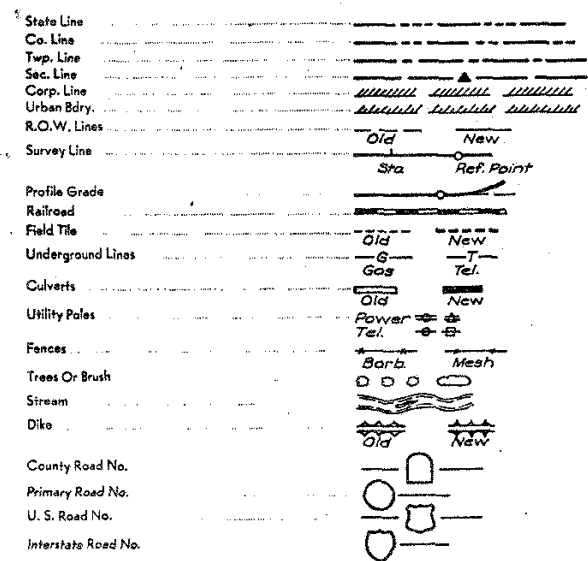


94-75.25007

STATE	FED. ROAD DIST. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	1		1	20
PROJECT NUMBER				
FN-7-5(6)--21-94				

CONVENTIONAL SIGNS



REVISED
PRINT

STATE OF IOWA
STATE HIGHWAY COMMISSION

PLANS OF PROPOSED IMPROVEMENT
ON THE

PRIMARY ROAD SYSTEM

WEBSTER COUNTY

EXTEND AND REPAIR
BRIDGE

IOWA NO. 7 OVER DES MOINES RIVER (KARL KING BRIDGE IN FT. DODGE)

SCALE: AS NOTED

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 Supplemental Specifications)

Spec. 685 "Manual on Uniform Traffic Control Devices."

All Welding shall meet the requirements of the Eighth Edition of the Specifications
for Welded Highway and Railway Bridges (AWS D2.0-69) of the American Welding
Society, except as modified by the Standard Specifications and the current Supplemental
Specifications.

DESIGN STRESSES:

Design stresses for the following materials are in accordance with
AASHTO Standard Specifications for Highway Bridges, 1969 with Interim
Specifications 1970:

Concrete in accordance with Section 1.5.1, $f'_c = 3,500$ psi.

Reinforcing Steel in accordance with Section 1.5.1 D $f_s = 20,000$ psi.

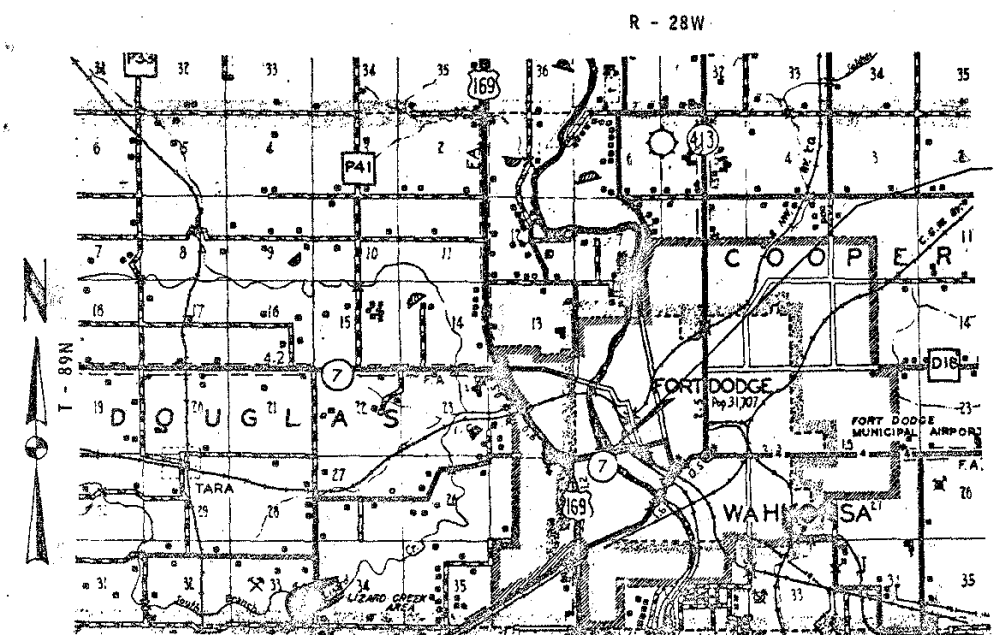
"Reinforcement" for Grade 40, $f_s = 20,000$ psi.

Structural Steel in accordance with Section 1.7.1

ASTM A-36, $f_s = 20,000$ psi.

Design No. 1471

NO MILEAGE SUMMARY



STATE CONTROL SECTION NUMBER LOCATION MAP

94-0500

LOCATION MAP SCALE



INDEX OF SHEETS		105-3
NO.	DESCRIPTION	
1	TITLE SHEET	
1A	TABULATION OF REVISIONS	
2	ESTIMATE SHEET	
3-20	BRIDGE REPAIR DESIGN NO. 1471	

DETAIL PLANS
REDUCED IN SIZE
(DO NOT SCALE)

CONSTRUCTION PLANS

SHOWING PROJECT AS BUILT
FOR EXTEND & REPAIR OF BRIDGE
IN 1972

CONTRACTOR: GODDERSEN - SMITH CONSTR. CO.

PREPARED BY Ron DeBob DATE 5-2-73
RES. CONSTR. ENGR.

THREE COPIES:

- ONE COPY TO JEFFERSON RES.
- ONE COPY TO DISTRICT NO. 1
- ONE COPY TO MAINTANCE RES.

3D Rev

REVISED
SEE FOLLOWING SHEET 1A

APPROVED
R. H. Given
DEPUTY CHIEF ENGINEER
IOWA HIGHWAY COMMISSION
DATE 8/16/71

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 8-11 1971 IOWA REG. NO. 2792

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

LETTING DATE 5-2-73
WEBSTER COUNTY
EXTEND AND REPAIR BRIDGE
PROJECT NO. FN-7-5(6)--21-94

Webster IA 7 9/2 #27

LISTING OF PROJECT REVISIONS

DATE	SHEET NUMBER	DESCRIPTION OF REVISIONS	DATE	SHEET NUMBER	DESCRIPTION OF REVISIONS
Nov. 3, '71	Sheet 1A of 20	Design 1471 This sheet added to project (Revision Sheet).			
	Sheet 2, 3 & 8 of 20	Reinforcing Steel quantity corrected.			
	Sheet 1 of 20	Sheet 1A added to "Index of Sheets".			

REVISION SHEET

WEBSTER COUNTY

PROJECT NUMBER
FN-7-5(6)--21-94

STATE	FED. ROAD DIST. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	5		1A	

Form 343

IOM - 7-62

I.H.C.

LOG OF PILING DRIVEN

Iowa State Highway Commission

Kind of Piling Steel I-BeamUn-treated, Treated, (Give Species) Steel, (Give Type),
Concrete (Precast or Prestressed)Type of Hammer Diesel
Single or Double Acting Steam, Gravity, DieselH. Comm. No. of Hammer None-MitsubishiGross Weight of Hammer 2270 Effective Wt. 2270Hammer Energy 2200 Ft. Tons 13.0Weight of Driving Cap 1820 Hw. 871Weight of Pile 2520Formula Used $P = \frac{3E}{L} \times \frac{W}{W+M}$ Required Penetration 540.1 FullRequired Bearing 31Was Bearing Determined Immediately Upon Completion of Driving? Yes

Sketch below foundation and location of each pile by circles with numbers therein. Note battered piles on sketch, and give amount of batter. Mail 3 copies on F. A. projects and 2 copies on state projects to Dist. Engr., upon completion of each foundation.



Pile No.	Date Driven	Length in Leads Nearest Foot	Length Cut Off Nearest Tenth Foot	Length in Structure	Ave. Penetration Last Blows (inches)	Drop in Feet	Bearing in Tons	Pile No.	Date Driven	Length in Leads Nearest Foot	Length Cut Off Nearest Tenth Foot	Length in Structure	Ave. Penetration Last Blows (inches)	Drop in Feet	Bearing in Tons
1	6-17	60	7.9	53.1	5.5	Ref	26								
2	6-17	60	8.0	52.0	8.5	Ref	27								
3	6-17	60	7.1	52.9	8.5	Ref	28								
4	6-19	60	7.5	52.5	8.5	Ref	29								
5	6-19	60	7.9	52.1	8.5	Ref	30								
6	6-19	60	7.9	52.1	8.5	Ref	31								
7	6-19	60	7.9	52.1	8.5	Ref	32								
8	Total	420	55.4	365.9			23								
9							24								
10							25								
11							26								
12							27								
13							28								
14							29								
15							30								
16							31								
17							32								
18							33								
19							34								
20							35								
21							36								
22							37								
23							38								
24							39								
25							40								
26							41								
27							42								
28							43								
29							44								
30							45								
31							46								
32							47								
33							48								
34							49								
35							50								

*On Pile Trestle Bridges give length in ground and also total length in structure.

Inspector

Resident Const. Engineer

Form 343

IOM - 7-62

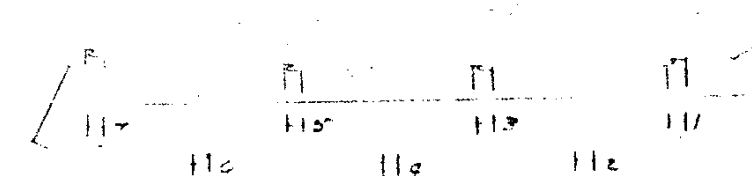
I.H.C.

LOG OF PILING DRIVEN

Iowa State Highway Commission

Kind of Piling Steel I-BeamUn-treated, Treated, (Give Species) Steel, (Give Type),
Concrete (Precast or Prestressed)Type of Hammer Diesel
Single or Double Acting Steam, Gravity, DieselH. Comm. No. of Hammer None-MitsubishiGross Weight of Hammer 2270 Effective Wt. 2270Hammer Energy 2200 Ft. Tons 13.0Weight of Driving Cap 1820 Hw. 871Weight of Pile 2520Formula Used $P = \frac{3E}{L} \times \frac{W}{W+M}$ Required Penetration 540.1 FullRequired Bearing 31Was Bearing Determined Immediately Upon Completion of Driving? Yes

Sketch below foundation and location of each pile by circles with numbers therein. Note battered piles on sketch, and give amount of batter. Mail 3 copies on F. A. projects and 2 copies on state projects to Dist. Engr., upon completion of each foundation.



* 40' piling was substituted for 58' of the contractor's option because he could not get the 58' required in this Abutment. #10

* Batt. 9.1

Pile No.	Date Driven	Length in Leads Nearest Foot	Length Cut Off Nearest Tenth Foot	Length in Structure	Ave. Penetration Last Blows (inches)	Drop in Feet	Bearing in Tons	Pile No.	Date Driven	Length in Leads Nearest Foot	Length Cut Off Nearest Tenth Foot	Length in Structure	Ave. Penetration Last Blows (inches)	Drop in Feet	Bearing in Tons
1	6-17	60	7.9	53.1	5.5	Ref	26								
2	6-17	60	8.0	52.0	8.5	Ref	27								
3	6-17	60	7.1	52.9	8.5	Ref	28								
4	6-19	60	7.5	52.5	8.5	Ref	29								
5	6-19	60	7.9	52.1	8.5	Ref	30								
6	6-19	60	7.9	52.1	8.5	Ref	31								
7	6-19	60	7.9	52.1	8.5	Ref	32								
8	Total	420	55.4	365.9			23								
9							24								
10							25								
11							26								
12							27								
13							28								
14							29								
15							30								
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29							44								
30							45								
31							46								
32							47								
33							48								
34							49								
35							50								

*On Pile Trestle Bridges give length in ground and also total length in structure.

Inspector

Resident Const. Engineer

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.

August 14, 1971
DATE

James R. Sassaman
JAMES R. SASSAMAN

REG. NO. 2663

DESIGN NO. 1471 IOWA NO. 7 OVER DES MOINES RIVER STA. 212+21 TO
WEBSTER COUNTY (KARL KING BRIDGE) STA. 224+25
SECTION 19 T - 89N R - 28W WAHKONSA TWP.

DESIGN FOR 30° SKEW
90'-0" x 58' CONTINUOUS CONCRETE SLAB BRIDGE
AND REPAIRS TO EXISTING 1110'-3"
MULTISPAN CONTINUOUS PLATE GIRDER BRIDGE

ESTIMATE OF QUANTITIES

ITEM NO.	ITEM	UNIT	TOTAL
1	Structural Concrete	Cu. Yds.	457.4
2	Reinforcing Steel	Lbs.	90,277
3	Structural Steel	Lbs.	7,972
4	Granular Backfill	Cu. Yds.	60
5	4" Tile Subdrain	L.F.	88
6	Removals As Per Plan	L.S.	Lump Sum \$6,000.00
7	Removal of Old Pavement	Sq. Yds.	900 913.03
8	Reinforced Bridge Approach Section	Sq. Yds.	321 362.5
9	Class 20 Excavation	Cu. Yds.	93
10	Class 10 Roadway & Borrow Excavation	Cu. Yds.	4,520
11	RA-3 Curb Intakes	No.	2
12	10BP42 Steel	Lin. Ft.	3,332 2,906.7
	Bearing Piling	Drive	3,332 2,906.7
13	RA-1 Manhole	No.	1
14	15 in. Corr. Metal Storm Sewer	Lin. Ft.	302 98.0
15	15 in. Dia. 2000 D Storm Sewer	Lin. Ft.	64

ESTIMATE REFERENCE INFORMATION

100-1

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

ITEM NO.	DESCRIPTION
1	Superstructure (324.4 cu. yds.) and end posts (0.8 cu. yds.) of slab bridge, light pole base (1.2 cu. yds.), and concrete, for repair at Pier 4 (4.6 cu. yds.) is to be Class "D" Concrete, total of 331.0 cu. yds.. The remainder, 126.4 cu. yds., is to be Class "C" Concrete.

EXTRA WORK ORDERS

No. 1 Blanket

8001	Removal of Curb	1.955 Sq. Yds.
8002	Median, P.C. Conc., Type C	41.28 Sq. Yds.
8003	Removal of old Pavement	41.28 Sq. Yds.
8004	Curb, Dowelled P.C. Concrete	195.54 Lin. Ft.

No. 2 - Blanket

8005	concrete, Structural	13.30 Cu. Yds.
8006	Steel, Reinforcing	1,107.00 Lbs.
8007	Steel, Structural	645.00 Lbs.
8008	Backfill, Granular	25.00 Cu. Yds.
8009	Excavation, Class 20	12.00 Cu. Yds.
8010	Removal, As Per Plan	\$1,360.00

No. 4 - Blanket

8011	Repair Spalling on Pier #4	\$3,889.55
------	----------------------------	------------

No. 5 - Blanket

8012	Connecting Band with 1 1/2" C.M.P. Elbows	1 only
8013	Type C-1 Connection	1 only

No. 6 - Blanket

8014	Piling, 10 BP 42 Cut-offs	425.30 Lin. Ft.
------	---------------------------	-----------------

No. 7 - Blanket

8015	Heating Material	52.40 Cu. Yds.
8016	Addina Retarder	144.80 Cu. Yds.
8017	Special Ditch Control, Jute Mesh	12.912 Sq. Yds.

No. 8 - Blanket
Final

8018	Protection of Concrete	52.40 Cu. Yds.
------	------------------------	----------------

ESTIMATE SHEET

Revised H-3-71 Reinforcing Steel Quantity Corrected.

WEBSTER COUNTY

PROJECT NO. FN-7-5(6)-21-94

FILE NO. 24091

STATE	FED. ROAD DIST. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	5		2	20

LOG OF PILING DRIVEN

Iowa State Highway Commission

Kind of Piling Steel
Untreated, Treated, (Give Species) Steel, (Give Type),
Concrete (Precast or Prestressed)Type of Hammer Gas
Single or Double Acting Steam, Gravity, DieselH. Comm. No. of Hammer NoneGross Weight of Hammer 2770 Effective Wt. 2770Hammer Energy 12.5 Ft. Tons 12.5Weight of Driving Cap 1220 Pounds 571Weight of Pile 2520Formula Used P = 2.5 x WRequired Penetration 31Required Bearing 31

Was Bearing Determined Immediately Upon Com-

pletion of Driving? Yes

Sketch below foundation and location of each pile by circles with numbers therein. Note battered piles on sketch, and give amount of batter. Mail 3 copies on F. A. projects and 2 copies on state projects to Dist. Engr., upon completion of each foundation.

County Webster Proj. No. FA-7-453Contractor Galbraith-SmithDesign No. 1971 Sta. of C. L 212+66.72Foundation Number L H&T 11 SideLength, Width and Type of Structure 212' x 59' Cont Conc SlabRemarks: 7. Pile No 1 damaged with Barrowexcavate fill at it. Replaced 20' andadded 13' to good pile beforecut off.

LOG OF PILING DRIVEN

Iowa State Highway Commission

Kind of Piling Steel
Untreated, Treated, (Give Species) Steel, (Give Type),
Concrete (Precast or Prestressed)Type of Hammer Gas
Single or Double Acting Steam, Gravity, DieselH. Comm. No. of Hammer NoneGross Weight of Hammer 2770 Effective Wt. 2770Hammer Energy 12.5 Ft. Tons 12.5Weight of Driving Cap 1220 Pounds 571Weight of Pile 2520Formula Used P = 2.5 x WRequired Penetration 31Required Bearing 31

Was Bearing Determined Immediately Upon Com-

pletion of Driving? Yes

Sketch below foundation and location of each pile by circles with numbers therein. Note battered piles on sketch, and give amount of batter. Mail 3 copies on F. A. projects and 2 copies on state projects to Dist. Engr., upon completion of each foundation.

County Webster Proj. No. FA-7-453Contractor Galbraith-SmithDesign No. 1971 Sta. of C. L 212+66.72Foundation Number Pier 1 N. SideLength, Width and Type of Structure 90' x 59' Cont Conc SlabRemarks: 30' Stack* Note: Pile No 7 Completeddriving on 6-16, Hammer6-16-64.

GENERAL NOTES:

This design contemplates replacing some of the earth fill and approach pavement at the west approach to the existing multispan continuous welded plate girder bridge with a 90 foot continuous slab bridge extension and corrective work on the existing bridge as follows:

1. Remove the end posts, wings and backwall of the west abutment and reset the abutment rockers and the expansion plate opening. Reconstruct a portion of the abutment backwall.
2. Construct a light pole base on the north curb near the west abutment to accommodate the existing light pole removed from the concrete end post.
3. Reset the rockers at Pier 1.
4. Reset the rockers at Pier 3.
5. Reset rockers at Pier 7.
6. Reset the rockers for the west unit at Pier 4 and install new masonry plates for the transition span.
7. Remove portion of slab and curbs from east unit at Pier 4 and reset expansion opening and cut off end of railing to provide opening. Reconstruct slab and curbs.
8. Remove some approach pavement and upper portion of the backwall at east abutment, reset the rockers and expansion plate opening, and reconstruct the backwall and pavement.

The work is to be done in stages with two-way traffic being maintained between relocated A Street and 3rd Street South in accordance with Specification 685. Control of the traffic at the two street intersections shall be as indicated in Figure 5-5, Specification 685. Cost for all traffic control devices, to be furnished and/or maintained by the contractor, shall be considered incidental to other work and no separate payment shall be made.

It is intended that floodlighting will not be required if the existing lighting in the area is kept in service at all times.

The new slab bridge is designed for HS20-44 loading plus 20 lbs. per sq. ft. of roadway for future wearing surface.

The existing multispan continuous welded plate girder bridge consists of a 30' skew 546' x 58' west unit and a 546' x 58' east unit and an 18'-3 transition I-Beam section between the two units. The plans for the existing bridge (The Karl King Bridge - Design No. 1457 Webster County) are available at the Ames office of the Iowa State Highway Commission. Repair work was done on the west abutment in 1963 under Design No. 163 Webster County.

During construction of the slab bridge and repair work on the existing abutments for Stage 1, some method of retaining the earth under the pavement of the south roadway will be required. A suggested method of retaining the earth by utilizing sheet piles is shown on sheet 3 of 18, however the contractor may use some other procedure that is approved by the Engineer. All cost involved for shoring or other method of retaining earth for Stage 1 construction is to be considered incidental to construction.

GENERAL NOTES (CON'T.):

Because of the extreme tilt of some rockers, the rockers at Piers 1, 3 and 7 should be reset (under roadway closed to traffic only) before any superstructure concrete on that side is removed at Pier 4. The rockers for the west unit at Pier 4 should be reset as soon as the superstructure can be jacked without damaging the expansion device. Rocker settings for the piers are shown on sheet 2 of 18. The maximum dead load reaction for one girder is about 141 tons. Jack only at diaphragm stiffener plates.

The contractor is to lubricate the bearing pin at the top of all rockers that are reset. The lubricant may be applied by spraying with an aerosol can such as LPS #3 - 16 oz. size (distributed by Reliable Mach. & Mfg. Co. of Cedar Rapids, Iowa or Standard Bearings Co. of Sioux City, Iowa) or an approved equivalent. The cost of lubricating bearings is considered incidental to construction.

The depth of the boxes for the RA-3 curb intakes (as shown on sheet 13 of 18) are approximate and may be changed after approval by the Engineer as required to connect with the existing sewer pipe. The cost of realigning some existing sewer pipe in order to connect with the north intake box is considered incidental to construction.

The contractor is to verify location of existing letdown sewer pipe, cut the pipe, and construct a manhole box to receive the existing and proposed sewer pipes (see sheet 3 & 14 of 18). The depth of the manhole box will be determined by the elevation of the existing sewer pipe and as approved by the Engineer.

The bid item for "Removal of Old Pavement" is to include the cost of removing the approach pavement at both ends of the bridge (see sheets 12 & 18 of 18) and the cost of removing about 160' of sewer pipe and two intake boxes (see sheet 3 of 18). The sewer pipe removed is to become the property of the contractor.

