

**INDEX OF SHEETS**

1. TITLE SHEET
2. GENERAL NOTES AND TYPICAL SECTION
3. PLAN AND PROFILE
4. TRAFFIC CONTROL PLAN
5. SEDIMENT EROSION CONTROL - GRADING PLAN
6. SEDIMENT EROSION CONTROL - NOTES
7. GENERAL PLAN AND ELEVATION
8. BRIDGE DEMOLITION - PLAN, ELEVATION AND SECTION
9. ABUTMENT "A"
10. ABUTMENT "B"
11. PLAN AND ELEVATION - REPAIRS TO PIER NO. 1
12. PLAN AND ELEVATION - REPAIRS TO PIER NO.2
13. METHOD OF CONCRETE REPAIR
14. FRAMING PLAN
15. TYPICAL SECTION
16. ROADWAY JOINTS AND BEARINGS
17. DEFLECTION NOTES AND DIAGRAM
18. BRIDGE DECK AND ELEVATIONS
19. STANDARD DETAILS
20. STANDARD DETAILS
21. STANDARD DETAILS
22. STANDARD DETAILS
23. STANDARD DETAILS
24. STANDARD DETAILS
25. STANDARD DETAILS
26. SUMMARY OF QUANTITIES

**HOWARD COUNTY, MARYLAND  
DEPARTMENT OF PUBLIC WORKS**

**REHABILITATION OF BRIDGE NO. M-196  
EDNOR ROAD OVER THE PATUXENT RIVER**

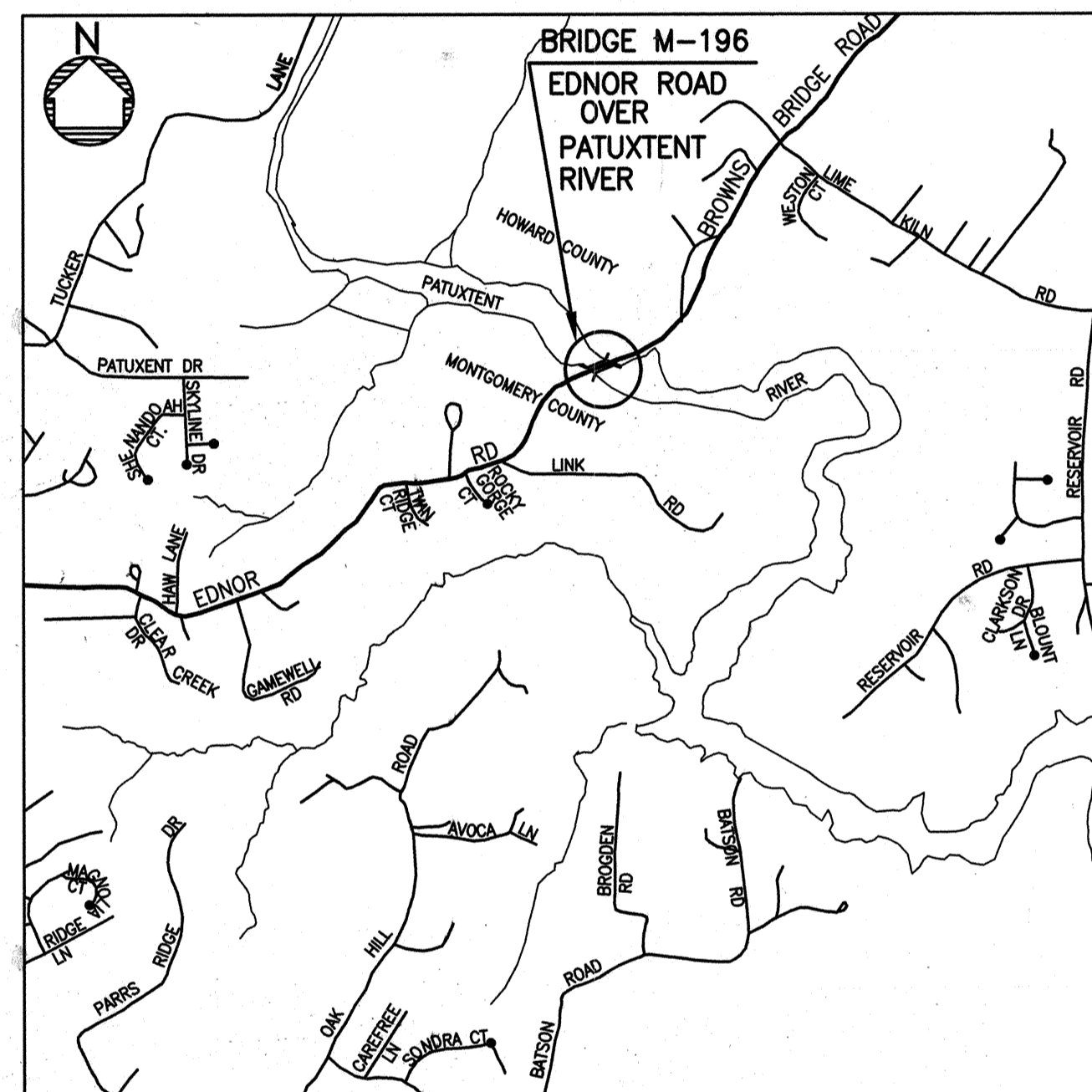
Montgomery County Department Of Public Works And

Transportation C.I.P. NO. 509132

Howard County Capital Project B-3832

SHA Project NO. H0768BM2

F.A. Project NO. BHO-1(459)E



**LOCATION PLAN**  
Scale: 1" = 2000'

Length of Project = 0.072 miles  
Roadway Classification = Minor Collector Road  
Traffic Data: 1995 ADT = 5,100 VPD  
1995 ADT = 4% TRUCKS  
2015 ADT = 6200 VPD

Design Speed = 50 MPH

CERTIFICATION BY THE OWNER/DEVELOPER

"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT THE RESPONSIBLE PERSONNEL INVOLVED IN THIS CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT THE DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT."

*Robert Seppan*      3/12/97  
SIGNATURE OF OWNER/DEVELOPER      DATE

CERTIFICATION BY THE ENGINEER

"I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

*John P. Beal*      3-11-97  
SIGNATURE OF ENGINEER #9954      DATE

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.  <i>John A. H. ...</i> DATE 3/24/97 APPROVED FOR HOWARD S.C.D.	REVIEWED FOR HOWARD S.C.D. AND MEETS TECHNICAL REQUIREMENTS  <i>Clayton ...</i> DATE 3/24/97 SIGNATURE U.S./NATURAL RESOURCES CONSERVATION SERVICE
---	---

- NOTE:**
1. IN CASE OF EMERGENCIES WITH THE PATUXENT RIVER, CONTACT KAREN WRIGHT, SYSTEM CONTROL MANAGER, WASHINGTON SUBURBAN SANITARY COMMISSION, AT (301) 206-8861.
  2. ALL UTILITY LOCATIONS SHOWN ON THESE PLANS ARE APPROXIMATE. CONTRACTOR SHALL CONTACT "MISS UTILITY" (1-800-257-7777) AT LEAST 48 HOURS PRIOR TO BEGINNING CONSTRUCTION.

*CØBØBØØ1-M196*

**NOTE**

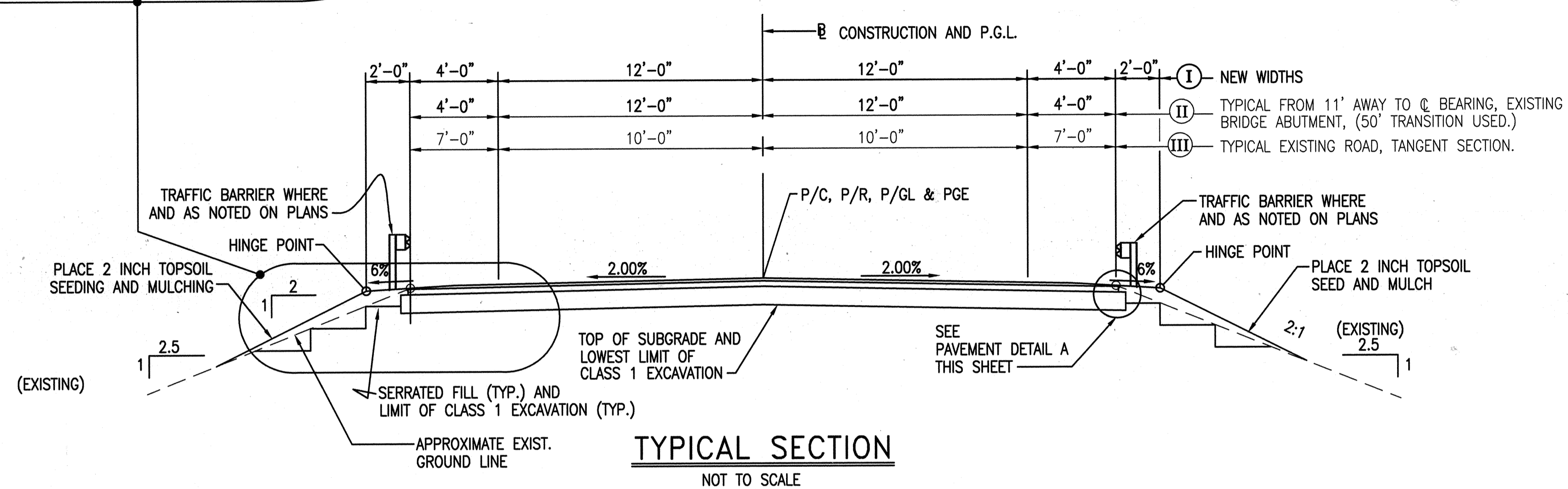
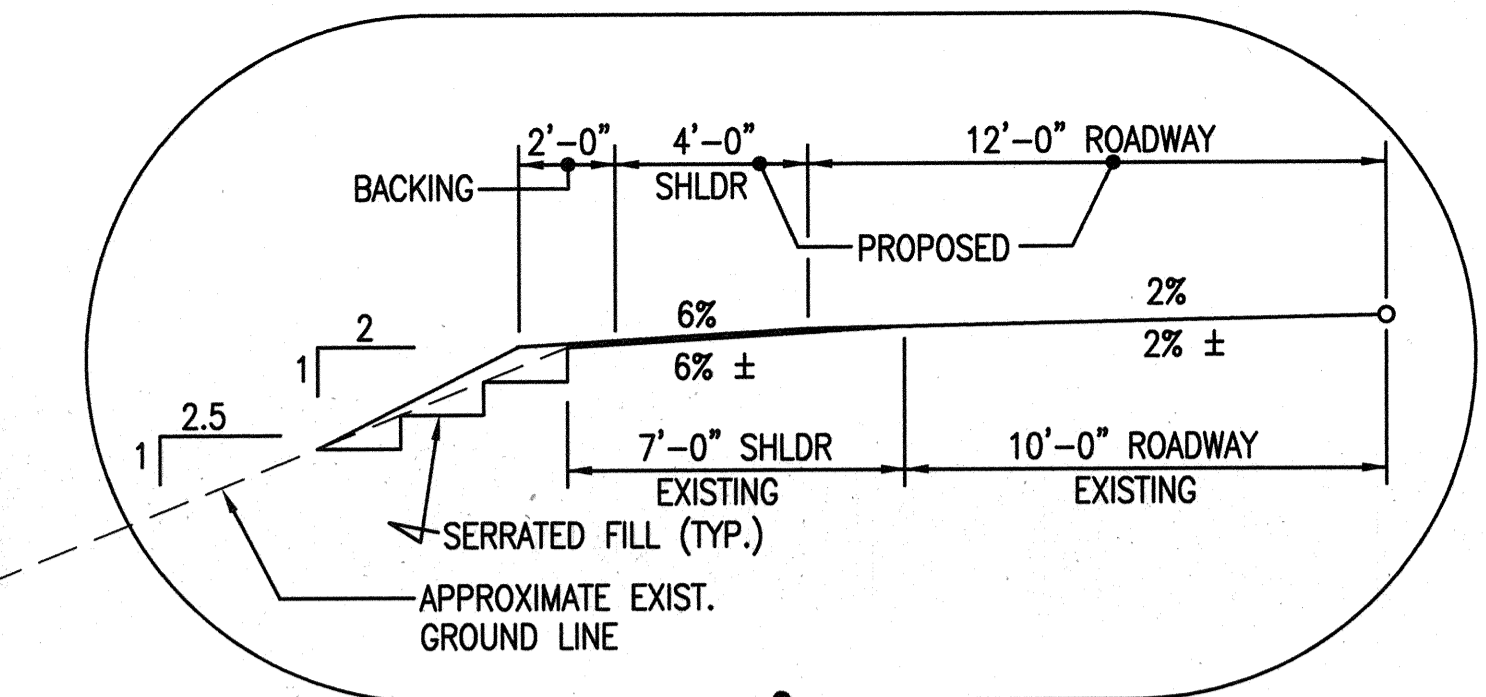
FOR THE CONVENIENCE AND INFORMATION OF BIDDERS, PRINTS OF THE EXISTING STRUCTURE ARE INCLUDED WITH THIS CONTRACT- NO RESPONSIBILITY FOR THEIR ACCURACY OR COMPLETENESS IS ASSUMED BY THE HOWARD COUNTY DPW. DIMENSIONS, DETAILS, ETC AS SHOWN THEREON MAY NOT BE "AS-BUILT". INCLUDED FOR YOUR USE ARE THE FOLLOWING:

SHEET NOS. 1 THRU 7 OF CONTRACT NO. 1207-W

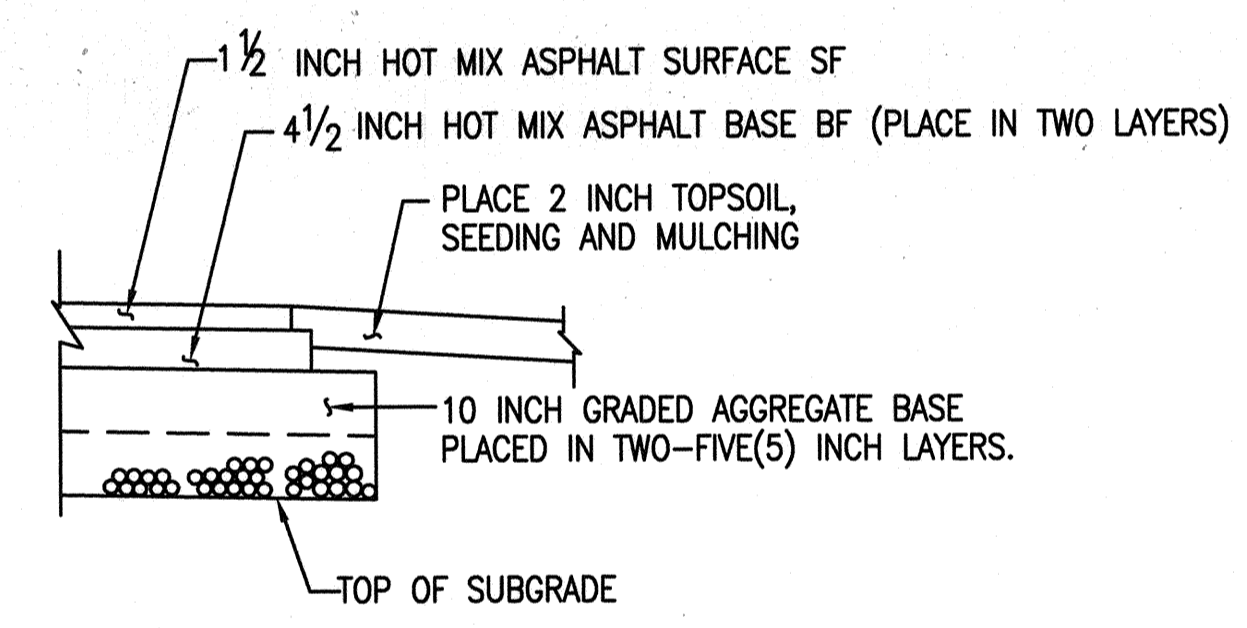
<p align="center"><b>DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND</b></p> <p><i>James ...</i> 3/2/97 DIRECTOR OF PUBLIC WORKS      DATE</p> <p><i>Robert Seppan</i> 3/12/97 CHIEF, BUREAU OF ENGINEERING      DATE</p> <p><i>William F. Malone</i> 3/12/97 CHIEF DIVISION OF TRANSPORTATION PROJECTS &amp; WATERSHED MANAGEMENT      DATE</p>	<p align="center"><b>KENNEDY PORTER &amp; ASSOCIATES</b> Consulting Engineers</p> <p>4110 Black Rock Road Hampstead, Maryland 21074 (410) 239-4482 KPA PROJECT: 94-032F</p>	<table border="1"> <tr><td>DES:</td><td></td></tr> <tr><td>DRN:</td><td></td></tr> <tr><td>CHK:</td><td></td></tr> <tr><td>DATE:</td><td></td></tr> </table> <table border="1"> <tr> <th>BY</th> <th>NO.</th> <th>REVISION</th> <th>DATE</th> </tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> </table>	DES:		DRN:		CHK:		DATE:		BY	NO.	REVISION	DATE									<p align="center"><b>Rehabilitation of Bridge No. M-196 Ednor Road Over The Patuxent River</b></p> <p align="center"><b>TITLE SHEET</b></p> <p>Bridge M-196      Capital Project B-3832</p> <p align="right">SCALE AS SHOWN</p> <p align="right">SHEET 1 OF 26</p> <p align="right"><i>B0086-01</i></p>
DES:																							
DRN:																							
CHK:																							
DATE:																							
BY	NO.	REVISION	DATE																				

**GENERAL NOTES**

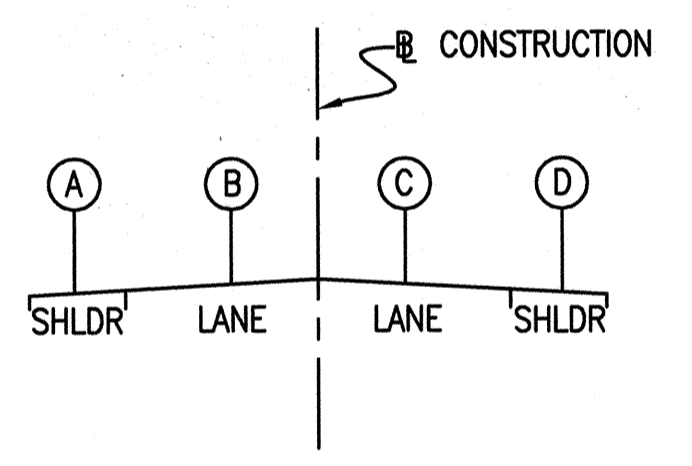
1. SPECIFICATIONS: THE MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS DATED OCTOBER-1993, REVISIONS THEREOF, OR ADDITIONS THERETO, AND THE SPECIAL PROVISIONS INCLUDED IN THIS INVITATION FOR BIDS.
2. STANDARD DETAILS: THE MARYLAND STATE HIGHWAY ADMINISTRATION BOOK OF STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES, OR AS BE NOTED ON THE PLANS.
3. HORIZONTAL CONTROL: MARYLAND STATE PLANE COORDINATE SYSTEM, NORTH AMERICAN DATUM (NAD 1983).
4. VERTICAL CONTROL: HOWARD COUNTY SURVEY CONTROL STATION 401A-EL. 360.17 STANDARD HOWARD COUNTY SURVEY DISK SET ON CONCRETE MONUMENT SOUTHWEST CORNER OF LIME KILN RD AND BROWN BRIDGE ROAD
5. UTILITY LOCATIONS SHOWN ON THE PLANS ARE BASED ON THE BEST AVAILABLE INFORMATION. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE ACCURACY OF THIS INFORMATION. THE OWNER WILL NOT BE RESPONSIBLE FOR ANY CONCLUSIONS DRAWN FROM INFORMATION FURNISHED. THE COST OF REPAIR OR REPLACEMENT OF ANY SUCH FACILITIES DAMAGED BY THE CONTRACTORS OPERATIONS SHALL BE BORNE BY HIM. THE CONTRACTOR SHALL NOTIFY APPROPRIATE PERSONNEL AS FOLLOWS:  
CONTACT "MISS UTILITY" PHONE (410) 792-2401, AT LEAST 48 HOURS IN ADVANCE OF ANY DIGGING.
6. SUBGRADE DRAINS SHALL BE PLACED AS CALLED FOR IN THE SPECIFICATIONS, AND/OR WHERE DIRECTED BY THE ENGINEER TO INSURE ADEQUATE DRAINAGE OF PAVEMENT STRUCTURE.
7. TRAFFIC BARRIER: SEE S.H.A. STANDARD NOS. 660.01 & 661.01
8. ALL DISTURBED AREAS, THAT ARE NOT SURFACED OTHERWISE SHALL RECEIVE 2 INCH TOPSOIL, SEEDING AND MULCHING. (SEED MIX NO. 1).



**TYPICAL SECTION**  
NOT TO SCALE



**PAVEMENT DETAIL A**  
NOT TO SCALE



TYPICAL SECTION CROSS-SLOPES					
A	B	STA	C	D	REMARKS
VARIES	VARIES	5+81.00	VARIES	VARIES	MATCH EXISTING
-6.00%	-2.00%	6+06.00	-2.00%	-6.00%	NORMAL CROWN
-2.00%	-2.00%	6+56.00	-2.00%	-2.00%	
-2.00%	-2.00%	6+67.00	-2.00%	-2.00%	Q BRG. ABUT.
-2.00%	-2.00%	BRIDGE	-2.00%	-2.00%	BRIDGE
-2.00%	-2.00%	8+75.00	-2.00%	-2.00%	Q BRG. ABUT.
-2.00%	-2.00%	8+86	-2.00%	-2.00%	
-6.00%	-2.00%	9+36	-2.00%	-6.00%	NORMAL CROWN
VARIES	VARIES	9+61	VARIES	VARIES	MATCH EXISTING

**ABBREVIATIONS**

- PGL PROFILE GRADE LINE  
PGE PROFILE GRADE ELEVATION  
P/C POINT OF CROWN  
P/R POINT OF ROTATION  
P/GL PROFILE OF GROUND LINE  
SE SUPERELEVATION RATE

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

*James G. Lewis* 3/12/97  
DIRECTOR OF PUBLIC WORKS DATE

*Robert E. Spohn* 3/12/97  
CHIEF, BUREAU OF ENGINEERING DATE

*Richard M. Dudley* 3-12-97  
CHIEF, BUREAU OF HIGHWAYS DATE

*William Z. ...* 3/12/97  
CHIEF, DIVISION OF TRANSPORTATION PROJECTS & WATERSHED MANAGEMENT DATE

KENNEDY PORTER & ASSOCIATES  
Consulting Engineers

4110 Black Rock Road  
Hampstead, Maryland 21074  
(410) 239-4482  
KPA PROJECT: 94-032F



DES:	J.P.B.				
DRN:	R.S.J.				
CHK:	J.P.B.				
DATE:	BY NO.	REVISION	DATE	600'SCALE MAP NO.	BLOCK NO.

Rehabilitation of Bridge No. M-196  
Ednor Road Over The Patuxent River

**GENERAL NOTES AND TYPICAL SECTION**

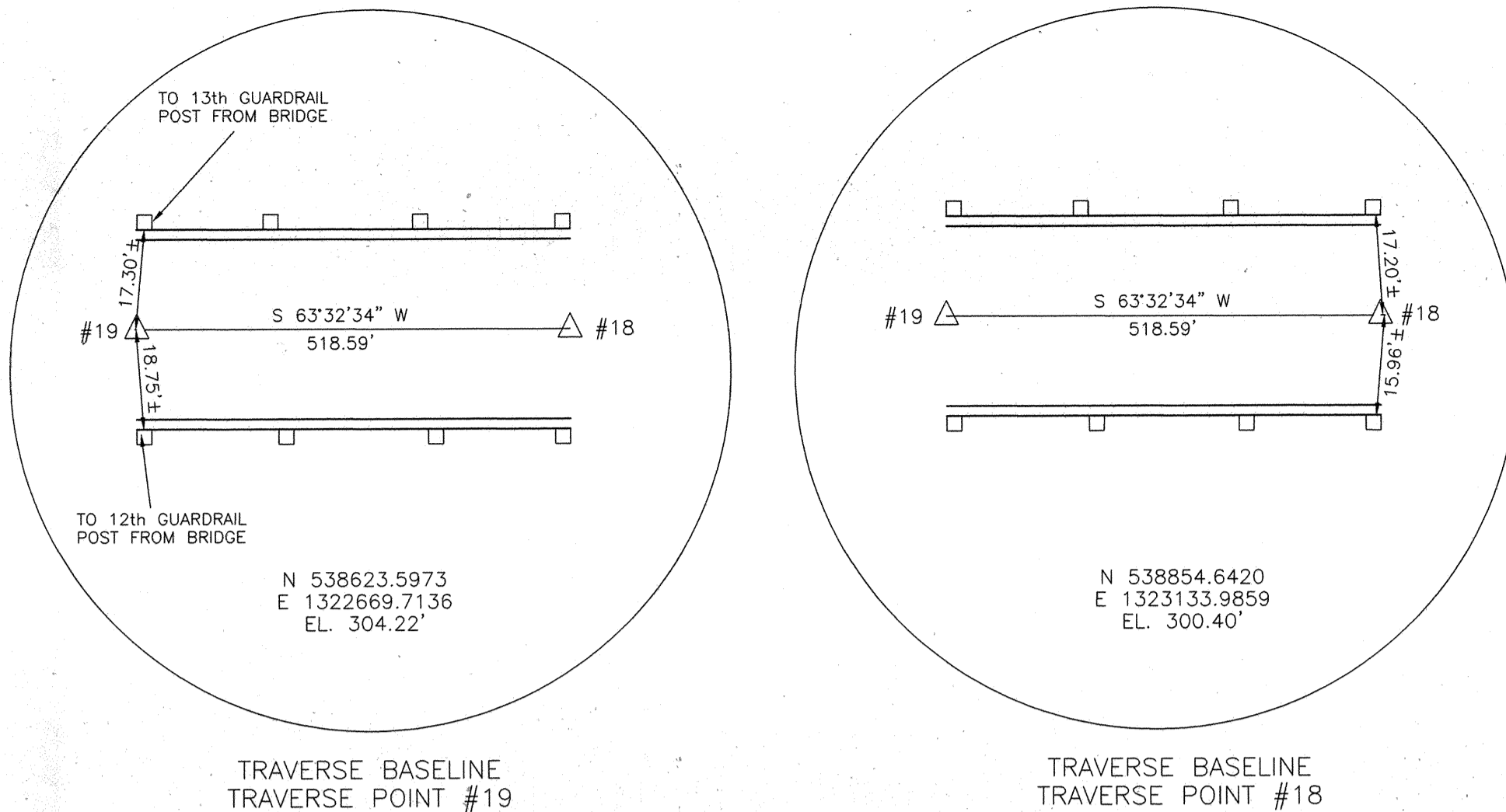
Bridge M-196 Capital Project B-3832

SCALE AS SHOWN  
SHEET 2 OF 26

B0086-02

**LEGEND**

- ▭ NEW FULL DEPTH PAVING
- F — TOE OF FILL
- SF — SLOPE SILT FENCE
- LIMIT OF DISTURBANCE



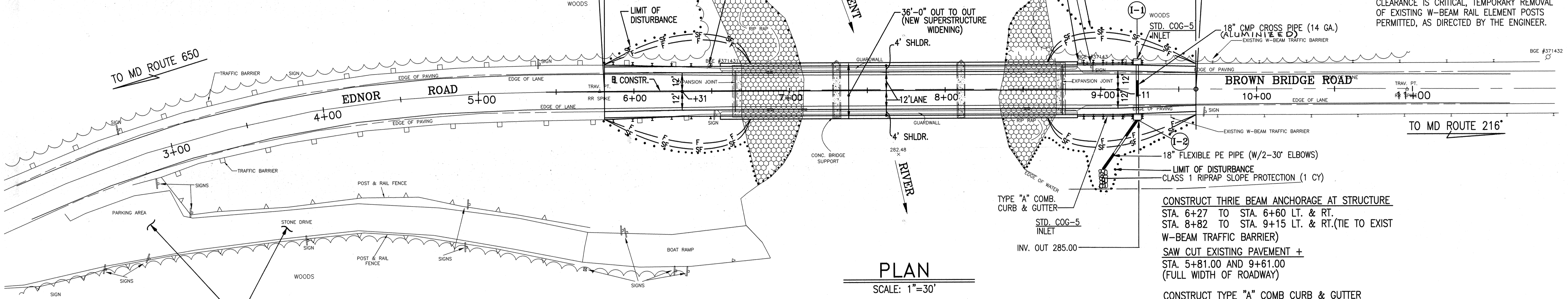
LIMIT OF WORK STA. 5+81.00 MEET EXISTING

LIMIT OF WORK STA. 9+61.00 MEET EXISTING

CONSTRUCT COG INLET I-1  
STA. 9+23.25 -16' LT.  
TOP EL. 301.85  
INV OUT 297.43

CONSTRUCT COG INLET I-2  
STA. 9+23.25 -16' RT.  
TOP EL. 301.85  
INV. IN 297.10  
INV OUT 296.60

CAUTION: VERIFY EXACT PLACEMENT OF I-1 & I-2 TO MISS TRAFFIC BARRIER W-BEAM POSTS. CLEARANCE IS CRITICAL, TEMPORARY REMOVAL OF EXISTING W-BEAM RAIL ELEMENT POSTS PERMITTED, AS DIRECTED BY THE ENGINEER.

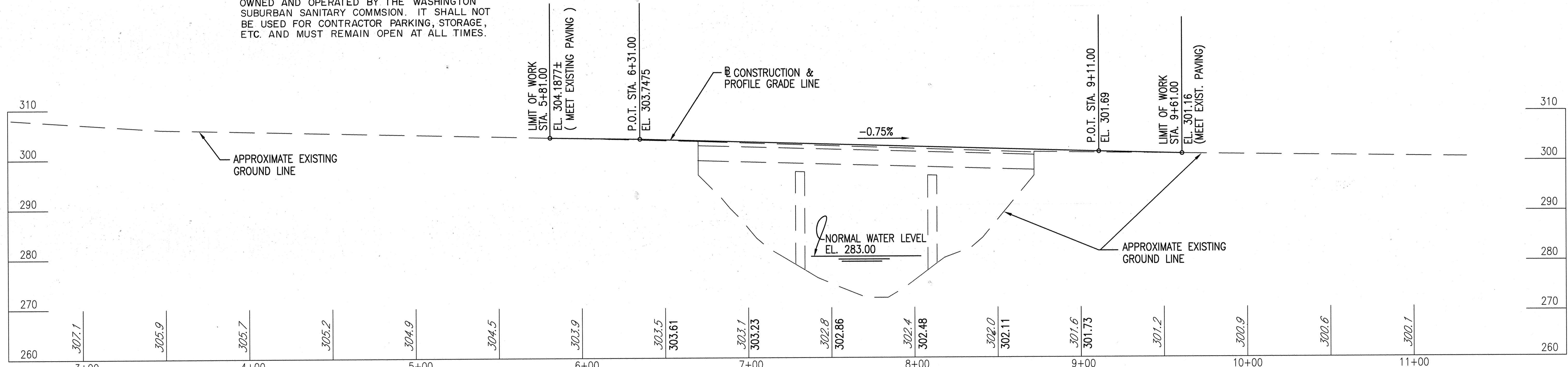


PARKING AREA, STONE DRIVE AND BOAT RAMP IS OWNED AND OPERATED BY THE WASHINGTON SUBURBAN SANITARY COMMISSION. IT SHALL NOT BE USED FOR CONTRACTOR PARKING, STORAGE, ETC. AND MUST REMAIN OPEN AT ALL TIMES.

CONSTRUCT THRIE BEAM ANCHORAGE AT STRUCTURE  
STA. 6+27 TO STA. 6+60 LT. & RT.  
STA. 8+82 TO STA. 9+15 LT. & RT. (TIE TO EXIST W-BEAM TRAFFIC BARRIER)

SAW CUT EXISTING PAVEMENT +  
STA. 5+81.00 AND 9+61.00  
(FULL WIDTH OF ROADWAY)

CONSTRUCT TYPE "A" COMB CURB & GUTTER  
STA. 8+85.75 TO STA. 9+20.65 LT. & RT.  
34.9 LF COMB CURB & GUTTER



DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

James J. [Signature] 3/12/07  
DIRECTOR OF PUBLIC WORKS DATE

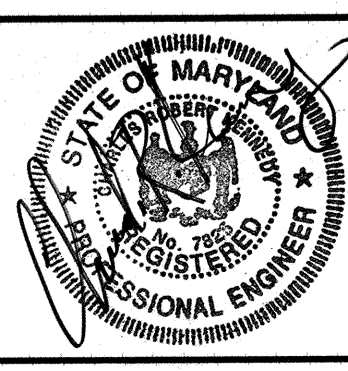
Paul W. [Signature] 3/12/07  
CHIEF, BUREAU OF ENGINEERING DATE

William J. [Signature] 3/12/07  
CHIEF DIVISION OF TRANSPORTATION PROJECTS & WATERSHED MANAGEMENT DATE

KENNEDY PORTER & ASSOCIATES  
Consulting Engineers

4110 Black Rock Road  
Hampstead, Maryland 21074  
(410) 239-4482

KPA PROJECT: 94-032F



DES: L.W.					
DRN: R.S.J.					
CHK: J.P.B.					
DATE:	BY:	NO.	REVISION	DATE	600'SCALE MAP NO. BLOCK NO.

Rehabilitation of Bridge No. M-196  
Ednor Road Over The Patuxent River

**PLAN AND PROFILE**

Bridge M-196 Capital Project B-3832

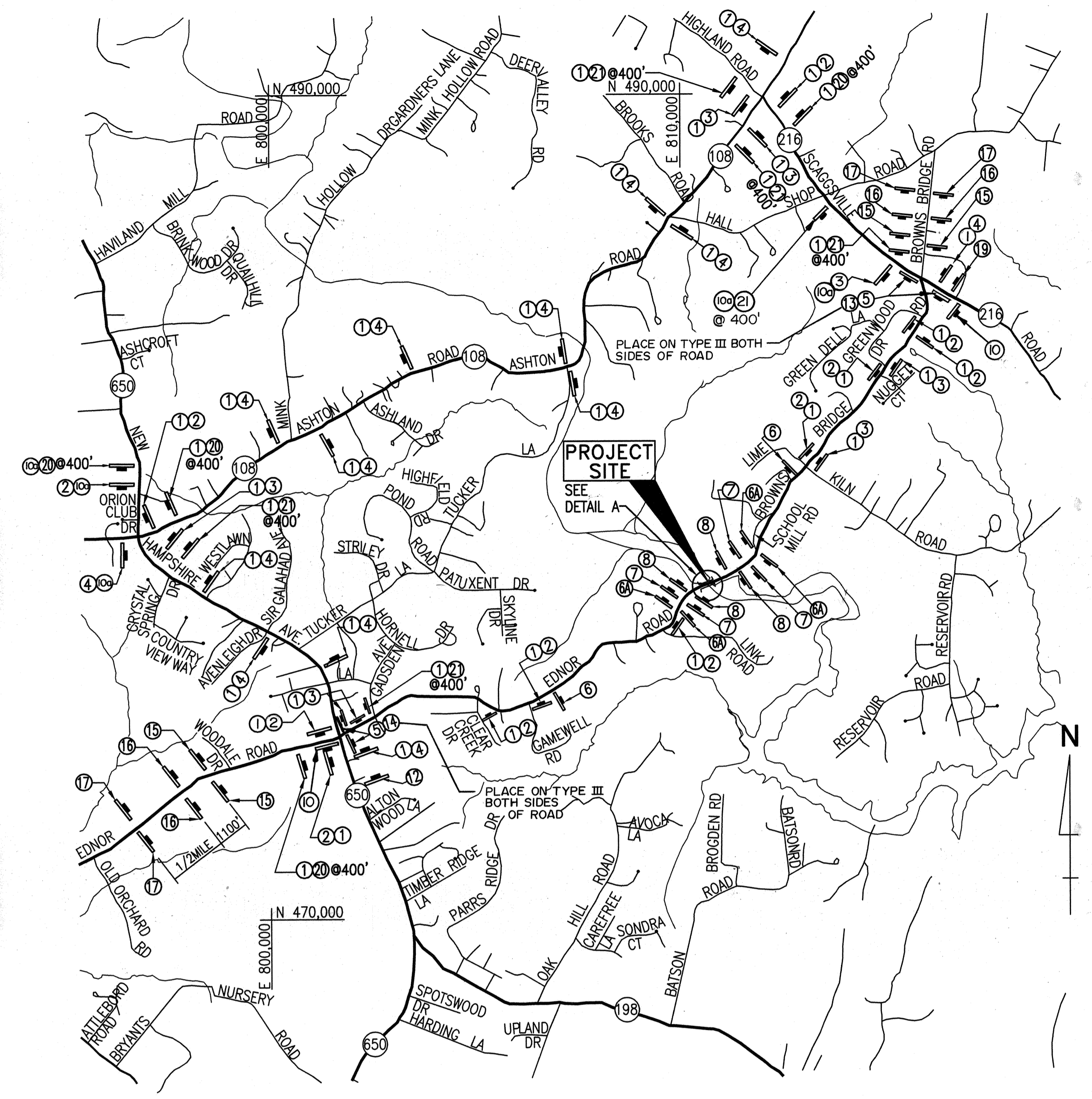
SCALE AS SHOWN

SHEET 3 OF 26

B008a-03

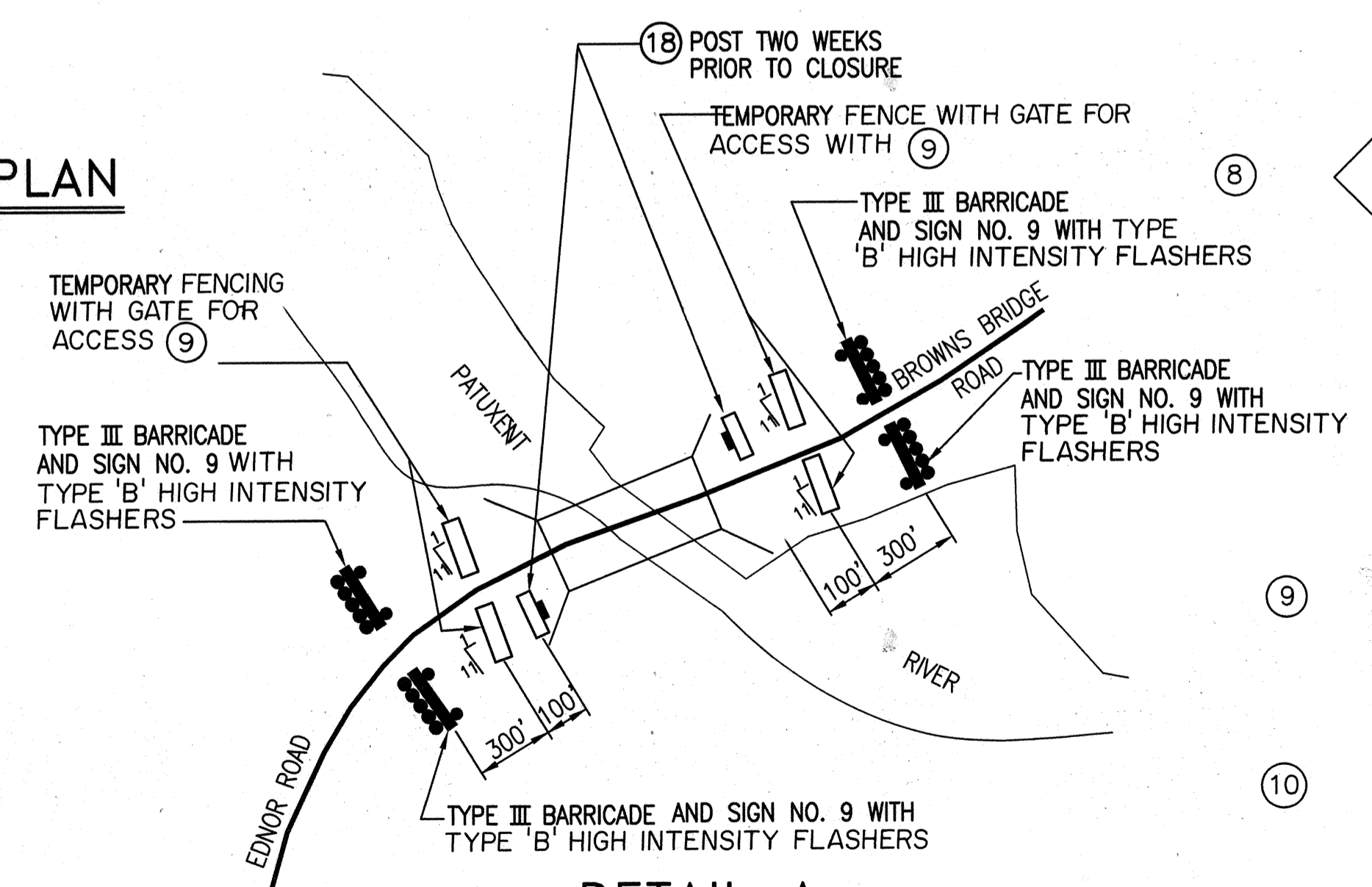
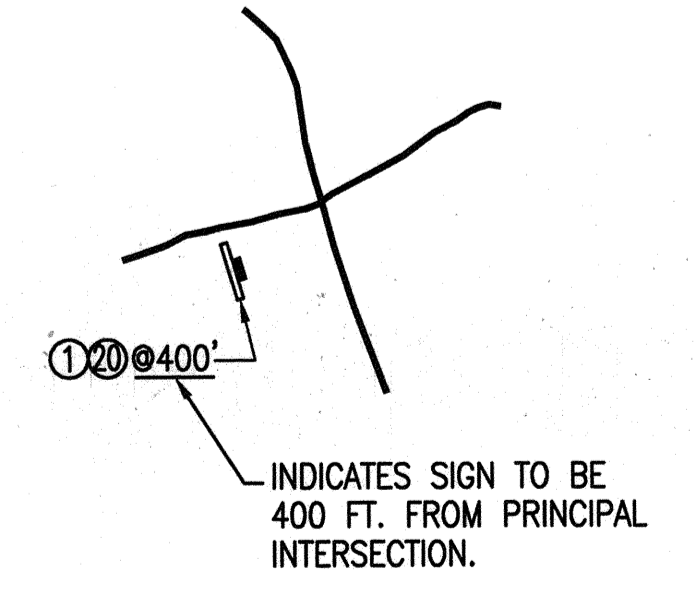
### SIGN LEGEND

SIGN NO.	DESCRIPTION	SIZE	REMARKS	SIGN NO.	DESCRIPTION	SIZE	REMARKS
①	EDNOR ROAD	30"x18"	BLACK/WHITE	⑫	NOTICE EDNOR ROAD CLOSED EAST OF PATUXENT RIVER BRIDGE FOLLOW DETOUR	60"x30"	BLACK/WHITE TEXT 8" CAPS BLK/YELLOW 5" CAPS BLK/WHITE BLK/ORANGE 5" CAPS
②	DETOUR	M 4-9(L) 30"x24"	BLACK/ORANGE	⑬	DETOUR	M4-10 (L) 48"x18"	BLACK/ORANGE
③	DETOUR	M 4-9(R) 30"x24"	BLACK/ORANGE	⑭	DETOUR	M4-10 (R) 48"x18"	BLACK/ORANGE
④	DETOUR	M 4-9 30"x24"	BLACK/ORANGE	⑮	DETOUR 1500 FT	W 20-2 48"x48"	BLACK/ORANGE
⑤	ROAD CLOSED X MILES AHEAD LOCAL TRAFFIC ONLY	R 11-3a 60"x30"	BLACK/WHITE PLACED ON TYPE III BARRICADE	⑯	DETOUR 1/2 MILE	W 20-2 48"x48"	BLACK/ORANGE
⑥	ROAD CLOSED 1 MILE	W 20-3 48"x48"	BLACK/ORANGE	⑰	DETOUR 1 MILE	W 20-2 48"x48"	BLACK/ORANGE
⑥A	ROAD CLOSED 1/2 MILE	W 20-3 48"x48"	BLACK/ORANGE	⑱	NOTICE BRIDGE TO BE CLOSED ON OR ABOUT ADD DATE AS DIRECTED BY THE ENGINEER		BLACK/WHITE TEXT 8" CAPS BLK/YELLOW 5" CAPS BLK/WHITE
⑦	ROAD CLOSED 1500 FT	W 20-3 48"x48"	BLACK/ORANGE	⑲	NOTICE EDNOR ROAD CLOSED WEST OF PATUXENT RIVER BRIDGE FOLLOW DETOUR		BLACK/WHITE TEXT 8" CAPS BLK/YELLOW 5" CAPS BLK/WHITE BLK/ORANGE 5" CAPS
⑧	ROAD CLOSED 800 FT	W 20-3 48"x48"	BLACK/ORANGE	⑳	DETOUR	(SIMILAR TO M4-9L) 30"x24"	BLACK/ORANGE
⑨	ROAD CLOSED	R 11-2 48"x30"	BLACK/WHITE PLACED ON TYPE III BARRICADE	㉑	DETOUR	(SIMILAR TO M4-9L) 30"x24"	BLACK/ORANGE
⑩	END DETOUR	M 4-8a 24"x18"	BLACK/ORANGE				
⑩a	BROWNS BRIDGE ROAD	30"x20"	BLACK/WHITE				



### TRAFFIC CONTROL PLAN

### NOTATIONS/ABBREVIATIONS



### DETAIL A AT BRIDGE CLOSURE

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

KENNEDY PORTER & ASSOCIATES  
Consulting Engineers



DES:	J.P.B.			
DRN:	R.S.J.			
CHK:	J.P.B.			
DATE:	BY	NO.	REVISION	DATE

Rehabilitation of Bridge No. M-196  
Ednor Road Over The Patuxent River

### TRAFFIC CONTROL PLAN

Bridge M-196

Capital Project B-3832

SCALE AS SHOWN  
SHEET 4 OF 26

B0086-04

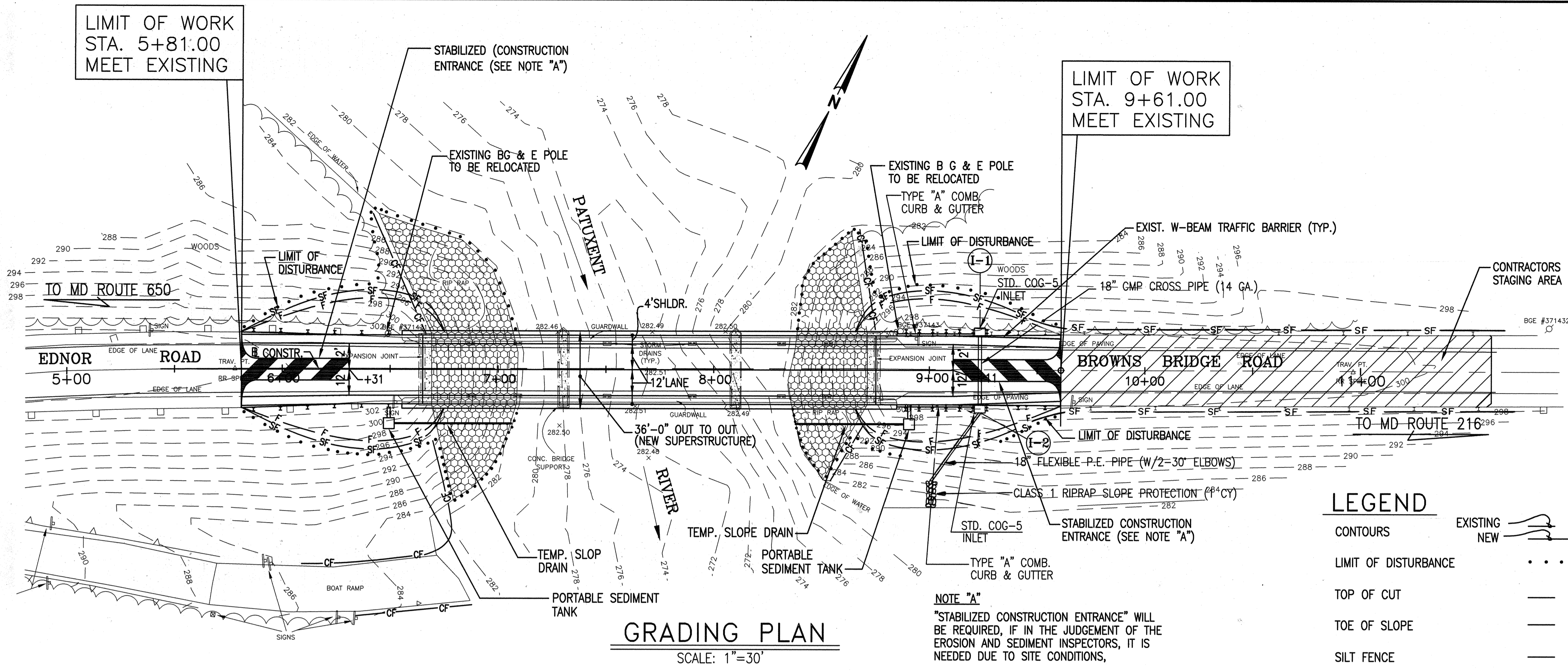
James J. Lewis 3/12/97  
DIRECTOR OF PUBLIC WORKS DATE

Andrew M. Condo 3-12-97  
CHIEF, BUREAU OF HIGHWAYS DATE

Richard J. Peterson 3/12/97  
CHIEF, BUREAU OF ENGINEERING DATE

William J. Madsen 3/12/97  
CHIEF, DIVISION OF TRANSPORTATION PROJECTS & WATERSHED MANAGEMENT DATE

4110 Black Rock Road  
Hampstead, Maryland 21074  
(410) 239-4482  
KPA PROJECT: 94-032F



**SUGGESTED SEQUENCE OF CONSTRUCTION**

- A. DESCRIPTION**  
THE FOLLOWING IS A SEQUENCE OF CONSTRUCTION FOR THE BRIDGE INSTALLATION AND DETAILS. THE REQUIREMENTS TO BE INCORPORATED INTO THE PROJECT. (DAYS NOTED ARE CALENDER DAYS)
- B. SEQUENCE**
- MOBILIZE (8 DAYS)
  - NOTIFY DEPARTMENT OF INSPECTION AND PERMITS 48 HOURS PRIOR TO COMMENCING WORK. OBTAIN A GRADING PERMIT. ( 3 DAYS )
  - ACTIVATE ALL MAINTENANCE OF TRAFFIC DEVICES AND CLOSE ROAD TO TRAFFIC. (4 DAYS)
  - ESTABLISH CONTRACTORS STAGING AREA/TEMPORARY STOCKPILE AREA. (2 DAY)
  - INSTALL PERIMETER SEDIMENT CONTROL DEVICES AS NECESSARY. ( SEE MARYLAND STANDARDS AND SPECIFICATIONS FOR SEDIMENT CONTROL). (5 DAYS)
  - PRIOR TO DECK DEMOLITION, PROVIDE TEMPORARY BELOW-DECK STREAM PROTECTION ( CURTAIN, PLYWOOD, TIMBER, ETC.) TO ENSURE THAT DEMOLITION DEBRIS DOES NOT ENTER THE WATERWAY. EXCAVATE FILL BEHIND THE ABUTMENTS PRIOR TO DECK REMOVAL. (10 DAYS)
  - REMOVE BITUMINOUS SURFACING, AND CONCRETE DECK, CLEAN AND REMOVE TEMPORARY BELOW-DECK STREAM PROTECTION. (15 DAYS)
  - SUPPORT EXISTING BEAMS AT EACH ABUTMENT, WHILE THE BACKWALLS, WINGWALLS AND PORTIONS OF THE ABUTMENTS ARE REMOVED. (10 DAYS)
  - POUR THE NEW BRIDGE SEATS, CHEEKWALL, AND WINGWALLS AT EACH ABUTMENT (10 DAYS)
  - INSTALL NEW BEARINGS AT EACH ABUTMENT (2 DAYS)
  - REMOVE THE BEAM SUPPORTS AND PLACE BEAMS ON THE BEARINGS AT EACH ABUTMENT (4 DAYS)
  - PRIOR TO CLEANING AND PAINTING OF THE STEEL BEAM, PROVIDE AIR AND STREAM PROTECTION TO ENSURE THE PAINT PARTICLES ETC. DOES NOT ENTER INTO AIR OR FALL INTO STREAM. (4 DAYS)
  - REMOVE EXISTING SHEAR CONNECTORS (IF ANY), CLEAN TOP FLANGE OF EACH BEAM AND INTALL NEW SHEAR CONNECTORS (10 DAYS)
  - REPAIR EXISTING PIERS (30 DAYS)
  - CLEAN AND PAINT THE EXISTING BEAMS (20 DAYS)
  - PROVIDE TEMPORARY STREAM PROTECTION UNDER THE BEAMS DURING THE CONSTRUCTION OF THE NEW CONCRETE DECK, ETC, THEN CONSTRUCT THE NEW CONCRETE DECK ( 30 DAYS)
  - REMOVE THE TEMPORARY STREAM PROTECTION WHEN THE DECK IS COMPLETED ( 2 DAYS)
  - CONSTRUCT NEW CONCRETE BACKWALL, INSTALL NEW EXPANSION JOINT AND TROUGH AT EACH ABUTMENT (10 DAYS)
  - REMOVE EXISTING ROADWAY PAVING. (3 DAYS)
  - GRADE ROADWAY AREA TO ACCOMMODATE NEW DECK. (2 DAYS)
  - PAVE ROADWAY (2 DAYS)
  - INSTALL TRAFFIC BARRIER (2 DAYS)
  - RESTORE AREA TO FINAL GRADE, SEED AND MULCH ALL DISTURBED AREA. (5 DAYS)
  - CLEAN-UP THE CONSTRUCTION SITE. (2 DAYS)
  - REMOVE ANY SEDIMENT CONTROL DEVICES INSTALLED BEFORE CONSTRUCTION (2 DAYS)
  - REMOVE ALL MAINTENANCE OF TRAFFIC DEVICES AND OPEN ROAD TO TRAFFIC (3 DAYS)

**LEGEND**

CONTOURS	EXISTING	---	35	---
	NEW	---	35	---
LIMIT OF DISTURBANCE		.....		
TOP OF CUT		---	C	---
TOE OF SLOPE		---	F	---
SILT FENCE		---	SF	---
ORANGE CONSTRUCTION FENCE		---	CF	---
DRAINAGE DITCH - UNLINED		---		---
DRAINAGE DITCH - LINED		---		---
DRAINAGE DITCH - RIPRAP		---		---

Labels: SOD, CONC. RIPRAP ETC.

**PERMANENT SEEDING NOTES**

APPLY TO GRADED OR CLEARED AREAS NOT SUBJECT TO IMMEDIATE FURTHER DISTURBANCE WHERE A PERMANENT LONG-LIVED VEGETATIVE COVER IS NEEDED.

SEEDBED PREPARATION:--LOOSEN UPPER THREE INCHES OF SOIL BY RAKING, DISKING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING, IF NOT PREVIOUSLY LOOSENED.

SOIL AMENDMENT:--IN LIEU OF SOIL TEST RECOMMENDATIONS, USE ONE OF THE FOLLOWING SCHEDULES:

1. PREFERRED--APPLY 2 TONS PER ACRE DOLOMITIC LIMESTONE (92 LBS/1000 SQ. FT.) AND 600 LBS PER ACRE 10-10-10 FERTILIZER (14 LBS/1000 SQ. FT.) BEFORE SEEDING. HARROW OR DISK INTO UPPER THREE INCHES OF SOIL. AT TIME OF SEEDING, APPLY 400 LBS PER ACRE 30-0-0 UREAFORM FERTILIZER (9 LBS/1000 SQ. FT.)
- ACCEPTABLE--APPLY 2 TONS PER ACRE DOLOMITIC LIMESTONE (92 LBS/1000 SQ. FT.) AND 1000 LBS. PER ACRE 10-10-10 FERTILIZER (23 LBS/1000 SQ. FT.) BEFORE SEEDING. HARROW OR DISK INTO UPPER THREE INCHES OF SOIL.

**DETAILS AND SPECIFICATIONS FOR VEGETATION ESTABLISHMENT**

MULCHING:--APPLY 1-1/2 TO 2 TONS PER ACRE (70 TO 90 LBS/1000 SQ. FT.) OF UNROTTED WEED FREE SMALL GRAIN STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATIONS USING MULCH ANCHORING TOOL OR 218 GAL PER ACRE (5 GAL/1000 SQ. FT.) OF EMULSIFIED ASPHALT ON FLAT AREAS. ON SLOPES 8 FT. OR HIGHER, USE 348 GAL PER ACRE (8 GAL/1000 SQ. FT.) FOR ANCHORING.

