DESIGN DATA				
Traffic	Average Daily			Est.Max.Hr.
Current 1996	Pass. 1575	Trucks 635	Total 2210	220
Forecast 2016	Pass. 2360	Trucks 950	Total 3310	330
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# 5

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

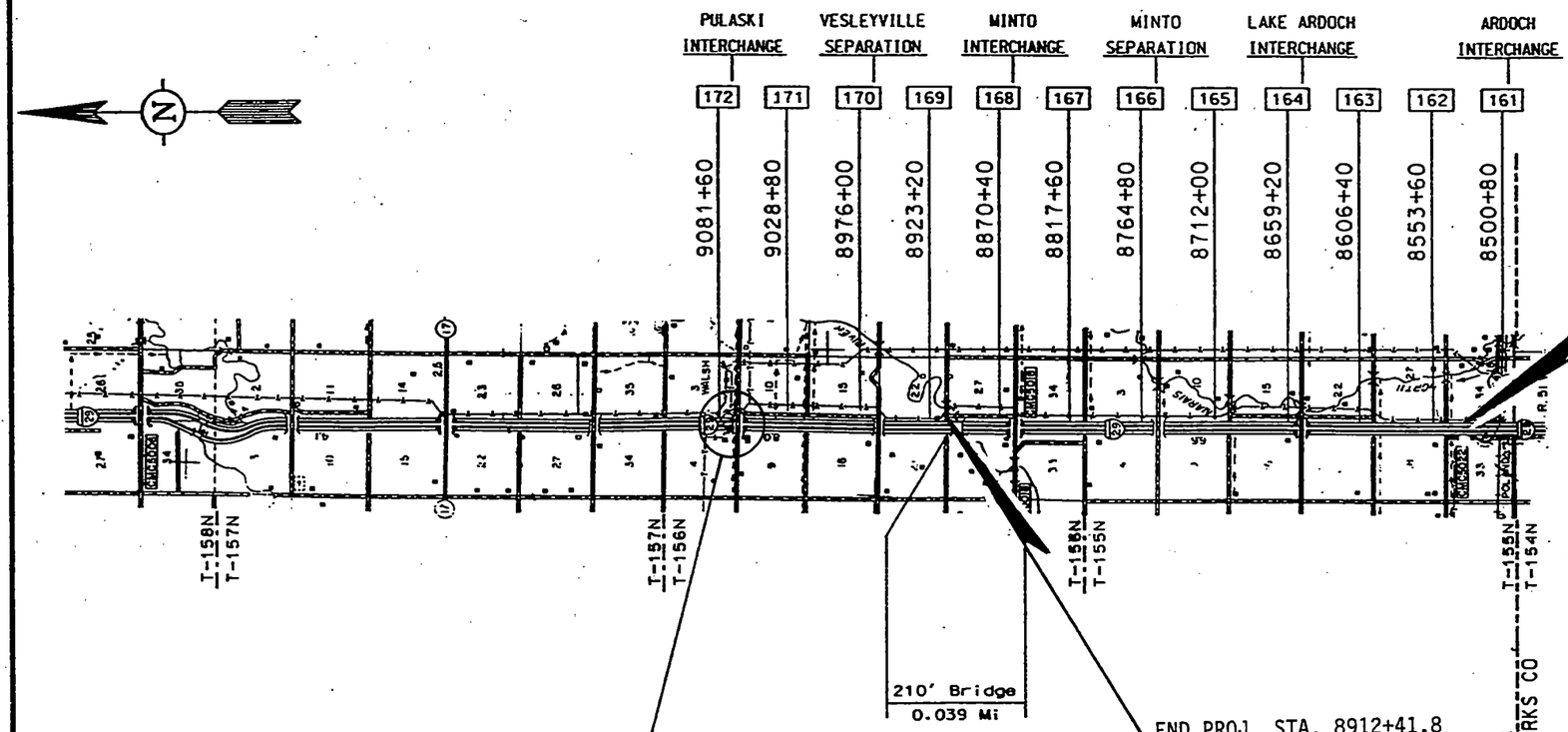
FEDERAL AID PROJECT AC-IM-6-029(013)161
IN WALSH COUNTY
CONCRETE PAVEMENT REPAIR
HOT BITUMINOUS PAVEMENT OVERLAY
(NORTHBOUND ROADWAY)
MILLING & OVERLAY OF X-ROADS
LAKE ARDOCH, MINTO, & PULASKI INTERCHANGES

FHWA REGION	STATE	PROJECT NO.	SHEET NO.
8	ND	AC-IM-6-029(013)161	1

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.

LENGTH OF PROJECT
7.089 MILES



BEG. PROJECT STA. 8538+14.1
SEC. 34, T-155 N., R-51 W.
R.P. 161.7

PROJECT AC-IM 6-029(013)161 STA. 9081+60
PULASKI INTERCHANGE

END PROJ. STA. 8912+41.8
SEC. 22, T-156 N., Rge 51 W.
R.P. 168.8

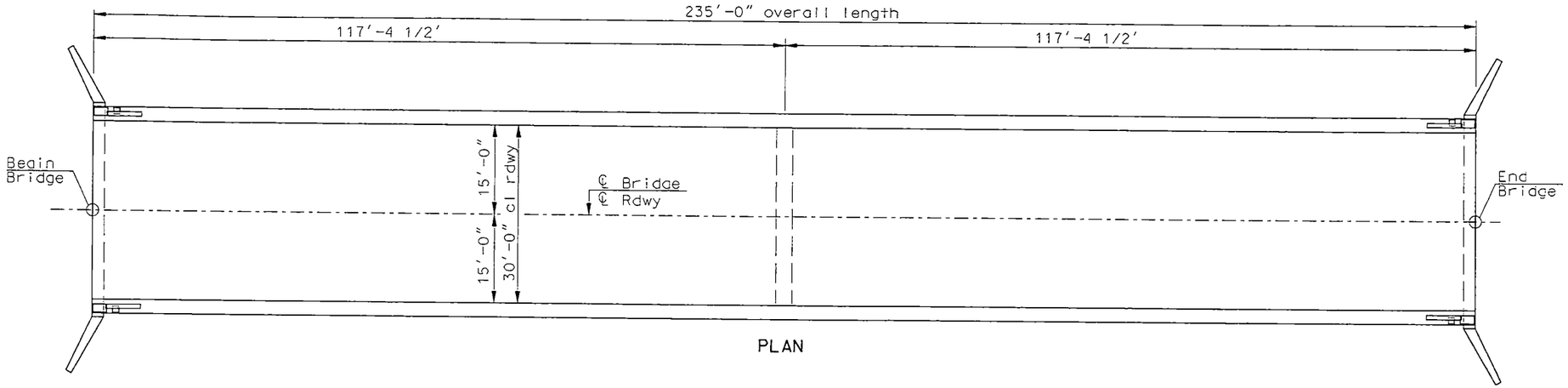
88' North of End of Bridge

PAVING SECTION _____
URBAN SECTION _____
TRAFFIC SECTION _____
RURAL SECTION Jerry F. Johnson
RECOMMEND APPROVAL 2-17, 1998
DESIGN ENGINEER _____

APPROVED DATE 2-17-98
David K.O. Leer
P.E. 1199
DIRECTOR OF HIGHWAYS AND ENGINEERING
NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

Orig.

FHWA REGION	FHWA REGION	STATE	FEDERAL AID PROJECT NUMBER	SHEET NO.
X-771	8	ND	IM-6-029(013)161	37



PLAN

SCOPE OF WORK: The work on this site consists of overlaying the bridge deck with low slump concrete.

BRIDGE DECK OVERLAY: The deck overlay shall be done in two stages to allow at least one lane of traffic at all times. All concrete removed from the deck shall be disposed of properly, off of the right of way, by the contractor. The overlay shall meet the requirements of low-slump concrete as listed in Section 650.02.

SPEC	CODE	ITEM DESCRIPTION	UNIT	QUANTITY
650	0700	CLASS 1 OVERLAY	SY	783
650	0701	CLASS 2 OVERLAY	SY	157
650	0702	CLASS 3 OVERLAY	SY	39
650	0703	CLASS 2A OVERLAY	LF	283

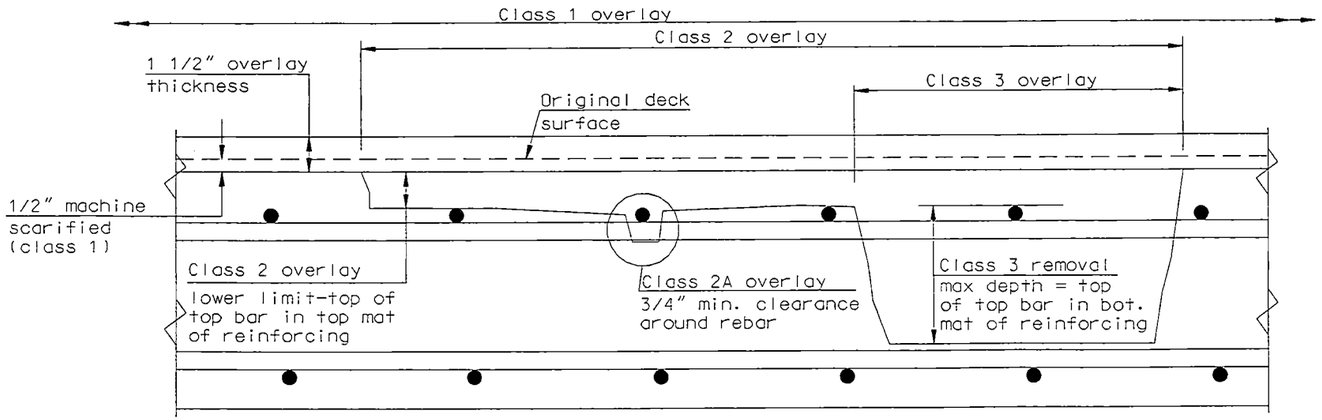
MINTO INTERCHANGE

BRIDGE LAYOUT

BRLO 97LCS076 LLS

29-167.722

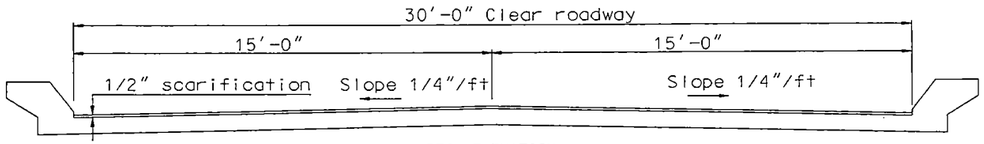
FHWA REGION	STATE	FEDERAL AID PROJECT NUMBER	SHEET NO.
8	ND	IM-6-029(013)161	38



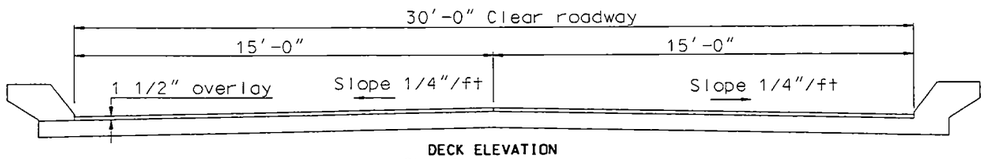
Class 4 removal shall be below limit of class 3 removal to full depth.

BRIDGE DECK

(Overlay classifications)



DECK ELEVATION
Showing removal



DECK ELEVATION
Showing overlay

QUANTITIES		
CLASS 1 OVERLAY	783	SY
CLASS 2 OVERLAY	157	SY
CLASS 3 OVERLAY	39	SY
CLASS 2A OVERLAY	283	LF

MINTO INTERCHANGE

OVERLAY DETAILS

DESIGN DATA				
Traffic	Average Daily			Est.Max.Hr.
Current 1996	Pass: 1650	Trucks 330	Total 1980	200
Forecast 2016	Pass: 2475	Trucks 495	Total 2970	300
Minimum Sight Dist. for:		Design Speed 70 MPH		
Stopping 720'		Bridges HS20		
Full Control of Access				
No Point of Access Other Than at Interchange Ramps				

JOB# 26

FHWA REGION	STATE	PROJECT NO.	SHEET NO.
8	ND	IM-6-029(027)161	1

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

IN WALSH COUNTY

FEDERAL AID PROJECT NO. IM-6-029(027)161

RECYCLE PCC PAVEMENT (SOUTHBOUND)

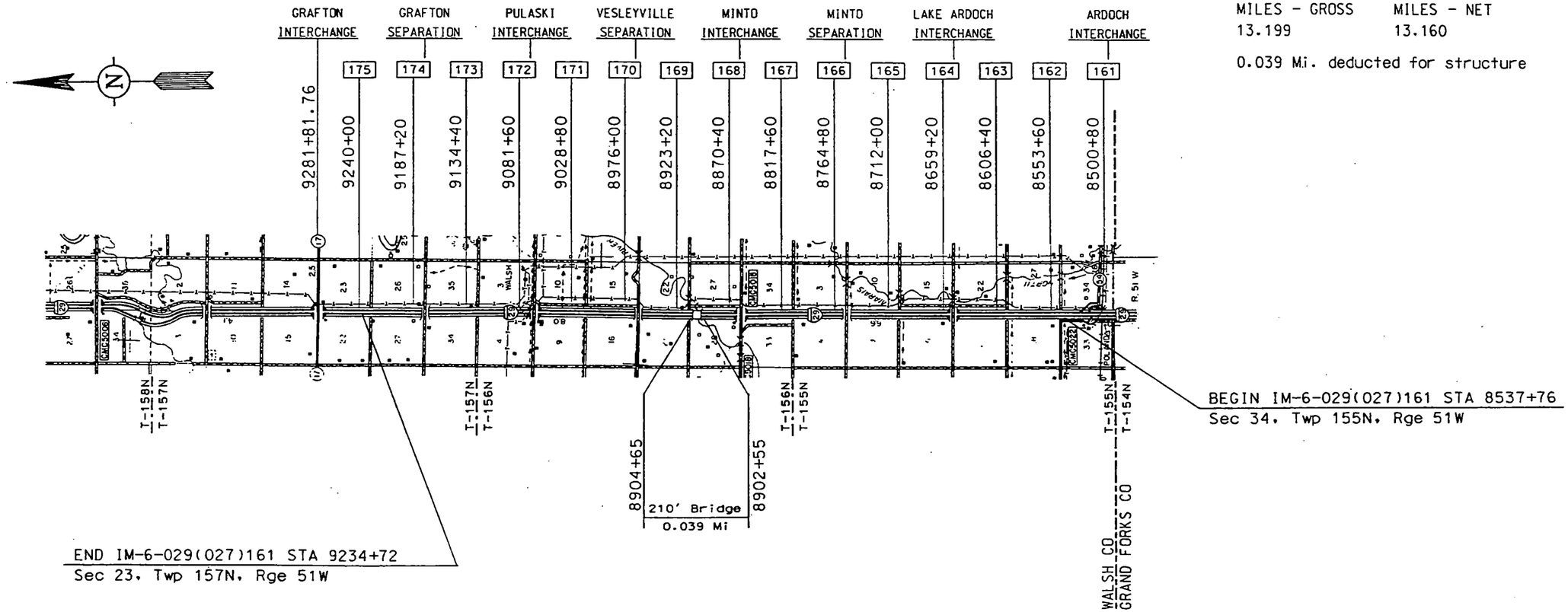
GOVERNING SPECIFICATIONS:

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

MILES - GROSS	MILES - NET
13.199	13.160

0.039 Mi. deducted for structure



PAVING SECTION

URBAN SECTION Andrew Hirschfeld

TRAFFIC SECTION Dave Ellefson

RURAL SECTION

RECOMMEND APPROVAL 2-11-1997

DESIGN ENGINEER David K.O. Leer

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED

DIVISION ADMINISTRATOR DATE

APPROVED DATE 2/11/97

Francis G. Ziegler

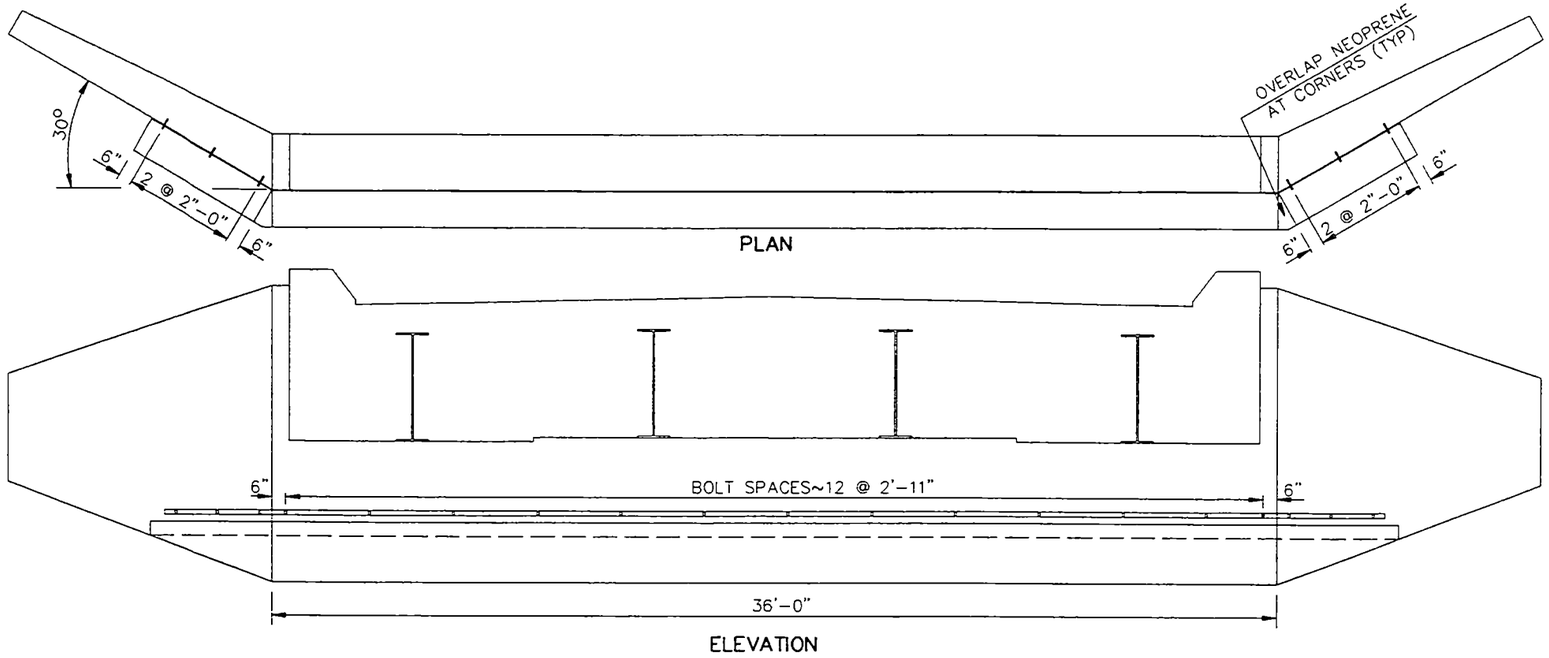
DIRECTOR OF HIGHWAYS AND ENGINEERING

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

FRANCIS G. ZIEGLER REGISTERED PROFESSIONAL P.E. 1579 ENGINEER NORTH DAKOTA

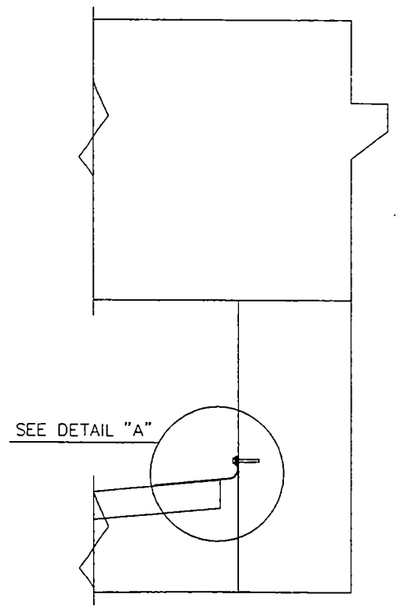
n:\project\60029161.027\d_urban\ti Dec. 19, 1996 10:54:11

FHWA REGION	STATE	FEDERAL AID PROJECT NUMBER	SHEET NO.
8	ND	IM-6-029(027)161	66

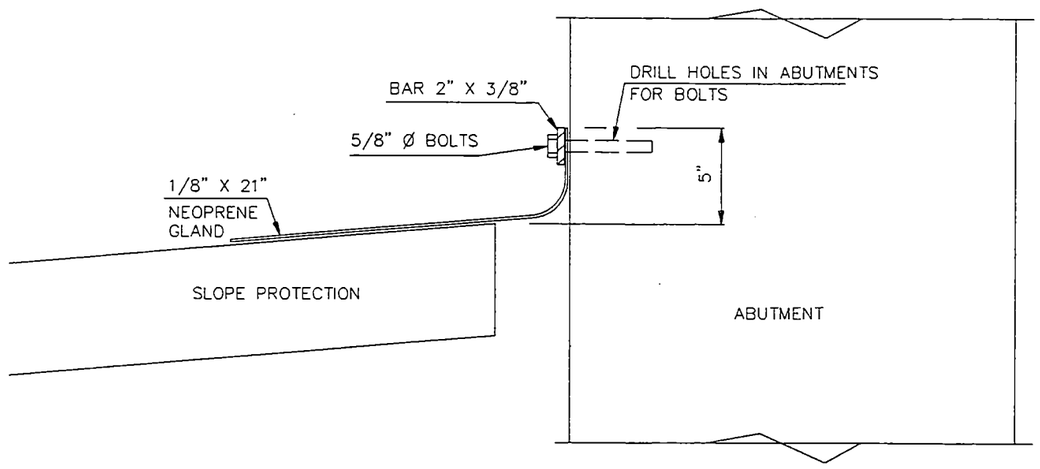


PLAN

ELEVATION



SECTION @ ABUTMENT



DETAIL "A"

NOTES:

THE 2" X 3/8" BARS ON THE WING WALLS SHALL BE SPEPARATE FROM THE BAR ON THE FRONT FACE OF THE ABUTMENT. THE BAR ON THE FRONT FACE OF THE ABUTMENT SHALL BE ONE LONG PIECE OR MADE UP OF SEVERAL SHORTER PIECES. THE SPACE FROM THE ENDS OF THE BARS TO THE FIRST HOLE SHALL NOT BE GREATER THAN 6 INCHES.

THE NEOPRENE GLAND SHALL BE MADE IN THREE PIECES: ONE FOR THE FRONT FACE OF THE ABUTMENT AND ONE FOR EACH WING WALL. THE GLANDS SHALL BE CUT SO THAT THEY OVERLAP AT THE CORNERS.

THE BOLTS TO HOLD THE NEOPRENE GLAND IN PLACE SHOULD BE INSTALLED INTO THE ABUTMENT BY A MECHANICAL OR CHEMICALLY BONDED METHOD.

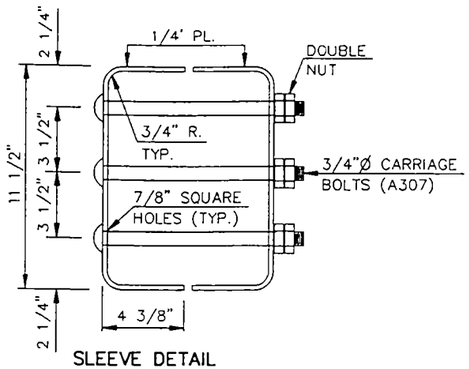
ALL EQUIPMENT, MATERIALS AND LABOR REQUIRED TO INSTALL THE GLAND AS SHOWN SHALL BE INCLUDED IN THE BID ITEM "JOINT TREATMENT".

QUANTITIES	(TWO ABUTMENTS)	
JOINT TREATMENT	92.0	LF

MINTO INTERCHANGE

JOINT TREATMENT DETAILS

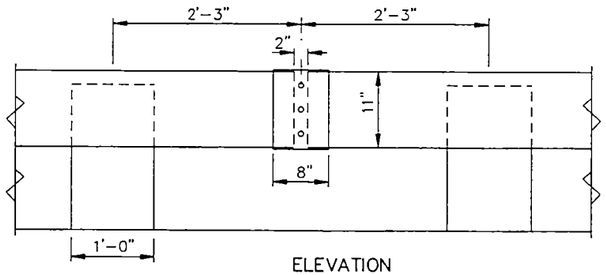
FHWA REGION	STATE	FEDERAL AID PROJECT NUMBER	SHEET NO.
8	ND	IM-6-029(027)161	70



SLEEVE DETAIL

NOTE:

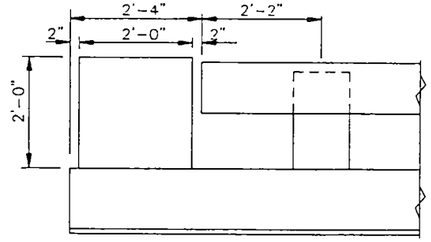
THE STEEL PLATES SHALL BE M183 STEEL. PLATES, BOLTS AND NUTS SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M111. MATERIALS AND LABOR TO INSTALL THE RAIL SLEEVES SHALL BE INCIDENTAL TO "BRIDGE END POST MODIFICATION".



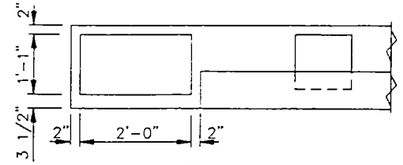
ELEVATION

SLEEVE AT RAIL JOINT

(2 REQUIRED)

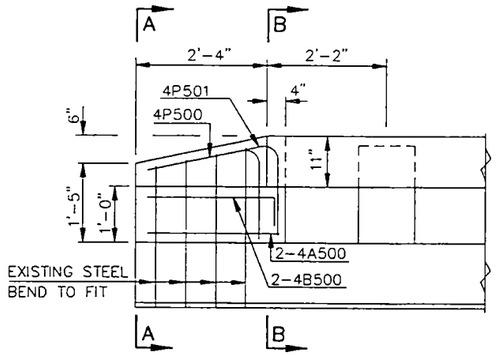


ELEVATION

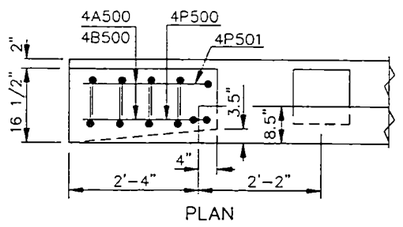


PLAN

SHOWING END POST REMOVAL LIMITS

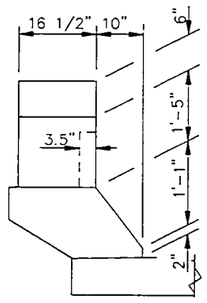


ELEVATION

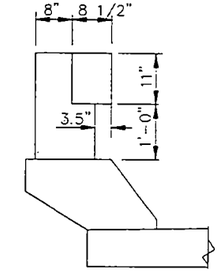


PLAN

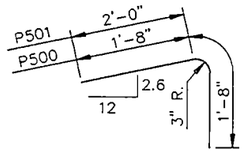
NEW END POST



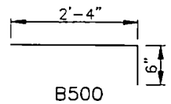
A–A



B–B



P500 & P501



B500

BENT BAR DETAILS

BAR LIST (ONE POST)				
SIZE	MARK	NO.	LENGTH	SHAPE
4	A500	2	2'-4"	STR.
4	B500	2	2'-10"	BENT
4	P500	1	3'-4"	BENT
4	P501	1	3'-8"	BENT

ESTIMATE OF QUANTITIES		
REMOVAL OF CONC.	0.16	C.Y.
CLASS AAE-3 CONC.	0.21	C.Y.
REINFORCING STEEL	12	LBS.

NOTE:

MODIFY BRIDGE END POSTS AT THE BOTH ENDS OF THE BRIDGE.

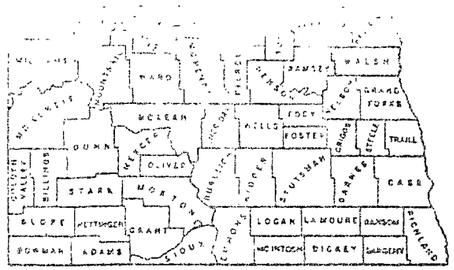
THE CONCRETE SHALL BE CLASS AAE-3 AND THE REINFORCING STEEL SHALL BE GRADE 60. THE EXISTING END POSTS SHALL BE REMOVED AND PROPERLY DISPOSED OF. THE QUANTITIES SHOWN ARE FOR INFORMATIONAL PURPOSES ONLY. ALL MATERIALS, LABOR AND EQUIPMENT INCLUDING CONCRETE, STRUCTURAL STEEL AND REINFORCING BARS REQUIRED TO REMOVE AND REPLACE THE END POSTS SHALL BE INCIDENTAL TO THE PAY ITEM "BRIDGE END POST MODIFICATION".

SURFACE FINISH "D" SHALL BE REQUIRED FOR ALL SURFACES OF THE END POSTS.

QUANTITIES (ONE BRIDGE)		
BRIDGE END POST MODIFICATION	4	EA.

MINTO INTERCHANGE

RAIL SLEEVES & END POST DETAILS



SKETCH-MAP OF NORTH DAKOTA
SHOWING COUNTIES

N
W E
S

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

NORTH DAKOTA
STATE HIGHWAY DEPARTMENT

PLANS

FOR THE PROPOSED IMPROVEMENT OF A

STATE HIGHWAY

IN WALSH COUNTY

FEDERAL AID PROJECT NO. I-29-4(22) 163

STRUCTURAL

LENGTH OF PROJECT		
PROJECT	MILES-GROSS	MILES-NET
I-29-4(22)	4.023	0.0
TOTALS	4.023	0.0

CONTRACT SPECIFICATIONS

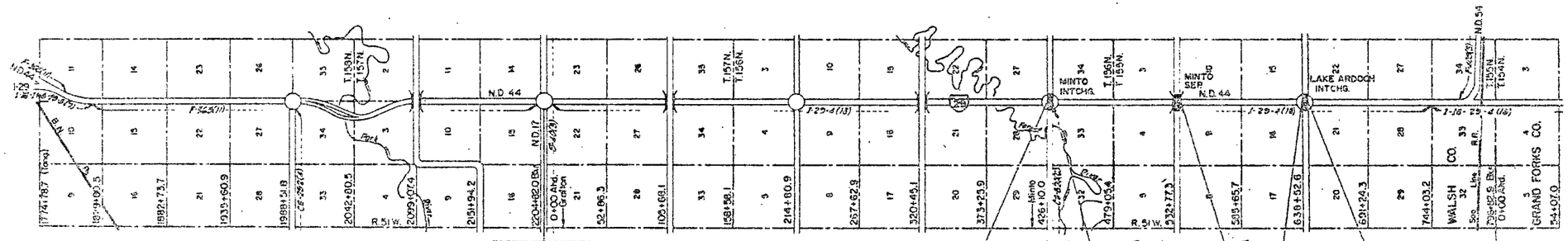
Standard Specifications adopted by the North Dakota State Highway Department Jan 1965 and approved as amended by the Federal Highway Administration June 23, 1965 Federal Contract Provision (Form PR-1273) dated October 1969 and others submitted herewith.

DESIGN DATA

TRAFFIC		AVERAGE DAILY			EST. 30TH. MAX. HR.
CURRENT TRAFFIC (1970)	1925	PASS. 325	TRUCKS 2250	TOTAL	330
TRAFFIC FORECAST (1990)	4900	PASS 800	TRUCKS 5700	TOTAL	850

DESIGN SPEED 60 MPH
TRAFFIC CLASSIFICATION "M"
MINIMUM SIGHT DISTANCE (STOPPING) 750

STA.	CLEAR RDWY. WIDTH	DESIGN LOADING
426+10.0	30'	H20 (1944)
532+77.3	30'	H15 (1944)
638+52.6	30'	H20 (1944)



LAYOUT MAP
5000 0 5000
SCALE IN FEET

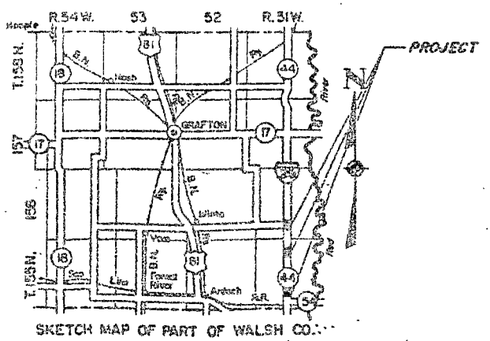
Sta. 426+10.0
I-235 Bridge
0.0 Miles

Sta. 532+77.3
I-265 Bridge
0.0 Miles

Sta. 638+52.6
I-235 Bridge
0.0 Miles

Begin Project No. I-29-4 (22)
Station 426+10.0 Main Line =
15+00 Cross Road
Station 426+10.0 on Project No.
I-29-4 (18)
A point 52' East of the North West
Corner of Sec.34, Twp.156N, Rge.51W.

End Project No. I-29-4 (22)
Station 638+52.6 Main Line =
15+00 Cross Road
Station 638+52.6 on Project No.
I-29-4 (18)
A point 52' East of the North West
Corner of Sec.22, Twp.155N, Rge.51W.



SKETCH MAP OF PART OF WALSH CO.