The lump sum bid item "Removals, As Per Plan" is to include the cost of removing, as shown on the plans, the following:

1. Portion of existing west abutment.
2. Portion of north curb as required to construct light pole base.
3. Portion of slab and curbs at Pier 4 and cutting off ends of railing at Pier 4.
4. Portion of existing east abutment, and small portion of curbs and cutting off ends of railing.

All concrete masonry and rubble removed from the bridge, approach pavement, and intakes shall be disposed of off the highway right-of-way on a waste area provided by the contractor. The wasted material must not create an unsightly condition when viewed from public highways. The cost of wasting concrete masonry and rubble is to be included in the bid item "Removals, As Per Plan". No payment will be made for overhaul.

GENERAL NOTES (CON'T.):

The bid item "Class 10 Roadway and Borrow Excavation" includes the excavation at Pier 2 of the existing bridge, as shown on sheet 2 of 18 and all the excavation at the west end of the existing bridge except for the Class 20 Excavation for the west abutment of the slab bridge and the excavation required for placement of sewer pipe and boxes. The excavation at Pier 2 will include some large boulders and/or pieces of broken concrete. The contractor is to provide his own disposal area for the material from Class 10 Excavation. No payment will be made for overhaul.

The piles for the piers and the east abutment of the slab bridge are to be painted in accordance with Article 2501.06 of the Specifications. The cost for painting and backfilling around the piles is to be included in price bid for piles.

The masonry plates at the abutments are to be cleaned and painted in the same manner as for the steel piles. The cost of cleaning and painting the masonry plates is to be considered incidental to construction.

The contractor is to seed, fertilize and mulch all disturbed areas (except the excavated area near Pier 2 and the area 20 feet each side of C survey underneath the slab bridge) following the work on this project and as directed by the Engineer. The median at both ends of the project that is disturbed during construction is to be seeded, fertilized and mulched also.

Seeding Mixture:

Fescue, Ky. 31 70%
Reeds Canary Grass 25%
Ryegrass, Perennial 5%

Seeding Rate: 1 lb. per 1000 square ft.

Fertilizer: 15 lbs. of 15-15-15 chemically combined commercial fertilizer per 1000 square feet.

Mulch Rate: 75 lbs. of dry straw per 1000 square feet.

The preparation of the seedbed (approximately 12,000 sq. ft.) furnishing and application of seed, fertilizer and mulch to all disturbed areas (except as noted) on this project shall be considered incidental to work on this project and no additional compensation will be allowed.

The following items are also considered incidental to construction for which no direct payment will be made:

1. The jacking of the girders and resetting of 24 pier masonry plates and resetting of 16 abutment masonry plates.
2. The jacking of the I-Beams and removing 7 masonry plates from the transition unit.
3. The furnishing and placing of the material for two splashbacks.
4. The sealing of a few cracks in the west abutment footing with grout.
5. The removing of the existing light pole and reinstalling it on the new base plus putting the light into service.
6. The field fabrication and field welding necessary to reset expansion plates and masonry plates.

SPECIFICATIONS:

Design: AASHTO, Series of 1969 plus 1970 Interim Specs.
Construction: Standard Specifications of the Iowa State Highway Commission, Series of 1964, plus current Special Provisions and Supplemental Specifications and including --
Spec. 685, "Manual on Uniform Traffic Control Devices".

All welding shall meet the requirements of the Eighth Edition of the "Specifications for Welded Highway and Railway Bridges" (AWS D2.0-69) of the American Welding Society, except as modified by the Standard Specifications and the current Supplemental Specifications.

DESIGN STRESSES:

Design stresses for the following materials are in accordance with AASHTO Standard Specifications for Highway Bridges, Series of 1969.
Concrete in accordance with Section 1.5.1 f'c = 3500 psi.
Reinforcing Steel in accordance with Section 1.5.1, fs = 20,000 psi.
Structural Steel in accordance with Section 1.7.1
ASTM A-36, fs = 20,000 psi.

LOCATION:

SECTION 19
Wahkonso Twp.
T-89 N, R-28 W
Webster County
Iowa #7 (Karl King Bridge)
over Des Moines River

TOTAL		ESTIMATED			QUANTITIES				
ITEM NR	Item	Unit	90' CONT. CONC. SLAB BRIDGE			EXISTING BRIDGE			TOTAL
			W. ABUT.	SUPERSTR. PIER 4	E. ABUT.	W. ABUT.	PIER 4	E. ABUT.	
1	Structural Concrete	Cu. Yds.	48.6	324.4	59.2	13.4	4.6	8.2	457.4
2	Reinforcing Steel	Lbs.	3440	59,516	4146	560	791	941	49,672 69,516
3	Structural Steel	Lbs.		7,050		166	704	52	772
4	Granular Backfill	Cu. Yds.	48					12	60
5	4" x 6" Tile Subdrain	Lin. Ft.							88
6	Removals As Per Plan	L. S.							Lump Sum
7	Removal of Old Pavement	Sq. Yds.							908
8	Reinforced Bridge Approach Section	Sq. Yds.							321
9	Class 20 Excavation	Cu. Yds.	86					7	93
10	Class 10 Roadway & Borrow Excavation	Cu. Yds.							4520
11	RA-3 Curb Intakes	Each							2
12	10 BP42 Steel Bearing Piling	Lin. Ft.	14 @ 58'	28 @ 60'	14 @ 60'				3332
13	RA-1 Manhole	Each	14 @ 58'	28 @ 60'	14 @ 60'				3332
14	15 in. Corr. Metal Storm Sewer	Lin. Ft.							1
15	15 in. Dia. 2000D Storm Sewer	Lin. Ft.							102
									64

ITEM NO.

ESTIMATE REFERENCE INFORMATION

1 Superstructure (324.4 cu.) and end posts (0.8 cu.) of slab bridge, light pole base (1.2 cu.) and concrete for repair at Pier 4 (4.6 cu.) is to be Class "D" Concrete, Total of 331.0 cu. The remainder, 126.4 cu., is to be Class "C" Concrete.

DESIGNED BY: J. Phillips
CHECKED BY: R. R. Smith

TRACED BY: M. L. Blum
CHECKED BY: M. L. Blum

Revised: 11-3-71 Reinforcing Steel Quantity Corrected

SECTION LEADER James R. Cassaman

WEBSTER COUNTY

PROJECT NUMBER

FN-7-5(6)-21-94

STATE: IOWA
FED. ROAD DIST. NO.: 6
FISCAL YEAR: 1971
SHEET NO.: 3
TOTAL SHEETS: 20

Design For 30° Skew
90'-0" x 58' CONTINUOUS CONCRETE SLAB
BRIDGE AND REPAIRS TO EXISTING 110'-3"
MULTISPAN CONTINUOUS PLATE GIRDER BRIDGE
Concrete Slab Bridge: 27'-6" End Spans, 35'-0" Center Span
GENERAL NOTES & TOTAL EST. QUANTITIES
Station: 212+21 to Station: 224+25 August, 1971
WEBSTER COUNTY
IOWA STATE HIGHWAY COMMISSION
Design Sheet No.: 1 Of 18 File No.: 24091 Design No.: 1471

Form 343

IOM - 7-62
I.H.C.

LOG OF PILING DRIVEN

Iowa State Highway Commission

FA-7-5(6)-21-98

Kind of Piling 1. 6" x 12" H Piles
Untreated, Treated, (Give Species) Steel, (Give Type),
Concrete (Precast or Prestressed)Type of Hammer 1. 1000 - Gravity
Single or Double Acting Steam, Gravity, DieselH. Comm. No. of Hammer 732Gross Weight of Hammer 732 Effective Wt. 732Hammer Energy 3.5 Ft. Tons 11.25Weight of Driving Cap 11.25Weight of Pile 2.5Formula Used P = 2.5Required Penetration FullRequired Bearing 5T

Was Bearing Determined Immediately Upon Completion of Driving?

Sketch below foundation and location of each pile by circles with numbers therein. Note battered piles on sketch, and give amount of batter. Mail 3 copies on F. A. projects and 2 copies on state projects to Dist. Engr., upon completion of each foundation.

County Wabasha Proj. No. 1271Contractor Wabasha - SmithDesign No. 1271 Sta. of C. L. 212+66.13Foundation Number 1271Length, Width and Type of Structure 10' x 5' x 12" H PilesRemarks: 1. 10' x 5' x 12" H Piles2. 10' x 5' x 12" H Piles3. 10' x 5' x 12" H Piles4. 10' x 5' x 12" H Piles5. 10' x 5' x 12" H Piles6. 10' x 5' x 12" H Piles7. 10' x 5' x 12" H Piles8. 10' x 5' x 12" H Piles9. 10' x 5' x 12" H Piles10. 10' x 5' x 12" H Piles11. 10' x 5' x 12" H Piles12. 10' x 5' x 12" H Piles13. 10' x 5' x 12" H Piles14. 10' x 5' x 12" H Piles15. 10' x 5' x 12" H Piles16. 10' x 5' x 12" H Piles17. 10' x 5' x 12" H Piles18. 10' x 5' x 12" H Piles19. 10' x 5' x 12" H Piles20. 10' x 5' x 12" H Piles21. 10' x 5' x 12" H Piles22. 10' x 5' x 12" H Piles23. 10' x 5' x 12" H Piles24. 10' x 5' x 12" H Piles25. 10' x 5' x 12" H Piles26. 10' x 5' x 12" H Piles27. 10' x 5' x 12" H Piles28. 10' x 5' x 12" H Piles29. 10' x 5' x 12" H Piles30. 10' x 5' x 12" H Piles31. 10' x 5' x 12" H Piles32. 10' x 5' x 12" H Piles33. 10' x 5' x 12" H Piles34. 10' x 5' x 12" H Piles35. 10' x 5' x 12" H Piles36. 10' x 5' x 12" H Piles37. 10' x 5' x 12" H Piles38. 10' x 5' x 12" H Piles39. 10' x 5' x 12" H Piles40. 10' x 5' x 12" H Piles41. 10' x 5' x 12" H Piles42. 10' x 5' x 12" H Piles43. 10' x 5' x 12" H Piles44. 10' x 5' x 12" H Piles45. 10' x 5' x 12" H Piles46. 10' x 5' x 12" H Piles47. 10' x 5' x 12" H Piles48. 10' x 5' x 12" H Piles49. 10' x 5' x 12" H Piles50. 10' x 5' x 12" H Piles

Form 343

IOM - 7-62
I.H.C.

LOG OF PILING DRIVEN

Iowa State Highway Commission

FA-7-5(6)-21-98

Kind of Piling 1. 6" x 12" H Piles
Untreated, Treated, (Give Species) Steel, (Give Type),
Concrete (Precast or Prestressed)Type of Hammer 1. 1000 - Gravity
Single or Double Acting Steam, Gravity, DieselH. Comm. No. of Hammer 732Gross Weight of Hammer 732 Effective Wt. 732Hammer Energy 3.5 Ft. Tons 11.25Weight of Driving Cap 11.25Weight of Pile 2.5Formula Used P = 2.5Required Penetration FullRequired Bearing 5T

Was Bearing Determined Immediately Upon Completion of Driving?

Sketch below foundation and location of each pile by circles with numbers therein. Note battered piles on sketch, and give amount of batter. Mail 3 copies on F. A. projects and 2 copies on state projects to Dist. Engr., upon completion of each foundation.

County Wabasha Proj. No. 1271Contractor Wabasha - SmithDesign No. 1271 Sta. of C. L. 212+66.13Foundation Number 1271Length, Width and Type of Structure 10' x 5' x 12" H PilesRemarks: 1. 10' x 5' x 12" H Piles2. 10' x 5' x 12" H Piles3. 10' x 5' x 12" H Piles4. 10' x 5' x 12" H Piles5. 10' x 5' x 12" H Piles6. 10' x 5' x 12" H Piles7. 10' x 5' x 12" H Piles8. 10' x 5' x 12" H Piles9. 10' x 5' x 12" H Piles10. 10' x 5' x 12" H Piles11. 10' x 5' x 12" H Piles12. 10' x 5' x 12" H Piles13. 10' x 5' x 12" H Piles14. 10' x 5' x 12" H Piles15. 10' x 5' x 12" H Piles16. 10' x 5' x 12" H Piles17. 10' x 5' x 12" H Piles18. 10' x 5' x 12" H Piles19. 10' x 5' x 12" H Piles20. 10' x 5' x 12" H Piles21. 10' x 5' x 12" H Piles22. 10' x 5' x 12" H Piles23. 10' x 5' x 12" H Piles24. 10' x 5' x 12" H Piles25. 10' x 5' x 12" H Piles26. 10' x 5' x 12" H Piles27. 10' x 5' x 12" H Piles28. 10' x 5' x 12" H Piles29. 10' x 5' x 12" H Piles30. 10' x 5' x 12" H Piles31. 10' x 5' x 12" H Piles32. 10' x 5' x 12" H Piles33. 10' x 5' x 12" H Piles34. 10' x 5' x 12" H Piles35. 10' x 5' x 12" H Piles36. 10' x 5' x 12" H Piles37. 10' x 5' x 12" H Piles38. 10' x 5' x 12" H Piles39. 10' x 5' x 12" H Piles40. 10' x 5' x 12" H Piles41. 10' x 5' x 12" H Piles42. 10' x 5' x 12" H Piles43. 10' x 5' x 12" H Piles44. 10' x 5' x 12" H Piles45. 10' x 5' x 12" H Piles46. 10' x 5' x 12" H Piles47. 10' x 5' x 12" H Piles48. 10' x 5' x 12" H Piles49. 10' x 5' x 12" H Piles50. 10' x 5' x 12" H Piles

Pile No.	Date Driven	Length in Leads Nearest Foot	Length Cut Off Nearest Tenth Foot	Length in Structure	Ave. Penetration Last Blows (inches)	Drop in Feet	Bearing in Tons	Pile No.	Date Driven	Length in Leads Nearest Foot	Length Cut Off Nearest Tenth Foot	Length in Structure	Ave. Penetration Last Blows (inches)	Drop in Feet	Bearing in Tons
1	2-18-72	60	5.1	57.1	5.5	1.0	7000	26	2-18-72	60	5.1	57.1	5.5	1.0	7000
2	2-18-72	60	6.3	53.7	5.5	1.0	4130 Cap	27	2-18-72	60	6.3	53.7	5.5	1.0	4130 Cap
3	2-18-72	60	6.5	53.5	5.5	1.0	5200 Pile	28	2-18-72	60	6.5	53.5	5.5	1.0	5200 Pile
4	2-18-72	60	6.1	53.9	5.5	1.0	11,700	29	2-18-72	60	6.1	53.9	5.5	1.0	11,700
5	2-18-72	60	7.2	52.8	5.5	1.0		30	2-18-72	60	7.2	52.8	5.5	1.0	
6	2-18-72	60	7.1	52.9	5.5	1.0		31	2-18-72	60	7.1	52.9	5.5	1.0	
7	2-18-72	60	7.6	52.4	5.5	1.0		32	2-18-72	60	7.6	52.4	5.5	1.0	
8	2-18-72	60	7.6	52.4	5.5	1.0		33	2-18-72	60	7.6	52.4	5.5	1.0	
9	2-18-72	60	7.6	52.4	5.5	1.0		34	2-18-72	60	7.6	52.4	5.5	1.0	
10	2-18-72	60	7.6	52.4	5.5	1.0		35	2-18-72	60	7.6	52.4	5.5	1.0	
11	2-18-72	60	7.6	52.4	5.5	1.0		36	2-18-72	60	7.6	52.4	5.5	1.0	
12	2-18-72	60	7.6	52.4	5.5	1.0		37	2-18-72	60	7.6	52.4	5.5	1.0	
13	2-18-72	60	7.6	52.4	5.5	1.0		38	2-18-72	60	7.6	52.4	5.5	1.0	
14	2-18-72	60	7.6	52.4	5.5	1.0		39	2-18-72	60	7.6	52.4	5.5	1.0	
15	2-18-72	60	7.6	52.4	5.5	1.0		40	2-18-72	60	7.6	52.4	5.5	1.0	
16	2-18-72	60	7.6	52.4	5.5	1.0		41	2-18-72	60	7.6	52.4	5.5	1.0	
17	2-18-72	60	7.6	52.4	5.5	1.0		42	2-18-72	60	7.6	52.4	5.5	1.0	
18	2-18-72	60	7.6	52.4	5.5	1.0		43	2-18-72	60	7.6	52.4	5.5	1.0	
19	2-18-72	60	7.6	52.4	5.5	1.0		44	2-18-72	60	7.6	52.4	5.5	1.0	
20	2-18-72	60	7.6	52.4	5.5	1.0		45	2-18-72	60	7.6	52.4	5.5	1.0	
21	2-18-72	60	7.6	52.4	5.5	1.0		46	2-18-72	60	7.6	52.4	5.5	1.0	
22	2-18-72	60	7.6	52.4	5.5	1.0		47	2-18-72	60	7.6	52.4	5.5	1.0	
23	2-18-72	60	7.6	52.4	5.5	1.0		48	2-18-72	60	7.6	52.4	5.5	1.0	
24	2-18-72	60	7.6	52.4	5.5	1.0		49	2-18-72	60	7.6	52.4	5.5	1.0	
25	2-18-72	60	7.6	52.4	5.5	1.0		50	2-18-72	60	7.6	52.4	5.5	1.0	

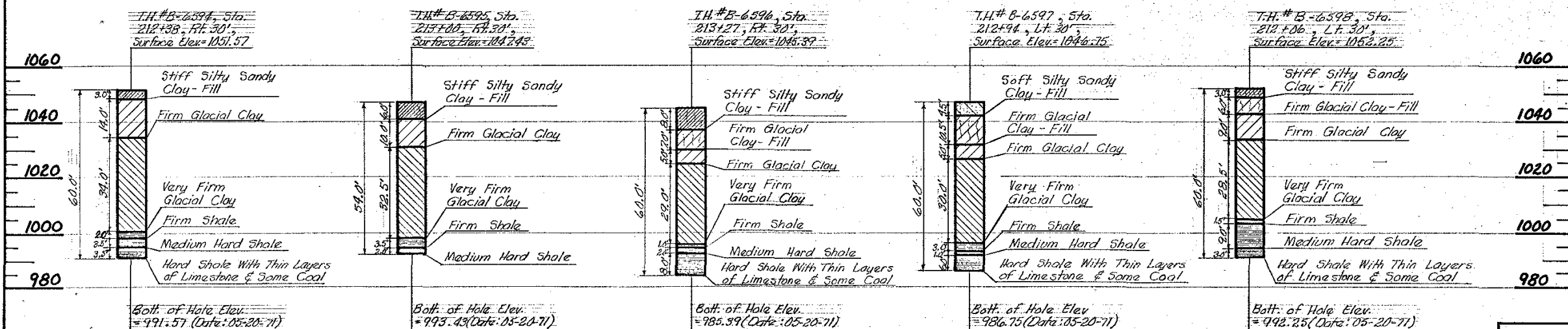
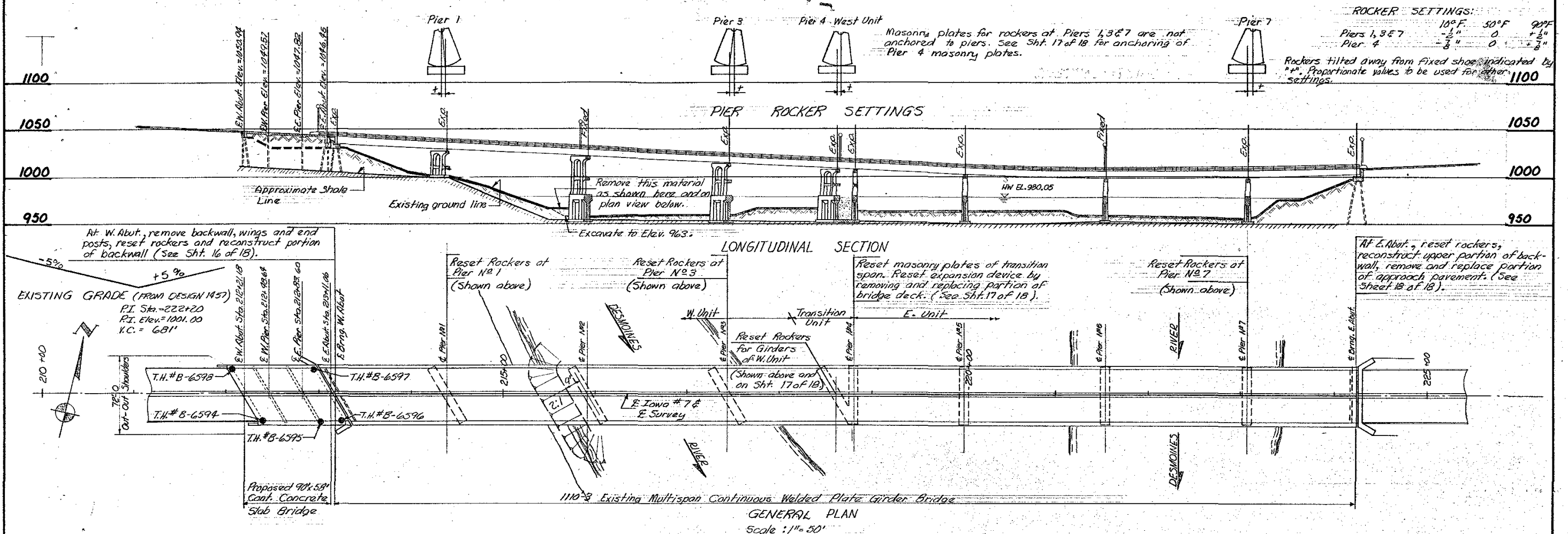
*On Pile Trestle Bridges give length in ground and also total length in structure.

