

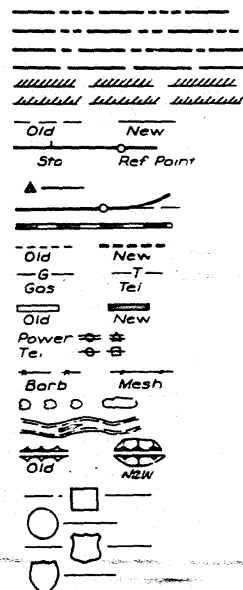
BRIDGE
BRF-5-4(16)--38-91
WARREN COUNTY

CONVENTIONAL SIGNS

State Line
Co. Line
Twp. Line
Sec. Line
Corp. Line
Urban Bdry
R.O.W. Lines
Survey Line

Sec. Corner
Profile Grade
Railroad
Field Tile
Underground Lines
Culverts
Utility Poles
Fences
Trees Or Brush
Stream
Dike

County Road No.
Primary Road No.
U. S. Road No.
Interstate Road No.



IOWA
DEPARTMENT OF TRANSPORTATION

Highway Division

PLANS OF PROPOSED IMPROVEMENT ON THE

PRIMARY ROAD SYSTEM

WARREN COUNTY

BRIDGE

9189.2 R.O.B.O.

ON IOWA 5 OVER NORTH RIVER WEST OF CARLISLE

SCALES AS NOTED

THE STANDARD SPECIFICATIONS, SERIES OF 1977
OF THE IOWA DEPARTMENT OF TRANSPORTATION,
SHALL APPLY TO CONSTRUCTION WORK ON THIS PROJECT

(PLUS CURRENT SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS)

SPECIFICATIONS:

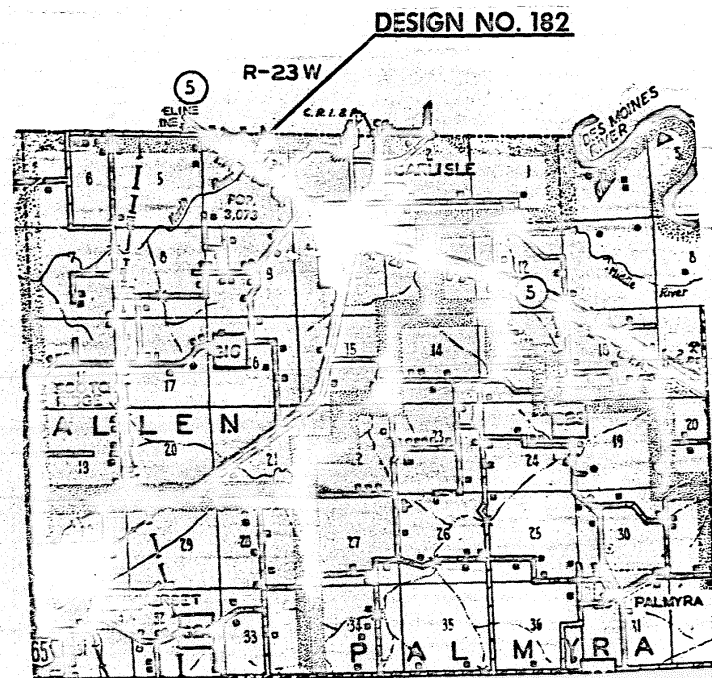
Design: AASHTO Series of 1977.

Construction: Iowa Department of Transportation Specification, Series of 1977, plus current Supplemental Specifications and Special Provisions.

Reinforcing Steel in accordance with Section 1.5, Grade 40 and Grade 60
Concrete in accordance with Section 1.5, f'c = 3,500 psi.

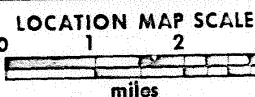
Prestressed Concrete in accordance with Section 1.6.6, f'c = 5,000 psi.

Prestressing Steel in accordance with Section 1.6.6, f's = 270,000 psi.



YEAR	WORK	CONTRACTOR	PROJ. INSPECTOR
1983	BRIDGE	UNITED CONTR. INC.	CHARLES CRITZ
1983	GRADING	MEANING CORP.	BOB NORTH
1983	PCC PAVING	GRADY UNLIMITED	CHARLES CRITZ

LOCATION MAP



CONSTRUCTION PLANS SHOWING PROJECT AS BUILT

Plan Preparation Supervised By: Thomas R. Johnston
Resident Construction Engineer
Date: 2-21-89
Iowa Reg. No. 10202

REVIEWED AND FORWARDED TO AMES

ROBERT YOUNIE Date: 2-27-89
District Construction Engineer

One 30% Reduced and Two Full-Size Prints To Be Made and Returned To

KEN MEEKS
District Engineer

AFTER MICROFILMING RETURN ORIGINAL
TO DISTRICT NO. 1

MILEAGE SUMMARY

DIV.	LOCATION	MIN. FT.	MILES
	STA. 1755+14.50 (OR) TO STA. 1759+25.00 (OR) DEDUCT FOR BRIDGE AT STA. 1757+00	410.50 221.00	
	NET LENGTH OF ROADWAY	119.50	0.023
	NET LENGTH OF BRIDGE	221.00	0.053
	TOTAL LENGTH OF ROADWAY	410.50	0.078

CORRECTED BY: GARY GRAY

CHECKED BY: HANK BERRY

STANDARD ROAD PLANS

The following Standard Road Plans shall be considered applicable to
construction work on this project.

IDENT	DATE	IDENT	DATE	IDENT	DATE
RE-2	8-16-71	RE-12	4-20-79	RE-24	8-1-77
RE-40A	9-10-81	RE-49	10-15-82	RE-47	8-24-79
RE-59	6-8-77	RE-1	9-5-70	RE-52	12-5-80
RE-5	1-4-77	RE-32	6-8-75	RE-5	12-9-77
RE-31	12-3-76	RE-22	12-23-74	RE-30A	4-1-77
RE-2	1-2-77	RE-1	4-25-82	RE-57B	4-6-80
RL-4	8-2-72	RL-7	1-9-70	RL-11	4-20-79
RC-12	9-21-71	RC-15	9-18-81	RL-2A	5-5-73
RC-13	10-10-73	RE-7	11-8-74		

140

DESIGN DATA-RURAL

1984 A.A.D.T. 10 210 V.P.D.
2004 A.A.D.T. 15 400 V.P.D.
2004 DIV. 1 60 V.P.H.
TRUCKS 7 %

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED
UNDER MY SUPERVISION AND THAT ENGINEERING
DECISIONS WITH REGARD TO THE DESIGN WERE
MADE BY ME OR BY OTHER DULY REGISTERED
PROFESSIONAL ENGINEERS UNDER THE LAWS OF
THE STATE OF IOWA

2792 3-15-83
IOWA REGISTRATION NUMBER DATE

STATE	PROJECT NO.	LOCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA			1	45
R.O.W. PROJECT NUMBER				
PRELIMINARY ENGINEER NUMBER				

INDEX OF SHEETS

NO.	DESCRIPTION
1	TITLE SHEET
2	ESTIMATE SHEET
3-14	BRIDGE DESIGN NO. 182
15-45	ROAD PLANS FOR DESIGN NO. 182

DEPARTMENT OF TRANSPORTATION, HIGHWAY DIVISION
STANDARDS REQUIRED (Available at Bridge Design Services)

STANDARD ISSUED REVISED



U.S. DEPT. TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
APPROVED
DIVISION ENGINEER DATE

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT PERSONAL SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF IOWA.

March 15, 1983 James R. Sassaman REG. NO. 2663
DATE JAMES R. SASSAMAN

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED UNDER MY SUPERVISION AND THAT ENGINEERING DECISIONS WITH REGARD TO THE DESIGN WERE MADE BY ME OR BY OTHER DULY REGISTERED PROFESSIONAL ENGINEERS UNDER THE LAWS OF THE STATE OF IOWA.

March 15, 1983 Iowa REG. NO. 5797

IN LETTING OF MAY 10, 1983	DESIGN NO. 182 OVER NORTH RIVER STA. 1757+00.00 WARREN COUNTY (O.R.) SECTION 4 T-77N R-23W ALLEN TWP.			
	DESIGN FOR 288' x 44' PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE			
	ESTIMATE OF QUANTITIES			
	NO.	ITEM	UNIT	TOTAL
	1	Structural Concrete	Cu. Yds.	733.7
	2	Reinforcing Steel	Lbs.	96,190
	3	Reinforcing Steel - Epoxy Coated	Lbs.	61,317
	4	Pretensioned Prestressed Concrete Beams-D95	No.	21
	5	Concrete Barrier Rail	Lin. Ft.	630.0
	6	HP10x42 Steel Bearing Piling - Furnish	Lin. Ft.	3,677.4
	7	HP10x42 Steel Bearing Piling - Drive	Lin. Ft.	3,189.5
	8	Prebored Holes	Lin. Ft.	240
	9	Subdrain	Lin. Ft.	220
	10	Granular Backfill	Cu. Yds.	154
	11	Class 20 Excavation	Cu. Yds.	162
	12	Class 21 Excavation	Cu. Yds.	355
	13	Removal of Existing Structures	L.S.	Lump Sum \$ 29,000.00

ESTIMATE REFERENCE INFORMATION		100-4
Data listed below is for informational purposes only and shall not constitute a basis for any extra work orders.		
ITEM NO.	DESCRIPTION	
1	The slab & diaphragms and abutment wings, 453.3 cu. yds., are to be Class "D" Concrete. The remainder, 294.8 cu. yds. is to be Class "C" Concrete. Includes cost of all Preformed Expansion Joint Filler required. Includes 10 drains at 104 lbs. each.	
3	Includes 27,333 lin. ft. #5 bar, 15,780 lin. ft. #6 bar and 3411 lin. ft. #8 bar.	
4	Includes cost of pier and abutment bearing material required.	
8	Includes the cost of casing or drilling mud required to maintain voids during pile driving and also the costs of backfilling with dry sand after pile driving.	
9	Includes labor and excavation necessary for the subdrain installation.	

ESTIMATED PROJECT QUANTITIES				100-0
No.	ITEM	UNIT	TOTAL	
14	Class 10 Excavation (Roadway and Borrow)	Cu. Yds.	21,966	
15	Class 10 Channel Excavation	Cu. Yds.	9 144	
16	Class 12 Excavation (Boulders)	Cu. Yds.	5	
17	Class 20 Excavation	Cu. Yds.	383	
18	Overhaul	Sta. Yds.	547.018	
19	Special Backfill	Tons	420	
20	Porous Backfill	Cu. Yds.	2.6	
21	Removal of Old Pavement	Sq. Yds.	664	
22	Barricades		3	
23	42" Concrete Roadway Pipe Culvert	Lin. Ft.	100	
24	48" Corrugated Metal Roadway Pipe Culvert	Lin. Ft.	92	
25	30" Corrugated Metal Roadway Pipe Culvert	Lin. Ft.	52	
26	30" Unclassified Entrance Pipe Culvert	Lin. Ft.	122	
27	42" Concrete Aprons	No.	2	
28	48" Metal Aprons	No.	4	
29	30" Metal Aprons	No.	2	
30	Engineering Fabric	Sq. Yds.	407	
31	Existing File Lines Deleted E.W.O. # 7014	Stas.	2	
32	10" P.C. Conc. Pavement Standard or Slipform Class C)	Sq. Yds.	225	
33	Reinforced Bridge Approach Section	Sq. Yds.	196	
34	Granular Surfacing of Shoulders	Tons	93.6	
35	Earth Shoulder Construction Deleted E.W.O. # 7015	Stas.	16	
36	Granular Surfacing on Road (Class A Crushed Stone)	Tons	334.9	
37	Formed Steel Beam Guardrail	Lin. Ft.	250	
38	Beam Guardrail Posts	No.	52	
39	RE-52 Beam Guardrail End Anchorages	No.	4	
40	Type 3 Object Markers (RE-47)	No.	4	
41	Sodding	Sqs.	12.38	
42	Special Ditch Control Jute Mesh over Sod	Sqs.	12.79	
43	Samples Deleted E.W.O. 7012	Lump Sum	0	
44	48" Corr. Metal Type A Diaphragm	No.	2	
45	30" Corr. Metal Type A Diaphragm	No.	1	
46	48" Corrugated Metal Elbows (7' 30")	No.	2	
47	30" Corrugated Metal Elbows (7' 30")	No.	1	
48	Removal of Object Markers	No.	12	
49	Silt Fence	Lin. Ft.	100	
50	Silt Fence for Ditch Checks	Lin. Ft.	97	
51	Strip, Salvage & Spreading Topsoil	Cu. Yds.	4 504	
52	Seeding, Fertilizing & Mulching	Acres	374	
53	4" Perforated Subdrain as per Plan	Lin. Ft.	90	
54	6" C.M.P. Subdrain Outlet	No.	2	
55	Traffic Control	Lump Sum	\$ 4000.00	
8001	Clearing & Grubbing	1200%	\$ 4755.00	
8002	Culvert Corrugated Metal Entr. Pipe 24"	Lin. Ft.	80	
8003	Cofferdam Additional Height	Lin. Ft.	22	
8004	Price Adjustment to Cofferdam Cost	L.S.	\$ 2670.85	
8005	Steel Diaphragms	Only	18	
8006	Mobilization	L.S.	\$ 575.00	
8007	Stabilizing Crop Seeding & Fert.	Acres	4.86	

ESTIMATE REFERENCE INFORMATION		100-1
Data listed below is for informational purposes only and shall not constitute a basis for any extra work orders.		
ITEM NO.	DESCRIPTION	
14	Includes all necessary excavation for the construction of the sideroad, safety ramp, guardrail sites. Project requires 13,361 cu. yds. of borrow material which is available from the borrow area at Sta. 59+00. See Schematic Haul Diagram for borrow location. Also includes 1175 cu. yds. of unsuitable material.	
15	To be wasted as per Note 213-1.	
18	Includes 0 sta. yds. calculated from a mass diagram and 498,751 sta. yds. by assuming a center of mass of borrow.	
19	Includes 384 Tons for bridge approaches as shown on detail sheets and 37 Tons for subgrade treatment. See Form 103-3.	
20, 30	For subdrains at bridge approaches. See detail sheets.	
21	Existing pavement shall be wasted as per Note 213-1. Refer to Tabulation Form 102-5 for details of existing pavement. Also includes 44 lineal feet of sawcut which shall be considered to this bid item.	
32	Coarse aggregate with Class 2 durability shall be furnished. Chart B of the Smoothness Specifications 913 shall apply. Includes CD Joints.	
33	Refer to Detail Sheets for details. Includes 50 lineal feet of 6" integral curb which shall be considered incidental to this bid item.	
34	For placement under the 3" granular surfaced shoulders which requires 54 cu. yds. and is available from the borrow.	
36	Estimated for the side road at a rate of 2,100 Tons per mile.	
37	Railing to be furnished in 25' lengths for RE-52 installation. Includes 4 - RE-49 beam guardrail bridge end anchorages.	
38	Refer to Tabulation Form 108-8 for details.	
40	Install only, use 4 object markers removed on Item 35.	
28, 29, 41, 42	For sod flumes at bridge approach sections, see modification typical to bridge approach for details.	
48	Object markers to be removed and stockpiled in the right of way to be picked up by State Maintenance Department. Salvage 4 object markers for reuse, See Note 27.	
52	Included for all disturbed areas as designated by the engineer. Seed mixture as follows: Fescue, Ky. 31 25 lbs. per acre Reed Canarygrass 10 lbs. per acre Birdsfoot Trefoll (Empire) 5 lbs. per acre Clover, Alsike 5 lbs. per acre Winter Rye 20 lbs. per acre Fertilizer Rate: 600 lbs. of 15-15-15 of equivalent chemically combined commercial fertilizer per acre. Mulch Rate: 1-1/2 Tons of dry cereal straw per acre.	
53, 54	For subdrains at bridge approaches, see detail sheets.	
54	Includes 0.2 cu. yds. Class "A" crushed stone. See Detail Sheet 500-7.	

ESTIMATE SHEET

FILE NO. 26596

WARREN COUNTY

PROJECT NUMBER	STATE	FED. ROAD DIST. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
BRF-5-4(16)--38-91	IOWA	5		2	45

TOTAL		ESTIMATED	BRIDGE	QUANTITIES	
ITEM NO.	ITEM	UNITS	2 PIERS	SUPERSTRUCTURE & 2 INTEG. ABUTS.	TOTAL
1	Structural Concrete	cu.yds.	248.8	484.9 484.9	733.7 733.7
2	Reinforcing Steel	lbs.	44,536	51,654 51,654	96,190 96,190
3	Reinforcing Steel - Epoxy Coated	lbs.		61,317	61,317
4	Pretensioned Prestressed Concrete Beams D95	number		21	21
5	Concrete Barrier Rail	lin.ft.			630.0
6	HP 10 x 42 Steel Furnish	lin.ft.	68 @ 30'	30 @ 60'	3,677.4 3,677.4
7	Bearing Piling Drive	lin.ft.	68 @ 30'	30 @ 60'	3,189.5 3,189.5
8	Prebored Holes	lin.ft.		30 @ 8'	240
9	Subdrain	lin.ft.			220 220
10	Granular Backfill	cu.yds.		154	154
11	Class 20 Excavation	cu.yds.	42	120	162
12	Class 21 Excavation	cu.yds.	355		355
13	Removal of Existing Structures	l.s.			29,000 29,000

NOTE: SEE PROJECT SHEET 16 OF 45 FOR ROADWAY WORK PORTION OF PROJECT QUANTITIES.

GENERAL NOTES:
 It is the intent of this design to replace the existing structure at this site with a new 288'-0" x 44' (D-Beam Series) Pretensioned Prestressed Concrete Beam Bridge.
 The road will be closed to traffic during construction.
 The Bridge Contractor will be the only contractor at the site and is responsible for the completion of all work as detailed or noted on these plans.

