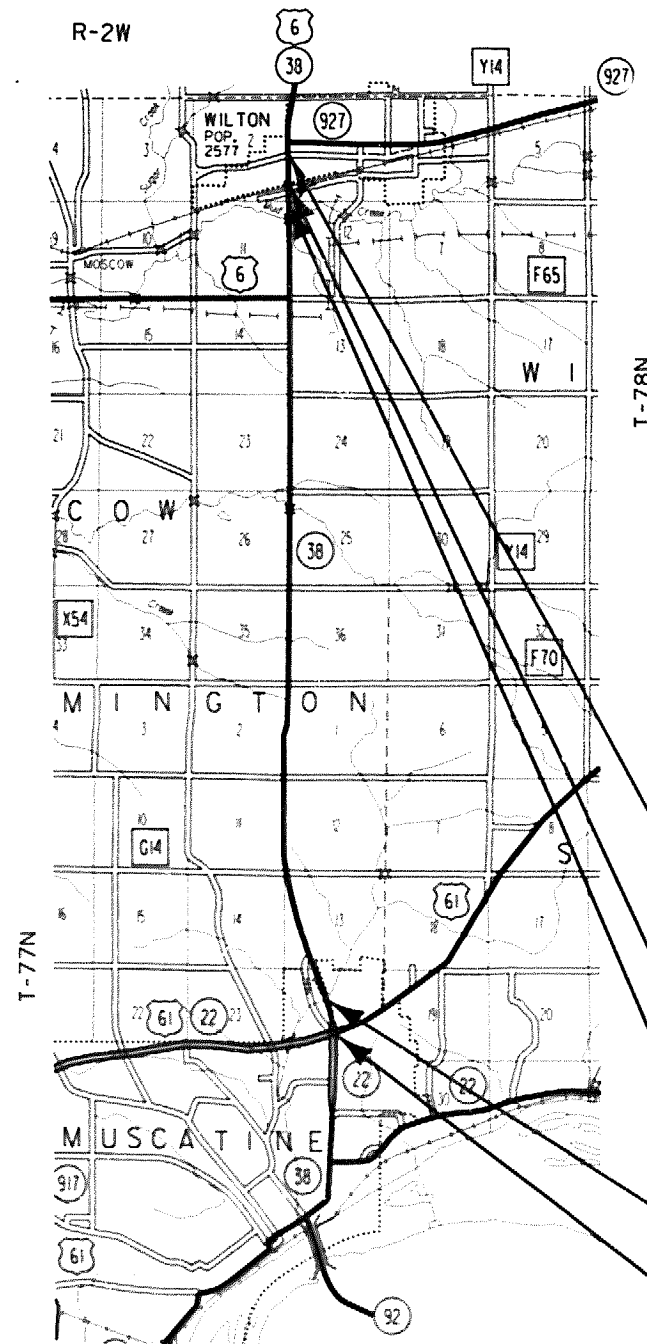




IOWA
DEPARTMENT OF TRANSPORTATION
Project Development Division
PLANS OF PROPOSED IMPROVEMENTS ON THE
**PRIMARY ROAD SYSTEM
MUSCATINE COUNTY**

LONGITUDINAL SUBDRAINS

ON IA. 38 FROM THE JUNCTION OF U.S. 61
IN MUSCATINE TO THE JUNCTION OF IA. 927

SCALE: As Noted

The Iowa Department of Transportation Standard Specifications for Highway and Bridge Construction, series of 1992, plus current Supplemental Specifications and Special Provisions shall apply to construction work on this project.

Value Engineering Saves. Refer to Standard Notation 203-4 on Sheet C-02

NO MILEAGE SUMMARY

THIS PROJECT TO BE LET AS
NHS-38-1(7)--19-70

Sta. 1035+00
End Division 1
End Project
MP - 11.87

EQUATION :
Sta. 492+80.70 (BACK)
= Sta. 991+00.00 (AHEAD)

