DUAL BRIDGE WIDENING
IR-80-5(147)137--12-77

POLK COUNTY

CONVENTIONAL SIGNS

- DIVIDED HIGHWAY
- PAVED ROAD
- BITUMINOUS ROAD
- GRAVEL ROAD
- EARTH ROAD
- INTERSTATE HIGHWAY
- UNITED STATES HIGHWAY
- STATE HIGHWAY
- COUNTY HIGHWAY
- RAILROAD
- PIPLINE
- AIRPORT
- HYDROLOGY
- BRIDGE
- STATE BOUNDARY
- COUNTY BOUNDARY
- CORPORATE LIMIT LINE
- TOWNSHIP LINE
- SECTION LINE

CONSTRUCTION PLANS SHOWING PROJECT AS BUILT

Plan Preparation Supervised By: MITCH DILLAVOU
Resident Construction Engineer
Date 2-28-94 Iowa Reg. No. 12250

REVIEWED AND FORWARDED TO AMES

ROBERT YOUNIE Date 3/1/95
District Construction Engineer
~~One 50% Reduced and Two~~ ONE Full-Size Prints To Be Made and Returned To

KENNETH MEEKS
District Engineer

AFTER MICROFILMING RETURN ORIGINAL TO DISTRICT NO. 1

IOWA

DEPARTMENT OF TRANSPORTATION

Highway Division

PLANS OF PROPOSED IMPROVEMENTS ON THE

INTERSTATE ROAD SYSTEM

POLK COUNTY

DUAL BRIDGE WIDENING

ON I-80 OVER

FOUR MILE CREEK

SCALES: As Noted

The standard specifications, series of 1984 of the Iowa Department of Transportation, shall apply to construction work on this project.
PLUS CURRENT SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS)

THIS AS BUILT PLAN INCLUDES

YEAR	WORK	CONTRACTOR	PROJ. INSPECTOR
92	DUAL BRIDGE WIDENING	CRAMER & ASSOC.	JAMES BOLLENBAUGH

STATE	FHWA REGION	F.Y.	SHEET	TOTAL
IOWA	7		1	43

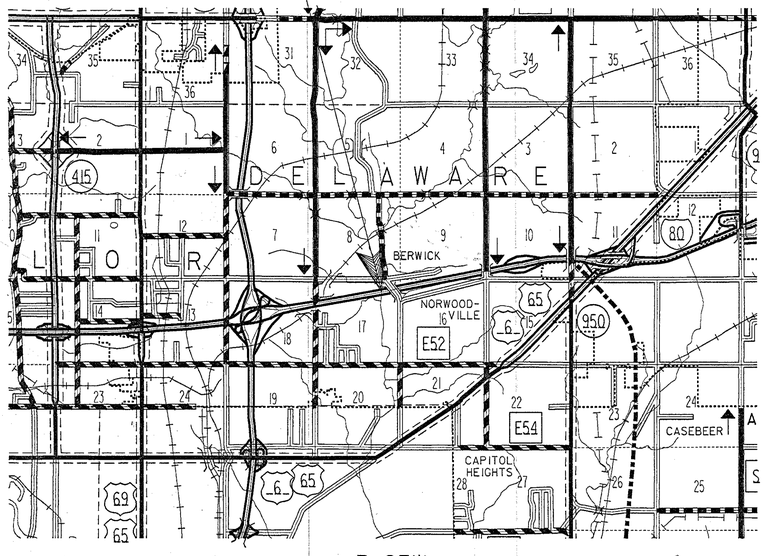
PROJECT NUMBER
IR-80-5(147)137--12-77
R.O.W. PROJECT NUMBER

PIN
90-77-220-4

INDEX OF SHEETS

NO.	DESCRIPTION
1	TITLE SHEET
2	ROAD ESTIMATE SHEET
3	BRIDGE ESTIMATE SHEET
3-31	BRIDGE DESIGN NO. 1491
32-43	ROAD SHEETS
43A	PILE LOGS

DESIGN No. 1491



LOCATION MAP SCALE
0 1 2 3
Miles

920112
008647
042
SJK

STANDARD ROAD PLANS			
IDENT	DATE	IDENT	DATE
SEE	SHEET	32	

STANDARD BRIDGE PLANS		
STANDARD	ISSUED	REVISED

#175

Copied for CITC
Lup
Bridge #'s
7739.4L080
7739.4R080

COMPLETED BY: STEVE HUBLER
CHECKED BY: RALPH CORY

REVISIONS

Iowa Department of Transportation

AUTHORIZED FOR LETTING
George F. Sisson 11-14-91
DEPUTY CHIEF ENGINEER DATE

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.
Name Wendal Johnston
Iowa Registration No. 4316 Date 10/30/91

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
APPROVED

FOR THE DIVISION ADMINISTRATOR DATE

1-7-92 GJP 1491 Exe

LETTING DATE 1-7-92 STATE CONTROL SECTION NUMBER 77-0300 Steve 10-28-91 MHK 10-30-91 FILE NO. 28266 POLK COUNTY PROJECT NO. IR-80-5(147)137--12-77 SHEET NO. 1

ESTIMATE REFERENCE INFORMATION

IR-80-5(147)137--12-77

100-4A
01-09-90

Date listed below is for informational purposes only and shall not constitute a basis for any extra work orders.

ITEM NO.	DESCRIPTION
1A.	See Typical Sections, road Tab 4 and tab. 107-23 for details and locations
B.	Material is available within the project limits as directed by the engineer.
C.	No payment for overhaul will be allowed.
2A.	See Road Tab. 1 and Road Typ. 3 for details and locations.
B.	Includes rolled stone base, granular subbase, subgrade materials. Yields 141 tons or approximately 75 cu. yds. of rolled stone base and granular subbase to be used as special backfill.
C.	Rolled stone base and granular subbase shall be placed under pavement, edge treatment fillet or a minimum of 8" of subgrade material.
D.	No payment for overhaul will be allowed.
3-6A.	See Road Typ. 1 and Road Typ. 2 for details and locations.
B.	Use only AC-20 on the entire project
7A.	See Road Typ. 1 and Road Typ. 2 for details and locations.
B.	The contractor shall convert all of the existing pavement for use as special backfill. The existing pavement will yield approximately 44 tons of special backfill.
C.	Special backfill that is not reclaimed from the existing pavement will come from the existing rolled stone base and granular subbase.
D.	The contractor will take care to ensure that subgrade material is not mixed with the materials that are to be used as special backfill.
8.	See Road Tab 3 and Detail Drawing 7145 for locations and details.
9A.	See Tab. 110-1 for locations and details.
B.	Yields 44 tons of crushed pavement to be used as special backfill.
C.	Saw cut shall be incidental to this bid item.
10-15.	See Tab 108-8A and Tab 108-19 for locations and details.
16.	See Tab. 108-17 for locations and details.
17.	See Tab 108-17 and Road Typ 4 for locatons and details.
18A.	The two RE-52 end anchorages to be removed for pay shall become the property of the contractor.
B.	See Tab. 110-7 for details and locations.
19-20.	The stockpile location will be within the limits of the Des Moines West (University) Maintenance Facility. The manner and exact location of stockpiling must meet with the approval of the maintenance engineer. See Tab. 110-7 for details and locations.
21-22.	The stockpile location will be within the limits of the Des Moines West (University) Maintenance Facility. The manner and exact location of stockpiling must meet with the approval of the maintenance engineer.
23.	See Road Tab 6 and detail drawing 9001 for details and locations.
24.	See Road Tab 5 for details and locations.
25.	See Tab 100-18 for details and locations.
27.	See Tab 108-23 and the traffic control layout sheets included in this plan.
28.	See Detail Sheet 570-2 and the traffic control layout sheets for details and locations.

ESTIMATED PROJECT QUANTITIES

100-1A
07-16-91

NO.	ITEM	UNIT	TOTAL	AS BUILT QUAN.
1	Class 10 Excavation, Roadway & Borrow	Cu.Yds.	197	
2	Class 13 Excavation, Roadway & Borrow	Cu.Yds.	~~180~~	196.71
3	Asphalt Cement Concrete, Type "B",Class 1, Base	Tons	~~284~~	271.49
4	Asphalt Cement Concrete, Type "A", Surface Course, 3/4" Mix	Tons	~~50~~	74.21
5	Primer or Tack Coat Bitumen	Gals	~~80~~	58.4
6	Asphalt Cement	Tons	21	18.08
7	Special Backfill	Tons	185	184.51
8	Aggregate for Paved Shoulder Fillets	Tons	91	72.28
9	Removal of Pavement	Sq.Yds.	362	409.2
10	Formed Steel Thrie Beam Guardrail	Lin.Ft.	187.5	
11	Formed Steel "W" Beam Guardrail	Lin.Ft.	275	261
12	Beam Guardrail Posts	No.	79	76
13	RE-52 Beam Guardrail End Anchorages	No.	2	
14	RE-69 Beam Guardrail End Anchorages	No.	6	
15	RE-53 Beam Guardrail End Anchorages	No.	2	
16	Type 3 Object Marker	No.	4	
17	Single White Delineators	No.	1	
18	Removal of Guardrail End Anchorages	No.	2	
19	Remove and Stockpile Formed Steel Beam Guardrail	Lin.Ft.	588	587.5
20	Remove & Stockpile (Guardrail) Posts	No.	110	112
21	Remove & Stockpile Delineators	No.	17	
22	Remove & Stockpile Object Markers	No.	4	
23	Pavement Markings	Stas.	112.5	0
24	Removal, As Per Plan	L.S.	Lump Sum	$ 300.00
25	Silt Fence for Ditch Check	Lin.Ft.	30	
26	Samples	L.S.	Lump Sum	0
27	Traffic Control	L.S.	Lump Sum	$6004.18
28	Temporary Floodlighting	L.S.	Lump Sum	$1000.00
29	Concrete Structural	C.Y.	423.2	
30	Steel, Reinforcing	LBS	17658	
31	Steel, Reinforcing Epoxy Coated	LBS	80,760	
32	Steel, Structural	LBS	4,240	
33	Beams, Pretensioned Prestressed Concrete LXB59	ONLY	16	
34	Beams, Pretensioned Prestressed Concrete LXB67	ONLY	8	
35	Rail, Concrete Barrier	L.F.	821.2	
36	Excavtion Class 20	C.Y.	200	
37	Backfill, Granular	Tons	188	

Form 520007
12-88

ESTIMATED PROJECT QUANTITIES

100-0
8-20-85

NO.	ITEM	UNIT	TOTAL
38	Sealer, Concrete As Per Plan	S.F.	176
39	Retiovals, As Per Plan	L.S.	$40,000.00
40	Temporary Barrier Rail, Furnish Only	L.F.	20
41	Temporary Barrier Rail, Place Only	L.F.	2160
42	Subdrain, As Per Plan	L.F.	354
43	Piling, Furnish Steel Bearing HP10x42	L.F.	1121.5
44	Piling, Drive Steel Bearing HP10x42	L.F.	982.8
45	Mobilization	L.S.	$50,000.00
8001	Pavement Markings	Stas.	274.57
8002	Floodlights, Move	L.S.	$800.00
8003	Traffic Control Devices, Wash	HRS	2.0
8004	Bridge Drain, Adjust	ONLY	12.0
8005	Pipe, Extension	L.S.	170.15
8006	Bridge Deck, Cure	L.S.	937.04

DESIGN NO. 1491
FILE NO. 28266

ROADWAY DESIGN

MARK KERPER
REGISTERED
10054
IOWA
PROFESSIONAL ENGINEER

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.

Name Mark Kerper

Iowa Registration No. 10054 Date 7-17-91

65300
BRUNING
I.D.O.T. #000-316920

POLK COUNTY

PROJECT NUMBER	STATE	FHWA Region	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IR-80-5(147)137--12-77	IOWA	7		2	43

TOTAL ESTIMATED BRIDGE WIDENING QUANTITIES

ITEM NO.	ITEM		UNIT	WEST BOUND BRIDGE				EAST BOUND BRIDGE				TOTAL 2 BRIDGES
				2 ABUTMENTS	2 PIERS	SUPERSTR.	TOTAL	2 ABUTMENTS	2 PIERS	SUPERSTR.	TOTAL	
~~1~~ 29	STRUCTURAL CONCRETE		CU. YD.	42.8	19.0	149.8	211.6	42.8	19.0	149.8	211.6	423.2
~~2~~ 30	REINFORCING STEEL		LBS.	4,058	3,598	1,173	8,829	4,058	3,598	1,173	8,829	17,658
~~3~~ 31	REINFORCING STEEL-EPOXY COATED		LBS.	854	—	39,526	40,380	854	—	39,526	40,380	80,760
~~4~~ 32	STRUCTURAL STEEL		LBS.	—	—	2,120	2,120	—	—	2,120	2,120	4,240
~~5~~ 33	PRETENSIONED PRESTRESSED CONCRETE BEAMS	LXB59	NO.	—	—	8	8	—	—	8	8	16
~~6~~ 34		LXB67	NO.	—	—	4	4	—	—	4	4	8
~~7~~ 35	CONCRETE BARRIER RAIL		LIN. FT.	—	—	—	410.6	—	—	—	410.6	821.2
~~8~~ 36	CLASS 20 EXCAVATION		CU. YD.	100	—	—	100	100	—	—	100	200
~~9~~ 37	GRANULAR BACKFILL		TONS	94	—	—	94	94	—	—	94	188
~~10~~ 38	CONCRETE SEALER AS PER PLAN		SQ. FT.	—	—	—	88	—	—	—	88	176
~~11~~ 39	REMOVALS - AS PER PLAN		L.S.	—	—	—	LUMP SUM	—	—	—	LUMP SUM	$ 40,000.00
~~12~~ 40	TEMPORARY BARRIER RAIL	FURNISH ONLY	LIN. FT.	—	—	—	10	—	—	—	10	20
~~13~~ 41		PLACE ONLY	LIN. FT.	—	—	—	1,080	—	—	—	1,080	2,160
—		—	—	—	—	—	—	—	—	—	—	—
~~14~~ 42	SUBDRAIN AS PER PLAN		LIN. FT.	—	—	—	—	—	—	—	—	~~346~~ 354
~~15~~ 43	HP10x42 STEEL	FURNISH	LIN. FT.	14 @ 44'	—	—	616	14 @ 44'	—	—	616	~~1,232~~ 1121.5
~~16~~ 44	BEARING PILING	DRIVE	LIN. FT.	14 @ 44'	—	—	616	14 @ 44'	—	—	616	~~1,232~~ 982.8
45	MOBILIZATION		L.S.									$ 50,000.00

ESTIMATE REFERENCE INFORMATION

ITEM NO.

1 INCLUDES COST OF ALL PREFORMED EXPANSION JOINT FILLER REQUIRED.

3 INCLUDES 38,322 LIN. FT. OF NO. 5 BAR
24,848 LIN. FT. OF NO. 6 BAR
1,696 LIN. FT. OF NO. 7 BAR

4 INCLUDES 231 LBS. LUBRICATED BRONZE PLATE, 138 LBS. LEAD SHEET AND 16 DRAINS AT 82 LBS. EACH.

5 & 6 INCLUDES THE COST OF PIER BEARING MATERIAL AND ABUTMENT END CURVED SOLE PLATES.

8 INCLUDES ALL COSTS ASSOCIATED WITH RETAINING EARTH AND/OR GRANULAR MATERIAL AT THE ABUTMENTS.

12 ALL TEMPORARY BARRIER RAIL SHALL BE NOMINAL 10' LONG CONCRETE UNITS. INCLUDES TWO TAPER SECTIONS.

13 TEMPORARY BARRIER RAILS EXCEPT TAPER SECTION WILL BE AVAILABLE TO CONTRACTOR AT THE UNIVERSITY AVE. MAINTENENCE YARD IN CLIVE.

14 INCLUDES THE EXCAVATION NECESSARY FOR THE SUBDRAIN INSTALLATION AND THE COST OF 23 TONS OF POROUS BACKFILL.

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

10-29-91 DATE — Gene J. Pollmann — GENE J. POLLMANN — REG. NO. 4060

SPECIFICATIONS:

DESIGN: AASHTO SERIES OF 1989.
CONSTRUCTION: IOWA DEPARTMENT OF TRANSPORTATION SPECIFICATION, SERIES OF 1984, 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 1989.
REINFORCING STEEL IN ACCORDANCE WITH SECTION 8, GRADE 60.
CONCRETE IN ACCORDANCE WITH SECTION 8, f'c = 3,500 PSI.
PRESTRESSED CONCRETE BEAMS, SEE DESIGN SHEET 21.
STRUCTURAL STEEL IN ACCORDANCE WITH SECTION 10. ASTM A-36.

TRAFFIC CONTROL PLAN

TRAFFIC CONTROL PLAN NOTES AND ROAD QUANTITIES MAY BE FOUND ELSEWHERE IN THESE PLANS.

DESIGN HISTORY AT THIS SITE

DESIGN NO.	TYPE OF WORK
758	ORIGINAL CONSTRUCTION
1178	OVERLAY

DESIGN FOR WIDENING OF 16° 54' SKEW (L.A.)

DUAL 188'-4x42' PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGES TO 56' ROADWAY BRIDGES

59'-9½ END SPANS 68'-9 CENTER SPAN

ESTIMATED QUANTITIES

STATION : 1174+05.00 OCTOBER, 1991

POLK COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 1 OF 29 FILE NO. 28266 DESIGN NO. 1491

DESIGNED BY R.J. Meyer DETAILED BY D. Wright TRACED BY CHECKED BY J. Claussen

SECTION LEADER G. Pollmann

POLK COUNTY

PROJECT NUMBER	STATE	FHWA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IR-80-5(147)137--12-77	IOWA	7		3	43

H77149100.S02

DEVICE : ZHA:[200,5] ARCH. TAPE NO._____ DATE_____

HFRONTSHT.S01 --LEP: THIS SHEET DRAWN, DEVICE:ZHA0:[200,004] ARCH.TAPE NO._____ DATE_____

GENERAL NOTES:

THIS DESIGN IS FOR THE WIDENING OF THE EXISTING DUAL 188'-4 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGES, FROM 42' TO 56'. THESE BRIDGES WERE BUILT UNDER ORIGINAL DES. NO. 758 POLK COUNTY. PRINTS OF THE ORIGINAL DESIGN PLANS AND OVERLAY PLANS ARE AVAILABLE AT THE AMES OFFICE OF THE IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION.

DIMENSIONS SHOWN ON THESE PLANS ARE BASED ON DESIGN PLANS OF ORIGINAL DESIGN NO. 758 POLK COUNTY, AND OVERLAY DESIGN NUMBER 1178 POLK COUNTY.

ELEVATIONS SHOWN ON THESE PLANS ARE BASED ON THE ORIGINAL DESIGN PLANS AND GRADE DATA PLUS A $1\frac{1}{2}$" GRADE RAISE ON THE EASTBOUND BRIDGE AND WESTBOUND BRIDGE FOR OVERLAY. ADJUSTMENTS TO THE ELEVATIONS MAY BE REQUIRED IF "AS BUILT" DIMENSIONS VARY FROM THE ORIGINAL GRADE DATA. SEE DES. SH. 25 FOR FURTHER INFORMATION.

ALL DIMENSIONS AND DETAILS SHOWN ON THESE PLANS PERTINENT TO NEW CONSTRUCTION IN RELATION TO EXISTING PORTIONS OF THE STRUCTURE SHALL BE VERIFIED IN THE FIELD BY THE BRIDGE CONTRACTOR BEFORE STARTING CONSTRUCTION.

TWO LANES OF TRAFFIC WILL BE MAINTAINED ON EACH ROADWAY OF I-80 DURING CONSTRUCTION EXCEPT AS NOTED IN THE TRAFFIC CONTROL PLAN (TAB 108-23A) SHOWN ELSEWHERE IN ROAD PLANS.

UTILITY COMPANIES WHOSE FACILITIES ARE KNOWN TO BE WITHIN THE CONSTRUCTION LIMITS, SHALL BE NOTIFIED BY THE CONTRACTOR OF THE CONSTRUCTION STARTING DATE.

FAINT LINES ON TRACINGS AND ON PRINTS INDICATE THE EXISTING STRUCTURE.

THE WIDENED PORTIONS OF THE BRIDGES ARE DESIGNED FOR HS20-44 AND ALTERNATE MILITARY LOADINGS, PLUS 20 LBS PER SQUARE FOOT OF ROADWAY FOR FUTURE WEARING SURFACE.

NO LIFTING FROM THE EXISTING BRIDGES WILL BE ALLOWED.

THE BRIDGE CONTRACTOR WILL BE THE ONLY CONTRACTOR AT THE SITE AND IS RESPONSIBLE FOR THE COMPLETION OF ALL WORK AS DETAILED AND NOTED ON THESE PLANS.

THE WIDENED PORTIONS OF THE APPROACH FILLS ARE NOT A PART OF THE BRIDGE ESTIMATED QUANTITIES BUT ARE TO BE IN PLACE BEFORE ANY ABUTMENT PILES ARE DRIVEN. THE CONTRACTOR IS TO LEVEL OFF AND SHAPE THE BERMS TO THE ELEVATIONS AND DIMENSIONS SHOWN. THE CONTRACTOR SHALL DRESS UP THE SLOPES AROUND THE NEW WINGS. THIS WORK SHALL BE CONSIDERED INCIDENTAL AND NO EXTRA PAYMENT WILL BE MADE.

THE CONTRACTOR IS TO RETAIN EARTH AND/OR GRANULAR MATERIAL BEHIND THE PORTION OF ABUTMENTS SUBJECTED TO TRAFFIC DURING WIDENING BY METHODS APPROVED BY THE ENGINEER. ALL COSTS FOR RETAINING THE EARTH AND/OR GRANULAR MATERIAL SHALL BE INCLUDED IN THE PRICE BID FOR " CLASS 20 EXCAVATION ".

ALL REINFORCEMENT SUPPLIED FOR THIS STRUCTURE IS TO BE GRADE 60.

ALL OF THE REINFORCING BARS IN THE SLAB AND BARRIER RAILS ARE TO BE EPOXY COATED. SOME OF THE REINFORCING BARS IN THE ABUTMENTS ARE TO BE EPOXY COATED. SEE EPOXY COATED REINFORCING BAR LISTS IN THESE PLANS.

ALL STRUCTURAL CONCRETE FOR THE BRIDGE FLOOR IS TO BE CLASS "C" ; SUBSTITUTION OF CLASS "D" CONCRETE IS NOT ALLOWED.

THE PRICE BID FOR " STRUCTURAL CONCRETE " SHALL INCLUDE THE COSTS OF SETTING BARS AS DOWELS IN THE EXISTING PIERS.

CONCRETE SEALER IS TO BE APPLIED TO THE EXPOSED BRIDGE SEAT SURFACES OF NEW PORTIONS OF THE ABUTMENTS. THE BRIDGE SEAT SURFACE IS TO INCLUDE ALL SURFACES OF THE BRIDGE SEAT STEPS, THE WASH BETWEEN THE STEPS, AND THE EDGE FILLETS. THE SEALER MATERIAL, SURFACE PREPARATION, AND APPLICATION SHALL BE IN ACCORDANCE WITH IOWA D. O. T. STANDARD SPECIFICATIONS ARTICLE 2403.23(D).

IF NECESSARY TO PREVENT DAMAGE TO THE END OF THE BRIDGE DECK OR BACKWALL FROM CONSTRUCTION EQUIPMENT, AN APPROPRIATE METHOD OF PROTECTION APPROVED BY THE ENGINEER SHALL BE PROVIDED BY THE CONTRACTOR AT NO EXTRA COST TO THE STATE.

ALL TEMPORARY BARRIER RAIL EXCEPT FOR THE TAPER SECTIONS WILL BE MADE AVAILABLE TO THE CONTRACTOR AT THE UNIVERSITY AVE. MAINTENANCE YARD IN CLIVE. THE PRICE BID FOR "TEMPORARY BARRIER RAIL - PLACE" SHALL INCLUDE ALL COSTS INVOLVED FOR HAULING 1000 LF OF TEMPORARY BARRIER RAILS FROM THE MAINTENANCE YARD TO THE JOB SITE AND RETURNING THEM UPON COMPLETION OF THE PROJECT. THE CONTRACTOR SHALL PROVIDE REFLECTORS AS DETAILED ON THE BARRIER RAIL LAYOUTS. LOADING AND UNLOADING SHALL BE DONE IN A MANNER TO MINIMIZE DAMAGE, AND STORAGE PLACEMENT SHALL BE AS DIRECTED BY THE ENGINEER. THE TAPERED BARRIER RAIL SECTIONS SHALL REMAIN THE PROPERTY OF THE CONTRACTOR. SEE DESIGN SHEET 7 OF 29 FOR "STORAGE PLAN FOR BARRIER RAIL".

THE CONTRACTOR IS TO INSTALL SUBDRAINS BEHIND THE ABUTMENTS AS DETAILED. THE SUBDRAINS SHALL BE AT LEAST 4" IN DIAMETER AND MEET REQUIREMENTS FOR THE TYPES PERMITTED IN SECTION 4143.01C. WHEN THE SUBDRAINS ARE INSTALLED USING FLEXIBLE TUBING OR SHORT LENGTHS OF CONCRETE OR CLAY TILE, THE ENDS SHALL CONSIST OF 6' LENGTHS OF CORRUGATED METAL PIPE (CMP) THAT PROTRUDE A MINIMUM THROUGH THE FORESLOPE. THE CONNECTION BETWEEN THE FLEXIBLE TUBING OR TILE AND THE CMP MAY BE MADE WITH A REDUCER COUPLING OR BY EXTENDING THE FLEXIBLE TUBING OR TILE INTO THE CMP A MINIMUM OF 6 INCHES AND PACKING THE OPEN SPACE BETWEEN THE PIPES WITH GROUT. A REMOVABLE $\frac{3}{8}$" MESH GALVANIZED SCREEN IS TO BE FASTENED TO THE END OF EACH OUTLET PIPE. THE PRICE BID FOR "SUBDRAIN, AS PER PLAN" IS TO INCLUDE ALL MATERIAL, LABOR AND EXCAVATION NECESSARY FOR THE INSTALLATION.

BACKFILL BEHIND THE NEW ABUTMENT BACKWALLS BETWEEN THE NEW WING AND EXISTING BACKWALL CONCRETE BREAK LINE IS TO BE AS SHOWN IN THESE PLANS. ANY REMAINING ABUTMENT EXCAVATION IS TO BE BACKFILLED WITH SOIL.

THE BID ITEM "STRUCTURAL STEEL" SHALL INCLUDE ALL COSTS ASSOCIATED WITH FURNISHING AND INSTALLING NEW BEAM BEARINGS (LESS ANCHORED CURVED SOLE PLATES), AND DECK DRAINS.

THE BID ITEM "REMOVALS - AS PER PLAN" SHALL INCLUDE ALL COSTS OF REMOVAL AND DISPOSAL OF THE FOLLOWING PORTIONS OF EACH OF THE BRIDGES:

1. A 5'-$3\frac{1}{2}$ PORTION OF THE EXISTING SLAB FROM THE SLAB LONGITUDINAL BREAK LINE TO THE EDGE OF SLAB, ALONG WITH THE CURB, GUARDRAIL ANCHOR BLOCKS AND STEEL HANDRAILS FROM EACH SIDE OF EACH BRIDGE.
2. THE EXTERIOR LINE OF PRESTRESSED BEAMS FROM EACH SIDE OF EACH BRIDGE (TOTAL OF 12 BEAMS). ALSO THE ABUTMENT, PIER, AND INTERMEDIATE DIAPHRAGMS BETWEEN THE REMOVED BEAM LINE AND THE ADJACENT INTERIOR BEAM LINE.
3. A PORTION OF THE ABUTMENT FOOTINGS AND BACKWALLS AT EACH CORNER OF EACH ABUTMENT, PLUS WINGS AND END POSTS AT EACH CORNER.
4. A SMALL PORTION FROM EACH END OF ALL PIER CAPS TO FACILITATE PLACEMENT OF THE NEW PORTIONS OF PIER CAPS.

THE CONTRACTOR WILL ALSO BE REQUIRED TO REMOVE A SMALL PORTION OF EXISTING APPROACH PAVEMENT AND SHOULDERS AT CORNERS OF THE BRIDGES TO FACILITATE PLACEMENT OF THE NEW PORTIONS OF ABUTMENT BACKWALLS. REMOVAL AND REPLACEMENT OF THESE AREAS SHALL BE AS DIRECTED BY THE ENGINEER. ALL COSTS ASSOCIATED WITH THIS REMOVAL AND REPLACEMENT SHALL BE CONSIDERED INCIDENTAL AND NO EXTRA PAYMENT WILL BE MADE. SEE DES. SHS. 5 & 6 FOR ADDITIONAL DETAILS AND LOCATIONS.

REMOVALS AND DISPOSALS SHALL BE IN ACCORDANCE WITH SECTION 2401 OF THE STANDARD SPECIFICATIONS. ANY DAMAGE TO OTHER PORTIONS OF THE EXISTING STRUCTURE NOT NOTED FOR REMOVAL SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE REPAIRED BY HIM AT NO EXTRA COST TO THE STATE. THE COST OF WASTING THE REMOVED MATERIAL IS TO BE INCLUDED IN THE PRICE BID FOR "REMOVALS AS PER PLAN".

IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE WASTE AREAS OR DISPOSAL SITES FOR EXCESS MATERIAL WHICH IS NOT DESIRABLE TO BE INCORPORATED IN THE WORK INVOLVED IN THIS PROJECT. NO PAYMENT FOR OVERHAUL WILL BE ALLOWED FOR MATERIAL HAULED TO THESE SITES.

SEE ROAD PLANS FOR DETAILS, NOTES AND QUANTITIES CONCERNING THE FOLLOWING ITEMS REQUIRED ON I-80:

(A) TRAFFIC CONTROL.
(B) APPROACH PAVEMENT AND SHOULDERING DETAILS.
(C) GUARDRAIL PLACEMENT.

IT IS ANTICIPATED THAT THE REMAINING EXISTING CENTER PORTION OF EACH ABUTMENT BACKWALL, WILL BE REMOVED AND REPLACED IN THE FOLLOWING CONSTRUCTION SEASON UNDER A FUTURE CONTRACT. IT IS ALSO ANTICIPATED THAT THE ENDS OF THE EXISTING SLAB WILL BE REMOVED AND REPLACED.

DESIGN FOR WIDENING OF 16° 54' SKEW (L.A.)

DUAL 188'-4x42' PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGES TO 56' ROADWAY BRIDGES

59'-$9\frac{1}{2}$ END SPANS 68'-9 CENTER SPAN

GENERAL NOTES

STATION : 1174+05.00 OCTOBER, 1991

POLK COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 2 OF 29 FILE NO. 28266 DESIGN NO. 1491

DESIGNED BY R.J. Meyer TRACED BY
DETAILED BY E. OGAWA CHECKED BY J.C. Hansen

H77149100.S03 DEVICE : ZHA:[200,5] ARCH. TAPE NO. _____ DATE _____

POLK COUNTY

PROJECT NUMBER

STATE	FHWA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	7		4	43

BENCH MARK: N°191 Sta. 1176+85 70' Rt. R.R. Spk West Side Fence Post Elev. 833.97
I.D.O.T. PLUG S.E. COR. BR. ON HANDRAIL I-80 W.B. OVER 4-MILE CR.
-- ELEV. = 843.56

T.H. #F-4005, Sta. 1175+15
℄ Survey Surface El. = 831.10

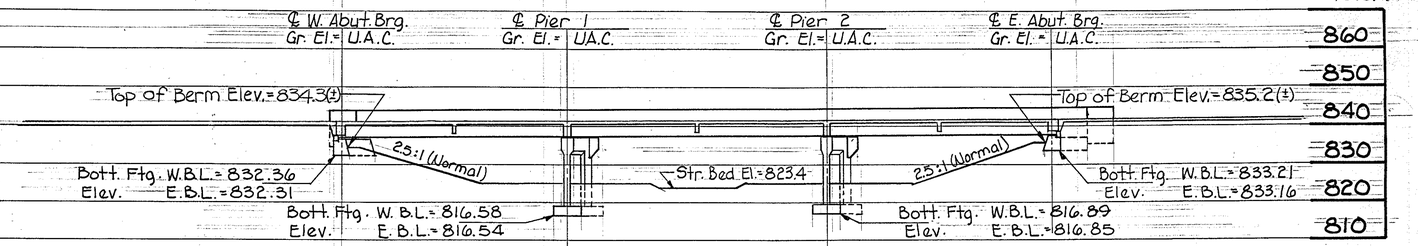
*N		
15		11.0' Firm Sandy Clay Fill
10		3.0' Firm Sandy Silty Clay
5		2.0' Med. Sand
7		6.0' Stiff Silty Clay
15	45.0'	10.0' Shale
12		
32		13.0' Firm Shale
100/4"		
100/4"		

Bott. Elev. = 786.10
Dated: 9-6-90

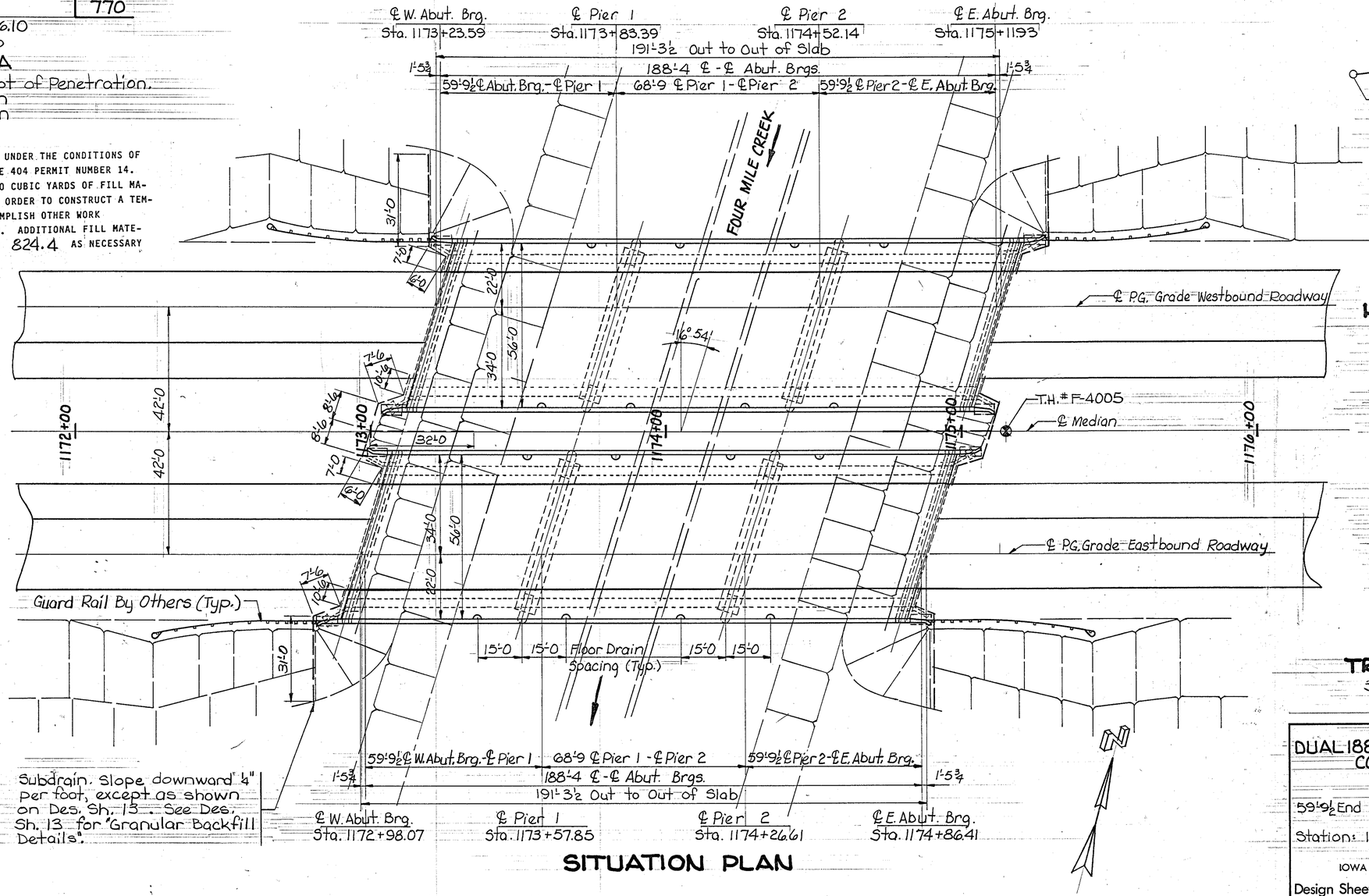
860 850 840 830 820 810 800 790 780 770

SOUNDING DATA

*Number of Blows Per Foot of Penetration.
± 0.55' Penetration
≠ 0.5' Penetration



LONGITUDINAL SECTION ALONG PROFILE GRADE



SITUATION PLAN

THIS STRUCTURE IS TO BE BUILT UNDER THE CONDITIONS OF ARMY CORPS OF ENGINEERS NATION WIDE 404 PERMIT NUMBER 14.

CONTRACTOR MAY PLACE UP TO 200 CUBIC YARDS OF FILL MATERIAL BELOW ELEVATION 824.4 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 824.4 AS NECESSARY TO COMPLETE THE WORK.

Subdrain. Slope downward ¼" per foot, except as shown on Des. Sh. 13. See Des. Sh. 13 for "Granular Backfill Details".

+0.45%
P.I. Sta. 1170+50
Elev. = 839.72
U.A.C. Grade on I-80

GRADE I-80

NOTE:
These Bridges have a deck overlay. Grade may be different than shown.

HYDRAULIC DATA:

Drainage Area = 85 Sq. Mi.
Stream Slope = 8.0(±) Ft./Mi.
Q50 = 6500 CFS
Extreme H.W. Stage El. = 833.4
Dated: June, 1954

LOCATION:

I-80 over Four Mile Creek
T-79N R-23W
Section 17
Delaware Twp.
Polk County

TRAFFIC COUNT:

31,000 A.D.T. 1990
21% Trucks

Design For Widening 16°54' Skew (LA)

DUAL 188'-4 x 42" PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGES TO 56' ROADWAY BRIDGES

59'-9½ End Spans 68'-9 Center Span

SITUATION PLAN

Station: 1174+05.00 October, 1991

POLK COUNTY

IOWA DEPARTMENT OF TRANSPORTATION-HIGHWAY DIVISION

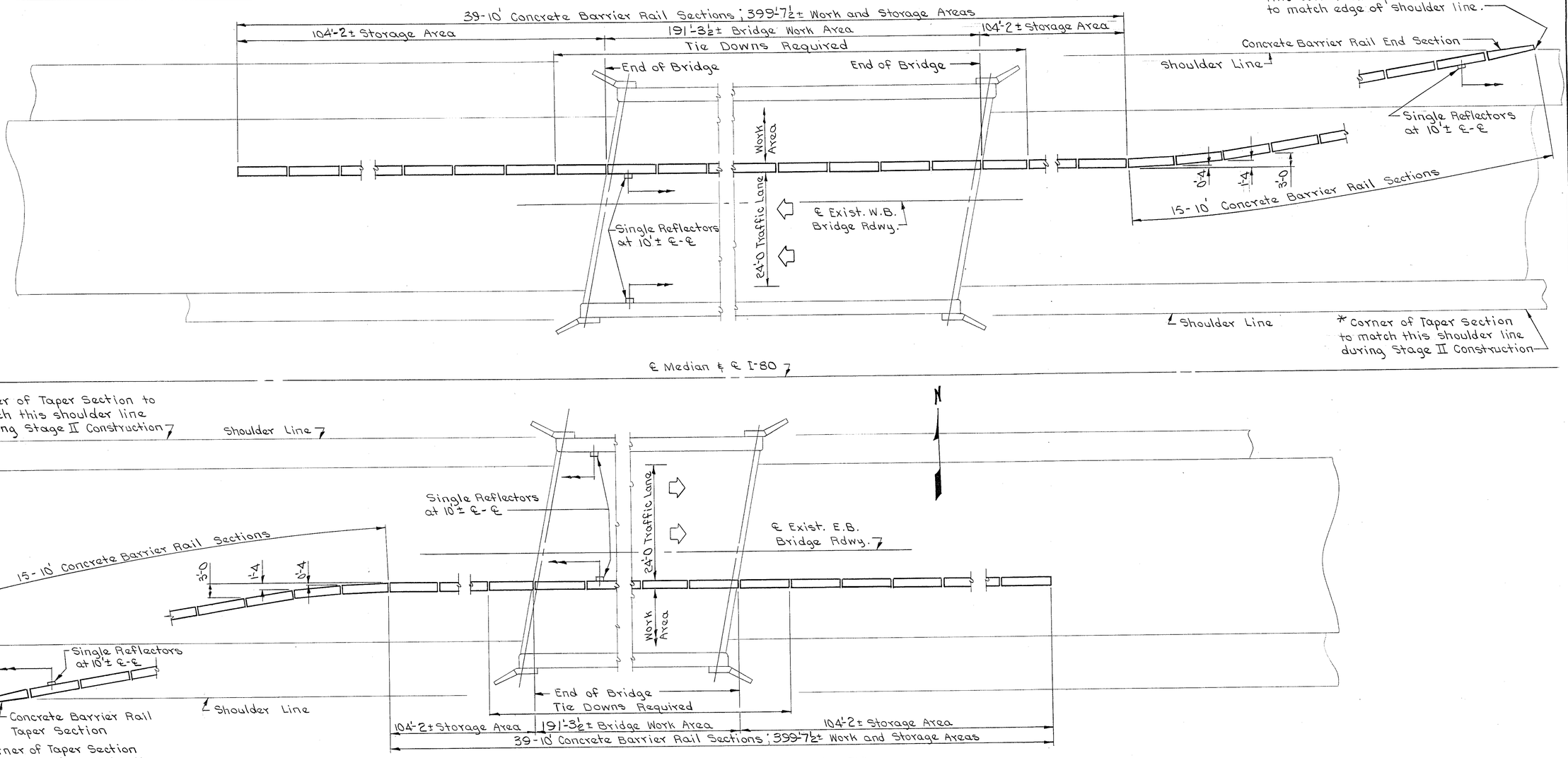
Design Sheet No.: 3 Of 29 File No.: 28266 Design No.: 1491

DESIGNED BY: R.J. Meyer
DETAILED BY: E. Pearce
TRACED BY:
CHECKED BY: J. Chmura

POLK COUNTY

PROJECT NUMBER	STATE	FHWA Region	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	IOWA	7		5	43

BRUNING 65219 MICRO WORK SHEET 003 93440



TEMPORARY CONCRETE BARRIER RAIL LAYOUTS

Note: The layouts shown are for Stage I Construction. The layouts for Stage II Construction to be similar. See Des. Shs. 7 & 8. for barrier rail details

The 19 Temporary Barrier Rail Sections adjacent to the bridge work area for Stage II are to be in place prior to shifting traffic to the Stage II traffic lane. The 19 Temporary Barrier Rail Sections adjacent to the bridge work area for Stage I traffic are to remain in place until traffic is shifted to the Stage II traffic lane. The 108 Barrier Rail Sections supplied are sufficient to construct both Stage I and Stage II work area.