BRIDGE LOADING
 This bridge is designed for HS20-44 loading plus an allowance of 20 lbs. per sq. ft. of roadway for future wearing surface. The slab as shown includes 2" of wearing surface.

REMOVAL OF EXISTING STRUCTURES
 The lump sum bid for the "Removal of Existing Structures" shall include the removal and disposal of the existing structure (300'-0" x 26' Continuous Pony Truss Bridge on stub abutments and concrete diaphragm type piers, Design Number 248 Warren County) in accordance with Section 2401 of the Standard Specifications.
 The existing bridge is to become the property of the Bridge Contractor and is to be removed from the site by him. All broken concrete is to be disposed of as directed by the engineer.

Prints of the plans for the old bridge are available at the Ames office of the Iowa Department of Transportation. Quantities shown on the old design indicate there are about 207 cu.yds. of concrete in the superstructure, 437 cu.yds. in the substructure and about 181 tons of structural steel.

APPROACH GRADING
 The Bridge Contractor is to complete the approach grading, level off and shape the berms to the elevations and dimensions shown before the abutment piles are driven.

CLASS 20 EXCAVATION
 Excavation quantities are based on the assumption that the grading work and channel clearance has been completed, by the Bridge Contractor, prior to starting abutment and pier construction.

ABUTMENT PILE PLACEMENT
 Abutment piles are to be driven in oversize holes prebored to 8 feet below the bottom of abutment footing. The minimum diameter of the bored holes is to be 16 inches. These bored holes are to be maintained open during the driving of the piles to the extent that casing or drilling mud may be required for collapsing soils. Immediately after driving a pile, the void around the pile is to be filled with loose dry sand up to the bottom of footing elevation. Any drilling mud used shall be removed from the hole prior to placing the sand.
 The unit price bid for "Prebored Holes" shall be full compensation for boring holes, maintaining open holes during pile driving and filling voids with dry sand.

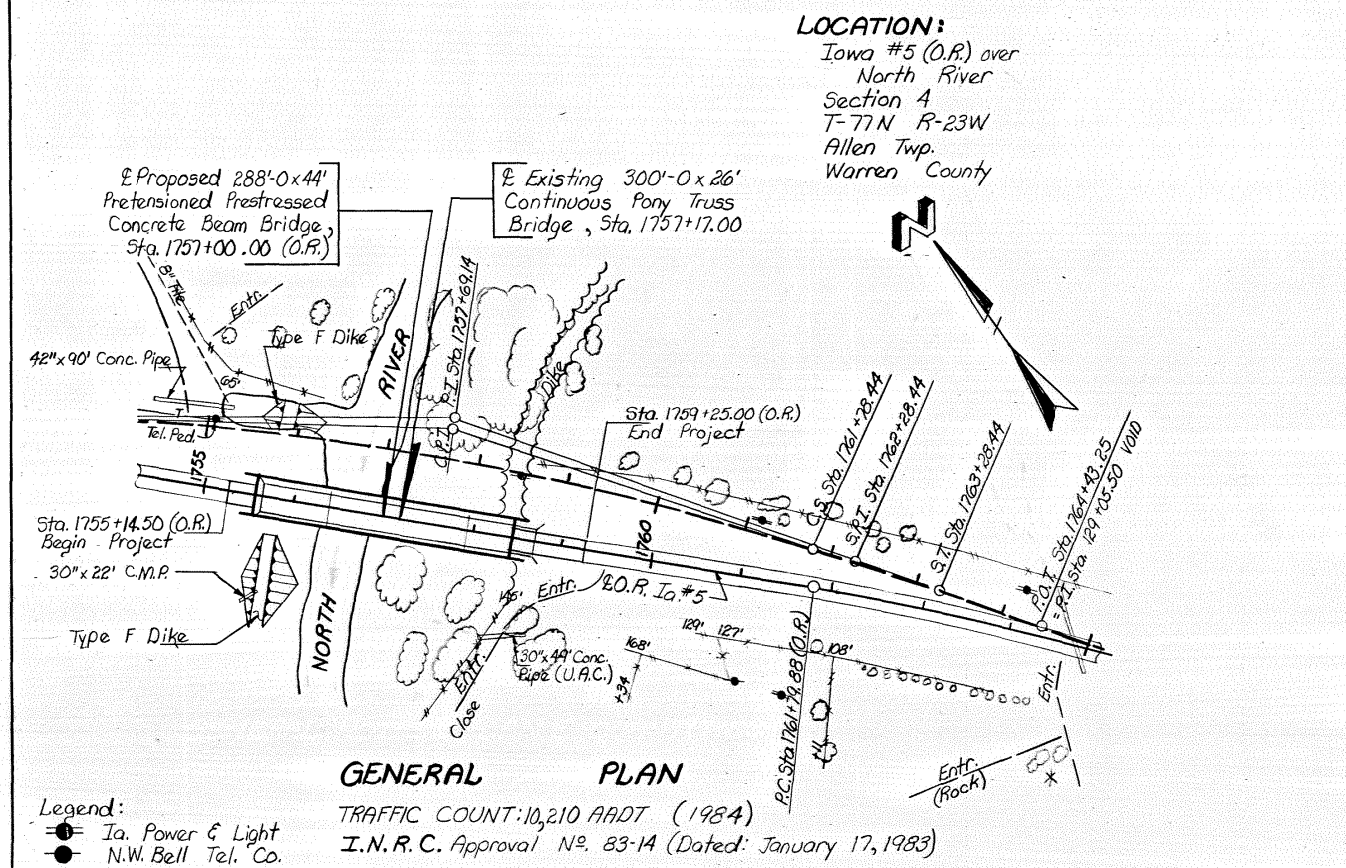
BEAM PREPARATION
 The portions of the prestressed beams that are embedded in the abutment and pier diaphragms shall be roughened by sand blasting or other approved methods to provide suitable bond between the beam and the diaphragm in accordance with Article 2403.15 of the Standard Specifications.

REINFORCING
 Unless otherwise specified, the reinforcement supplied for this structure may be grade 40, 50 or 60 reinforcement, in accordance with the Standard Specifications. The design stresses for all grades are based on 40 grade reinforcement.
 If 60 grade reinforcement is specified in the superstructure, pier or abutment notes then only 60 grade reinforcement shall be supplied for the part of the structure designated, and the design stresses are to be for 60 grade.

SUBDRAIN
 The Bridge Contractor is to install subdrains behind each abutment as detailed on des.shts. 2 & 5 of 12. The subdrain may be either drain tile or perforated plastic pipe with a minimum nominal diameter of 4 inches and a maximum nominal diameter of 6 inches. The price bid for "Subdrain" is to include all excavation and labor necessary for installation.

CLASS 10 CHANNEL EXCAVATION
 The Bridge Contractor is to clear the channel under the bridge as shown on the "Longitudinal Section Along E Roadway" on design sheet 2 of 12. See roadway notes and details for quantities.

- ITEM NO. ESTIMATE REFERENCE INFORMATION:
- The slab & diaphragms and abutment wings, 453.3 cu.yds., are to be Class "D" Concrete. The remainder, 294.8 cu.yds., is to be Class "C" Concrete. Includes cost of all Prefomed Expansion Joint Filler required. Includes 10 drains at 104 lbs. each.
 - Includes 27,333 lin.ft. #5 bar, 15,780 lin.ft. #6 bar and 3411 lin.ft. #8 bar.
 - Includes cost of pier and abutment bearing material required.
 - Includes the cost of casing or drilling mud required to maintain voids during pile driving and also the costs of backfilling with dry sand after pile driving.
 - Includes labor and excavation necessary for the subdrain installation.



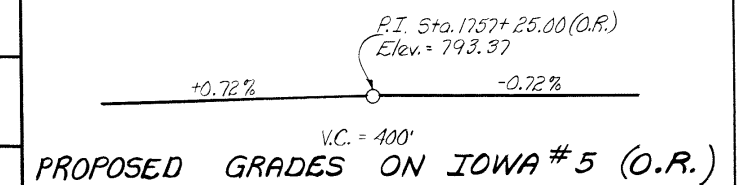
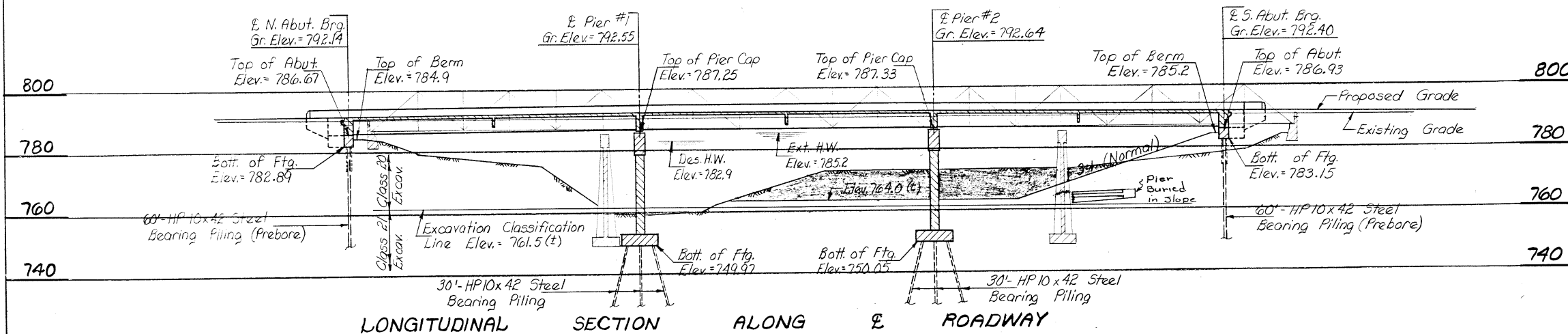
SPECIFICATIONS:
 Design: AASHTO Series of 1977.
 Construction: Iowa Department of Transportation Specifications, Series of 1977, plus current Supplemental Specifications and Special Provisions.

DESIGN STRESSES:
 Design Stresses for the following materials are in accordance with the AASHTO Standard Specifications for Highway Bridges, Series of 1977:
 Reinforcing Steel in accordance with Section 1.5, Grades 40 & 60.
 Concrete in accordance with Section 1.5, f'c = 3500 psi.
 Prestressed Concrete Beams, see design sheet 10 of 12.

Design For
288'-0" x 44' PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE
 95'-9" End Spans 96'-6" Interior Span
GENERAL NOTES & PLAN & QUANTITIES
 Station: 1757+00.00 (O.R.) March, 1985
WARREN COUNTY
 IOWA DEPARTMENT OF TRANSPORTATION-HIGHWAY DIVISION
 Design Sheet No.: 1 Of 12 File No.: 26596 Design No.: 182

PROJECT NUMBER	STATE	FED. ROAD DIST. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
BRF-5-4(16)--38-91	IOWA	5		3	45

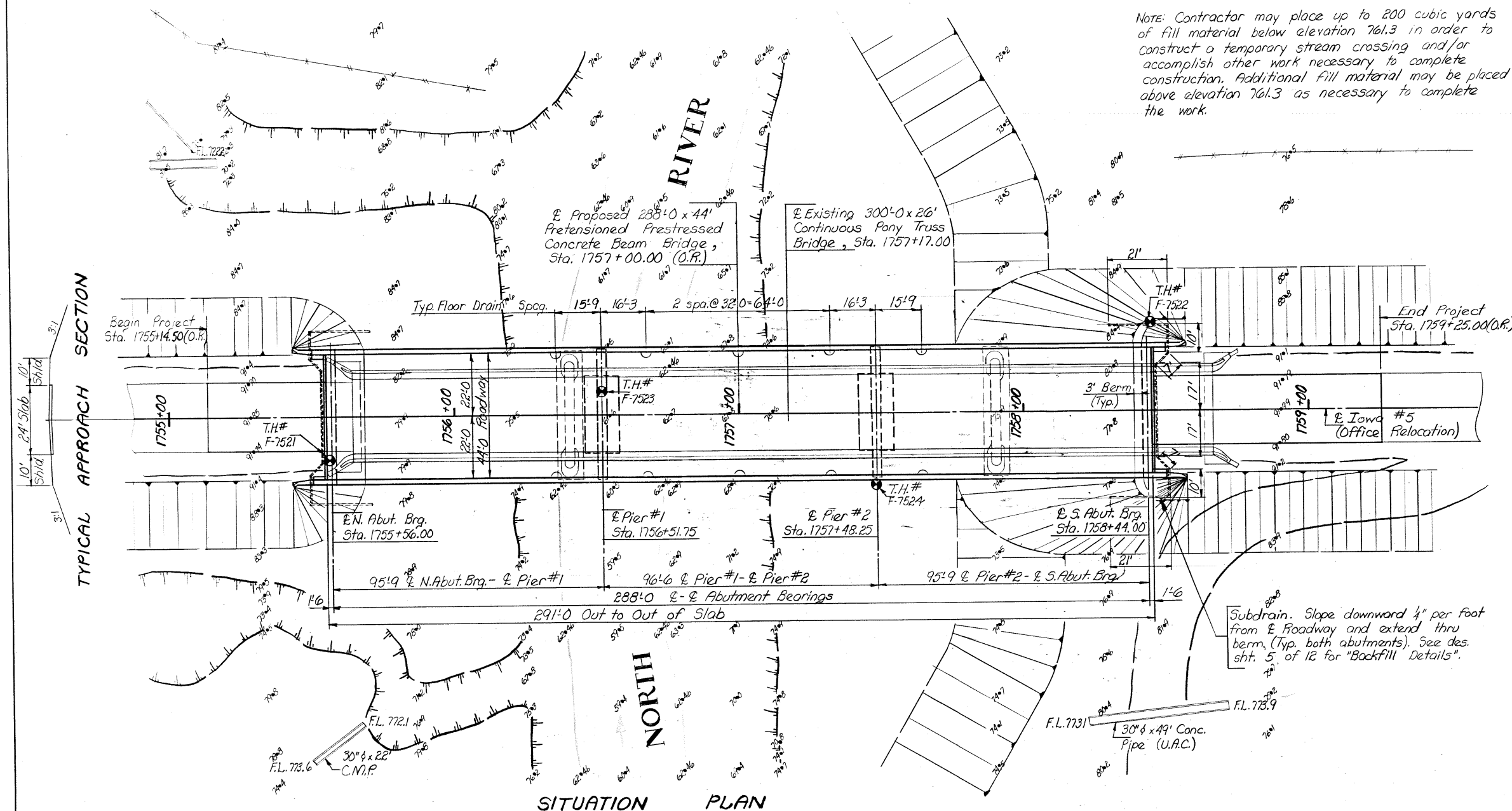
BENCH MARK: N^o. 2; Sta. 1754+00.50, 62' Lt., Found USC & GS BM #234 in N.W. Quad of Intersection, Elev. = 778.84.
No Sta 1758+55, 22 Rt. I.H.C.B.M. in Barrier Rail End Post S.E. Cor Bridge Elev. = 794.82



HYDRAULIC DATA:
Drainage Area: 401 sq. mi.
Q50: 20,700 c.f.s.
Natural Stage: 782.9
Q100: 24,000 c.f.s.
Natural Stage: 783.5
Q500: 34,200 c.f.s.
Natural Stage: 783.5
Ext. H.W. Elev. = 785.2 Date: June 1947

NOTE: Contractor may place up to 200 cubic yards of fill material below elevation 761.3 in order to construct a temporary stream crossing and/or accomplish other work necessary to complete construction. Additional fill material may be placed above elevation 761.3 as necessary to complete the work.

I.N.R.C. Approval N^o. 83-14 (Dated: January 17, 1983)



TRAFFIC COUNT: 10,210 AADT (1984)

LOCATION:
Iowa #5 (O.R.) over
North River
Section 4
T-77 N R-23W
Allen Twp.
Warren County

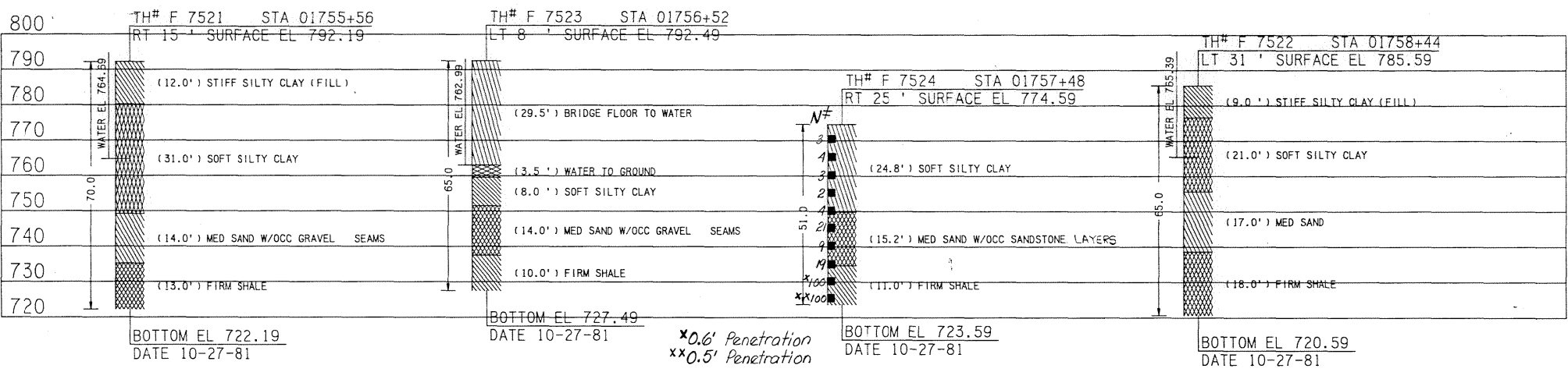
Design For
288'-0" x 44' PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE
95'-9" End Spans 96'-6" Interior Span
SITUATION PLAN
Station: 1757+00.00 (O.R.) March, 1983
WARREN COUNTY
IOWA DEPARTMENT OF TRANSPORTATION-HIGHWAY DIVISION
Design Sheet No.: 2 Of 12 File No.: 26596 Design No.: 182

DESIGNED BY: M. L. Lamm
TRACED BY: J. Clausen
CHECKED BY: J. Clausen

WARREN COUNTY

STATE	FED. ROAD DIST. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	6		4	45

BENCH MARK: N^o. 2; Sta. 1754 +00.50, 62' Lt., Found USC & GS BM #234 in N.W. Quad of Intersection, Elev = 778.84.



