

DESIGN DESIGNATION

Current (1994) A.D.T.....	= 440	HUR-162-1.53	= 440	HUR-162-2.56	= 440
Design Year (2014) A.D.T.....	= 710		= 710		= 710
D.H.V.....	= 71		= 71		= 71
D Directional Distribution.....	= 55%		= 55%		= 55%
T Percent B & C Trucks.....	= 7%		= 7%		= 7%
V Design Speed.....	= 55		= 55		= 55
Legal Speed.....	= 55		= 55		= 55
Functional Classification.....	= Rural		= Rural		= Rural
	Major		Major		Major
	Collector		Collector		Collector
Design Exceptions.....	= None				

CONVENTIONAL SIGNS

County Line	-----	Limited access (only)	-----	LA
Township Line	-----	Right of Way (only)	-----	R/W
Section Line	-----	Right of Way with Limited Access	-----	LA R/W
Corporation Line	----- or -----	Existing Right of Way	-----	
Construction Limits	-----	Property Line	----- (in existing fence)	-----
Fence Line(existing)	----- (proposed)	Railroad	----- or -----	
Center Line	----- 352 ----- 353	Guardrail (existing)	----- (proposed)	-----
Trees	----- Stumps	Waterline	----- W ----- Gasline	----- G -----
Utility Poles: Telephone	----- Power	Existing Storm Sewer	----- 12" -----	-----
Existing Light Pole Foundation	-----	Existing Sanitary Sewer	----- 12" -----	-----
Existing Steel Post	-----			

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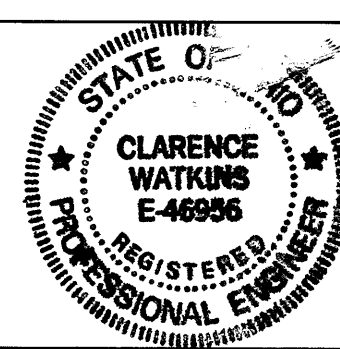
LINE DATA

	Project	Work
HUR-162-1.53		
Begin	Sta. 81+00.31	Sta. 79+75.00
Suspend	Sta. 82+63.69	Sta. 84+00.00
Length	163.38 Lin.Ft. or 0.031 Miles	425 Lin.Ft. or 0.08 Miles
HUR-162-2.56		
Resume	Sta. 135+41.04	Sta. 134+45.85
End	Sta. 136+24.46	Sta. 137+25.00
Length	83.42 Lin.Ft. or 0.016 Miles	279.15 Lin.Ft. or 0.053 Miles
Total Length	246.8 Lin.Ft. or 0.047 Miles	704.15 Lin.Ft. or 0.133 Miles

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



PLAN PREPARED BY:
R.E. WARNER & ASSOCIATES
2001 CROCKER RD.
WESTLAKE, OHIO 44145
216-835-9400



APR 19 1996

STATE OF OHIO DEPARTMENT OF TRANSPORTATION

HUR-162-[1.53][2.56]

NORWICH TOWNSHIP HURON COUNTY

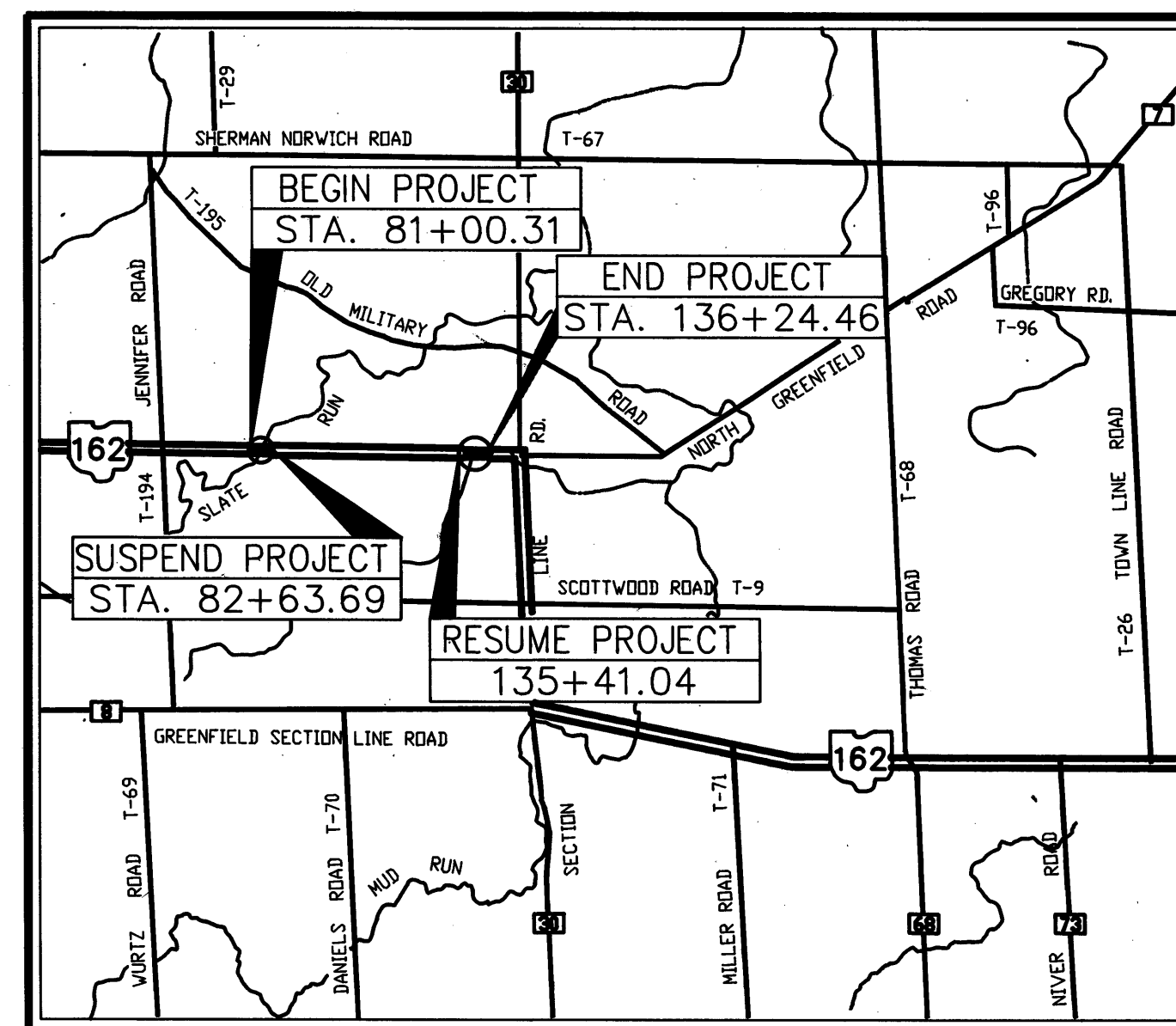
PID 10107
C No. 610194

CALC. BY: <u>CLH</u> DATE: <u>5/94</u> CHKD. BY: <u>CDW</u> DATE: <u>5/94</u>	HUR-162-(1.53)(2.56)	OHIO FHWA 5 REGION	1 40
BRF - 94B(13)			

1995 SPECIFICATIONS

The Standard Specifications of the State of Ohio Department of Transportation, including changes and supplemental specifications listed in the proposal shall govern this improvement.

I hereby approve these plans and declare that the making of this improvement will require the closing to traffic of the highway, and that detours will be provided as indicated on sheet 6.



LOCATION MAP

SCALE IN MILES

Portion to be improved.....
State Routes.....
Other Roads.....

SCALES

Plan.....
Profile..... Horiz. Vertical
Cross Section: Horiz. Vertical

SUPPLEMENTAL SPECIFICATIONS	
802	3-23-95
944	3-23-95
820	6-14-95

SUPPLEMENTAL PRINTS OF STANDARD CONSTRUCTION DRAWINGS					
BP-3.1	2-21-92	MC-4	7-26-76	AS-1-81	11-27-81
BP-4.1	2-21-92	MC-10	5-1-76		
		MC-11	8-1-78	DBR-2-73	4-10-73
GR-1.1	5-6-91	TC-41.10	8-29-84	PSBD-1-81	6-20-89
GR-1.2	10-30-92	TC-41.20	6-21-94	EXJ-3-82	8-1-84
GR-1.3	2-21-92	TC-52.10	4-3-79	EXJ-4-87	1-5-89
GR-2.1	5-6-91	TC-52.20	4-3-79		
		MT-99.10	11-14-86		
GR-3.4	5-6-91	MT-101.60	7-1-92		
GR-4.1	5-6-91	MT-105.10	7-1-92		
GR-4.2	5-6-91	MT-105.11	7-1-92		

Revised 9-12-95

Approved P.A. Harwood, Jr.
Date 6-12-94 District Deputy Director of
Transportation

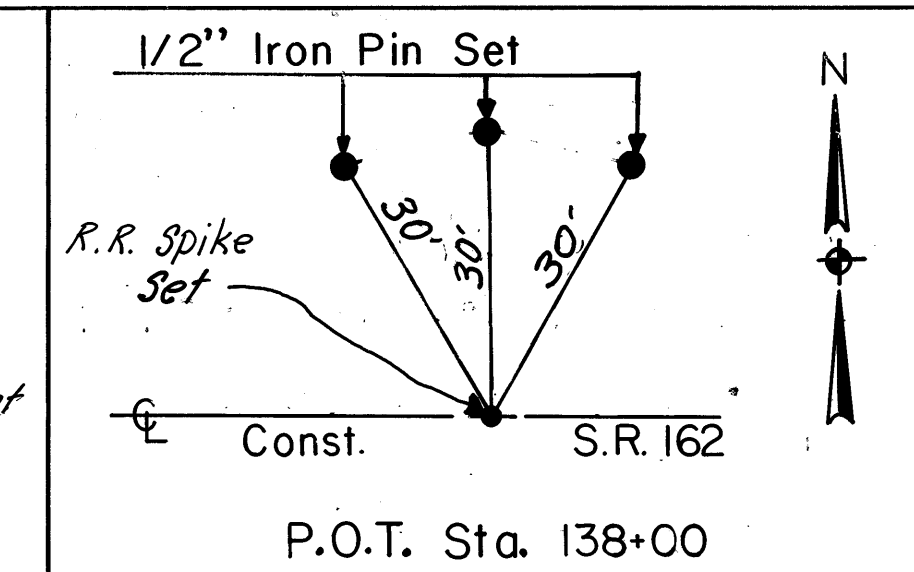
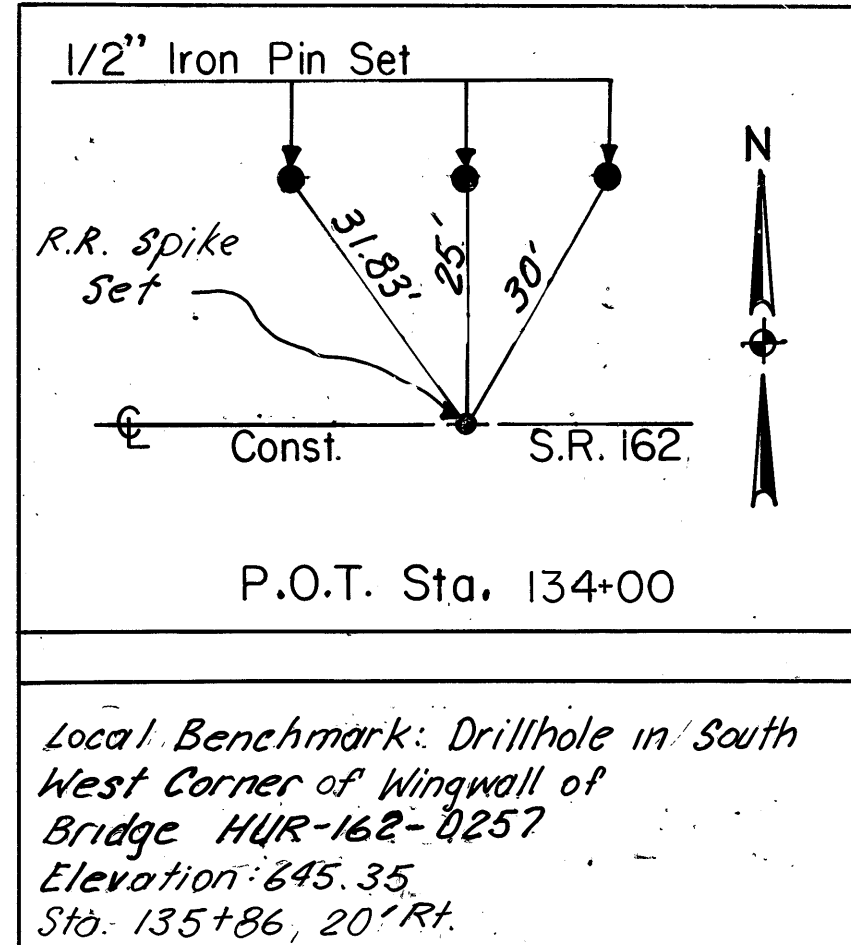
Approved B.D. Haskins, Jr.
Date 7-26-94 Engineer, Bureau of Bridges and
Structural Design

Approved Christopher L. Remyan
Date 10-13-94 Deputy Director, Design

Approved Jerry Wray
Date 10-13-94 Director, Department of
Transportation

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

Approved
DIVISION ADMINISTRATOR
DATE

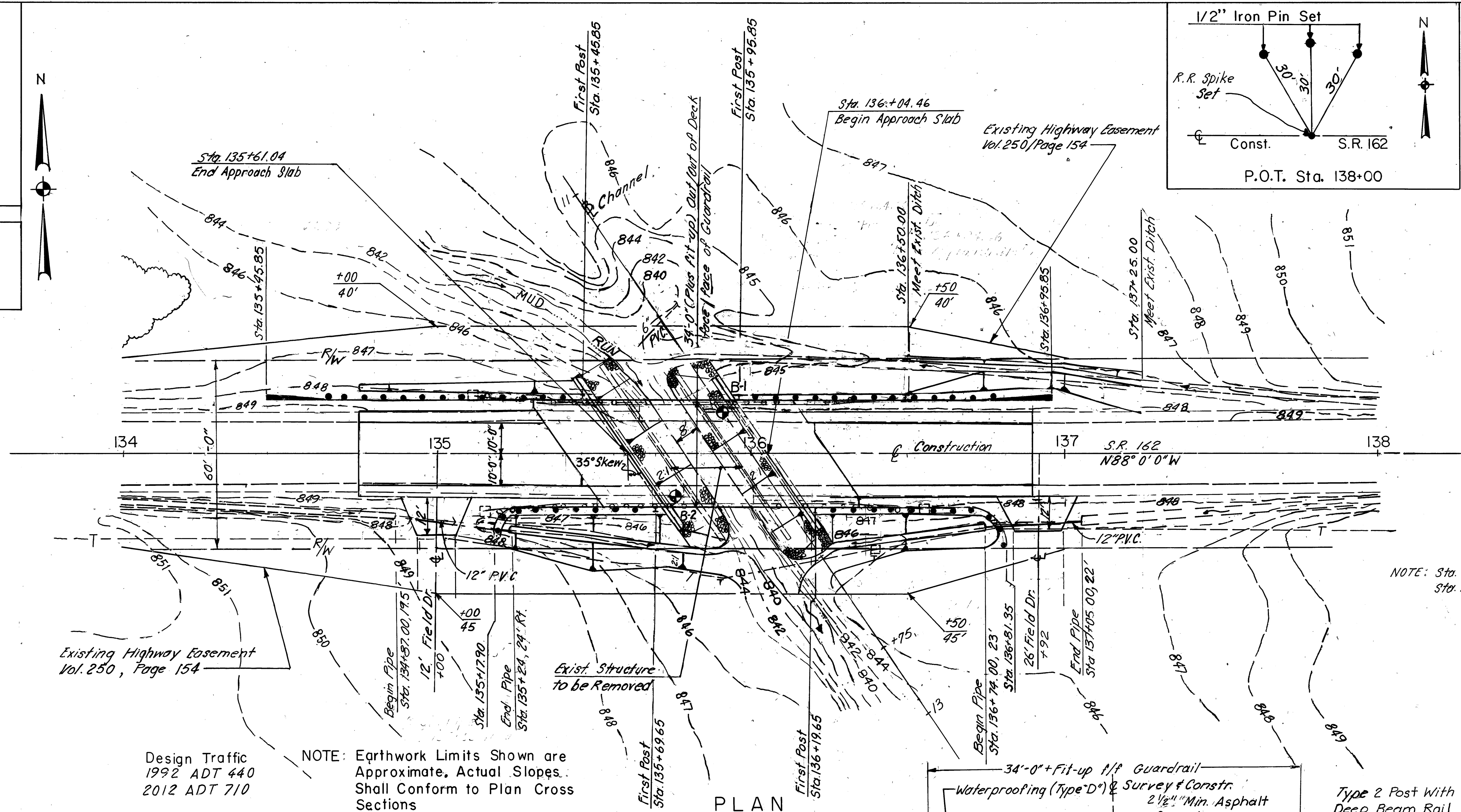


HUR-162-(1.53)(2.56)