Inspector

Resident Const. Engineer

Pile No.	Date Driven	Length in Leads Nearest Foot	Length Cut Off Nearest Tenth Foot	Length in Structure	Ave. Penetration Last Blows (Inches)	Drop in Feet	Bearing in Tons	Pile No.	Date Driven	Length in Leads Nearest Foot	Length Cut Off Nearest Tenth Foot	Length in Structure	Ave. Penetration Last Blows (Inches)	Drop in Feet	Bearing in Tons
1	2-17-72	60	7.6	52.4		5.5	R.F.	26							7000
2	2-16-72	60	7.2	52.8		5.5	R.F.	27							2480 Cap
3	2-16-72	60	6.7	53.3		5.5	R.F.	28							2500 Pile
4	2-16-72	60	7.3	52.7		5.5	R.F.	29							11,700
5	2-16-72	60	6.9	53.1		5.5	R.F.	30							
6	2-16-72	60	7.1	52.9		5.5	R.F.	31							
7	2-17-72	60	8.1	51.9		5.7	R.F.	32							
8								33							
9	2-1-72	420	46.0	311.0				34							
10								35							
11	2-1-72	161.4	311.0					36							
12								37							
13	2-1-72	161.4	311.0					38							
14	2-1-72	161.4	311.0					39							
15	2-1-72	161.4	311.0					40							
16	2-1-72	161.4	311.0					41							
17	2-1-72	161.4	311.0					42							
18	2-1-72	161.4	311.0					43							
19	2-1-72	161.4	311.0					44							
20	2-1-72	161.4	311.0					45							
21	2-1-72	161.4	311.0					46							
22	2-1-72	161.4	311.0					47							
23	2-1-72	161.4	311.0					48							
24	2-1-72	161.4	311.0					49							
25	2-1-72	161.4	311.0					50							

Bench Mark: N^o 4A1; IHC Bench Mark on N. Wing of W. Abut. of Bridge, 36' Lt., Sta. 212+90, Elev. = 1047.79.



TRAFFIC COUNT: 8800 V.P.D. (1970)

LOCATION:

Section 19
T-89 N R-28 W
Wahkansa Twp.
Webster County
On Iowa #7 (Karl King Bridge)
over Des Moines River

Design for 30° Skew
90'-0" x 58'-0" CONTINUOUS CONCRETE SLAB
BRIDGE AND REPAIRS TO Existing 1110-3
MULTISPAN CONTINUOUS PLATE GIRDER BRIDGE
CONCRETE SLAB BRIDGE: 27'-6" END SPANS, 35'-0" CENTER SPAN
GENERAL PLAN & SOUNDING DATA
STATION: 212+21 to Station: 224+25 August, 1971

WEBSTER COUNTY
IOWA STATE HIGHWAY COMMISSION

Design Sheet No. 2 Of 19 File No. 24091 Design No. 1471

WEBSTER COUNTY

PROJECT NUMBER

FN-7-5(6)--21-94

STATE	FED. ROAD DIST. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	8		4	20

Form 343
10M - 7-62
I.H.C.

LOG OF PILING DRIVEN

Iowa State Highway Commission

Kind of Piling 10 1/2" x 12" H.P. 100
Untreated, Treated, (Give Species) Steel, (Give Type),
Concrete (Precast or Prestressed)
Type of Hammer 10 1/2" x 12" H.P. 100
Single or Double Acting Steam, Gravity, Diesel

H. Comm. No. of Hammer 122
Gross Weight of Hammer 7000 Effective Wt. 7000
Hammer Energy 38,500 Ft. Tons 17.22
Weight of Driving Cap 2180
Weight of Pile 2520
Formula Used $L = \frac{W \times H}{S \times A}$
Required Penetration 1.1
Required Bearing 31

Was Bearing Determined Immediately Upon Completion of Driving? Yes

Sketch below foundation and location of each pile by circles with numbers therein. Note battered piles on sketch, and give amount of batter. Mail 3 copies on F. A. projects and 2 copies on state projects to Dist. Engr., upon completion of each foundation.

County W. L. Co. Proj. No. FN-7 300-24-75

Contractor G. H. Smith

Design No. 1471 Sta. of C. I. 212+66.15
Foundation Number 1
Length, Width and Type of Structure R-5' x 10' CONC. SLAB
Remarks: Piling was driven with a
Hitsubishi M105 Diesel & started
with Gravity Piling with 7-8' Shad
of gravel Penn Elev 755

Form 343
10M - 7-62
I.H.C.

LOG OF PILING DRIVEN

Iowa State Highway Commission

Kind of Piling 10 1/2" x 12" H.P. 100
Untreated, Treated, (Give Species) Steel, (Give Type),
Concrete (Precast or Prestressed)
Type of Hammer Diesel - Gravity
Single or Double Acting Steam, Gravity, Diesel

H. Comm. No. of Hammer 732
Gross Weight of Hammer 7000 Effective Wt. 7000
Hammer Energy 38,500 Ft. Tons 17.22
Weight of Driving Cap 2180
Weight of Pile 2520
Formula Used $L = \frac{W \times H}{S \times A}$
Required Penetration 1.1
Required Bearing 31
Was Bearing Determined Immediately Upon Completion of Driving? Yes

Sketch below foundation and location of each pile by circles with numbers therein. Note battered piles on sketch, and give amount of batter. Mail 3 copies on F. A. projects and 2 copies on state projects to Dist. Engr., upon completion of each foundation.

County Webster Proj. No. FL-7 500-24-75

Contractor G. H. Smith

Design No. 1471 Sta. of C. I. 212+66.15
Foundation Number 1
Length, Width and Type of Structure 90' x 58' CONC. SLAB
Remarks: Piling was driven with a
Hitsubishi M105 Diesel &
started with Gravity Piling
were 10 to 12' Shad of Required
Penn Elev 755

Pile No.	Date Driven	Length in Leads Nearest Foot	Length Cut Off Nearest Tenth Foot	Length in Structure	Ave. Penetration Last 5 Blows (Inches)	Drop in Feet	Bearing in Tons	Pile No.	Date Driven	Length in Leads Nearest Foot	Length Cut Off Nearest Tenth Foot	Length in Structure	Ave. Penetration Last 5 Blows (Inches)	Drop in Feet	Bearing in Tons
1	2-15-72	40	22	22.2	5.5	1.1	26	27	1-30-72	40	22	22.2	5.5	1.1	26
2	2-15-72	40	22	22.2	5.5	1.1	27	28	2-15-72	40	22	22.2	5.5	1.1	27
3	2-15-72	40	22	22.2	5.5	1.1	28	29	2-15-72	40	22	22.2	5.5	1.1	28
4	2-15-72	40	22	22.2	5.5	1.1	29	30	2-15-72	40	22	22.2	5.5	1.1	29
5	2-15-72	40	22	22.2	5.5	1.1	30	31	2-15-72	40	22	22.2	5.5	1.1	30
6	2-15-72	40	22	22.2	5.5	1.1	31	32	2-15-72	40	22	22.2	5.5	1.1	31
7	2-15-72	40	22	22.2	5.5	1.1	32	33	2-15-72	40	22	22.2	5.5	1.1	32
8	2-15-72	40	22	22.2	5.5	1.1	33	34	2-15-72	40	22	22.2	5.5	1.1	33
9	2-15-72	40	22	22.2	5.5	1.1	34	35	2-15-72	40	22	22.2	5.5	1.1	34
10	2-15-72	40	22	22.2	5.5	1.1	35	36	2-15-72	40	22	22.2	5.5	1.1	35
11	2-15-72	40	22	22.2	5.5	1.1	36	37	2-15-72	40	22	22.2	5.5	1.1	36
12	2-15-72	40	22	22.2	5.5	1.1	37	38	2-15-72	40	22	22.2	5.5	1.1	37
13	2-15-72	40	22	22.2	5.5	1.1	38	39	2-15-72	40	22	22.2	5.5	1.1	38
14	2-15-72	40	22	22.2	5.5	1.1	39	40	2-15-72	40	22	22.2	5.5	1.1	39
15	2-15-72	40	22	22.2	5.5	1.1	40	41	2-15-72	40	22	22.2	5.5	1.1	40
16	2-15-72	40	22	22.2	5.5	1.1	41	42	2-15-72	40	22	22.2	5.5	1.1	41
17	2-15-72	40	22	22.2	5.5	1.1	42	43	2-15-72	40	22	22.2	5.5	1.1	42
18	2-15-72	40	22	22.2	5.5	1.1	43	44	2-15-72	40	22	22.2	5.5	1.1	43
19	2-15-72	40	22	22.2	5.5	1.1	44	45	2-15-72	40	22	22.2	5.5	1.1	44
20	2-15-72	40	22	22.2	5.5	1.1	45	46	2-15-72	40	22	22.2	5.5	1.1	45
21	2-15-72	40	22	22.2	5.5	1.1	46	47	2-15-72	40	22	22.2	5.5	1.1	46
22	2-15-72	40	22	22.2	5.5	1.1	47	48	2-15-72	40	22	22.2	5.5	1.1	47
23	2-15-72	40	22	22.2	5.5	1.1	48	49	2-15-72	40	22	22.2	5.5	1.1	48
24	2-15-72	40	22	22.2	5.5	1.1	49	50	2-15-72	40	22	22.2	5.5	1.1	49
25	2-15-72	40	22	22.2	5.5	1.1	50								

*On File Trestle Bridges give length in ground and also total length in structure.

H. J. Tana
Inspector

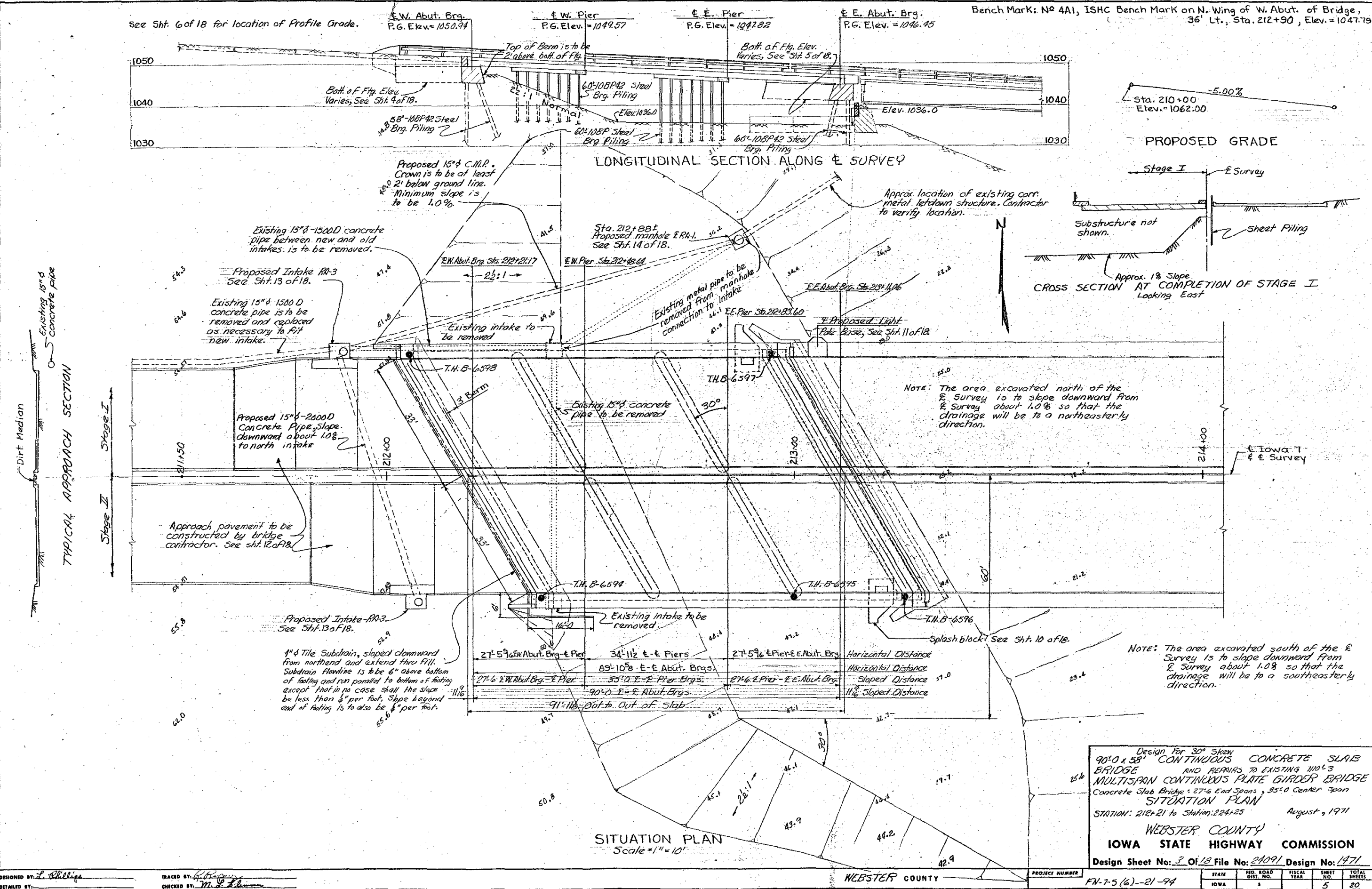
Ron DeBor
Resident Const. Engineer

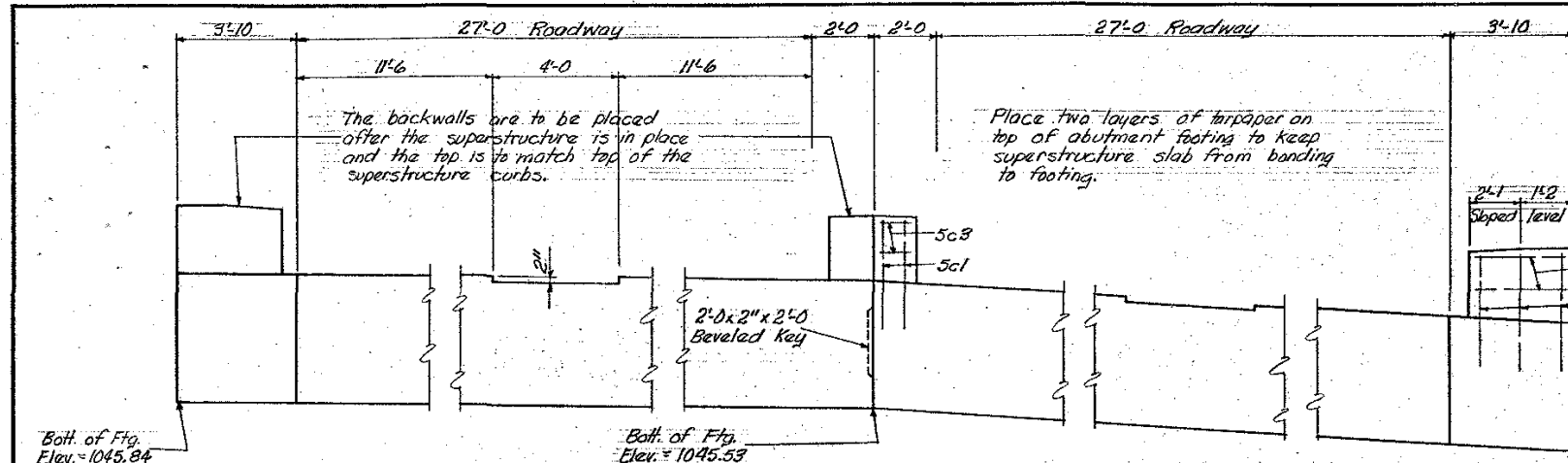
Pile No.	Date Driven	Length in Leads Nearest Foot	Length Cut Off Nearest Tenth Foot	Length in Structure	Ave. Penetration Last 5 Blows (Inches)	Drop in Feet	Bearing in Tons	Pile No.	Date Driven	Length in Leads Nearest Foot	Length Cut Off Nearest Tenth Foot	Length in Structure	Ave. Penetration Last 5 Blows (Inches)	Drop in Feet	Bearing in Tons
1	2-10-72	40	22	22.2	5.5	1.1	26	27	2-10-72	40	22	22.2	5.5	1.1	26
2	2-10-72	40	22	22.2	5.5	1.1	27	28	2-10-72	40	22	22.2	5.5	1.1	27
3	2-10-72	40	22	22.2	5.5	1.1	28	29	2-10-72	40	22	22.2	5.5	1.1	28
4	2-10-72	40	22	22.2	5.5	1.1	29	30	2-10-72	40	22	22.2	5.5	1.1	29
5	2-10-72	40	22	22.2	5.5	1.1	30	31	2-10-72	40	22	22.2	5.5	1.1	30
6	2-10-72	40	22	22.2	5.5	1.1	31	32	2-10-72	40	22	22.2	5.5	1.1	31
7	2-10-72	40	22	22.2	5.5	1.1	32	33	2-10-72	40	22	22.2	5.5	1.1	32
8	2-10-72	40	22	22.2	5.5	1.1	33	34	2-10-72	40	22	22.2	5.5	1.1	33
9	2-10-72	40	22	22.2	5.5	1.1	34	35	2-10-72	40	22	22.2	5.5	1.1	34
10	2-10-72	40	22	22.2	5.5	1.1	35	36	2-10-72	40	22	22.2	5.5	1.1	35
11	2-10-72	40	22	22.2	5.5	1.1	36	37	2-10-72	40	22	22.2	5.5	1.1	36
12	2-10-72	40	22	22.2	5.5	1.1	37	38	2-10-72	40	22	22.2	5.5	1.1	37
13	2-10-72	40	22	22.2	5.5	1.1	38	39	2-10-72	40	22	22.2	5.5	1.1	38
14	2-10-72	40	22	22.2	5.5	1.1	39	40	2-10-72	40	22	22.2	5.5	1.1	39
15	2-10-72	40	22	22.2	5.5	1.1	40	41	2-10-72	40	22	22.2	5.5	1.1	40
16	2-10-72	40	22	22.2	5.5	1.1	41	42	2-10-72	40	22	22.2	5.5	1.1	41
17	2-10-72	40	22	22.2	5.5	1.1	42	43	2-10-72	40	22	22.2	5.5	1.1	42
18	2-10-72	40	22	22.2	5.5	1.1	43	44	2-10-72	40	22	22.2	5.5	1.1	43
19	2-10-72	40	22	22.2	5.5	1.1	44	45	2-10-72	40	22	22.2	5.5	1.1	44
20	2-10-72	40	22	22.2	5.5	1.1	45	46	2-10-72	40	22	22.2	5.5	1.1	45
21	2-10-72	40	22	22.2	5.5	1.1	46	47	2-10-72	40	22	22.2	5.5	1.1	46
22	2-10-72	40	22	22.2	5.5	1.1	47	48	2-10-72	40	22	22.2	5.5	1.1	47
23	2-10-72	40	22	22.2	5.5	1.1	48	49	2-10-72	40	22	22.2	5.5	1.1	48
24	2-10-72	40	22	22.2	5.5	1.1	49	50	2-10-72	40	22	22.2	5.5	1.1	49
25	2-10-72	40	22	22.2	5.5	1.1	50								

*On File Trestle Bridges give length in ground and also total length in structure.