REFER TO THE 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR ADDITIONAL RATES AND METHODS NOT COVERED.

**STANDARD SEDIMENT CONTROL NOTES**

1. A MINIMUM OF 48 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS, LICENSES AND PERMITS, SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY CONSTRUCTION, (313-1850).
2. ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE MOST CURRENT "MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL", AND REVISIONS THERETO.
3. FOLLOWING INITIAL SOIL DISTURBANCE OR REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN: A) 7 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERIMETER SLOPES AND ALL SLOPES GREATER THAN 3:1, B) 14 DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.
4. ALL SEDIMENT TRAPS/BASINS SHOWN MUST BE FENCED AND WARNING SIGNS POSTED AROUND THEIR PERIMETER IN ACCORDANCE WITH VOL. 1, CHAPTER 12, OF THE HOWARD COUNTY DESIGN MANUAL, STORM DRAINAGE.
5. ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR PERMANENT SEEDING (SEC. 51) SOD (SEC. 54), TEMPORARY SEEDING (SEC. 50) AND MULCHING (SEC 52). TEMPORARY STABILIZATION WITH MULCH ALONE CAN ONLY BE DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHMENT OF GRASSES.
6. ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE AND ARE TO BE MAINTAINED IN OPERATIVE CONDITION UNTIL PERMISSION FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.

**7. SITE ANALYSIS**

TOTAL AREA OF SITE	0.33 ACRES
AREA DISTURBED	0.19 ACRES
AREA TO BE ROOFED OF PAVED	0.14 ACRES
AREA TO BE VEGETATIVELY STABILIZED	0.05 ACRES
TOTAL CUT	50 CU. YDS.
TOTAL FILL	50 CU. YDS.

OFFSITE WASTE/BORROW AREA LOCATION TO BE DETERMINED BY CONTRACTOR AT AN AREA WITH ON ACTIVE GRADING PERMIT.

8. ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTRIBUTED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
9. ADDITIONAL SEDIMENT CONTROL MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
10. ON ALL SITES WITH DISTURBANCE AREAS IN EXCESS OF 2 ACRES, APPROVAL OF THE INSPECTION AGENCY SHALL BE REQUESTED UPON COMPLETION OF INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROLS, BUT BEFORE PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING. OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL BY THE INSPECTION AGENCY IS MADE.
11. TRENCHES FOR THE CONSTRUCTION IF UTILITIES IS LIMITED TO THREE PIPE LENGTHS OR THAT WHICH CAN BE BACKFILLED AND STABILIZED WITHIN ONE WORKING DAY, WHICHEVER IS SHORTER.

**NOTE:** THE CONTRACTOR SHALL CONFINE HIS ACTIVITIES TO WITHIN THE LIMITS OF DISTURBANCE AS SHOWN TO AVOID THE ENDANGERED SEDGE LIPOCARPHA MICRANTHA WHICH DWELLS ALONG THE SHORELINE BETWEEN THE HIGH AND LOW WATER ELEVATIONS. THE SEDGE DOES NOT EXIST WITHIN THE LIMITS OF EXISTING RIPRAP.

**NOTE:** DURATIONS SHOWN ON THE SUGGESTED SEQUENCE OF CONSTRUCTION ARE FOR THE PURPOSE OF EVALUATING SEDIMENT AND EROSION CONTROL MEASURES ONLY. ACTUAL DURATIONS WILL VARY.

**TEMPORARY SEEDING NOTES**

APPLY TO GRADED OR CLEARED AREAS LIKELY TO BE REDISTURBED WHERE A SHORT-TERM VEGETATIVE COVER IS NEEDED.

SEEDBED PREPARATION:--LOOSEN UPPER THREE INCHES OF SOIL BY RAKING, DISKING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING, IF NOT PREVIOUSLY LOOSENED.

SOIL AMENDMENTS:--APPLY 600 LBS PER ACRE 10-10-10 FERTILIZER (14 LBS/1000 SQ. FT.).

SEEDING:--FOR PERIOD MARCH 1 THRU APRIL 30 AND FROM AUGUST 15 THRU OCTOBER 15, SEED WITH 2-1/2 BUSHEL PER ACRE OF ANNUAL RYE (3.2 LBS/1000 SQ. FT.) FOR THE PERIOD MAY 1 THRU AUGUST 14, SEED WITH 3 LBS PER ACRE OF WEEPING LOVEGRASS (.07 LBS/1000 SQ. FT.) FOR THE PERIOD NOVEMBER 16 THRU FEBRUARY 28, PROTECT SITE BY APPLYING 2 TONS PER ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING, OR USE SOD.

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

*James P. Lewis* 5/27/97  
DIRECTOR OF PUBLIC WORKS DATE

*Paul J. Deason* 5/27/97  
CHIEF, BUREAU OF ENGINEERING DATE

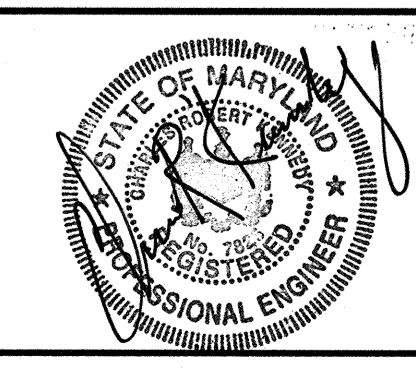
*Edward M. Gandy* 5-27-97  
CHIEF, BUREAU OF HIGHWAYS DATE

*Edward M. Gandy* 5/27/97  
CHIEF, DIVISION OF TRANSPORTATION PROJECTS & WATERSHED MANAGEMENT DATE

KENNEDY PORTER & ASSOCIATES  
Consulting Engineers

4110 Black Rock Road  
Hampstead, Maryland 21074  
(410) 239-4482

KPA PROJECT: 94-032F



DES: J.P.B.							
DRN: R.S.J.							
CHK: J.P.B.							
DATE:	BY	NO.	REVISION	DATE	600'SCALE MAP NO.	BLOCK NO.	

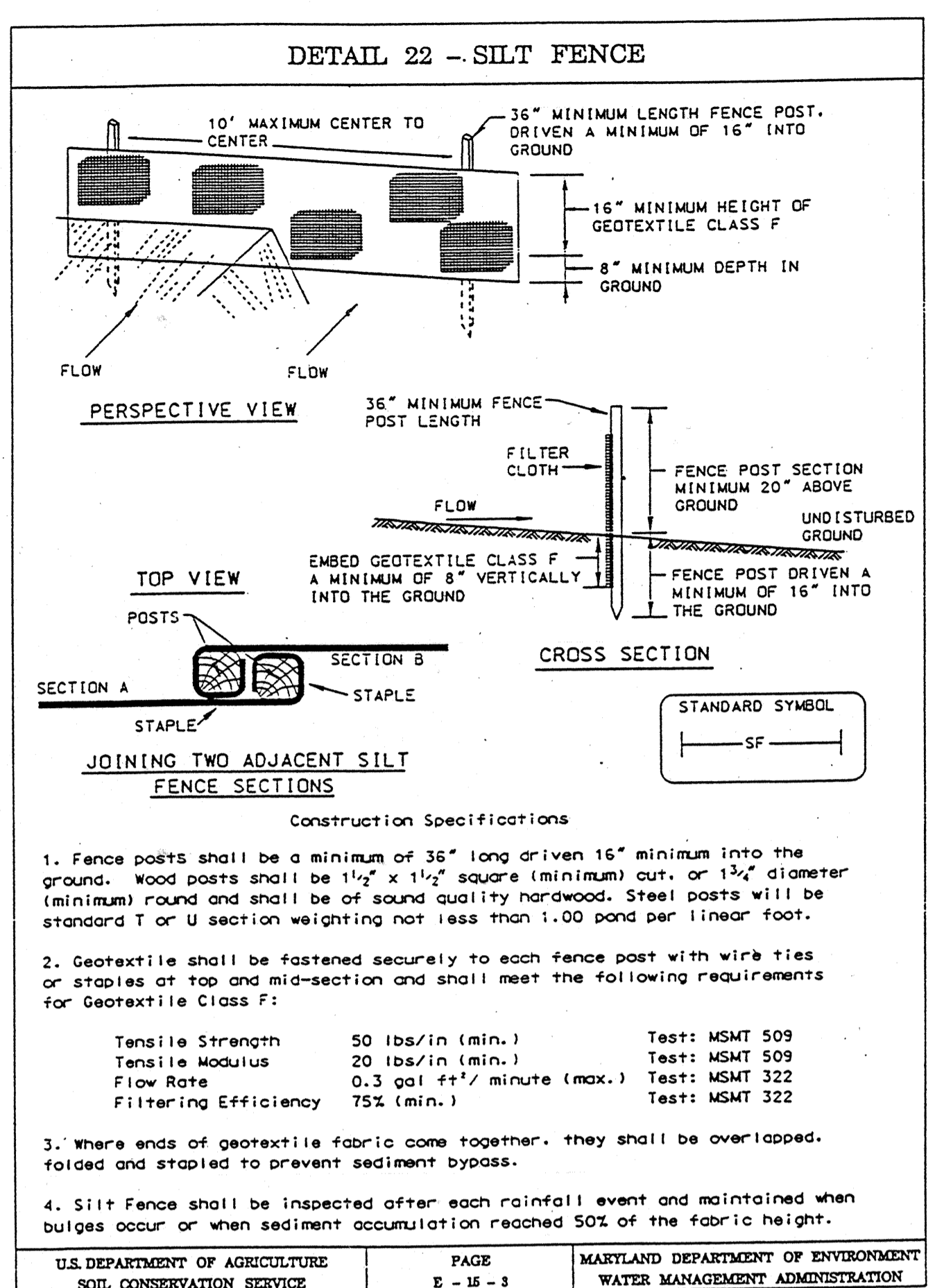
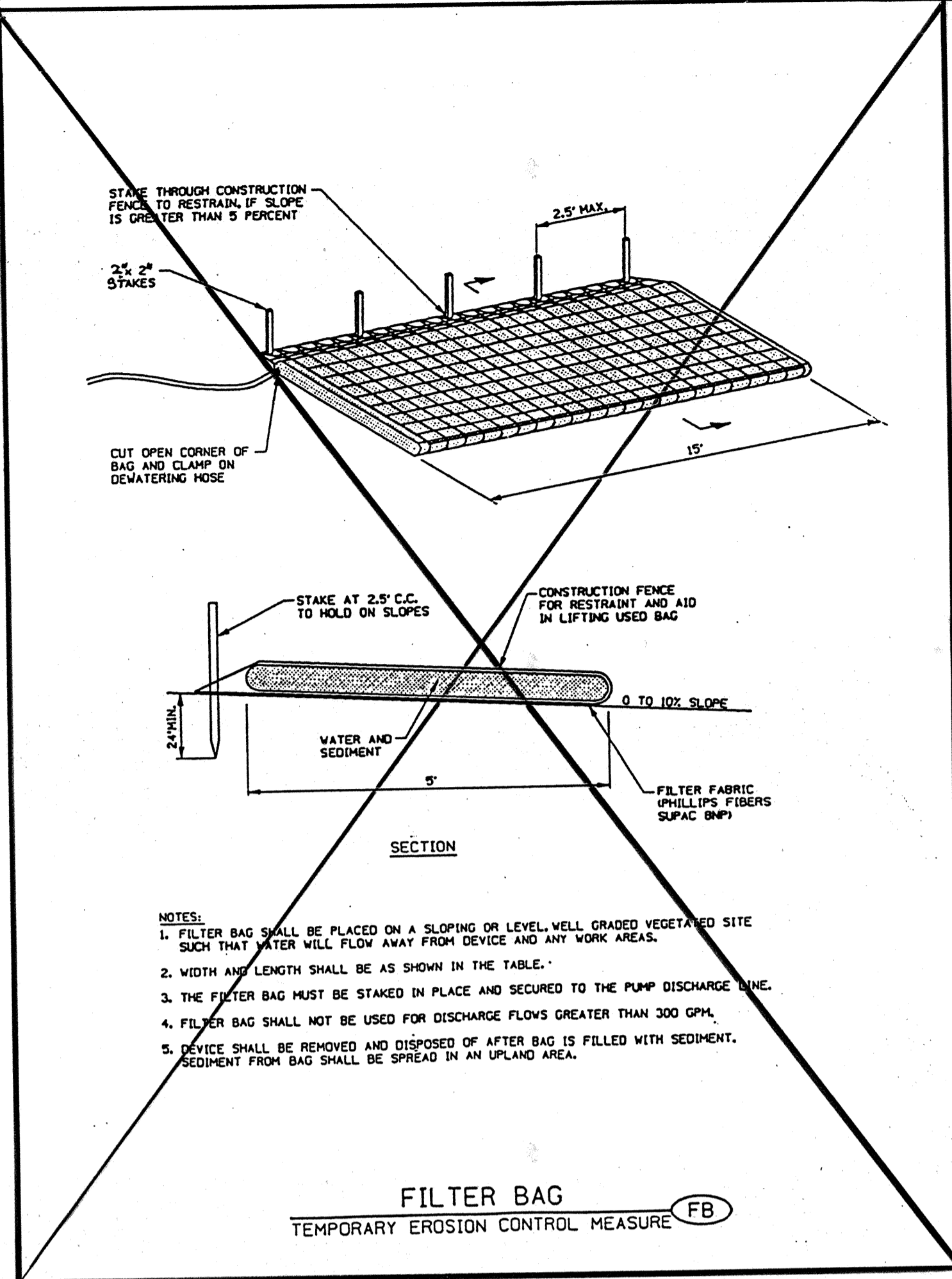
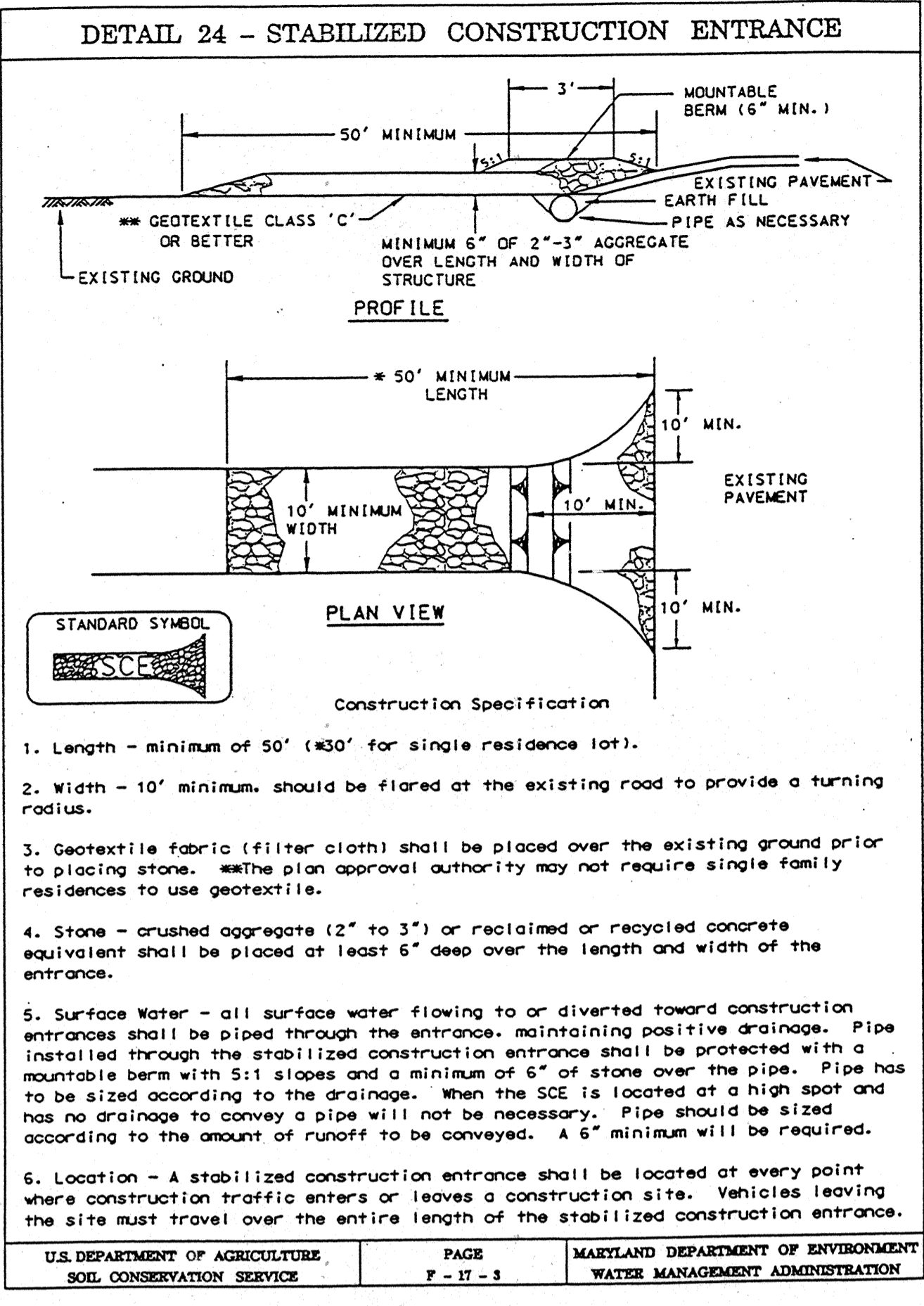
Rehabilitation of Bridge No. M-196  
Ednor Road Over The Patuxent River

**SEDIMENT EROSION CONTROL - GRADING PLAN**

Bridge M-196 Capital Project B-3832

SCALE AS SHOWN

SHEET 5 OF 26

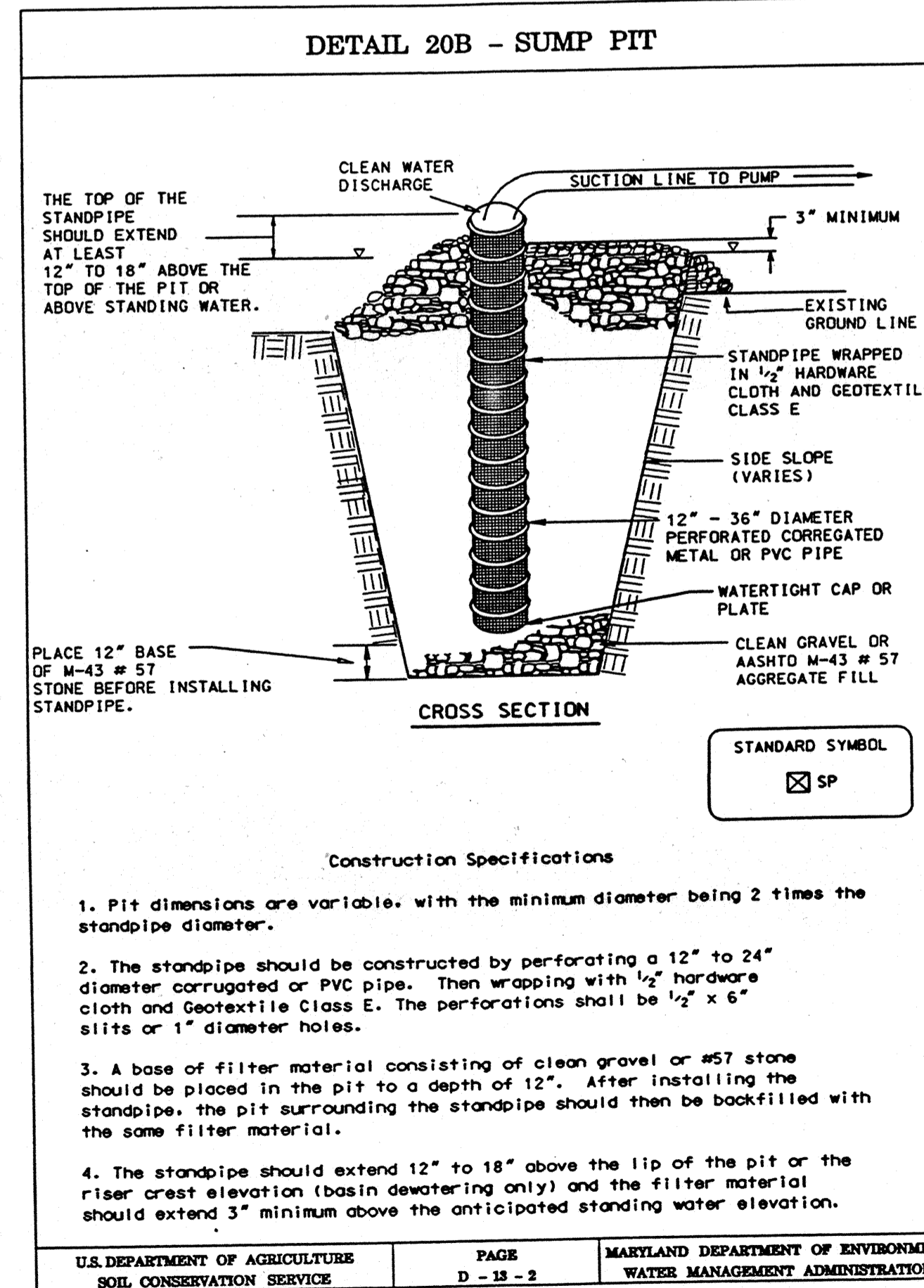


### SILT FENCE

**Silt Fence Design Criteria**

Slope Steadiness	(Maximum) Slope Length	(Maximum) Silt Fence Length
Flatter than 50:1	unlimited	unlimited
50:1 to 10:1	125 feet	1,000 feet
10:1 to 5:1	100 feet	750 feet
5:1 to 3:1	60 feet	500 feet
3:1 to 2:1	40 feet	250 feet
2:1 and steeper	20 feet	125 feet

Note: In areas of less than 2% slope and sandy soils (USDA general classification system, soil Class A) maximum slope length and silt fence length will be unlimited. In these areas a silt fence may be the only perimeter control required.



### 21.0 STANDARD AND SPECIFICATIONS

**FOR TOPSOIL**

**Definition**

Placement of topsoil over a prepared subsoil prior to establishment of permanent vegetation.

**Purpose**

To provide a suitable soil medium for vegetative growth. Soils of concern have low moisture content, low nutrient levels, low pH, materials toxic to plants, and/or unacceptable soil gradation.

**Conditions Where Practice Applies**

- This practice is limited to areas having 2:1 or flatter slopes where:
  - The texture of the exposed subsoil/parent material is not adequate to produce vegetative growth.
  - The soil material is so shallow that the rooting zone is not deep enough to support plants or furnish continuing supplies of moisture and plant nutrients.
  - The original soil to be vegetated contains material toxic to plant growth.
  - The soil is so acidic that treatment with limestone is not feasible.
- For the purpose of these Standards and Specifications, areas having slopes steeper than 2:1 require special consideration and design for adequate stabilization. Areas having slopes steeper than 2:1 shall have the appropriate stabilization shown on the plans.

**Construction and Material Specifications**

- Topsoil salvaged from the existing site may be used provided that it meets the standards as set forth in these specifications. Typically, the depth of topsoil to be salvaged for a given soil type can be found in the representative soil profile section in the Soil Survey published by USDA-SCS in cooperation with Maryland Agricultural Experimental Station.
- Topsoil Specifications - Soil to be used as topsoil must meet the following:
  - Topsoil shall be a loam, sandy loam, clay loam, silt loam, sandy clay loam, loamy sand. Other soils may be used if recommended by an agronomist or soil scientist and approved by the appropriate approval authority. Regardless, topsoil shall not be a mixture of contrasting textured subsoils and shall contain less than 5% by volume of cinders, stones, slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger than 1 1/2\"/>

- Where the subsoil is either highly acidic or composed of heavy clays, ground limestone shall be spread at the rate of 4-8 tons/acre (200-400 pounds per 1,000 square feet) prior to the placement of topsoil. Lime shall be distributed uniformly over designated areas and worked into the soil in conjunction with tillage operations as described in the following procedures.

- For sites having disturbed areas under 5 acres:
  - Place topsoil (if required) and apply soil amendments as specified in 20.0 Vegetative Stabilization - Section 1 - Vegetative Stabilization Methods and Materials.
- For sites having disturbed areas over 5 acres:
  - On soil meeting Topsoil specifications, obtain test results dictating fertilizer and lime amendments required to bring the soil into compliance with the following:
    - pH for topsoil shall be between 6.0 and 7.5. If the tested soil demonstrates a pH of less than 6.0, sufficient lime shall be prescribed to raise the pH to 6.5 or higher.
    - Organic content of topsoil shall be not less than 1.5 percent by weight.
    - Topsoil having soluble salt content greater than 500 parts per million shall not be used.
    - No sod or seed shall be placed on soil which has been treated with soil sterilants or chemicals used for weed control until sufficient time has elapsed (14 days min.) to permit dissipation of phytotoxic materials.

Note: Topsoil substitutes or amendments, as recommended by a qualified agronomist or soil scientist and approved by the appropriate approval authority, may be used in lieu of natural topsoil.

- Place topsoil (if required) and apply soil amendments as specified in 20.0 Vegetative Stabilization - Section 1 - Vegetative Stabilization Methods and Materials.

- Topsoil Application
  - When topsoiling, maintain needed erosion and sediment control practices such as diversions, Grade Stabilization Structures, Earth Dikes, Slope Silt Fence and Sediment Traps and Basins.
  - Grades on the areas to be topsoiled, which have been previously established, shall be maintained, albeit 4\"/>
- Topsoil shall be uniformly distributed in a 4\"/>
- Topsoil shall not be placed while the topsoil or subsoil is in a frozen or muddy condition, when the subsoil is excessively wet or in a condition that may otherwise be detrimental to proper grading and seedbed preparation.

VI. Alternative for Permanent Seeding - Instead of applying the full amounts of lime and commercial fertilizer, composted sludge and amendments may be applied as specified below:

- Composted sludge material for use as a soil conditioner for sites having disturbed areas over 5 acres shall be tested to prescribe amendments and for sites having disturbed areas under 5 acres shall conform to the following requirements:
  - Composted sludge shall be supplied by, or originate from, a person or persons that are permitted (at the time of acquisition of the compost) by the Maryland Department of the Environment under COMAR 26.04.06.
  - Composted sludge shall contain at least 1 percent nitrogen, 1.5 percent phosphorus, and 0.2 percent potassium and have a Ph of 7.0 to 8.0. If compost does not meet these requirements, the appropriate constituents must be added to meet the requirements prior to use.
  - Composted sludge shall be applied at a rate of 1 ton/1,000 square feet.
- Composted sludge shall be amended with a potassium fertilizer applied at the rate of 4 lb/1,000 square feet, and 1/3 the normal lime application rate.

References: Guideline Specifications, Soil Preparation and Sodding, MD-VA, Pub. #1, Cooperative Extension Service, University of Maryland and Virginia Polytechnic Institutes. Revised 1973.

G-21-3 1994

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD COUNTY CONSERVATION DISTRICT.

Approved: *[Signature]* 3/22/97  
NORMAN B. B. S.

NOTE: The Patuxent River at this site is a drinking water reservoir. Sediment and Erosion control will be strictly enforced for the protection of this public water supply. There shall be no concrete truck washing allowed.

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

1994

*[Signature]* 3/12/97  
DIRECTOR OF PUBLIC WORKS DATE

*[Signature]* 3/12/97  
CHIEF, BUREAU OF ENGINEERING DATE

*[Signature]* 3/12/97  
CHIEF, DIVISION OF TRANSPORTATION PROJECTS & WATERSHED MANAGEMENT DATE

KENNEDY PORTER & ASSOCIATES  
Consulting Engineers

4110 Black Rock Road  
Hampstead, Maryland 21074  
(410) 239-4482

KPA PROJECT: 94-032F

DES: J.P.B.

DRN: R.S.J.

CHK: J.P.B.

DATE: \_\_\_\_\_

BY: \_\_\_\_\_ NO. \_\_\_\_\_

REVISION \_\_\_\_\_

DATE: \_\_\_\_\_

600'SCALE MAP NO. \_\_\_\_\_ BLOCK NO. \_\_\_\_\_

Rehabilitation of Bridge No. M-196  
Ednor Road Over The Patuxent River

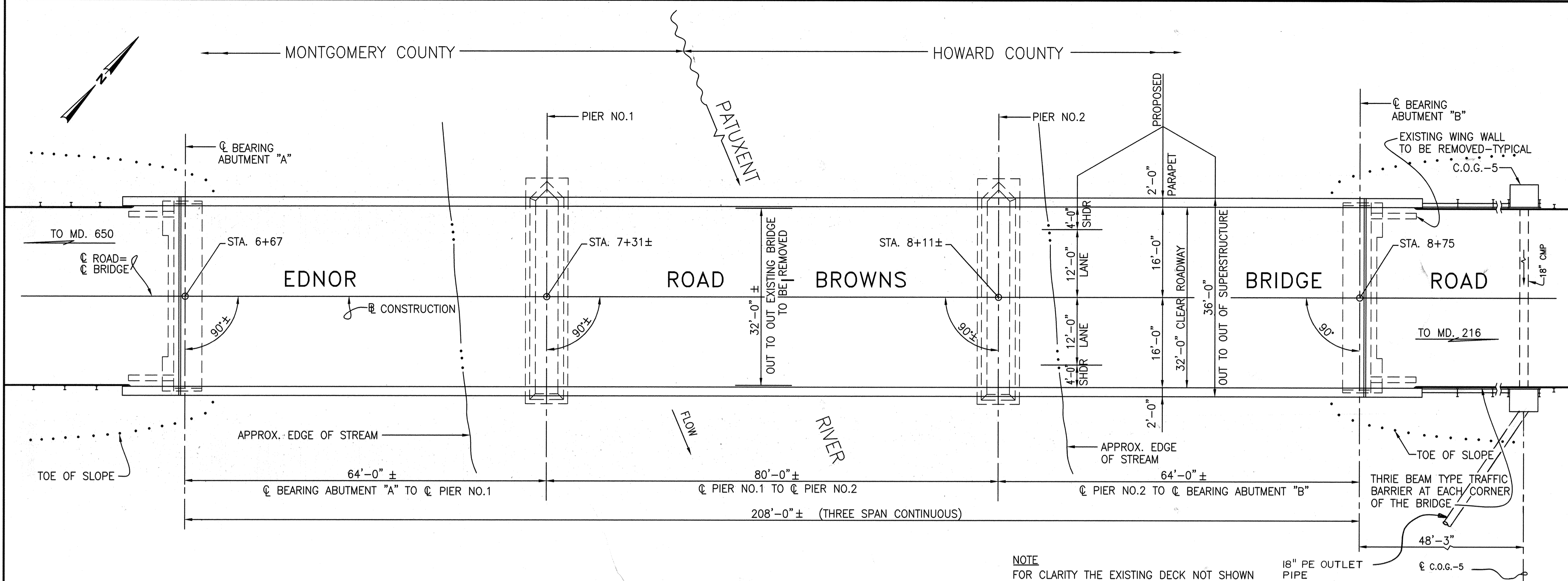
SCALE AS SHOWN

SEDIMENT EROSION CONTROL-NOTES

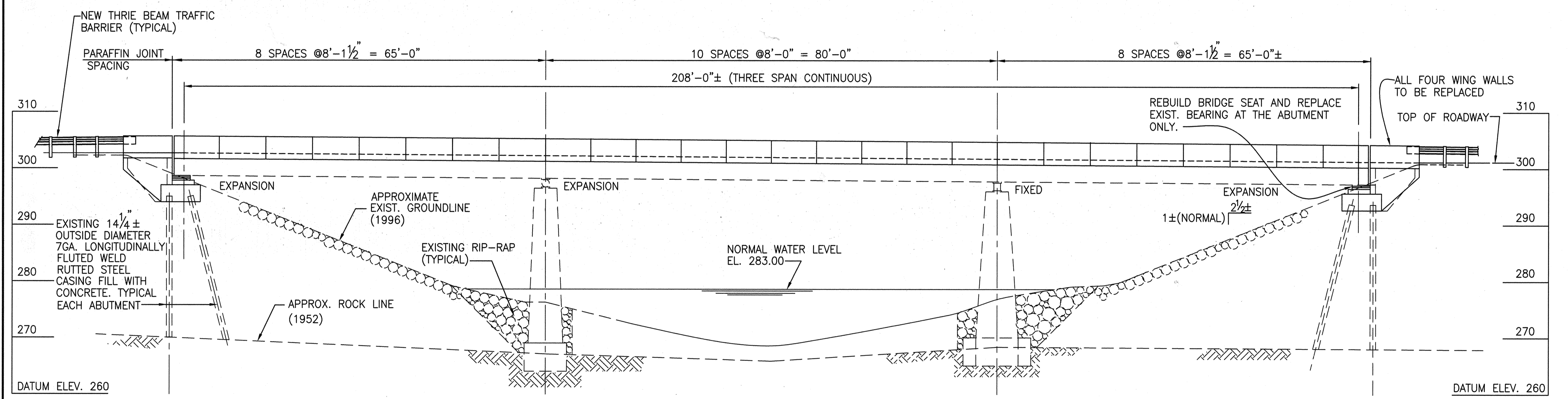
Bridge M-196 Capital Project B-3832

SHEET 6 OF 26

B0086-06



**P L A N**  
SCALE:  $\frac{3}{32} = 1'-0"$



**E L E V A T I O N**  
SCALE:  $\frac{3}{32} = 1'-0"$

**GENERAL NOTES**

- SPECIFICATIONS:** SHA SPECIFICATIONS DATED OCTOBER, 1993 REVISIONS THEREOF AND ADDITIONS THERETO AND SPECIAL PROVISIONS FOR MATERIALS AND CONSTRUCTION  
ASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES DATED 1996 FOR DESIGN  
CONCRETE DESIGN: SERVICE LOAD DESIGN METHOD  $F_c = 1200$  PSI EXCEPT THAT IN BRIDGE DECK SLABS SUPPORTED BY STRINGERS IT SHALL BE 1350 PSI.  
REINFORCING STEEL DESIGN:  $F_s = 24,000$  PSI.(ALL REINFORCING STEEL)  
STRUCTURAL STEEL DESIGN: ELASTIC DESIGN METHOD
- LOADING:** HS-25 FOR CONCRETE SLAB  
THE REMAINING EXISTING STRUCTURE (BEAMS, BEARINGS AND THE SUBSTRUCTURE) WAS DESIGNED FOR AN H-20 LOADING.
- CONCRETE:** ALL CONCRETE FOR ABUTMENT BACKWALLS AND PARAPETS AT ABUTMENTS AND ENTIRE SUPERSTRUCTURE SHALL BE MIX NO.6 (4500 PSI.) ALL OTHER STRUCTURE CONCRETE SHALL BE MIX NO.3 (3500 PSI.)
- REINFORCING STEEL:** REINFORCING STEEL SHALL CONFORM TO ASTM A 615, GRADE 60. ALL SPLICES, NOT SHOWN, SHALL BE LAPPED AS PER BAR LAP CHARTS. MINIMUM COVER FOR ANY BAR SHALL BE 2" UNLESS OTHERWISE NOTED, WITH THE EXCEPTION OF BARS AT THE BOTTOM AND SIDES OF ALL FOOTINGS WHICH SHALL HAVE 3" MINIMUM COVER.  
FOR TIES AND STIRRUPS; STANDARD ACI BENDING TOLERANCES ARE MODIFIED TO PLUS (+) ZERO INCHES, MINUS (-) NORMAL ACI BENDING TOLERANCES.  
**ONLY GRADE 60 CAN BE USED ON THIS PROJECT**  
ALL REINFORCING STEEL SHALL BE EPOXY COATED.
- KEYS:** ALL KEYS ARE NOMINAL SIZE
- STRUCTURAL STEEL:** EXISTING STRUCTURE STEEL TO REMAIN IN PLACE.
- EXISTING STRUCTURE:** ALL DIMENSIONS AFFECTED BY THE GEOMETRICS, AND/OR LOCATION OF THE EXISTING STRUCTURE SHALL BE CHECKED IN THE FIELD BY THE CONTRACTOR, BEFORE ANY CONSTRUCTION IS DONE, AND BEFORE ANY REINFORCING STEEL, ETC., IS ORDERED OR FABRICATED. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO CHECK THE ENGINEER WITH ALL FIELD DIMENSIONS REQUIRED TO CHECK DETAIL DRAWINGS. THE ± MARKS SHOWN WITH DIMENSIONS AND STATIONS DO NOT INDICATE ANY DEGREE OF PRECISION. THESE MARKS (±) INDICATE EXISTING DIMENSIONS AND STATIONS THAT MAY VARY AND DO REQUIRE FIELD VERIFICATION BY THE CONTRACTOR.  
EXISTING STRUCTURE SHOWN IN LONG DASHED LINES.  
PORTIONS OF EXISTING STRUCTURES SHOWN HATCHED, TO BE REMOVED.  
WHEREVER POSSIBLE ALL EXPOSED EXISTING REINFORCING STEEL SHALL BE THOROUGHLY CLEANED AND INCORPORATED IN THE FINISHED STRUCTURE.

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

*James J. Lee* 3/12/97  
DIRECTOR OF PUBLIC WORKS DATE

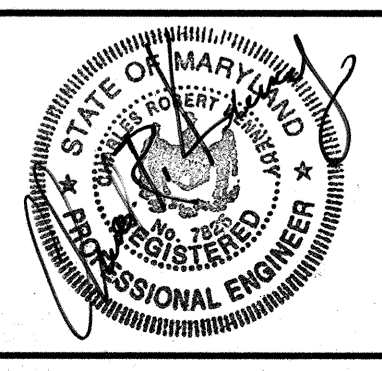
*Charles M. Ruelle* 3-12-97  
CHIEF, BUREAU OF HIGHWAYS DATE

*Robert J. Sisson* 3/12/97  
CHIEF, BUREAU OF ENGINEERING DATE

*William J. Mahoney* 3/12/97  
CHIEF, DIVISION OF TRANSPORTATION PROJECTS & WATERSHED MANAGEMENT DATE

KENNEDY PORTER & ASSOCIATES  
Consulting Engineers

4110 Black Rock Road  
Hampstead, Maryland 21074  
(410) 239-4482  
KPA PROJECT: 94-032F



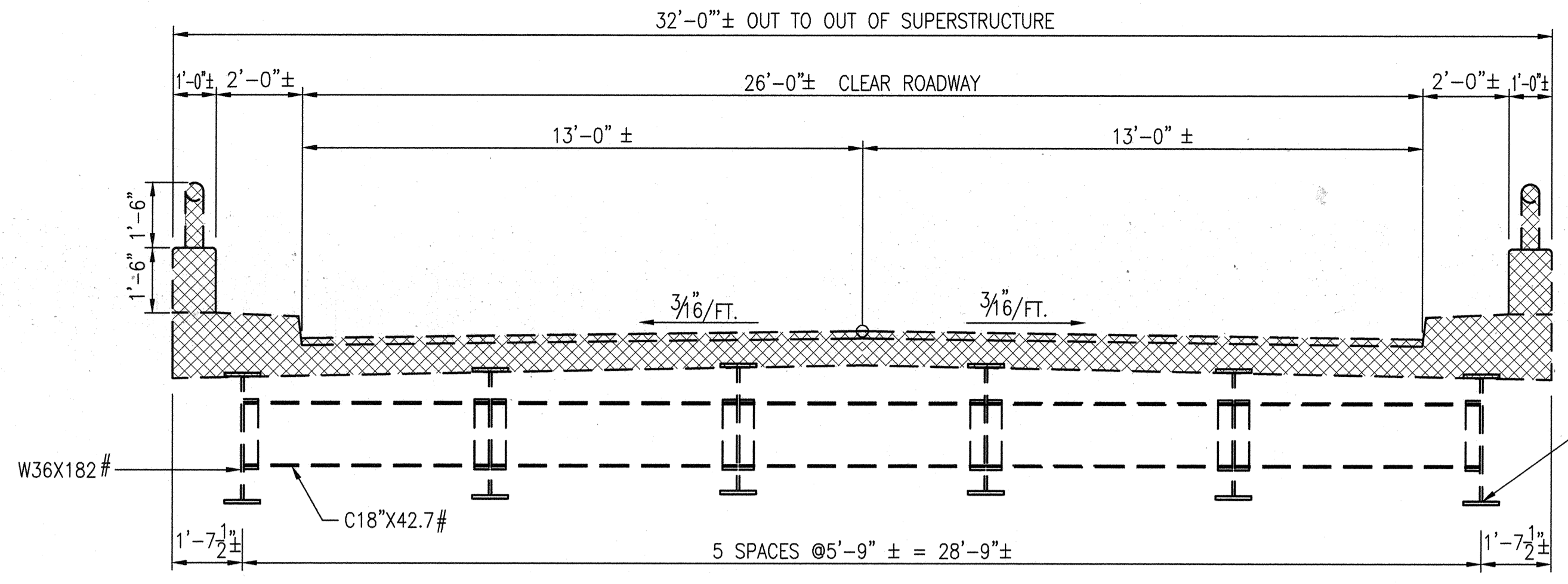
DES: L.W.			
DRN: R.S.J.			
CHK: L.W.			
DATE:	BY	NO.	REVISION

DATE:	600'SCALE MAP NO.	BLOCK NO.
-------	-------------------	-----------

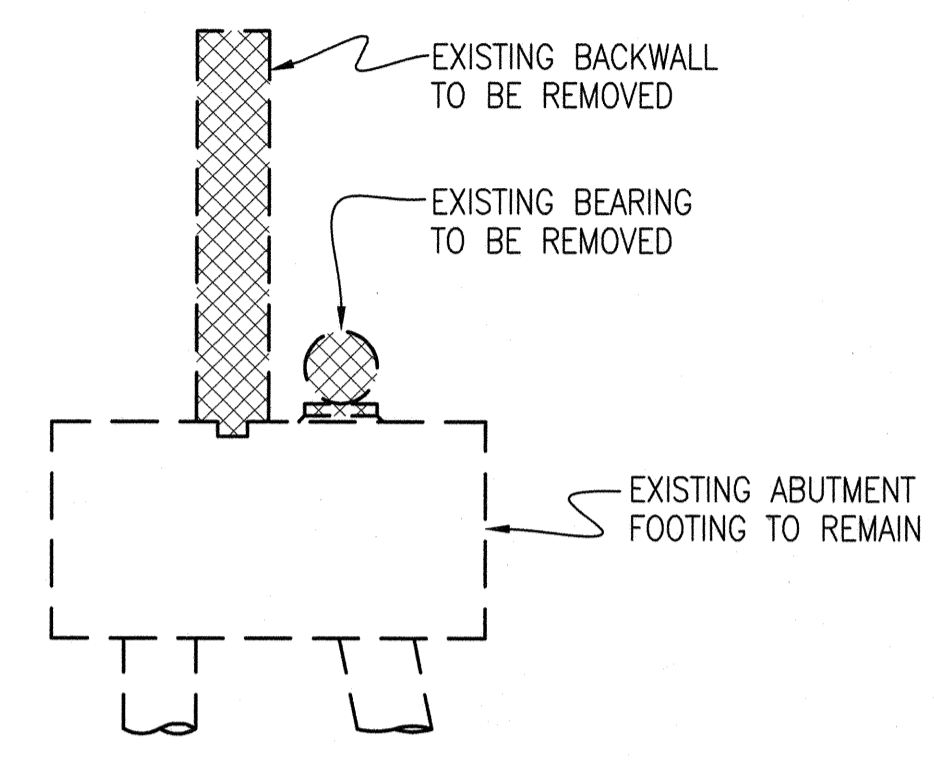
**Rehabilitation of Bridge No. M-196  
Ednor Road Over The Patuxent River  
GENERAL PLAN AND ELEVATION**

Bridge M-196 Capital Project B-3832

SCALE AS SHOWN  
SHEET 7 OF 26  
7 OF 26

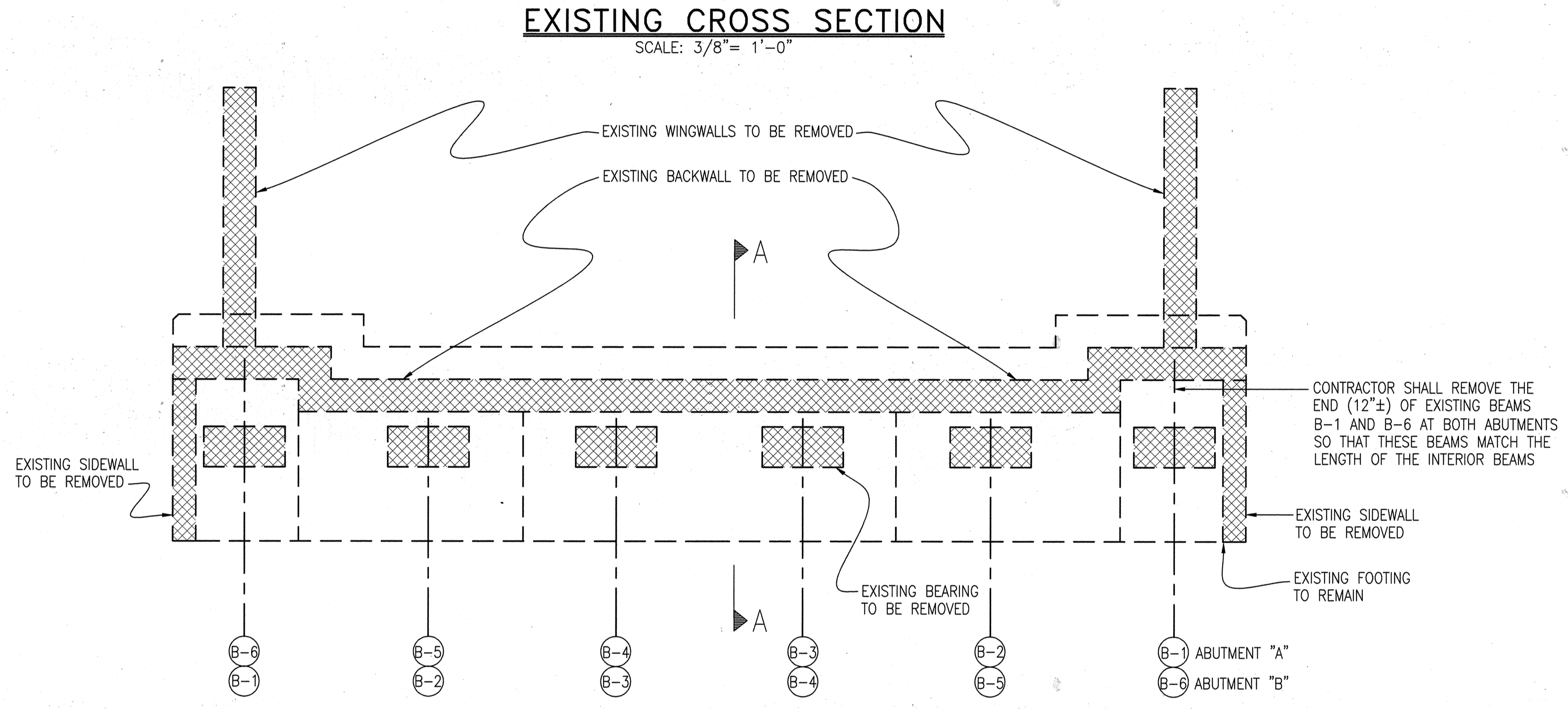


NOTE:  
THE PORTION OF THE EXISTING STRUCTURE THAT IS CROSS HATCHED WILL BE REMOVED.

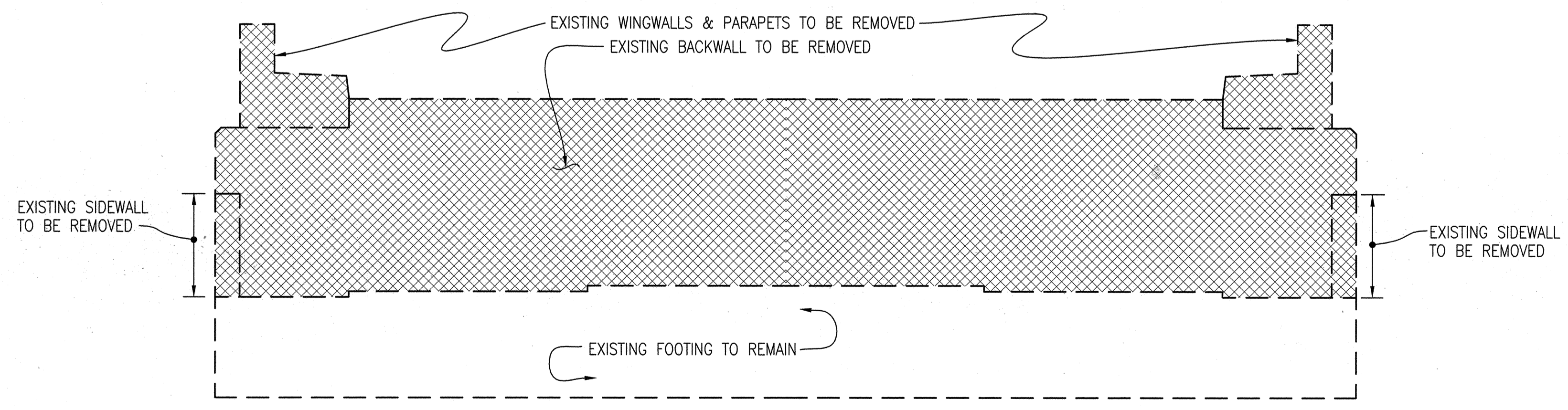


**SECTION A-A**  
SCALE: 3/8" = 1'-0"

NOTE: CONTRACTOR SHALL TEMPORARILY SUPPORT EXISTING BEAMS AS REQUIRED.



**TYPICAL ABUTMENT PLAN**  
SCALE: 3/8" = 1'-0"



**TYPICAL ABUTMENT ELEVATION**  
SCALE: 3/8" = 1'-0"

**LEGEND**

DENOTES PORTIONS OF EXISTING STRUCTURE TO BE REMOVED.

**NOTE "X"**

EXISTING REINFORCING STEEL WHICH IS TO BE INCORPORATED IN THE NEW CONSTRUCTION SHALL BE CLEANED AND STRAIGHTENED. CARE SHALL BE TAKEN NOT TO DAMAGE THE BARS DURING DEMOLITION. ANY EXISTING REINFORCING STEEL WHICH IS TO BE INCORPORATED INTO NEW CONCRETE BUT HAS LOST 20% OR MORE OF ITS ORIGINAL CROSS SECTIONAL AREA IN THE OPINION OF THE ENGINEER, SHALL BE CUT OUT. THE CONTRACTOR SHALL THEN DRILL INTO THE EXISTING CONCRETE FOR A DOWEL OF THE SAME BAR DIAMETER. THE DOWEL SHALL BE LONG ENOUGH IN LENGTH TO PROVIDE THE REQUIRED LAP. ALL HOLES SHALL BE AT LEAST 1" IN DIAMETER LARGER THAN THE BAR DIAMETER AND BE LOCATED A MINIMUM OF 6" FROM THE EDGE OF THE EXISTING CONCRETE. THE DOWELS SHALL BE GROUTED IN PLACE WITH A NON-SHRINK GROUT AS SPECIFIED IN THE SPECIAL PROVISIONS. DOWELS SHALL BE EMBEDDED INTO EXISTING CONCRETE A MINIMUM OF 1'-0".

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

*James P. Lewis* 3/12/97  
DIRECTOR OF PUBLIC WORKS DATE

*Richard S. Gannon* 3/12/97  
CHIEF, BUREAU OF ENGINEERING DATE

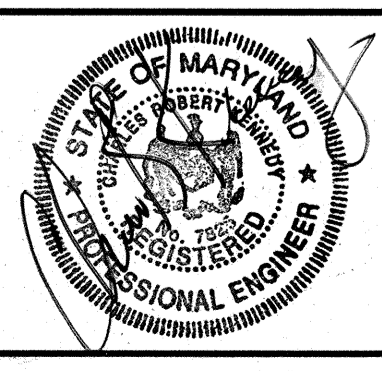
*Andrew M. Decker* 3-12-97  
CHIEF, BUREAU OF HIGHWAYS DATE

*William J. Mahoney* for 3/12/97  
CHIEF, DIVISION OF TRANSPORTATION PROJECTS & WATERSHED MANAGEMENT DATE

KENNEDY PORTER & ASSOCIATES  
Consulting Engineers

4110 Black Rock Road  
Hampstead, Maryland 21074  
(410) 239-4482

KPA PROJECT: 94-032F



DES: L.W.					
DRN: R.S.J.					
CHK: L.W.					
DATE:	BY	NO.	REVISION	DATE	600'SCALE MAP NO. BLOCK NO.

