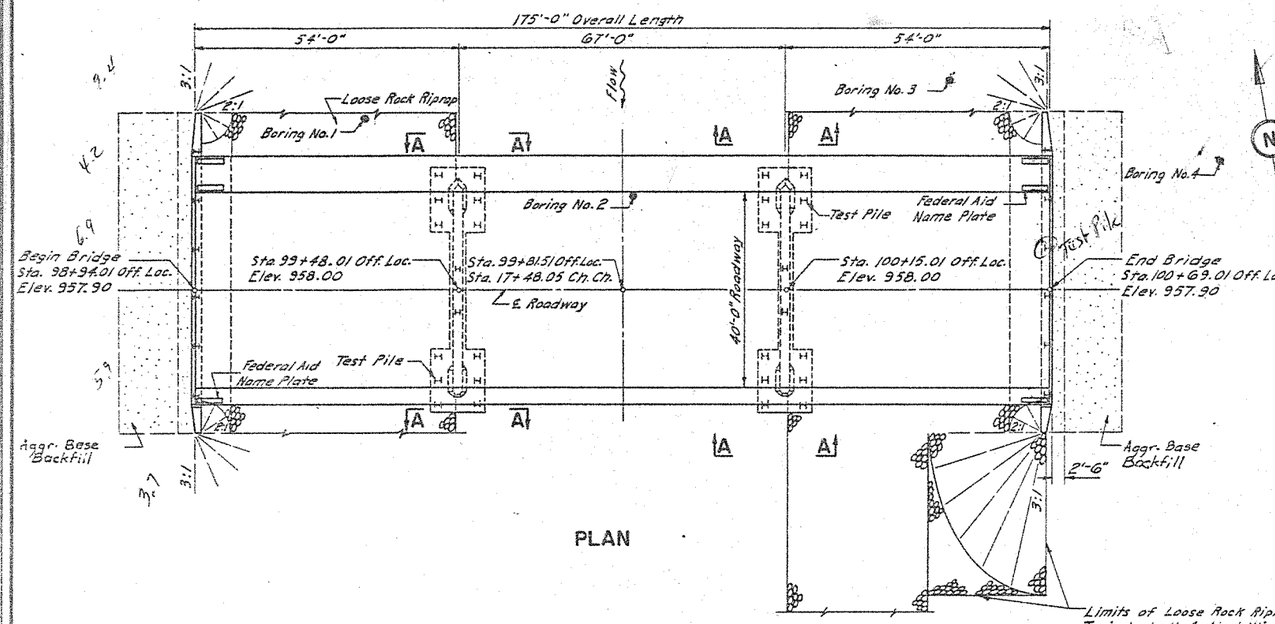
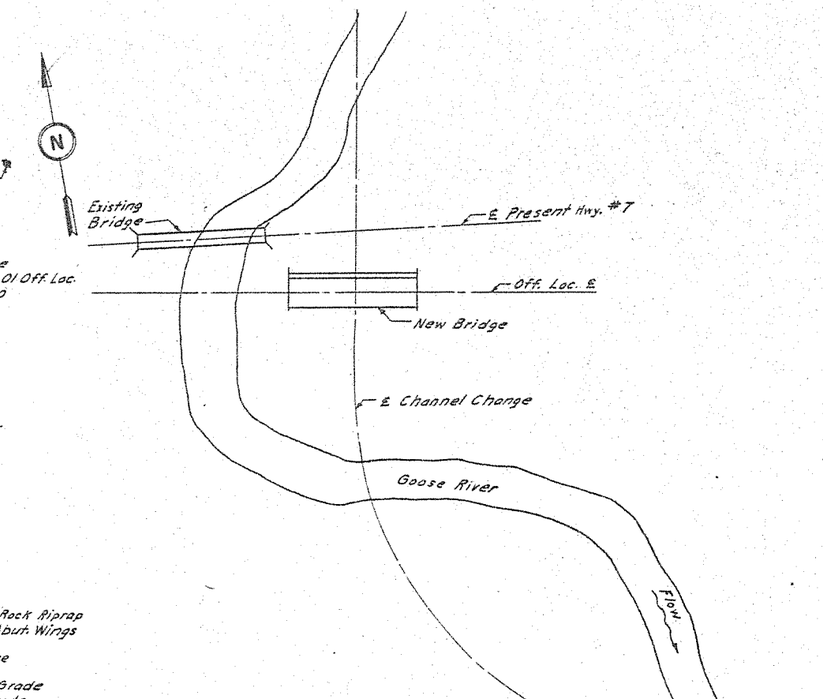
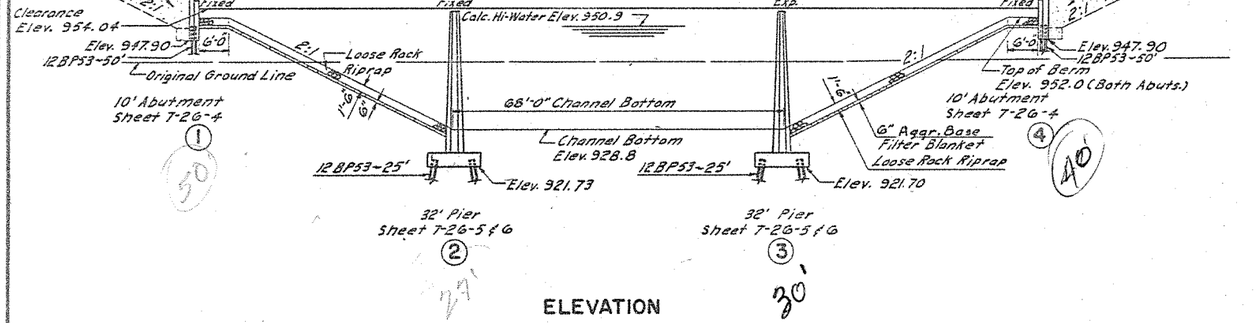
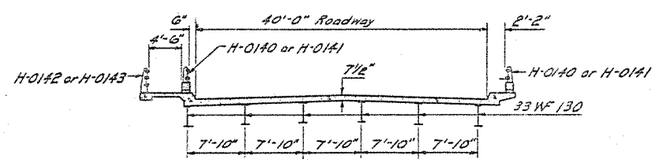
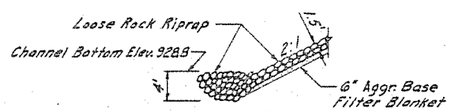
BRIDGE CODE	FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
X-071	5	N. D.	F-5(18)		7	69











1965
FEDERAL AID
PROJECT
F-5(18)
NORTH DAKOTA
7-26

FEDERAL AID NAME PLATE
2 REQUIRED

BENCH MARKS

NO.	DESCRIPTION	LOCATION	ELEV.
4	Point Spot, N.E. Cor. Wheel Guard on Bridge	Sta. 98+69.4 – 10.6' Lt.	955.56
5	S.E. End of C.M.P.	Sta. 110+22 – 69.4 Lt.	944.26
6	Spike in tree	Sta. 116+63 – 70' Rt.	950.21

PILE LOADING

LOCATION	DEAD LOAD	LIVE LOAD	EARTH LOAD	WIND 50 LB.	WIND 100 LB. L.L.	LONG. FORCE		DESIGN LOAD	MAXIMUM REQUIRED BEARING	MINIMUM PENETRATION *
Abutments	33.9 T.	10.2 T.						44.1 T.	55.0 T.	25'
Piers	34.8 T.	8.4 T.	5.0 T.	2.6 T.	2.0 T.	17.1 T.	= 61.1 T.	= 55.8 T.**	70.0 T.	15'

** Group III Loading
* Below bottom of substructure unit

DESIGN STRESSES:
fs = 20,000 psi ~ Structural Steel
fs = 20,000 psi ~ Reinforcing Steel
fc = 1200 psi

ESTIMATE OF QUANTITIES

SPEC. NO.	BID ITEM	
202	REMOVING EXISTING STRUCTURE AT STA. 97+47.42	LUMP SU.
208	CLASS 1 EXCAVATION	80 CU.
209	CLASS 2 "	390 CU.
208	CLASS 3 "	CU.
604	PRESTRESSED BEAMS	EAC
604	PRESTRESSED BEAMS	EAC
228	AGGR. BASE BACKFILL	638 TON
602 610	CLASS AE-1 CONCRETE	549 CU.
610	CLASS AAE-3 "	CU.
612	REINFORCING STEEL (INTERMEDIATE GRADE)	111,240
616	STRUCTURAL STEEL (A36)	178,320
620	UNTREATED TIMBER	M.B.
620	TREATED TIMBER	M.B.
622	UNTREATED TIMBER PILING FT.	LIN.
622 *	STEEL PILING (12BP53)	1250 LIN.
	* SEE SPECIAL PROVISIONS	
622	STEEL TEST PILES (12BP53) @ 35 FT.	2 EA
622	TREATED TIMBER TEST PILES	EA
750	LINSEED OIL TREATMENT	40 G
624	ORNAMENTAL METAL RAILING (2 RAIL)	328 LIN.
624	ORNAMENTAL METAL RAILING (3 RAIL)	164 LIN.
	BRIDGE BENCH MARKS	1 SE

STRUCTURAL DRAWINGS

GENERAL DRAWING	7-26 (THIS SHEET), 7-26-1, 7-26-2, 7-26-3
SUBSTRUCTURE	7-26-4, 7-26-5, 7-26-6, H-0401
SUPERSTRUCTURE	7-26-7, 7-26-8, 7-26-9, 7-26-10, H-0140, H-0141, H-0142 H-0143, STD. 7.6, STD. 14.9

DESIGN LOADING HS20 | SCALE 1 INCH = 15 FEET

	Begin Bridge	℄ Brg. Abut. 1	℄ Pier 2	℄ Pier 3	℄ Brg. Abut. 4	End Bridge
℄ NORTH OUTSIDE BEAM	957.87	957.51	957.66 957.63 957.60 957.57 957.54 957.51	957.61 957.58 957.55 957.52 957.49 957.46	957.57 957.54 957.51	
℄ ROADWAY	957.90	957.93 957.96 957.97 957.98 958.00 958.00 958.00	958.00 958.02 958.04 958.07 958.09 958.10 958.09 958.07 958.04 958.02 958.00	957.99 957.98 957.97 957.96 957.95 957.93 957.90		
℄ SOUTH OUTSIDE BEAM	957.56	957.53 957.54 957.55 957.56 957.56 957.56 957.56	957.56 957.58 957.60 957.63 957.65 957.66 957.65 957.63 957.60 957.58 957.56	957.57 957.56 957.55 957.54 957.53 957.51 957.48	957.54 957.51	

6" | 10 Eq. Sp. = 53'-6" | 10 Eq. Sp. = 67'-0" | 10 Eq. Sp. = 53'-6" | 6"

SCREED ELEVATION

NORTH DAKOTA
STATE HIGHWAY DEPARTMENT
GOOSE RIVER
BRIDGE LAYOUT
PROJECT F-5(18) STA. 99+81.51 (℄ OFF. LOC
TRAILL COUNTY

APPROVED
4-21-66 DATE
Joseph A. Kirby BRIDGE ENGINEER

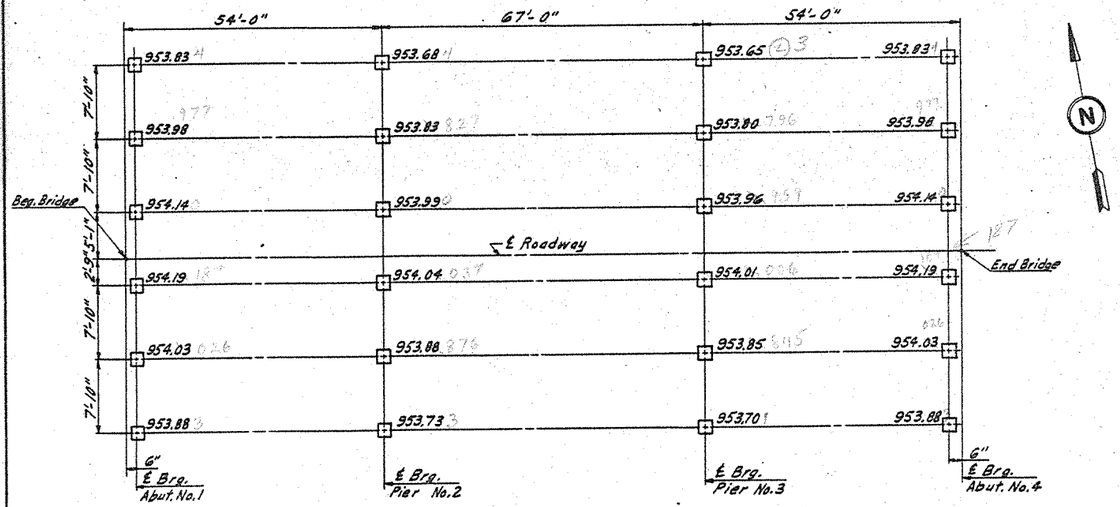
REGISTERED PROFESSIONAL ENGINEER

TOPOGRAPHY | DESIGN | TRAFFIC | QUANTITIES
PLOTTED BY — CHECKED BY — MADE BY — CHECKED BY
REVISIONS | DATE | BY | MADE BY | CHECKED BY

7-26

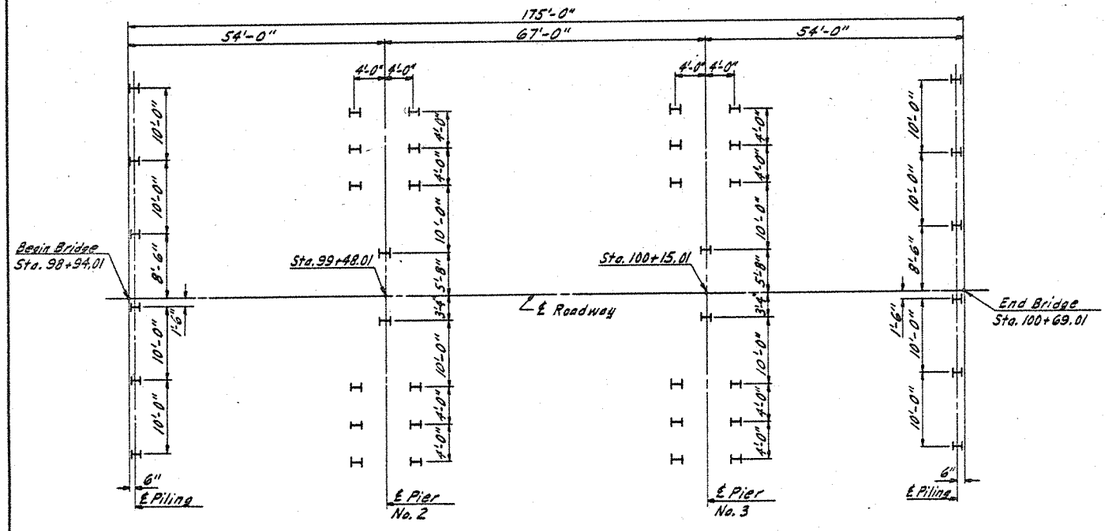
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOT SHE
5	N.D.	F-5(18)		8	6

DESIGN — MADE BY: LS — CHECKED BY: XG
QUANTITIES — MADE BY: L.E.G. — CHECKED BY: H.E.H.
MADE BY: E.O.H. — CHECKED BY: G.A.L.
MADE BY — CHECKED BY
REVISIONS — DATE — MADE BY — CHK'D BY



BEARING PLATE LAYOUT

Elevations are to top of finished Concrete



PILING LAYOUT

NOTES:

GENERAL:

THE COST OF FURNISHING AND PLACING DAMPPROOFING, ASPHALT CURB SEALS, NAME PLATES, END POST PIPE SLEEVES, CURB SLEEVES AND OTHER MISCELLANEOUS ITEMS SHALL BE INCLUDED IN THE PRICE BID FOR CLASS AE-1 CONCRETE.

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

DEAD LOAD DEFLECTIONS HAVE BEEN ACCOUNTED FOR IN THE SCREED ELEVATIONS.

EXCAVATION:

EXCAVATION CLASS 1 SHALL EXTEND FROM ELEV. 950.0 TO ELEV. 947.9 AT BOTH ABUTMENTS.

EXCAVATION CLASS 2 SHALL EXTEND FROM THE CHANNEL BOTTOM, OR THE BOTTOM OF THE AGGREGATE BASE FILTER BLANKET, TO THE BOTTOM OF THE PIER FOOTINGS. THE HORIZONTAL LIMITS SHALL BE AS SHOWN ON THE PIER DETAIL SHEETS.

EMBANKMENT:

THE EMBANKMENT AT THE ABUTMENTS SHALL BE IN PLACE TO ELEV 950.0 BEFORE ABUTMENT PILING ARE DRIVEN.

BACKFILL SHALL NOT BE PLACED ABOVE THE BERM ELEVATION UNTIL THE SUPERSTRUCTURE DECK HAS BEEN PLACED. BACKFILL AT THE ABUTMENTS SHALL BE PLACED IN ACCORDANCE WITH SECTION 203-2.3 OF THE STANDARD SPECIFICATIONS.

PILING:

IF A STEAM (OR AIR) OR DIESEL HAMMER IS USED TO DRIVE THE PILING FOR THIS STRUCTURE, IT SHALL HAVE A RATED ENERGY AND RAM WEIGHT OF NOT LESS THAN 10,500 FOOT POUND-TONS AS COMPUTED BY THE FORMULA W(E-6,200), WHERE W IS THE WEIGHT OF THE RAM IN TONS AND E IS THE RATED HAMMER ENERGY AS ALLOWED IN THE SPECIAL PROVISION FOR SECTION 622, PILING.

THE TEST PILES SHALL BE DRIVEN TO A BEARING OF NOT LESS THAN 125% "DESIGN LOAD".