APPROVED DATE 12-16-70
CHIEF ENGINEER
NORTH DAKOTA STATE
HIGHWAY DEPARTMENT

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

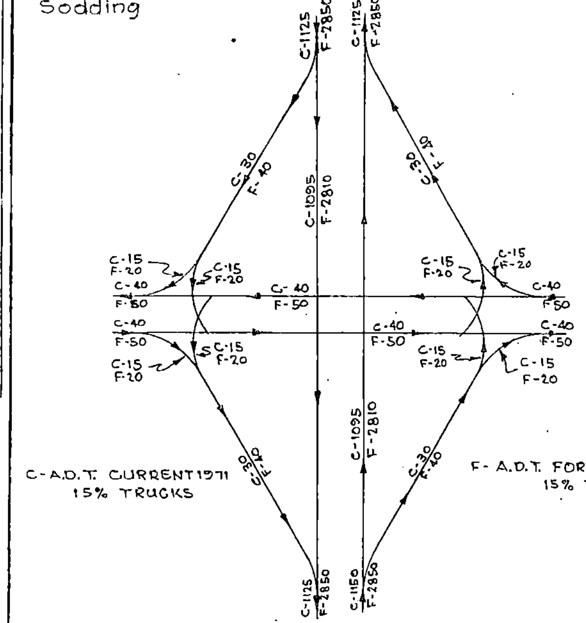
APPROVED

DIVISION ENGINEER DATE

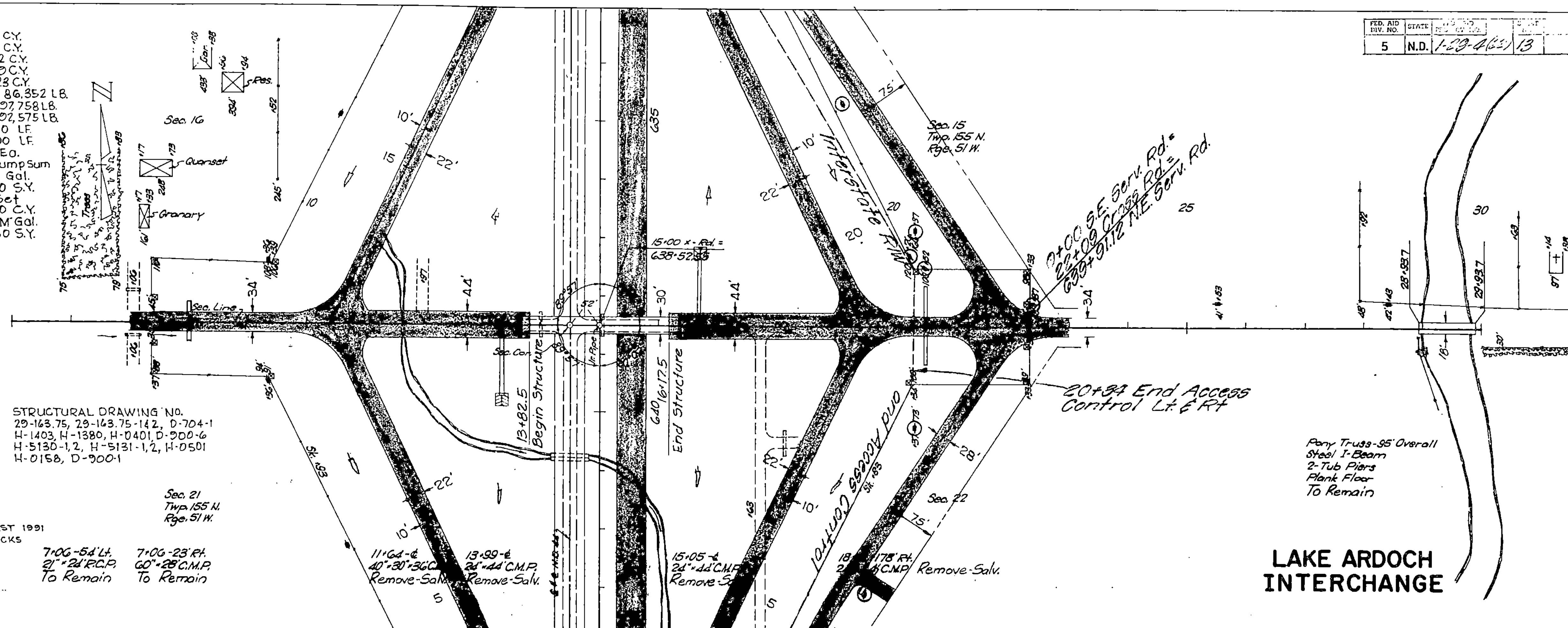
FED. AID DIV. NO.	STATE		
5	N.D.	I-29-4(...)	13

INSTALL OVERHEAD (1-235' Bridge)

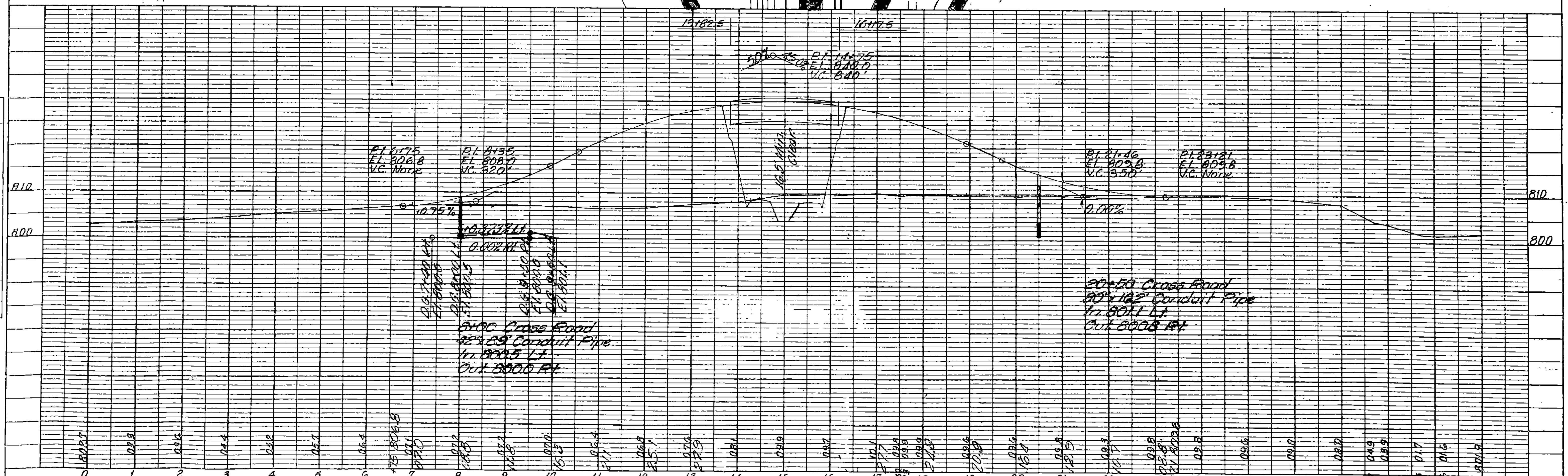
Class 1 Excavation	150 C.Y.
Select Backfill	360 C.Y.
Class AE-1 Concrete Substructure	75.2 C.Y.
Class AE-3 Concrete I Beam Superstructure	250.9 C.Y.
Class AAE-3 Concrete Railing & Posts	15.23 C.Y.
Reinforcing Steel (Grade 40)	86,352 LB.
Structural Steel A572 Welded Girder (Grade 50)	97,758 LB.
Structural Steel A 36 Welded Girder	92,575 LB.
Steel Piling (HP 10 x 42)	1540 LF.
Steel Piling (HP 12 x 53)	1600 LF.
Steel Test Piles (HP 10x42) 150 Ft.	1 Ea.
Roadway Canopy	1 Lump Sum
Linseed Oil Treatment	38 Gal.
Concrete Slope Protection	370 S.Y.
Bridge Bench Marks	1 Set
Pier Mounding Protection	750 C.Y.
Water	8 "M" Gal.
Sodding	630 S.Y.

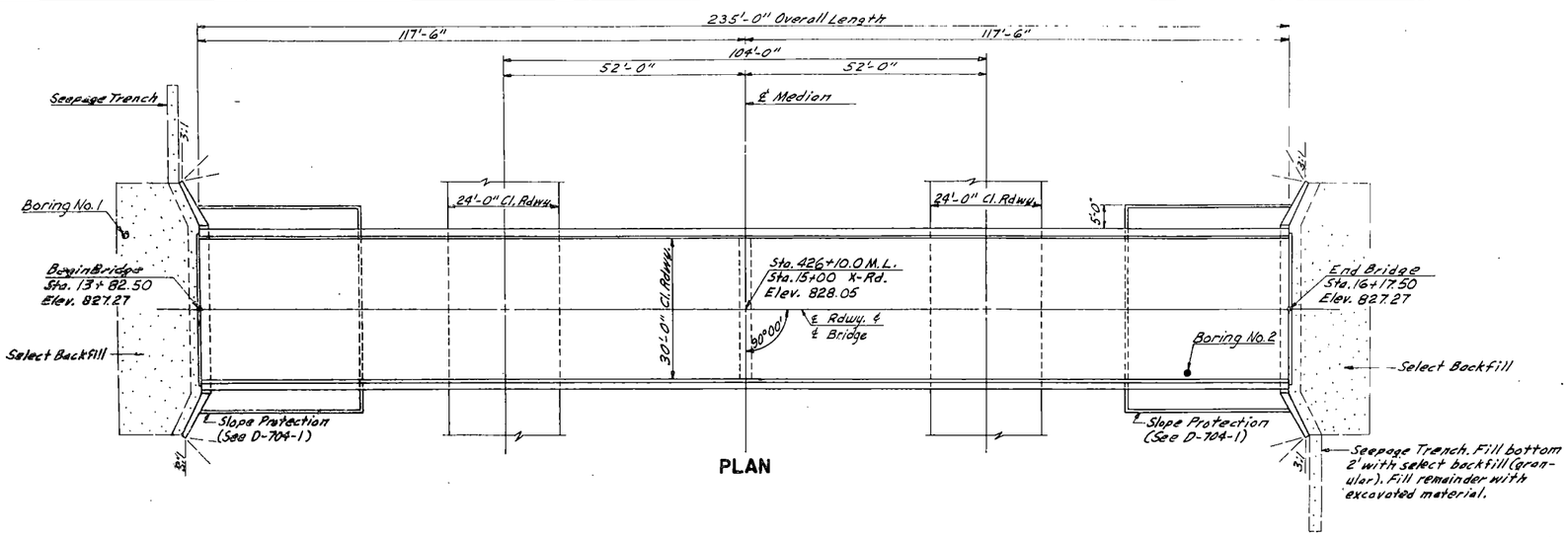


STRUCTURAL DRAWING NO.
29-163.75, 29-163.75-1&2, D-704-1
H-1403, H-1380, H-0401, D-900-6
H-5130-1,2, H-5131-1,2, H-0501
H-0158, D-900-1

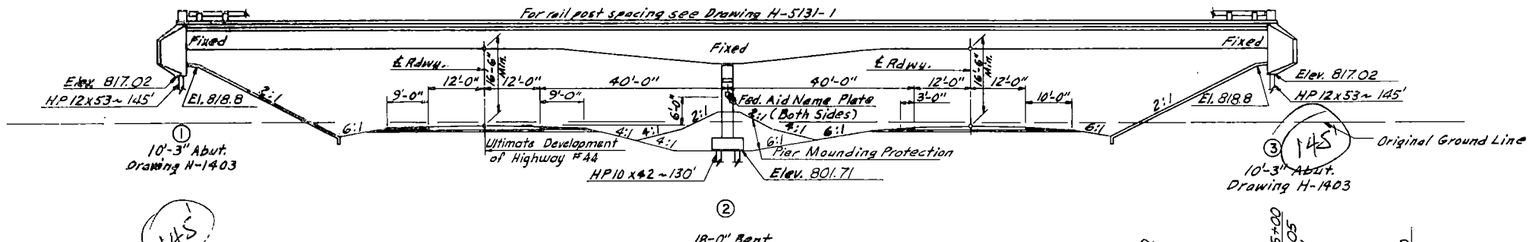


LAKE ARDOCH INTERCHANGE

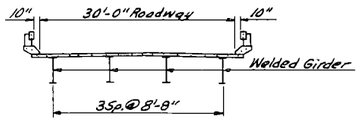




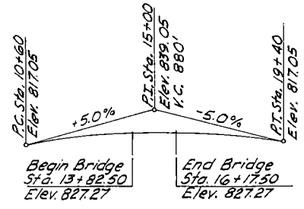
PLAN



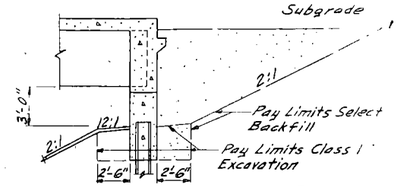
ELEVATION



DECK SECTION



VERTICAL CURVE DATA



DETAIL AT ABUTMENT ON ℄

See SP-34 for Quick Setting Anchor Grout.
See SP-29 for Optional Concrete Surface Finish.
① See SP-33 for Painting.
① See Sp-35 A for Structural Steel.
② See SS-21 for Piling.
③ See SP-45A for Concrete Slope Protection.
④ See SP-32A for Reinforcement.
⑤ See SP-27 for Backfill.
⑥ See SP-61 for Roadway Canopy.

General Notes for this project are shown on Dwg. 29-167.77-1.

ESTIMATE OF QUANTITIES

SPEC. NO.	CODE NO.	BID ITEM	
203	0160	PIER MOUNDING PROTECTION	750 CU. YD.
206	0100	CLASS I EXCAVATION	85 CU. YD.
216	0100	WATER	8 "M" GAL.
228	0100	SELECT BACKFILL ⑤	360 CU. YD.
610	1112	CLASS AE-1 CONCRETE SUBSTRUCTURES	75.2 CU. YD.
610	1134	CLASS AE-3 CONCRETE I BEAM SUPERSTRUCTURE	250.9 CU. YD.
610	0138	CLASS AAE-3 CONCRETE RAILING & POSTS	15.23 CU. YD.
612	0110	REINFORCING STEEL ④ (GRADE 40) 86352	6[illegible] LB.
616	5722	STRUCTURAL STEEL A 572 WELDED GIRDER (GRADE 50)	97,756 LB.
616	0362	STRUCTURAL STEEL A36 ① WELDED GIRDER	92,575 LB.
622	0020	STEEL PILING (HP10X42) ②	1450 LIN. FT.
622	0040	STEEL PILING (HP12X53) ②	1430 LIN. FT.
622	0600	STEEL TEST PILES (HP10X42) ② 140 FT.	1 EACH
	7012	ROADWAY CANOPY ⑥	1 LUMP SUM
726	0100	SODDING	630 SQ.YD.
750	0100	LINSEED OIL TREATMENT	38 GAL
704	0100	CONCRETE SLOPE PROTECTION ③	370 SQ YD.
	3000	BRIDGE BENCH MARKS	1 SET

STRUCTURAL DRAWINGS

GENERAL DRAWING 29-167.77 (THIS SHEET), 29-167.77-1 & 2, D-704-1
SUBSTRUCTURE H-1403, H-1380, H-0401, D-900-6
SUPERSTRUCTURE H-5130-1, 2, H-5131-1, 2, H-0158, H-0501, D-900-1,

DESIGN LOADING	SCALE
H20 (1944)	1 INCH = 15 FEET

NORTH DAKOTA
STATE HIGHWAY DEPARTMENT
MINTO INTERCHANGE
BRIDGE LAYOUT
PROJECT I-29-4(22) STA. 426 + 10.0
WALSH COUNTY

APPROVED
Nov. 17, 1970 (DATE)
Glenn J. Anderson (BRIDGE ENGINEER)

1971
FEDERAL AID
PROJECT
I-29-4(22)
NORTH DAKOTA
29-167.77

FEDERAL AID NAME PLATE
2 REQUIRED

DESIGN STRESSES:

fs = 20,000 psi ~ Reinforcing Steel
fc = 1,200 psi ~ Class AE-1 & AE-3 Concrete
fc = 1,700 psi ~ Class AAE-3 Concrete
fs = 27,000 psi ~ Structural Steel A572 (Grade 50)
fs = 20,000 psi ~ Structural Steel A36

BENCH MARKS

NO.	DESCRIPTION	LOCATION	ELEV.
44	Tr. mon. by F.P.	414 + 60 ~ 182.6' Rt.	801.63
45	Tr. mon. by F.P.	425 + 12 ~ 563' Rt.	801.97
46	Tr. mon. by F.P.	435 + 62 ~ 150' Rt.	802.06

PILE LOADING

LOCATION	DEAD LOAD	LIVE LOAD	EARTH LOAD	WIND 50 LB.	WIND 15 LB.	WIND 100 LB. L.L.	EMBANKMENT SETTLEMENT	DESIGN LOAD	MAXIMUM REQUIRED BEARING
Abutments	39.5T.	11.5T.					19. 0T.	70.0T.	70.0T.
Bent No. 2	41. 9T.	13.6 T.	2.1T.					57.6 T.	57.6 T.

