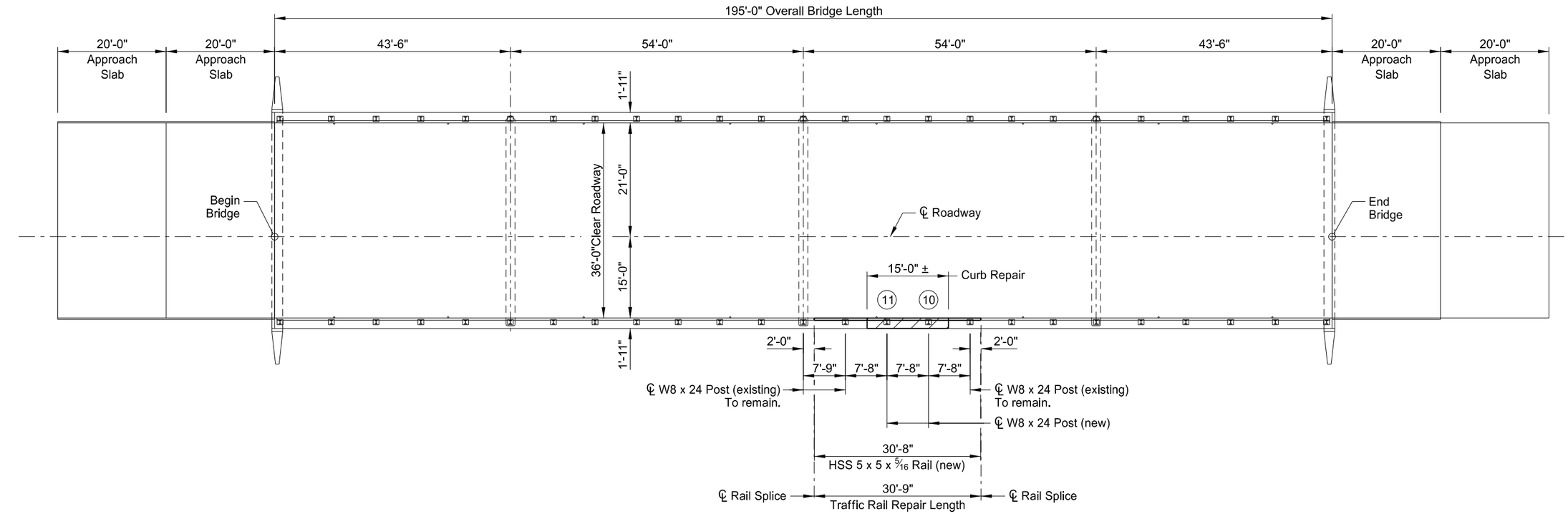
23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	BRIDGEHIT25	170	1

The hatched area indicates damaged concrete curb to be removed and replaced entirely.



PLAN

BRIDGE BID ITEMS

SPEC	CODE	ITEM DESCRIPTION	UNIT	QUANTITY
602	2105	CURB REPAIR	SF	26.2
624	0128	TRAFFIC RAIL-STEEL	LF	30.8

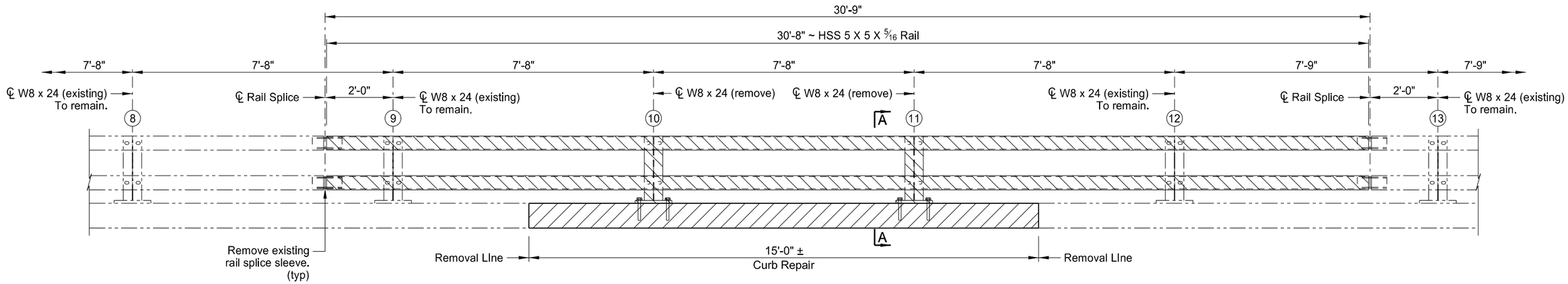
APPLE CREEK
9 EAST OF US 83 NORTH

BRIDGE LAYOUT

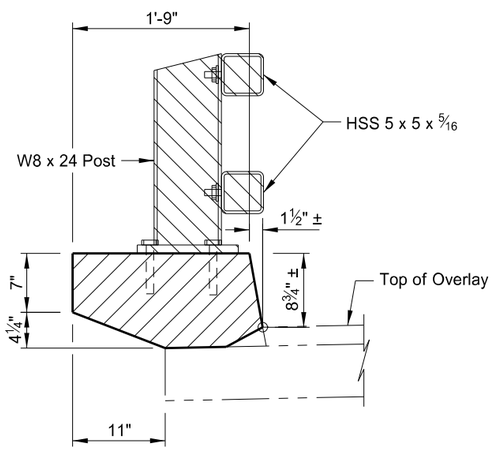
ND DEPARTMENT OF TRANSPORTATION
BRIDGE DIVISION

DRAWING NO. 94-168.101L-1

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	BRIDGEHIT25	170	2



PARTIAL CURB, POST & RAIL ELEVATION



A-A

The hatched area indicate damaged concrete curb to be removed. Actual limits to be removed and replaced will be determined by the Engineer in the field.

The hatched areas indicate steel railing and posts to be removed. Detach the two existing rail segments from the posts west of the repair area and use the finger expansion joint rail splice to aide in installation.

NOTES:

602 CURB REPAIR: Saw cut the curb to a depth of 1" at the removal lines to produce a neat line between the concrete to be removed and the concrete to remain. Remove the concrete curb in the area shown using a 15 pound maximum size chipping hammer, taking care not to damage parts of the bridge to remain. All existing reinforcing steel is to remain in place.

Sand blast clean the exposed reinforcing steel. Clean the existing concrete surface by high pressure water blasting and replace the removed concrete with Class AAE-3 Concrete.

The curb repair quantity is based on the top width of the curb times the removal length dimensioned in the plans. The actual limits of the repair are to be determined by the Engineer in the field.

624 TRAFFIC RAIL - STEEL: Furnish and install steel posts and railing as a "Free Standing Rail Retrofit" in accordance with Section 624 except as noted.

Provide reduced base studs in accordance with ASTM A108, Grade 1010.

Provide 7/8" diameter anchor bolts in accordance with ASTM F1554, Grade 105. Embed the anchor bolts a minimum of 9" into concrete using a chemical adhesive system with a minimum tensile strength of 17,500 pounds.

Galvanize all steel components after fabrication in accordance with Section 854.

APPLE CREEK
9 EAST OF US 83 NORTH

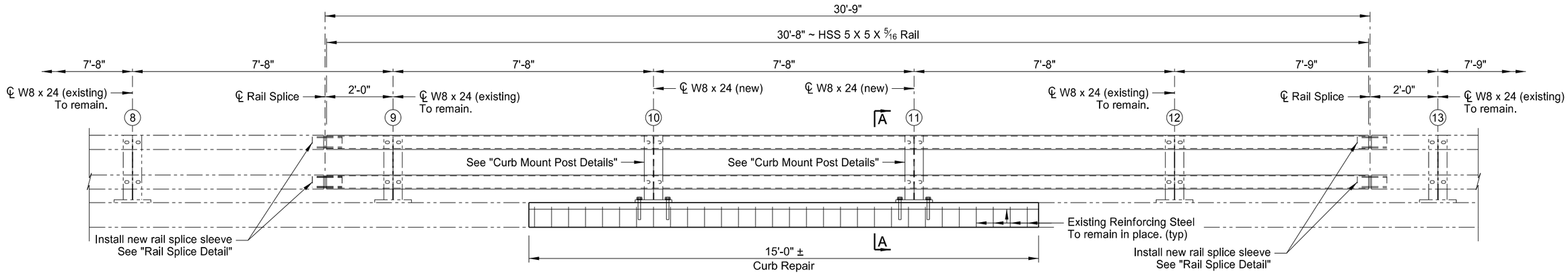
(SHOWING EXISTING RAILING & POST REMOVAL)

TRAFFIC RAIL AND CURB REPAIR

DRAWING NO.	94-168.101L-2

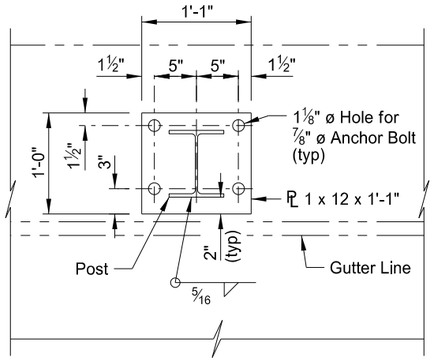
23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	BRIDGEHIT25	170	3

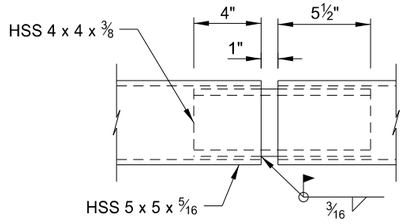


(SHOWING NEW RAILING AND POST)

PARTIAL CURB, POST & RAIL ELEVATION



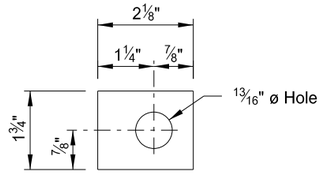
BASE PLATE DETAIL



RAIL SPLICE DETAIL

NOTE:

Repair galvanizing after welding.



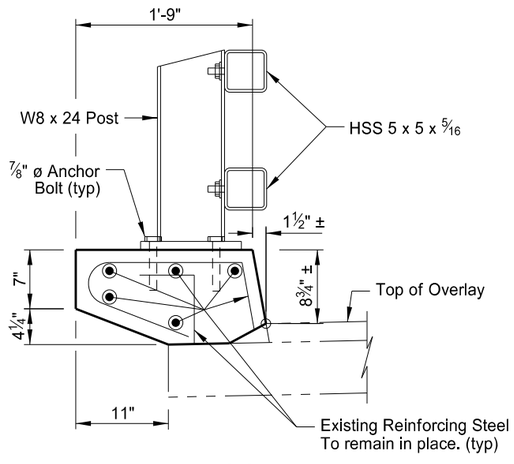
Position washers to completely cover slotted holes.

¼" BAR WASHER "C"

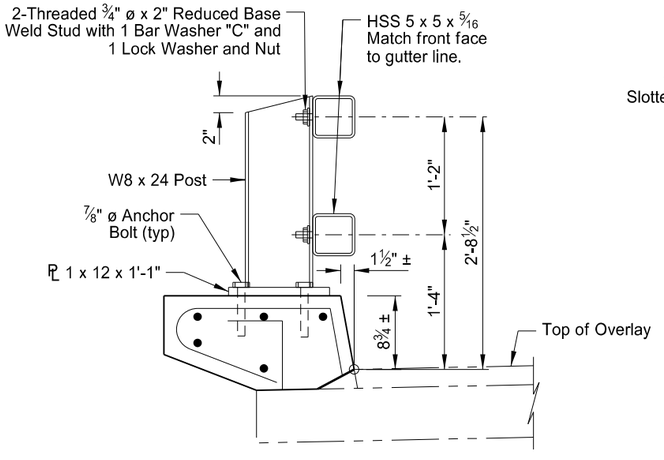
NOTE:

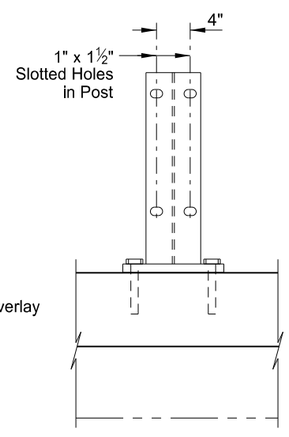
* Field verify dimensions.

* RAIL REPAIR MATERIALS
2 - HSS 5 x 5 x 5/16 x 30'-8"
4 - HSS 4 x 4 x ⅜ x 10½"
2 - W8 x 24 x 1'-10¾"
2 - ℄ 1 x 12 x 1'-1"
8 - ⅞" ø Anchor Bolts
8 - ¾" ø x 2" Studs
8 Bar Washers
8 Lock Washers
8 Nuts



A-A





CURB MOUNT POST DETAILS

APPLE CREEK
9 EAST OF US 83 NORTH

(SHOWING NEW RAILING & POST)

TRAFFIC RAIL AND CURB REPAIR

DRAWING NO.	94-168.101L-3

5/24/2024 2:01:02 PM jrensch R:\SUPPORT\Teams\Bridge\BridgeHits\94-168.101L\dgn\Junk\170BR_003_RAILREPAIR2.dgn

EAJ KFE

DESIGN DATA - I-94 EB				
Traffic	Average Daily			
Current	Pass: 3320	Trucks: 1435	Total: 4755	
Preventive Maintenance				

DESIGN DATA - I-94 WB				
Traffic	Average Daily			
Current	Pass: 3320	Trucks: 1430	Total: 4750	
Preventive Maintenance				

JOB # 9
NORTH DAKOTA
DEPARTMENT OF TRANSPORTATION

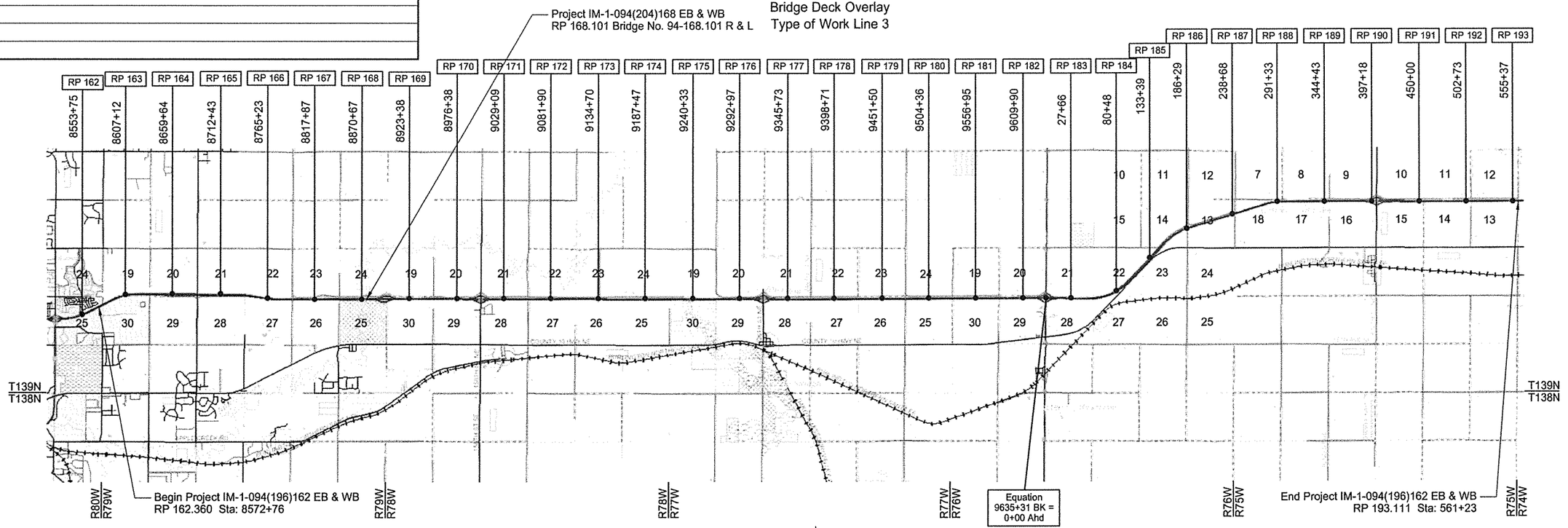
IM-1-094(196)162
IM-1-094(204)168

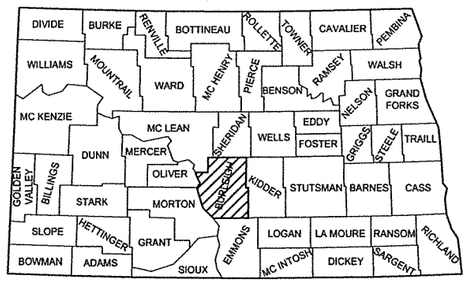
Burleigh
I-94 From Bismarck East to the Burleigh County Line EB/WB
Apple Creek Structures 94-168.101 R/L
CPR, Mill & HMA
Bridge Deck Overlay
Type of Work Line 3

STATE	PROJECT NO.	PCN	SECTION NO.	SHEET NO.
ND	IM-1-094(196)162	21975	1	1
	IM-1-094(204)168	22351		

GOVERNING SPECIFICATIONS:
2014 Standard Specifications adopted by the North Dakota Department of Transportation and the Supplemental Specifications effective on the date the project is advertised.

PROJECT NUMBER \ DESCRIPTION	NET MILES	GROSS MILES
IM-1-094(196)162\Bismarck to Co Ln EB/WB	30.751	30.751
IM-1-094(204)168/Bridge Deck Overlay EB/WB	0.052	0.052





STATE COUNTY MAP

N

DESIGNER
Bernie J. Southam
DESIGNER
DESIGNER

ND DEPARTMENT OF TRANSPORTATION
Bismarck District

Larry Gangl /s/ 12/05/2018

NDDOT Bismarck District

This document was originally issued and sealed by Kirk J. Hoff Registration Number PE- 4683, on 12/05/2018and the original document is stored at the North Dakota Department of Transportation

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-1-094(196)162	2	1
		IM-1-094(204)168		

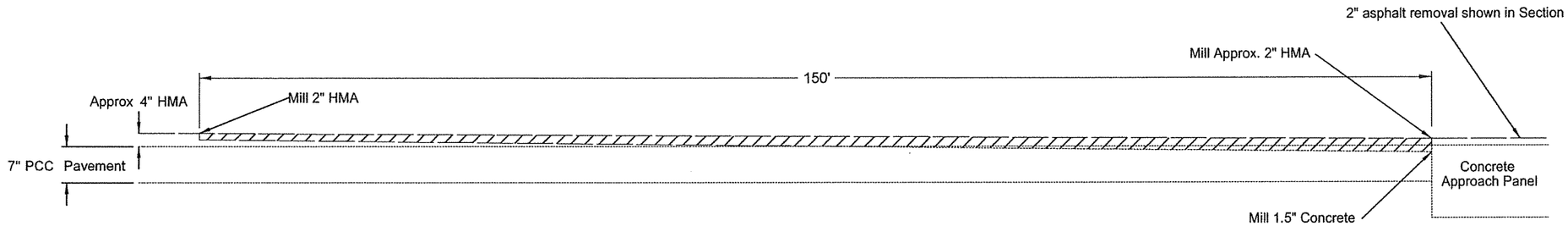
TABLE OF CONTENTS

PLAN SECTIONS

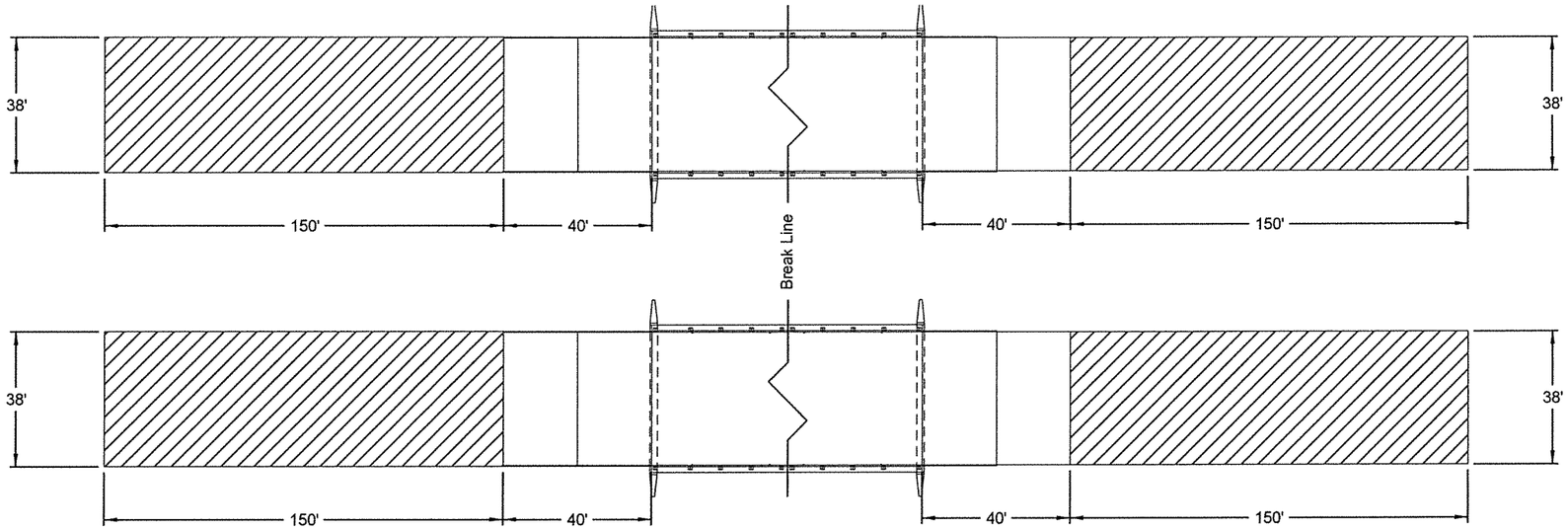
LIST OF STANDARD DRAWINGS

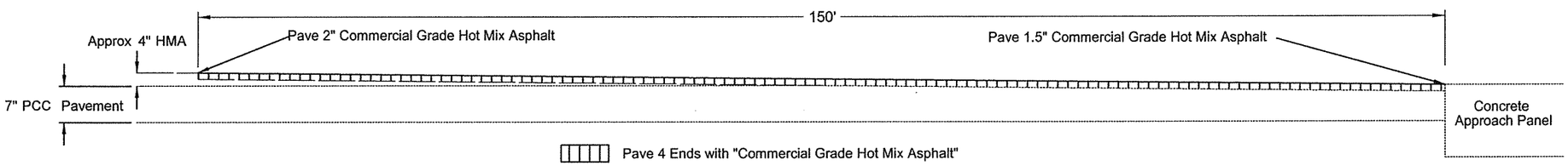
SPECIAL PROVISIONS

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-1-094(204)168	20	2



Mill 2" to Approx. 3.5"





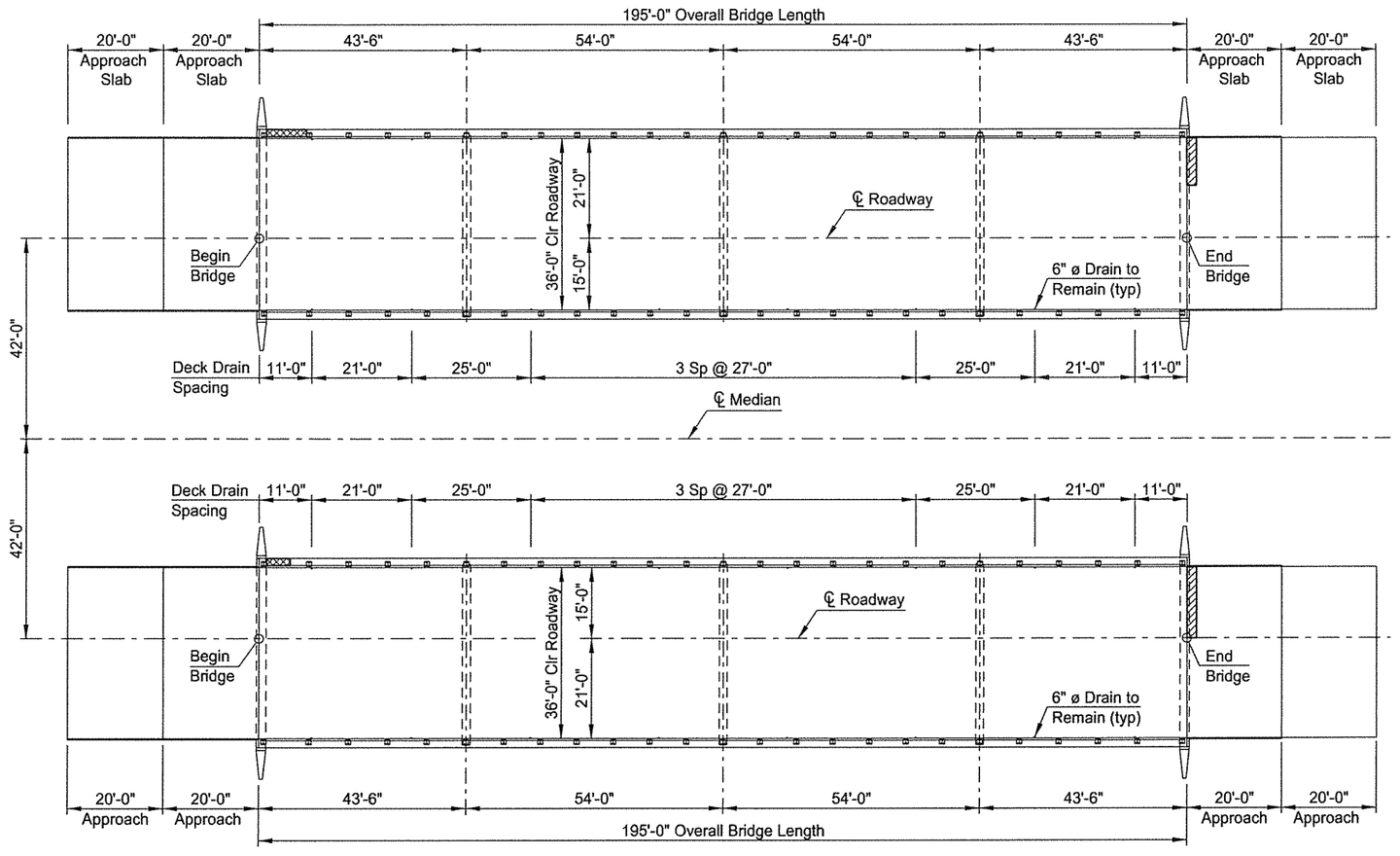
Pave 4 Ends with "Commercial Grade Hot Mix Asphalt"

This document was originally issued and sealed by Tyler W. Wollmuth Registration Number PE- 6080, on 12/04/2018and the original document is stored at the North Dakota Department of Transportation

Apple Creek Structures
Milling & HMA Paving

23 U.S.C. 409
NDDOT Reserves All Objections

	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
	ND	IM-1-094(204)168	170	1

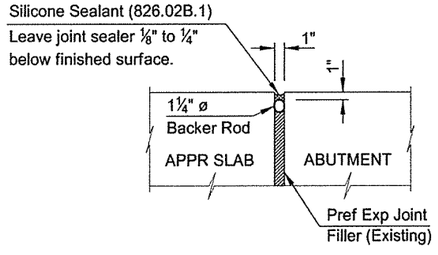


Hatched area indicates approach slab concrete spall areas.

Hatched area indicates spall repair areas.

BRIDGE BID ITEMS

SPEC	CODE	ITEM DESCRIPTION	UNIT	QUANTITY
550	0210	PCC PAVEMENT GRINDING	SY	2,200
602	0130	CLASS AAE-3 CONCRETE	CY	2.6
602	1250	PENETRATING WATER REPELLENT TREATMENT	SY	1,792
650	0704	OVERLAY CONCRETE	CY	113
650	0720	CLASS 1 REMOVAL	SY	1,560
650	0721	CLASS 2 REMOVAL	SY	312
650	0722	CLASS 2-A REMOVAL	LF	562
650	0723	CLASS 3 REMOVAL	SY	78
650	0724	CLASS 4 REMOVAL	SY	16
650	0805	DECK SPALL REPAIR	SF	18
930	9612	SPALL REPAIR	SF	5



JOINT DETAIL

NOTES:

100 SCOPE OF WORK: Work at this site consists of removing an asphalt overlay, removing and replacing a concrete deck overlay, and repairing concrete spall areas on the approach slabs and curbs.

550 PCC PAVEMENT GRINDING: The bridge deck and approach slab has been overlaid by ±2 inches of bituminous pavement. Remove the bituminous pavement from the concrete surface by milling or diamond grinding. Do not damage the surface of the bridge deck or approach slab when removing the bituminous pavement. Use a milling machine that meets the requirements of Section 156.03. Diamond grade the final driving surface of the approach slabs. Plan quantity of "PCC Pavement Grinding" will be paid no matter how many passes it takes to remove all of the bituminous pavement from the bridge deck and approach slabs.

602 PENETRATING WATER REPELLENT TREATMENT: Apply the penetrating water repellent solution according to Section 602.04 J to the driving surface of the deck and the front faces and tops of curbs.

650 DECK SPALL REPAIR: The approach slabs have spall areas as shown. Construct the deck spall repair as a Bridge Deck Overlay meeting Section 650. The actual limits of the area to be repaired will be determined by the Engineer in the field. Remove the concrete to a minimum depth of 2½". Saw cut the perimeter of the repair area to a depth of 1". Include the saw cutting and all material, labor, and equipment required to remove the concrete and repair the deck spall areas in the bid item "Deck Spall Repair."

930 SPALL REPAIR: The curb has spalled areas as shown in the layout. Remove all unsound concrete and replace it with new concrete to the original constructed section. Use a 15 pound maximum size chipping hammer on any unsound concrete. Provide sharp, neat lines at least 1 inch deep at the edges of the repair areas. Produce these sharp, neat lines by saw cutting or other means approved by the Engineer.

Sand blast clean any rust scale found on the exposed reinforcing steel. Clean the existing concrete surface by light sand blasting or high pressure water blasting. After the surface has dried and just before the patching material is placed, coat the surface with an epoxy bonding agent.

Use Class AE-5 concrete or other concrete material that is specifically intended for patching concrete. This patching material may be SikaTop 122 Plus(Sika Corporation), Tamms Industries Duraltop Gel, ThoRoc JB2 (ChemRex Incorporated), or an approved equal repair mortar. Cure the material as recommended by the manufacturer.

The spall repair quantity is based on the assumption that the areas to be repaired are to the dimensions shown in the layout views. The actual limits of the repair are to be determined by the Engineer in the field. It is also assumed that the partial depth spall repair areas are approximately 2" deep. Include all labor, equipment, and materials need for the repair of the spall areas in the bid item "Spall Repair."

This document was originally issued and sealed by Lindsay Bossert, Registration Number PE 8395, on 12/03/18 and the original document is stored at the North Dakota Department of Transportation

NORTH DAKOTA
DEPARTMENT OF TRANSPORTATION
APPLE CREEK
9 EAST OF US 83 NORTH

BRIDGE LAYOUT

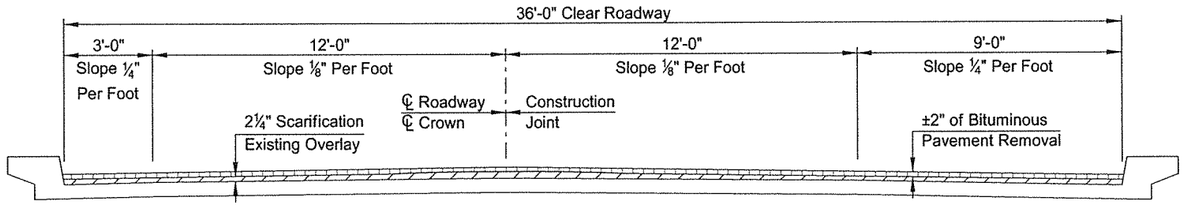
PROJECT: IM-1-094(204)168

BURLEIGH COUNTY

12/03/18 — Jon Ketterling
DATE — BRIDGE ENGINEER

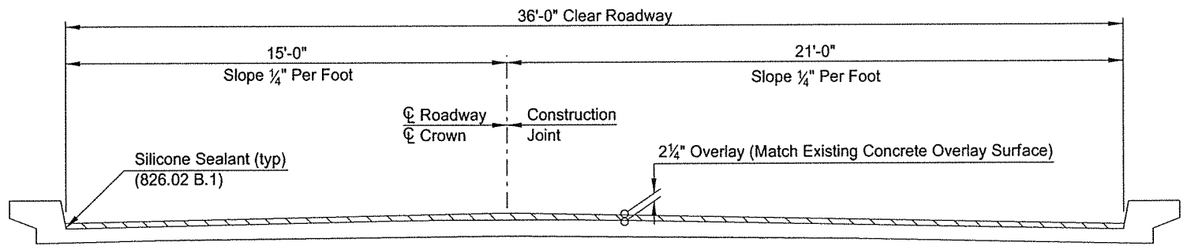
23 U.S.C. 409
NDDOT Reserves All Objections

STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
ND	IM-1-094(204)168	170	2



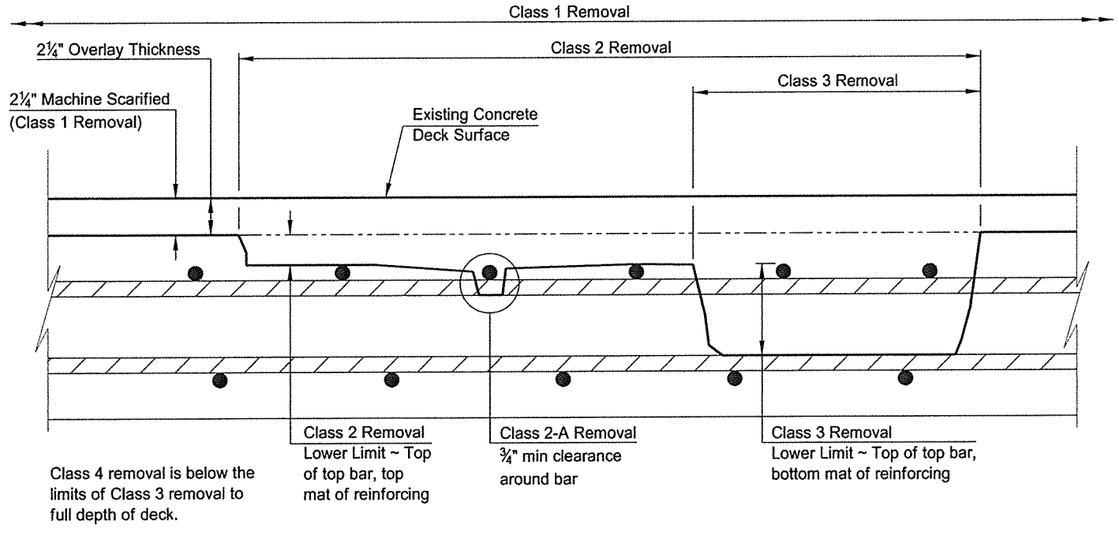
(SHOWING REMOVAL)

TYPICAL DECK SECTION



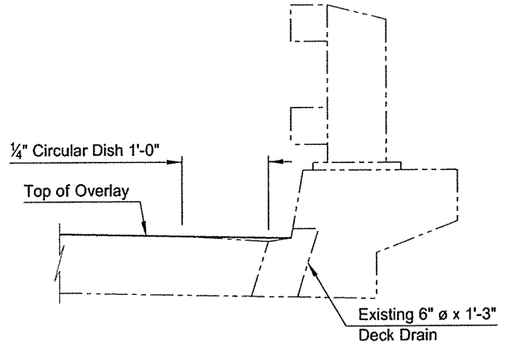
(SHOWING OVERLAY)

TYPICAL DECK SECTION



(REMOVAL CLASSIFICATIONS)

BRIDGE DECK SECTION



DECK DRAIN DETAIL

NOTES:

650 OVERLAY CONCRETE: Place overlay concrete before September 15 unless authorized by the Bridge Engineer.

Remove and replace the silicone sealant in the joint between the approach slabs and deck at both ends of the bridge. Clean the joint of all foreign material and sand blast before the silicone sealant is installed. Extend the silicone sealant 3" up the front face of the curb. Include all materials, labor, and equipment required to remove and replace the silicone sealant and to place silicone sealant along the gutter line in the bid item "Overlay Concrete."

650 CLASS 2-A REMOVAL: Class 2-A removal is paid for the top bar in the top mat of reinforcing only. If a bar that is identified for 2-A is in an area that becomes Class 3 or Class 4, it will not be paid for as 2-A removal.

650 LONGITUDINAL GROOVING: Do not run a metal tine transversely across the deck overlay surface immediately following the artificial grass drag as per 602.04 D. After the curing of the deck overlay is complete and before the penetrating water repellent is applied, cut in longitudinal grooves into the deck overlay using a mechanical cutting device. Perform any required surface correction grinding to the deck overlay prior to grooving it. Cut grooves that are ⅛ inch in width (±1/64 inch) and ⅛ inch in depth (±1/64 inch). Space grooves at ¾ inch center to center. Stop the grooving 2 feet from the face of the barrier/curb and 6 inches from the beginning and end of the deck. Include the price for grooving in the bid item "Overlay Concrete."

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QUANTITIES	(ONE BRIDGE)
CLASS AAE-3 CONCRETE	1.3 CY
OVERLAY CONCRETE	56.5 CY
CLASS 1 REMOVAL	780 SY
CLASS 2 REMOVAL	156 SY
CLASS 2-A REMOVAL	281 LF
CLASS 3 REMOVAL	39 SY
CLASS 4 REMOVAL	8 SY

APPLE CREEK
9 MILES EAST OF US 83 NORTH

DECK OVERLAY DETAILS

DESIGN DATA				
Traffic	Average Daily			Est.Max.Hr.
Current 1999	Pass: 3,605	Trucks 645	Total 4,250	425
Forecast 2019	Pass: 5,770	Trucks 1,035	Total 6,805	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:

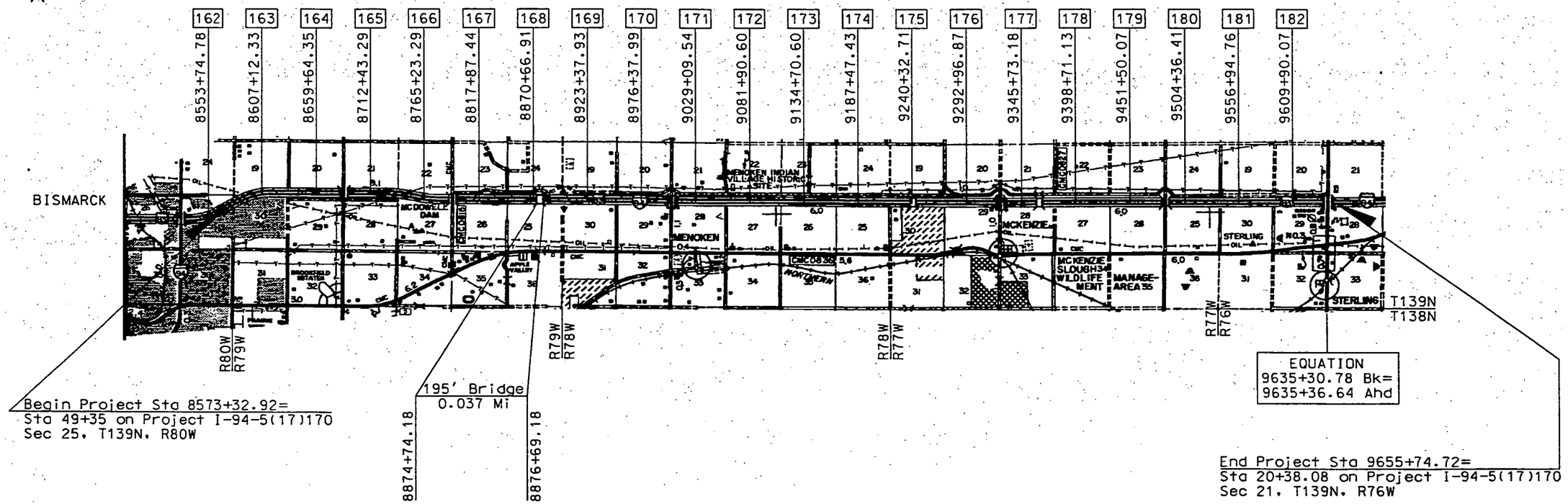
Standard Specifications adopted by the North Dakota Department of Transportation October 1997; Standard Drawings currently in effect; and other Contract Provisions submitted herein.

