BRIDGE WIDENING

IR-80-5(148)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

IOWA

DEPARTMENT OF TRANSPORTATION

Highway Division

PLANS OF PROPOSED IMPROVEMENTS ON THE

INTERSTATE ROAD SYSTEM

POLK COUNTY

BRIDGE WIDENING

ON I-80

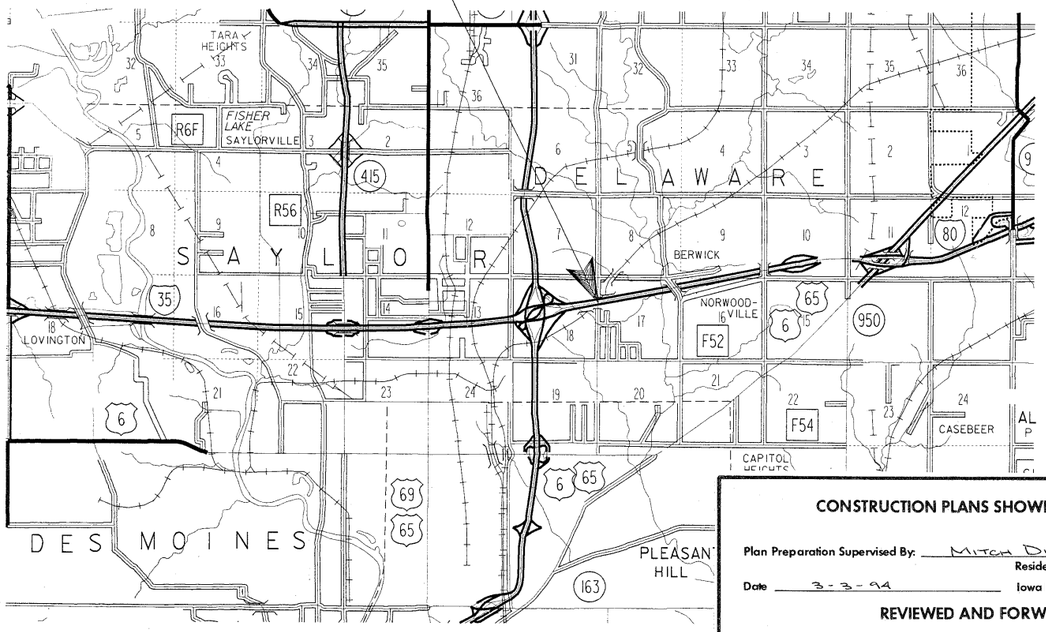
OVER CNW RAILROAD & N.E.29TH STREET

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)

DESIGN NO. 1391



LOCATION MAP SCALE

0 1 2 3 Miles

920 114
008649
044
SJF

THIS AS BUILT PLAN INCLUDES			
YEAR	WORK	CONTRACTOR	PROJ. INSPECTOR
1992	BRIDGE WIDENING	CRAMER & ASSOC., INC.	DON MEEKER

CORRECTED by: JON ALLEN
CHECKED by: Debbie Fink

STATE	FHWA REGION	F.Y.	SHEET	TOTAL
IOWA	7		1	57

PROJECT NUMBER
IR-80-5(148)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 AND EXTRA WORK ORDERS
3-42	BRIDGE DESIGN NO. 1391
43-57	ROAD SHEETS
22, 22A & 22B	PILING LOGS

7738.7R080
7738.7L080

175

Copied for circ
6-2-93
SDP

STANDARD ROAD PLANS			
IDENT	DATE	IDENT	DATE
RC-8	11-10-87	RE-48A	8-20-85
RC-9	12-17-76	RE-52	8-8-89
RC-16	10-2-90	RE-53	10-11-88
RE-2A	2-17-87	RE-65	1-7-92
RE-2B	10-2-90	RE-68	8-8-89
RE-7	10-2-90	RE-69	8-8-89
RE-12A	10-11-88	RL-11	10-11-88
RE-12B	10-9-90	RS-2	7-16-91
RE-12C	11-15-88	RS-3	11-15-88
RE-47	11-10-87	RM-2A	11-24-72
		RM-17	5-18-73
		RF-1	9-3-76
		RM-12	11-19-71

STANDARD BRIDGE PLANS		
STANDARD	ISSUED	REVISED

CONSTRUCTION PLANS SHOWING PROJECT AS BUILT

Plan Preparation Supervised By: MITCH DILLAVOU
Resident Construction Engineer

Date 3-3-94 Iowa Reg. No. 12250

REVIEWED AND FORWARDED TO AMES

ROBERT YOUNIE
District Construction Engineer

Date 3/1/95

~~One 50% Reduced and Two~~ Full-Size Prints To Be Made and Returned To

KENNETH MEEKS
District Engineer

AFTER MICROFILMING RETURN ORIGINAL TO DISTRICT NO. 1

REVISIONS

Iowa Department of Transportation

AUTHORIZED FOR LETTING
George T. 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 Wendel Johnston
Iowa Registration No. 4316 Date 10/30/91

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
APPROVED

FOR THE DIVISION ADMINISTRATOR DATE

LETTING DATE 1-7-92 STATE CONTROL SECTION NUMBER 77-0300 STEVE 10-4-91 MIK FILE NO. 28266 POLK COUNTY PROJECT NO. IR-80-5(148)137--12-77 SHEET NO. 1

ESTIMATE REFERENCE INFORMATION

IR-80-5(148)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. 5 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. 4 for details and locations.
B.	Class 13 material includes rolled stone base, granular subbase and subgrade materials.
C.	One hundred and forty six tons or approximately 77 cu. yds. of rolled stone base and granular subbase components will be reincorporated into the project as special backfill.
D.	Remoining Class 13 material that is not reincorporated as special backfill material will be reincorporated into the project in areas requiring Class 10 fill material.
E.	In all cases, the rolled stone base and granular subbase components will be buried under pavement, edge treatment fillet or a minimum of 8" of subgrade material.
F.	No payment for overhaul will be allowed.
3A.	See Tab. 110-1 for locations and details.
B.	All removed pavement will be converted for use as special backfill.
C.	Saw cut requirements will be incidental to this bid item.
4-7A.	See Road Typ. 1 and Road Typ. 2 for details and locations.
B.	Use only AC-20.
8.	See "Guardrail Layout Schematic Eastbound Outside Shoulder" and Road Typ. 3 for details and locations.
9A.	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 50 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.
10.	See Road Tab. 3 and detail drawing 7145 for details and locations.
11.	See Road Tab. 4 and Road Typ. 3 for details and locations.
12.	See Tab. 108-19, Tab. 108-8A, Road Tab. 4, "Guardrail Layout Schematic Eastbound Outside Shoulder" and "Details of Guardrail Between Dual Bridges" for details and locations.
13.	See Tab. 108-19, Tab. 108-8A and "Details of Guardrail Between Dual Bridges" for details and locations.
14.	See Road Tab. 4 and "Guardrail Layout Schematic Eastbound Outside Shoudler" for details and locations.
15A.	See Tab. 110-7 and Road Tab. 4 for details and lcoations.
B.	The stockpile location shall be within the limits of the Des Moines North Maintenance Facility. The stockpile must be neatly made in such a way that will require the approval of the maintenance engineer. The exact location of stockpiling will require the approval of the maintenance engineer.
16.	See Tab. 108-19, Tab. 108-8A and "Details of Guardrail Between Dual Bridges" for details and locations.
17.	See Road Tab. 4, "Guardrail Layout Schematic Eastbound Outside Shoulder" and Road typ. 3 for details and locations.
18.	See Road Tab. 4 and "Guardrail Layout Schematic Eastbound Outside Shoulder" for details and locations.

ESTIMATE REFERENCE INFORMATION

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
19A.	See Tab. 110-7 and Road Tab. 4 for details and locations.
B.	The stockpile location shall be within the limits of the Des Moines North Maintenance Facility. The stockpile must be neatly made in such a way that will require the approval of the maintenance engineer. The exact location of stockpiling will require the approval of the maintenance engineer.
20A.	See Tab. 110-7 for details and locations.
B.	One RE-52 end anchorage will be removed for pay.
C.	End anchorage removal material will become the property of the contractor.
21.	See Tab. 108-8A for details and locations.
22.	See Tab. 108-8A, Tab. 108-19, Road Tab. 4, "Guardrail Layout Schematic Eastbound Outside Shoulder" and "Details of Guardrail Between Dual Bridges" for details and locations.
23.	See Tab. 108-19 and "Details of Guardrail Between Dual bridges" for details and locations.
24.	~~Eastbound milepost marker 139 will be removed and reinstalled~~.
25-26.	The stockpile location will be within the limits of the Des Moines North Maintenance Facility. The stockpile will be neatly made in such a way that will require the approval of the maintenance engineer. The exact location of stockpiling will require the approval of the maintenance engineer.
27.	See Tab. 108-17 for details and locations.
28.	See Tab. 108-17 and Road Typ. 5 for details and locations.
~~29.~~ 8002	See Road tab. 6 and Detail Drawing 9001 for details and locations.
30.	See Tab. 100-18 for details and locations.
32.	See Tab. 108-23A and the Traffic Control Layout Sheets included in this plan for details.
33.	See Detail Sheet 570-2 and appropriate Traffic Control Layout Sheets included in this plan for details and locations.

ESTIMATED PROJECT QUANTITIES

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

100-1A
07-16-91

NO.	ITEM	UNIT	TOTAL	AS BUILT QUAN.
1	Class 10 excavation, Roadway and Borrow	Cu.Yds.	197	197
2	Class 13 Excavation, Roadway and Borrow	Cu.Yds.	197	182.7
3	Removal of Pavement	Sq.Yds.	378	370.2
4	Asphalt Cement Concrete, Type "B", Class 1, Base	Tons	295	261.67
5	Asphalt Cement Concrete, type "A" Surface Course ¾" Mix	Tons	61	77.44
6	Primer or Tack Coat Bitumen	Gal.	83	65.2
7	Asphalt Cement	Tons	21	17.61
8	Earth Shoulder Finishing	Stas.	77.5	1.19
9	Special Backfill	Tons	192	173.75
10	Aggregate for Paved Shoulder Fillets	Tons	95	21.85
11	Erosion Stone	Tons	66	64.57
12	Formed Steel Thrie Beam Guardrail	Lin.Ft.	187.5	187.5
13	Formed Steel Beam Guardrail	Lin.Ft.	275	255.5
14	Formed Steel Beam Guardrail, Remove and Reinstall	Lin.Ft.	121	110.0
15	Remove and Stockpile formed Steel Beam Guardrail	Lin.Ft.	485	485.0
16	Beam Guardrail Posts, (Timber)	No.	71	69
17	Beam Guardrail Posts, Steel	No.	16	16
18	(Beam Guardrail) Posts, (Steel) Remove and Reinstall	No.	9	7
19	Remove and Stockpile (Guardrail) Posts	No.	97	97
20	Removal of Guardrail End Anchorages	No.	1	5
21	RE-52 Beam Guardrail End Anchorages	No.	1	1
22	RE-69 Beam Guardrail End Anchorages	No.	6	6
23	RE-53 Beam Guardrail End Anchorages	No.	2	2
~~24~~	~~Remove and Reinstall Milepost Markers~~	~~No.~~	~~1~~	0
25	Remove and Stockpile Delineators	No.	17	11
26	Remove and stockpile Object Markers	No.	4	4
27	Type 3 Object Markers	No.	4	4
28	Single White Delineators	No.	1	1
~~29~~	~~Pavement Markings~~	~~Stas.~~	~~117.10~~	0
30	Silt Fence for Ditch Checks	Lin.Ft.	30	34.8
~~31~~	~~Samples~~	~~Lump Sum~~	~~Lump Sum~~	0
32	Traffic Control	LumpSum	Lump Sum	$8004.18
33	Temporary floodlighting	LumpSum	Lump Sum	$3000.00

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

DESIGN NO. 1391
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(148)137--12-77	IOWA	7		2	51

TOTAL ESTIMATED BRIDGE QUANTITIES (BOTH BRIDGES)

ITEM NO.	ITEM		UNIT	4 ABUTMENTS	9 PIERS	2 SUPERSTRUCTURES	TOTAL
~~1~~ 34	STRUCTURAL CONCRETE		CU. YD.	100.3	316.5	444.4	861.2
~~2~~ 35	STRUCTURAL STEEL		LBS.	———	———	8025	8025
~~3~~ 36	REINFORCING STEEL		LBS.	6644	46212	4858	57714
~~4~~ 37	REINFORCING STEEL-EPOXY COATED		LBS.	5656	24275	107086	137017
~~5~~ 38	HP10x42 STEEL BEARING PILING, FURNISH		LIN. FT.	———	21 @ 28'; 24 @ 30' & 27 @ 32'	———	~~2160~~ 2211.8
~~6~~ 39	HP10x42 STEEL BEARING PILING, DRIVE		LIN. FT.	———	21 @ 28'; 24 @ 30' & 27 @ 32'	———	~~2160~~ 2132.4
~~7~~ 40	CREOSOTED PILING, FURNISH		LIN. FT.	16 @ 35'	———	———	~~560~~ 502.3
~~8~~ 41	CREOSOTED PILING, DRIVE		LIN. FT.	16 @ 35'	———	———	~~560~~ 330.0
~~9~~ 42	CONCRETE BARRIER RAIL		LIN. FT.	———	———	———	1267.2
~~10~~ 43	SUBDRAIN AS PER PLAN		LIN. FT.	~~296~~ 316.0	———	———	~~296~~ 316.0
~~11~~ 44	STEEL EXTRUSION JOINT WITH NEOPRENE		LIN. FT.	———	———	96	96
~~12~~ 45	CLASS 20 EXCAVATION		CU. YD.	225	464	———	689
~~13~~ 46	GRANULAR BACKFILL		TONS	175	———	———	175
~~14~~ 47	PRETENSIONED PRESTRESSED CONCRETE BEAMS	LXB42	NO.	———	———	8	8
~~15~~ 48		LXB46	NO.	———	———	8	8
~~16~~ 49		LXB50	NO.	———	———	4	4
~~17~~ 50		LXB55	NO.	———	———	8	8
~~18~~ 51		LXB59	NO.	———	———	8	8
~~19~~ 52		LXB63	NO.	———	———	8	8
~~20~~ 53	CONCRETE SEALER AS PER PLAN		SQ. FT.	~~241~~ 245.0	———	———	~~241~~ 245.0
~~21~~ 54	2"Φ RIGID STEEL CONDUIT		LIN. FT.	———	———	———	336
~~22~~ 55	REMOVALS - AS PER PLAN		L.S.	———	———	———	$65000.00
~~23~~ 56	CONCRETE REPAIRS		SQ.FT.	———	———	———	~~15~~ 34.38
~~24~~ 57	TEMPORARY BARRIER RAIL - FURNISH ONLY		LIN. FT.	———	———	———	60
~~25~~ 58	TEMPORARY BARRIER RAIL - PLACE ONLY		LIN. FT.	———	———	———	3060
~~26~~	~~ON-LY~~			———	———	———	
~~27~~ 59	HANDHOLE, RM-17		NO.	———	———	———	~~2~~ 1
~~28~~ 60	CONNECTOR, RM-12		NO.	———	———	———	4
~~29~~ 61	CONDUIT, PLASTIC, 2" DIA.		LIN. FT.	———	———	———	~~30~~ 43.0
~~30~~ ~~62~~	~~CABLE, 1/C, NO. 8 AWG, 600 VOLT~~		~~LIN. FT.~~	———	———	———	~~730~~ 0
~~31~~ 63	GROUNDWIRE, NO. 6 AWG, BARE COPPER		LIN. FT.	———	———	———	~~365~~ 387.8
64	FLAGGERS		DAYS	———	———	———	25.5
65	MOBILIZATION		L.S.	———	———	———	$10500.00

ITEM NO. — ESTIMATE REFERENCE INFORMATION

34 ~~1~~ — INCLUDES COST OF ALL PREFORMED EXPANSION JOINT FILLER REQUIRED.

37 ~~4~~ — INCLUDES 102752 LIN. FT. OF NO. 5 BAR
5024 LIN. FT. OF NO. 6 BAR
4199 LIN. FT. OF NO. 11 BAR

43 ~~10~~ — INCLUDES THE EXCAVATION NECESSARY FOR THE SUBDRAIN INSTALLATION AND THE COST OF 35 TONS OF POROUS BACKFILL.

44 ~~11~~ — INCLUDES ALL NECESSARY HARDWARE AND ACCESSORIES INCLUDING THE ANCHORAGE SYSTEM, TEMPORARY ERECTION MATERIAL AND THE ⅜" CURB PLATES WITH THEIR ANCHORAGE SYSTEMS.

~~14~~ 47 THRU ~~19~~ 52 — INCLUDES COST OF ANCHORED CURVED SOLE PLATES.

57 ~~24~~ — INCLUDES 6 - 10' CONCRETE BARRIER RAIL TAPER SECTIONS, AND COST ASSOCIATED WITH TIE DOWN STRAPS, ANCHORS AND REFLECTORS.

58 ~~25~~ — ALL TEMPORARY BARRIER RAIL SHALL BE NOMINAL 10' LONG CONCRETE UNITS.

59 ~~27~~ — ~~ALL~~ HANDHOLE #1 TO BE TYPE I.
8007 HANDHOLE #2 EXTENDED & U.A.C.

60 ~~28~~ — ALL CONNECTORS TO BE TYPE L-2.

59-63 ~~27-31~~ — INCLUDES TEMPORARY CIRCUIT DURING CONSTRUCTION.

8009 ~~29~~ — FOR CONNECTIONS BETWEEN THE HANDHOLES AND THE BRIDGE DUCTWORK.

Form 520004
12-88

EXTRA WORK ORDERS

NO.	DESCRIPTION	UNIT	TOTAL
8001	SPLICE, PILE	ONLY	13
8002	PAVEMENT MARKINGS	STA.	261.06
8003	SUBDRAIN, 8 IN.	L.F.	49.0
8004	FLOODLIGHT POLE HOLES, REDRILL	L.S.	$100.00
8005	TRAFFIC CONTROL DEVICES, WASH	hrs.	2.0
8006	REMOVE AND REINSTALL RE-33 END ANCHOR	L.S.	$1200.00
8007	HANDHOLE, ADJUST	L.S.	$400.00
8008	BRIDGE DRAIN, ADJUST	ONLY	17
8009	CABLE, 1/C NO.4 AWG 600V	L.F.	775.6
8010	BRIDGE DECK, CURE	L.S.	$1482.40
8011	PAYMENT FOR PROTECTION OF STRUCTURAL CONCRETE	C.Y.	268.9
8012	PAYMENT FOR HEATED MATERIALS, P.C.C.	C.Y.	268.9
8999	STOCKPILED MATERIALS	L.S.	0

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

10-30-91 (DATE) — LeRoy Phillips (LEROY PHILLIPS) — REG. NO. 4138

TRAFFIC CONTROL PLAN
E.29TH ST. AND I-80

NOTE: THE ROADWAYS WILL BE OPEN TO THRU TRAFFIC. REFER TO THE TRAFFIC CONTROL PLAN IN THESE PLANS.

NOTE:
ROADWAY QUANTITIES SHOWN ELSEWHERE IN THESE PLANS.

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 34.
STRUCTURAL STEEL IN ACCORDANCE WITH SECTION 10. ASTM A-36.

DESIGN FOR WIDENING EXISTING
315'-5x42' & 280'-0x42' PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGES
TO
56' ROADWAY BRIDGES
BRIDGE QUANTITIES

STA. 1131+87.84 ℄ I-80 — FRA X-ING # 192659V — OCT. 1991
STA. 20+00 ℄ E. 29TH ST. — IOWA X-ING # 4521

POLK COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 1 OF 40 — FILE NO. 28266 — DESIGN NO. 1391

DESIGNED BY LeRoy Ornberg — TRACED BY DOUG WARRINGS
DETAILED BY DOUG WARRINGS — CHECKED BY J. McPherson
SECTION LEADER ———

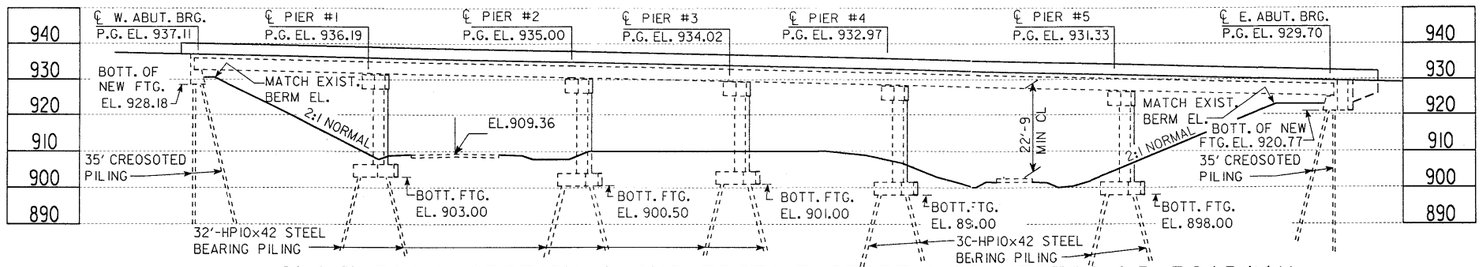
POLK COUNTY — PROJECT NUMBER — IR-80-5 (148) 137--12-77

STATE	FHWA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	7		3	57

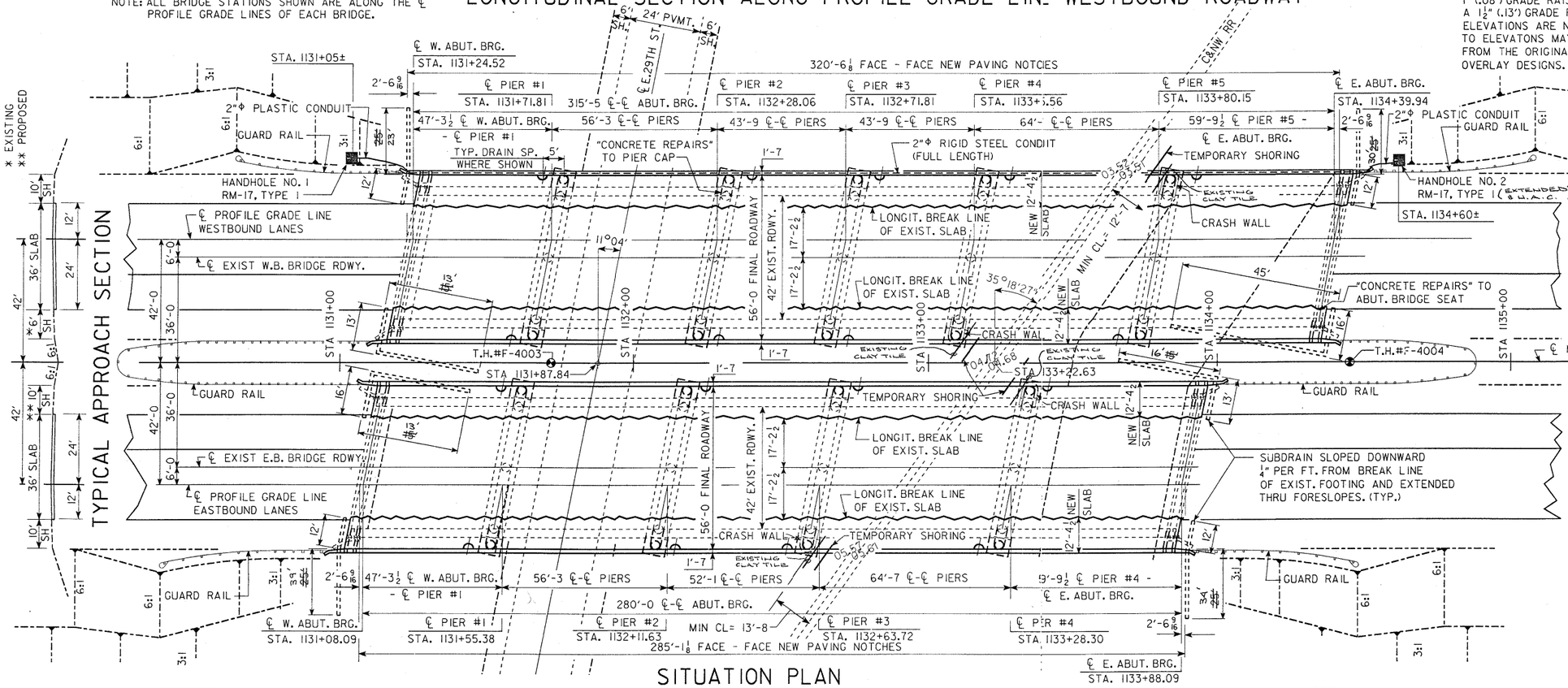
H77139100.S17 — DEVICE : ZHAO:(200,004) ARCH. TAPE NO. ——— DATE———

HFRONTSHT.S01

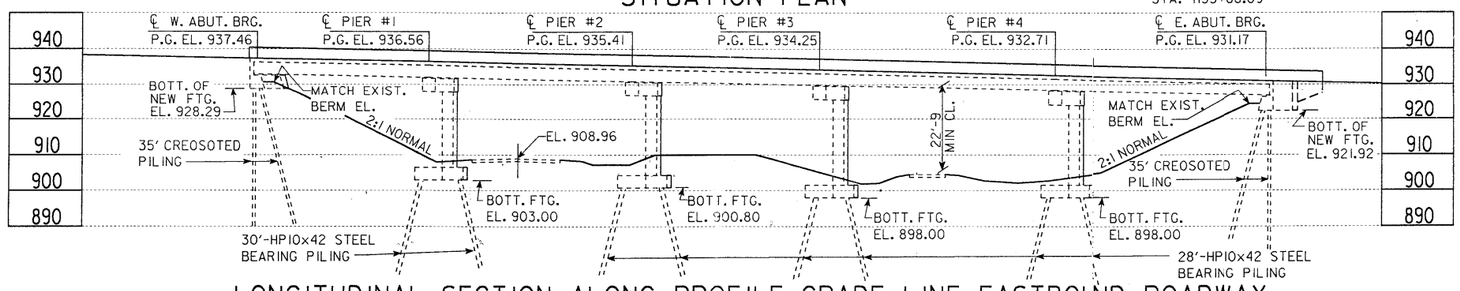
~~BENCH MARK FROM ORIGINAL DESIGN PLANS — BM #187 STA 1133+46 - 60' RT RR SPK IN N SIDE POLE WEST OF EAST 29TH ST - ELEV=918.56~~
I.D.O.T. PLUG S.E. COR. BR. ON HANDRAIL I-80 W.B. OVER E. 29TH ST. - ELEV.= 931.21



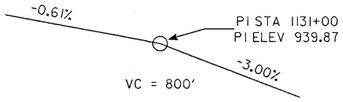
LONGITUDINAL SECTION ALONG PROFILE GRADE LINE WESTBOUND ROADWAY



SITUATION PLAN



LONGITUDINAL SECTION ALONG PROFILE GRADE LINE EASTBOUND ROADWAY



ORIGINAL PROFILE GRADE ON I-80

NOTE:
PROFILE GRADE ELEVATIONS SHOWN ARE THE EXISTING THEORETICAL GRADE ELEVATIONS BASED ON THE ORIGINAL DESIGN PLANS PLUS A 1" (.08') GRADE RAISE ON THE W.B. BRIDGE FOR OVERLAY, AND A 1½" (.13') GRADE RAISE ON THE E.B. BRIDGE FOR OVERLAY. THESE ELEVATIONS ARE NOT GUARANTEED FOR CONSTRUCTION. ADJUSTMENTS TO ELEVATONS MAY BE REQUIRED IF "AS BUILT" ELEVATIONS VARY FROM THE ORIGINAL GRADE DATA AND SURFACE RAISES SHOWN ON OVERLAY DESIGNS.

NOTE:
9 FLOOR DRAINS ARE REQUIRED FOR THE WESTBOUND BRIDGE, AND 8 FLOOR DRAINS ARE REQUIRED FOR THE EASTBOUND BRIDGE.

TRAFFIC COUNT:

1990 ADT = 31,000 VPD
(21% TRUCKS)

N

LOCATION

I-80 OVER C & NW RR
AND E29th St.
T 79 N R 23 W
SECTION 17/18
DELAWARE TOWNSHIP
POLK COUNTY
W.B. BRIDGE MAINT. NO. 7738.7L080
E.B. BRIDGE MAINT. NO. 7738.7R080

DESIGN HISTORY AT THIS SITE	
DES. NO.	TYPE OF WORK
4658	ORIGINAL DESIGN
474	OVERLAY - W. B. BRIDGE
3477	OVERLAY - E.B. BRIDGE, CONCRETE BARRIER RAILS E.B. & W.B. BRIDGES
1391	WIDENING

DESIGN FOR WIDENING EXISTING
315'-5x42' & 280'-0x42' PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGES
TO
56' ROADWAY BRIDGES
SITUATION PLAN

STA. 1131+87.84 ℄ I-80 — FRA X-ING # 192659V
STA. 20+00 ℄ E. 29TH ST. — IOWA X-ING # 4521
OCT. 1991

POLK COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 2 OF 40 — FILE NO. 28266 — DESIGN NO. 1391

DESIGNED BY LeRoy Ornberg — TRACED BY DOUG WARRINGS
DETAILED BY DOUG WARRINGS — CHECKED BY J. McGrane

POLK COUNTY — PROJECT NUMBER

STATE	FHWA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	7		4	57

H77139100.S15 — DEVICE : ZHAO:(200,004) ARCH. TAPE NO. _____ DATE_____

GENERAL NOTES:

IT IS THE INTENT OF THIS DESIGN TO WIDEN THE ROADWAYS OF THE EXISTING 315'-5 AND 280'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGES FROM 42' TO 56'. THESE BRIDGES WERE BUILT UNDER ORIGINAL DES. NO. 4658 POLK COUNTY. THE WESTBOUND BRIDGE WAS OVERLAYED UNDER DES. NO. 474 POLK COUNTY. THE EASTBOUND BRIDGE WAS OVERLAYED UNDER DES. NO. 3477 POLK COUNTY, AND BOTH OF THE BRIDGES RECEIVED CONCRETE BARRIER RAILS UNDER THIS SAME DESIGN NUMBER. 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. 4658 POLK COUNTY, AND OVERLAY DESIGN NUMBERS 474 AND 3477 POLK COUNTY.

ELEVATIONS SHOWN ON THESE PLANS ARE BASED ON THE ORIGINAL DESIGN PLANS AND GRADE DATA PLUS A 1" GRADE RAISE ON THE WESTBOUND BRIDGE FOR OVERLAY, AND A $1\frac{1}{2}$" GRADE RAISE ON THE EASTBOUND 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.

THE WIDENED PORTIONS OF THE BRIDGES ARE DESIGNED FOR HS20-44 LOADING AND ALTERNATE MILITARY LOADING.

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 THESE PLANS.

EXISTING ROADWAY OF EAST 29TH ST. WILL REMAIN OPEN TO TRAFFIC DURING CONSTRUCTION OF THE BRIDGE WIDENINGS, HOWEVER, TRAFFIC THROUGH THE WORK AREA WILL BE RESTRICTED OR HALTED DURING THE TIME REQUIRED TO REMOVE EXISTING BEAMS AND ERECT NEW BEAMS WHICH SPAN EAST 29TH ST., AND AT OTHER TIMES IF SO DIRECTED BY THE ENGINEER. SEE "TRAFFIC CONTROL PLAN" (TAB 108-23A) IN THESE PLANS FOR ADDITIONAL INFORMATION.

THE TEMPORARY BARRIER RAIL AS SHOWN ON DES. SH. 9 SHALL BE PLACED PRIOR TO THE START OF ANY WORK ON THE PIERS ADJACENT TO E29TH ST., AND SHALL NOT BE REMOVED UNTIL ALL WORK IN THE ADJACENT WORK AREAS INCLUDING RE-INSTALLATION OF THE GUARDRAILS ALONG E29TH ST. HAS BEEN COMPLETED. THE EXISTING GUARDRAIL ALONG E29TH ST. SHALL BE REMOVED, STOCKPILED, AND REINSTALLED BY THE CONTRACTOR. COST OF REMOVING, STOCKPILING, AND REINSTALLING OF THE EXISTING GUARDRAIL IS TO BE CONSIDERED INCIDENTAL TO OTHER CONSTRUCTION.

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 CONTRACTOR SHALL WORK IN SUCH A MANNER THAT EQUIPMENT AND MATERIALS SHALL NOT BE ALLOWED TO FALL ON PORTIONS OF LAND OR RAILROAD TRACKS THAT MIGHT ENDANGER PROPERTY AND LIFE. PLANS SHOWING PROCEDURE FOR PROTECTING THE AREA BENEATH THE BRIDGE DURING CONCRETE REMOVALS SHALL BE SUBMITTED BY THE CONTRACTOR TO THE ENGINEER FOR APPROVAL. COST OF ITEMS REQUIRED TO PROTECT PROPERTY AND LIFE IS TO BE CONSIDERED INCIDENTAL.

A 22'-9 MINIMUM VERTICAL CLEARANCE OVER THE RAILROAD TRACKS SHALL BE MAINTAINED DURING CONSTRUCTION UNLESS THE CONTRACTOR OBTAINS APPROVAL FROM THE RAILROAD FOR A LESSER CLEARANCE.

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 AND PIERS 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 ABUTMENT AND PIER FOOTINGS.

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. I.D.O.T. MAINTENANCE YARD IN CLIVE. THE PRICE BID FOR "TEMPORARY BARRIER RAIL - PLACE" SHALL INCLUDE ALL COSTS INVOLVED FOR HAULING THE TEMPORARY BARRIER RAILS FROM THE MAINTENANCE YARD TO THE JOB SITE AND RETURNING THEM UPON COMPLETION OF THE PROJECT. 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 DES. SH. 11 FOR " STORAGE PLAN FOR BARRIER RAIL". 171 BARRIER RAIL UNITS ARE TO BE PICKED UP AND RETURNED TO THE MAINTENANCE YARD.

GENERAL NOTES CONT.

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 "CONCRETE REPAIRS" IS TO INCLUDE ALL COSTS OF EQUIPMENT AND MATERIALS REQUIRED TO REPAIR THE BOTTOM OF PIER CAP AT PIER #2 WESTBOUND BRIDGE, AND THE EAST ABUTMENT BRIDGE SEAT OF THE WESTBOUND BRIDGE AS SHOWN IN THESE PLANS.

THE BID ITEM "STRUCTURAL STEEL" SHALL INCLUDE ALL COSTS ASSOCIATED WITH FURNISHING AND INSTALLING BEARINGS AT NEW BEAMS (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, CAST IN PLACE BARRIER RAIL, AND ALUMINUM HANDRAILS FROM EACH SIDE OF EACH BRIDGE.
2. THE EXTERIOR LINE OF PRESTRESSED BEAMS FROM EACH SIDE OF EACH BRIDGE (TOTAL OF 22 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. 4 & 5 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.

THE CONTRACTOR'S ATTENTION IS DRAWN TO THE FACT THAT THE EXISTING CONDUIT ON THE NORTH SIDE OF THE WESTBOUND BRIDGE IS IN SERVICE AND THIS SERVICE IS NOT TO BE INTERRUPTED. THE CONTRACTOR SHALL PLACE HANDHOLES 1 AND 2, AS DIRECTED BY THE ENGINEER FOR CONNECTIONS TO THE EXISTING SIGN LUMINAIRE SUPPLY CIRCUIT. CONTINUITY OF THE CIRCUIT SHALL BE MAINTAINED WITH TEMPORARY CONDUCTORS DURING THE BRIDGE CONSTRUCTION PERIOD, AS APPROVED BY THE ENGINEER. WHEN THE NEW BRIDGE DUCTWORK IS COMPLETE, THE CONTRACTOR SHALL INSTALL THE PERMANENT CIRCUIT CONSISTING OF 2, NO. 8 AWG PHASE LINES AND 1, NO. 6 A.W.G. GROUND WIRE. REFER TO SECTIONS 2523 AND 4185 OF THE STANDARD SPECIFICATIONS, AND STANDARD ROAD PLAN RM-2A.

THE CONTRACTOR SHALL SUBMIT SHORING PLANS FOR PIERS #4 AND #5 WESTBOUND BRIDGE, AND PIERS #3 AND #4 EASTBOUND BRIDGE AT THE LOCATIONS SHOWN ON THE "SITUATION PLAN" ON DES. SH. 2. THE SHORING SHALL BE DESIGNED BY A REGISTERED STRUCTURAL ENGINEER AND APPROVED BY THE STATE. THE STATE APPROVED SHORING PLANS SHALL THEN BE SUBMITTED TO THE C & NW RR FOR THEIR REVIEW AND APPROVAL. SHORING NEAR THE RAILROAD SHALL NOT BE HIGHER THAN THE RAILROAD TIES. NO CONSTRUCTION SHALL BEGIN ON THE PIER FOOTING LOCATIONS REQUIRING SHORING AS SHOWN ON DES. SH. 2 UNTIL THE RAILROAD HAS APPROVED THE SHORING. ALL COSTS FOR SHORING SHALL BE INCLUDED IN THE PRICE BID FOR "CLASS 20 EXCAVATION".

THE ESTIMATED TRAIN TRAFFIC AT THIS SITE IS TWO PER MONTH.

THE CONTRACTOR IS TO RETAIN EXISTING SHOULDERS ALONG E29TH ST., AND BERM FORESLOPES DURING EXCAVATION FOR NEW PIER FOOTINGS BY METHODS APPROVED BY THE ENGINEER. COSTS FOR RETAINING THE EARTH SHALL BE INCLUDED IN THE PRICE BID FOR "CLASS 20 EXCAVATION".

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, AND THE EXISTING BEARINGS OF THE EAST ABUTMENT OF THE WESTBOUND BRIDGE 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, AND NEW EXTRUSION JOINTS WILL BE PLACED WHICH WILL TIE TO THOSE PLACED UNDER THIS CONTRACT.

DESIGN FOR WIDENING EXISTING
315'-5x42' & 280'-0x42' PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGES
TO
56' ROADWAY BRIDGES
GENERAL NOTES

STA. 1131+87.84 ℄ I-80 FRA X-ING # 192659V OCT. 1991
STA. 20+00 ℄ E. 29TH ST. IOWA X-ING # 4521

POLK COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 3 OF 40 FILE NO. 28266 DESIGN NO. 1391

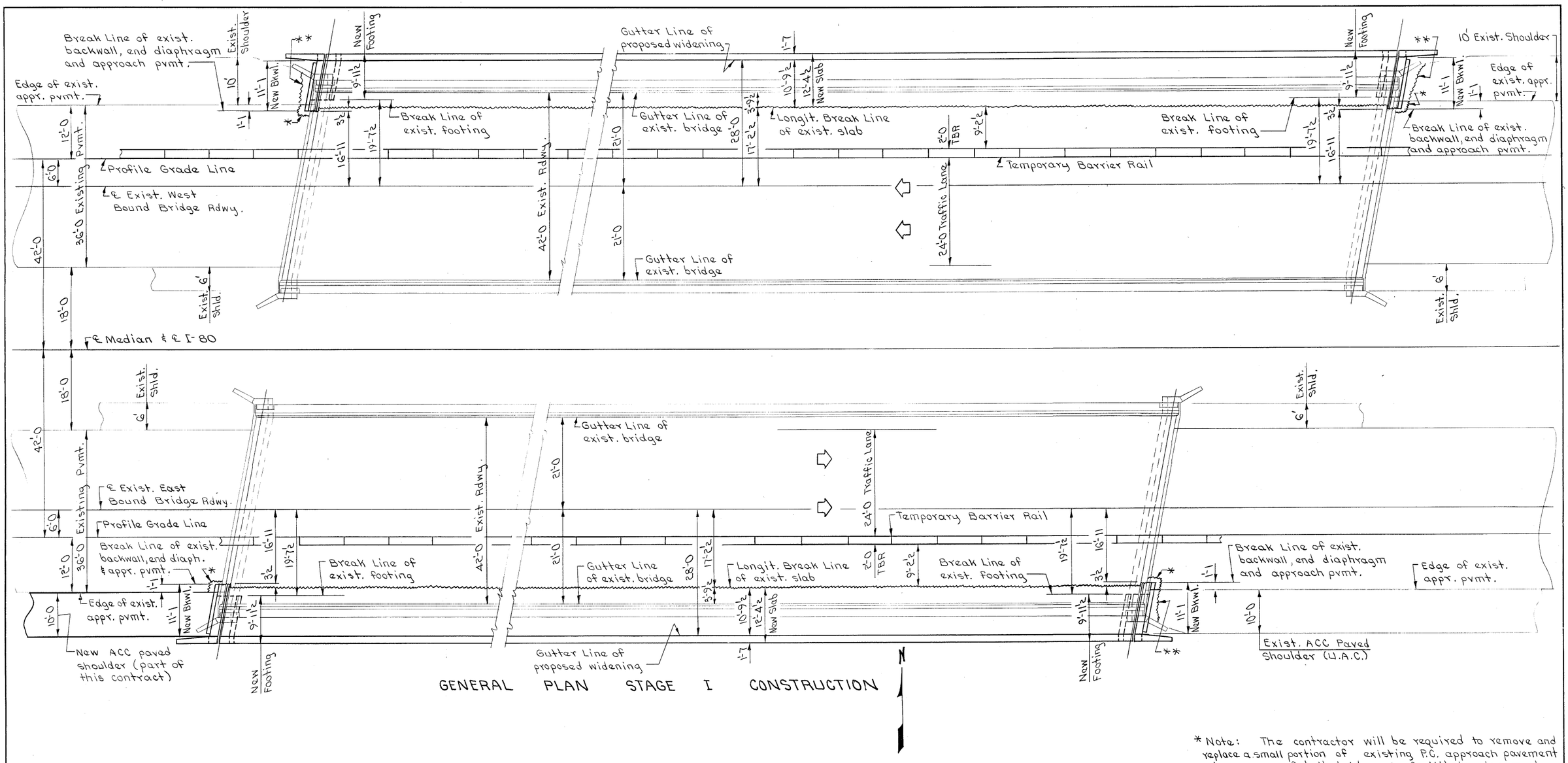
DESIGNED BY LeRoy Ornberg TRACED BY DOUG WARRINGS
DETAILED BY DOUG WARRINGS CHECKED BY J. Neidy Jr.

POLK COUNTY

PROJECT NUMBER

STATE	FHWA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	7		5	57

H77139100.S18 DEVICE : ZHAO:(200,004) ARCH. TAPE NO. _____ DATE_____



** 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 Existing
315'-5 x 42' & 280'-0 x 42' PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGES
To
56' ROADWAY BRIDGES
STAGING DETAILS

Sta. 1131+87.84 ℄ I-80 FRA X-ing # 192659V
Sta. 20+00 ℄ E. 29th St. Iowa X-ing # 4521
Oct. 1991

POLK COUNTY
IOWA DEPARTMENT OF TRANSPORTATION-HIGHWAY DIVISION

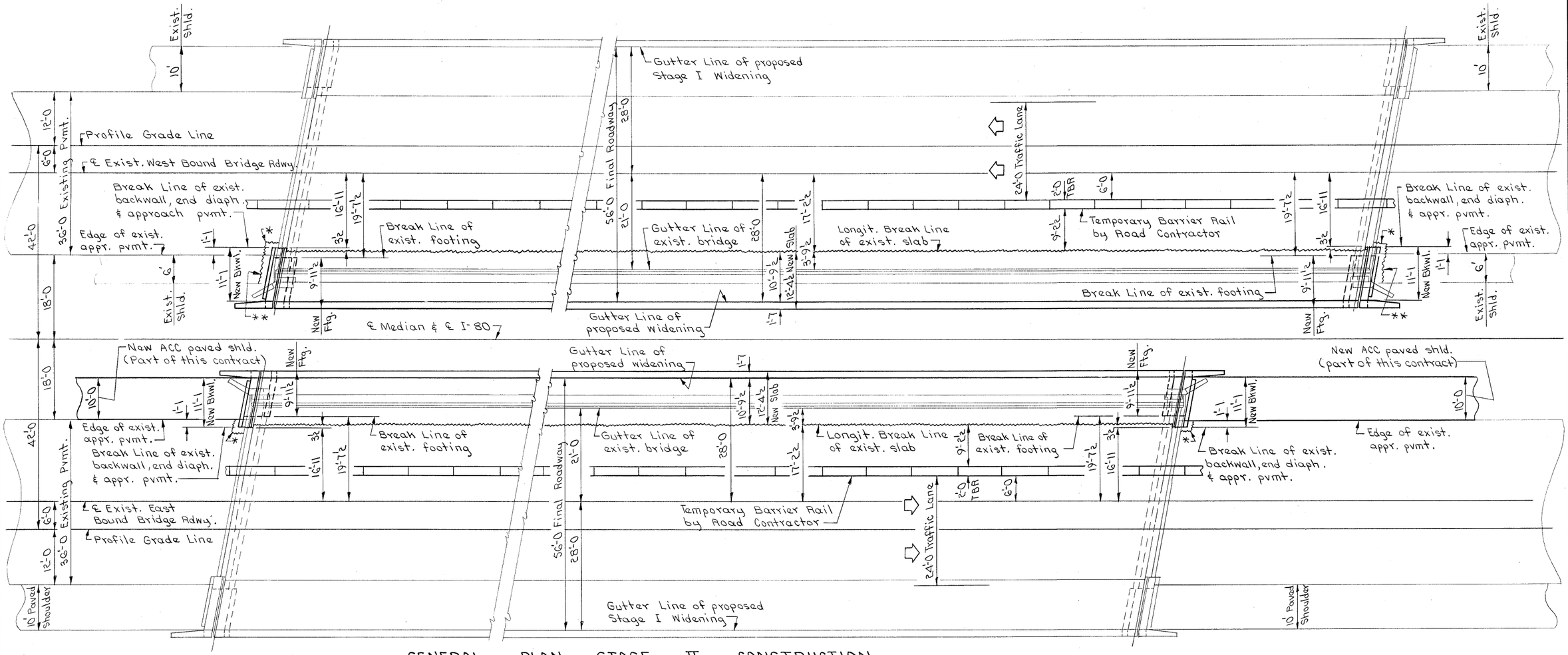
Design Sheet No.: 4 Of 40 File No.: 28266 Design No.: 1391

DESIGNED BY: LeRoy Ornberg TRACED BY: Doug Warning
DETAILED BY: Doug Warning CHECKED BY: J. Nicholson

POLK COUNTY

PROJECT NUMBER	STATE	FHWA Region	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	IOWA	7		6	57

652.19 BRIDGE WORK SHEET 000 2184MC
BRUNING



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.