	OUTSIDE GIRDERS ℄	ROADWAY ℄
	827.00	827.27
	827.01	827.28
	827.23	827.50
	827.42	827.69
	827.56	827.84
	827.67	827.94
	827.74	828.01
	827.77	828.04
	827.78	828.05
	827.78	828.05
	827.78	828.05
	827.78	828.05
	827.78	828.05
	827.78	828.05
	827.76	828.04
	827.74	828.01
	827.67	827.94
	827.56	827.84
	827.42	827.69
	827.23	827.50
	827.01	827.28
	827.00	827.27

1'-0" Begin Bridge | 10 Eq. Sp. = 116'-6" ℄ Brg Abut 1 | 10 Eq. Sp. = 116'-6" ℄ Bent 2 ℄ Brg Abut 3 | 1'-0" End Bridge

SCREED ELEVATION
Elevations are to top of finished concrete

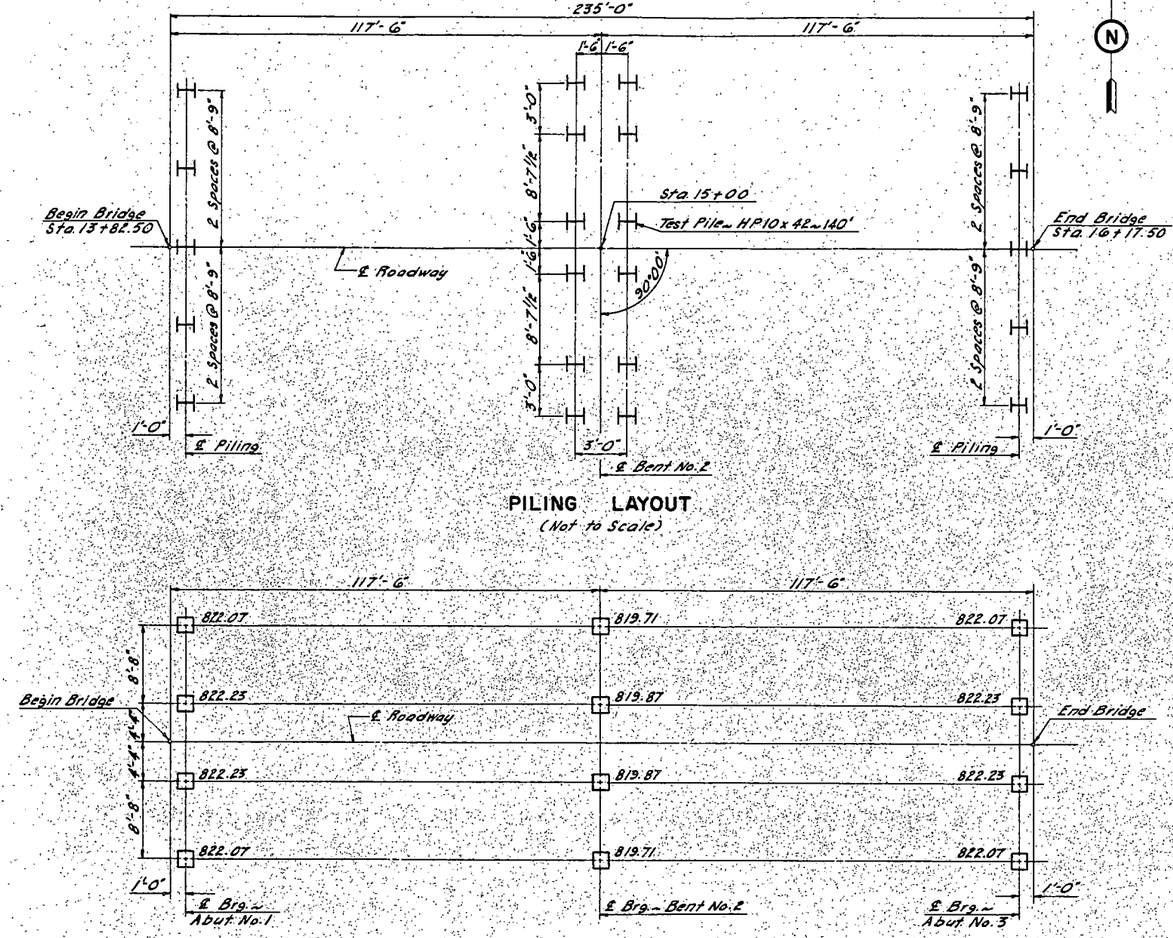
29-167.77

29-167.73

Old 29-24 29-167.77

DESIGN	MADE BY	
	CHECKED BY	
DETAILS	MADE BY	D.L.A.
	CHECKED BY	F.D.H.
TRACING	MADE BY	L.E.G.
	CHECKED BY	D.L.A.
QUANTITIES	MADE BY	
	CHECKED BY	

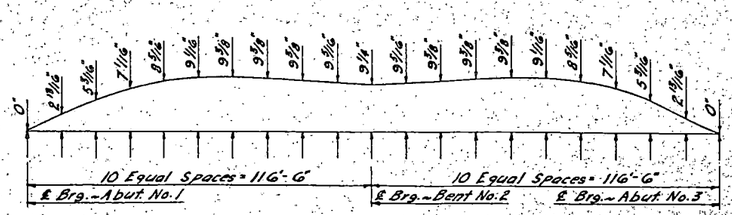
REVISIONS	MADE BY	CHK'D BY	DATE
1			



PILING LAYOUT
(Not to Scale)

BEARING PLATE LAYOUT
Elevations are to top of finished concrete
(Not to Scale)

125'



SHOP CAMBER DIAGRAM

NOTES:

GENERAL:

WORK SHALL CONFORM TO ALL APPLICABLE PARAGRAPHS OF THE NORTH DAKOTA STATE HIGHWAY DEPARTMENT SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION.

THE COST OF FURNISHING AND PLACING JOINT FILLER, ASPHALT CURB SEAL, NAME PLATES, AND OTHER MISCELLANEOUS ITEMS SHALL BE INCLUDED IN THE PRICE BID FOR CONCRETE.

WELDING WILL NOT BE PAID FOR DIRECTLY BUT SHALL BE INCLUDED IN THE UNIT PRICE BID FOR STRUCTURAL STEEL.

BEARING AREAS SHALL BE FINISHED TRUE TO PLAN AND ELEVATION BY GRINDING, IF NECESSARY, BEFORE BEARING PLATES ARE SET.

ALL RIVETS OR HIGH STRENGTH BOLTS ARE TO BE 7/8". OPEN HOLES ARE TO BE 15/16" EXCEPT AS NOTED. SHOP CONNECTIONS SHALL BE MADE AS SHOWN. FIELD CONNECTIONS SHALL BE MADE WITH HIGH TENSILE STRENGTH BOLTS OR SHALL BE RIVETED.

IF HIGH STRENGTH BOLTS ARE USED IN THE WEB AND FLANGE SPLICES, THE BOLTS SHALL BE PLACED WITH THE NUTS ON THE INTERIOR SIDE OF THE WEB AND ON THE UPPER SIDE OF THE FLANGE.

EMBANKMENT:

THE EMBANKMENT AT THE ABUTMENTS SHALL BE IN PLACE BEFORE PILING ARE DRIVEN. THE CONTRACTOR WILL BE REQUIRED TO PREDRILL THROUGH THE FILL AT THE ABUTMENTS BEFORE DRIVING PILING. ALL PILOT HOLES, NOT COMPLETELY FILLED BY THE PILES, SHALL BE BACKFILLED WITH SAND OR FINE GRAVEL BEFORE THE SUBSTRUCTURE IS PLACED.

EXCAVATION:

EXCAVATION CLASS I AT THE ABUTMENTS SHALL EXTEND FROM THE BOTTOM OF THE FOOTING TO THE UPPER LIMITS AS SHOWN ON THE BRIDGE LAYOUT DRAWING. EXCAVATION CLASS I AT THE BENT SHALL EXTEND FROM THE BOTTOM OF THE FOOTINGS TO THE FINISHED ELEVATION OF THE INTERSTATE MEDIAN.

BACKFILL:

ALL BACKFILL SHALL BE COMPACTED ACCORDING TO SECTION 203-2.3 OF THE STANDARD SPECIFICATIONS, EXCEPT THAT THE COMPACTED DENSITY SHALL BE AT LEAST 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY AASHO DESIGNATION T-99. THE MOISTURE CONTENT IN THE SOIL AT THE TIME OF COMPACTION SHALL NOT BE LESS THAN 4 PERCENTAGE POINTS BELOW THE OPTIMUM NOR MORE THAN THAT WHICH WILL PERMIT COMPACTION TO THE REQUIRED DENSITY.

SELECT BACKFILL SHALL NOT BE PLACED ABOVE THE ELEVATION OF THE BERM UNTIL THE SUPERSTRUCTURE HAS CURED.

REINFORCING STEEL:

DIMENSIONS FOR BENT BARS ARE GIVEN OUT TO OUT AND TO TANGENT INTERSECTIONS UNLESS OTHERWISE NOTED. BENT BARS SHALL BE BENT AROUND ACI STANDARD SIZE PINS. THE BAR FABRICATOR SHALL ADD A PREFIX TO ALL BAR DESIGNATIONS TO DIFFERENTIATE BETWEEN THE SEVERAL PARTS OF THE STRUCTURE.

CONCRETE:

ALL CONCRETE SHALL BE COMPACTED BY VIBRATION. THE DECK SLAB CONCRETE SHALL BE STRUCK OFF AND COMPACTED BY AN APPROVED DECK FINISHING MACHINE. ALL EXPOSED EDGES OF CONCRETE SHALL BE BEVELED WITH 3/4" TRIANGULAR MOLDING UNLESS OTHERWISE NOTED.

ALL CONCRETE ABOVE THE TOP OF THE CURBS SHALL BE CLASS AAE-3, SLAB, CURBS, AND END WALLS SHALL BE CLASS AE-3. ABUTMENTS AND BENT SHALL BE CLASS AE-1.

THE "RUBBED SURFACE FINISH" OR THE "SPECIAL SURFACE FINISH" (SECTION 602-3.10.5) WILL BE REQUIRED FOR THE ROADWAY AND OUTSIDE FACES OF CURBS, EDGES OF SLAB, ALL FACES OF THE RAILS, RAIL POSTS AND END POSTS, ALL EXPOSED FACES OF THE BENT, AND ALL EXPOSED FACES OF THE ABUTMENT WINGS. ALL OTHER SURFACES SHALL BE GIVEN THE "ORDINARY SURFACE FINISH". ALL "ORDINARY SURFACE FINISH" SHALL BE COMPLETED WITHIN 24 HOURS AFTER REMOVAL OF THE FORMS.

IF THE EXPOSED FACES OF THE ABUTMENTS AND BENT HAVE A SURFACE FINISH ACCEPTABLE TO THE ENGINEER WITHOUT RUBBING, THE REQUIREMENT FOR "RUBBED OR SPECIAL SURFACE FINISH" MAY BE WAIVED AT THE OPTION OF THE ENGINEER AND THE "ORDINARY SURFACE FINISH" WILL APPLY.

STRUCTURAL STEEL:

OXYGEN CUTTING SHALL BE IN ACCORDANCE WITH THE LATEST STANDARD SPECIFICATIONS FOR WELDED HIGHWAY AND RAILWAY BRIDGES OF THE AMERICAN WELDING SOCIETY (AWS D2.0). THE STEEL SHALL BE PREHEATED TO THE MINIMUM PREHEAT AND INTERPASS TEMPERATURE FOR WELDING WITH LOW HYDROGEN ELECTRODES. OXYGEN CUT SURFACES OF MEMBERS CARRYING CALCULATED STRESS SHALL HAVE THEIR EDGES ROUNDED TO A 1/16 INCH RADIUS BY GRINDING AFTER CUTTING.

THE GIRDERS SHALL BE CAMBERED IN THE SHOP AS DETAILED ON THIS SHEET. THE SHOP CAMBER DIAGRAM REPRESENTS THE TOTAL RISE, IN INCHES, ABOVE A CHORD BETWEEN THE CENTERLINE OF ABUTMENT BEARINGS THAT SHALL BE CUT INTO THE WEB PLATE OF THE GIRDER TO COMPENSATE FOR THE DEAD LOAD DEFLECTION OF THE SUPERSTRUCTURE PLUS THE VERTICAL CURVE OF THE ROADWAY. THE CAMBER SHOWN SHALL BE IN ADDITION TO THE RISE REQUIRED FOR THE GIRDER HAUNCH.

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	N.D.	I-29-4(22)		15	

STRUCTURAL STEEL CONT.:

A MINIMUM OF TWO (2) CONTIGUOUS GIRDER SECTIONS SHALL BE PLACED ON THEIR SIDES AND IN THEIR CORRECT RELATIVE POSITIONS BEFORE DRILLING THE HOLES FOR THE GIRDER FIELD SPLICE BETWEEN THESE SECTIONS. THE PROPER ALIGNMENT SHALL BE MAINTAINED BETWEEN SECTIONS WHILE REAMING THE HOLES. TEMPLATES SHALL NOT BE USED IN LIEU OF THE ABOVE SHOP ASSEMBLY.

SHEAR CONNECTOR STUDS SHALL CONFORM TO THE STUD WELDING REQUIREMENTS OF THE LATEST STANDARD SPECIFICATIONS FOR WELDED HIGHWAY AND RAILWAY BRIDGES OF THE AMERICAN WELDING SOCIETY (AWS D2.0). THE CONTRACTOR WILL BE REQUIRED TO OBTAIN A PRODUCT CERTIFICATION IN ACCORDANCE WITH SECTION 802 OF THE NORTH DAKOTA STANDARD SPECIFICATIONS.

STEEL ERECTION:

FALSEWORK WITH PROVISIONS FOR JACKING MUST BE PROVIDED AT ALL SPLICE POINTS DURING ERECTION. BOTH SPLICE POINTS IN EACH GIRDER LINE SHALL BE BROUGHT TO THEIR PROPER ELEVATION AND SUPPORTED IN POSITION BEFORE THE BOLTS IN EITHER OF THE SPLICES ARE TIGHTENED. THE BOLTS IN BOTH OF THE SPLICES IN A GIRDER LINE SHALL BE TIGHTENED TO THE REQUIRED TENSION BEFORE ANY OF THE SUPPORTS ARE REMOVED.

MATERIALS: (STRUCTURAL STEEL)

GIRDER FLANGES: A572 (GRADE 50)

GIRDER WEB, WEB AND FLANGE SPLICE PLATES, STIFFENERS, DIAPHRAGMS, CHANNEL SHEAR CONNECTORS, BEARING PLATES, AND ANCHOR BOLTS: A36

BLAST CLEANING:

COMMERCIAL BLAST CLEANING OF ALL EXPOSED MAIN AND SECONDARY STEEL MEMBERS WILL BE REQUIRED PRIOR TO PAINTING. (INCLUDE IN UNIT PRICE BID FOR STRUCTURAL STEEL.)

PAINT:

PAINT AND PAINTING SHALL CONFORM TO THE STANDARD SPECIFICATIONS, SECTIONS 718 AND 870-1.2.

ALL EXPOSED STEEL SURFACES SHALL BE GIVEN ONE SHOP COAT OF RED LEAD PAINT (INCLUDING TOP OF UPPER FLANGES BUT NOT SHEAR CONNECTORS), ONE SPOT COAT OF RED LEAD PAINT AFTER ERECTION AND CONCRETE WORK IS COMPLETED, AND TWO FIELD COATS OF ENAMEL. THE FIRST FIELD COAT SHALL CONFORM TO GRAY COLOR NO. 25114 AND THE SECOND COAT SHALL CONFORM TO GRAY-BLUE COLOR NO. 25184. BOTH COATS SHALL MEET THE FEDERAL STANDARD NO. 595 FOR COLOR. COLOR CHIPS ARE ON FILE IN THE BRIDGE DIVISION OF THE NORTH DAKOTA STATE HIGHWAY DEPARTMENT, BISMARCK.

PILE HAMMERS:

THE PILES FOR THIS STRUCTURE SHALL BE DRIVEN BY A STEAM (OR AIR) OR DIESEL HAMMER HAVING A RATED ENERGY AND RAM WEIGHT NOT LESS THAN 33,476 FOOT-POUND-TONS AS COMPUTED BY FORMULA $W(E-9072)+0.74E$ WHERE W IS THE WEIGHT OF THE RAM IN TONS AND E IS THE RATED HAMMER ENERGY AS ALLOWED IN SECTION 622. IN NO CASE SHALL THE RAM WEIGHT BE LESS THAN 4,800 POUNDS.

