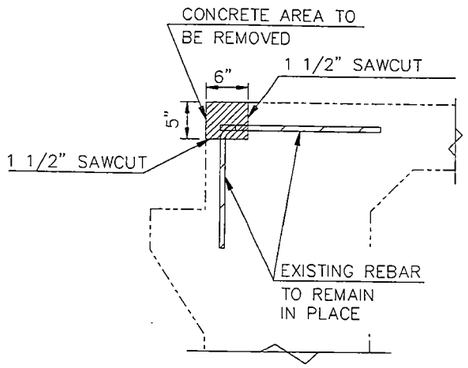
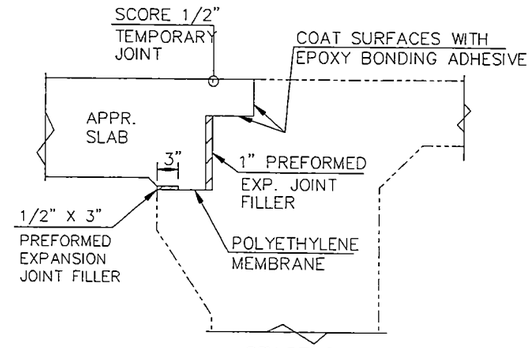
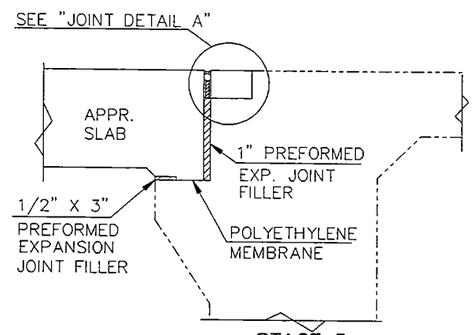
FHWA REGION	STATE	FEDERAL AID PROJECT NUMBER	SHEET NO.
8	ND	IM-2-094(007)256	233



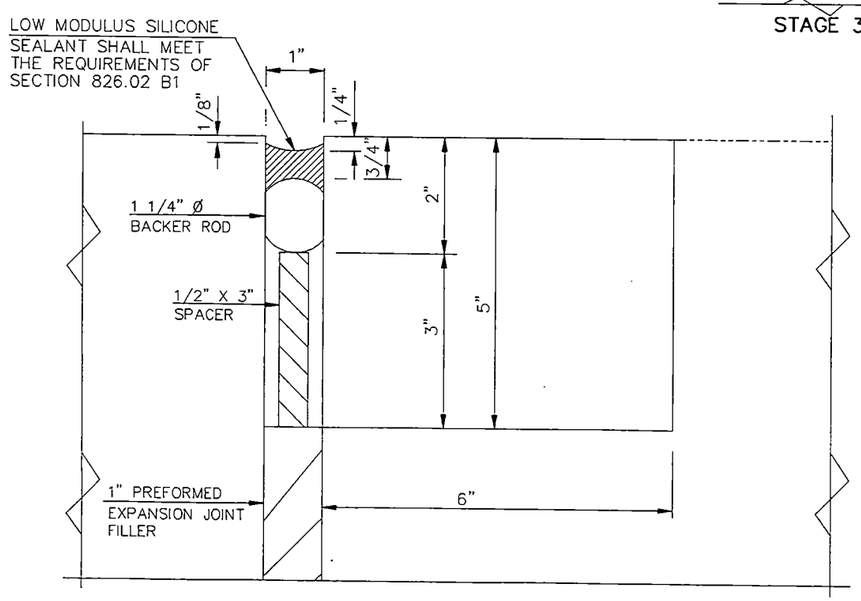
STAGE 1



STAGE 2



STAGE 3



JOINT DETAIL A

APPROACH SLAB – BRIDGE DECK JOINT

STAGE 1:

1. SAW 1 1/2" DEEP CUTS ALONG THE TOTAL WIDTH OF THE DECK OR AS CLOSE TO THE CURB AS POSSIBLE.

2 REMOVE THE CONCRETE FROM THE DECK APPROXIMATELY 5" DEEP AND 6" ACROSS FROM CURB LINE TO CURB LINE WITHOUT DAMAGING THE REINFORCING STEEL.

STAGE 2:

3. AFTER PLACING 1" THICK PREFORMED EXPANSION JOINT FILLER AGAINST THE EDGE OF THE DECK, PLACE THE NEW APPROACH SLAB CONCRETE INCLUDING THE 5" X 6" AREA OF THE DECK. IMMEDIATELY BEFORE PLACING CONCRETE IN THE 5" X 6" AREA, COAT THE SURFACES OF THE DECK WITH A EPOXY BONDING ADHESIVE. THIS ADHESIVE SHALL MEET THE REQUIREMENTS OF AASHTO M-235 TYPE 2, GRADE 2 AND THE APPROPRIATE CLASS DEPENDING ON THE TEMPERATURE OF THE DECK CONCRETE AT THE TIME OF APPLICATION.

STAGE 3:

4. AFTER THE CONCRETE HAS SET SAW CUT A 1" WIDE BY 5" DEEP JOINT OUT OF THE CONCRETE BETWEEN THE APPROACH SLAB AND THE NEW BRIDGE DECK END. THE THE JOINT SHOULD BE CENTERED OVER THE PREFORMED EXPANSION JOINT FILLER.

5. CLEAN THE JOINT AND INSTALL THE 3" SPACER, THE BACKER ROD AND THE SILICONE SEALANT ACCORDING TO SECTION 550.04 M.3 OF THE STANDARD SPECS.

GENERAL:

WHEN SAW CUTTING CANNOT EXTEND ALONG THE TOTAL WIDTH OF THE DECK, THE AREA FROM WHERE THE SAW CUT ENDS AND THE SIDE EDGES OF THE DECK SHALL BE FORMED WITH 1" THICK PREFORMED JOINT FILLER AND FINISHED WITH BACKER ROD AND SILICONE SEALANT.

NOTES:

THE ESTIMATED MATERIAL QUANTITIES SHOWN ON DRAWINGS NO. 94-257.002-1 ARE FOR INFORMATIONAL PURPOSES ONLY. ALL MATERIALS, INCLUDING CONCRETE, REINFORCING BARS, DOWEL BARS, BACKER ROD, SILICONE SEALANT, POLYETHYLENE MEMBRANE, SAW CUTTING, PREFORMED JOINT FILLER AND LABOR REQUIRED TO BUILD THE APPROACH SLAB AND REMOVAL OF ASPHALT SHALL BE INCIDENTAL TO THE PAY ITEM "CONCRETE BRIDGE APPROACH SLAB (REMOVE & REPLACE)".

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

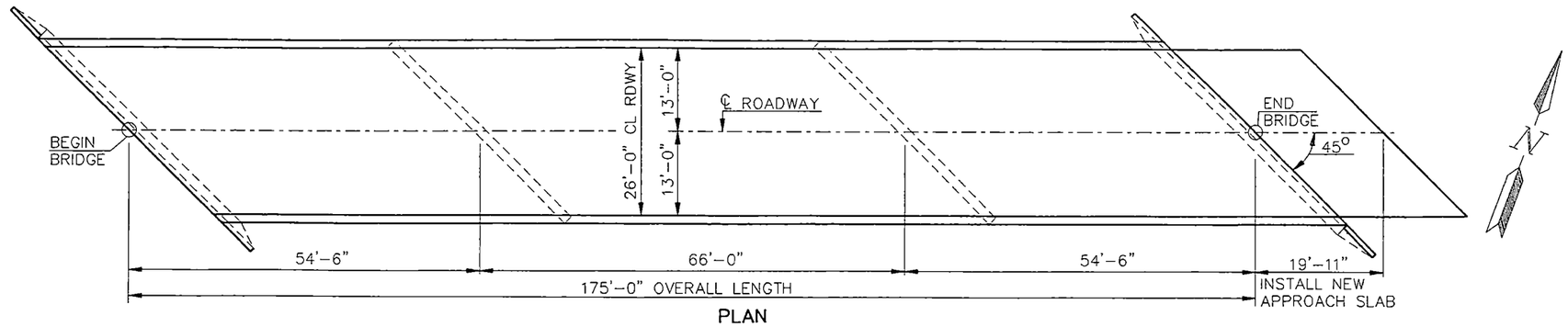
THE POLYETHYLENE MEMBRANE SHALL MEET THE REQUIREMENTS OF AASHTO M171.

ALL DOWEL BARS SHALL BE EPOXY COATED AND CONFORM TO AASHTO M-254 TYPE B. FREE ENDS OF THE DOWEL BARS SHALL BE GIVEN A THIN UNIFORM COATING OF GREASE. THIS COATING SHALL BE APPLIED WITHIN TWO HOURS BEFORE COVERING WITH CONCRETE.

WEST JAMESTOWN X-OVER

APPROACH SLAB
JOINT DETAIL

FHWA REGION	STATE	FEDERAL AID PROJECT NUMBER	SHEET NO.
8	ND	IM-2-094(007)256	232



PLAN

NOTES:
SCOPE OF WORK AT THIS SITE IS TO REMOVE THE EXISTING ASHPHALT AND TO INSTALL A BRIDGE APPROACH SLAB AT THE NE END OF THE BRIDGE.

WIDTH = 26'-0" CLR RDWY

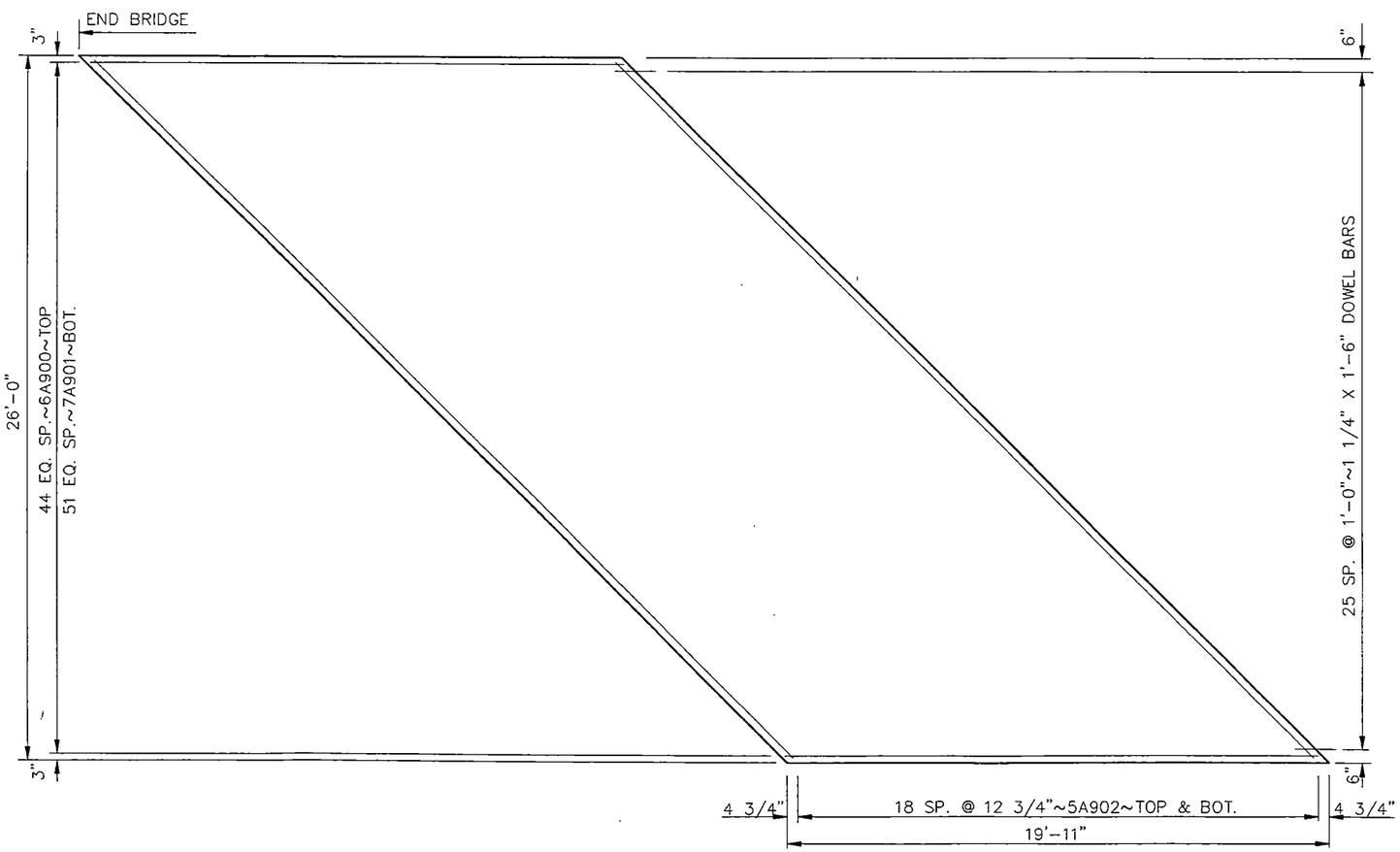
SKEW ANGLE = 45°

BAR LIST - ONE SLAB

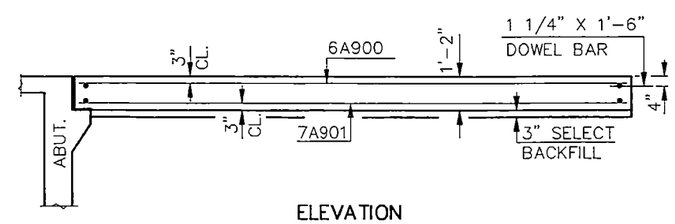
SIZE	MARK	NO.	LENGTH
6	A900	45	19'-7"
7	A901	52	19'-7"
5	A902	38	36'-3"

ESTIMATED MATERIAL QUANTITIES

REINFORCING STEEL LB	CONCRETE CY
4,842	22.4



PLAN



ELEVATION

QUANTITIES		
APPROACH SLAB	57.5	SY
SELECT BACKFILL	9.0	TON

WEST JAMESTOWN X-OVER

APPROACH SLAB
EXIT END

STATE	PROJECT NO.	PCN	SHEET NO.
ND	SIM-9-999(156)	15103	1

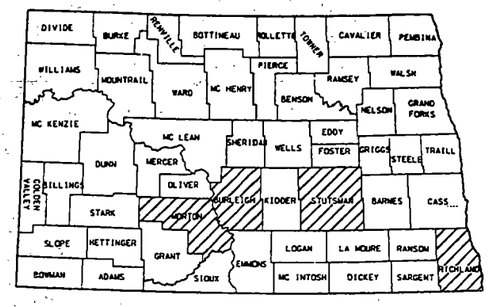
JOB# 13

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

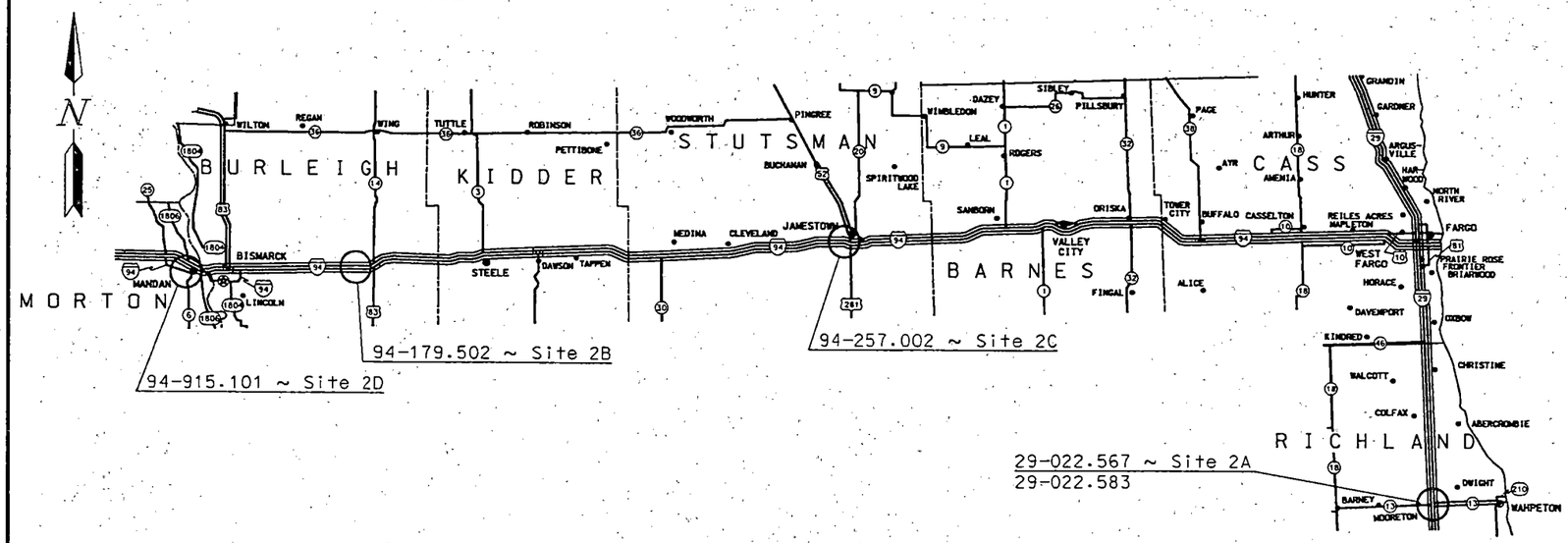
BURLEIGH, MORTON, RICHLAND & STUTSMAN COUNTIES

SIM-9-999(156)

PAINTING BRIDGE STRUCTURAL STEEL



STATE COUNTY MAP



SITE LOCATIONS

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.

INDEX OF DRAWINGS

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	ESTIMATE OF QUANTITIES
3	BASIS OF ESTIMATE AND NOTES
4-7	STRUCTURAL STEEL PAINTING DETAILS
8-9	TRAFFIC CONTROL DEVICES LIST

SPECIAL PROVISIONS

SP 500(97) BRIDGE PAINTING

LIST OF STANDARD DRAWINGS

D-704-8	BREAKAWAY SYSTEMS FOR CONSTRUCTION ZONE SIGNS
D-704-9, 10, 11, 12	CONSTRUCTION SIGN DETAILS
D-704-13	BARRICADE DETAILS
D-704-14	CONSTRUCTION SIGN AND BARRICADE ASSEMBLY DETAILS
D-704-19	CONSTRUCTION SIGN AND BARRICADE LOCATION DETAILS
D-704-33	SIGN LAYOUT FOR ONE LANE CLOSURE
D-704-35	SIGN LAYOUT FOR ONE LANE CLOSURE INTERSTATE SYSTEM

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

APPROVED DATE 4-24-02

Terrence R. Udland

BRIDGE ENGINEER
NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

TERRENCE R. UDLAND REGISTERED PROFESSIONAL 2674 ENGINEER NORTH DAKOTA

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

APPROVED DATE 4/24/2002

Francis G. Ziegler

OFFICE OF INFRASTRUCTURE SUPPORT
NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

FRANCIS G. ZIEGLER REGISTERED PROFESSIONAL P.E. 1679 ENGINEER NORTH DAKOTA

STRUCTURAL STEEL PAINTING ~ BASIS OF ESTIMATE

SITE	BRIDGE NO.	DISTRICT	LOCATION	AREAS TO BE PAINTED	TRAFFIC CONTROL STANDARD DRAWINGS	GIRDER LENGTH	FINISH COLOR	COLOR NO.	AREA (SF)	SPOT COAT (SF)	TOTAL (SF)
2A	29-022.567 29-022.583	Fargo	Mooreton Interchange	Fascia Girders & Spot Paint	D-704-33 D-704-35	243'-8"	Blue-Gray	25184	6800	700	7500
2B	94-179.502	Bismarck	McKenzie Separation	All Exposed Structural Steel	D-704-19, Type F D-704-35	238'-6"	Brown	20095	6200	---	6200
2C	94-257.002	Valley City	West Jamestown Crossover	All Exposed Structural Steel	D-704-19, Type F D-704-35	172'-0"	Blue	25095	6100	---	6100
2D	94-915.101	Bismarck	Heart River Bridge	South Fascia Girder	D-704-19, Type F	281'-0"	Blue	25240	2100	---	2100
								TOTAL	21,200	700	21,900

NOTES:

100 SCOPE OF WORK: This project consists of cleaning and painting the fascia surfaces of exterior girders and miscellaneous spot coating of deteriorated areas for Site 2A and the fascia surface of the south exterior girder for Site 2D. All exposed structural steel shall be cleaned and painted for Sites 2B & 2C.

630 CLEANING AND PAINTING: All structural steel surfaces that are to be painted shall be cleaned and painted according to Special Provision 500(97). The finish coats at each site shall be the color shown in the above table and shall meet Federal Standard No. 595B colors. Sites 2A, 2B, 2C and 2D are paid for under the lump sum bid item "Cleaning & Painting - Site 2."

Drawings 9-999.156-1 thru 9-999.156-4 show the approximate surface area of exposed structural steel to be painted at each site. A complete set of plans for each structure can be viewed at the NDDOT Bridge Division.

704 TRAFFIC CONTROL: The traffic control at each site shall be according to the Standard Drawings listed in the above table. At Site 2C, the traffic control shown on Standard Drawing D-704-19, Type F need only be for one direction. The traffic control shall be set up only while work is going on at the sites during daylight hours. The traffic control shall be removed and normal traffic operations restored at the end of each workday.

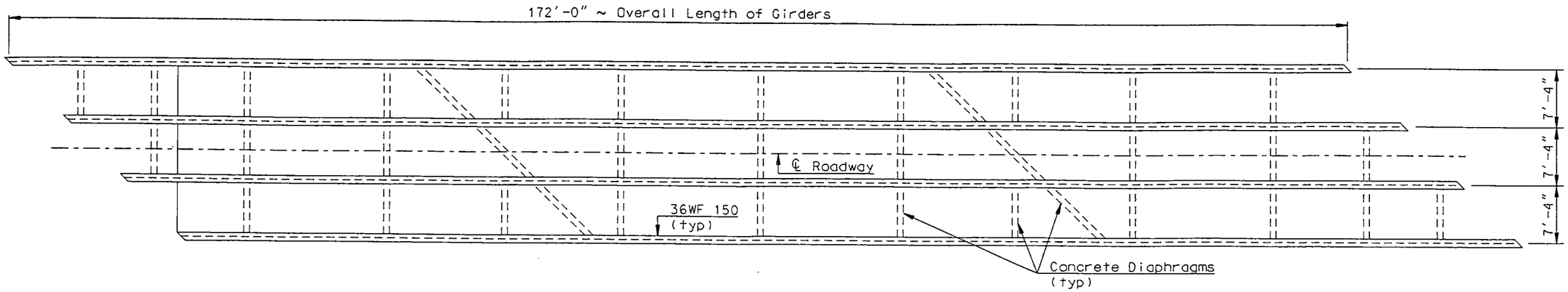
704 TRAFFIC CONTROL DEVICES LIST: The traffic control quantities include devices for traffic control to be set up at two sites simultaneously. The contractor will only be paid for the signs and devices used at two sites and shall move the traffic control from one completed site to the next.