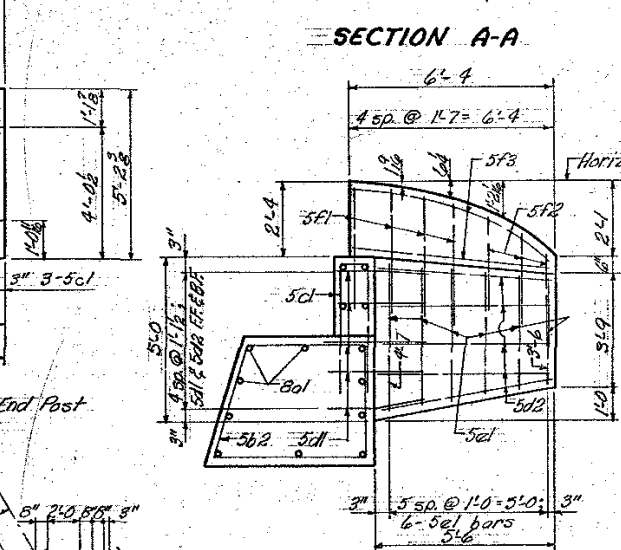
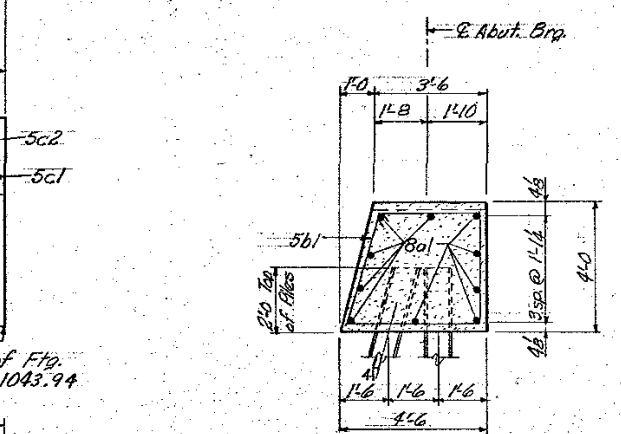
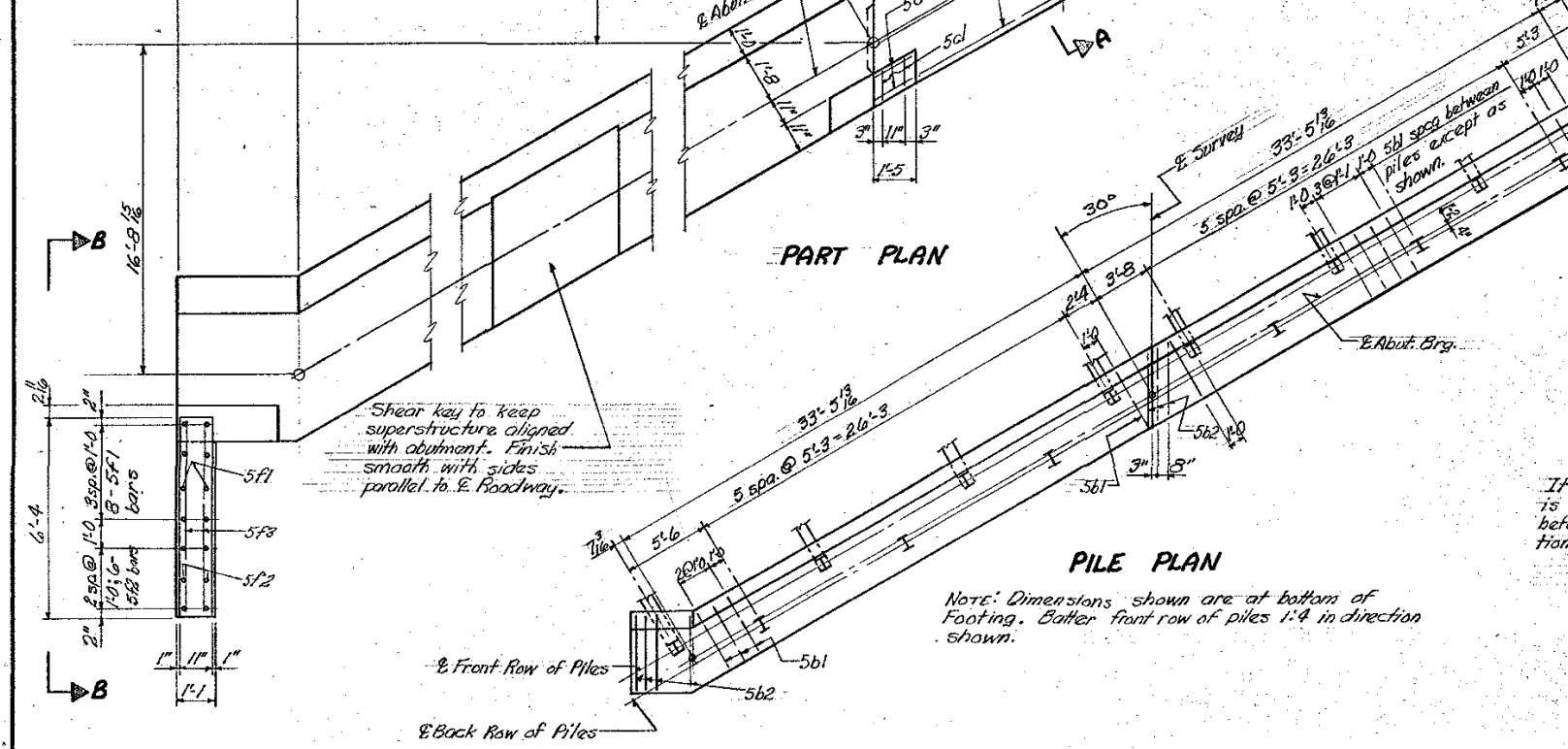
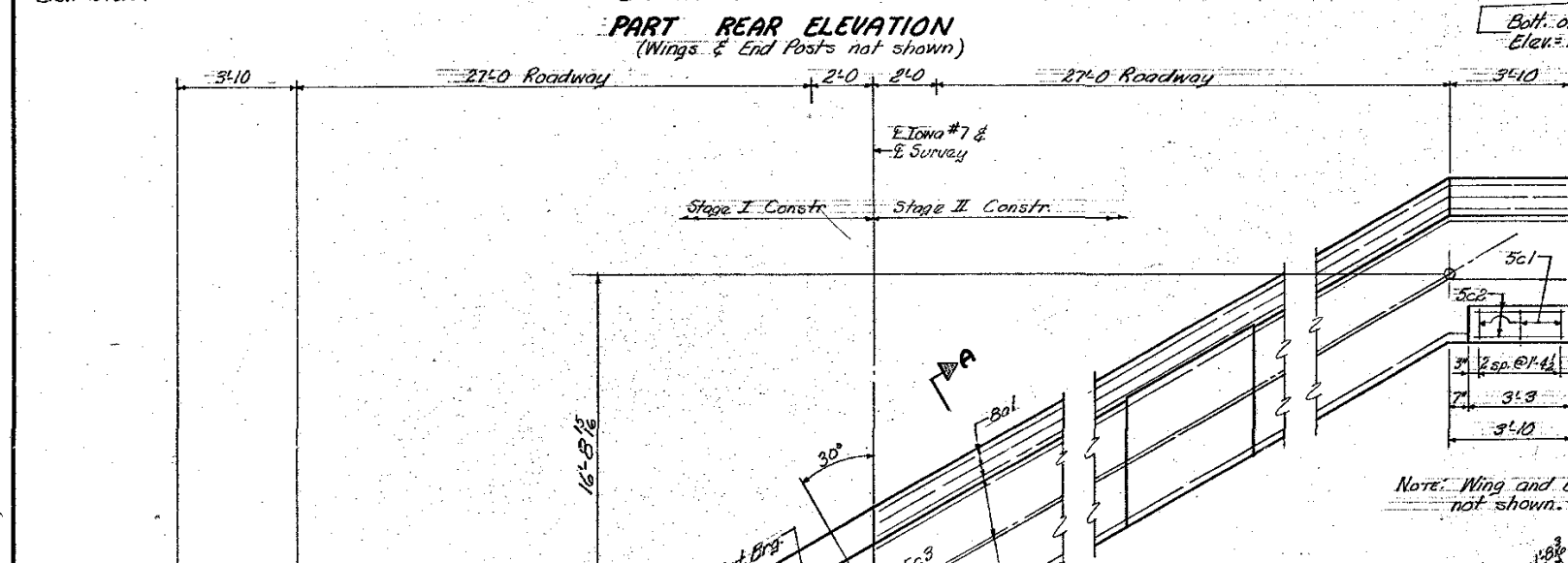
H. J. Tana
Inspector

Ron DeBor
Resident Const. Engineer

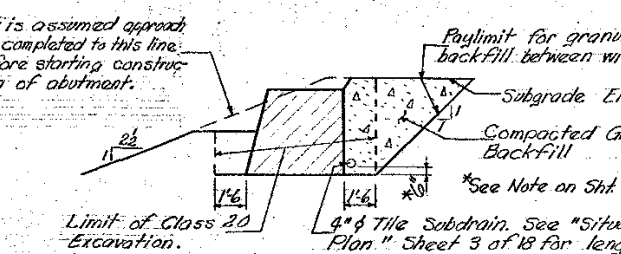




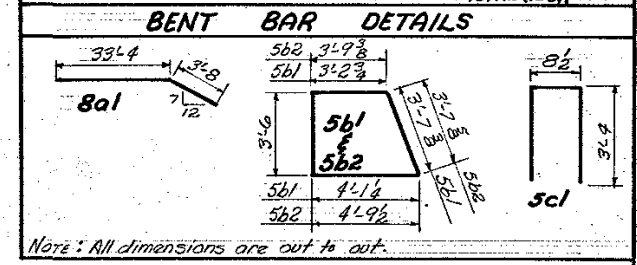
BENCH MARK: N 4 A1; IHC Bench Mark on N.Wing of W Abut. of bridge, 36'2", Sta. 212+20, Elev. = 1047.79.



* End Posts, 0.8 cu. yds., are to be Class "D" concrete, the remainder, 47.8 cu. yds., is to be Class "C" concrete



REINFORCING BAR LIST - WEST ABUTMENT					
BAR	LOCATION	SHAPE	NO	LENGTH	WEIGHT
8a1	Footing, Longit.		20	37'-0"	1976
5b1	Footing, Hoops		47	15'-2"	744
5b2	"		12	16'-5"	205
5c1	Backwall, Vertical		10	7'-3"	76
5c2	"		8	2'-11"	24
5c3	"		8	1'-3"	10
5d1	Footing & Backwall to Wing, Horiz.		20	2'-6"	52
5d2	Wing, Horiz.		20	5'-2"	108
5e1	Wing, Vertical		24	Varies	101
5f1	End Post, Vertical		16	3'-8"	61
5f2	"		12	2'-8"	33
5f3	"		8	6'-0"	50
TOTAL (lbs)					3440



CONCRETE PLACEMENT QUANTITIES			
LOCATION	STAGE I	STAGE II	TOTAL
Footing	22.5	22.5	45.0
Backwall	.4	.4	.8
Wing	1.0	1.0	2.0
End Post	.4	.4	.8
TOTAL - Cu. Yds.		24.3	24.3

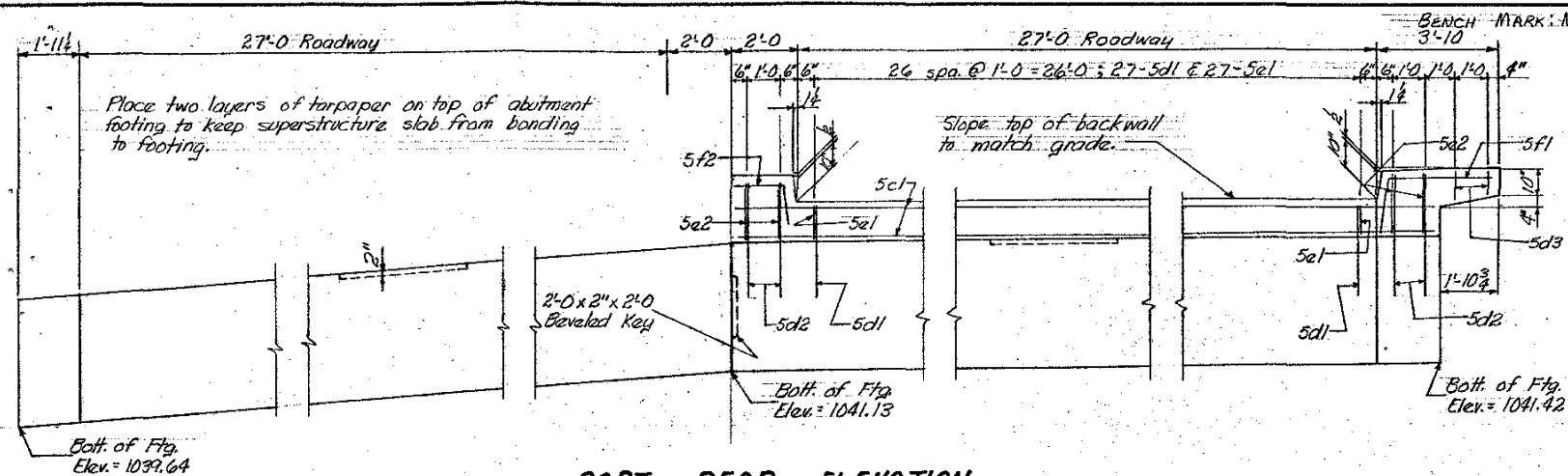
ESTIMATED QUANTITIES - WEST ABUT.		
ITEM	UNITS	QUANTITY
Structural Concrete *	Cu. Yds.	48.6
Reinforcing Steel	lbs.	3440
Class 20 Excavation	Cu. Yds.	86
10BP42 Steel	Furnish 14 @ 58'	Lin. Ft. 812
Bearing Piling	Drive 14 @ 58'	Lin. Ft. 812
Granular Backfill	Cu. Yds.	48

ABUTMENT NOTES: (W. ABUT.)
 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 securely wired in place before concrete is placed.
 Abutment piles shall be driven to practical refusal and seated in shale. Seating shall be done with a diesel hammer of at least 26,000 foot-pounds of rated energy operating at full capacity, or a gravity hammer having an effective weight of at least 6000 pounds, and driving energy of not less than 38,000 foot-pounds nor more than 40,000 foot-pounds. The design bearing value is 37 tons per pile. The pile tip should be down to at least elevation 993.
 All backfill behind the abutment between the wings is to be granular backfill. The remainder of the abutment excavation is to be backfilled with soil.

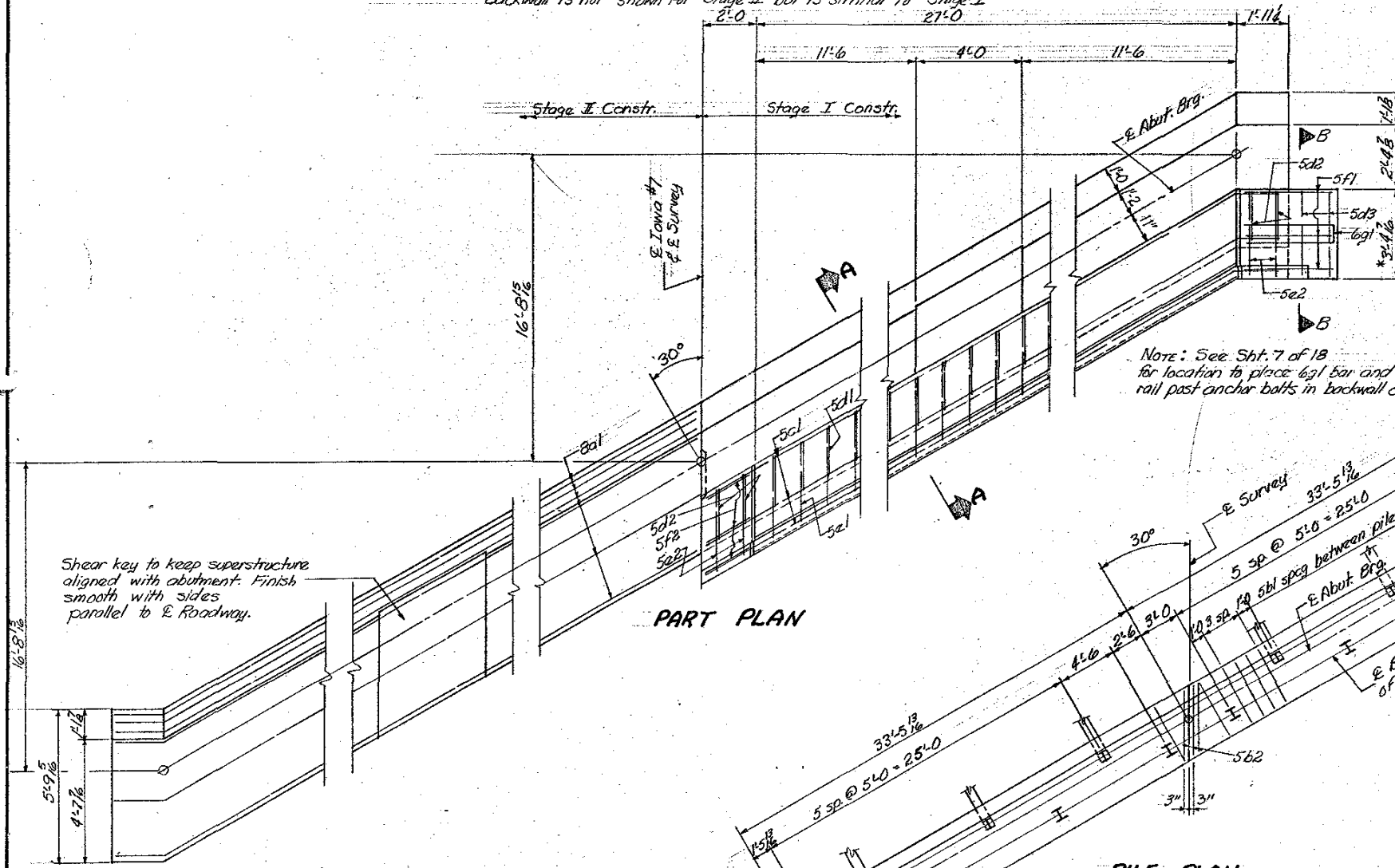
Design For 30° Skew
90'-0" x 58' CONTINUOUS CONCRETE SLAB BRIDGE
 AND REPAIRS TO EXISTING 110'-3" MULTISPAN CONTINUOUS PLATE GIRDER BRIDGE
 Concrete Slab Bridge: 21'-6" End Spans, 35'-0" Center Span
WEST ABUTMENT DETAILS
 Station: 212+21 to Station: 224+25 August, 1971
WEBSTER COUNTY
IOWA STATE HIGHWAY COMMISSION
 Design Sheet No. 4 Of 18 File No. 24091 Design No. 1471

DESIGNED BY: J. Phillips
 TRACED BY: M. L. L. L.
 CHECKED BY: M. L. L. L.

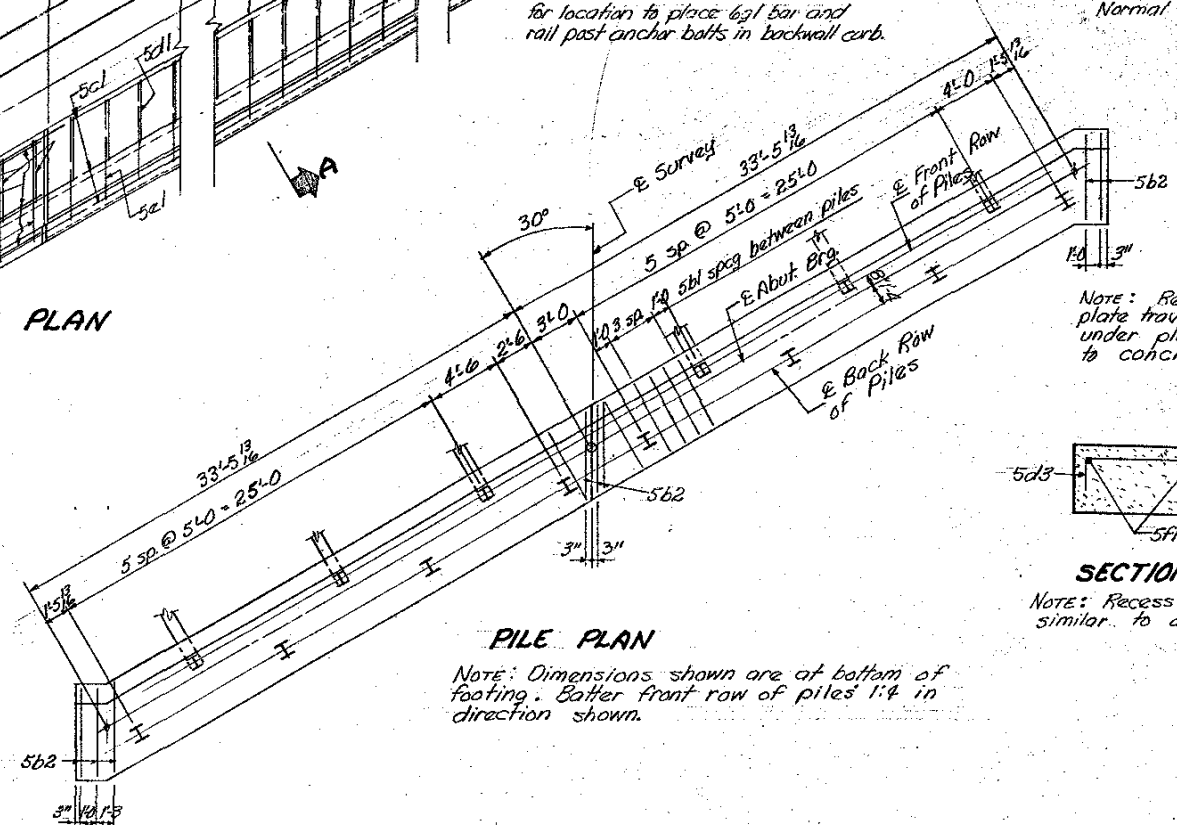
WEBSTER COUNTY
 PROJECT NUMBER
 FN-7-5(6)-21-94
 STATE: IOWA
 DIST. NO.: 6
 FISCAL YEAR: 6
 SHEET NO.: 6
 TOTAL SHEETS: 20



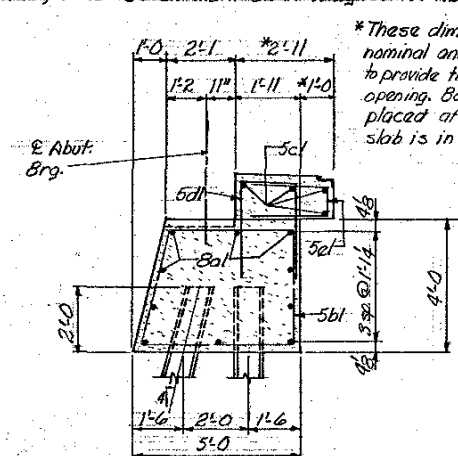
PART REAR ELEVATION
Backwall is not shown for Stage II, but is similar to Stage I.



PART PLAN

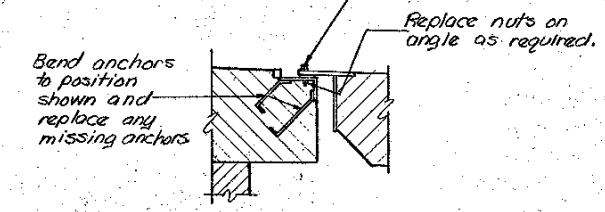


PILE PLAN

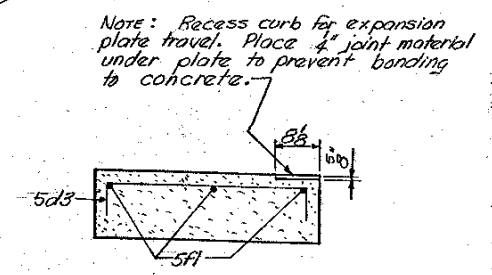


SECTION A-A

Note: Angle portion of existing expansion device is to be held in position by bolting it to the superstructure part of expansion device. Before backwall is placed the expansion plate opening is to be set as shown on Sheet 7 of 18. Remove bolts from expansion device as soon as concrete has taken initial set. Furnish 21-2" x 1 1/4" bolts with washers.



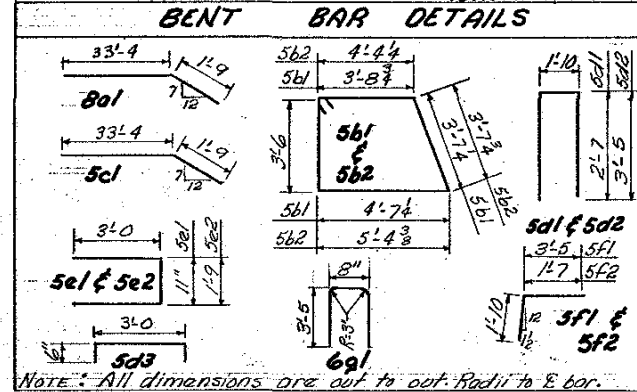
SECTION THRU EXPANSION II
Normal to E. Brg.



