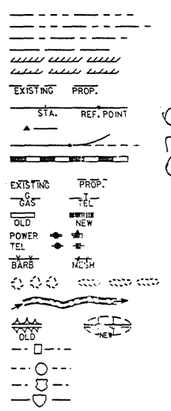
BRIDGE DECK REPAIR

FN-175-2(5)--21-97

WOODBURY COUNTY

CONVENTIONAL SIGNS



STATE LINE
COUNTY LINE
TOWNSHIP LINE
SECTION LINE
CORPORATION LINE
URBAN BOUNDRY
R. O. W. LINES
SURVEY LINES
SECTION CORNER
PROPOSED PROFILE GRADE
RAILROAD
FIELD TILE
UNDERGROUND LINES
CULVERTS
UTILITY POLES
FENCES
TREES OR BRUSH
STREAM
DIKE
COUNTY ROAD NUMBER
PRIMARY ROAD NUMBER
U.S. ROAD NUMBER
INTERSTATE ROAD NUMBER

878

IOWA

DEPARTMENT OF TRANSPORTATION

Highway Division

PLANS OF PROPOSED IMPROVEMENTS ON THE

PRIMARY ROAD SYSTEM

WOODBURY COUNTY

BRIDGE DECK REPAIR
ON IOWA 175 - OVER REYNOLDS CREEK -
1 MILE NORTH OF MONONA COUNTY LINE

SCALES: As Noted

The standard specifications, series of 1984 of the Iowa Department of Transportation, shall apply to construction work on this project.

PLUS CURRENT SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS

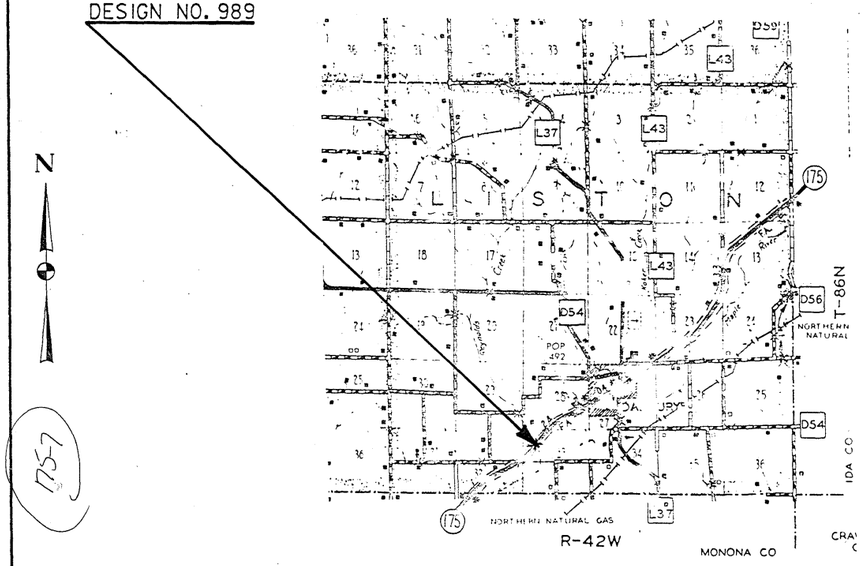
STATE	FHWA REGION	F.Y.	SHEET	TOTAL
IOWA	7		1	4

PROJECT NUMBER
FN-175-2(5)--21-97
P.O.W. PROJECT NUMBER
PIN
89-97-100-1

INDEX OF SHEETS

NO.	DESCRIPTION
1	TITLE SHEET
2	BRIDGE ESTIMATE SHEET
3	ROAD ESTIMATE SHEET
4-9	BRIDGE DESIGN NO. 989
10-14	ROAD SHEETS

DESIGN NO. 989



157

LOCATION MAP SCALE
0 1 2 3
Miles

891565
005019
105
1246

STANDARD ROAD PLANS				STANDARD BRIDGE PLANS		
IDENT	DATE	IDENT	DATE	STANDARD	ISSUED	REVISED
SEE PAGE 3						

CONSTRUCTION PLANS SHOWING PROJECT AS BUILT

Plan Preparation Supervised By: Jennifer K Ann
Resident Construction Engineer

Date 9/19/93 Iowa Reg. No. 7232

REVIEWED AND FORWARDED TO AMES

Tony S Thompson Date 9-22-95
~~District~~ Construction Engineer

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

James Bump
District Engineer

AFTER MICROFILMING RETURN ORIGINAL TO DISTRICT NO. 3

135

THIS AS BUILT PLAN INCLUDES

YEAR	WORK	CONTRACTOR	PROJ. INSPECTOR
1990	Bridge Deck Repair	Cramer & Assoc.	Brenda L. Boell
1990	Guardrail	Herbst Const.	Brenda L. Boell
		Book 878	

REVISIONS

Iowa Department of Transportation

AUTHORIZED FOR LETTING
W. C. Anderson 9-27-89
DEPUTY CHIEF ENGINEER DATE

I hereby certify that this plan was prepared under my supervision and that engineering decisions with regard to the design were made by me or by other duly Registered Professional Engineers under the laws of the State of Iowa.

Name William G. Frankenstein
Iowa Registration No. 4449 Date 9/19/89

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
APPROVED

FOR THE DIVISION ADMINISTRATOR DATE

12/05/9

LETTING DATE DEC. 5 1989 STATE CONTROL SECTION NUMBER 97-0100 FILE NO. 27915 WOODBURY COUNTY PROJECT NO. FN-175-2(5)--21-97 SHEET NO. 1

FORMS SEN 9-20-89

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

9/20/89 DATE — GARY A. NOVEY — REG. NO. 8704

DESIGN NO. 989	OVER REYNOLDS CREEK	STATION: 243+47.00
WOODBURY COUNTY	MAINT. NO. 9734.05175	
SECTION 33	T - 86 N R - 42 W	LISTON TOWNSHIP

DESIGN FOR REPAIR TO

120'-0 X 26' CONTINUOUS CONCRETE

SLAB BRIDGE

ESTIMATE OF QUANTITIES

NO.	ITEM	UNIT	TOTAL	FINAL QUANTITIES
1	CLASS A BRIDGE FLOOR REPAIR	SQ. YD.	55	39.898
2	BRIDGE FLOOR OVERLAY	SQ. YD.	352	352
3	CONCRETE SEALER AS PER PLAN	SQ. FT.	416	416
4	CONCRETE BARRIER RAIL - CAST IN PLACE	L.F.	264.0	264.0
5	REMOVALS, AS PER PLAN	L.S.	LUMP SUM	7000.00

ESTIMATE REFERENCE INFORMATION

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

ITEM NO.	DESCRIPTION
1	INCLUDES 20 SQ. YDS. FOR CURB REPAIR.
4	INCLUDES 1163 L.F. OF NO. 5 BAR AND 1293 L.F. OF NO. 6 BAR OF EPOXY COATED REINFORCING STEEL, AND 18.7 CU. YD. OF CLASS D STRUCTURAL CONCRETE.

BRIDGE ESTIMATE SHEET

FILE NO. 27915 — WOODBURY COUNTY — PROJECT NO. FN-175-2(5)--21-97

STATE	FHWA REGION	F.Y.	SHEET	TOTAL
IOWA	7		2	14

204-1
1-20-84

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

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

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

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

204-2
1-20-84

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

204-3
8-20-85

All formed steel beam railing and posts that are to be removed and reinstalled on this project shall meet the approval of the engineer before reinstalling. Painted steel beam railing and painted posts shall not be used on this project.

04-04-89 213-1

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

08-30-88 213-7

The Contractor shall dispose of removed Asphalt Cement Concrete in a method approved by the Iowa Department of Natural Resources.

The following are approved methods :

1. In an embankment above the water table.
2. In a stockpile for future recycling.
3. Crushed with or without Portland Cement Concrete and used for shoulder or base material.
4. In an approved landfill.

251-2
6-22-84

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

JRA-1

If there is any usable guardrail (as determined by the engineer) remaining after the reinstallation is completed, it shall be hauled to and stockpiled at the local maintenance garage in an approved manner. The remaining rail and posts are to become the property of the contractor and disposed of as per 213-1. This work shall not be paid for seperately but included in the price bid for this project.

ESTIMATE REFERENCE INFORMATION

100-4
1-23-85

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

ITEM NO.	DESCRIPTION
1.	For building guardrail blisters as directed by the engineer. Bid item includes 275 cu. yds. for field entrance relocation.
2.	For shoulder sweetening at bridge as directed by the engineer.
3.	See Tab. 108-22 for more information.
4.	See Tab. 108-17 for more information.
5-9.	See Tab. 108-8A for more information.
10.	See Traffic Control Plan Tab. 108-23.
11.	To be removed as per 213-1.
12,13.	For install to culvert under relocated field entrance.
14-16.	See Tab. 102-60.
17,18	See Tab. 108-17.

