY
Date of Letting 19 Contract No.

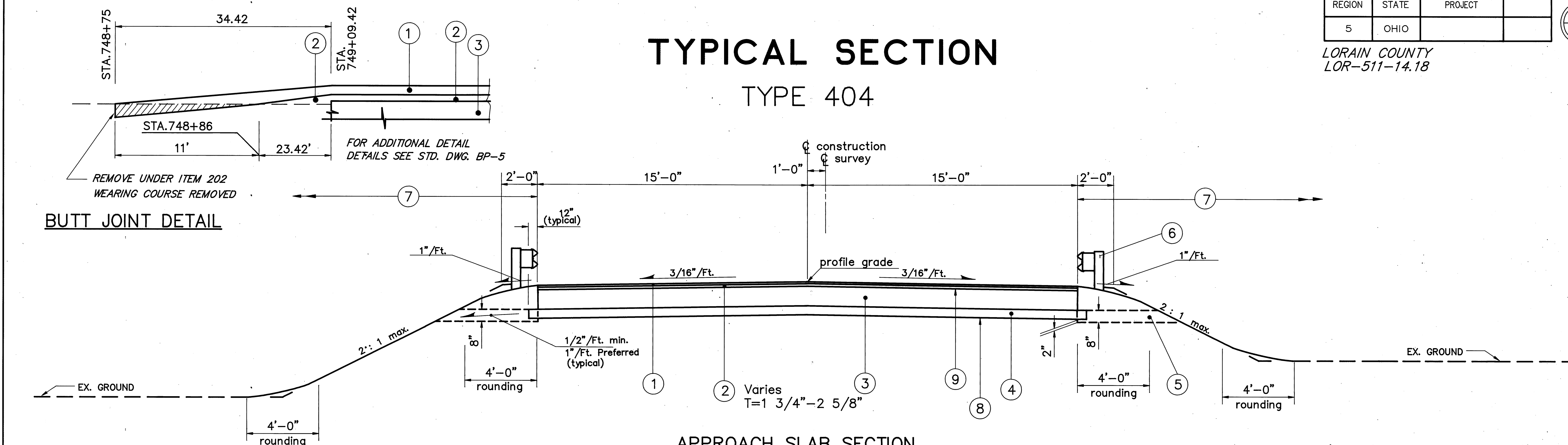
SUPPLEMENTAL PRINTS OF STANDARD CONSTRUCTION DRAWINGS					
BP-5	10-1-87	MC-II	8-1-78	PSBD-1-81	6-20-89
GR-1.1	5-6-91	MC-4	7-26-76	DBR-2-73	4-10-73
GR-1.2	5-6-91			HW-4B	4-1-80
GR-2.1	5-6-91	MT-99.10	11-14-86		
GR-3.4	5-6-91	MT-101.60	4-01-90	LA-1	6-01-79
GR-4.2	5-6-91				
		AS-1-81	11-27-81		

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LORAIN COUNTY
LOR-511-14.18

TYPICAL SECTION TYPE 404



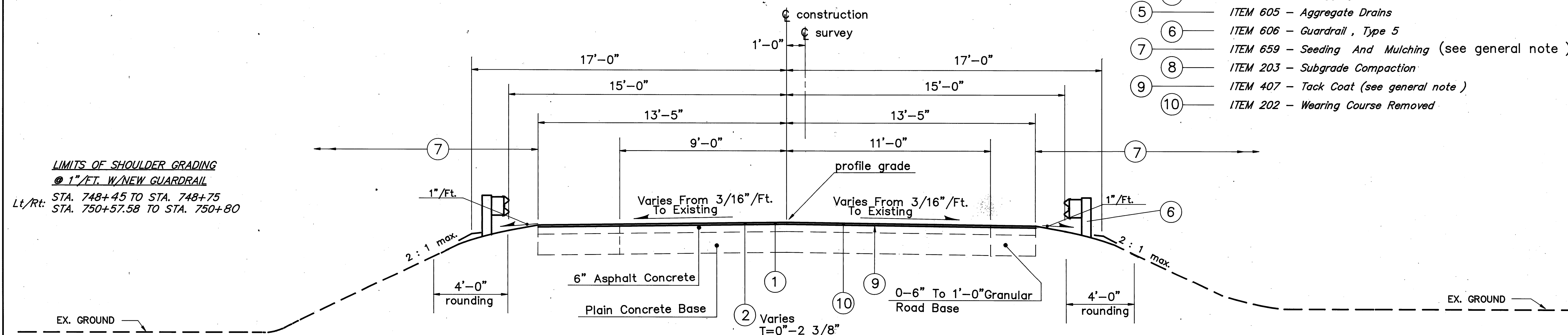
APPROACH SLAB SECTION

Sta. 749+09.42 to Sta. 749+24.42 = 15.00 L.F.
Sta. 750+27.58 to Sta. 750+42.58 = 15.00 L.F.
30.00 L.F.

LEGEND (PROPOSED)

- ① ITEM 404 - 1 1/4" Asphalt Concrete, AC 20
- ② ITEM 403 - Asphalt Concrete, AC 20 (Var. Thickness)
- ③ ITEM 611 - Reinforced Concrete Appr. Slab (T=12")
- ④ ITEM 304 - 6" Aggregate Base, As Per Plan
- ⑤ ITEM 605 - Aggregate Drains
- ⑥ ITEM 606 - Guardrail, Type 5
- ⑦ ITEM 659 - Seeding And Mulching (see general note)
- ⑧ ITEM 203 - Subgrade Compaction
- ⑨ ITEM 407 - Tack Coat (see general note)
- ⑩ ITEM 202 - Wearing Course Removed

LIMITS OF SHOULDER GRADING
@ 1"/FT. W/NEW GUARDRAIL
Lt/Rt: STA. 748+45 TO STA. 748+75
STA. 750+57.58 TO STA. 750+80



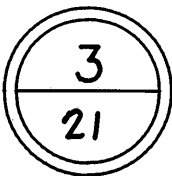
SALVAGE SECTION

Sta. 748+75 to Sta. 749+09.42 = 34.42 L.F.
Sta. 750+42.58 to Sta. 750+57.58 = 15.00 L.F.
49.42 L.F.

GENERAL NOTES

CALC. BY W.H.F. DATE 1/91
CK. BY W.J.S. DATE 1/91

REGION	STATE	PROJECT	
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LORAIN COUNTY
LOR-511-14.18

DATUM ELEVATIONS All evelations are based on
existing U.S.C. & G.S. datum.

ITEM 604 MONUMENT ASSEMBLY, AS PER PLAN: ALL DETAILS NOT
SHOWN FOR THE MONUMENT ASSEMBLY SHALL BE AS PER STANDARD
CONSTRUCTION DRAWING MC-1 . FOR DETAILS AND LOCATIONS
SEE SHEET NO. 11.

WATERING PERMANENT SEEDED AREAS: THE
FOLLOWING ESTIMATED QUANTITIES ARE TO BE USED AS DIRECTED BY
THE ENGINEER TO PROMOTE GROWTH AND TO CARE FOR THE PERMANENT
SEEDED AREAS, AS PER 659.09:

659 WATER 3 M GAL.

ITEM 614 TEMPORARY PAVEMENT MARKINGS:
THE FOLLOWING ESTIMATED QUANTITY HAS BEEN CARRIED TO THE
GENERAL SUMMARY FOR USE AS DIRECTED BY THE ENGINEER:

ITEM	UNIT	DESCRIPTION
614	0.04 MILE	TEMPORARY CENTERLINES, CLASS II

SEE STANDARD DRAWING MT-99.10 FOR REQUIREMENTS.
THIS ITEM MAY BE NON-PERFORMED IF THE 642 PAVEMENT
MARKINGS ARE IN PLACE PRIOR TO THE OPENING THE ROAD TO TRAFFIC.

SEEDING: QUANTITIES FOR SEEDING ARE CALCULATED FOR THE SOIL AREAS
BETWEEN TEN (10) FEET OUTSIDE THE WORK LIMITS, AS SHOWN ON THE
CROSS SECTIONS, OR TO THE RIGHT-OF-WAY LINE, IF SUCH LINE IS LESS
THAN TEN (10) FEET FROM THE WORK LIMITS.

TEMPORARY SOIL EROSION AND SEDIMENT CONTROL: THE
FOLLOWING ESTIMATED QUANTITY IS TO BE USED AS DIRECTED BY
THE ENGINEER, FOR TEMPORARY EROSION AND SEDIMENT CONTROL
MEASURES:

ITEM 207 STRAW OR HAY BALES 100 EACH

EROSION CONTROL: ITEM 601 IS PROVIDED IN THE
PLANS FOR EROSION CONTROL. ROCK OF A STABLE NATURE
WILL NOT BE REMOVED IN ORDER TO PLACE THESE ITEMS.
THE ENGINEER SHALL CHECK AND NON-PERFORM QUANTITIES OR ADJUST
LOCATIONS AND QUANTITIES FOR THIS ITEM WHERE INDICATED BY
FIELD CONDITIONS DURING CONSTRUCTION.

ITEM 407 TACK COAT : THE RATE OF APPLICATION OF 407
TACK COAT SHALL BE SUBJECT TO ADJUSTMENT, AS DIRECTED BY
THE ENGINEER. PLAN QUANTITIES INDICATE AN AVERAGE APPLICATION
RATE OF 0.10 GALLONS PER SQUARE YARD OF TACK COAT FOR
ESTIMATING PURPOSES ONLY.

ITEM 304 AGGREGATE BASE, AS PER PLAN : MATERIALS FURNISHED FOR
THIS ITEM SHALL EXCLUDE ALL SLAG EXCEPT GRANULATED SLAG OR
CRUSHED AIR-COOLED BLAST FURNACE SLAG.

DETOUR LIMITATION AND INTERIM COMPLETION DATE :
TWO-WAY TRAFFIC SHALL BE MAINTAINED AT ALL TIMES, EXCEPT FOR
A PERIOD NOT TO EXCEED 105 CONSECUTIVE CALENDER DAYS. THROUGH TRAFFIC
WILL BE DETOURED AS SHOWN ON SHEET NO. 1.

THE CONTRACTOR SHALL NOTIFY THE DISTRICT TRAFFIC ENGINEER IN
WRITING A MINIMUM OF SEVEN (7) DAYS IN ADVANCE OF THE DATE THE
DETOUR IS NEEDED. THE STATE OF OHIO WILL INSTALL, MAINTAIN AND
SUBSEQUENTLY REMOVE THE DETOUR SIGNING.
THE CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING, INSTALLING,
MAINTAINING AND REMOVING THE GATES AND BARRICADES (AT THE
APPROXIMATE WORK LIMITS OF THE PROJECT) AND THE ADVANCE WARNING
SIGNS AS SHOWN ON STANDARD CONSTRUCTION DRAWING MT-101.60.
THE 105 CONSECUTIVE CALENDAR DAYS SHALL BE CONSIDERED AS
AN INTERIM COMPLETION DATE (SECTION 108) AND FOR EACH
CALENDAR DAY BEYOND THE 105 CONSECUTIVE CALENDAR DAYS
THAT THE ROADWAY REMAINS CLOSED TO TRAFFIC, THE CONTRACTOR
WILL BE ASSESSED LIQUIDATED DAMAGES, AS PER SECTION 108.07 OF
THE CONSTRUCTION AND MATERIAL SPECIFICATIONS.

ROUNDING OF CORNERS SHOWN ON CROSS SECTIONS: THE ROUNDED
CORNERS SHOWN ON THE TYPICAL SECTIONS APPLY TO ALL CROSS
SECTIONS EVEN THOUGH OTHERWISE SHOWN ON THESE PLANS.

UNDERGROUND UTILITIES : THE LOCATION OF UNDERGROND UTILITIES
SHOWN ON THE PLANS ARE AS OBTAINED FROM THE OWNERS OF THE
UTILITY AS REQUIRED BY SECTION 153.64 ORC.

UTILITY OWNERSHIP : THE FOLLOWING UTILITIES AND OWNERS ARE
LOCATED WITHIN THE WORK LIMITS OF THIS PROJECT :

OHIO EDISON COMPANY 76 SOUTH MAIN STREET AKRON , OHIO 44308 (216) 384-5244	GTE NORTH 715 COMMERCIAL PARKWAY P.O. BOX 399 DOVER, OHIO 44622 (216) 364-0363
FRONT ROW CABLEVISION 236 WESTWATER STREET OAK HARBOR, OHIO 43449 (800) 344-2288	BUCKEYE PIPELINE 4911 EAST HIGH STREET MANTUA, OHIO 44255 (216) 274-2234
COLUMBIA GAS OF OHIO 827 WALNUT STREET ELYRIA, OHIO 44035 (216) 233-7216	RURAL LORAIN WATER AUTHORITY P.O. BOX 567 42401 ROUTE 303 LAGRANGE, OHIO 44050 (216) 355-6060

CONTINGENCY QUANTITIES: THE CONTRACTOR SHALL NOT ORDER
MATERIALS OR PERFORM WORK LISTED IN THE GENERAL SUMMARY FOR
ITEMS DESIGNATED BY PLAN NOTE TO BE USED "AS DIRECTED BY THE
ENGINEER" UNLESS AUTHORIZED BY THE ENGINEER. THE ACTUAL WORK
LOCATIONS AND QUANTITIES USED AT THE ENGINEER'S DISCRETION
SHALL BE MADE A MATTER OF RECORD BY INCORPORATION INTO THE
FINAL CHANGE ORDER GOVERNING COMPLETION OF THIS PROJECT.

CLEARING AND GRUBBING : ALTHOUGH THERE ARE NO TREES AND/OR
STUMPS SPECIFICALLY MARKED FOR REMOVAL WITHIN THE LIMITS OF
THIS PROJECT, A LUMP SUM QUANTITY HAS BEEN INCLUDED IN THE
GENERAL SUMMARY FOR ITEM 201, CLEARING AND GRUBBING. ALL
PROVISIONS AS SET FORTH IN THE SPECIFICATIONS UNDER THIS ITEM
SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM 201, CLEARING
AND GRUBBING.

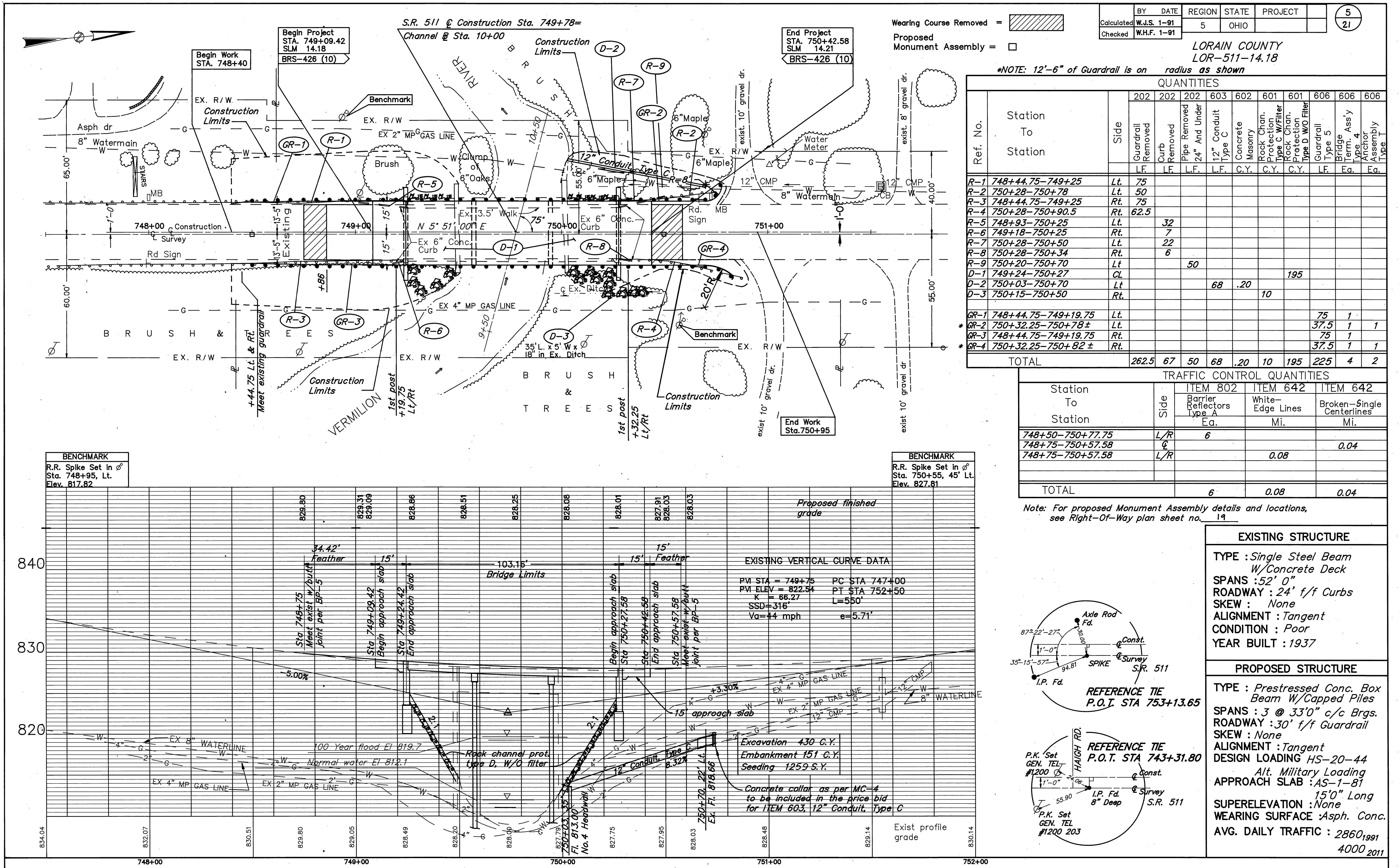
LOCATION OF GUARDRAIL: THE LOCATIONS OF GUARDRAIL RUNS,
AS SHOWN IN THESE PLANS, ARE SUBJECT TO ADJUSTMENT PRIOR TO
FINAL ACCEPTANCE. THE ENGINEER SHALL BE SATISFIED THAT ALL
INSTALLATIONS WILL AFFORD MAXIMUM PROTECTION FOR TRAFFIC.

