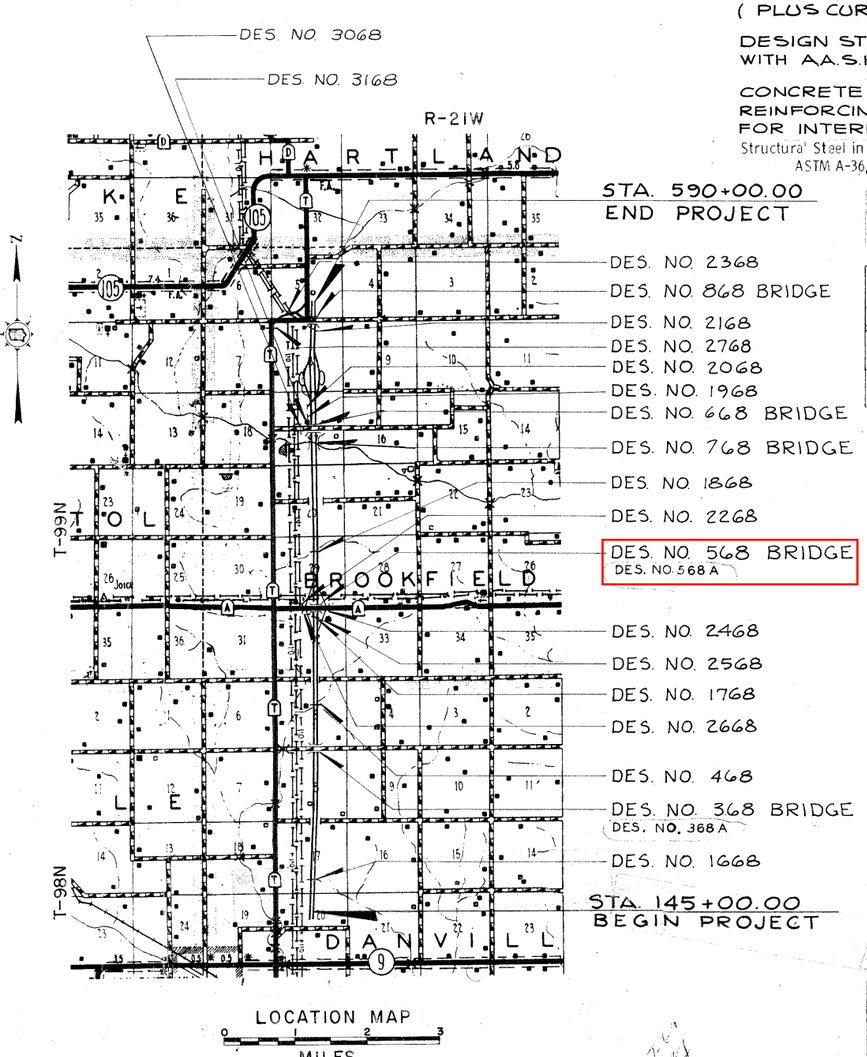
WORTH COUNTY BRIDGES - CULVERTS

I-35-8(6)206--01-98 LETTING DATE

Aug. 16, 1966
Oct. 19, 1967
Nov. 7, 1967
July 20, 1971

CONVENTIONAL SIGNS

CITY LIMITS
STATE OR COUNTY LINES
SECTION LINES
FENCE LINES
RIGHT OF WAY LINES
GUARD RAIL
TRAVELED WAY
BASE OR SURVEY LINE
RAILROADS
PRESENT TILE DRAINS
PROPOSED TILE DRAINS
PIPE LINE
CULVERTS
TELEPHONE, TELEGRAPH OR TRANSMISSION LINES
PRIMARY ROAD NUMBERS (15)
U. S. ROAD NUMBERS (65)
INTERSTATE ROAD NUMBERS (80)
UNDERGROUND TELEPHONE LINES —T—



LOCATION MAP
0 1 2 3
MILES

STATE OF IOWA
STATE HIGHWAY COMMISSION
DESIGN FOR
BRIDGES CULVERTS
INTERSTATE ROAD SYSTEM
PROJ. I-35-8(6)206--01-98
WORTH COUNTY

FROM APPROX. ¾ MILE NORTH OF IOWA HWY. #9 NORTH TO NEAR NORTH LINE OF SEC. 8, T-99N, R-21W

THE IOWA STATE HIGHWAY COMMISSION STANDARD SPECIFICATIONS FOR CONSTRUCTION WORK, SERIES OF 1964, SHALL APPLY TO WORK ON THIS PROJECT

LET NOV. 4-1969

(PLUS CURRENT SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS)

DESIGN STRESSES FOR THE FOLLOWING MATERIALS ARE IN ACCORDANCE WITH AA.S.H.O. STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, SERIES OF 1961

CONCRETE IN ACCORDANCE WITH SECTION 1.5.1 $f'c = 3500$ P.S.I.
REINFORCING STEEL IN ACCORDANCE WITH SECTION 1.5.1 "REINFORCEMENT" FOR INTERMEDIATE, HARD, OR RAIL STEEL GRADE.
Structural Steel in accordance with Section 1.7.1
ASTM A-36, fs = 20,000 psi.

All welding shall meet the requirements of the 1966 Seventh Edition of Specifications for Welded Highway and Railway Bridges of the American Welding Society except as modified by the Standard Specifications.

FED. ROAD DIST. NO.	STATE	S. PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
-	IOWA			1	81

PROJ. NO. I-35-8(6)206--01-98
R. O. W. NUMBER I-IG-35-8(3)202--04-98
& I-35-1(4)209--01-98

INDEX OF SHEETS

NO.	DESCRIPTION
1	TITLE SHEET
1A	REVISION SHEET
2	ESTIMATE OF QUANTITIES - CULVERTS AND BRIDGE
3	ESTIMATE OF QUANTITIES - BRIDGES
4	MISCELLANEOUS DETAILS
5	CULVERT DESIGN NO. 1668
6-7	CULVERT DESIGN NO. 468
8	CULVERT DESIGN NO. 1768 & 1868
9	CULVERT DESIGN NO. 1968 & 2068
10	CULVERT DESIGN NO. 2168 & 2268
11	CULVERT DESIGN NO. 2368
12	CULVERT DESIGN NO. 2468 & 2568
13	CULVERT DESIGN NO. 2668 & 2768
14	CULVERT DESIGN NO. 3068 & 3168
15 - 28	BRIDGE DESIGN NO. 368
29-43	BRIDGE DESIGN NO. 568
44-57	BRIDGE DESIGN NO. 668
58-67	BRIDGE DESIGN NO. 768
68-81	BRIDGE DESIGN NO. 868
81A1-81A8	BRIDGE DESIGN NO. 368A
81B1-81B14	BRIDGE DESIGN NO. 568A

To Be Let July 20-71

MILEAGE SUMMARY

DIV.	LOCATION	LIN. FT.	MILES	STATE CONTROL SECTION NO.
	CULVERT AT STA. 293+00	25.00	0.005	98-1100
	BRIDGE AT STA. 489+00	128.00	0.024	
	TOTAL MILES		0.029	

CONSTRUCTION PLANS SHOWING PROJECT AS BUILT

Prepared by Ingwer Thiesen, P.E. Date 10/6/1974
Res. Const. Engineer
Approved and Forwarded to Ames
Date
District Const. Engineer
After Microfilming Return This Copy to:
Darrel D. Campbell District Engineer

Prime Contractor UNITED CONTRACTORS IN C.
Contract Amount $164505.27 - $158455.70
DESIGN NO. 368-568 - 368A-568A

Prime Cont. PIERCE CONSTRUCTION CO.
Amount $175,530.96
Design no. 468,1668-2768(Culverts) 3068-3168(Culverts)

Prime Cont. A. W. NELSON
Amount $133,235.78
Design no. 768

Prime Cont. UNITED CONTRACTORS INC.
Amount $134905.57
Design no. 868

Prime Cont. UNITED CONTRACTORS INC.
Amount $137991.38
Design no. 668

Prime Cont.
Amount
Design no.
Culverts

FORMERLY STANLEY ENGINEERING COMPANY
STANLEY CONSULTANTS
INTERNATIONAL CONSULTANTS IN ENGINEERING, ARCHITECTURE, PLANNING AND MANAGEMENT

IOWA STATE HIGHWAY COMMISSION STANDARDS
(AVAILABLE AT I.S.H.C. STOREROOM)

STANDARD	ISSUED	REVISED
C1P	1932	8-25-67
CHP2.5-65	1965	8-25-67
C4P	1932	6-44
C5P	1932	6-44
C6P	1932	6-44
C8P	1932	6-44
C10P	1932	6-44
JD1-65	1965	8-25-67
CFP	1945	-
C6F	1952	5-17-55
C8F	1952	5-17-55
C12F	1952	5-17-55
CBH-00	1960	
CBH-15	1960	
CBH-45	1960	
F4J	1959	6-19-64
F8J1		6-19-64
C10J	1959	6-19-64

C

DESIGN DESIGNATION
INTERSTATE HIGHWAY

1968 AADT 6,440 V.P.D. DIRECTIONAL 60 %
1988 AADT 10,630 V.P.D. TRUCKS 6 %
1988 DHV 1,280 V.P.H. DESIGN V 70 MPH
FULL CONTROL OF ACCESS SHALL BE EXERCISED ON THIS PROJECT

REVISED:
SEE FOLLOWING SHEET 1A

APPROVED
DEPUTY CHIEF ENGINEER DATE
IOWA HIGHWAY COMMISSION

DES. 368A & 568A
DES 368-DES. 568 - DES. 668 & DES. 868

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.

DATE 7-20 1971 IOWA REG. NO. 2782

DEPARTMENT OF TRANSPORTATION
BUREAU OF PUBLIC ROADS
APPROVED
DIVISION ENGINEER DATE

SHEET NO. 1 OF 81

DESIGN WORTH COUNTY PROJECT I-35-8(6)206--01-98 FILE 23097

LISTING OF PROJECT REVISIONS

DATE	SHEET NUMBER	DESCRIPTION OF REVISIONS
Aug. 5, '69		Design 668
	Sheet 1A of 81	This sheet added to project (Revision sheet).
	Sheet 52 of 81	Note added to "Superstructure Notes".
	Sheet 49 of 81	Piling notes and quantities changed.
	Sheet 44 of 81	Abutment piling lengths changed. Quantities changed.
	Sheet 3 of 81	Design 668 10BP42 Steel Bearing Piling quantities changed. Letting date changed.
	Sheet 1 of 81	Sheet 1A added to "Index of Sheets". Letting date changed
Sept. 23, '69		Design 468
	Sheet 6 of 81	"Design Note" added.
Feb. 19, '71		Design 768
	Sheets 58 & 63 of 81	Reinforcing steel corrected.
	Sheet 2 of 81	Design 768 - Reinforcing steel corrected.
May 11, 1971		Design 768
	Sheet 58 of 81	Class D Rip Rap Revetment Quantity added.
	Sheet 2 of 81	Bid item Class D Rip Rap Revetment added.
June 2, '71		Designs 368A & 568A
	Sheets 81A1 thru 81A13 & 81B1 thru 81B14 of 81	These sheets added to project (details for designs 368A & 568A).
	Sheet 1 of 81	Sheets 81A1 thru 81A13 and 81B1 thru 81B14 (Designs 368A & 568A) added to "Index of Sheets". Designs 368A & 568A spotted on "Location Map".

C

REVISION SHEET

WORTH COUNTY File No. 96

PROJECT NUMBER	STATE	FED. ROAD DIST. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
I-35-8(61206--01 98	IOWA			1-A	81

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.

Donald K Schulze

DONALD K. SCHULZE

DATE July 28, 1969 REG. NO. 2793

DESIGN NO. 568 LOCAL ROAD OVER I 35 STA. 376+90.34 I 35
WORTH COUNTY STA. 50+96.96 LOCAL RD.
SECTIONS 5 & 8 T 98N R 21W DANVILLE TOWNSHIP

DESIGN FOR 0° SKEW

287'-0" - 30'-0" CONTINUOUS WELDED GIRDER BRIDGE

~~ESTIMATE~~ OF QUANTITIES

ITEM		UNIT	TOTAL	
(1) Structural Concrete		Cu. Yds.	~~8~~	113.7 ✓ **
Reinforcing Steel		Lbs.	~~28~~	28,227.0 ✓ **
Structural Steel		Lbs.	~~760~~ 6	293.0 ✓ **
Aluminum Handrail		L.F.	~~6.67~~	0.00 ✓ **
Steel Handrail		L.F.	~~611.67~~	
Class 20 Excavation		C.Y.	~~260~~	172.54 ✓ **
Granular Backfill		C.Y.	~~96~~	0.00 ✓ **
Concrete Slope Protection		Sq. Yds.	~~36~~	0.00 ✓ **
4"ϕ Tile Subdrain		L.F.	~~178~~	0.00 ✓ **
10BP42 Steel Bearing Piling	Finish	L.F.	~~2048~~	1924.9 ✓ *
	Drive	L.F.	~~2048~~	898.9 ✓ *
8001 - Heating Concrete Materials		cu. yds.	113.70	✓
8002 - Protection of Concrete		cu. yds.	63.10	✓
8003 - Piling, Steel Bearing, Cutoffs 10BP42		L.F.	123.10	✓
8004 - Materials ordered and delivered for cancelled items		CONTRACTORS INVOICES	$ 68,790.85	✓
8999 - Stockpiled Materials			0.000	✓

(1) ~~227.4~~ 106.6 cu. yds. Structural Concrete Class "D" for Superstructure.
~~227.5~~ 225 cu. yds. of Class "C" for Substructure.
113.7

* SEE E.W.O No.3 - Blanket

** SEE E.W.O No.4 - Blanket

October 14, 1969 IN LETTING OF SEPTEMBER 6, 1969

THESE BRIDGES WILL REQUIRE BRIDGE SIGN ASSEMBLIES, FURNISHED AND PLACED BY OTHERS AS SPECIFIED IN SECTION 2 C-5 OF THE I. S. H. C. MANUAL ON "UNIFORM TRAFFIC CONTROL DEVICES", DATED JANUARY - 1963.

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.

Donald K Schulze

DONALD K. SCHULZE

DATE July 28, 1969 REG. NO. 2793

DESIGN NO. 88 LOCAL ROAD OVER I-35 STA. 58+32.61 I-35
WORTH COUNTY STA. 49+99.91 LOCAL ROAD
SECTIONS 5 & 8 T - 99N R 21W BROOKFIELD TOWNSHIP

DESIGN FOR 0° SKEW

287'-0" x 30'-0" CONTINUOUS WELDED GIRDER BRIDGE

~~ESTIMATE~~ OF QUANTITIES

ITEM		UNIT	TOTAL	
(1) Structural Concrete		Cu. Yds.	301.5	✓
Reinforcing Steel		Lbs.	128,490	✓
Structural Steel		Lbs.	260,110	✓
Aluminum Handrail		L.F.	611.67	✓
Steel Handrail		L.F.	~~611.67~~	
Class 20 Excavation		C.Y.	325	✓
Granular Backfill		C.Y.	96	✓
Concrete Slope Protection		Sq. Yds.	122	✓
4"ϕ Tile Subdrain		L.F.	178	✓
Creosoted Piling		L.F.	~~2300~~	0.0
Creosoted Test Piling		L.S.	Lump Sum	$500.00
8001 -		L.S.	$ 250.00 Lump Sum	**
8002 -		L.F.	1045.70	✓
8003 -		L.F.	2159.60	✓
8004 -		cu. yds.	237.60	✓

(1) 273.4 cu. yds. Structural Concrete Class "D" for Superstructure.
228.1 cu. yds. of Class "C" for Substructure.

** SEE E.W.O. No.1

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.

Donald K Schulze

DONALD K SCHULZE

DATE July 28, 1969 REG. NO. 2793

DESIGN NO. 568 COUNTY ROAD "A" OVER I-35 STA. 376+90.34 I-35
WORTH COUNTY STA. 49+96.96 CO. ROAD "A"
SECTIONS 29 & 32 T - 99N R 21W BROOKFIELD TOWNSHIP

DESIGN FOR 0° SKEW

287'-0" - 32'-0" CONTINUOUS WELDED GIRDER BRIDGE

~~ESTIMATE OF~~ QUANTITIES

ITEM	UNIT	TOTAL	
(1) Structural Concrete	Cu. Yds.	540.1	0.00
Reinforcing Steel	Lbs.	41,075	0.00
Structural Steel	Lbs.	26,880	0.00
Aluminum Handrail	L.F.	6.67	0.00
Steel Handrail	L.F.	611.67	
Class 20 Excavation	C.Y.	33	0.00
Granular Backfill	C.Y.	0	0.00
Concrete Slope Protection	Sq. Yds.	30	0.00
4"ϕ Tile Subdrain	L.F.	266	0.00
Creosoted Piling	L.F.	288	0.00
Creosoted Test Piling	L.S.	Lump Sum	0.00
(2) 2"ϕ Rigid Steel Conduit	L.F.	64	*
8002 - Materials ordered & delivered for cancelled items	CONTRACTORS INVOICES	$ 73,362.47	✓
8999 - Stockpiled Materials		0.000	✓

(1) 295.5 cu. yd. Structural Concrete Class "D" for Superstructure.
244.6 cu. yd. of Class "C" for Substructure.

(2) Quantity includes 643 L.F. of 2"ϕ conduit and 2.5 L.F. of 1"ϕ conduit.

* SEE E.W.O. No.5 - Blanket

October 14, 1969 IN LETTING OF SEPTEMBER 6, 1969

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.

July 28, 1969 William A. Lundquist

DATE WM. A. LUNDQUIST REG. NO. 4449

DESIGN NO. 568 LOCAL ROAD OVER I-35 STA. 376+90.34 I-35
WORTH COUNTY STA. 49+96.96 (LOCAL RD.)
SECTION 7 T - 99N R 21W BROOKFIELD TOWNSHIP

DESIGN FOR 0° SKEW

287'-0" - 30'-0" CONTINUOUS WELDED GIRDER BRIDGE

~~ESTIMATE~~ OF QUANTITIES

ITEM		UNIT	TOTAL	
(1) Structural Concrete		Cu. Yds.	501.3	✓
Reinforcing Steel		Lbs.	29,097	✓
(2) Structural Steel		Lb.	27,590	✓
Aluminum Handrail		L.F.	611.67	✓
Steel Handrail		L.F.	~~6.67~~	
Class 20 Excavation		C.Y.	342	✓
Granular Backfill		C.Y.	90	✓
Concrete Slope Protection		Sq. Yds.	30	✓
4"ϕ Tile Subdrain		L.F.	94	✓
Creosoted Piling		L.F.	~~2,965~~	2177.2 ✓
10BP42 Steel Bearing Piling	Finish	L.F.	~~2,965~~	~~1454~~ 1345.7 ✓ *
	Drive	L.F.	~~2,965~~	~~1404~~ 1345.7 ✓ *
Creosoted Test Piling		L.S.	Lump Sum	$ 500.00
8001 - Piling, Cutoff Steel Bearing 10BP42		L.F.	58.30	✓
8002 - Heating Concrete Materials		cu. yds.	20.40	✓
8003 - Protection of Concrete		cu. yds.	20.40	✓
8999 - Stockpiled Materials			000.000	✓

(1) 273.8 cu. yds. Structural Concrete Class "D" for Superstructure.
227.3 cu. yds. of Class "C" for Substructure.

(2) Includes 201,050 lbs. of ASTM A-588 steel

* SEE E.W.O. No.2

8004 - Impact Tests on Materials		L.S.	$ 31.66

October 14, 1969 IN LETTING OF SEPTEMBER 6, 1969

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

June 1, 1971 William A. Lundquist

DATE WM. A. LUNDQUIST. REG. NO. 4449

DESIGN NO. 368 A LOCAL ROAD OVER I-35 STA. 263+90.25 (I-35)
WORTH CO. STA. 50+00.96 (LOCAL ROAD)
SECTION 5 & 8 T-98N R 21W DANVILLE TOWNSHIP

DESIGN FOR 0° SKEW

287'-0" X 30'-0" CONTINUOUS WELDED GIRDER BRIDGE

~~ESTIMATE~~ OF QUANTITIES

ITEM NO.	ITEM	UNIT	TOTAL	
1	STRUCTURAL CONCRETE	C.Y.	367.8	
2	ERECT STRUCTURAL STEEL	LBS.	259817	✓
3	PLACE REINFORCING STEEL	LBS.	99924	✓
4	PLACE ALUMINUM HANDRAIL	L.F.	611.67	✓
5	CLASS 20 EXCAVATION	C.Y.	128	✓
6	GRANULAR BACKFILL	C.Y.	96	✓
7	CONCRETE SLOPE PROTECTION	SQ.YDS.	~~436~~	423.0 ✓
8	4"ϕ TILE SUBDRAIN	L.F.	178	✓
9	10BP42 STEEL BEARING PILING — DRIVE	L.F.	~~1026~~	940.4 ✓
8002	Retarder, Structural Concrete	cu.yds.	215.20	✓

(1) 273.4 C.Y. STRUCTURAL CONCRETE CLASS "D" FOR SUPERSTRUCTURE
94.4 C.Y. OF CLASS "C" FOR ABUTMENTS.

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.

June 1, 1971 William A. Lundquist

DATE WM. A. LUNDQUIST REG. NO. 4449

DESIGN NO 568A STA. 370+14.29 (I-35)
WORTH CO. COUNTY ROAD "A" OVER I-35 STA. 49+94.36 Co. ROAD "A"
SECTIONS 29&32 T-99N R-21W BROOKFIELD TWP.

DESIGN FOR 0° SKEW

287'-0" X 32'-0" CONTINUOUS WELDED GIRDER BRIDGE

~~ESTIMATE~~ OF QUANTITIES

ITEM NO	ITEM	UNIT	TOTAL	
~~+~~ 10	STRUCTURAL CONCRETE	C.Y.	540.1	✓
~~2~~ 11	ERECT STRUCTURAL STEEL	LBS.	264880	✓
~~3~~ 12	PLACE REINFORCING STEEL	LBS.	145073	✓
~~4~~ 13	PLACE ALUMINUM HANDRAIL	L.F.	611.67	✓
~~5~~ 14	CLASS 20 EXCAVATION	C.Y.	335	✓
~~6~~ 15	GRANULAR BACKFILL	C.Y.	105	✓
~~7~~ 16	CONCRETE SLOPE PROTECTION	S.Y.	~~450~~	✓
~~8~~ 17	4"ϕ TILE SUBDRAIN	L.F.	266	✓
~~9~~ 18	CREOSOTED PILING	L.F.	~~3885~~	0.0 ✓
~~10~~ 19	CREOSOTED TEST PILING	L.S.	~~LUMP SUM~~	$500
~~11~~ 20	PLACE 2"ϕ RIGID STEEL CONDUIT	L.F.	645.5	✓
8001		L.S.	$ 250.00	**
8003		lbs.	84.33	✓
8004	Piling Creosoted	L.F.	4194.85	✓
8005	Heat Concrete Materials	cu.yds.	35.3	✓

(1) 285.5 C.Y. STRUCTURAL CONCRETE CLASS "D" FOR SUPERSTRUCTURE
244.6 C.Y. OF CLASS "C" FOR SUBSTRUCTURE.

(2) QUANTITY INCLUDES 635.5 L.F. OF 2"ϕ CONDUIT AND 10 L.F. OF 1"ϕ CONDUIT

* SEE E.W.O: No.3 - Blanket

** SEE E.W.O. No.1

C

Revised 8-5-69: Design 668 10BP42 Steel Bearing Piling quantities changed.

ESTIMATE, SHEET

33097

PROJECT NUMBER I-35-8(9)224--01-93

BM

DESIGN NO. 368

E.W.O. NO. 4 - BLANKET

A. DESCRIPTION - THE ITEMS OF WORK AND/OR PORTIONS OF ITEMS NECESSARY FOR CONSTRUCTION OF THE ABUTMENTS AND THE SUPERSTRUCTURE OF DESIGN 368 ARE CANCELLED. FOR THE FINISHED PORTIONS OF ITEMS CANCELLED THE CONTRACTOR WILL BE PAID AT CONTRACT UNIT PRICES. FOR MATERIALS ORDERED AND DELIVERED FOR THE UNFINISHED PORTIONS OF THE CANCELED ITEMS THE CONTRACTOR WILL BE PAID COST PLUS 5% AS AN OVERHEAD CHARGE.