ESTIMATED ROADWAY QUANTITIES

100-00
1-20-84

No.	ITEM	UNIT	TOTAL	FINAL QUANTITIES
1	Embankment-in-Place	Cu. Yds.	650	650
2	Granular Shoulders Type "B"	Tons	12	10.963
3	Pavement Markings	Sta.	13.5	13.425
4	Type 3 Object Markers	No.	4	4
5	Form Steel Beam Guardrail	Lin. Ft.	200	200
6	Form Steel Thrie Beam Guardrail	Lin. Ft.	125	125
7	Beam Guardrail Posts	No.	56	56
8	RE-6S Beam Guardrail End Anchorage	No.	4	4
9	RE-52 Beam Guardrail End Anchorage	No.	4	4
10	Traffic Control	Lump Sum	See TCP	2000.00
11	Removal of Object Markers	No.	13	12
12	30" Unclassified Entrance Pipe Culvert	Lin. Ft.	46	46
13	30" Unclassified Apron	No.	2	1
14	Full Depth Patch, by Count	No.	4	4
15	Full Depth Patch, by Area	Sq. Yds.	32	29.2
16	"EF" Joint Assembly	No.	4	4
17	Single White Delineator	No.	14	14
18	Triple Yellow Object Marker, as Per Plan	NO.	8	8

EROSION CONTROL:

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

SEEDING:

3 lbs. of Fescue, Kentucky 31 per 1000 sq. ft.

FERTILIZER:

15 lbs of 15-15-15 (or equivalent) chemically combined fertilizer per 1000 sq. ft.

MULCH:

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

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

TRAFFIC CONTROL PLAN

108-23
11-10-83

1. Through traffic will be maintained on the project at all times.
2. Traffic control on this project shall be in accordance with the RS series of Standard Road Plans found in Tab. 105-4 and appropriate Detail Sheets. For additional complementary information, refer to current supplemental specifications for traffic control.
3. Where possible, all post mounted signs shall be placed a minimum of 2 feet clear of the shoulder.
4. As directed by the engineer, the contractor shall cover existing signing that conflicts with construction zone signing.
5. All traffic control devices shall be furnished, erected, maintained and removed by the contractor.
6. The engineer may require modification of or additions to pavement marking details shown. Conflicting permanent edgelines or lanelines shall be removed and replaced with appropriate temporary lines. As applicable, permanent edgelines and lanelines shall be restored before the roadway is returned to normal traffic. Current 1984 Standard Specifications shall apply.
7. The location for storage of equipment by the contractor during non-working hours will be as approved by the engineer in charge of construction.
8. Proposed sign spacing may be modified, as approved by the engineer, to meet existing field restrictions or to prevent obstruction of the motorist's view of permanent signing.
9. Proposed changes in the traffic control plan (includes layout sheets) shall be reviewed with the Office of Construction before changes are made.
10. The bid item 'Traffic Control' shall include the cost for all traffic control measures required of the contractor except for those which are separate bid items or are incidental to other bid items.
11. Final A.C.C. Approach to be completed by maintenance .

File No 27915 Design No 989

STANDARD ROAD PLANS

105-4
6-17-77

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

IDENT	DATE	IDENT	DATE	IDENT	DATE
RE-2A	02-17-87	RE-48A	08-20-85	RH-51	08-08-89
RE-2B	04-04-89	RE-52	08-08-89	RH-52	08-08-89
RE-7	05-13-86	RE-65	04-04-89	RL-7	05-13-86
RE-12A	10-11-88	RE-68	08-08-89	RL-11	10-11-88
RE-12B	10-11-88	RE-69	08-08-89	RS-7	03-31-87
RE-47	11-10-87				

101-4

DESIGN DATA RURAL

1989 AADT 1310 V.P.D.

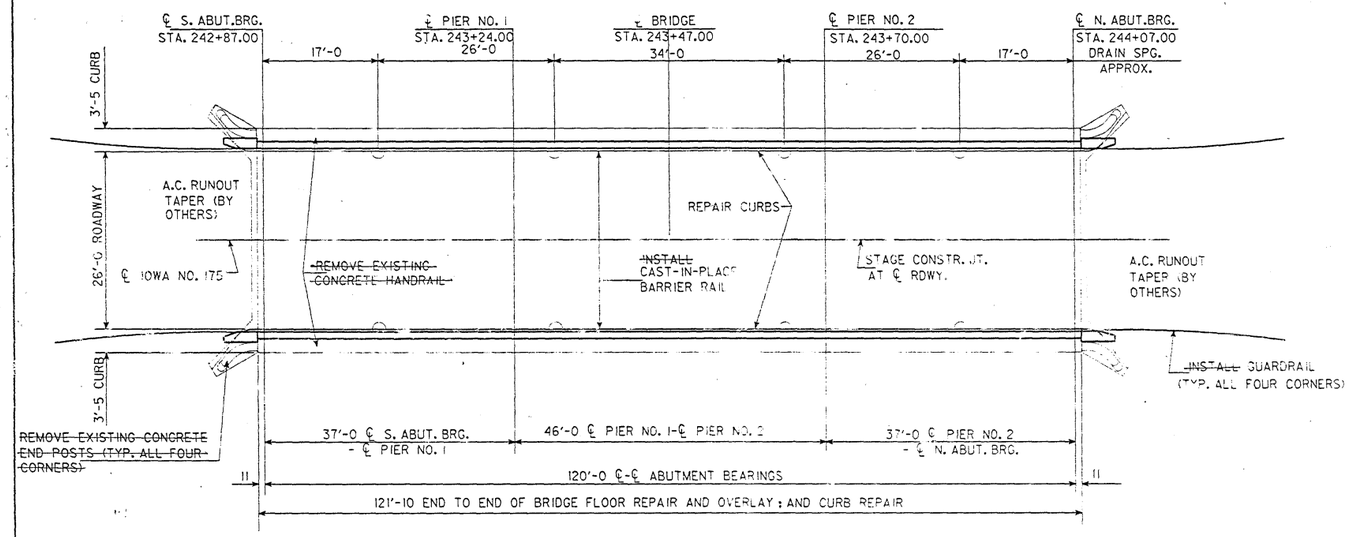
ROADWAY DESIGN

REGISTERED PROFESSIONAL ENGINEER
JOHN R. ABRAMS
7229
IOWA

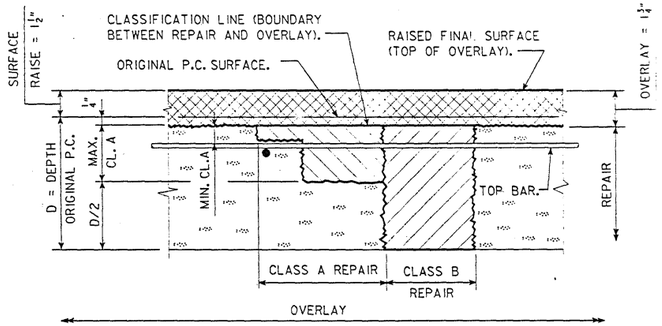
I hereby certify that this plan was prepared under my supervision and that engineering decisions with regard to the design were made by me or by other duly Registered Professional Engineers under the laws of the State of Iowa.

Name John R. Abrams

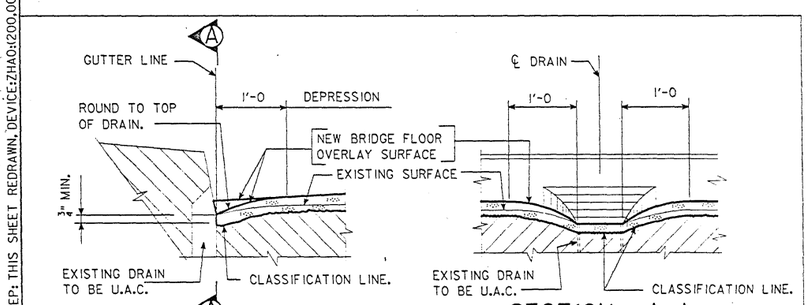
Iowa Registration No. 7229 Date 9/19/89



SITUATION PLAN



REPAIR AND OVERLAY DEFINITION



FLOOR REPAIR DETAIL AT DRAIN

(REQUIRED AT 8 LOCATIONS)

TOTAL ESTIMATED BRIDGE QUANTITIES

ITEM NO.	ITEM	UNIT	QUANTITY
1	CLASS A BRIDGE FLOOR REPAIR	SQ. YD.	~~35~~ 39.898
2	BRIDGE FLOOR OVERLAY	SQ. YD.	352
3	CONCRETE SEALER AS PER PLAN	SQ. FT.	416
4	CONCRETE BARRIER RAIL - CAST IN PLACE	L. F.	264.0
5	REMOVALS, AS PER PLAN	L.S.	~~LUMP SUM~~ 700.00

EXTRA WORK ORDERS

NO.	DESCRIPTION	UNIT	TOTAL
8001	BAND CONNECTING 30" CMP	LUMP SUM	38.61
8002	UNINCORPORATED MATERIAL - 30" CMP APRON	LUMP SUM	204.89

ESTIMATE REFERENCE INFORMATION

ITEM NO.