DUST CONTROL: THE FOLLOWING ESTIMATED QUANTITES ARE TO BE
USED AS DIRECTED BY THE ENGINEER FOR DUST CONTROL.
ITEM 616 WATER 5 M GAL.
ITEM 616 CALCIUM CHLORIDE1 TON

CALC. BY <u>W.J.S.</u> DATE <u>12/90</u>		OHIO	
		FHWA REGION 5	
CHKD. BY <u>W.H.F.</u> DATE <u>12/90</u>	<i>LOR-511-14.18</i>	FEDERAL PROJECT	

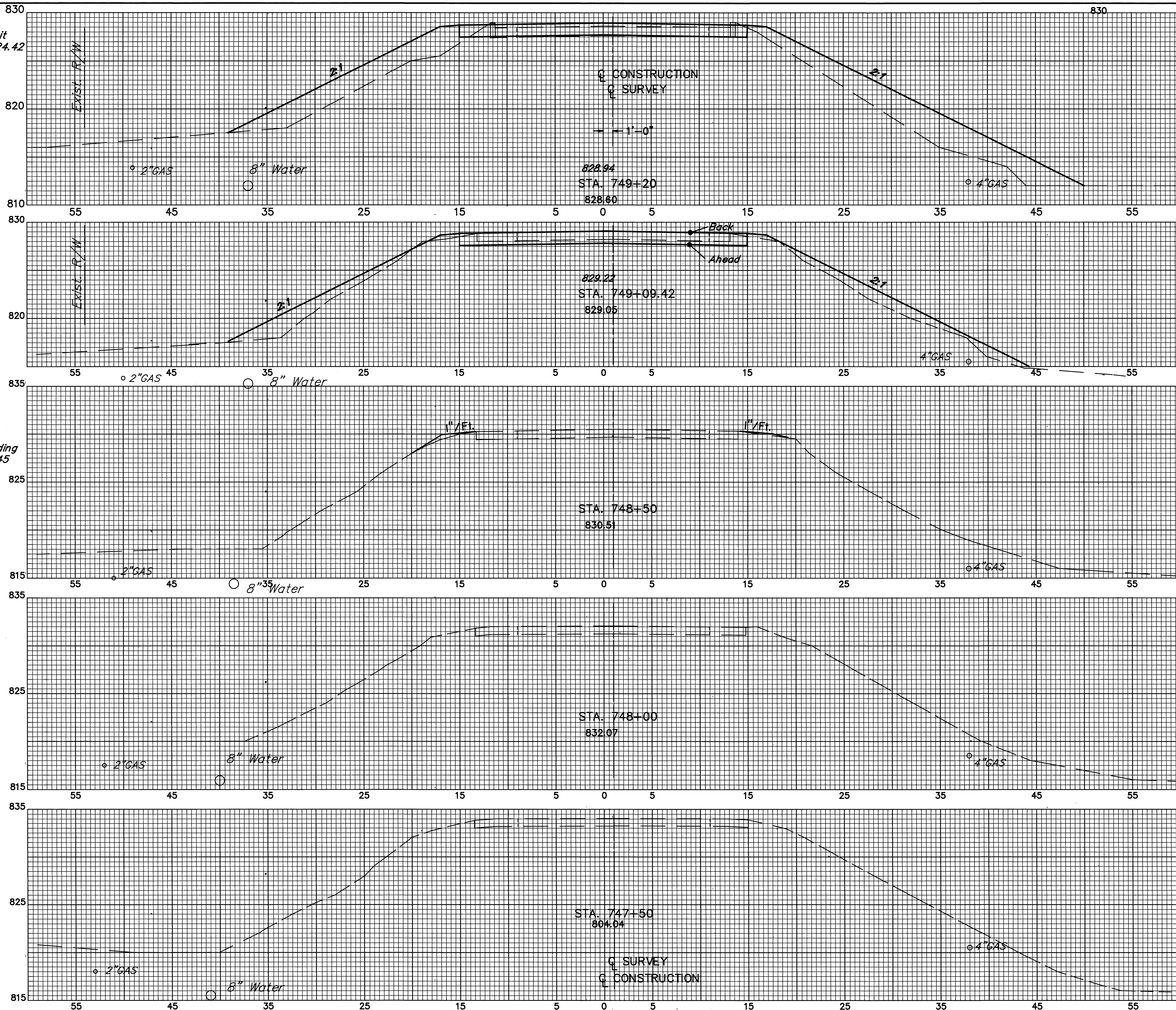
(To general note, sheet 3) USE 0.04 Mi.

CALCULATIONS AND GENERAL SUMMARY



79	39
79	
	132
73	
	526
74	

Begin Seeding
Sta 748+45



	BY DATE
Calculated	W.J.S. 1-91
Checked	W.H.F. 1-91

		BY	DATE	END AREA		VOLUME	
Calculated		W.J.S.	1-91	CUT	FILL	CUT	FILL
Checked		W.H.F.	1-91				
<i>Bridge Limits</i>							
<i>Sta. 749+24.42</i>				13	128		
						2	2
				13	128		
						10	4
<i>Begin Project Ahead</i>				23	43		
<i>Sta. 749+09.42 Back</i>				0	43		
						1	5
				0	2		
<i>Begin Guardrail</i>							
<i>Sta. 748+44.75 Lt./Rt.</i>						0	1
<i>Begin Work</i>							
<i>Sta. 748+40 Lt/Rt</i>				0	0		

STA. 747+50 TO STA. 749+20

SEEDING	
END WIDTH	SQ. YDS.

40

233

40

66

54

15

54

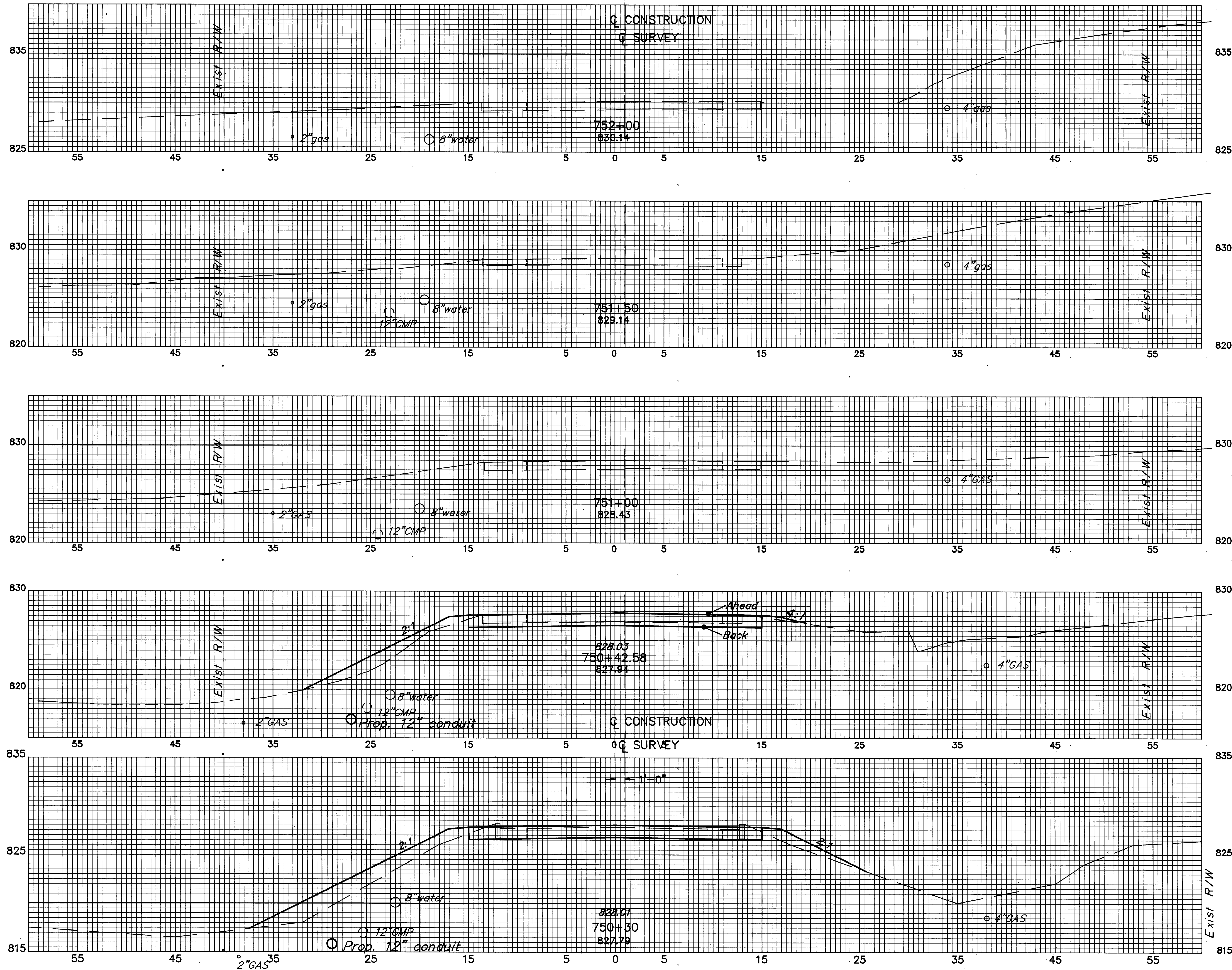
248

End Seeding
Sta 750+95

Exist R/W

Bridge Limit
Sta 750+27.58

Seeding at Structure



FED. RD. DIVISION	STATE	PROJECT
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LORAIN COUNTY
LOR-511-14.18

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Calculated	BY	DATE
Checked	W.J.S.	1-91
	W.H.F.	1-91

END AREA		VOLUME	
CUT	FILL	CUT	FILL

END WORK
STA. 750+95 LT/RT

END SHOULDER EARTHWORK
STA. 750+80 LT/RT

END PROJECT
STA. 750+42.58

BRIDGE LIMITS
STA. 750+27.58

Earthwork at Structure

0	0	0	8
0	16	24	16
11	39	11	39
11	39	11	39
405	0		

STA. 750+30 TO STA. 752+00

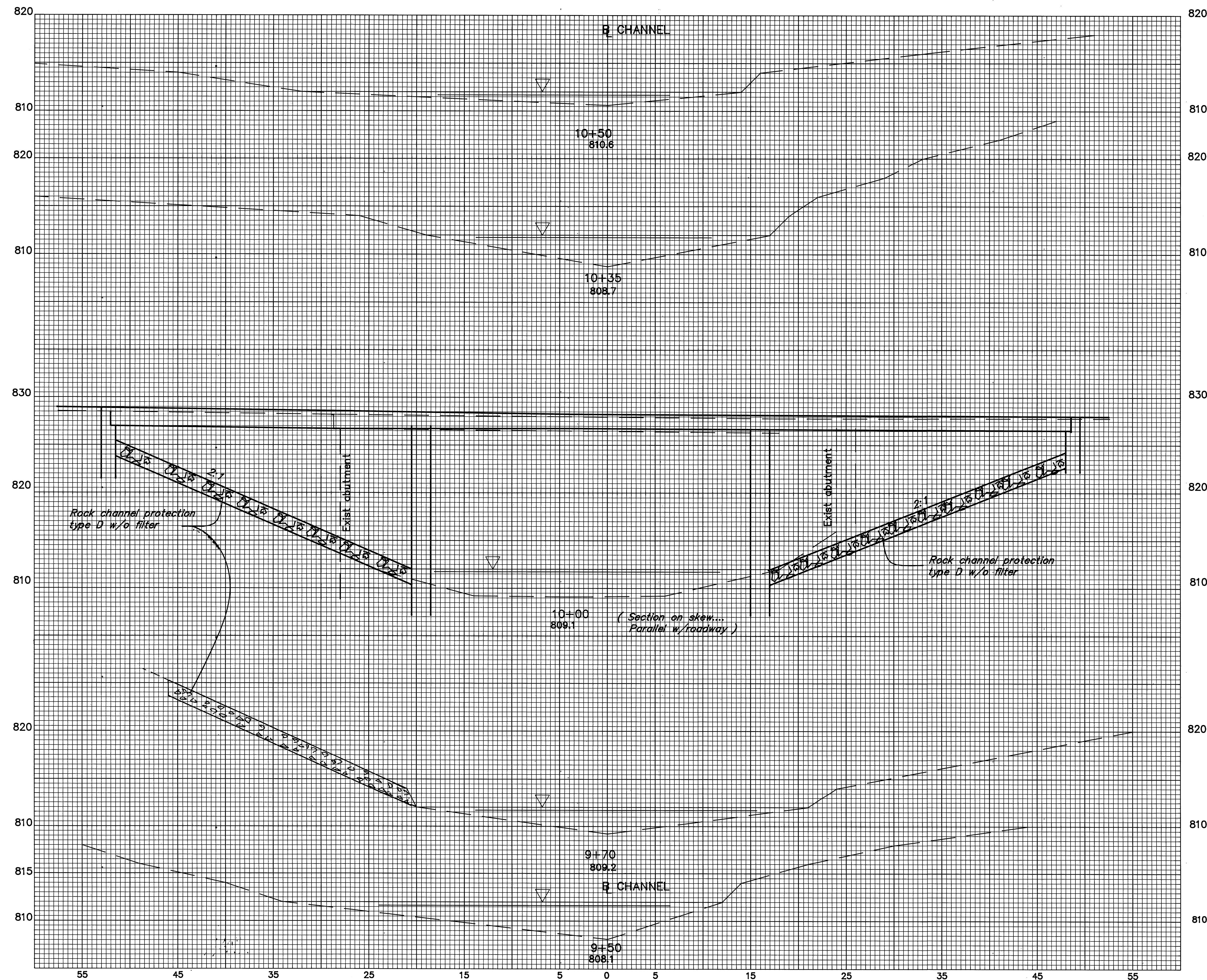
SEEDING	
END WIDTH	SQ. YDS.

FED. RD. DIVISION	STATE	PROJECT	
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LORAIN COUNTY
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	BY DATE
Calculated	W.J.S. 5-91
Checked	W.H.F. 5-91

END AREA		VOLUME	
CUT	FILL	CUT	FILL



810

820 *End rock channel
protection right
Sta. 10+30*

810 *End rock channel
protection left
Sta. 10+10*

End earthwork
Sta 10+18

820	Earthwork at structure - To Sheet 7
-----	--

Begin earthwork
Sta 9+86

*Begin rock channel
protection right
Sta. 9+83*

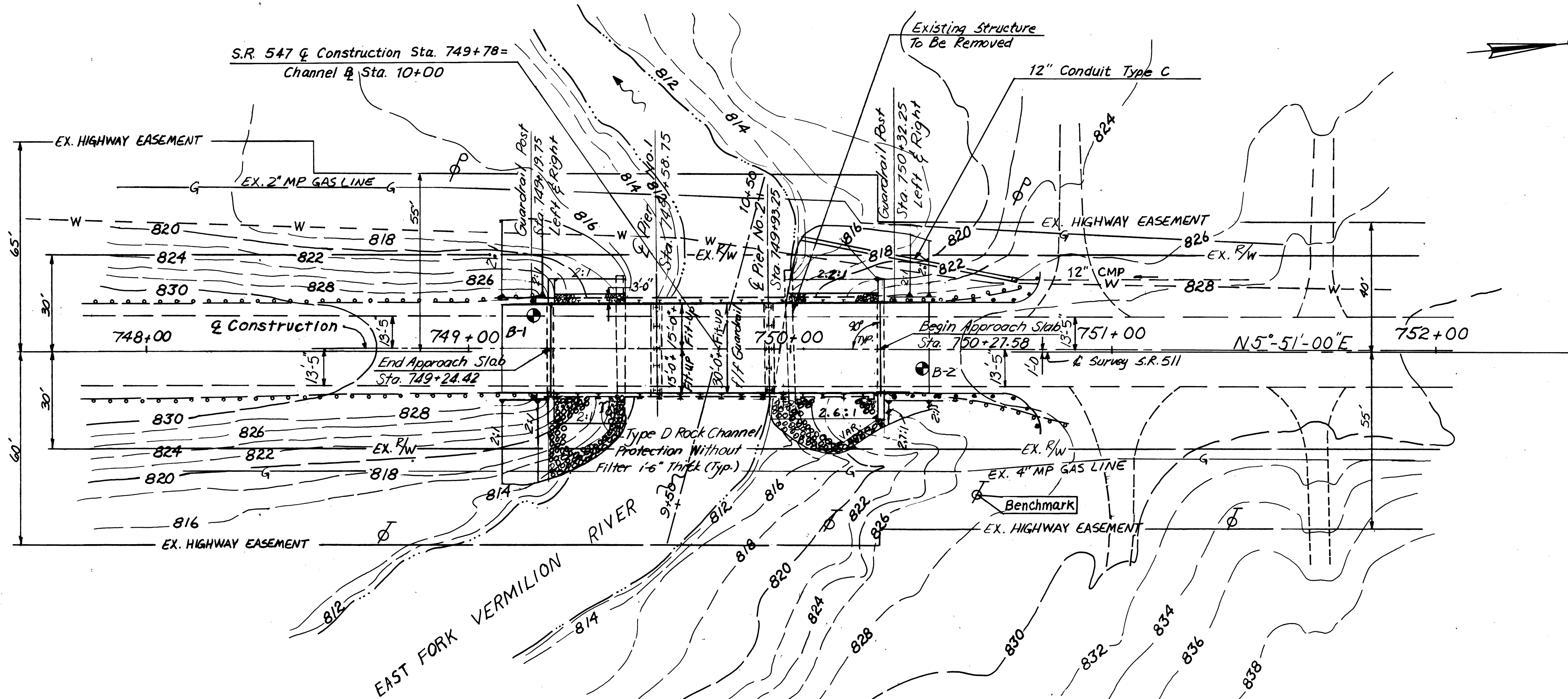
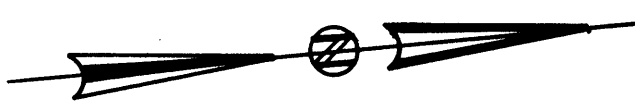
810 *Begin rock channel
protection left
Sta. 9+53*

810

405	0
-----	---

CHANNEL SECTIONS STA. 9+50 TO STA. 10+50

LORAIN COUNTY
LOR - 511-14.18



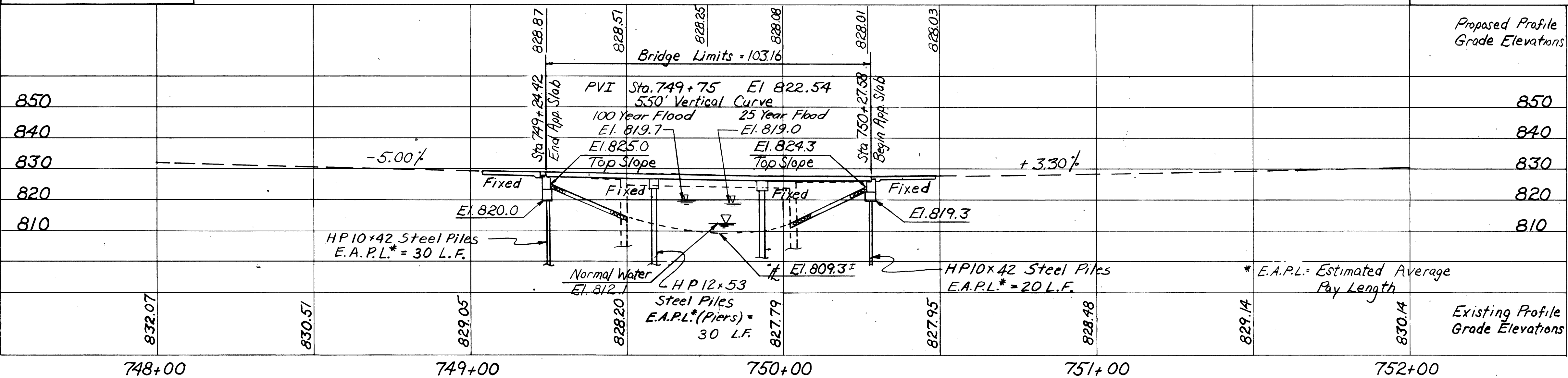
Benchmark: Railroad
Spike in P Sta 748+95, Lt.
El. 817.82

Note: The Earthwork Limits shown are Approximate.
Slopes shall conform to Plan Cross Sections.

