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

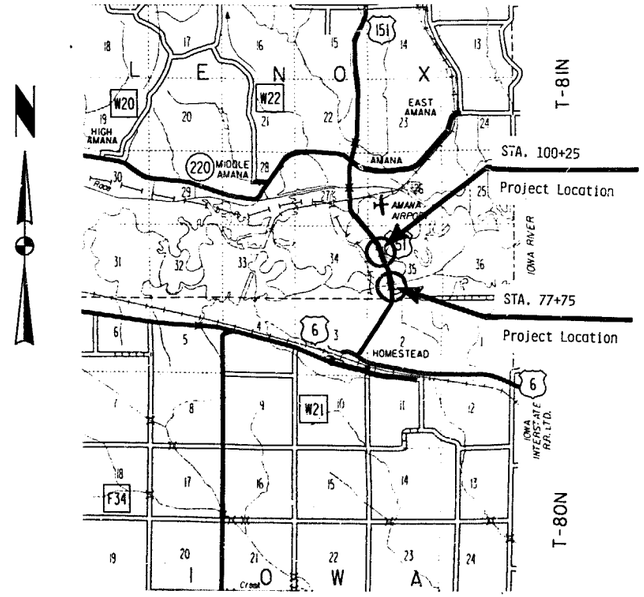
The standard specifications, series of 1984 of the Iowa Department of Transportation, shall apply to construction work on this project.

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

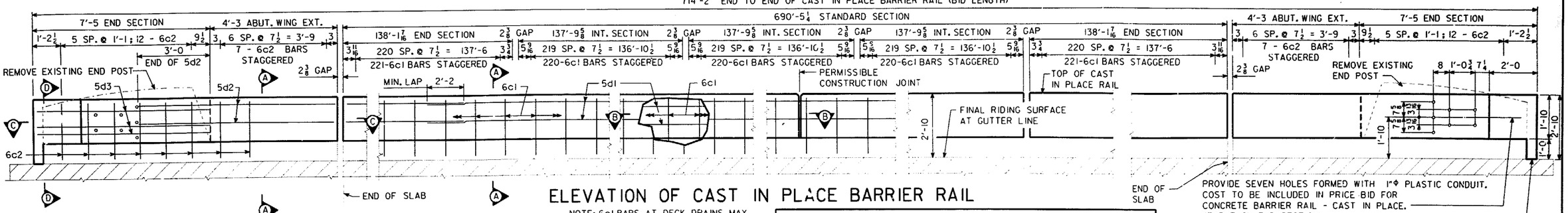
IOWA REGISTERED PROFESSIONAL ENGINEER — JOHN R. ABRAMS 7229 — IOWA

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

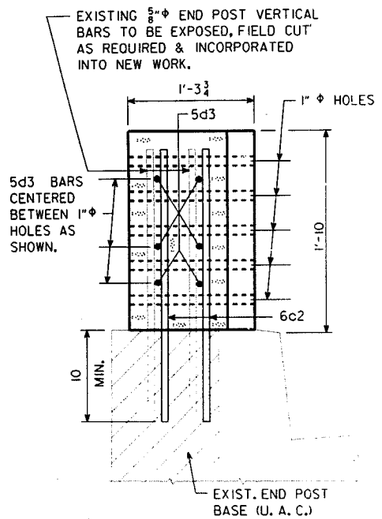
FOR THE DIVISION ADMINISTRATOR — DATE

REH

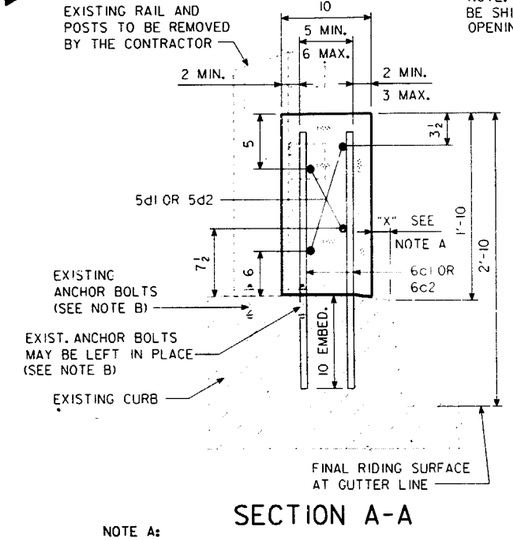


ELEVATION OF CAST IN PLACE BARRIER RAIL

NOTE: 6c1 BARS AT DECK DRAINS MAY BE SHIFTED SLIGHTLY TO CLEAR OPENINGS IN CURB.

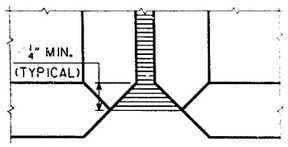


SECTION D-D

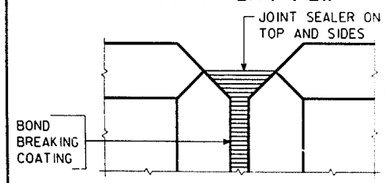


SECTION A-A

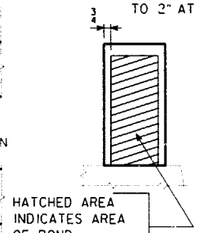
NOTE A:
ON EACH SIDE OF BRIDGE, DIMENSION "X" SHALL BE A MINIMUM OF 1" AND A MAXIMUM OF 3", BUT MUST BE CONSTANT FOR FULL LENGTH OF BRIDGE, HOWEVER APPROXIMATELY 10 LINEAR FEET AT EITHER END OF STD. RAIL SECTION SHALL BE TRANSITIONED TO 2" AT THE ABUTMENT WING EXTENSION AS SHOWN IN SECTION C-C.