1 INCLUDES 20 SQ. YDS OF CURB REPAIR.

4 INCLUDES 1163 L.F. OF NO. 5 BAR AND 1293 L.F. OF NO. 6 BAR OF EPOXY COATED REINFORCING STEEL, AND 18.7 CU. YD. OF CLASS D STRUCTURAL CONCRETE.

SPECIFICATIONS:

CONSTRUCTION: IOWA DEPARTMENT OF TRANSPORTATION SPECIFICATION, SERIES OF 1984, PLUS CURRENT SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS.

DESIGN STRESSES:

DESIGN STRESSES FOR THE FOLLOWING MATERIALS ARE IN ACCORDANCE WITH THE AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, SERIES OF 1983.
REINFORCING STEEL IN ACCORDANCE WITH SECTION 8, GRADE 60.
CONCRETE IN ACCORDANCE WITH SECTION 8, f'c = 3,500 PSI.

NOTE:
ROADWAY QUANTITIES SHOWN ELSEWHERE IN THESE PLANS.

DESIGN HISTORY AT THIS SITE

DES. NO.	TYPE OF WORK
6451	ORIGINAL DESIGN
989	REPAIR AND OVERLAY

LOCATION:

MAINTENANCE NO. 9734.05175
WOODBURY COUNTY
T-86N R-42W
LISTON TWP
SECTION 33
IOWA NO. 175 OVER REYNOLDS CREEK

DESIGN FOR REPAIR TO

120'-0x26' CONTINUOUS CONCRETE SLAB BRIDGE

37'-0 END SPANS 46'-0 CENTER SPAN

SITUATION PLAN

STATION: 243+47.00 (℄ IOWA NO. 175) SEPTEMBER, 1989

WOODBURY COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 1 OF 6 FILE NO. 2791S DESIGN NO. 989

DESIGNED BY E.W.KONECHNE TRACED BY C.E.COLE
DETAILED BY C.E.COLE CHECKED BY RKB
SECTION LEADER: G.A.NOVEY

DECK REPAIR - QUANTITIES | STANDARD SHEET 1038 | WOODBURY COUNTY | PROJECT NUMBER | FN-175-2(5)--21-97 | STATE IOWA | FINAL REGION 7 | FISCAL YEAR | SHEET NO. 4 | TOTAL SHEETS 17

HSTD01038.SOI--LEP; THIS SHEET REDRAWN. DEVICE:ZHAO:[200,004] ARCH.TAPE NO. 15 DATE 9-8-88

H97989. DEVICE: ZGAI:[200,003]ARCH. TAPE No. _____ DATE_____

GENERAL NOTES :

THIS DESIGN IS FOR REPAIR TO THE EXISTING 120'-0 X 26' CONTINUOUS CONCRETE SLAB BRIDGE, ORIGINAL DESIGN NO. 6451 WOODBURY COUNTY. PLANS OF THE EXISTING STRUCTURE MAY BE OBTAINED AT THE AMES OFFICE OF THE IOWA DOT - HIGHWAY DIVISION.

REPAIRS SHALL CONSIST OF THE FOLLOWING:

1. BRIDGE FLOOR REPAIR
2. BRIDGE FLOOR OVERLAY
3. INSTALLATION OF CAST IN PLACE BARRIER RAIL
4. REMOVAL OF EXISTING CONCRETE HANDRAIL
5. REMOVAL OF EXISTING CONCRETE END POSTS
6. CURB REPAIR
7. APPLICATION OF CONCRETE SEALER
8. INSTALLATION OF GUARDRAIL

PRESENT FLOOR THICKNESS VARIES (SEE DES. SHT. 5). THE CONTRACTOR SHALL EXERCISE EXTREME CARE IN ORDER TO PREVENT UNNECESSARY REMOVAL OF CONCRETE BELOW THE TOP OF THE TOP REINFORCING. THE ENERGY OF HAND TOOLS SHALL BE RESTRICTED NEAR THE BOTTOM OF THE DESIGNATED CLASS A REPAIR AREAS IN ORDER TO PREVENT UNBONDING OF REINFORCING. NO CONCRETE SHALL BE REMOVED BELOW THE TOP OF THE TOP LONGITUDINAL REINFORCING WITHOUT PRIOR PERMISSION FROM THE BRIDGE ENGINEER.

CONSTRUCTION SHALL BE DONE IN STAGES, WITH AT LEAST ONE LANE OF TRAFFIC MAINTAINED AT ALL TIMES IN ACCORDANCE WITH "TRAFFIC CONTROL PLAN" NOTE.

SURFACE RAISE, AS SHOWN ON THE PLANS, SHALL BE CONSIDERED A MINIMUM. IN ORDER TO LIMIT THE ADDITIONAL DEAD LOAD, SURFACE RAISE SHALL BE RESTRICTED TO A MAXIMUM OF $\frac{1}{2}$" MORE THAN SHOWN ON THE PLANS. PROFILE MAY BE ADJUSTED TO THE EXTENT POSSIBLE WITHIN THESE LIMITS.

ALL DIMENSIONS AND DETAILS SHOWN ON THESE PLANS PERTINENT TO NEW CONSTRUCTION SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR BEFORE STARTING CONSTRUCTION.

EXISTING BRIDGE RAIL IS NOT TO BE REMOVED UNTIL AUTHORIZED BY THE ENGINEER.

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

QUANTITY OF "CONCRETE SEALER, AS PER PLAN" IN SQUARE FEET, TO BE PAID FOR WILL BE COMPUTED FROM MEASUREMENTS OF AREAS ACTUALLY COVERED PLAN QUANTITY IS BASED ON P.C. CONCRETE FLOOR OVERLAY.

REMOVALS AND DISPOSALS OF ITEMS SCHEDULED FOR REMOVAL SHALL BE IN ACCORDANCE WITH SECTION 2401 OF THE SPECIFICATIONS. ANY DAMAGE TO ANY STEEL OR CONCRETE NOT TO BE REMOVED SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND REPAIRED BY HIM AT NO EXTRA COST TO THE STATE.

THE A.C. RUNOUT TAPER AT THE ENDS OF THE BRIDGE AS SHOWN WILL BE PLACED BY LOCAL HIGHWAY DIVISION MAINTENANCE FORCES BEFORE TRAFFIC IS SHIFTED TO NEW CONSTRUCTION. THE CONTRACTOR SHALL GIVE ADEQUATE PRIOR NOTICE SO THAT THE A.C. MAY BE PLACED DURING NORMAL WORKING HOURS AND WORKING DAYS OF MAINTENANCE.

A PORTION OF BOTH CURBS, FOR THE FULL LENGTH OF BRIDGE, ARE TO BE REPAIRED AS CLASS A BRIDGE FLOOR REPAIR EXCEPT THAT THE UPPER LIMIT SHALL BE THE ORIGINAL SURFACE. NO OVERLAY QUANTITY WILL BE INCLUDED FOR THE CURB AREA. THE REPAIR AREAS WITHOUT OVERLAY SHALL RECEIVE A SURFACE FINISH PER ART. 2403.23, AND THEY SHALL RECEIVE A CURE AS SPECIFIED FOR BRIDGE FLOOR OVERLAY. THE ENGINEER MAY RELAX THE SLUMP REQUIREMENTS OF STIFF MIX TO A MAXIMUM OF $2\frac{1}{2}$ INCHES IN FORMING THE BATTER FACE. A MANUAL TYPE SCREED OR METAL PLATE WITH APPROVED VIBRATORS ATTACHED WILL BE REQUIRED FOR HORIZONTAL CURB SURFACES.

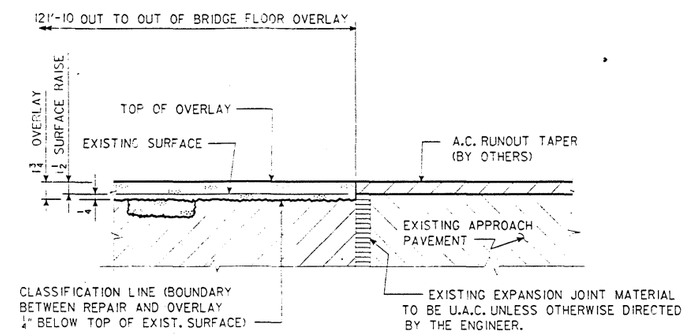
THE CONTRACTORS ATTENTION IS DIRECTED TO THE FACT THAT ALL OF THE CAST IN PLACE BARRIER RAIL REINFORCING BARS ARE TO BE EPOXY COATED. SEE THE EPOXY COATED REINFORCING BAR LIST IN THESE PLANS.

THE LUMP SUM BID FOR "REMOVAL AS PER PLAN" SHALL INCLUDE ALL COSTS ASSOCIATED WITH THE REMOVAL AND DISPOSAL OF ALL EXISTING CONCRETE RAILS, RAIL POSTS, END POSTS, AND PORTIONS OF THE END POST BASES.

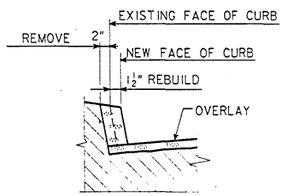
THE MINIMUM DEPTH FOR CLASS A REPAIR IS TO BE $1\frac{1}{2}$ INCHES IN AREAS WHERE TOP REINFORCING IS NOT PRESENT.