SOUNDING DATA

Scale: 1" = 20' Dated as Shown.
N# = Number of blows per foot of penetration.

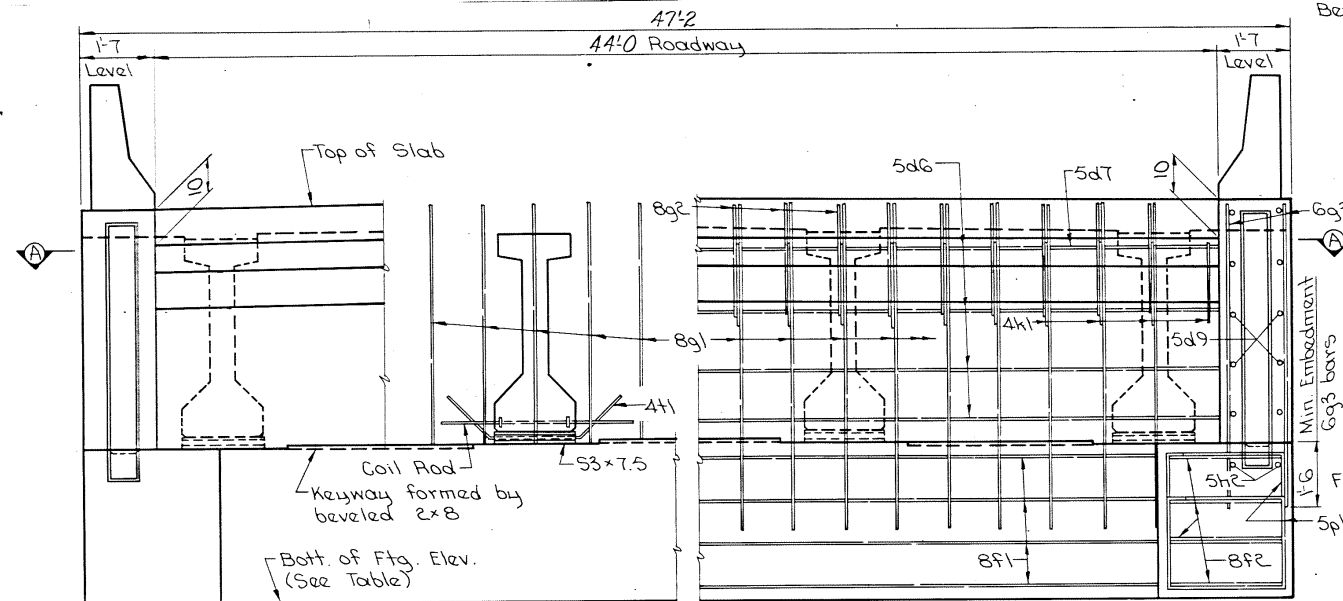
Design For
288'-0" x 44' PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE
95'-9" End Spans 96'-6" Interior Span
SOUNDING DATA
Station: 1757 +00.00 (O.R.) March, 1983
WARREN COUNTY
IOWA DEPARTMENT OF TRANSPORTATION-HIGHWAY DIVISION
Design Sheet No.: 3 Of 12 File No.: 26596 Design No.: 182

DESIGNED BY: M. L. Lemmer
TRACED BY: J. Clauson
CHECKED BY: J. Clauson

WARREN COUNTY

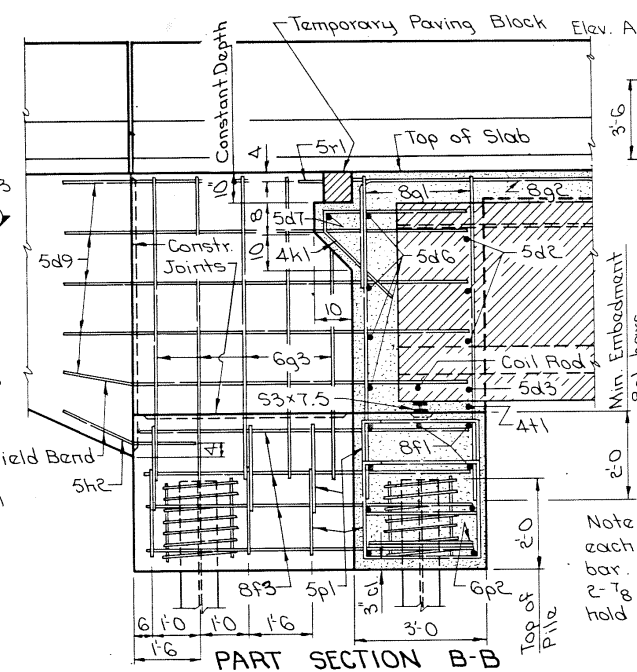
PROJECT NUMBER	STATE	FED. ROAD DIST. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	IOWA	5		5	45

Revised 6-1-78: Abutment extension 8f bars changed.
Issued 4-1-77 (Epoxy Bars)



PART REAR ELEVATION AT ABUTMENT
(Wings not shown)

Bench Mark: N^o. 2; Sta. 1754+00.50, 62' Lt., Found USC & GS BM#234 in N.W. Quad of Intersection; Elev. = 778.84.

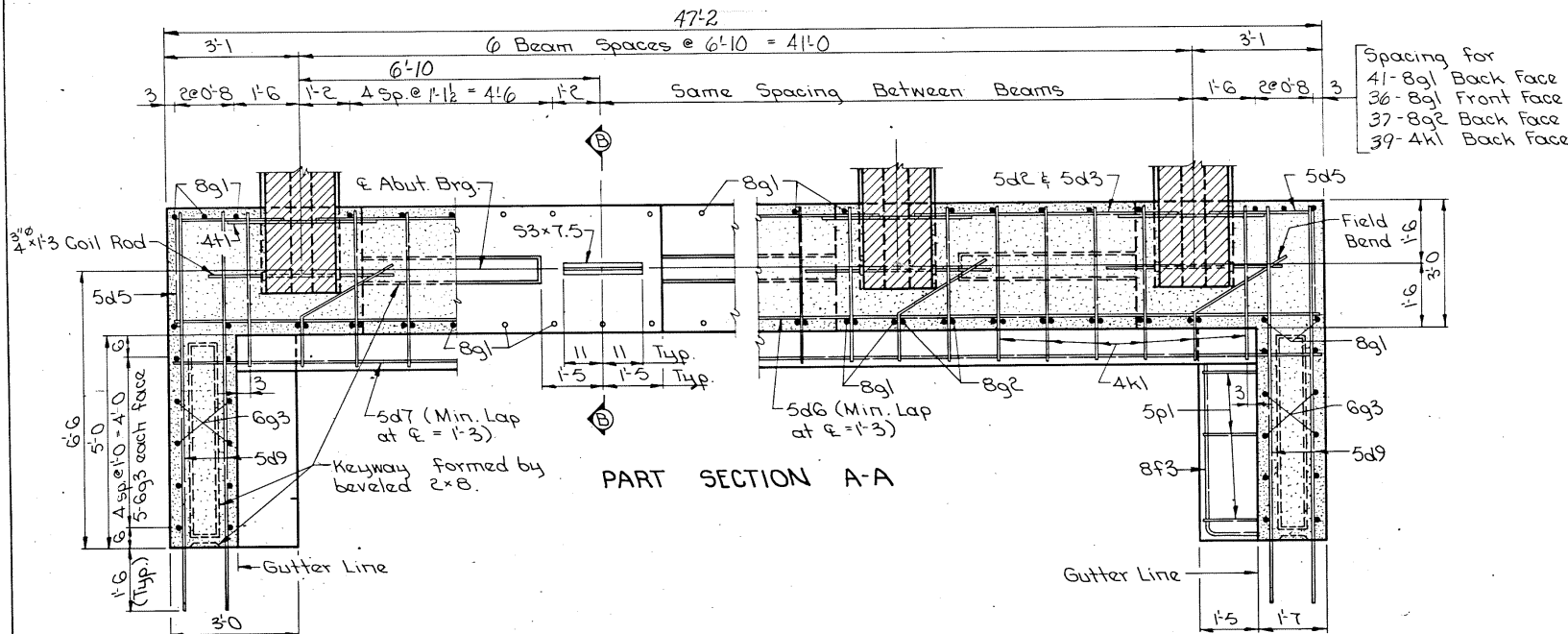


PART SECTION B-B

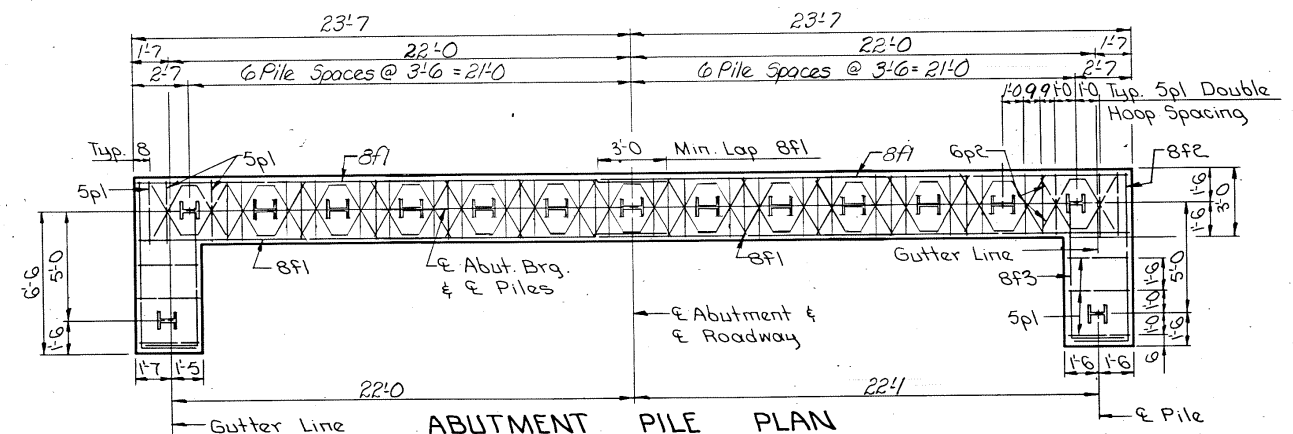
ABUTMENT STEP DIAGRAM

TABLE OF ABUTMENT ELEVATIONS		
Point	North Abutment	South Abutment
Elev. A	786.39	786.65
Elev. B	786.49	786.74
Elev. C	786.59	786.85
Elev. D	786.67	786.93
Bott. Ftg. Elev.	782.89	783.15

TABLE OF ABUTMENT STEPS		
Step	North Abutment	South Abutment
a	1 1/2	1 1/2
b	1 1/2	1 1/2
c	1 1/2	1 1/2



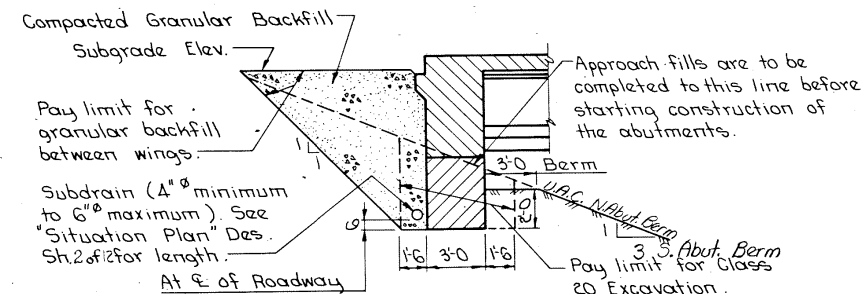
PART SECTION A-A



15- HP10x42 Steel Bearing Piling required each abutment.

ABUTMENT NOTES:

- All exposed corners of 90° or sharper are ~~to be~~ filleted with a 3/4" dressed and beveled strip.
- Minimum clear distance from face of concrete to near reinforcing bar is ~~to be~~ 2" unless otherwise noted or shown.
- Reinforcing steel is ~~to be~~ securely wired in place before concrete is placed.
- All backfill behind the abutment between wings is ~~to be~~ granular backfill.
- The remainder of the abutment excavation is ~~to be~~ backfilled with soil.
- Piles are ~~to be~~ driven to full penetration if practicable, but to not less than 37 tons bearing value per pile.



GRANULAR BACKFILL DETAIL

Design For
288'0" x 44' PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE
95'9" End Spans 96'6" Interior Span
ABUTMENT DETAILS
Station: 1757+00.00 (O.R.) March, 1983
WARREN COUNTY
IOWA DEPARTMENT OF TRANSPORTATION HIGHWAY DIVISION
Design Sheet No.: 5 Of 12 File No.: 26596 Design No.: 182

DESIGNED BY: M. J. Elmer
CHECKED BY: J. Clausen

TRACED BY: J. Clausen

"D" BEAMS - ABUT. DETAILS - 0° SKEW

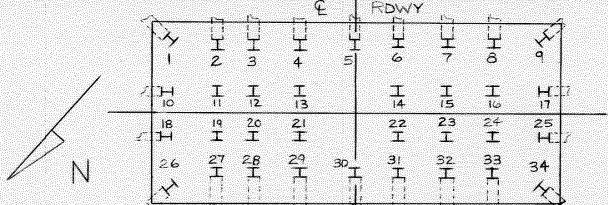
STANDARD SHEET 2085

WARREN COUNTY

PROJECT NUMBER

STATE	FED. ROAD DIST. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	5		7	45

[illegible]

FOUNDATION NUMBER PIERS NO 1 & 2			PILING LOG		KIND OF PILING HP 10 x 42 STEEL BEARING			
								
PILE NO.	LENGTH IN STRUCTURE	BEARING (in Tons)	PILE NO.	LENGTH IN STRUCTURE	BEARING (in Tons)	PILE NO.	LENGTH IN STRUCTURE	BEARING (in Tons)
PIER No 1						PIER No. 2		
1	21.9	77.2				1	23.8	73.4
2	22.3	73.4				2	23.3	73.4
3	21.2	73.4				3	23.0	73.4
4	22.2	78.0				4	23.8	78.0
5	21.8	78.0				5	24.1	73.4
6	20.7	77.2				6	22.8	73.4
7	20.3	77.2				7	22.8	78.0
8	21.6	77.2				8	22.7	73.4
9	20.7	82.8				9	22.6	73.4
10	22.0	73.4				10	22.4	83.2
11	22.5	78.0				11	23.5	73.4
12	22.8	78.0				12	23.0	73.4
13	23.5	78.0				13	23.1	78.0
14	21.3	77.2				14	24.1	78.6
15	21.3	77.2				15	24.2	83.6
16	21.7	78.0				16	24.1	78.6
17	20.3	77.2				17	23.7	69.3
18	21.5	77.2				18	22.7	83.2
19	23.4	78.0				19	23.7	78.0
20	23.9	96.0				20	23.3	78.0
21	19.9	96.0				21	24.0	73.4
22	21.6	77.2				22	24.1	73.4
23	21.4	77.2				23	24.2	83.6
24	21.0	78.0				24	24.3	78.0
25	21.6	77.2				25	23.1	78.0
26	22.6	78.0				26	22.8	73.4
27	21.2	77.2				27	23.4	73.4
28	22.5	78.0				28	23.0	73.4
29	22.0	78.0				29	23.0	73.4
30	21.5	72.4				30	23.3	78.0
31	21.9	78.0				31	24.0	78.0
32	22.1	78.0				32	24.2	73.4
33	20.6	72.4				33	22.9	78.0
34	20.3	72.4				34	23.9	78.0

This bridge is designed for HS20-44 loading, plus 20 lb. per square foot of roadway for future wearing surface.

The floor slab as shown includes 1/2" integral wearing surface.

The pier and abutment diaphragm concrete is ~~to be~~ placed monolithically with the floor slab.

Cost of bearing material is ~~to be~~ included in the price bid for "Pretensioned Prestressed Concrete Beams."

Cost of all Preformed Expansion Joint Filler material is ~~to be~~ included in the price bid for "Structural Concrete."

All beams are ~~to be~~ set vertical.

Forms for the slab and barrier rail are ~~to be~~ supported by the prestressed concrete beams.

All exposed corners 90° or sharper are ~~to be~~ filleted with a 3/4" dressed and beveled strip.

Clear distance from face of concrete to near reinforcing bar shall be 2 inches unless otherwise noted or shown. All reinforcing bars are ~~to be~~ securely wired in place and adequately supported on bar chairs before concrete is placed.

The slab transverse and longitudinal reinforcing, "a" and "b" bars, are ~~to be~~ Grade 60 reinforcing. All other reinforcing may be Grade 40.