SECTION B-B

Note: Recess median curb similar to above.

REINFORCING BAR LIST - EAST ABUT.				
BAR	LOCATION	SHAPE	NO	WEIGHT
8a1	Footing, Longit.	20	35-1	1873
5b1	Footing, Hoops	50	16-2	843
5b2	"	8	17-7	147
5c1	Backwall, Horiz.	8	35-1	293
5d1	Backwall, Nairpins	54	6-10	386
5d2	Backwall, Nairpins, @ curb & median	8	8-6	71
5d3	"	4	3-10	16
5e1	Backwall	54	6-9	350
5e2	" @ curb & median	8	7-7	63
5f1	Backwall @ Curb	6	5-2	32
5f2	" @ Median	6	3-4	21
6a1	Rail Post Anchor	2	7-2	22
TOTAL (lbs.)				4146



Note: All dimensions are cut to out. Radii to E. bar.

CONCRETE PLACEMENT QUANTITIES			
LOCATION	STAGE I	STAGE II	TOTAL
Footing	23.8	23.8	47.6
Backwall	5.3	5.3	10.6
TOTAL - Cu. Yds.			
	29.1	29.1	58.2

ESTIMATED QUANTITIES - EAST ABUT.		
ITEM	UNITS	QUANTITY
Structural Concrete, Class "C"	Cu. Yds.	58.2
Reinforcing Steel	Lbs.	4146
10B P42 Steel	Furnish 14 @ 60'	840
Bearing Piling	Drive 14 @ 60'	840

ABUTMENT NOTES (E. ABUT.)

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 is to be securely wired in place before concrete is placed.

Abutment piles shall be driven to practical refusal and seated in shale.

Seating shall be done with a diesel hammer of at least 26,000 foot-pounds of rated energy operating at full capacity, or a gravity hammer having an effective weight of at least 6000 pounds, and driving energy of not less than 38,000 foot-pounds nor more than 40,000 foot-pounds. The design bearing value is 37 tons per pile. The pile tip should be down to at least elevation 987.

Since this abutment footing will be above the finished ground line the bottom must be formed.

Design For 30° Skew

90'-0" x 58' CONTINUOUS CONCRETE SLAB

BRIDGE AND REPAIRS TO EXISTING 110'-3"

MULTISPAN CONTINUOUS PLATE GIRDER BRIDGE

Concrete Slab Bridge: 27'-6" End Spans, 35'-0" Center Span

EAST ABUTMENT DETAILS

Station: 212+21 to Station: 224+25

WEBSTER COUNTY

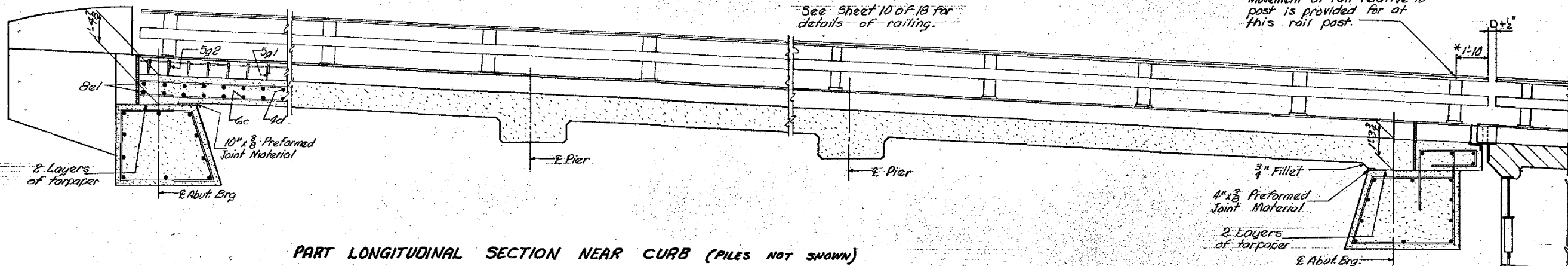
IOWA STATE HIGHWAY COMMISSION

Design Sheet No. 3 Of 18 File No. 24091 Design No. 1477

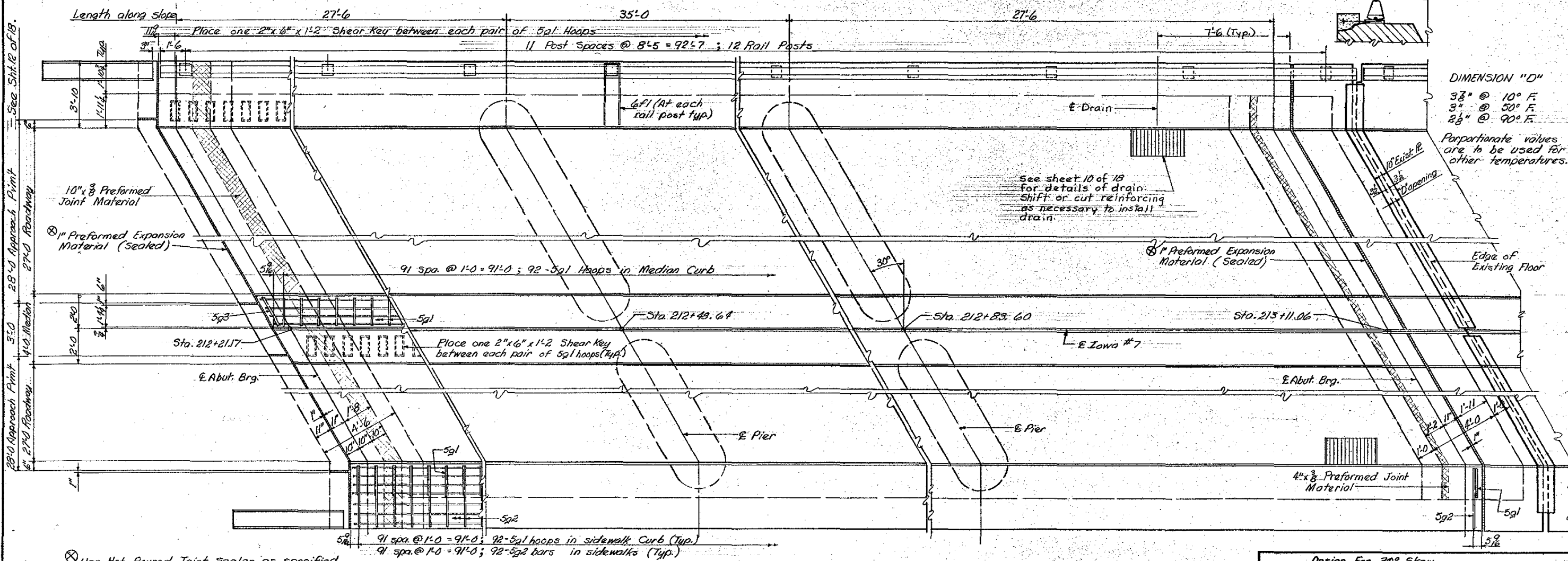
Movement of rail relative to post is provided for at this rail post.

$D + \frac{1}{2}''$

*1-10



PART LONGITUDINAL SECTION NEAR CURB (PILES NOT SHOWN)



DIMENSION "D"

3 3/8"	@	10° F.
3"	@	50° F.
2 3/8"	@	90° F.

Proportionate values
are to be used for
other temperatures.

⊗ Use Hot Poured Joint Sealer as specified in Article 4136.01 B of the Standard Specifications. Sealer is to be at least 12 inches deep on roadway section and at least 2 inch deep on face and top of sidewalk and median.

PART PLAN VIEW

Design For 30° Skew
90'-0" x 58' CONTINUOUS CONCRETE SLAB
 BRIDGE AND REPAIRS TO EXISTING 110'-3"
 MULTISPAN CONTINUOUS PLATE GIRDER BRIDGE
 Concrete Slab Bridge: 27'-6" End Spans, 35'-0" Center Span
SUPERSTRUCTURE DETAILS
 Station: 212+21 to Station: 224+25 August, 1971
WEBSTER COUNTY
IOWA STATE HIGHWAY COMMISSION
 Design Sheet No.: 7 Of 18 File No.: 24091 Design No.: 1471

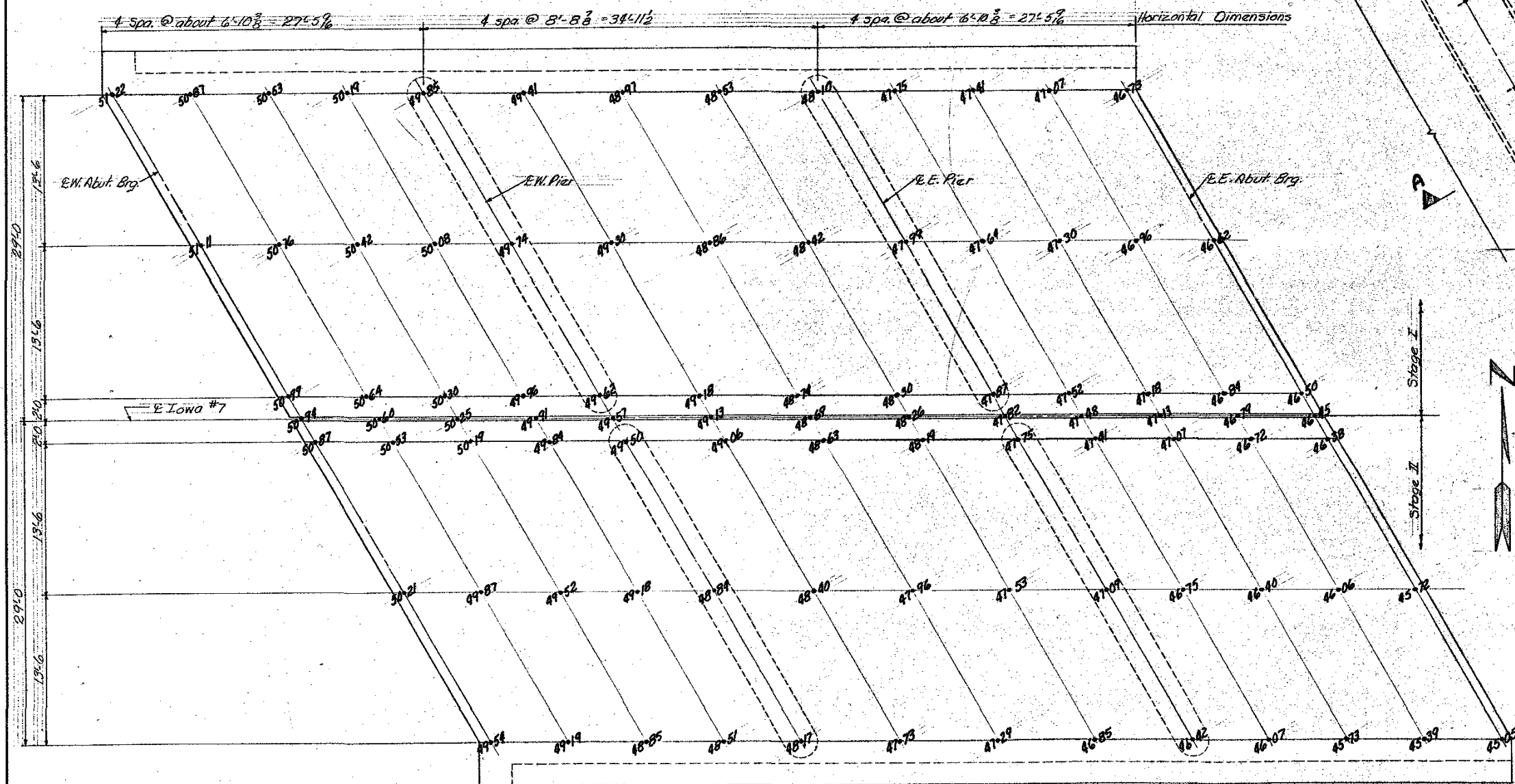
Bottom of Cap Elev. @
E. Pier & Exterior Pile
W. Pier - 1047.56
E. Pier - 1045.82

Bottom of Cap Elev. @
E. Pier & Exterior Pile
W. Pier - 1047.33
E. Pier - 1045.89

Bottom of Cap Elev. @
E. Pier & Exterior Pile
W. Pier - 1047.22
E. Pier - 1045.47

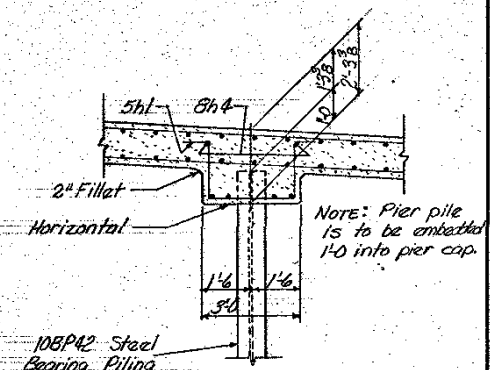
Bottom of Cap Elev. @
E. Pier & Exterior Pile
W. Pier - 1045.88
E. Pier - 1044.14

LOOKING EAST



NOTE: Add 1000.00 to Top of Slab Elevations

Note: Top of slab elevations at E. Abut are to be on a transition as required to match grade at west abutment of existing bridge.

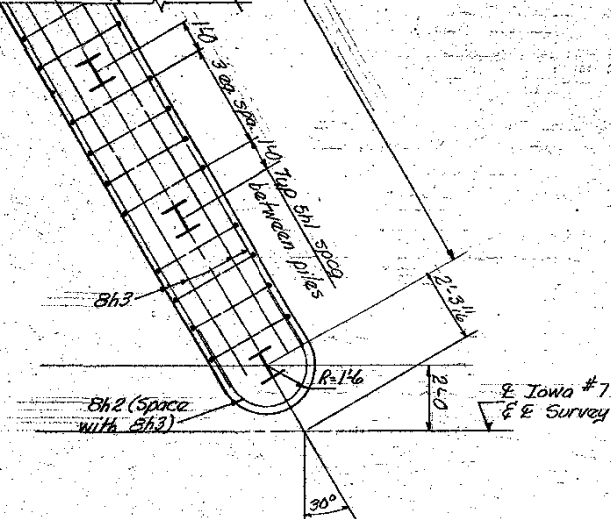


SECTION A-A

PIER PILING NOTE:

Pier piles shall be driven to practical refusal and seated in shale. Seating shall be done with a diesel hammer of at least 26,000 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 design bearing value is 31 tons per pile.

The pile tip for W.Pier should be down to at least elevation 990 and the pile tip for E.Pier should be down to at least elevation 988.



PART PLAN AT PIER

Design For 30° Skew
90'-0" x 58' CONTINUOUS CONCRETE SLAB
BRIDGE AND REPAIRS TO EXISTING 110'-3"
MULTI SPAN CONTINUOUS PLATE GIRDER BRIDGE
Concrete Slab Bridge: 27'-6" End Spans, 35'-0" Center Span
SUPERSTRUCTURE DETAILS
Station: 212+21 to Station: 224+25 August, 1971
WEBSTER COUNTY
IOWA STATE HIGHWAY COMMISSION
Design Sheet No. 8 Of 18 File No: 24091 Design No: 1471

DESIGNED BY: L. Phillips
 RETAILED BY: _____

TRACED BY: R. Rysavy
CHECKED BY: M. L. Lemer

WEBSTER COUNTY

PROJECT NUMBER

FN-7-5(6)-21-94

SIA

104

SIA

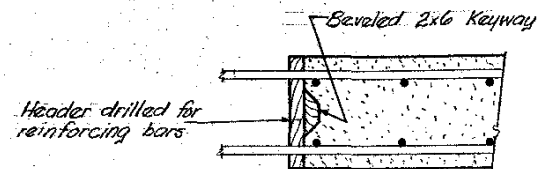
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SIA

104

SIA

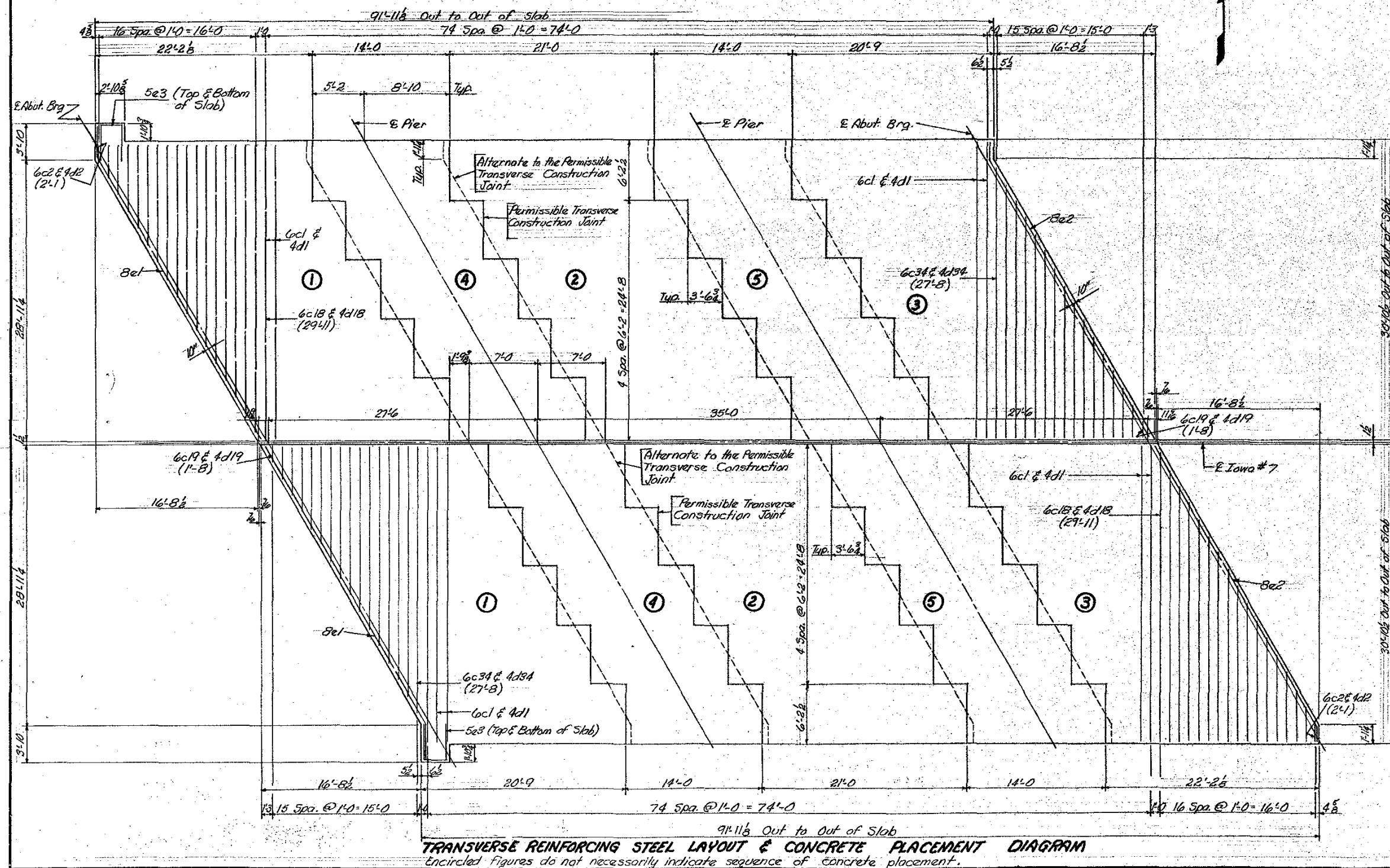
104



TRANSVERSE CONSTR JOINT DETAIL

CONCRETE PLACEMENT QUANTITIES - SUPERSTRUCTURE

LOCATION	STAGE I	STAGE II	QUANTITY
Slab Section (1)	32.3	32.3	64.6
" (2)	31.2	31.2	62.4
" (3)	32.1	32.1	64.2
" (4)	24.6	24.6	49.2
" (5)	24.6	24.6	49.2
Curb	12.0	12.0	24.0
Median Curb	5.4	5.4	10.8
TOTAL - Cu Yds.	162.2	162.2	324.4



TRANSVERSE REINFORCING STEEL LAYOUT & CONCRETE PLACEMENT DIAGRAM
Encircled figures do not necessarily indicate sequence of concrete placement.