Sta. 40+00
Begin Project
Begin Division 1
MP - 2.71

Sta. 1018+10
End Division 2
Resume Division 1
MP - 11.55

Sta. 63+40
Stop Division 1
Begin Division 2
MP - 3.15

101-4 DESIGN DATA RURAL			
1995 AADT	4 340	V.P.D.	
20 AADT		V.P.D.	
20 DHV		V.P.H.	
TRUCKS	11	%	

TOTAL	16
PROJECT NUMBER	STP-38-1(7)--2C-70
R.O.W. PROJECT NUMBER	
PROJECT IDENTIFICATION NUMBER	92-70020-1

INDEX OF SHEETS		105-3 07-21-87
NO.	DESCRIPTION	
A.01	Title Sheet	
B.01	Typical Sections	
C.01-C.07	Estimate of Quantities and General Information	
U.01	Detail Sheet - Traffic Control	
V.01-V.06	Bridge Retrofit Detail Sheets	

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	RF-19C	04-28-92	RS-2	06-15-93	
RE-2B	10-22-93	RF-19E	03-29-94	RS-3	02-23-93	
RE-7	04-28-92	RL-11	10-11-88	RS-4	06-07-94	
RE-12A	10-11-88					
RE-12B	01-09-90					
RE-47	11-10-87					
RE-48A	06-15-93					
RE-52	10-22-93					
RE-65	01-07-92					
RE-68	08-08-89					
RE-69	10-22-93					

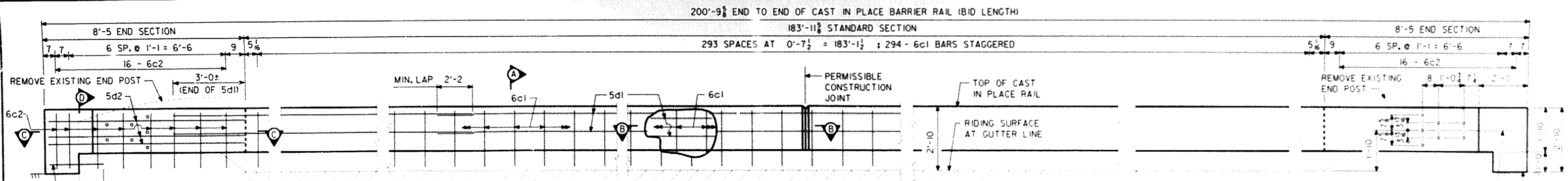
REVISIONS

Iowa Department of Transportation
Project Development Division
AUTHORIZED FOR LETTING
DESIGN ENGINEER
Iowa Registration No. 7229 Date 11-1-94

I hereby certify that this plan was prepared under my supervision and that engineering decisions and required 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

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION APPROVED
FOR THE DIVISION ADMINISTRATOR DATE





ELEVATION OF CAST IN PLACE BARRIER RAIL

EPOXY REINFORCING STEEL- TWO RAILS

BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
6c1	STANDARD RAIL, VERT.	---	588	2'-6"	2208
6c2	END SECTION, VERTICAL	---	64	2'-6"	240
5d1	STANDARD RAIL, LONGIT.	---	40	39'-9"	1658
5d2	END SECTION, LONGIT.	---	24	8'-1"	202
6d3	END SECTION, DOWEL	---	8	2'-1"	25
TOTAL (LBS.)					4333

CONCRETE PLACEMENT SUMMARY

SECTION	TOTAL
STANDARD SECTION 367.94' AT .057 CU. YDS. PER LIN. FT.	21.0
END SECTIONS 4 AT 0.78 CU. YDS. PER SECTION	3.1
TOTAL (CU. YDS.)	24.1