OHIO
FHWA 5
REGION

33
40

HURON COUNTY
LOCATED: 1.3± MILES WEST
OF HAVANA

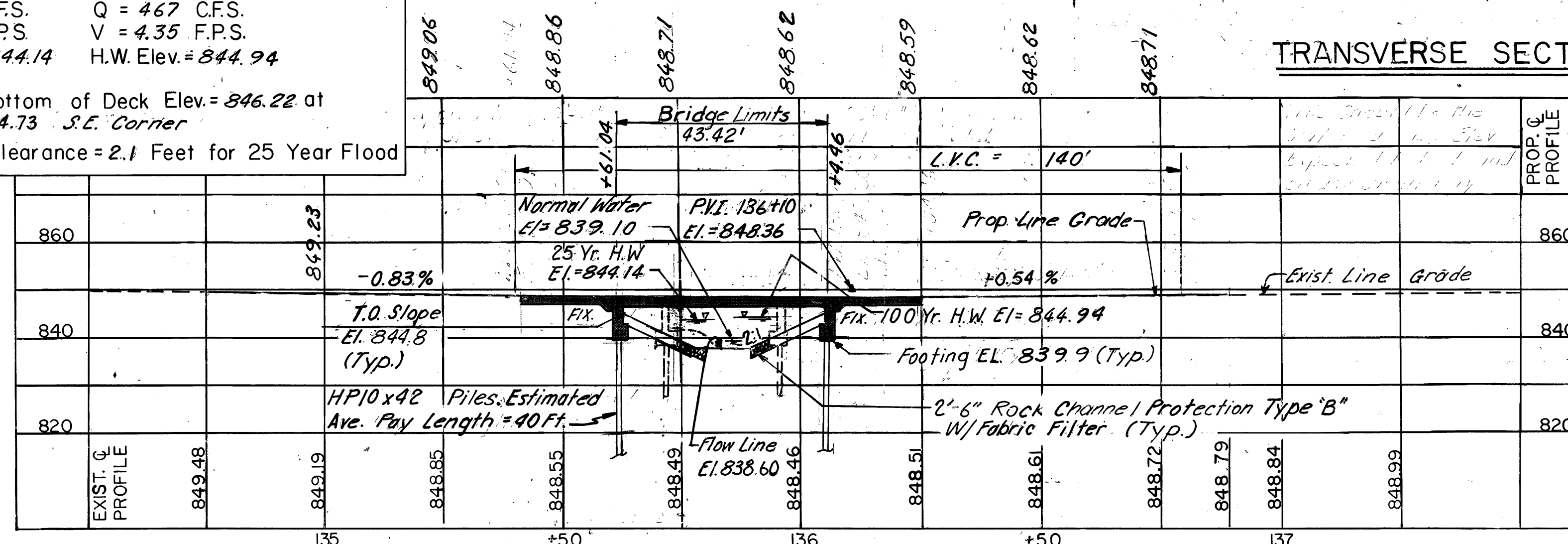
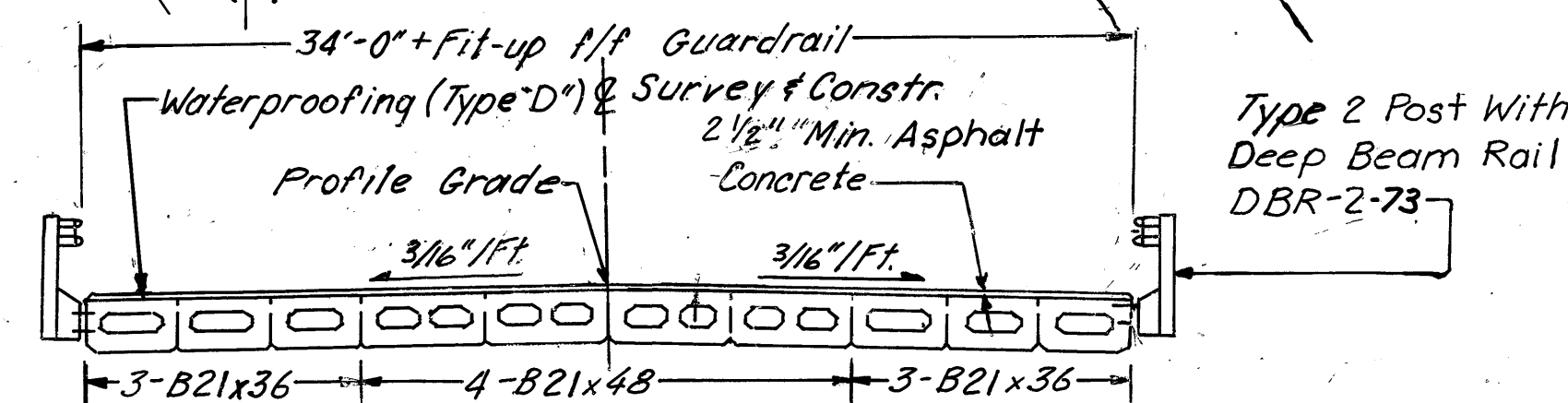


Design Traffic
1992 ADT 440
2012 ADT 710

NOTE: Earthwork Limits Shown are
Approximate. Actual Slopes
Shall Conform to Plan Cross
Sections

● - Indicates Location
of Test Boring

DRAINAGE AREA	
Drainage Area: 1.26 Sq. Miles	
25 Year	100 Year
Q = 338 C.F.S.	Q = 467 C.F.S.
V = 3.91 F.P.S.	V = 4.35 F.P.S.
H.W. Elev. = 844.14	H.W. Elev. = 844.94
Minimum Bottom of Deck Elev. = 846.22 at Sta. 136+14.73 S.E. Corner	
Minimum Clearance = 2.1 Feet for 25 Year Flood	



Reviewed By Burgess & Niple, Ltd.
JCS 7-6-94

EXISTING STRUCTURE DATA
STRUCTURE FILE NO. 3902706
TYPE: Prestressed Concrete Beam
SPAN: 21' ± Clear
ROADWAY: 32' ± f/f of Guardrail
SUBSTRUCTURE: Capped Pile Abutments
WEARING COURSE: Asphalt Concrete
ALIGNMENT: Tangent
SKEW: 35° R.F.
CONDITION: Poor
DATE BUILT: 1962

PROPOSED STRUCTURE
TYPE: Single-Span Prestressed Concrete Box Beams With Reinforced Concrete Capped Pile Abutments.
SPAN: 42'-0"
ROADWAY: 34'-0" 1/4 of Guardrail
SKEW: 35° R.F.
LOADING: HS-20-44 and Alternate Military Loading
WEARING SURFACE: 2 1/2" Min. Asph. Conc.
APPROACH SLAB: (AS-1-B1) 20'-0" Long
ALIGNMENT: Tangent
CROWN: 3/16" / Ft.

R E WARNER & ASSOCIATES
CONSULTING ENGINEERS
WESTLAKE OHIO

SITE PLAN
BRIDGE NO. HUR-162-0257
OVER MUD RUN
HURON COUNTY STA. 135+61.04
STA. 136+04.46

PRESENT TOPOGRAPHY		PROPOSED WORK			
SUREYED	DRAWN	DESIGNED	DRAWN	CHECK'D	REVIEWED
NAH	GSC	CLH	GSC	CDW	ART

GENERAL NOTES

REFERENCE shall be made to Standard Drawings: DBR-2-73 (dated 4-10-73), PSBD-1-81 sheets 1,2,3, and 4 of 4 (dated 6-20-89R), AS-1-81 sheets 1,2, and 3 of 3 (dated 11-27-81), and to Supplemental Specification: 944 (dated 5/2/94) Smooth Lined Corrugated Polyethylene pipe.

DESIGN SPECIFICATION: This structure conforms to "Standard Specifications for Highway Bridges" adopted by the American Association of State Highway and Transportation Officials, 1992, and the ODOT Bridge Design Manual.

DESIGN DATA: Design Loading - HS20-44 and the Alternate Military Loading.

Concrete Class C - $f'_c = 4000$ p.s.i. for substructure.

Reinforcing Steel - ASTM A615, A616 or A617 - $F_y = 60,000$ p.s.i.

Concrete for prestressed concrete beams - unit stresses, 2200 p.s.i. compression, 444 p.s.i. tension

Prestressing strand ASTM A416 - $f'_s = 270,000$ p.s.i. Initial stress 0.70 f'_s .

Reinforcing steel in the prestressed box beams may be Grade 40, 40,000 p.s.i. yield or

Grade 60, 60,000 p.s.i. yield.

Abutment Piling- Abutment piling bending stress may approach, reach or exceed yield stress.

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

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.

ITEM SPECIAL, SEALING OF CONCRETE SURFACES (NON-EPOXY): A concrete sealer(non-epoxy) shall be applied to the following concrete surfaces:

The exposed face and the first 6 inches of the bottom surface of the fascia box beams, see sht. 5 / 8, and portions of the abutments, see sht. 4 / 8. See the proposal for surface preparation requirements, application rates, materials requirements, and procedures.

REMOVAL OF EXISTING STRUCTURE: When no longer needed to maintain traffic, existing structure shall be removed.

PILES: Piles shall be driven to refusal on bedrock. Refusal shall be considered as obtained by penetrating soft bedrock for several inches with a minimum resistance of 20 blows per inch or refusal shall be considered as obtained after the pile has contacted hard bedrock and the pile has then received at least 20 blows. The design load per pile is 50 tons.

ITEM 518, 6" PERFORATED CORRUGATED PLASTIC PIPE, AS PER PLAN: Corrugated pipe used in abutment drainage shall be 6 inch diameter, plastic corrugated as per Supplemental Specification 944, AASHTO M294, Type SP.

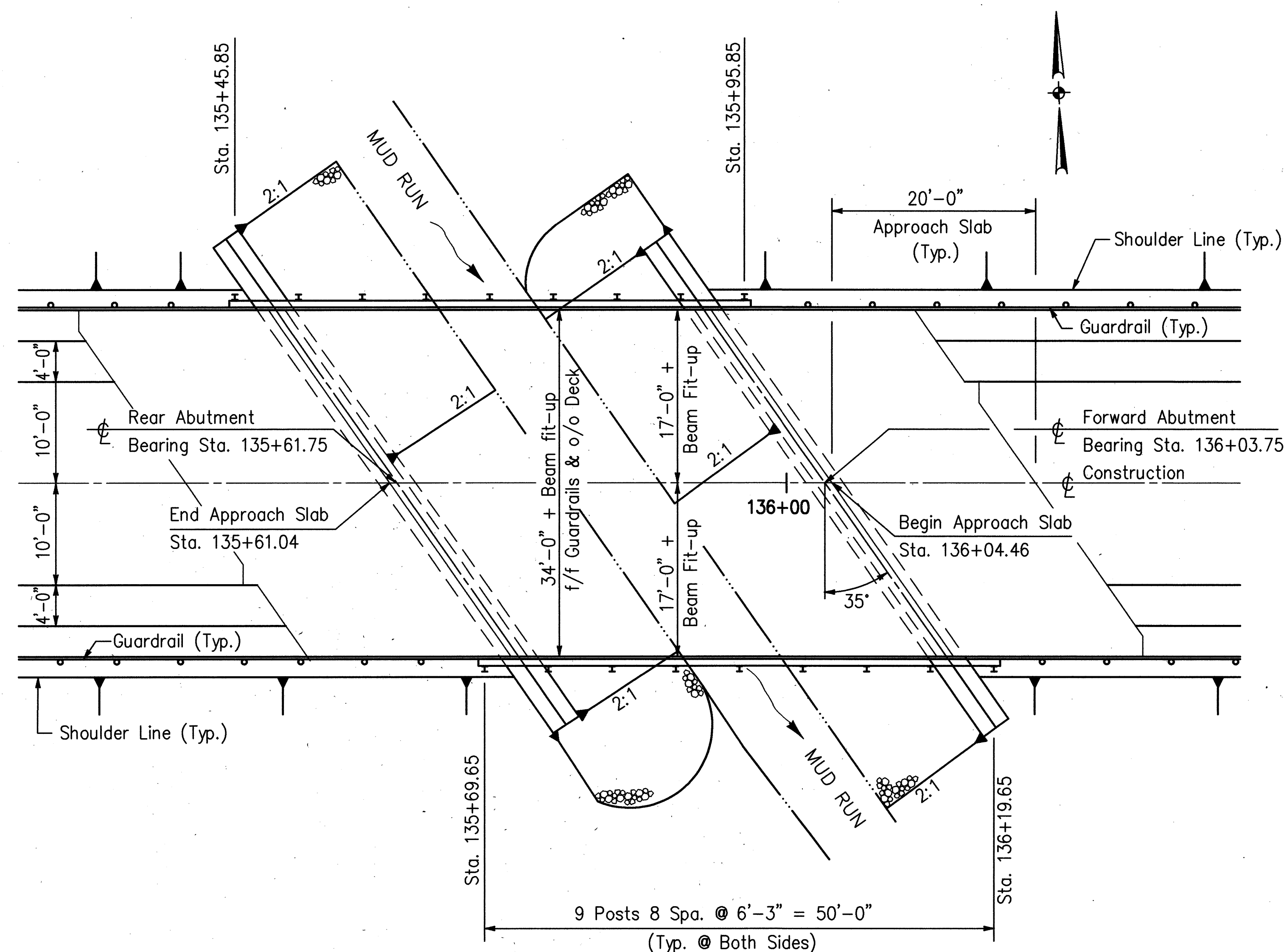
ITEM 518, 6" NON-PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS, AS PER PLAN: Corrugated pipe used in abutment drainage shall be 6 inch diameter, plastic corrugated as per Supplemental Specification 944, AASHTO M294, Type S. This item shall include all elbows, tees, and end caps required to complete the abutment drainage system.

ELASTOMERIC BEARINGS: Shall comply with 516 and Articles 18.2.5 through 18.2.8 of Section 18, Bearing Devices, Division II, Construction, of the AASHTO Standard Specifications for Highway Bridges. Bearings shall be Grade 3, 60 -durometer elastomer, and shall be subjected to the load testing requirements corresponding to Design Method A. Testing shall be included in the price bid for the bearings.

