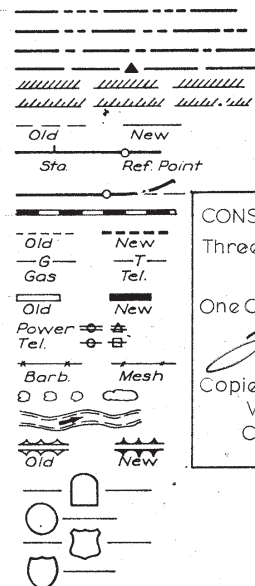


CONVENTIONAL SIGNS

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

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

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



CONSTRUCTION PLANS SHOWING PROJ. "AS BUILT"
Three Copies Prepared By Harvey H. Olson
Date FEB 17 1970
One Copy Approved and Forwarded to Ames
John H. Hansen Date March 2, 1970
Dist. Const. Engr.
Copies Sent To:
Virgil Butler—District Engineer
Carl D. Galey—Res. Maint. Engr.

STATE OF IOWA
STATE HIGHWAY COMMISSIONPLANS OF PROPOSED IMPROVEMENT
ON THEINTERSTATE ROAD SYSTEM
CLARKE COUNTY
BRIDGES AND CULVERTSON I-35 FROM U.S. #34 SOUTH TO THE APPROXIMATE
CENTER OF SECTION 12, T. 71 N., R. 26 W.THE IOWA STATE HIGHWAY COMMISSION STANDARD SPECIFICATIONS
FOR CONSTRUCTION WORK, SERIES OF 1964 SHALL
APPLY TO WORK ON THIS PROJECT

(Plus, Current Special Provisions and Supplement Specifications)

DESIGN STRESSES for the following materials are in accordance with
A.A.S.H.O. Standard Specifications for Highway Bridges, Series of 1961.Concrete in accordance with Section 1.4.11 $f'_c = 3500$ psi.

Reinforcing Steel in accordance with Section 1.4.12

"Reinforcement" for intermediate, Hard, or Rail
Steel Grade.Prestressed Concrete in accordance with Section 1.13.7
 $f'_c = 5000$ psi.Prestressing Steel in accordance with Section 1.13.7
 $f'_s = 270,000$ psi.Design Stresses for the following materials are in accordance with
AASHTO 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.

NO MILEAGE SUMMARY

STA. 460+93.78
END PROJECT

DESIGN NO. 2067

DESIGN NO. 1167

DESIGN NO. 1067

DESIGN NO. 967

DESIGN NO. 2467

DESIGN NO. 867

DESIGN NO. 767

DESIGN NO. 2367

DESIGN NO. 667

STA. 226+00.00
BEGIN PROJECT

DESIGN DATA RURAL

196.7 AADT 37% V.P.D.

198.7 AADT 30% V.P.D.

198.7 DHV 81% V.P.H.

DIRECTIONAL 30 %

TRUCKS 0 %

DESIGN V 70 M.P.H.

FULL ACCESS CONTROL

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED UNDER MY SUPER-
VISION AND THAT ENGINEERING DECISIONS WITH REGARD TO THE
DESIGN WERE MADE BY ME OR BY OTHER DULY REGISTERED PRO-
FESSIONAL ENGINEERS UNDER THE LAWS OF THE STATE OF IOWA.DATE June 24 1967 IOWA REG. NO. 2792

STATE	FED. ROAD DIST. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	5		1	44
PROJECT NUMBER				
I-35-1(19)28-01-20				
ROW I-35-1-C(9)28-01-20				

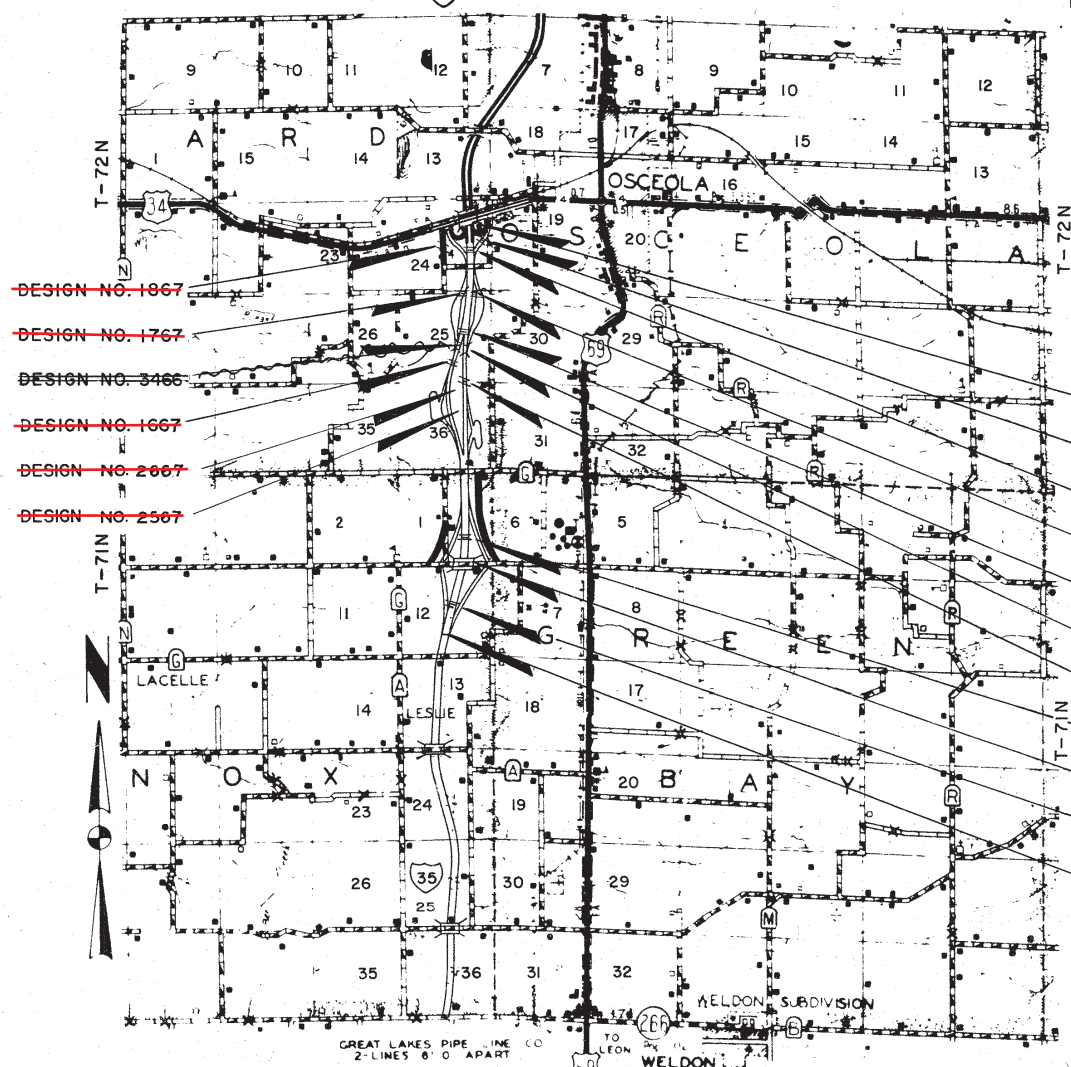
INDEX OF SHEETS

105.3

NO.	DESCRIPTION
1	TITLE SHEET
2	ESTIMATE SHEET
3	MISCELLANEOUS DETAIL SHEET RF 1
4	MISCELLANEOUS DETAIL SHEET RF 3
5-12	BRIDGE DESIGN NO. 2367
13-25	BRIDGE DESIGN NO. 2467 (SEE Sheets 25 A1-25 A7 also)
26	MISCELLANEOUS DETAIL SHEET
27	MISCELLANEOUS DETAIL SHEET
28-29	CULVERT DESIGN NO. 667
30-31	CULVERT DESIGN NO. 767
32	CULVERT DESIGN NO. 867
33	CULVERT DESIGN NO. 967
34	CULVERT DESIGN NO. 1067
35-36	CULVERT DESIGN NO. 1167
37	CULVERT DESIGN NO. 1667
38	CULVERT DESIGN NO. 1767
39	CULVERT DESIGN NO. 1867
40	CULVERT DESIGN NO. 2067
41	CULVERT DESIGN NO. 2567
42	CULVERT DESIGN NO. 2667
43	LAKE DAM AND SILT DAM DETAILS
44	MISCELLANEOUS DETAIL SHEET RF 1
25A1-25A7	ADDITIONAL SHEETS FOR DESIGN NO. 2467
45	DESIGN NO. 2117

LET 12-5-67

LET 12-5-67



R-26 W

LOCATION MAP SCALE

0 1 2 3

R-25 W

STATE CONTROL SECTION NUMBER
20-040020 29.4 0035
20 31.9 6035
20 31.7 6035

LISTING OF PROJECT REVISIONS

DATE	SHEET NUMBER	DESCRIPTION OF REVISIONS	DATE	SHEET NUMBER	DESCRIPTION OF REVISIONS
Dec. 12, '67		To be let February 6, 1968			
	Sheet 1A of 44	Design 2467 This sheet added to project (Revision sheet).			
	Sheets 13 thru 25 & 25A1 thru 25A7 of 44	These sheets added to project (Details for design 2467 Clarke --- design sheets 1 thru 20 of 20).			
	Sheet 2 of 44	Quantities added for design 2467.			
	Sheet 1 of 44	Sheets 1A, 13 thru 25 and 25A1 thru 25A7 added to "Index of Sheets". Design stresses and mileage summary added.			
Feb. 14, '68		Design 867			
	Sheet 32 of 44	Location of flume bell joint added.			
March 14, '68	39	Letting of December 5, 1967 Design No. 1867 Concrete quantity (Flume Chute - Above Key) corrected in "Concrete in Parts" box. Total quantity corrected accordingly.			
	37	Design No. 1667 Concrete quantity (Flume Chute - Above Key) corrected in "Concrete in Parts" box. Total quantity corrected accordingly.			
	35	Design No. 1167 Concrete quantity (Flume Chute - Above Key) corrected in "Concrete in Parts" box. Total quantity corrected accordingly.			
	32	Design No. 867 Concrete quantity (Flume Chute - Above Key) corrected in "Concrete in Parts" box. Total quantity corrected accordingly.			
	30	Design No. 767 Concrete quantity (Flume Chute - Above Key) corrected in "Concrete in Parts" box. Total quantity corrected accordingly.			
	28	Design No. 667 Concrete quantity (Flume Chute - Above Key) corrected in "Concrete in Parts" box. Total quantity corrected accordingly.			
	2	Design No. 667, 767, 867, 1167, 1667 and 1867. Concrete quantity corrected in "Estimate of Quantities" box. Total quantity corrected accordingly.			
Dec 2, 1968		Design 2467			
	Sheet 13 & 22 of 44	Concrete quantity corrected.			
	Sheet 2 of 44	Design 2467 - Concrete quantity corrected.			

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

10-23-67 Donald K. Schulze REG. NO. 2793
DATE DONALD K. SCHULZE

DESIGN NO. 2367 LOCAL ROAD STA. 266+00.70 I-35
OVER I-35 STA. 3266+08.70 LOCAL ROAD
SECTIONS 1&12 T-71N R-26W KNOX TOWNSHIP

DESIGN FOR 2° 13' 30" SKEW
216'-2 x 28'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

FINAL ESTIMATE OF QUANTITIES

ITEM	UNIT	TOTAL
Structural Concrete	Cu. Yds.	352.1
Reinforcing Steel	Lbs.	69,132
Aluminum Handrail	L.F.	440.0
Steel Handrail	L.F.	440.0
Granular Backfill	Cu. Yds.	74
Class 20 Excavation	Cu. Yds.	230
4" Tile Subdrain	L.F.	168
Crested Piling	L.F.	1740
(B2) 38'-4 Pretensioned Prestressed	No.	8
(B9) 67'-6 Concrete Beams	No.	8
Crested Test Piling	L.S.	Lump Sum
Concrete Slope Protection	Sq. Yds.	413

- (1) 257.1 cu. yds. Structural Concrete Class "D" for Superstructure, and 95.0 cu. yds. Class "C" for Substructure.

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.

12-10-67 James R. Sassaman REG. NO. 2663
DATE JAMES R. SASSAMAN

DESIGN NO. 2467 ON I-35 STA. 401+40.00 N. B. LANE
OVER STA. 1402+50.00 S. B. LANE
WHITE BREAST CREEK
SECTION 25 T-72N R-26W WARD TOWNSHIP

DESIGN FOR SKEWED
DUAL 143'-0 x 40' & 138'-10 x 35'-6 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGES

FINAL ESTIMATE OF QUANTITIES

ITEM	UNIT	TOTAL
Structural Concrete	Cu. Yds.	733.9
Reinforcing Steel	Lbs.	139,299
Pretensioned	No.	16
Prestressed	No.	9
Concrete	No.	7
Beams	No.	16
Class 10 Channel Excavation	Cu. Yds.	2,315
Class 20 Excavation	Cu. Yds.	223
Steel Bearing	L.F.	2,944
Piling (10BP42)	L.F.	2,944
Encase	L.F.	505
4" Tile Subdrain	L.F.	312
Aluminum Handrail	L.F.	580.6
Steel Handrail	L.F.	580.6
Granular Backfill	Cu. Yds.	312
2" Rigid Steel Conduit	Lin. Ft.	323.5
Heating Water for Concrete	Cu. Yds.	201.3

- (1) Includes 623.9 cu. yds. of Class "D" in Superstructure and Integral Abutments and 110.0 cu. yds. of Class "C" in Pier Caps.

Inspection Personnel

I-35-1(19) 28--01-20

Project Supervisor-----Everett Willets
Bridge Design No. 2367-----Paul Roberts
Bridge Design No. 2467-----Duane Pullen
Culvert Inspector-----Duane Pullen

I HEREBY CERTIFY THAT THESE PLANS HAVE BEEN 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.

Robert L. Munson IOWA REGISTRATION NO. 5166 DATE Sept. 13, 1967

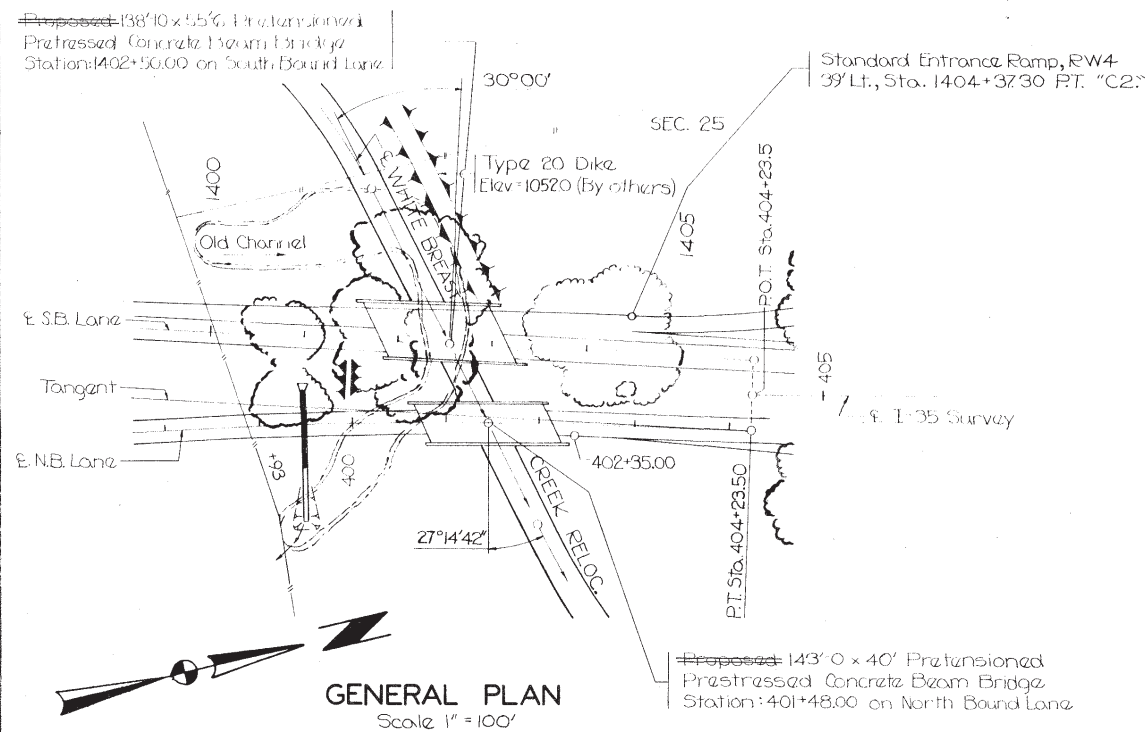
DESIGN	LOCATION			DESCRIPTION	ESTIMATE OF QUANTITIES													REMOVALS
	SECTION	TOWNSHIP	STATION		SIZE AND TYPE	STRUC. CONC. CL "C" CU.YD.	REINF. STEEL LBS.	EXCAVATION - C.Y.			CONC. RDWY. PIPE CULV. LIN. FT.	CONC. APRON NUMBER	OVER HAUL STAY YDS.			CONNECT-ED PIPE JOINTS NUMBER		
								CL. 20	CL. 24	CL. 10 CHAN.								
667	12	KNOX	242+60 ✓	4'x4'x220.58 REINFORCED CONCRETE BOX CULVERT & FLUME 15° SKEW	142.1	13,310	155	60	13			42"		42"			280	
767	1	KNOX	281+85 ✓	4'x4'x322.58 REINFORCED CONCRETE BOX CULVERT & FLUME	134.0	18,457	640	-	77								-	
867	36	WARD	370+20 ✓	4'x4'x219.83 REINFORCED CONCRETE BOX CULVERT & FLUME 15° SKEW	150.5	22,186	280	-	45								-	
967	25	WARD	406+30 ✓	6'x6'x237.00 REINFORCED CONCRETE BOX CULVERT		186.4	22,557	190	-								-	
1067	25	WARD	422+10 ✓	4'x5'x383.83 REINFORCED CONCRETE BOX CULVERT & FLUME		214.8	19,759	600	-	46							-	
1167	24	WARD	443+56 ✓	4'x5'x276.58 REINFORCED CONCRETE BOX CULVERT & FLUME	200.7	30,005	280	-	100								-	
1667	25	WARD	1381+50 ✓	4'x5'x109.58 REINFORCED CONCRETE BOX CULVERT & FLUME	91.3	8,247	250	-	294								-	
1767	25	WARD	3422+65 ✓	4'x5'x129.00 REINFORCED CONCRETE BOX CULVERT, 15° SKEW		75.8	7,254	90	-								-	
1867	24	WARD	8600+50 ✓	4'x5'x60.58 REINFORCED CONCRETE BOX CULVERT & FLUME, 15° SKEW	66.6	5,999	160	-	156								-	
2067	24	WARD	10460+31 ✓	5'x5' REINFORCED CONCRETE BOX CULVERT EXTENSION 34° 12' SKEW		11.6	949	14	-								-	
2567	36	WARD	357+50 ✓	42" CONC. RDWY. PIPE CULV. WITH SPECIAL MANHOLE	47	315	170	-	-	115	1					20	-	AS PER PLAN
2667	36	WARD	358+65 ✓	TWIN 42" CONC. RDWY. PIPE CULV. WITH SPECIAL MANHOLE		579	540	-	-	332	2					56	-	
TOTALS					1350.5	149,617	3369	60	731	447	3					280	76	

EXTRA WORK ORDER No1 (culverts)

Increased Excav CI 20 @ 2° for 197.3cy = 394.60

Revised: 12-2-68 Design No. 2467 Concrete Quantity corrected.
Revised 3-14-68 Design No. 667, 767, 867, 1167, 1667 and 1867. Concrete quantity corrected in "Estimate of Quantities" box. Total quantity corrected accordingly.
Revised 12-12-67 Quantities added for Design 2467.

ESTIMATE SHEET



GENERAL NOTES:

These bridges are designed for H20-44 loading plus 19 lb. per sq. ft. of roadway for future wearing surface and an alternate loading designated in the B. P. R. P. P. M. 20-4, Section 4c.

The Bridge Contractor is to install 4" ϕ Tile Subdrain behind each abutment as detailed on sheets 12 & 14 of 20. The price bid for "4" ϕ Tile Subdrain" is to include all the labor and excavation necessary for installation.

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

The Bridge Contractor is to clear the channel within the shaded areas as shown on sheet 2 of 20.

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

The abutment piles are to be driven in oversize holes predrilled 6 feet below the bottom of footing. The minimum diameter of the drilled holes is to be 16 inches. Predrilled holes are not to be back-filled. Care is to be taken to exclude concrete from the predrilled holes during the placing of the abutment footing.

TOTAL ESTIMATED QUANTITIES						
Item	Unit	West Bridge		East Bridge		Total
		2 Piers	Superstr. & 2 Abuts.	2 Piers	Superstr. & 2 Abuts.	
Structural Concrete *	Cu. Yds.	62.5	370.9	47.5	253.0 281.5	733.9 762.4
Reinforcing Steel	Lbs.	5,754	73,309	4,022	56,214	139,299
Prestensioned	B 2 (38'-4")	Nº	9		7	16
Prestressed	B 3 (42'-6")	Nº	9			9
Concrete	B 4 (46'-8")	Nº			7	7
Beams	B 6 (55'-0")	Nº	9		7	16
Class 10 Channel Excavation	Cu. Yds.					2315
Class 20 Excavation	Cu. Yds.		128		95	223
Steel Bearing	Furnish	Lin. Ft. 18 @ 46 = 828	18 @ 46 = 828 819.7	14 @ 46 = 644	14 @ 46 = 644 633.3	2944 2,904.2
Piling (10 BP42)	Drive	Lin. Ft. 18 @ 46 = 828	18 @ 46 = 828 794.7	14 @ 46 = 644	14 @ 46 = 644 601.1	2944 2,784.2
	Encase	Lin. Ft. 18 @ 16 = 288		7 @ 16 = 112 5P 7 @ 15 = 105 N.P.		505
4" Tile Subdrain	Lin. Ft.					312
Aluminum Handrail or Steel Handrail	Lin. Ft.					580.6
Granular Backfill	Cu. Yds.		180		132	312
2" ϕ Rigid Steel Conduit	Lin. Ft.					3235

Includes ~~623.9~~ 652.4 Cu. Yds. of Class "D" in Superstructure and Integral Abutments and 110.0 Cu. Yds. of Class "C" in Pier Caps.

SPECIFICATIONS:

Design: A. A. S. H. O., Series of 1965

Construction: Standard Specifications of the Iowa State Highway Commission, Series of 1964, plus current Supplemental Specifications and Special Provisions.

DESIGN STRESSES:

Design Stresses for the following materials are in accordance with A. A. S. H. O. Standard Specifications for Highway Bridges, Series of 1965.

Reinforcing Steel in accordance with Section 1.5.1 "Reinforcement" for Intermediate, Hard, or Rail Steel Grade.

Concrete in accordance with Section 1.5.1 f'c = 3500 psi.

See sheet 15 of 20 for design stresses for prestressed beams.

DESIGN FOR
DUAL 143'-0" x 40' & 138'-10" x 55'-6" PRETENSIONED
PRESTRESSED CONCRETE BEAM BRIDGES
143'-0" BR. - 47'-5" & 39'-1" END SPANS (SK. 27°14'42") 56'-6" CTR. SPAN
138'-10" BR. - 43'-3" & 39'-1" END SPANS (SKEW 30°) 56'-6" CTR. SPAN

GENERAL PLAN

STATION: 401+48.00 N.B. LANE

STATION: 1402+50.00 S.B. LANE

NOVEMBER, 1967

CLARKE COUNTY
IOWA STATE HIGHWAY COMMISSION

DESIGN NO. 2467
FILE NO. 22580
DES. SH. NO. 1 OF 20

Revised 12-2-68 : Concrete Quantities corrected.