B. REASON - TO PROVIDE FOR CANCELATION OF THE ITEMS OF WORK REMAINING ON DESIGN 368 IN ACCORDANCE WITH ARTICLE 1109.05 OF THE STANDARD SPECIFICATIONS, SERIE OF 1964 BECAUSE OF UNFORSEEN CIRCUMSTANCES WHICH HAVE PREVENTED AND UNREASONABLY DELAYED COMPLETION OF THE CONTRACT. ALSO TO ITEMIZE FOR PAYMENT THE MATERIALS ORDERED AND DELIVERED FOR THE UNFINISHED PORTION OF CANCELED ITEMS. PIERS 1, 2, AND 3 HAVE BEEN COMPLETED BUT THE BERM EMBANKMENTS TO BE COMPLETED BY OTHERS WILL NOT BE COMPLETED BY THE CONTRACT COMPLETION DATE FOR THIS DESIGN.

C. SETTLEMENT - CONTRACT UNIT PRICES

7003 - ITEM NO. 6 - CONCRETE, STRUCTURAL - CANCEL	367.8 CU. YD. @ $	76.00	= $ 27,952.80 (-)
7004 ITEM NO. 7 - STEEL, REINFORCING - CANCEL	99,924 LBS. @ $	0.12	= $ 11,990.88 (-)
7005 ITEM NO. 8 - STEEL, STRUCTURAL - CANCEL	259,817 LBS. @ $	0.23	= $ 59,757.91 (-)
7006 ITEM NO. 9A - HANDRAIL, ALUMINUM - CANCEL	611.67 LIN. FT. @ $	12.00	= $ 7,340.04 (-)
7007 ITEM NO. 10 - EXCAVATION, CLASS 20 - CANCEL	96.46 CU. YD. @ $	4.00	= $ 385.84 (-)
7008 ITEM NO. 11 - BACKFILL, GRANULAR - CANCEL	96 CU. YD. @ $	5.00	= $ 480.00 (-)
7009 ITEM NO. 12 - CONCRETE SLOPE PROTECTION - CANCEL	436.0 SQ. YD. @ $	8.00	= $ 3,488.00 (-)
7010 ITEM NO. 13 - SUBDRAIN TILE, 4" DIA. - CANCEL	178.0 LIN. FT. @ $	1.00	= $ 178.00 (-)
AGREED PRICE - CONTRACTOR'S INVOICES			= $ 68,740.83 (+)
8004 MATERIALS ORDERED AND DELIVERED FOR CANCELED ITEMS			= $ 42,832.64 (-)
TOTAL THIS E.W.O.			

JUSTIFICATION OF AGREED UNIT PRICE: PAYMENT ON THE BASIS OF COST PLUS 5% AS AN OVERHEAD CHARGE IN ACCORDANCE WITH ARTICLE 1109.05 OF THE STANDARD SPECIFICATIONS, SERIES OF 1964. INVOICES ON FILE IN RESIDENT CONSTRUCTION OFFICE.

DESIGN NO. 568

E.W.O. NO. 5 - BLANKET

A. DESCRIPTION - THE ITEMS OF WORK REQUIRED FOR THE CONSTRUCTION OF DESIGN 568 ARE CANCELED. FOR MATERIALS ORDERED AND DELIVERED FOR THE UNFINISHED PORTIONS OF THE CANCELED ITEMS, THE CONTRACTOR WILL BE PAID COST PLUS 5% AS AN OVERHEAD CHARGE.

B. REASON - TO PROVIDE FOR CANCELATION OF ALL THE ITEMS OF WORK ON DESIGN 568 IN ACCORDANCE WITH ARTICLE 1109.05 OF THE STANDARD SPECIFICATIONS, SERIE OF 1964 BECAUSE OF UNFORSEEN CIRCUMSTANCES WHICH HAVE PREVENTED AND UNREASONABLY DELAYED COMPLETION OF THE CONTRACT. ALSO TO ITEMIZE FOR PAYMENT THE MATERIALS ORDERED AND DELIVERED FOR THE CANCELED ITEMS. NO WORK HAS BEEN STARTED ON THIS DESIGN. THE PIER EXCAVATION BY OTHERS IS NEARLY COMPLETED BUT THE BERM EMBANKMENTS TO BE CONSTRUCTED BY OTHERS WILL NOT BE COMPLETED BY THE CONTRACT COMPLETION DATE FOR THIS DESIGN.

C. SETTLEMENT - CONTRACT UNIT PRICES

7011 ITEM NO. 19 - CONCRETE, STRUCTURAL. CANCEL	540.1 CU. YD. @ $	71.00	= $ 38,347.10 (-)
7012 ITEM NO. 20 - STEEL, REINFORCING. CANCEL	145,073 LBS. @ $	0.12	= $ 17,408.76 (-)
7013 ITEM NO. 21 - STEEL, STRUCTURAL. CANCEL	264,880 LBS. @ $	0.23	= $ 60,922.40 (-)
7014 ITEM NO. 22A - HANDRAIL, ALUMINUM. CANCEL	611.67 LIN. FT. @ $	12.00	= $ 7,340.04 (-)
7015 ITEM NO. 23 - EXCAVATION, CLASS 20. CANCEL	335.0 CU. YD. @ $	4.00	= $ 1,340.00 (-)
7016 ITEM NO. 24 - BACKFILL, GRANULAR. CANCEL	105 CU. YD @ $	5.00	= $ 525.00 (-)
7017 ITEM NO. 25 - CONCRETE, SLOPE PROTECTION. CANCEL	450 SQ. YD. @ $	8.00	= $ 3,600.00 (-)
7018 ITEM NO. 26 - SUBDRAIN TILE, 4" DIA. CANCEL	266 LIN. FT. @ $	1.00	= $ 266.00 (-)
7019 ITEM NO. 27 - PILING, CREOSOTED. CANCEL	2,885 LIN. FT. @ $	2.75	= $ 7,933.75 (-)
7020 ITEM NO. 28 - PILING, CREOSOTED TEST. CANCEL	$ 500.00 LUMP SUM		= $ 500.00 (-)
7021 ITEM NO. 29 - CONDUIT, RIGID STEEL 2" DIA. CANCEL	645.5 LIN. FT. @ $	1.50	= $ 968.25 (-)
8005 - MATERIAL ORDERED AND DELIVERED FOR CANCELED ITEMS.			= $ 73,362.47 (+)
TOTAL THIS E.W.O.			= $ 65,788.83 (-)

JUSTIFICATION OF AGREED UNIT PRICE: PAYMENT ON THE BASIS OF COST PLUS 5% AS AN OVERHEAD CHARGE IN ACCORDANCE WITH ARTICLE 1109.05 OF THE STANDARD SPECIFICATION, 1964 SERIES. INVOICES ON FILE IN RESIDENT CONSTRUCTION OFFICE.

DESIGN NO. 668

E.W.O. NO 1 - BLANKET

A. DESCRIPTION - THE FOLLOWING MATERIALS WHICH WILL LATER BECOME INCORPORATED IN THE WORK AND PAID FOR AT CONTRACT PRICE ARE TO BE STOCKPILED ON THE WORK - STRUCTURAL STEEL.

B. REASON - TO PROVIDE PAYMENT TO THE CONTRACTOR FOR STOCKPILED MATERIALS OF ACCEPTABLE QUALITY WHICH HAVE BEEN DELIVERED ON THE WORK AND STORED IN A MANNER SATISFACTORY TO THE ENGINEER. (REFER TO ARTICLE 1109.06 OF THE STANDARD SPECIFICATIONS, SERIES OF 1964.)

C. SETTLEMENT - CONTRACTORS INVOICES - 8999 - ON BASIS OF CONTRACTORS INVOICES $ 53,000.00

E.W.O. NO. 2

A. DESCRIPTION - THE ESTIMATED QUANTITIES OF PILING, STEEL BEARING 10BP42 ARE TO BE CORRECTED TO SHOW THE FINAL QUANTITIES FOR WHICH PAYMENT IS TO BE MADE.

B. REASON - TO PROVIDE PAYMENT FOR THE FINAL QUANTITIES OF PILING AND CUTOFFS IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

C. SETTLEMENT - CONTRACT UNIT PRICE: 7001 - ITEM NO 51 PILING FURNISH STEEL BEARING DECREASE 58.3 LIN. FT. @ $ 4.50 = $ 262.35 (-)

C. SETTLEMENT - 7002 - ITEM NO. 52: PILING, DRIVE STEEL BEARING 10BP42 DECREASE 58.3 LIN. FT. @ $ 0.45 = $ 26.24 (-)
8001 - PILING, CUTOFF STEEL BEARING 10BP42 ADD 58.3 LIN. FT. @ $ 3.375 = $ 196.76 (+)
JUSTIFICATION OF AGREED UNIT PRICE: ARTICLE 2501.22 OF THE STANDARD SPECIFICATIONS SERIES OF 1964, AS REVISED BY SPECIAL PROVISIONS NO 655 DATED OCT 14, 1969 PROVIDES PAYMENT AT 75% OF THE FURNISH PRICE. (75% X 4.50 = 3.375) TOTAL THIS E.W.O. = 91.83 (-)

E.W.O. NO. 3 - BLANKET

A. DESCRIPTION - THE CONTRACTOR IS TO HEAT THE MATERIALS INCORPORATED INTO STRUCTURAL CONCRETE AND PROTECT STRUCTURAL CONCRETE AS ORDERED BY THE ENGINEER.

B. REASON - STRUCTURAL CONCRETE TO BE PLACED AT AIR TEMPERATURES REQUIRING HEATING AND PROTECTION IN ACCORDANCE WITH ARTICLE 2403.12 OF THE STANDARD SPECIFICATION.

C. SETTLEMENT - CONTRACTORS INVOICES; 8002 - HEATING CONCRETE MATERIALS - ESTIMATED TOTAL INVOICE PRICE $ 21.00
NOTE: "SUPPLEMENTAL SPECIFICATIONS FOR CONSTRUCTION PROJECTS" STATES THAT THE CONTRACTOR IS TO BE PAID INVOICE PRICE FOR HEATING CONCRETE MATERIALS, BUT NO INCREASE IN PAYMENT WILL EXCEED $ 100 PER CU. YD.
AGREED UNIT PRICE: 8003 - PROTECTION OF CONCRETE - 21 CU. YD. @ $ 7.20 = $ 151.20
JUSTIFICATION OF AGREED UNIT PRICE: UNIT PRICE IS TO BE 10% OF CONTRACT UNIT PRICE FOR STRUCTURAL CONCRETE @ 72.00 AS STATED IN "SUPPLEMENTAL SPECIFICATIONS FOR CONSTRUCTION PROJECTS". (SPEC 655)

E.W.O. NO. 4

A. DESCRIPTION - THE CONTRACTOR IS TO SECURE IMPACT TESTS ON CERTAIN MATERIALS FROM HIS SUPPLIER. (DES MOINES STEEL CO.)

B. REASON - THESE TEST WERE REQUESTED BY IOWA STATE HIGHWAY COMMISSION (BRIDGE DESIGN)

C. SETTLEMENT - AGREED TOTAL PRICE: 8004 - IMPACT TESTS ON MATERIALS - $ 31.66
JUSTIFICATION OF AGREED TOTAL PRICE: INVOICE NO. 02298 FROM SUPPLIER (DES MOINES STEEL CO.) IS ON FILE IN RESIDENT CONSTRUCTION OFFICE.

DESIGN NO. 868

E.W.O. NO. 1

A. DESCRIPTION - THE CONTRACTOR IS TO FURNISH AND DRIVE 35' CREOSOTED TEST PILING.

B. REASON - A CREOSOTED TEST PILING 25' LONG WAS DRIVEN IN THE SOUTH COLUMN FOOTING OF PIER NO. 2 AS REQUIRED ON THE OFFICIAL PLANS. A 12 TON BEARING WAS ATTAINED AT FULL PENETRATION. THE MINIMUM SPECIFIED BEARING VALUE IS 20 TONS, THEREFORE; THE ENGINEER IS ORDERING A 35' CREOSOTED TEST PILING TO BE DRIVEN TO OBTAIN FURTHER BEARING INFORMATION BEFORE ORDERING ADDITIONAL LENGTH PILING.

C. SETTLEMENT - AGREED TOTAL PRICE: 8001 - CREOSOTED PILING, TEST, ADD 1 ONLY @ $ 250.00 = $ 250.00
JUSTIFICATION OF AGREED TOTAL PRICE: PRICE AGREES FAVORABLY WITH PRICE PAID FOR THIS ITEM ON SEVERAL PROJECTS PRESENTLY UNDER CONSTRUCTION IN THIS OFFICE.

E.W.O. NO. 2

A. DESCRIPTION - THE CONTRACTOR IS TO FURNISH AND DRIVE THE FOLLOWING LENGTHS OF CREOSOTED PILINGS IN THE LOCATIONS DETAILED ON THE PLANS.

WEST ABUTMENT	- 12 @ 45'	= 540 LIN. FT.
PIER 1, 2, AND 3	- 73 @ 30'	= 2190 LIN. FT.
EAST ABUTMENT	- 12 @ 45'	= 540 LIN. FT.
		3,270 LIN. FT.

B. REASON - THE PILE LENGTHS ON THE PROJECT PLANS WERE ESTIMATED FOR BIDDING PURPOSES ONLY. A TEST PILE, (CONTRACT ITEM NO. 63) DRIVEN IN PIER 2 INDICATES THAT THE INCREASED LENGTHS DESCRIBED ABOVE WILL BE NECESSARY TO OBTAIN THE MINIMUM REQUIRED BEARING.

C. SETTLEMENT - CONTRACT UNIT PRICE: 7001 - ITEM NO. 62 - PILING, CREOSOTED, DECREASE 2300 LIN. FT. @ $ 2.75 = $ 6,325.00 (-)

8002 - PILING, CREOSOTED ADD	1086 LIN. FT. @ $	2.874	= $ 303.92 (+) ACTUAL 1095.7 LIN. FT. PAY
8003 - PILING, CREOSOTED ADD	2190 LIN. FT. @ $	2.791	= $ 6112.29 (+) ACTUAL 2159.6 LIN. FT. PAY
TOTAL THIS E.W.O.			$ 2,891.21 (+)

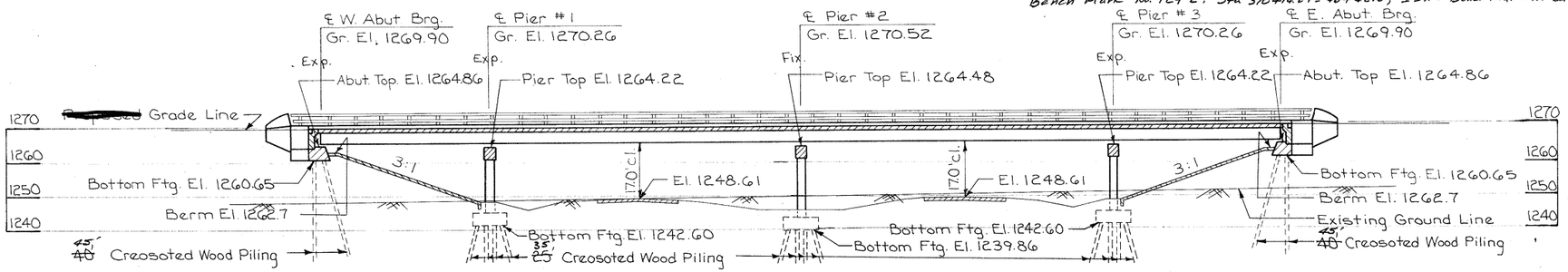
E.W.O. NO. 3 - BLANKET

A. DESCRIPTION - THE CONTRACTOR IS TO ADD AN ADMIXTURE TO CONCRETE FOR THE PURPOSE OF RETARDING HARDENING AS ORDERED BY THE ENGINEER.

B. REASON - TEMPERATURE AND HUMIDITY CONDITIONS MAKE IT NECESSARY TO RETARD HARDENING OF CONCRETE INCORPORATED INTO THIS BRIDGE DECK.

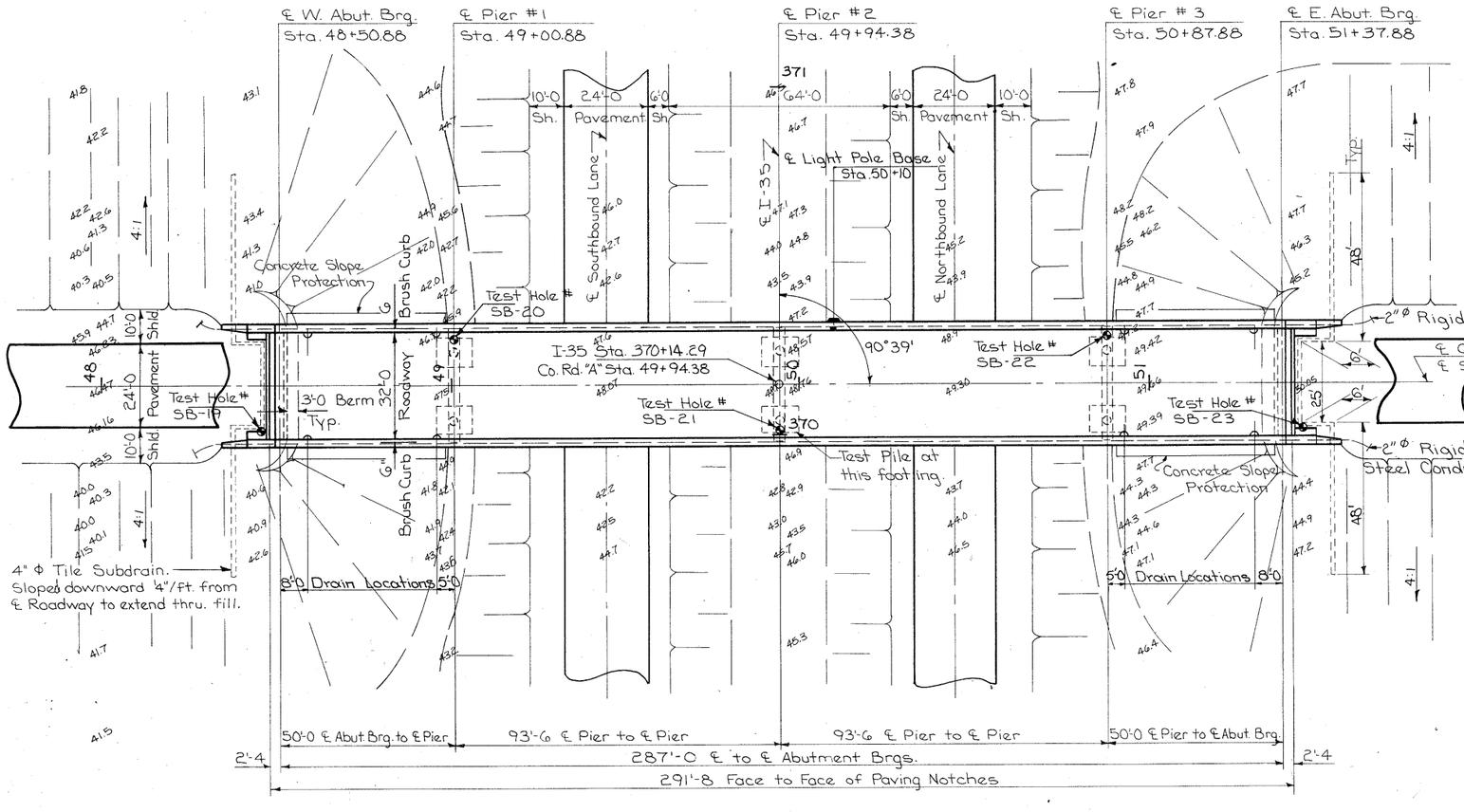
C. SETTLEMENT - AGREED UNIT PRICE: 8004 - RETARDER, STRUCTURAL CONCRETE, ADD 237.5 CU. YD. @ $ 1.50 = $ 356.25
JUSTIFICATION OF AGREED UNIT PRICE: ARTICLE 2403.25 OF THE STANDARD SPECIFICATIONS PROVIDES PAYMENT OF $ 1.50 PER CU. YD. WHEN AN ADMIXTURE IS NOT SPECIFIED BUT IS ORDERED BY THE ENGINEER TO BE ADDED TO THE CONCRETE FOR THE PURPOSE OF RETARDING HARDENING.

~~Bench Mark No. 129A: Sta. 369+65, Top iron fence post, 2" exposed, in S. ROW. fence of Co. Rd. "A", 800' Lt. El. 1238.2~~
Bench Mark No. 129 E: Sta 370+16.29 = 98+42.8, ISHC Bench Mark in Curb-17.2' Rt. ——— El. 1271.63

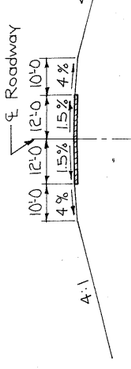


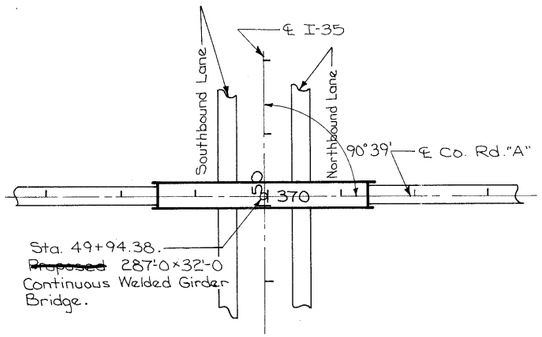
LONGITUDINAL SECTION ALONG ℄ ROADWAY

Scale 1" = 20'-0



TYPICAL APPROACH SECTION





GENERAL PLAN

P.I. Sta. 49+94.38
P.I. Elev. 1278.02
+3.00 %
-3.00 %
V.C. = 1000'

VERTICAL CURVE DATA

County Road "A"

P.I. Sta. 366+00
P.I. Elev. 1247.28
-0.16 %
+0.32 %
V.C. = 800'

I-35 GRADE PROFILE

SITUATION PLAN

Scale 1" = 20'-0

TOTAL ~~ESTIMATED~~ QUANTITIES

Item	Unit	2 Abuts.	3 Piers	Superstr.	Total
*Structural Concrete	C.Y.	98.0	146.6	295.5	540.1
Erect Structural Steel	Lbs.	——	——	264880	264880
Place Reinforcing Steel	Lbs.	9670	33524	101879	145073
Place Aluminum Handrail	L.F.	——	——	611.67	611.67
Class 20 Excavation	C.Y.	130	205	——	335
Granular Backfill	C.Y.	105	——	——	105
Concrete Slope Protection	Sq.Yd.	——	——	——	~~455~~ 453.2
4" ℄ Tile Subdrain	L.F.	——	——	——	266
Creosoted Piling	L.F.	~~140~~ 140'	~~770~~ 825'	——	~~2350~~ 0.0 **
Creosoted Test Piling @ 30'	L.S.	——	——	——	Lump Sum ~~Lump Sum~~
(1) Place 2" ℄ Rigid Steel Conduit	L.F.	——	——	645.5	645.5
~~8001~~ Creosoted Test Piling @ 40'	L.S.				~~250~~ Lump Sum ***
~~8008 Steel Reinforcing~~	Lbs				~~88,393~~
~~8004 Piling Creosoted~~	LF				~~41,785~~

*295.5 Cu. Yd. Structural Concrete Class "D" for Superstructure, 244.6 Cu. Yd. of Class "C" for Substructure, . . .
** See E.W.O. No. 3 - Blanket
*** See E.W.O. No. 1

~~8005 Heat Concrete Materials~~	C.Y.					~~45.4~~
~~8006 Protection of Concrete~~	Sq.Yd.					~~43.4~~

(1) Quantity included 635.5 L.F. of 2" ℄ conduit and 10 L.F. of 1" ℄ conduit.