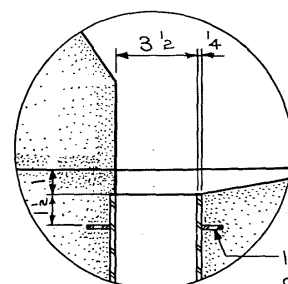
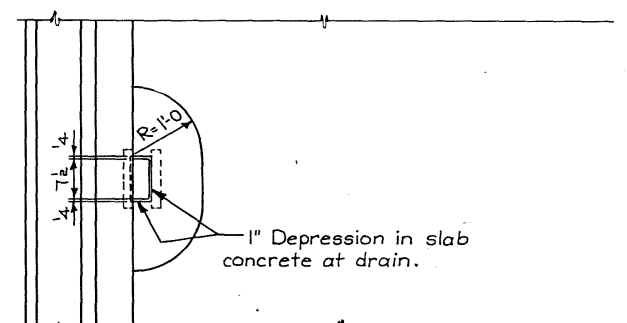
The top layer of slab transverse and longitudinal reinforcing, "a" and "b" bars are ~~to be~~ epoxy-coated. The epoxy coating ~~shall be~~ in accordance with current special provisions and supplemental specifications of the Iowa D. O. T. - Highway Division.

Transverse slab reinforcing ~~may be~~ spliced with one lap located as follows:

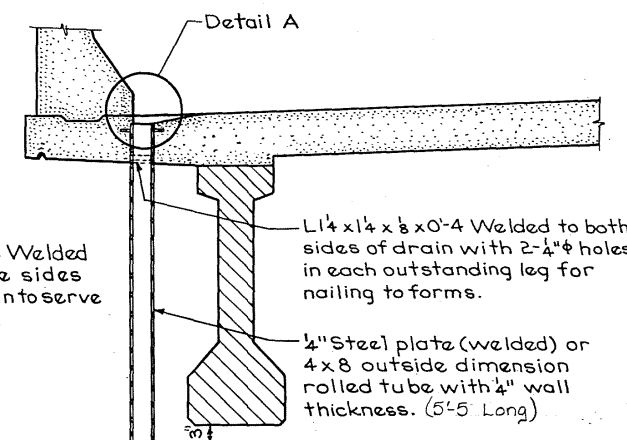
Top bars - lap midway between girders (min. lap = 2'-0")

Bottom bars - lap over girders (min. lap = 2'-0")

Payment for reinforcing bars ~~shall be~~ based on no splices, and no allowance ~~shall be~~ made for the additional length of bar required for the use of splices.

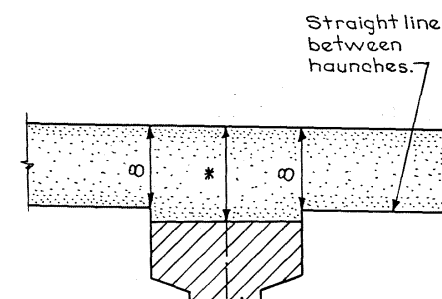


DETAIL A



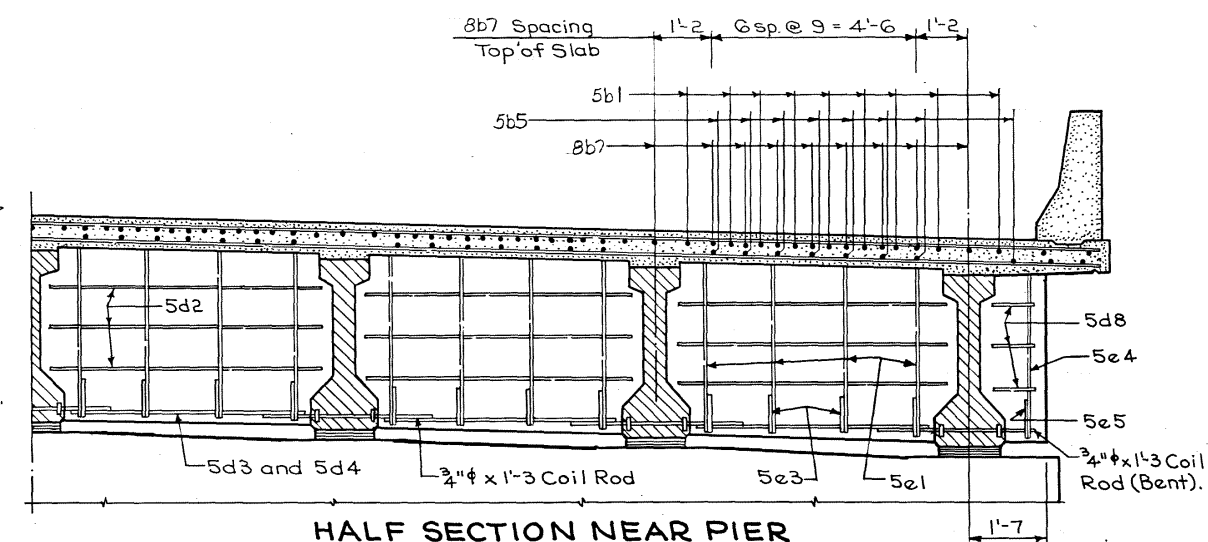
DRAIN DETAILS

NOTE: Drains are to be galvanized. 10 Drains are required, see "Situation Plan" on *des sht.* 2 of 12 for location. Weight= 104 pounds each. Cost of drains to be in price bid for concrete.



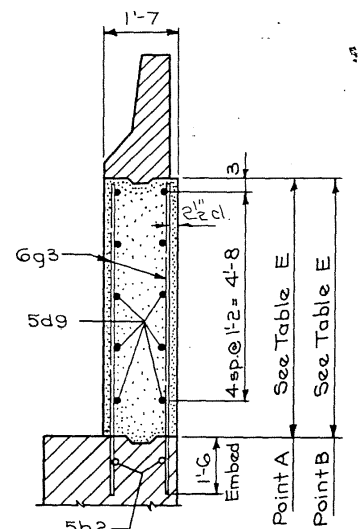
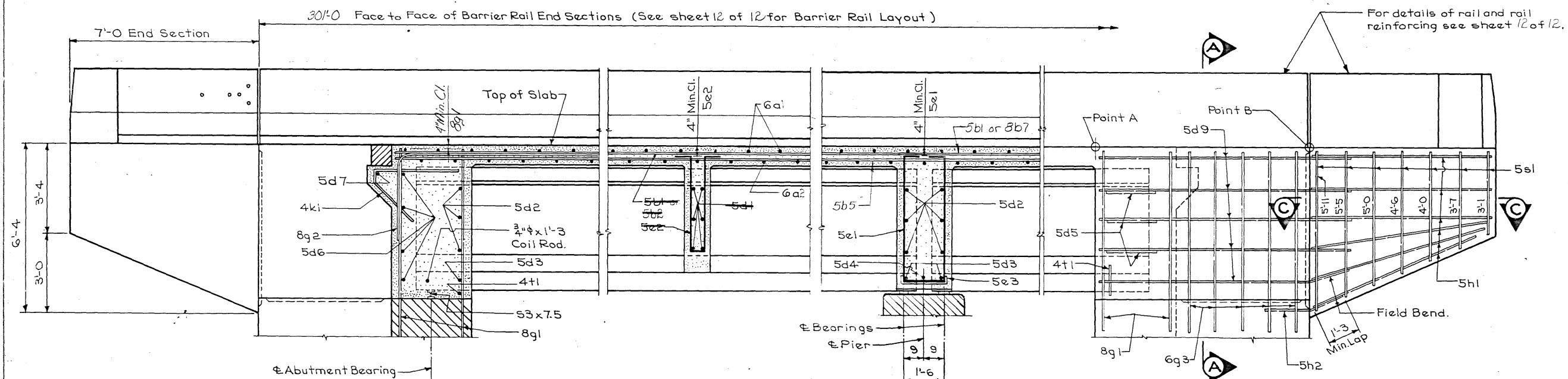
TYPICAL SLAB AND HAUNCH DETAIL

For thickness at Exterior Beam see
"Half Section Near Abutment".

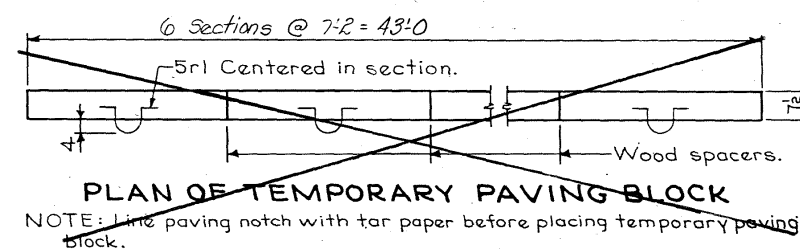
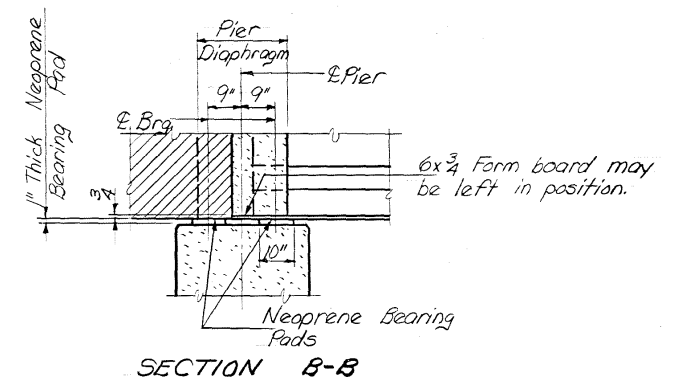
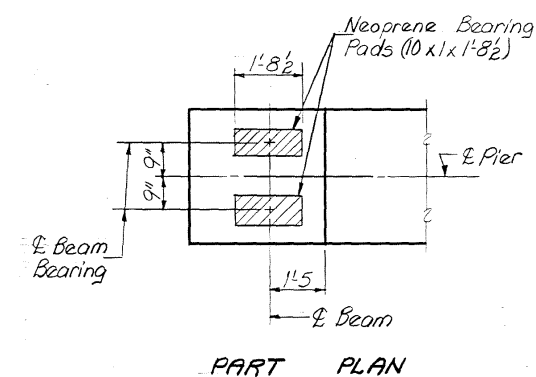
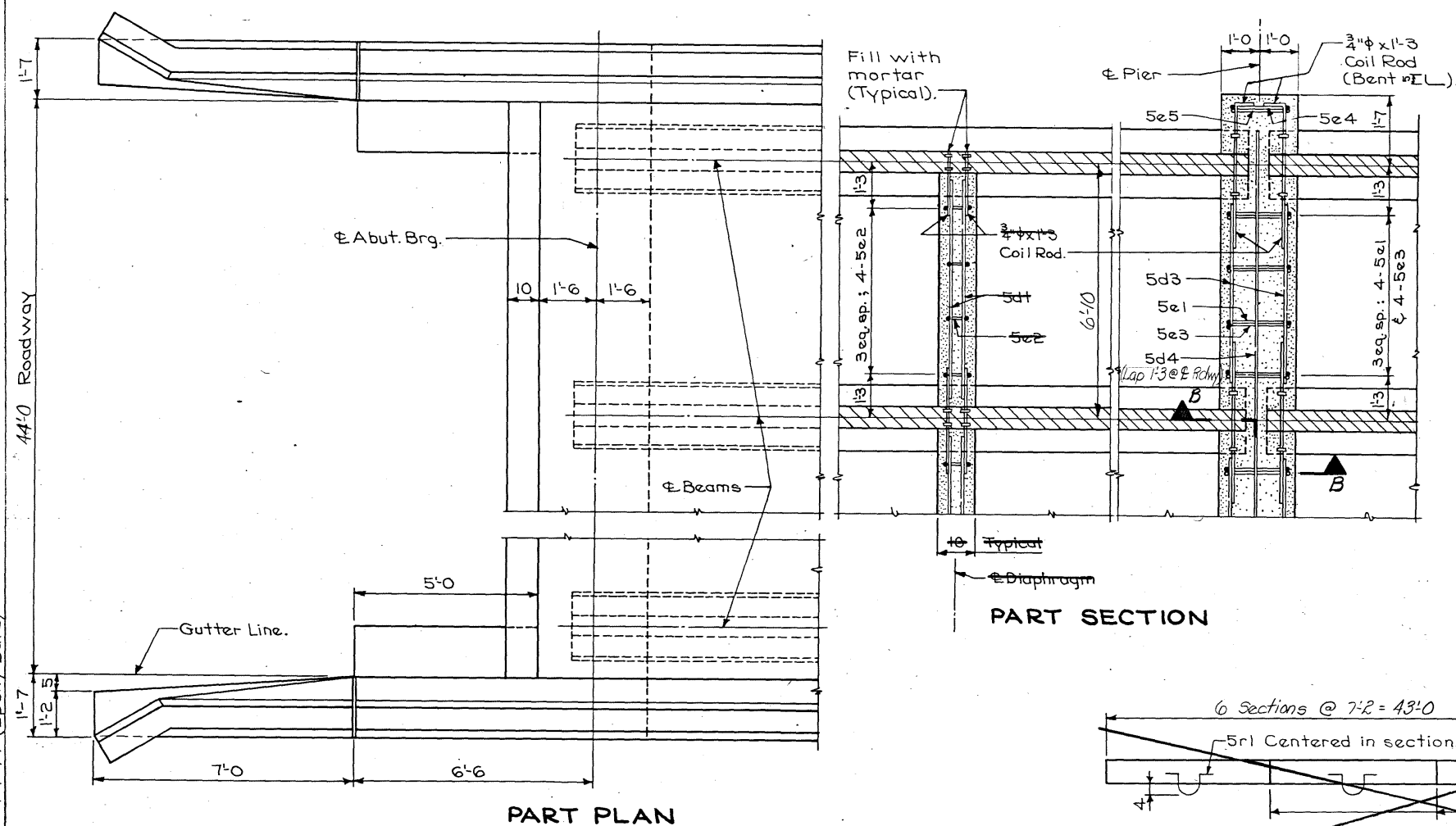
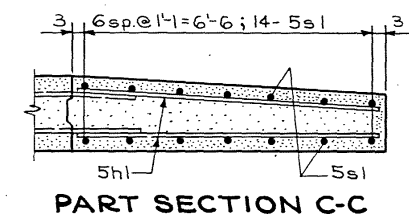


HALF SECTION NEAR PIER

Design For
288'-0" x 44' PRETENSIONED PRESTRESSED
CONCRETE BEAM BRIDGE
95'-9" End Spans 96'-6" Interior Span
SUPERSTRUCTURE DETAILS
Station: 1757+00.00 (O.R.) March, 1983
WARREN COUNTY
IOWA DEPARTMENT OF TRANSPORTATION, HIGHWAY DIVISION
Design Sheet No.: 6 Of 12 File No.: 26596 Design No.: 182



Location	Point A	Point B
S.W. Corner	5'5 ³ / ₁₆	5'4 ¹⁵ / ₁₆
N.W. Corner	5'5 ⁷ / ₁₆	5'4 ¹ / ₁₆
S. E. Corner	5'5 ³ / ₁₆	5'4 ¹⁵ / ₁₆
N.E. Corner	5'5 ⁷ / ₁₆	5'4 ¹ / ₁₆



Revised 6-24-82: Clear distance for G93- back face added.
Revised 5-31-77: Top of 5e1 and 5e2 hoops lowered.
~~Issued 4-1-77 (Epoxy Bars)~~

DESIGNED BY: M. L. Flemmer
 DETAILED BY: RAR

TRACED BY: _____
CHECKED BY: J. Chaves

"D" BEAMS - PART PLAN & LONGIT. SECTION - 0° SKEW

STANDARD SHEET 4507

WARREN COUNTY

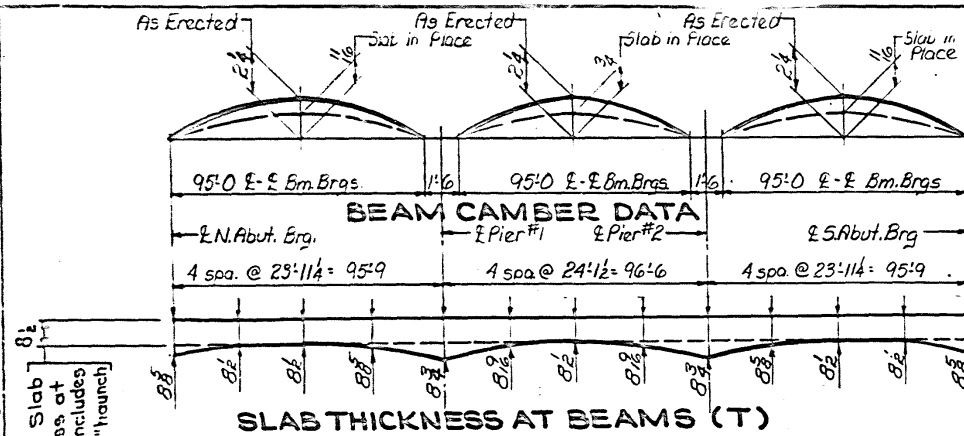
PROJECT NUMBER

Design For
288'0" x 44' PRETENSIONED PRESTRESSED
CONCRETE BEAM BRIDGE
95'9" End Spans 96'6" Interior Span
SUPERSTRUCTURE DETAILS
Station: 1757+00.00 (O.R.) March, 1983
WARREN COUNTY
IOWA DEPARTMENT OF TRANSPORTATION, HIGHWAY DIVISION
Design Sheet No.: 7 Of 12 File No.: 26596 Design No.: 182

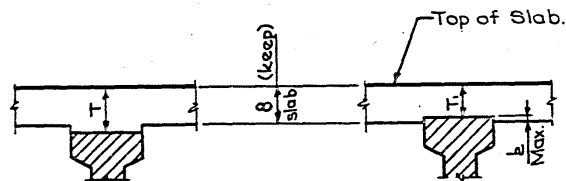
STATE	FED. ROAD DIST. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	5		9	45

Revised 6-12-79: Beam Coil Tie Location changed to require only 1 intermediate diaphragm.