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

THE PLAN QUANTITY FOR "CLASS A BRIDGE FLOOR REPAIR" IS ESTIMATED AS 10% OF THE TOTAL FLOOR AREA PLUS 20 SQ. YDS. FOR CURB REPAIR. SHADED AREAS SHOWN ON THE SURVEY PLOT REPRESENT CLASS A BRIDGE FLOOR REPAIR FOUND BY THE DELAMTEC PLOT. ACTUAL SPALLED AND HOLLOW AREAS AS DETERMINED BY THE ENGINEER AT THE TIME OF CONSTRUCTION, SHALL BE REPAIRED. THE ENTIRE CONCRETE SURFACE OF THE BRIDGE FLOOR, INCLUDING AREAS OVER BRIDGE FLOOR REPAIR, SHALL HAVE BRIDGE FLOOR OVERLAY.



PART LONGITUDINAL SECTION ALONG ROADWAY
BOTH ABUTMENTS



TYPICAL CURB REPAIR

NOTE :
BOTH CURBS ARE TO BE REPAIRED FOR THE FULL LENGTH OF BRIDGE AS SHOWN ABOVE. TAPER THE END 5 FEET OF NEW FACE OF CURB AT EACH END TO MATCH THE ORIGINAL LIMITS OF THE EXISTING FACE OF CURB.

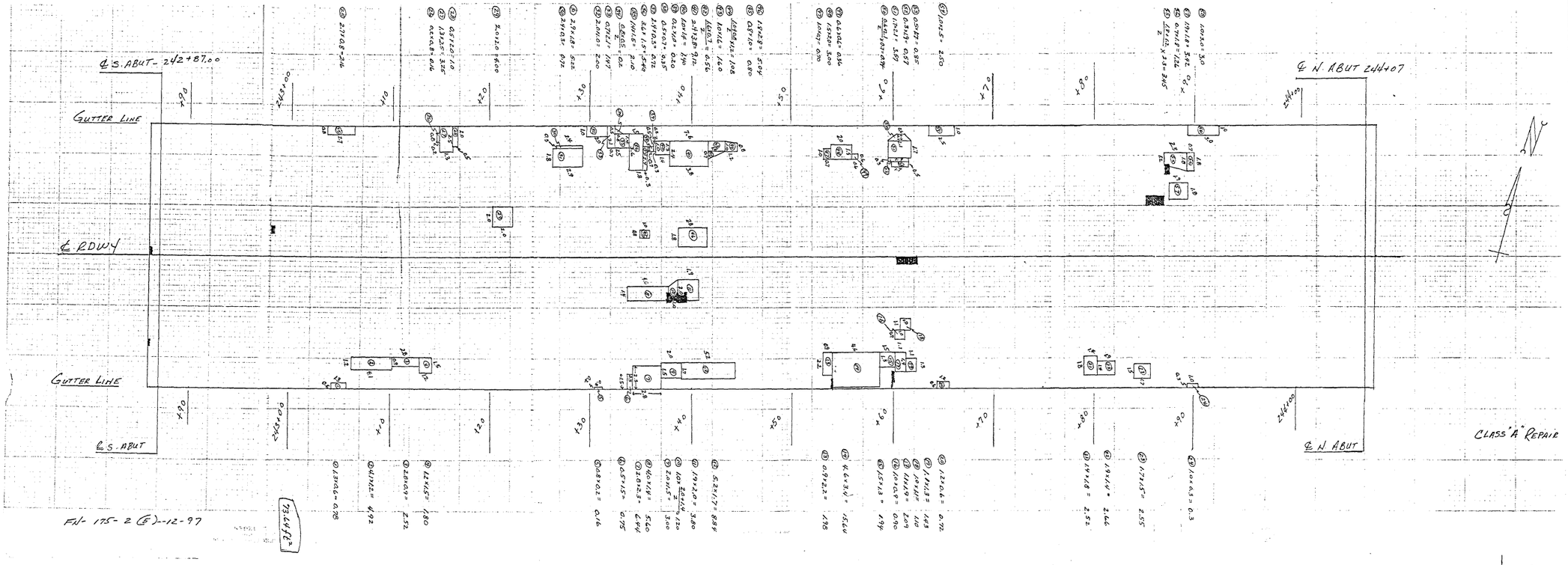
DESIGN FOR REPAIR TO
120'-0x26' CONTINUOUS CONCRETE SLAB BRIDGE
37'-0 END SPANS 46'-0 CENTER SPAN
GENERAL NOTES
STATION: 243+47.00 (℄ IOWA NO. 175) SEPTEMBER, 1989
WOODBURY COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
DESIGN SHEET NO. 2 OF 6 FILE NO. 27915 DESIGN NO. 989

DESIGNED BY E.W.KONECHNE TRACED BY C.E.COLE
DETAILED BY C.E.COLE CHECKED BY R.K.BHARIL

WOODBURY COUNTY

PROJECT NUMBER	STATE	FHWA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	IOWA	7		5	14

H97989.2 DEVICE : ZGAI:[200,003]ARCH. TAPE No. _____DATE_____



IOWA D.O.T.
DELAMINATION MAP

9734.05175

8-2-89 Delamination at 400 mV

Length = 121 Feet 3 Inches Width = 24 Feet 0 Inches

Total Area = 2910.00 Square Feet Percentage Bad = 0.21%

989
Woodbury

SURVEY PLOT

Design For Repair To
120'-0 x 26' CONTINUOUS CONCRETE
SLAB BRIDGE
37'-0 End Spans 46'-0 Center Span
SURVEY PLOT
Station: 243+47.00 (℄ Iowa No. 175) September, 1989
WOODBURY COUNTY
IOWA DEPARTMENT OF TRANSPORTATION-HIGHWAY DIVISION
Design Sheet No.: 3 Of 6 File No.: 27915 Design No.: 989