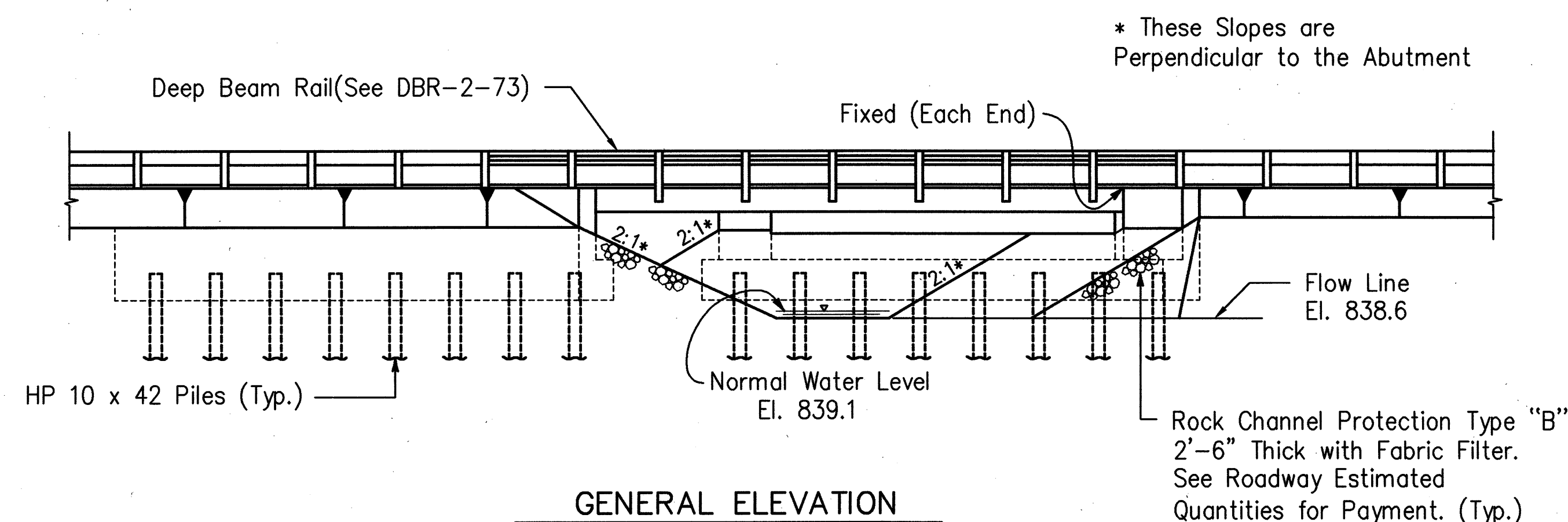
PREFORMED BEARING PADS, 711.21: 1/8-inch thick and with the same plan dimension as the elastomeric bearings, shall be provided as shims to accommodate any nonparallelism between beam bottoms and bridge seats. Any remaining shims shall become the property of the State.

ITEM 511 CLASS C CONCRETE, AS PER PLAN: All coarse aggregate for the class C concrete shall be #8 limestone.

ITEM 503 COFFERDAMS, CRIBS AND SHEETING, AS PER PLAN: Clean material is to be used and the stream bed is to be returned as near as possible to the original condition.



GENERAL PLAN



GENERAL ELEVATION

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CONSULTING ENGINEERS
WESTLAKE, OHIO 44145

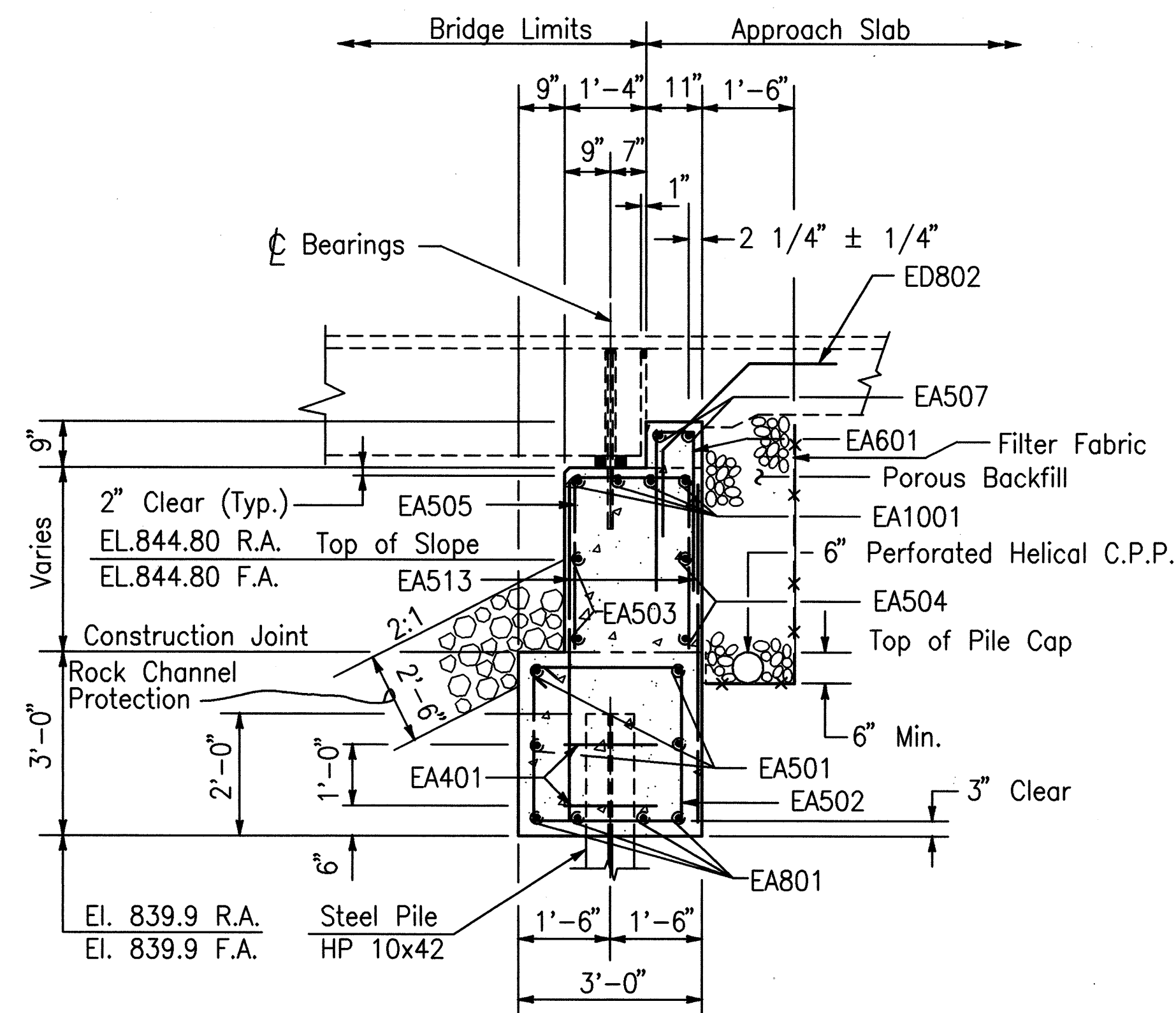
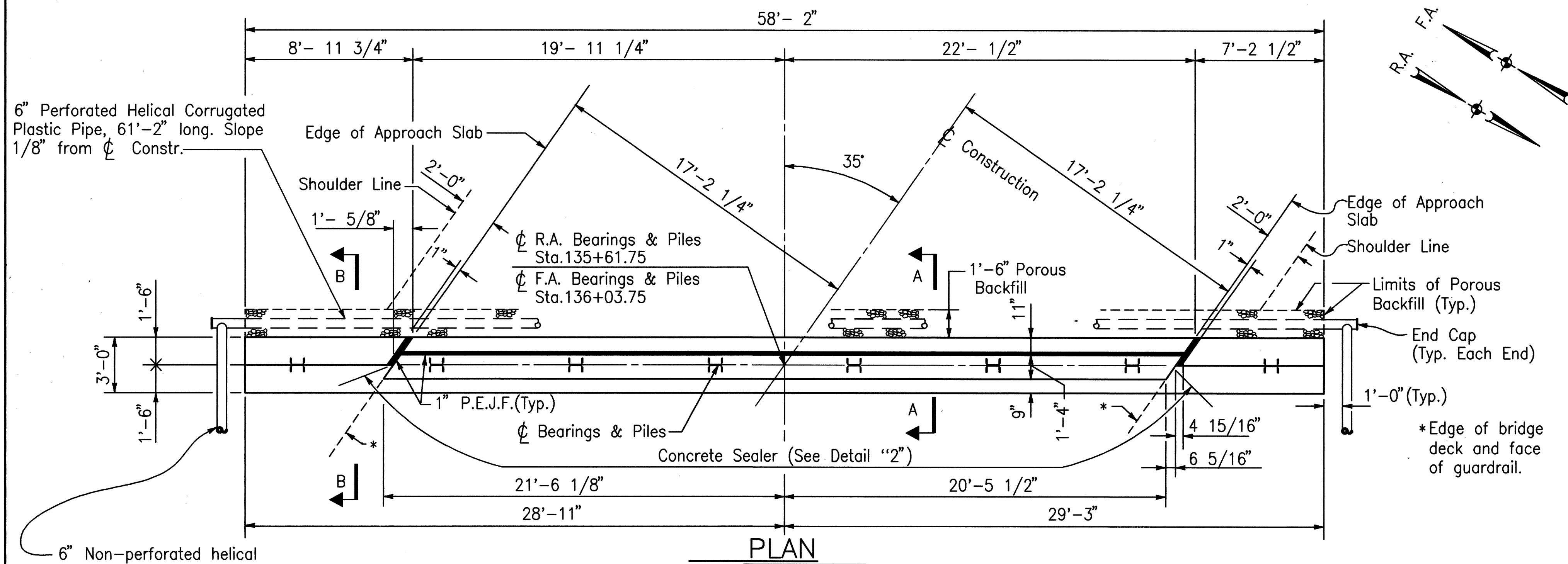
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GENERAL PLAN AND
ELEVATION

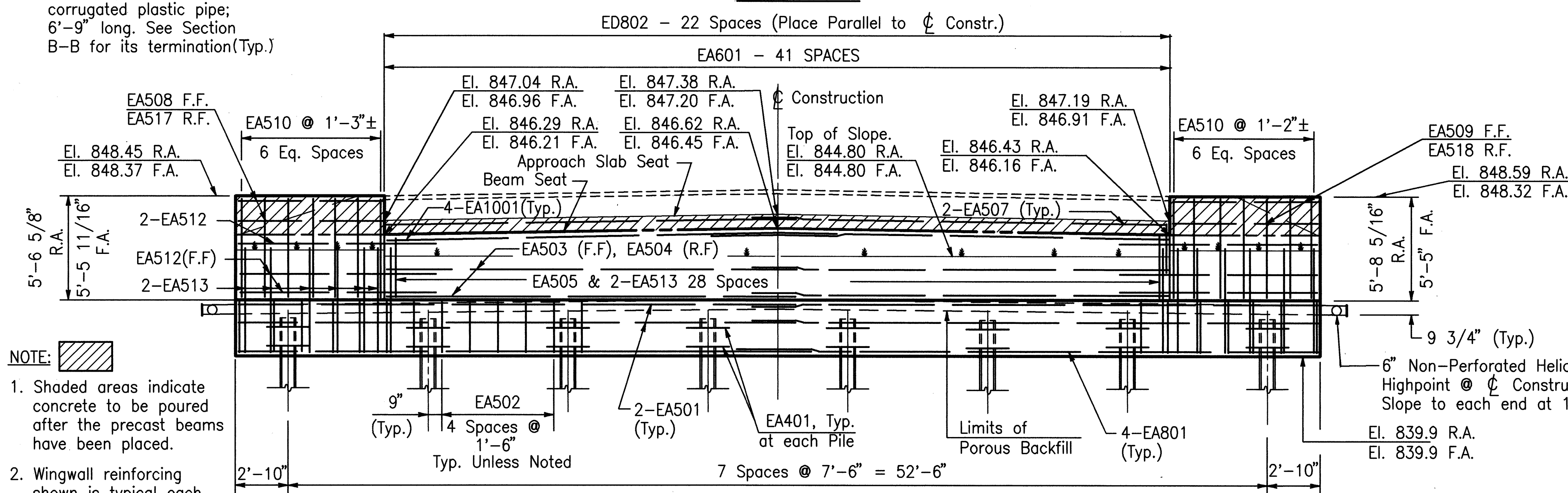
BRIDGE NO. HUR-162-0257
OVER MUD RUN

DESIGN	DRAWN	TRACED	CHECKED	REVIEW	DATE	REVISED
CLH	BSC		CDW	ART	5/94	

CALC. BY. <u>CLH</u>		DATE. <u>5/94</u>		ESTIMATED QUANTITIES			CHK'D BY <u>CDW</u>		DATE <u>5/94</u>	
ITEM	EXT.	TOTAL	UNIT	DESCRIPTION			SUPER.	ABUTS	GEN'L	
202	11002	Lump		Structure Removed, over 20 Foot Span					Lump	
403	20000	10	Cu.Yd.	Asphalt Concrete, AC-20			10			
404	20000	6	Cu.Yd.	Asphalt Concrete, AC-20			6			
503	11101	Lump		Cofferdams, Cribbs and Sheeting, as per Plan				Lump		
503	21100	152	Cu.Yd.	Unclassified Excavation				152		
505	11100	Lump		Pile Driving Equipment Mobilization					Lump	
507	11100	640	Lin.Ft.	Steel Piles HP 10 x 42				640		
509	15824	8503	Pound	Epoxy Coated Reinforcing Steel, Grade 60				8503		
511	43501	77	Cu.Yd.	Class C Concrete, Abutment Including Footing, as per Plan				77		
512	55800	159	Sq.Yd.	Type D Waterproofing			159			
Special	51267504	75	Sq.Yd.	Sealing of Concrete Surfaces (Non-Epoxy)(See Proposal Note)			21	54		
515	50700	6	Each	Prestressed Concrete Box Beam. (40-50' Length) (B21 x 36)(See Proposal Note)			6			
515	53900	4	Each	Prestressed Concrete Box Beam. (40-52' Length) (B21 x 48)(See Proposal Note)			4			
516	13600	158	Sq.Ft.	1" Preformed Expansion Joint Filler				158		
Special	51631300	84	Lin.Ft.	Polymer Modified Asphalt Expansion Joint System			84			
516	41200	23	Sq.Ft.	1/8" Preformed Bearing Pad, 711.21			23			
516	43100	40	Each	Elastomeric Bearing with Internal Laminates Only (Neoprene), (1"x8"x10" - 60 Durometer)(See Proposal Note)			40			
517	72300	100	Lin.Ft.	Railing (Deep Beam Rail with Steel Tubular Backup and Type 2 Steel Posts and Anchor Bolts)(See Proposal Note)			100			
518	21201	36	Cu.Yd.	Porous Backfill with Filter Fabric, as per Plan				36		
Special	51822200	69	Sq.Ft.	Steel Drip Strip			69			
518	40001	122	Lin.Ft.	6" Perforated Corrugated Plastic Pipe, as per Plan				122		
518	40011	27	Lin.Ft.	6" Non-Perforated Corrugated Plastic Pipe, Including Specials, as per Plan				27		



6" Non-perforated helical corrugated plastic pipe; 6'-9" long. See Section B-B for its termination (Typ.)