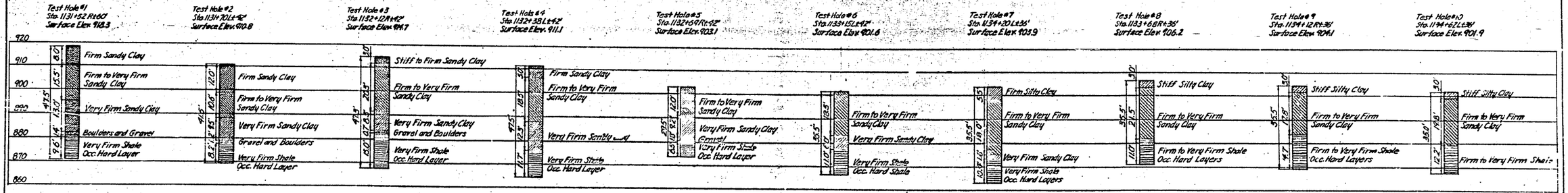
*Note: The contractor will be required to remove and replace a small portion of existing P.C. approach pavement at corners of both bridges to facilitate placement of the new portions of abutment backwalls. Removal and replacement of pavement shall be as directed by the engineer. Cost is to be considered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

Design for Widening Existing
315'-5×42" & 280'-0×42" PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGES
To
56' ROADWAY BRIDGES
STAGING DETAILS
Sta. 1131+87.84 ℄ I-80 FRA X-ing # 192659V Oct. 1991
Sta. 20+00 ℄ E. 29th St. Iowa X-ing # 4521
POLK COUNTY
IOWA DEPARTMENT OF TRANSPORTATION-HIGHWAY DIVISION
Design Sheet No.: 5 Of 40 File No.: 28266 Design No.: 1391

DESIGNED BY: LeRoy Ornberg TRACED BY: Doug Wanning
DETAILED BY: Doug Wanning CHECKED BY: J. Nicholson
POLK COUNTY

PROJECT NUMBER	STATE	FHWA Region	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	IOWA	7		7	57

BRUNING 65219 BRIDGE WORK SHEET 800 334-8444

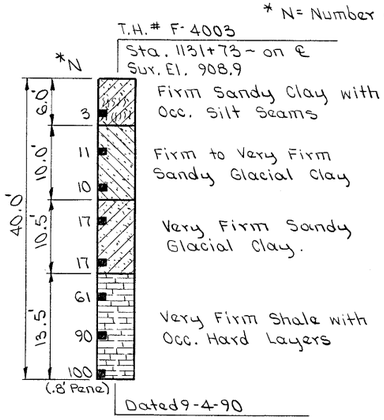


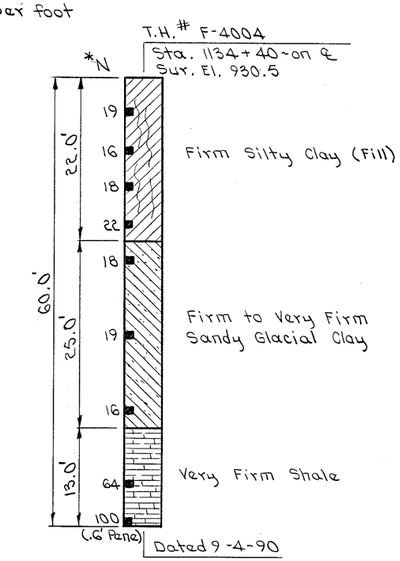
SOUNDING DATA
Scale: 1"=20'-0"
Dated: May 20, 1957

NOTE: The soundings shown above represent conditions in May 1957 ~ prior to construction of the approach fills and existing bridges (Design N⁰ 4658 Polk County). Sounding location is plotted off of ℄ I-80 & ℄ Median. See original "Situation Plan" on Des. Sh. 37 for location of above soundings.

Bench mark from original design plans = BM # 187 Sta. 1133+46 -- 60' Rt. RR Spk in N Side Pole West of East 29th St. -- Elev. = 918.56

* N = Number of blows per foot





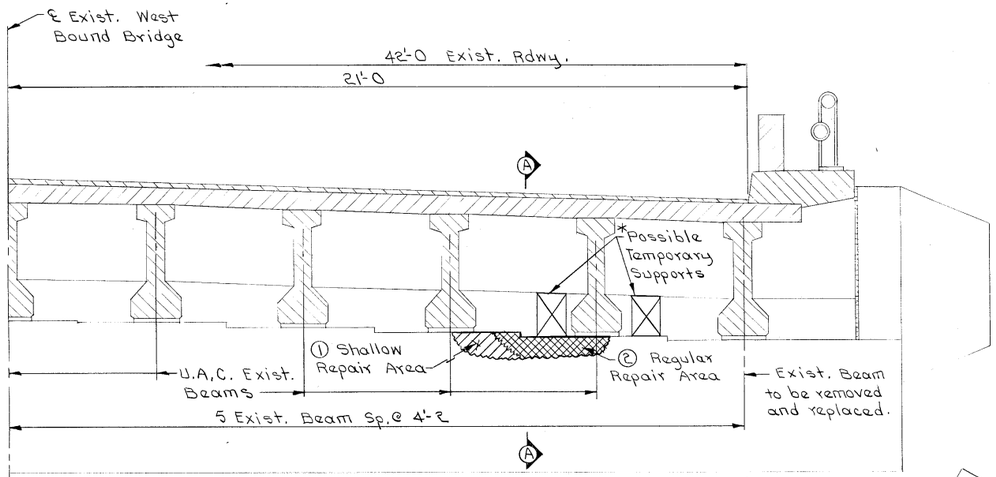
SOUNDING DATA
(The two soundings show above represent existing conditions. See "Situation Plan" on Des. Sh. 2 for location.)

Design for Widening Existing
315'-5"×42" & 280'-0"×42" PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGES
To
56' ROADWAY BRIDGES
SOUNDING DATA
Sta. 1131+87.84 ℄ I-80 FRA X-ing # 192659V
Sta. 20+00 ℄ E. 29th St. Iowa X-ing # 4521
Oct. 1991
POLK COUNTY
IOWA DEPARTMENT OF TRANSPORTATION-HIGHWAY DIVISION
Design Sheet No.: 6 Of 40 File No.: 28266 Design No.: 1391

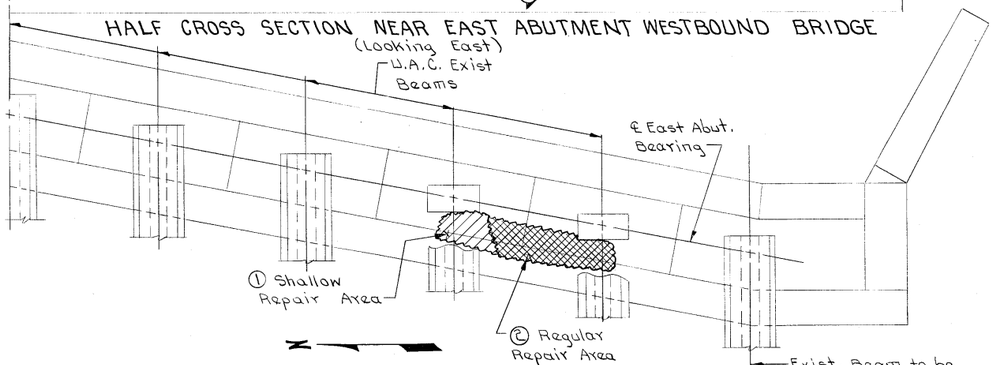
DESIGNED BY: LeRoy Ornberg
DETAILED BY: Don Wanner
TRACED BY: D. W.
CHECKED BY: J. V. & Supervisor

POLK COUNTY

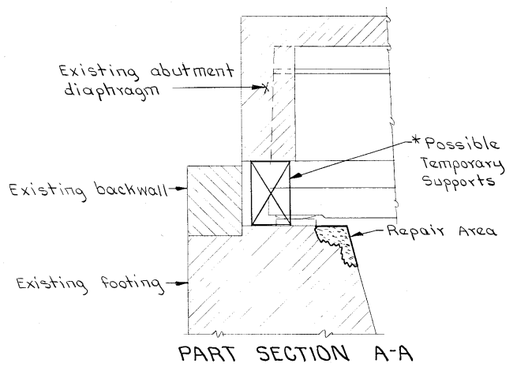
PROJECT NUMBER	STATE	FED. ROAD DIST. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	IOWA	5		8	57



HALF CROSS SECTION NEAR EAST ABUTMENT WESTBOUND BRIDGE



PART PLAN VIEW - EAST ABUTMENT - WESTBOUND BRIDGE



PART SECTION A-A

* NOTE:

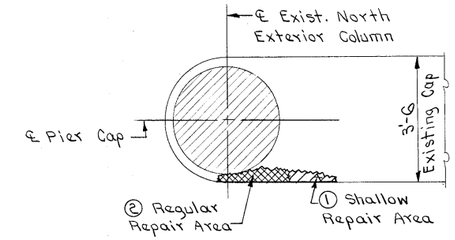
Place temporary blocking supports under the existing abutment diaphragms whenever removals may result in loss of bearing area. Loss of bearing area being defined as concrete spalled or unsound next to the Masonry Plate as shown, or beneath the Masonry Plate.

If the temporary supports will be required, the concrete repairs to the abutment bridge seat shall be accomplished before removal of the existing concrete diaphragm required for the bridge widening.

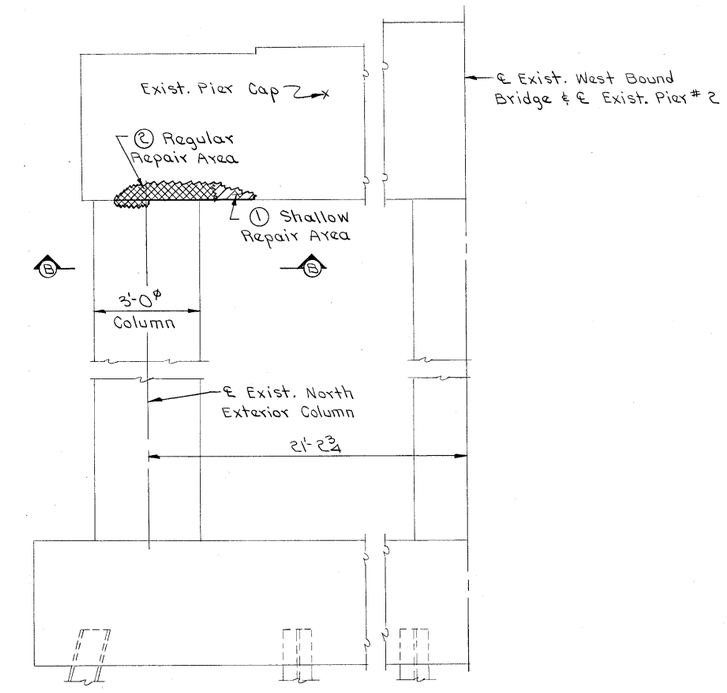
Repairs shall be made when traffic is shifted away from repair area.

Temporary supports shall have a minimum total capacity of 15 tons.

"CONCRETE REPAIRS" EAST ABUTMENT - WESTBOUND BRIDGE



PART SECTION B-B



PART ELEVATION VIEW - PIER # 2 - WESTBOUND BRIDGE
(Looking East)

"CONCRETE REPAIRS" PIER # 2 - WESTBOUND BRIDGE

Note:
See Des. Sh. 8 for additional "Concrete Repair" details.

Design for Widening Existing
315'-5×42" & 280'-0×42" PRETENSIONED
PRESTRESSED CONCRETE BEAM BRIDGES
To
56' ROADWAY BRIDGES
"CONCRETE REPAIR" DETAILS

Sta. 1131+87.84 ℄ I-80 FRA X-ing # 192659V Oct, 1991
Sta. 20+00 ℄ E. 29th. St. Iowa X-ing # 4521

POLK COUNTY
IOWA DEPARTMENT OF TRANSPORTATION-HIGHWAY DIVISION

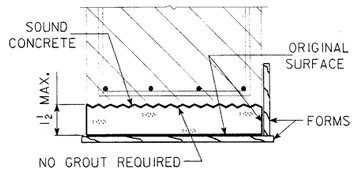
Design Sheet No.: 7 Of 40 File No.: 28266 Design No.: 1391

BRUNING 65219 BRUCE HOEK SHEET 000 31440

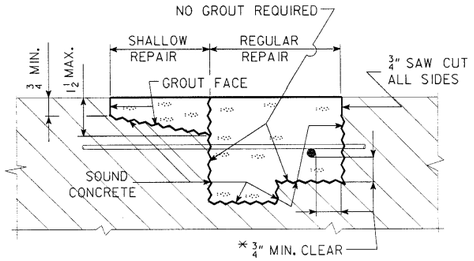
DESIGNED BY: LeRoy Ornberg
DETAILED BY: Doug Warning
TRACED BY: Doug Warning
CHECKED BY: J. D. Nielsen

POLK COUNTY

PROJECT NUMBER	STATE	FHWA Region	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	IOWA	7		9	57

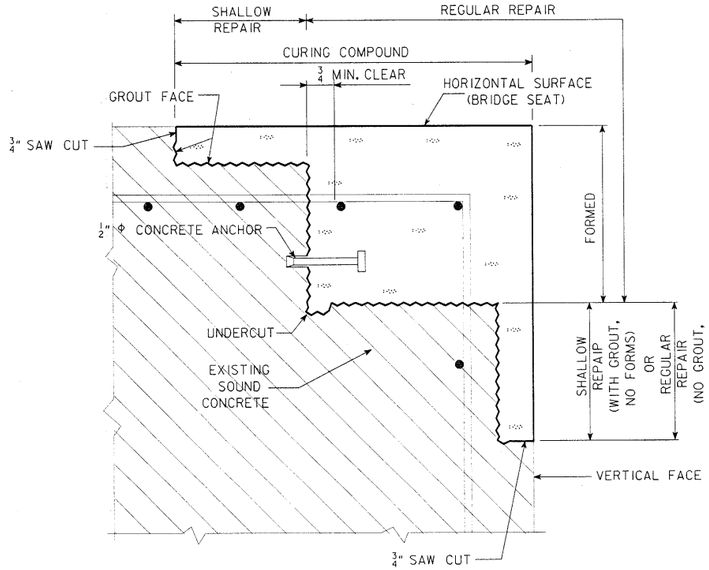


SHALLOW REPAIR BOTTOM SURFACE

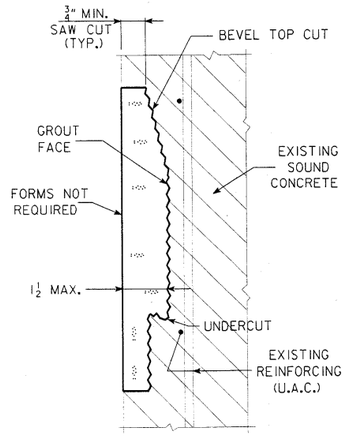


REPAIR DEFINITION

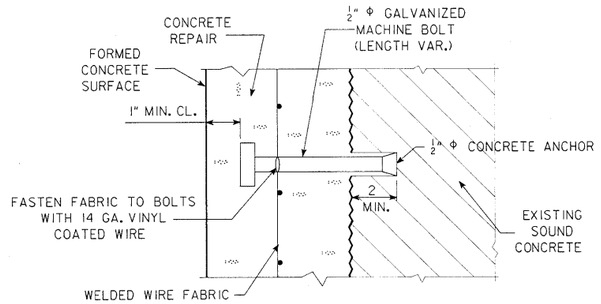
* INDICATES CLEARANCE FOR AN UN-BONDED REBAR.



CORNER REPAIR

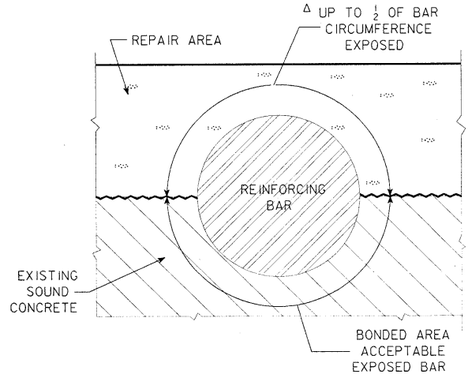


SHALLOW REPAIR VERTICAL FACE

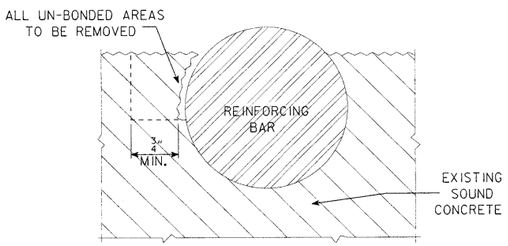


ANCHOR DETAIL

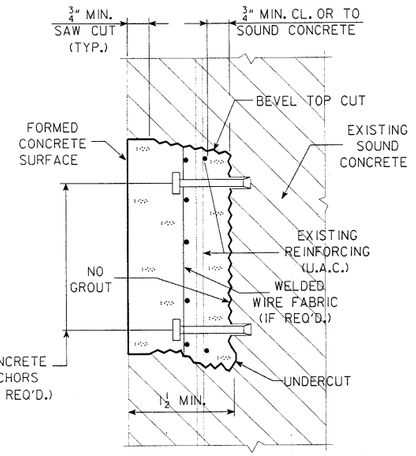
FOR SPACING AND USE OF CONCRETE ANCHORS AND WWF SEE THE STANDARD NOTES.



Δ IF MORE THAN ½ OF THE REBAR IS EXPOSED IT SHALL BE TREATED AS AN UN-BONDED REBAR.



CONCRETE REMOVAL ADJACENT TO REINFORCING



REGULAR REPAIR VERTICAL FACE

STANDARD NOTES:

THE SPALLED AND HOLLOW AREAS OF THIS BRIDGE AS NOTED AND SHOWN ON DES. SH. 7 SHALL BE REPAIRED AS FOLLOWS:

ALL THE COSTS OF EQUIPMENT AND MATERIALS REQUIRED TO REPAIR THE SPALLED AND HOLLOW AREAS AS NOTED SHALL BE INCLUDED IN THE PRICE BID FOR " CONCRETE REPAIRS".

THE PRICE BID FOR CONCRETE REPAIRS SHALL INCLUDE THE COST OF ALL CONCRETE ANCHORS AND MESH REQUIRED BY THE PLANS.

THE ENGINEER SHALL DETERMINE AND OUTLINE BY VISUAL AND AUDIBLE INSPECTION THE ACTUAL AREAS OF THE CONCRETE REPAIRS. THE CONTRACTOR SHALL BE PAID FOR THE ACTUAL AMOUNT OF REPAIRS MADE ON A SQUARE FOOT BASIS BASED ON THE PRICE BID PER SQUARE FOOT.

ALL EXISTING REINFORCING BARS THAT ARE EXPOSED BY CONCRETE REMOVAL SHALL BE CLEANED AND CAREFULLY INCORPORATED INTO THE NEW WORK, EXCEPT BADLY DETERIORATED EXISTING REINFORCING WHICH SHALL BE REPLACED AS DIRECTED BY THE ENGINEER.

THE CONCRETE ANCHORS REQUIRED SHALL HAVE A MINIMUM PULL OUT OF 5000 LBS. BASED ON 4000 PSI CONCRETE. AN ANCHOR MEETING THE REQUIREMENTS OF IOWA D.O.T. MATERIALS I.M. 453.09 AND THE PULL OUT LOAD ABOVE IS REQUIRED. THE ANCHORS SHALL BE GALVANIZED AND SHALL BE INSTALLED ACCORDING TO RECOMMENDATIONS OF THE MANUFACTURER. THE COST OF FURNISHING AND INSTALLING THE CONCRETE ANCHORS SHALL BE INCLUDED IN THE PRICE BID FOR "CONCRETE REPAIRS".

THE WELDED WIRE FABRIC SHALL BE ASTM A185 AND GALVANIZED AS PER ASTM A-641. THE WWF WIRES SHALL BE SPACED 3 X 3 OR 4 X 4 AND THE WIRES SHALL HAVE A NOMINAL AREA OF 0.014 TO 0.029 SQUARE INCHES INCLUSIVE, EXAMPLE "WWF 3 X 3 - W1.4 X W2.9".

WHERE REINFORCEMENT HAS BEEN EXPOSED AND CLEARANCE AROUND THE PERIPHERY OF THE EXISTING BAR IS PROVIDED NO SUPPLEMENTAL REINFORCING IS REQUIRED, EXCEPT WHERE EXISTING REINFORCEMENT DENSITY AND PATTERN ARE SUCH THAT INDIVIDUAL OPEN SPACES BETWEEN BARS ARE OF 1.5 SQUARE FOOT OR LARGER. FOR THIS CONDITION ½" Φ CONCRETE ANCHORS AND WELDED WIRE FABRIC SHALL BE INSTALLED AT THE RATE OF ONE CONCRETE ANCHOR WITH WWF PER EACH 1.5 SQUARE FEET OF AREA WITHIN EACH OPEN SPACE.

SEE "CONCRETE REPAIRS" IN SPECIAL PROVISION SS-5007, DATED 10-2-90, FOR ADDITIONAL INFORMATION ABOUT THIS WORK.

CONCRETE PLACEMENT QUANTITIES

MARK	TYPE	UNITS	QUANTITY
①	SHALLOW REPAIR	SQ. FT.	5
②	REGULAR REPAIR	SQ. FT.	10
	TOTAL (SQ. FT.)		15

ESTIMATED QUANTITIES

DESCRIPTION	UNITS	AMOUNT
CONCRETE REPAIRS	SQ. FT.	15

DESIGN FOR WIDENING EXISTING

315'-5x42' & 280'-0x42' PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGES

TO

56' ROADWAY BRIDGES

CONCRETE REPAIRS

STA. 1131+87.84 ℄ I-80 FRA X-ING # 192659V
STA. 20+00 ℄ E. 29TH ST. IOWA X-ING # 4521
OCT. 1991

POLK COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 8 OF 40 FILE NO. 28266 DESIGN NO. 1391

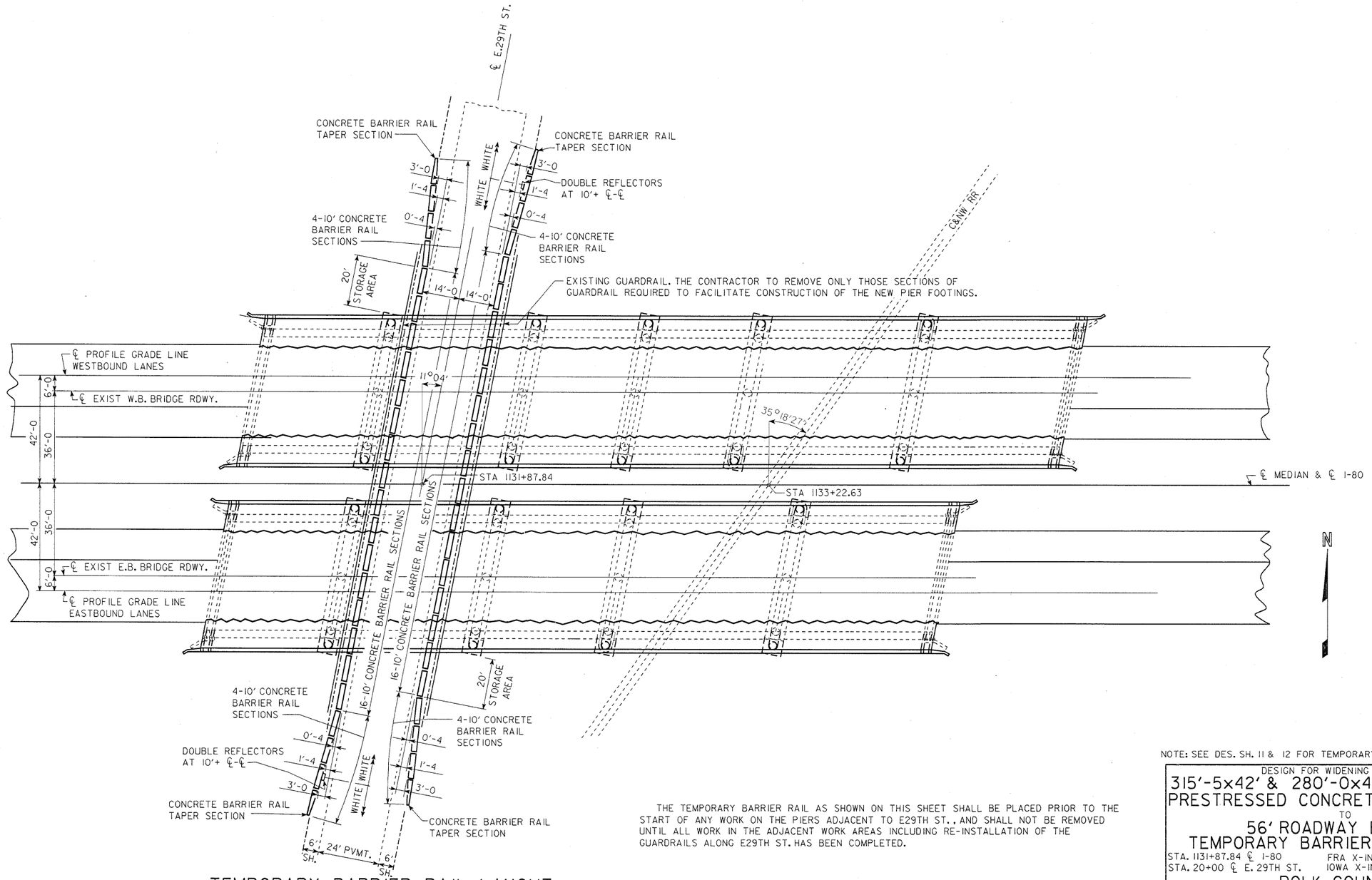
DESIGNED BY LeRoy Ornberg TRACED BY DOUG WARRINGS
DETAILED BY DOUG WARRINGS CHECKED BY T. Alexander

STANDARD SHEET 1045 | POLK COUNTY | PROJECT NUMBER

STATE	FHWA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	7		10	57

H77139100.S16 DEVICE : ZHAO:(200,004) ARCH. TAPE NO. ..... DATE.....

HSTD01045.S01-- LEP : THIS SHEET ISSUED. TAPE NO. 11 DATE 9-27-90



TEMPORARY BARRIER RAIL LAYOUT FOR E29TH STREET

THE TEMPORARY BARRIER RAIL AS SHOWN ON THIS SHEET SHALL BE PLACED PRIOR TO THE START OF ANY WORK ON THE PIERS ADJACENT TO E29TH ST., AND SHALL NOT BE REMOVED UNTIL ALL WORK IN THE ADJACENT WORK AREAS INCLUDING RE-INSTALLATION OF THE GUARDRAILS ALONG E29TH ST. HAS BEEN COMPLETED.

NOTE: SEE DES. SH. 11 & 12 FOR TEMPORARY BARRIER RAIL DETAILS.

DESIGN FOR WIDENING EXISTING
315'-5x42' & 280'-0x42' PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGES
TO
56' ROADWAY BRIDGES
TEMPORARY BARRIER RAIL LAYOUT

STA. 1131+87.84 ℄ I-80 — FRA X-ING # 192659V — OCT. 1991
STA. 20+00 ℄ E. 29TH ST. — IOWA X-ING # 4521

POLK COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

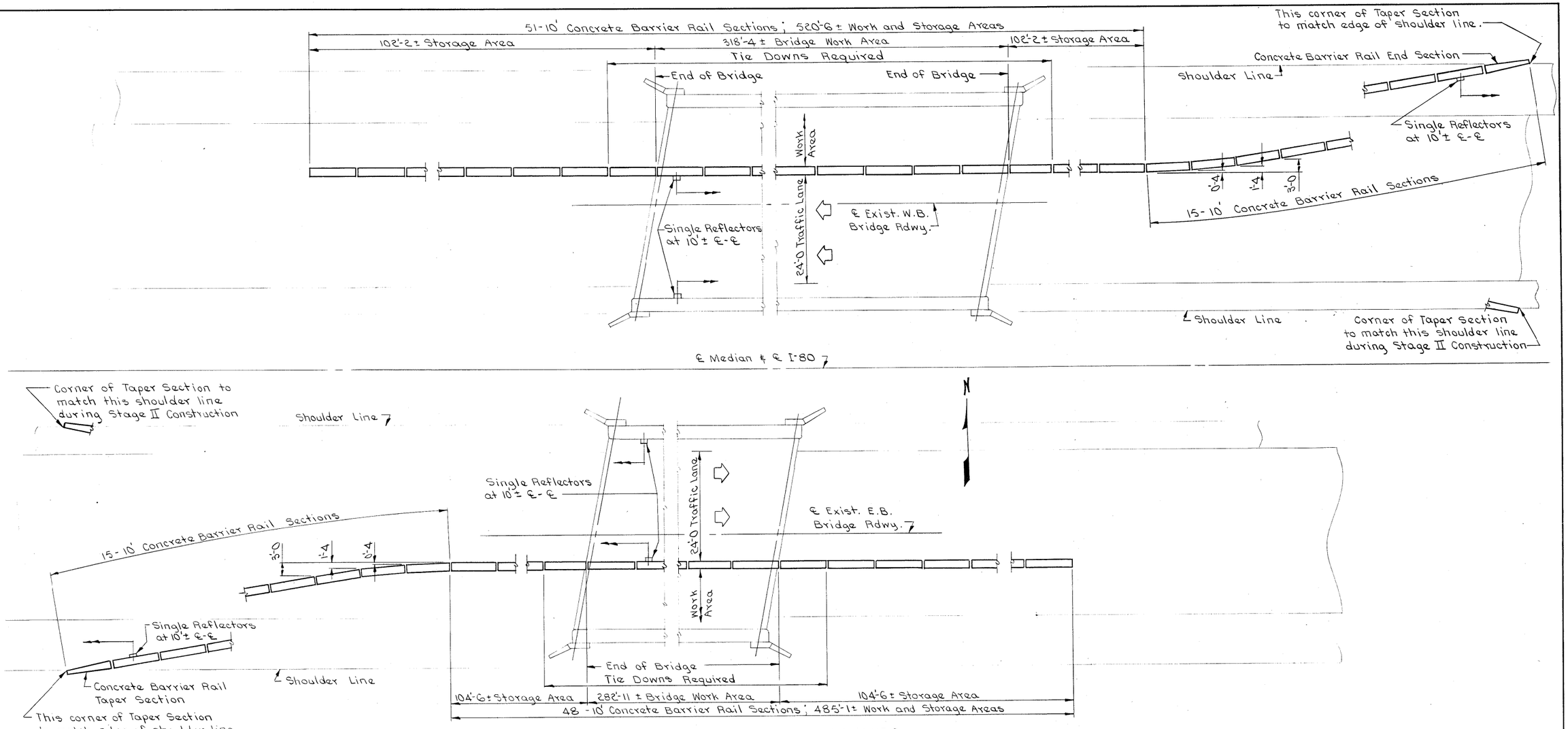
DESIGN SHEET NO. 9 OF 40 — FILE NO. 28266 — DESIGN NO. 1391

DESIGNED BY LeRoy Ornberg — TRACED BY DOUG WARRINGS
DETAILED BY DOUG WARRINGS — CHECKED BY J. Neidenhiser

POLK COUNTY — PROJECT NUMBER

STATE	FHWA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	7		11	57

H771391OO.S19 — DEVICE : ZHAO:(200,004) ARCH. TAPE NO. _____ DATE_____



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. 11 & 12 for barrier rail details

Note: See Des. Shs. 4 & 5 for additional Temporary Barrier Rail Layout location information.

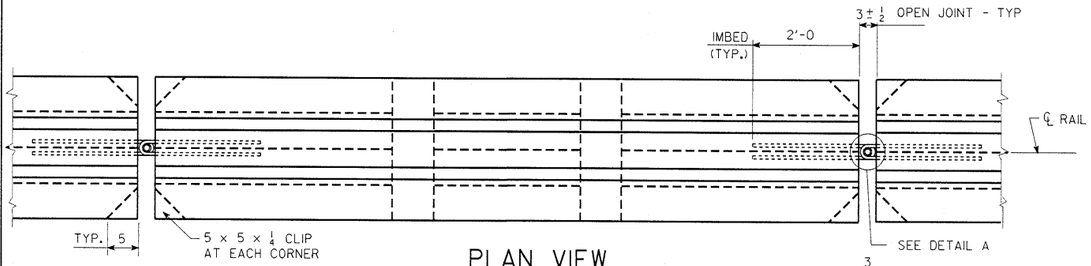
Design for Widening Existing
315'-5 x 42" & 280'-0 x 42" PRETENSIONED
PRESTRESSED CONCRETE BEAM BRIDGES
TO
56' ROADWAY BRIDGES
TEMPORARY BARRIER RAIL LAYOUTS
Sta. 1131+87.84 ℄ I-80 FRA X-ing # 192659V
Sta. 20+00 ℄ E. 29th St. Iowa X-ing # 4521 Oct. 1991
POLK COUNTY
IOWA DEPARTMENT OF TRANSPORTATION-HIGHWAY DIVISION
Design Sheet No.: 10 Of 40 File No.: 28266 Design No.: 1391

DESIGNED BY: LeRoy Ornberg TRACED BY: Doug Wanning
DETAILED BY: Doug Wanning CHECKED BY: J. W. Schaefer

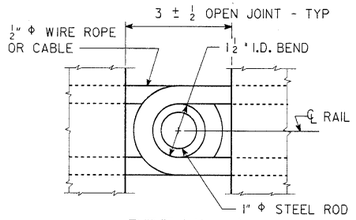
POLK COUNTY

PROJECT NUMBER	STATE	FHWA Region	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	IOWA	7		12	57

BRUNING 65219 BRIDGE WORK SHEET 800 314446



PLAN VIEW



DETAIL A

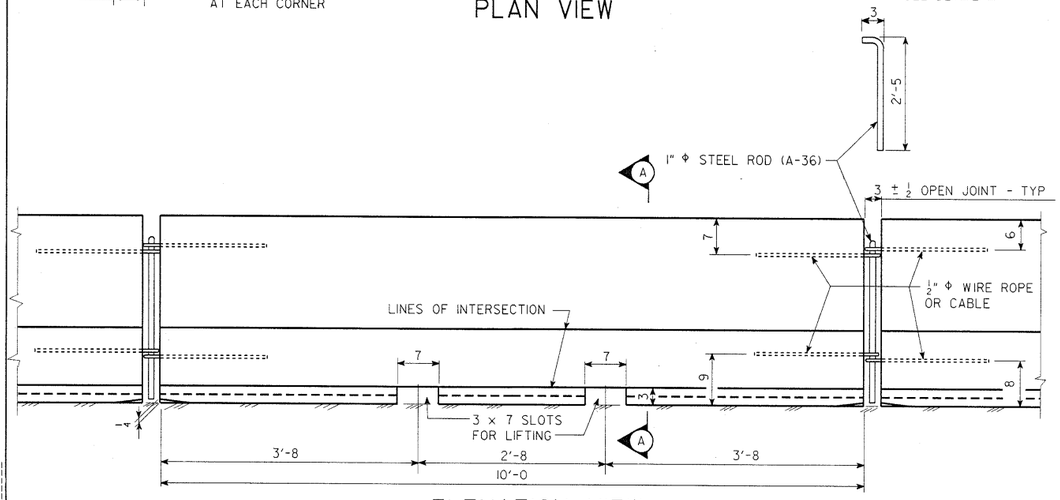
NOTE:
NO STATIONARY EQUIPMENT OR CONSTRUCTION MATERIAL IS TO BE PLACED IN FRONT OF THE TEMPORARY BARRIER RAIL AT ANY TIME .

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". THIS BID ITEM SHALL ALSO INCLUDE ALL COSTS ASSOCIATED WITH FURNISHING, INSTALLING, AND REMOVING TIE DOWN STRAPS AND ANCHORS. TIE DOWN STRAPS SHALL REMAIN THE PROPERTY OF THE CONTRACTOR.

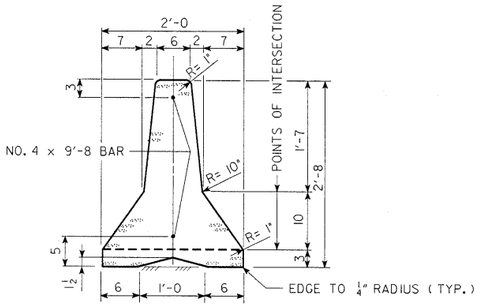
REFER TO OTHER DETAILS, NOTES, AND QUANTITY ITEMS ELSEWHERE IN THESE PLANS FOR TRAFFIC CONTROL TO BE ESTABLISHED IN CONJUNCTION WITH THE TEMPORARY BARRIER RAIL.

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.

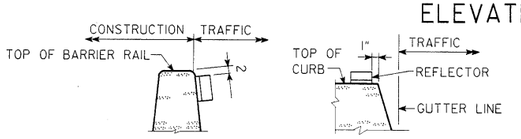
CONCRETE ANCHORS ARE TO BE A MINIMUM OF ¾"Φ AND AS OTHERWISE SPECIFIED IN CURRENT OFFICE OF MATERIALS I.M. 453.09 WITH A PULL-OUT STRENGTH OF 16,000 LBS. BASED ON 4,000 P.S.I. CONCRETE.



ELEVATION VIEW



SECTION A-A

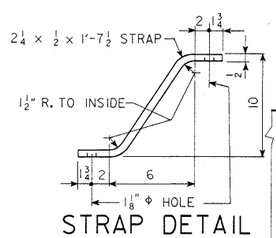


REFLECTOR DETAILS

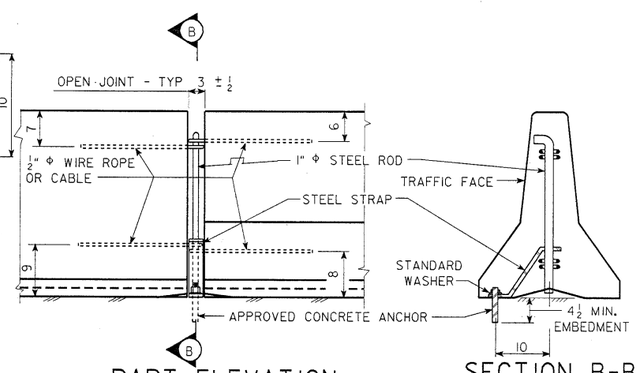
NOTE: COLOR OF REFLECTOR SHALL BE APPROPRIATE FOR EDGE LINE.

NOTE:
GEOMETRICS SHOWN OF RAIL ARE REPRESENTATIVE OF RAIL SECTIONS TO BE PICKED UP AT THE I.D.O.T. MAINTENANCE YARD.

1"Φ CONNECTION RODS ARE TO BE FURNISHED AT AND RETURNED TO THE MAINTENANCE YARD.



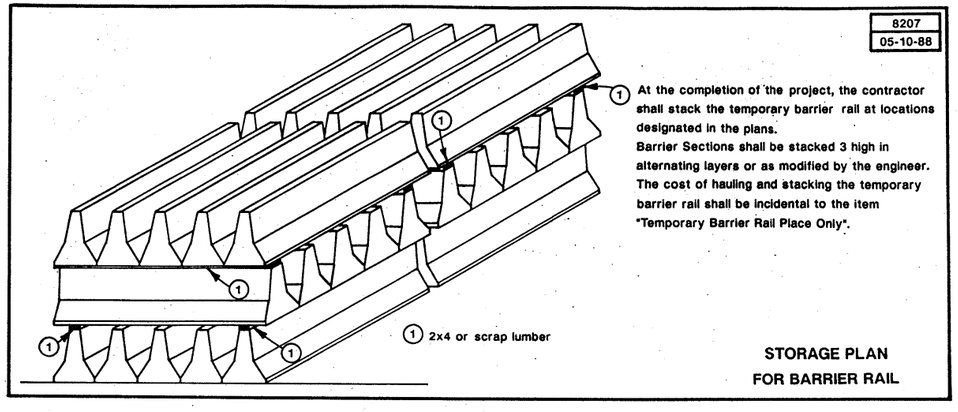
STRAP DETAIL



PART ELEVATION

SECTION B-B

TEMPORARY BARRIER RAIL TIE DOWN DETAILS



STORAGE PLAN FOR BARRIER RAIL

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

ESTIMATED QUANTITIES

ITEM	AMOUNT	
TEMPORARY BARRIER RAIL, FURNISH ONLY	60	L.F.
TEMPORARY BARRIER RAIL, PLACE ONLY	3060	L.F.

SEE. DES. SH. 10 FOR TEMPORARY BARRIER RAIL LAYOUT ON I-80.
SEE DES. SH. 9 FOR TEMPORARY BARRIER RAIL LAYOUT ON E29TH ST.

DESIGN FOR WIDENING EXISTING
315'-5x42' & 280'-0x42' PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGES
TO
56' ROADWAY BRIDGES
TEMPORARY BARRIER RAIL-CONCRETE

STA. 1131+87.84 ℄ I-80 FRA X-ING # 192659V OCT. 1991
STA. 20+00 ℄ E. 29TH ST. IOWA X-ING # 4521

POLK COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 11 OF 40 FILE NO. 28266 DESIGN NO. 1391

REVISED: DIMENSION D AND NO. OF BARRIER RAIL SECTIONS CHANGED. TAPE NO. 9 DATED 7-3-90
HSTD0033.S01--LEP: THIS SHEET REDRAWN, DEVICE:ZHA0:(200,004) ARCH. TAPE NO. 15 DATE 9-8-88

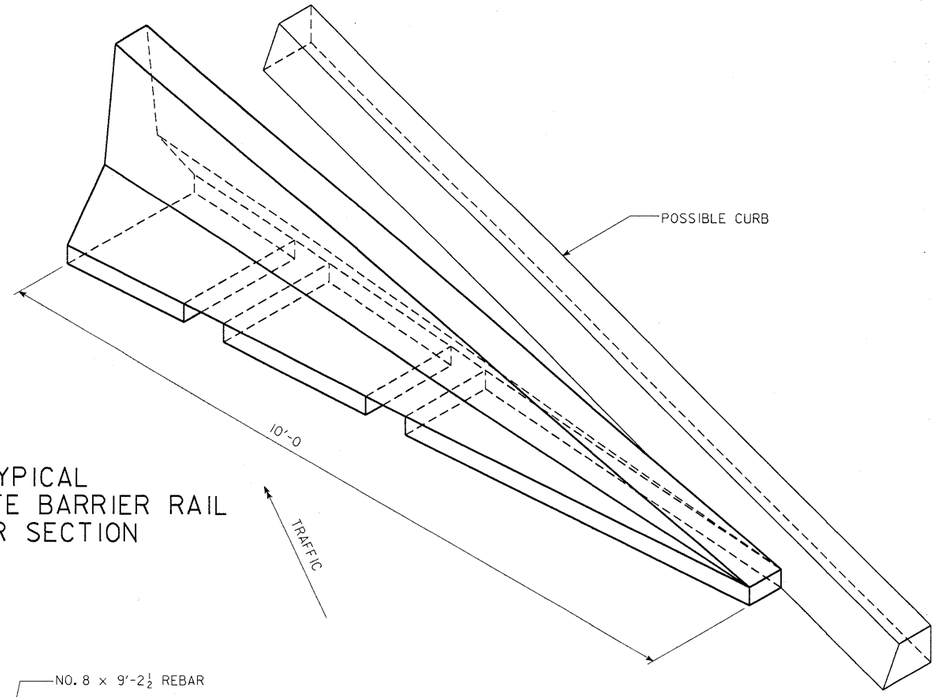
DESIGNED BY LeRoy Ornberg	TRACED BY DOUG WARRINGS	TEMPORARY BARRIER RAIL-CONCRETE	STANDARD 1033	POLK COUNTY	PROJECT NUMBER	STATE	FHWA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
DETAILED BY DOUG WARRINGS	CHECKED BY J. Neidhiser					IOWA	7		13	57

H771391OO.S21 DEVICE : ZHA0:(200,004) ARCH. TAPE NO. ---------- DATE----------

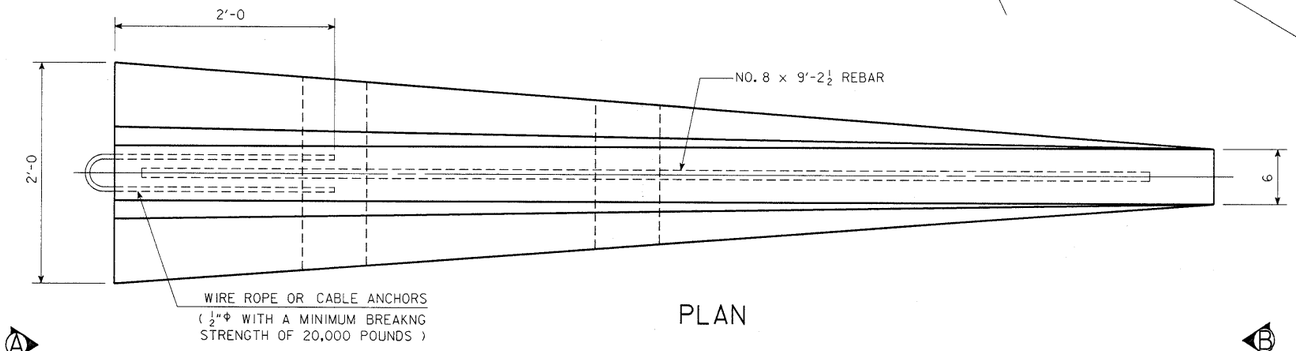
GENERAL NOTES:

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.

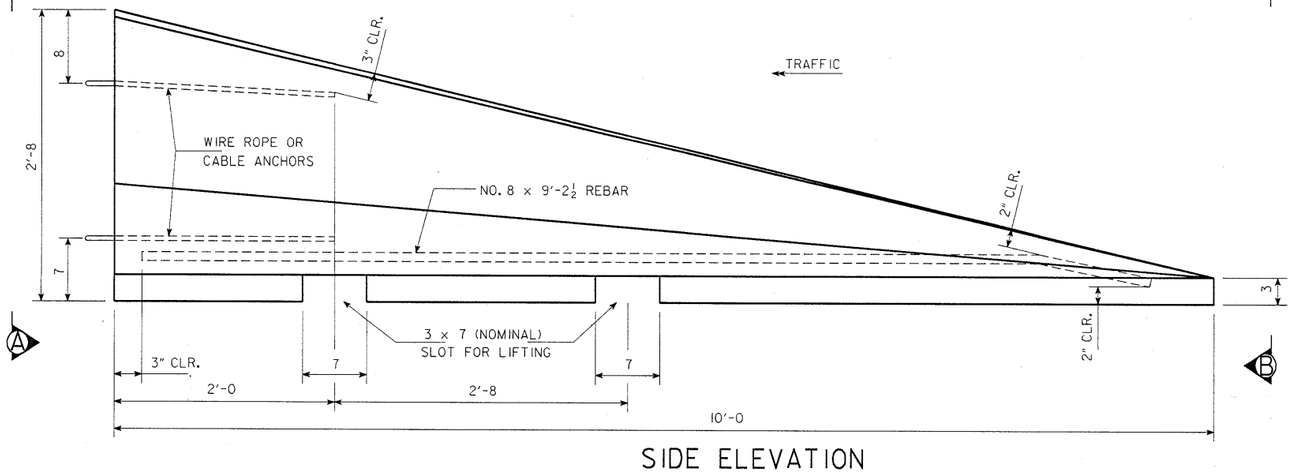
CONCRETE SHALL BE CLASS "D" STRUCTURAL CONCRETE PLACED AND FINISHED IN CONFORMANCE WITH CURRENT STANDARD SPECIFICATIONS FOR "STRUCTURAL CONCRETE". APPROXIMATELY 0.486 CU. YDS. OF CLASS "D" STRUCTURAL CONCRETE WILL BE REQUIRED FOR EACH TAPER SECTION.