DESIGNED BY: G.J.P. TRACED BY: HJ CHECKED BY: B

CLARKE COUNTY

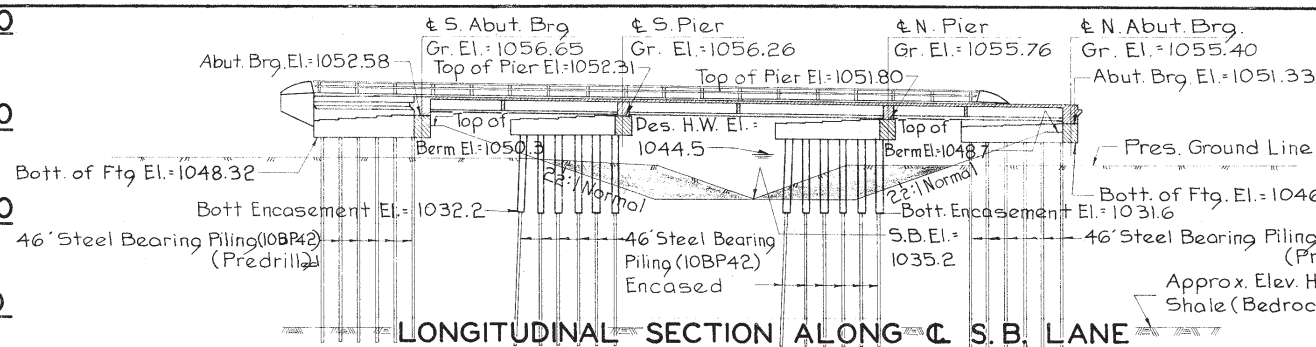
I-35-1(19)28-01-20

STATE	FED. ROAD DIST. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	5		17	20

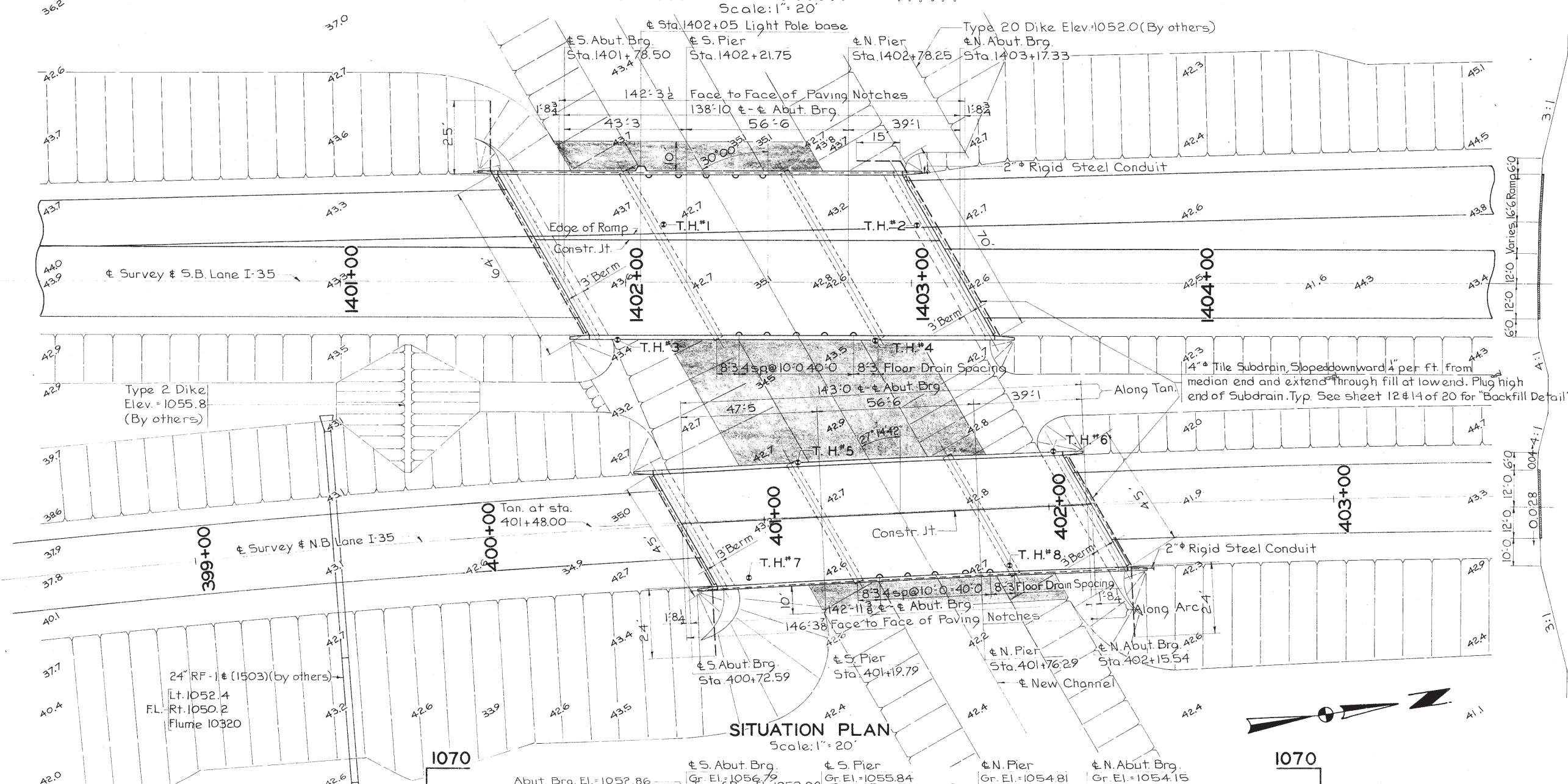
**PROPOSED GRADE LINE
ALONG & S.B. LANE**

-0.90 %
P.I. Sta. 1380+00
P.I. Elev. = 1076.26

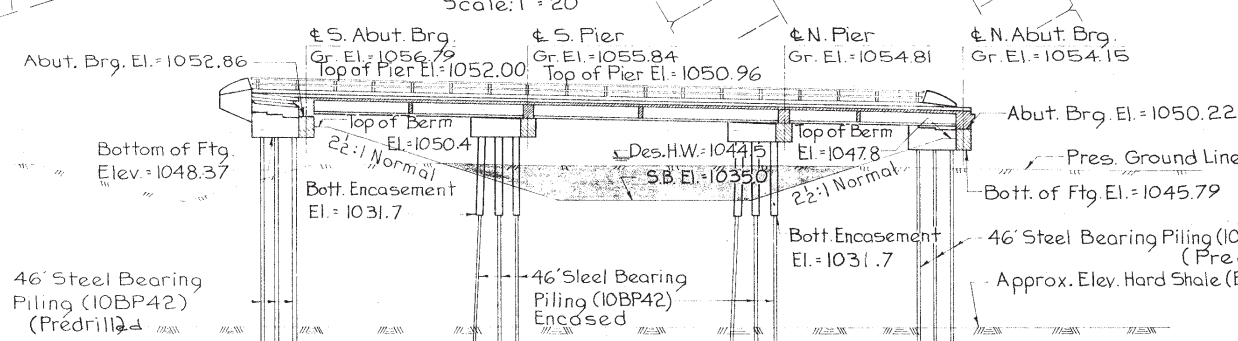
1070
1050
1030
1010



1070 Bench Mark: N^o 45 Sta. 391+80, Lt. 98 Set R.R. Spk. in W. Side 12" Elm. Elevation 1058.364
No 46^a Sta. 1403+00 37' Lt. Cut 'X' N.W. Curb W. Bridge --- Elev. 1055.31
No 47^b Sta. 400+90 25' Rt. Cut 'X' S.E. Curb E. Bridge --- Elev. 1056.91
1050
1030
1010



1070
1050
1030
1010



1070
1050
1030
1010

DESIGN FOR
**DUAL 143'-0x40' & 138'-10x55'-6 PRETENSIONED
PRESTRESSED CONCRETE BEAM BRIDGES**
143'-0 BR.-47'-5 & 39'-1 END SPANS (SK. 27° 14' 42") 56'-6 CTR. SPAN
138'-10 BR.-43'-3 & 39'-1 END SPANS (SKEW 30°) 56'-6 CTR. SPAN
SITUATION PLAN
STATION: 401+48.00 N.B. LANE
STATION: 1402+50.00 S.B. LANE
CLARKE COUNTY
IOWA STATE HIGHWAY COMMISSION

DESIGN NO. 2467
FILE NO. 22580
DES. SH. NO. 2 OF 20

CLARKE COUNTY

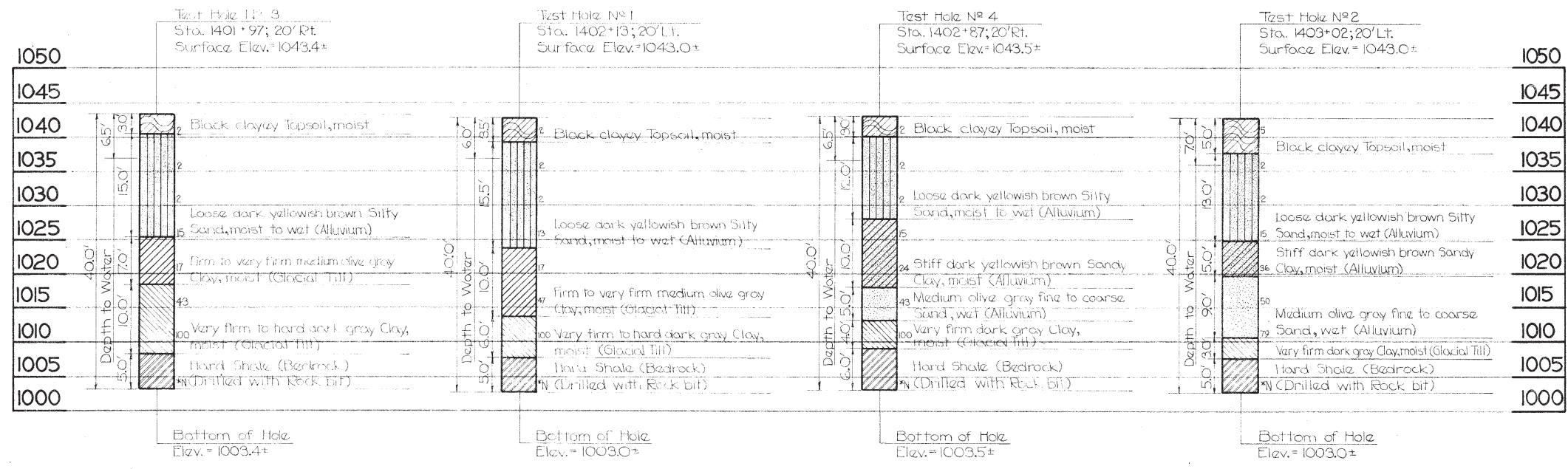
PROJECT NUMBER
I-35-1(19) 28--01-20

APPROACH SECTION NEAR END OF BRIDGE

LOCATION:
Clark County
Ward Twp.
T-72-N R-26-W
Section 25
On I-35
Over White Breast Creek

HYDRAULIC DATA:
Drainage Area = 15 sq. mi. R.H.
Design Discharge 3200 cfs

Bench Mark: N^o 45, Sta. 391+80, Lt. 98'; Szt. R.R. spike in W. side 12" Elm., Elev. = 1058.364

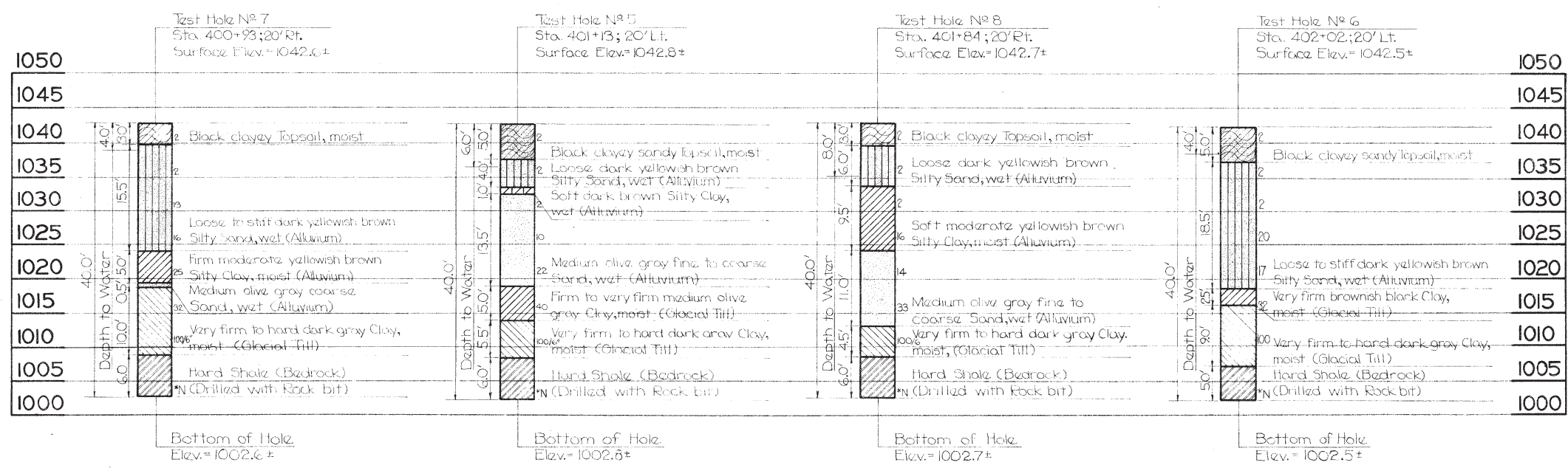


SOUNDING DATA

Scale 1" = 10.0'

Date: 11-16-66

*N=100 Blows with no penetration of spoon.



SOUNDING DATA

Scale 1" = 10.0'

Date: 11-15-66

*N=100 Blows with no penetration of spoon.

DESIGN FOR
**DUAL 143'-0"x40" & 138'-10"x55'-6" PRETENSIONED
PRESTRESSED CONCRETE BEAM BRIDGES**
143'-0" BR.-47'-5" & 39'-1" END SPANS (SK. 27' 14" 42') 56'-6" CTR. SPAN
138'-10" BR.-43'-3" & 39'-1" END SPANS (SKEW 30°) 56'-6" CTR. SPAN

SOUNDING DATA

STATION: 401+48.00 N.B. LANE
STATION: 1402+50.00 S.B. LANE

NOVEMBER, 1967

DESIGN NO. 2467
FILE NO. 22580
DES. SH. NO. 3 OF 20

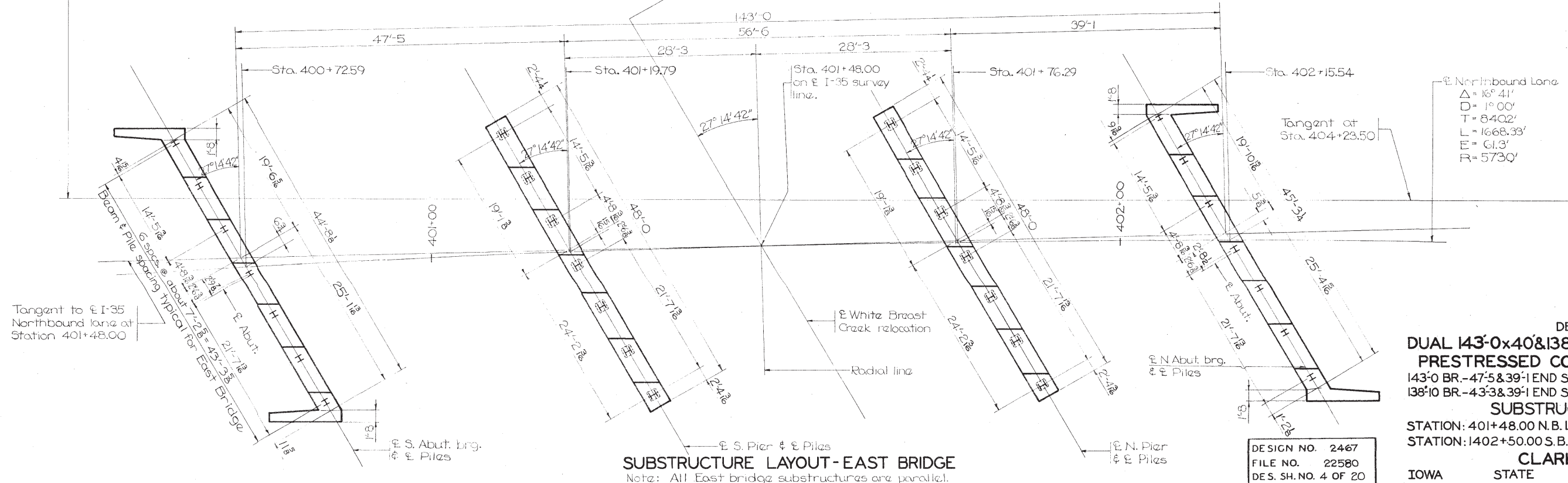
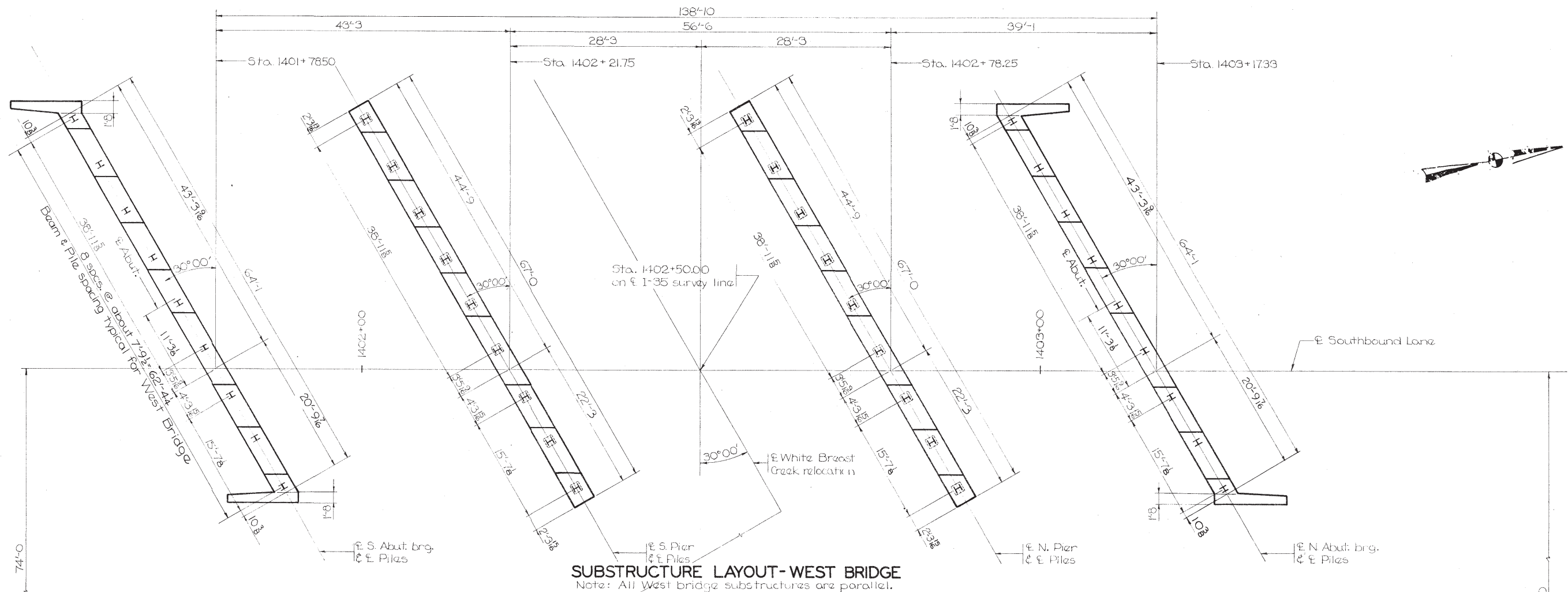
CLARKE COUNTY
IOWA STATE HIGHWAY COMMISSION

DESIGNED BY: G.J.P. TRACED BY: HH CHECKED BY:

CLARKE COUNTY

I-35-1(19)28-01-20

STATE	FED. ROAD DIST. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	5		15	44



DESIGN FOR
**DUAL 143'-0x40&138'-10x55'-6 PRETENSIONED
 PRESTRESSED CONCRETE BEAM BRIDGES**
 143'-0 BR.-47'-5&39'-1 END SPANS (SK. 27°14'42") 56'-6 CTR. SPAN
 138'-10 BR.-43'-3&39'-1 END SPANS (SKEW 30°) 56'-6 CTR. SPAN
SUBSTRUCTURE LAYOUT

STATION: 401+48.00 N.B. LANE
 STATION: 1402+50.00 S.B. LANE
 NOVEMBER, 1967

CLARKE COUNTY
 IOWA STATE HIGHWAY COMMISSION

DESIGN NO. 2467
 FILE NO. 22580
 DES. SH. NO. 4 OF 20

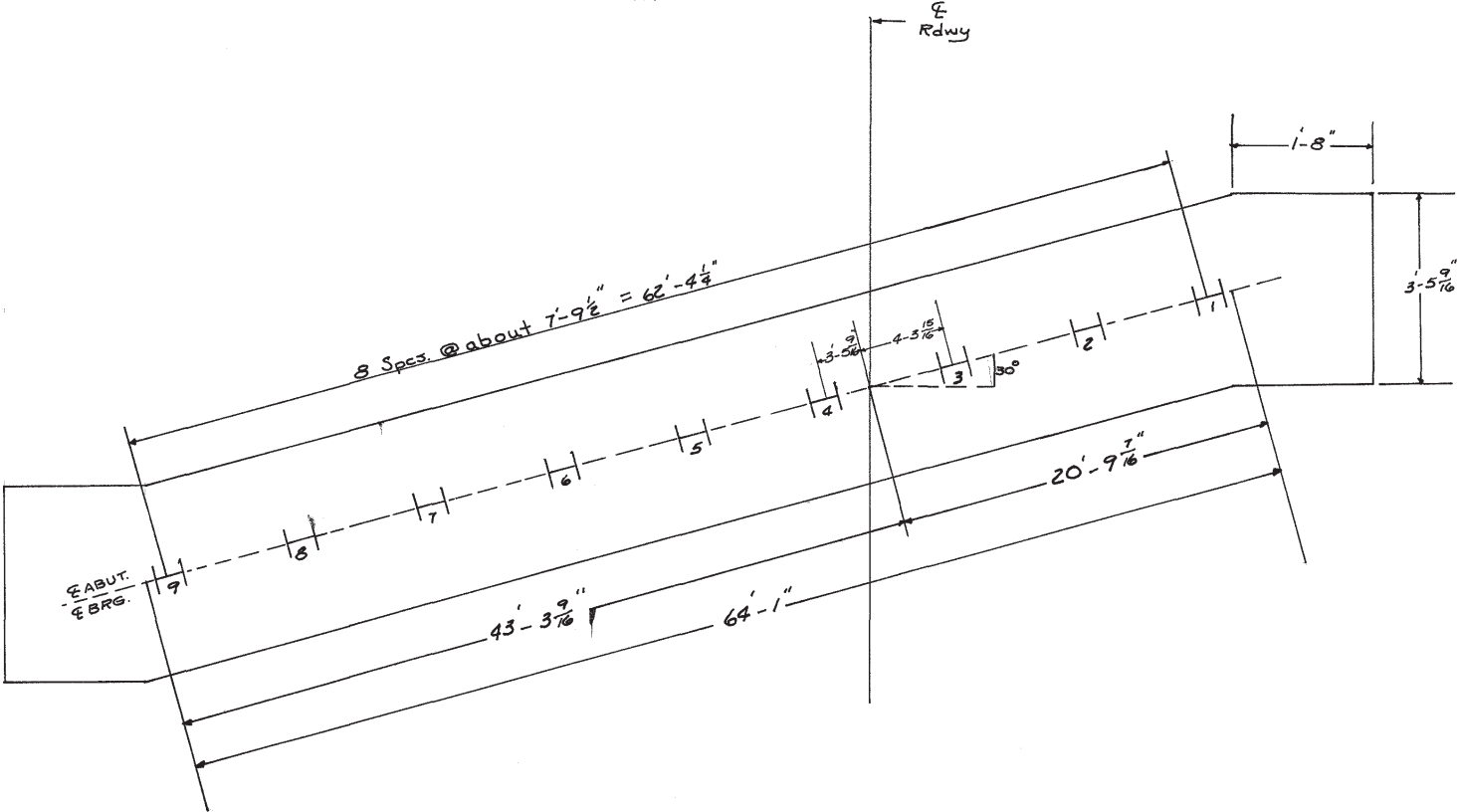
DESIGNED BY: MHT TRACED BY: HH CHECKED BY: *[Signature]*

CLARKE COUNTY

I-35-1(19)28--01-20

STATE	FED. ROAD DIST. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	5		16	44