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



DESIGNER Dave Jenkins
DESIGNER Brent Pfeifer
DESIGNER
RECOMMEND APPROVAL 8-17, 1999
DESIGN ENGINEER Kathleen Bunkowski

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED

DIVISION ADMINISTRATOR DATE

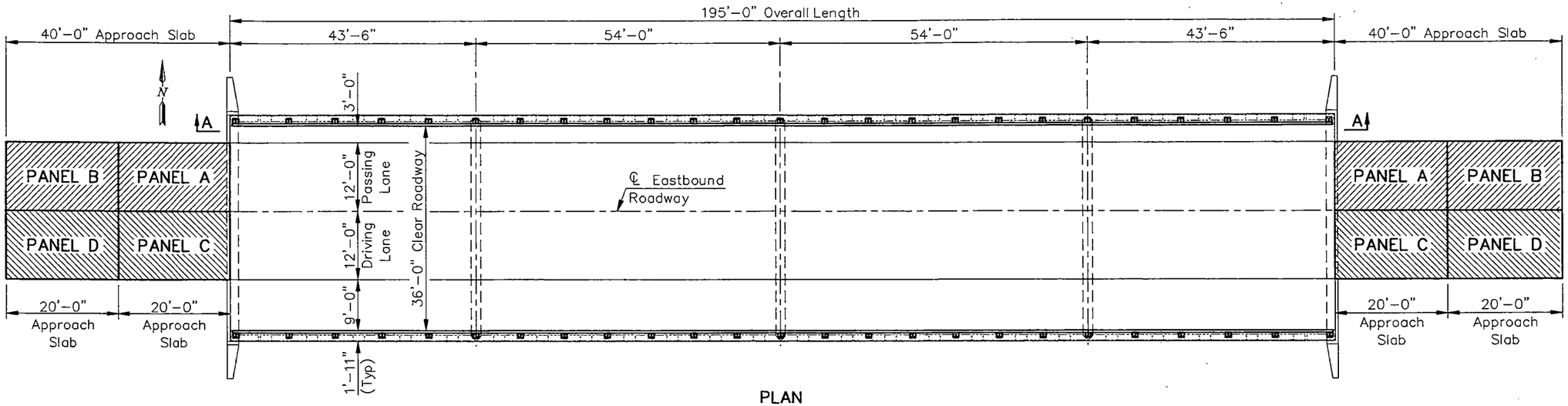
APPROVED DATE 8-17-99
David K. O. Leer
DIRECTOR OF HIGHWAYS AND ENGINEERING
NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

DAVID K. O. LEER REGISTERED PROFESSIONAL P.E. 1199 ENGINEER NORTH DAKOTA

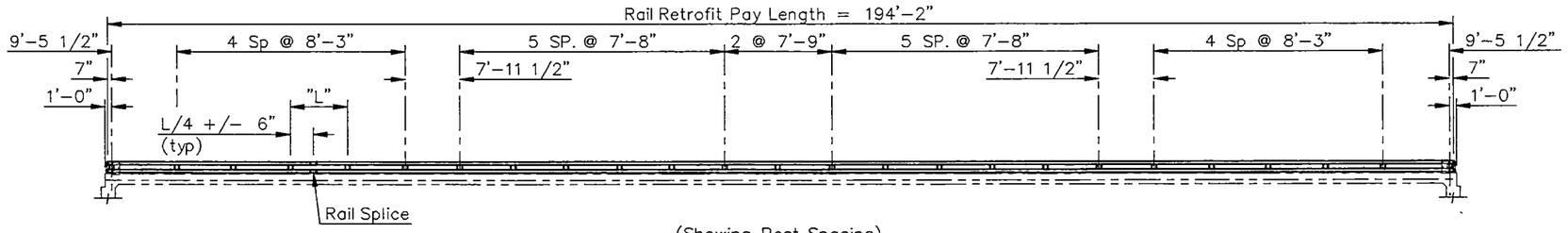
...\design\jenkins\title.dgn Jul. 08, 1999 10:41:56

23 U.S.C. 409
NDDOT Reserves All Objections

FHWA REGION	STATE	FEDERAL AID PROJECT NUMBER	SHEET NO.
8	ND	IM-SIB-1-094(054)161	97

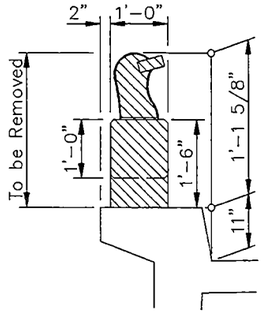


PLAN

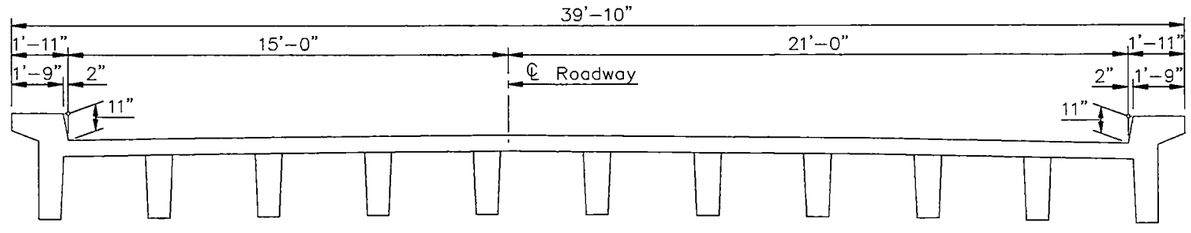


(Showing Post Spacing)

A-A



EXISTING SECTION OF BRIDGE RAILING



TYPICAL DECK SECTION

NOTE:

The cross hatched areas indicate concrete and metal railing to be removed. Panels A & B along with the north bridge railing shall be removed and replaced first. Traffic shall then be diverted to the passing lane for the removal and replacement of approach slab panels C & D and the removal and replacement of the south bridge railing.

SPEC	CODE	ITEM DESCRIPTION	UNIT	QUANTITY
202	0113	REMOVAL OF CONCRETE	CY	16.9
550	0217	BRIDGE APPROACH SLAB (REMOVE & REPLACE)	SY	213.2
624	3001	DOUBLE BOX BEAM RAIL RETROFIT (FREE STANDING)	LF	388.3
930	8642	NOSING CONCRETE	CF	7.4
930	8644	SILICONE SEALANT	LF	48

NORTH DAKOTA
DEPARTMENT OF TRANSPORTATION

APPLE CREEK ~ EASTBOUND

BRIDGE LAYOUT

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

BURLEIGH COUNTY

BRLO 99DLS53 LLS

94-168.101R

...\bridge\applecke\brlo.dgn Aug. 11, 1999 08:45:14

23 U.S.C. 409
NDDOT Reserves All Objections

FHWA REGION	STATE	FEDERAL AID PROJECT NUMBER	SHEET NO.
8	ND	IM-SIB-1-094(054)161	98

100 SCOPE OF WORK: The work at this site consists of the removal of the existing metal and concrete rail, installing a double box beam rail retrofit & the construction of concrete bridge approach slabs at both ends of the bridge.

202 REMOVAL OF CONCRETE: When removing the concrete railing, care shall be taken to prevent any damage to the concrete curb. All labor and equipment required to remove the concrete portion of the railing shall be included in the bid item "Removal of Concrete". The contractor shall dispose of the concrete off of the right-of-way.

550 BRIDGE APPROACH SLAB: All materials, equipment and labor required to remove the existing approach slab and prepare the surface under the approach slabs and build the approach slabs shall be included in the bid item "Bridge Approach Slab - Remove and Replace".

624 DOUBLE BOX BEAM RAIL RETROFIT (FREE STANDING): All materials, equipment and labor required to remove the metal railing shall be included in the bid item "Double Box Beam Rail Retrofit (Free Standing)". The removed metal railing shall become the property of the contractor.

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.

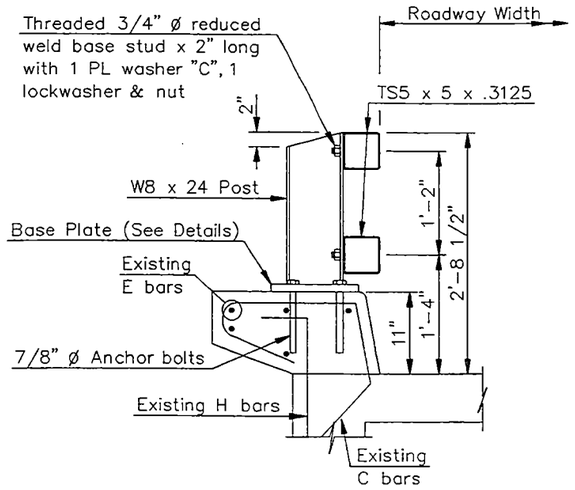
APPLE CREEK

(EASTBOUND)

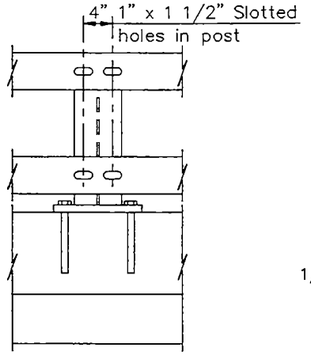
NOTES

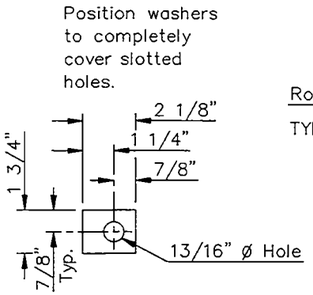
23 U.S.C. 409
NDDOT Reserves All Objections

FHWA REGION	STATE	FEDERAL AID PROJECT NUMBER	SHEET NO.
8	ND	IM-SIB-1-094(054)161	99

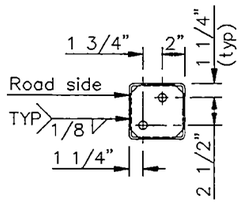


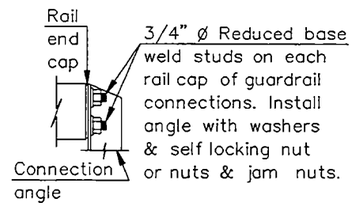
CURB MOUNT POST DETAILS



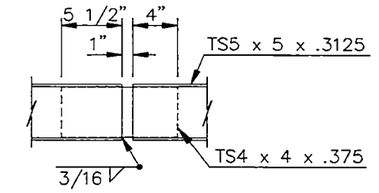


1/4" PL (A36 OR MERCHANT QUALITY)
PLATE WASHER "C"

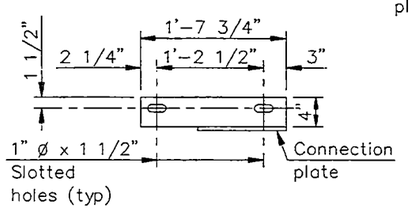




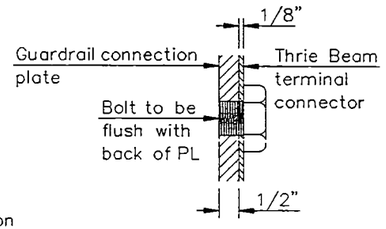
Rail Cap shall be a BAR 4 3/4 x 3/16 x 4 3/4".
Cope corners 3/4" to provide for zinc drains.
RAIL CAP DETAILS



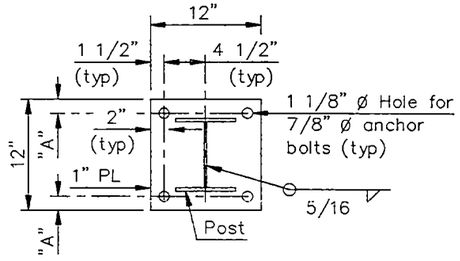
RAIL SPLICE DETAIL



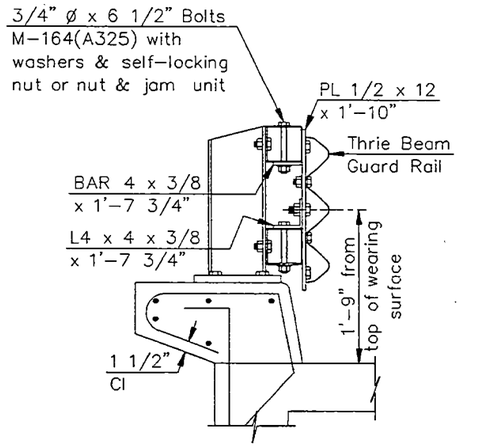
BAR 4 x 3/8
A-A



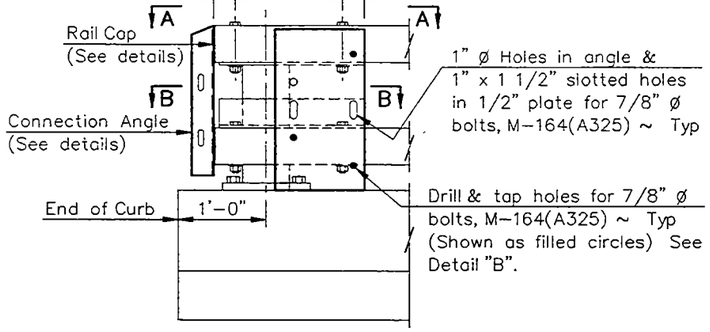
DETAIL "B"



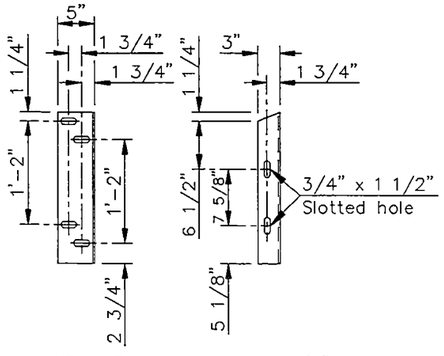
The "A" Dimension is variable, 1 1/2" to 3"
POST BASE PLATE DETAIL



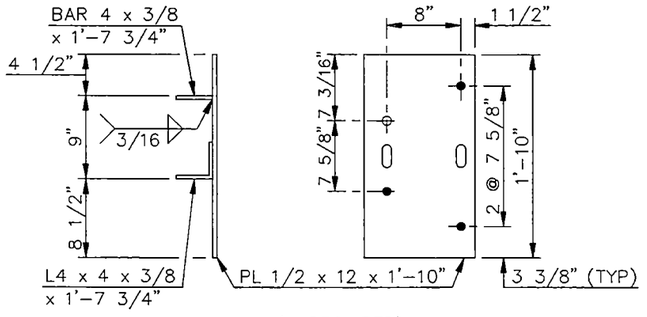
THRIE BEAM CONNECTION DETAIL



END POST CONNECTION DETAIL



L5 x 3 x 1/4 x 1'-8 1/2"
CONNECTION ANGLE DETAILS



(4 REQUIRED)
GUARDRAIL CONNECTION PLATE DETAILS

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.

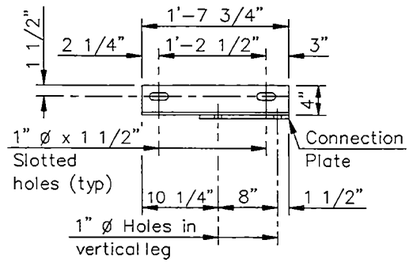
Railing shall be fabricated to the horizontal and vertical alignment of the structure. Posts shall be normal to grade.

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.



L4 x 4 x 3/8
B-B

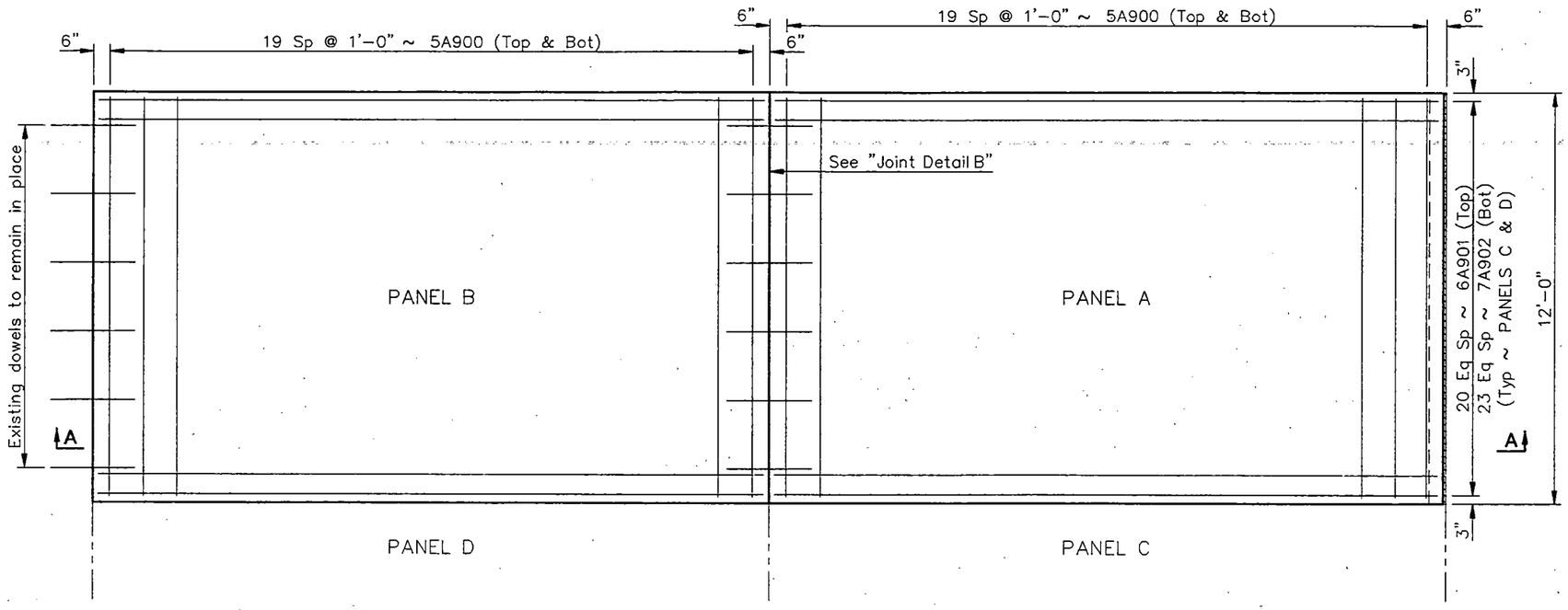
QUANTITIES	
DOUBLE BOX BEAM RAIL RETROFIT (FREE STANDING)	388.3 LF

APPLE CREEK

(EASTBOUND)

TRAFFIC RAIL DETAILS

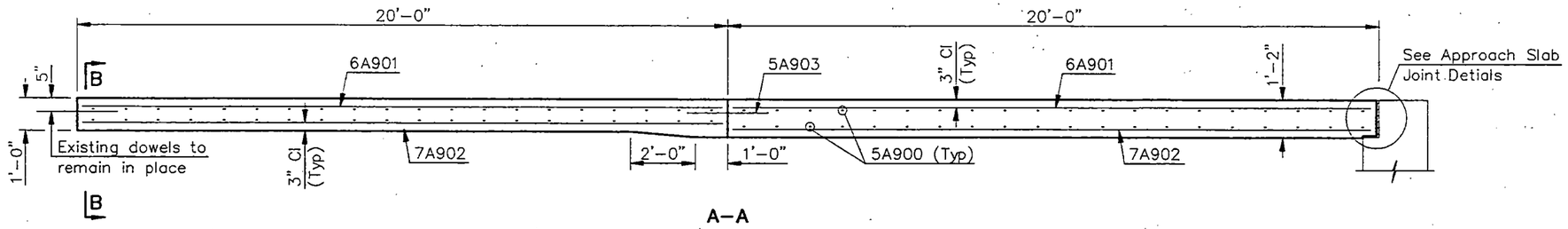
FHWA REGION	STATE	FEDERAL AID PROJECT NUMBER	SHEET NO.
8	ND	IM-SIB-1-094(054)161	100



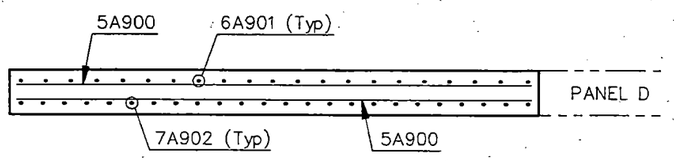
PLAN

BAR LIST - ONE C & ONE D			
SIZE	MARK	NO.	LENGTH
5	A900	80	11'-8"
6	A901	42	19'-8"
7	A902	48	19'-8"
5	A903	6	2'-6"

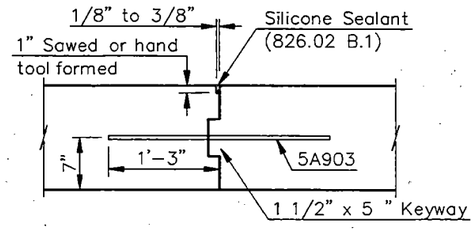
ESTIMATED MATERIAL QUANTITIES	
REINFORCING STEEL (LBS.)	CONCRETE (C.Y.)
4159	19.4



A-A



B-B



JOINT DETAIL B

QUANTITIES	(ONE END)
APPROACH SLAB	53.3 SY

APPLE CREEK

(PASSING LANE ~ EASTBOUND)

APPROACH SLAB PANELS A & B

APPSLAB1 99DLS57 LLS

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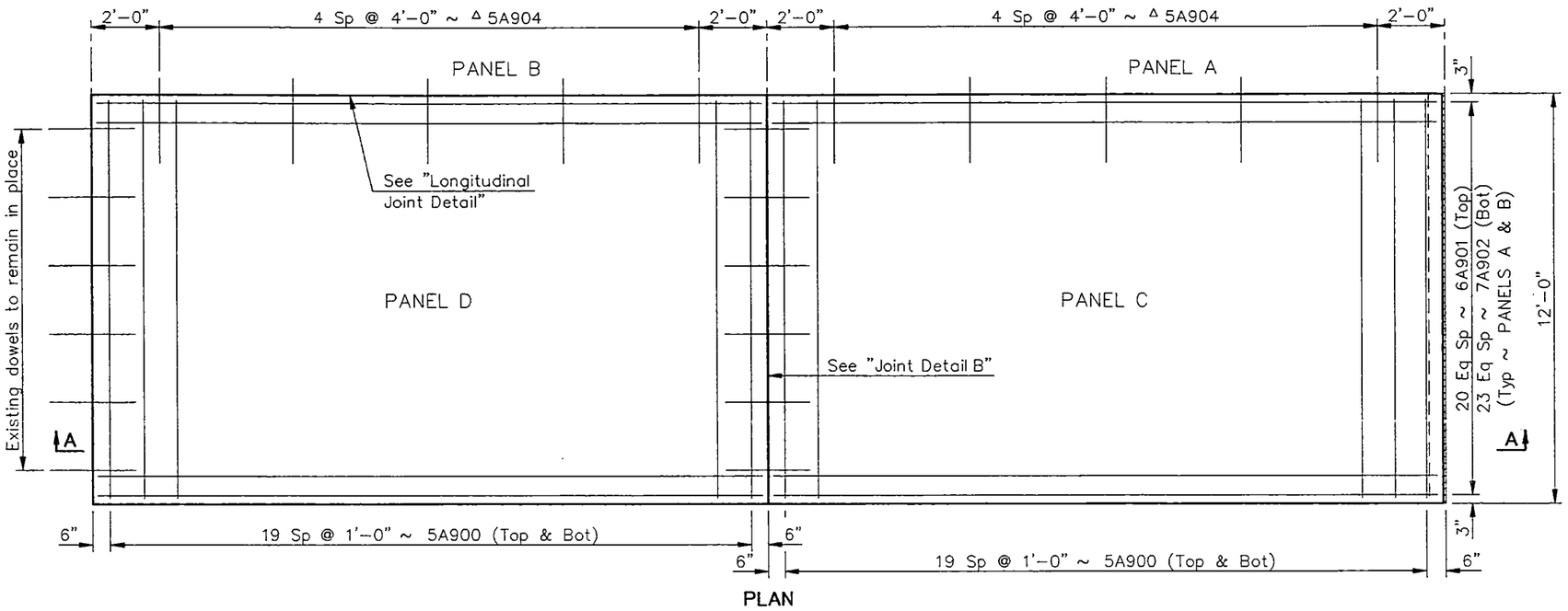
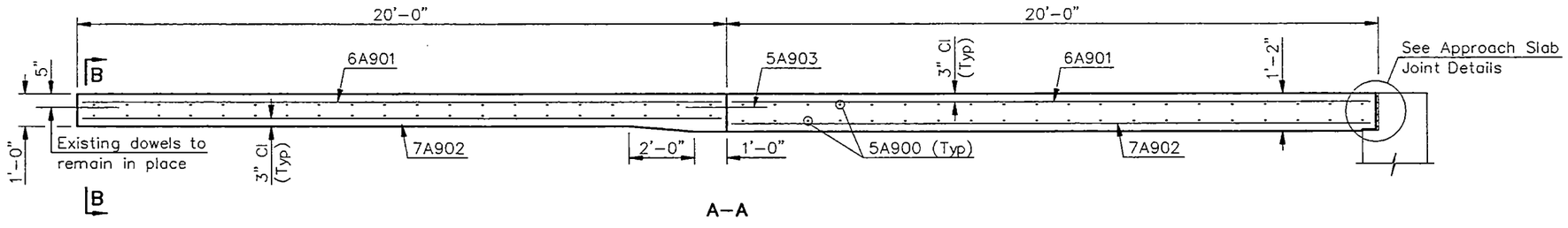
94-168.101R-3

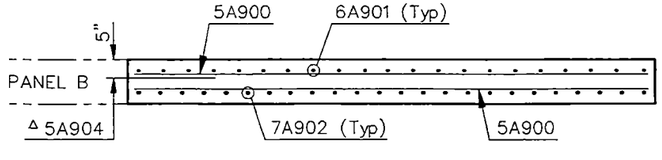
FHWA REGION	STATE	FEDERAL AID PROJECT NUMBER	SHEET NO.
8	ND	IM-SIB-1-094(054)161	101



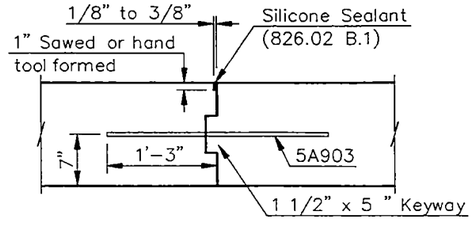
PLAN



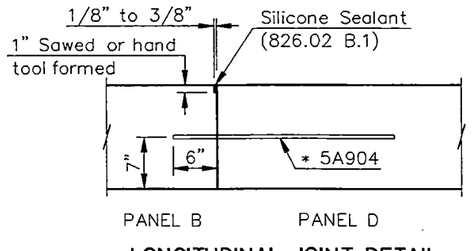
A–A



B–B



JOINT DETAIL B



LONGITUDINAL JOINT DETAIL

BAR LIST – ONE A & ONE B			
SIZE	MARK	NO.	LENGTH
5	A900	80	11'-8"
6	A901	42	19'-8"
7	A902	48	19'-8"
5	A903	6	2'-6"
5	Δ A904	10	2'-6"

ESTIMATED MATERIAL QUANTITIES	
REINFORCING STEEL (LBS.)	CONCRETE (C.Y.)
4185	19.4

NOTE:

Δ The 5A904's shall be installed, according to the manufactures recommendations, with a high strength adhesive specifically intended for concrete anchorage in accordance with section 806.02 of the NDDOT Standard Specifications.

QUANTITIES	(ONE END)
APPROACH SLAB	53.3 SY

APPLE CREEK

(DRIVING LANE ~ EASTBOUND)

APPROACH SLAB PANELS C & D

APPSLAB 99DLS55 LLS

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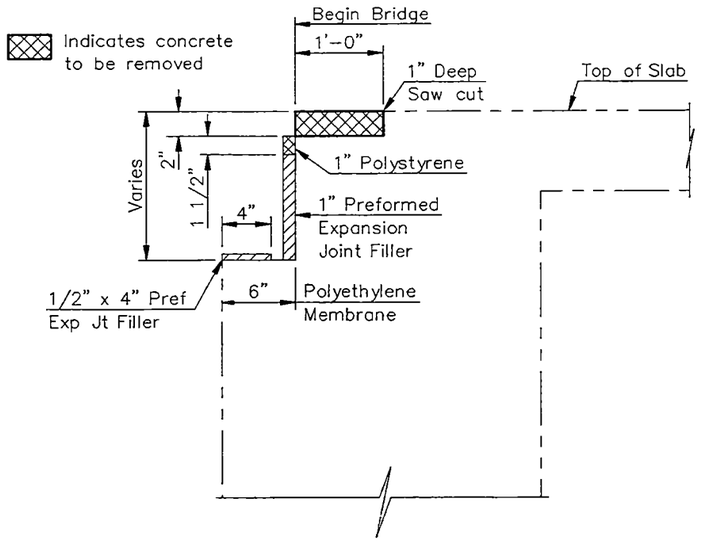
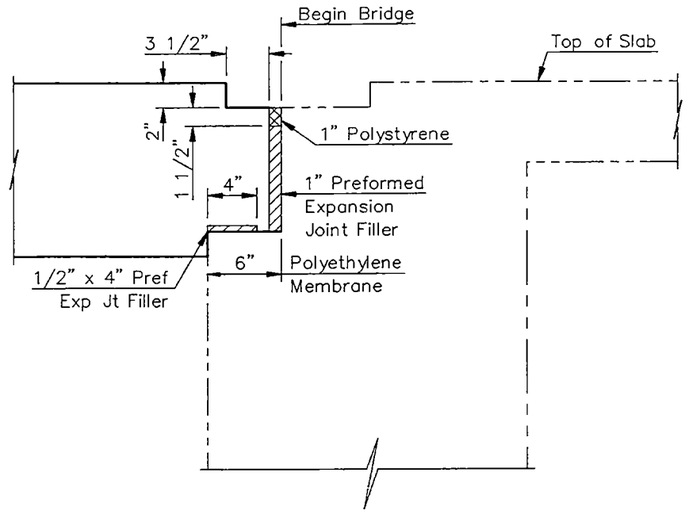
94-168.101R-4

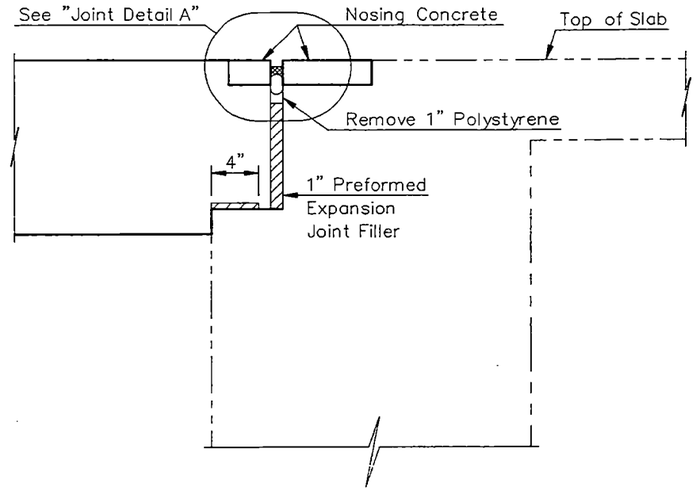
FHWA REGION	STATE	FED. AID PROJ. NO.	SHEET NO.
8	N.D.	IM-SIB-1-094(054)161	102



STAGE 1



STAGE 2



STAGE 3

NOTES:

STAGE 1:

1. Saw a 1" deep cut along the 12'-0" width of the passing lane.
2. Remove concrete at end of deck to allow for nosing concrete.
3. 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:

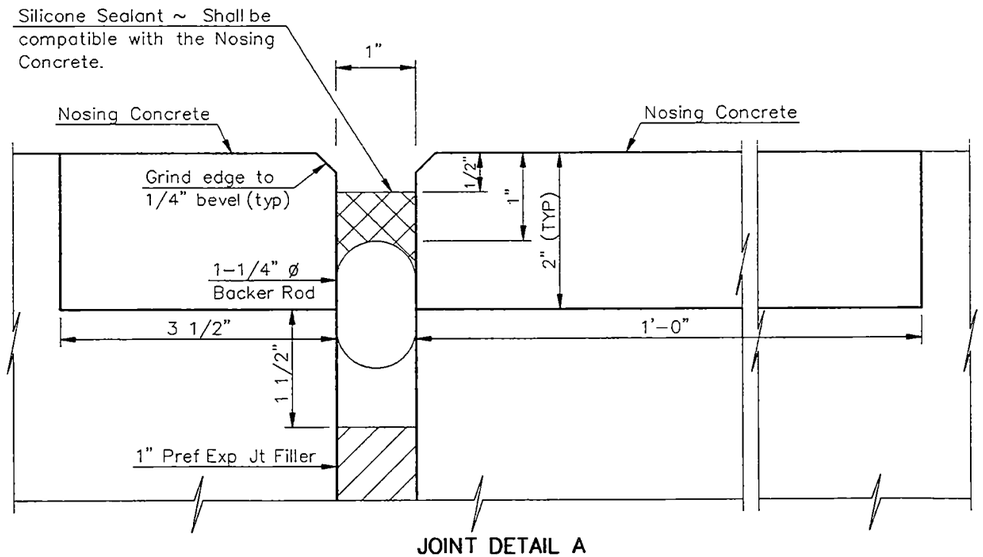
4. Place the new approach slab concrete. A 2" x 3 1/2" blockout shall be formed between the curbs in the approach slab as shown.

STAGE 3:

5. Place nosing concrete in the blockout areas, both in the deck and in the approach slab.
6. Remove the 1" polystyrene..
7. 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 numbers 94-168.101R-3 & 4, are for information purposes only. All materials including concrete, reinforcing bars, backer rod, polyethylene membrane, polystyrene, preformed joint filler, silicone sealant in longitudinal joint and labor required to remove the old approach slab and to build the approach slabs shall be included in the pay item, "Bridge Approach Slab - Remove and Replace".

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.



JOINT DETAIL A

QUANTITIES (ONE LANE, ONE END)	
NOSING CONCRETE	2.6 CF
SILICONE SEALANT	12 LF

APPLE CREEK

WEST END
(PASSING LANE ~ EASTBOUND)

APPROACH SLAB JOINT DETAILS

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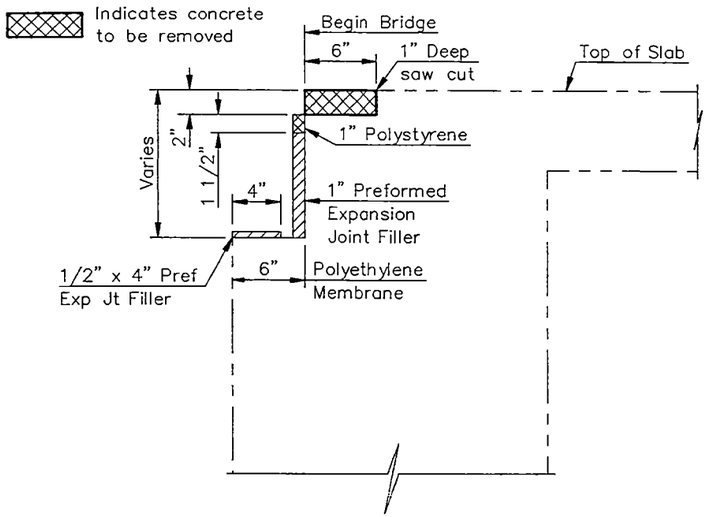
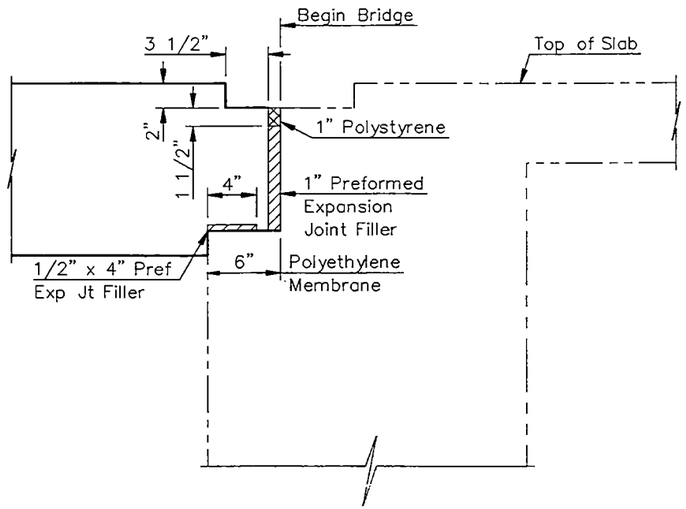
94-168.101R-5

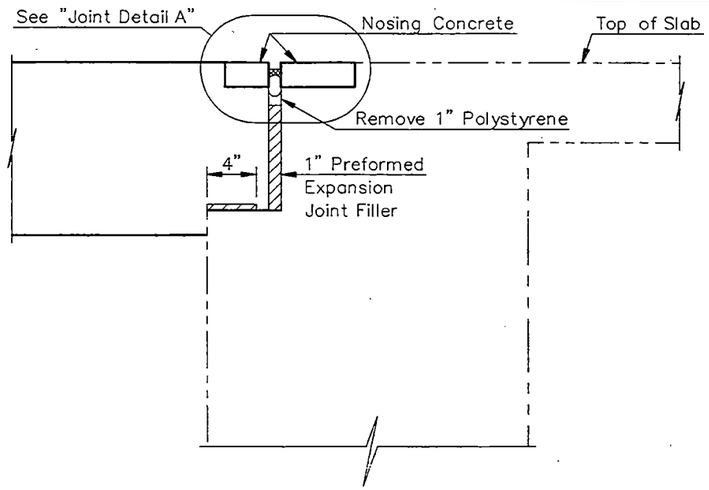
FHWA REGION	STATE	FED. AID PROJ. NO.	SHEET NO.
8	N.D.	IM-SIB-1-094(054)161	103



STAGE 1



STAGE 2



STAGE 3

NOTES:

STAGE 1:

1. Saw a 1" deep cut along the 12'-0" width of the passing lane.
2. Remove concrete at end of deck to allow for nosing concrete.
3. 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:

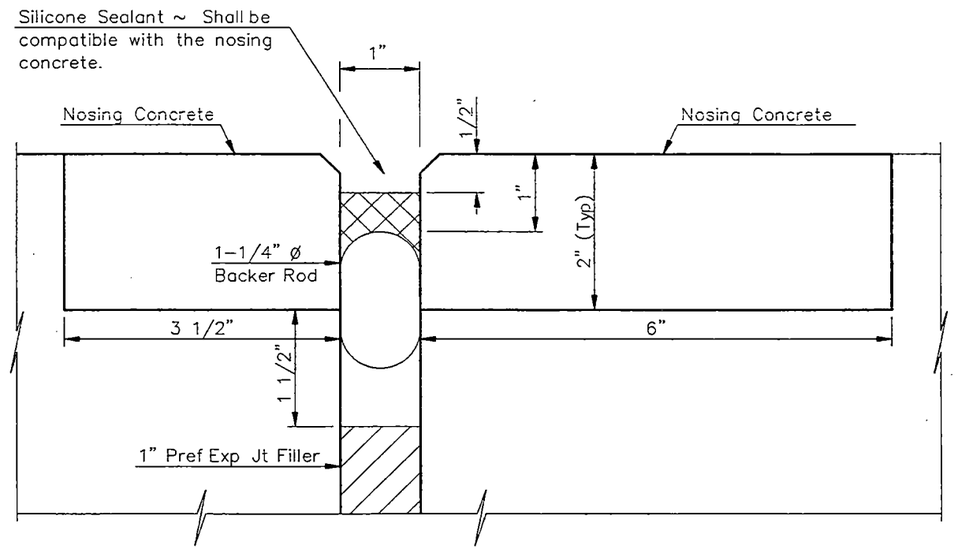
4. Place the new approach slab concrete. A 2" x 3 1/2" blockout shall be formed between the curbs in the approach slab as shown.