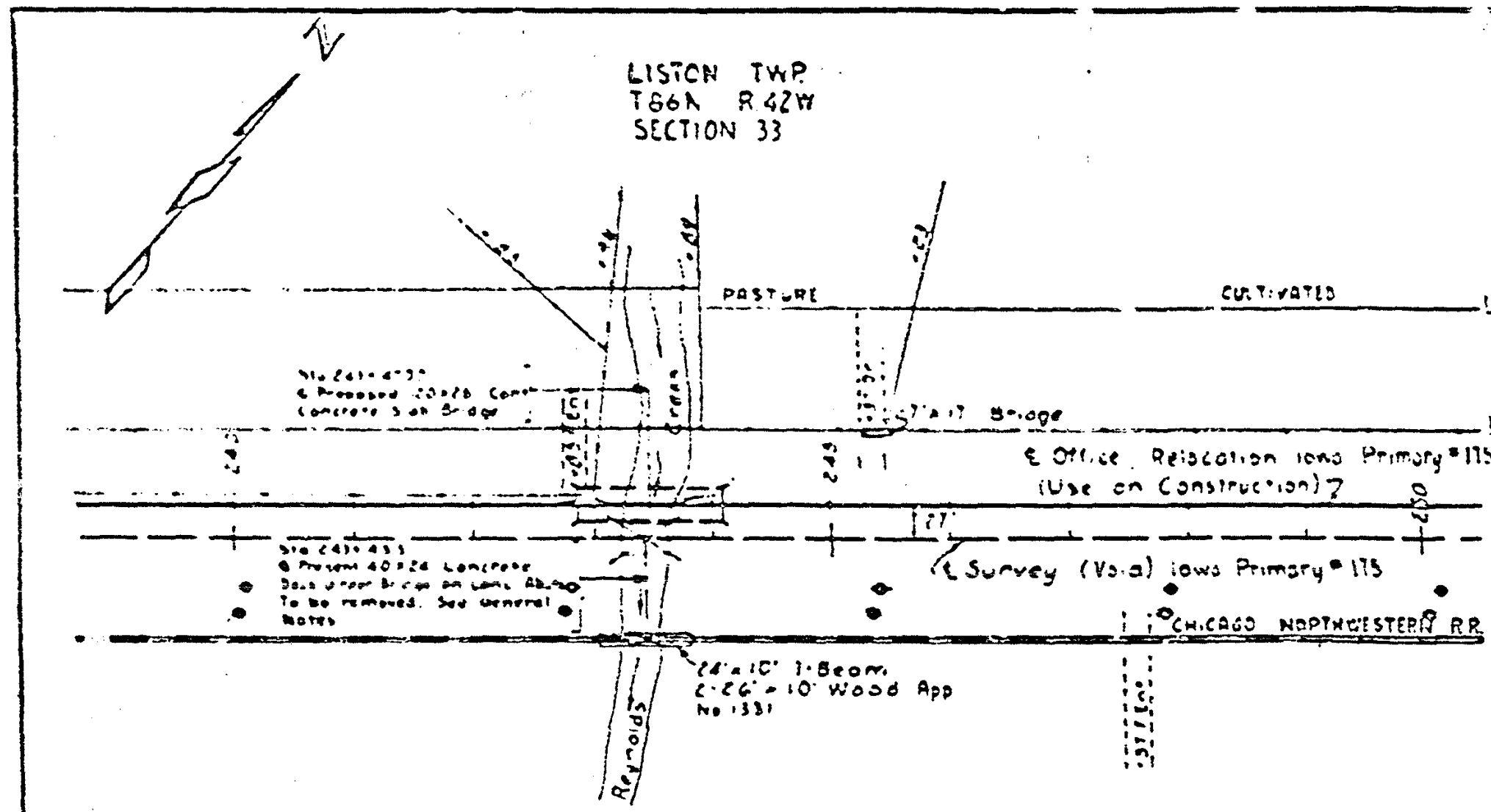
DESIGNED BY: EW. KONECHNE TRACED BY:
DETAILED BY: CHECKED BY: RK. BHARIL

WOODBURY COUNTY

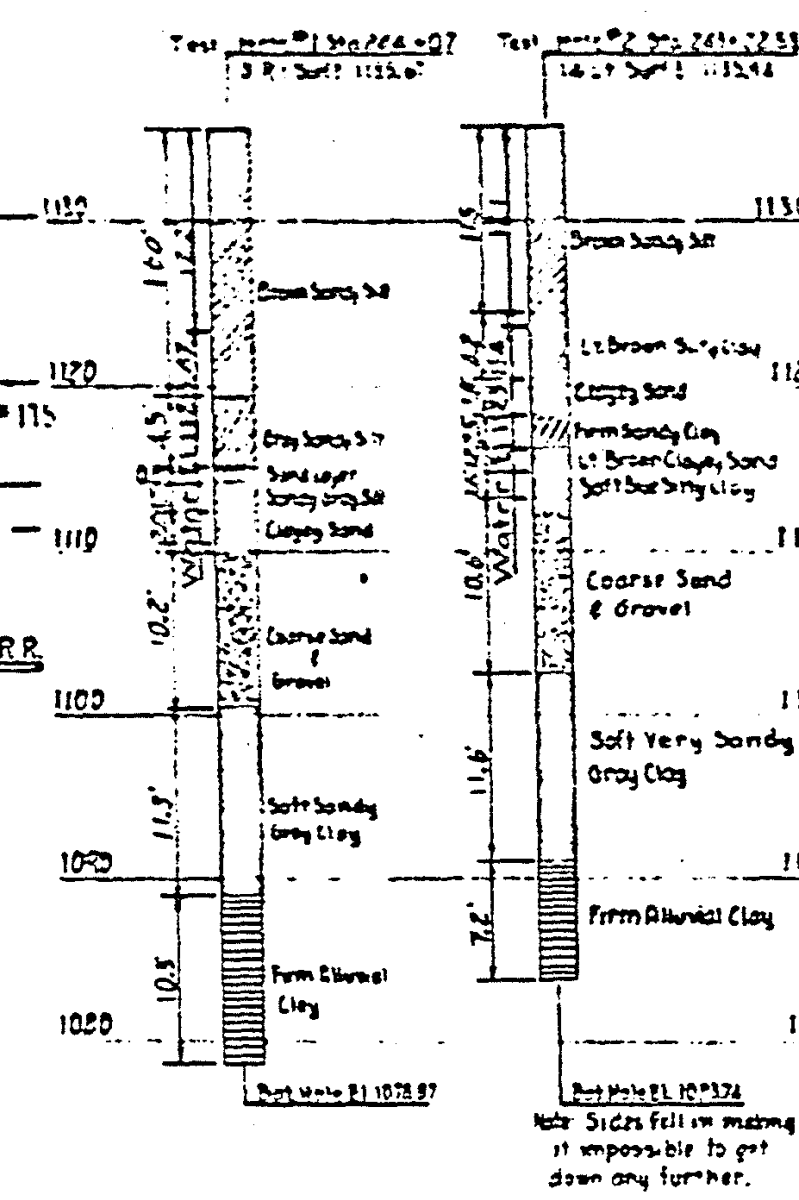
PROJECT NUMBER

STATE	FHWA Region	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	7		6	19

BRUNING 65219 BRUNI-MOK SHEET MR 7-84

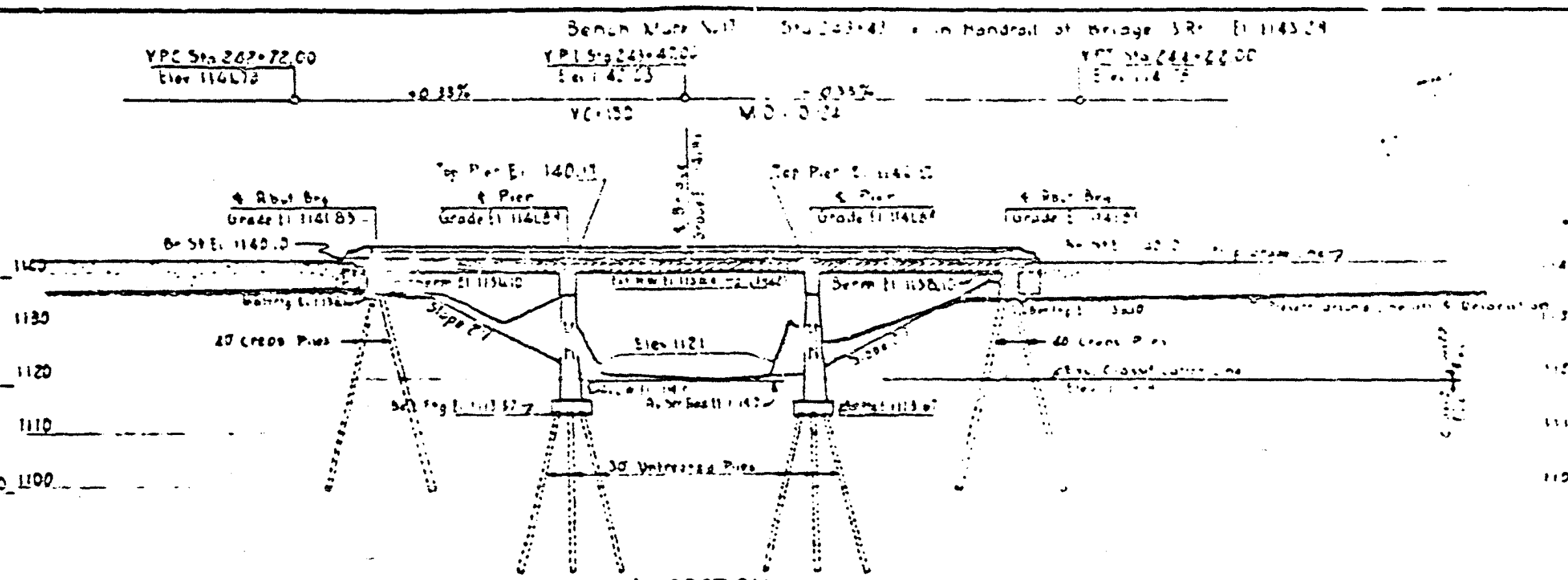


GENERAL PLAN
Scale 1" = 100'
D.A. = 25 sq miles
Rolling to Hilly

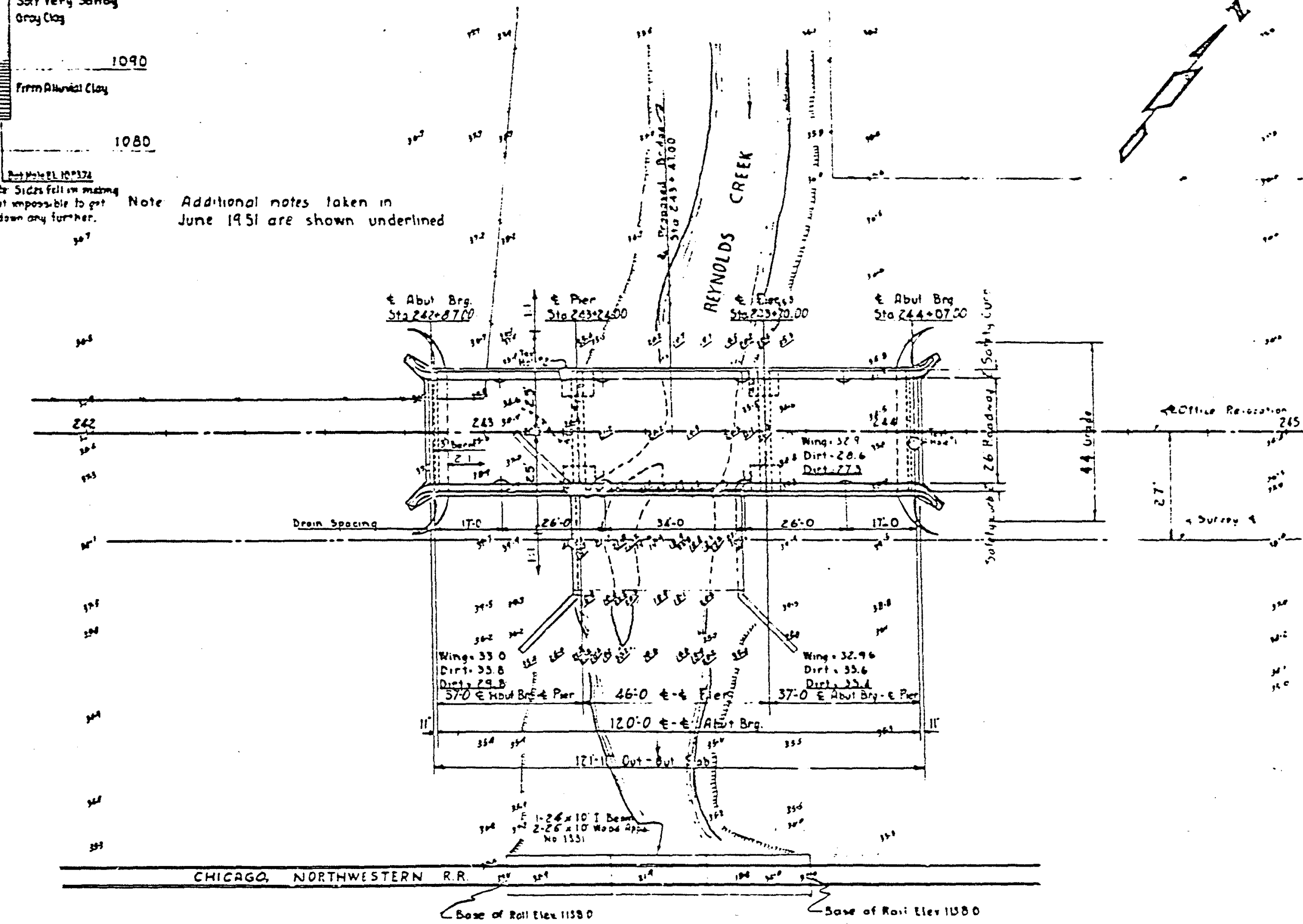


SOUNDING DATA
Scale 1" = 10'

Note: Additional notes taken in June 1951 are shown underlined



℄ SECTION



SITUATION PLAN
Scale 1" = 20'

GENERAL NOTES:

This bridge is designed for H-20 Loading plus an allowance of 19 #/ft² of roadway for future wearing surface. Slab as shown includes 1" future wearing surface.

Approach fills are not a part of this estimate but are to be in place before abutment piles are driven. Bridge Contractor is to level off and shape berms as shown.

Bridge Contractor is to remove the present structure. Substructure is to be removed entirely where interfering with new construction. The remainder of the substructure is to be removed to low water or to at least one foot below finished ground line. Broken concrete to be placed as directed by engineer.

Bridge Contractor is to clear channel under bridge for a distance of 25' each side of ℄ Roadway as shown in Situation Plan and by shaded areas in ℄ Section.

Red lines on tracing or faint lines on print indicate present construction.

SPECIFICATIONS:

Design: A.A.S.H.O. Series 1949, for H-20-44 Loading with modifications as noted on Sheet 3 of 3.

Construction: Iowa State Highway Commission Series 1952.

TOTAL ESTIMATED QUANTITIES

Part	Superstruc.	2 Abuts.	2 Piers	Total
Concrete	255.1	50.7	74.2	380.0 cu.yd.
Reinf. Steel	47,515	2820	6870	57,205 lbs.
Creo. Piles		26@40'		1040 lin.ft.
Untreated Piles			36@30'	1080 " "
Cl."10" Channel Exc.				1175 cu.yd.
Cl."20" Excavation				150 " "
Cl."21" Excavation				102 " "
Removal of old bridge				Lump Sum

THIS SHEET FROM ORIGINAL DESIGN IS INCLUDED FOR INFORMATION ONLY.

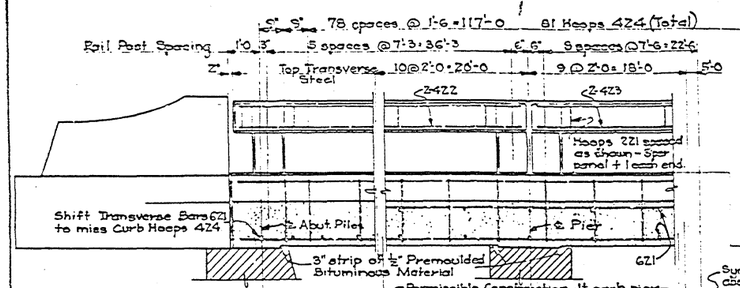
1/3

Location:
Over Reynolds Creek
On Relocation Iowa Primary #175
Section 33
Liston Township
Woodbury County

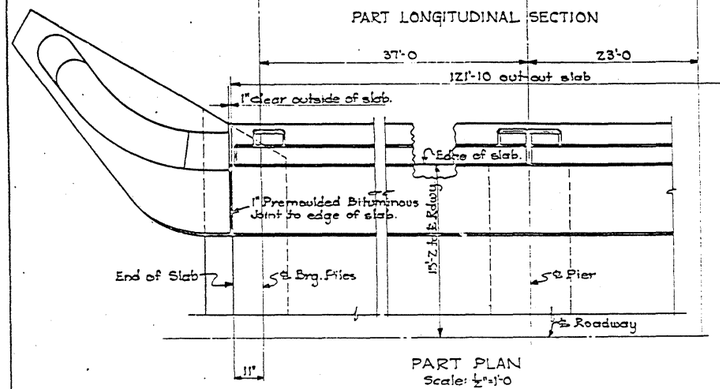
Design for
120'x26' CONT CONCRETE SLAB BRIDGE
37'-0 End Spans 46'-0 Center Span
Concrete Rail & Substructure 2'-0 Safety Curb
SITUATION & GENERAL PLANS
Sta. 243+41.00 Project F-245
WOODBURY COUNTY
Iowa State Highway Commission
February 1952 Sheet 1 of 3

DESIGN NO. 989
FILE NO. 27915
DES. SH. NO. 4 OF 6

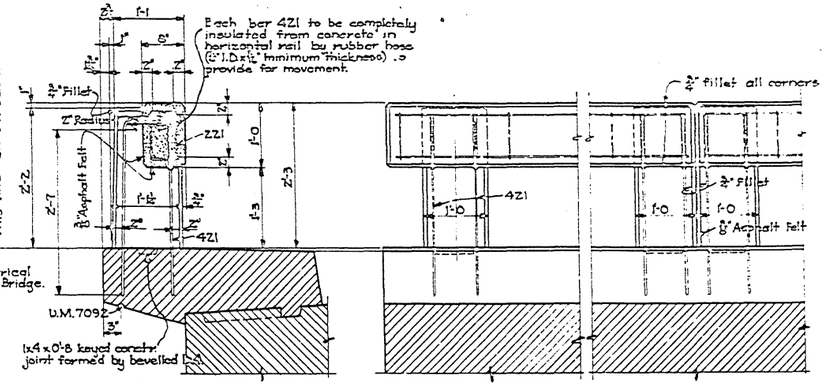
Design No 6451 Woodbury Co. File No 13949
7 of 14
Designed by: E-[illegible] Traced by [illegible] Checked by [illegible]



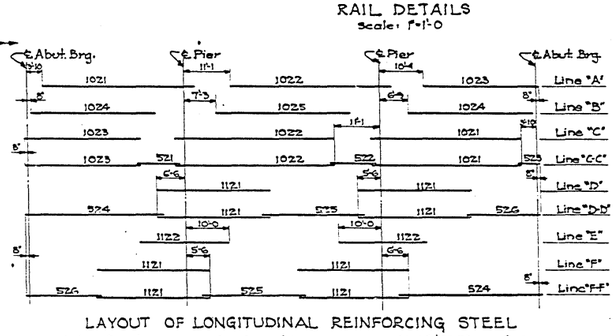
PART LONGITUDINAL SECTION



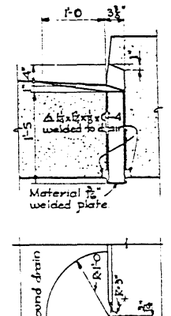
PART PLAN
Scale: ½"=1'-0

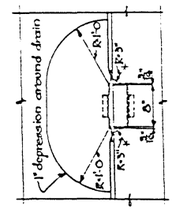


RAIL DETAILS
Scale: 1"=1'-0



LAYOUT OF LONGITUDINAL REINFORCING STEEL
Note: Bar laps in Line "C-C" are 1'-1"; those in Lines "D-D" & "F-F" are 1'-10.