PILE PLAN — NORTH & SOUTH ABUTMENTS



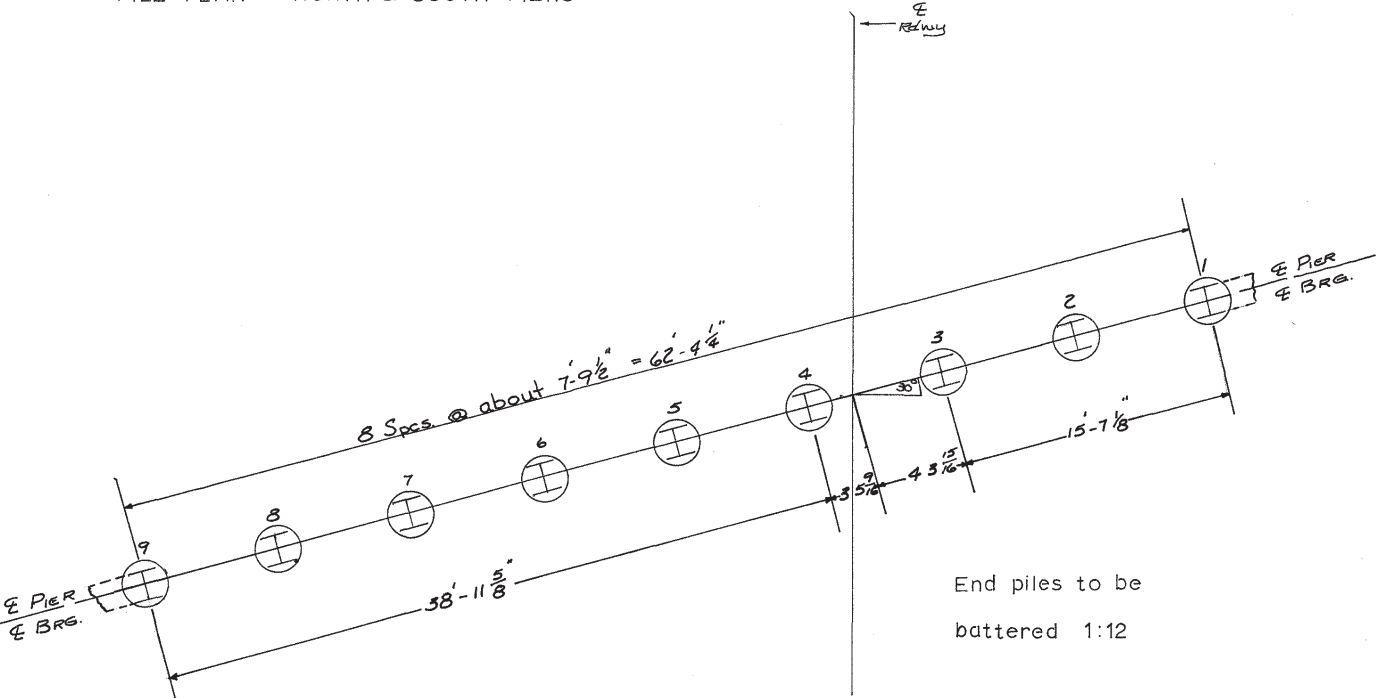
SOUTH ABUTMENT
PILE LOG

Pile No.	Date Driven	Length in Structure	Brg in Tons	Remarks
1	8-16-68	44.6	90.9	
2		44.9	86.5	
3		44.8	90.9	
4		44.8	84.4	
5		44.5	80.6	
6	8-16-68	45.5	90.9	
7	8-15-68	45.4	90.9	
8	8-15-68	44.6	86.5	
9	8-15-68	44.5	88.6	

NORTH ABUTMENT
PILE LOG

Pile No.	Date Driven	Length in Structure	Brg in Tons	Remarks
1	8-13-68	43.1	82.4	
2		43.2	86.5	
3		43.2	82.4	
4		43.4	86.5	
5		44.2	78.8	
6	8-13-68	43.4	86.5	
7	8-14-68	43.4	82.4	
8	8-14-68	43.7	80.6	
9	8-14-68	43.5	82.4	

PILE PLAN — NORTH & SOUTH PIERS



NORTH PIER
PILE LOG

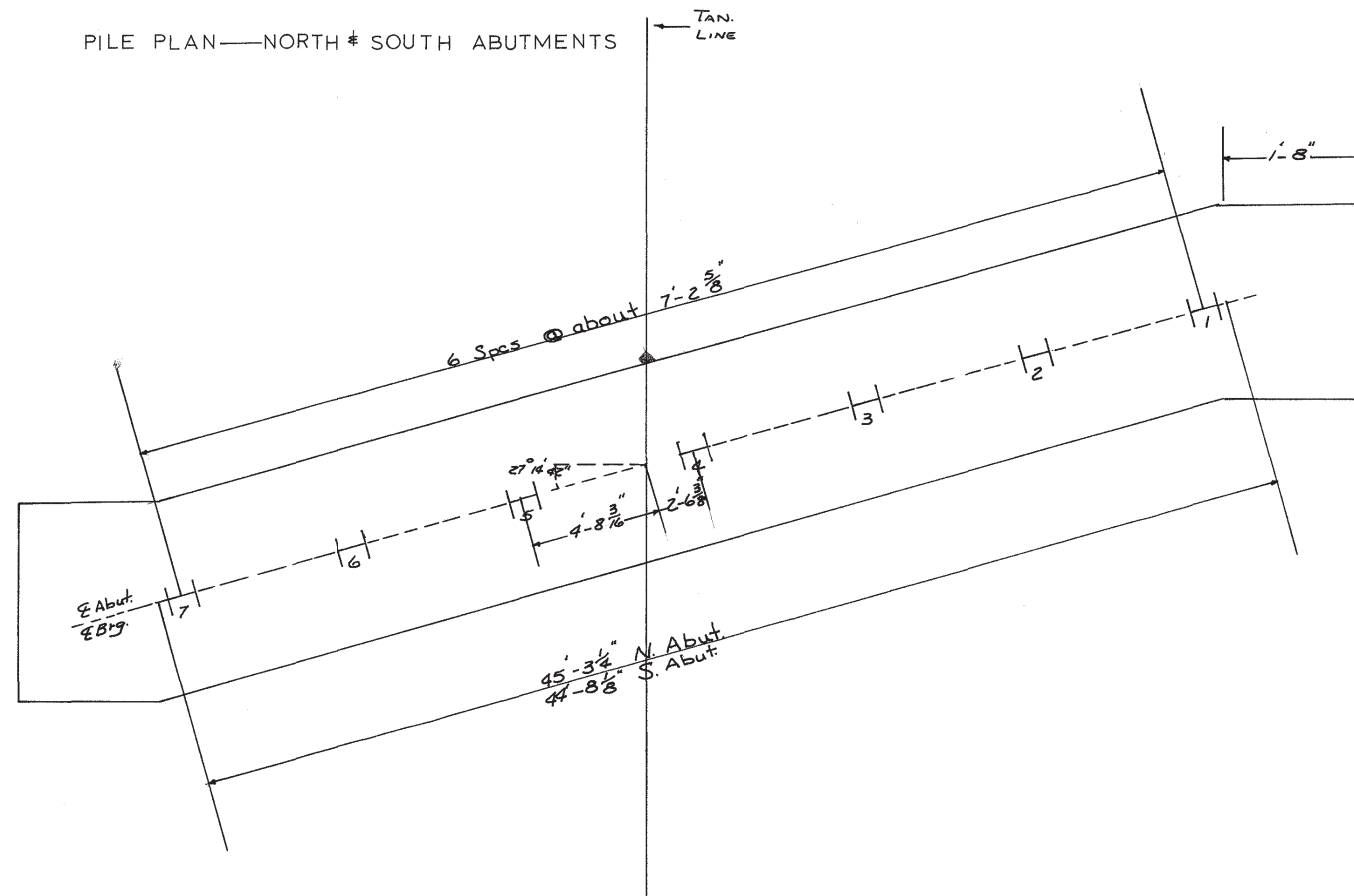
Pile No.	Date Driven	Length in Structure	Brg in Tons	Remarks
1	8-8-68	43.5	81.4	B
2	8-8-68	43.4	86.5	
3	8-6-68	43.5	64.5	
4	8-6-68	43.6	78.8	
5	8-8-68	43.6	75.4	
6		43.4	78.8	
7		43.6	72.3	
8		43.7	90.9	
9	8-8-68	44.3	71.5	B

SOUTH PIER
PILE LOG

Pile No.	Date Driven	Length in Structure	Brg in Tons	Remarks
1	8-27-68	44.1	77.8	B
2		44.4	82.4	
3		44.3	90.9	
4		44.9	69.5	
5	8-27-68	44.4	82.4	
6	8-26-68	44.4	82.4	
7		44.5	86.5	
8		44.5	86.5	
9	8-26-68	44.4	89.8	B

DESIGN FOR
DUAL 143'-0x40&138'-10x55-6 PRETENSIONED
PRESTRESSED CONCRETE BEAM BRIDGES
143'-0 BR-475&394 END SPANS (SK. 27°14'42") 56-6 CTR SP
138'-10 BR-433&394 END SPANS (SK. 30°) 56-6 CTR SPAN
WEST BRIDGE PILE LOGS
STATION: 401+48.00 NBLANE
STATION: 1402+50.00 S.B.LANE
CLARKE COUNTY

PILE PLAN—NORTH & SOUTH ABUTMENTS



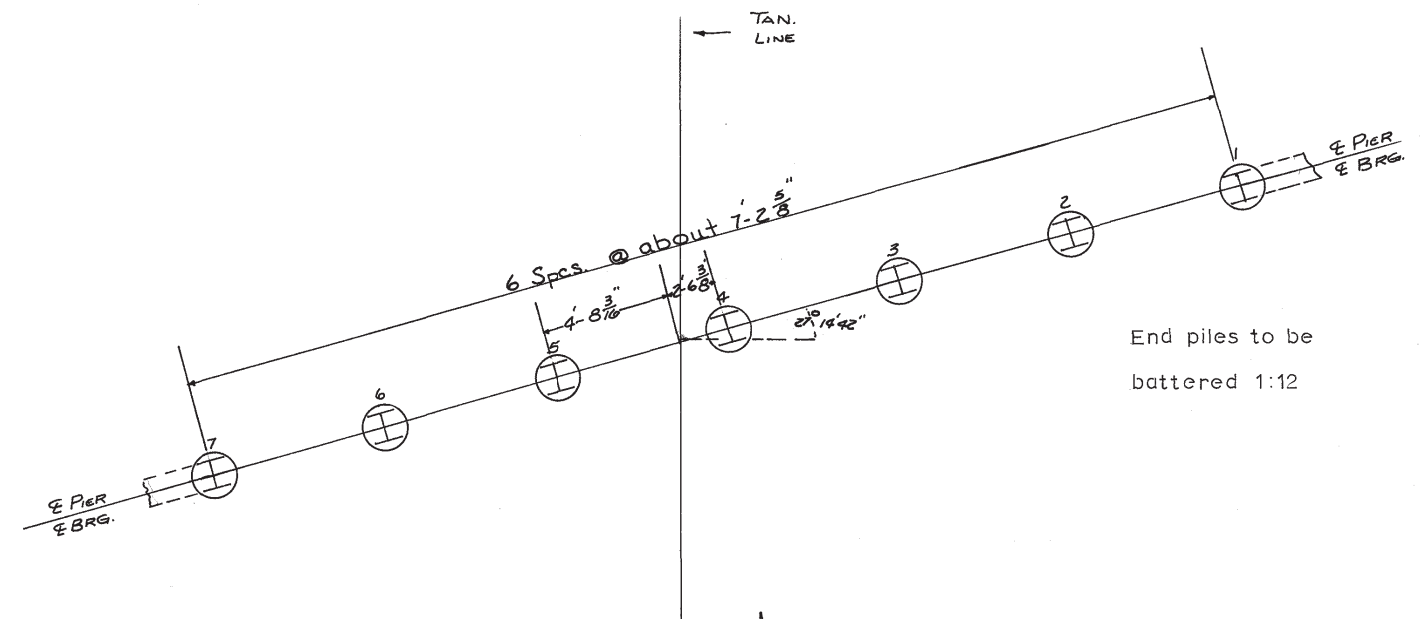
NORTH ABUTMENT
PILE LOG

Pile No.	Date Driven	Length in Structure	Brg. in Tons	Remarks
1	8-14-68	42.4	82.4	
2		43.5	82.4	
3		42.7	Refusal	
4		42.6	82.4	
5		42.6	73.9	
6		42.3	82.4	
7	8-14-68	42.3	82.4	

SOUTH ABUTMENT
PILE LOG

Pile No.	Date Driven	Length in Structure	Brg. in Tons	Remarks
1	8-19-68	44.2	84.4	
2	8-19-68	44.3	86.5	
3	8-16-68	44.2	78.8	
4		41.8	82.4	
5		43.9	86.5	
6		41.9	82.4	
7	8-16-68	42.4	82.4	

PILE PLAN—NORTH & SOUTH PIERS



NORTH PIER
PILE LOG

Pile No.	Date Driven	Length in Structure	Brg. in Tons	Remarks
1	8-12-68	43.9	81.4	B
2	8-10-68	42.0	90.9	
3	8-12-68	42.5	82.4	
4	8-12-68	42.5	86.5	
5	8-10-68	42.4	90.9	
6	8-10-68	42.2	90.9	
7	8-12-68	42.6	87.8	B

SOUTH PIER
PILE LOG

Pile No.	Date Driven	Length in Structure	Brg. in Tons	Remarks
1	8-22-68	40.0	63.7	B
2	8-21-68	42.6	78.8	
3		42.9	90.9	
4		42.9	78.8	
5		43.1	82.4	
6		43.3	95.8	
7	8-21-68	43.0	REFUSAL	B

DESIGN FOR
DUAL 143'0x40&138'10x55-6 PRETENSIONED
PRESTRESSED CONCRETE BEAM BRIDGES
143'0 BR-47'5#39'1 END SPANS (SK.27°14'42") 56'6 CTR. SP
138'10 BR-43'3#39'1 END SPANS (SK. 30°) 56'6 CTR. SP
EAST BRIDGE PILE LOGS
STATION 401+4800 NB. LANE
STATION 1402+5000 SB. LANE
CLARKE COUNTY

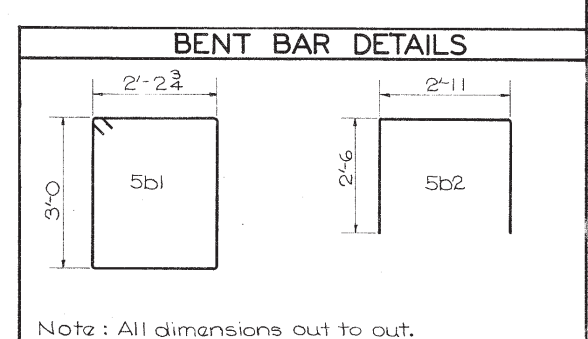
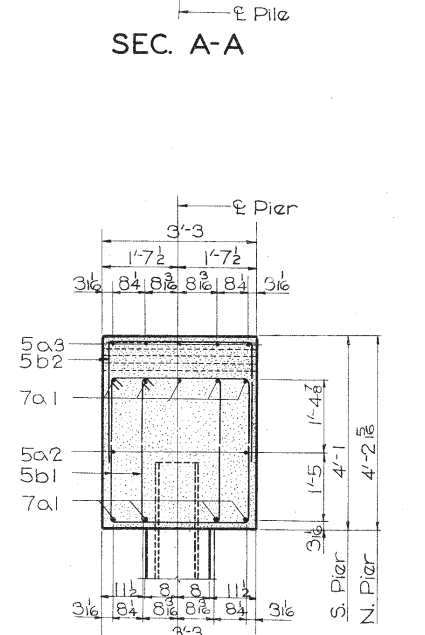
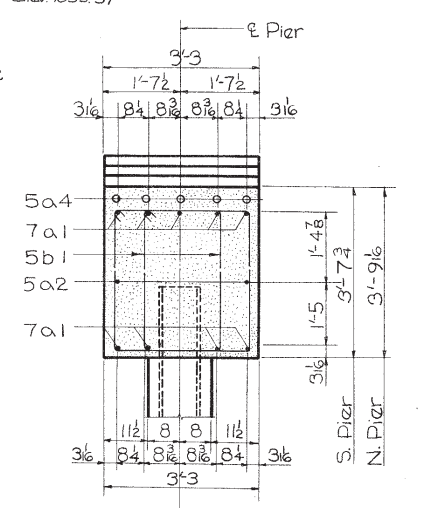
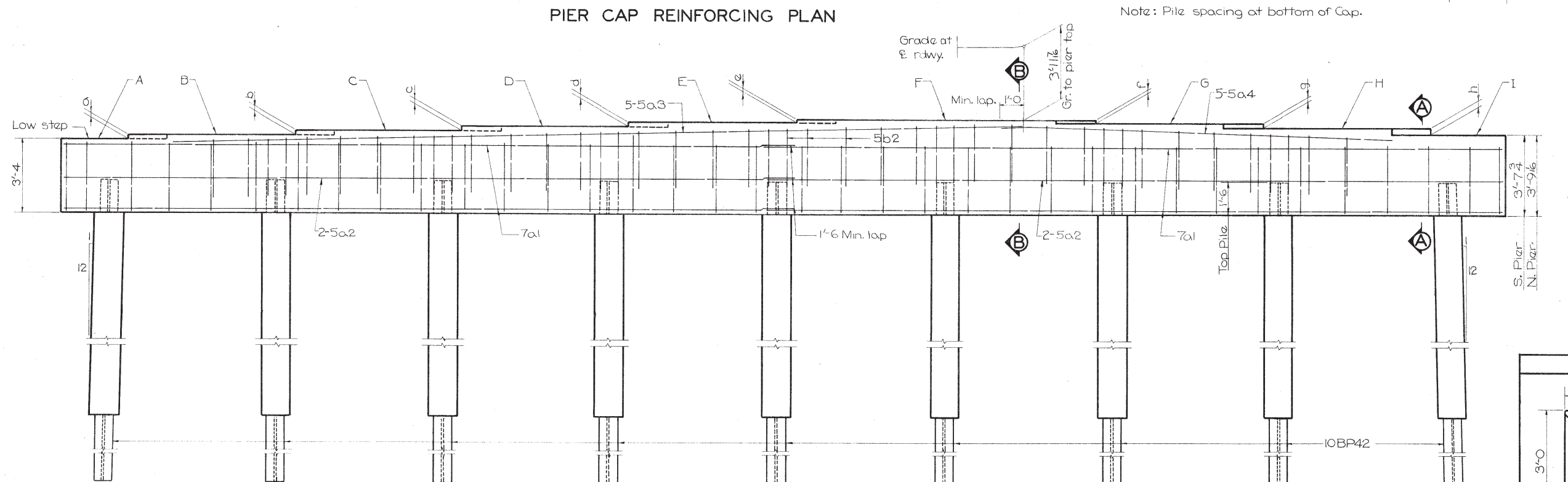
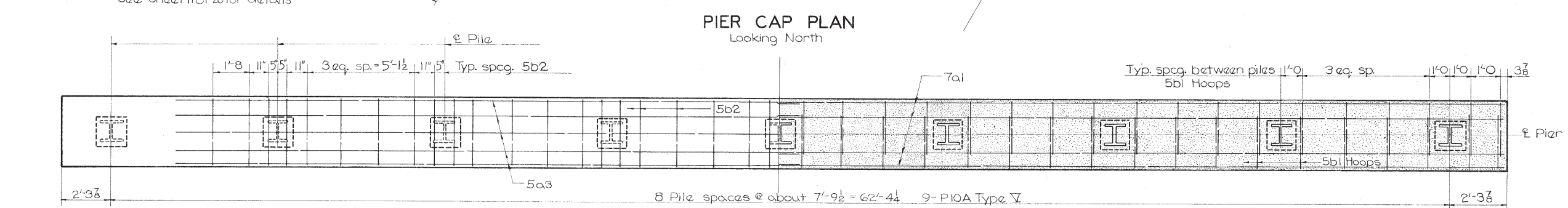
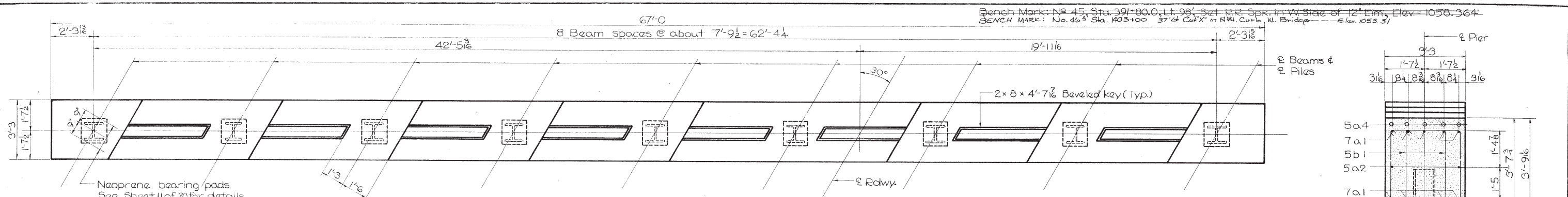


TABLE OF PIER ELEVATIONS		
	S. Pier	N. Pier
A Low Step	1051.56	1050.14
B	1051.72	1051.13
C	1051.88	1051.34
D	1052.07	1051.56
E	1052.23	1051.72
F	1052.31	1051.80
G	1052.26	1051.75
H	1052.11	1051.60
I	1051.87	1051.36
Grade Elev.	1056.26	1055.76
Bott. Cap Elev.	1048.23	1047.61

ESTIMATED QUANTITIES-TWO PIERS				
Item	Unit	Quantity		
		S. Pier	N. Pier	Total
Structural Concrete, Class "C"	Cu Yds.	30.9	31.6	62.5
Reinforcing Steel	Lbs.	2877	2877	5754
Steel Bearing Piling (10BP42)	Lin. Ft.	9@46'-4 1/4"	9@46'-4 1/4"	828
	Drive	9@46'-4 1/4"	9@46'-4 1/4"	828
	Encase	9@16'-14 1/4"	9@16'-14 1/4"	288

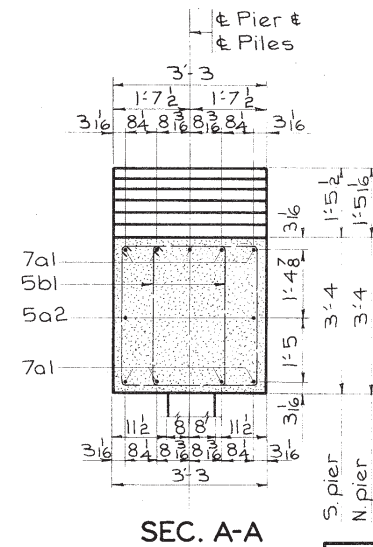
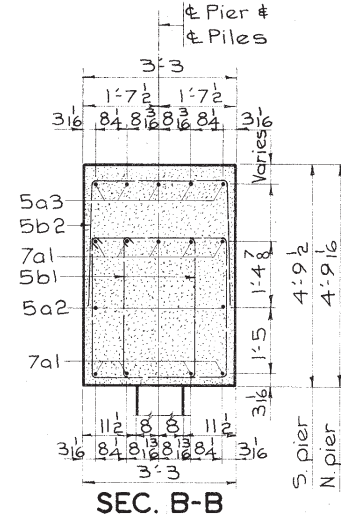
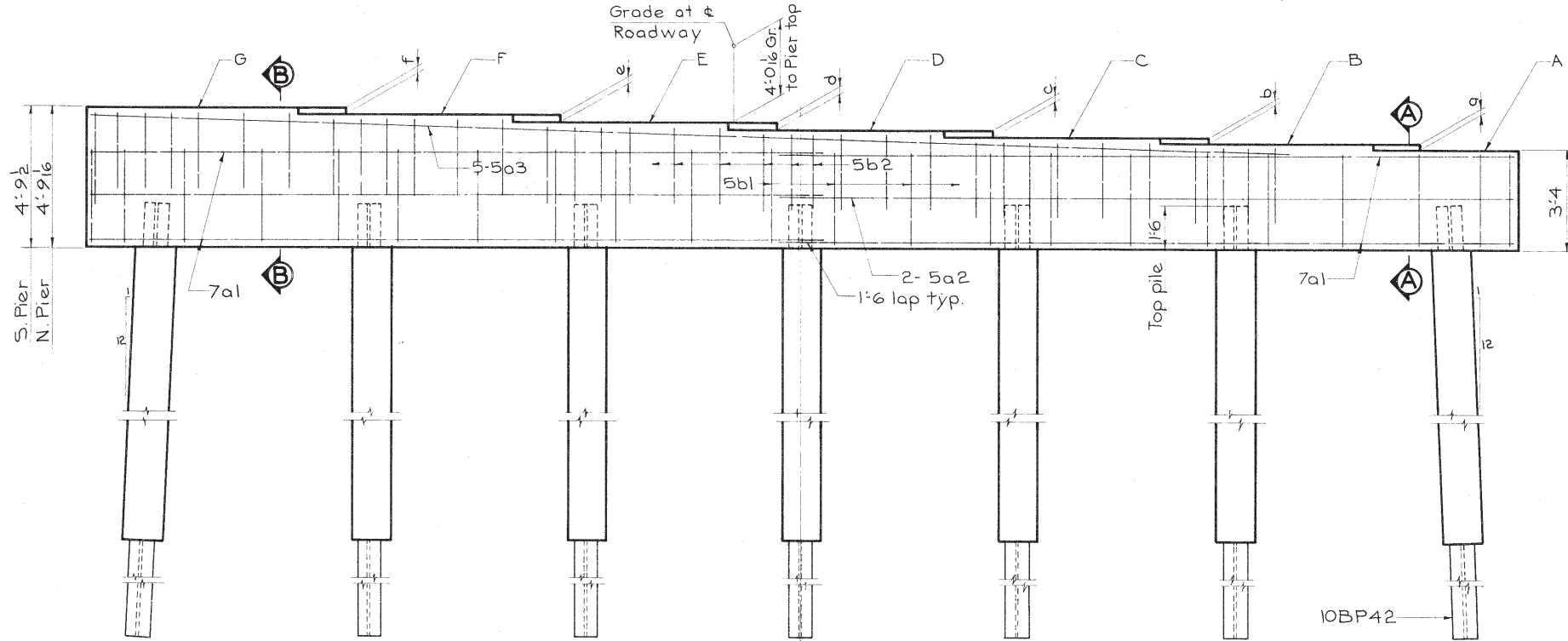
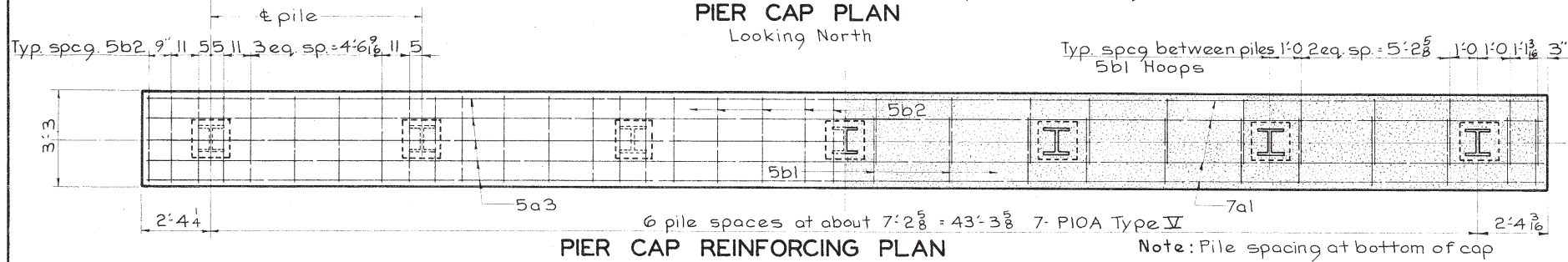
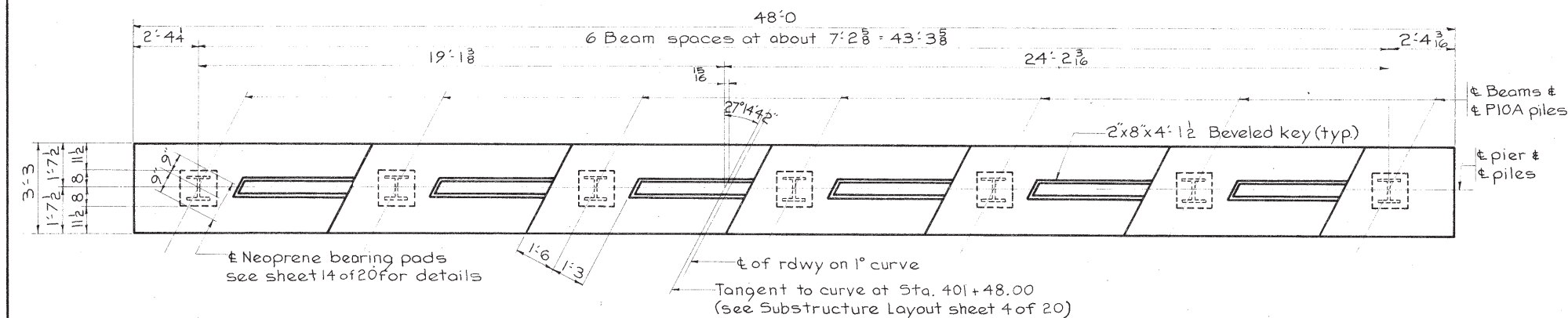
TABLE OF STEP DIMENSIONS							
	a	b	c	d	e	f	h
S. Pier	1 1/2	1 1/2	2 1/2	1 1/2	1 1/2	1 1/2	2 1/2
N. Pier	2 1/2	2 1/2	2 1/2	1 1/2	1 1/2	1 1/2	2 1/2

