

DESIGN DATA				
Traffic	Average Daily			Max.Hr.
Current	Pass:	Trucks:	Total:	
Forecast	Pass:	Trucks:	Total:	
Minimum Sight Dist. for:		Design Speed:		
Stopping:		Bridges:		
Safe Passing:				
Passing for Marking:				
Pavement Design Life (years)				

NORTH DAKOTA
DEPARTMENT OF TRANSPORTATION

JOB# 9

STATE	PROJECT NO.	PCN	SECTION NO.	SHEET NO.
ND	SIM-1-094(101)170	16752	1	1

GOVERNING SPECIFICATIONS:

Standard Specifications adopted by the North Dakota Department of Transportation October 2002; Standard Drawings currently in effect; and other Contract Provisions submitted herein.

SIM-1-094(101)170

BURLEIGH COUNTY
MENOKEN & MCKENZIE INTERCHANGE
BRIDGE DECK OVERLAY

PROJECT NUMBER \ DESCRIPTION NET MILES GROSS MILES

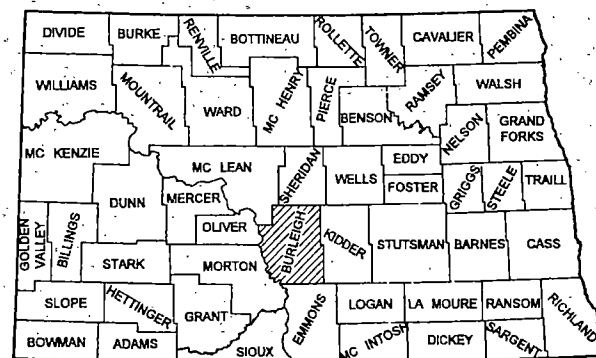
SIM-1-094(101)170

Menoken Interchange

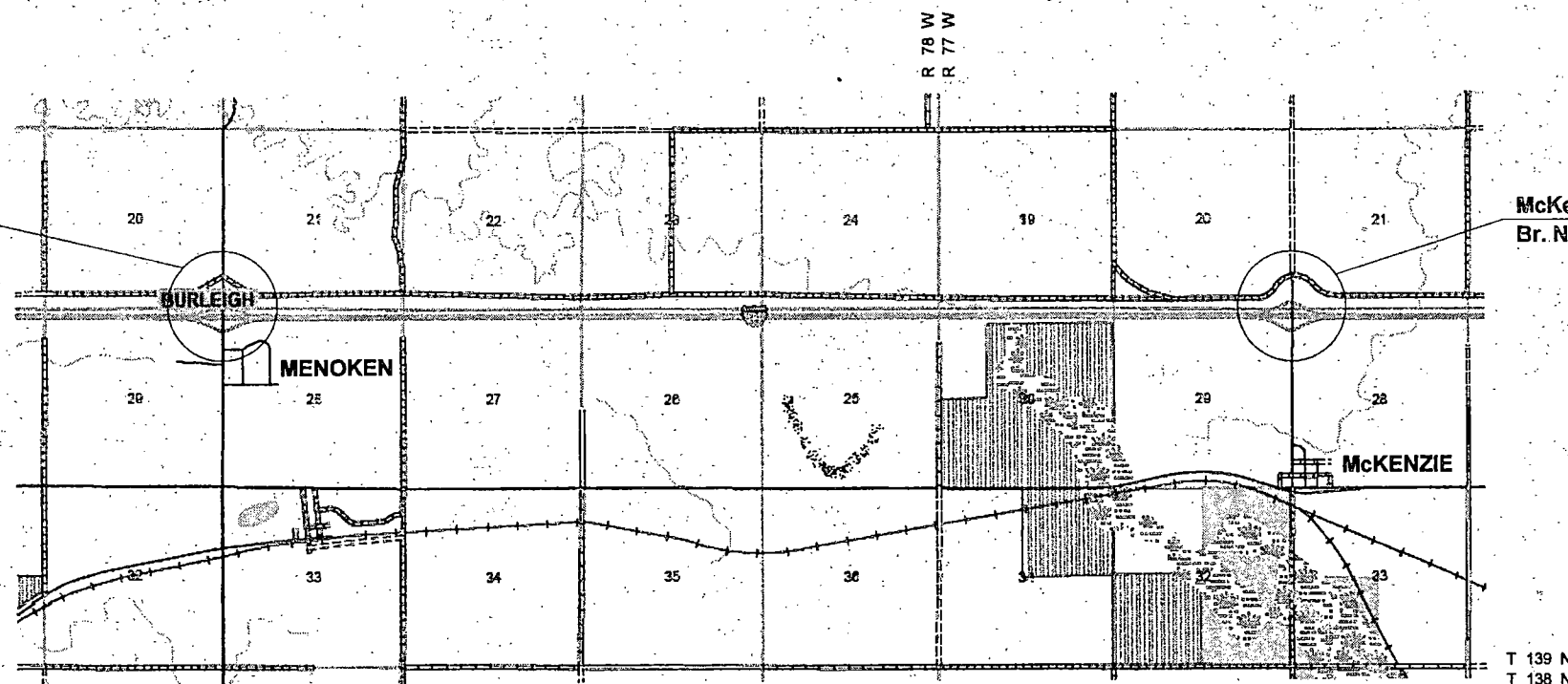
Bridge # 94-170.519 0.045 Miles 0.045 Miles

McKenzie Interchange

Bridge # 94-176.501 0.045 Miles 0.045 Miles



Menoken Interchange
Br. No. 94-170.519



McKenzie Interchange
Br. No. 94-176.501

STATE COUNTY MAP

DESIGNERS

APPROVED DATE

OFFICE OF PROJECT DEVELOPMENT
ND DEPARTMENT OF TRANSPORTATION

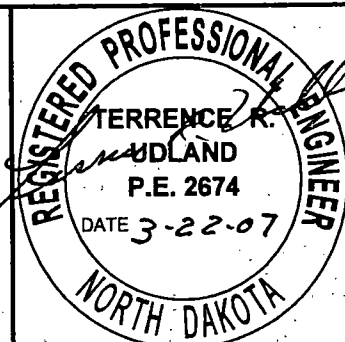
APPROVED DATE

FEDERAL HIGHWAY ADMINISTRATION
U.S. DEPARTMENT OF TRANSPORTATION

I hereby certify that the attached plans were prepared by me or under my direct supervision and that I am a duly registered professional engineer under the laws of the state of ND.

APPROVED DATE 3-22-07

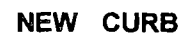
TERRENCE R. UDLAND
P.E. 2674
DATE 3-22-07
NDOT BRIDGE ENGINEER





100 SCOPE OF WORK: The work at this site consists of a deck overlay and removal of existing approach slab curb and replacing with 3" curb. Existing 4SB900 bars in the approach slab curb will remain in place and cut to clear new curb.

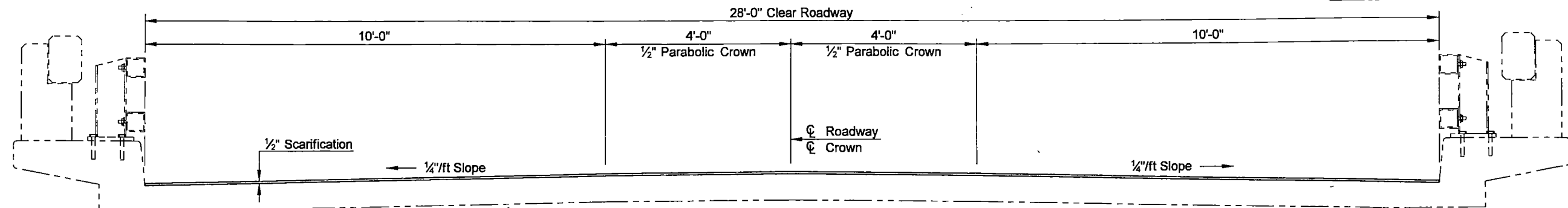
SPEC	CODE	ITEM DESCRIPTION	UNIT	QUANTITY
202	0129	REMOVAL OF CURB	LF	80
624	3005	CONNECTION PLATE MODIFICATION	EA	4
650	0700	CLASS 1 OVERLAY	SY	746.7
650	0701	CLASS 2 OVERLAY	SY	330
650	0702	CLASS 3 OVERLAY	SY	40
650	0703	CLASS 2A OVERLAY	LF	270
748	0540	CURB	LF	80



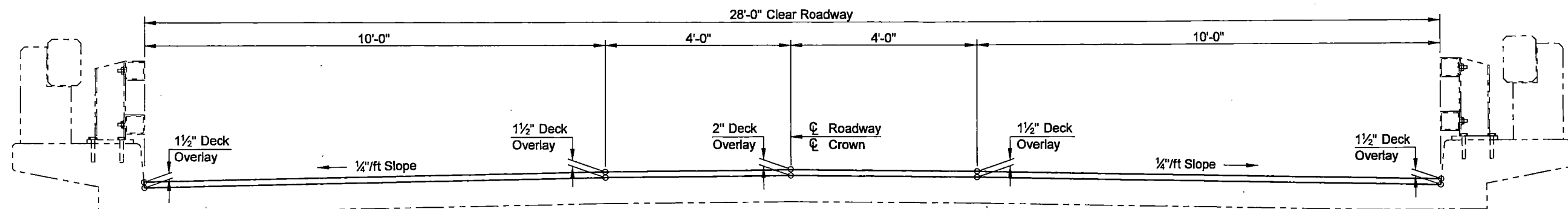
PROJECT: SIM-1-094(101)170
STATION: 795+50.1
BURLEIGH COUNTY

3-22-07
DATE

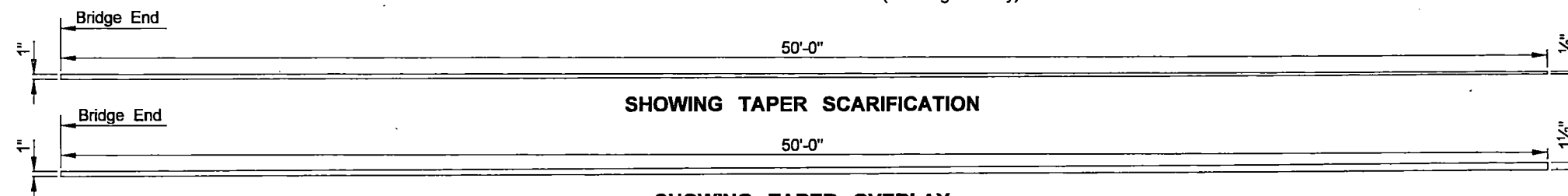
BRIDGE ENGINEER



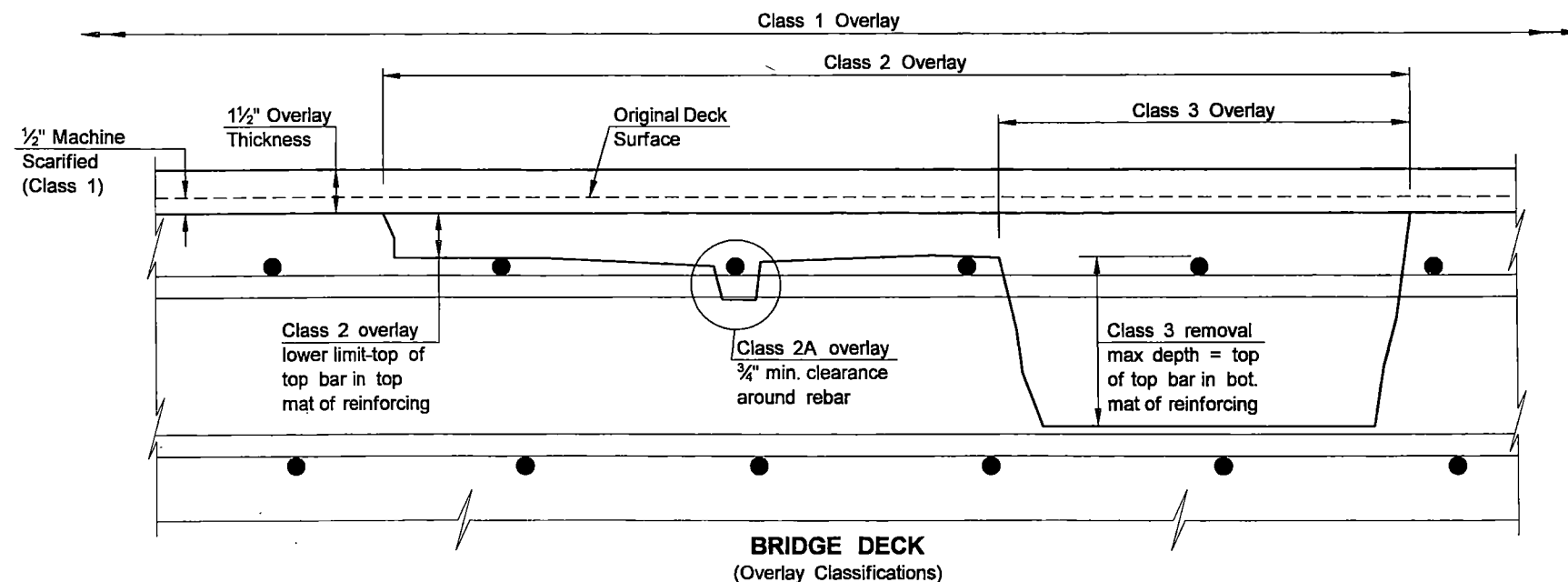
ELEVATION
(Showing Scarification)



ELEVATION
(Showing Overlay)



SHOWING TAPER OVERLAY



NOTES:

Class 2A overlay is paid for the top rebar in the top mat of reinforcing only. If a rebar that is identified for 2A overlay is in an area that becomes Class 3 or Class 4 it shall not be paid for as Class 2A overlay.

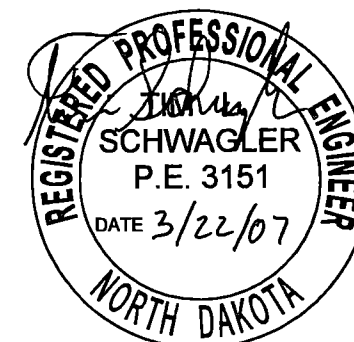
Class 4 removal shall be below the limits of Class 3 removal to full depth.