REINFORCING STEEL:

THE BENT BAR DIMENSIONS ARE GIVEN CENTER TO CENTER UNLESS OTHERWISE NOTED.

THE BAR FABRICATOR SHALL ADD A PREFIX TO EACH BAR DESIGNATION TO DIFFERENTIATE BETWEEN THE SEVERAL PARTS OF THE STRUCTURE.

CONCRETE:

THE ROADWAY AND OUTSIDE VERTICAL FACES OF THE CURBS, THE OUTSIDE VERTICAL FACE OF THE SIDEWALK EDGE BEAM, ALL FACES OF THE END POSTS, AND THE EXPOSED FACES OF THE ABUTMENT WINGS SHALL BE GIVEN THE "RUBBED SURFACE FINISH".

IF THE CONCRETE SURFACE OF THE ABUTMENT WINGS HAS A SURFACE FINISH ACCEPTABLE TO THE ENGINEER WITHOUT RUBBING, THE REQUIREMENT FOR "RUBBED SURFACE FINISH" MAY BE WAIVED AT THE OPTION OF THE ENGINEER AND THE "ORDINARY SURFACE FINISH" WILL APPLY.

ALL "ORDINARY SURFACE FINISH" SHALL BE COMPLETED WITHIN 24 HOURS AFTER REMOVAL OF FORMS.

ALL CONCRETE SHALL BE CLASS AE-1.

RAILING:

DETAILS AND SPECIFICATIONS ARE INCLUDED FOR TWO TYPES OF ORNAMENTAL METAL RAILING - ALUMINUM (H-0141 AND H-0143) AND STEEL (H-0140 AND H-0142). THE SAME TYPE OF RAIL SHALL BE USED FOR THE SIDEWALK RAILING AS FOR THE ROADWAY RAILING. THE TYPE TO BE USED IS THE CONTRACTOR'S OPTION.

REMOVING EXISTING STRUCTURE

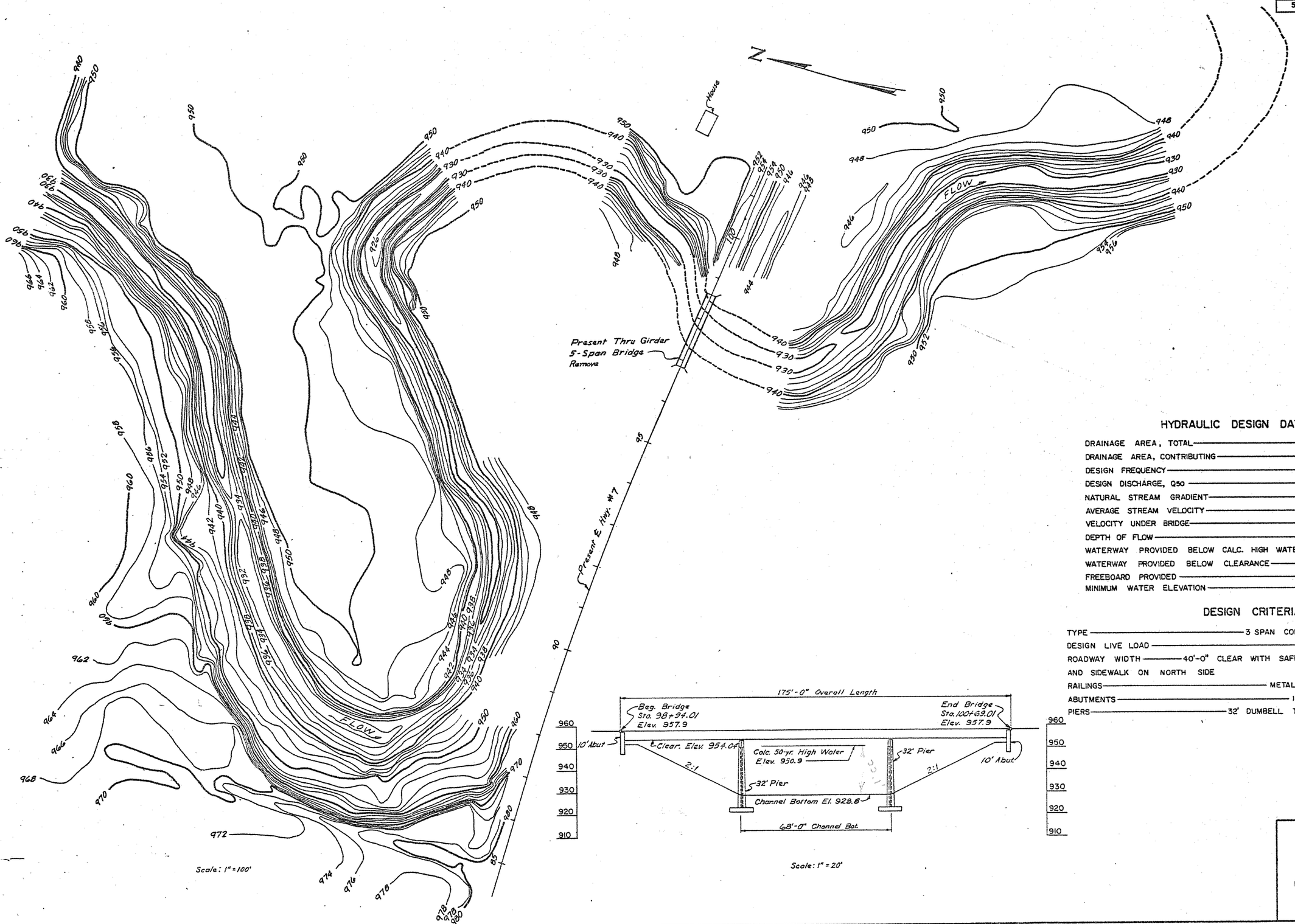
THE EXISTING BRIDGE STRUCTURE, WHICH CONSISTS OF ONE THROUGH PLATE GIRDER SPAN AND FOUR I-BEAM SPANS AND HAS AN OVERALL LENGTH OF APPROXIMATELY 175 FEET, SHALL BE REMOVED BY THE CONTRACTOR AND SHALL REMAIN THE PROPERTY OF THE CONTRACTOR. THIS MATERIAL SHALL BE REMOVED FROM THE HIGHWAY RIGHT-OF-WAY BEFORE THE STATE WILL ACCEPT THE COMPLETED PROJECT.

QUANTITIES

GOOSE RIVER
BEARING PLATE LAYOU
PILING LAYOUT
GENERAL NOTES

7-26-1

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.
5	N.D.	F-5(18)		9



HYDRAULIC DESIGN DATA:

DRAINAGE AREA, TOTAL	900 SQ. MI.
DRAINAGE AREA, CONTRIBUTING	756 SQ. MI.
DESIGN FREQUENCY	50 YEAR
DESIGN DISCHARGE, Q50	11,900 C.F.S.
NATURAL STREAM GRADIENT	0.00041 FT/FT.
AVERAGE STREAM VELOCITY	4.00 F.P.S.
VELOCITY UNDER BRIDGE	5.09 F.P.S.
DEPTH OF FLOW	22.1 FEET
WATERWAY PROVIDED BELOW CALC. HIGH WATER	2355.8 SQ. FT.
WATERWAY PROVIDED BELOW CLEARANCE	2844.0 SQ. FT.
FREEBOARD PROVIDED	3.1 FEET
MINIMUM WATER ELEVATION	939.6

DESIGN CRITERIA:

TYPE	3 SPAN COMP. CONT. STEEL I-BEAM
DESIGN LIVE LOAD	HS20
ROADWAY WIDTH	40'-0" CLEAR WITH SAFETY CURB ON SOUTH SIDE AND SIDEWALK ON NORTH SIDE
RAILINGS	METAL ON CONCRETE PARAPET
ABUTMENTS	10'~MONOLITHIC WITH DECK
PIERS	32' DUMBELL TYPE WITH STEEL ICE NOSES

BRIDGE NO. 7-26

GOOSE RIVER

TOPOGRAPHIC LAYOU

PROJ. NO. F-5(18) STA. 99+6

TRAILL COUNTY

7-26-2

7-26-

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.
5	N.D.	F-5(18)		10

Plotted by JLS - 11-18-64

950 945 940 935 930 925 920 915 910 905 900 895 890 885 880

FINAL WATER LEVEL - 5.1'

ELEV. 947.90
BTM. OF ABUT. NO. 1

945.7

945.2 — A4 — BROWN SILTY CLAY LOAM - TOPSOIL - ORGANIC - MEDIUM STIFF

DARK BROWN SILT LOAM - STRATIFIED AND LENTICULAR - CONTAINS MANY CLAY AND SAND LENSES - SATURATED - WATER BEARING - LOOSE TO VERY LOOSE

927.1 — A4 — GRAY SANDY LOAM - STRATIFIED AND LENTICULAR - CONTAINS MANY CLAY VARVES & SANDY - GRAVELLY LENSES - WATER BEARING - LOOSE TO VERY DENSE

917.1 — A6 — GRAY CLAY LOAM (CLAY PAN) - VERY HARD - LENTICULAR - NUMEROUS SAND LENSES - SILTY AND SANDY - GRITTY - IMPERVIOUS

885.5

BORING NO. 1

STA. 99+28.2 - 35.1' LT.

Off. Loc. ℄

FINAL WATER LEVEL - 3.6'

943.9

941.3 — A4 — BROWN SILTY CLAY LOAM - TOPSOIL - SLIGHTLY ORGANIC - RATHER STIFF

A6 — DARK BROWN CLAY LOAM - STRATIFIED AND LENTICULAR - SILTY - SLIGHTLY GRITTY - INTERBEDDINGS OF SAND AND CLAY - SOFT - SATURATED - WATER BEARING LENSES

926.1

ELEV. 921.73
BTM. OF FOOTING
PIER NO. 2

A1-B & A2-4 — GRAY SANDY LOAM - STRATIFIED AND LENTICULAR - GRAVELLY - SOME INTERBEDDINGS OF CLAY - WATER BEARING - MEDIUM DENSE TO VERY DENSE

912.8 — A6 — GRAY CLAY LOAM - (CLAY PAN) - LENTIGULAR - NUMEROUS-SAND LENSES - SILTY AND SANDY - GRITTY — IMPERVIOUS - HARD TO VERY HARD

888.7

BORING NO. 2

STA. 99+83.5 - 19.3' LT.

Off. Loc. ℄

FINAL WATER LEVEL - 6.5'

947.0

942.2 — A4 — BROWN LOAM - LENTICULAR - FILL AND TOPSOIL - LOOSE

A4 — DARK BROWN SANDY LOAM - STRATIFIED AND LENTICULAR - INTERBEDDED WITH CLAY AND GRAVELLY - SILTY - SATURATED - WATER BEARING - VERY LOOSE

928.6

ELEV. 921.70
BTM. OF FOOTING
PIER NO. 3

A6 — BROWN SANDY LOAM - STRATIFIED AND LENTICULAR - INTERBEDDINGS OF CLAY AND GRAVEL - SATURATED - WATER BEARING - MEDIUM DENSE TO DENSE

918.1

A6 — GRAY CLAY LOAM - (CLAY PAN) - LENTICULAR - SILTY AND SANDY - NUMEROUS SAND LENSES - IMPERVIOUS - HARD TO VERY HARD

903.4

A4 — GRAY SANDY LOAM - STRATIFIED AND LENTICULAR - SILTY WITH INTERBEDDINGS OF CLAY - IMPERMEABLE - COMPACT AND VERY DENSE

891.7

A6 — GRAY SILTY CLAY LOAM - LENTICULAR CLAY AND SAND INTERBEDDINGS - IMPERVIOUS - VERY HARD TO HARD

885.2

BORING NO. 3

STA. 100+48.7 - 43.1' LT.

Off. Loc. ℄

ELEV. 947.90
BTM. OF ABUT. NO. 4

FINAL WATER LEVEL - 3.8' 408

944.1

940.2 — A4 — BROWN SILTY CLAY LOAM - LENTICULAR - SLIGHTLY ORGANIC - MEDIUM STIFF TO SOFT

A4 — BROWN LOAM - STRATIFIED AND LENTICULAR - INTERBEDDINGS OF CLAY AND SAND - SILTY - GRITTY - SATURATED - WATER BEARING - VERY LOOSE TO LOOSE

926.6

A4 — GRAY LOAM - STRATIFIED AND LENTICULAR - SILTY AND SANDY - GRITTY - SATURATED - WATER BEARING - MEDIUM DENSE TO VERY DENSE

916.0

A6 — GRAY CLAY LOAM - (CLAY PAN) - LENTICULAR - INTERBEDDED SAND LENSES - GRITTY - VERY HARD - IMPERVIOUS

883.9

BORING NO. 4

STA. 101+04.0 - 26.2' LT.

Off. Loc. ℄

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.)

NOTES:

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

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

BRIDGE NO. 7-26

BORING LOG

F-5(18)

TRAILL COUNTY

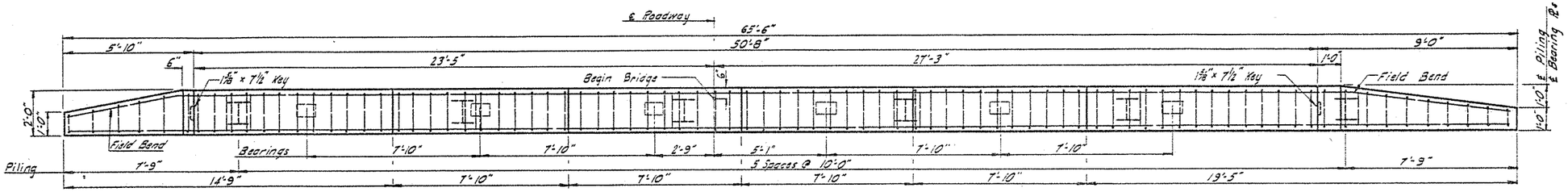
7-26-3

7-26-3

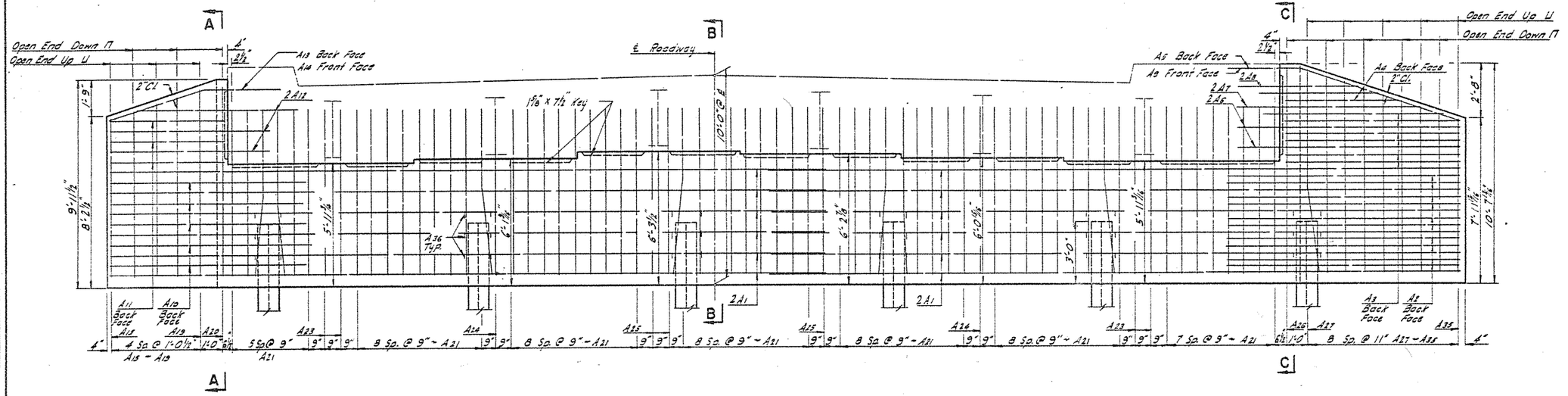
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.
5	N.D.	F-5(18)		11

DESIGN	DETAILS	TRACING	QUANTITIES
MADE BY V.A.H.	MADE BY V.F.W.	MADE BY E.A.L.	MADE BY E.A.L.
CHECKED BY V.F.W.	CHECKED BY V.F.W.	CHECKED BY E.D.S.	CHECKED BY E.J.H.