STAGE 3:

5. Place nosing concrete in the blockout areas, both in the deck and in the approach slab.
6. Remove the 1" polystyrene..
7. 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 numbers 94-168.101R-3 & 4, are for information purposes only. All materials including concrete, reinforcing bars, backer rod, polyethylene membrane, polystyrene, preformed joint filler, silicone sealant in longitudinal joint and labor required to remove the old approach slab and to build the approach slabs shall be included in the pay item, "Bridge Approach Slab - Remove and Replace".

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.



JOINT DETAIL A

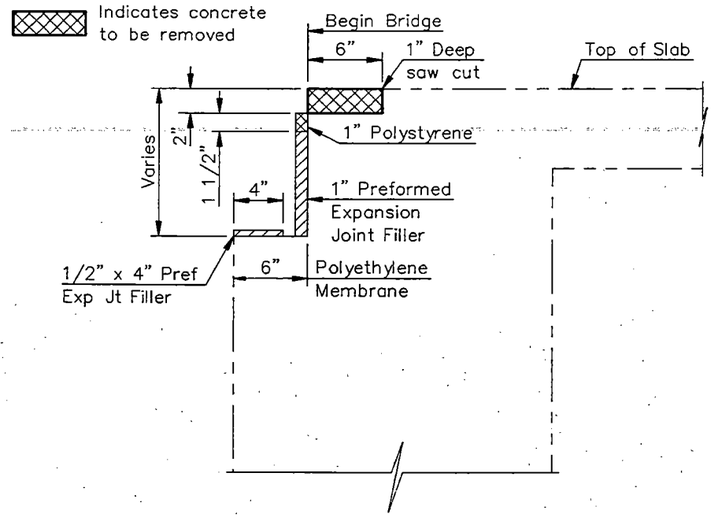
QUANTITIES (ONE LANE, ONE END)	
NOSING CONCRETE	1.6 CF
SILICONE SEALANT	12 LF

APPLE CREEK

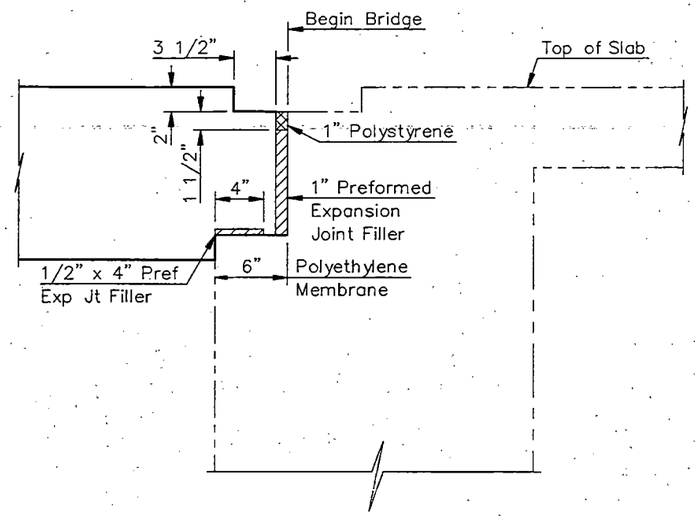
WEST END
(DRIVING LANE ~ EASTBOUND)

APPROACH SLAB JOINT DETAILS

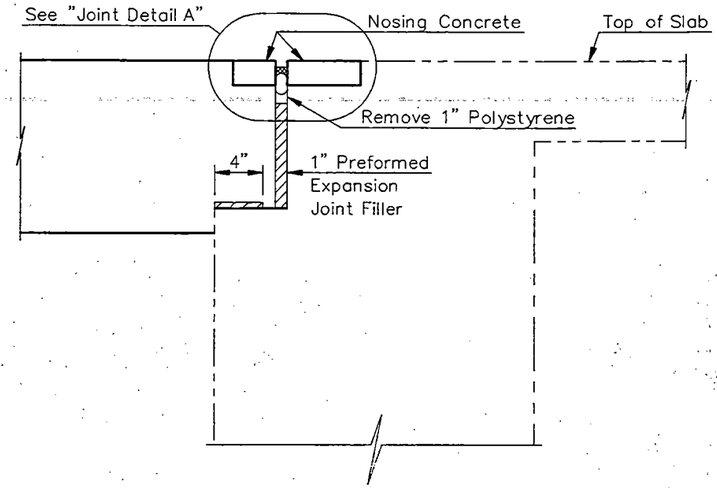
FHWA REGION	STATE	FED. AID PROJ. NO.	SHEET NO.
8	N.D.	IM-SIB-1-094(054)161	104



STAGE 1



STAGE 2



STAGE 3

NOTES:

STAGE 1:

1. Saw a 1" deep cut along the 12'-0" width of the passing lane.
2. Remove concrete at end of deck to allow for nosing concrete.
3. 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:

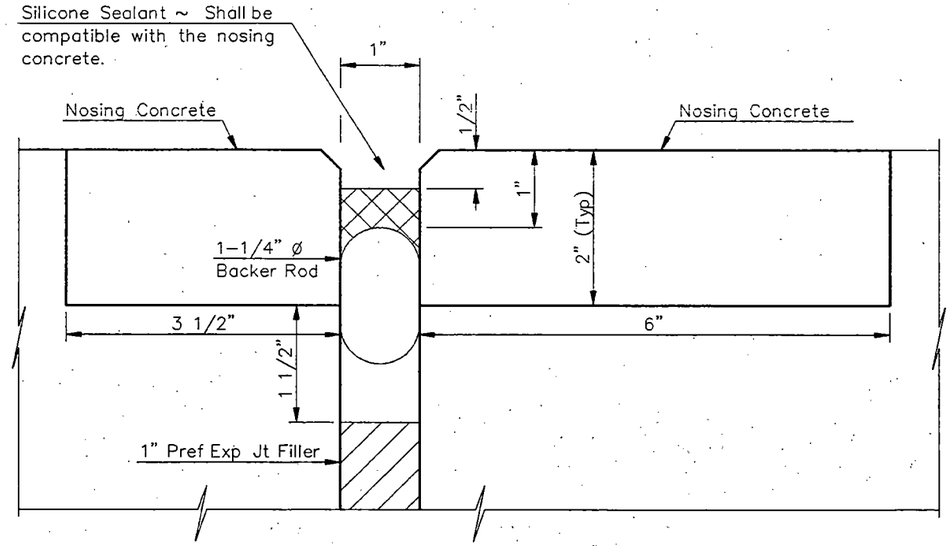
4. Place the new approach slab concrete. A 2" x 3 1/2" blockout shall be formed between the curbs in the approach slab as shown.

STAGE 3:

5. Place nosing concrete in the blockout areas, both in the deck and in the approach slab.
6. Remove the 1" polystyrene..
7. 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 numbers 94-168.101R-3 & 4, are for information purposes only. All materials including concrete, reinforcing bars, backer rod, polyethylene membrane, polystyrene, preformed joint filler, silicone sealant in longitudinal joint and labor required to remove the old approach slab and to build the approach slabs shall be included in the pay item, "Bridge Approach Slab - Remove and Replace".

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.



JOINT DETAIL A

QUANTITIES	(ONE END)
NOSING CONCRETE	3.2 CF
SILICONE SEALANT	24 LF

APPLE CREEK

EAST END
(PASSING & DRIVING LANE ~ EASTBOUND)

APPROACH SLAB JOINT DETAILS

APPRSLJT 99DLS60 LLS

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94-168.101R-7

DESIGN DATA				
Traffic	Average Daily			Est.Max.Hr.
Current 1999	Pass:3,605	Trucks 645	Total 4,250	425
Forecast 2019	Pass:5,770	Trucks 1,035	Total 6,805	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:

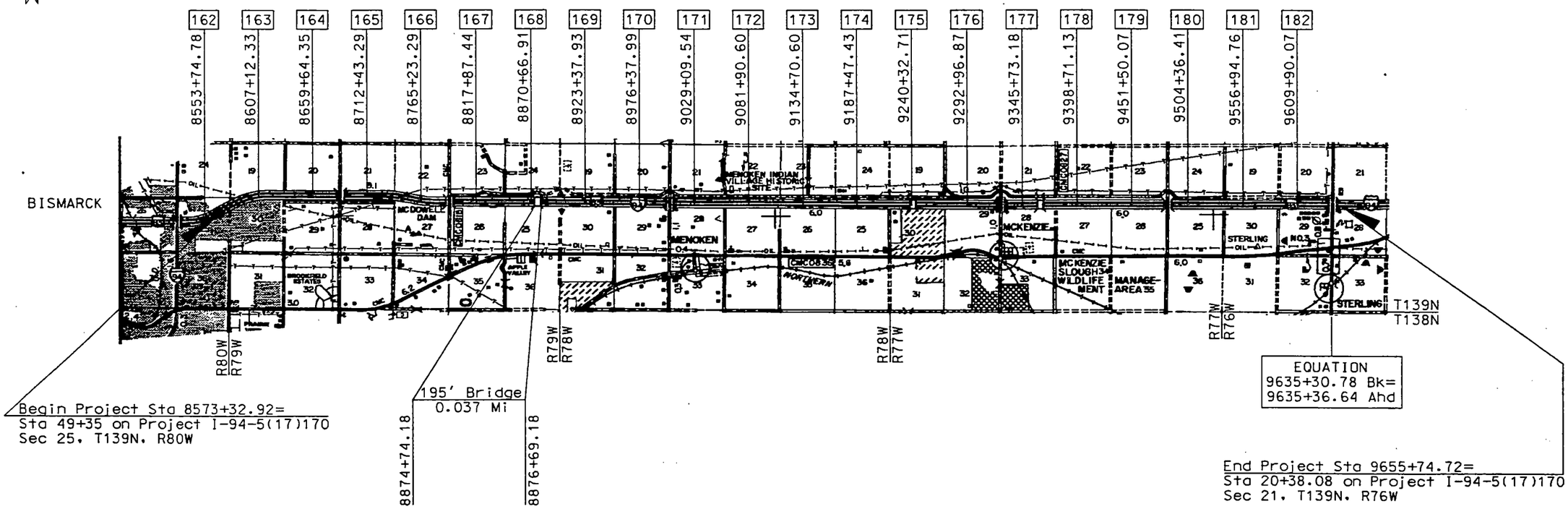
Standard Specifications adopted by the North Dakota Department of Transportation October 1997; Standard Drawings currently in effect; and other Contract Provisions submitted herein.

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



DESIGNER Dave Jenkins
DESIGNER Brad Pfeifer
DESIGNER
RECOMMEND APPROVAL 8-17, 1999
DESIGN ENGINEER Kathleen Bird

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED

DIVISION ADMINISTRATOR DATE

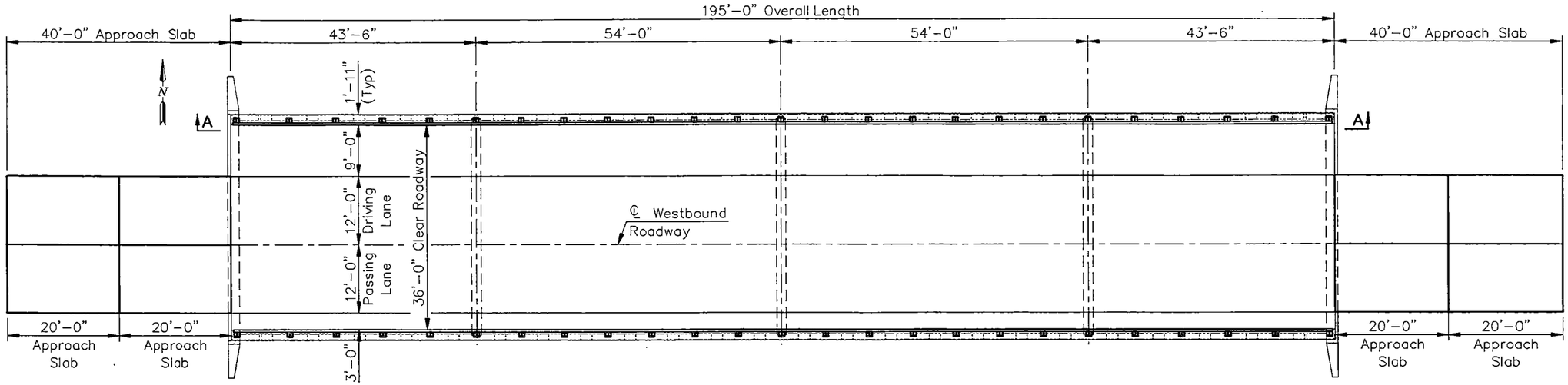
APPROVED DATE 8-17-99
David K. O. Leer
DIRECTOR OF HIGHWAYS AND ENGINEERING
NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

DAVID K. O. LEER REGISTERED PROFESSIONAL P.E. 1199 ENGINEER NORTH DAKOTA

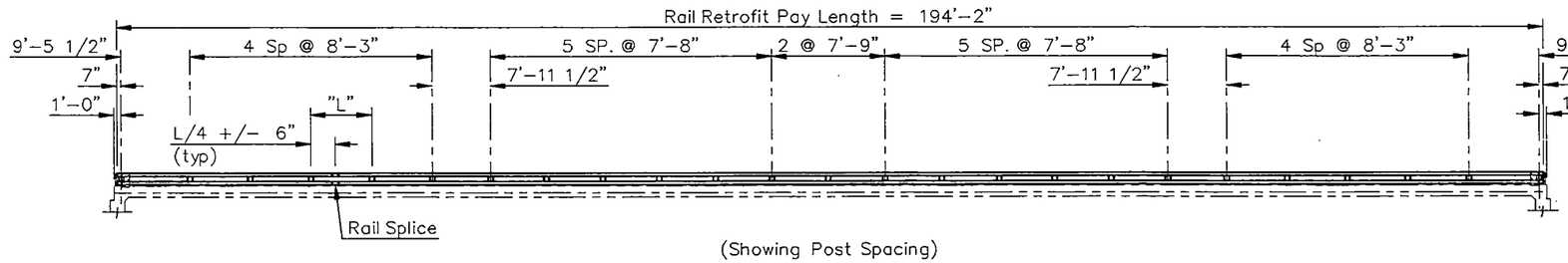
...\design\jenkins\title.dgn Jul. 08, 1999 10:41:56

23 U.S.C. 409
NDDOT Reserves All Objections

FHWA REGION	STATE	FEDERAL AID PROJECT NUMBER	SHEET NO.
8	ND	IM-SIB-1-094(054)161	105

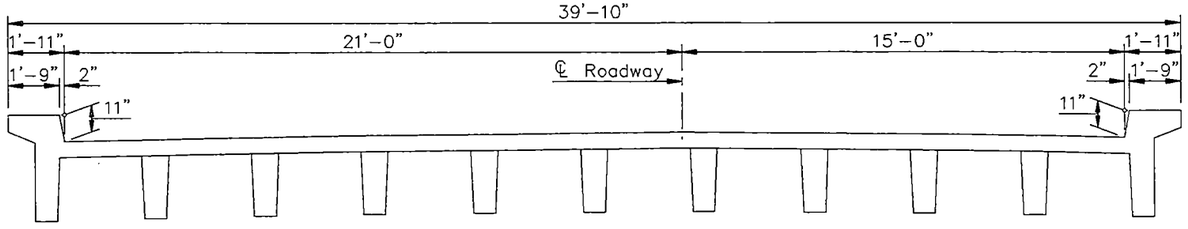


PLAN



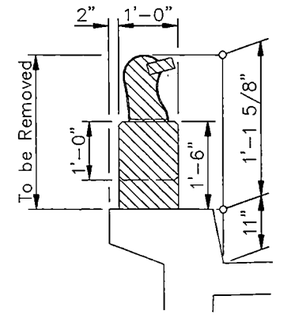
(Showing Post Spacing)

A-A



TYPICAL DECK SECTION

Indicates concrete & metal rail to be removed



EXISTING SECTION OF BRIDGE RAILING

NOTES:

202 REMOVAL OF CONCRETE: When removing the concrete railing, care shall be taken to prevent any damage to the concrete curb. All labor and equipment required to remove the concrete portion of the railing shall be included in the bid item "Removal of Concrete". The contractor shall dispose of the concrete off of the right-of-way.

624 DOUBLE BOX BEAM RAIL RETROFIT (FREE STANDING): All materials, equipment and labor required to remove the metal railing shall be included in the bid item "Double Box Beam Rail Retrofit (Free Standing)". The removed metal railing shall become the property of the contractor.

SPEC	CODE	ITEM DESCRIPTION	UNIT	QUANTITY
202	0113	REMOVAL OF CONCRETE	CY	16.9
624	3001	DOUBLE BOX BEAM RAIL RETROFIT (FREE STANDING)	LF	388.3

NORTH DAKOTA
DEPARTMENT OF TRANSPORTATION

APPLE CREEK ~ WESTBOUND

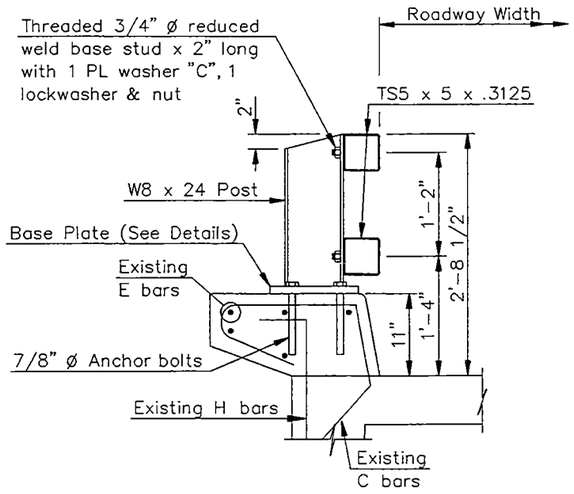
BRIDGE LAYOUT

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

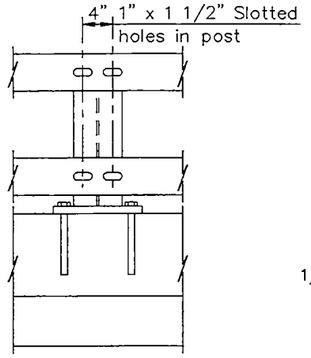
BURLEIGH COUNTY

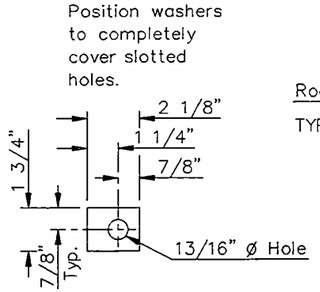
23 U.S.C. 409
NDDOT Reserves All Objections

FHWA REGION	STATE	FEDERAL AID PROJECT NUMBER	SHEET NO.
8	ND	IM-SIB-1-094(054)161	106



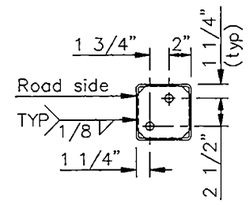
CURB MOUNT POST DETAILS

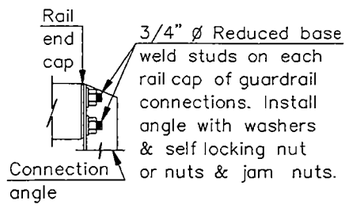




1/4" PL (A36 OR MERCHANT QUALITY)

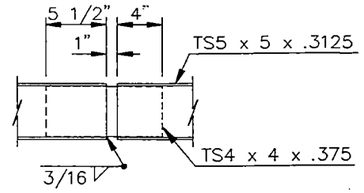
PLATE WASHER "C"



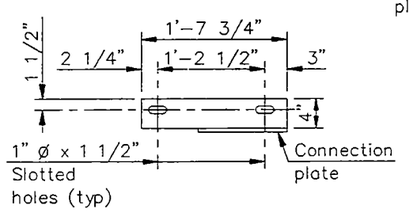


Rail Cap shall be a BAR 4 3/4 x 3/16 x 4 3/4".
Cope corners 3/4" to provide for zinc drains.

RAIL CAP DETAILS

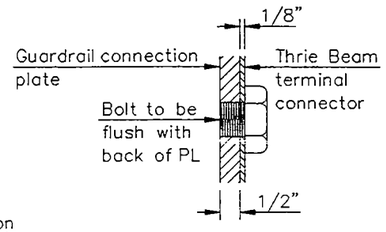


RAIL SPLICE DETAIL

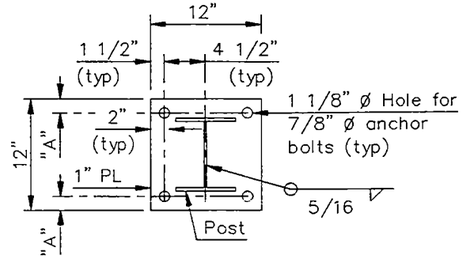


BAR 4 x 3/8

A-A



DETAIL "B"

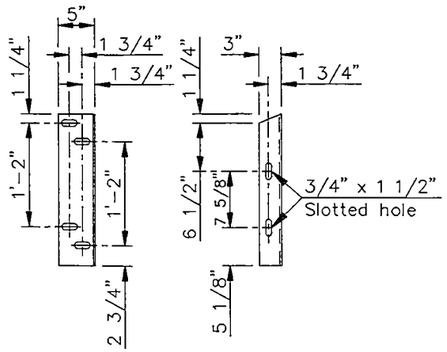


The "A" Dimension is variable, 1 1/2" to 3"

POST BASE PLATE DETAIL

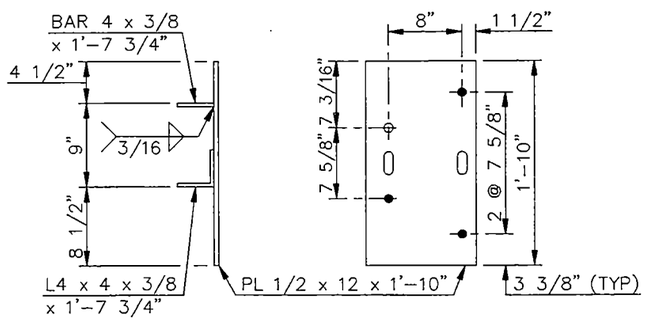
THRIE BEAM CONNECTION DETAIL

END POST CONNECTION DETAIL



L5 x 3 x 1/4 x 1'-8 1/2"

CONNECTION ANGLE DETAILS



(4 REQUIRED)

GUARDRAIL CONNECTION PLATE DETAILS

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.

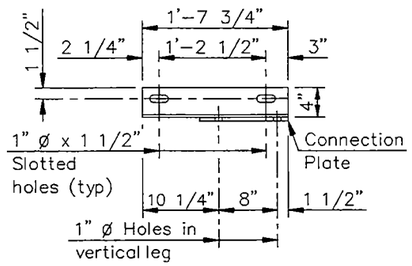
Railing shall be fabricated to the horizontal and vertical alignment of the structure. Posts shall be normal to grade.

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.



L4 x 4 x 3/8

B-B

QUANTITIES	
DOUBLE BOX BEAM RAIL RETROFIT (FREE STANDING)	388.3 LF

APPLE CREEK

(WESTBOUND)

TRAFFIC RAIL DETAILS

RAIL 99DLS68 LLS

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94-168.101L-1

DESIGN DATA				
Traffic	Average Daily			Est. Max. Hr.
Current 1998	Pass: 3,325	Trucks 700	Total 4,025	400
Forecast 2018	Pass: 5,320	Trucks 1120	Total 6,440	635
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# 3

FHWA REGION	STATE	PROJECT NO.	SHEET NO.
8	ND	AC-IM-1-094(053)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 AC-IM-1-094(053)161
IN BURLEIGH COUNTY

Concrete Pavement Repair
Hot Bituminous Pavement Overlay
and Incidentals
(Westbound Roadway)

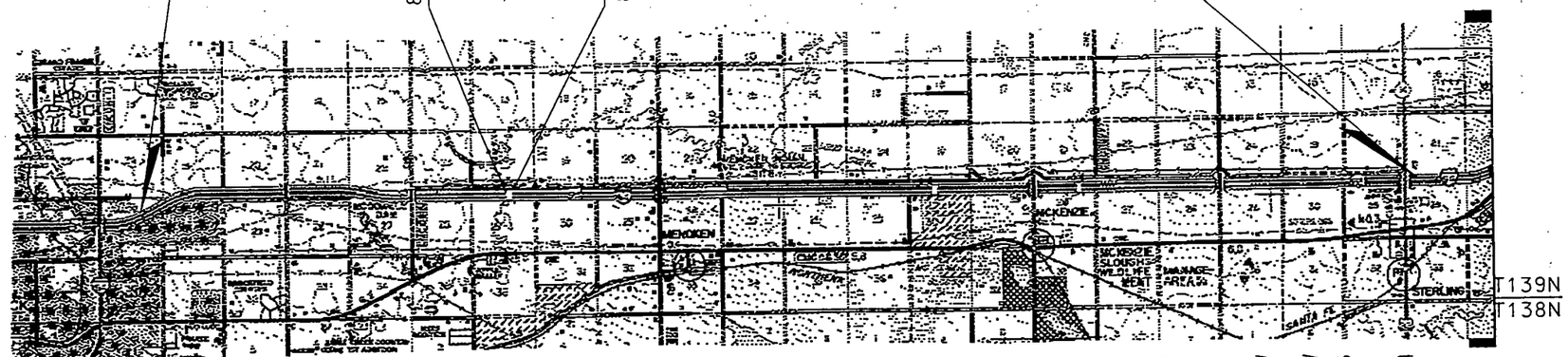
LENGTH OF PROJECT

Miles Gross	Miles Net
20.514	20.477

Begin Project Ref. Pt. 162.360
Sta 8572+96.78 (Old Sta 49+35)
Section 25, T139N, R80W

8873+56.01 — Bridge 0.037 Mile — 8875+51.21

End Project Ref. Pt. 182.874
Sta 9656+04.79 (Old Sta 20+38.08)
Section 21, T139N, R76W



8523+97.92 R80W 8579+13.88 R79W 8633+80.33 8686+85.87 8739+97.71 8792+70.28 8845+18.94 R79W 8897+20.81 R78W 8950+12.56 9003+22.52 9056+09.07 9108+94.40 9161+87.20 R78W 9214+53.53 R77W 9266+05.49 9319+01.87 9371+68.08 9424+47.43 9477+42.87 R77W 9530+24.31 R76W 9582+16.56 9635+36.64

DESIGNER Scott Workman
DESIGNER
DESIGNER
RECOMMEND APPROVAL May 22, 19 98
DESIGN ENGINEER Kathe Bunt

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED

DIVISION ADMINISTRATOR DATE

APPROVED DATE 5-21-98
David K. O. Leer
P.E. 1199

DIRECTOR OF HIGHWAYS AND ENGINEERING

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

DAVID K. O. LEER REGISTERED PROFESSIONAL P.E. 1199 ENGINEER NORTH DAKOTA

...\d_paving\title.dgn May. 18, 1998 08:46:55

FHWA REGION	STATE	PROJECT NO.	SHEET NO.
8	ND	AC-IM-1-094(053)161	2

SHEET NUMBER	DESCRIPTION
1	Title sheet
2	Table of contents
3	Scope of work
4-8	Notes
9-10	Estimate of Quantities
11-12	Basis of estimates
13-14	Mainline typical sections
15	Shoulder rumble strip details
16-17	Milling and overlay transitions
18	Ramp typical sections
19-20	Finger Joint Removal
21	Concrete pavement repair locations
22	Full Depth Repair Details for Continuously Reinforced PCC Pavement
23-26	Full Depth Repair Details for 9" Non-Reinforced PCC Pavement
27-29	Signing
30-39	Bridge Repair Details
40	Construction sign layout
41	Traffic control devices list
42-49	Pit Plats

LIST OF STANDARD DRAWINGS

STANDARD NUMBER	DESCRIPTION
D-704-2	Traffic control coring for hot bituminous pavement
D-704-8	Breakaway system for construction zone signs
D-704-9,10,11,12,13,14,15,22,&26	Construction sign & barricade location details
D-704-35	Sign layout for one lane closure interstate system
D-704-42	Road construction guide signs
D-706-1	Type C field laboratory
D-754-1,2,3,5,7,8	Sign Assembley, Breakaway base & Mounting
D-754-20	Mile Post (Expressway-Freeway Use)
D-754-21A,22,22A	Reflectorized Delineators
D-762-2	Interstate pavement marking
D-762-4	Pavement marking
D-762-6	Short term pavement marking

TABLE OF CONTENTS

East Bismarck Interchange to Sterling (West Bound)

CPR AND HOT BIT PVMT OVERLAY

indx

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ESTIMATE OF QUANTITIES

FHWA REGION	STATE	FED. AID PROJ. NO.	SHEET NO.
8	N.D.	IM-1-094(053)161	9

SPEC	CODE	ITEM DESCRIPTION	UNIT	MAINLINE	TOTAL
103	0100	CONTRACT BOND	L SUM	1	1
202	0104	REMOVAL OF STRUCTURE	EA	2	2
216	0100	WATER	M GAL	537	537
401	0152	SS1H OR CSS1H EMULSIFIED ASPHALT	GAL	49,149	49,149
408	0176	HOT BITUMINOUS PAVEMENT CL 27	TON	25,202	25,202
408	0320	120-150 ASPHALT CEMENT	TON	1,487	1,487
408	1510	PAVEMENT REPAIR ALL DEPTHS	SY	600	600
409	0233	HOT BITUMINOUS PAVEMENT QC/QA CL 33	TON	75,043	75,043
409	0320	120-150 ASPHALT CEMENT	TON	2,073	2,073
409	0450	PG 58-34 ASPHALT CEMENT	TON	2,279	2,279
409	0900	TESTING	TON	75,043	75,043
409	0910	CORED SAMPLE	EA	424	424
409	0920	CONTROL STRIP	EA	1	1
410	0105	MILLING BITUMINOUS PAVEMENT	SY	20,485	20,485
410	0110	MILLING PCC PAVEMENT	SY	1,601	1,601
550	0217	BRIDGE APPROACH SLAB-REMOVE & REPLACE	SY	213	213
550	0240	DOWELED CONTRACTION JOINT ASSEMBLY	LF	12	12
550	0424	DOWEL BARS	EA	40	40
550	0646	FULL DEPTH REPAIR-END PREP-MECH SPLICE	EA	52	52
550	0648	FULL DEPTH REPAIR-END PREPARATION	EA	30	30
550	0652	CONCRETE PAVEMENT REPAIR-FULL DEPTH-CONTINUOUS	SY	525	525
550	0711	9IN CONCRETE PAVEMENT REPAIR-FULL DEPTH-DOWELED	SY	49	49
702	0100	MOBILIZATION	L SUM	1	1
704	0100	FLAGGING	MHR	1,000	1,000
704	1000	TRAFFIC CONTROL SIGNS	UNIT	2,558	2,558
704	1050	TYPE I BARRICADE	EA	20	20
704	1052	TYPE III BARRICADE	EA	12	12
704	1060	DELINEATOR DRUMS	EA	135	135
704	1067	TUBULAR MARKERS	EA	500	500
704	1081	VERTICAL PANELS-BACK TO BACK	EA	60	60
704	1087	SEQUENCING ARROW PANEL-TYPE C	EA	2	2
704	1185	PILOT CAR	HR	100	100
706	0300	FIELD LABORATORY-TYPE C	EA	2	2
708	1100	SLOPE PROTECTION CONCRETE	SY	95	95

ESTIMATE NUMBER: 2721 RUN DATE: 05/26/1998 TIME: 11:52:21

ESTIMATE OF QUANTITIES

FHWA REGION	STATE	FED. AID PROJ. NO.	SHEET NO.
8	N.D.	IM-1-094(053)161	10

SPEC	CODE	ITEM DESCRIPTION	UNIT	MAINLINE	TOTAL
754	0117	FLAT SHEET FOR SIGNS-TYPE 3A REFL SHEETING	SF	54.3	54.3
754	0150	DELINEATORS-TYPE A	EA	226	226
754	0160	DELINEATORS-TYPE B	EA	38	38
754	0168	DELINEATORS-TYPE D	EA	18	18
754	0211	GALV STEEL POST-STANDARD PIPE SINGLE POST	LF	45.9	45.9
754	0557	INTERSTATE MILE POSTS-TYPE C	EA	20	20
754	1100	CLASS AE CONCRETE-SIGN FOUNDATIONS	CY	0.93	0.93
754	1105	REMOVE CONCRETE FOUNDATION	EA	3	3
762	0405	SHORT TERM 4IN BROKEN LINE-PNT TAPE OR RSD MRK	LF	26,510	26,510
762	1104	PVMT MK PAINTED 4IN LINE	LF	221,440	221,440
762	1108	PVMT MK PAINTED 8IN LINE	LF	1,270	1,270
762	1124	PVMT MK PAINTED 24IN LINE	LF	120	120
762	1304	PREFORMED PATTERNED PVMT MK 4IN LINE	LF	26,510	26,510
764	1495	ADJUST GUARDRAIL	LF	2,298	2,298
930	8640	NOSING CONCRETE	LF	48	48
930	8670	CONCRETE SLEEPER SLAB	EA	2	2
950	9712	JOINT TREATMENT	LF	469	469

ESTIMATE NUMBER: 2721 RUN DATE: 05/26/1998 TIME: 11:52:21

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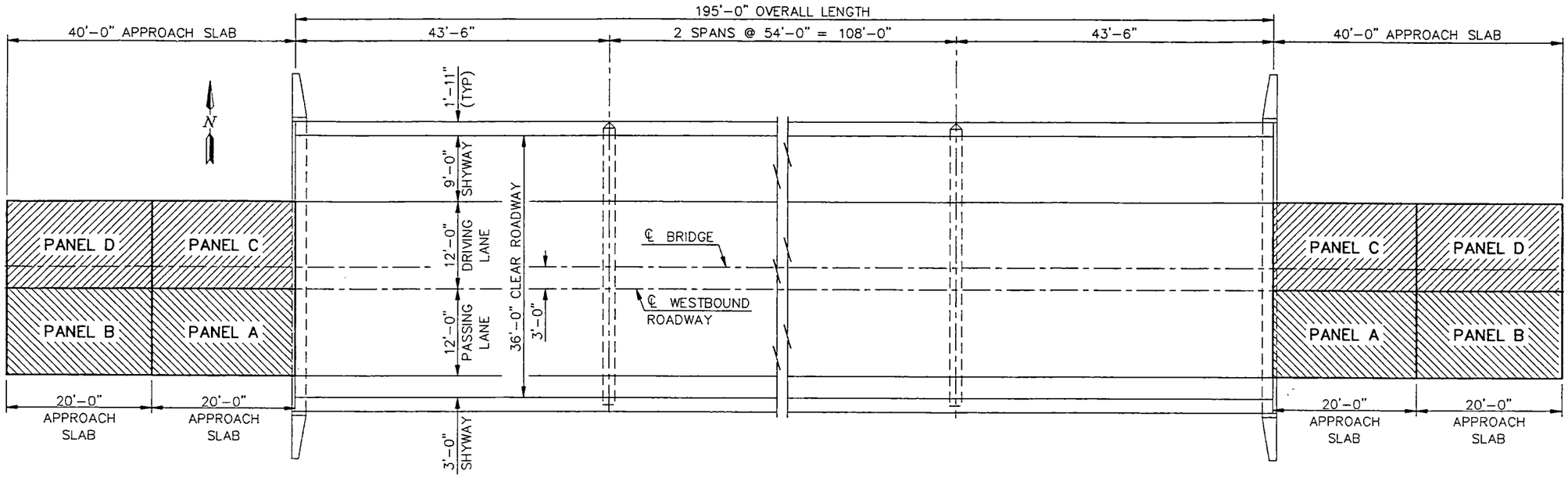
FHWA REGION	STATE	FEDERAL AID PROJECT NUMBER	SHEET NO.
8	ND	IM-1-094(053)161	32



SCOPE OF WORK:

THE WORK AT THIS SITE INCLUDES THE REMOVAL AND REPLACEMENT OF APPROACH SLAB PANELS A, B, C AND D.

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 CEVA CRETE 95, MANUFACTURED BY E-POXY INDUSTRIES INC.; ELASTOMERIC CONCRETE, AS MANUFACTURED BY THE D.S. BROWN COMPANY; SILSPEC 900, AS MANUFACTURED BY CONSTRUCTION MATERIALS INC.; ELASTOMERIC CONCRETE AS MANUFACTURED BY HARRIS SPECIALITY CHEMICALS INC., OR AN APPROVED EQUAL. THE NOSING SHALL BE MIXED AND INSTALLED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS. THE COST FOR THE EQUIPMENT, MATERIALS, AND LABOR TO INSTALL THE NOSING CONCRETE ON EACH SIDE OF THE JOINT SHALL BE INCLUDED IN THE LINEAL FOOT BID ITEM "NOSING CONCRETE".

NOTE:

THE CROSS HATCHED AREAS INDICATE CONCRETE TO BE REMOVED. PANELS A & B SHALL BE REMOVED AND REPLACED FIRST. TRAFFIC SHALL THEN BE DIVERTED TO THE PASSING LANE FOR THE REMOVAL AND REPLACEMENT OF APPROACH SLAB PANELS C & D.