REINFORCING BAR LIST-ONE PIER					
Bar	Location	Shape	Nº	Length	Weight
7a1	Top & Bott. Cap, longit.	—	18	34'-1	1254
5a2	Sides, Cap, longit.	—	4	34'-1	142
5a3	Beneath, Beam Brg. longit.	—	5	40'-0	209
5a4	" " " "	—	5	18'-0	94
5b1	Pier Cap Hoops	□	72	11'-2	839
5b2	Beneath Beam Brgs., Transv.	□	42	7'-9	339
Total lbs.					2877

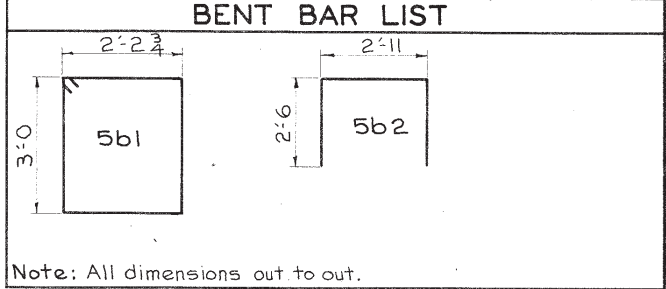
Note: See Sheet 6 of 20 for Pier Notes.

DESIGN FOR
**DUAL 143'-0x40&138'-10x55-6 PRETENSIONED
 PRESTRESSED CONCRETE BEAM BRIDGES**
 143'-0 BR.-47'-5&39'-1 END SPANS (SK. 27'14'42") 56'-6 CTR. SPAN
 138'-10 BR.-43'-3&39'-1 END SPANS (SKEW 30°) 56'-6 CTR. SPAN
WEST BRIDGE PIER DETAILS
 STATION: 401+48.00 N.B. LANE
 STATION: 1402+50.00 S.B. LANE
 NOVEMBER, 1967
CLARKE COUNTY
 IOWA STATE HIGHWAY COMMISSION

Bench Mark: N^o 45; Sta. 391+80 Lt. 98' Set R.R. Spk. in W. Side 12' Elm. Elevation 1058.364



REINFORCING BAR LIST-ONE PIER					
Bar	Location	Shape	N ^o	Length	Weight
7a1	Top & Bott. Cap, Longit.	—	18	24'7"	904
5a2	Sides, Cap, Longit.	—	4	24'7"	103
5a3	Beneath, Beam Brg. Long.	—	5	40'0"	209
5b1	Pier Cap Hoops	□	44	11'2"	512
5b2	Beneath Beam Brg. Transv.	□	35	7'9"	283
Total, (Lbs)					2011



PIER NOTES:
Design bearing of pier piles is 50 tons.
Piles shall be driven to practical refusal and seated in hard shale with a diesel hammer of at least 28,000 foot-pounds of rated energy operating at full capacity, or a gravity hammer having an effective weight of at least 6,000 pounds, and driving energy of not less than 38,000 foot-pounds nor more than 40,000 foot-pounds.
The minimum clear distance from face of concrete to near reinforcing bar is to be 2" unless otherwise noted or shown.
All exposed corners of 90° or sharper are to be filleted with a 3/4" dressed and beveled strip.
Pile encasement is to be as detailed for the 10 BP 42 steel pile shown on I. S. H. C. Standard P10A, dated June, 1959. The cost of excavation, necessary to encase the piles, shall be included in the unit price bid for encasement.
Batter end piles 1:12 in the direction shown on sheets 5 and 6 of 20.

ESTIMATED QUANTITIES - TWO PIERS				
Item	Unit	Quantity		
		S. Pier	N. Pier	Total
Structural Concrete, Class "C"	Cu. Yds	23.8	23.7	47.5
Reinforcing Steel	Lbs	2011	2011	4022
Steel Bearing Piling (10BP42)	Furnish	Lin. Ft. 7@46'322	7@46'322	644
	Drive	Lin. Ft. 7@46'322	7@46'322	644
	Encase	Lin. Ft. 7@16'112	7@15'105	217

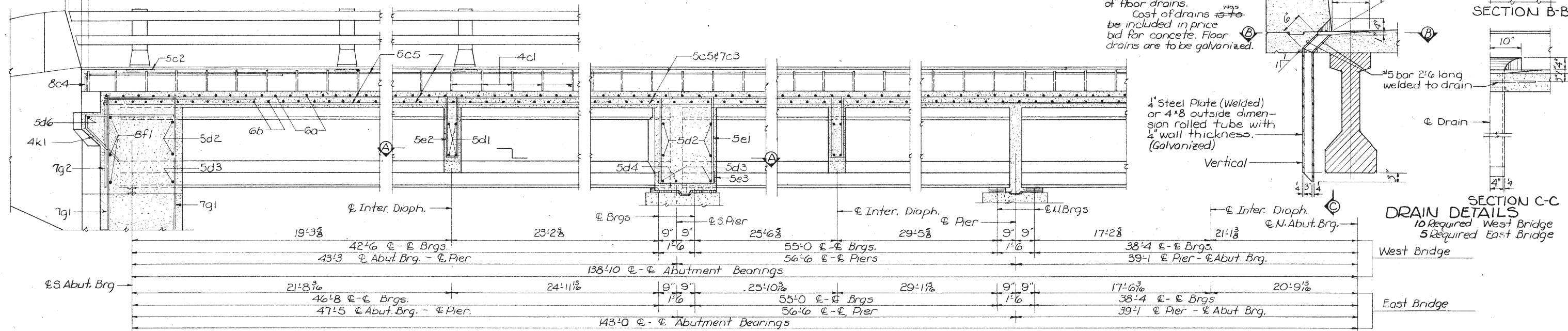
TABLE OF PIER ELEVATIONS		
	S. Pier	N. Pier
A	1051.03	1050.01
B	1051.27	1050.25
C	1051.51	1050.48
D	1051.76	1050.72
E	1052.00	1050.96
F	1052.24	1051.20
G	1052.49	1051.43
Grade El.	1055.84	1054.81
Bott. of Cap El.	1047.70	1046.68

TABLE OF STEP DIMENSIONS						
	a	b	c	d	e	f
S. Pier	2 3/8	2 3/8	2 3/8	2 3/8	2 3/8	2 3/8
N. Pier	2 3/8	2 3/8	2 3/8	2 3/8	2 3/8	2 3/8

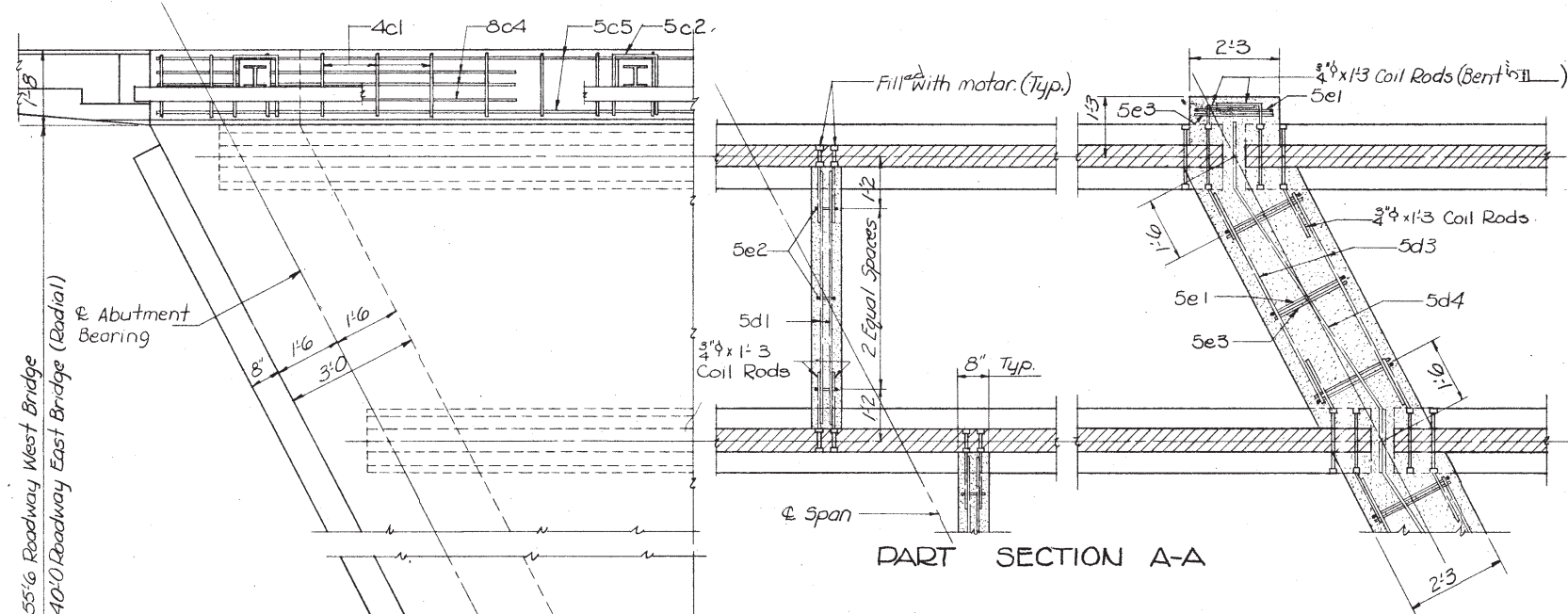
DESIGN FOR
**DUAL 143'-0x40&138'-10x55'-6 PRETENSIONED
PRESTRESSED CONCRETE BEAM BRIDGES**
143'-0 BR.-47'-5&39'-1 END SPANS (SK. 27'14'42") 56'-6 CTR. SPAN
138'-10 BR.-43'-3&39'-1 END SPANS (SKEW 30°) 56'-6 CTR. SPAN
EAST BRIDGE PIER DETAILS
STATION: 401+48.00 N.B. LANE
STATION: 1402+50.00 S.B. LANE
NOVEMBER, 1967
CLARKE COUNTY
IOWA STATE HIGHWAY COMMISSION

DESIGNED BY: MHT TRACED BY: J- CHECKED BY: [Signature]

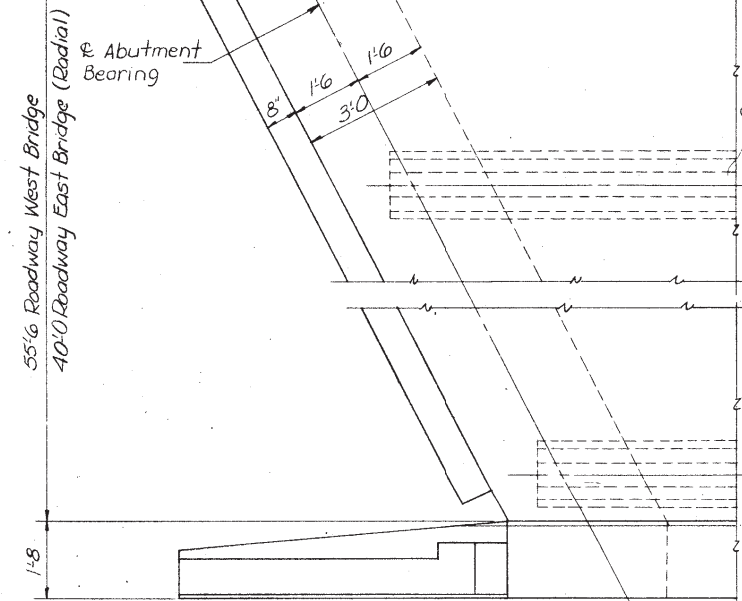
143'-7 1/2" Face to Face of Concrete End Posts (See Sheets 17 & 19 of 20 for Handrail details and rail post spacing).
 3' 6 1/4" 113 Spaces @ 1'-3" = 141'-3" ; 114 -4cl Hoops. — West Bridge
 147'-8 1/2" Face to Face of Concrete End Posts (See Sheets 18 & 20 of 20 for Handrail details and rail post spacing).
 3' 8 1/4" 116 Spaces @ 1'-3" = 145'-0" ; 117 -4cl Hoops. — East Bridge



PART LONGITUDINAL SECTION NEAR CURB



PART SECTION A-A

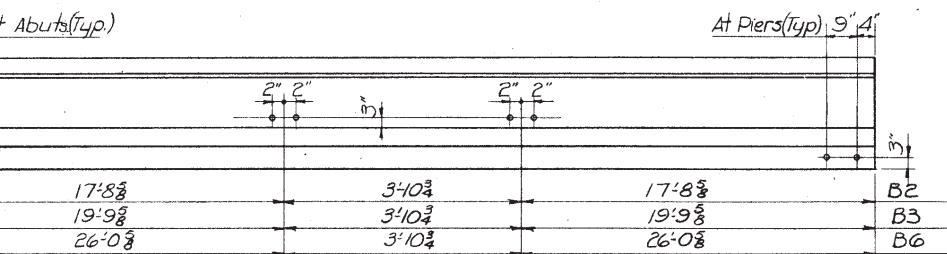


PART PLAN

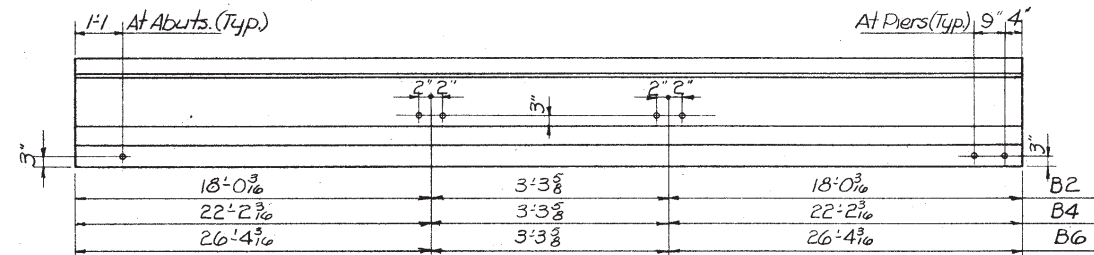
TRANSVERSE FLOOR CONSTRUCTION JOINT

LONGITUDINAL FLOOR CONSTRUCTION JOINT

DESIGN NO. 2467
 FILE NO. 22580
 DES. SH. NO. 7 OF 20



LOCATION OF BEAM COIL TIES ~ WEST BRIDGE



LOCATION OF BEAM COIL TIES ~ EAST BRIDGE

SUPERSTRUCTURE NOTES:

These bridges are designed for HS-20-44 loading plus 19 lb. per sq. ft. of roadway for future wearing surface and an alternate loading designated in the Bureau of Public Roads P. P. M. 20-4, Section C. Slab thickness includes 1/2 in. integral wearing surface. All exposed corners of 90° or sharper are to be formed with a 3/4 inch dressed and beveled strip. Clear distance from face of concrete to near reinforcing bar shall be 2" unless otherwise noted or shown. All reinforcing bars are to be securely wired in place and adequately supported on bar chairs before concrete is placed. All beams are to be set vertical. Forms for the slab and curb are to be supported by the prestressed beams. Slab concrete is to have a 28 day crushing strength of 3500 psi and is to contain no class "V" aggregate. It is to be placed as dry as practicable to reduce shrinkage to a minimum. Special precautions are to be taken to secure complete bond between slab and beams.

Cost of all preformed joint, compressible materials and drains is to be included in price bid for concrete. Cost of bearing material is to be included in price bid for prestressed concrete beams. The pier and abutment diaphragm concrete is to be placed simultaneously with the floor slab. All floor drains are to be galvanized.

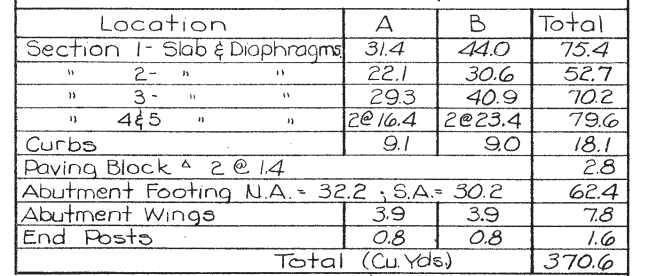
DESIGN FOR
**DUAL 143'-0"x40' & 138'-10"x55'-6" PRETENSIONED
 PRESTRESSED CONCRETE BEAM BRIDGES**
 143'-0" BR - 47'-5" & 39'-1" END SPANS (SK. 27°14'42") 56'-6" CTR. SPAN
 138'-10" BR - 43'-3" & 39'-1" END SPANS (SKEW 30°) 56'-6" CTR. SPAN
SUPERSTRUCTURE DETAILS
 STATION: 401+48.00 N.B. LANE
 STATION: 1402+50.00 S.B. LANE
 IOWA STATE HIGHWAY COMMISSION
 NOVEMBER, 1967

Designed by: G.J.P. Detailed by: E.W.O. Checked by: B

CLARKE COUNTY

PROJECT NUMBER	STATE	FED. ROAD DIST. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
I-35-1(19)28--01-20	IOWA	5		19	44

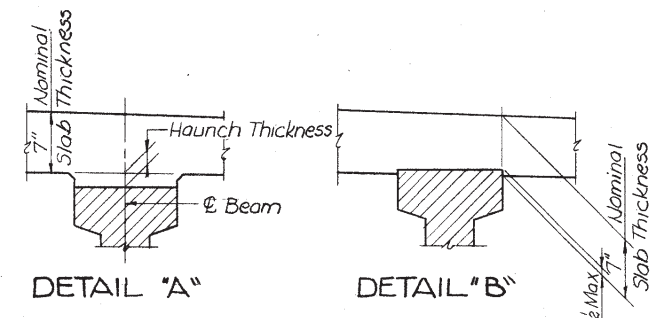
CONCRETE PLACEMENT QUANTITIES



ESTIMATED QUANTITIES SUPERSTRUCTURE & 2 INTEGRAL ABUTS.

Item		Unit	Quantity
Structural Concrete, Class D**		Cu.Yds.	370.9
Reinforcing Steel **	B2 (38'-4)	lbs.	73,309
Pretensioned	B3 (42'-6)	N.E.	9
Prestressed	B3 (42'-6)	N.E.	9
Concrete Beams	B6 (55'-0)	N.E.	9
Class 20 Excavation		Cu.Yds.	128
Granular Backfill		Cu.Yds.	180
Steel Bearing	Furnish 18" 46'	Lin. Ft.	828 319.7
Piling (10 BP42)	Drive 18" 46'	Lin. Ft.	-828 794.7

** Includes quantities for 1 light pole base.



The haunch thickness is based on the anticipated beam camber remaining after placing the slab, but is not guaranteed for construction. If a beam is under cambered, increase the haunch thickness to compensate. (See Detail "A"). If the beam is over cambered, the nominal slab thickness may be decreased over the beam by embedding the beam a maximum of 1/2 inch. (See Detail "B"). If more than 1/2 inch embedment is required the grade line is to be revised.

DESIGN FOR
DUAL 143'-0"x40' & 138'-10"x55'-6" PRETENSIONED
PRESTRESSED CONCRETE BEAM BRIDGES
143'-0" BR.-47'-5 & 39'-1" END SPANS (SK. 27'14'42") 56'-6" CTR. SPAN
138'-10" BR.-43'-3 & 39'-1" END SPANS (SKEW 30°) 56'-6" CTR. SPAN
WEST BRIDGE SUPERSTRUCTURE DETAILS
STATION: 401+48.00 N.B. LANE
STATION: 1402+50.00 S.B. LANE
NOVEMBER, 1967

CLARKE COUNTY
IOWA STATE HIGHWAY COMMISSION

DESIGN NO. 2467
FILE NO. 22580
DES. SH. NO. 8 OF 20

Designed by: G.J.P.

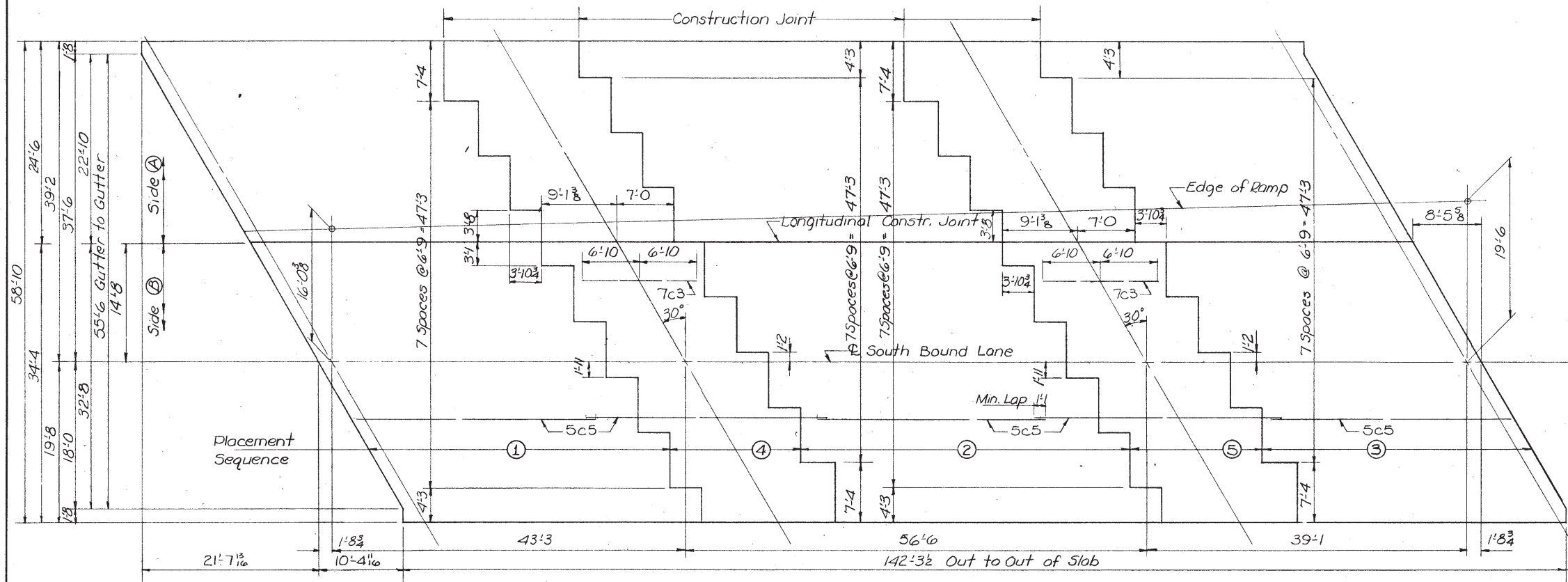
Detailed by: E.W.O.