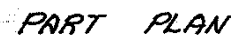
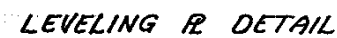
Design For 30° Skew
90'-0" x 58' CONTINUOUS CONCRETE SLAB BRIDGE
 AND REPAIRS TO EXISTING 110'-3" MULTISPAN CONTINUOUS PLATE GIRDER BRIDGE
 Concrete Slab Bridge: 27'-6" End Span, 35'-0" Center Span
SUPERSTRUCTURE DETAILS
 Station: 212+21 to Station: 224+25 August, 1971
WEBSTER COUNTY
IOWA STATE HIGHWAY COMMISSION
 Design Sheet No. 9 Of 18 File No. 24091 Design No. 1471

DESIGNED BY: L. Phillips
 TRACED BY: K. Rysavy
 CHECKED BY: M. J. Hannon

WEBSTER COUNTY

PROJECT NUMBER
 FN-7-5(6) - 21-94

STATE	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	5	11	20



WATERTIGHT, CAST IRON - FLUSH MOUNT

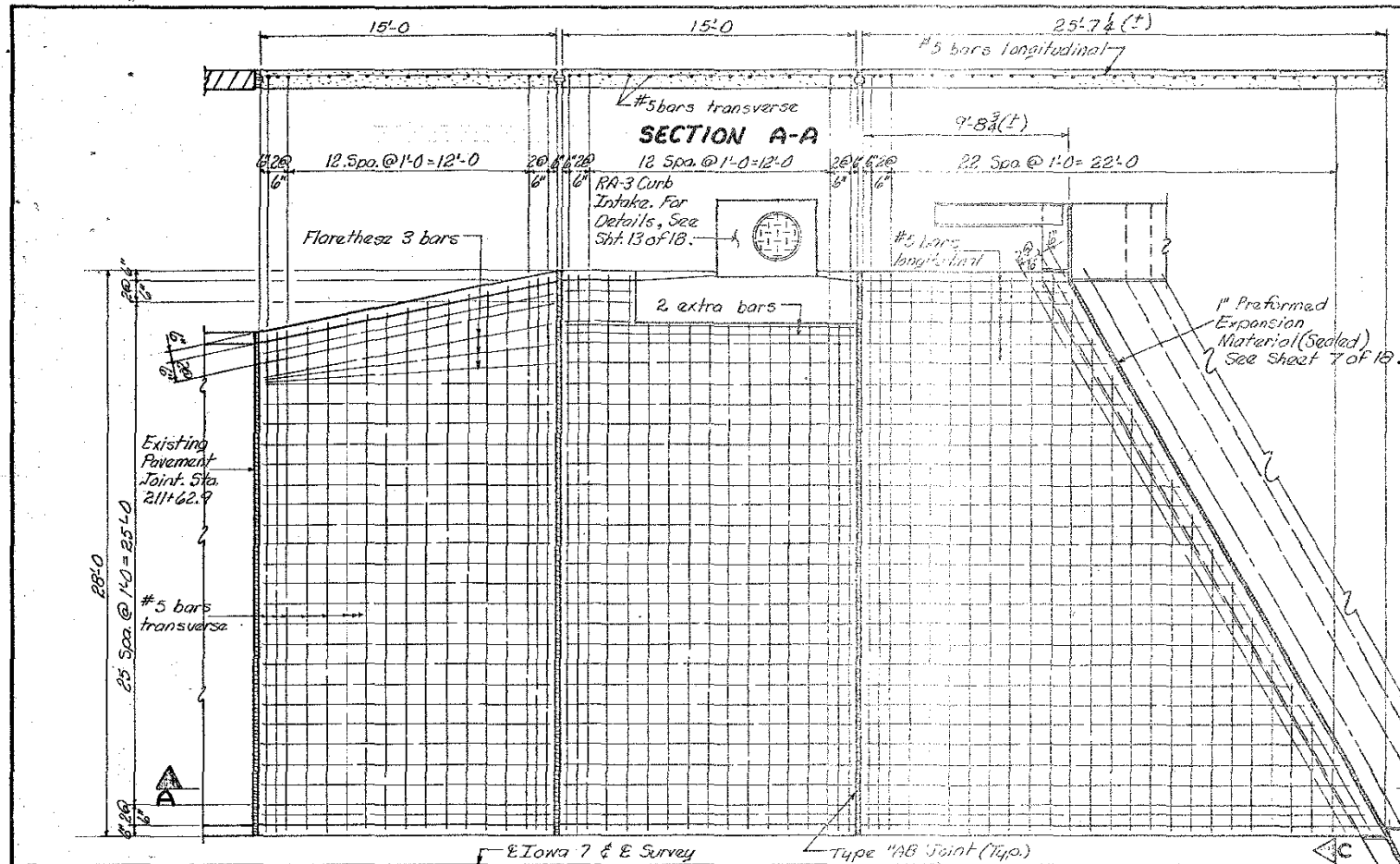
BENT BAR DETAILS



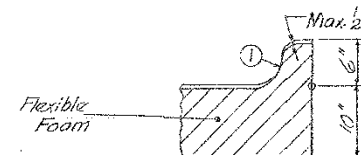
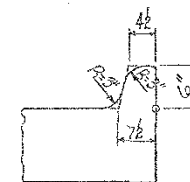
NOTE: Include these quantities with quantities for West Abutment of Existing Bridge.

The cost of removing light pole from existing position and reinstalling it at new location plus putting the light into service is considered incidental to construction.

Design For 30° Skew
90'-0" x 58' CONTINUOUS CONCRETE SLAB
BRIDGE AND REPAIRS TO EXISTING I110-1-3
MULTISPAN CONTINUOUS PLATE GIRDER BRIDGE
Concrete Slab Bridge: 27'-6" End Span, 35'-0" Center Span
LIGHTING DETAILS
Station: 212+21 to Station: 224+25 August, 1971
WEBSTER COUNTY
IOWA STATE HIGHWAY COMMISSION
Design Sheet No.: 11 Of 18 File No.: 24091 Design No.: 1471

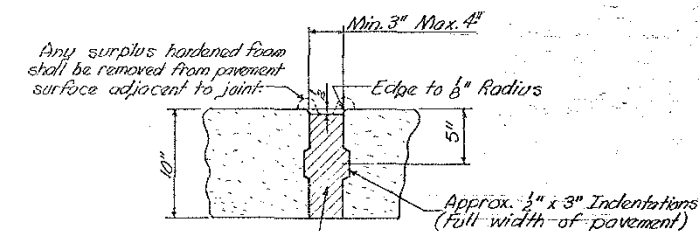


DETAIL OF 6" INTEGRAL CURB

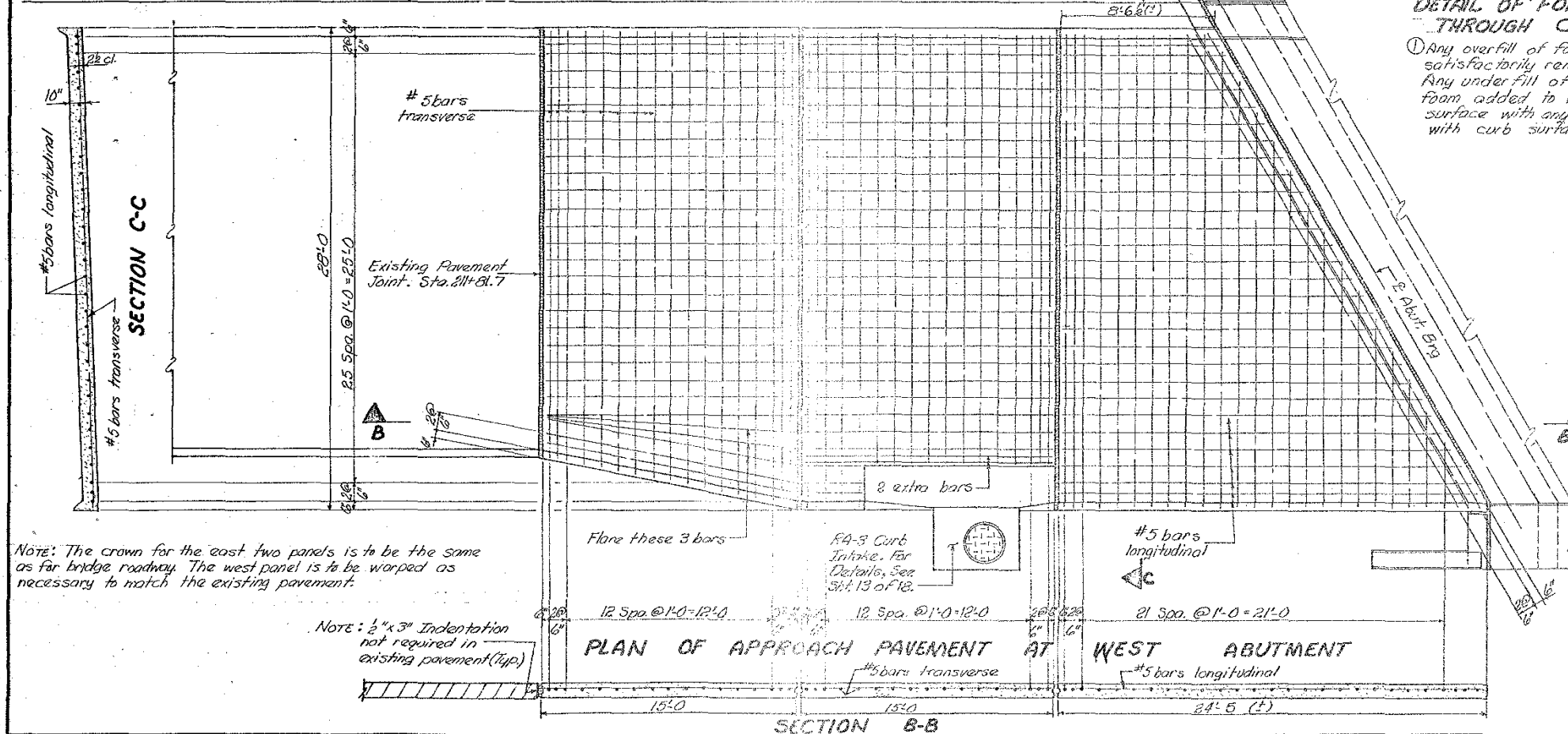


DETAIL OF FOAM PLACEMENT THROUGH CURB SECTION

① Any overfill of foam in this area shall be satisfactorily removed flush with surface. Any under fill of foam shall have more foam added to within 1/2 inch of curb surface with any overfill removed flush with curb surface.



DETAIL OF FOAM PLACEMENT TYPE "AB" COMPRESSION JOINT



Note: The crown for the east two panels is to be the same as far bridge roadway. The west panel is to be warped as necessary to match the existing pavement.

Note: 1/2" x 3" Indentation not required in existing pavement (typ.)

APPROACH PAVEMENT NOTES:
 All reinforcing shall be #5 bars, placed as indicated and held in position by means of approved bar supports placed beneath each transverse bar, unless otherwise approved by the Engineer.
 The concrete used in the Reinforced Bridge Approach Section shall be pavement mix, and placed in accordance with current specifications for concrete paving, including vibration.
 The Type AB Compression Joint shall be "Foamed in place" joints, constructed in conformance with current Iowa State Highway Commission Standard Specifications. Any variations from procedures outlined shall be approved by the Engineer before any such work is begun. The completed joint shall be essentially as indicated hereon with the compression material (foam) straight and perpendicular to the pavement surface and the line of the joint straight and perpendicular to C of pavement.
 Seal preformed expansion joint material at abutment with Hot Poured Joint Sealer as specified in Article 4136.01 of the Standard Specifications. The preformed expansion joint filler is to be as specified in article 4136.03 of the Standard Specifications.
 Price bid per sq. yd. for "Reinforced Bridge Approach Section" shall be considered full compensation for furnishing all material (including all joint material) and labor necessary to construct the Reinforced Bridge Approach Section as described hereon.
 Construction of curb as directed by the Engineer shall be considered incidental to the Reinforced Bridge Approach Section.
 The preformed expansion joint filler is to be as specified in article 4136.03 of the Standard Specifications.

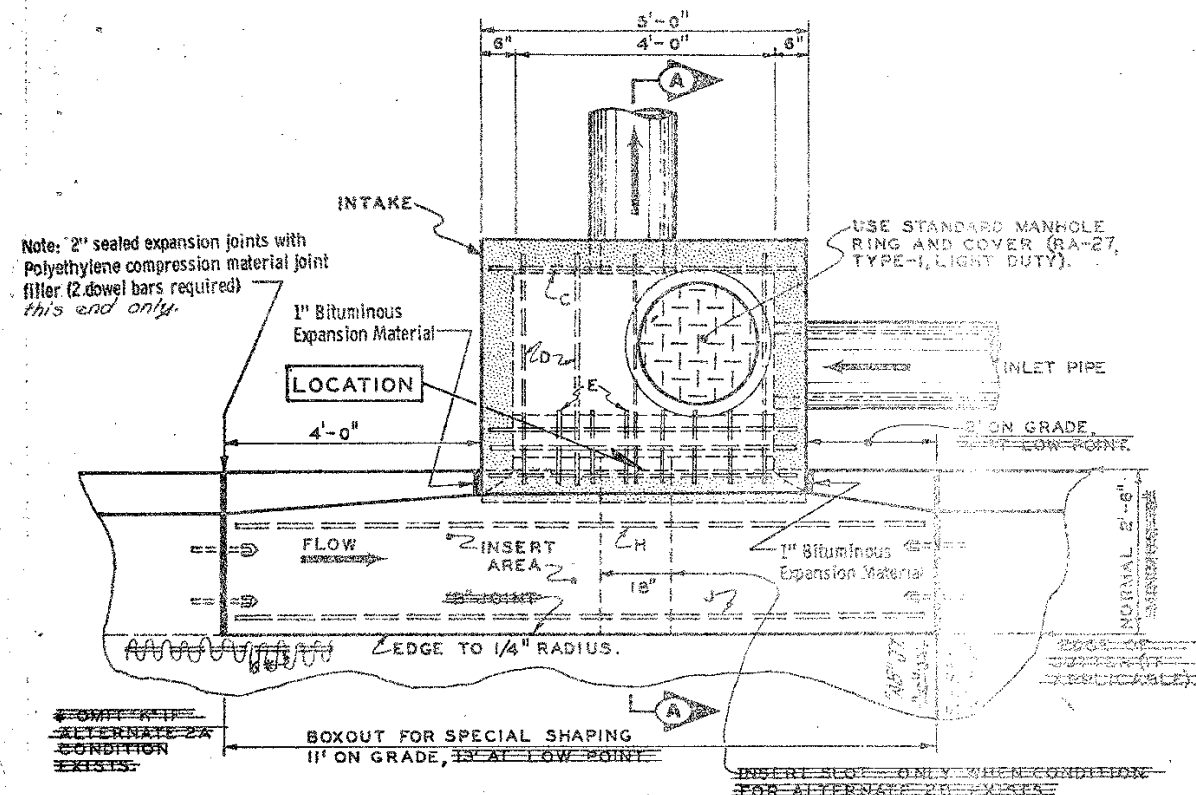
DESIGNED BY: *L. Phillips*
 TRACED BY: *M. L. Plummer*
 CHECKED BY: *M. L. Plummer*

WEBSTER COUNTY

PROJECT NUMBER
 FN-7-5(6)-21-94

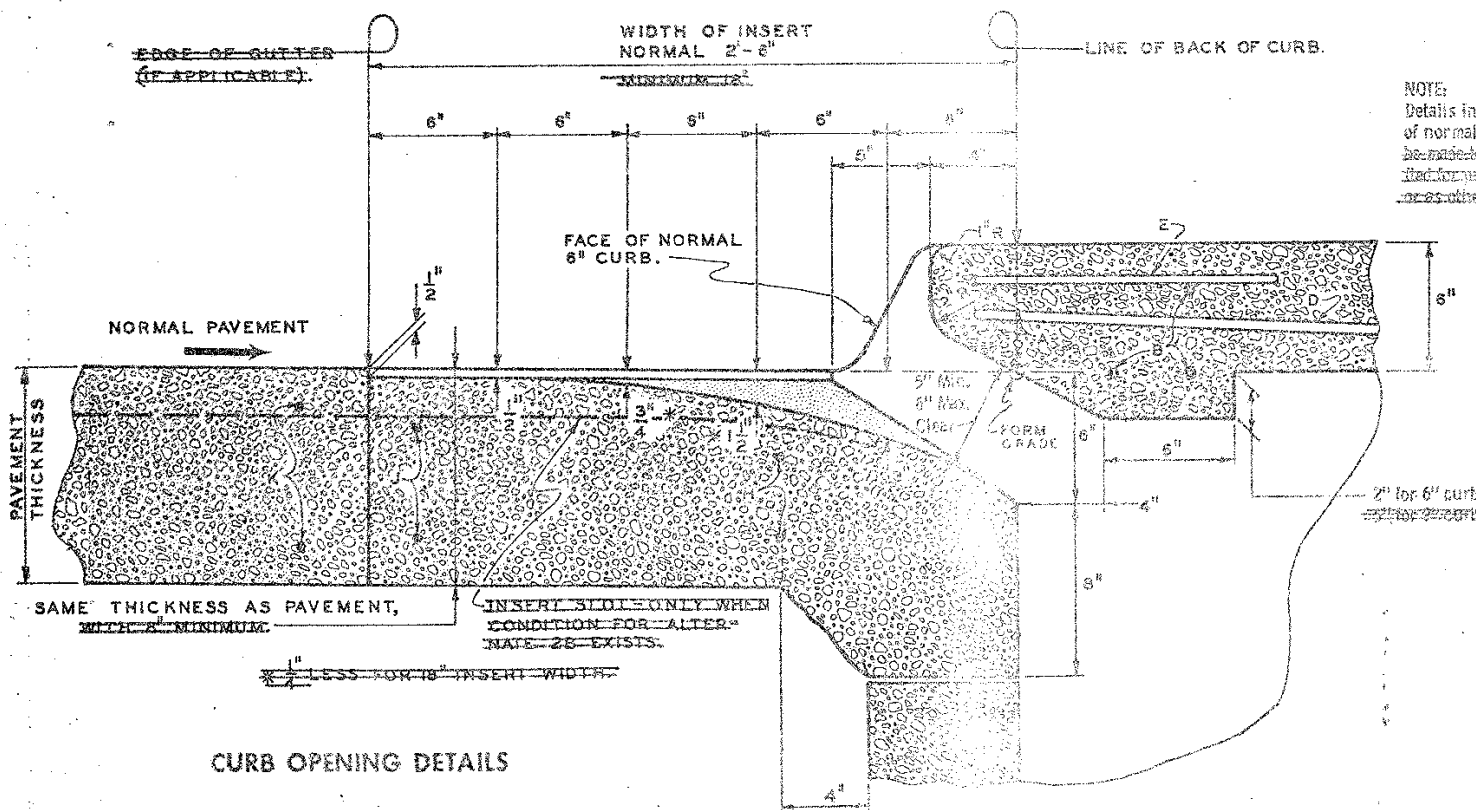
Design For 30° Skew
90'-0" x 58" CONTINUOUS CONCRETE SLAB
BRIDGE AND REPAIRS TO EXISTING 1110'-3"
MULTISPAN CONTINUOUS PLATE GIRDER BRIDGE
 Concrete Slab Bridge: 27'-6" End Spans, 35'-0" Center Span
APPROACH PAVEMENT DETAILS
 Station: 212+21 to Station: 224+25 August, 1971
WEBSTER COUNTY
IOWA STATE HIGHWAY COMMISSION
 Design Sheet No.: 12 Of 18 File No.: 24091 Design No.: 1471

STATE	FED. ROAD DIST. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	5		14	20



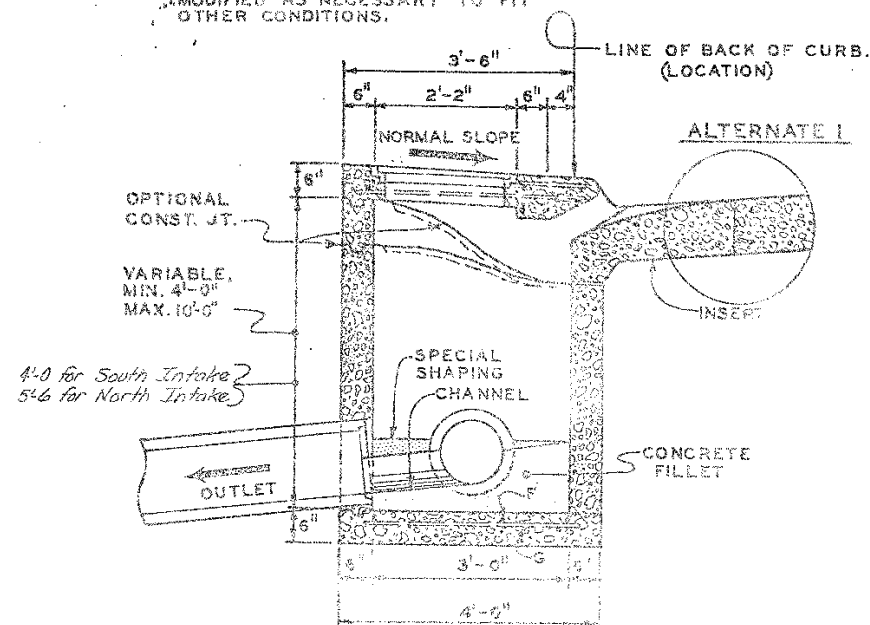
NOTE: "LOCATION" POINT IS C OF INTAKE AT BACK OF CURB.

PLAN VIEW



CURB OPENING DETAILS

NOTE: NORMAL SLOPE OF 4% MAY BE MODIFIED AS NECESSARY TO FIT OTHER CONDITIONS.



SECTION A-A

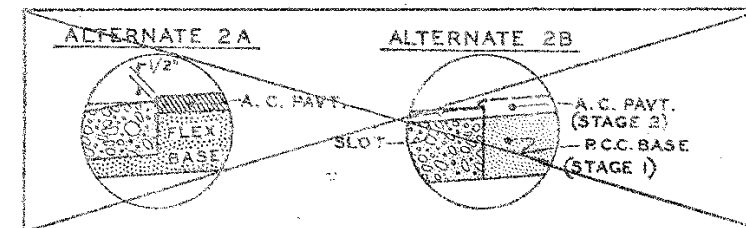
NOTE: When minimum depth intake is constructed it is intended that the concrete fillet be installed as indicated, from the base to the elevation of pipe flow lines.

NOTE: Details indicated hereon are for construction of intake conforming to construction of normal 6" curb (6101) as a part of pavement. Appropriate modifications may be made to conform to other curb shapes when necessary. When a special shaped curb is used, the intake design shall be adjusted as indicated, or as otherwise directed by the Engineer.

REINFORCING SCHEDULE			
MARK	LENGTH	NUMBER	SPACING
A	4'-3"	2	SEE DETAIL
B	4'-3"	3	SEE DETAIL
C	4'-9"	1	SEE DETAIL
D	3'-4"	4	SEE DETAIL
E	1'-2"	2	SEE DETAIL
F	4'-9"	4	13"±
G	3'-9"	5	13"±
H	10'-6"	2 *	SEE DETAIL
J	10'-6"	2 *	SEE DETAIL
K	3'-0"	2	SEE DETAIL

NOTE: ALL REINFORCING STEEL 1/2" # PLACED APPROXIMATELY 1-1/2" CLEAR OF CONCRETE SURFACES.

* REINFORCE WHEN USING BOXOUT.



CONSTRUCTION CONDITIONS

ALTERNATE 1 - For use when adjacent pavement is P. C. Concrete.

ALTERNATE 2A -- For use when adjacent pavement is Asphaltic Concrete surface with P. C. Concrete base and/or curb and gutter unit.