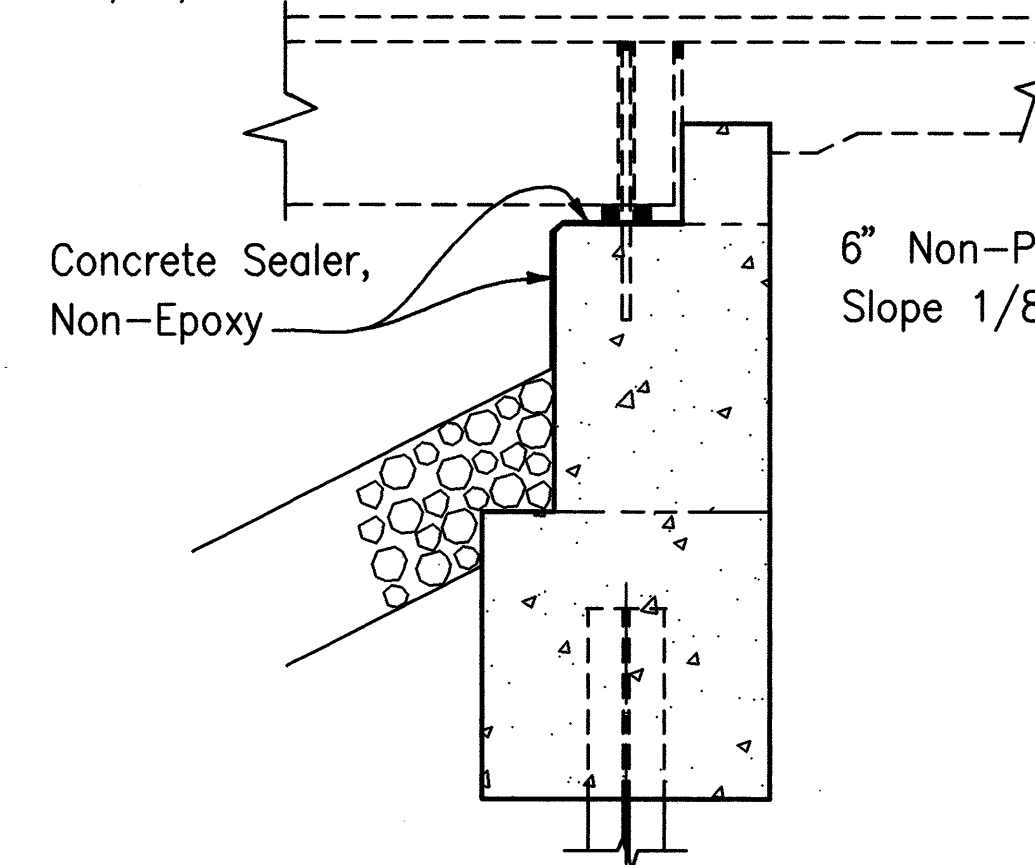
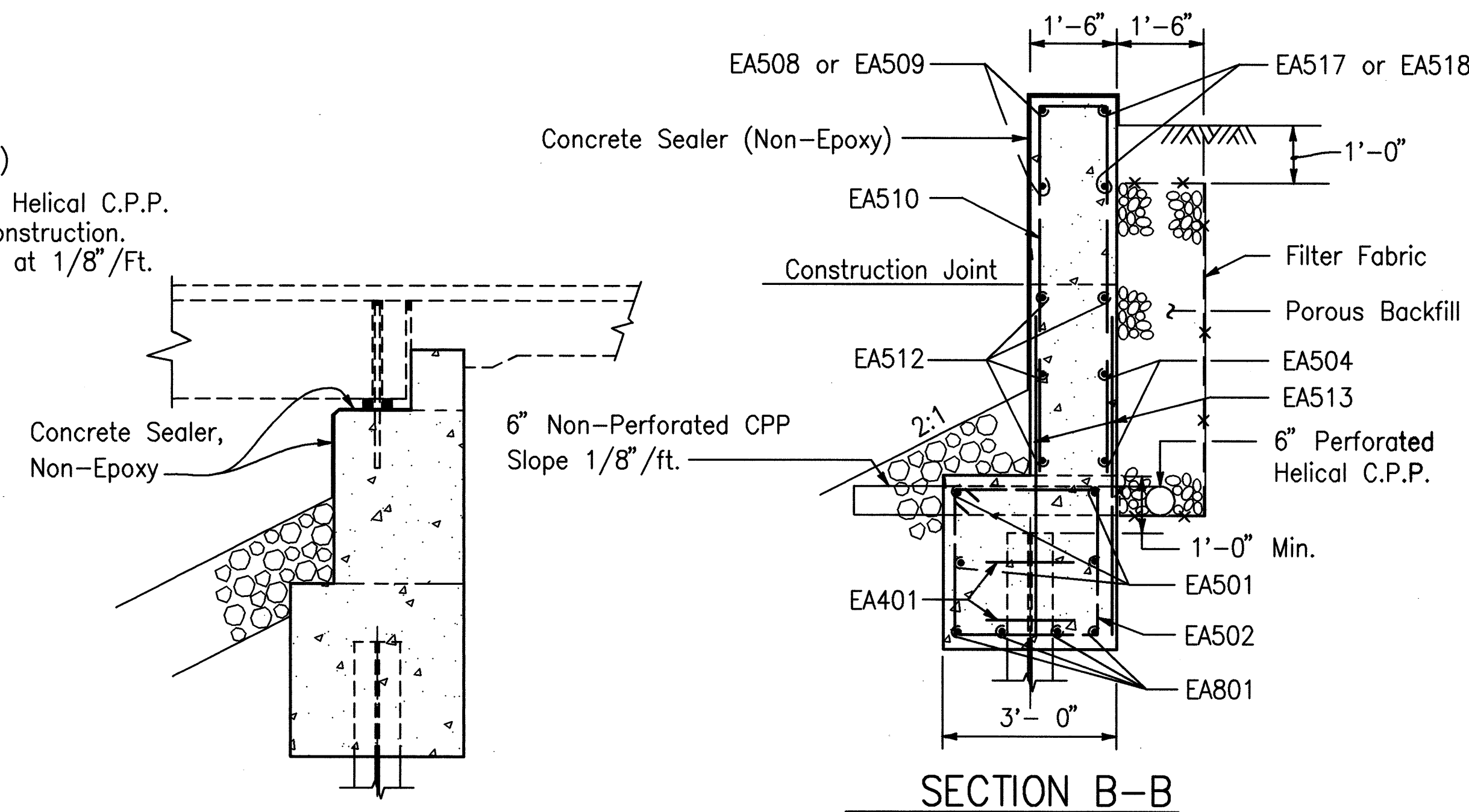
- NOTE:
- Shaded areas indicate concrete to be poured after the precast beams have been placed.
 - Wingwall reinforcing shown is typical each side, except as noted.

NOTES

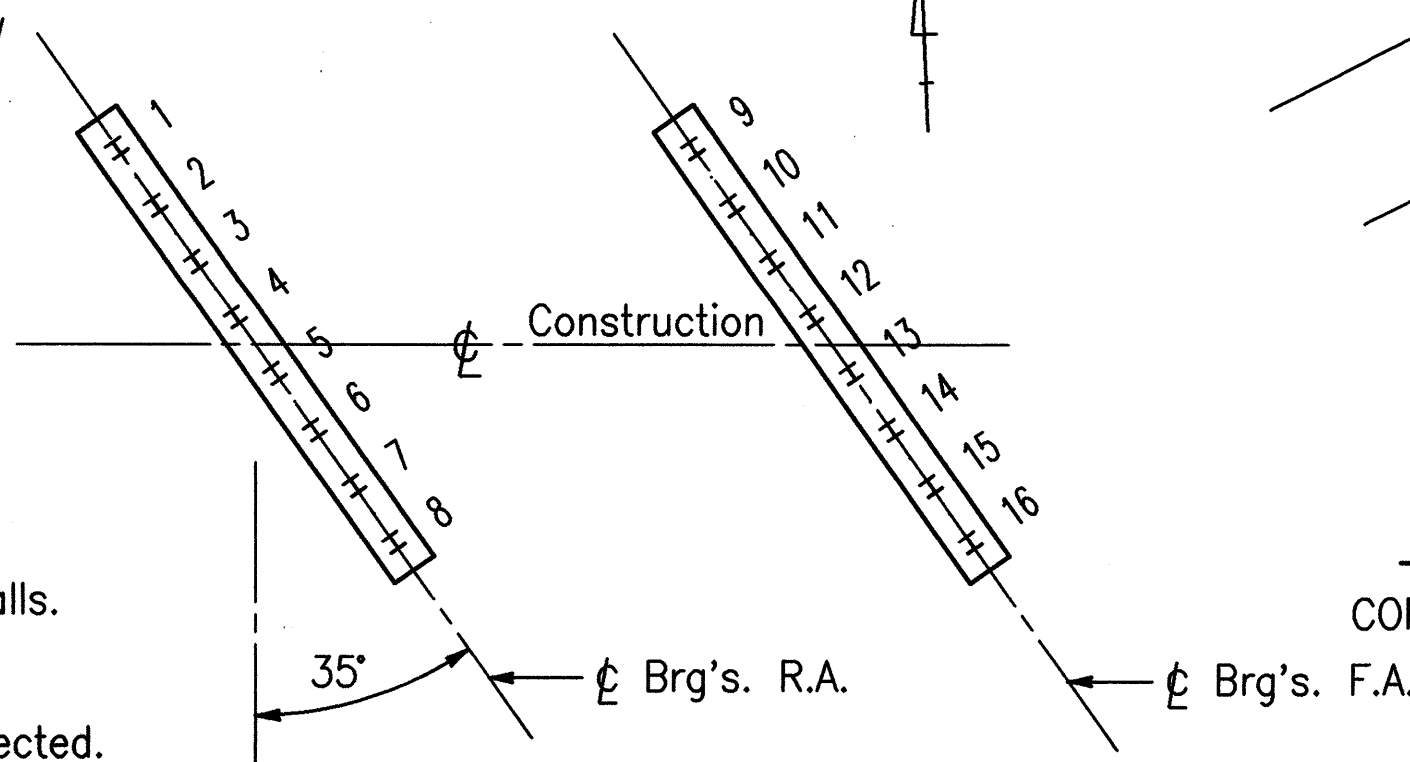
- POROUS BACKFILL WITH FILTER FABRIC, AS PER PLAN. 1'-6" thick shall extend up to the plane of the subgrade, to one foot below the embankment surface, and laterally to the ends of the wingwalls. Geotextile fabric shall conform with 712.09, Type A. The bottom of the porous backfill shall be sloped (1 inch per foot minimum) laterally to drain. Geotextile fabric is included with porous backfill for payment. All porous material shall be #57 gravel.
- BRIDGE SEAT REINFORCING. Reinforcing steel in the vicinity of the bridge seat shall be accurately placed to avoid interference with the drilling of anchor bar holes.
- For Reinforcing Steel Schedule see Sheet **8 / 8**
- REINFORCING SPLICE LENGTHS shall be 2'-9" for #5 bars, and 4'-5" for #8 bars, and 7'-2" for #10 bars. (Provide 2" min. concrete cover.)
- Use Non-Epoxy Sealer on top and front surfaces of abutment breastwalls as shown in Detail "2", and exposed surfaces of wingwalls. Include beam seat ends.
- Backwall and wingwall concrete above the level of the box beam seat shall not be placed until after the box beams have been erected.