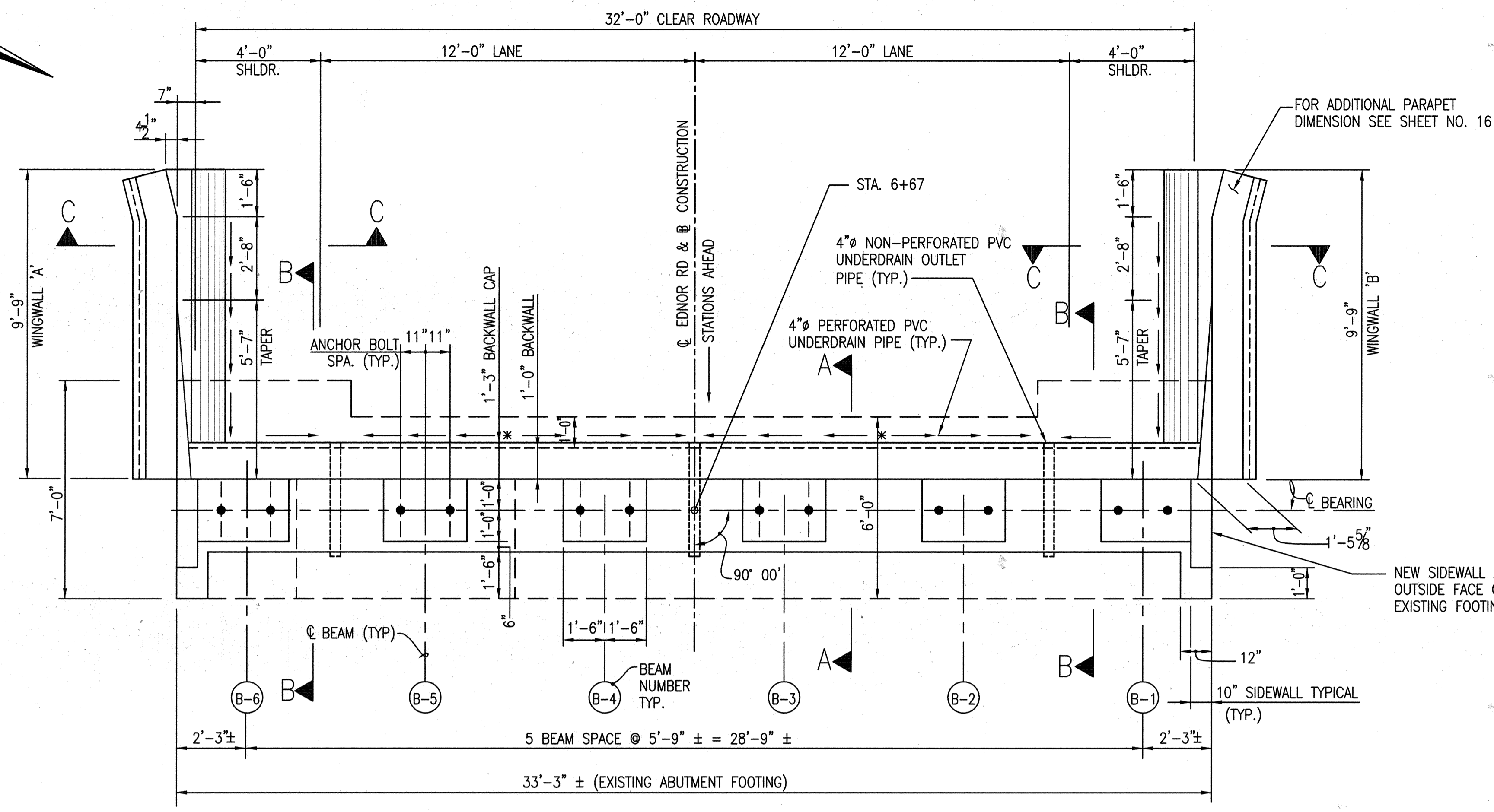
Rehabilitation of Bridge No. M-196  
Ednor Road Over The Patuxent River

**BRIDGE DEMOLITION  
PLAN, ELEVATION AND SECTION**

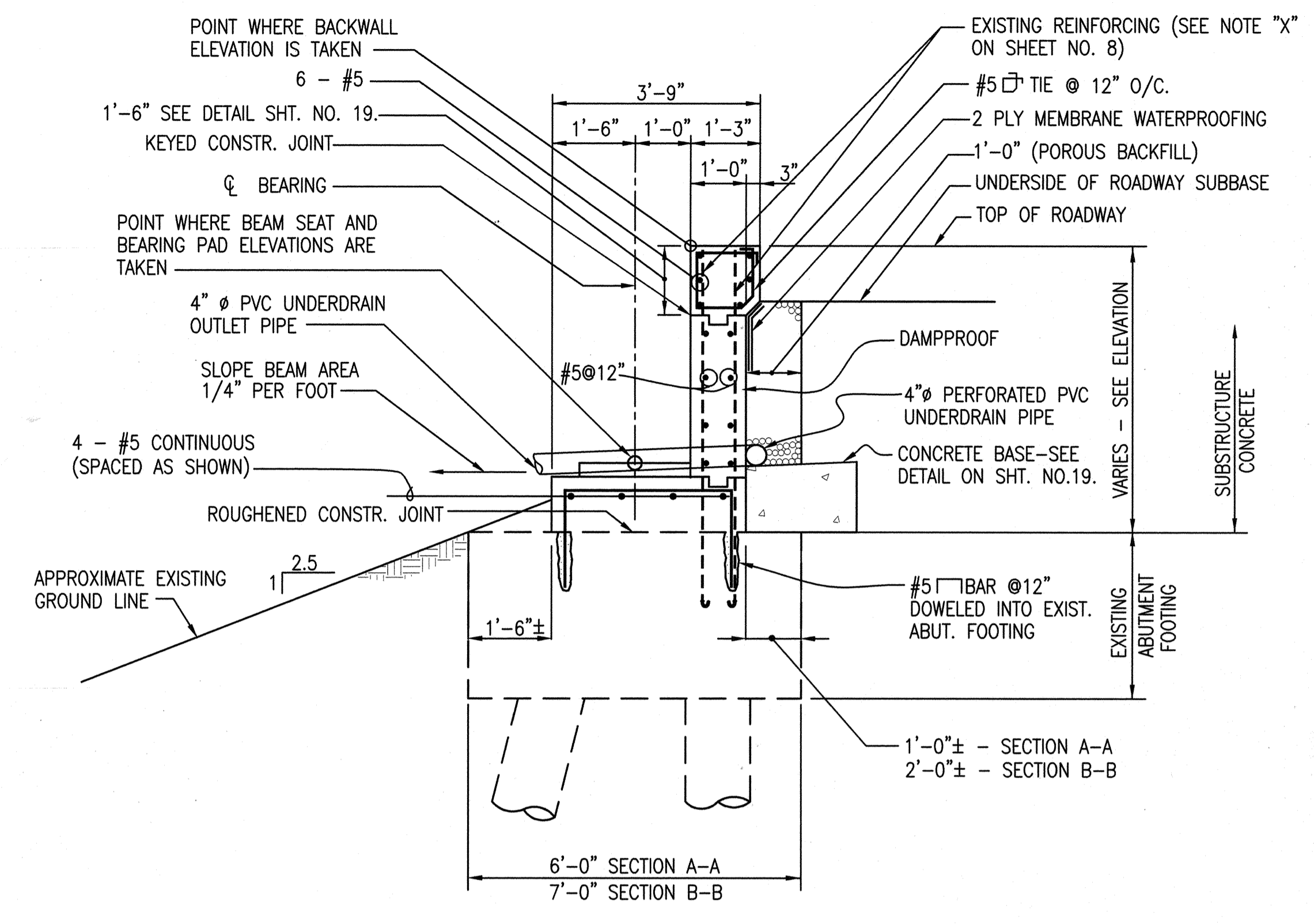
Bridge M-196 Capital Project B-3832

SCALE AS SHOWN  
SHEET 8 OF 26





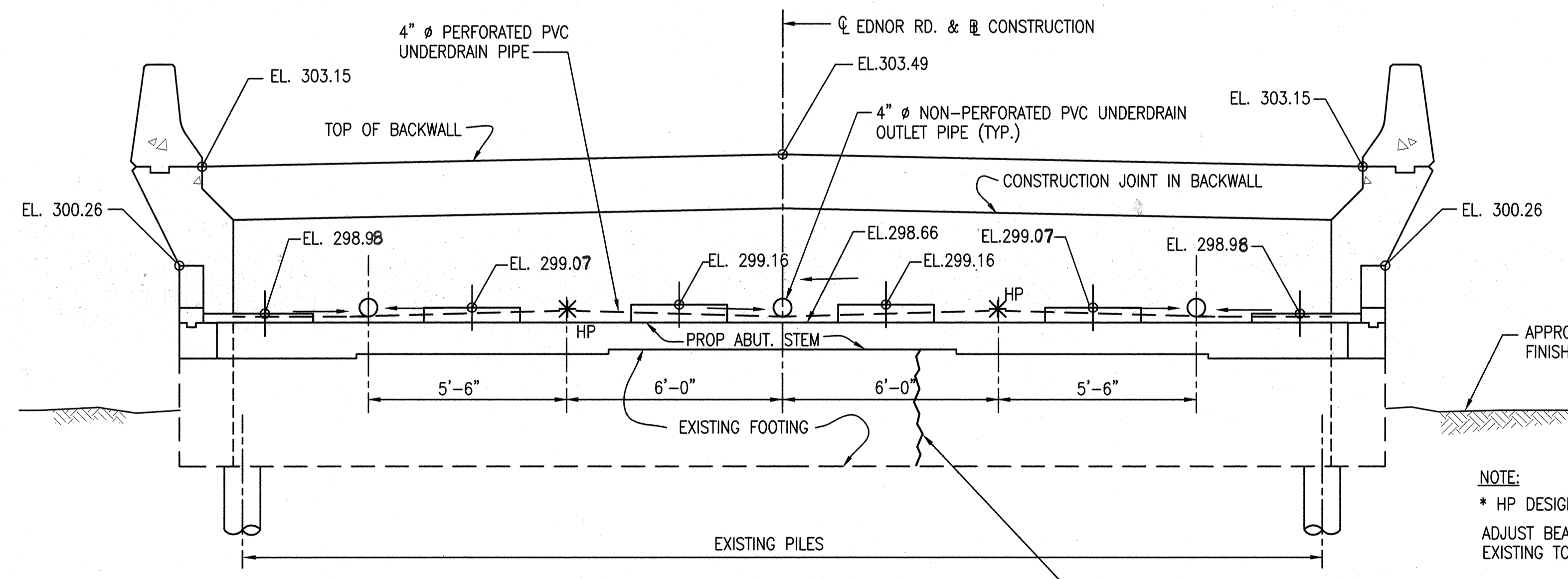
**PLAN - ABUTMENT 'A'**  
SCALE: 3/8" = 1'-0"



**SECTION A-A/B-B**  
SCALE: 1/2" = 1'-0"

NOTE: SUBSTRUCTURE REPAIR LIMITS SHOWN ON THE PLANS ARE APPROXIMATE. THE EXACT LIMITS ARE TO BE DETERMINED IN THE FIELD, BEFORE ANY CONSTRUCTION IS DONE.

- REFERENCES:
- FOR SECTION C-C SEE SHEET NO. 10.
  - FOR BACKWALL CAP DETAIL, SEE SHEET NO. 16.
  - FOR TYPICAL WING WALL ELEVATION, SEE SHEET NO. 10.



**ELEVATION - ABUTMENT 'A'**  
SCALE: 3/8" = 1'-0"

NOTE:  
\* HP DESIGNATES THE HIGH POINT IN THE UNDERDRAIN.  
ADJUST BEAM SEAT ELEVATIONS AS REQUIRED TO MAINTAIN EXISTING TOP OF BEAM ELEVATIONS.  
ALL SIZES, LOCATIONS, QUANTITIES ANY TYPE OF REPAIRS OF CRACKS AND SPALLED CONCRETE ARE APPROXIMATE BASED ON THE FIELD INSPECTION DATE OF JUNE 27, 1996.

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

*James P. ...* 3/12/97  
DIRECTOR OF PUBLIC WORKS DATE

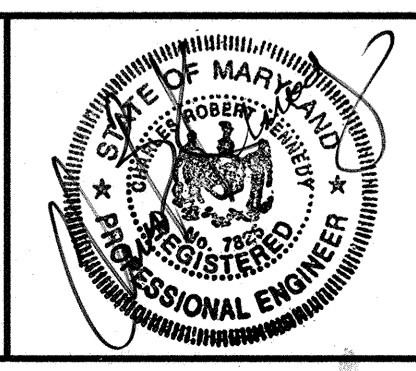
*William F. ...* 3/12/97  
CHIEF, BUREAU OF ENGINEERING DATE

*William F. ...* 3/12/97  
CHIEF, DIVISION OF TRANSPORTATION PROJECTS & WATERSHED MANAGEMENT DATE

KENNEDY PORTER & ASSOCIATES  
Consulting Engineers

4110 Black Rock Road  
Hampstead, Maryland 21074  
(410) 239-4482

KPA PROJECT: 94-032P



DES: L.W.				
DRN: R.S.J.				
CHK: L.W.				
DATE:	BY	NO.	REVISION	DATE

600'SCALE MAP NO.	BLOCK NO.
-------------------	-----------

Rehabilitation of Bridge No. M-196  
Ednor Road Over The Patuxent River

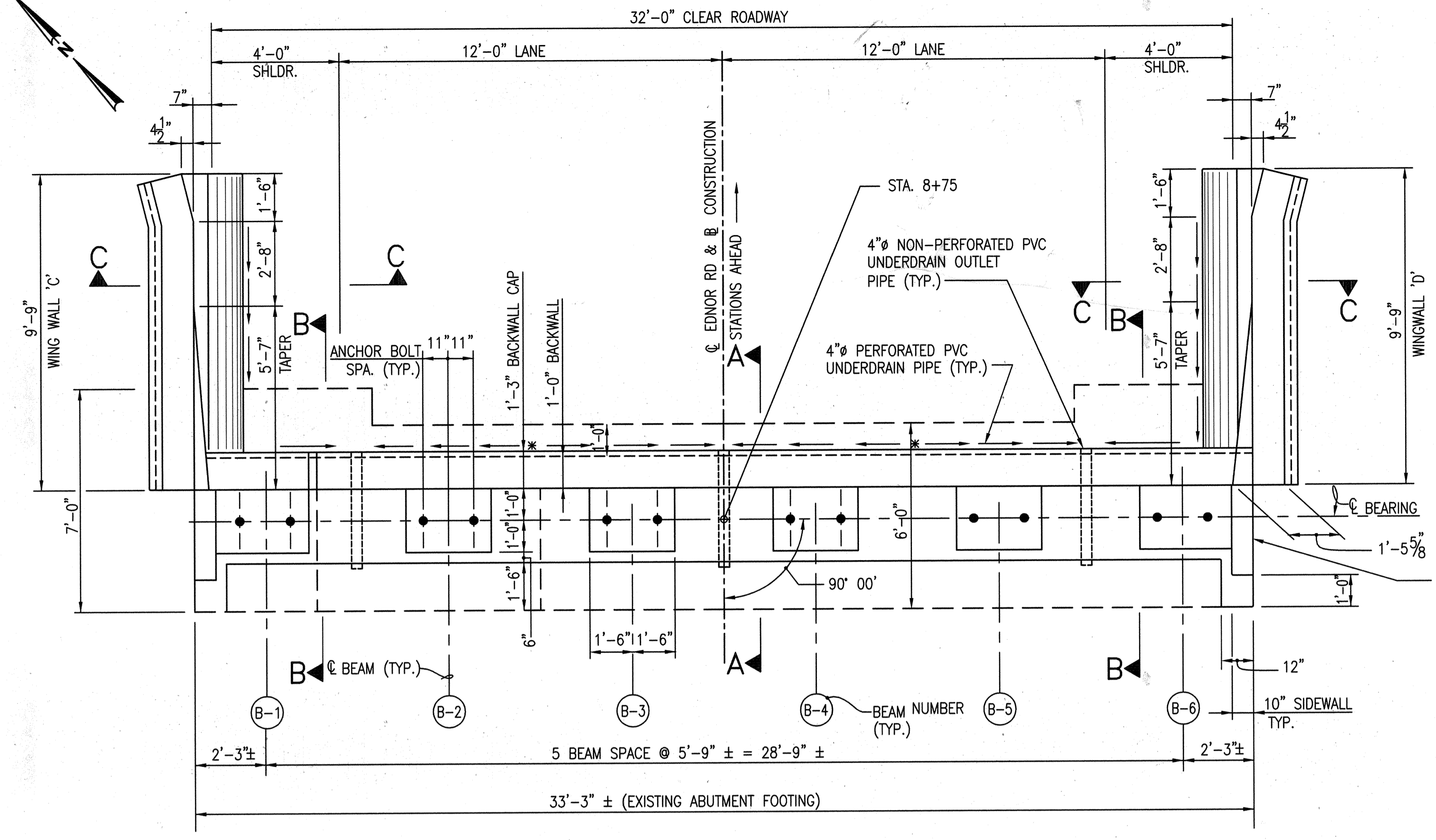
**ABUTMENT "A"**

Bridge M-196 Capital Project B-3832

SCALE AS SHOWN

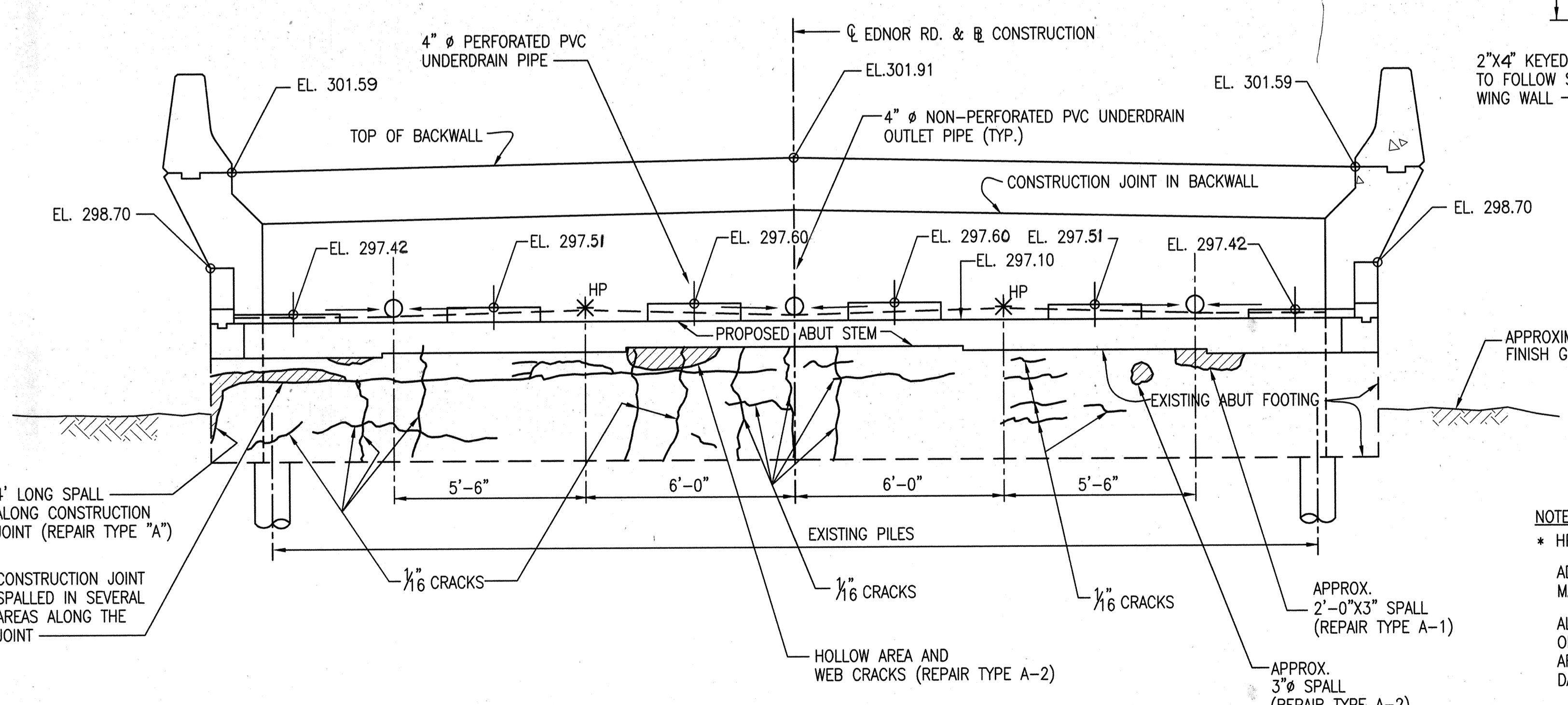
SHEET 9 OF 26

B0026-09



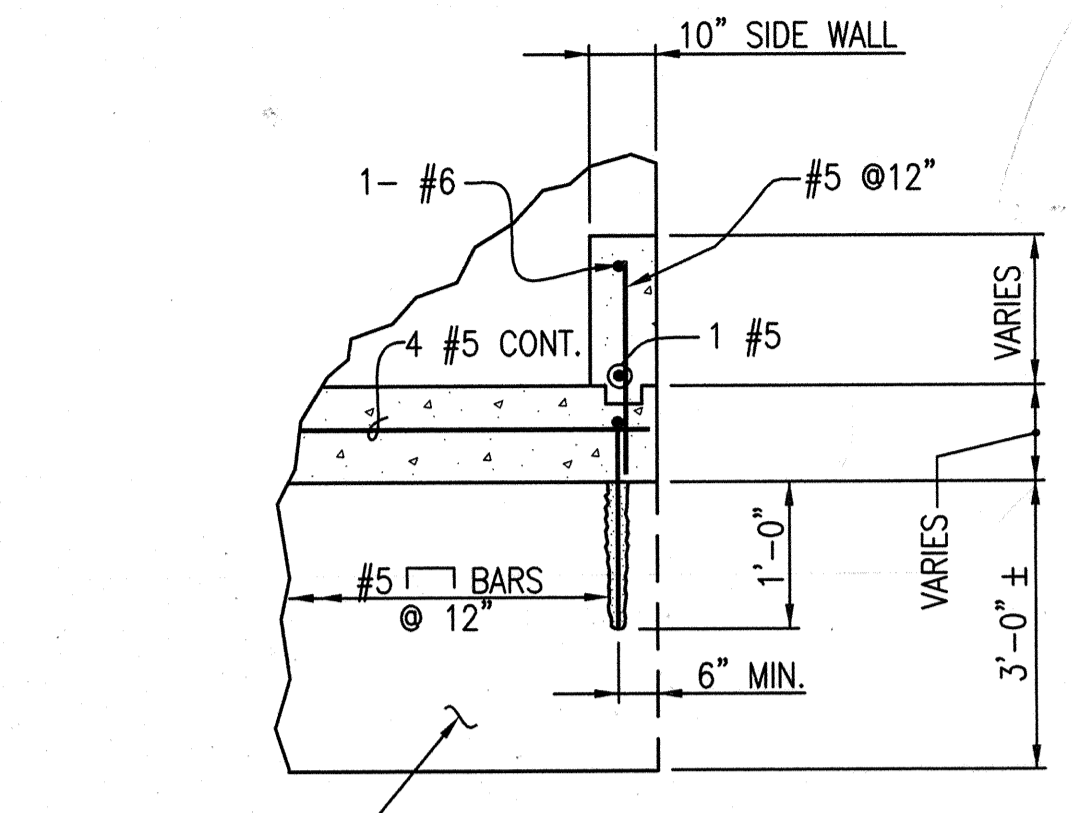
**PLAN - ABUTMENT 'B'**  
SCALE: 3/8" = 1'-0"

NOTE: FOR SECTION A-A AND B-B SEE SHEET NO. 9.

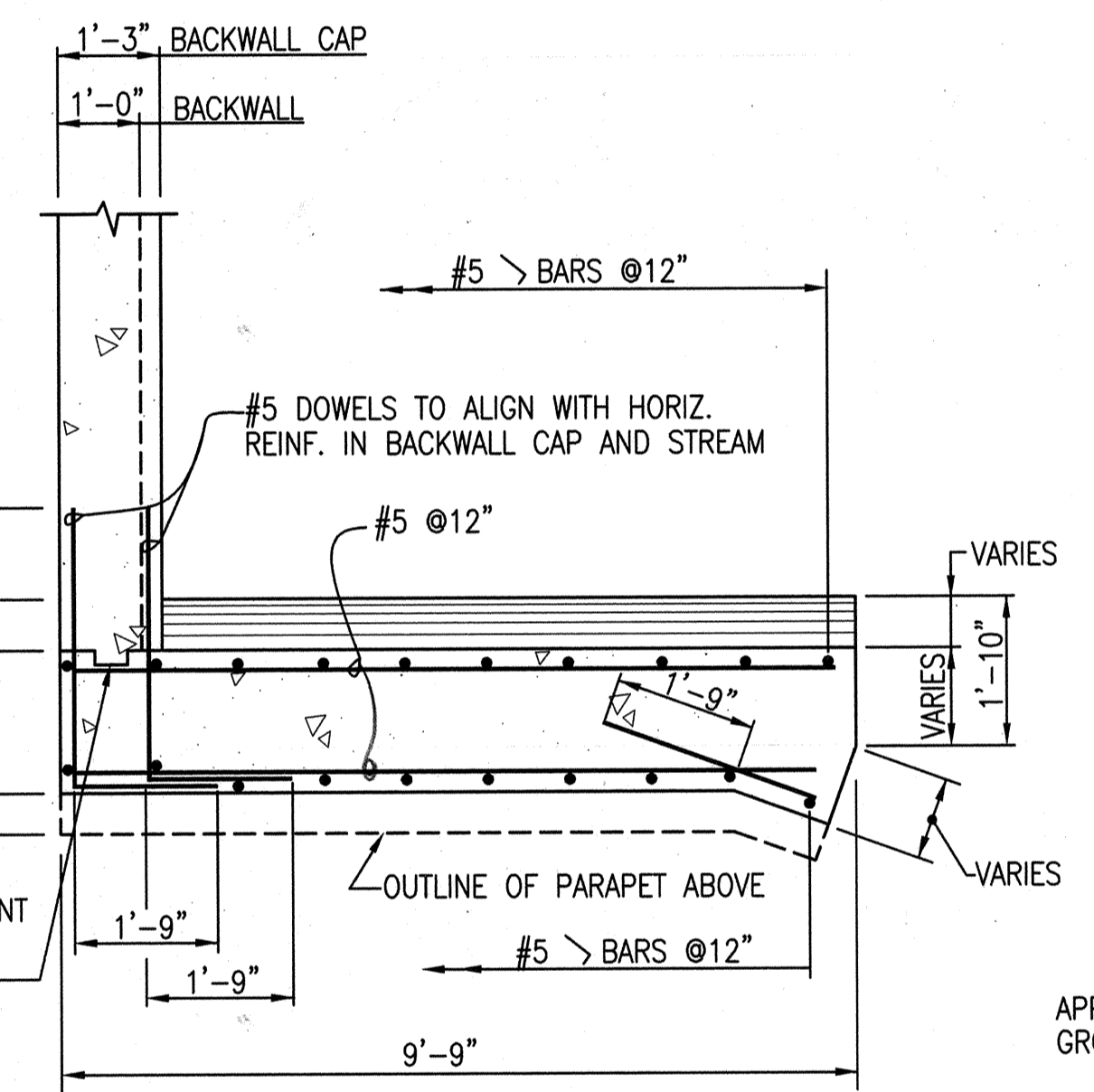


**ELEVATION - ABUTMENT 'B'**  
SCALE: 3/8" = 1'-0"

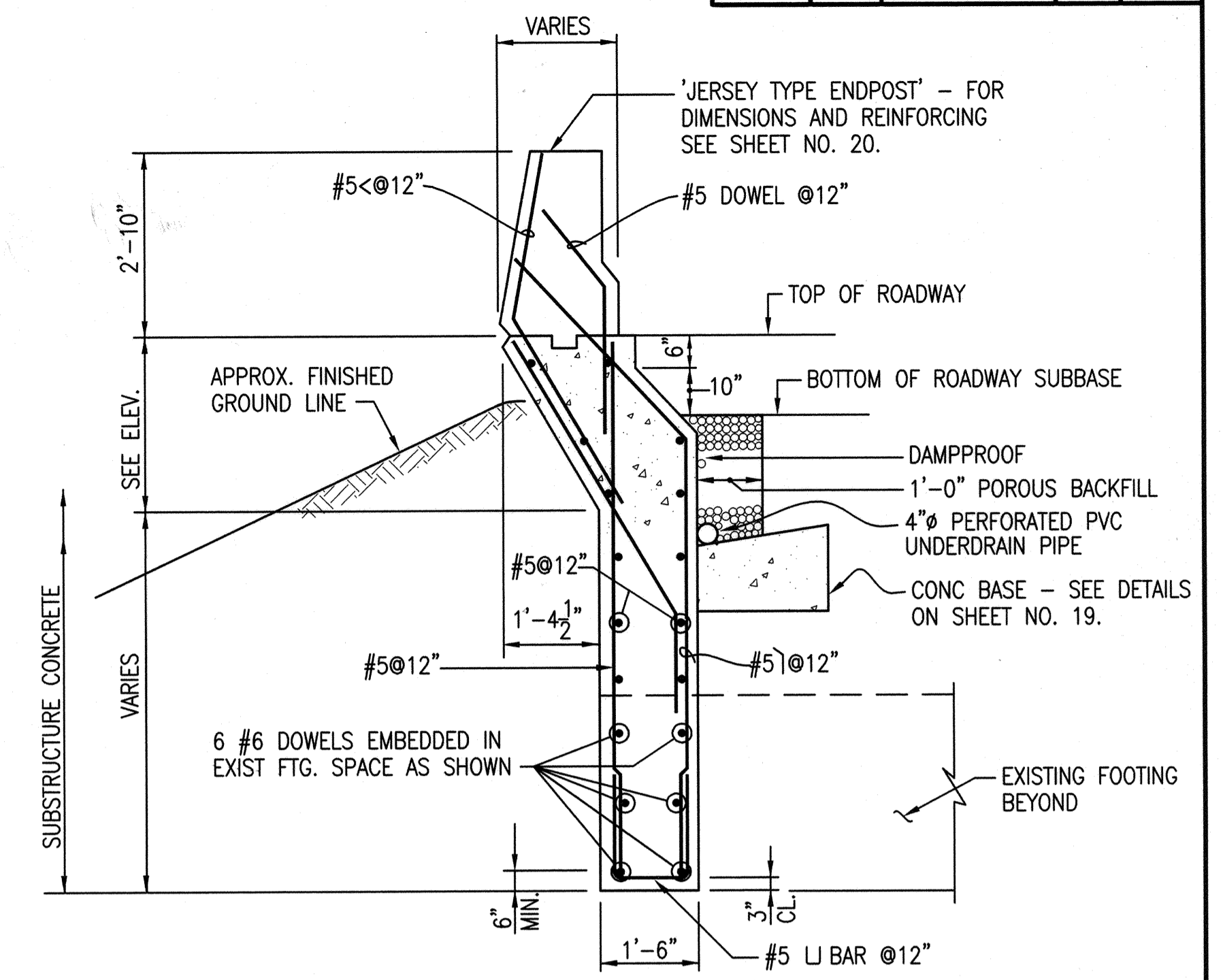
NOTE:  
\* HP DESIGNATES THE HIGH POINT IN THE UNDERDRAIN.  
ADJUST BEAM SEAT ELEVATIONS AS REQUIRED TO MAINTAIN EXISTING TOP OF BEAM ELEVATIONS.  
ALL SIZES, LOCATIONS, QUANTITIES AND TYPE OF REPAIRS OF CRACKS AND SPALLED CONCRETE ARE APPROXIMATE BASED ON THE FIELD INSPECTION DATE OF JUNE 27, 1996.



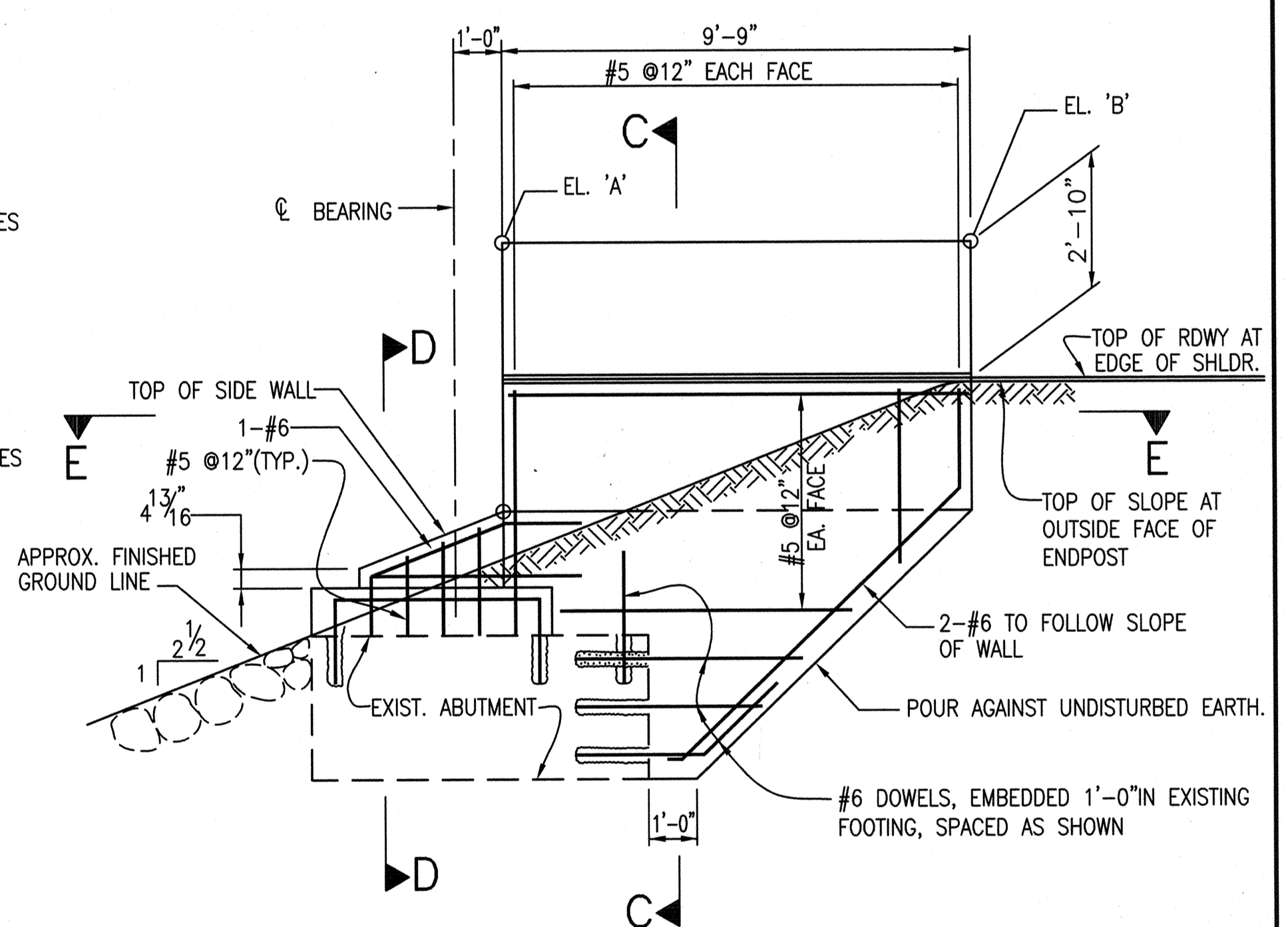
**SECTION D-D**  
SCALE: 1/2" = 1'-0"



**SECTION E-E**  
SCALE: 3/8" = 1'-0"



**TYPICAL SECTION C-C**  
SCALE: 1/2" = 1'-0"



**TYPICAL WING WALL ELEVATION**  
SCALE: 3/8" = 1'-0"

WINGWALL ELEVATIONS		
LOCATION	ELEV. 'A'	ELEV. 'B'
WING WALL "A"	305.99	306.06
WING WALL "B"	305.99	306.06
WING WALL "C"	304.42	304.35
WING WALL "D"	304.42	304.35

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

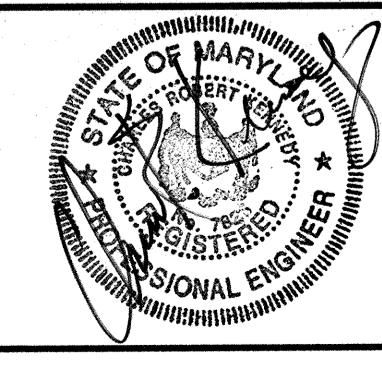
*James P. ...* 3/12/97  
DIRECTOR OF PUBLIC WORKS DATE

*William P. ...* 3/12/97  
CHIEF, BUREAU OF ENGINEERING DATE

*William P. ...* 3/12/97  
CHIEF DIVISION OF TRANSPORTATION PROJECTS & WATERSHED MANAGEMENT DATE

KENNEDY PORTER & ASSOCIATES  
Consulting Engineers

4110 Black Rock Road  
Hampstead, Maryland 21074  
(410) 239-4482 KPA PROJECT: 94-032F



DES: L.W.			
DRN: R.S.J.			
CHK: L.W.			
DATE:	BY	NO.	REVISION

DATE	600'SCALE MAP NO.	BLOCK NO.
------	-------------------	-----------

Rehabilitation of Bridge No. M-196  
Ednor Road Over The Patuxent River

**ABUTMENT "B"**

Bridge M-196 Capital Project B-3832

SCALE AS SHOWN SHEET 10 OF 28

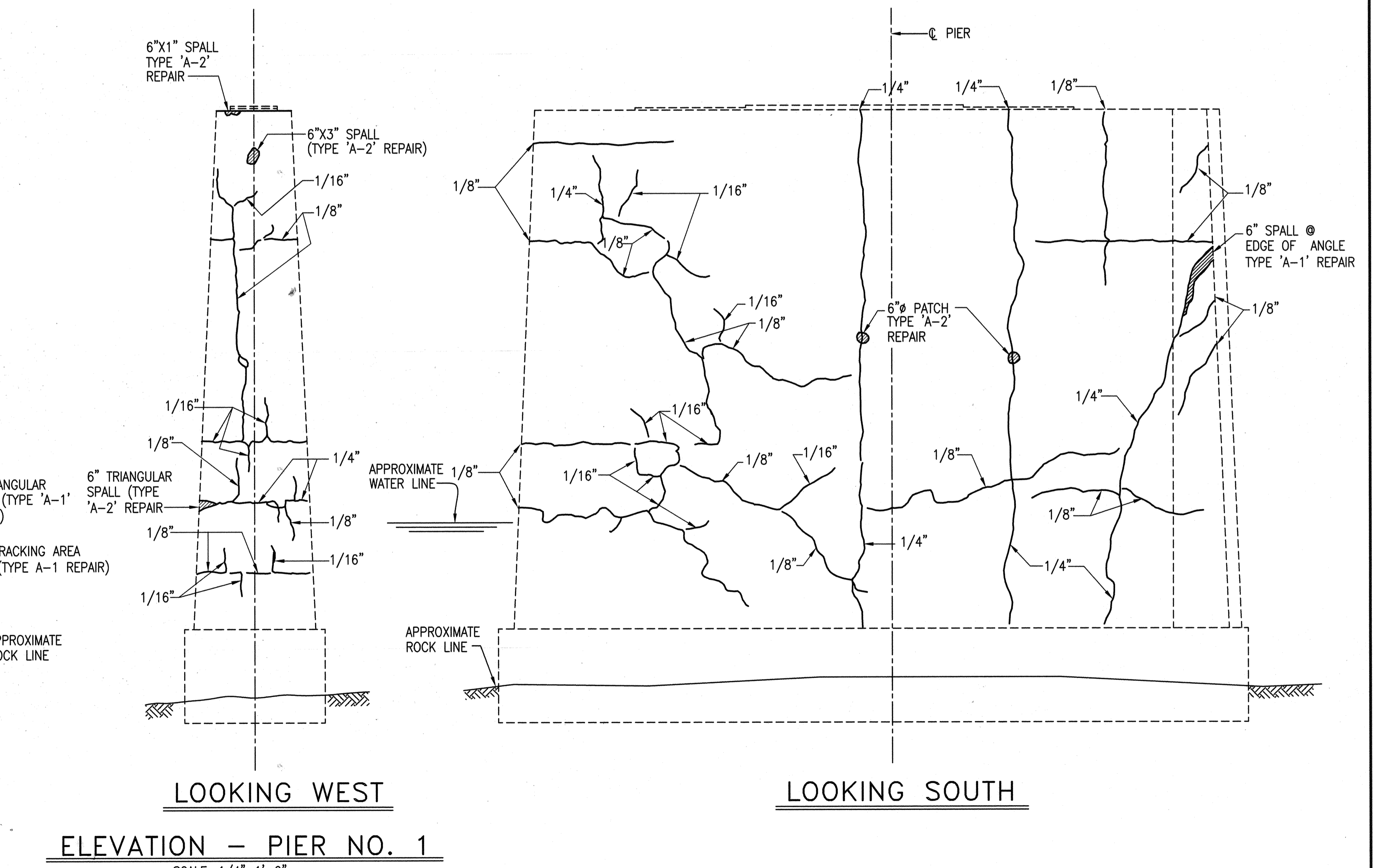
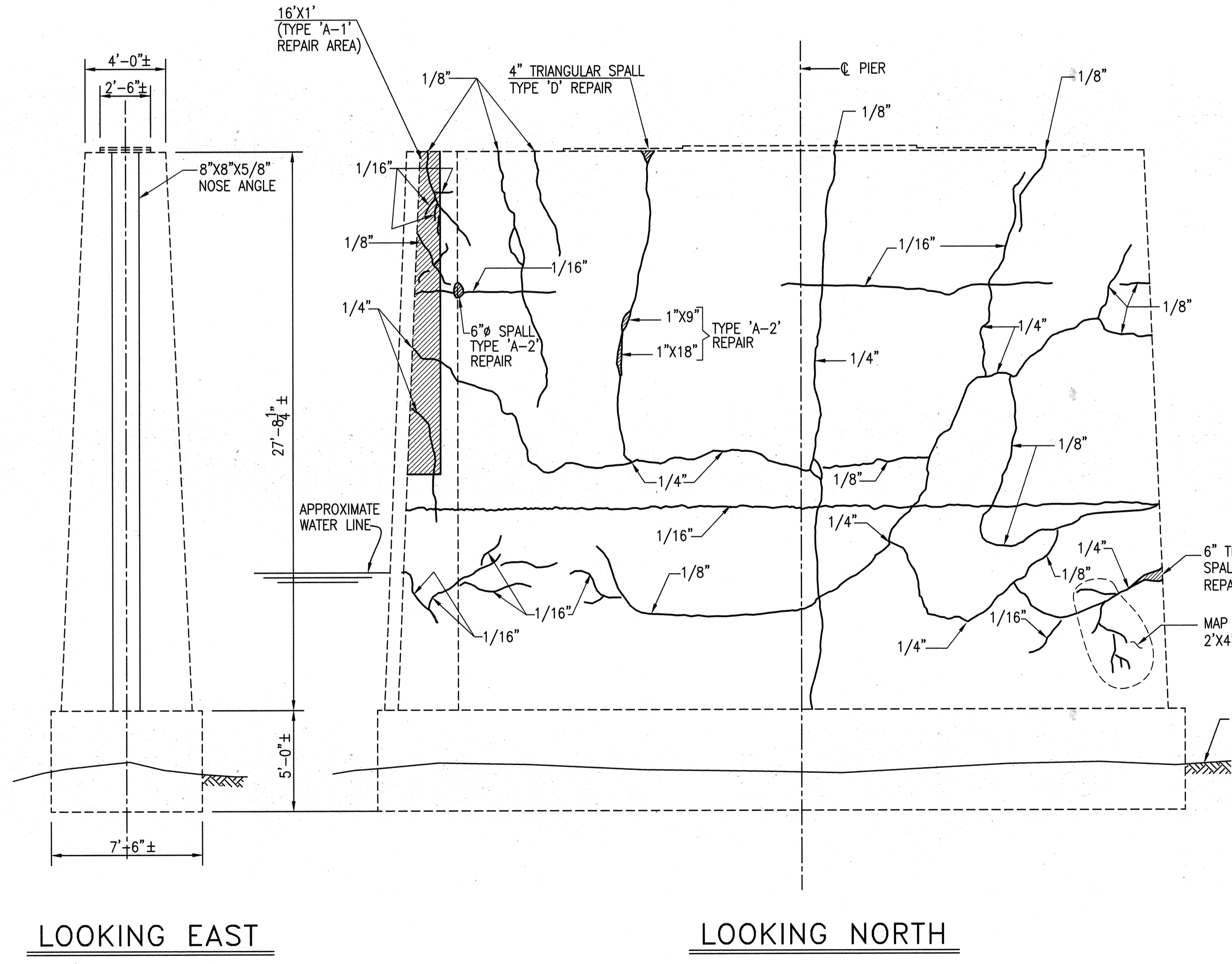
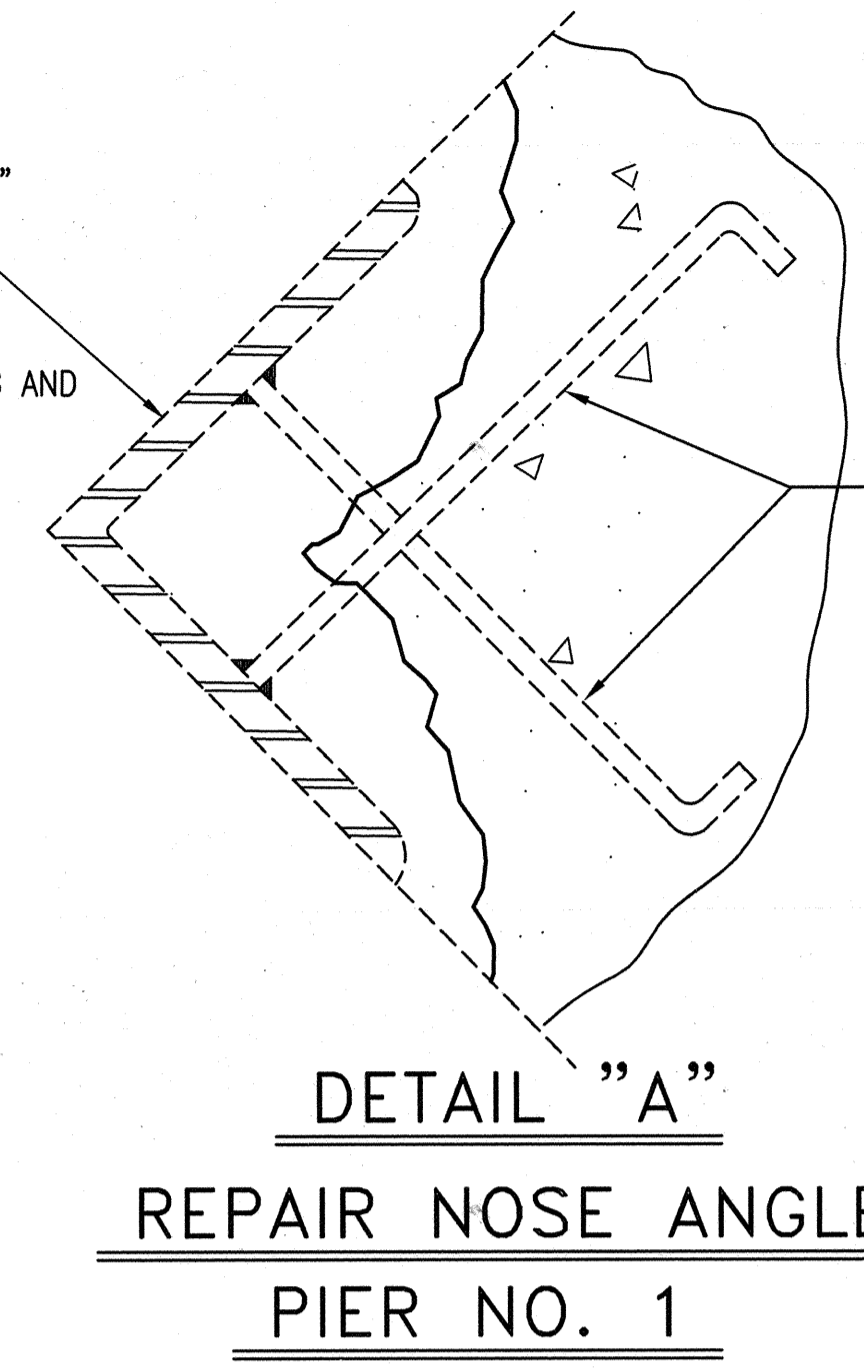
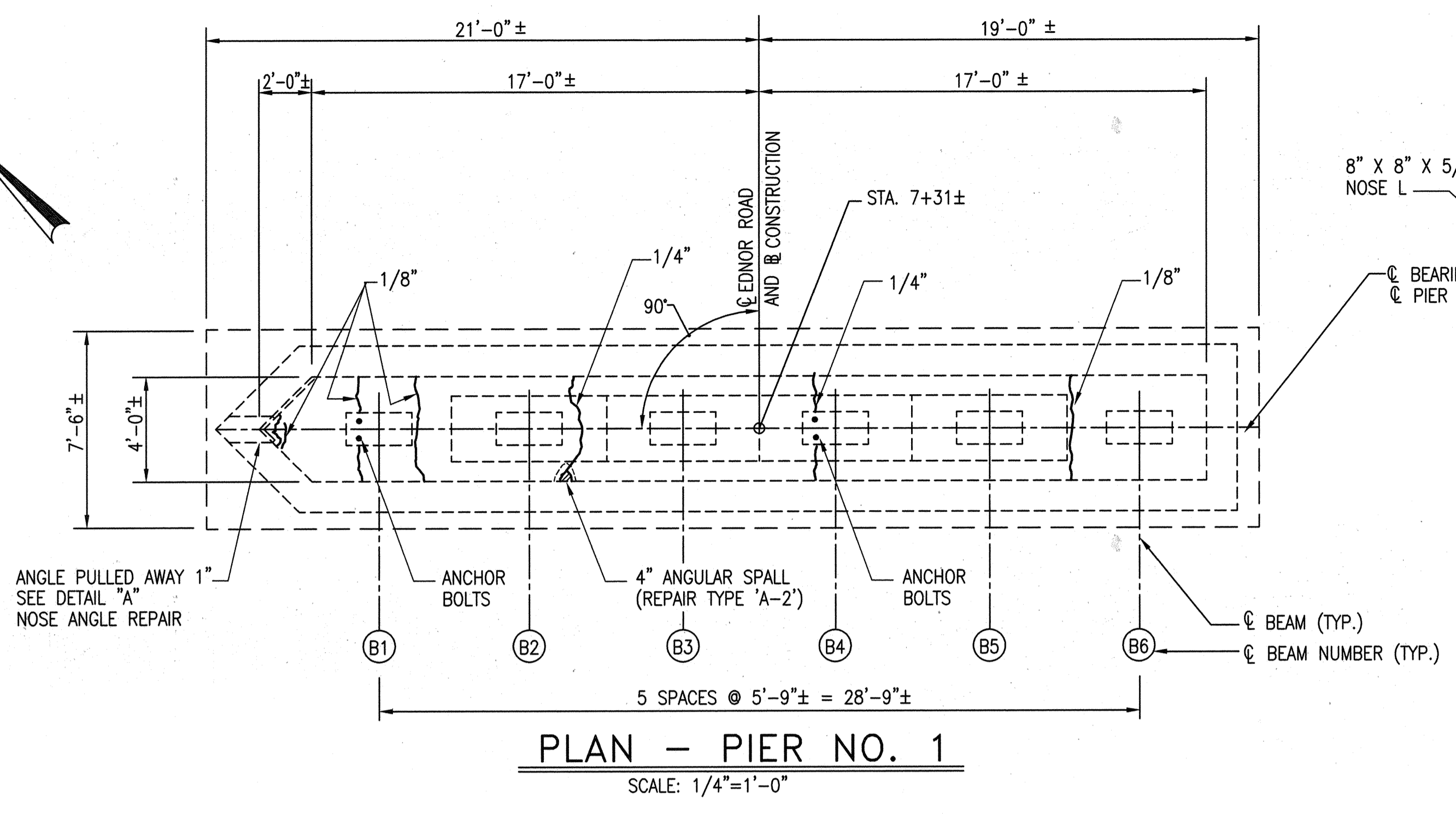
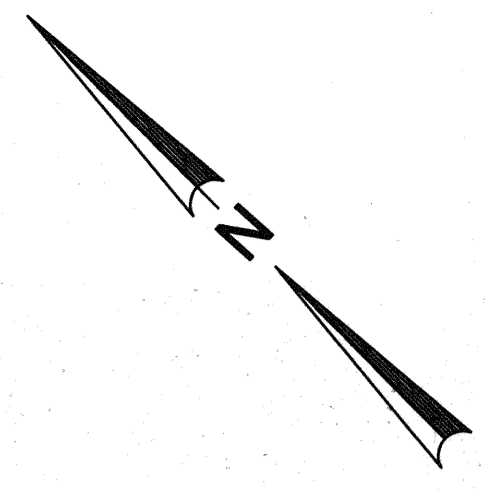
F.H.W.A. REGION NO.	STATE	FED. AID. PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	MD	SEE TITLE SHEET		

1. REMOVE ALL THE DETERIORATED CONCRETE.
2. CLEAN AND PAINT NOSE ANGLE. \*
3. REPLACE ANCHORS IF NECESSARY.
4. RESET ANGLE, TIE ANCHORS AND ANGLE TO EXISTING REINFORCING STEEL IN THE PIER.
5. REFORM THE CONCRETE NOSE WITH CONCRETE (MIX NO. 6)

- NOTES:**
1. FOR DETAILS AND DESCRIPTIONS OF REPAIR TYPES, SEE METHOD OF CONCRETE REPAIRS SHEET NO.13
  2. FOR ALL CRACKS GREATER THEN 1/8" WIDE USE TYPE "B" REPAIR METHOD.
  3. FOR ALL CRACKS LESS THAN 1/8" WIDE, USE TYPE "C" REPAIR METHOD.
  4. ALL SIZES, LOCATIONS, QUANTITIES AND TYPE OF REPAIRS OF CRACKS AND SPALLED CONCRETE ARE APPROXIMATE BASED ON THE FIELD INSPECTION DATE OF JUNE 27, 1996.

\* CONTRACTOR MAY CHOSE TO SUPPLY A NEW ANGLE AT HIS OWN COST.

2" X 3/8" FLAT X 14" LONG ANCHORS WELDED TO NOSE ANGLE @ 2'-0" O.C. STAGGERED TIE ANCHORS TO EXISTING PIER REINFORCING



DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

*James J. ...* 3/12/97  
DIRECTOR OF PUBLIC WORKS DATE

*William J. ...* 3/12/97  
CHIEF, BUREAU OF ENGINEERING DATE

*Robert M. ...* 3-12-97  
CHIEF, BUREAU OF HIGHWAYS DATE

*William J. ...* 3/12/97  
CHIEF, DIVISION OF TRANSPORTATION PROJECTS & WATERSHED MANAGEMENT DATE

KENNEDY PORTER & ASSOCIATES  
Consulting Engineers

4110 Black Rock Road  
Hampstead, Maryland 21074  
(410) 239-4482 KPA PROJECT: 94-032F

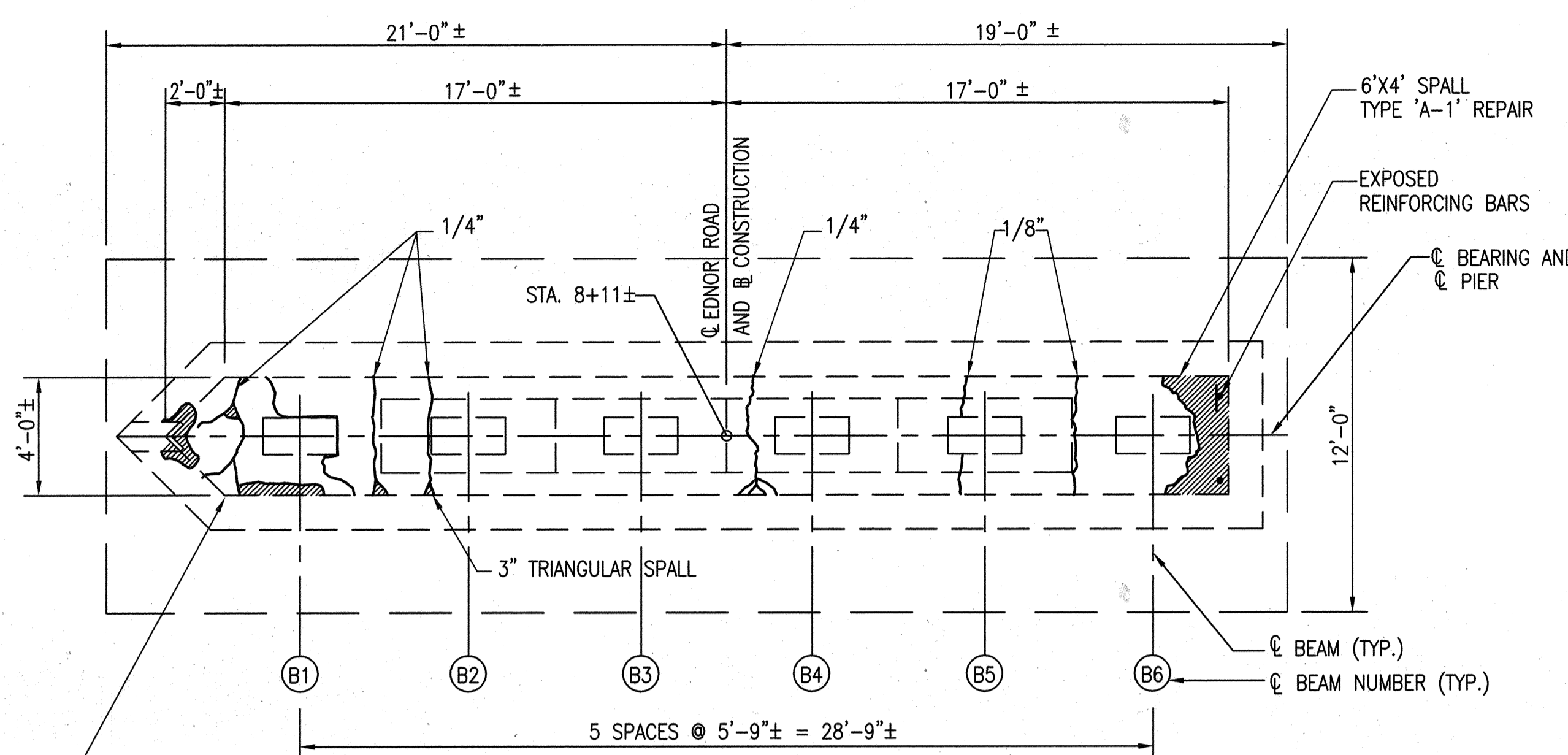
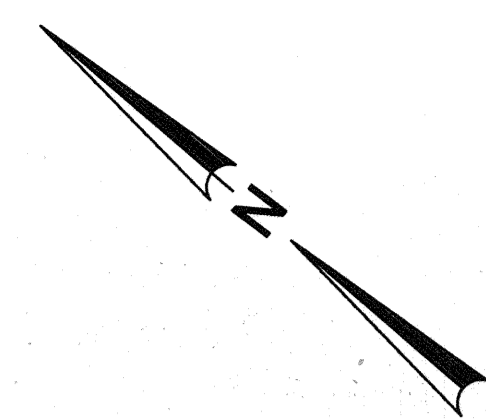
DES:	J.P.B.				
DRN:	R.S.J.				
CHK:	J.P.B.				
DATE:					
BY:					
NO.:					
REVISION:					
DATE:					
600'SCALE MAP NO.:					
BLOCK NO.:					

Rehabilitation of Bridge No. M-196  
Ednor Road Over The Patuxent River

**PLAN AND ELEVATION  
REPAIRS TO PIER NO. 1**

Bridge M-196 Capital Project B-3832

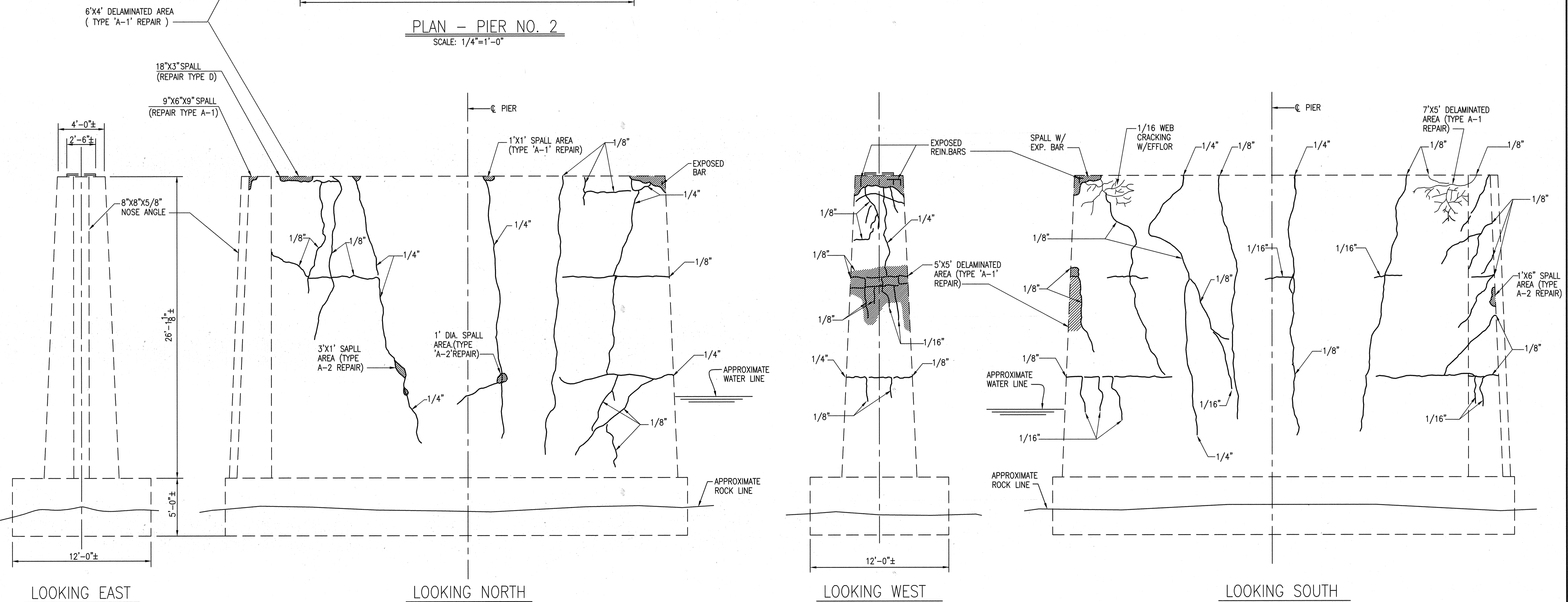
SCALE AS SHOWN  
SHEET 11 OF 26



**PLAN - PIER NO. 2**  
SCALE: 1/4"=1'-0"

**NOTES:**

1. FOR DETAILS AND DESCRIPTIONS OF REPAIR TYPES, SEE METHOD OF CONCRETE REPAIRS SHEET NO.13
2. FOR ALL CRACKS GREATER THAN 1/8" WIDE USE TYPE "B" REPAIR METHOD.
3. FOR ALL CRACKS LESS THAN 1/8" WIDE, USE TYPE "C" REPAIR METHOD.
4. ALL SIZES, LOCATIONS, QUANTITIES AND TYPE OF REPAIRS OF CRACKS AND SPALLED AREAS OF CONCRETE ARE APPROXIMATE BASED ON THE FIELD INSPECTION DATE OF JUNE 27, 1996.