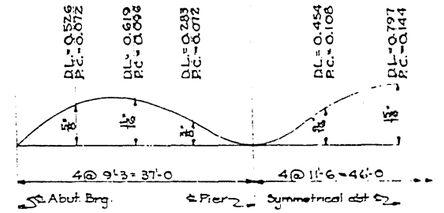




DRAIN DETAILS
Scale: 1"=1'-0

8 Drains Required
Weight: 21.2 lbs. each
See "Situation Plan on Sheet 1 for location.

BILL OF REINFORCING — SUPERSTRUCTURE						
Mark	Location	Shape	No.	Size	Length	Weight
221	Rail Hoops	□	100	2	2'-10	47
421	Rail Post, Vertical	⌐	76	4	6'-2	313
422	Rail, Horiz. End Span	—	16	4	37'-4	399
423	" " Center Span	—	16	4	23'-3	248
424	Curb Hoops	□	162	4	9'-3	1001
521	Curb, longit., bottom	—	4	5	9'-11	42
522	" " "	—	4	5	10'-8	45
523	" " "	—	4	5	5'-7	23
524	" " top	—	6	5	33'-0	207
525	" " "	—	6	5	24'-2	152
526	" " "	—	6	5	18'-6	116
621	Slab, transv., top & bott.	—	145	6	30'-0	6334
1021	Slab & curb, longit., bott.	—	36	10	35'-9	5538
1022	" " " "	—	36	10	37'-6	5809
1023	" " " "	—	36	10	27'-4	4234
1024	Slab, longit., bottom	—	34	10	29'-7	4328
1025	" "	—	17	10	31'-6	2304
1121	Slab & curb, longit., top	—	82	11	26'-6	11,545
1122	Slab, longit., top	—	42	11	20'-9	4630
				Total		47515 lbs

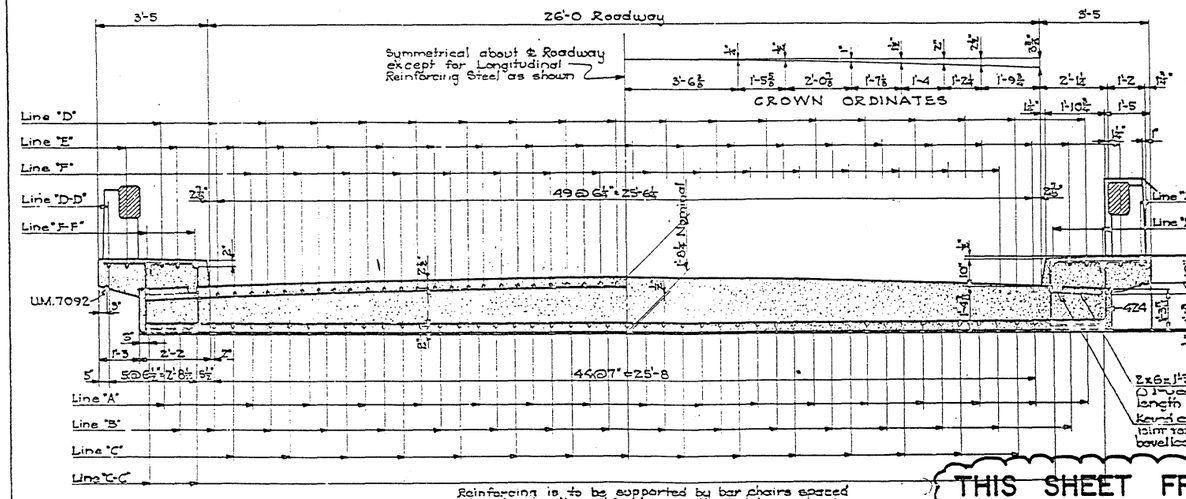


BLOCKING DIAGRAM

Note: This diagram shows permanent camber (P.C.) and total anticipated dead load deflection (D.L.), including plastic flow. These figures do not include any allowance for form settlement. Total anticipated dead load deflection based on n=30.

SUPERSTRUCTURE NOTES:

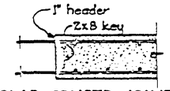
This bridge is designed for H 20-44 loading plus 19 lbs/ft² of roadway for future wearing surface. The slab as shown includes ½" wearing surface.
Allowable f_s for steel = 24,000 psi.
Allowable f_c for concrete = 1200 psi.
All exposed corners of 90° or sharper are to be filleted with ¾" dressed and bevelled strips.
This bridge is designed so that an increase in the live load and impact of 100% will not increase the total stress to more than 150% of specification stresses.
Concrete slab is to be placed with a minimum of construction joints. Locations of permissible construction joints are shown on Part Longitudinal Section. Each curb may be placed in one continuous run from end to end of bridge.
Cost of steel drains is to be included in price bid for Class "A" concrete.



HALF SECTION NEAR PIER
Scale: ½"=1'-0

Reinforcing is to be supported by bar chairs spaced at not more than 5'-0 c/c longitudinally & transversely.

HALF SECTION NEAR ABUTMENT
Scale: ½"=1'-0



SLAB CONSTR. JOINT
Note: Reinforcing runs through joint.

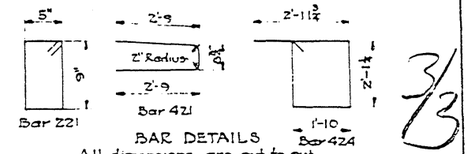
PLACEMENT QUANTITIES	
Slab	217.3 c.y.
Curbs	29.3 c.y.
Rail Posts Class "C"	2.5 c.y.
Rails Class "C"	6.0 c.y.

ESTIMATED QUANTITIES	
Concrete, Class "A"	246.6 c.y.
Concrete, Class "C"	8.5 c.y.
Reinforcing Steel	47,515 lbs.

2x6 I'-3 Keyways @ 2 pieces full length of curb. Keyed construction joint formed by bevelled 2x4.

SPECIFICATIONS:

Design: AASHO Series of 1949 modified as above.
Construction: Iowa State Highway Commission Specifications, Series of 1952.



BAR DETAILS
All dimensions are out to out

3/3

Design for
120'x 26' CONTINUOUS CONCRETE SLAB BRIDGE
37'-0 End Spans — 46'-0 Center Span
Concrete Rail & Substructure — 2'-0 Safety Curbs
SUPERSTRUCTURE DETAILS

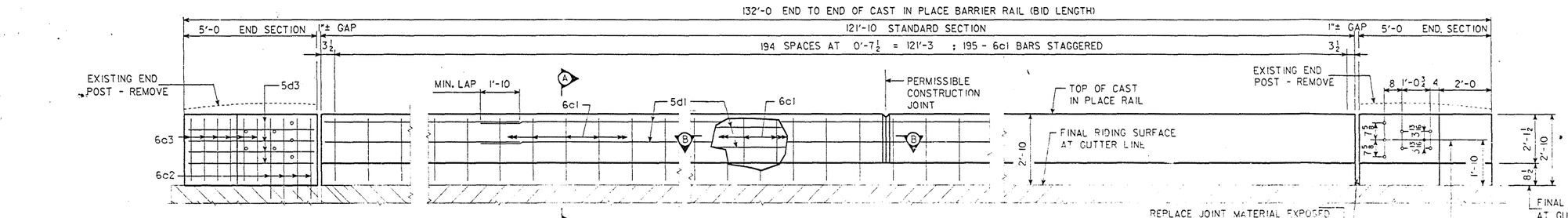
Location:
Over Raynolds Creek
On Relocation Iowa Primary #175
Section 33
Lawton Township
Woodbury County

Sta. 243 + 47.00 Project F-245
WOODBURY COUNTY
Iowa State Highway Commission
February 1952 Sheet 3 of 3

DESIGN NO. 989
FILE NO. 27915
DES. SH. NO. 5 OF 14

THIS SHEET FROM ORIGINAL DESIGN IS INCLUDED FOR INFORMATION ONLY.

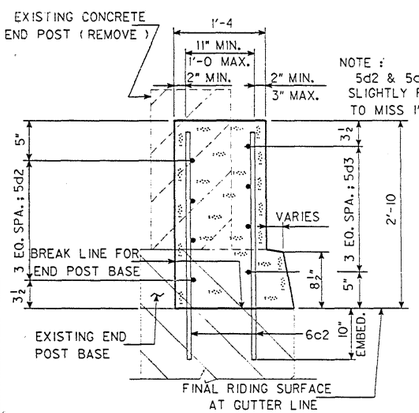
Design 6451 · Woodbury County File No. 13949 (City)
8 of 14
Quantities by PDO & CHL Designed by PDO Traced by PDO Checked by: E[illegible]



ELEVATION OF CAST IN PLACE BARRIER RAIL

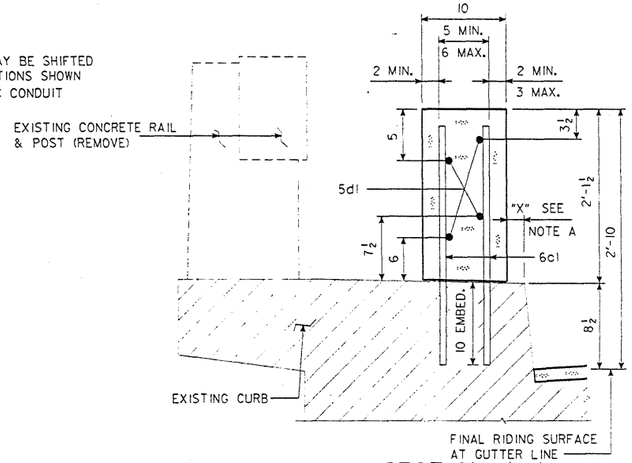
REPLACE JOINT MATERIAL EXPOSED AFTER PARTIAL REMOVAL OF END POST BASE. COST TO BE INCIDENTAL TO THE PROJECT.