Design For Widening 16°54' Skew (L.A.)

DUAL 188'-4 x 42' PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGES

TO

56' ROADWAY BRIDGES

59'-9½ End Spans 68'-9 Center Span

TEMPORARY BARRIER RAIL LAYOUTS

Station: 1174+05.00 October, 1991

POLK COUNTY

IOWA DEPARTMENT OF TRANSPORTATION-HIGHWAY DIVISION

Design Sheet No.: 4 Of 29 File No.: 28266 Design No.: 1491

DESIGNED BY: R.J. Meyer TRACED BY:

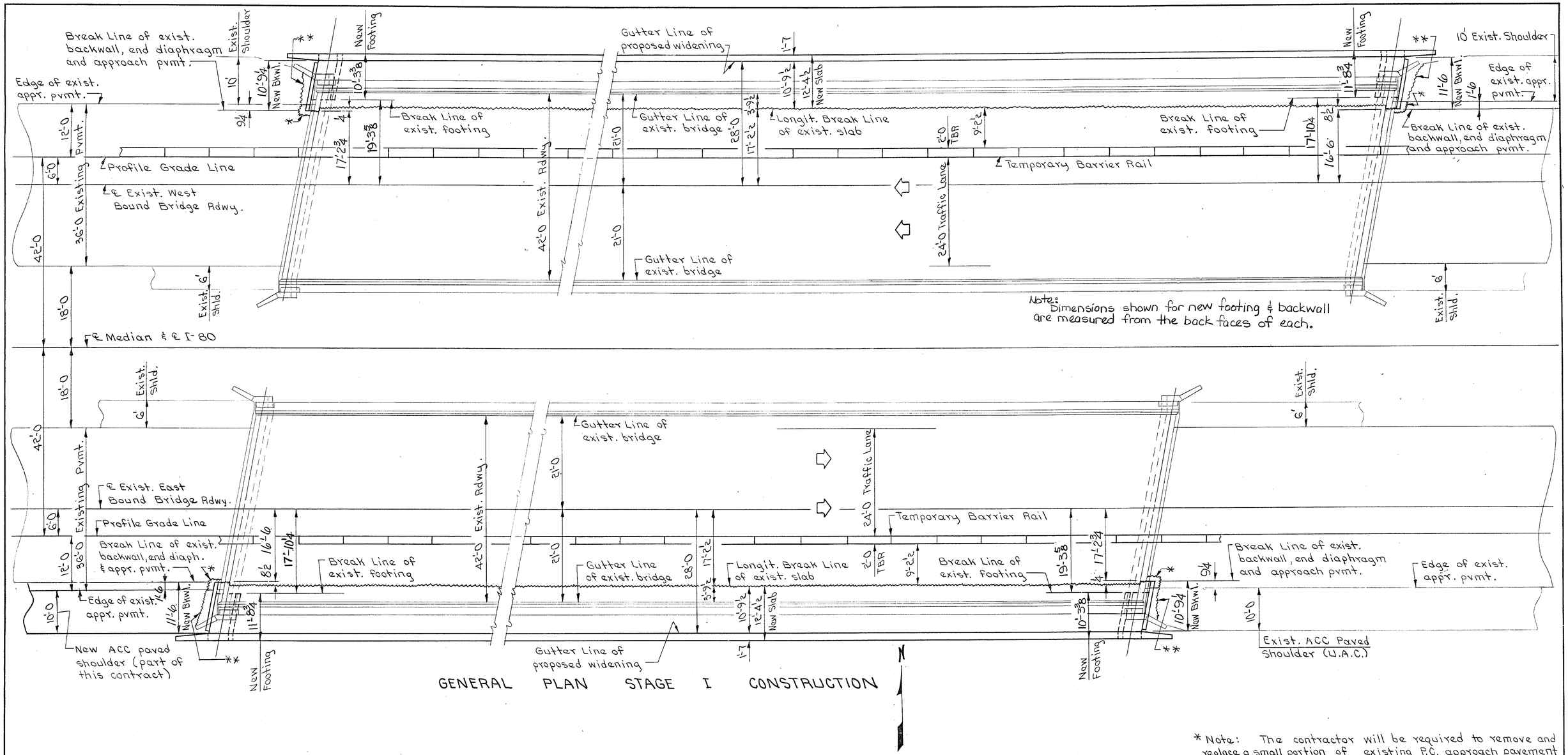
DETAILED BY: E.A. Dawson CHECKED BY: J.C. Thomas

POLK COUNTY

PROJECT NUMBER

STATE	FHWA Region	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	7		6	43

BRUNING 65219 BRIDGE WORK SHEET 000 31840



GENERAL PLAN STAGE I CONSTRUCTION

N

** Note: The contractor will be required to remove and replace a small portion of the existing shoulders at locations shown to facilitate placement of new abutment backwalls. Removal and replacement of shoulder material shall be as directed by the engineer. Cost of this shoulder work is to be considered incidental to other construction.

* Note: The contractor will be required to remove and replace a small portion of existing P.C. approach pavement at corners of both bridges to facilitate placement of the new portions of abutment backwalls. Removal and replacement of pavement shall be as directed by the engineer. Cost is to be considered incidental to other construction.

Design For Widening 16°54'Skew (L.A.)

DUAL 188'-4"×42' PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGES TO 56' ROADWAY BRIDGES

59'-9½ End Spans 68'-9 Center Span

STAGING DETAILS

Station: 1174+05.00 October, 1991

POLK COUNTY

IOWA DEPARTMENT OF TRANSPORTATION-HIGHWAY DIVISION

Design Sheet No.: 5 Of 29 File No.: 28266 Design No.: 1491

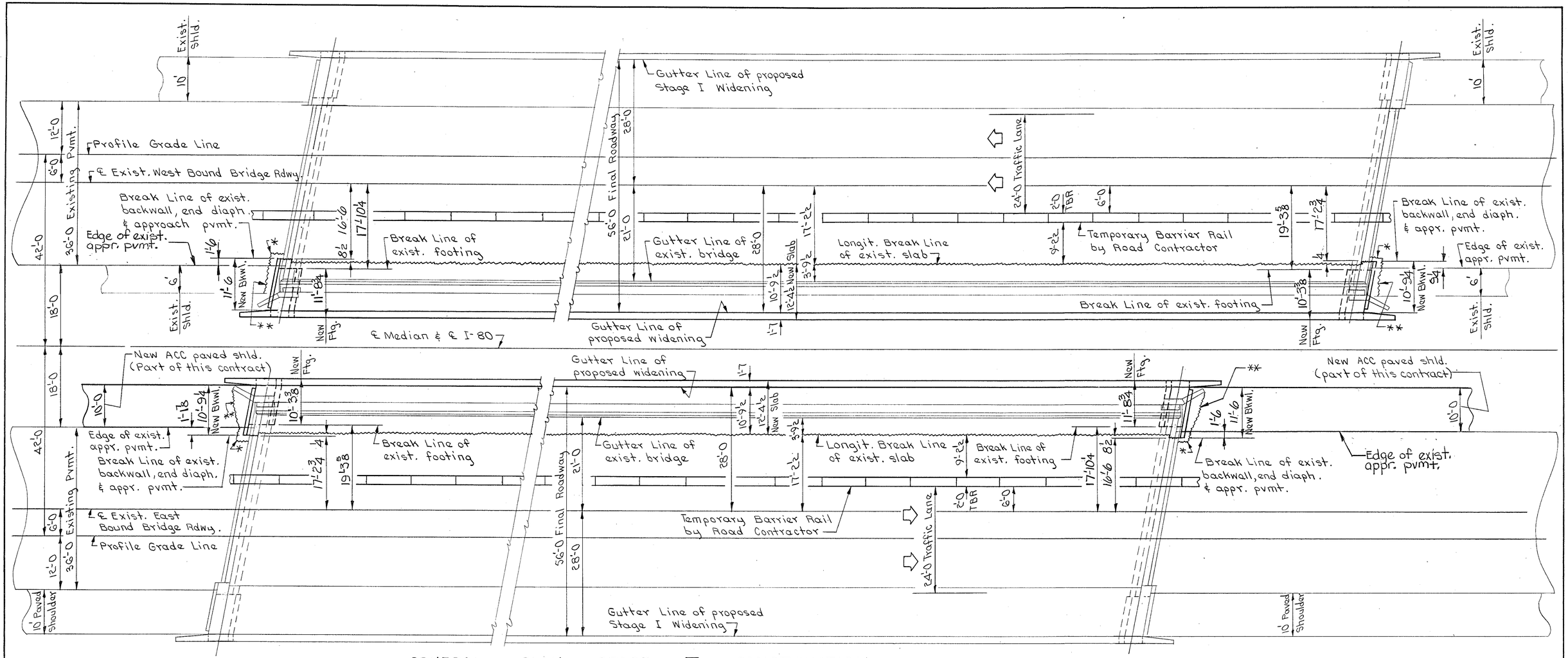
DESIGNED BY: R. J. Meyers TRACED BY:

DETAILED BY: E. Ogawa CHECKED BY: J. Dawson

POLK COUNTY

PROJECT NUMBER	STATE	FHWA Region	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	IOWA	7		7	43

BRUNING 65219 BRIDGE WORK SHEET 08 31980



GENERAL PLAN STAGE II CONSTRUCTION

N

** Note: The contractor will be required to remove and replace a small portion of the existing shoulders at locations shown to facilitate placement of new abutment backwalls. Removal and replacement of shoulder material shall be as directed by the engineer. Cost of this shoulder work is to be considered incidental to other construction.

NOTE:
Dimensions shown for new footing and backwall are measured from the back faces of each.

*Note: The contractor will be required to remove and replace a small portion of existing P.C. approach pavement at corners of both bridges to facilitate placement of the new portions of abutment backwalls. Removal and replacement of pavement shall be as directed by the engineer. Cost is to be considered incidental to other construction.

Design For Widening 16°54' Skew (L.A.)

DUAL 188'-4 x 42' PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGES TO 56' ROADWAY BRIDGES

59'-9½" End Spans 68'-9 Center Span

STAGING DETAILS

Station: 1174+05.00 October, 1991

POLK COUNTY

IOWA DEPARTMENT OF TRANSPORTATION-HIGHWAY DIVISION

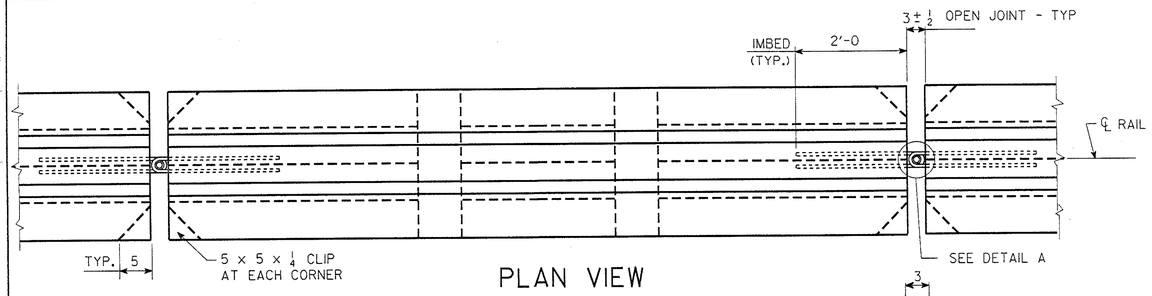
Design Sheet No.: 6 Of 29 File No.: 282G6 Design No.: 1491

DESIGNED BY: R.J. Meyer TRACED BY:
DETAILED BY: E. Ozawa CHECKED BY:

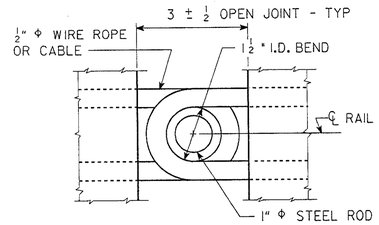
POLK COUNTY

PROJECT NUMBER	STATE	FHWA Region	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	IOWA	7		8	43

BRUNING 65219 BRUCE WORK SHEET 000 31AMO



PLAN VIEW



DETAIL A

NOTE:

NO STATIONARY EQUIPMENT OR CONSTRUCTION MATERIAL IS TO BE PLACED IN FRONT OF THE TEMPORARY BARRIER RAIL AT ANY TIME .

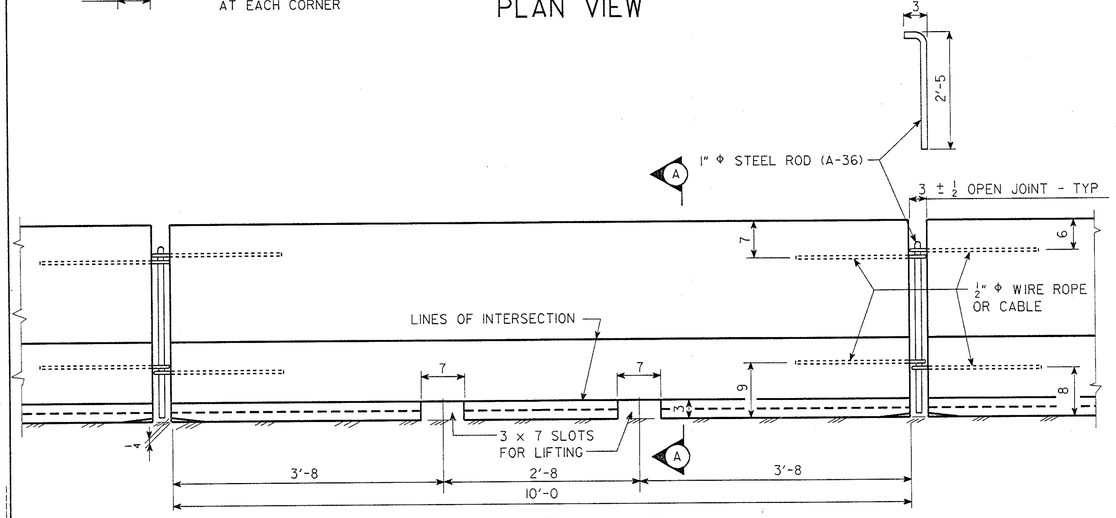
TRAFFIC REFLECTORS SHALL BE A RETRO-REFLECTIVE TYPE, APPROVED BY THE ENGINEER, AND THEY SHALL BE LOCATED AS SHOWN ON THIS SHEET. THE CONTRACTOR SHALL MAINTAIN THE REFLECTORS AND SHALL PROMPTLY REPLACE ANY MISSING OR DAMAGED UNITS. ALL COSTS FOR FURNISHING, INSTALLING AND MAINTAINING REFLECTORS SHALL BE INCLUDED IN THE PRICE BID FOR "TEMPORARY BARRIER RAIL,PLACE ONLY".

REFER TO OTHER DETAILS, NOTES, AND QUANTITY ITEMS ELSEWHERE IN THESE PLANS FOR TRAFFIC CONTROL TO BE ESTABLISHED IN CONJUNCTION WITH THE TEMPORARY BARRIER RAIL.

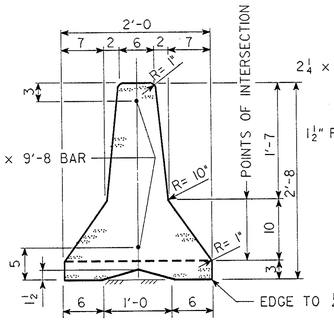
ALL COSTS FOR TIE DOWNS SHALL BE INCLUDED IN THE PRICE BID FOR "TEMPORARY BARRIER RAIL, PLACE ONLY".

TIE-DOWNS ARE REQUIRED ONLY WHERE THE TEMPORARY BARRIER RAIL IS ADJACENT TO A DROP-OFF. HOLES FOR CONCRETE ANCHORS MAY BE DRILLED AFTER POSITIONING TEMPORARY BARRIER RAIL. CONCRETE ANCHORS ARE TO BE SET SO THAT THE ANCHORS CAN BE REMOVED AT LEAST 1½" BELOW THE CONCRETE SURFACE AND THE REMAINING HOLE FILLED WITH A NEAT MIXTURE OF SAND-CEMENT GROUT. CONCRETE ANCHORS ARE TO BE REMOVED, WITHOUT DAMAGING THE SURROUNDING CONCRETE, ONLY AFTER THE TEMPORARY BARRIER RAIL IS NO LONGER NEEDED AT THE PARTICULAR LOCATION.

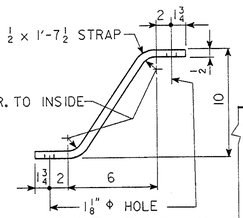
CONCRETE ANCHORS ARE TO BE A MINIMUM OF ¾"Φ AND AS OTHERWISE SPECIFIED IN CURRENT OFFICE OF MATERIALS I.M. 453.09 WITH A PULL-OUT STRENGTH OF 16,000 LBS. BASED ON 4,000 P.S.I. CONCRETE.



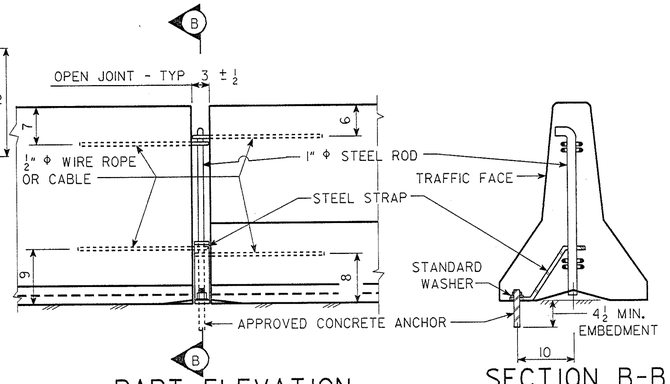
ELEVATION VIEW



SECTION A-A



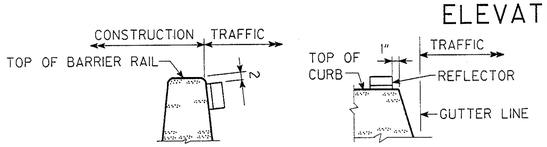
STRAP DETAIL



PART ELEVATION

SECTION B-B

TEMPORARY BARRIER RAIL TIE DOWN DETAILS



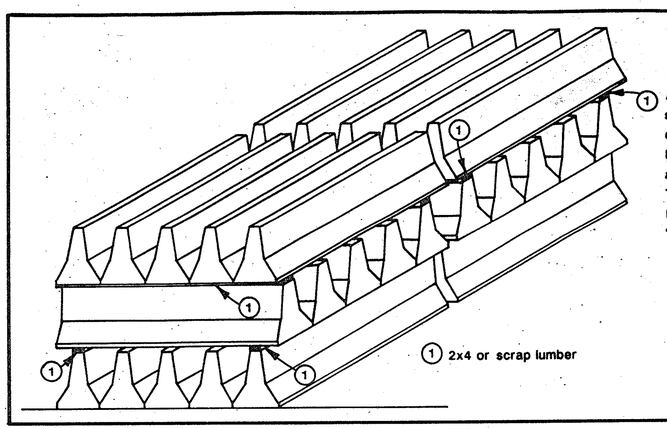
REFLECTOR DETAILS

NOTE: COLOR OF REFLECTOR SHALL BE APPROPRIATE FOR EDGE LINE.

NOTE:

GEOMETRICS SHOWN OF RAIL ARE REPRESENTATIVE OF RAIL SECTIONS AND 1"Φ STEEL RODS TO BE PICKED UP AT THE I.D.O.T. MAINTENANCE YARD AT WEST DES MOINES.

8207
05-10-88



At the completion of the project, the contractor shall stack the temporary barrier rail at locations designated in the plans.
Barrier Sections shall be stacked 3 high in alternating layers or as modified by the engineer.
The cost of hauling and stacking the temporary barrier rail shall be incidental to the item "Temporary Barrier Rail Place Only".

STORAGE PLAN FOR BARRIER RAIL

ESTIMATED QUANTITIES

ITEM	AMOUNT
TEMPORARY BARRIER RAIL, FURNISH ONLY	20 L.F.
TEMPORARY BARRIER RAIL, PLACE ONLY	2160 L.F.

ITEM REFERENCE:
ALL TEMPORARY BARRIER RAIL SHALL BE NOMINAL 10' LONG CONCRETE UNITS.

DESIGN FOR WIDENING OF 16° 54' SKEW (L.A.)

DUAL 188'-4x42' PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGES
TO
56' ROADWAY BRIDGES

59'-9½ END SPANS — 68'-9 CENTER SPAN

TEMPORARY BARRIER RAIL-CONCRETE

STATION : 1174+05.00 — OCTOBER, 1991

POLK COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

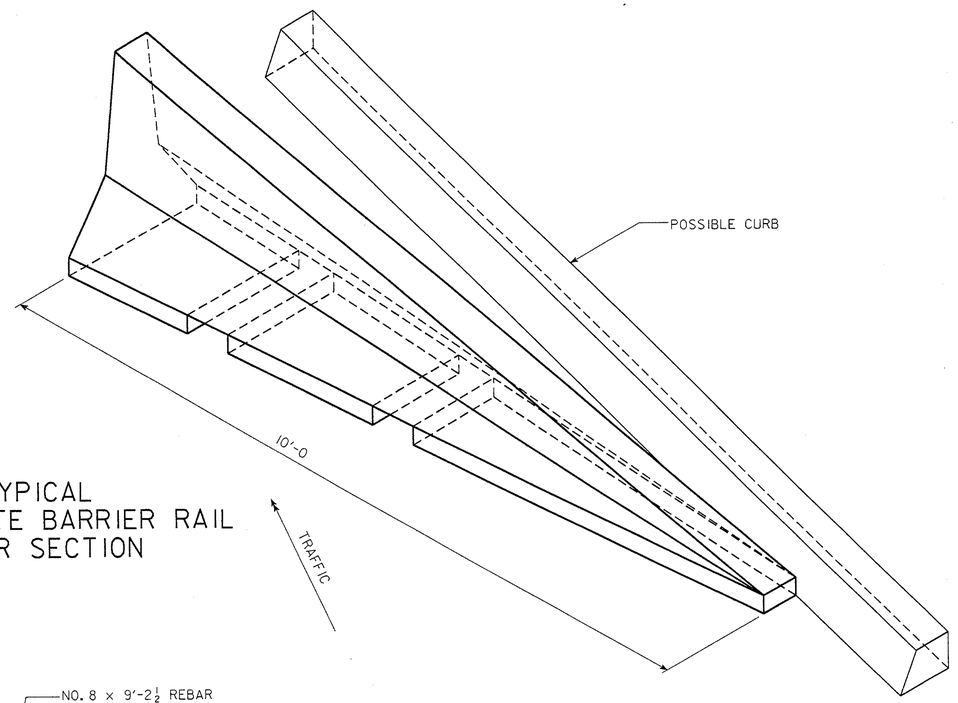
DESIGN SHEET NO. 7 OF 29 — FILE NO. 28266 — DESIGN NO. 1491

DESIGNED BY	R.J. Meyer	TRACED BY		TEMPORARY BARRIER RAIL-CONCRETE	STANDARD 1033	POLK COUNTY	PROJECT NUMBER
DETAILED BY	E. OGAWA	CHECKED BY	J. Clausen				

STATE	FHWA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	7		9	43

H77149100.S19 DEVICE : ZHA1:[200,5] ARCH. TAPE NO. _____ DATE _____

REVISED: DIMENSION D AND NO. OF BARRIER RAIL SECTIONS CHANGED. TAPE NO. 9 DATED 7-3-90
HSTD01033.SOI--LEP: THIS SHEET REDRAWN, DEVICE:ZHA0:[200,004] ARCH.TAPE NO. 15 DATE 9-8-88

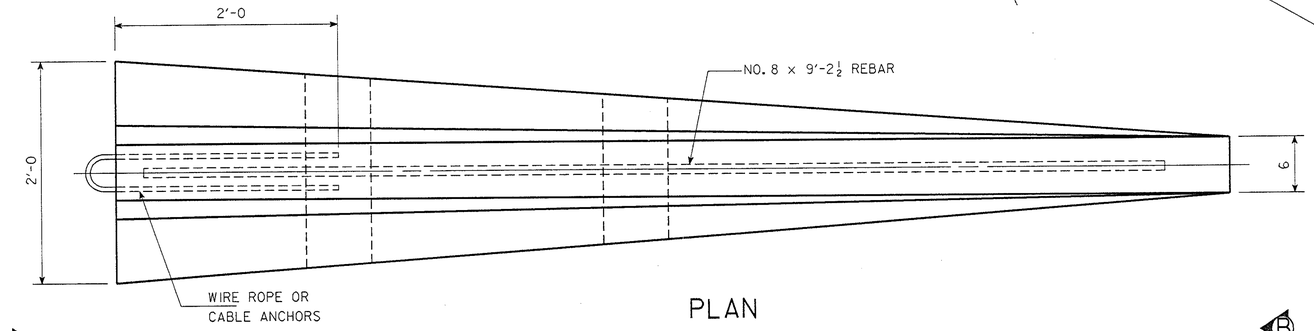


TYPICAL
CONCRETE BARRIER RAIL
TAPER SECTION

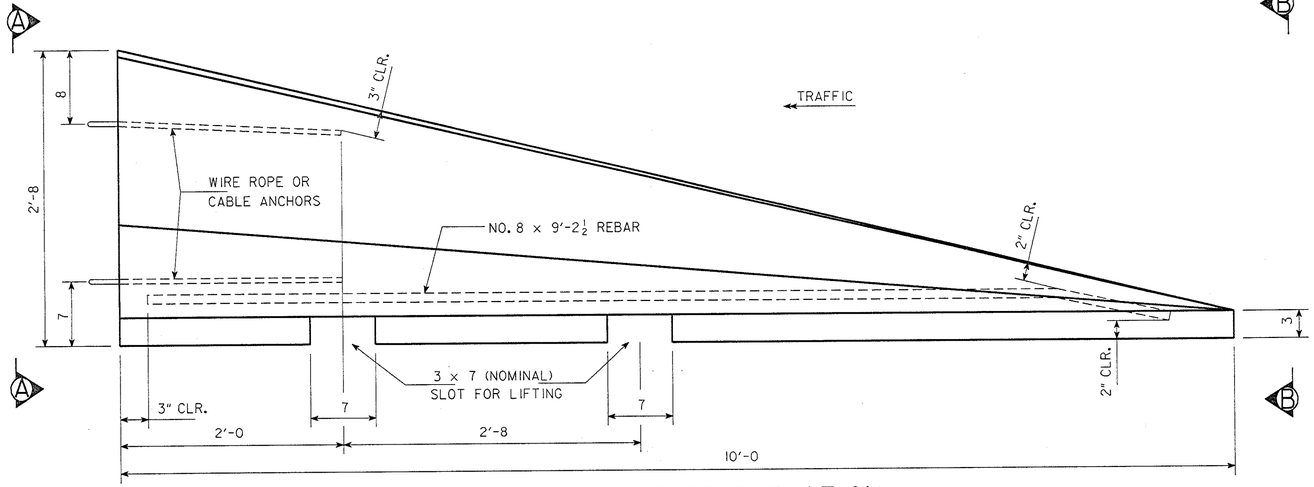
GENERAL NOTES:

DETAILS SHOWN HEREON ARE FOR THE CONSTRUCTION OF A PRECAST CONCRETE BARRIER RAIL TAPER SECTION. DETAILS SHOWN ARE TYPICAL. ALTERNATE DESIGN DETAILS MAY BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO CONSTRUCTION.

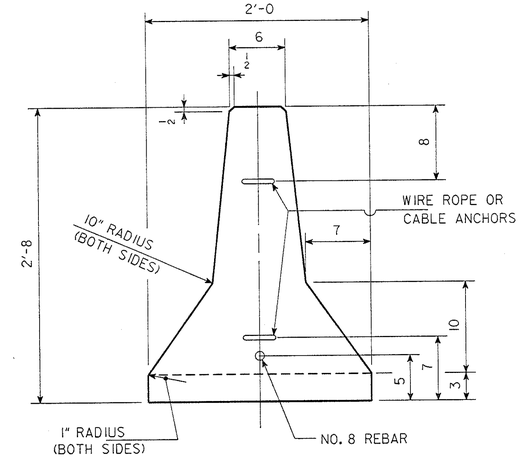
CONCRETE SHALL BE CLASS "D" STRUCTURAL CONCRETE PLACED AND FINISHED IN CONFORMANCE WITH CURRENT STANDARD SPECIFICATIONS FOR "STRUCTURAL CONCRETE". APPROXIMATELY 0.486 CU. YDS. OF CLASS "D" STRUCTURAL CONCRETE WILL BE REQUIRED FOR EACH TAPER SECTION.



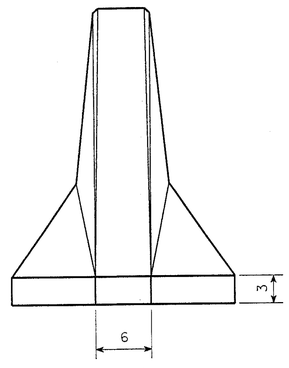
PLAN



SIDE ELEVATION



END VIEW A-A



FRONT VIEW B-B

DESIGN FOR WIDENING OF 16° 54' SKEW (L.A.)

DUAL 188'-4x42' PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGES
TO
56' ROADWAY BRIDGES

59'-9½ END SPANS — 68'-9 CENTER SPAN

CONCRETE BARRIER RAIL TAPER SECTION

STATION : 1174+05.00

POLK COUNTY

OCTOBER, 1991

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 8 OF 29 FILE NO. 28266 DESIGN NO. 1491

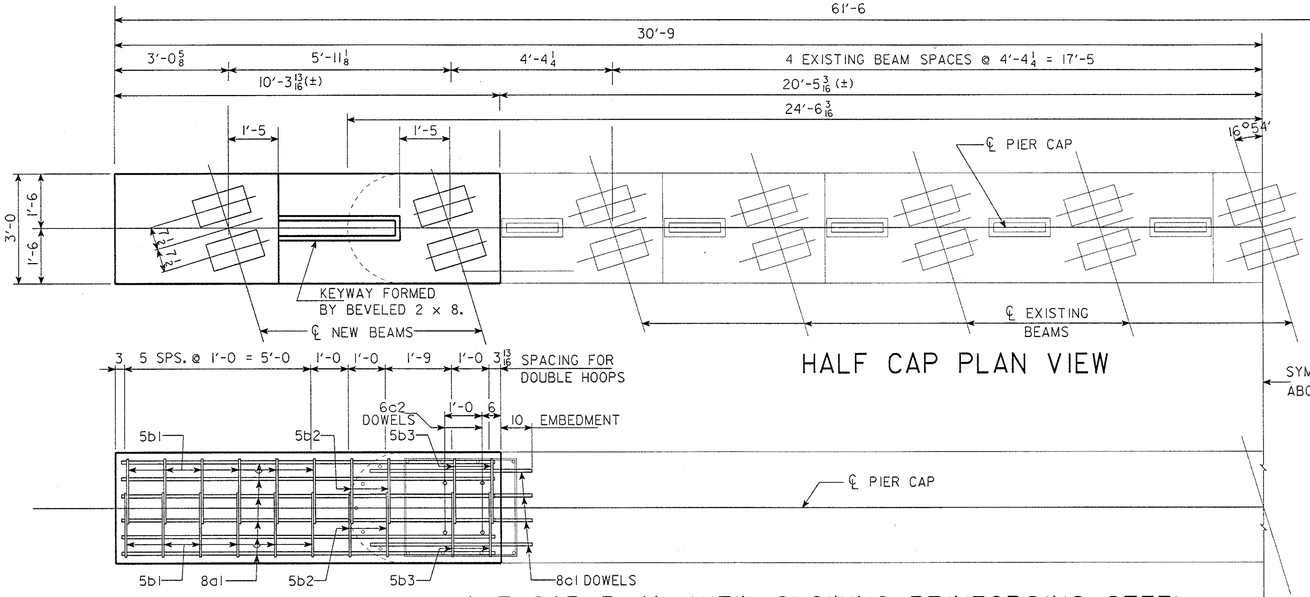
DESIGNED BY	TRACED BY						
R.J. Meyer		CONCRETE BARRIER RAIL TAPER SECTION	1034B ISSUE DATE 10/89	POLK COUNTY	PROJECT NUMBER	STATE	FHWA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
DETAILED BY E. OGAWA	CHECKED BY					IOWA	7		10	43

H77149100.S18

DEVICE : ZHAI:[200,5] ARCH. TAPE NO. _____ DATE _____

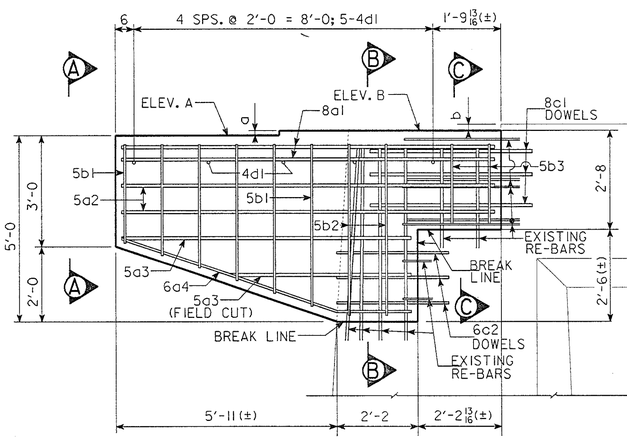
HSTD1034B--GJP; THIS SHEET ISSUED, DEVICE : ZHAI:[200,5] ARCH. TAPE NO. 9 DATE 10-12-89

BENCH MARK: NO. 191 STA. 1176+85 70'RT. R.R. SPK. WEST SIDE FENCE POST ELEV. = 833.97



HALF CAP PLAN VIEW

HALF CAP PLAN VIEW SHOWING REINFORCING STEEL



HALF ELEVATION VIEW

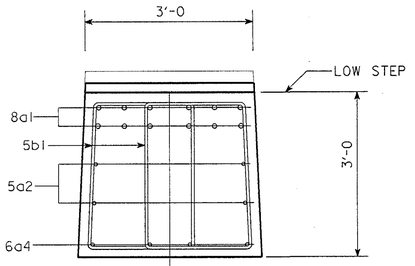
DOWEL SETTING NOTE :

THE "c" BARS SHALL BE SET AS DOWELS IN DRILLED HOLES. HOLES ARE TO BE 10" DEEP. THE DOWELS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURE'S RECOMMENDATIONS. ONE OF THE FOLLOWING SYSTEMS SHALL BE USED AS A BONDING AGENT FOR THE DOWELS:

A. EPOXY GROUT SYSTEM IN ACCORDANCE WITH STANDARD SPECIFICATIONS ARTICLE 2301.15 AND CURRENT SUPPLEMENTAL SPECIFICATIONS OF THE IOWA D.O.T. HIGHWAY DIVISION.
B. HYDRAULIC CEMENT GROUT SYSTEMS. DRILLED HOLES ARE TO BE 2½ TIMES THE DOWEL DIAMETER AND ARE TO BE BLOWN CLEAN WITH COMPRESSED AIR IMMEDIATELY PRIOR TO PLACING GROUT. THE HYDRAULIC CEMENT GROUT SHALL BE ONE OF THOSE APPROVED IN MATERIALS I.M. 491.13 AND SHALL BE USED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

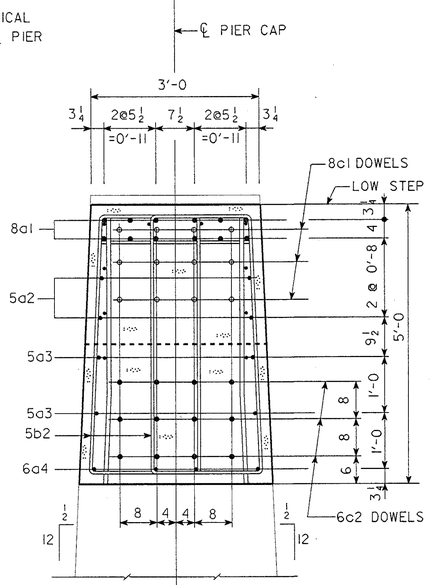
NOTE:

6c2 HORIZONTAL DOWELS SHALL BE SET IN ACCORDANCE WITH PARAGRAPH "A" ABOVE.

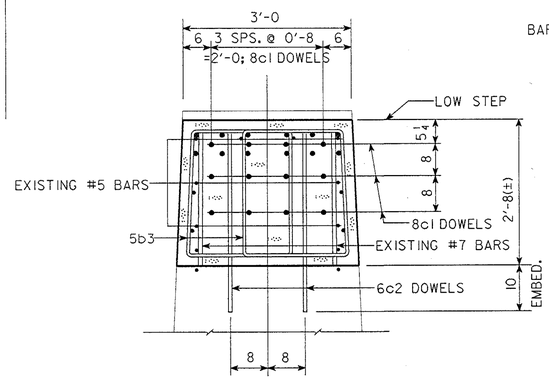


VIEW A-A

SYMMETRICAL ABOUT ℄ PIER



SECTION B-B

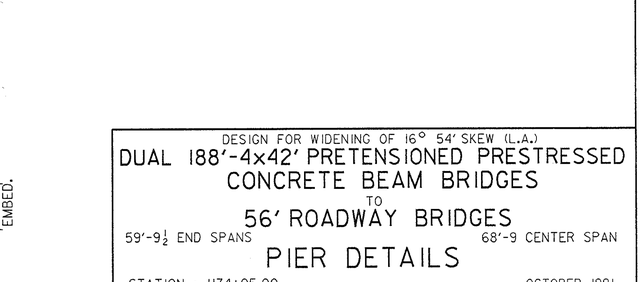


SECTION C-C

REINFORCING BAR LIST - ONE PIER

BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
8a1	PIER CAP, TOP, LONGITUDINAL	—	24	9'-11	635
5a2	PIER CAP, SIDES, HORIZONTAL	—	8	9'-11	83
5a3	PIER CAP, SIDES, HORIZONTAL	—	8	7'-8	64
6a4	PIER CAP, BOTTOM	⌒	8	7'-6	90
5b1	PIER CAP, HOOPS	▱	24	VARIES	296
5b2	PIER CAP, HOOPS	▱	8	13'-10	115
5b3	PIER CAP, HOOPS	▱	8	9'-1	76
8c1	DOWELS, HORIZONTAL	—	24	4'-4	278
6c2	DOWELS, VERTICAL & HORIZONTAL	—	32	3'-0	144
4d1	PIER CAP, TRANSVERSE	—	10	2'-8	18
			TOTAL (LBS.)		1,799

BENT BAR DETAILS



NOTE: ALL DIMENSIONS ARE OUT TO OUT.
D = PIN DIAMETER

CONCRETE PLACEMENT QUANTITY-ONE PIER

LOCATION	TOTAL
PIER CAP AND STEPS	9.5

ESTIMATED QUANTITIES - FOUR PIERS

ITEM	UNITS	QUANTITY
STRUCTURAL CONCRETE	CU. YDS.	38.0
REINFORCING STEEL	LBS.	7,196

PIER NOTES

ALL EXPOSED CORNERS 90° OR SHARPER ARE TO FILLETED WITH A ¾" DRESSED AND BEVELED STRIP.