SPEC	CODE	ITEM DESCRIPTION	UNIT	QUANTITY
550	0217	BRIDGE APPROACH SLAB (REMOVE & REPLACE)	SQ. YD.	213
930	8640	NOSING CONCRETE	LF	48

STEVEN J. MILLER
REGISTERED PROFESSIONAL ENGINEER
1360
NORTH DAKOTA

NORTH DAKOTA
DEPARTMENT OF TRANSPORTATION

APPLE CREEK

BRIDGE LAYOUT

PROJECT: IM-1-094(053)161

BURLEIGH COUNTY

5/20/98 Steven J. Miller
DATE BRIDGE ENGINEER

BRLO 19DLS98 LLS

94-168.101L

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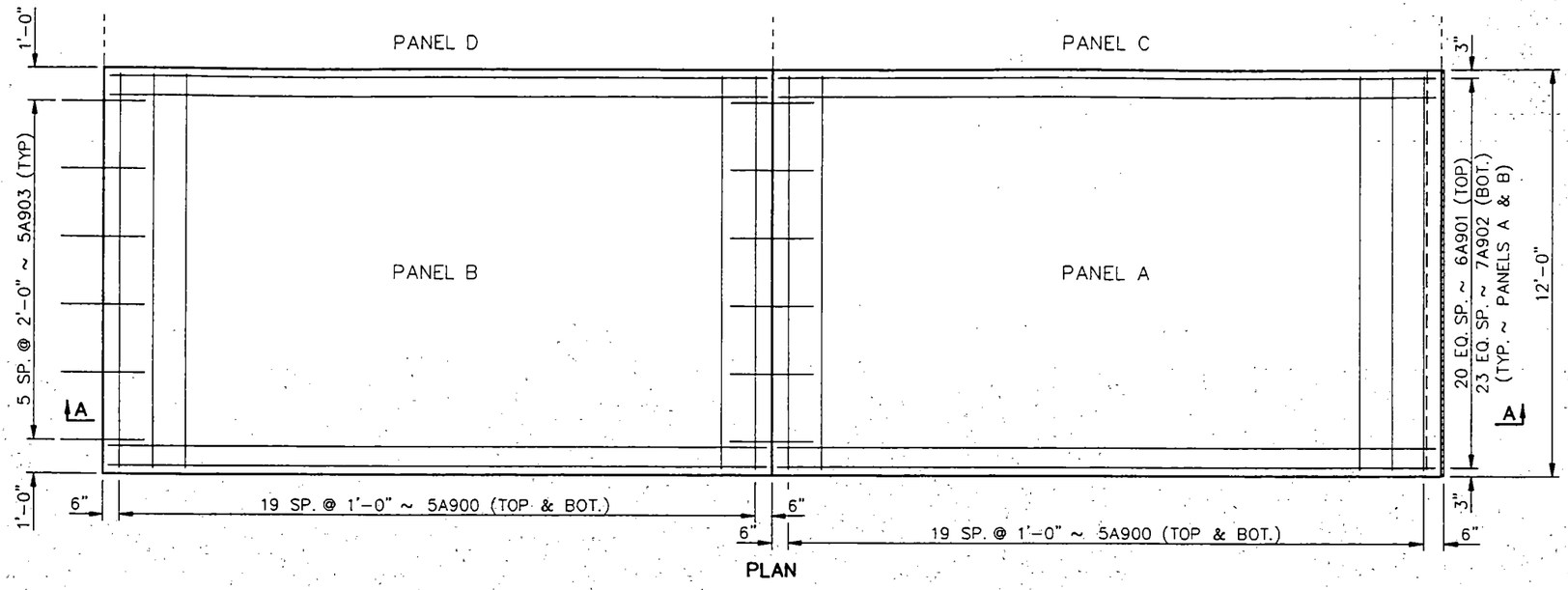
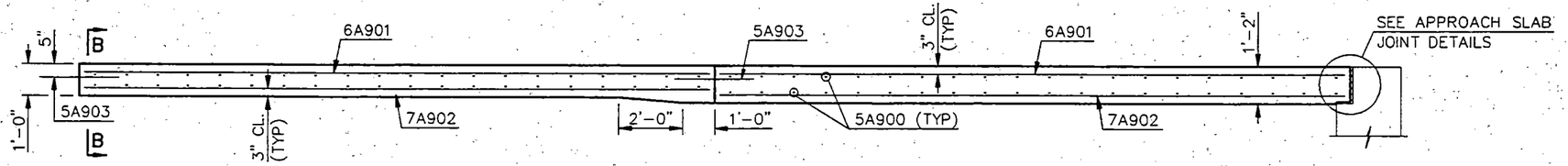
FHWA REGION	STATE	FEDERAL AID PROJECT NUMBER	SHEET NO.
8	ND	IM-1-094(053)161	33



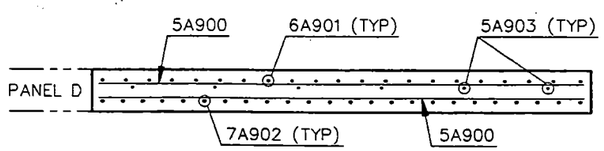
PLAN

BAR LIST – ONE A & ONE B			
SIZE	MARK	NO.	LENGTH
5	A900	80	11'-8"
6	A901	42	19'-8"
7	A902	48	19'-8"
5	A903	12	2'-6"

ESTIMATED MATERIAL QUANTITIES	
REINFORCING STEEL (LBS.)	CONCRETE (C.Y.)
4175	19.4



A–A



B–B

NOTE:

THE "ESTIMATED MATERIAL QUANTITIES" SHOWN ARE FOR INFORMATIONAL PURPOSES ONLY. ALL MATERIALS INCLUDING CONCRETE, REINFORCING BARS AND EXPANSION JOINT FILLER SHALL BE INCIDENTAL TO THE PAY ITEM "CONCRETE BRIDGE APPROACH SLAB".

THE CONCRETE SHALL BE CLASS AE-3 AND THE REINFORCING STEEL SHALL BE GRADE 60.

QUANTITIES	(ONE END)
APPROACH SLAB	53.3 SY
NOSING CONCRETE	12 LF

APPLE CREEK

(PASSING LANE ~ WESTBOUND)

APPROACH SLAB PANELS A & B

APPSLAB 98DLS20 LLS

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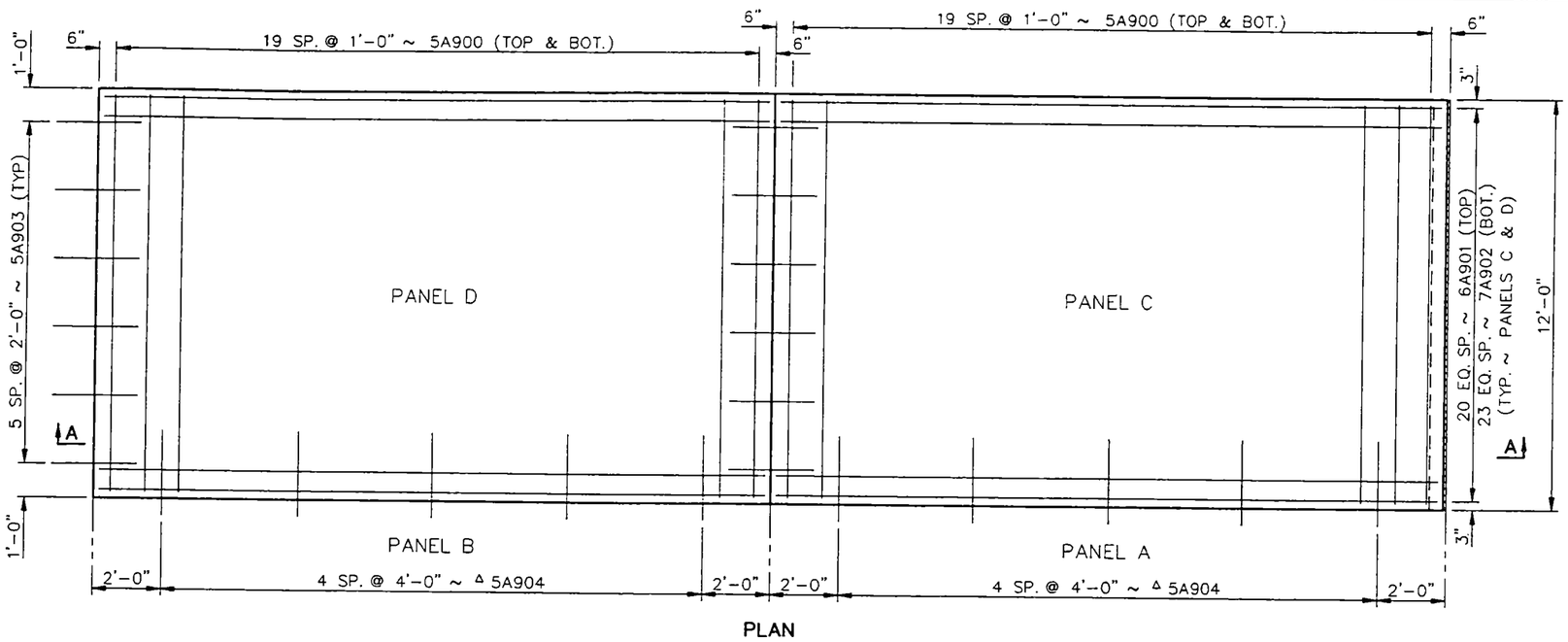
94-168.101L-1

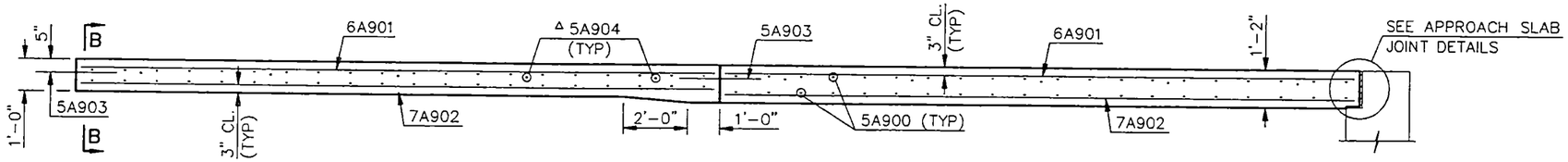
FHWA REGION	STATE	FEDERAL AID PROJECT NUMBER	SHEET NO.
8	ND	IM-1-094(053)161	34



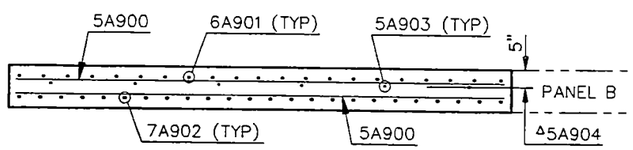
PLAN

BAR LIST – ONE C & ONE D			
SIZE	MARK	NO.	LENGTH
5	A900	80	11'-8"
6	A901	42	19'-8"
7	A902	48	19'-8"
5	A903	12	2'-6"
5	Δ A904	10	2'-6"

ESTIMATED MATERIAL QUANTITIES	
REINFORCING STEEL (LBS.)	CONCRETE (C.Y.)
4201	19.4



A–A



B–B

NOTE:

THE "ESTIMATED MATERIAL QUANTITIES" SHOWN ARE FOR INFORMATIONAL PURPOSES ONLY. ALL MATERIALS INCLUDING CONCRETE, REINFORCING BARS AND EXPANSION JOINT FILLER SHALL BE INCIDENTAL TO THE PAY ITEM "CONCRETE BRIDGE APPROACH SLAB".

THE CONCRETE SHALL BE CLASS AE–3 AND THE REINFORCING STEEL SHALL BE GRADE 60.

Δ THE 5A904's SHALL BE INSTALLED, ACCORDING TO THE MANUFACTURES RECOMMENDATIONS, WITH A HIGH STRENGTH ADHESIVE SPECIFICALLY INTENDED FOR CONCRETE ANCHORAGE IN ACCORDANCE WITH SECTION 806.03 OF THE NDDOT STANDARD SPECIFICATIONS.

QUANTITIES	(ONE END)
APPROACH SLAB	53.3 SY
NOSING CONCRETE	12 LF

APPLE CREEK

(DRIVING LANE ~ WESTBOUND)

APPROACH SLAB PANELS C & D

APPSLAB1 98DLS21 LLS

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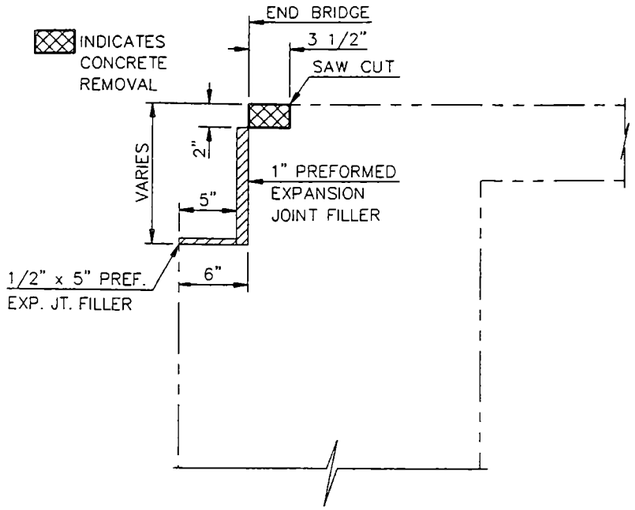
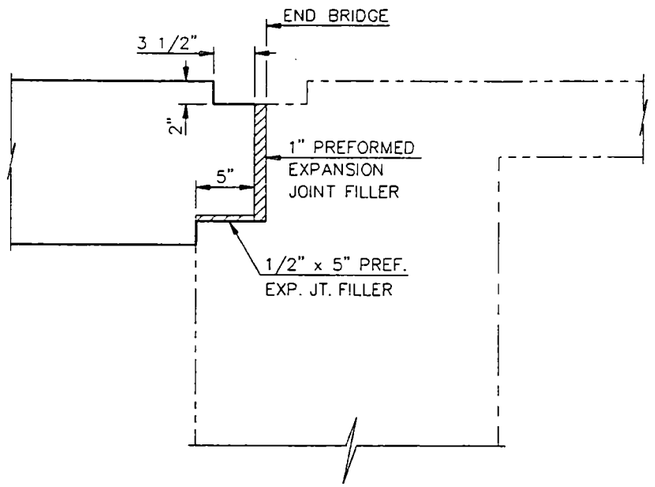
94–168.101L–2

FHWA REGION	STATE	FED. AID PROJ. NO.	SHEET NO.
8	N.D.	IM-1-094(053)161	35



STAGE 1



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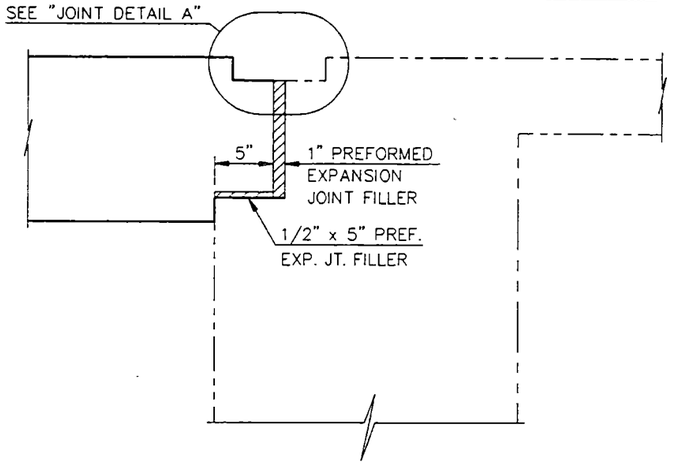


STAGE 3

NOTES:

STAGE 1:

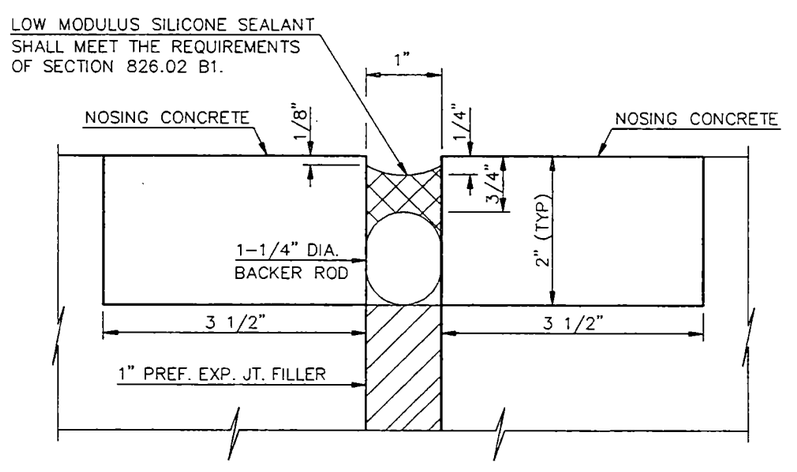
1. SAW A 2" DEEP CUT ALONG THE 12'-0" WIDTH OF THE PASSING LANE.
2. REMOVE THE CONCRETE FROM THE DECK AS SHOWN.
3. PLACE THE 1" THICK PREFORMED EXPANSION JOINT FILLER AND THE 1/2" x 5" PREFORMED EXPANSION JOINT FILLER.

STAGE 2:

2. PLACE THE NEW APPROACH SLAB CONCRETE. A 2" x 3 1/2" BLOCKOUT SHALL BE FORMED IN THE APPROACH SLAB AS SHOWN.

STAGE 3:

3. NOSING CONCRETE SHALL BE PLACED IN THE BLOCKOUT AREAS, BOTH IN THE BRIDGE DECK AND IN THE APPROACH SLAB.
4. AFTER THE NOSING CONCRETE HAS CURED, CLEAN THE JOINT AND INSTALL THE BACKER ROD AND THE SILICONE SEALANT ACCORDING TO SECTION 550.04 M.3 OF THE STANDARD SPECS.



JOINT DETAIL A

APPLE CREEK

WEST END
(PASSING LANE)

APPROACH SLAB JOINT DETAILS

APPSLJT1 98DLS23 LLS

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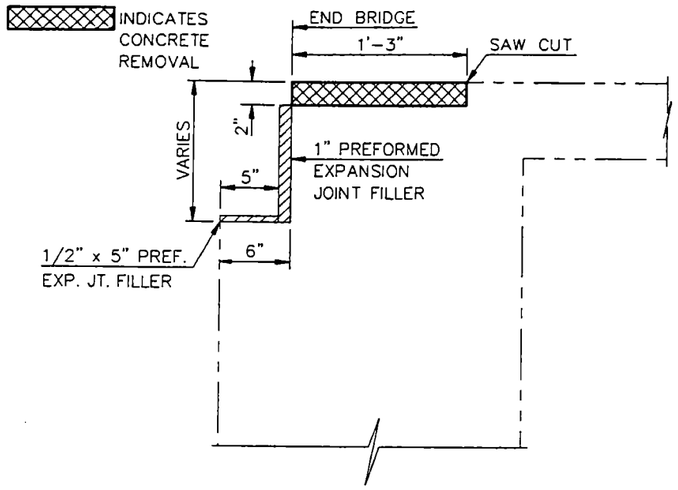
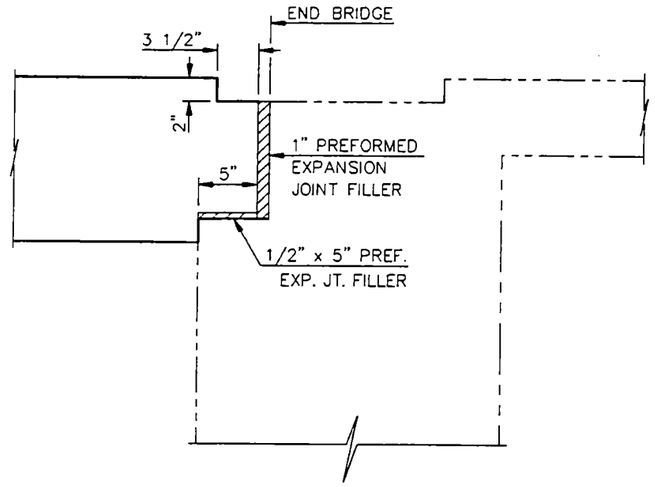
94-168.101L-3

FHWA REGION	STATE	FED. AID PROJ. NO.	SHEET NO.
8	N.D.	IM-1-094(053)161	36



STAGE 1



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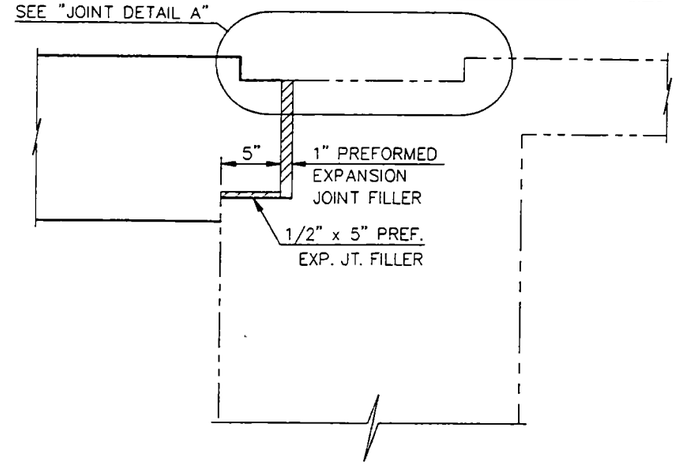


STAGE 3

NOTES:

STAGE 1:

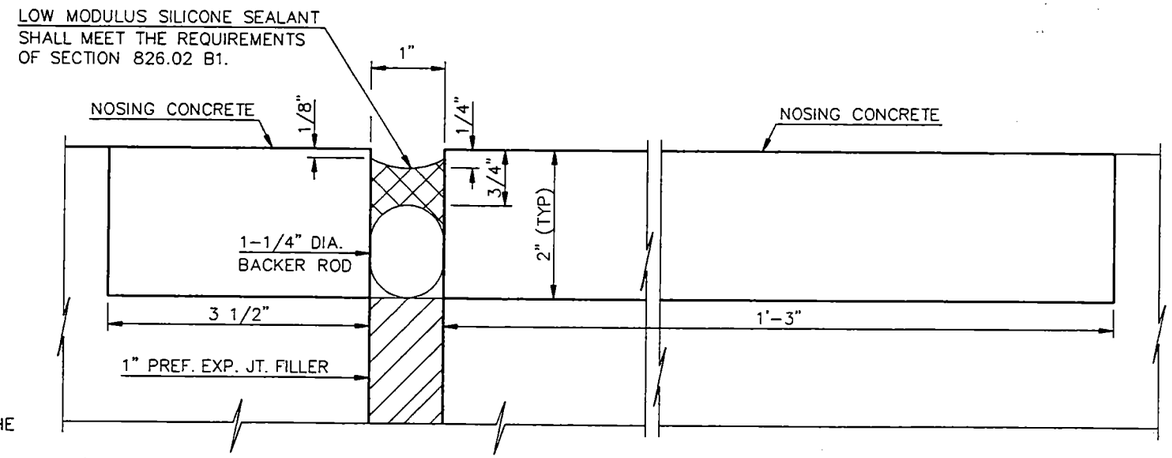
1. SAW A 2" DEEP CUT ALONG THE 12'-0" WIDTH OF THE DRIVING LANE.
2. REMOVE THE CONCRETE FROM THE DECK AS SHOWN.
3. PLACE THE 1" THICK PREFORMED EXPANSION JOINT FILLER AND THE 1/2" x 5" PREFORMED EXPANSION JOINT FILLER.

STAGE 2:

2. PLACE THE NEW APPROACH SLAB CONCRETE. A 2" x 3 1/2" BLOCKOUT SHALL BE FORMED IN THE APPROACH SLAB AS SHOWN.

STAGE 3:

3. NOSING CONCRETE SHALL BE PLACED IN THE BLOCKOUT AREAS, BOTH IN THE BRIDGE DECK AND IN THE APPROACH SLAB.
4. AFTER THE NOSING CONCRETE HAS CURED, CLEAN THE JOINT AND INSTALL THE BACKER ROD AND THE SILICONE SEALANT ACCORDING TO SECTION 550.04 M.3 OF THE STANDARD SPECS.



JOINT DETAIL A

APPLE CREEK

WEST END
(DRIVING LANE)

APPROACH SLAB JOINT DETAILS

APPSLJT2 98DLS24 LLS

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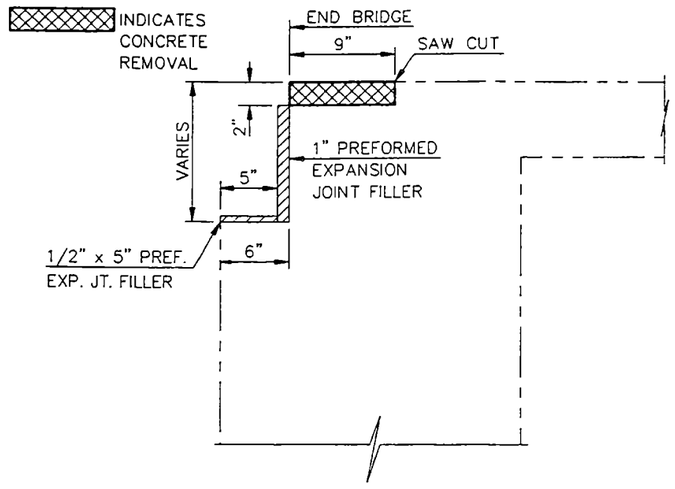
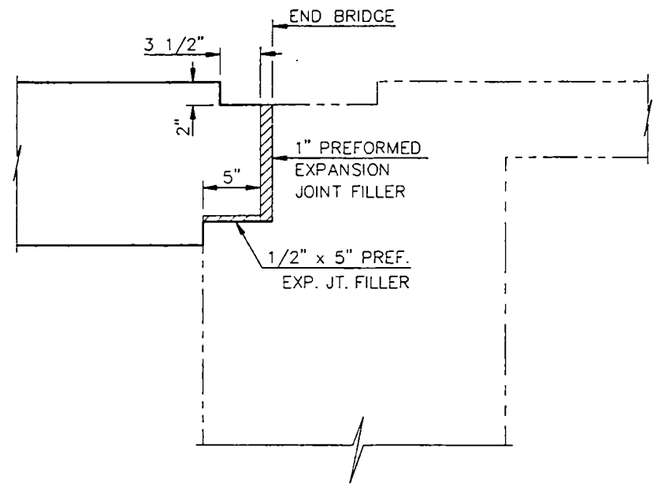
94-168.101L-4

FHWA REGION	STATE	FED. AID PROJ. NO.	SHEET NO.
8	N.D.	IM-1-094(053)161	37



STAGE 1



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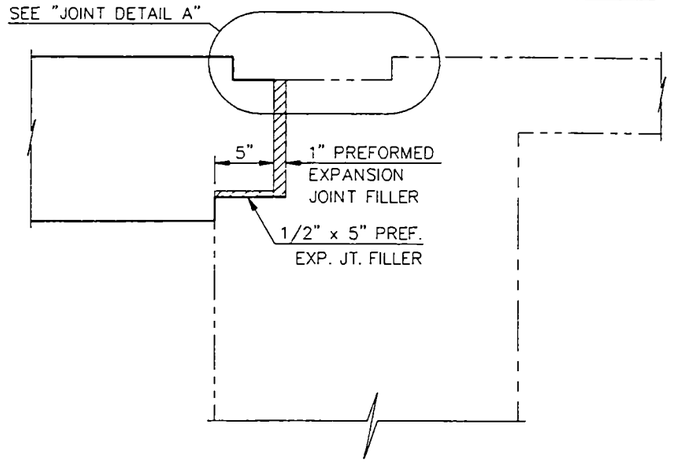

STAGE 3

NOTES:

STAGE 1:

1. SAW A 2" DEEP CUT ALONG THE 12'-0" WIDTH OF THE PASSING LANE.
2. REMOVE THE CONCRETE FROM THE DECK AS SHOWN.
3. PLACE THE 1" THICK PREFORMED EXPANSION JOINT FILLER AND THE 1/2" x 5" PREFORMED EXPANSION JOINT FILLER.

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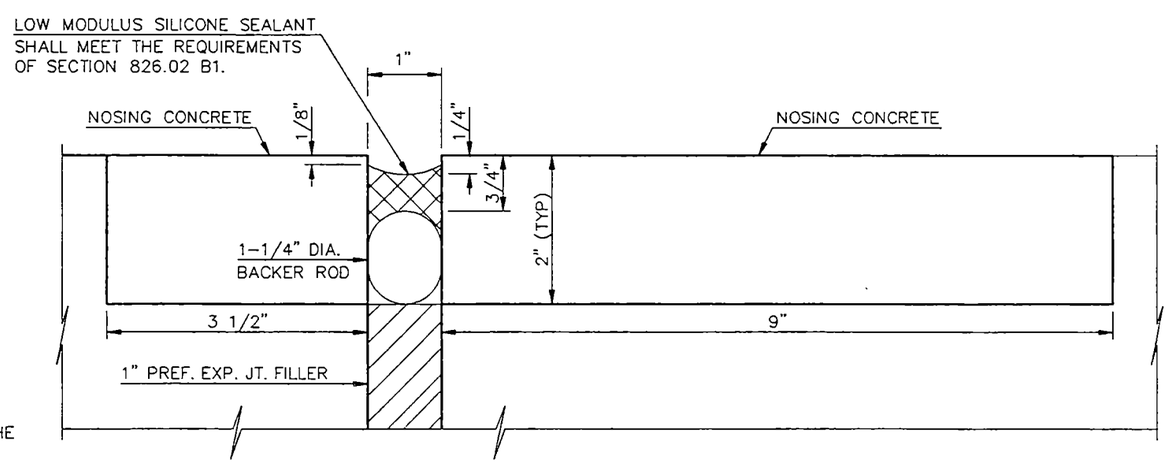
4. AFTER THE NOSING CONCRETE HAS CURED, CLEAN THE JOINT AND INSTALL THE BACKER ROD AND THE SILICONE SEALANT ACCORDING TO SECTION 550.04 M.3 OF THE STANDARD SPECS.

STAGES 1, 2 AND 3 ARE REPEATED FOR THE DRIVING LANE ONCE THE TRAFFIC HAS BEEN DIVERTED ONTO THE PASSING LANE.



JOINT DETAIL A

APPLE CREEK

EAST END
(PASSING & DRIVING LANES)

APPROACH SLAB JOINT DETAILS

APPRSLJT 98DLS22 LLS

94-168.101L-5

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DESIGN DATA				
Traffic	Average Daily			Est.Max.Hr.
Current 1998	Pass: 3,325	Trucks 700	Total 4,025	400
Forecast 2018	Pass: 5,320	Trucks 1120	Total 6,440	635
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# 3

FHWA REGION	STATE	PROJECT NO.	SHEET NO.
8	ND	AC-IM-1-094(053)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 AC-IM-1-094(053)161
IN BURLEIGH COUNTY

Concrete Pavement Repair
Hot Bituminous Pavement Overlay
and Incidentals
(Westbound Roadway)

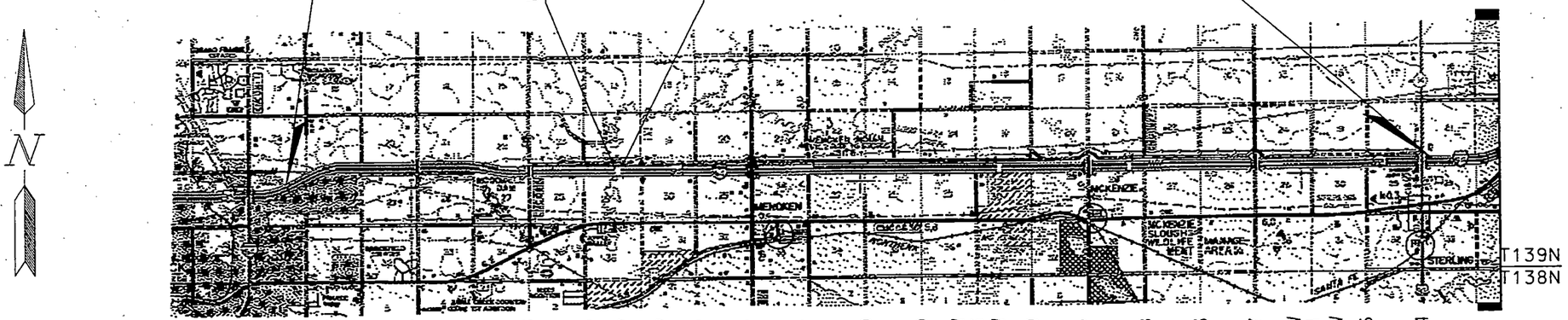
LENGTH OF PROJECT

Miles Gross	Miles Net
20.514	20.477

Begin Project Ref. Pt. 162.360
Sta 8572+96.78 (Old Sta 49+35)
Section 25, T139N, R80W

8873+56.01 — Bridge 0.037 Mile — 8875+51.21

End Project Ref. Pt. 182.874
Sta 9656+04.79 (Old Sta 20+38.08)
Section 21, T139N, R76W



8523+97.92 R80W 8579+13.88 R79W 8633+80.33 8686+85.87 8739+97.71 8792+70.28 8845+18.94 R79W 8897+20.81 R78W 8950+12.56 9003+22.52 9056+09.07 9108+94.40 9161+87.20 R78W 9214+53.53 R77W 9266+05.49 9319+01.87 9371+68.08 9424+47.43 9477+42.87 R77W 9530+24.31 R76W 9582+16.56 9635+36.64

DESIGNER Scott Wickham
DESIGNER
DESIGNER
RECOMMEND APPROVAL May 22 19 98
DESIGN ENGINEER Kathie Bunt

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED

DIVISION ADMINISTRATOR DATE

APPROVED DATE 5-21-98
David K. O. Leer
P.E. 1199
DIRECTOR OF HIGHWAYS AND ENGINEERING
NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

DAVID K. O. LEER REGISTERED PROFESSIONAL P.E. 1199 ENGINEER NORTH DAKOTA

...\d_paving\title.dgn May. 18, 1998 08:46:55

north dakota
state highway department, 600 east boulevard avenue
bismarck, north dakota 58505-0700

ALLEN I. OLSON, GOVERNOR
DUANE R. LIFFRIG, COMMISSIONER
RAY ZINK, CHIEF ENGINEER

November 1, 1984

A D D E N D U M

TO: All prospective bidders on Project No. IR-094-5(33)158, Job No. 4, to be let on November 9, 1984

The following revisions are to be made in the plans for this project.

Plan Revisions:

Remove and discard sheets 2 and 34 from your plans and replace with the enclosed sheets.

Sheet 2 - Revised table of contents (Revision date 10-29-84)

Sheet 34 - Sheet removed because attenuation devices are not needed on this project.

This addendum is hereby incorporated into the bidder's proposal for this project.

Francis G. Ziegler
Construction Engineer

jjb

94-168.101 L & R

JOB# 4

FHWA REGION	STATE	PROJECT	SHEET NO.
8	N.D.	IR-094-5(33)158	1

NORTH DAKOTA

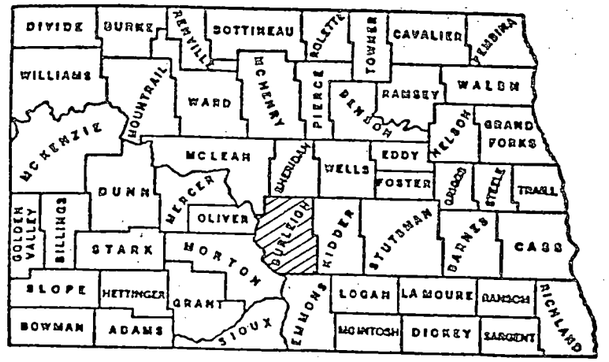
STATE HIGHWAY DEPARTMENT

REPAIR & OVERLAY PORTLAND CEMENT CONCRETE BRIDGE DECKS IN BURLEIGH COUNTY

FEDERAL AID PROJECT NO: IR 094-5(33)158

GOVERNING SPECIFICATIONS:

Standard Specifications adopted by the North Dakota State Highway Department, Oct. 1976 and approved by the Federal Highway Administration on Dec. 17, 1976, and Supplemental Specifications thereto adopted July 1, 1983, and approved by the Federal Highway Administration and other Contract Provisions submitted herewith.



SKETCH-MAP OF NORTH DAKOTA
SHOWING COUNTIES

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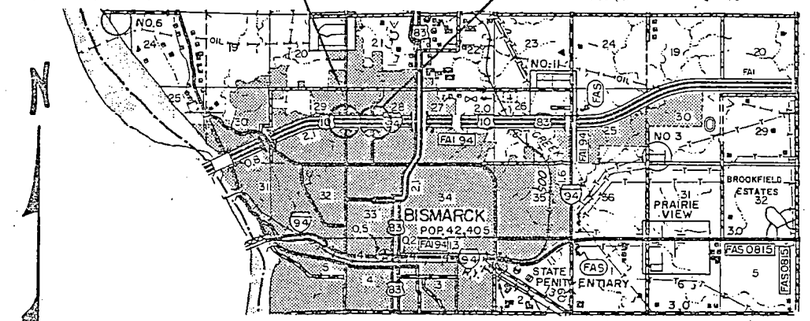
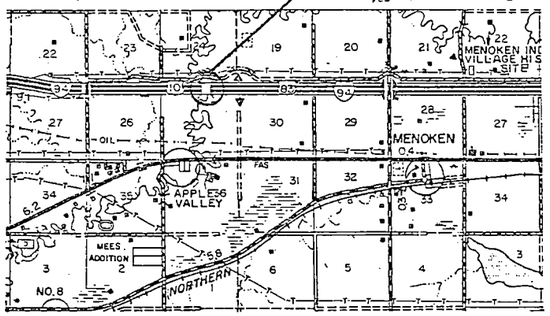
LT. & RT.
1984 6240 6140

94-158.792
LT. & RT.
6240 6140



94-168.101
LT. & RT.
2640 1640



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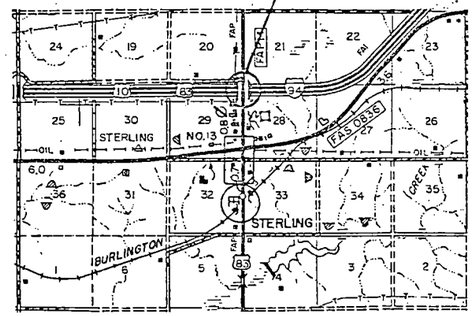


APPROVED DATE 9/2/83

Clifford J Scott

for BRIDGE ENGINEER
NORTH DAKOTA
STATE HIGHWAY DEPARTMENT

CLIFFORD J. SCOTT
REGISTERED PROFESSIONAL
1267.
ENGINEER
NORTH DAKOTA

APPROVED DATE 8-31-84

Ray Zink

CHIEF ENGINEER
NORTH DAKOTA
STATE HIGHWAY DEPARTMENT

RAY ZINK
REGISTERED PROFESSIONAL
P.E. 972
ENGINEER
NORTH DAKOTA

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED

DIVISION ENGINEER DATE

FHWA REGION	STATE	FED. AID PROJ. NO.	SHEET NO.
8	N.D.	IR-094-5(33)158	3

NOTES:

GENERAL
THE CONTRACTOR SHALL NOTIFY THE DISTRICT OFFICE OF THE STATE HIGHWAY DEPT. WELL IN ADVANCE OF ANY WORK REQUIRED TO BE DONE BY THE STATE MAINTENANCE SO AS NOT TO INTERFERE WITH CONTRACTOR'S OPERATIONS.

