LETTING DATE
MAY 1, 1990

IOWA COUNTY BRIDGE & GUARDRAIL UPDATE FN-151-1(10)--21-48

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

PROJECT NUMBER
FN-151-1(10)--21-48
R.O.W. PROJECT NUMBER

PIN NUMBER
90-48040-2

IOWA
DEPARTMENT OF TRANSPORTATION
Highway Division

PLANS OF PROPOSED IMPROVEMENTS ON THE

PRIMARY ROAD SYSTEM

IOWA COUNTY

BRIDGE RETROFIT AND GUARDRAIL UPDATE

ON US-151, FROM US-6 TO IA-220, 2 LOCATIONS

SCALES: As Noted

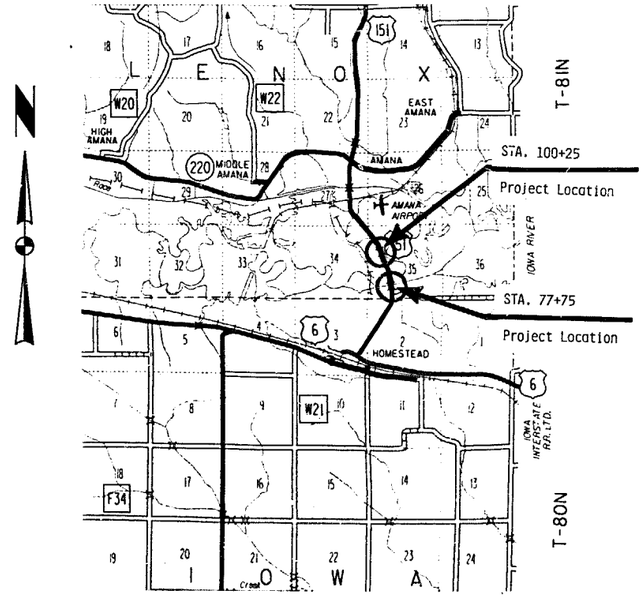
The standard specifications, series of 1984 of the Iowa Department of Transportation, shall apply to construction work on this project.

NO MILEAGE SUMMARY

STATE CONTROL SECTION NUMBER
48-1400

INDEX OF SHEETS — 105-3, 07-21-87

NO.	DESCRIPTION
1	TITLE SHEET
2-3	ESTIMATE OF QUANTITIES AND GENERAL INFORMATION
4-5	BRIDGE DESIGNS 190 AND 390
6-9	DESIGN DETAILS REH-1, REH-2, 540-1, and 570-2



900830
005944
034
SJK

ROAD DESIGN CADD PRODUCED

LOCATION MAP SCALE

* 100 *

STANDARD ROAD PLANS — 105-4, 06-17-77

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

NUMBER	DATE	NUMBER	DATE	NUMBER	DATE
RE-2A	02-17-87	RE-48A	08-20-85	RE-69	08-08-89
RE-2B	04-04-89	RE-52	08-08-89	RL-11	10-11-88
RE-12A	10-11-88	RE-65	01-09-90	RS-2	10-11-88
RE-12B	01-09-90	RE-68	08-08-89	RS-3	11-15-88
RE-47	11-10-87				

101-4
DESIGN DATA RURAL

1990	AADT	4050	V.P.D.
20	AADT		V.P.D.
20	DHV		V.P.H.
TRUCKS		10	%

REVISIONS

Iowa Department of Transportation
Highway Division
AUTHORIZED FOR LETTING
D. C. Anderson 2-26-90
DEPUTY CHIEF ENGINEER — DATE