Checked by: *JS*

CLARKE COUNTY

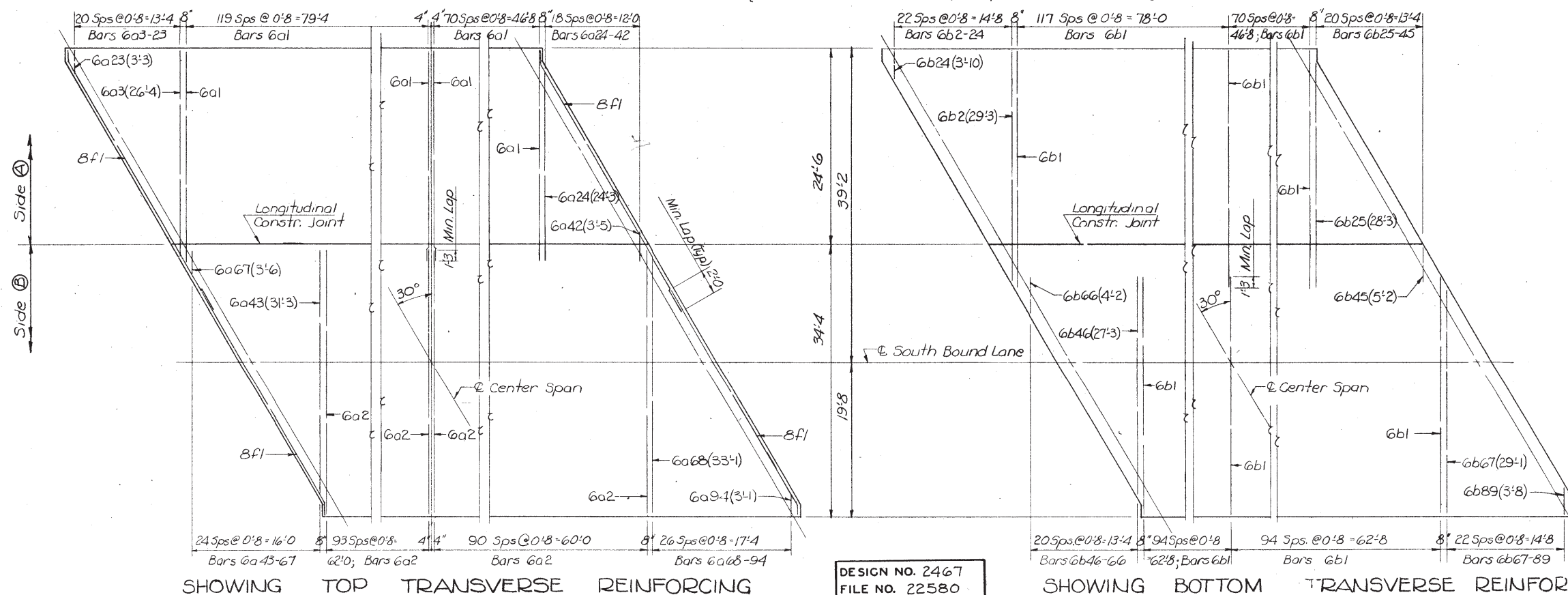
PROJECT NUMBER	I-35-1(19)28--01-20
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STATE	FED. ROAD DIST. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
INDIANA	5		20	16



CONCRETE PLACEMENT DIAGRAM SHOWING LONGITUDINAL SLAB REINFORCING

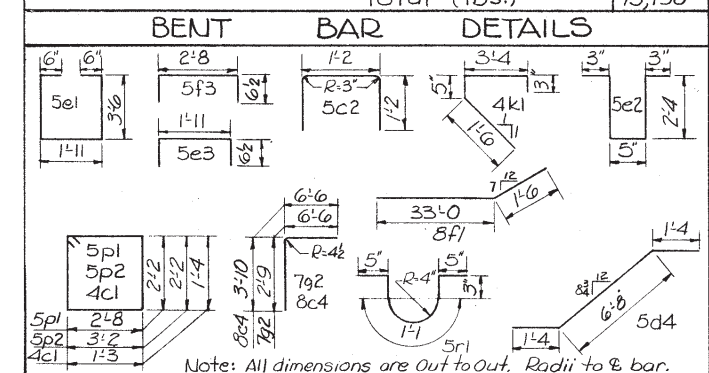
Note: Roadway slab shall be placed in sections and in sequence indicated and preferably at intervals not exceeding 24 hours. Alternate procedures for placing may be submitted for approval, together with a statement of the proposed method and evidence that the Contractor possesses the necessary equipment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



DESIGN NO. 2467
FILE NO. 22580
DES. SH. NO. 9 OF 20

REINF. STEEL-1-SUPERSTR. & INTEGRAL ABUTS.

Bar	Location	Shape	Nº	Length	Weight
6a1	Slab Transverse Top	⊖	191	26'6"	7,602
6a2	" " " "	⊖	185	33'4"	9,262
6a3-23	" " " " Top S. End	⊖	21	Varies	467
6a24-42	" " " " N. " "	⊖	19	Varies	395
6a43-67	" " " " S. " "	⊖	25	Varies	652
6a68-94	" " " " N. " "	⊖	27	Varies	733
6b1	Slab Transverse Bott.	⊕	377	29'11"	16,940
6b2-24	" " " " Bott. S. End	⊕	23	Varies	571
6b25-45	" " " " N. " "	⊕	21	Varies	527
6b46-66	" " " " S. " "	⊕	21	Varies	495
6b67-89	" " " " N. " "	⊕	23	Varies	566
4c1	Curb Hoops	⊖	228	5'9"	876
5c2	Curb Transverse	⊖	36	3'2"	119
7c3	Slab & Curb over Piers	⊖	88	13'8"	2,458
8c4	Top Curb Longit. Ends	⊖	12	10'2"	326
5c5	Slab & Curb Longit.	⊖	480	29'4"	14,685
5d1	Intermediate Diaphs. Longit.	⊖	96	6'0"	601
5d2	Pier & Abut. Diaphs. Longit. Top	⊖	96	6'11"	693
5d3	" " " " " " Bott.	⊖	48	5'10"	292
5d4	Pier Diaphs. Bott.	⊖	16	9'4"	156
5d5	Abut. Diaph. Longit. Ends	⊖	12	7'5"	18
5d6	Paving Support	⊖	4	31'10"	133
5e1	Pier Diaph. Hoops	⊖	52	9'7"	520
5e2	Intermediate Diaph. Hoops	⊖	72	5'3"	394
5e3	Pier Diaph. Ties	⊖	60	2'10"	177
8f1	Abut. Footing & Diaph. Longit.	⊖	48	34'6"	4,422
8f2	Abut. Footing Top Longit.	⊖	8	30'0"	641
5f3	Abut. Footing Top Trans.	⊖	94	3'7"	351
7g1	Abut. Vert. Front & Back Face	⊖	226	6'5"	2,964
7g2	Abut. Vert. Back Face	⊖	114	9'1"	2,117
5h1	Abut. Wing & End Post Horiz.	⊖	72	6'8"	501
5h2	Abut. Dowels Wing & End Post	⊖	64	4'10"	323
4k1	Paving Notch Vertical	⊖	116	5'4"	413
5p1	Abutment Hoops	⊖	96	10'5"	1,043
5p2	Abutment Hoops Ends	⊖	8	11'5"	95
5r1	Paving Block Lifting Loops	⊖	16	2'3"	38
5s1-21	Abut. Wing Vertical	⊖	92	Shown	470
	Pile Spiral #2 Bar	⊖	18	38'6"	116
	Pile Spiral Spacers	⊖	36	1'10"	46
Total (lbs.)					73,198



Note: All dimensions are Out to Out. Radii to & bar.

See Sheet 8 of 20 for Concrete Placement Quantities and Superstructure Quantities.

DESIGN FOR
**DUAL 143'-0x40&138'-10x55'-6 PRETENSIONED
PRESTRESSED CONCRETE BEAM BRIDGES**
143'-0 BR.-47'-5&39'-1 END SPANS (SK. 27'14'42') 56'-6 CTR. SPAN
138'-10 BR.-43'-3&39'-1 END SPANS (SKEW 30°) 56'-6 CTR. SPAN
WEST BRIDGE SUPERSTRUCTURE DETAILS
STATION: 401+48.00 N.B. LANE
STATION: 1402+50.00 S.B. LANE
NOVEMBER, 1967

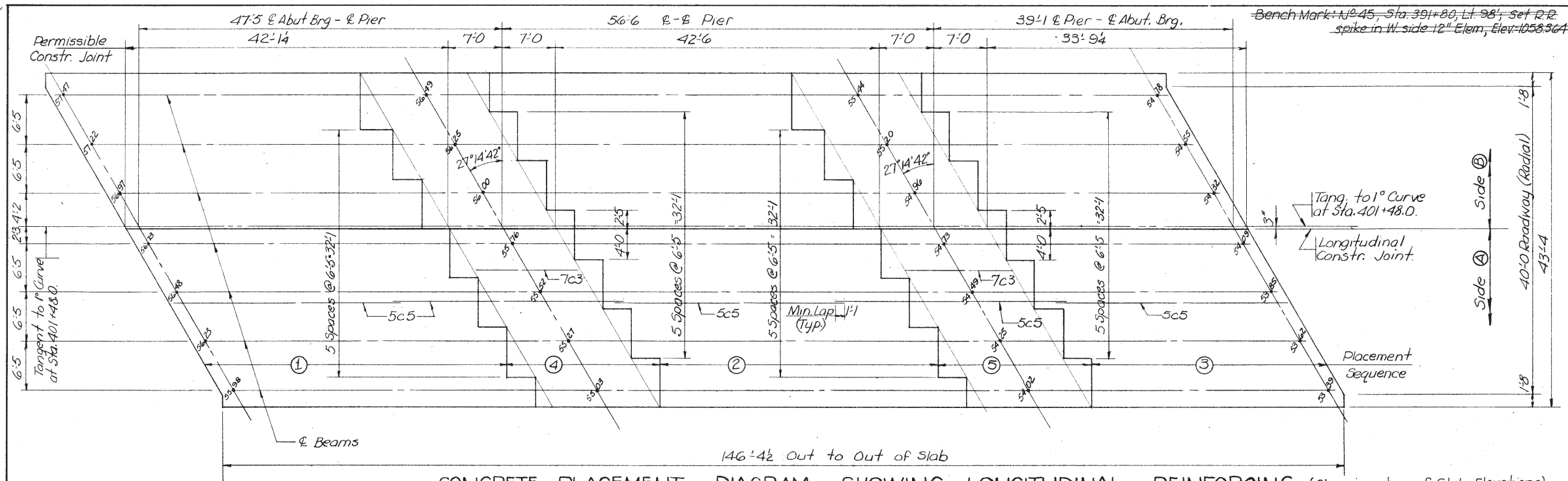
CLARKE COUNTY
IOWA STATE HIGHWAY COMMISSION

Designed by: G.J.P. Detailed by: E.W.O. Checked by: [Signature]

CLARKE COUNTY

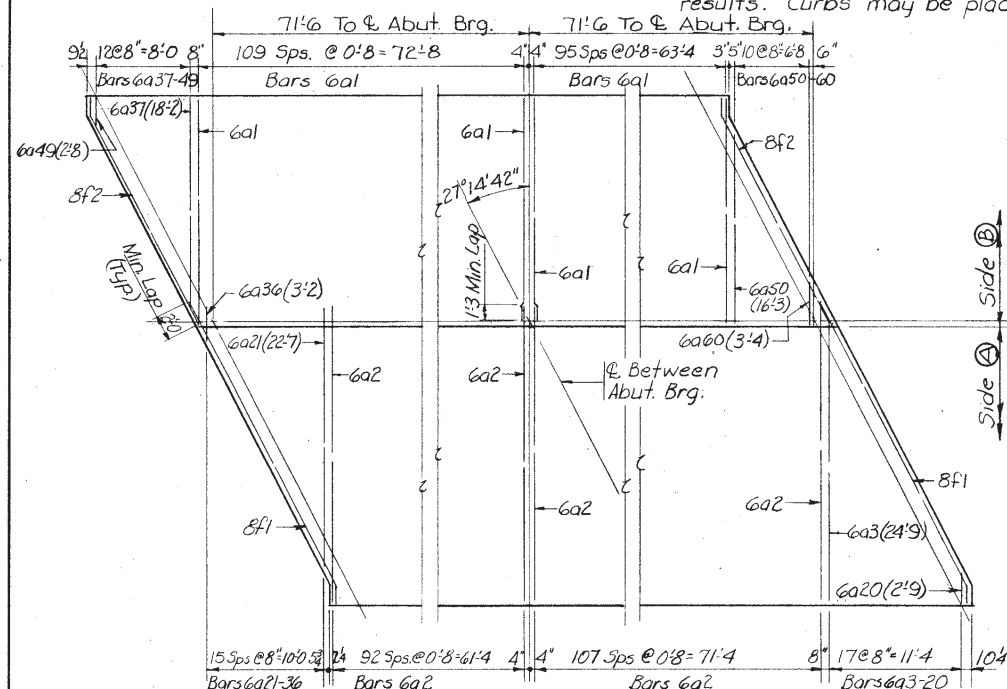
PROJECT NUMBER
I-35-1(19)28--01-20

STATE: IOWA
FED. ROAD DIST. NO.: 5
FISCAL YEAR: 1967
SHEET NO.: 21
TOTAL SHEETS: 44

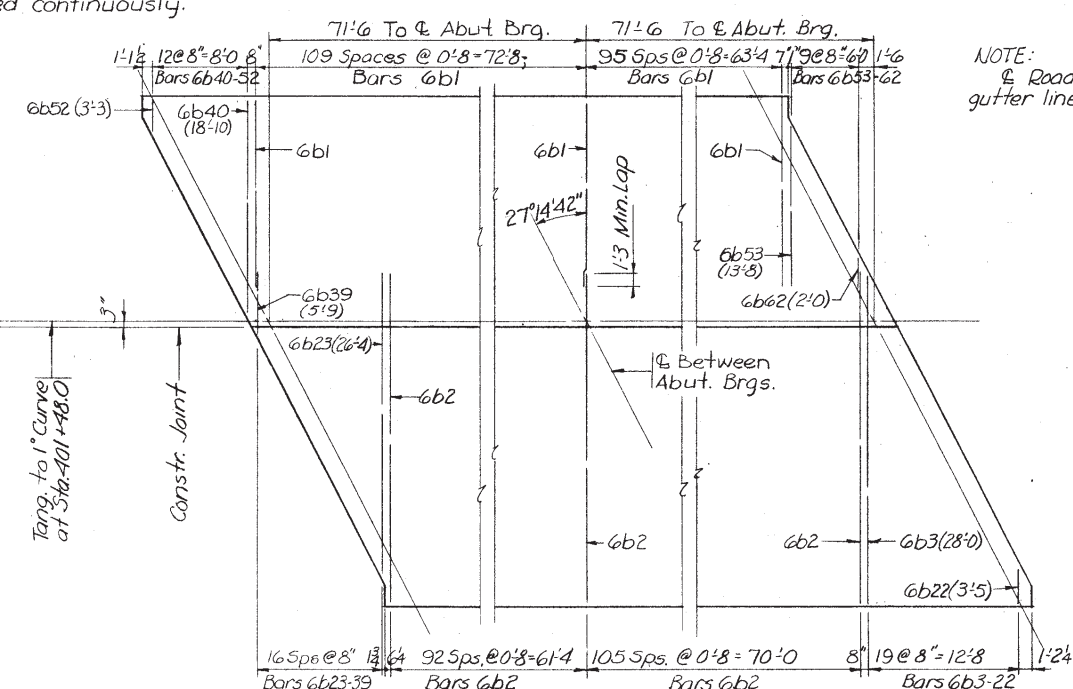


CONCRETE PLACEMENT DIAGRAM SHOWING LONGITUDINAL REINFORCING (Showing top of Slab Elevations)

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



SHOWING TOP TRANSVERSE REINFORCING



SHOWING BOTTOM TRANSVERSE REINFORCING

CONCRETE PLACEMENT QUANTITIES			
Location	A	B	Total
Section 1-Slab & Diaphragm	32.2	26.5	58.7
Section 2 " " "	21.1	18.0	39.1
Section 3 " " "	28.1	23.2	51.3
Section 4&5 " " "	2015.5	2013.0	285.570
Curbs	9.3	8.8	18.1
*Paving Block 2 @ 0.8			1.6
Abutment Footing S.A.=23.3 ; N.A.=23.0			46.3
Abutment Wings	3.9	3.9	7.8
End Posts	0.8	0.8	1.6
Total (Cu. Yds.)			253.0

* May be Class "C" or "D" at Contractor's option. 281.5

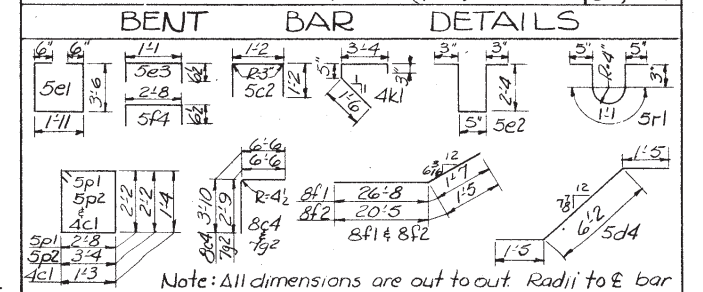
Revised 12-2-68: Concrete Quantities corrected.

ESTIMATED QUANTITIES SUPERSTR. & TWO INTEGRAL ABUTMENTS		
Item	Unit	Quantity
Structural Concrete Class "D"	Cu. Yds.	253.0
Reinforcing Steel	lbs	56,214
Prestensioned	B2 (38'-4)	N ^o . 7
Prestressed	B4 (46'-8)	N ^o . 7
Concrete Beam	B6 (55'-0)	N ^o . 7
Class 20 Excavation	Cu. Yds.	95
Granular Backfill	Cu. Yds.	132
Steel Bearing	Furnish 4 @ 46' Lin. Ft.	6-44 6333
Piling (10BP42)	Drive 14 @ 46' Lin. Ft.	6-44 601.1

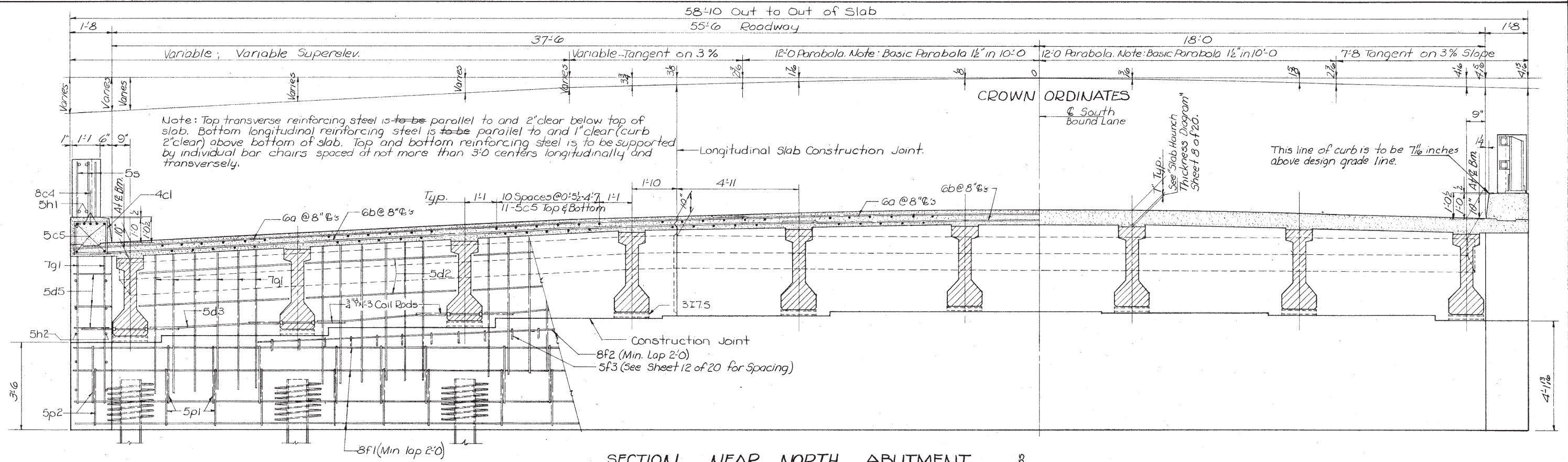
DESIGN NO. 2467
FILE NO. 22580
DES. SH. NO. 10 OF 20

REINF. STEEL-1-SUPERSTR. & INTEGRAL ABUTS.

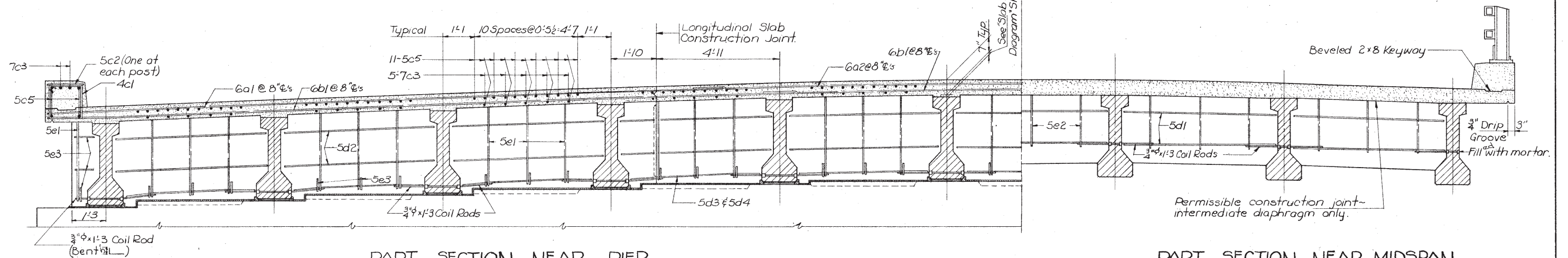
Bar	Location	Shape	N ^o .	Length	Weight
6a1	Slab, Transv. Top	Ⓟ	206	18'-11"	5853
6a2	" " " "	Ⓟ	201	25'-4"	7,648
6a3-20	" " " "	Ⓟ	18	Varies	372
6a21-36	" " " "	Ⓟ	16	Varies	309
6a37-49	" " " "	Ⓟ	13	Varies	203
6a50-60	" " " "	Ⓟ	11	Varies	162
6b1	Slab, Transv. Bott	Ⓟ	205	15'-8"	4,824
6b2	" " " "	Ⓟ	198	28'-6"	8,476
6b3-22	" " " "	Ⓟ	20	Varies	472
6b23-39	" " " "	Ⓟ	17	Varies	410
6b40-52	" " " "	Ⓟ	13	Varies	216
6b53-62	" " " "	Ⓟ	10	Varies	118
4c1	Curb Hoops	Ⓟ	234	5'-9"	899
5c2	Curb Transverse	Ⓟ	36	3'-2"	119
7c3	" " over Piers	Ⓟ	68	13'-8"	1,900
8c4	Top Curb Longit. Ends	Ⓟ	12	10'-2"	326
5c5	Slab & Curb Longitudinal	Ⓟ	370	30'-1"	11,609
5d1	Intermediate Diaph. Longit	Ⓟ	72	5'-5"	407
5d2	Pier & Abut. " "	Ⓟ	72	6'-4"	476
5d3	" " " "	Ⓟ	36	5'-3"	197
5d4	Pier Diaph. Longit.	Ⓟ	12	9'-0"	113
5d5	Abut. Diaph. Longit. Ends	Ⓟ	12	1'-5"	18
5d6	Paving Support Longit. Ⓟ	Ⓟ	2	25'-10"	54
5d7	" " " "	Ⓟ	2	19'-11"	42
5e1	Pier Diaph. Hoops	Ⓟ	40	9'-7"	400
5e2	Intermediate Diaph. Hoops	Ⓟ	54	5'-3"	296
5e3	Pier Diaph. Ties	Ⓟ	48	2'-0"	100
8f1	Abut. Flg. & Diaph. Longit	Ⓟ	24	28'-3"	1,810
8f2	" " " "	Ⓟ	24	21'-10"	1,399
8f3	" " Longit. Top	Ⓟ	4	40'-0"	427
5f4	" " Transv. Top	Ⓟ	88	3'-7"	329
7g1	Abut. Vert. Front & Back Face	Ⓟ	166	6'-5"	2,177
7g2	" " Back Face	Ⓟ	78	9'-1"	1,448
5h1	Abut. Wing & End Post Horiz	Ⓟ	72	6'-8"	501
5h2	Abut. Dowels Wing & End Post	Ⓟ	64	4'-10"	323
4k1	Paving Notch, Vert.	Ⓟ	78	5'-4"	278
5p1	Abutment Hoops	Ⓟ	72	10'-5"	782
5p2	" " " " Ends	Ⓟ	8	11'-9"	98
5r1	Paving Block Lifting Loops	Ⓟ	12	2'-3"	28
5s1-21	Abut. Wing Vertical	Ⓟ	92	Varies	470
Pile Spiral, #2 Bar	Ⓟ	14	38'-6"	90	
Pile Spiral Spacers 3/8 @ 0.69	Ⓟ	28	1'-10"	35	
Total (lbs.)				56,214	



DESIGN FOR
**DUAL 143'-0x40' & 138'-10x55'-6 PRETENSIONED
PRESTRESSED CONCRETE BEAM BRIDGES**
143'-0 BR.-47'-5 & 39'-1 END SPANS (SK. 27°14'42") 56'-6 CTR. SPAN
138'-10 BR.-43'-3 & 39'-1 END SPANS (SKEW 30°) 56'-6 CTR. SPAN
EAST BRIDGE SUPERSTRUCTURE DETAILS
STATION: 401+48.00 N.B. LANE
STATION: 1402+50.00 S.B. LANE
CLARKE COUNTY
IOWA STATE HIGHWAY COMMISSION
NOVEMBER, 1967

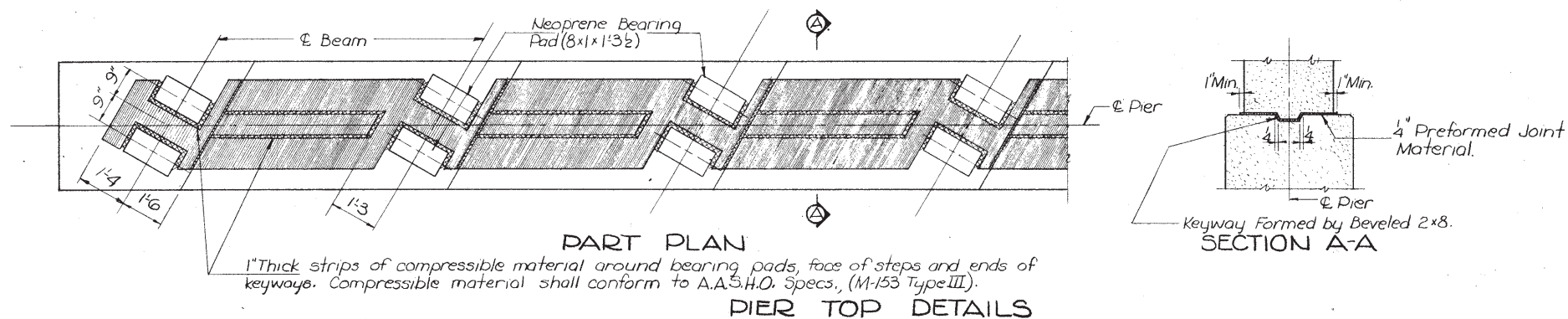


SECTION NEAR NORTH ABUTMENT



PART SECTION NEAR PIER
(Looking North)

PART SECTION NEAR MIDSPAN



DESIGN NO. 2467
FILE NO. 22580
DES. SH. NO. 11 OF 20

DESIGN FOR
DUAL 143'-0" x 40" & 138'-10" x 55'-6" PRETENSIONED
PRESTRESSED CONCRETE BEAM BRIDGES
143'-0" BR.-47'-5" & 39'-1" END SPANS (SK. 27° 14' 42") 56'-6" CTR. SPAN
138'-10" BR.-43'-3" & 39'-1" END SPANS (SKEW 30°) 56'-6" CTR. SPAN
WEST BRIDGE SUPERSTRUCTURE DETAILS
STATION: 401+48.00 N.B. LANE
STATION: 1402+50.00 S.B. LANE
NOVEMBER, 1967

CLARKE COUNTY
IOWA STATE HIGHWAY COMMISSION

Designed by: G.J.P.