**ELEVATION - PIER NO. 2**  
SCALE: 1/4"=1'-0"

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

*James P. Sullivan* 3/12/97  
DIRECTOR OF PUBLIC WORKS DATE

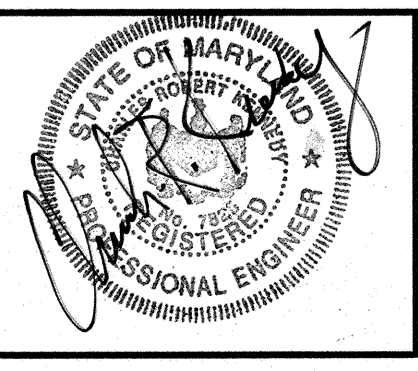
*William F. Mabe* 3/12/97  
CHIEF, BUREAU OF ENGINEERING DATE

*Andrew M. Daniels* 3-12-97  
CHIEF, BUREAU OF HIGHWAYS DATE

*William F. Mabe* 3/12/97  
CHIEF, DIVISION OF TRANSPORTATION PROJECTS & WATERSHED MANAGEMENT DATE

KENNEDY PORTER & ASSOCIATES  
Consulting Engineers

4110 Black Rock Road  
Hampstead, Maryland 21074  
(410) 239-4482  
KPA PROJECT: 94-032F



DES: L.W.					
DRN: R.S.J.					
CHK: L.W.					
DATE:	BY	NO.	REVISION	DATE	

600'SCALE MAP NO.	BLOCK NO.
-------------------	-----------

Rehabilitation of Bridge No. M-196  
Ednor Road Over The Patuxent River

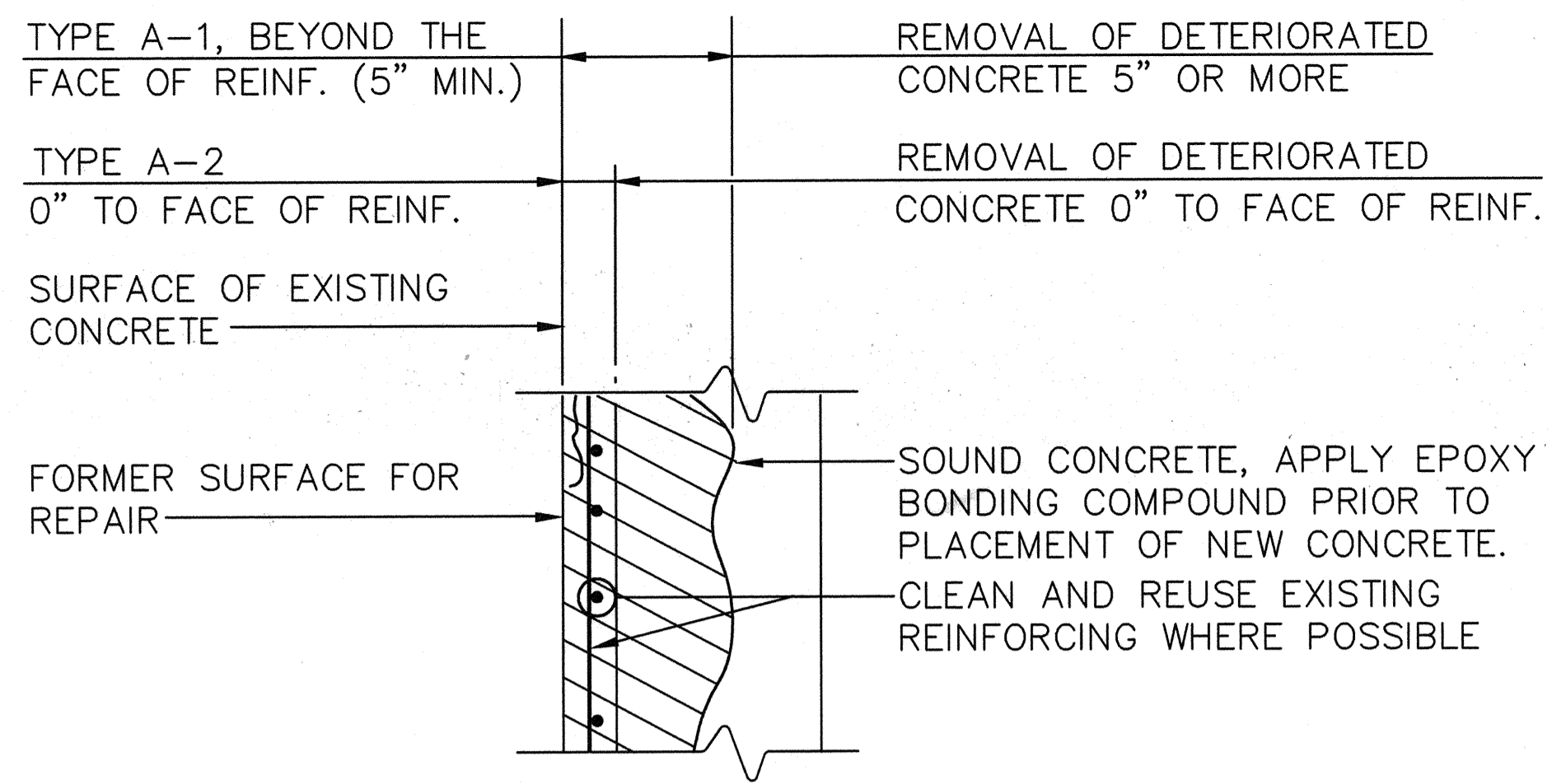
**PLAN AND ELEVATION  
REPAIRS TO PIER NO. 2**

Bridge M-196  
Capital Project B-3832

SCALE AS SHOWN

SHEET 12 OF 26

F.H.W.A. REGION NO.	STATE	FED. AID. PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	MD	SEE TITLE SHEET		



**TYPE "A" REPAIR**

**TYPE "A-1" VERTICAL AND OVERHEAD REPAIR**

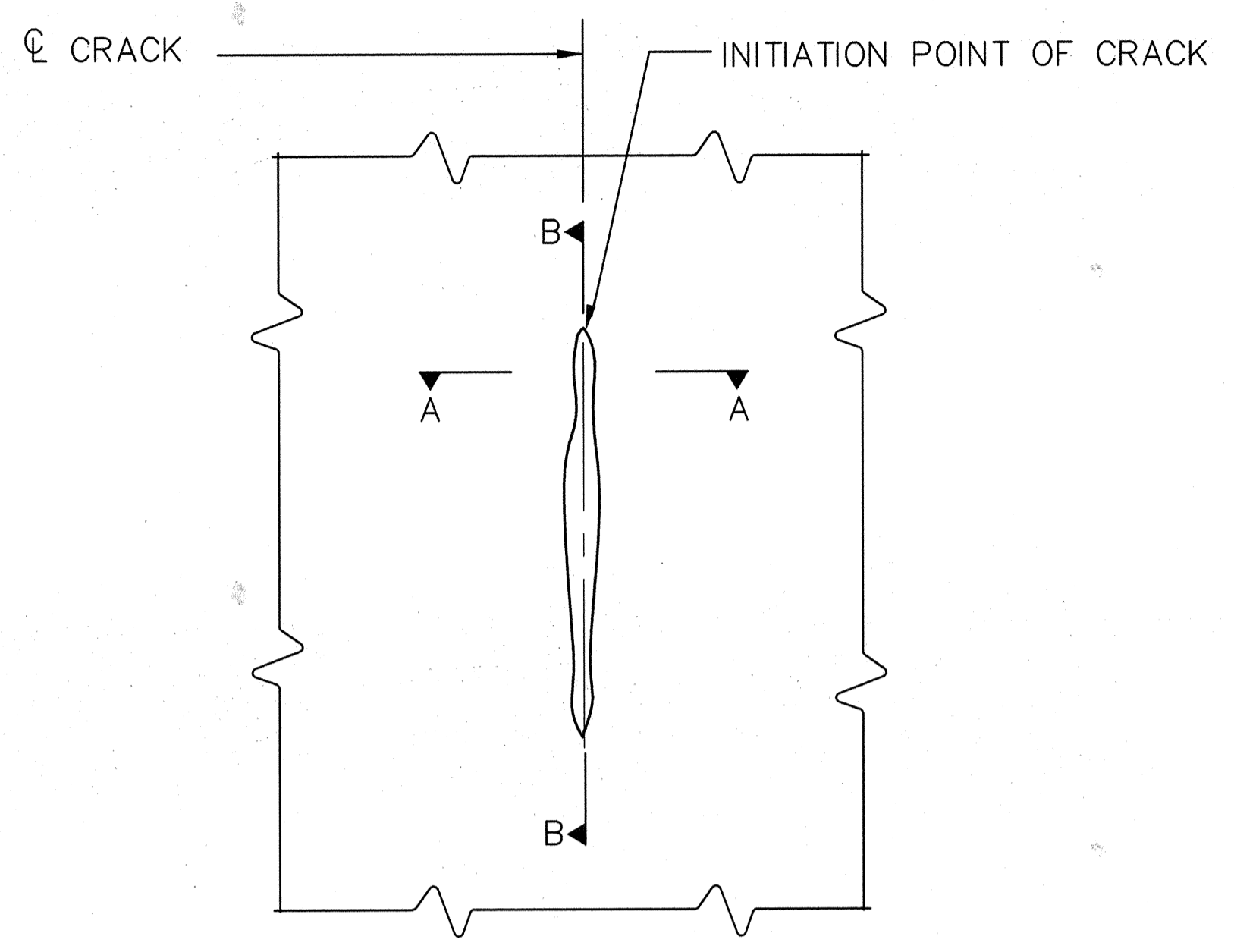
REPAIR DEPTHS BEYOND THE FACE OF REINFORCING (5" MIN.)

1. REMOVE EXISTING DETERIORATED CONCRETE AS INDICATED AND AT THE DIRECTION OF THE INSPECTOR/ENGINEER, TO SOUND CONCRETE.
2. EXISTING REINFORCING SHALL BE CLEANED OF ALL EXISTING CONCRETE, LAITANCE OR UNSATISFACTORY MATERIAL. THE EXISTING REINFORCING SHALL THEN BE SAND OR WATER BLASTED PRIOR TO COATING WITH A ZINC RICH EPOXY PRIMER. THIS COATING MAY BE DELETED ONLY WITH THE APPROVAL OF THE ENGINEER.
3. PRIOR TO THE NEW CONCRETE PLACEMENT, THE EXISTING CONCRETE SURFACE SHALL BE SAND OR WATER BLASTED, AIR BLOWN CLEAN AND THEN COATED WITH AN EPOXY BONDING AGENT.
4. APPLY CONCRETE WITH A COMPRESSION STRENGTH OF 4500 P.S.I. MIXED WITH #57 AGGREGATE, WHILE EPOXY BONDING IS STILL TACKY.
5. SEE SPECIAL PROVISIONS FOR ADDITIONAL DATA.

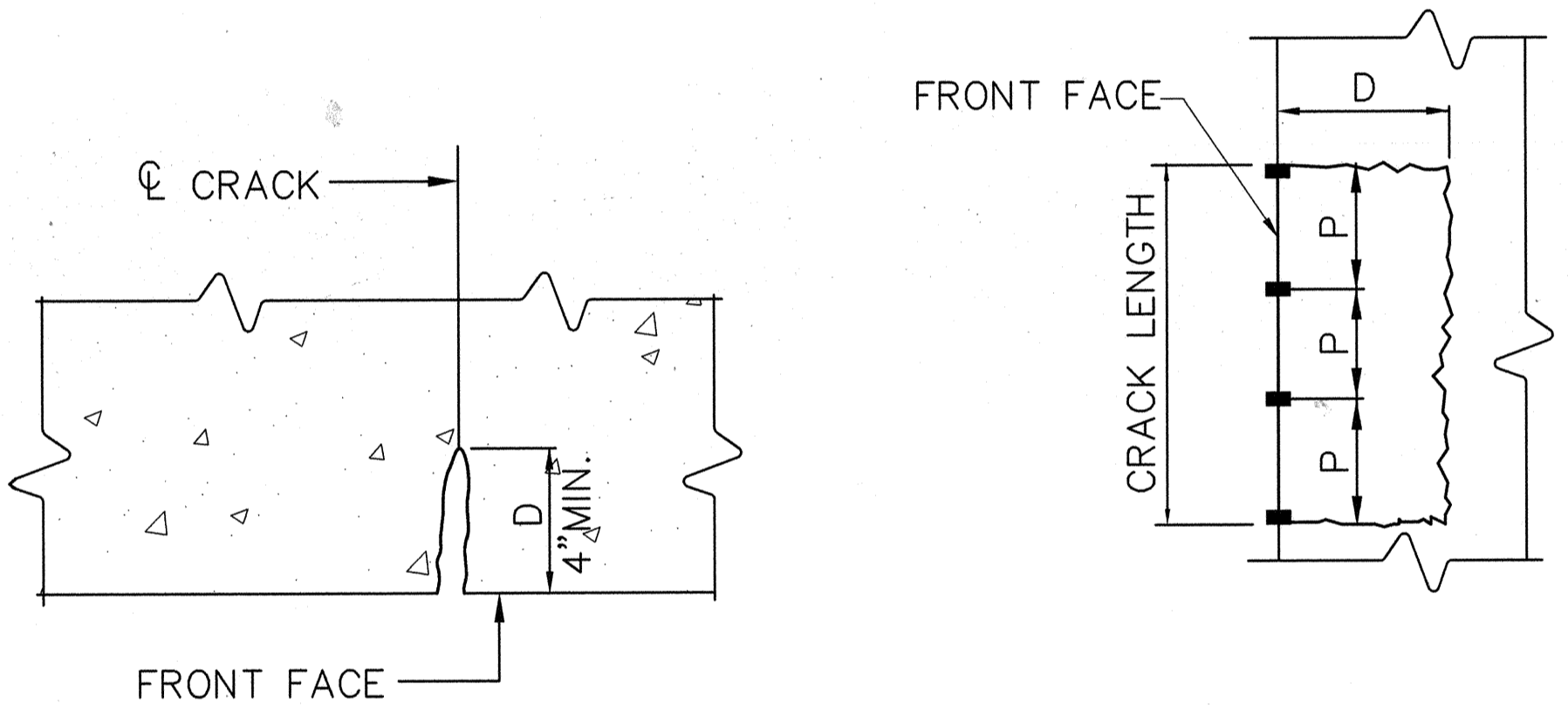
**TYPE 'A-2' (VERTICAL AND OVERHEAD REPAIR)**

REPAIR DEPTHS 0" TO FACE OF REINFORCING

1. REMOVE EXISTING DETERIORATED CONCRETE AS INDICATED, AND AT THE DIRECTION OF THE INSPECTOR/ENGINEER TO SOUND CONCRETE. EXPOSED REINFORCING STEEL SHALL BE UNDERCUT A MINIMUM OF 3/4" BEYOND THE INSIDE FACE OF STEEL.
2. THE EXISTING CONCRETE SURFACE SHALL BE SAND OR WATER BLASTED. ALL TRACES OF DIRT, LAITANCE AND UNSATISFACTORY MATERIAL SHALL BE REMOVED AS APPROVED BY THE INSPECTOR/ENGINEER OR SURFACE ARTIFICIALLY ROUGHENED AS REQUIRED.
3. SURFACE SHALL BE AIR BLOWN CLEAN AND PRIMED WITH AN EPOXY BONDING AGENT.
4. EPOXY MORTAR SHALL BE PLACED IN EITHER ONE OR TWO LAYERS TO BRING REPAIR AREA BACK TO THE ORIGINAL LINE, TROWELING MAY BE REQUIRED BY THE INSPECTOR.
5. SEE SPECIAL PROVISIONS FOR ADDITIONAL DATA.



**PART PLAN OR ELEVATION**



D = DEPTH OF CRACK (INCHES)  
P = INJECTION PORT SPACING (INCHES)  
 $P = \frac{D}{2} (2.25)$

**SECTION A-A**

**SECTION B-B**

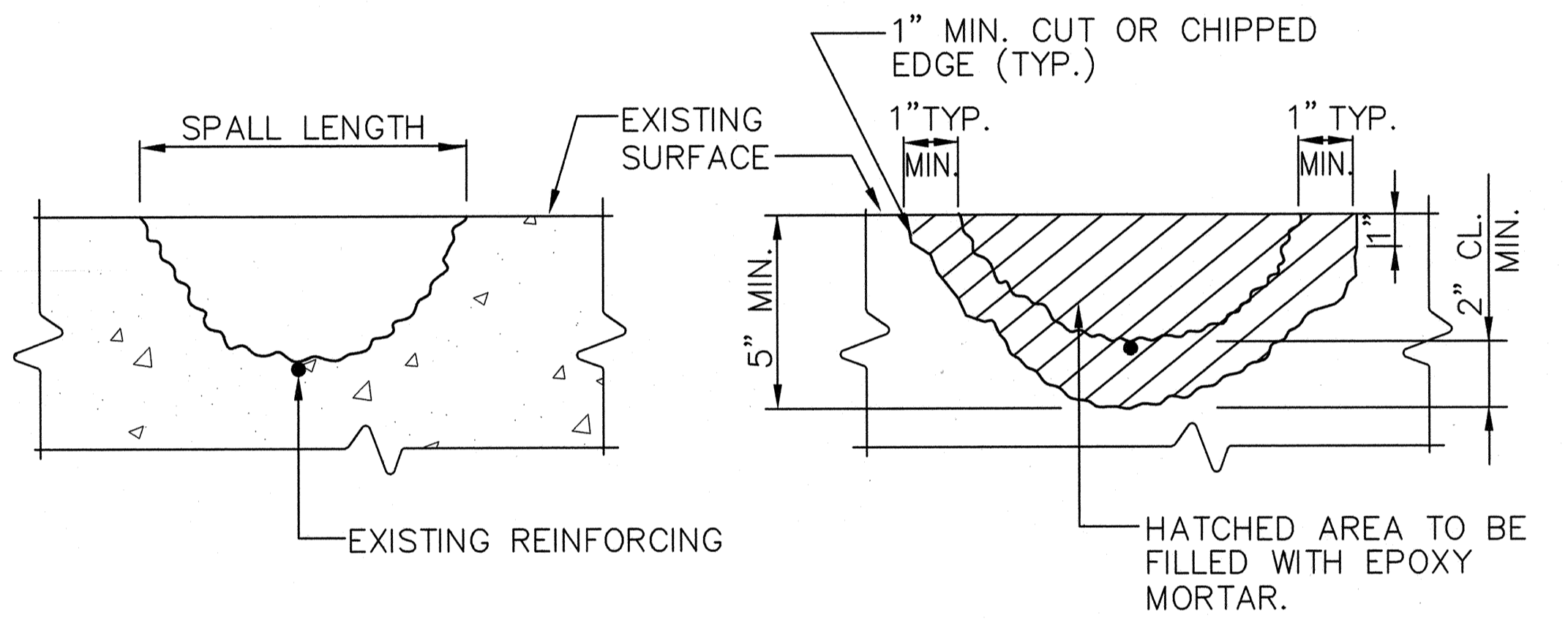
**TYPE 'B' REPAIR**

CRACK REPAIR, SURFACE REPAIR OF DEEP CRACK (1/8" WIDE OR GREATER)

1. SAW CUT 1/2 INCH DEPTH ALONG THE CRACK LINE.
2. PRIOR TO THE NEW CONCRETE PLACEMENT, THE EXISTING CONCRETE SURFACE SHALL BE SAND OR WATER BLASTED, AIR BLOWN CLEAN AND THEN COATED WITH AN EPOXY BONDING AGENT.
3. THE ENGINEER SHALL FIRST APPROVE THAT THE REPAIR CAN BE MADE BY USING INJECTION PORTS. THE INJECTION PORTS ARE SET ONTO CRACK USING AN EPOXY MORTAR AND SPACED AT APPROXIMATELY 4 INCHES TO 12 INCHES ON CENTER. THE REPAIR IS THEN MADE BY USING A PRESSURE INJECTED EPOXY ADHESIVE THROUGH THE INJECTION PORTS. INJECTION PORTS ARE CRIMPED OFF AND AN EPOXY MORTAR SHALL BE USED TO SEAL AND FINISH THE SURFACE AT THE INJECTION PORT LOCATIONS.
4. SEE SPECIAL PROVISIONS FOR ADDITIONAL DATA.

**TYPE 'C' REPAIR**  
DEEP CRACK SURFACE REPAIR  
( LESS THAN 1/8" WIDE )

1. SAW CUT 1/2 INCH DEPTH ALONG THE CRACK LINE.
2. PRIOR TO FILLING CRACK, THE EXISTING CONCRETE SURFACE SHALL BE SAND OR WATER BLASTED, AIR BLOWN CLEAN AND THEN COATED WITH AN EPOXY BONDING AGENT.
3. THE REPAIR SHALL BE MADE USING AN EPOXY MORTAR MIX. THE MORTAR SHALL HAVE A CONSISTANCY SUCH THAT IT IS THICK ENOUGH TO PREVENT SAGGING ONCE TROWLED IN PLACE. THE AREA ALSO MAY BE REPAIRED USING AN EPOXY ADHESIVE.
3. SEE SPECIAL PROVISIONS FOR ADDITIONAL DATA.



**SPALL SECTION**

**SPALL REPAIR SECTION**

**TYPE 'D' (HORIZONTAL) REPAIR**

PATCHING - SPALL AREAS

SEE TYPE 'A' REPAIR FOR DEPTH LIMITATIONS

1. ALL LOOSE, DETERIORATED CONCRETE SHALL BE REMOVED TO CLEAN SOLID CONCRETE AND THEN TO AN ADDITIONAL TWO (2) INCHES IN DEPTH AND AN ADDITIONAL LENGTH AND WIDTH OF 1" MIN. THE DEPTH OF REMOVAL SHALL BE AT LEAST 2 INCHES CLEAR BEYOND THE DEPTH OF THE EXISTING REINFORCING STEEL.
2. CLEANING OF EXISTING REINFORCING STEEL AND CONCRETE SURFACES SHALL BE AS NOTED IN TYPE 'A-1' REPAIR STEPS NO. 2 AND NO. 3.
3. EXISTING CONCRETE SURFACES IN THE REPAIR AREA ARE TO BE PRIMED WITH NEAT EPOXY BONDING AGENT.
4. EPOXY MORTAR SHALL BE PLACED TO BRING SPALL AREA BACK TO ORIGINAL SURFACE TEXTURE AND CONFIGURATION.
5. SEE SPECIAL PROVISIONS FOR ADDITIONAL DATA.

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

*James P. Lewis* 3/12/97  
DIRECTOR OF PUBLIC WORKS DATE

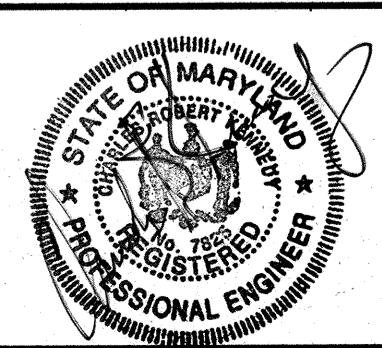
*William F. Minkley* 3/12/97  
CHIEF, BUREAU OF ENGINEERING DATE

*William F. Minkley* 3/12/97  
CHIEF DIVISION OF TRANSPORTATION PROJECTS & WATERSHED MANAGEMENT DATE

KENNEDY PORTER & ASSOCIATES  
Consulting Engineers

4110 Black Rock Road  
Hampstead, Maryland 21074  
(410) 239-4482

KPA PROJECT: 94-032F



DES: L.W.			
DRN: R.S.J.			
CHK: L.W.			
DATE:	BY	NO.	REVISION

DATE	600'SCALE MAP NO.	BLOCK NO.
------	-------------------	-----------

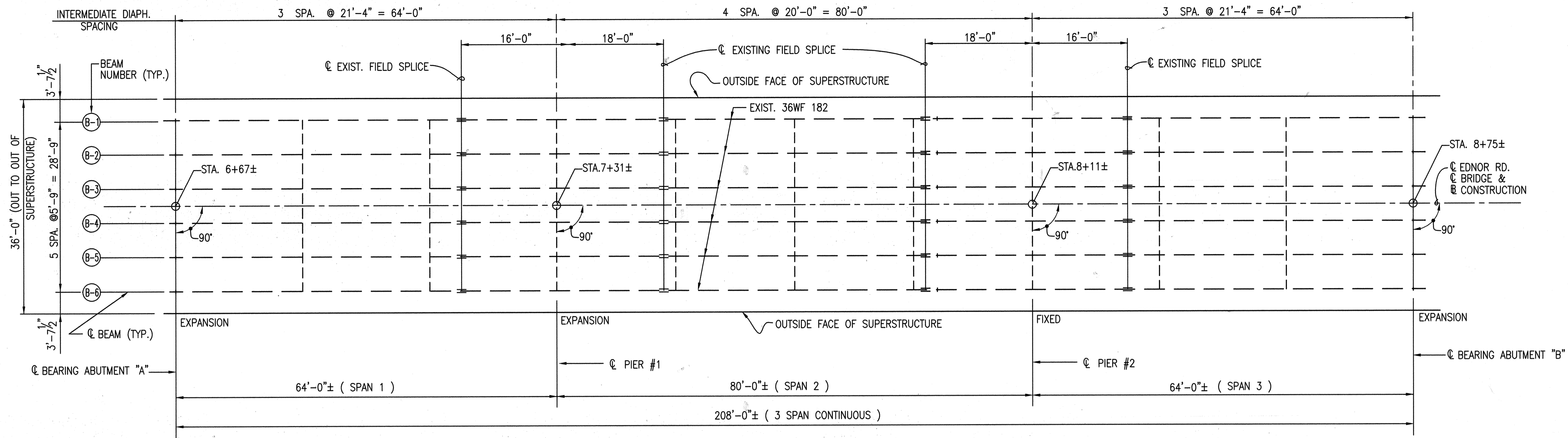
Rehabilitation of Bridge No. M-196  
Ednor Road Over The Patuxent River

**METHOD OF CONCRETE REPAIRS**

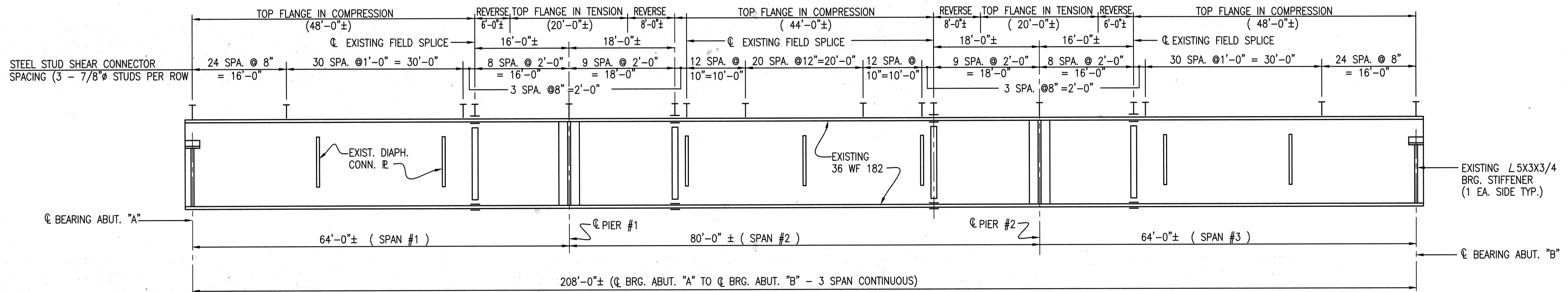
Bridge M-196  
Capital Project B-3832

SCALE AS SHOWN
SHEET 13 OF 26

B0086-13



**FRAMING PLAN**  
SCALE: 1"=10'-0"



**BEAM ELEVATION**  
SCALE: HOR. 1"=10'-0"  
VERT. 1/2"=1'-0"

**NOTE:**  
EXISTING DRAWINGS DO NOT INDICATED SHEAR CONNECTORS, BUT IF THEY ARE ON THE EXISTING BEAMS, THEN THEY SHALL BE REMOVED, AND NEW CONNECTORS INSTALLED IN ACCORDANCE WITH STANDARD NO. BR-SS (6.10)-79-76. SEE SHEET NO.19.

THE ESTIMATED NUMBER OF SHEAR CONNECTORS FOR THIS BRIDGE IS 3 ROWS X 199 PER BEAM X 6 BEAMS = 3582

SPACE STEEL STUD SHEAR CONNECTORS TO MISS BOLTS.

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

*James G. Lee* 3/12/97  
DIRECTOR OF PUBLIC WORKS DATE

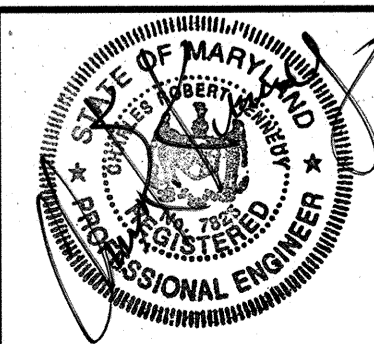
*William T. Maloney* 3/12/97  
CHIEF, BUREAU OF ENGINEERING DATE

*William T. Maloney* 3/12/97  
CHIEF, DIVISION OF TRANSPORTATION PROJECTS & WATERSHED MANAGEMENT DATE

KENNEDY PORTER & ASSOCIATES  
Consulting Engineers

4110 Black Rock Road  
Hampstead, Maryland 21074  
(410) 239-4482

KPA PROJECT: 94-032F



DES: L.W.					
DRN: R.S.J.					
CHK: L.W.					
DATE:	BY:	NO.	REVISION	DATE	600'SCALE MAP NO. BLOCK NO.

Rehabilitation of Bridge No. M-196  
Ednor Road Over The Patuxent River

**FRAMING PLAN**

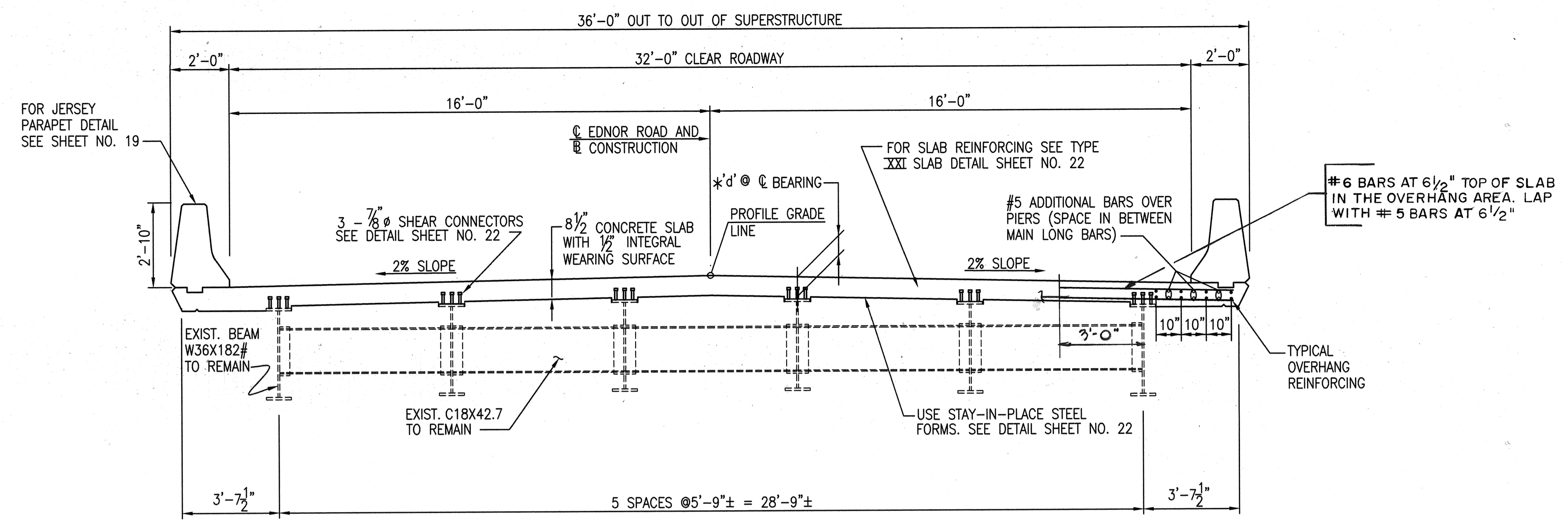
Bridge M-196

Capital Project B-3832

SCALE AS SHOWN

SHEET 14 OF 26

B0086-14

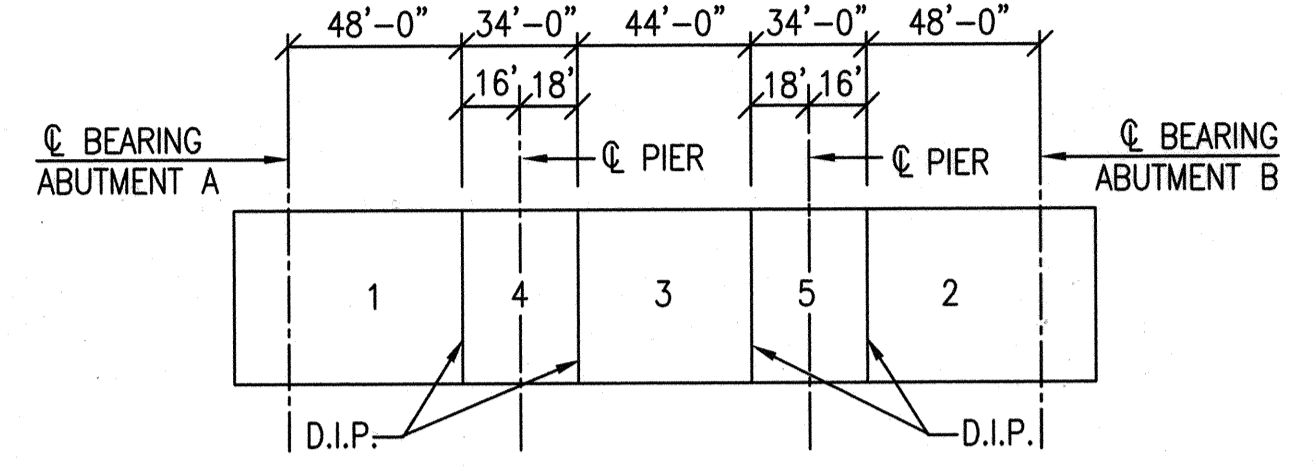


**TYPICAL SECTION**  
SCALE: 3/8" = 1'-0"

\* FOR 'd' @ C BEARING, SEE CHART ON SHEET NO. 18

**POURING SEQUENCES - NOTES**

1. THE CONTRACTOR SHALL FOLLOW THE POURING SEQUENCES SHOWN ON THESE PLANS. NO OTHER POURING SEQUENCE WILL BE ALLOWED.
2. THE POURING SEQUENCE FOR THE BRIDGE DECK SLAB SHALL BE MADE IN THE NUMBERED ORDER INDICATED, EXCEPT AS MODIFIED BELOW.

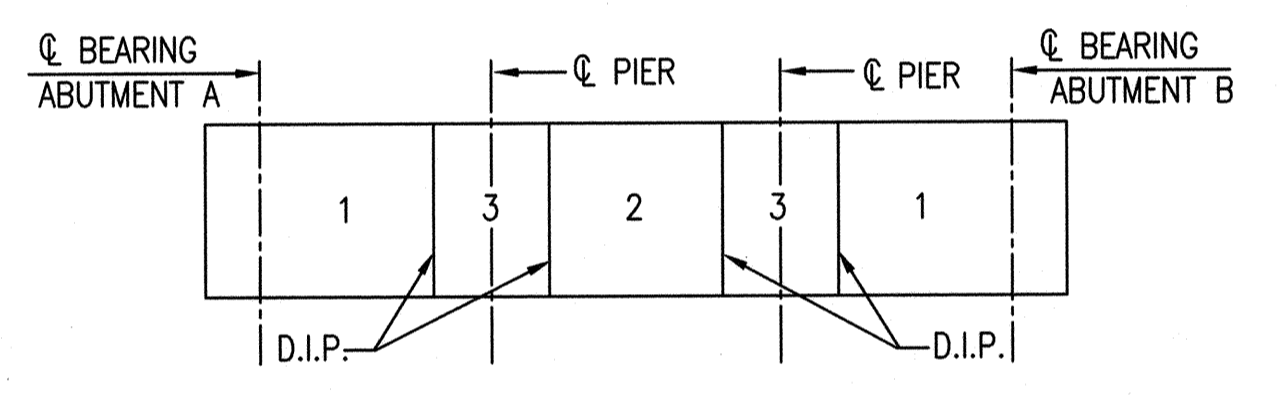


**SCHEME A**

THE POURING SEQUENCE FOR THE BRIDGE DECK SLAB SHALL BE MADE IN THE NUMBERED ORDER INDICATED: 1, 2, 3, 4, 5, EXCEPT AS MODIFIED BELOW. THERE MUST BE AT LEAST FORTY (40) HOURS BETWEEN THE COMPLETION OF ONE NUMBERED POUR AND THE START OF THE NEXT NUMBERED POUR, EXCEPT THAT THERE MAY BE SIXTEEN (16) HOURS BETWEEN THE COMPLETION OF POUR NUMBERED 4 AND THE START OF POUR NUMBERED 5.

THE CONTRACTOR MAY REVERSE THE ORDER OF THE FOLLOWING NUMBERED POURS:

- 1 AND 2
- 4 AND 5



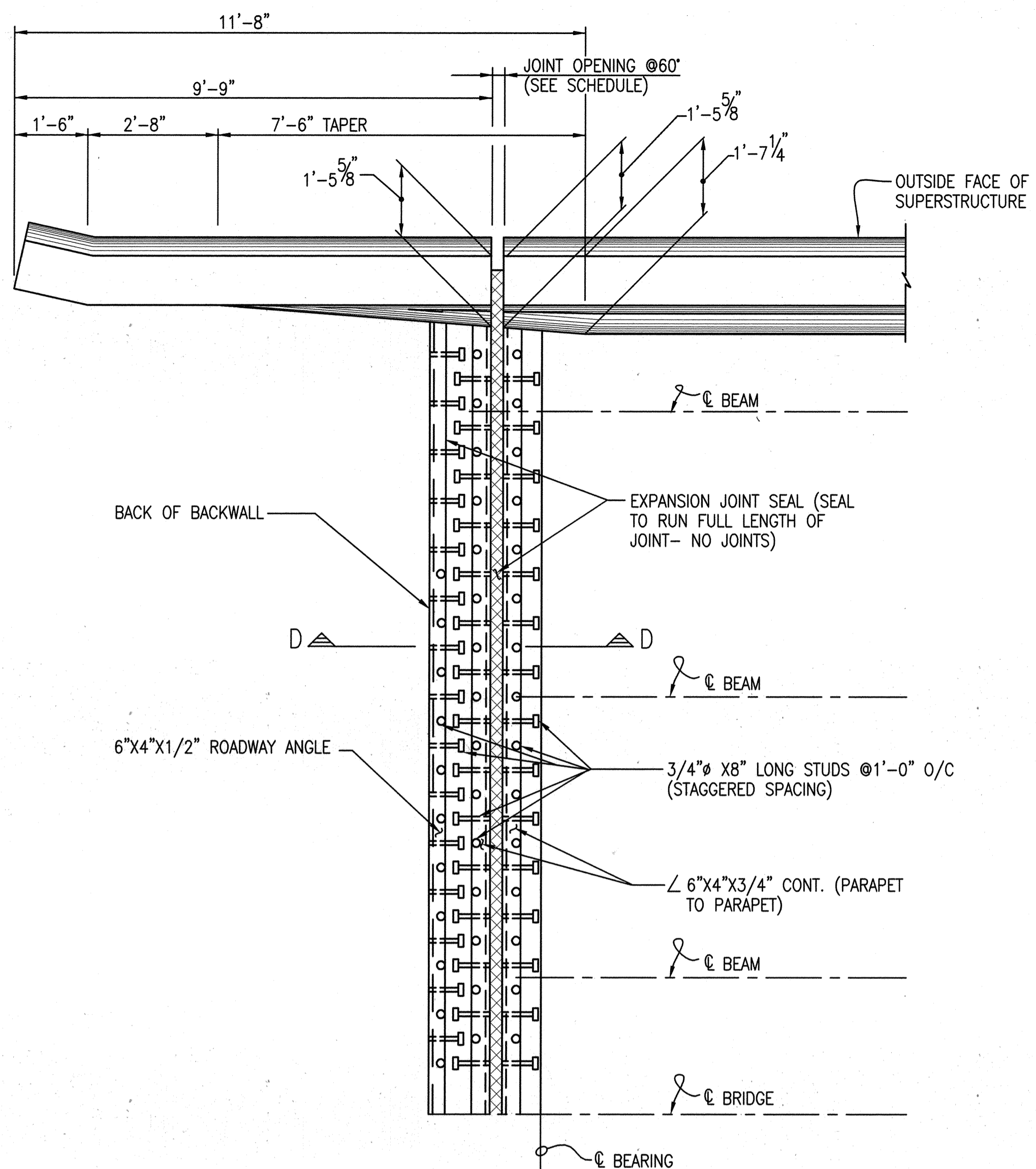
**SCHEME B**

AS AN ALTERNATE TO SCHEME A, THE CONTRACTOR MAY USE SCHEME B IF THE FOLLOWING CONDITIONS ARE SATISFIED:

- THE POURING SEQUENCE FOR THE BRIDGE DECK SLAB SHALL BE MADE IN THE NUMBERED ORDER INDICATED: 1, 2, 3. BOTH SEGMENTS OF POUR NUMBERED 1 SHALL BE PLACED SIMULTANEOUSLY BY USING TWO CREWS AND TWO INDEPENDENT SETS OF EQUIPMENT. EACH CREW SHALL START AT THE ABUTMENTS AND WORK TOWARD THE BULKHEADS AT THE SAME RATE. BOTH SEGMENTS OF POUR NUMBERED 3 SHALL BE PLACED SIMULTANEOUSLY BY USING TWO CREWS AND TWO INDEPENDENT SETS OF EQUIPMENT WORKING AT THE SAME RATE. THERE MUST BE AT LEAST FORTY (40) HOURS BETWEEN THE COMPLETION OF ONE NUMBERED POUR AND THE START OF THE NEXT NUMBERED POUR.
- ONE (1) WEEK PRIOR TO THE PROPOSED PLACEMENT OF THE BRIDGE DECK SLAB, THE CONTRACTOR SHALL SUBMIT FOR THE ENGINEER'S APPROVAL WRITTEN EVIDENCE OF AN ADEQUATE SOURCE AND A BACK-UP SOURCE OF CONCRETE, AND PLACING AND FINISHING EQUIPMENT CAPABLE OF MEETING THE MINIMUM RATE OF PLACEMENT OF 35 CY PER HOUR PER CREW WHILE PROVIDING THE INTENDED QUALITY FINISH.
- IF A BREAKDOWN OCCURS BY EITHER CREW DURING PLACEMENT OF POUR NUMBERED 1, THE VOLUME OF CONCRETE PLACED BY EACH CREW SHALL BE EQUALIZED IN SO FAR AS POSSIBLE, BULKHEADS CONSTRUCTED, THE POUR TERMINATED AND THE OFFICE OF BRIDGE DEVELOPMENT CONTACTED BEFORE CONTINUING.

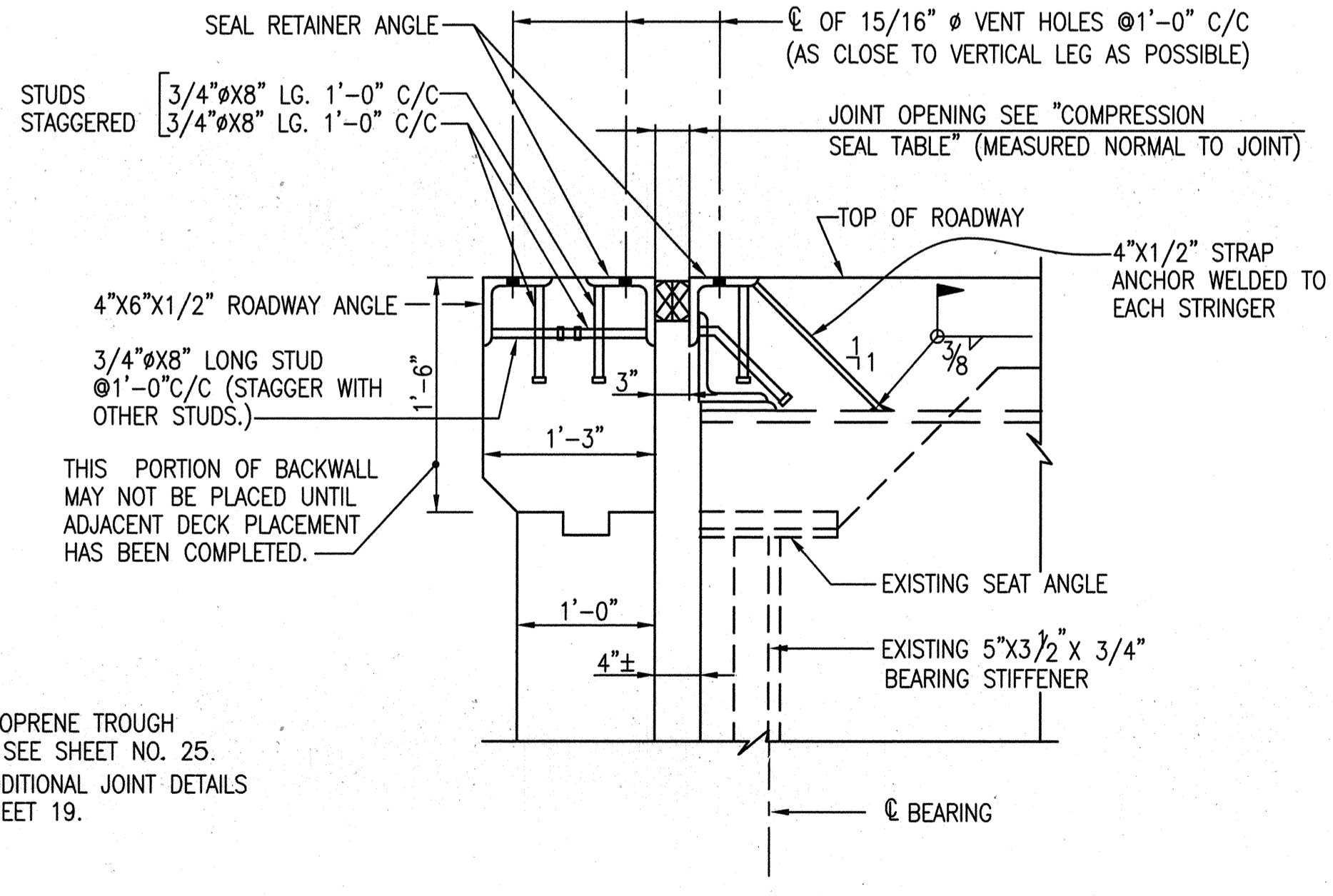
DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND Director: <i>James P. Lee</i> 3/12/97 Chief Bureau of Highways: <i>Robert M. Daniels</i> 3-12-97		KENNEDY PORTER & ASSOCIATES Consulting Engineers 4110 Black Rock Road Hampstead, Maryland 21074 (410) 239-4482 KPA PROJECT: 94-032F				DES: L.W. DRN: R.J. CHK: L.W. DATE: BY NO. REVISION DATE		Rehabilitation of Bridge No. M-196 Ednor Road Over The Patuxent River <b>TYPICAL SECTION</b> Bridge M-196 Capital Project B-3832		SCALE AS SHOWN SHEET 15 OF 26
--	--	--	--	--	--	---	--	---	--	----------------------------------

F.H.W.A. REGION NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	MD	SEE TITLE SHEET		



**PLAN - TYPICAL ROADWAY JOINT @ ABUTMENT**

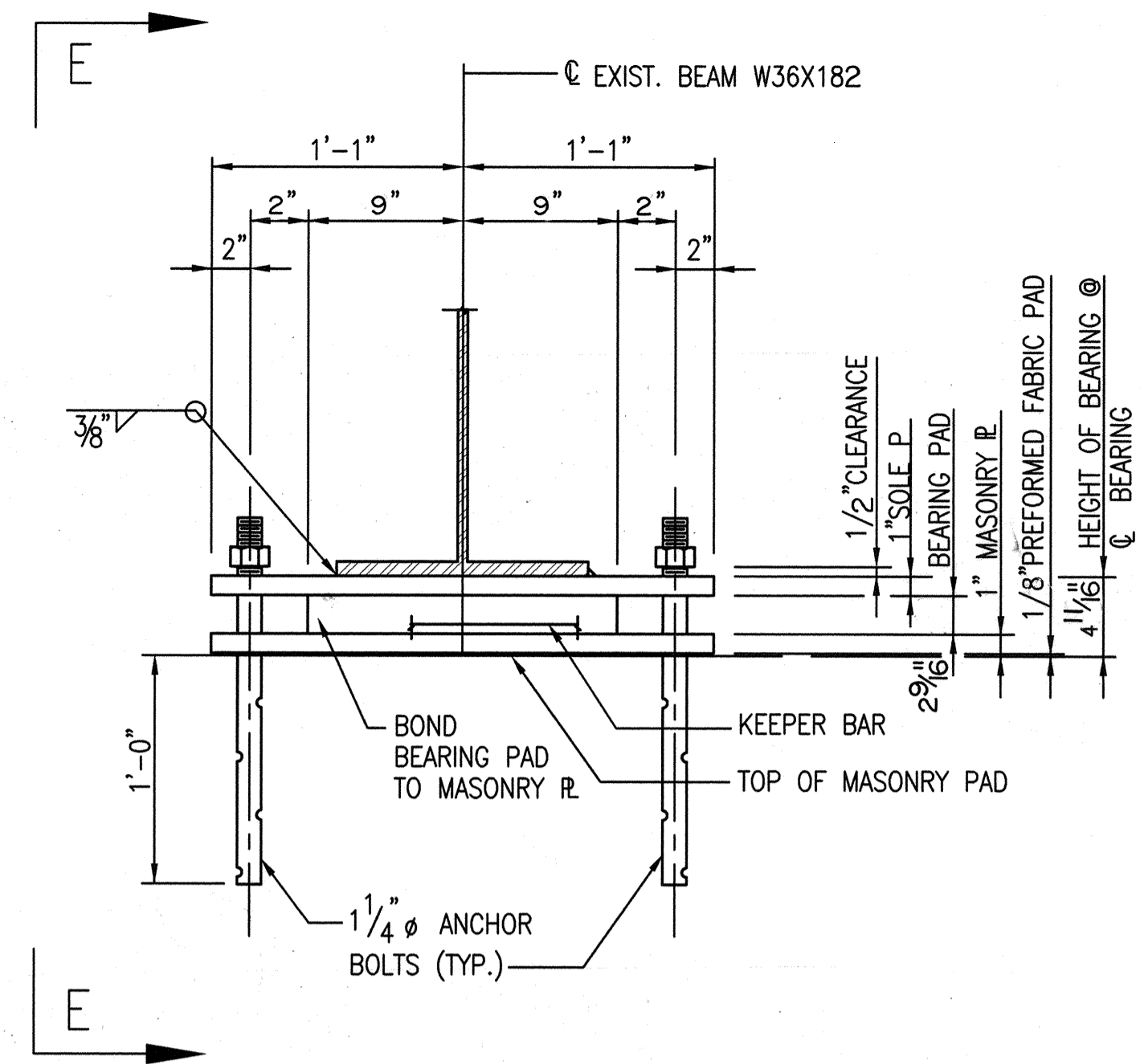
SCALE: 1/2" = 1'-0"



**SECTION D-D**

SCALE: 1" = 1'-0"

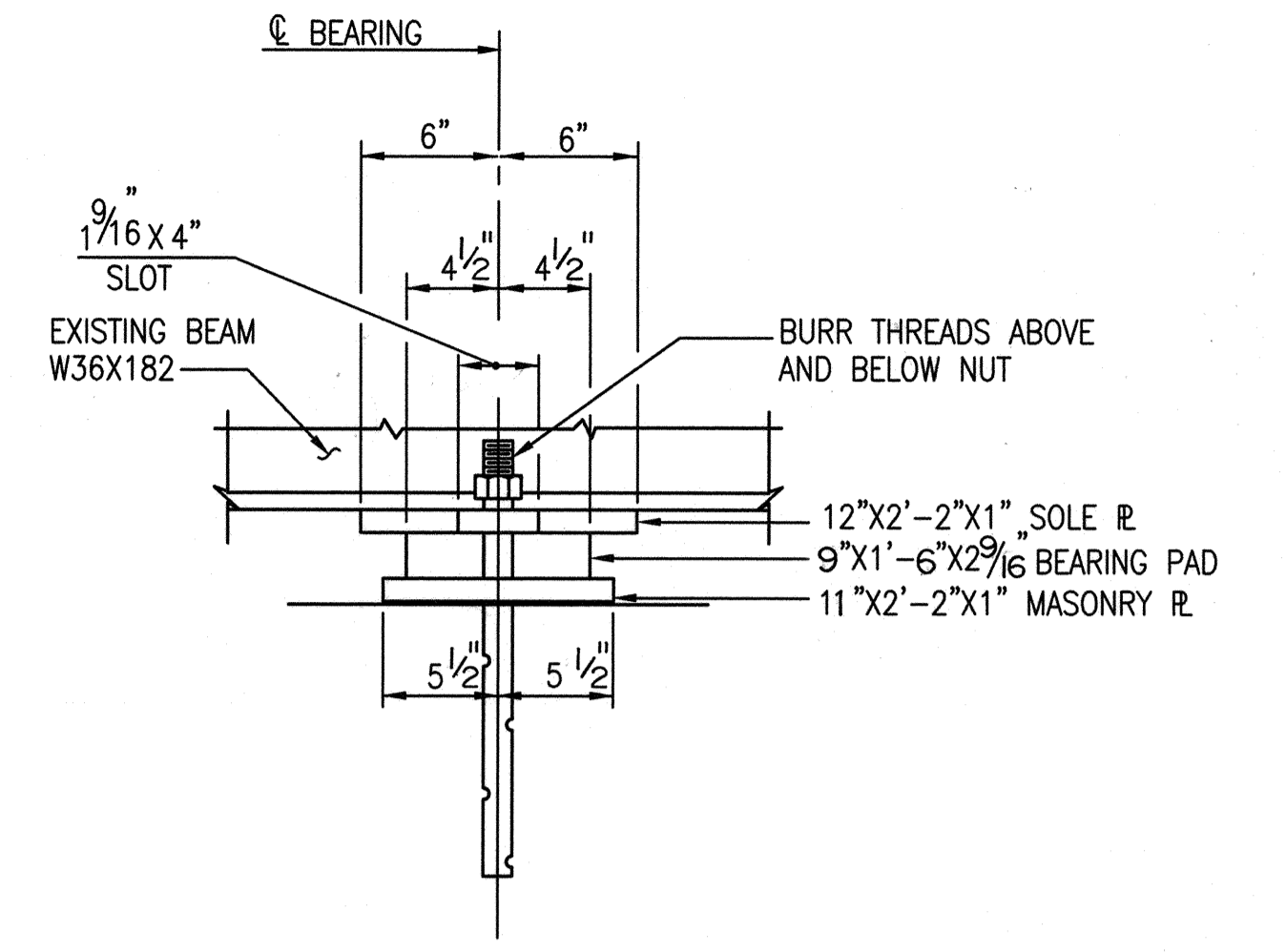
NOTE  
FOR NEOPRENE TROUGH  
DETAIL, SEE SHEET NO. 25.  
FOR ADDITIONAL JOINT DETAILS  
SEE SHEET 19.