7. NOTATIONS: R.A. Rear Abutment
F.A. Forward Abutment
Brg's Bearings
P.E.J.F. Preformed Expansion Joint Filler

R.F. Rear Face
F.F. Front Face
EL. Elevation
C.P.P. Corrugated Plastic Pipe



PILE PLAN

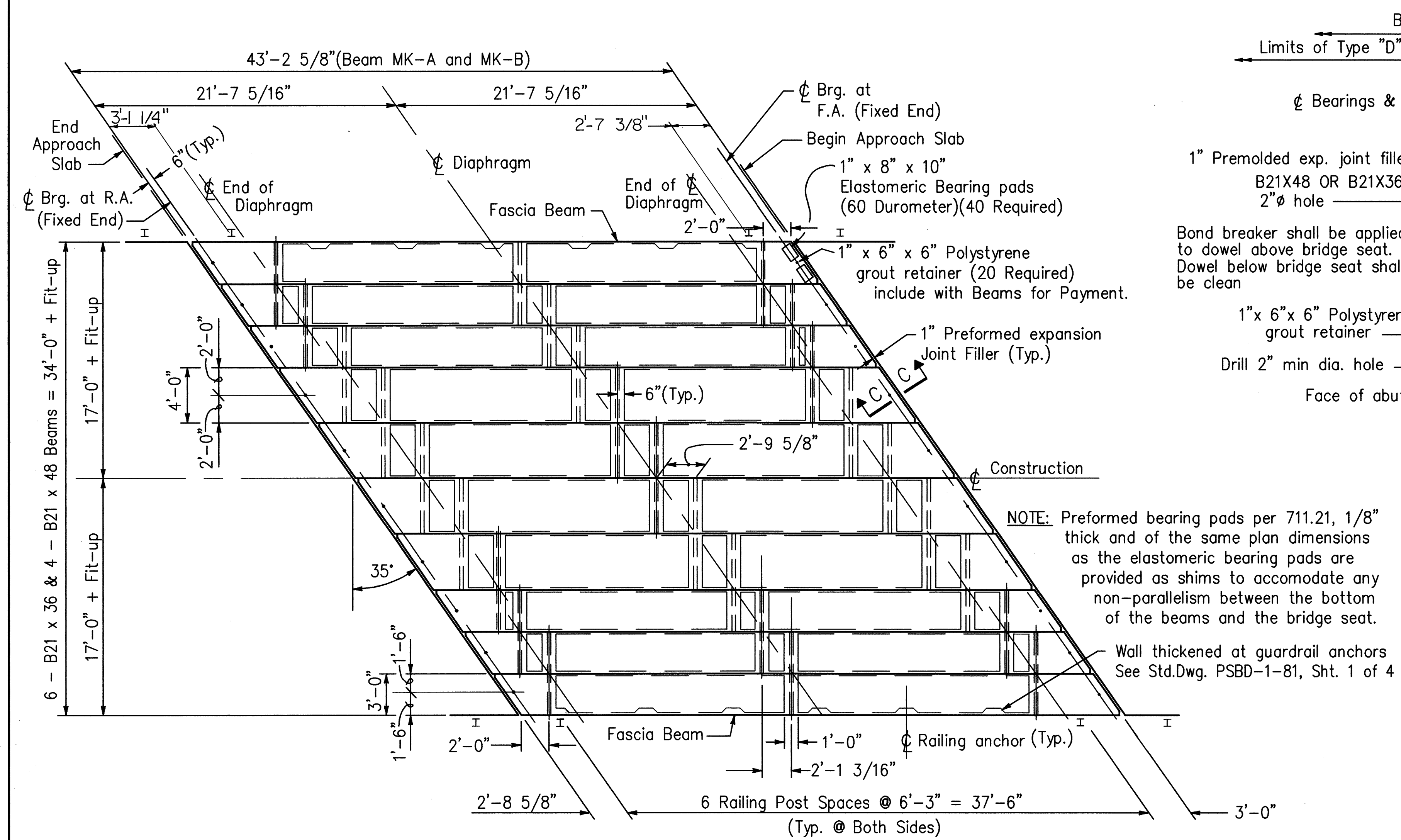


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WESTLAKE, OHIO 44145

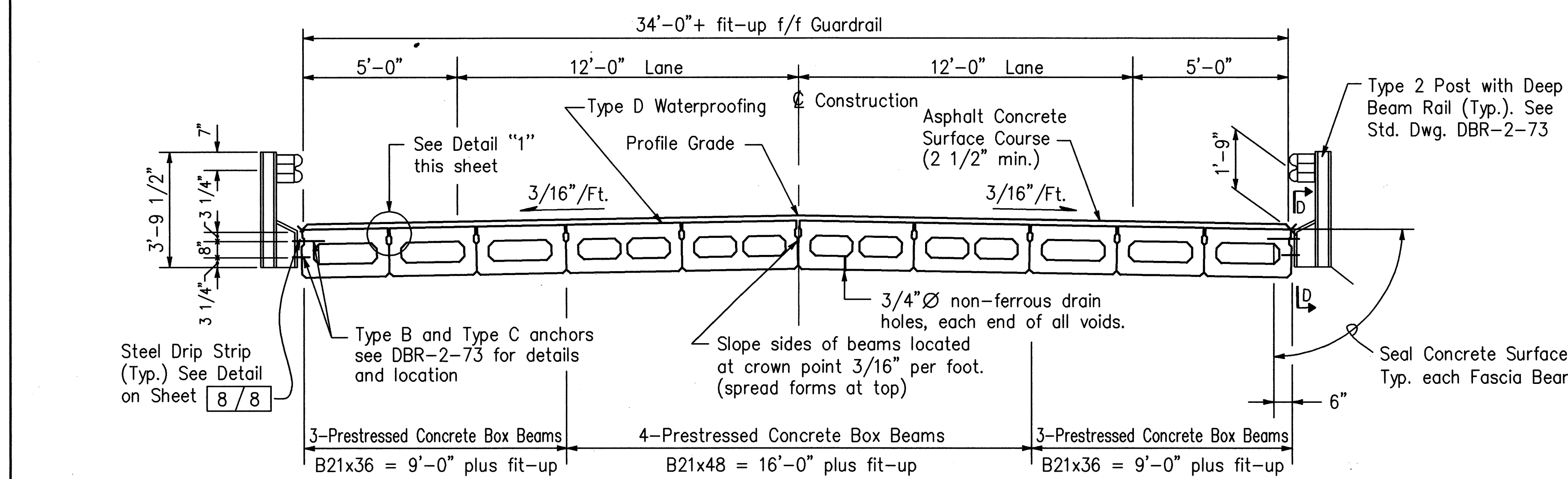
FORWARD AND REAR
ABUTMENT DETAILS

BRIDGE NO. HUR-162-0257
OVER MUD RUN

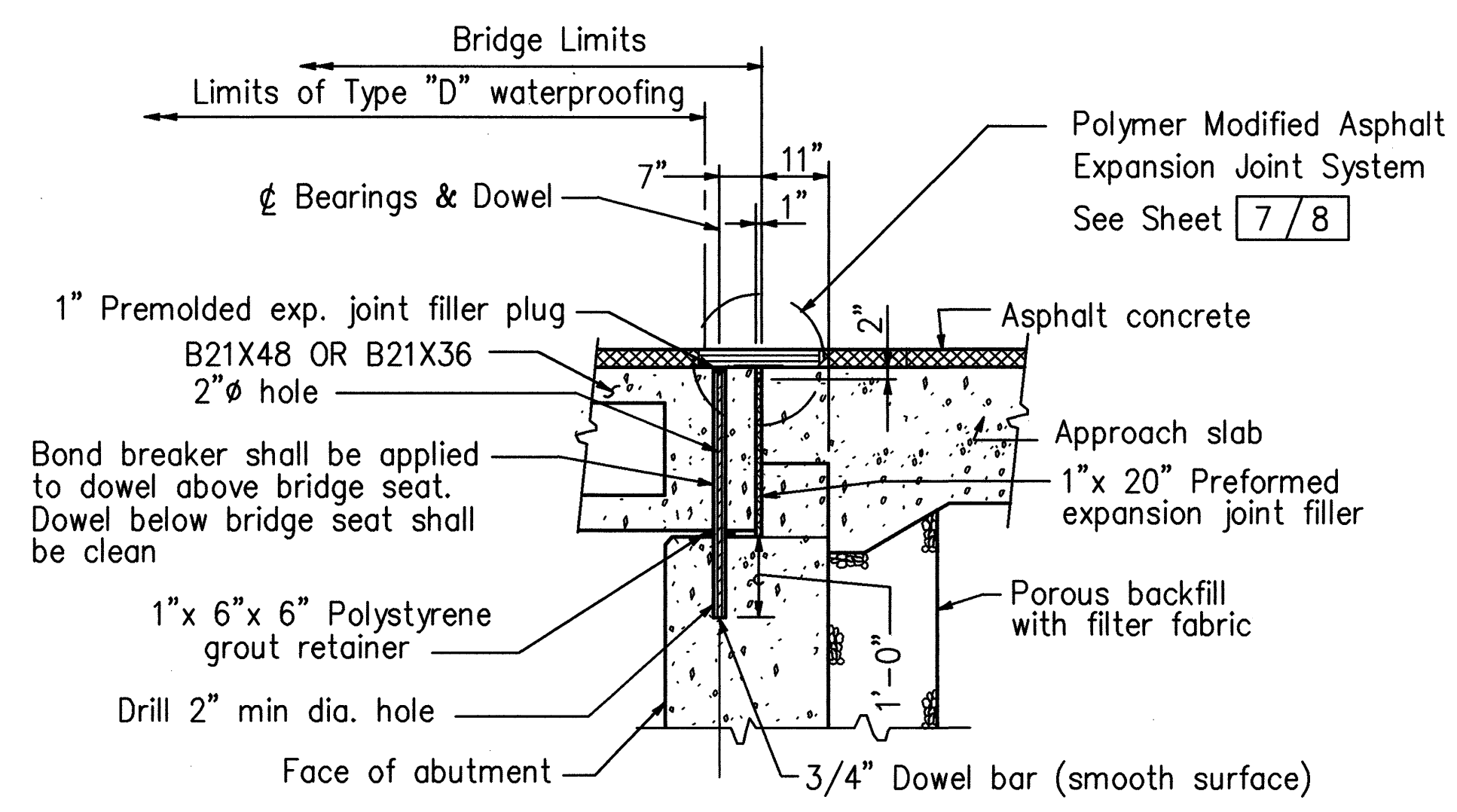
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CLH	GSC		CDW	ART	5/94	



PLAN

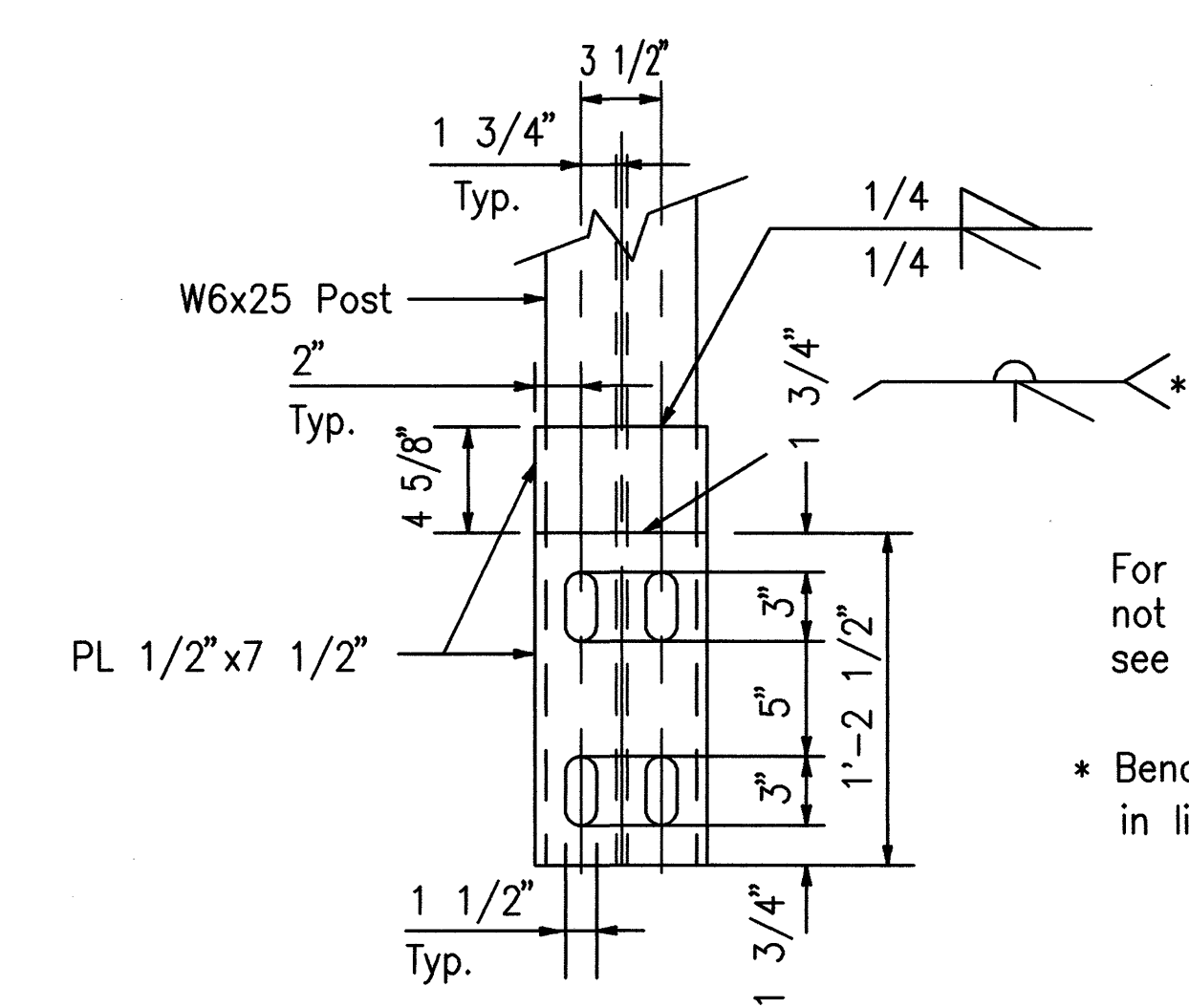


TRANSVERSE SECTION

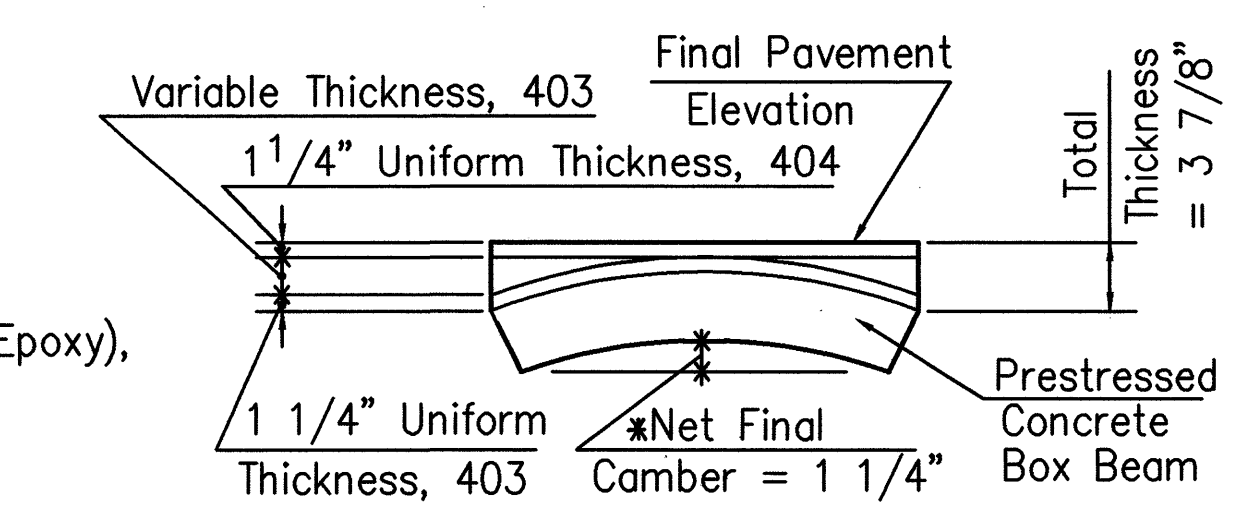
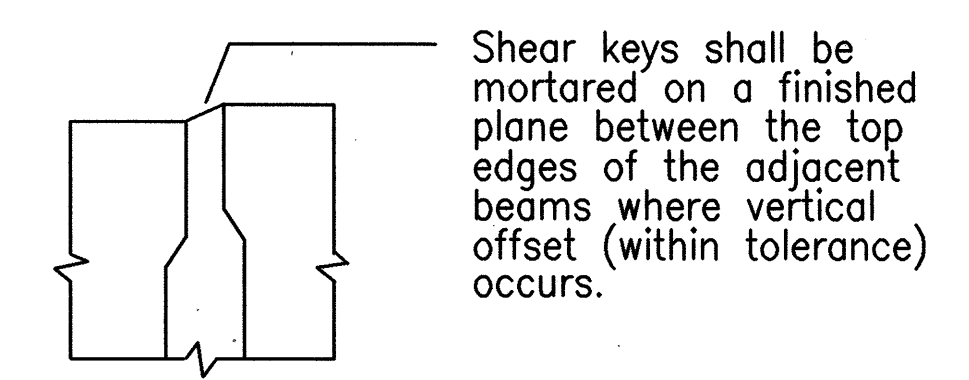


SECTION C-C

FIXED ANCHOR DOWEL PROCEDURE: Place polystyrene grout retainer. Drill and clean dowel holes. Then place non-shrinking grout, dowel and 1" minimum thickness PEJF plug.



SECTION D-D



ASPHALT THICKNESS DIAGRAM

* Calculated camber at time of paving including allowance for camber growth due to creep is 1 3/8". Calculated deflection due to surface course and railing is 1/8". The next final camber is 1 3/8" - 1/8" = 1 1/4". Middle ordinate of sag vertical curve (profile grade) is 1/8".

NOTES

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

CAMBER: Net final camber of beam is 1 1/4". This is in excess of camber of the profile grade. An increased asphalt thickness of 1 3/8" at the abutments is required to satisfy beam alignment and minimum thickness requirements. This adjustment shall be achieved by thickening the 403 leveling course from 1 1/4" at the center of the span to 2 5/8" at the abutments. (See diagram below)

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.

STANDARD DETAILS AND NOTES: All prestressed concrete box beam construction to be in conformance with standard drawing PSBD-1-81 shts. 1,2,3 and 4 of 4 except as noted on these plans.