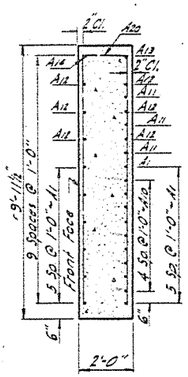
REVISIONS | BY | CHKD BY | DATE



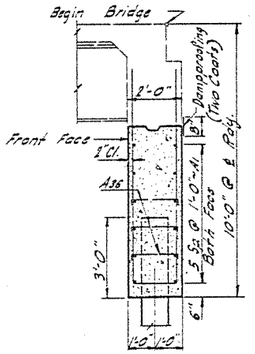
PLAN – WEST ABUTMENT



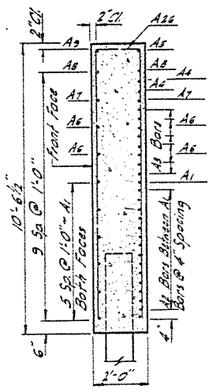
ELEVATION – WEST ABUTMENT



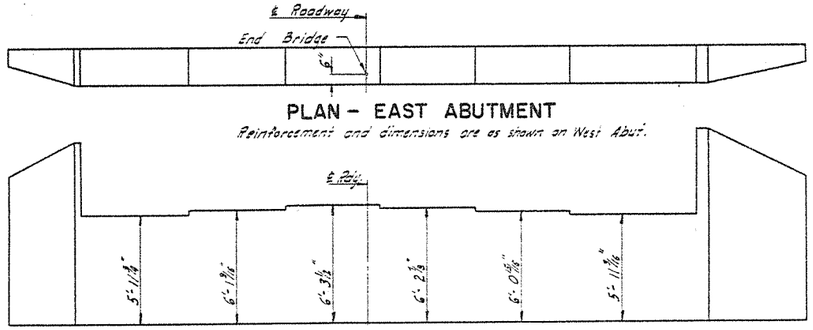
A-A

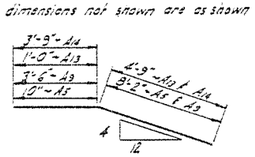


B-B

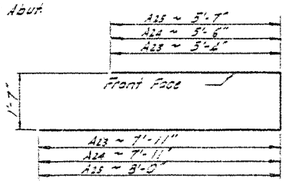


C-C

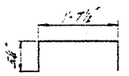




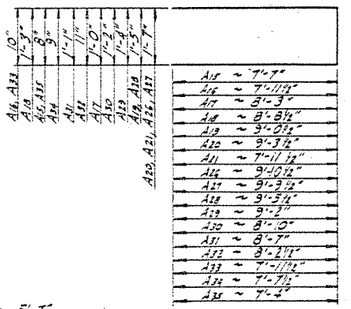
A5, A9, A13, & A14



A23 THRU A25



A36



BENT BAR DETAILS

ABUTMENT BAR LIST

MARK	NUMBER	SIZE	LENGTH
A1	24	5	33'-6
A2	10	6	11'-4
A3	6	6	8'-8
A4	2	6	5'-9
A5	1	6	9'-0"
A6	4	5	11'-0
A7	2	5	9'-0
A8	2	5	5'-9"
A9	1	6	11'-8"
A10	5	4	9'-3"
A11	3	4	5'-6"
A12	6	5	7'-3"
A13	1	6	5'-9"
A14	1	6	3'-6"
A15	1	6	15'-10
A16	1	6	16'-9
A17	1	6	17'-6
A18	1	6	18'-3
A19	1	6	19'-6
A20	1	6	20'-2
A21	59	6	17'-5
A22	4	6	14'-10
A24	2	6	15'-0
A25	3	6	15'-2

7-26 Sheet

ABUTMENT BAR LIST

MARK	NUMBER	SIZE	LENGTH
A26	1	6	21'-4
A27	1	6	21'-2
A28	1	6	20'-4
A29	1	6	19'-8
A30	1	6	18'-10
A31	1	6	18'-3
A32	1	6	17'-4
A33	1	6	16'-9
A34	1	6	16'-0
A35	1	6	15'-4
A36	36	4	2'-6"

7-26 Wt. 3579 Sheet

QUANTITIES

Class AE-1 Concrete	20.3
Reinforcing Steel	3579
Piling (See Layout)	
Excavation (See Layout)	

GOOSE RIVER

ABUTMENT DETAIL

40'-0" ROADWAY
HS20 LOADING

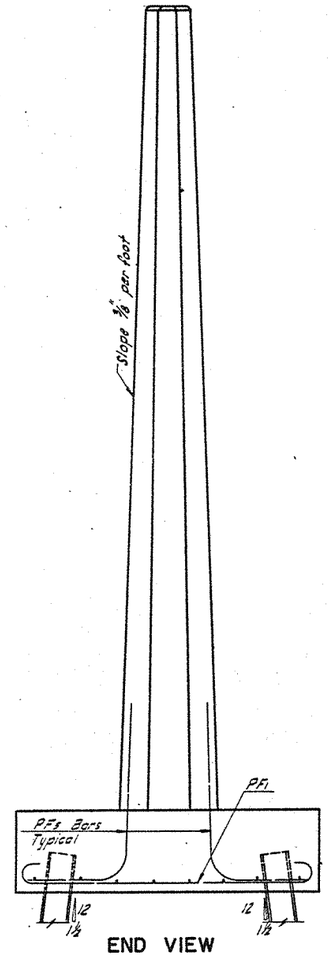
7-26-4

7-

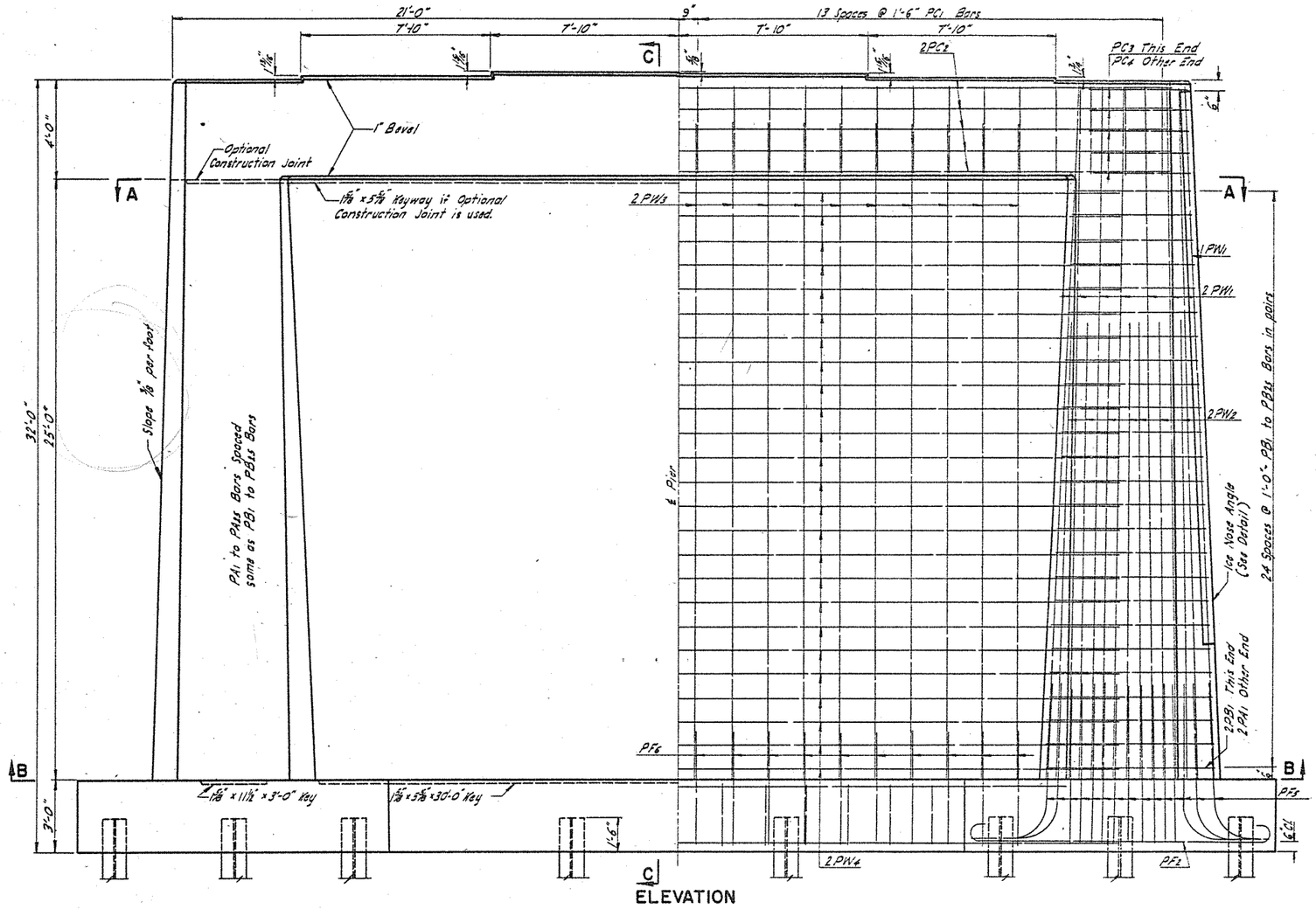
DESIGN	MADE BY	M.E.W.
	CHECKED BY	M.A.H.
DETAILS	MADE BY	G.A.L.
	CHECKED BY	M.E.W.
TRACING	MADE BY	G.A.L.
	CHECKED BY	M.A.H.
QUANTITIES	MADE BY	G.A.L.
	CHECKED BY	L.E.C.

REVISIONS | MAP | CHK'D BY | DATE

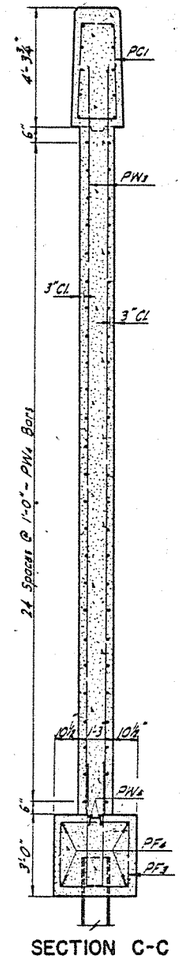
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.
5	N.D.	F-5(18)		12



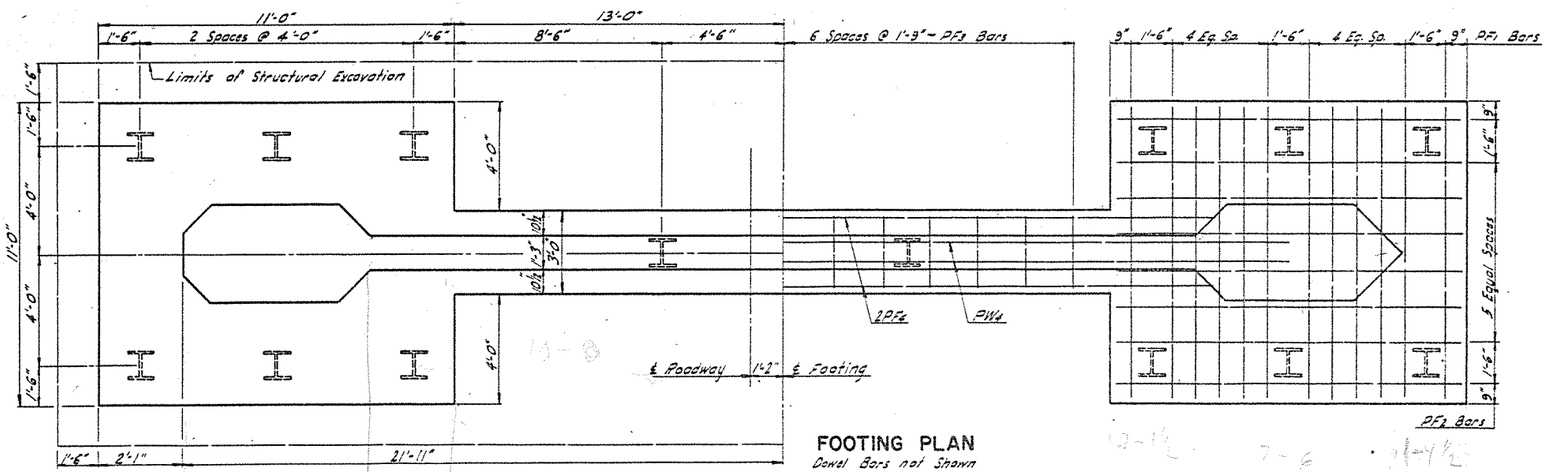
END VIEW



ELEVATION



SECTION C-C



FOOTING PLAN

Dowel Bars not Shown

See Dwg. T-26-6 for Top Plan, sections A-A and B-B, Ice Nose Angle, Bar List and Bar Details.

32' PIER DETAIL

40' ROADWAY
HS20 LOADING

7-26-5

7-2

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SH[EET] N[O.]
5	N.D.	F-5(18)		1[…]

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

REVISIONS — CHK'D BY — DATE

TOP PLAN

A-A

B-B

ICE NOSE ANGLE

BENT BAR DETAILS

PA BARS (A, B, C) — PB BARS (W, X, Y, Z, N, 6")

MARK	A	B	C	LENGTH	MARK	W	X	Y	Z	LENGTH
PA1	1'-2½"	4'-5"	1'-1"	9'-0"	PB1	2'-0¾"	4'-5"	1'-2½"	1'-0¾"	9'-3"
PA2	1'-2⅛"	4'-4¼"	1'-1½"	9'-0"	PB2	2'-0¼"	4'-4½"	1'-2⅛"	0'-11"	9'-0"
PA3	1'-1¾"	4'-4½"	1'-0½"	8'-9"	PB3	1'-11½"	4'-4½"	1'-1¾"	1'-0¼"	9'-0"
PA4	1'-1½"	4'-4"	1'-1"	8'-9"	PB4	1'-11"	4'-4"	1'-1½"	0'-10½"	8'-9"
PA5	1'-1¼"	4'-3¾"	0'-11⅞"	8'-6"	PB5	1'-10½"	4'-3¾"	1'-1¼"	0'-10½"	8'-9"
PA6	1'-0¾"	4'-3½"	1'-0½"	8'-6"	PB6	1'-10"	4'-3½"	1'-0¾"	0'-3¾"	8'-6"
PA7	1'-0½"	4'-3"	0'-11½"	8'-3"	PB7	1'-9½"	4'-3"	1'-0½"	0'-11"	8'-6"
PA8	1'-0¼"	4'-2¾"	0'-11⅞"	8'-3"	PB8	1'-9"	4'-2¾"	1'-0¼"	0'-9"	8'-3"
PA9	1'-0"	4'-2½"	0'-10¾"	8'-0"	PB9	1'-8½"	4'-2½"	1'-0"	0'-10"	8'-3"
PA10	0'-11½"	4'-2¼"	0'-11¼"	8'-0"	PB10	1'-8"	4'-2¼"	0'-11½"	0'-8¼"	8'-0"
PA11	0'-11¼"	4'-1¾"	0'-10⅜"	7'-9"	PB11	1'-7½"	4'-1¾"	0'-11¼"	0'-9½"	8'-0"
PA12	0'-11"	4'-1½"	0'-10¾"	7'-9"	PB12	1'-7"	4'-1½"	0'-11"	0'-7½"	7'-9"
PA13	0'-10¾"	4'-1"	0'-10¾"	7'-8	PB13	1'-6½"	4'-1"	0'-10¾"	0'-7¼"	7'-8"
PA14	0'-10½"	4'-0¾"	0'-10⅜"	7'-6"	PB14	1'-6"	4'-0¾"	0'-10½"	0'-7"	7'-6"
PA15	0'-10"	4'-0½"	0'-9¼"	7'-3"	PB15	1'-5¼"	4'-0½"	0'-10"	0'-8¼"	7'-6"
PA16	0'-9¾"	4'-0¼"	0'-9⅝"	7'-3"	PB16	1'-4¾"	4'-0¼"	0'-9¾"	0'-7¼"	7'-4"
PA17	0'-9½"	3'-11¾"	0'-8⅞"	7'-0"	PB17	1'-4¼"	3'-11¾"	0'-9½"	0'-7¾"	7'-3"
PA18	0'-9"	3'-11½"	0'-8¾"	6'-11"	PB18	1'-3½"	3'-11½"	0'-9"	0'-8"	7'-2"
PA19	0'-8¾"	3'-11"	0'-8¼"	6'-9"	PB19	1'-3"	3'-11"	0'-8¾"	0'-7¼"	7'-0"
PA20	0'-8½"	3'-10¾"	0'-8⅜"	6'-9"	PB20	1'-2½"	3'-10¾"	0'-8½"	0'-8¼"	7'-0"
PA21	0'-8¼"	3'-10½"	0'-7½"	6'-6"	PB21	1'-2"	3'-10½"	0'-8¼"	0'-6¼"	6'-9"
PA22	0'-8"	3'-10¼"	0'-7⅜"	6'-6"	PB22	1'-1½"	3'-10¼"	0'-8"	0'-7¼"	6'-9"
PA23	0'-7½"	3'-10"	0'-7"	6'-3"	PB23	1'-1"	3'-10"	0'-7½"	0'-6½"	6'-7"
PA24	0'-7¼"	3'-9½"	0'-7"	6'-2"	PB24	1'-0½"	3'-9½"	0'-7¼"	0'-6¾"	6'-6"
PA25	0'-6¾"	3'-9¼"	0'-6⅝"	6'-0"	PB25	1'-0"	3'-9¼"	0'-6¾"	0'-6"	6'-4"
Total Length One Set 189'-0"					Total Length One Set 193'-4"					

PIER BAR LIST (ONE[…]

MARK	NUMBER: COLUMN & WALL	NUMBER: FOOTING	NUMBER: CAP	SIZE	LENG[TH]
PA1– PA25	2 Sets			4	189
PB1– PB25	2 Sets			4	193'
PC1			28	5	10'-[…]
PC2			10	9	40'-[…]
PC3			5	6	7'-0
PC4			5	6	6'-6
PF1		24		11	13'-[…]
PF2		16		9	13'-[…]
PF3		13		6	9'-1[…]
PF4		4		9	34'-[…]
PF5		60		10	8'-[…]
PF6		10		5	3'-5
PW1	29			10	28'-[…]
PW2	31			10	19'-[…]
PW3	40			5	27'-4
PW4	50	2		5	36'-[…]
Wt.	9690	5643	1789		

7-26

See Dwg. 7-26-5 for Elevation […]
End View, Footing Plan, and ℄ S[…]

QUANTITIES

Concrete Class AE-1	111.1
Reinforcing Steel	17122
Structural Steel	1020
Piling (See Layout)	
Excavation (See Layout)	

32' PIER DETAIL[S]

40' ROADWAY

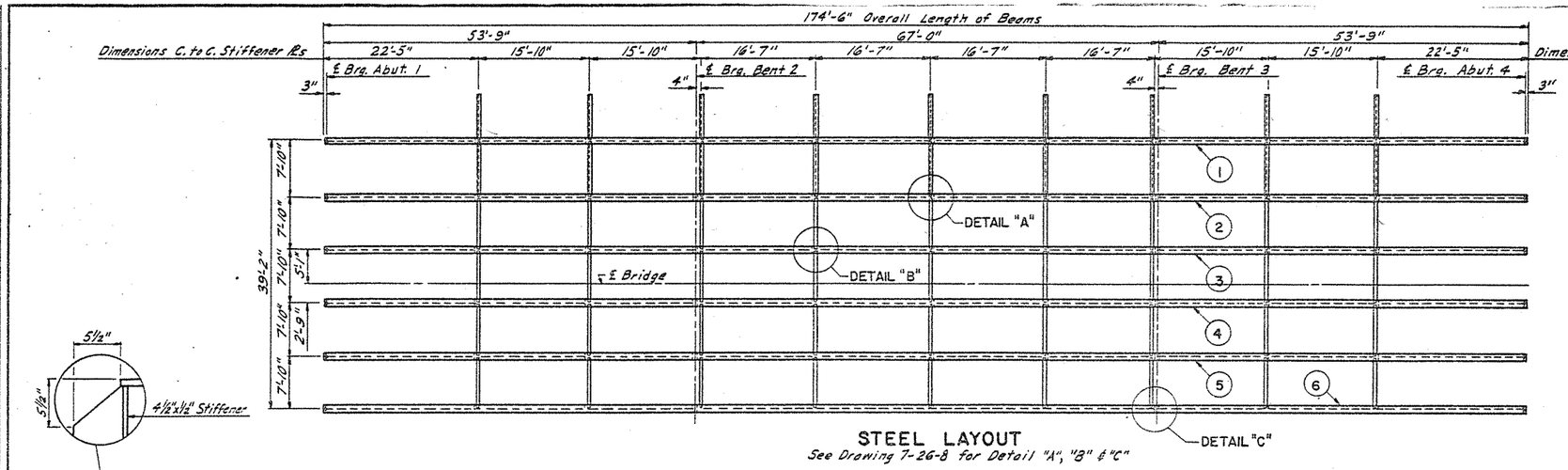
HS20 LOADING

7-26-6

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.
5	N.D.	F-508)		14

REVISIONS	BY	CHK'D BY	DATE

DESIGN	MADE BY	M.E.W.	
	CHECKED BY	M.A.H.	
DETAILS	MADE BY	G.A.L.	
	CHECKED BY	M.A.H.	
TRACING	MADE BY	F.D.H.	
	CHECKED BY	G.A.L.	
QUANTITIES	MADE BY	G.A.L.	
	CHECKED BY	Z.L.B.	