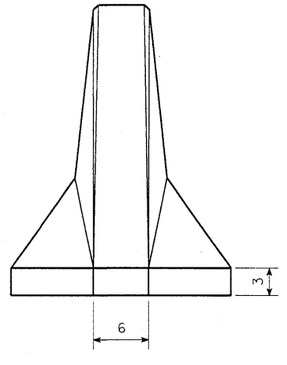
TYPICAL
CONCRETE BARRIER RAIL
TAPER SECTION



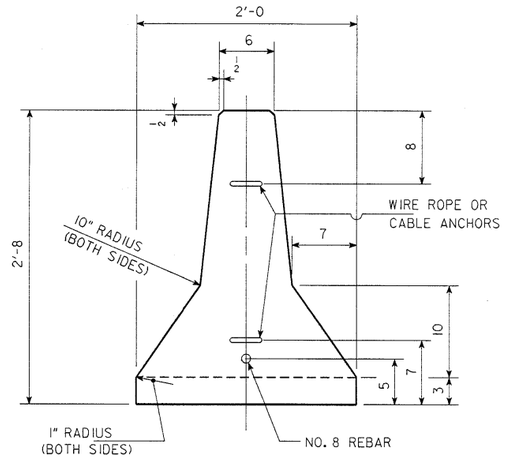
PLAN



SIDE ELEVATION



FRONT VIEW B-B



END VIEW A-A

DESIGN FOR WIDENING EXISTING
315'-5x42' & 280'-0x42' PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGES
TO
56' ROADWAY BRIDGES
CONCRETE BARRIER RAIL TAPER SECTION
STA. 1131+87.84 ℄ I-80 FRA X-ING # 192659V OCT. 1991
STA. 20+00 ℄ E. 29TH ST. IOWA X-ING # 4521
POLK COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
DESIGN SHEET NO. 12 OF 40 FILE NO. 28266 DESIGN NO. 1391

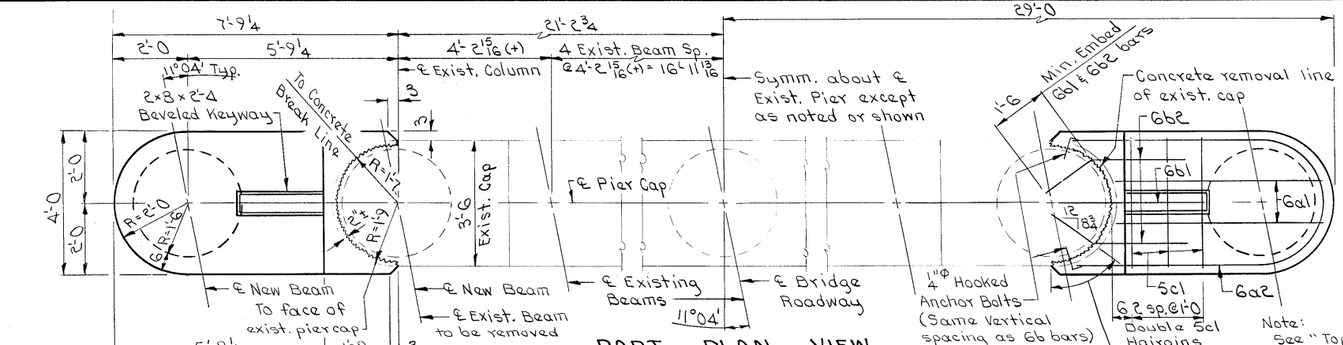
DESIGNED BY / DETAILED BY	TRACED BY / CHECKED BY								
LeRoy Ornberg / DOUG WARRINGS	DOUG WARRINGS / J. Neidhiser	CONCRETE BARRIER RAIL TAPER SECTION	1034B ISSUE DATE 10/89	POLK COUNTY	PROJECT NUMBER	STATE	FHWA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
						IOWA	7		14	57

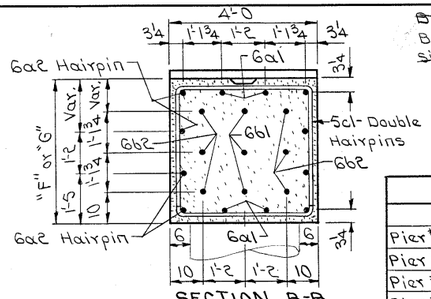
H77139100.S20 DEVICE : ZHAO:(200,004) ARCH. TAPE NO. _____ DATE _____

HSTD1034B--CJP: THIS SHEET ISSUED, DEVICE : ZHAI:(200,5) ARCH. TAPE NO. 9 DATE 10-12-89

~~Bench~~ mark from original design plans ~~—~~
BM # 187 Sta. ~~1133+46 60 Rt.~~ RR Spk in N ~~side pole~~ west of East 29th St -- ~~Elev = 918.56~~

PART PLAN VIEW

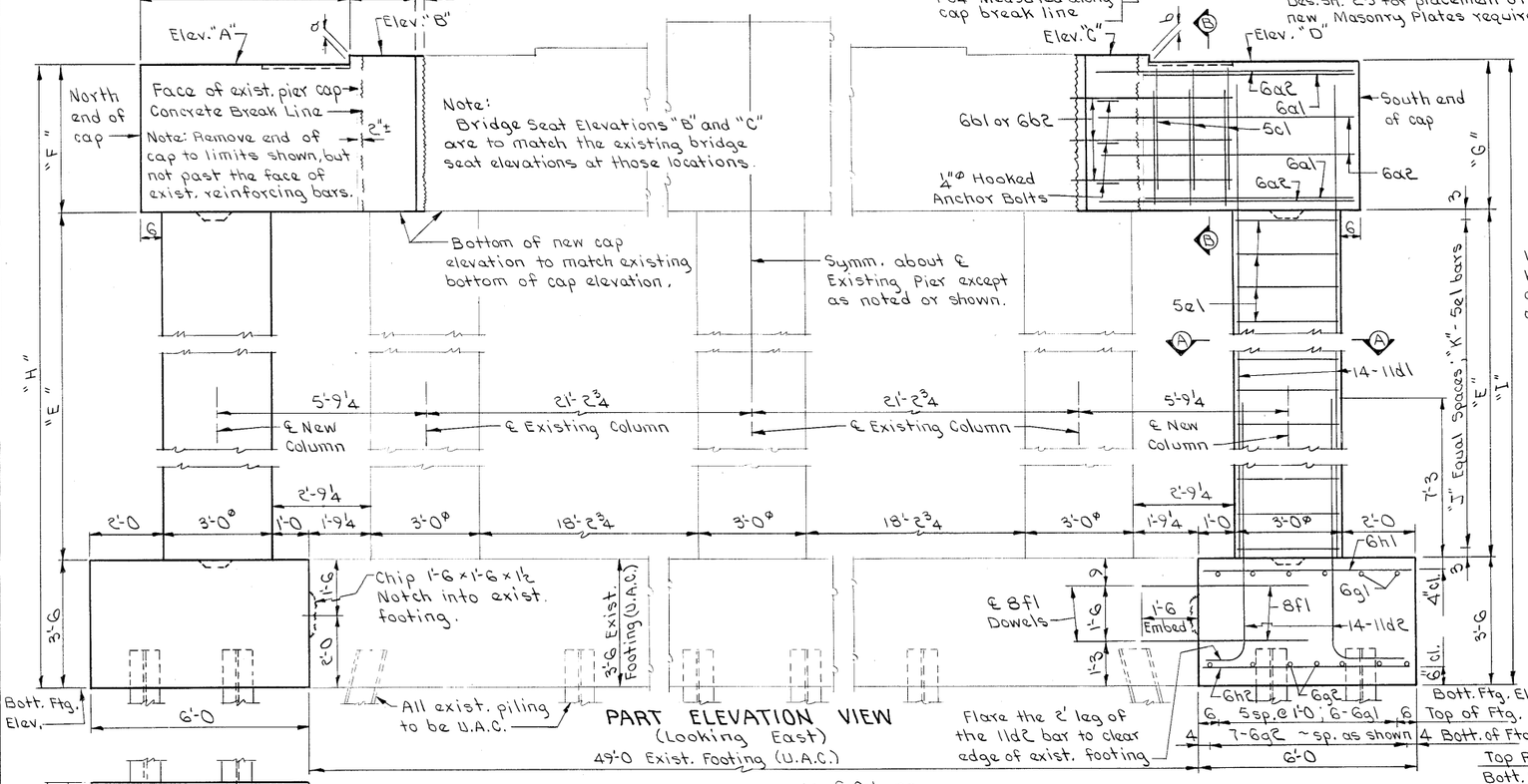


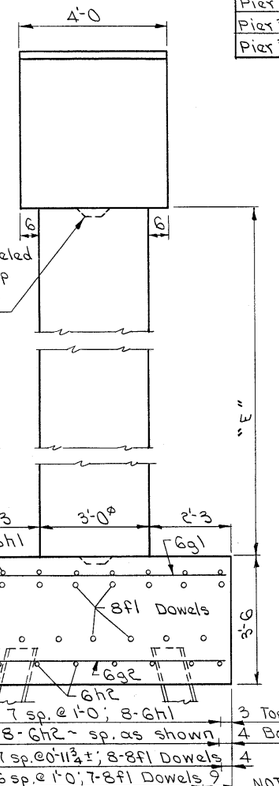


Note:
See "Top of Pier Details" on Des. Sh. 23 for placement of new Masonry Plates required.

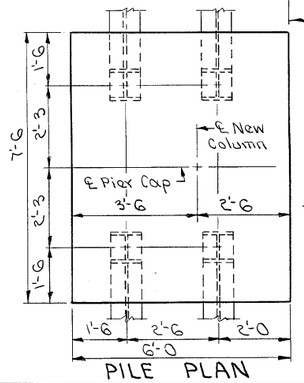
TABLE OF VARIABLES							
	"E"	"F"	"G"	"H"	"I"	"J"	"K"
Pier # 1 WB	21'-2	3'-10¼	3'-8½	28'-6¼	28'-4½	21	22
Pier # 2 WB	22'-6	3'-10¼	3'-8¾	29'-10¼	29'-8¾	22	23
Pier # 3 WB	21'-0½	3'-10½	3'-9	28'-5	28'-3½	21	22
Pier # 4 WB	22'-11⅜	3'-10¼	3'-9	30'-3⅝	30'-2⅜	23	24
Pier # 5 WB	21'-3⅝	3'-10⅛	3'-9⅛	28'-7¾	28'-6¾	21	22
Pier # 1 EB	21'-3¼	3'-7⅛	4'-2⅜	28'-5⅛	29'-0	21	22
Pier # 2 EB	22'-3¾	3'-9⅛	4'-4⅛	29'-6⅛	30'-1⅛	22	23
Pier # 3 EB	23'-11	3'-9	4'-4⅛	31'-2	31'-9⅛	24	25
Pier # 4 EB	22'-4⅜	3'-9	4'-4¼	29'-7⅜	30'-2⅝	22	23

Note:
Concrete anchors for the ¼" Φ hooked anchor bolts shall be galvanized and designed for use with ¼" Φ galvanized anchor bolts. Anchor bolt length shall be such as to obtain at least the manufacturer's recommended embedment and project at least 3" into new concrete. The price bid for "Structural Concrete" shall include furnishing and installing the concrete anchors and hooked bolts. (12 Required per pier).





NOTE:
Crash Walls are required at:
W.B. Bridge ~ Pier # 4 @ South Column
W.B. Bridge ~ Pier # 5 @ North Column
E.B. Bridge ~ Pier # 3 @ South Column
E.B. Bridge ~ Pier # 4 @ North Column
See Des. Sh. 14 for crash wall details.



Note:
Top and bottom of footing extensions are to match existing footing. Quantities based on plan dimensions.

Note: Dimensions shown on Pile Plan are at bottom of footing. Batter piles 1:4 in the direction shown. 4-HP10x42 Steel Bearing Piling required at each new footing. See Table on Des. Sh. 15 for pile lengths.

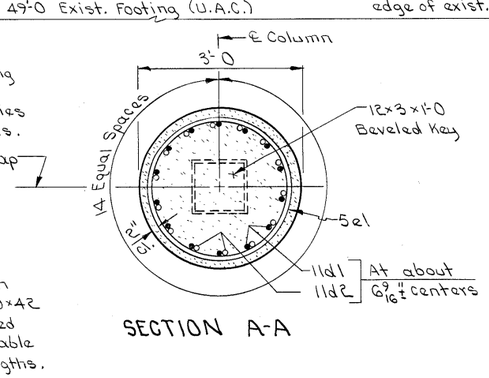


TABLE OF ELEVATIONS AND STEPS							
	Elev. "A"	Elev. "B"	Elev. "C"	Elev. "D"	Step "a"	Step "b"	Bott. Ftg. Elev.
Pier # 1 WB	931.52	931.86	931.66	931.37	4⅛	3½	903.00
Pier # 2 WB	930.35	930.67	930.49	930.22	3 13/16	3¼	900.50
Pier # 3 WB	929.41	929.72	929.54	929.29	3 11/16	3	901.00
Pier # 4 WB	928.30	928.60	928.44	928.19	3⅝	3	898.00
Pier # 5 WB	926.65	926.95	926.80	926.56	3⅝	2⅞	898.00
Pier # 1 EB	931.43	931.77	932.30	932.00	4⅛	3⅝	903.00
Pier # 2 EB	930.37	930.61	931.15	930.96	2⅞	2 9/16	900.80
Pier # 3 EB	929.16	929.41	929.97	929.76	3	2½	898.00
Pier # 4 EB	927.61	927.86	928.43	928.22	3	2½	898.00

Design for Widening Existing
315'-5 x 42" & 280'-0 x 42" PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGES
TO
56' ROADWAY BRIDGES
PIER DETAILS
Sta. 1131+87.84 ℄ I-80 FRA Xing # 1926591V
Sta. 20+00 ℄ E 29th St. Iowa X-ing # 4521
Oct. 1991
POLK COUNTY
IOWA DEPARTMENT OF TRANSPORTATION-HIGHWAY DIVISION
Design Sheet No.: 13 Of 40 File No.: 28266 Design No.: 1391

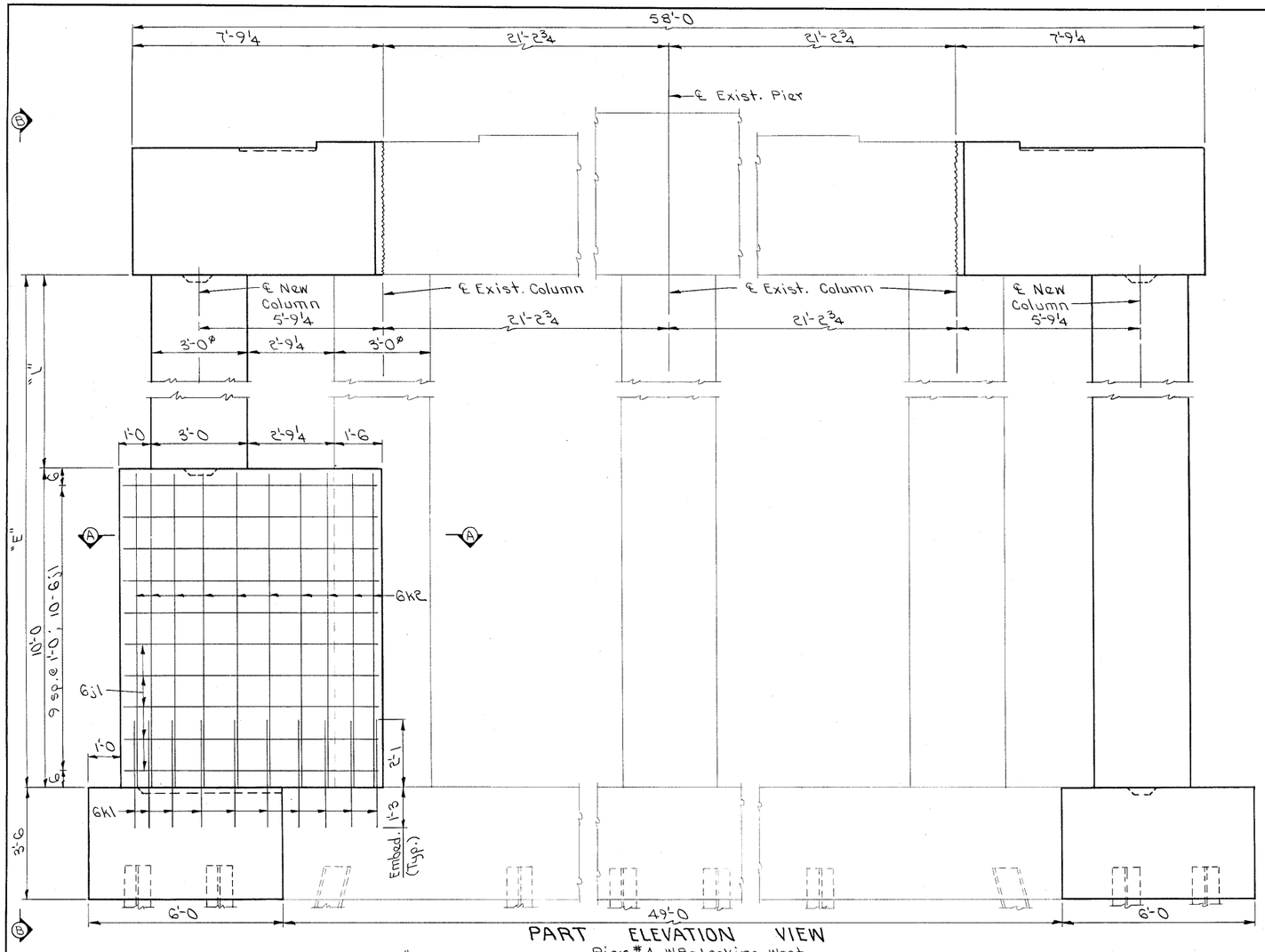
DESIGNED BY: LeRoy Ornberg
DETAILED BY: Doug Wanninger
TRACED BY: Doug Wanninger
CHECKED BY: J. N. Hoffmeister

POLK COUNTY

PROJECT NUMBER	STATE	FHWA Region	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	IOWA	7		15	57

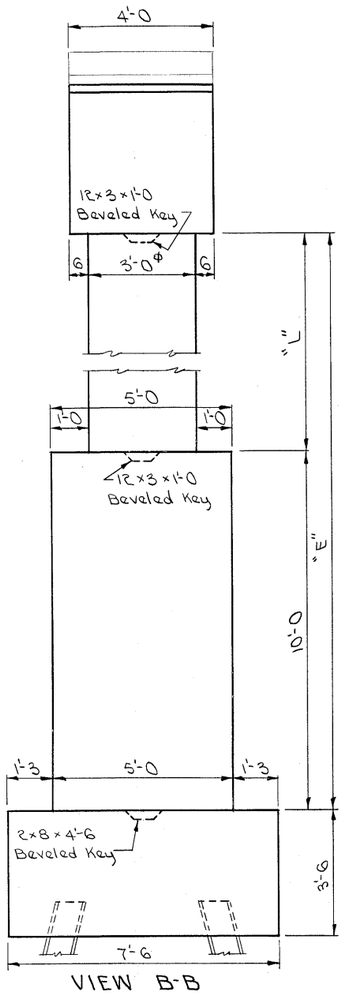
BRUNING 65219 WHOLE WORK SHEET 000 7/1440

TABLE OF VARIABLES		
	"E"	"L"
Pier # 4 WB South Column	22'-11 3/8	12'-11 3/8
Pier # 5 WB North Column	21'-3 5/8	11'-3 5/8
Pier # 3 EB South Column	23'-11	13'-11
Pier # 4 EB North Column	22'-4 3/8	12'-4 3/8

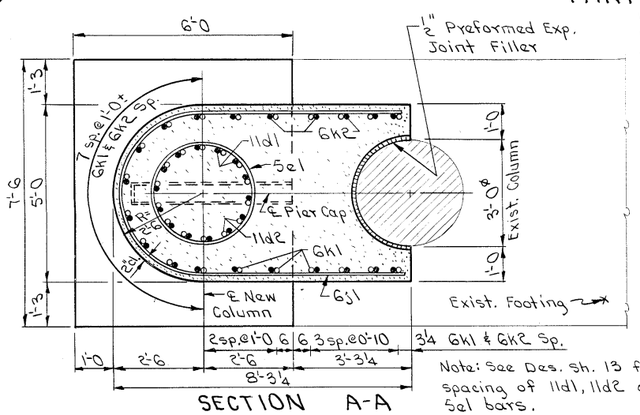


PART ELEVATION VIEW

Pier # 4 WB - Looking West
Pier # 5 WB - Looking East
Pier # 3 EB - Looking West
Pier # 4 EB - Looking East



VIEW B-B



SECTION A-A

Note: See Des. Sh. 13 for spacing of 11d1, 11d2 and 5e1 bars.

NOTE: Crash Walls are required at:
W.B. Bridge ~ Pier # 4 @ South Column
W.B. Bridge ~ Pier # 5 @ North Column
E.B. Bridge ~ Pier # 3 @ South Column
E.B. Bridge ~ Pier # 4 @ North Column

Design for Widening Existing
315'-5 x 42" & 280'-0 x 42" PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGES
To
56' ROADWAY BRIDGES
PIER CRASH WALL DETAILS

Sta. 1131+87.84 ℄ I-80 FRA X-ing # 192659V Oct. 1991
Sta. 20+00 ℄ E 29 th st. Iowa X-ing # 4521

POLK COUNTY
IOWA DEPARTMENT OF TRANSPORTATION-HIGHWAY DIVISION

Design Sheet No.: 14 Of 40 File No.: 28266 Design No.: 1391

DESIGNED BY: LeRoy Ornberg
DETAILED BY: Doug Wanning
TRACED BY: Doug Wanning
CHECKED BY: J. Nicholas

POLK COUNTY

PROJECT NUMBER	STATE	FHWA Region	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	IOWA	7		16	57

BRUNING 65219 BRIDGE WORK SHEET 000 3M80

CONCRETE PLACEMENT QUANTITIES PIER #1 W.B.

ITEM		TOTAL
FOOTINGS	2 @ 5.8 CU.YD.	11.6
COLUMNS	2 @ 5.5 CU.YD.	11.0
CAP - NORTH END		3.7
CAP - SOUTH END		3.5
	TOTAL (CU. YDS.)	29.8

CONCRETE PLACEMENT QUANTITIES PIER #2 W.B.

ITEM		TOTAL
FOOTINGS	2 @ 5.8 CU.YD.	11.6
COLUMNS	2 @ 5.9 CU.YD.	11.8
CAP - NORTH END		3.7
CAP - SOUTH END		3.5
	TOTAL (CU. YDS.)	30.6

CONCRETE PLACEMENT QUANTITIES PIER #3 W.B.

ITEM		TOTAL
FOOTINGS	2 @ 5.8 CU.YD.	11.6
COLUMNS	2 @ 5.5 CU.YD.	11.0
CAP - NORTH END		3.7
CAP - SOUTH END		3.6
	TOTAL (CU. YDS.)	29.9

CONCRETE PLACEMENT QUANTITIES PIER #4 W.B.

ITEM		TOTAL
FOOTINGS	2 @ 5.8 CU.YD.	11.6
SOUTH COLUMN & CRASHWALL BELOW CONSTRUCTION JOINT		12.9
SOUTH COLUMN ABOVE CONSTRUCTION JOINT		3.4
NORTH COLUMN		6.0
CAP - NORTH END		3.7
CAP - SOUTH END		3.6
	TOTAL (CU. YDS.)	41.2

CONCRETE PLACEMENT QUANTITIES PIER #5 W.B.

ITEM		TOTAL
FOOTINGS	2 @ 5.8 CU.YD.	11.6
NORTH COLUMN & CRASHWALL BELOW CONSTRUCTION JOINT		12.9
NORTH COLUMN ABOVE CONSTRUCTION JOINT		3.0
SOUTH COLUMN		5.6
CAP - NORTH END		3.7
CAP - SOUTH END		3.6
	TOTAL (CU. YDS.)	40.4

CONCRETE PLACEMENT QUANTITIES PIER #1 E.B.

ITEM		TOTAL
FOOTINGS	2 @ 5.8 CU.YD.	11.6
COLUMNS	2 @ 5.6 CU.YD.	11.2
CAP - NORTH END		3.5
CAP - SOUTH END		4.0
	TOTAL (CU. YDS.)	30.3

CONCRETE PLACEMENT QUANTITIES PIER #2 E.B.

ITEM		TOTAL
FOOTINGS	2 @ 5.8 CU.YD.	11.6
COLUMNS	2 @ 5.8 CU.YD.	11.6
CAP - NORTH END		3.6
CAP - SOUTH END		4.1
	TOTAL (CU. YDS.)	30.9

CONCRETE PLACEMENT QUANTITIES PIER #3 E.B.

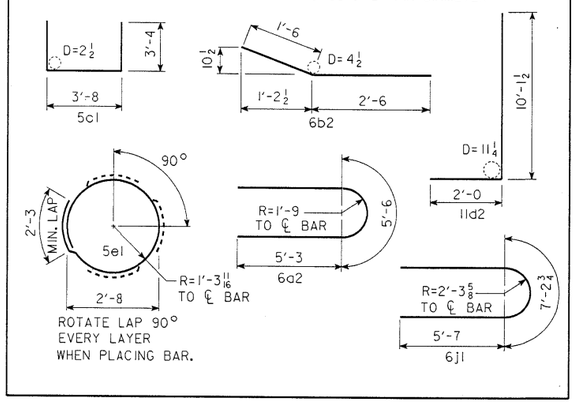
ITEM		TOTAL
FOOTINGS	2 @ 5.8 CU.YD.	11.6
SOUTH COLUMN & CRASHWALL BELOW CONSTRUCTION JOINT		12.9
SOUTH COLUMN ABOVE CONSTRUCTION JOINT		3.6
NORTH COLUMN		6.3
CAP - NORTH END		3.6
CAP - SOUTH END		4.1
	TOTAL (CU. YDS.)	42.1

CONCRETE PLACEMENT QUANTITIES PIER #4 E.B.

ITEM		TOTAL
FOOTINGS	2 @ 5.8 CU.YD.	11.6
NORTH COLUMN & CRASHWALL BELOW CONSTRUCTION JOINT		12.9
NORTH COLUMN ABOVE CONSTRUCTION JOINT		3.2
SOUTH COLUMN		5.9
CAP - NORTH END		3.6
CAP - SOUTH END		4.1
	TOTAL (CU. YDS.)	41.3

BENT BAR DETAILS

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



DOWEL SETTING NOTE :

ALL OF THE 6b1, 6b2, 8f1 AND PART OF THE 6k1 BARS SHALL BE SET AS DOWELS IN DRILLED HOLES TO DEPTHS INDICATED ON THE PLANS. THE 6k1 BARS IN THE AREA OF THE NEW FOOTING MAY BE PRESET INTO NEW CONCRETE WITH A 1'-3 EMBEDMENT. THE DOWELS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. ONE OF THE FOLLOWING SYSTEMS SHALL BE USED AS A BONDING AGENT FOR THE 6k1 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.

THE 6b1, 6b2, AND 8f1 BARS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS FOR THE EPOXY GROUT SYSTEM ONLY AS NOTED IN PARAGRAPH "A" ABOVE.

ANY DOWEL SHALL HAVE A MINIMUM OF 4" FROM THE EDGE OF EXISTING CONCRETE TO THE ℄ OF THE DRILLED HOLE.

PIER 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 DESIGN BEARING FOR THE PIER PILES IS 37 TONS. THE TOTAL DRIVING RESISTANCE FOR THE PILES IS 48 TONS. 37 TONS OF THIS DRIVING RESISTANCE IS END BEARING. 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.

SOME OF THE COLUMN VERTICAL BARS, HOOPS, AND FOOTING TO COLUMN DOWELS ARE TO BE EPOXY COATED, SEE LIST ON THIS SHEET. THE EPOXY COATED REINFORCING IS REQUIRED AT PIERS 1 & 2 W.B. AND PIERS 1 & 2 E.B.

CRASH WALLS ARE REQUIRED AT:

W.B. BRIDGE - PIER #4 - SOUTH COLUMN
W.B. BRIDGE - PIER #5 - NORTH COLUMN
E.B. BRIDGE - PIER #3 - SOUTH COLUMN
E.B. BRIDGE - PIER #4 - NORTH COLUMN

DOWEL BARS AND HOOKED ANCHOR BOLTS SHALL BE SHIFTED SLIGHTLY WHEN NECESSARY TO MISS EXISTING REINFORCING.

REINFORCING BAR LIST - FOUR PIERS

EPOXY COATED REINF.

BAR	LOCATION	SHAPE	NO.	LENGTH	LIN. FT.	WEIGHT
11d1	PIER #1 W.B. COLUMN VERTICAL	—	28	24'-8	691	3670
11d1	PIER #2 W.B. COLUMN VERTICAL	—	28	26'-0	728	3868
11d1	PIER #1 E.B. COLUMN VERTICAL	—	28	24'-9	693	3682
11d1	PIER #2 E.B. COLUMN VERTICAL	—	28	25'-10	723	3843
11d2	PIER #1 W.B. FOOTING TO COLUMN DOWEL	⌐	28	12'-2	341	1810
11d2	PIER #2 W.B. FOOTING TO COLUMN DOWEL	⌐	28	12'-2	341	1810
11d2	PIER #1 E.B. FOOTING TO COLUMN DOWEL	⌐	28	12'-2	341	1810
11d2	PIER #2 E.B. FOOTING TO COLUMN DOWEL	⌐	28	12'-2	341	1810
5e1	PIER #1 W.B. COLUMN HOOP	○	44	10'-6	462	482
5e1	PIER #2 W.B. COLUMN HOOP	○	46	10'-6	483	504
5e1	PIER #1 E.B. COLUMN HOOP	○	44	10'-6	462	482
5e1	PIER #2 E.B. COLUMN HOOP	○	46	10'-6	483	504
	REINFORCING STEEL EPOXY COATED - TOTAL LBS.					24275

REINFORCING BAR LIST - ALL NINE PIERS

NON-COATED REINF.

BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
6a1	CAP LONGIT. TOP & BOTT.	—	72	5'-9	622
6a2	CAP HAIRPINS HORIZ. TOP & BOTT.	⊃	72	16'-0	1730
6b1	NEW CAP TO EXIST. CAP DOWELS	—	54	4'-0	324
6b2	NEW CAP TO EXIST. CAP DOWELS	⌐	108	4'-0	649
5c1	CAP HAIRPINS	⊐	108	10'-4	1164
11d1	PIER #3 W.B. COLUMN VERTICAL	—	28	24'-7	3657
11d1	PIER #4 W.B. COLUMN VERTICAL	—	28	26'-6	3942
11d1	PIER #5 W.B. COLUMN VERTICAL	—	28	24'-10	3694
11d1	PIER #3 E.B. COLUMN VERTICAL	—	28	27'-5	4079
11d1	PIER #4 E.B. COLUMN VERTICAL	—	28	25'-11	3856
11d2	PIER #3 W.B. FOOTING TO COLUMN DOWEL	⌐	28	12'-2	1810
11d2	PIER #4 W.B. FOOTING TO COLUMN DOWEL	⌐	28	12'-2	1810
11d2	PIER #5 W.B. FOOTING TO COLUMN DOWEL	⌐	28	12'-2	1810
11d2	PIER #3 E.3. FOOTING TO COLUMN DOWEL	⌐	28	12'-2	1810
11d2	PIER #4 E.B. FOOTING TO COLUMN DOWEL	⌐	28	12'-2	1810
5e1	PIER #3 W.B. COLUMN HOOP	○	44	10'-6	482
5e1	PIER #4 W.B. COLUMN HOOP	○	48	10'-6	526
5e1	PIER #5 W.B. COLUMN HOOP	○	44	10'-6	482
5e1	PIER #3 E.B. COLUMN HOOP	○	50	10'-6	548
5e1	PIER #4 E.B. COLUMN HOOP	○	46	10'-6	504
8f1	NEW FOOTING TO EXIST. FOOTING DOWELS	—	270	4'-6	3244
6g1	TOP OF FOOTING LONGIT.	—	108	7'-2	1163
6g2	BOTT. OF FOOTING LONGIT.	—	126	7'-2	1356
6h1	TOP OF FOOTING TRANSV.	—	144	5'-8	1226
6h2	BOTT. OF FOOTING TRANSV.	—	144	5'-8	1226
6j1	CRASHWALL HAIRPINS - HORIZ.	⊃	40	18'-5	1106
6k1	CRASHWALL VERTICAL TO FOOTING DOWELS	—	80	3'-4	400
6k2	CRASHWALL VERTICAL	—	80	9'-10	1182
	REINFORCING STEEL TOTAL LBS.				46212

PILING LENGTHS - NINE PIERS

PIER #1 W.B.	PIER #2 W.B.	PIER #3 W.B.	PIER #4 W.B.	PIER #5 W.B.	PIER #1 E.B.	PIER #2 E.B.	PIER #3 E.B.	PIER #4 E.B.	TOTAL
8 @ 32'	8 @ 32'	8 @ 32'	5 @ 30' 3 @ 32'	8 @ 30'	8 @ 30'	8 @ 28'	5 @ 28' 3 @ 30'	8 @ 28'	2172 L.F.

EXCAVATION QUANTITIES - NINE PIERS

PIER #1 W.B.	PIER #2 W.B.	PIER #3 W.B.	PIER #4 W.B.	PIER #5 W.B.	PIER #1 E.B.	PIER #2 E.B.	PIER #3 E.B.	PIER #4 E.B.	TOTAL
35	61	60	60	61	33	57	60	37	464 C.Y.

TOTAL ESTIMATED QUANTITIES - NINE PIERS

ITEM		UNIT	QUANTITY
STRUCTURAL CONCRETE CLASS "C"		CU. YD.	316.5
REINFORCING STEEL EPOXY COATED		LBS.	24275
REINFORCING STEEL		LBS.	46212
CLASS 20 EXCAVATION		CU. YD.	464
HP10 x 42 STEEL BEARING PILING	FURNISH 21 @ 28'; 24 @ 30' & 27 @ 32'	LIN. FT.	~~2160~~ 2172
	DRIVE 21 @ 28'; 24 @ 30' & 27 @ 32'	LIN. FT.	~~2160~~ 2172

DESIGN FOR WIDENING EXISTING

315'-5x42' & 280'-0x42' PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGES

TO

56' ROADWAY BRIDGES

PIER DETAILS

STA. 1131+87.84 ℄ I-80 FRA X-ING # 192659V
STA. 20+00 ℄ E. 29TH ST. IOWA X-ING # 4521

OCT. 1991

POLK COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 15 OF 40 FILE NO. 28266 DESIGN NO. 1391

DESIGNED BY LeRoy Ornberg TRACED BY DOUG WARRINGS
DETAILED BY DOUG WARRINGS CHECKED BY J. Neiderliver

H77139100.S14 DEVICE : ZHAO:(200,004) ARCH. TAPE NO. _____ DATE_____

POLK COUNTY

PROJECT NUMBER

STATE	FHWA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	7		17	57

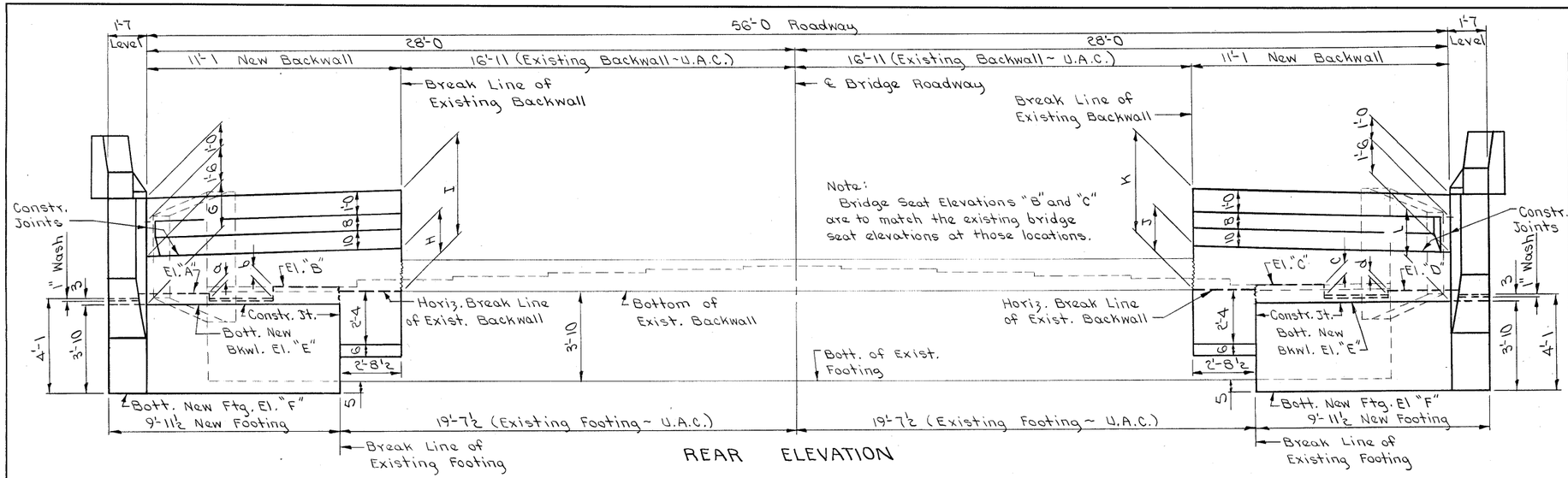
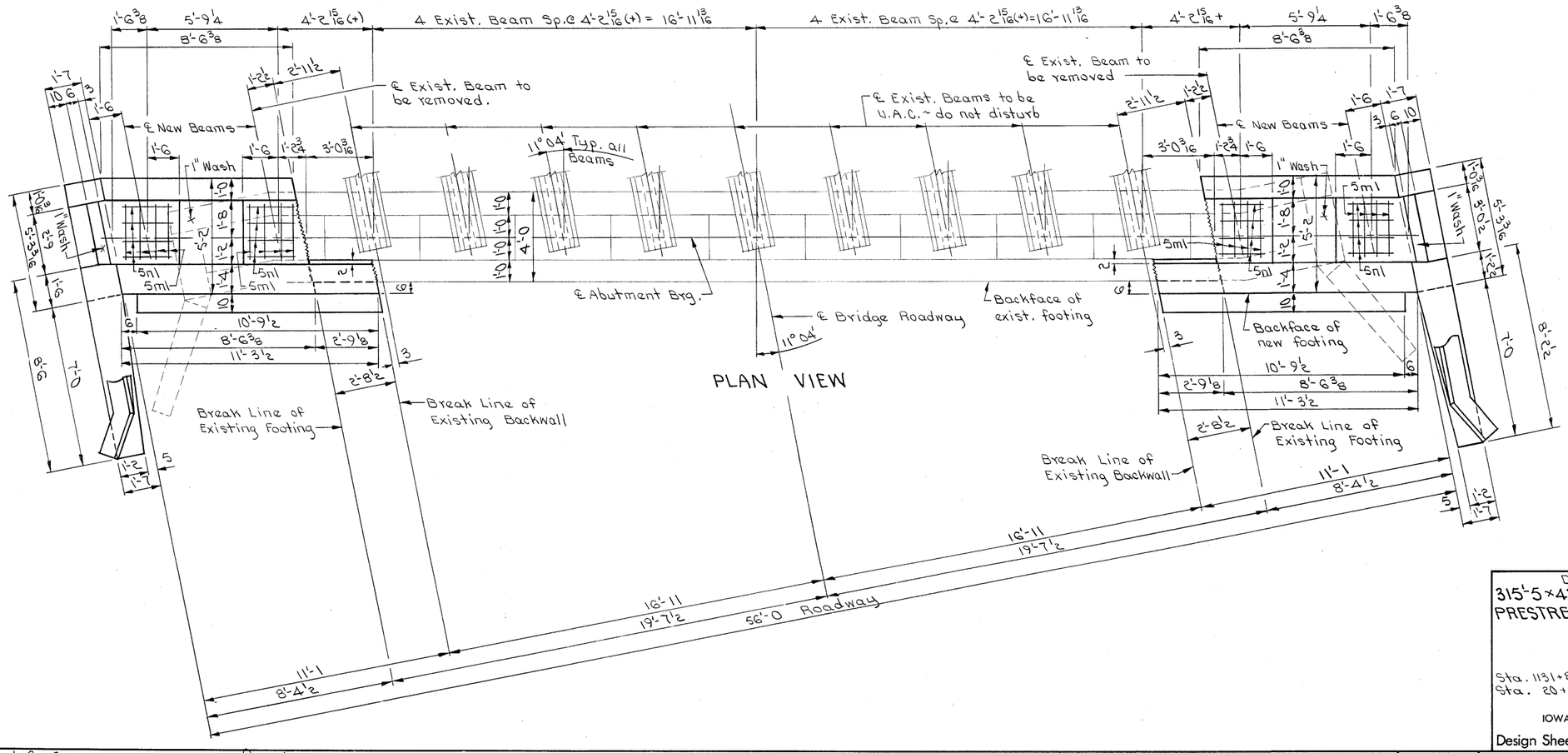


TABLE OF ELEVATIONS AND DIMENSIONS				
	W.B. Bridge West Abut.	W.B. Bridge East Abut.	E.B. Bridge West Abut.	E.B. Bridge East Abut.
Step a	3	$13/16$	$1'8$	$8'8$
Step b	$6'2$	4	4	$10\ 15/16$
Step c	4	$5\ 9/16$	$10'8$	4
Step d	1	$1\ 5/8$	$7\ 11/16$	$1/2$
Dimen. G	$2'-1$	$1'-10\ 7/16$	$1'-11\ 11/16$	$2'-5\ 3/4$
Dimen. H	$2'-0\ 1/2$	$1'-8\ 5/8$	$1'-10\ 1/2$	$2'-4$
Dimen. I	$4'-6\ 1/2$	$4'-2\ 5/8$	$4'-4\ 1/2$	$4'-10$
Dimen. J	$1'-9\ 11/16$	$1'-10\ 3/4$	$2'-4\ 1/4$	$1'-9\ 5/8$
Dimen. K	$4'-3\ 11/16$	$4'-4\ 3/4$	$4'-10\ 1/4$	$4'-3\ 5/8$
Dimen. L	$1'-11\ 3/16$	$1'-11$	$2'-5\ 3/4$	$1'-9\ 15/16$
El. A	932.51	924.93	932.46	926.68
El. B	932.80	925.19	932.70	926.91
El. C	932.59	925.32	933.21	926.33
El. D	932.35	925.00	933.01	926.04
El. E	932.01	924.61	932.12	925.75
El. F	928.18	920.77	928.29	921.92

~~Bench~~ mark from original design ~~plans~~ -
BM # 187 Sta. ~~1133+46 60' Rt.~~ AR Spk in N ~~side pole~~ west of East 29 th st -- ~~Elev = 918.56~~



Design for Widening Existing
315'-5×42' & 280'-0×42' PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGES
To
56' ROADWAY BRIDGES
ABUTMENT DETAILS
Sta. 1131+87.84 ℄ I-80 FRA Xing # 192659V
Sta. 20+00 ℄ E. 29th st. Iowa Xing #4521
Oct. 1991
POLK COUNTY
IOWA DEPARTMENT OF TRANSPORTATION-HIGHWAY DIVISION
Design Sheet No.: 16 Of 40 File No.: 2826G Design No.: 1391

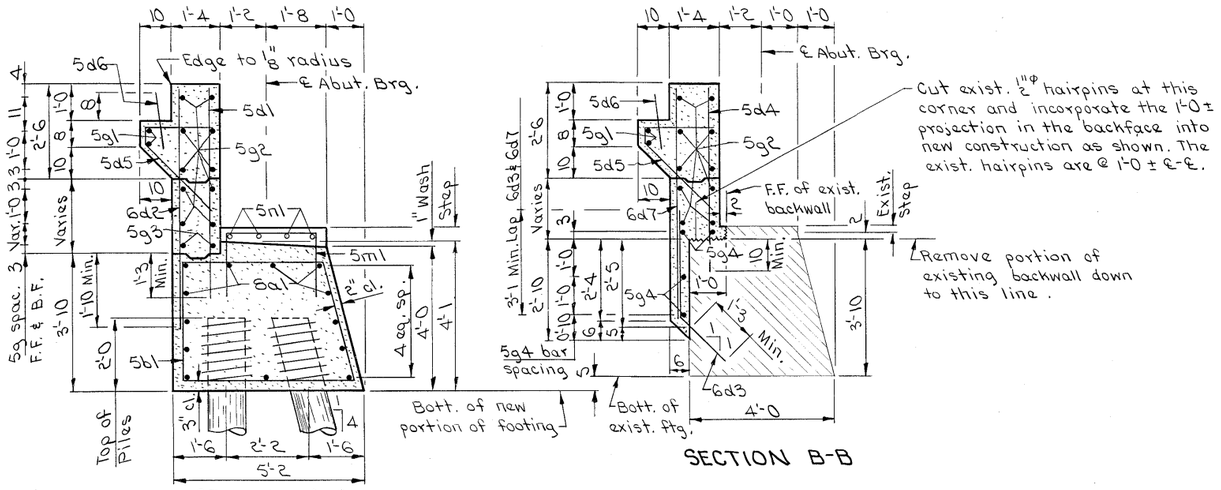
DESIGNED BY: LeRoy Oraberg TRACED BY: Doug Wanning
DETAILED BY: Doug Wanning CHECKED BY: J.V. Neff

POLK COUNTY

PROJECT NUMBER	STATE	FHWA Region	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	IOWA	7		18	57

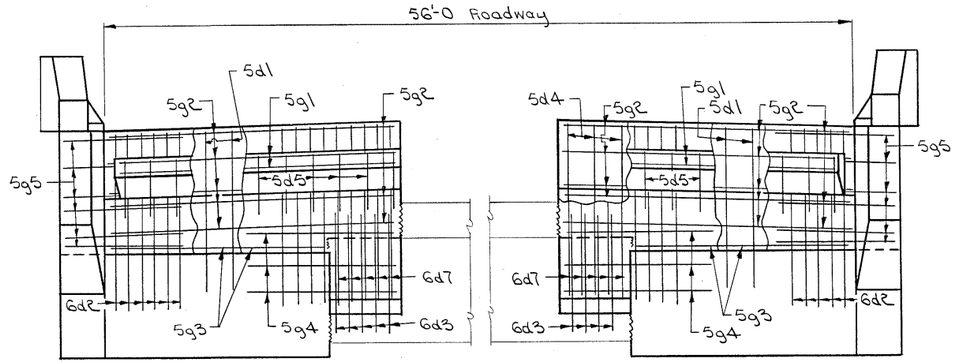
BRUNING 65219 BRIDGE WORK SHEET 300 2-1640

Note:
Spirals at top of each pile are to be made up of 7 turns of N° 2 bar - 21" diameter, 3" pitch with 2- L $\frac{7}{8}$ x $\frac{7}{8}$ x $\frac{1}{8}$ spacers punched to hold spiral.