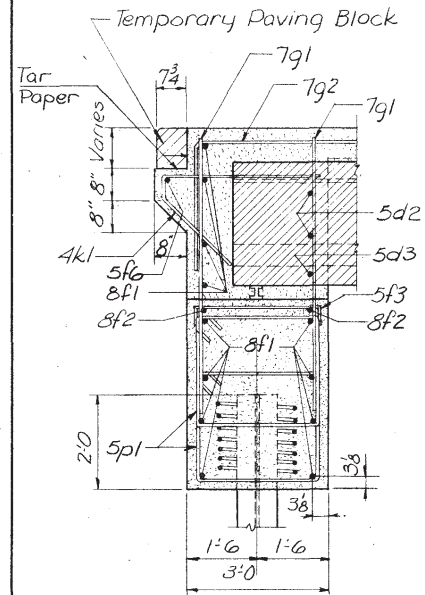
Detailed by: E.W.D.

Checked by: [Signature]

CLARKE COUNTY

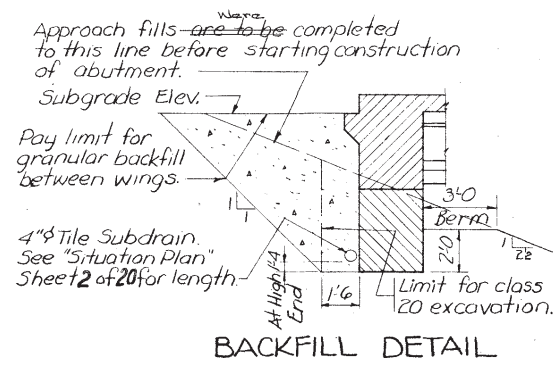
PROJECT NUMBER
I-35-1(19)28--01-20

STATE	FED. ROAD DIST. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	5		23	44

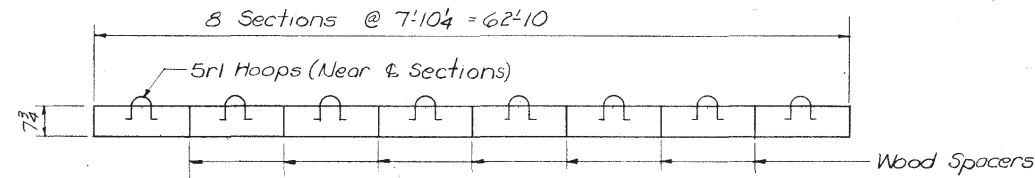


SECTION A-A

Note: Spiral at top of each pile 7 turns of N^o 2 bar. 21" Diameter, 3" pitch with 2-3/8x0.69 spacers punched to hold spiral.

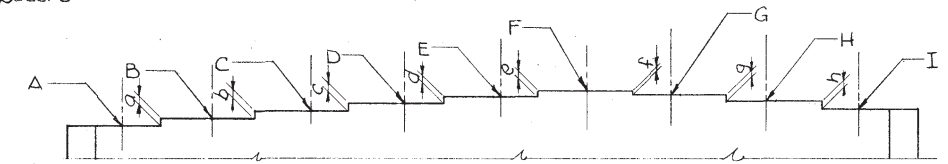


BACKFILL DETAIL



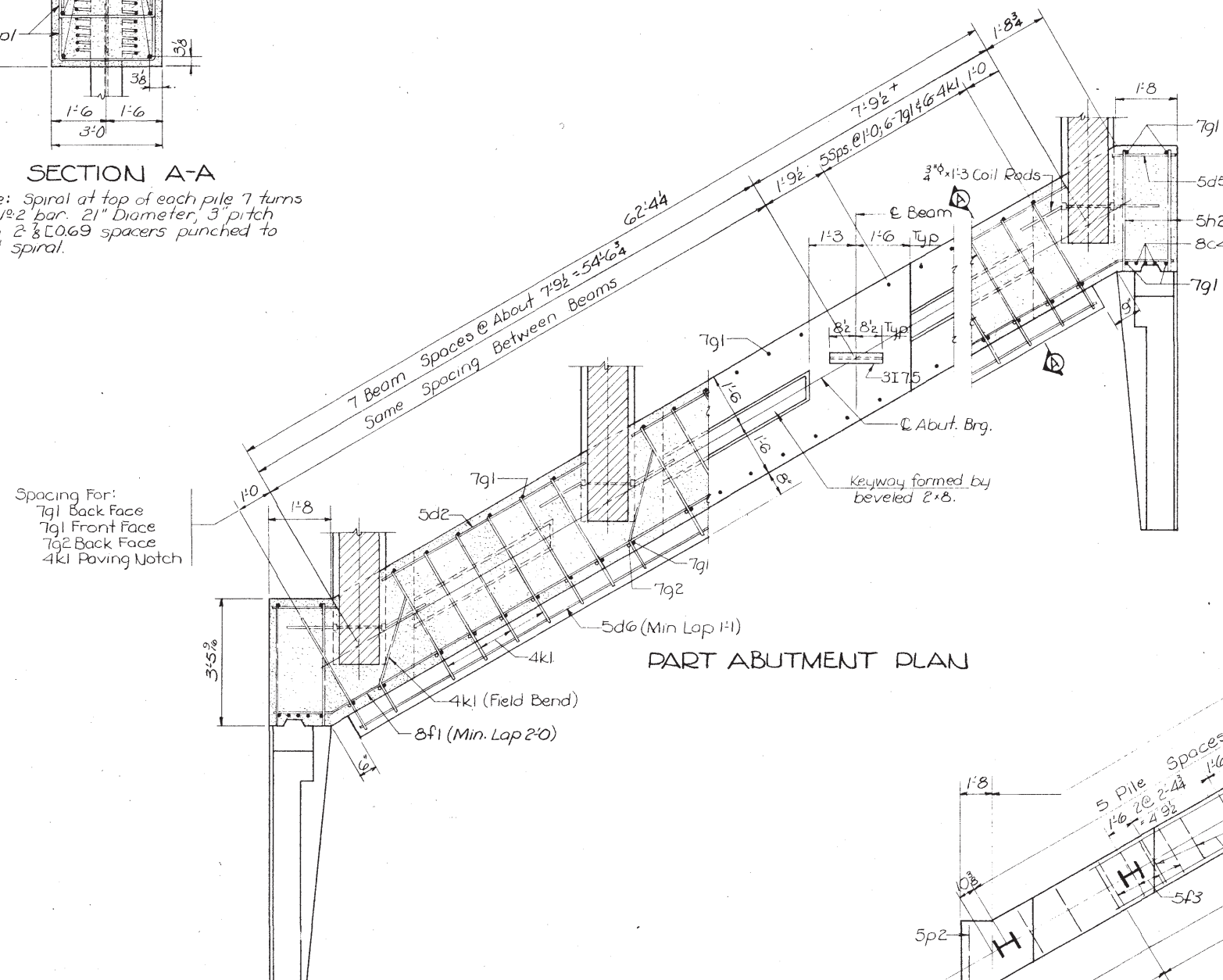
PLAN OF TEMPORARY PAVING BLOCK

Note: Line paving patch with tarpaper before placing the temporary paving block.

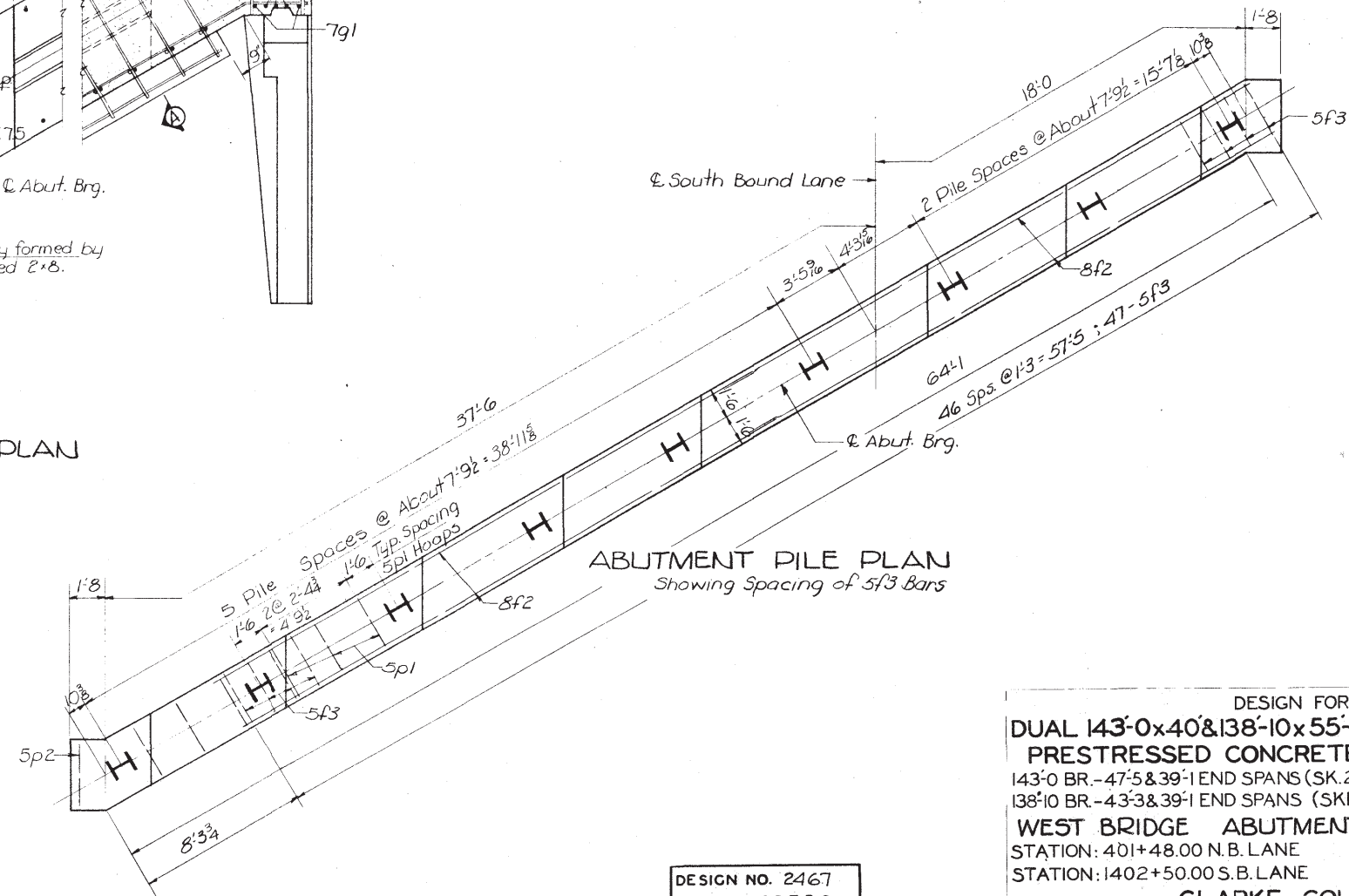


ABUTMENT STEP DIAGRAM
Looking North

TABLE OF ABUTMENT ELEVATIONS			TABLE OF ABUTMENT STEPS		
Point	N. Abut.	S. Abut.	Step	N. Abut.	S. Abut.
A	1050.24	1051.82	a	3 3/8	2 1/8
B	1050.52	1051.99	b	3 1/2	2 1/8
C	1050.81	1052.16	c	3 1/2	2 3/8
D	1051.09	1052.34	d	1 1/2	1 1/2
E	1051.25	1052.50	e	1 1/2	1 1/2
F	1051.33	1052.58	f	5/8	5/8
G	1051.28	1052.53	g	1 1/2	1 1/2
H	1051.13	1052.38	h	2 1/8	2 1/8
I	1050.89	1052.14			
Bott. of Ftg.	1046.74	1048.32			



PART ABUTMENT PLAN

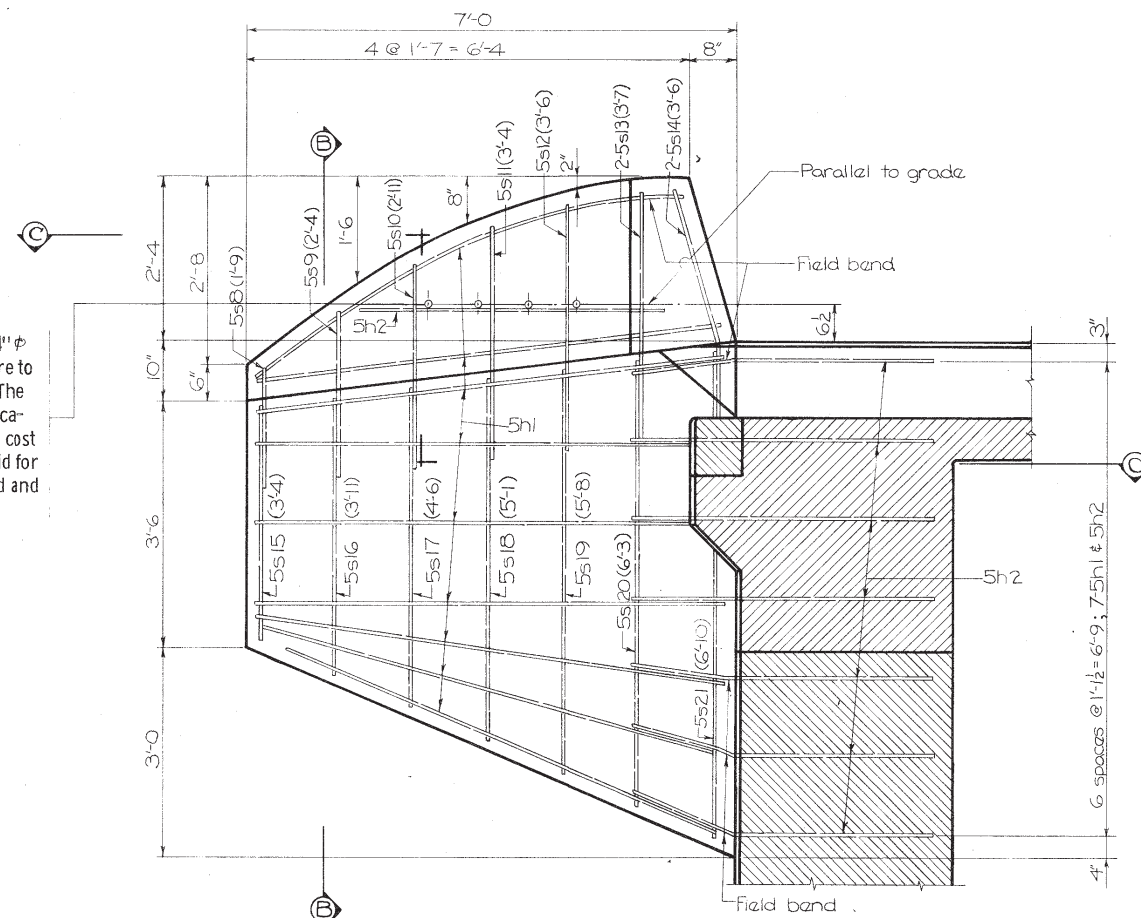


ABUTMENT PILE PLAN
Showing Spacing of 5f3 Bars

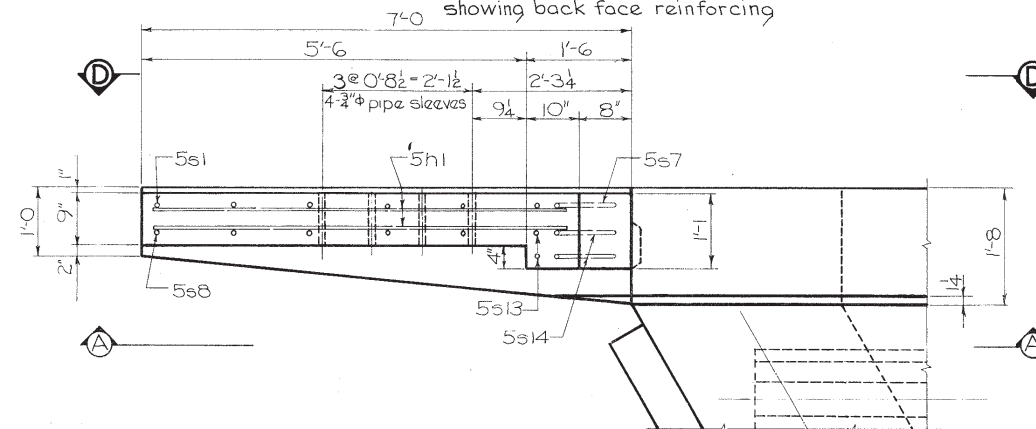
DESIGN NO. 2467
FILE NO. 22580
DES. SH. NO. 12 OF 20

DESIGN FOR
DUAL 143'-0" x 40' & 138'-10" x 55'-6" PRETENSIONED
PRESTRESSED CONCRETE BEAM BRIDGES
143'-0" BR. - 47'-5" & 39'-1" END SPANS (SK. 27' 14" 42') 56'-6" CTR. SPAN
138'-10" BR. - 43'-3" & 39'-1" END SPANS (SKEW 30') 56'-6" CTR. SPAN
WEST BRIDGE ABUTMENT DETAILS
STATION: 401+48.00 N.B. LANE
STATION: 1402+50.00 S.B. LANE
NOVEMBER, 1967
CLARKE COUNTY
IOWA STATE HIGHWAY COMMISSION

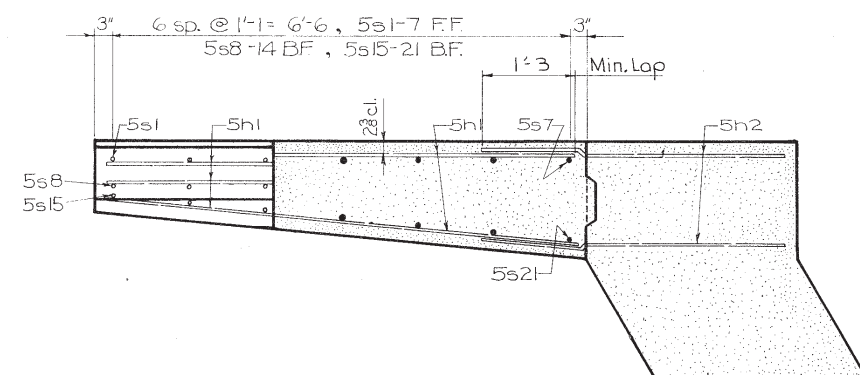
Holes for 5/8" ϕ bolts are to be formed with 3/4" ϕ (nominal dia.) Std. steel pipe sleeves which are to be galvanized after cutting to proper length. The pipe sleeves shall be securely fixed in exact location as shown before concrete is poured. The cost of pipe sleeves is to be included in the price bid for concrete. The 5/8" ϕ bolts are to be furnished and placed by others.



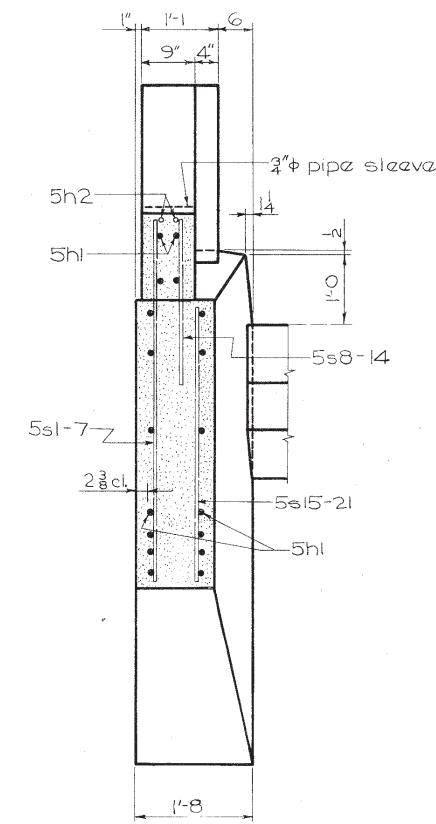
SECTION A-A
showing back face reinforcing



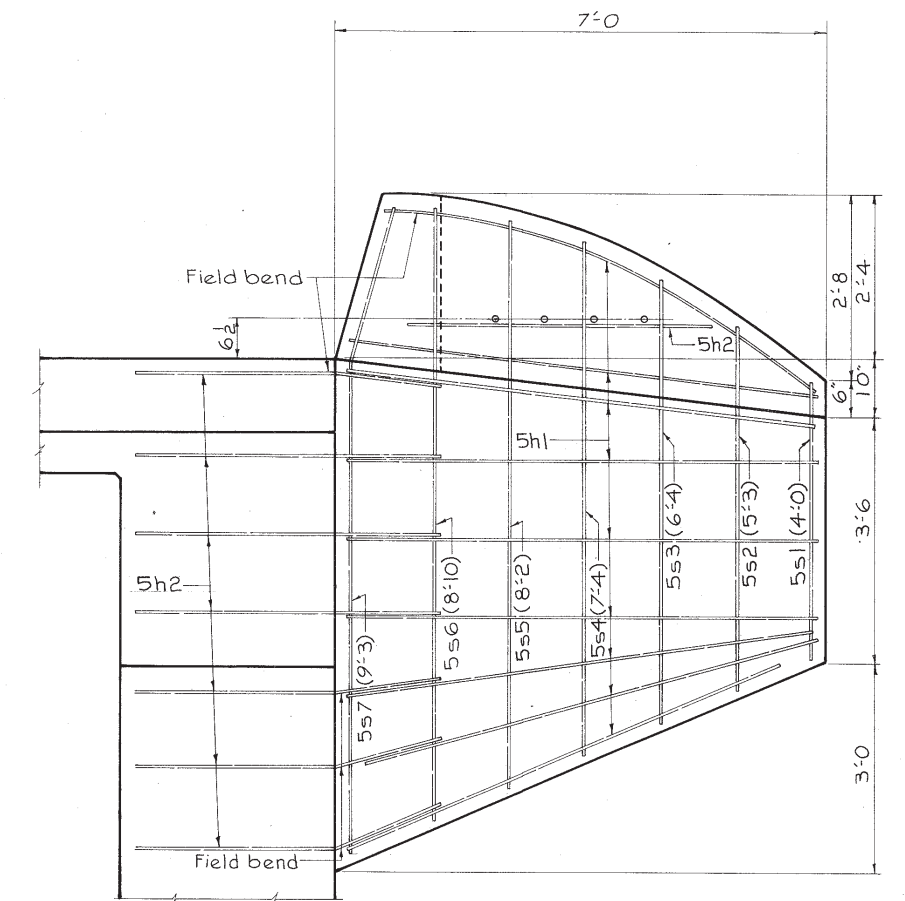
PART PLAN SHOWING WING & END POST DETAILS
Scale 3/4" = 1'-0"



SECTION C-C



SECTION B-B



VIEW D-D
showing front face reinforcing

ABUTMENT NOTES:

- All exposed corners of 90° or sharper are ~~to be~~ filleted with a 3/4" dressed and beveled strip.
- The minimum clear distance from the face of concrete to near reinforcing bar is ~~to be~~ 2 inches unless otherwise noted or shown. All reinforcing steel ~~is to be~~ ^{was} securely wired in place before concrete is placed.
- All backfill behind the abutment between the wings is ~~to be~~ granular backfill. The remainder of the abutment excavation ~~is to be~~ ^{was} backfilled with soil.
- Abutment piles are to be driven to practical refusal in hard shale. Abutment pile design bearing = 40 tons. Use same hammer for abutment piles as that specified for driving pier piles on sheet 6 of 20.