QUANTITIES

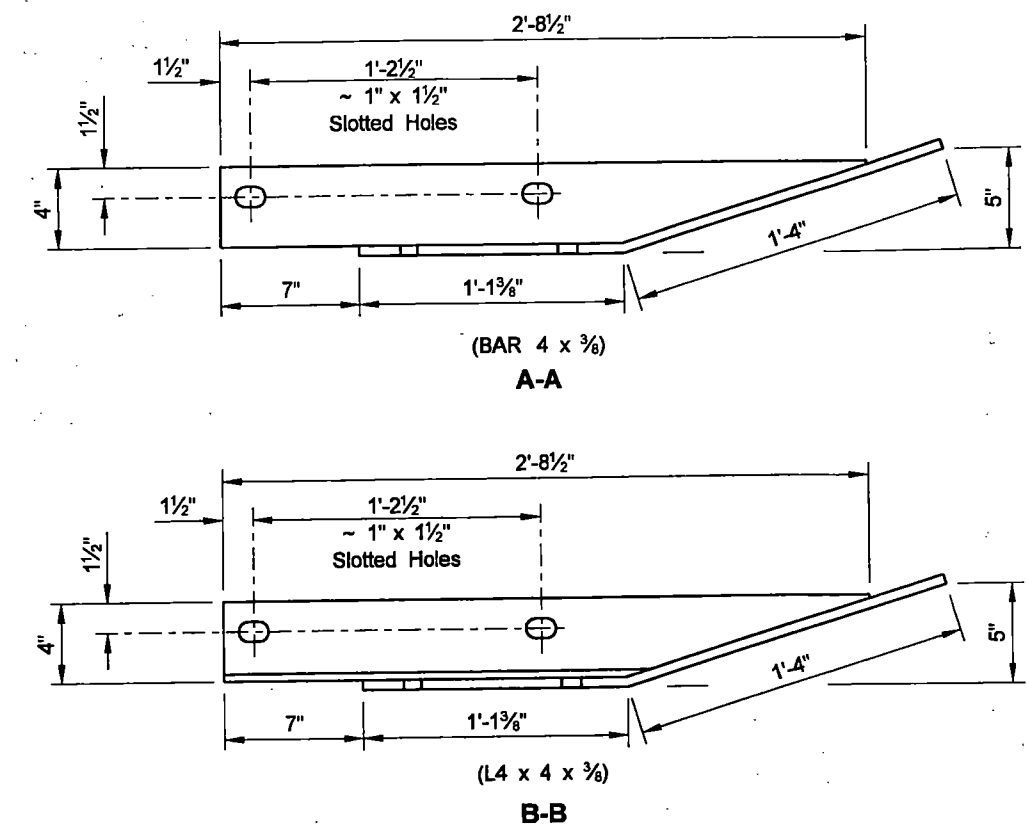
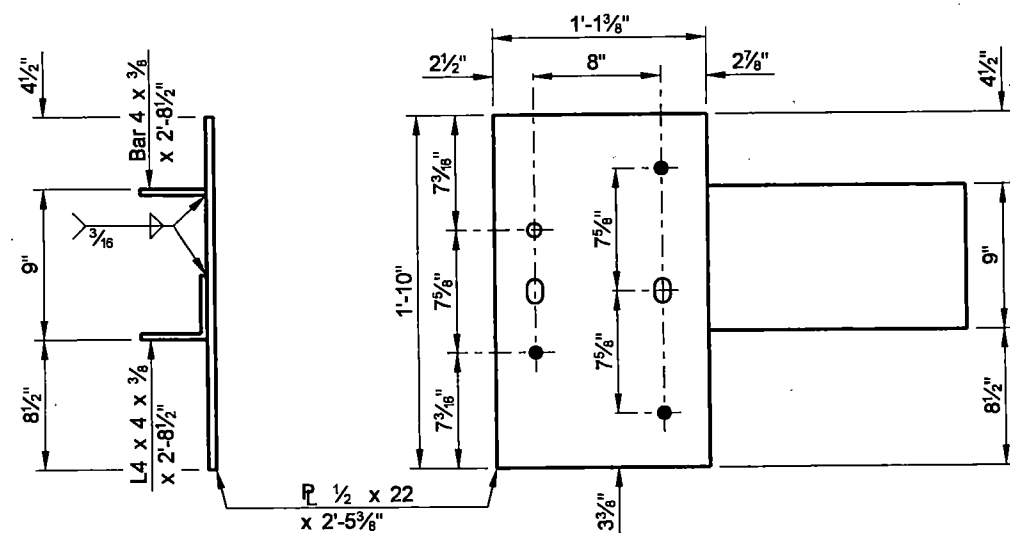
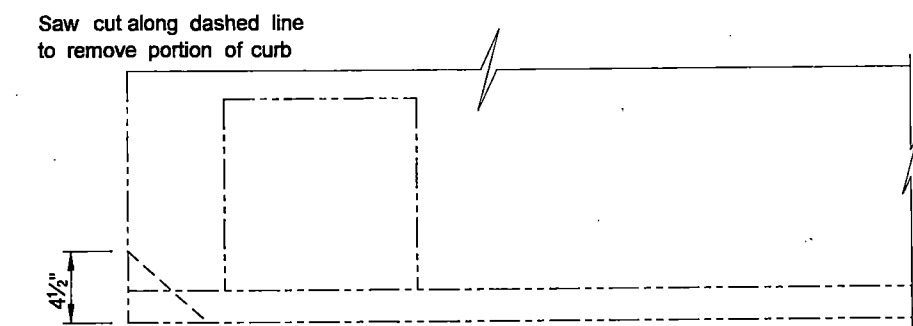
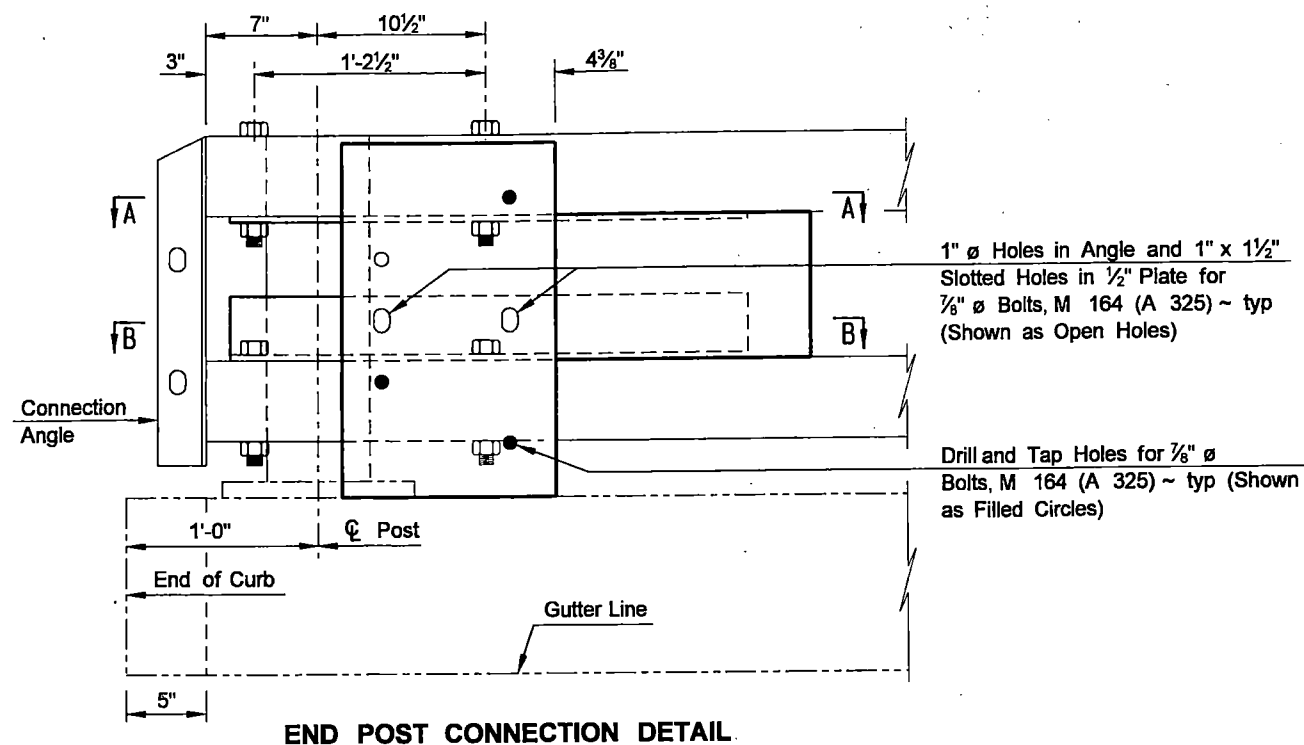
CLASS 1 OVERLAY	746.7 SY
CLASS 2 OVERLAY	330 SY
CLASS 3 OVERLAY	40 SY
CLASS 2A OVERLAY	270 LF

McKENZIE INTERCHANGE

DECK OVERLAY DETAILS

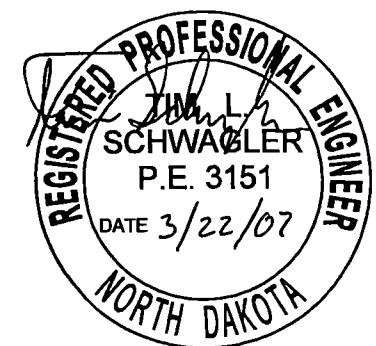
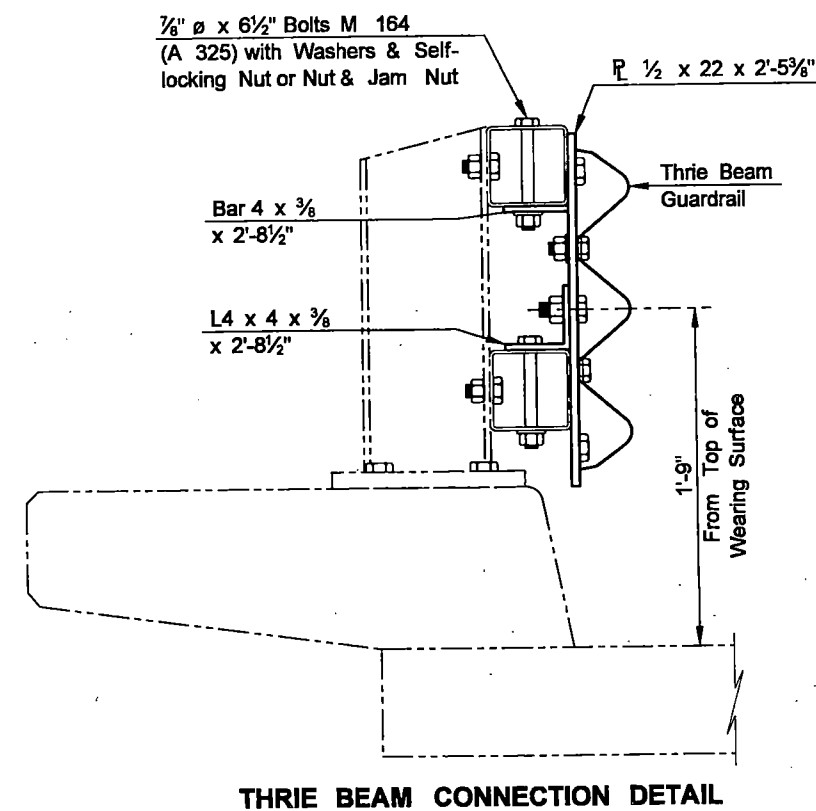


STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
ND	SIM-1-094(101)170	170	6



NOTE:

The bid item "Connection Plate Modification" includes saw cutting the curb, removing the existing connection plate and supplying and installing the new plate.



QUANTITIES	
CONNECTION PLATE MODIFICATION	4 EA
McKENZIE INTERCHANGE	
CONNECTION PLATE MODIFICATION DETAILS	

DESIGN DATA				
Traffic	Average Daily			Est. Max. Hr.
Current 1999	Pass:3,605	Trucks 645	Total14,250	425
Forecast 2019	Pass:5,770	Trucks1,035	Total16,805	685
Minimum Sight Dist. for:		Design Speed 70 MPH		
Stopping 600'		Bridges		
Full Control of Access				
No Point of Access Other Than at Interchange Ramps				

JOB# 1

FHWA REGION	STATE	PROJECT NO.	SHEET NO.
8	ND	IM-SIB-1-094(054)161	1

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

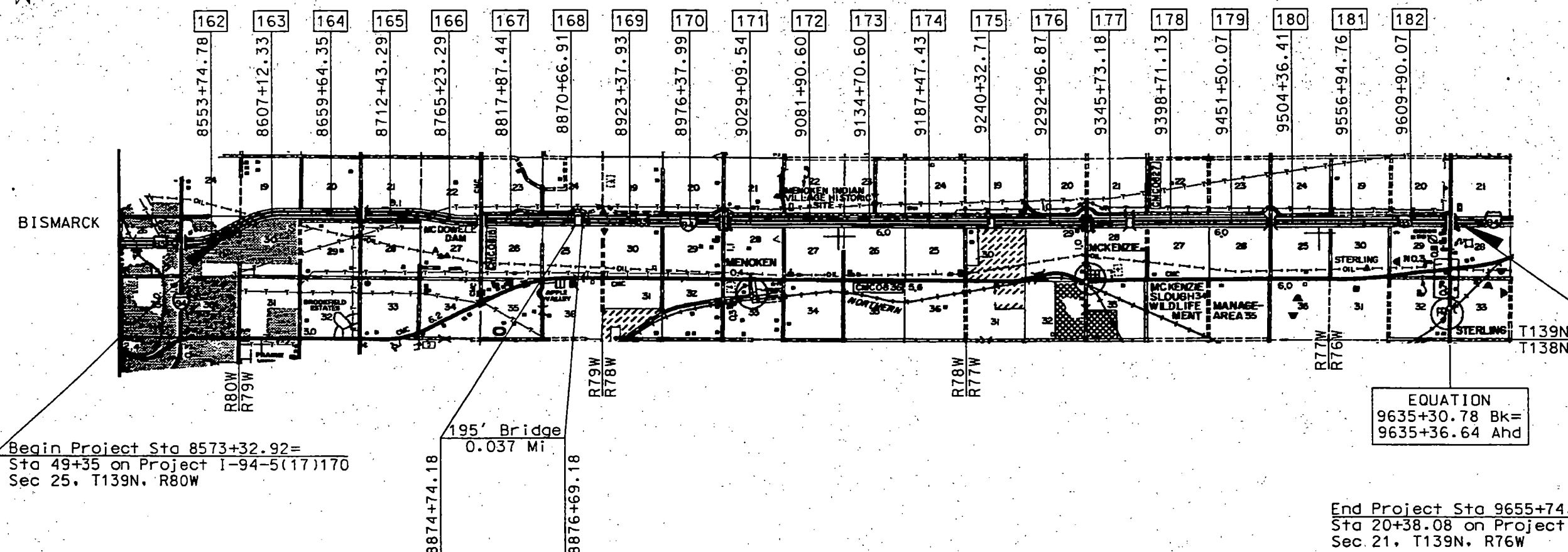
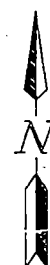
GOVERNING SPECIFICATIONS:

Standard Specifications adopted by the North Dakota Department of Transportation October 1997: Standard Drawings currently in effect; and other Contract Provisions submitted herein.

FEDERAL AID PROJECT IM-SIB-1-094(054)161
IN BURLEIGH COUNTY
CONCRETE PAVEMENT REPAIR, HOT BITUMINOUS PAVEMENT OVERLAY, AND INCIDENTALS
(EAST BOUND)

LENGTH OF PROJECT

Miles- Gross	Miles- Net
20.499	20.462
0.037 Mi deducted for bridge	



Begin Project Sta 8573+32.92=
Sta 49+35 on Project I-94-5(17)170
Sec 25, T139N, R80W

End Project Sta 9655+74.72=
Sta 20+38.08 on Project I-94-5(17)170
Sec 21, T139N, R76W

EQUATION
9635+30.78 Bk=
9635+36.64 Ahd

DESIGNER Dave Jenkins
DESIGNER Brad Pfeiffer
DESIGNER _____
RECOMMEND APPROVAL 8-17-1999
DESIGN ENGINEER Kurt E. Bink

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

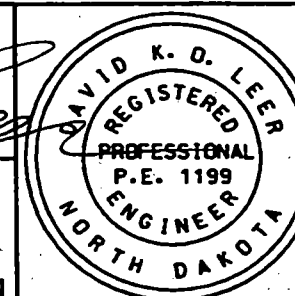
APPROVED

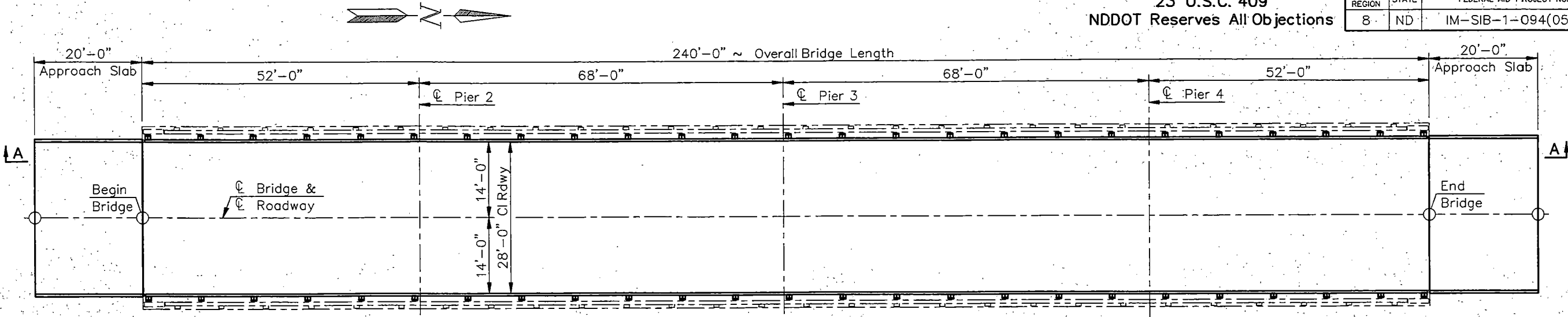
DIVISION ADMINISTRATOR _____ DATE _____

APPROVED DATE 8-17-99

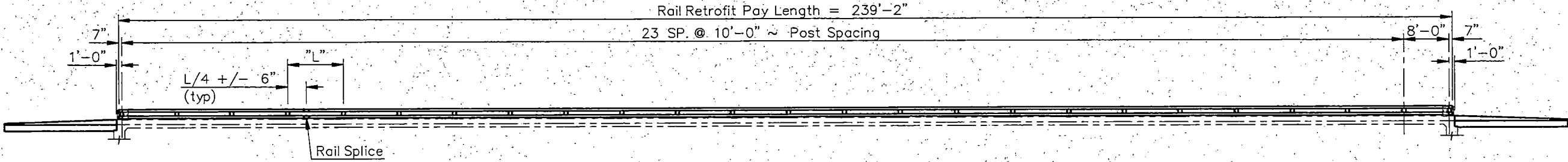
DIRECTOR OF HIGHWAYS
AND ENGINEERING

NORTH DAKOTA
DEPARTMENT OF TRANSPORTATION





PLAN

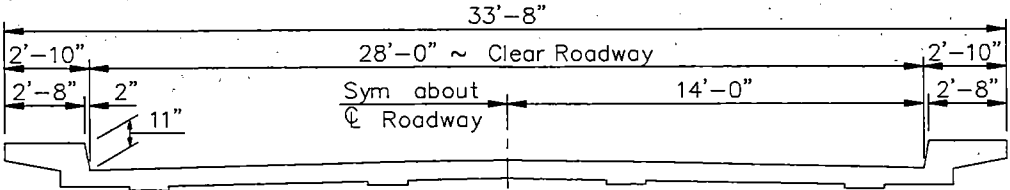


A-A

NOTES:

- 100 SCOPE OF WORK: The work at this site consists of filling the gaps between the abutments and the slope protection, installing a double box beam rail retrofit & the construction of concrete bridge approach slabs at both ends of the bridge.
- 550 BRIDGE APPROACH SLAB: All materials, equipment and labor required to excavate and prepare the surface under the approach slabs and build the approach slabs shall be included in the bid item "Concrete Bridge Approach Slab".
- 930 NOSING CONCRETE: The nosing concrete material shall be an elastomeric concrete or a polymeric concrete that will provide a durable edge that can withstand live-load traffic without chipping or spalling. The nosing concrete material shall be Silspec 900 PNS, manufactured by Silicone Specialties, Inc.; Wabocrete II, manufactured by Watson Bowman Acme; Elastomeric Concrete, manufactured by D.S. Brown Company, or an approved equal. The nosing concrete shall be mixed and installed according to the manufacturer's recommendation. All labor and materials required to install the nosing concrete shall be included in the bid item "Nosing Concrete".
- 930 SILICONE SEALANT: The silicone sealant shall be a rapid cure, self-leveling, cold applied, two component silicone sealant that will bond to and be compatible to the nosing concrete used. The sealant shall be installed according to the manufacturer's recommendations. The silicone sealant and the nosing concrete must be supplied by the same manufacturer as a complete system. The backer rod and any necessary bonding material shall be included in the bid item "Silicone Sealant".
- 930 TECHNICAL ASSISTANCE: The contractor shall acquire technical assistance from the manufacturer of the nosing concrete and silicone sealant for the surface preparation and installation of the nosing concrete and silicone sealant. A technical representative must be present for the start of surface preparation and installation for at least one day. The contractor shall contact the manufacturer at least two weeks prior to the installation. The technical assistance shall be provided at no additional cost to the Department.

SPEC	CODE	ITEM DESCRIPTION	UNIT	QUANTITY
550	0215	CONCRETE BRIDGE APPROACH SLAB	SY	128.4
624	3001	DOUBLE BOX BEAM RAIL RETROFIT (FREE STANDING)	LF	478.3
930	8642	NOSING CONCRETE	CF	7.4
930	8644	SILICONE SEALANT	LF	56
950	9712	JOINT TREATMENT	LF	88



TYPICAL DECK SECTION

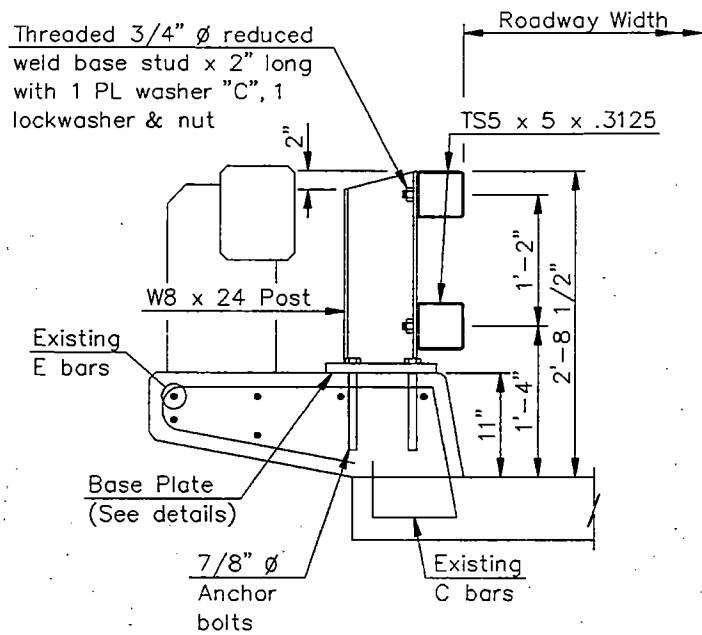
- 950 JOINT TREATMENT: The concrete slope protection has pulled away from the abutments leaving a 3 inch gap at the south abutment and a 2 1/2 inch gap at the north abutment. All debris and soil shall be cleaned out of the gaps and filled with a non-reinforced concrete to a minimum depth of 4 inches for the full width of the gap. All materials and labor required to place the concrete fill shall be included in the price bid for "Joint Treatment".

NORTH DAKOTA
DEPARTMENT OF TRANSPORTATION

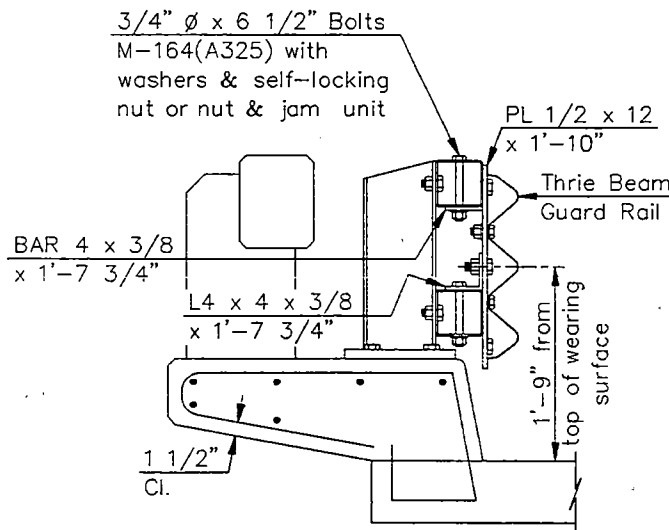
McKENZIE INTERCHANGE
BRIDGE LAYOUT

PROJECT: IM-SIB-1-094(054)161
BURLEIGH COUNTY

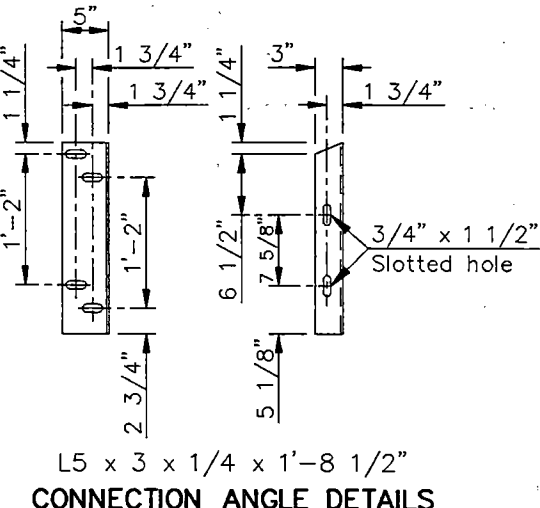
FHWA REGION	STATE	FEDERAL AID PROJECT NUMBER	SHEET NO.
8	ND	IM-SIB-1-094(054)161	112



CURB MOUNT POST DETAILS



THRIE BEAM CONNECTION DETAIL



CONNECTION ANGLE DETAILS

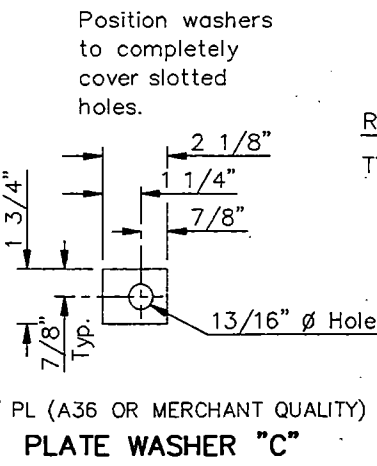
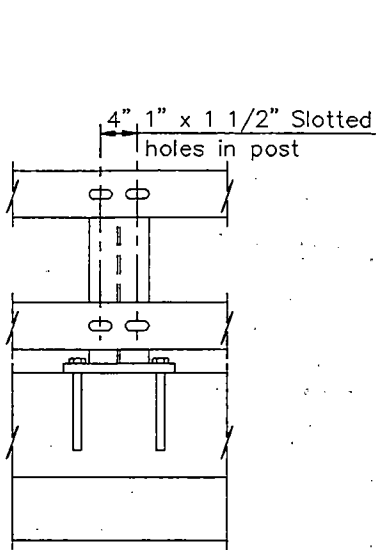
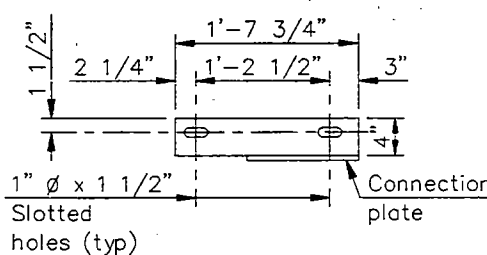
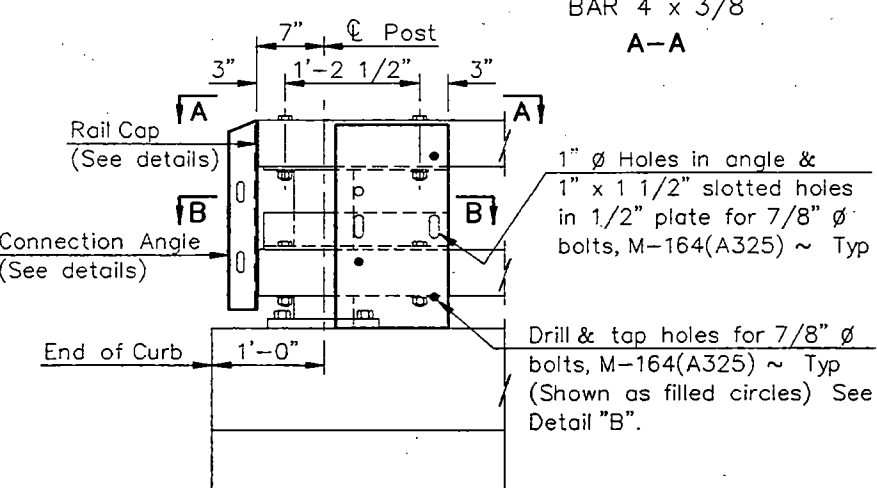


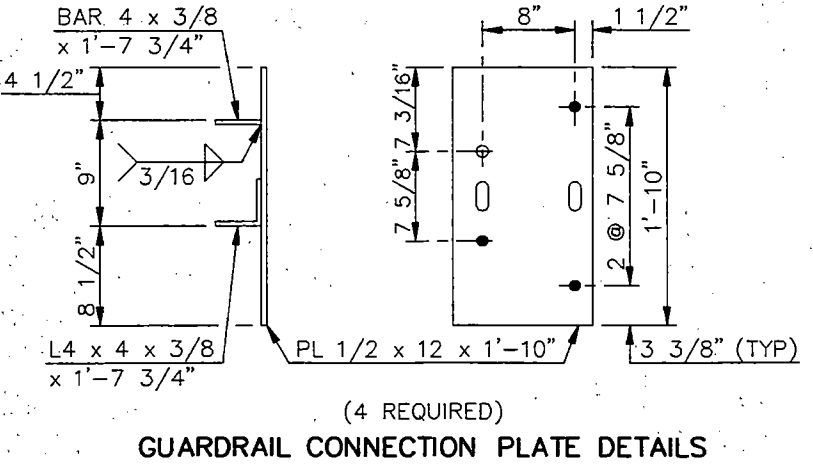
PLATE WASHER "C"



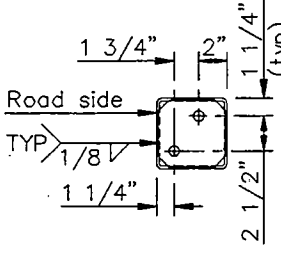
BAR 4 x 3/8
A-A



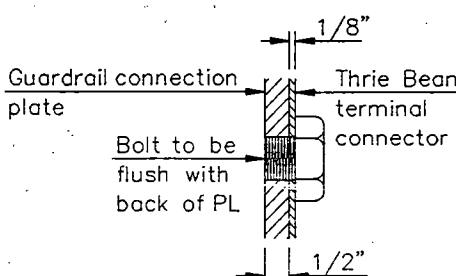
END POST CONNECTION DETAIL



GUARDRAIL CONNECTION PLATE DETAILS



RAIL CAP DETAILS



DETAIL "B"

NOTES:

- The bid item shall be "Double Box Beam Rail Retrofit". The pay length shall be end to end and in linear feet.
- Rail elements shall be square structural tubing in accordance with ASTM Specification A500 Grade B.
- Steel posts, plates and angles shall conform to AASHTO Specification M-183, unless otherwise noted.
- Railing shall be fabricated to the horizontal and vertical alignment of the structure. Posts shall be normal to grade.
- Payment for the railing shall include compensation for furnishing and installing the guardrail connection plates.
- All structural steel including fasteners shall be hot-dip galvanized after fabrication according to AASHTO M111.
- Rails shall be fabricated so that each rail segment between splices is attached to a minimum of two posts.
- The anchor bolts shall be embedded into the concrete with a chemical adhesive system that can develop a tensile strength of at least 17,500 lbs.