Design For 0° Skew

287'-0 × 32'-0 CONTINUOUS WELDED GIRDER BRIDGE

50'-0 End Spans 2 - 93'-6 Interior Spans

SITUATION PLAN

Station: 370+14.29 I-35
49+94.38 Co. Rd. "A"

May 1971

WORTH COUNTY

IOWA STATE HIGHWAY COMMISSION

Des. Sh. No. 1 of 14 File No. 23096 Des. No 568A

LOCATION

County Road "A"
over I-35
T 99 N R 21 W
Brookfield Twp.
Sections 29 & 32
Worth County

DESIGNED BY: W. A. Lundquist
DETAILED BY:
TRACED BY: B Backous
CHECKED BY: O Gürbüz
SECTION LEADER Arnold K Schulz

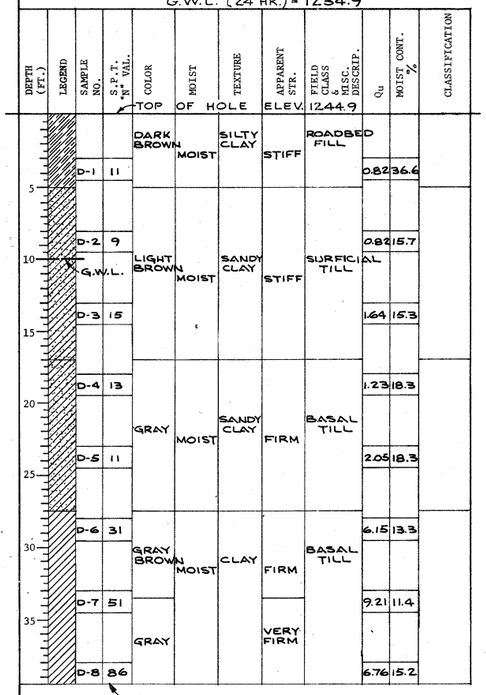
WORTH COUNTY

PROJECT NUMBER	STATE	FED. ROAD DIST. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
I-35-8(6)206--01-98	IOWA	3		8181	61

~~Bench Mark N° 129A, Sta. 369+65, Top iron fence post, 2" exposed, in S. R.O.W. fence of Co. Rd. "A", 800' Lt. El. 1238.92~~
Bench Mark No. 129E; Sta 370+14.29 = 48+42.8, ISHC Bench Mark in Curb, 17.2 Rt ——————————— El. 1270.63

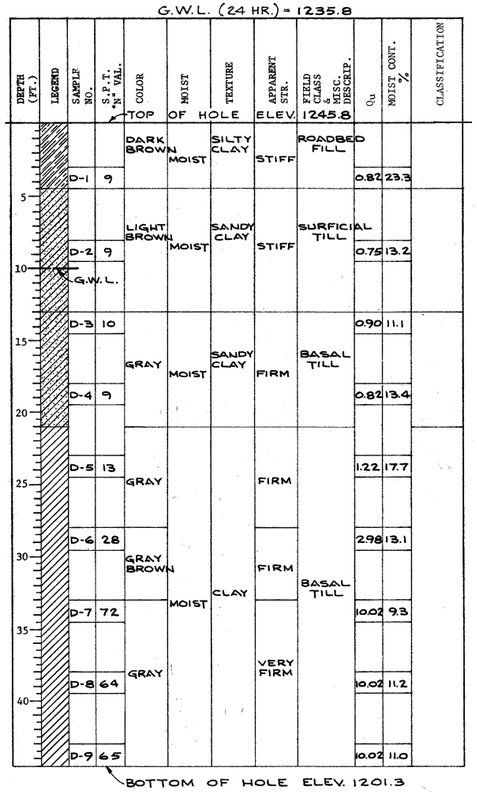
TEST HOLE NO. SB-19

STA. 48+45.38
RT. 13'
COMPLETED 9-27-67
G.W.L. (24 HR.) = 1234.9



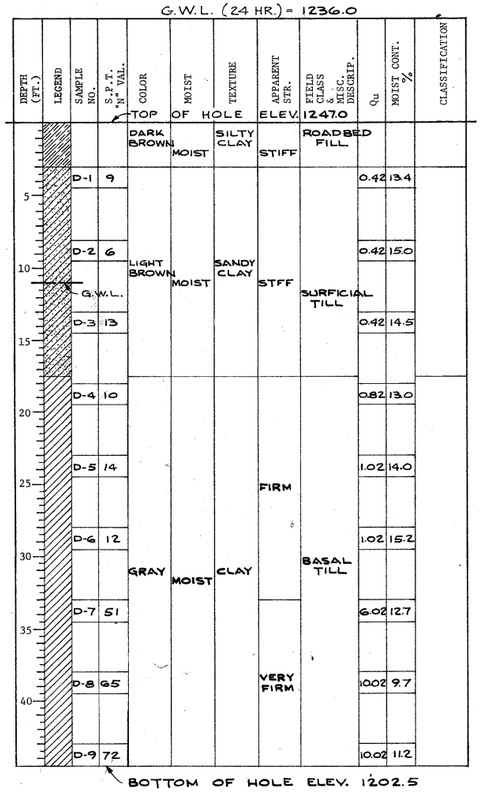
TEST HOLE NO. SB-20

STA. 49+00.88
LT. 13'
COMPLETED 9-21-67
G.W.L. (24 HR.) = 1235.8



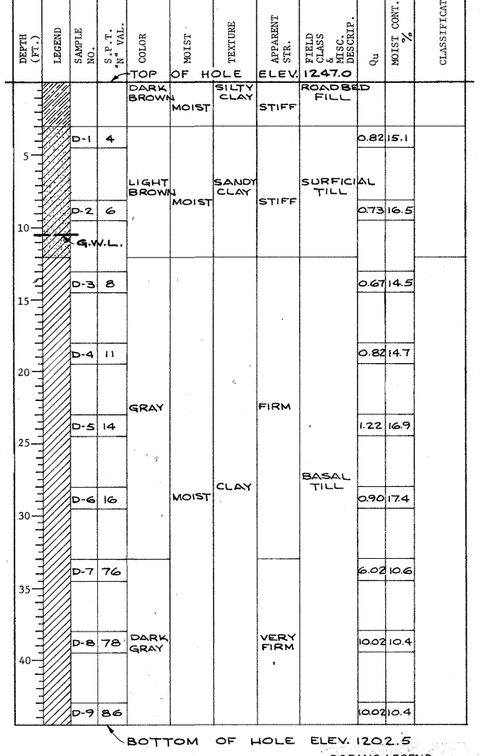
TEST HOLE NO. SB-21

STA. 49+94.38
RT. 13'
COMPLETED 9-22-67
G.W.L. (24 HR.) = 1236.0



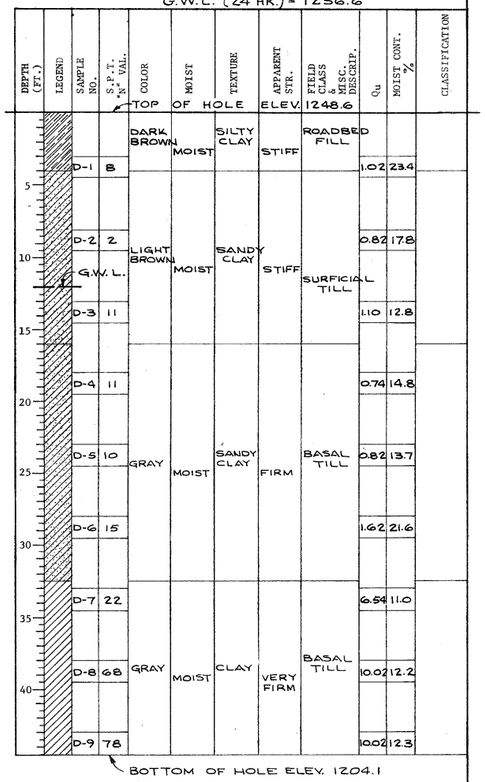
TEST HOLE NO. SB-22

STA. 50+87.88
LT. 13'
COMPLETED 9-21-67
G.W.L. (24 HR.) = 1236.5



TEST HOLE NO. SB-23

STA. 51+43.38
RT. 13'
COMPLETED 9-22-67
G.W.L. (24 HR.) = 1236.6



GENERAL NOTES:

This bridge ~~is~~ was designed for HS20-44 loading, two lane, plus 19 lb. per square foot of roadway for future wearing surface.

The approach fills as shown ~~are~~ not a part of this contract, but ~~are to be~~ were in place before abutment piles ~~are~~ were driven. The bridge contractor ~~is to~~ did level off and shape the berms to the elevation and dimensions shown. Dressing of slopes outside the bridge area not disturbed by the bridge contractor ~~shall be~~ will be paid for as extra work.

The Bridge Contractor ~~is to~~ did construct "Concrete Slope Protection" as detailed on Sheet 13.

Roadway excavation ~~is to be~~ was done by others and ~~is~~ was not a part of this contract. Pier excavation ~~is~~ was based on the assumption that the roadway excavation ~~will~~ would have been completed.

The Bridge Contractor ~~is to~~ did install tile subdrain behind each abutment as detailed. The price bid for "4" Ø Tile Subdrain" ~~is to~~ did include the excavation necessary for the installation.

Abutment piles ~~are to be~~ were driven in oversize holes drilled through the fill to Elev. 1245.0. The minimum diameter of the drilled holes ~~is to be~~ was 4" greater than the diameter of the pile 3 feet from the butt. Voids around the piles ~~are to be~~ were filled with dry sand. No separate payment ~~will be~~ was made for drilling holes or filling voids since it ~~is~~ was considered incidental to driving piles.

TEST PILE NOTE:

The lengths shown for Cresoted piling ~~are~~ were estimated lengths for bidding purposes only. One test pile ~~shall be~~ was driven at Pier #2 (See note on sheet 4), before ordering any additional piling. Before driving the test pile the area at the test pile ~~is to be~~ was excavated to the proposed footing elevation. Pile lengths ~~will be~~ were determined from test pile results.

SOUNDING DATA

The following materials ~~will be~~ were furnished by the State; all necessary reinforcing steel, 264,880 lbs. of structural steel, 611.67 ft. of aluminum handrail, and 645.5 ft. of 2" Ø rigid steel conduit (includes 10 ft. of 1" Ø conduit, jct. box, fittings, and misc. hardware required for lighting details). The above materials ~~are presently~~ were stockpiled at the site and ~~will~~ became the responsibility of the Contractor on the day he begins work on the project at the site. On that day the State and the Contractor ~~shall~~ jointly inventory the noted materials to determine shortage, if any, and condition. Replacement, refurbishing or repair of noted materials ~~is~~ was the Contractors responsibility and ~~will be~~ was paid for as provided in the Standard Specifications.

The price bid for "Erect Structural Steel" ~~shall be~~ was full payment for all labor, equipment, and incidentals necessary to erect the 264,880 lbs. of structural steel, including painting in accordance with these plans and the Standard Specifications.

The price bid for "Place Reinforcing Steel" ~~shall be~~ was full payment for placing the 145,073 lbs. of reinforcing steel in accordance with these plans and the Standard Specifications

BORING LEGEND:

S. P. T "N" Val. - STANDARD PENETRATION TEST - BLOWS PER FOOT TO DRIVE A 2" O. D. SPLIT SPOON SAMPLER 12" WITH 140 LB. HAMMER FALLING 30"
Q_u ---------- UNCONFINED COMPRESSIVE STRENGTH TONS/S. F.
G. W. L. ------ GROUND WATER LEVEL
CLASSIFICATIONS ARE IN ACCORDANCE WITH THE A. A. S. H. O. SYSTEM.

DESIGN STRESSES:

Design stresses for the following materials ~~are~~ were in accordance with AASHO Standard Specifications for Highway Bridges, Series of 1965:
Concrete in accordance with Section 1.5.1 f'c = 3500 psi.
Reinforcing Steel in accordance with Section 1.5.1
"Reinforcement" for Intermediate, Hard or Rail Steel Grade.
Structural Steel in accordance with Section 1.7.1
ASTM A-36, fs = 20,000 psi.

SPECIFICATIONS:

Design: AASHO, Series of 1965. (except as modified in General Notes)
Construction: Standard Specifications of the Iowa State Highway Commission, Series of 1964, plus current Special Provisions and Supplemental Specifications. All welding ~~shall meet~~ met the requirements of the 1966 Seventh Edition of Specifications for Welded Highway and Railway Bridges of the American Welding Society except as modified by the Standard Specifications.

287'-0" x 32'-0" CONTINUOUS WELDED GIRDER BRIDGE
50-0 End Spans 2-93-6 Interior Spans

SOUNDING DATA

Station: 370+14.29 I-35
49+94.38 Co. Rd "A"
May 1971

WORTH COUNTY

IOWA STATE HIGHWAY COMMISSION
Des. Sh. No. 2 of 14 File No 23096 Des. No. 568A

DESIGNED BY: W.A. Lundquist
TRACED BY:
DETAILED BY:
CHECKED BY: D. Gerbig

WORTH COUNTY	PROJECT NUMBER	STATE	FED. ROAD DIST. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	I-35-8(G)206--01-98	IOWA	5		81 B2	81

Kind of Piling	Treated Southern Yellow Pine
Type of Hammer	Kobe Diesel
I.H. Comm. No. of Hammer	Kobe Diesel K-13
Gross Weight of Hammer	2860 Effective Wt. 2860
Hammer Energy	26,000 Ft. Tons 13.0
Weight of Driving Cap	1550
Weight of Pile	1632
Formula Used	$P = [3E \div (S+0.1)] \times [W \div W+M]$
Plan Length	35'
Required Bearing	20 Ton min. - 40 Ton Max.
Was Bearing Determined Immediately Upon Completion of Driving?	Yes

Proj. No. I-35-8(6)206--01-98 Worth Co.

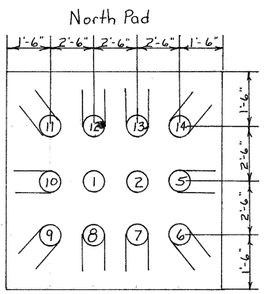
Contractor: United Contractors, Inc.

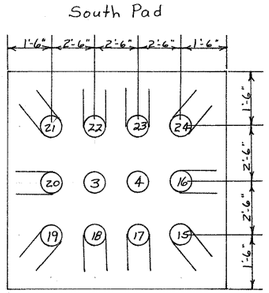
Design No. 568A Sta. of CL. 370+14.29

Foundation No.

Length, Width and Type of Structure: 287'-0" X 32'-0" Continuous Welded Girder Bridge

Remarks: Piling battered 1:4 in direction shown.

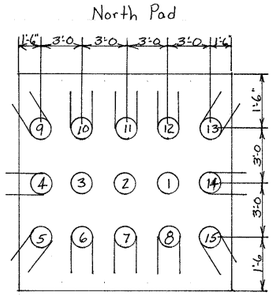


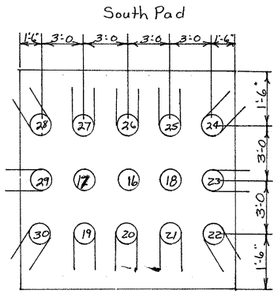


Pier No. 1

Pile No.	Date Driven	Length in Leads Nearest Foot	Length Cutoff Nearest Tenth Ft.	Length in Structure	Ave. Penetration Last 10 Blows	Energy in Ft lbs	Bearing in Tons
1	9-30-71	35	1.9	33.1	0.325	26,000 Ft. lbs	37.9
2	9-30-71	35	1.0	34.0	0.300	"	40.3
3	9-30-71	35	1.4	33.6	0.350	"	35.8
4	9-30-71	35	5.3	29.7	6.350	"	35.8
B 5	9-30-71	35	2.7	32.3	0.325	"	37.9
B 6	9-30-71	35	6.7	28.3	0.275	"	42.9
B 7	10-1-71	35	2.1	32.9	0.325	"	37.9
B 8	10-1-71	35	2.2	32.8	0.325	"	37.9
B 9	10-1-71	35	1.4	33.6	0.350	"	35.8
B 10	10-1-71	35	2.6	32.4	0.325	"	37.9
B 11	10-1-71	35	2.7	32.3	0.350	"	35.8
B 12	10-1-71	35	2.5	32.5	0.400	"	32.2
B 13	10-1-71	35	2.4	32.6	0.325	"	37.9
B 14	10-1-71	35	2.9	32.1	0.325	"	37.9
B 15	10-1-71	35	1.8	33.2	0.350	"	35.8
B 16	10-4-71	35	1.0	34.0	0.400	"	32.2
B 17	10-4-71	35	1.6	33.4	0.350	"	35.8
B 18	10-4-71	35	1.3	33.7	0.475	"	28.0
B 19	10-4-71	35	1.7	33.3	0.475	"	28.0
B 20	10-4-71	35	0.8	34.2	0.550	"	24.8
B 21	10-4-71	35	2.2	32.8	0.300	"	40.3
B 22	10-4-71	35	2.9	32.1	0.375	"	33.9
B 23	10-4-71	35	2.1	32.9	0.375	"	33.9
B 24	10-4-71	35	1.9	33.1	0.400	"	32.2

Final Pay Quantity = 816.85 L.F. @ #2.75 = #2246.34

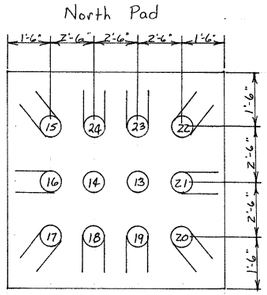


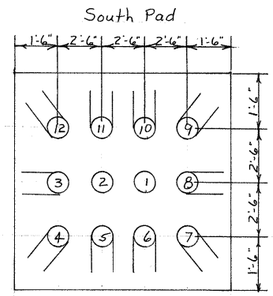


Pier No. 2

Pile No.	Date Driven	Length in Leads Nearest Foot	Length Cutoff Nearest Tenth Ft.	Length in Structure	Ave. Penetration Last 10 Blows	Energy in Ft. lbs	Bearing in Tons
1	9-30-71	35	6.0	29.0	0.300	26,000 ft lbs	40.3
2	9-30-71	35	4.6	30.4	0.325	"	37.9
3	9-30-71	35	3.5	31.5	0.325	"	37.9
B 4	9-30-71	35	4.1	30.9	0.325	"	37.9
B 5	9-30-71	35	3.2	31.8	0.350	"	35.8
B 6	9-30-71	35	4.2	30.8	0.325	"	37.9
B 7	9-30-71	35	3.6	31.4	0.400	"	32.2
B 8	9-30-71	35	4.1	30.9	0.325	"	37.9
B 9	9-30-71	35	4.4	30.6	0.350	"	35.8
B 10	9-30-71	35	6.1	28.9	0.200	"	53.7
B 11	9-30-71	35	6.6	28.4	0.250	"	46.0
B 12	9-30-71	35	8.3	26.7	0.375	"	33.9
B 13	9-30-71	35	8.0	27.0	0.325	"	30.7
B 14	9-30-71	35	7.2	27.7	0.450	"	29.3
B 15	9-30-71	35	4.7	30.3	0.525	"	25.8
Test 16	9-25-71	30'	0.0	36.0	1.000	"	16.5
Test 17	9-28-71	40'	1.2	38.8	0.900	"	33.9
18	9-29-71	35	1.1	33.9	0.375	"	33.9
B 19	9-29-71	35	1.8	33.2	0.325	"	37.9
B 20	9-29-71	35	3.7	31.3	0.350	"	35.8
B 21	9-29-71	35	4.7	30.3	0.325	"	37.9
B 22	9-29-71	35	1.6	33.4	0.400	"	32.2
B 23	9-30-71	35	1.6	33.4	0.450	"	29.3
B 24	9-30-71	35	1.1	33.9	0.500	"	26.8
B 25	9-30-71	35	2.6	32.4	0.325	"	37.9
B 26	9-30-71	35	2.9	32.1	0.325	"	37.9
B 27	9-30-71	35	3.3	31.7	0.350	"	35.8
B 28	9-30-71	35	4.3	30.7	0.325	"	37.9
B 29	9-30-71	35	4.0	31.0	0.350	"	35.8
B 30	9-30-71	35	3.8	31.2	0.325	"	37.9

Final Pay Quantity = 923.55 L.F. @ #2.75 = #2539.76



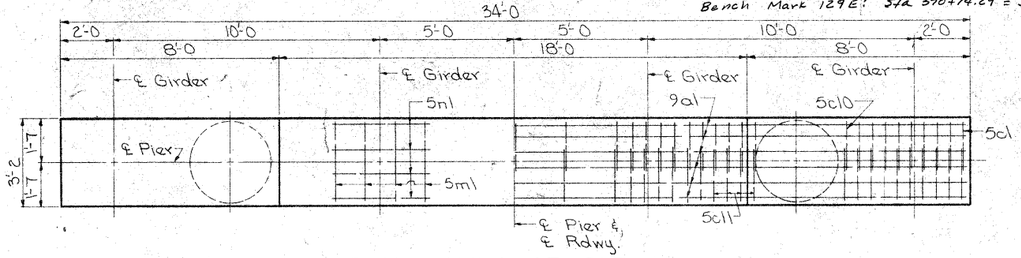


Pier No. 3

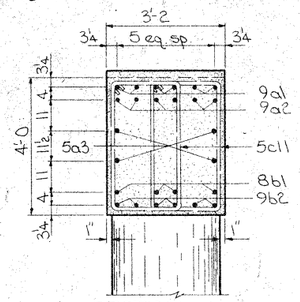
Pile No.	Date Driven	Length in Leads Nearest Foot	Length Cutoff Nearest Tenth Ft.	Length in Structure	Ave. Penetration Last 10 Blows	Energy in Ft. Lbs	Bearing in Tons
1	10-5-71	35	1.9	33.1	0.325	26,000 Ft lbs	37.9
2	10-5-71	35	7.7	27.3	0.300	"	40.3
B 3	10-5-71	35	8.0	27.0	0.300	"	40.3
B 4	10-5-71	35	7.9	27.1	0.325	"	37.9
B 5	10-5-71	35	8.3	26.7	0.300	"	40.3
B 6	10-5-71	35	7.6	27.4	0.325	"	37.9
B 7	10-5-71	35	8.2	26.8	0.300	"	40.3
B 8	10-5-71	35	7.2	27.8	0.325	"	37.9
B 9	10-5-71	35	8.7	26.3	0.300	"	40.3
B 10	10-5-71	35	2.4	32.6	0.350	"	35.8
B 11	10-5-71	35	7.5	27.5	0.325	"	37.9
B 12	10-5-71	35	8.1	26.9	0.325	"	37.9
13	10-5-71	35	2.7	32.3	0.325	"	37.9
14	10-5-71	35	2.8	32.2	0.350	"	35.8
B 15	10-6-71	35	4.6	30.4	0.300	"	40.3
B 16	10-6-71	35	4.5	30.5	0.325	"	37.9
B 17	10-6-71	35	3.4	31.6	0.325	"	37.9
B 18	10-6-71	35	6.4	30.6	0.300	"	40.3
B 19	10-6-71	35	2.9	32.1	0.325	"	37.9
B 20	10-6-71	35	7.1	27.9	0.300	"	40.3
B 21	10-6-71	35	1.2	33.8	0.400	"	32.2
B 22	10-6-71	35	2.7	32.3	0.325	"	37.9
B 23	10-6-71	35	1.9	33.1	0.350	"	35.8
B 24	10-6-71	35	1.2	33.8	0.350	"	35.8

Final Pay Quantity = 779.75 L.F. @ #2.75 = #2144.31

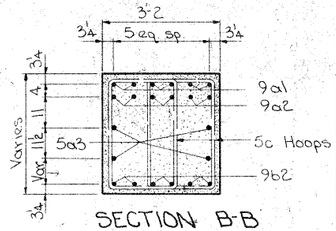
~~Bench Mark 129 A, Sta. 369+65, Top iron fence post, 2" exposed, in S. R.O.W. fence of Co.Rd. "A", 800 Lt. El. 1238.92~~
Bench Mark 129E: Sta 370+19.29 = Sta 48+42.8 - ISHC Bench Mark in Curb, 17.2' Rt. El. 1270.63



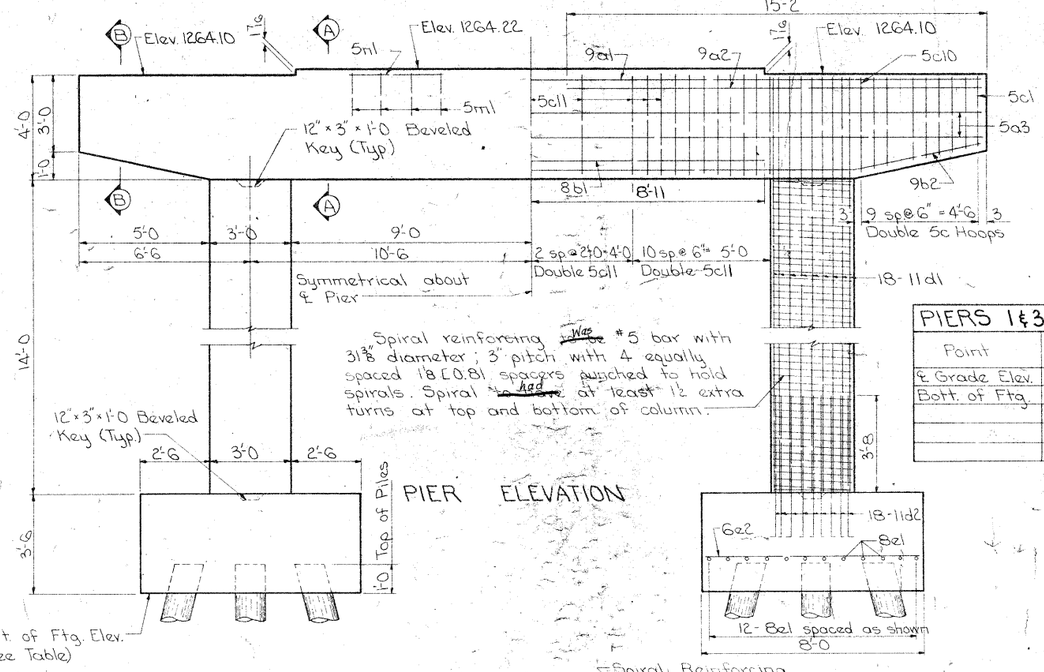
PLAN VIEW OF CAP
Note: Bars 5ml & 5nl under Interior Girders only.