STRUCTURAL DETAILS OF SPECIFIC STRUCTURES ARE AVAILABLE AT THE DISTRICT OFFICE OR AT THE BRIDGE DIVISION OF THE CENTRAL OFFICE IN BISMARCK.

LIMITS OF CLASS 2 AND 3 OVERLAYS SHALL BE DETERMINED BY THE ENGINEER AND OUTLINED WITH SOME SUITABLE MARKING. THESE AREAS SHALL NOT BE EXPANDED UNLESS APPROVED BY THE ENGINEER.

ANY REINFORCING STEEL THAT IS REPLACED IN THE DECK OR ABUTMENT SHALL BE PAID FOR IN ACCORDANCE WITH SECTION 109-5 OF THE ND STANDARD SPECIFICATIONS FOR ROADS AND BRIDGES. THE LAP LENGTH SHALL BE A MINIMUM OF 30 DIAMETERS. NO WELDED SPLICES WILL BE ALLOWED. THE OVERLAY SHALL BE PLACED OVER ONE-HALF OF THE BRIDGE FROM ROADWAY CENTERLINE TO THE CURB IN ONE CONTINUOUS POUR UNLESS OTHERWISE SHOWN. TRAFFIC SHALL BE MAINTAINED ON THE OTHER HALF OF THE ROADWAY.

CANOPY
SHOULD THE DEPTH OF CONCRETE REMOVAL MAKE IT POSSIBLE FOR THE CHIPPING HAMMER TO PENETRATE THE FULL DEPTH OF THE SLAB, A MEANS OF PROTECTING THE ROADWAY BENEATH THE STRUCTURE FROM FALLING DEBRIS SHALL BE PROVIDED AS DIRECTED BY THE ENGINEER. PAYMENT FOR SUCH PROTECTION WILL BE MADE IN ACCORDANCE WITH SECTION 109.5 OF THE ND STANDARD SPECIFICATIONS FOR ROADS AND BRIDGES.

CONCRETE
THE CONCRETE MIX USED IN THE DECK OVERLAY MAY BE EITHER LOW SLUMP OR LATEX MODIFIED AS SPECIFIED IN THE SPECAIL PROVISIONS. THE CLASS OF CONCRETE PAID FOR WILL BE THAT SHOWN ON THE PLANS. TYPE 1 OR TYPE 2 CEMENT MAY BE USED.

LINSEED OIL TREATMENT
LINSEED OIL TREATMENT SHALL NOT BE STARTED UNTIL ALL CONCRETE WORK IS COMPLETED. ONLY ONE UNIFORM APPLICATION OF .015 GALLONS PER SQUARE YARD SHALL BE APPLIED TO THE DECK.

SHOULDER REPAIR
AREAS OF BITUMINOUS SURFACED SHOULDERS USED TO CARRY TRAFFIC DURING CONSTRUCTION SHALL BE MAINTAINED BY THE CONTRACTOR, AND AFTER COMPLETION OF THE WORK, SHALL BE RESTORED TO SATISFACTORY CONDITION. THE CONTRACTOR WILL BE REIMBURSED AT THE BID PRICE FOR "HOT BIUMINOUS PAVEMENT-SPECIAL" FOR THE HOT MIX USED TO MAINTAIN AND REPAIR THE SHOULDER, THIS PAYMENT WILL CONSTITUTE FULL REIMBURSEMENT FOR ALL MATERIALS, LABOR, AND EQUIPMENT REQUIRED TO MAINTAIN AND REPAIR THE SHOULDERS.

CONSTRUCTION JOINTS
ALL EXISTING CONSTRUCTION OR RELIEF JOINTS, TRANSVERSE OR LONGITUDINAL, SHALL BE CLEANED OUT PRIOR TO THE PLACEMENT OF THE OVERLAY. THE OVERLAY SHALL THEN BE SAW CUT AT THESE LOCATIONS WITHIN 24 HOURS OF PLACEMENT. THE JOINT SHALL THEN BE SEALED WITH HOT POURED ELASTIC TYPE JOINT SEALER 0 INCH TO 1/8 INCH BELOW THE FINISHED PAVEMENT. THE COST OF ANY SUCH WORK SHALL BE INCIDENTAL TO CLASS 1 OVERLAY OR OVERLAY TAPER.

PAINTING
STRUCTURAL STEEL ITEMS SHALL BE SANDBLASTED AND PAINTED AS SPECIFIED IN SP-559. THE STRUCTURE WHICH REQUIRES PAINTING AND THE APPROXIMATE WFIGHT OF STRUCTURAL STEEL ARE AS FOLLOWS:

STRUCTURE	GIRDER LINES	APPROXIMATE WEIGHT
STERLING INT.	4	157,067

SIDEWALK AND SLOPE PROTECTION
THE DESIGNATED PANELS ON THE 4TH STREET AND WASHINGTON STREET STRUCTURES SHALL BE REMOVED AND REPLACED. THE REMOVAL OF THESE PANELS SHALL BE PAID FOR UNDER THE BID ITEM "REMOVAL OF CONCRETE". THERE ARE SEPARATE BID ITEMS FOR THE REPLACEMENT OF THE SLOPE PROTECTION AND THE SIDEWALK.
WHERE THE JOINTS ON THE REMAINING PANELS HAVE SEPARATED, THE VOID SHALL BE FILLED WITH GROUT TO A DISTANCE OF 1/2" BELOW THE TOP OF THE SLOPE PROTECTION. THE REMAINDER OF THE JOINT SHALL THEN BE RESEALED WITH HOT POURED ASPHALT VULCANIZED RUBBER JOINT FILLER AS SPECIFIED IN SECTION 550-4.10.6.1 OF THE STANDARD SPECIFICATIONS. THE HOT POURED ASPHALT SHALL BE PAID FOR ON THE BASIS OF GALLONS USED. THE GROUT SHALL CONSIST OF ONE PART PORTLAND CEMENT TO 3 PARTS SAND. THE UNIT OF PAY FOR GROUT SHALL BE CUBIC FEET. THE PAY ITEMS FOR THIS WORK SHALL INCLUDE ALL LABOR, EQUIPMENT, AND MATERIAL REQUIRED TO COMPLETE THE JOB.

HOT BITUMINOUS PAVEMENT
WHERE SPECIFIED, ASPHALT ADDED TO BRIDGE APPROACHES, ASPHALT TAPERS AND ANY USED ON SHOULDER REPAIR SHALL BE "HOT BITUMINOUS PAVEMENT-SPECIAL". THE TACK COAT IS NOT A SEPARATE PAY ITEM, BUT SHALL BE INCLUDED IN THE PRICE BID FOR HOT BITUMINOUS PAVEMENT-SPECIAL. THE TYPE OF TACK SHALL BE APPROVED BY THE ENGINEER. THE ASPHALT CEMENT WILL BE PAID FOR UNDER BID ITEM 85-100 ASPHALT CEMENT. THE MINIMUM AIR TEMPERATURE AT THE TIME OF LAYDOWN SHALL BE 50 DEGREES F., OR AS APPROVED BY THE ENGINEER. THE HOT BITUMINOUS PAVEMENT SPECIAL SHALL HAVE A GRADATION AS FOLLOWS:

SIEVE	PERCENT PASSING
1/2	100
3/8	90-100
4	60-100
10	50-90
40	5-40
200	0-5

THE TEMPERATURE OF THE HOT BITUMINIOUS PAVEMENT AT DISCHARGE FROM THE MIXER SHALL NOT EXCEED 300 DEGREES F. THE TEMPERATURE OF THE MIX AT LAYDOWN SHALL NOT BE LESS THAN 210 DEGREES F. IF THE AIR TEMPERATURE IS ABOVE 60 DEGREES, AND SHALL NOT BE LESS THAN 225 DEGREES F. IF THE AIR TEMPERATURE IS LESS THAN 60 DEGREES F, THE ACTUAL MIXING TEMPERATURE SHALL BE ADJUSTED AS DIRECTED BY THE ENGINEER WITHIN THE ALLOWABLE LIMITATIONS TO BEST SUIT CONSTRUCTION CONDITIONS.

THE COMPACTION EQUIPMENT FOR PAVING SHALL INCLUDE NOT LESS THAN ONE APPROVED STEEL ROLLER OR APPROVED VIBRATORY ROLLER AND ONE APPROVED PNEUMATIC TIRED ROLLER. THE INITIAL COMPACTION SHALL BE COMPLETED BEFORE THE MAT DROPS BELOW 170 DEGREES F., AND THE SPECIFIED DENSITY SHALL BE OBTAINED BEFORE THE MAT TEMPERATURE DROPS BELOW 140 DEGREES F.

GUARD RAIL AND/OR END POSTS
WITH THE EXCEPTION OF THOSE SPECIFIED, ANY APPROACH GUARD RAIL OR END POSTS REMOVED IN CONNECTION WITH PLACING CURB AND GUTTER SECTIONS, APPROACH TAPERS, OR DECK OVERLAYS SHALL BE FOR THE CONTRACTOR'S CONVENIENCE ONLY. THE COST OF ANY SUCH REMOVAL SHALL BE AT THE CONTRACTOR'S EXPENSE AND THE REMOVED ITEMS SHALL BE REPLACED TO EXISTING CONDITIONS.

SUB-BASE MATERIAL
THE COST OF FURNISHING AND PLACING ANY EXTRA AGGREGATE REQUIRED TO BRING THE REPLACED SLOPE PROTECTION, SIDEWALK AND/OR CURB AND GUTTER TO THE PROPER GRADE SHALL BE PAID FOR AS "CLASS 5 AGGREGATE BASE COURSE".

FENCING
THE FENCING ON THE 4TH STREET AND WASHINGTON STREET STRUCTURES SHALL BE REMOVED AND RESET TO THE LIMITS SHOWN ON THE PLANS OR AS DESIGNATED BY THE ENGINEER.

SHORING
IF THE AMOUNT OF CLASS 3 CONCRETE REMOVAL IN THE AREA OF THE PIERS IS CONSIDERED TO BE ENOUGH TO AFFECT THE STRUCTURAL INTEGRITY OF THE STRUCTURE, SHORING SHALL BE REQUIRED. THIS DETERMINATION WILL BE MADE DURING THE REPAIR OPERATIONS FOR EACH PARTICULAR STRUCTURE BY THE ENGINEER. IF IT IS DETERMINED THAT SHORING IS REQUIRED, THE SUPERSTRUCTURE SHALL BE SUPPORTED BETWEEN THE 1/4 AND 1/3 POINTS OF EACH AFFECTED SPAN. THE CONTRACTOR SHOULD BASE HIS ESTIMATE ON THE USAGE OF SPREAD FOOTINGS OR MUD SILLS. THE SHORING PLAN SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE BEING USED. ADDITIONAL CONCRETE REMOVAL OR PLACEMENT MAY NOT BE DONE UNTIL THE SHORING IS IN PLACE. THE PRICE BID FOR THIS ITEM SHALL INCLUDE ALL LABOR, EQUIPMENT, AND MATERIALS REQUIRED FOR PLACEMENT AND REMOVAL. FOR PAY PURPOSES, "EACH" SHALL MEAN ONE TRANSVERSE LINE OF SHORING.

THE CONTRACTOR SHALL SUBMIT THE FOLLOWING SHOP DRAWINGS FOR APPROVAL BY THE BRIDGE ENGINEER BEFORE FABRICATION:
1. DOUBLE BOX BEAM RAIL

RAIL RETROFIT
RAIL EXPANSION JOINT SPLICE SLEEVES ARE NOT REQUIRED ON THESE BRIDGES. THE EXISTING ORNAMENTAL METAL RAILING SHALL BE REMOVED AND SHALL BECOME THE PROPERTY OF THE CONTRACTOR. ANY HOLES REMAINING AFTER REMOVAL OF THE ORNAMENTAL RAILING SHALL BE FILLED WITH GROUT. THE ENTRANCE END OF EACH BRIDGE HAS SPECIAL CONCRETE BLOCKS ATTACHED TO THE RAIL END POSTS. THESE CONCRETE BLOCKS SHALL BE REMOVED TO FACILITATE THE RAIL RETROFIT AND APPROACH GUARD RAIL. THE WORK TO REMOVE THE ORNAMENTAL RAILING, REMOVE THE CONCRETE BLOCKS AND GROUT THE HOLES SHALL BE INCIDENTAL TO THE BID ITEM "DOUBLE BOX BEAM RAIL RETROFIT".

SUMMARY OF QUANTITIES

SPEC NO.	103	302	406	406	705	746	750	756	900		900	900	900	900	900	550	716	900	900	202	202	704	708	712	740	722	
CODE NO.	0100	0120	0310	0230	0100	0100	0100	0100	8565		9703	9700	9701	9702	9705	0956	0100	8225	8230	0112	0130	0100	0300	0100	0107	3000	
BRIDGE NO.	CONTRACT BOND	AGGR. BASE COURSE CL. 5	85-100 ASPHALT CEMENT	HOT BITUMINOUS PAVEMENT-SPECIAL	MOBILIZATION	FLAGGING	LINSEED OIL	FIELD LABORATORY TYPE "A"	SANDBLASTING & PAINTING		CLASS 2A OVERLAY	CLASS 1 OVERLAY	CLASS 2 OVERLAY	CLASS 3 OVERLAY	OVERLAY TAPER	HOT POURED RUBBERIZED ASPHALT	ADJUST CATCH BASIN	GROUT	SHORING	REMOVAL OF CONCRETE	REMOVAL OF CURB & GUTTER	CONCRETE SLOPE PROTECTION	CURB & GUTTER TYPE 1	CONCRETE SIDEWALK	REMOVE & RESET CHAIN LINK FENCE	DOUBLE BOX BEAM RAIL RETROFIT (BRACED POST)	
	L.S.	TON	TON	TON	L.S.	M. HR.	GAL.	L.S.	L.S.		L.F	S.Y.	S.Y.	S.Y.	S.Y.	GAL.	EACH	C.FT.	EACH	S.Y.	L.F.	S.Y.	L.F.	S.Y.	L.F.	L.F.	
94-158.425 LT WASHINGTON ST. SEP.	1	30	0.3	5	1	30	17	1			215	596	119	30	526	5		25	1	340		210		131	320	290	
94-158.425 RT WASHINGTON ST. SEP.			0.3	5		30	17				215	596	119	30	526	5		25	1							290	
94-158.792 LT 4th ST. SEP.		60	0.3	5		30	17				215	596	119	30	526	5	2	25	1	1100	394	975	394	125	370	290	
94-158.792 RT 4th ST. SEP.			0.3	5		30	17				215	596	119	30	526	5		25	1							290	
94-168.101 LT APPLE CREEK			0.3	5		30	18				280	780	156	39	427				1								
94-168.101 RT APPLE CREEK			0.3	5		30	18				280	780	156	39	427				1								
94-182.488 US 83, STERLING INT.			3.4	57		100	12		1		290	800	160	40												480	
TOTAL	1	90	5.2	87	1	280	116	1	1		1710	4744	948	238	2958	20	2	100	6	1440	394	1,185	394	256	690	1,640	

STANDARD NO.
D-704-2
D-708-1

SPECIAL PROVISIONS

NO.	NAME
SP-102-20	BIDDING REQUIREMENTS AND CONDITIONS
SP-567	REPAIR & OVERLAY OF P.C.C. BRIDGE DECKS WITH LOW SLUMP CONCRETE
SP-565	MINORITY BUSINESS
SP-568	REPAIR & OVERLAY OF P.C.C. BRIDGE DECKS WITH LATEX CONCRETE
SP-559	BRIDGE PAINTING
SP-746-2	FLAGGING

NOTES & QUANTITIES

GENERAL NOTES

FHWA REGION	STATE	FED. AID PROJ. NO.	SHEET NO.
8	N.D.	IR-094-5(33)158	4

CONTRACTOR COORDINATION: The contractor shall coordinate the slope protection and sidewalk work on Washington Street and 4th Street with the city of Bismarck. The city is to replace the street lighting conductors at each location prior to the placement of the slope protection and sidewalks.

25 FOOT DOUBLE RAIL SECTION: The twenty-five foot double rail section is to be reset. The contractor shall punch new holes to fit the post spacing shown on the plans and shall adjust the post and attachment hardware to the new spacing. The contractor shall furnish one post and the necessary hardware that is required for the new post spacing. The cost of punching, furnishing, adjusting post spacing and installing W-Beam Guardrail shall be included in the price bid for "Reset W-Beam Guardrail."

RESET W-BEAM GUARDRAIL: The Engineer shall stake the locations of the "Reset W-Beam Guardrail - 6.25' Post Spacing". The stations for the guardrail are only approximate and shall be established by the engineer. Bent and damaged section shall be removed as directed by the Engineer.

The reflectorized plates shall be furnished by the contractor at the rate shown on the plans and shall not be bid as such but will be considered incidental to the item "Reset W-Beam Guardrail."

The W-Beam Terminal Connector used for attachment to the retrofit bridge rail shall be furnished and installed by the contractor as shown on the plans. Cost of furnishing and installing the connector shall be paid for by the linear foot of "Reset W-Beam Guardrail."

Guardrail used for Reset W-Beam Guardrail and the replacement of bent or damaged sections shall be obtained from salvage and reset as shown on the plans.

The cost of removing, replacing, obtaining, and installing guardrail as shown on the plans shall be included in the price bid for "Reset W-Beam Guardrail - 6.25' Post Spacing."

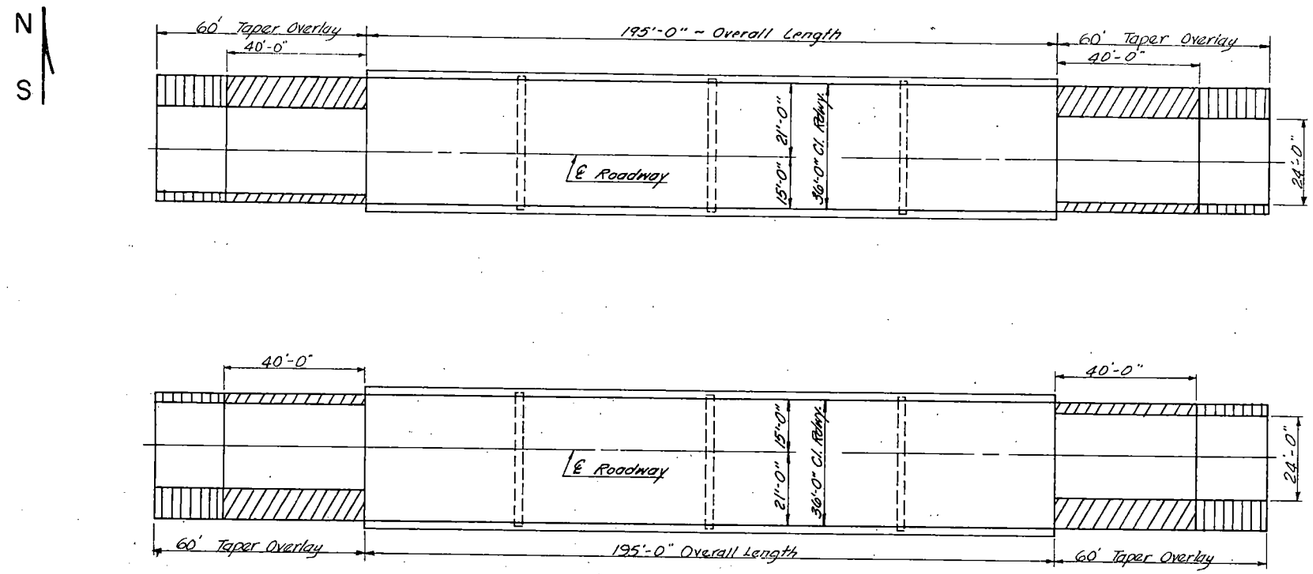
REMOVE W-BEAM GUARDRAIL: The sections of W-Beam Guardrail shown on the plans to be removed shall have the rail, post, and end anchor removed. The removed guardrail, hardware, and posts not used in the reset operation shall be stockpiled on the right of way in location designated by the engineer. The stockpiled material shall remain the property of the state. If, in the opinion of the engineer, the concrete end anchor will not interfere with other construction, they may be cut off 1' (one foot) below ground line and the surface restored to match the surrounding area. The cost of removing the W-Beam Guardrail in areas of reset guardrail shall be considered incidental and shall be included in the price bid for "Reset W-Beam Guardrail - 6.25' Post Spacing." The cost of removing the W-Beam Guardrail in areas where Box Beam Guardrail is to be installed shall be included in the price bid for "Remove Guardrail and Posts."

100 030 UNDERGROUND UTILITIES: The contractor shall notify the local utility companies prior to the beginning of construction, so they may stake location and depth of all utilities in the project area. Subcutting or scarifying over utility lines may be eliminated if, in the opinion of the engineer, a hazardous situation exists. Separate plans, if any, showing relocation or adjustment work to be performed by utility companies to accommodate highway construction will be made available to the contractor, upon request to the engineer.

722 300 EMBANKMENT FOR GUARDRAIL INSTALLATION: The embankment material required for guardrail installation may be obtained from within the right of way with the approval of the Engineer. The existing topsoil shall be removed from the area to be disturbed, stockpiled, and replaced when embankment is completed. The disturbed areas shall be seeded with a seed type approved by the Engineer. Compaction of the embankment shall be in accordance with Section 203-2.5 of the Standard Specifications. The inslopes in areas that are to be widened shall be benched in accordance with Section 203-2.2.2 of the Standard Specifications unless otherwise directed by the Engineer. All existing drainage patterns shall be maintained. This may involve some excavation and ditch widening. Embankment shall be measured using the average end area method and paid for by the cubic yard of embankment in place. The cost for any excavation to maintain the drainage patterns and for benching, seeding, salvaging, stockpiling, and spreading of topsoil shall be included in the price bid for "Embankment, Type C."

SHEET REVISED
10-3-84

CODE	FHWA REGION	STATE	FED. AID PROJ. NO.	SHEET NO.
X-021	8	N.D.	IR-094-5(33)158	11



PLAN
36'-0" Clear Roadway

NOTE:
There are 16 deck drains on each bridge.

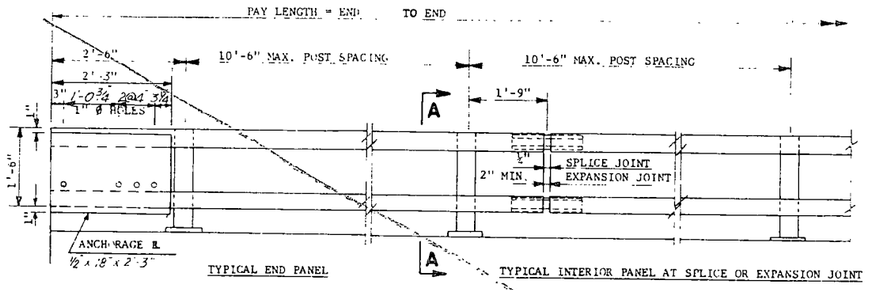
Asphalt shall be removed from top of concrete & surface cleaned. It shall then be brought to grade with overlay material. Removal & extra thickness shall be incidental to "Overlay Taper".

Asphalt shoulders shall be brought to grade with asphalt. To be paid for as "Hot Bituminous Pavement - Special".

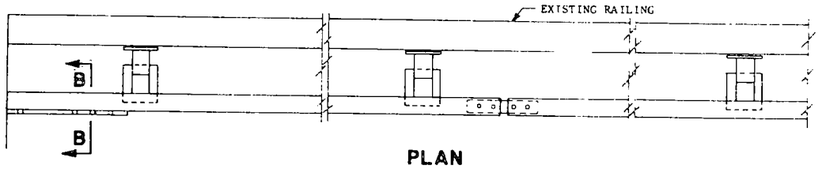
APPLE CREEK

L.T. & R.T. 94-168.101-7

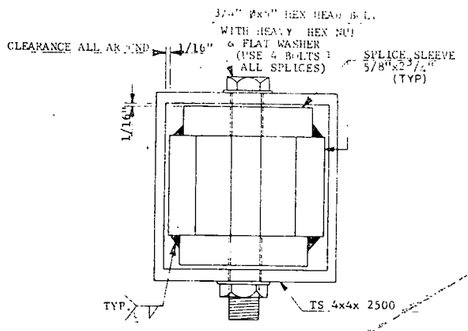
FHWA REGION	STATE	FED AID PROJ. NO.	SHEET NO.
8	N. D.	IR-094-5(33)158	12



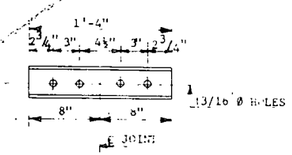
ELEVATION



PLAN



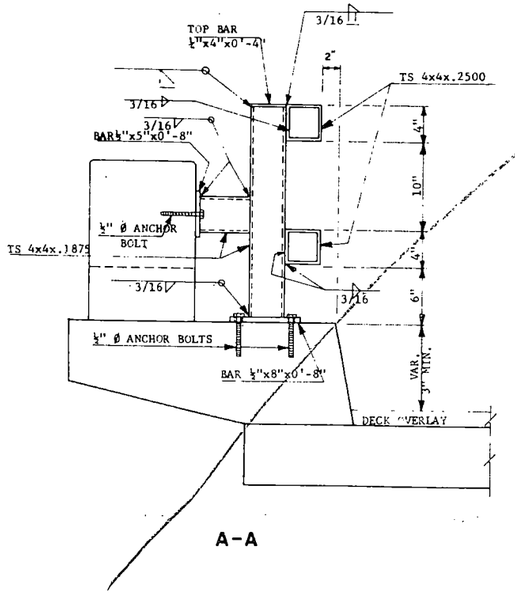
RAIL SPLICE



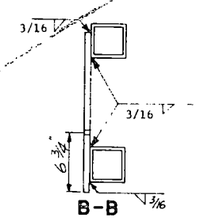
SPLICE SLEEVE AT SPLICE

NOTES:

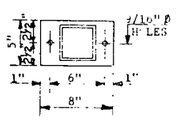
1. THE BID ITEM SHALL BE "DOUBLE BEAM RAILING RETROFIT". THE PAY LENGTH SHALL BE END TO END AND SHALL BE IN LINEAL FEET.
2. THE RAILING, POSTS AND POST SUPPORTS SHALL CONFORM TO ASTM A500, COLD-FORMED WELDED AND SEAMLESS CARBON STEEL STRUCTURAL TUBING IN ROUNDS AND SHAPES, GRADE B. THE POST TOPS, POST BASE, SUPPORT BASE, SHIMS AND ANCHORAGE PLATES SHALL CONFORM TO ASTM A36 STRUCTURAL STEEL.
3. THE ANCHOR BOLTS MUST BE ABLE TO DEVELOP IN TENSION THE EQUIVALENT OF A ¾" Ø A325 BOLT. THE ANCHOR BOLTS MAY BE MECHANICAL TYPE, GROUT-IN TYPE OR OTHER TYPE THAT CAN DEVELOP THE REQUIRED TENSION IN THE EXISTING CONCRETE.
4. THE TRAFFIC FACE OF THE POST SHALL BE INSTALLED VERTICAL. THE POSTS SHALL BE PERPENDICULAR TO THE TOP OF THE CURB IN THE OTHER DIRECTION. STEEL POST SHIMS MAY BE USED UNDER POSTS WHERE REQUIRED FOR PROPER ALIGNMENT.
5. RAILS SHALL BE FABRICATED SO THAT EACH RAIL IS ATTACHED TO A MINIMUM OF 2 POSTS AND A MAXIMUM OF 4 POSTS
6. THE BOX BEAM RAILING RETROFIT SHALL BE FABRICATED AND GALVANIZED ACCORDING TO SECTION 850-6 OF THE STANDARD SPECIFICATIONS.
7. THE SPLICE JOINT GAP SHALL ALWAYS BE ½". THE EXPANSION JOINT GAP SHALL BE 2" UNLESS OTHERWISE SHOWN ON THE BRIDGE PLANS.



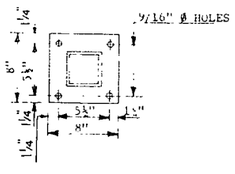
A-A



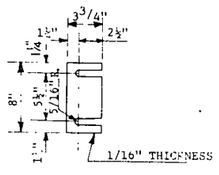
B-B



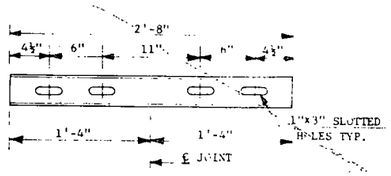
SUPPORT BASE DETAIL



POST BASE DETAIL



POST SHIM



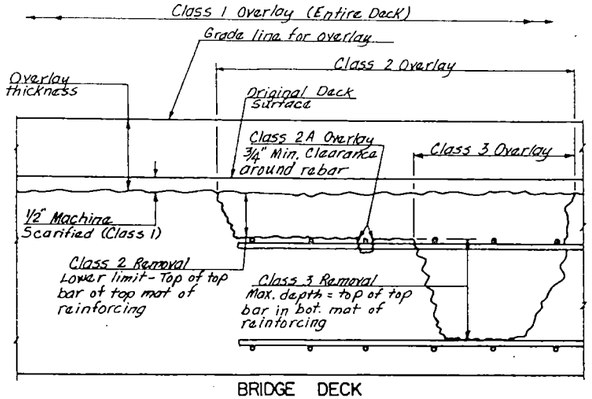
SPLICE SLEEVE AT EXPANSION JOINT

WASHINGTON ST. SEP. 94-158.425 LT. & RT.
4TH ST. SEP. 94-158.792 LT. & RT.

DOUBLE BOX BEAM RAIL RETROFIT

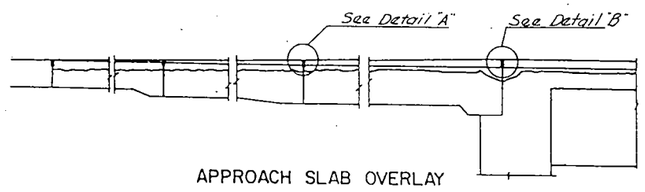
(BRACED POST)
END ATTACHMENT TO W-BEAM GUARDRAIL

FHWA REGION	STATE	FED. AID PROJ. NO.	SHEET NO.
8	N. D.	IR-094-5(33)158	15

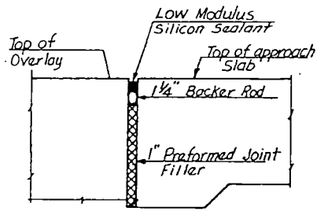


BRIDGE DECK
(Overlay classifications)

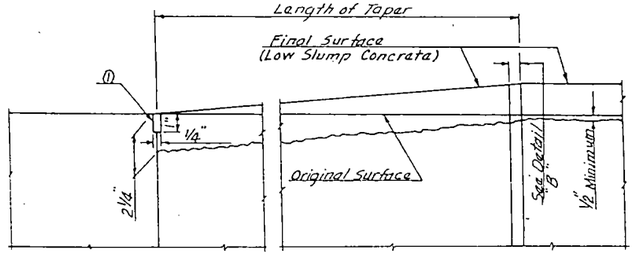
Class 4 Removal shall be below limits of Class 3 Removal to full depth



APPROACH SLAB OVERLAY

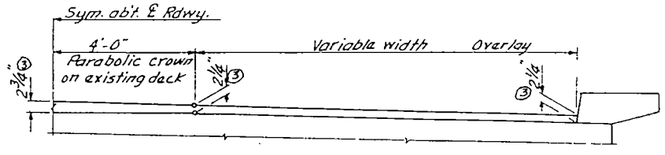


DETAIL AT END OF BRIDGE

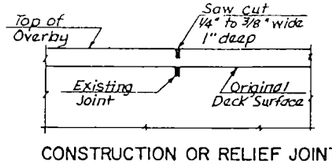


DETAIL "A"
Overlay existing approach slabs only

① To be filled with hot poured joint filler



ELEVATION



CONSTRUCTION OR RELIEF JOINTS
(TRANSVERSE & LONGITUDINAL)
Incidental to Class 1 Overlay or Overlay Taper

OVERLAY DETAILS

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
8	N. D.	I-94-5(11)167	1	37

NORTH DAKOTA
STATE HIGHWAY DEPARTMENT

PLANS

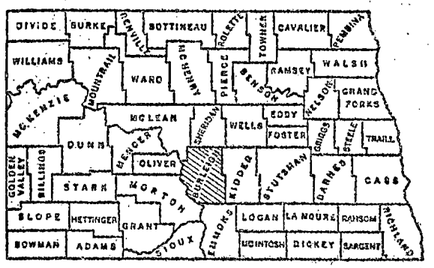
FOR THE PROPOSED IMPROVEMENT OF A

STATE HIGHWAY

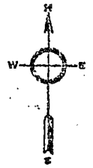
IN BURLEIGH COUNTY

FEDERAL AID PROJECT NO. I-94-5(11)167

STRUCTURAL



SKETCH-MAP OF NORTH DAKOTA SHOWING COUNTIES



SCALES
- LAYOUT SHEET: 1 IN. = 5000'
- PLAN AND PROFILE DRAWINGS: HOR. 1 IN. = 100 FT. / 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

INDEX OF DRAWINGS

LENGTH OF PROJECT		
PROJECT	MILES-GROSS	MILES-NET
I-94-5(11)	9.136	0.093
TOTALS	9.136	0.093

DESIGN DATA

TRAFFIC	AVERAGE DAILY	EST. 30TH MAX. HR.
CURRENT TRAFFIC (1964)	2210 PASS. 390 TRUCKS 2600 TOTAL	390
TRAFFIC FORECAST (1984)	5730 PASS. 1010 TRUCKS 6740 TOTAL	1010

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.

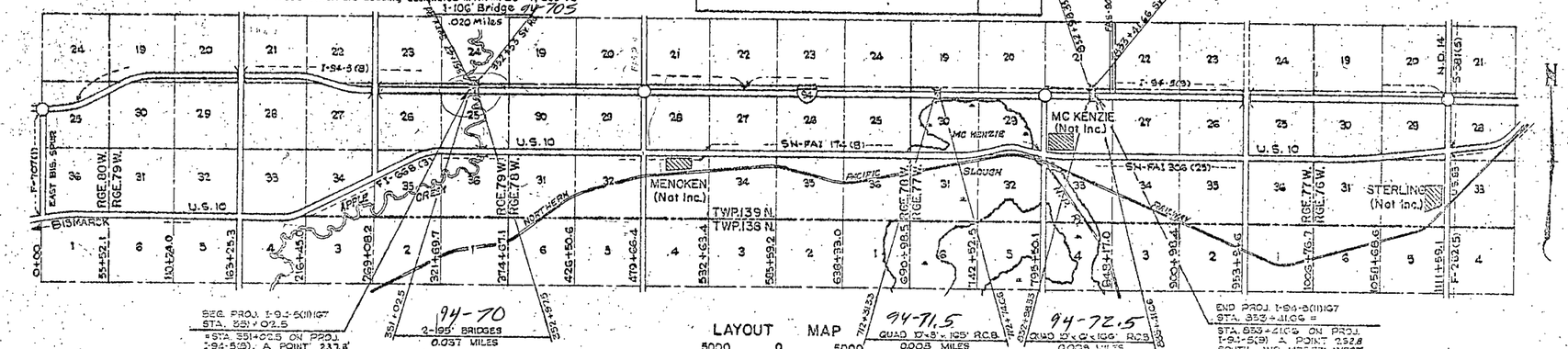
STA.	CLEAR ROADWAY WIDTH	DESIGN LOADING
352+00 ℄	36' (2-Bridges)	HS 20 (1961)
352+00 Lt	18'	H 10 (1961)
712+53 ℄		* H 20S16 (1949)
833+20 ℄		* H 20S16 (1957)
833+20 ℄		H 20S16 (1957)

* ALSO Alternate Loading designated in P.P.M. 20-4, Sec 4C

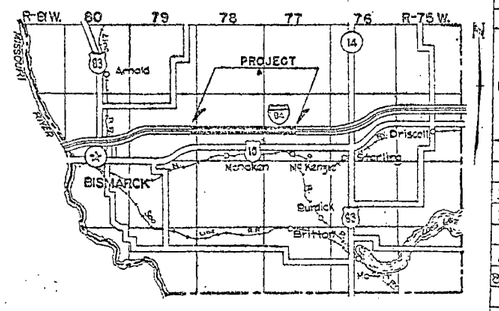
LIST OF SPECIAL PROVISIONS	
NAME	NO.
Gravel Sub-base	62B
Backfill	76A
Const. Equipment Requirements	B2E&F
Concrete Bridge Construction	88A
Portland Cement Concrete	89A
Reinforcing Steel	90
Excavation for Culverts & Bridge	100A
Piling	102A
Linseed Oil Treatment	106A
Structural Steel	67C
Steel Piling	69A
Embankment	73B
Foundation Fill	112

LIST OF STRUCTURAL DRAWINGS

94-70	94-70S-3	H-3170-1	350108-1
94-70-1	94-70S-4	H-3170-2	350108-2
94-70-2	H-0131	H-3246	
94-70-3	H-0132	H-3346	
94-70S	H-0401	350106-1	
94-70S-1	H-0501	350106-2	
94-70S-2			



LAYOUT MAP
5000 0 5000
SCALE IN FEET



SKETCH MAP OF PART OF BURLEIGH COUNTY

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.