QUANTITIES
DOUBLE BOX BEAM RAIL RETROFIT (FREE STANDING) 478.3 LF

MCKENZIE INTERCHANGE

TRAFFIC RAIL DETAILS

MCKENZIE INTERCHANGE
TRAFFIC RAIL DETAILS

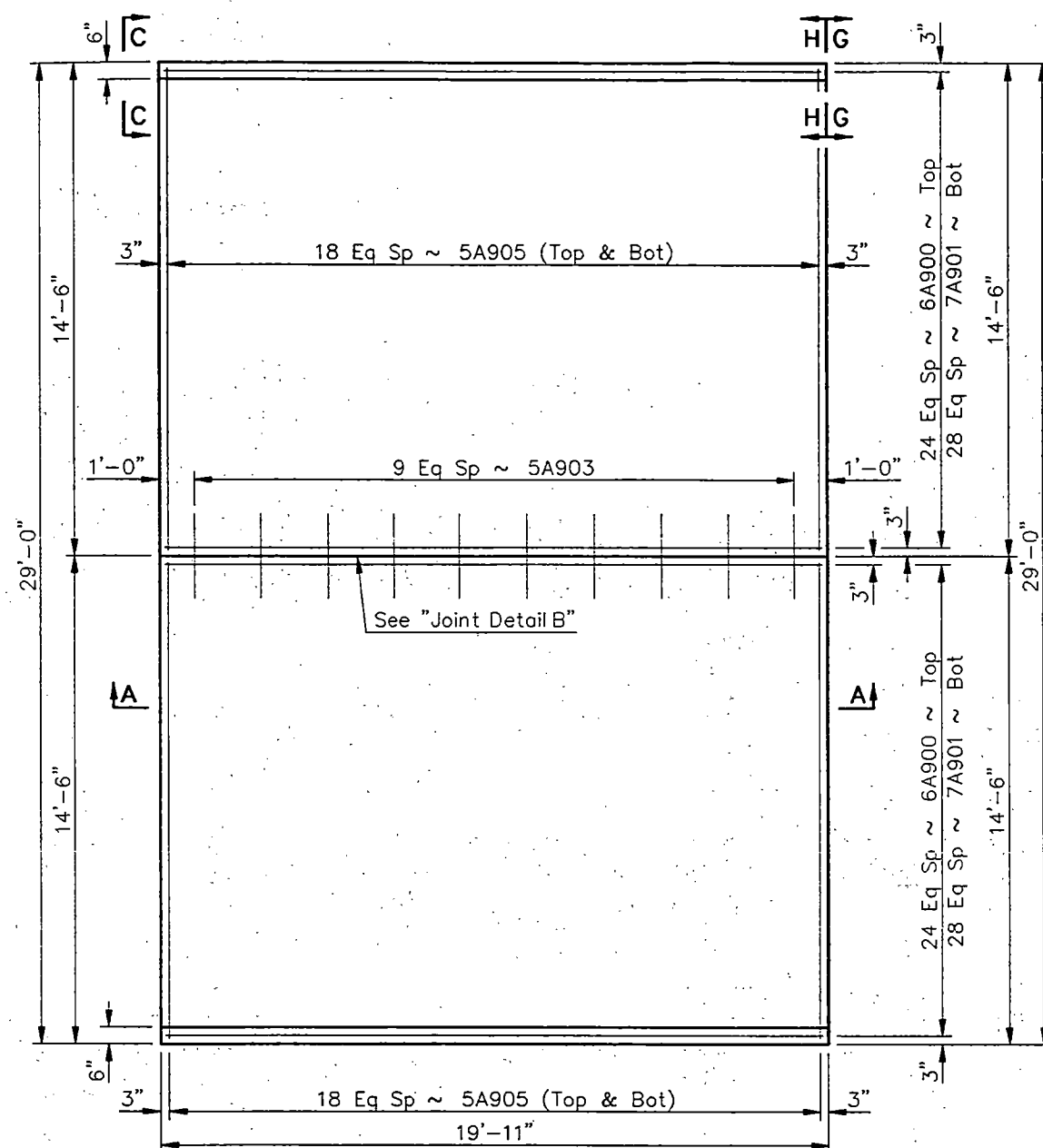
SKEW ANGLE = 0°

BAR LIST - ONE SLAB

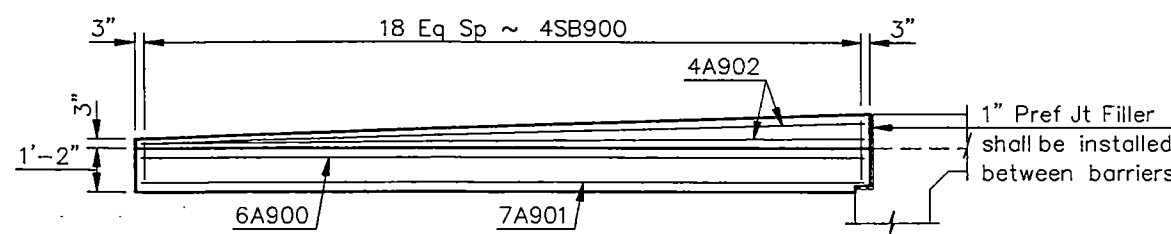
SIZE	MARK	NO.	LENGTH
6	A900	50	19'-7"
7	A901	58	19'-7"
4	A902	4	19'-7"
5	A903	10	2'-6"
5	A905	76	14'-2"
4	SB900	2	44'-4"

ESTIMATED MATERIAL QUANTITIES

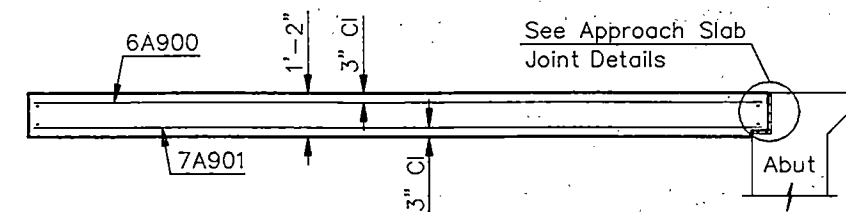
REINFORCING STEEL (LBS)	CONCRETE (CY)
5053	25.3



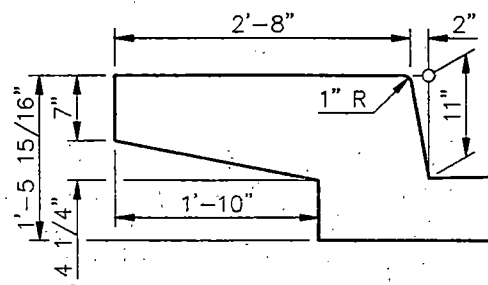
PLAN



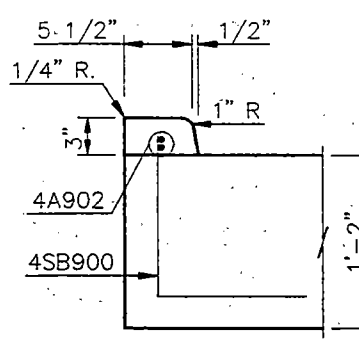
ELEVATION



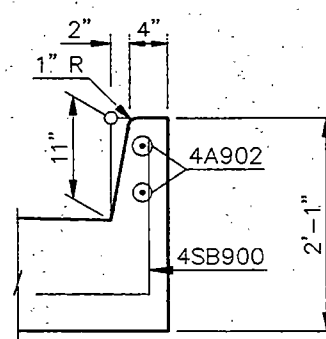
A-A



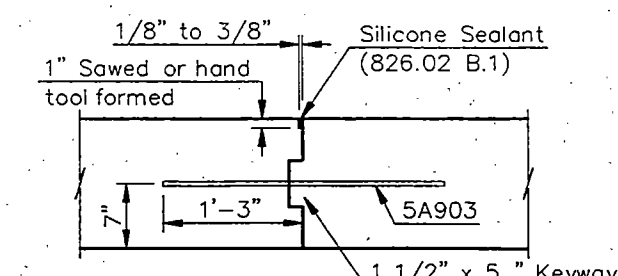
(Existing Barrier)
G-G



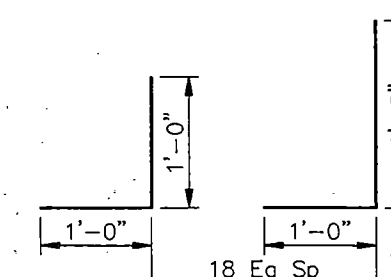
C-C



H-H



JOINT DETAIL B



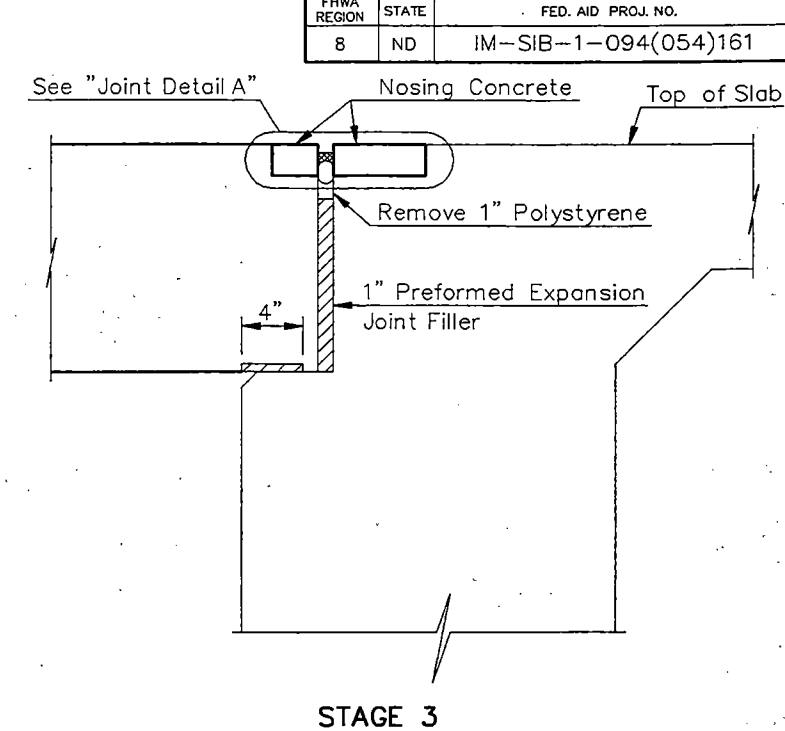
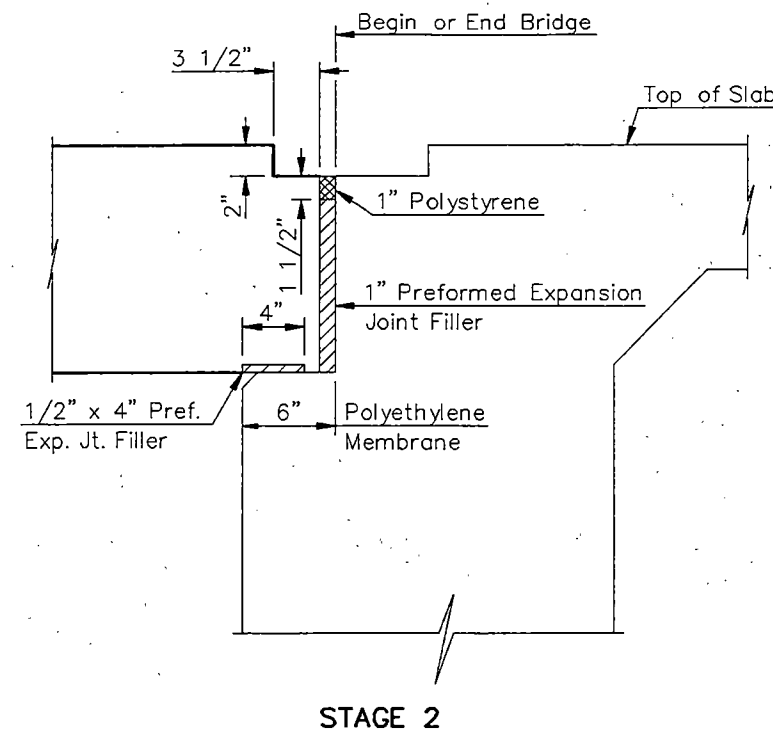
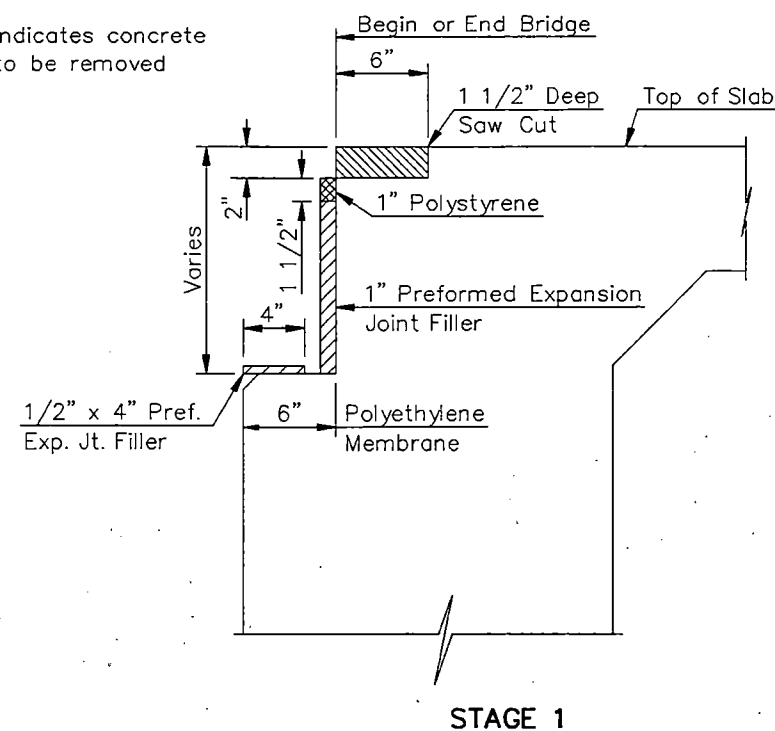
SB900

QUANTITIES	(ONE SLAB)
APPROACH SLAB	64.2 SY

McKENZIE INTERCHANGE

APPROACH SLAB DETAILS

Indicates concrete to be removed



NOTES:

STAGE 1:

1. Remove concrete at ends of deck to allow for nosing concrete.
2. Place the 1" preformed expansion joint filler, the 1/2" x 4" preformed expansion joint filler, the 1" polystyrene and the polyethylene membrane.

STAGE 2:

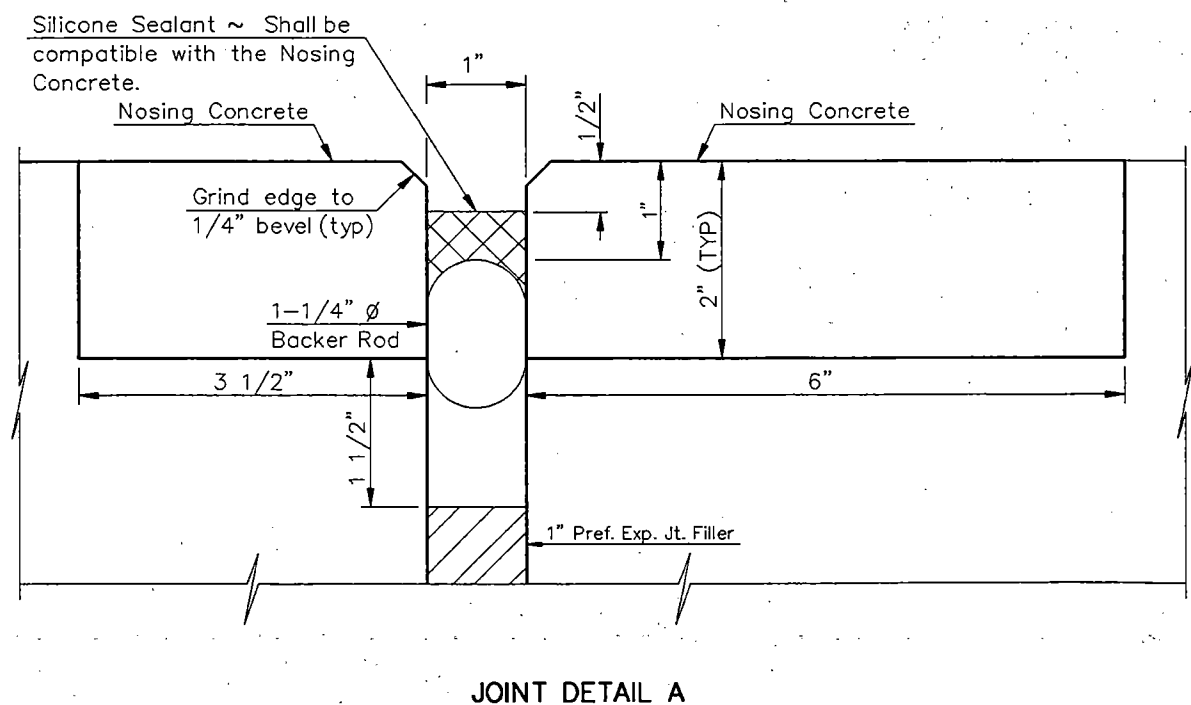
3. Place the new approach slab concrete. A 2" x 3 1/2" blockout shall be formed between the curbs in the approach slab as shown.

STAGE 3:

4. Place nosing concrete in the blockout areas, both in the deck and in the approach slab.
5. Remove the 1" polystyrene.
6. After the nosing concrete has cured, grind the 1/4" beveled edge. Clean and prepare the joint, apply any necessary bonding material. Install the backer rod and the silicone sealant.

All estimated material quantities shown on drawing number 94-176.501-2 are for information purposes only. All materials including concrete, reinforcing bars, backer rod, polyethylene membrane, preformed joint filler, silicone sealant in longitudinal joint and labor required to excavate and prepare the surface under the approach slab, and to build the approach slabs and approach slab curbs shall be included in the pay item, "Concrete Bridge Approach Slab".

The concrete shall be Class AE-3 and the reinforcing steel shall be Grade 60. The polyethylene membrane shall meet the requirements of AASHTO M171.

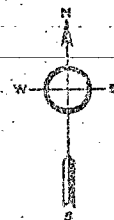
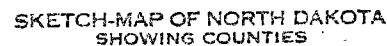


QUANTITIES (TWO APPROACHES)	
NOSING CONCRETE	7.4 CF
SILICONE SEALANT	56 LF

McKENZIE INTERCHANGE

APPROACH SLAB JOINT DETAILS

FOR THE PROPOSED IMPROVEMENT OF A
STATE HIGHWAY
IN BURLEIGH COUNTY
FEDERAL AID PROJECT NO. I-94-5(12)169
STRUCTURAL



SCALES

LAYOUT SHEET:	1 IN. = 500'
PLAN AND	HOR. 1 IN. = 100 FT.
PROFILE DRAWINGS	VERT. 1 IN. = 10 FT.
STRUCTURAL DRAWINGS:	AS SHOWN
CROSS SECTION SHEETS:	1 IN. = 10 FT.