SPEC	CODE	ITEM DESCRIPTION	UNIT	QUANTITY
630	0121	CLEANING & PAINTING - SITE 2	L SUM	1

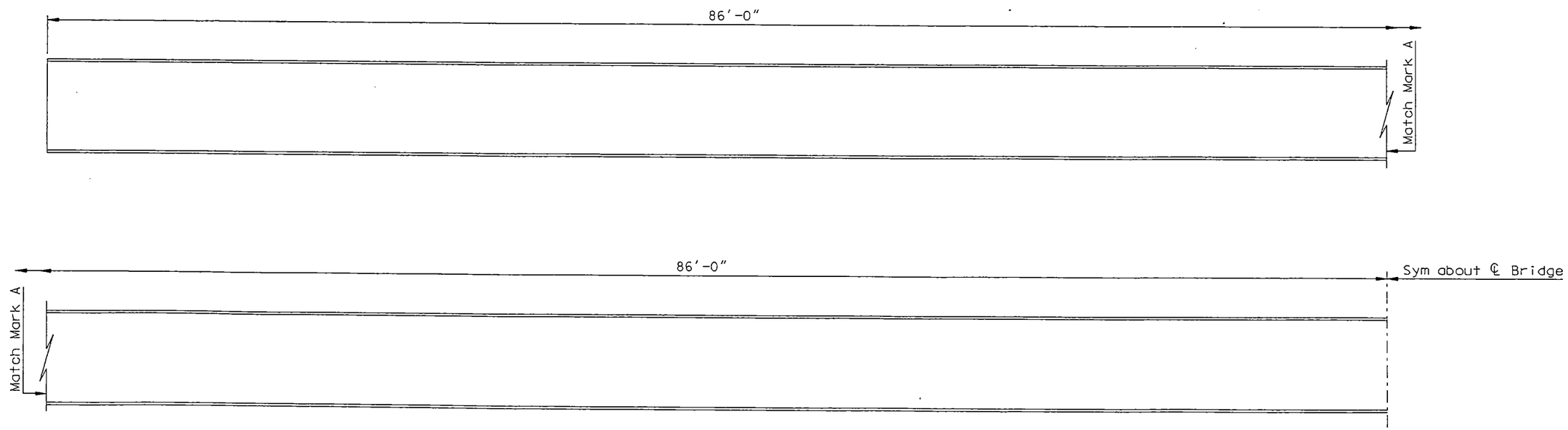
STATEWIDE
(FOUR SITES)

STRUCTURAL STEEL PAINTING
BASIS OF ESTIMATE & NOTES

STATE	PROJECT NUMBER	SHEET NO.
ND	SIM-9-999(156)	6



GIRDER LAYOUT



HALF GIRDER ELEVATION

WEST JAMESTOWN CROSSOVER
94-257.002

STRUCTURAL STEEL
PAINTING DETAILS

DESIGN DATA				
Traffic	Average Daily			Est.Max.Hr.
Current 1995	Pass:2690	Trucks850	Total3540	350
Forecast2015	Pass:4035	Trucks1275	Total5310	530
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# 18

FHWA REGION	STATE	PROJECT NO.	SHEET NO.
8	ND	IM-2-094(007)256	1

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

FEDERAL AID PROJECT NO IM-2-094(007)256

IN STUTSMAN COUNTY

Recycled PCC Pavement & Incidentals

(N Roadway)

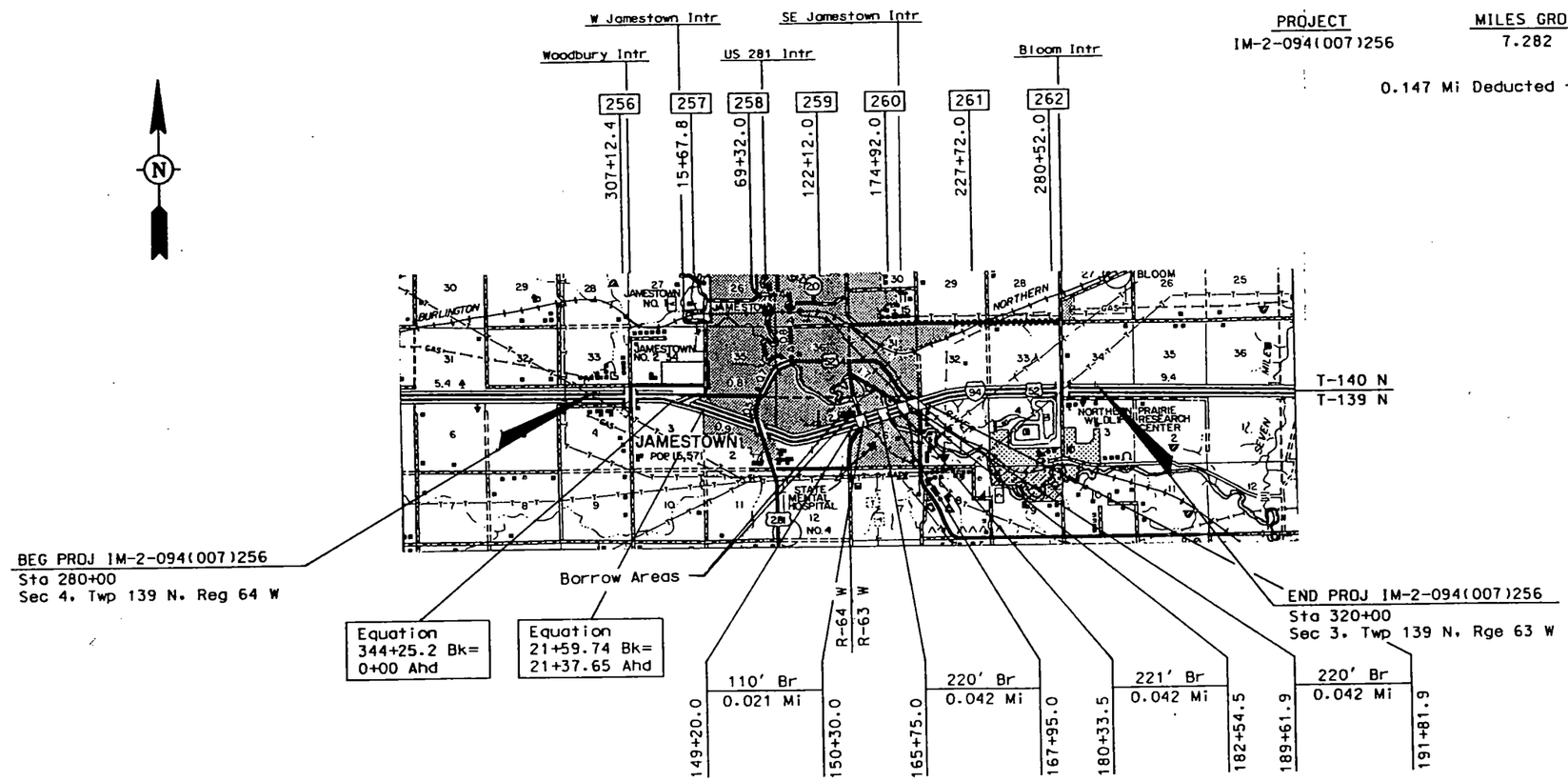
GOVERNING SPECIFICATIONS:

Standard Specifications adopted by the North Dakota Department of Transportation September 1992; Standard Drawings currently in effect; and other Contract Provisions submitted herein.

LENGTH OF PROJECT

PROJECT	MILES GROSS	MILES NET
IM-2-094(007)256	7.282	7.135

0.147 Mi Deducted for Structures



256-19

PAVING SECTION Brian Prairie

URBAN SECTION

TRAFFIC SECTION Dave Ellefson

RURAL SECTION

RECOMMEND APPROVAL 1-10, 1997

DESIGN ENGINEER Kenth E. Suit

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED

DIVISION ADMINISTRATOR DATE

APPROVED DATE 1-10-97

Ray Zink

DIRECTOR OF HIGHWAYS AND ENGINEERING

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

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

r:\project\20094256.007\d_paving\2 Dec. 27, 1996 10:56:44

JOB# 1

FHWA REGION	STATE	PROJECT	SHEET NO.
8	N.D.	IR-094-6(058)240	1

DESIGN DATA

Traffic		Average Daily				Est. 30th Max. Hr.
Current (1990)	2250 Pass.	500	Trucks	2750	Total	350
Forecast (2010)	2850 Pass.	850	Trucks	3700	Total	425

Design Speed 70 MPH
Traffic Classification "M"
Minimum Sight Distance (Stopping) 600'
Full control of access
No point of access other than by ramps at interchanges

NORTH DAKOTA
DEPARTMENT OF TRANSPORTATION

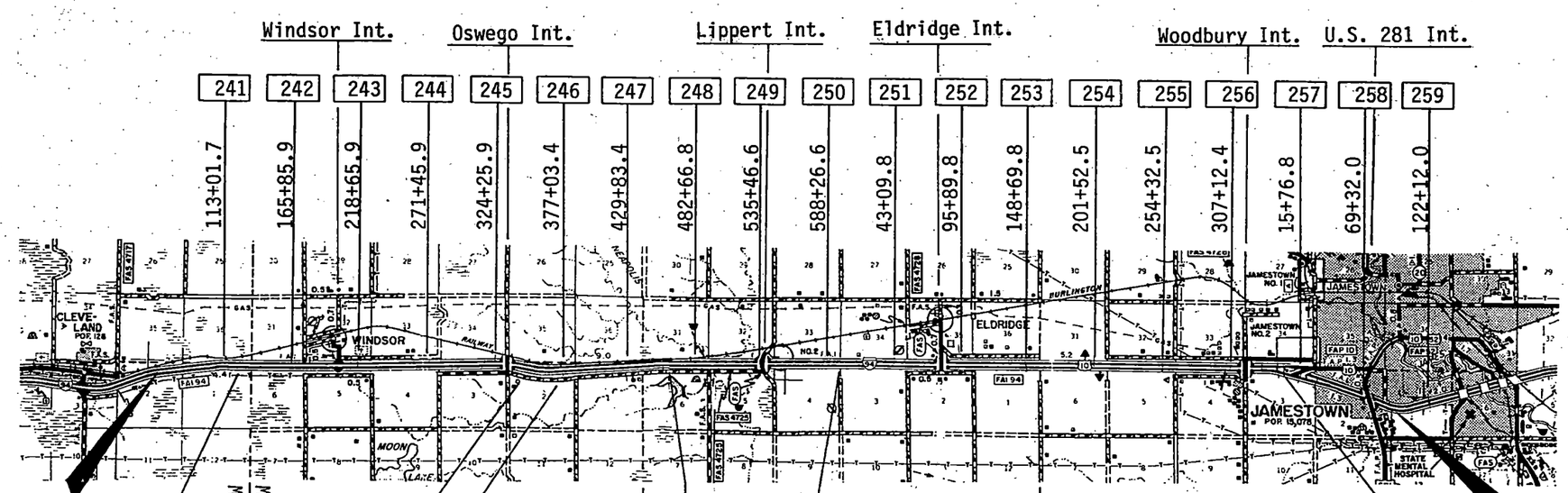
FEDERAL AID PROJECT NO. IR-094-6(058)240
IN
STUTSMAN COUNTY
RECYCLED PCC PVMT. & GRINDING
(S. ROADWAY)
CONTRACT 2

GOVERNING SPECIFICATIONS:

Standard Specifications for Road and Bridge Construction, adopted by the North Dakota State Highway Department, November 1986, shall apply to all North Dakota Department of Transportation contracts, standard drawings currently in effect, and other contract provisions submitted herein.

LENGTH OF PROJECT

Project	Miles-Gross	Miles-Net
IR-094-6(058)240	18.398	18.398



EQUATION 122+55.5 Bk.= 122+59.7 Ahd.

EQUATION 339+75.8 Bk.= 339+83.9 Ahd.

EQUATION 368+38.7 Bk.= 368+28.1 Ahd.

EQUATION 462+15.7 Bk.= 462+19.1 Ahd.

EQUATION 597+96.8 Bk.= 0+00 Ahd.

EQUATION 158+89.1 Bk.= 158+91.8 Ahd.

EQUATION 344+25.2 Bk.= 0+00 Ahd.

Beg. IR-094-6(058)240 Sta. 63+60
Sec. 2, Twp. 139 N., Rge. 67 W.

End IR-094-6(058)240 Sta. 92+89.4
Sec. 1, Twp. 139 N., Rge. 64 N.

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED

DIVISION ADMINISTRATOR DATE

APPROVED DATE 9/1/90

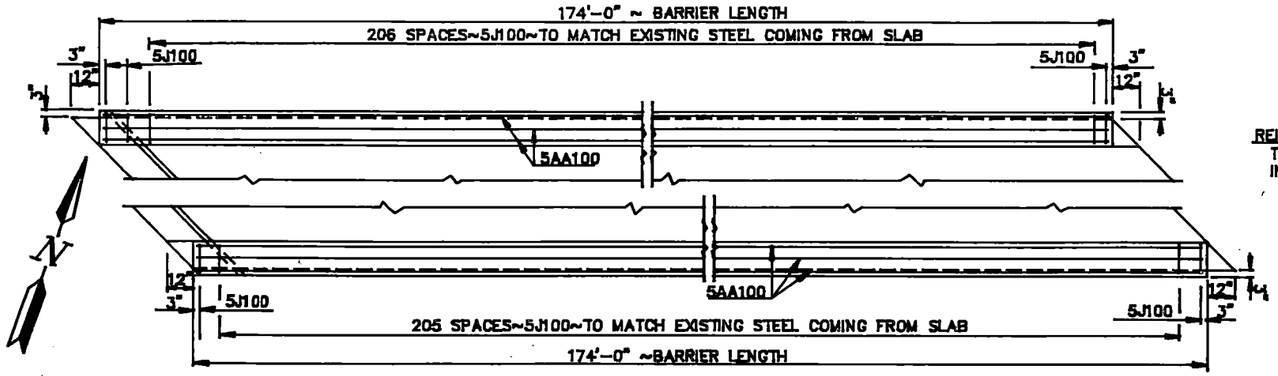
Ray Zink

DIRECTOR OF HIGHWAYS
AND ENGINEERING

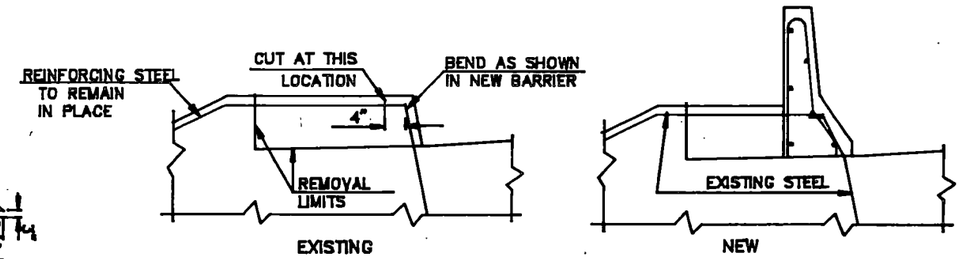
NORTH DAKOTA
DEPARTMENT OF TRANSPORTATION

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

FHWA REGION	STATE	FED. AID PROJ. NO.	SHEET NO.
8	N.D.	IR-094-6(058)240	183



PLAN OF BARRIER



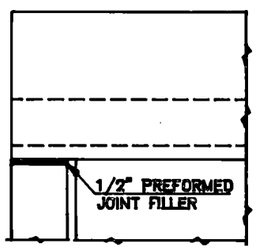
ELEVATION AT ABUTMENT

NOTES: ROADWAY CANOPY: THE STRUCTURAL CONTRACTOR SHALL CONSTRUCT A CANOPY ABOVE THE EXISTING ROADWAY UNDER THE STRUCTURE TO PROTECT TRAFFIC FROM FALLING MATERIAL. THE CANOPY IS AN ADDED SAFEGUARD AND DOES NOT RELIEVE THE CONTRACTOR OF ANY RESPONSIBILITY FOR THE SAFETY OF THE PUBLIC.

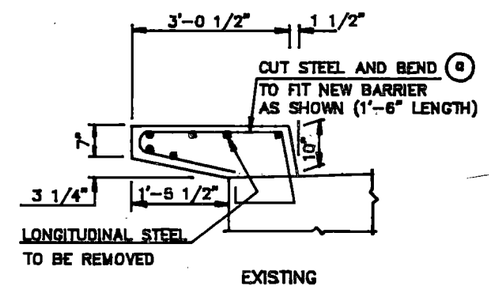
THE CANOPY SHALL BE OF A DESIGN AND MATERIAL SELECTED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER. THE MINIMUM VERTICAL CLEARANCE FROM THE THE TRAVELED ROADWAY TO THE BOTTOM OF THE CANOPY SHALL BE 13'-6". THE CANOPY SHALL PROJECT A MINIMUM DISTANCE OF 5'-0" BEYOND THE OUTSIDE EDGE OF THE CURB OF THE STRUCTURE AND SHALL EXTEND OUT TO THE SHOULDERS OF THE TRAVELED ROADWAY BELOW.

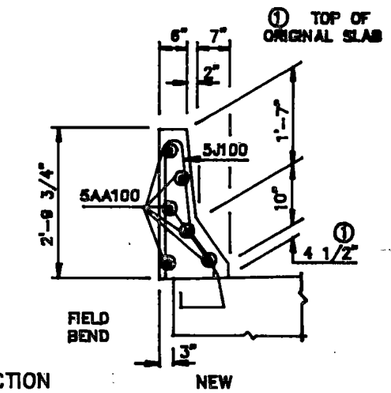
AFTER COMPLETION OF THE STRUCTURE, THE CANOPY SHALL BE REMOVED AND SHALL REMAIN THE PROPERTY OF THE CONTRACTOR.

THE ROADWAY CANOPY SHALL BE PAID FOR AT THE CONTRACT LUMP SUM UNIT PRICE FOR "ROADWAY CANOPY". THE INTENT OF THE BID ITEM, ROADWAY CANOPY, IS TO PROVIDE PROTECTION FOR THE ROADWAY UNDER THE BRIDGE DURING ALL STAGES OF CONSTRUCTION. THE DEPARTMENT SHALL PAY ONLY ONE LUMP SUM PAYMENT FOR THIS PROTECTION. THIS LUMP SUM SHALL INCLUDE CONSTRUCTION, MAINTENANCE AND REMOVAL OF THE CANOPY.



EXPANSION END





TYPICAL SECTION

GENERAL NOTES

100 GENERAL: THIS PROJECT CONSISTS OF REMOVING EXISTING RAILING & POSTS & INSTALLING A JERSEY BARRIER. THE EXISTING RAILING AND POSTS SHALL BECOME THE PROPERTY OF THE CONTRACTOR.COST FOR REMOVAL SHALL BE INCIDENTAL TO THE PAY ITEM "REMOVAL OF CONCRETE".

202 REMOVAL OF CONCRETE: ALL WORK TO REMOVE THE END POSTS AND CURB TO THE REMOVAL LIMITS AS SHOWN AND TO PROPERLY DISPOSE OF THE CONCRETE SHALL BE INCIDENTAL TO THE PAY ITEM "REMOVAL OF CONCRETE".

602 SURFACE FINISH "D": SURFACE FINISH "D" SHALL BE APPLIED TO ALL EXPOSED FACES OF THE BARRIER.

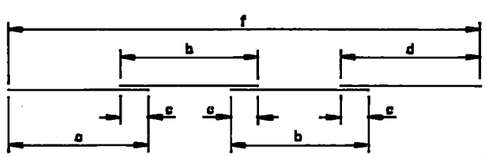
602 BARRIERS: BARRIERS SHALL BE CONSTRUCTED ACCORDING TO THE PROVISIONS OF SECTION 602.03 B. 4. V-GROOVE CONTRACTION JOINTS SHALL BE ADDED AT APPROXIMATELY 10-FOOT SPACING IN THE BARRIERS. THE COST OF MATERIALS AND LABOR TO INSTALL NEW BARRIERS SHALL BE INCIDENTAL TO THE PAY ITEM "CLASS AAE-3 CONCRETE".

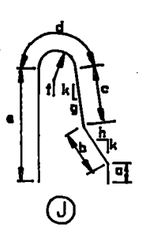
(a) ANY EXISTING STEEL WHICH IS DAMAGED SHALL BE REPLACED BY AN ANCHORAGE UNIT INSTALLED WITH A HIGH STRENGTH ADHESIVE SPECIFICALLY INTENDED FOR CONCRETE ANCHORAGE. (HILTI, HBR OR AN APPROVED EQUAL). THE BAR SHALL BE EQUIVALENT TO A NO. 5 BAR AND SHALL BE 2'-0" LONG.

BILL OF REINFORCING STEEL, GRADE 60

LETTER PREFIX OF BAR MARK DENOTES SHAPE ~ SEE BAR DETAILS

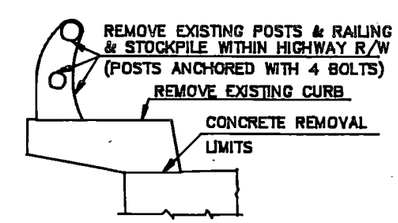
LOCATION		SIZE	MARK	NO. EACH /SET	NOMINAL LENGTH	DETAILING DIMENSIONS a	b	c	d	e	f	g	h	k
BARRIER WALL	REGULAR	5	AA100	12	177'-4"	57'-4"	60'-0"	1'-10"		2	173'-6"			
		5	J100	418	5'-2"	4"	1'-0"	1'-4 7/8"	3 1/8"	2'-2"	1 1/2"	1 1/4"	8 3/8	12





REINFORCING STEEL NOTES

1. FABRICATION AND TOLERANCES SHALL BE IN ACCORDANCE WITH THE CRSI MANUAL OF STANDARD PRACTICE.
2. ALL DIMENSIONS ARE OUT TO OUT OF BARS.
3. NOMINAL LENGTH OF EACH BENT BAR OR CUT BAR IS THE SUM TOTAL OF THE DETAILING DIMENSIONS FOR THAT BAR, UNLESS OTHERWISE NOTED.
4. ADJACENT AA BARS SHALL BE TURNED END FOR END SO THAT THE SPLICE LOCATIONS ARE STAGGERED.