SECTION A-A



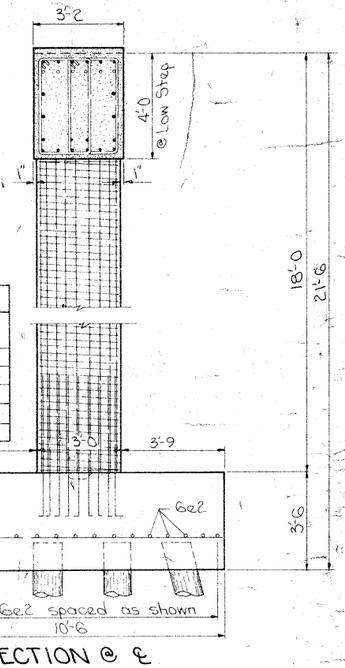
SECTION B-B



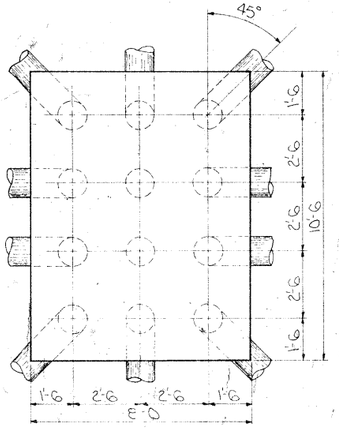
PIER ELEVATION

Spiral reinforcing ~~was~~ #5 bar with 3 3/8" diameter; 3" pitch with 4 equally spaced 1'8 [0.81 spacers punched to hold spirals. Spiral ~~to have~~ at least 1½ extra turns at top and bottom of column.

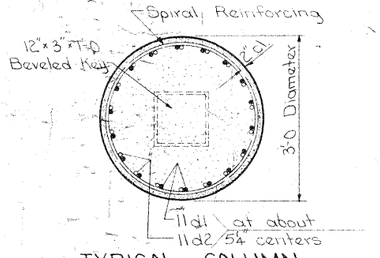
PIERS 1&3 ELEVATIONS	
Point	
℄ Grade Elev.	1270.26
Bott. of Ftg.	1242.60



SECTION @ ℄

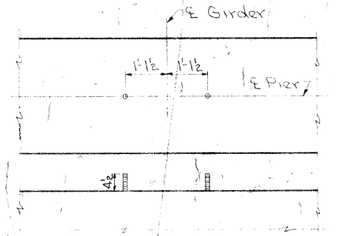


PILE PLAN



TYPICAL COLUMN SECTION

Pile spacing shown at bottom of footing. Batter 1:4 in the direction shown. 24 Piles required for Pier "1 and Pier "3



ANCHOR BOLT LOCATION

CONC. PLACEMENT QUANT.		
Location	Pier "1	Pier "3
Pier Cap	15.6	15.6
Pier Columns	7.3	7.3
Footings	21.1	21.1
Total (Cu Yd)	44.0	44.0

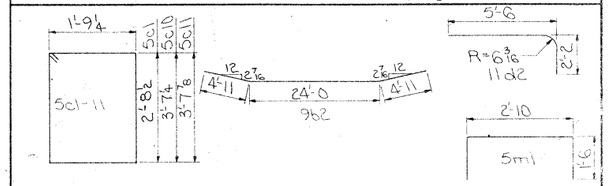
TOTAL ~~ESTIMATED~~ QUANTITIES PIERS 1&3				
Item	Unit	Pier "1	Pier "3	Total
Structural Concrete Class C	C.Y.	44.0	44.0	88.0
Place Reinforcing Steel	Lbs.	10339	10339	20678
Class 20 Excavation	C.Y.	60	60	120
Creosoted Piling 48@25'	L.F.	24@~~25~~ 35	24@~~25~~ 35	~~1200~~ 1675.7*

* See E.W.O. Not 3 - Blanket

REINFORCING STEEL - ONE PIER

Bar	Location	Shape	No.	Length	Weight
9a1	Pier Cap Longit. - Top	——	6	33'-8	687
9a2	Pier Cap Top, Longit. - Ends	——	12	15'-0	612
5a3	Pier Cap Sides, Longit.	——	4	33'-8	140
8b1	Pier Cap Bott. Longit. - Center	——	4	17'-10	190
9b2	Pier Cap Bott. Longit.	⌣	6	33'-10	1690
5c1-10	Pier Cap Hoops, Cantilever	□	40	Varies	442
5c11	Pier Cap Hoops	□	50	11'-7	604
11d1	Column Vertical	——	36	17'-9	3395
11d2	Ftg. to Column Dowels	⌝	36	7'-4	1403
8e1	Footing Longit.	——	24	10'-2	652
6e2	Footing Transverse	——	32	7'-8	369
5ml	Pier Cap Transverse	⌐	8	5'-8	47
5nl	Pier Cap Longit.	——	8	3'-6	29
*	Column Spiral	⌇⌇⌇	2	473'-8	988
12[0.81	Spiral Spacer	⌐	8	14'-0	91
* See Pier Notes Below			Total (Lbs.)		10339

BENT BAR DETAILS



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

PIER NOTES:

All exposed corners 90° or sharper ~~were~~ filleted with a 3/4 dressed and beveled strip.

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

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

Anchor bolts ~~were to be~~ preset in piers in accordance with the Standard Specifications. The weight of anchor bolts ~~was~~ included in the structural steel quantity.

Reinforcing bars ~~may be~~ shifted slightly to clear anchor bolts

The spiral reinforcing ~~was~~ made of plain structural grade reinforcing steel and spliced by lapping 1 1/2 turns. The length of the spiral shown ~~did~~ not include the lapped length of the splices

Piles ~~were~~ driven to full penetration if practicable, but to not less than 20 tons nor more than 40 tons bearing value per pile.

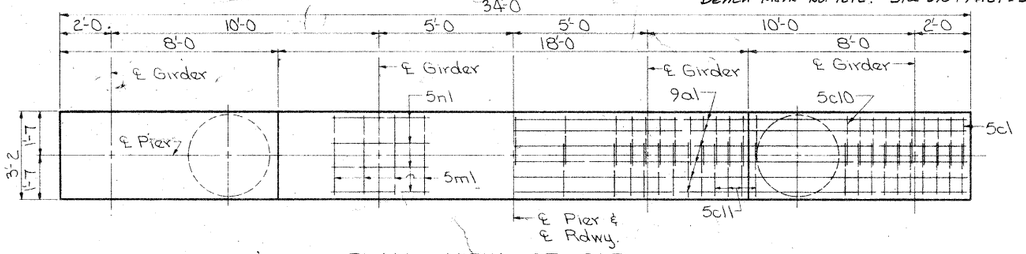
Design For 0° Skew
28?'-0 x 32'-0 CONTINUOUS WELDED GIRDER BRIDGE
50'-0 End Spans 2-93'-6 Interior Spans
* ✓
PIERS 1&3 DETAILS
Station 370+14.29 I-35
-49 +94.38 Co. Rd. "A"
WORTH COUNTY
Iowa State Highway Commission
Dist. 2 Co. No. 3 of 14 File No. 23096 Proj. No. 568A
May 1971

DESIGNED BY: W.A. Lundquist
DETAILED BY: D. Warriner
TRACED BY: D.W. Warriner
CHECKED BY: O. Gurbuz

WORTH COUNTY

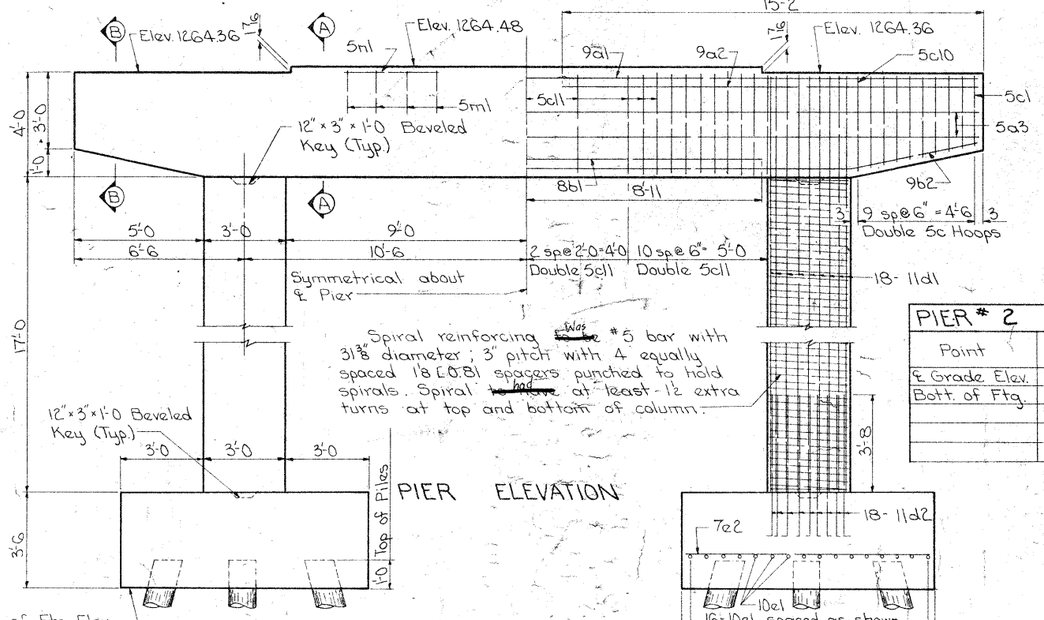
PROJECT NUMBER	STATE	FED. ROAD DIST. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
I-35-8(6)206--01-98	IOWA	5		8183	81

~~Bench Mark: 129 A, Sta 369+65, Top iron fence post, 2" exposed, in S. R.O.W. fence of Co. Rd. "A", 600 Lt. El. 1238.92~~
Bench Mark No. 1296: Sta 370+14.29 = Sta 48+92.8 - ISHC Bench Mark in Curb, 17.2 Rt - - - - - El. 1270.63



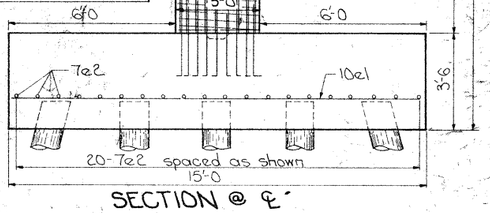
PLAN VIEW OF CAP

Note: Bars 5m1 & 5n1 under Interior Girders only.

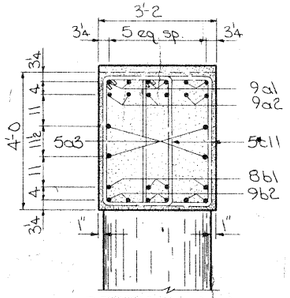


PIER ELEVATION

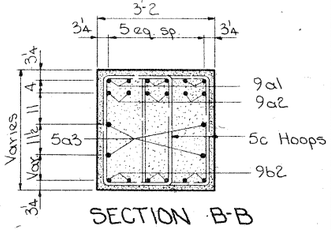
PIER # 2 ELEVATIONS	
Point	Pier # 2 Elev.
℄ Grade Elev.	1270.52
Bott. of Ftg.	1239.86



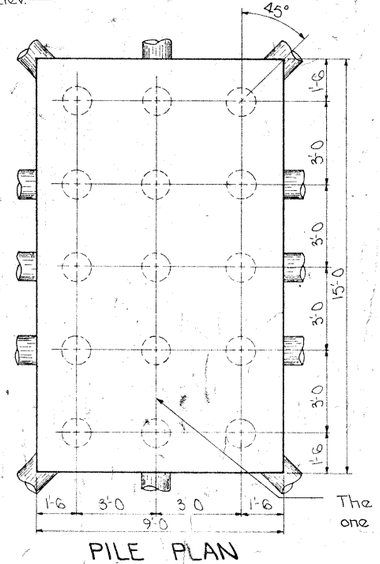
SECTION @ ℄



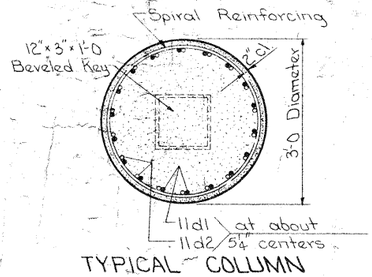
SECTION A-A



SECTION B-B



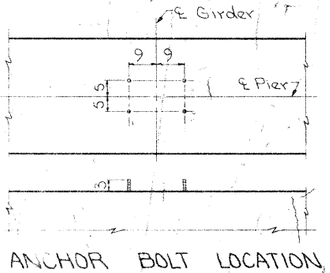
PILE PLAN



TYPICAL COLUMN SECTION

Pile spacing shown at bottom of footing. Batter 1:4 in the direction shown. 30 Piles required for Pier # 2.

The test pile ~~is to be~~ Was one of the vertical piles



ANCHOR BOLT LOCATION

CONC. PLACEMENT QUANT.	
Location	Pier # 2
Pier Cap	15.6
Pier Columns	8.9
Footings	34.1
Total (Cu Yd.)	58.6

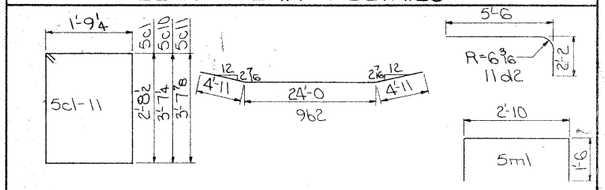
TOTAL ~~ESTIMATED~~ QUANTITIES PIER 2		
Item	Unit	Total
Structural Concrete Class C	C.Y.	58.6
Place Reinforcing Steel	Lbs.	12846
Class 20 Excavation	C.Y.	85
Creosoted Piling 28 @ ~~25~~ 35'	L.F.	~~725~~ 923.55 *
Creosoted Test Piling 1@ 30'	L.S.	Lump Sum ~~500.00~~ 250.00 **
Creosoted Test Piling 1@ 40'	L.S.	Lump Sum **

* See E.W.O. No. 3 Blanket
** See E.W.O. No. 1

REINFORCING STEEL ~ PIER # 2

Bar	Location	Shape	No.	Length	Weight
9a1	Pier Cap Longit. - Top	——	6	33'-8	687
9a2	Pier Cap Top, Longit. - Ends	——	12	15'-0	612
5a3	Pier Cap Sides, Longit.	——	4	33'-8	140
8b1	Pier Cap Bott. Longit. - Center	——	4	17'-10	190
9b2	Pier Cap Bott. Longit.	⌣	6	33'-10	690
5c1-10	Pier Cap Hoops, Cantilever	□	40	Varies	442
5c11	Pier Cap Hoops	□	50	11'-7	604
11d1	Column Vertical	——	36	20'-9	3969
11d2	Ftg. to Column Dowels	⌐	36	7'-4	1403
10e1	Footing Longit.	——	32	14'-8	2020
7e2	Footing Transverse	——	40	8'-8	709
5m1	Pier Cap Transverse	⌐	8	5'-8	47
5n1	Pier Cap Longit.	——	8	3'-6	29
*	Column Spiral	⌇⌇⌇	2	572'-3	1194
1/8 E.81	Spiral Spacer	⌐	8	17'-0	110
* See Pier Notes Below			Total (Lbs.)		12846

BENT BAR DETAILS



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

PIER NOTES:

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

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

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

Anchor bolts ~~are to be~~ were preset in piers in accordance with the Standard Specifications. The weight of anchor bolts ~~is~~ was included in the structural steel quantity.

Reinforcing bars ~~may be~~ were shifted slightly to clear anchor bolts

The spiral reinforcing ~~may be~~ was made of plain structural grade reinforcing steel and spliced by lapping 1 1/2 turns. The length of the spiral shown ~~does~~ did not include the lapped length of the splices.

Piles ~~are to be~~ were driven to full penetration if practicable, but to not less than 20 tons nor more than 40 tons bearing value per pile.

Design For 0° Skew

287'-0 x 32'-0 CONTINUOUS WELDED GIRDER BRIDGE

50'-0 End Spans — 2-93'-6 Interior Spans

PIER # 2 DETAILS

Station: 370+14.29 I-35
49+94.38 Co. Rd. "A"

May 1971

WORTH COUNTY

Iowa State Highway Commission

Des. Sh. No. 4 of 14 File No. 23096 Des. No. 568A

DESIGNED BY: W. A. Lundquist
DETAILED BY: D. Warninge
TRACED BY: D. Warninge
CHECKED BY: D. Gerber

WORTH COUNTY

PROJECT NUMBER	STATE	FED. ROAD DIST. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
I-35-8(6)206--01-98	IOWA	5		8184	81

Kind of Piling Treated Southern Yellow Pine
Type of Hammer Kobe Diesel
I.H. Comm. No. of Hammer K-13
Gross Weight of Hammer 2860 Effective Wt. 2860
Hammer Energy 26,000 Ft. Tons. 13.0
Weight of Driving Cap 1550
Weight of Pile 1723
Formula Used $P = [3E \div (S+0.1)] \times [W \div (W+M)]$
Plan Length 45'
Required Bearing 20 Ton Min. - 40 Ton Max.
Was Bearing Determined Immediately Upon Completion of Driving? Yes

Proj. No. I-35-8(6)206--01-98 Worth County

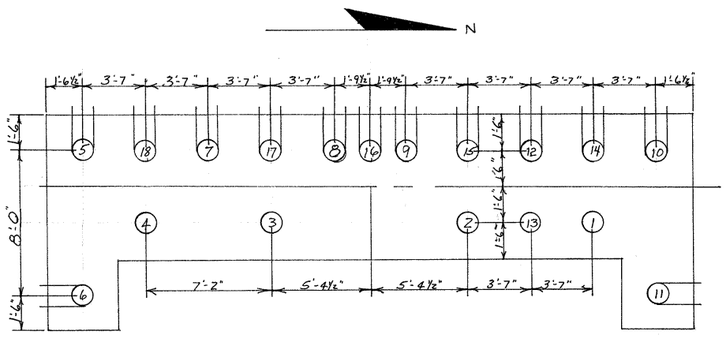
Contractor: United Contractors, Inc.

Design No. 568A Sta. of C.L. 370 + 14.29

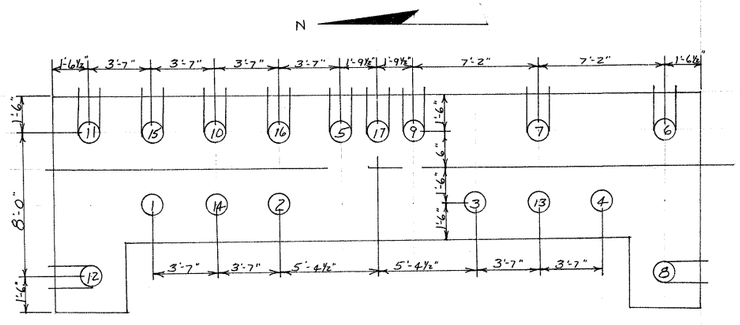
Foundation No. East & West Abuts.

Length, Width and Type of Structure: 287'-0" x 32'-0" Continuous Welded Girder Bridge

Remarks: Piles battered 1:4 in direction shown.
Ames office okayed 11 additional 55' piling, 6 in the East Abut. and 5 in the West Abut.



East Abut.



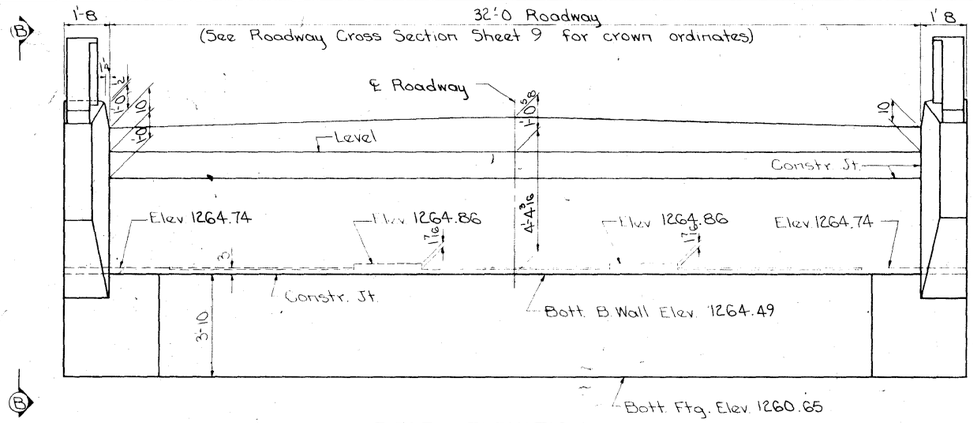
West Abut.

Pile No.	Date Driven	Length in Leads Nearest Foot	Length Cutoff Nearest Tenth Ft	Length in Structure	Ave. Penetration Last 10 Blows	Energy in Ft lbs	Bearing in Tons
1	10-7-71	45	0.8	44.2	1.275	26,000 Ft lbs	11.6
2	10-7-71	45	1.0	44.0	1.050	"	13.8
3	10-7-71	45	0.7	44.3	1.000	"	14.4
4	10-7-71	45	0.8	44.2	0.800	"	17.7
B 5	10-7-71	45	1.3	43.7	1.100	"	13.2
B 6	10-7-71	45	1.5	43.5	1.300	"	11.4
B 7	10-7-71	45	1.2	43.8	1.200	"	12.2
B 8	10-7-71	45	0.7	44.3	1.200	"	12.2
B 9	10-7-71	45	0.7	44.3	0.925	"	15.5
B 10	10-7-71	45	0.8	44.2	1.400	"	10.6
B 11	10-7-71	45	0.8	44.2	0.850	"	16.7
B 12	10-7-71	45	1.3	43.7	1.325	"	11.1
13	10-12-71	55	1.6	53.4	0.325	"	35.5
B 14	10-12-71	55	2.0	53.0	0.900	"	30.2
B 15	10-12-71	55	2.2	52.8	0.850	"	27.4
B 16	10-12-71	55	1.4	53.6	0.300	"	37.7
B 17	10-12-71	55	1.0	54.0	0.425	"	28.7
B 18	10-12-71	55	7.3	47.7	0.275	"	40.2

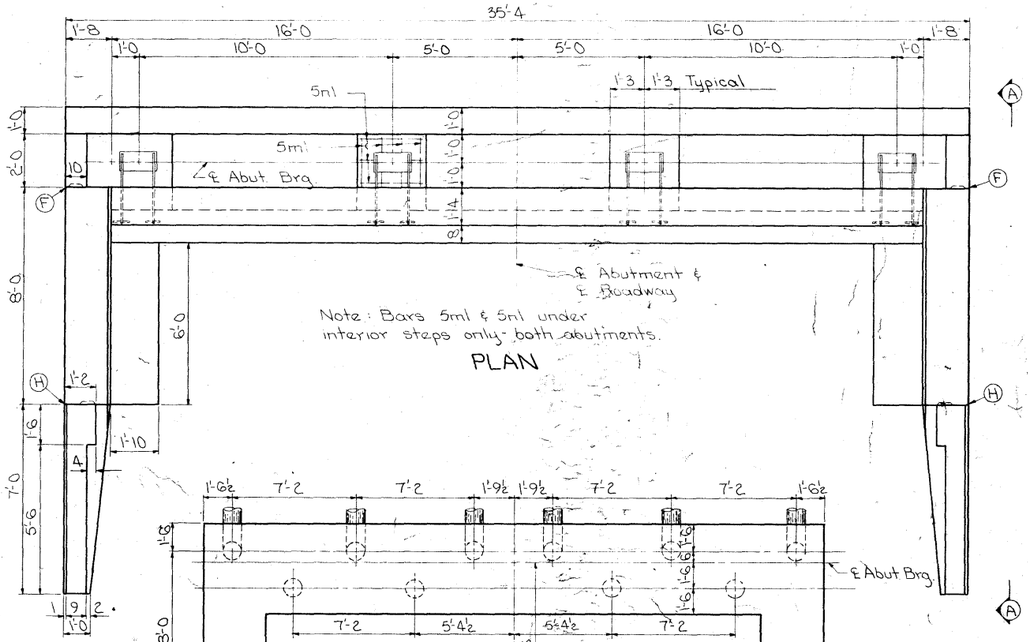
Final Pay Quantity = 863.45 L.F. @ $2.75 = $2374.49

Pile No.	Date Driven	Length in Leads Nearest Foot	Length Cutoff Nearest Tenth Ft	Length in Structure	Ave. Penetration Last 10 Blows	Energy in Ft-lbs	Bearing in Tons
1	10-4-71	45	0.0	45.0	0.900	26,000 Ft-lb	15.9
2	10-4-71	45	0.0	45.0	1.300	"	11.4
3	10-4-71	45	0.0	45.0	1.125	"	12.9
4	10-4-71	45	0.7	44.3	1.175	"	12.5
B 5	10-4-71	45	0.0	45.0	1.400	"	10.6
B 6	10-6-71	45	0.7	44.3	1.000	"	14.4
B 7	10-6-71	45	1.9	43.1	1.025	"	14.1
B 8	10-6-71	45	1.3	43.7	0.825	"	17.2
B 9	10-6-71	45	0.6	44.4	1.000	"	14.4
B 10	10-6-71	45	1.2	43.8	1.600	"	9.3
B 11	10-6-71	45	1.6	43.4	1.200	"	12.2
B 12	10-6-71	45	1.0	44.0	0.750	"	18.7
13	10-12-71	55	2.0	53.0	0.275	"	40.2
14	10-12-71	55	0.5	54.5	0.650	"	27.4
B 15	10-12-71	55	0.7	54.3	0.675	"	26.2
B 16	10-12-71	55	1.0	54.0	0.350	"	33.5
B 17	10-12-71	55	1.5	53.5	0.675	"	26.2

Final Pay Quantity = 812.25 L.F. @ $2.75 = $2233.74



REAR ELEVATION

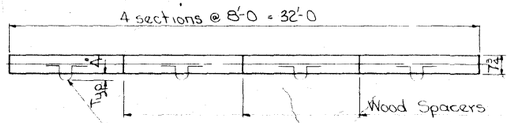


PLAN

PILE PLAN

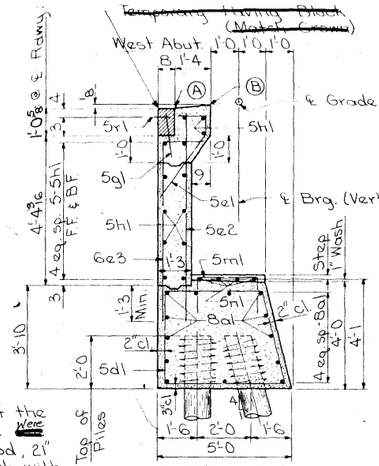
Note: Pile dimensions ~~were~~ at bottom of footing. Batter piles 1:4 in the direction shown. 12- Creosoted Piles required at each abutment.