REINFORCING STEEL IS TO BE SECURELY WIRED IN PLACE BEFORE CONCRETE IS PLACED.

MINIMUM CLEAR DISTANCE FROM FACE OF CONCRETE TO NEAR REINFORCING BAR IS TO BE 2" UNLESS OTHERWISE NOTED OR SHOWN.

TABLE OF ELEVATIONS

BRIDGE	PIERS	LOCATION	ELEV A	ELEV B
WEST BOUND	NO. 1	N.	836.80	836.96
		S.	836.36	836.54
	NO. 2	N.	837.11	837.27
		S.	836.67	836.85
EAST BOUND	NO. 1	N.	836.34	836.50
		S.	836.62	836.80
	NO. 2	N.	836.65	836.81
		S.	836.93	837.11

TABLE OF STEPS

BRIDGE	PIERS	LOCATION	a	b
WEST BOUND	NO. 1	N.	1 15/16	1 15/16
		S.	2 3/16	2 1/16
	NO. 2	N.	1 15/16	1 15/16
		S.	2 3/16	2 1/16
EAST BOUND	NO. 1	N.	1 15/16	1 15/16
		S.	2 3/16	2 1/16
	NO. 2	N.	1 15/16	1 15/16
		S.	2 3/16	2 1/16

DESIGN FOR WIDENING OF 16° 54' SKEW (L.A.)

DUAL 188'-4x42' PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGES TO 56' ROADWAY BRIDGES

59'-9½ END SPANS 68'-9 CENTER SPAN

PIER DETAILS

STATION : 1174+05.00 OCTOBER, 1991

POLK COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 9 OF 29 FILE NO. 28266 DESIGN NO. 1491

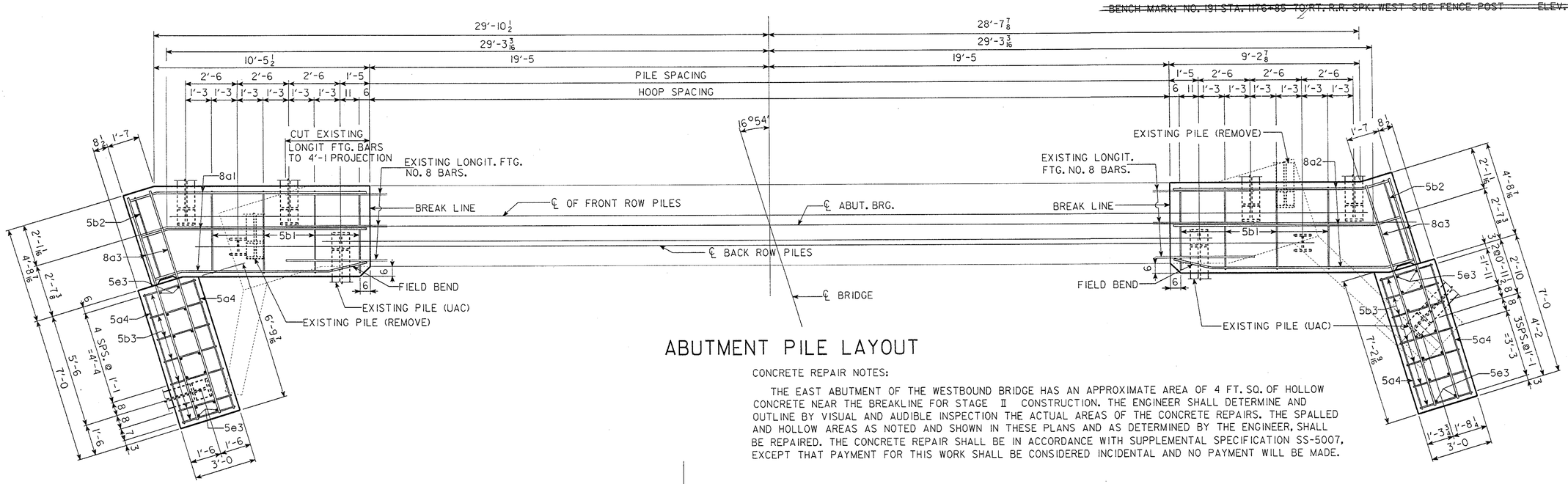
DESIGNED BY R.J. Mayer TRACED BY
DETAILED BY E. OGAWA CHECKED BY J. Clausen

H771491100.S07 DEVICE : ZHAI:[200,5] ARCH. TAPE NO. _____ DATE _____

POLK COUNTY | PROJECT NUMBER

STATE	FHWA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	7		11	43

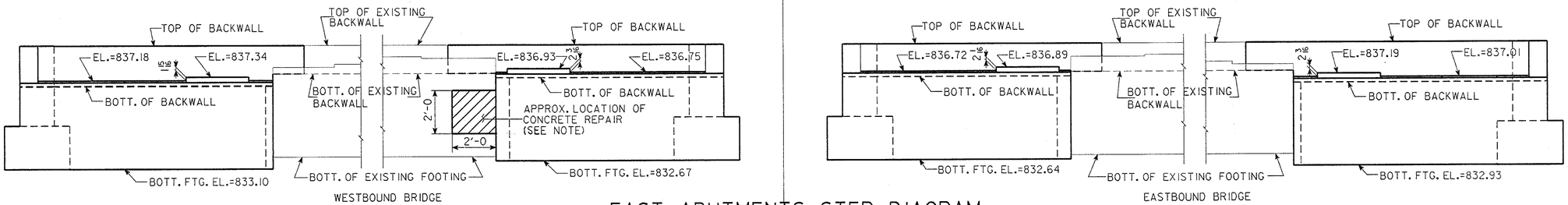
~~BENCH MARK: NO. 191 STA. 1176+85 70 RT. R.R. SPK. WEST SIDE FENCE POST ELEV. = 833.97~~



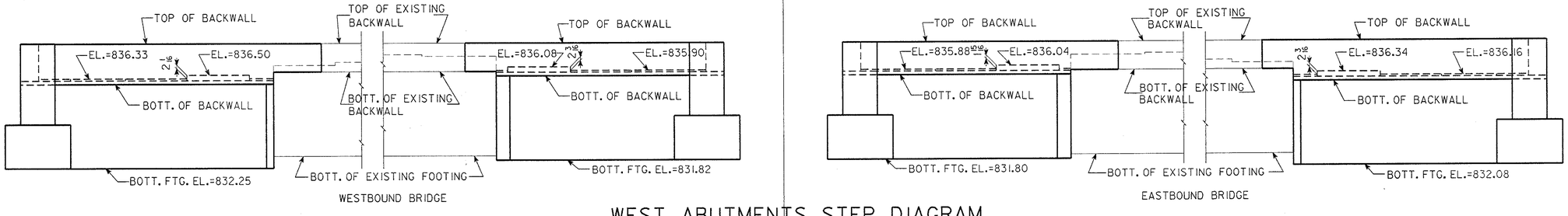
ABUTMENT PILE LAYOUT

CONCRETE REPAIR NOTES:

THE EAST ABUTMENT OF THE WESTBOUND BRIDGE HAS AN APPROXIMATE AREA OF 4 FT. SQ. OF HOLLOW CONCRETE NEAR THE BREAKLINE FOR STAGE II CONSTRUCTION. THE ENGINEER SHALL DETERMINE AND OUTLINE BY VISUAL AND AUDIBLE INSPECTION THE ACTUAL AREAS OF THE CONCRETE REPAIRS. THE SPALLED AND HOLLOW AREAS AS NOTED AND SHOWN IN THESE PLANS AND AS DETERMINED BY THE ENGINEER, SHALL BE REPAIRED. THE CONCRETE REPAIR SHALL BE IN ACCORDANCE WITH SUPPLEMENTAL SPECIFICATION SS-5007, EXCEPT THAT PAYMENT FOR THIS WORK SHALL BE CONSIDERED INCIDENTAL AND NO PAYMENT WILL BE MADE.



EAST ABUTMENTS STEP DIAGRAM
(FRONT ELEVATION)



WEST ABUTMENTS STEP DIAGRAM
(REAR ELEVATION)

N

DESIGN FOR WIDENING OF 16° 54' SKEW (L.A.)

DUAL 188'-4x42' PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGES TO 56' ROADWAY BRIDGES

59'-9½ END SPANS 68'-9 CENTER SPAN

ABUTMENT DETAILS

STATION : 1174+05.00

OCTOBER, 1991

POLK COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 10 OF 29 FILE NO. 28266 DESIGN NO. 1491

DESIGNED BY R.J. Meyer TRACED BY J.C. Thomsen
DETAILED BY E. OGAWA CHECKED BY J.C. Thomsen

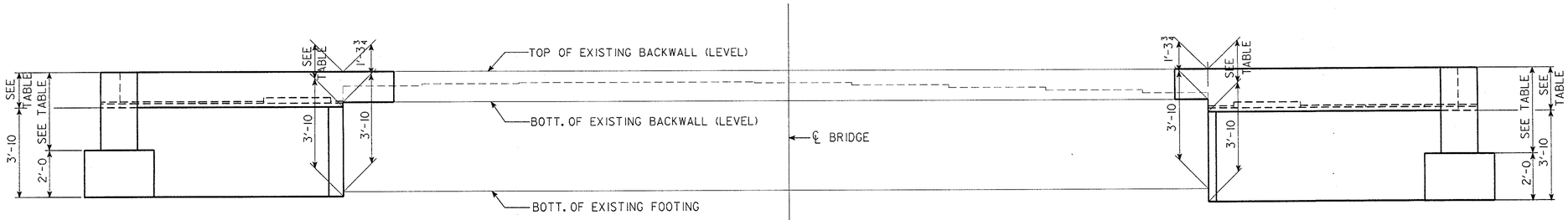
H77149100.S05

DEVICE : ZHAI:[200,5] ARCH. TAPE NO. _____ DATE _____

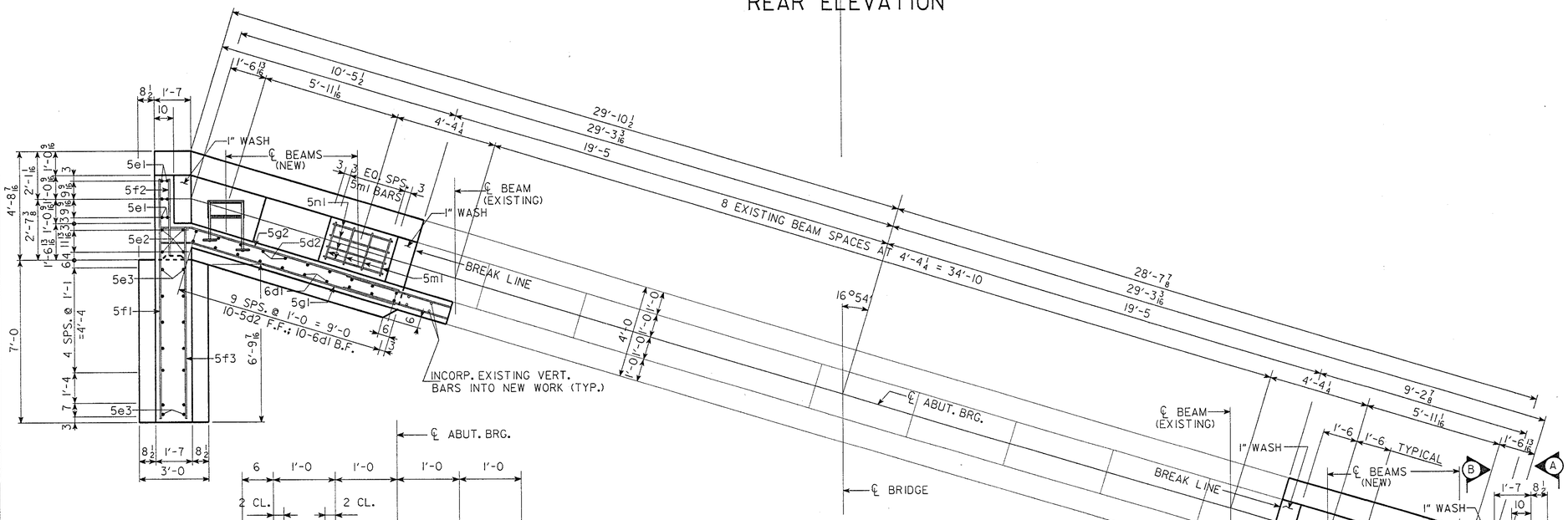
POLK COUNTY

PROJECT NUMBER

STATE	FHWA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	7		12	43

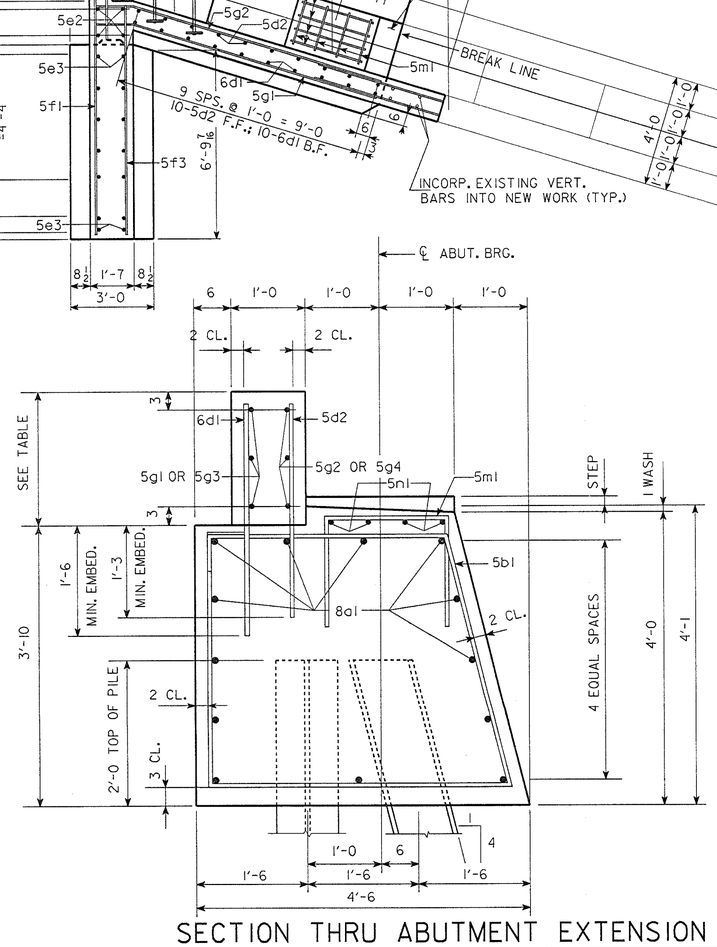


REAR ELEVATION

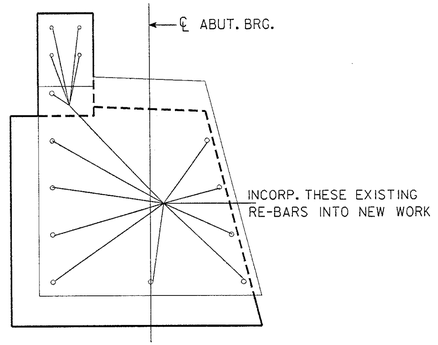


ABUTMENT PLAN VIEW

NOTE: SEE DES. SH. 12 FOR VIEWS A-A & B-B.



SECTION THRU ABUTMENT EXTENSION



PART SECTION NEAR CONSTRUCTION JOINT

TABLE OF BACKWALL HEIGHTS

WEST BOUND BRIDGE				EAST BOUND BRIDGE			
WEST ABUTMENT		EAST ABUTMENT		WEST ABUTMENT		EAST ABUTMENT	
NORTH END	SOUTH END	NORTH END	SOUTH END	NORTH END	SOUTH END	NORTH END	SOUTH END
1'-5 1/16	1'-10 1/4	1'-5 1/16	1'-10 1/4	1'-9 7/8	1'-6 1/2	1'-10	1'-6 1/2

TABLE OF WINGWALL HEIGHTS

WEST BOUND BRIDGE				EAST BOUND BRIDGE			
WEST ABUTMENT		EAST ABUTMENT		WEST ABUTMENT		EAST ABUTMENT	
NORTH END	SOUTH END	NORTH END	SOUTH END	NORTH END	SOUTH END	NORTH END	SOUTH END
3'-3 1/16	3'-8 1/4	3'-3 1/16	3'-8 1/4	3'-7 7/8	3'-4 1/2	3'-8	3'-4 1/2

DESIGN FOR WIDENING OF 16° 54' SKEW (L.A.)

DUAL 188'-4x42' PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGES TO 56' ROADWAY BRIDGES

59'-9½ END SPANS — 68'-9 CENTER SPAN

ABUTMENT DETAILS

STATION : 1174+05.00 — OCTOBER, 1991

POLK COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 11 OF 29 FILE NO. 28266 DESIGN NO. 1491

DESIGNED BY K.J. Mayer — TRACED BY
DETAILED BY E. OGAWA — CHECKED BY J. Claussen

H77149100.S04

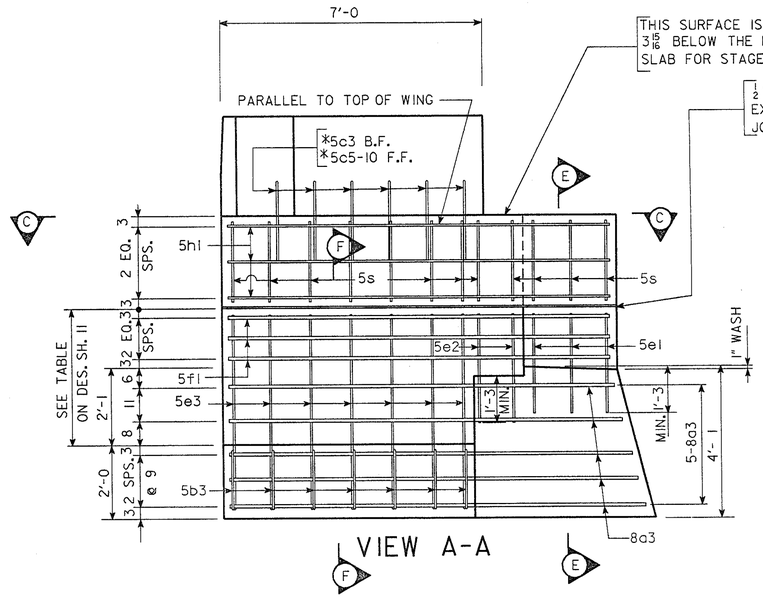
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POLK COUNTY

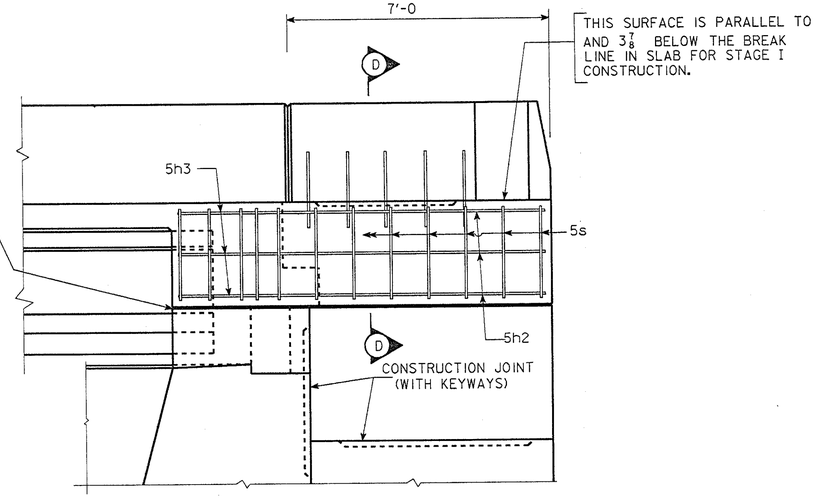
PROJECT NUMBER

STATE	FHWA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	7		13	43

✳ NOTE: SEE DESIGN SHEET 22 FOR DETAILS OF BARRIER RAIL. REINFORCING BARS "5c" ARE INCLUDED IN SUPERSTRUCTURE QUANTITIES.

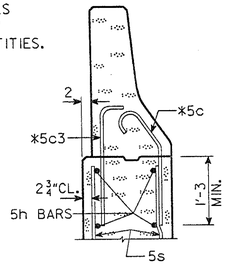


VIEW A-A

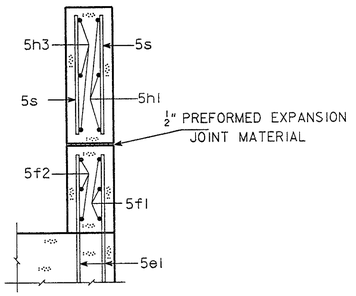


VIEW B-B

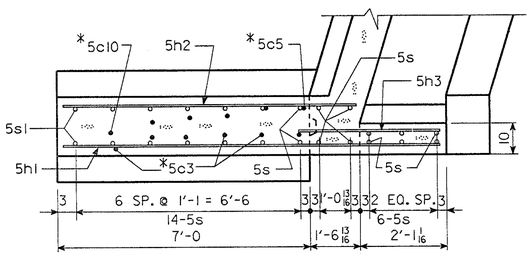
NOTE: SEE DES. II FOR LOCATION OF VIEW A-A & B-B.



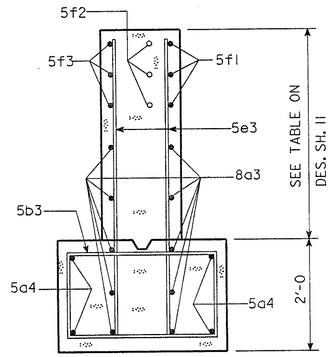
PART SECTION D-D



SECTION E-E



SECTION C-C



SECTION F-F

DESIGN FOR WIDENING OF 16° 54' SKEW (L.A.)

DUAL 188'-4x42' PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGES TO 56' ROADWAY BRIDGES

59'-9½ END SPANS 68'-9 CENTER SPAN

ABUTMENT DETAILS

STATION : 1174+05.00 OCTOBER, 1991

POLK COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 12 OF 29 FILE NO. 28266 DESIGN NO. 1491

DESIGNED BY R.J. Meyer	TRACED BY		POLK COUNTY	PROJECT NUMBER	STATE	FHWA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
DETAILED BY E. OGAWA	CHECKED BY J. Clausen				IOWA	7		14	43

H77149100.S06 DEVICE : ZHAI:[200,5] ARCH. TAPE NO. _____ DATE _____

ABUTMENT NOTES

ALL EXPOSED CORNERS 90° OR SHARPER ARE TO BE FILLETED WITH A ¾" DRESSED AND BEVELED STRIP.

REINFORCING STEEL IS TO BE SECURELY TIED IN PLACE BEFORE THE CONCRETE IS POURED.

MINIMUM CLEAR DISTANCE FROM FACE OF CONCRETE TO NEAR REINFORCING BAR IS TO BE 2" UNLESS OTHERWISE NOTED OR SHOWN.

ALL BACKFILL BEHIND THE ABUTMENT BETWEEN WINGS IS TO BE AS SHOWN. THE REMAINDER OF THE ABUTMENT EXCAVATION IS TO BE BACKFILLED WITH SOIL.

THE MASKWALL IS TO BE POURED BEFORE THE SUPERSTRUCTURE SLAB IS POURED.

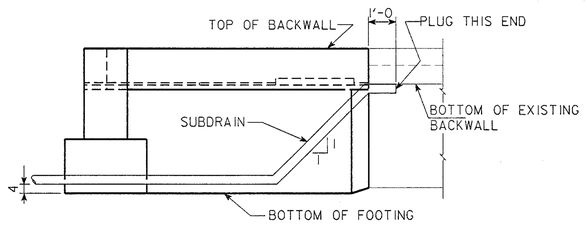
CONSTRUCTION JOINT KEYWAYS ARE TO BE FORMED WITH BEVELED 2x6'S.

COST OF PREFORMED EXPANSION JOINT FILLER IS TO BE INCLUDED IN THE PRICE BID FOR CONCRETE.

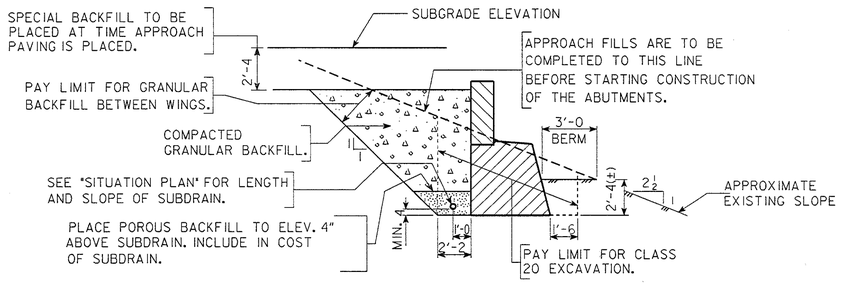
ALL REINFORCING STEEL IS TO BE GRADE 60.

CONCRETE SEALER IS TO BE APPLIED TO THE ABUTMENT BRIDGE SEAT IN ACCORDANCE WITH THE CURRENT IOWA D.O.T. STANDARD SPECIFICATIONS.

STEEL HP10x42 POINT BEARING PILING SHALL BE DRIVEN TO A MAXIMUM OF 120 BLOWS PER FOOT OF PENETRATION AND SEATED IN SOUND SHALE. SEATING SHALL BE DONE WITH A DIESEL HAMMER DELIVERING NOT LESS THAN 22 FT.-KIPS OF ENERGY NOR MORE THAN 40 FT.-KIPS OR A GRAVITY HAMMER DELIVERING NOT LESS THAN 25 FT.-KIPS OF ENERGY NOR MORE THAN 35 FT.-KIPS. WAVE EQUATION ANALYSIS WILL BE USED AT THE TIME OF PILE DRIVING TO DETERMINE PILE BEARING. THE CONTRACTOR SHALL SUBMIT ADEQUATE HAMMER INFORMATION SO THAT THE PROPER ANALYSIS CAN BE PERFORMED. THE DESIGN BEARING FOR THE ABUTMENT PILES IS 35 TONS.



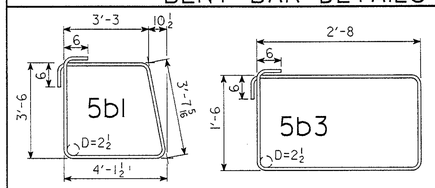
SUBDRAIN DETAILS



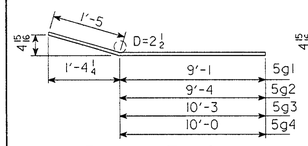
NOTE: SPECIAL BACKFILL MAY BE SUBSTITUTED FOR GRANULAR BACKFILL.

GRANULAR BACKFILL DETAIL

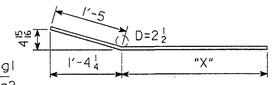
BENT BAR DETAILS



BAR 8a3	
NO.	LENGTH
4	10'-2
4	10'-4
4	10'-7
4	10'-9
4	11'-0



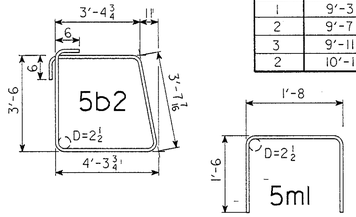
5g1 - 5g4



8a1 & 8a2

BAR 8a1	
NO.	"X"
5	8'-11
1	9'-3
2	9'-7
3	9'-11
2	10'-1

BAR 8a2	
NO.	"X"
5	10'-4
1	10'-0
2	9'-8
3	9'-4
2	9'-2



NOTE: ALL DIMENSIONS ARE OUT TO OUT. D = PIN DIA

REINFORCING BAR LIST - ONE ABUTMENT

	BAR	LOCATION	SHAPE	NO.	LENGTH	LIN. FT.	WEIGHT
EPOXY COATED BARS	6d1	BACKWALL VERTICAL	—	21	3'-2	67	100
	5d2	BACKWALL VERTICAL	—	21	2'-11	61	64
	5g1	BACKWALL HORIZONTAL	⟍	3	10'-6	32	33
	5g2	BACKWALL HORIZONTAL	⟍	3	10'-9	32	34
	5g3	BACKWALL HORIZONTAL	⟍	3	11'-8	35	37
	5g4	BACKWALL HORIZONTAL	⟍	3	11'-5	34	36
	5m1	BEAM STEPS, TRANSVERSE	⌐	16	4'-8	75	78
	5n1	BEAM STEPS, HORIZONTAL	—	16	2'-8	43	45
					#5 BAR	312	
					#6 BAR	67	
		REINFORCING STEEL - EPOXY COATED - TOTAL (LBS.)					427
NON-COATED BARS	8a1	FOOTING LONGITUDINAL	⟍	13	Varies	—	377
	8a2	FOOTING LONGITUDINAL	⟍	13	Varies	—	389
	8a3	WING FOOTING	—	20	LISTED	—	564
	5a4	WING FOOTING	—	8	6'-8	—	56
	5b1	FOOTING HOOPS	⬠	8	15'-6	—	129
	5b2	FOOTING HOOPS, ENDS	⬠	2	15'-10	—	33
	5b3	WING FOOTING HOOPS	▭	14	9'-4	—	136
	5e1	MASKWALL VERTICAL	—	12	2'-8	—	33
	5e2	WINGWALL VERTICAL	—	8	2'-11	—	24
	5e3	WINGWALL VERTICAL	—	28	5'-4		156
	5f1	WINGWALL HORIZONTAL	—	6	10'-0	—	63
	5f2	MASKWALL HORIZONTAL	—	6	3'-1	—	19
	5f3	WINGWALL HORIZONTAL	—	6	7'-11	—	50
		REINFORCING STEEL - TOTAL (LBS.)					2,029

CONC. PLACEMENT QUANT. ONE BRIDGE

LOCATION	WEST ABUT.		EAST ABUT.	
	STAGE I	STAGE II	STAGE I	STAGE II
FOOTING, STEPS & WING BASE	8.4	8.4	8.4	8.4
BACKWALL, MASKWALL & WING	2.1	2.5	2.1	2.5
TOTAL (C.Y.)	10.5	10.9	10.5	10.9

ESTIMATED ABUTMENT QUANTITIES

ITEM		UNIT	WEST BOUND BRIDGE		EAST BOUND BRIDGE		TOTAL
			WEST ABUT.	EAST ABUT.	WEST ABUT.	EAST ABUT.	
STRUCTURAL CONCRETE CLASS "C"		C.Y.	21.4	21.4	21.4	21.4	85.6
REINFORCING STEEL		LB.	2,029	2,029	2,029	2,029	8,116
REINFORCING STEEL - EPOXY COATED		LB.	427	427	427	427	1,708
CLASS 20 EXCAVATION		C.Y.	50	50	50	50	200
GRANULAR BACKFILL		TONS	47	47	47	47	188
CONCRETE SEALER, AS PER PLAN		SQ. FT.	44	44	44	44	176
HP10x42 STEEL BEARING PILING	FURNISH	LIN.FT.	7 @ 44	7 @ 44	7 @ 44	7 @ 44	1121.5 ~~1232~~
	DRIVE	LIN.FT.	7 @ 44	7 @ 44	7 @ 44	7 @ 44	982.8 ~~1232~~

DESIGN FOR WIDENING OF 16° 54' SKEW (L.A.)

DUAL 188'-4x42' PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGES

TO

56' ROADWAY BRIDGES

59'-9½ END SPANS 68'-9 CENTER SPAN

ABUTMENT DETAILS

STATION : 1174+05.00 OCTOBER, 1991

POLK COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 13 OF 29 FILE NO. 28266 DESIGN NO. 1491

DESIGNED BY R.J. Meyer TRACED BY
DETAILED BY E. OGAWA CHECKED BY J. Clausen

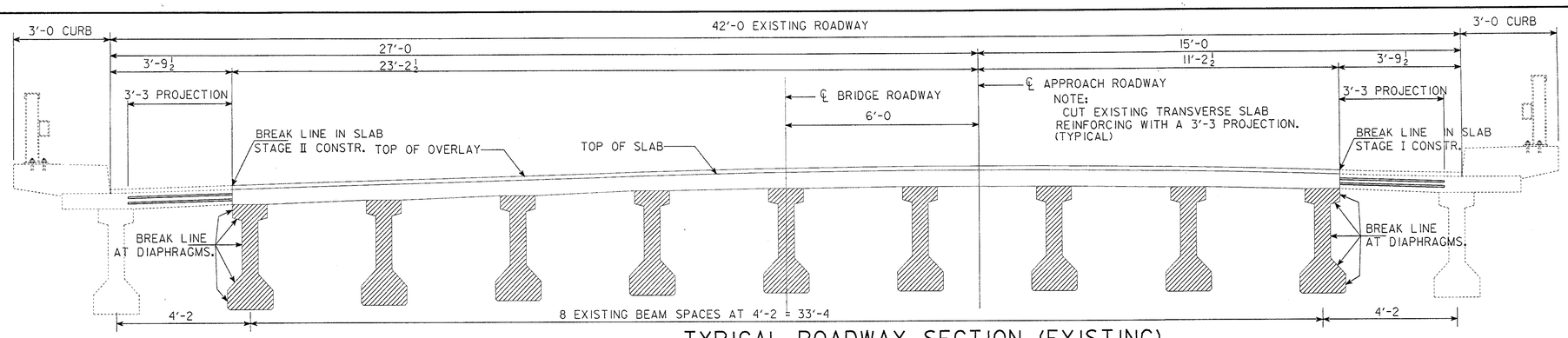
H771491100.S10

STANDARD SHEET 2099 | POLK COUNTY | PROJECT NUMBER

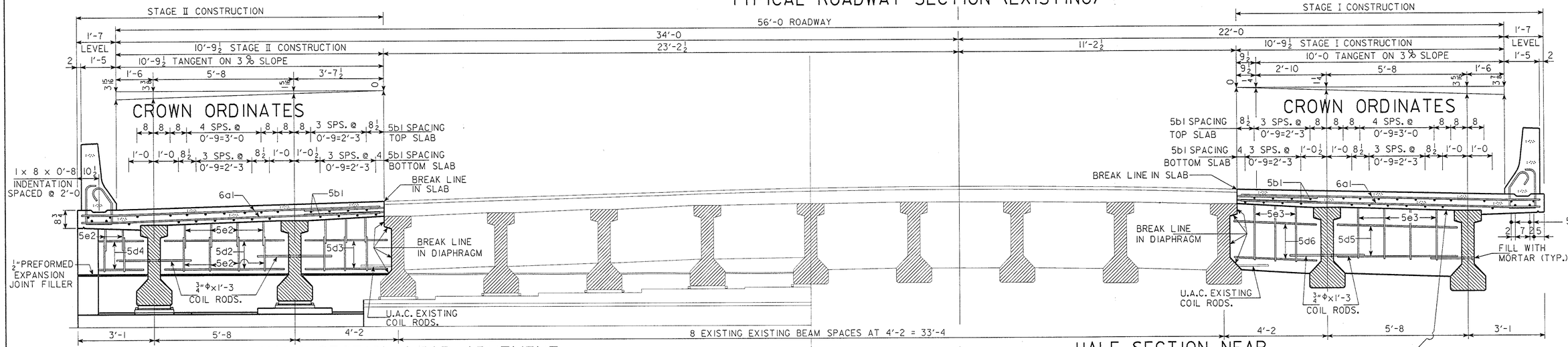
STATE	FHWA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	7		15	43

DEVICE : ZHAI:[200,5] ARCH. TAPE NO. _____ DATE _____

REVISED:GRANULAR BACKFILL UNITS CHANGED TO TONS. DEVICE : ZGAI:[200,003]ARCH. TAPE No. 000009 DATE
WRJ: THIS SHEET REDRAWN, DEVICE:ZGAI:[200,003]ARCH.TAPE N°. 000015 DATE 9-8-88
HSTD02099.S01--WRJ:THIS SHEET REDRAWN, DEVICE:ZGAI:[200,003]ARCH.TAPE N°. 000015 DATE 9-8-88



TYPICAL ROADWAY SECTION (EXISTING)



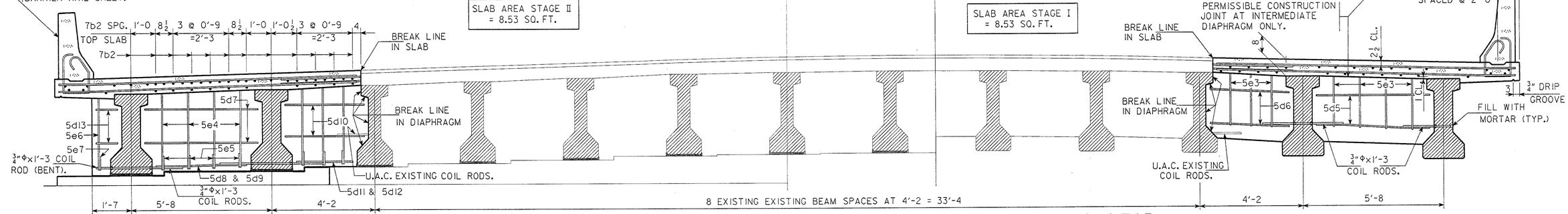
HALF SECTION NEAR ABUTMENT

HALF SECTION NEAR END SPAN INTERMEDIATE DIAPHRAGM

FOR DETAILS OF RAIL AND RAIL REINFORCING SEE STANDARD BARRIER RAIL SHEET.

SLAB AREA STAGE II = 8.53 SQ. FT.

SLAB AREA STAGE I = 8.53 SQ. FT.



HALF SECTION NEAR PIER

HALF SECTION NEAR CENTER SPAN INTERMEDIATE DIAPHRAGM

[EAST BOUND ROADWAY - LOOKING EAST
AND
WEST BOUND ROADWAY - LOOKING WEST]

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DUAL 188'-4x42' PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGES
TO
56' ROADWAY BRIDGES

59'-9½ END SPANS — 68'-9 CENTER SPAN

SUPERSTRUCTURE DETAILS

STATION : 1174+05.00 — OCTOBER, 1991

POLK COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 14 OF 29 — FILE NO. 28266 — DESIGN NO. 1491

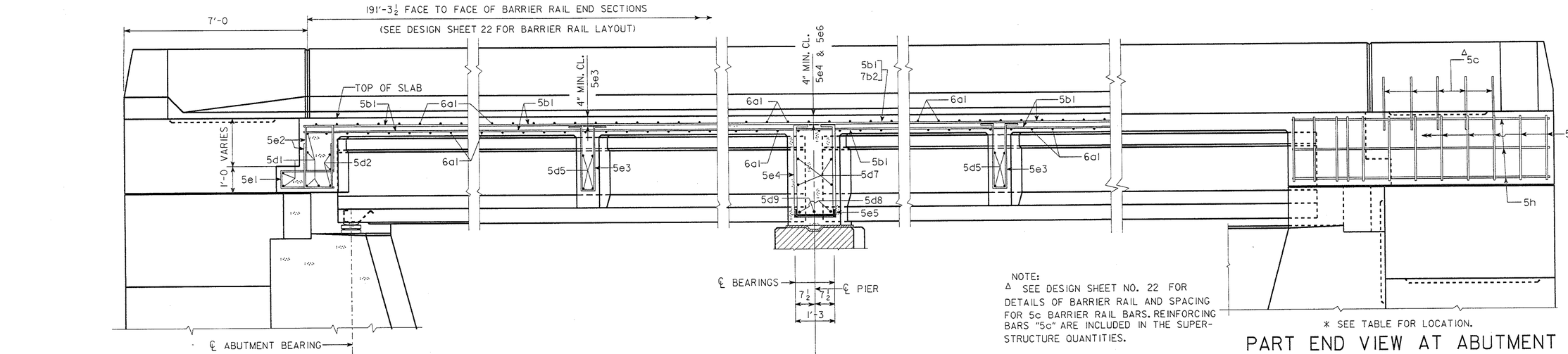
DESIGNED BY R.J. Mayer — TRACED BY
DETAILED BY E. OGAWA — CHECKED BY J. Clausen

POLK COUNTY

PROJECT NUMBER

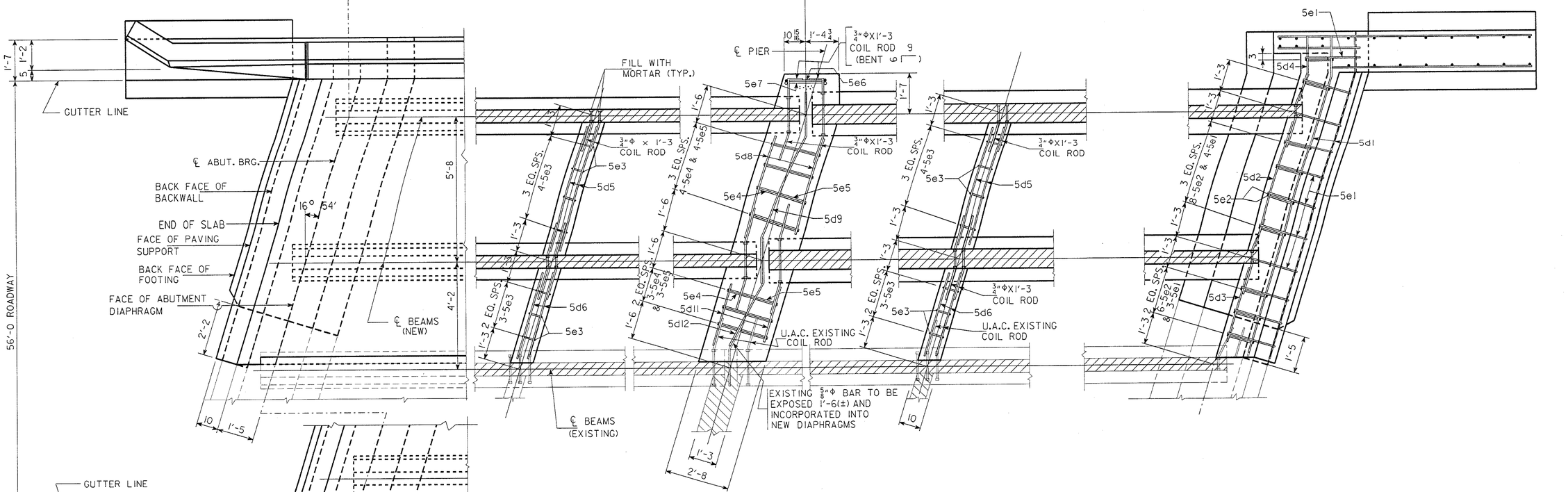
STATE	FHWA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	7		16	43

H77149100.S08 — DEVICE : ZHAI:[200,5] ARCH. TAPE NO. _____ DATE _____



PART LONGITUDINAL SECTION NEAR GUTTER

PART END VIEW AT ABUTMENT



PART PLAN

PART SECTION

LOCATION OF 5s BARS (ABUTMENT WING EXTENSION VERTICAL)

WESTBOUND ROADWAY				EASTBOUND ROADWAY			
EAST ABUTMENT		WEST ABUTMENT		EAST ABUTMENT		WEST ABUTMENT	
NORTH END	SOUTH END	NORTH END	SOUTH END	NORTH END	SOUTH END	NORTH END	SOUTH END
5s2	5s1	5s2	5s1	5s1	5s2	5s1	5s2

DESIGN FOR WIDENING OF 16° 54' SKEW (L.A.)