DESIGN FOR
DUAL 143'-0" x 40" & 138'-10" x 55'-6" PRETENSIONED
PRESTRESSED CONCRETE BEAM BRIDGES
143'-0" BR.-47'-5" & 39'-1" END SPANS (SK. 27° 14' 42") 56'-6" CTR. SPAN
138'-10" BR.-43'-3" & 39'-1" END SPANS (SKEW 30°) 56'-6" CTR. SPAN
MISC. ABUTMENT DETAILS
STATION: 401+48.00 N.B. LANE
STATION: 1402+50.00 S.B. LANE
NOVEMBER, 1967
CLARKE COUNTY
IOWA STATE HIGHWAY COMMISSION

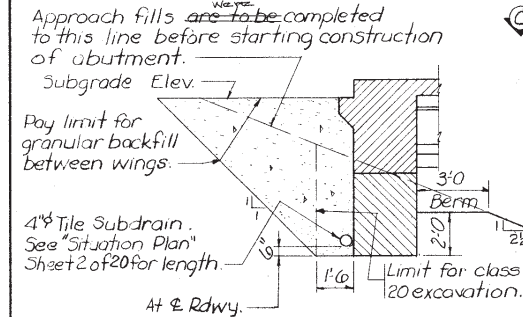
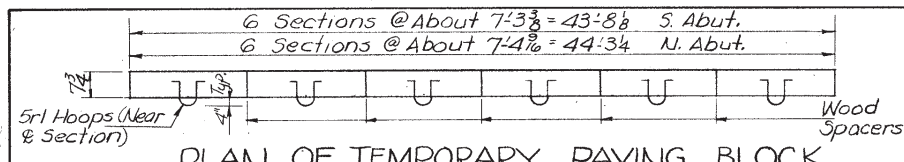
DESIGN NO. 2467
FILE NO. 22580
DES. SH. NO. 13 OF 20

CLARKE COUNTY

PROJECT NUMBER I-35-1(19)28--01-20

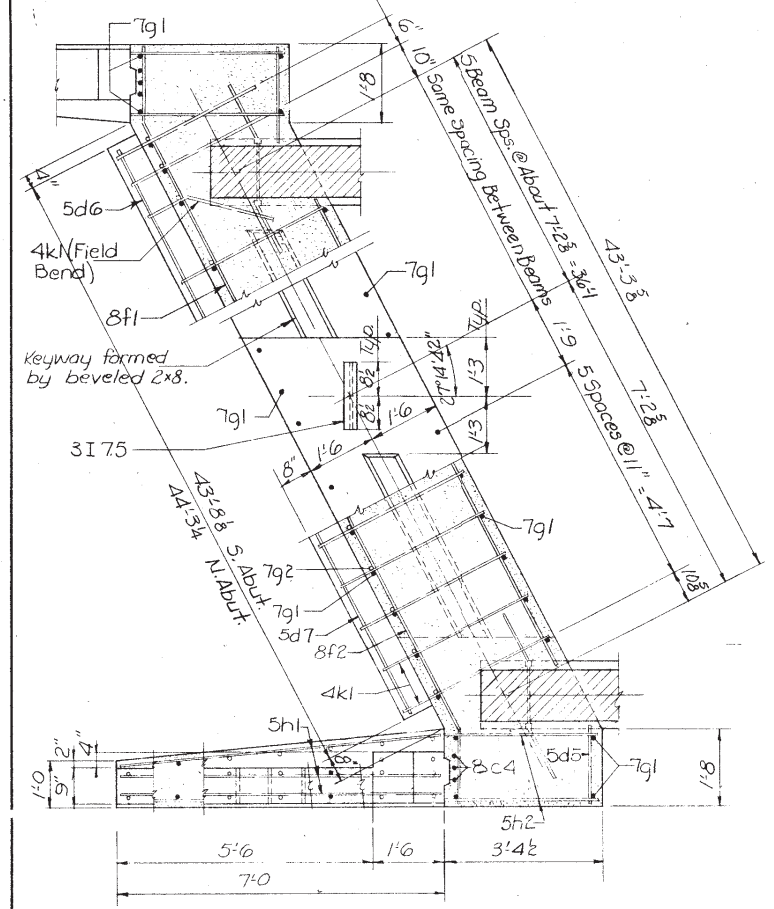
STATE	FED. ROAD DIST. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	5		25	44

DESIGNED BY: G.J.P. TRACED BY: JK CHECKED BY: JB



Spiral at top of each pile 7 turns of No. 2 bar. 21" Diameter, 3" pitch with 2" x 8" L0.69 spacers punched to hold spiral.

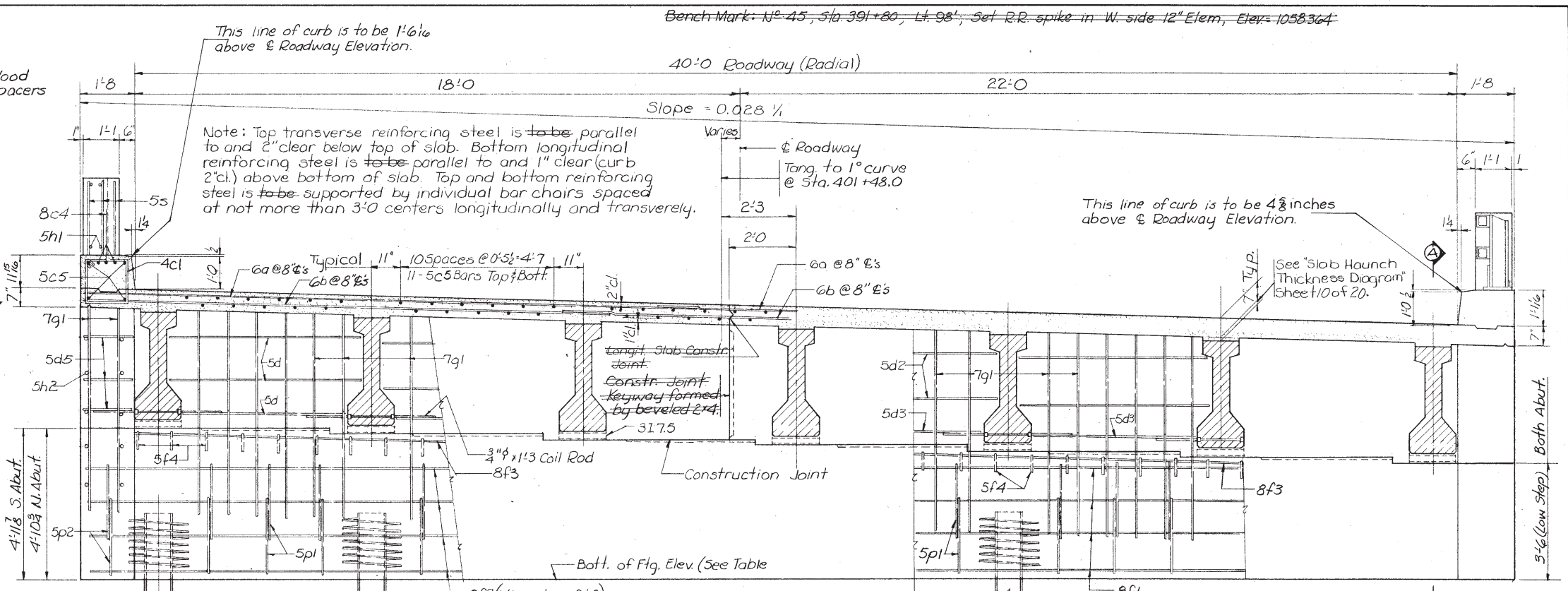
Spacing For:
7g1 Back Face
7g1 Front Face
7g2 Back Face
4kl Paving Notch



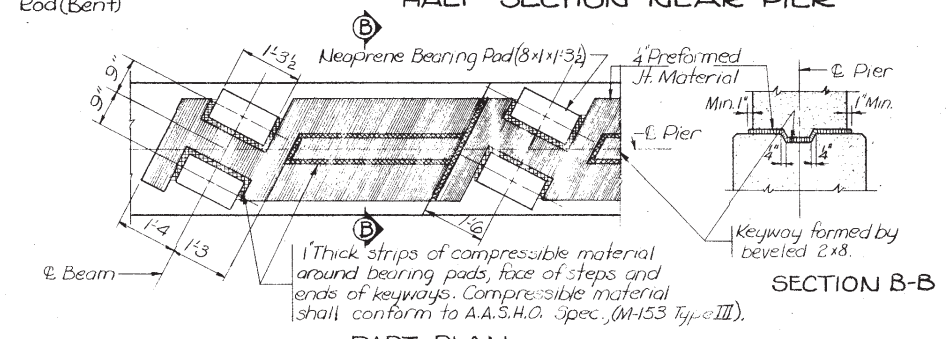
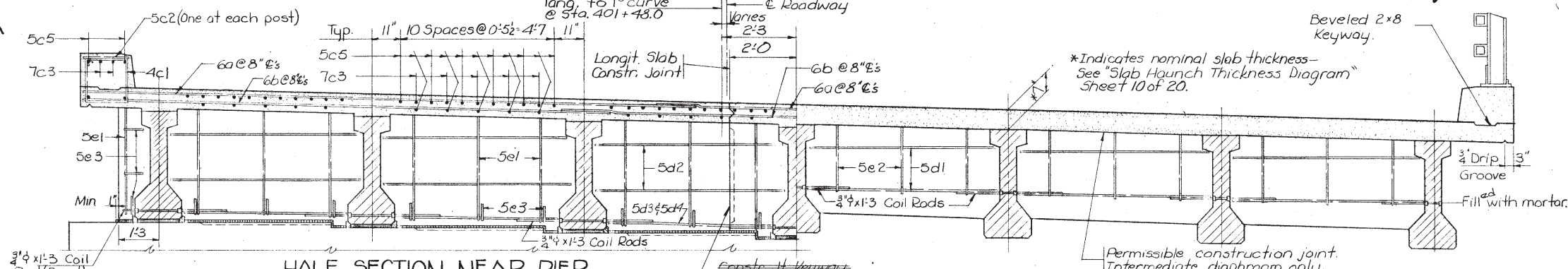
For Detail of End Post & Wing Wall, See Sheet 13 of 20.

PART SECTION C-C

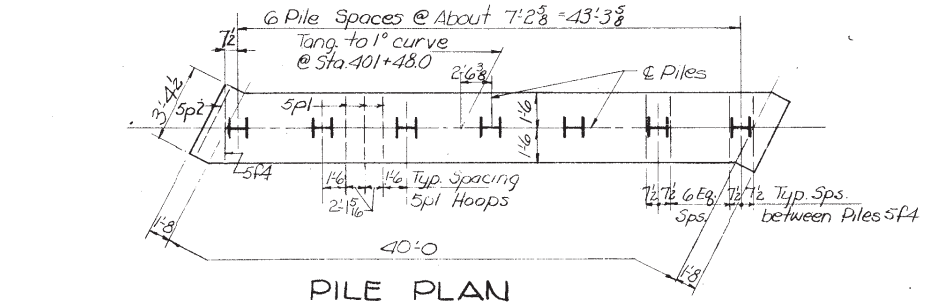
SECTION A-A



SECTION NEAR NORTH ABUTMENT



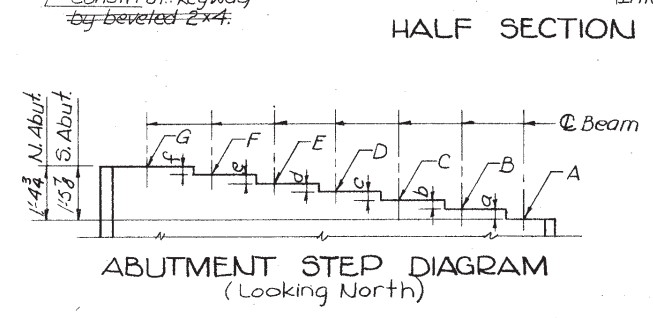
PART PLAN PIER TOP DETAILS



PILE PLAN

TABLE OF ABUTMENT ELEVATIONS			TABLE OF ABUTMENT STEPS		
Point	N. Abut.	S. Abut.	Step	N. Abut.	S. Abut.
A	1049.29	1051.87	a	2 1/2"	3"
B	1049.52	1052.12	b	2 1/2"	3"
C	1049.75	1052.37	c	2 1/2"	3"
D	1049.99	1052.62	d	2 1/2"	3"
E	1050.22	1052.86	e	2 1/2"	3"
F	1050.45	1053.11	f	2 1/2"	3"
G	1050.69	1053.36			
Bott. Ftg.	1045.79	1048.37			

DESIGN NO. 2467
FILE NO. 22580
DES. SH. NO. 14 OF 20



NOTE:
& Roadway, edges of slab and gutter lines are concentric arcs.

DESIGN FOR
DUAL 143'-0x40' & 138'-10x55-6 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGES
143'-0 BR.-47'-5 & 39'-1 END SPANS (SK. 27° 14' 42") 56'-6 CTR. SPAN
138'-10 BR.-43'-3 & 39'-1 END SPANS (SKEW 30°) 56'-6 CTR. SPAN
EAST BRIDGE SUPERSTRUCTURE DETAILS
STATION: 401+48.00 N.B. LANE
STATION: 1402+50.00 S.B. LANE
NOVEMBER, 1967
CLARKE COUNTY
IOWA STATE HIGHWAY COMMISSION

Revised (7-8-66)

Lower figures of D. L. deflection due to creep and shrinkage in Beam Data table changed.

Revised (1-25-67) Bars 3c added & No. of 3d Bars increased, deflection note re-written.

Revised 5-2-67: Note concerning roughening of beams at diaphragms added

Revised 6-1-67: Initial Prestress for B3 changed.

Revised (7-12-67)

End of bm changed from sloped to square.

Projection of Bar 4b1 above top flange changed from 4 1/2" to 4".

Stirrups spacings near bm end changed.

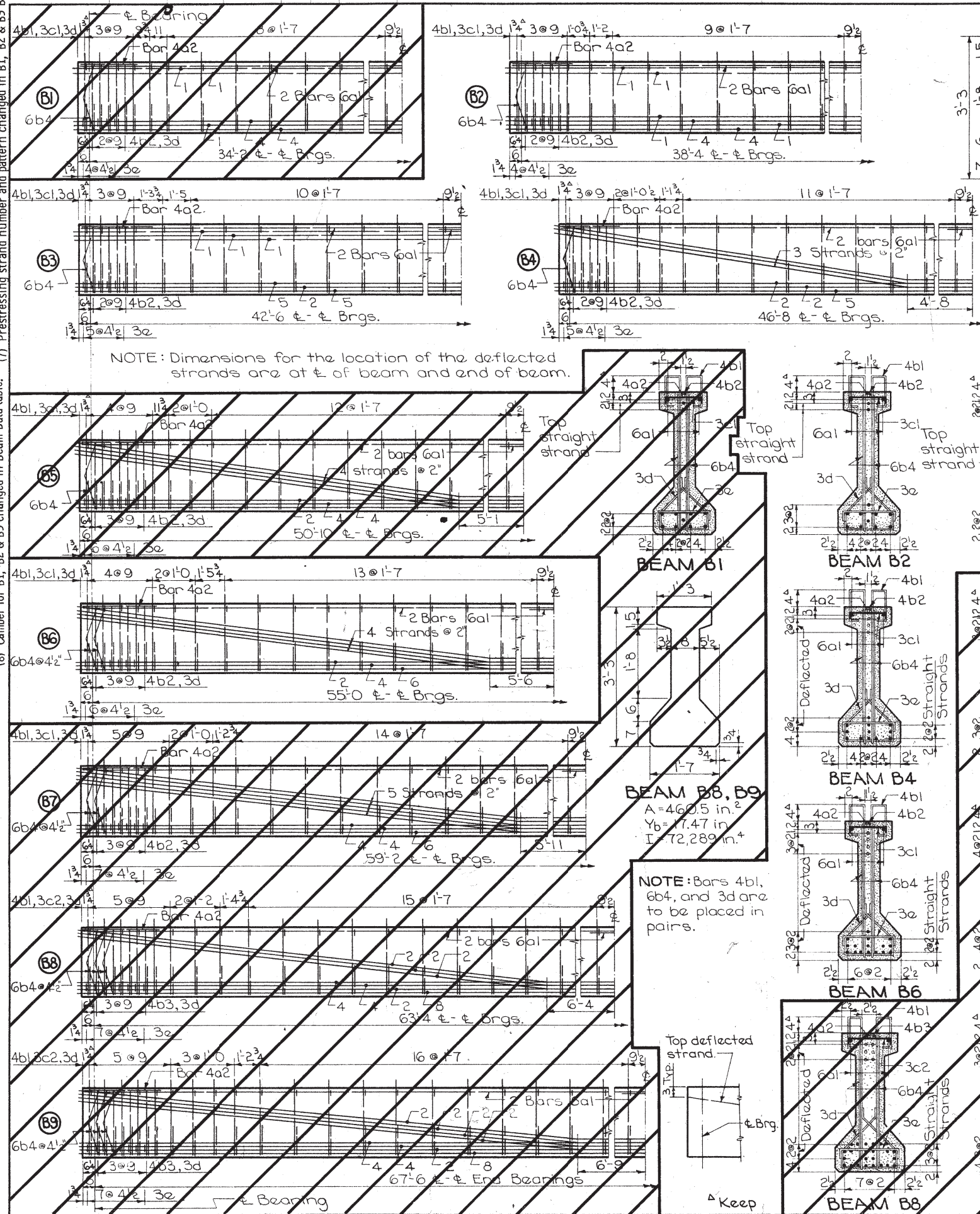
Bend detail of projected bottom strands at bm end changed.

Length of bar 5a1 & 4b1 changed.

Detail showing location of top deflected strands at bm end added

Prestressing strand number and pattern changed in B1, B2 & B3 Beams

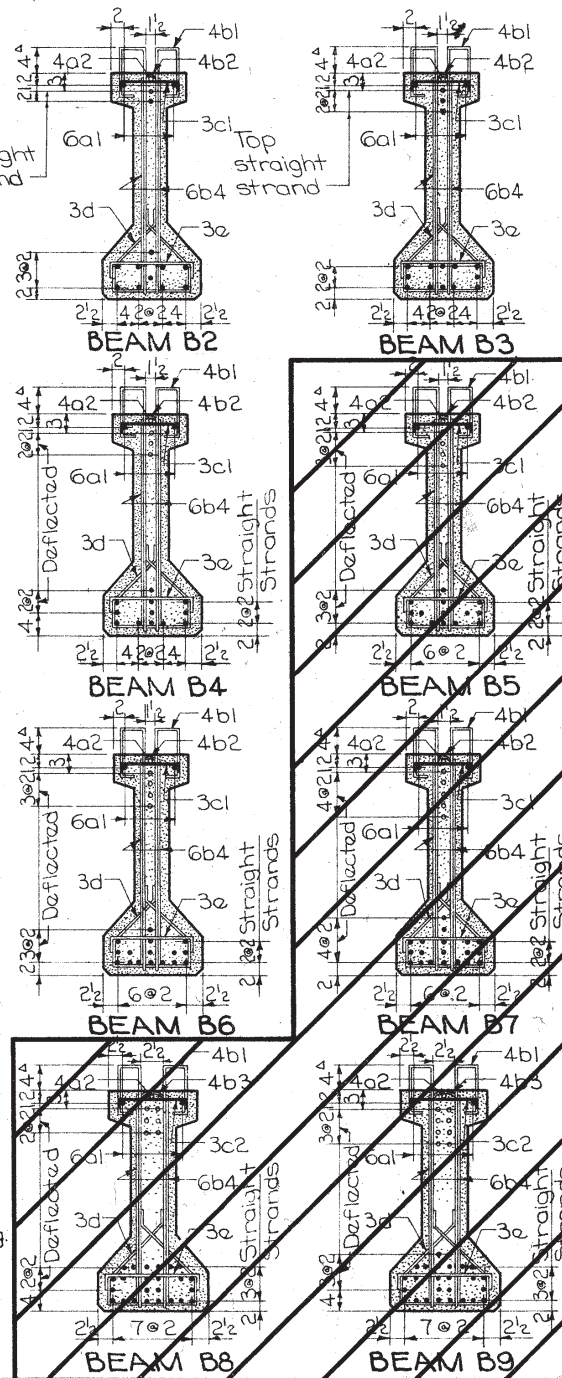
Camber for B1, B2 & B3 changed in Beam Data table.



BEAM B1-B7
A=382.5 in.²
Y_b=17.06 in
I=62,001 in.⁴

BEAM B8, B9
A=460.5 in.²
Y_b=17.47 in
I=72,289 in.⁴

NOTE: Bars 4b1, 6b4, and 3d are to be placed in pairs.



REINFORCING BAR LIST

Beam	B1	B2	B3	B4	B5	B6	B7	B8	B9
Span	34'-2"	38'-4"	42'-6"	46'-8"	50'-10"	55'-0"	59'-2"	63'-4"	67'-6"
Bar Shape	No. 1	No. 2	No. 3	No. 4	No. 5	No. 6	No. 7	No. 8	No. 9
No. length	34'-2"	39'-1"	42'-6"	42'-8"	42'-9"	42'-10"	42'-11"	42'-12"	42'-13"
6a1	2	2	2	2	2	2	2	2	2
4a2	2	2	2	2	2	2	2	2	2
4b1	56	60	64	72	80	84	92	96	104
4b2	6	6	6	6	6	6	6	6	6
4b3	1	1	1	1	1	1	1	1	1
6b4	4	4	4	4	4	4	4	4	4
3c1	28	30	32	36	40	42	46	48	52
3c2	1	1	1	1	1	1	1	1	1
*3d	68	72	76	84	96	100	108	112	120
3e	10	10	12	12	14	14	16	16	17

*Where deflecting strands interfere with placement, some in-place bending may be necessary.

BEAM DATA

Beam	B1	B2	B3	B4	B5	B6	B7	B8	B9
Span	34'-2"	38'-4"	42'-6"	46'-8"	50'-10"	55'-0"	59'-2"	63'-4"	67'-6"
Initial Prestress Kips	318	347	434	347	405	462	548	694	752
Size Strands	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2
Straight Strands	11	12	15	9	10	12	4	18	8
Deflected Strands	1	1	1	3	1	4	5	8	8
Hold Down Stress Kips	11.2	13.8	12.7	13.7	16.6	19.3	19.3	19.3	19.3
Camber @	1.3	1.8	1.8	2.5	2.6	3.1	4.6	6.5	6.7
① D.L. Deflection @ in. (6'-3" Spc)	0.8	0.2	0.2	0.4	0.4	0.5	0.6	0.6	0.6
② D.L. Deflection @ in. (6'-9" Spc)	0.9	0.2	0.3	0.4	0.5	0.5	0.6	0.6	0.6
③ D.L. Deflection @ in. (9'-6" Spc)	1.1	0.3	0.4	0.5	0.6	0.6	0.7	0.7	0.7
Reinforcing Steel Lbs	4,111	4,411	4,788	5,266	5,855	6,355	6,844	7,444	7,922
Concrete C.Y.	3.47	3.87	4.28	4.69	5.10	5.51	5.92	6.33	6.74

- Due to weight of slab and diaphragms.
- Upper figure is the beam camber at release. Lower figure is the beam camber just before slab is placed.
- Upper figure is the elastic deflection of beam due to weight of slab. Lower figure is the deflection due to the combined effect of creep due to weight of slab and shrinkage of slab. Total deflection of beam is upper figure + 75% of lower figure for end spans and upper figure + 50% of lower figure for interior spans.