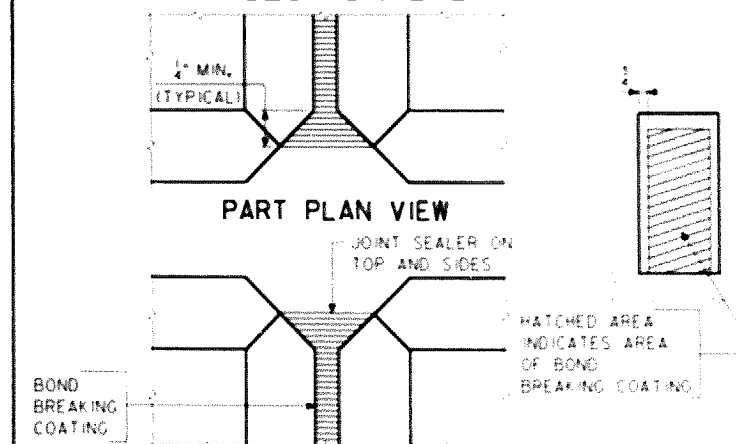
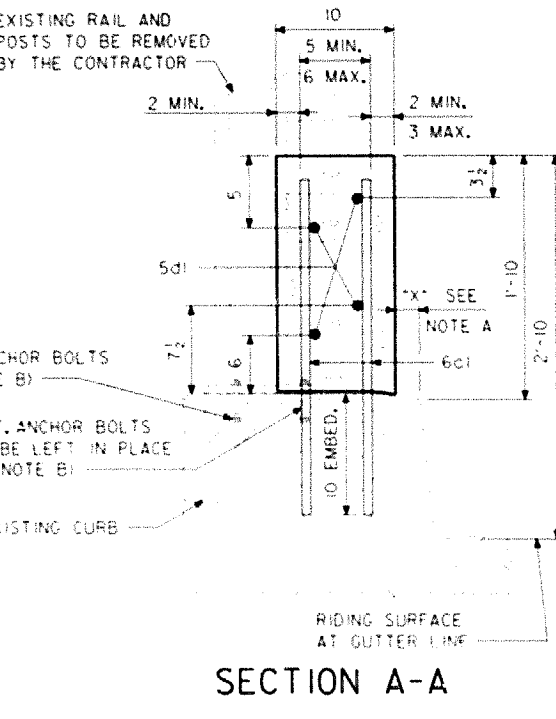
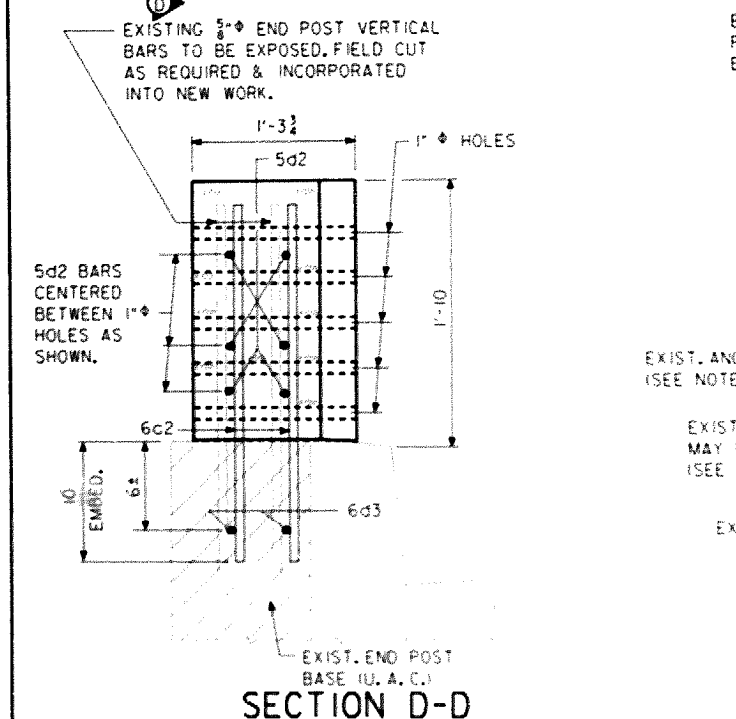
TOTAL ESTIMATED BRIDGE QUANTITIES

ITEM NO.	ITEM	UNITS	QUANTITY
1	CONCRETE BARRIER RAIL, (CAST-IN-PLACE)	LIN. FT.	401.6
2	REMOVAL OF EXISTING HANDRAIL	L.S.	LUMP SUM

ITEM NO. 1 ESTIMATE REFERENCE INFORMATION
INCLUDES 24.1 CU. YDS. CLASS D STRUCTURAL CONCRETE AND 4333 LBS. OF REINFORCING STEEL.