ALTERNATE 2B - Same as 2A except adjacent pavement is built in stages. A slot is constructed in the insert area to facilitate draining the surface of the base until the final Asphaltic Concrete is placed. When the surface course is constructed the slot, in the insert area, shall be carefully filled in as directed by the Engineer.

GENERAL NOTES:

Construction of Intake, as shown hereon, shall be in accordance with current Iowa State Highway Commission Standard Specifications for Storm Sewer (Intake) and applicable portions of current specifications for Structural Concrete. Vibration of concrete is required.

Insert area shall be included with the quantities for either concrete pavement or curb and gutter. Special shaping of insert area shall be included with price bid for Intake. Concrete for insert area may be either concrete for "Intake" or "Pavement". Finish of "Insert" shall be same as pavement. Finish for the intake top or any portion exposed shall be as required for Structural Concrete.

Storm sewer pipe should be installed before Intake sidewall construction is started. Sidewalls shall be constructed as indicated with openings for storm sewer smoothly shaped and no inlet pipes projecting unnecessarily into well. Outlet pipes shall not project beyond inside face of sidewall.

Construction joints, if necessary, in sidewalls shall be formed with keyways or tie bars to ensure bond between concrete pours.

Joint in pavement adjacent to intake shall be as shown on Standard Road Plan RA-3. Any transverse pavement joints shall stop at edge of insert area. Joint locations shall be as indicated hereon, except where specifically modified by other plan drawings or by the Engineer. "C" joint at end of insert shall extend through to an opposite form line.

A concrete fillet shall be placed in the bottom of the intake approximately as indicated and as directed by the Engineer. Special shaping of this fillet is required to provide a smooth channel through the intake. Top surface of the fillet shall slope approximately 1 inch per foot toward the channel.

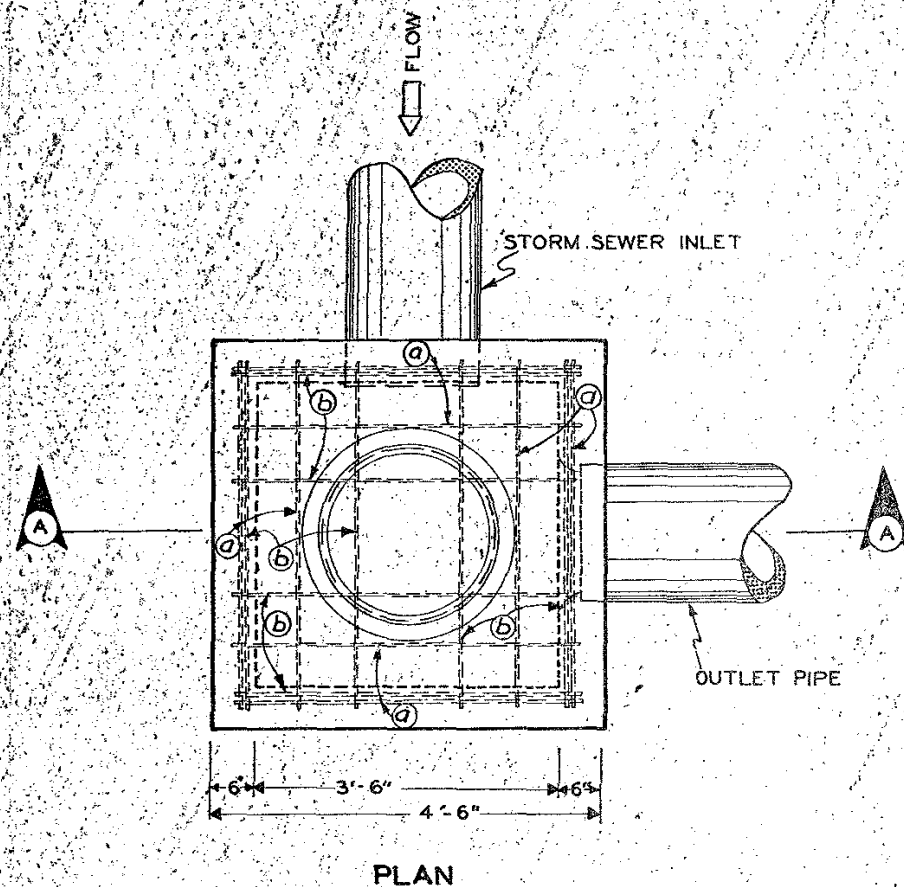
Storm sewer pipe locations shown hereon are typical. Refer to detail project plans for additional data. (Sheet 3 of 18)

Price bid for Intake shall include all necessary excavation and backfill, as well as special shaping of insert area, bottom fillet, and other details essentially as shown hereon (includes intake top with manhole ring and cover).

IOWA HIGHWAY COMMISSION	
STANDARD ROAD PLAN RA-3	
RECOMMENDED	Jack C. Delbridge 3/10/67 ROAD ENGINEER DATE
DESIGN ENGINEER	H. P. McLaughlin 3/13/67 DATE
APPROVED	1/2/67 DEPUTY CHIEF ENGINEER DATE
CURB INTAKE SHALLOW WELL	

WEBSTER COUNTY

PROJECT NUMBER	STATE	FED. ROAD DIST. NO.	TOWNSHIP	SHEET NO.	TOTAL SHEETS
FN-7-5(6)--21-94	IOWA	5		15	20



REINFORCING SCHEDULE					
MARK	LOCATION	SIZE	LENGTH	NUMBER	SPACING
Ⓐ	TOP SLAB	1/2" ϕ	4'-0"	8	8"-SEE DETAIL
Ⓑ	BOTTOM SLAB	1/2" ϕ	4'-0"	8	15"
TOTAL WEIGHT = 42.75 LBS.					

GENERAL NOTES

This type of manhole is intended for use in ditches, medians or other areas where installation is not subject to traffic.

Price bid for manhole shall include all necessary excavation and back-fill providing satisfactory connection to new or existing storm sewer as per detail plans, as well as furnishing all materials and constructing manhole as detailed hereon.

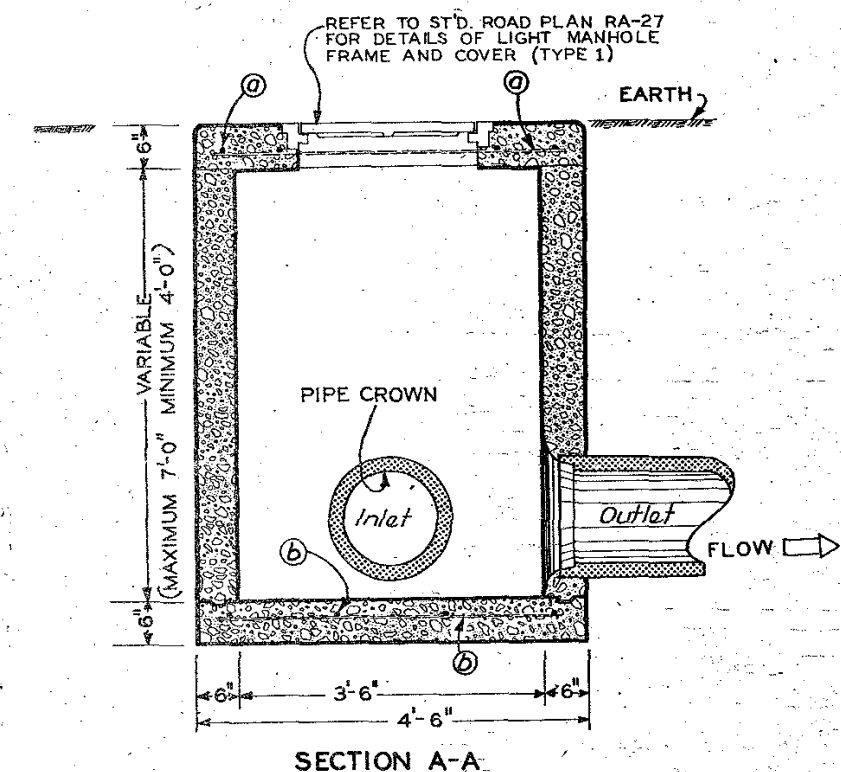
Any modification of the manhole design shall be subject to the approval of the Engineer.

Materials and construction methods used shall be in accordance with current Standard Specifications.

Maximum projection of any inlet pipe into the manhole well shall be 1 inch. The end of the outlet pipe shall be recessed a minimum of 1 inch and a maximum of 3 inches into the sidewall of the manhole and the inside of the manhole sidewall shaped and smoothly rounded into the outlet pipe opening.

Crown of any inlet pipe shall not be placed at an elevation lower than the crown of the outlet pipe.

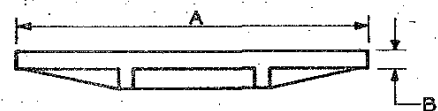
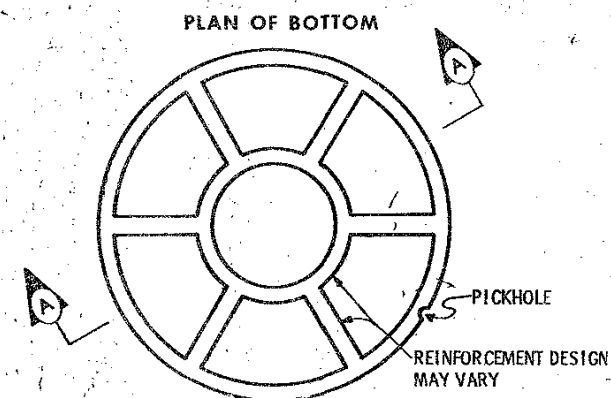
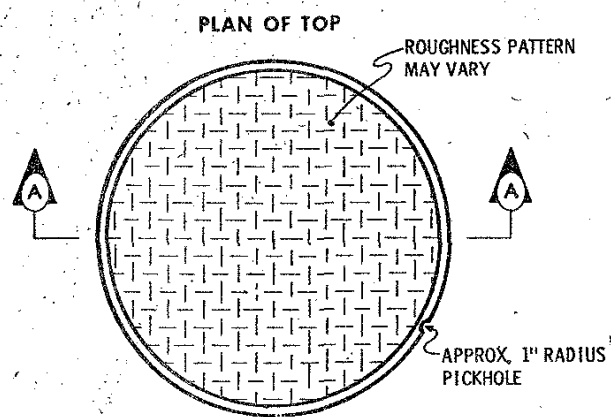
Storm sewer pipe locations shown hereon are typical. Refer to sheet 3 of 18 for additional data.



6-27-68		IOWA HIGHWAY COMMISSION				
DATE		STANDARD ROAD PLAN RA-1				
CORRECT DIMENSION	LAST REVISION	RECOMMENDED	ROAD ENGINEER	DATE		
			DESIGN ENGINEER	DATE		
		APPROVED	DEPUTY CHIEF ENGINEER	DATE		
				DATE		
LIGHT DUTY BOX MANHOLE						
STATE		FED. ROAD DIST. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS	
IOWA		5		16	20	

Design No 1471
File No 24091
Design Sht. 14 of 18

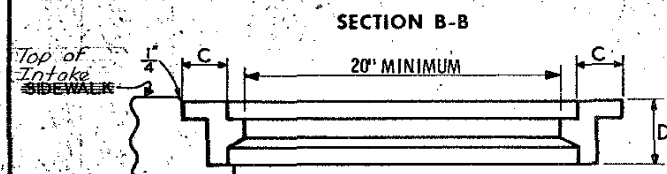
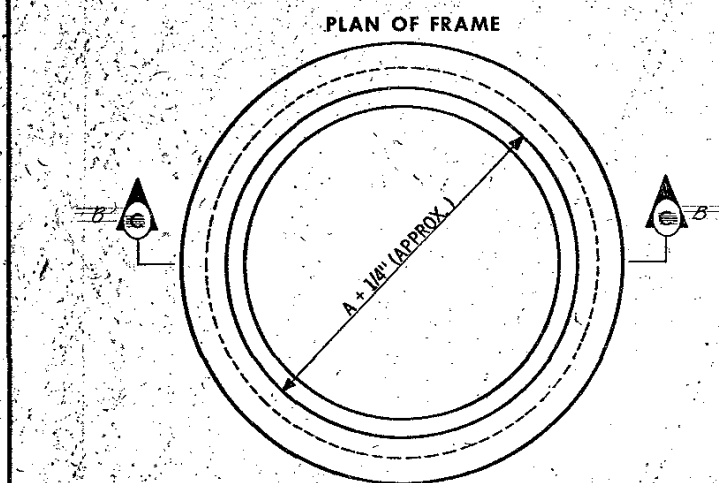
WEBSTER COUNTY PROJECT NUMBER FN-7-5(4)-21-94



NOTE: Three Type-1 frames and three covers are required.

IRON CASTING FOR MANHOLE COVERS

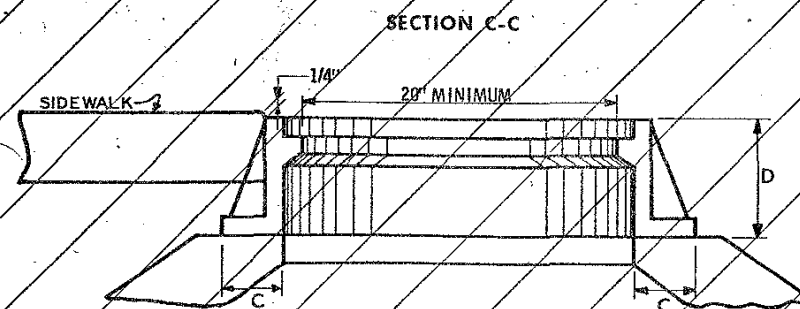
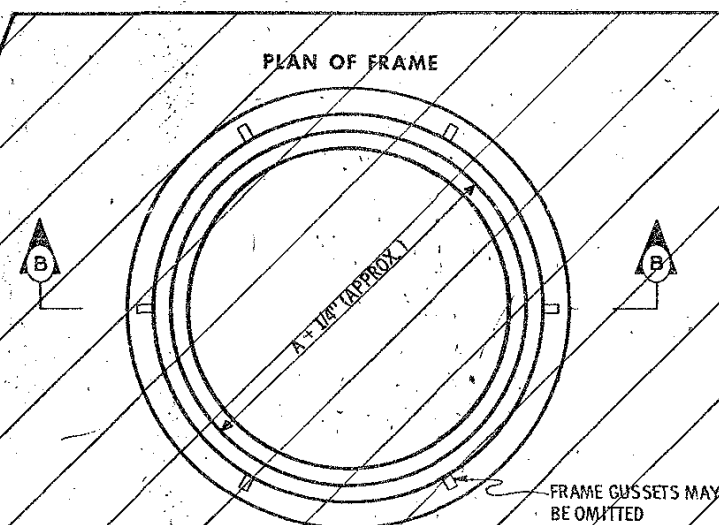
- 1) All castings shall be class 30 gray iron castings complying with current Iowa State Highway Commission Standard Specifications. Finish of casting shall be smooth and free of defects. Painting of castings is not required, however if used, paints shall be evenly applied and neither sticky nor brittle when dry.
- 2) An identifiable trade name or mark may be imprinted on the casting.
- 3) Lightweight manhole covers as described hereon shall be used with appropriate frames of either slab type or neck-bearing type wherever manholes are not subject to roadway traffic.
- 4) Unless specified otherwise, manhole covers shall not be paid for separately but shall be considered incidental to other work.
- 5) When specifically so required as a part of detail project plans the RA-27 frame and cover will be required to be furnished with an approved locking device.



TYPE-1 FRAME
Slab Type For Cast Manholes

TYPE 1 MANHOLE COVER MINIMUM DIMENSIONS				
A	B	C	D	
21"	1 1/2"	2"	2 1/2"	

MINIMUM WEIGHTS	
Frame	Cover
70 lbs.	60 lbs.



TYPE-2 FRAME
Neck Bearing Type For Built-Up Manholes

TYPE 2 MANHOLE COVER MINIMUM DIMENSIONS				
A	B	C	D	
21"	1 1/2"	2 1/2"	4"	

MINIMUM WEIGHTS	
Frame	Cover
85 lbs.	60 lbs.

IOWA HIGHWAY COMMISSION	
STANDARD ROAD PLAN RA-27	
RECOMMENDED	Jack C. DeBridger 3/12/68 ROAD ENGINEER DATE A. P. McLaughlin 3/12/68 DESIGN ENGINEER DATE
APPROVED	R. H. G. 3/12/68 DEPUTY CHIEF ENGINEER DATE
CAST MANHOLE COVERS (LIGHT)	

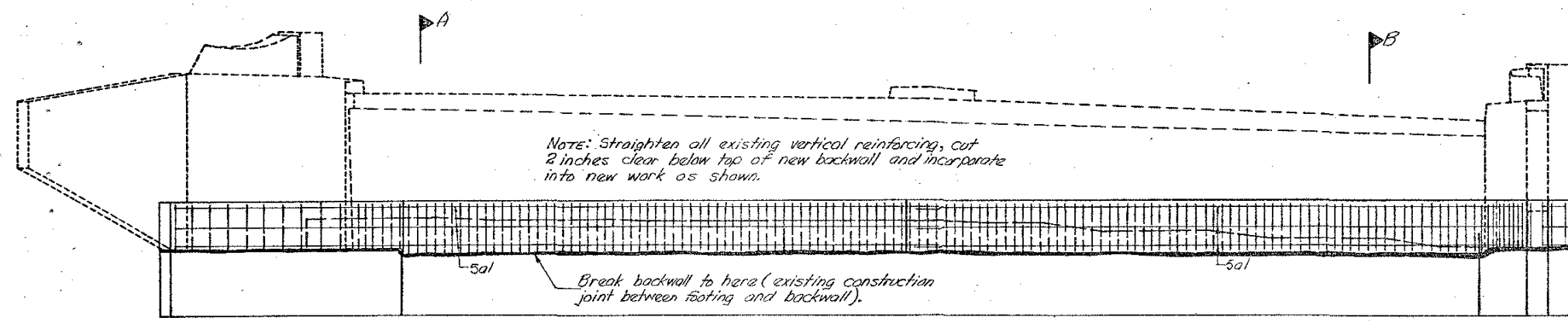
Design No 1471
File No 24091
Design Sht 15 of 18

WEBSTER

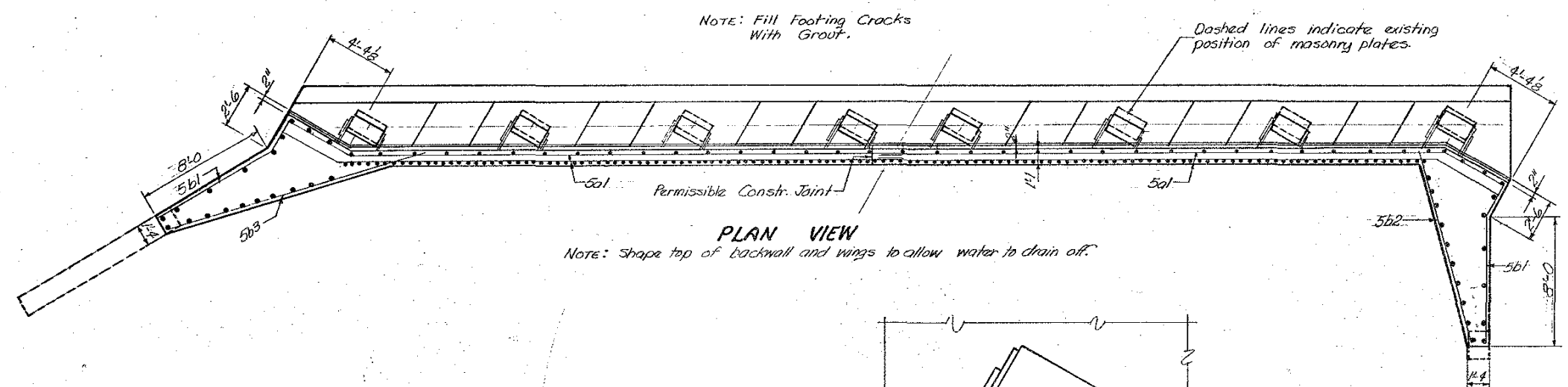
COUNTY

PROJECT NUMBER
FA-7-5 (6) - 21-94

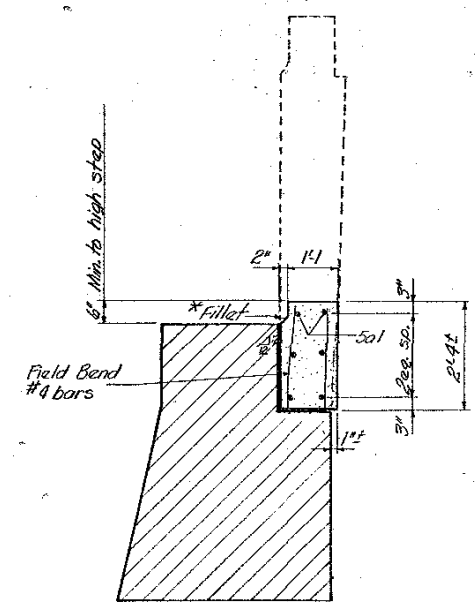
STATE	FED. ROAD DIST. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	5		17	20



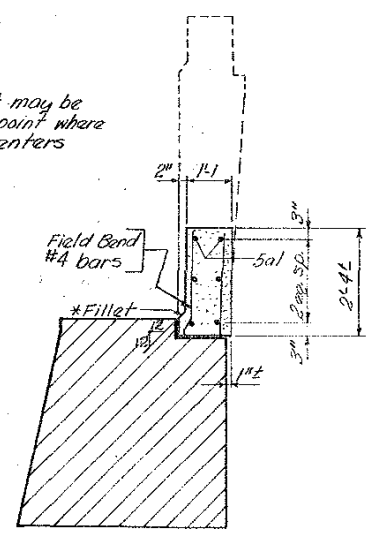
REAR ELEVATION



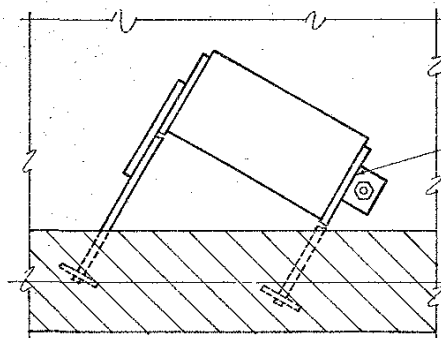
PLAN VIEW



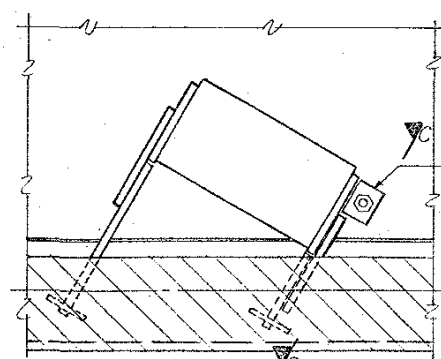
SECTION A-A



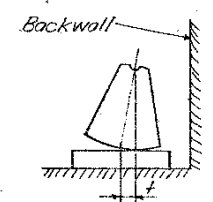
SECTION B-B



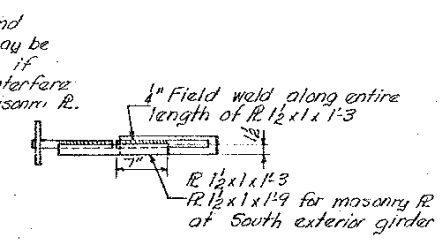
PLAN OF EXISTING MASONRY R



PLAN OF MASONRY R IN NEW POSITION



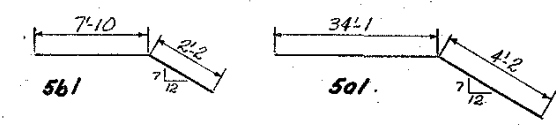
ROCKER SETTINGS



VIEW C-C

REINFORCING BAR LIST - WEST ABUT.					
BAR	LOCATION	SHAPE	Nº	LENGTH	WEIGHT
5a1	Backwall, Longit.		6	38'-3"	239
5b1	Abut. Extension - Front Face		6	10'-0"	63
5b2	" " - Back "		3	12'-0"	38
5b3	" " - " "		3	16'-0"	50
					390

BENT BAR DETAILS



Note: All dimensions are cut to out.