~~Bench Mark N° 129A, Sta 369+65, Top iron fence post 2" exposed, in S. R.O.W. fence of Co. Rd. "A",~~
~~Bench Mark No. 129E: Sta 370+14.29 = 68+42.8 ISHC Bench Mark in Curb, 17½ Lt. — — El. 1270.63~~ ~~BSD Lt. El. 1238.98~~



PAVING BLOCK DETAIL

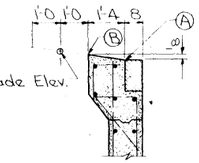
TABLE OF ELEVATIONS	
℄ Grade El.	1269.90
Point A	1269.88
Point B	1269.89



SECTION ℄

Showing West Abut. Slope Details

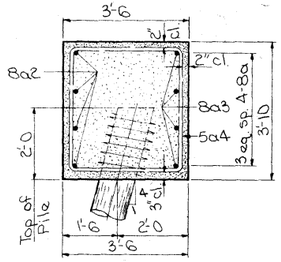
Note: Spirals at the top of each pile ~~were~~ 7 turns of ¼" ø rod, 21" diameter, 3" pitch with 2- ⅞ ∠ 0.69 spacers punched to hold spiral.



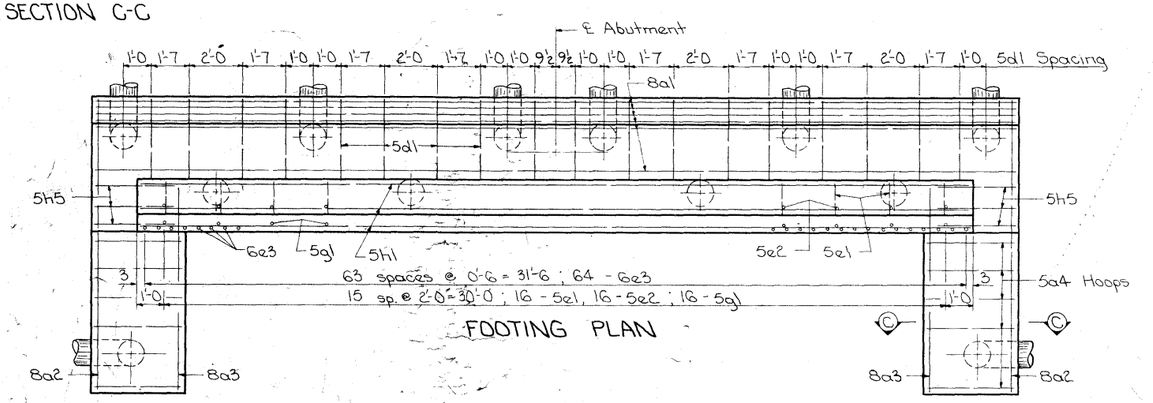
PART SECTION @ ℄

Showing East Abut Slope Details

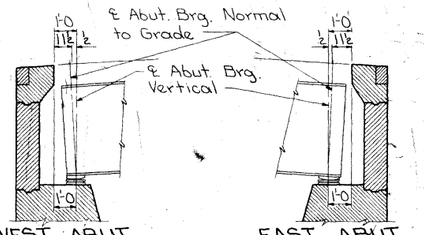
Note: Before ~~placing the~~ The temporary paving blocks were placed ~~temporary paving blocks and~~ all 5a1 bars ~~were bent~~, and ~~the~~ the notch ~~were~~ filled with tar paper to prevent bond. Blocks ~~were~~ removed and bars ~~were straightened~~ as shown before paving ~~was~~ was poured.



SECTION C-C



FOOTING PLAN



WEST ABUT. EAST ABUT.
PART LONGITUDINAL SECTION

Note: Part Longitudinal Section showed grade variations along ℄ bridge at abutments.

Design For 0° Skew
287'-0 × 32'-0 CONTINUOUS WELDED GIRDER BRIDGE
50'-0 End Spans 2-93'-6 Interior Spans
ABUTMENT DETAILS
Station: 370 + 14.29 I-35
49 + 94.38 Co. Rd. "A"
May 1971
WORTH COUNTY
Iowa State Highway Commission
Des. Sh. No. 5 of 14 File No. 23096 Des. No. 568A

DESIGNED BY W.A. Lundquist
DETAILED BY: D Wahrmund
TRACED BY: D Warnings
CHECKED BY: O. Gürbüz

WORTH COUNTY

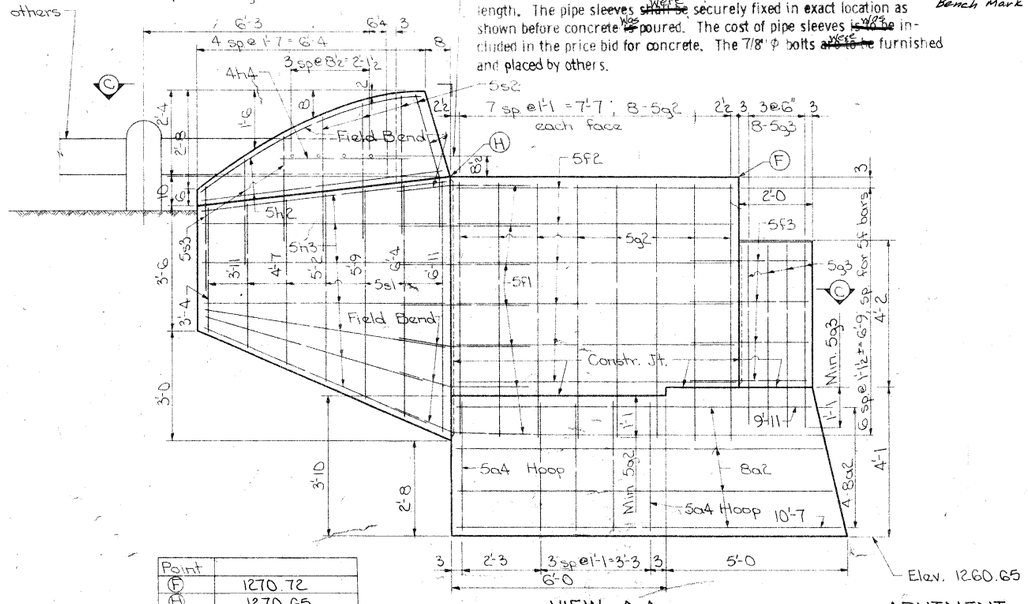
PROJECT NUMBER	STATE	FED ROAD DIST. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
I-35-8(6)206--01-98	IOWA	3		8185	81

Beam Guard Rail & Posts ~~—~~ were ~~to be~~ furnished & placed by others

Holes for 7/8" ϕ bolts ~~are to be~~ were formed with 1" ϕ (nominal dia.) St'd. steel pipe sleeves which ~~are to be~~ were galvanized after cutting to proper length. The pipe sleeves ~~shall be~~ were securely fixed in exact location as shown before concrete ~~is to be~~ was poured. The cost of pipe sleeves ~~is to be~~ was included in the price bid for concrete. The 7/8" ϕ bolts ~~are to be~~ were furnished and placed by others.

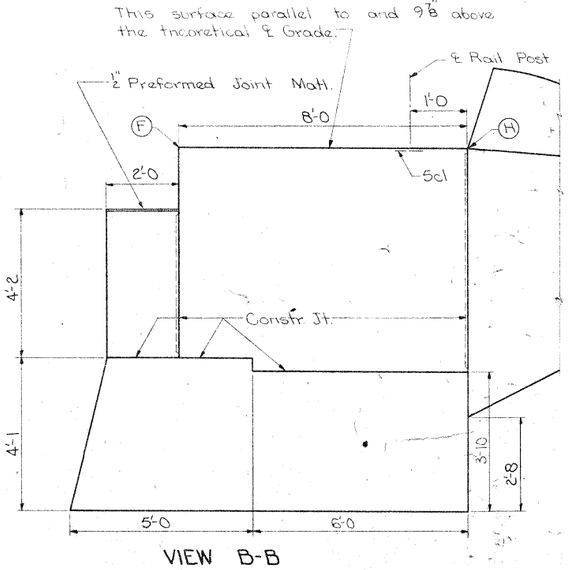
~~Bench Mark N° 129 A, Sta. 369+65, Top iron fence post, 2" exposed, in S. R.O.W. fence of Co Rd "A" 800' Lt. El. 1238.92~~

Bench Mark No. 1296; Sta. 370+14.29 = Sta. 48+42.8 ISHC Bench Mark in Curb, 17.2' Rt - - - El. 1270.63

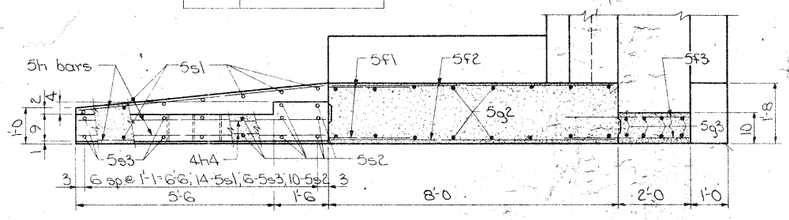


VIEW A-A

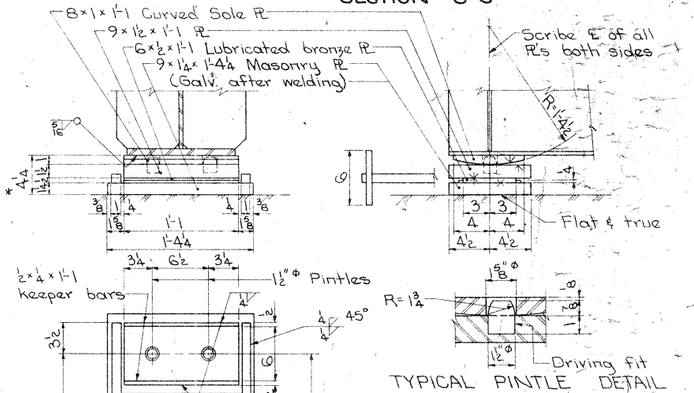
Point	
(F)	1270.72
(H)	1270.65



VIEW B-B



SECTION C-C



TYPICAL PINTLE DETAIL

Surfaces marked "V" ~~shall be~~ were finished ASA 250, surfaces marked "W" ~~shall be~~ were finished ASA 125. Bronze PL ~~shall be~~ was lubricated in accordance with ISHC Spec. Art 4190.06 (Sliding surface only). Top edges of bronze PL ~~shall be~~ were beveled 8. All bearings ~~shall be~~ were set in paint & canvas.

Abutment bearing material ~~is~~ was a part of the Superstructure Structural Steel Quantity.

* ~~Did~~ not include 1/16 for paint & canvas.

ABUTMENT BEARING DETAILS

ABUTMENT NOTES:

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

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

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

All backfill behind the abutment between wings ~~is to be~~ was granular backfill. The remainder of the abutment excavation ~~is to be~~ was backfilled with soil.

Cost of all preformed joint and compressible materials ~~is to be~~ was included in price bid for concrete.

Beams and masonry plates ~~are to be~~ were set before backwall ~~is~~ was placed.

Masonry plates ~~are~~ were included in the superstructure estimate.

The portion of the backwall containing the abutment anchorage of the expansion plate ~~is to be~~ was poured after the bridge floor ~~is~~ was placed.

The Mask Wall ~~is to be~~ was poured before the superstructure slab ~~is~~ was poured.

Construction joint keyways ~~are to be~~ were formed with beveled 2 x 6's.

Piles ~~are to be~~ were driven to full penetration if practicable, but to not less than 20 tons nor more than 40 tons bearing value per pile.

CONCRETE PLACEMENT QUANT. ~ ONE ABUT.

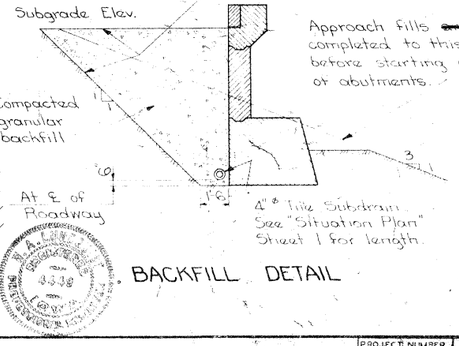
Item	Quantity
Footing & Steps	28.8 Cu.Yd.
Backwall Below Constr. Joint	5.0 Cu.Yd.
Backwall Above Constr. Joint	3.4 Cu.Yd.
Wings	3.7 Cu.Yd.
Wingwalls	6.0 Cu.Yd.
Maskwalls	.5 Cu.Yd.
End Posts	.8 Cu.Yd.
* Paving Block	.8 Cu.Yd.
Total	49.0 Cu.Yd.

~~ESTIMATED~~ QUANTITIES ~ TWO ABUTMENTS

Item	Quantity
Structural Concrete Class C	98.0 Cu.Yd.
Place Reinforcing Steel	9670 Lbs.
Class 20 Excavation	130 Cu.Yd.
Granular Backfill	105 Cu.Yd.
Creosoted Piling 24 ~~40~~ 45' 11 @ 55'	~~968~~ L.F. 1685.7 *

* Paving Block ~~was to be~~ was Class "C" or Class "D" concrete.

* See E.W.O. No. 3-Blanket



BACKFILL DETAIL

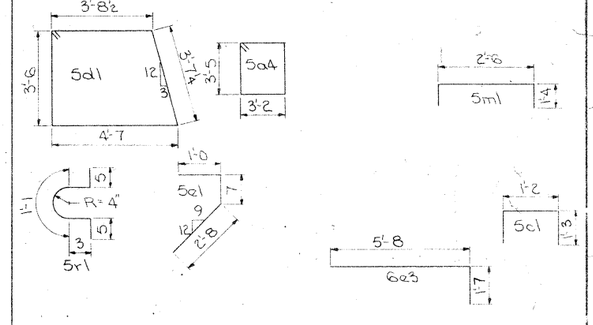
Approach fills ~~were~~ completed to this line before starting construction of abutments.

REINFORCING BAR LIST ~ ONE ABUTMENT

Bar	Location	Shape	No.	Length	Weight
5a1	Footing, Longit.	——	13	35'-0	1215
5a2	Wing Footing, Longit.	——	8	Varies	219
5a3	Wing Footing, Longit.	——	8	7'-8	164
5a4	Wing Footing, Hoops	□	10	13-11	145
5c1	Rail Post Anchors	⊓	2	3'-6	7
5d1	Footing Hoops	□	18	16'-2	304
5e1	Backwall, Transverse	⌐	16	4'-2	70
5e2	Backwall Vertical F.F.	——	16	6'-2	103
6e3	Backwall Vertical B.F.	——	64	7'-2	689
5f1	Wing Dowels	——	28	3'-10	112
5f2	Wing Horizontal	——	24	7'-8	192
5f3	Mask Wall Horiz.	——	16	3'-0	50
*5g1	Paving Dowels	——	16	2'-0	33
5g2	Wing, Vertical	——	32	7'-2	239
5g3	Mask Wall Vertical	——	16	5'-1	85
5h1	Backwall, Horiz.	——	13	31'-8	429
5h2	End Post, Horiz.	——	8	6'-8	56
5h3	Wing, Horizontal	——	28	6'-8	195
4h4	End Post, Horiz.	——	4	3'-0	8
5h5	Backwall to Wing Dowels	——	26	2'-10	77
5m1	Girder Steps, Transverse	⊓	8	5'-0	42
5n1	Girder Steps, Longit.	——	8	2'-3	19
5r1	Paving Block Lifting Hoops	⌒	4	2'-3	9
5s1	Wing, Vertical	——	28	Varies	150
5s2	End Post - Wing	——	20	3'-9	78
5s3	End Post - Wing	——	12	3'-0	38
	Spiral Spacers ⅜ ℄ 0.69	——	24	1'-10	30
	Pile Spirals - ¼" ϕ	900001	12	38'-6	77

* Structural Grade — Total (Lbs.) 4835

BENT BAR DETAILS



Note All dimensions are out to out Radii are to ℄ bar

Design For 0° Skew

287'-0 × 32'-0 CONTINUOUS WELDED GIRDER BRIDGE

50'-0 End Spans 2-93'-6 Interior Spans

ABUTMENT DETAILS

Station: 370 + 14.29 I-35
49 + 94.38 Co. Rd. "A"

May 1971

WORTH COUNTY

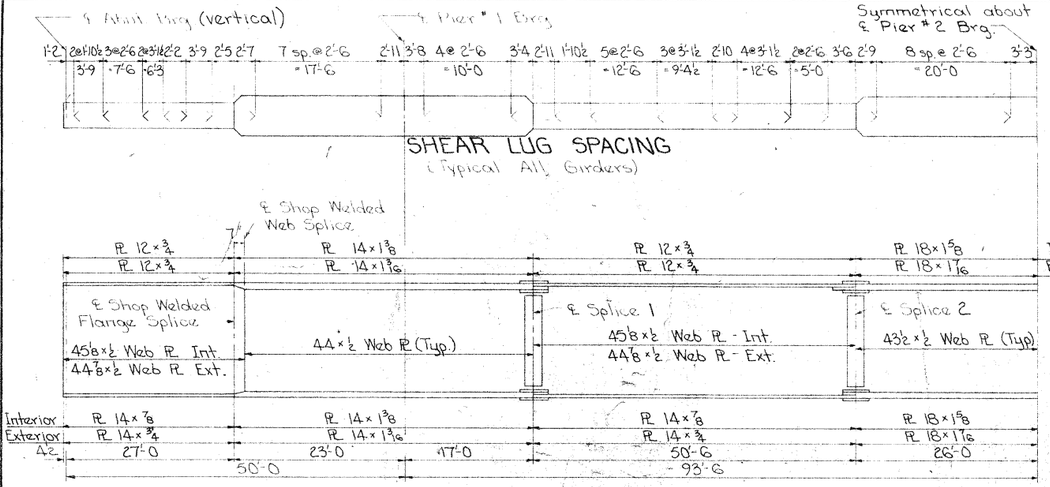
Iowa State Highway Commission

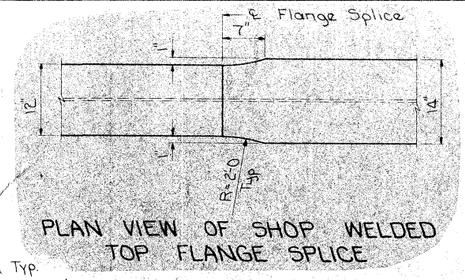
Des. Sh. No. 6 of 14 File No. 23096 Des. No 568A

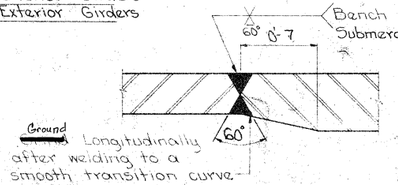
DESIGNED BY: W.A. Lundquist DETAILED BY: D. Wanninger TRACED BY: D. Wanninger CHECKED BY: O. Gürbüz

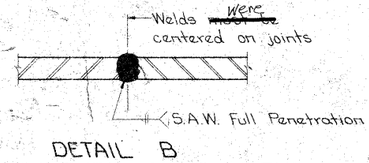
WORTH COUNTY

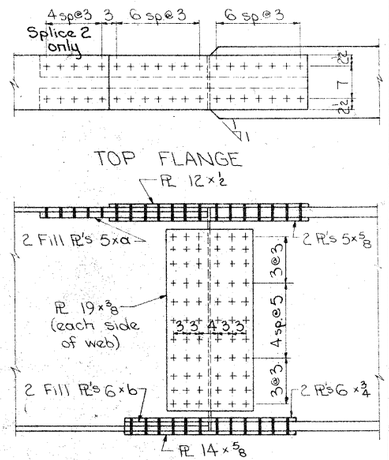
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I-35-8(6)206--01-98	IOWA	5		8186	81

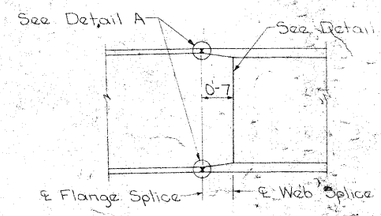












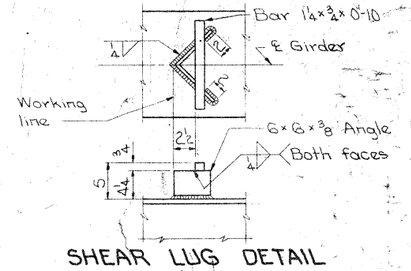
FILL PLATE DIMENSIONS

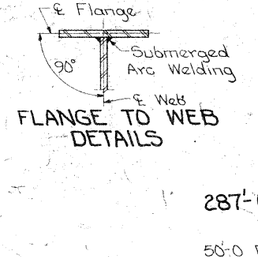
Interior Girders			Exterior Girders		
Thickness	Splice 1	Splice 2	Thickness	Splice 1	Splice 2
a	⅜	⅞	a	7/16	11/16
b	½	¾	b	7/16	11/16

MOMENT AND REACTION TABLE (Moment in Foot-Kips, Reaction in Kips)

	Load		Positive Mom. End Spans		Negative Mom. Piers 1 & 3		Positive Mom. Interior Spans		Negative Mom. Pier # 2		Abutment Reaction		Piers 1 & 3 Reaction		Pier 2 Reaction	
	Ext.	Int.	Ext.	Int.	Ext.	Int.	Ext.	Int.	Ext.	Int.	Ext.	Int.	Ext.	Int.	Ext.	Int.
D.L. # 1	.980	1.240	69	87	564	713	306	387	967	1224	13.2	16.7	77.3	97.8	100.3	126.9
D.L. # 2	.400	.190	31	15	222	105	165	78	326	155	5.6	2.6	32.0	15.2	39.6	18.8
U.L.L.	.492	.582	——	——	344	407	——	——	433	512	——	——	43.9	51.9	50.8	60.1
*C.L.L.	13.85	16.36	——	——	186	220	——	——	212	251	——	——	——	——	——	——
	20.00	23.64	——	——	——	——	——	——	——	——	——	——	20.7	24.5	20.0	23.6
H520-44	24.62	29.09	407	481	——	——	658	777	——	——	43.4	51.3	——	——	——	——
Impact	——	——	116	137	135	159	151	178	148	175	12.4	14.7	16.4	19.4	16.2	19.2
Total	——	——	——	——	1451	1604	——	——	2086	2317	74.6	85.3	190.3	208.8	226.9	248.6

Note: *Upper Figure were for moment, Lower were for shear.