**ELEVATION  
EXPANSION BEARING AT ABUTMENT**

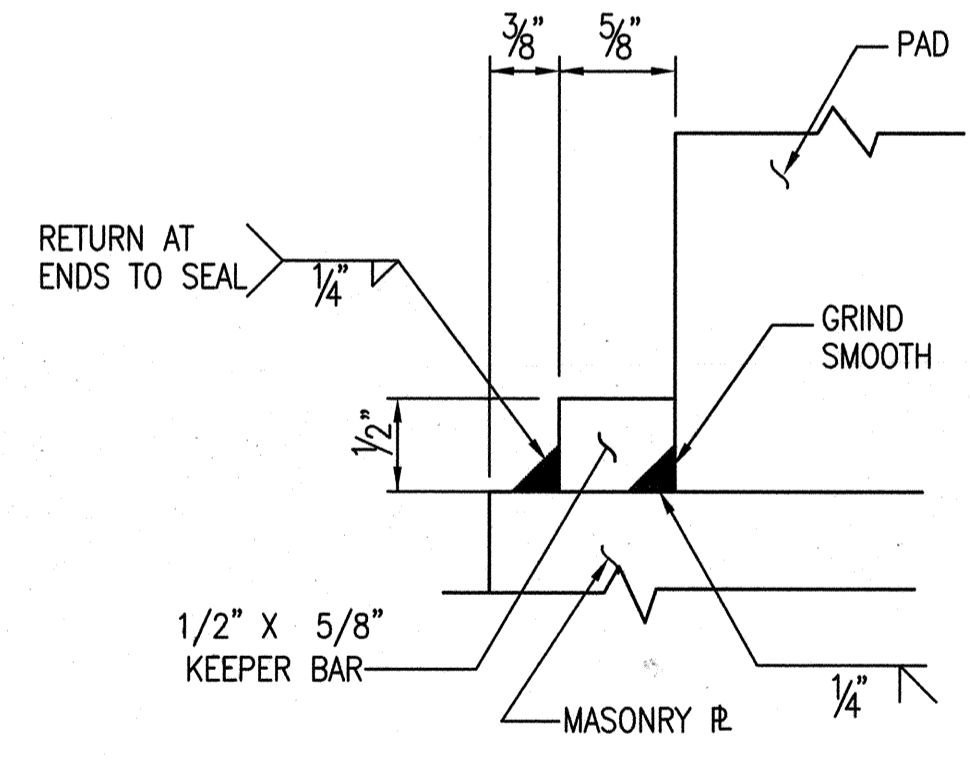
SCALE: 1-1/2" = 1'-0"

NOTE: BEARINGS AT PIERS SHALL REMAIN UNDISTURBED IN PLACE



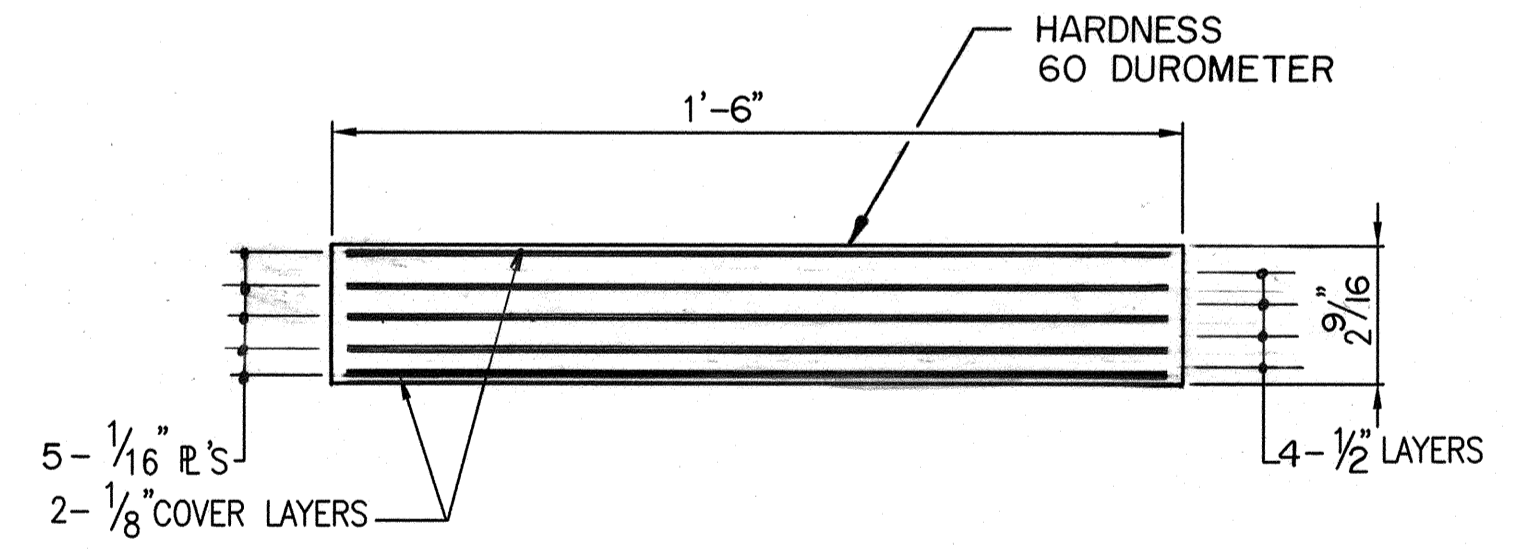
**SECTION E-E  
EXPANSION BEARING**

SCALE: 1-1/2" = 1'-0"



**KEEPER BAR DETAIL**

SCALE: 1" = 1"

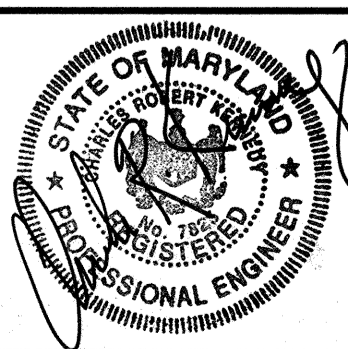


**BEARING PAD ELEVATION**

SCALE: 3" = 1'-0"

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

KENNEDY PORTER & ASSOCIATES  
Consulting Engineers



DES: L.W.							
DRN: R.S.J.							
CHK: L.W.							
DATE:	BY	NO.	REVISION	DATE	600' SCALE MAP NO.	BLOCK NO.	

Rehabilitation of Bridge No. M-196  
Ednor Road Over The Patuxent River

**ROADWAY JOINTS  
AND BEARINGS**

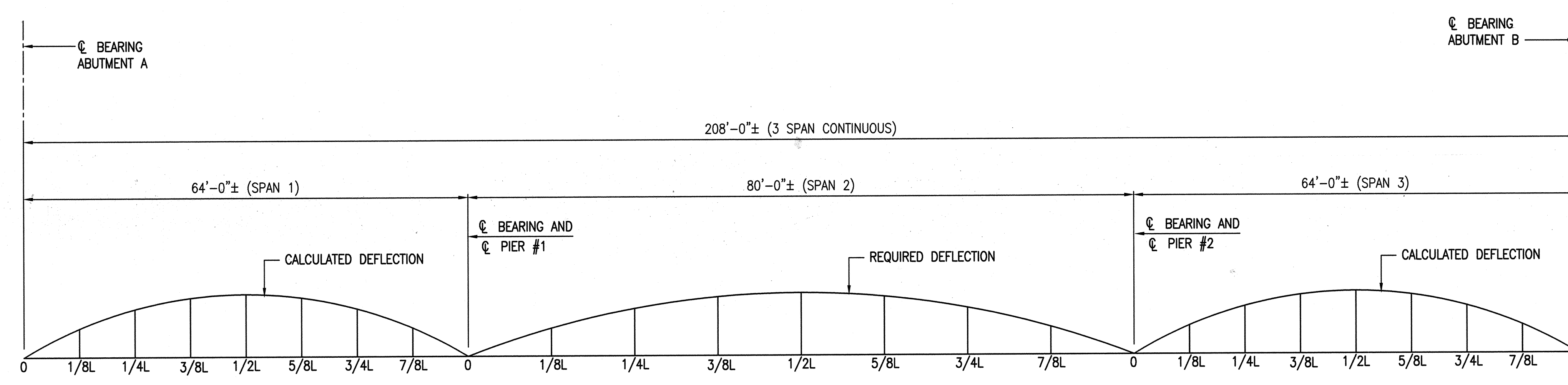
Bridge M-196

Capital Project B-3832

SCALE AS SHOWN  
SHEET 16 OF 26

B0086-16





**DEFLECTION DIAGRAM**

**DEFLECTION NOTES:**

- ALL DEFLECTION ORDINATES ARE GIVEN IN INCHES.
- STEEL: DENOTES DEFLECTION DUE TO THE EXISTING STRUCTURAL STEEL ONLY.
- CONCRETE: DENOTES DEFLECTION DUE TO CONCRETE DECK INCLUDING 1/2" INTEGRAL WEARING SURFACE AND 15 P.S.F. STAY-IN-PLACE STEEL FORMS.
- S.D.L.: DENOTES ADDITIONAL DEFLECTION DUE TO PARAPET.
- TOTAL: DENOTES THE SUM OF THE STEEL, CONCRETE AND S.D.L. DEFLECTION
- CONTRACTOR SHALL MEASURE THE REBOUND OF THE EXISTING STEEL STRINGERS TO VALIDATE THE CALCULATED DEFLECTIONS. REFER TO THE SPECIFICATIONS.

**DEAD LOAD DEFLECTIONS**

		SPAN 1									SPAN 2									SPAN 3								
		CL BRG. ABUT. A	1/8L	1/4L	3/8L	1/2L	5/8L	3/4L	7/8L	CL BRG. AND PIER #1	1/8L	1/4L	3/8L	1/2L	5/8L	3/4L	7/8L	CL BRG. AND PIER #2	1/8L	1/4L	3/8L	1/2L	5/8L	3/4L	7/8L	CL BRG. ABUT. B		
INTERIOR BEAMS B-2 THRU B-4	Δ STEEL	0	1/16	1/16	1/16	1/16	1/16	1/16	0	0	1/16	1/16	1/8	1/8	1/8	1/16	1/16	0	0	1/16	1/16	1/16	1/16	1/16	1/16	0		
	Δ CONC.	0	1/8	1/4	5/16	5/16	1/4	1/8	1/16	0	1/8	1/4	3/8	7/16	3/8	1/4	1/8	0	1/16	1/8	1/4	5/16	5/16	1/4	1/8	0		
	Δ SDL	0	0	1/16	1/16	1/16	1/16	0	0	0	0	1/16	1/16	1/16	1/16	1/16	0	0	0	0	1/16	1/16	1/16	1/16	0	0		
	Δ TOTAL	0	3/16	3/8	7/16	7/16	3/8	3/16	1/16	0	3/16	3/8	9/16	5/8	9/16	3/8	3/16		1/16	3/16	3/8	7/16	7/16	3/8	3/16	0		
EXTERIOR BEAMS B-1 AND B-5	Δ STEEL	0	1/16	1/16	1/16	1/16	1/16	1/16	0	0	1/16	1/16	1/8	1/8	1/8	1/16	1/16	0	0	1/16	1/16	1/16	1/16	1/16	1/16	0		
	Δ CONC.	0	1/8	5/16	3/8	3/8	5/16	3/16	1/16	0	1/8	5/16	7/16	1/2	7/16	5/16	1/8	0	1/16	3/16	5/16	3/8	3/8	5/16	1/8	0		
	Δ SDL	0	0	1/16	1/16	1/16	1/16	0	0	0	0	1/16	1/16	1/16	1/16	1/16	0	0	0	0	1/16	1/16	1/16	1/16	0	0		
	Δ TOTAL	0	3/16	7/16	1/2	1/2	7/16	1/4	1/16	0	3/16	7/16	5/8	11/16	5/8	7/16	3/16	0	1/16	1/4	7/16	1/2	1/2	7/16	3/16	0		

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

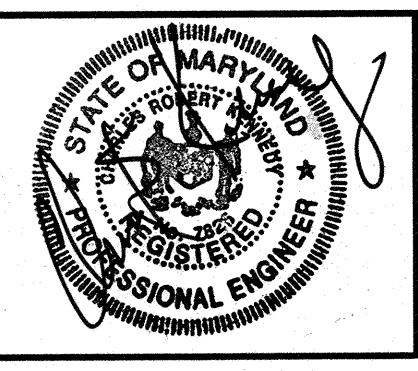
*James P. ...* 3/12/97  
DIRECTOR OF PUBLIC WORKS DATE

*William P. ...* 3/12/97  
CHIEF, BUREAU OF ENGINEERING DATE

*William P. ...* 3/12/97  
CHIEF, DIVISION OF TRANSPORTATION PROJECTS & WATERSHED MANAGEMENT DATE

KENNEDY PORTER & ASSOCIATES  
Consulting Engineers

4110 Black Rock Road  
Hampstead, Maryland 21074  
(410) 239-4482  
KPA PROJECT: 94-032F



DES: J.P.B.				
DRN: R.S.J.				
CHK: J.P.B.				
DATE:	BY	NO.	REVISION	DATE

600'SCALE MAP NO. \_\_\_\_\_ BLOCK NO. \_\_\_\_\_

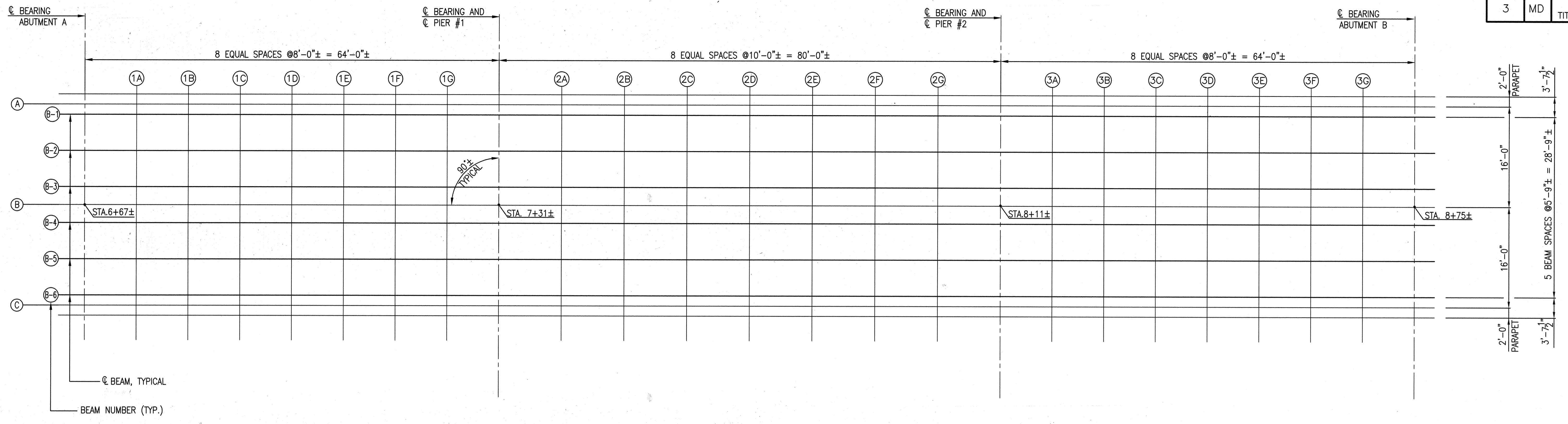
Rehabilitation of Bridge No. M-196  
Ednor Road Over The Patuxent River

**DEFLECTION NOTES AND DIAGRAM**

Bridge M-196 Capital Project B-3832

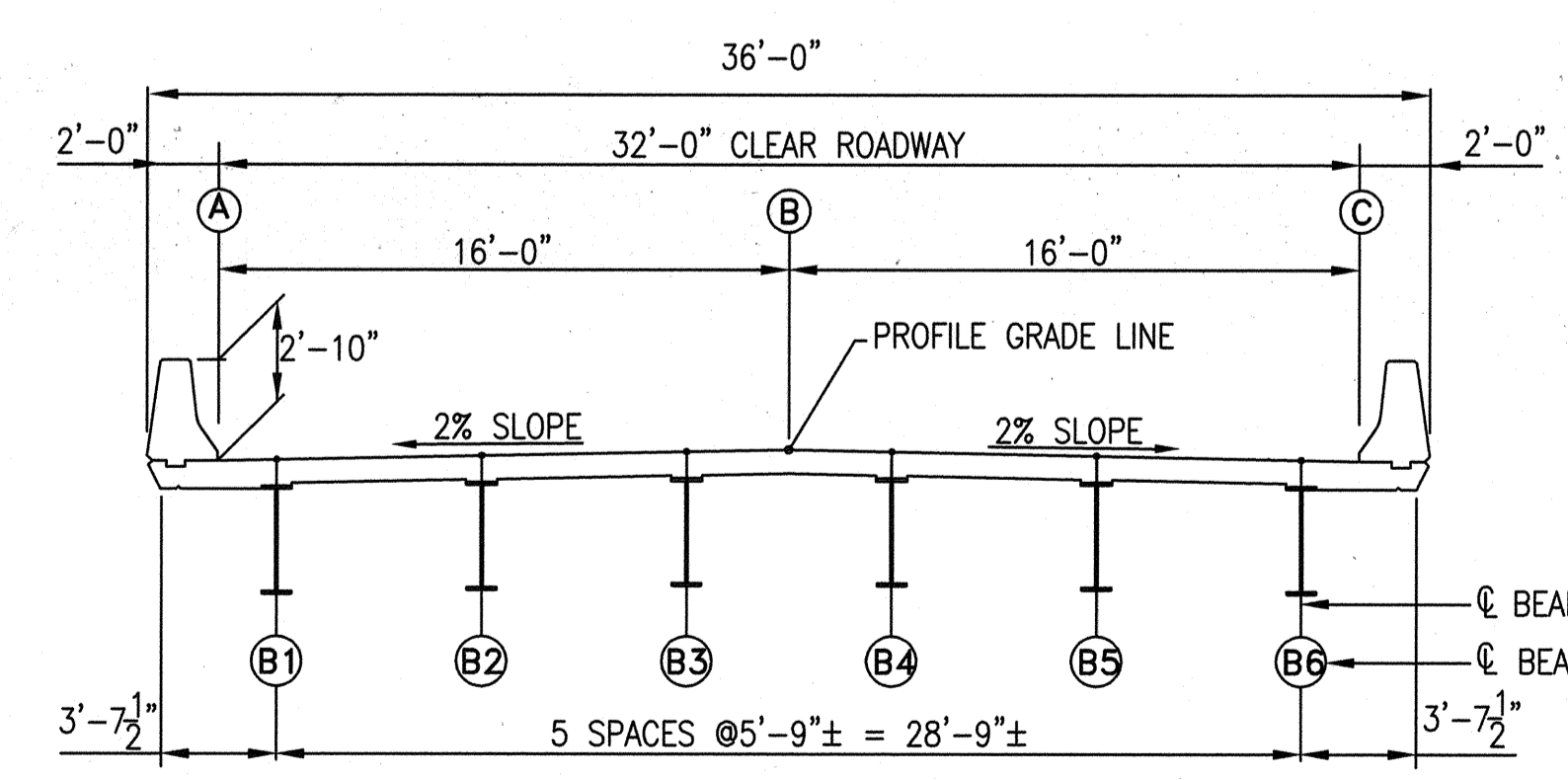
SCALE AS SHOWN

SHEET 17 OF 26

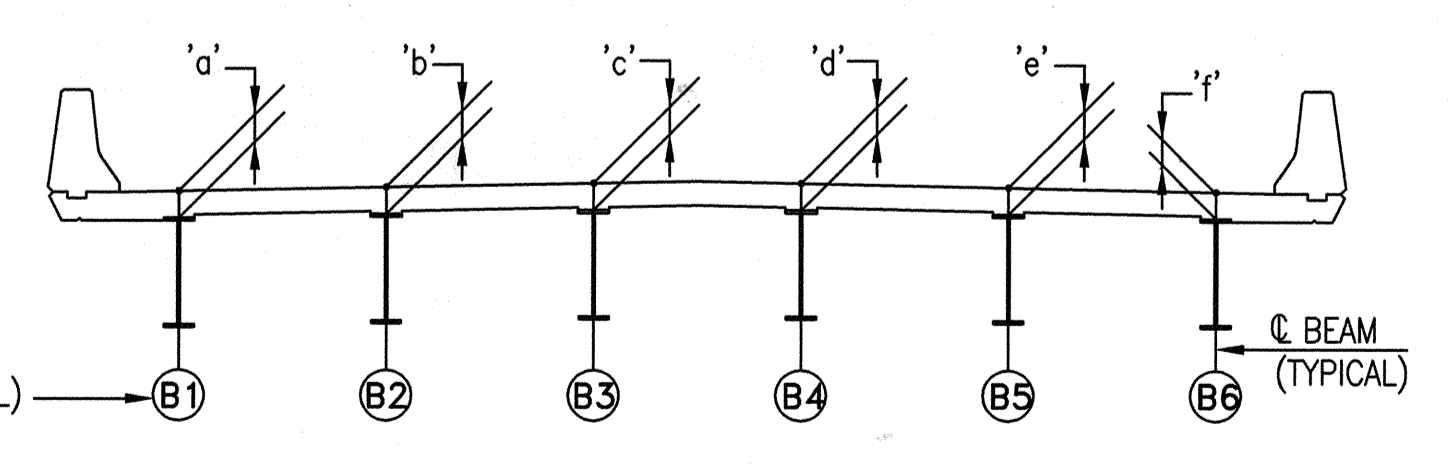


### FINISHED ROADWAY ELEVATION SCHEDULE

LINE	SPAN 1								SPAN 2								SPAN 3								
	CL BRG. ABUT. A	(1A)	(1B)	(1C)	(1D)	(1E)	(1F)	(1G)	CL BRG. & CL PIER 1	(2A)	(2B)	(2C)	(2D)	(2E)	(2F)	(2G)	CL BRG. & CL PIER 2	(3A)	(3B)	(3C)	(3D)	(3E)	(3F)	(3G)	CL BRG. & ABUT. B
	ELEV.	ELEV.	ELEV.	ELEV.	ELEV.	ELEV.	ELEV.	ELEV.	ELEV.	ELEV.	ELEV.	ELEV.	ELEV.	ELEV.	ELEV.	ELEV.	ELEV.	ELEV.	ELEV.	ELEV.	ELEV.	ELEV.	ELEV.	ELEV.	ELEV.
A	303.16	303.10	303.04	302.98	302.92	302.86	302.80	302.74	302.68	302.60	302.53	302.45	302.38	302.30	302.23	302.15	302.08	302.02	301.96	301.90	301.84	301.78	301.72	301.66	301.58
B-1	303.19	303.13	303.07	303.01	302.95	302.89	302.83	302.77	302.71	302.64	302.56	302.49	302.41	302.34	302.26	302.19	302.11	302.05	301.99	301.93	301.87	301.81	301.75	301.69	301.63
B-2	303.31	303.25	303.19	303.13	303.07	303.01	302.95	302.89	302.83	302.75	302.68	302.60	302.53	302.45	302.38	302.30	302.23	302.17	302.11	302.05	301.99	301.93	301.87	301.81	301.75
B-3	303.42	303.36	303.30	303.24	303.18	303.12	303.06	303.00	302.94	302.87	302.79	302.72	302.64	302.57	302.49	302.42	302.34	302.28	302.22	302.16	302.10	302.04	301.98	301.92	301.86
B (P.G.L.)	303.48	303.42	303.36	303.30	303.24	303.18	303.12	303.06	303.00	302.92	302.85	302.77	302.70	302.62	302.55	302.47	302.40	302.34	302.28	302.22	302.16	302.10	302.04	301.98	301.92
B-4	303.42	303.36	303.30	303.24	303.18	303.12	303.06	303.00	302.94	302.87	302.79	302.72	302.64	302.57	302.49	302.42	302.34	302.28	302.22	302.16	302.10	302.04	301.98	301.92	301.86
B-5	303.31	303.25	303.19	303.13	303.07	303.01	302.95	302.89	302.83	302.75	302.68	302.60	302.53	302.45	302.38	302.30	302.23	302.17	302.11	302.05	301.99	301.93	301.87	301.81	301.75
B-6	303.19	303.13	303.07	303.01	302.95	302.89	302.83	302.77	302.71	302.64	302.56	302.49	302.41	302.34	302.26	302.19	302.11	302.05	301.99	301.93	301.87	301.81	301.75	301.69	301.63
C	303.16	303.10	303.04	302.98	302.92	302.86	302.80	302.74	302.68	302.60	302.53	302.45	302.38	302.30	302.23	302.15	302.08	302.02	301.96	301.90	301.84	301.78	301.72	301.66	301.58



**TYPICAL SECTION**  
SCALE: 3/16"=1'-0"



**TYP. SECT. @ CL BRG.**  
SCALE: 3/16"=1'-0"

'a'	'b'	'c'	'd'	'e'	'f'
9 1/2"	9 13/16"	10 1/8"	10 1/8"	9 13/16"	9 1/2"

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

*James J. Lee* 3/12/97  
DIRECTOR OF PUBLIC WORKS DATE

*William E. Mabe* 3/12/97  
CHIEF, BUREAU OF ENGINEERING DATE

*William E. Mabe* 3/12/97  
CHIEF, DIVISION OF TRANSPORTATION PROJECTS & WATERSHED MANAGEMENT DATE

KENNEDY PORTER & ASSOCIATES  
Consulting Engineers

4110 Black Rock Road  
Hampstead, Maryland 21074  
(410) 239-4482  
KPA PROJECT: 94-032F



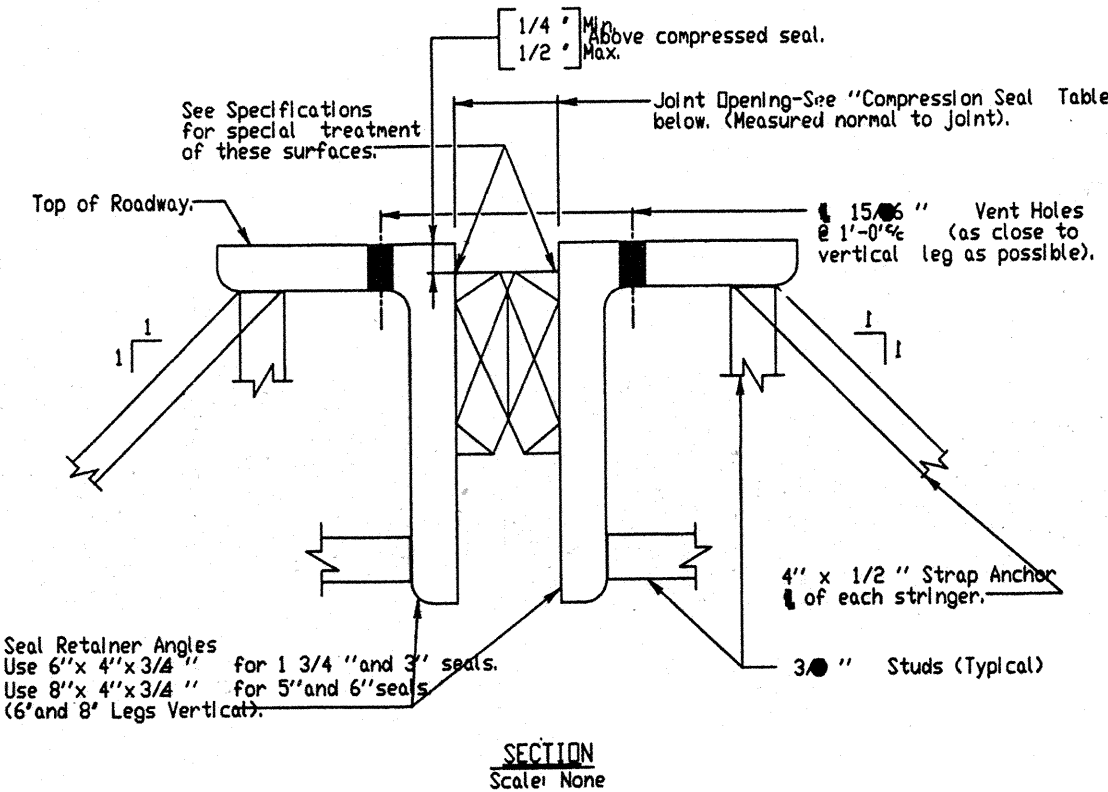
DES: J.P.B.					
DRN: R.S.J.					
CHK: J.P.B.					
DATE:	BY	NO.	REVISION	DATE	600'SCALE MAP NO. BLOCK NO.

Rehabilitation of Bridge No. M-196  
Ednor Road Over The Patuxent River

**BRIDGE DECK AND ELEVATIONS**

Bridge M-196 Capital Project B-3832

SCALE AS SHOWN  
SHEET 18 OF 28

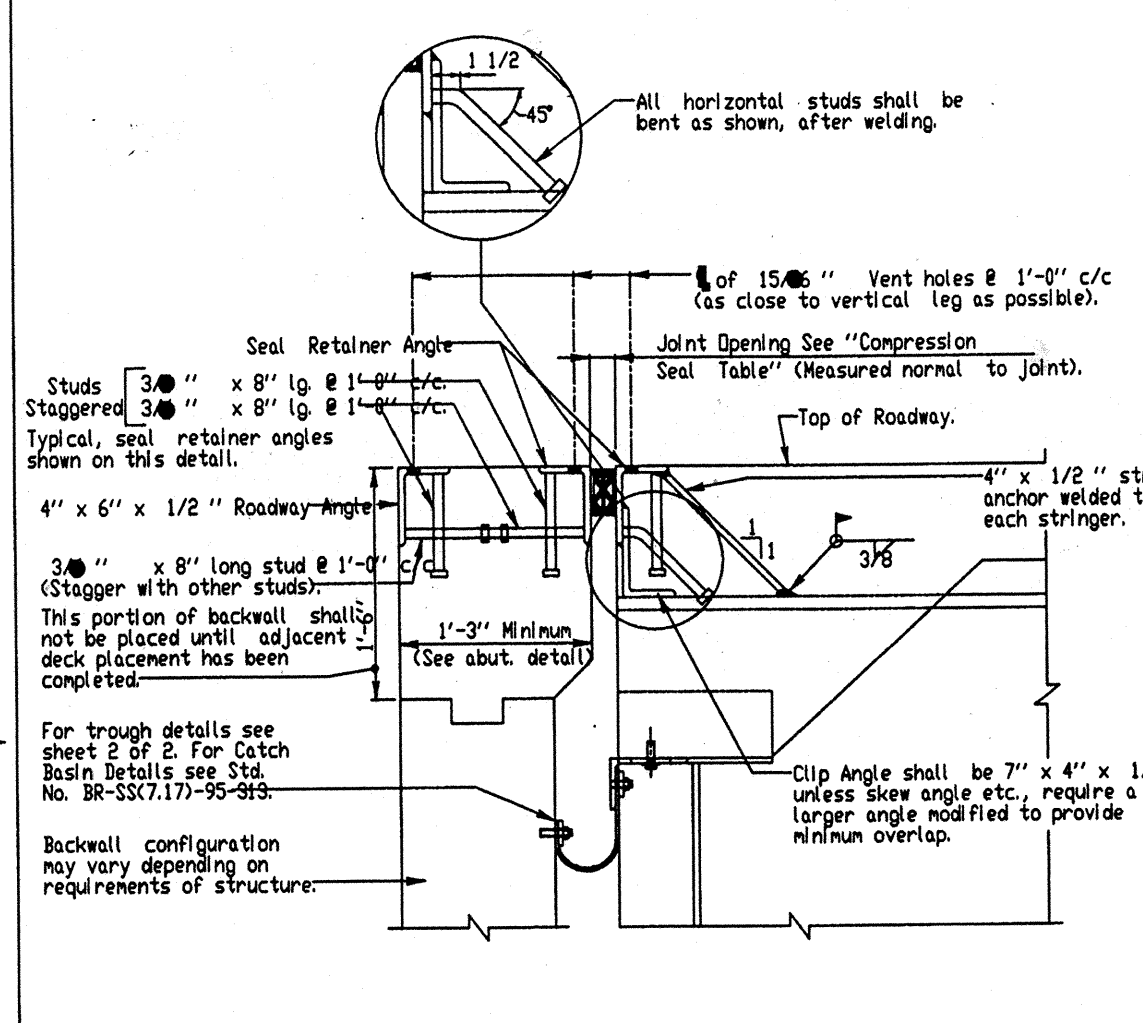


Location	Uncompressed Seal Width	Joint Opening @ 40°F	Joint Opening @ 50°F	Joint Opening @ 60°F	Joint Opening @ 70°F	Joint Opening @ 80°F	Joint Opening @ 90°F	Movement Rating
ABUTMENT B	1 3/4"	1 1/4"	1 3/16"	1 1/8"	1 1/16"	1 1/16"	1 1/16"	0.65'
ABUTMENT A	3"	2 1/8"	2 1/16"	2 1/32"	2 1/32"	2 1/32"	2 1/32"	1.25'
	5"							2.50'
	6"							2.85'

Notes:  
 1. The 1 3/4" and 3" seals to be one piece.  
 2. The 5" and 6" seals may have one splice per joint. If the length of joint exceeds 50', splice shall be at least 15' from gutter line.  
 3. Seal retainers shall be placed in one continuous piece, after joint angles are set, and deck and entire backfill are in place.  
 4. See Standard No. BR-SS7.01-77-63 for additional details.  
 5. Strip and erect seal retaining angles as a unit.

APPROVAL	DATE	DESIGN	DATE

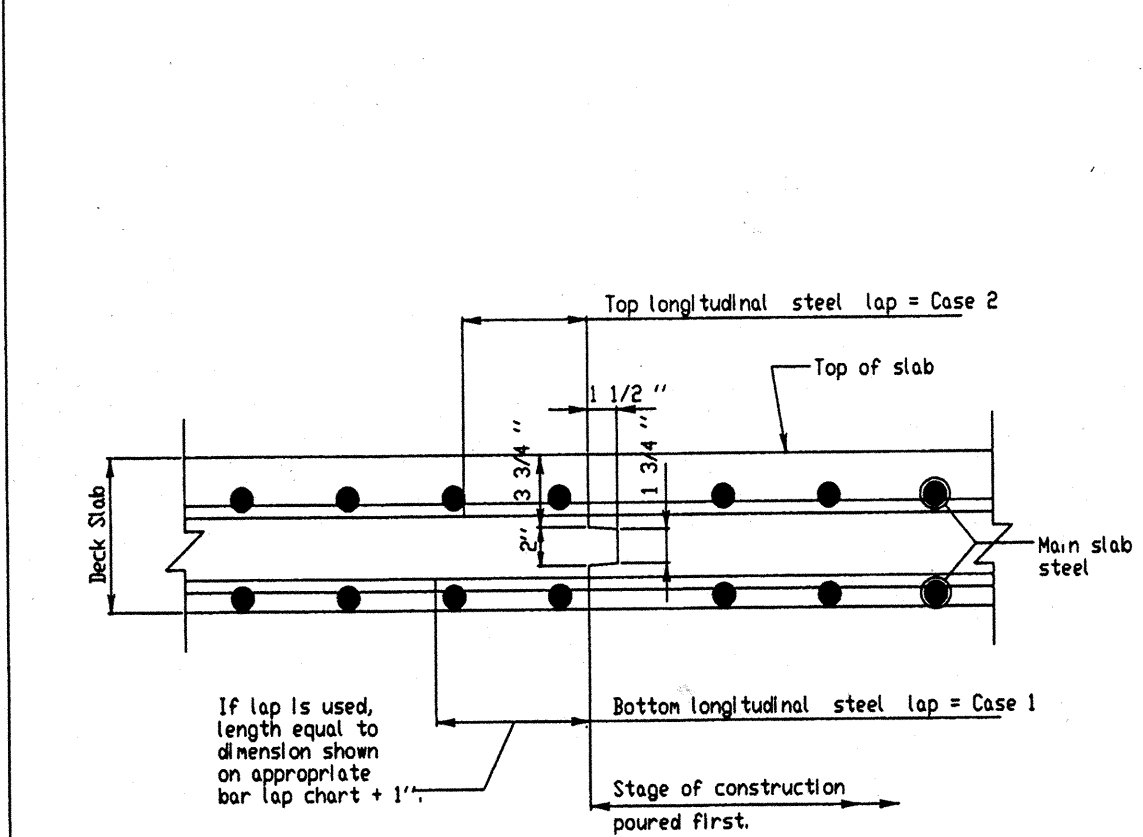
STATE OF MARYLAND  
 DEPARTMENT OF TRANSPORTATION  
 STATE HIGHWAY ADMINISTRATION  
 OFFICE OF BRIDGE DEVELOPMENT  
 BRIDGE SEAL JOINT AND RETAINING ANGLE DETAIL  
 ND. BR-SS7.01-77-63 SHEET OF 2



Notes:  
 1. New bridge details shown.  
 2. When used for deck rehabilitation see Standard No. BR-SS6.00-79-72 showing special attachment of new clip angle.  
 3. Compression seal to be placed in one continuous piece, after joint angles are set, and deck and entire backfill are in place.  
 4. See Standard No. BR-SS7.01-77-63 for additional details.  
 5. Strip and erect seal retaining angles as a unit.

APPROVAL	DATE	DESIGN	DATE

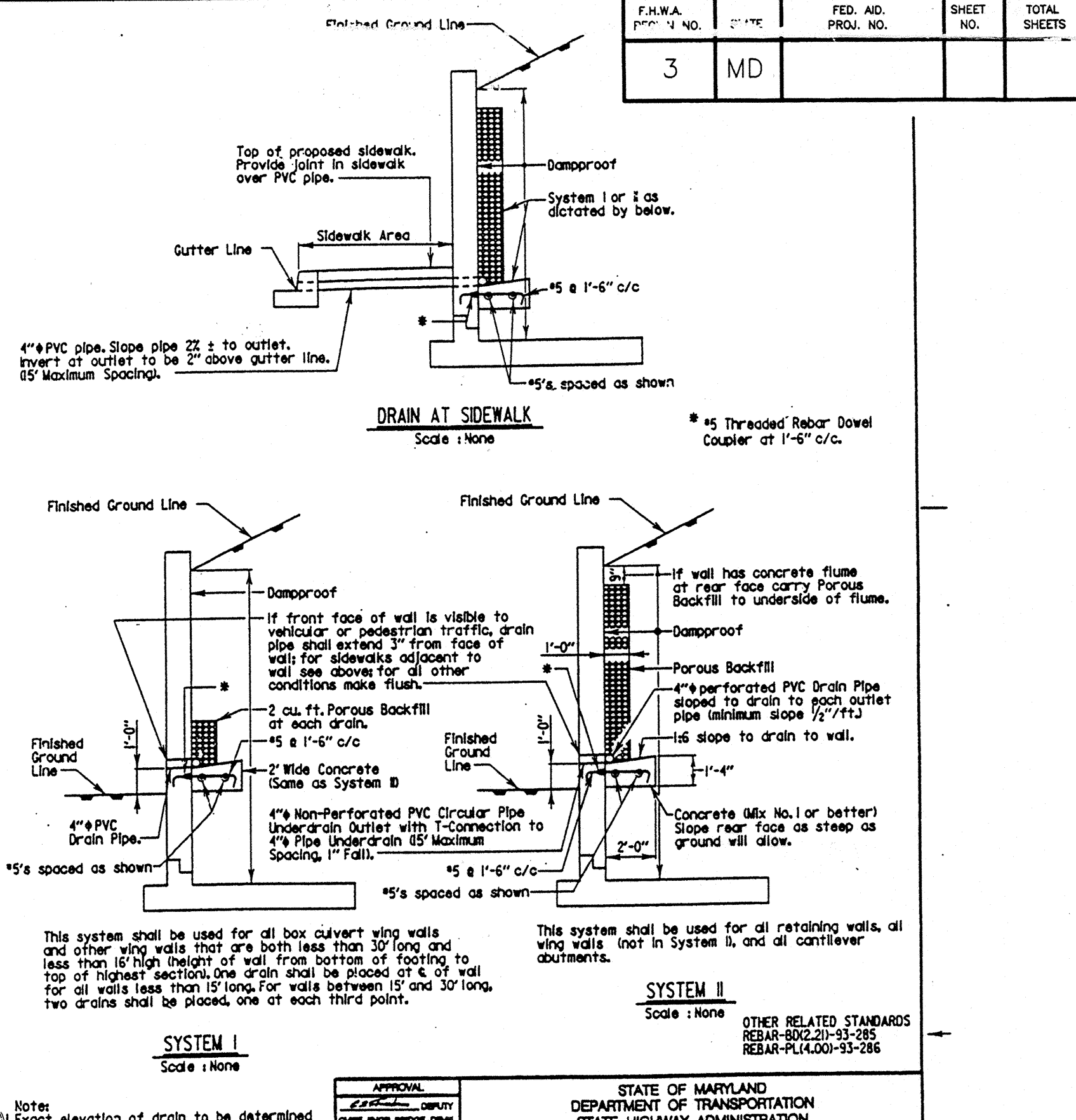
STATE OF MARYLAND  
 DEPARTMENT OF TRANSPORTATION  
 STATE HIGHWAY ADMINISTRATION  
 OFFICE OF BRIDGE DEVELOPMENT  
 COMPRESSION SEAL ROADWAY JOINTS AT ABUTMENTS  
 ND. BR-SS7.02-79-64 SHEET OF 2



Notes:  
 1. Reinforcing steel to be continuous thru joint.  
 2. Entire face of construction joint shall be coated with an approved epoxy bonding compound.  
 3. All dimensions shown are actual dimensions.  
 4. See top charts for length of splice.

APPROVAL	DATE	DESIGN	DATE

STATE OF MARYLAND  
 DEPARTMENT OF TRANSPORTATION  
 STATE HIGHWAY ADMINISTRATION  
 OFFICE OF BRIDGE DEVELOPMENT  
 BRIDGE DECK SLAB DETAIL AT TRANSVERSE CONSTRUCTION JOINT  
 ND. BR-SS6.07-77-68 SHEET OF 1



Notes:  
 1. Exact elevation of drain to be determined by Engineer in field.  
 2. Porous Backfill shall be stone conforming to ASTM M 43, Size No. 57.

APPROVAL	DATE	DESIGN	DATE

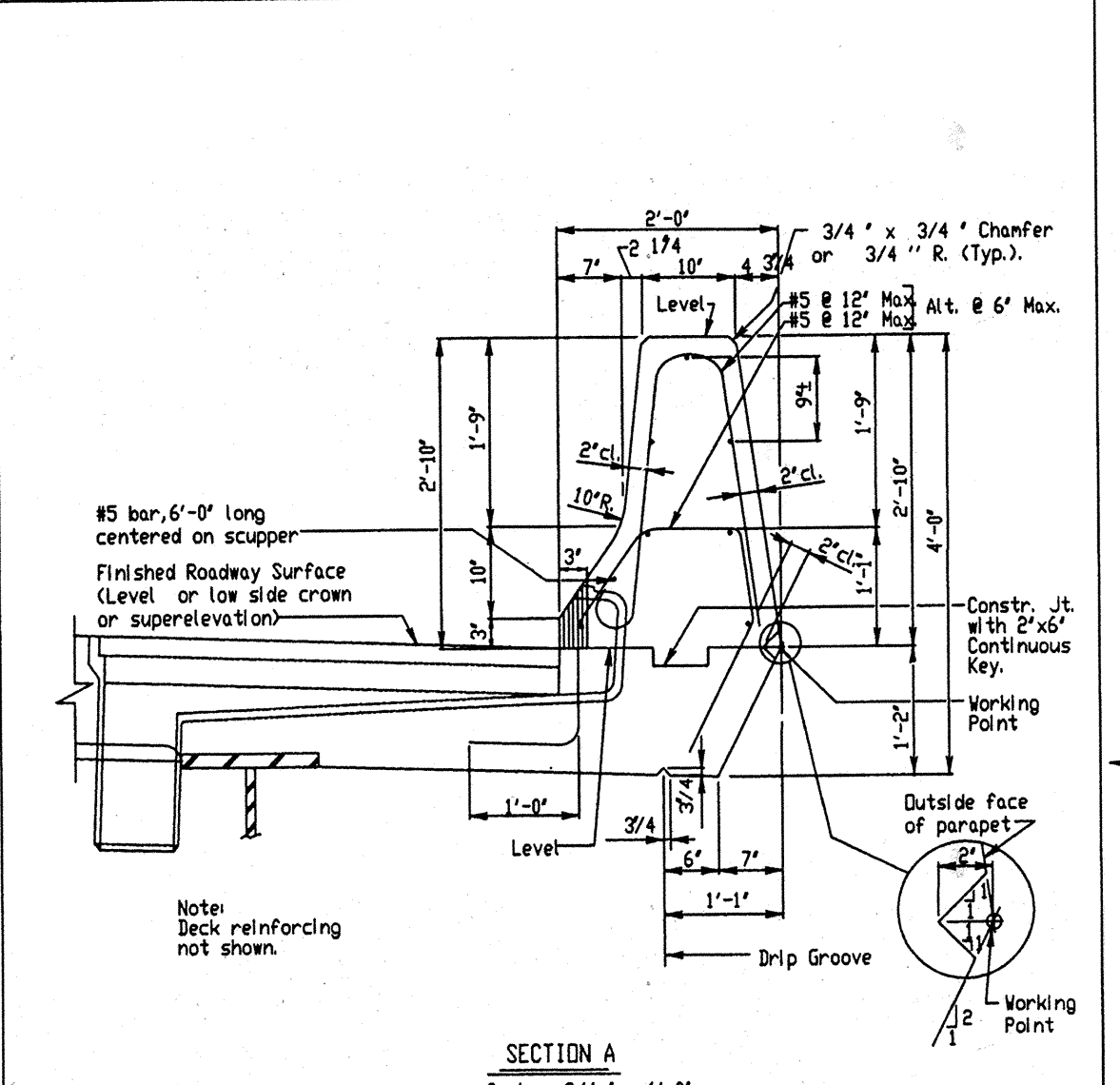
STATE OF MARYLAND  
 DEPARTMENT OF TRANSPORTATION  
 STATE HIGHWAY ADMINISTRATION  
 OFFICE OF BRIDGE DEVELOPMENT  
 RETAINING WALL, WING WALL AND CANTILEVER ABUTMENT DRAINAGE SYSTEMS  
 STANDARD NO. RW.001-80-100 SHEET OF 1

LEVEL 1 TO 875 INFORMATION LEVEL 1 BASED ON OUT LINE USER ID=

LEVEL 1 TO 875 INFORMATION LEVEL 1 BASED ON OUT LINE USER ID=

LEVEL 1 TO 875 INFORMATION LEVEL 1 BASED ON OUT LINE USER ID=

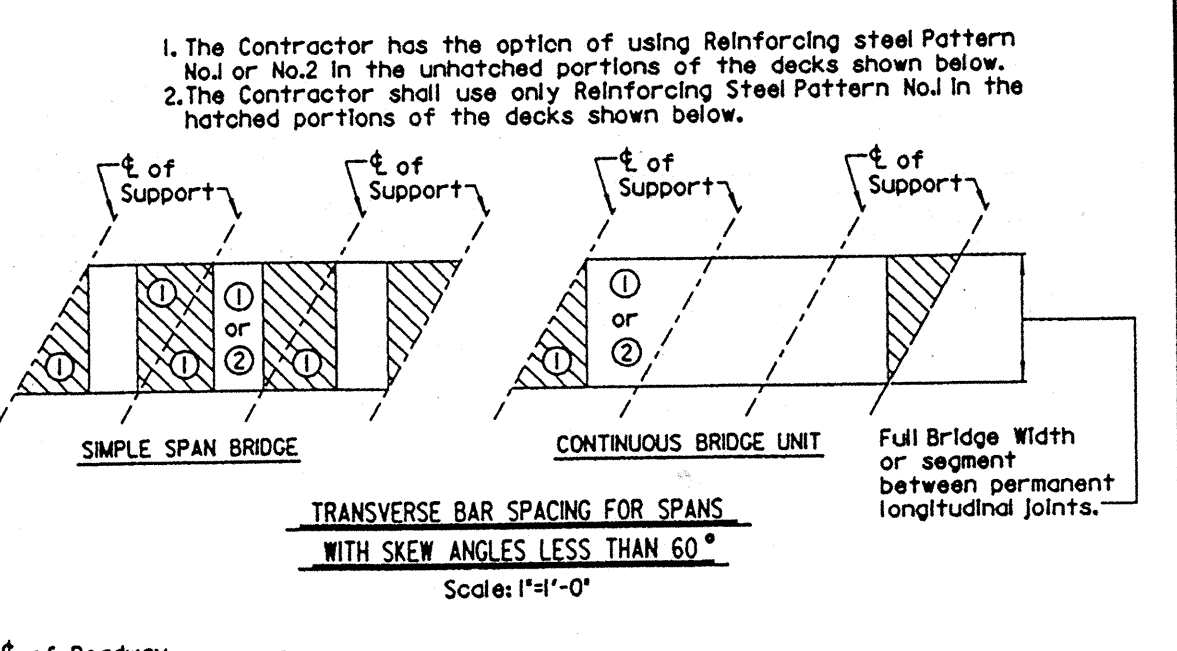
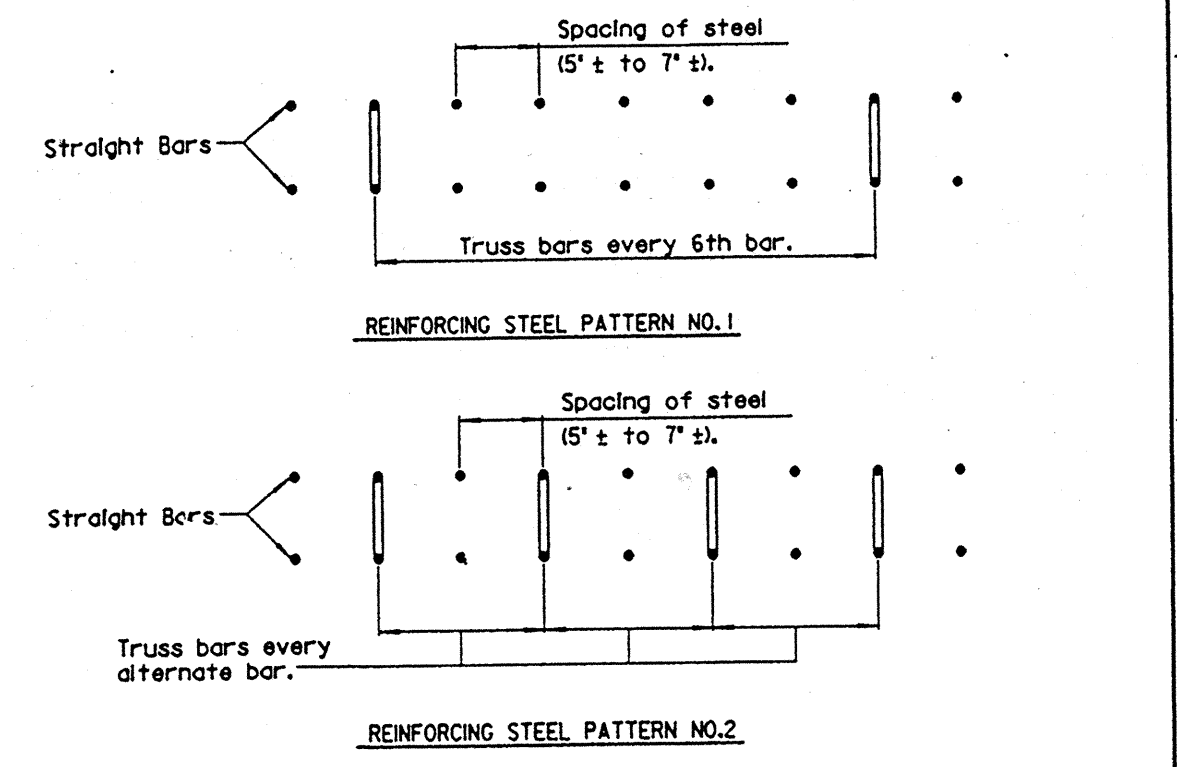
NOTES:  
 Design:  
 1. Latest A.A.S.H.T.O. Standard Specifications for Highway Bridges.  
 2.  $f_c = 4500$  p.s.i.,  $c = f = 0.2$   $f' = 1350$  p.s.i.,  $f_s = 24,000$  p.s.i.  
 3. Design includes provision for 2" future wearing surface.  
 General:  
 1. Transverse bars shall be placed normal to stringers, except in case of curved stringers. When stringers are curved transverse bars shall be placed radially.  
 2. When skew angles are greater than 60° then Contractor may use either Reinforcing Steel Pattern No. 1 or No. 2 throughout bridge.  
 3. When the effective span is less than 5'-0" all bars shall be straight top and bottom. No truss bars are to be used.



Notes:  
 1. All longitudinal bars are #5 spaced as shown.  
 2. If Scupper Types C, D, E, 1 1/2" V are used they shall be recessed into parapet as shown. Changer parapets from face of concrete to face of scupper in 1'-0".  
 3. All keys are nominal size.

APPROVAL	DATE	DESIGN	DATE

STATE OF MARYLAND  
 DEPARTMENT OF TRANSPORTATION  
 STATE HIGHWAY ADMINISTRATION  
 OFFICE OF BRIDGE DEVELOPMENT  
 BRIDGE DECK SLAB GENERAL NOTES AND BAR SPACING  
 ND. BR-SS6.111-79-90 SHEET OF 2



Notes:  
 1. The Contractor has the option of using Reinforcing Steel Pattern No. 1 or No. 2 in the unhatched portions of the decks shown below.  
 2. The Contractor shall use only Reinforcing Steel Pattern No. 1 in the hatched portions of the decks shown below.