EXISTING CURB WITH RAILING

QUANTITIES	
REMOVAL OF CONCRETE	30.6 C.Y.
CLASS AAE-3 CONCRETE	26.9 C.Y.
REINFORCING STEEL	4,473 LBS.
ROADWAY CANOPY	1 L.SUM

WEST JAMESTOWN X-OVER

BARRIER WALL DETAILS

FHWA REGION	STATE	PROJECT	SHEET NO.
8	N.D.	IR-94-6(46)257 IR-94-7(25)259	1

NORTH DAKOTA

STATE HIGHWAY DEPARTMENT

REPAIR & OVERLAY PORTLAND CEMENT CONCRETE BRIDGE DECKS IN STUTSMAN COUNTY
FEDERAL AID PROJ. NO. IR-94-6(46)257 & IR-94-7(25)259

GOVERNING SPECIFICATIONS:

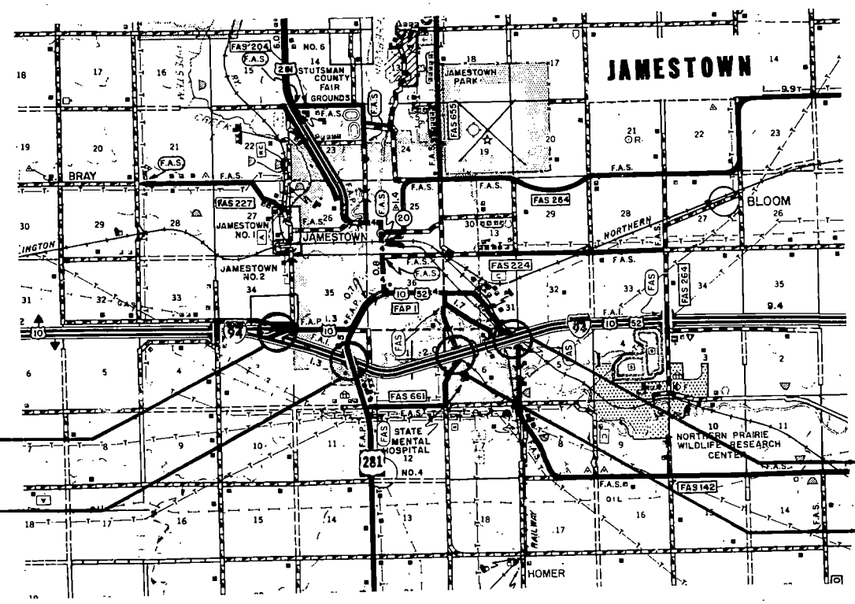
Standard Specifications adopted by the North Dakota State Highway Department, Oct. 1976, and approved by the Federal Highway Administration on December 17, 1976, and other Contract Provisions submitted herewith.

N

94-257.002

IR-94-6(46)257

94-258.055



94-260.304

IR-94-7(25)259

94-259.523

APPROVED DATE 12-1-78

Stanley Haas

BRIDGE ENGINEER
NORTH DAKOTA
STATE HIGHWAY DEPARTMENT

STANLEY HAAS REGISTERED PROFESSIONAL 494 ENGINEER NORTH DAKOTA

APPROVED DATE 12-8-78

R. E. Bradley

CHIEF ENGINEER
NORTH DAKOTA
STATE HIGHWAY DEPARTMENT

R. E. BRADLEY REGISTERED PROFESSIONAL ENGINEER NORTH DAKOTA 200

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED

DIVISION ENGINEER DATE

FED. ROAD DIST. NO.	STATE	PROJ. NO	SHEET NO.	TOTAL SHEETS
8	N. D.	IR-94-6(46)257 IR-94-7(251)259	2	

NOTES & MISCELLANEOUS

THE CONTRACTOR SHALL NOTIFY THE DISTRICT OFFICE OF THE STATE HIGHWAY DEPARTMENT WELL IN ADVANCE OF ANY WORK REQUIRED TO BE DONE BY THE STATE MAINTENANCE SO AS NOT TO INTERFERE WITH THE 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 OVERLAY 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 WHICH 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 THE LONGITUDINAL CENTERLINE TO THE CURB IN ONE CONTINUOUS POUR.

TRAFFIC SHALL BE MAINTAINED ON THE OTHER HALF OF ALL STRUCTURES EXCEPT THE WEST JAMESTOWN CROSSOVER. THIS STRUCTURE SHALL BE CLOSED TO TRAFFIC DURING THE OVERLAY OPERATION.

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.

SHOULDER REAPIR

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 ARTE OF $25.00 PER TON FOR HOT MIX USED TO MAINTAIN AND REPAIR THE SHOULDERS. THIS PAYMENT WILL CONSTITUTE FULL REIMBURSEMENT FOR ALL MATERIALS, LABOR, AND EQUIPMENT REQUIRED TO MAINTAIN AND REPAIR THE SHOULDERS. THE QUALITY OF AGGREGATE AND GRADE OF ASPHALT EMENT USED FOR THE NOT MIX SHALL BE SUBJECT TO THE APPROVAL OF THE ENGINEER.

SUB-BASE MATERIAL

THE COST OF PLACING ANY REQUIRED AGGREGATE UNDER THE REPLACED APPROACH PANELS AND THE PCC PAVEMENT PANELS, INCLUDING THAT REQUIRED TO BRING THEM TO THE PROPER GRADE, SHALL BE INCIDENTAL TO THE ITEMS REMOVE AND REPLACE APPROACH SLAB AND REMOVE AND REPLACE PCC PAVEMENT.

PANEL REMOVAL

THE THICKNESS OF THE EXISTING PCC PAVEMENT PANELS AND/OR THE APPROACH SLAB MAY VARY FROM THE ORIGINAL PLACEMENT THICKNESS DUE TO MUDJACKING WHICH HAS BEEN DONE BY MAINTENANCE FORCES ON SOME STRUCTURES. THE COST OF ANY EXTRA REMOVAL SHALL BE INCIDENTAL TO THE ITEMS REMOVE AND REPLACE PCC PAVEMENT AND REMOVE AND REPLACE APPROACH SLAB.

CONCRETE CURB TRANSITION

THE CONCRETE CURB TRANSITIONS OFF ALL FOUR CORNERS OF THE HWY. 281 STRUCTURE SHALL BE REMOVED PRIOR TO THE PLACEMENT OF THE MOUNTABLE CURBS. THEY SHALL BE DISPOSED OF AS DIRECTED BY THE ENGINEER. THE COST OF THIS REMOVAL SHALL BE INCIDENTAL TO THE ITEM FOR THE PLACEMENT OF THE MOUNTABLE CURB AND GUTTER.

CLASS OF CONCRETE

THE CONCRETE MIX USED IN THE OVERLAYS SHALL BE AS SPECIFIED IN THE SPECIAL PROVISIONS. ALL OTHER CONCRETE SHALL BE EITHER CLASS AE-1 OR AE-3 AT THE OPTION OF THE CONTRACTOR.

HOT BITUMINOUS PAVEMENT-SPECIAL

THE ASPHALT CEMENT AND THE TACK COAT ARE NOT SEPARATE PAY ITEMS, BUT SHALL BE INCLUDED IN THE PRICE BID FOR "HOT BITUMINOUS PAVEMENT-SPECIAL". THE AGGREGATE USED FOR HOT BITUMINOUS PAVEMENT AND THE TYPE AND GRADE OF LIQUID ASPHALT FOR TACK SHALL BE APPROVED BY THE ENGINEER IN THE FIELD. THE HOT BITUMINOUS PAVEMENT MATERIAL SHALL BE HOT MIXED, BLADE LAID, COMPACTED AND MAY BE OBTAINED FROM A COMMERCIAL SOURCE. IT IS INTENDED THAT THE OPTIMUM AMOUNT OF ASPHALT CEMENT BE USED IN THE MIX, AND THE QUANTITY SHOWN UNDER THE BASIS OF ESTIMATE MAY BE ADJUSTED BY THE ENGINEER IF NECESSARY.

MAINTENANCE AND PROTECTION OF TRAFFIC

THE STOCK OF SIGNS SHOWN ON THE PLANS NEED NOT BE ON THE PROJECT, BUT SHOULD BE AVAILABLE FOR USE WHEN NEEDED. THOSE SIGNS SHOWN ON THE PROJECT LAYOUT SHEET SHALL BE INSTALLED BEFORE WORK IS STARTED.

TWO LANE, TWO-WAY ROADWAYS

THE MAINTENANCE AND PROTECTION OF TRAFFIC FOR TWO LANE, TWO-WAY ROADWAYS PROVIDES FOR FLAGGING THE TRAFFIC AT ALL TIMES, UNTIL ROADWAY IS COMPLETELY OPEN TO TRAFFIC. IN LIEU OF PROVIDING FLAGGING AT ALL TIMES, A TRAFFIC SIGNAL SYSTEM MAY BE PROVIDED. THE TRAFFIC SIGNAL SYSTEM SHALL BE APPROVED BY THE ENGINEER PRIOR TO THE PRE-CONSTRUCTION CONFERENCE.

TABLE OF CONTENTS

SHEET NO.	GENERAL
1	TITLE SHEET
2	NOTES & QUANTITIES
3-15	PLAN DETAILS
16-19	CONSTRUCTION SIGNING
20-26	STANDARD DRAWINGS

LIST OF STANDARDS

D-708-1
D-708-9
D-754-1,2,3,4,&5

SHOP DRAWING REQUIRED
EXPANSION JOINT ASSEMBLY

SPECIAL PROVISIONS

NO.	NAME
SP-107-5	LEGAL RELATIONS & RESPONSIBILITY TO PUBLIC
SP-109-1	MEASUREMENT & PAYMENT
SP-762-2	MAINTENANCE & PROTECTION OF TRAFFIC
SP-762-3	" " "
SP-762-5	" " "
SP-610-3	PORTLAND CEMENT CONCRETE
SP-40	EXPANSION JOINT STRIP SEAL
SP-112	PRESSURE RELIEF JOINT FILLER
SP-184	REPAIR & OVERLAY OF P.C.C. BRIDGE DECK WITH LOW SLUMP CONCRETE
SP-756-1	FIELD LABORATORY

SUMMARY OF QUANTITIES

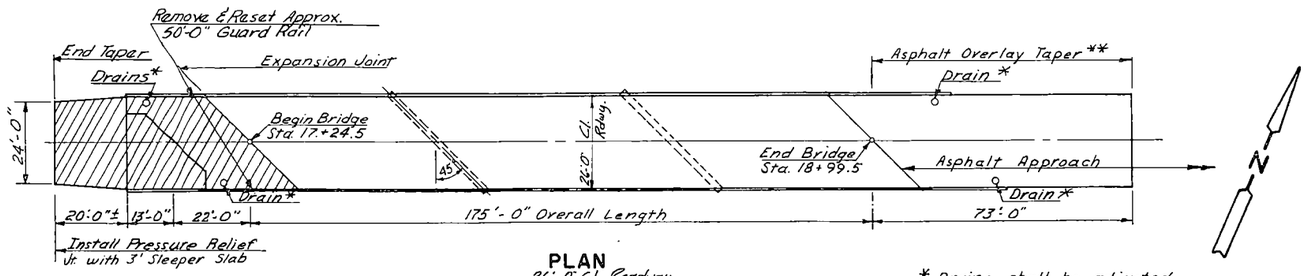
ESTIMATE OF QUANTITIES

SPEC. NO.	406	705	708	716	722	746	750	762	900	900	900	900	900	900	900	900	900	900	756
CODE NO.	0230	0100	0410	0100	0150	0100	0100	3299	8673	8674	8676	9499	9501	9582	9692	9700	9701	9702	0100
BRIDGE NO.	HOT BITUMINOUS PAVEMENT-SPECIAL	MOBILIZATION	MOUNTABLE CURB & GUTTER TYPE I	ADJUST CATCH BASIN	REMOVE & RESET GUARD RAIL	FLAGGING	LINSEED OIL TREATMENT	MTC. & PROTECTION OF TRAFFIC	EXP. JOINT MODIFICATION (STRIP SEAL)	JOINTS AT END OF BRIDGE	EXPANSION JOINT CURB ASSEMBLY	10" P.C.C. PAVING (REMOVE & REPLACE)	APPROACH SLAB (REMOVE & REPLACE)	PRESSURE RELIEF JOINT (3' SLEEPER SLAB)	GIRDER REPAIR	CLASS I OVERLAY	CLASS II OVERLAY	CLASS III OVERLAY	FIELD LABORATORY TYPE "A"
	TON	L.S.	L.F.	EACH	L.F.	M.H.	Gal.	L.S.	L.F.	L.F.	EACH	S.Y.	S.Y.	L.F.	EACH	S.Y.	S.Y.	S.Y.	L.S.
W. JAMESTOWN 94-257.002	10.7	1		4	100.0		10.1	1	38.8	39.6	2	55.6	108.9	24.0		505.6	126.4	25.3	1
HWY # 281 INT. 94-258.059	24.0		135.0	4	220.0	384	14.0		40.8		2					933.3	233.3	46.7	
HOSPITAL SEP. 94-259.523 RT.						80	7.3			84.0						488.9	122.2	24.4	
94-259.523 LT.				2	100.0	120	20.5			84.0		506.7	373.3	48.0		488.9	122.2	24.4	
BNNR / MINOR RD. SEP 94-260.304 RT						100	11.0		38.5	77.0	2				1	733.3	183.3	36.7	
94-260.304 LT				2	100.0	120	21.6		38.5	77.0	2	421.2	284.4	50.5	1	733.3	183.3	36.7	
GRAND TOTAL	35	1	135	12	520	804	85	1	157	362	8	964	767	123	2	3883	971	194	1

NOTES & QUANTITIES

QUANTITIES CHECKED BY

FED. ROAD CONT. NO.	STATE	PROJ. NO.	SHEET NO.	TOTAL SHEETS
8	N. D.	IR-94-6(261)257	3	

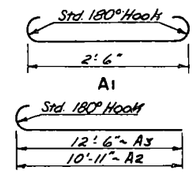


PLAN
26'-0" Cl. Roadway

* Drains shall be adjusted To meet overlay grade

** Paid for as Hot Bituminous Pavement – Special

BAR LIST				
MARK	NO.	SIZE	LENGTH	SHAPE
A1	24	4	3'-6"	Bent
A2	4	4	12'-3"	"
A3	4	4	14'-0"	"

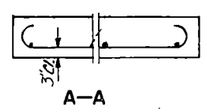


BENT BAR DETAILS
Dimensions shown are Out to Out

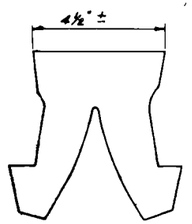
FULL DEPTH CONCRETE
(Removal & Replace to Final Grade Line)

FOAM SPACER

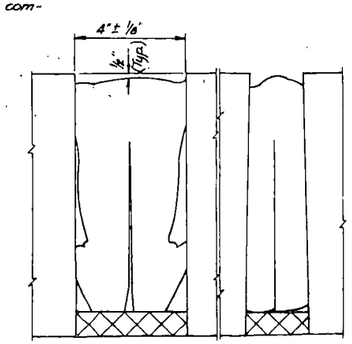
If Joint Filler does not bottom on pavement base, a rigid polystyrene or polyurethane foam spacer shall be placed below Filler and must be a material which is easily compressible.



A–A

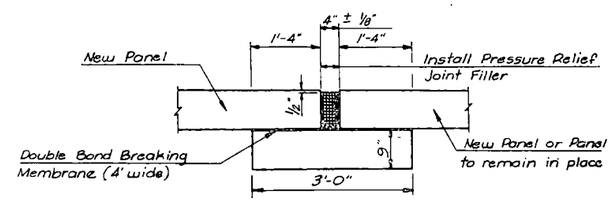


NATURAL SHAPE



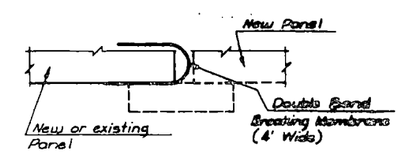
INSTALLED COMPRESSED SHAPE

CELLULAR PLASTIC PRESSURE RELIEF JOINT FILLER

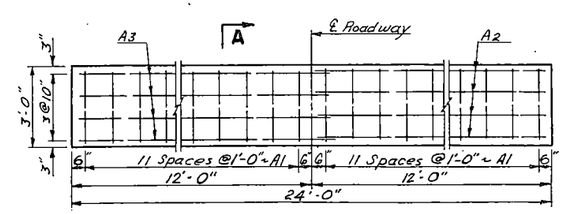


PRESSURE RELIEF JOINT WITH 3' SLEEPER SLAB

NOTE:
Dowels or any reinforcing steel projecting from Surface of existing panel to be removed or sawed off.



SHOWING PLACEMENT OF BOND BREAKING MEMBRANE
(With Two New Panels or One New & One Existing Panel)



3' SLEEPER SLAB
1 Required

QUANTITIES

WEST JAMESTOWN CROSS-OVER OVERLAY

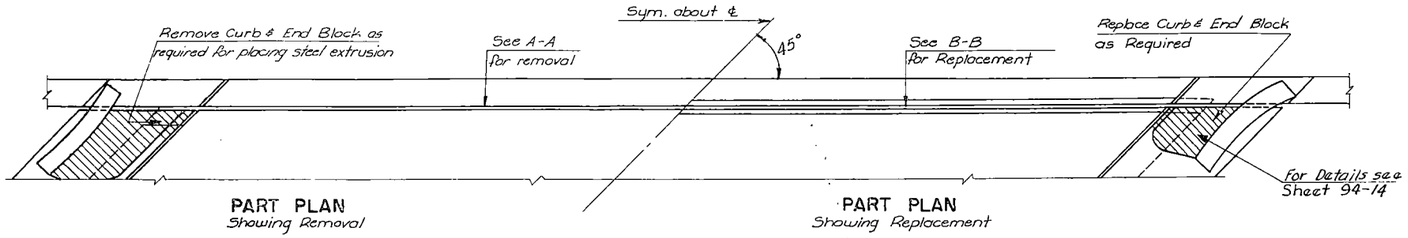
LAYOUT & DETAILS

94-257.002-3

94-257.002

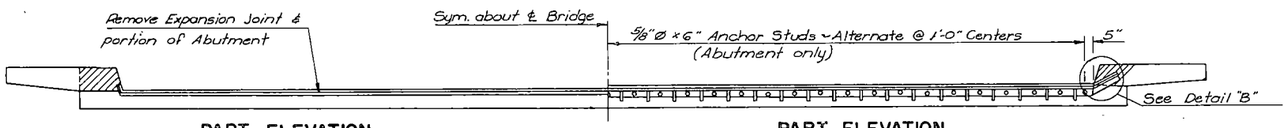
TRACING MADE BY CHECKED BY
QUANTITIES MADE BY CHECKED BY

FED. ROAD DIST. NO.	STATE	PROJ. NO.	SHEET NO.	TOTAL SHEETS
8	N. D.	IR-94-6(46)257	4	



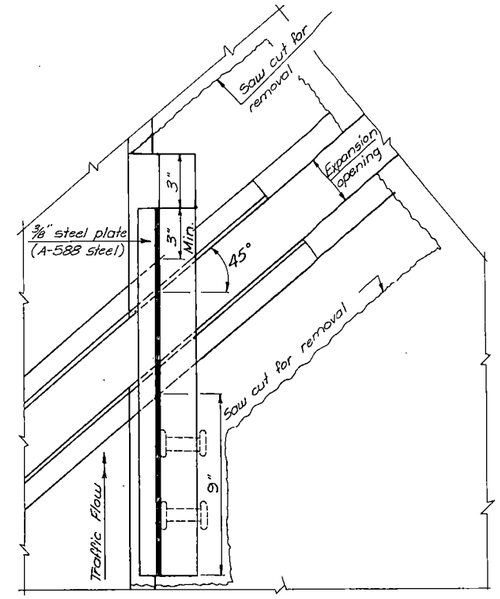
PART PLAN
Showing Removal

PART PLAN
Showing Replacement

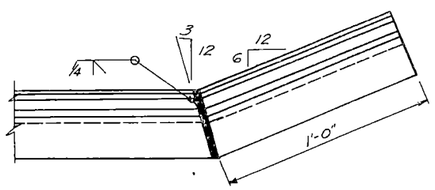


PART ELEVATION
Showing Portions of Structure to be removed

PART ELEVATION
Showing Portion of Structure to be Rebuilt

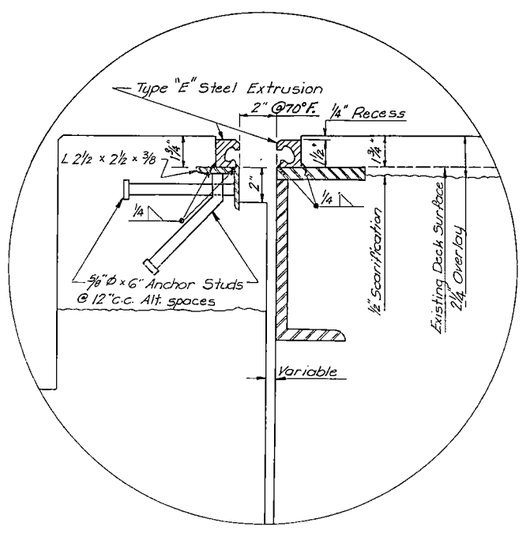


PLAN

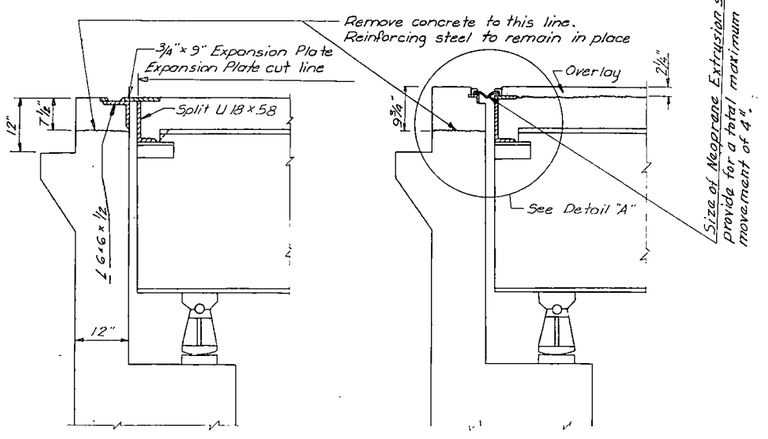


DETAIL "B"

NOTE:
All labor & materials required are incidental to the item "Expansion Joint Modification".