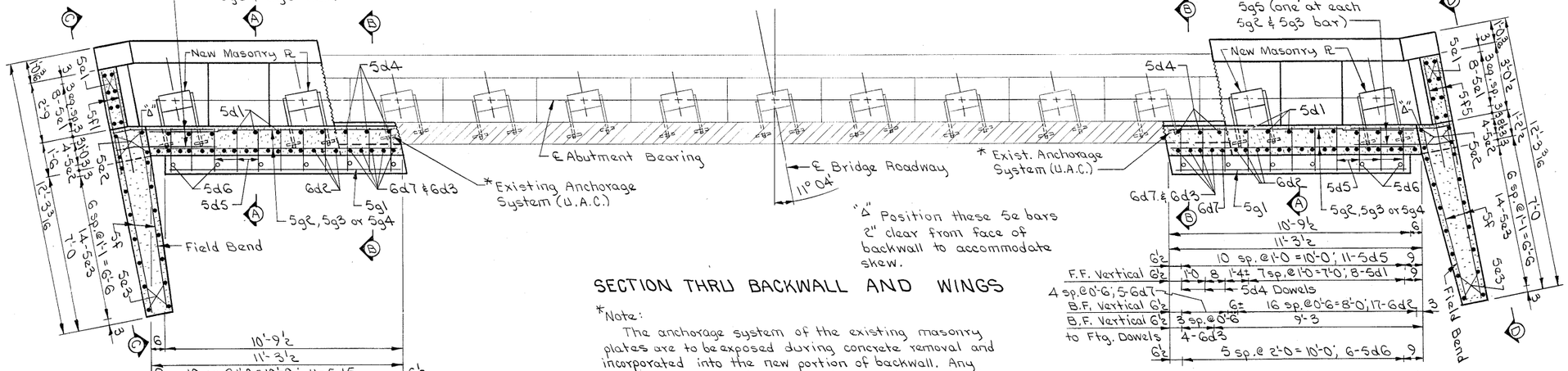


SECTION A-A
(Expansion device not shown)

SECTION B-B



PART REAR ELEVATION
(Bridge seat steps and wash not shown. See "Rear Elevation" on Des. Sh. 16 for additional details and dimensions.)



SECTION THRU BACKWALL AND WINGS

*Note:
The anchorage system of the existing masonry plates are to be exposed during concrete removal and incorporated into the new portion of backwall. Any damage to the anchorage system by the contractor shall be repaired by him at no extra cost to the state.

Note: See Des. Sh. 18 for Views C-C and D-D.

Design for Widening Existing
315'-5x42' & 280'-0x42' PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGES
To
56' ROADWAY BRIDGES
ABUTMENT DETAILS

Sta. 1131+87.84 ℄ I-80 FRA X-ing # 19265V
Sta. 20+00 ℄ E. 29th St. Iowa X-ing # 4521
Oct. 1991

POLK COUNTY
IOWA DEPARTMENT OF TRANSPORTATION-HIGHWAY DIVISION

Design Sheet No.: 17 Of 40 File No.: 28266 Design No.: 1391

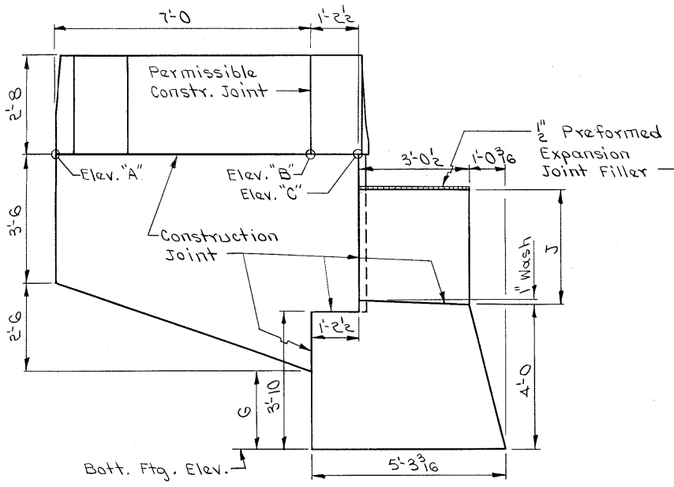
DESIGNED BY: LeRoy Ornberg
DETAILED BY: Doug Wanning
TRACED BY: Doug Wanning
CHECKED BY: T. Kreiter-Fiser

POLK COUNTY

PROJECT NUMBER	STATE	FHWA Region	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	IOWA	7		19	57

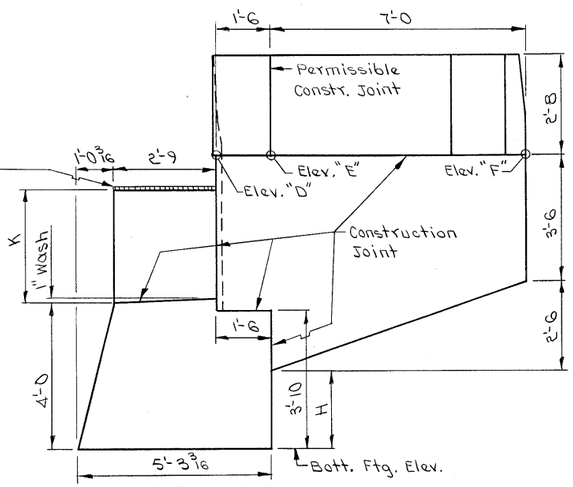
BRUNING 65219 BRUSH HOPE 3 SHEET 000 3 BARS

~~Bench mark from original design plans~~
~~BM # 187 Sta. 1133+46=60' Rt. RR Spk in N side pole west of East 29th St - Elev = 918.56~~



VIEW D-D

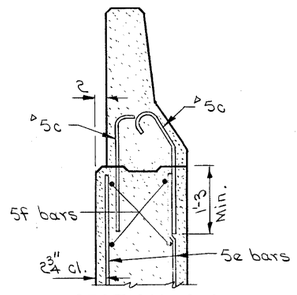
West Bound Bridge - West Abut. - South Wing
West Bound Bridge - East Abut. - North Wing
East Bound Bridge - West Abut. - South Wing
East Bound Bridge - East Abut. - North Wing



VIEW C-C

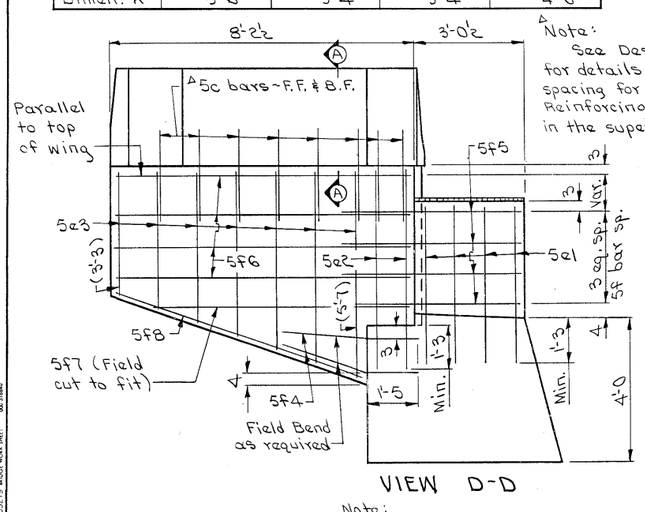
West Bound Bridge - West Abut. - North Wing
West Bound Bridge - East Abut. - South Wing
East Bound Bridge - West Abut. - North Wing
East Bound Bridge - East Abut. - South Wing

TABLE OF ELEVATIONS AND DIMENSIONS				
	W.B. Bridge West Abut.	W.B. Bridge East Abut.	E.B. Bridge West Abut.	E.B. Bridge East Abut.
Batt. Ftg. Elev.	928.18	920.77	928.29	921.92
Elev. A	936.57	928.82	937.23	929.89
Elev. B	936.44	929.02	937.10	930.08
Elev. C	936.42	929.06	937.08	930.12
Elev. D	936.57	929.01	936.52	930.77
Elev. E	936.60	928.97	936.54	930.74
Elev. F	936.73	928.77	936.67	930.55
Dimen. G	2'-4 1/16	2'-0 5/8	2'-11 1/4	1'-11 5/8
Dimen. H	2'-6 5/8	2'-0	2'-4 5/8	2'-7 3/16
Dimen. J	3'-4	3'-4	3'-11	3'-4
Dimen. K	3'-6	3'-4	3'-4	4'-0

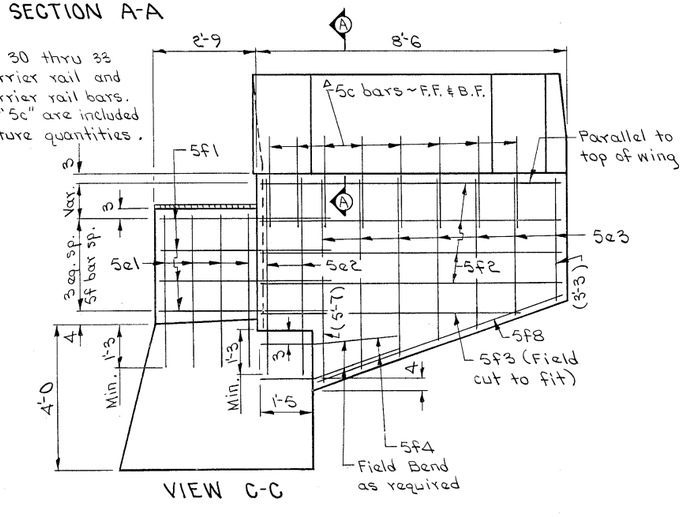


SECTION A-A

Note:
See Des. Shs. 30 thru 33 for details of barrier rail and spacing for 5c barrier rail bars. Reinforcing bars "5c" are included in the superstructure quantities.



VIEW D-D



VIEW C-C

Note:
See Des. Sh. 17 for location of Views C-C and D-D

DOWEL SETTING NOTES (ABUTMENTS)

From the reinforcing bar lists shown on this sheet the 8a2, 6d3 and 5d4 bars are to be set as dowels into existing concrete. Any dowel shall have a minimum of 4" from the edge of existing concrete to the ℄ of the drilled hole. The dowels shall be installed in accordance with the manufacturer'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.

REINFORCING BAR LIST - ONE ABUTMENT

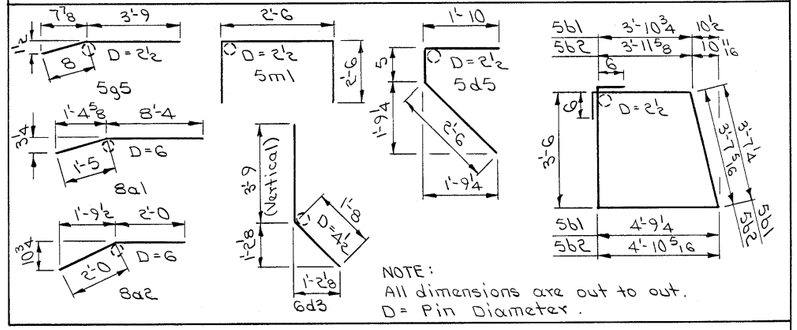
EPOXY COATED BARS

Bar	Location	Shape	N°	Length	Lin. Ft.	Weight
5d1	Backwall Vertical F.F.	—	16	6'-3	100	104
6d2	Backwall Vertical B.F.	—	34	7'-0	238	357
6d3	Backwall to Ftg. Dowels B.F.	L	9	5'-5	49	73
5d4	Backwall to Ftg. Dowels F.F. Vert.	—	6	5'-6	33	34
5d5	Paving Notch Transv.	⊏	22	4'-9	105	109
5d6	Paving Notch Dowels	—	12	1'-4	16	17
6d7	Backwall Vertical B.F.	—	10	6'-4	63	95
5g1	Paving Notch Longit.	—	4	10'-4	41	43
5g2	Backwall Longit.	—	20	11'-0	220	230
5g3	Backwall Longit. - Near Bottom	—	4	8'-2	33	34
5g4	Backwall Longit. - Near Bottom	—	8	5'-6	44	46
5g5	Backwall to Wing	⌐	24	4'-5	106	111
5m1	Steps - Transv.	⊓	16	7'-6	120	125
5n1	Steps - Longit.	—	16	2'-2	35	36
	Reinforcing Steel - Epoxy Coated - Total (Lbs.)					1414

NON-COATED BARS

Bar	Location	Shape	N°	Length	Weight
8a1	Footing Longit.	⌐	26	5'-9	677
8a2	New Footing to Exist. Footing - Dowels	⌐	12	4'-0	128
5b1	Footing Hoops	□	8	16'-10	141
5b2	Footing Hoops @ Ends	□	4	17'-0	71
5e1	Maskwall Vertical	—	16	5'-2	86
5e2	Wingwall Vertical	—	8	6'-2	51
5e3	Wing Vertical	—	28	Varies	129
5f1	2'-9 Maskwalls - Horiz.	—	8	4'-7	38
5f2	8'-6 Wing - Horiz.	—	8	8'-2	68
5f3	8'-6 Wing - Horiz.	—	2	8'-2	17
5f4	Wing Horiz. to Footing	—	8	4'-0	33
5f5	3'-0½ Maskwalls - Horiz.	—	8	4'-10	40
5f6	8'-2½ Wing - Horiz.	—	8	7'-10	65
5f7	8'-2½ Wing - Horiz.	—	2	7'-0	15
5f8	Batt. of Wing along slope	—	4	7'-1	30
#2	Pile Spiral	(((((((	8	38'-6	51
	Spiral Spacers L 7/8 x 7/8 x 1/8 x 0.70	—	16	1'-10	21
	Reinforcing Steel - Total (Lbs.)				1661

BENT BAR DETAILS



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

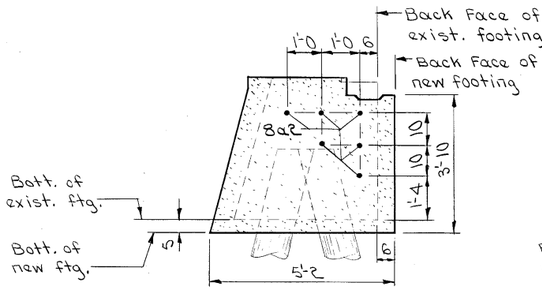
Design for Widening Existing
315' 5 x 42' & 280'-0 x 42' PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGES
To
56' ROADWAY BRIDGES
ABUTMENT DETAILS
Sta. 1131+87.84 ℄ I-80 FRA x-ing # 1926594 Oct. 1991
Sta. 20+00 ℄ E. 29th St. Iowa x-ing # 4521
POLK COUNTY
IOWA DEPARTMENT OF TRANSPORTATION-HIGHWAY DIVISION
Design Sheet No.: 18 Of 40 File No.: 28266 Design No.: 1391

DESIGNED BY: LeRoy Ornberg TRACED BY: Doug Wassing
DETAILED BY: Doug Wassing CHECKED BY: J. Neiderhiser

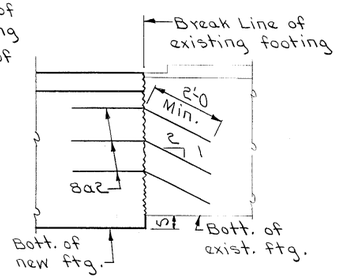
POLK COUNTY

PROJECT NUMBER	STATE	FHWA Region	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	IOWA	7		20	57

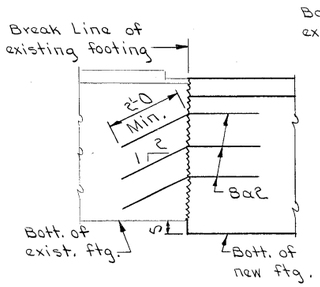
BRUNING 65219 BRIDGE WORK SHEET 000 31848



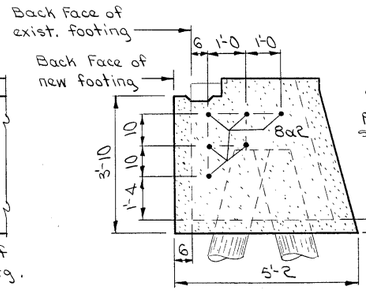
SECTION A-A



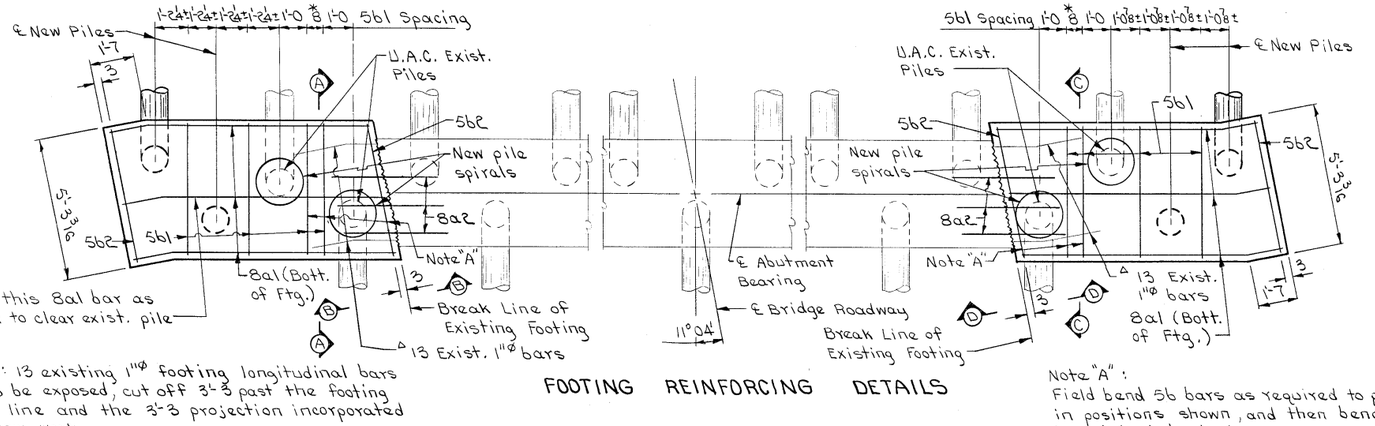
VIEW B-B



VIEW D-D



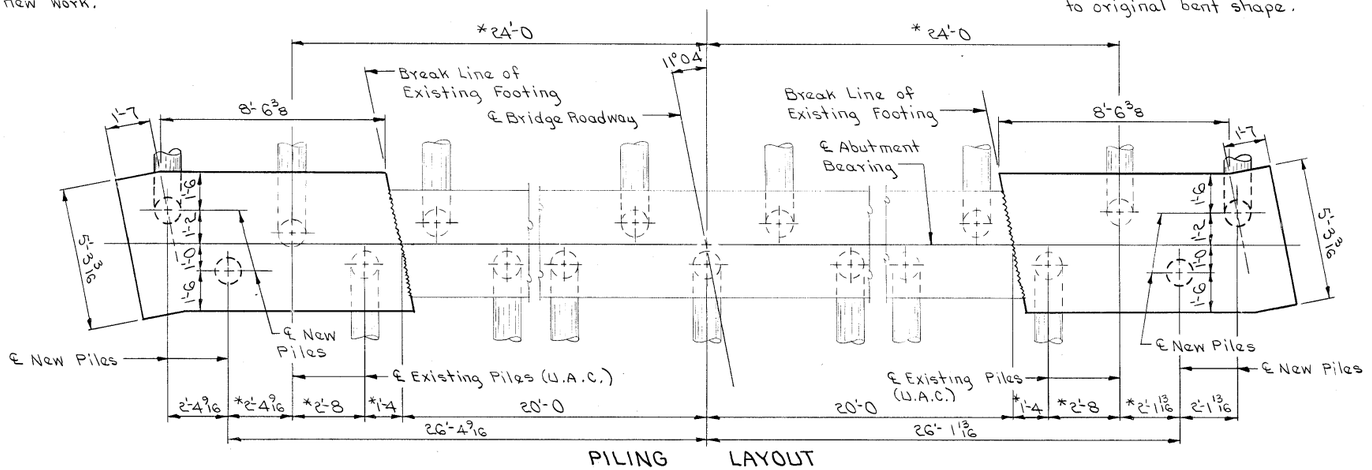
SECTION C-C



△ Note: 13 existing 1"φ footing longitudinal bars are to be exposed, cut off 3'-3 past the footing break line and the 3'-3 projection incorporated into new work.

FOOTING REINFORCING DETAILS

Note "A":
Field bend 56 bars as required to place in positions shown, and then bend back to original bent shape.

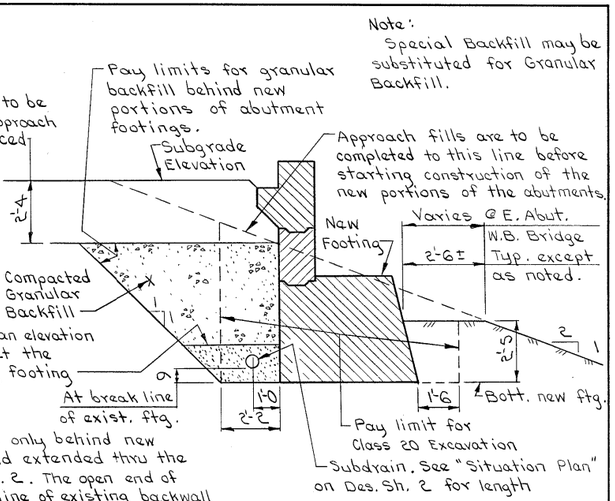


PILING LAYOUT

* Indicates dimensions based on the assumption that the existing piling are driven in the location shown on the original design plans (Design No. 4658 Polk County).

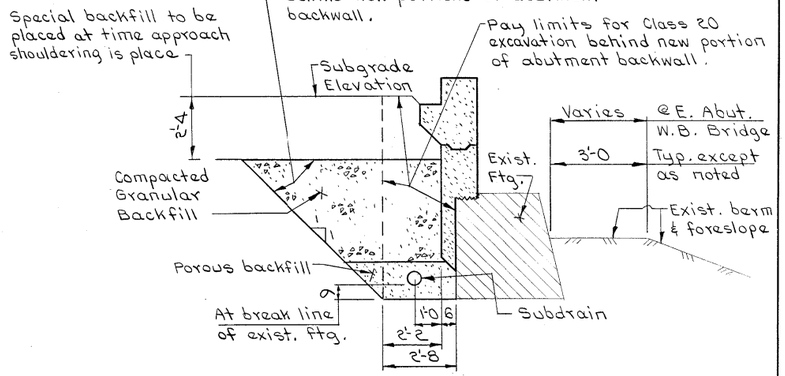
Note: Dimensions shown on Piling Layout are at bottom of footing. Batter piles 1:4 in the direction shown. 4-35' Creosoted Piling are required for each of the abutment footings.

Note:
Special Backfill may be substituted for Granular Backfill.



Note:
Subdrain to be installed only behind new portions of abut. backwalls and extended thru the fills as detailed on Des. Sh. 2. The open end of the subdrain at the break line of existing backwall shall be covered with a removable screen or other material approved by the engineer.

SUBDRAIN AND BACKFILL DETAILS BEHIND NEW PORTIONS OF FOOTING



SUBDRAIN AND BACKFILL DETAILS BEHIND NEW PORTION OF BACKWALL AT EXISTING FOOTING

Design for Widening Existing
315'-5 x 42" & 280'-0 x 42" PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGES
To
56' ROADWAY BRIDGES
ABUTMENT DETAILS

Sta. 1131+87.84 ℄ I-80 FRA X-ing # 1926590
Sta. 20+00 ℄ E. 29th St. Iowa X-ing # 4521
Oct, 1991

POLK COUNTY
IOWA DEPARTMENT OF TRANSPORTATION-HIGHWAY DIVISION

Design Sheet No.: 19 Of 40 File No.: 28266 Design No.: 1391

DESIGNED BY: LeRoy Ornberg TRACED BY: Tony Waning
DETAILED BY: Tony Waning CHECKED BY: J. Kerkhiser

POLK COUNTY

PROJECT NUMBER	STATE	FHWA Region	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	IOWA	7		21	57

BRUNING 652-19 BRUNING-HOFF-SHELT 000 31466

CONCRETE PLACEMENT QUANTITIES WEST ABUTMENT WESTBOUND BRIDGE

LOCATION	TOTAL
FOOTING AND STEPS NORTH END	7.0
FOOTING AND STEPS SOUTH END	6.9
BACKWALL BELOW CONSTR. JOINT NORTH END	1.4
BACKWALL BELOW CONSTR. JOINT SOUTH END	1.2
BACKWALL ABOVE CONSTR. JOINT 2 @ 1.8	3.6
NORTH MASKWALL	0.3
SOUTH MASKWALL	0.3
NORTH WINGWALL	2.1
SOUTH WINGWALL	2.0
TOTAL (CU. YDS.)	24.8

CONCRETE PLACEMENT QUANTITIES EAST ABUTMENT WESTBOUND BRIDGE

LOCATION	TOTAL
FOOTING AND STEPS NORTH END	6.9
FOOTING AND STEPS SOUTH END	6.9
BACKWALL BELOW CONSTR. JOINT NORTH END	1.3
BACKWALL BELOW CONSTR. JOINT SOUTH END	1.2
BACKWALL ABOVE CONSTR. JOINT 2 @ 1.8	3.6
NORTH MASKWALL	0.3
SOUTH MASKWALL	0.3
NORTH WINGWALL	2.1
SOUTH WINGWALL	2.1
TOTAL (CU. YDS.)	24.7

CONCRETE PLACEMENT QUANTITIES WEST ABUTMENT EASTBOUND BRIDGE

LOCATION	TOTAL
FOOTING AND STEPS NORTH END	6.9
FOOTING AND STEPS SOUTH END	7.2
BACKWALL BELOW CONSTR. JOINT NORTH END	1.3
BACKWALL BELOW CONSTR. JOINT SOUTH END	1.6
BACKWALL ABOVE CONSTR. JOINT 2 @ 1.8	3.6
NORTH MASKWALL	0.3
SOUTH MASKWALL	0.4
NORTH WINGWALL	2.1
SOUTH WINGWALL	2.1
TOTAL (CU. YDS.)	25.5

CONCRETE PLACEMENT QUANTITIES EAST ABUTMENT EASTBOUND BRIDGE

LOCATION	TOTAL
FOOTING AND STEPS NORTH END	6.9
FOOTING AND STEPS SOUTH END	7.2
BACKWALL BELOW CONSTR. JOINT NORTH END	1.2
BACKWALL BELOW CONSTR. JOINT SOUTH END	1.5
BACKWALL ABOVE CONSTR. JOINT 2 @ 1.8	3.6
NORTH MASKWALL	0.3
SOUTH MASKWALL	0.3
NORTH WINGWALL	2.1
SOUTH WINGWALL	2.2
TOTAL (CU. YDS.)	25.3

TOTAL ESTIMATED QUANTITIES - FOUR ABUTMENTS

ITEM		UNIT	QUANTITY
STRUCTURAL CONCRETE CLASS "C"		CU.YD.	100.3
REINFORCING STEEL EPOXY COATED		LBS.	5656
REINFORCING STEEL		LBS.	6644
CREOSOTED PILING FURNISH	16 @ 35'	L.F.	560
CREOSOTED PILING DRIVE	16 @ 35'	L.F.	560
CLASS 20 EXCAVATION		CU.YD.	225
GRANULAR BACKFILL		TONS	175
Δ SUBDRAIN AS PER PLAN		L.F.	296
CONCRETE SEALER AS PER PLAN		SQ. FT.	241

Δ INCLUDES THE EXCAVATION NECESSARY FOR THE SUBDRAIN INSTALLATION, AND THE COST OF 35 TONS OF POROUS BACKFILL.

ABUTMENT 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 $\frac{3}{4}$" DRESSED AND BEVELED STRIP.

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

BACKFILL BEHIND THE NEW PORTIONS OF FOOTINGS IS TO BE AS SHOWN ON DES. SH. 19. THE REMAINDER OF ABUTMENT EXCAVATION IS TO BE BACKFILLED WITH SOIL.

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

SOME OF THE ABUTMENT REINFORCING BARS SHALL BE EPOXY COATED. FOR LIST SEE DES. SH. 18.

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

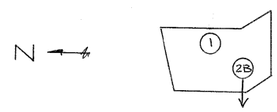
CONSTRUCTION JOINT KEYWAYS ARE TO BE FORMED WITH BEVELED 2 x 6'S.

NEW BEAMS AND MASONRY PLATES ARE TO BE SET BEFORE BACKWALL IS PLACED.

THE PORTION OF THE BACKWALL CONTAINING THE ABUTMENT ANCHORAGE OF THE EXPANSION DEVICE IS TO BE POURED AFTER THE BRIDGE FLOOR IS PLACED.

THE DESIGN BEARING FOR THE ABUTMENT PILES IS 20 TONS. THE TOTAL DRIVING RESISTANCE FOR THE PILES IS 24 TONS. 4 TONS OF THIS DRIVING RESISTANCE IS END BEARING. 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. PILES ARE TO BE DRIVEN TO NOT MORE THAN 40 TONS BEARING VALUE PER PILE.

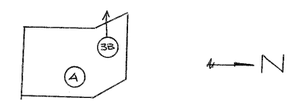
FOUNDATION NUMBER	PILING LOG	KIND OF PILING
EAST ABUTMENT E.B.L. OUTSIDE		WOOD



BATTER 1:4

PILE NO.	LENGTH IN STRUCTURE	BEARING (in Tons)	PILE NO.	LENGTH IN STRUCTURE	BEARING (in Tons)	PILE NO.	LENGTH IN STRUCTURE	BEARING (in Tons)
1	17.5 L.F.	45	2B	13.7 L.F.	42			

FOUNDATION NUMBER	PILING LOG	KIND OF PILING
EAST ABUTMENT E.B.L. INSIDE		WOOD



BATTER 1:4

PILE NO.	LENGTH IN STRUCTURE	BEARING (in Tons)	PILE NO.	LENGTH IN STRUCTURE	BEARING (in Tons)	PILE NO.	LENGTH IN STRUCTURE	BEARING (in Tons)
3B	13.6 L.F.	44	4	13.3 L.F.	41			

DESIGN FOR WIDENING EXISTING
315'-5x42' & 280'-0x42' PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGES
TO
56' ROADWAY BRIDGES
ABUTMENT DETAILS

STA. 1131+87.84 ℄ I-80 FRA X-ING # 192659V
STA. 20+00 ℄ E. 29TH ST. IOWA X-ING # 4521
OCT. 1991

POLK COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 20 OF 40 FILE NO. 28266 DESIGN NO. 1391

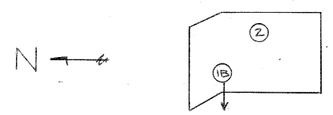
DESIGNED BY LeRoy Ornberg TRACED BY DOUG WARRINGS
DETAILED BY DOUG WARRINGS CHECKED BY J. Neubrecher

H77139100.S22 DEVICE : ZHAO:(200,004) ARCH. TAPE NO. _____ DATE_____

POLK COUNTY | PROJECT NUMBER

STATE	FHWA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	7		22	57

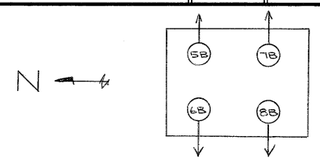
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PILING LOG
KIND OF PILING: WOOD



BATTER 1:4

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	18.2 L.F.	40	2	21.6 L.F.	40			

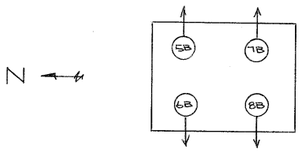
FOUNDATION NUMBER: PIER 3 W.B.L. INSIDE
PILING LOG
KIND OF PILING: STEEL HP 10 x 42



BATTER 1:4

PILE NO.	LENGTH IN STRUCTURE	BEARING (in Tons)	PILE NO.	LENGTH IN STRUCTURE	BEARING (in Tons)	PILE NO.	LENGTH IN STRUCTURE	BEARING (in Tons)
5B	31.6 L.F.	62	7B	31.8 L.F.	53			
6B	31.7 L.F.	53	8B	31.7 L.F.	66			

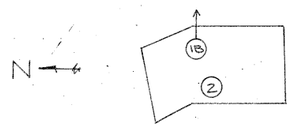
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PILING LOG
KIND OF PILING: STEEL HP 10 x 42



BATTER 1:4

PILE NO.	LENGTH IN STRUCTURE	BEARING (in Tons)	PILE NO.	LENGTH IN STRUCTURE	BEARING (in Tons)	PILE NO.	LENGTH IN STRUCTURE	BEARING (in Tons)
5B	29.5 L.F.	70	7B	29.9 L.F.	66			
6B	29.4 L.F.	70	8B	29.5 L.F.	74			

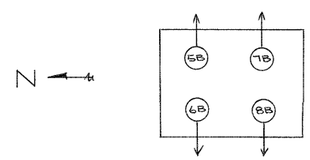
FOUNDATION NUMBER: WEST ABUTMENT W.B.L. OUTSIDE
PILING LOG
KIND OF PILING: WOOD



BATTER 1:4

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	29.8 L.F.	40	2	29.5 L.F.	40			

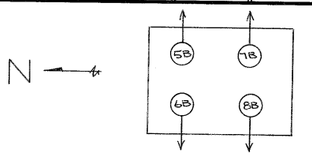
FOUNDATION NUMBER: PIER 4 W.B.L. INSIDE
PILING LOG
KIND OF PILING: STEEL HP 10 x 42



BATTER 1:4

PILE NO.	LENGTH IN STRUCTURE	BEARING (in Tons)	PILE NO.	LENGTH IN STRUCTURE	BEARING (in Tons)	PILE NO.	LENGTH IN STRUCTURE	BEARING (in Tons)
5B	29.7 L.F.	56	7B	29.8 L.F.	56			
6B	29.9 L.F.	56	8B	29.7 L.F.	53			

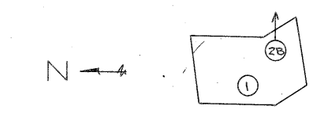
FOUNDATION NUMBER: PIER 5 W.B.L. INSIDE
PILING LOG
KIND OF PILING: STEEL HP 10 x 42



BATTER 1:4

PILE NO.	LENGTH IN STRUCTURE	BEARING (in Tons)	PILE NO.	LENGTH IN STRUCTURE	BEARING (in Tons)	PILE NO.	LENGTH IN STRUCTURE	BEARING (in Tons)
5B	28.8 L.F.	74	7B	29.0 L.F.	70			
6B	28.4 L.F.	74	8B	28.3 L.F.	74			

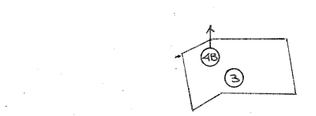
FOUNDATION NUMBER: WEST ABUTMENT E.B.L. OUTSIDE
PILING LOG
KIND OF PILING: WOOD



BATTER 1:4

PILE NO.	LENGTH IN STRUCTURE	BEARING (in Tons)	PILE NO.	LENGTH IN STRUCTURE	BEARING (in Tons)	PILE NO.	LENGTH IN STRUCTURE	BEARING (in Tons)
1	26.3 L.F.	40	2B	23.1 L.F.	47			

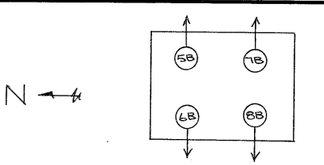
FOUNDATION NUMBER: EAST ABUTMENT W.B.L. INSIDE
PILING LOG
KIND OF PILING: WOOD



BATTER 1:4

PILE NO.	LENGTH IN STRUCTURE	BEARING (in Tons)	PILE NO.	LENGTH IN STRUCTURE	BEARING (in Tons)	PILE NO.	LENGTH IN STRUCTURE	BEARING (in Tons)
3	15.8 L.F.	42	4B	13.4 L.F.	42			

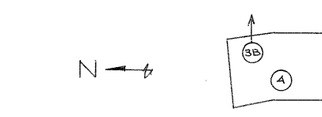
FOUNDATION NUMBER: PIER 1 W.B.L. INSIDE
PILING LOG
KIND OF PILING: STEEL HP 10 x 42



BATTER 1:4

PILE NO.	LENGTH IN STRUCTURE	BEARING (in Tons)	PILE NO.	LENGTH IN STRUCTURE	BEARING (in Tons)	PILE NO.	LENGTH IN STRUCTURE	BEARING (in Tons)
5B	31.8 L.F.	70	7B	32.0 L.F.	44			
6B	31.6 L.F.	59	8B	31.6 L.F.	62			

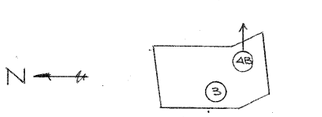
FOUNDATION NUMBER: WEST ABUTMENT E.B.L. INSIDE
PILING LOG
KIND OF PILING: WOOD



BATTER 1:4

PILE NO.	LENGTH IN STRUCTURE	BEARING (in Tons)	PILE NO.	LENGTH IN STRUCTURE	BEARING (in Tons)	PILE NO.	LENGTH IN STRUCTURE	BEARING (in Tons)
3B	21.8 L.F.	42	4	19.6 L.F.	45			

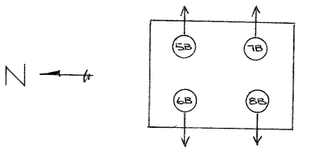
FOUNDATION NUMBER: WEST ABUTMENT W.B.L. INSIDE
PILING LOG
KIND OF PILING: WOOD



BATTER 1:4

PILE NO.	LENGTH IN STRUCTURE	BEARING (in Tons)	PILE NO.	LENGTH IN STRUCTURE	BEARING (in Tons)	PILE NO.	LENGTH IN STRUCTURE	BEARING (in Tons)
3	23.2 L.F.	42	4B	29.6 L.F.	42			

FOUNDATION NUMBER: PIER 2 W.B.L. INSIDE
PILING LOG
KIND OF PILING: STEEL HP 10 x 42



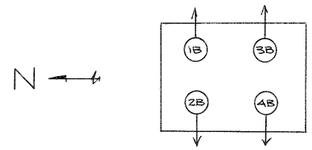
BATTER 1:4

PILE NO.	LENGTH IN STRUCTURE	BEARING (in Tons)	PILE NO.	LENGTH IN STRUCTURE	BEARING (in Tons)	PILE NO.	LENGTH IN STRUCTURE	BEARING (in Tons)
5B	31.4 L.F.	58	7B	31.5 L.F.	56			
6B	31.4 L.F.	58	8B	31.3 L.F.	62			

COUNTY

PROJECT NUMBER	STATE	FED. ROAD DIST. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IR-80-5(148)137--12-77	IOWA	5		22A	

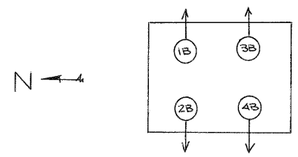
FOUNDATION NUMBER: PIER 4, E.B.L. OUTSIDE
PILING LOG
KIND OF PILING: STEEL HP 10 x 42



BATTER 1:4

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	26.5 L.F.	70	3B	26.2 L.F.	39			
2B	26.1 L.F.	39	4B	27.3 L.F.	76			

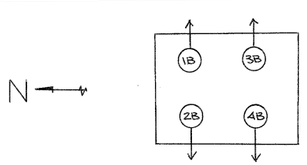
FOUNDATION NUMBER: PIER 5, W.B.L. OUTSIDE
PILING LOG
KIND OF PILING: STEEL HP 10 x 42



BATTER 1:4

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	29.6 L.F.	70	3B	29.1 L.F.	70			
2B	29.6 L.F.	70	4B	29.3 L.F.	74			

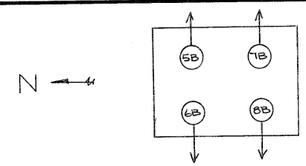
FOUNDATION NUMBER: PIER 1, W.B.L. OUTSIDE
PILING LOG
KIND OF PILING: STEEL HP 10 x 42



BATTER 1:4

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	31.4 L.F.	53	3B	31.7 L.F.	50			
2B	31.7 L.F.	56	4B	31.8 L.F.	53			

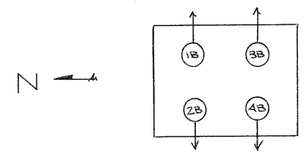
FOUNDATION NUMBER: PIER 1, E.B.L. INSIDE
PILING LOG
KIND OF PILING: STEEL HP 10 x 42



BATTER 1:4

PILE NO.	LENGTH IN STRUCTURE	BEARING (in Tons)	PILE NO.	LENGTH IN STRUCTURE	BEARING (in Tons)	PILE NO.	LENGTH IN STRUCTURE	BEARING (in Tons)
5B	30 L.F.	48	7B	29.6 L.F.	53			
6B	30 L.F.	62	8B	29.9 L.F.	41			

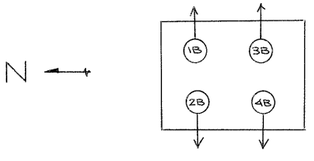
FOUNDATION NUMBER: PIER 1, E.B.L. OUTSIDE
PILING LOG
KIND OF PILING: STEEL HP 10 x 42



BATTER 1:4

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	26.3 L.F.	70	3B	26.3 L.F.	71			
2B	28.8 L.F.	78	4B	29.2 L.F.	70			

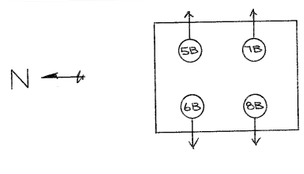
FOUNDATION NUMBER: PIER 2, W.B.L. OUTSIDE
PILING LOG
KIND OF PILING: STEEL HP 10 x 42



BATTER 1:4

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	33.4 L.F.	62	3B	33.5 L.F.	64			
2B	33.2 L.F.	60	4B	33.1 L.F.	64			

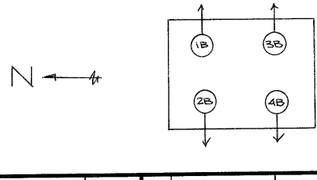
FOUNDATION NUMBER: PIER 2, E.B.L. INSIDE
PILING LOG
KIND OF PILING: STEEL HP 10 x 42



BATTER 1:4

PILE NO.	LENGTH IN STRUCTURE	BEARING (in Tons)	PILE NO.	LENGTH IN STRUCTURE	BEARING (in Tons)	PILE NO.	LENGTH IN STRUCTURE	BEARING (in Tons)
5B	27.5 L.F.	56	7B	28 L.F.	56			
6B	27.5 L.F.	59	8B	27.4 L.F.	56			

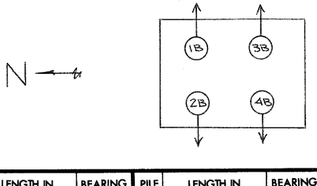
FOUNDATION NUMBER: PIER 2, E.B.L. OUTSIDE
PILING LOG
KIND OF PILING: STEEL HP 10 x 42



BATTER 1:4

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	21.6 L.F.	66	3B	20.8 L.F.	60			
2B	23.0 L.F.	52	4B	22.9 L.F.	64			

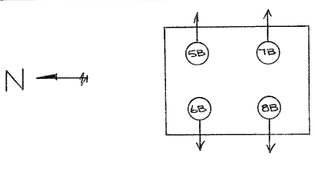
FOUNDATION NUMBER: PIER 3, W.B.L. OUTSIDE
PILING LOG
KIND OF PILING: STEEL HP 10 x 42



BATTER 1:4

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	32.9 L.F.	62	3B	32.8 L.F.	62			
2B	32.7 L.F.	60	4B	32.7 L.F.	60			

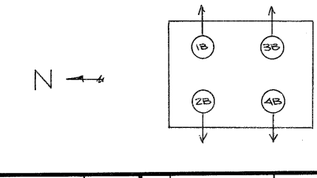
FOUNDATION NUMBER: PIER 3, E.B.L. INSIDE
PILING LOG
KIND OF PILING: STEEL HP 10 x 42



BATTER 1:4

PILE NO.	LENGTH IN STRUCTURE	BEARING (in Tons)	PILE NO.	LENGTH IN STRUCTURE	BEARING (in Tons)	PILE NO.	LENGTH IN STRUCTURE	BEARING (in Tons)
5B	29.7 L.F.	62	7B	29.9 L.F.	62			
6B	29.6 L.F.	74	8B	30.0 L.F.	74			

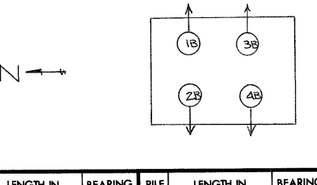
FOUNDATION NUMBER: PIER 3, E.B.L. OUTSIDE
PILING LOG
KIND OF PILING: STEEL HP 10 x 42



BATTER 1:4

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	28 L.F.	48	3B	27.7 L.F.	52			
2B	27.4 L.F.	66	4B	26.8 L.F.	50			

FOUNDATION NUMBER: PIER 4, W.B.L. OUTSIDE
PILING LOG
KIND OF PILING: STEEL HP 10 x 42

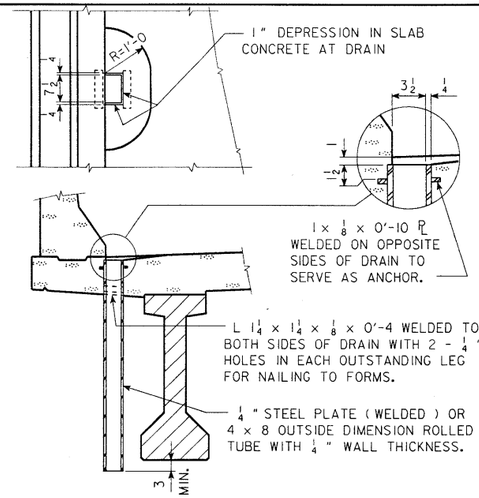


BATTER 1:4

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	29.6 L.F.	52	3B	29.2 L.F.	50			
2B	29.1 L.F.	48	4B	29.2 L.F.	48			

COUNTY

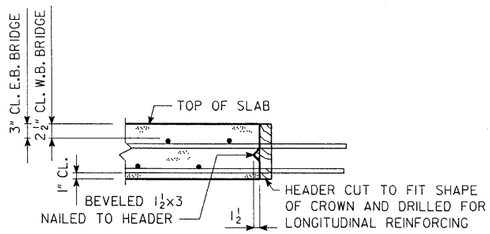
PROJECT NUMBER	STATE	FED. ROAD DIST. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IR-80-5(148)137--12-77	IOWA	5		228	



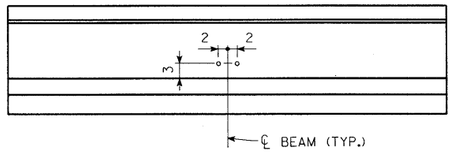
DRAIN DETAILS

NOTE :
DRAINS ARE TO BE GALVANIZED. 17 DRAINS REQUIRED. SEE " SITUATION PLAN " ON DESIGN SHEET 2 FOR LOCATION. WEIGHT OF DRAINS IS INCLUDED IN THE QUANTITY FOR "STRUCTURAL STEEL". WEIGHT IS BASED ON ROLLED TUBE.