DOWEL SETTING NOTE:
THE 6c1, 4B-6c2 AND 6d3 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 6c1 AND 6c2 DOWELS:

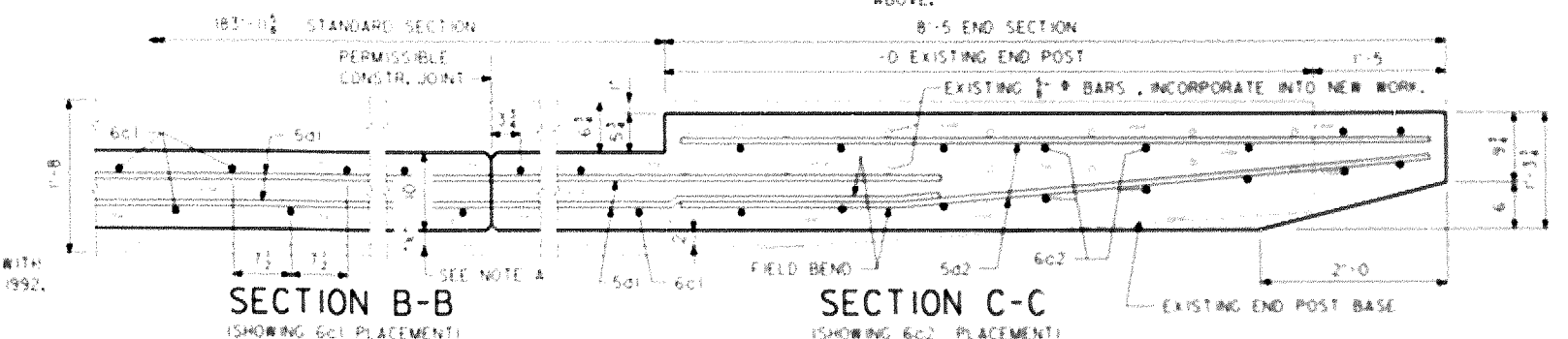
- EPOXY GROUT SYSTEM IN ACCORDANCE WITH STANDARD SPECIFICATIONS ARTICLE 2301.12 AND CURRENT SUPPLEMENTAL SPECIFICATIONS OF THE IOWA D.O.T. HIGHWAY DIVISION.
 - HYDRAULIC CEMENT GROUT SYSTEMS. DRILLED HOLES ARE TO BE 2 1/2 TIMES THE DOWEL DIAMETER AND ARE TO BE BLOWN CLEAN WITH COMPRESSED AIR IMMEDIATELY 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.
- THE 6d3 BARS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS FOR THE EPOXY GROUT SYSTEM AS NOTED IN PARAGRAPH "A" ABOVE.



CAST IN PLACE BARRIER RAIL JOINT DETAILS

DESIGN STRESSES:
DESIGN STRESSES FOR THE FOLLOWING MATERIALS ARE IN ACCORDANCE WITH THE AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, SERIES OF 1992, REINFORCING STEEL IN ACCORDANCE WITH SECTION 8, GRADE 60, CONCRETE IN ACCORDANCE WITH SECTION 8, $f'_c = 3,500$ PSI.

DESIGNED BY DOUG WARRINGS
CHECKED BY DOUG WARRINGS
H700294.S01



SECTION B-B (SHOWING 6c1 PLACEMENT)
SECTION C-C (SHOWING 6c2 PLACEMENT)

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

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 FILED WITH A 1" 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" 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-500230 OR TT-500227 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. 370 L.F.) AND 46 POSTS. THE RAILS AND POSTS ARE TO BECOME THE PROPERTY OF, AND REMOVED FROM THE SITE BY THE CONTRACTOR. 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 240 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 THE CONTRACTOR AT NO COST TO THE STATE.
EXISTING BRIDGE RAIL IS NOT TO BE REMOVED UNTIL AUTHORIZED BY THE ENGINEER.

LOCATION:
IOWA NO. 38 OVER
MAD CREEK
SECTION 24
BLOOMINGTON TWP.
TOWN OF
MUSCATINE COUNTY
MAINT. NO. 1002.45038

DESIGN HISTORY
AT THIS SITE
DESIGN NO. TYPE OF WORK
1069 ORIGINAL DESIGN
294 RETROFIT RAIL

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

DATE 11/21/94 SEAL NO. 1506

DESIGN FOR REPAIRS TO A
180'-6" x 44' PRETENSIONED PRESTRESSED
CONCRETE BEAM BRIDGE
64'-11.8" END SPANS 64'-10" CENTER SPAN
CAST IN PLACE BARRIER RAIL DETAILS
STATION 64+30.00 AUGUST 1994
MUSCATINE COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
DESIGN SHEET NO. 1 OF 1 FILE NO. 28189 DESIGN NO. 294
STATE IOWA PROJECT NO. STP-38-11.1-1-20-70