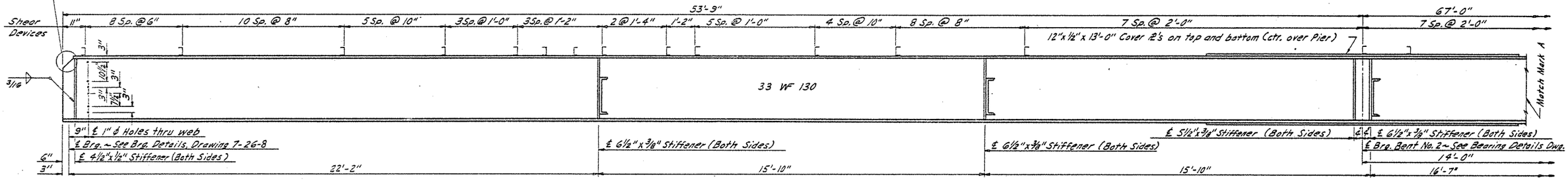
STEEL LAYOUT

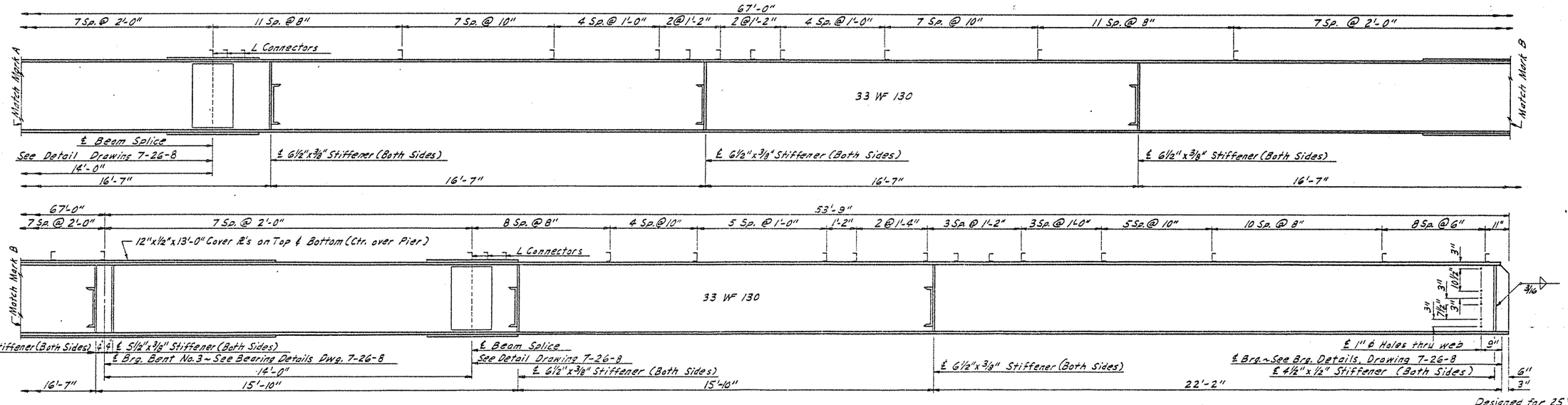
See Drawing 7-26-8 for Detail "A", "B" & "C"

NOTE:

The details shown are for Beam No.2. The other beams are to be fabricated in accordance with these details and as further amplified on Drawing 7-26-8

See Drawing 7-26-10 for quantities.





BEAM ELEVATION

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

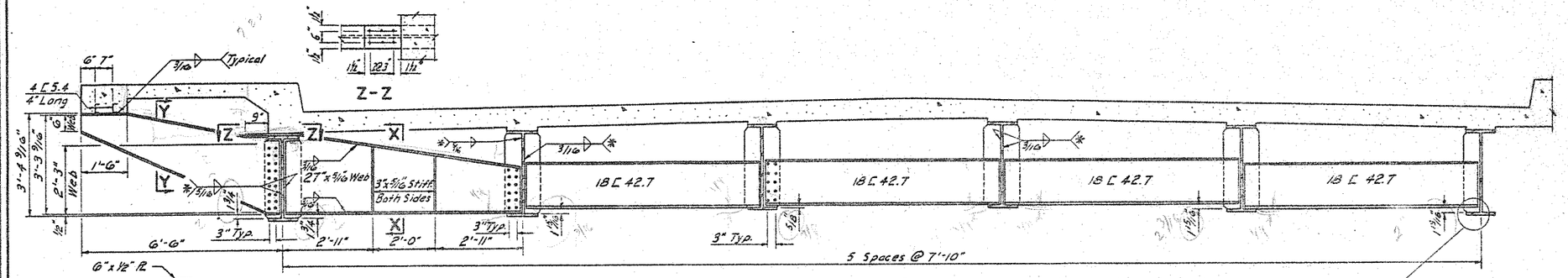
GOOSE RIVER
SUPERSTRUCTURE DET
40' - 0" ROADWAY
HS20 LOADING

7-26-7

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.
5	N.D.	F-5(18)		15

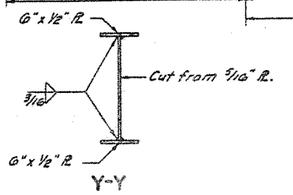
DESIGN	MADE BY	M.E.W.
	CHECKED BY	M.A.H.
1.5	MADE BY	G.A.L.
	CHECKED BY	M.A.H.
TRACING	MADE BY	L.E.G.
	CHECKED BY	G.A.L.
QUANTITIES	MADE BY	L.E.S.
	CHECKED BY	L.E.S.

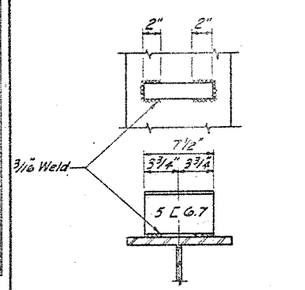
REVISIONS | CHK'D BY | DATE



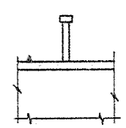
SHOWING DIAPHRAGMS

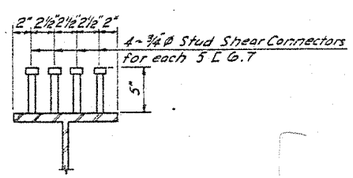
*Weld to Web & Compression Flange only.

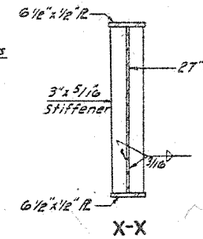




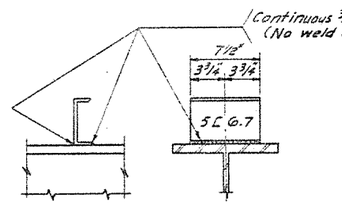
Used in negative moment region where spacing is 2'-0"



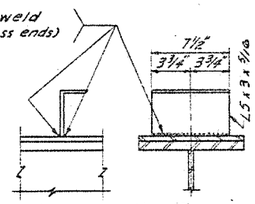




ALTERNATE SHEAR DEVICE

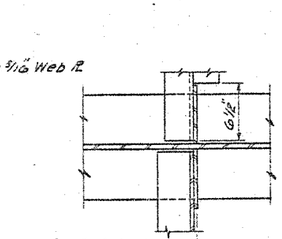


Used in positive moment region except over splice PL's.

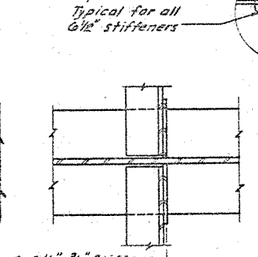


Use over splice PL's.

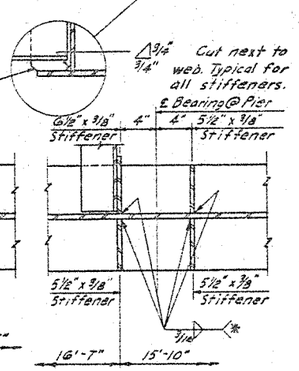
SHEAR DEVICE DETAIL



DETAIL "A"

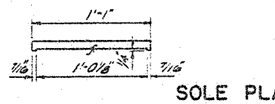


DETAIL "B"

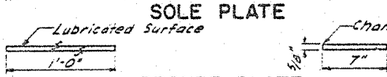


*Weld to web and compression flange only.

DETAIL "C"

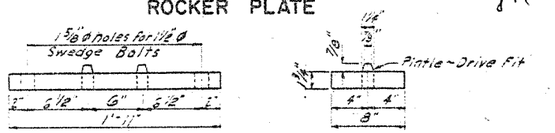


SOLE PLATE



BRONZE PLATE

ROCKER PLATE



MASONRY PLATE

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

QUANTITIES

See Drawing T-26-10

GOOSE RIVER

SUPERSTRUCTURE DETA

40'-0" ROADWAY

HS20 LOADING

NOTES:

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

IF HIGH STRENGTH BOLTS ARE USED IN THE WEB AND FLANGE SPLICE PLATES, THE BOLTS SHALL BE PLACED SO THAT THE NUTS ARE ON THE UPPER SIDE OF THE FLANGE AND ON THE INTERIOR SIDE OF THE WEB.

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

PAINT AND PAINTING SHALL CONFORM TO THE "NORTH DAKOTA STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION", SECTIONS 713, 870-1.2 AND 870-1.3. ALL EXPOSED STEEL SURFACES SHALL BE GIVEN ONE SHOP COAT OF RED LEAD PAINT (INCLUDING TOP OF UPPER FLANGE), ONE SPOT COAT OF RED LEAD PAINT AFTER ERECTION AND CONCRETE WORK IS COMPLETED AND TWO FIELD COATS OF ALUMINUM PAINT (FIRST COAT TINTED WITH PRUSSIAN BLUE). SHEAR DEVICES SHALL NOT BE PAINTED.

THE METAL ARC PROCESS SHALL BE USED FOR ALL FABRICATION. ELECTRODES USED IN THE FABRICATION OF THIS BRIDGE SHALL BE OF THE E70 CLASSIFICATION. ALL WELDING SHALL CONFORM TO THE CURRENT "STANDARD SPECIFICATIONS FOR WELDED HIGHWAY AND RAILWAY BRIDGES - DESIGN, CONSTRUCTION AND REPAIR" OF THE AMERICAN WELDING SOCIETY.

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

STRUCTURAL CARBON STEEL SHALL CONFORM TO THE LATEST ASTM-A36 SPECIFICATIONS.

SEE SUPPLEMENTAL SPECIFICATION NO. 1 FOR BRONZE BEARING PLATE REQUIREMENTS. BRONZE BEARING PLATES ARE INCLUDED IN QUANTITIES FOR STRUCTURAL STEEL.

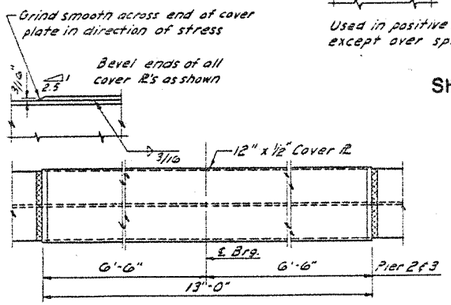
ALTERNATE STUD SHEAR DEVICES SHALL BE MANUFACTURED OF C-1008 GRADE COLD ROLLED STEEL WHICH CONFORMS TO ASTM SPECIFICATIONS A-108-56II, AND SHALL CONFORM TO THE DIAMETER AND OTHER DIMENSIONS AS SHOWN. ALTERNATE SHEAR DEVICES WILL BE PAID FOR AS CHANNEL SHEAR DEVICES.

THE CONTRACTOR FOR THIS BRIDGE IS REQUIRED TO OBTAIN A PRODUCT CERTIFICATION OF THE STUD CONNECTORS USED ON THIS BRIDGE IN ACCORDANCE WITH SECTION 809 OF THE 1965 NORTH DAKOTA STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION.

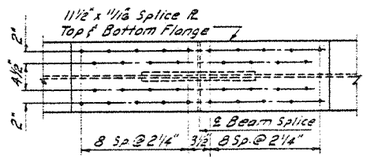
HAS BEEN APPROVED TO THE DIMENSIONS AS APPROVED BY THE RESEARCH COUNCIL ON RIVETED AND BOLTED STRUCTURAL JOINTS, MARCH, 1964 FOR ASTM A325 BOLTS WILL BE ACCEPTABLE FOR THIS PROJECT.

Ken Burton
Gate City Steel

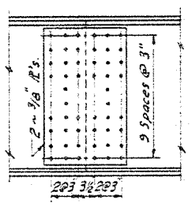
M B Salisbury
Topeka



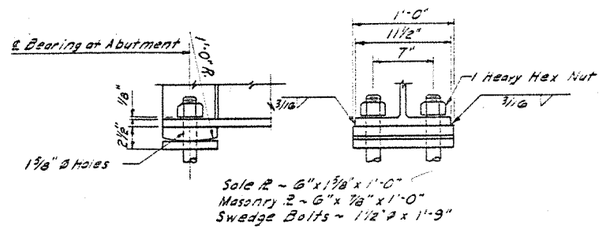
COVER PLATE DETAIL



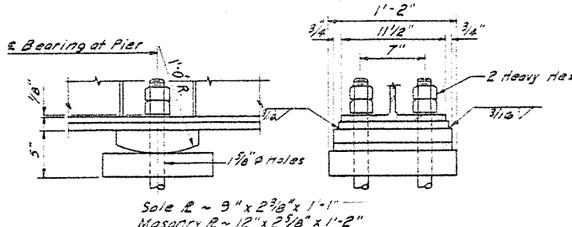
FLANGE SPLICE DETAIL



WEB SPLICE DETAIL

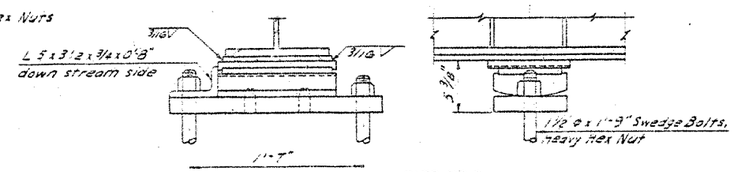


ABUTMENT BEARING DETAILS



PIER NO. 2

FIXED PIER BEARING DETAILS

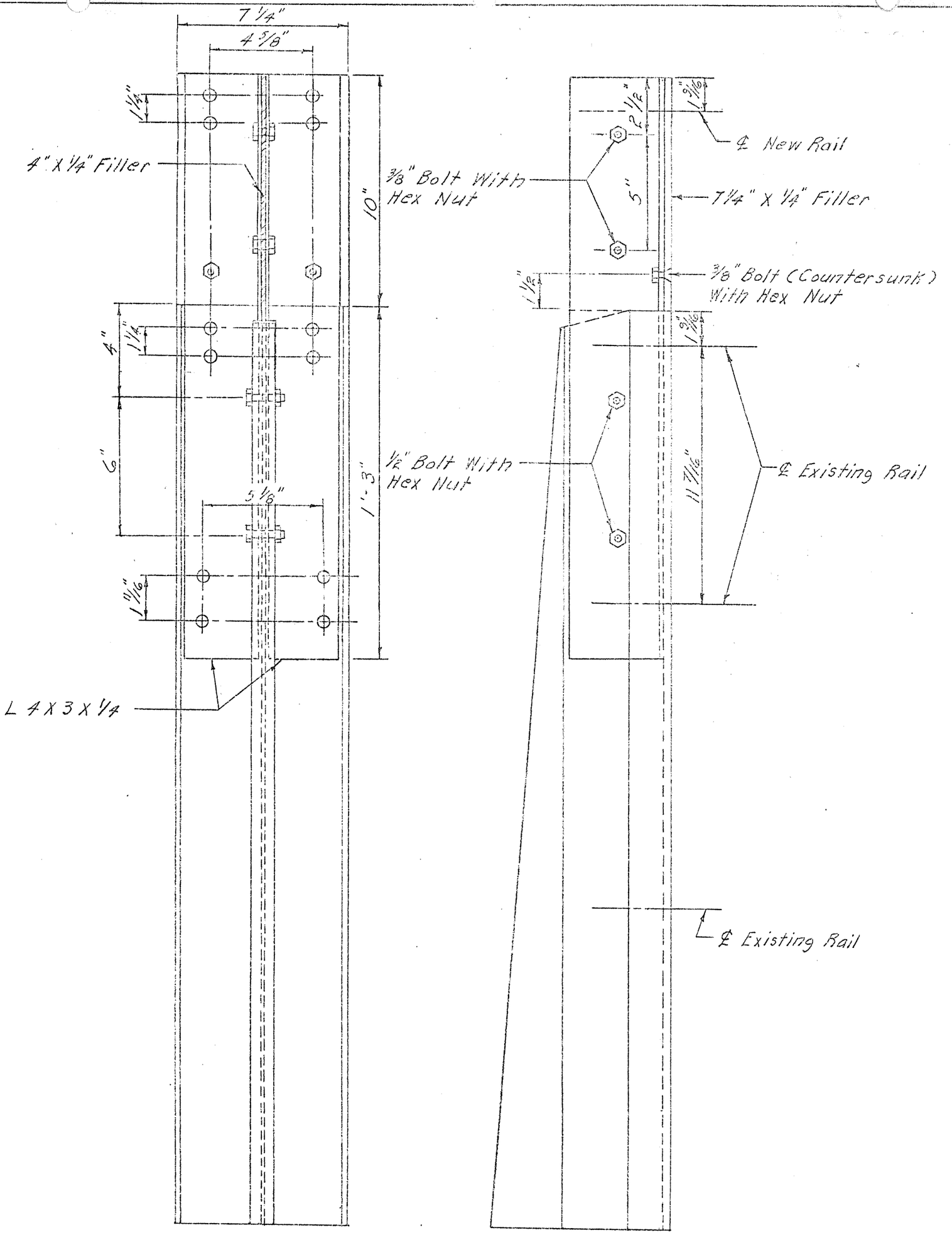


PIER NO. 3

EXPANSION PIER BEARING DETAILS

7-26-8

7-26-8



Note:

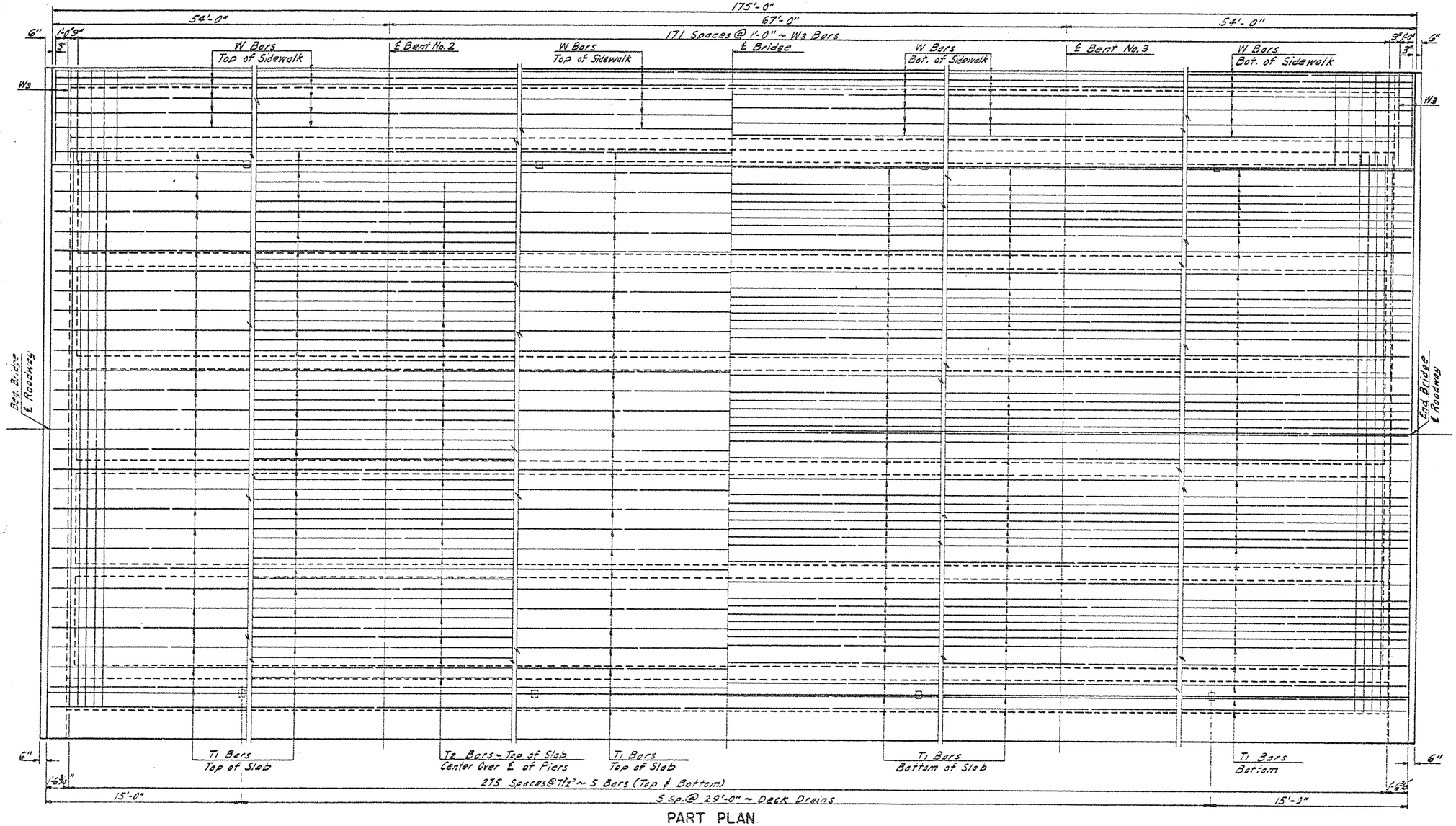
For Rail & Rail Attachment see std. H-0143.

All Materials Shall be Aluminum & Meet Spec. Std. H-0143. Bolts shall be Austenitic Stainless Steel.

Top Addition Has The Same Size As Existing Top Rail.

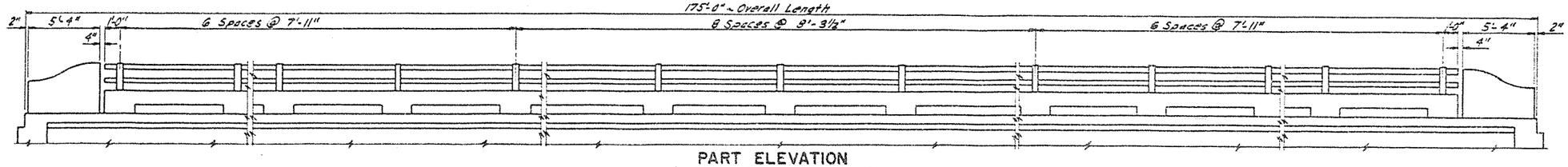
RAIL POST EXTENSION

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.
5	N.D.	F-5(18)		16



PART PLAN

Half Showing Top Slab Reinforcing
Half Showing Bottom Slab Reinforcing



PART ELEVATION

For Railing Details See Railing Drawings.
South Railing Shown. Post Spacing
Typical for all Railing.

SUPERSTRUCTURE BAR LI

MARK	NUMBER North Curb	South Curb	Slab	Total	SIZE	LENGT
BW1			106	106	6	6'-6
BW2			96	96	6	5'-6
BW3			16	16	6	7'-0
BW4			26	26	6	6'-3
BW5			32	32	6	26'-6
BW6			36	36	5	5'-0
C1			105	105	6	8'-2
C2			128	128	5	8'-2
C3			233	233	5	5'-2
E1	5	5		10	6	37'-0
E2	15	25		40	5	36'-8
S			552	552	6	42'-2
T1			385	385	5	36'-8
T2			52	52	6	28'-0
W1	30			30	7	37'-4
W2	35			35	4	36'-4
W3	176			176	4	14'-10
R1	105	105		210	5	5'-11
7-26-9 WT.	6381	188.2	59213	67476	Sheet 1 o	

SUPERSTRUCTURE BAR LI

MARK	NUMBER South Parapets & End Bds	North Parapets & End Bds	Total	SIZE	LENGT
R2	120	120	240	13	3'-2
RP	20	20	40	5	34'-6
P1	4	4	8	6	4'-4
P2	2	2	4	6	4'-8
P3	2	2	4	6	5'-2
P4	4	4	8	6	5'-4
P5	4	4	8	6	4'-3
P6	2	2	4	6	4'-8
P7	2	2	4	6	5'-2
P8	4	4	8	6	5'-4
P9	12	20	32	4	5'-0
P10	4	8	12	5	5'-3
P11	—	4	4	4	3'-6
P12	—	8	8	5	3'-8
P13	—	4	4	5	4'-0
P14	—	4	4	5	4'-6
P15	—	8	8	5	4'-9
7-26-9 WT.	1039	263	2362	Sheet 2 o	

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

QUANTITIES

See Drawing 7-26-10

GOOSE RIVER
SLAB DETAILS
40'-0" ROADWAY
HS20 LOADING

DESIGN	MADE BY	M.E.W.
	CHECKED BY	M.A.H.
ETAILS	MADE BY	G.A.L.
	CHECKED BY	M.E.W.
TRACING	MADE BY	F.D.H.
	CHECKED BY	G.A.L.
QUANTITIES	MADE BY	G.A.L.
	CHECKED BY	L.E.G.

REVISIONS — MAD BY — CHK'D BY — DATE

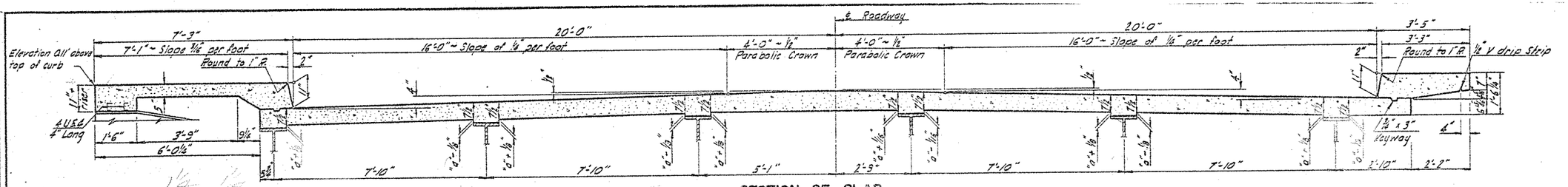
7-26-9

7-2

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.
5	N.D.	F-5(18)		17

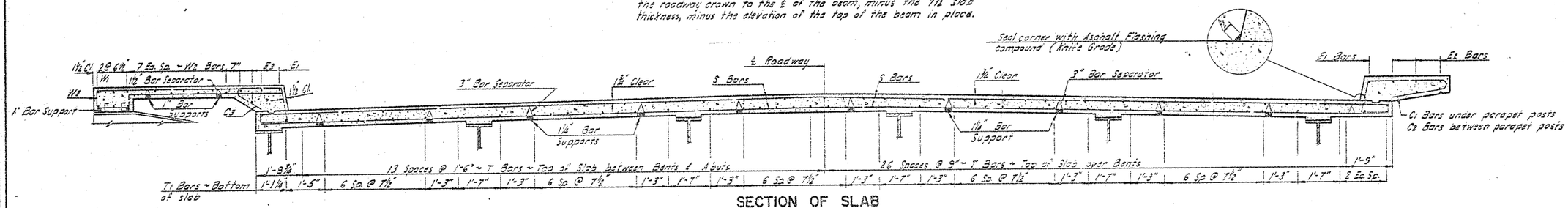
DESIGN	MADE BY	W. E. W.
	CHECKED BY	W. A. H.
DETAILS	MADE BY	G. A. L.
	CHECKED BY	M. E. M.
TRACING	MADE BY	G. A. L.
	CHECKED BY	M. E. M.
QUANTITIES	MADE BY	G. A. L.
	CHECKED BY	L. E. G.

REVISIONS | DATE | CHK'D BY | MAD BY



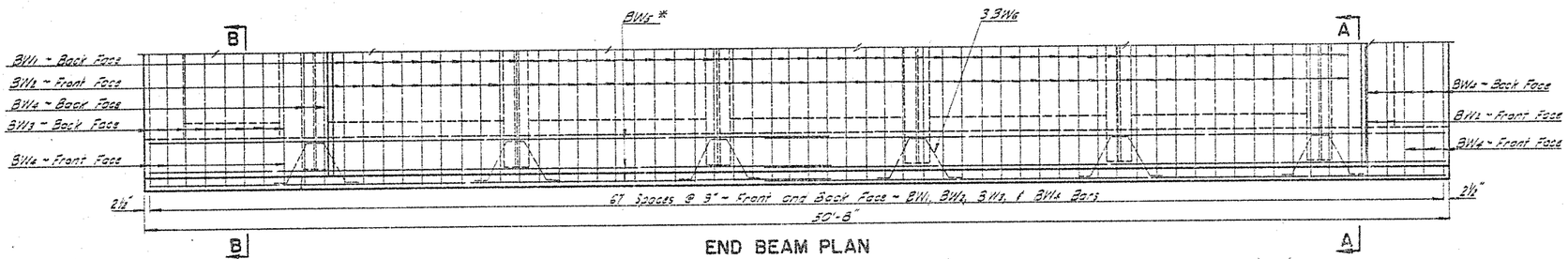
SECTION OF SLAB

Dimension "a" equals the screed elevation at ℄ Roadway minus the roadway crown to the ℄ of the beam, minus the 7 1/2" slab thickness, minus the elevation of the top of the beam in place.



SECTION OF SLAB

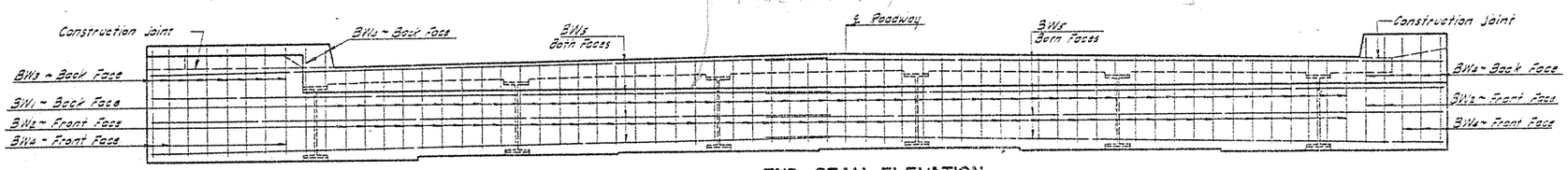
Showing Reinforcing



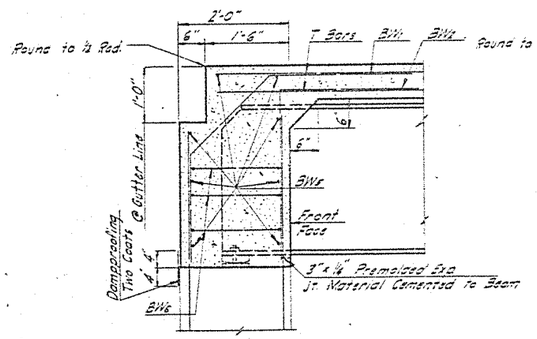
END BEAM PLAN

* Warp BW5 bar in Front Face to fit bridge deck crown

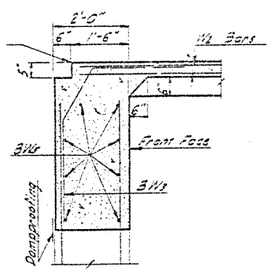
Approach slab seat was constructed 1" below & parallel to roadway.



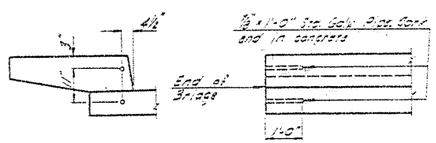
END BEAM ELEVATION



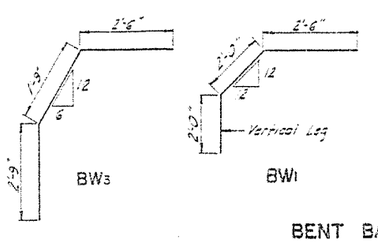
A-A



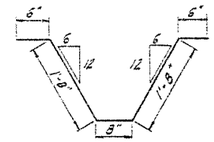
B-B

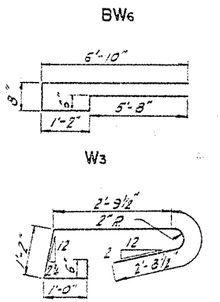


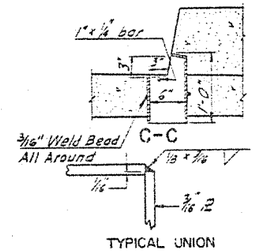
CURB SLEEVE DETAILS

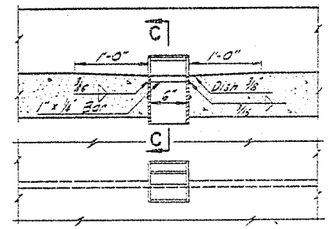


BENT BAR DETAILS









12 Required per Superstructure. Include with Structural Steel Quantities.

Deck drains may be fabricated of structural steel plates as shown or may be square hollow structural tubing of equal opening area with the same accessories as shown.