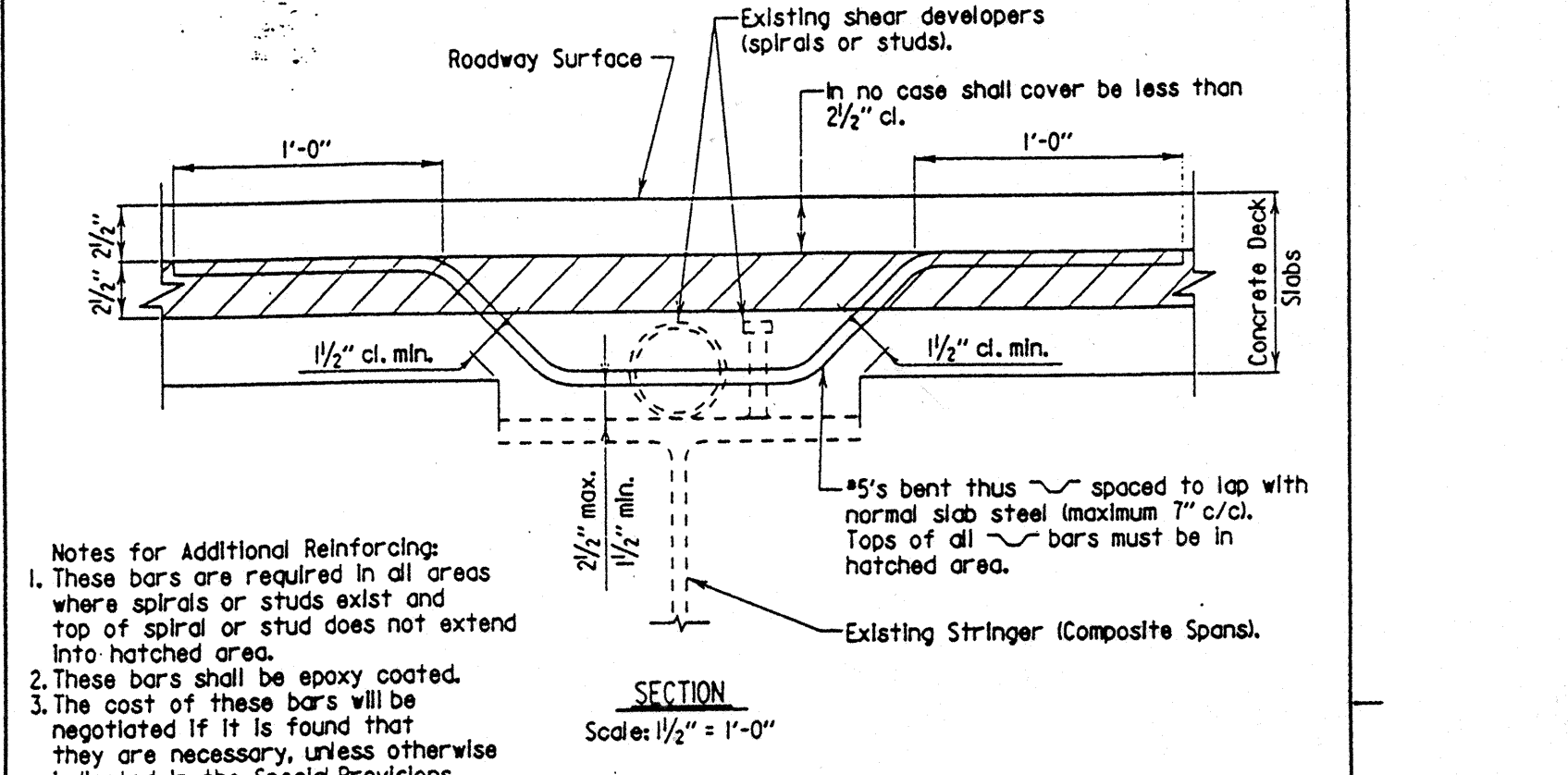
APPROVAL	DATE	DESIGN	DATE

STATE OF MARYLAND  
 DEPARTMENT OF TRANSPORTATION  
 STATE HIGHWAY ADMINISTRATION  
 OFFICE OF BRIDGE DEVELOPMENT  
 BRIDGE DECK SLAB GENERAL NOTES AND BAR SPACING  
 ND. BR-SS6.111-79-90 SHEET OF 2

LEVEL 1 TO 875 INFORMATION LEVEL 1 BASED ON OUT LINE USER ID=

LEVEL 1 TO 875 INFORMATION LEVEL 1 BASED ON OUT LINE USER ID=

LEVEL 1 TO 875 INFORMATION LEVEL 1 BASED ON OUT LINE USER ID=



Notes for Additional Reinforcing:  
 1. These bars are required in all areas where spirals or studs exist and top of spiral or stud does not extend into hatched area.  
 2. These bars shall be epoxy coated.  
 3. The cost of these bars will be negotiated if it is found that they are necessary, unless otherwise indicated in the Special Provisions.

Notes for Spiral Removal:  
 1. Contractor shall cut spiral shear developers as close to flange as possible. Burning off spirals from flange will not be allowed.  
 2. The studs will not be measured for payment. All costs shall be incidental to the concrete removal item.

APPROVAL	DATE	DESIGN	DATE

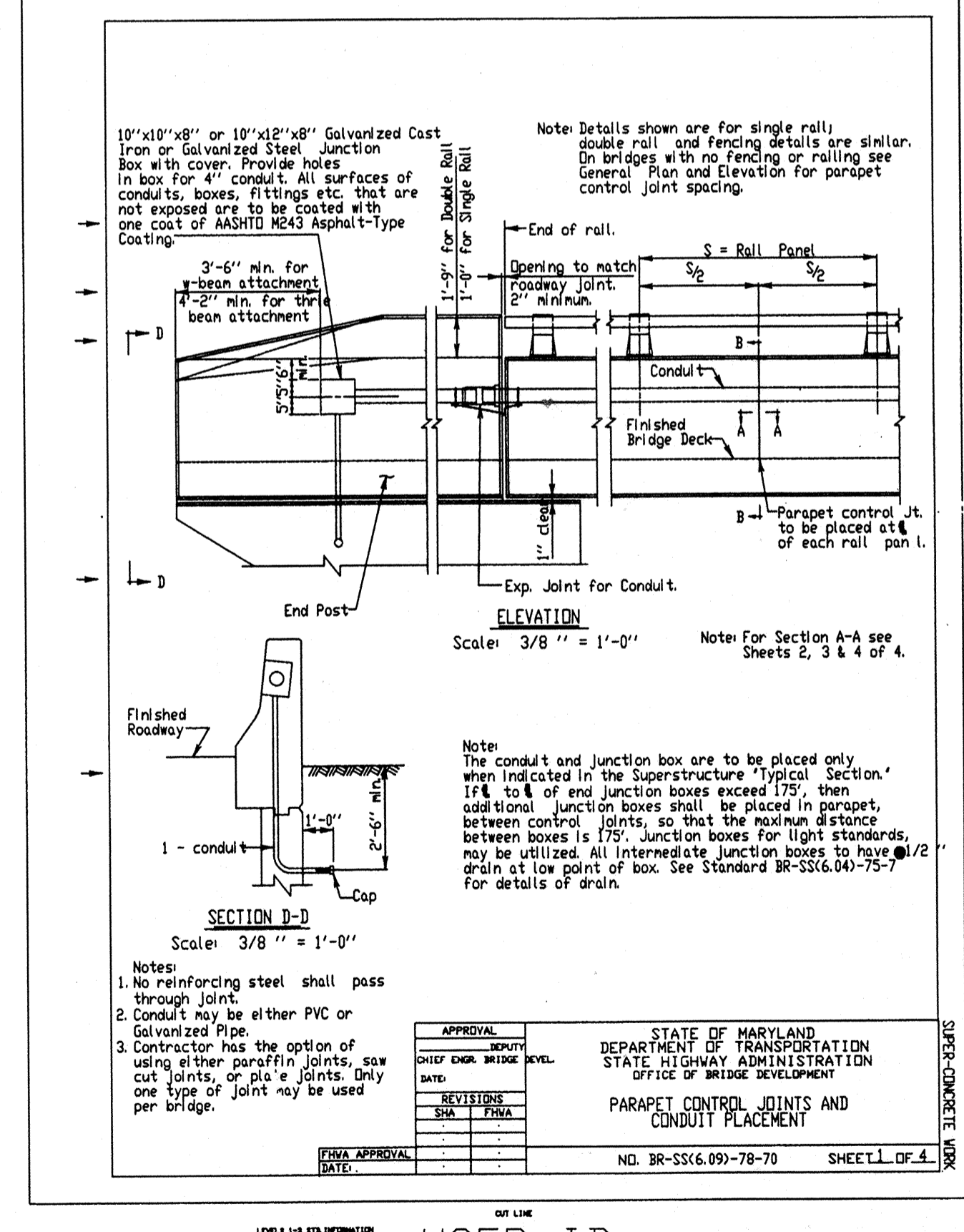
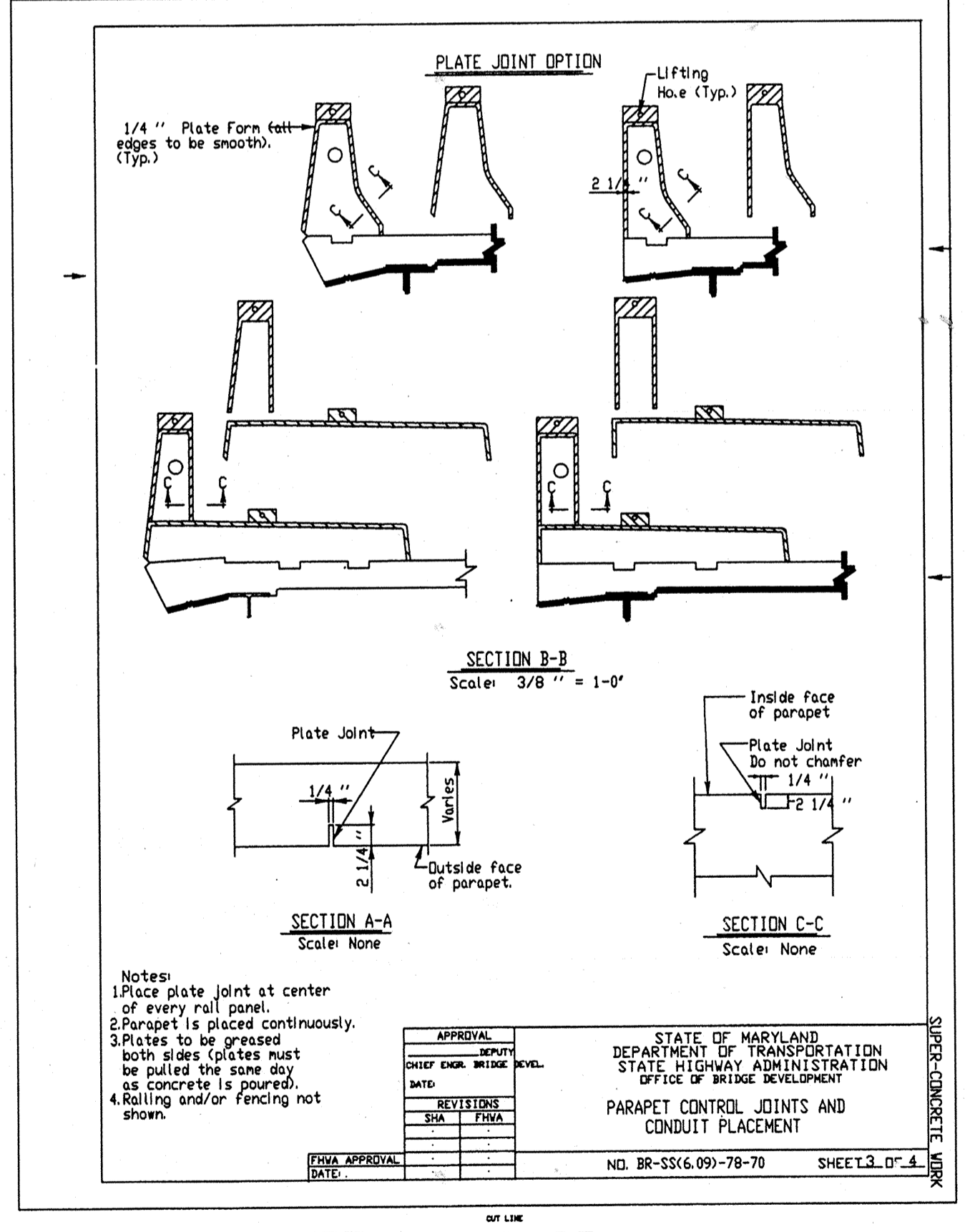
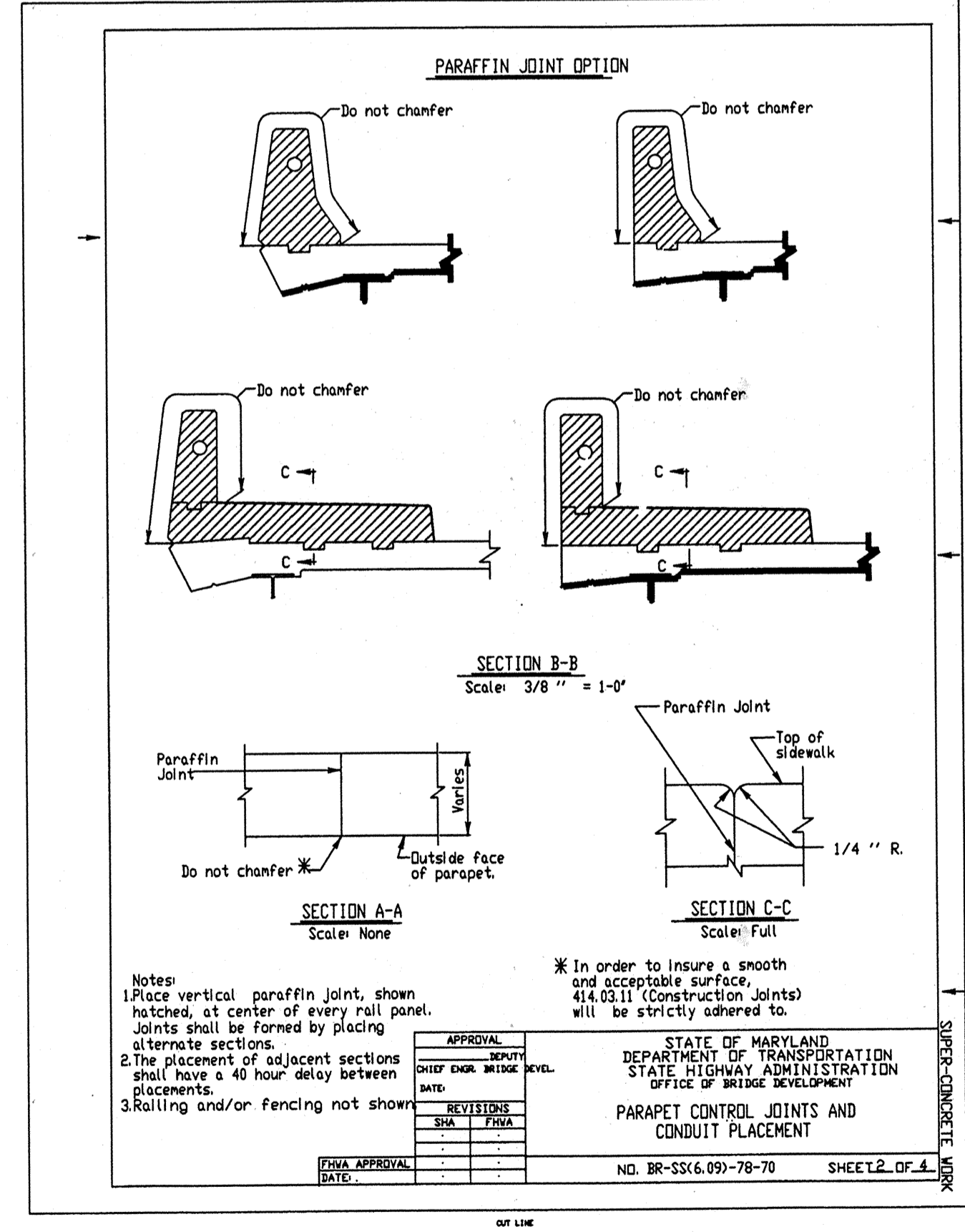
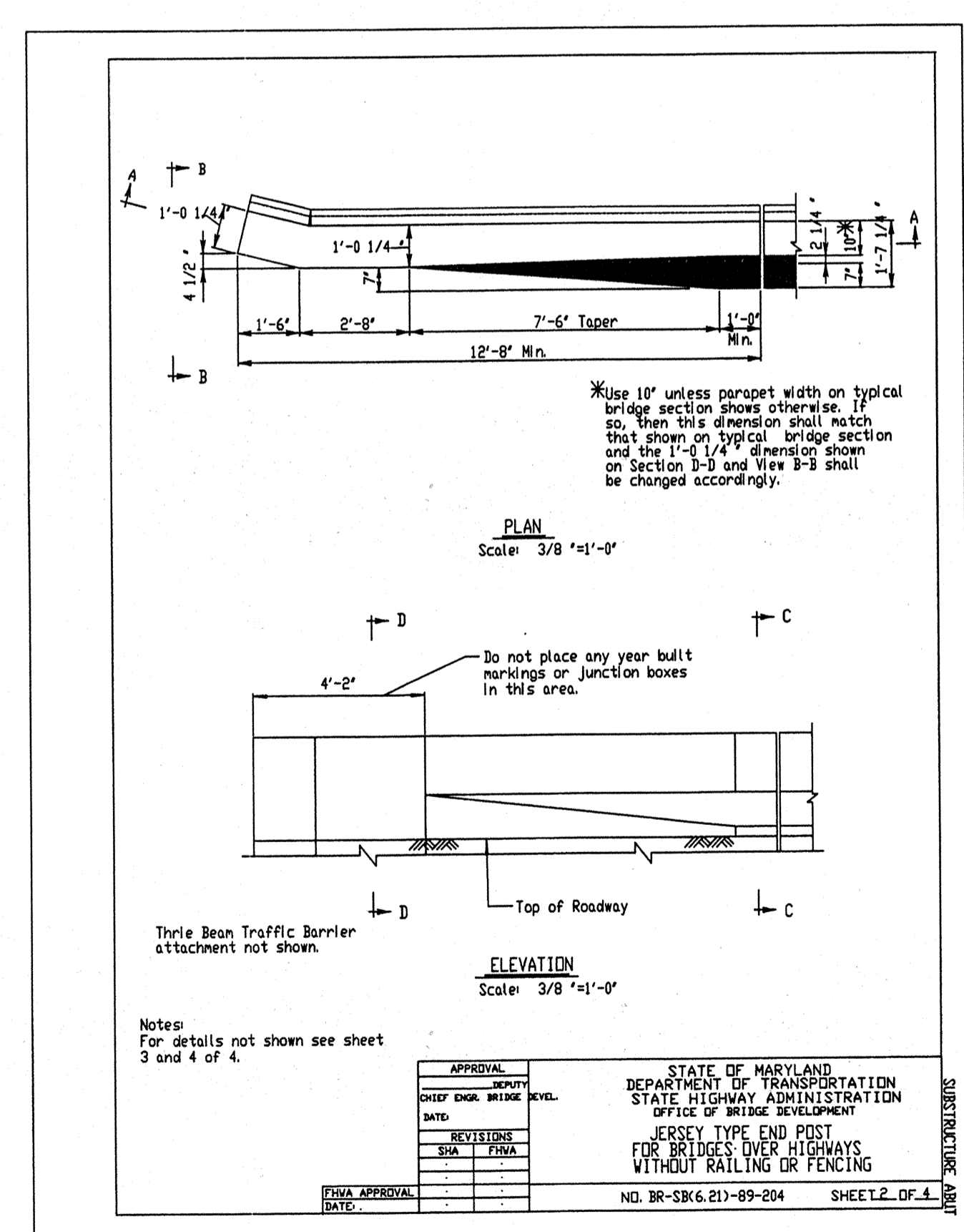
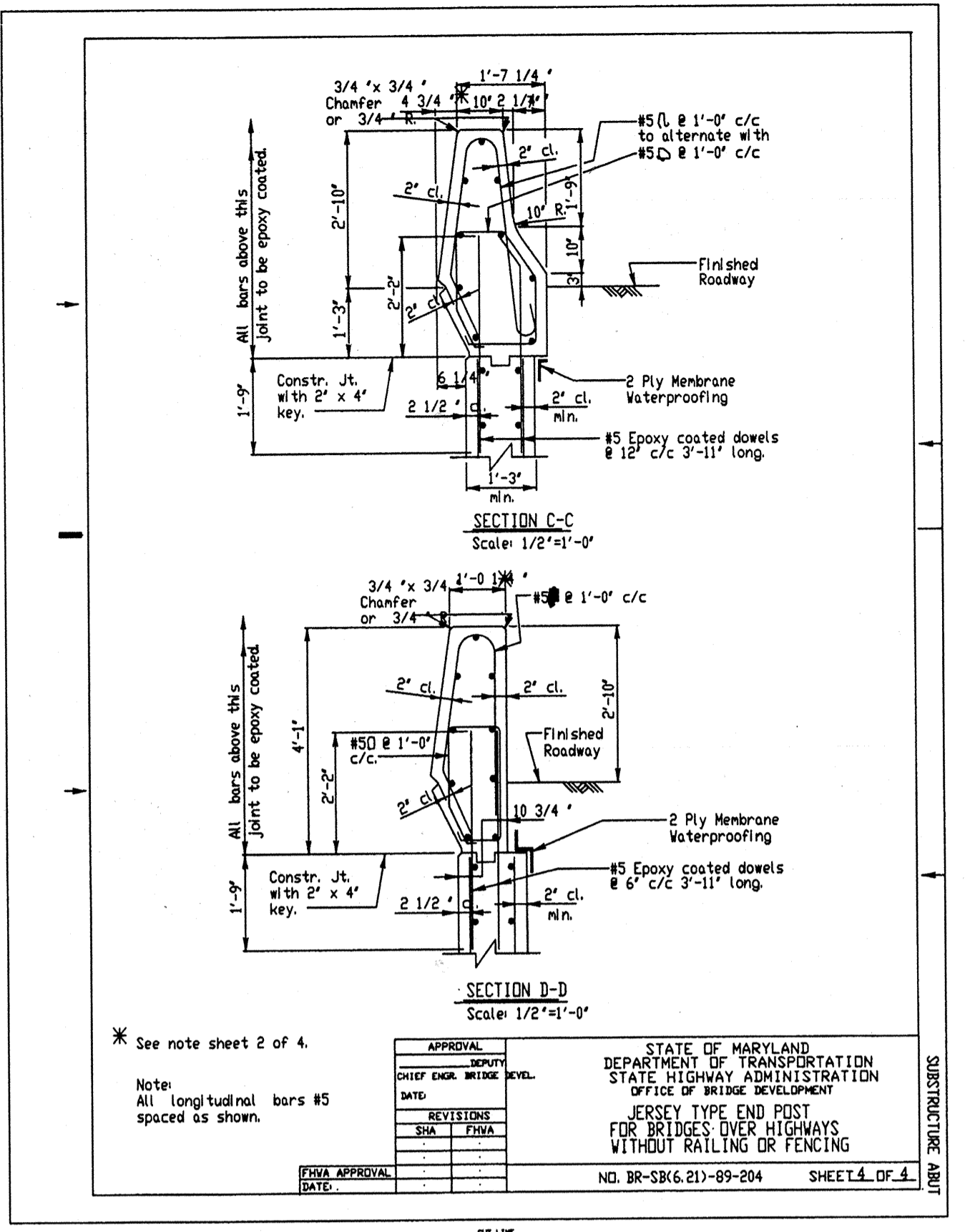
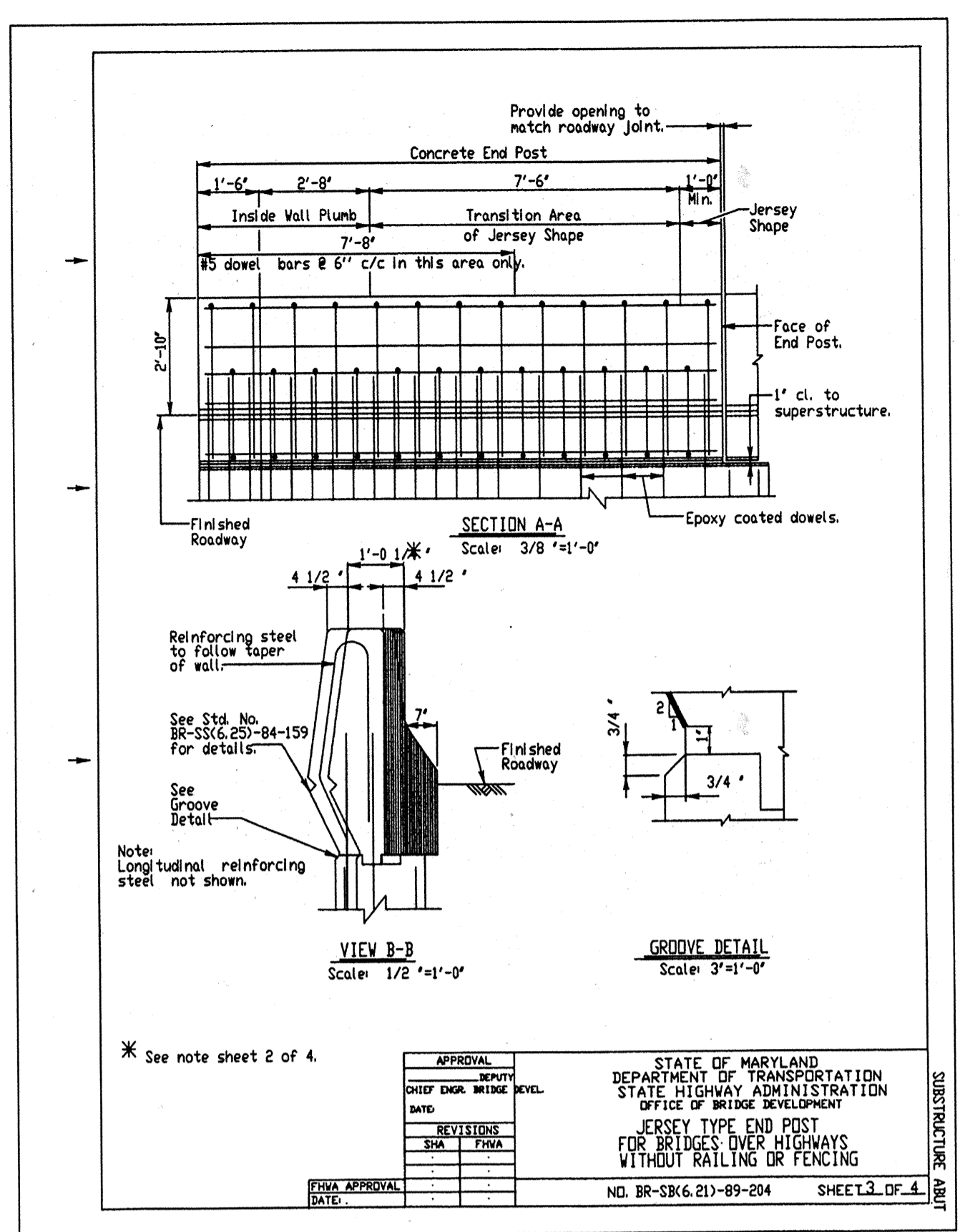
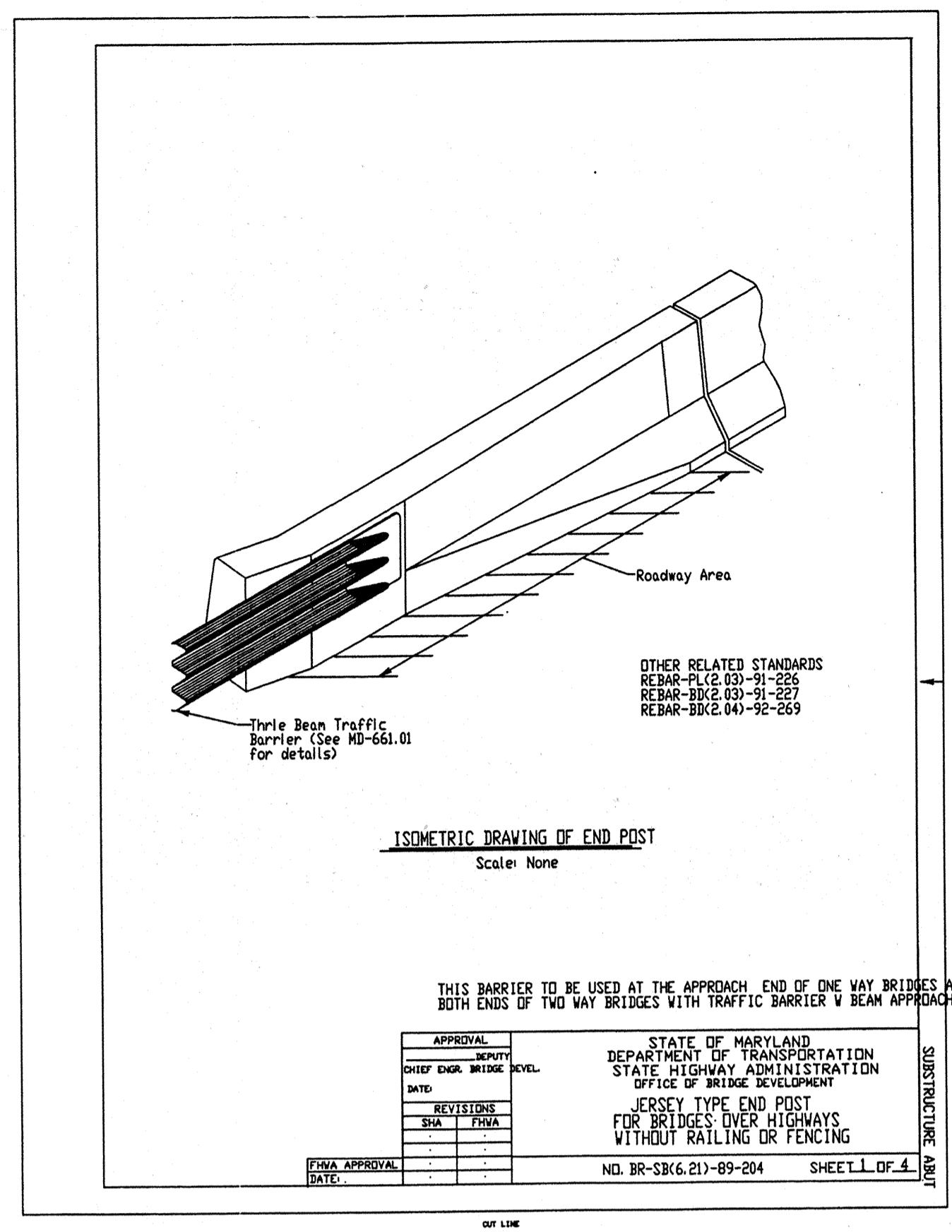
STATE OF MARYLAND  
 DEPARTMENT OF TRANSPORTATION  
 STATE HIGHWAY ADMINISTRATION  
 OFFICE OF BRIDGE DEVELOPMENT  
 DETAIL OF ADDITIONAL REINFORCEMENT AT EXISTING SHEAR DEVELOPERS AND SPIRAL REMOVAL  
 STANDARD NO. BR-SS6.101-79-76 SHEET OF 1

DEPARTMENT OF PUBLIC WORKS  
 HOWARD COUNTY, MARYLAND  
 Director of Public Works  
 3/12/97  
 Chief, Bureau of Highways

KENNEDY PORTER & ASSOCIATES  
 Consulting Engineers  
 4110 Black Rock Road  
 Hampstead, Maryland 21074  
 (410) 239-4482  
 KPA PROJECT: 94-032F

DES:			
DRN:			
CHK:			
DATE:	BY	NO.	REVISION

Rehabilitation of Bridge No. M-196  
 Ednor Road Over The Patuxent River  
 STANDARD DETAILS  
 Bridge M-196  
 Capital Project B-3832  
 Scale AS SHOWN  
 SHEET 19 OF 26  
 B0086-19



DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

*James P. Linn* 3/12/97  
DIRECTOR OF PUBLIC WORKS DATE

*Robert P. Linn* 3/12/97  
CHIEF, BUREAU OF ENGINEERING DATE

*Christopher M. Cande* 3-12-97  
CHIEF, BUREAU OF HIGHWAYS DATE

*William E. Mahan* 3/12/97  
CHIEF, DIVISION OF TRANSPORTATION PROJECTS & WATERSHED MANAGEMENT DATE

KENNEDY PORTER & ASSOCIATES  
Consulting Engineers

4110 Black Rock Road  
Hampstead, Maryland 21074  
(410) 239-4482  
KPA PROJECT: 94-032F

DES:					
DRN:					
CHK:					
DATE:					
BY	NO.	REVISION	DATE	600'SCALE MAP NO.	BLOCK NO.

Rehabilitation of Bridge No. M-196  
Ednor Road Over The Patuxent River

STANDARD DETAILS

Bridge M-196 Capital Project B-3832

SCALE AS SHOWN

SHEET 20 OF 26

B0086-20

### GENERAL NOTES

**Specifications:** Latest FHWA Specifications and Special Provisions for materials and construction. Latest AASHTO Standard Specifications for Highway Bridges for design.

**Materials:** Scuppers shall be grey cast iron, conforming to A 48 Class 20 B.  
Gratings shall be structural steel conforming to A 709 Grade 36 and epoxy coated.  
Stainless steel bolts shall conform to A 193, Identification Symbol 88, Type 304.

**Paint:** Scuppers shall be painted with one shop coat inside and outside. Shop paint shall conform to SSPC-16. Inside of scuppers to be painted with one coat of coal tar epoxy SSPC-Paint 16. Vertical showing surface in curb face and horizontal showing surface in roadway to be painted with the second and finish coats specified in SSPC-16, System E. Outside of scuppers exposed to atmosphere below the concrete deck slab, shall receive the field paint required for structural steel. If there is no paint indicated, the scupper shall be painted to match color existing beam.

**Shipping:** Grate and Scupper shall be shipped as unit with grate hold down bolts in place (not welded).

**Measurement and Payment:** The furnishing, fabricating, erecting, etc. of all new scuppers for the bridge will be measured and paid for as the Contract unit price per each for the Scupper, less regardless of length of downspouts, etc. If no specific items appear in the Invitation for Bid, the cost shall be included in the pertinent Superstructure Concrete Item.

APPROVAL		STATE OF MARYLAND
DESIGNED BY	DATE	DEPARTMENT OF TRANSPORTATION
CHECKED BY	DATE	STATE HIGHWAY ADMINISTRATION
APPROVED BY	DATE	OFFICE OF BRIDGE DEVELOPMENT
REVISIONS		
NO.	DATE	DESCRIPTION
1	2-22-92	
2	2-22-92	

STANDARD. BR-SS(0.04)-81-130 SHEET 2 OF 4

### PLAN - SCUPPER GRATING

Scale: 1/2" = 1'-0"

### SECTION B-B

Scale: 3/4" = 1'-0"

### DETAIL "A"

Scale: None

**Notes:** After concrete deck is poured and lait has been cleaned, insert grate and bolt in place.  
1/2" Stainless Steel Bolt 1" Long  
1/4" Connection Plate  
Lip of Scupper  
Drill and tap holes in place to receive bolt. Angle is maintained.  
2-7/8" x 4" x 3/8" x 4" Long (Contractor to order) weather and top for adjustment purposes, provide the location of slot relative to top of angle is maintained.

APPROVAL		STATE OF MARYLAND
DESIGNED BY	DATE	DEPARTMENT OF TRANSPORTATION
CHECKED BY	DATE	STATE HIGHWAY ADMINISTRATION
APPROVED BY	DATE	OFFICE OF BRIDGE DEVELOPMENT
REVISIONS		
NO.	DATE	DESCRIPTION
1	2-22-92	
2	2-22-92	

STANDARD. BR-SS(0.04)-81-130 SHEET 3 OF 4

### ELEVATION

Scale: 1/2" = 1'-0"

**Notes:** All exposed material, except cast iron, scupper downspout to epoxy coated as indicated for epoxy coated re-bar. Exposed portions of cast iron scupper and downspout to be coated with coal tar epoxy conforming to Specification SSPC-16.  
The downspout may be PVC or fiberglass. Color shall match finished bridge paint color. No additional compensation will be allowed for whichever option is chosen.

APPROVAL		STATE OF MARYLAND
DESIGNED BY	DATE	DEPARTMENT OF TRANSPORTATION
CHECKED BY	DATE	STATE HIGHWAY ADMINISTRATION
APPROVED BY	DATE	OFFICE OF BRIDGE DEVELOPMENT
REVISIONS		
NO.	DATE	DESCRIPTION
1	2-22-92	
2	2-22-92	

STANDARD. BR-SS(0.08)-83-146 SHEET 1 OF 2

Scale: 1" = 1'-0"

**Notes:** If pad height is less than 4" and bearing pad dimensions, etc. shown on this sheet will prevail except no reinforcing steel will be required and pad must be poured monolithically with support.  
Anchor bolts shall be set in reinforced concrete or drilled or cored holes in the masonry. The diameter of at least 1" larger than the diameter of the bolts.  
Notes shall be filed with nonshrink grout.  
Nonshrink grout shall have a min. comp. strength of 5000 psi. Be 7 days when tested in accordance with AASHTO T 106, except that the cube sizes shall remain in contact with a top flange of the scupper throughout the curing period. The nonshrink grout shall have a minimum expansion of 0.02% after 7 days when tested in accordance with AASHTO T 228-92.  
5. For size of pad see pertinent substructure sheets, if not available see note in plan above.  
6. Space reinforcing steel to clear anchor bolts.

BEARING PAD WHERE ONLY A SINGLE SHOE IS REQUIRED ON A SUPPORT

APPROVAL		STATE OF MARYLAND
DESIGNED BY	DATE	DEPARTMENT OF TRANSPORTATION
CHECKED BY	DATE	STATE HIGHWAY ADMINISTRATION
APPROVED BY	DATE	OFFICE OF BRIDGE DEVELOPMENT
REVISIONS		
NO.	DATE	DESCRIPTION
1	2-22-92	
2	2-22-92	

STANDARD. BR-SS(0.02)-80-12 SHEET 1 OF 1

### TYPE ICA BRIDGE SCUPPER

Scale: 1/2" = 1'-0"

**Notes:** Wood forms may be used in the area where there will be a minimum of 3" of concrete cover over the top of the scupper. Epoxy coated re-bar shall be used for the bottom reinforcement. The epoxy coating shall not be damaged during placement and curing of the concrete. The epoxy coating shall be reapplied to any damaged areas.

APPROVAL		STATE OF MARYLAND
DESIGNED BY	DATE	DEPARTMENT OF TRANSPORTATION
CHECKED BY	DATE	STATE HIGHWAY ADMINISTRATION
APPROVED BY	DATE	OFFICE OF BRIDGE DEVELOPMENT
REVISIONS		
NO.	DATE	DESCRIPTION
1	2-22-92	
2	2-22-92	

STANDARD. BR-SS(0.04)-81-130 SHEET 2 OF 4

### TYPE ICA BRIDGE SCUPPER

Scale: 3/8" = 1'-0"

**Notes:** If over 1'-0", provide detail as shown above.  
Provided it does not interfere with minimum underclearance over roadway and/or shoulder. The downspout may be PVC or fiberglass. Color shall match finished bridge paint color. No additional compensation will be allowed for whichever option is chosen.

APPROVAL		STATE OF MARYLAND
DESIGNED BY	DATE	DEPARTMENT OF TRANSPORTATION
CHECKED BY	DATE	STATE HIGHWAY ADMINISTRATION
APPROVED BY	DATE	OFFICE OF BRIDGE DEVELOPMENT
REVISIONS		
NO.	DATE	DESCRIPTION
1	2-22-92	
2	2-22-92	

STANDARD. BR-SS(0.04)-81-130 SHEET 2 OF 2

### TYPE ICA BRIDGE SCUPPER

Scale: 1/2" = 1'-0"

**Notes:** All exposed material, except cast iron, scupper downspout to epoxy coated as indicated for epoxy coated re-bar. Exposed portions of cast iron scupper and downspout to be coated with coal tar epoxy conforming to Specification SSPC-16.

APPROVAL		STATE OF MARYLAND
DESIGNED BY	DATE	DEPARTMENT OF TRANSPORTATION
CHECKED BY	DATE	STATE HIGHWAY ADMINISTRATION
APPROVED BY	DATE	OFFICE OF BRIDGE DEVELOPMENT
REVISIONS		
NO.	DATE	DESCRIPTION
1	2-22-92	
2	2-22-92	

STANDARD. BR-SS(0.04)-81-130 SHEET 2 OF 4

### ROADWAY JOINT - CLIP ANGLE DETAIL

Scale: 1/2" = 1'-0"

**Notes:** Existing members shown dashed.  
Studs not shown in PLAN.  
If existing clip angle is exactly this dimension or less, then new clip angle along this edge is to be beveled at contact surface so that a proper weld can be provided.

APPROVAL		STATE OF MARYLAND
DESIGNED BY	DATE	DEPARTMENT OF TRANSPORTATION
CHECKED BY	DATE	STATE HIGHWAY ADMINISTRATION
APPROVED BY	DATE	OFFICE OF BRIDGE DEVELOPMENT
REVISIONS		
NO.	DATE	DESCRIPTION
1	2-22-92	
2	2-22-92	

STANDARD. BR-SS(0.06)-78-72 SHEET 1 OF 1

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

*James P. Lee* 3/12/97  
DIRECTOR OF PUBLIC WORKS DATE

*Paul R. Brown* 3/12/97  
CHIEF, BUREAU OF ENGINEERING DATE

*Richard M. Daniels* 3-12-97  
CHIEF, DIVISION OF TRANSPORTATION DATE

*William F. White* 3/12/97  
CHIEF, DIVISION OF TRANSPORTATION DATE

KENNEDY PORTER & ASSOCIATES  
Consulting Engineers

4110 Black Rock Road  
Hampstead, Maryland 21074  
(410) 239-4482

KPA PROJECT: 04-032F

DES: \_\_\_\_\_

DRN: \_\_\_\_\_

CHK: \_\_\_\_\_

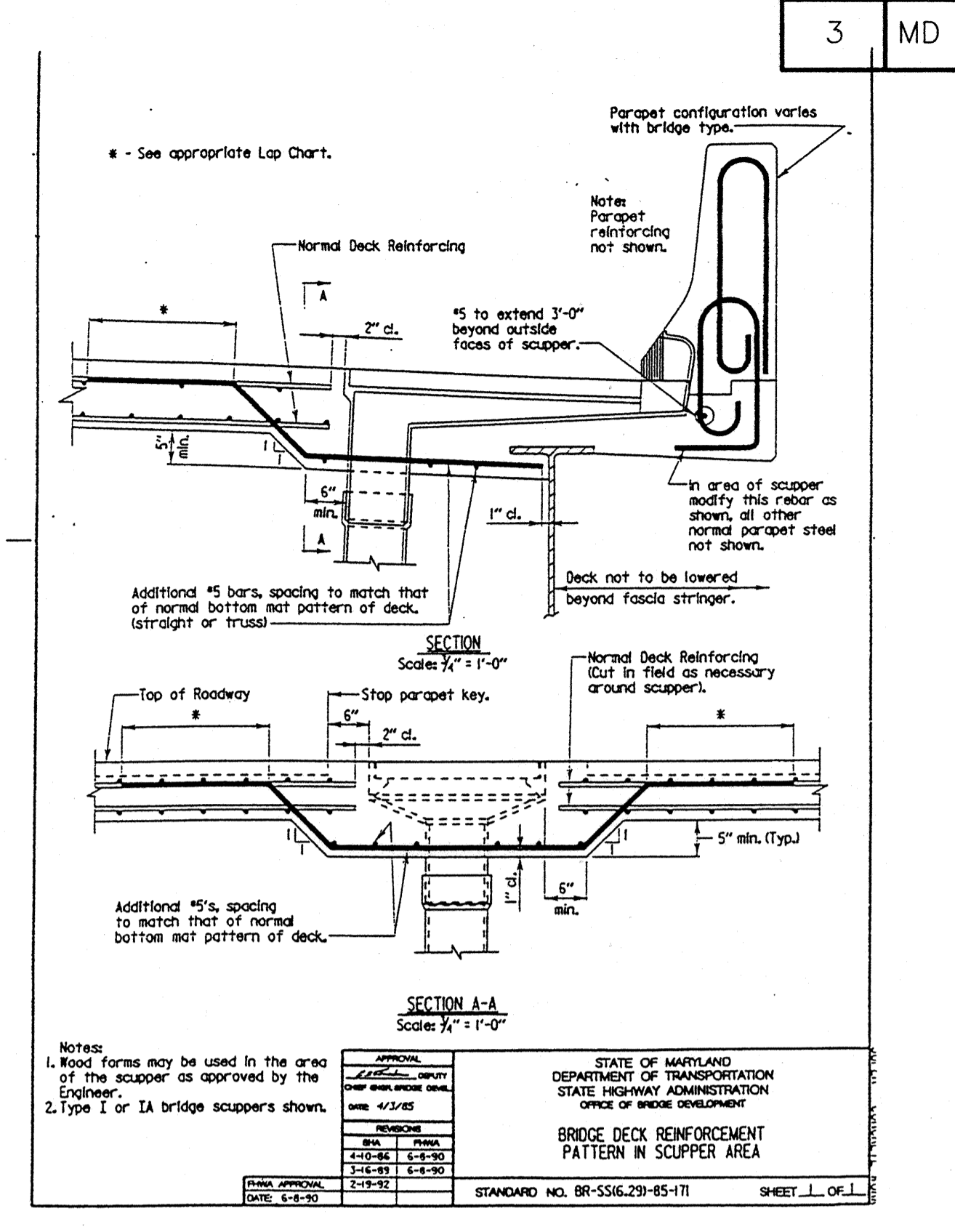
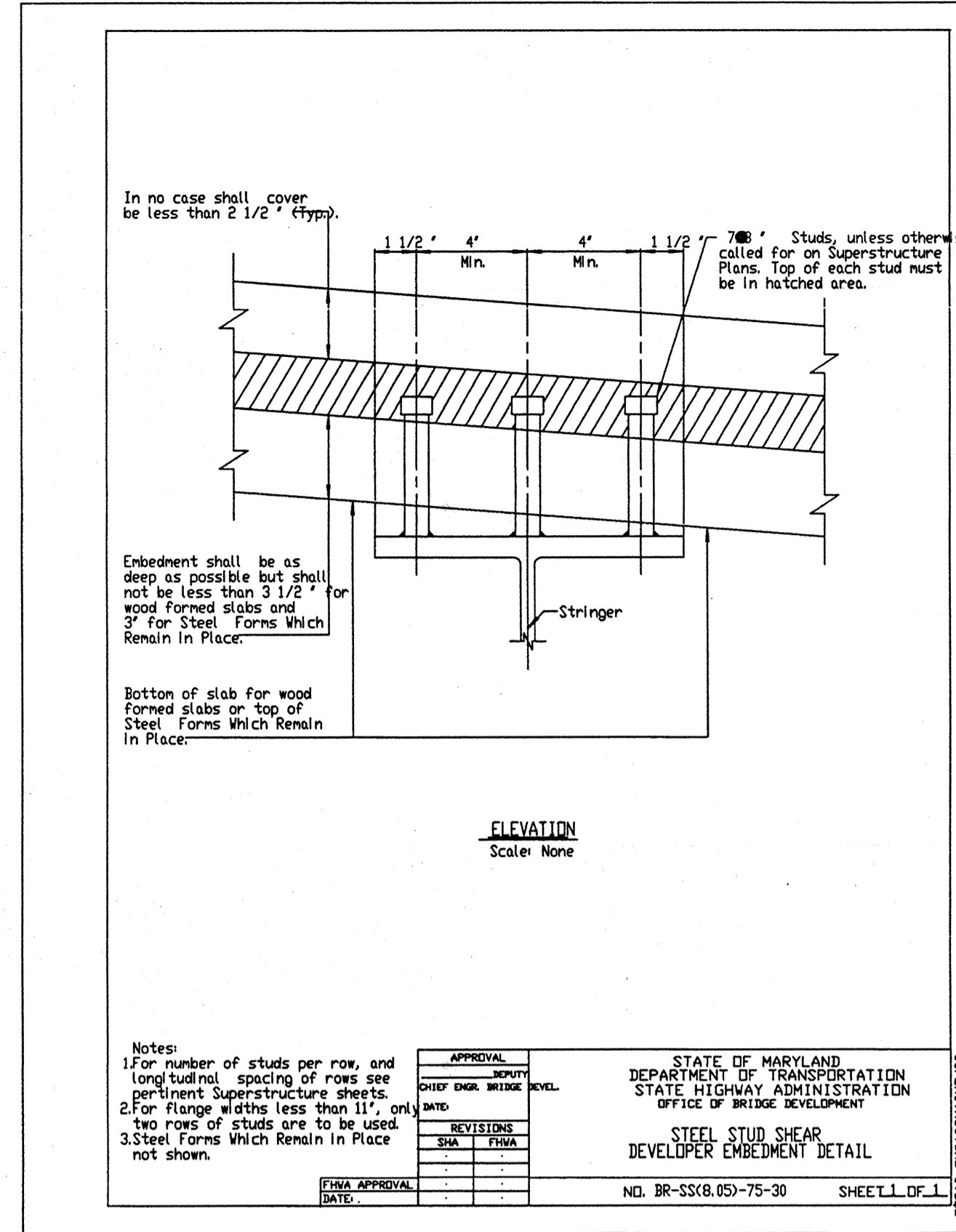
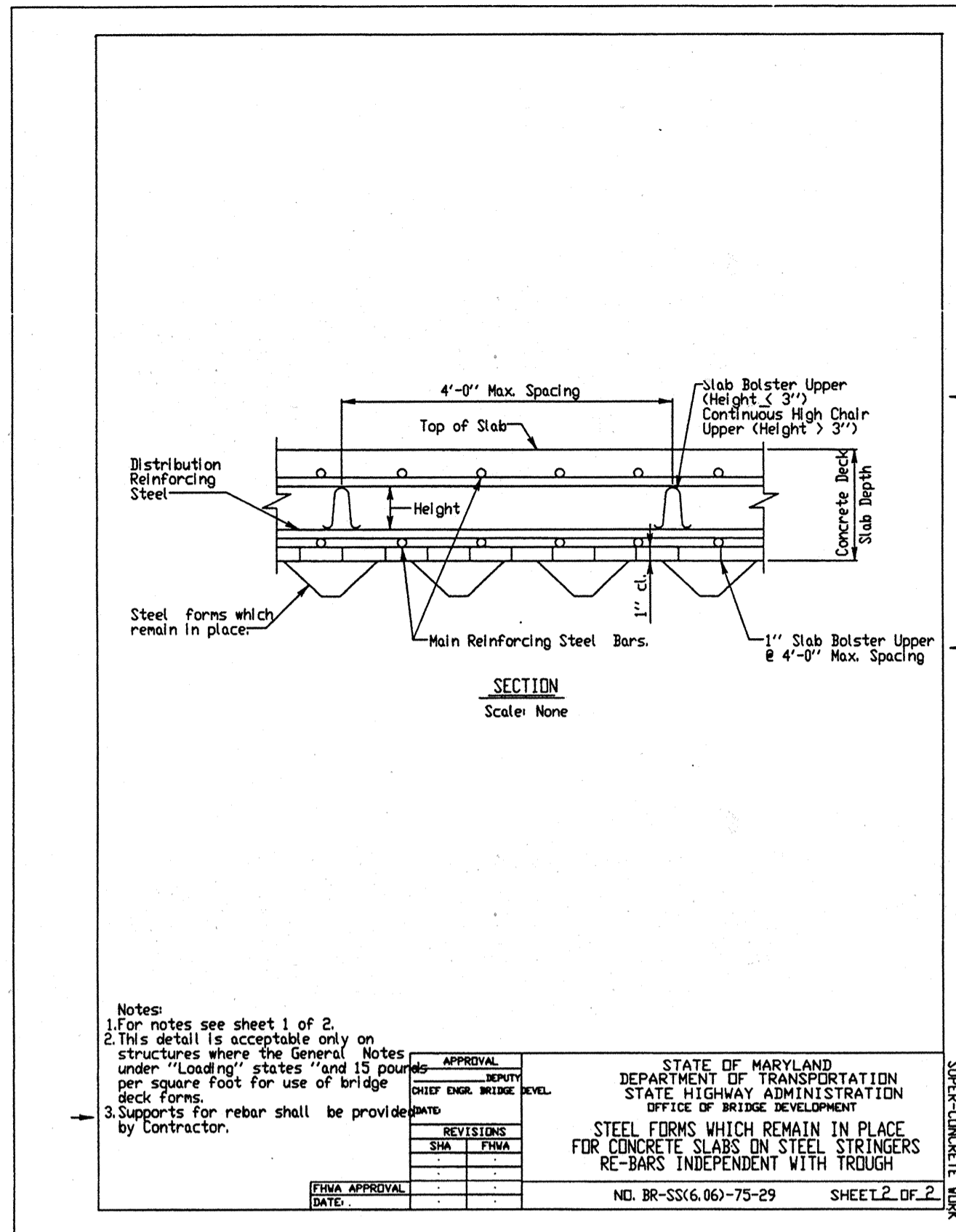
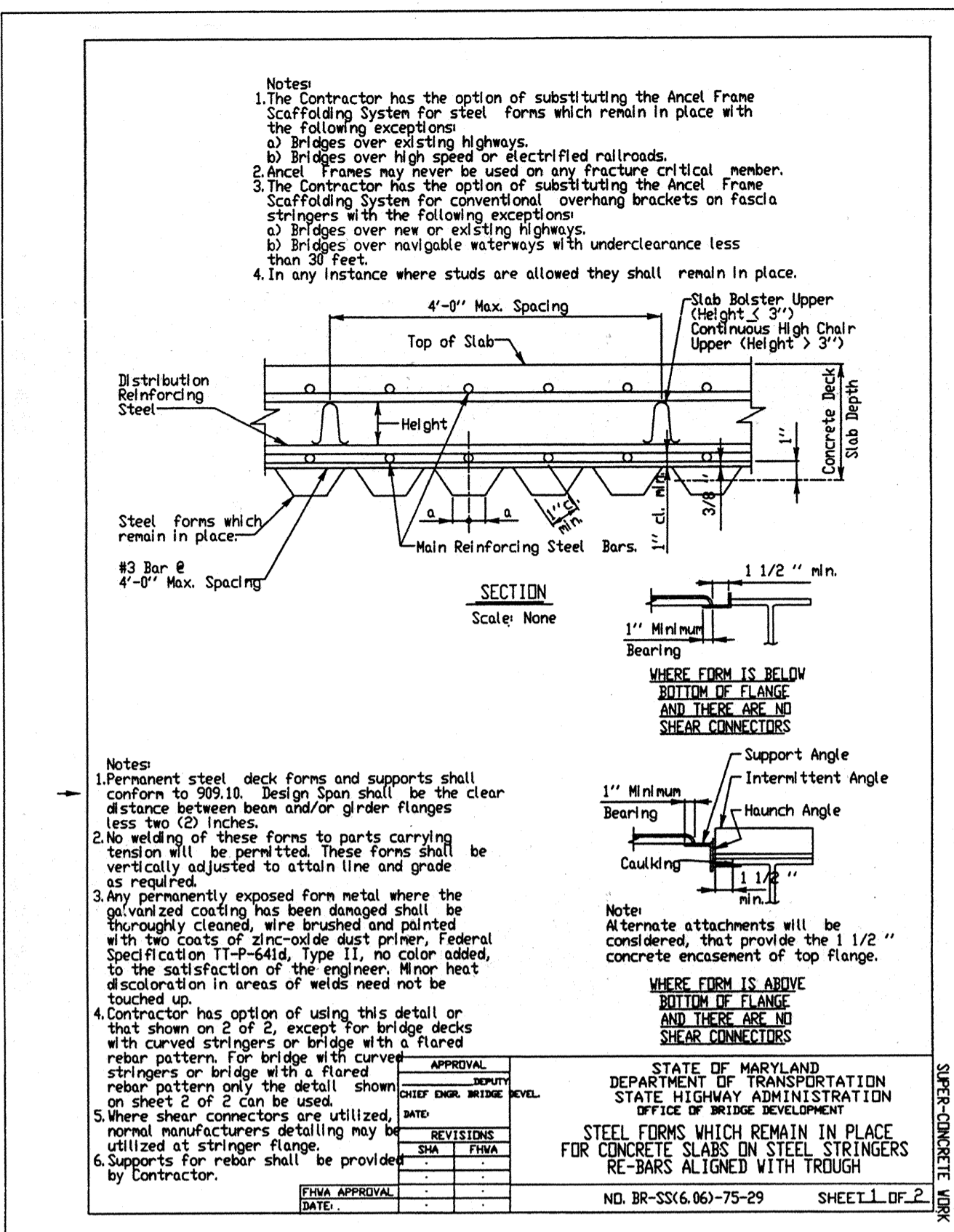
DATE: \_\_\_\_\_