FLANGE TO WEB WELD SIZE

Size of Fillet Weld	Flange Thickness
¼	¾
5/16	⅞ - 1 1/16
⅜	1⅛

Design For 0° Skew

287'-0 × 32'-0 CONTINUOUS WELDED GIRDER BRIDGE

50'-0 End Spans — 2-93'-6 Interior Spans

SUPERSTRUCTURE DETAILS

Station: 370 + 14.29 I-35
49 + 94.38 Co. Rd. "A"

May 1971

WORTH COUNTY

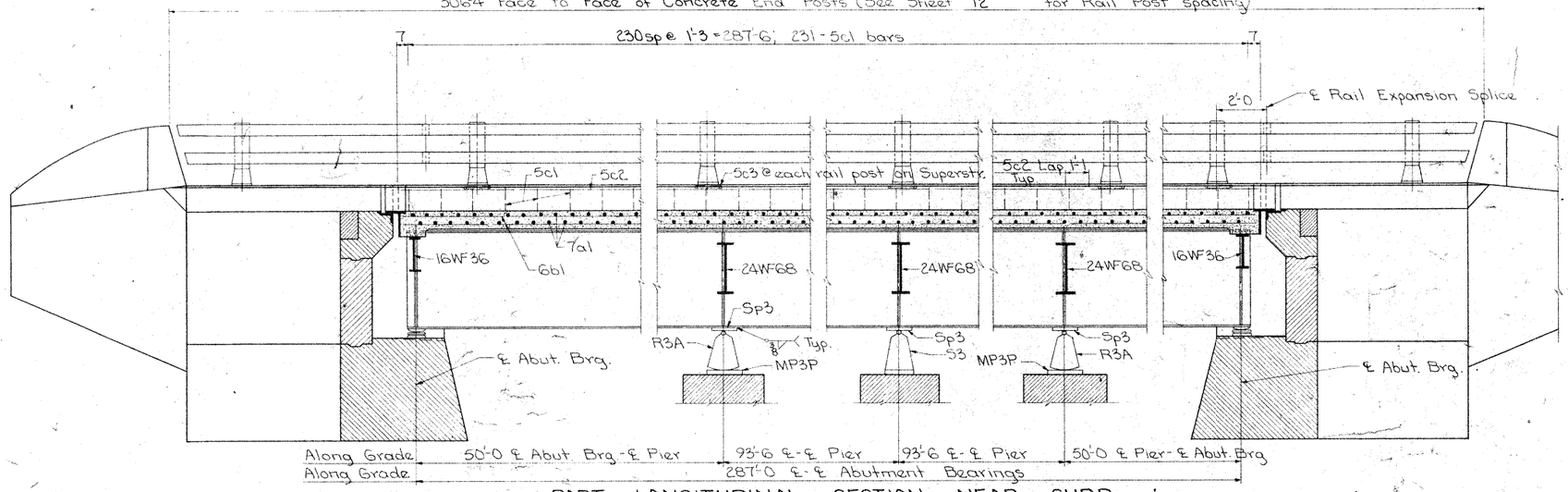
Iowa State Highway Commission

Das. Sh. No. 7 of 14 File No. 23096 Des No. 5686A

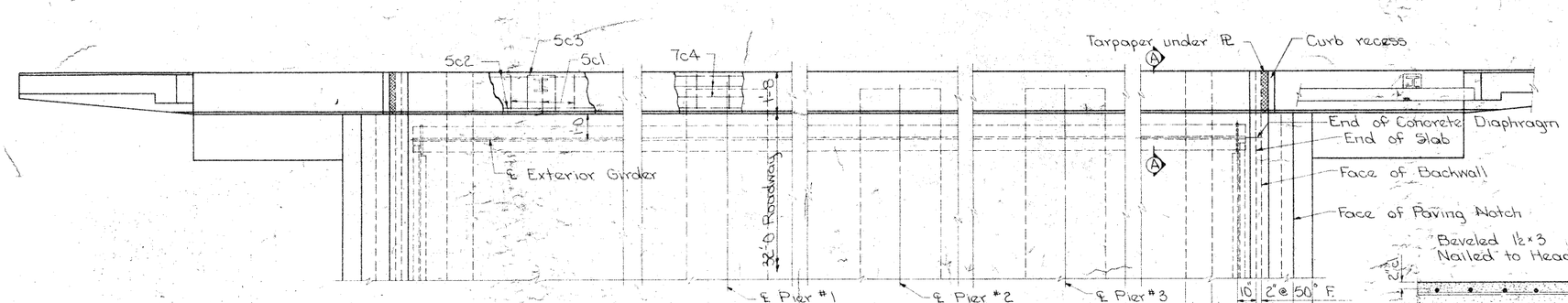
DESIGNED BY: W. A. Lundquist
DETAILED BY: D. Warnick
TRACED BY: D. Warnick
CHECKED BY: O. Gurbst

WORTH COUNTY

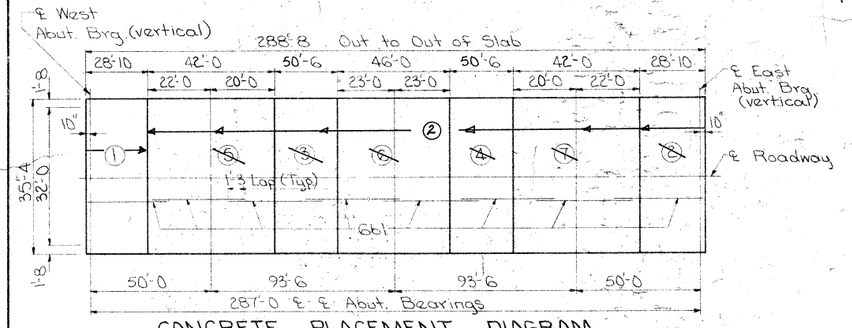
PROJECT NUMBER	STATE	FED. ROAD DIST. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
I-35-8(G)206-01-98	IOWA	5		A1B7	21



PART LONGITUDINAL SECTION NEAR CURB



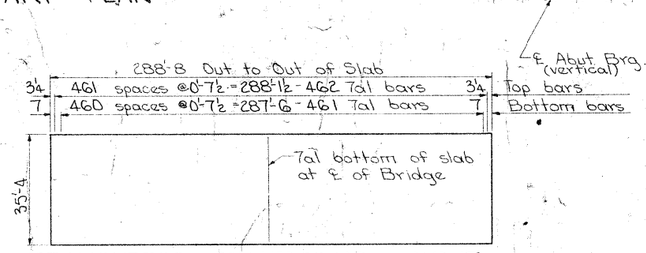
PART PLAN



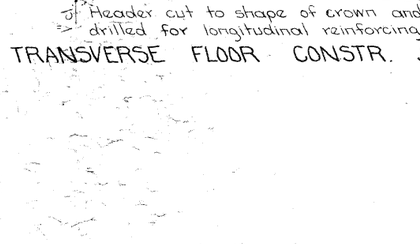
CONCRETE PLACEMENT DIAGRAM AND LONGITUDINAL REINFORCING

NOTE: Roadway slab ~~is to be~~ Was placed in sections and in sequence indicated by encircled numbers on placement diagram and preferably at intervals not exceeding 24 hours. Curbs ~~may be~~ were placed continuously. All slab reinforcing steel ~~is to be~~ Was in place before any section is poured. Alternate procedures for placing concrete ~~may be~~ were submitted for approval, together with a statement of the proposed method, and evidence that the Contractor possessed the necessary equipment and facilities to accomplish the required result.

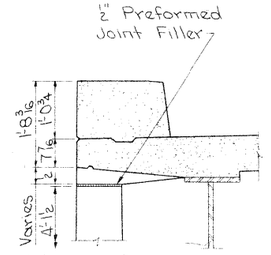
ANY ALTERNATE PROCEDURE HOWEVER ~~MUST~~ did PROVIDE FOR THE PLACING OF THE END SPANS BEFORE THE PLACING OF THE INTERIOR SPANS. CURBS ~~MAY BE~~ were POURED CONTINUOUSLY FROM END TO END.



TRANSVERSE REINFORCING LAYOUT



TRANSVERSE FLOOR CONSTR. JOINT



PART SECTION A-A

REINFORCING STEEL SUPERSTRUCTURE

Bar	Location	Shape	No	Length	Weight
7a1	Slab Transverse, Top & Bottom	——	923	35'-0	66031
6b1	Slab Longit. Top & Bottom	——	440	37'-2	24563
5c1	Curb Transverse Hoops	▭	462	5'-10	2811
5c2	Curb Longitudinal	——	32	37'-0	1235
5c3	Rail Post Anchors	⊓	70	3'-6	256
7c4	Slab & Curb Longit. over Piers	——	84	40'-0	6868
				Total (Lbs.)	101764

BENT BAR DETAILS



Note: All dimensions are out to out.

CONCRETE PLACEMENT QUANT'S

Section 1	26.3 cu. yd
Section 2	28.3 cu. yd
Section 3	45.1 cu. yd
Section 4	45.1 cu. yd
Section 5	37.5 cu. yd
Section 6	41.1 cu. yd
Section 7	37.5 cu. yd
Curbs 2@ 18.1	△36.6 cu. yd
Total (Cu. Yd.)	*295.5 cu. yd

~~ESTIMATED~~ QUANTITIES SUPERSTR

Item	Unit	Quantity
Structural Concrete Class D	Cu. Yd	△ 295.5
Place Reinforcing Steel	Lbs.	*101879
*Erect Structural Steel	Lbs.	264880

* Quantity included 88 Lbs. of Lubricated Bronze PL.

△ Included quantities for one Light Pole Base.

Design For 0° Skew

287'-0 x 32'-0 CONTINUOUS WELDED GIRDER BRIDGE

50'-0 End Spans 2-93'-6 Interior Spans

SUPERSTRUCTURE DETAILS

Station: 370+14.29 I-35
49+94.38 Co. Rd. "A"

May 1971

WORTH COUNTY

Iowa State Highway Commission

Des. Sh. No. 8 of 14 File No. 23096 Des. No. 568A

DESIGNED BY: W. A. Lundquist TRACED BY: D. Warner

DETAILED BY: D. Warner CHECKED BY: O. Garbuz

WORTH COUNTY

PROJECT NUMBER	STATE	FED. ROAD DIST. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
I-35-8(G)203--01-98	IOWA	3		8188	81

SUPERSTRUCTURE NOTES:

This bridge ~~is~~ was designed for HS20-44 loading, two lane, plus 19 lb. per square foot of roadway for future wearing surface.

Minimum clear distance from edge of bar to face of concrete ~~is to be~~ was 2" unless otherwise noted or shown.

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

All field connections ~~are to be~~ were bolted using "High Tensile Strength Bolts". Unless otherwise noted, all open holes ~~are to be~~ were 15/16" ϕ and all bolts ~~are to be~~ were 7/8" ϕ

Bottom flanges ~~are to be~~ were perpendicular to webs at the reaction points.

All paint ~~is to be~~ was omitted on tops of top flanges and on other steel surfaces in contact with concrete. Parts inaccessible after erection ~~are to be~~ were given three coats of paint in the shop.

Forms for the slab and curb ~~are to be~~ were supported by the girders.

Fill thicknesses shown on plans ~~are~~ were based on nominal beam or girder dimensions. These thicknesses ~~are to be~~ were verified or adjusted during fabrication to secure a close fit. Each fill plate ~~shall~~ did not fit to the nearest 1/16" in thickness and single plates ~~are~~ were required at any fill location. Beams or girders ~~are to be~~ were truly square at splice points with flanges perpendicular to webs.

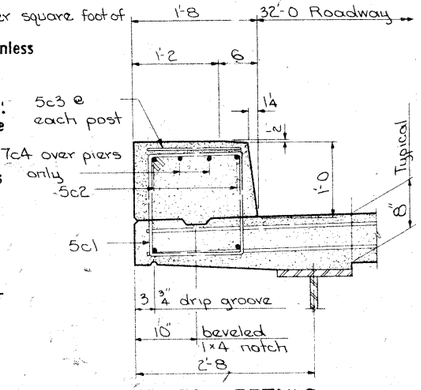
The design drawings indicate AWS qualified welded joints, and unless otherwise noted the design joint details ~~are~~ were for manual shielded arc welding. Alternate joint details ~~may be~~ were submitted for approval.

The stiffener to flange welds ~~are not to~~ did not intersect the longitudinal flange to web welds.

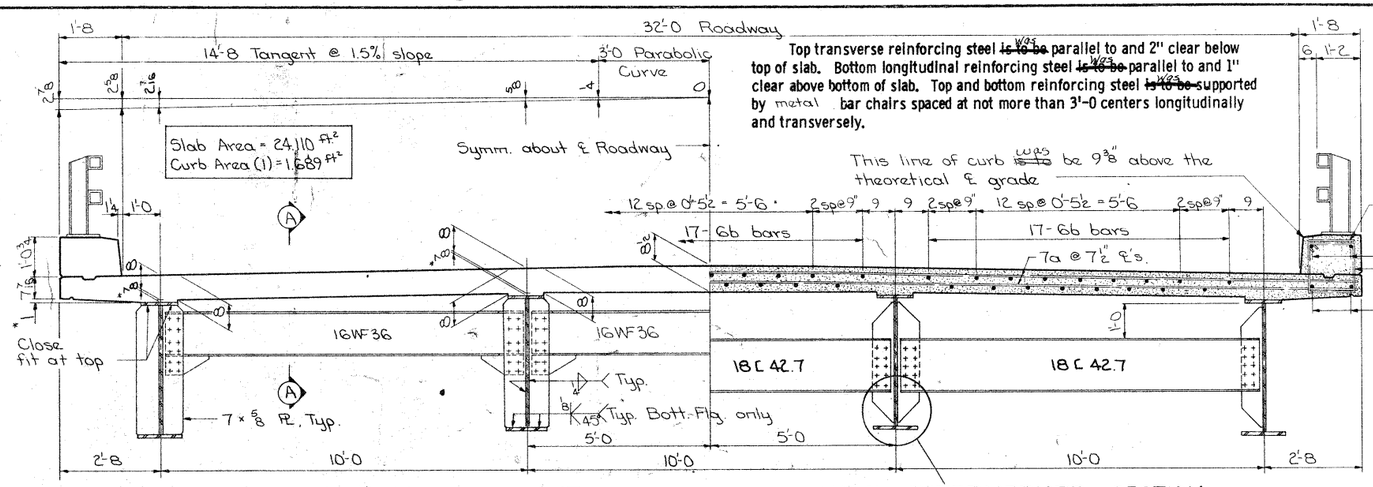
Magnetic particle inspection of welds, in accordance with Article 2408.15 of the Standard Specifications, ~~will be~~ was required for the web to flange welds and the bearing stiffener welds of the girders.

Approved stud shear connector ~~may be~~ were used as an alternate for the angle shear connectors shown. If studs ~~are~~ were used, each angle lug ~~is to be~~ was replaced by a group of 10-7/8" ϕ x 5" studs. The centroid of the stud group ~~is to be~~ was in the approximate location of the angle lug replaced. Maximum spacing between stud rows ~~is to be~~ was 24" and where the angle lug spacing exceeds 24" the equivalent studs ~~are to be~~ were located in two or more rows so that the maximum spacing ~~is~~ was not exceeded. Studs ~~are to be~~ were welded in the shop at locations shown on shop drawings approved by the Iowa State Highway Commission.

All protective paint ~~is to be~~ was removed from the contact surfaces at the girder splices before the girders ~~are~~ were erected. Cost of paint removal ~~shall not be~~ was included in price bid for "Erect Structural Steel".



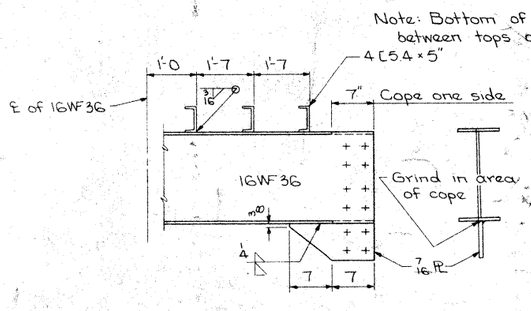
CURB DETAILS



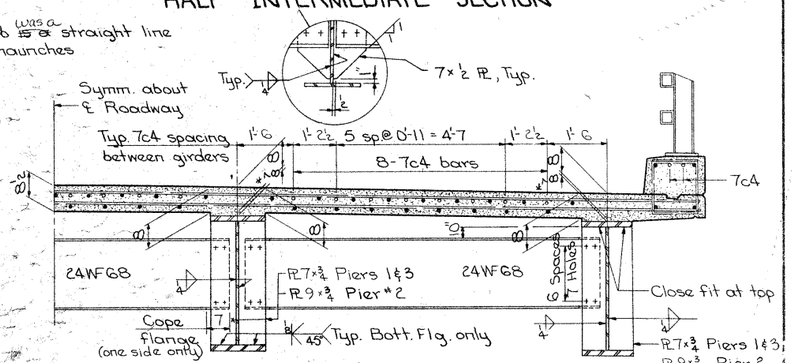
HALF SECTION NEAR ABUTMENT

HALF INTERMEDIATE SECTION

Top transverse reinforcing steel ~~is to be~~ was parallel to and 2" clear below top of slab. Bottom longitudinal reinforcing steel ~~is to be~~ was parallel to and 1" clear above bottom of slab. Top and bottom reinforcing steel ~~is to be~~ was supported by metal bar chairs spaced at not more than 3'-0 centers longitudinally and transversely.

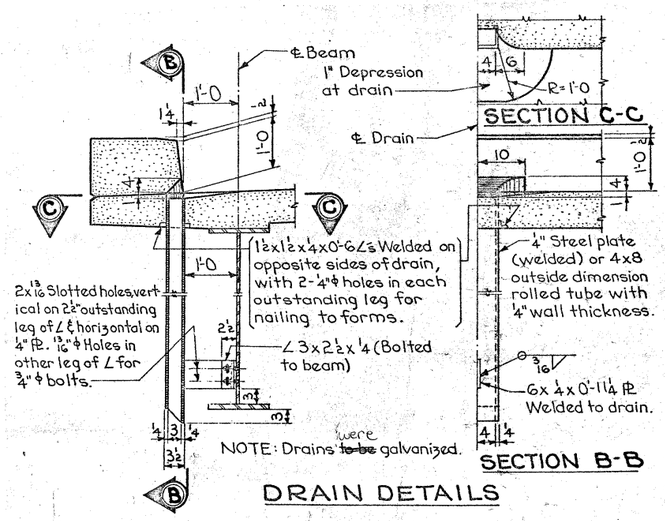


ABUT. DIAPHRAGM CONNECTION



HALF SECTION NEAR PIER

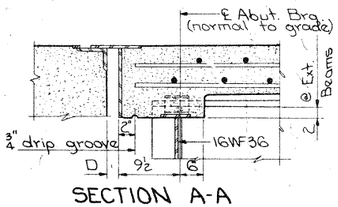
Note: 7c4 bars ~~are to be~~ were centered over pier.



DRAIN DETAILS

8 Required. See "Situation Plan" on Sheet 1 for Location.

* The haunch dimensions shown ~~are~~ were the nominal haunch dimensions at the bearings. For the slab thickness over the beam at any location the nominal haunch dimension ~~is to be~~ was increased by the amount indicated on the "Haunch Thickening Diagram" shown on sheet 7, and ~~may be~~ were increased or decreased to compensate for construction inaccuracies. The maximum haunch allowed ~~is~~ was 2 inches and the minimum haunch allowed ~~is~~ was 0 inches.



SECTION A-A

ROCKER & EXPANSION PLATE SETTINGS

	West Abut	Pier 1	Pier 2	Pier 3	East Abut
Temp at time of setting (F°)	D				D
10°	2 3/16	-5/16	0	-5/16	2 3/16
50°	2	0	0	0	2
90°	1 13/16	+5/16	0	+5/16	1 13/16

Note: Tilt rockers in direction shown for temp below 50°, and in the opposite direction for temp above 50°. Settings for other temp are proportional

Design For 0° Skew

287'-0 x 32'-0 CONTINUOUS WELDED GIRDER BRIDGE

50'-0 End Spans 2-93'-6 Interior Spans

SUPERSTRUCTURE DETAILS

Station: 370 + 14.29 I-35
49 + 94.38 Co. Rd. "A"

May 1971

WORTH COUNTY

Iowa State Highway Commission

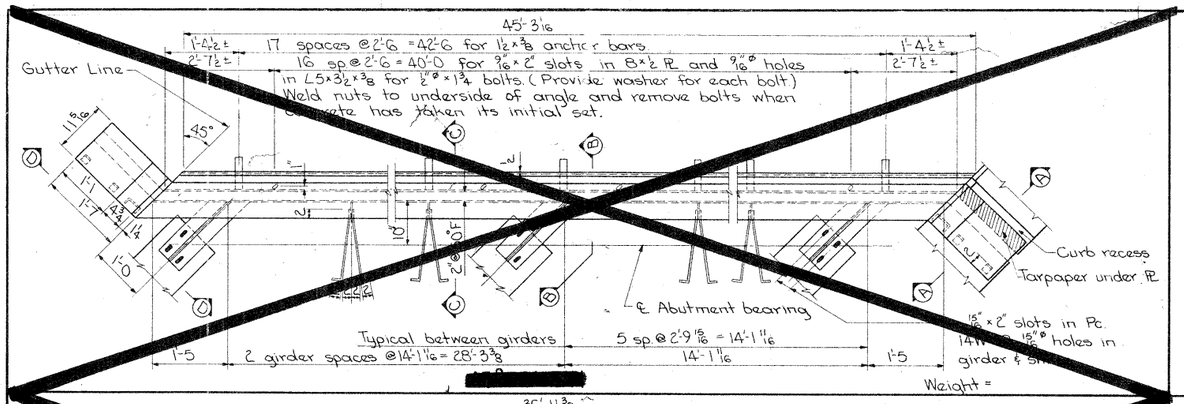
Des. Sh. No. 9 of 14 File No. 23096 Des. No. 568A

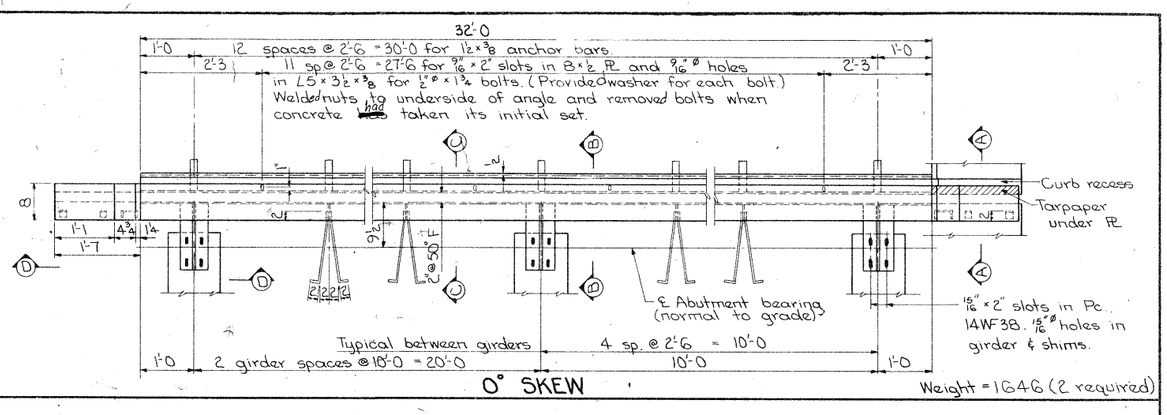
Steel Cross Section (A) - 32'-0 Roadway Std. Sheet 4058

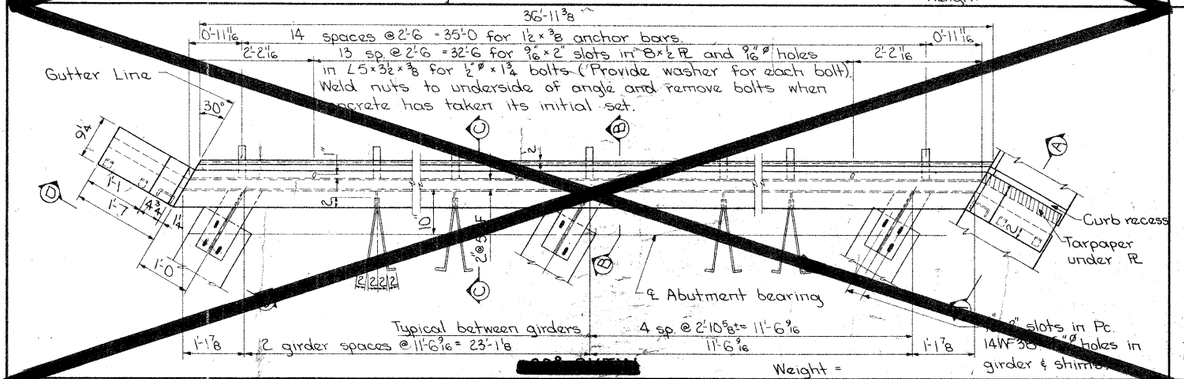
DESIGNED BY: W. A. Lundquist TRACED BY: D. Warning CHECKED BY: O. Giebitz