PLAN

⊙ - Indicates Boring Log Location

Benchmark: Railroad
Spike in P Sta 750+55, Rt.
El. 827.81



PROFILE AT C OF CONSTRUCTION

HYDRAULICS INFORMATION

INTERVAL (YEAR)	ELEV. (FT.)	Q (CFS)	V (FPS)
25	819.0	1831	3.7
100	819.7	2443	4.4

The low chord of the bridge
superstructure clears the design
year (Q25) water elev. by 7.5'.

DRAINAGE AREA - 17.3 SQ. MI.

EXISTING STRUCTURE

TYPE : Single Span Steel Beam with
Concrete Deck and Stone and
Concrete Wall Abutments
SPAN : 52'-0"
ROADWAY : 24'-0" f/f Curbs
SKEW : None
ALIGNMENT : Tangent
CONDITION : Poor
YEAR BUILT: 1937
STRUCTURE FILE NO : 4700937

PROPOSED STRUCTURE

TYPE : Prestressed Concrete Box
Beam with Capped Pile
Abutments & Piers
SPAN : 3 @ 33'-0" c/c Bearings
ROADWAY : 30'-0" f/f Guardrail
SKEW : None
ALIGNMENT : Tangent
DESIGN LOADING : HS 20-44 &
Alternate Military Loading
APPROACH SLAB : 15'-0" (AS-1-81)
CROWN : 3/16" / Ft.
WEARING SURFACE : 2 1/2" Minimum
Asphalt Concrete
AVG. DAILY TRAFFIC : (1991) 2860
(2011) 4000



THOMAS FOK & ASSOCIATES, LTD.
CONSULTING ENGINEERS, SURVEYORS & PLANNERS
3896 MAHONING AVE. YOUNGSTOWN, OHIO

SITE PLAN

BRIDGE NO. LOR - 511-1420
OVER THE EAST FORK OF
THE VERMILION RIVER

LORAIN COUNTY STA. 749+24.42 TO STA. 750+27.58 OHIO

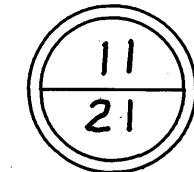
SURVEYED	DRAWN	DESIGNED	DRAWN	CHECKED	REVIEWED
WS 2/90	RT 7/90	RL 8/90	RL 8/90	J.V. 10/90	T.E. 10/90

REVIEWED BY BURGESS & NIPLE, LTD

GTB 5-91

REGION	STATE	PROJECT	
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LORAIN COUNTY
LOR-511-14.18



GENERAL NOTES

DESIGN SPECIFICATION This structure conforms to "Standard Specifications for Highway Bridges" adopted by the American Association of State Highway and Transportation Officials 1989, including the 1990 interim specifications, and the Ohio "Supplement" to these specifications.

REFERENCE shall be made to standard Drawing(s):
AS-1-81 Dated 11/27/81
DBR-2-73 Dated 4/10/73
PSBD-1-81 Revisions Dated 6/20/89

And to Supplemental Specifications:
836 Dated 11/12/85

- DESIGN LOADING:**
Design Loading - HS20-44 and the alternate military loading
- DESIGN STRESSES:**
Concrete Class C - Compressive Strength 4000 p.s.i.
- Reinforcing Steel - ASTM A615, A616, or A617 Grade 60, minimum yield strength 60,000 p.s.i.
- Prestressed strand - ASTM A416, $f_s' = 270,000$ p.s.i. Initial Stress = $0.70 f_s'$
- Prestressed Beam - ASTM A615, A616, A617 minimum yield strength 40,000 p.s.i.
- Concrete for Prestressed Beams - Unit Stress 2,200 p.s.i. compression, 444 p.s.i. tension.

DECK PROTECTION METHOD Type D waterproofing, asphalt concrete overlay, sealing of concrete surfaces, and steel drip strip.

ITEM SPECIAL, SEALING OF CONCRETE SURFACES:
A concrete sealer shall be applied to the following concrete surfaces and as shown on the plans. The exposed vertical surface and the first 6 inches of the bottom horizontal surface of the fascia box beams. see sheet 7/10. For sealer limits on abutments, see sheet 4/10, and 6/10. See proposal note for surface preparation requirements, application rates, material requirements and application procedures.

EMBANKMENT CONSTRUCTION:
The embankments shall be constructed to the level of the subgrade. Excavation may then be made for the abutments and the abutment and pier piles driven.

REMOVAL OF EXISTING STRUCTURES:
When no longer needed to maintain traffic the existing structure shall be removed. Suitable waste masonry may be placed as bank protection as directed by the Engineer.

PILES:
The design load for the abutment piles is 25 tons per pile and the design load for the pier piles is 35 tons per pile.

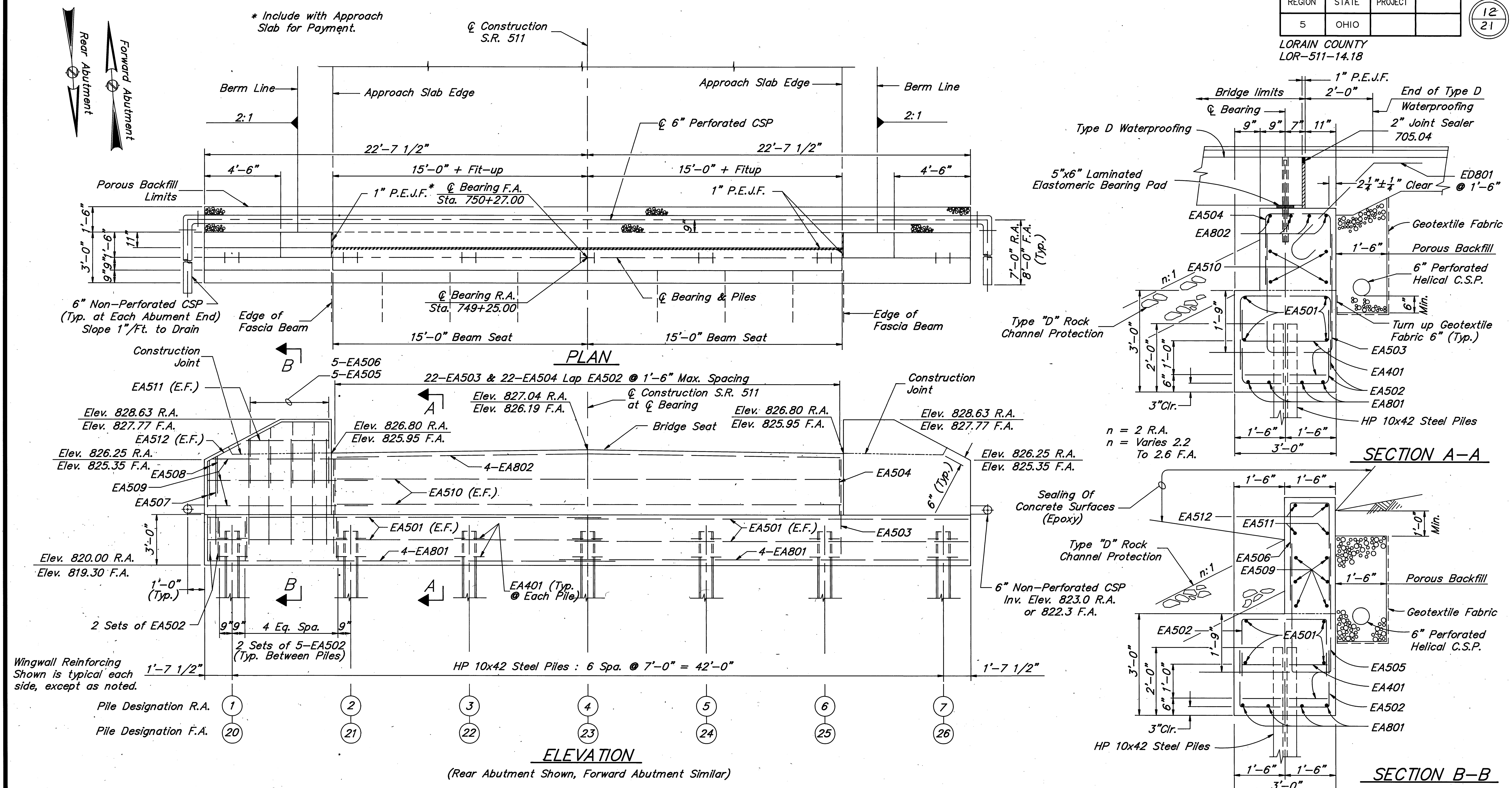
COARSE AGGREGATE:
All coarse aggregate for the class "C" concrete shall be limestone or slag.

REINFORCING BAR SPLICES:
Reinforcing bar splice lengths shall conform to the minimum lengths specified by 509.08 of the C.M.S. unless otherwise noted on the plans.

UTILITY LINES:
All expenses 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.

CALC. BY <i>K.R.M.</i>			ESTIMATED QUANTITIES				CHK'D BY <i>J.D.V.</i>		
ITEM	ITEM EXT.	TOTAL	UNIT	DESCRIPTION	SUPER.	ABUT.	PIER	GEN'L	
202	11002	Lump		Structure Removed, Over 20 Foot Span				Lump	
403	20000	18	Cu.Yd.	Asphalt Concrete, AC-20	18				
404	20000	12	Cu.Yd.	Asphalt Concrete, AC-20	12				
503	21100	94	Cu.Yd.	Unclassified Excavation		94			
505	11100	Lump		Pile Driving Equipment Mobilization				Lump	
507	11100	350	Lin.Ft.	Steel Piles HP10x42		350			
507	13300	360	Lin.Ft.	Steel Piles HP12x53			360		
507	92200	66	Lin.Ft.	Prebored Holes			66		
509	15800	9218	Lb	Epoxy Coated Reinforcing Steel, Grade 60	640	5777	2801		
511	34002	5	Cu.Yd.	Class S Concrete, Superstructure, High Early Strength	5				
511	42501	24	Cu.Yd.	Class C Concrete, Pier Cap, as per plan			24		
511	44001	57	Cu.Yd.	Class C Concrete, Abutment Including Footing, as per plan		57			
512	55800	357	Sq.Yd.	Type D Waterproofing	357				
515	50500	6	Each	Prestressed Concrete Box Beam (30-40' Length) (B17-36)	6				
				(See Proposal Note)					
515	53700	18	Each	Prestressed Concrete Box Beam (30-40' Length) (B17-48)	18				
				(See Proposal Note)					
516	13600	83	Sq.Ft.	1" Preformed Expansion Joint Filler				83	
516	31011	60	Lin.Ft.	2" Deep Joint Sealer, as per plan		60			
516	43100	96	Each	Elastomeric Bearing With Internal Laminates Only (Neoprene) (1"x 6"x 5")				96	
517	72300	225	Lin.Ft.	Railing (Deep Beam Rail With Steel Tubular Backup And Type 2 Steel Posts & Anchor Bolts)	225				
518	21200	20	Cu.Yd.	Porous Backfill with Filter Fabric				20	
518	41100	95	Lin.Ft.	6" Perforated Helical Corrogated Steel Pipe, 707.01				95	
518	41200	30	Lin.Ft.	6" Non-Perforated Helical Corrogated Steel Pipe, Including Special, 707.01				30	
Special	50771200	178	Lin.Ft.	Pile Encasement			178		
Special	51822200	176	Sq.Ft.	Steel Drip Strip	176				
Special	51267500	63	Sq.Yd.	Sealing of Concrete Surfaces (See Proposal Note)	44		19		
Special	51267502	36	Sq.Yd.	Sealing of Concrete Surfaces (Epoxy) (See Proposal Note)		36			
Special	51631200	60	Lin.Ft.	Sawing and Sealing Bituminous Concrete Joints				60	

3 / 10					
					
THOMAS FOK & ASSOCIATES, LTD.					
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3896 MAHONING AVE. YOUNGSTOWN, OHIO					
GENERAL NOTES & ESTIMATED QUANTITIES					
BRIDGE NO. LOR-511-1420					
OVER THE EAST FORK OF THE VERMILION RIVER					
LORAIN COUNTY OHIO					
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	REVISED
D.A.K.	K.R.M.		J.D.V.	J.F.	
3/91	3/91		3/91	3/91	



NOTES: POROUS BACKFILL w/ filter fabric shall extend upward to the plane of the subgrade, to 1'-0" below the embankment surface and laterally to the end of the abutments. The backfill shall be durable gravel and encased in geotextile fabric.

BRIDGE SEAT REINFORCING steel in the vicinity of the bridge seat shall be accurately placed to avoid interference with the drilling of the anchor bar dowel holes.

CONCRETE above the construction joints at the level of bridge seat shall not be placed until the beams have been erected.

GEOTEXTILE FABRIC Type 'A' shall conform to item 712.09

BAR SPLICES: Lap No. 5 Bars 1'-8" min.
Lap No. 8 Bars 3'-7" min.

D801 bars to be placed parallel to ϕ Roadway at 1'-6" c/c measured perpendicular to ϕ Roadway.

LEGEND

N.F. = Near Face
F.F. = Far Face
E.F. = Each Face
R.A. = Rear Abutment
F.A. = Forward Abutment

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10

ABUTMENT DETAILS
BRIDGE NO. LOR-511-1420
OVER THE EAST FORK OF
THE VERMILION RIVER

LORAIN COUNTY OHIO

DESIGNED D.A.K. X.R.M.	DRAWN X.R.M.	CHECKED J.D.V.	REVIEWED J.F.	REVISED
3/91	3/91	3/91	3/91	

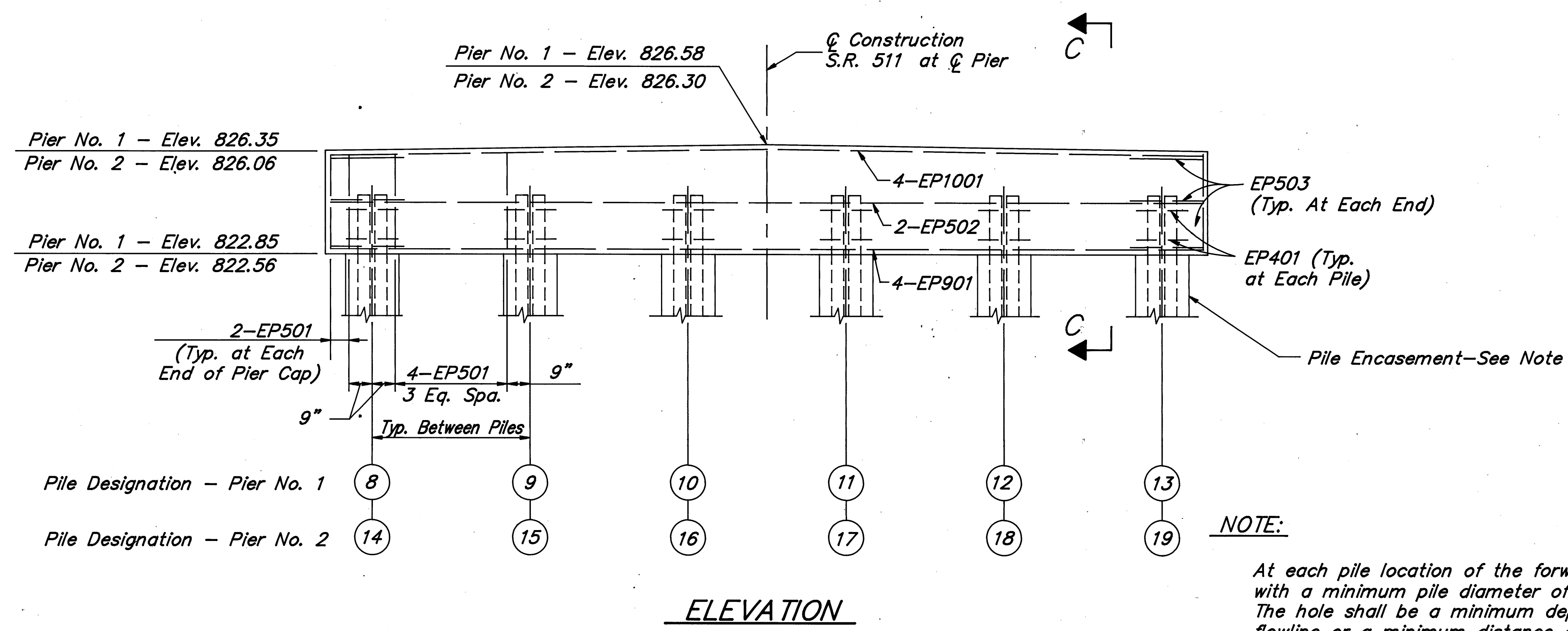
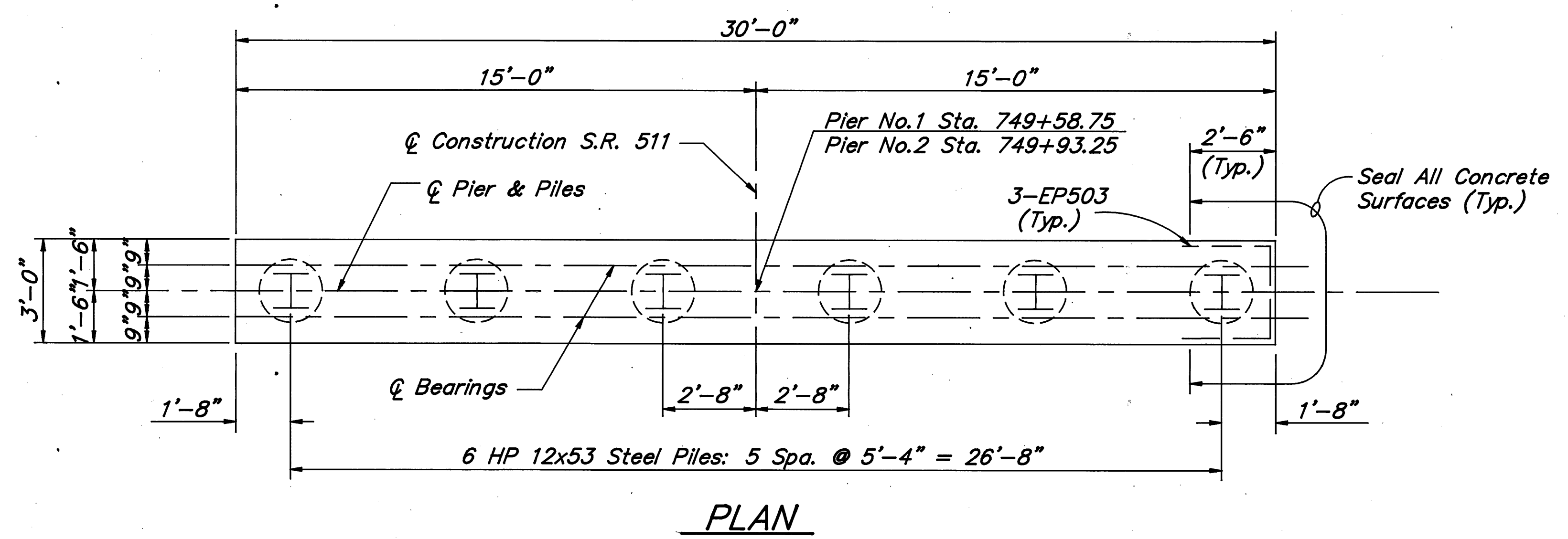
NOTES:

PILE ENCASEMENT – All piles for the capped pile piers shall be encased in Item 511 class "C" concrete. The concrete shall be placed within a form that consists of polyethylene pipe (Supplemental Specification 944 dated 5-13-91) or PVC pipe (Supplemental Specification 942 dated 11-27-89). The encasement shall extend from 3 feet below the finished ground surface up to the concrete pier cap and shall be positioned so that at least 3 inches of concrete cover is provided around the exterior of the pile.