NOTES:

It is assumed that the Contract place the slab concrete in one operation in accordance with S. 602-2.6 of the Standard Specificatio the Contractor cannot pour at th specified rate, he shall submit dr to the Bridge Engineer for approv showing proposed construction join pouring sequence.

Each curb shall be poured in continuous operation.

The end beams shall be poured the same time that the deck sl poured. Special care shall be tak completely fill the space under girders in the end beam with con

The ends of the girder shall rigidly held in place to prevent movement during placement of the beam concrete.

See Drawing 7-16-9 for Slab Pla and Elevation.

Two coats of dampproofing sha applied to construction joints. cation shall be in accordance wit Section 736 of the Standard Spe cations. Dampproofing will not paid for directly but shall be i in the unit price bid for Class Concrete.

Designed for 25 Psf. F.W.S.

QUANTITIES

Concrete Class "A"*	[illegible]
Reinforcing Steel	69,838
Structural Steel	174,420

* Includes parapets and end [illegible]

GOOSE RIVER

SLAB DETAILS

40'-0" ROADWAY

HS20 LOADING

7-26-10

7-2

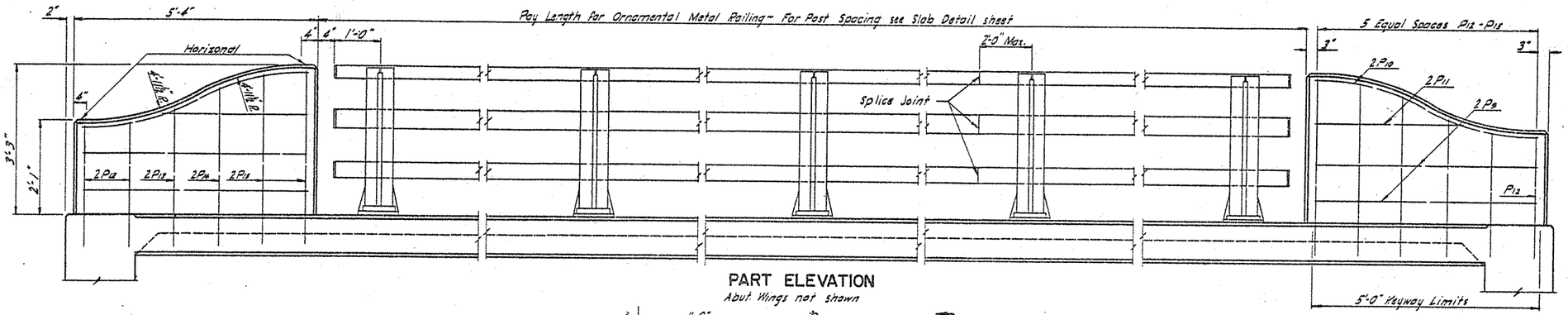
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.
5	N.D.			18

REVISIONS	DATE	CHKD BY

	MADE BY	CHECKED BY
DESIGN		
DETAILS	M.A.H.	E.A.L.
	M.E.W.	
TRACING	C.A.H.	
	M.E.W.	
QUANTITIES	M.A.H.	
	M.E.W.	

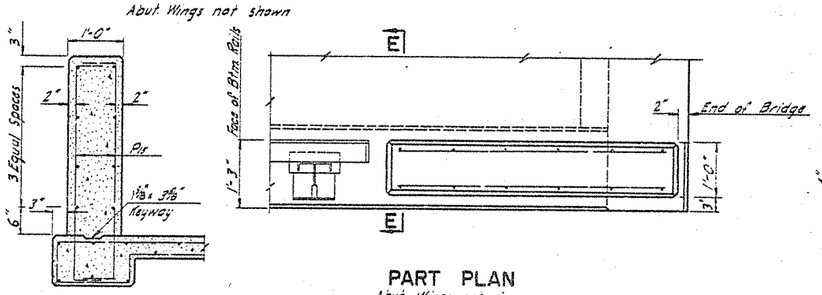
QUANTITIES FOR 2 END POSTS		
Concrete, Class AE-1	1.0	C.Y.
Reinforcing Steel	164	Lbs.

Pay Length for Ornamental Metal Railing~ For Post Spacing see Slab Detail sheet



PART ELEVATION

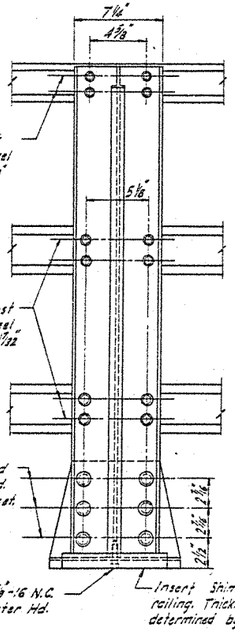
Abut. Wings not shown

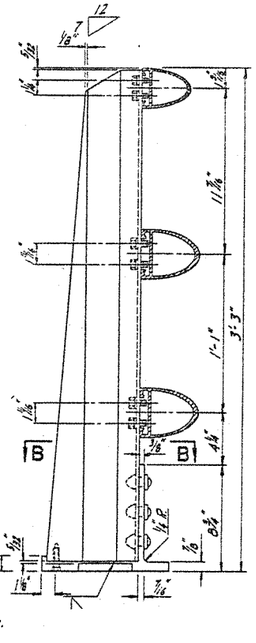


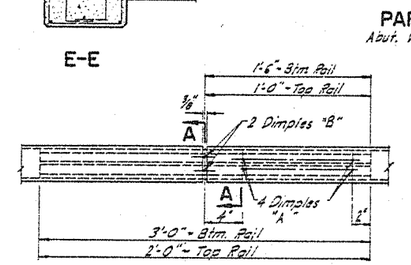
PART PLAN

Abut. Wings not shown

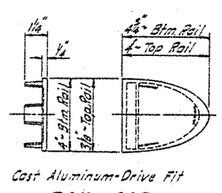
E-E



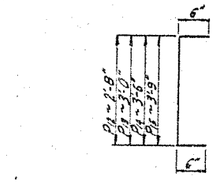




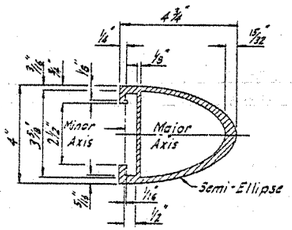
SPLICE JOINT



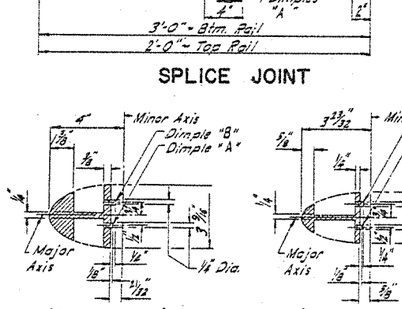
RAIL CAP



BENT BAR DETAIL



BOTTOM RAILS

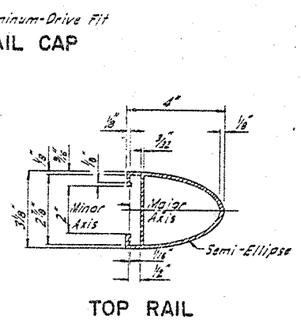


(For Bottom Rail)

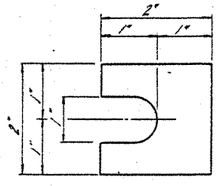
A-A

(For Top Rail)

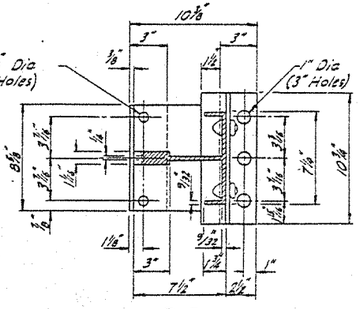
A-A



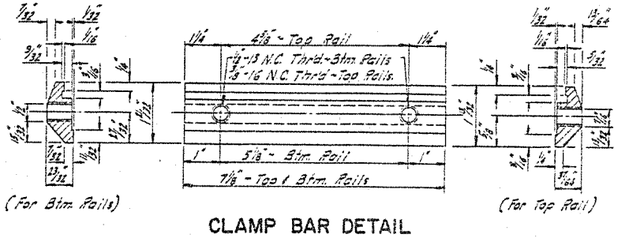
TOP RAIL



ALUMINUM SHIM DETAILS



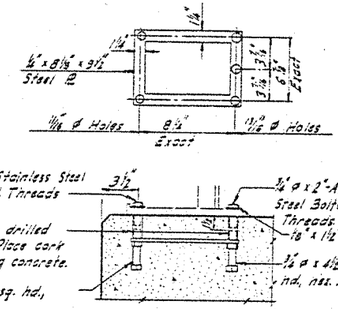
B-B



(For Btm. Rails)

CLAMP BAR DETAIL

(For Top Rail)



ANCHOR BOLT ASSEMBLY

NOTES:

ALL CONCRETE IN END POSTS SHALL BE CLASS AE-1 AND SHALL E GIVEN THE "RUBBED SURFACE FINISH".

RAIL POSTS, POST BASES, SPLICE BARS, AND RAILS SHALL CONFO TO ASTM B-221, ALLOY 6061 OR 6062-T6.

ALUMINUM WASHERS SHALL CONFORM TO ASTM B-209, ALLOY ALCL 2024-T3.

RIVETS SHALL CONFORM TO ASTM B-316 OR B-221, ALLOY 6061 O 6062-T6. RIVETS SHALL BE BUTTON HEAD AND CONE POINT, COL DRIVEN.

RAILING END CAPS SHALL BE EITHER (A) ALUMINUM ALLOY PERMA MOLD CASTINGS CONFORMING TO ASTM B 108-50T, ALLOY SG70A O (S) SAND MOLD CASTINGS CONFORMING TO ASTM B 26-50T, ALLOY

STAINLESS STEEL BOLTS AND CAP SCREWS SHALL BE AUSTENITIC STAINLESS STEEL.

END OF TUBE SECTIONS SHALL BE SAWED OR MILLED. CUT ENDS BE TRUE, SMOOTH AND FREE FROM BURRS OR RAGGED EDGES.

ALL WELDING SHALL BE METAL INERT GAS PROCESS.

RAILINGS SHALL BE FABRICATED AND ERECTED SO THAT THE RAIL PARALLEL TO THE TOP OF THE SIDEWALK AND THE POSTS ARE TRU VERTICAL.

ALL ALUMINUM SURFACES IN CONTACT WITH CONCRETE SHALL BE G ONE SHOP COAT OF ZINC CHROMATE PAINT.

THE BOTTOM OF RAIL POSTS IN CONTACT WITH CONCRETE SHALL BE COATED 1/15" THICK AND THE RECESS IN THE BASE COMPLETELY WITH CAULKING COMPOUND GRADE I FOR GUN APPLICATION, WHITE NATURAL OR GREY IN COLOR, FURNISHED IN CARTRIDGES, AND CO ING TO THE LATEST FEDERAL SPEC. TT-C-598. APPLICATION BE MADE TO A CLEAN DRY SURFACE ABOVE 40° F. THE COMPOUN SHALL BE PLACED WITH CARE TO PREVENT SMEARING THE AREA OU AND AROUND THE BASE OF THE POST.

MINIMUM RAIL LENGTHS SHALL EQUAL AT LEAST THREE POST SPACE

ALL RAILS, POSTS, AND POST BASES, SPLICE BARS, ANCHOR BOLT ASSEMBLIES, END CAPS, CLAMP BARS, BOLTS, SHIMS, PAINT AND COMPOUND SHALL BE INCLUDED IN THE PRICE BID FOR "ORNAMENTA METAL RAILING".

END POST QUANTITIES ARE INCLUDED IN THE SUPERSTRUCTURE QUA ON THE SLAB SHEET. PAY LENGTH FOR ORNAMENTAL METAL RAILIN ALSO GIVEN ON THE SLAB SHEET.

POSTS MAY BE CAST ALUMINUM ALLOY A344-T4 SAND OR PERM MOLD CASTINGS CONFORMING TO ASTM DESIGNATIONS B26 OR RESPECTIVELY.

* BAR LIST (TWO END PO

MARK	NO.	SIZE	LENGTH	SH
P9	8	4	3'-0"	Str.
P10	4	5	3'-3"	Field
P11	4	4	3'-3"	Str.
P12	3	5	3'-6"	Str.
P13	4	5	4'-0"	"
P14	2	5	4'-6"	"
P15	3	5	4'-9"	"

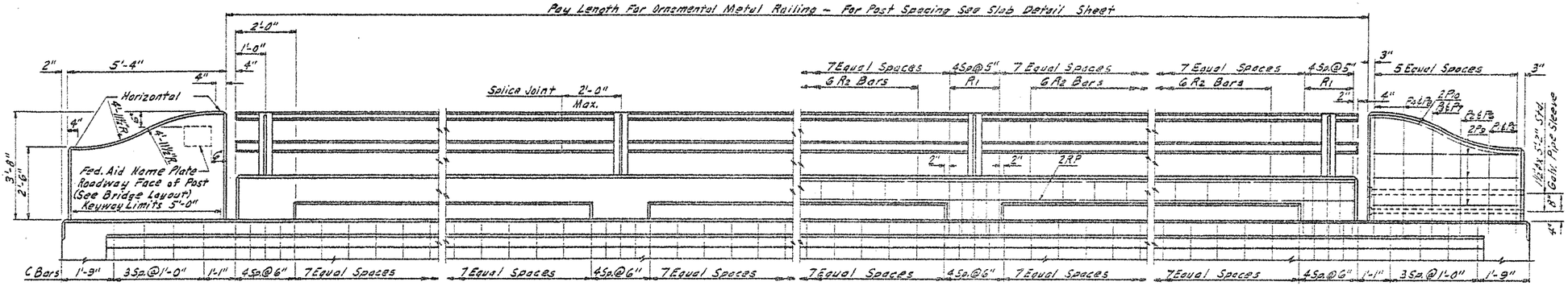
* These bars are also included in the Superstructure Bar List

STANDARD ALUMINUM RAILING

H-0143

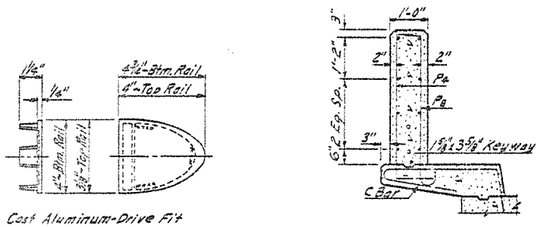
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.
5	N.D.			19