Note: Class I Excavation includes Excavation necessary for installation of Foundation Fill

QUANTITIES

LOCATION	15A CLASS 1 EXCAVATION	1G WATER	60A CLASS AE-2 CONCRETE	62A REINFORCING STEEL (INTERMEDIATE GRADE)	15B Class 2 Excavation	15C Class 3 Excavation	15D Class 4 Excavation	29A Pit Run Gravel Sub-Base Class 5A	63A Structural Steel	65E Steel Encased Concrete Piling	65M Steel Encased Concrete Test Piles	Move Existing Structure	72D LOOSE ROCK RIP RAP	BRIDGE BENCH MARKS	81 Ornamental Metal Railing	Linseed oil treatment	18 FOUNDATION FILL	908 CAMP PROOFING 2 COATS
										12¾" x .312"	12¾" x .312"							
	Cu. Yd.	"M" Gal.	Cu. Yd.	Lbs.	Cu. Yd.	Cu. Yd.	Cu. Yd.	Cu. Yd.	Lbs.	L.F.	No.	STA.	CU. YD.	SET	L.F.	Gal.	Cu. Yd.	Sq. Yd.
352+00 ℄		151	1117.6	252,318	180	172	14,300	164	4872	3150	5		500	1	738	86		
352+00 Lt.			91.0	11,823	120		4,650		4007	780	1	349+83.5 Lt. TO 352+00 Lt.	550					
712+53 ℄	1591		649.6	83,470													1583	53.93
833+20 ℄	1600		598.2	83,789													1384	53.00
833+20 ℄ Ser Rd.	690		151.1	20,948													100	14.00
TOTAL	3881	151	2607.5	457,348	310	172	18,950	164	8879	3930	6	LUMP SUM	1050	1	738	86	3077	120.93

GOVERNING 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 GRADE ELEVATION
- 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

LIST OF STANDARDS

BRIDGE BENCH MARKS STD 7.6
FEDERAL AID NAME PLATE STD 14.9
STANDARD SIGNS STD. 14.1 A-1 & 2

APPROVED DATE 9-28-64

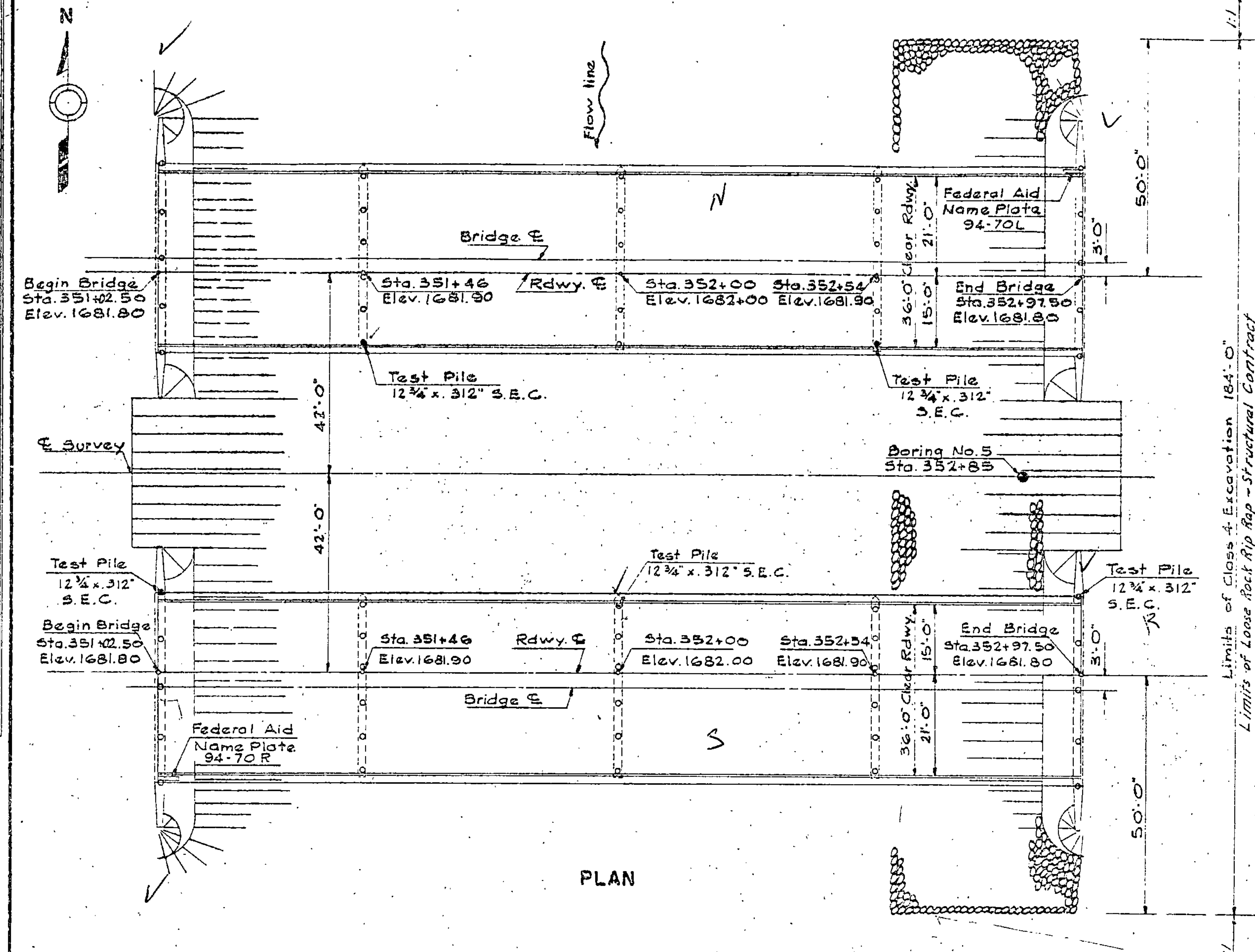
CHIEF ENGINEER
NORTH DAKOTA STATE
HIGHWAY DEPARTMENT

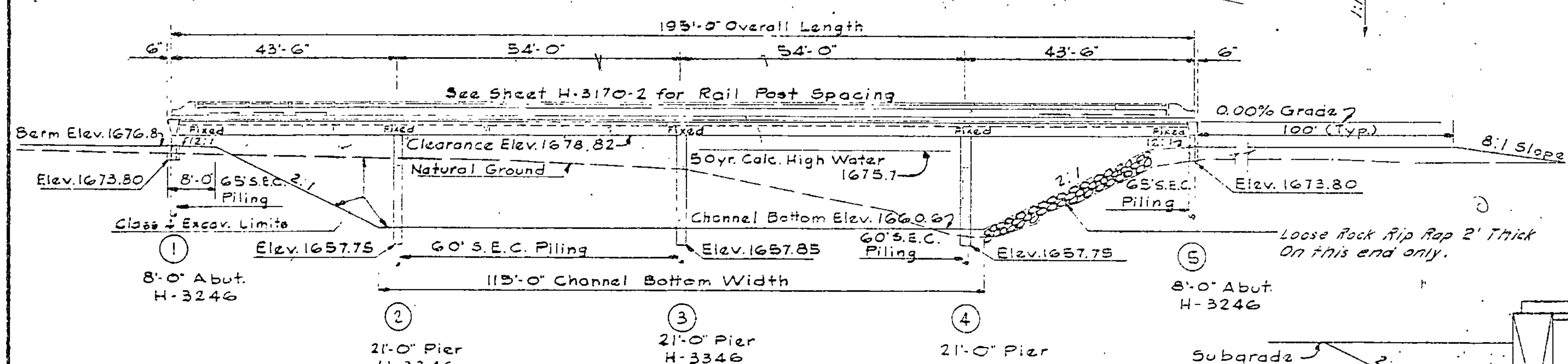
DEPARTMENT OF COMMERCE
BUREAU OF PUBLIC ROADS

APPROVED

DIVISION ENGINEER DATE

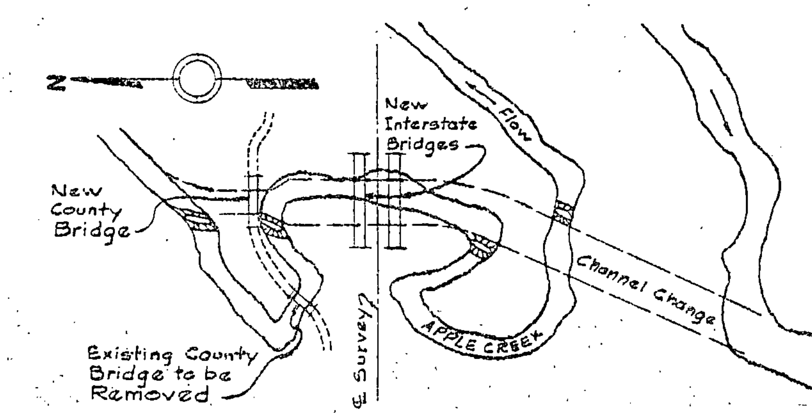
BRIDGE CODE	FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
X-021	5	N. D.	I-94-5(11)		8	37





ELEVATION

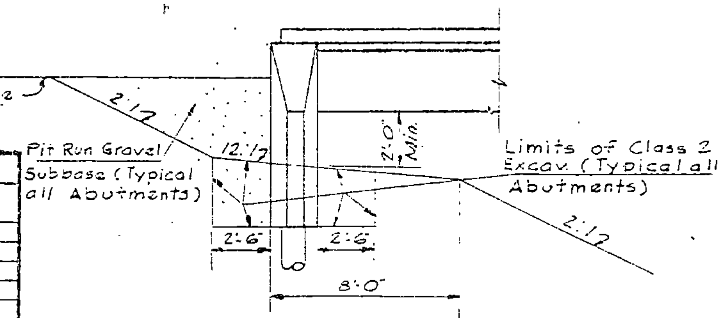
Cost #8.71/□'



AREA SKETCH

1965
FEDERAL AID
PROJECT
I-94-5(11)
NORTH DAKOTA
94-70L

FEDERAL AID NAMEPLATE
ONE REQ'D. WITH 94-70L
ONE REQ'D. WITH 94-70R



ELEVATION AT ABUTMENT

Note:
Pier excavation below the channel bottom shall be considered Class 3 excavation.

***HS20 and Alternate Loading as Designated in PPM 20-4, Section 4C

ESTIMATE OF QUANTITIES

SPEC. NO.	BID ITEM		
	REMOVING EXISTING STRUCTURE AT STA.		
15A	EXCAVATION CLASS 1		CU. YD.
15B	" CLASS 2	190	CU. YD.
15C	" CLASS 3	172	CU. YD.
15D	" CLASS 4	14,300	CU. YD.
29A	PIT RUN GRAVEL SUBBASE (CLASS 5A)	164	CU. YD.
60A	CONCRETE CLASS AE-2	1,117.6	CU. YD.
15	WATER FOR COMPACTION	151	"M" GAL.
62A	REINFORCING STEEL (INTERMEDIATE GRADE)	252,318	LB.
63A	STRUCTURAL STEEL	4,872	LB.
64A	UNTREATED TIMBER		M.B.M.
64B	TREATED TIMBER		M.B.M.
65E	S.E.C. PILING (12 3/4" x .312") 33 @ 60 FT. 18 @ 65 FT.	3,150	LIN. FT.
65M	S.E.C. TEST PILES (12 3/4" x .312") at 80 FT.	5	EACH
65K			
65L	TREATED TIMBER TEST PILES		EACH
720	LOOSE ROCK RIP RAP	500	CU. YD.
84	TEMPORARY CROSSING AND DETOUR		
	BRIDGE BENCH MARKS	1	SET
Δ	LINSEED OIL TREATMENT	86	GAL.
81	ORNAMENTAL METAL RAILING	733	LIN. FT.
	Δ SEE SPECIAL PROVISIONS		

STRUCTURAL DRAWINGS

GENERAL DRAWING (THIS SHEET) 94-70-1, 94-70-2

SUBSTRUCTURE H-3346, H-3246, H-0401, & 94-70-3

SUPERSTRUCTURE H-3170-1, H-3170-2, H-0131, H-0132, & H-0501

DESIGN LOADING	SCALE
HS 20 (1961) ***	1 INCH = 15 FEET

LIST OF SPECIAL PROVISIONS

NAME	NO.
Gravel Subbase	623
Backfill	76A
Const. Equipment Requirements	82 & 87
Concrete Bridge Const.	83A
Portland Cement Concrete	89A
Reinforcing Steel	90
Excav. for Culverts & Br.	100A
Piling	102A
Linseed Oil Treatment	106A
Structural Steel	67C
Steel Piling	69A
Embankment	73B

BENCH MARKS

NO.	DESCRIPTION	LOCATION	ELEV.
31	Ir. Pipe 2x2 gds on Fn. L.	Sta. 341+35-207' Lt.	1689.66
32	Spot on S.E. Cor. Steel Br.	Sta. 348+06-234' Lt.	1675.16
33	Ir. Pipe by P.P.	Sta. 357+10-207' Lt.	1672.29

PILE LOADING

LOCATION	DEAD LOAD	LIVE LOAD	**	WIND 50 LB.	WIND 15 LB.	WIND 100 LB. L.L.	DESIGN LOAD	MAXIMUM REQUIRED BEARING	*MINIMUM PENETRATION
Abutments	25.1T	14.4T	10.5T				50.0T	65.0T	45'
Piers 2 & 4	53.1T	20.0T					73.1T	85.0T	30'
Pier 3	53.3T	20.0T					73.3T	86.0T	30'

** Design load increased to account for possible future down-drag due to settlement of fill.

* Below bottom of footing in feet.

NORTH DAKOTA
STATE HIGHWAY DEPARTMENT

APPLE CREEK
BRIDGE LAYOUT

PROJECT I-94-5(11) STA. 352+00

BURLEIGH COUNTY

APPROVED

9-25-64 (DATE) Joseph R. Kirby (BRIDGE ENGINEER)

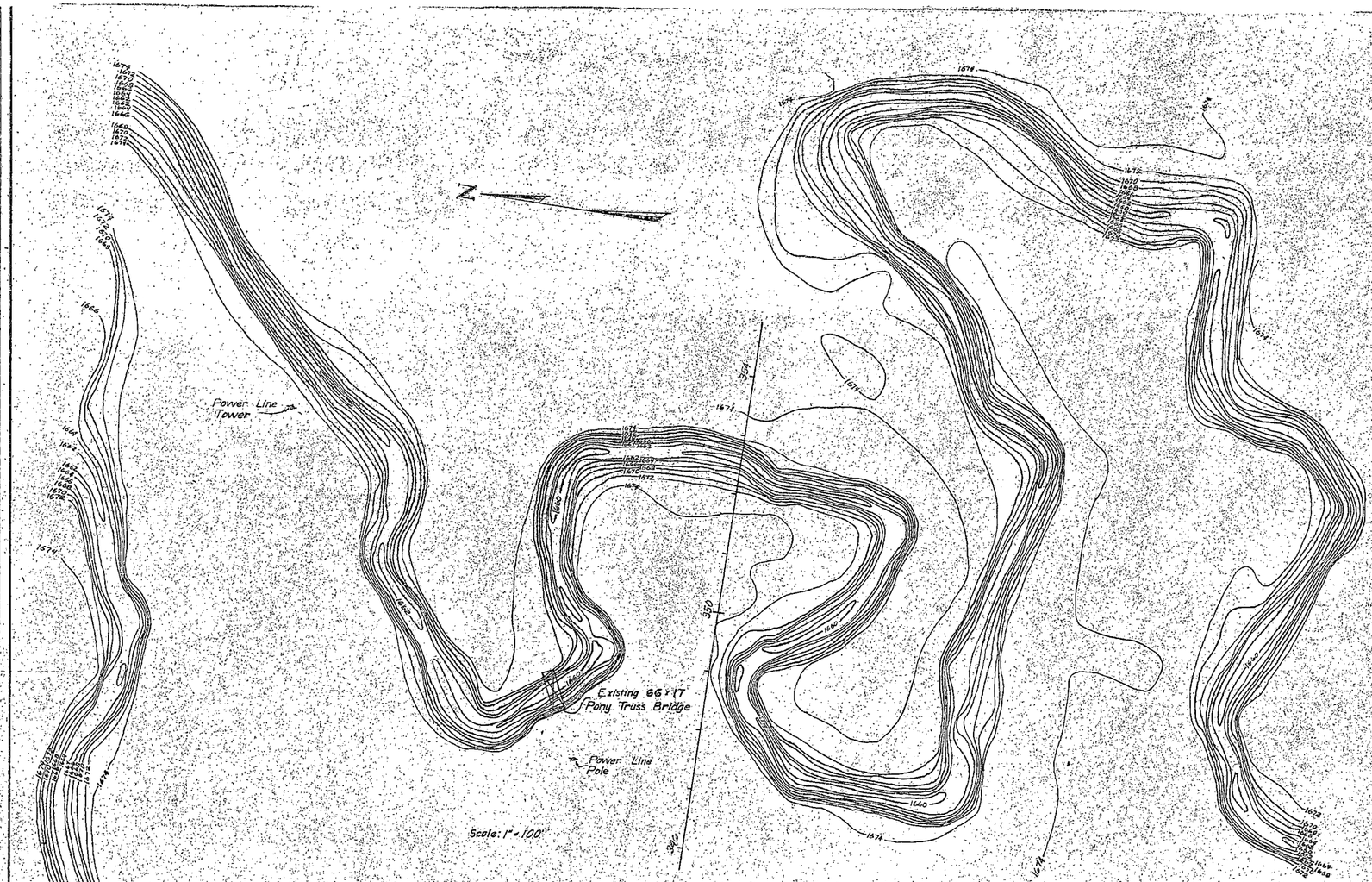
REVISIONS	MADE BY	CHK'D BY	DATE

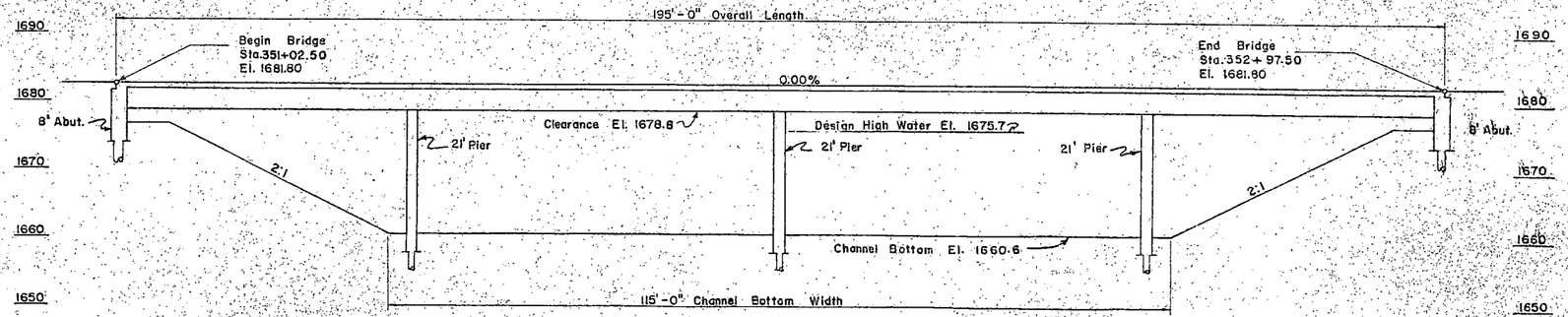
TOPOGRAPHY	PLOTTED BY / CHECKED BY: R.L.A. & D.E.B.
DETAILS	MADE BY / CHECKED BY: D.E.B. / A.P.J.
TRACING	MADE BY / CHECKED BY: D.L.V.
QUANTITIES	CHECKED BY: E.W.H.

FED ROAD DIV. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
8	N. D.	I-94-5(11)		9	37

	REVISIONS	MADE BY	CHK'D BY	DATE

DESIGN	MADE BY	
	CHECKED BY	
DETAILS	MADE BY	W.F.S.
	CHECKED BY	
TRACING	MADE BY	
	CHECKED BY	
QUANTITIES	MADE BY	
	CHECKED BY	





ELEVATION OF PROPOSED BRIDGES

Scale: 1" = 10'

HYDRAULIC DESIGN DATA:

DRAINAGE AREA, CONTRIBUTING	680 SQ. MI.
DESIGN FREQUENCY	50 YEAR
DESIGN DISCHARGE, Q50	10,675 C.F.S.
NATURAL STREAM GRADIENT	0.0006485 FT/FT.
AVERAGE STREAM VELOCITY	1.2 F.P.S.
VELOCITY UNDER BRIDGE	4.95 F.P.S.
DEPTH OF FLOW	15.1 FEET
WATERWAY PROVIDED BELOW CALC. HIGH WATER	2155 SQ. FT.
WATERWAY PROVIDED BELOW CLEARANCE	2709 SQ. FT.
FREEBOARD PROVIDED	3.0 FT.
MINIMUM WATER ELEVATION	STREAM INTERMITTENT

DESIGN CRITERIA:

TYPE	4 SPAN CONTINUOUS MODIFIED T BEAM
DESIGN LOADING	H20 S16
ROADWAY WIDTH	36'-0" CLEAR WITH 1'-11" CURBS
RAILINGS	CONCRETE PARAPET WITH METAL RAIL
ABUTMENTS	8' ROCKING WALL TYPE
PIERS	21' WALL TYPE W/ STEEL ICE NOSE

BRIDGE NO. 94-70

APPLE CREEK

TOPOGRAPHIC LAYOUT

PROJ. NO. I-94-5(11) STA. 352+00

BURLEIGH COUNTY

94-70-1

94-70-1

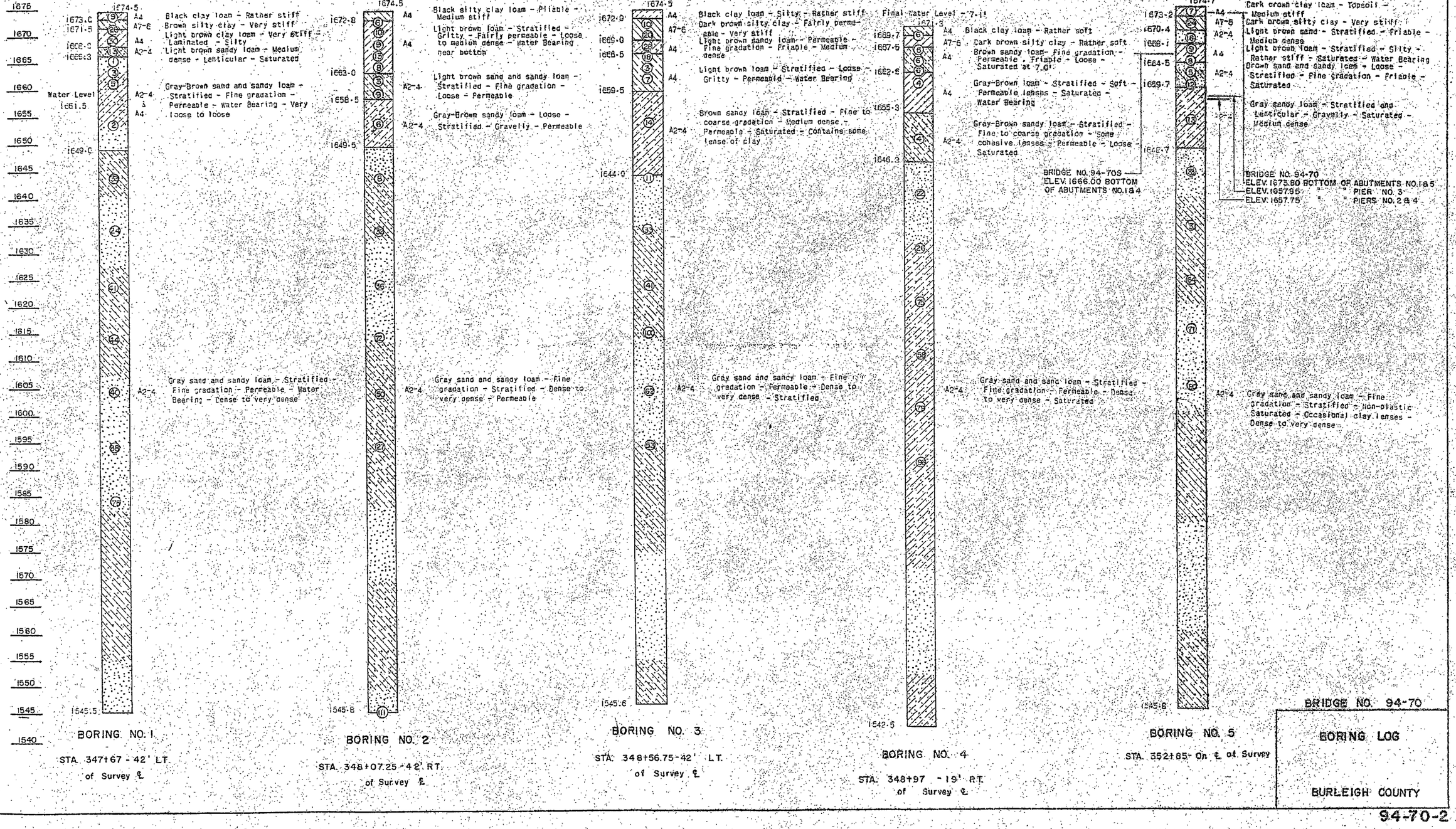
KDE 158

FED. ROAD DIST. NO.	STATE	SHEET NO.	TOTAL SHEETS
5	N.D.	10	37

NOTE:

Encircled numbers indicate the number of blows delivered by a 140 lb. hammer from a height of 30" to drive core tube 1.0'.

The boring log shown is for design purposes only. The State assumes no responsibility if soil condition encountered during construction differ from those shown.



BRIDGE NO. 94-70

BORING LOG

BURLEIGH COUNTY

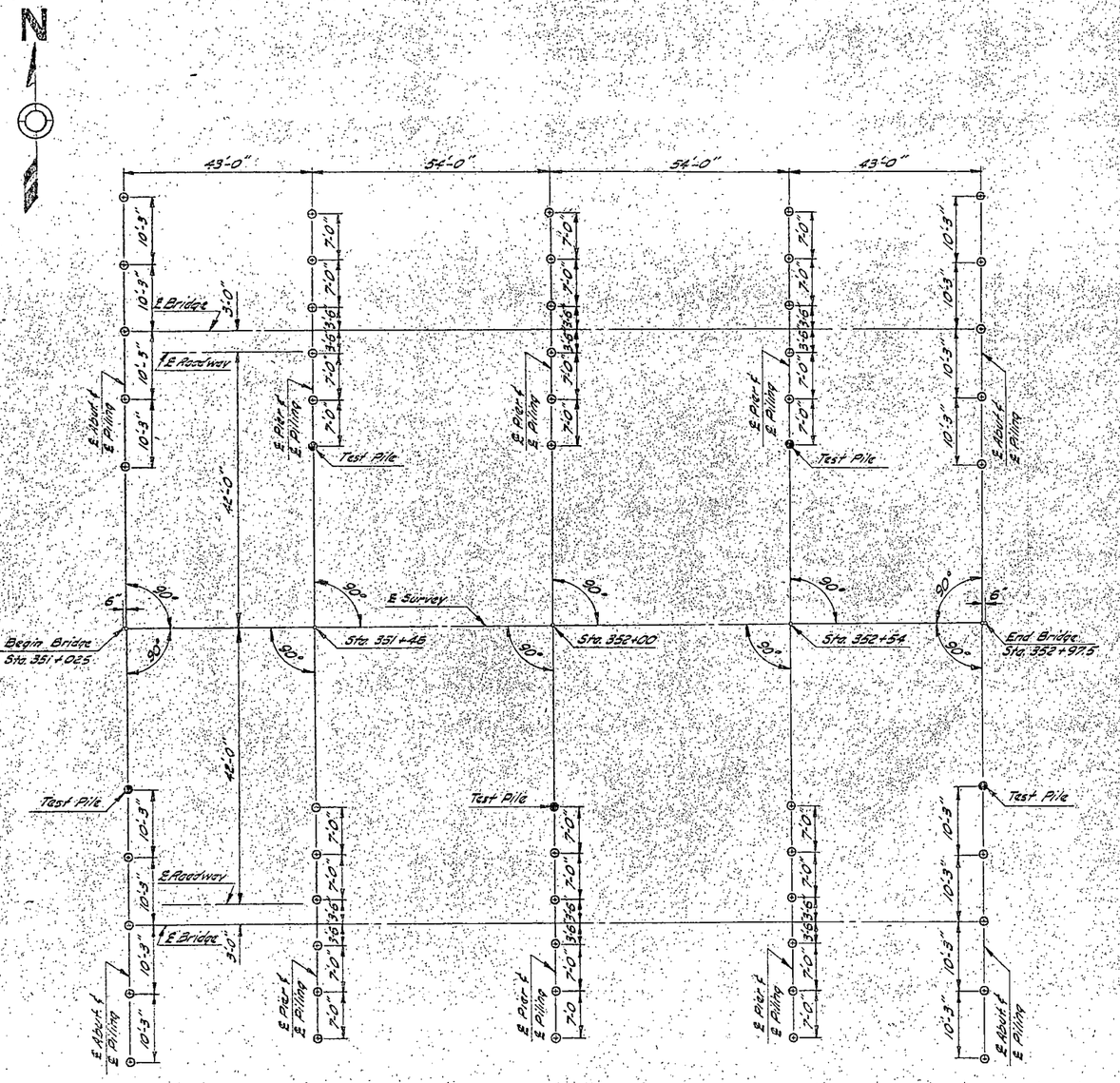
94-70-2

94-70-2

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	N.D.	F-03-5(17)		11	37

	MADE BY	CHKD BY	DATE
REVISIONS			

	MADE BY	CHECKED BY
DESIGN	R.J.J.	
DETAILS	MADE BY	CHECKED BY
	D.K.S.	
TRACING	MADE BY	CHECKED BY
	R.E.S.	
QUANTITIES	MADE BY	CHECKED BY
	D.K.V.	



PLAN VIEW

NOTE:
℄ Bridge is offset 3'-0 right of roadway

GENERAL:

THE COST OF FURNISHING AND PLACING DAMPPROOFING, ASPHALT CURB SEAL, NAME PLATES, END POST PIPE SLEEVES, CURB SLEEVES, AND OTHER MISCELLANEOUS ITEMS SHALL BE INCLUDED IN THE PRICE BID FOR CLASS AE-2 CONCRETE.

CONCRETE:

ALL EXPOSED EDGES OF CONCRETE SHALL BE BEVELED WITH 3/4" F TRIANGULAR MOLDING UNLESS OTHERWISE NOTED.

THE "RUBBED SURFACE FINISH" WILL BE REQUIRED FOR THE ROADWAY AND OUTSIDE VERTICAL FACES OF CURBS, EDGE OF SLAB, ALL FACES OF PARAPETS AND END POSTS, OUTSIDE VERTICAL FACES OF EXTERIOR BEAMS, AND TO ALL EXPOSED WING FACES OF ABUTMENTS. ALL OTHER SURFACES SHALL BE GIVEN THE "ORDINARY SURFACE FINISH". IF THE CONCRETE SURFACE OF THE ABUTMENT WING WALLS AND FACES OF EXTERIOR BEAMS HAVE A SURFACE FINISH ACCEPTABLE TO THE ENGINEER WITHOUT RUBBING, THE REQUIREMENT FOR "RUBBED SURFACE FINISH" MAY BE WAIVED AT THE OPTION OF THE ENGINEER AND THE "ORDINARY SURFACE FINISH" WOULD APPLY. ALL "ORDINARY SURFACE FINISH" SHALL BE COMPLETED WITHIN 24 HOURS AFTER REMOVAL OF FORMS.

ALL CONCRETE WILL BE CLASS AE-2 AND SHALL BE COMPACTED BY VIBRATION.

THE DECK SLAB CONCRETE SHALL BE STRUCK OFF AND COMPACTED BY AN APPROVED DECK FINISHING MACHINE.

THE CURB SHALL BE PLACED IN SECTIONS AS SHOWN ON THE SUPERSTRUCTURE DETAILS.

ALL WORK SHALL COMPLY TO SEC. 55 OF THE STANDARD SPECIFICATIONS.

RAILING:

DETAILS AND SPECIFICATIONS ARE INCLUDED FOR TWO TYPES OF ORNAMENTAL METAL RAILING (ALUMINUM, H-0132 AND STEEL, H-0131). THE TYPE TO BE USED IS THE CONTRACTOR'S OPTION.

EMBANKMENT:

THE EMBANKMENT IN FRONT AND IN BACK OF EACH ABUTMENT SHALL BE PLACED TO THE BERM ELEVATION BEFORE CLASS 2 EXCAVATION IS REMOVED AND THE PILES DRIVEN.

ALL PILOT HOLES DRILLED FOR PILING, BUT NOT COMPLETELY FILLED BY THE PILES, SHALL BE BACKFILLED WITH SAND OR GRAVEL BEFORE THE SUBSTRUCTURE IS PLACED.

THE PIT RUN GRAVEL SUBBASE SHALL NOT BE PLACED ABOVE THE BERM ELEVATION UNTIL THE SUPERSTRUCTURE DECK HAS BEEN PLACED.

EXCAVATION:

EXCAVATION CLASS 2 AT THE ABUTMENTS SHALL EXTEND FROM THE BOTTOM OF THE FOOTING TO THE UPPER LIMITS AS SHOWN ON THE BRIDGE LAYOUT.

EXCAVATION CLASS 3 AT THE PIERS EXTEND VERTICALLY FROM THE BOTTOM OF THE FOOTING TO THE CHANNEL BOTTOM. THE HORIZONTAL LIMITS SHALL BE IN ACCORDANCE WITH SEC. 158 OF THE STANDARD SPECIFICATIONS.

CLASS 4 EXCAVATION, THE LIMITS OF WHICH ARE SHOWN ON THE BRIDGE LAYOUT SHEET, SHALL BE PLACED AS ROADWAY EMBANKMENT OR STOCKPILED FOR EXISTING CHANNEL BACKFILL OR BOTH AS DIRECTED BY THE ENGINEER.

PILING:

THE PILE LENGTHS SHOWN ON THE PLANS FOR EACH SUBSTRUCTURE UNIT ARE APPROXIMATE LENGTHS ONLY, BASED ON THE ENGINEER'S ESTIMATE OF CONDITIONS, AND ARE NOT TO BE CONSTRUED AS FINAL PAY LENGTHS. FINAL PILE LENGTHS IN PLACE SHALL BE DETERMINED BY DRIVING EACH PILE TO DRIVING BEARING EQUAL TO AT LEAST THE DESIGN PILE LOAD BUT NOT NECESSARILY MORE THAN THE MAXIMUM REQUIRED BEARING SHOWN UNLESS: (1) THE MINIMUM PENETRATION HAS NOT BEEN REACHED; (2) THE CONTRACTOR IS OTHERWISE INSTRUCTED BY THE ENGINEER.

PILE HAMMER:

THE STEEL PILES FOR THIS STRUCTURE SHALL BE DRIVEN BY A STEAM, AIR, OR DIESEL HAMMER.

THE HAMMER DRIVING ALL PILING FOR THIS STRUCTURE SHALL HAVE A RAM (STRIKING PART) WEIGHING NOT LESS THAN 4800 LBS AND DEVELOPING NOT LESS THAN 22,000 FOOT-LBS. OF ENERGY.

REINFORCING STEEL:

DIMENSIONS FOR BENT BARS ARE GIVEN CENTER TO CENTER UNLESS OTHERWISE NOTED.

THE BAR FABRICATOR SHALL ADD A PREFIX TO ALL BAR DESIGNATIONS TO DIFFERENTIATE BETWEEN THE SEVERAL PARTS OF THE STRUCTURE OR STRUCTURES.

DAMAGE TO UNDERGROUND UTILITIES:

THE CONTRACTOR SHALL USE SPECIAL CARE TO PREVENT DAMAGE TO ALL PIPES, CABLES, AND OTHER UNDERGROUND UTILITY FACILITIES. THE CONTRACTOR SHALL REPAIR, AT HIS OWN EXPENSE, ANY DAMAGE TO UNDERGROUND UTILITY FACILITIES RESULTING FROM ANY ACT OR OMISSION ON HIS PART, REGARDLESS OF WHETHER OR NOT THE TYPE OR LOCATION OF SUCH FACILITIES IS SHOWN ON THE PLANS. THE DAMAGED FACILITIES SHALL BE RESTORED TO A CONDITION SIMILAR OR EQUAL TO THAT EXISTING BEFORE SUCH DAMAGE WAS DONE. IF IT IS DETERMINED BY THE ENGINEER THAT ADJUSTMENT OR RELOCATION OF SUCH UNDERGROUND FACILITIES IS NECESSARY TO ACCOMODATE CONSTRUCTION, THE ENGINEER WILL MAKE THE NECESSARY ARRANGEMENTS WITH THE OWNER, IF SUCH WORK IS NOT OTHERWISE PROVIDED FOR IN THE PROJECT PLANS OR PROPOSAL.