The length of the pile encasement shall be measured in feet along the length of the pile. This item includes all work and materials necessary to furnish the required encasement.

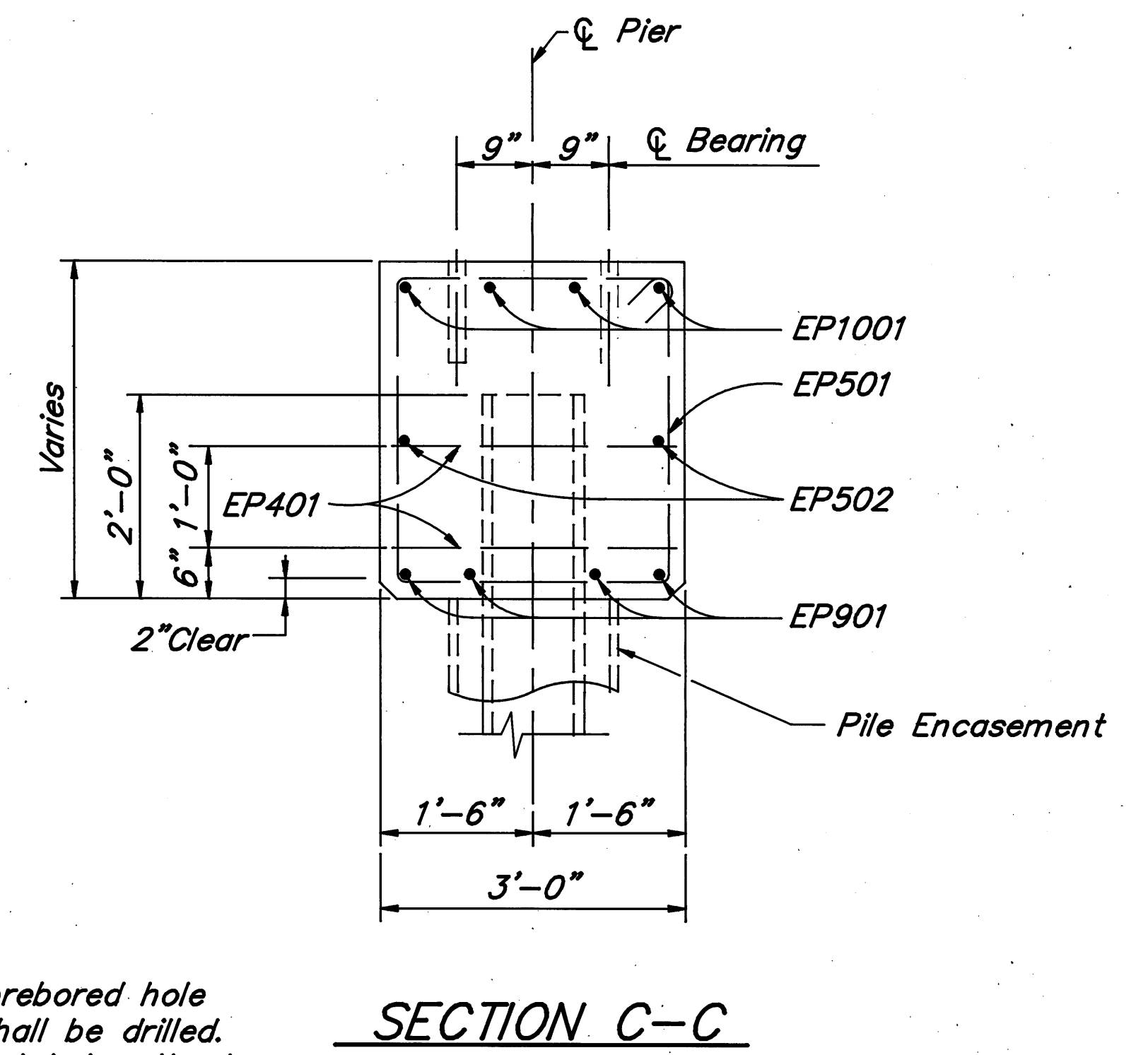
Payment will be made at the contract unit price per linear foot of encasement approved in place.

BRIDGE SEAT REINFORCING – All reinforcing in the vicinity of the bridge seat shall be accurately placed to avoid interference with drilling of the anchor dowel holes.



NOTE:

At each pile location of the forward pier, a prebored hole with a minimum pile diameter of 16 inches shall be drilled. The hole shall be a minimum depth of 10-feet below the low flowline or a minimum distance of 5-feet into the weathered shale bedrock, whichever is longer. The hole shall be kept open until the pile is placed in the hole and all voids are filled with sand. The pile shall then be driven to refusal according to the plan note regarding piles driven to bedrock. If determined the rear pile penetrations will be less than 10-feet below the flowline elevation, these requirements shall also apply at the rear pier. Payment for prebored holes shall be in accordance with ODOT Item 507.



5/10

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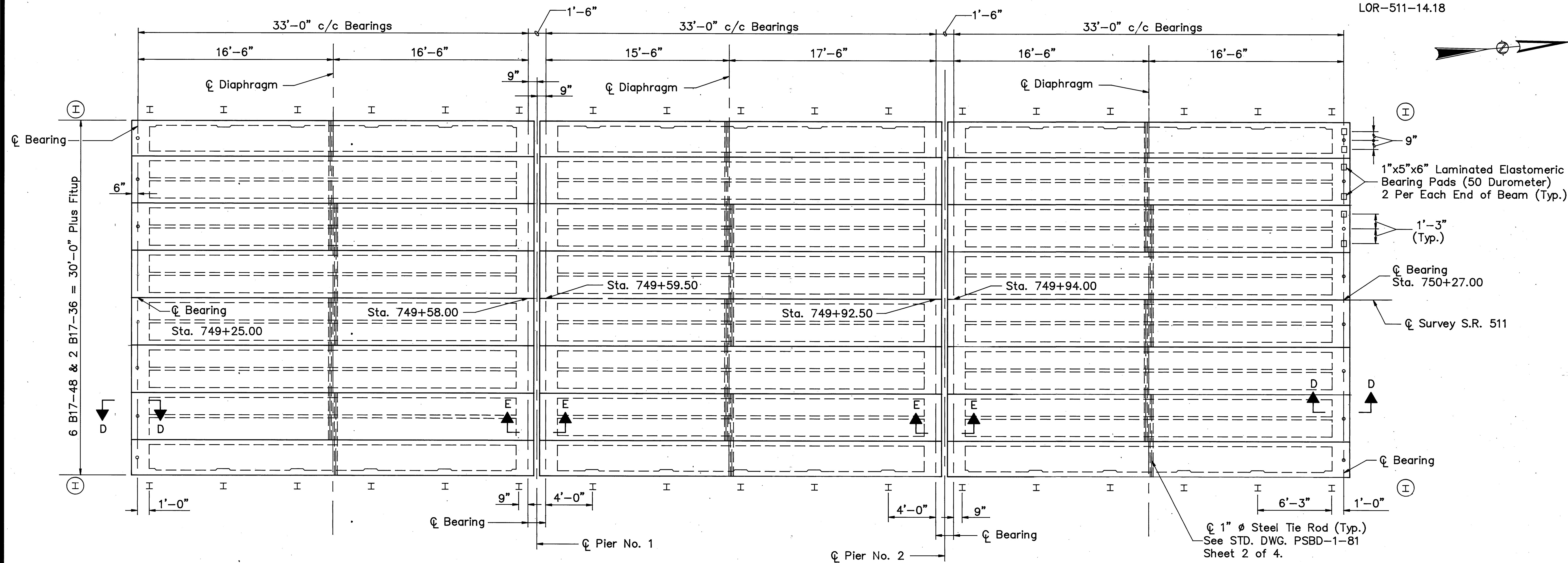
PIER DETAILS
BRIDGE NO. LOR-511-1420
OVER THE EAST FORK OF
THE VERMILION RIVER
LORAIN COUNTY OHIO

DESIGNED D.A.K.	DRAWN K.R.M.	TRACED	CHECKED J.D.V.	REVIEWED J.F.	REVISED
3/91	3/91		3/91	3/91	

REGION	STATE	PROJECT
5	OHIO	

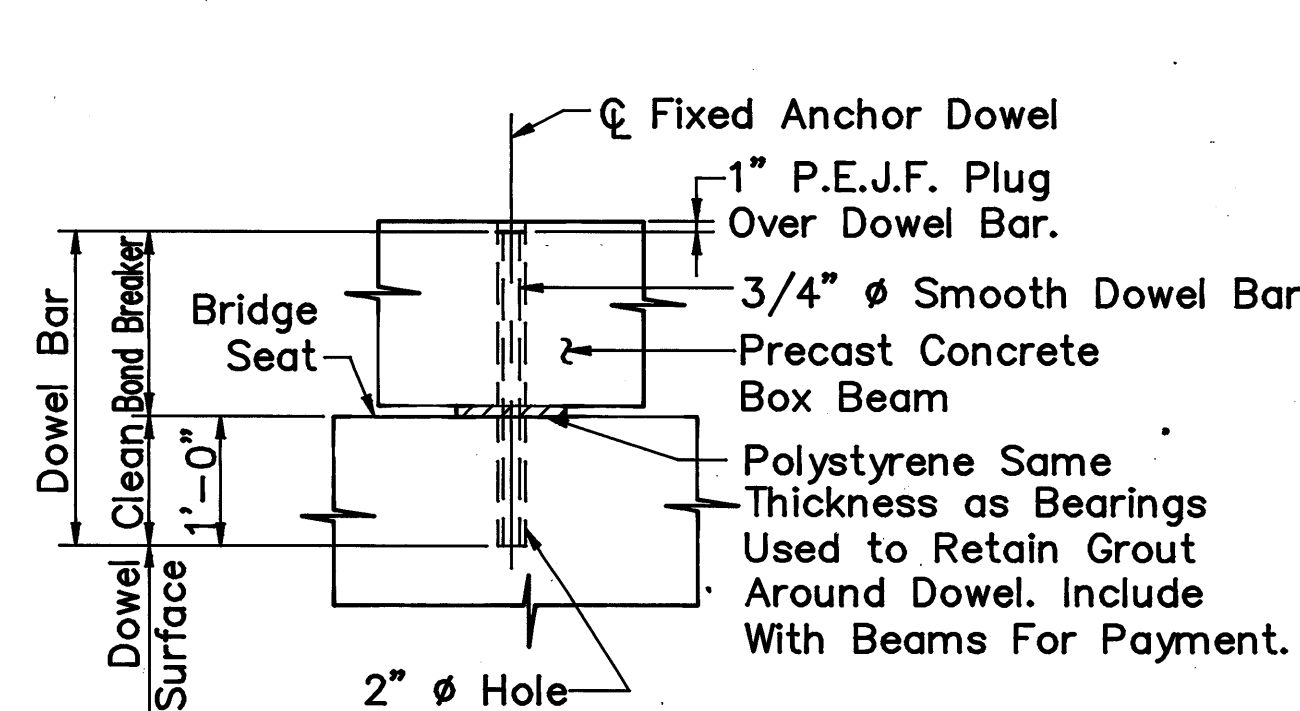
14
21

LORAIN COUNTY
LOR-511-14.18



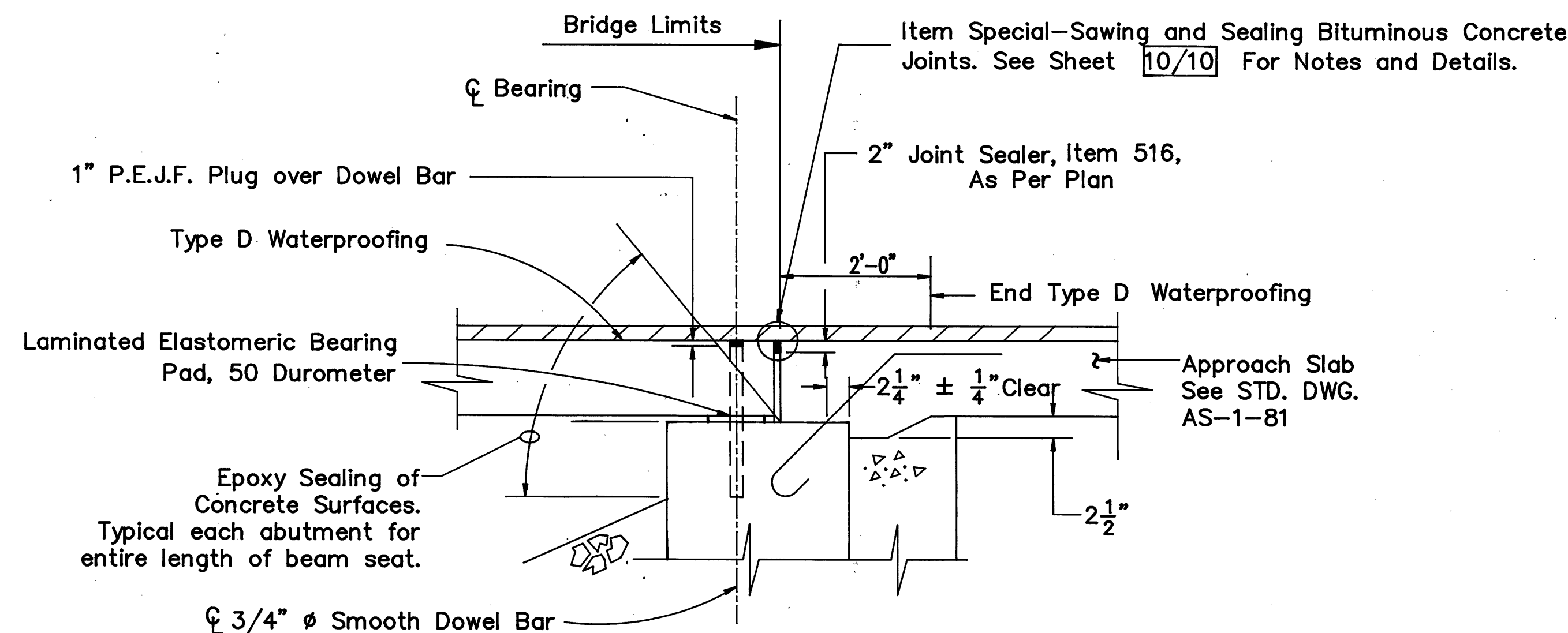
PLAN

See section E-E on sheet 7/10.
For more superstructure details see sheets 7/10 and 8/10.



FIXED ANCHOR DOWEL DETAIL
PIERS AND ABUTMENTS

PROCEDURE: Place Polystyrene Retainer. Drill and clean dowel holes. Then place non-shrinking grout, dowel, and 1" minimum P.E.J.F. plug.



SECTION D-D

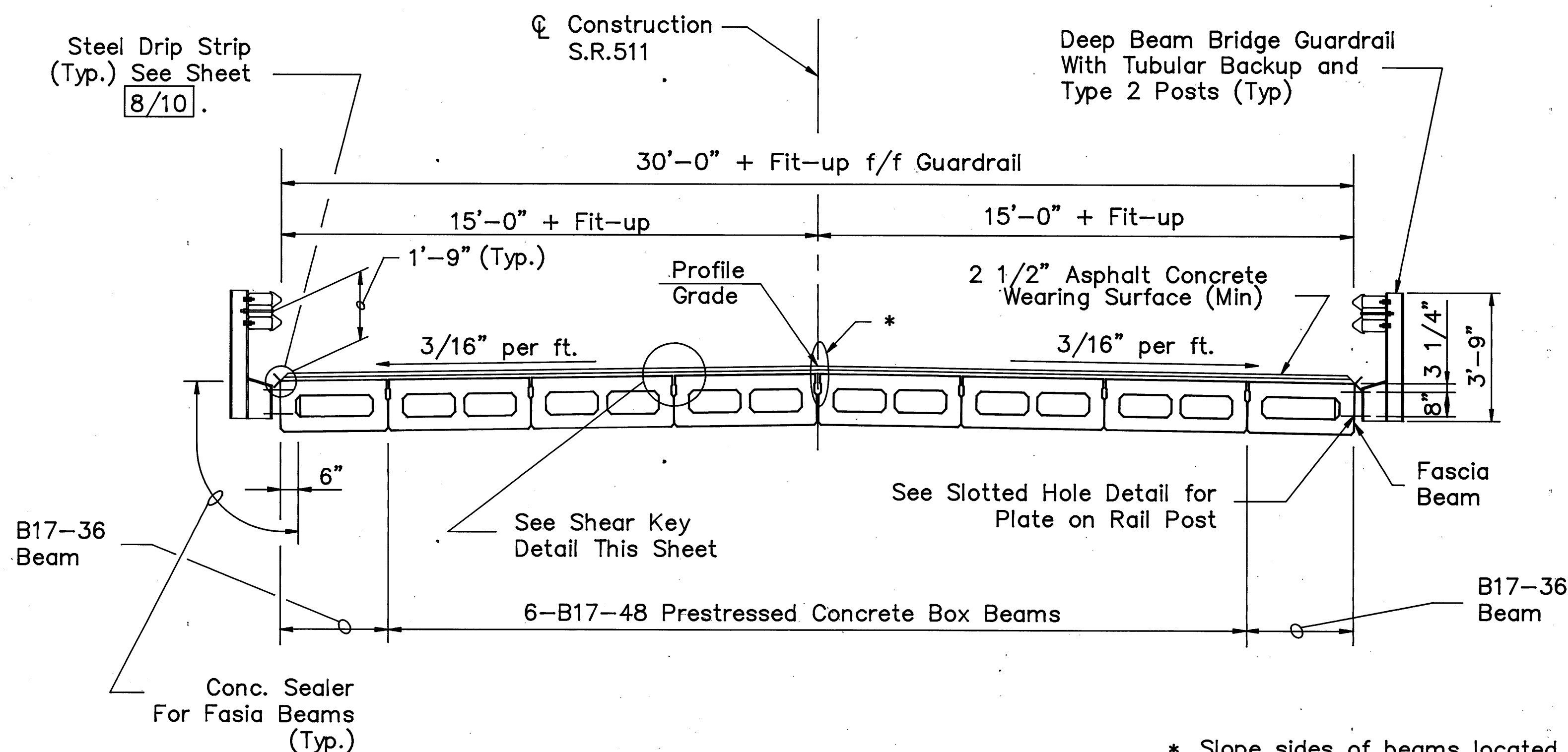
FASCIA BEAMS: To avoid interference with the anchors for the bridge railing posts, the longitudinal reinforcing bars near the fascia shall be shifted as necessary. Fabricator's shop drawings shall show complete details of the beam reinforcement. The keyway on exterior side of the fascia beams shall be omitted.