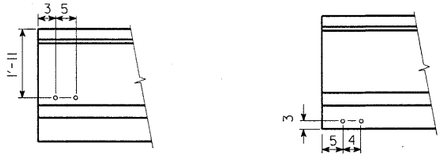
DATA FOR ONE DRAIN	
WT. LBS.	82
LENGTH FT.	4'-2¾



TRANSVERSE SLAB CONSTRUCTION JOINT



INTERMEDIATE DIAPHRAGM BEAM COIL TIE LOCATIONS



AT ABUTMENTS AT PIERS

BEAM COIL TIE LOCATIONS AT ENDS OF BEAMS

SUPERSTRUCTURE NOTES:

THE NEW 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".

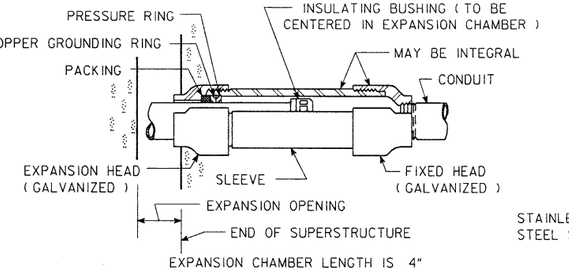
ALL BEAMS ARE TO BE SET VERTICAL.

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.

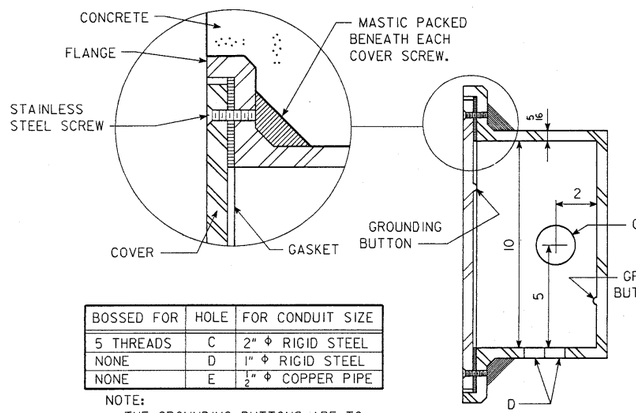
ALL SLAB AND DIAPHRAGM REINFORCING IS TO BE WIRED IN PLACE AND ADEQUATELY SUPPORTED BEFORE CONCRETE IS PLACED.

TOP TRANSVERSE REINFORCING STEEL IS TO BE PARALLEL TO AND 2½" CLEAR BELOW THE TOP OF SLAB IN THE WESTBOUND BRIDGE AND 3" CLEAR BELOW THE TOP OF SLAB IN THE EASTBOUND BRIDGE. BOTTOM LONGITUDINAL REINFORCING STEEL IS TO BE PARALLEL TO AND 1" CLEAR ABOVE THE BOTTOM OF THE 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.



RM-2A TYPE I EXPANSION FITTING

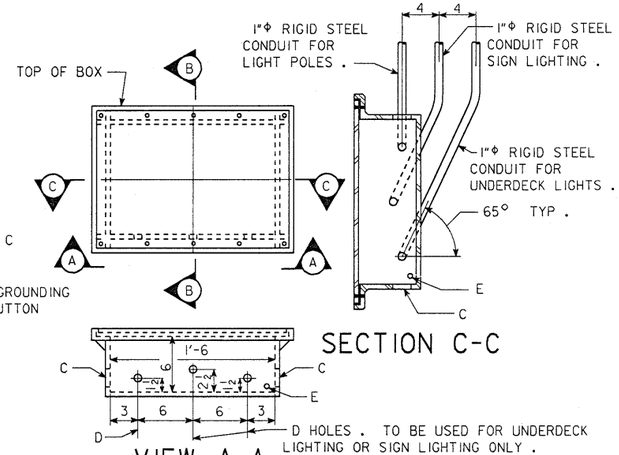
(2 REQUIRED)



BOSSED FOR	HOLE	FOR CONDUIT SIZE
5 THREADS	C	2" Φ RIGID STEEL
NONE	D	1" Φ RIGID STEEL
NONE	E	½" Φ COPPER PIPE

NOTE:
THE GROUNDING BUTTONS ARE TO BE BLIND DRILLED AND TAPPED FOR ⅜" Φ x 0'-0¾ BOLTS.

SECTION B-B

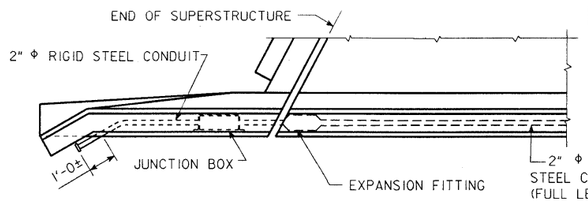


SECTION C-C

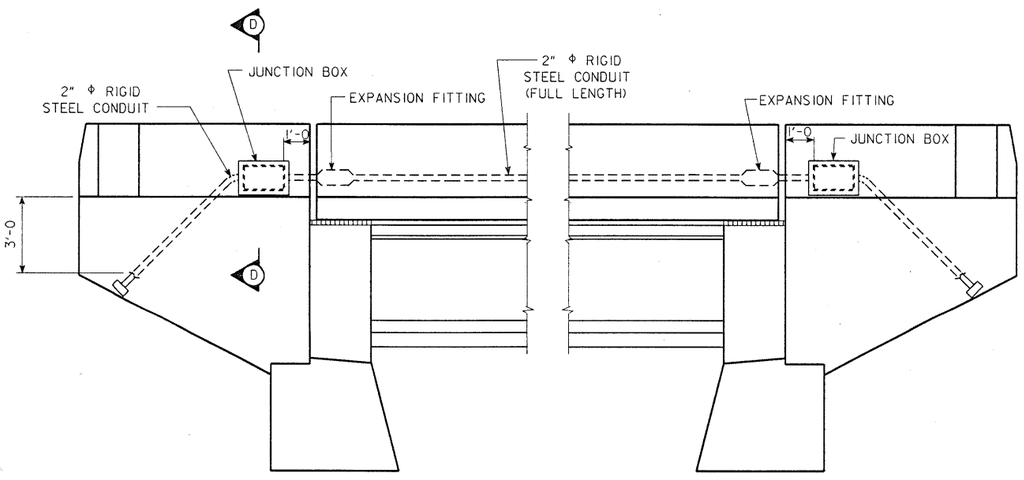
VIEW A-A

RM-9 , TYPE I JUNCTION BOX

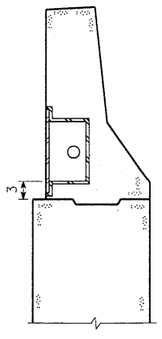
WATERTIGHT , CAST IRON - FLUSH MOUNT



PART PLAN AT WING



EXTERIOR ELEVATION - NORTH BARRIER RAIL LOOKING SOUTH - WESTBOUND BRIDGE



SECTION D-D

2"Φ RIGID STEEL CONDUIT NOTES:

CONSTRUCTION SHALL CONFORM TO THE CURRENT IOWA D.O.T. STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS AND CURRENT SUPPLEMENTAL SPECIFICATIONS FOR HIGHWAY LIGHTING .

CONDUIT INSTALLATION SHALL COMPLY WITH THE ARTICLE " ELECTRICAL DUCTS ", SECTION 2523 .

THE LENGTH OF CONDUIT INSTALLED SHALL BE MEASURED IN FEET BY THE ENGINEER .

EXPANSION FITTING SHALL BE AS SPECIFIED OR AS APPROVED BY THE ENGINEER . TYPICAL DETAILS ARE SHOWN ON THIS SHEET .

ALL " C " ENTRANCE HOLES IN JUNCTION BOXES SHALL BE DRILLED AND TAPPED FOR THE SPECIFIED CONDUIT SIZE . ALL OTHER HOLES SHALL HAVE A CONCRETE - TIGHT SLIP FIT . CONDUIT ENDS SHALL NOT PROTRUDE INTO JUNCTION BOX MORE THAN ¼". DRAIN PIPE END SHALL BE FLUSH WITH INSIDE SURFACE OF BOX . GROUNDING BUTTONS SHALL BE LOCATED APPROXIMATELY 3" FROM THE INSIDE SURFACE OF THE BOX WALL , AND NOT CLOSER THAN 3" TO THE EDGE OF ANY HOLE IN THE BOX FLOOR . HOLES FOR DRAIN PIPE SHALL BE PLACED IN THE LOW CORNER OF THE BOX , WITH A MINIMUM CLEARANCE OF 1" BETWEEN THE EDGE OF THE HOLE AND THE INSIDE SURFACE OF THE BOX WALL . TYPICAL DETAILS ARE SHOWN ON THIS SHEET .

THE CONTRACT UNIT PRICE PER LINEAL FOOT OF 2"Φ RIGID STEEL CONDUIT SHALL BE FULL COMPENSATION FOR FURNISHING THE 2"Φ RIGID STEEL CONDUIT, AS WELL AS THE JUNCTION BOXES AND JUNCTION BOX FITTINGS, AND ANY WORK INCIDENTAL TO THE INSTALLATION OF THE 2"Φ RIGID STEEL CONDUIT AND JUNCTION BOXES.

CONDUIT QUANTITIES	
ITEM	AMOUNT
2"Φ RIGID STEEL CONDUIT	336 L.F.

DESIGN FOR WIDENING EXISTING
315'-5x42' & 280'-0x42' PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGES
TO
56' ROADWAY BRIDGES
SUPERSTRUCTURE DETAILS

STA. 1131+87.84 ℄ I-80 FRA X-ING # 192659V OCT. 1991
STA. 20+00 ℄ E. 29TH ST. IOWA X-ING # 4521

POLK COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 21 OF 40 FILE NO. 28266 DESIGN NO. 1391

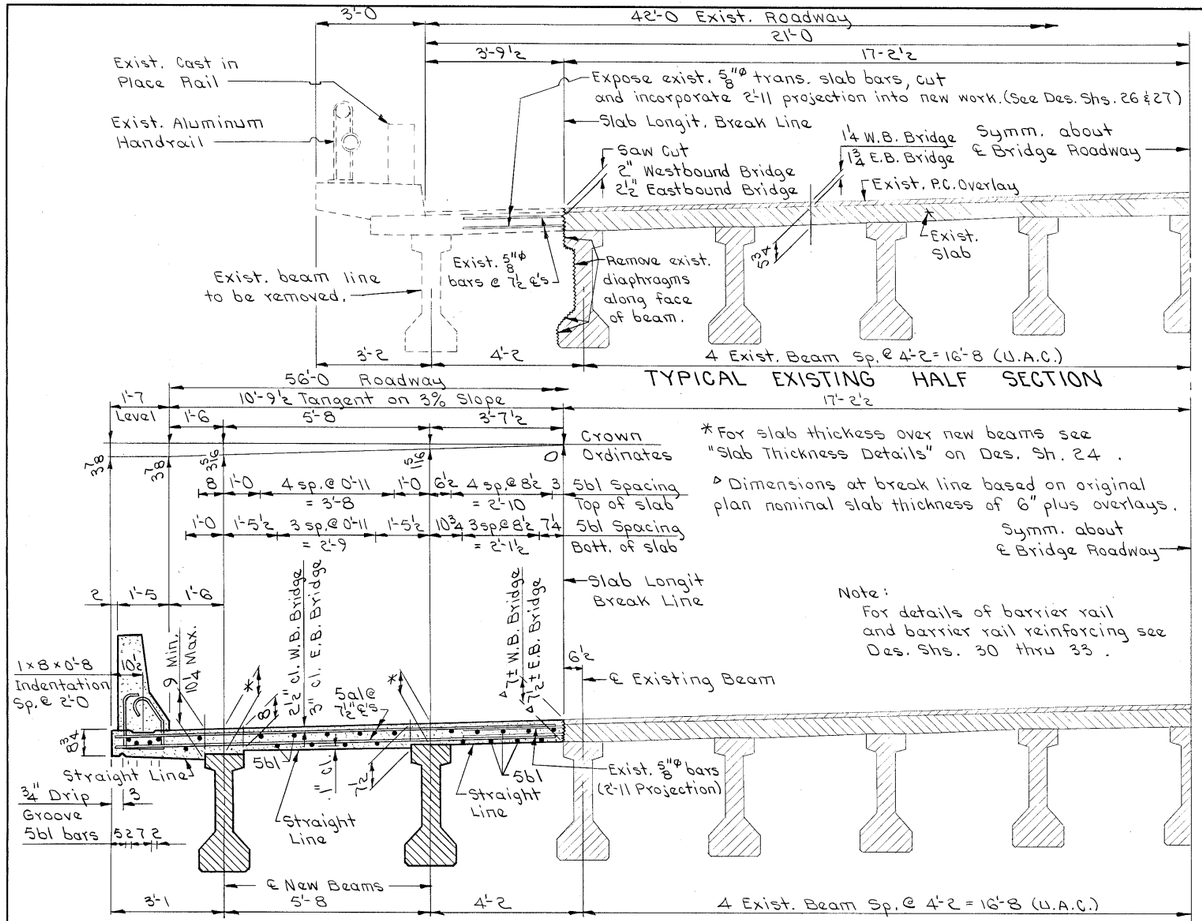
DESIGNED BY LeRoy Ornberg TRACED BY DOUG WARRINGS
DETAILED BY DOUG WARRINGS CHECKED BY J. Rickett

H77139100.S01 DEVICE : ZHAO:(200,004) ARCH. TAPE NO. _____ DATE _____

POLK COUNTY

PROJECT NUMBER

STATE	FHWA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	7		23	57



TYPICAL EXISTING HALF SECTION

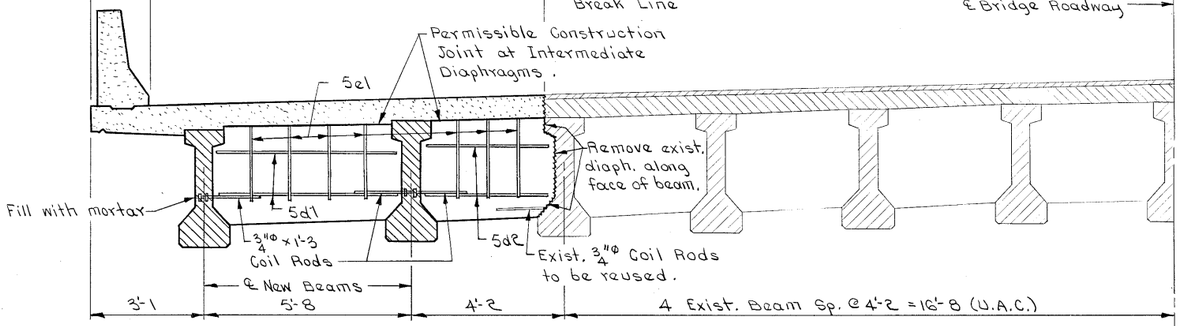
TYPICAL PROPOSED HALF SECTION

* For slab thickness over new beams see "Slab Thickness Details" on Des. Sh. 24.

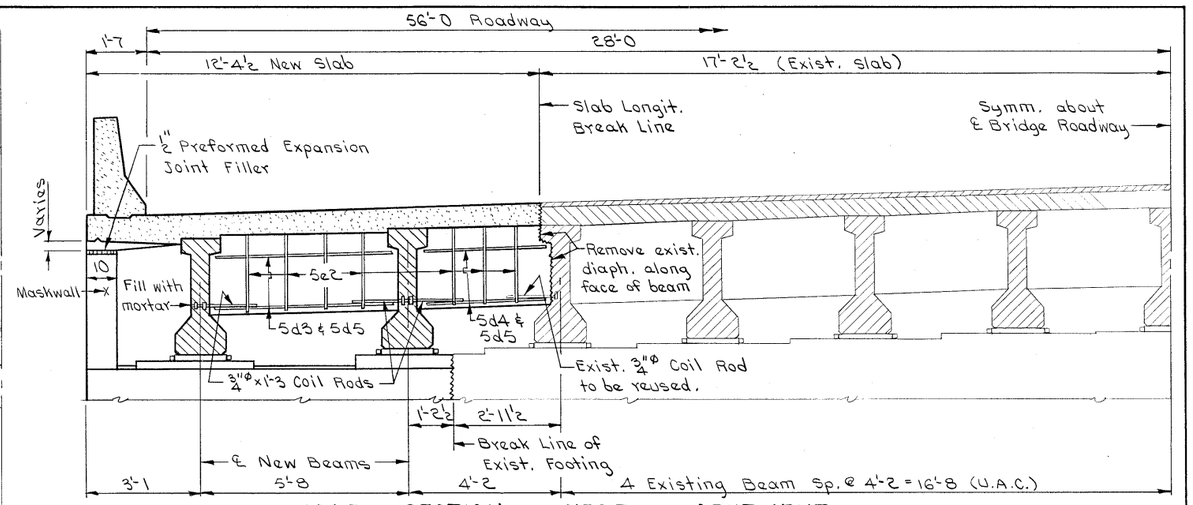
△ Dimensions at break line based on original plan nominal slab thickness of 6" plus overlays.

Symm. about ℄ Bridge Roadway

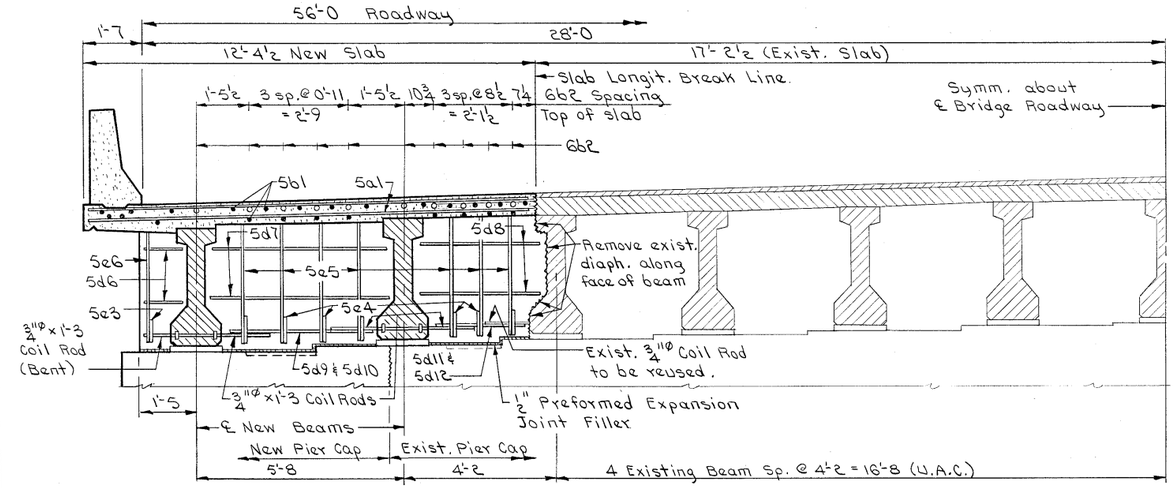
Note:
For details of barrier rail and barrier rail reinforcing see Des. Shs. 30 thru 33.



HALF INTERMEDIATE SECTION



HALF SECTION NEAR ABUTMENT



HALF SECTION NEAR PIER

Design for Widening Existing
315'-5x42' & 280'-0x42' PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGES
TO
56' ROADWAY BRIDGES
SUPERSTRUCTURE DETAILS

Sta. 1131+87.84 ℄ I-80 FRA X-ing # 192659V
Sta. 20+00 ℄ E. 29th St. Iowa X-ing # 4521
Oct. 1991

POLK COUNTY
IOWA DEPARTMENT OF TRANSPORTATION-HIGHWAY DIVISION

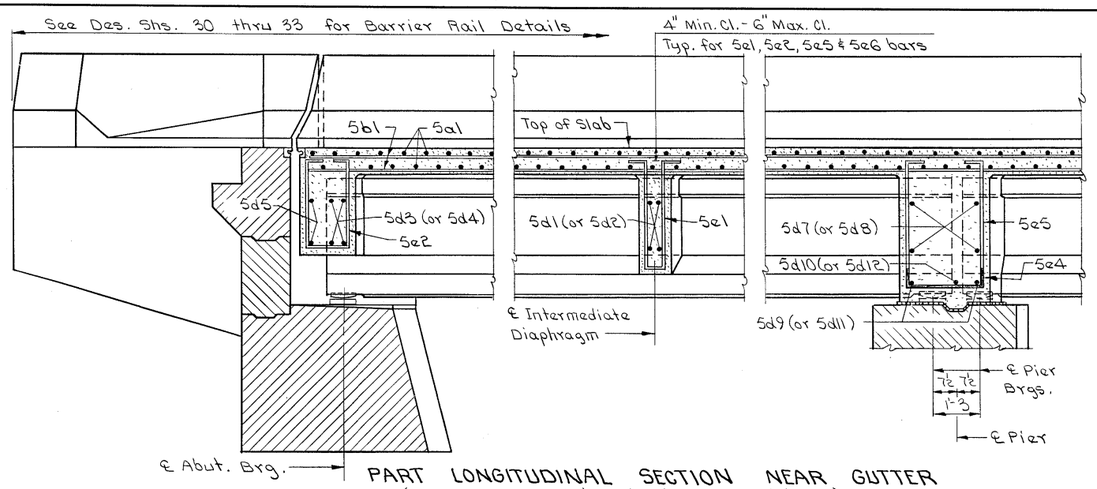
Design Sheet No.: 22 Of 40 File No.: 28266 Design No.: 1391

DESIGNED BY: LeRoy Ornberg TRACED BY: Doug Warning
DETAILED BY: Doug Warning CHECKED BY: J. Neubrisser

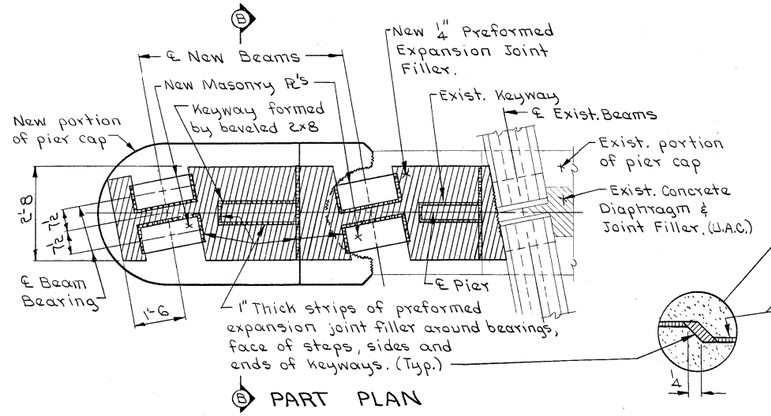
POLK COUNTY

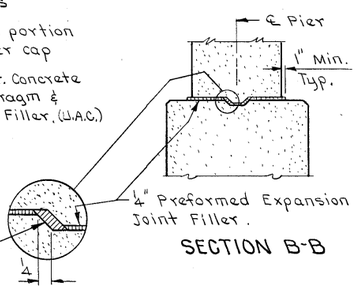
PROJECT NUMBER	STATE	FHWA Region	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	IOWA	7		24	57

BRUNING 65219 BRIDGE WORK SHEET 000 31846

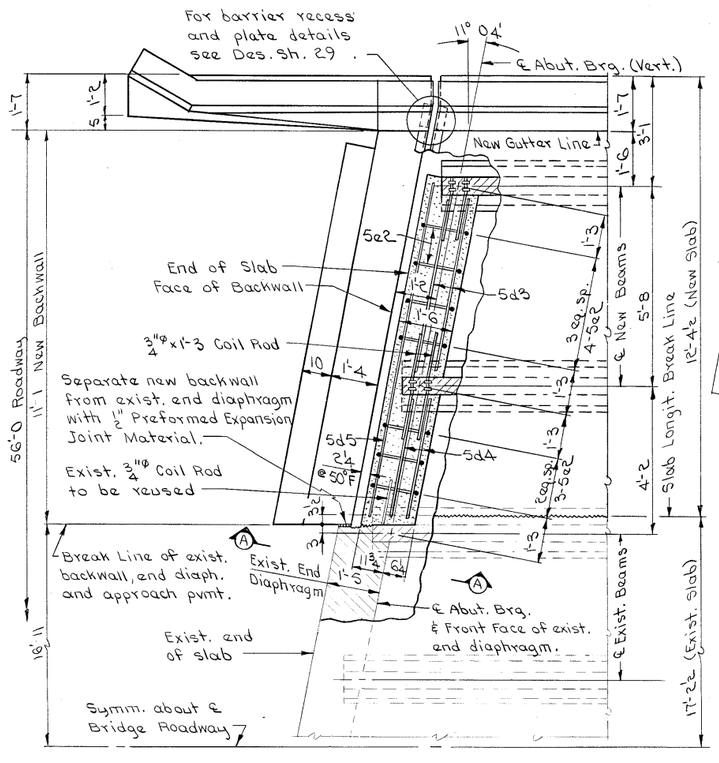


PART LONGITUDINAL SECTION NEAR GUTTER
(Showing new slab and diaphragm details)

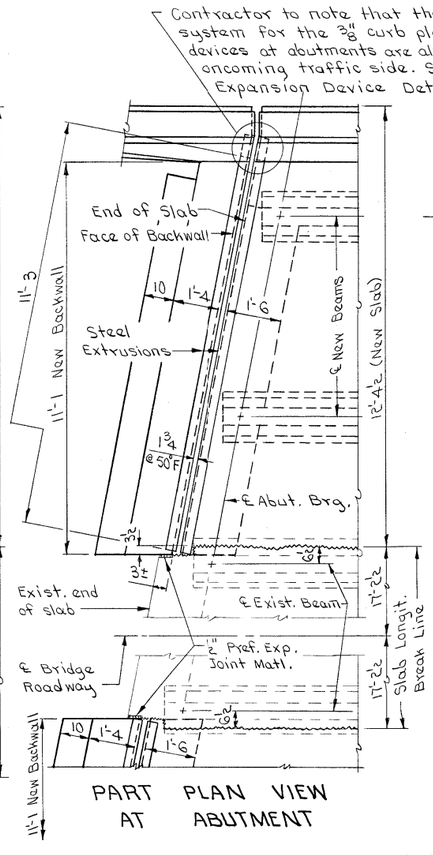




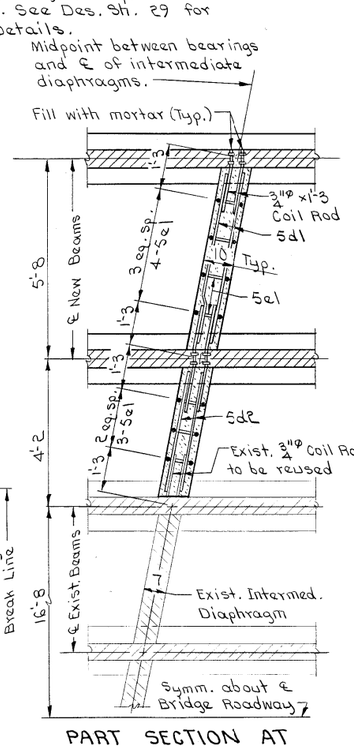
TOP OF PIER DETAILS



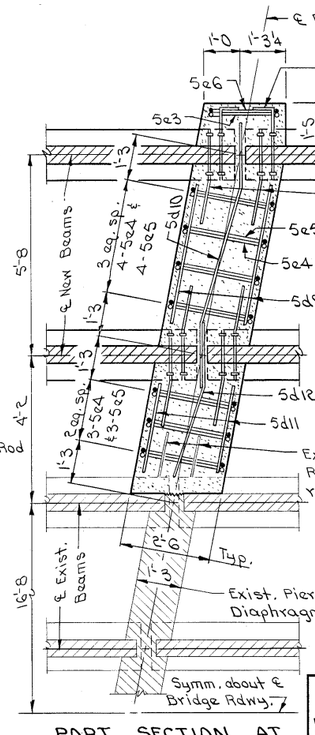
PART PLAN VIEW AND PART SECTION AT ABUTMENT



PART PLAN VIEW AT ABUTMENT



PART SECTION AT INTERMEDIATE DIAPHRAGM



PART SECTION AT PIER DIAPHRAGM

SECTION A-A

Design for Widening Existing
315'-5"x42" & 280'-0"x42" PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGES
TO
56' ROADWAY BRIDGES
SUPERSTRUCTURE DETAILS

Sta. 1131+87.84 ℄ I-80 FRA X-ing # 192659V
Sta. 20+00 ℄ E 29th St. Iowa X-ing # 4521
Oct. 1991

POLK COUNTY
IOWA DEPARTMENT OF TRANSPORTATION-HIGHWAY DIVISION

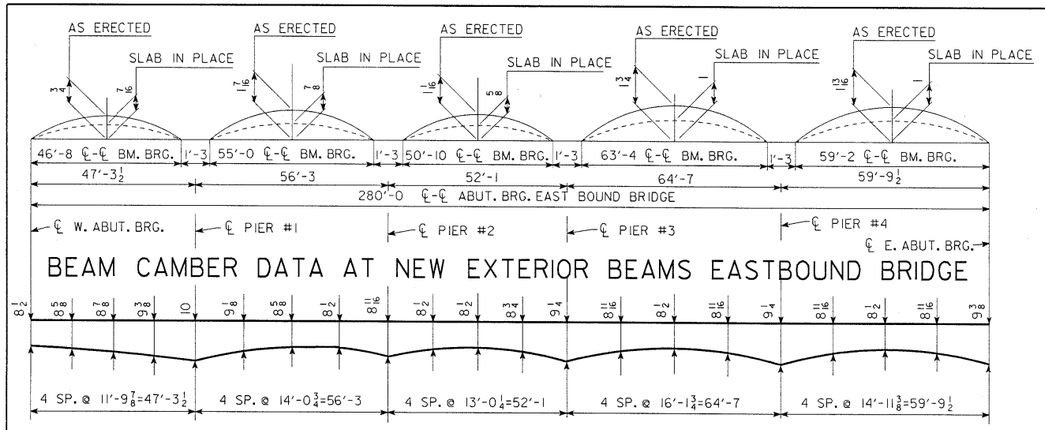
Design Sheet No.: 23 Of 40 File No.: 28266 Design No.: 1391

DESIGNED BY: LeRoy Ornberg
DETAILED BY: Doug Wasmuth
TRACED BY: Doug Wasmuth
CHECKED BY: J. Nordtvedt

POLK COUNTY

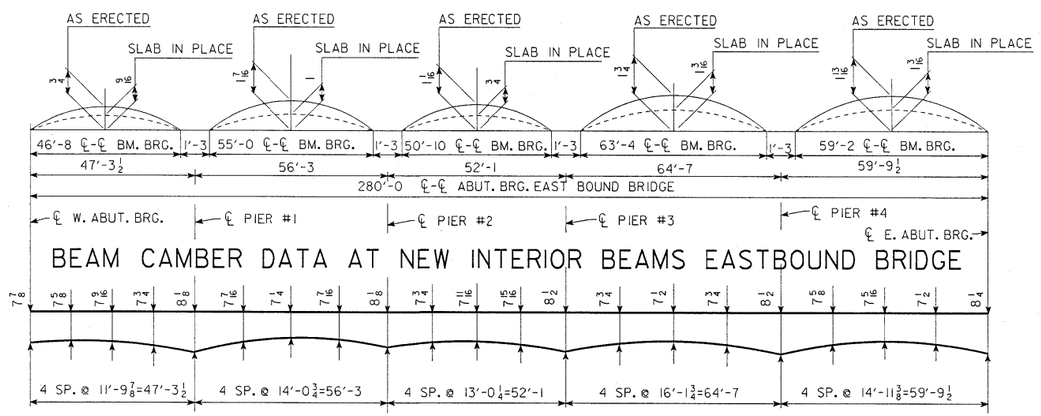
PROJECT NUMBER	STATE	FHWA Region	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	IOWA	7		25	57

BRUNING 65219 MISC. WORK SHEET 880 31440



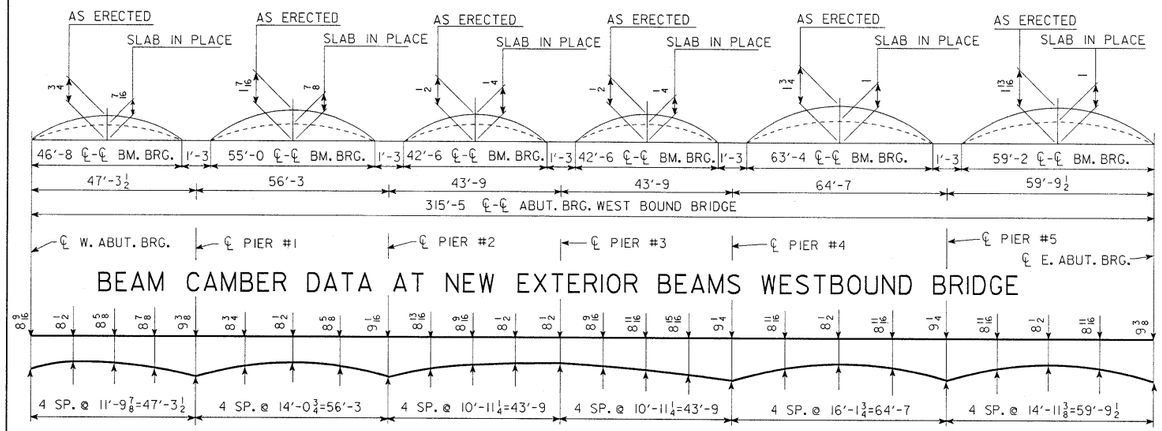
BEAM CAMBER DATA AT NEW EXTERIOR BEAMS EASTBOUND BRIDGE

SLAB THICKNESS AT NEW EXTERIOR BEAMS (T) EASTBOUND BRIDGE



BEAM CAMBER DATA AT NEW INTERIOR BEAMS EASTBOUND BRIDGE

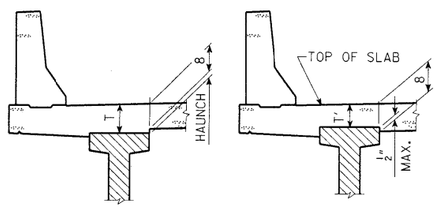
SLAB THICKNESS AT NEW INTERIOR BEAMS (T) EASTBOUND BRIDGE



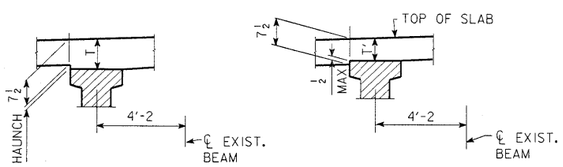
BEAM CAMBER DATA AT NEW EXTERIOR BEAMS WESTBOUND BRIDGE

SLAB THICKNESS AT NEW EXTERIOR BEAMS (T) WESTBOUND BRIDGE

EXTERIOR BEAM DETAILS



SLAB THICKNESS DETAILS @ NEW EXTERIOR BEAMS



SLAB THICKNESS DETAILS @ NEW INTERIOR BEAMS

NOTE: THE SLAB THICKNESS (T) AT BEAMS IS BASED ON THE ANTICIPATED BEAM CAMBER REMAINING AFTER PLACING THE SLAB, BUT IS NOT GUARANTEED FOR CONSTRUCTION. IF BEAM IS UNDER CAMBERED, INCREASE SLAB THICKNESS (T) AT BEAMS TO COMPENSATE. IF BEAM IS OVER CAMBERED, THE SLAB THICKNESS (T) MAY BE DECREASED TO A MAXIMUM OF ½" EMBEDMENT AT THE BEAM (T'). IF MORE THAN ½" EMBEDMENT IS REQUIRED OR IF THE HAUNCH EXCEEDS 2", THE OFFICE OF BRIDGE DESIGN IS TO BE NOTIFIED.

INTERIOR BEAM DETAILS

DESIGN FOR WIDENING EXISTING
315'-5x42' & 280'-0x42' PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGES
TO
56' ROADWAY BRIDGES
SUPERSTRUCTURE DETAILS

STA. 1131+87.84 ℄ I-80 FRA X-ING # 192659V OCT. 1991
STA. 20+00 ℄ E. 29TH ST. IOWA X-ING # 4521

POLK COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

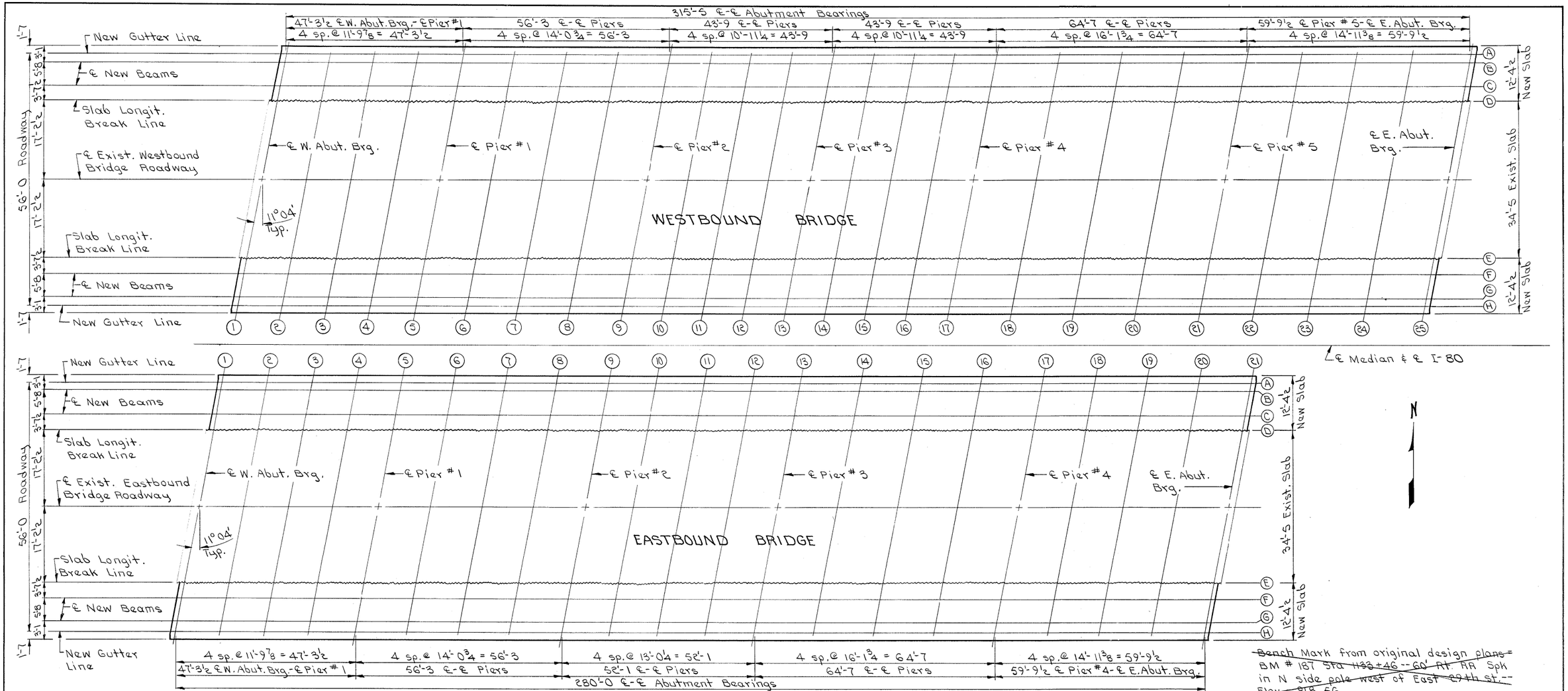
DESIGN SHEET NO. 24 OF 40 FILE NO. 28266 DESIGN NO. 1391

DESIGNED BY LeRoy Ornberg TRACED BY DOUG WARRINGS
DETAILED BY DOUG WARRINGS CHECKED BY J. Neiderluse

H77139100.S05 DEVICE : ZHAO:(200,004) ARCH. TAPE NO. _____ DATE_____

POLK COUNTY PROJECT NUMBER

STATE	FHWA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	7		26	57



~~Bench~~ Mark from original design plans~~=~~
BM # 187 Sta 1133+46 -- 60' Rt. RR Spk
in N side ~~pole west~~ of East 29th St.--
~~Elev = 918.56~~

LOCATION OF TOP OF SLAB ELEVATIONS

TOP OF SLAB ELEVATIONS ~ WESTBOUND BRIDGE

Point / Location	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
A	936.55	936.33	936.10	935.86	935.62	935.33	935.04	934.74	934.43	934.19	933.94	933.69	933.44	933.16	932.92	932.66	932.39	931.99	931.58	931.17	930.74	930.34	929.93	929.52	929.10
B	936.60	936.38	936.15	935.91	935.67	935.39	935.09	934.79	934.48	934.24	934.00	933.75	933.49	933.24	932.98	932.71	932.44	932.04	931.63	931.22	930.79	930.39	929.99	929.57	929.15
C	936.79	936.57	936.34	936.10	935.87	935.58	935.28	934.98	934.68	934.44	934.19	933.94	933.69	933.43	933.17	932.91	932.64	932.24	931.83	931.42	930.99	930.59	930.19	929.77	929.36
D	936.91	936.69	936.46	936.23	935.99	935.70	935.41	935.11	934.80	934.56	934.31	934.07	933.81	933.56	933.30	933.03	932.77	932.37	931.96	931.54	931.12	930.72	930.31	929.90	929.48
E	936.68	936.46	936.23	936.00	935.77	935.48	935.19	934.89	934.59	934.35	934.11	933.86	933.61	933.36	933.10	932.84	932.51	932.18	931.77	931.36	930.94	930.54	930.14	929.73	929.31
F	936.59	936.36	936.14	935.91	935.67	935.39	935.10	934.80	934.50	934.26	934.01	933.77	933.52	933.26	933.01	932.75	932.45	932.08	931.68	931.27	930.85	930.45	930.05	929.64	929.22
G	936.44	936.21	935.99	935.76	935.52	935.24	934.95	934.65	934.35	934.11	933.87	933.62	933.37	933.12	932.86	932.60	932.34	931.94	931.54	931.13	930.71	930.31	929.91	929.50	929.08
H	936.40	936.17	935.95	935.72	935.48	935.20	934.91	934.61	934.31	934.07	933.83	933.58	933.33	933.08	932.82	932.56	932.30	931.90	931.50	931.09	930.67	930.27	929.87	929.46	929.05

TOP OF SLAB ELEVATIONS ~ EASTBOUND BRIDGE

Point / Location	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
A	936.50	936.28	936.05	935.82	935.59	935.31	935.02	934.72	934.42	934.14	933.85	933.56	933.26	932.88	932.49	932.10	931.70	931.32	930.94	930.55	930.15
B	936.55	936.33	936.10	935.87	935.64	935.36	935.07	934.77	934.47	934.19	933.90	933.61	933.31	932.93	932.55	932.15	931.75	931.37	930.99	930.60	930.20
C	936.74	936.52	936.29	936.06	935.83	935.55	935.26	934.97	934.67	934.38	934.10	933.80	933.50	933.13	932.74	932.35	931.95	931.57	931.19	930.80	930.40
D	936.86	936.64	936.41	936.19	935.95	935.67	935.38	935.09	934.79	934.51	934.22	933.93	933.63	933.25	932.87	932.48	932.08	931.70	931.32	930.93	930.53
E	937.34	937.12	936.90	936.68	936.45	936.17	935.88	935.59	935.29	935.01	934.73	934.44	934.14	933.77	933.39	933.00	932.60	932.23	931.85	931.46	931.07
F	937.25	937.03	936.81	936.58	936.35	936.07	935.79	935.50	935.20	934.92	934.64	934.35	934.05	933.68	933.30	932.91	932.51	932.14	931.76	931.37	930.98
G	937.10	936.88	936.66	936.43	936.20	935.93	935.64	935.35	935.05	934.78	934.49	934.20	933.91	933.53	933.15	932.77	932.37	932.00	931.62	931.23	930.84
H	937.06	936.84	936.62	936.39	936.16	935.89	935.60	935.31	935.02	934.74	934.45	934.16	933.87	933.50	933.12	932.73	932.33	931.96	931.58	931.19	930.80

NOTE:
Top of slab elevations as shown are not guaranteed for construction. The contractor shall be guided by the following requirements.

1. The widened portion of the new bridge floor shall match the top of existing P.C. overlay elevations at the slab longitudinal break lines.
2. The crown of the roadway shall be as detailed on the "Typical Proposed Half Section" shown on Des. Sh. 22.