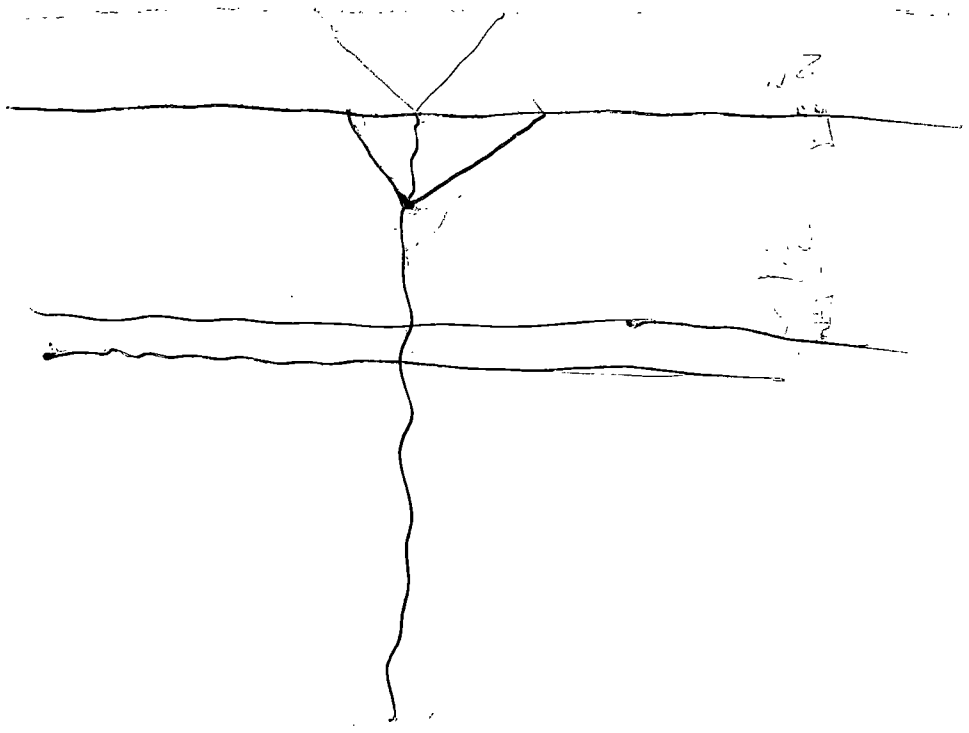
DESIGN STRESSES:

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

BRIDGE STAKING AND PILING DIAGRAM

94-70-3

94-70-3

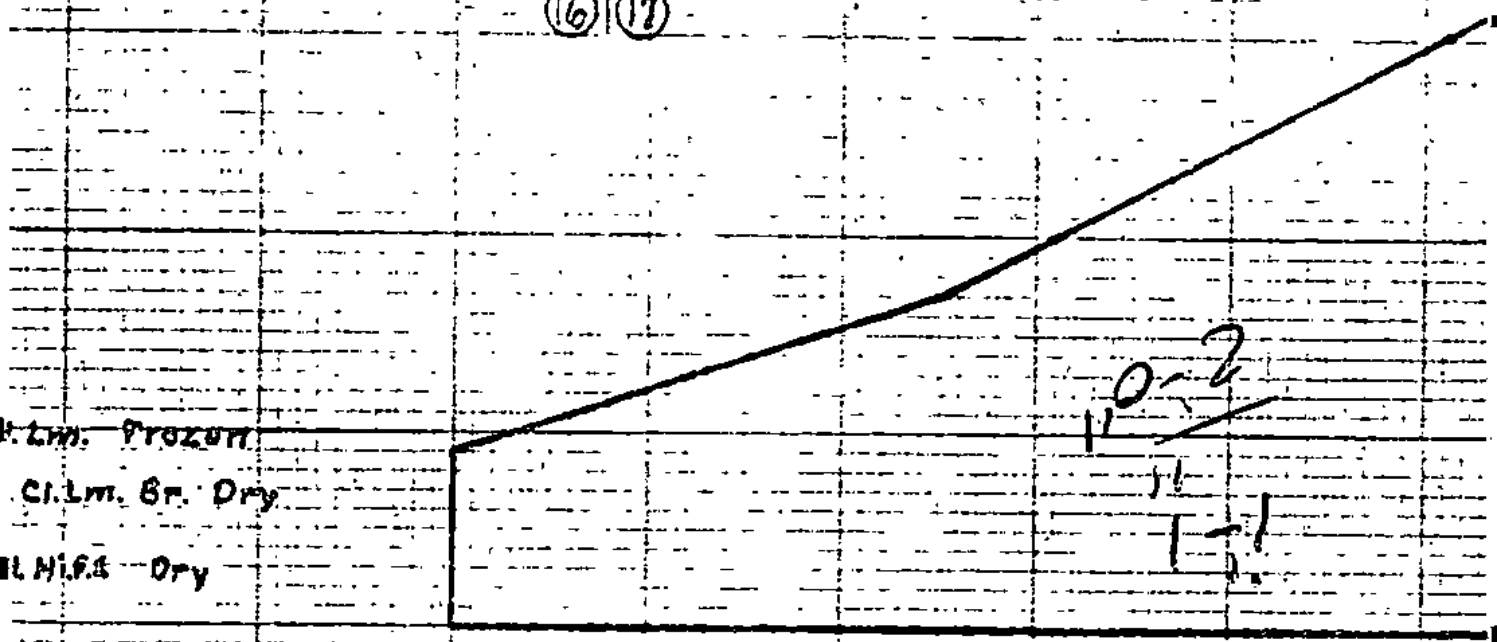


Build as designed except —

1. Add 2 additional $\frac{1}{2}$" ϕ bars in stem.
2. Raise T. bars in stem to top and bundle with new bars.
3. 27' New bars.
4. over each pier — 3 piers
5. 9 Beams 2 bars
6. 9 × 2 × 3 = 54 bars 27' lg.
7. Make sketch of slab section showing steel arrangement

836+79

(16) (17)



Maximum Dry Density 102
Optimum Moisture % 19

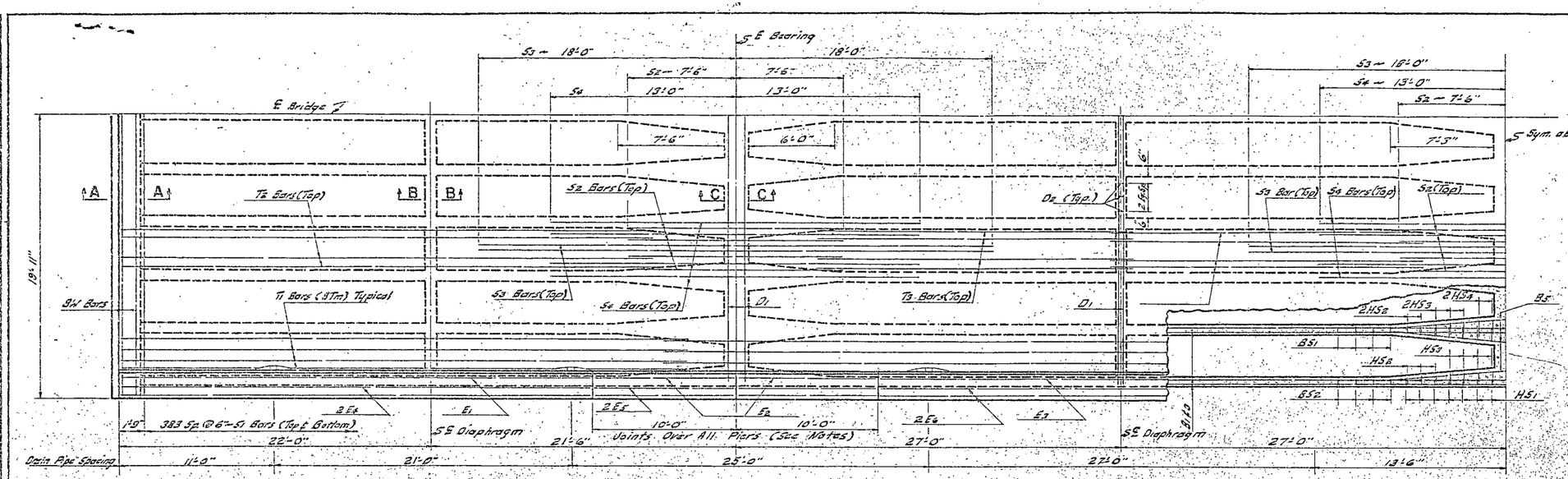
Cl. F.S. moist

P.I. 838+00
Elev. 2419.1
V.C. 600'

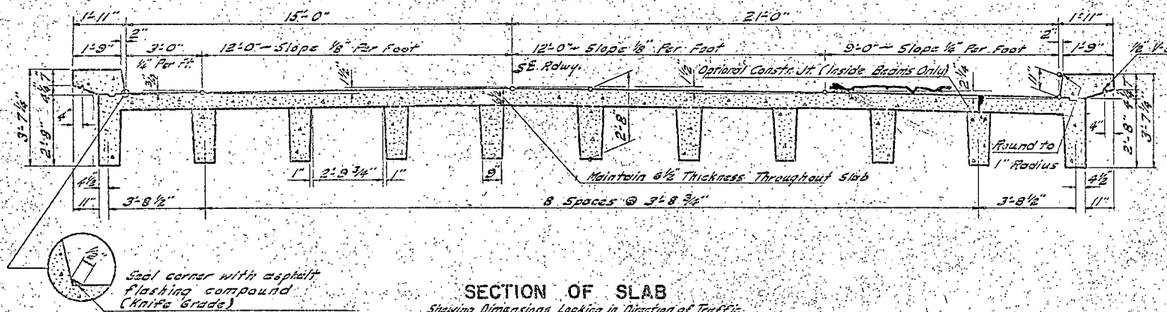
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	N.D.	I-94-3(11)		21	37

REVISIONS	DATE	CHK'D. BY

	MADE BY	CHECKED BY	DATE
DESIGN	D.J.B.	D.L.C.	
DETAILS	K.H.B.	D.L.C.	
TRACING	W.D.B.	D.L.C.	
QUANTITIES	MADE BY	CHECKED BY	

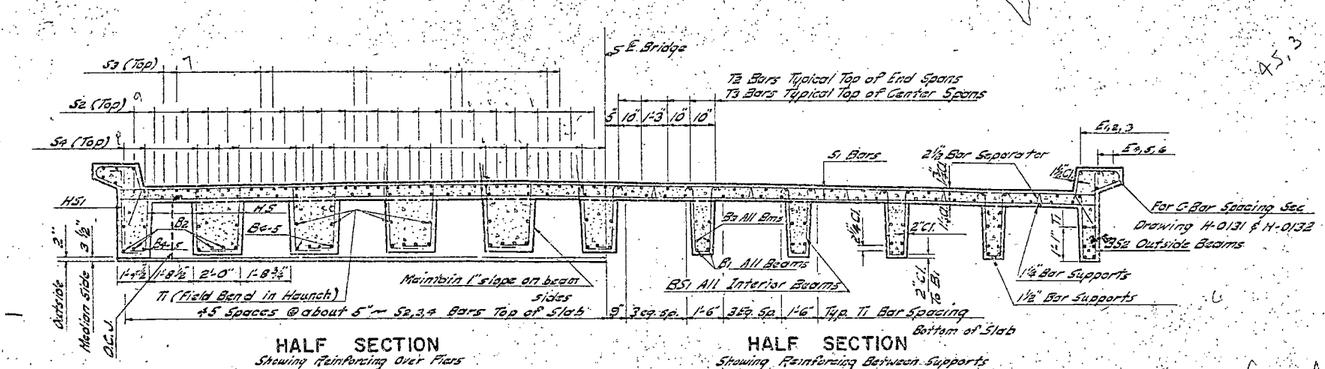


PLAN VIEW



SECTION OF SLAB

Showing Dimensions Looking in Direction of Traffic.

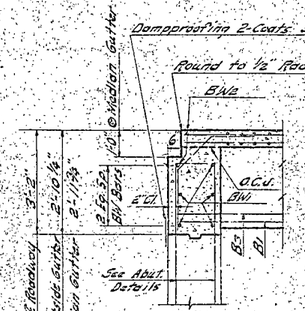


HALF SECTION

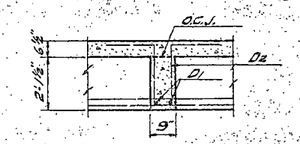
Showing Reinforcing Over Piers

HALF SECTION

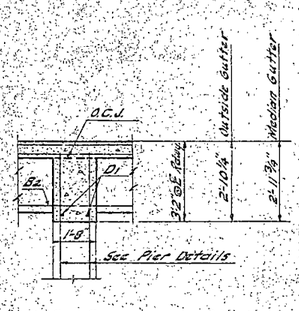
Showing Reinforcing Between Supports



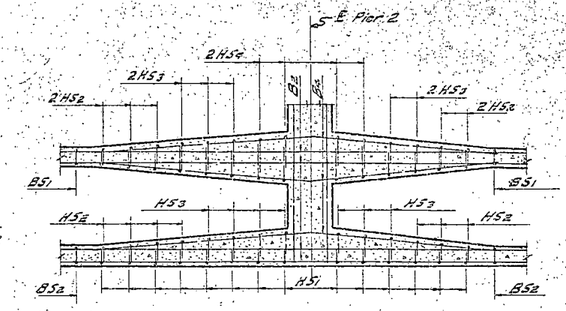
A–A



B–B



C–C



D–D

(See Sheet H-3170-2)

NOTES:

The interior beams, diaphragms, and end walls may be placed and allowed to cure before the slab and outer beams are placed, at the Contractors option.

Designed for 35 lb/0' F.W.S.

SUPERSTRUCTURE

FOUR SPAN
CONTINUOUS T-BEAM
OVERALL LENGTH 195 FT.

HS20 LOADING

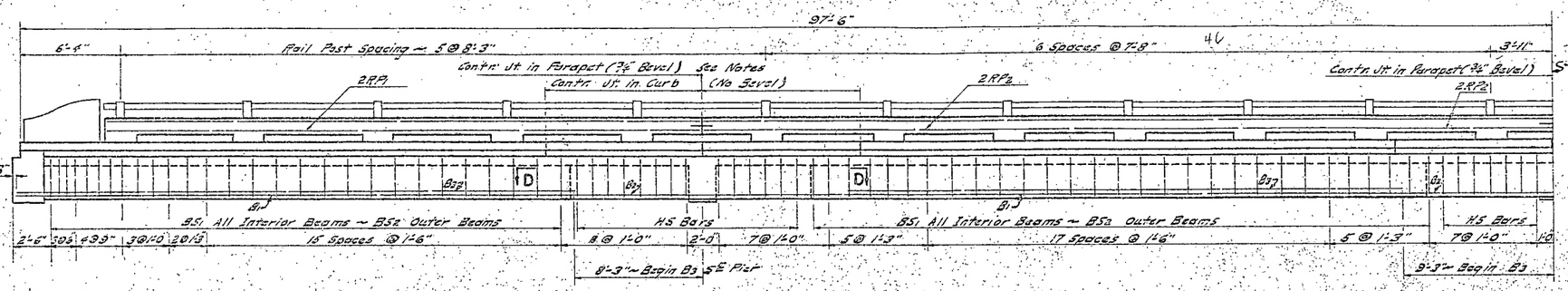
H-3170-1

H-3170-1

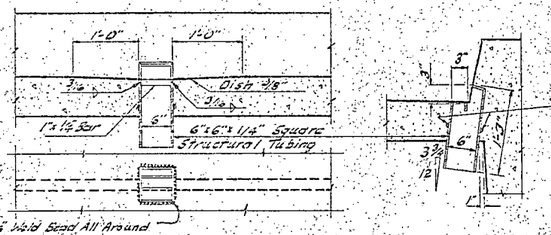
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	N.D.	[illegible]		22	37

DESIGN	DETAILS	TRACING	QUANTITIES
MADE BY [illegible]	MADE BY [illegible]	MADE BY [illegible]	MADE BY [illegible]
CHKD BY [illegible]	CHKD BY [illegible]	CHECKED BY [illegible]	CHECKED BY [illegible]

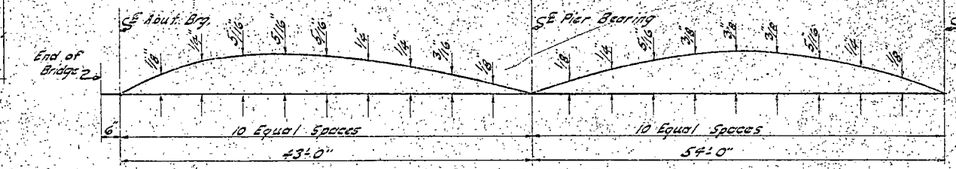
REVISIONS	MADE BY	CHK'D BY	DATE



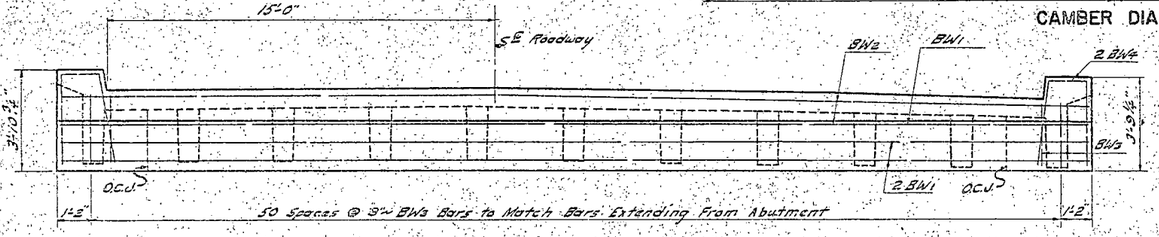
ELEVATION



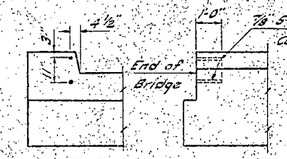
FLOOR DRAIN DETAIL



CAMBER DIAGRAM



ENDWALL

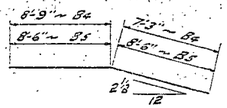


CURB SLEEVE DETAILS

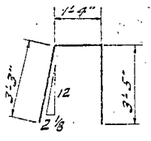
NOTES:

Contraction joints shall be placed in the curb, over all piers and 10'-0" each side of the piers. Reinforcement shall not extend through the joints, the edges shall not be beveled, or rounded. One contact surface of each joint shall be painted with hot asphalt.

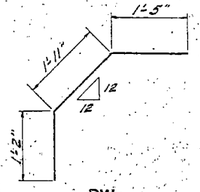
Contraction joints shall also be placed in parapet over each pier only. The joints shall not have reinforcement extending through them but shall be equipped with pipe sleeves and dowels as shown on sheet H-0131 & H-0132 and shall have one contact surface painted with hot asphalt in lieu of the expansion material. The parapet joints only shall have 7/8" beveled edges.



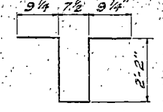
B4 & B5



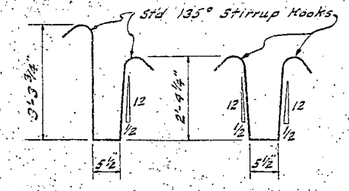
BW4



BW3

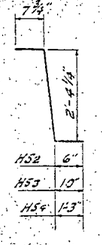


D2

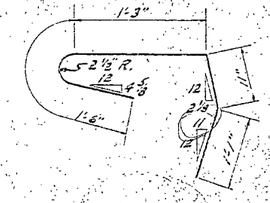


BS2 BS1

HS1



HS2,3,4



C-BAR

BENT BAR DETAILS

BAR LIST (ONE SUPERSTRUCTURE)

Mark	No	Size	Length	Shape
B1	88	11	40'-0"	Str.
B2	66	11	21'-0"	"
B3	88	11	35'-6"	"
B4	40	6	16'-0"	Bent
B5	20	6	17'-0"	"
B5₁	1026	4	6'-0"	Bent
B5₂	228	4	7'-0"	"
BW1	10	4	39'-6"	Str.
BW2	4	6	39'-6"	"
BW3	102	6	4'-6"	Bent
BW4	8	4	8'-0"	"
D1	14	6	3'-7 1/4"	Str.
D2	120	4	6'-6"	Bent
H51	84	4	4'-4"	Bent
H52	292	4	3'-6"	"
H53	332	4	3'-10"	"
H54	216	4	4'-3"	"
S1	768	4	37'-6"	Str.
S2	120	9	15'-0"	"
S3	60	7	36'-0"	"
S4	93	8	26'-0"	"
T1	310	4	40'-6"	Str.
T2	80	4	33'-0"	"
T3	160	4	22'-0"	"
C	536	4	4'-9"	Bent
E1	4	6	33'-0"	Str.
E2	12	6	9'-6"	"
E3	4	6	33'-6"	"
E4	16	5	33'-0"	"
E5	48	5	9'-6"	"
E6	16	5	33'-6"	"

RAILING BAR LIST (SEE STANDARDS H-0131 & H-0132)

R1	240	4	6'-0"	Bent
R2	288	3	3'-2"	"
RP1	16	5	37'-9"	Str.
RP2	32	5	28'-0"	"

QUANTITIES (ONE SUPERSTRUCTURE)

Concrete Class AE-2	330.5 C.Y.
Reinforcing Steel	110,237 Lb.
Ornamental Metal Railing	369 Ft.
Structural Steel	359 Lb.

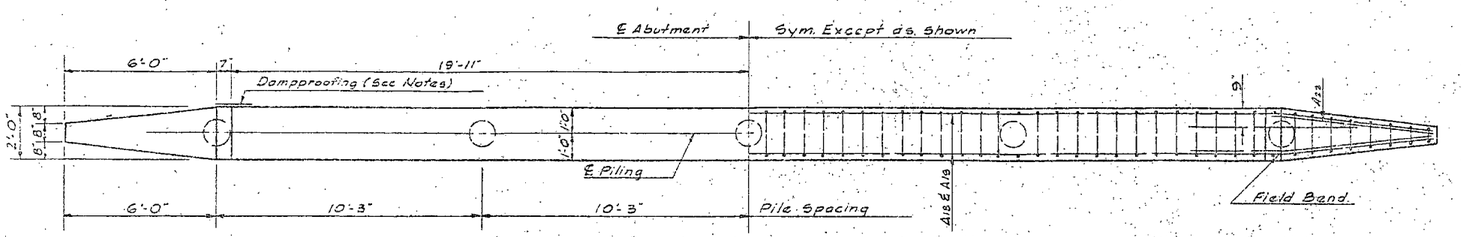
SUPERSTRUCTURE

FOUR SPAN
CONTINUOUS T-BEAM
OVERALL LENGTH 195 FT.
HS20 LOADING

H-3170-2

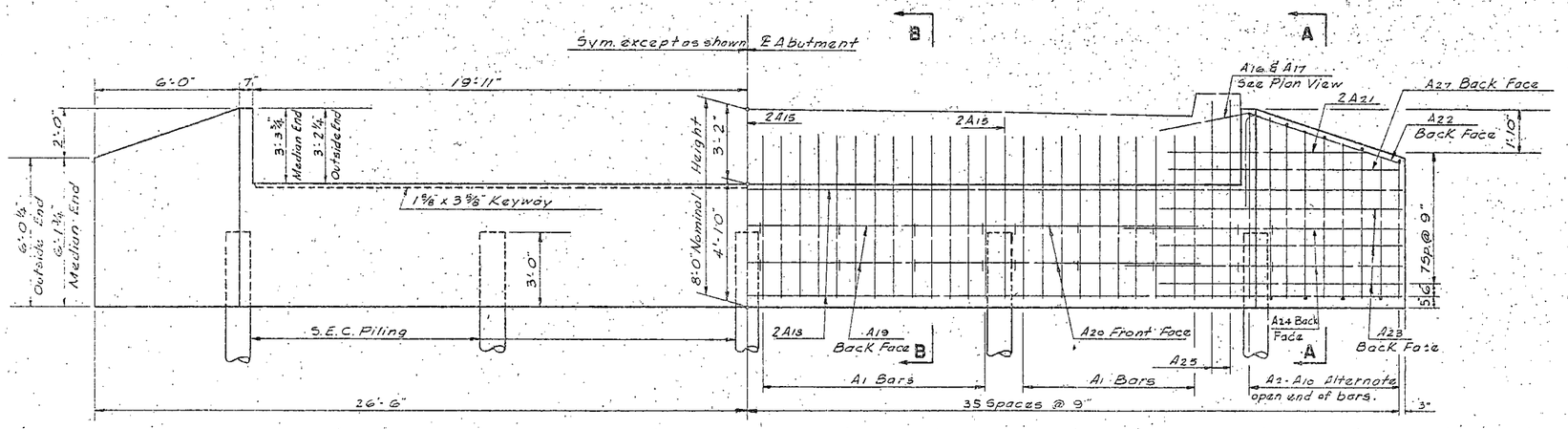
H-3170-2

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	N.D.	S-054 (SCH)		23	37



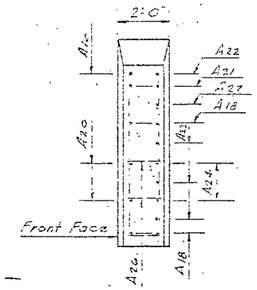
HALF PLAN
Showing Dimensions

HALF PLAN
Showing Reinforcing

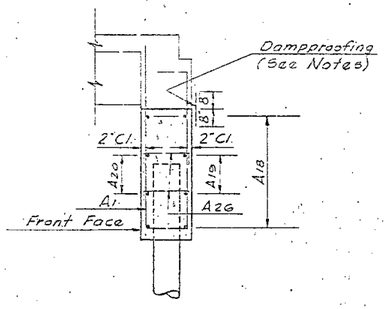


HALF ELEVATION
Showing Dimensions

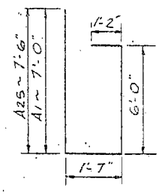
HALF ELEVATION
Showing Reinforcing



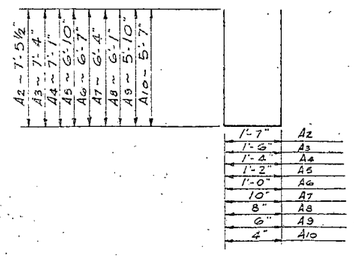
A-A



B-B

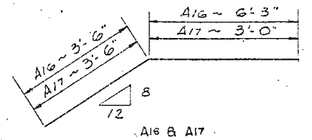


A1 & A25

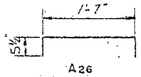


A2 TO A10

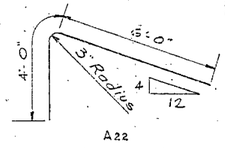
BENT BAR DETAILS



A16 & A17



A26



A22

BAR LIST (ONE ABUT.)

MARK	NO.	SIZE	LENGTH	SHAPE
A1	46	5	15'-9"	Bent
A2	2	5	16'-6"	"
A3	2	5	16'-2"	"
A4	2	5	15'-6"	"
A5	2	5	14'-10"	"
A6	2	5	14'-0"	"
A7	2	5	13'-6"	"
A8	2	5	12'-10"	"
A9	2	5	12'-4"	"
A10	2	5	11'-6"	"
A15	6	5	6'-0"	Str.
A16	2	6	9'-9"	Bent
A17	2	6	6'-6"	"
A18	8	7	27'-9"	Str.
A19	2	6	35'-0"	"
A20	2	6	30'-6"	"
A21	4	7	8'-3"	"
A22	2	7	12'-0"	Bent
A23	6	7	9'-9"	Str.
A24	4	7	11'-3"	"
A25	4	5	16'-3"	Bent
A26	36	5	2'-6"	"
A27	2	7	9'-0"	Str.

NOTES:

Two coats of dampproofing shall be applied to construction joints that will be covered by earth.

"Dampproofing Two Coats" shall be applied in accordance with section 90 of the Standard Specs. Dampproofing will not be paid for directly, but shall be included in the unit price bid for Class AE-2 Concrete.

QUANTITIES (ONE ABUT.)

Concrete Class AE-2	3.3 C.Y.
Reinforcing Steel	2285 Lbs.

8'-0" ABUTMENT FOR T-BEAM SUPERSTRUCTURE

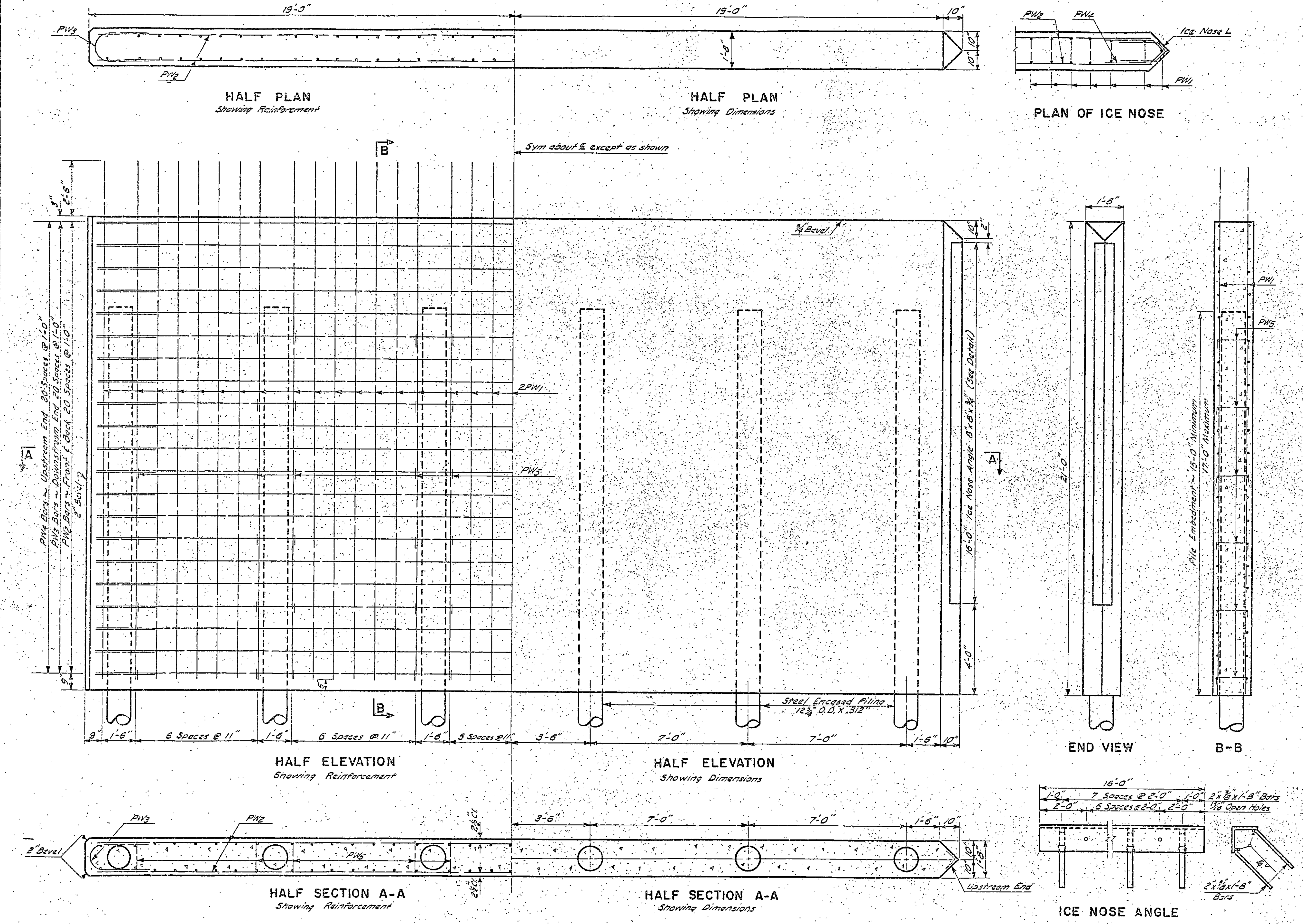
36'-0" ROADWAY

HS 20 LOADING

H-3246

H-3246

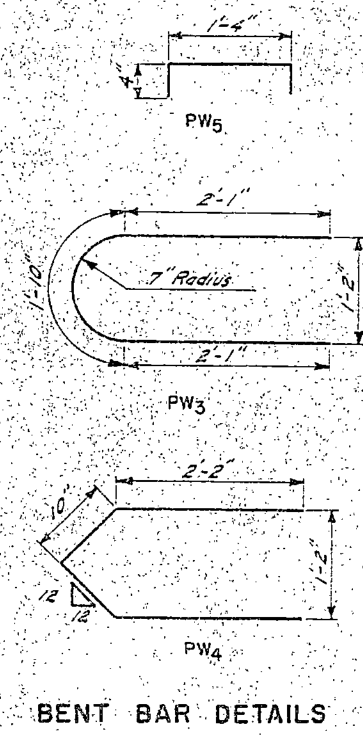
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	N.D.	I-94 [illegible]	-	24	37



NOTE:
The S.E.C. Piles shall be filled with concrete to within 6" of the top, at least 2 hours before the concrete in the pier is placed.

BAR LIST *(One Pier)*

Mark	No.	Size	Length	Shape
PW1	75	5	23'-0"	Str.
PW2	42	5	37'-6"	"
PW3	21	5	6'-0"	Bent
PW4	21	5	6'-0"	"
PW5	60	4	2'-0"	"



QUANTITIES *(One Pier)*

Concrete AE-2	46.8 Cu. Yd.
Reinforcing Steel	3,785 Lbs.
Structural Steel	690 Lbs.
Piling (See Layout)	

21'-0" PIER DETAILS
FOR
T-BEAM SPANS
36'-0" ROADWAY
HS 20 LOADING

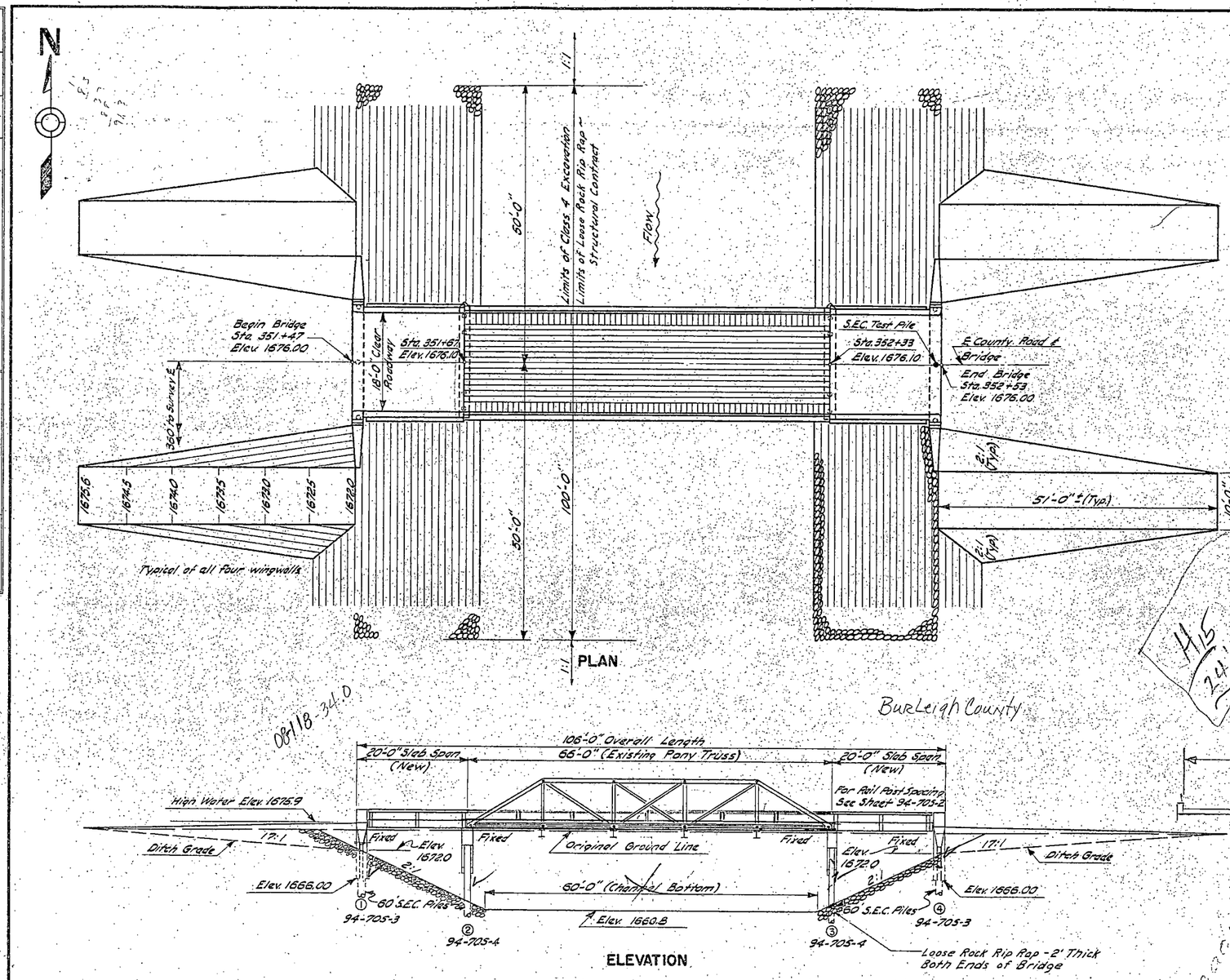
H-3346

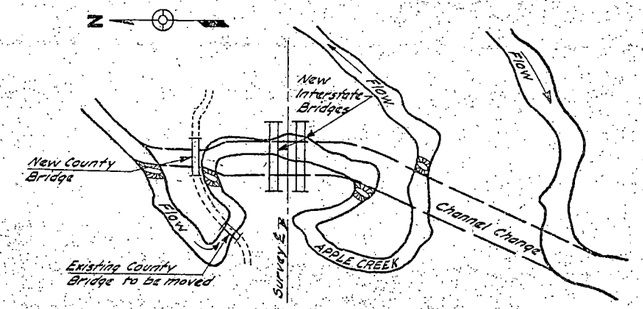
Burleigh County 08-118-34.0

BRIDGE CODE	FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
X-042	5	N. D.	I-94-5(11)		12	37

REVISIONS	DATE	CHK'D BY	MADE BY

TOPOGRAPHY	PLOTTED BY	DSS
	CHECKED BY	
DETAILS	MADE BY	EVS
	CHECKED BY	RLA
TRACING	MADE BY	EWH
	CHECKED BY	
QUANTITIES	MADE BY	DLV
	CHECKED BY	





AREA SKETCH

Burleigh County 08-118-34.0

H10 DESIGN # 15,000 Increase for Roadway

ESTIMATE OF QUANTITIES

SPEC. NO.	BID ITEM	
	MOVE EXISTING STRUCTURE AT STA. 348+30 TO STA. 352+00	LUMP SUM
15A	EXCAVATION CLASS 1	CU. YD.
15B	" CLASS 2	120 CU. YD.
15D	" CLASS 4	4,650 CU. YD.
60A	CONCRETE CLASS AE-2	91.0 CU. YD.
60A	" CLASS A-1½	CU. YD.
62A	REINFORCING STEEL	11,823 LB.
63A	STRUCTURAL STEEL	4,007 LB.
64A	UNTREATED TIMBER	M.B.M.
64B	TREATED TIMBER	M.B.M.
65C	STEEL PILING	
65E	S.E.C. PILING 12¾" O.D. X .312" 13 @ 60'	780 LIN. FT.
65M	S.E.C. TEST PILE 12¾" O.D. X .312" 1 @ 80'	1 EACH
65K	UNTREATED TIMBER TEST PILES	EACH
65L	TREATED TIMBER TEST PILES	EACH
72D	LOOSE ROCK RIP RAP	550 CU. YD.
	BRIDGE BENCH MARKS	

BENCH MARKS

NO.	DESCRIPTION	LOCATION	ELEV.
31	Ir. Pipe 2x2 Gds. on Fn. L.	Sta. 341+35 207' Lt.	1689.66
32	Spot on SE Cor. Steel Br.	Sta. 348+06 232' Lt.	1675.16
33	Ir. Pipe by P.P.	Sta. 357+10 207' Lt.	1672.29

PILE LOADING

LOCATION	DEAD LOAD	LIVE LOAD	EARTH O.T.M.	WIND 50 LB.	WIND 15 LB.	WIND 100 LB. L.L.	LONG. FORCE	DESIGN LOAD	MAX. REQ'D LOAD	MINIMUM # PENETRATION
Abutments	20.7	2.8						23.5T	30T	45'
Piers	16.6	4.0						20.6T	27T	30'

Below Finish Grade of Channel Backslope

LIST OF SPECIAL PROVISIONS

NAME	NO.
Structural Steel	67C
Steel Piling	69A
Construction Equip. Reqmnts	82E
Concrete Bridge Construction	88A
Portland Cement Concrete	89A
Reinforcing Steel	90
Excavation for Culverts & Bridges	100A
Piling	102A
Embankment	73B

STRUCTURAL DRAWINGS

GENERAL DRAWING (THIS SHEET)	94-705-1
SUBSTRUCTURE	94-705-3, 94-705-4, H-0401
SUPERSTRUCTURE	94-705-2, H-0501

DESIGN LOADING	SCALE
H10 (1961)	1 INCH = 10 FEET

NORTH DAKOTA
STATE HIGHWAY DEPARTMENT
APPLE CREEK SERVICE ROAD
BRIDGE LAYOUT
PROJECT I-94-5(11) STA. 352+00 (360' LEFT)
BURLEIGH COUNTY

APPROVED
9-25-64 DATE
Joseph P. Kirby BRIDGE ENGINEER

JOSEPH P. KIRBY REGISTERED PROFESSIONAL ENGINEER NORTH DAKOTA

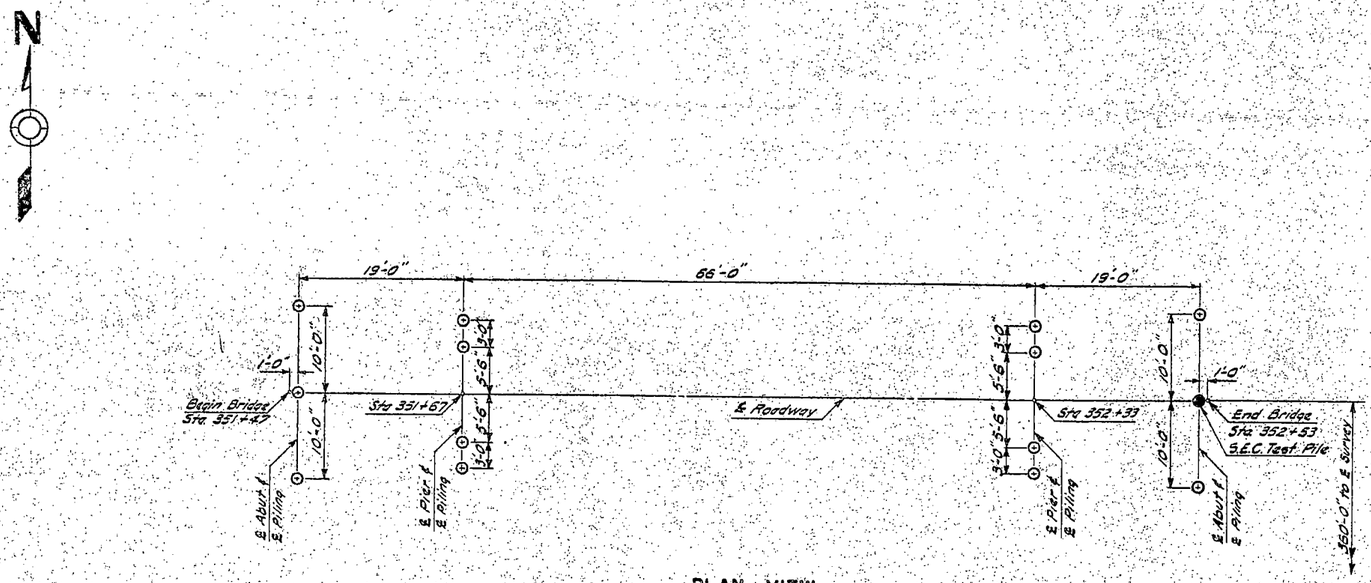
94-70 S

94-70 S

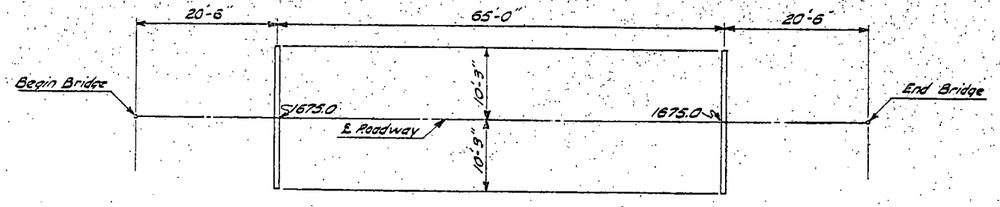
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	N.D.	I-94-5(11)		13	37

	MADE BY	CHK'D BY	DATE
REVISIONS			

	MADE BY	CHECKED BY
DESIGN		
DETAILS	AMM	EWH
TRACING	EWH	ELH
QUANTITIES		



PLAN VIEW



BEARING PLATE LAYOUT

Elevations shown are to top of concrete.