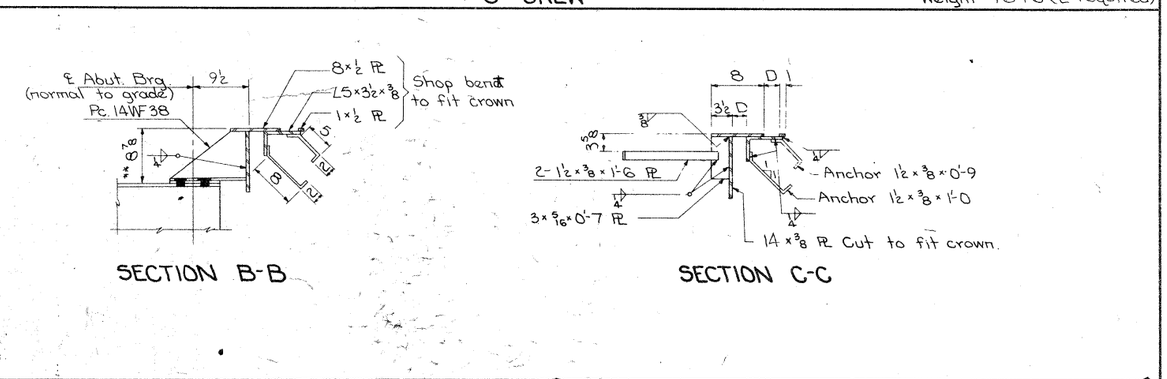
WORTH COUNTY

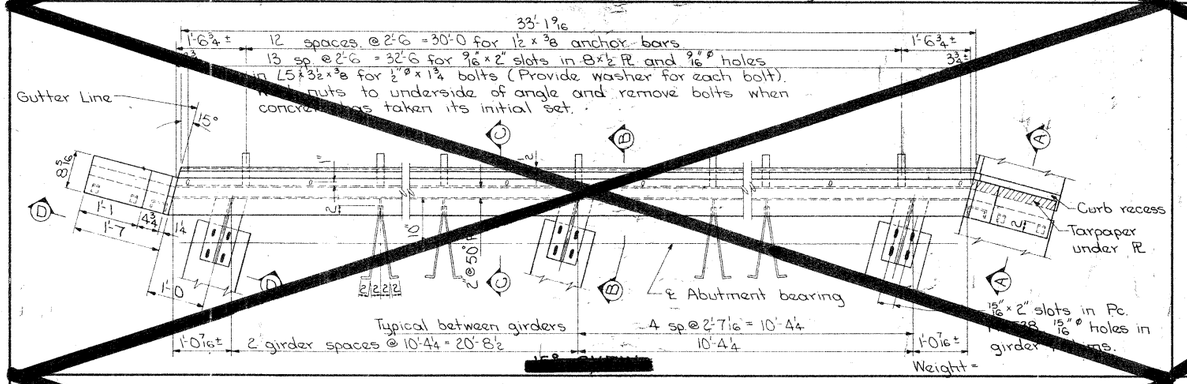
PROJECT NUMBER	STATE	FED. ROAD DIST. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
I-35-8(G)206--01-98	IOWA	5		8189	81

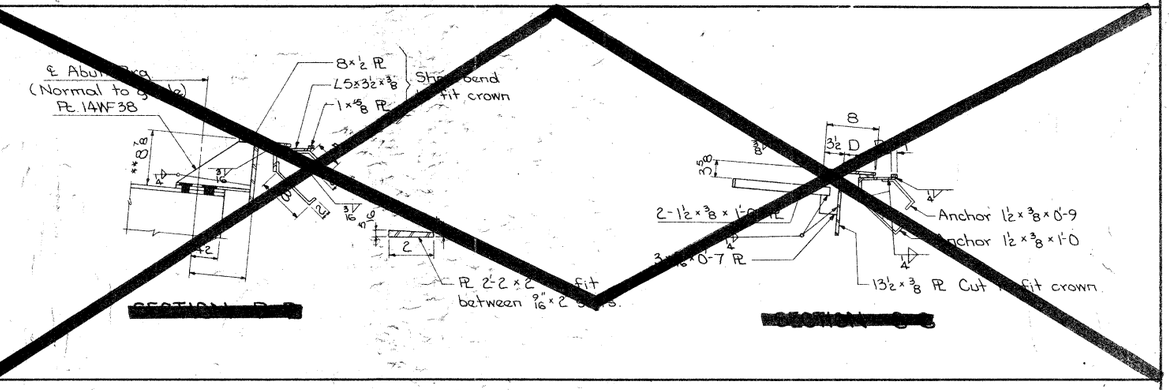


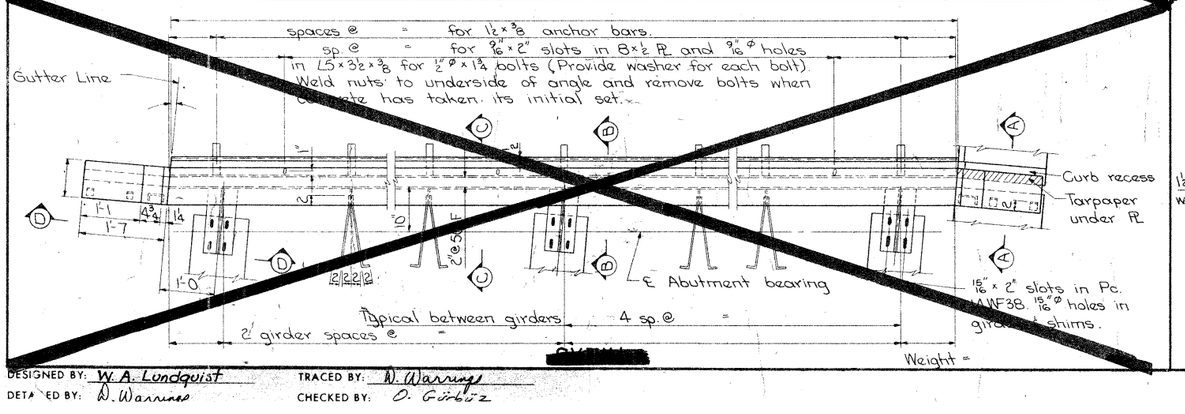


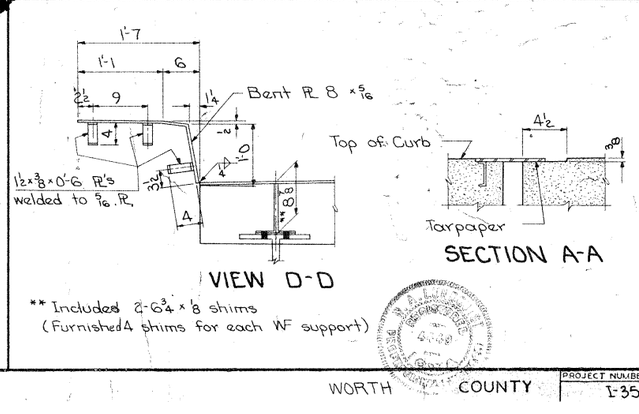












Note: Dimension "D" was 2" for a temperature of 50° F. See "Rocker & Expansion Plate Setting" diagram on another sheet for settings for 10° F, and 90° F.

Note: Expansion Plate weights were for a level plate, and did not include the beam connection bolts.

Design For 0° Skew

287'-0 x 32'-0 CONTINUOUS WELDED GIRDER BRIDGE

50'-0 End Spans 2-93'-6 Interior Spans

EXPANSION PLATE DETAILS

Station: 370 + 14.29 I-35
49 + 94.38 Co. Rd. "A"

May 1971

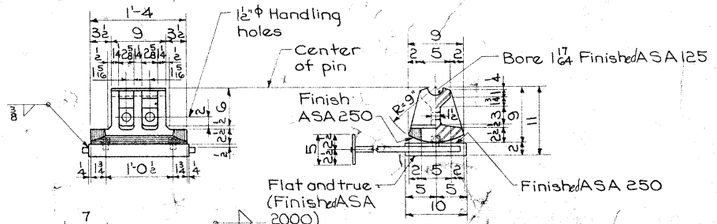
WORTH COUNTY

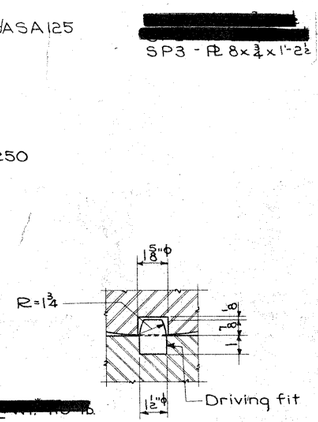
Iowa State Highway Commission				
Des. Sh. No. 10 OF 14	File No. 23096	Des. No. 568A		
Expansion Plate Details-32'-0 Rdwy-Skd Rt Ahead		Std. Sht. 4063		

DESIGNED BY: W. A. Lundquist
DETAILED BY: D. Warnings
TRACED BY: D. Warnings
CHECKED BY: O. Gibbz

WORTH COUNTY

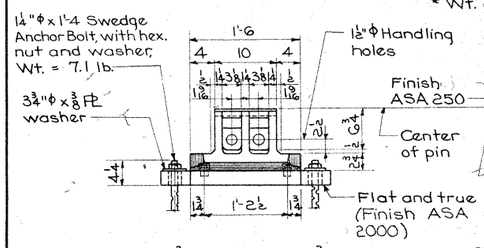
PROJECT NUMBER	STATE	FED. ROAD DIST. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
I-35-8(6)206--01-98	IOWA	3		81810	81

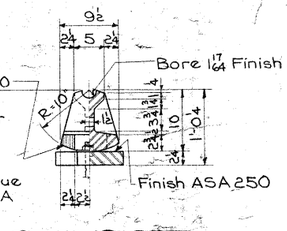


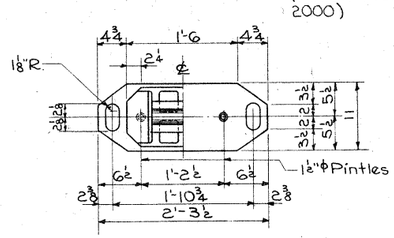


[redacted] Wt. [redacted]
* Wt. did not include 1"ϕ bars

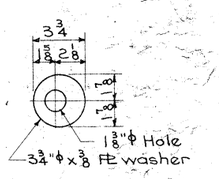
TYPICAL PINTLE DETAIL



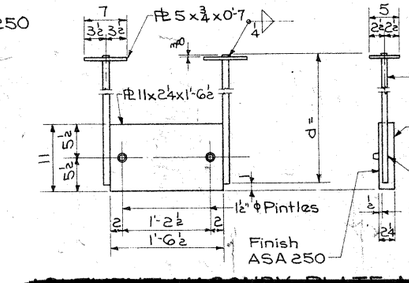




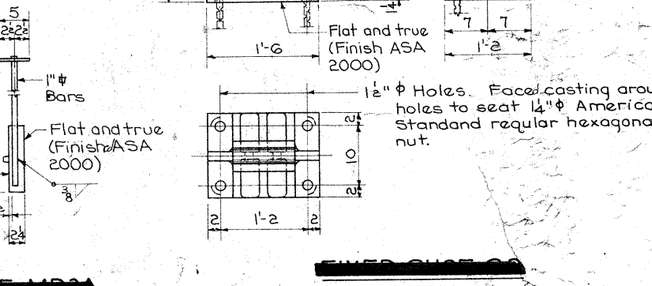
Wt. = 160 lb.



[redacted] Wt. = 178 lb.



[redacted] Wt. 146 lb. (Did not include 1"ϕ bars)



[redacted] Wt. = 222 lb.
(Similar to S2 V12-1)

BEARING NOTES:

The casting of R3A and S3 did comply with Article 4153.04 of the I.H.C. Standard Specifications. Castings may be Gray Iron or Nodular Iron.

The masonry plate marked MP3P did comply with the requirements of ASTM A-36 steel.

The pins did comply with Article 4153.02 of the I.H.C. Standard Specifications and with the requirements of ASTM A-108 steel.

All bearings were set in paint and canvas.

Anchor bolts were set in accordance with Article 2408.47 of the I.H.C. Standard Specifications.

After masonry plates, rockers and shoes were in correct location, leather was pieced around anchor bolts to fill the slotted holes.

The weight of bearings shown did not include the weight of paint.

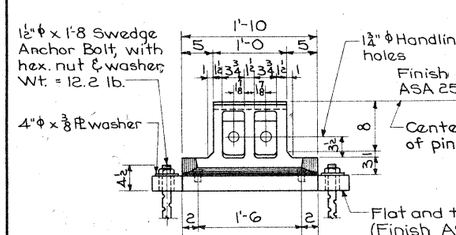
Surfaces finished with an ASA 125 finish were be shop coated with an application of white lead and tallow as soon as the surfacing process was done. The shop coated surfaces were be wiped clean and then a field coat of white lead and tallow was applied just before the erection of structural steel in the field.

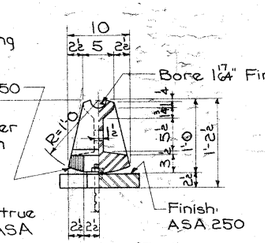
DISTANCE FROM TOP OF SOLE PLATE TO BRIDGE SEAT	
Rockers & Fixed Shoes	* D
R3A & S3	1'-4 3/16

* Included 1/16" paint and canvas.

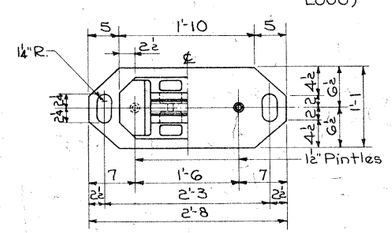
MAXIMUM REACTION (In Kips)		
		R3A S3
		263

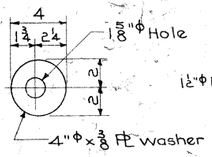
Used S3, R3A, MP3P & SP3 for this bridge



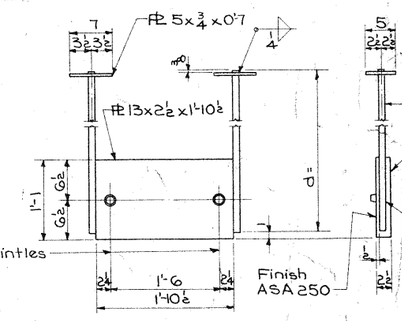


ROCKER R3A
Wt. = 259 lb.

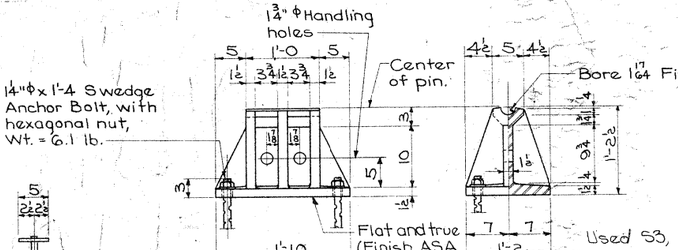


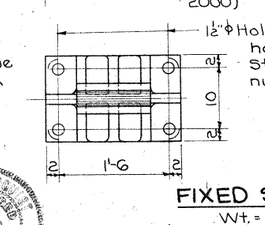


PIER MASONRY PLATE MP3P
Wt. = 249 lb.



[redacted] Wt. = 224 lb. (Did not include 1"ϕ bars)





FIXED SHOE S3
Wt. = 349 lb.
(Similar to S1 V10A-7)

Design For 0° Skew

287'-0 x 32'-0 CONTINUOUS WELDED GIRDER BRIDGE

50'-0 End Spans 93'-6 Interior Spans

PIER BEARING DETAILS

Station: 370 + 14.29 I-35
49 + 94.38 Co. Rd. "A"

May 1971

WORTH COUNTY

IOWA STATE HIGHWAY COMMISSION

Des Sh No. 11 of 14 File No. 23096 Des No. 568A

Bearing Standard Sheet 1008

Revision (7-6-64) Finish on shoes and masonry plates in contact with concrete added.
Revision (6-1-65) Specifications for Rocker and Shoe material clarified.

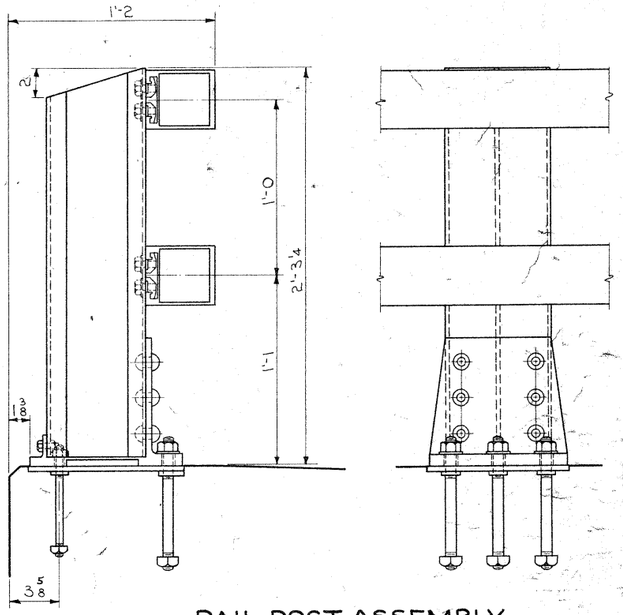
DESIGNED BY: W. A. Lundquist TRACED BY: D. Warning

1008

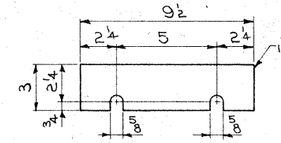
WORTH COUNTY

PROJECT NUMBER	STATE	FED. ROAD DIST. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
I-35-8(6)206--01-98	IOWA	5		81 B11	81

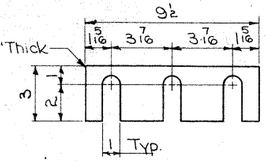
Revised 1-7-67: Red lead shop coat paint note added.
Revised 4-1-67: Material specifications for aluminum and stainless steel changed.
Revised 10-13-66: Note concerning 2" ϕ drain holes added.
Revised 9-23-66: Gage of holes in Post Base Plate changed.
Revised 8-19-66: Post Base Plate and Anchor Bolt Assembly Plate details changed.
Revised 7-25-66: Caulking at posts eliminated.
Revised 3-14-66: Minor changes made.



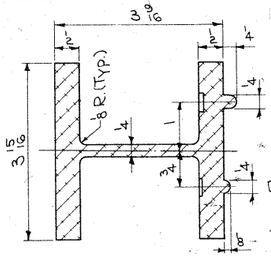
RAIL POST ASSEMBLY



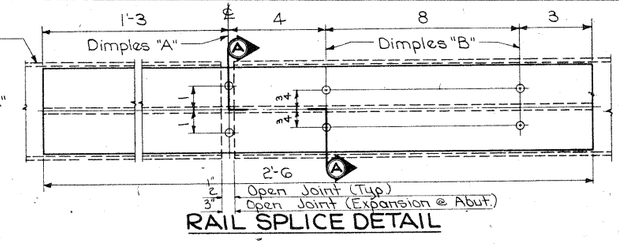
SHIM "A" DETAIL



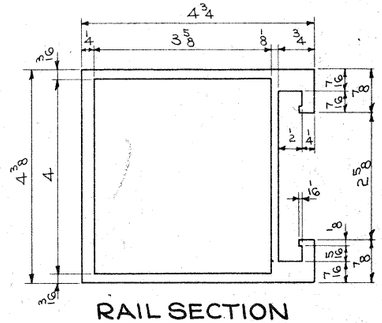
SHIM "B" DETAIL



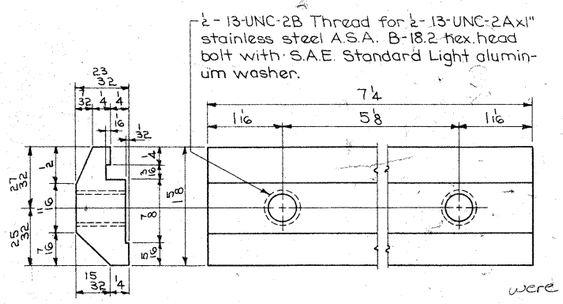
SECTION A-A



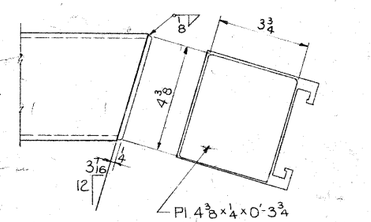
RAIL SPLICE DETAIL



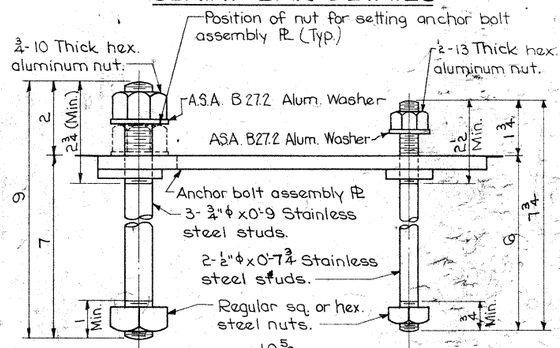
RAIL SECTION

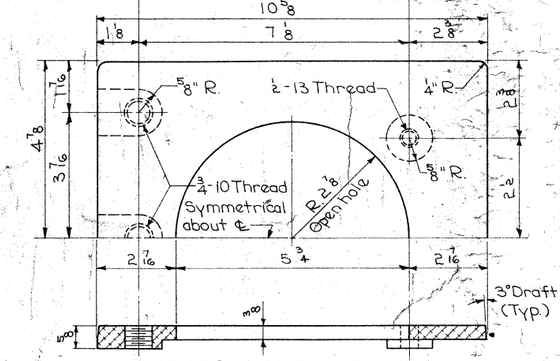


CLAMP BAR DETAILS

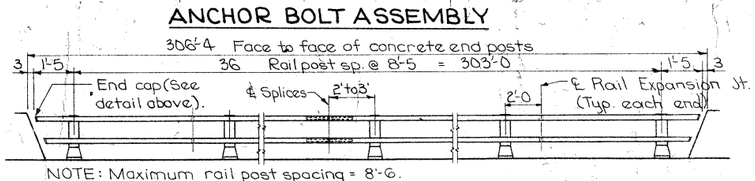


RAIL END CAP DETAILS



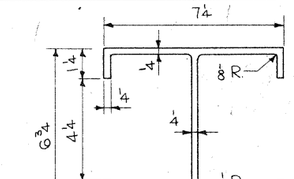


ANCHOR BOLT ASSEMBLY



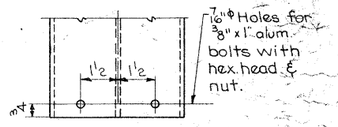
NOTE: Maximum rail post spacing = 8'-6.

TYPICAL ELEVATION OF RAILING AND RAIL POST LAYOUT

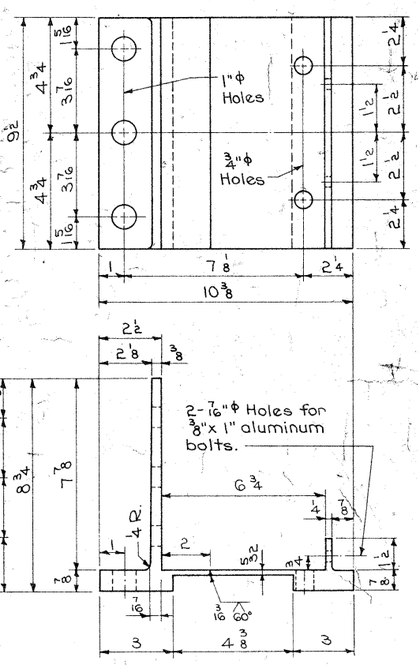


POST

POST SECTION



REAR VIEW OF POST



POST BASE PLATE DETAILS

ALUMINUM HANDRAIL NOTES:

The item "Place Aluminum Handrail" ~~is to be~~ was bid on a lineal foot basis measured from end to end of rail. The price bid for "Place Aluminum Handrail" ~~shall be~~ was full compensation for all of the equipment and labor required to erect the rail in accordance with these plans and specifications.

Each rail section ~~must be~~ was attached to as many posts as possible but to at least three posts before being spliced. (except as shown)

Material for rails, post, post base plate, rail splice bar and clamp bar ~~shall be~~ was ASTM B-221 Alloy 6061-T6. Material for aluminum nuts ~~shall be~~ was ASTM B-211 Alloy 6061-T6 or 6262-T9. Material for the aluminum bolts ~~shall be~~ was ASTM B-211 Alloy 2024-T4.