George F. Sisson
ROAD DESIGN ENGINEER — DATE FEB 23 1990

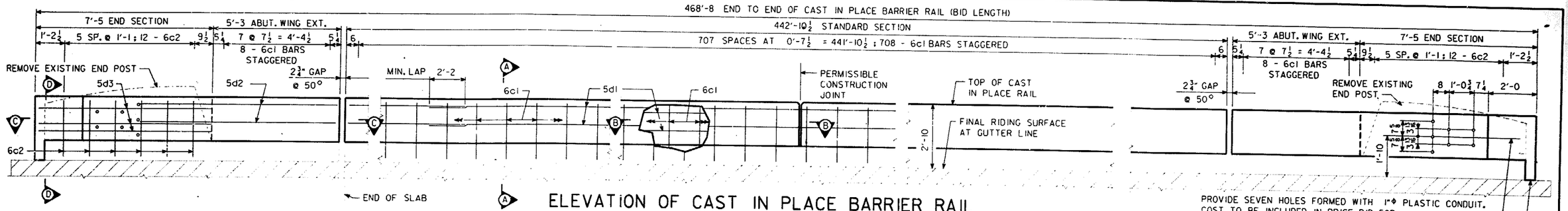
IOWA REGISTERED PROFESSIONAL ENGINEER — JOHN R. ABRAMS 7229 — IOWA

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 1/11/90

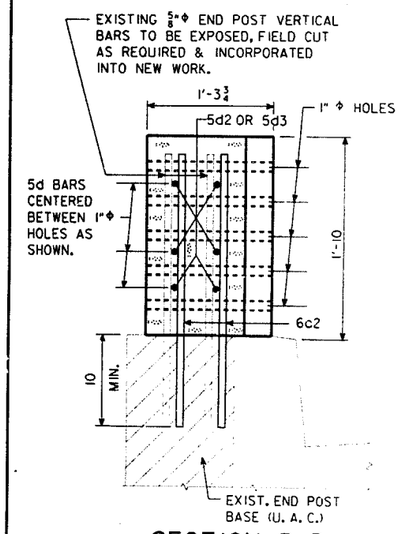
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
APPROVED

FOR THE DIVISION ADMINISTRATOR — DATE

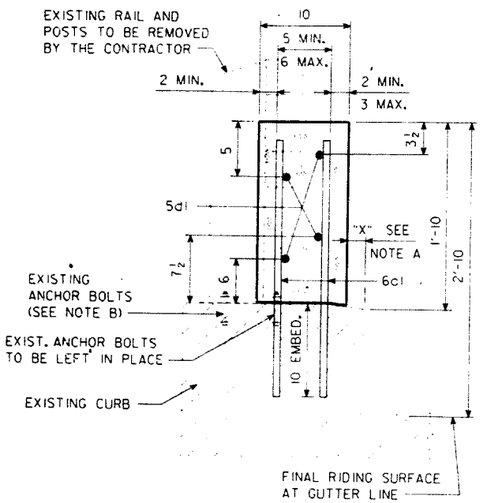
REH



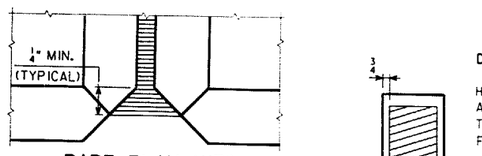
ELEVATION OF CAST IN PLACE BARRIER RAIL



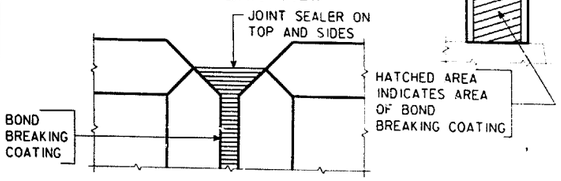
SECTION D-D



SECTION A-A



PART PLAN VIEW



PART ELEVATION VIEW

CAST IN PLACE BARRIER RAIL JOINT DETAILS

DOWEL SETTING NOTE :

THE 6c 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.

EPOXY REINFORCING STEEL-TWO RAILS

BAR	LOCATION	SHAPE	NO.	LENGTH	LIN. FT.	WEIGHT
6c1	RAIL , VERTICAL	——	1448	2'-6	3620	5437
6c2	END SECTION, VERTICAL	——	48	2'-6	120	180
5d1	RAIL , LONGITUDINAL	——	96	38'-11	3736	3897
5d2	ABUT. WING EXT.-LONG.	——	16	8'-1	129	135
5d3	END SECTION-LONG.	——	24	7'-1	170	177
					TOTAL (LBS.)	9826

CONCRETE PLACEMENT SUMMARY

SECTION		TOTAL
STANDARD SECTION	885.75' AT 0.06 CU. YDS. PER LIN. FT	53.1
ABUT. WING EXT.	4 AT 0.3 CU. YDS. PER SECTION	1.2
END SECTIONS	4 AT 0.64 CU. YDS. PER SECTION	2.6
	TOTAL (CU. YDS.)	56.9

TOTAL ESTIMATED QUANTITIES- TWO RAILS

ITEM NO.	ITEM	UNITS	QUANTITY
1	CONCRETE BARRIER RAIL - CAST IN PLACE	LIN. FT.	937.3
2	REMOVAL OF EXISTING HANDRAIL	L.S.	LUMP SUM

ITEM NO. 1 — ESTIMATE REFERENCE INFORMATION

INCLUDES 56.9 CU. YDS. OF CLASS D STRUCTURAL CONCRETE AND 9826 LBS. OF EPOXY COATED REINFORCING STEEL. REINFORCING STEEL COMPRISED OF 4035 LIN. FT OF #5 BAR AND 3740 LIN. FT. OF #6 BAR

NOTE A:

ON EACH SIDE OF BRIDGE, DIMENSION "X" SHALL BE A MINIMUM OF 1" AND A MAXIMUM OF 3", BUT MUST BE CONSTANT FOR FULL LENGTH OF BRIDGE, HOWEVER APPROXIMATELY 10 LINEAR FEET AT EITHER END OF STD. RAIL SECTION SHALL BE TRANSITIONED TO 2" AT THE END SECTION AS SHOWN IN SECTION C-C.