LEGEND

 INTERCHANGE
 HIGHWAY GRADE SEPARATION-NO CONNECTION
 OTHER BRIDGE
 SERVICE ROAD
 TERMINATED CROSS-ROAD

DESIGN DATA

TRAFFIC		AVERAGE DAILY	EST. 30TH MAX. HR.
CURRENT TRAFFIC (1964)	2227 PASS.	393 TRUCKS	2620 TOTAL 393
TRAFFIC FORECAST (1984)	5763 PASS.	1017 TRUCKS	6780 TOTAL 1017
DESIGN SPEED	80	MPH	
TRAFFIC CLASSIFICATION	"M"		
MINIMUM SIGHT DISTANCE (NON PASSING)	725'		

FULL CONTROL OF ACCESS-no point of access other than by ramps at interchanges

This is a detailed cadastral map of Section 29, Township 138N, Range 79W. The map shows a grid of sections numbered 20 through 29. Key features include:

- Roads:** A main road runs horizontally across the top, labeled "I-94-5(8)". Another road runs vertically along the left side, labeled "EAST RDS. 50UR".
- Water Features:** Several water bodies are shown, including "MC KENZIE (Not Inc.)", "MENOKEN (Not Inc.)", "STERLING (Not Inc.)", and "SLOUGH".
- Land Parcels:** Numerous land parcels are delineated with boundaries and labels such as "RGE. 80W.", "RGE. 79W.", "RGE. 78W.", "RGE. 77W.", "RGE. 76W.", "RGE. 75W.", "RGE. 74W.", "RGE. 73W.", "RGE. 72W.", "RGE. 71W.", "RGE. 70W.", "RGE. 69W.", "RGE. 68W.", "RGE. 67W.", "RGE. 66W.", "RGE. 65W.", "RGE. 64W.", "RGE. 63W.", "RGE. 62W.", "RGE. 61W.", "RGE. 60W.", "RGE. 59W.", "RGE. 58W.", "RGE. 57W.", "RGE. 56W.", "RGE. 55W.", "RGE. 54W.", "RGE. 53W.", "RGE. 52W.", "RGE. 51W.", "RGE. 50W.", "RGE. 49W.", "RGE. 48W.", "RGE. 47W.", "RGE. 46W.", "RGE. 45W.", "RGE. 44W.", "RGE. 43W.", "RGE. 42W.", "RGE. 41W.", "RGE. 40W.", "RGE. 39W.", "RGE. 38W.", "RGE. 37W.", "RGE. 36W.", "RGE. 35W.", "RGE. 34W.", "RGE. 33W.", "RGE. 32W.", "RGE. 31W.", "RGE. 30W.", "RGE. 29W.", "RGE. 28W.", "RGE. 27W.", "RGE. 26W.", "RGE. 25W.", "RGE. 24W.", "RGE. 23W.", "RGE. 22W.", "RGE. 21W.", "RGE. 20W.", "RGE. 19W.", "RGE. 18W.", "RGE. 17W.", "RGE. 16W.", "RGE. 15W.", "RGE. 14W.", "RGE. 13W.", "RGE. 12W.", "RGE. 11W.", "RGE. 10W.", "RGE. 9W.", "RGE. 8W.", "RGE. 7W.", "RGE. 6W.", "RGE. 5W.", "RGE. 4W.", "RGE. 3W.", "RGE. 2W.", "RGE. 1W.", "RGE. 0W.", "RGE. -1W.", "RGE. -2W.", "RGE. -3W.", "RGE. -4W.", "RGE. -5W.", "RGE. -6W.", "RGE. -7W.", "RGE. -8W.", "RGE. -9W.", "RGE. -10W.", "RGE. -11W.", "RGE. -12W.", "RGE. -13W.", "RGE. -14W.", "RGE. -15W.", "RGE. -16W.", "RGE. -17W.", "RGE. -18W.", "RGE. -19W.", "RGE. -20W.", "RGE. -21W.", "RGE. -22W.", "RGE. -23W.", "RGE. -24W.", "RGE. -25W.", "RGE. -26W.", "RGE. -27W.", "RGE. -28W.", "RGE. -29W.", "RGE. -30W.", "RGE. -31W.", "RGE. -32W.", "RGE. -33W.", "RGE. -34W.", "RGE. -35W.", "RGE. -36W.", "RGE. -37W.", "RGE. -38W.", "RGE. -39W.", "RGE. -40W.", "RGE. -41W.", "RGE. -42W.", "RGE. -43W.", "RGE. -44W.", "RGE. -45W.", "RGE. -46W.", "RGE. -47W.", "RGE. -48W.", "RGE. -49W.", "RGE. -50W.", "RGE. -51W.", "RGE. -52W.", "RGE. -53W.", "RGE. -54W.", "RGE. -55W.", "RGE. -56W.", "RGE. -57W.", "RGE. -58W.", "RGE. -59W.", "RGE. -60W.", "RGE. -61W.", "RGE. -62W.", "RGE. -63W.", "RGE. -64W.", "RGE. -65W.", "RGE. -66W.", "RGE. -67W.", "RGE. -68W.", "RGE. -69W.", "RGE. -70W.", "RGE. -71W.", "RGE. -72W.", "RGE. -73W.", "RGE. -74W.", "RGE. -75W.", "RGE. -76W.", "RGE. -77W.", "RGE. -78W.", "RGE. -79W.", "RGE. -80W.", "RGE. -81W.", "RGE. -82W.", "RGE. -83W.", "RGE. -84W.", "RGE. -85W.", "RGE. -86W.", "RGE. -87W.", "RGE. -88W.", "RGE. -89W.", "RGE. -90W.", "RGE. -91W.", "RGE. -92W.", "RGE. -93W.", "RGE. -94W.", "RGE. -95W.", "RGE. -96W.", "RGE. -97W.", "RGE. -98W.", "RGE. -99W.", "RGE. -100W.", "RGE. -101W.", "RGE. -102W.", "RGE. -103W.", "RGE. -104W.", "RGE. -105W.", "RGE. -106W.", "RGE. -107W.", "RGE. -108W.", "RGE. -109W.", "RGE. -110W.", "RGE. -111W.", "RGE. -112W.", "RGE. -113W.", "RGE. -114W.", "RGE. -115W.", "RGE. -116W.", "RGE. -117W.", "RGE. -118W.", "RGE. -119W.", "RGE. -120W.", "RGE. -121W.", "RGE. -122W.", "RGE. -123W.", "RGE. -124W.", "RGE. -125W.", "RGE. -126W.", "RGE. -127W.", "RGE. -128W.", "RGE. -129W.", "RGE. -130W.", "RGE. -131W.", "RGE. -132W.", "RGE. -133W.", "RGE. -134W.", "RGE. -135W.", "RGE. -136W.", "RGE. -137W.", "RGE. -138W.", "RGE. -139W.", "RGE. -140W.", "RGE. -141W.", "RGE. -142W.", "RGE. -143W.", "RGE. -144W.", "RGE. -145W.", "RGE. -146W.", "RGE. -147W.", "RGE. -148W.", "RGE. -149W.", "RGE. -150W.", "RGE. -151W.", "RGE. -152W.", "RGE. -153W.", "RGE. -154W.", "RGE. -155W.", "RGE. -156W.", "RGE. -157W.", "RGE. -158W.", "RGE. -159W.", "RGE. -160W.", "RGE. -161W.", "RGE. -162W.", "RGE. -163W.", "RGE. -164W.", "RGE. -165W.", "RGE. -166W.", "RGE. -167W.", "RGE. -168W.", "RGE. -169W.", "RGE. -170W.", "RGE. -171W.", "RGE. -172W.", "RGE. -173W.", "RGE. -174W.", "RGE. -175W.", "RGE. -176W.", "RGE. -177W.", "RGE. -178W.", "RGE. -179W.", "RGE. -180W.", "RGE. -181W.", "RGE. -182W.", "RGE. -183W.", "RGE. -184W.", "RGE. -185W.", "RGE. -186W.", "RGE. -187W.", "RGE. -188W.", "RGE. -189W.", "RGE. -190W.", "RGE. -191W.", "RGE. -192W.", "RGE. -193W.", "RGE. -194W.", "RGE. -195W.", "RGE. -196W.", "RGE. -197W.", "RGE. -198W.", "RGE. -199W.", "RGE. -200W.", "RGE. -201W.", "RGE. -202W.", "RGE. -203W.", "RGE. -204W.", "RGE. -205W.", "RGE. -206W.", "RGE. -207W.", "RGE. -208W.", "RGE. -209W.", "RGE. -210W.", "RGE. -211W.", "RGE. -212W.", "RGE. -213W.", "RGE. -214W.", "RGE. -215W.", "RGE. -216W.", "RGE. -217W.", "RGE. -218W.", "RGE. -219W.", "RGE. -220W.", "RGE. -221W.", "RGE. -222W.", "RGE. -223W.", "RGE. -224W.", "RGE. -225W.", "RGE. -226W.", "RGE. -227W.", "RGE. -228W.", "RGE. -229W.", "RGE. -230W.", "RGE. -231W.", "RGE. -232W.", "RGE. -233W.", "RGE. -234W.", "RGE. -235W.", "RGE. -236W.", "RGE. -237W.", "RGE. -238W.", "RGE. -239W.", "RGE. -240W.", "RGE. -241W.", "RGE. -242W.", "RGE. -243W.", "RGE. -244W.", "RGE. -245W.", "RGE. -246W.", "RGE. -247W.", "RGE. -248W.", "RGE. -249W.", "RGE. -250W.", "RGE. -251W.", "RGE. -252W.", "RGE. -253W.", "RGE. -254W.", "RGE. -255W.", "RGE. -256W.", "RGE. -257W.", "RGE. -258W.", "RGE. -259W.", "RGE. -260W.", "RGE. -261W.", "RGE. -262W.", "RGE. -263W.", "RGE. -264W.", "RGE. -265W.", "RGE. -266W.", "RGE. -267W.", "RGE. -268W.", "RGE. -269W.", "RGE. -270W.", "RGE. -271W.", "RGE. -272W.", "RGE. -273W.", "RGE. -274W.", "RGE. -275W.", "RGE. -276W.", "RGE. -277W.", "RGE. -278W.", "RGE. -279W.", "RGE. -280W.", "RGE. -281W.", "RGE. -282W.", "RGE. -283W.", "RGE. -284W.", "RGE. -285W.", "RGE. -286W.", "RGE. -287W.", "RGE. -288W.", "RGE. -289W.", "RGE. -290W.", "RGE. -291W.", "RGE. -292W.", "RGE. -293W.", "RGE. -294W.", "RGE. -295W.", "RGE. -296W.", "RGE. -297W.", "RGE. -298W.", "RGE. -299W.", "RGE. -300W.", "RGE. -301W.", "RGE. -302W.", "RGE. -303W.", "RGE. -304W.", "RGE. -305W.", "RGE. -306W.", "RGE. -307W.", "RGE. -308W.", "RGE. -309W.", "RGE. -310W.", "RGE. -311W.", "RGE. -312W.", "RGE. -313W.", "RGE. -314W.", "RGE. -315W.", "RGE. -316W.", "RGE. -317W.", "RGE. -318W.", "RGE. -319W.", "RGE. -320W.", "RGE. -321W.", "RGE. -322W.", "RGE. -323W.", "RGE. -324W.", "RGE. -325W.", "RGE. -326W.", "RGE. -3

STA.	CLEAR ROWY. WIDTH	DESIGN LOADING
479+66.4	28'	H20 (1961)
795+50.1	28'	H20 (1961)

479.66.4
1-240' BRIDGE
0.00MILES

BEG. PROJ. 1-94-S(12)69
STA. 479.66.4
= STA. 479.66.4 ON PROJ. 1-94-S(18)60
A POINT 240.9' SOUTH OF THE
S.W. COR. OF SEC. 21,
T-139N, R-78W

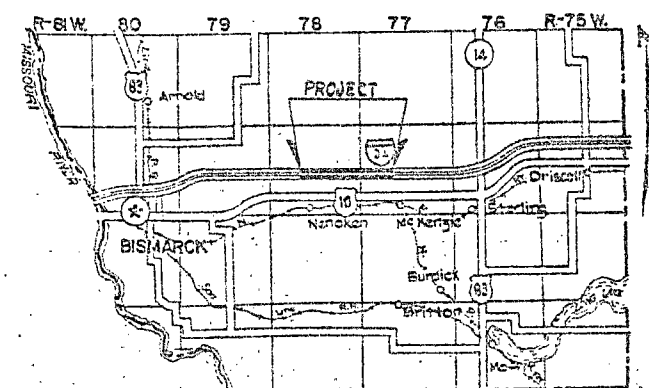
94-72
79550.1
1-240' BRIDGE.
02 MILES

END PROJ. I-94-5(12)169
STA. 795+50.1
*STA. 795+50.1 ON PROJ. I-94-5(9)170
A POINT 233.0' SOUTH OF THE S.W.
COR. OF SEC. 21, T-139N, R-77W

NOTE:

Topsoil from excavation and embankment areas shall be excavated to its actual depth and stockpiled by the structural contractor at locations designated by the Engineer. Topsoil excavation shall be paid for as Class A Roadway Excavation.

QUANTITIES																									
LOCATION	ROADWAY EXCAVATION CLASS A	13 X 168 CLASS 2 EXCAVATION	16 WATER	29A PIT RUN GRAVEL SUB-BASE CLASS 5A	55A PRESTRESSED BEAMS (+5')	60A CLASS AE-2 CONCRETE	60AA CLASS AE-2 CONCRETE	63A REINFORCING STEEL (INTERMEDIATE GRADE)	65E STEEL ENCASED CONCRETE PILING	65M					64		SLOPE PROTECTION	BRIDGE BENCH MARKS	LINED OIL TREATMENT	TREATMENT					
										STEEL ENCASED CONCRETE TEST PILES		TEMPORARY CROSSING AND DETOUR LUMP SUM			CL "B"	CL "C"					STA.	STA.	S.Y.	SET	GAL.
										10' x 12' x 25' / 12' x 12' x 25'															
										CU. YD.	CU. YD.	CU. YD.	CU. YD.	CU. YD.											
479+66.4	51097	165	365	22.4	6	8	3525	2810	96280	360	400	2		1			705 5.9.1	412	1	37					
795+50.1	56236	165	448	22.4	8	8	3585	2810	96280	640	1045		1	1				412	1	37					
GRAND TOT.	106033	330	813	448	16	16	7170	5620	192560	1000	1445	2	1	1	1	1	11000 SUMP	11000 SUMP	824	2	74				



SKETCH MAP OF PART OF BURLEIGH COUNTY

INDEX OF DRAWINGS

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SHEET NO. 12	TO 27 INCL. STRUCTURAL DRAWINGS
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LENGTH OF PROJECT		
PROJECT	MILES-GROSS	MILES-NET
1-94-5(12)	5.921	0000
TOTALS	5.921	0.000

GOVERNMENT SPECIFICATIONS.

Standard Specifications adopted by the North Dakota State Highway department July 1961 and approved as standard by the Bureau of Public Roads Dec. 29, 1961. Required Provisions dated NOV. 12, 1963 and approved by the Bureau of Public Roads NOV. 22, 1963 and others submitted herewith.