NOTES

Unless otherwise noted lengths of all beams shall be increased .0005 L to compensate for creep shrinkage and elastic shortening.

All deflected strands are to be held down at .4 points except that the hold down point may be moved toward the end of the beam a distance not to exceed .05 span at the producer's option.

Tops of beams are to be struck off level and artificially roughened in accordance with the I. H. C. Materials Department recommendations.

Bearing details will be as detailed on the Bridge design sheets. All strands are to be 1/2" # 270 kip grade. Beams for continuous bridges shall be at least 4 weeks old before the slab is placed except as otherwise approved by the Engineer.

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

DESIGN STRESSES

Design stresses for the following materials are to be in accordance with A. A. S. H. O. Standard Specifications for Highway Bridges, Series of 1961 and T1:

Reinforcing steel in accordance with section 1.4.12 "Reinforcement" for Intermediate, Hard or Rail Steel grade.

Concrete in accordance with 1.13.7, f'c = 5000 psi. Prestressing steel in accordance with 1.13.7 f's = 270,000 psi.

SPECIFICATIONS

DESIGN: A. A. S. H. O. Series 1961. CONSTRUCTION: Standard Specifications of the Iowa State Highway Commission, current series, plus current special provisions and supplemental specifications.

DESIGN FOR

DUAL 143'-0"x40" & 138'-10"x55'-6" PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGES

143'-0" BR.-47'-5.839'-1" END SPANS (SK. 27° 14' 42") 56'-6" CTR. SPAN

138'-10" BR.-43'-3.839'-1" END SPANS (SKEW 30°) 56'-6" CTR. SPAN

BEAM DETAILS PC 66 B

STATION: 401+48.00 N.B. LANE
STATION: 1402+50.00 S.B. LANE

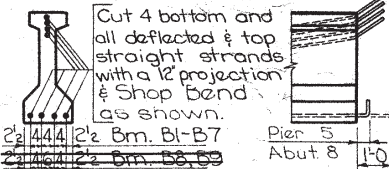
NOVEMBER, 1967

CLARKE COUNTY

IOWA STATE HIGHWAY COMMISSION

LIFTING LOOP DETAILS

Lifting loops are to be structural grade steel. Alternate types may be substituted with the approval of the Engineer.



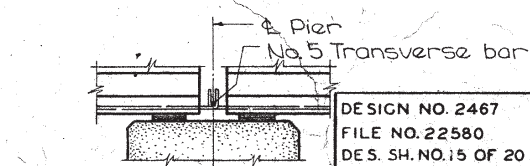
COILTIE DETAILS

Number and location of coil ties to be as detailed on specific designs.

BEAM END DETAIL AT PIER AND ABUT.

MAXIMUM SPACING OF BEAMS FOR SPANS SHOWN

Loading	Future W. S.	Maximum Spacing
H20-S16 (Primary)	19'-0"	7'-3"
H20 (Primary)	19'-0"	8'-0"
H15 (Secondary)	19'-0"	9'-6"



DETAILS AT PIER BEFORE PLACING PIER DIAPHRAGM

DESIGNED BY: G.J.P. TRACED BY: JX CHECKED BY: JB

4101

CLARKE COUNTY

PROJECT NUMBER

I-35-1(19)28-01-20

STATE IOWA

FED. ROAD DIST. NO. 5

FISCAL YEAR 2542

SHEET NO. 44

TOTAL SHEETS 44

POST SECTION

74

64

14

44

14

4

8 R

4 R

REAR VIEW OF POST

10 4

2 - 2 3

3 4

1 4

11 4

1 16

2 3 16

2 3 16

1 16

3 16" x 13" Slots.

7 16" ϕ Holes for 3" x 1" alum. bolts with hex head & nut.

1 16

2 3 16

2 3 16

1 16

5 16" ϕ Holes for 13" aluminum rivets.

74

REAR VIEW OF POST

SHIM "A" DETAIL

SHIM "B" DETAIL

RAIL SECTION

RAIL END CAP DETAILS

POST SECTION

7/16" ϕ Holes for
3/8" x 1" alum.
bolts with
hex. head &
nut.

Technical drawing of a rectangular plate with dimensions and hole specifications. The drawing shows a front view (top) and a side view (bottom).

Front View (Top):

- Overall width: 9 1/2"
- Overall height: 4 3/4"
- Distance from top edge to center of top hole: 1 5/8"
- Distance between centers of top and middle holes: 3 7/8"
- Distance between centers of middle and bottom holes: 3 7/8"
- Distance from bottom edge to center of bottom hole: 1 5/8"
- Three circular holes are shown, each with a diameter of 1" (labeled "1" ϕ Holes").

Side View (Bottom):

- Overall width: 9 1/2"
- Overall height: 4 3/4"
- Distance from left edge to center of left hole: 2 1/4"
- Distance between centers of left and right holes: 2 1/2"
- Distance from right edge to center of right hole: 2 1/4"
- Two circular holes are shown, each with a diameter of 3/4" (labeled "3/4" ϕ Holes").

[illegible]

ILS

SHIM "B" DETAIL

SECTION A-A

CLAMP BAR DETAILS

ANCHOR BOLT ASSEMBLY

TYPICAL ELEVATION OF RAILING AND RAIL POST LAYOUT

RAIL SPLICE DETAIL

ALUMINUM HANDRAIL NOTES:

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

A 2" ϕ drain hole is to be provided, 3 inches from the end, at the bottom side of the end sections of all rails.

DESIGN SPECIFICATIONS:

ALUMINUM HANDRAIL QUANTITIES	
Aluminum Handrail	286.2 Lin.Ft.

CLARKE COUNTY
TOWA STATE HIGHWAY COMMISSION

-35-1(19)28--01-20	STATE	FED.ROAD DIST.No	FISCAL YEAR	SHEETS No	TOTAL SHEETS
	IOWA	5		25.44	10

Technical drawing of a mechanical assembly, likely a door or window frame, showing dimensions and components. The drawing includes the following dimensions and features:

- Overall width: 1'-2"
- Top left corner radius: 2"
- Vertical distance between the top and middle rectangular components: 1'-0"
- Vertical distance between the middle rectangular component and the bottom horizontal component: 2'-3/4"
- Vertical distance from the bottom horizontal component to the base: 1'-1"
- Horizontal distance from the left edge to the center of the bottom horizontal component: 1'-0 3/8"
- Bottom left corner radius: 3 5/8"
- Components include two rectangular frames, two circular fasteners, and a base with two vertical support rods.

This technical drawing shows a three-legged support structure. At the top, a rectangular object is shown in cross-section. Three vertical dashed lines indicate the attachment points for the legs. The legs are connected to a horizontal base plate by three bolts. The base plate is mounted on a horizontal surface, indicated by a line labeled 'Boden' (ground). The legs are shown in cross-section, with the top part being wider and tapering down to the base. The drawing is a black and white line drawing.

Technical drawing of a mechanical part with dimensions:

- Overall width: $9\frac{1}{2}$
- Overall height: 3
- Top flange width: $2\frac{1}{4}$ (left), 5 (center), $2\frac{1}{4}$ (right)
- Bottom flange width: $5\frac{1}{2}$ (left), $5\frac{1}{2}$ (right)
- Bottom flange height: $2\frac{1}{4}$
- Bottom flange thickness: $\frac{3}{4}$

Technical drawing of a cross-section of a rail joint. The drawing shows two vertical rail sections joined by a horizontal splice plate. The left rail has a total width of $3 \frac{9}{16}$ inches and a height of $3 \frac{15}{16}$ inches. The splice plate has a thickness of $\frac{1}{4}$ inch. The joint is secured with bolts and washers. Dimensions for the splice plate and the rail sections are provided. The text "Rail" is written on the right side. The text "Dimple A" and "Dimple B" are written near the splice plate. The text "R (Typ)" is written near the rail section.

The aluminum handrail is to be bid on a lineal foot basis measured from end to end of rail. The price bid for "Aluminum Handrail" shall be full compensation for furnishing all material including the anchor bolts and all of the equipment and labor required to erect the rail in accordance with these plans and specifications.

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

Material for anchor studs shall be 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 conform to A.S.A. B-11 for UNC threads series, class 2A fit. Threads may be rolled or cut. Diameter of stud shall be not less than pitch diameter of threads. The aluminum nuts shall be thick, hexagonal, finished and shall comply with A.S.A. B-18.2. Threads shall comply with A.S.A. B-11 for UNC threads series, class 2B fit.

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

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

The entire surfaces of anchor bolt assembly plate and the shims are to be 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 furnished for each post, to be used as required.

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

2-13-UNC-2B Thread for 2-13-UNC-2A x stainless steel A.S.A. B-18.2 hex head bolt with S.A.E. Standard Light aluminum washer.

Position of nut for setting anchor bolt assembly R (Typ.)

3-1/2" Thick hex. aluminum nut.

3-1/2" Thick hex. aluminum nut.

ASA B272 Alum. Washer

ASA B272 Alum. Washer

Anchor bolt assembly R

3- 3/2" ϕ x 0'-9" Stainless steel studs.

2- 1/2" ϕ x 0'-7 3/4" Stainless steel studs.

Regular sq. or hex. steel nuts.

2 3/4" Min.

2 1/2" Min.

1" Min.

9"

9"

Technical drawing of a rectangular plate. Dimensions are given as $3\frac{3}{4}$ (width) and $4\frac{3}{8}$ (height). A small square indicates a 90-degree angle. A note points to the plate: $Pl. 4\frac{3}{8} \times 1 \times O. 3\frac{3}{4}$. Other dimensions shown include 8 , $3\frac{1}{16}$, and 12 .

$\frac{9}{16}'' \times \frac{13}{16}''$
 Slots.

The drawing shows a bracket with a base plate and a vertical support. The base plate has a width of $\frac{9}{16}''$ and a height of $\frac{13}{16}''$. The vertical support has a diameter of $\frac{7}{16}''$. The distance between the center of the vertical support and the center of the base plate is $1\frac{1}{2}''$. The distance between the center of the vertical support and the center of the base plate is $1\frac{1}{2}''$. The base plate has two slots, each $\frac{3}{8}''$ wide and $1''$ long. The slots are located on the base plate, centered horizontally. The slots are for bolts with hex head & nut.

$\frac{7}{16}'' \phi$ Holes for
 $\frac{3}{8}'' \times 1''$ alum.
 bolts with
 hex head &
 nut.

Technical drawing of a rectangular plate with dimensions and hole positions. The overall dimensions are 74 (width) and 114 (height). The plate has four holes arranged in a 2x2 grid. The horizontal spacing between the centerlines of the holes is 35/8, and the vertical spacing is 25/8. The distance from the left edge to the centerline of the first hole is 11/8, and from the right edge to the centerline of the last hole is 11/8. The distance from the top edge to the centerline of the first hole is 10 1/4, and from the bottom edge to the centerline of the last hole is 11 1/4. The drawing includes dimension lines and arrows indicating the measurements.

Technical drawing of a trapezoidal part. The top width is 74. The bottom width is 43. The height is 43. There are four holes arranged in a 2x2 grid. The distance between the holes is 23. The distance from the left edge to the first hole is 23. The distance from the right edge to the last hole is 23. The distance from the bottom edge to the first hole is 23. The distance from the top edge to the last hole is 23.

Handlin
accordance
except that
Material
Alloy 6061-T6
and cold ch
A 1/2" dia
bottom side

DESIGN
Designs

ANCHOR BOLT ASSEMBLY

DESIGN NO. 2467
FILE NO. 22 580
DES. SH. NO. 18 OF 2

NOTE: Maximum rail post spacing = 8'-0".

TYPICAL ELEVATION OF RAILING AND RAIL POST LAYOUT

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

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

A 2" ϕ drain hole is to be provided, 3 inches in from the end, at the bottom side of the end sections of all rails.

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

Aluminum Handrail	294.4 Lin.Ft.
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DUAL 143'-0" x 40" & 138'-10" x 55'-6" PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGES

143'-0" BR.-47'-5" & 39'-1" END SPANS (SK. 27° 14' 42") 56'-6" CTR. SPAN
138'-10" BR.-43'-3" & 39'-1" END SPANS (SKFW 30°) 56'-6" CTR. SPAN

E. BRIDGE ALUMINUM HANDRAIL DETAILS

STATION: 401+48.00 N.B. LANE

STATION: 1402+50.00 S.B. LANE

NOVEMBER 1967

CLARKE COUNTY

IOWA STATE HIGHWAY COMMISSION

DESIGNED BY: G.J.P. TRACED BY: JK CHECKED BY: ZB

1012A

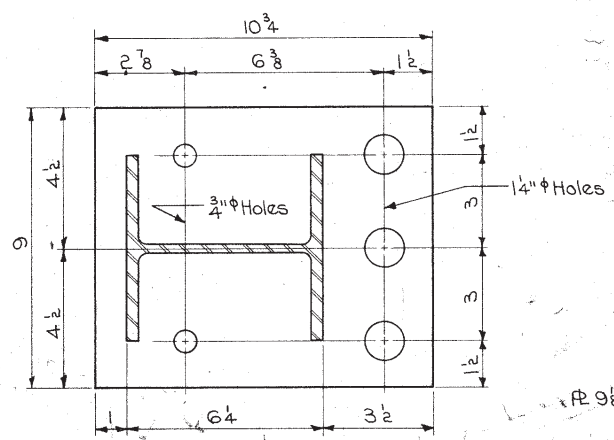
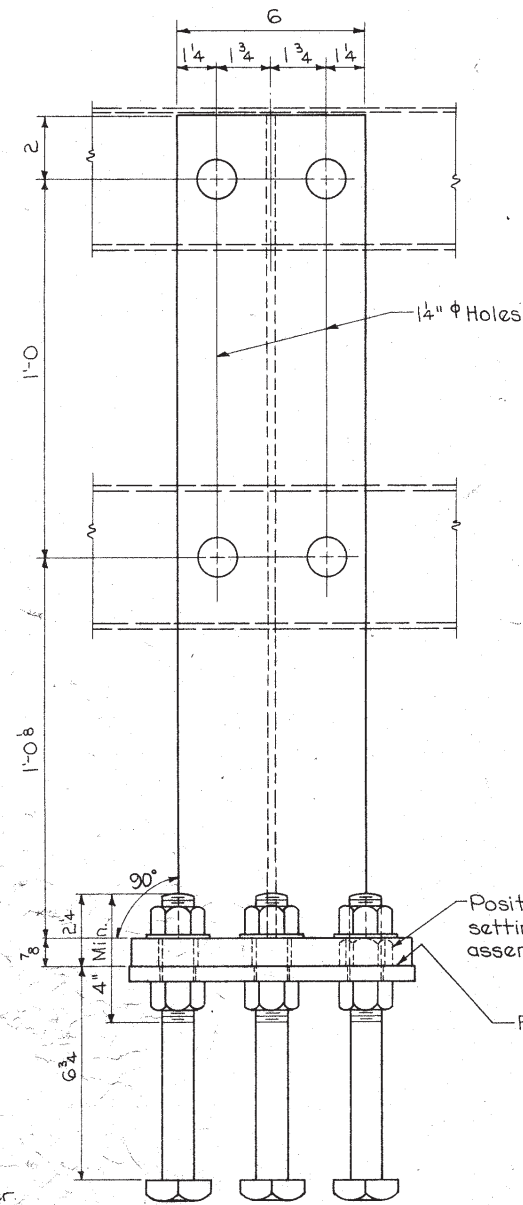
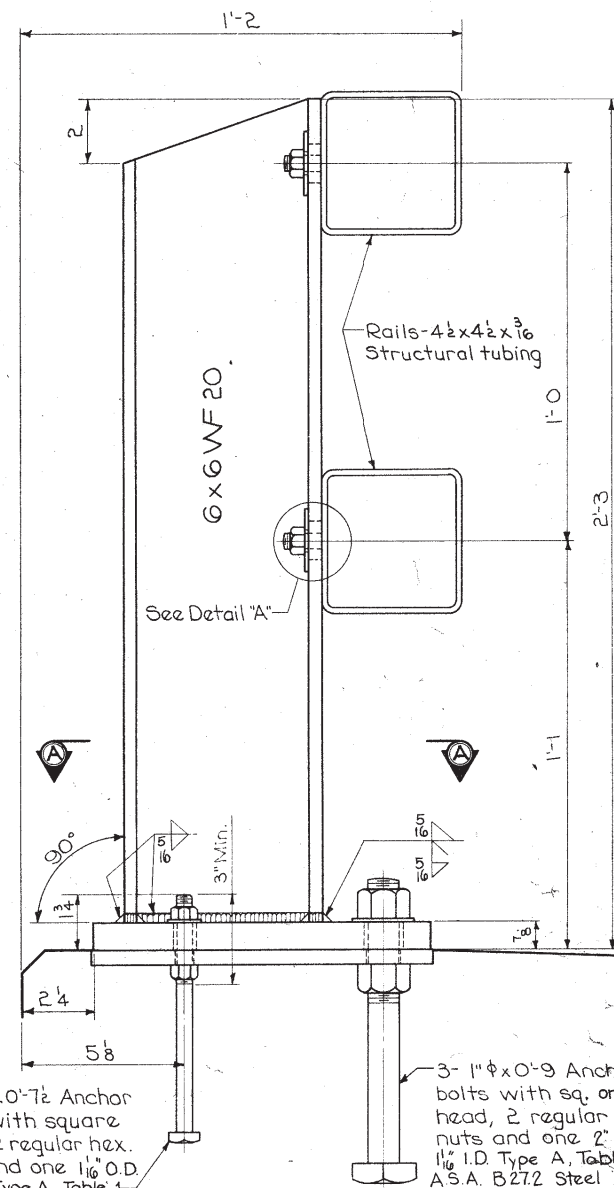
CLARKE COUNTY

PROJECT NUMBER	I-35-1(19)28--01-20
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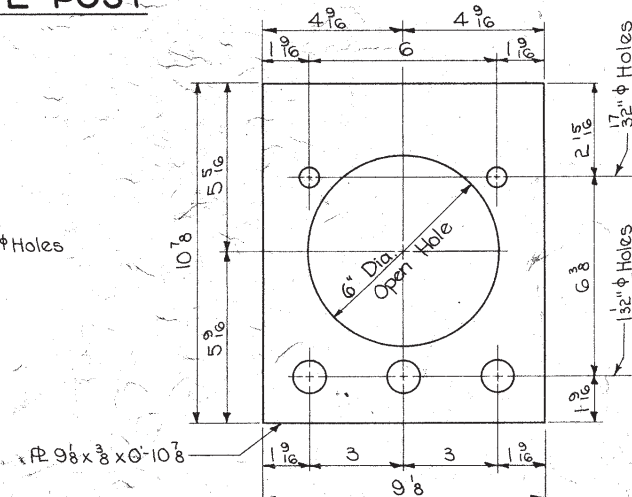
STATE	FED. ROAD DIST. NO.	FISCAL YEAR	SHEETS NO.	TOTAL SHEETS
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STATE	FED. ROAD DIST. NO	FISCAL YEAR	SHEETS NO	TOTAL SHEETS
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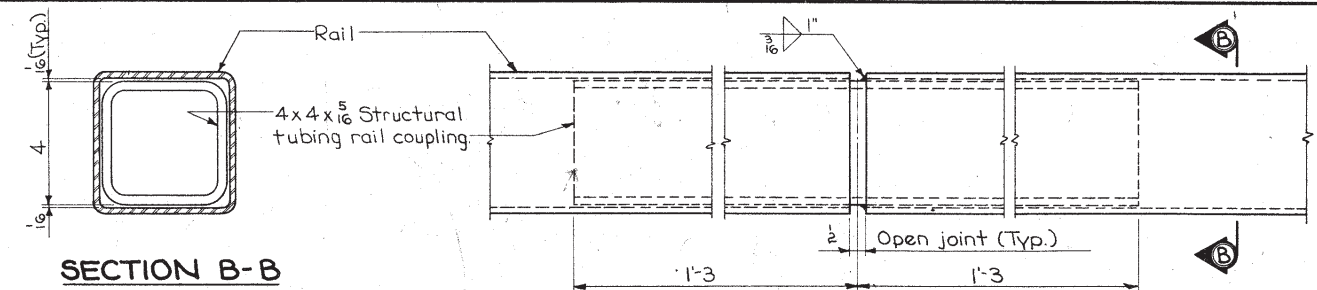
Revised 7-25-66: Caulking at posts eliminated.



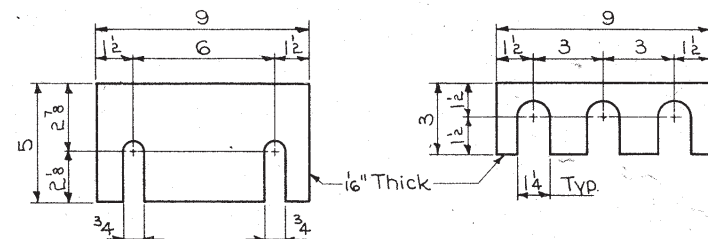
SECTION A-A



ANCHOR CAGE DETAILS

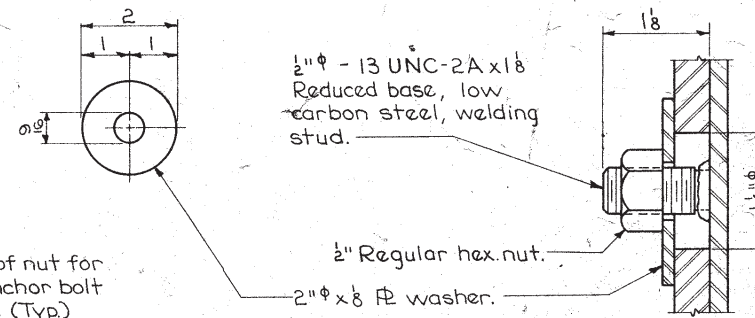


SECTION B-B

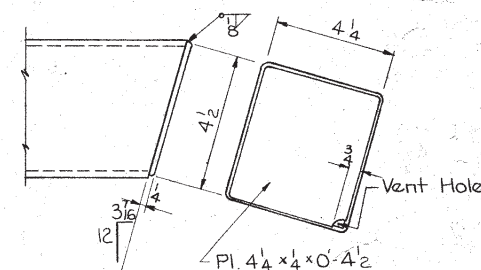


SHIM "A" DETAIL

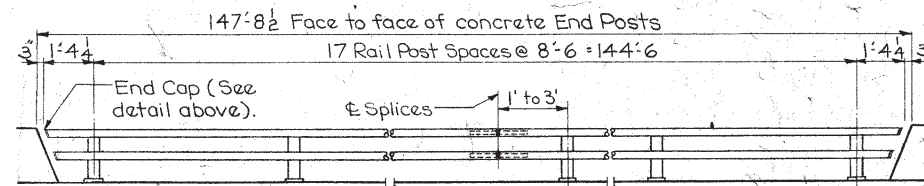
SHIM "B" DETAIL



DETAIL "A"



RAIL END CAP DETAILS



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

TYPICAL ELEVATION OF RAILING AND RAIL POST LAYOUT

STEEL HANDRAIL NOTES:

The steel handrail is to be bid on a lineal foot basis measured from end to end of rail. The price bid for "Steel Handrail" shall be full compensation for furnishing all material including the anchor bolts and all equipment and labor required to erect the rail in accordance with these plans and Specifications.

Each rail section must be attached to as many posts as possible, but to at least three posts before being spliced.

Material for rail tubing, post, base plate and anchor cage shall be A.S.T.M. A-36 and are to be galvanized after fabrication to A.S.T.M. A-123.

Material for anchor bolts and nuts, and rail to post attachment nuts shall be A.S.T.M. A-307 - GI T, Grade A.

Anchor bolts and nuts, rail to post attachment nuts, end caps, washers and shims are to be galvanized to A.S.T.M. A-153.

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

Welding shall be in accordance with Section 2408.15 of the Standard Specifications.

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

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

A surface is considered to be "Flat and True" when the deviation from a straight edge placed on this surface in any position, is less than 1/16".

No painting will be required.

Rail studs shall be provided with adequate protection during shipment.

DESIGN SPECIFICATIONS:

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

STEEL HANDRAIL QUANTITIES

Steel Handrail	294.4 Lin. Ft.
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DESIGN FOR
DUAL 143'-0" x 40' & 138'-10" x 55'-6" PRETENSIONED
PRESTRESSED CONCRETE BEAM BRIDGES

143'-0" BR.-47'-5" & 39'-1" END SPANS (SK. 27° 14' 42") 56'-6" CTR. SPAN
138'-10" BR.-43'-3" & 39'-1" END SPANS (SKEW 30°) 56'-6" CTR. SPAN

E. BRIDGE STEEL HANDRAIL DETAILS

STATION: 401+48.00 N.B. LANE

STATION: 1402+50.00 S.B. LANE

CLARKE COUNTY

IOWA STATE HIGHWAY COMMISSION



DESIGN NO. 2467
FILE NO. 22580
DES. SH. NO. 200F 20