Revised 5-15-79: Reinforcing bends corrected.
Revised 6-1-78: Abutment extension BS bars changed.
Revised 5-31-77: Barrier Rail reinforcing to be epoxy-coated.
Revised 4-1-77 (Epoxy Bars)



SLAB THICKNESS AT BEAMS (T)



SLAB THICKNESS DETAILS

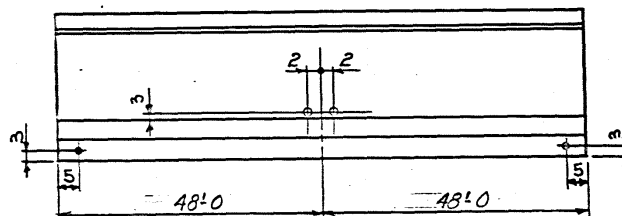
NOTE: The slab thickness (T) at beams is based on the anticipated beam camber remaining after placing the slab, but is not guaranteed for construction. If beam is under cambered, increase slab thickness (T) at beams to compensate. If beam is over cambered, the slab thickness (T) may be decreased to a maximum of 2" embedment at the beam (T). If more than 2" embedment is required or if the haunch exceeds 2", the grade line is to be revised.

EPOXY-COATING NOTES:

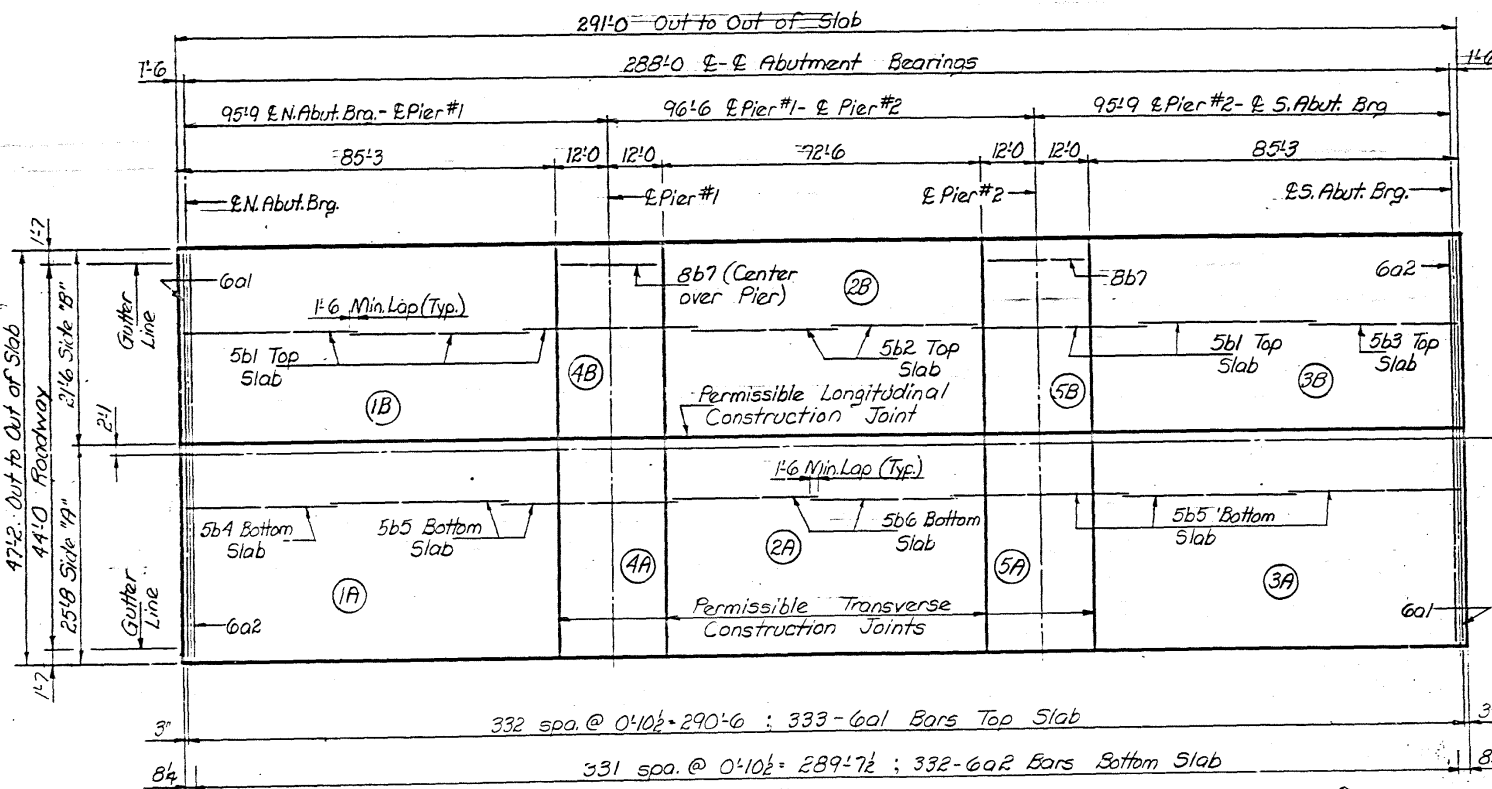
All top of slab reinforcing steel, both longitudinal and transverse bars, shall be epoxy-coated in accordance with Current Special Provisions and Supplemental Specifications of the Iowa D.O.T. Highway Division

From the reinforcing bar list shown on this sheet, the following bars shall be epoxy-coated:

All of the 601 = 23,424 lbs.; 15,595 lin. ft.
All of the 5b1 = 11,264 lbs.; 10,800 lin. ft.
All of the 5b2 = 3,717 lbs.; 3,564 lin. ft.
All of the 5b3 = 1,981 lbs.; 1,599 lin. ft.
All of the 5b7 = 6,193 lbs.; 2,319 lin. ft.
All of the 8g2 = 2,914 lbs.; 1,092 lin. ft.
Barrier Rail = 11,824 lbs.; 11,070 lin. ft. #5; 185 lin. ft. #6
Total = 61,317 lbs. to be epoxy coated



BEAM COIL TIE LOCATIONS



CONCRETE PLACEMENT DIAGRAM AND LONGITUDINAL REINFORCING LAYOUT

NOTE: Roadway slab shall be placed in sections and sequences indicated and preferably at intervals not exceeding 24 hours. Alternate procedures for placing slab concrete may be submitted for approval together with a statement of the proposed method and evidence that the Contractor possesses the necessary equipment and facilities to accomplish the required results.

DESIGNED BY: M. S. Flemmer
CHECKED BY: RAK

TRACED BY: J. Clausen
CHECKED BY: J. Clausen

"D" BEAMS - BAR LIST & SUPER. DETAILS - O'SKEW

STANDARD SHEET 4518

WARREN COUNTY

PROJECT NUMBER

DATE

BY

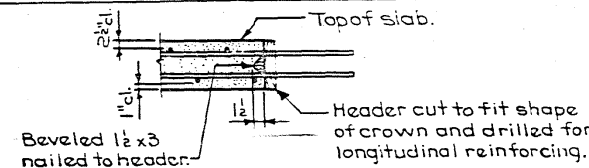
DATE

BY

DATE

BY

TRANSVERSE SLAB CONSTRUCTION JOINT



LONGITUDINAL SLAB CONSTRUCTION JOINT

Design For 288'-0" x 44' PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

95'-9" End Spans 96'-6" Interior Span

SUPERSTRUCTURE DETAILS

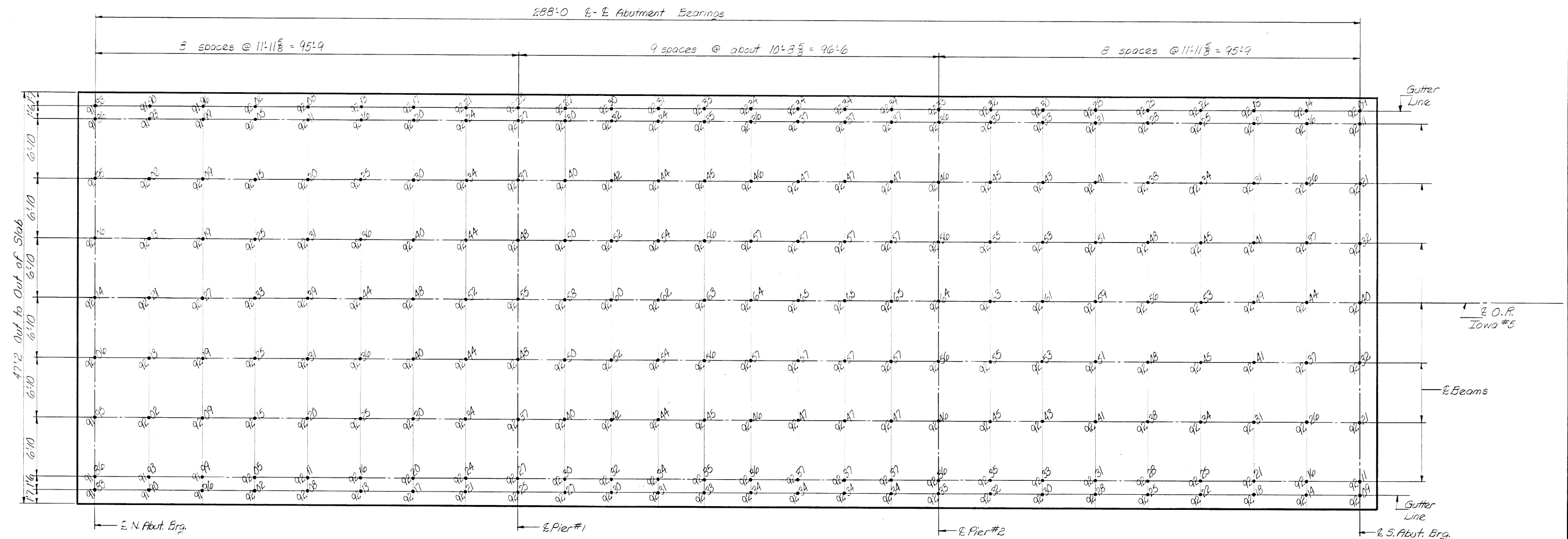
Station: 1757+00.00 (O.R.) March, 1983

WARREN COUNTY

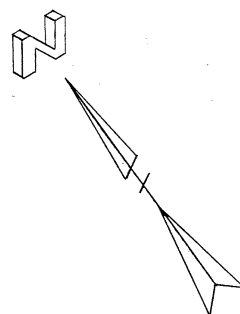
IOWA DEPARTMENT OF TRANSPORTATION, HIGHWAY DIVISION

Design Sheet No.: 8 of 12 File No.: 26596 Design No.: 182

BENCH MARK: N^o. 2; Sta. 1754+00.50, 62' Lt., Found USC & GS B.M. #234 in N.W. Quad of Intersection, Elev. = 778.84.



TOP OF SLAB ELEVATIONS
Note: Add 700.00 To Elevations Shown.



Design For
288'-0" x 44' PRETENSIONED PRESTRESSED
CONCRETE BEAM BRIDGE
95'-9" End Spans 96'-6" Interior Span
SUPERSTRUCTURE DETAILS
Station: 1757+00.00 (O.R.) March, 1983
WARREN COUNTY
IOWA DEPARTMENT OF TRANSPORTATION-HIGHWAY DIVISION
Design Sheet No.: 9 Of 12 File No.: 26596 Design No.: 182

DESIGNED BY: M. J. Flemer
DETAILED BY: RAR

TRACED BY:
CHECKED BY: J. Clauson

WARREN COUNTY

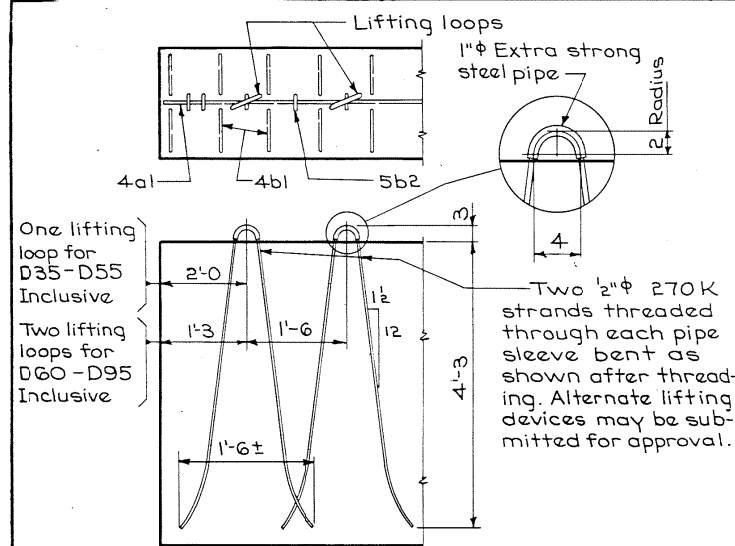
PROJECT NUMBER

STATE	FED. ROAD DIST. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	5		11	45

Revised (2-1-69): Section A-A added. Beam Data and Reinforcing Bar List revised.
Revised 3-6-69: Beam designation numbers changed.

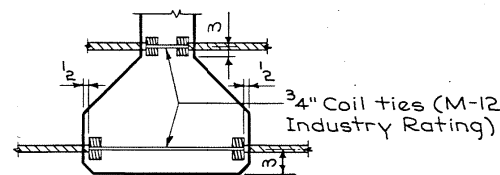
Revised 5-6-63: Beam designation numbers changed.
Revised 8-22-69: Length of Bar 4a1 and total reinforcing steel quantities for Beams D95, D90 and D85 changed.
Revised 1-14 -70: Design Stresses & Specifications updated.
Revised T-5 -74: Note concerning roughening of beams at diaphragms changed.
Revised 5-2 -75: Two strands added to D95. Four 5b3 bars added to D90 and D95. Tabular Beam Data and notes changed.
Revised 8-24-77: Agency updated.
Revised 1-22-79: Beam deflections for 8" slab shown.
Revised 6-8-79: Lengths of bent bars changed to conform with ACI Std.
Revised 8-10-79: Beam deflections changed to reflect diaphragm at $\frac{1}{2}$ of span only.

Revised 6-1-78 : Design Stresses & Specifications updated.



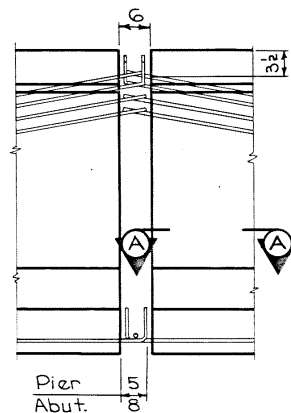
LIFTING LOOP DETAIL

Number and exact location of coil ties to be as detailed on specific bridge design.

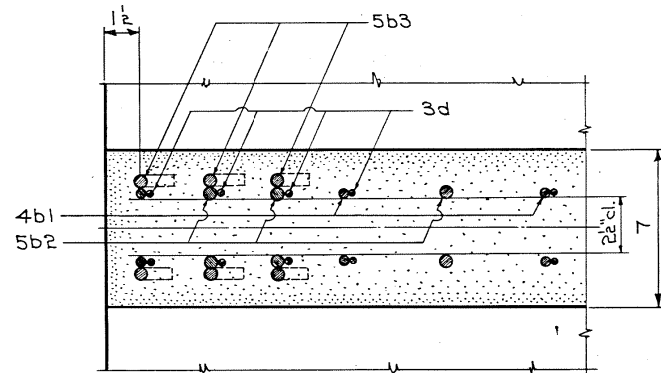


COIL TIE DETAIL

Four bottom strands, all top straight strands of Beams D35 through D60 and four top harped strands of Beams D65 through D95 are to be cut with 1'-0" projections which are to be shop bent as shown and to clear those from the adjacent span. Remaining harped strands of Beams D65 through D95 are to be cut with 0'-5" projection and bent to clear. The remaining strands shall be cut off reasonably flush with the concrete.

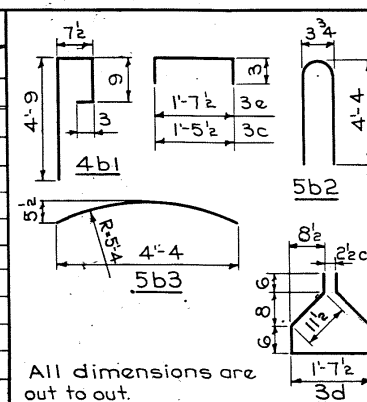


STRAND PROJECTION AT BEAM ENDS WHEN EMBEDDED IN CONCRETE END DIAPHRAGMS



SECTION A-A SHOWING PLACEMENT
OF STIRRUPS NEAR END OF BEAM

REINFORCING BAR LIST																														
Beam	Span																									D95	95'0			
Bar	Shape	Nº	Length	Nº	Length	Nº	Length	Nº	Length	Nº	Length	Nº	Length	Nº	Length	Nº	Length	Nº	Length	Nº	Length	Nº	Length	Nº	Length	Nº	Length			
4a1	—	2	4'-0	2	4'-0	2	4'-0	2	4'-0	—	—	—	—	2	4'-0	2	4'-0	2	4'-0	2	4'-0	2	16'-0	2	18'-0	2	20'-0			
a2	—	—	—	—	—	—	—	—	—	—	—	—	—	5/4	22'-1	5/4	23'-7	5/4	25'-1	5/4	26'-7	5/4	28'-7	5/4	30'-1	6/4	31'-11			
a3	—	—	—	—	—	—	—	—	—	—	—	—	—	9/2	25'-0	9/2	27'-0	9/2	29'-0	9/2	31'-0	5/2	32'-0	7/2	34'-0	8/2	36'-0			
4b1	□	66	6'-5	74	6'-5	74	6'-5	86	6'-5	94	6'-5	102	6'-5	114	6'-5	124	6'-5	132	6'-5	136	6'-5	148	6'-5	160	6'-5					
5b2	U	6	8'-10	6	8'-10	6	8'-10	6	8'-10	8	8'-10	8	8'-10	8	8'-10	10	8'-10	10	8'-10	10	8'-10	10	8'-10	12	8'-10	12	8'-10			
5b3	—	4	4'-5	4	4'-5	4	4'-5	4	4'-5	8	4'-5	8	4'-5	8	4'-5	12	4'-5	12	4'-5	12	4'-5	20	4'-5	20	4'-5	20	4'-5			
3c	□	33	2'-0	37	2'-0	39	2'-0	43	2'-0	47	2'-0	51	2'-0	53	2'-0	57	2'-0	62	2'-0	66	2'-0	68	2'-0	74	2'-0	80	2'-0			
3d	△	33	5'-7	37	5'-7	39	5'-7	43	5'-7	47	5'-7	51	5'-7	53	5'-7	57	5'-7	62	5'-7	66	5'-7	68	5'-7	74	5'-7	80	5'-7			
3e	□	12	2'-2	12	2'-2	12	2'-2	12	2'-2	12	2'-2	12	2'-2	12	2'-2	12	2'-2	14	2'-2	14	2'-2	14	2'-2	14	2'-2	16	2'-2			

[illegible]

① Deflections due to weight of slab and diaphragm. The deflections shown are for a slab weight of 750 ^{lb}/ft. (8" slab and T-6 beam spacing) and diaphragm weight of 3190 lb. at E of span. For different slab and diaphragm weights, deflections will be directly proportional.