DETAIL "A"

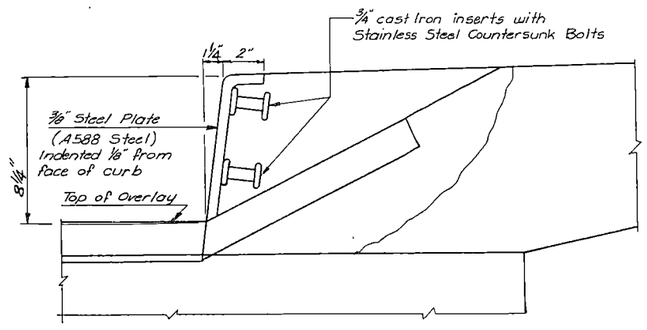


EXISTING

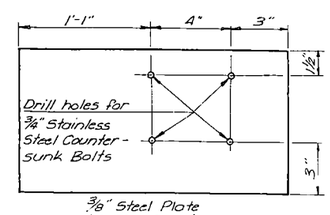
A-A

REMODELED

B-B



ELEVATION



3/8" Steel Plate (A 588 Steel)

QUANTITIES

WEST JAMESTOWN CROSS-OVER

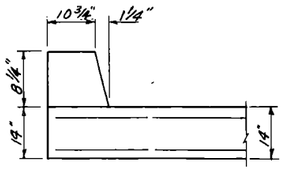
DETAILS

QUANTITIES | CHECKED BY

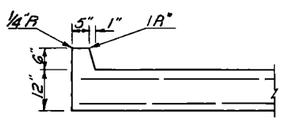
94-257.002--4

FED. ROAD DIST. NO.	STATE	PROJ. NO.	SHEET NO.	TOTAL SHEETS
8	N. D.	TR-94-6(46)257	5	

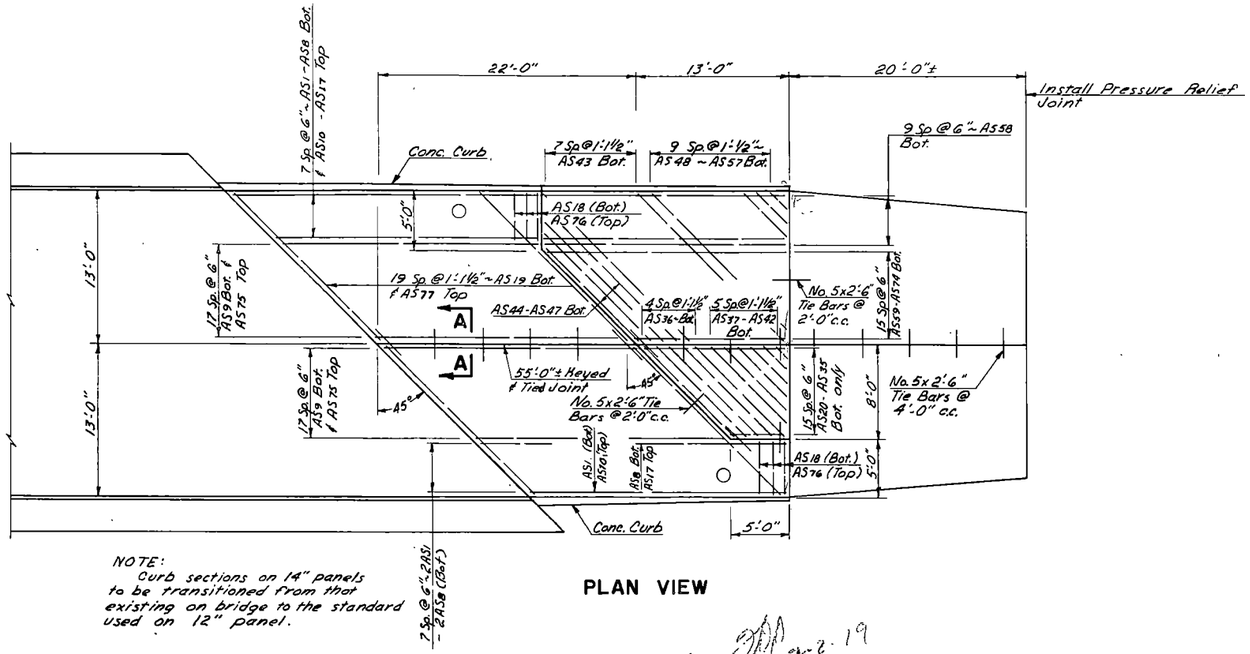
TRACING	MADE BY	CHECKED BY
QUANTITIES	MADE BY	CHECKED BY



STANDARD CURB SECTION ON END OF BRIDGE

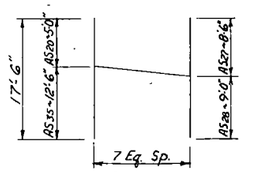


STANDARD CURB SECTION ON 13'-0" PANEL
(12" Thickness)

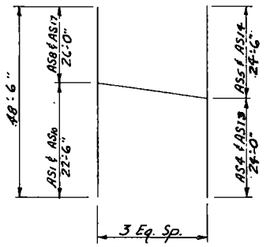


NOTE:
Curb sections on 14" panels to be transitioned from that existing on bridge to the standard used on 12" panel.

PLAN VIEW

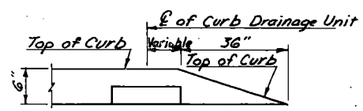


AS20 – AS35
1 Set Shown
1 Set Req'd.
Total Length 1 Set = 140'-0"

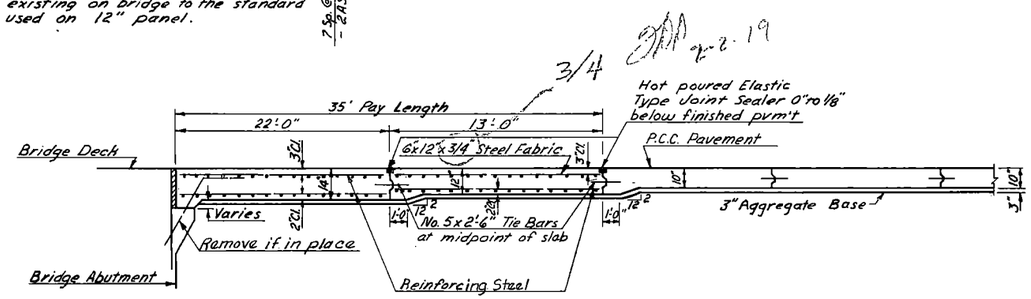


AS1 – AS8
AS10 – AS17
1 Set Shown
2 Sets Req'd.
Total Length 1 Set = 194'-0"

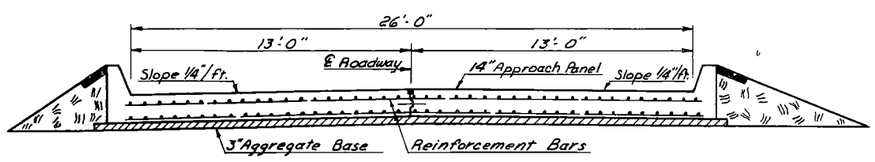
BAR LIST				
MARK	NO.	SIZE	LENGTH	SHAPE
AS1-8	2 Sets	8	194'-0"	Str.
AS9	36	8	21'-6"	"
AS10-17	2 Sets	8	194'-0"	"
AS18	6	7	4'-6"	"
AS19	40	7	17'-9"	"
AS20-35	1 Set	6	140'-0"	"
AS36	5	5	10'-9"	"
AS37	1	5	9'-0"	"
AS38	1	5	7'-6"	"
AS39	1	5	6'-0"	"
AS40	1	5	4'-6"	"
AS41	1	5	3'-0"	"
AS42	1	5	1'-6"	"
AS43	8	5	17'-6"	"
AS44	1	5	11'-6"	"
AS45	1	5	13'-0"	"
AS46	1	5	14'-6"	"
AS47	1	5	16'-0"	"
AS48-57	1 Set	5	93'-9"	"
AS58	10	6	20'-8"	"
AS59-74	1 Set	6	268'-0"	"
AS75	36	5	21'-6"	"
AS76	6	4	4'-6"	"
AS77	40	4	17'-9"	"



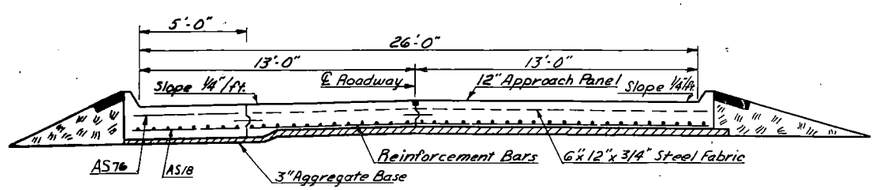
DETAIL OF CURB HEIGHT TRANSITION AT END OF APPROACH SLAB



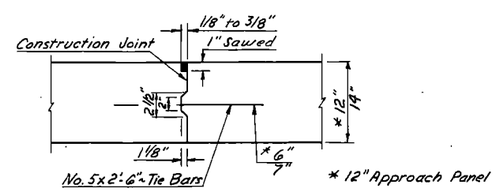
ELEVATION VIEW



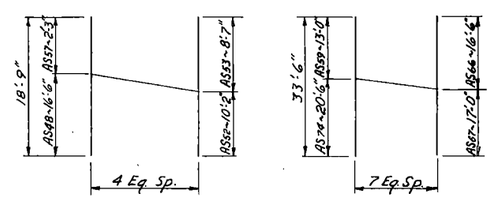
SECTION AT 14" PANELS



SECTION AT 12" PANELS



A-A



AS48 – AS57
1 Set Shown
1 Set Req'd
Total Length 1 Set = 93'-9"

AS59 – AS74
1 Set Shown
1 Set Req'd
Total Length 1 Set = 268'-0"

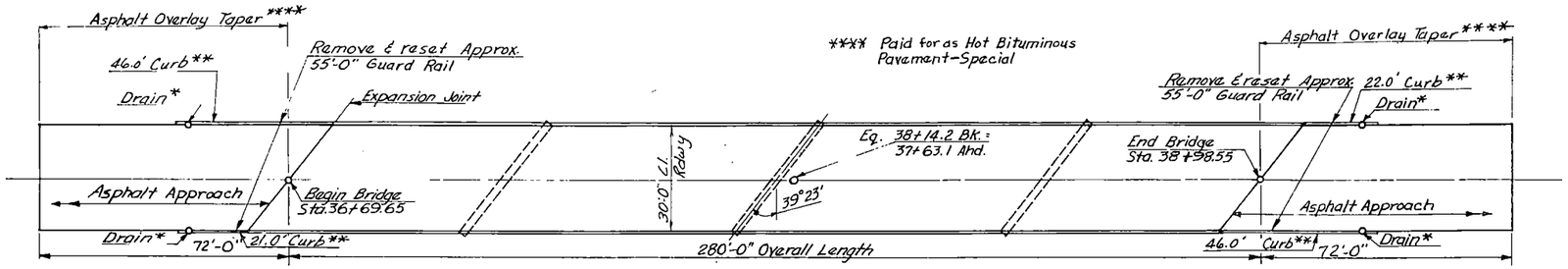
BAR CUTTING DIAGRAMS

QUANTITIES		
Reinforcing Steel	8259	Lbs.
Steel Fabric	23	S.Y.

WEST JAMESTOWN CROSS OVER
SOUTHWEST END
APPROACH SLAB DETAILS

94-257.002-5

FED. ROAD DIST. NO.	STATE	PROJ. NO.	SHEET NO.	TOTAL SHEETS
8	N. D.	IR-94-6(46)257	6	

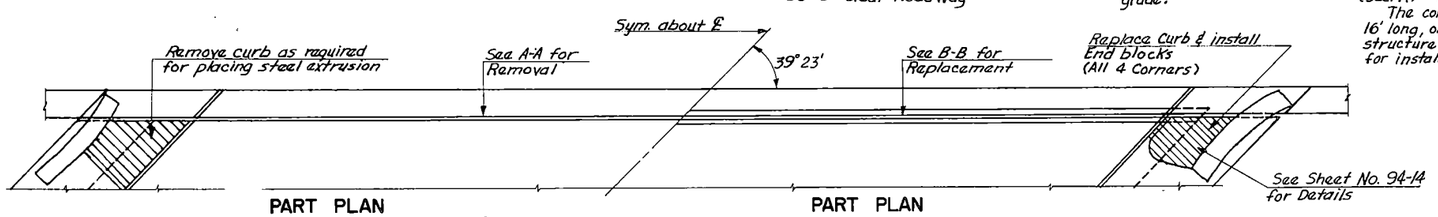


PLAN

30'-0" Clear Roadway

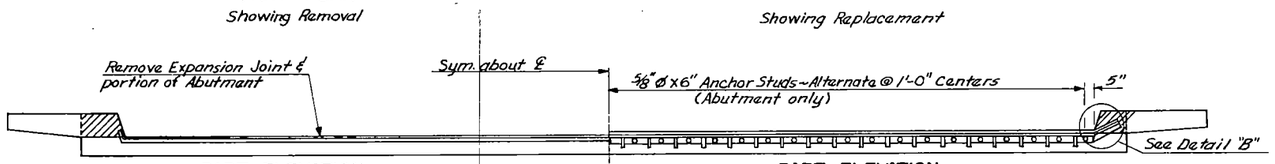
* Drains to be adjusted to meet final roadway grade.

** Curb to be installed shall be Mountable Curb & Gutter Type I (Sec. A) See Std D-708-1
The concrete curb transition, approx. 16' long, on each corner of the structure shall be removed to allow for installation of a new curb & gutter.



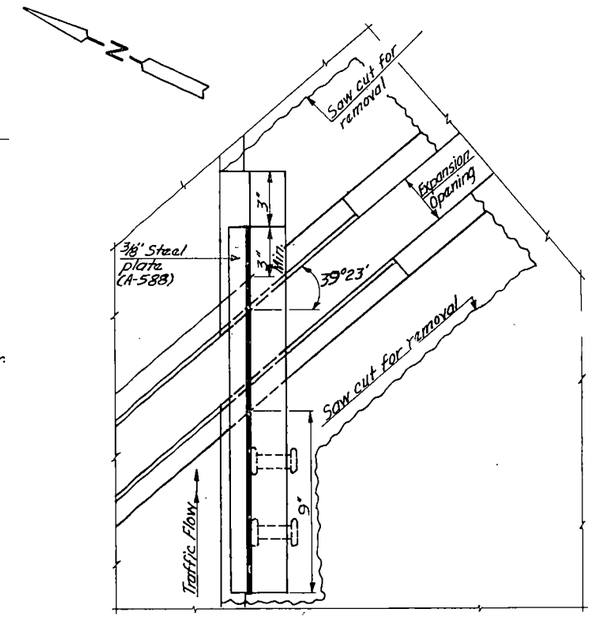
PART PLAN
Showing Removal

PART PLAN
Showing Replacement

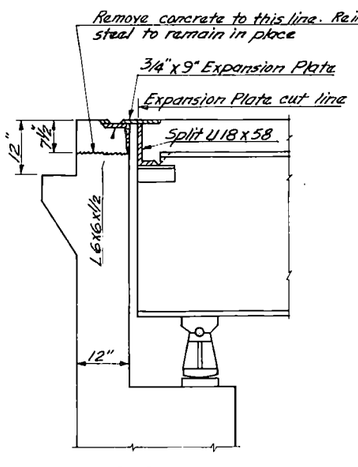


PART ELEVATION
Showing portions of structure to be removed

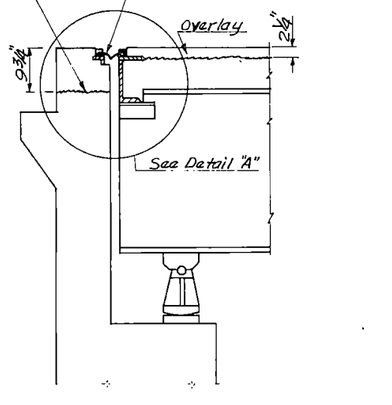
PART ELEVATION
Showing portions of structure to be rebuilt



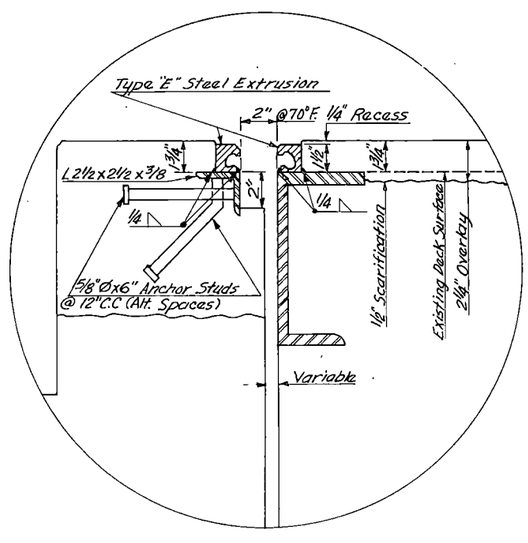
PLAN



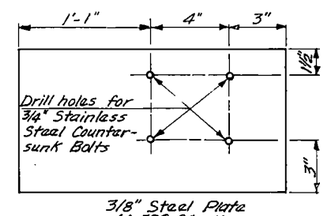
A—A
EXISTING



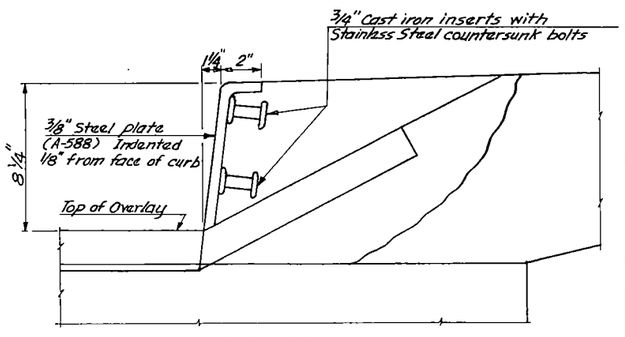
B—B
REMODELED



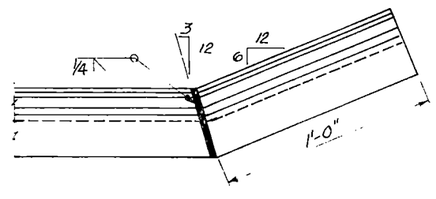
DETAIL "A"



3/8" Steel Plate
(A-588 Steel)



ELEVATION



DETAIL "B"

QUANTITIES

HWY. 281 INTERCHANGE
OVERLAY

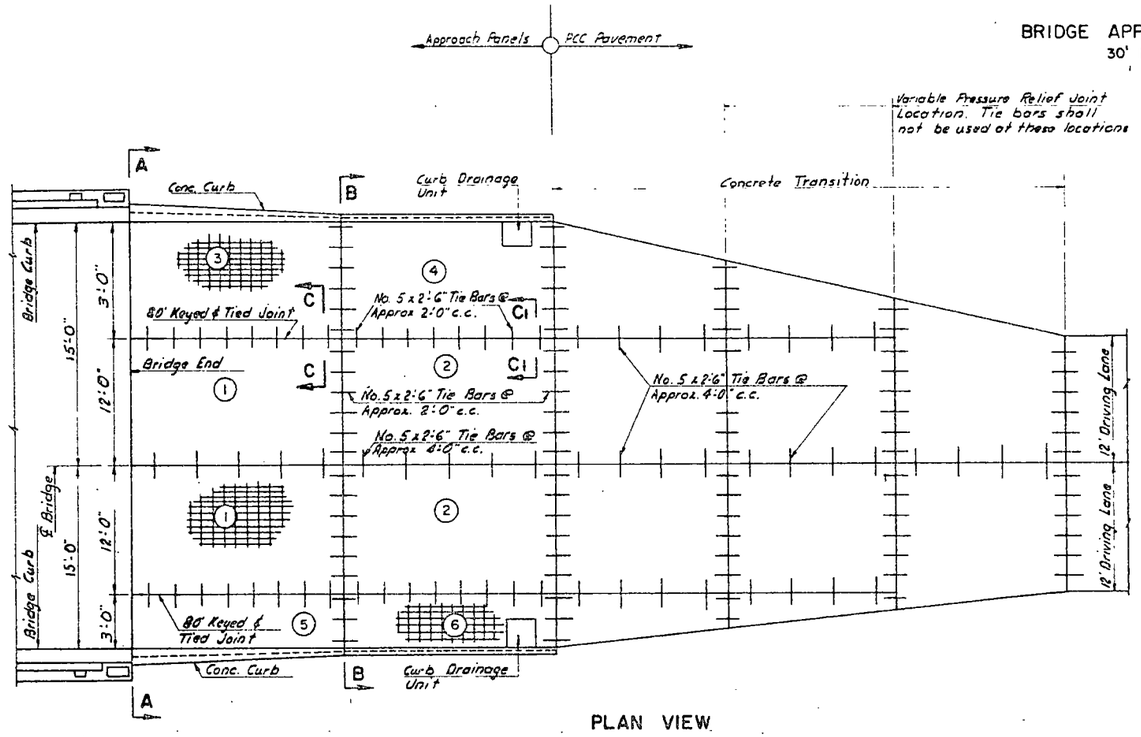
LAYOUT & DETAILS

94-258.055-6

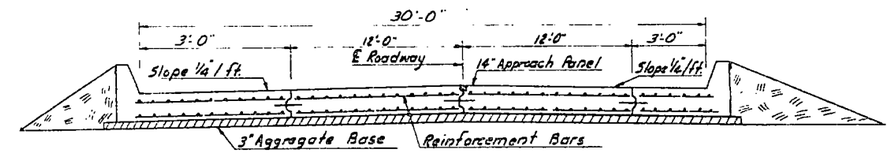
QUANTITIES CHECKED BY

6	N. D.	12-94-6686-3257 FR-94-7(25)259	12	

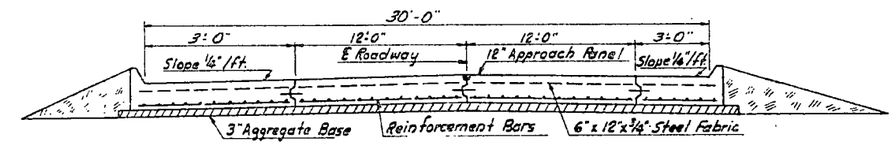
BRIDGE APPROACH PANELS
30' ROADWAY



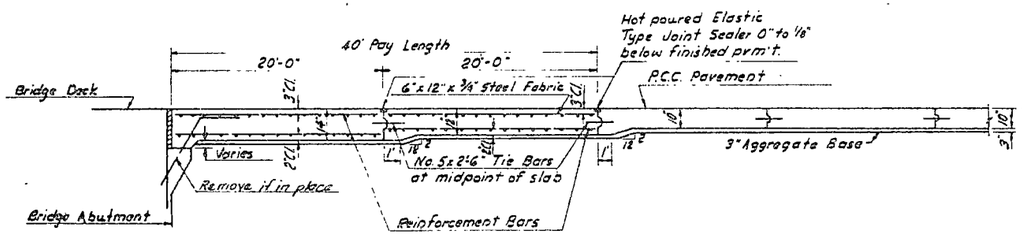
PLAN VIEW



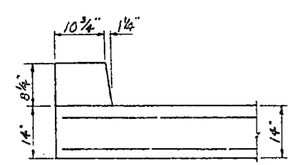
SECTION A-A



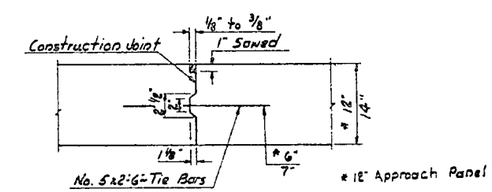
SECTION B-B



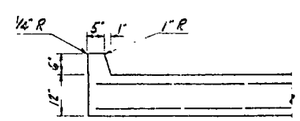
ELEVATION VIEW



STANDARD CURB SECTION
ON END OF BRIDGE

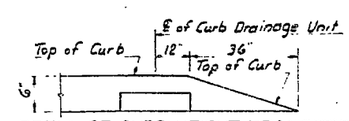


SECTION C-C(14")
SECTION C1-C1(12")



STANDARD CURB SECTION
ON PANELS ④ & ⑥

NOTE:
Curb sections on panels ③ & ⑤ to be transitioned from that existing on the bridge to the standard used on panels ④ & ⑥.