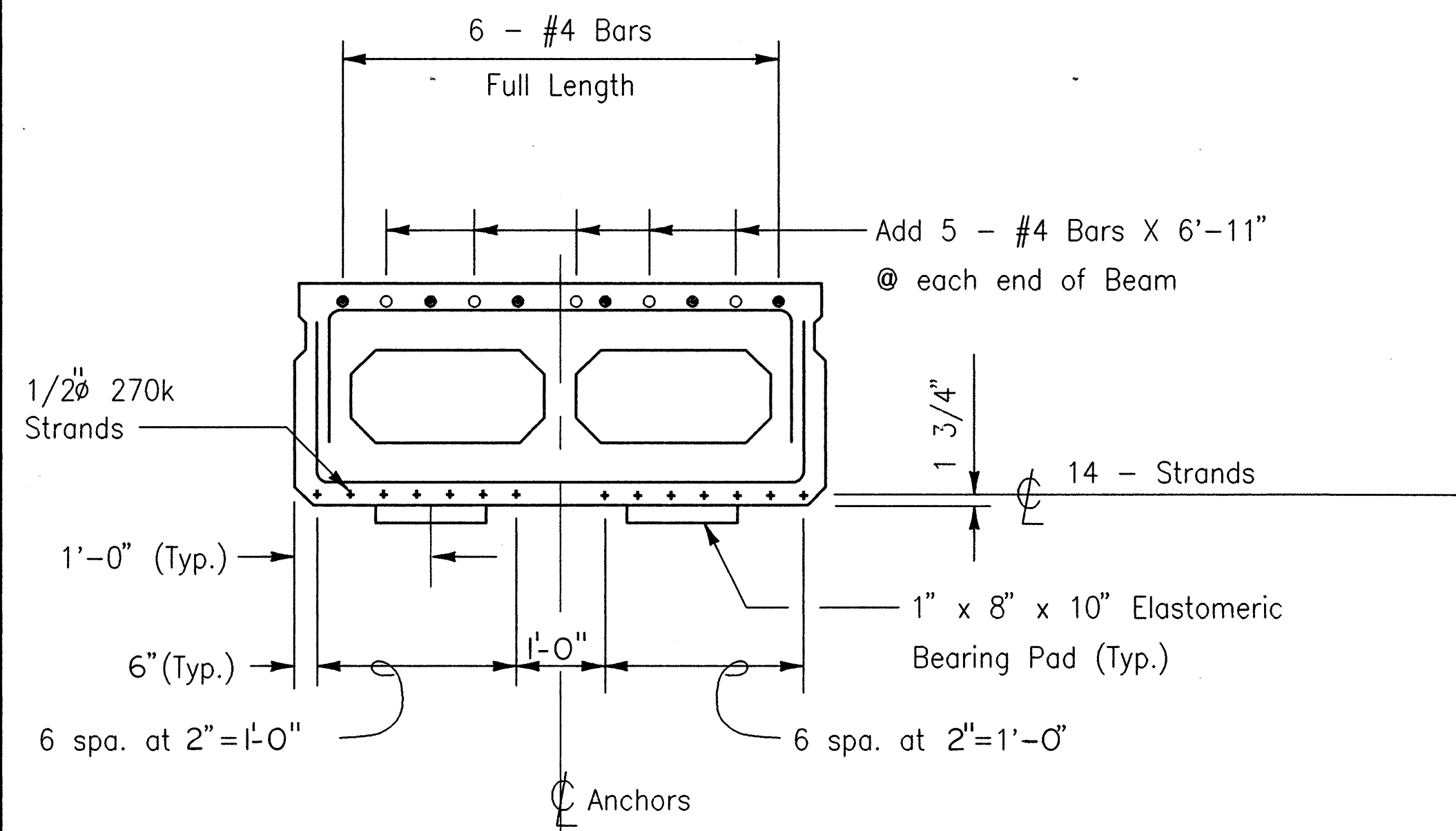
PRESTRESSING STRANDS: are ASTM A416 1/2 in. diameter, stress relieved strands with an ultimate strength of 270,000 psi and an initial tension of 28,900 lbs. per strand.

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CONSULTING ENGINEERS
WESTLAKE, OHIO 44145

SUPERSTRUCTURE

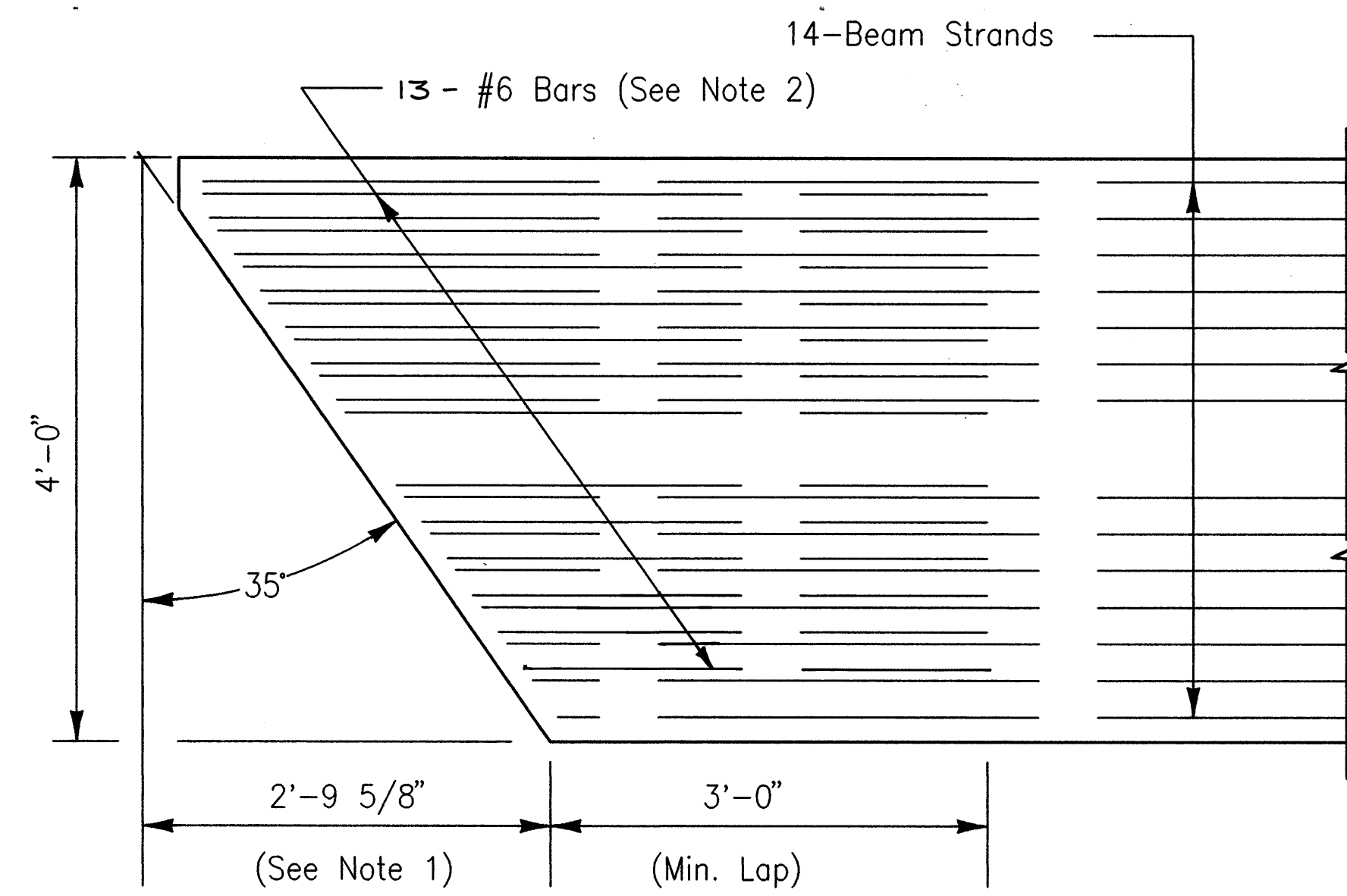
BRIDGE NO. HUR-162-0257
OVER MUD RUN

DESIGN	DRAWN	TRACED	CHECKED	REVIEW	DATE	REVISED
CLH	CLH		CLW	ART	5/94	



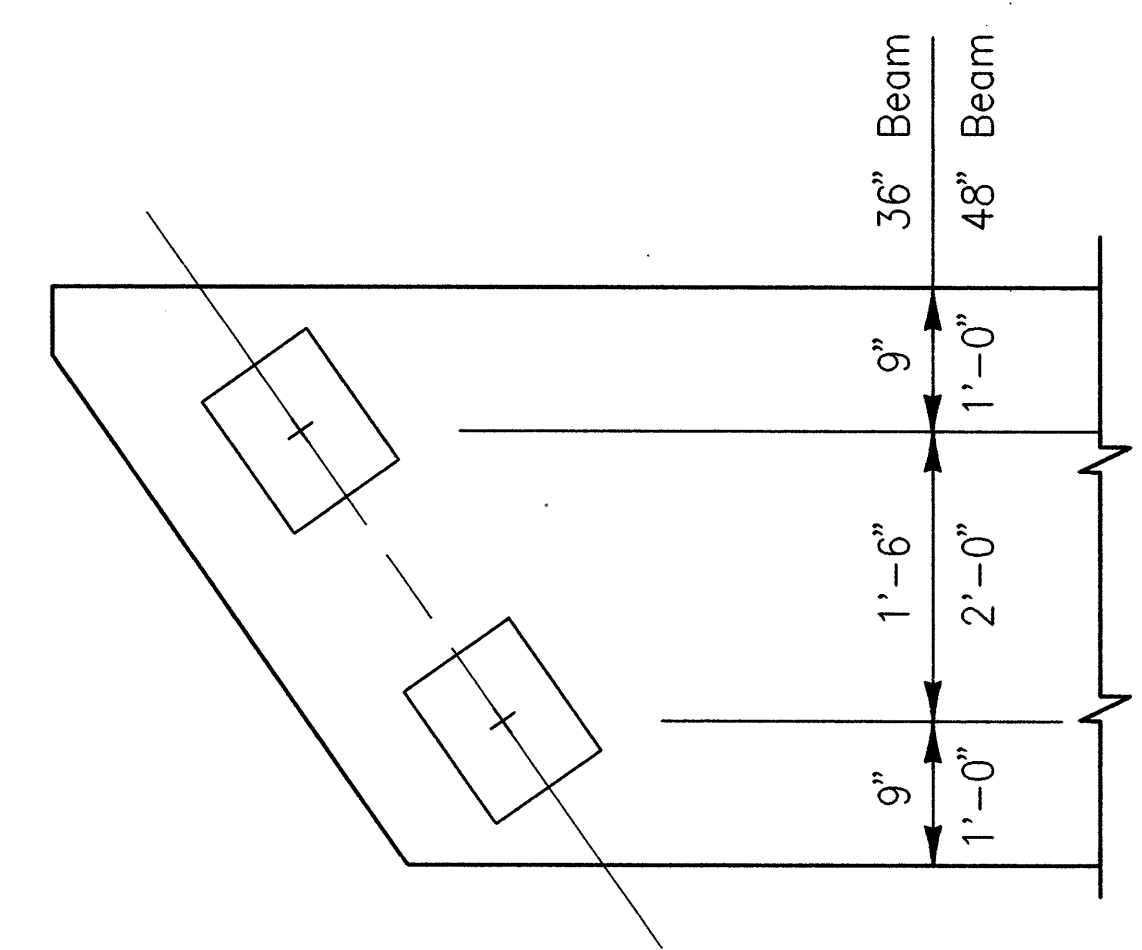
TYPICAL BOX BEAM B21x48

(BEAM MK-A)

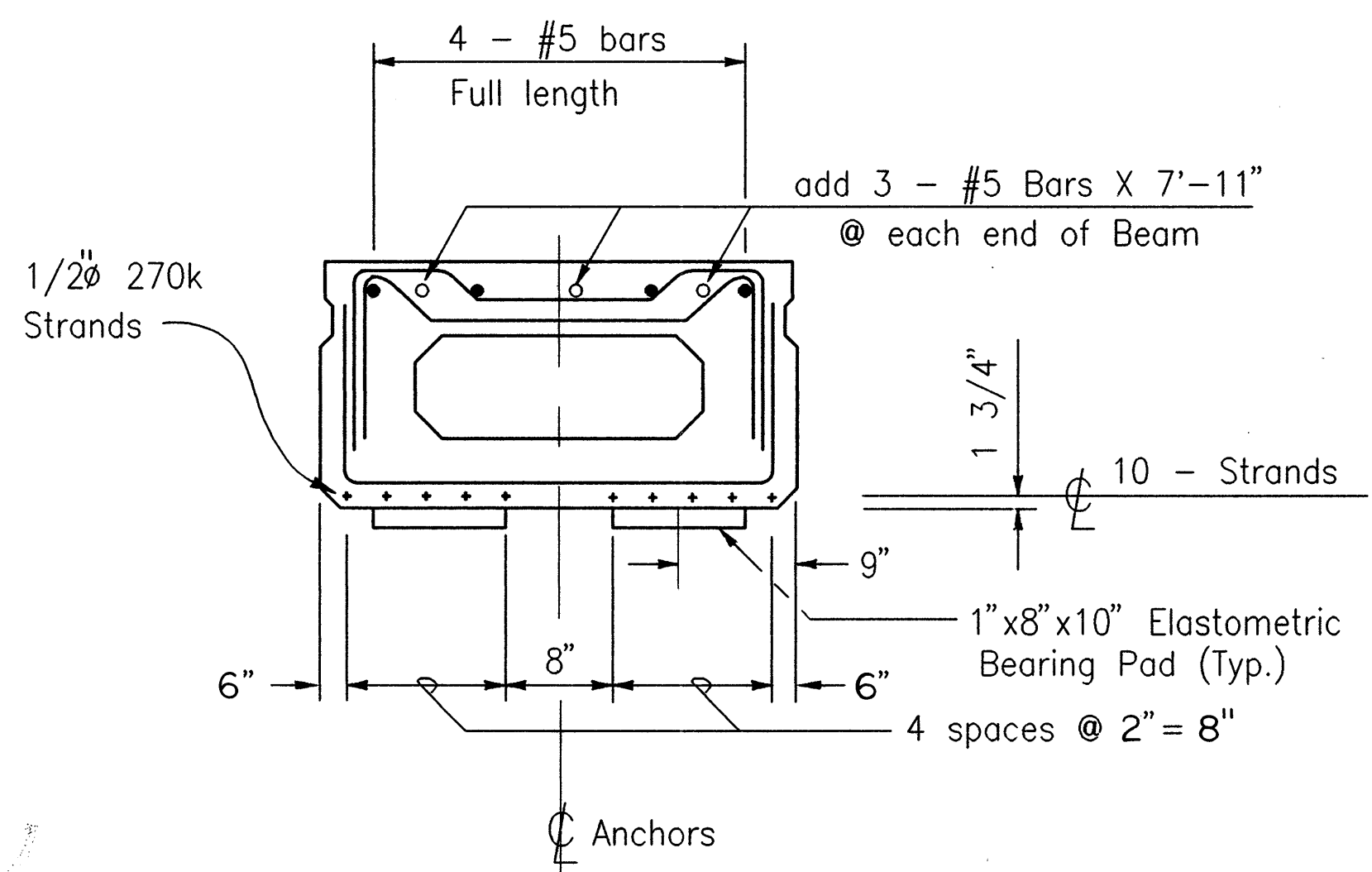


BOTTOM VIEW OF BEAM END

(BEAM MK-A)

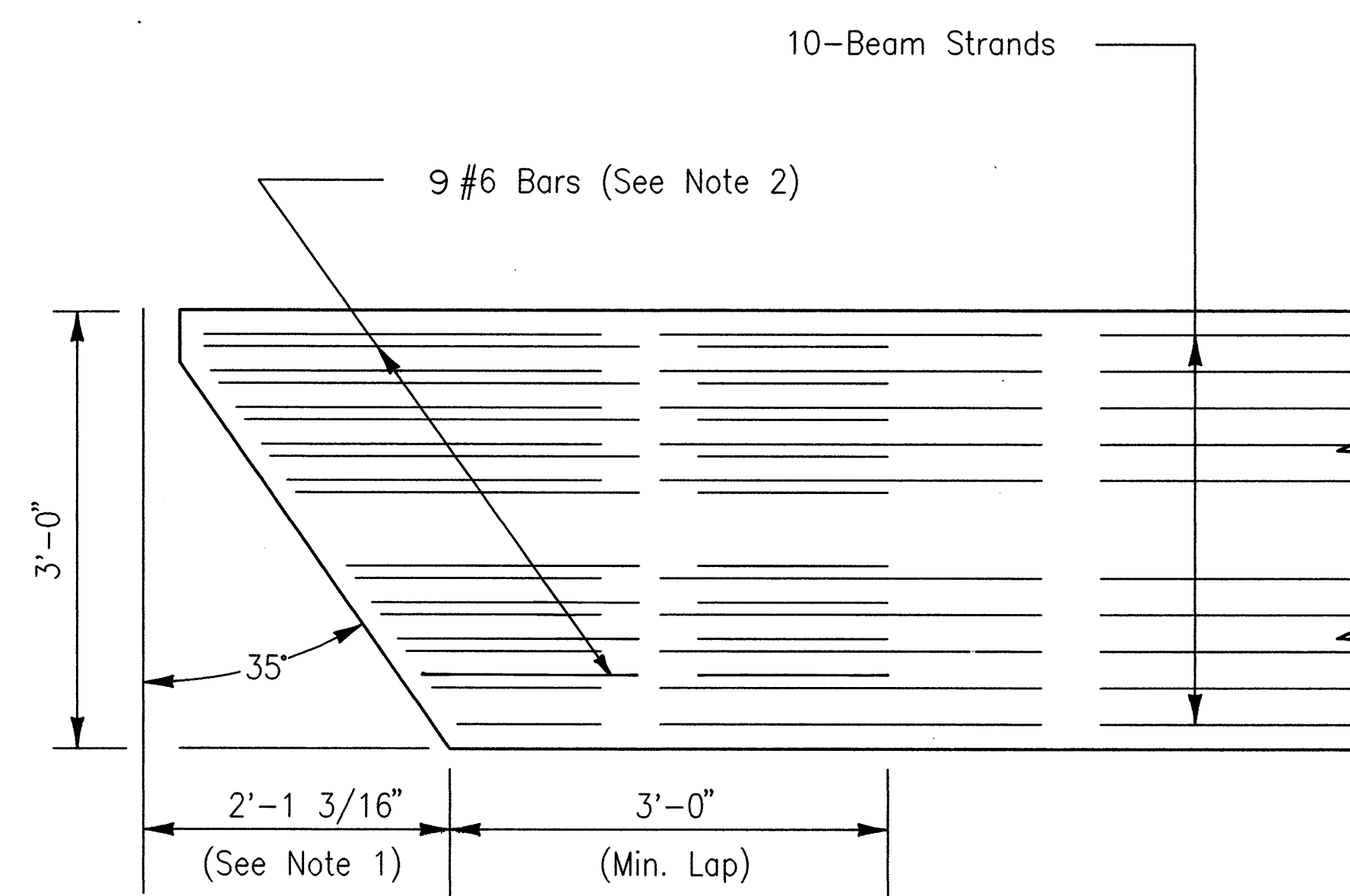


BEARING PAD PLAN



TYPICAL BOX BEAM B21x36

(BEAM MK-B)



BOTTOM VIEW OF BEAM END

(BEAM MK-B)

- NOTES:
- Debond all Strands in this area, 3" Minimum.
 - Additional #6 Reinforcing Bars, Grade 60.