② Total beam deflection at $\frac{L}{4}$ of span, Δ_D , due to weight of slab and diaphragms for detailing purpose:

- (A) $\Delta_D = \Delta_I + \Delta_T$ for simple span.
- (B) $\Delta_D = \Delta_I + \frac{3}{4}\Delta_T$ for end spans of continuous bridge.
- (C) $\Delta_D = \Delta_I + \frac{1}{2}\Delta_T$ for interior spans of continuous bridge.

NOTES:

These beams are designed for AASHTO live loads as indicated in above table with an allowance of 20 lb. per square foot of roadway for future wearing surface.

Hold down points for harped strands may be moved toward ends of beam a distance of $.025L$ maximum at producer's option.

Tops of beams are to be struck off level and artificially roughened as directed by the Iowa Department of Transportation Materials Department.

Bearings shall be as detailed on other design sheets.

Beams to be used in bridges made continuous by the poured in place floor are to be at least 28 days old before the floor is placed unless a shorter curing time is approved by the Bridge Engineer.

The portions of the prestress beams that are to be embedded in the abutment and pier diaphragms shall be roughened for a distance of 10' from the beam end by sandblasting or other approved methods, to provide suitable bond between the beam and the diaphragm in accordance with Article 2403.15 of the specifications.

All prestressing strands are to be $\frac{1}{2}$ " ϕ 270K grade.

Unless otherwise noted all beams are to be increased in length by .00055 L to compensate for elastic shortening, creep and shrinkage.

DESIGN STRESSES:

Design Stresses for the following materials are to be in accordance with A.A.S.H.T.O. Standard Specifications for Highway Bridges, Series of 1977:

Reinforcing Steel in accordance with Section 1.5.26(B)
 $f'_s = 20,000$ psi.

Concrete in accordance with Section 1.6.6(B), $f'_c = 5000$ psi.

Prestressing Steel in accordance with
Section 1.6.6(A), $f'_s = 270,000$ psi.

SPECIFICATIONS:

CONSTRUCTION: Standard Specifications of the Iowa Department Of Transportation, current Series , with current applicable Special Provisions and Supplemental Specifications.

DESIGN : A.A.S.H.T.O., Series of 1977, with minor modifications.

Design For
288'-0" x 44' PRETENSIONED PRESTRESSED
CONCRETE BEAM BRIDGE

95'9 End Spans 96'6 Interior Span

$\frac{1}{2}$ cl. **BEAM DETAILS**

Station: 1757+00.00 (O.R.) March, 1983

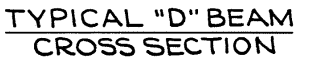
WARREN COUNTY

2 IOWA DEPARTMENT OF TRANSPORTATION, HIGHWAY DIVISION

Design Sheet No. 10 Of 12 File No. 26596 Design No. 182

NUMBER	STATE	FED. ROAD DIST. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	TOWNSHIP	5		12	46

Revised (2-1-69): Number of strands in D11, D12 and D13 changed.


$$\begin{aligned} \text{Area} &= 638.75 \text{ in.}^2 \\ \bar{Y}_b &= 24.37 \text{ in.} \\ I &= 214,974 \text{ in.}^4 \end{aligned}$$

BEAM D95

△ DIMENSIONS AT END OF BEAM
* KEEP

Design For
288'-0" x 44' PRETENSIONED CONCRETE BEAM
95'-9" End Spans

PRESTRESSED
BRIDGE
96'-6" Interior Span

BEAM DETAILS

Station: 1757+00.00 (O.R.) March, 1983

WARREN COUNTY

IOWA DEPARTMENT OF TRANSPORTATION, HIGHWAY DIVISION

Design Sheet No 11 Of 12 File No 26596 Design No 182

DESIGNED BY: M. L. Elamman TRACED BY: _____
DETAILED BY: BAR CHECKED BY: J. Clausen

PRESTRESSED BEAM DETAILS - PC 75D

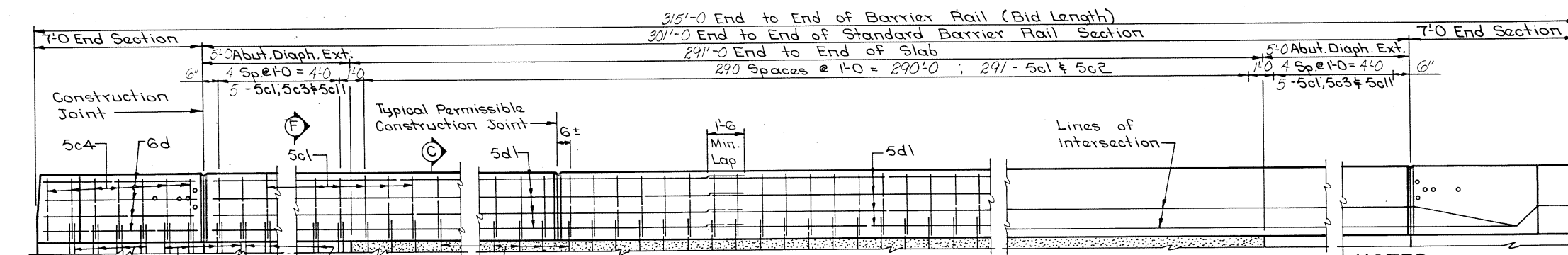
STANDARD SHEET 4069

WARREN COUNTY

PROJECT NUMBER

STATE	FED. ROAD DIST. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	5		13	45

Revised 10-22-82, Barrier Rail Height Changed to 2'8" and Quantities Changed Accordingly.
Issued 6-25-82



ELEVATION OF BARRIER RAIL LAYOUT

BARRIER RAIL NOTES:

Minimum clear distance from face of concrete to near reinforcing bar is to be 2" unless otherwise noted or shown.

All exposed corners 90° or sharper are to be filleted with a 3/4" dressed and beveled strip.

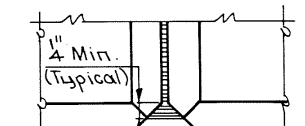
Top of the barrier rail is to be parallel to the theoretical & grade.

The permissible construction joints are to be placed between vertical bars at a minimum spacing of 20 feet. Construction joint contact surfaces are to be coated with an approved bond breaker. Cost of the joint sealer and bond breaker shall be considered incidental to other construction. The joint sealer shall conform to Fed. Spec. TT-500230 or TT-500227 for Type II, Class A or B.

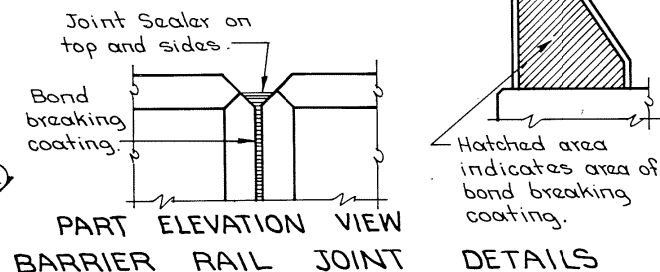
All barrier rail concrete is to be Class D. All barrier rail reinforcing steel is to be epoxy-coated.

The concrete barrier rail is to be bid on a lineal foot basis measured from end to end of rail. The number of lineal feet of barrier rail installed will be paid for at the contract price per lineal foot based on plan quantities. Price bid for "Concrete Barrier Rail" shall be full compensation for furnishing all material, excluding reinforcing steel, and all of the equipment and labor required to erect the rail in accordance with these plans and current specifications. All barrier rail reinforcing steel is to be included with the superstructure reinforcing steel.

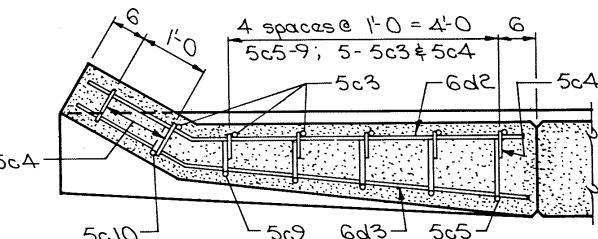
Gross sectional area of the Standard Section of the Barrier Rail = 2.47 square feet.



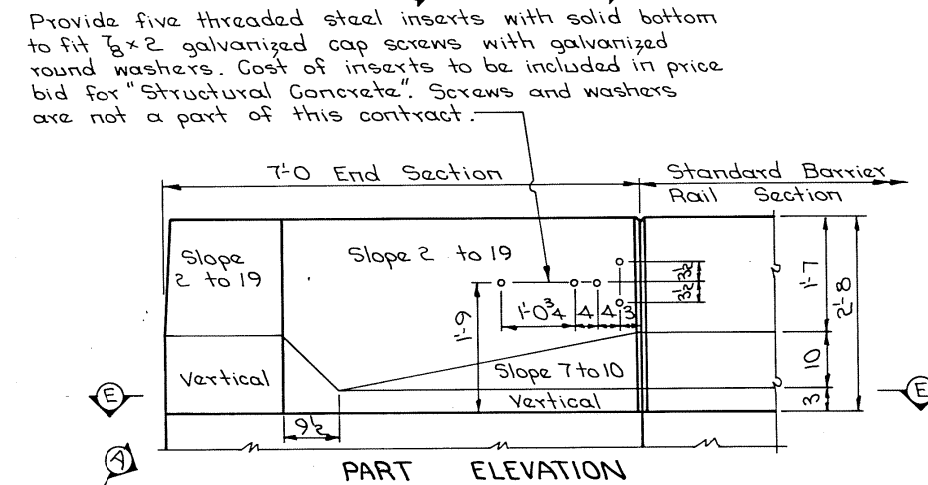
PART PLAN VIEW



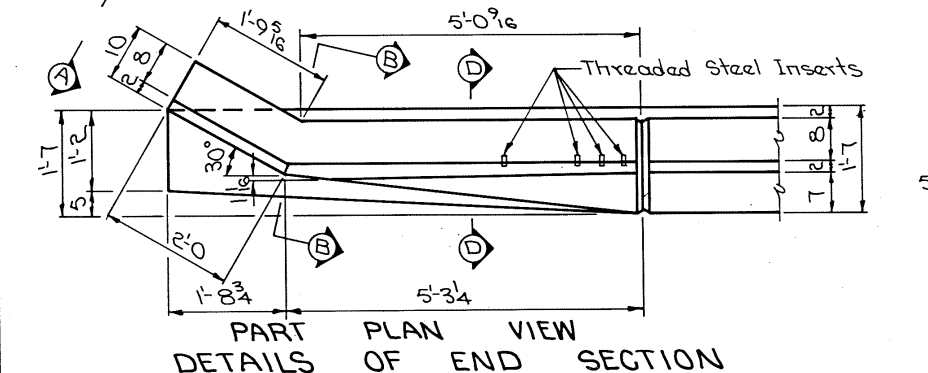
PART ELEVATION VIEW BARRIER RAIL JOINT DETAILS



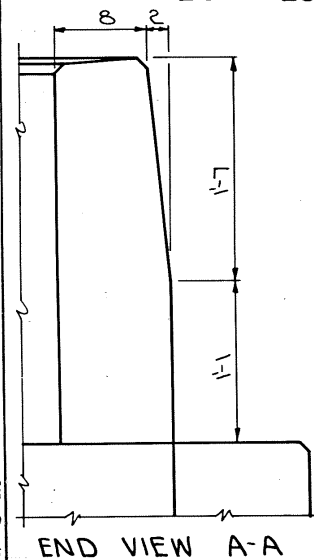
PART SECTION E-E



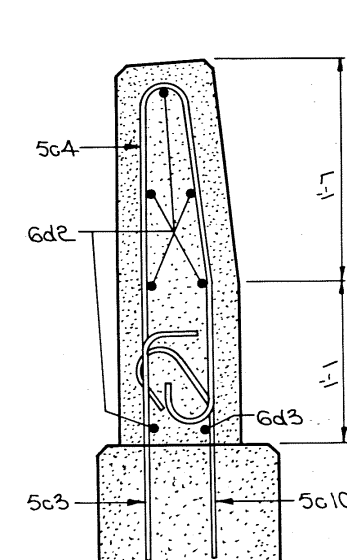
PART ELEVATION



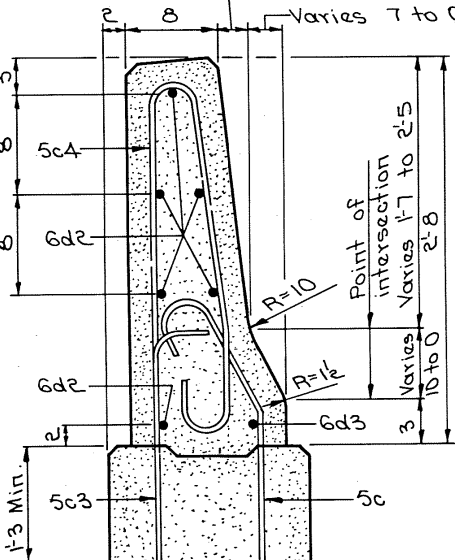
PART PLAN VIEW DETAILS OF END SECTION



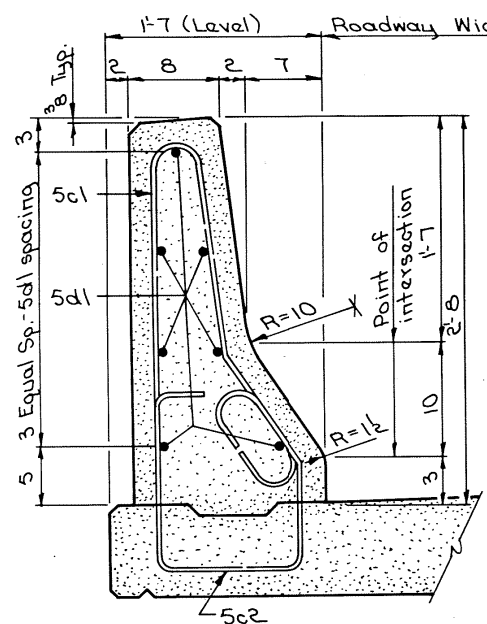
END VIEW A-A



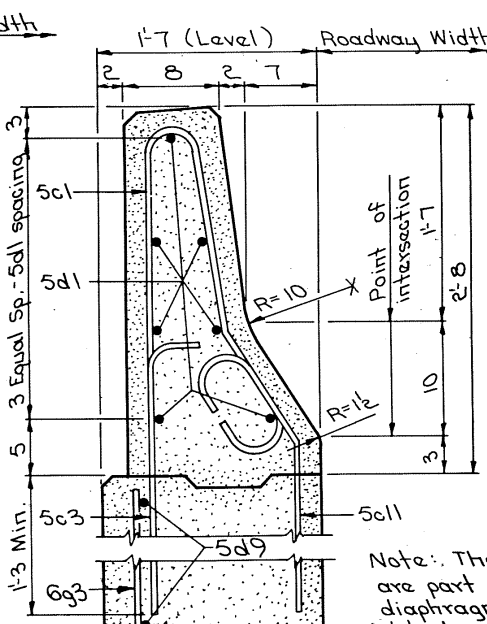
PART SECTION B-B



PART SECTION D-D



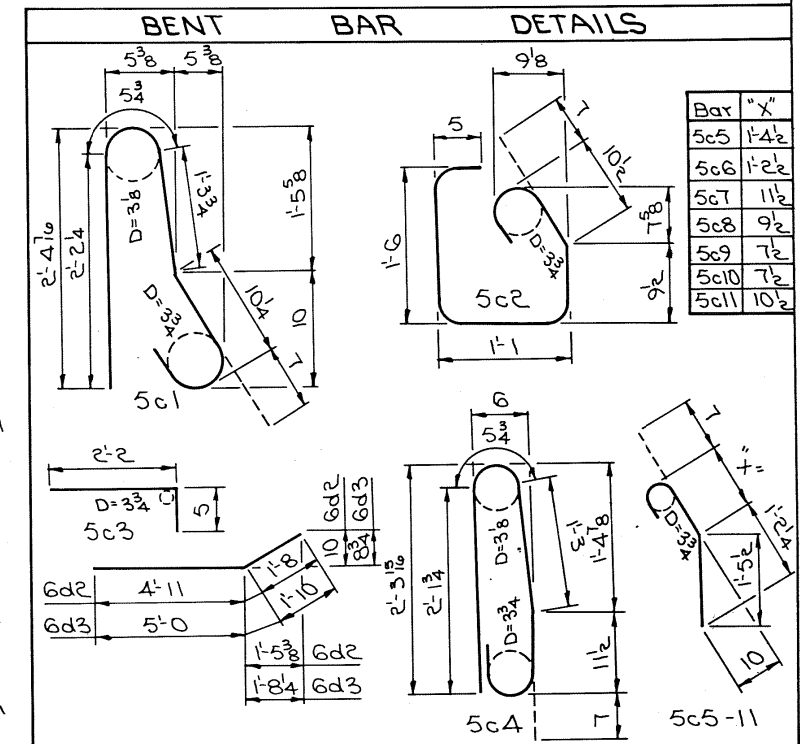
PART SECTION C-C



PART SECTION F-F

Note: The 5d9 & 6g3 bars are part of the abutment diaphragm extension see details on another sheet.