DETAIL OF CURB HEIGHT TRANSITION
AT END OF APPROACH SLAB

* Top Reinforcing Steel

REINFORCING BARS									
LONGITUDINAL					TRANSVERSE				
PANEL	EACH	BAR SIZE	LENGTH	LBS	PANEL	EACH	BAR SIZE	LENGTH	LBS.
①	23	#8	19'-6"		①	18	#6	11'-6"	
②	23	#7	19'-6"		②	18	#5	11'-6"	
③	5	#8	19'-6"		③	18	#6	2'-6"	
④	5	#7	19'-6"		④	18	#5	2'-6"	
⑤	5	#8	19'-6"		⑤	18	#6	2'-6"	
⑥	5	#7	19'-6"		⑥	18	#5	2'-6"	
① *	23	#5	19'-6"		① *	18	#4	2'-6"	
③ *	5	#5	19'-6"		③ *	18	#4	2'-6"	
⑤ *	5	#5	19'-6"		⑤ *	18	#4	2'-6"	

Longitudinal Bars spaced @ approx. 6" c.c.
Transverse Bars spaced @ approx. 1'-1 1/2" c.c.

QUANTITIES	
Reinforcing Steel	4551 lbs.
Steel Fabric	71.1 S.Y.

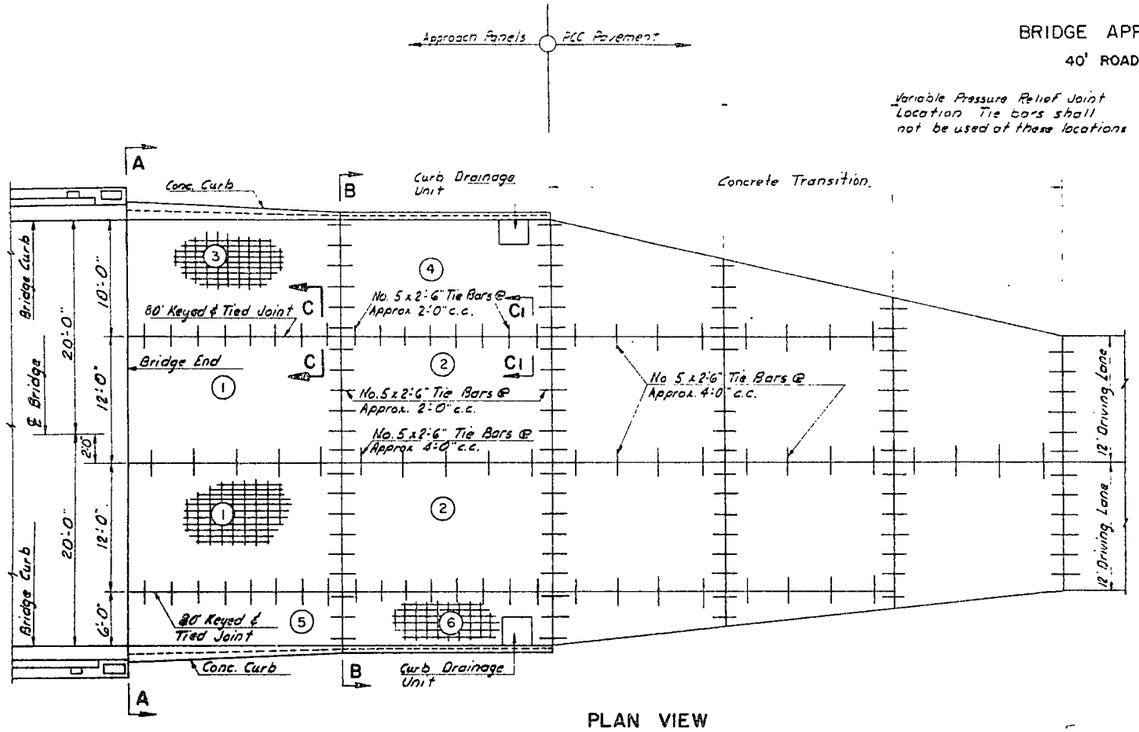
BRIDGE APPROACH PANELS

94-12

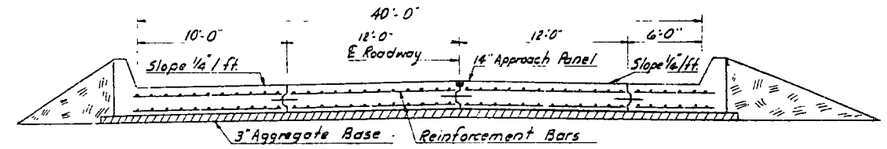
FED. ROAD DIST. NO.	STATE	PROJ. NO.	SHEET NO.	TOTAL SHEETS
8	N. D.	BR-94-6(20)257 BR-94-7(25)259	13	

BRIDGE APPROACH PANELS

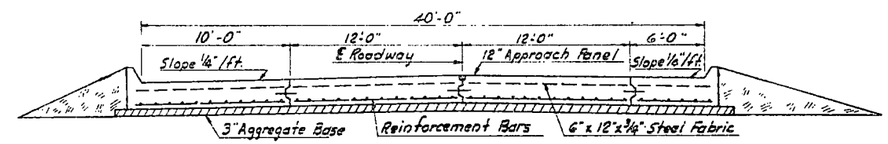
40' ROADWAY



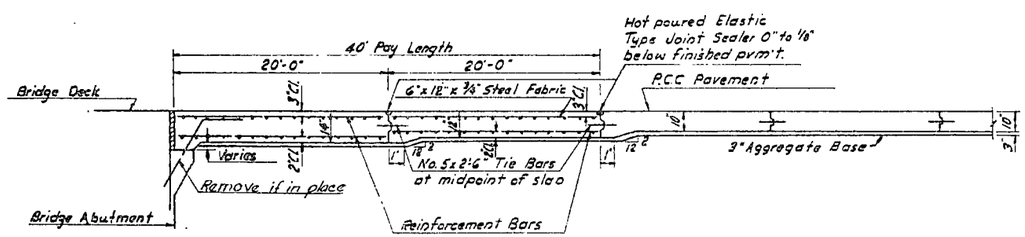
PLAN VIEW



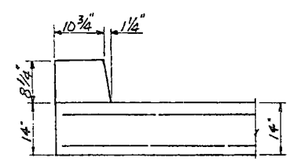
SECTION A-A



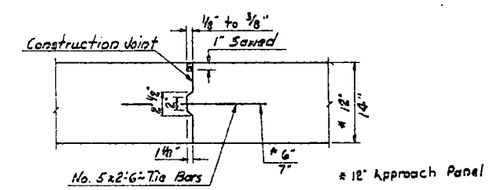
SECTION B-B



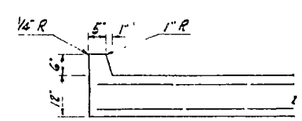
ELEVATION VIEW



STANDARD CURB SECTION ON END OF BRIDGE

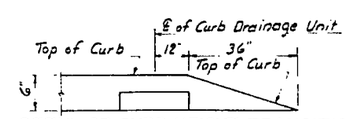


SECTION C-C(14")
SECTION C1-C1(12")



STANDARD CURB SECTION ON PANELS ④ & ⑥

NOTE:
Curb sections on panels ③ & ⑤ to be transitioned from that existing on the bridge to the standard used on panels ④ & ⑥.



DETAIL OF CURB HEIGHT TRANSITION AT END OF APPROACH SLAB

*Top Reinforcing Steel

REINFORCING BARS									
LONGITUDINAL					TRANSVERSE				
PANEL	EACH	BAR SIZE	LENGTH	LBS.	PANEL	EACH	BAR SIZE	LENGTH	LBS.
①	23	#8	19'-6"		①	18	#6	11'-6"	
②	23	#7	19'-6"		②	18	#5	11'-6"	
③	20	#8	19'-6"		③	18	#6	9'-6"	
④	20	#7	19'-6"		④	18	#5	9'-6"	
⑤	12	#8	19'-6"		⑤	18	#6	5'-6"	
⑥	12	#7	19'-6"		⑥	18	#5	5'-6"	
①*	23	#5	19'-6"		①*	18	#4	11'-6"	
②*	20	#5	19'-6"		③*	18	#4	9'-6"	
⑤*	12	#5	19'-6"		⑤*	18	#4	5'-6"	

Longitudinal Bars spaced @ approx. 6" c.c.
Transverse Bars spaced @ approx. 1'-1 1/2" c.c.

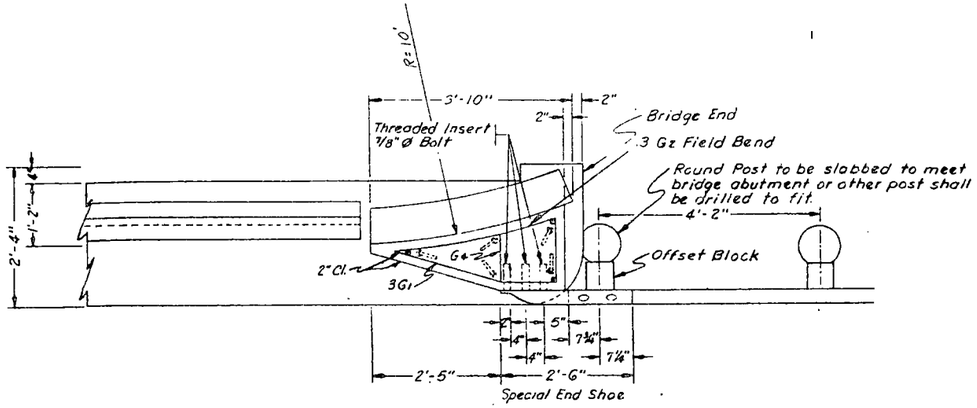
QUANTITIES	
Reinforcing Steel	7708 lbs.
Steel Fabric	93.35 Y.

BRIDGE APPROACH PANELS

94-13

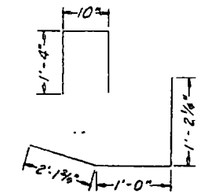
FHWA REGION	STATE	FED. AID PROJ. NO.	
8	N.D.	IR-94-6(48)257 IR-94-7(25)259	14

BRIDGE END POST DETAILS



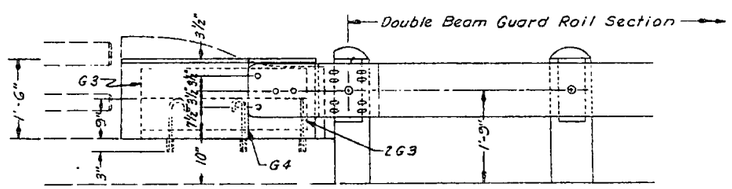
PLAN

BAR LIST (one post)				
MARK	NO.	SIZE	LENGTH	SHAPE
G1	3	4	4'-4"	Bent
G2	3	4	3'-1"	Str.
G3	3	4	1'-4"	Str.
G4	1	4	3'-6"	Bent

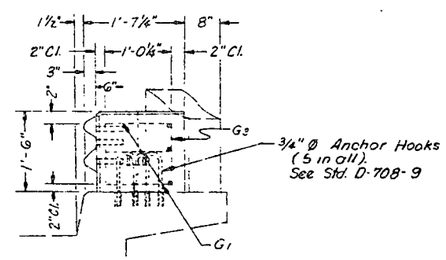


NOTE:
All material and labor necessary to construct Beam Rail Bridge End Posts as indicated on the drawings and specified shall be included in the price bid for Remove & Reset Guardrail.

Existing concrete Jointing new concrete shall be wire brushed and cleaned.
The Highway Department shall in form the Contractor as to the type of cement to be used to simulate the color of existing work.
All new exposed concrete shall have a Rubbed Surface Finish.
All exposed edges shall have a beveled edge matching existing work.



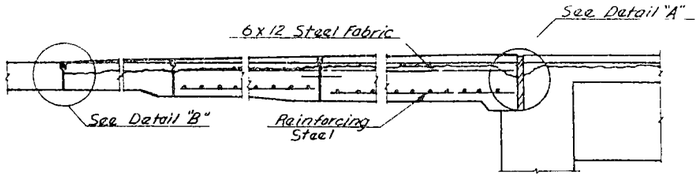
ELEVATION



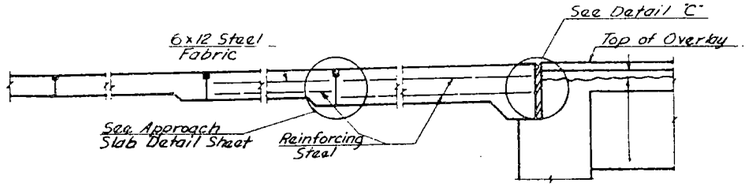
END VIEW

BEAM GUARD RAIL
BRIDGE END POST

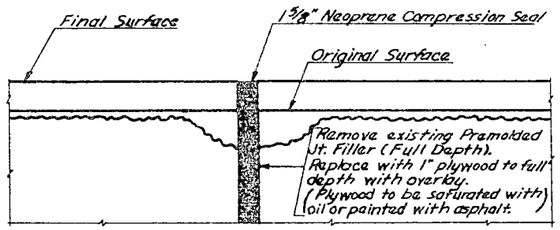
94-14



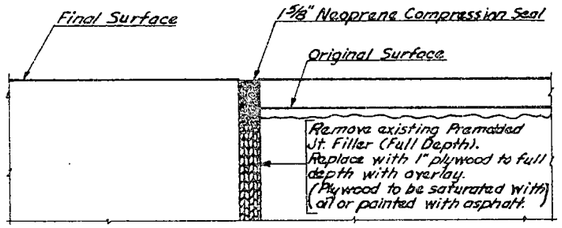
APPROACH SLAB
(Slab overlayed)



APPROACH SLAB
(Full depth removal & replacement to final surface grade)

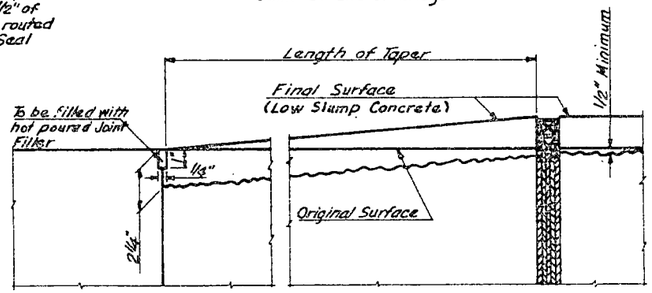


DETAIL "A"
Joint at End of Bridge



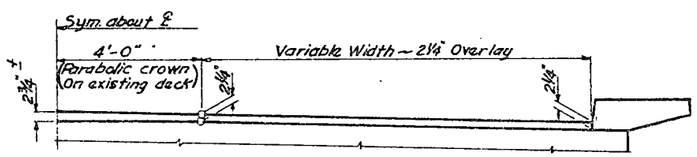
DETAIL "C"
Joint at End of Bridge

NOTE: After overlay has been placed & cured the top 2½" of plywood shall be routed & the Neoprene Seal installed.

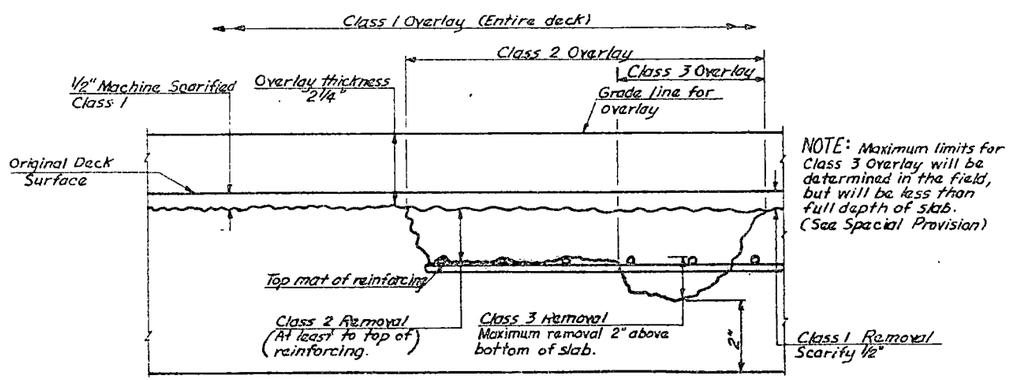


DETAIL "B"

NOTE:
Where Expansion Joint is installed the extrusion shall be shimmed as needed, to maintain the 1/4" recess in the first 4 feet on either side of roadway ℄ which has a parabolic crown on the existing deck.
Shims shall be welded to the Steel Extrusion & the Base Plate.