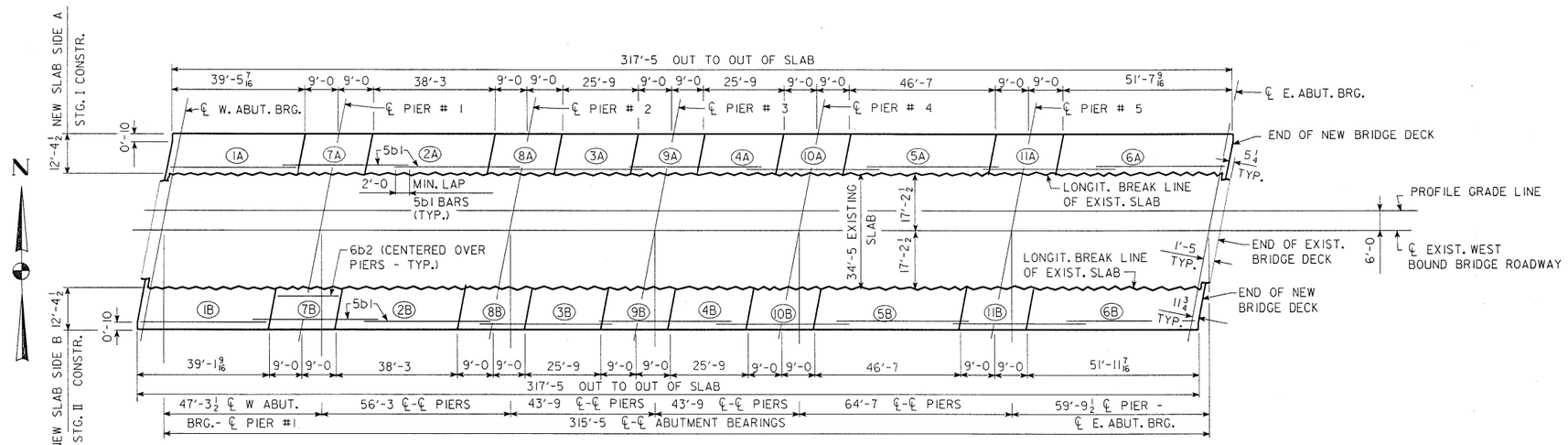
Design for Widening Existing
315'-5×42'& 280'-0×42' PRETENSIONED
PRESTRESSED CONCRETE BEAM BRIDGES
To
56' ROADWAY BRIDGES
SUPERSTRUCTURE DETAILS
Sta. 1131+87.84 ℄ I-80 FRA X-ing # 19266 9V
Sta. 20+00 ℄ E29th St. Iowa X-ing # 4521 Oct. 1991
POLK COUNTY
IOWA DEPARTMENT OF TRANSPORTATION-HIGHWAY DIVISION
Design Sheet No.: 25 Of 40 File No.: 28266 Design No.: 1391

DESIGNED BY: LeRoy Ornberg TRACED BY: Doug Wareing
DETAILED BY: Doug Wareing CHECKED BY: J. Kirkbride

POLK COUNTY

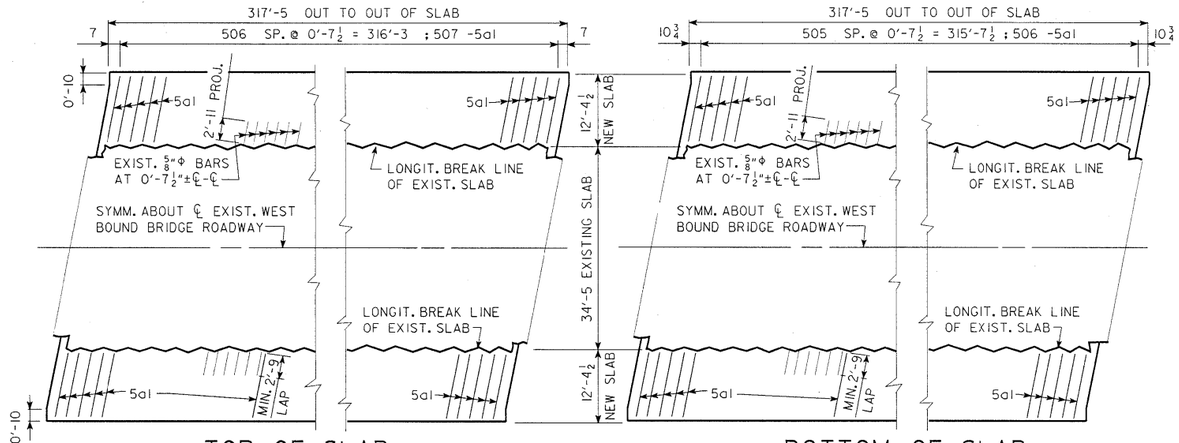
PROJECT NUMBER	STATE	FHWA Region	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	IOWA	7		27	57

BRUNING 65219 MISC. WORK SHEET 000 318AD



CONCRETE PLACEMENT DIAGRAM AND LONGITUDINAL REINFORCING LAYOUT

NOTE: ROADWAY SLAB SHALL 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.



TOP OF SLAB TRANSVERSE REINFORCING LAYOUT

BOTTOM OF SLAB TRANSVERSE REINFORCING LAYOUT

REINFORCING BAR LIST-W.B. SUPERSTR.

EPOXY COATED REINF.

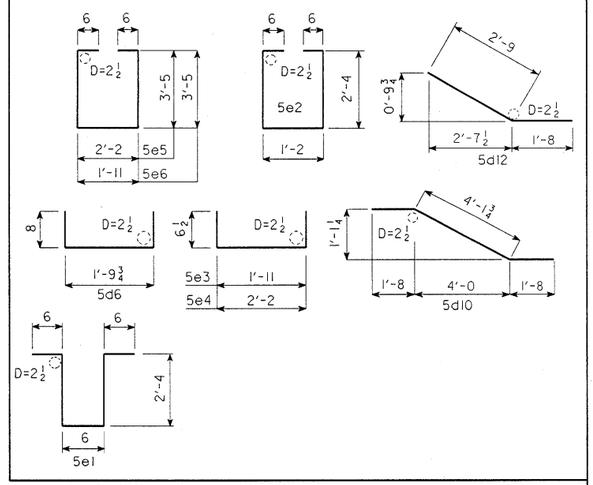
BAR	LOCATION	SHAPE	NO.	LENGTH	LIN. FT.	WEIGHT
5a1	SLAB TRANSV. TOP & BOTT.	——	2026	12'-4	24987	26061
5b1	SLAB LONGIT. TOP & BOTT.	——	432	37'-1	16020	16709
6b2	SLAB LONGIT. TOP AT PIERS	——	100	17'-8	1767	2654
5d3	ABUT. DIAPH. LONGIT.	——	16	4'-11	79	82
5d4	ABUT. DIAPH. LONGIT.	——	16	3'-4	53	56
5d5	ABUT. DIAPH. LONGIT.	——	8	9'-8	77	81
5e2	ABUT. DIAPH. HOOPS	⊏⊐	28	6'-10	191	200
	BARRIER RAIL - SEE DES. SHT. NO. 31			#5 BAR	10153	10922
				#6 BAR	222	
	REINFORCING STEEL EPOXY COATED - TOTAL (LBS.)					56765

NON-COATED REINF.

BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
5d1	INTERM. DIAPH. TRANSV.	——	48	4'-8	234
5d2	INTERM. DIAPH. TRANSV.	——	48	3'-3	163
5d6	PIER DIAPH. ENDS	⌊⌋	20	3'-2	66
5d7	PIER DIAPH. LONGIT.	——	40	4'-8	195
5d8	PIER DIAPH. LONGIT.	——	40	3'-3	136
5d9	PIER DIAPH. LONGIT. BOTT.	——	20	3'-8	76
5d10	PIER DIAPH. LONGIT. BOTT.	⟍	10	7'-6	78
5d11	PIER DIAPH. LONGIT. BOTT.	——	20	2'-3	47
5d12	PIER DIAPH. LONGIT. BOTT.	⟍	10	4'-5	46
5e1	INTERM. DIAPH. HOOPS	⊓	84	6'-2	540
5e3	PIER DIAPH. TIES ENDS	⌊⌋	10	3'-0	31
5e4	PIER DIAPH. TIES	⌊⌋	70	3'-3	237
5e5	PIER DIAPH. HOOPS	⊏⊐	70	10'-0	730
5e6	PIER DIAPH. HOOPS ENDS	⊏⊐	10	9'-9	102
	REINFORCING STEEL - TOTAL (LBS.)				2681

BENT BAR DETAILS

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



CONCRETE PLACEMENT QUANTITIES WESTBOUND SUPERSTRUCTURE

LOCATION	SIDE A-STG. I	SIDE B-STG.II	TOTAL
SECT. 1, SLAB & ABUT. & INT. DIAPH.	13.6	13.6	27.2
SECT. 2, SLAB & INT. DIAPH.	12.2	12.2	24.4
SECT. 3, SLAB & INT. DIAPH.	8.5	8.5	17.0
SECT. 4, SLAB & INT. DIAPH.	8.5	8.5	17.0
SECT. 5, SLAB & INT. DIAPH.	14.7	14.7	29.4
SECT. 6, SLAB & ABUT. & INT. DIAPH.	17.5	17.5	35.0
SECT. 7, SLAB & PIER DIAPH.	8.5	8.5	17.0
SECT. 8, SLAB & PIER DIAPH.	8.5	8.5	17.0
SECT. 9, SLAB & PIER DIAPH.	8.5	8.5	17.0
SECT. 10, SLAB & PIER DIAPH.	8.5	8.5	17.0
SECT. 11, SLAB & PIER DIAPH.	8.5	8.5	17.0
TOTAL (CU. YDS.)	117.5	117.5	235.0

ESTIMATED QUANTITIES W.B. SUPERSTR.

ITEM		UNIT	QUANTITY
STRUCTURAL CONCRETE, CLASS "C"		CU. YD.	235.0
REINFORCING STEEL EPOXY COATED		LBS.	56765
REINFORCING STEEL		LBS.	2681
PRETENSIONED PRESTRESSED CONCRETE BEAMS	LXB42	NO.	8
	LXB46	NO.	4
	LXB55	NO.	4
	LXB59	NO.	4
	LXB63	NO.	4
STRUCTURAL STEEL		LBS.	4325
STEEL EXTRUSION JOINT WITH NEOPRENE		L.F.	48

NOTE: DETAILS SHOWN ON THIS SHEET ARE FOR THE WESTBOUND BRIDGE ONLY.

DESIGN FOR WIDENING EXISTING

315'-5x42' & 280'-0x42' PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGES TO 56' ROADWAY BRIDGES

SUPERSTRUCTURE DETAILS W.B. BRIDGE

STA. 1131+87.84 ℄ I-80 FRA X-ING # 192659V OCT. 1991
STA. 20+00 ℄ E. 29TH ST. IOWA X-ING # 4521

POLK COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 26 OF 40 FILE NO. 28266 DESIGN NO. 1391

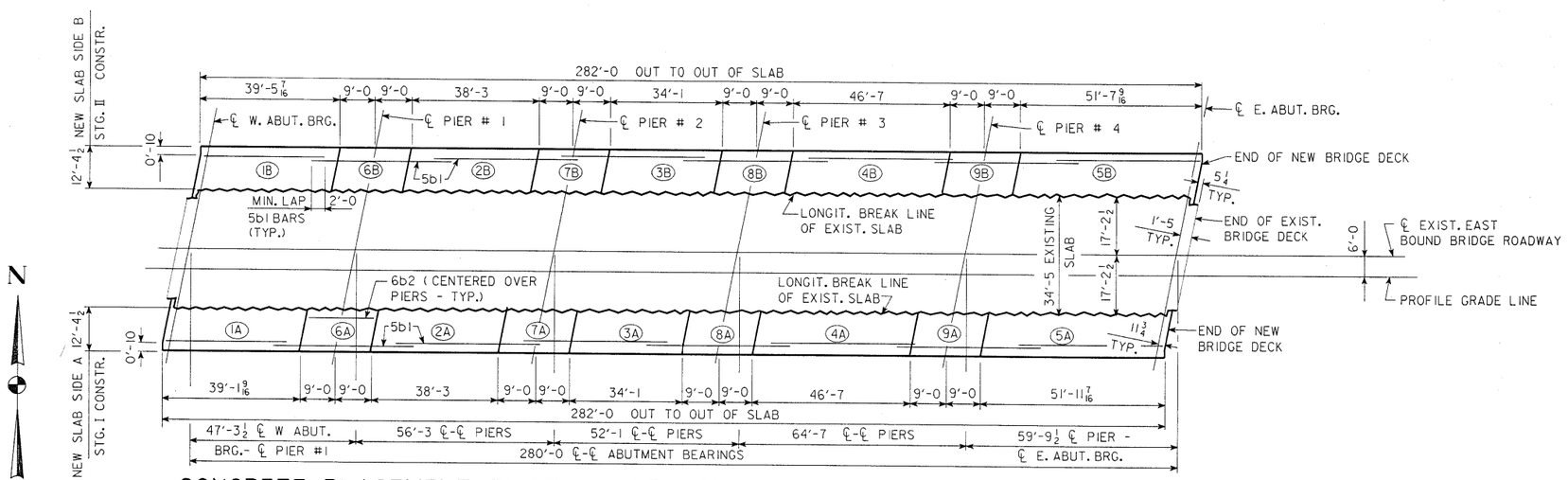
DESIGNED BY LeRoy Ornberg TRACED BY DOUG WARRINGS
DETAILED BY DOUG WARRINGS CHECKED BY J. Nodes, Jr.

H77139100.S11 DEVICE : ZHAO:(200,004) ARCH. TAPE NO. ---------- DATE----------

POLK COUNTY

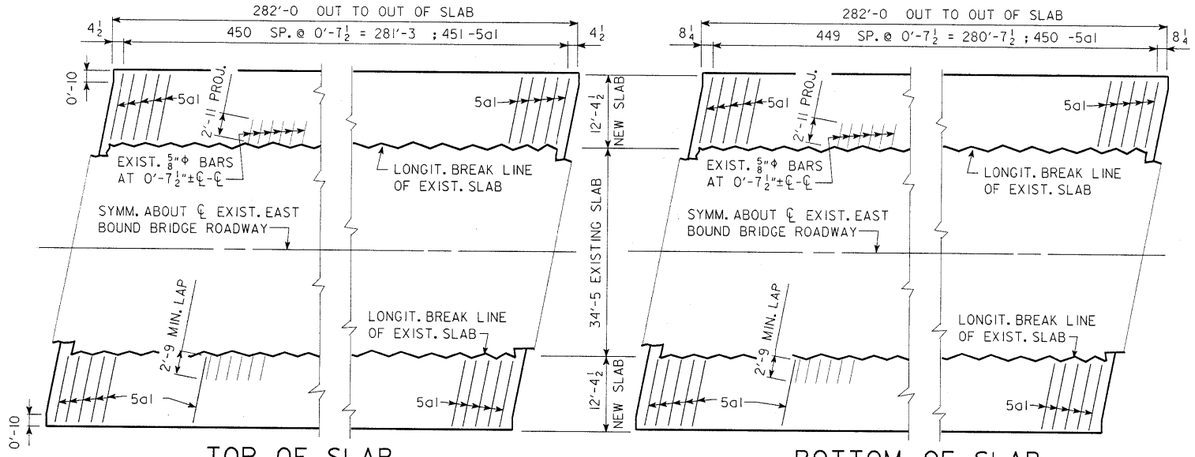
PROJECT NUMBER

STATE	FHWA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	7		28	57



CONCRETE PLACEMENT DIAGRAM AND LONGITUDINAL REINFORCING LAYOUT

NOTE: ROADWAY SLAB SHALL 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.



TOP OF SLAB
TRANSVERSE REINFORCING LAYOUT

BOTTOM OF SLAB
TRANSVERSE REINFORCING LAYOUT

CONCRETE PLACEMENT QUANTITIES EASTBOUND SUPERSTRUCTURE

LOCATION	SIDE A-STG. I	SIDE B-STG.II	TOTAL
SECT. 1, SLAB & ABUT. & INT. DIAPH.	13.9	13.9	27.8
SECT. 2, SLAB & INT. DIAPH.	12.4	12.4	24.8
SECT. 3, SLAB & INT. DIAPH.	11.2	11.2	22.4
SECT. 4, SLAB & INT. DIAPH.	15.0	15.0	30.0
SECT. 5, SLAB & ABUT. & INT. DIAPH.	17.8	17.8	35.6
SECT. 6, SLAB & PIER DIAPH.	8.6	8.6	17.2
SECT. 7, SLAB & PIER DIAPH.	8.6	8.6	17.2
SECT. 8, SLAB & PIER DIAPH.	8.6	8.6	17.2
SECT. 9, SLAB & PIER DIAPH.	8.6	8.6	17.2
TOTAL (CU. YDS.)	104.7	104.7	209.4

ESTIMATED QUANTITIES E.B. SUPERSTR.

ITEM		UNIT	QUANTITY
STRUCTURAL CONCRETE, CLASS "C"		CU. YD.	209.4
REINFORCING STEEL EPOXY COATED		LBS.	50321
REINFORCING STEEL		LBS.	2177
PRETENSIONED PRESTRESSED CONCRETE BEAMS	LXB46	NO.	4
	LXB50	NO.	4
	LXB55	NO.	4
	LXB59	NO.	4
	LXB63	NO.	4
STRUCTURAL STEEL		LBS.	3700
STEEL EXTRUSION JOINT WITH NEOPRENE		L.F.	48

REINFORCING BAR LIST-E.B. SUPERSTR.

EPOXY COATED REINF.

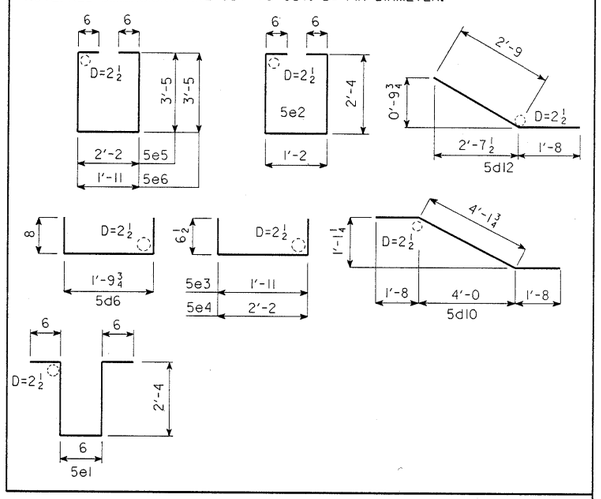
BAR	LOCATION	SHAPE	NO.	LENGTH	LIN. FT.	WEIGHT
5a1	SLAB TRANSV. TOP & BOTT.	——	1802	12'-4	22224	23180
5b1	SLAB LONGIT. TOP & BOTT.	——	384	37'-0	14208	14819
6b2	SLAB LONGIT. TOP AT PIERS	——	80	17'-8	1413	2123
5d3	ABUT. DIAPH. LONGIT.	——	16	4'-11	79	82
5d4	ABUT. DIAPH. LONGIT.	——	16	3'-4	53	56
5d5	ABUT. DIAPH. LONGIT.	——	8	9'-8	77	81
5e2	ABUT. DIAPH. HOOPS	⊏⊐	28	6'-10	191	200
	BARRIER RAIL - SEE DES. SHT. NO. 33			#5 BAR	9058	9780
				#6 BAR	222	
	REINFORCING STEEL EPOXY COATED - TOTAL (LBS.)					50321

NON-COATED REINF.

BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
5d1	INTERM. DIAPH. TRANSV.	——	40	4'-8	195
5d2	INTERM. DIAPH. TRANSV.	——	40	3'-3	136
5d6	PIER DIAPH. ENDS	⊔	16	3'-2	53
5d7	PIER DIAPH. LONGIT.	——	32	4'-8	156
5d8	PIER DIAPH. LONGIT.	——	32	3'-3	108
5d9	PIER DIAPH. LONGIT. BOTT.	——	16	3'-8	61
5d10	PIER DIAPH. LONGIT. BOTT.	⟍	8	7'-6	63
5d11	PIER DIAPH. LONGIT. BOTT.	——	16	2'-3	38
5d12	PIER DIAPH. LONGIT. BOTT.	⟍	8	4'-5	37
5e1	INTERM. DIAPH. HOOPS	⊓	70	6'-2	450
5e3	PIER DIAPH. TIES ENDS	⊔	8	3'-0	25
5e4	PIER DIAPH. TIES	⊔	56	3'-3	190
5e5	PIER DIAPH. HOOPS	⊏⊐	56	10'-0	584
5e6	PIER DIAPH. HOOPS ENDS	⊏⊐	8	9'-9	81
	REINFORCING STEEL - TOTAL (LBS.)				2177

BENT BAR DETAILS

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



NOTE: DETAILS SHOWN ON THIS SHEET ARE FOR THE EASTBOUND BRIDGE ONLY.

DESIGN FOR WIDENING EXISTING
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TO
56' ROADWAY BRIDGES
SUPERSTRUCTURE DETAILS E.B. BRIDGE

STA. 1131+87.84 ℄ I-80 FRA X-ING # 192659V
STA. 20+00 ℄ E. 29TH ST. IOWA X-ING # 4521
OCT. 1991

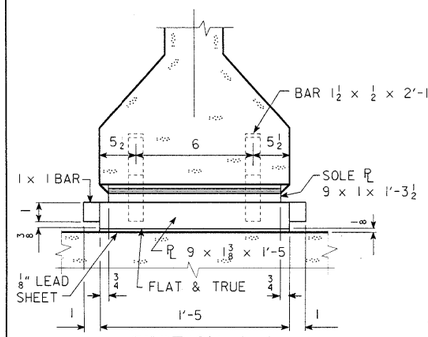
POLK COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 27 OF 40 FILE NO. 28266 DESIGN NO. 1391

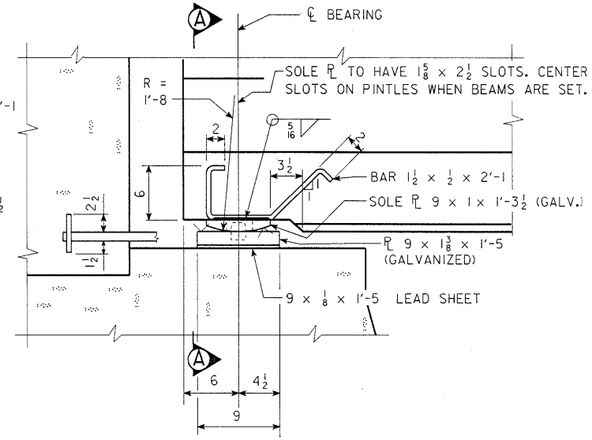
DESIGNED BY LeRoy Ornberg TRACED BY DOUG WARRINGS
DETAILED BY DOUG WARRINGS CHECKED BY J. Neddermeyer
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POLK COUNTY PROJECT NUMBER

STATE	FHWA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	7		29	57



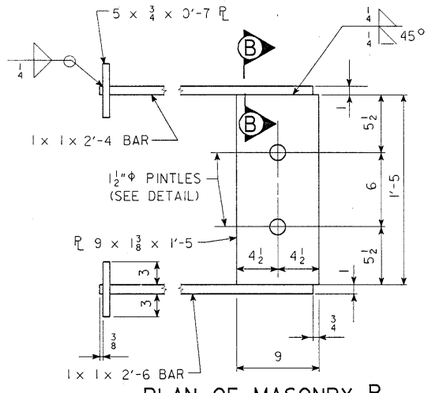
SECTION A-A



PART ELEVATION

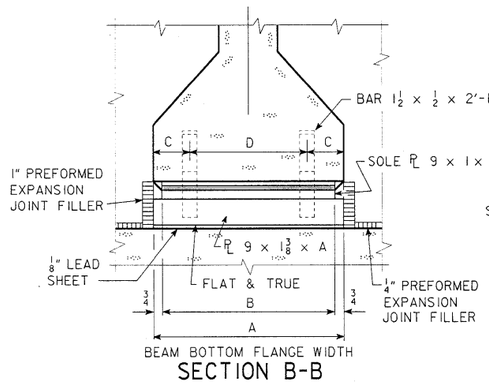


SECTION B-B

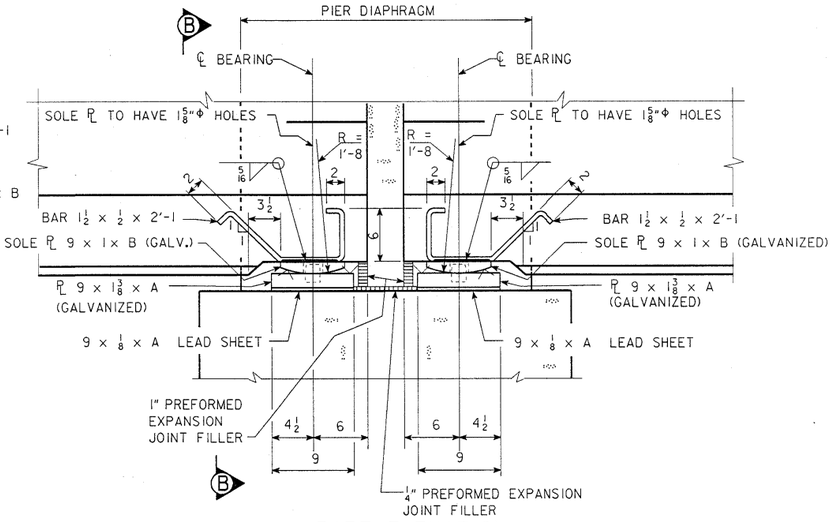


PLAN OF MASONRY PL

ABUTMENT BEARING DETAILS

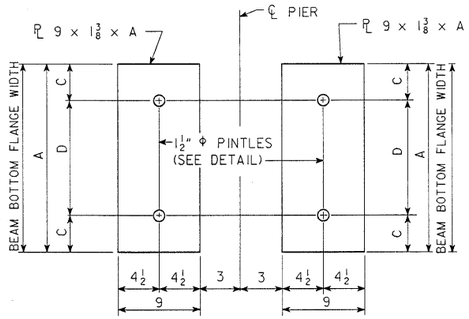


SECTION B-B



PART ELEVATION

BEAM BOTTOM FLANGE WIDTH 1'-8	BEAM BOTTOM FLANGE WIDTH 1'-5
A = 1'-8	A = 1'-5
B = 1'-6½	B = 1'-3½
C = 0'-4	C = 0'-5½
D = 1'-0	D = 0'-6

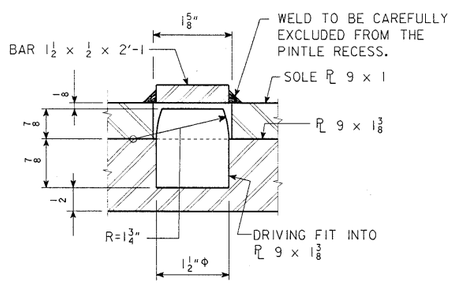


PLAN VIEW OF MASONRY PL

PIER BEARING DETAILS

BEARING NOTES:

SURFACES MARKED "V" SHALL BE FINISHED ANSI 250.
MASONRY PLATES ARE TO BE SET ON A ⅛" LEAD SHEET.
MASONRY 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 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 AND THE MASONRY PLATE SHALL BE GALVANIZED. THE SOLE PLATE AND MASONRY PLATE SHALL BE FITTED UP AND WELDED PRIOR 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.
NEW BEARING PLATES ARE TO BE PLACED UNDER ALL NEW BEAM LINES.



TYPICAL PINTLE DETAIL

DESIGN FOR WIDENING EXISTING
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TO
56' ROADWAY BRIDGES
BEARING DETAILS

STA. 1131+87.84 ℄ I-80 FRA X-ING # 192659V
STA. 20+00 ℄ E. 29TH ST. IOWA X-ING # 4521
OCT. 1991

POLK COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 28 OF 40 FILE NO. 28266 DESIGN NO. 1391

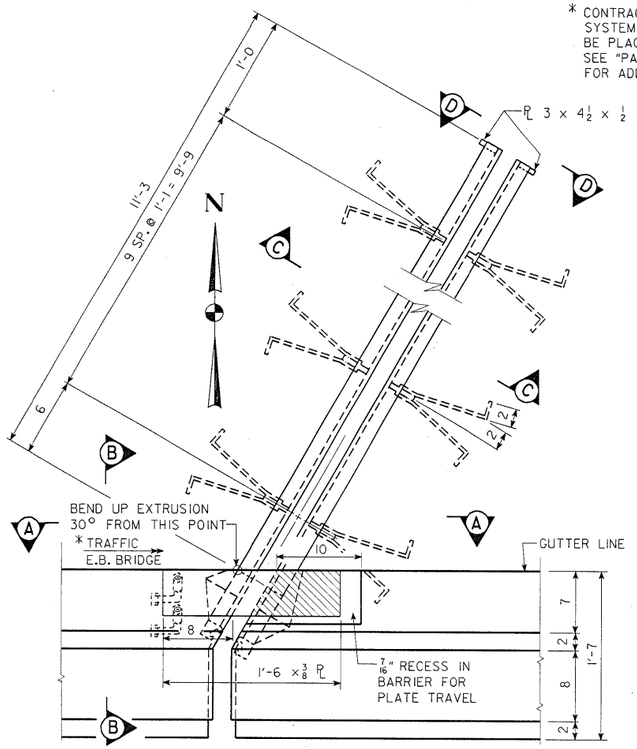
DESIGNED BY LeRoy Ornberg TRACED BY DOUG WARRINGS
DETAILED BY DOUG WARRINGS CHECKED BY J. Meidlinger

POLK COUNTY

PROJECT NUMBER

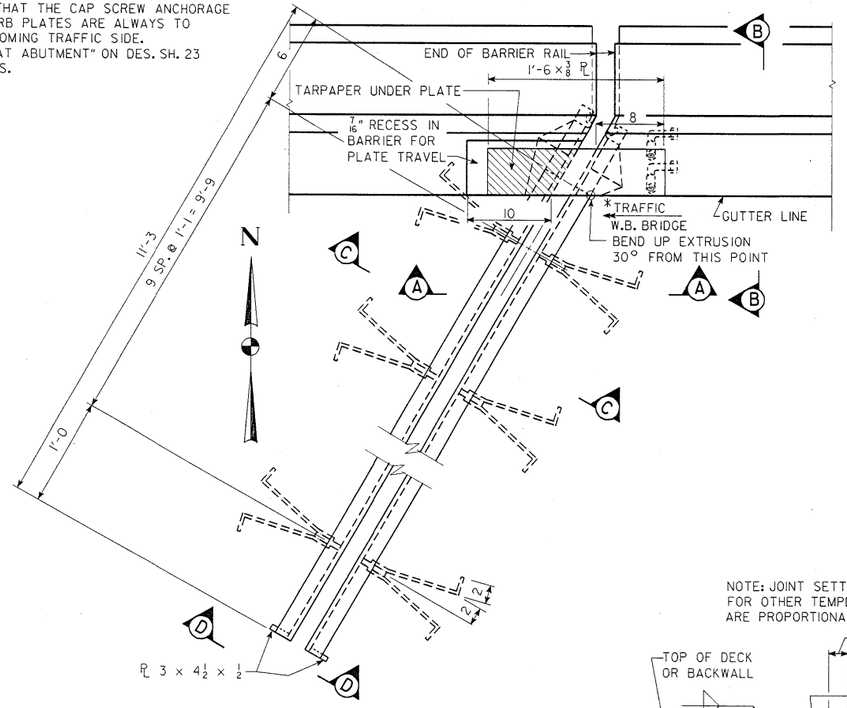
STATE	FHWA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	7		30	57

H77139100.S12 DEVICE : ZHA0:(200,004) ARCH. TAPE NO. ..... DATE.....



PART PLAN VIEW OF EXPANSION DEVICE
EASTBOUND BRIDGE

* CONTRACTOR TO NOTE THAT THE CAP SCREW ANCHORAGE SYSTEM FOR THE ⅜" CURB PLATES ARE ALWAYS TO BE PLACED ON THE ONCOMING TRAFFIC SIDE. SEE "PART PLAN VIEW AT ABUTMENT" ON DES. SH. 23 FOR ADDITIONAL DETAILS.



PART PLAN VIEW OF EXPANSION DEVICE
WESTBOUND BRIDGE

EXPANSION DEVICE NOTES:

THE CONTRACTOR SHALL SUBMIT FOR APPROVAL SHOP DRAWINGS OF THE EXPANSION DEVICES SHOWING LAYOUT, MATERIAL TO BE USED, AND PROVISIONS FOR HOLDING DEVICE DURING PLACEMENT OF CONCRETE.

THE EXPANSION DEVICE SHALL BE GALVANIZED AFTER WELDING.

THE EXPANSION DEVICE IS TO BE PARALLEL TO GRADE.

CAP SCREWS SHALL BE COUNTERSUNK 1/16" BELOW TOP OF THE PLATE.

THE NEOPRENE GLAND IS TO BE PLACED AS ONE CONTINUOUS PIECE FROM END TO END OF EACH EXPANSION DEVICE (8 GLANDS REQUIRED).

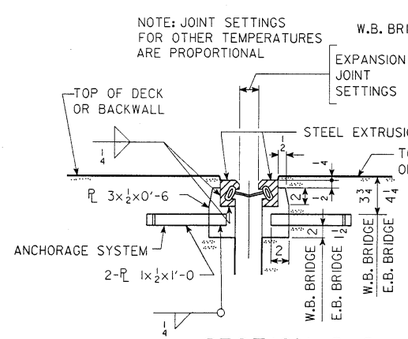
THE MINIMUM GRADE OF STRUCTURAL STEEL FOR THE EXPANSION DEVICE SHALL BE ASTM A-36.

THE NEOPRENE GLAND SHALL CONFORM TO ASTM D-2628 MODIFIED TO EXCLUDE RECOVERY TESTS AND COMPRESSION SET.

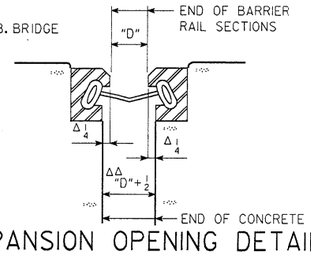
BLOCKOUT DETAILS MAY BE ALTERED FROM THOSE SHOWN PROVIDED THE GLAND MAY BE INSTALLED AND REMOVED IF NECESSARY.

THE CONTRACT UNIT PRICE BID FOR "STEEL EXTRUSION JOINT WITH NEOPRENE" SHALL BE FULL COMPENSATION FOR FURNISHING AND INSTALLING THE EXPANSION JOINTS. THIS WORK WILL CONSIST OF FURNISHING ALL REQUIRED MATERIALS, (INCLUDING THE ⅜" PLATES AT THE CURBS AND THEIR ANCHORAGE SYSTEMS), AND THE INSTALLATION AND ADJUSTMENT OF THE EXPANSION JOINTS IN ACCORDANCE WITH THE DETAILS SHOWN ON THE PLANS AND AS DIRECTED BY THE ENGINEER. THE FURNISHING AND INSTALLATION OF ALL NECESSARY HARDWARE AND ACCESSORIES AS SUPPLIED BY THE EXPANSION JOINT MANUFACTURER ARE TO BE INCLUDED IN THIS WORK, INCLUDING THE ANCHORAGE SYSTEM AND ANY TEMPORARY ERECTION MATERIAL. ALL WORK AND MATERIALS FOR THE INSTALLATION OF THE EXPANSION JOINTS ARE TO COMPLY WITH THE WRITTEN RECOMMENDATIONS OF THE EXPANSION JOINT MANUFACTURER.

NEW EXPANSION DEVICE REQUIRED AT THE WIDENED PORTIONS OF EACH BRIDGE AT BOTH ABUTMENTS.



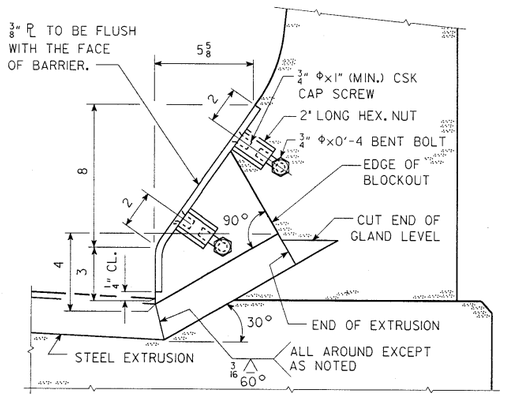
SECTION C-C



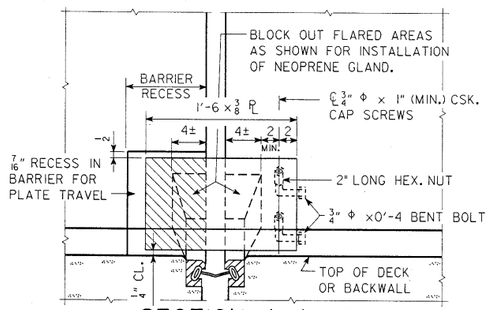
EXPANSION OPENING DETAIL

ΔTHIS DIMENSION MAY VARY SLIGHTLY DEPENDING ON MANUFACTURER FURNISHING THE JOINT.

ΔΔUSED FOR ALL OUT TO OUT DIMENSIONS OF SLAB. THE DIMENSION MAY VARY SLIGHTLY DEPENDING ON MANUFACTURER FURNISHING THE JOINT.

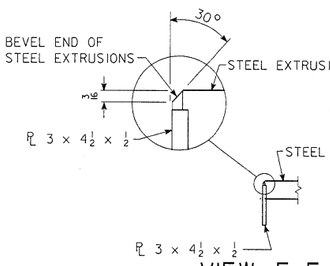


SECTION B-B

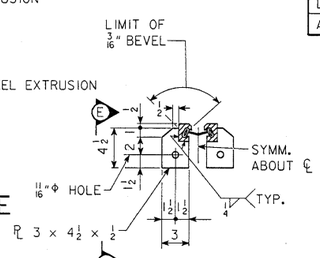


SECTION A-A

(DRAWN FOR 0° SKEW FOR ILLUSTRATIVE PURPOSES)



VIEW E-E



SECTION D-D

TABLE OF APPROVED EXPANSION DEVICES		
MANUFACTURER	TYPE OF STEEL EXTRUSION	NEOPRENE GLAND
WATSON-BOWMAN & ACME CORP.	A3	SE- 300
D.S. BROWN CO.	SSA	L- 300
D.S. BROWN CO.	*RS3	A- 300
GENERAL TIRE & RUBBER CO.	PROFILE A	GEN-STRIP CD
LEWIS ENGINEERING CO.	W	L- 300
APPROVED EQUAL		

* HOT ROLLED STEEL

CURB PLATE NOTE:

THE MATERIAL USED FOR THE CURB PLATES IS TO BE ASTM A-36 STEEL. THE BOLTS SHALL MEET THE REQUIREMENTS OF ASTM A-307. THE PLATES, BOLTS, NUTS AND CAP SCREWS ARE TO BE GALVANIZED IN ACCORDANCE WITH ARTICLE 4100.10 OF THE STANDARD SPECIFICATIONS.

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EXPANSION DEVICE DETAILS

STA. 1131+87.84 ℄ I-80 FRA X-ING # 192659V
STA. 20+00 ℄ E. 29TH ST. IOWA X-ING # 4521
OCT. 1991

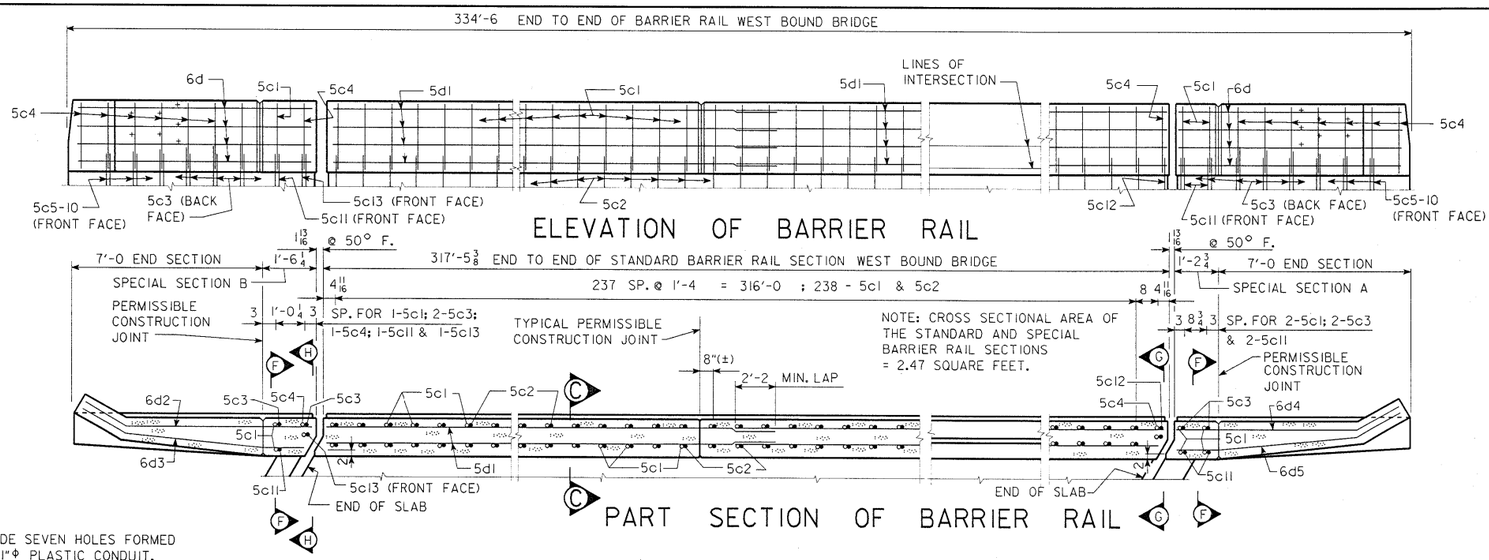
POLK COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

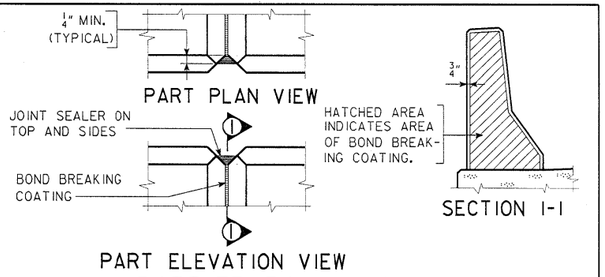
DESIGN SHEET NO. 29 OF 40 FILE NO. 28266 DESIGN NO. 1391

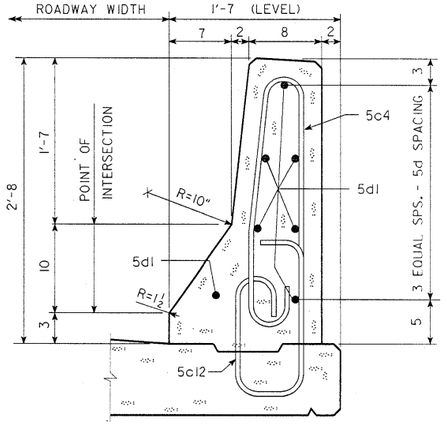
REVISED: CURB PLATE NOTE ADDED AND SHOP WELD DETAIL ADDED. TAPE NO. 9 DATED 2-26-90
REVISED: LEWIS ENGINEERING CO. ADDED TO TABLE OF APPROVED EXPANSION DEVICES. TAPE NO. 9 DATED 1-25-90
REVISED: STEEL EXTRUSION TYPES CHANGED. APPROVED EXTRUSIONS AND GLANDS COMBINED INTO ONE TABLE. ARCH. TAPE NO. 9 DATE 10-9-89
HSTD0126.SO1-LEP: THIS SHEET REDRAWN. DEVICE:ZHAO(200,004) ARCH. TAPE NO. 15 DATE 9-8-88

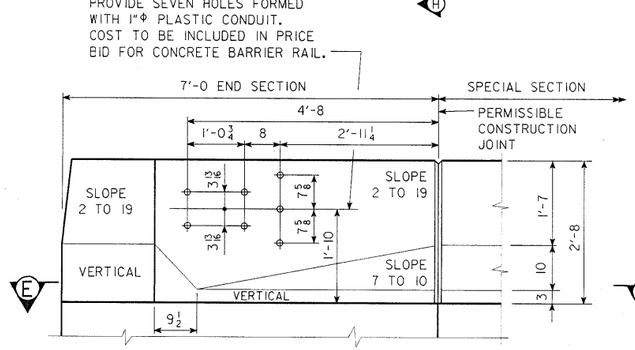
DESIGNED BY LeRoy Ornberg	TRACED BY DOUG WARRINGS	EXPANSION DEVICE DETAILS	STEEL EXTRUSION WITH NEOPRENE GLAND		POLK COUNTY	PROJECT NUMBER	STATE	FHWA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
DETAILED BY DOUG WARRINGS	CHECKED BY J. Neiderhiser						IOWA	7		31	57

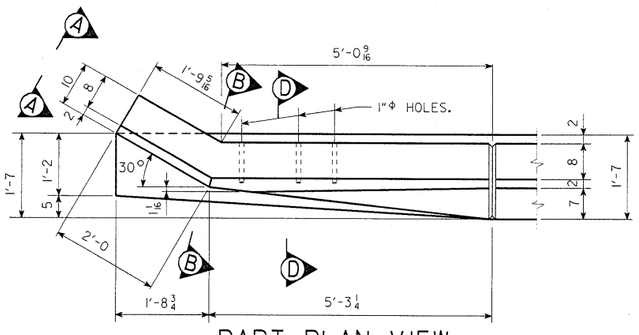
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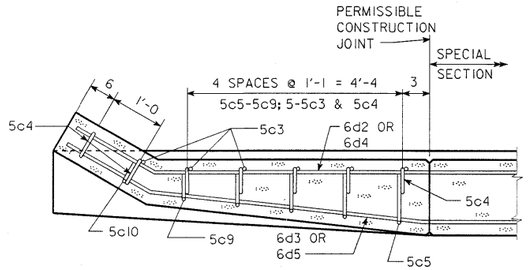


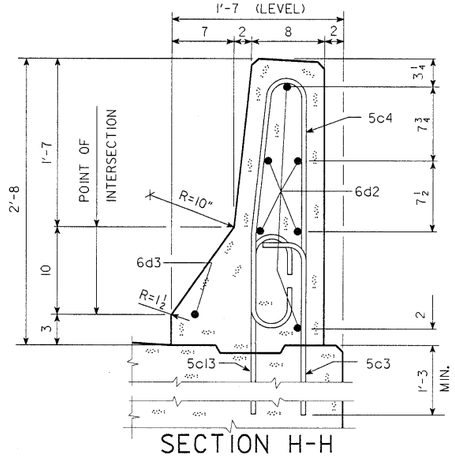


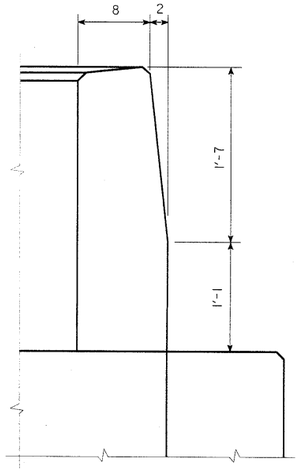


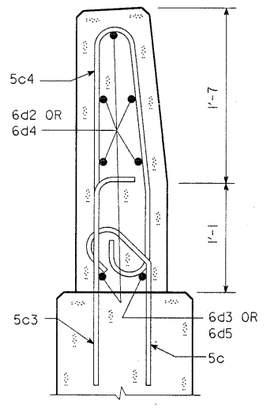


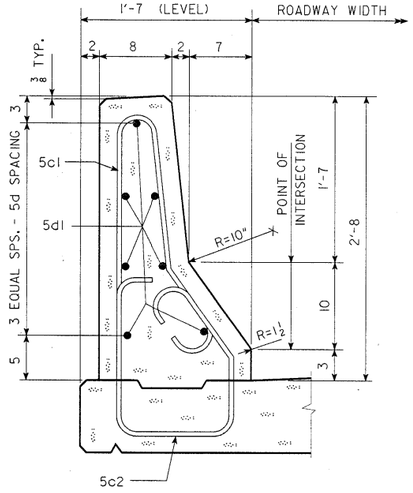


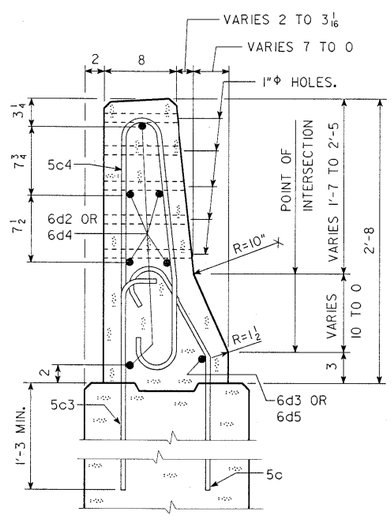


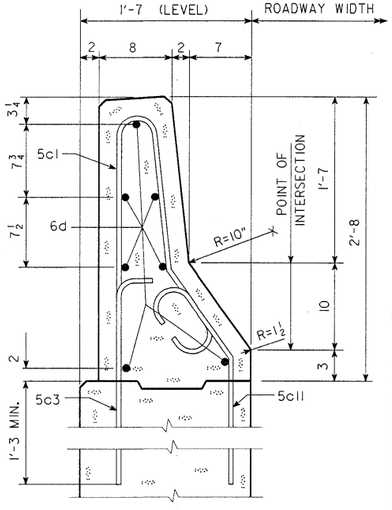












DESIGN FOR WIDENING EXISTING
315'-5x42' & 280'-0x42' PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGES
TO
56' ROADWAY BRIDGES
BARRIER RAIL DETAILS W.B. BRIDGE

STA. 1131+87.84 ℄ I-80 FRA X-ING # 192659V OCT. 1991
STA. 20+00 ℄ E. 29TH ST. IOWA X-ING # 4521

POLK COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 30 OF 40 FILE NO. 28266 DESIGN NO. 1391

REVISED: GUARDRAIL MOUNTING HEIGHT CHANGED, DETAILS CHANGED ACCORDINGLY. TAPE NO. 9 DATE 7-12-89
HSTD0018.S02 -LEP: THIS SHEET REDRAWN, DEVICE:ZHAO:(200,004) ARCH.TAPE NO.0000016. DATE 11-3-88

DESIGNED BY LaRay Ornberg TRACED BY DOUG WARRINGS
DETAILED BY DOUG WARRINGS CHECKED BY J. Nordhues

BARRIER RAIL--SKEWED STUB ABUTMENT WITH WING EXTENSIONS | STANDARD SHEET 1018 (L.A. SKEW) (MODIFIED) | POLK COUNTY | PROJECT NUMBER

STATE	FHWA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	7		32	57

H77139100.S08 DEVICE : ZHAO:(200,004) ARCH. TAPE NO. _____ DATE _____

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 $\frac{3}{4}$" DRESSED AND BEVELED STRIP.