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SUPERSTRUCTURE DETAILS					
BRIDGE NO. LOR-511-1420					
OVER THE EAST FORK OF THE VERMILION RIVER					
LORAIN COUNTY OHIO					
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	REVISION
D.A.K.	K.R.M.		J.D.V.	J.F.	
3/91	3/91		3/91	3/91	

REGION	STATE	PROJECT	
5	OHIO		

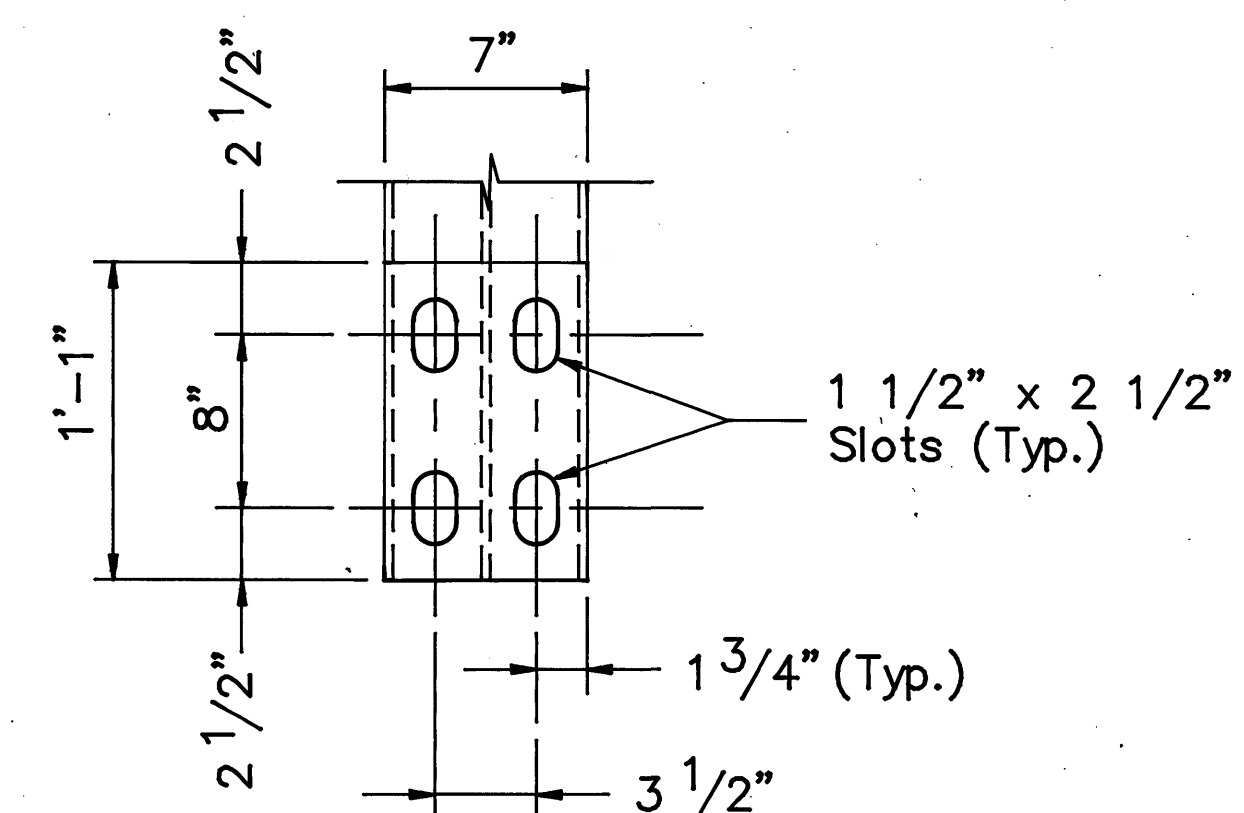
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LORAIN COUNTY
LOR-511-14.18

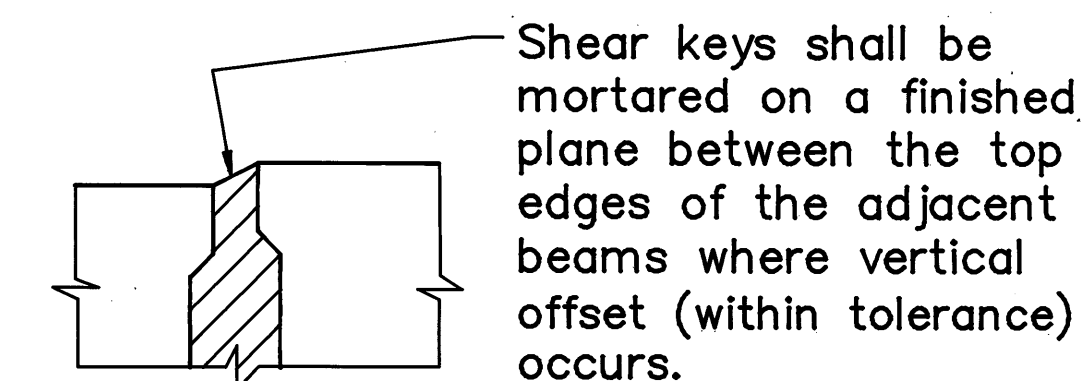


TRANSVERSE SECTION

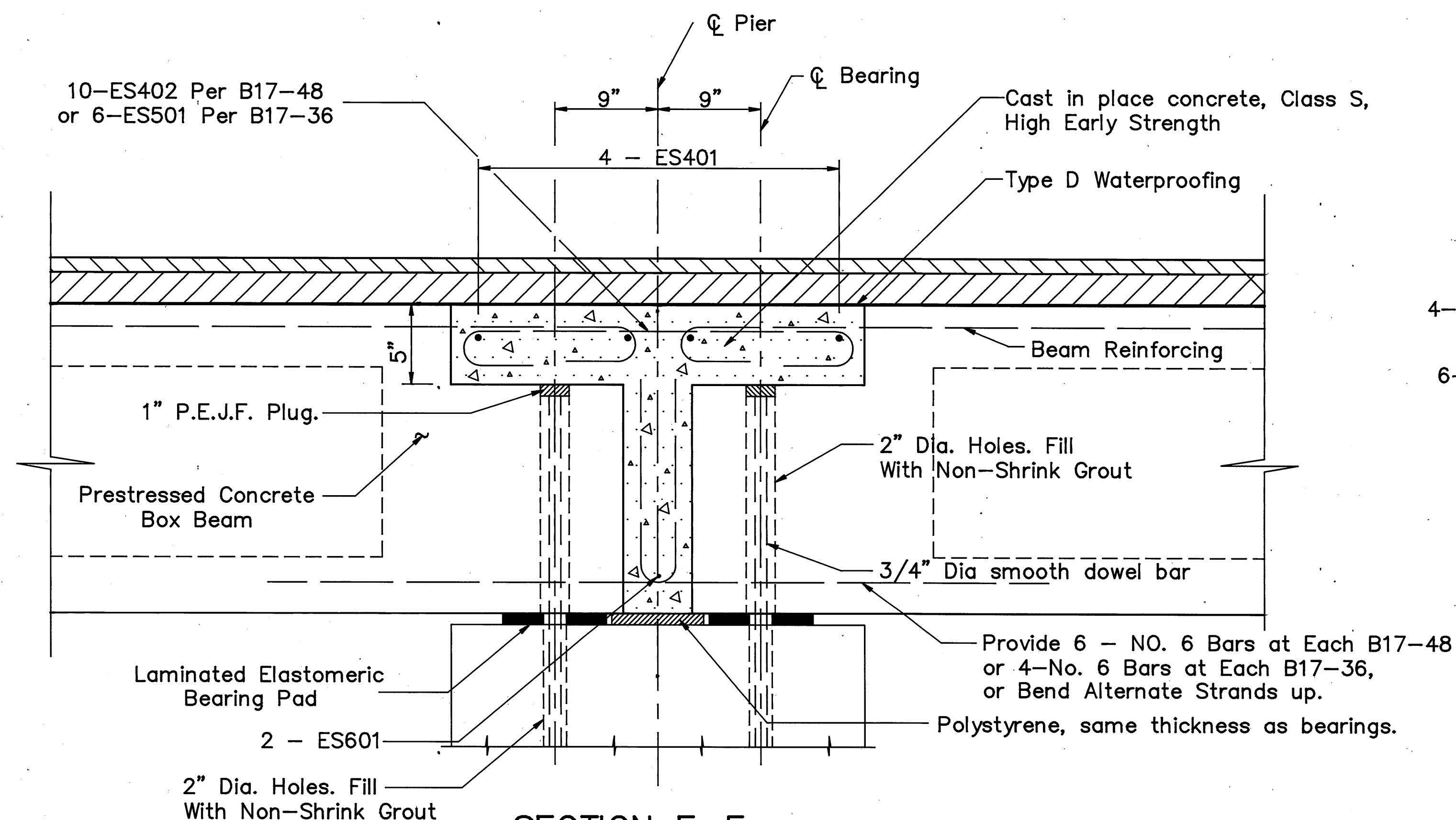
* Slope sides of beams located at crown point (spread forms at top) to achieve surface contact.



SLOTTED HOLE DETAIL FOR PLATE ON RAIL POST



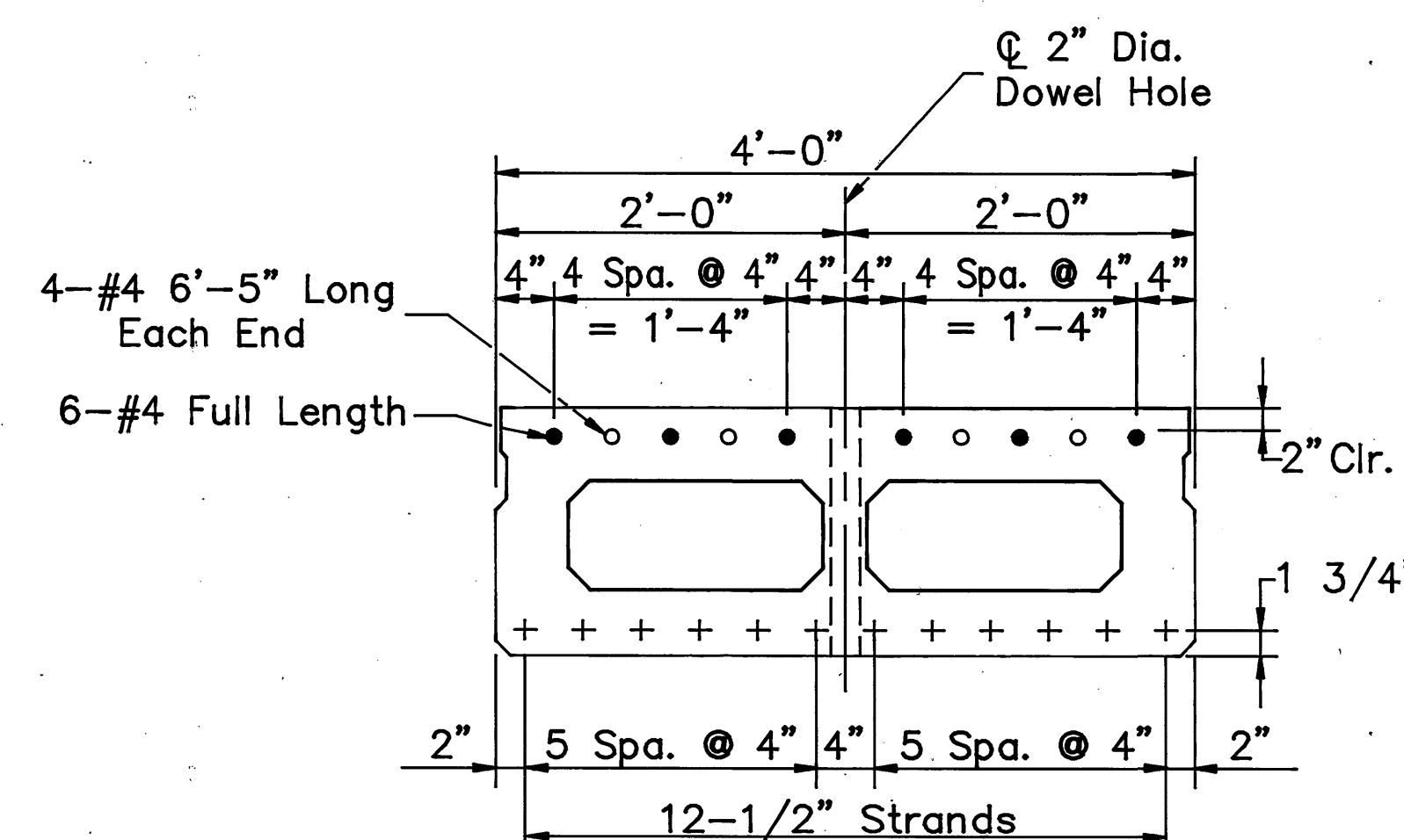
SHEAR KEY DETAIL



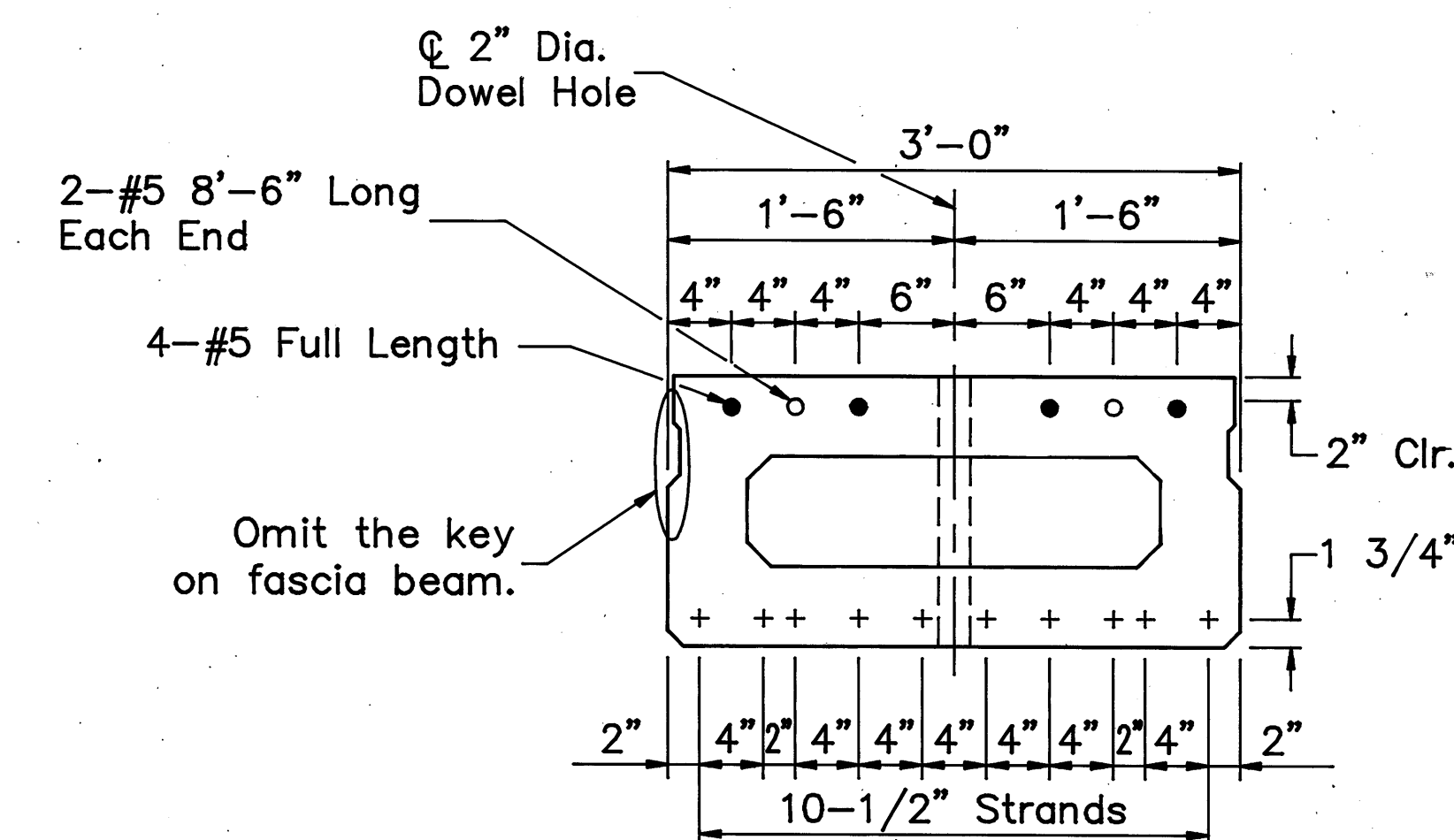
SECTION E-E

FIXED ANCHOR DETAIL @ PIERS

For Additional Details, See STD. DWG. PSBD-1-81, See Sheet 4 of 4.