KEY TO CONVENTIONAL SIGNS

STATE & NATIONAL LINES
COUNTY LINE
TOWNSHIP & RANGE LINES
GRADE LINE
CENTERLINE OF CONSTRUCTION
OLD RIGHT OF WAY LINE
NEW RIGHT OF WAY LINE
ABANDONED RIGHT OF WAY LINE
PROPERTY LINE
STONE WALL
OTHER FENCES
POLE LINES
POWER LINES
BRIDGE

GROUND	ELEVATION
GRADE	
TRAVELED WAY	
RAILROADS	
HEDGES AND TREES	
TRAILS	
CITY OR VILLAGE CORPORATE LIMITS	
SECTION CORNER	
QUARTER SECTION CORNER	
BUILDINGS	
OLD CULVERTS	
NEW CULVERTS	
DRAINAGE	
BENCH MARKS	
WATERS EDGE	
MARSH	
WIRE ROPE GUARD RAIL	
SNOW FENCE	
RIPRAP	
GUARD POSTS	
COBBLE GUTTERS	
CONCRETE GUTTERS	

APPROVED DATE 9-25-64

CHIEF ENGINEER
NORTH DAKOTA STATE
HIGHWAY DEPARTMENT

APPROVED

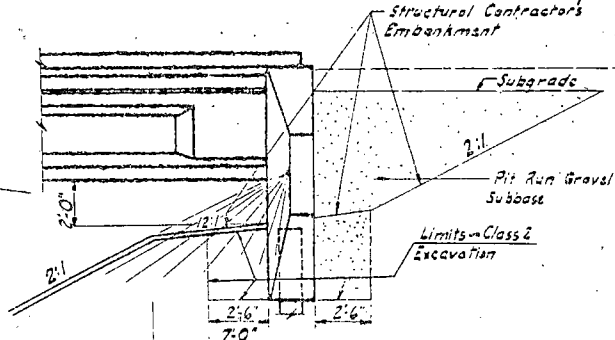
DIVISION ENGINEER

DATE

	QUANTITIES	TRACING	DETAILS	IVC	PLANTED BY	REVISIONS	MADE BY	DATE
					CHECKED BY GJL MADE BY GJL CHECKED BY GJZ PLANTED BY DVL TRACE IN IFF MADE BY IFF CHECKED BY LHM	V.G. Data Revised	LVM	15 Apr 68

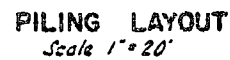


—828±



94-72

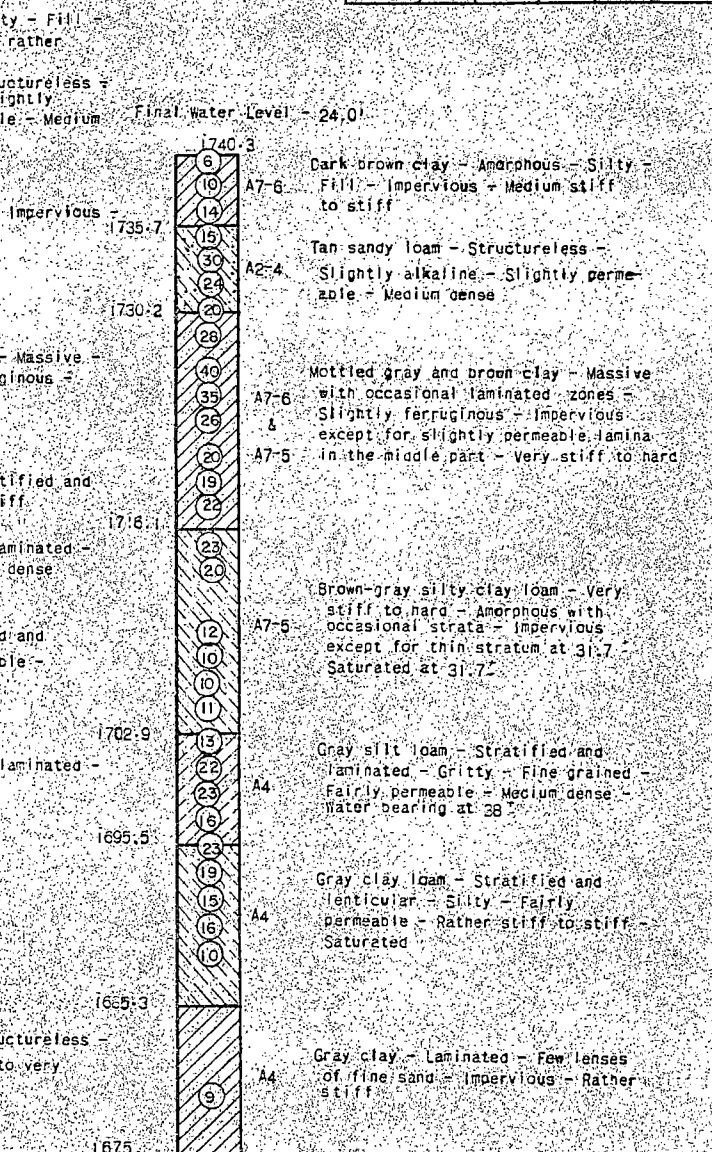
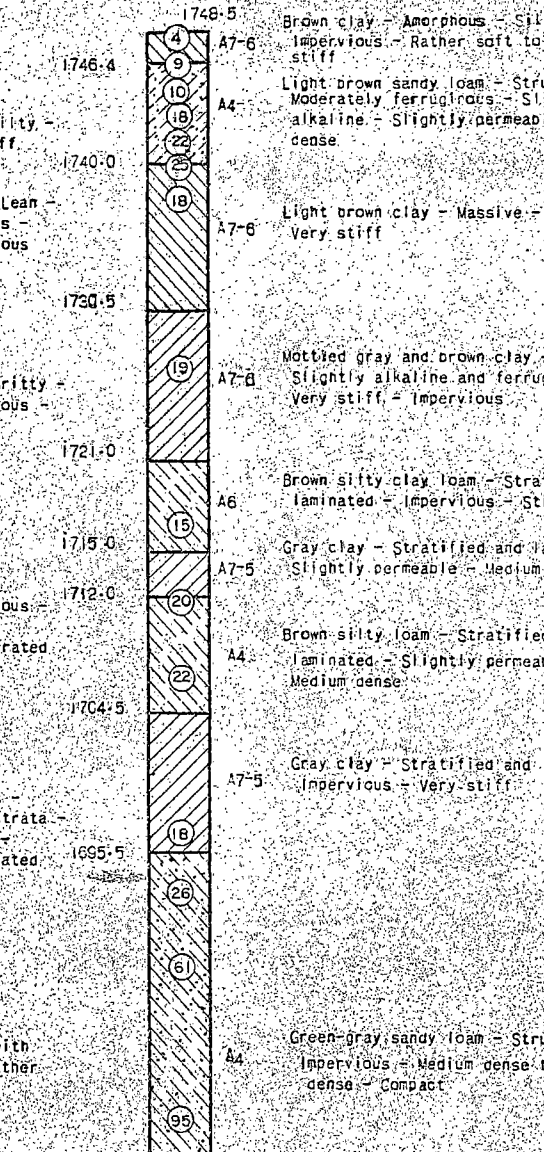
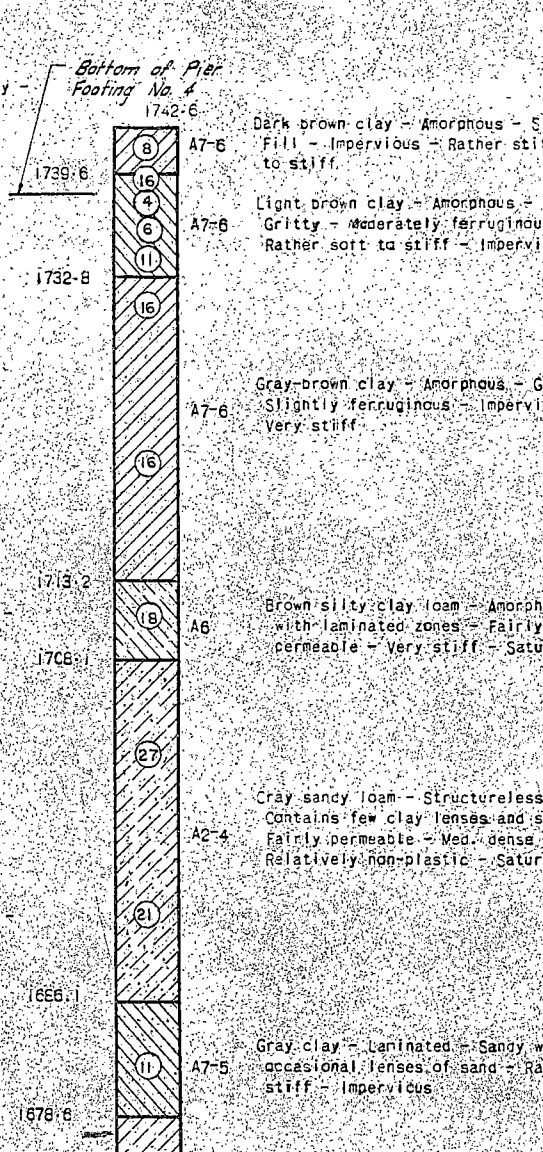
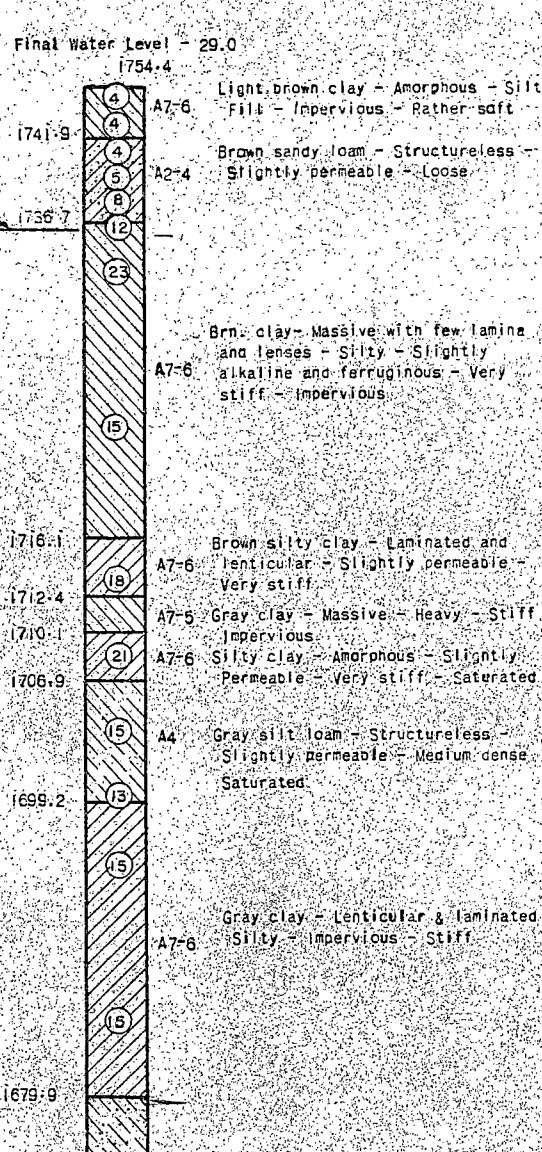
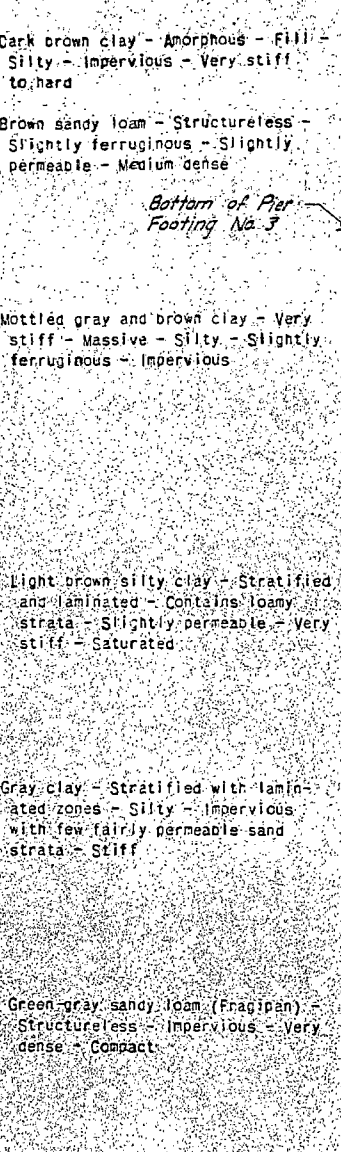
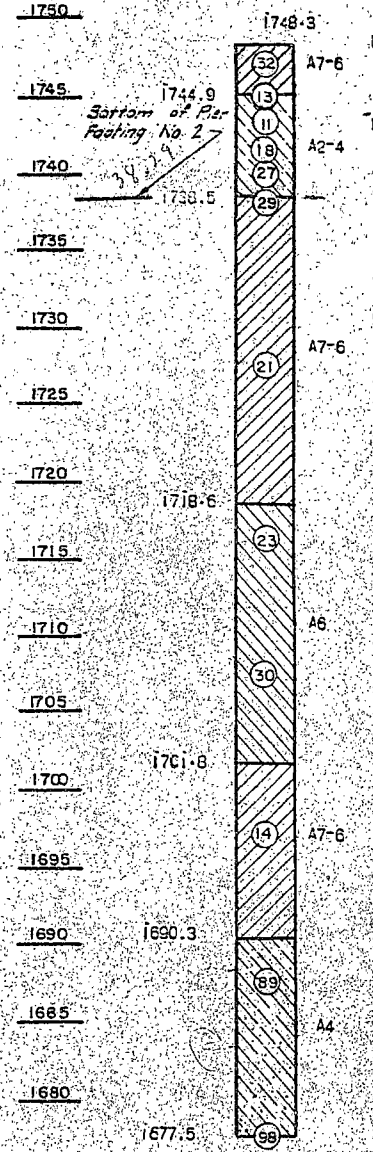
7-2-6



FC - 1,200 PSI
FS - 20,000 PSI

94-72-1

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	N.D.	E-94-502		17	59



BORING NO. 1
 STA. 795+67.1 - 67.5' LT.
 Survey £
 BORING NO. 1
 DEPTH: 14.3-15.6 29.4-30.7
 MAX. LOAD: 2925 3074
 SHEAR $\angle$: Near 0° Near 5°
 COHESION: 1463 1397
 MOISTURE: 28% 35%
 DRY WT.: 94 85

BORING NO. 2
 STA. 795+33.1 - On Survey £
 BORING NO. 2
 DEPTH: 9.2-10.6 19.2-20.6 29.2-30.6 34.3-35.6 39.2-40.6
 MAX. LOAD: 5552 3508 2991 3551
 SHEAR $\angle$: Near 0° Near 0° Near 0° Near 0° Near 0°
 COHESION: 2776 1754 1496 1776
 MOISTURE: 25% 31% 35% 25% 30%
 DRY WT.: 98 92 87 91

BORING NO. 3
 STA. 795+67.1 - 67.5' RT.
 Survey £
 BORING NO. 3
 DEPTH: 9.0-10.3 19.0-20.4 29.0-29.4 29.4-30.4
 MAX. LOAD: 2711 3797 4733 3533
 SHEAR $\angle$: Near 15° Near 0° Near 0° Near 5°
 COHESION: 1040 1896 2307 1602
 MOISTURE: 17% 31% 35% 25%
 DRY WT.: 112 91 85 95

BORING NO. 4
 STA. 795+33.1 - 112.5' LT.
 Survey £
 BORING NO. 4
 DEPTH: 14.1-15.5 19.1-20.4 29.1-30.4 34.1-35.5 39.1-40.5
 MAX. LOAD: 3279 3112 2684 3605
 SHEAR $\angle$: Near 0° Near 0° Near 5° Near 0°
 COHESION: 1640 1556 1356 1947
 MOISTURE: 31% 34% 36% 35% 32%
 DRY WT.: 91 87 84 85

BORING NO. 5
 STA. 795+33.1 - 112.5' RT.
 Survey £
 BORING NO. 5
 DEPTH: 10.8-12.3 16.8-18.0 22.3-23.7 27.9-29.3 35.1-36.5
 MAX. LOAD: 9387 6326 3312 2871 2320
 SHEAR $\angle$: Near 0° Near 0° Near 0° Near 5° Near 5°
 COHESION: 4794 3163 1636 1305 1338
 MOISTURE: 27% 27% 32% 34% 34%
 DRY WT.: 97 86 89 88 86

NOTE:
 Encircled numbers indicate the number of blows delivered by a 140 lb. hammer from a height of 30" to drive core tube 1 ft.
 The boring log shown is for design purposes only. The State assumes no responsibility if soil conditions encountered during construction differ from those shown.

**NORTH DAKOTA
 STATE HIGHWAY DEPARTMENT**
 BRIDGE NO. 94-72
 BORING LOG
 I-94-502
 BURLEIGH COUNTY

94-72-2

	MADE BY	C.F.E.	(S.p.64)	REVISIONS	MADE I	D BY	DATE
I	CHECKED BY	G.M.					
	MADE BY	G.M.					
UN. FILMS	CHECKED BY	L.H.					
	MADE BY	HOL					
TRACING	CHECKED BY	L.H.					
	MADE BY	D.B.					
QUANTITIES	CHECKED BY	L.H.					