ESTIMATED QUANTITIES

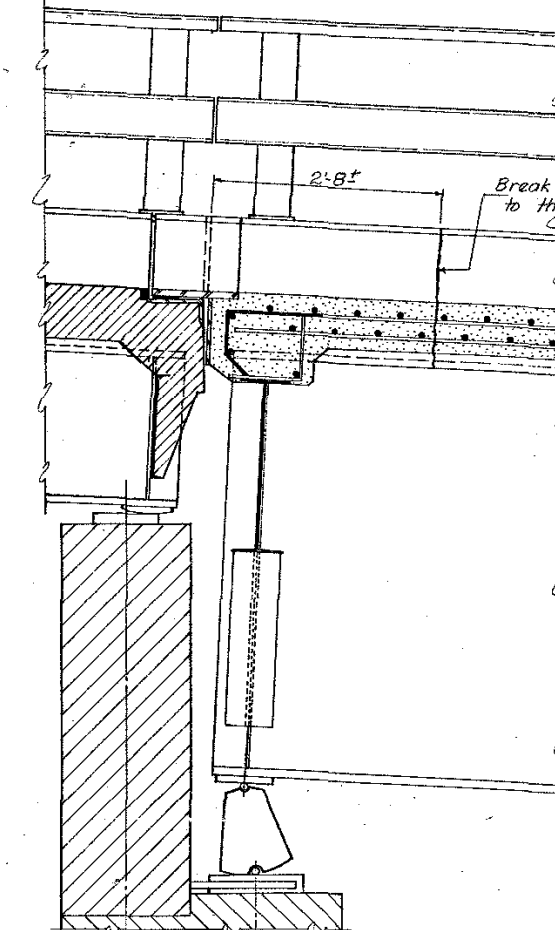
ITEM	UNITS	LIGHT POLE BASE	W. ABUT.	QUANTITY
*Structural Concrete	cu. yds.	1.2	12.2	13.4
Reinforcing Steel	lbs.	170	390	560
Structural Steel	lbs.	110	50	166

*Concrete for abutment, 12.2 cu. yds., is to be Class "C" Concrete. Concrete for Light Pole Base, 1.2 cu. yds., is to be Class "D" Concrete.

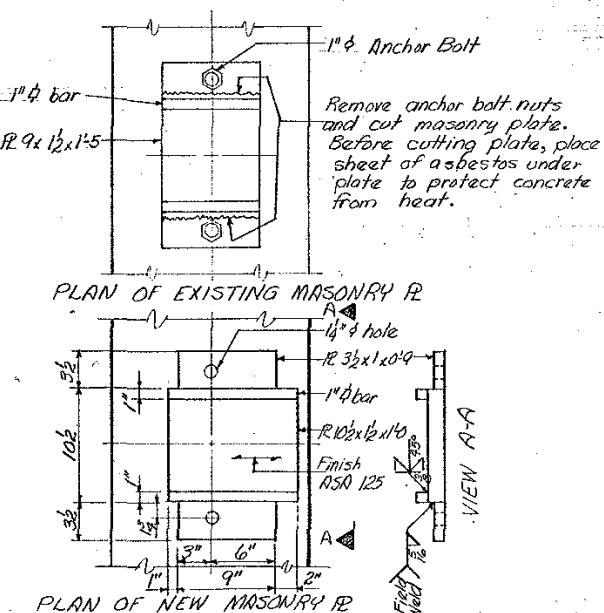
NOTES:

The end posts, wings and backwall are to be removed down to the construction joint at top of footing. Concrete to be removed shall be done carefully so as not to damage remaining parts of the structure. All vertical bars are to be cut off 2 inches below top of new backwall. The angle portion of the expansion plate is to be salvaged and reset as shown on sheets 5 & 7 of 18. The light pole on the north concrete end post is to be removed and placed on a light pole base on the existing bridge (see sheet 11 of 18). All exposed corners 90° or sharper are to be filleted with a 3/4" dressed and beveled strip. When resetting masonry plates the superstructure is to be jacked only enough so that masonry plates can be moved. Jack only at abutment diaphragm stiffener plates. Dead load reaction for one girder is about 45 tons. The cost of jacking and resetting the masonry plates and filling footing cracks with grout is considered incidental to construction. The bid item for "Structural Steel" includes the weight for 16-1 1/2x 1/2x1'-9 plates.

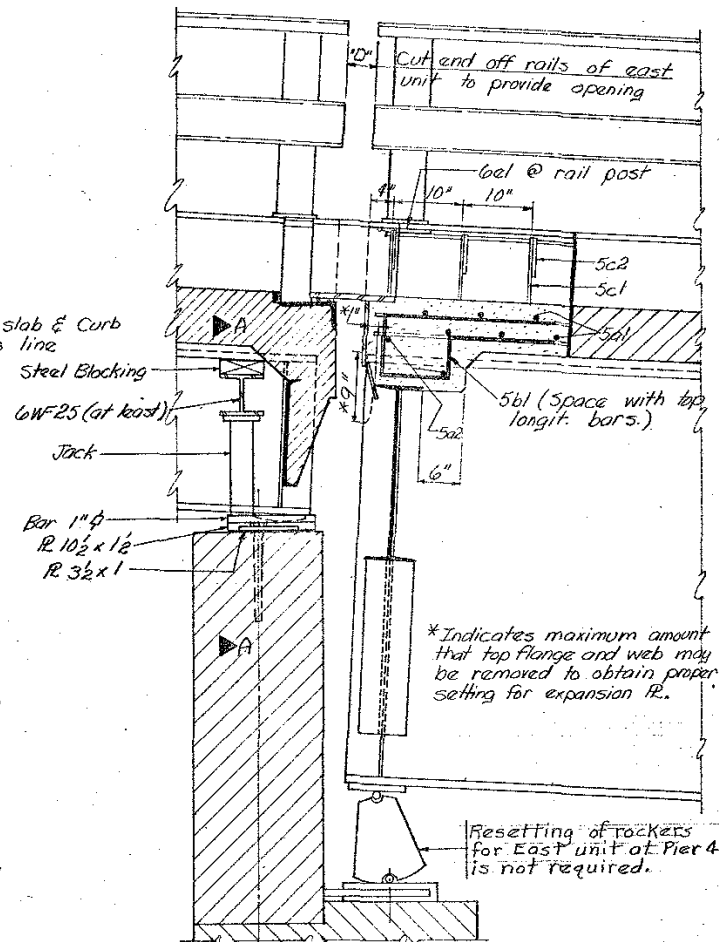
Design For
REPAIRS ON WEST ABUTMENT OF A MULTISPAN CONT. R GIRDER BRIDGE, 30° SKEW 546' x 58' SECTION
 & 546' x 58' SECTION WITH 18° 3' TRANSITION SECTION
WEST ABUTMENT REPAIR DETAILS
 Station: 212+21 to Station: 224+25 August, 1971
WEBSTER COUNTY
IOWA STATE HIGHWAY COMMISSION
 Design Sheet No.: 16 Of 18 File No.: 24091 Design No.: 1471



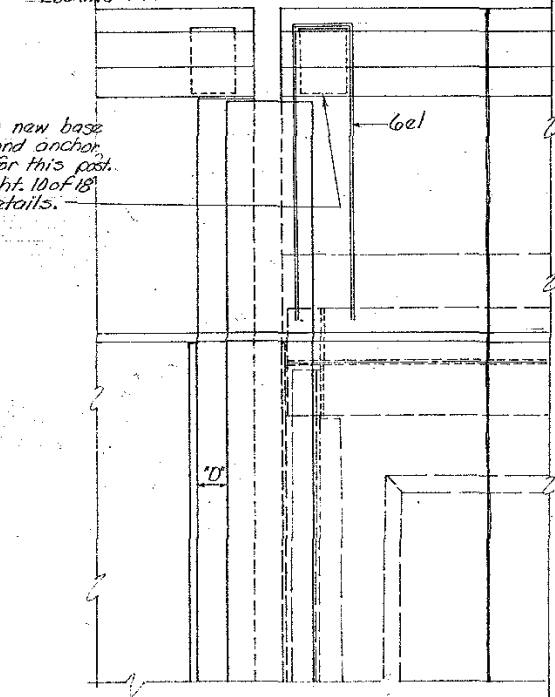
PART LONGITUDINAL SECTION AT PIER 4 - LOOKING NORTH
SHOWING EXISTING CONDITION.



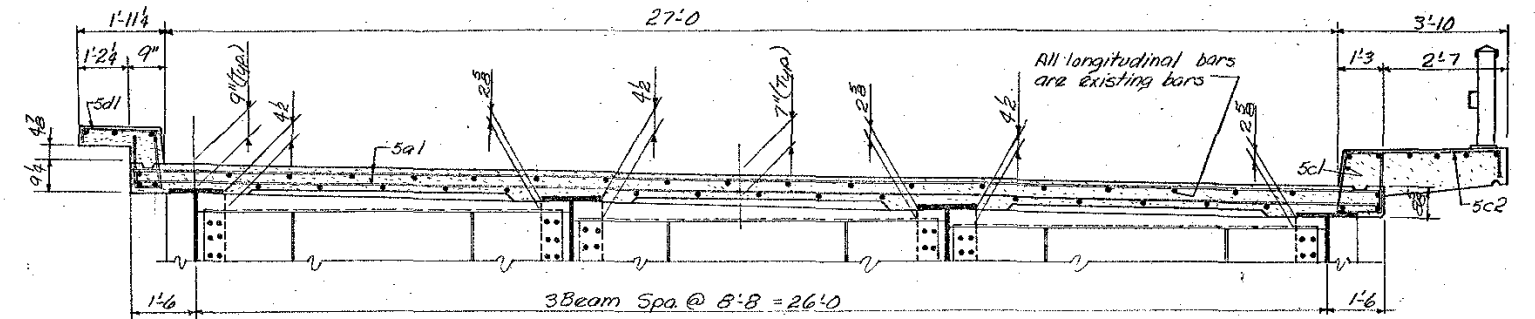
Furnish new base plate and anchor bolts for this post. See Sht. 10 of 18 for details.



PART LONGITUDINAL SECTION AT PIER 4
LOOKING NORTH - SHOWING COMPLETED REPAIR

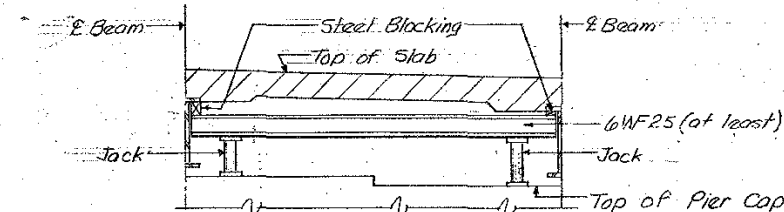


PART PLAN NEAR EXTERIOR GIRDER



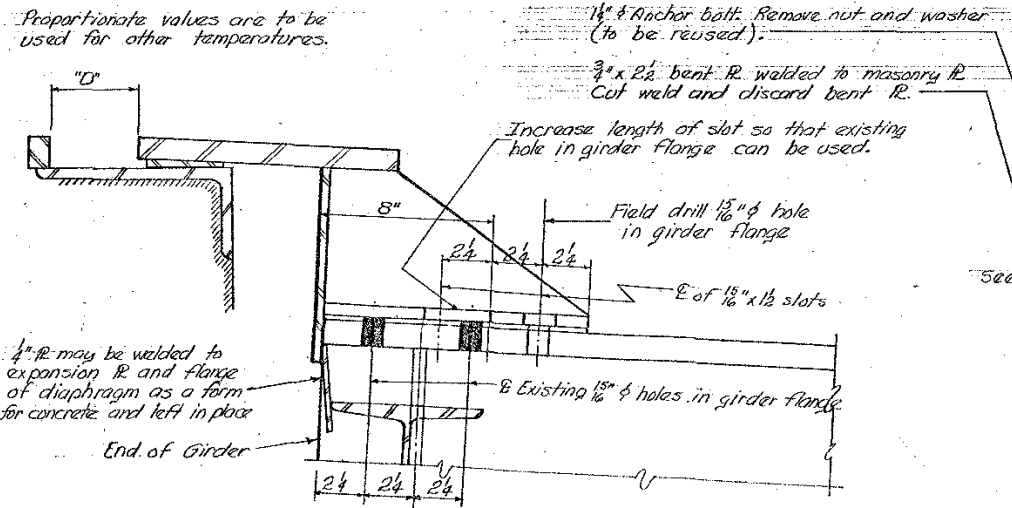
HALF CROSS-SECTION NEAR #4

NOTES:
This sheet shows details for resetting the expansion plate at Pier 4 and for furnishing and installing new masonry plates under the 1 Beams of the transition unit, and details for anchoring masonry plates of west unit.
Remove concrete from the east unit as shown. The longitudinal reinforcing steel exposed is to be incorporated into new concrete (cut off ends to clear face of concrete by 2"). Install new masonry plates during the time when the expansion device is not connected to girder flanges. Jack the 1-Beams only enough to remove existing plates and to install new plates (maximum dead load reaction is about 11 tons). The jacking procedure is to be approved by the Engineer (a suggested method is shown).
The anchor ears on the masonry plates for the girders of the west unit are to be cut free, the masonry plate moved to reset the rocker, and new anchor ears field welded to masonry plate.
The bid item for "Structural Steel" includes the weight of 7 new masonry plates, base plate and anchor bolts for 2 rail posts, 32 bolts for connecting expansion device to girder flanges, and 16 bent plates for anchoring masonry plates under rockers. The cost for jacking, for removing old masonry plates under 1-Beams and for moving masonry plates to reset rockers, is to be considered incidental to construction.



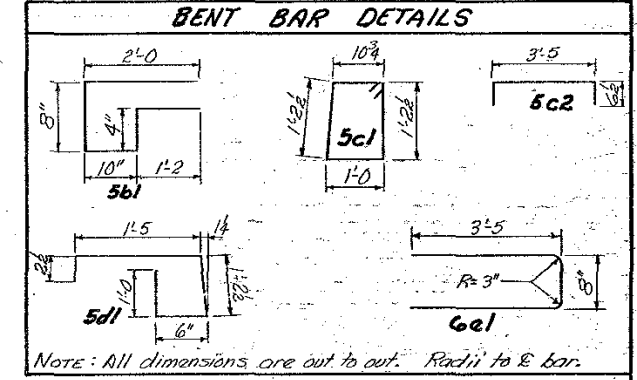
PART SECTION A-A

"D" DIMENSION:
10°F = 5 3/4"
50°F = 4"
90°F = 2 1/4"
Proportionate values are to be used for other temperatures.

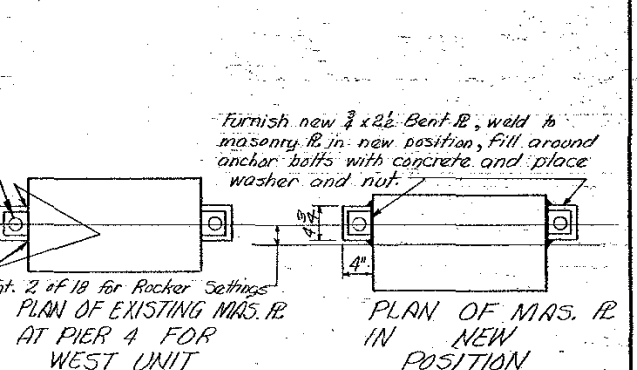


SECTION THROUGH EXPANSION R

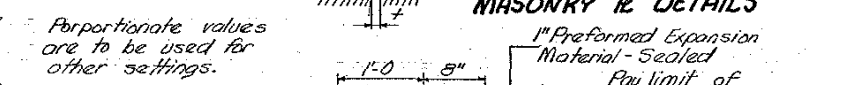
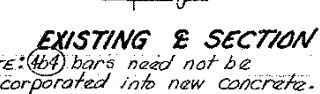
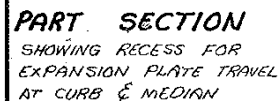
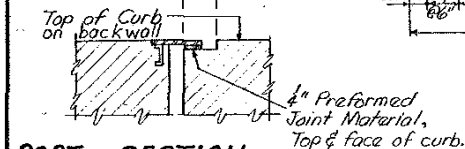
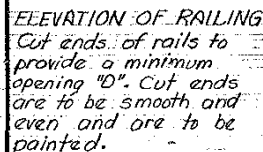
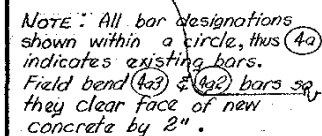
REINFORCING BAR LIST - AT PIER 4					
BAR	LOCATION	SHAPE	NO	LENGTH	WEIGHT
5a1	Slab Transverse	—	12	28'-8"	359
5a2	Diaphragm	—	12	8'-2"	102
5b1	Vertical	—	36	4'-8"	175
5c1	Curb Hoops	—	6	5'-0"	31
5c2	Transverse	—	6	4'-4"	27
5d1	Median Curb	—	6	4'-0"	25
6c1	Rail Post Anchor	—	2	7'-2"	22
TOTAL (lbs)					741



ESTIMATED QUANTITIES - AT PIER 4		
ITEM	UNITS	QUANTITY
Structural Concrete, Class "D"	cuyds	4.6
Reinforcing Steel	lbs.	741
Structural Steel	lbs.	704



Design for
REPAIRS AT PIER 4 OF A MULTI SPAN CONT. R GIRDER BRIDGE, 30° SKEW 596' x 68' SECTION
#596' x 68' SECTION WITH 18-3 TRANSITION SECTION
REPAIR DETAILS AT PIER 4
Station: 212+21 to Station: 224+25
WEBSTER COUNTY IOWA STATE HIGHWAY COMMISSION
Design Sheet No.: 17 Of 18 File No.: 24091 Design No.: 1471



BENT BAR DETAILS

Top view: 8' x 2'-2"

Side view: 6" (top horizontal), 1'-4" (left vertical), 3" (bottom horizontal), 45/12 (slope), 5'1" (right vertical)

Front view: 8" (top horizontal), 5'10" (left vertical), 5'1" (right vertical)

ESTIMATED QUANTITIES - EAST ABUTMENT		
ITEM	UNITS	QUANTITY
Structural Concrete, Class "C"	cu.yds.	8.2
Reinforcing Steel	lbs.	941
Structural Steel	lbs	52
Granular Backfill	cu.yds.	12
Class 20 Excavation	cu.yds.	7

NOTES:

This sheet shows details for providing expansion opening and resetting rockers at the East Abutment of the existing bridge.

Concrete to be removed shall be done carefully so as not to damage remaining parts of the structure. All vertical bars exposed in backwall (except for (4b4) bars) are to be left in place and incorporated into new concrete. The minimum clear distance from the face of concrete to near reinforcing bar is to be 2 inches unless otherwise noted or shown.

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

All backfill behind the abutment up to subgrade is to be granular backfill. All backfill above subgrade is to be soil.

"Approach Pavement Notes" on sheet 12 of 18 shall apply except for note about Compression Joint.

When resetting masonry plates the superstructure is to be jacked only enough so that masonry plates can be moved. Jack only at abutment diaphragm stiffener plates. Dead load reaction for one girder is about 45 tons.

All costs involved in resetting masonry plates and resetting expansion device is to be considered incidental to construction.

The bid item for "Structural Steel" includes the weight of 16-1" ϕ bars and 18-1/2" ϕ bolts.

Design For
REPAIRS ON EAST ABUTMENT OF A MULTISPAN
CONT. 12 GIRDER BRIDGE, 30' SKEN 54'6"x58" SECTION
 & 54'6"x58" SECTION WITH 18'3" TRANSITION SECTION
EAST ABUTMENT REPAIR DETAILS
 Station: 212+21 to Station 224+25 August, 1971
WEBSTER COUNTY
IOWA STATE HIGHWAY COMMISSION
 Design Sheet No.: 1B Of 1B File No.: 24091 Design No.: 1471