TEST PILES:

THE TEST PILES SHALL BE DRIVEN TO A BEARING OF NOT LESS THAN 125% OF THE DESIGN LOAD AS DETERMINED BY THE DYNAMIC FORMULA.

LINSEED OIL TREATMENT:

LINSEED OIL TREATMENT SHALL NOT BE DONE UNTIL ALL CONCRETE WORK IS COMPLETED AND THE ASPHALT CURB SEAL HAS BEEN INSTALLED.

STATIONING:

THE SURVEY STATIONING IS FROM NORTH TO SOUTH WHEREAS THE MILEAGE GIVEN IS DETERMINED FROM SOUTH TO NORTH.

CONCRETE SLOPE PROTECTION:

THE USE OF PRECAST BLOCK FOR CONCRETE SLOPE PROTECTION WILL NOT BE ALLOWED ON THIS PROJECT.

QUANTITIES

MINTO INTERCHANGE

BEARING PLATE LAYOUT

PILING LAYOUT

GENERAL NOTES

29-167.77-1

29-167.77-1

FED. ROAD DIST. NO.	STATE	PROJ. NO.	SHEET NO.	
5	N. D.	I-29-4(22)	16	

TRACING MADE BY CHECKED BY
QUANTITIES MADE BY CHECKED BY

Plotted by TDS - March 6, 1969

BORING NO. 1

X-ROAD STA. 13+67.5-16.0' LT. of X-Road Surv. ℄

Btm. of Footing Abut. No. 1
Elev. 817.02

FINAL WATER LEVEL - 7.6'

805.0'

16	A7-5	BLACK-BROWN (VARIGATED) CLAY - MIXED FILL - TOPSOIL AND SUBSOIL - SILTY - PLIABLE - VERY STIFF
801.7		
20	A7-5	BLACK CLAY - TOPSOIL (ORIGINAL) - PLIABLE - ORGANIC - SILTY - VERY STIFF
799.5		
27	A7-6	BROWN-GRAY (MOTTLED) CLAY - MASSIVE - PLIABLE - IMPERVIOUS - VERY STIFF
796.4		
28		P - 2527, ø - NEAR 0, C-1263, M-40, W-81
26	A7-6	BROWN CLAY - VARVED AND LAMINATED - SILTY - PLIABLE - SOME SILTY LENSES - SATURATED AND WATER BEARING LAMINAE AND LENSES - MEDIUM STIFF
7		** ø - 0, C-950, M-44, W-77
788.2		
6		** ø - 5, C-792, M-44, W-78
5	A7-6	GRAY-BROWN CLAY - VARVED AND LAMINATED - OCCASIONAL SILTY LENSES - PLIABLE - SILTY - SATURATED LENSES AND LAMINAE - MEDIUM STIFF
779.5		
3		P - 1362, C-623, M-40, W-82
		P - 1797, ø - NEAR 0, C-898, M-71, W-56
4		P - 1898, ø - NEAR 0, C-949, M-78, W-54
3		M - 72, W-57
5		** ø - NEAR 0, C-807, M-68, W-60
5	A7-5	DARK GRAY CLAY - MASSIVE - PLIABLE - VERY SLICK - TENACIOUS - IMPERVIOUS - SOFT TO MEDIUM STIFF
5		P - 2235, ø - NEAR 0, C-1117, M-64, W-61
5		** ø - 0, C-1008, M-62, W-64
5		P - 1760, C-880, M-57, W-66, ø - NEAR 0
7		P - 1556, ø - NEAR 0, C-778, M-18, W-114
705.0		
9		P - 2327, ø - NEAR 0, C-1163, M-22, W-105
14	A4 & A6	GRAY CLAY LOAM - (VERY LEAN IN UPPER REGION) - STRUCTURELESS - GRITTY - VERY LEAN - SILTY AND SANDY - WATER BEARING LENSES - RATHER STIFF (MORE COHESIVE IN LOWER REGION)
		P - 3184, ø - NEAR 15, C-1223, M- 18, W-112
683.3		
31		
0.7		
100	A4	GRAY LOAM - STRATIFIED AND LENTICULAR - GRAVELLY AND SANDY - NUMEROUS SILT LENSES - OCCASIONAL WATER BEARING SAND AND GRAVEL LENSES - COMPACT AND VERY DENSE
0.2		
100		
0.4		
663.8		
100		

BORING NO. 2

X-ROAD. STA. 15+95.25-14' RT. of X-Road Surv. ℄

Btm. of Footing Abut. No. 3
Elev. 817.02

FINAL WATER LEVEL - 17.0' (2 HR. CHECK)

804.7

7	A7-5	BLACK-BROWN CLAY (VARIGATED) - MIXED AND FILL - TOPSOIL AND SUBSOIL - SLIGHTLY ORGANIC - PLIABLE - MEDIUM STIFF
801.2		
19	A7-5	BLACK CLAY - TOPSOIL (ORIGINAL) - SILTY - ORGANIC - PLIABLE - VERY STIFF
799.3		
27	A7-6	BROWN CLAY - AMORPHOUS - LAMINATED SUB-ZONES - SILTY - PLIABLE - VERY STIFF
21		** ø - NEAR 2, C-1008, M-39, W-81
793.4		
25	A7-6	BROWN (SLIGHTLY MOTTLED) SILTY CLAY - VARVED AND LAMINATED - SOME SILTY LENSES - PLIABLE - SATURATED LENSES AND LAMINAE - RATHER STIFF
9		** ø - NEAR 0, C-1110, M-47, W-75
785.8		
5	A7-6	GRAY CLAY - VARVED AND LAMINATED - OCCASIONAL SILTY LENSES - SILTY - PLIABLE - SATURATED LENSES AND LAMINAE - RATHER SOFT
778.8		
4		** ø - NEAR 0, C-576, M-72, W-57
		P - 986, ø - NEAR 0, C-493, M-73, W-56
5	A7-5	GRAY CLAY - MASSIVE - HEAVY - PLIABLE - VERY SLICK - TENACIOUS - IMPERVIOUS - SOFT TO RATHER SOFT (SOME DISSEMINATED ROCK NEAR BOTTOM OF LAYER)
		** ø - NEAR 0, C-835, M-80, W-52
5		
		** ø - 0, C-734, M-70, W-58
748.4		
4		P - 1600, ø - NEAR 0, C-800, M-72, W-58
5		
		** ø - 0, C-965, M-73, W-56
4	A7-5	GRAY CLAY - MASSIVE - HEAVY - PLIABLE - SLICK - TENACIOUS - IMPERVIOUS - SOFT
		P - 1948, ø - NEAR 0, C-974, M-59, W-63
7		
		P - 2191, ø - NEAR 5, C- 1000, M-58, W-66
9		
702.1		** ø - 2, C-504, M-17, W-114
9	A6	GRAY CLAY LOAM - AMORPHOUS - OCCASIONAL SANDY AND GRAVELLY LENSES - SILTY - FAIRLY PLIABLE - SOME WATER BEARING LENSES - RATHER STIFF
		P - 2726, ø - NEAR 15, C-1045, M - 17, W-113
25		
682.1		
0.8		
100	A4	GRAY SILT LOAM - STRATIFIED AND LENTICULAR - GRITTY - NUMEROUS SAND LENSES AND SEAMS - SOME WATER BEARING - SAND LENSES - COMPACT AND VERY DENSE
0.2		
100		
0.3		
663.0		
100		

NOTES:

ENCIRCLED NUMBERS INDICATE THE NUMBER OF BLOWS DELIVERED BY A 140 LB. HAMMER FROM A HEIGHT OF 30" TO DRIVER CORE TUBE 1.0'.

THE BORING LOG DATA SHOWN IS FOR DESIGN PURPOSES ONLY. THE STATE ASSUMES NO RESPONSIBILITY IF SOIL CONDITIONS ENCOUNTERED DURING CONSTRUCTION DIFFER FROM THOSE SHOWN.

SYMBOLS:

P - MAXIMUM LOAD (LBS/SQ.FT.)
ø - SHEAR ANGLE (DEGREES)
C - COHESION (LBS/SQ.FT.)
M - MOISTURE (PER CENT)
W - DRY WEIGHT (LBS/CU.FT.)

** - TRIAXIAL

BRIDGE NO. 29-167.77

BORING LOG

MINTO INTERCHANGE

WALSH COUNTY

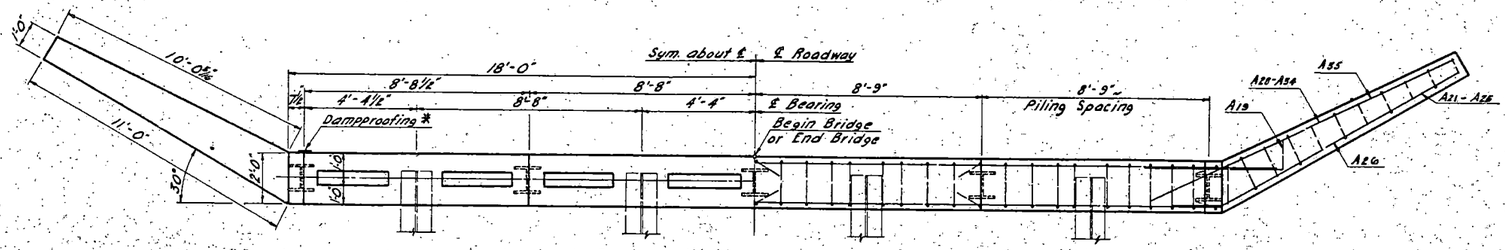
29-167.77-2

29-167.77-2

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	N.D.	I-29-4(22)	17		

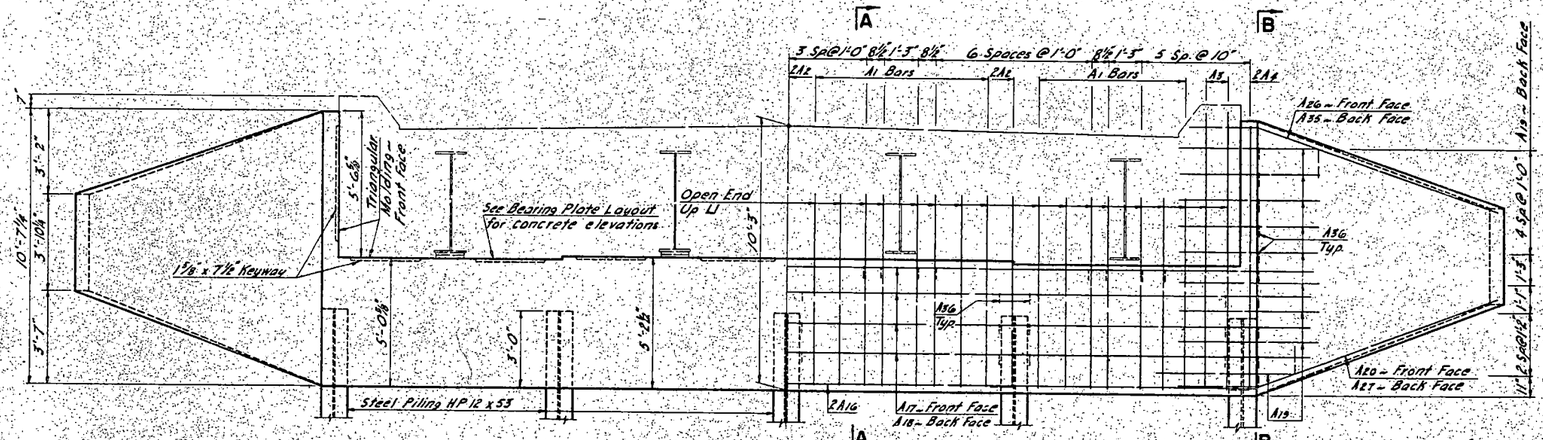
DESIGN	MADE BY	L.P.H.
	CHECKED BY	C.F.S.
DETAILS	MADE BY	D.L.P.
	CHECKED BY	A.E.G.
TRACING	MADE BY	A.E.G.
	CHECKED BY	D.L.P.
QUANTITIES	MADE BY	G.A.L.
	CHECKED BY	D.L.P.

REVISIONS	DATE	CHD BY



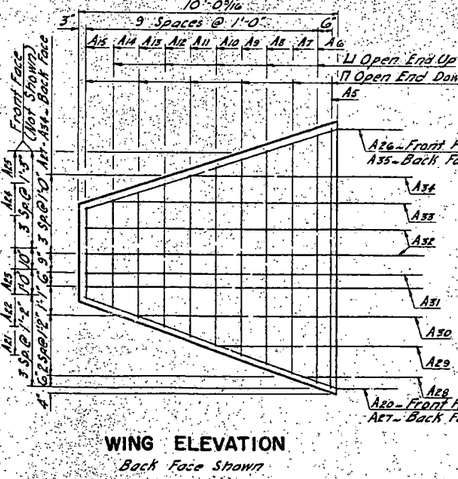
HALF PLAN
Showing Dimensions

HALF PLAN
Showing Reinforcing

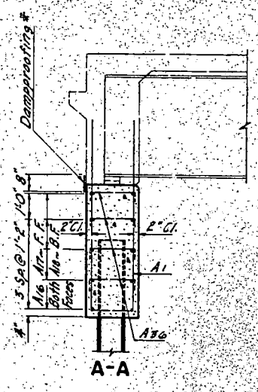


HALF ELEVATION
Showing Dimensions

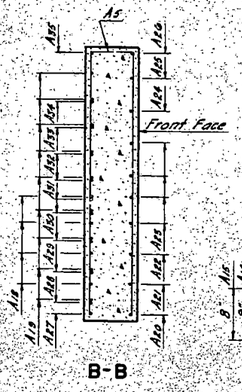
HALF ELEVATION
Showing Reinforcing



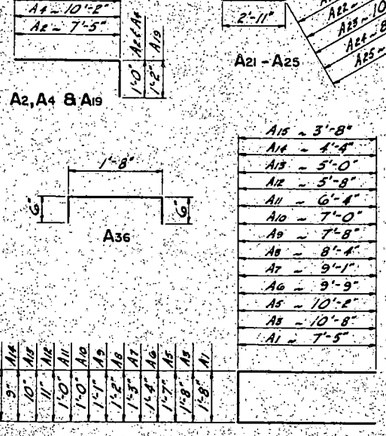
WING ELEVATION
Back Face Shown



A-A



B-B

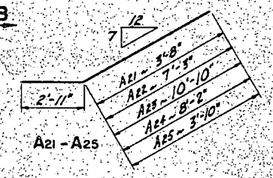


A2, A4 & A19

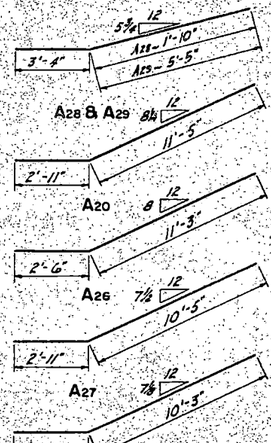
A36

A1, A3, A5 - A15

BENT BAR DETAILS
Dimensions shown are out to out



A21 - A25



BAR LIST (ONE ABUT)

MARK	NUMBER	WALL		SIZE	LENGTH	SHAPE	UNIT WT.
A1		30		6	16'-6"	Bent	24.78
A2		6		6	8'-5"	"	12.64
A3		4		6	23'-0"	"	34.55
A4		4		6	11'-2"	"	16.77
A5		2		5	21'-11"	"	22.86
A6		2		5	20'-10"	"	21.73
A7		2		5	19'-5"	"	20.25
A8		2		5	17'-10"	"	18.60
A9		2		5	16'-5"	"	17.12
A10		2		5	15'-0"	"	15.65
A11		2		5	13'-8"	"	14.26
A12		2		5	12'-3"	"	12.78
A13		2		5	10'-10"	"	11.30
A14		2		5	9'-5"	"	9.82
A15		2		5	8'-0"	"	8.34
A16		2		6	36'-0"	Str.	54.08
A17		4		5	36'-0"	"	37.55
A18		4		5	40'-0"	"	41.72
A19		18		7	6'-6"	Bent	13.23
A20		2		7	14'-4"	"	29.30
A21		2		7	6'-7"	"	13.46
A22		2		7	10'-2"	"	20.79
A23		8		7	13'-9"	"	28.11
A24		2		7	11'-1"	"	22.66
A25		2		7	6'-9"	"	13.80
A26		2		6	13'-9"	"	20.65
A27		2		7	13'-4"	"	27.26
A28		2		8	5'-2"	"	13.80
A29		2		8	8'-9"	"	23.37
A30		2		8	11'-10"	Str.	31.60
A31		4		8	13'-2"	"	35.16
A32		4		7	12'-9"	"	26.07
A33		2		7	11'-8"	"	23.85
A34		2		7	8'-2"	"	17.39
A35		2		6	12'-9"	Bent	19.15
A36		60		4	2'-8"	"	1.78

NOTES:

* Two coats of dampproofing shall be applied over the construction joint on the back face as shown on the detail.