EPOXY REINFORCING STEEL - TWO RAILS						
Section	Bar	Location	Shape	Nº	Length	Weight
STANDARD SECTION	5c1	Vertical	1	602	5'-5"	3401
	5c2	Vertical	1	582	5'-3"	3187
	5c3	Vertical	1	20	2'-7"	54
	5c11	Vertical	1	20	2'-11"	61
	5d1	Longitudinal	—	112	38'-11"	4546
A-END SECTIONS	5c3	Vertical	1	24	2'-7"	65
	5c4	Vertical	1	28	5'-5"	158
	5c5-10	Vertical	1	24	Varies	74
	6d2	Longitudinal	—	24	6'-7"	237
	6d3	Longitudinal	—	4	6'-10"	41
(Include with Superstructure Reinforcing) Total (Lbs.)						11,824

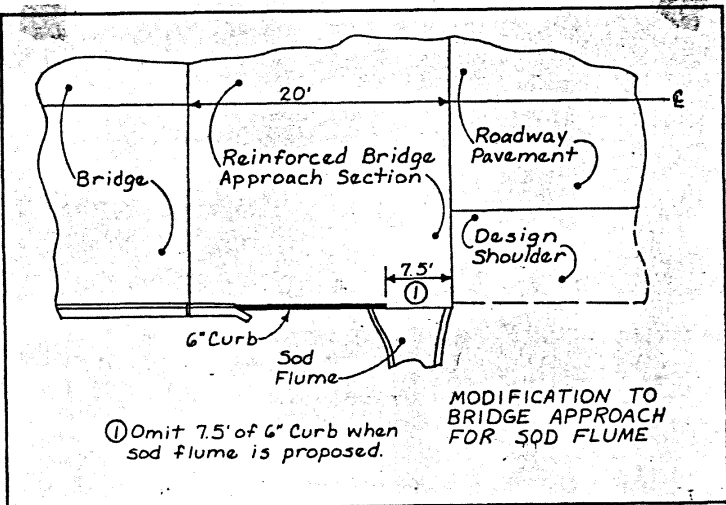


All dimensions are out to out. D= Pin Diameter.

CONCRETE PLACEMENT SUMMARY		
Section	Total	
Standard Section	602.0 L.F. @ .0915 Cu.Yd. per ft.	55.1
End Sections	4 @ .58 Cu.Yd.	2.3
Total (Cu.Yd.)		57.4
CONCRETE BARRIER RAIL QUANTITIES		
Item	Unit	Quantity
Concrete Barrier Rail	L.F.	630.0

Design For
288'-0" x 44' PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE
95'-9" End Spans 96'-6" Interior Span
BARRIER RAIL DETAILS
Station: 1757+00.00 (O.R.) March, 1983
WARREN COUNTY
IOWA DEPARTMENT OF TRANSPORTATION-HIGHWAY DIVISION
Design Sheet No.: 12 Of 12 File No.: 26596 Design No.: 182

TRAFFIC CONTROL PLAN	
1.	Traffic control on this project shall be in accordance with layout contained in the plans. For additional complementary information, refer to Supplemental Specification 920.
2.	Ia. 5 will be closed to traffic.
3.	All traffic control devices shall be furnished, erected, maintained, and removed by the contractor.
4.	Permanent edgelines and centerlines shall be restored before the roadway is returned to normal traffic, by others.
5.	Proposed sign spacing may be modified, as approved by the engineer, to meet existing field restrictions, or to prevent obstruction of the motorists' view of permanent signing.
6.	Proposed changes in the Traffic Control Plan (includes layout sheet) shall be reviewed with the Office of Construction before changes are made.
7.	The bid item "Traffic Control" shall include the cost for all traffic control measures required of the contractor except for those which are covered by a separate bid item. Slat fence barricade is a separate bid item.



General Note:
This project and the ACC Resurfacing project (Project No. FN-5-4(14)--21-91) may be under construction at the same time. Coordination of construction activities will be required.

TABULATION OF BRIDGE APPROACH PAVEMENT							
LOCATION		CASE	(PN) Distance for Case 'C'	Reinforced Bridge Approach Section		Remarks	
Bridge Station	END			(T)	Sq. Yds.		
1757+00	South	A		10"	98		
1757+00	North	A		10"	98		

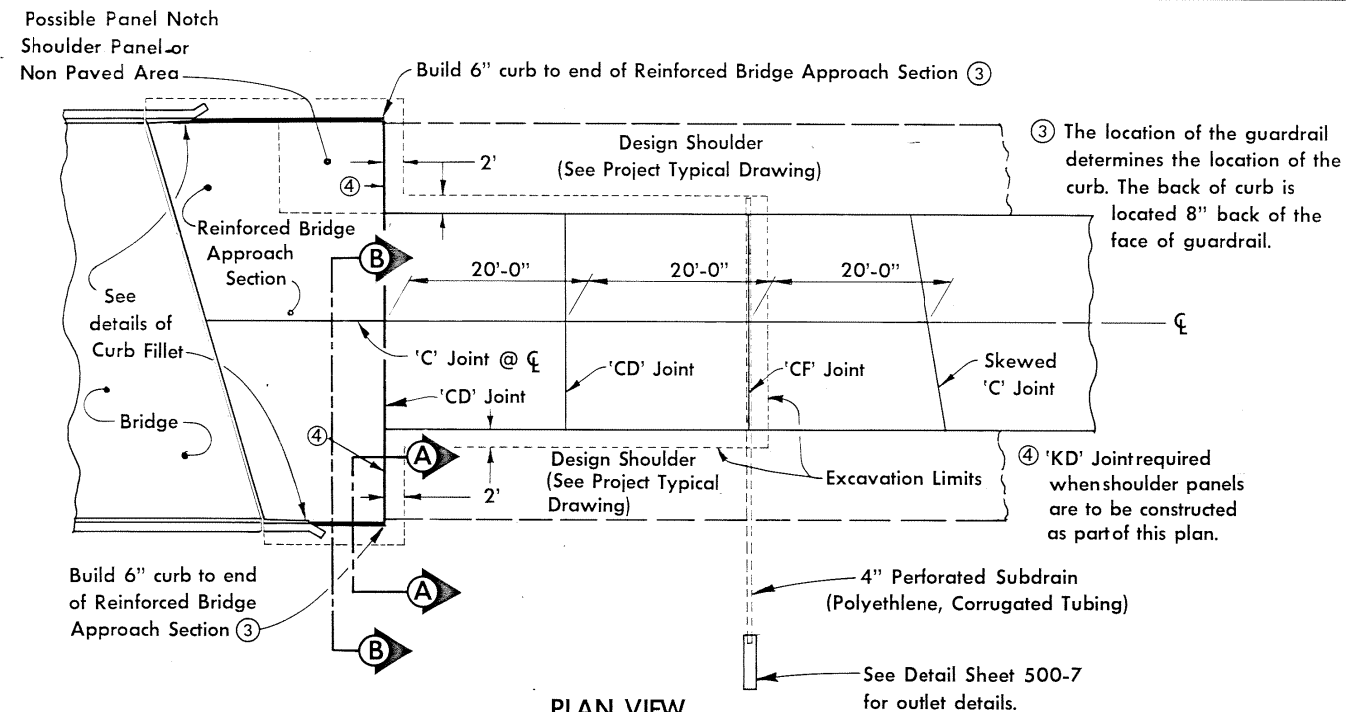
ESTIMATE REFERENCE INFORMATION	
Data listed below is for informational purposes only and shall not constitute a basis for any extra work orders.	
ITEM NO.	DESCRIPTION
1.	Includes all necessary excavation for the construction of the sidewalk, safety ramp, guardrail sites. Project requires 13,361 cu. yds. of borrow material which is available from the borrow area at Sta. 59+00. See Schematic Haul Diagram for borrow location. Also includes 1175 cu. yds. of unsuitable material.
2.	Waste wasted as per Note 213-1.
5.	Includes 0 sta. yds. calculated from a mass diagram and 498,751 sta. yds. by assuming a center of mass of borrow.
6.	Includes 384 Tons for bridge approaches as shown on detail sheets and 37 Tons for subgrade treatment. See Form 103-3.
7, 17.	For subdrains at bridge approaches. See detail sheets.
8.	Existing pavement shall be wasted as per Note 213-1. Refer to Tabulation Form 102-5 for details of existing pavement. Also includes 44 lineal feet of sawcut which shall be considered to this bid item.
19.	Coarse aggregate with Class 2 durability shall be furnished. Chart B of the Smoothness Specifications 913 shall apply. Includes CD Joints.
20.	Refer to Detail Sheets for details. Includes 50 lineal feet of 6" integral curb which shall be considered incidental to this bid item.
22.	For placement under the 3" granular surfaced shoulders which requires 54 cu. yds. and is available from the borrow.
23.	Estimated for the side road at a rate of 2,100 Tons per mile.
24.	Railing to be furnished in 25' lengths for RE-52 installation. Includes 4 - RE-49 beam guardrail bridge end anchorages.
25.	Refer to Tabulation Form 108-8 for details.
27.	Install only, use 4 object markers removed on Item 35.
28, 29.	For sod flumes at bridge approach sections, see modification typical to bridge approach for details.
35.	Object markers to be removed and stockpiled in the right of way to be picked up by State Maintenance Department. Salvage 4 object markers for reuse. See Note 27.
39.	Included for all disturbed areas as designated by the engineer. Seed mixture as follows: Fescue, Ky. 31 25 lbs. per acre Reed Canarygrass 10 lbs. per acre Birdsfoot Trefoil (Empire) 5 lbs. per acre Clover, Alsike 5 lbs. per acre Winter Rye 20 lbs. per acre Fertilizer Rate: 600 lbs. of 15-15-15 of equivalent chemically combined commercial fertilizer per acre. Mulch Rate: 1-1/2 Tons of dry cereal straw per acre.
40-41.	For subdrains at bridge approaches, see detail sheets.
41.	Includes 0.2 cu. yds. Class "A" crushed stone. See Detail Sheet 500-7.

ESTIMATED PROJECT QUANTITIES			100-0
No.	ITEM	UNIT	TOTAL
1	Class 10 Excavation (Roadway and Borrow)	Cu. Yds.	9,144
2	Class 10 Channel Excavation	Cu. Yds.	9,144
3	Class 12 Excavation (Borrow)	Cu. Yds.	242
4	Class 20 Excavation	Cu. Yds.	420
5	Overhaul	Sta. Yds.	664
6	Special Backfill	Tons	2.6
7	Porous Backfill	Cu. Yds.	3
8	Removal of Old Pavement	Sq. Yds.	100
9	Barricades	Lin. Ft.	46
10	42" Concrete Roadway Pipe Culvert	Lin. Ft.	52
11	48" Corrugated Metal Roadway Pipe Culvert	Lin. Ft.	122
12	30" Corrugated Metal Roadway Pipe Culvert	Lin. Ft.	2
13	30" Unclassified Entrance Pipe Culvert	Lin. Ft.	2
14	42" Concrete Aprons	No.	2
15	48" Metal Aprons	No.	2
16	30" Metal Aprons	No.	407
17	Engineering Fabric	Sq. Yds.	225
18	Location Title Line	Stas.	196
19	10" P.C. Conc. Pavement Standard or Slipform Class C)	Sq. Yds.	93.6
20	Reinforced Bridge Approach Section	Sq. Yds.	334.9
21	Granular Surfacing of Shoulders	Tons	250
22	Earth Shoulder Construction	Stas.	52
23	Granular Surfacing on Road (Class A Crushed Stone)	Tons	4
24	Formed Steel Beam Guardrail	Lin. Ft.	4
25	Beam Guardrail Posts	No.	12.3
26	RE-52 Beam Guardrail End Anchorages	No.	12.3
27	Type 3 Object Markers (RE-47)	No.	Deleted
28	Sodding	Sqs.	1
29	Special Ditch Control Jute Mesh over Sod	Sqs.	1
30	Examples	Lump Sum	1
31	48" Corr. Metal Type A Diaphragm	No.	1
32	30" Corr. Metal Type A Diaphragm	No.	1
33	48" Corrugated Metal Elbows (7" 30")	No.	1
34	30" Corrugated Metal Elbows (7" 30")	No.	12
35	Removal of Object Markers	No.	550
36	Silt Fence	Lin. Ft.	230
37	Silt Fence for Ditch Checks	Lin. Ft.	4,504
38	Strip, Salvage & Spreading Topsoil	Cu. Yds.	4.5
39	Seeding, Fertilizing & Mulching	Acres	90
40	4" Perforated Subdrain as per Plan	Lin. Ft.	2
41	6" C.M.P. Subdrain Outlet	No.	4,000.00
42	Traffic Control	Lump Sum	4,755.00
8001	Cleaning & Grubbing	L.S.	80
8002	Culvert Corr. Metal Entr. Pipe 24"	Lin. Ft.	22
8003	Cofferdam Additional Height	Lin. Ft.	18
8004	Steel Diaphragms	only	2670.35
8005	Price Adjustment to Cofferdam Cost	L.S.	4
8006	Mobilization	HRS.	4.86
8007	Stabilizing Crop Seeding and Fertilizing	Acres	

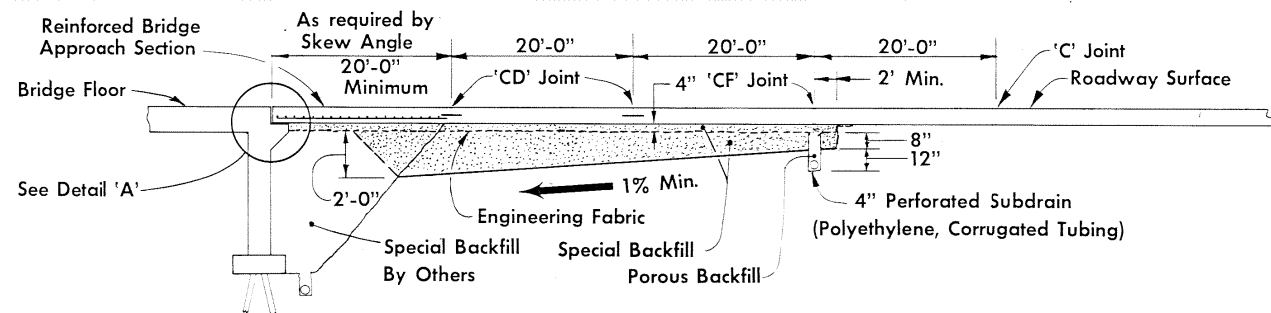
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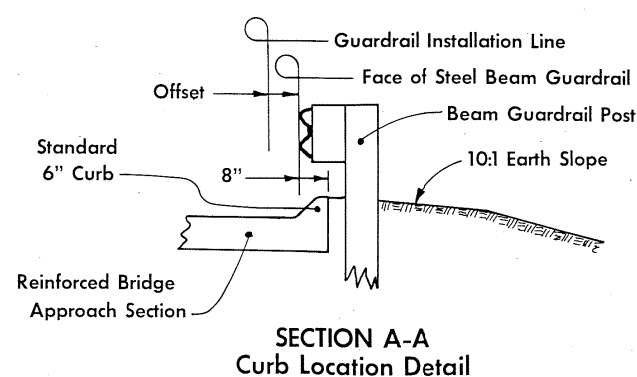
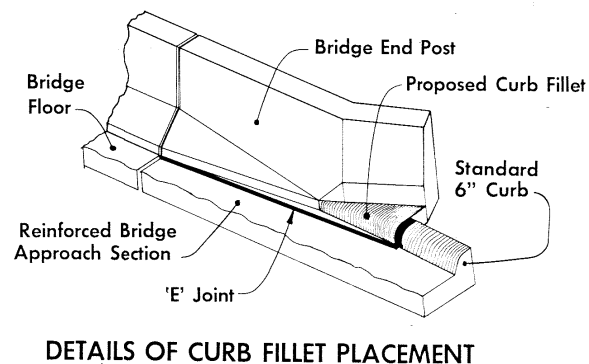
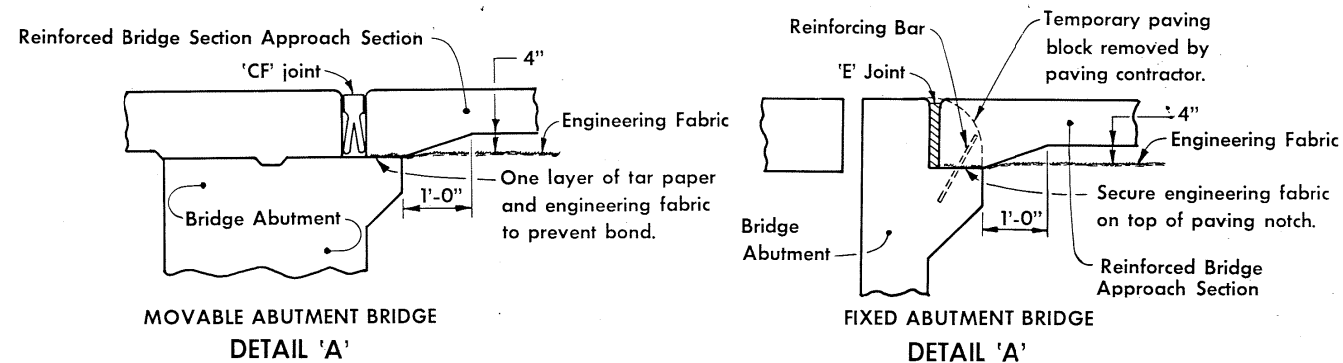
ROADWAY DESIGN	
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED UNDER MY SUPERVISION AND THAT ENGINEERING DECISIONS WITH REGARD TO THE DESIGN WERE MADE BY ME OR BY OTHER DULY REGISTERED PROFESSIONAL ENGINEERS UNDER THE LAWS OF THE STATE OF IOWA. <i>Melissa J. North</i> 5797 3-15-83 IOWA REGISTRATION NUMBER DATE	