PART PLAN VIEW



PART ELEVATION VIEW



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.

CAST IN PLACE BARRIER RAIL JOINT DETAILS

EPOXY REINFORCING STEEL-TWO RAILS

BAR	LOCATION	SHAPE	NO.	LENGTH	LIN. FT.	WEIGHT
6c1	STD. RAIL-VERTICAL	——	2204	2'-6	5510	8276
6c2	END SECTION & ABUT. WING EXTENSION-VERT.	——	76	2'-6	190	285
5d1	STD. RAIL-LONGIT.	——	160	36'-0	5760	6008
5d2	ABUT. WING EXT.-LONG.	——	16	7'-1	113	118
5d3	END SECTION-LONG.	——	24	7'-1	170	177
					TOTAL (LBS.)	14864

CONCRETE PLACEMENT SUMMARY

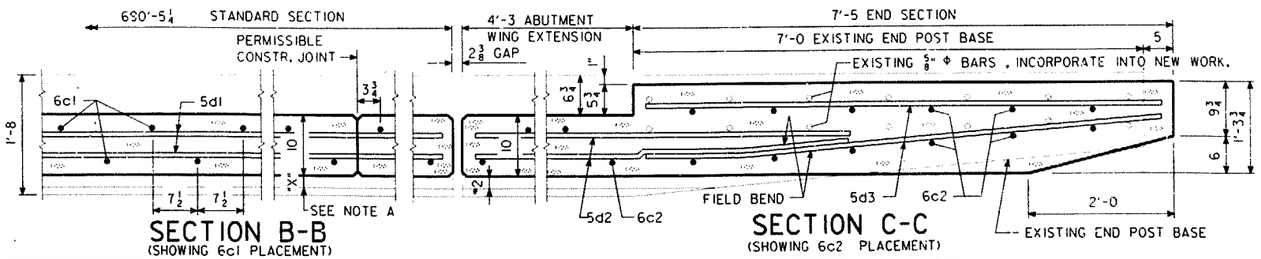
SECTION	TOTAL
STANDARD SECTION 1379.29' AT 0.057 CU. YDS. PER LIN. FT.	78.6
ABUT. WING EXTENSION AND END SECTION 4 AT 0.88 CU. YDS. PER SECTION	3.5
TOTAL (CU. YDS.)	82.1

TOTAL ESTIMATED QUANTITIES- TWO RAILS

ITEM NO.	ITEM	UNITS	QUANTITY
1	CONCRETE BARRIER RAIL - CAST IN PLACE	LIN. FT.	1428.3
2	REMOVAL OF EXISTING HANDRAIL	L.S.	LUMP SUM

ITEM NO. 1 — ESTIMATE REFERENCE INFORMATION
INCLUDES 82.1 CU. YDS. OF CLASS D STRUCTURAL CONCRETE AND 14864 LBS. OF EPOXY COATED REINFORCING STEEL. REINFORCING STEEL COMPRISED OF 6043 LIN. FT OF #5 BAR AND 5700 LIN. FT. OF #6 BAR

NOTE B:
EXISTING RAIL IS TO BE REMOVED. ANY ANCHOR BOLTS THAT WILL HAVE AT LEAST 2" OF CONCRETE COVER WHEN ENCOMPASSED BY THE NEW BARRIER RAIL MAY BE LEFT IN PLACE AT THE CONTRACTORS OPTION SUBJECT TO THE APPROVAL OF THE ENGINEER. ANY ANCHOR BOLTS NOT HAVING THE 2" MIN. COVER SHALL BE CUT OFF FLUSH WITH OR SLIGHTLY BELOW THE TOP OF CURB AND ENDS OF NON STAINLESS STEEL BOLTS PAINTED WITH TWO COATS OF ZINC RICH PAINT.
STAINLESS STEEL ANCHOR BOLTS OUTSIDE THE AREA OF NEW BARRIER RAIL MAY BE LEFT IN PLACE AT CONTRACTORS OPTION SUBJECT TO APPROVAL OF THE ENGINEER. STAINLESS STEEL BOLTS NEED NOT BE PAINTED.



SECTION B-B
(SHOWING 6c1 PLACEMENT)

SECTION C-C
(SHOWING 6c2 PLACEMENT)

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. 1400 L.F. AND 174 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
872	ORIGINAL DESIGN
390	RETROFIT RAIL

LOCATION:
US NO. 151
OVER IOWA RIVER
OVERFLOW CHANNEL
IOWA COUNTY
T81N R9W
LENOX TWP.
SECTION 35
MAINTENANCE NO. 4809.35151

DESIGN FOR REPAIRS TO
688'-6 x 44' PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE
68'-3 END SPANS — 69'-0 INTERIOR SPANS
CAST IN PLACE BARRIER RAIL
STA. 100+25 — FEB. 1990
IOWA COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
DESIGN SHEET NO. 1 OF 1 — FILE NO. 28032 — DESIGN NO. 390

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 — REG. NO. 4138

DESIGNED BY		TRACED BY	DOUG WARRINGS
DETAILED BY	DOUG WARRINGS	CHECKED 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
IOWA	7		5	

DEVICE : ZHA0:(200,004) ARCH. TAPE NO. ———— DATE ————

H48039000.S01