PROVIDE SEVEN HOLES FORMED WITH 1" ϕ PLASTIC CONDUIT. COST TO BE INCLUDED IN PRICE BID FOR CONCRETE BARRIER RAIL - CAST IN PLACE. (TYP. EACH END SECTION)



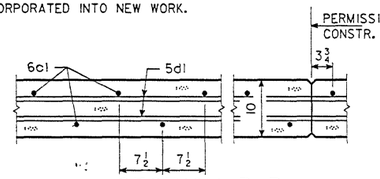
PART SECTION C - C

NOTE :
WHERE POSSIBLE, EXISTING REINFORCING IN END POST BASE IS TO BE CAREFULLY EXPOSED AND INCORPORATED INTO NEW WORK.

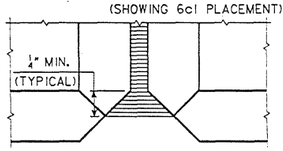


SECTION A-A

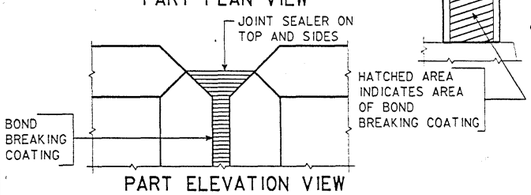
NOTE A :
ON EACH SIDE OF BRIDGE, DIMENSION "X" SHALL BE A MINIMUM OF 1" AND A MAXIMUM OF 3"



SECTION B-B
(SHOWING 6c1 PLACEMENT)

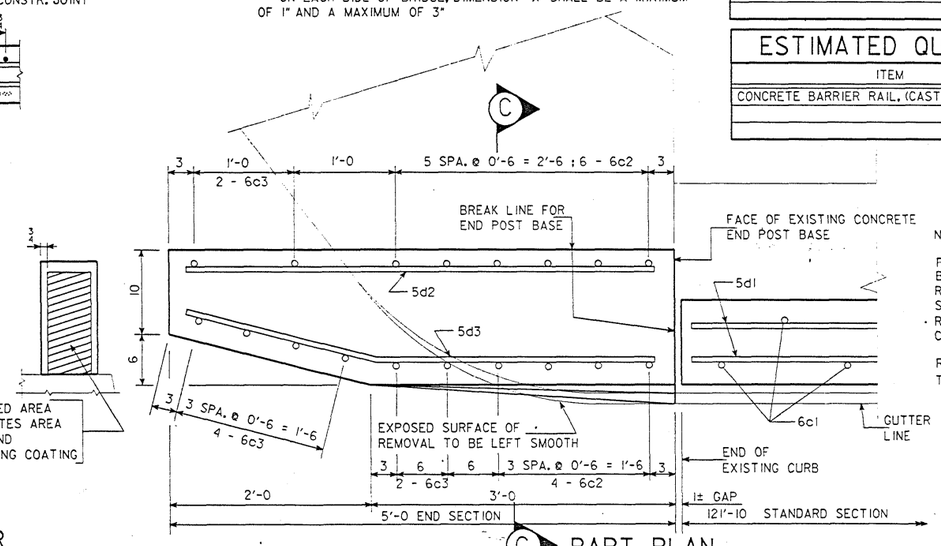


PART PLAN VIEW



PART ELEVATION VIEW

CAST IN PLACE BARRIER RAIL JOINT DETAILS



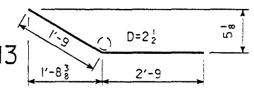
PART PLAN

NOTE :
EXISTING CONCRETE RAILS, RAIL POSTS, END POSTS AND PORTIONS OF END POST BASES SHALL BE REMOVED. EXISTING RAIL POST AND END POST REINFORCING SHALL BE CUT OFF FLUSH WITH OR SLIGHTLY BELOW CONCRETE SURFACE AND THE REMAINING EXPOSED ENDS PAINTED WITH TWO COATS OF ZINC RICH PAINT.
COST OF CUTTING OFF AND PAINTING THE REINFORCING SHALL BE CONSIDERED INCIDENTAL TO THE COST OF "REMOVAL, AS PER PLAN".

EPOXY REINFORCING STEEL - TWO RAILS

BAR	LOCATION	SHAPE	NO.	LENGTH	LIN. FT.	WEIGHT
6c1	STANDARD RAIL, VERT.	——	390	2'-9	1073	1611
6c2	END SECTION, VERT.	——	40	3'-6	140	210
6c3	END SECTION, VERT.	——	32	2'-6	80	120
5d1	STANDARD RAIL, LONGIT.	——	32	31'-9	1016	1060
5d2	END SECTION, LONGIT.	——	16	4'-8	75	78
5d3	END SECTION, LONGIT.	⟋	16	4'-6	72	75
				TOTAL (LBS.)		3154

BENT BAR DETAILS



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

CONCRETE PLACEMENT SUMMARY

SECTION	TOTAL
STANDARD SECTION 243.7' AT 0.066 CU. YDS. PER LIN. FT	16.1
END SECTIONS 4 AT 0.66 CU. YDS. PER SECTION	2.6
TOTAL (CU. YDS.)	18.7

ESTIMATED QUANTITIES - TWO RAILS

ITEM	UNITS	QUANTITY
CONCRETE BARRIER RAIL, (CAST-IN-PLACE)	LIN. FT.	264.0

CAST IN PLACE BARRIER RAIL NOTES:

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

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

THE PERMISSIBLE CONSTRUCTION JOINTS ARE TO BE PLACED BETWEEN VERTICAL BARS AT A MINIMUM SPACING OF 20 FEET. CONSTRUCTION JOINT CONTACT SURFACES ARE TO BE COATED WITH AN APPROVED BOND BREAKER.

COST OF JOINT SEALER AND BOND BREAKER SHALL BE CONSIDERED INCIDENTAL TO OTHER CONSTRUCTION.

THE CAST IN PLACE BARRIER RAIL IS TO BE BID ON A LINEAL FOOT BASIS MEASURED FROM END TO END OF RAIL. THE NUMBER OF LINEAL FEET OF CAST IN PLACE BARRIER RAIL INSTALLED WILL BE PAID FOR AT THE CONTRACT PRICE PER LINEAL FOOT BASED ON PLAN QUANTITIES. PRICE BID FOR CAST IN PLACE BARRIER RAIL SHALL BE FULL COMPENSATION FOR FURNISHING ALL MATERIAL (INCLUDING REINF. STEEL & 1" ϕ PLASTIC CONDUIT) PLUS ALL OF THE EQUIPMENT AND LABOR REQUIRED TO ERECT THE RAIL IN ACCORDANCE WITH THESE PLANS AND CURRENT SPECIFICATIONS.

ALL CAST IN PLACE BARRIER RAIL CONCRETE IS TO BE CLASS D.

ALL REINFORCING STEEL IS TO BE GRADE 60 AND EPOXY COATED.

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

ANY REMOVALS AND DISPOSALS REQUIRED SHALL BE IN ACCORDANCE WITH SECTION 2401 OF THE STANDARD SPECIFICATIONS. ANY DAMAGE TO OTHER PORTIONS OF THE EXISTING STRUCTURE NOT NOTED FOR REMOVAL SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE REPAIRED BY HIM AT NO COST TO THE STATE.

EXISTING BRIDGE RAIL IS NOT TO BE REMOVED UNTIL AUTHORIZED BY THE ENGINEER.

DOWEL SETTING NOTE :

THE 6c1 & 6c2 BARS SHALL BE SET AS DOWELS IN DRILLED HOLES. HOLES ARE TO BE 10" DEEP. THE DOWELS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. ONE OF THE FOLLOWING SYSTEMS SHALL BE USED AS A BONDING AGENT FOR THE DOWELS :

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

DESIGN FOR REPAIR TO

120'-0x26' CONTINUOUS CONCRETE SLAB BRIDGE

37'-0 END SPANS — 46'-0 CENTER SPAN

CAST IN PLACE BARRIER RAIL DETAILS

STATION: 243+47.00 (℄ IOWA NO. 175) SEPTEMBER, 1989

WOODBURY COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 6 OF 6 FILE NO. 27915 DESIGN NO. 989

DESIGNED BY F.W.KONECHNE TRACED BY
DETAILED BY R.RYSAVY CHECKED BY R.K.BHARIL

CAST IN PLACE BARRIER RAIL	STANDARD SHEET 1031	WOODBURY COUNTY	PROJECT NUMBER

STATE	FINAL REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	7		9	16

H97989.3 DEVICE : ZGAI:[200,003]ARCH. TAPE No. _____DATE_____

HSTD01031.S01--LEP: THIS SHEET REDRAWN, DEVICE:ZHAO:(200,004) ARCH.TAPE NO._____DATE_____