DUAL 188'-4x42' PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGES TO 56' ROADWAY BRIDGES

59'-9½ END SPANS 68'-9 CENTER SPAN

SUPERSTRUCTURE DETAILS

STATION : 1174+05.00 OCTOBER, 1991

POLK COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 15 OF 29 FILE NO. 28266 DESIGN NO. 1491

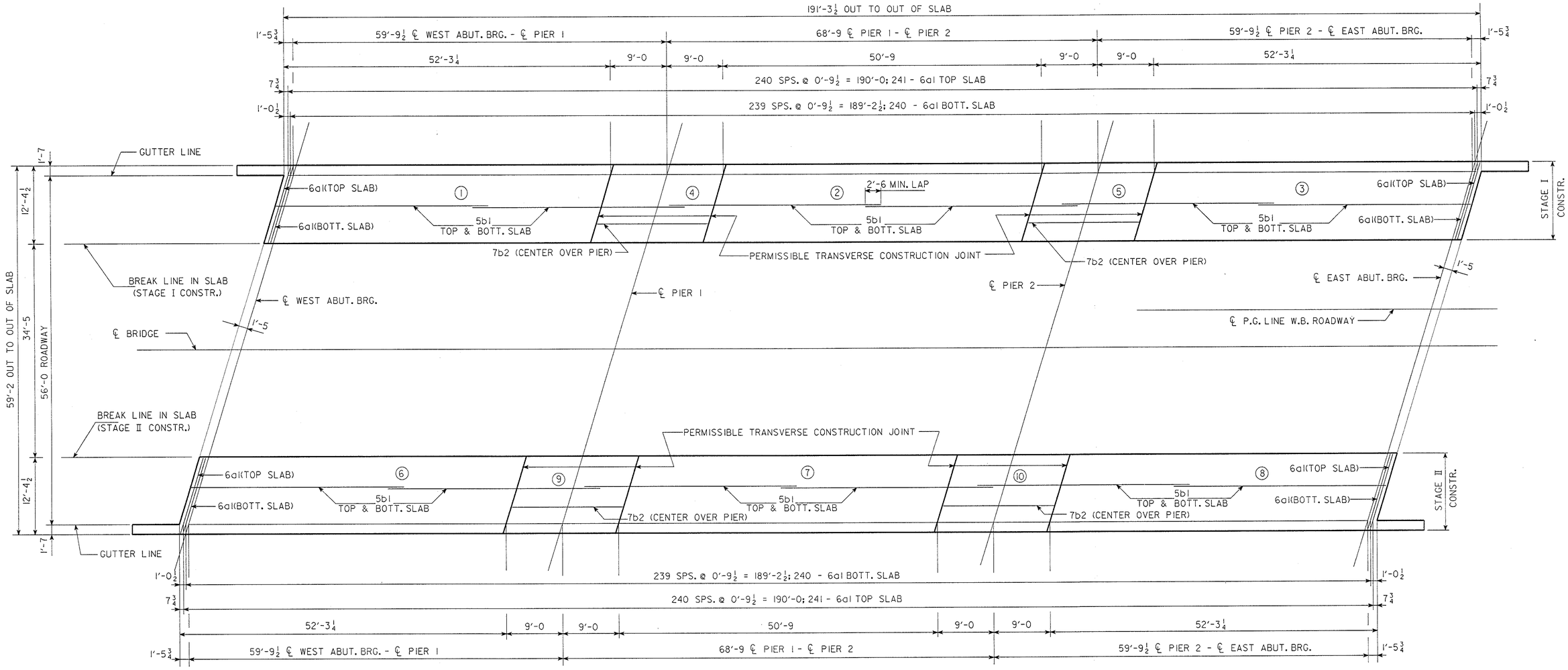
DESIGNED BY R.J. Meyer TRACED BY
DETAILED BY E. OGAWA CHECKED BY

H77149100.S09 DEVICE : ZHAI:[200,5] ARCH. TAPE NO. _____ DATE _____

POLK COUNTY

PROJECT NUMBER

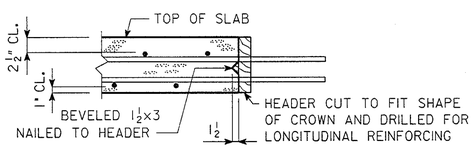
STATE	FHWA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	7		17	43



CONCRETE PLACEMENT DIAGRAM

NOTE: ROADWAY SLAB MAY BE PLACED IN SECTIONS AND SEQUENCES INDICATED. 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.

NOTE: SHOWN FOR WEST BOUND BRIDGE. EAST BOUND BRIDGE IS SIMILAR BY ROTATING 180°.



TRANSVERSE SLAB CONSTRUCTION JOINT



DESIGN FOR WIDENING OF 16° 54' SKEW (L.A.)

DUAL 188'-4x42' PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGES TO 56' ROADWAY BRIDGES

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SUPERSTRUCTURE DETAILS

STATION : 1174+05.00 — OCTOBER, 1991

POLK COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

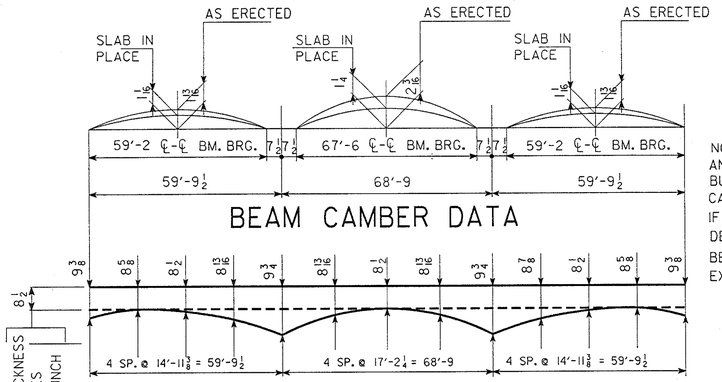
DESIGN SHEET NO. 16 OF 29 — FILE NO. 28266 — DESIGN NO. 1491

DESIGNED BY R.J. Meyer — TRACED BY
DETAILED BY E. OGAWA — CHECKED BY J.C. Clausen

H77149100.S11 — DEVICE : ZHA1:[200,5] ARCH. TAPE NO. _____ DATE _____

POLK COUNTY — PROJECT NUMBER

STATE	FHWA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	7		18	43

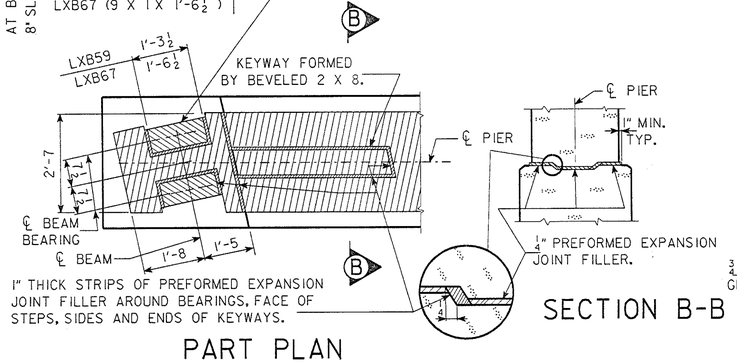


BEAM CAMBER DATA

SLAB THICKNESS AT BEAMS (T)

NOMINAL SLAB THICKNESS AT BEAMS INCLUDES 8" SLAB + ½" HAUNCH

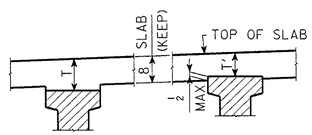
NEOPRENE BEARING PAD
LXB59 (9 X 1 X 1'-3½)
LXB67 (9 X 1 X 1'-6½)



PART PLAN

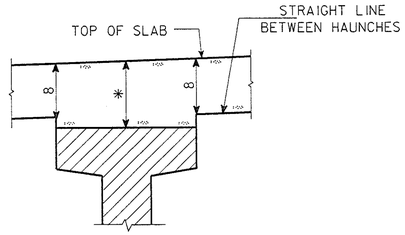
SECTION B-B

TOP OF PIER DETAILS

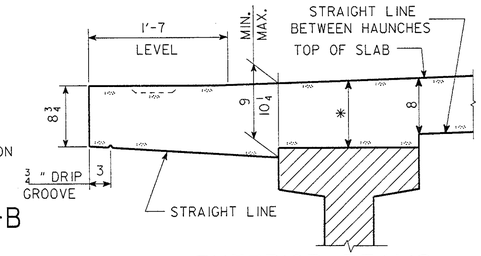


SLAB THICKNESS DETAILS

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, INCREASED SLAB THICKNESS (T) AT BEAMS TO COMPENSATE. IF BEAM IS OVER CAMBERED, THE SLAB THICKNESS (T) MAY BE DECREASED TO A MAXIMUM OF ½" EMBEDMENT AT THE EDGE OF THE BEAM(T'). IF MORE THAN ½" EMBEDMENT IS REQUIRED OR THE HAUNCH EXCEEDS. 2", THE GRADE LINE IS TO BE REVISED.

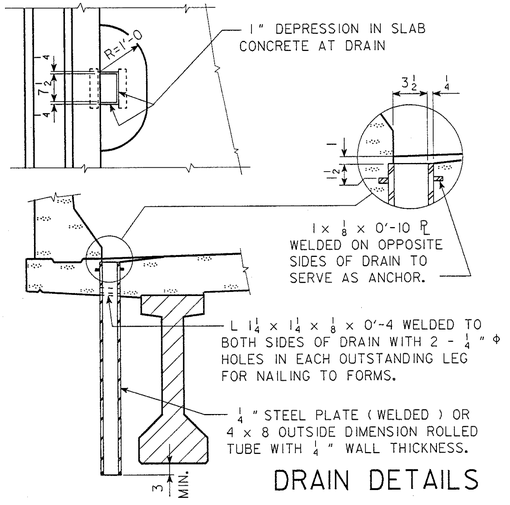


INTERIOR BEAMS



EXTERIOR BEAMS

TYPICAL SLAB AND HAUNCH DETAIL



DRAIN DETAILS

SUPERSTRUCTURE NOTES:

THE FLOOR SLAB AS SHOWN INCLUDES ½" INTEGRAL WEARING SURFACE.

THE PIER AND ABUTMENT DIAPHRAGM CONCRETE IS TO BE PLACED MONOLITHICALLY WITH THE FLOOR SLAB.

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.

CLEAR DISTANCE FROM FACE OF CONCRETE TO NEAR REINFORCING BAR SHALL BE 2 INCHES UNLESS OTHERWISE NOTED OR SHOWN.

ALL SLAB AND DIAPHRAGM REINFORCING IS TO BE WIRED IN PLACE AND ADEQUATELY SUPPORTED BEFORE CONCRETE IS PLACED.

TOP TRANSVERSE REINFORCING STEEL IS TO BE PARALLEL TO AND 2½" CLEAR BELOW TOP OF SLAB. BOTTOM TRANSVERSE REINFORCING STEEL IS TO BE PARALLEL TO AND 1" CLEAR ABOVE BOTTOM OF SLAB. TOP AND BOTTOM REINFORCING STEEL IS TO BE SUPPORTED BY INDIVIDUAL EPOXY COATED METAL BAR CHAIRS SPACED AT NOT MORE THAN 3'-0 CENTERS LONGITUDINALLY AND TRANSVERSELY, OR BY CONTINUOUS ROWS OF EPOXY COATED METAL BAR HIGH CHAIRS OR SLAB BOLSTERS SPACED 4'-0 APART.

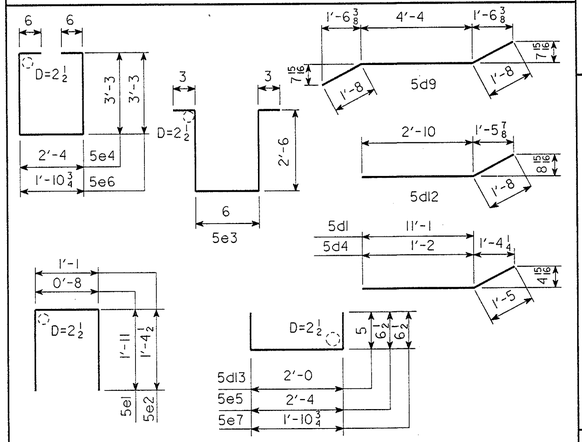
CONC. PLACEMENT QUANT. ONE SUPERSTR.

LOCATION		STAGE I	STAGE II	QUANTITY
SECTION 1, SLAB & DIAPH.		19.2	19.2	38.4
SECTION 2, SLAB		16.2	16.2	32.4
SECTION 3, SLAB & DIAPH.		19.2	19.2	38.4
SECTION 4, SLAB & DIAPH.		9.1	9.1	18.2
SECTION 5, SLAB & DIAPH.		9.1	9.1	18.2
INTERM. DIAPH.	2 @ 0.7(END SPANS)	1.4	1.4	2.8
	1 @ 0.7(CENTER SPAN)	0.7	0.7	1.4
TOTAL (CU. YDS.)				149.8

ESTIMATED QUANTITIES ONE SUPERSTR.

ITEM		UNIT	QUANTITY
STRUCTURAL CONCRETE		CU. YD.	149.8
REINFORCING STEEL EPOXY COATED		LBS.	39,526
REINFORCING STEEL		LBS.	1,173
PRETENSIONED PRESTRESSED CONCRETE BEAMS	LXB59	NO.	8
	LXB67	NO.	4
STRUCTURAL STEEL		LBS.	2,120

BENT BAR DETAILS



NOTE: ALL DIMENSIONS ARE OUT TO OUT. D= PIN DIAMETER.

NOTE :
DRAINS ARE TO BE GALVANIZED. 16 DRAINS REQUIRED. SEE " SITUATION PLAN " ON DESIGN SHEET 3 FOR LOCATION. WEIGHT OF DRAINS IS INCLUDED IN THE QUANTITY FOR "STRUCTURAL STEEL". WEIGHT IS BASED ON ROLLED TUBE.

DATA FOR ONE DRAIN			
BEAM SIZE	B		
WT. LBS.	82		
LENGTH FT.	4'-2¾		

REINFORCING BAR LIST-ONE SUPERSTR.

	BAR	LOCATION	SHAPE	NO.	LENGTH	LIN. FT.	WEIGHT
EPOXY COATED REINF.	6a1	SLAB TRANSV. TOP & BOTT.	——	962	12'-7	12,105	18,181
	5b1	SLAB LONGIT. TOP & BOTT.	——	324	33'-11	10,989	11,462
	7b2	SLAB LONGIT. TOP AT PIERS	——	48	17'-8	848	1,733
	5d1	ABUT. DIAPH. LONGIT., BACK FACE	⌒	24	12'-6	300	313
	5d2	ABUT. DIAPH. LONGIT., FRONT FACE	——	12	5'-1	61	64
	5d3	ABUT. DIAPH. LONGIT., FRONT FACE	——	8	3'-6	28	29
	5d4	ABUT. DIAPH. LONGIT., END, F. F.	⌒	8	2'-7	21	22
	5e1	PAVING SUPPORT HAIRPIN	⊐	44	4'-6	198	207
	5e2	ABUT. DIAPH. HAIRPIN	⊐	72	3'-10	276	288
	5s1	ABUT. WING EXTENSION, VERT.	——	48	2'-4	112	117
	5s2	ABUT. WING EXTENSION, VERT.	——	48	2'-8	128	134
	5h1	ABUT. WING EXTENSION, LONGIT.	——	12	10'-4	124	129
	5h2	ABUT. WING EXTENSION, LONGIT.	——	12	8'-4	100	104
	5h3	ABUT. WING EXTENSION, LONGIT.	——	12	3'-9	45	47
		BARRIER RAIL - SEE DES. SHT. NO. 22			#5 BAR	6,153	6,696
					#6 BAR	185	
					#5 BAR	18,539	
					#6 BAR	12,290	
					#7 BAR	848	
		REINFORCING STEEL EPOXY COATED - TOTAL (LBS.)					39,526
NON-COATED REINF.	5d5	INTERMED. DIAPH. LONGIT.	——	24	4'-10	——	121
	5d6	INTERMED. DIAPH. LONGIT.	——	24	3'-3	——	81
	5d7	PIER DIAPH. LONGIT.	——	16	4'-11	——	82
	5d8	PIER DIAPH. LONGIT.	——	8	4'-0	——	33
	5d9	PIER DIAPH. LONGIT.	⌒	4	7'-8	——	32
	5d10	PIER DIAPH. LONGIT.	——	16	3'-6	——	58
	5d11	PIER DIAPH. LONGIT.	——	8	2'-6	——	21
	5d12	PIER DIAPH. LONGIT.	⌒	4	4'-6	——	19
	5d13	PIER DIAPH. HAIRPIN	⊔	8	2'-10	——	24
	5e3	INTERMED. DIAPH. HOOPS	⊔	42	6'-0	——	263
	5e4	PIER DIAPH. HOOPS	□	28	9'-10	——	287
	5e5	PIER DIAPH. TIES	⊔	28	3'-5	——	100
	5e6	PIER DIAPH. HOOPS ENDS	□	4	9'-5	——	39
	5e7	PIER DIAPH. TIES ENDS	⊔	4	3'-0	——	13
		REINFORCING STEEL - TOTAL (LBS.)					1173

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SUPERSTRUCTURE DETAILS

STATION : 1174+05.00 — OCTOBER, 1991

POLK COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 17 OF 29 — FILE NO. 28266 — DESIGN NO. 1491

DESIGNED BY R.J. Meyer — TRACED BY J. Clausen
DETAILED BY E. OGAWA — CHECKED BY

STUB ABUT. B, C, & D BEAMS - BAR LIST & SUPER. DETAILS - 15°01' - 30° SKEW

STANDARD SHEET 4552

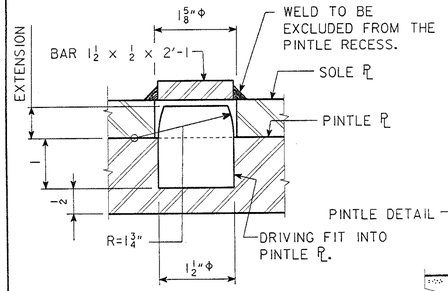
POLK COUNTY

PROJECT NUMBER

STATE	FHWA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	7		19	43

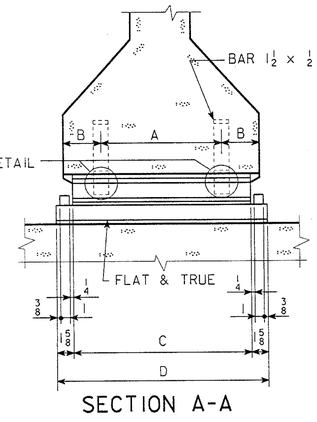
H771491OO.S12 — DEVICE : ZHAI:[200,5] ARCH. TAPE NO. _____ DATE _____

REVISED: CLASS "D" CONCRETE CHANGED TO CLASS "C" AND LONGIT. SLAB CONSTR. JOINT DELETED. TED. TAPE NO. 16 DATED 5-15-91
HSTD04552.S01--LEP: THIS SHEET REDRAWN, DEVICE:ZHAO:(200,004) ARCH.TAPE NO. 15 DATE 9-8-88

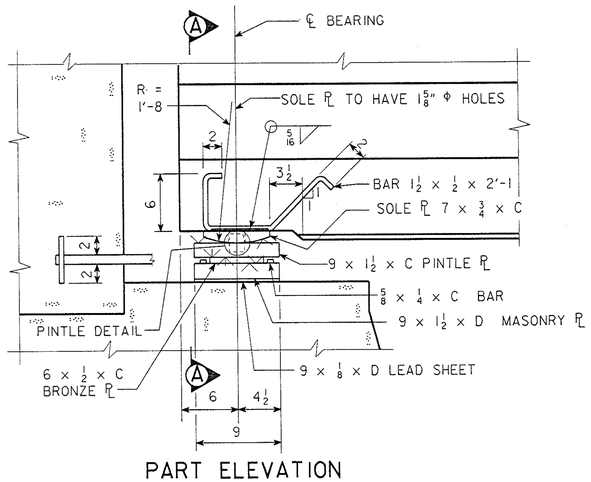


PINTLE DETAIL

NOTE:
THE PINTLE EXTENSION IS TO BE 1" FOR SOLE PL THICKNESSES OF $1\frac{1}{8}$" OR GREATER. EXTENSION IS TO BE $\frac{5}{8}$" FOR THICKNESSES LESS THAN $1\frac{1}{8}$".



SECTION A-A



PART ELEVATION

ABUTMENT BEARING NOTES:

BRONZE PL SHALL BE LUBRICATED IN ACCORDANCE WITH IOWA D.O.T. SPECIFICATIONS ARTICLE 4190.03 (SLIDING SURFACE ONLY) AND THE BRONZE METAL SHALL BE CAST BRONZE MEETING THE REQUIREMENTS OF ARTICLE 4190.03. TOP EDGES OF BRONZE PL SHALL BE BEVELED $\frac{1}{8}$".

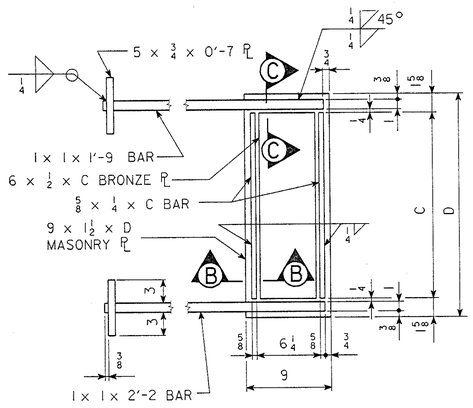
SURFACES MARKED "V" SHALL BE FINISHED ANSI 250 AND SURFACES MARKED "▽" SHALL BE FINISHED ANSI 125.

MASONRY PLATES ARE TO BE SET ON A $\frac{1}{8}$" LEAD SHEET.

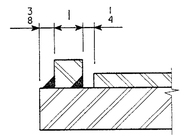
PINTLE PLATES, MASONRY PLATES, LUBRICATED BRONZE PLATES AND LEAD SHEETS ARE A PART OF THE SUPERSTRUCTURE STRUCTURAL STEEL QUANTITY. UNIT PRICE BID FOR "STRUCTURAL STEEL" SHALL INCLUDE ALLOWANCE FOR COST OF BRONZE PLATES AND LEAD SHEETS. COST OF THE ANCHORED CURVED SOLE PLATES IS TO BE INCLUDED IN THE PRICE BID FOR " PRETENSIONED PRESTRESSED CONCRETE BEAMS ".

THE SOLE PLATE, PINTLE PLATE AND THE MASONRY PLATE SHALL BE GALVANIZED. THE SOLE PLATE AND MASONRY PLATE SHALL BE FITTED UP AND WELDED PRIOR TO GALVANIZING. THE SURFACE OF PINTLE PLATE IN CONTACT WITH BRONZE BEARING PLATE SHALL BE SMOOTH AND FREE OF PROJECTIONS DUE TO GALVANIZING.

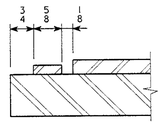
SOLE PLATES ARE TO BE SET IN FORMS WHEN BEAMS ARE CAST AND THE BOTTOM OF BEAMS FORMED OUT AS SHOWN TO EXCLUDE CONCRETE.



PLAN OF MASONRY PL AND BRONZE PL



SECTION C-C



SECTION B-B

PRETENSIONED PRESTRESSED CONCRETE BEAM ABUTMENT BEARING DETAILS

(16 ABUTMENT BEARINGS REQUIRED. WEIGHT = 183 LBS./BEARING)

VARIABLE DIMENSIONS

	BEAM BOTTOM FLANGE WIDTH		
	1'-5		
A	0'-6		
B	0'-5½		
C	1'-3½		
D	1'-6¾		

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DUAL 188'-4x42' PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGES

TO

56' ROADWAY BRIDGES

59'-9½ END SPANS 68'-9 CENTER SPAN

BEARING DETAILS

STATION : 1174+05.00 OCTOBER, 1991

POLK COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 18 OF 29 FILE NO. 28266 DESIGN NO. 1491

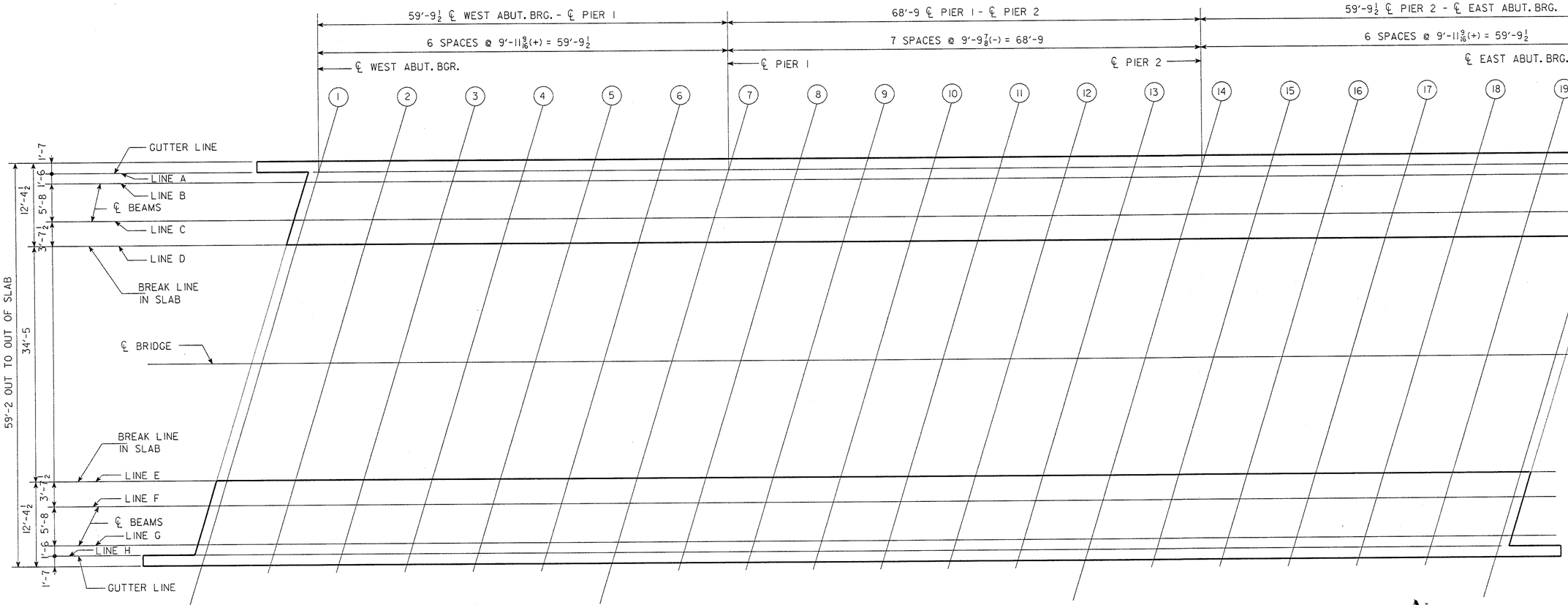
DESIGNED BY R.J. Mayer TRACED BY J. Clausen
DETAILED BY E. OGAWA CHECKED BY

H77149100.S14 DEVICE : ZHAI:[200,5] ARCH. TAPE NO. _____ DATE _____

POLK COUNTY | PROJECT NUMBER

STATE	FHWA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	7		20	43

~~BENCH MARK: NO. 191 STA. 1176+85 70'RT. R.R. SPK. WEST SIDE FENCE POST ELEV. = 833.97~~



TOP OF SLAB ELEVATION LAYOUT



TOP OF SLAB ELEVATIONS

	LINE \ POINT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
EASTBOUND ROADWAY	A	840.17	840.21	840.26	840.30	840.35	840.39	840.44	840.48	840.52	840.57	840.61	840.66	840.70	840.74	840.79	840.83	840.88	840.92	840.97	841.01
	B	840.21	840.25	840.30	840.34	840.39	840.43	840.48	840.52	840.57	840.61	840.66	840.70	840.74	840.79	840.83	840.88	840.92	840.97	841.01	841.06
	C	840.37	840.42	840.46	840.51	840.55	840.60	840.64	840.68	840.73	840.77	840.82	840.86	840.91	840.95	840.99	841.04	841.08	841.13	841.17	841.22
	D	840.47	840.52	840.56	840.61	840.65	840.70	840.74	840.79	840.83	840.88	840.92	840.96	841.01	841.05	841.10	841.14	841.19	841.23	841.28	841.32
	E	840.79	840.83	840.88	840.92	840.97	841.01	841.06	841.10	841.14	841.19	841.23	841.28	841.32	841.37	841.41	841.46	841.50	841.55	841.59	841.63
	F	840.67	840.72	840.76	840.81	840.85	840.90	840.94	840.99	841.03	841.08	841.12	841.16	841.21	841.25	841.30	841.34	841.39	841.43	841.48	841.52
	G	840.50	840.54	840.59	840.63	840.68	840.72	840.77	840.81	840.85	840.90	840.94	840.99	841.03	841.08	841.12	841.16	841.21	841.25	841.30	841.34
	H	840.45	840.49	840.54	840.58	840.63	840.67	840.72	840.76	840.81	840.85	840.90	840.94	840.98	841.03	841.07	841.12	841.16	841.21	841.25	841.30
WESTBOUND ROADWAY	A	840.62	840.67	840.71	840.42	840.80	840.85	840.89	840.94	840.98	841.03	841.07	841.11	841.16	841.20	841.25	841.29	841.34	841.38	841.43	841.47
	B	840.67	840.71	840.76	840.80	840.85	840.89	840.94	840.98	841.03	841.07	841.11	841.16	841.20	841.25	841.29	841.34	841.38	841.43	841.47	841.52
	C	840.83	840.87	840.92	840.96	841.01	841.05	841.10	841.14	841.19	841.23	841.28	841.32	841.36	841.41	841.45	841.50	841.54	841.59	841.63	841.68
	D	840.93	840.98	841.02	841.07	841.11	841.16	841.20	841.25	841.29	841.33	841.38	841.42	841.47	841.51	841.56	841.60	841.65	841.69	841.74	841.78
	E	840.53	840.57	840.62	840.66	840.71	840.75	840.79	840.84	840.88	840.93	840.97	841.02	841.06	841.10	841.15	841.19	841.24	841.28	841.33	841.37
	F	840.41	840.46	840.50	840.55	840.59	840.64	840.68	840.73	840.77	840.81	840.86	840.90	840.95	840.99	841.04	841.08	841.13	841.17	841.22	841.26
	G	840.24	840.28	840.32	840.37	840.41	840.46	840.50	840.55	840.59	840.64	840.68	840.73	840.77	840.81	840.86	840.90	840.95	840.99	841.04	841.08
	H	840.19	840.23	840.28	840.32	840.37	840.41	840.46	840.50	840.55	840.59	840.63	840.68	840.72	840.77	840.81	840.86	840.90	840.95	840.99	841.04

DESIGN FOR WIDENING OF 16° 54' SKEW (L.A.)

DUAL 188'-4x42' PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGES TO 56' ROADWAY BRIDGES

59'-9½ END SPANS — 68'-9 CENTER SPAN

TOP SLAB ELEVATIONS

STATION : 1174+05.00

OCTOBER, 1991

POLK COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 19 OF 29 FILE NO. 28266 DESIGN NO. 1491

DESIGNED BY R.J. Meyer — TRACED BY

DETAILED BY E. OGAWA — CHECKED BY J.C. Hansen

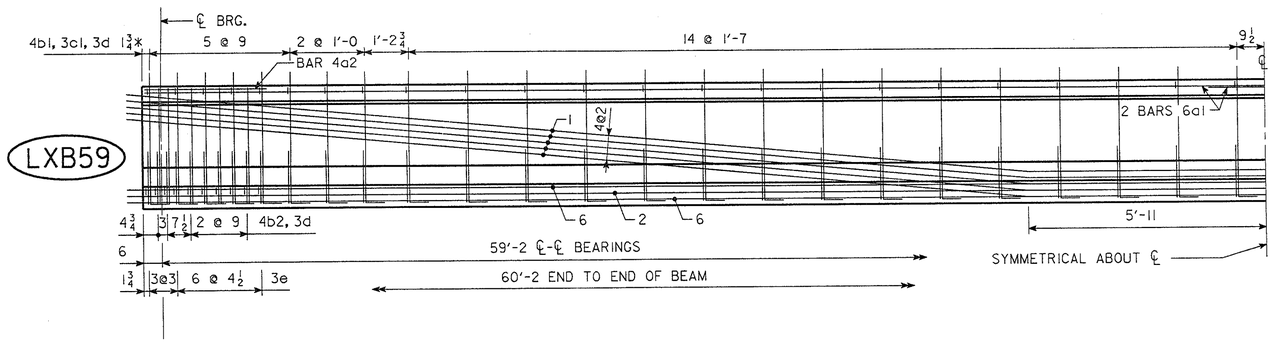
POLK COUNTY

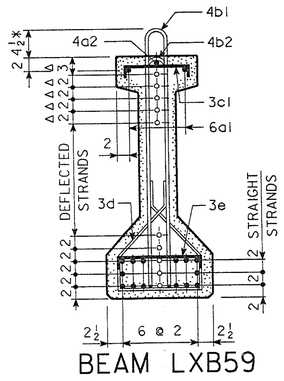
PROJECT NUMBER

STATE	FHWA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	7		21	43

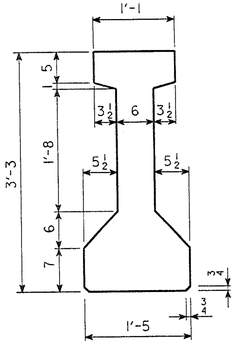
H77149100.S13 DEVICE : ZHAI:[200,5] ARCH. TAPE NO. _____ DATE _____

NOTE: DIMENSIONS FOR THE LOCATION OF THE DEFLECTED STRANDS ARE AT ℄ BEAM AND END OF BEAM.



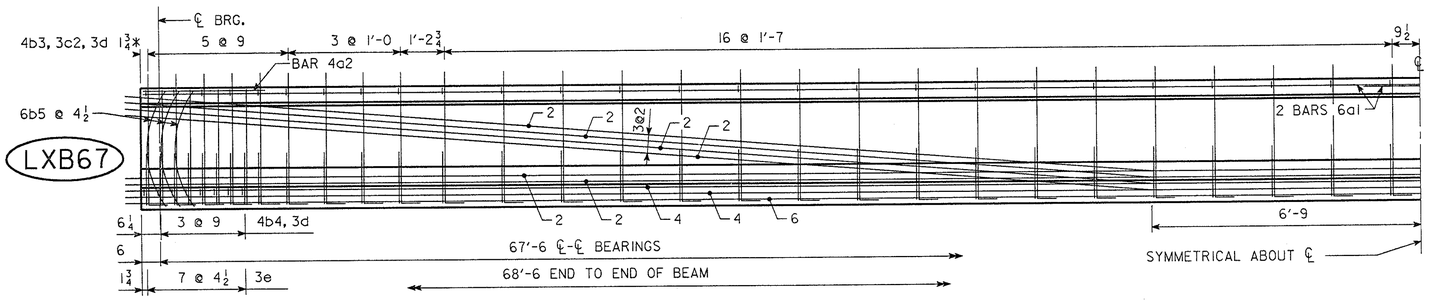


BEAM LXB59

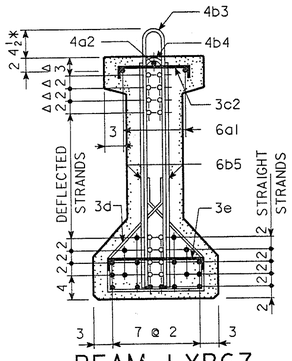


BEAM LXB59

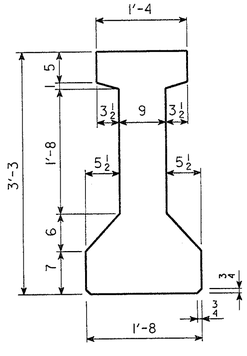
A = 382.5 in.²
Y_b = 17.06 in.
I = 62,000 in.⁴



NOTE: BARS 6b5 AND 3d ARE TO BE PLACED IN PAIRS.

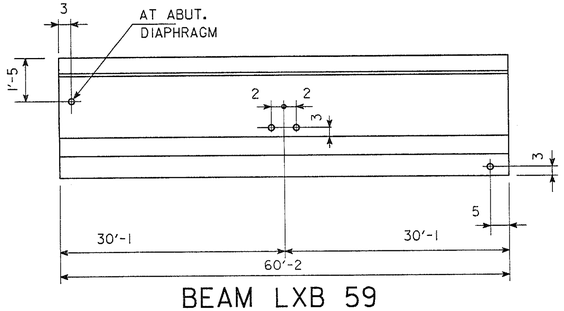


BEAM LXB67

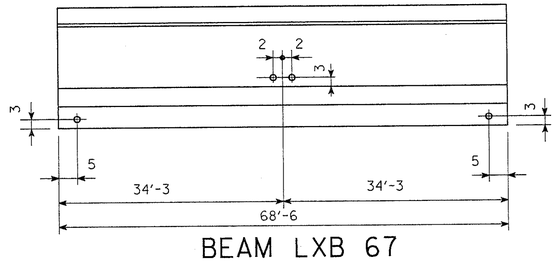


BEAM LXB67

A = 499.5 in.²
Y_b = 17.63 in.
I = 77,364 in.⁴



BEAM LXB 59



BEAM LXB 67

BEAM COIL TIE LOCATIONS

o DEFLECTED STRANDS
* KEEP
Δ DIMENSIONS AT END OF BEAM

DESIGN FOR WIDENING OF 16° 54' SKEW (L.A.)

DUAL 188'-4x42' PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGES TO 56' ROADWAY BRIDGES

59'-9½ END SPANS — 68'-9 CENTER SPAN

BEAM DETAILS

STATION : 1174+05.00

OCTOBER, 1991

POLK COUNTY

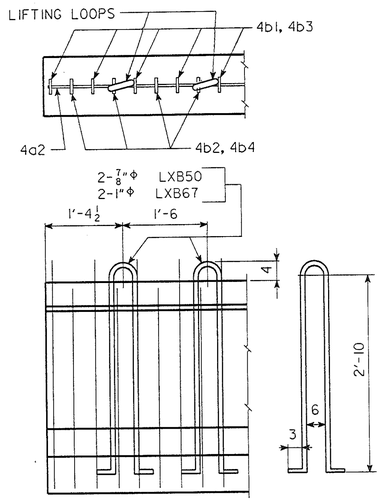
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 20 OF 29 — FILE NO. 28266 — DESIGN NO. 1491

DESIGNED BY R.J. Meyer	TRACED BY J. Clarke	LXB BEAMS	STANDARD SHEET 4612 ISSUE DATE 06-01-90	POLK COUNTY	STATE	FHWA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
DETAILED BY E. OGAWA	CHECKED BY				IOWA	7		22	43

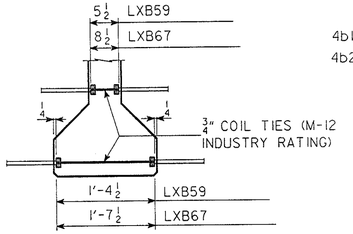
H77149100.S16 DEVICE : ZHAI:[200,5] ARCH. TAPE NO. _____ DATE _____

HLXB0461Z.S01--GJP: THIS SHEET REISSUED, DEVICE: ZHAI:[200,005] ARCH. TAPE 9 DATE 05-24-90



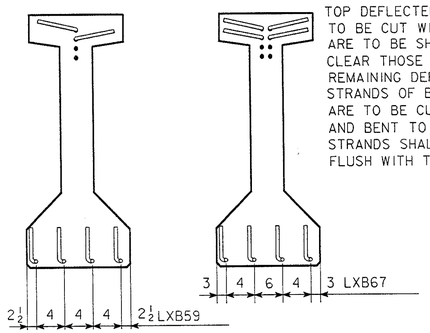
LIFTING LOOP DETAIL

ALTERNATE TYPES MAY BE SUBSTITUTED WITH THE APPROVAL OF THE ENGINEER. LIFTING LOOPS ARE TO BE STRUCTURAL GRADE.