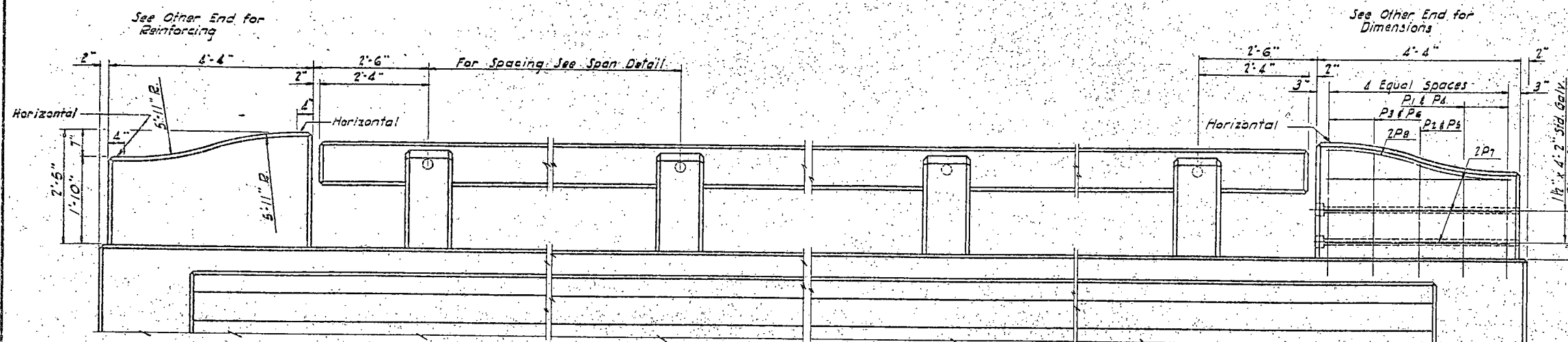
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	N.D.	1-21 2-18		18	50

NOTES:

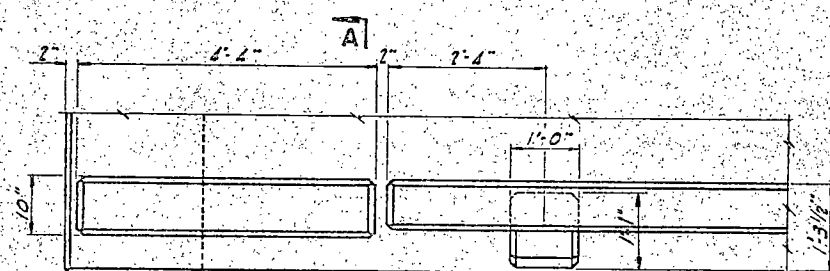
All concrete above top of curb shall be Class AAE-4 except concrete and posts.

"Rubbed Surface Finish" will be required for the roadway faces of curbs, the outside vertical faces of curb and slab, and all faces of rails, intermediate and end posts.

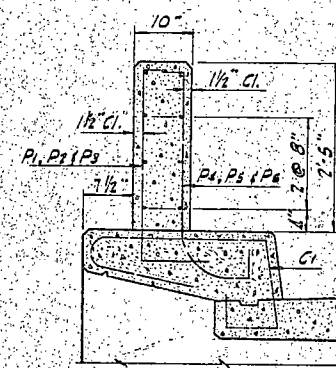
Designed in accordance with A.A.S.M.O.
Interim Specification I (64).



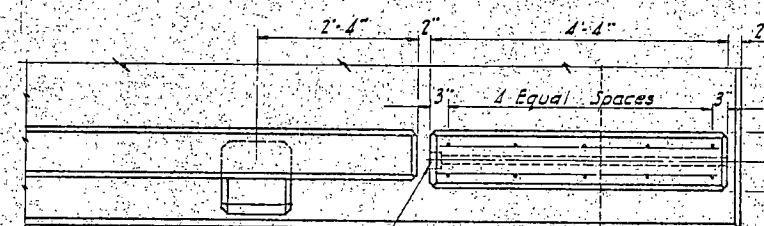
PART ELEVATION



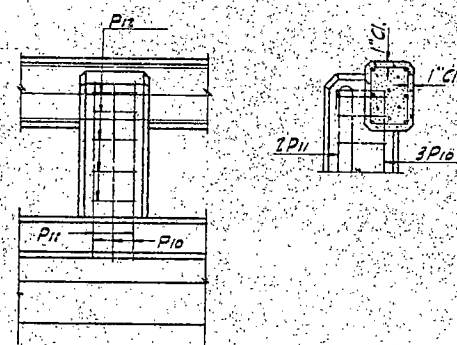
A
PART PLAN



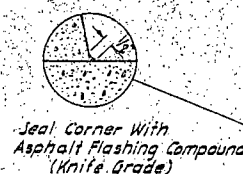
SEC. A-A



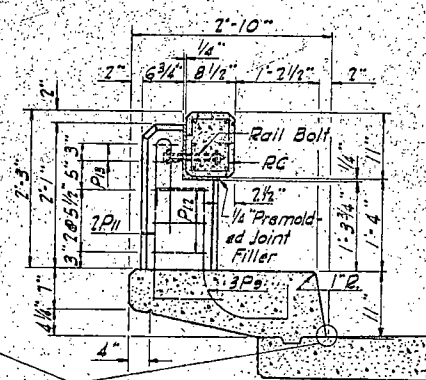
PART PLAN



ANCHOR POST DETAIL
See Layout For Placement



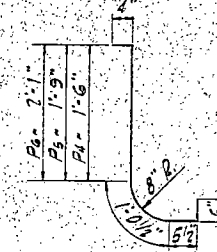
Seal Corner With
Asphalt Flashing Compound
(Knife Grade)



TYPICAL SECTION



P1, P2 & P3 BARS



P4, P5 & P6 BARS

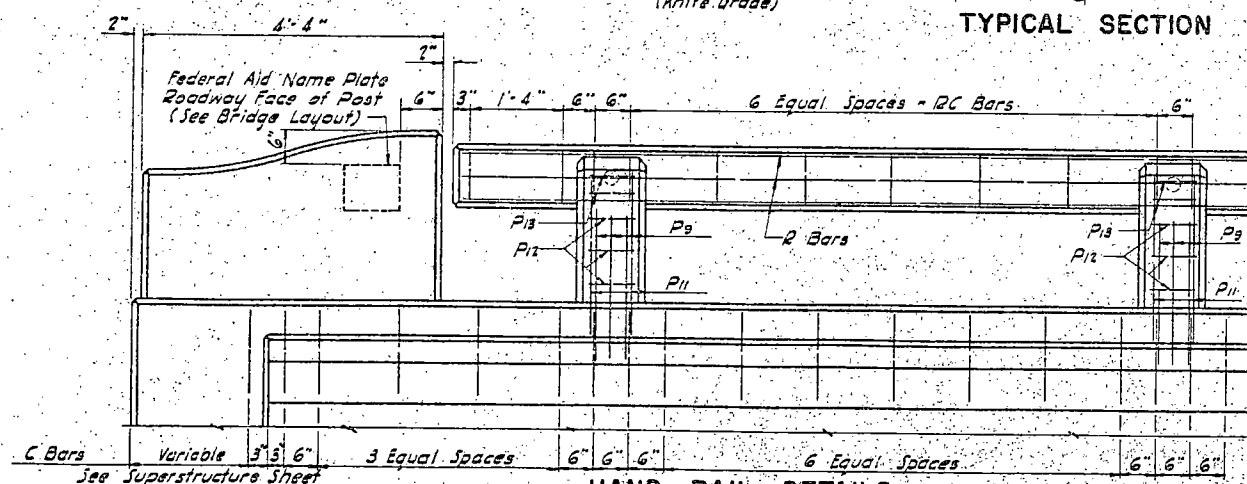
BAR LIST				
(BARS FOR RAILING AND POSTS)				
MARK	No.	SIZE	LENGTH	SHAPE
P ₉	#	6	4'-4"	Bent
P ₁₀	#	6	4'-11"	"
P ₁₁	#	5	5'-3"	"
P ₁₂	#	3	3'-10"	"
P ₁₃	#	3	2'-10"	"
2C	#	3	2'-11"	Bent
2#4	#	6	6'-0"	Str.

* Number of bars shown on super-structure sheet.
 ** Number, length & splicing information of R bars shown on super-structure sheet.

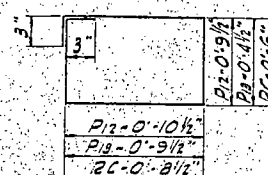
BAR LIST (4 END POSTS)				
MARK	No.	SIZE	LENGTH	SHAPE
P ₁	8	5	3'-6"	Bent
P ₂	4	5	3'-9"	"
P ₃	8	5	4'-1"	"
P ₄	8	5	3'-9"	"
P ₅	4	5	4'-0"	"
P ₆	8	5	4'-4"	"
P ₇	24	4	4'-0"	Str.
P ₈	8	5	4'-1"	Field Bent

QUANTITIES	4 END POSTS	#
Concrete Class AE-2		11 C.Y.
Reinforcing Steel		261 Lb.

* Zailing and end post quantities are included in slab quantities on superstructure sheet.



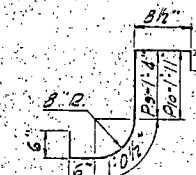
HAND RAIL DETAILS



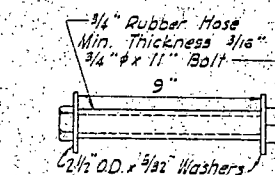
P12, P138 RC BARS



PU BAR



Pg 8 P10 RARS



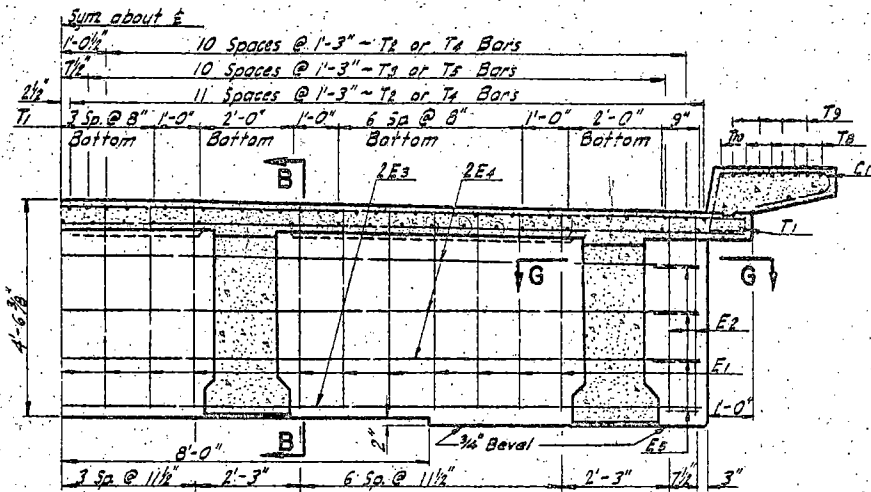
RAIL BOLT

(Galvanized)
To be included in the unit price
bid for Class AAE-4 Concrete.

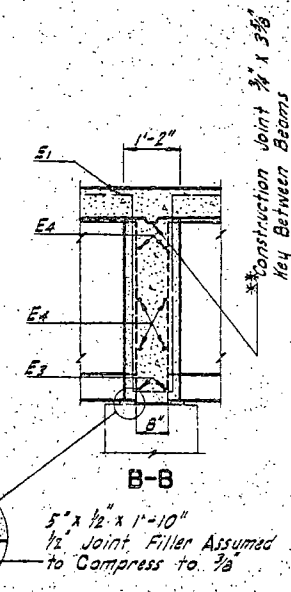
STANDARD RAILING

DETAILS

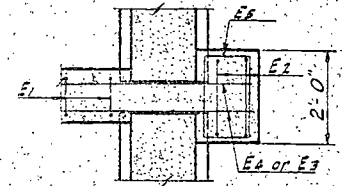
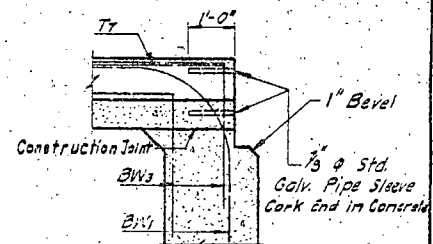
FED. ROAD DIST. NO.	STATE	FROL NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	N.D.	1-34 -5(12)		22	59



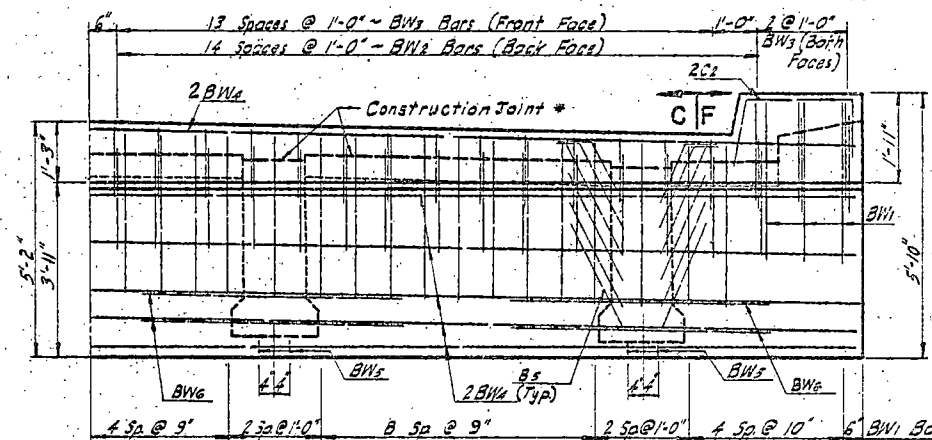
Showing Dimensions
 * Dimension "a" is $1\frac{1}{8}"$ at ends of beams and increases toward the center to compensate for dead load deflection which is taken care of in the soffit elevations.



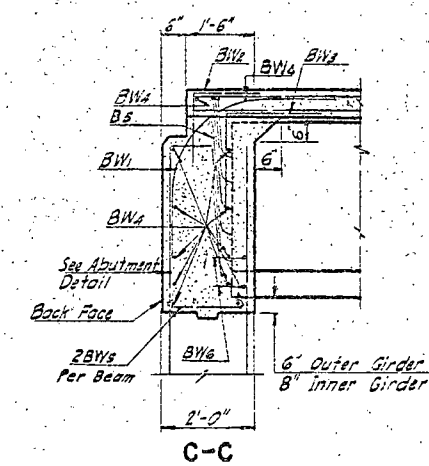
END VIEW
CURB SLEEVE
DETAIL



G - G



HALF BACKWALL ELEVATION



NOTES:
Quantities shown include end posts
and railing.
Diaphragms over the piers and
railing shall be Class AAE-4 Concrete.
All other diaphragms and remaining
concrete shall be Class AE-2.
Insert De bars before placing
outer girder.

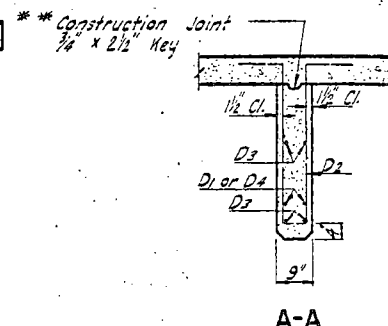
Girders shall be aligned and rigidly held in place until after the diaphragm concrete has set. ** Diaphragms in any section shall be poured and allowed to set at least 48 hours before the remaining slab section is poured.

This slab designed for 25 #/ft
future wearing surface.

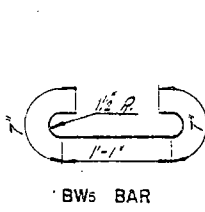
* Two coats of dampproofing shall be applied over the construction joint on the backface as shown on the details.

"Dampproofing Two Coats" shall be applied in accordance with Section 20 of the Standard Specifications. Damp-proofing will not be paid for directly, but shall be included in the unit price bid for Class AE-2 Concrete.

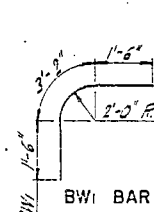
Slab designed for use with
girder drawings H-6420, or H-6422.



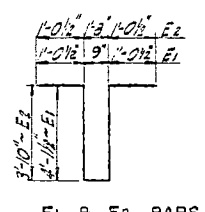
Showing Reinforcing



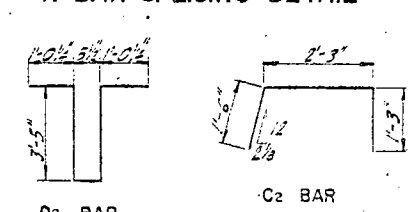
· BW5 BAR



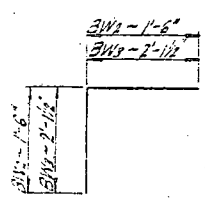
BW1 BAR



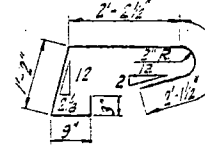
Fi. 2. Fi. 2. Fi. 2. Fi. 2.