IF USED, PERMISSIBLE CONSTRUCTION JOINTS ARE TO BE LOCATED BETWEEN VERTICAL BARS AND NOT CLOSER TOGETHER THAN 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 GRADE 60.

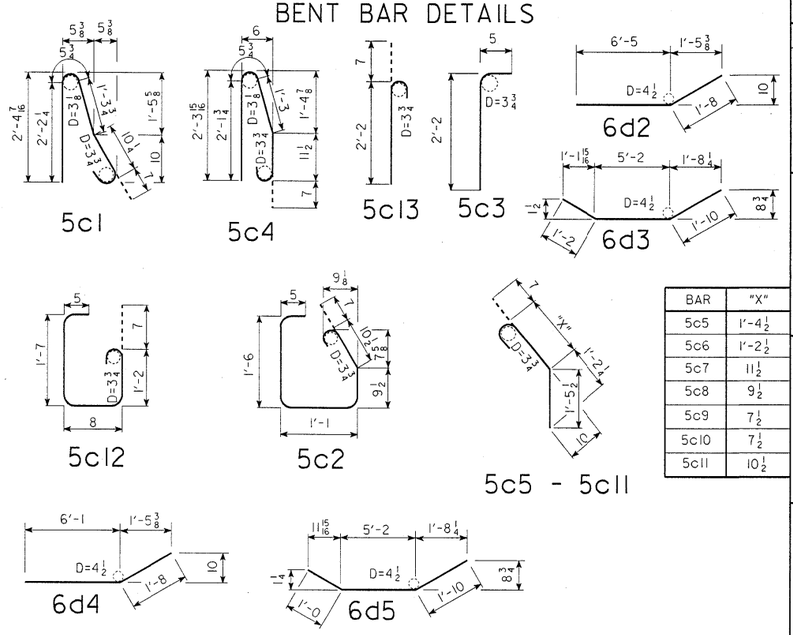
ALL BARRIER RAIL REINFORCING STEEL IS TO BE EPOXY COATED.

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 SUPER-STRUCTURE 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.

BENT BAR DETAILS



BAR	"X"
5c5	1'-4½
5c6	1'-2½
5c7	11½
5c8	9½
5c9	7½
5c10	7½
5c11	10½

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

EPOXY REINFORCING STEEL - TWO RAILS (W.B. BRIDGE)

SECTION	BAR	LOCATION	SHAPE	NO.	LENGTH	LIN. FT.	WEIGHT
STANDARD SECTION	5c1	VERTICAL		476	5'-5	2578	2689
	5c2	VERTICAL		476	5'-3	2499	2606
	5c4	VERTICAL		2	5'-5	11	11
	5c12	VERTICAL		2	4'-5	9	9
	5d1	LONGITUDINAL		126	37'-2	4683	4884
4 END SECTIONS	5c3	VERTICAL		24	2'-7	62	65
	5c4	VERTICAL		28	5'-5	152	158
	5c5-10	VERTICAL		24	VARIES	71	74
	6d2	LONGITUDINAL		12	8'-1	97	146
	6d3	LONGITUDINAL		2	8'-2	16	25
	6d4	LONGITUDINAL		12	7'-9	93	140
	6d5	LONGITUDINAL		2	8'-0	16	24
SPECIAL SECTION A	5c1	VERTICAL		4	5'-5	22	23
	5c3	VERTICAL		4	2'-7	10	11
	5c11	VERTICAL		4	2'-11	12	12
SPECIAL SECTION B	5c1	VERTICAL		2	5'-5	11	11
	5c3	VERTICAL		4	2'-7	10	11
	5c4	VERTICAL		2	5'-5	11	11
	5c11	VERTICAL		2	2'-11	6	6
	5c13	VERTICAL		2	2'-9	6	6
(INCLUDED WITH SUPERSTRUCTURE REINFORCING)					TOTAL WEIGHT (LBS.)		10922

CONCRETE PLACEMENT SUMMARY

SECTION		TOTAL
STANDARD SECTION	634.9' AT 0.0915 CU. YDS. PER FT.	58.1
END SECTIONS	4 AT 0.58 CU. YDS.	2.3
SPECIAL SECTION A	2 AT 0.11 CU.YDS.	0.2
SPECIAL SECTION B	2 AT 0.13 CU.YDS.	0.3
	TOTAL CU. YDS.	60.9

CONCRETE BARRIER RAIL QUANTITIES (W.B. BRIDGE)

ITEM	UNIT	QUANTITY
CONCRETE BARRIER RAIL	LIN. FT.	669.0

NOTE:
DETAILS ON THIS SHEET ARE FOR THE WESTBOUND BRIDGE ONLY.

DESIGN FOR WIDENING EXISTING
315'-5x42' & 280'-0x42' PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGES
TO
56' ROADWAY BRIDGES
BARRIER RAIL DETAILS W.B. BRIDGE

STA. 1131+87.84 ℄ I-80 FRA X-ING # 192659V OCT. 1991
STA. 20+00 ℄ E. 29TH ST. IOWA X-ING # 4521

POLK COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 31 OF 40 FILE NO. 28266 DESIGN NO. 1391

HSTD\018B.S01-LEP: THIS SHEET REDRAWN, DEVICE:ZHAO:(200,004) ARCH.TAPE NO. 15 DATE 9-8-88

DESIGNED BY LaRoy Ornberg TRACED BY DOUG WARRINGS
DETAILED BY DOUG WARRINGS CHECKED BY J. Nedrhus

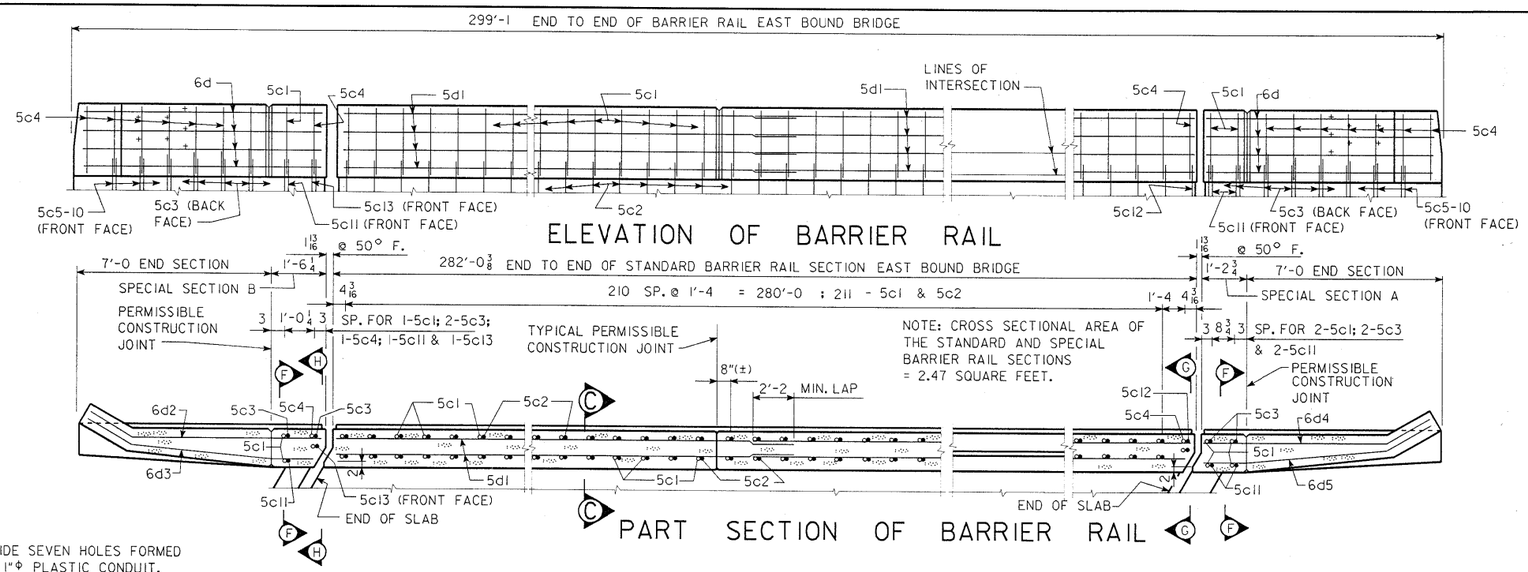
BARRIER RAIL - SKEWED STUB ABUTMENT WITH WING EXTENSIONS - BAR LIST AND NOTES

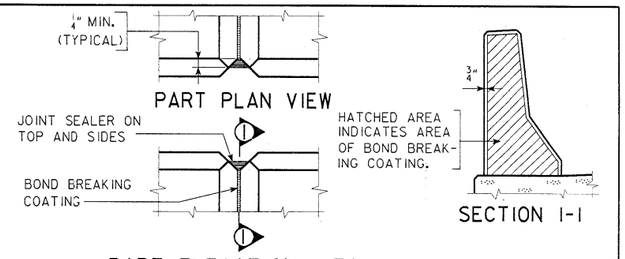
POLK COUNTY

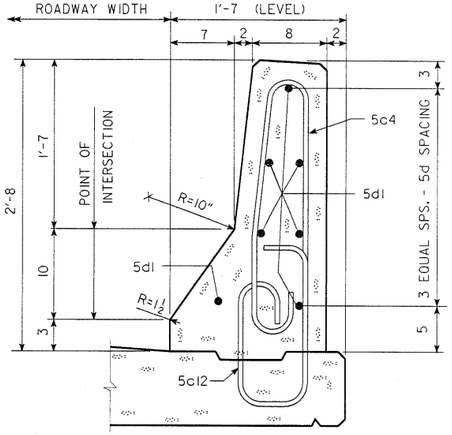
PROJECT NUMBER

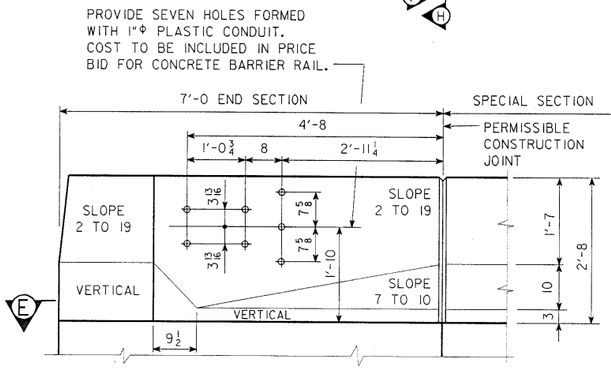
STATE	FHWA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	7		33	57

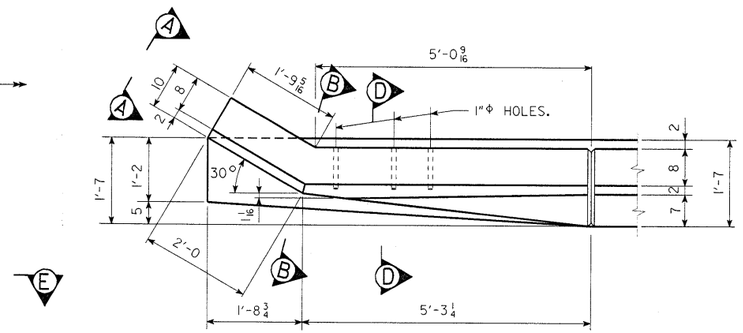
H77139100.S09 DEVICE : ZHAO:(200,004) ARCH. TAPE NO. _____ DATE_____

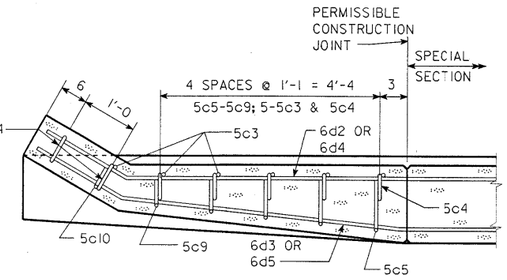


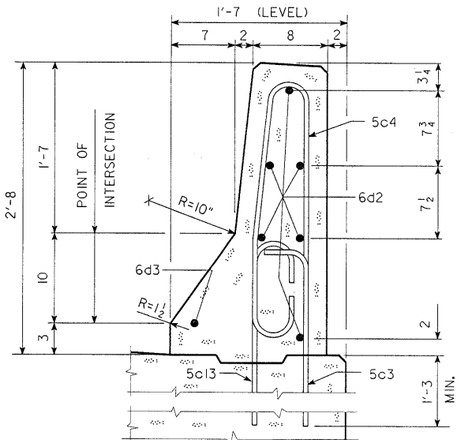


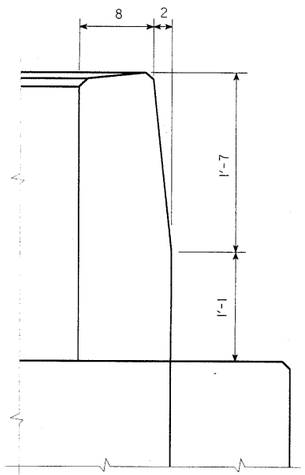


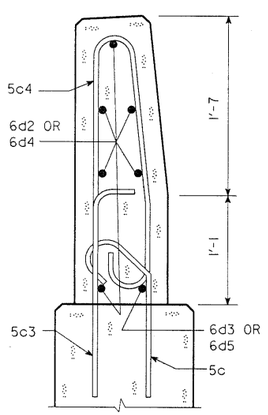


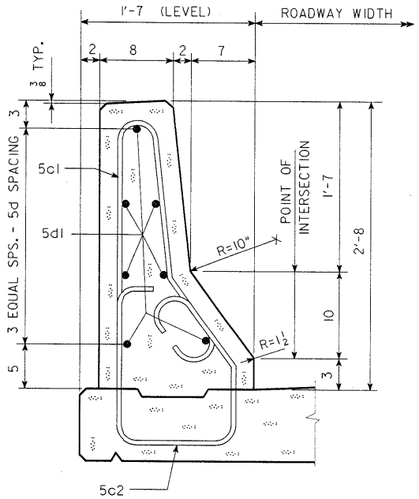


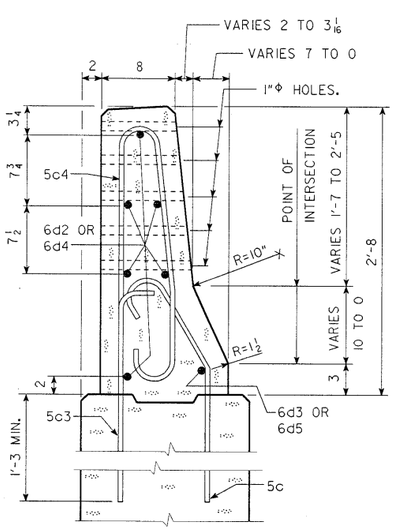


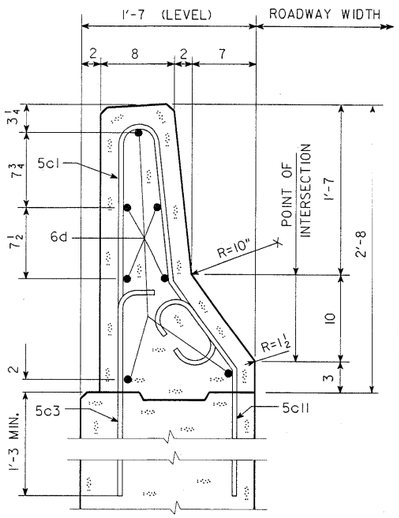












NOTE:
DETAILS ON THIS SHEET ARE FOR THE EASTBOUND BRIDGE ONLY.

DESIGN FOR WIDENING EXISTING
315'-5x42' & 280'-0x42' PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGES
TO
56' ROADWAY BRIDGES
BARRIER RAIL DETAILS E.B. BRIDGE

STA. 1131+87.84 ℄ I-80 FRA X-ING # 192659V OCT. 1991
STA. 20+00 ℄ E. 29TH ST. IOWA X-ING # 4521

POLK COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
DESIGN SHEET NO. 32 OF 40 FILE NO. 28266 DESIGN NO. 1391

REVISED: GUARDRAIL MOUNTING HEIGHT CHANGED, DETAILS CHANGED ACCORDINGLY. TAPE NO. 9 DATE 7-12-89
HSTD0108.S02--LEP: THIS SHEET REDRAWN. DEVICE:ZHA0:(200,004) ARCH.TAPE NO. 000016 DATE 11-3-88

DESIGNED BY LeRoy Ornberg TRACED BY DOUG WARRINGS
DETAILED BY DOUG WARRINGS CHECKED BY J. Nordhuis

BARRIER RAIL--SKEWED STUB ABUTMENT WITH WING EXTENSIONS

STANDARD SHEET 1018 (L.A. SKEW) (MODIFIED)

POLK COUNTY

PROJECT NUMBER

STATE	FHWA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	7		34	57

H77139100.S06 DEVICE : ZHA0:(200,004) ARCH. TAPE NO. ---------- DATE----------

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 $\frac{3}{4}$" DRESSED AND BEVELED STRIP.

IF USED, PERMISSIBLE CONSTRUCTION JOINTS ARE TO BE LOCATED BETWEEN VERTICAL BARS AND NOT CLOSER TOGETHER THAN 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 GRADE 60.

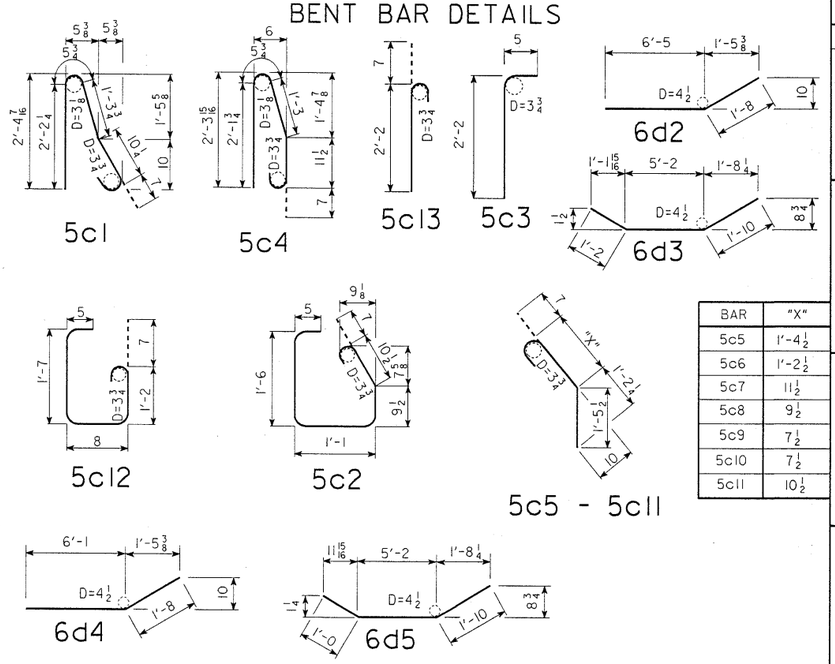
ALL BARRIER RAIL REINFORCING STEEL IS TO BE EPOXY COATED.

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 SUPER-STRUCTURE 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.

BENT BAR DETAILS



BAR	"X"
5c5	1'-4½
5c6	1'-2½
5c7	11½
5c8	9½
5c9	7½
5c10	7½
5c11	10½

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

EPOXY REINFORCING STEEL - TWO RAILS (E.B. BRIDGE)

SECTION	BAR	LOCATION	SHAPE	NO.	LENGTH	LIN. FT.	WEIGHT
STANDARD SECTION	5c1	VERTICAL		422	5'-5	2286	2384
	5c2	VERTICAL		422	5'-3	2216	2311
	5c4	VERTICAL		2	5'-5	11	11
	5c12	VERTICAL		2	4'-5	9	9
	5d1	LONGITUDINAL		112	37'-2	4163	4342
4 END SECTIONS	5c3	VERTICAL		24	2'-7	62	65
	5c4	VERTICAL		28	5'-5	152	158
	5c5-10	VERTICAL		24	VARIES	71	74
	6d2	LONGITUDINAL		12	8'-1	97	146
	6d3	LONGITUDINAL		2	8'-2	16	25
	6d4	LONGITUDINAL		12	7'-9	93	140
	6d5	LONGITUDINAL		2	8'-0	16	24
SPECIAL SECTION A	5c1	VERTICAL		4	5'-5	22	23
	5c3	VERTICAL		4	2'-7	10	11
	5c11	VERTICAL		4	2'-11	12	12
SPECIAL SECTION B	5c1	VERTICAL		2	5'-5	11	11
	5c3	VERTICAL		4	2'-7	10	11
	5c4	VERTICAL		2	5'-5	11	11
	5c11	VERTICAL		2	2'-11	6	6
	5c13	VERTICAL		2	2'-9	6	6

(INCLUDED WITH SUPERSTRUCTURE REINFORCING) TOTAL WEIGHT (LBS.) 9780

CONCRETE PLACEMENT SUMMARY

SECTION		TOTAL
STANDARD SECTION	564.1' AT 0.0915 CU. YDS. PER FT.	51.6
END SECTIONS	4 AT 0.58 CU. YDS.	2.3
SPECIAL SECTION A	2 AT 0.11 CU.YDS.	0.2
SPECIAL SECTION B	2 AT 0.13 CU.YDS.	0.3
	TOTAL CU. YDS.	54.4

CONCRETE BARRIER RAIL QUANTITIES (E.B. BRIDGE)

ITEM	UNIT	QUANTITY
CONCRETE BARRIER RAIL	LIN. FT.	598.2

NOTE:
DETAILS ON THIS SHEET ARE FOR THE EASTBOUND BRIDGE ONLY.

DESIGN FOR WIDENING EXISTING
315'-5x42' & 280'-0x42' PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGES
TO
56' ROADWAY BRIDGES
BARRIER RAIL DETAILS E.B. BRIDGE
STA. 1131+87.84 ℄ I-80 FRA X-ING # 192659V OCT. 1991
STA. 20+00 ℄ E. 29TH ST. IOWA X-ING # 4521
POLK COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
DESIGN SHEET NO. 33 OF 40 FILE NO. 28266 DESIGN NO. 1391

DESIGNED BY LeRoy Ornberg TRACED BY DOUG WARRINGS
DETAILED BY DOUG WARRINGS CHECKED BY J. Nedrich

BARRIER RAIL - SKEWED STUB ABUTMENT WITH WING EXTENSIONS - BAR LIST AND NOTES

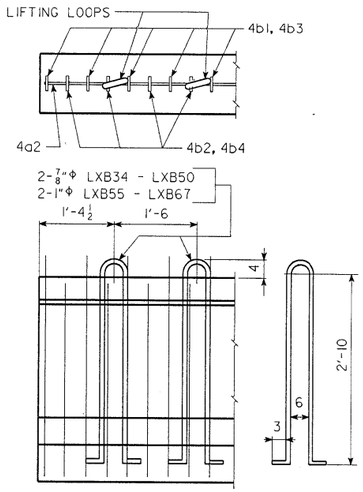
POLK COUNTY

PROJECT NUMBER

STATE	FHWA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	7		35	57

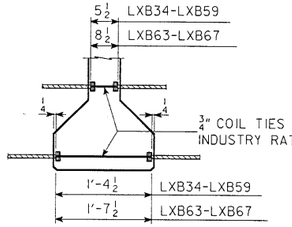
H77139100.S07 DEVICE : ZHAO:(200,004) ARCH. TAPE NO. ---------- DATE----------

HSTD10BB.S01--LEP: THIS SHEET REDRAWN, DEVICE:ZHAO:(200,004) ARCH.TAPE NO. 15 DATE 9-8-88



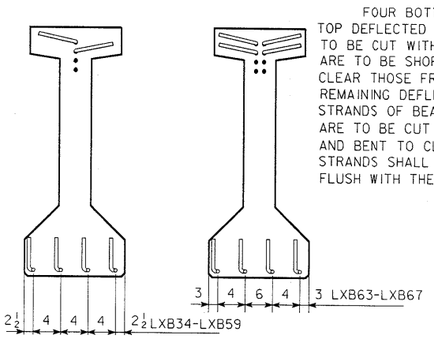
LIFTING LOOP DETAIL

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



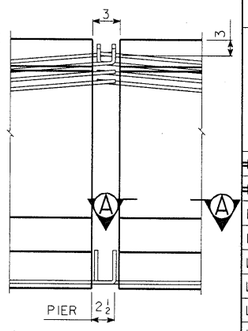
COIL TIE DETAIL

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

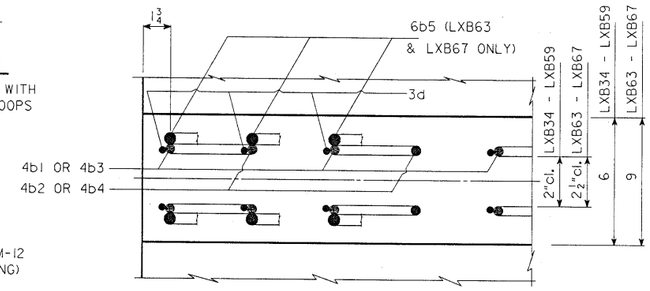


FOUR BOTTOM STRANDS AND "N" TOP DEFLECTED OR STRAIGHT STRANDS ARE TO BE CUT WITH 1'-0 PROJECTIONS WHICH ARE TO BE SHOP BENT AS SHOWN AND TO CLEAR THOSE FROM THE ADJACENT SPAN. REMAINING DEFLECTED AND TOP STRAIGHT STRANDS OF BEAMS LXB42 THROUGH LXB67 ARE TO BE CUT WITH 0'-2½ PROJECTION AND BENT TO CLEAR. THE REMAINING STRANDS SHALL BE CUT OFF REASONABLY FLUSH WITH THE CONCRETE.

BEAM	"N"
LXB34-LXB38	2
LXB42-LXB46	3
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 ③ KIPS	HOLD DOWN FORCE-KIPS	CAMBER (in.) AT RELEASE	CAMBER (in.) AFTER LOSSES	DEFLECTION (in.) Δ_D IMMEDIATE ① (ELASTIC) Δ_I CONC. DIAPH.	DEFLECTION (in.) Δ_D IMMEDIATE ① (ELASTIC) Δ_I STEEL DIAPH.	DEFLECTION (in.) Δ_D TIME ② (PLASTIC) Δ_T CONC. DIAPH.	DEFLECTION (in.) Δ_D TIME ② (PLASTIC) Δ_T STEEL DIAPH.	PERMISSIBLE SPACING HS20 LOADING CONC. DIAPH.	PERMISSIBLE SPACING HS20 LOADING STEEL DIAPH.	WEIGHT (TONS)	CONCRETE (C. Y.)	REINFORCING STEEL-(lb)
~~LXB34~~	~~34'-2~~	~~35'-2~~	~~½"Φ~~	~~11~~	~~—~~	~~330~~	~~—~~	~~0.18~~	~~0.27~~	~~0.09~~	~~0.08~~	~~0.02~~	~~0.02~~	~~7'-6~~	~~7'-6~~	~~7.0~~	~~3.46~~	~~373~~
~~LXB38~~	~~38'-4~~	~~39'-4~~	~~½"Φ~~	~~12~~	~~—~~	~~360~~	~~—~~	~~0.20~~	~~0.36~~	~~0.15~~	~~0.13~~	~~0.04~~	~~0.03~~	~~7'-6~~	~~7'-6~~	~~7.8~~	~~3.87~~	~~402~~
LXB42	42'-6	43'-6	½"Φ	15	—	450	—	0.28	0.49	0.22	0.20	0.06	0.05	7'-6	7'-6	8.7	4.28	469
LXB46	46'-8	47'-8	½"Φ	9	3	360	12.7	0.44	0.78	0.32	0.29	0.08	0.07	7'-6	7'-6	9.5	4.69	484
LXB50	50'-10	51'-10	½"Φ	10	4	420	15.6	0.58	1.03	0.44	0.41	0.11	0.10	7'-6	7'-6	10.3	5.10	556
LXB55	55'-0	56'-0	½"Φ	12	4	480	14.4	0.80	1.43	0.60	0.56	0.15	0.14	7'-6	7'-6	11.2	5.51	586
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
LXB63	63'-4	64'-4	½"Φ	16	6	660	18.8	1.00	1.77	0.84	0.79	0.21	0.20	7'-6	7'-6	16.7	8.27	713
~~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.

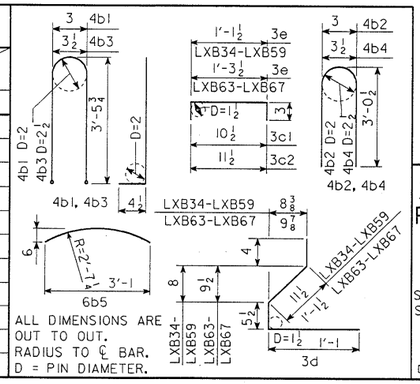
CONCRETE IN ACCORDANCE WITH SECTION 9, f'_C =5000 psi.

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

REINFORCING BAR LIST

BEAM / SPAN	~~LXB34 34'-2~~		~~LXB38 38'-4~~		LXB42 42'-6		LXB46 46'-8		LXB50 50'-10		LXB55 55'-0		LXB59 59'-2		LXB63 63'-4		~~LXB67 67'-6~~	
BAR SHAPE	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH
6a1	2	34'-1	2	39'-1	4	23'-1	4	25'-2	4	27'-3	4	29'-4	4	31'-5	4	33'-6	4	35'-7
4a2	2	2'-6	2	2'-6	2	2'-6	2	2'-6	2	3'-3	2	3'-3	2	3'-3	2	3'-3	2	3'-3
4b1	28	7'-10	30	7'-10	34	7'-10	36	7'-10	40	7'-10	42	7'-10	46	7'-10	—	—	—	—
4b2	6	6'-2	6	6'-2	8	6'-2	6	6'-2	10	6'-2	10	6'-2	10	6'-2	—	—	—	—
4b3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	48	7'-10	52	7'-10
4b4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8	6'-2	8	6'-2
6b5	—	—	—	—	—	—	—	—	—	—	—	—	—	—	12	3'-3	12	3'-3
3c1	28	1'-5	30	1'-5	34	1'-5	36	1'-5	40	1'-5	42	1'-5	46	1'-5	—	—	—	—
3c2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	48	1'-6	52	1'-6
*3d	68	2'-10	72	2'-10	84	2'-10	84	2'-10	100	2'-10	104	2'-10	112	2'-10	112	3'-0	120	3'-0
3e	10	1'-8	10	1'-8	14	1'-8	12	1'-8	16	1'-8	18	1'-8	20	1'-8	16	1'-10	16	1'-10

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



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

DESIGN FOR WIDENING EXISTING
315'-5x42' & 280'-0x42' PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGES
TO
56' ROADWAY BRIDGES
BEAM DETAILS

STA. 1131+87.84 ℄ I-80 FRA X-ING # 192659V
STA. 20+00 ℄ E. 29TH ST. IOWA X-ING # 4521
OCT. 1991

POLK COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 34 OF 40 FILE NO. 28266 DESIGN NO. 1391

DESIGNED BY LeRoy Ornberg TRACED BY DOUG WARRINGS
DETAILED BY DOUG WARRINGS CHECKED BY J. Neddenriep

LXB BEAMS

STANDARD SHEET 4610
ISSUE DATE 06-01-90

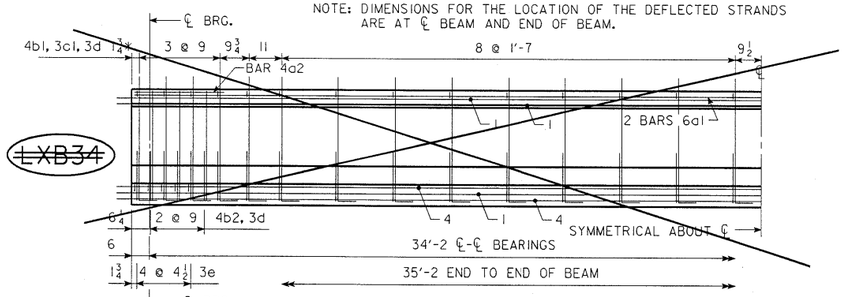
POLK COUNTY

STATE	FHWA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	7		36	57

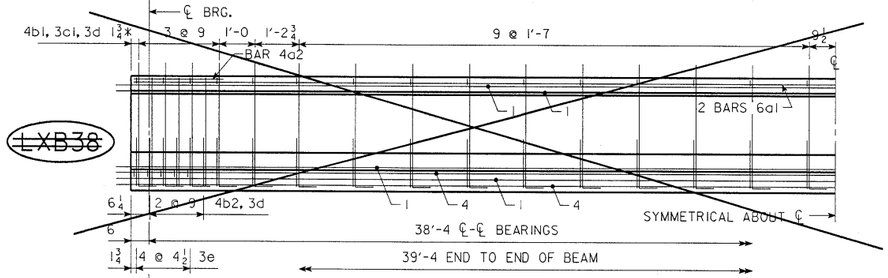
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HLXB04610.SOI--GJP: THIS SHEET REISSUED, DEVICE: ZHAI:(200,005) ARCH. TAPE 9 DATE 05-24-90

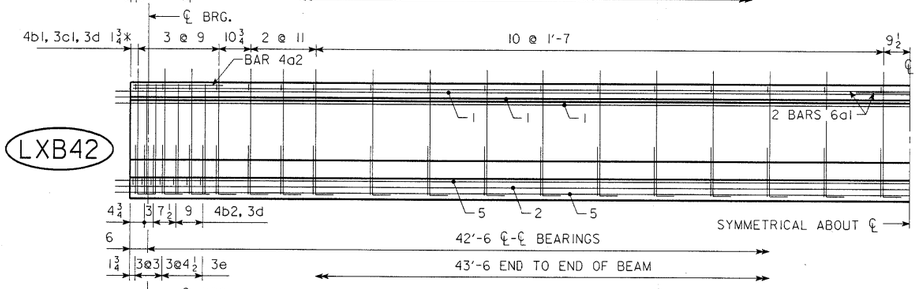
NOTE: DIMENSIONS FOR THE LOCATION OF THE DEFLECTED STRANDS ARE AT ℄ BEAM AND END OF BEAM.



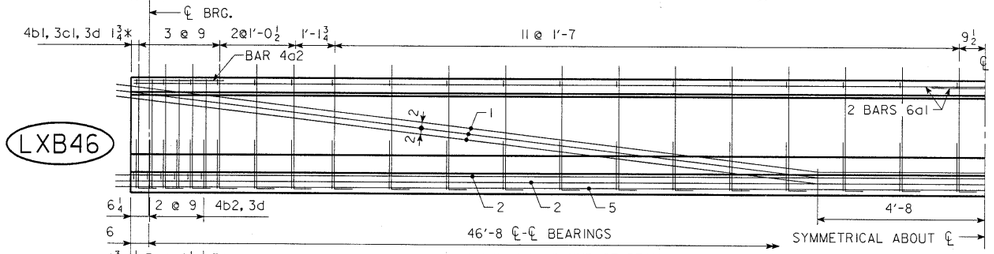
~~LXB34~~



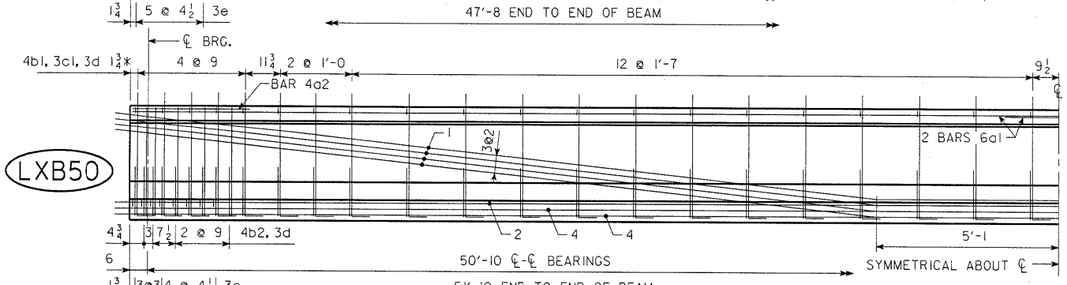
~~LXB38~~



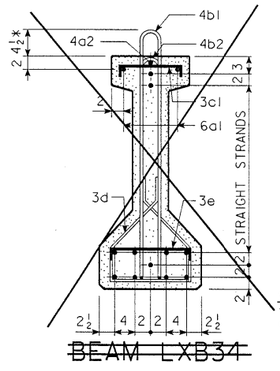
LXB42



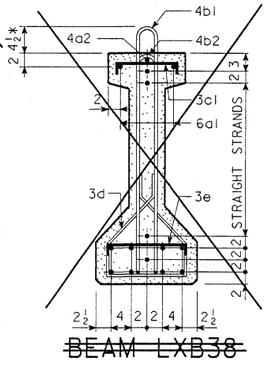
LXB46



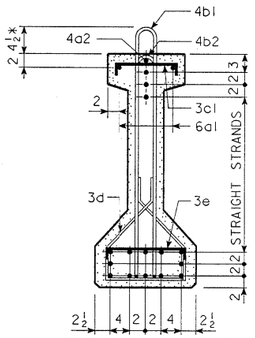
LXB50

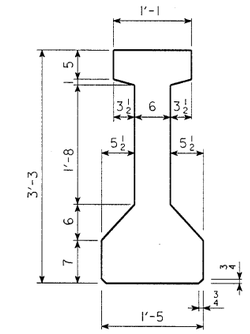


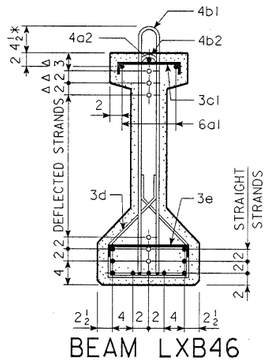
~~BEAM LXB34~~

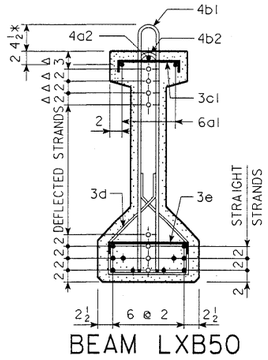


~~BEAM LXB38~~









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

o DEFLECTED STRANDS
* KEEP
Δ DIMENSIONS AT END OF BEAM

DESIGN FOR WIDENING EXISTING
315'-5x42' & 280'-0x42' PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGES
TO
56' ROADWAY BRIDGES
BEAM DETAILS

STA. 1131+87.84 ℄ I-80 FRA X-ING # 192659V
STA. 20+00 ℄ E. 29TH ST. IOWA X-ING # 4521
OCT. 1991

POLK COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

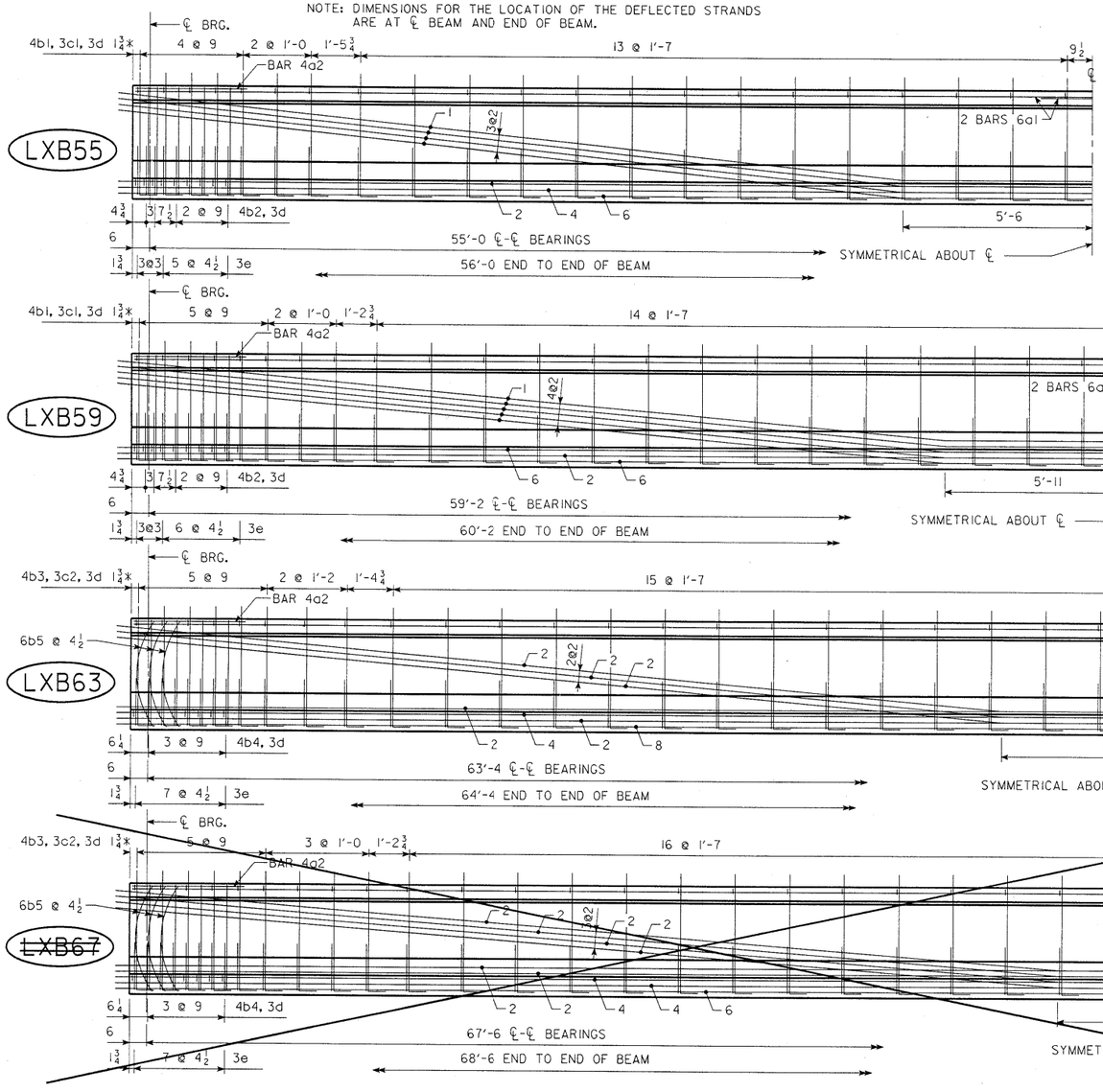
DESIGN SHEET NO. 35 OF 40 FILE NO. 28266 DESIGN NO. 1391

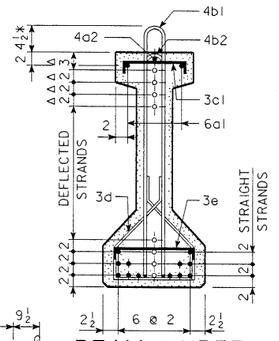
DESIGNED BY LeRoy Ornberg	TRACED BY DOUG WARRINGS	LXB BEAMS	STANDARD SHEET 4611	POLK COUNTY	STATE	FHWA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
DETAILED BY DOUG WARRINGS	CHECKED BY J. Nelson		ISSUE DATE 06-01-90		IOWA	7		37	57

H77139100.S03 DEVICE : ZHA0:(200,004) ARCH. TAPE NO. _____ DATE_____

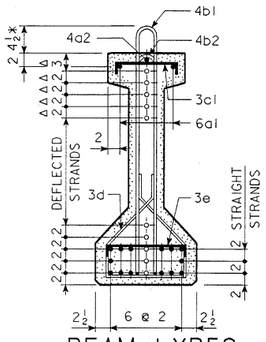
HLXB0461I.S01--GJP: THIS SHEET REISSUED, DEVICE: ZHA1:(200,005) ARCH. TAPE 9 DATE 05-24-90.