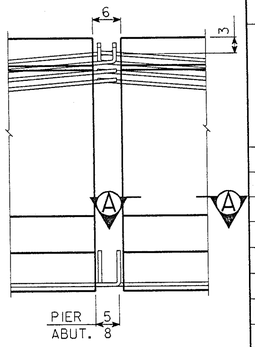
COIL TIE DETAIL

NUMBER AND EXACT LOCATION OF COIL TIES TO BE AS DETAILED ON SPECIFIC BRIDGE DESIGN.

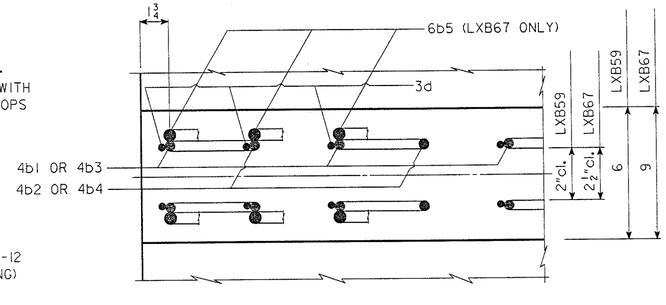


FOUR BOTTOM STRANDS AND "N" TOP DEFLECTED OR STRAIGHT STRANDS ARE TO BE CUT WITH 1'-0 PROJECTIONS WHICH ARE TO BE SHOP BENT AS SHOWN AND TO CLEAR THOSE FROM THE ADJACENT SPAN. REMAINING DEFLECTED AND TOP STRAIGHT STRANDS OF BEAMS LXB42 THROUGH LXB67 ARE TO BE CUT WITH 0'-5 PROJECTION AND BENT TO CLEAR. THE REMAINING STRANDS SHALL BE CUT OFF REASONABLY FLUSH WITH THE CONCRETE.

BEAM	"N"
LXB50-LXB67	4



STRAND PROJECTION AT BEAM ENDS WHEN EMBEDDED IN CONCRETE END DIAPHRAGMS



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

LXB BEAM DATA

BEAM	SPAN LENGTH ℄-℄ BEARING	OVERALL BEAM LENGTH (L)	STRAND SIZE	NO. OF STRANDS: STRAIGHT	NO. OF STRANDS: DEFLECTED	TOTAL INITIAL PRESTRESS KIPS ③	HOLD DOWN FORCE-KIPS	CAMBER (in.): AT RELEASE	CAMBER (in.): AFTER LOSSES	DEFLECTION (in.) Δ_D: IMMEDIATE ① (Δ_I) CONC. DIAPH.	IMMEDIATE ① (Δ_I) STEEL DIAPH.	TIME (PLASTIC) ② (Δ_T) CONC. DIAPH.	TIME (PLASTIC) ② (Δ_T) STEEL DIAPH.	PERMISSIBLE SPACING:	PERMISSIBLE SPACING: HS20 LOADING CONC. DIAPH.	PERMISSIBLE SPACING: HS20 LOADING STEEL DIAPH.	WEIGHT (TONS)		CONCRETE (C. Y.)	REINFORCING STEEL-(lb)
LXB59	59'-2	60'-2	½"Φ	14	5	570	15.6	1.01	1.79	0.80	0.74	0.20	0.19	7'-6	7'-6	12.0		5.92	631
LXB67	67'-6	68'-6	½"Φ	18	8	805.1	22.6	1.23	2.17	1.08	1.02	0.27	0.26	7'-6	7'-6	17.8		8.80	757

① DEFLECTIONS AT MID-SPAN DUE TO WEIGHT OF SLAB AND DIAPHRAGM. THE DEFLECTIONS SHOWN ARE FOR A SLAB WEIGHT OF 757 #/FT. (8" SLAB AND 7'-6 BEAM SPACING) AND ONE CONCRETE DIAPHRAGM (2270 #) OR ONE STEEL DIAPHRAGM (285 #) AT ℄ OF SPAN. FOR DIFFERENT SLAB AND DIAPHRAGM WEIGHTS, DEFLECTIONS WILL BE DIRECTLY PROPORTIONAL.

② DEFLECTIONS DUE TO THE COMBINED EFFECT OF CREEP DUE TO WEIGHT OF SLAB AND SHRINKAGE OF SLAB.

TOTAL BEAM DEFLECTIONS AT ℄ 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.

③ TOTAL INITIAL PRESTRESS FOR LXB34 THRU LXB63 INCLUSIVE IS BASED ON 72.664% Fsu. AND FOR LXB67 ON 75% Fsu. Fsu = 270 ksi AND As = 0.153 sq. in.

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 DEFLECTED STRANDS MAY BE MOVED TOWARD ENDS OF BEAM A DISTANCE OF 0.05 L MAXIMUM AT PRODUCER'S OPTION.

ALL PRESTRESSING STRANDS SHALL CONFORM TO ASTM A416 GRADE 270 LOW RELAXATION STRANDS.

TOPS OF BEAMS ARE TO BE STRUCK OFF LEVEL AND GIVEN A WOOD FLOAT FINISH.

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.

UNLESS OTHERWISE NOTED ALL BEAMS ARE TO BE INCREASED IN LENGTH BY .0005L TO COMPENSATE FOR ELASTIC SHORTENING, CREEP AND SHRINKAGE.

IF THE PRECAST PANEL OPTION IS ALLOWED AND USED FOR BRIDGE DECK FORMATION, TOP FLANGE FINISH SHALL BE MODIFIED AS PER DETAILS ON THE PRECAST PANEL SHEET.

IF THE STEEL DIAPHRAGM OPTION IS ALLOWED AND USED, HOLES MUST BE CAST IN THE WEB TO ACCOMMODATE THE STEEL DIAPHRAGM ATTACHMENTS AS DETAILED ON THE STEEL DIAPHRAGM DETAIL SHEET.

IF SOLE PLATE IS REQUIRED FOR BEARING, SOLE PLATE IS TO BE SET IN FORMS WHEN BEAM IS CAST AND FORMED OUT BELOW TO EXCLUDE CONCRETE AS DETAILED ON THE BEARING SHEET.

IF STUB ABUTMENTS ARE USED, ALL STRANDS AT THE ENDS OF BEAMS AT STUB ABUTMENTS SHALL BE CUT OFF REASONABLY FLUSH WITH THE CONCRETE.

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 1989, WITH MINOR MODIFICATIONS.

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 1989:

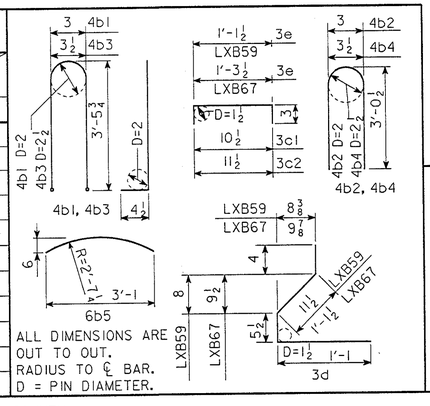
REINFORCING STEEL IN ACCORDANCE WITH SECTION 8, GRADE 60.

CONCRETE IN ACCORDANCE WITH SECTION 9, f'_C =5000 psi.

PRESTRESSING STEEL IN ACCORDANCE WITH SECTION 9, f'_S = 270,000 psi.

REINFORCING BAR LIST

BEAM / SPAN	LXB59 59'-2 NO.	LXB59 59'-2 LENGTH	LXB67 67'-6 NO.	LXB67 67'-6 LENGTH
BAR SHAPE				
6a1 —	4	31'-5	4	35'-7
4a2 —	2	3'-3	2	3'-3
4b1	46	7'-10	—	—
4b2	10	6'-2	—	—
4b3	—	—	52	7'-10
4b4	—	—	8	6'-2
6b5	—	—	12	3'-3
3c1	46	1'-5	—	—
3c2	—	—	52	1'-6
*3d	112	2'-10	120	3'-0
3e	20	1'-8	16	1'-10



ALL DIMENSIONS ARE OUT TO OUT. RADIUS TO ℄ BAR. D = PIN DIAMETER.

* WHERE DEFLECTING STRANDS INTERFERE WITH PLACEMENT, SOME IN-PLACE BENDING MAY BE NECESSARY.

DESIGN FOR WIDENING OF 16° 54' SKEW (L.A.)

DUAL 188'-4x42' PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGES TO 56' ROADWAY BRIDGES

59'-9½ END SPANS — 68'-9 CENTER SPAN

BEAM DETAILS

STATION : 1174+05.00

OCTOBER, 1991

POLK COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 21 OF 29 — FILE NO. 28266 — DESIGN NO. 1491

DESIGNED BY Ted Meyer — TRACED BY
DETAILED BY E. OGAWA — CHECKED BY

LXB BEAMS

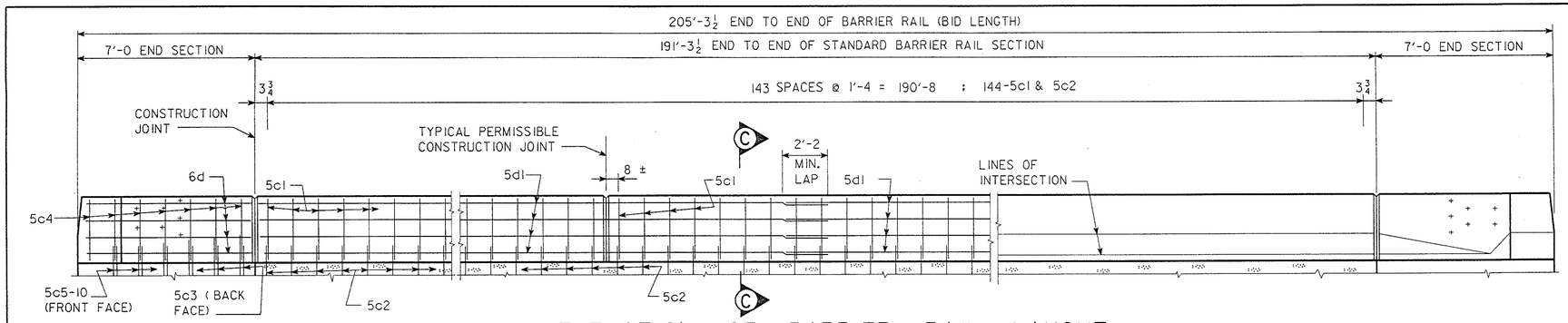
STANDARD SHEET 4610
ISSUE DATE 06-01-90

POLK COUNTY

STATE	FHWA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	7		23	43

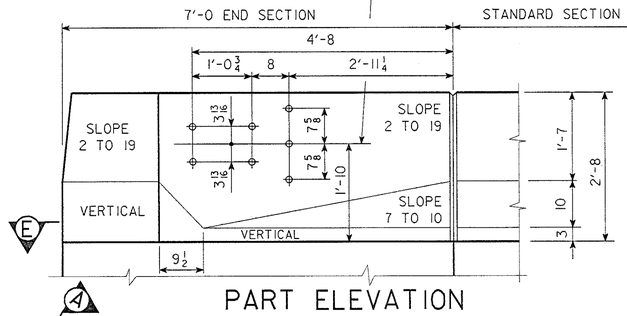
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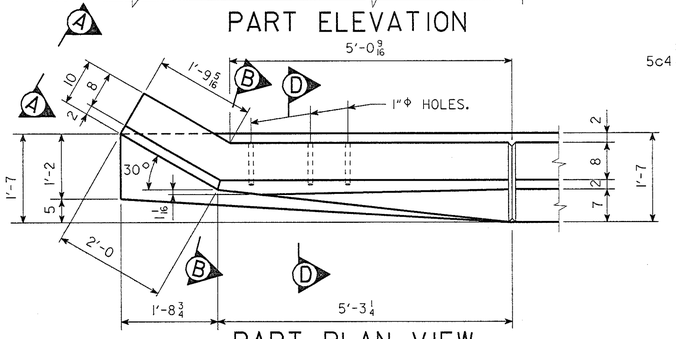


ELEVATION OF BARRIER RAIL LAYOUT

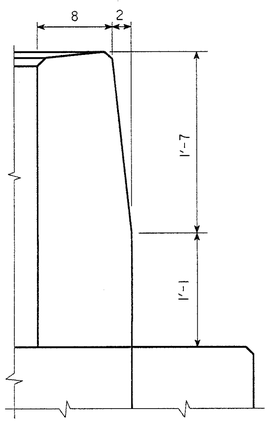
PROVIDE SEVEN HOLES FORMED WITH 1"Φ PLASTIC CONDUIT. COST TO BE INCLUDED IN PRICE BID FOR CONCRETE BARRIER RAIL.



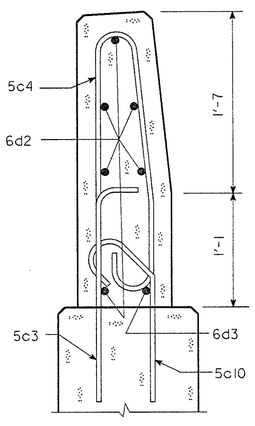
PART ELEVATION



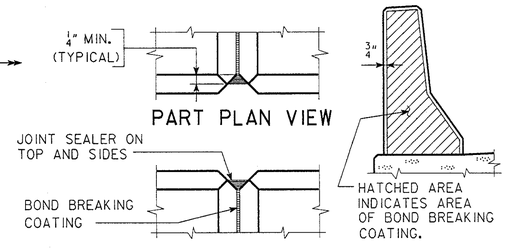
PART PLAN VIEW



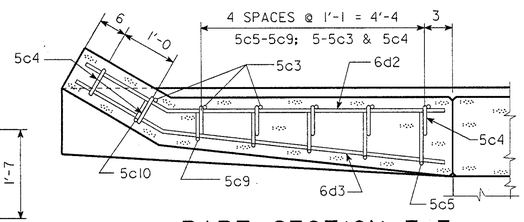
PART VIEW A-A



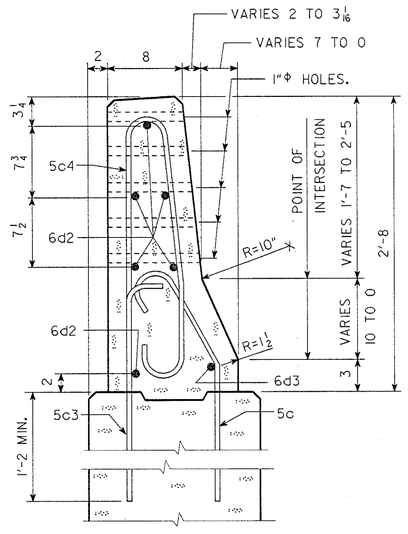
PART SECTION B-B



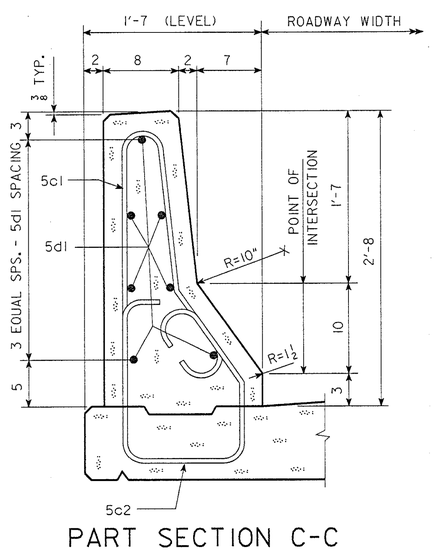
BARRIER RAIL JOINT DETAILS



PART SECTION E-E



PART SECTION D-D



PART SECTION C-C

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 ¾" DRESSED AND BEVELED STRIP.

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.

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.

THE JOINT SEALER SHALL CONFORM TO FED. SPEC. TT-S00230 OR TT-S00227 FOR TYPE II, CLASS A OR B.

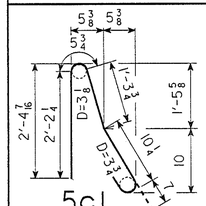
TOP OF THE BARRIER RAIL IS TO BE PARALLEL TO THE THEORETICAL ℄ GRADE.

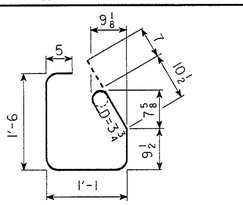
CROSS SECTIONAL AREA OF THE STANDARD SECTION OF THE BARRIER RAIL = 2.47 SQUARE FEET.

EPOXY REINF. STEEL-TWO BARRIER RAILS

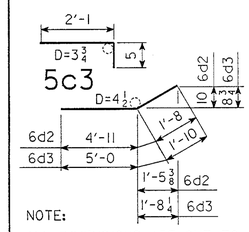
SECTION	BAR	LOCATION	SHAPE	NO.	LENGTH	LIN.FT.	WEIGHT
STANDARD SECTION	5c1	VERTICAL		576	5'-5	3120	3254
	5c2	VERTICAL		576	5'-3	3024	3154
	5d1	LONGITUDINAL	——	140	40'-0	5600	5840
4 - 7'-0 END SECTIONS	5c3	VERTICAL		48	2'-6	120	126
	5c4	VERTICAL		56	5'-5	303	316
	5c5-10	VERTICAL		48	VARIES	138	144
	6d2	LONGITUDINAL		48	6'-7	316	475
	6d3	LONGITUDINAL		8	6'-10	55	82
(INCLUDE WITH SUPERSTRUCTURE REINFORCING)					TOTAL (LBS)		13391

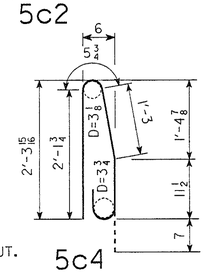
BENT BAR DETAILS

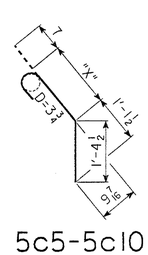




BAR	"X"
5c5	1'-4½
5c6	1'-2½
5c7	11½
5c8	9½
5c9	7½
5c10	7½







CONCRETE PLACEMENT SUMMARY

SECTION		TOTAL
STANDARD SECTION	765.2 @ .0915 CU.YD. PER FT.	70.0
END SECTION	8 @ 0.58 CU.YD.	4.6
	TOTAL (CU. YD.)	74.6

CONCRETE BARRIER RAIL QUANTITIES

ITEM	UNIT	QUANTITY
CONCRETE BARRIER RAIL	L.F.	821.2

DESIGN FOR WIDENING OF 16° 54' SKEW (L.A.)

DUAL 188'-4x42' PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGES TO 56' ROADWAY BRIDGES

59'-9½ END SPANS — 68'-9 CENTER SPAN

CONCRETE BARRIER RAIL DETAILS

STATION : 1174+05.00

POLK COUNTY

OCTOBER, 1991

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 22 OF 29 — FILE NO. 28266 — DESIGN NO. 1491

REVISED: 5c5-5c10 BENT BAR DETAIL CORRECTED, TAPE # 15 DATED 9-5-91.
REVISED: BAR LAP DETAILS AND EMBEDMENT CHANGED, TAPE NO. 16 DATED 5-15-91
REVISED: GUARDRAIL MOUNTING HEIGHT CHANGED, DETAILS CHANGED ACCORDINGLY, TAPE NO. 9 DATE 7-12-89
HSTD1020A.S02--LEP: THIS SHEET REDRAWN, DEVICE:ZHAI:(200,0004) ARCH. TAPE NO. 00006 DATE 11-3-88

DESIGNED BY R.J. Meyer — TRACED BY
DETAILED BY E. OGAWA — CHECKED BY J. Petersen

BARRIER RAIL--INTEGRAL ABUTMENT BRIDGES | STANDARD SHEET 1020A | POLK COUNTY | PROJECT NUMBER

H77149100.S17

DEVICE : ZHAI:[200,5] ARCH. TAPE NO. _____ DATE _____

STATE	FHWA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	7		24	43

GENERAL NOTES:

This design is for repair to the existing Twin 188'-4 x 42' Pretensioned Prestressed Concrete Beam Bridges, original Design No. 758 Polk County. Plans of the existing structure may be obtained at the Ames Office of the Department of Transportation--Highway Division. Repairs shall consist of bridge floor repair, bridge floor overlay, and drain extensions. Work may proceed on both bridges at the same time.

Two plots of preliminary survey are shown on Des. Sh. 3 For the west bound bridge, and Des. Sh. 2 for the east bound bridge.

Areas of high corrosion potential were determined by preliminary survey with an electrical corrosion detection device. Evidence of significant reinforcing corrosion was established with numerical readings of 0.45 volt or greater. Areas of significant corrosion are shown hatched on the "Corrosion Survey Plot" and these areas will be located in the field using preliminary survey notes. These "hot" areas must be repaired by Class A Floor Repair methods.

The floor was also surveyed for spalled and hollow areas by audible and visual methods. Hatched areas on the "Composite Survey Plot" combine the mandatory repair due to reinforcing corrosion with additional areas of spalled and hollow outside the corrosion boundries. Plan quantity of Class A Bridge Floor Repair is based on the "Composite Survey Plot".

The engineer will locate the corrosion areas determined by preliminary survey and he will resurvey by the electrical method. All areas with electrical readings of 0.45 volt or more, whether recorded during preliminary survey or determined at the time of construction, shall receive Class A Bridge Floor Repair.

In addition, the engineer will conduct an audible and visual survey to determine spalled and hollow areas. Spalled and hollow areas, as they exist at the time of construction, shall be repaired by Class A methods.

The entire concrete surface of the floor, including areas over Class A repair, shall have Bridge Floor Overlay. Surface raise, as shown on the plans, shall be considered a minimum; screed guides shall be adjusted to achieve a smooth profile.

Present floor thickness is about 6 inches. The contractor will be required to exercise care in removing concrete in order to prevent unnecessary unbonding of reinforcing steel.

The A.C. runout taper at each end of the bridge will be placed by local Highway Division Maintenance forces before traffic is shifted to new construction. The contractor shall give adequate prior notice so that the A.C. may be placed during normal working hours and working days of Maintenance."

The bid item "Structural Steel" shall include all costs associated with furnishing and installing drain extensions as detailed on those plans.

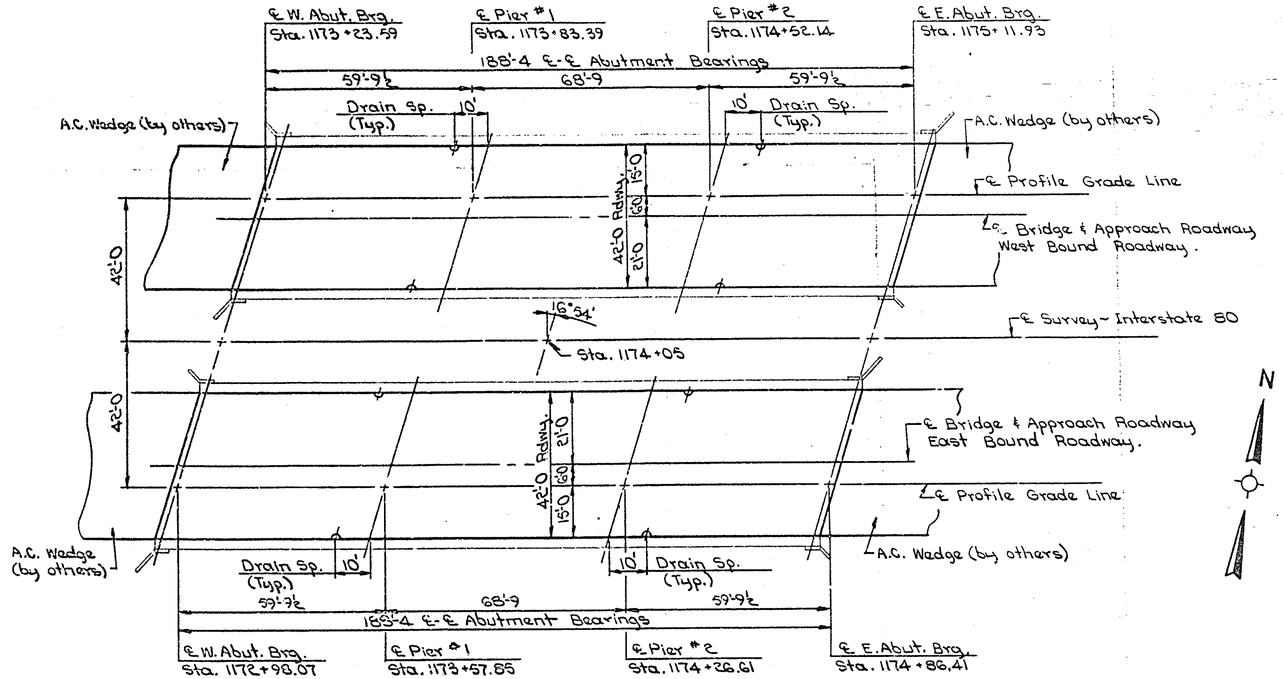
Temporary Barrier Rail-Concrete shall be installed for each construction stage of each bridge as shown and noted on Des. Sh 5. An amount of rail sufficient for simultaneous work on two bridge is provided by the bid item "Temporary Barrier Rail-Concrete". The quantity shown on the plan shall be the quantity for which payment is made.

Floodlighting will be required as shown on the Temporary Barrier Rail Layout on Des. Sh. 5 Floodlights are to be staged to correspond to traffic and barrier location.

Construction shall be done in stages with at least one lane of traffic maintained at all times in accordance with Highway Division Specification No. 753 and with design sheets 6 thru 14. Cost for all traffic control devices, to be furnished and/or maintained by the contractor, will be considered incidental to other work and no separate payment will be made.

The contractor is to note that Des. No. 1178-Project No. I-IR-80-4(22)143--14-77 and Des. No. 3477-Project No. I-IG-80-4(20)142--04-77 are to be tied, and the traffic controls as shown on Des. Sheets 6 thru 14 are to be co-ordinated between the two projects as noted and shown.

These plans require the removal of existing pavement striping and placement of temporary pavement striping before other stage construction is started. This design also requires the removal of temporary striping and the replacement of permanent pavement striping after construction is completed. This work is to be performed by the Contractor as a part of traffic control. Removal and placement of pavement striping will be considered incidental and no separate payment will be made.



SITUATION PLAN

TOTAL ESTIMATED QUANTITIES

Item Nº	Item	Unit	Quantity
1	Class A Bridge Floor Repair	Sq.Yd.	560
2	Bridge Floor Overlay	Sq.Yd.	1785
3	Structural Steel	Lbs.	784
4	Temporary Barrier Rail-Concrete	L.F.	784.7
5	Floodlighting	L.S.	Lump Sum

Item Nº ESTIMATE REFERENCE INFORMATION

1 This item to utilize IR funds.

LOCATION:
Interstate 80 over
Four Mile Creek
T79N R23W
Delaware Twp.
Section 17
Polk County
Maint. Nº 7739.4L080 ~ West Bound
Maint. Nº 7739.4R080 ~ East Bound

THIS SHEET FROM ORIGINAL DESIGN IS INCLUDED FOR INFORMATION ONLY.

DESIGN NO. 1491
FILE NO. 28266
DES. SH. NO. 23 OF 29

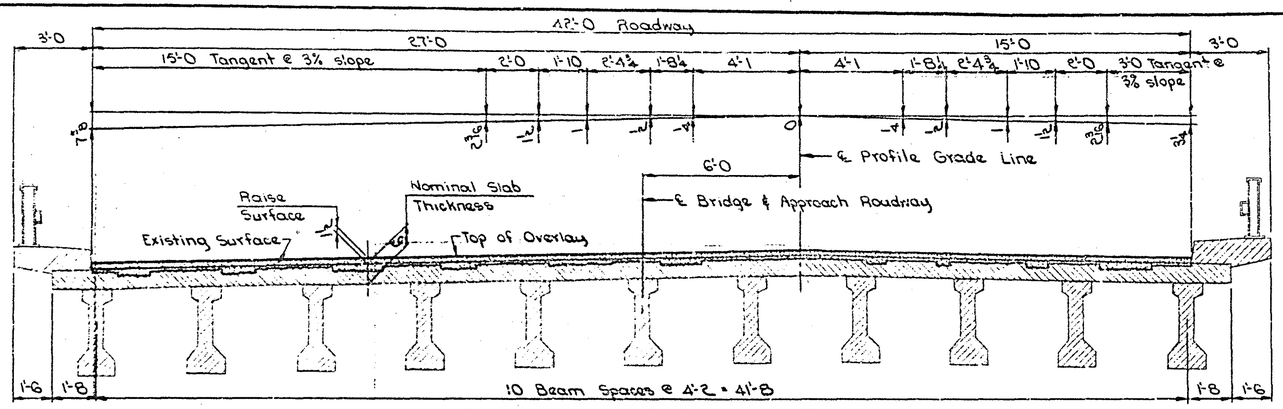
SPECIFICATIONS:
Construction: Iowa Department of Transportation Specification, Series of 1977, plus current Supplemental Specifications and Special Provisions including---
Spec. 788 "Supplemental Specifications for Traffic Controls".

Details for Bridge Repair to
TWIN 188'-4"x42' PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGES
59'-9½ End Spans 68'-9 Center Span
SITUATION PLAN & NOTES
Sta. 1174+05 Jan. 1978
POLK COUNTY
IOWA DEPARTMENT OF TRANSPORTATION-HIGHWAY DIVISION
Design Sheet No.: 1 Of 14 File No.: 28031 Design No.: 1178

DESIGNED BY: DETAILED BY: Doug Warning TRACED BY: Doug Warning CHECKED BY: Dan Welch
SECTION LEADER William A. Lundquist
POLK COUNTY
PROJECT NUMBER I-IR-80-4(22)143--14-77

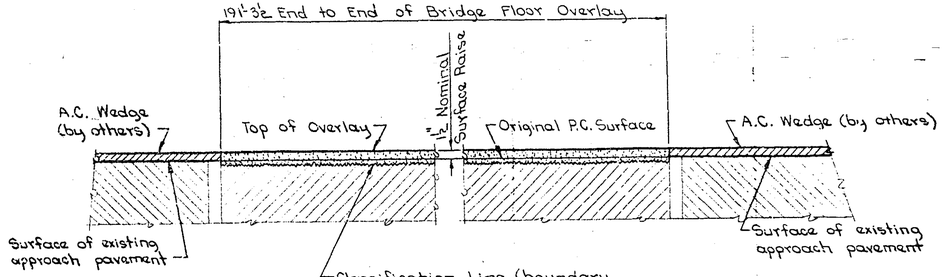
STATE	FED. ROAD DIST. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	8		3	16

BRIDGE WORK SHEET 020 3MM0

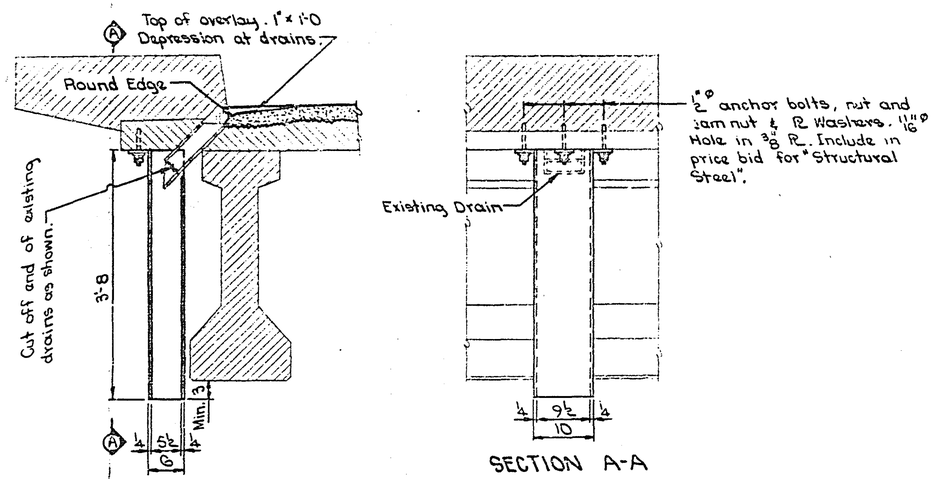


TYPICAL CROSS SECTION

West Bound Roadway ~ Looking West
East Bound Roadway ~ Looking East



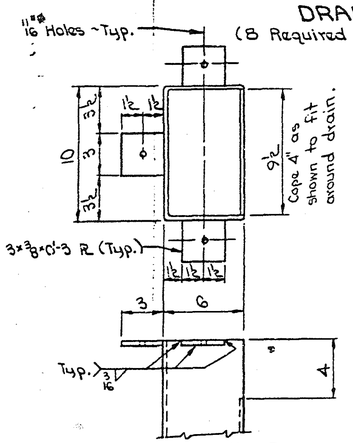
PART LONGITUDINAL SECTION ALONG ROADWAY



SECTION A-A

DRAIN DETAILS

(8 Required ~ Weight = 98 lbs. each)



DRAIN ~ TOP DETAILS

DRAIN EXTENSION NOTES:

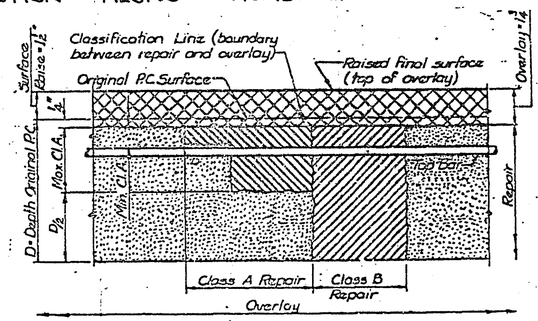
Drain extensions shall be fabricated from 1/4" steel plates (completely welded up). 6x10 O. D. Structural Tubing with 1/4" wall thickness may be substituted for welded up sections where applicable.

All anchor bolts may be shifted slightly to clear reinforcing. The 1/2"Ø anchor bolts shall have a minimum pull out strength of 5000 pounds based on 3500 psi concrete. A stud type anchor bolt which meets the requirements of Iowa D.O.T. Materials I.M. 453.09 and the pull out strength above is required. The anchor bolts are to have an electro plated coating and shall be installed according to the recommendation of the manufacturer.

The price bid for "Structural Steel" shall include the costs of furnishing and installing the 1/2"Ø anchor bolts at the drain extensions.

Drain extensions are to be galvanized.

See "Situation Plan" on Des. Sh. 1 for drain locations.



REPAIR AND OVERLAY DEFINITION

THIS SHEET FROM ORIGINAL DESIGN IS INCLUDED FOR INFORMATION ONLY.

DESIGN NO. 1491
FILE NO. 28266
DES. SH. NO. 240F 29

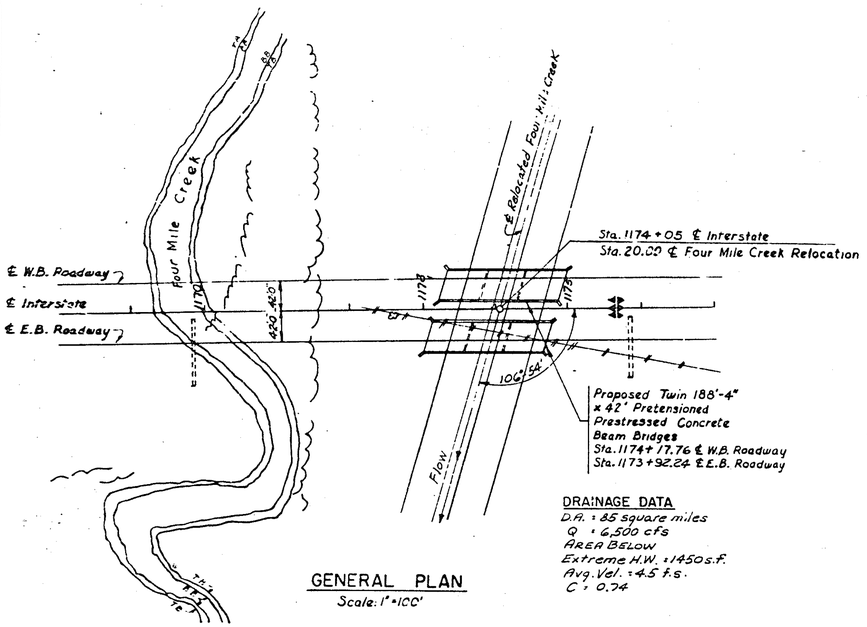
Details for Bridge Repair to
TWIN 188'-4x42' PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGES
59'-9 1/2 End Spans 68'-9 Center Span
REPAIR DETAILS
Sta. 1174+05 Jan. 1978
POLK COUNTY
IOWA DEPARTMENT OF TRANSPORTATION-HIGHWAY DIVISION
Design Sheet No.: 4 Of 14 File No.: 26031 Design No.: 1178

DESIGNED BY:
DETAILED BY: Doug Wearing
TRACED BY: Doug Wearing
CHECKED BY: Ron Welch

POLK COUNTY

PROJECT NUMBER	STATE	FED. ROAD DIST. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	IOWA	8		6	16

BRIDGE WORK SHEET

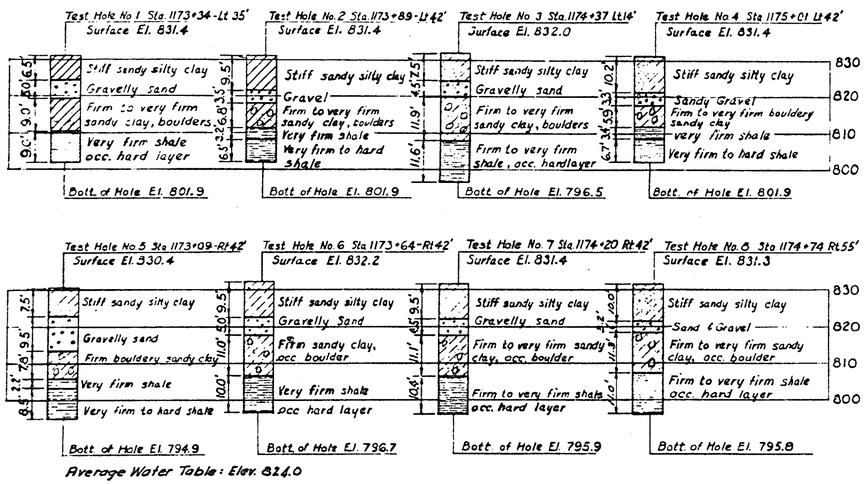


GENERAL PLAN

Scale: 1" = 100'

DRAINAGE DATA

D.A. = 85 square miles
Q = 6,500 cfs
AREA BELOW
Extreme H.W. = 1450 s.f.
Avg. Vel. = 4.5 f.s.
C = 0.74



Average Water Table: Elev. 824.0

SOUNDING DATA

Scale: 1" = 20'
Dated: July 18, 1957

GENERAL NOTES:

This bridge is designed for H20-S16 loading and Alternate Loading designated in BPR's P.R.M. 20-4 Section "C" plus an allowance of 19 lbs. per square foot for future wearing surface.

The approach fills are not a part of this estimate but are to be in place before abutment piles are driven. The bridge contractor is to level off and shape the berms to the elevation shown.

Excavation for pier assumed from finished channel.