ELEVATION

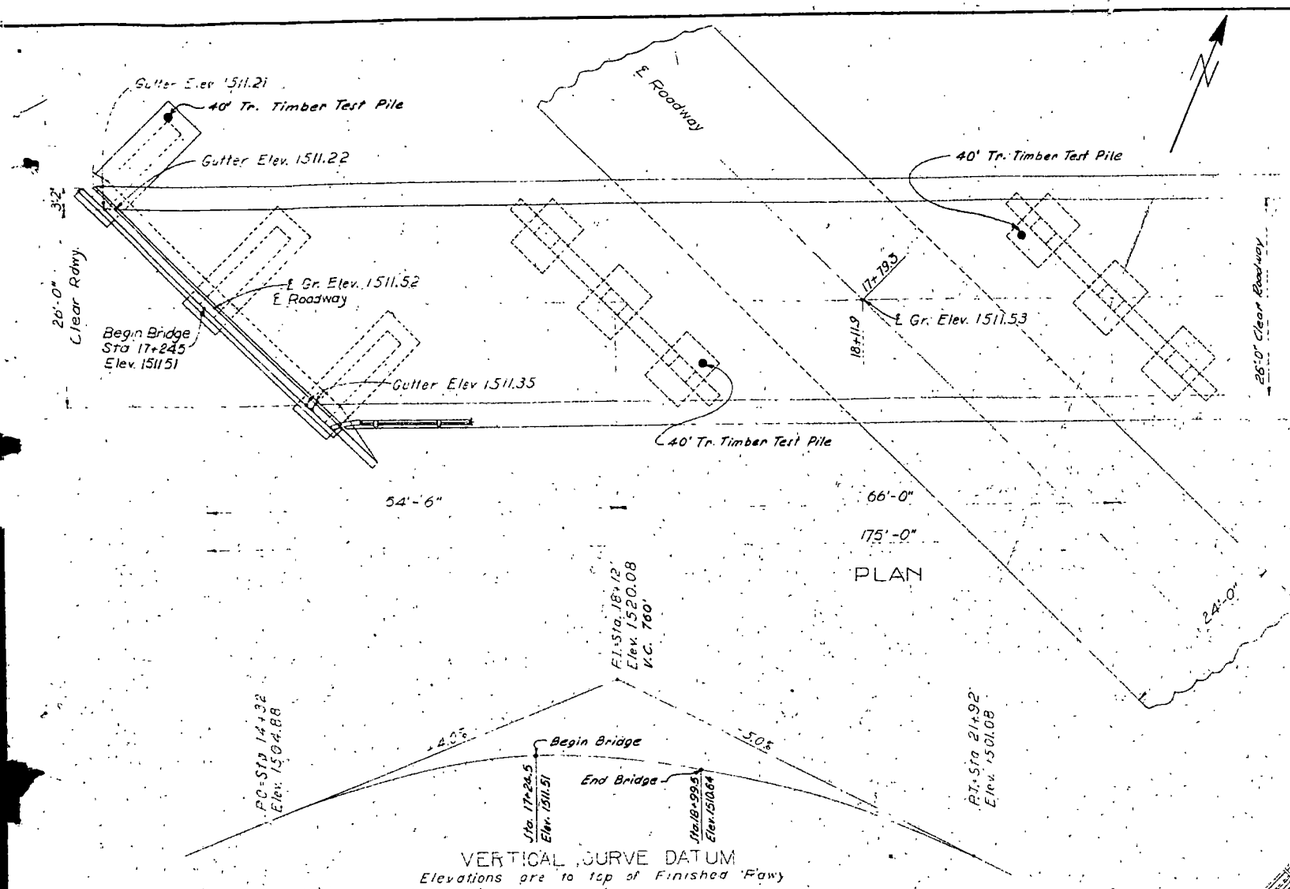


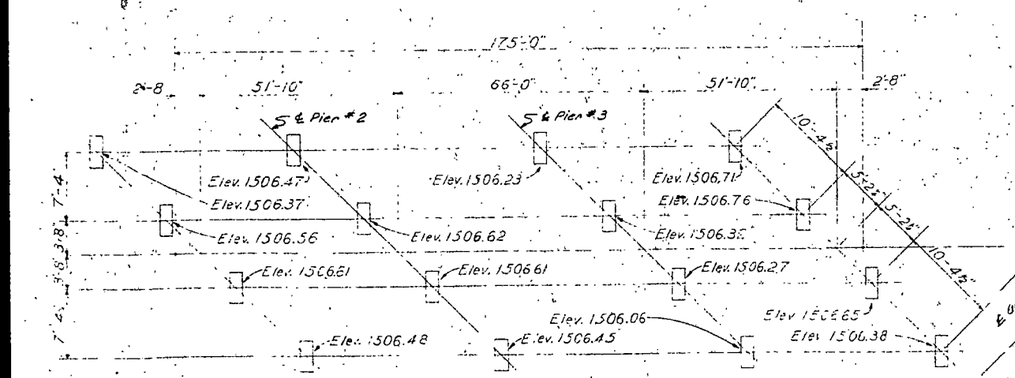
NOTE: Maximum limits for Class 3 Overlay will be determined in the field, but will be less than full depth of slab. (See Special Provision)

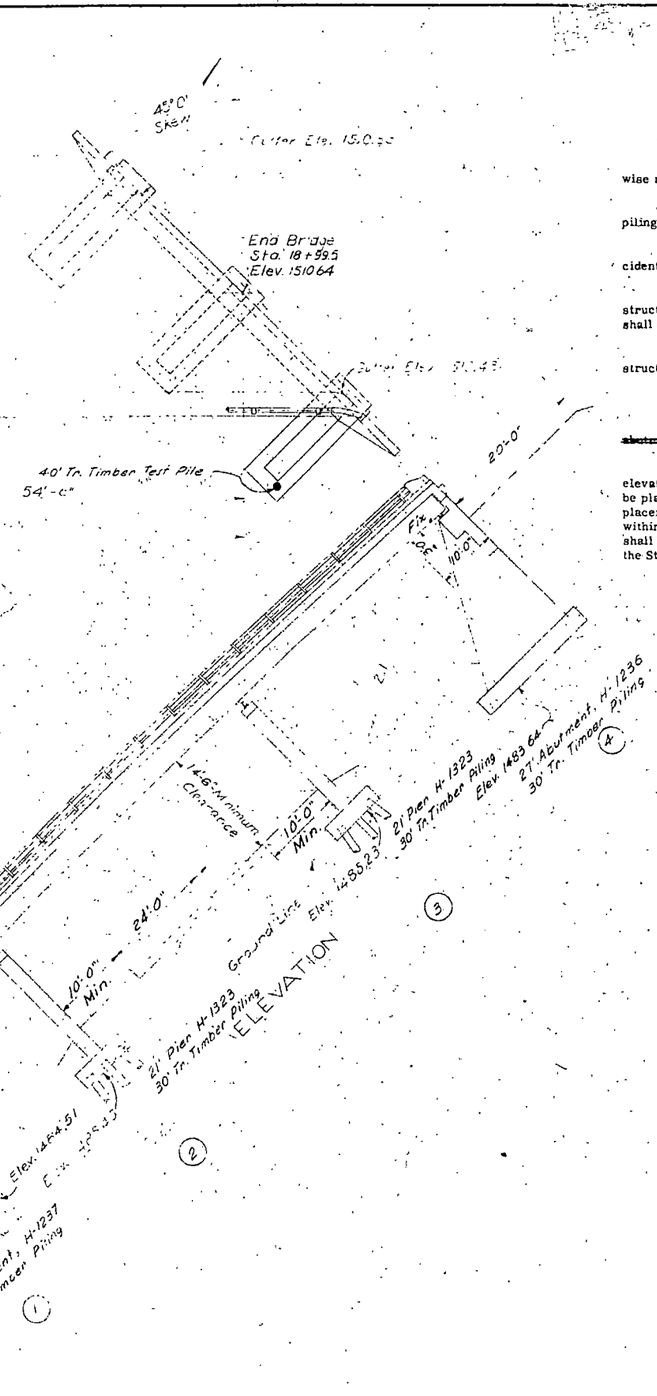
BRIDGE DECK

OVERLAY DETAILS

CODE: X 731







NOTES

All concrete shall be class A-1 1/2 and shall be compacted by vibration.

Exposed edges of concrete shall be beveled with a 3/4" triangular molding unless otherwise noted.

A cut-off of two feet has been assumed in estimating the pay length (below cut-off) of piling as compared with the ordered length.

The cost of furnishing and placing the premolded expansion joint filler and other incidental items shall be included in the unit price bid for Class A-1 1/2 concrete.

The surface of railing end posts, curb face, and exposed vertical faces of the superstructure and substructure shall be given the "Rubbed Surface Finish". All other surfaces shall be given the "Ordinary Surface Finish".

The Bar Fabricator shall add a prefix to each bar designation to differentiate between structures and/or units of a structure on the Project.

All excavation shall be Class 2.

~~The Grading Contractor will be responsible for placing the embankment in front of the abutments prior to the placement of the superstructure.~~

The embankment above the original ground at both ends of the bridge, as shown on the elevation view, and as wide as shown on the grading plans or staked by the Engineer, shall be placed and compacted according to Section 17 of the Standard Specifications prior to the placement of the superstructure. Fill material shall be obtained from highway right-of-way within 1000 feet of the structure location. The method of measurement and basis of payment shall be the cubic yard in place. The Engineer reserves the right to withdraw this item from the Structural Contract.

ESTIMATE OF QUANTITIES

SPEC. NO.	BID ITEM		
15	[illegible]	155	
17A	EMBANKMENT	10000	CU. YD.
60A	[illegible]	455.0	
[illegible]	[illegible]	6-565	
[illegible]	[illegible]	122781	
66A	[illegible]		
66B	[illegible]		
66C	[illegible]		
66H	[illegible] 116 30	324	
66K	[illegible]		
66L	[illegible] (40' long)	4	
[illegible]	[illegible]		
	ORNAMENTAL METAL RAILING	333.25	LIN. FT.
	△ See notes		

7x013

STRUCTURAL DRAWINGS

GENERAL DRAWING	THIS SHEET
[illegible]	H1236, H1237 & H1323
[illegible]	H1134 & H1133 & H-0100

LEGEND LOAD NO.	SCALE
H20 S16 (1953)	[illegible]

NORTH DAKOTA
STATE HIGHWAY DEPARTMENT

BRIDGE LAYOUT

PROJECT I-01-6(2) STA. 17+79.3

STUTSMAN COUNTY

APPROVED

11-19-56 Joseph P. Kirby

BENCH MARKS

	DESCRIPTION	LOCATION	ELEV
3	Conc. step at Entrance East Door	Sta. 13+25-N. of U.S. 10	1491.09
4	Lt. on conc. step west of door	Sta. 16+66	1497.26
5	Iron Mon. Hub Gds. by F.P.	Sta. 26+02-530' left	1483.24

PILE LOADING

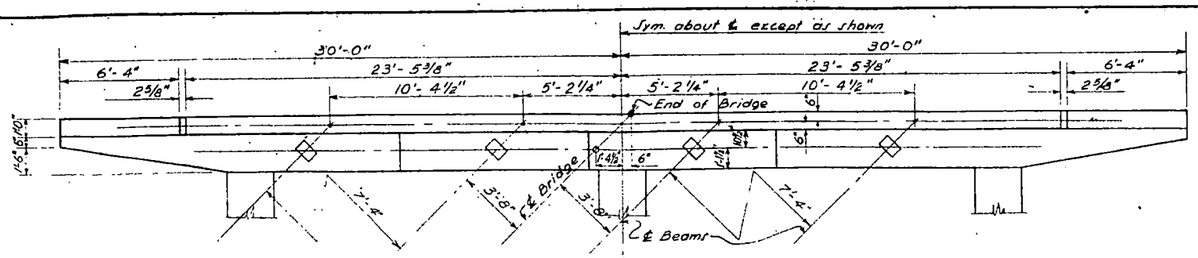
LOCATION	DEAD LOAD	LIVE LOAD	EARTH	WIND 50 LB	WIND 15 LB	WIND 100 LB. L.L.	LONG. FORCE	ICE		DESIGN LOAD
Pier	+11.8 T.	+5.2 T.	+1.8 T.							18.8 T.
Abut. Toe *	-0.4 T.		+20.4 T.							20.0 T.
" Heel **	+14.7 T.	+4.5 T.	-0.1 T.							19.1 T.

* 40#/sq. ft., Horizontal Earth
** 20#/sq. ft., Horizontal Earth

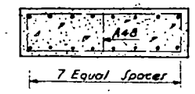
94-96

X 001

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	N.D.				

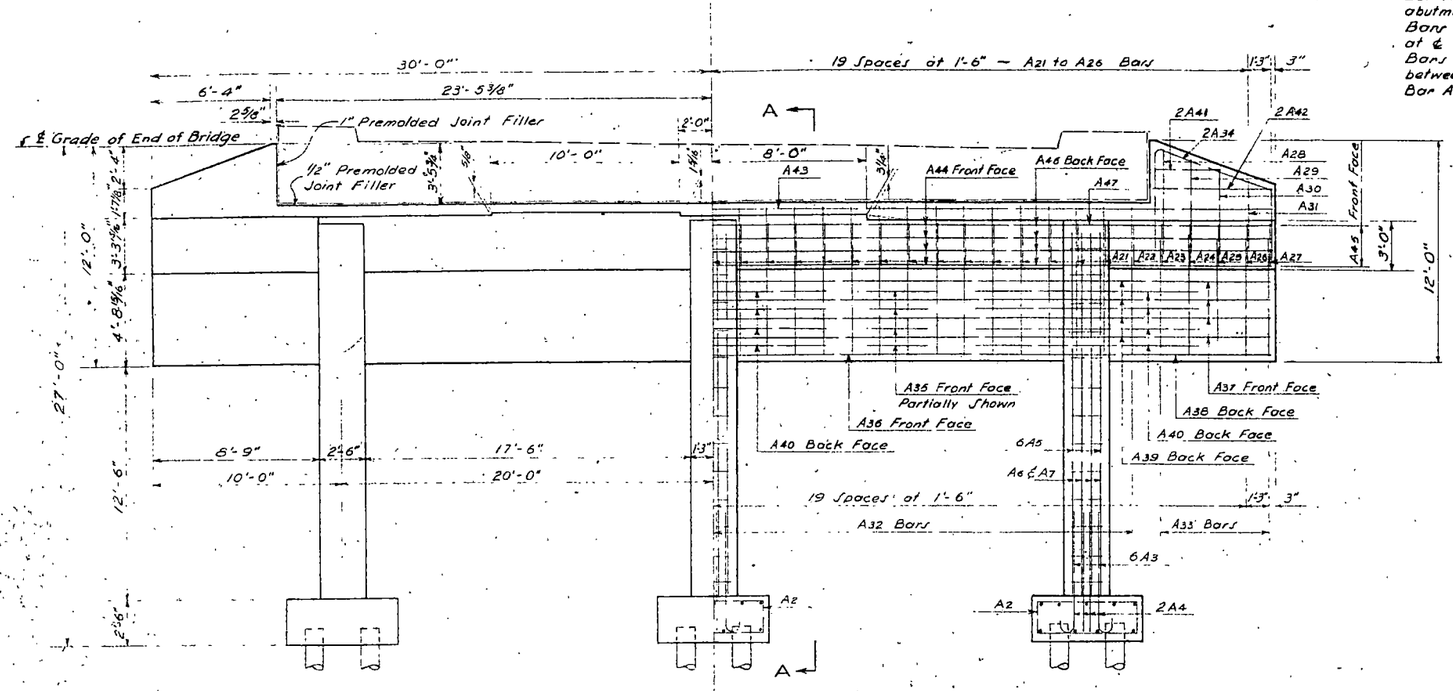


TOP PLAN



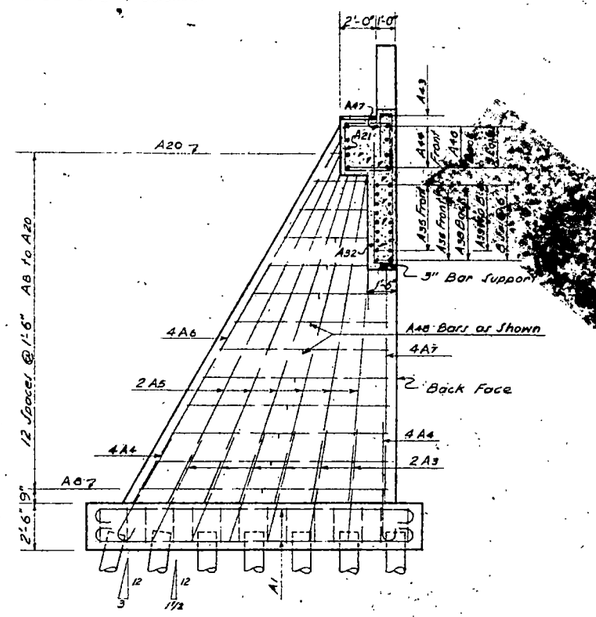
SECTION OF COLUMN

Notes:
Bar A35 to be centered on ℄ of abutment.
Bars A36, A37, A43 & A44 to be spliced at ℄ of abutment.
Bars A38, A39 & A46 to be spliced between columns.
Bar A40 to be centered on ℄ of columns.



HALF ELEVATION
Showing Dimensions

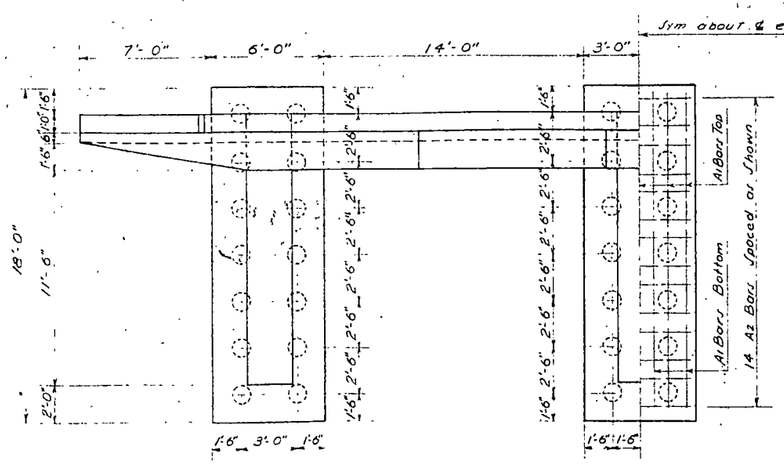
HALF ELEVATION
Showing Reinforcing



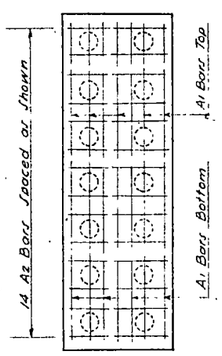
SECTION A - A

BAR LIST*				
MARK	No.	SIZE	LENGTH	SHAPE
A1	27	3/4" ø	18'-9"	Bent
A2	42	"	15'-0"	"
A3	36	1" ø	6'-6"	"
A4	24	1" ø	7'-0"	"
A5	36	3/4" ø	20'-0"	Str.
A6	12	1" ø	23'-0"	"
A7	12	1" ø	19'-0"	"
A8	3	5/8" ø	31'-10"	Bent
A9	3	"	30'-2"	"
A10	3	"	28'-6"	"
A11	3	"	26'-10"	"
A12	3	"	25'-2"	"
A13	3	"	23'-6"	"
A14	3	"	21'-10"	"
A15	3	"	20'-2"	"
A16	3	"	18'-6"	"
A17	3	"	16'-10"	"
A18	3	"	15'-2"	"
A19	3	"	13'-6"	"
A20	3	"	11'-10"	"
A21	29	1/2" ø	11'-0"	"
A22	2	"	10'-6"	"
A23	2	"	10'-0"	"
A24	2	"	9'-6"	"
A25	2	"	9'-0"	"
A26	2	"	8'-6"	"
A27	2	"	8'-1"	"
A28	2	"	11'-9"	"
A29	2	"	10'-7"	"
A30	2	"	9'-5"	"
A31	2	"	8'-3"	"
A32	30	5/8" ø	18'-6"	"
A33	70	"	14'-8"	"
A34	12	"	15'-3"	"
A35	4	"	40'-0"	Str.
A36	4	"	31'-3"	"
A37	4	"	0"	"
A38	4	"	0"	"
A39	4	"	0"	"
A40	12	"	0"	"
A41	4	"	0"	"
A42	4	"	0"	"
A43	4	3/4" ø	31'-0"	"
A44	8	7/8" ø	0"	"
A45	8	5/8" ø	0"	"
A46	12	1" ø	22'-0"	"
A47	2	1/2" ø	30'	"
A48	30	1/2" ø	3'-0"	"

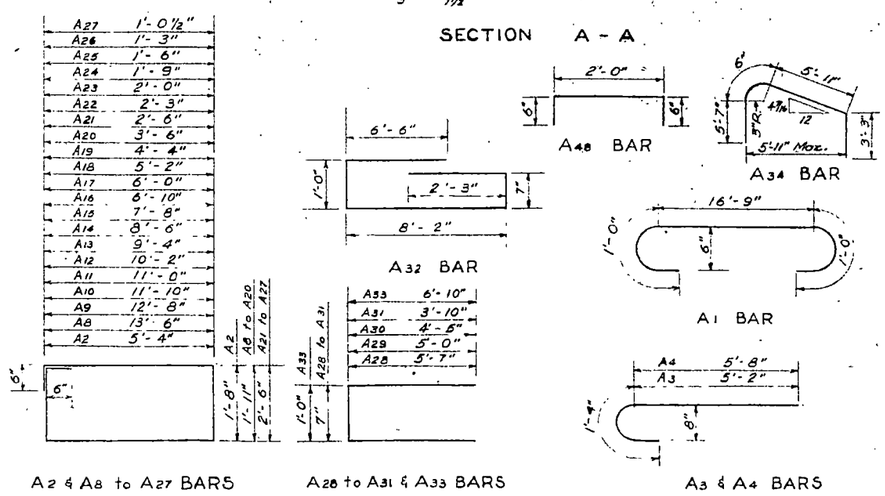
* The fabricator shall add a prefix to each bar designation to differenciate between structures and/or units of a structure on the project.



HALF PLAN



HALF FOOTING PLAN



A2 & A8 to A27 BARS

A28 to A31 & A33 BARS

BENT BAR DETAILS

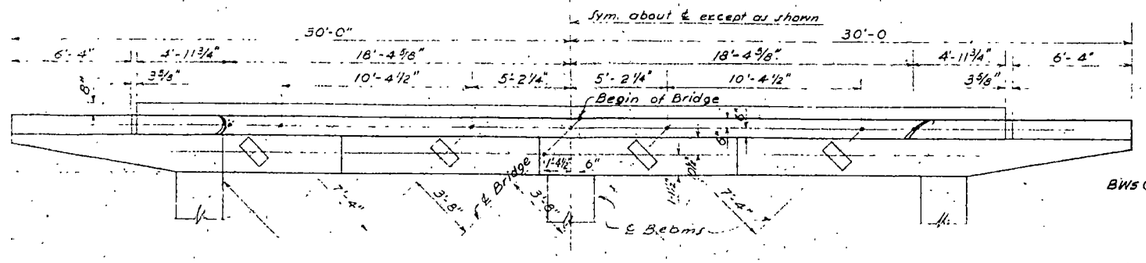
QUANTITIES	
Concrete Class A-1 1/2	111.9 C.Y.
Reinforcing Steel	10,287 Lbs.
Piling	(See Layout)
Excavation	(See Layout)

27' ABUTMENT
FOR I-BEAM SPANS
FIXED END
26' ROADWAY
45° SKEW

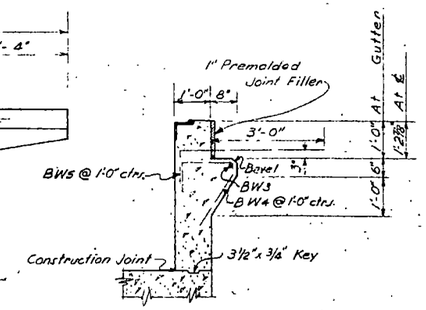
H-1236

H-12

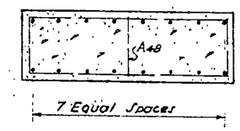
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO	TOTAL SHEETS
5	N. D.				