BY: \_\_\_\_\_ NO. \_\_\_\_\_ REVISION \_\_\_\_\_ DATE \_\_\_\_\_

Rehabilitation of Bridge No. M-196  
Ednor Road Over The Patuxent River

STANDARD DETAILS

Bridge M-196      Capital Project B-3832

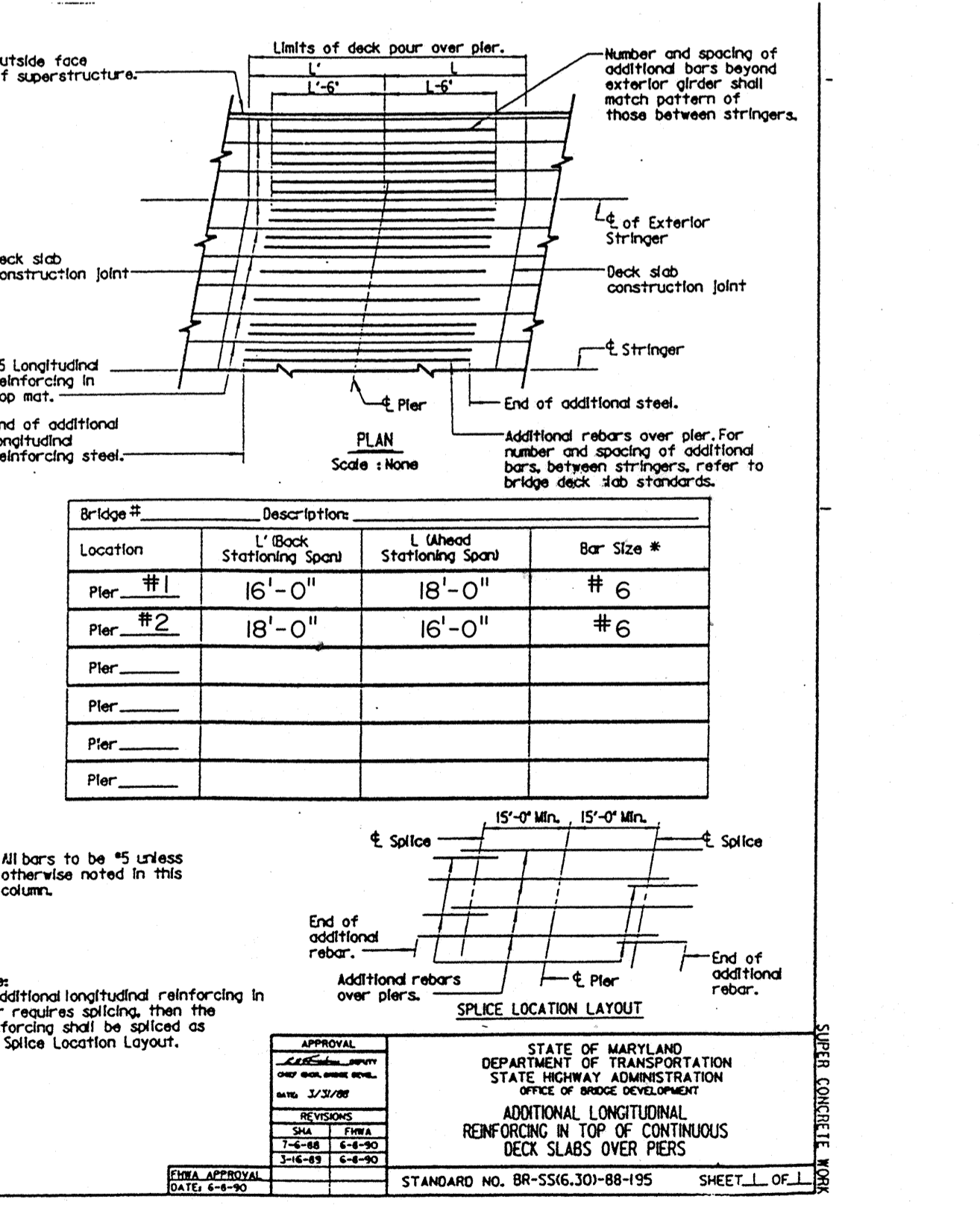
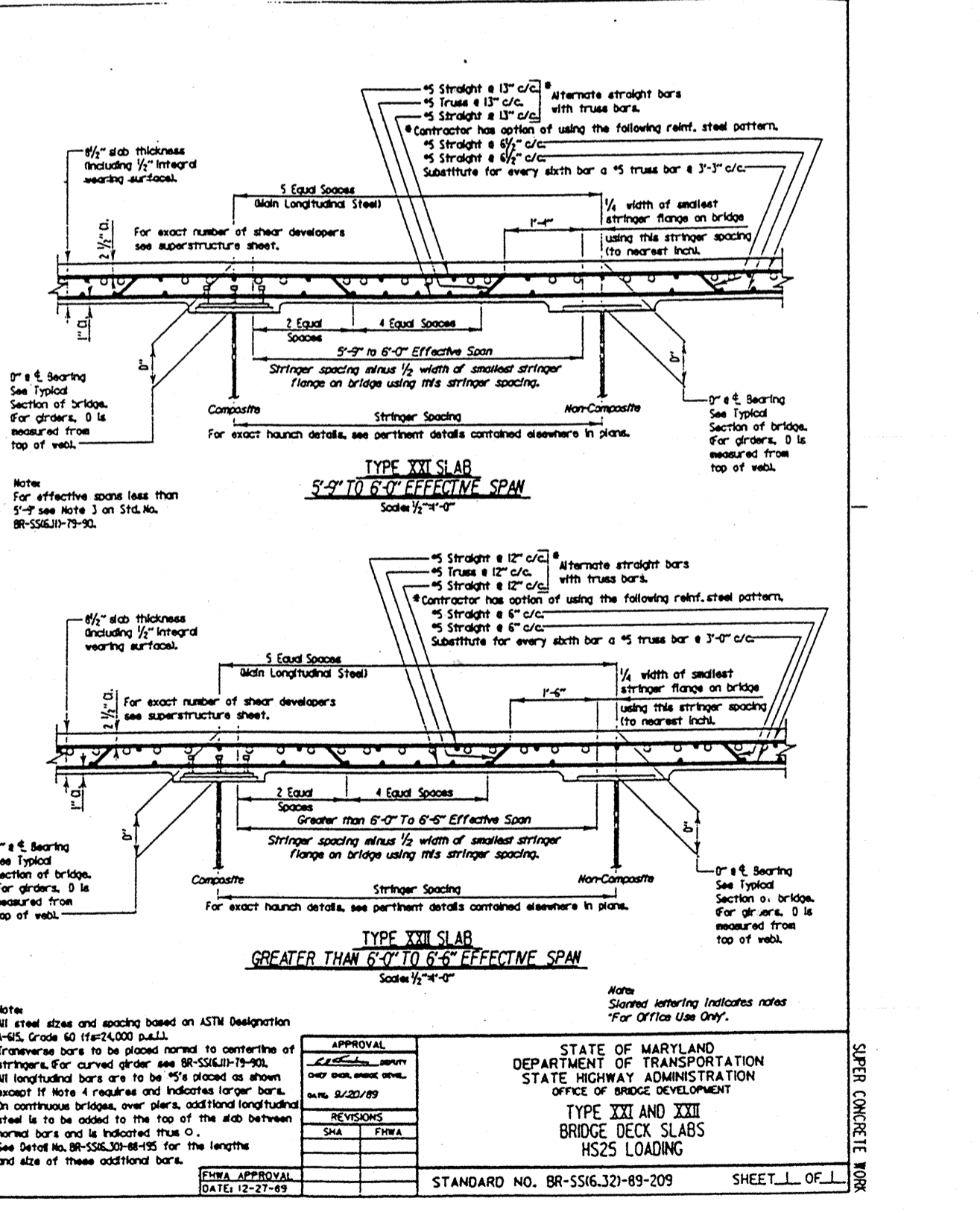
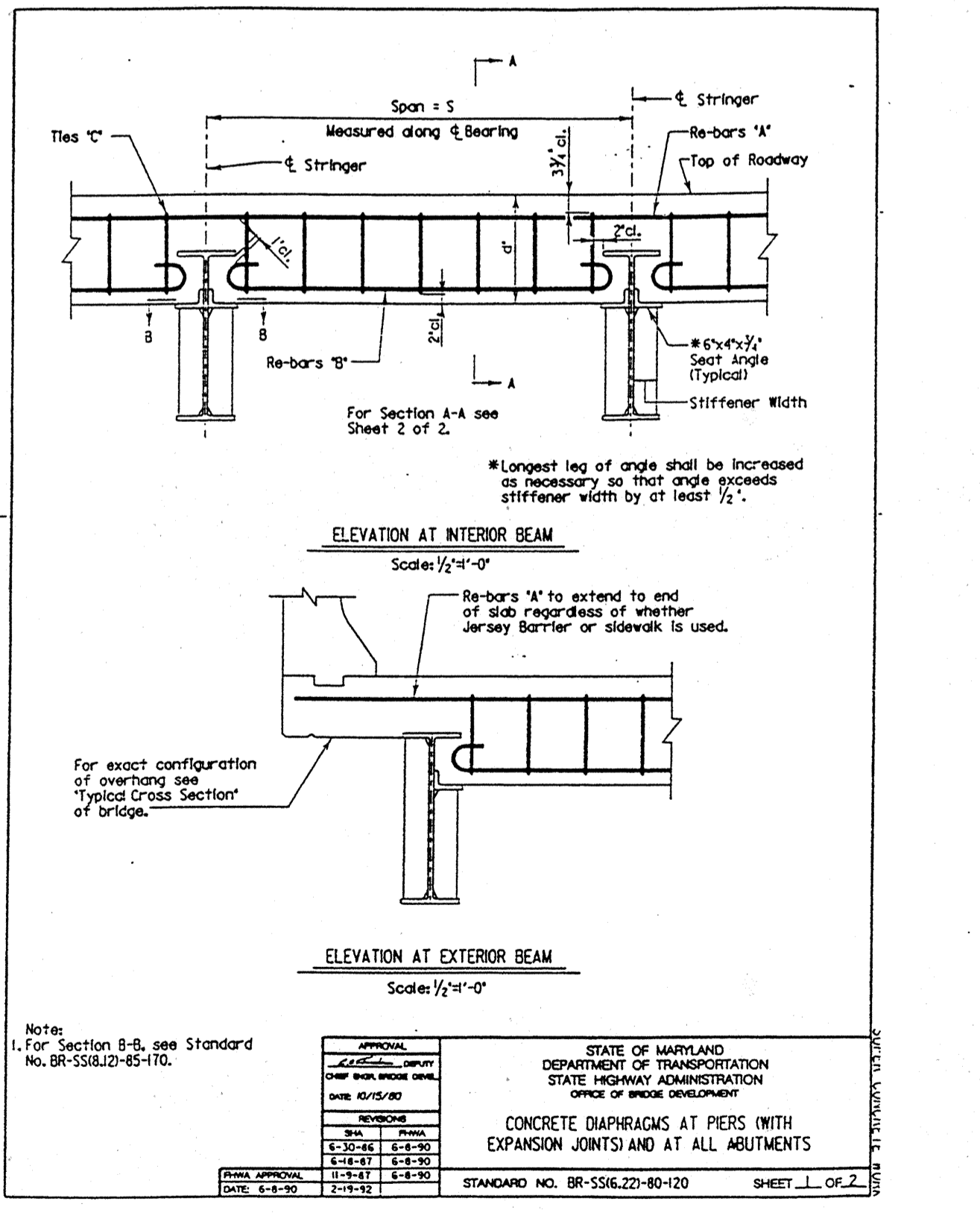
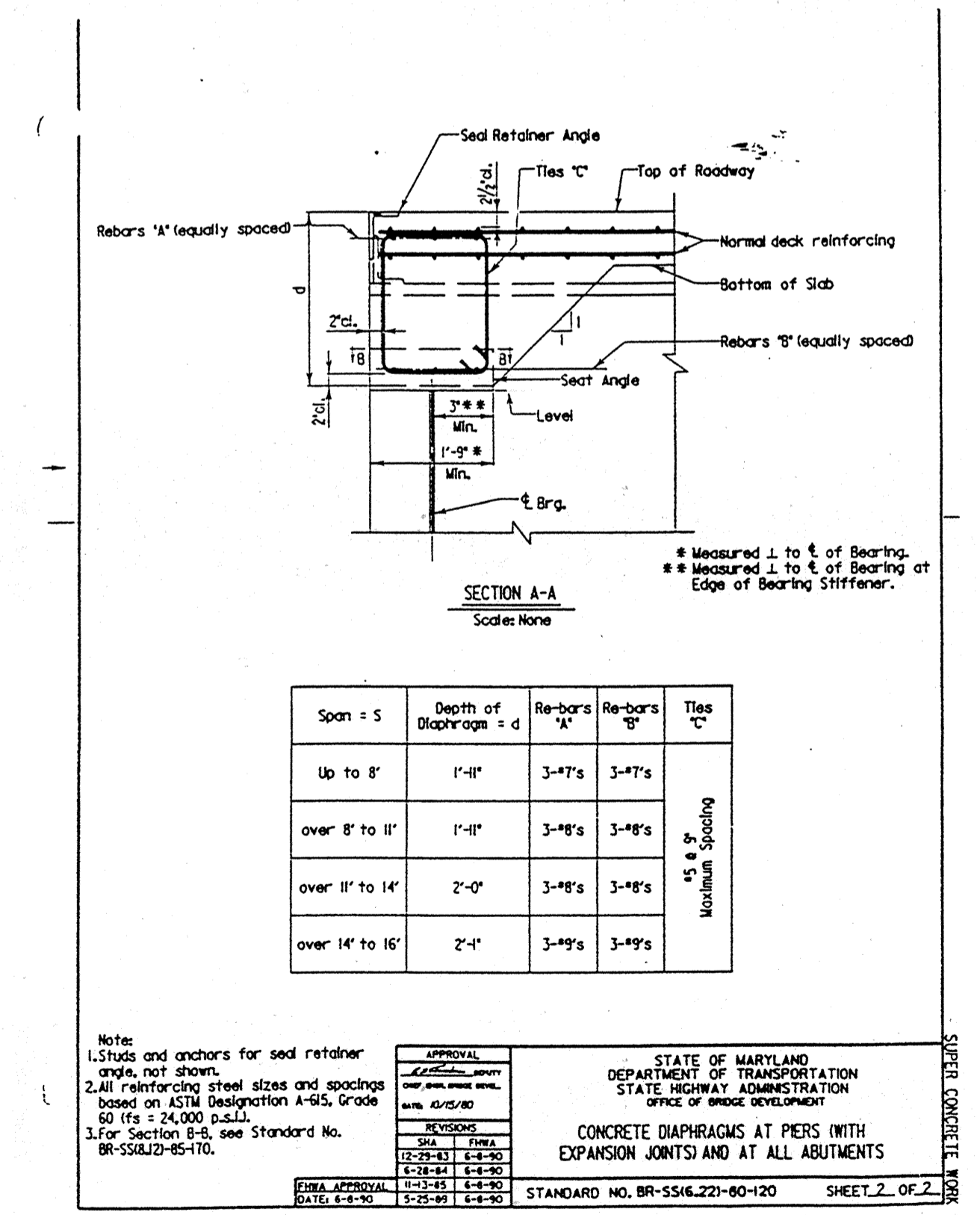