BOX BEAM B17-48



BOX BEAM B17-36

7/10
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SUPERSTRUCTURE DETAILS
BRIDGE NO. LOR-511-1420
OVER THE EAST FORK OF
THE VERMILION RIVER

LORAIN COUNTY OHIO

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	REVIS
D.A.K.	K.R.M.		J.D.V.	J.F.	
3/91	3/91		3/91	3/91	

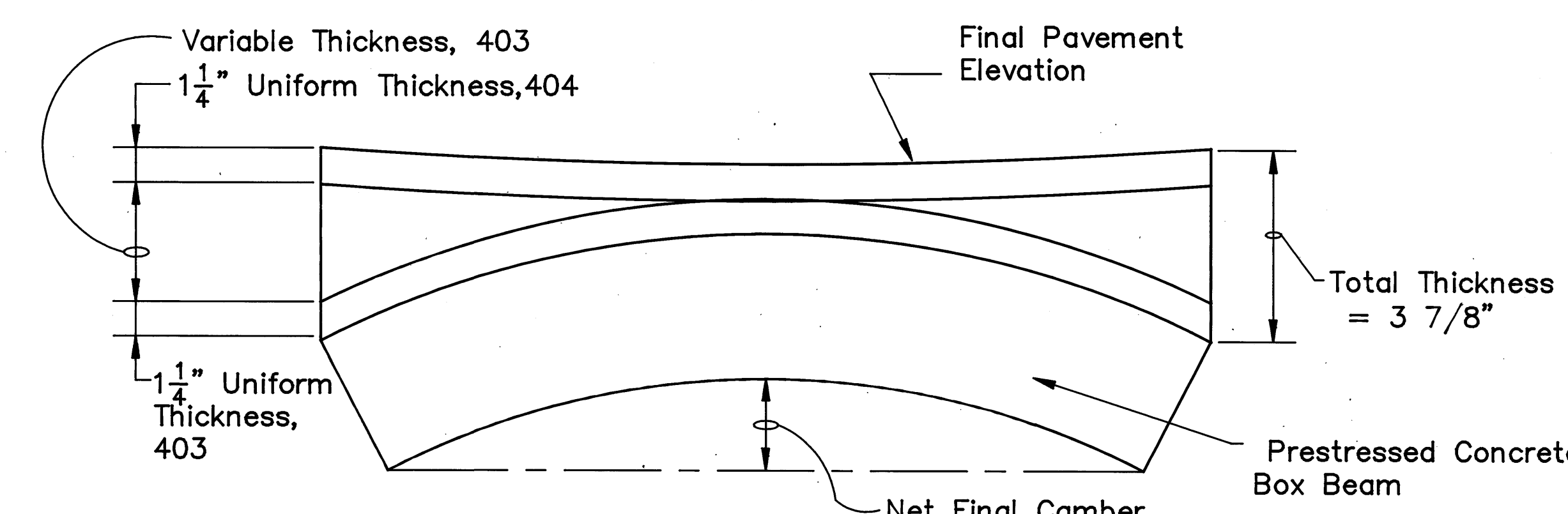
REGION	STATE	PROJECT	
5	OHIO		

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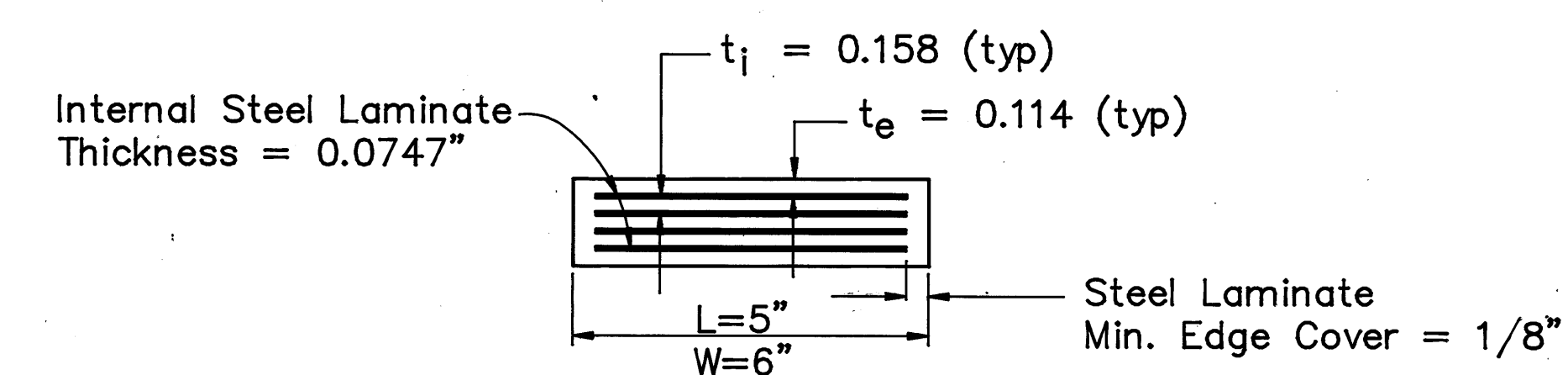
LORAIN COUNTY
LOR-511-14.18

CAMBER: Calculated camber at time of paving, including allowance for camber growth due to creep, is $1 \frac{3}{16}$ ". Calculated deflection due to weight of surface course and railing is $1/16$ ". Net final camber of beam is $1 \frac{1}{8}$ ". $1/4$ " is added to this amount to compensate for the sag vertical curve. This excess amount ($1 \frac{3}{8}$ "), required to place the top of the beam parallel to profile grade, shall be compensated for by thickening the 403 leveling course from $1 \frac{1}{4}$ " at the center of span to $2 \frac{5}{8}$ " at ends of span.

ASPHALT CONCRETE SURFACE COURSE shall consist of a variable thickness of 403 and $1 \frac{1}{4}$ " thickness of 404. The 403 shall be placed in two operations. The first course shall be of $1 \frac{1}{4}$ " uniform thickness. The second course shall be feathered to place the surface parallel to and $1 \frac{1}{4}$ " below final pavement surface elevation.



ASPHALT THICKNESS DIAGRAM
TYPICAL AT EACH SPAN



LAMINATED ELASTOMERIC EXPANSION BEARING
50 DUROMETER

Dead Load Reaction = 7.1 Kip
Live Load Reaction = 12.9 Kip
Maximum Design Load = 20.0 Kip

Tolerances:
Individual elastomeric layer thickness: $\pm 20\%$ of design value (not to exceed $\pm 1/8$ ")

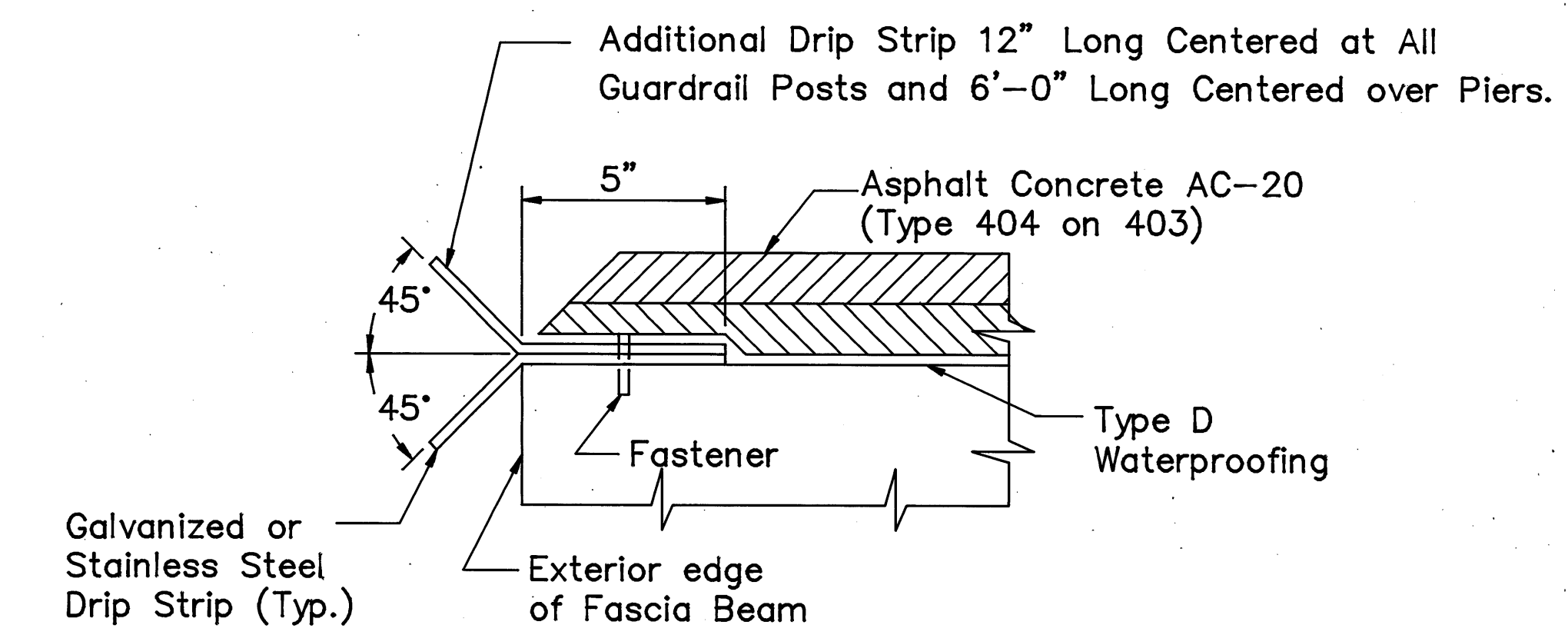
Plan dimension $-0, +1/4$ "
Design thickness $-0, +1/8$ "
Edge cover of embedded laminates $-0, +1/8$ "

Basis of Payment: The unit price shall include all materials, labor and incidentals necessary to furnish and install laminated elastomeric bearings either fixed or expansion. Payment will be made at the contract price for item 516, each, Elastomeric Bearing with internal laminates only (Neoprene) (5" x 6" x 1")

ELASTOMERIC TEST PAD

The elastomeric bearing manufacturer shall supply a plain elastomeric pad for testing purposes. The pad shall be furnished from the same batch of neoprene that is used in the fabrication of the laminated elastomeric bearings and the fabricator shall certify the identity of the elastomer. The pad shall have a $1/2$ inch thickness, and shall have minimum length and width dimensions of 6 inches. Payment for the test pad will be included in the price bid for the bearings.

DRIP STRIP : Prior to applying type D waterproofing, a bent drip strip shall be fastened at 1'-6" c/c maximum, with $1 \frac{1}{4}$ " x $5/32$ " x $1/4$ " flat head drive pins and washers (length x shank dia. x head dia.) or no.10 galvanized screws and expansion anchors, subject to the approval of the engineer. The strips shall be placed the full length of deck, ending at the face of the wingwall. Where splices are required a 3" (min.) lap shall be used with a fastener through the lap. Steel for galvanized strips shall be 8" x 0.105" and shall meet the requirements of ASTM A568. Galvanizing shall be in accordance with item 711.02. Stainless steel shall be 20 gauge ASTM A167, type 304, mill finish. Payment shall be at the contract price bid for item special, sq.ft., steel drip strip, which shall include all materials, labor, tools and incidentals necessary to complete the item.



TYPICAL DRIP STRIP DETAIL

8 / 10

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SUPERSTRUCTURE DETAILS
BRIDGE NO. LOR-511-1420
OVER THE EAST FORK OF
THE VERMILION RIVER
LORAIN COUNTY OHIO

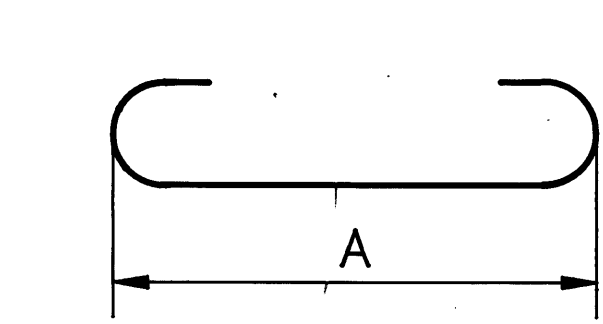
DESIGNED D.A.K.	DRAWN K.R.M.	TRACED	CHECKED J.D.V.	REVIEWED J.G.	REVISED
3/91	3/91		3/91	3/91	

REGION	STATE	PROJECT	
5	OHIO		

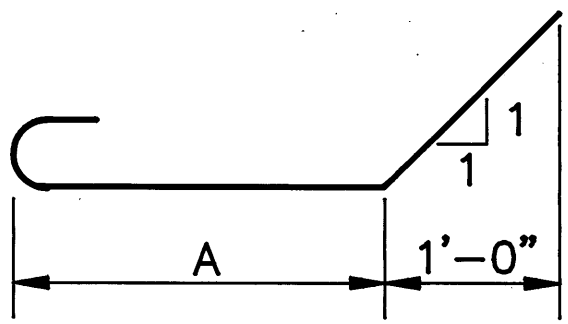
LORAIN COUNTY
LOR-511-14.18

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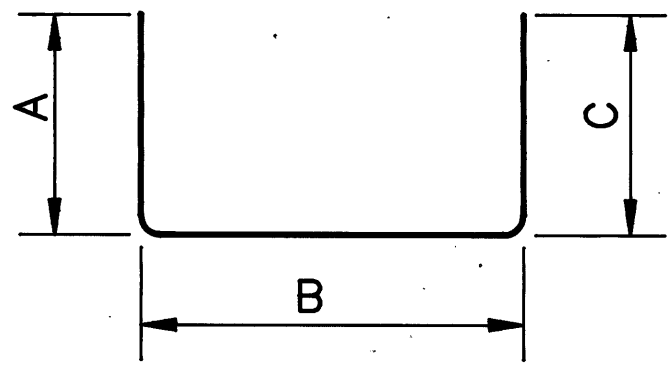
REINFORCING STEEL													
MARK	TOTAL NUMBER	LENGTH	TYPE	A	B	C	D	INCR.	REAR ABT. NO.	FRWD. ABT NO.	PIERS NO.	SUPERSTR. NO.	WEIGHT LBS.
ABUTMENTS													
EA401	28	8'-8"	9	1'-9"	2'-4 $\frac{3}{4}$ "				14	14			162
EA501	16	23'-3"	ST.						8	8			388
EA502	136	6'-9"	2	2'-2"	2'-8"	2'-2"			68	68			958
EA503	44	12'-8"	2	5'-6"	1'-11"	5'-6"			22	22			581
EA504	44	6'-8"	2	2'-6"	1'-11"	2'-6"			22	22			306
EA505	20	12'-11"	2	6'-0"	1'-2"	6'-0"			10	10			269
EA506	20	7'-5"	2	3'-3"	1'-2"	3'-3"			10	10			155
EA507	8	10'-1"	2	4'-7"	1'-2"	4'-7"			4	4			84
EA508	8	5'-5"	2	2'-3"	1'-2"	2'-3"			4	4			45
EA509	24	9'-4"	ST.						12	12			234
EA510	8	29'-8"	ST.						4	4			248
EA511	8	4'-10"	ST.						4	4			40
EA512	8	7'-8"	8	2'-9"	4'-11"	6 $\frac{3}{8}$ "			4	4			64
EA801	16	24'-1"	ST.						8	8			1029
EA802	8	29'-8"	ST.						4	4			634
ED801	42	5'-2"	12	2'-10"					21	21			580
												SUBTOTAL =	5777
PIERS													
EP401	24	9'-1 $\frac{1}{2}$ "	9	1'-9"	2'-6 $\frac{3}{4}$ "						24		146
EP501	48	12'-2 $\frac{1}{2}$ "	9	3'-2"	2'-8"						48		611
EP502	4	29'-7"	ST.								4		123
EP503	12	7'-5"	2	2'-6"	2'-8"	2'-6"					12		93
EP901	8	29'-8"	ST.								8		807
EP1001	8	29'-8"	ST.								8		1021
												SUBTOTAL =	2801
SUPERSTRUCTURE													
ES401	8	29'-11"	ST.									8	160
ES402	120	3'-8"	1	2'-8"								120	294
ES501	24	3'-10"	1	2'-8"								24	96
ES601	2	29'-11"	ST.									2	90
												SUBTOTAL =	640
												TOTAL =	9218



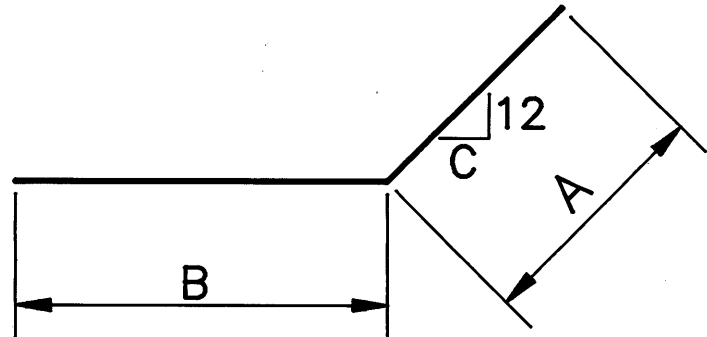
TYPE 1



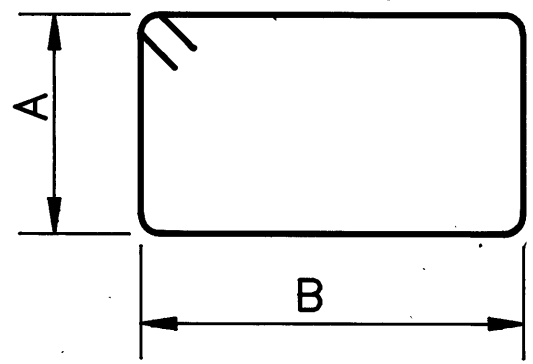
TYPE 12



TYPE 2



TYPE 8



TYPE 9

NOTES :

BAR SIZE : The 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 No. 5 size bar and
P1101 is a No. 11 size bar.