Dampproofing Two Coats shall be applied in accordance with Section 736 of the Standard Specifications. Dampproofing will not be paid for directly, but shall be included in the unit price bid for Class AE-1 Concrete.

QUANTITIES (ONE ABUT.)

Class AE-1 Concrete	22.2	C.Y.
Reinforcing Steel	3165	Lbs.
Excavation (See Layout)		
Piling (See Layout)		

10'-3" ABUTMENT
WELDED GIRDER SPANS

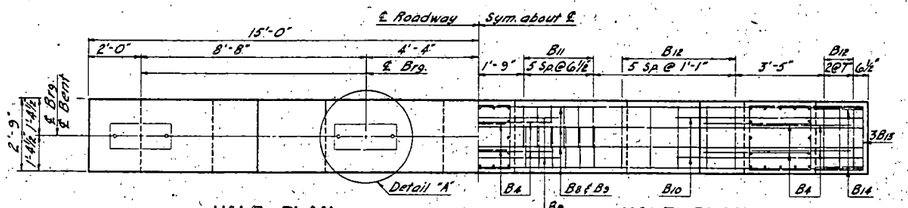
30'-0" ROADWAY

H20 LOADING

H-1403

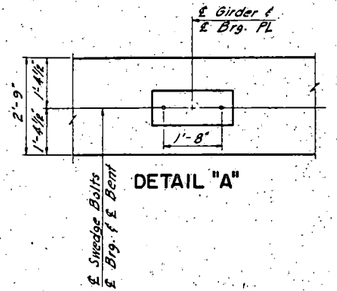
H-1403

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	N.D.	F-29-4(22)	18		

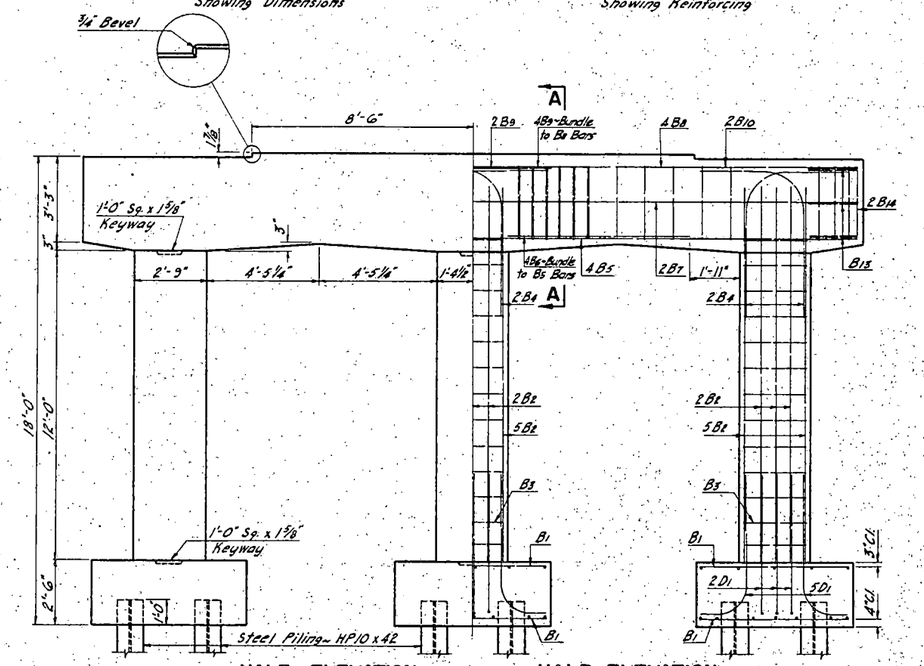


HALF PLAN
Showing Dimensions

HALF PLAN
Showing Reinforcing

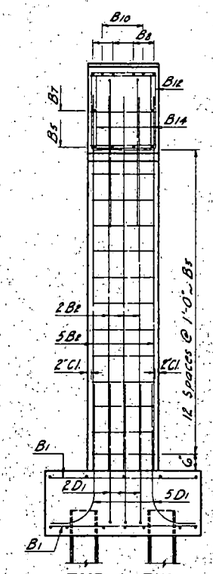


DETAIL "A"

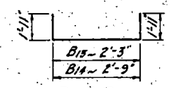


HALF ELEVATION
Showing Dimensions

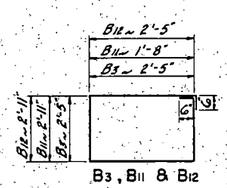
HALF ELEVATION
Showing Reinforcing



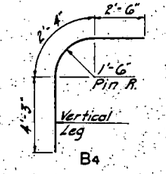
END VIEW



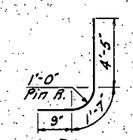
B13 & B14



B3, B11 & B12



B4



D1

BENT BAR DETAILS
All dimensions are out to out
Unless shown otherwise

BAR LIST

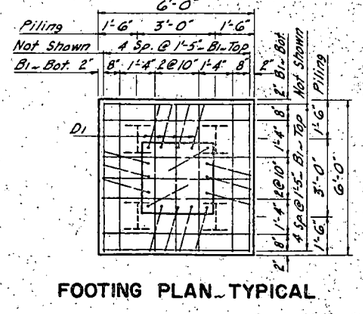
MARK	NUMBER CAP	NUMBER COLUMN	NUMBER FOOTING	SIZE	LENGTH	SHAPE	UNIT WT.
B1			72	5	5'-8"	Str.	5.91
B2		48		8	14'-6"	"	38.72
B3	3	36		3	10'-8"	Bent	4.01
B4		12		8	9'-1"	"	24.26
B5	4			9	29'-8"	Str.	100.87
B6	8			10	7'-0"	"	30.12
B7	2			6	29'-8"	"	44.56
B8	4			8	29'-8"	"	79.22
B9	6			6	6'-0"	"	9.01
B10	4			7	7'-2"	"	14.65
B11	24			5	10'-2"	Bent	10.60
B12	16			5	11'-8"	"	12.17
B13	6			6	6'-1"	"	9.14
B14	4			6	6'-7"	"	9.89
D1			48	8	6'-9"	"	18.02
SPA#	1			4	3'-8"	Str.	
SPB#	1			5	4'-0"	"	
SPC#	1			6	4'-6"	"	
SPD#	1			7	5'-0"	"	
SPE#	1			8	5'-4"	"	

NOTE:

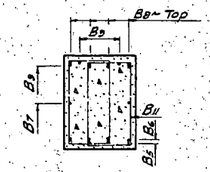
The concrete in the columns shall be allowed to set at least two (2) hours before the bent cap reinforcing is placed and concrete poured.

All exposed edges to be beveled with ¾" triangular molding.

Sample replacement bar to be spliced to bar from which 2'-0" sample has been cut. Furnish only one set for the entire bridge. This is not a pay item and shall be included in the unit price bid for reinforcing steel.



FOOTING PLAN - TYPICAL



A-A

QUANTITIES

Class AE-1 Concrete	30.8 C.Y.
Reinforcing Steel	5303 Lbs.
Steel Piling (See Layout)	
Excavation (See Layout)	

18'-0" BENT DETAIL

WELDED GIRDER SPANS

30'-0" ROADWAY

H15 or H20 LOADING

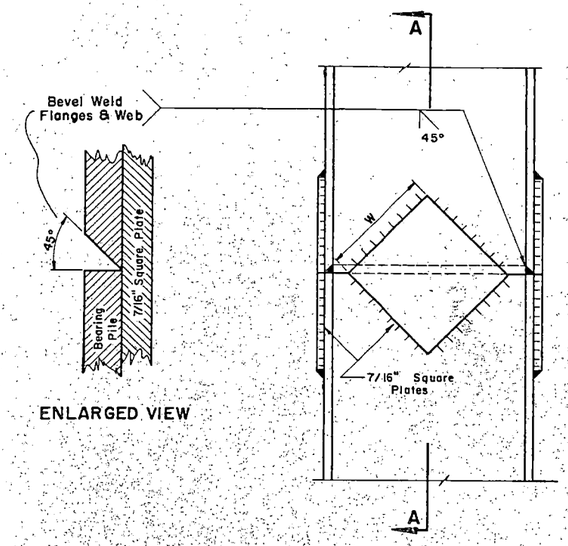
CHECKED BY D.L.R
MADE BY L.E.G.
QUANTITIES CHECKED BY D.L.R

H-1380

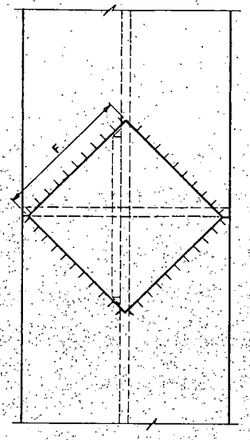
DESIGN	MADE BY	
	CHECKED BY	
DETAILS	CHECKED BY	DBE
TRACING	MADE BY	
	CHECKED BY	RAL
QUANTITIES	MADE BY	
	CHECKED BY	

REVISIONS	CHK'D BY	DATE
Enlarged & Reversed	JC	12-1966

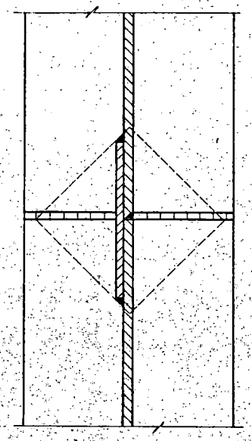
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL	SHEET
5	N	I-29-4(22)		19



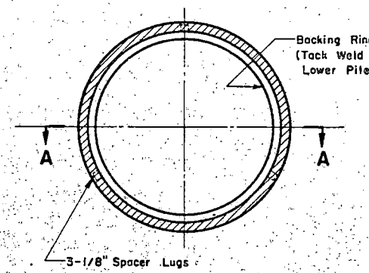
ENLARGED VIEW



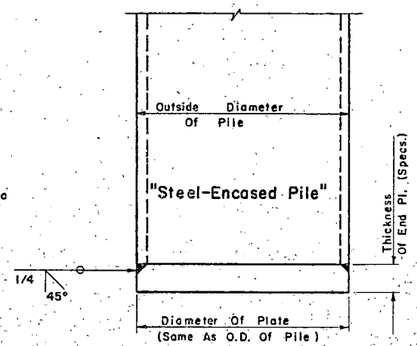
Flame Scarf Inside Of Both Flanges And One Side Of Web Of Upper Section



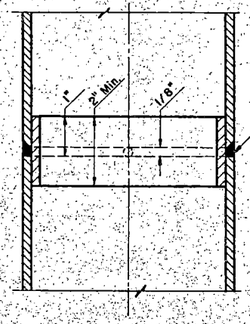
A-A



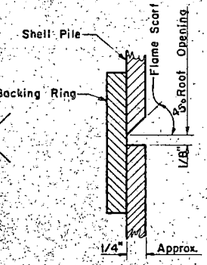
Backing Ring may be made from pile cut-offs or other material of a like quality.



END PLATE DETAIL

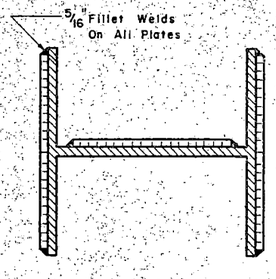


A-A



ENLARGED VIEW

SHELL PILE SPLICE DETAIL



PILE	8"	10"	12"	14"
F FLANGE	5"	6½"	8"	10"
W WEB	4"	5½"	6½"	8"

H-PILE SPLICE DETAIL

All welding shall conform to the current specification for "Welded Highway and Railway Bridges of the American Welding Society".

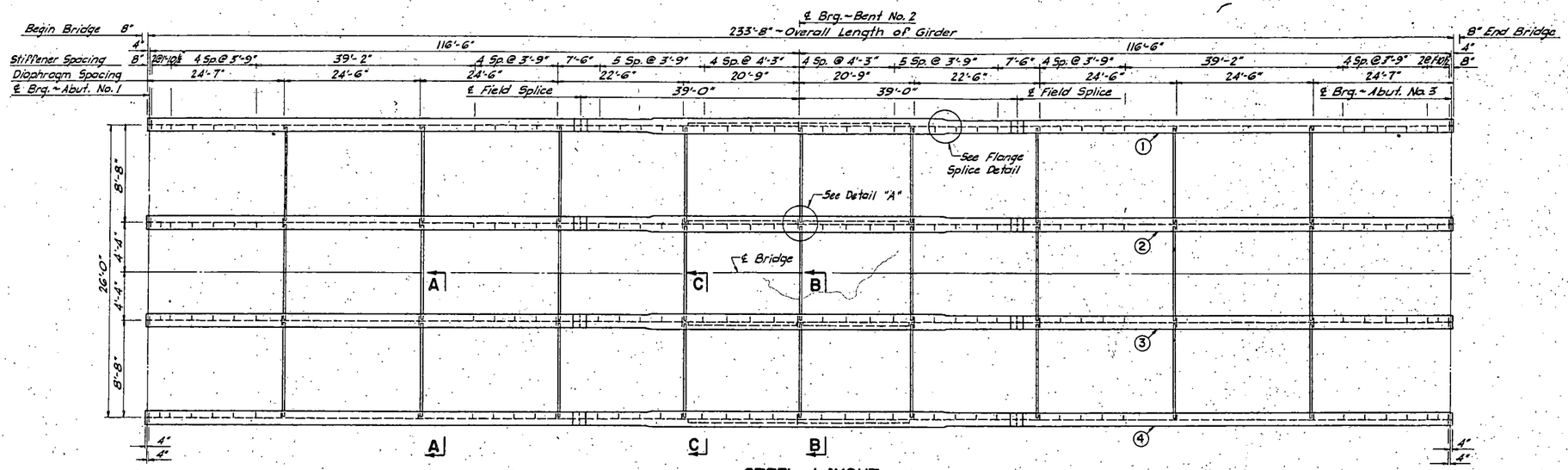
PILE SPLICE DETAILS

REVISED 12-12-66

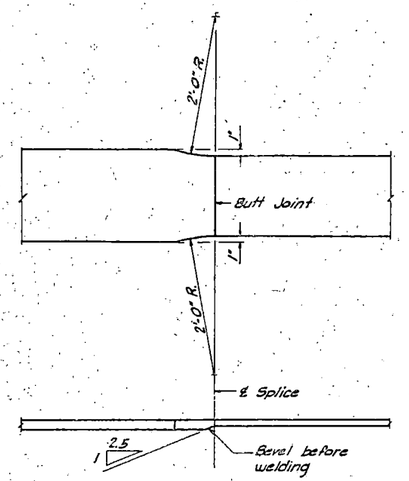
H-0401

H-0401

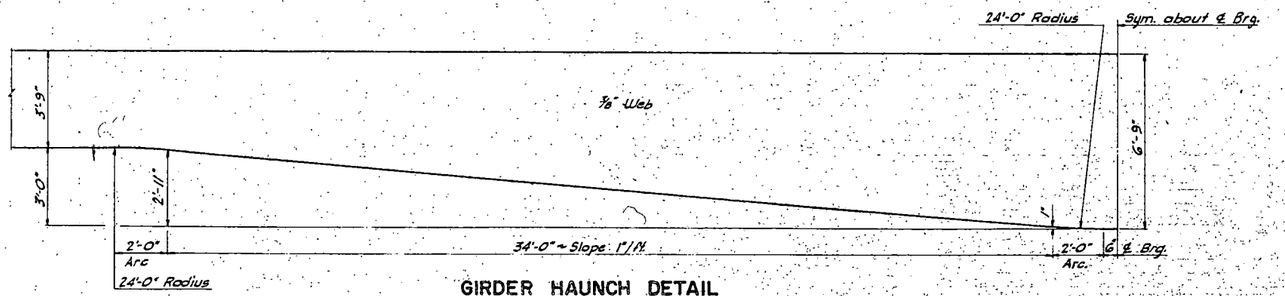
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	N. D.	F-29-4(22)		20	



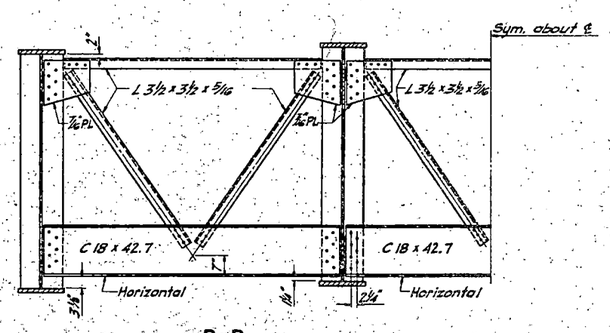
STEEL LAYOUT



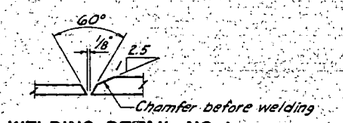
FLANGE SPLICE DETAIL



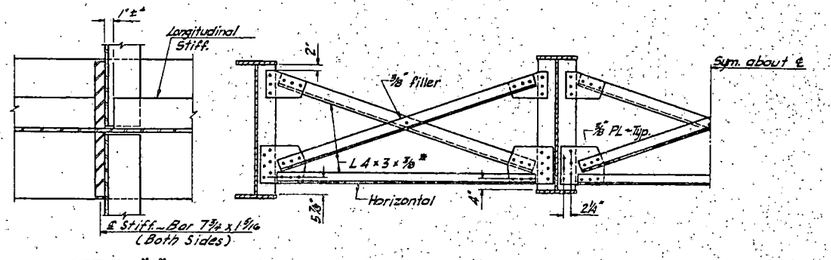
GIRDER HAUNCH DETAIL
(Showing Web only)



B-B

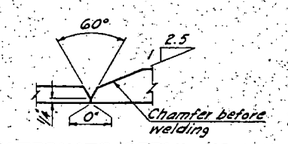


WELDING DETAIL NO. 1
SHOP FLANGE SPLICE
Top flange shown.
For manual shielded arc welding use joint B-L2
(Shown above)

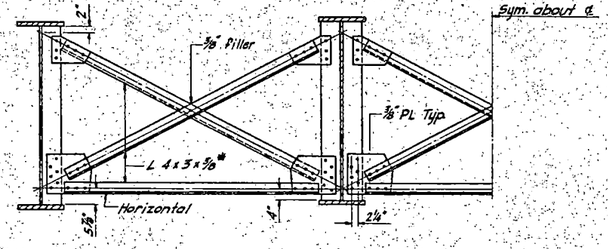


DETAIL "A"

A-A
Typical for diaphragms at positive moment regions.