00 000

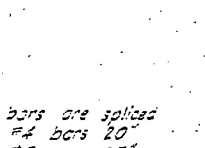
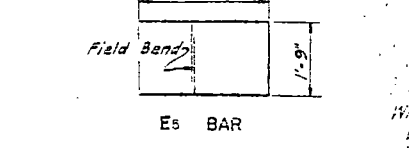


10



C1 BAR

R BAR DET



cors 25
p.cors 3.2"

When bars are spliced
Lap #4 bars 20"
Lap #5 bars 25"
Lap #6 bars 30"

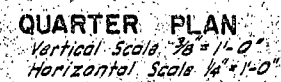
QUANTITIES		
Concrete Class 4:2	244.8	CY
Concrete Class AA5-6	28.40	CY
Reinforcing Steel	73.757	Lbs.

240' PRESTRESSED GIRDER
4 SPAN CONTINUOUS
SLAB

28'-0" ROADWAY
4-45" GIRDERS

H₂O LOADING

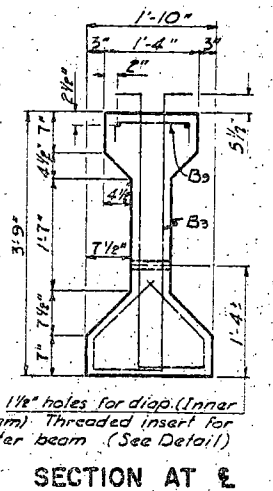
REVIEWS		MADE BY	DATE
MADE BY	UHM		
CHECKED BY	GAH		
MADE BY	UHM		
CHECKED BY	UHM		
MADE BY	GAH		
CHECKED BY	LEF		
TRACING			
MADE BY	LEF		
CHECKED BY	DLA		
QUANTITIES			



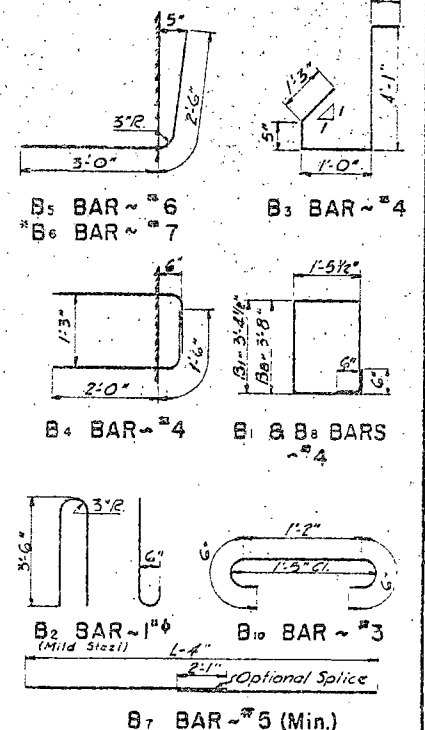
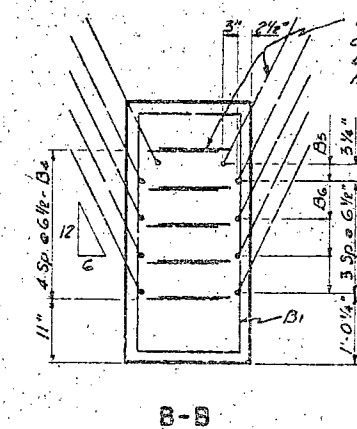
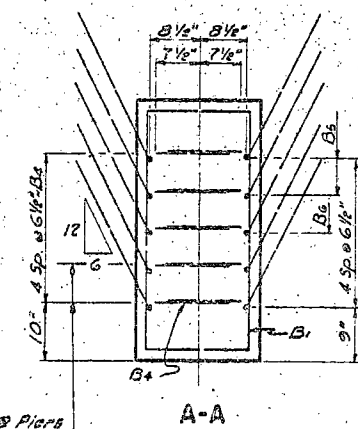
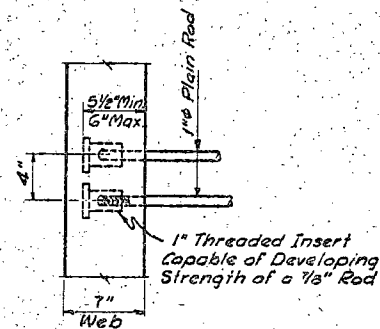
BAR LIST

240' PRESTRESSED GIRDER
4 SPAN CONTINUOUS
SLAB
28'-0" ROADWAY
4'-45" GIRDERS

H-6181-2



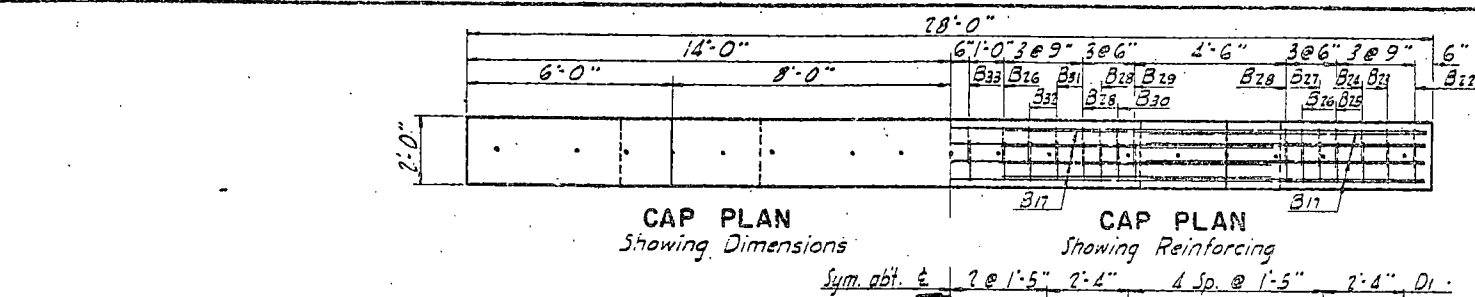
DIAPHRAGM BAR INSERT
OUTER GIRDERS ONLY



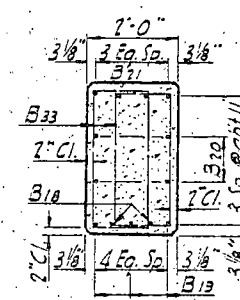
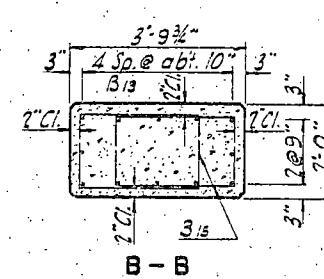
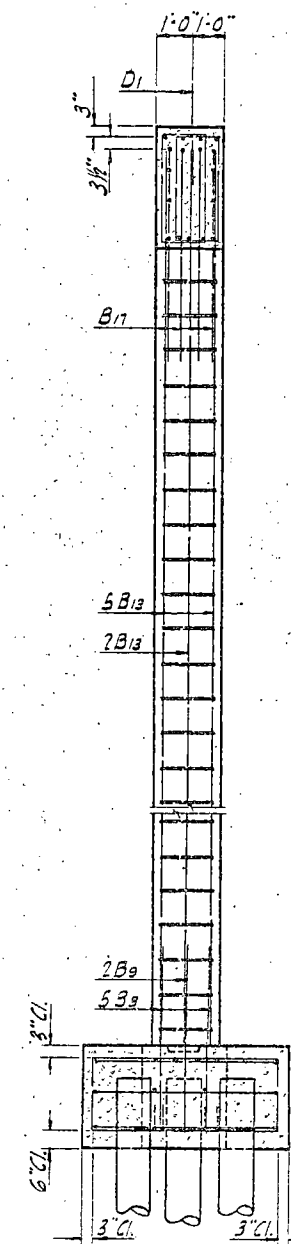
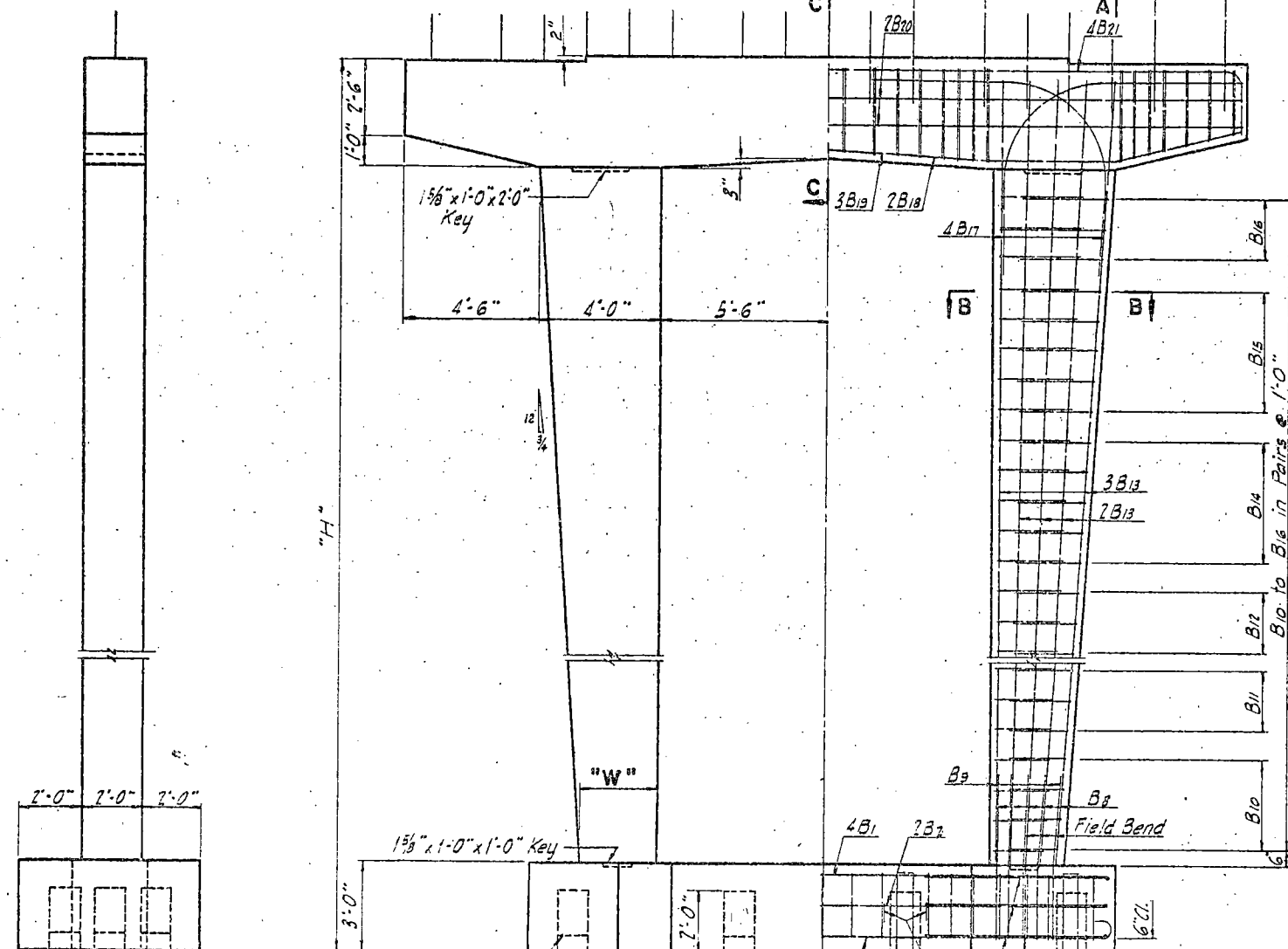
POST-TENSIONED
45"
PRESTRESSED GIRDER

	MADE BY	REVISIONS	DATE
1	LVM		
	CHECKED BY LFE		
	DATE 1/2/81		
5	MADE BY LFE		
	CHECKED BY LFE		
	DATE 1/2/81		
TRACING	MADE BY LFE		
	CHECKED BY LFE		
	DATE 1/2/81		
QUANTITIES	MADE BY LFE		
	CHECKED BY LFE		
	DATE 1/2/81		

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	N.D.	100		27	50



BAR LIST				Variable										BAR LIST-Constant				
"H"				22'	23'	24'	25'	26'	27'	28'	29'	30'	MARK	No.	SIZE	LENGTH	SHAPE	
MARK	SIZE	SHAPE	LENGTH	No.	No.	No.	No.	No.	No.	No.	No.	No.						
													B1	2	11	21'-6"	Bent	
													B2	2	6	19'-0"	Str.	
B10	4	Bent	7'-10"										B3	11	6	9'-3"	Bent	
													B4	2	6	12'-5"	"	
B11	4	Bent	8'-2"				4		12				B5	6	6	16'-3"	"	
													B6	12	6	11'-0"	"	
B12	4	Bent	8'-6"					12	12				B7	4	4	7'-10"	"	
													B8	20	7	13'-6"	"	
B13	7	Str.	No. length				24		24				B9	2	1	6'-0"	Str.	
							20'-6"		22'-6"									
"W"				3'-0"	3'-1 1/4"	3'-2 1/4"	3'-3 1/4"	3'-4 1/4"	3'-5 1/4"	3'-6 1/4"	3'-7 1/4"	3'-8 1/4"	B14	20	4	9'-0"	Bent	

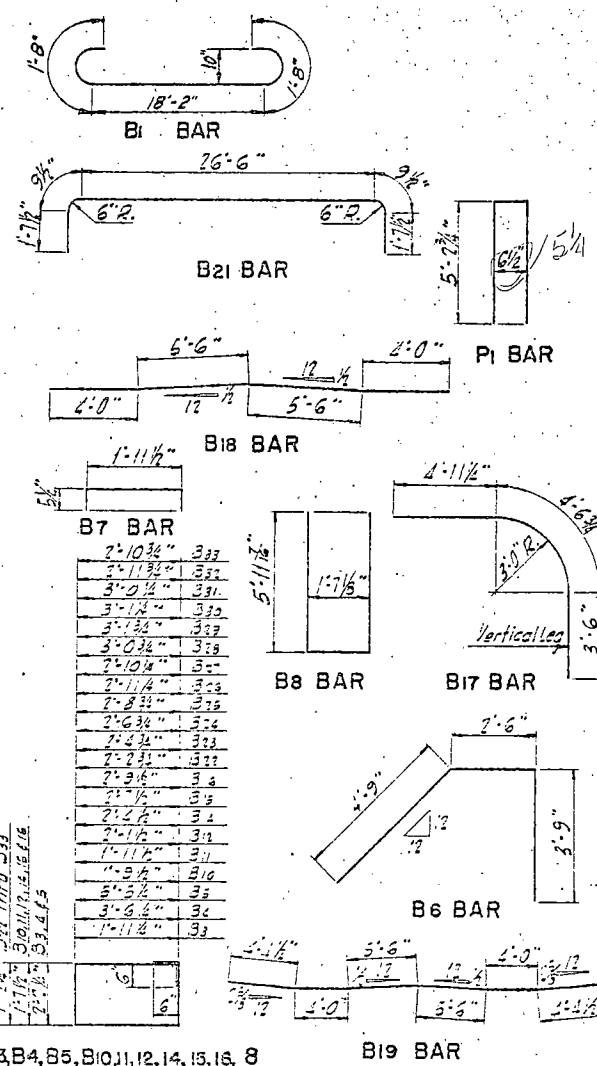


D ₁	17	8	3'-0"	Str.
P ₁	12	6	11'-0"	3ent
P ₂	6	3	69'-0"	Spiral
Total Constant Weight = 4560				

*Di Bars shall be plain round structural steel. Wrap upper half with aluminum foil before pouring diaphragm concrete.

† Cast of reinforcing steel to be included in the unit price bid for Steel-Encased Piling.

The Steel-Encased Piling shall be filled with concrete to (6") above bottom of bearing elevation. Concrete in piles shall be included in unit price bid for Steel-Encased Piling.



QUANTITIES ~ ONE BENT		
HEIGHT	CLASS AE-2 CONCRETE	REINFORCING (INTERMEDIATE GRADE)
22'	CY	4.63
23'	CY	4.63
24'	24.3 CY	5656 LBS.
25'	CY	4.63
26'	25.1 CY	5797 LBS.
27'	CY	4.63
28'	CY	4.63
29'	CY	4.63
30'	CY	4.63

BENT DETAILS

28' ROADWAY
H₂O LOADING

H-6708