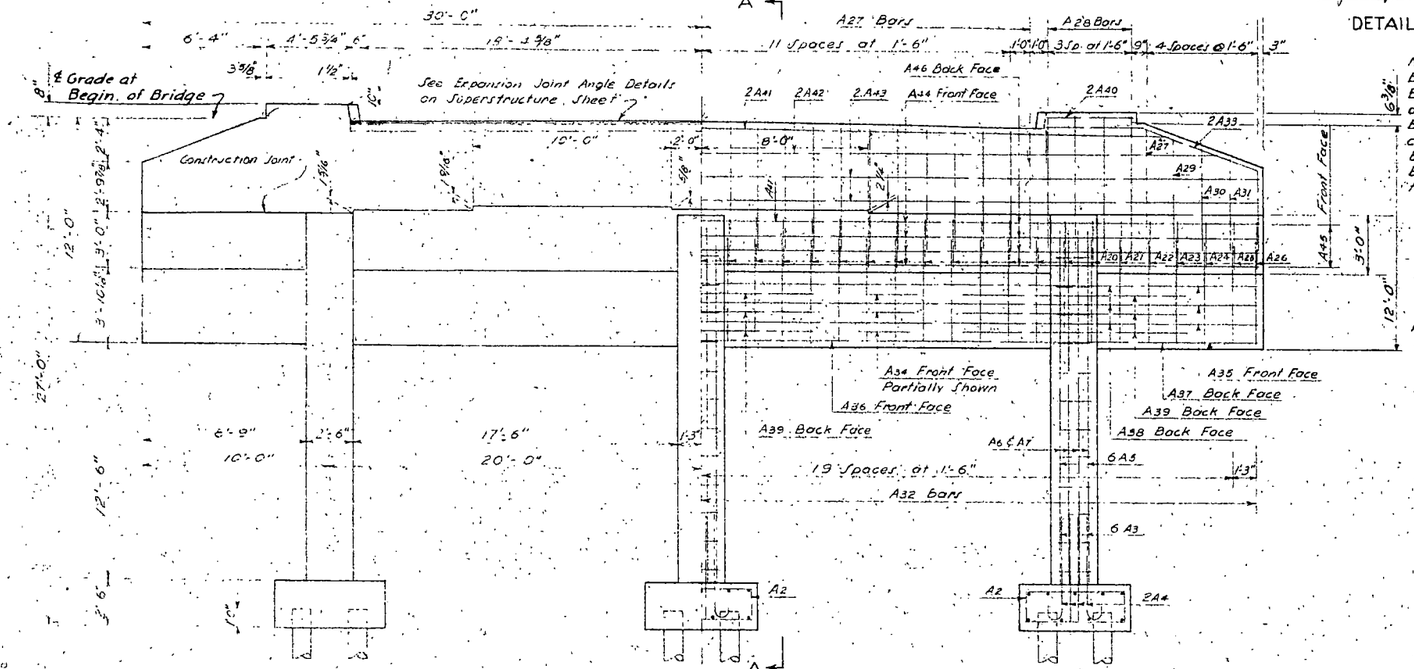
TOP PLAN



DETAIL OF BRACKET



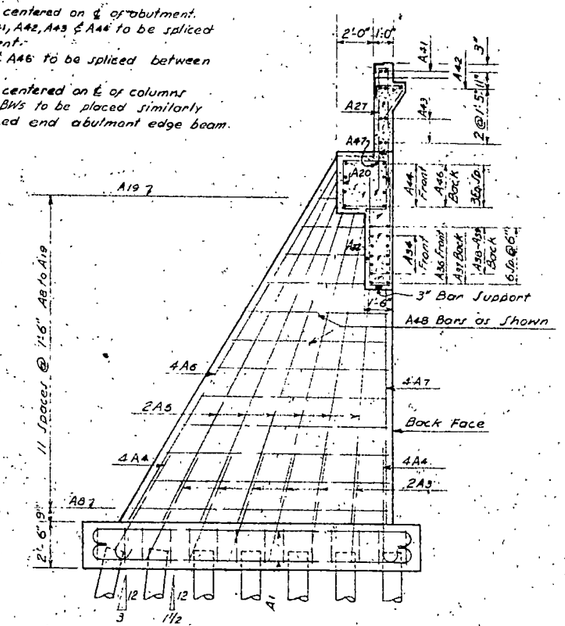
SECTION OF COLUMN



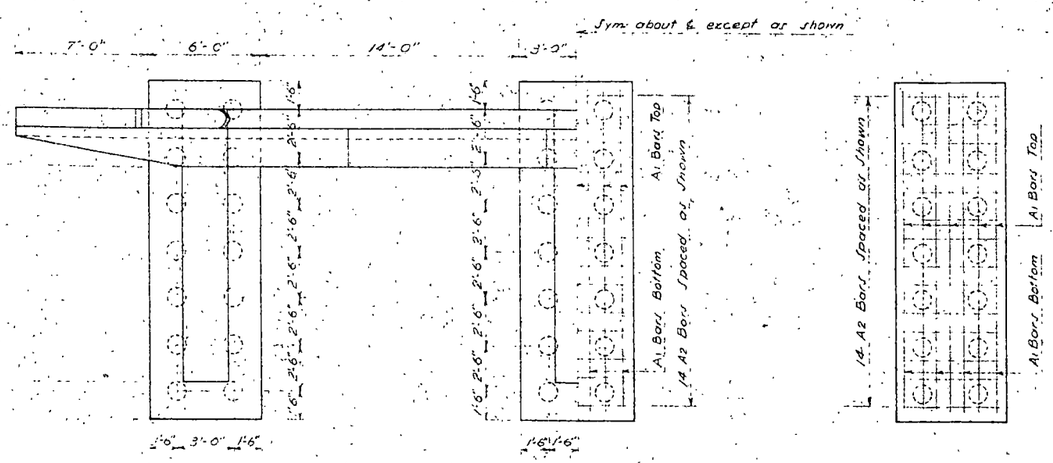
HALF ELEVATION
Showing Dimensions

HALF ELEVATION
Showing Reinforcing

Notes:
Bar A34 to be centered on ℄ of abutment.
Bars A35, A36, A41, A42, A43 & A44 to be spliced at ℄ of abutment.
Bars A37, A38 & A46 to be spliced between columns.
Bar A39 to be centered on ℄ of columns.
Bars BW3, BW4 & BW5 to be placed similarly to those in fixed end abutment edge beam.

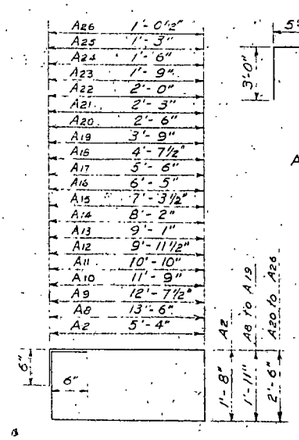


SECTION A-A

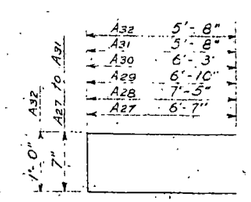


HALF PLAN

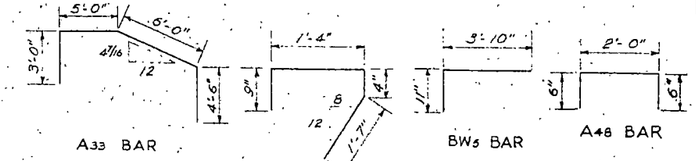
HALF FOOTING PLAN



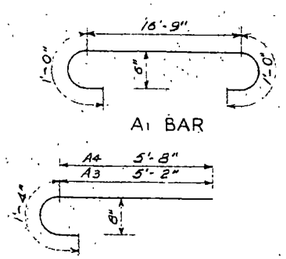
A2 & A8 to A26 BARS



A27 to A32 BARS



A33 BAR
BW4 BAR
BW5 BAR
A48 BAR



A1 BAR
A3 & A4 BARS

BENT BAR DETAILS

BAR LIST*

MARK	No.	SIZE	LENGTH	SHAPE
A1	27	3/4" ø	18'-9"	Bent
A2	42	"	15'-0"	"
A3	36	1" ø	6'-6"	"
A4	24	1" ø	7'-0"	"
A5	36	3/4" ø	19'-0"	Str.
A6	12	1" ø	22'-0"	"
A7	12	1" ø	18'-0"	"
A8	3	5/8" ø	31'-10"	Bent
A9	3	"	30'-1"	"
A10	3	"	28'-4"	"
A11	3	"	26'-6"	"
A12	3	"	24'-9"	"
A13	3	"	23'-0"	"
A14	3	"	21'-2"	"
A15	3	"	19'-5"	"
A16	3	"	17'-8"	"
A17	3	"	15'-10"	"
A18	3	"	14'-1"	"
A19	3	"	12'-4"	"
A20	29	1/2" ø	11'-0"	"
A21	2	"	10'-6"	"
A22	2	"	10'-0"	"
A23	2	"	9'-6"	"
A24	2	"	9'-0"	"
A25	2	"	8'-6"	"
A26	2	"	8'-1"	"
A27	27	"	13'-9"	"
A28	8	"	15'-5"	"
A29	2	"	14'-3"	"
A30	2	"	13'-1"	"
A31	2	"	11'-11"	"
A32	41	5/8" ø	12'-4"	"
A33	4	3/4" ø	18'-6"	"
A34	3	3/8" ø	40'-0"	Str.
A35	6	"	31'-0"	"
A36	2	3/4" ø	31'-3"	"
A37	3	"	21'-9"	"
A38	9	5/8" ø	21'-3"	"
A39	9	"	12'-0"	"
A40	4	1/2" ø	4'-3"	"
A41	4	3/4" ø	26'-3"	"
A42	4	1/2" ø	28'-6"	"
A43	8	"	30'-10"	"
A44	8	7/8" ø	21'-6"	"
A45	8	5/8" ø	12'-0"	"
A46	12	1" ø	22'-6"	"
A47	2	1/2" ø	30'-10"	"
A48	30	1/2" ø	3'-0"	Bent
BW3	2	5/8" ø	24'-3"	Str.
BW4	40	1/2" ø	4'-0"	Bent
BW5	40	3/4" ø	4'-9"	Bent

* The fabricator shall add a prefix to each bar designation to differenciate between structures and/or units of a structure on the project.

QUANTITIES

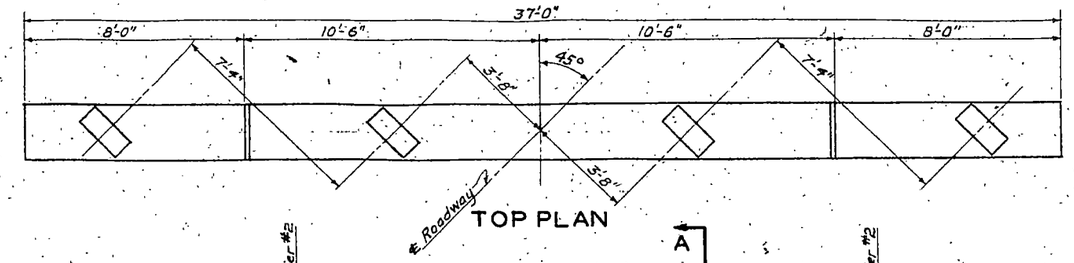
Concrete Class A-1½	115.4 cu.yd.
Reinforcing Steel	10,654 lbs.
Piling	(See Layout)
Excavation	(See Layout)

27' ABUTMENT
FOR I-BEAM SPANS
EXPANSION END
26' ROADWAY
45° SKEW

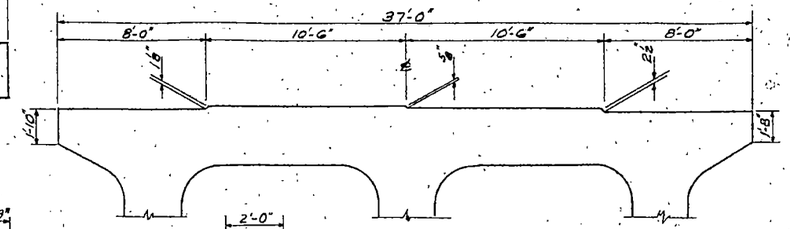
H-1237

H-127

FED. ROAD DIV. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	N.D.				

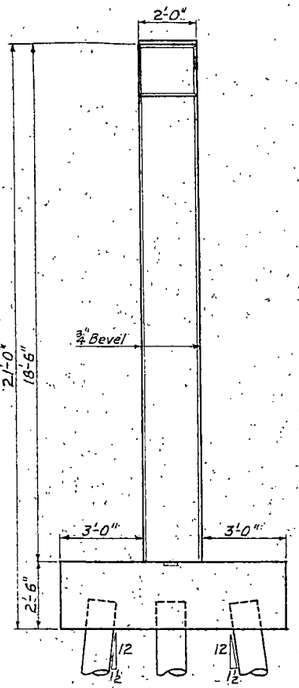


TOP PLAN

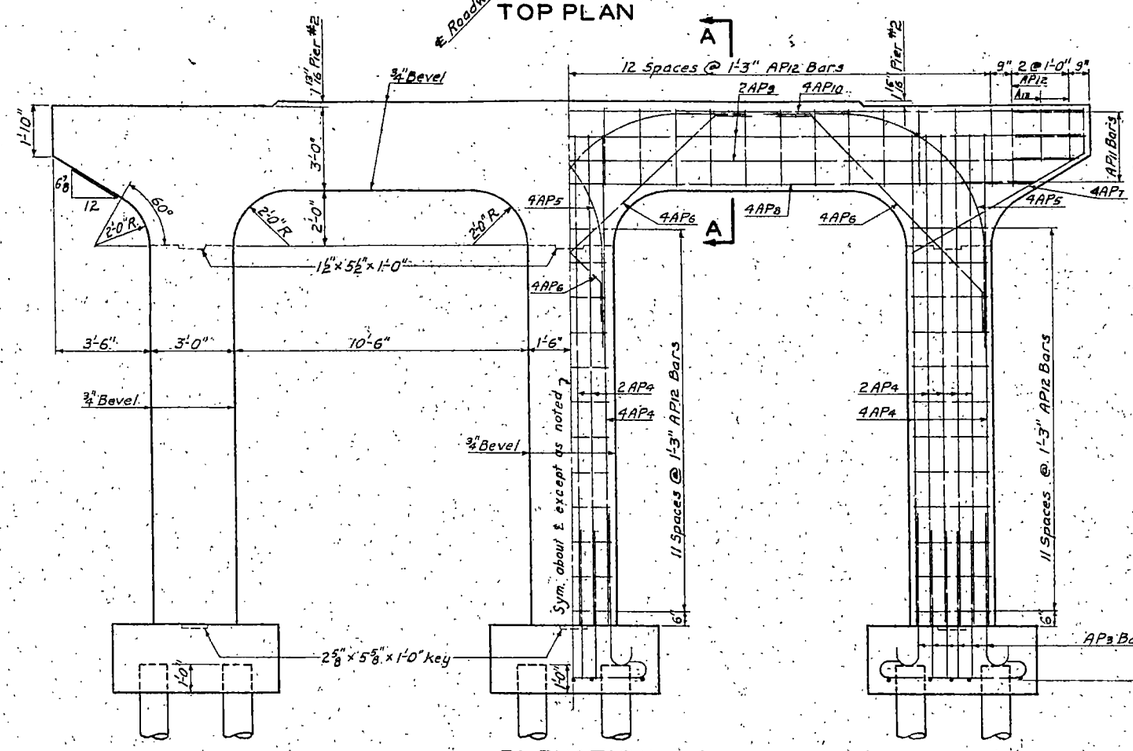


CAP DETAILS
PIER NO. 3
Looking North

BAR LIST (ONE PIER)				
MARK	NO	SIZE	LENGTH	SHAPE
AP1	15	1"φ	9'-3"	Bent
AP2	18	¾"φ	6'-9"	"
AP3	48	1"φ	6'-6"	"
AP4	48	"	17'-6"	Str.
AP5	16	¾"φ	13'-6"	Bent
AP6	16	"	11'-0"	"
AP7	8	"	8'-3"	"
AP8	4	1"φ	32'-6"	Str.
AP9	4	⅝"φ	36'-6"	"
AP10	4	1"φ	36'-6"	"
AP11	8	⅝"φ	5'-6"	Bent
AP12	63	"	9'-0"	"
AP13	4	"	7'-9"	"

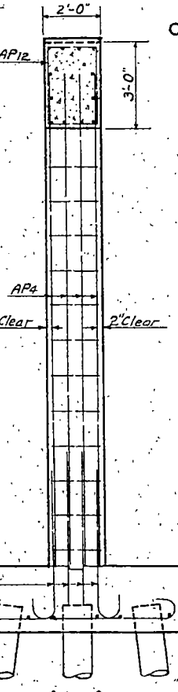


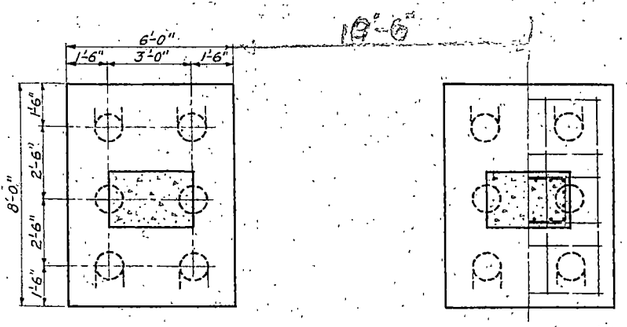
END VIEW



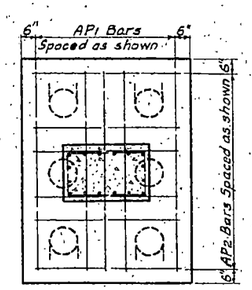
ELEVATION
Looking North

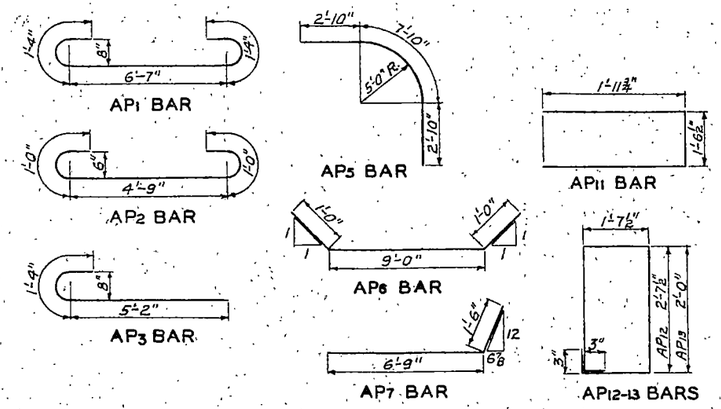
A – A





FOOTING PLAN





BENT BAR DETAILS

QUANTITIES (ONE PIER)	
Concrete, Class A-1	31.8 Cu. Yd.
Reinforcing Steel	5635 lb.
Excavation (See Layout)	
Piling (See Layout)	

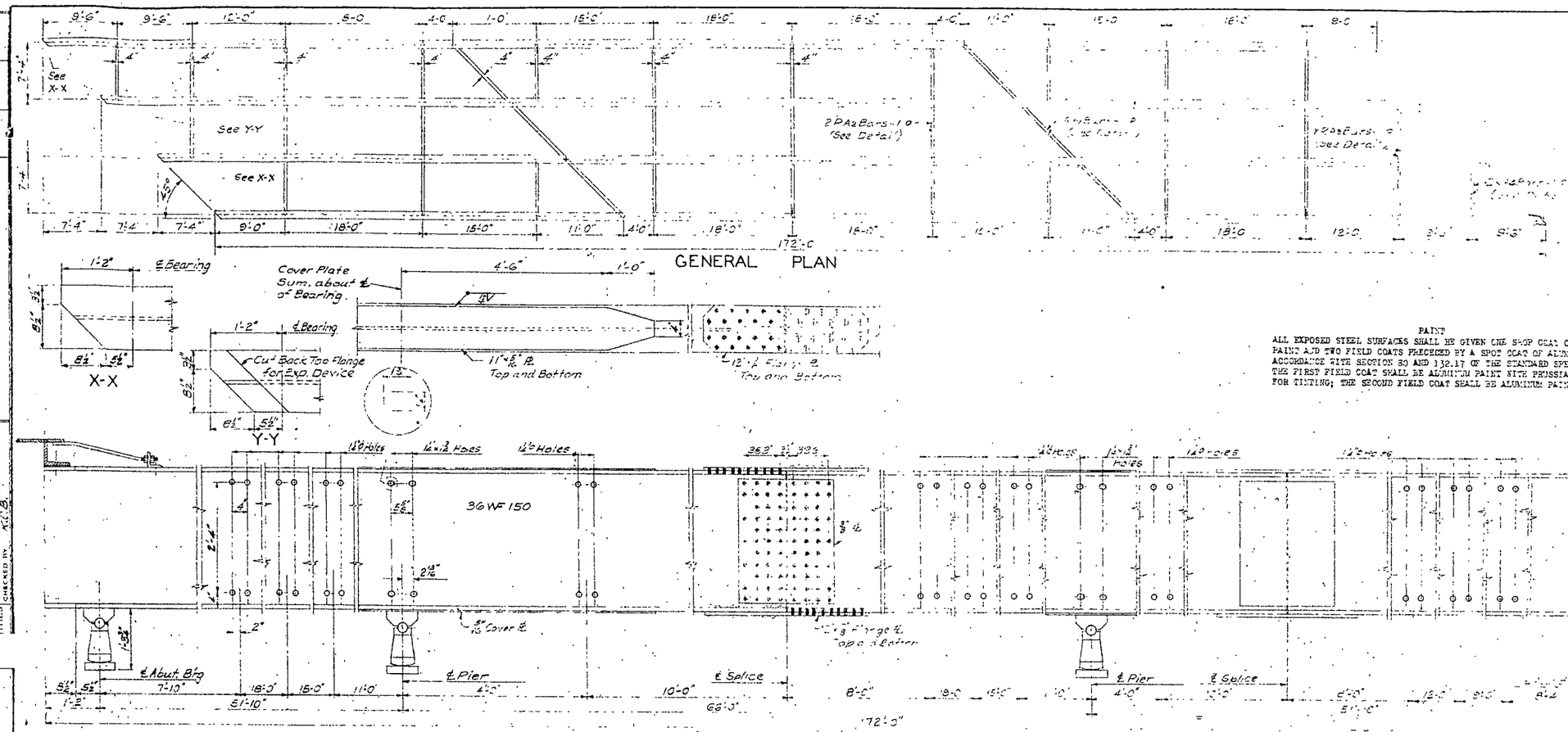
21' PIER
DETAIL
FOR I-BEAM SPANS
45° SKEW
26' ROADWAY

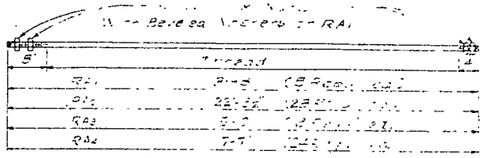
QUANTITIES MADE BY J.C.S. CHECKED BY L.M.