SPECIFICATIONS:

Design: A.A.S.H.O., Series of 1953, and U.S. Bureau of Public Roads Design Criteria for prestressed Concrete Bridges

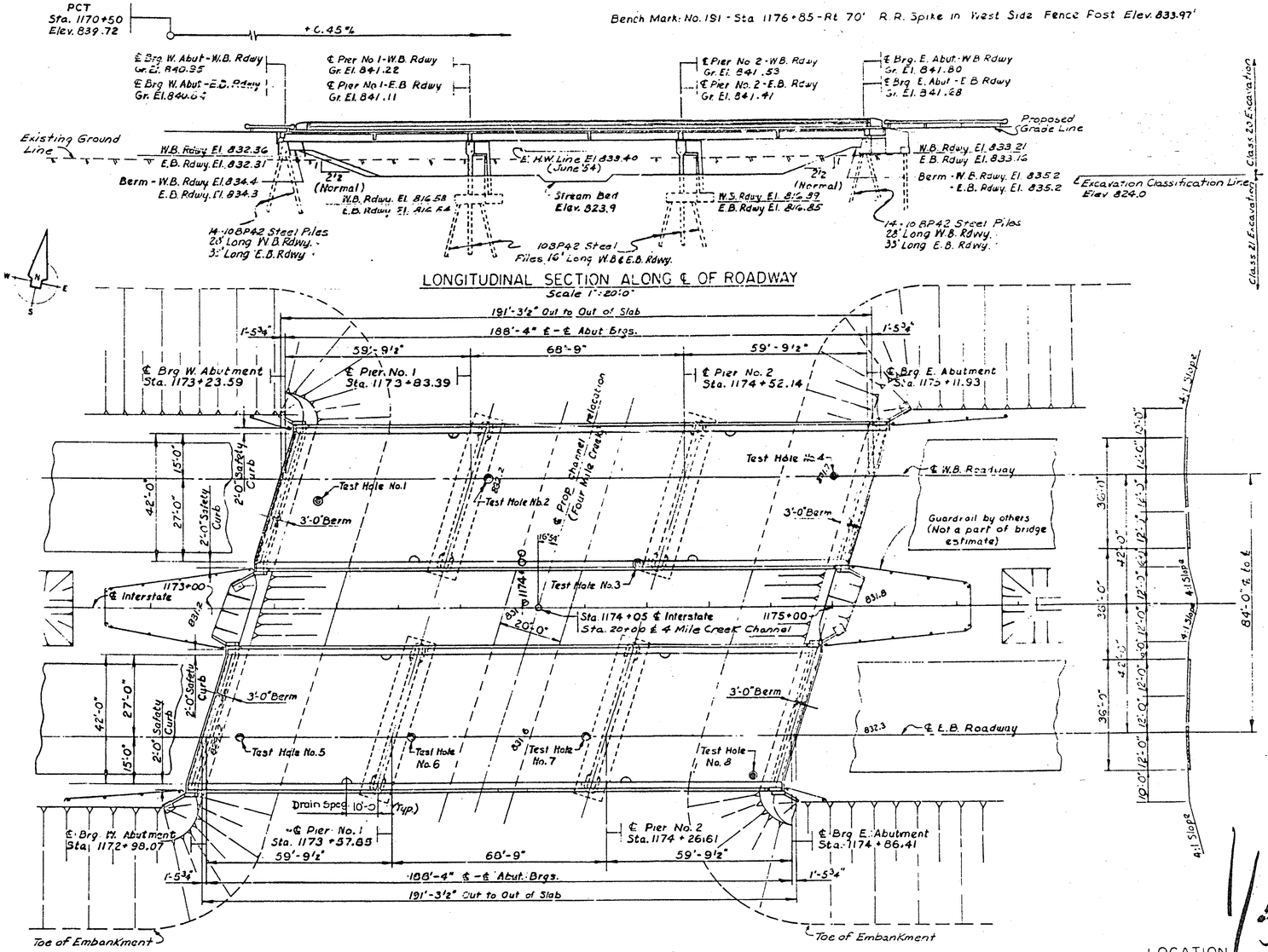
Construction: Standard Specifications of the Iowa State Highway Commission, Series of 1956, plus Current Special Provisions.

TOTAL ESTIMATED QUANTITIES

Item	Unit	4 Abuts.	4 Piers	Superstr	Total
			418.8		1047.0
Concrete	Cu.Yds.	140.8	~~418.8~~	487.4	~~1047.0~~
Reinforcing Steel	Lbs.	14,584	21,080	104,394	140,066
Structural Steel	Lbs.			23,704	23,704
Prestressed Conc Beams 67'-6"	Bms			22	22
Prestressed Conc. Beams 59'-2"	Bms			44	44
Excavation, Class 20	Cu.Yds.	235.6	158		393.6
Excavation, Class 21	Cu.Yds.		770		770
Furnishing 10 BP42 Piles	L.F.	1708	1536'		3244
Driving 10 BP42 Piles	L.F.	1708	1536'		3244

PCT
Sta. 1170+50
Elev. 839.72
+ 6.45 %

Bench Mark: No. 191 - Sta 1176+85 - Rt 70' R.R. Spike in West Side Fence Post Elev. 833.97'

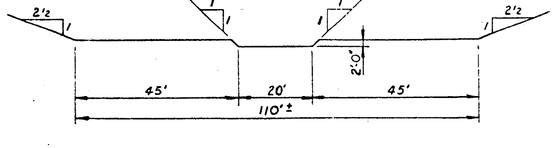


LONGITUDINAL SECTION ALONG ℄ OF ROADWAY

Scale 1" = 20'-0"

SITUATION PLAN

Scale 1" = 20'



TYPICAL CHANNEL SECTION

THIS SHEET FROM ORIGINAL DESIGN IS INCLUDED FOR INFORMATION ONLY.

LOCATION

Jr Interstate
Over Four Mile Creek (R)
Section 17
T 79N R 23W
Delaware Township
Polk County

DESIGN FOR 16°54' SKEW

TWIN 188'-4" x 42' PRE-TENSIONED PRESTRESSED CONCRETE BEAM BRIDGES

2-59'-9½" END SPANS 1-68'-9" INTERMEDIATE SPAN
CONCRETE FLOOR AND SUBSTRUCTURE - STEEL RAIL
INTERSTATE OVER FOUR MILE CREEK

GENERAL & SITUATION PLANS

STATION 1174+05 ℄ INTERSTATE PROJ. NO. [I-IG-01-4 (2)] I-IG-80-4 (2) 142

POLK COUNTY

DESIGNED BY BROWN & BLAUVELT, NEW YORK, N.Y. FOR
IOWA STATE HIGHWAY COMMISSION

DECEMBER 1957 SHEET 1 OF 5

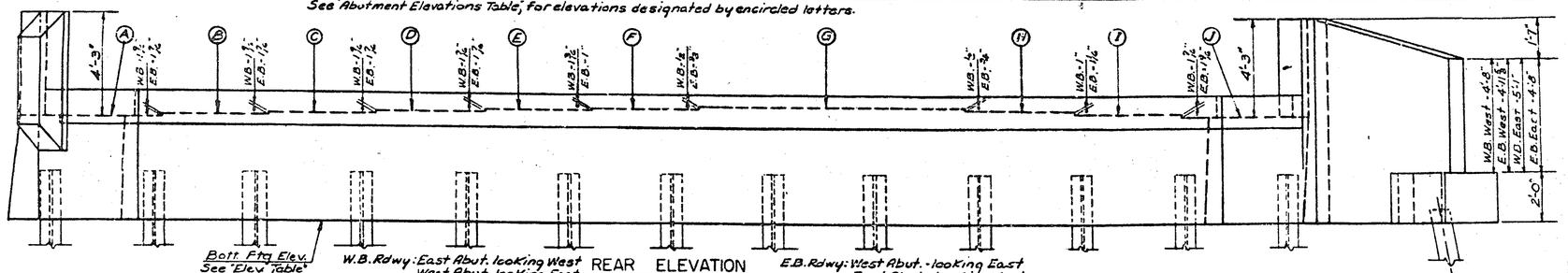
DESIGN NO. 1491
FILE NO. 28266
DES. SH. NO. 250F29

In Charge of RHW
Made By DJV
Traced By JJL
Checked By RK

Revised 4-2-59: Pier Concrete Quantity changed.

DESIGN NO. 758 POLK CO. FILE NO. 18855

See 'Abutment Elevations Table' for elevations designated by encircled letters.

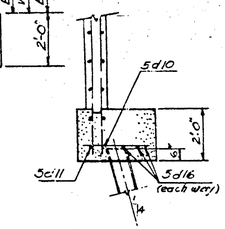


Bott. Ftg Elev. See "Elev. Table"

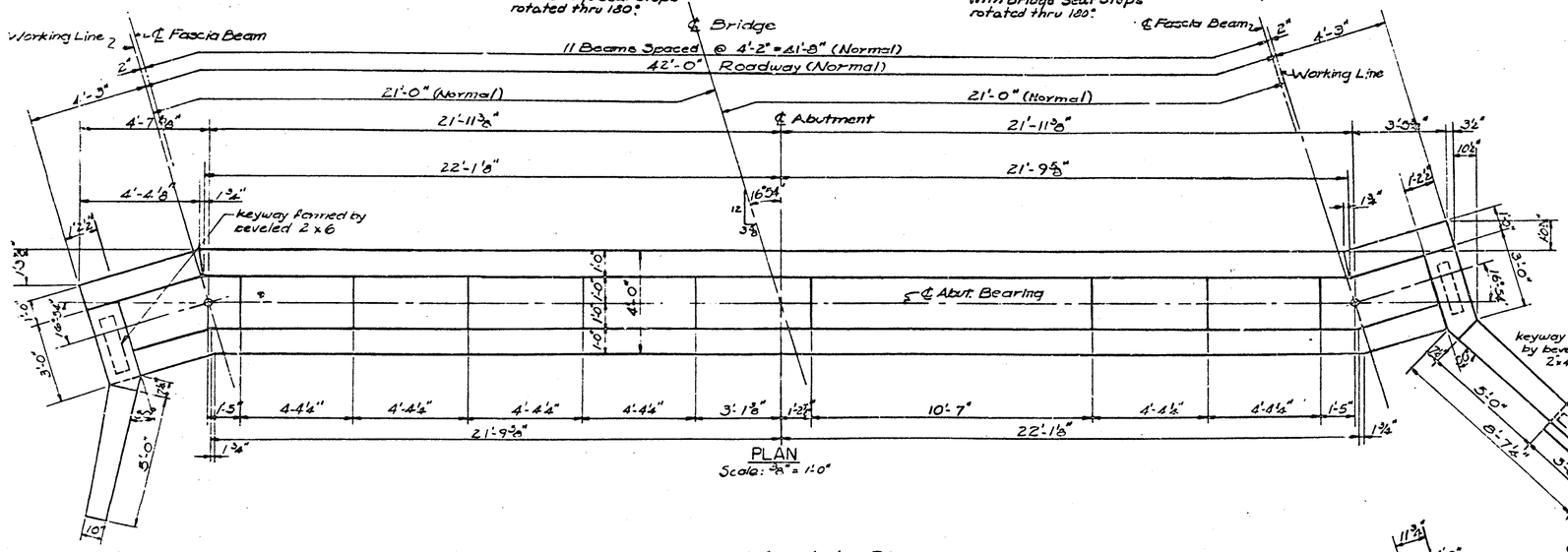
W.B. Rdwy: East Abut. looking West West Abut. looking East with Bridge Seat Steps rotated thru 180°.

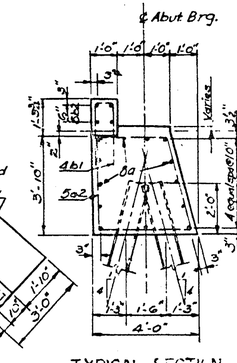
REAR ELEVATION
Scale: ⅜"=1'-0"

E.B. Rdwy: West Abut. - looking East East Abut. - looking West with Bridge Seat Steps rotated thru 180°.

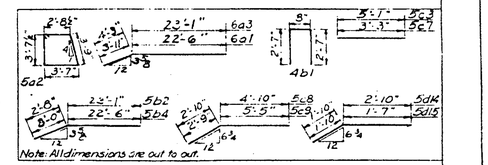


SECTION B-B
Scale: ⅜"=1'-0"





TYPICAL SECTION
Scale: ⅜"=1'-0"



Bench Mark: No. 191-Sta. 1176+85-Rt 70' R.R. Spike in west side of fence post. Elev.=833.97'

BILL of REINF. STEEL - ONE ABUTMENT

Mark	Location	No.	Shape	Length	Weight
8a1	Footing, Longit.	13		26-5	917
5a2	Footing, Hoops	38		14-6	575
8a3	Footing, Longit.	13		27-4	949
4b1	Backwall, Hairpins	51		5-10	199
5b2	Backwall, Longit	4		25-9	108
5b3	Backwall, Dowels	8		2-3	19
5b4	Backwall, Longit.	4		25-6	108
5c1	Wingwall, Vert. - N.F.	4		5-2	22
8c2	Wingwall, Vert - F.F.	10		5-2	138
5c3-7	Wingwall, Vert.	10		varies	44
5c8	Wingwall, Horiz. - N.F.	6		7-8	49
5c9	Wingwall, Horiz - F.F.	6		8-2	51
5d1	Wingwall, Vert.	6		varies	52
8d2	Wingwall, Vert. F.F.	4		varies	90
5d3-9	Wingwall, Vert.	14		varies	106
5d10	Wingwall, Horiz. - N.F.	7		7-10	57
5d11	Wingwall, Horiz. - F.F.	7		8-4	61
5d12	Wingwall, Horiz. - N.F.	1		5-3	6
5d13	Wingwall, Horiz. - F.F.	1		5-9	6
5d14	Wingwall, Horiz.	14		4-8	68
5d15	Wingwall, Horiz. - F.F.	2		3-5	7
5d16	Wingwall, Footing	5		2-8	14
				Total	3646

CONCRETE PLACEMENT (ONE ABUT.)

Footing	28.3 C.Y.
Backwall	2.4 C.Y.
Wingwalls	4.5 C.Y.
Total	35.2 C.Y.

ESTIMATED QUANTITIES (FOUR ABUTS.)

Concrete	140.8 C.Y.
Reinforcing Steel	14,584 lbs.
Furnishing 10BP42 Steel Piles - [illegible]	1708 L.F.
Driving 10BP42 Steel Piles	1708 L.F.
Class 20 Excavation	235.6 C.Y.

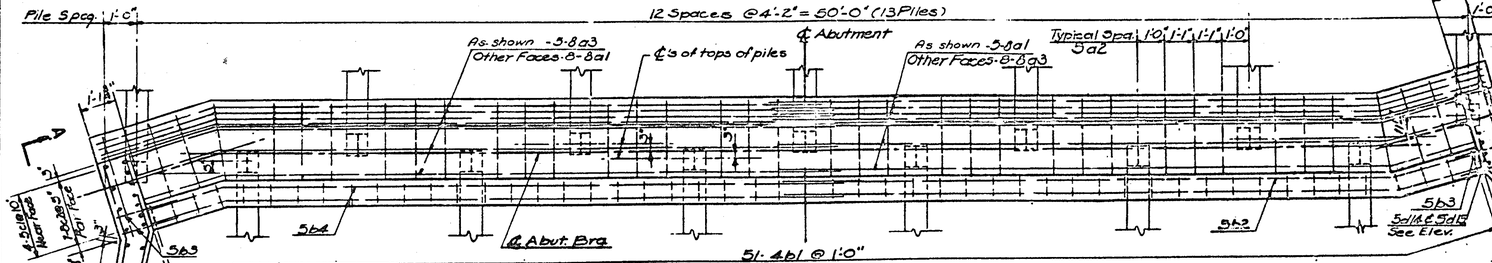
ABUTMENT NOTES:

All exposed corners at 90° or sharper are to be filleted with a ¾" dressed and beveled strip.

Reinforcing steel is to be securely wired in place before concrete is poured.

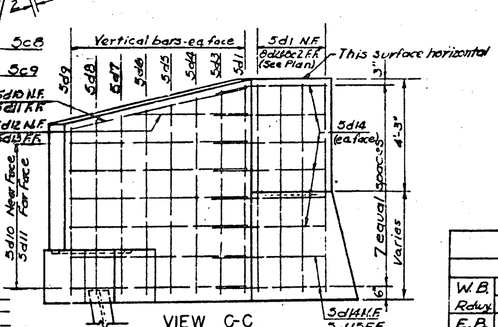
Clear distance from face of concrete to near reinforcing bar is to be 2" unless noted or shown otherwise.

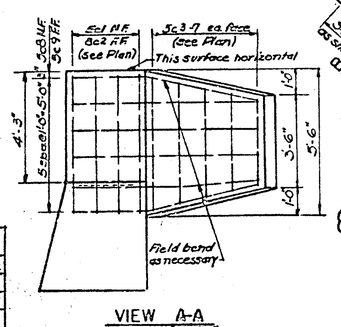
Piling is to be driven to full penetration if practicable, but to at least 37 ton bearing value.



REINFORCING STEEL — PLAN
Scale: ⅜"=1'-0"

14-10BP42 Steel Piles required for each abut. 25' long W.B. Rdwy; 35' long E.B. Rdwy. Batter Piles 1:4 in direction indicated.





ABUTMENT ELEVATIONS

		A	B	C	D	E	F	G	H	I	J	Bot. Ftg.
W.B.	E. Abut.	837.21	837.34	837.47	837.60	837.72	837.82	837.86	837.82	837.74	837.62	833.21
Rdwy.	W. Abut.	836.32	836.49	836.62	836.75	836.87	836.97	837.01	836.97	836.89	836.77	832.86
E.B.	E. Abut.	837.16	837.28	837.40	837.52	837.64	837.72	837.76	837.69	837.60	837.47	833.16
Rdwy.	W. Abut.	836.31	836.43	836.55	836.67	836.79	836.87	836.90	836.84	836.75	836.62	832.81

In Charge of EKW
Made By CJV
Traced By NB
Checked By EK

THIS SHEET FROM ORIGINAL DESIGN IS INCLUDED FOR INFORMATION ONLY.

SPECIFICATIONS:

Design: A.A.S.H.O., Series of 1953.

Construction: Iowa State Highway Commission Standard Specifications, Series of 1956, plus current Special Provisions.

DESIGN FOR 16°54' SKEW

TWIN 188'-4" x 42' PRE-TENSIONED PRESTRESSED CONCRETE BEAM BRIDGES

2-59'-9½" END SPANS 1-68'-9" INTERMEDIATE SPAN

CONCRETE FLOOR AND SUBSTRUCTURE - STEEL RAIL

INTERSTATE OVER FOUR MILE CREEK

ABUTMENTS

STATION 1174+05 ℄ INTERSTATE PROJ. NO. [I-IG-01-4(12)] I-IG-80-4(12)142

POLK COUNTY

DESIGNED BY BROWN & BLAUVELT, NEW YORK, N.Y. FOR

IOWA STATE HIGHWAY COMMISSION

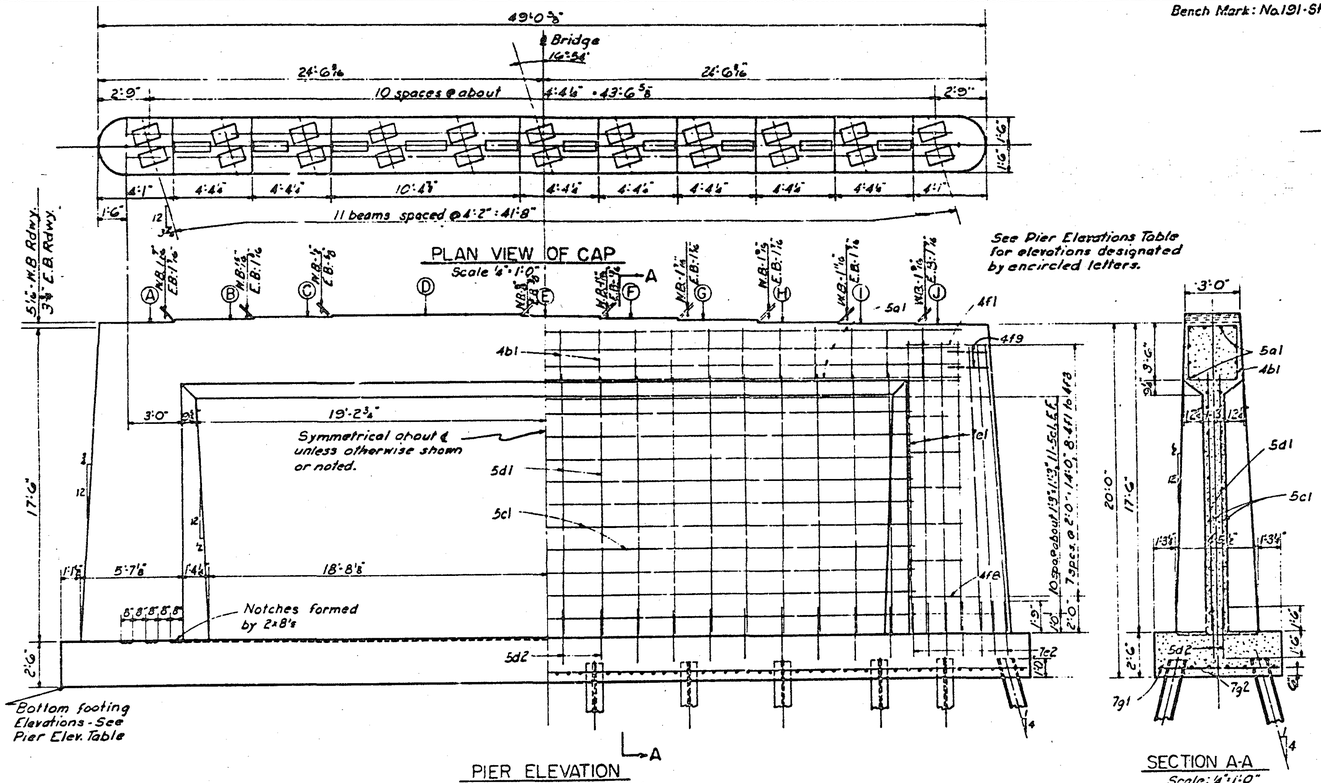
DECEMBER 1957

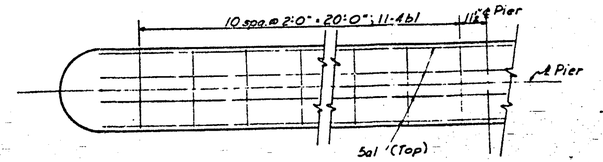
SHEET 2 OF 5

DESIGN NO. 1491
FILE NO. 28266
DES. SH. NO. 26 OF 29

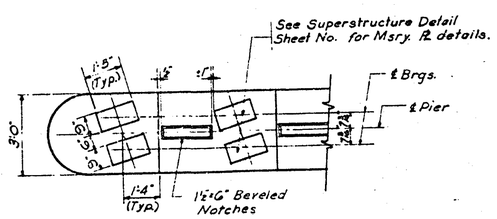
DESIGN NO. 758 POLK CO. FILE NO. 18855

Bench Mark: No.191-Sta.1176+85-Rt.70', R.R. spike in west side Fence Post Elev.=833.97





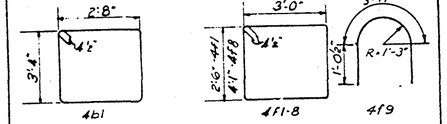
HALF PLAN - CAP REINFORCING
Scale: ⅜"=1'-0"



PART PLAN
Scale: ⅜"=1'-0"

BILL OF REINF. STEEL — ONE PIER					
Mark	Location	Shape	No.	Length	Weight
5a1	Cap-Longitudinal	——	10	46'-0"	480
4b1	Cap-Hoops	□	22	12'-9"	187
5c1	Diaphragm-Long.	——	22	40'-6"	929
5d1	Diaphragm-Vert.	——	40	14'-0"	584
5d2	Diaphragm-Dowels	——	40	3'-0"	125
7e1	Pier Shaft-Vert.	——	26	17'-4"	921
7e2	Pier Shaft-Dowels	——	26	3'-6"	186
4f1-8	Pier Shaft-Trans.	□	16	Varies	142
7g1	Footing Long.	——	6	53'-2"	652
7g2	Footing Trans.	——	77	6'-8"	1050
4f9	Cap Ends	⊃	4	6'-0"	16
		Total Weight			5,272

BAR DETAILS



Note: All bar dimensions are out to our of bars.

CONCRETE PLACEMENT QUANTITIES	
Concrete in footing	34.7
Concrete above footing	70.0 ~~67.8~~
Total	104.7 ~~102.5~~

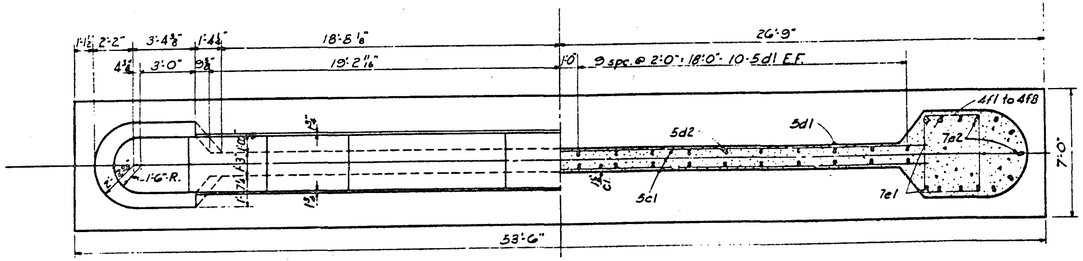
ESTIMATED QUANTITIES - FOUR PIERS 418.8r		
Concrete	C.Y.	~~410.0~~
Reinforcing Steel	Lbs	21,088
Excavation Class 21	C.Y.	770
Excavation - Class 20	C.Y.	158
Furnishing Steel Piles - 10BP42 - 96@16'	L.F.	1536
Driving Steel Piles - 10BP42	L.F.	1536

PIER NOTES:

All exposed corners 90° or sharper to be filleted with a ¾" dressed beveled strip.
Reinforcing steel is to be securely wired in position before concrete is placed. Edge distance from face of concrete to ℄ of near bar to be 2" unless otherwise noted.
Piling is to be driven to full penetration if practicable but in no case to less than 37 ton bearing capacity.

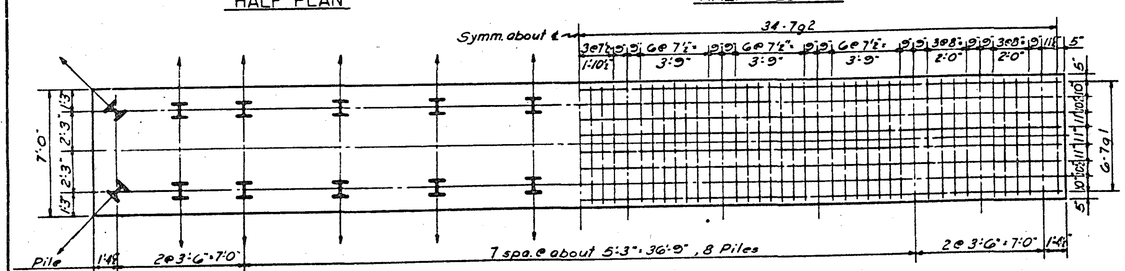
SPECIFICATIONS:

Construction: Iowa State Highway Commission Standard Specifications, Series of 1956, plus current special provisions.
Design: A.A.S.H.O., Series of 1953



HALF PLAN

HALF SECTION



All piles 10BP42

24-10BP42 Steel Piles-16' long required for each pier. Batter piles 1:4 in direction indicated.

FOOTING PLAN
Scale: ¼"=1'-0"

PIER ELEVATIONS												
		A	B	C	D	E	F	G	H	I	J	Bott. Ftg.
W.B. Rdwy.	Pier No.1	837.00	837.12	837.20	837.24	837.19	837.10	836.98	836.85	836.71	836.58	816.58
	Pier No.2	837.31	837.43	837.51	837.55	837.50	837.41	837.29	837.16	837.02	836.89	816.89
E.B. Rdwy.	Pier No.1	836.85	836.97	837.07	837.12	837.09	837.02	836.90	836.78	836.66	836.54	816.54
	Pier No.2	837.16	837.28	837.38	837.43	837.40	837.33	837.21	837.09	836.97	836.85	816.85

THIS SHEET FROM ORIGINAL DESIGN IS INCLUDED FOR INFORMATION ONLY.

DESIGN FOR 16°-54' SKEW
TWIN 188'-4" x 42' PRE-TENSIONED PRESTRESSED CONCRETE BEAM BRIDGE
2-59'-9½" END SPANS 1-68'-9" INTERMEDIATE SPANS
CONCRETE FLOOR AND SUBSTRUCTURE - STEEL RAIL
INTERSTATE OVER FOUR MILE CREEK
PIERS
STATION 1174+05 ℄ INTERSTATE PROJ. NO. [I-IG-01-4(21)] I-IG-80-4(21)142
POLK COUNTY
DESIGNED BY BROWN & BLAUVELT, NEW YORK, N.Y. FOR IOWA STATE HIGHWAY COMMISSION
DECEMBER 1957 SHEET 3 OF 5

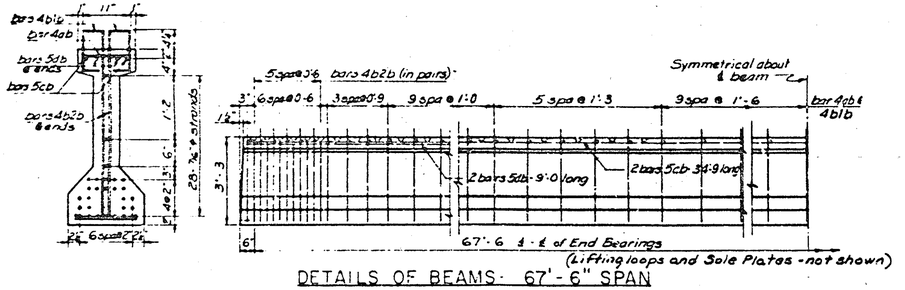
DESIGN NO. 1491
FILE NO. 28266
DES. SH. NO. 27 OF 29

In Charge of RNW
Made by JMK
Traced by JMK
Checked by RS

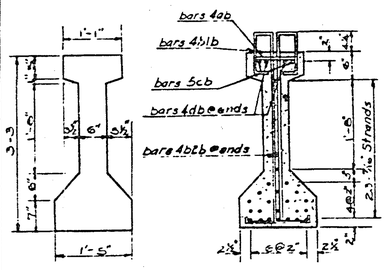
Revised 4-2-59: Pier Concrete Quantity changed.

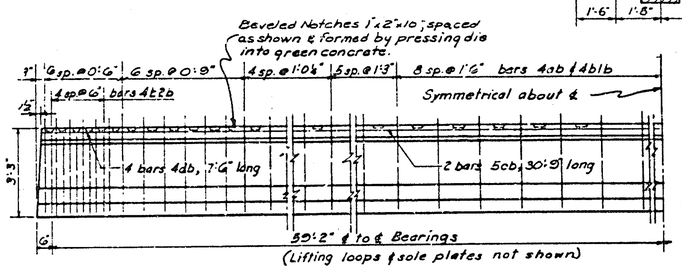
DESIGN NO. 758 POLK CO. FILE NO. 18855 (16)

Sheet 29 of 43 Sheets

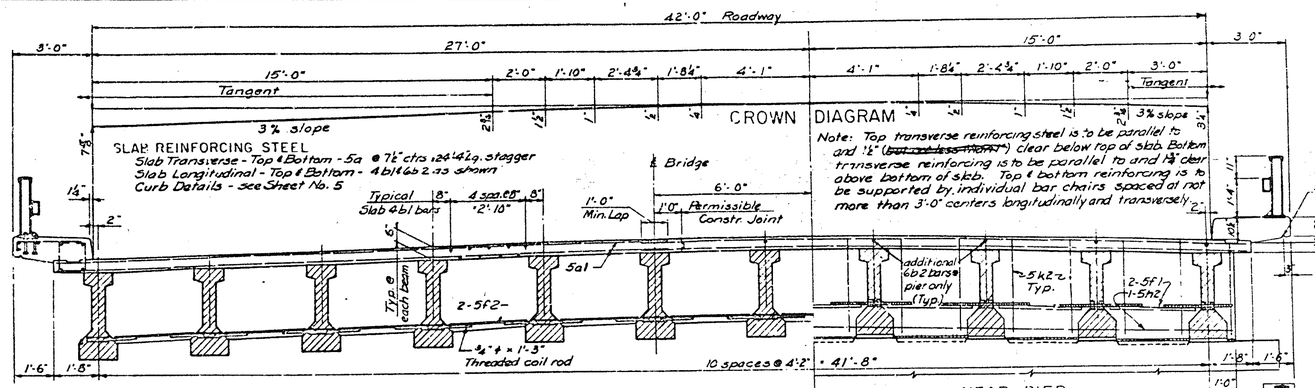


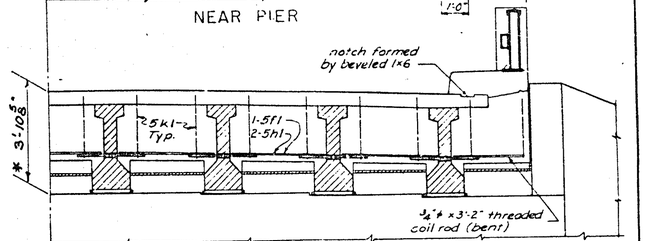
DETAILS OF BEAMS - 67'-6" SPAN



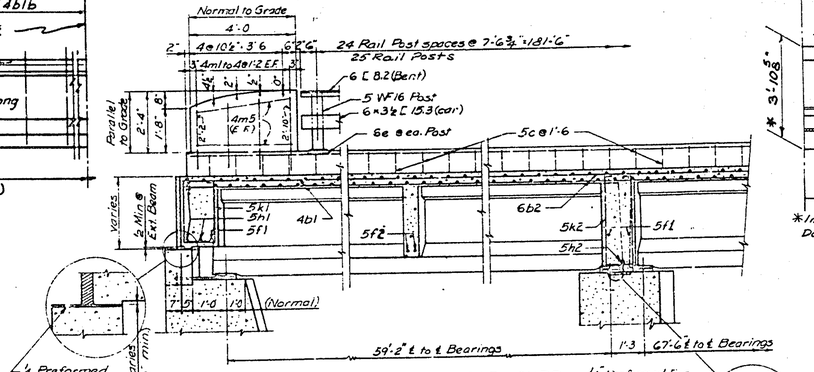


DETAILS OF BEAMS - 59'-2" SPAN

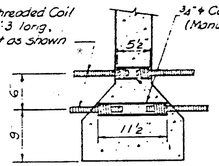




ROADWAY SECTIONS
Scale: ⅜" = 1'-0"

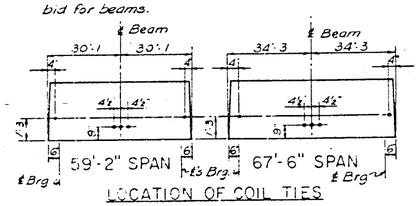


Coil rods shown below shall be similar to and equal to those manufactured by the Superior Concrete Accessories Co., Inc. of Chicago and the Richmond Screw Anchor Co. of St. Joseph, Mo.

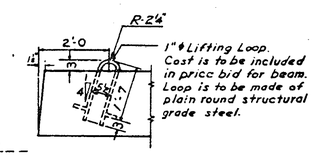


Coil ties are to be type M-12 (Manufacturer's designation)

Coil ties are to be held in place in forms by slotted coil setting studs projecting through forms. Studs are to be left in place until beams are erected when they are to be replaced with coil rods. Cost of coil ties & rods is to be included in price bid for beams.



LOCATION OF COIL TIES

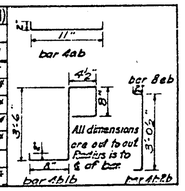


LIFTING LOOP

In Charge of JFW
Made By DJV
Traced By JTS
Checked By RAK

BILL OF REINFORCING STEEL (I BEAM)

Bar	Shape	59'-2" No.	59'-2" Length	59'-2" Weight	67'-6 No.	67'-6 Length	67'-6 Weight
4ab		59	1'-2"	44#	65	1'-2"	51#
4b1b		118	5'-5"	427#	130	5'-5"	471#
4b2b		20	3'-3"	43#	24	3'-3"	52#
5cb		4	30'-9"	128#	4	34'-9"	145#
db		4	9'-7½"	20#	4	9'-9½"	37#
Total Weight				664#			756#



BEAM DATA

Span	Depth	Strands	Conc. C.Y.	Reinf. Steel - lbs.	Struct. Steel - lbs.	Initial Prestress	Camber As erected	Camber Slab in place
67'-6"	3'-3"	28-7/16"	6.74	756	229	529 K	1 5/8"	1 3/8"
59'-2"	3'-3"	23-7/16"	5.92	664	249	435 K	1 3/16"	15/16"

NOTES ON PRESTRESSED CONCRETE BEAMS:

Construction of prestressed units is to be in accordance with Section 2406 A with the following added provisions; when stress is released it is to be done gradually by means of jacks. If steam curing is used, the initial prestress shown is to be increased 6%

WEIGHT OF BEAMS

59'-2" Beam = 24,000 lbs.
67'-6" Beam = 27,300 lbs.

SUPERSTRUCTURE NOTES

This bridge is designed for H20-S16-44 loading and Alternate Loading designated in BPR's PPM 20-4 Section 3 plus 19 lbs. per square foot of roadway for future wearing surface.

Concrete in slab is to have a 28 day crushing strength of 3500 psi, and is to contain no Class "V" aggregate. It is to be placed as dry as practicable to reduce shrinkage to a minimum, and special precautions are to be taken to secure complete bond between beams and slab.

All exposed corners of 90° or sharper are to be filleted with a ¾" dressed and beveled strip.

All reinforcing is to be securely wired in place and adequately supported on metal bar chairs before placing concrete.

Forms for slab are to be supported by the prestressed beams.

Cost of all preformed expansion joint material to be included in price bid for concrete.

Masonry plates are to be flat and true and are to be set in specification red lead and canvas.

Beams are to be set vertically.

SPECIFICATIONS

Design: A.A.S.H.O., Series of 1953, and U.S. Bureau of Public Roads Design Criteria for Prestressed Concrete Bridges, 1955.

Construction: Standard Specifications of the Iowa State Highway Commission, Series of 1956, plus current Special Provisions.

THIS SHEET FROM ORIGINAL DESIGN IS INCLUDED FOR INFORMATION ONLY.

DESIGN FOR 16°54' SKEW

TWIN 188'-4" x 42' PRE-TENSIONED PRESTRESSED CONCRETE BEAM BRIDGES

2-59'-9½" END SPANS 1-66'-9" INTERMEDIATE SPAN

CONCRETE FLOOR AND SUBSTRUCTURE - STEEL RAIL

INTERSTATE OVER FOUR MILE CREEK

SUPERSTRUCTURE DETAILS

STATION 1174+05 ℄ INTERSTATE PROJ. NO. I-IG-01-4(2) 1-IG-80-4(2) 14-2

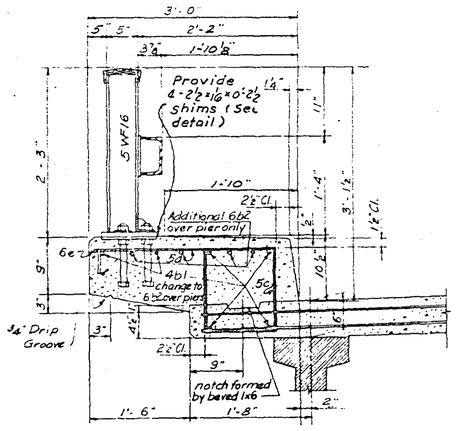
POLK COUNTY

DESIGNED BY BROWN & BLAUVELT, NEW YORK, N.Y. FOR IOWA STATE HIGHWAY COMMISSION

DECEMBER 1957 SHEET 4 OF 5

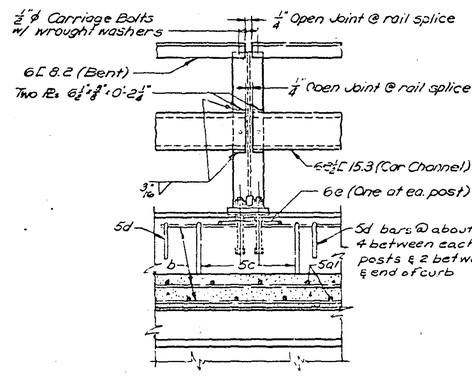
DESIGN NO. 1491
FILE NO. 28266
DES. SH. NO. 28 OF 29

DESIGN NO. 758 POLK CO. FILE NO. 18855

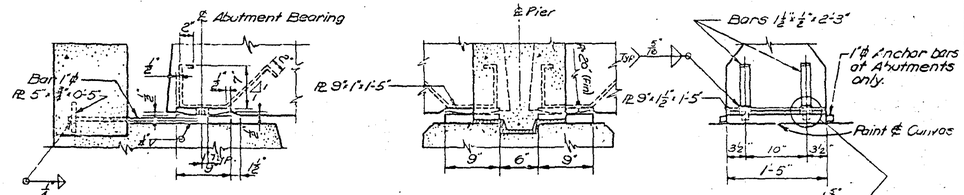


RAIL AND CURB DETAILS
Scale: 1"=1'-0"

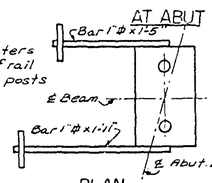
Note: Top & Bottom rails to be spliced at different posts.



POST AND RAIL CONNECTION AT SPLICE
Scale: 1"=1'-0"



AT ABUT



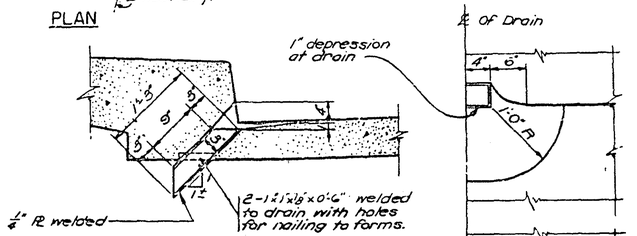
AT PIER

BEARING PLATE DETAILS

Cost of Bearing Rs is to be included in price bid for beams.