R.E. WARNER & ASSOCIATES CONSULTING ENGINEERS WESTLAKE, OHIO 44145						6 / 8
PRECAST BOX BEAM DETAILS						
BRIDGE NO. HUR-162-0257 OVER MUD RUN						
DESIGN	DRAWN	TRACED	CHECKED	REVIEW	DATE	REVISED
CLH	PS		CDW	ART	5/94	

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GENERAL NOTES AND DETAILS FOR POLYMER MODIFIED ASPHALT EXPANSION JOINT SYSTEM

ITEM SPECIAL - POLYMER-MODIFIED ASPHALT EXPANSION JOINT SYSTEM

THIS ITEM WILL BE USED TO SEAL THE EXPANSION/CONTRACTION JOINTS AS PER THESE DETAILS AND THE MANUFACTURER'S REQUIREMENTS USING A POLYMER-MODIFIED ASPHALT SYSTEM. THE PRIME CONTRACTOR WILL OBTAIN THE SERVICES OF ONE OF THE FOLLOWING LICENSED APPLICATORS WHO WILL FURNISH AND INSTALL THE NEW BRIDGE EXPANSION JOINT SYSTEM AFTER ALL PAVING ON THE AFFECTED BRIDGE(S) HAS BEEN COMPLETED.

PAVETECH ENGINEERED SYSTEMS INC.
2575 US. RT. 22 & 3, OFFICE 1
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LINEAR DYNAMICS, INC.
400 LAWIDEX PLAZA
PARSIPPANY, NJ 07054
TEL: (201) 884-0300

MATERIALS:

BRIDGING PLATE:

MILD STEEL OR ALUMINUM 1/8" OR 1/4" THICK PLATE, 8" WIDE

BINDER:

TYPE: POLYMER MODIFIED ASPHALT
SOFTENING POINT: 180 DEGREES F. MIN.
FLOW: 3 MM. MAX. AT 140 DEGREES F.
PENETRATION: 9 MM. MAX. AT 77 DEGREES F.
1MM. MAX AT 0 DEGREES F.
ASTM D 3407
DUCTILITY: 40 CM. MIN. ASTM D 113
RESILIENCE: 60% MIN. AT 77 DEGREES F.
TENSILE ADHESION: 700% MIN.
SPECIFIC GRAVITY: 1.10 ± 0.05
POURING TEMP: 350 - 390 DEGREES F.

AGGREGATE:

TYPE: CRUSHED, DOUBLE WASHED, AND DRIED GRANITE OR BASALT
GRADATION THE GRADATION OF THE AGGREGATE VARIES BY MANUFACTURER AND WILL BE AS PER THE MANUFACTURER'S RECOMMENDATIONS FOR THE SYSTEM BEING USED ON THIS PROJECT.

BACKER ROD:

PROPERTY	NOMINAL VALUE	TEST METHOD
DENSITY	2.0 LBS/CU FT	ASTM D 1622
TENSILE STRENGTH	25 PSI	ASTM D 1623
WATER ABSORPTION BY VOLUME	0.5%	ASTM C 509
COMPRESSION DEFLECTION AT 8 PSI	25%	ASTM D 1621
TEMPERATURE RESISTANCE	-45 TO +450 DEGREES F	

INSTALLATION PROCEDURES:

SAWING AND SURFACE PREPARATION:

AFTER ALL PAVING OPERATIONS ARE COMPLETE, THE OVERLAY IS TO BE TRANSVERSELY SAW CUT FULL DEPTH (20" CENTERED OVER JOINT OPENING, UNLESS OTHERWISE NOTED). REMOVE ALL MATERIAL, INCLUDING WATER-PROOFING MATERIAL, BETWEEN SAW CUTS. THOROUGHLY CLEAN AND DRY EXPOSED CONCRETE, STEEL, AND CUT SURFACES USING COMPRESSED AIR AND A HOT COMPRESSED AIR (HCA) LANCE. THE LANCE MUST PRODUCE A FLAME RETARDED AIR STREAM TEMPERATURE OF 3000 DEGREES F. AT A VELOCITY OF 3,000 FEET PER SECOND WITH 15 PSIG CHAMBER PRESSURE. IF THERE IS AN INTERRUPTION DUE TO WEATHER OR OTHER CAUSES, THE OPERATION WILL BE REPEATED WITH THE HCA LANCE IMMEDIATELY BEFORE THE TANKING OPERATION. ALSO, 6 INCHES OF THE ROAD SURFACE ON EITHER SIDE OF THE JOINT WILL BE DRIED SO THAT A SUITABLE SURFACE FOR BITUMEN ADHESION IS OBTAINED.

SEALING OF EXPANSION JOINT: (PRE-STRESSED BOX OR CONCRETE SLAB)

THE EXPANSION JOINT GAP IS TO BE SEALED AND A BRIDGING PLATE CENTERED ALONG IT. A VERY NARROW GAP WILL BE SEALED BY POURING HOT BINDER INTO THE GAP. GAPS OF 1/8" OR MORE WILL FIRST BE FILLED WITH AN APPROPRIATELY SIZED BACKER ROD. THE BACKER ROD WILL BE INSTALLED SO THAT IT IS BETWEEN 1/8" AND 1-1/8" BELOW THE TOP OF THE GAP. THE GAP WILL THEN BE FILLED WITH BINDER. ADDITIONAL BINDER WILL BE SPREAD OVER THE SURFACE AREA WHERE THE METAL PLATE WILL BE PLACED.

BOND BREAKER:

CENTER THE BRIDGING PLATE OVER THE JOINT AND BED INTO THE HOT BINDER. BUTT JOINT THE BRIDGING PLATES TO ACCOMODATE THE ENTIRE JOINT LENGTH. SPIKE HOLES WILL BE DRILLED AT 1 FOOT INTERVALS ALONG THE LONGITUDINAL CENTERLINE OF THE PLATES. SECURE BRIDGING PLATE WITH NAILS OR SPIKES. SEAL BUTT JOINTS WITH HOT BINDER AND ALLOW TO COOL BEFORE TANKING THE JOINT.

TANKING:

SEAL ALL PREPARED, EXPOSED SURFACES OF THE JOINT WITH BINDER. POUR THE HOT BINDER OVER THE FLOOR AREA OF THE JOINT AND SPREAD TO COAT ALL EXPOSED SURFACES. THE BINDER WILL BE A MINIMUM OF 1/32" THICK ON THE BOTTOM OF THE JOINT CAVITY, WITH POOLS OF GREATER THICKNESS WHERE SURFACE IRREGULARITIES EXIST. THE BINDER APPLICATION TEMPERATURE WILL BE BETWEEN 350 AND 390 DEGREES F. THE BINDER WILL NOT BE ALLOWED TO BE HEATED ABOVE 410 DEGREES F. NOR ALLOWED TO EXCEED 390 DEGREES F. FOR MORE THAN 1 HOUR.

BUILD-UP OF JOINT LAYERS:

AGGREGATE PREPARATION:

HEAT THE AGGREGATE TO A TEMPERATURE OF 275 TO 325 DEGREES F., WITH A SUITABLE ROTATING DRUM WITH ATTACHED HEAT SOURCE OR A HOT COMPRESSED AIR LANCE, TO REMOVE ALL DUST AND MOISTURE.

AGGREGATE PROPORTION AND LAYER THICKNESS:

MIX THE AGGREGATE WITH THE BINDER SUCH THAT THE MINIMUM AGGREGATE CONTENT BY WEIGHT WILL BE 68%. THE HEATED AGGREGATE AND BINDER WILL BE COMBINED IN LAYERS NOT LESS THAN 3/4 OF AN INCH NOR EXCEEDING 2 INCHES. THE THICKNESS OF EACH LAYER CAN BE VARRIED, WITHIN THESE LIMITS, TO ACHIEVE THE REQUIRED JOINT THICKNESS. THE OBJECTIVE IS TO COAT EACH STONE AND FILL THE VOIDS WHILE AVOIDING AN EXCESS OF BINDER. THIS WILL ACHIEVE THE MAXIMUM CONTENT OF STONE CONSISTENT WITH ALL STONES BEING COATED WITH BINDER AND A MAXIMUM VOID CONTENT OF 2%. RAKE THE MIXTURE TO MIX AND LEVEL.

AGGREGATE PREPARATION:

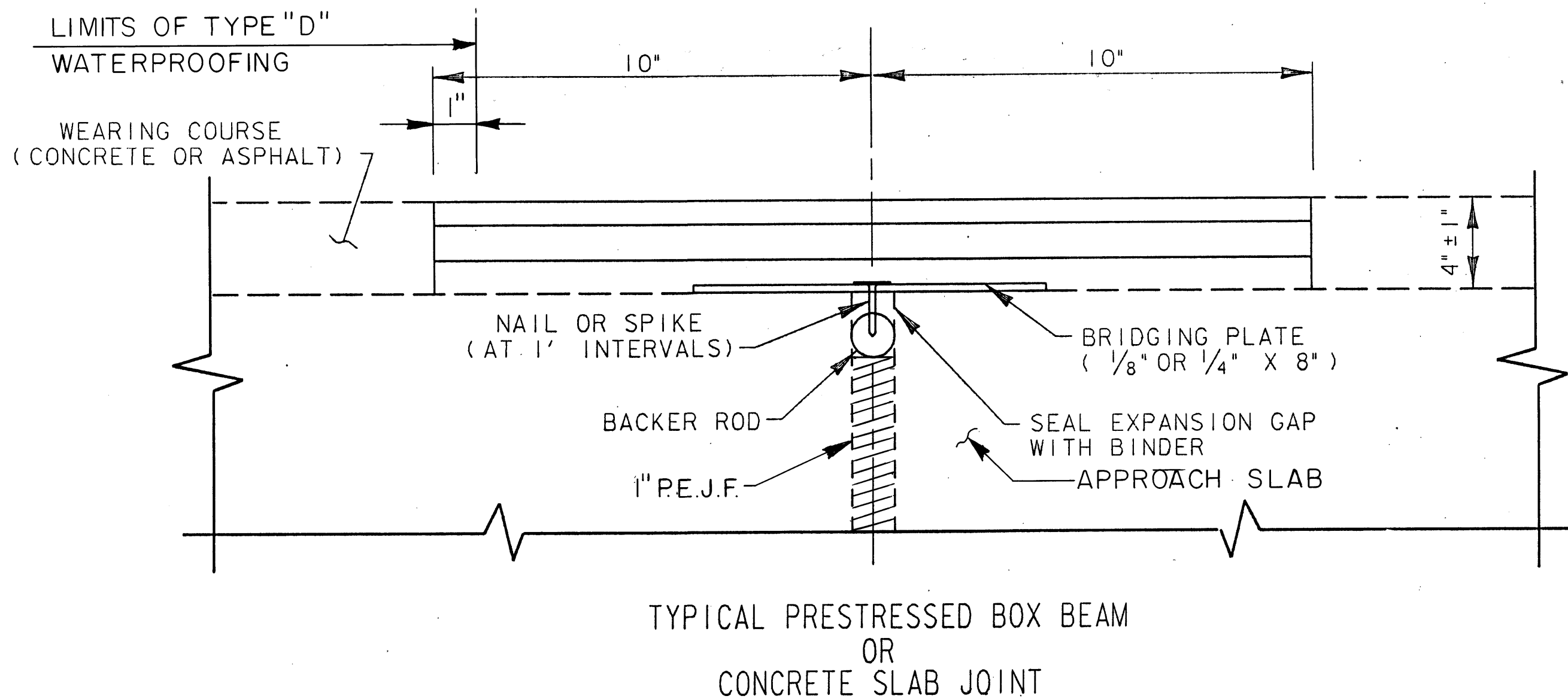
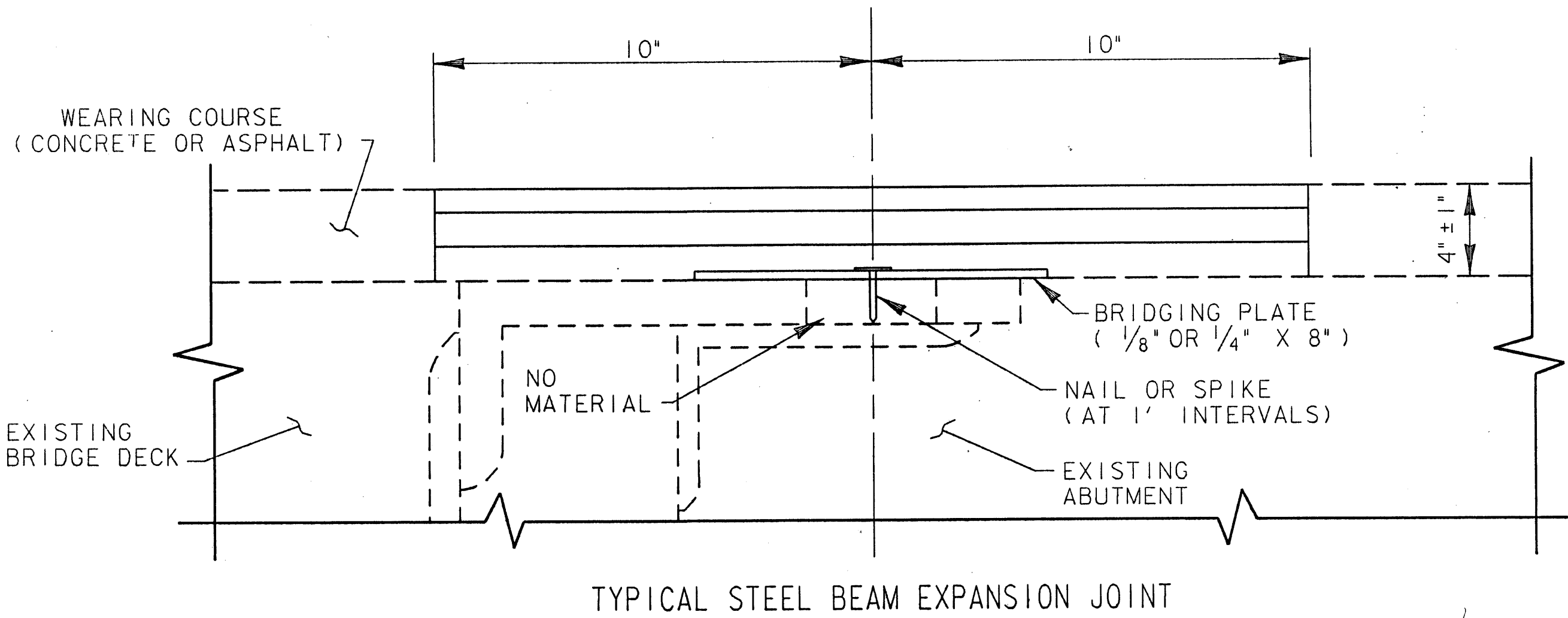
THE TOP LAYER THICKNESS WILL VARY BETWEEN 1/2 INCH AND ONE (1) INCH. IN PREPARING THE TOP LAYER, THE RATIO OF AGGREGATE TO BINDER WILL BE APPROXIMATELY 6:1 BY WEIGHT. THIS RATIO IS NOT ABSOLUTELY VITAL SINCE ADDITIONAL BINDER WILL INFILTRATE THE TOP LAYER FROM BOTH BELOW AND ABOVE. OVERFILL THE TOP LAYER AND COMPACT TO THE LEVEL OF THE ADJACENT SURFACES USING A ROLLER OR VIBRATORY PLATE COMPACTOR. IMMEDIATELY AFTER COMPLETION OF THE COMPACTION, POUR SUFFICIENT BINDER OVER THE JOINT TO FILL THE SURFACE VOIDS AND COAT THE SURFACE STONE. DUST THE FINISHED JOINT WITH A FINE, DRY AGGREGATE TO PREVENT TACKINESS.