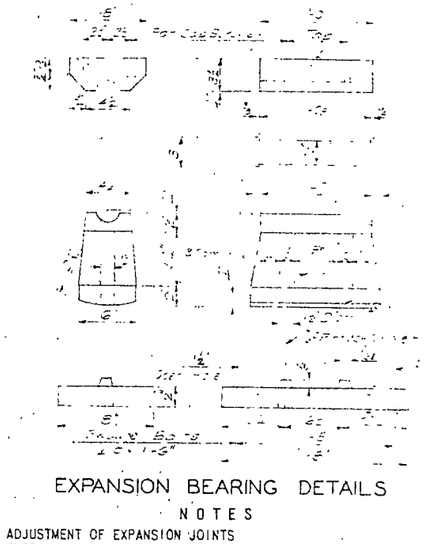
H-1323

H-132

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







PAINT

ALL EXPOSED STEEL SURFACES SHALL BE GIVEN ONE SHOP COAT OF RED LEAD PAINT AND TWO FIELD COATS FINISHED BY A SPOT COAT OF ALUMINUM PAINT IN ACCORDANCE WITH SECTION 80 AND 132.17 OF THE STANDARD SPECIFICATIONS. THE FIRST FIELD COAT SHALL BE ALUMINUM PAINT WITH PRUSSIAN BLUE ADDED FOR TINTING; THE SECOND FIELD COAT SHALL BE ALUMINUM PAINT.

NOTES

ADJUSTMENT OF EXPANSION JOINTS

SHOP: Assemble each joint complete, fit the two halves together and adjust to crown.

FIELD: 1. Pour the backwall of expansion abutment to the construction joint; place beams and adjust both parts of expansion device to proper elevation and curvature; pour remaining part of abutment wall.

2. When the floor slab is poured to within 3'-0" of the expansion device, the slab unit shall be checked and finally adjusted to contact with the abutment unit so that the whole device is properly placed.

GENERAL

All rivets are to be 7/8".

Open holes are to be 15/16" except as noted.

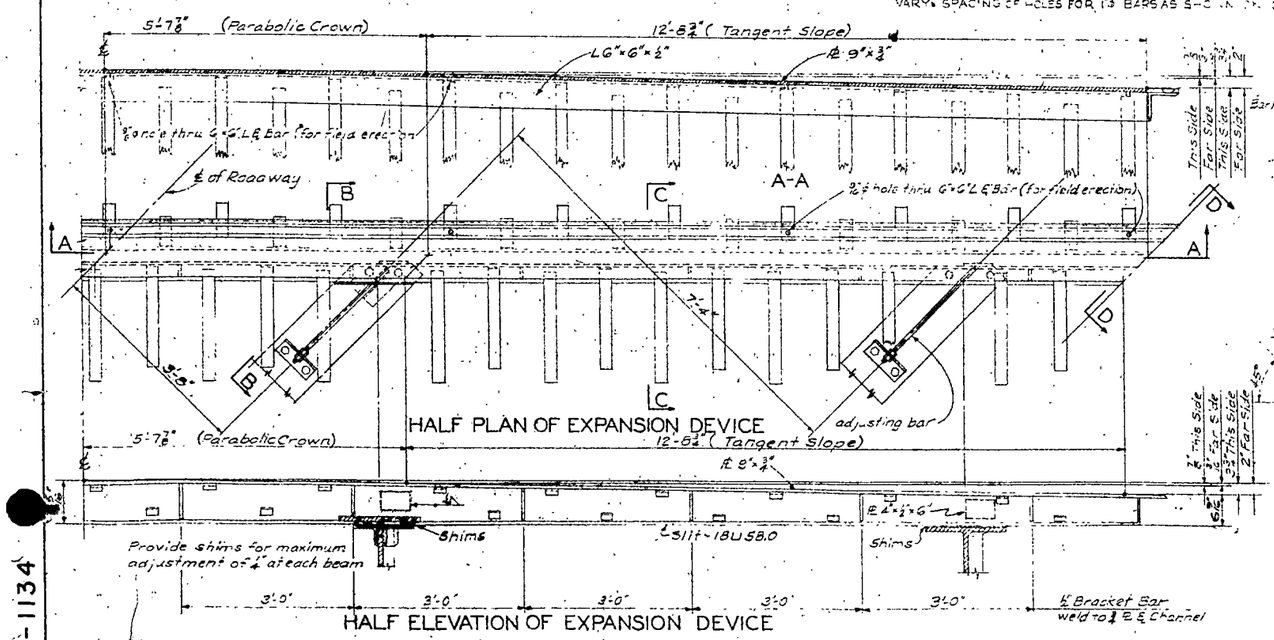
Field connections shall be made with either high tensile strength bolts or rivets.

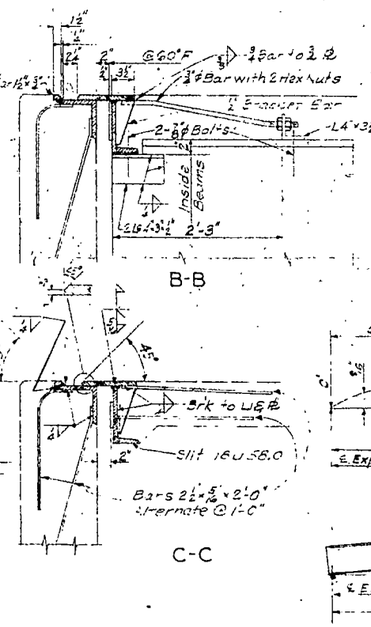
Paint: North Dakota Highway Specifications. No paint, shop or field, on top of beams. SEE PAINT NOTE ABOVE.

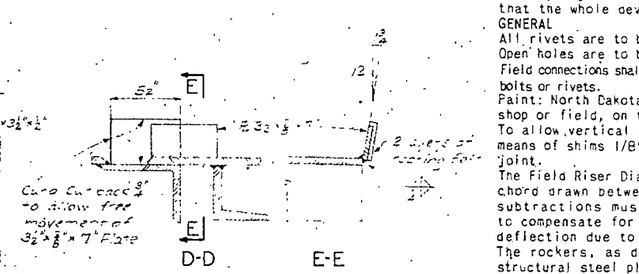
To allow vertical adjustment in the expansion joint by means of shims 1/8" has been cut from the height of the joint.

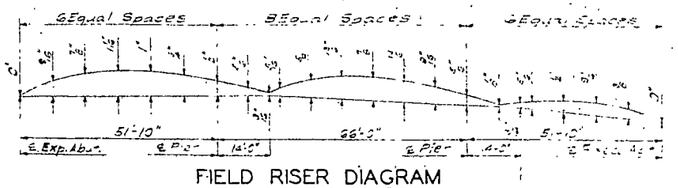
The Field Riser Diagram shows dimensions from an assumed chord drawn between ends of the beam. Additions or subtractions must be made to the riser dimensions to compensate for the tolerance in the beam and the deflection due to the weight of the beam.

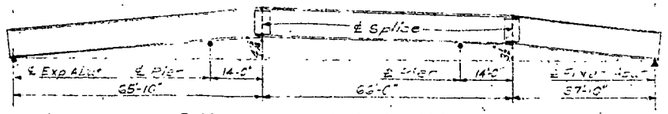
The rockers, as detailed, shall be constructed from structural steel plates welded together or shall be of cast steel. The 3" hole may be omitted if rockers are constructed of welded plates.











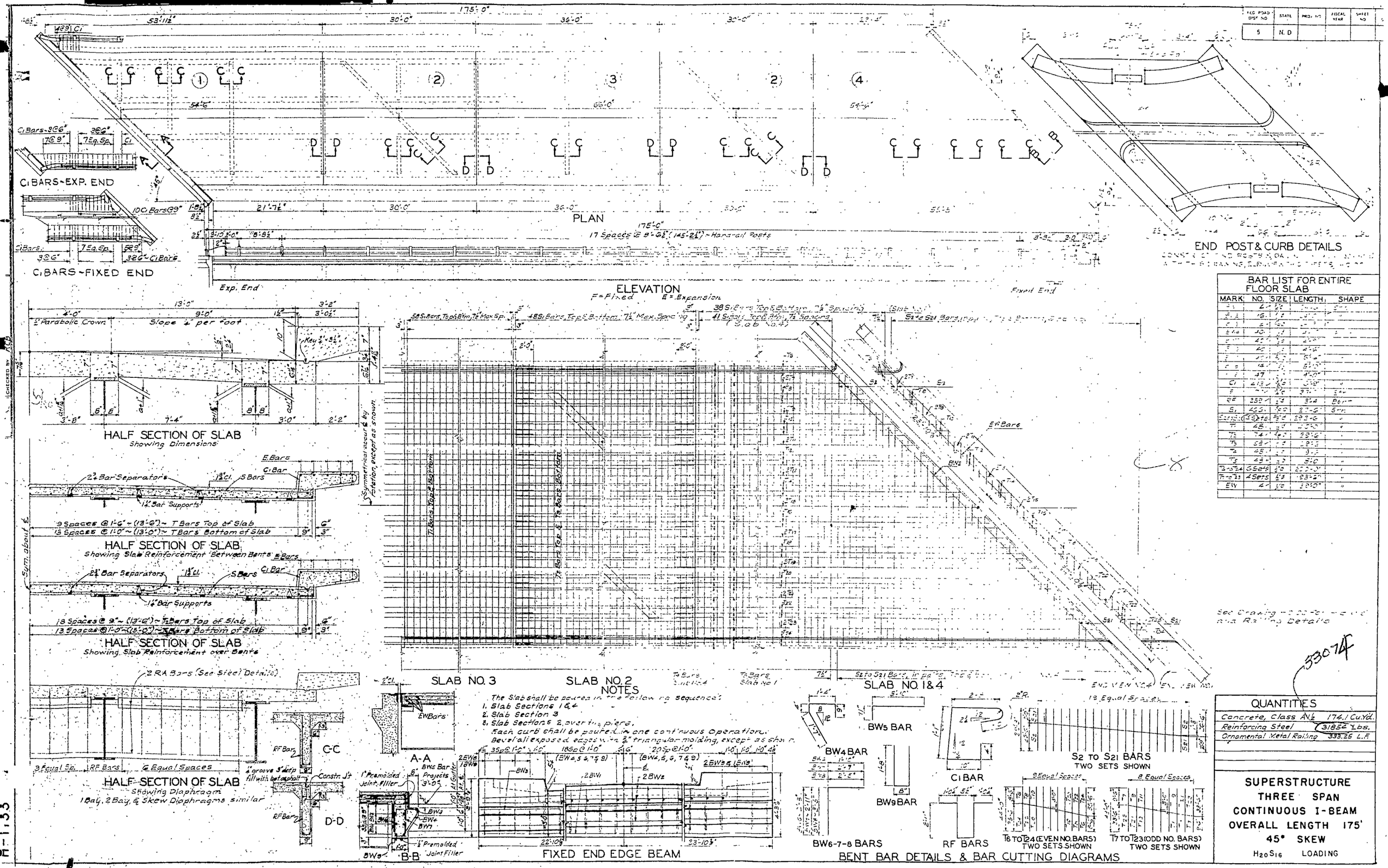
QUANTITIES	
Structural Steel	122,781 #

SUPERSTRUCTURE
THREE SPAN
CONTINUOUS I-BEAM
OVERALL LENGTH 175'
45° SKEW

H_{20} S_{16} LOADING

H-1134

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.
5	N. D.			



NOTES

The Slab shall be poured in the following sequence:
1. Slab Sections 1 & 4
2. Slab Section 3
3. Slab Sections 2, over the piers.

Each curb shall be poured in one continuous operation.
Bevel all exposed edges with a 3/4" triangular molding, except as shown.

BAR LIST FOR ENTIRE FLOOR SLAB

MARK	NO.	SIZE	LENGTH	SHAPE
[illegible]	2	[illegible]	[illegible]	[illegible]
[illegible]	16	[illegible]	[illegible]	[illegible]
[illegible]	6	[illegible]	[illegible]	[illegible]
[illegible]	40	[illegible]	[illegible]	[illegible]
[illegible]	42	[illegible]	[illegible]	[illegible]
[illegible]	42	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	64	[illegible]	[illegible]	[illegible]
[illegible]	47	[illegible]	[illegible]	[illegible]
C1	412	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
RF	359	[illegible]	[illegible]	Bent
S1	422	[illegible]	[illegible]	Strt.
Bars (1 Set)	[illegible]	[illegible]	[illegible]	[illegible]
T1	48	[illegible]	[illegible]	[illegible]
T2	74	[illegible]	[illegible]	[illegible]
T3	58	[illegible]	[illegible]	[illegible]
T4	45	[illegible]	[illegible]	[illegible]
T5	43	[illegible]	[illegible]	[illegible]
T6 to T24	6 Sets	[illegible]	[illegible]	[illegible]
T7 to T23	4 Sets	[illegible]	[illegible]	[illegible]
EW	4	[illegible]	[illegible]	[illegible]

53074

QUANTITIES

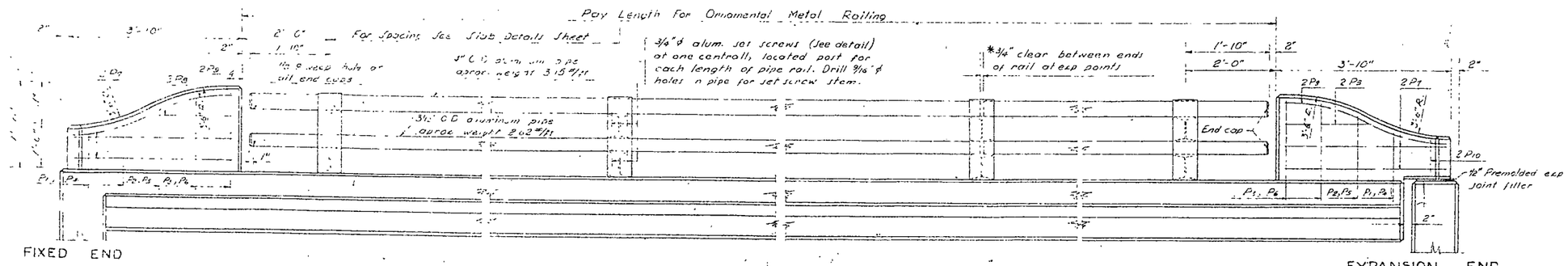
Concrete, Class A½	174.1 Cu.Yd.
Reinforcing Steel	31854 Lbs.
Ornamental Metal Railing	333.25 L.F.

SUPERSTRUCTURE
THREE SPAN
CONTINUOUS I-BEAM
OVERALL LENGTH 175'
45° SKEW

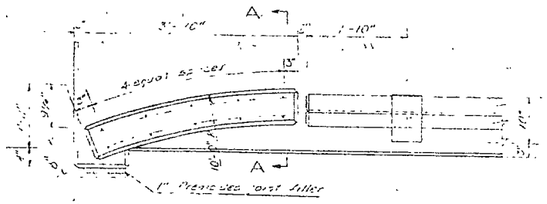
$H_{20}S_{16}$ LOADING

H-1133

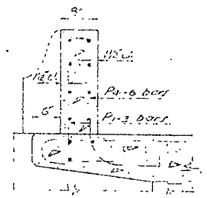
FED. AID DIV. NO.	STATE	F.A.P. PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	N.D.				



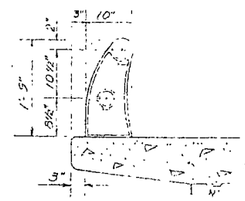
PART ELEVATION



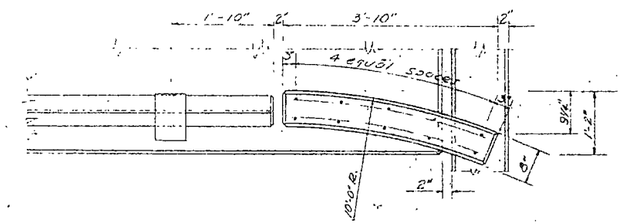
PART PLAN - FIXED END



SECTION A-A



TYPICAL SECTION



PART PLAN - EXPANSION END

NOTES

Rail posts shall be aluminum alloy sand or permanent mold castings 356-T6, alloy SG70A condition T6. Sand castings shall conform to A.S.T.M. Spec B 108.

Rail pipe to be aluminum alloy tube 6061-T6 conforming to A.S.T.M. Spec. B 210-55T, alloy QS11A condition T6. Mill finish.

Bolts and screws to be aluminum alloy 2024-T4 with No. 205 alumilite finish conforming to A.S.T.M. Spec. B 211-55T alloy QS42A condition T4.

Pins shall conform to A.S.T.M. Spec. B 211-55T, alloy QS11A condition T6.

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

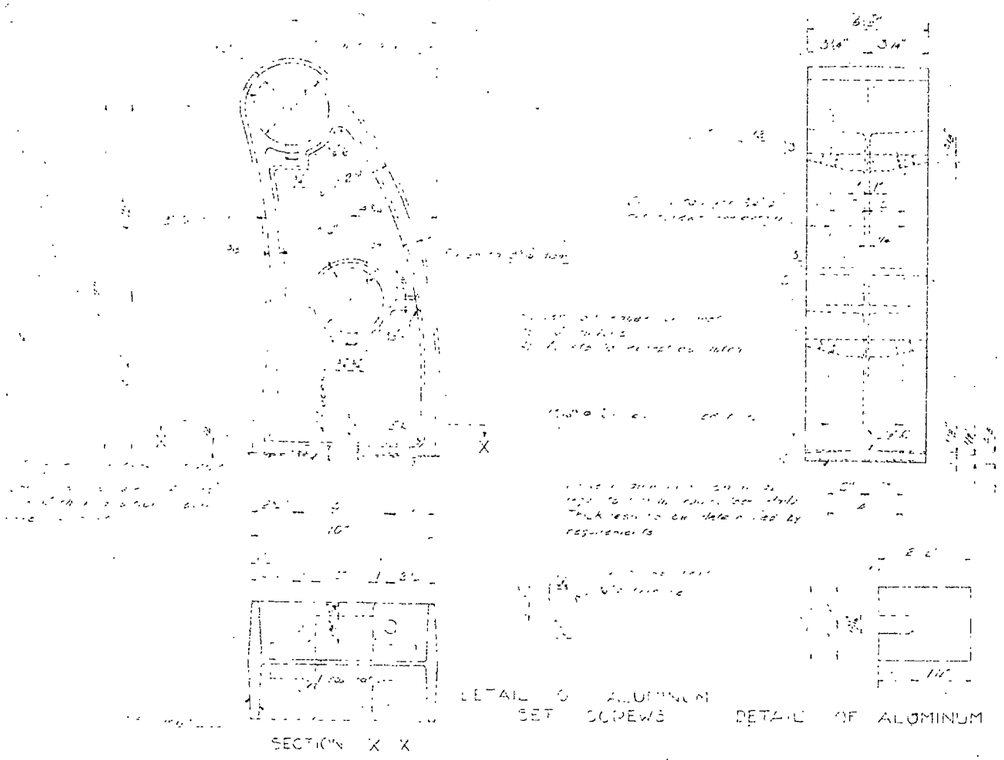
The bottom of rail posts in contact with concrete shall be coated with 'Alumalastic Compound' as manufactured by the Parr Paint and Color Company of Cleveland, Ohio, or approved equal (knife grade). Excess compound shall be neatly removed after the posts are bolted into final position.

All posts shall be set normal to grade.

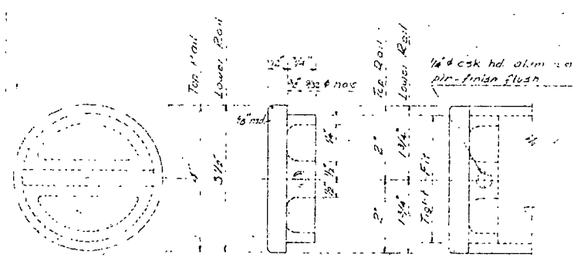
All pipe, rail posts, anchor bolt assemblies, bolts, screws, shims, pins, end caps and compound shall be included in the price bid for Ornamental Metal Railing.

All concrete in the end posts shall be Class A-1½.

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



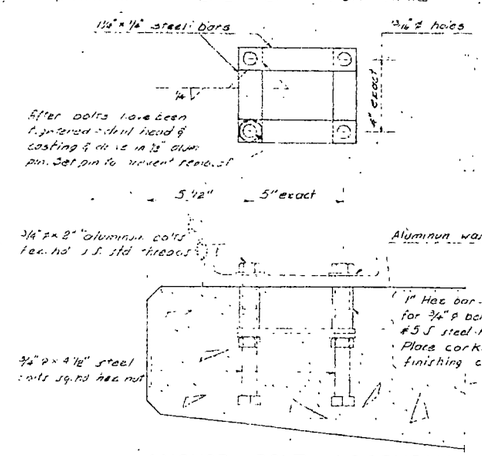
RAIL POST DETAILS



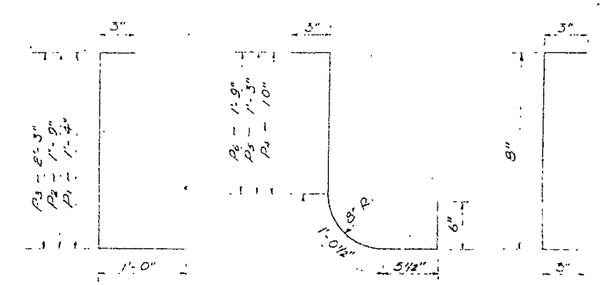
CAST ALUMINUM END CAP FOR RAIL

BAR LIST (4 END POSTS)				
MARK	No.	SIZE	LENGTH	SHAPE
P1	6	5/8" ø	2'-7"	Bent
P2	4	"	3'-0"	"
P3	8	"	3'-6"	"
P4	6	"	3'-1"	"
P5	4	"	3'-6"	"
P6	8	"	4'-0"	"
P7	16	1/2" ø	3'-9"	Field Bent
P8	8	"	2'-0"	"
P9	8	5/8" ø	4'-0"	"
P10	4	3/8" ø	1'-2"	Bent

Conc. = 0.50 Cu Yds
Rebar = 331 lbs



ANCHOR BOLT ASSEMBLY



P1, P2 & P3 BARS P4, P5 & P6 BARS P10 BARS

BENT BAR DETAILS

NOTES:
End posts shall be given the "Rubbed Surface Finish."
Railing and end posts quantities are included in slab quantities on slab sheet.

STANDARD RAILING DETAILS

H0100 H.