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

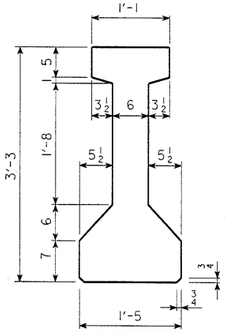




BEAM LXB55

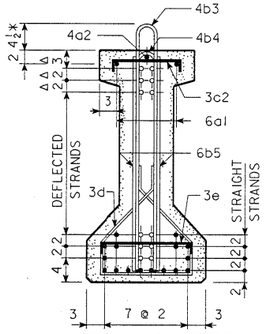


BEAM LXB59

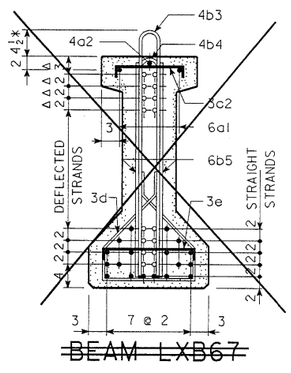


BEAM
LXB55 - LXB59
A = 382.5 in.²
Y_b = 17.06 in.
I = 62,000 in.⁴

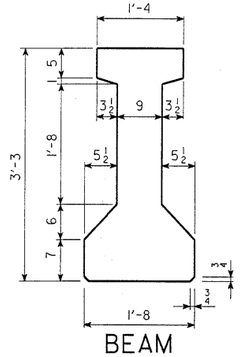
NOTE: BARS 6b5 AND 3d ARE TO BE PLACED IN PAIRS.



BEAM LXB63



~~BEAM LXB67~~



BEAM
LXB63 - LXB67
A = 499.5 in.²
Y_b = 17.63 in.
I = 77,364 in.⁴

○ DEFLECTED STRANDS
✱ KEEP
△ DIMENSIONS AT END OF BEAM

DESIGN FOR WIDENING EXISTING
315'-5x42' & 280'-0x42' PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGES
TO
56' ROADWAY BRIDGES
BEAM DETAILS

STA. 1131+87.84 ℄ I-80 FRA X-ING # 192659V
STA. 20+00 ℄ E. 29TH ST. IOWA X-ING # 4521
OCT. 1991

POLK COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 36 OF 40 FILE NO. 28266 DESIGN NO. 1391

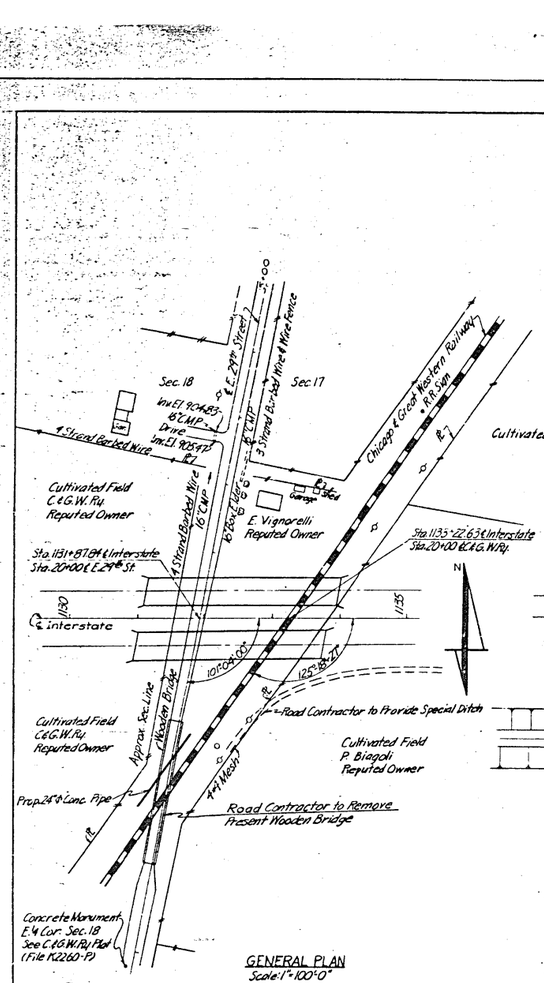
DESIGNED BY LeRoy Ornberg	TRACED BY DOUG WARRINGS	LXB BEAMS	STANDARD SHEET 4612 ISSUE DATE 06-01-90	POLK COUNTY	STATE	FHWA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
DETAILED BY DOUG WARRINGS	CHECKED BY J. Neiderluser				IOWA	7		38	57

H77139100.S04 DEVICE : ZHAO:(200,004) ARCH. TAPE NO. ---------- DATE----------

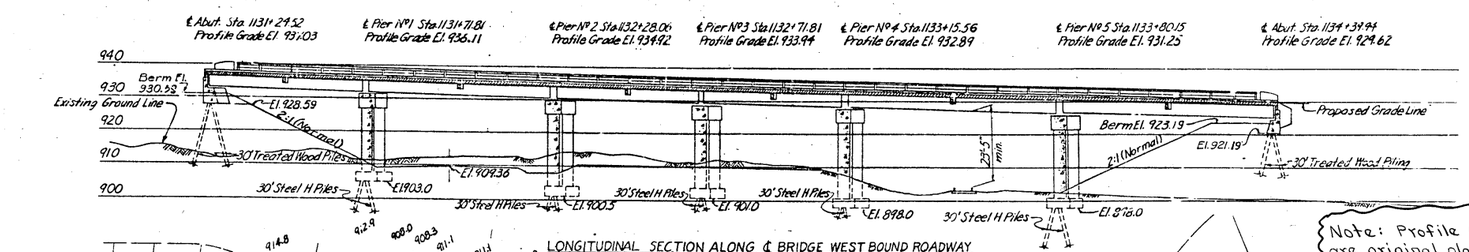
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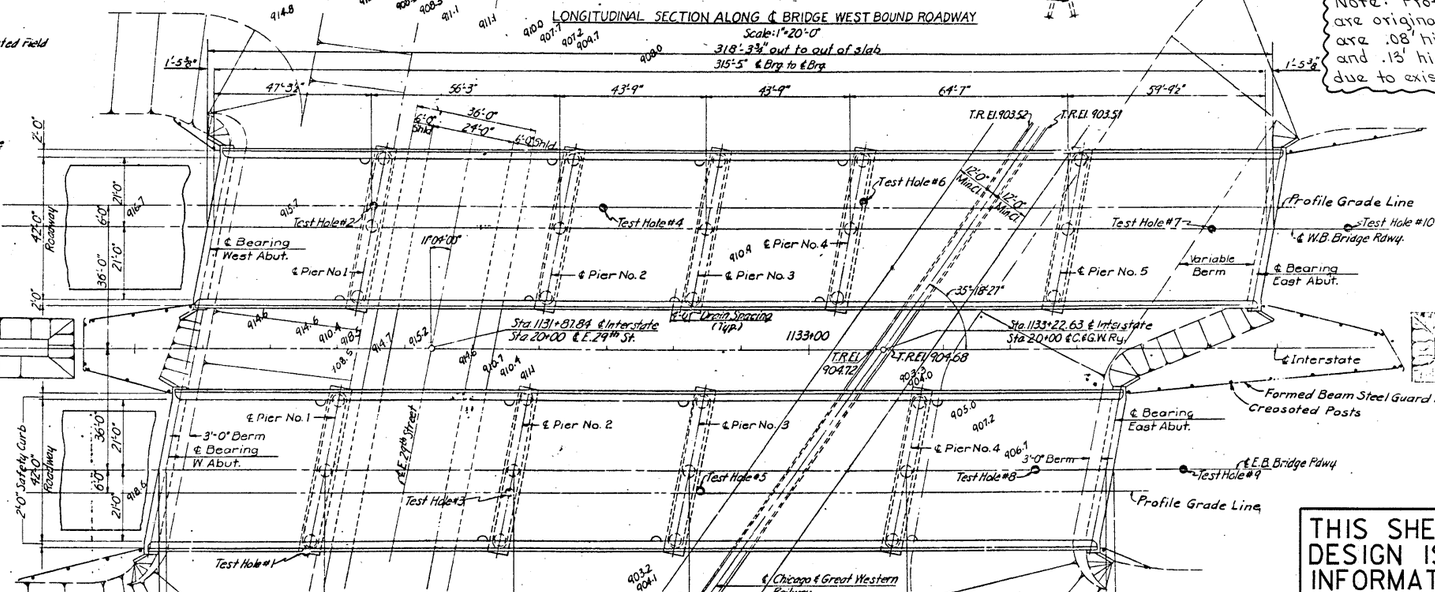
Bench Mark N°187 Sta.1133+46-R.R. Spike in N. Side Pole W. Side L.24th St. 60' Rt. El. 918.56

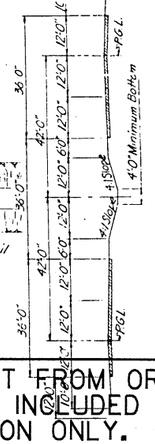
NOTE: All Stations and Grades on Profile Grade Line.



GENERAL PLAN
Scale: 1"=100'-0"





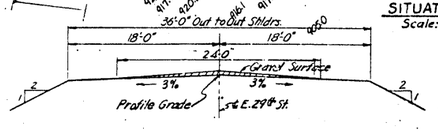


NOTE:

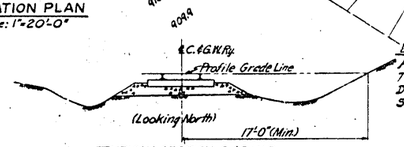
Note: Profile Grade elevations shown are original plan elevations. Actual elevations are .08' higher for the Westbound Bridge and .13' higher for the Eastbound Bridge due to existing bridge deck overlay.

NOTE

SITUATION PLAN
Scale: 1"=20'-0"

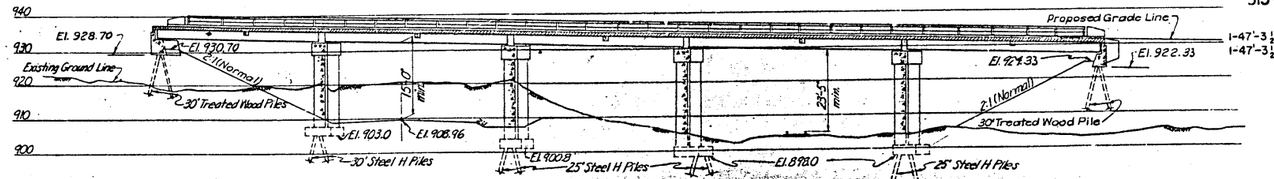


TYPICAL SECTION E. 29th ST.
Scale: ½"=1'-0"



TYPICAL SECTION C.&G.W.Ry.
Scale: ½"=1'-0"

℄ Abut. Sta 1131+08.09	℄ Pier N°1 Sta 1131+55.38	℄ Pier N°2 Sta 1132+11.63	℄ Pier N°3 Sta 1132+63.72	℄ Pier N°4 Sta. 1133+28.30	℄ Abut Sta 1133+88.09
Profile Grade El. 937.33	Profile Grade El. 936.43	Profile Grade El. 935.28	Profile Grade El. 934.12	Profile Grade El. 932.58	Profile Grade El. 931.04



LONGITUDINAL SECTION ALONG ℄ BRIDGE EAST BOUND ROADWAY
Scale: 1"=20'-0"

Revised 7/15/59 — Superstructure Concrete Estimate changed to include Diaphragms.

TOTAL ESTIMATED QUANTITIES

ITEM	UNIT	4 ABUTS.	9 PIERS	SUPER ST.	TOTAL
Concrete	Cu.Yds.	131.2	815.4	738 ~~465.0~~	~~1385.0~~ 1685.0
Reinforcing Steel	Lbs.	14,096	151,822	165,189	331,107
Structural Steel	Lbs.	——	——	320	320
Treated Wood Piles	Lin.Ft.	76 @ 30'	——	——	2280
10BP42 Steel Piles, Furnish	Lin.Ft.	——	60 @ 25', 120 @ 30'	——	3100
10BP42 Steel Piles, Drive	Lin.Ft.	——	60 @ 25', 120 @ 30'	——	5,100
Aluminum Handrail	Lin.Ft.	——	——	1159	1159
Prestressed Conc. Beams 42'6"	Bms.	——	——	22	22
Prestressed Conc. Beams 46'8"	Bms.	——	——	22	22
Prestressed Conc. Beams 50'10"	Bms.	——	——	11	11
Prestressed Conc. Beams 55'0"	Bms.	——	——	22	22
Prestressed Conc. Beams 59'2"	Bms.	——	——	22	22
Prestressed Conc. Beams 63'4"	Bms.	——	——	22	22
Excavation Class 20	Cu.Yds.	97	999	——	1096

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 19lbs. 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 ground line.

Concrete for East Abutments is not to be placed until one month before anticipated delivery date of superstructure elements to the job site.

Formed Beam Guard Rail and Creosoted Posts at the end of the bridge are to be furnished and placed by others and are not a part of this estimate.

SPECIFICATIONS

Design: A.A.S.H.O., Series of 1957, and U.S. Bureau of Public Roads Design Criteria for Prestressed Concrete Briges, 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 11°-04'-00" SKEW

315'-5"x42' & 280'-0"x42' PRE-TENSIONED PRESTRESSED CONCRETE BEAM BRIDGES

1-47'-3½" & 1-59'-9½" END SPANS 1-64'-7", 1-56'-3" & 2-43'-9" INTERMEDIATE SPANS
1-47'-3½" & 1-59'-9½" END SPANS 1-64'-7", 1-56'-3" & 1-52'-1" INTERMEDIATE SPANS

CONCRETE FLOOR AND SUBSTRUCTURE-ALUMINUM RAIL

INTERSTATE OVER E. 29TH ST. & C.G.W. RY.

GENERAL & SITUATION PLAN

STATION 1131+87.84 ℄ INTERSTATE PROJ. NO. I-IG-01-4(2) [I-IG-80-4(2)142]

POLK COUNTY

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

Design Sheet No.: 37 Of 40 File No.: 28266 Design No.: 1391

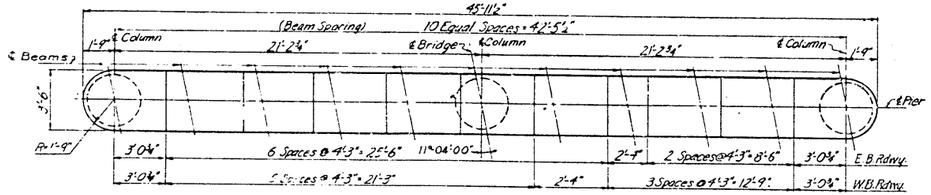
IN CHARGE OF L.G.
MADE BY J.K.
TRACED BY L.K.
CHECKED BY G.R.

POLK COUNTY

PROJECT NUMBER	STATE	FED. ROAD DIST. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	IOWA	5		39	57

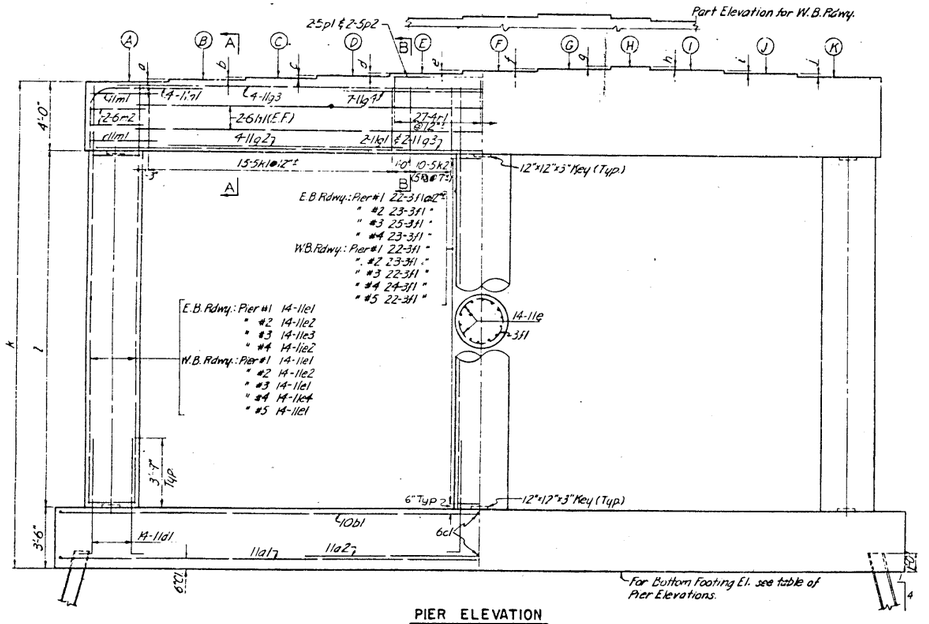
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Bench Mark No. 182 Sta. 1133+46 R.R. Spike in N. Side Pole W. Side E. 29th St. - 60' Rt. El. 918.56



PLAN OF CAP

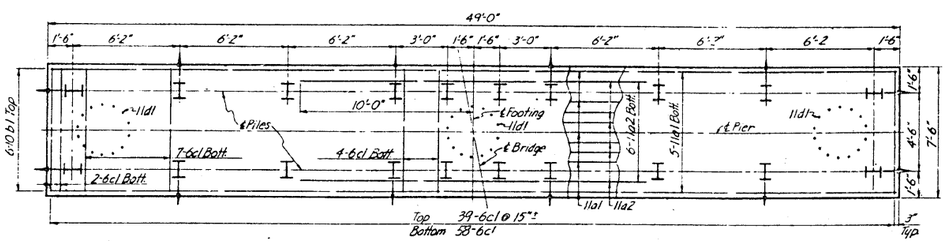
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PIER ELEVATION

Scale: ¼"=1'-0"

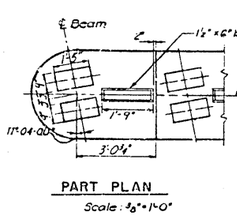
Shown for E.B. Rdwy. looking East
Shown for W.B. Rdwy. looking West



FOOTING PLAN

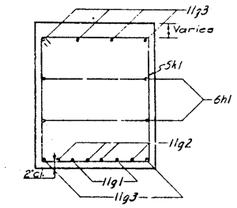
Scale: ¼"=1'-0"

Notes:
20-10BP42 steel piles required for each pier footing.
Batter piles shown thus ⊢⊣ 1:4 in direction indicated.
25-10BP42 steel piles required for E.B. Rdwy. Piers #2, 3, and 4.
30-10BP42 steel piles required for E.B. Rdwy. Pier #1, and W.B. Rdwy. Piers #1, 2, 3, 4, and 5.



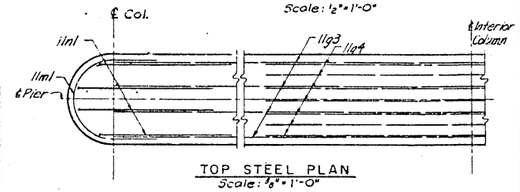
PART PLAN

Scale: ⅜"=1'-0"



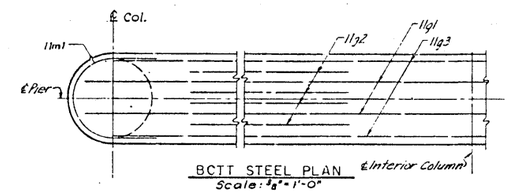
SECTION A-A

Scale: ½"=1'-0"



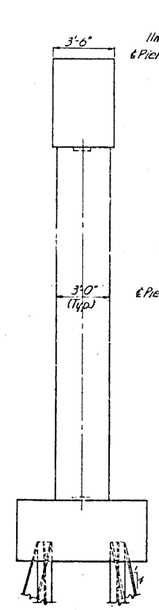
TOP STEEL PLAN

Scale: ⅜"=1'-0"



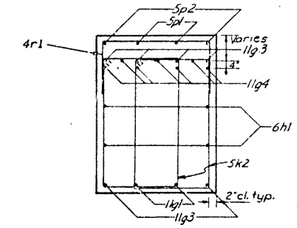
BCTT STEEL PLAN

Scale: ⅜"=1'-0"



END ELEVATION

Scale: ¼"=1'-0"

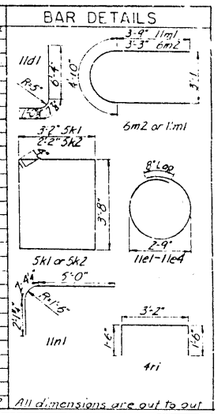


SECTION B-B

Scale: ½"=1'-0"

BILL OF REINFORCING STEEL — NINE PIERS					
Mark	Location	Shape	No.	Length	Weight
11a1	Footing Longitudinal-Bott.	—	45	48'-6"	11,396
11a2	" "	—	54	20'-0	5,738
10b1	" -Top	—	54	48'-6	11,270
6c1	" Transverse-T&B	—	873	1'-0	9,179
11d1	Footing to Column Dowels	L	378	8'-0	16,087
11e1	Columns-Vertical	—	168	24'-9	22,091
11e2	" "	—	126	26'-1	17,461
11e3	" "	—	42	27'-8	6,774
11e4	" "	—	42	26'-8	5,751
3f1	Columns Hoops	○	618	1'-4	2,169
11g1	Cap Longitudinal-Bott.	—	18	45'-0	1,304
11g2	" "	—	72	13'-6	5,164
11g3	" " -T&B	—	54	42'-6	12,169
11g4	" " -Top	—	63	16'-0	5,356
6h1	" " -Sides	—	36	40'-0	2,163
5k1	" Hoops	□	270	14'-4	4,036
5k2	" "	□	180	12'-4	2,315
11m1	" End Noses	⊂⊃	36	12'-4	2,359
6m2	" " "	⊂⊃	36	11'-4	613
11n1	" Corners	⌐	72	9'-1	3634
5p1	" Longitudinal-Top	—	18	27'-1	518
5p2	" " "	—	18	26'-4	494
4r1	" Hairpins	⌐	243	6'-2	1001
				Total	151,822

BAR DETAILS



ESTIMATED QUANTITIES E.B. RDWY. — FOUR PIERS					
Item	Pier 1	Pier 2	Pier 3	Pier 4	Total
Concrete in Footing	47.6 C.Y.	47.6 C.Y.	47.6 C.Y.	47.6 C.Y.	
" " Column	16.7 C.Y.	17.6 C.Y.	18.8 C.Y.	17.6 C.Y.	
" " Cap	26.2 C.Y.	26.2 C.Y.	26.3 C.Y.	26.3 C.Y.	
Total Concrete	90.5 C.Y.	91.4 C.Y.	92.7 C.Y.	91.5 C.Y.	366.1 C.Y.
Reinforcing Steel	16,641 Lbs.	16,948 Lbs.	17,324 Lbs.	16,948 Lbs.	67,861 Lbs.
10BP42 Steel Piles, Furnish	20@30'	20@25'	20@25'	20x25'	2,190 L.F.
" " " , Drive	20@30'	20@25'	20@25'	20x25'	2,190 L.F.
Class 20 Excavation	111 C.Y.	111 C.Y.	111 C.Y.	111 C.Y.	444 C.Y.

ESTIMATED QUANTITIES W.C. RDWY. — FIVE PIERS						
Item	Pier 1	Pier 2	Pier 3	Pier 4	Pier 5	Total
Concrete in Footing	47.6 C.Y.	47.6 C.Y.	47.6 C.Y.	47.6 C.Y.	47.6 C.Y.	
" Column	16.6 C.Y.	17.7 C.Y.	16.5 C.Y.	18.0 C.Y.	16.7 C.Y.	
" Cap	25.2 C.Y.	25.2 C.Y.	25.2 C.Y.	25.1 C.Y.	25.1 C.Y.	
Total Concrete	89.4 C.Y.	90.5 C.Y.	89.3 C.Y.	90.7 C.Y.	89.4 C.Y.	449.3 C.Y.
Reinforcing Steel	16,641 Lbs.	16,948 Lbs.	15,641 Lbs.	17,090 Lbs.	16,641 Lbs.	83,961 Lbs.
10BP42 Steel Piles, Furnish	20@30'	20@30'	20@30'	20@30'	20@30'	3000 L.F.
" " " , Drive	20@30'	20@30'	20@30'	20@30'	20@30'	3000 L.F.
Class 20 Excavation	111 C.Y.	111 C.Y.	111 C.Y.	111 C.Y.	111 C.Y.	555 C.Y.

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 is 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 1957.

PIER ELEVATIONS														
		A	B	C	D	E	F	G	H	I	J	K	Bott. Elg.
E.B. Rdwy. -	Pier #1	931.77	931.92	932.06	932.20	932.34	932.44	932.50	932.51	932.40	932.40	932.30	903.00
" " "	Pier #2	930.61	930.75	930.89	931.04	931.18	931.28	931.34	931.36	931.33	931.25	931.15	900.80
" " "	Pier #3	929.41	929.56	929.70	929.84	929.99	930.09	930.15	930.17	930.14	930.07	929.97	898.00
" " "	Pier #4	928.06	928.01	928.13	928.30	928.54	928.75	928.81	928.85	928.80	928.73	928.63	898.00
W.B. Rdwy. -	Pier #1	931.66	931.76	931.86	931.99	932.10	932.16	932.19	932.17	932.11	932.00	931.86	903.00
" " "	Pier #2	930.49	930.59	930.70	930.81	930.92	930.98	931.00	930.98	930.92	930.81	930.67	900.50
" " "	Pier #3	929.34	929.45	929.75	929.86	929.96	930.03	930.05	930.03	929.97	929.85	929.72	901.00
" " "	Pier #4	928.44	928.54	928.65	928.75	928.86	928.92	928.94	928.92	928.85	928.73	928.60	898.00
" " "	Pier #5	928.80	926.91	927.01	927.11	927.23	927.28	927.30	927.28	927.21	927.09	926.95	898.00

PIER DIMENSIONS												
		a	b	c	d	e	f	g	h	i	k	l
E.B. Rdwy. -	Pier #1	1'-8⅜"	1'-6"	1'-4⅜"	1'-3"	1'-1½"	0'-11⅛"	0'-10⅛"	0'-8⅛"	0'-6⅛"	1'-4"	28'-9¼"	21'-3¼"
" " "	Pier #2	1'-6"	1'-4⅛"	1'-3"	1'-1⅝"	1'-0⅜"	0'-10⅛"	0'-9"	0'-8"	0'-6⅛"	0'-5¼"	28'-9¼"	22'-3½"
" " "	Pier #3	1'-3"	1'-2"	1'-1"	1'-0"	0'-11"	0'-9¾"	0'-8⅝"	0'-7½"	0'-6"	0'-4⅝"	31'-3"	23'-11"
" " "	Pier #4	1'-0"	0'-11"	0'-10"	0'-9"	0'-8"	0'-7⅝"	0'-7"	0'-6"	0'-5"	0'-4"	29'-10⅜"	22'-8⅜"
W.B. Rdwy. -	Pier #1	1'-6"	1'-4⅛"	1'-3⅛"	1'-2"	1'-0⅞"	0'-10⅛"	0'-9"	0'-7⅞"	0'-6⅛"	0'-5"	28'-0"	21'-2"
" " "	Pier #2	1'-2"	1'-1½"	1'-1"	1'-0"	0'-11"	0'-9⅛"	0'-8⅛"	0'-7⅛"	0'-6"	0'-4⅝"	30'-0"	22'-6"
" " "	Pier #3	1'-0"	0'-11"	0'-10"	0'-9"	0'-8"	0'-7⅛"	0'-6⅞"	0'-6"	0'-5"	0'-4"	28'-6½"	21'-0½"
" " "	Pier #4	1'-0"	0'-11"	0'-10"	0'-9"	0'-8"	0'-7⅛"	0'-6⅞"	0'-6"	0'-5"	0'-4"	30'-5½"	22'-11⅜"
" " "	Pier #5	1'-0"	0'-11"	0'-10"	0'-9"	0'-8"	0'-7"	0'-6⅞"	0'-6"	0'-5"	0'-4"	28'-9½"	21'-3⅜"

5/9

DESIGN FOR 11°-04'-00" SKEW

315'-5" x 42' & 280'-0" x 42' PRE-TENSIONED PRESTRESSED CONCRETE BEAM BRIDGES

1-47'-3½" & 1-59'-9½" END SPANS 1-64'-7", 1-56'-3" & 2-43'-9" INTERMEDIATE SPANS
1-47'-3½" & 1-59'-9½" END SPANS 1-64'-7", 1-56'-3" & 1-52'-1" INTERMEDIATE SPANS

CONCRETE FLOOR AND SUBSTRUCTURE-ALUMINUM RAIL

INTERSTATE OVER E 29TH ST. & C.G.W. RY.

PIERS

STATION 1131+87.84 ℄ INTERSTATE PROJ NO I-IG-01-4(2) [I-IG-80-4(2)142]

POLK COUNTY

DESIGNED BY BROWN ENGINEERS, NEW YORK, N.Y. FOR

IOWA STATE HIGHWAY COMMISSION

Design Sheet No.: 38 Of 40 File No.: 28266 Design No.: 1391

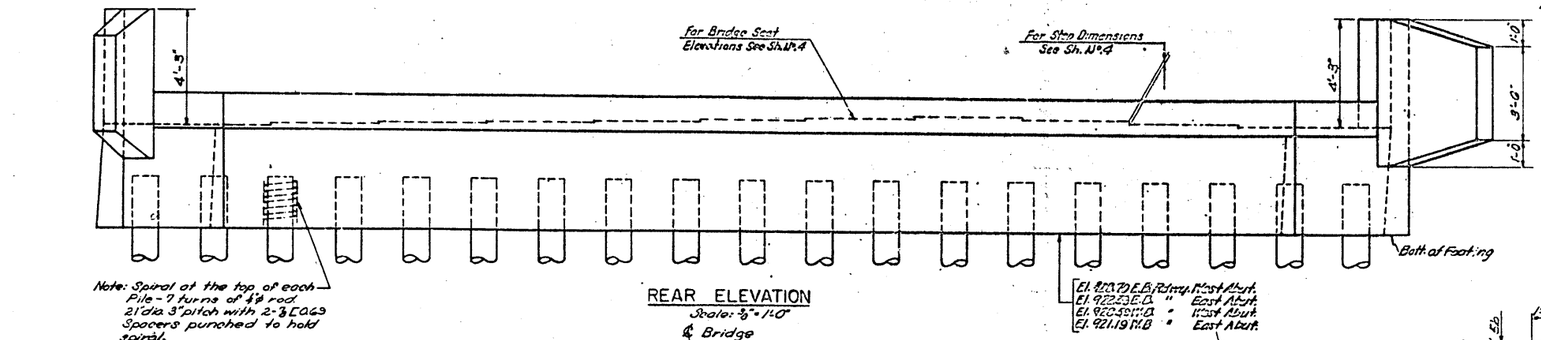
In Charge Of: L.G.
Made By: I.K.
Traced By: I.K.
Checked By: G.R.

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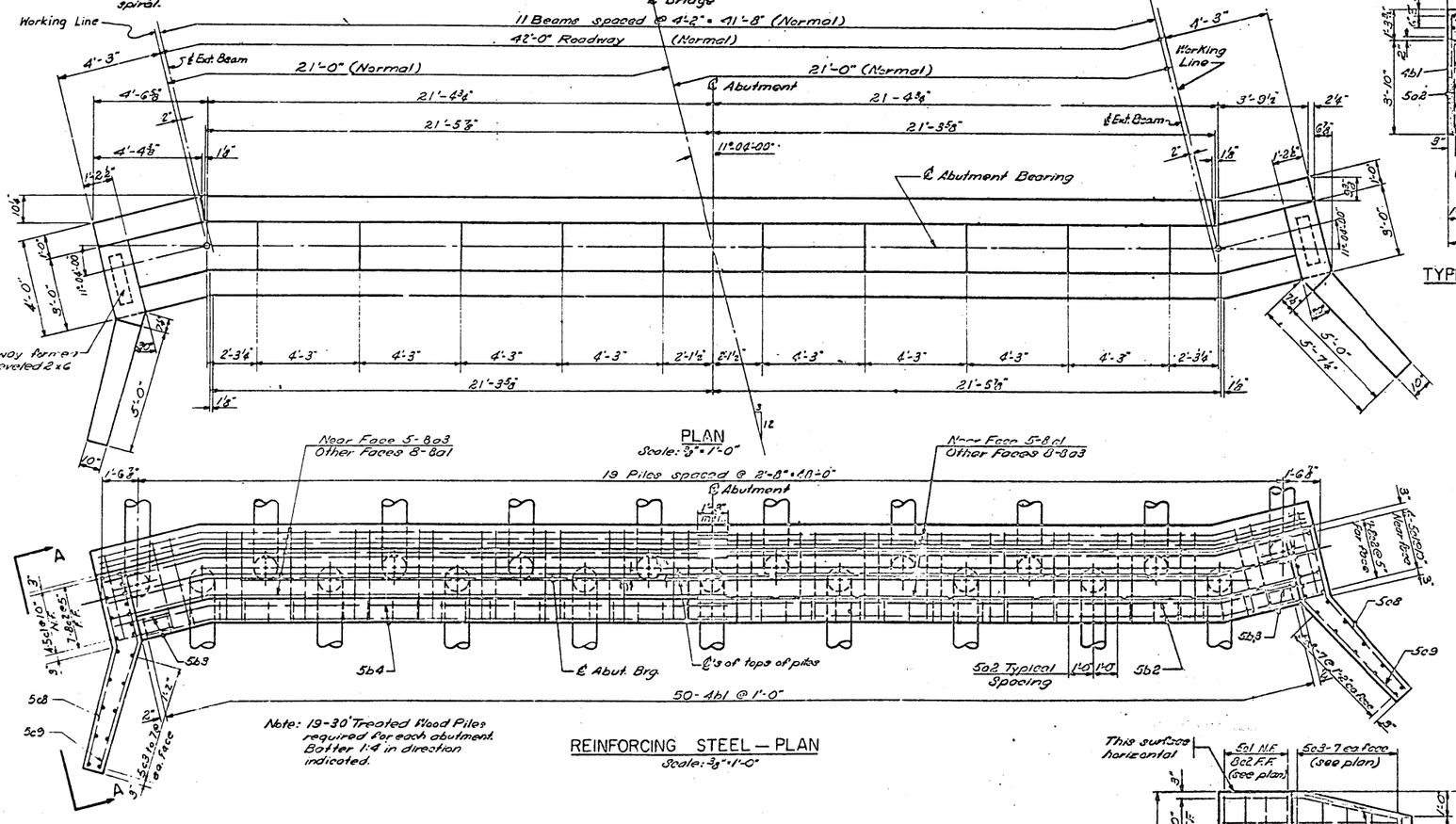
POLK COUNTY

PROJECT NUMBER	STATE	FED. ROAD DIST. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	IOWA	5		40	57

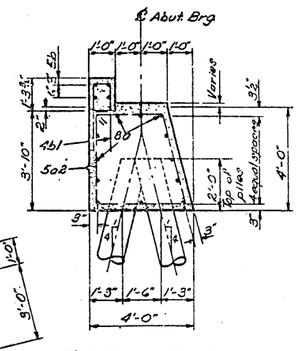
Bench Mark No. 187 Sta. 1133+46 R.R. Spike in N. Side Pole W. Side E. 29th St. 60' Rt. El. 918.56



REAR ELEVATION
Scale: 3/8" = 1'-0"

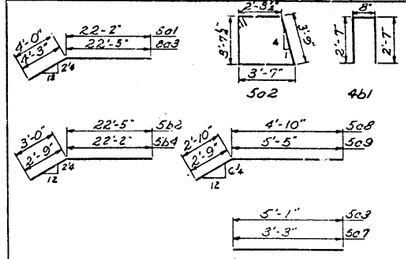


REINFORCING STEEL — PLAN
Scale: 3/8" = 1'-0"



TYPICAL SECTION
Scale: 3/8" = 1'-0"

BILL OF REINF. STEEL — ONE ABUTMENT					
Mark	Location	No.	Shape	Length	Weight
5a1	Footing, Longit.	13		24'-2"	908
5a2	Footing, Hoops	38		14'-6"	575
5a3	Footing, Longit.	13		24'-8"	926
4b1	Backwall, Hairpins	50		5'-10"	195
5b2	Backwall, Longit.	4		25'-5"	106
5b3	Backwall, Dowels	8		2'-3"	19
5b4	Backwall, Longit.	4		24'-11"	104
5c1	Wingwall, Vert. N.F.	8		5'-2"	43
5c2	Wingwall, Vert. F.F.	14		5'-2"	193
5c3-7	Wingwall, Vert.	20		Varies	87
5c8	Wingwall, Horiz. N.F.	13		7'-8"	96
5c9	Wingwall, Horiz. F.F.	13		8'-2"	102
	Pile Spirals ½" ø	19		38'-6"	122
	Spirol Spacers ⅜ EQCS	38	L	1'-10"	48
			Total	Weight	3,524



BAR DETAILS
All dimensions are out to out

CONCRETE PLACEMENT (ONE ABUT.)	
Footing	27.8 cy.
Backwall	2.2 cy.
Wingwalls	2.8 cy.
Total	32.8 cy.

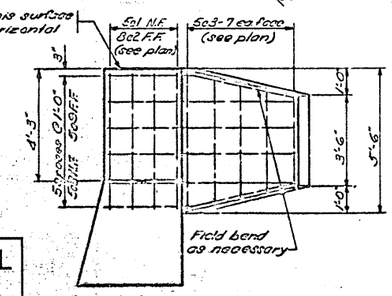
ESTIMATED QUANTITIES (FOUR ABUTS.)	
Concrete	131.2 cy.
Reinforcing Steel	14,096 lb.
Treated Wood Piles 76 @ 30'	2280 L.F.
Class 20 Excavation	97 cy.

ABUTMENT NOTES

All exposed corners of 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 20 ton bearing value.

SPECIFICATIONS

Design: A.A.S.H.O., Series of 1957.
Construction: Iowa State Highway Commission Standard Specifications, Series of 1956, plus current special provisions.



VIEW A-A
Scale: 3/8" = 1'-0"

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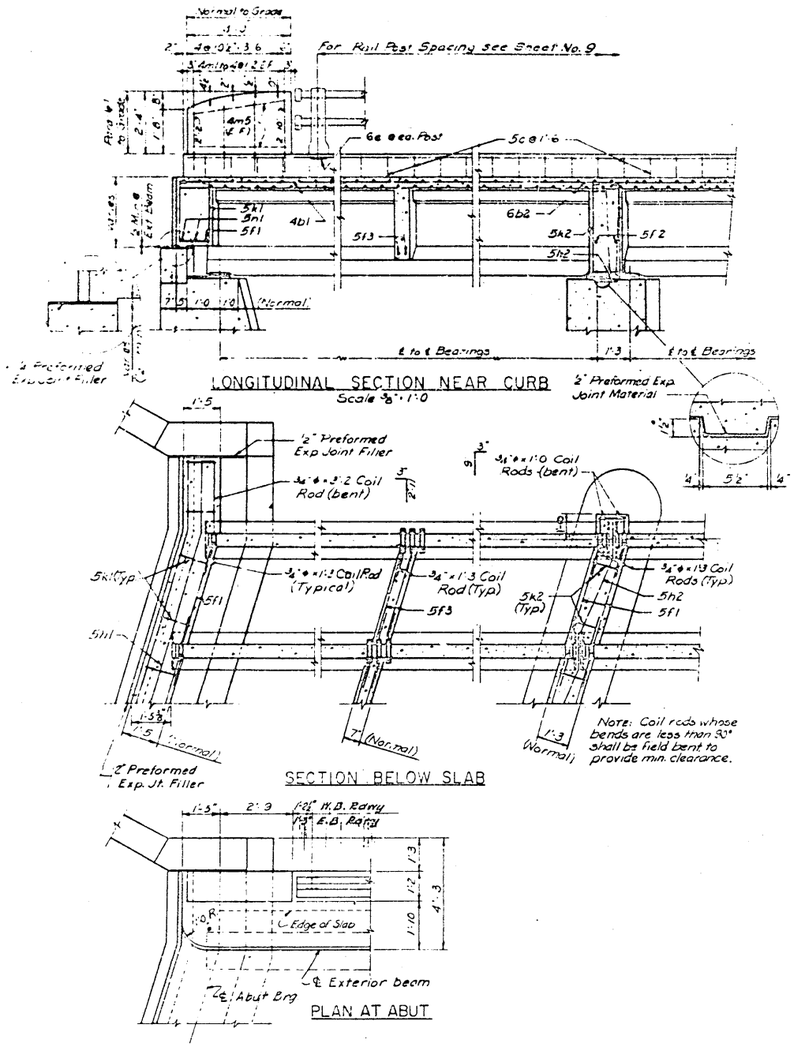
IN CHARGE OF LG
MADE BY EAR
TRACED BY EAR
CHECKED BY LG

DESIGN FOR 11°-04'-00" SKEW
315'-5" x 42' & 280'-0" x 42' PRE-TENSIONED PRESTRESSED CONCRETE BEAM BRIDGES
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CONCRETE FLOOR AND SUBSTRUCTURE-ALUMINUM RAIL
INTERSTATE OVER E. 29TH ST. & C.G.W. RY.
ABUTMENTS
STATION 1131+07.04 ℄ INTERSTATE PROJ. NO. I-IG-01-4(2) [I-IG-00-4(2)142]
POLK COUNTY
DESIGNED BY BROWN ENGINEERS, NEW YORK, N.Y. FOR IOWA STATE HIGHWAY COMMISSION
Design Sheet No.: 39 Of 40 File No.: 28266 Design No.: 1391

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PROJECT NUMBER	STATE	FED. ROAD DIST. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	IOWA	6		41	57

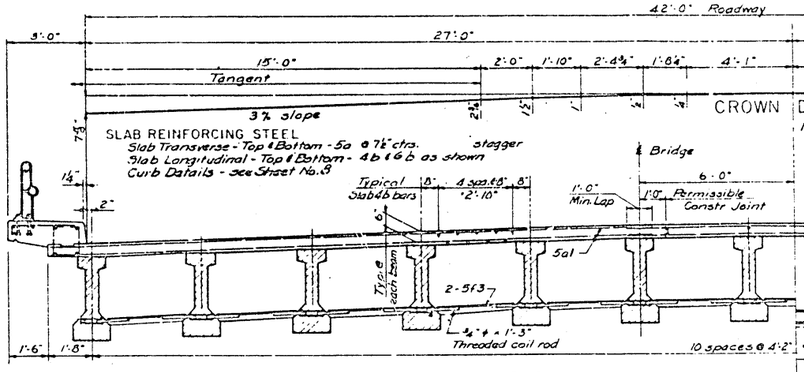
POLK COUNTY



LONGITUDINAL SECTION NEAR CURB
Scale ⅜" = 1'-0

SECTION BELOW SLAB

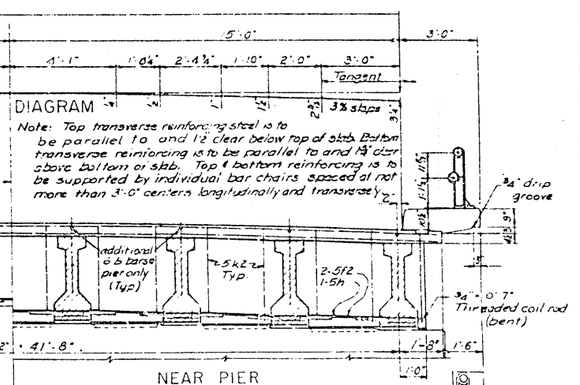
PLAN AT ABUT.



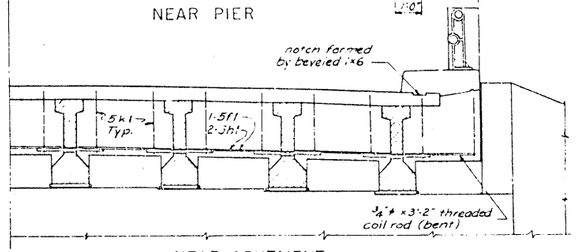
NEAR INTERMEDIATE DIAPHRAGM

CROWN DIAGRAM

Note: Top transverse reinforcing steel is to be parallel to and 1½ clear below top of slab. Bottom transverse reinforcing is to be parallel to and ½" clear above bottom of slab. Top & bottom reinforcing is to be supported by individual bar chairs spaced at not more than 3'-0" centers longitudinally and transversely.



NEAR PIER



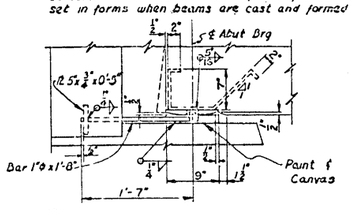
NEAR ABUTMENT

Note: In addition to details shown on this original design sheet, the Westbound bridge has had a 1" grade raise for overlay, and the Eastbound bridge has had a 1½" grade raise for overlay. Both bridges have received concrete barrier rails.

NOTE

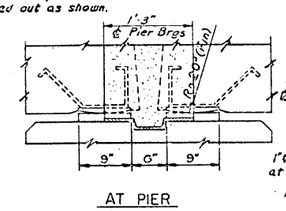
ROADWAY SECTIONS
Scale: ⅜" = 1'-0"

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

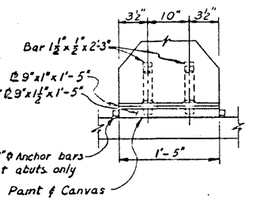


1½" ø Pintles. Driving fit in all masonry Rs. Bevel upper end of 1½" x 2½" slots in abut. Sole Rs & 1⅞" ø holes in Pier Sole Rs.

AT ABUT.

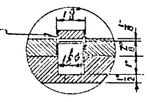


AT PIER



Weld metal is to be carefully excluded from pintle recess

Masonry Rs to be flat & true



BEARING PLATE DETAILS
Cost of Bearing Rs is to be included in price bid for beams

SUPERSTRUCTURE NOTES

This bridge is designed for H20-S16-44 loading and Alternate Loading designated in BPR's PPM 20-4 Section C plus 8 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 1957, 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 PLANS TO SHOW EXISTING ROADWAY CROSS SECTION, SLAB THICKNESS AND CROWN ORDINATES.

DESIGN FOR 11°-04'-00" SKEW

315'-5" x 42' & 280'-0" x 42' PRE-TENSIONED PRESTRESSED CONCRETE BEAM BRIDGES

1-47'-3½" @ 1-59'-9½" END SPANS 1-64'-7" 1-56'-3" @ 2-43'-9" INTERMEDIATE SPANS
1-47'-3½" @ 1-59'-9½" END SPANS 1-64'-7" 1-56'-3" @ 1-52'-1" INTERMEDIATE SPANS

CONCRETE FLOOR AND SUBSTRUCTURE - ALUMINUM RAIL

INTERSTATE OVER E. 29TH ST. & C.G.W. RY

SUPERSTRUCTURE DETAILS - I

STATION 1131+87.04 ℄ INTERSTATE PROJ. NO. I-IG-01-4(2) [I-IG-80-4(2)142]

POLK COUNTY

DESIGNED BY BROWN ENGINEERS, NEW YORK, N.Y. FOR

IOWA STATE HIGHWAY COMMISSION

Design Sheet No.: 40 Of 40 File No.: 2826G Design No.: 1391

In Charge Of: L.G.
Made By: F.P.K.
Traced By: F.P.K.
Checked By: G.R.

POLK COUNTY

PROJECT NUMBER	STATE	FED. ROAD DIST. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	IOWA	8		42	57