Sole Plates are to be set in forms when Beams are cast and formed out as shown. The Abutment masonry plates are to be set so that the pintles will be centered in the slotted holes of the sole plates.

PLAN



DRAIN DETAILS
Scale 1"=1'-0"

Note: See Situation Plan, Sheet #1 for drain spacing. Weight of drains = 20 lbs. ea.

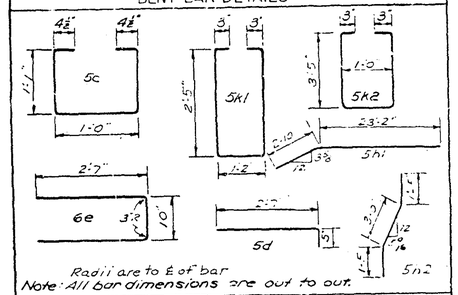
CONC PLACEMENT QUANTITIES

Section	Quantity (C.Y.)
①	51.9
②	46.4
③	51.9
④	23.4
⑤	23.4
2 Curbs	36.2
4 Parapets	1.5
Total	234.7

BILL OF REINFORCING STEEL — I-SUPERSTRUCTURE

Bar	Location	Shape	No	Length	Weight
5a1	Slab transverse, top & bot	—	1214	24'-4"	32,705
4b1	Slab & Curb, longitudinal	—	312	53'-5"	11,133
6b2	Slab & Curb, longit. over pier	—	249	7'-5"	6,589
5c	Curb Dowels	⊏	254	3'-1"	1,035
5d	Curb transverse	—	23	3'-0"	426
6e	Rail Post t/e	⊐	50	5'-9"	432
5f1	Abut & Pier Diaphragm (Short)	—	40	3'-8"	229
5f2	Intermediate Diaphragm (Short)	—	40	3'-0"	188
5h1	Abutment Diaphragm (Long)	⌒	12	26'-0"	325
5h2	Pier Diaphragm (Long)	⌒	32	5'-5"	123
5k1	Abutment Diaphragm Hoops	⊐	48	4'-6"	325
5k2	Pier Diaphragm Hoops	⊐	42	5'-6"	330
4m1-4	Parapet-Vertical	1	32	Varies	54
4m5	Parapet-Horizontal	—	16	3'-6"	45
				Total	52,177

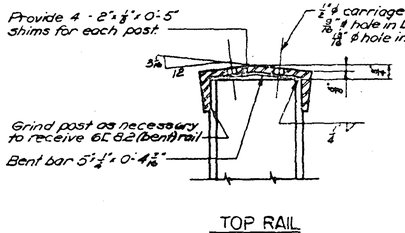
BENT BAR DETAILS



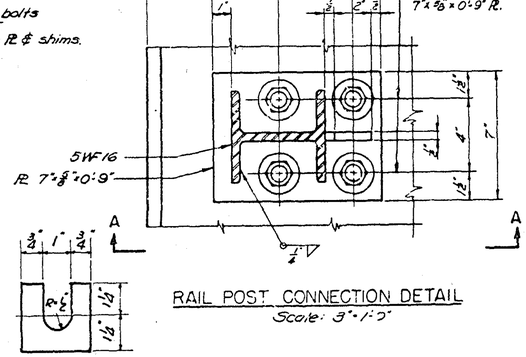
Radii are to ℄ of bar
Note: All bar dimensions are out to out.

ESTIMATED QUANTITIES-2 SUPERSTRUCTURES

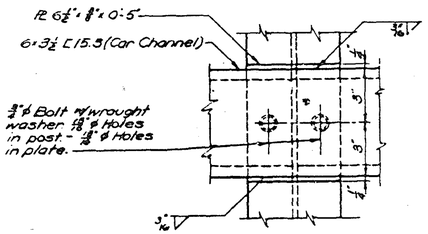
Item	Unit	Quantity
Concrete	C.Y.	487.4
Reinforcing Steel	lbs	104,394
Structural Steel	lbs	23,704
Prestressed Concrete Beam-59'-2"	Beam	4
Prestressed Concrete Beam 67'-6"	Beam	22



TOP RAIL CONNECTION DETAIL
Scale 3"=1'-0"

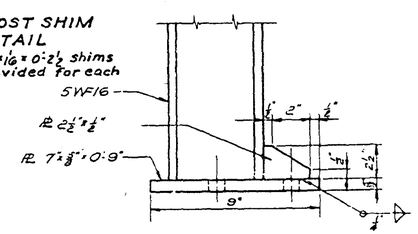


RAIL POST CONNECTION DETAIL
Scale: 3"=1'-0"

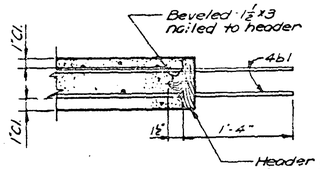


BOTTOM RAIL CONNECTION DETAIL AT INTERMEDIATE POST
Scale 3"=1'-0"

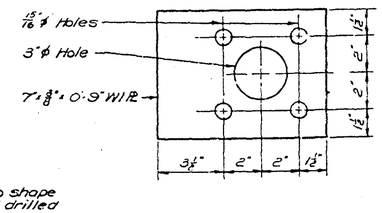
RAIL POST SHIM DETAIL
Four 2½"x1/16"x0'-2½" shims to be provided for each post.



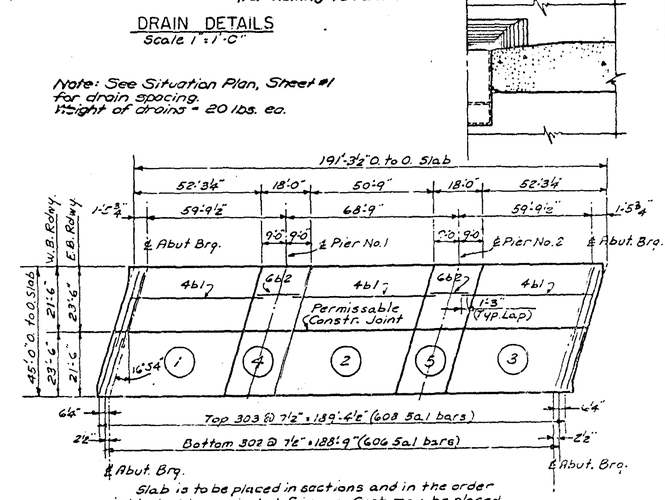
VIEW A A
Scale: 3"=1'-0"



FLOOR CONST JT.
Scale: 1"=1'-0"



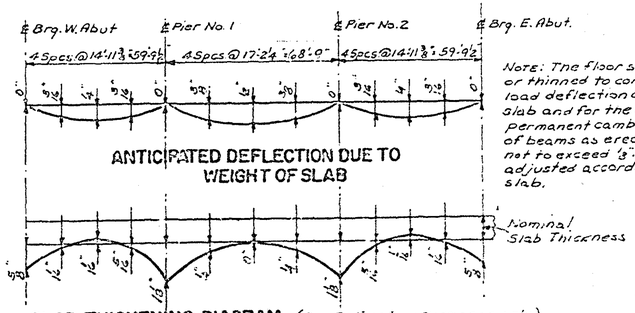
BASE PLATE DETAIL
Scale: 3"=1'-0"



Slab is to be placed in sections and in the order indicated by encircled figures. Curb may be placed continuously.

CONCRETE PLACEMENT DIAGRAM & LAYOUT OF LONGITUDINAL STEEL

Note: After final adjustments for alignment have been made, each rail post is to be caulked around the base plate in accordance with paragraph 2508.06 of the std specs. cost of caulking material is to be included in the bid price for structural steel.



Note: The floor slab is to be thickened or thinned to compensate for dead load deflection due to weight of floor slab and for the difference between permanent camber and actual camber of beams as erected. Maximum thinning not to exceed ½". Screeds are to be adjusted accordingly before placing slab.

THIS SHEET FROM ORIGINAL DESIGN IS INCLUDED FOR INFORMATION ONLY.

5/5

DESIGN FOR 16°54' SKEW
TWIN 188'-4"x 42' PRE-TENSIONED PRESTRESSED CONCRETE BEAM BRIDGES
2-59'-9½" END SPANS 1-68'-9" INTERMEDIATE SPAN
CONCRETE FLOOR AND SUBSTRUCTURE - STEEL RAIL
INTERSTATE OVER FOUR MILE CREEK

SUPERSTRUCTURE DETAILS
STATION 1174+05 ℄ INTERSTATE PROJ. NO. I-16-01-4(21) I-16-80-4(25)142
POLK COUNTY
DESIGNED BY BROWN & BLAUVELT, NEW YORK, N.Y. FOR IOWA STATE HIGHWAY COMMISSION
DECEMBER 1957 SHEET 5 OF 5

DESIGN NO. 1491
FILE NO. 28266
DES. SH. NO. 29 OF 29

In Charge of RAW
Made By DEW
Traced By VS
Checked By RK

DESIGN NO. 158 POLK CO. FILE NO. 18855 Sheet 31 of 43

MILEAGE SUMMARY

IR-80-5(148)137--12-77

105-1
08-20-85

DIV.	LOCATION	LIN. FT.	MILES	STATE CONTROL SECTION NO.
				77-0300
	I80 Eastbound Median Shoulder			
	Sta. 1129+50 to Sta. 1135+50	600	0.114	
	Omit Bridge at Sta. 1131+88	280	0.053	
	Total Length of E.B. Median Shoulder Paving	320	0.061	
	I80 Eastbound Outside Shoulder			
	Total Length of E.B. Outside Shoulder Paving			
	Sta. 1129+50 to Sta. 1131+02	152	0.029	

IR 80-5(148) 137--12--77

STANDARD ROAD PLANS

105-4
06-17-77

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

NUMBER	DATE	NUMBER	DATE	NUMBER	DATE
RC-16	10-02-90	RE-47	11-10-87	RE-65	01-09-90
RE-7	10-02-90	RE-48A	08-20-85		
RE-2B	10-02-90	RE-53	10-11-88		
RE-12A	10-11-88			RL-11	10-11-88
RE-12B	10-09-90	RE-68	08-08-89	RS-2	07-16-91
RE-12C	11-15-88	RE-69	08-08-89	RS-3	11-15-88
RC-8	11-10-87	RC-9	12-17-76	RE-52	08-08-89
RE-2A	02-17-87				

101-7

DESIGN DATA

EB I-80 HIGHWAY

1992	AADT	35700	V.P.D.
2012	AADT	63500	V.P.D.
2012	DHV	6350	V.P.H.
TRUCKS		27	%

MILEAGE SUMMARY

IR-80-5(147)137--12-77

105-1
08-20-85

DIV.	LOCATION	LIN. FT.	MILES	STATE CONTROL SECTION NO.
				77-0300
	I80 Eastbound Median Shoulder			
	Sta. 1171+50 to Sta. 1176+50	500	0.095	
	Omit Bridge at Sta. 1174+05	188	0.036	
	Total Length of E.B. Median Shoulder Paving	312	0.059	
	I80 Eastbound Outside Shoulder			
	Total Length of E.B. Outside Shoulder			
	Sta. 1171+50 to Sta. 1172+91	141	0.027	

STANDARD ROAD PLANS

IR-80-5(147)137--12-77

105-4
06-17-77

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

NUMBER	DATE	NUMBER	DATE	NUMBER	DATE
RC-16	10-02-90	RE-48A	08-20-85	RE-69	08-08-89
RE-2A	02-17-87	RE-52	08-08-89	RE-2B	10-02-90
RE-7	10-02-90	RE-53	10-11-88		
RE-12A	10-11-88	~~RE-65~~	~~01-09-90~~		
RE-12B	10-09-90	RE-67	07-16-91	RL-11	10-11-88
RE-47	11-10-87	RE-68	08-08-89	RC-8	11-10-87
RC-9	12-17-76	RE-65	01-01-91		

101-7

DESIGN DATA

EB I-80 HIGHWAY

1992	AADT	35700	V.P.D.
2012	AADT	63500	V.P.D.
2012	DHV	6350	V.P.H.
TRUCKS		27	%

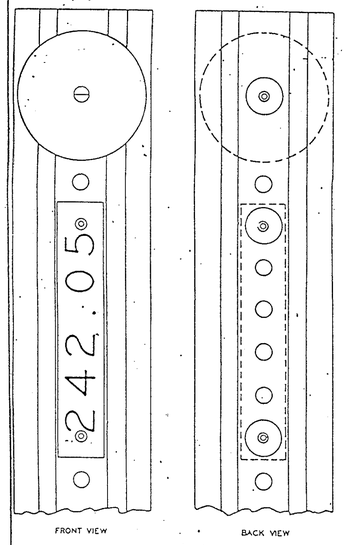
DESIGN NO. 1491
FILE NO. 28266

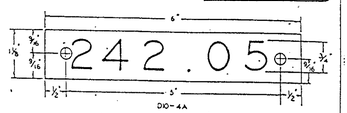
65300 BRUNING

I.D.O.T. #000-316920

COUNTY	PROJECT NUMBER	STATE	FHWA Region	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
		IOWA	7		32	43

ROAD TYP 4





Markers for each one-twentieth (0.05) of a mile will be placed on the mainline delineator posts as illustrated.

The markers on the post shall consist of a number representing the proper mile. The numerals shall be on a non-reflectorized pressure-sensitve face material. The non-reflectorized sheeting shall comply with specifications developed by the manufacturer of the reflective sheeting used in the fabrication of the reflectorized mile marker panels.

The markers shall be applied to properly treated aluminum blanks having a thickness of 0.063 inches in a manner specified by the sheeting manufacturer or by a method which shall produce an equivalent results.

The aluminum marker shall be fastened to the delineator post with aluminum pull-through, hollow, blind rivets with a diameter of 1/8" and a brazier head with a grip range of 0.126 to 0.250.

The holes in the marker panel shall be drilled with a No. 30 drill (0.128" dia.).

The numerals shall be black on a whie background.

THE ALUMINUM MARKERS WILL BE REQUIRED FOR MAINLINE DELINEATORS ON EITHER SIDE OF THE ROADWAY (I.E. FOR BOTH DIRECTIONS OF TRAVEL).

DELINEATOR POST NUMBERING AND ERECTION DETAILS

6-22-84 STAGING CONCERN MODIFIED 203-2

During construction of this project the contractor will be required to coordinate his operations with those of other contractors working within the same area. Other work in progress during the same period of time will include construction of the following projects: Designer to List Projects

IR-80-5(148)137--12-77
Bridge widening/shouldering project
over East 29th Street at Sta. 1132±

The contractor shall submit to the engineer a schedule for performance of work stages at least two weeks prior to the preconstruction meeting.

This schedule will be coordinated with the schedules of others by the engineer to obtain a schedule that is mutually acceptable. The contractor shall then perform the work as to conform to the accepted schedule.

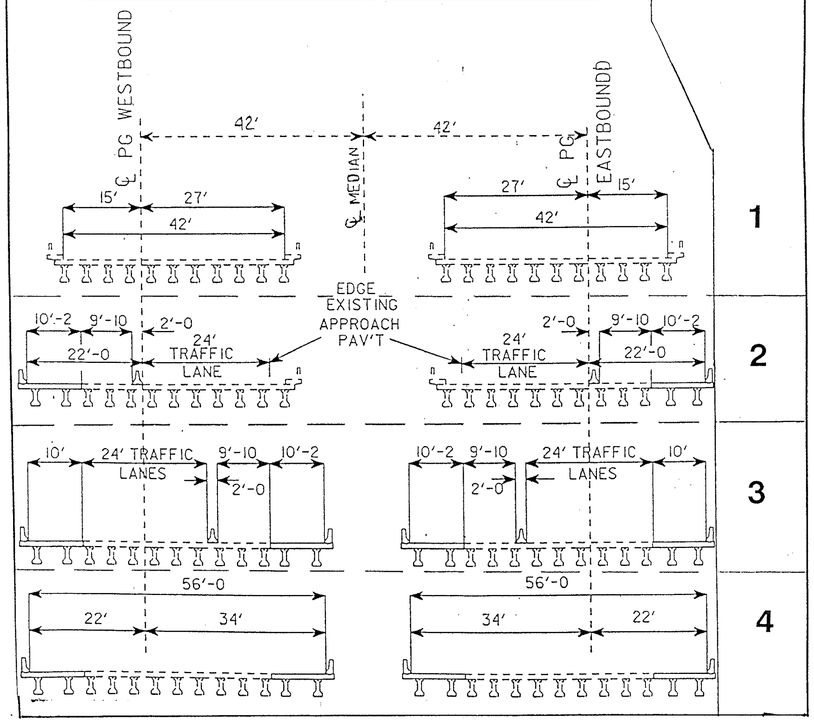
The proximity of the two projects necessitates staging them in a coordinated manner. The outside lanes will be closed first on both projects. The W.B. median lane will remain open on both projects until the W.B. outside lane is opened on both projects. The E.B. median lane will remain open on both proejcts until the E.B. outside lane is opened on both projects.

STAGING NOTES

108-26A
01-09-90

The contractor may submit alternative staging to be approved by the engineer.

1. EXISTING CONDITIONS.
2. PLACE TEMPORARY BARRIER AT THE EDGE OF C.L. AND MAINTAIN TWO 12' LANES OF TRAFFIC ON THE INSIDE OF BRIDGE/ROAD WHILE WIDENING BRIDGE ON THE OUTSIDE AND REPLACING THE E.B. OUTSIDE SHOULDER.
3. PLACE TRAFFIC ON TWO 12' LANES ON OUTSIDE EDGE OF BRIDGE/ROAD WHILE WIDENING BRIDGE ON THE INSIDE AND REPLACING THE E.B. INSIDE SHOULDER.
4. RETURN TO NORMAL CONDITIONS. PLACE TRAFFIC IN PROPER LANES.

ILLUSTRATION	STAGE
	1
	2
	3
	4

TRAFFIC CONTROL PLAN IR-80-5(147)137--12-77

108-23A
01-09-90

1. THROUGH TRAFFIC IN EACH DIRECTION WILL BE MAINTAINED ON THE PROJECT AT ALL TIMES.
2. TRAFFIC CONTROL ON THIS PROJECT SHALL BE IN ACCORDANCE WITH THE TRAFFIC CONTROL LAYOUT SHEETS INCLUDED IN THIS PLAN AND REFERENCE STANDARD ROAD PLANS.
3. All traffic control devices will be erected, maintained, and removed by the contractor. All shall be furnished by the contractor except "special" signs which will be furnished by the I.D.O.T. These may be picked up from the University Avenue Maintenance Garage in Des Moines.
4. Existing 55 mph speed limit signs near the project shall have two red flags mounted on opposite sides. The flag poles will cause the flags to point upward and form a 45° angle with the ground. Flags shall be 24" x 24" if made from cloth or 16" x 16" if rigid flags are used. In case there is confusion on which signs are to be treated with the red flags, the engineer shall decide.
5. Where possible, all post mounted signs shall be placed a minimum of two feet clear of the shoulder.
6. Details for Temporary Barrier Rail are included with the bridge sheets in this plan.
7. The channelizing devices shown on each of the layout sheets in this plan may be reduced or extended easterly or westerly as appropriate to accommodate changing work area limits. Sign locations will be adjusted to accomodate the changing work area limits.
8. 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 existing signs.
9. As directed by the engineer, the contractor shall cover existing signing that conflicts with construction zone signing.
10. Proposed changes in the Traffic Control Plan shall be reviewed by the Office of Construction before changes are made.
11. The bid item "Traffic Control" shall include the cost for all traffic control meausres required of the contractor except those which are separate bid items or incidental to other bid items.
12. Overnight storage of equipment by the contractor shall be at a location approved by the engineer in charge of construction. Parking of private vehicles on interstate right-of-way will not be allowed. Parking of equipment within 50 feet of the edge of pavement will not be allowed.
13. Traffic control for the closure of two lanes (center lane and outside lane OR center lane and median lane) in the same direction will be done in accordance with the special traffic control layout STCL-2LC included in this plan. Permission to close two lanes at a time must be requested from the engineer at least 48 hours in advance and will only be allowed during daylight hours before 3:00 p.m.

DESIGN NO. 1491
FILE NO. 28266

65300 BRUNING
I.D.O.T. #000-316920

POLK COUNTY

PROJECT NUMBER	STATE	FHWA Region	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IR-80-5(147)137--12-77	IOWA	7		33	43

THE NOTES ON THIS SHEET APPLY ONLY TO THE ROAD WORK

232-5
1-20-84

The contractor shall not disturb desirable grass areas and desirable trees outside the construction limits. The contractor will not be permitted to park or service vehicles and equipment or use these areas for storage of materials. Storage, parking and service area(s) will be subject to the approval of the resident engineer.

SN-1

The preparation of the seedbed, furnishing and application of seed, fertilizer, and mulch to all disturbed areas on this project shall be considered incidental to work on this project and no extra compensation will be allowed.

EROSION CONTROL: (Incidental)

Following the completion of work on this project seeding, fertilizing, and mulching of all disturbed areas shall be done as directed by the engineer.

SEEDING:

3 lbs. of Fescue, Kentucky 31, or Fawn per 1,000 sq. ft.

FERTILIZER:

17 lbs. of 13-13-13 (or equivalent) chemically combined commercial fertilizer per 1,000 sq. ft.

MULCH:

70 lbs. of dry cereal straw per 1,000 sq. ft. All mulch to be consolidated into the soil with the mulch tiller.

1-20-84 204-1

The installation of each continuous piece of guardrail shall be completely functional within five consecutive working days. The following shall apply unless modified by the engineer:

Grading work, if necessary, shall be completed prior to the removal of any existing guardrail or the installation of new guardrail.

Removal of any existing guardrail and installation of new posts and beam rail, except for the approach end section, shall be completed on the same working day. Beam rail shall be fully connected to all posts and protected with a Type E terminal section plus Type II barricade with Type A warning light.

Not later than the next working day, concrete for the end anchorage (RE-52 or RE-53) shall be poured.

SN-2

OTHER THAN THOSE TO BE REMOVED, ALL SUBDRAINS AND SUBDRAIN OUTLETS MUST REMAIN COMPLETELY FUNCTIONAL AT ALL TIMES.

SN-3

ALL GUARDRAIL MATERIALS OTHER THAN END ANCHORAGES THAT ARE REMOVED AND NOT REUSED ON THIS PROJECT WILL BE NEATLY STACKED. THE STACKING LOCATION WILL BE WITHIN THE LIMITS OF THE DES MOINES WEST (UNIVERSITY) MAINTENANCE FACILITY. THE MANNER AND EXACT LOCATION OF STACKING MUST MEET WITH THE APPROVAL OF THE MAINTENANCE ENGINEER. ALL END ANCHORAGES TO BE REMOVED WILL BECOME THE PROPERTY OF THE CONTRACTOR.

SN-5

THE CONTRACTOR SHALL BE RESPONSIBLE FOR RECONNECTING THE EXISTING FIELD FENCES. THIS WORK WILL BE DONE AFTER BRIDGES HAVE BEEN WIDENED AND WILL BE DONE IN ACCORDANCE WITH STANDARD ROAD PLANS RC-8 AND RC-9 AND AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE CONSIDERED INCIDENTAL TO OTHER BID ITEMS.

1-20-84 241-1

Road contractor is to use due caution in working over and around all tile lines. Breaks in the tile line due to the contractor's carelessness are to be replaced at his expense without cost to the State of Iowa. Any tile lines broken or disturbed by our cut lines will be replaced as directed by the engineer in charge of construction and at the State of Iowa's expense.

SN-4

All excavated asphalt coated material will be incorporated as Special Backfill or as RAP that is part of the Granular Material item.

10-02-90 213-7

Unless otherwise directed or authorized, all asphaltic cement concrete and other bituminous materials which are not specifically addressed or described in the plans shall become the property of the contractor.

The contractor in accordance with current rules and regulations of the Iowa Department of Natural Resources may:

1. **With the approval of the Engineer, blend or otherwise process the material for use with shoulder or special backfill aggregate, for use on the project.**
2. **With the approval of the Engineer, place with material in areas designated by the Engineer as Soil Aggregate Subbase without extra charge.**
3. **Remove the material from the project and stockpile for the contractor's future use.**
4. **Dispose of in a licensed landfill.**

1-20-84 204-2

All holes resulting from operations of the contractor, including removal of guardrail posts, fence posts, utility poles, or foundation studies, shall be filled and consolidated to finished grade as directed by the engineer to prevent future settlement. The voids shall be filled as soon as practical — preferably the day created and not later than the following day. Any portion of the right-of-way or project limits (including borrow areas and operation sites) disturbed by any such operations shall be restored to an acceptable condition. This operation shall be considered incidental to other bid items in project.

6-22-84 251-2

The contractor is hereby notified that removal of any existing traffic markers, warning devices or guardrail barriers shall be scheduled subject to the approval of the engineer. The contractor may be required to place temporary warning devices at certain locations where replacement features are not installed the same day during which any such removals take place.

1-20-84 253-1

Contractor is prohibited from using any established or other type median crossover on this project unless specifically designated for the contractor's use by this plan.

261-1
1-20-84

Where public utility fixtures are shown as existing on the plans or encountered within the construction area, it shall be the responsibility of the contractor to notify the owners of those utilities prior to the beginning of any construction. The contractor shall afford access to these facilities for necessary modification of services. Underground facilities, structures and utilities have been plotted from available surveys and records, and therefore their locations must be considered approximate only. It is possible there may be others, the existence of which is presently not known or shown. It is the contractor's responsibility to determine their existence and exact location and to avoid damage thereto. No claims for additional compensation will be allowed to the contractor for any interference or delay caused by such work.

04-04-89 213-1

It shall be the contractor's responsibility to provide waste areas or disposal sites for excess material (excavated material or broken concrete) which is not desirable to be incorporated into the work involved on this project. No payment for overhaul will be allowed for material hauled to these sites. No material shall be placed within the right of way, unless specifically stated in the plans or approved by the Engineer.

07-16-91 223-15

The surface course shall be 3/4" mix with no special aggregate frictional requirements.

	The percentage of crushed particles shall be:	Marshall Compaction requirements:
Surface	75 %	75 Blow
Binder	___ %	___ Blow
Base (including widening)	75 %	75 Blow

221-4
1-20-84

In order to avoid any unnecessary surface breaks or premature spalling the contractor is cautioned to exercise extreme care when performing any of the necessary saw cutting operations for the proposed pavement removal.

DESIGN NO. 1491
FILE NO. 28266

CLASS 10 EXCAVATION
ROADWAY AND BORROW

ROAD
TAB 4

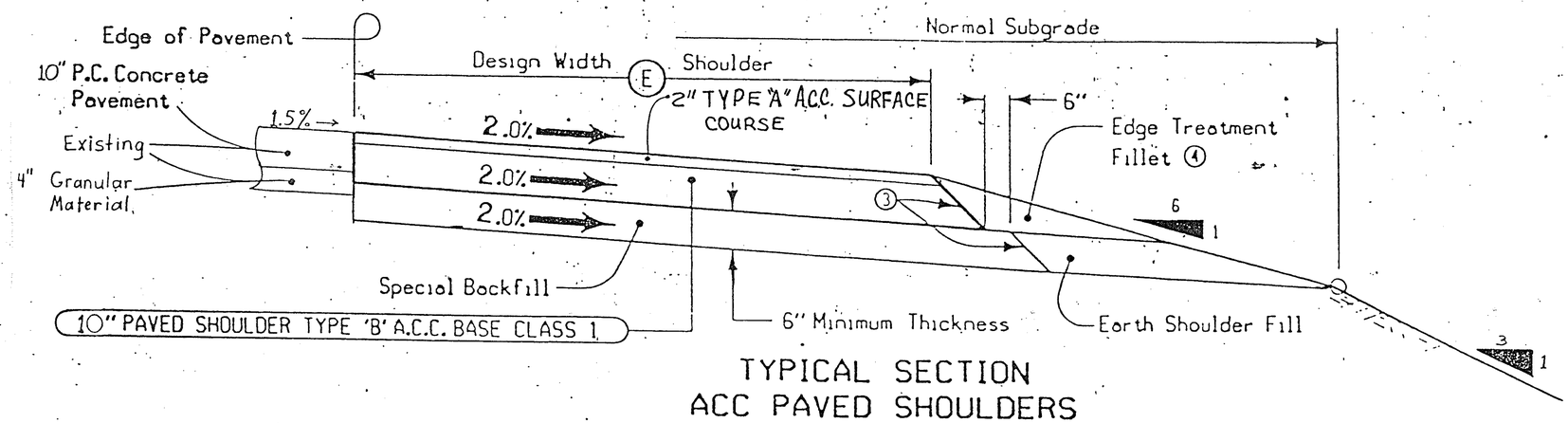
This tab represents an approximation. A shrinkage factor of 1.3 is included in the quantities. The locations and quantities are for fills. IR-80-5(147)137--12-77

LOCATION			Class 10 Quantity Cubic Yards	REMARKS
Road Identification	Side	Station to Station		
E.B. I80 Shoulder	Outside	1171+50 1172+91	20	Earth Shoulder Fill
	Median	1171+50 1173+05	22	Earth Shoulder Fill
	Median	1174+97 1176+50	21	Earth Shoulder Fill
	Median	1171+50 1173+05	42	Additional Required Fill
	Median	1174+97 1176+50	42	Additional Required Fill
E.B. & W.B. I80			50	Grading for Guardrail Installation. See tab 107-23

POLK COUNTY

PROJECT NUMBER	STATE	FED ROAD DIST NO	FISCAL YEAR	SHEET NO	TOTAL SHEETS
IR-80-5(147)137--12-77	IOWA	5		34	43

ROAD TYP 1



TYPICAL SECTION
ACC PAVED SHOULDERS
Adjacent to PCC Pavement
OUTSIDE SHOULDER

LOCATION			E	SIDE	QUANTITIES					
ROAD IDENTIFICATION	STATION TO STATION		Feet		SURFACE AREA Sq. Yds.	TYPE 'B' A.C.C. BASE Tons	PRIME & TACK Gals.	ASPHALT CEMENT Tons (1)	SPECIAL BACKFILL Tons (2)	Type 'A' SURFACE ACC TONS
E.B. I80 Shoulder	1171+50.00	1172+91.07	10	Outside	157	89	25	6	58	18

IR-80-5(147)137--12-77

(1) AC-20 only is to be used and is estimated at 5 1/2% for surface course and 6% for base course.

(2) Quantities are based on a design weight of 140 lbs. per cubic foot.

(3) Approximately 1:1 slope

(4) Refer to detail drawing 7145.

Use 95% density and 75 blow Marshall for both base and surface courses.

GENERAL NOTES:

Details indicated hereon illustrate the general requirements for construction of an Asphalt Paved Shoulder. Construction of the paved shoulder shall conform to the requirements of current standard specifications for the items involved.

Any necessary special shaping required in preparation of subgrade shall be considered incidental to other work. Any material removed due to special shaping shall be disposed of at the direction of the engineer.

"Special Backfill" material shall be paid for as specified in Section 2102.14D. Payment shall be based on nominal 6 inch thickness. Contractor may exceed the nominal thickness at his option, but will not be compensated for the additional material.

Shoulder construction details may be modified through superelevated curves or other areas specifically designated by the engineer. Refer to Typical Cross sections and Standard Road Plans for superelevation.

~~Quantities shown are for one shoulder per station.~~ Rates of application may be adjusted at time of construction if so directed by the engineer.

Includes quantity for priming vertical face of adjacent payement prior to placement of any base material. Tack coat estimated at one (1) application of 0.05 gal./sq.yd..

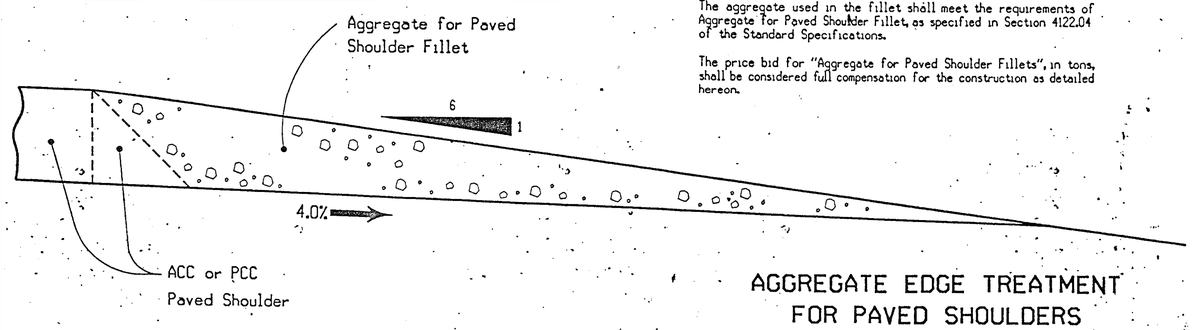
AGGREGATE FOR PAVED SHOULDER FILLETS

ROAD TAB 3

This tab represents an approximation and is included for planning purposes only.

MEDIAN SHOULDER		OUTSIDE SHOULDER	
Location Stations	Quantity (Tons)	Location Stations	Quantity (Tons)
1171+50-1173+40.61	31	1171+50.00-1172+91.07	29
1174+96.95-1176+50.00	31		

7145
10-02-90



Notes:

The intent of this Typical Drawing is to illustrate the construction requirements for an aggregate fillet at the edge of a paved shoulder.

The aggregate used in the fillet shall meet the requirements of Aggregate for Paved Shoulder Fillet, as specified in Section 4122.04 of the Standard Specifications.

The price bid for "Aggregate for Paved Shoulder Fillets", in tons, shall be considered full compensation for the construction as detailed hereon.

AGGREGATE EDGE TREATMENT FOR PAVED SHOULDERS

DESIGN NO. 1491
FILE NO. 28266

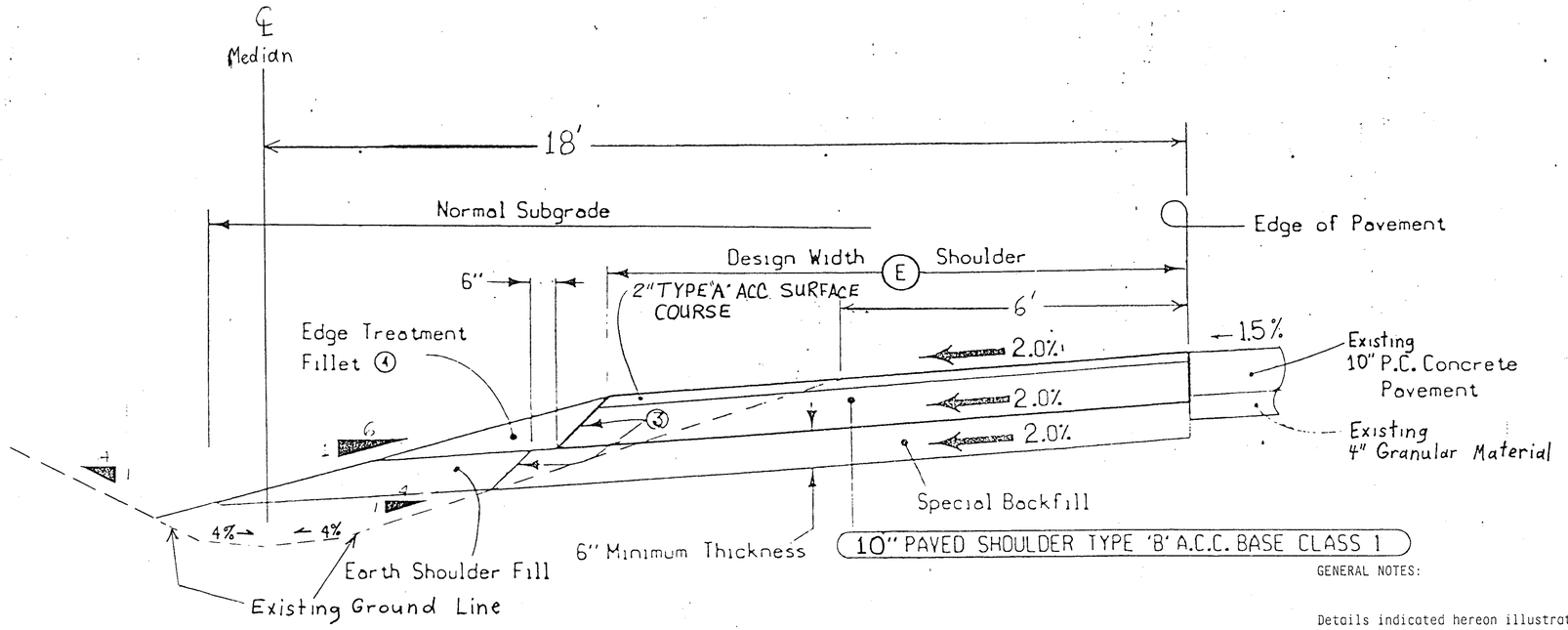
65300 BRUNING

IDOT #000-516920

POLK COUNTY

PROJECT NUMBER	STATE	FHWA Program	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IR-80-5(147)137--12-77	IOWA			35	73

ROAD TYP2



MEDIAN SHOULDER
TYPICAL SECTION
ACC PAVED SHOULDERS
Adjacent to PCC Pavement

LOCATION			E	SIDE	QUANTITIES					
ROAD IDENTIFICATION	STATION TO STATION		Feet		SURFACE AREA Sq. Yds.	TYPE 'B' A.C.C. BASE Tons	PRIME & TACK Gals.	ASPHALT CEMENT Tons (1)	SPECIAL BACKFILL Tons (2)	Type 'A' SURFACE ACC TONS
E.B. I80 Shoulder	1171+50.00	1173+04.61	10	Median	172	9[illegible]	28	7	6[illegible]	20
E.B. I80 Shoulder	1174+96.95	1176+50.00	10	Median	170	97	27	7	63	20

(1.) AC-20 only is to be used and is estimated at 5 1/2% for surface course and 6% for base course.

(2.) Quantities are based on a design weight of 140 lbs. per cubic foot.

(3.) Approximately 1:1 slope

(4.) Refer to detail drawing 7145.

Use 95% density and 75 blow Marshall for both base and surface courses.

GENERAL NOTES:

Details indicated hereon illustrate the general requirements for construction of an Asphalt Paved Shoulder. Construction of the paved shoulder shall conform to the requirements of current standard specifications for the items involved.

Any necessary special shaping required in preparation of subgrade shall be considered incidental to other work. Any material removed due to special shaping shall be disposed of at the direction of the engineer.

"Special Backfill" material shall be paid for as specified in Section 2102.14D. Payment shall be based on nominal 6 inch thickness. Contractor may exceed the nominal thickness at his option, but will not be compensated for the additional material.

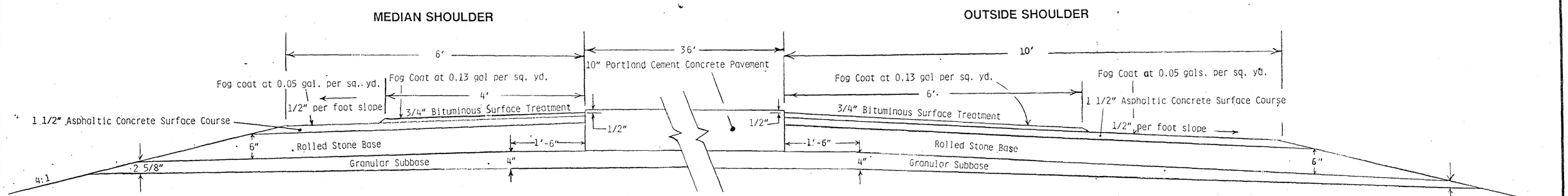
Shoulder construction details may be modified through superelevated curves or other areas specifically designated by the engineer. Refer to Typical Cross sections and Standard Road Plans for superelevation.

~~Quantities shown are for one shoulder per station~~. Rates of application may be adjusted at time of construction if so directed by the engineer.

Includes quantity for priming vertical face of adjacent pavement prior to placement of any base material. Tack coat estimated at one (1) application of 0.05 gal./sq.yd..

DESIGN NO. 1491
FILE NO. 28266

ROAD TYP 3

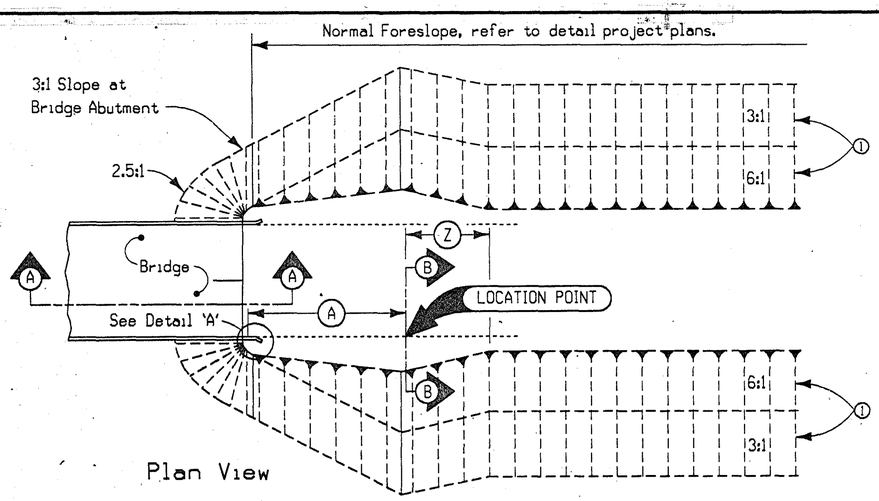


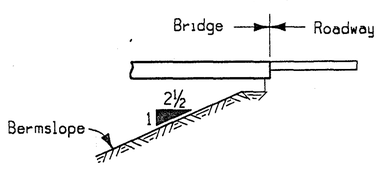
TYPICAL CROSS SECTION
FROM "AS BUILT" OF EXISTING ROAD
PROVIDED FOR INFORMATION ONLY

Note: The original design called for 2 1/2:1 foreslopes in areas where the fill was 10 feet or greater and 4:1 foreslopes where the fill was less than 10 feet.