Material for aluminum washers and shims ~~shall be~~ was ASTM B-209; Alloy Alclad 2024-T3 for washers and Alloy 1100-O for shims.

Material for anchor studs ~~shall be~~ was an ASTM A276 Stainless steel with a minimum ultimate strength of 100,000 psi, a minimum elongation in two inches of 12% and a minimum reduction of area of 40%. Stud thread ~~shall~~ was conform ~~to~~ A.S.A. B-1.1 for UNC threads series, class 2A fit. Threads ~~may be~~ were rolled or cut. Diameter of stud ~~shall be~~ was not less than pitch diameter of threads. The aluminum nuts ~~shall be~~ were thick, hexagonal, finished and ~~shall~~ were comply with A.S.A. B-18.2. Threads ~~shall~~ were comply with A.S.A. B-1.1 for UNC threads series, class 2B fit.

Material for steel nuts ~~shall be~~ was A.S.T.M. A-307 Grade A, and ~~shall~~ were conform ~~to~~ A.S.A. B-18.2. Threads ~~shall~~ were comply with A.S.A. B-1.1 for UNC threads series, class 2B fit.

The anchor bolt assembly plate ~~shall be~~ was a flat and true aluminum alloy permanent mold casting complying with ASTM B-108 Alloy SG70 A or B. Condition F ~~is~~ was acceptable. Suitable alternates ~~will be~~ were considered for approval.

The entire surfaces of anchor bolt assembly plate and the shims ~~are to be~~ were given one shop coat of zinc chromate shop coat paint or red lead shop coat paint.

One shim "A" and one shim "B" ~~is to be~~ was furnished for each post, to be used as required.

Material for clamp bar bolt ~~shall be~~ was stainless steel A.S.T.M. A-193, Grade B8.

Ends of rail sections ~~to be~~ were sawed or milled. Cut ends ~~to be~~ were true, smooth and free from burrs or ragged edges.

Handling, storage and installation of aluminum handrail ~~shall be~~ was in accordance with Section 2414.06 of the Standard Specifications, except that no caulking ~~will be~~ was required.

Material for aluminum rivets ~~shall be~~ were A.S.T.M. B-316 or B-221 Alloy 6061-T6. Rivets ~~shall be~~ were button head, cone point and cold driven.

A ½" ϕ drain hole ~~is to be~~ was provided, 3 inches in from the end, at the bottom side of the end sections of all rails.

DESIGN SPECIFICATIONS:

PROJECT CONSTRUCTED ACCORDING TO STANDARDS

Designed in accordance with 1964 interim A.A.S.H.O. Specifications.

ALUMINUM HANDRAIL QUANTITIES		
Place Aluminum Handrail	611.67	Lin. Ft.

Design For 0° Skew

287'-0 x 32'-0 CONTINUOUS WELDED GIRDER BRIDGE

50'-0 End Spans 2-93'-6 Interior Spans

ALUMINUM HANDRAIL DETAILS

Station: 370+14.29 I-35
49+94.38 Co. Rd. "A"

May 1971

WORTH COUNTY

Iowa State Highway Commission

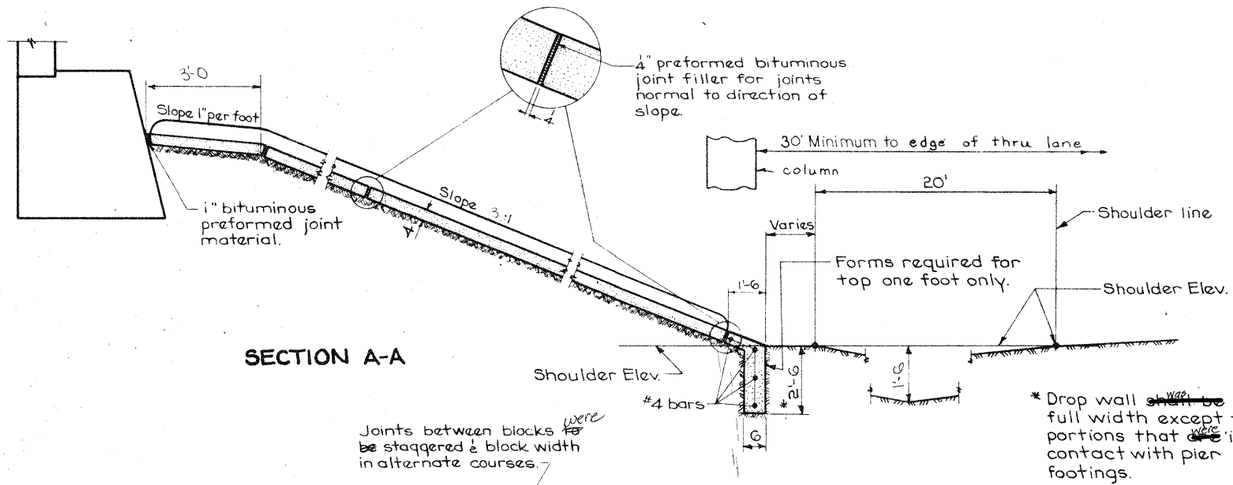
Des. Sh. No. 12 of 14 File No. 23096 Des. No. 568A

DESIGNED BY: W. A. Lundquist
TRACED BY: D. Warring
CHECKED BY: D. Gerken

1012A	WORTH	COUNTY	PROJECT NUMBER	STATE	FED. ROAD DIST. Nº	FISCAL YEAR	SHEETS Nº	TOTAL SHEETS
			I-35-8(G)206--01-98	IOWA	5		BTB12	37

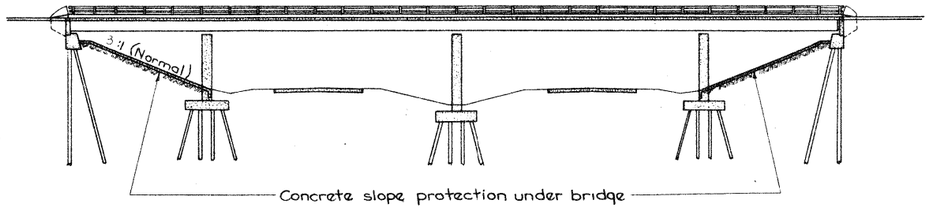
Revised 6-20-67 - Dowel bar length changed and note added.
Revised 3-2-65 - Cure added.
Revised 10-30-64 - Revised for 1964 Standard Specs.
Revised 1-19-61 - Curb dowel bars added.
Revised 7-21-60 - Corrected for 1960 Standard Specifications.
Revised 2-15-60 - Precast block construction deleted. Curb added to sides.
Revised 9-15-59 - Statement concerning erosion control added.
Revised 9-4-59 - Statement concerning disposal of excess earth added.

Revised 6-20-67 - Ditch Depth Changed.
Revised 9-19-68 - Column clearance dimension changed from edge of shoulder to edge of thru lane.
Revised 9-18-68 - Form-out around column and crushed stone added.
Revised 6-1-68 - Toe of slope protection changed and ditch and column clearances dimensions added.

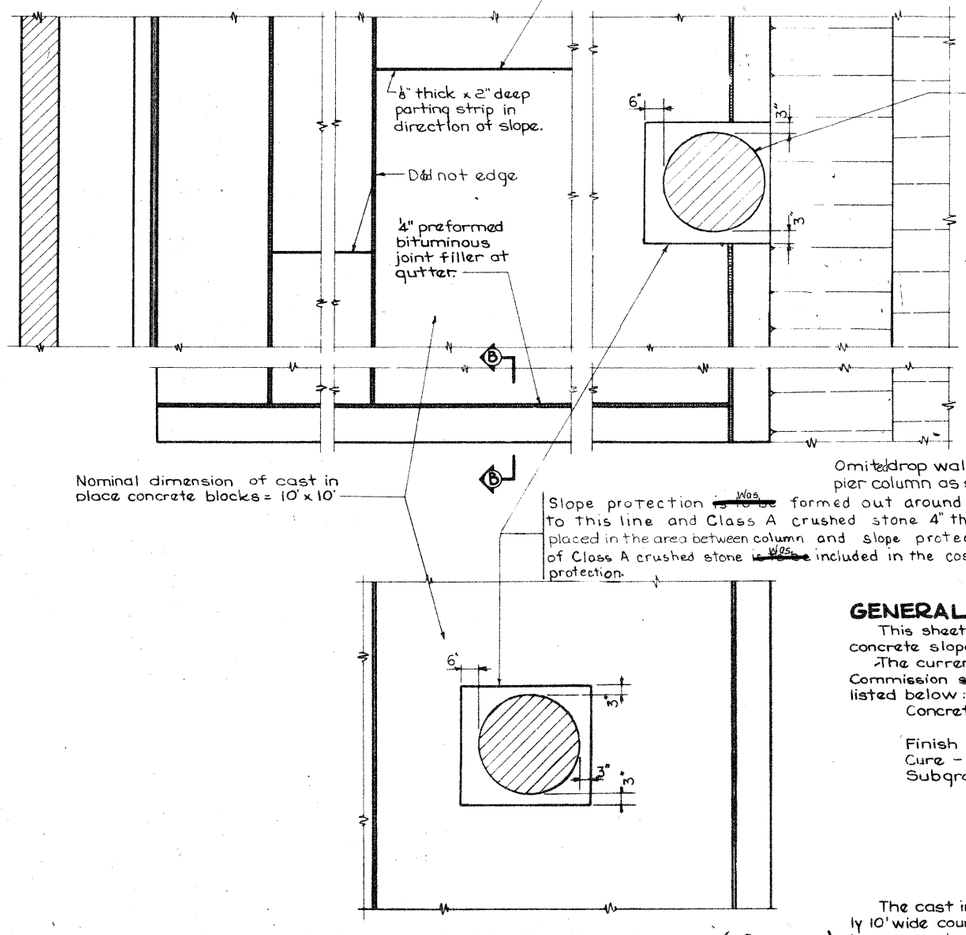


SECTION A-A

* Drop wall ~~shall be~~ 2'-6 full width except for portions that ~~are~~ were in contact with pier footings.

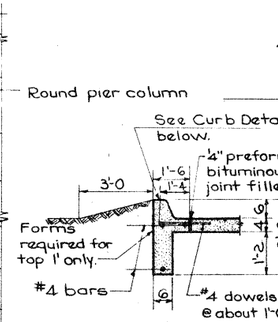


LONGITUDINAL SECTION ALONG ℄ OF ROADWAY

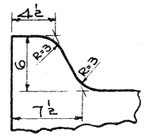


PART SLOPE PROTECTION PLAN (0° SKEW) FOR COLUMNS IN SLOPE

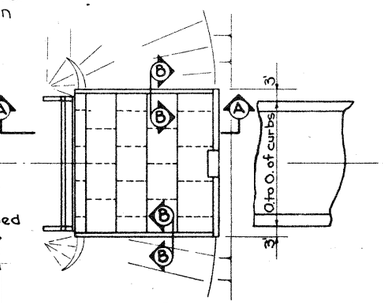
Scale: ½" = 1'-0



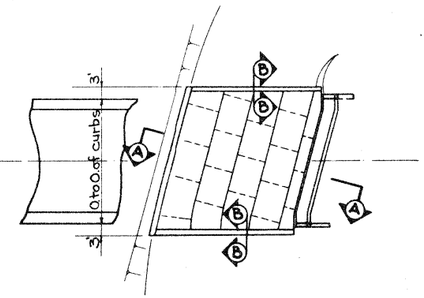
SECTION B-B



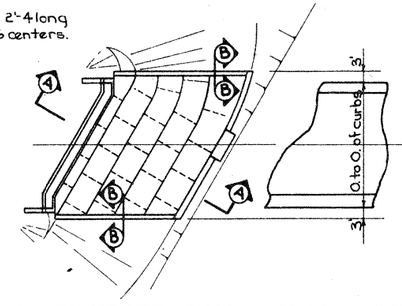
CURB DETAIL



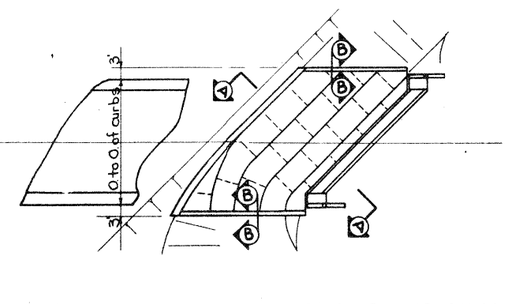
SLOPE PROTECTION LAYOUT 0° SKEW



SLOPE PROTECTION LAYOUT 15° SKEW



SLOPE PROTECTION LAYOUT 30° SKEW



SLOPE PROTECTION LAYOUT 45° SKEW

GENERAL NOTES:

This sheet shows details for placing portland cement concrete slope protection under overhead structures.

The current specifications of the Iowa Highway Commission ~~shall~~ apply with modifications or additions listed below:

Concrete - Class C Structural.

Finish - Class 1, Floated Surface Finish.
Cure - Cure as per current Specifications.
Subgrade Preparation - The subgrade ~~is to be~~ shaped and compacted so that finished slope protection ~~will be~~ was similar to examples shown on this sheet. The subgrade ~~shall be~~ was firm when concrete ~~is~~ was placed. Sprinkling required ~~shall be~~ was done early enough so that concrete ~~is~~ was not placed on a muddy subgrade. No subgrade paper ~~will be~~ was required.

The cast in place concrete ~~is to be~~ was poured in approximately 10' wide courses, but all courses on one slope ~~should~~ had ~~have~~ approximately equal widths. Adjacent courses ~~shall not be~~ were not poured within 15 hours of one another. The joints in the direction of the slope ~~are to be~~ were staggered about ½ block width.

Basis of payment: Payment ~~will be~~ was made on a square yard basis for slope protection constructed. The unit price bid per square yard ~~is to~~ shall include costs of all materials and labor required to construct this protection as shown or intended by these plans. The ~~subgrade preparation included~~ any necessary excavation or filling required to shape the slope to the lines shown on the plans and disposal of excess earth excavated as directed by the Engineer, ~~are~~ were considered incidental to placing the concrete slope protection.

Pay quantities ~~are to be~~ were based on field measured out to out dimensions.

Reinforcing steel required (about 918 lbs.) ~~is to be~~ was furnished by the State and ~~is to be~~ was stockpiled at the site. Cost of placing reinforcing ~~is to be~~ was included in the price bid for Concrete Slope Protection.

Where erosion control work ~~is to be~~ was completed the Contractor ~~shall be~~ was responsible for any plant materials destroyed adjacent to slope protection area. The Contractor ~~shall~~ replant/reseed and remulch all areas disturbed adjacent to slope protection areas in accordance with section 2601 of Standard Specifications, Series of 1964, at his expense.

CONCRETE SLOPE PROTECTION		
West Abutment Slope	226.5 ~~225~~	Sq. Yd.
East Abutment Slope	226.7 ~~225~~	Sq. Yd.
Total	453.20 ~~450~~	Sq. Yd.

Design For 0° Skew
287'-0 x 32'-0 CONTINUOUS WELDED GIRDER BRIDGE
50'-0 End Spans 2-93'-6 Interior Spans

CONCRETE SLOPE PROTECTION
Sta: 370 + 14.29 I-35
Sta: 49 + 94.38 Co. Rd. "A"
May 1971
WORTH COUNTY
IOWA STATE HIGHWAY COMMISSION
Design Sheet No 13 Of 14 File No 23098 Design No 6693

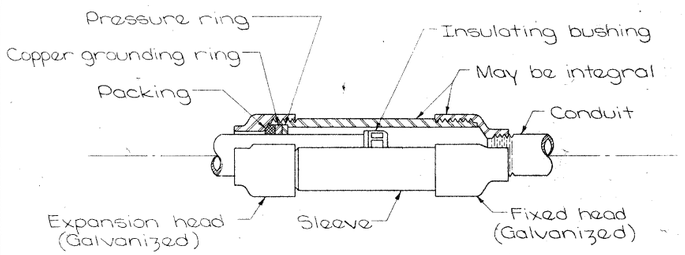
DESIGNED BY: TRACED BY: Doug Whitney

CONCRETE SLOPE PROTECTION

STANDARD SHEET 1006

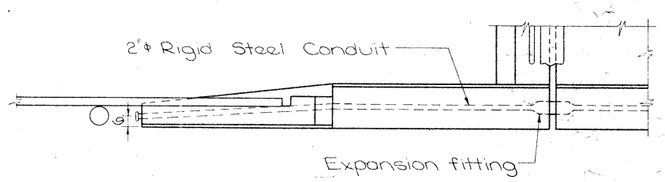
WORTH COUNTY

PROJECT NUMBER					
I-35-8(6)206--91-98					
STATE	FED. ROAD DIST. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	3	1971	61B13	61

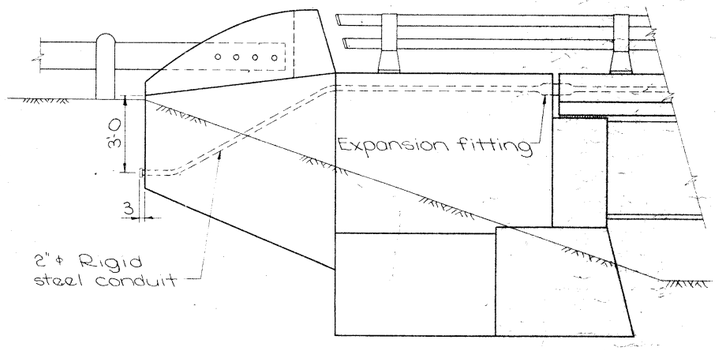


RM-2, TYPE 1 EXPANSION FITTING

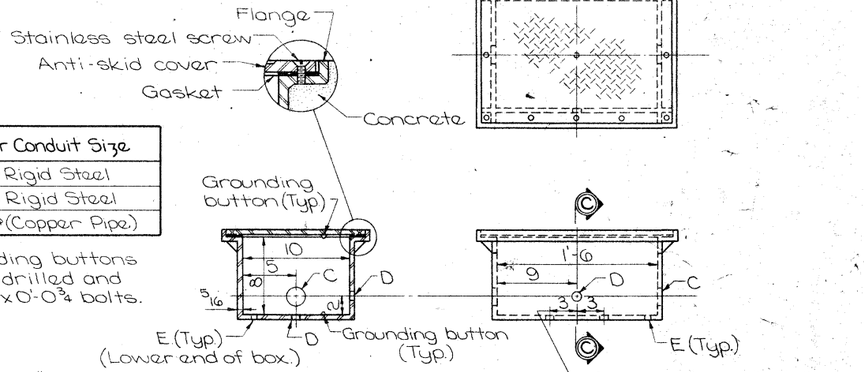
Expansion chamber length is



PART PLAN



PART ELEVATION



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 $\frac{3}{8}$"ϕ x 0'-0$\frac{3}{4}$ bolts.

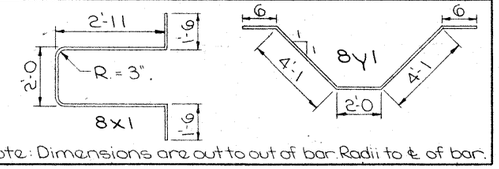
SECTION C-C

RM-9, TYPE 1 JUNCTION BOX

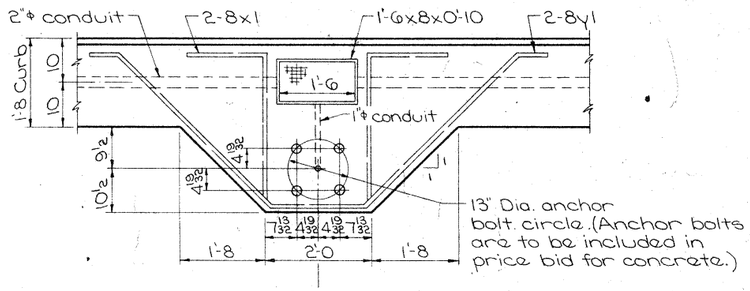
WATERTIGHT, CAST IRON – FLUSH MOUNT

REINFORCING BAR LIST — ONE BASE

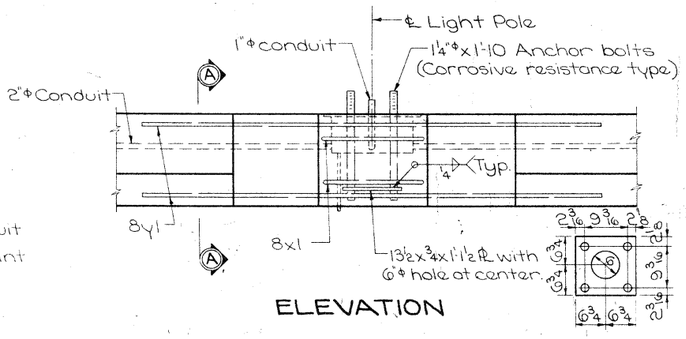
Bar	Location	Shape	No.	Length	Weight
8x1	Pole Anchors	⊆	2	10'-3	55
8y1	Curb Anchors	⌒	2	11'-2	60
				Total lbs.	115



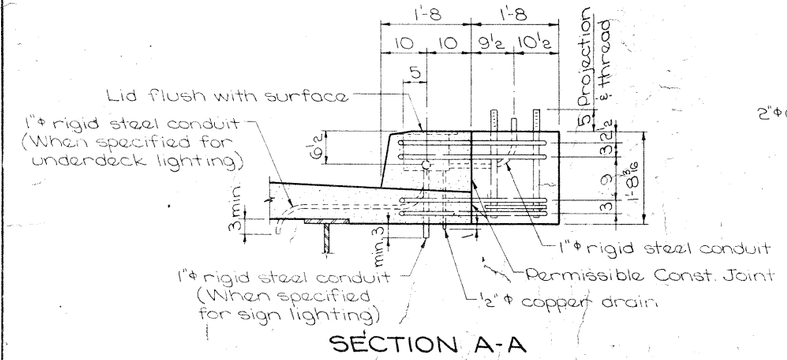
Note: Dimensions are out to out of bar. Radii to ℄ of bar.



PLAN



ELEVATION



SECTION A-A

LIGHTING NOTES:

Construction ~~shall~~ conform with the current Iowa State Highway Commission Standard Specifications plus current Special Provisions and current Supplemental Specifications for Highway Lighting.

Anchor bolts ~~shall be~~ were corrosive resistant type as specified. Stainless steel stud ~~shall not be~~ was less than six inches in length.

After conduit runs ~~have~~ had been installed a stiff, oversize wire brush or mandrel ~~shall be~~ was pulled through the conduit to make certain that no appreciable foreign material remained in the conduit, and that the conduit had not been flattened or otherwise blocked during construction. Each open end of the conduit ~~shall be~~ was threaded. Threads ~~shall be~~ were protected with an approved bituminous compound. Temporary caps or plugs ~~shall be~~ were installed to exclude dirt and moisture.

All entrance holes in junction boxes except for drain pipes ~~shall be~~ were tapped for the specified conduit size. Grounding buttons ~~shall be~~ were 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~~ were 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.

Location of the ℄ of light pole may be shifted ± 1'-0 so that the location of the junction box ~~shall~~ does not interfere with the rail post anchor bolts and base plate.

The price bid for "Place 2"ϕ Rigid Steel Conduit" ~~shall be~~ was full compensation for placing all material (including junction boxes and fittings) and any work incidental to the installation. The concrete and weight of reinforcing steel ~~is~~ was included in the Superstructure Estimated Quantities.

The length of conduit installed ~~shall be~~ was measured in feet by the Engineer.

Cost of furnishing and installing poles, lights and lighting conductor ~~is~~ was not a part of this estimate.

Expansion fitting ~~shall be~~ was as specified or as approved by the Engineer. Typical details are shown on this sheet.

C

TOTAL ESTIMATED QUANTITIES BASES

Item	Amount
Place 2"ϕ Rigid Steel Conduit *	635.5 L.F.
Structural Concrete Class D	.4 C.Y.
Place Reinforcing Steel	115 lbs.

* Quantity includes 635.5 L.F. of 2"ϕ conduit and 10.0 L.F. of 1"ϕ conduit.

Design For 0° Skew
287'-0 x 32'-0 CONTINUOUS WELDED GIRDER BRIDGE
50'-0 End Spans 2-93'-6 Interior Spans
LIGHTING DETAILS
Station: 370 + 14.29 I-35
49 + 94.38 Co. Rd. "A"
May 1971
WORTH COUNTY
Iowa State Highway Commission
Des. Sh. No. 14 of 14 File No. 23096 Des. No. 68 A

DESIGNED BY: W. A. Lundquist
DETAILED BY: D. Weisinger
TRACED BY: D. Warrington
CHECKED BY: O. Cir-602

1014 A | WORTH | COUNTY | PROJECT NUMBER I-35-8(6)2[illegible]-01-98

STATE	FED. ROAD DIST. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	5		81	81