USER ID=

USER ID=

USER ID=

USER ID=



DEPARTMENT OF PUBLIC WORKS  
 HOWARD COUNTY, MARYLAND

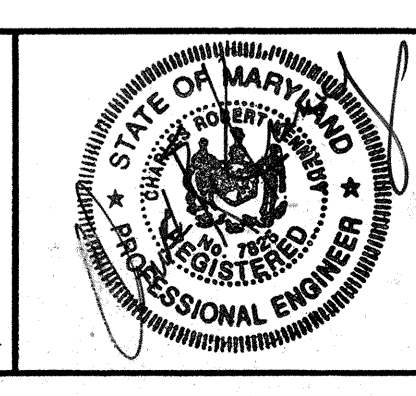
3/12/97  
 DATE

3/12/97  
 DATE

KENNEDY PORTER & ASSOCIATES  
 Consulting Engineers

4110 Black Rock Road  
 Hompsstead, Maryland 21074  
 (410) 239-4482

KPA PROJECT: 94-032F



DES: J.P.B.  
 DRN: R.S.J.  
 CHK: J.P.B.  
 DATE: \_\_\_\_\_

BY: \_\_\_\_\_ NO. \_\_\_\_\_

REVISION \_\_\_\_\_

DATE: \_\_\_\_\_

600' SCALE MAP NO. \_\_\_\_\_ BLOCK NO. \_\_\_\_\_

Rehabilitation of Bridge No. M-196  
 Ednor Road Over The Patuxent River

STANDARD DETAILS

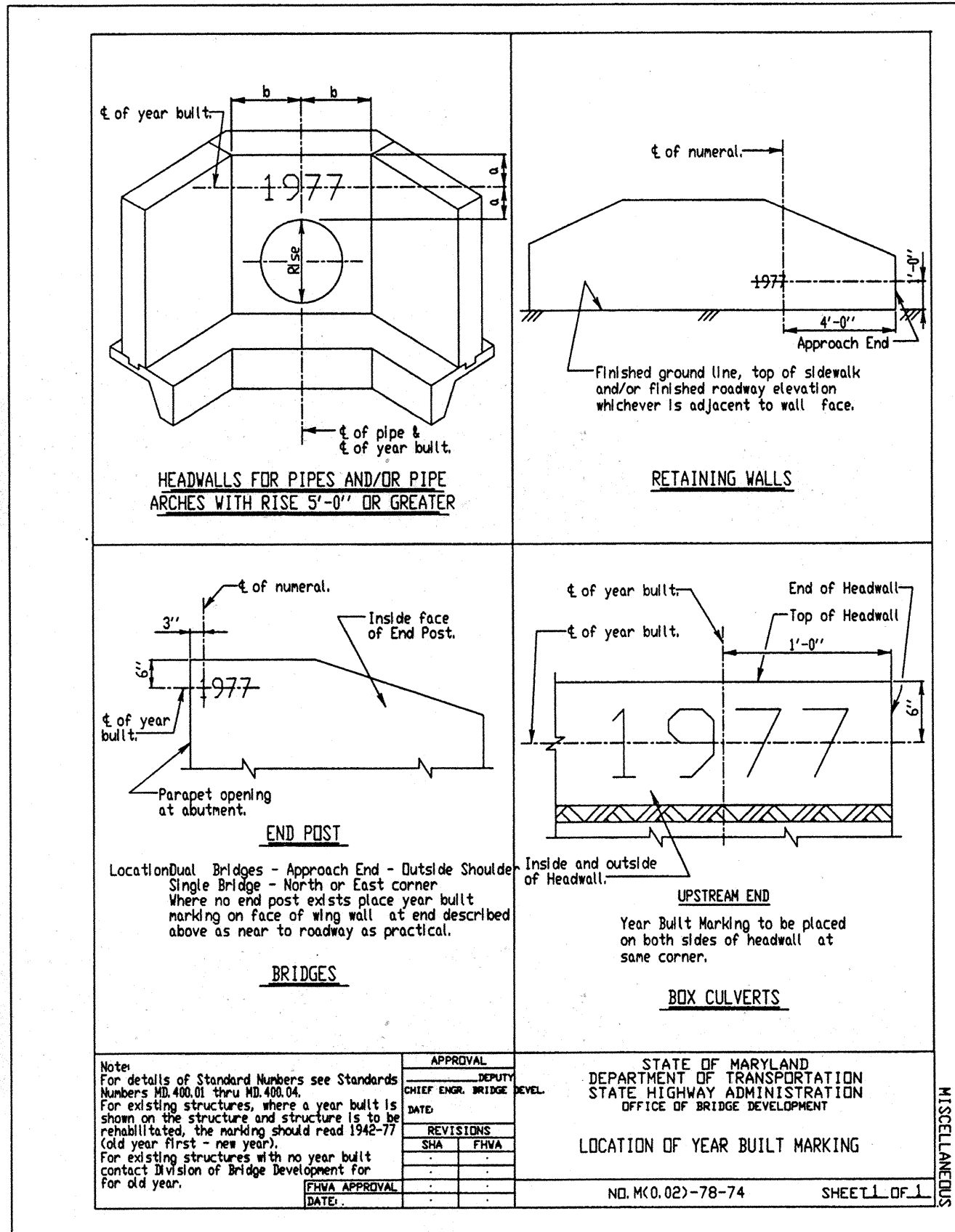
Bridge M-196

Capital Project B-3832

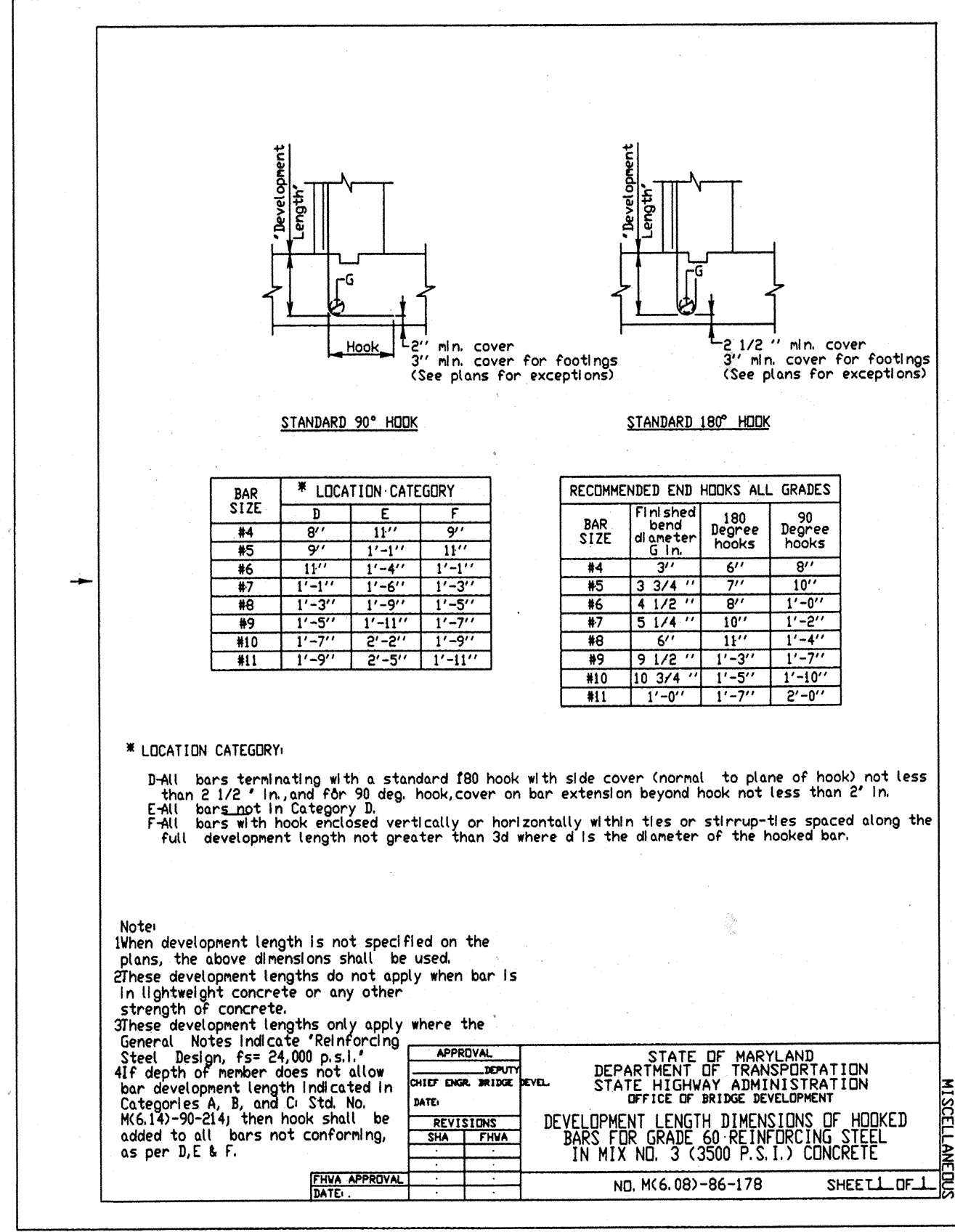
SCALE AS SHOWN

SHEET 22 OF 26

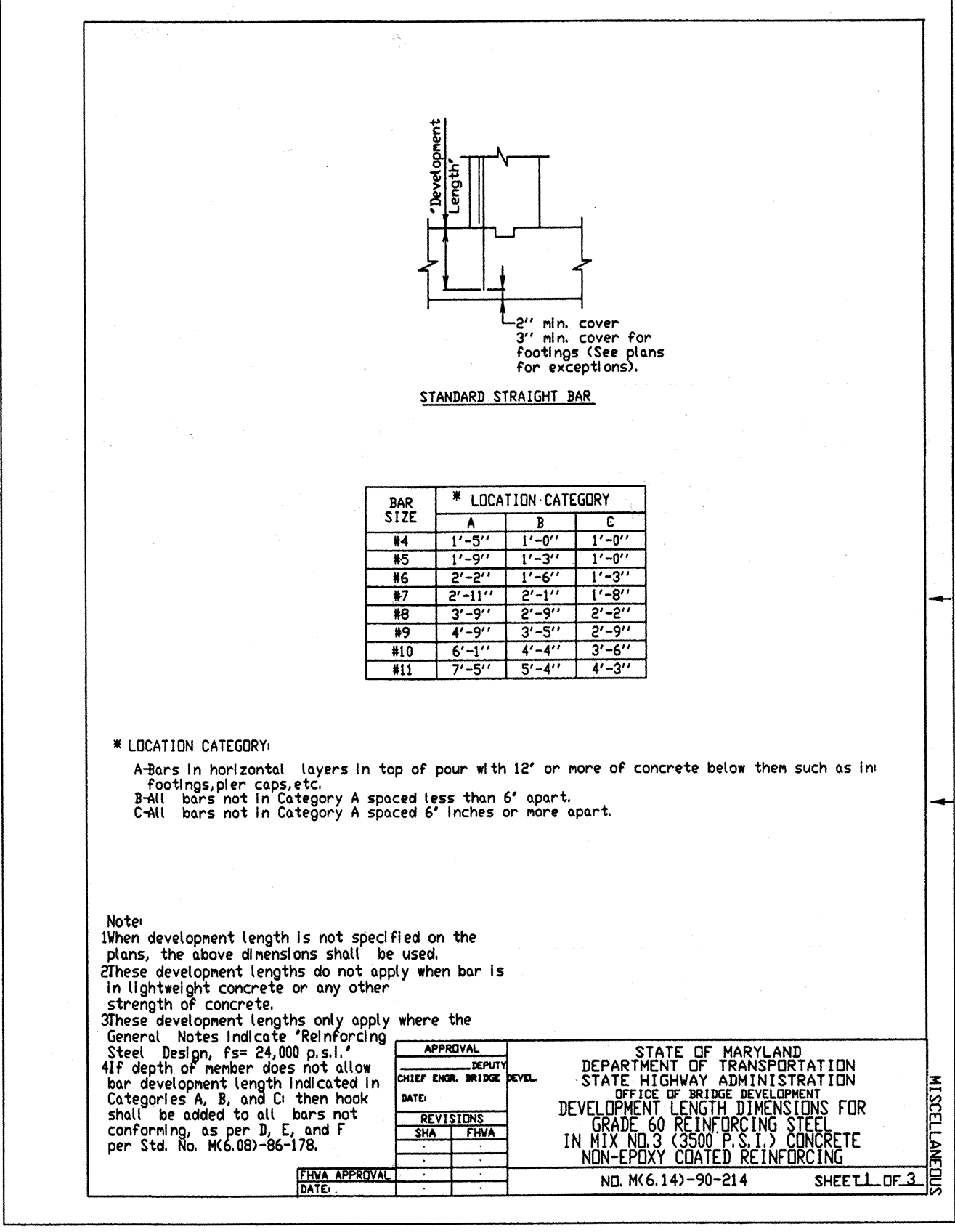
B 0 0 8 6 - 2 2



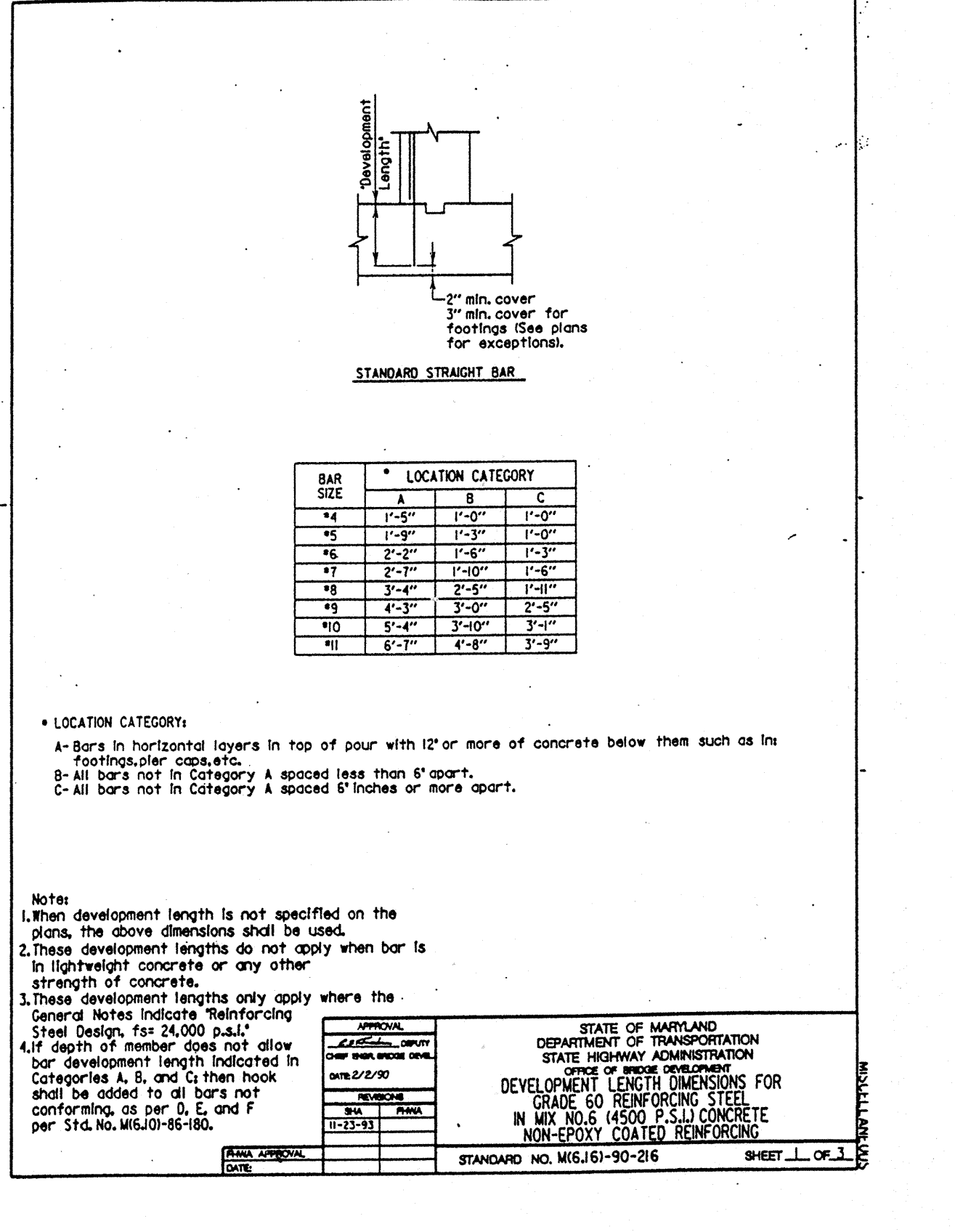
USER ID=



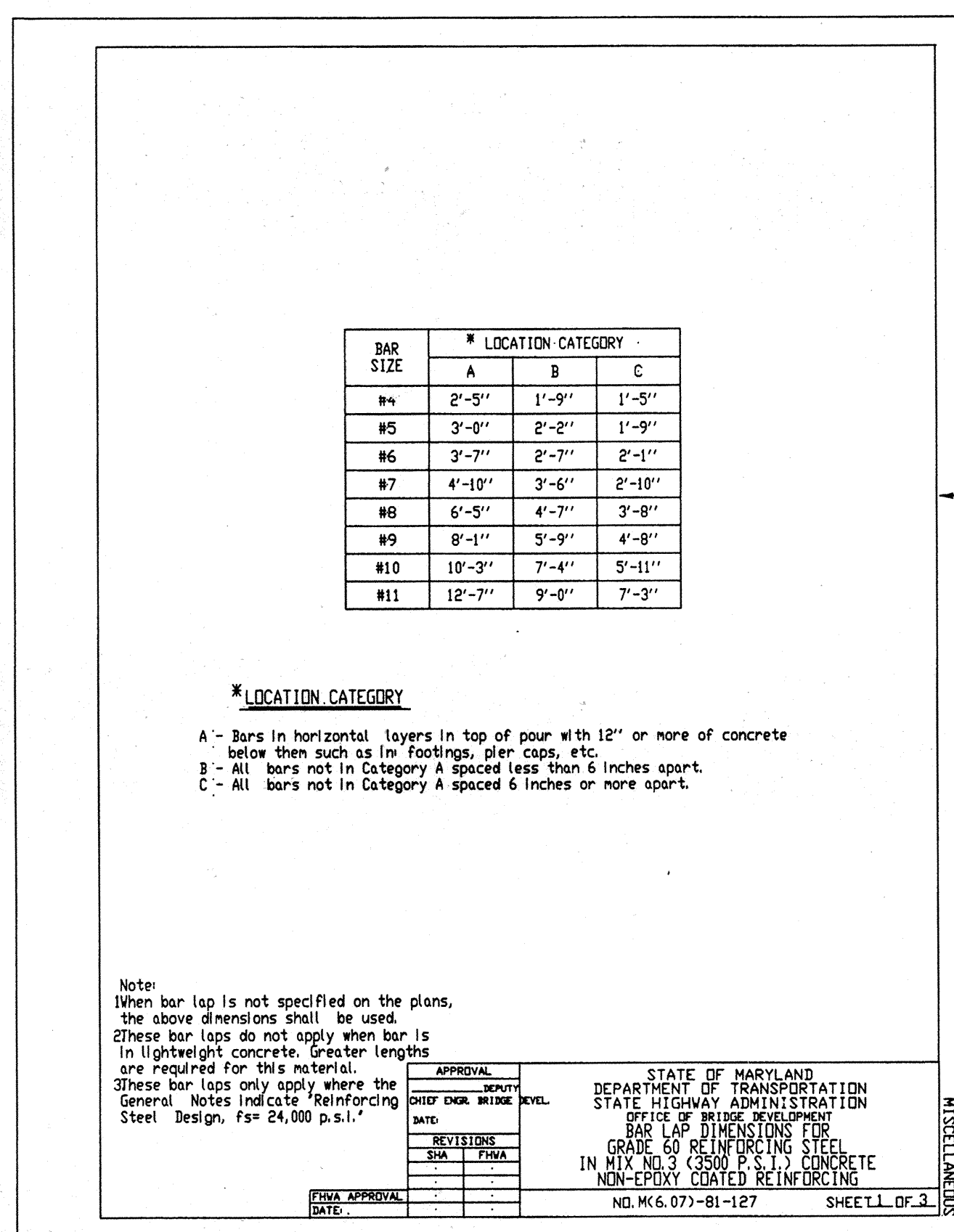
USER ID=



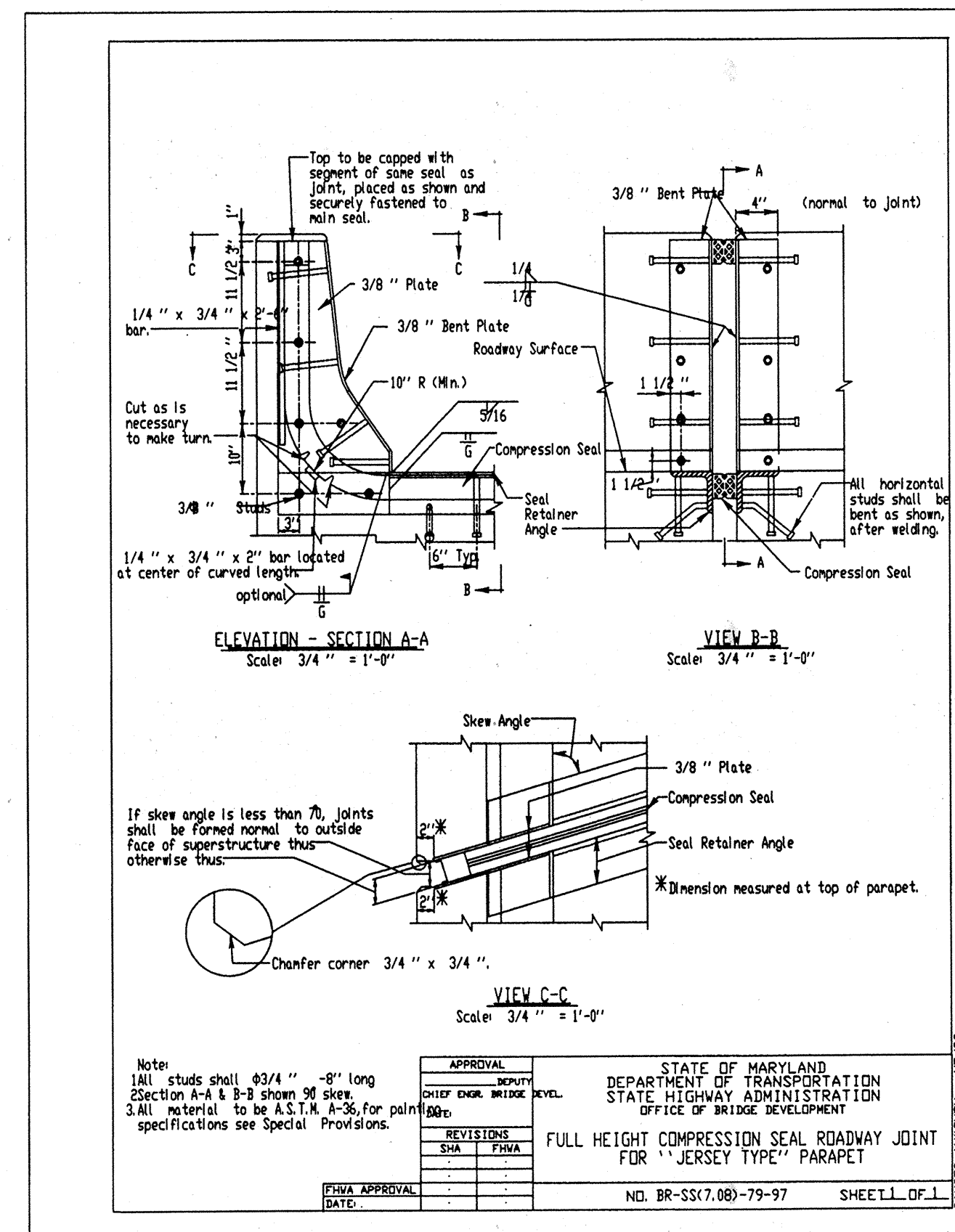
USER ID=



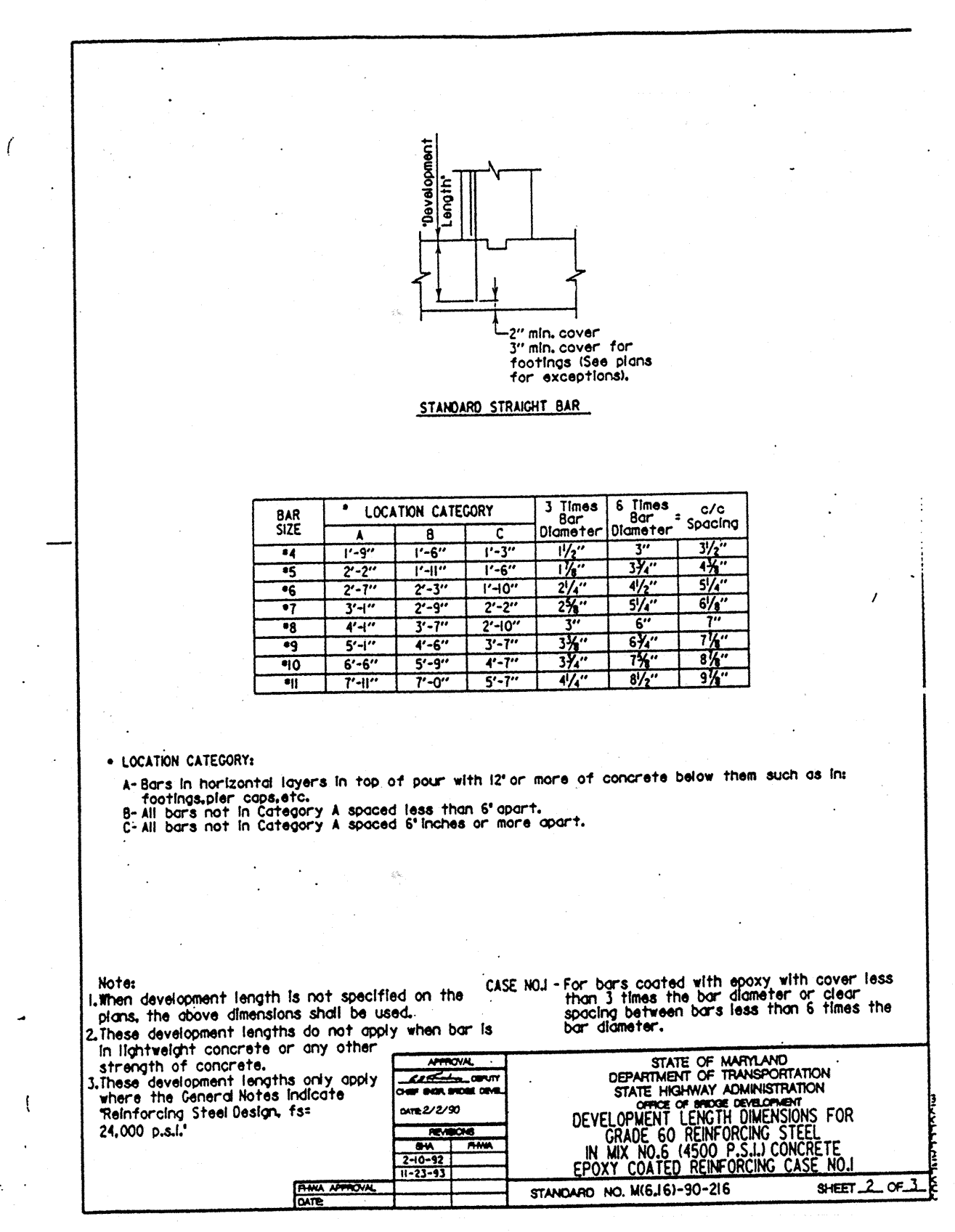
USER ID=



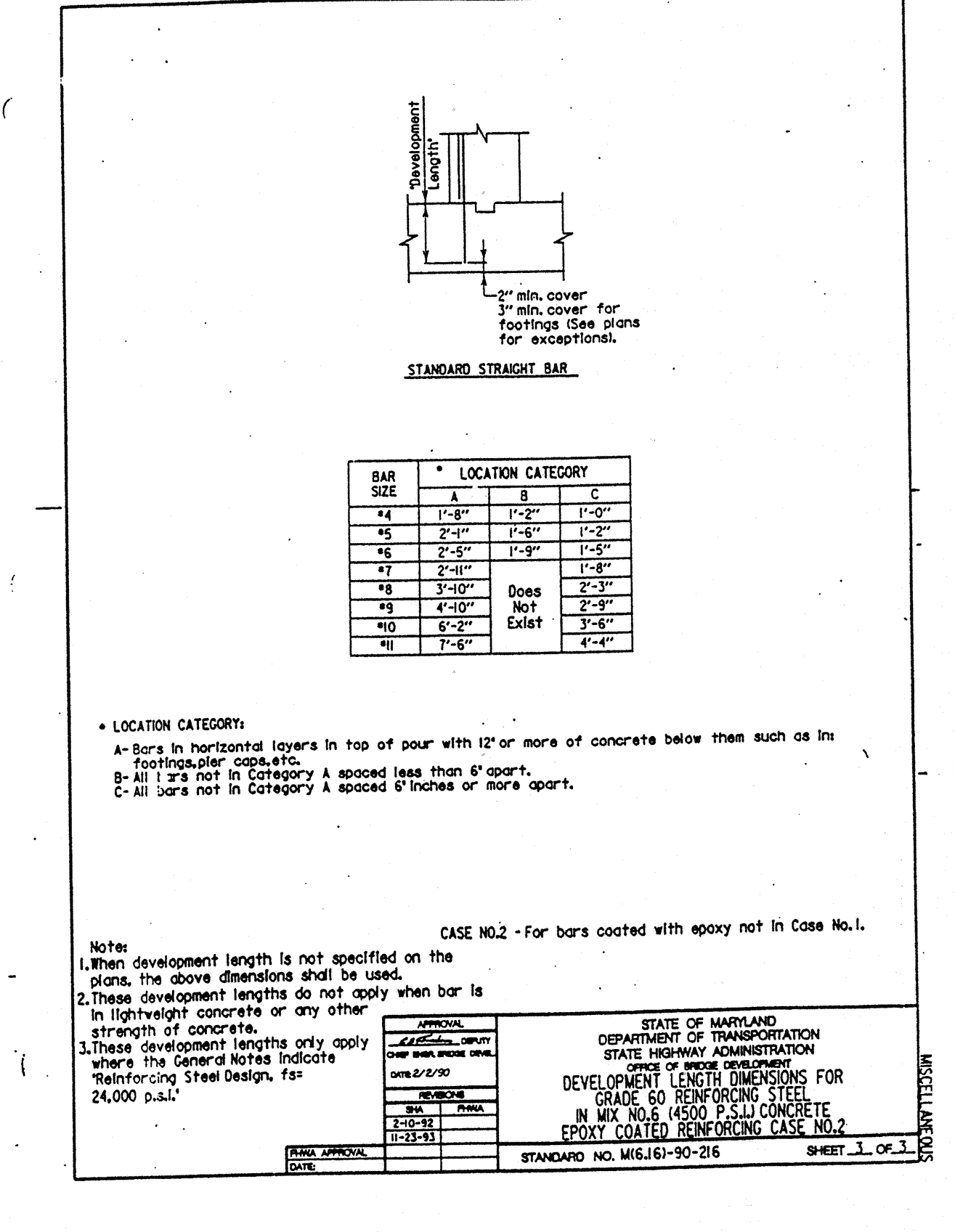
USER ID=



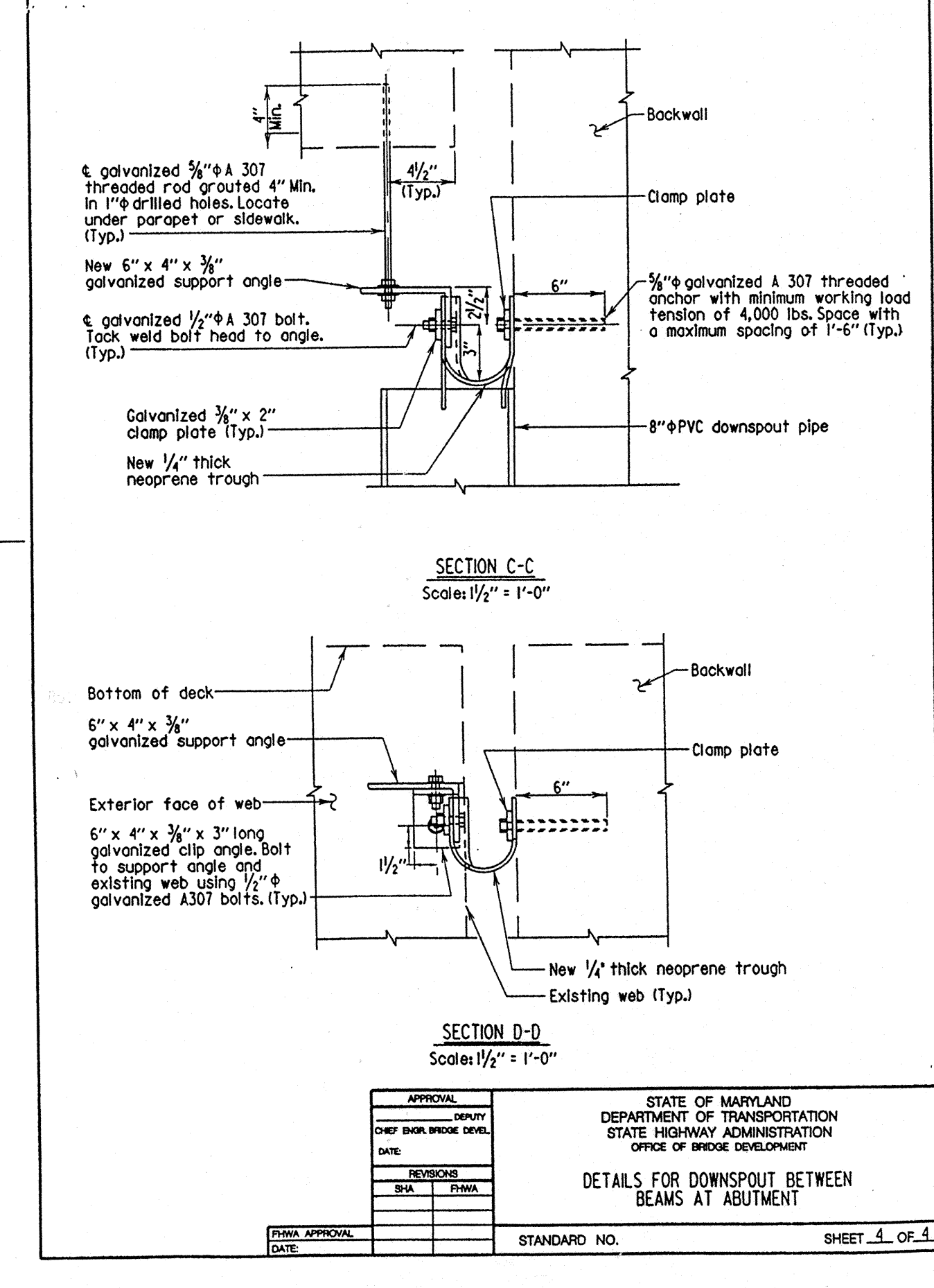
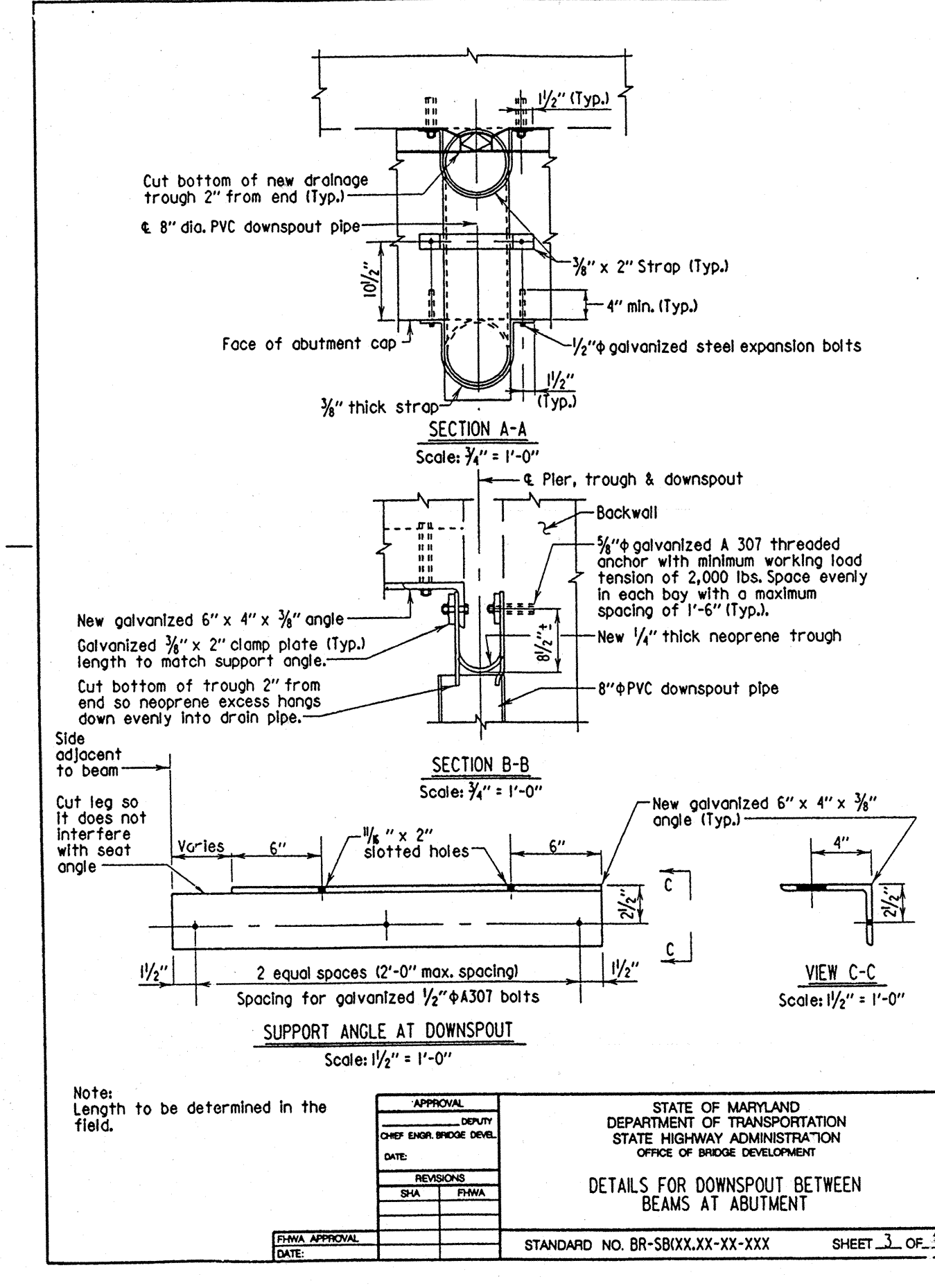
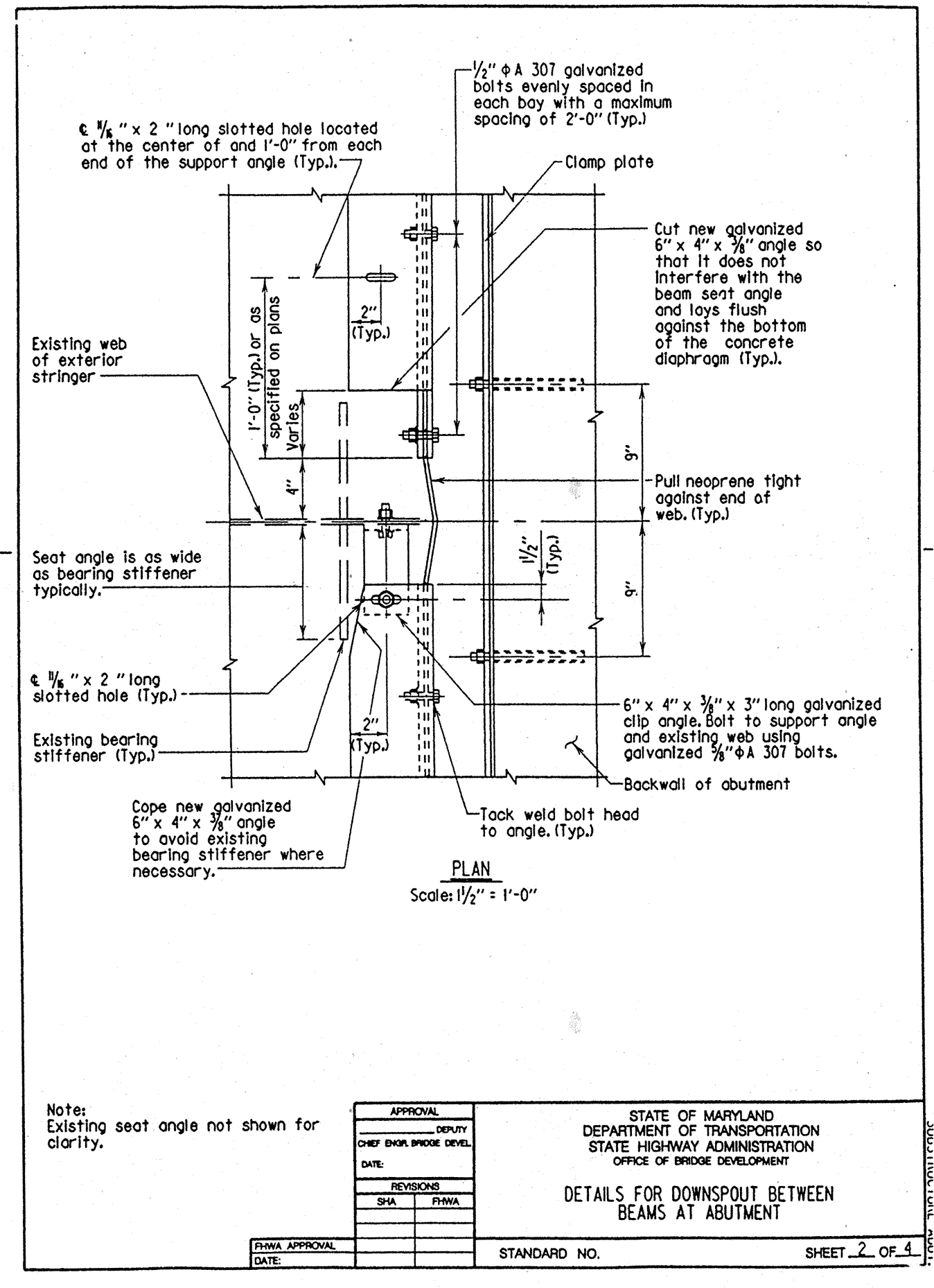
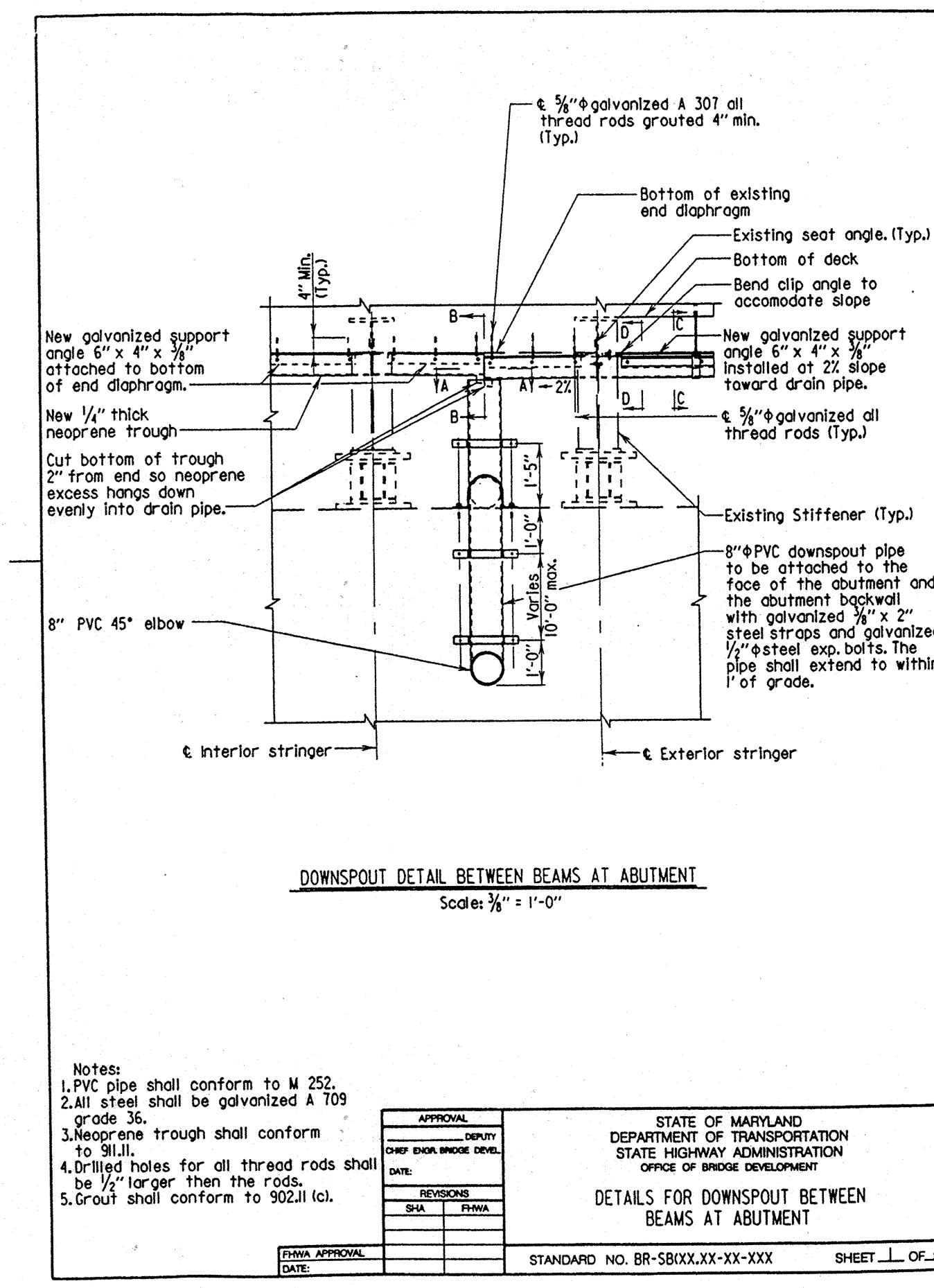
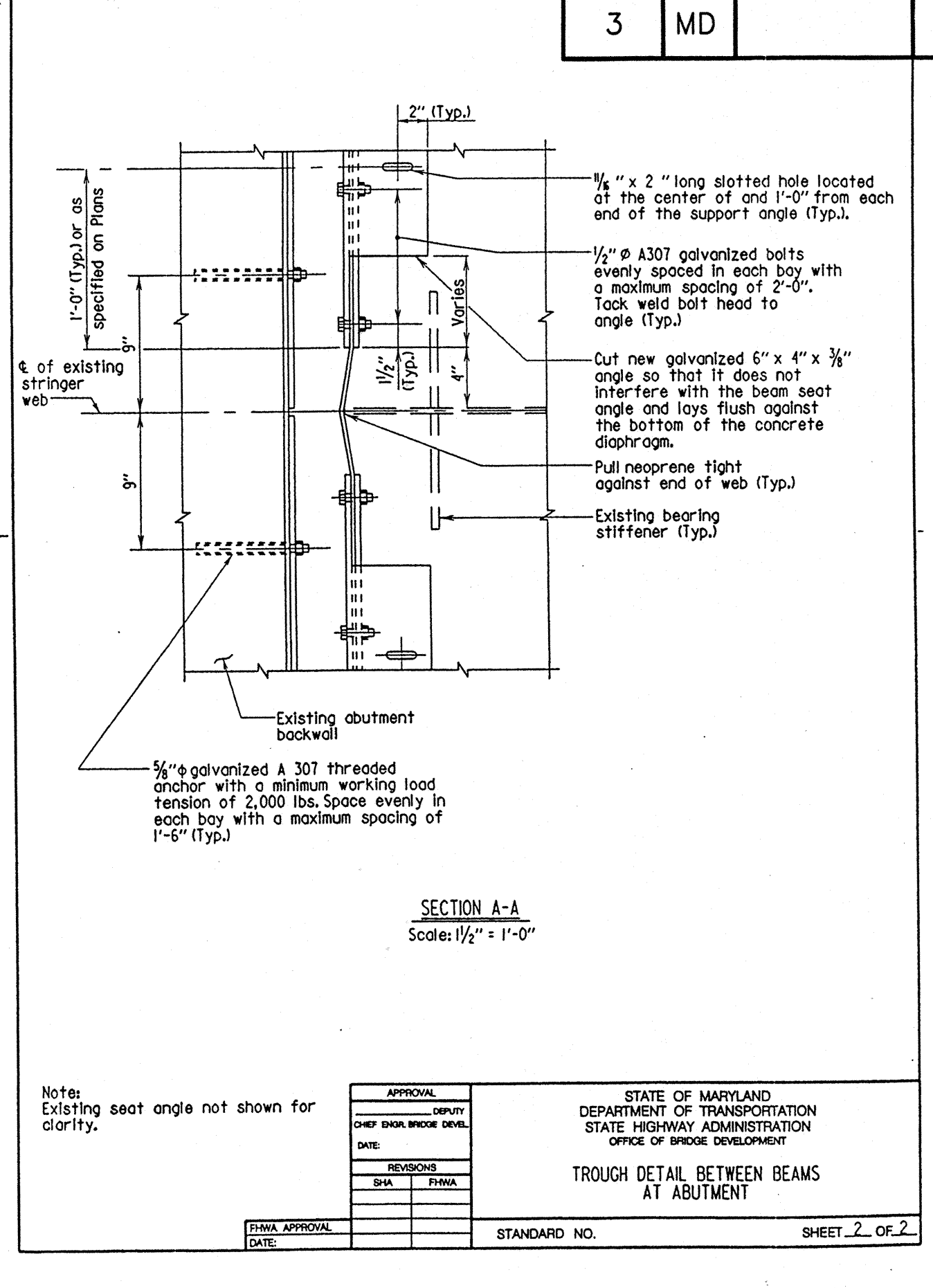
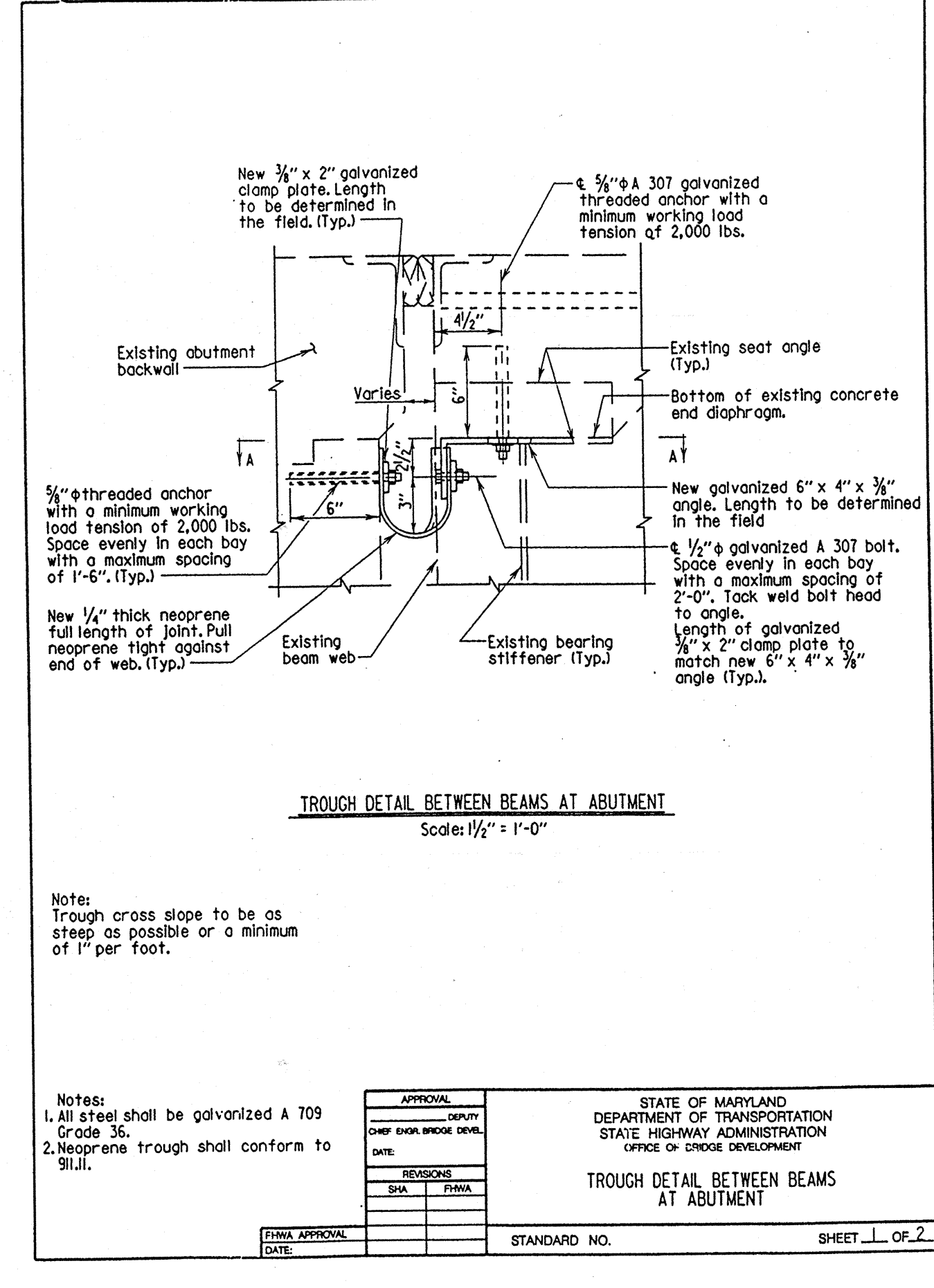
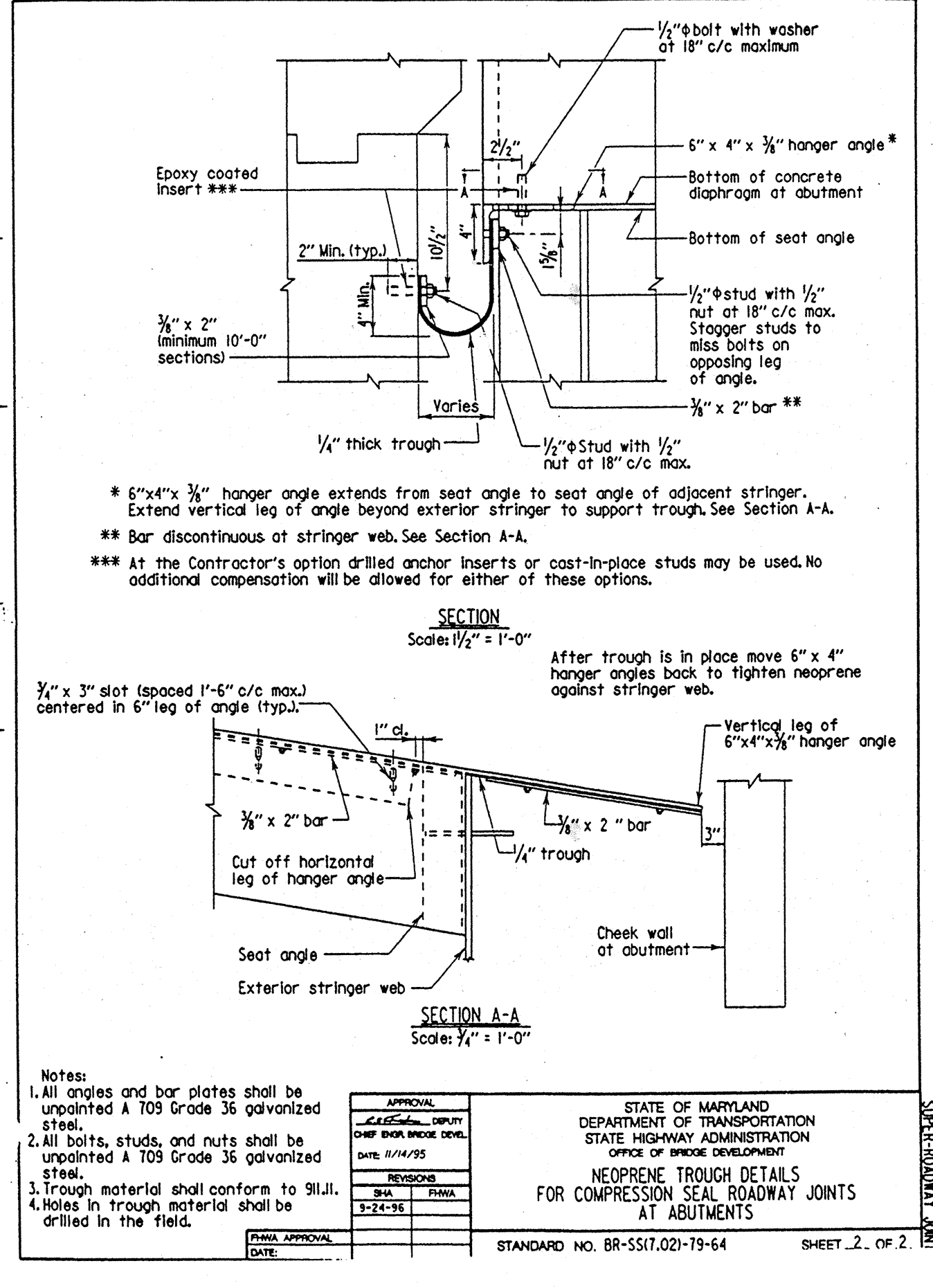
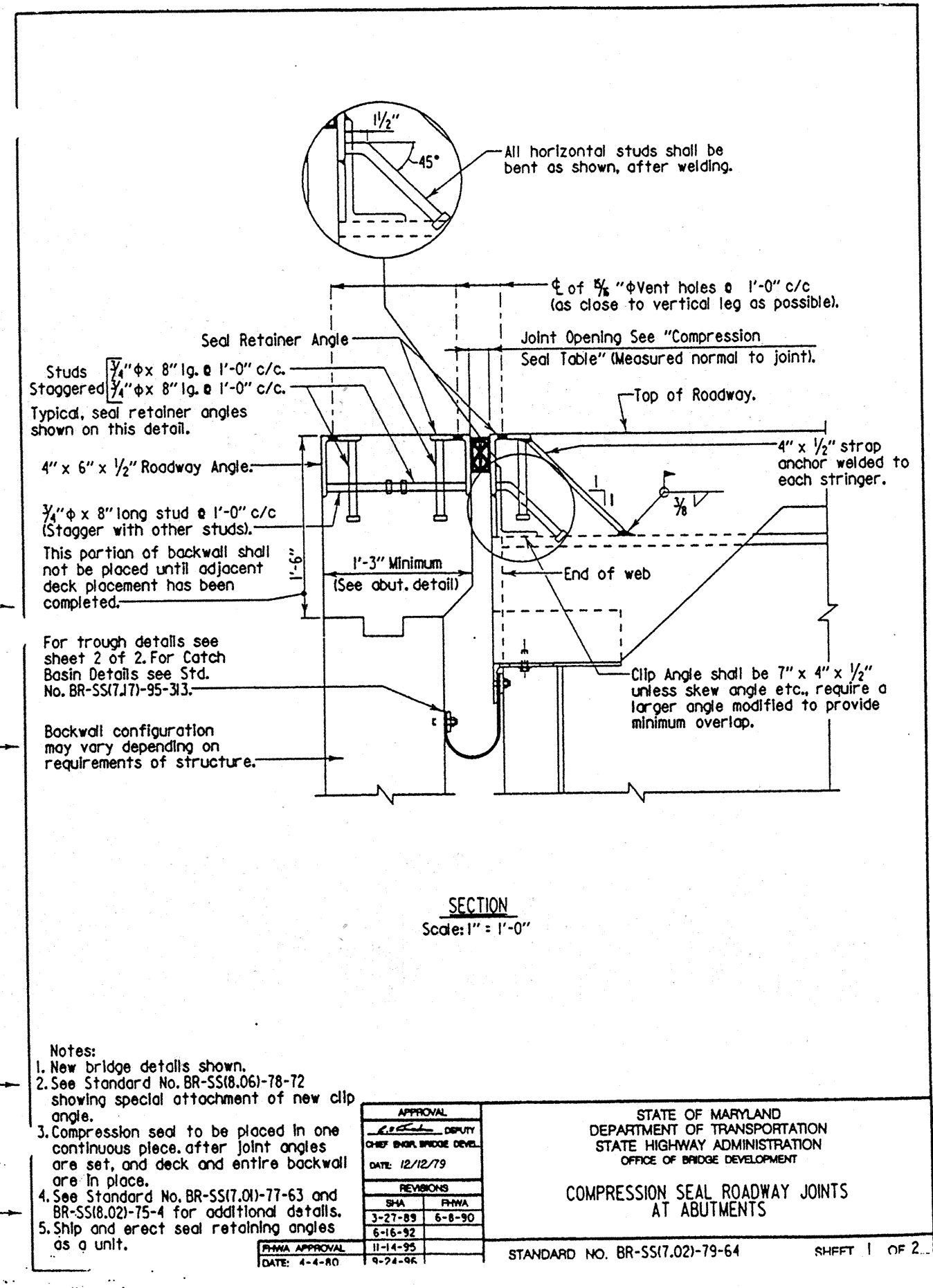
USER ID=



USER ID=

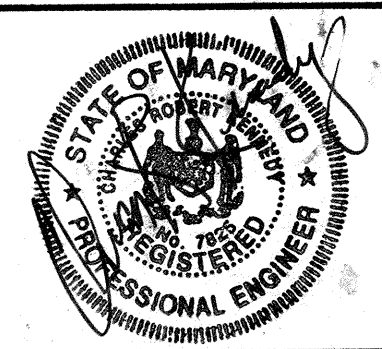


USER ID=



DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

KENNEDY PORTER & ASSOCIATES  
Consulting Engineers



DES: J.P.B.  
DRN: R.S.J.  
CHK: J.P.B.  
DATE: BY NO. REVISION DATE

Rehabilitation of Bridge No. M-196  
Ednor Road Over The Patuxent River

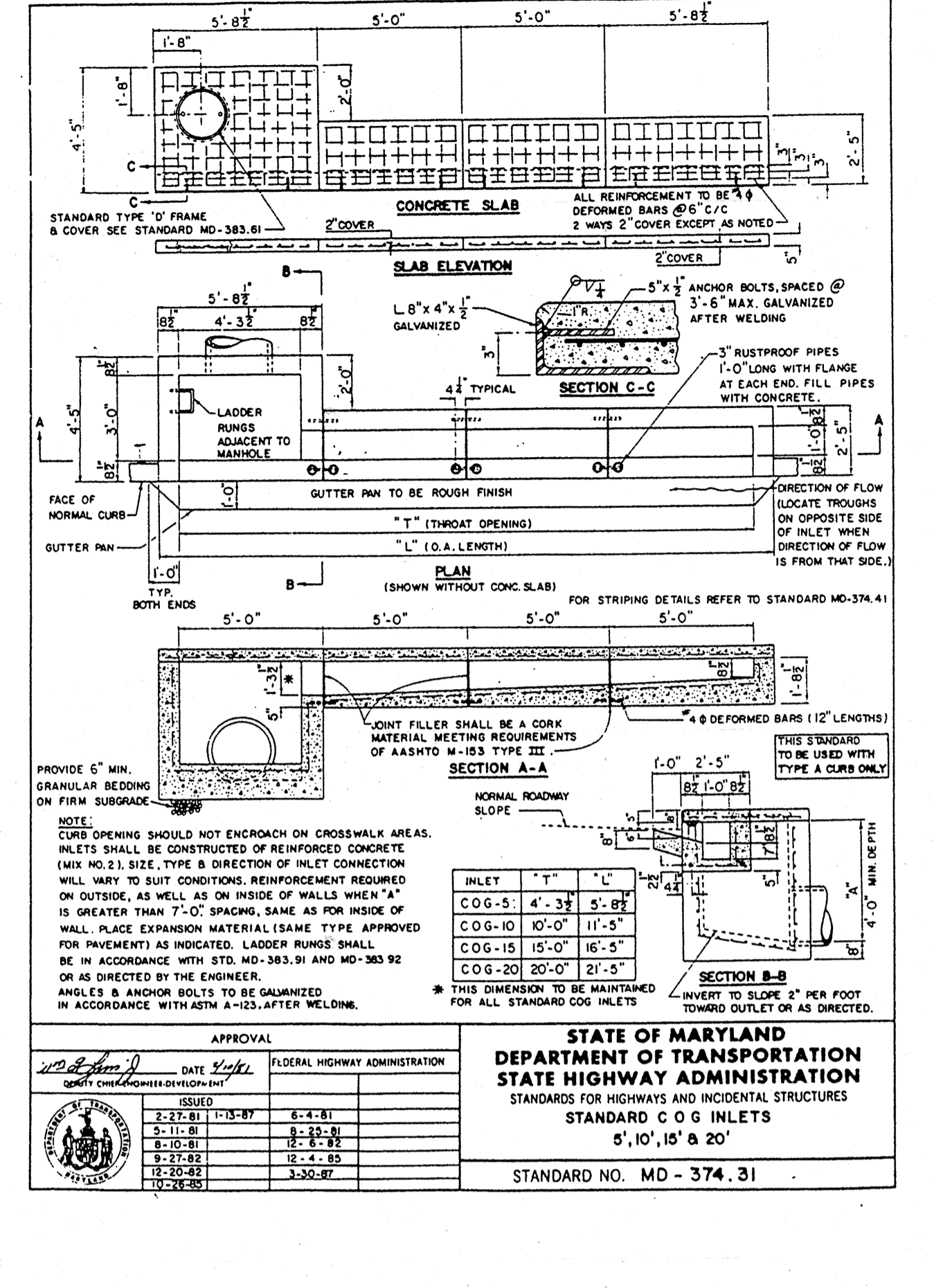
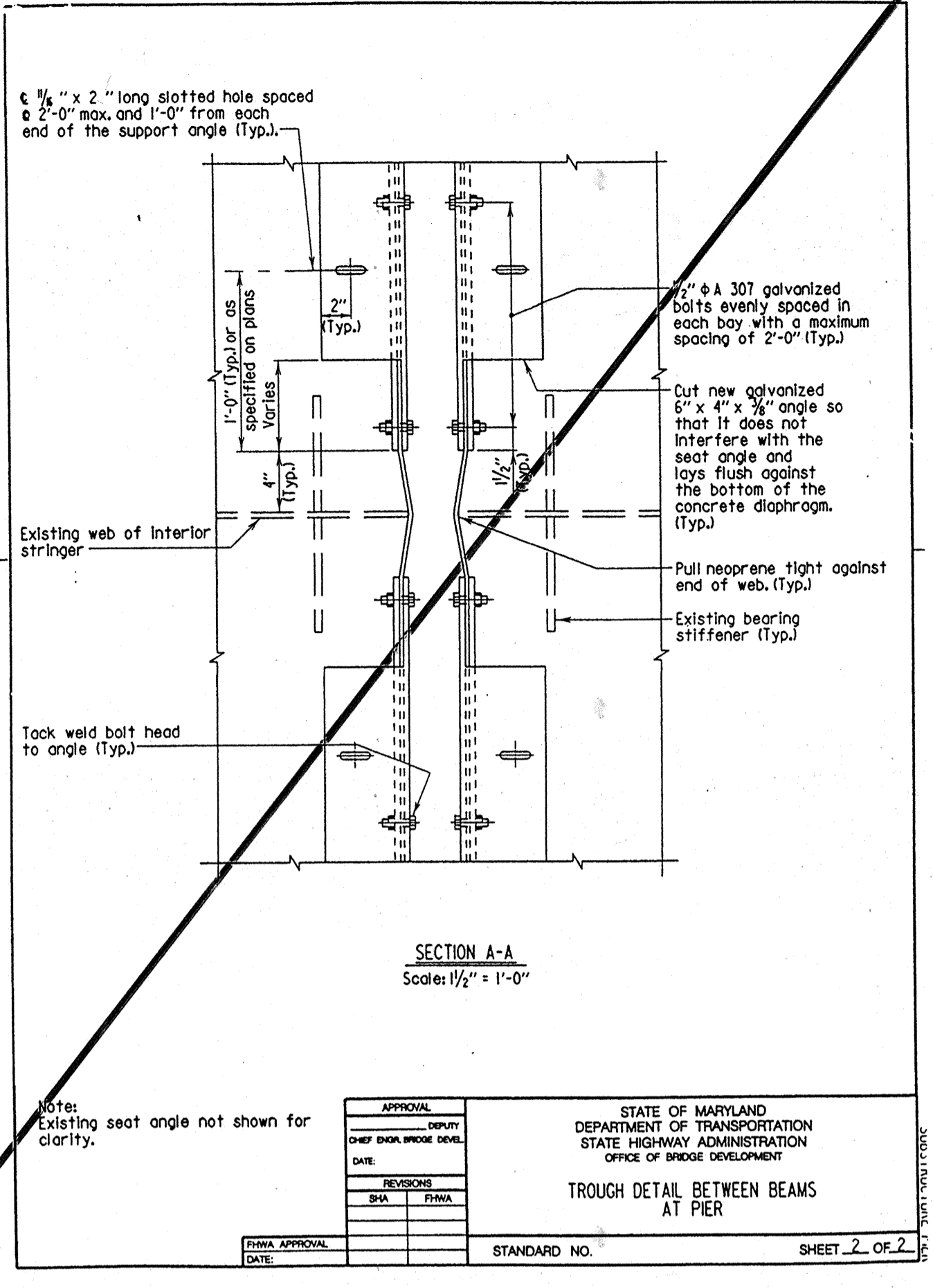
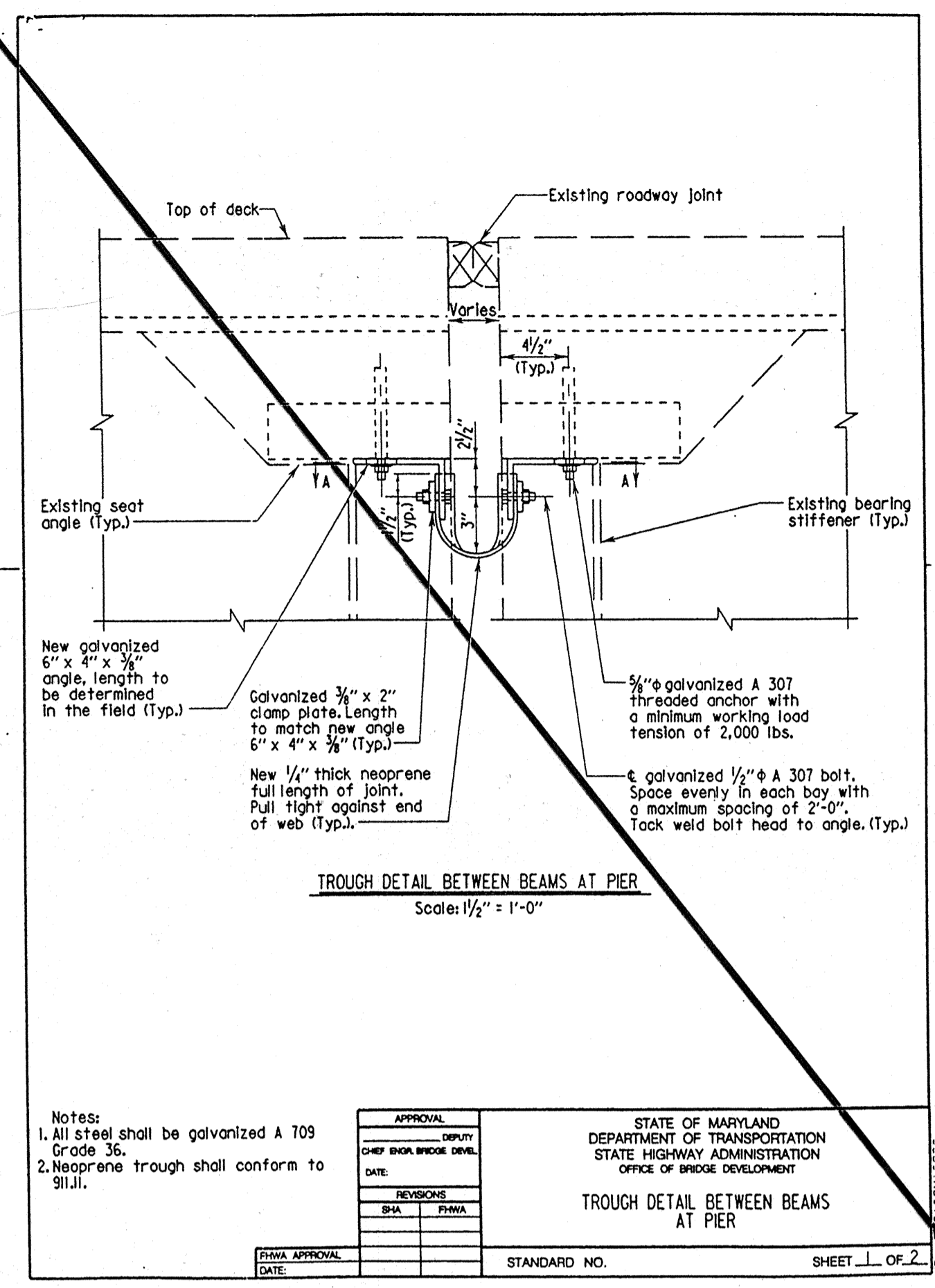
STANDARD DETAILS

Bridge M-196 Capital Project B-3832  
Scale AS SHOWN SHEET 24 OF 26

Director of Public Works  
3/12/87  
Chief, Bureau of Engineering  
3/12/87  
Chief, Division of Transportation Projects & Watershed Management  
3/12/87

B0086-24





BAR SIZE	LOCATION CATEGORY		
	A	B	C
#4	2'-9"	2'-0"	1'-7"
#5	3'-6"	2'-6"	2'-0"
#6	4'-2"	3'-0"	2'-5"
#7	4'-11"		2'-10"
#8	6'-6"	Does Not Exist	3'-9"
#9	8'-2"		4'-8"
#10	10'-5"		6'-0"
#11	12'-9"		7'-4"

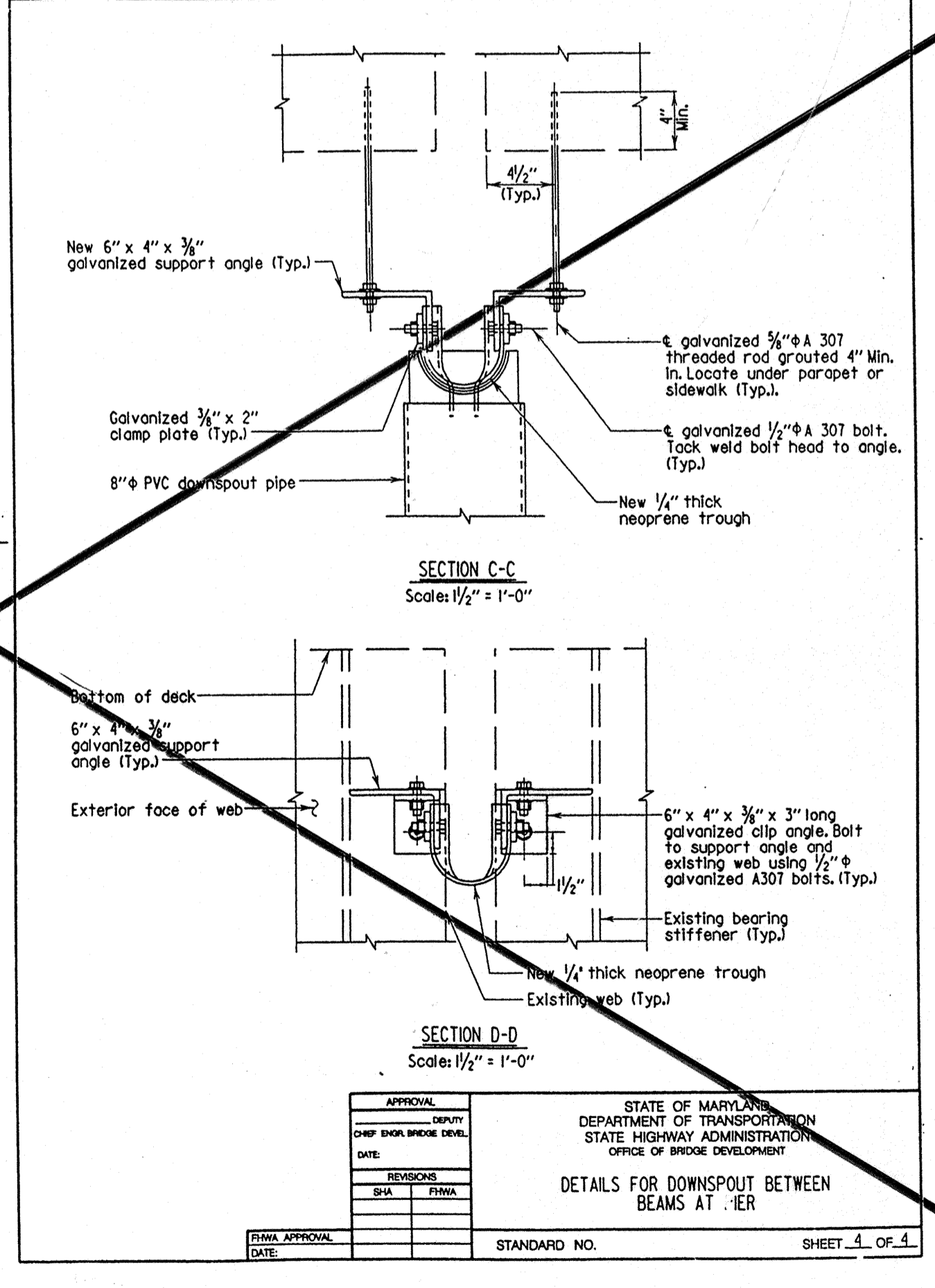
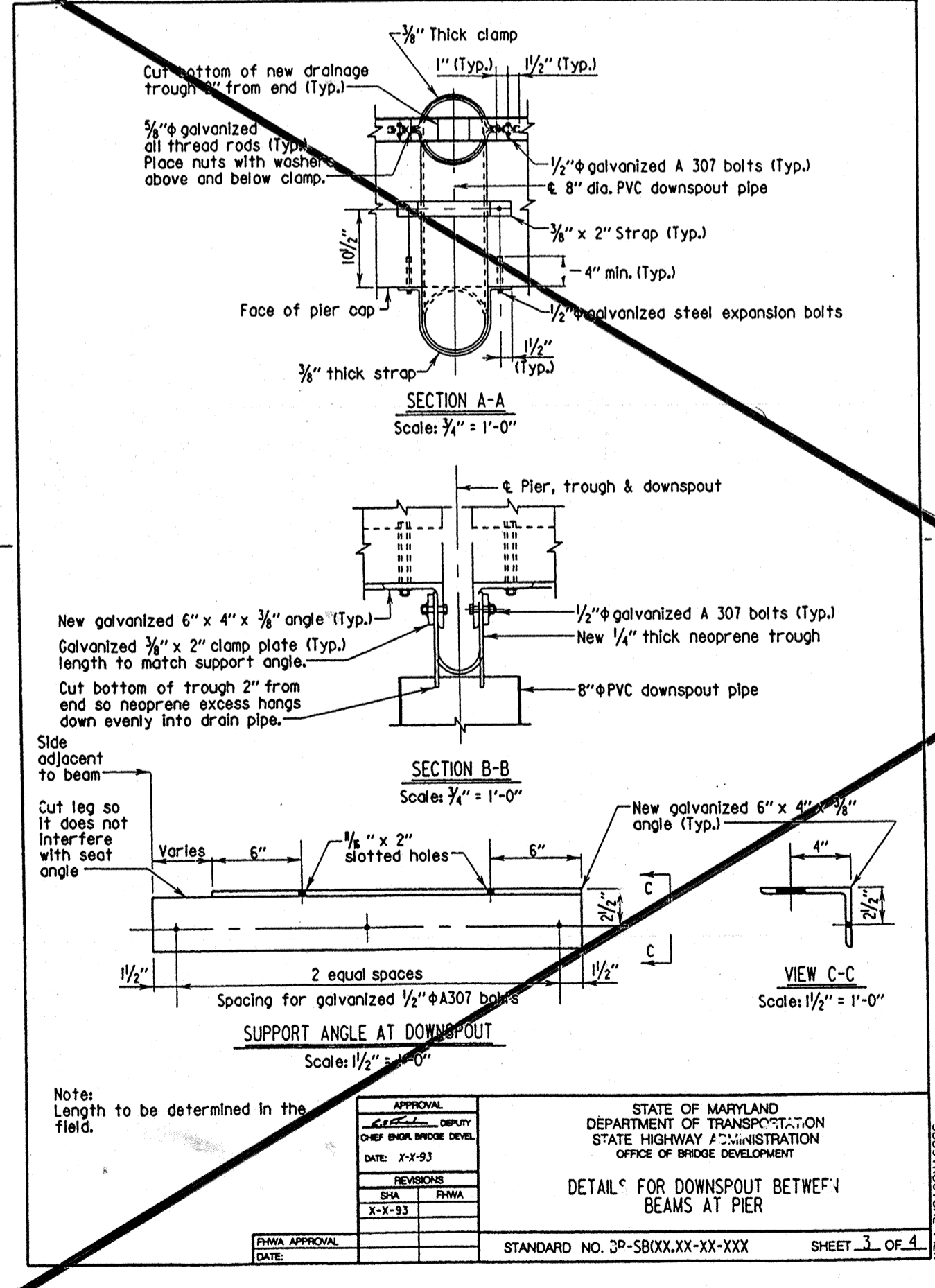
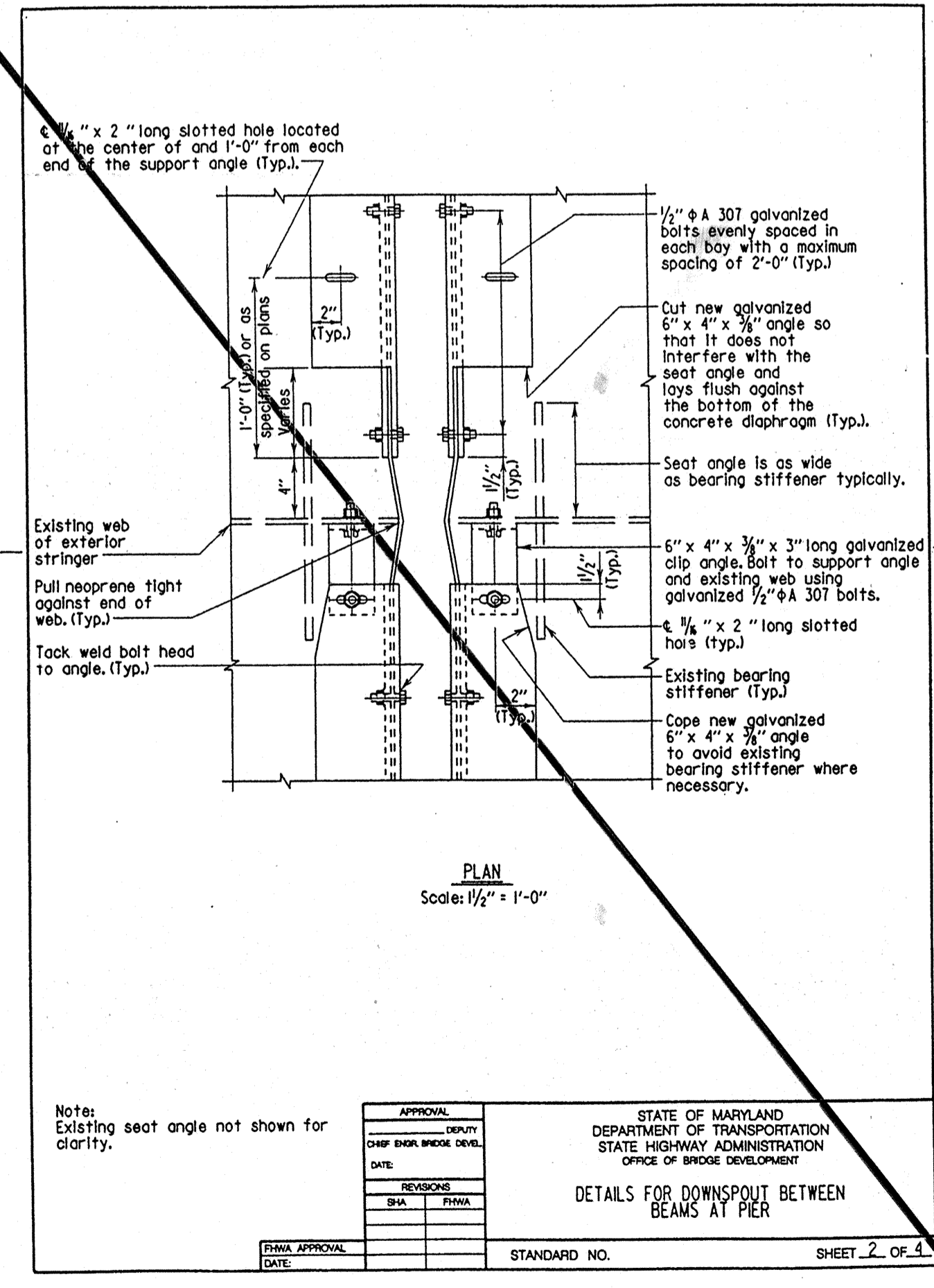
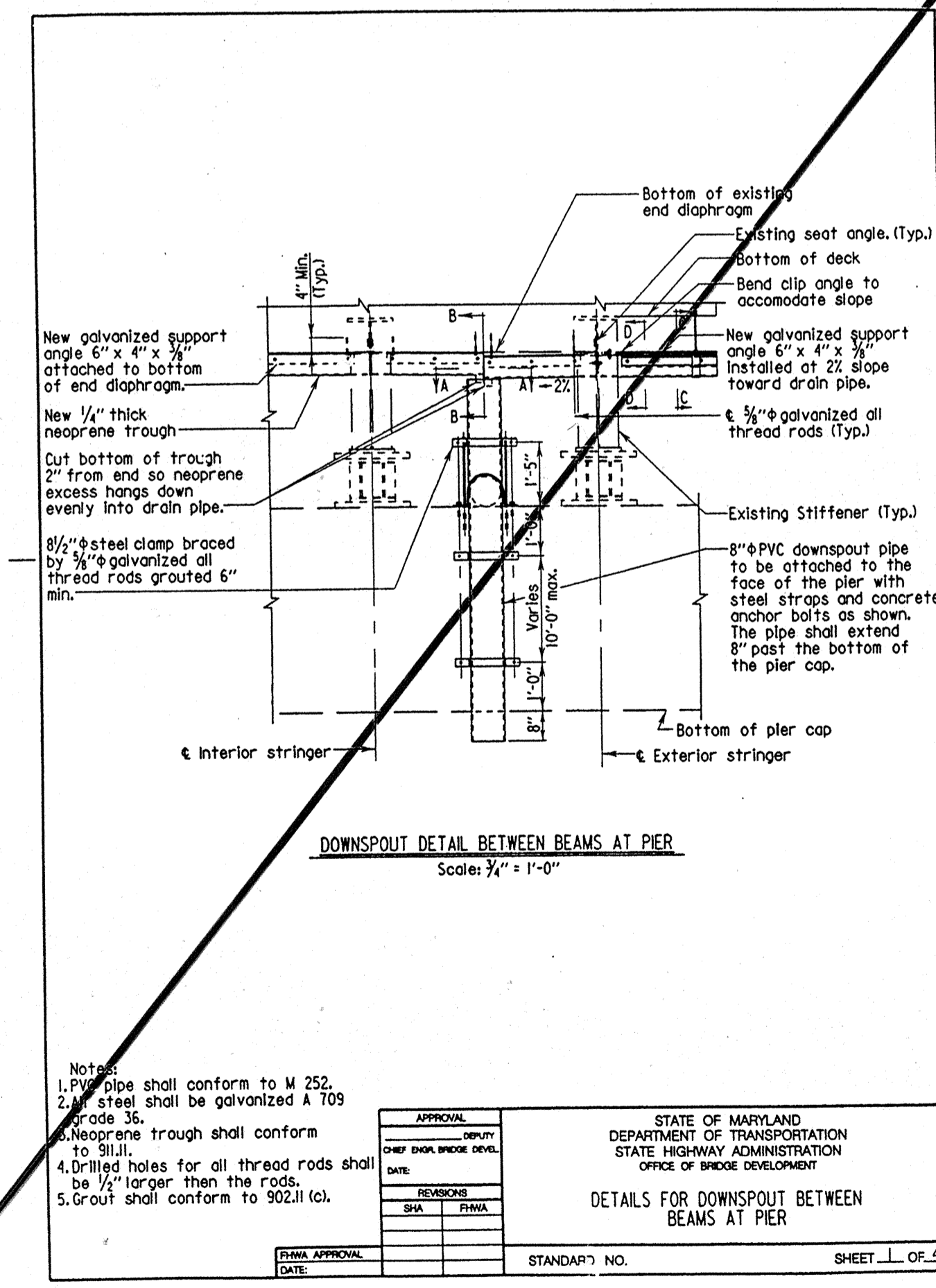
**\* LOCATION CATEGORY**

A - Bars in horizontal layers in top of pour with 12" or more of concrete below them such as in footings, pier caps, etc.  
 B - All bars not in Category A spaced less than 6 inches apart.  
 C - All bars not in Category A spaced 6 inches or more apart.

**Notes:**  
 1. When bar lap is not specified on the plans, CASE NO.2 - For bars coated with epoxy not in Case No.1, the above dimensions shall be used.  
 2. These bar laps do not apply when bar is in lightweight concrete. Greater lengths are required for this material.  
 3. These bar laps only apply where the General Notes indicate Reinforcing Steel Design, f<sub>s</sub> = 24,000 p.s.i.

APPROVAL	DATE	STATE OF MARYLAND
DEPT. OF TRANSPORTATION		DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION		STATE HIGHWAY ADMINISTRATION
OFFICE OF BRIDGE DEVELOPMENT		OFFICE OF BRIDGE DEVELOPMENT
REVISIONS		
DATE		
BY		
DATE		

STANDARD NO. M6.051-80-122 SHEET 1 OF 1



DEPARTMENT OF PUBLIC WORKS  
 HOWARD COUNTY, MARYLAND

*James A. Brown* 3/12/97  
 DIRECTOR OF PUBLIC WORKS DATE

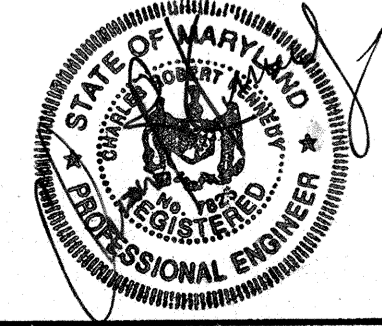
*William F. White* 3/12/97  
 CHIEF, BUREAU OF ENGINEERING DATE

*William F. White* 3/12/97  
 CHIEF, DIVISION OF TRANSPORTATION  
 PROJECTS & WATERSHED MANAGEMENT DATE

KENNEDY PORTER & ASSOCIATES  
 Consulting Engineers

4110 Black Rock Road  
 Hampstead, Maryland 21074  
 (410) 239-4482

PA PROJECT: 94-032F



DES: J.P.B.  
 DRN: R.S.J.  
 CHK: J.P.B.  
 DATE:

REVISION	DATE	600' SCALE MAP NO.	BLOCK NO.

Rehabilitation of Bridge No. M-196  
 Ednor Road Over The Patuxent River

STANDARD DETAILS

Bridge M-1.5 Capital Project B-3832

SCALE AS SHOWN

SHEET 26 OF 26

B0086-25

## SUMMARY OF QUANTITIES

ITEM NO.	DESCRIPTION	QTY.	UNIT	TOTAL
1001	MOBILIZATION		L.S.	
1002	CLEARING AND GRUBBING		L.S.	
1003	ENGINEERS BOAT		L.S.	
1004	ENGINEERS OFFICE NO. 2		L.S.	
1005	MAINTENANCE OF TRAFFIC		L.S.	
1006	GRADED AGGREGATE SUB-BASE FOR MAINTENANCE OF TRAFFIC	10	TONS	10
1007	TEMPORARY TRAFFIC SIGNS, TYPE III SHEETING	1,025	S.F.	1,025
1008	PRECAST TEMP. CONC. TRAFFIC BARRIER FOR MAINTENANCE OF TRAFFIC	48	L.F.	48
1009	TYPE III BARRICADE FOR MAINTENANCE OF TRAFFIC	8	EA.	8
1010	TEMPORARY ORANGE CONSTRUCTION FENCE	960	L.F.	960
1011	DRUMS FOR MAINTENANCE OF TRAFFIC	20	EA.	20
1012	CONSTRUCTION STAKEOUT		L.S.	
2001	CLASS 1 EXCAVATION	125	C.Y.	125
2002	SELECT BORROW	100	C.Y.	100
3001	STABILIZED CONSTRUCTION ENTRANCE	50	TON	50
3002	REHABILITATE STABILIZED CONSTRUCTION ENTRANCE	25	TON	25
3003	CLASS 3 EXCAVATION FOR INCIDENTAL CONSTRUCTION	10	C.Y.	10
3004	SELECTED BACKFILL	10	C.Y.	10
3005	MIX NO. 2 CONCRETE FOR MISCELLANEOUS STRUCTURES	10	C.Y.	10
3006	18 INCH ALLUMINIZED CORRUGATED METAL PIPE, 14 GAUGE	32	L.F.	32
3007	18 INCH POLYETHYLENE PIPE TYPE S	44	L.F.	44
3008	18 INCH POLYETHYLENE PIPE ELBOW (ANY ANGLE)	2	EA.	2
3009	STANDARD 5 FT. COG INLET - MINIMUM DEPTH	2	EA.	2
3010	STANDARD COG INLET - VERTICAL DEPTH	2	L.F.	2
3011	SUBGRADE DRAINS	75	L.F.	75
3012	TEMP. SLOPE DRAIN	2	EA.	2
3013	PORTABLE SEDIMENT TANK FOR SEDIMENT CONTROL	2	EA.	2
3014	GEOTEXTILE CLASS F FOR SLOPE SILT FENCE	560	L.F.	560
3015	PLACED RIPRAP FOR SEDIMENT CONTROL	5	TON	5
4001	REMOVAL OF PORTIONS OF EXISTING BRIDGE		L.S.	
4002	CLASS 3 EXCAVATION	50	C.Y.	50
4003	DRILLED HOLES IN EXISTING MASONRY	160	L.F.	160
4004	SUBSTRUCTURE CONCRETE		L.S.	
4005	SUPERSTRUCTURE CONCRETE		L.S.	
4006	CONCRETE PARAPET		L.S.	
4007	EPOXY COATED REINFORCING STEEL IN SUPERSTRUCTURE		L.S.	
4008	FABRICATED STRUCTURAL STEEL		L.S.	
4009	STEEL STUD SHEAR DEVELOPERS	3582	EA.	3582
4010	REPAIRING CONCRETE SURFACE DEFECTS USING MIX NO.6 CONCRETE	350	C.F.	350
4011	REPAIRING CONCRETE SURFACE DEFECTS USING EPOXY MORTAR	300	C.F.	300
4012	EPOXY PRESSURE INJECTION FOR BRIDGE	960	L.F.	960
4013	EPOXY USED FOR EPOXY PRESSURE INJECTION	100	GAL.	100
4014	EPOXY MORTAR FOR SEALING CRACKS	500	L.F.	500
4015	REPAIR NOSE ANGLE AT PIER NO. 1		L.S.	
4016	CLEANING EXISTING CONCRETE		L.S.	
4017	CLEANING AND PAINTING EXISTING STRUCTURAL STEEL		L.S.	
4018	EPOXY PROTECTIVE COATINGS ON ABUTMENTS AND PIERS	1,025	S.F.	1,025
4019	REPAIR CLASS 2 RIPRAP SLOPE PROTECTION FOR BRIDGE	30	C.Y.	30
4020	FLOODLIGHTING	5	NU	5
4021	RESPIRATORS	2	EA.	2
4022	FULL BODY PROTECTIVE CLOTHING	15	SETS	15

ITEM NO.	DESCRIPTION	QTY.	UNIT	TOTAL
5001	FIVE (5) INCH BASE COURSE USING GRADED AGGREGATE	1230	S.Y.	1230
5002	HOT MIX ASPHALT SURFACE, SF	50	TON.	50
5003	HOT MIX ASPHALT BASE BF	152	TON.	152
5004	4 INCH WHITE /YELLOW WATER BORNE PAVEMENT MARKINGS	1,520	L.F.	1,520
6001	TRAFFIC BARRIER THRIE BEAM ANCHORAGE AT BRIDGE END POST	4	EACH	4
6002	STANDARD TYPE A COMBINATION CURB AND GUTTER 12 INCH GUTTER PAN, 8 INCH DEPTH	35	L.F.	35
7001	PLACING FURNISHED TOPSOIL 2 IN. DEPTH	420	S.Y.	420
7002	TEMPORARY SEEDING	20	LB	20
7003	TEMPORARY STRAW MULCHING	1	TON.	1
7004	SEEDING ROADSIDE AREAS	420	S.Y.	420
7005	OVER SEEDING ROADSIDE AREAS	50	LB.	50
7006	REFERTILIZING	100	LB.	100
7007	TYPE A SOIL STABILIZATION MATTING	20	S.Y.	20

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

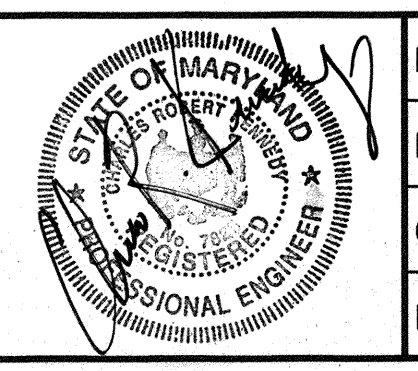
*[Signature]* 3/12/97  
DIRECTOR OF PUBLIC WORKS DATE

*[Signature]* 3/12/97  
CHIEF, BUREAU OF ENGINEERING DATE

*[Signature]* 3/12/97  
CHIEF, DIVISION OF TRANSPORTATION PROJECTS & WATERSHED MANAGEMENT DATE

KENNEDY PORTER & ASSOCIATES  
Consulting Engineers

4110 Black Rock Road  
Hampstead, Maryland 21074  
(410) 239-4482 KPA PROJECT: 94-032F



DES: J.P.B.  
DRN: R.S.J.  
CHK: J.P.B.  
DATE: \_\_\_\_\_

BY NO. REVISION

DATE 600'SCALE MAP NO. BLOCK NO.

Rehabilitation of Bridge No. M-196  
Ednor Road Over The Patuxent River

SUMMARY OF QUANTITIES

Bridge M-196 Capital Project B-3832

SCALE AS SHOWN  
SHEET 26 OF 26