Pay Length For Ornamental Metal Railing – For Post Spacing See Slab Detail Sheet



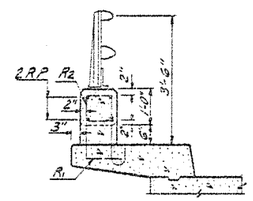
PART ELEVATION

Abutment Wings Not Shown

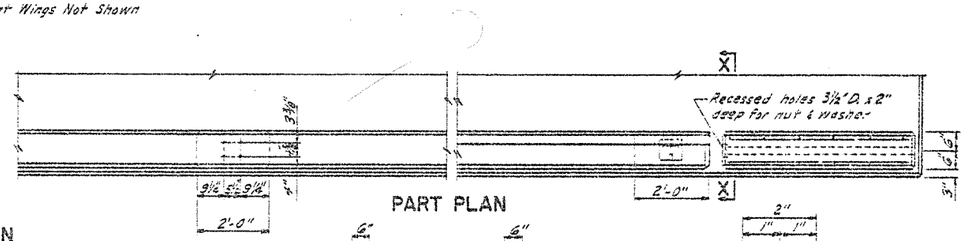


RAIL CAP

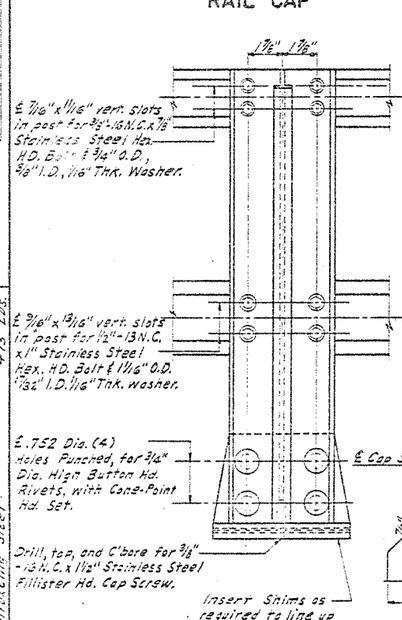
X-X

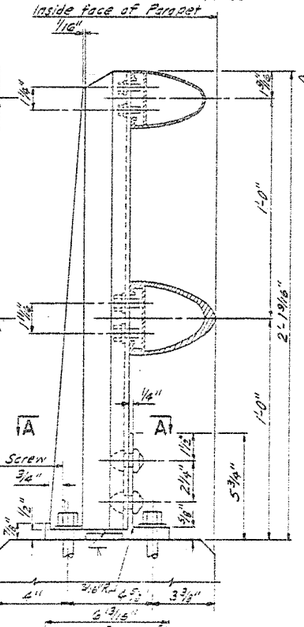


TYPICAL SECTION

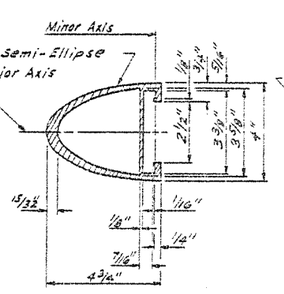


PART PLAN

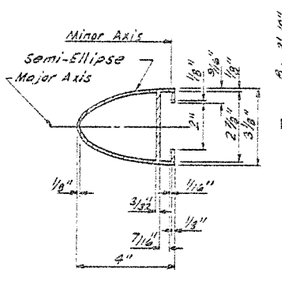




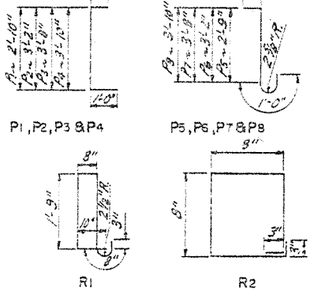
A-A RAIL POST DETAILS



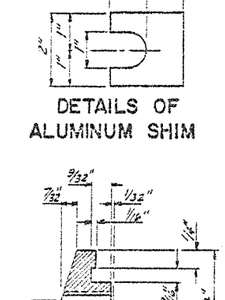
BOTTOM RAIL



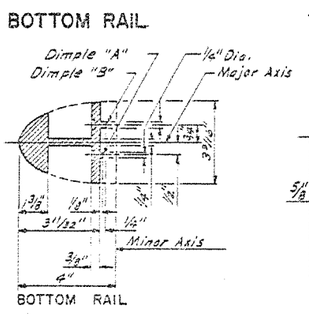
TOP RAIL



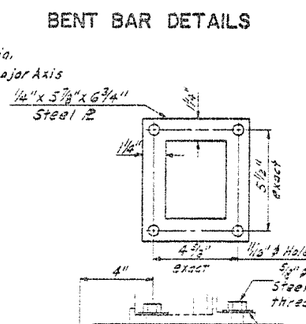
BENT BAR DETAILS



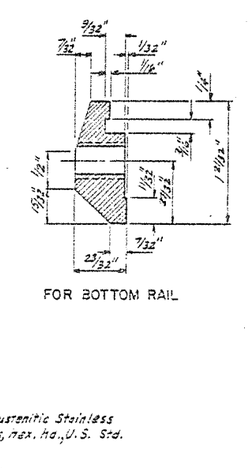
DETAILS OF ALUMINUM SHIM

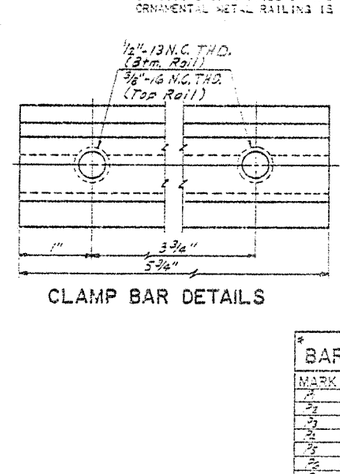


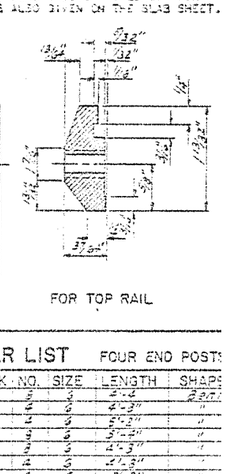
SECTIONS THRU RAIL SPLICES



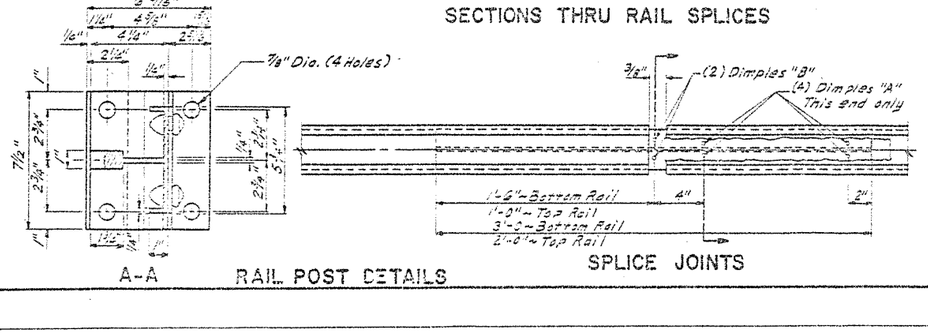
ANCHOR BOLT ASSEMBLY







SECTIONS THRU RAIL SPLICES



A-A RAIL POST DETAILS — SPLICE JOINTS

NOTES:

POSTS MAY BE CAST ALUMINUM ALLOY A344-T4 SAND OR PERM MOLD CASTINGS CONFORMING TO ASTM DESIGNATIONS B26 OR B RESPECTIVELY

ALL CONCRETE IN END POSTS AND PARAPETS SHALL BE CLASS AE AND SHALL BE GIVEN THE "RUBBED SURFACE FINISH".

RAIL POSTS, POST BASES, SPLICE BARS, AND RAILS SHALL CONFORM TO ASTM B 221, ALLOY 6061 OR 6062-T6.

ALUMINUM WASHERS SHALL CONFORM TO ASTM B 209, ALLOY ALCU 2024-T3.

RIVETS SHALL CONFORM TO ASTM B 316 OR B 221, ALLOY 6061 6062-T6. RIVETS SHALL BE BUTTON HEAD AND CONE POINT, COLD DRIVEN.

RAILING END CAPS SHALL BE EITHER (1) ALUMINUM ALLOY PERMANENT MOLD CASTINGS CONFORMING TO ASTM B 108-59T, ALLOY 5070A OR (2) SAND MOLD CASTINGS CONFORMING TO ASTM B 26-60T ALLOY 43F.

STAINLESS STEEL BOLTS AND CAP SCREWS SHALL BE AUSTENITIC STAINLESS STEEL.

ENDS OF TUBE SECTIONS SHALL BE SAWED OR MILLED. CUT ENDS SHALL BE TRUE, SMOOTH AND FREE FROM BURRS OR RAGGED EDGES

ALL WELDING SHALL BE METAL INERT GAS PROCESS.

RAILINGS SHALL BE FABRICATED AND ERECTED SO THAT THE RAIL ARE PARALLEL TO THE TOP OF THE PARAPET AND THE POSTS ARE TRULY VERTICAL.

ALL ALUMINUM SURFACES IN CONTACT WITH CONCRETE SHALL BE GIVEN ONE SHOP COAT OF ZINC CHROMATE PAINT.

THE BOTTOM OF RAIL POSTS IN CONTACT WITH CONCRETE SHALL B COATED 1/16" THICK AND THE RECESS IN THE BASE COMPLETELY FILLED WITH CAULKING COMPOUND GRADE 1 FOR GUN APPLICATION (WHITE, NATURAL OR GREY IN COLOR, FURNISHED IN CARTRIDGES CONFORMING TO THE LATEST FEDERAL SPEC. ——). APPLICATION SHALL BE MADE TO A CLEAN DRY SURFACE ABOVE MO THE COMPOUND SHALL BE PLACED WITH CARE TO PREVENT SMEARI THE AREA OUTSIDE AND AROUND THE BASE OF THE POST.

MINIMUM RAIL LENGTHS SHALL EQUAL AT LEAST THREE POST SPAC

TO REDUCE SHRINKAGE STRESSES, THE PARAPET SHALL BE POURED ALTERNATE SECTIONS NOT MORE THAN SIX PANELS LONG AND AT LEAST 3 DAYS SHALL ELAPSE BEFORE THE INTERVENING SECTIONS POURED. PLAIN BUTT JOINTS WITH THE LONGITUDINAL BARS EXTENDING THROUGH SHALL BE MADE BETWEEN SECTIONS.

ALL RAILS, POSTS, POST BASES, SPLICE BARS, ANCHOR BOLT ASSEMBLIES, END CAPS, SHIMS, BOLTS, SHIMS, PAINT, AN COMPOUND SHALL BE INCLUDED IN THE BRIDGE BID FOR "ORNAMENTAL METAL RAILING".

END POST AND PARAPET QUANTITIES ARE INCLUDED IN THE SUPER STRUCTURE QUANTITIES ON THE SLAB SHEET. ANY LENGTH FOR ORNAMENTAL METAL RAILING IS ALSO GIVEN ON THE SLAB SHEET.

QUANTITIES FOR 4 END POSTS

Concrete, Class AE-1	2.4 Cu.Yd.
Reinforcing Steel	473 Lbs.

* BAR LIST FOUR END POSTS

MARK	NO.	SIZE	LENGTH	SHAPE
A1	4	6	2'-4	Bent
A2	4	6	4'-3"	"
A3	4	6	5'-2"	"
A4	4	6	5'-10"	"
A5	4	6	4'-3"	"
A6	4	6	2'-3"	"
A7	4	6	5'-2"	"
A8	4	6	5'-10"	"
A9	4	6	5'-2"	"
A10	22	4	5'-0"	Str.
A11	3	5	5'-3"	Bent B

* These bars are also included in the Superstructure Bar List.

STANDARD PARAPET WITH ALUMINUM RAILING

H-0141

H-0

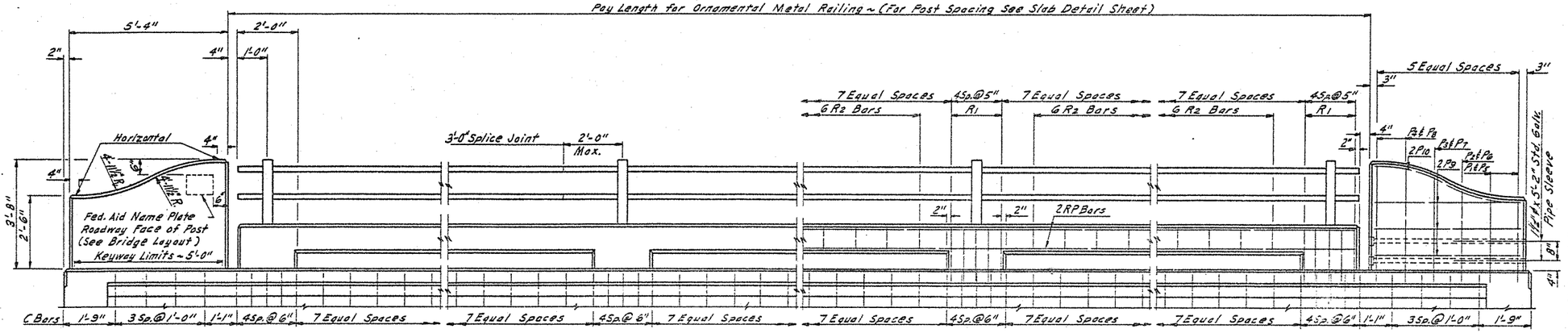
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.
5	N.D.			20

DESIGN	DETAILS	TRACING	QUANTITIES
MADE BY F.D.H.	MADE BY M.E.H.	MADE BY C.A.H.	MADE BY M.E.H.
CHECKED BY M.E.H.	CHECKED BY C.A.H.	CHECKED BY C.A.H.	CHECKED BY F.D.H.

CHK'D. BY — DATE

REVISIONS

Pay Length for Ornamental Metal Railing ~ (For Post Spacing See Slab Detail Sheet)



NOTES:

ALL CONCRETE IN END POSTS AND PARAPETS SHALL BE CLASS AE AND SHALL BE GIVEN THE "RUBBED SURFACE FINISH".

RAIL POSTS SHALL BE MALLEABLE IRON CASTINGS CONFORMING TO ASTM A-47, GRADE 35018 OR SHALL BE STEEL CASTINGS CONFORMING TO AASHO DESIGNATION M-192, CLASS 70. TOP RAILS SHALL BE STEEL SPLIT TUBING CONFORMING TO ASTM A-245, GRADE C. BOTTOM RAILS SHALL BE STEEL SPLIT TUBING CONFORMING TO ASTM A-[illegible].

RAILS SHALL BE GALVANIZED ACCORDING TO THE LATEST ASTM A- SPECIFICATIONS. RAIL POSTS AND HARDWARE SHALL BE GALVANIZED ACCORDING TO THE LATEST ASTM A-153 SPECIFICATIONS.

RAILINGS SHALL BE FABRICATED AND ERECTED SO THAT THE RAILS ARE PARALLEL TO THE TOP OF THE PARAPET AND THE POSTS ARE TRULY VERTICAL.

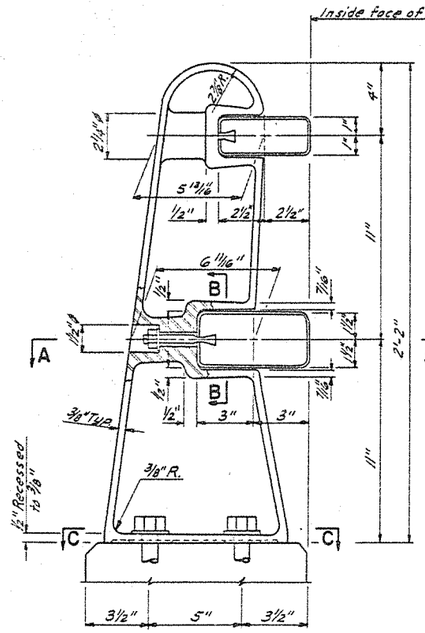
THE BOTTOM OF RAIL POSTS IN CONTACT WITH CONCRETE SHALL BE COATED 1/16" THICK AND THE RECESS IN THE BASE COMPLETELY FILLED WITH CAULKING COMPOUND GRADE I FOR GUN APPLICATION WHITE, NATURAL OR GREY IN COLOR, FURNISHED IN CARTRIDGES, AND CONFORMING TO THE LATEST FEDERAL SPEC. TT-C-[illegible]. APPLICATION SHALL BE MADE TO A CLEAN DRY SURFACE ABOVE [illegible] THE COMPOUND SHALL BE PLACED WITH CARE TO PREVENT SMEARING AREA OUTSIDE AND AROUND THE BASE OF THE POST.

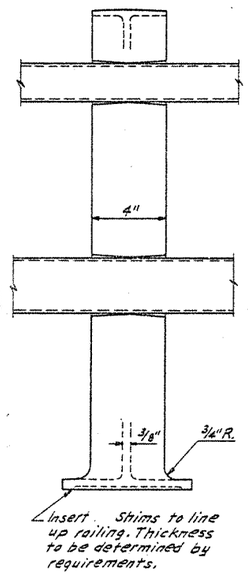
MINIMUM RAIL LENGTHS SHALL EQUAL AT LEAST THREE POST SPA[illegible]

TO REDUCE SHRINKAGE STRESSES THE PARAPET SHALL BE POURED IN ALTERNATE SECTIONS NOT MORE THAN SIX PANELS LONG AND AT LEAST 3 DAYS SHALL ELAPSE BEFORE THE INTERVENING SECTIONS ARE P[illegible] PLAIN BUTT JOINTS WITH THE LONGITUDINAL BARS EXTENDING TH[illegible] SHALL BE MADE BETWEEN SECTIONS.

ALL RAILS, RAIL POSTS, ANCHOR BOLT ASSEMBLIES, BOLTS, SHI[illegible] END CAPS, AND COMPOUND SHALL BE INCLUDED IN THE PRICE BID "ORNAMENTAL METAL RAILING".

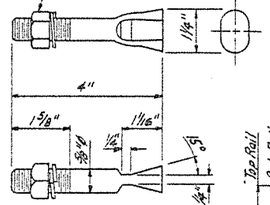
END POST AND PARAPET QUANTITIES ARE INCLUDED IN THE SUPER[illegible] STRUCTURE QUANTITIES ON THE SLAB SHEET. PAY LENGTH FOR ORNAMENTAL METAL RAILING IS ALSO GIVEN ON THE SLAB SHEET.





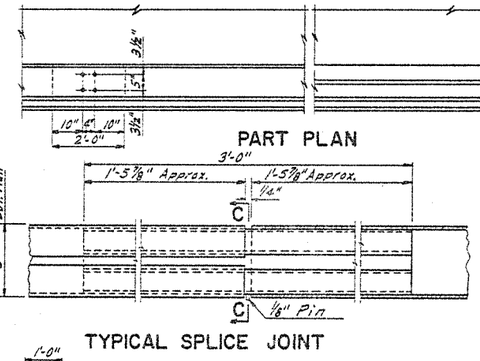
PART ELEVATION

Abutment Wings Not Shown



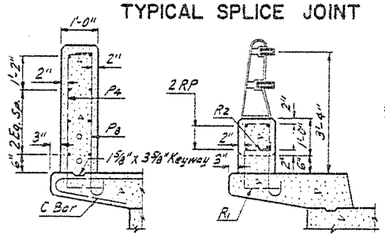
Wedge bolt, nut & washer galvanized.

WEDGE BOLT

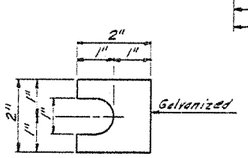


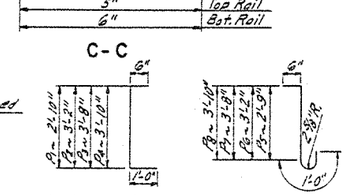
PART PLAN

TYPICAL SPLICE JOINT

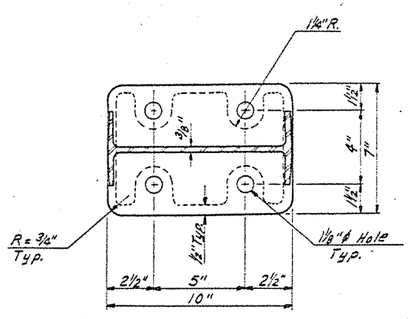


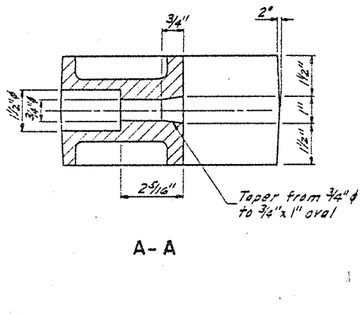
SHIM DETAILS

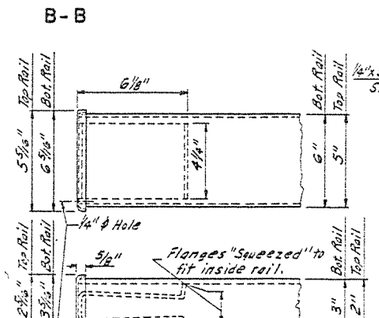


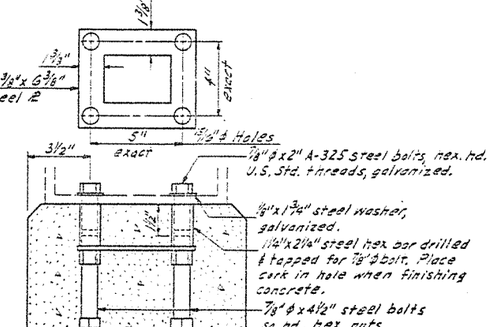


BENT BAR DETAILS









RAIL POST DETAILS

QUANTITIES FOR 4 END POSTS	
Concrete Class AE-1	2.4 C.Y.
Reinforcing Steel	473 Lbs.