MAINTENANCE OF TRAFFIC:

IF NECESSARY TO FACILITATE TRAFFIC MAINTENANCE, THE JOINT WILL BE INSTALLED IN TWO (2) HALF-WIDTH PHASES. DURING PHASE 1 APPROXIMATELY HALF OF THE TOTAL JOINT WILL BE INSTALLED. DURING PHASE 2, A MINIMUM OF TWO (2) INCHES OF THE PHASE 1 JOINT WILL BE REMOVED, AT OR NEAR THE CENTERLINE, WITH THE REMAINDER OF THE JOINT INSTALLED. IN ALL CASES, OPERATIONS WILL BE SCHEDULED SO THAT ALL LANES CAN BE OPEN TO TRAFFIC DURING ALL NON-WORKING HOURS.

PAYMENT:

PAYMENT FOR ALL THE ABOVE WILL BE AT THE UNIT PRICE BID PER LINEAR FOOT OF SEALED JOINT IN PLACE FOR ITEM SPECIAL 516 31300, POLYMER MODIFIED ASPHALT EXPANSION JOINT SYSTEM. THIS WILL INCLUDE ALL LABOR, EQUIPMENT, MATERIALS, AND INCIDENTALS NECESSARY TO COMPLETE THE ABOVE WORK.



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WESTLAKE, OHIO 44145

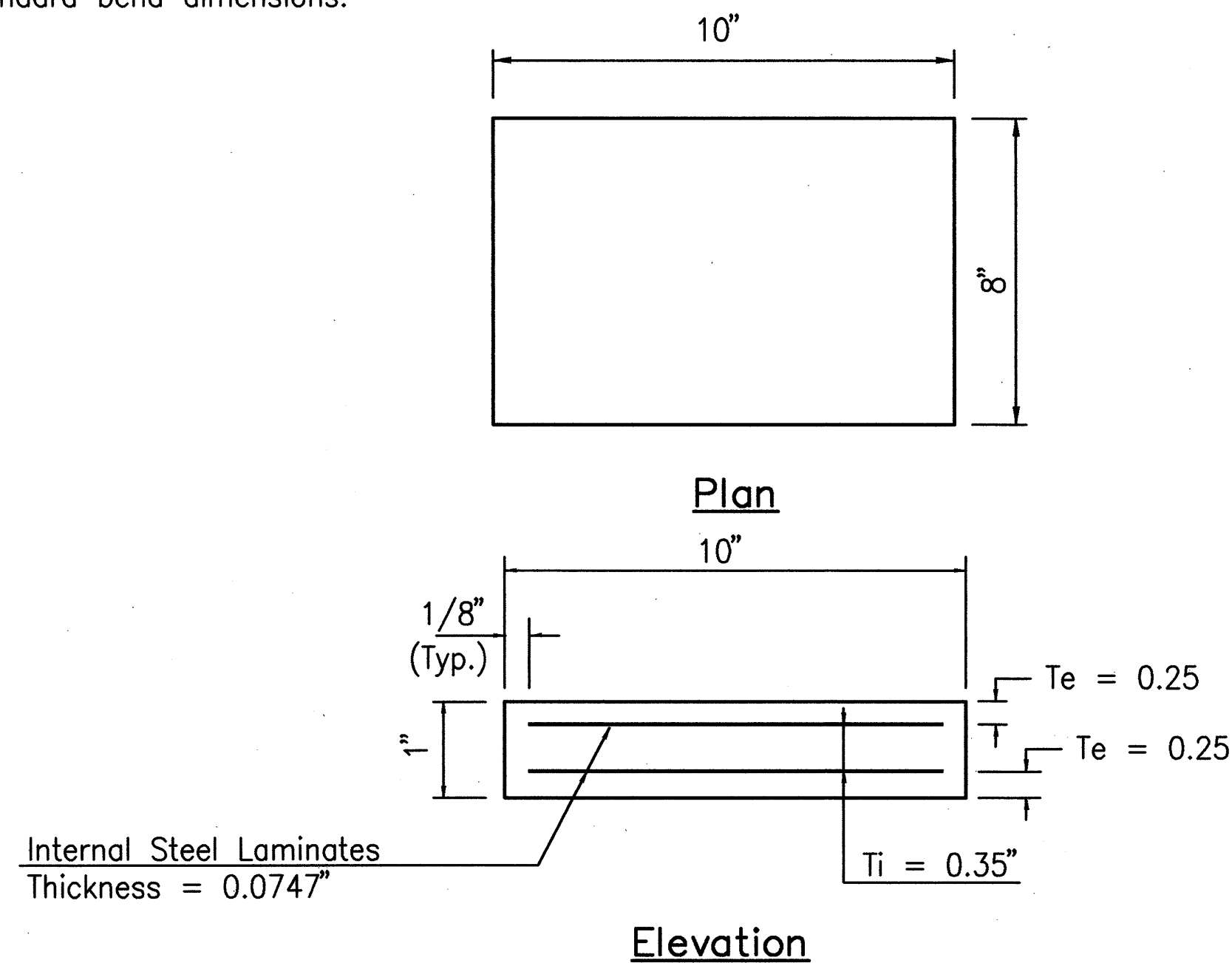
POLYMER MODIFIED ASPHALT EXPANSION JOINT SYSTEM

DESIGNED	DRAWN	CHECKED	REVIEWED	DATE	REVISED
MAM	MAM				10-25-93

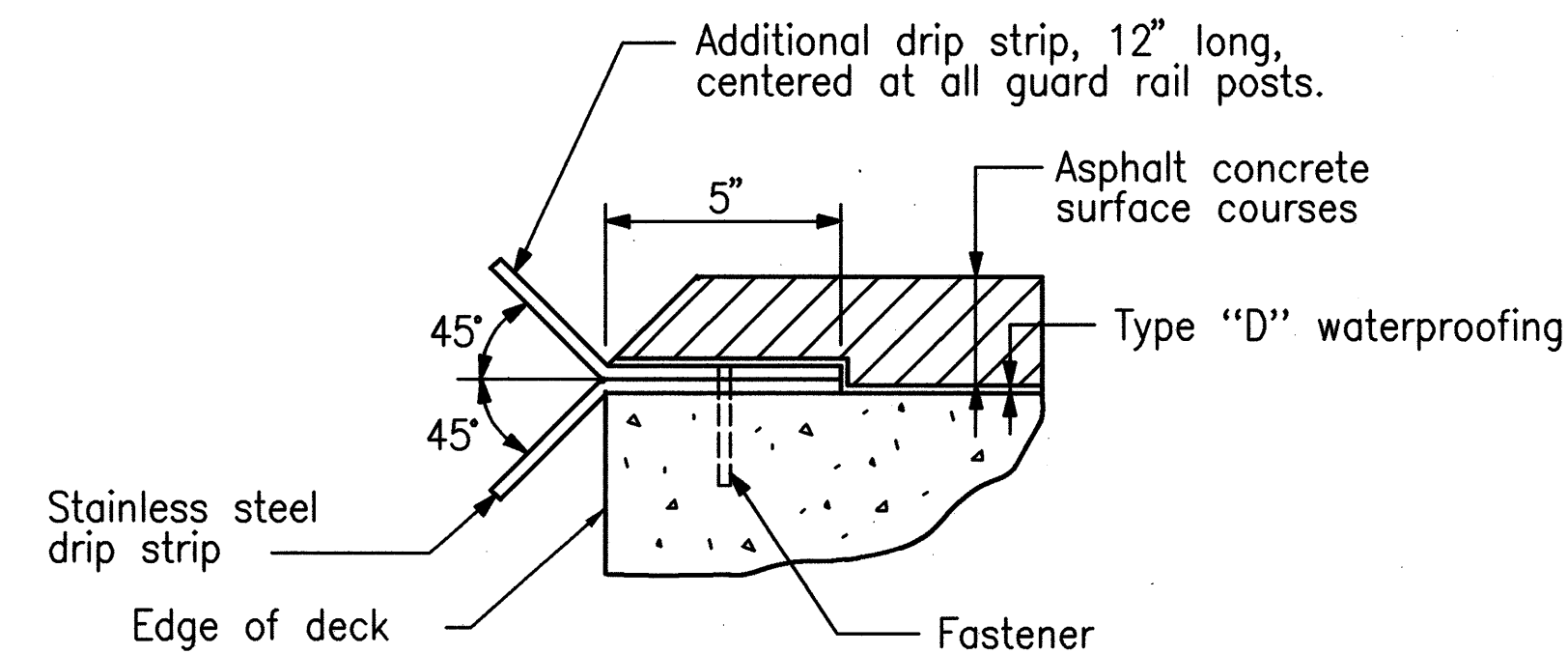
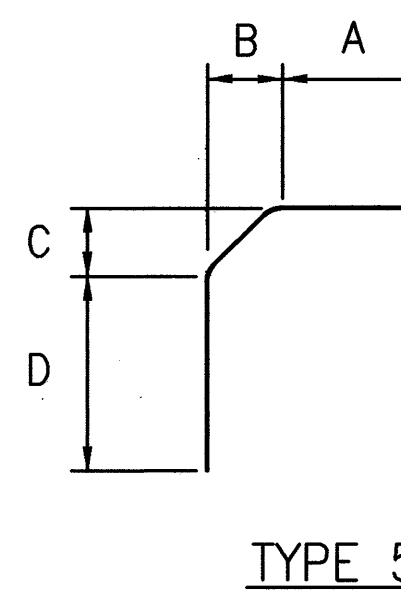
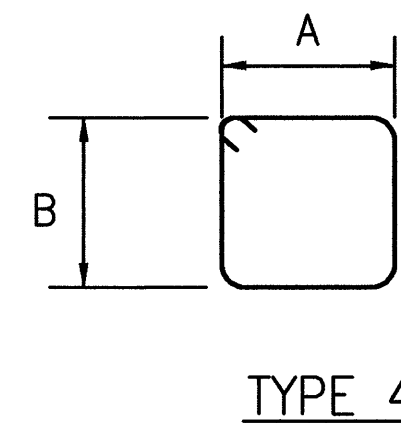
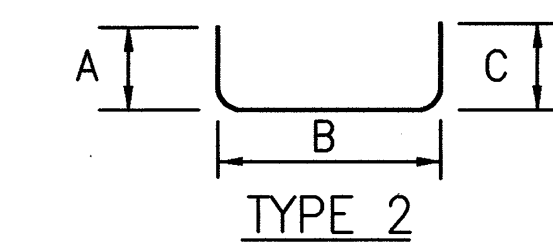
EPOXY COATED REINFORCING STEEL SCHEDULE											
MARK	NUMBER			LENGTH	TYPE	A	B	C	D	E	WEIGHT
	REAR	FWD	TOTAL								
EA401	16	16	32	8'-5"	4	2'-6"	1'-6"				180
EA501	8	8	16	30'-2"	STR.						503
EA502	39	39	78	10'-8"	4	2'-6"	2'-7"				868
EA503	4	4	8	22'-2"	STR.						185
EA504	4	4	8	30'-2"	STR.						252
EA505	29	29	58	8'-4"	2	3'-4"	1'-11"	3'-4"			504
EA507	4	4	8	22'-2"	STR.						185
EA508	2	2	4	7'-6"	STR.						32
EA509	2	2	4	7'-10"	STR.						33
EA510	14	14	28	11'-3"	2	5'-2"	1'-2"	5'-2"			329
EA512	8	8	16	11'-6"	STR.						192
EA513	82	82	164	5'-6"	STR.						941
EA517	2	2	4	8'-7"	STR.						36
EA518	2	2	4	6'-10"	STR.						29
EA601	42	42	84	5'-5"	2	2'-7"	0'-7"	2'-7"			683
EA801	8	8	16	31'-1"	STR.						1328
ED802	23	23	46	4'-5"	5	1'-5"	1'-5"	1'-5"	1'-5"		543
EA1001	8	8	16	24'-5"	STR.						1680
TOTAL WEIGHT											8503

NOTES:

1. BAR MARKS with a prefix E indicate Epoxy Coated bars.
2. ALL DIMENSIONS are out to out.
3. REFER TO CMS SECTION 509.05 for standard bend dimensions.

**LAMINATED ELASTOMERIC BEARING PAD****

60 Durometer - Max bearing design load = 39.1k
Dead load reaction = 19.5k, Live load reaction w/o impact = 19.6k

BENDING DIAGRAMS**DRIP STRIP DETAIL**

STAINLESS STEEL DRIP STRIP: Prior to applying waterproofing, a bent drip strip shall be installed along the edges of the deck. An additional 1'-0" long drip strip shall also be installed centered on each post.

The strips shall be fastened at 1'-6" C/C maximum with 1 1/4" x 5/32" x 1/4" flat head drive pin and washer (length x shank diameter x head diameter) or No. 10 galvanized screws and expansion anchors, subject to approval of the Engineer. The strips shall be placed the full length of the deck, ending at the abutments. The strips shall be 8" x 0.105". Where splices are required the individual pieces shall be butted together. Stainless steel shall be 22 gauge ASTM A167, Type 304, mill finish.

The final pay quantity shall be the actual overall length of the drip strip. Additional-lengths at posts shall not be measured for payment.

Payment shall be at the contract price bid for Item Special, square feet, Steel Drip Strip, which shall include all materials, labor, tools, and incidentals necessary to complete the item.

Basis of Payment: The unit bid 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 Bearings with Internal Laminates only (Neoprene), 1" x 8" x 10".

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**REINFORCING STEEL SCHEDULE
BEARING PAD AND
DRIP STRIP DETAIL**

BRIDGE NO. HUR-162-0257
OVER MUD RUN

DESIGN	DRAWN	TRACED	CHECKED	REVIEW	DATE	REVISED
CLH	ASC		CDW	ART	5/94	