GENERAL:

THE COST OF FURNISHING AND PLACING MISCELLANEOUS ITEMS SHALL BE INCLUDED IN THE PRICE BID FOR THE SEVERAL BID ITEMS.

MOVING EXISTING STRUCTURE:

THE EXISTING STRUCTURE, LOCATED AT STA 348+30 APPROXIMATELY 235 FEET LEFT, IS A 66'-0" PIN CONNECTED PONY TRUSS WITH AN 18'-0" CLEAR ROADWAY. THE TRUSS AND FLOOR STRINGERS ARE BOLTED TO CHANNELS WHICH ARE EMBEDED IN THE ABUTMENT. THESE BOLTS SHALL BE CUT, THE TREATED TIMBER SPACER BLOCKS INSTALLED, AND THE ENDS OF THE FLOOR STRINGERS RIGIDLY SUPPORTED IN A CARRYING SLING WHILE MOVING THE STRUCTURE. THE POINTS OF SUPPORT DURING MOVING OPERATIONS SHALL BE AT THE ENDS OF THE STRUCTURE. THE CONTRACTOR WILL BE RESPONSIBLE FOR ANY DAMAGE TO THE STRUCTURE UNTIL IT HAS BEEN INCORPORATED INTO THE NEW STRUCTURE AND ACCEPTED BY THE STATE.

THE EXISTING STRUCTURE SHALL BE MOVED TO STA. 352+00, 360 FT. LEFT OF THE SURVEY CENTERLINE AND PLACED ON NEW PIERS CONSTRUCTED AT THIS LOCATION IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS.

MOVING EXISTING STRUCTURE SHALL BE PAID FOR AT THE LUMP SUM CONTRACT BID PRICE FOR "MOVE EXISTING STRUCTURE AT STA. 348+30 TO STA. 352+00" WHICH PRICE SHALL BE FULL PAYMENT FOR MOVING THE EXISTING STRUCTURE TO ITS NEW LOCATION, SALVAGING REUSABLE MATERIALS AND FOR ALL LABOR, MATERIALS, TOOLS EQUIPMENT SUPPLIES AND INCIDENTALS NECESSARY TO COMPLETE THE WORK IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS.

ALL TREATED TIMBER SPACER BLOCKS, CARRIAGE BOLTS, LAG SCREWS AND WELDING SHALL BE CONSIDERED INCIDENTAL TO THE BID ITEM "MOVE EXISTING STRUCTURE".

CONCRETE:

ALL EXPOSED EDGES OF CONCRETE SHALL BE BEVELED WITH 3/4" TRIANGULAR MOLDING UNLESS OTHERWISE NOTED.

THE "RUBBED SURFACE FINISH" WILL BE REQUIRED FOR THE ROADWAY AND OUTSIDE VERTICAL FACES OF CURBS, EDGE OF SLAB, ALL FACES OF END POSTS. ALL OTHER SURFACES SHALL BE GIVEN THE "ORDINARY SURFACE FINISH". ALL "ORDINARY SURFACE FINISH" SHALL BE COMPLETED WITHIN 24 HOURS AFTER REMOVAL OF FORMS.

THE COST OF PILING REINFORCEMENT AND CONCRETE TO FILL PILING SHALL BE INCLUDED IN THE UNIT PRICE BID FOR STEEL ENCASED CONCRETE PILING.

ALL CONCRETE WILL BE CLASS AE-2 AND SHALL BE COMPACTED BY VIBRATION.

THE DECK SLAB CONCRETE SHALL BE STRUCK OFF AND COMPACTED BY AN APPROVED DECK FINISHING MACHINE.

ALL WORK SHALL COMPLY TO SEC. 55 OF THE STANDARD SPECIFICATIONS.

EXCAVATION:

EXCAVATION CLASS 2 AT THE ABUTMENTS SHALL BE IN ACCORDANCE WITH SEC. 158 OF THE STANDARD SPECIFICATIONS.

CLASS 4 EXCAVATION, THE LIMITS OF WHICH ARE SHOWN ON THE BRIDGE LAYOUT SHEET SHALL BE USED AS ROADWAY EMBANKMENT OR EXISTING CHANNEL BACKFILL OR BOTH AS DIRECTED BY THE ENGINEER.

PILING:

THE PILE LENGTHS SHOWN ON THE PLANS FOR EACH SUBSTRUCTUE UNIT ARE APPROXIMATE LENGTHS ONLY, BASED ON THE ENGINEER'S ESTIMATE OF CONDITIONS, AND ARE NOT TO BE CONSTRUED AS FINAL PAY LENGTHS. FINAL PILE LENGTHS IN PLACE SHALL BE DETERMINED BY DRIVING EACH PILE TO DRIVING BEARING EQUAL TO AT LEAST THE DESIGN PILE LOAD BUT NOT NECESSARILY MORE THAN THE MAXIMUM REQUIRED BEARING SHOWN UNLESS: (1) THE MINIMUM PENETRATION HAS NOT BEEN REACHED; (2) THE CONTRACTOR IS OTHERWISE INSTRUCTED BY THE ENGINEER.

PILE HAMMER:

THE STEEL PILES FOR THIS STRUCTURE SHALL BE DRIVEN BY A STEAM, AIR OR DIESEL HAMMER.

REINFORCING STEEL:

DIMENSIONS FOR BENT BARS ARE GIVEN CENTER TO CENTER UNLESS OTHERWISE NOTED.

THE BAR FABRICATOR SHALL ADD A PREFIX TO ALL BAR DESIGNATIONS TO DIFFERENTIATE BETWEEN THE SEVERAL PARTS OF THE STRUCTURE OR STRUCTURES.

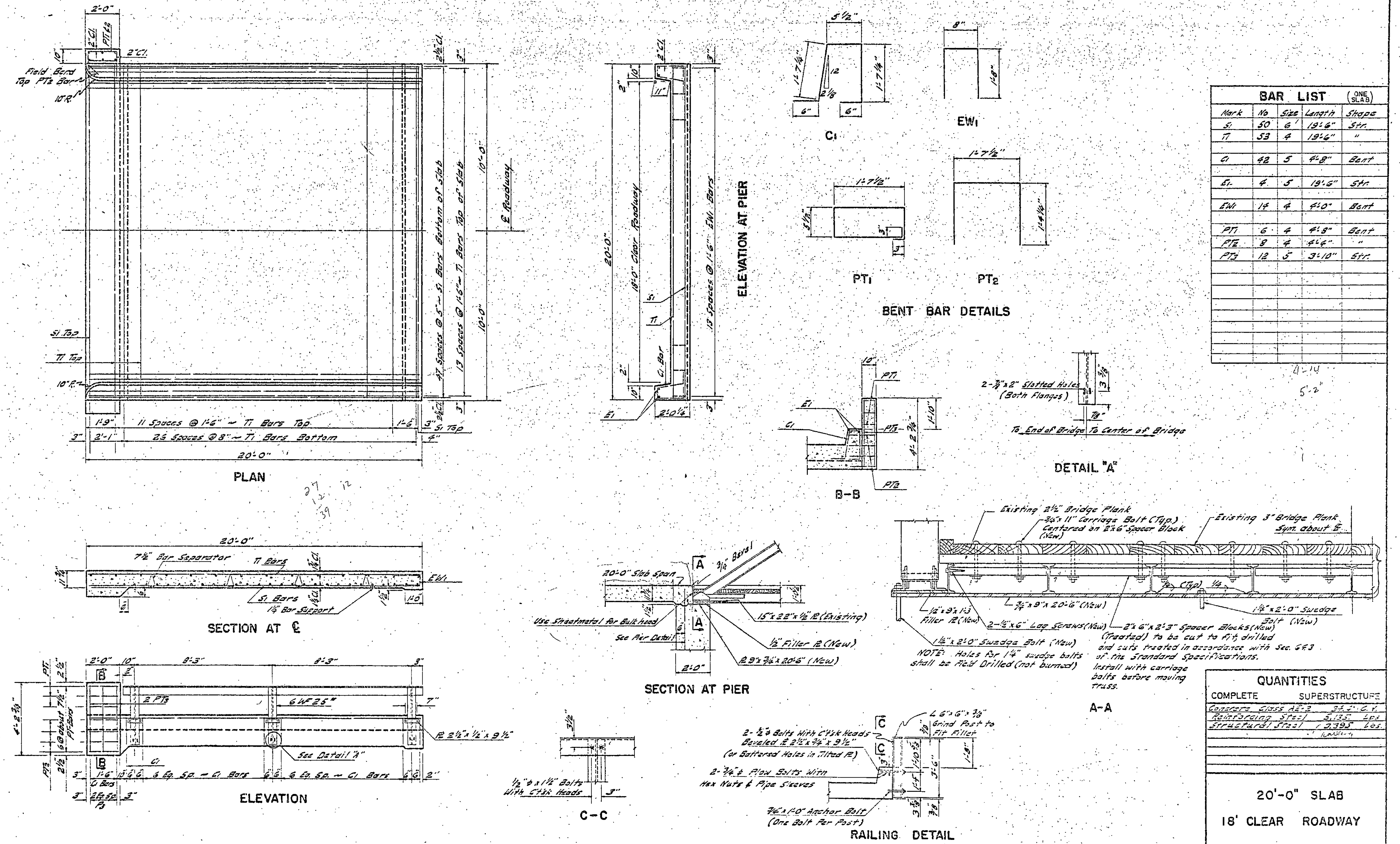
DESIGN STRESSES:

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

94-70S-1

PILING AND BEARING PLATE LAYOUT

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	N.D.	I-94-5(11)		14	37



BAR LIST (ONE SLAB)				
Mark	No	Size	Length	Shape
S1	50	6	19'-6"	Str.
T1	53	4	19'-6"	"
C1	42	5	4'-8"	Bent
E1	4	5	19'-6"	Str.
EW1	14	4	4'-0"	Bent
PT1	6	4	4'-8"	Bent
PT2	8	4	4'-4"	"
PT3	12	5	3'-10"	Str.

QUANTITIES	
COMPLETE	SUPERSTRUCTURE
Concrete Class AE-2	34.4 C.Y.
Reinforcing Steel	5,135 Lbs
Structural Steel	13,395 Lbs.

20'-0" SLAB

18' CLEAR ROADWAY

H_{10} LOADING

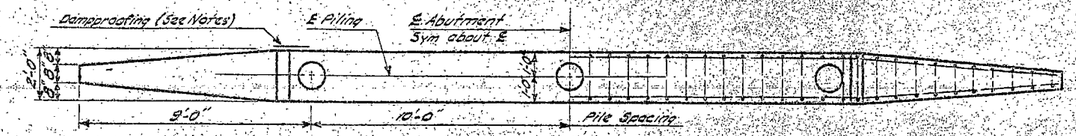
DESIGN	MADE BY EWH	CHECKED BY DLY
DETAILS	MADE BY WAB	CHECKED BY EWH
TRACING	MADE BY WAB	CHECKED BY EWH
QUANTITIES	MADE BY EWH	CHECKED BY DLY

REVISIONS	MADE BY	CH'D BY	DATE
Slab Steel Revised	AVH		9/21/64

FED./ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	N.D.	I-94-5(8)		15	37

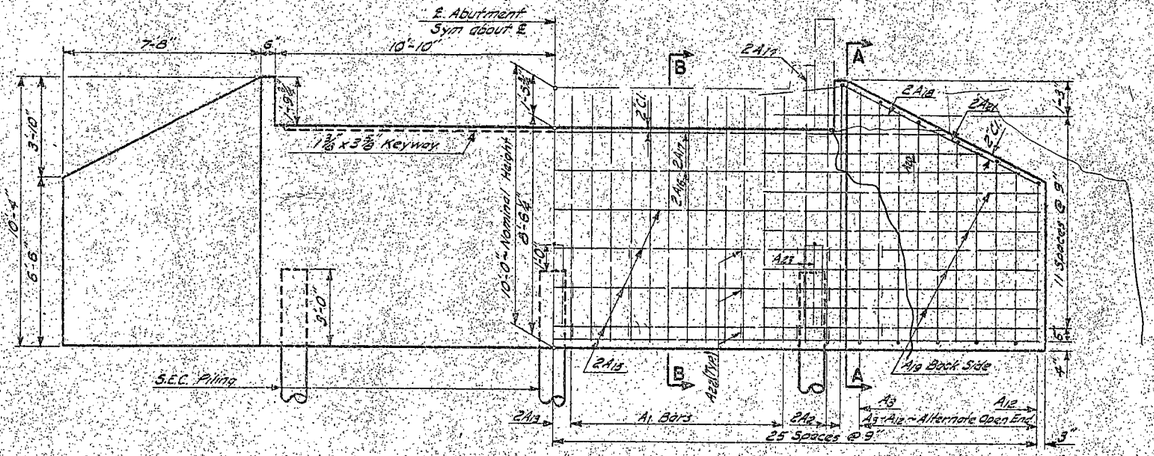
	REVISIONS	MADE BY	CH'K'D BY	DATE

	MADE BY	CHECKED BY
DESIGN	EWH	DLV
DETAILS	MADE BY	CHECKED BY
	EWH	AJV
TRACING	MADE BY	CHECKED BY
	EWH	EWH
QUANTITIES	MADE BY	CHECKED BY
	EWH	EWH



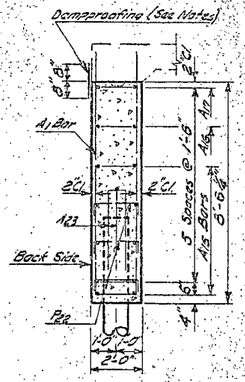
HALF PLAN
Showing Dimensions

HALF PLAN
Showing Reinforcing

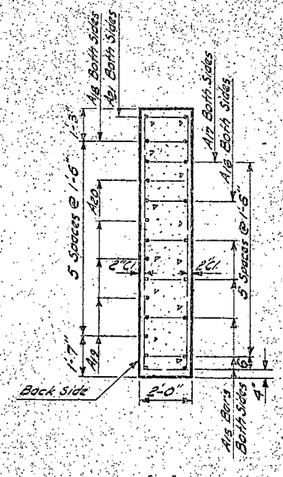


HALF ELEVATION
Showing Dimensions

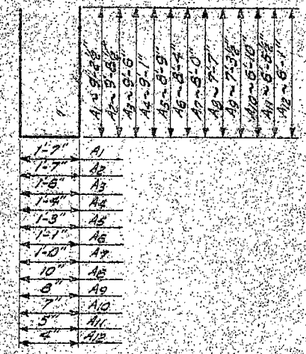
HALF ELEVATION
Showing Reinforcing



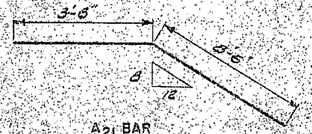
B-B



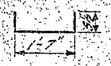
A-A



A23 BAR



A21 BAR



A22 BAR

BENT BAR DETAILS

BAR LIST (ONE ABUT.)

Mark	No.	Size	Length	Shape
A1	24	6	20'-0"	Bent
A2	4	6	21'-0"	"
A3	2	6	20'-6"	"
A4	2	6	19'-6"	"
A5	2	6	18'-9"	"
A6	2	5	17'-9"	"
A7	2	5	17'-0"	"
A8	2	5	16'-0"	"
A9	2	5	15'-3"	"
A10	2	5	14'-3"	"
A11	2	5	13'-4"	"
A12	2	4	12'-6"	"
A13	2	6	9'-3"	Str.
A14	4	6	10'-2"	"
A15	10	6	37'-6"	"
A16	2	6	35'-9"	"
A17	2	6	90'-0"	"
A18	4	6	5'-0"	"
A19	8	6	10'-6"	"
A20	2	6	8'-3"	"
A21	4	6	12'-0"	Bent
A22	36	4	2'-6"	"
A23	6	5	6'-8"	"

NOTES:

Two coats of dampproofing shall be applied to construction joints that will be covered by earth.

"Dampproofing Two Coats" shall be applied in accordance with Sec. 90 of the Standard Specifications. Dampproofing will not be paid for directly, but shall be included in the unit price bid for Class AE-2 Concrete.

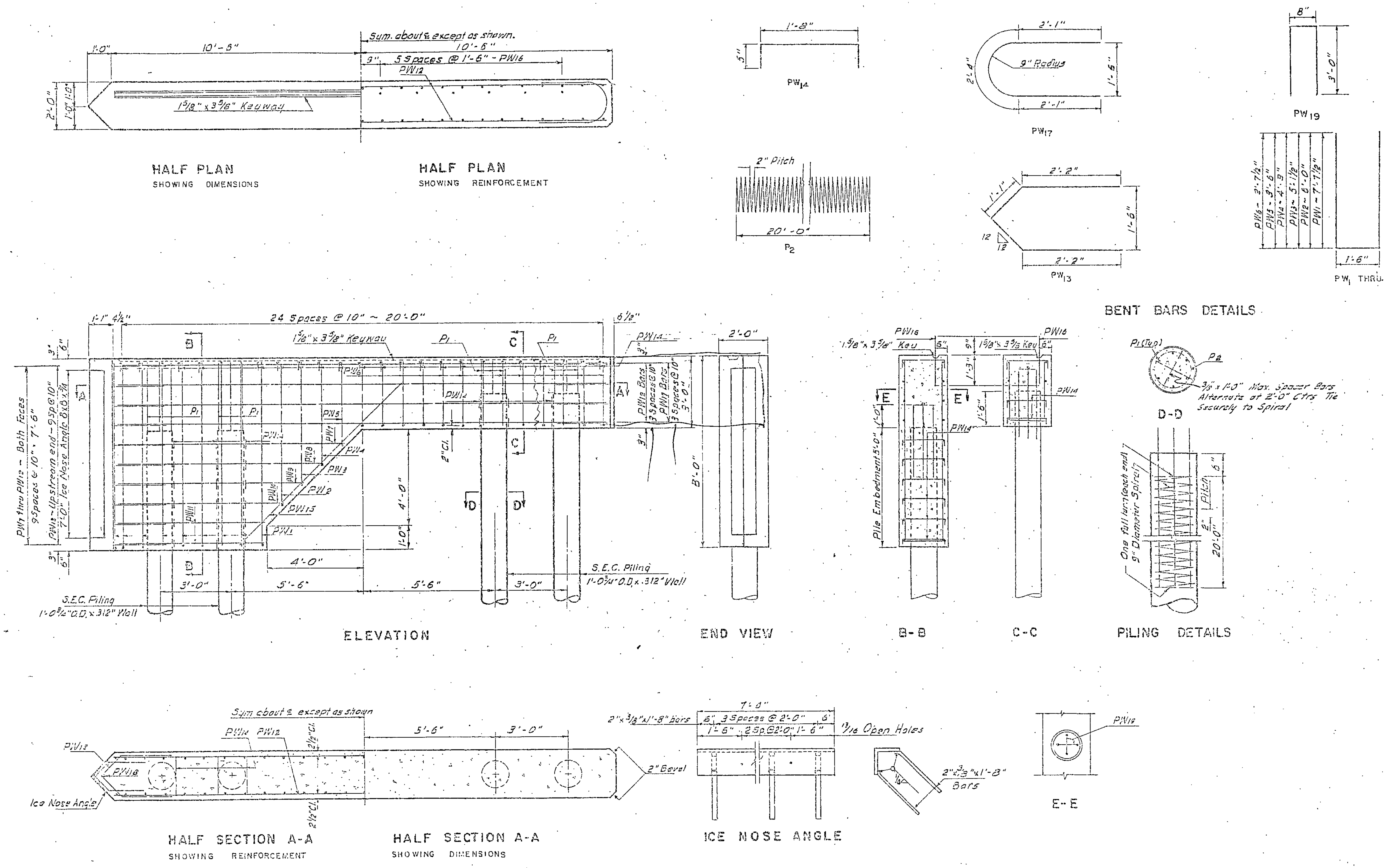
QUANTITIES (ONE ABUT.)	
Concrete Class AE-2	208 Cu Yds
Reinforcing Steel	2430 Lbs
Piling (See Layout)	

10' ABUTMENT
FOR
CONCRETE SLAB
18' CLEAR ROADWAY
H10 LOADING

94-70S-3

94-70S-3

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	N.D.	[illegible]		16	37



BAR LIST (ONE PIER)

Mark	No.	Size	Length	Shape
PW1	9	5	16'-9"	Bent
PW2	1	5	13'-5"	"
PW3	1	5	11'-9"	"
PW4	1	5	10'-0"	"
PW5	1	5	8'-6"	"
PW6	13	5	5'-9"	"
PW7	2	5	9'-5"	Str
PW8	2	5	2'-9"	"
PW9	2	5	8'-0"	"
PW10	2	5	7'-0"	"
PW11	4	5	6'-3"	"
PW12	8	5	20'-9"	"
PW13	10	5	5'-5"	Bent
PW14	23	4	2'-5"	"
PW15	2	9	9'-5"	Str
PW16	12	5	2'-0"	"
PW17	4	5	5'-6"	Bent
PW18	1	5	7'-5"	Str
PW19	8	5	6'-8"	Bent
P1 *	24	6	22'-0"	Str
P2 *	4	3	228'-0"	Bent

* P1 & P2 Bars included in the Contract bid price for S.E.C. Piles

NOTES.

The cost of piling reinforcement and concrete to fill piling shall be included in the unit price bid for Steel Encased Concrete Piling

Details shown are for Pier No.3. Pier No.2 is similar except keyway and PW15 bars are on opposite side.

QUANTITIES (ONE PIER)

Concrete Class AE-2	[illegible]
Reinforcing Steel	[illegible]
Structural Steel	[illegible]
Piling (See Layout)	

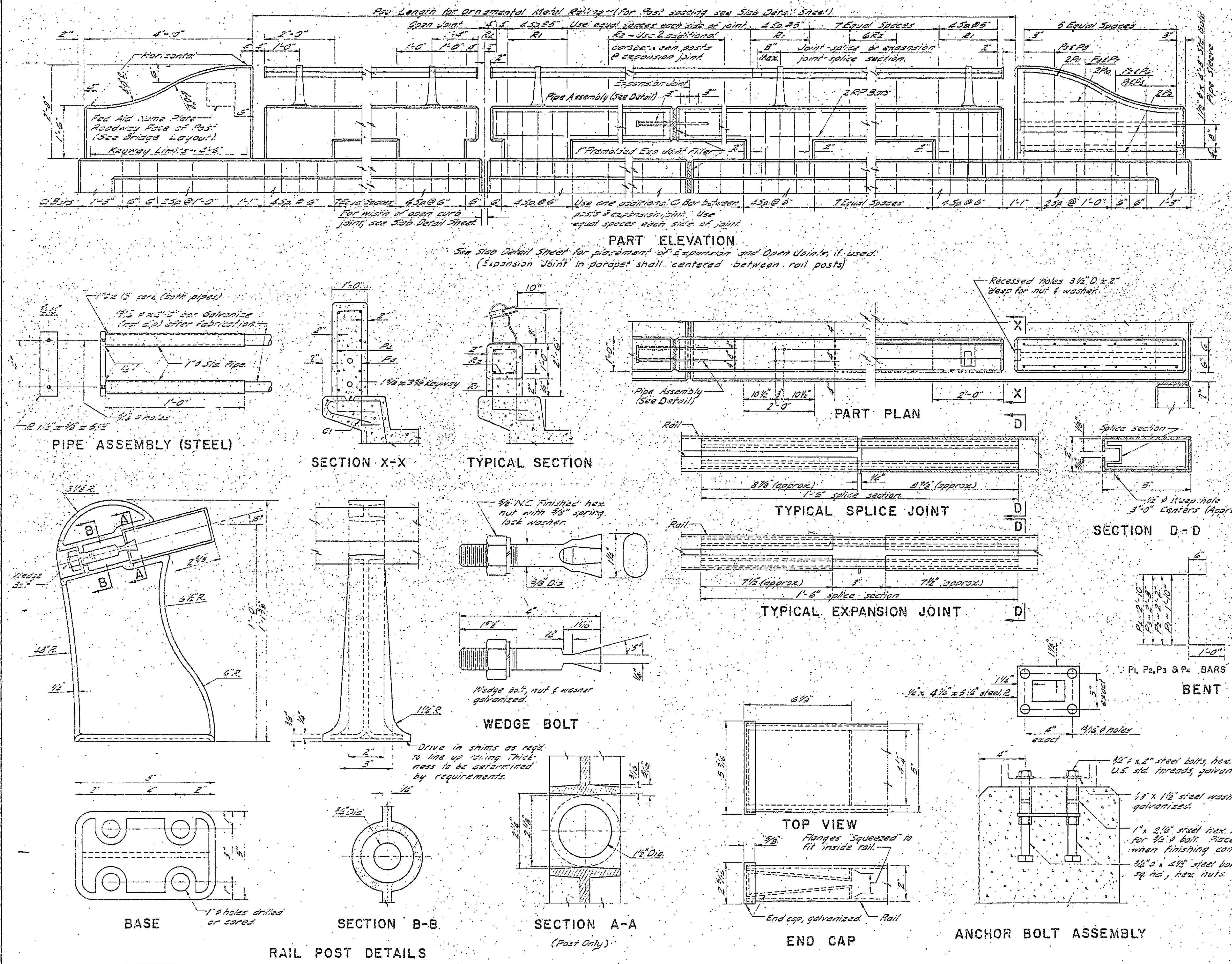
8'-0" PIER

18'-0" ROADWAY

H10-LOADING

94-70 S-4

FED. ROAD DIV. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	N. D.	I-94-5 (11)		17	37



NOTE:

Rail posts shall be malleable iron castings conforming to A.S.T.M. A-47 grade 35018 or shall be steel castings conforming to AASHO Designation M192, Class 70. Railing shall be 5x2x1/8" steel split tubing conforming to A.S.T.M. A-245, Class C. Railing shall be galvanized according to the latest A.S.T.M. A-123 Specifications. All other galvanizing shall conform to the latest A.S.T.M. A-153 Specifications.

All concrete in end posts and parapet shall be Class AE-2 and shall be given the "Rubbed Surface Finish."

All posts shall be set normal to grade.

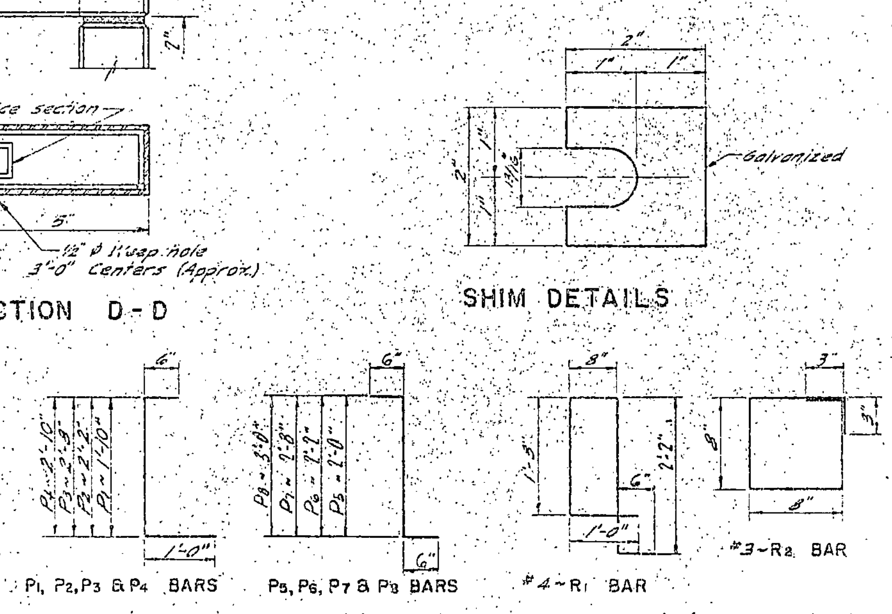
The bottom of rail posts in contact with concrete shall be coated 1/16" thick and the recess in the base completely filled with caulking compound, grade I for gun application, white, natural or grey in color and furnished in cartridges; conforming to the latest Federal Spec. TT-C-598. Application shall be made to a clean, dry surface above 40°F. Joints may be freed from dust by swabbing with caulking compound waste, moistened with turpentine or universal spirits. Compound shall be placed with care to prevent smearing the area outside and around the base of the post.

All rail split tubing, rail posts, anchor bolt assemblies, bolts, shims, end caps and compound shall be included in the price bid for "Ornamental Metal Railing."

Parapet and end post quantities are included in the slab quantities on slab sheet. Pay length for Ornamental Metal Railing is also given on slab sheet.

Minimum rail lengths shall equal at least two post spacings and preferably three.

To reduce shrinkage stresses the concrete railing base shall be poured in alternate sections not more than six panels long, and at least 3 days shall elapse before the intervening sections are poured. Plain butt joints with the longitudinal bars extending through shall be made between sections.



Parapet Bar List (See Slab Details)

BAR LIST (4 END POSTS)

MARK	NO.	SIZE	LENGTH	SHAPE
P1	8	5	3'-4"	Bent
P2	4	5	3'-8"	"
P3	4	5	4'-2"	"
P4	8	5	4'-4"	"
P5	8	5	3'-0"	"
P6	4	5	3'-7"	"
P7	4	5	3'-8"	"
P8	8	5	4'-0"	"
P9	16	4	2'-6"	Str.
P10	8	4	2'-3"	"
P11	8	5	2'-9"	Field Bent

QUANTITIES FOR 4 END POSTS

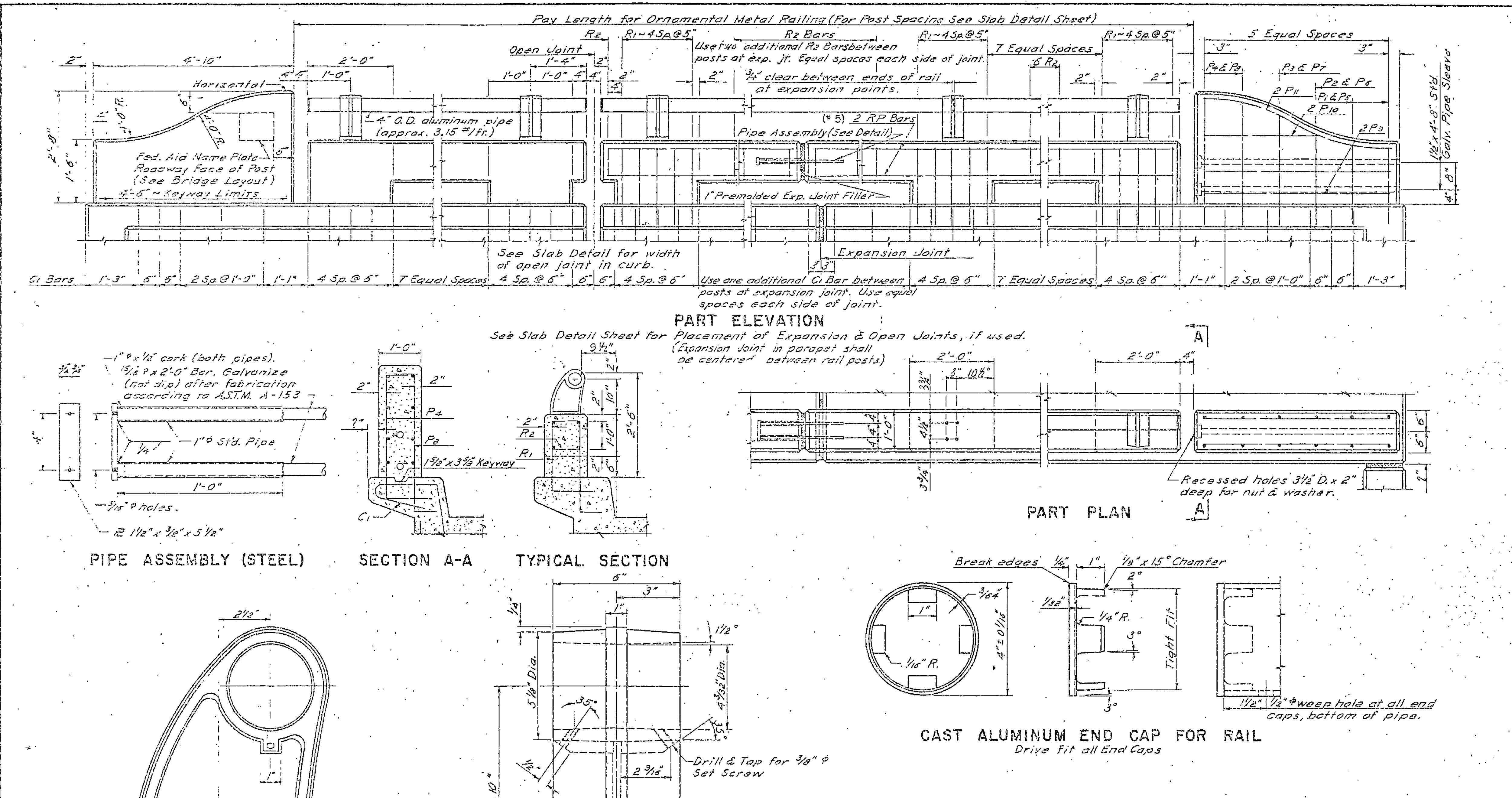
Concrete Class AE-2 15 Cu.Yd.

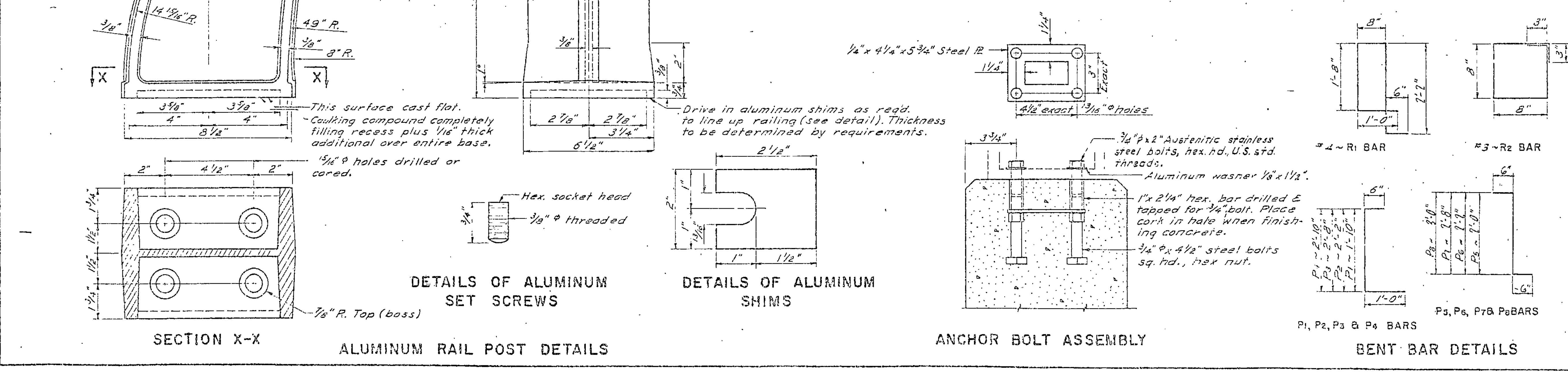
Reinforcing Steel 985 Lb.

STANDARD PARAPET WITH STEEL RAILING

H-0131

FED. ROAD DIV. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	N. D.	I-94-5 (11)		15	37





NOTES:

Rail posts shall be aluminum alloy A344-T4, Sand or permanent mold castings, conforming to ASTM designations B26 or B108 respectively.

Rail pipe shall be aluminum drawn tube conforming to ASTM Designation B210 Alloy 6061-T6, extruded tube conforming to ASTM Designation B235 Alloy 6061-T6 or aluminum alloy pipe conforming to ASTM Designation B241 Alloy 6061-T6. Mill Finish.

Set screws shall be aluminum alloy conforming to ASTM Designation B211 Alloy 2024-T4 and shall have at least 0.0002 inch anodic coating and chromate seal.

All aluminum castings shall be finished by grinding off the gates and parting line followed by sand blasting and one coat of lacquer.

All concrete in end posts and parapet shall be Class AE-2 and shall be given the "Rubbed Surface Finish".

All posts shall be set normal to grade.

Each section of pipe rail shall project through, or into, at least three and preferably four posts.

The bottom of rail posts in contact with concrete shall be coated with caulking compound, grade I-for gun application; white, natural or grey in color and furnished in cartridges; conforming to the latest Federal Spec. TT-C-598. Application shall be made to clean and dry surfaces above 40° F. Joints may be freed from dust by swabbing with caulking compound waste, moistened with turpentine or universal spirits. Compound shall be placed with care to prevent smearing the area outside and around the base of the post.

All pipe, rail posts, anchor bolt assemblies, bolts, shims, set screws, end caps and compound shall be included in the price bid for Ornamental Metal Railing.

Parapet and end post quantities are included in the slab quantities on slab sheet. Pay length for Ornamental Metal Railing is also given on slab sheet.

To reduce shrinkage stresses the concrete railing base shall be poured in alternate sections not more than six panels long, and at least 3 days shall elapse before the intervening sections are poured. Plain butt joints with the longitudinal bars extending through shall be made between sections.

Parapet Bar List (See Slab Details)

BAR LIST (4 END POSTS)

MARK	NO.	SIZE	LENGTH	SHAPE
P1	8	5	3'-4"	Bent
P2	4	5	3'-8"	"
P3	4	5	4'-2"	"
P4	8	5	4'-4"	"
P5	8	5	3'-0"	"
P6	4	5	3'-2"	"
P7	4	5	3'-3"	"
P8	8	5	2'-0"	"
P9	16	4	4'-6"	Str.
P10	8	4	2'-8"	"
P11	8	5	4'-9"	Field Bent

STANDARD PARAPET WITH ALUMINUM RAILING

Revision: Anchor Bolts Changed to Austenitic Stainless Steel.

QUANTITIES FOR 4 END POSTS

H-0132