* BAR LIST (FOUR END PO[illegible]

MARK	NO.	SIZE	LENGTH	S[illegible]
P1	8	6	4'-2"	
P2	4	6	4'-8"	
P3	4	6	5'-0"	
P4	8	6	5'-2"	
P5	8	6	4'-5"	
P6	4	6	4'-0"	
P7	4	6	3'-8"	
P8	8	6	3'-2"	
P9	2*	4	3'-0"	
P10	8	5	3'-3"	P[illegible]

* These bars are also inc[illegible] in the Superstructure Bar Lis[illegible]

STANDARD PARAP[illegible]

WITH STEEL

RAILING

H-0140

H-[illegible]

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHT. NO.
5	N.D.			2

DESIGN — DETAILS — TRACING — QUANTITIES

DATE	BY	REVISIONS
	CHK'D BY	

MADE BY M.A.H. — CHECKED BY M.E.W.

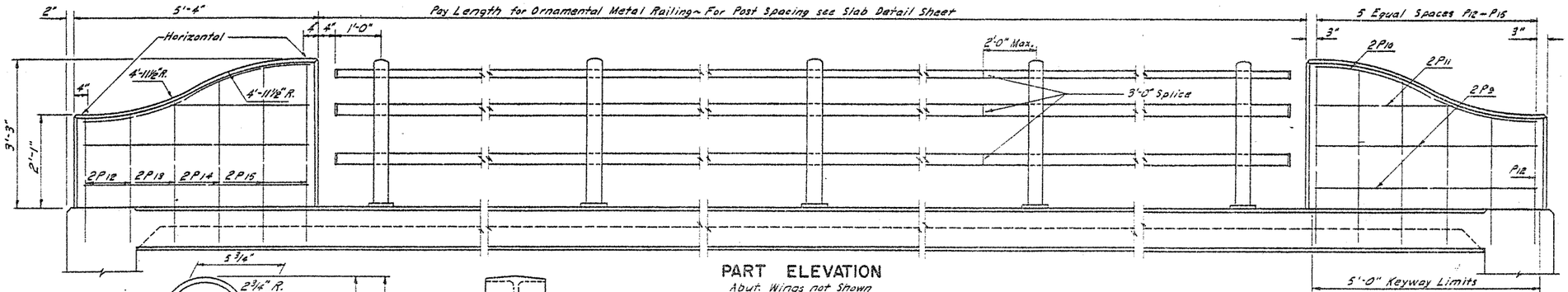
MADE BY M.A.H. — CHECKED BY M.E.W.

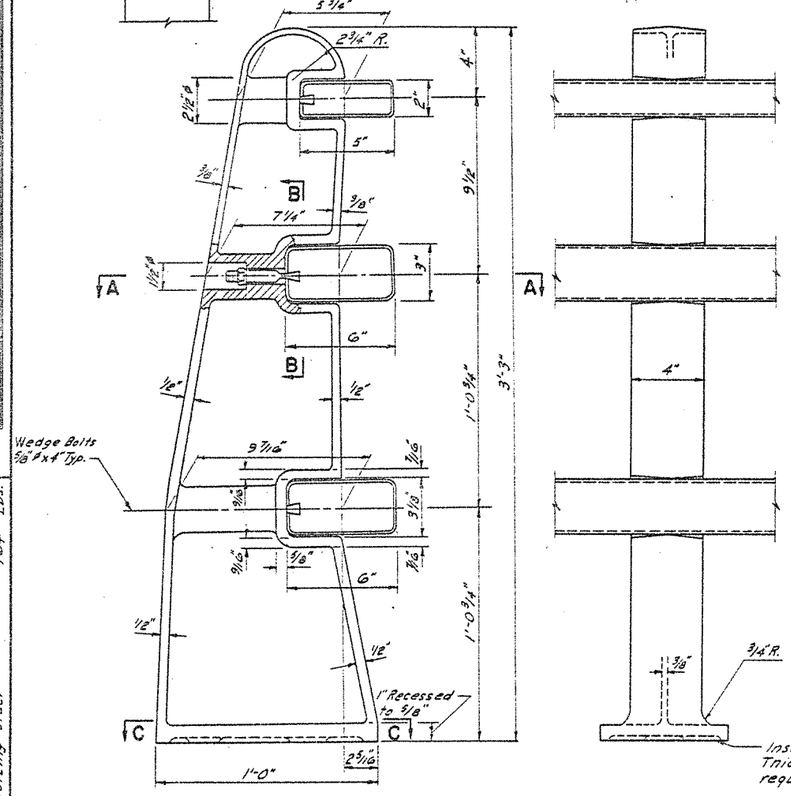
MADE BY M.A.H. — CHECKED BY M.E.W.

MADE BY M.A.H. — CHECKED BY M.E.W.

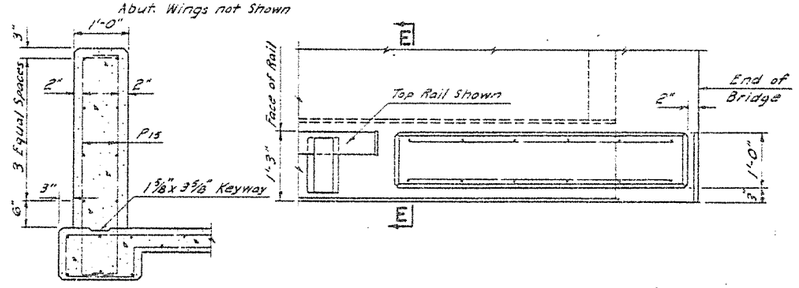
QUANTITIES FOR 2 END POSTS

Concrete Class AE-1	1.0 Cu.Yd.
Reinforcing Steel	16# Lbs.

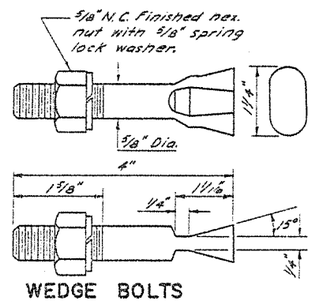




PART ELEVATION
Adjt. Wings not Shown

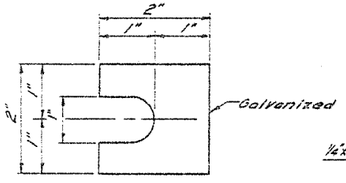


SECTION E-E

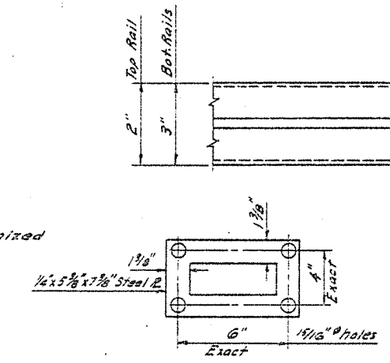


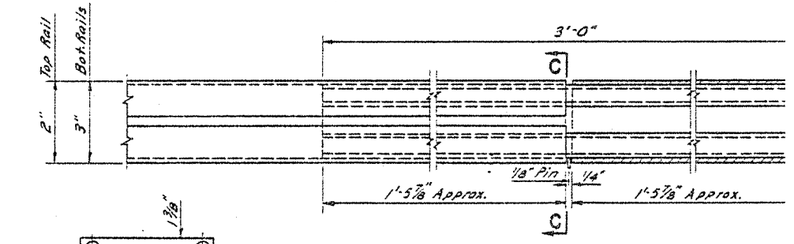
WEDGE BOLTS
Galv. bolt, nut and washer

PART PLAN
Adjt. Wings not Shown

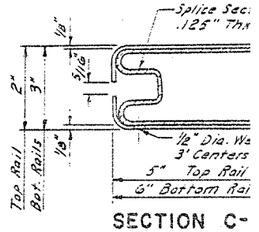


SHIM DETAILS

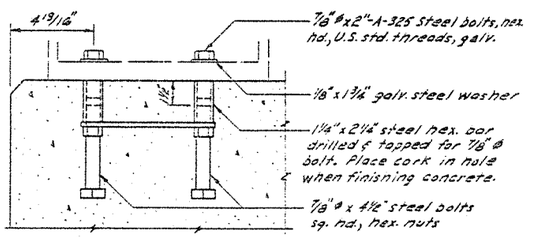




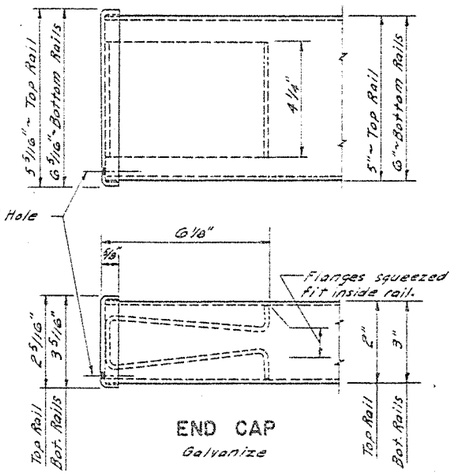
TYPICAL SPLICE JOINT



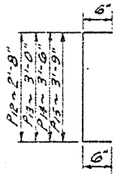
SECTION C-



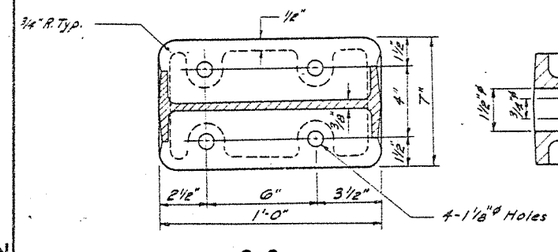
ANCHOR BOLT ASSEMBLY



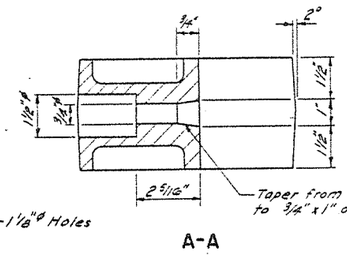
END CAP
Galvanize



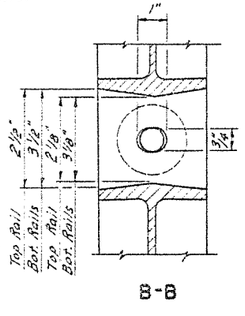
BENT BAR DETAILS



C-C



A-A



B-B

RAIL POST DETAILS

NOTE:

ALL CONCRETE IN END POSTS SHALL BE CLASS AE-1 AND SHALL BE G THE "RUBBED SURFACE FINISH".

RAIL POSTS SHALL BE MALLEABLE IRON CASTINGS CONFORMING TO AS GRADE 35018 OR SHALL BE STEEL CASTINGS CONFORMING TO AASHO DESIGNATION M-192, CLASS 70. RAILS SHALL BE STEEL SPLIT TUB CONFORMING TO ASTM A-245, GRADE C.

RAILS SHALL BE GALVANIZED ACCORDING TO THE LATEST ASTM A-123 SPECIFICATIONS. RAIL POSTS AND HARDWARE SHALL BE GALVANIZED ACCORDING TO THE LATEST ASTM A-153 SPECIFICATIONS.

RAILINGS SHALL BE FABRICATED AND ERECTED SO THAT THE RAILS AR PARALLEL TO THE TOP OF THE SIDEWALK AND THE POSTS ARE TRULY V

THE BOTTOM OF RAIL POSTS IN CONTACT WITH CONCRETE SHALL BE CO 1/16" THICK AND THE RECESS IN THE BASE COMPLETELY FILLED WITH CAULKING COMPOUND GRADE I FOR GUN APPLICATION, WHITE, NATURAL GREY IN COLOR, FURNISHED IN CARTRIDGES, AND CONFORMING TO THE LATEST FEDERAL SPEC. TT-C-598. APPLICATION SHALL BE MADE TO CLEAN DRY SURFACE ABOVE 40°F. THE COMPOUND SHALL BE PLACED CARE TO PREVENT SMEARING THE AREA OUTSIDE AND AROUND THE BASE THE POST.

MINIMUM RAIL LENGTHS SHALL EQUAL AT LEAST THREE POST SPACES.

ALL RAILS, RAIL POSTS, ANCHOR BOLT ASSEMBLIES, BOLTS, SHIMS, CAPS AND COMPOUND SHALL BE INCLUDED IN THE PRICE BID FOR "ORNAMENTAL METAL RAILING".

END POST QUANTITIES ARE INCLUDED IN THE SUPERSTRUCTURE QUANTI ON THE SLAB SHEET. PAY LENGTH FOR ORNAMENTAL METAL RAILING I GIVEN ON THE SLAB SHEET.

*BAR LIST (2 END PO

MARK	NO.	SIZE	LENGTH	S
P9	8	4	3'-0"	
P10	4	5	3'-3"	Fie
P11	4	4	3'-2"	
P12	8	5	3'-8"	
P13	4	5	4'-0"	
P14	4	5	4'-6"	
P15	8	5	4'-9"	

*These bars are also incl in the Superstructure Ba

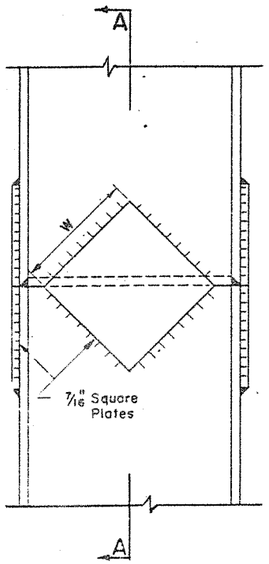
STANDARD STEEL RAILING

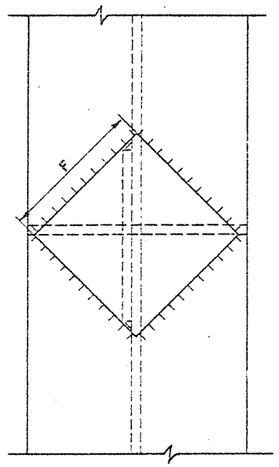
H-0142

H-014

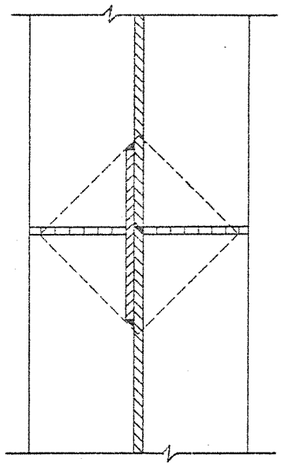
FED. ROAD DIV. NO.	STATE		FISCAL YEAR	SHEET NO.
5	N.C.	F5(15)		

DESIGN	MADE BY	CHECKED BY	MADE BY	CHECKED BY	MADE BY	CHECKED BY	MADE BY	CHECKED BY	MADE BY	CHECKED BY	MADE BY	CHECKED BY	REVISIONS	MADE BY	CHK'D BY	DATE
DET ILS													Added End Plate Detail	JLS	AJA	6-19-59
RACING																
QUANTITIES																

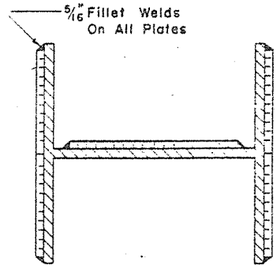




Flame Scarf Inside Of Both Flanges And One Side Of Web Of Upper Section

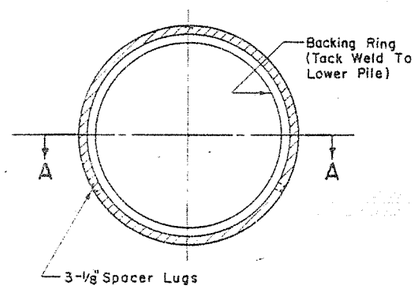


A-A

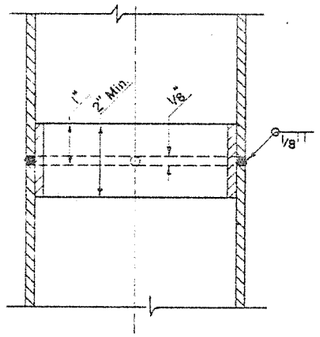


PILE	8"	10"	12"	14"
F FLANGE	5"	6½"	8"	10"
W WEB	4"	5½"	6½"	8"

H-PILE SPLICE DETAIL

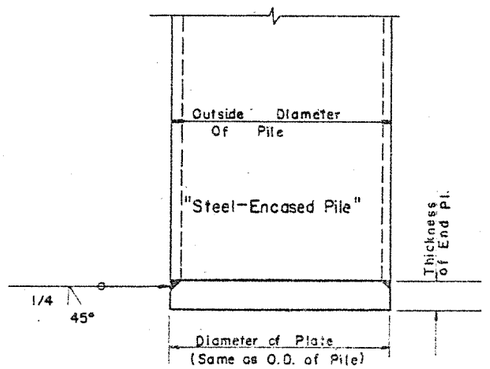


Backing Ring may be made from pile cut-offs or other material of a like quality.



A-A

SHELL PILE SPLICE DETAIL



END PLATE DETAIL

All welding shall conform to the current specification for "Welded Highway and Railway Bridges of the American Welding Society."
Backing rings and welding will not be paid for directly, but shall be included in the unit price bid for steel piles.

PILE SPLICE DETAILS

Revised 6-19-59

H-0401

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