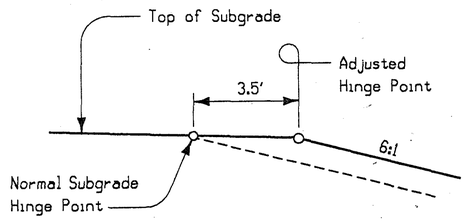
DESIGN NO. 1491
FILE NO. 28266

4306
07-21-87

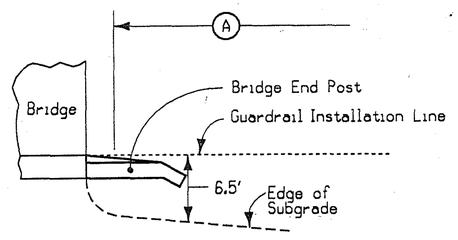




Section A-A



Section B-B



Detail "A"

Notes:

Refer to tabulation 107-23 for listings of Location Points and Dimensions A and Z.

① Barnroof section refer to other Typical Drawings.

FORESLOPE TRANSITION AT BRIDGE FROM BARNROOF SECTION

65300 BRUNING

IDOT #000-316920 .

POLK COUNTY

PROJECT NUMBER	STATE	FHWA Region	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IR-80-5(147)137--12-77	IOWA	7		37	43

TABULATION OF STEEL BEAM GUARDRAIL FOR STANDARD ROAD PLANS RE-63, RE-65

108-8A
07-16-91

✳ Includes 2 - 12.5' Thrie Beam Sections and 1 - 6.25' "W" to Thrie Beam Transition Section

LOCATION NO.	LOCATION STATION	STANDARD ROAD PLAN	CASE	FORMED STEEL BEAM GUARDRAIL (A) "W" Beam	(A) STS ✳ Thrie Beam 31.25'	(H) Thrie Beam	(T) STS ✳ Thrie Beam 31.25'	(T) "W" Beam	TOTAL "W" BEAM	TOTAL THRIE BEAM	BEAM GUARDRAIL POSTS With 8"x 8" Spacer Blocks 10"x10"x6'	With 8"x 8" Spacer Blocks 8"x8"x6'	Without Spacer Blocks 6"x8"x6'	POST & ADAPTOR RE-37	ANCHOR SYSTEM Type	ANCHOR SYSTEM No.	REMARKS
				Lin. Ft.	Lin. Ft.	Lin. Ft.	Lin. Ft.	Lin. Ft.	Lin. Ft.	Lin. Ft.	No.	No.	No.	No.			
1	1174+18	RE-65	U	37.5					37.5		3	7	2		RE-52	1	
2	1175+77				31.25					31.25	3	7	2		RE-69	1	

TABULATION OF STEEL BEAM GUARDRAIL FOR STANDARD ROAD PLAN RE-67

108-19
07-16-91

✳ Includes 2 - 12.5' Thrie Beam Sections and 1 - 6.25' "W" to Thrie Beam Transition Section

LOCATION NO.	LOCATION STATION	(A) STS ✳ Thrie Beam 31.25'	(A) FORMED STEEL "W" BEAM GUARDRAIL Section for Skewed Bridges	Curve ①	RE-53 12.5' Section	Tangent Section	(T) Curve ②	Section for Skewed Bridges	Variable Tangent Section	(T) STS ✳ Thrie Beam 31.25'	Total of Thrie Beam Guardrail	Total of "W" Beam Guardrail	BEAM GUARDRAIL POSTS With 8"x 8" Spacer Blocks 10"x10"x6'	With 8"x 8" Spacer Blocks 8"x8"x6'	Without Spacer Blocks 8"x8"x6'	Without Spacer Blocks 6"x6"x6'	ANCHOR SYSTEM Type	ANCHOR SYSTEM No.	REMARKS
		Lin. Ft.	Lin. Ft.	Lin. Ft.	Lin. Ft.	Lin. Ft.	Lin. Ft.	Lin. Ft.	Lin. Ft.	Lin. Ft.	Lin. Ft.	Lin. Ft.	No.	No.	No.	No.			
1	1173+01.42 E.B.	31.25								31.25	62.5		6	6			RE-69	2	The location station of the proposed median guardrail
				37.5	12.5		37.5	12.5				100.0		11 ~~13~~	2	1	RE-53	1	on the west side of the dual bridges is on the south
																			wingwall.
2	1175+08.58 W.B.	31.25								31.25	62.5		6	6			RE-69	2	The location station of the proposed median guardrail on
				37.5	12.5		37.5	12.5				100.0		11 ~~12~~	2	1	RE-53	1	the east side of the dual bridges is on the north wingwall.
																			Each Curve 1 and each Curve 2 inlcudes a 12.5' tangent
																			section and a 25' curve section with a 96' shop bent
																			radius. See sheet entitled "Details of Guardrail
																			Between Dual Bridges."

REMOVAL OF PAVEMENT

110-1
07-21-87

STATION TO STATION		AREA Sq. Yds.	SAW CUT Lin. Ft. EAST END	SAW CUT Lin. Ft. WEST END	REMARKS
EB Median Shoulder					
1171+50.00	1173+04.61	101.3 ~~103~~		6	The existing pavement is 2¼" of A.C.C.
1174+96.95	1176+50.00	101.3 ~~102~~	6		
EB Outside Shoulder					
1171+50.00	1172+91.07	189.1 ~~157~~		10	
1174+82.5	1174+97.5	17.5			
	TOTAL =	~~362~~ 409.2			

DESIGN NO. 1491
FILE NO. 28266

CLASS 13 EXCAVATION ROADWAY AND BORROW

ROAD TAB 1

This Tab represnets an approximation. The Class 13 material includes rolled stone base, granular subbase, and subgrade material.

LOCATION Road Identification	Side	Station to Station		Excavation Class 13 Cubic Yards
E.B. I80 Shoulder	OUTSIDE	1174+82.5	1174+97.5	2.92
E.B. I80 Shoulder	Median	1171+50.00	1173+04.61	~~57~~ 60.14
E.B. I80 Shoulder	Median	1174+96.95	1176+50.00	~~56~~ 60.14
E.B. I80 Shoulder	Outside	1171+50.00	1172+91.07	~~78~~ 73.51

TABULATION OF SILT FENCES FOR DITCH CHECKS

100-18
11-10-83

LOCATION STATION IR-80-5(147)137--12-77		SIDE	LIN. FT.	REMARKS
1172+60	EB	MEDIAN	15	
1175+40	EB	MEDIAN	15	

IR-80-5(147)137--12-77

REMOVAL OF BEAM GUARDRAIL

110-7
11-10-83

LOCATION NO.	LOCATION STATION	BEAM GUARDRAIL REMOVE	BEAM GUARDRAIL REMOVE & REINSTALL	POSTS 6x8 REMOVE	POSTS 8" X 8" REMOVE	POSTS 8" X 8" REMOVE & REINSTALL	POSTS 10" X 10" REMOVE	POSTS 10" X 10" REMOVE & REINSTALL	END ANCHORAGE NO.	END ANCHORAGE TYPE	REMARKS
	IN MEDIAN										
1	~~1172+85~~ ~~1175+25~~	162.5		4	38		6		2	RE-49	
									1	RE-53	
2	1175+03.08	162.5		1	25		6		2	RE-49	
									1	RE-53	
	OUTSIDE										
3	1173+01.42	131.25		1	~~21~~ 25		6 ~~3~~		1	RE-52	E.B.
									1	RE-49	

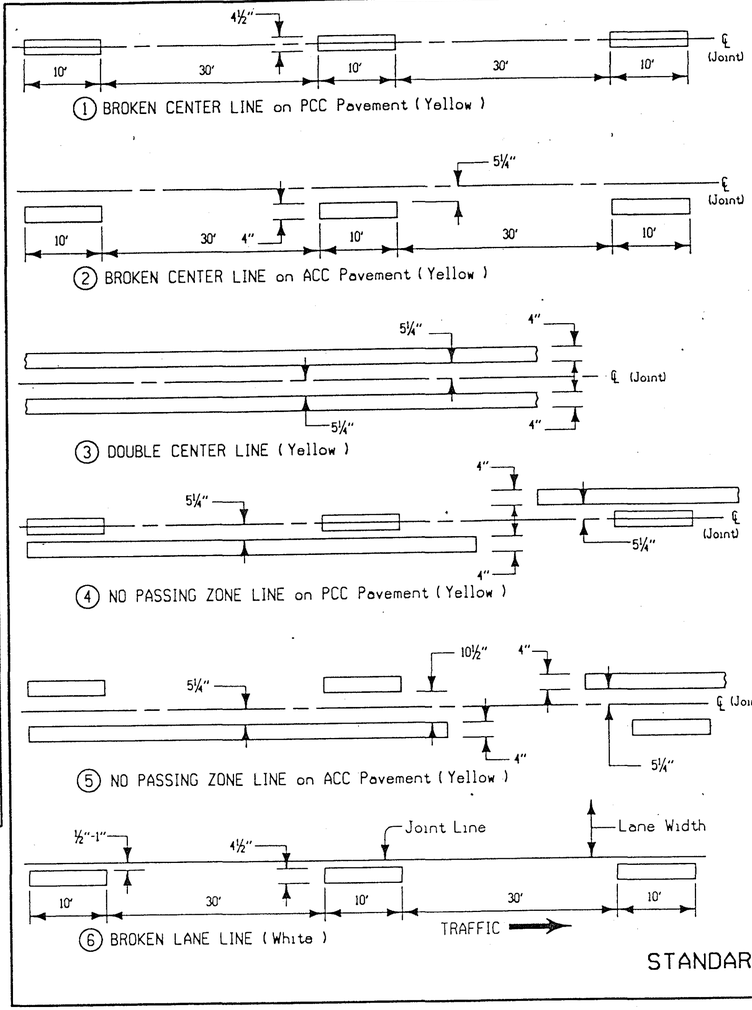
STATE OF IOWA	FHWA REGION 7	FISCAL YEAR		POLK COUNTY	PROJECT NUMBER IR-80-5(147)137--12-77	SHEET NUMBER 38	TOTAL SHEETS 43

TABULATION OF PAVEMENT MARKINGS

ROAD TAB 6

① Broken Center Line (Yellow) on PCC Pavement
② Broken Center Line (Yellow) on ACC Pavement
③ Double Center Line (Yellow)
④ No-Passing Zone Line on PCC Pavement (Yellow)
⑤ No-Passing Zone Line on ACC Pavement (Yellow)
⑥ Broken Lane line (White)
⑦ Edge Line Right (White)
⑧ Edge Line Left (Yellow)
⑨ Dotted Line (White)
⑩ Solid Lane Line (White)
⑪ Channelizing Line (White)

LOCATION				LENGTH (In Stations)											REMARKS
Road Ident.	Station to Station	Side L	Side R	①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	
															Side is as with traffic
EB I-80	1161+16 - 1167+76	x									6.6				Tape-Diagonal Taper
	1161+16 - 1167+76	x									6.6				Remove Tape-Diagonal Taper
	1161+16 - 1167+76		x							6.6					Tape-Diagonal Taper
	1161+16 - 1167+76		x							6.6					Remove Tape-Diagonal Taper
	1167+76 - 1172+76	x									5.0				Paint
	1167+76 - 1172+76	x									5.0				Remove Paint
	1167+76 - 1172+76		x							5.0					Paint
	1167+76 - 1172+76		x							5.0					Remove Paint
	1167+76 - 1175+09	x							7.3						Paint
	1167+76 - 1175+09		x						7.3						Paint
	1171+50 - 1176+50	x									5.0				Paint
	1171+50 - 1175+09		x							3.6					Paint
WB I-80	1180+34 - 1186+94	x									6.6				Tape-Diagonal Taper
	1180+34 - 1186+94	x									6.6				Remove Tape-Diagonal Taper
	1180+34 - 1186+94		x						6.6						Tape-Diagonal Taper
	1180+34 - 1186+94		x						6.6						Remove Tape-Diagonal Taper
	1175+34 - 1180+34	x									5.0				Paint
	1175+34 - 1180+34	x									5.0				Remove Paint
	1175+34 - 1180+34		x							5.0					Paint
	1175+34 - 1180+34		x							5.0					Remove Paint
	1173+01 - 1180+34	x							7.3						Paint
	1173+01 - 1180+34		x						7.3						Paint
	1173+21 - 1175+14	x									1.9				Paint
	1173+21 - 1175+14		x							1.9					Paint
LENGTH SUBTOTALS									29.2	51.9	53.3				
QUANTITY FACTORS				.25	.25	2	1	1	.25	1	1	.33	1	2	
TOTALS									7.3	51.9	53.3				



9001
08-08-89

STANDARD TYPES OF PAVEMENT MARKINGS

TABULATION OF GRADING FOR GUARDRAIL INSTALLATIONS

107-23
02-28-89

IR-80-5(147)137--12-77 • Refer to Standard Road Plan RL-11 or Typicals 4303 and 4306

LOCATION POINT			DIMENSIONS •			CLASS 10 EXCAV.	EMBANK. IN PLACE	PIPE			REMARKS
No.	Station	TYPE	Ⓐ/Ⓣ Lin. Ft.	Ⓨ Lin. Ft.	Ⓩ Lin. Ft.	Cu.Yds.	Cu.Yds.	Size Inches	Type	Length Lin. Ft.	
1	1172+34.82 EB	2	56.25	4	15	25					
2	1175+76.66 WB	2	56.25	4	15	25					

REMOVAL AS PER PLAN

IR-80-5(148)137--12-77

ROAD TAB 5

Remove the 4" Median Subdrain and the CMP Subdrain Outlets along the E.B. median shoulder. The subdrain plan depth is 30". Existing granular material from subdrain removal, plus additional granular material will be needed to compact the trench to 140 lb/sq. ft. This work is incidental to the Removal As Per Plan item.

NO.	LOCATION STATION	TO	STATION	LENGTH LIN. FT.	OUTLET LOCATION
1	1175+85		1176+50	65	1175+85

MEASUREMENT AND PAYMENT

The contract price for "Removal, As Per Plan" shall be full payment for furnishing all material, equipment and labor and for performance of all work necessary for removal of the old subdrain and CMP subdrain outlets and disposal thereof, and for any backfilling made necessary by these operations.

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TABULATION OF DELINEATORS AND OBJECT MARKERS

108-17
11-10-83

Refer to Standard Plan RE-48A-B* ** Not a Bid Item

LOCATION IR-80-5(147)137--12-77 Station		Type*	DELINEATOR Single White D-1W Number	OBJECT MARKER Triple Yellow OM2-3YV Number	Type 3 OM-3L Number	Type 3 OM-3R Number	Offset Brackets ** Number	REMARKS Road Standard
1172+82	E.B.	3				1	1	RE-47
1172+99	E.B.	4			1		1	RE-47
1175+11	W.B.	4			1		1	RE-47
1175+28	W.B.	3				1	1	RE-47
1170+90	E.B.		1					RE-7

65300 BRIJNING IDOT #000-316920

POLK COUNTY

PROJECT NUMBER	STATE	FHWA Region	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IR-80-5(147)137--12-77	IOWA	7		39	43

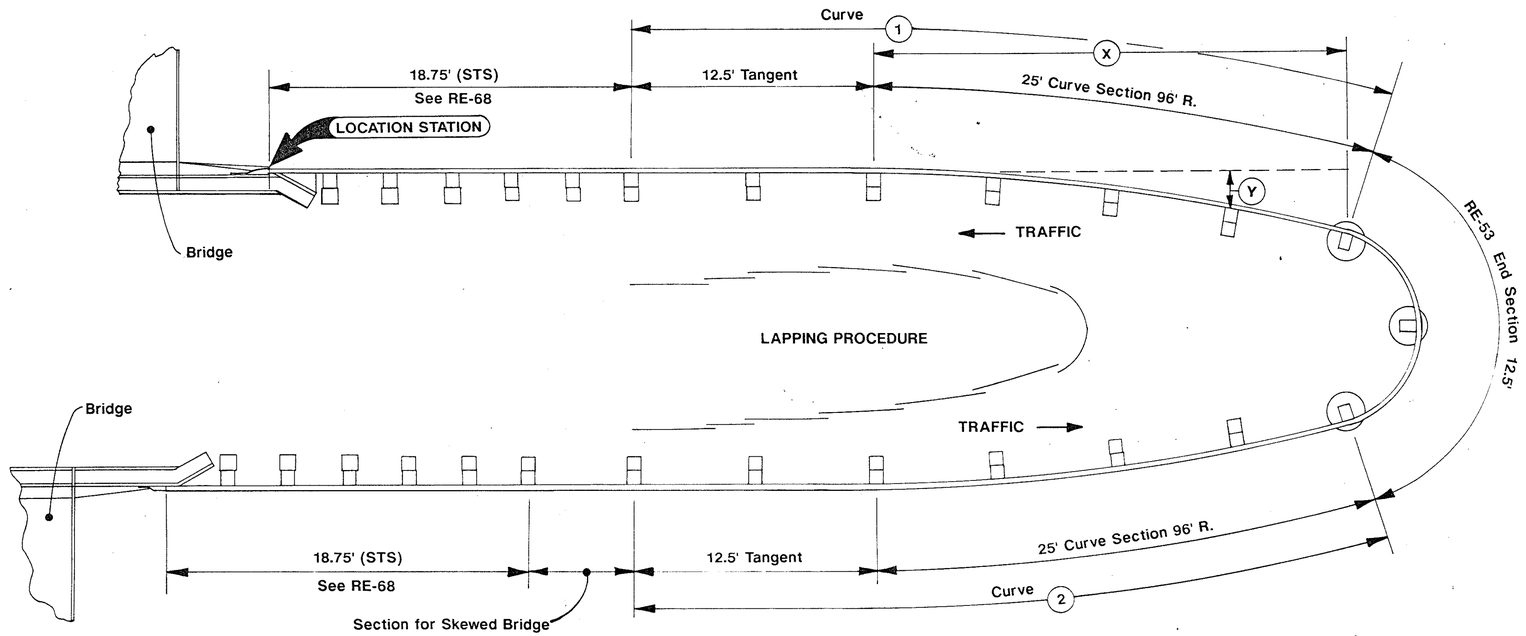


TABLE OF OFFSETS	96' Radius				
Distance Along Curve	0.00	6.25	12.50	18.75	25.00
(X)	0.00	6.20	12.37	18.49	24.58
(Y)	0.00	0.20	0.80	1.80	3.18

GENERAL NOTES:

Details indicated hereon are for the installation of guardrail in medians between bridges. Refer to "Tabulation of Steel Beam Guardrail for Standard Road Plan RE–67 " for complete data regarding specific locations.

Details shown are typical. Actual installation may require some adjustment when so directed by the engineer.

Horizontal and vertical alignment of the guardrail in the area immediately adjacent to the bridge shall, where necessary, be adjusted to a smoothly curved line with no abrupt changes. Appropriate adjustment in method of installation shall be made for curved roadway, skewed bridges, or other conditions not shown. Exact details of the installation shall be as directed by the engineer.

Guardrail shall be lapped towards the structure.

Price bid for contract items shall be considered full compensation for furnishing all materials and constructing guardrail essentially as indicated hereon.

Contract items for beam guardrail are:

Formed Steel Beam Guardrail
Formed Steel Thrie Beam Guardrail
Beam Guardrail Posts
Beam Guardrail End Anchorage RE–53
Beam Guardrail End Anchorage RE–69

INSTALLATION PROCEDURES:

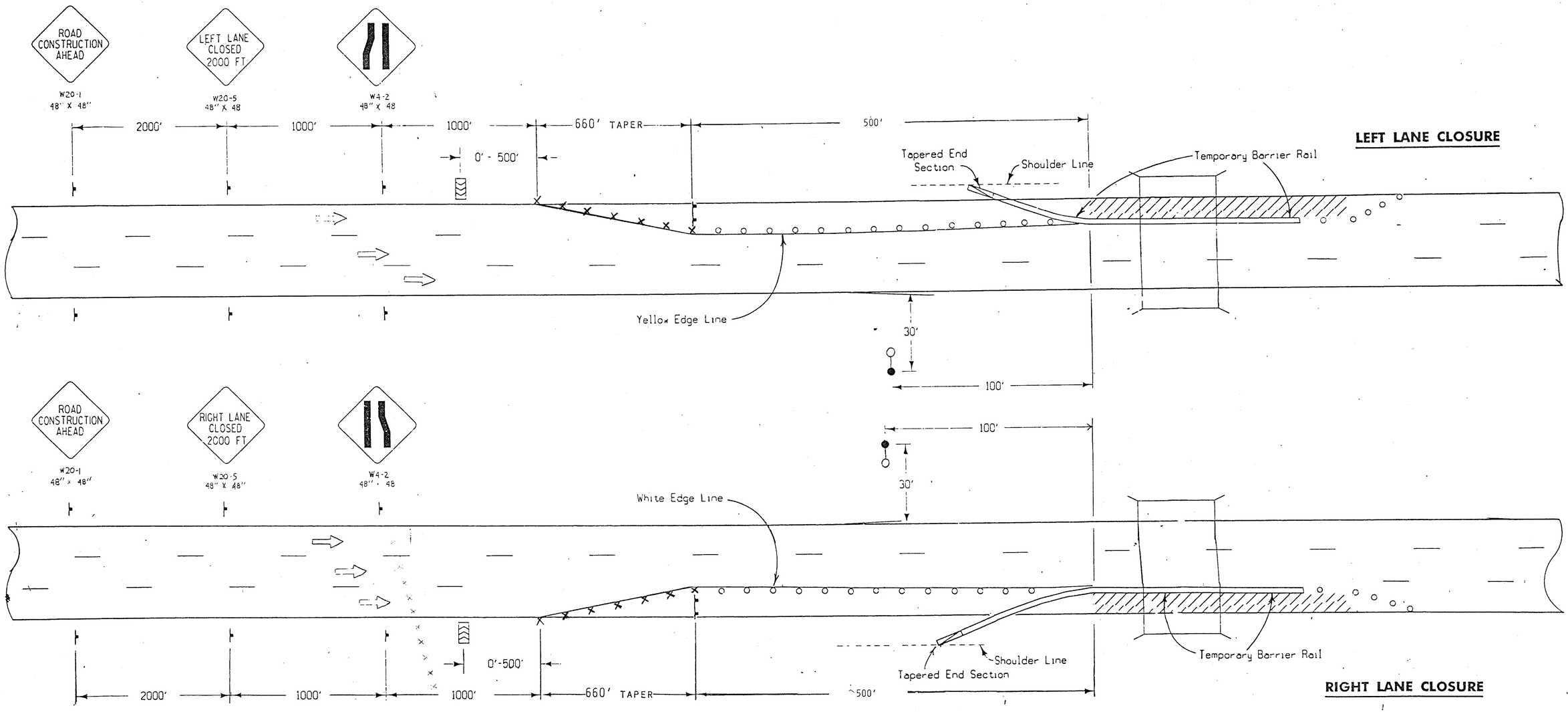
1. Install 18.75' Standard Transition Section to each end post as detailed on Standard Road Plan RE–68.
2. Determine the length of Curve #1 from "Tabulation of Steel Beam Guardrail Between Dual Bridges." Stake and install guardrail based on table of "Approach Side Curve Offsets" as shown on this sheet.
3. Install the 12.5' RE–53 end anchorage, Backside (3rd) post should not be installed until Step 4 and 5 are completed to insure a smooth alignment.
4. Determine the maximum Y offset length for Curve #2 from the table of "Trailing Side Curve Offsets" on this sheet based on curve length in the guardrail tabulation. Based on this offset and the Tangent Section length, locate the intersection point of Curve #2 and the tangent section.
5. Maintaining normal post spacing from the RE–53 end anchorage, install guardrail to the point determined in Step 4. Install backside RE–53 post.
6. Using table of "Trailing Side Curve Offsets" Install Curve #2 guardrail and posts and any necessary variable tangent section.

DESIGN NO. 1491
FILE NO. 28266

DETAILS OF GUARDRAIL BETWEEN DUAL BRIDGES
STA. 1174 + 05

STATE OF IOWA	FHWA REGION 7	FISCAL YEAR		POLK COUNTY	PROJECT NUMBER IR-80-5(147)137--12-77	SHEET NUMBER 40	TOTAL SHEETS 43

MULTI-LANE ROADWAY



LEGEND

Type III Barricade (Type "A" Low intensity Flashing Warning Lights Required)

- Traffic Sign
- Channelizing Device (Vertical Panel, Drum, Type I or Type II Barricade) (to be weighted) (Type 'C' Lights required)
- Arrow Panel (Type 'C')
- Temporary Safety Lighting (Floodlighting)
- Work Area
- X Drums

GENERAL NOTES:

1. The maximum spacing between channelizing devices in a merging or shifting taper shall be approximately equal in feet to the speed limit.
2. "Speed Limit" refers to the legally established speed limit before construction.
3. Channelizing devices on the laneline shall be of the same type. Channelizing devices in each taper shall be of the same type.
4. LANE CLOSURES WILL NOT ENCROACH ON THE CENTER LANE.
5. Closing tapers shall contain a minimum of 4 channelizing devices.
6. Details for Temporary Barrier Rail are included elsewhere in the plans.
7. Broken laneline shall be removed in area of taper.
8. Contractor shall be responsible for placement and removal of white or yellow edge lines. No temporary edge line will be necessary adjacent to the temporary barrier rail or the outside edge of the bridge.
9. A white or yellow reflector appropriate to the edge line shall be installed on both the curb and the temporary barrier rail sections. Spacing shall be at 10 foot intervals through the taper and the work area.
10. Parking of private vehicles or unattended equipment, or storage of materials, within 50 feet of the edge of pavement shall not be permitted unless protected by functioning barrier rail.
11. For Temporary Floodlighting, see Detail Sheet 570-2.
12. Poles for Temporary Floodlighting, as well as any auxiliary poles us to furnish power, shall be offset 30 feet from the traveled w unless there are right-of-way restrictions. Clearance on overhe wiring shall be a minimum of 17 feet.

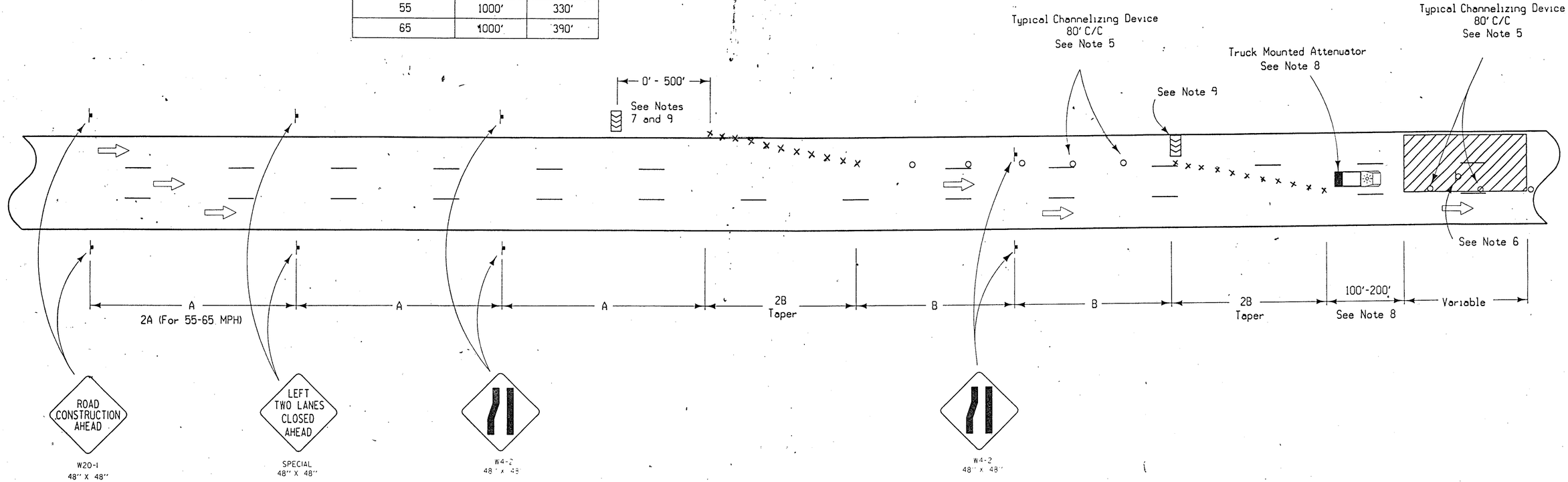
DESIGN NO. 1491
FILE NO. 28266

MODIFIED DETAIL SHEET 521-20

TRAFFIC CONTROL LAYOUT FOR LANE CLOSURE USING TEMPORARY BARRIER RAIL

STATE OF IOWA	FHWA REGION 7	FISCAL YEAR		POLK COUNTY	PROJECT NUMBER IR-80-5(147)137--12-77	SHEET NUMBER 41	TOTAL SHEETS 43

SPEED LIMIT	Approximate Spacing	
	'A'	'B'
35	500'	125'
45	700'	270'
55	1000'	330'
65	1000'	390'



Or:



LEGEND

- Traffic Sign
- Type II Barricade or Vertical Panel (to be weighted)
- Channelizing Device (Vertical Panel, Cone, Drum, Type I or Type II Barricade) (to be weighted)
- Arrow Panel (Type "C")
- Work Area
- X Drums

GENERAL NOTES:

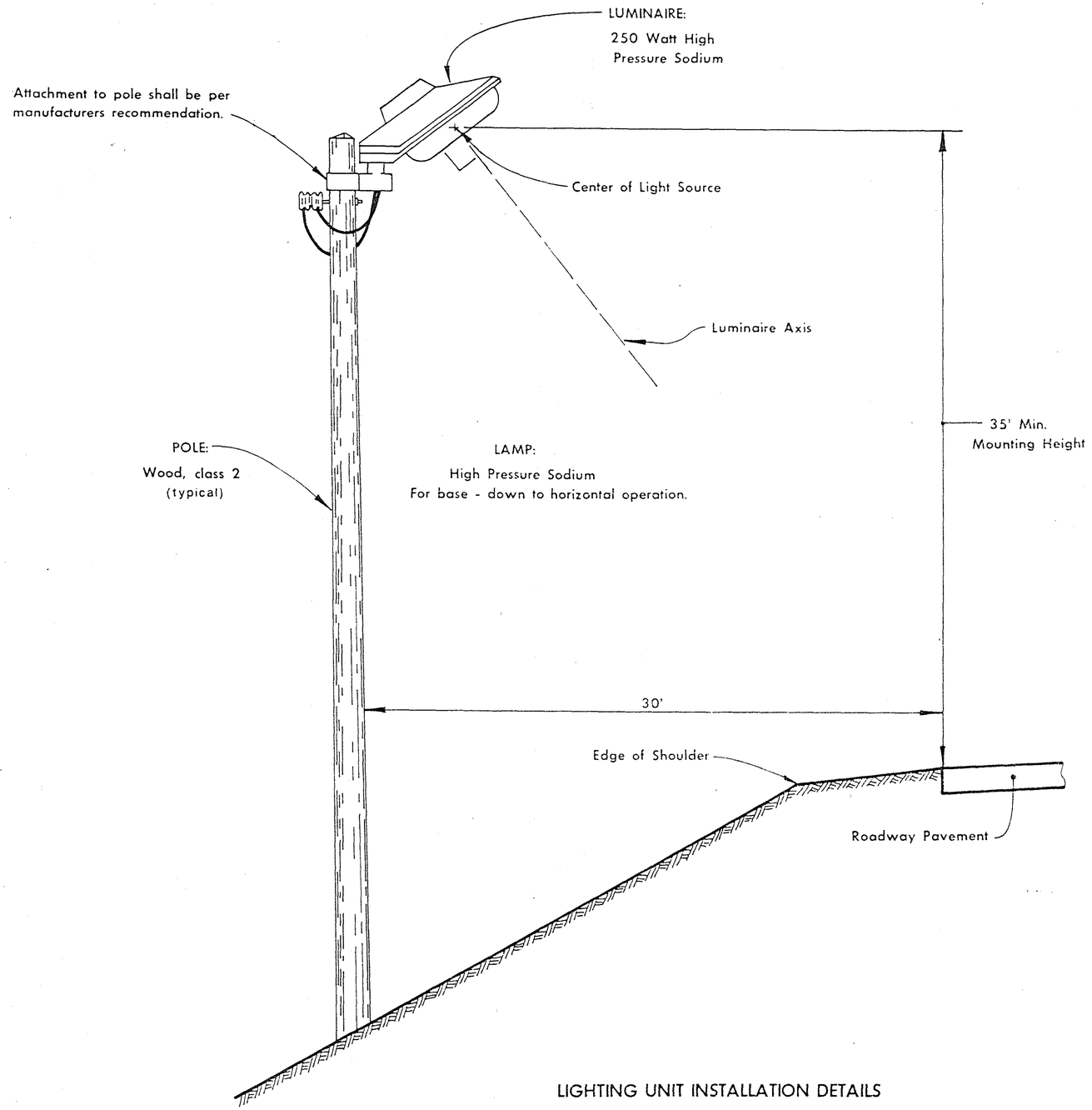
1. This layout is intended for short-term use during off-peak hours. When nighttime use is authorized, channelizing devices shall be vertical panels or Type II Barricades with Type "C" steady-burn warning lights installed on all channelizing devices.
2. "Speed Limit" refers to the legally established speed limit before construction.
3. The maximum spacing between channelizing devices in a taper shall be approximately equal in feet to the speed limit.
4. A "Road Construction Ahead" sign shall be placed 300 to 500 feet ahead of the entrance ramp nose for any ramp within the area of traffic control signing. If a ramp exit or entrance taper falls within the work area, refer to Standard Road Plan RS-65A and RS-65B for traffic control details.
5. Vertical panels and barricades shall not be intermixed through the work area on the laneline.
6. Type II Barricades will be placed in the closed lane at a 1500 foot interval. Where coreouts, holes or uncured concrete exist within the work area, an additional Type II Barricade shall be placed just ahead of each.
7. The Sequencing Arrow Board may be placed behind the lane taper if inside shoulder is too narrow to accomodate it.
8. This dimension should be lengthened to 500 feet and a Type III Barricade should be added at the beginning of the work area when a truck with a truck mounted attenuator (TMA) is not used.
9. The use of an arrow panel is optional for daytime lane closures when the posted speed limit is 45 MPH or less. Use shall be determined by the engineer.

DESIGN NO. 1491
FILE NO. 28266

STCL - 2LC

TRAFFIC CONTROL LAYOUT FOR CLOSURE OF TWO LANES ON A MULTILANE HIGHWAY

STATE OF IOWA	FHWA REGION 7	FISCAL YEAR		POLK COUNTY	PROJECT NUMBER IR-80-5(147)137--12-77	SHEET NUMBER 42	TOTAL SHEETS 43



LIGHTING UNIT INSTALLATION DETAILS

GENERAL NOTES:

Temporary floodlighting will be required on this project. The lighting shall conform to current Standard Specifications for floodlighting, Sections 2528.08 and 2528.12(D) except as modified hereon.

Temporary floodlighting shall consist of either a pole mounted luminaire as illustrated hereon or a luminaire mounted on portable type equipment. Location of the temporary floodlighting shall be as shown in the Traffic Control Plan or as determined by the engineer. The contractor shall determine pole length by field measurement to obtain specified mounting height. Luminaire axis shall be directed to within the limits of the near traffic lane unless specified otherwise.

Proposals for alternatives to the class 2 wood pole used to mount luminaire may be submitted to the engineer for approval.

The luminaire shall be designed to operate without a mastarm. The "Expressway" luminaire by the Holophane Division of Manville, Inc. or the "Interstate" luminaire by the American Electric Division of I.T.T. are the approved luminaires.

Aerial lighting circuits shall be aluminum or A.C.S.R. triplex. Underground lighting circuits shall be type U.S.E. or U.F. All circuit design and materials shall be approved by the engineer before installation commences.

Price bid for "Temporary Floodlighting" shall include all costs for furnishing, installing, maintaining and servicing the Temporary Floodlighting Units, all costs for electrical energy, and the cost of removing all lighting materials from the construction site.

DESIGN NO. 1491
FILE NO. 28266

Iowa Department of Transportation
Highway Division

DETAIL SHEET 570-2

TEMPORARY FLOODLIGHTING
(OFFSET)

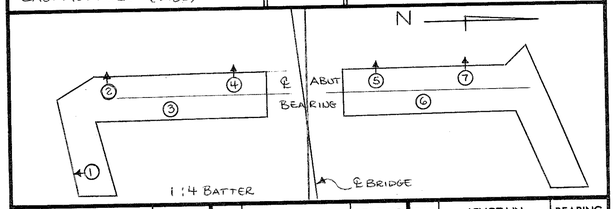
POLK COUNTY

PROJECT NUMBER	STATE	FHWA Region	FISCAL YEAR	SHEET NO	TOTAL SHEETS
IR-80-5(147)137--12-77	IOWA	7		43	43

BE-NHS 44131-6300

Form 520005
12-88

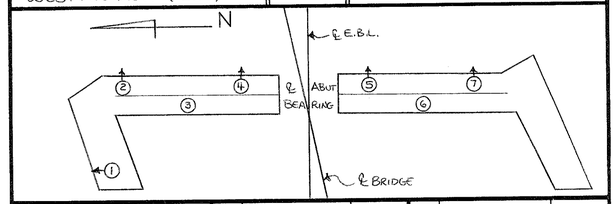
FOUNDATION NUMBER	PILING LOG	KIND OF PILING
EAST ABUTMENT (WBL)		HP10x42 STEEL



PILE NO.	LENGTH IN STRUCTURE	BEARING (in Tons)	PILE NO.	LENGTH IN STRUCTURE	BEARING (in Tons)	PILE NO.	LENGTH IN STRUCTURE	BEARING (in Tons)
1B	36.8	78						
2B	36.4	78						
3	38.8	78						
4B	37.4	78						
5B	30.7	78						
6	27.7	78						
7B	30.0	78						

Form 520005
12-88

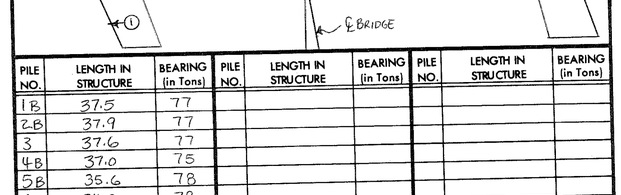
FOUNDATION NUMBER	PILING LOG	KIND OF PILING
WEST ABUTMENT (EBL)		HP10x42 STEEL



PILE NO.	LENGTH IN STRUCTURE	BEARING (in Tons)	PILE NO.	LENGTH IN STRUCTURE	BEARING (in Tons)	PILE NO.	LENGTH IN STRUCTURE	BEARING (in Tons)
1B	35.1	78						
2B	37.4	78						
3	35.4	78						
4B	35.5	78						
5B	33.2	78						
6	33.1	78						
7B	33.9	78						

Form 520005
12-88

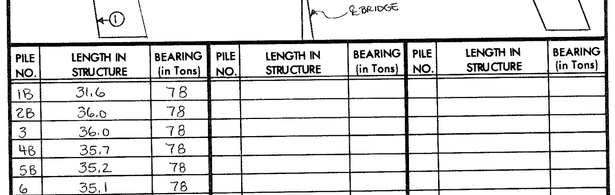
FOUNDATION NUMBER	PILING LOG	KIND OF PILING
EAST ABUTMENT (E.B.L.)		HP 10x42 STEEL



PILE NO.	LENGTH IN STRUCTURE	BEARING (in Tons)	PILE NO.	LENGTH IN STRUCTURE	BEARING (in Tons)	PILE NO.	LENGTH IN STRUCTURE	BEARING (in Tons)
1B	37.5	77						
2B	37.9	77						
3	37.6	77						
4B	37.0	75						
5B	35.6	78						
6	34.8	78						
7B	35.4	78						

Form 520005
12-88

FOUNDATION NUMBER	PILING LOG	KIND OF PILING
WEST ABUTMENT (WBL)		HP 10x42 STEEL



PILE NO.	LENGTH IN STRUCTURE	BEARING (in Tons)	PILE NO.	LENGTH IN STRUCTURE	BEARING (in Tons)	PILE NO.	LENGTH IN STRUCTURE	BEARING (in Tons)
1B	31.6	78						
2B	36.0	78						
3	36.0	78						
4B	35.7	78						
5B	35.2	78						
6	35.1	78						
7B	36.0	78						

COUNTY

PROJECT NUMBER

STATE	FED. ROAD DIST. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	5		43A	