ALTERNATE DETAIL NO. 1
SHOP FLANGE SPLICE
Top flange shown.
Submerged Arc AWS B-L2b-S
If submerged arc welding is used AWS B-L2b-S is an acceptable replacement for B-L2 (Manual).



C-C
Typical for diaphragms adjacent to support
* 4" Leg Vertical

* Allow approximately 1" clearance as shown between longitudinal & vertical stiffeners for installation of diaphragms.

Designed for 25 #/S.F. F.W.S.

QUANTITIES
See Drawing H-5130-2

GIRDER & DIAPHRAGM DETAILS
WELDED GIRDER SPANS
30'-0" ROADWAY
H_{20} LOADING

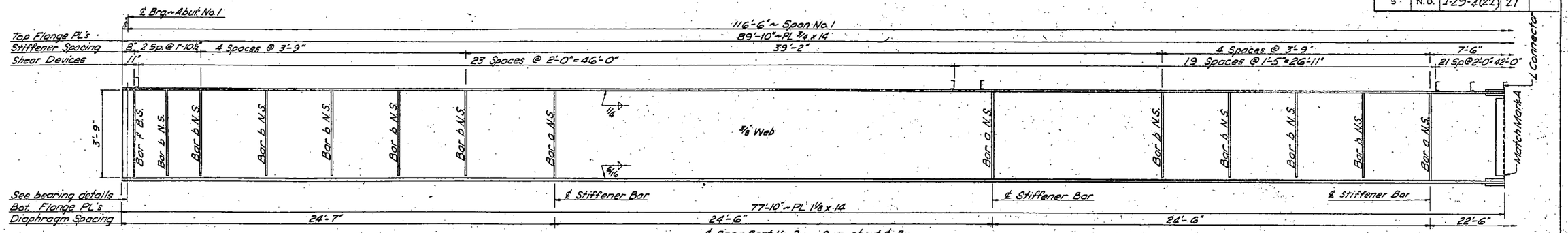
CHECKED BY A.E.G.

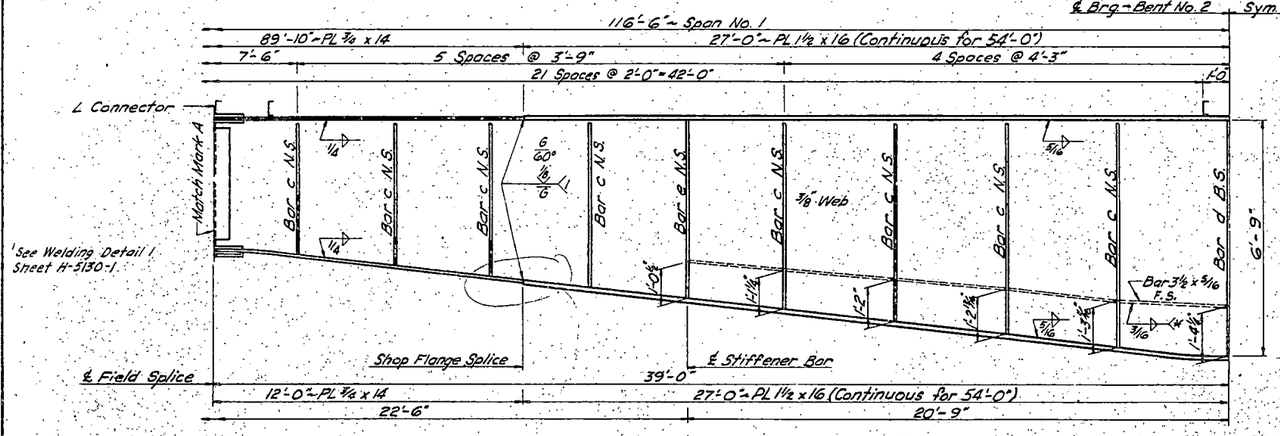
H-5130-1

DESIGN	MADE BY	L.P.H.
	CHECKED BY	C.F.S.
DETAILS	MADE BY	D.L.R.
	CHECKED BY	A.E.G.
TRACING	MADE BY	G.A.L.
	CHECKED BY	D.L.R.
QUANTITIES	MADE BY	D.L.R.
	CHECKED BY	A.E.G.

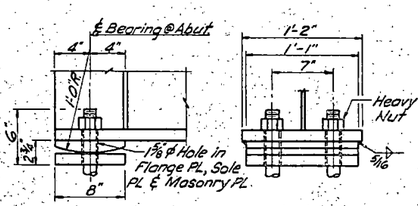
REVISIONS	MADE BY	CH'D BY	DATE

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	N.D.	I-29-4(22)	21		





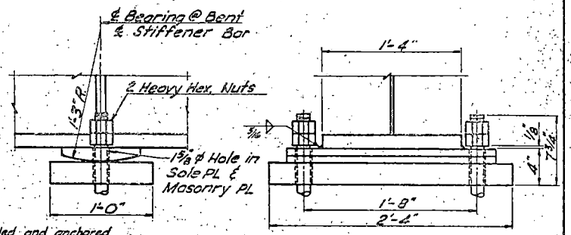
HALF GIRDER ELEVATION



Sole Plate~Bar 8 x 1½ x 13
Masonry Plate~Bar 8 x 1½ x 13
Swedge Bolts~1½" ϕ x 1'-9"

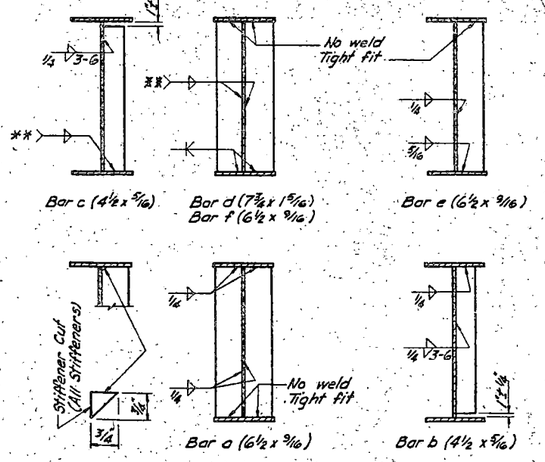
Note: Swedge bolts to be drilled and anchored in quick setting anchor grout. See Special Provisions.

ABUTMENT BEARING DETAILS

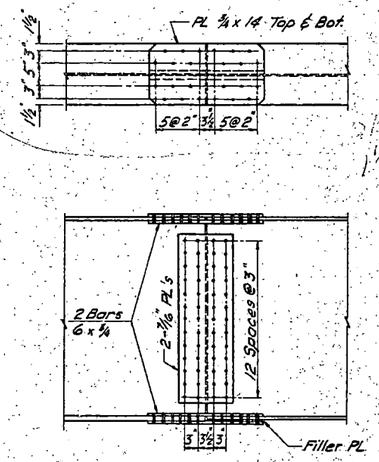


Sole Plate~PL 1½ x 9 x 24
Masonry Plate~PL 2½ x 12 x 28
Swedge Bolts~1½" ϕ x 2'-0"

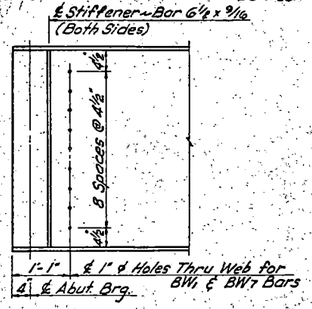
BENT BEARING DETAILS



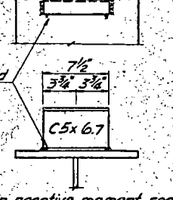
WEB STIFFENER DETAILS



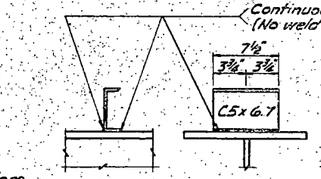
FIELD SPLICE DETAILS



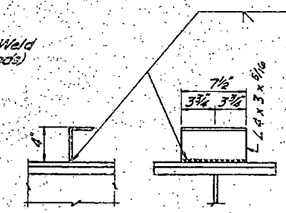
GIRDER DETAIL



Use in negative moment regions between field splices.

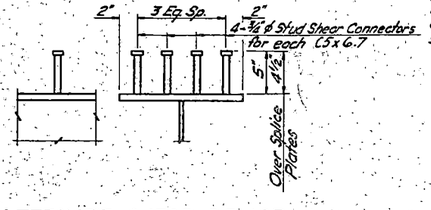


Use in positive moment regions except over splice ℞'s



Use over splice ℞'s.

SHEAR DEVICE DETAILS



ALTERNATE SHEAR DEVICE

NOTE:
The details shown on this drawing represents Girder No. 1 in a four girder bridge. Girders No. 2, No. 3 and No. 4 are similar to Girder No. 1 and shall be fabricated in accordance with these details, drawing H-5130-1 and the shop camber diagram.

Designed for 25# S.F. F.W.S.

QUANTITIES

Structural Steel A572 97,758 Lb.
Structural Steel A36 92,575 Lb.

Nomenclature:
N.S. = Near Side
B.S. = Both Sides
F.S. = Far Side

** Weld size to be ¼" for flange or stiffener thickness of over ½" to ¾" and ⅝" for flange or stiffener thickness of over ¾" to 1½".

* Weld to web only

GIRDER & BRG. DETAILS
WELDED GIRDER SPANS

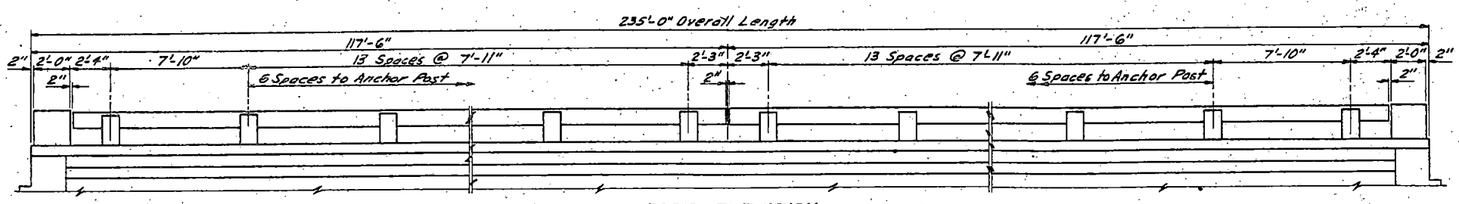
30'-0" ROADWAY

H20 LOADING

H-5130-2

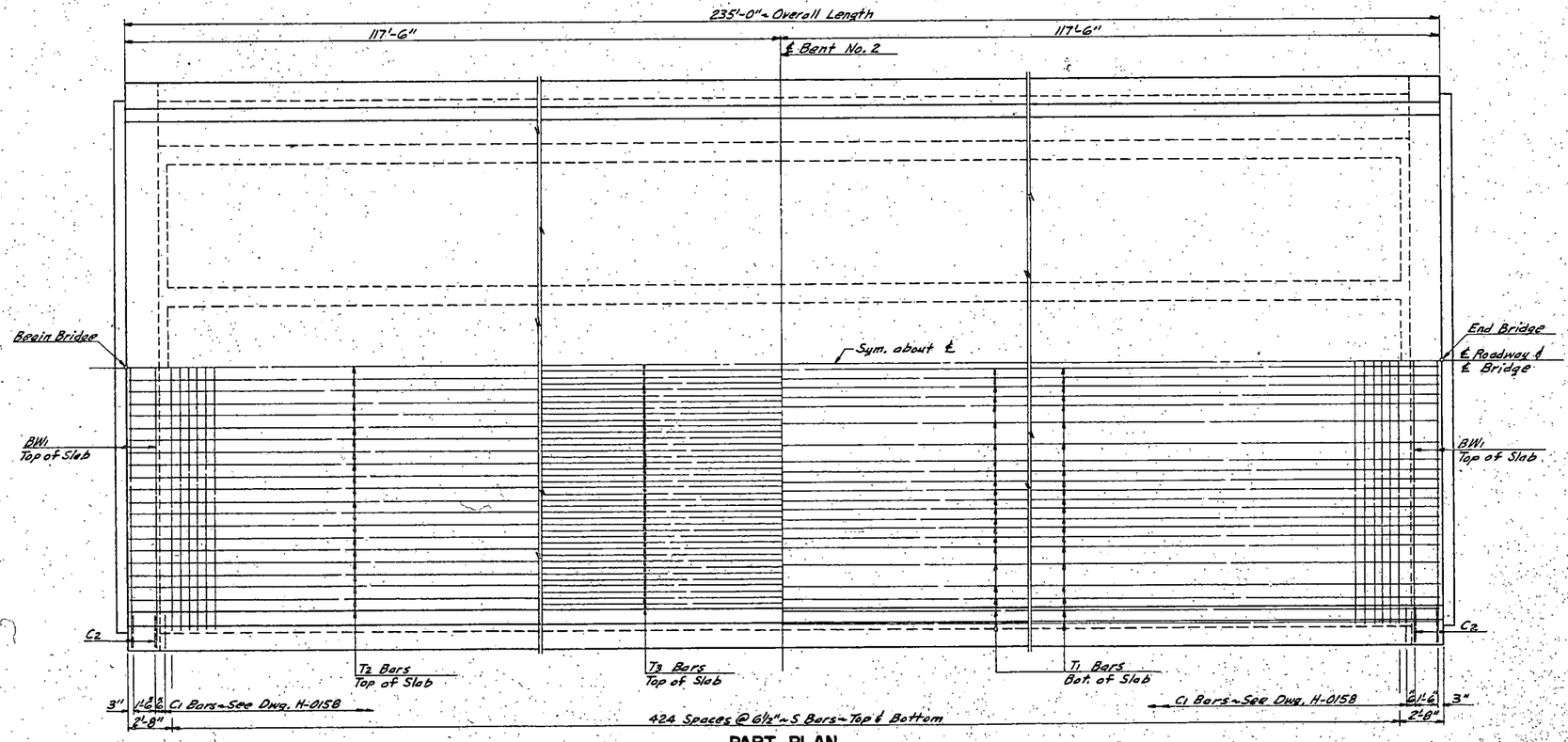
H-5130-2

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	N.D.	I-29-4(22)		22	



PART ELEVATION

See H-0158 for Railing Details

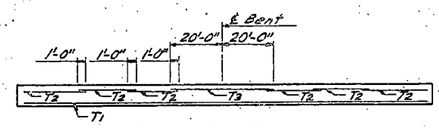


PART PLAN

Quarter showing reinforcing in top of slab

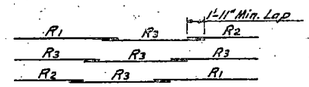
Half showing slab reinforcing Typical both sides ~by Rotation

Quarter showing reinforcing in bottom of slab



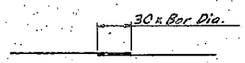
BAR LAYOUT

T2 & T3



R BAR SPLICING DETAIL

(Spans 1 & 2 Railing)



SPLICING DETAIL

T1, C3, C4

Designed for 25ᵗʰ I.S.F. F.W.S.