NOTE B:

EXISTING ANCHOR BOLTS SHALL BE CUT OFF FLUSH WITH OR SLIGHTLY BELOW THE CONCRETE SURFACE AND THE REMAINING EXPOSED ENDS PAINTED WITH TWO COATS OF ZINC RICH PAINT. IF THE EXISTING ANCHOR BOLTS ARE STAINLESS STEEL THEY MAY BE LEFT IN POSITION AT THE CONTRACTOR'S OPTION SUBJECT TO THE APPROVAL OF THE ENGINEER.

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.

THE PRICE BID FOR "REMOVAL OF EXISTING HANDRAIL" SHALL INCLUDE ALL COSTS ASSOCIATED WITH DISMANTLING THE EXISTING ALUMINUM HANDRAIL (APPROX. 910 L.F. AND 108 POSTS). THE RAILS AND POSTS ARE TO BECOME THE PROPERTY OF THE CONTRACTOR AND REMOVED FROM THE SITE BY HIM. THE BID ITEM SHALL ALSO INCLUDE ALL COSTS ASSOCIATED WITH THE REMOVAL OF THE EXISTING CONCRETE END POSTS AND THE CUTTING OFF AND PAINTING OF THE EXISTING RAIL POST ANCHOR BOLTS IF REQUIRED.

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.

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.

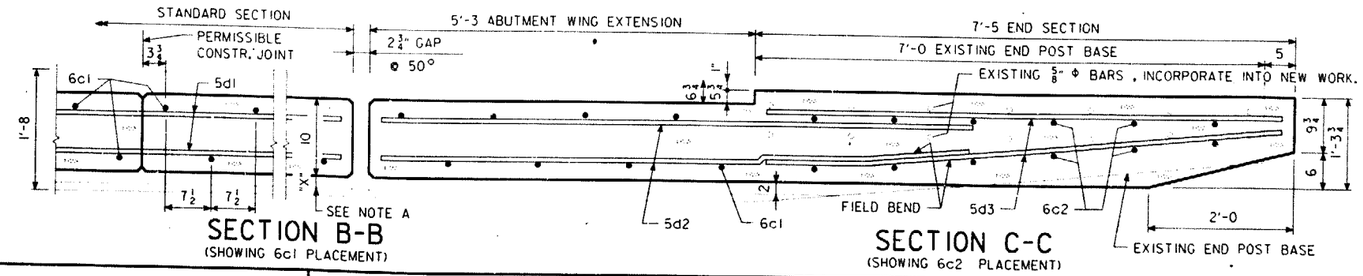
CONCRETE IN ACCORDANCE WITH SECTION 8, f'c = 3,500 PSI.

DESIGN HISTORY AT THIS SITE

DES. NO.	TYPE OF WORK
772	ORIGINAL DESIGN
190	RETROFIT RAIL

LOCATION:

US NO. 151
OVER IOWA RIVER
IOWA COUNTY
T - 81N R - 9W
LENOX TWP.
SECTION 35
MAINTENANCE NO. 4809.0S151



SECTION B-B (SHOWING 6c1 PLACEMENT)

SECTION C-C (SHOWING 6c2 PLACEMENT)

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

1-31-90 (DATE) — LeRoy Phillips (LEROY PHILLIPS) — REG. NO. 4138

DESIGN FOR REPAIRS TO

441'-0 x 44' PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

75'-9 END SPANS — 96'-6 INTERIOR SPANS

CAST IN PLACE BARRIER RAIL

STATION: 77 + 75.00 — JANUARY 1990

IOWA COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 1 OF 1 — FILE NO. 28032 — DESIGN NO. 190

DESIGNED BY	TRACED BY	CAST IN PLACE BARRIER RAIL		IOWA COUNTY	PROJECT NUMBER	FN - 151 - 1 (10) -- 21 - 48	STATE	FHWA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
KathleenR	DARWIN BACKOUS						IOWA	7		4	
DETAILED BY DARWIN BACKOUS	CHECKED BY R. Thompson										

H48019000.S01 — DEVICE : ZHAO:(200,004) ARCH. TAPE NO. ____ DATE ____