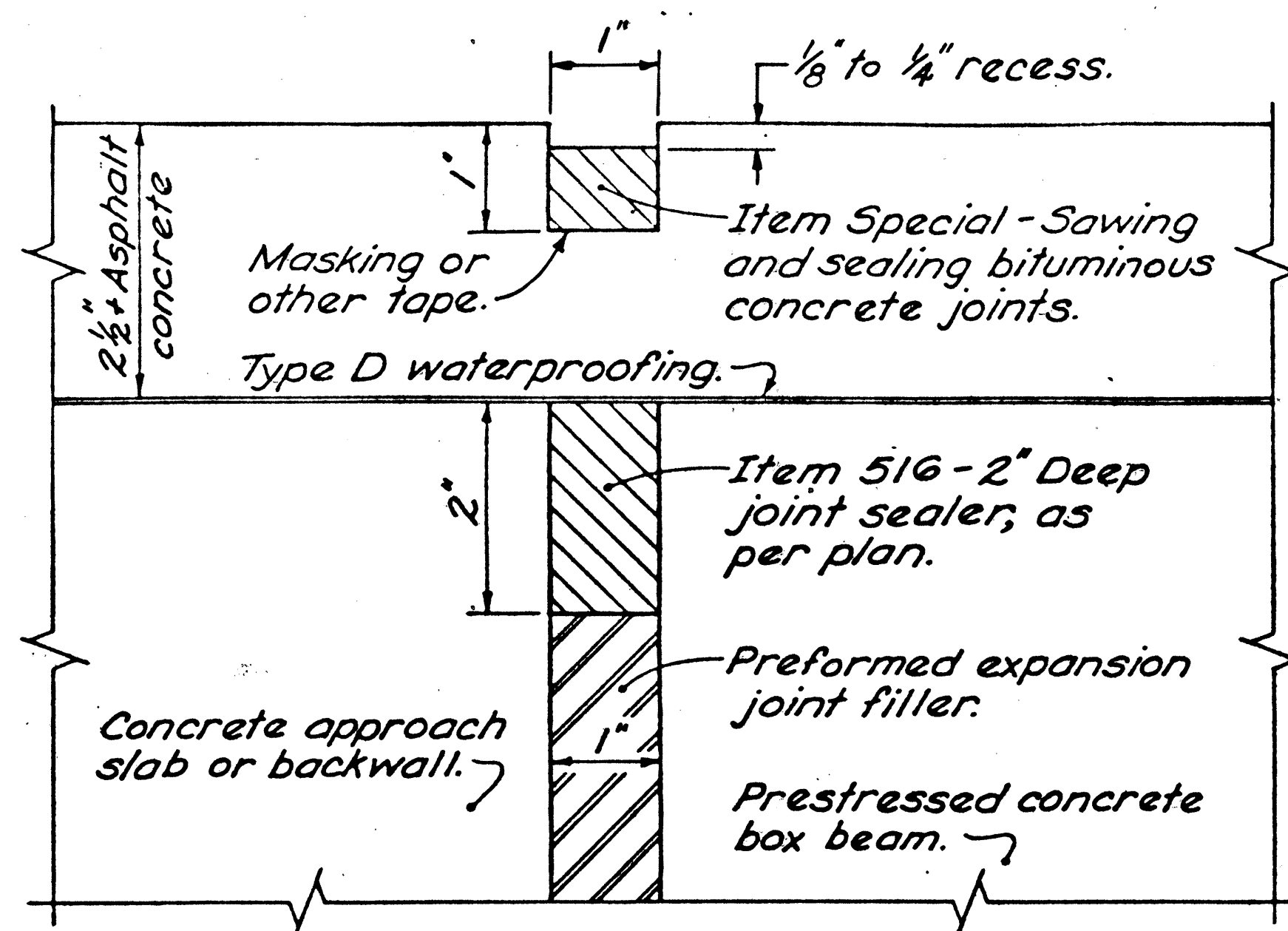
Bars with the prefix E denote epoxy coated bars.
ST. = Straight

9 / 10

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REINFORCING STEEL LIST
BRIDGE NO. LOR-511-1420
OVER THE EAST FORK OF
THE VERMILION RIVER
LORAIN COUNTY OHIO

DESIGNED D.A.K. 3/91	DRAWN K.R.M. 3/91	TRACED — —	CHECKED J.D.V. 3/91	REVIEWED J.F. 3/91	REVISED — —
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SEALING OF JOINTS AT ABUTMENTS

ITEM SPECIAL - SAWING AND SEALING BITUMINOUS CONCRETE JOINTS

1) Description:

This work shall consist of cutting and sealing transverse joints on the new bituminous concrete overlay of box beam bridges. Bituminous concrete joints shall be constructed directly over, and in line with, the existing underlying transverse abutment joint of the box beams.

2) Materials:

The joint sealant shall meet the requirements of ASTM Specification D3405, Joint sealants, Hot-poured, for Concrete and Asphalt Pavements. Acceptable alternate materials are:

Roof-Flex 176, polyurethane, as produced by the Carboline Company, 350 Hanley Industrial Court, St. Louis, Missouri 63144 (Roger Zubal, 614-877-3406); a silicone sealant meeting Federal Specifications TT-S-001543A Class A (one-part silicone sealants) and TT-S-00230C Class A (one-component sealants), such as those manufactured by General Electric, Silicone Products Division, 6155 Rockside Rd., Rockside Square I, Independence, Ohio 44131 (John Fromholtz, 216-447-1750) or Dow Corning, 3737 Park East, Beachwood, Ohio 44122 (Robert Ruppel, 216-464-2330); or Sof-Seal, a cold-applied, low-modulus, two-component polymeric compound horizontal sealant as manufactured by W. R. Meadows, Inc., P.O. Box 543, Elgin, Illinois 60121 (Robert Cameron, 312-683-4500). Sealant will be accepted on the basis of the manufacturer's certification that it conforms to the requirements of these specifications.

3) Construction Details:

A) General: The contractor shall conduct his operation so that the cutting, cleaning and sealing of transverse joints is a continuous operation that will be performed as soon as practical after the paving, but no later than four (4) days after placement of the asphalt concrete surface course. Traffic shall not be allowed to knead together or damage the joint cut prior to sealing.

B) Cutting of Transverse Joints: The contractor shall saw or rout transverse joints to the dimensions shown in the details on this sheet. The cut joints shall lie directly above each box beam abutment joint. The joint location shall be marked on the new asphalt surface with a chalk line, or by some other acceptable method, before cutting. Details of the method for locating and accurately marking the proposed cuts shall be subject to the approval of the Engineer prior to starting any surfacing or paving operations.

The blade or blades shall be of such size that the full width and depth of the cut can be made with one pass. Dry or wet cutting will be allowed. Joints shall extend the full width of the bridge.

C) Cleaning Joints: Dry sawed joints shall be thoroughly cleaned with a sufficient amount of compressed air to remove any dirt, dust, or deleterious matter. Wet sawed joints shall be washed clean of all cuttings by flushing with a jet of water and with other tools as necessary. After flushing, the joint shall be blown out with compressed air. When the surfaces are thoroughly clean and dry, and just prior to placing the joint sealer, compressed air having a pressure of at least 90 p.s.i. shall be used to blow out the joint and remove all traces of dust.

In the event freshly cut joints become contaminated before they are sealed, they shall be recleaned of all foreign material by high pressure water jet.

D) Sealing Joints: The joint shall be thoroughly dried before the sealant is placed. After cleaning and drying, a bond-breaker (tape) shall be applied to the bottom of the groove.

Hot-poured joint sealant material shall be heated in a kettle or melter constructed as a double boiler, with the space between the inner and outer shells filled with oil or other heat transfer medium. Positive temperature control and mechanical agitation shall be provided. Heating must be in strict accordance with the manufacturer's recommendation. Joint sealer material shall never be kept heated at the pouring temperature for more than four (4) hours and shall never be reheated. Sealer left in the applicator at the end of a day's work shall be removed and discarded.

Hot-poured sealant shall be applied immediately through a nozzle, which must project into the sawed joint, filling from the bottom up. The seal shall completely fill the joint in such a manner that, after cooling, the level of the sealer will not be higher than 1/8" below the pavement surface. Any depression in the cooled seal greater than 3/16" shall be brought up to the specified limit by further addition of hot-poured sealant. Care shall be taken in the sealing of the joints so that the final appearance will present a neat fine line.

The cold applied sealant materials (polyurethane, silicone, and polymeric compounds) shall be installed as per manufacturers' recommendations, or as directed by the Engineer. The sealant shall be installed when the ambient temperature is 40 degrees F or higher. Traffic shall not be allowed on the joint for one hour after application of the sealant.

4) Method of Measurement:

The quantity to be paid for under this item will be the number of linear feet of joints sawed and sealed as per the above requirements.

5) Basis of Payment:

The unit price per linear foot for Item Special - "Sawing and sealing bituminous concrete joints" shall include the cost of all labor, materials, and equipment necessary to complete the work, including the furnishing and placing of the joint sealer material.

ITEM 516 - 2" DEEP JOINT SEALER, AS PER PLAN

This item shall meet the material (para. 2) and sealing (para. 3D) specifications of Item Special - Sawing and sealing bituminous concrete joints.

REVISIONS 2-8-84 3-10-87 4-14-87 6-16-87	STATE OF OHIO DEPARTMENT OF TRANSPORTATION BUREAU OF BRIDGES AND STRUCTURAL DESIGN						10/10
ABUTMENT JOINTS IN BITUMINOUS CONCRETE, BOX BEAM BRIDGES BRIDGE NO. LOR-511-1420							
DESIGNED JEB	DRAWN MJB	TRACED	CHECKED WTF	REVIEWED WJJ	DATE 2-2-84		

REGION	STATE	PROJECT			19
5	OHIO				21

LORAIN COUNTY
LOR -511-14.18

RIGHT OF WAY PLAN

MONUMENTS WILL BE SET ON THE CENTERLINE OF SURVEY DURING CONSTRUCTION AT THE FOLLOWING LOCATIONS.

P.O.T. STA 748+50

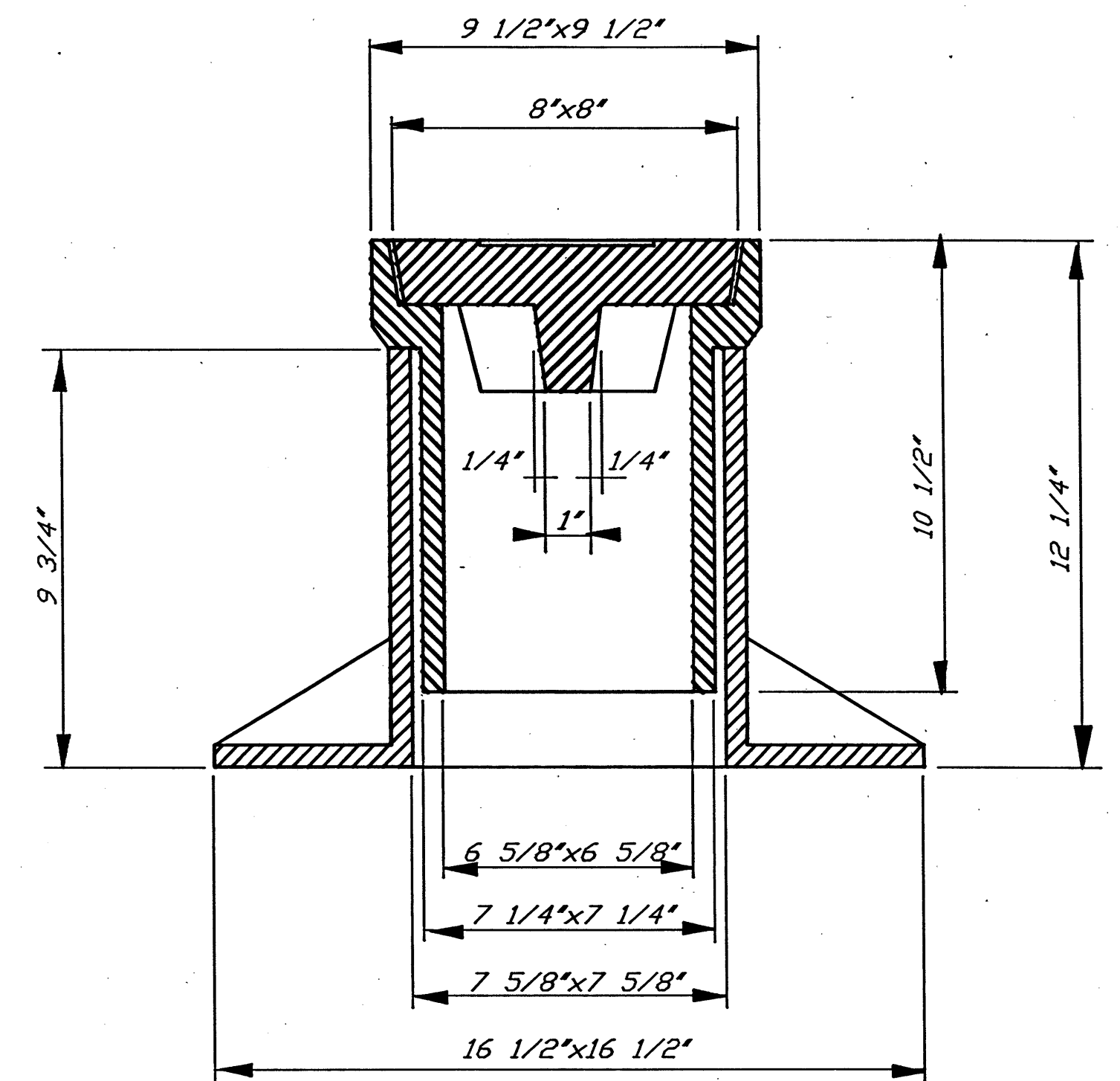
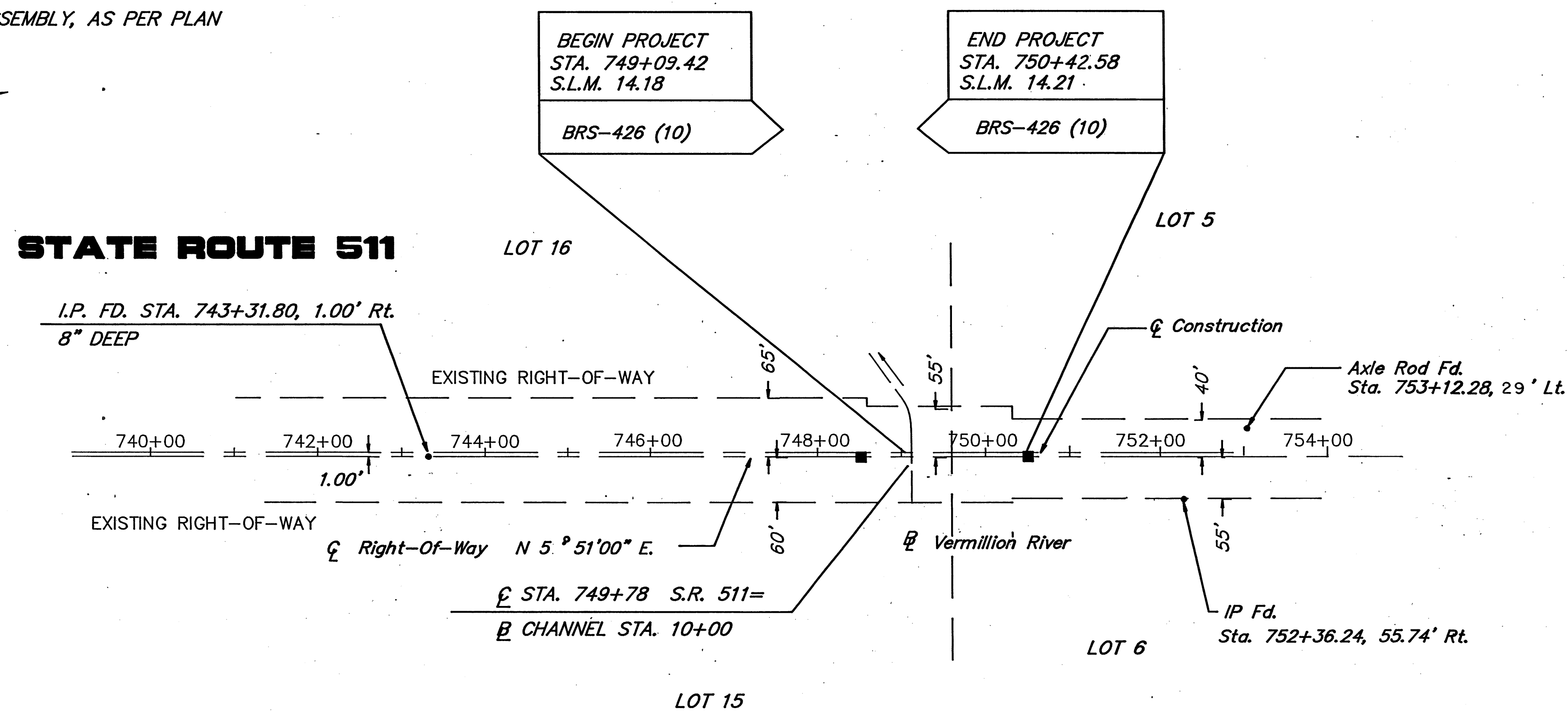
P.O.T. STA 750+50

THE FOLLOWING QUANTITY HAS BEEN INCLUDED
IN THE GENERAL SUMMARY FOR THIS ITEM:

ITEM 604 2 EA. MONUMENT ASSEMBLY, AS PER PLAN

CENTERLINE SURVEY PLAT

LORAIN COUNTY CAMDEN TOWNSHIP
VILLAGE OF KIPTON
LOT NO. 5,6,15 & 16
R-16W T-2N



MONUMENT ASSEMBLY
AS PER PLAN

NOTE: ALL DETAILS NOT SHOWN HEREON SHALL BE AS PER STD. CONSTRUCTION DRAWING MC-1 (6/13/69). THE PLACING OF THE MONUMENTS SHALL BE UNDER THE DIRECTION OF A REGISTERED SURVEYOR AND SHALL BE SET AS SHOWN BY THE HIGHWAY CONTRACTOR AT THE TIME OF CONSTRUCTION. ANY ALTERATIONS, WITH PRIOR APPROVAL OF THE ENGINEER, SHALL BE NOTED AND THE LORAIN COUNTY ENGINEER SHALL BE NOTIFIED OF THE NEW LOCATION.

LEGEND

- EXISTING IRON PIN
- PROPOSED MONUMENT ASSEMBLY AS PER PLAN

I hereby certify that this plat is a true delineation
of a survey made for the Department Of Transportation,
State Of Ohio in February, 1990.

Thomas D. Y. Fok
Thomas D.Y. Fok, Registered Surveyor No.4896

Approved _____, in _____, 199

Lorain County Engineer

Received for record this _____ day of _____, 199____
at _____ o'clock _____ m.