QUANTITIES

See Dwg. H-5131-2

SLAB & RAILING DETAILS WELDED GIRDER SPANS

30'-0" ROADWAY

H20 LOADING

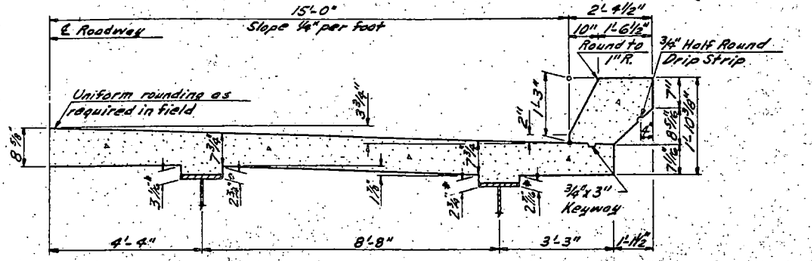
H-5131-1

H-5131-1

REVISIONS	MADE BY	CHK'D BY	DATE

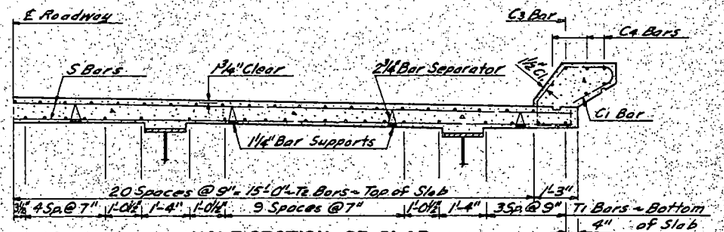
DESIGN	MADE BY	CHECKED BY	QUANTITIES	MADE BY	CHECKED BY
	L.P.H.	C.F.S.		L.P.H.	C.F.S.

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	N. D.	I-29-4(22)	23		

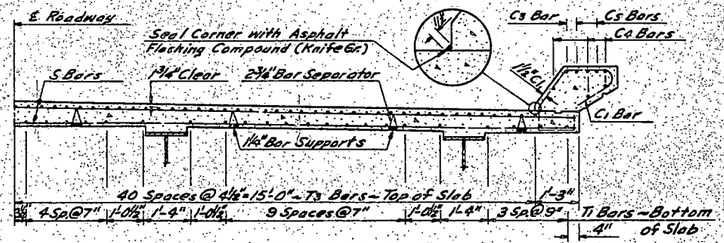


HALF SECTION OF SLAB
Showing Dimensions

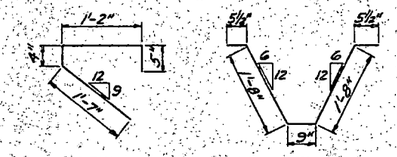
* Allow for variation in girder elevation by adjusting the riser dimension to maintain required slab thickness.



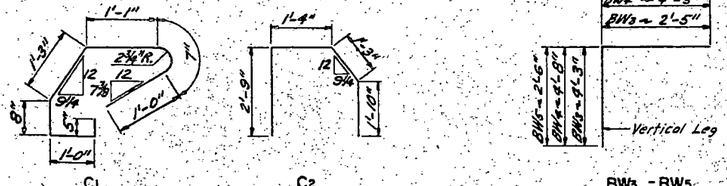
HALF SECTION OF SLAB
Showing Reinforcing between Bent & Abutments



HALF SECTION OF SLAB
Showing Reinforcing Over Bent

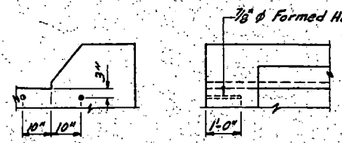


BW6 BW7

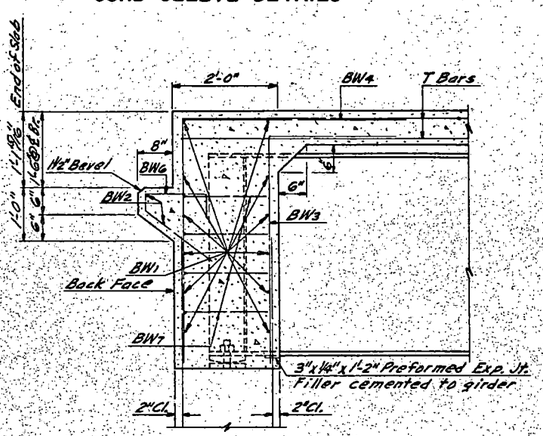


C1 C2 BW3 - BW5

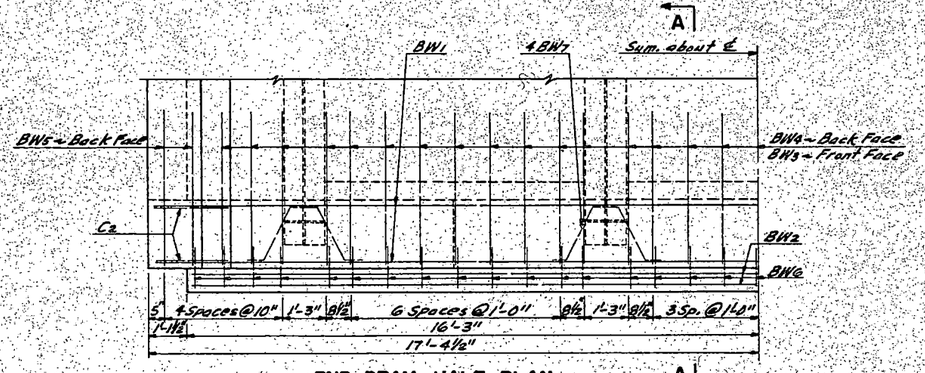
BENT BAR DETAILS
Dimensions shown are out to out



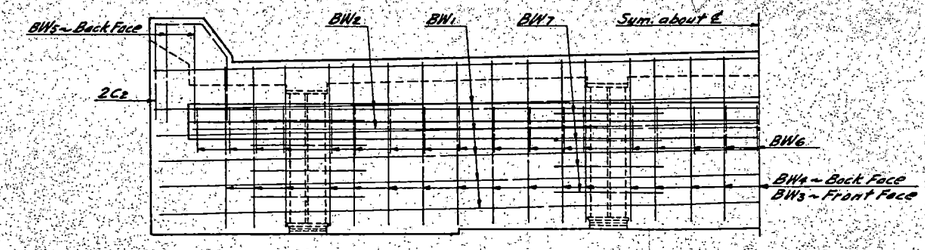
CURB SLEEVE DETAILS



A-A



END BEAM HALF PLAN



END BEAM HALF ELEVATION

BAR LIST (SUPERSTRUCTURE)

MARK	NUMBER: SLAB	RAILING & POSTS	CURB	SIZE	LENGTH	SHAPE	UNIT WT.
BW1	24		6	34'-5"	Str.	51.70
BW2	4		5	32'-2"	"	33.55
BW3	66		6	6'-8"	Bent	10.01
BW4	66		6	8'-11"	"	13.39
BW5	8		6	6'-9"	"	10.14
BW6	70		4	3'-6"	"	2.34
BW7	32		5	5'-0"	"	5.22
C1	532		5	6'-0"	Bent	6.26
C2	8		5	7'-2"	"	7.48
C3		14	6	35'-2"	Str.	52.82
C4		70	5	34'-11"	"	36.42
C5		4	4	40'-0"	"	26.70
P1		168	6	4'-3"	Bent	6.51
P2		12	6	5'-1"	"	7.64
P3		120	5	4'-9"	"	4.95
P4	120		3	4'-2"	"	1.56
P5	112		3	3'-2"	"	1.19
P6	8		3	4'-8"	"	1.75
RC	416		3	3'-3"	Bent	1.22
R1	16		6	42'-6"	Str.	63.84
R2	16		6	36'-6"	"	54.83
R3	40		6	39'-6"	"	59.33
S	850		6	32'-2"	Str.	48.32
T1	308		5	34'-11"	Str.	36.42
T2	246		3	33'-6"	"	12.58
T3	81		4	40'-0"	"	26.70

NOTES:

It is assumed that the Contractor can place the slab concrete in one continuous operation in accordance with sections 602-3.6.1 thru 602-3.6.2.1.4 of the Standard Specifications. If the Contractor cannot pour at the specified rate, he shall submit drawings to the Bridge Engineer, for approval, showing proposed construction joints and pouring sequence.

Each curb shall be poured in one continuous operation.

See Std. Drawing H-0158 for railing details.

See Drawings H-5130-1 and H-5130-2 for structural steel details.

The end beams shall be poured at the same time that the deck slab is poured. Special care shall be taken to completely fill the space under the girders in the end beams with concrete.

Designed for 25# I.S.F. F.H.S.

QUANTITIES

Class AE-3 Concrete	250.9 C.Y.
Class AAE-3 Concrete	15.23 C.Y.
Reinforcing Steel	74,719 Lbs.

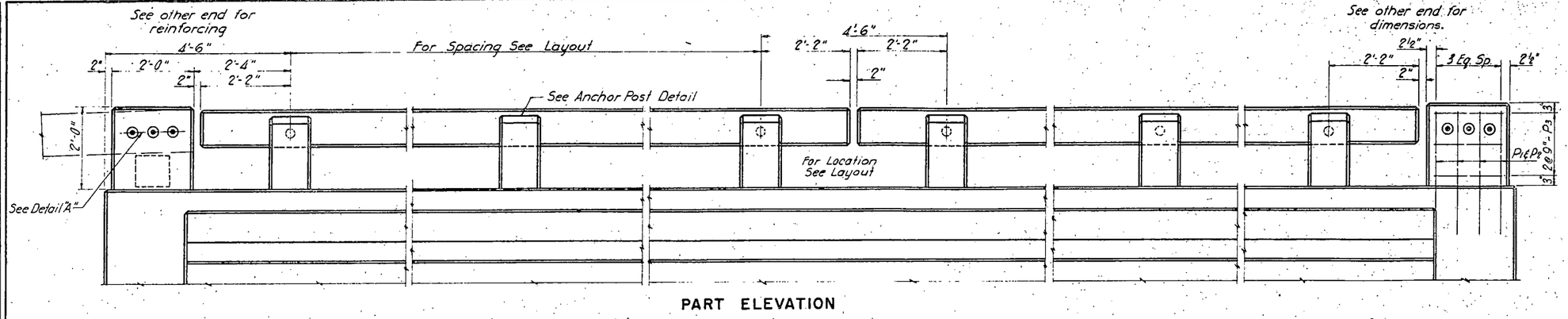
Railing and end post quantities included.

SLAB, END BEAM & MISC. DETAILS
WELDED GIRDER SPANS
30'-0" ROADWAY
H20 LOADING

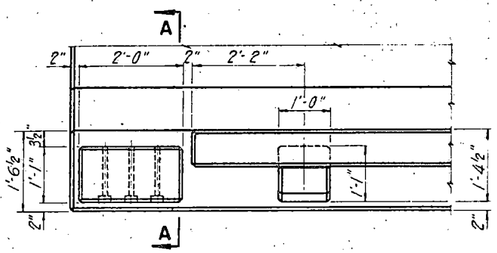
H-5131-2

H-5131-2

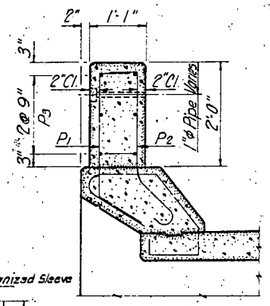
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.
5	N.D.	F-29-4(22)		24



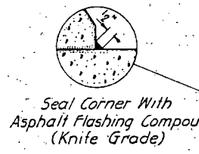
PART ELEVATION

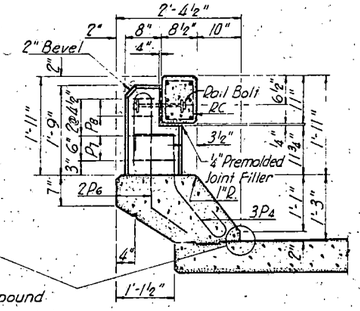


PART PLAN

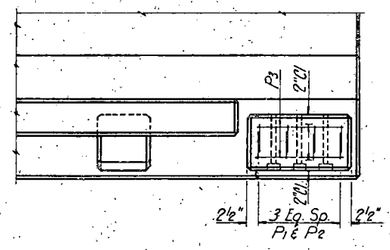


A-A

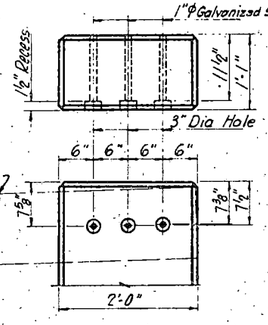




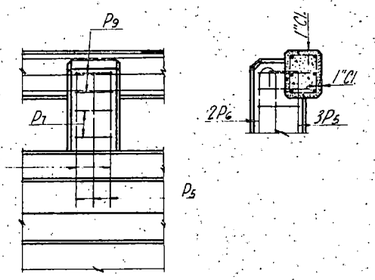
TYPICAL SECTION



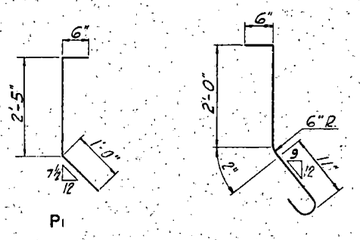
PART PLAN



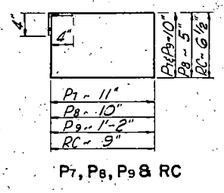
DETAIL "A"



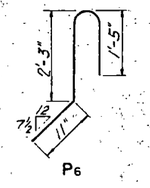
ANCHOR POST DETAIL
See Layout For Placement



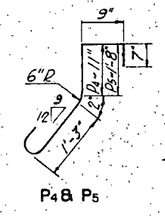
P1 P2



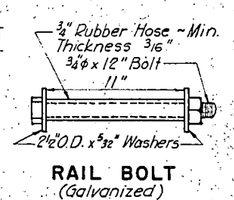
P7, P8, P9 & RC



P6

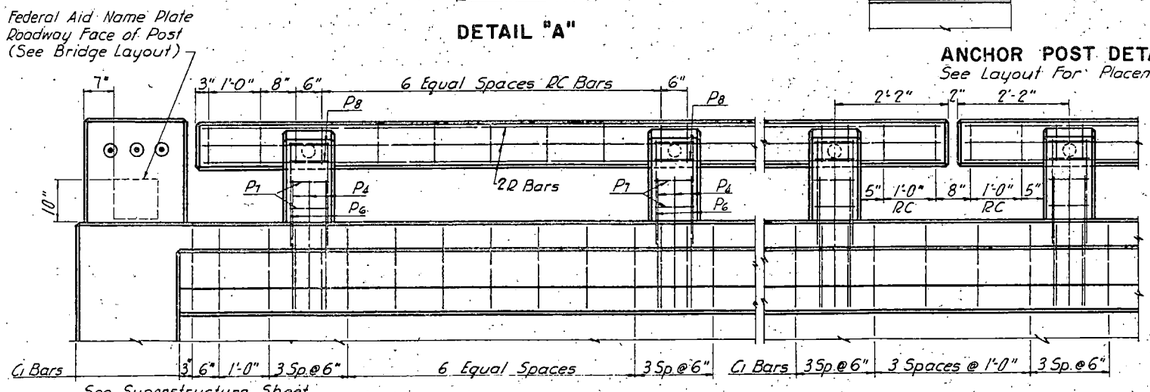


P4 & P5



RAIL BOLT
(Galvanized)
To be included in the unit price bid for Class AAE-3 Concrete.

BENT BAR DETAILS
Dimensions shown are out to out



See Superstructure Sheet

HAND RAIL DETAILS

NOTES:

All concrete above top of curb shall be Class AAE-3.

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

Designed in accordance with 1965 A.A.S.H.O. Specifications.

* Number of bars shown on superstructure sheet.
** Number, length & splicing information of 2 bars shown on superstructure sheet.

BAR LIST
(BARS FOR FOUR END POSTS)

MARK	NO.	SIZE	LENGTH	SHAPE
P1	16	5	3'-11"	Bent
P2	16	5	4'-2"	"
P3	24	4	1'-8"	Str.

BAR LIST
(BARS FOR RAILING AND POSTS)

MARK	NO.	SIZE	LENGTH	SHAPE
P4	*	6	4'-4"	Bent
P5	*	6	5'-1"	"
P6	*	5	4'-9"	"
P7	*	3	4'-2"	"
P8	*	3	3'-2"	"
P9	*	3	4'-8"	"
RC		3	3'-3"	Bent
2 **	**	6	**	Str.

QUANTITIES 4 END POSTS *

Class AAE-3 Concrete	0.64 Cu Yd
Reinforcing Steel	162 Lbs.

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

STANDARD RAILING DETAILS

H-0158