PLAN VIEW

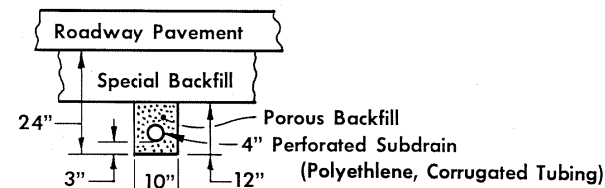


SECTION THRU CENTER LINE

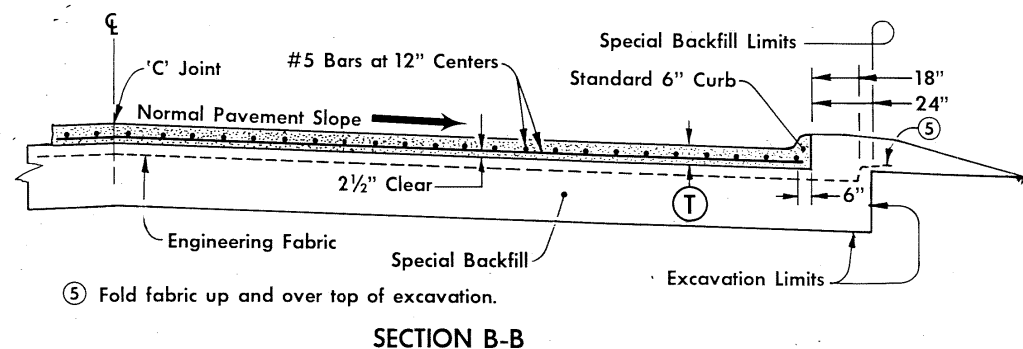


APPROACH PAVEMENT LAYOUTS AT VARIOUS SKEWS

- ① Design shoulder width.
- ② Reinforced Bridge Approach Section.



SUBDRAIN DETAILS



GENERAL NOTES:

The intent of this sheet is to detail the construction of a Portland Cement concrete bridge approach pavement.

The subgrade shall be excavated to the limits shown. A transverse subdrain (as detailed on this sheet) shall be installed directly beneath the location of the proposed 'CF' joint. The excavation shall be backfilled with special backfill material and an approved engineering fabric installed as shown. The engineering fabric shall be secured to the top of the bridge paving notch and folded at the 3 remaining edges to reach the level of the original subgrade (bottom of pavement).

A bridge approach pavement section shall be constructed of reinforced P.C. concrete with 6" integral curb. The skew angle of the bridge shall determine the shape of the reinforced bridge approach section as detailed hereon. The short edge of the section shall be a minimum of 5'-0" and the length at $\bar{C}$ of the roadway shall be a minimum of 20'-0". The two 20'-0" pavement panels between the reinforced bridge approach section and the 'CF' joint shall be standard P.C. concrete paving as specified by the plans for mainline paving.

A curb fillet shall be placed on top of the bridge wingwall and against the bridge end post as detailed hereon. The top of the wingwall and the face of the lower slope of the end post shall be painted with a cement/water grout immediately before the fillet is placed. There shall be no ties or contact between the curb fillet and the curb or pavement of the approach section.

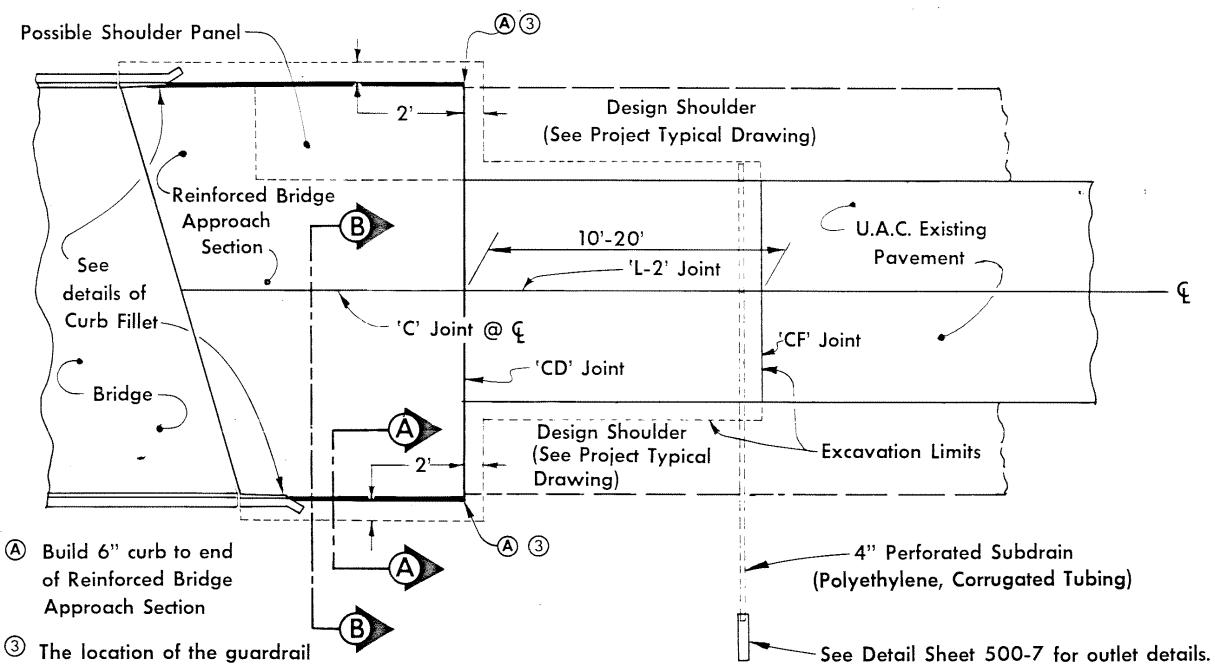
The 4" Perforated Subdrain, Subdrain Outlet 6 inch diameter corrugated metal pipe, Porous Backfill, Special Backfill, Engineering Fabric, and P.C.C. Pavement shall be placed as indicated hereon and elsewhere in the plans. Method of measurement and basis of payment for each item shall be as provided in current specifications for the respective item. The quantity of engineering fabric for which payment will be made, when placed as shown on this plan, will be the plan quantity in square yards. For the quantity of engineering fabric placed, the contractor will be paid the contract price per square yard.

The reinforced bridge approach section shall be paid for at the contract unit price for "Reinforced Bridge Approach Section". This item shall be full compensation for construction of the approach section with 6" integral curb, curb fillet and required joints as detailed hereon.

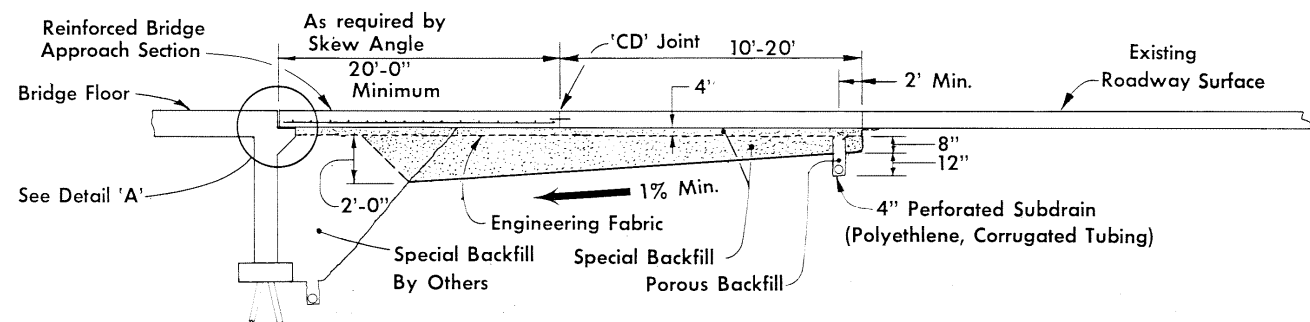
BRIDGE APPROACH DETAILS TWO-LANE

Warren COUNTY

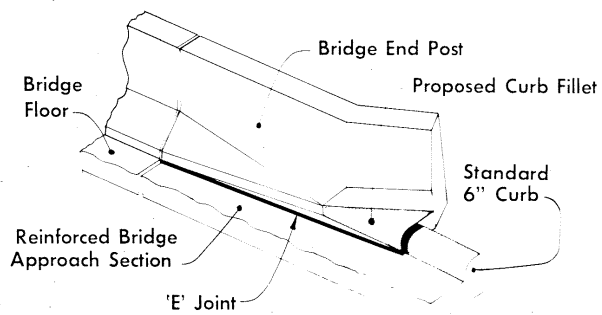
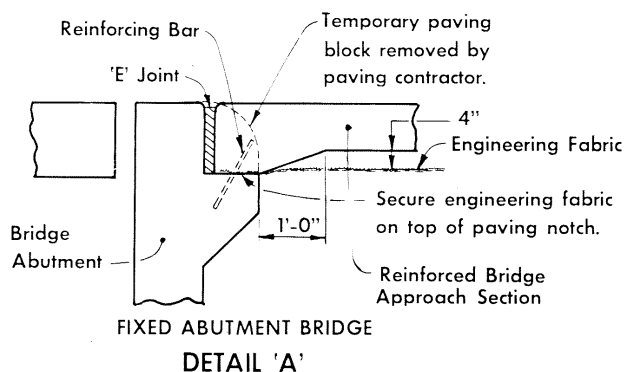
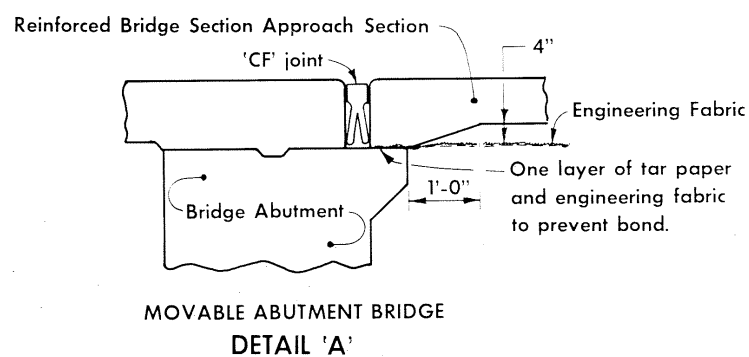
PROJECT NUMBER	STATE	FED. ROAD DIST. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
BRF-5-4 (16) -- 38-91	IOWA	5		29	45



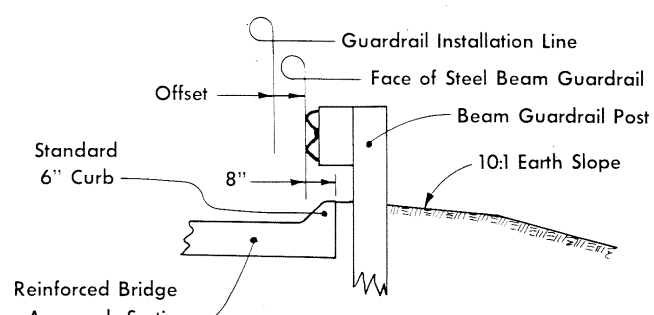
PLAN VIEW



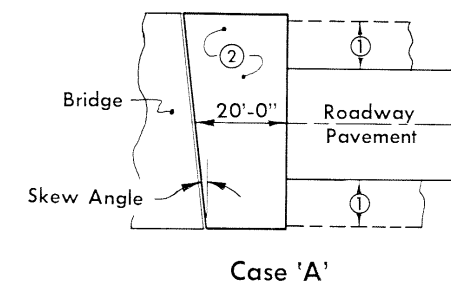
SECTION THRU CENTER LINE



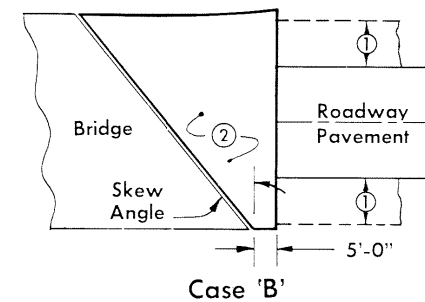
DETAILS OF CURB FILLET PLACEMENT



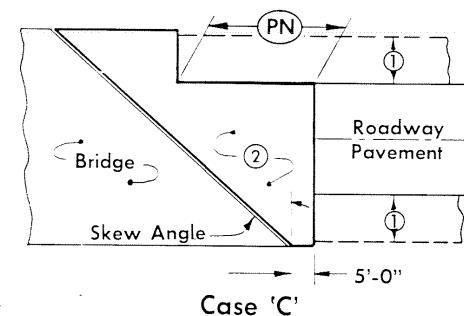
SECTION A-A
Curb Location Detail



Case 'A'



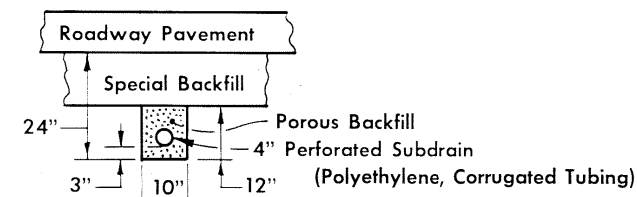
Case 'B'



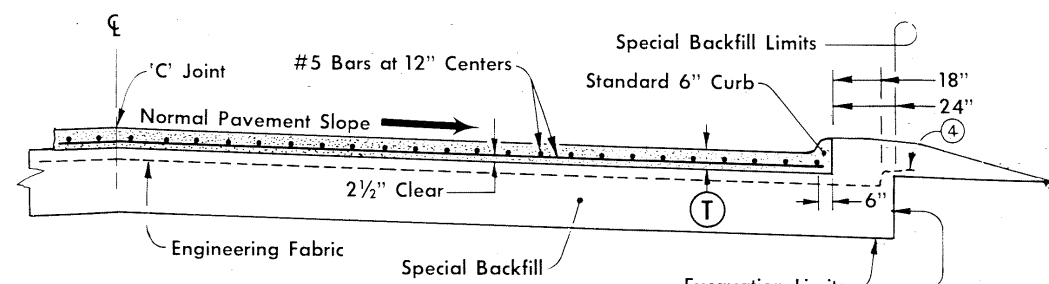
Case 'C'

APPROACH PAVEMENT LAYOUTS AT VARIOUS SKEWS

- ① Design shoulder width.
- ② Reinforced Bridge Approach Section.



SUBDRAIN DETAILS



- ④ Fold fabric up and over top of excavation.

SECTION B-B

GENERAL NOTES:

The intent of this sheet is to detail the construction of a Portland Cement concrete bridge approach pavement.

The subgrade shall be excavated to the limits shown. A transverse subdrain (as detailed on this sheet) shall be installed approximately 2' from the location of the proposed 'CF' joint. The excavation shall be backfilled with special backfill material and an approved engineering fabric installed as shown. The engineering fabric shall be secured to the top of the bridge paving notch and folded at the 3 remaining edges to reach the level of the original subgrade (bottom of pavement).

A bridge approach pavement section shall be constructed of reinforced P.C. concrete with 6" integral curb. The skew angle of the bridge shall determine the shape of the reinforced bridge approach section as detailed hereon. The short edge of the section shall be a minimum of 5'-0" and the length at C of the roadway shall be a minimum of 20'-0". The 20'-0" pavement panel between the reinforced bridge approach section and the 'CF' joint shall be standard P.C. concrete paving as specified by the plans.

A curb fillet shall be placed on top of the bridge wingwall and against the bridge end post as detailed hereon. The top of the wingwall and the face of the lower slope of the end post shall be painted with a cement/water grout immediately before the fillet is placed. There shall be no ties or contact between the curb fillet and the curb or pavement of the approach section.

The 4" Perforated Subdrain, Subdrain Outlet 6 inch diameter corrugated metal pipe, Porous Backfill, Special Backfill, Engineering Fabric, and P.C.C. Pavement shall be placed as indicated hereon and elsewhere in the plans. Method of measurement and basis of payment for each item shall be as provided in current specifications for the respective item. The quantity of engineering fabric for which payment will be made, when placed as shown on this plan, will be the plan quantity in square yards. For the quantity of engineering fabric placed, the contractor will be paid the contract price per square yard.

The reinforced bridge approach section shall be paid for at the contract unit price for "Reinforced Bridge Approach Section". This item shall be full compensation for construction of the approach section with 6" integral curb, curb fillet and required joints as detailed hereon.

BRIDGE APPROACH DETAILS, TWO LANE, FOR BRIDGE RECONSTRUCTION

Warren COUNTY

PROJECT NUMBER
BEF- 5-4 (16) -- 38-21

STATE	FED. ROAD DIST. NO.	1" SCALE YEAR	SHEET NO.	TOTAL SHEETS
IOWA	5		30	45