Recorded this day _____ day of _____, 199____
in Volume _____ Page _____ of the Lorain County Record of Plats

Lorain County Recorder



100 50 0 100
SCALE IN FEET

<i>REV.</i>	<i>DATE</i>	<i>DESCRIPTION</i>
<i>COMPLETED</i>		<i>5 / 9 / 91</i>

RIGHT OF WAY CENTERLINE SURVEY PLAT

REGION	STATE	PROJECT	
5	OHIO		

20
21

LORAIN COUNTY
LOR-511-14.18

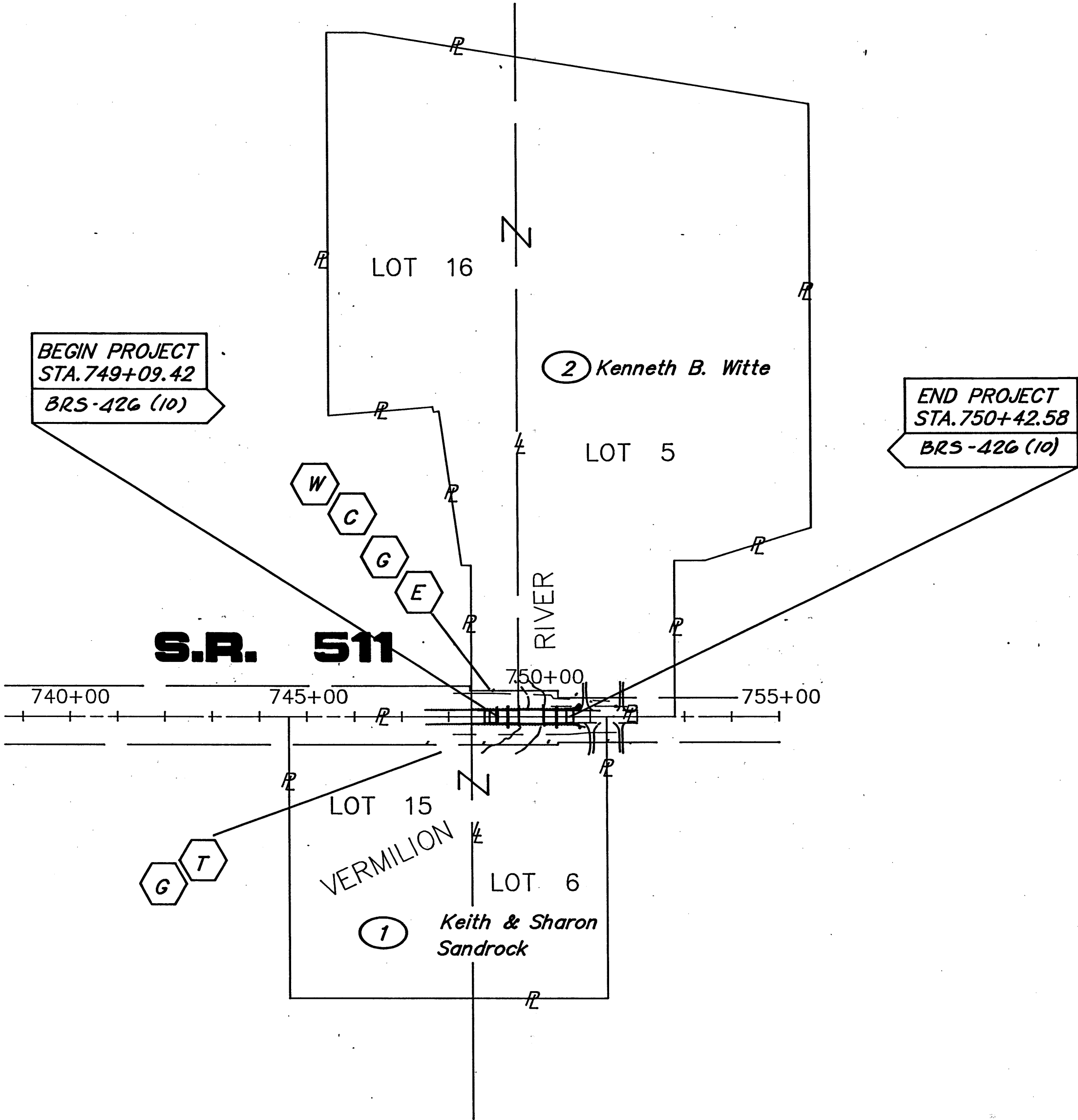
RIGHT-OF WAY PLAN

2
3

PROPERTY MAP

LORAIN COUNTY CAMDEN TOWNSHIP
VILLAGE OF KIPTON
LOT 5,6,15,16 T-2N R-16W

UTILITY OWNERS			
Utility	Address	Tel No.	Identifier
Telephone	GTE OPERATIONS NORTH AREA 117 North Sandusky Street Bellevue, Ohio 44811	419-483-8192	T
Electric	OHIO EDISON CO. 76 South Main Street Akron, Ohio 44308	216-384-5244	E
Gas	COLUMBIA GAS OF OHIO 827 Walnut Street Elyria, Ohio 44035	216-233-7216	G
Gas	BUCKEYE PIPELINE 4911 East High Street Mantua, Ohio 44255	216-274-2234	G
Cable	FRONT ROW CABLEVISION 236 Westwater Street Oak Harbor, Ohio 43449		C
Water	RURAL LORAIN WATER AUTHORITY P.O. Box 567 4241 Route 303 LaGrange, Ohio 44050	216-355-6060	W



UTILITY NOTE:
The location of the underground utilities shown on the plans are as obtained from the owners of the utility as required by section 153.64 O.R.C.

TYPE FUNDS: STATE

200 100 0 200
SCALE IN FEET

REV.	DATE	DESCRIPTION
COMPLETED	5/9/91	

SUMMARY OF ADDITIONAL RIGHT OF WAY

(STATE JOB NO BRS-426 (10) AND PROJECT IDENTIFICATION NO 3828)

REGION	STATE	PROJECT		21
5	OHIO			21

[illegible]

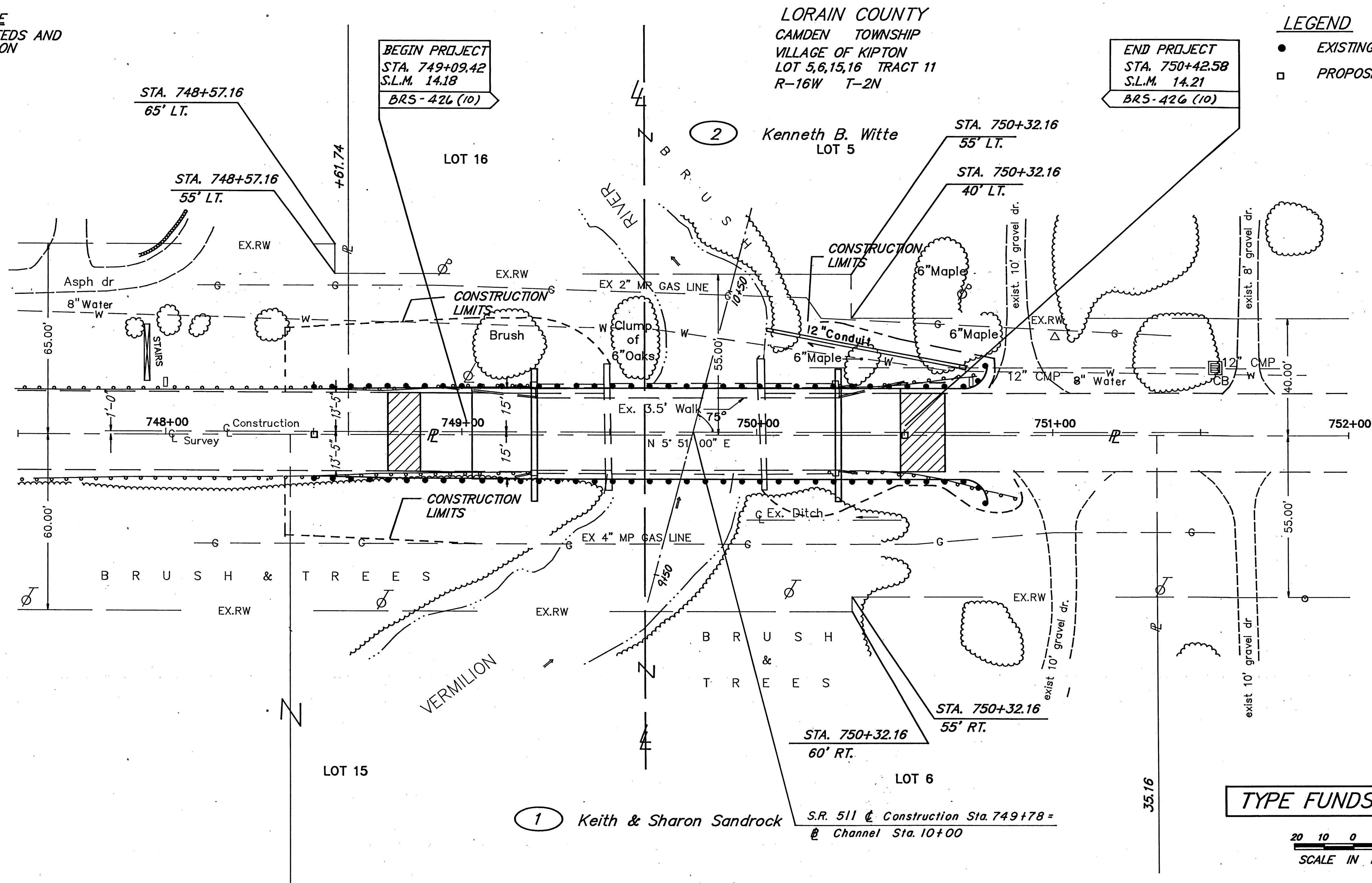
LORAIN COUNTY
LOR-511-14.18

RIGHT OF WAY PLAN (

TOTAL NUMBERS IN

2 OWNERSHIP
0 TOTAL TAKE
0 OWNERSHIPS WITH STRUCTURE INCL.
0 OWNERSHIPS WITH "P" ITEMS

EX R/W REFERENCE
COUNTY TAX MAPS, DEEDS AND
EXISTING MONUMENTATION



TYPE FUNDS: STATE

20 10 0 20

SCALE IN FEET

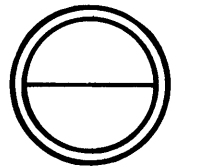
REV.	DATE	DESCRIPTION
COMPLETED	5/9/91	

RIGHT OF WAY PLAN STA. 747+50 to 752+00

DRAWN BY V. K.	CHECKED BY S. C. R.	REVIEWED BY G. M. R.	DATE 9.20.90
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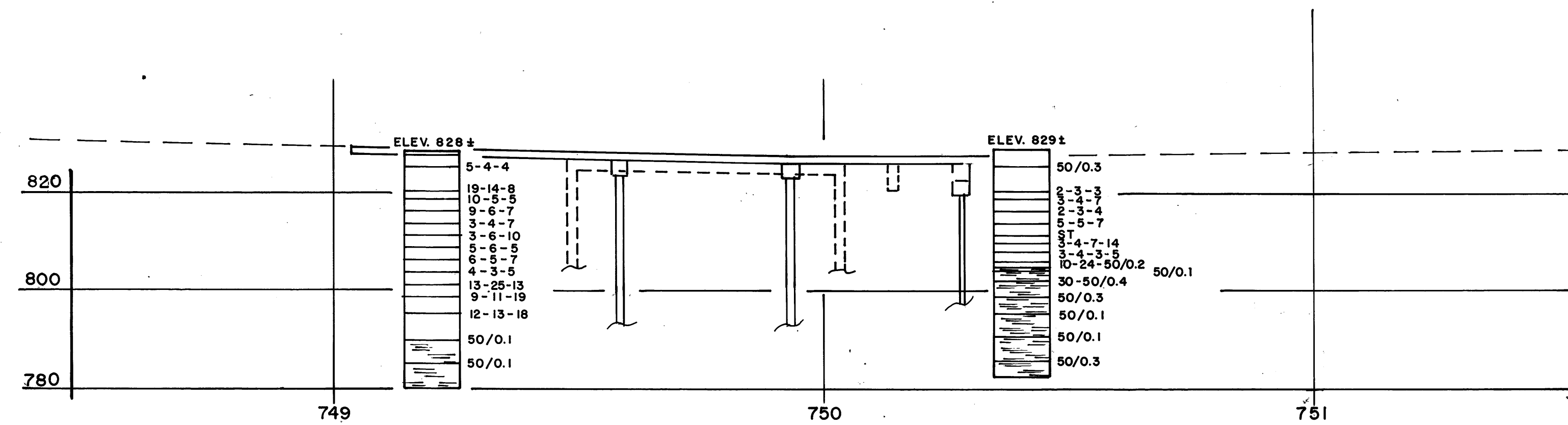
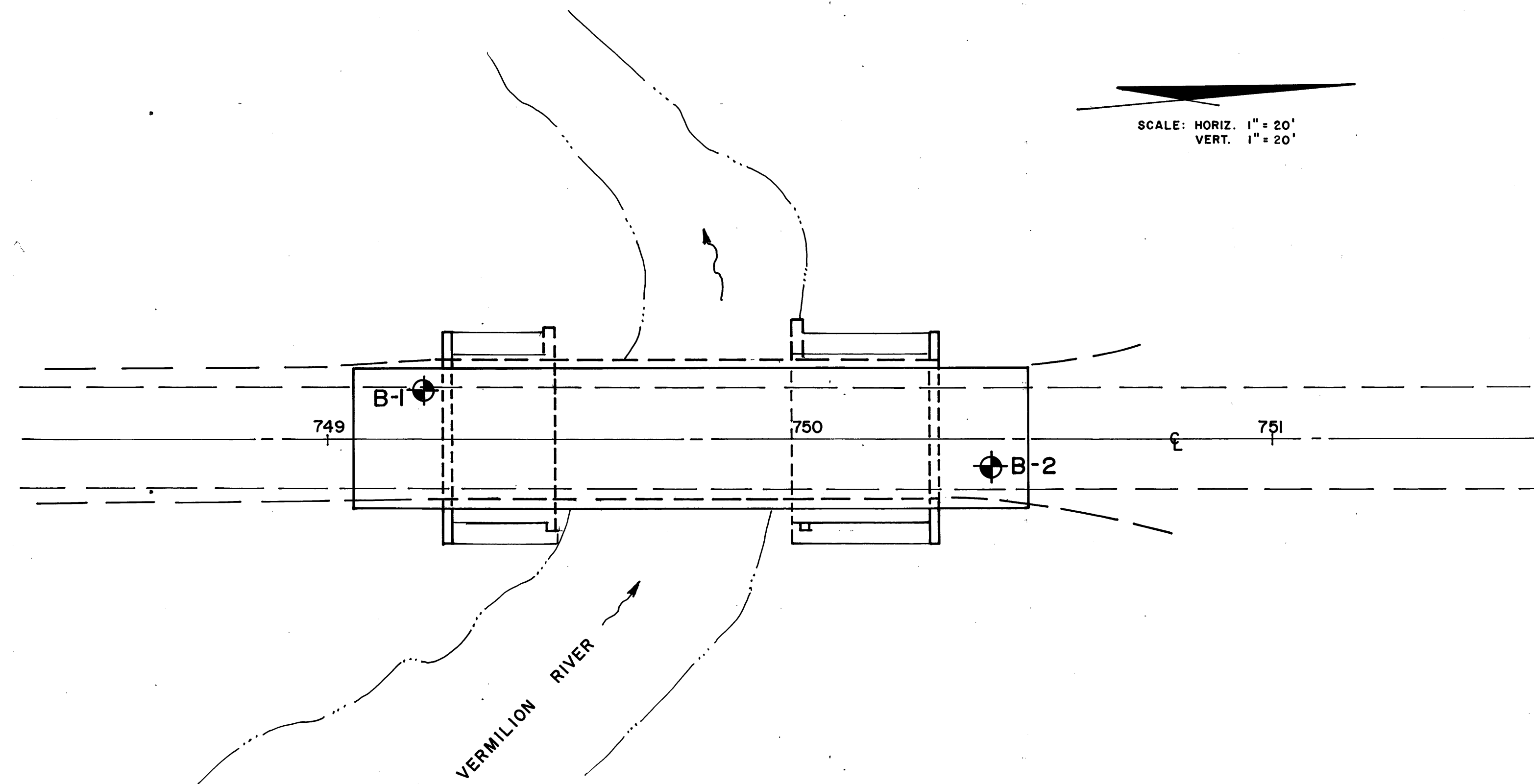
BOULDERS or COBBLES

FHWA REGION	STATE	PROJECT
		LOR-511-14.18



2
3

SCALE: HORIZ. 1" = 20'
VERT. 1" = 20'

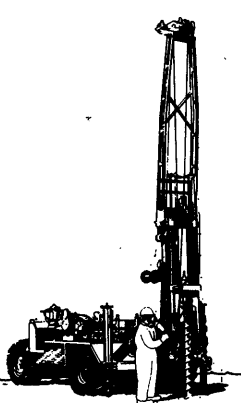


STRUCTURE FOUNDATION INVESTIGATION
BRIDGE No. LOR - 511-1428
KIPTON, OHIO



Geotechnical Engineers • Geologists
1234 S. CLEVELAND-MASSILLON ROAD
P.O. BOX 4383
AKRON, OH 44321

DRAWN BY V.K. CHECKED BY S.C.R. REVIEWED G.M.R. DATE 9.20.90



LOG OF BORING

Date Started	8-7-90	Sampler Type	Split Spoon	Dia.	2.0	Water Elev.	818.5
Date Completed	8-7-90	Casing Length	--	Dia.	---		
Boring No.	B-1	Station & Offset	Sta. 749 + 20 10' LT.			Surface Elev.	828±

ELEV.	DEPTH	STD. PEN. (N)	REC. FI.	LOSS FI.	DESCRIPTION	SAMPLE	PHYSICAL CHARACTERISTICS											SHTL CLASS.
						NO.	TYPE	% AGG.	% C. SAND	% F. SAND	% SILT	% CLAY	L.L.	P.L.	P.I.	W.C.		
828.0	0																	
827.0					ASPHALT													
	5	5-4-4	0.8		Stiff to very stiff, brown and gray <u>SILT AND CLAY</u> , some sand, trace gravel, moist to wet.	1	SS	5.7	6.7	14.9	*	72.7	31.9	19.2	12.7	17.0	A-6a	
		19-14-8	1.5			2	SS											
818.0	10	10-5-5	0.5			3	SS	33.7	7.6	17.9	*	40.8	25.8	17.1	8.7	14.3	A-4a	
		9-6-7	1.5		Stiff, brown and gray <u>SANDY SILT</u> , some rock fragments, trace clay, wet.	4	SS											
813.0	15	3-4-7	0.8			5	SS	0.7	5.8	66.1	*	27.4	--	--	--	19.2	A-3a	
		3-6-10	1.0			6	SS											
	20	5-6-5	0.8		Medium dense, gray <u>SAND</u> , some silt, trace gravel, wet.	7	SS	29.1	10.2	29.6	*	31.1	--	--	--	18.2	A-3a	
805.5		6-5-7	0.8			8	SS	0.0	0.1	26.4	65.3	8.2	--	--	--	23.1	A-4b	
	25	4-3-5	1.5			9	SS											
		13-25-13	1.5		Stiff to hard, gray <u>SILT</u> , some to trace sand. trace to little clay, moist.	10	SS	22.9	5.1	10.8	*	61.2	19.1	18.0	1.1	17.2	A-4b	
	30	9-11--19	1.5			11	SS											
		12-13-18	1.5		NOTE: Little shale fragments at 27.0 feet.	12	SS	0.1	0.1	1.8	86.1	11.9	--	--	--	22.0	A-4b	
	35																	
789.5		50/0.1	0.1			13	SS											
	40																	
		50/0.1	0.1			14	SS											
	45	RQD 0%	3.0	2.0	Gray <u>SHALE</u> , highly weathered, fractured.	Run 1	NX											
779.5					TERMINATION DEPTH 48.5 FEET													

LOG OF BORING

Date Started 8-7-90 Sampler Type Split Spoon Dia. 2.0 Water Elev. 809±
Date Completed 8-7-90 Casing Length -- Dia. ---
Boring No. B-2 Station & Offset Sta. 750 + 40 6' RT. Surface Elev. 829±

[illegible]

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE No. LOR-511-1428
KIPTON, OHIO



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P.O. BOX 4383
AKRON, OH 44321

TYPED BY M. R.	CHECKED BY S. C. R.	REVIEWED G. M. R.	DATE 9.20.90
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