

BRIDGE DECK REPAIR
IR-29-5(65)86--12-43

HARRISON COUNTY

43-089-41
#1827

911517
008434
024
SJK

CONVENTIONAL SIGNS	
	DIVIDED HIGHWAY
	PAVED ROAD
	BITUMINOUS ROAD
	GRAVEL ROAD
	EARTH ROAD
	INTERSTATE HIGHWAY
	UNITED STATES HIGHWAY
	STATE HIGHWAY
	COUNTY HIGHWAY
	RAILROAD
	PIPELINE
	AIRPORT
	HYDROLOGY
	BRIDGE
	STATE BOUNDARY
	COUNTY BOUNDARY
	CORPORATE LIMIT LINE
	TOWNSHIP LINE
	SECTION LINE

IOWA
DEPARTMENT OF TRANSPORTATION
Highway Division
PLANS OF PROPOSED IMPROVEMENTS ON THE
INTERSTATE ROAD SYSTEM
HARRISON COUNTY
BRIDGE DECK REPAIR
ON SOUTHBOUND I-29
OVER BURCHAM CREEK

SCALE: 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)

DESIGN NO. 192

CONSTRUCTION PLANS SHOWING PROJECT AS BUILT

Plan Preparation Supervised By: Jerry R. Allen
Resident Construction Engineer
Date: 1/12/95 Iowa Reg. No. 7232

REVIEWED AND FORWARDED TO AMES

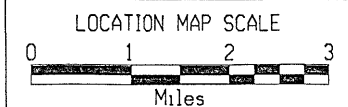
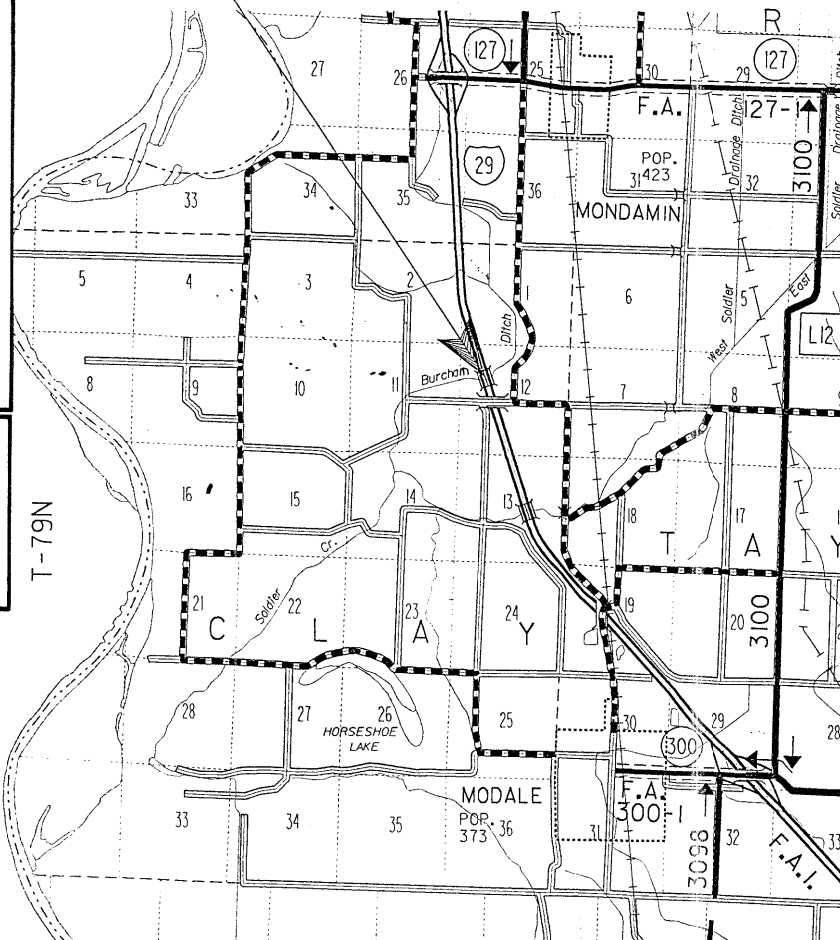
Tony B. Agnew
NWITC Construction Engineer
Date: 8-22-95

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

Tony B. Agnew
NWITC CONST. Engineer

AFTER MICROFILMING RETURN ORIGINAL
TO NWITC

YEAR	WORK	CONTRACTOR	PROJ. INSPECTOR
1992	BRIDGE FLOOR CRAMER & ASSOC.	K. Fitzpatrick	
	REPAIR		
	FILE NO. 967		



INDEX OF SHEETS	
NO.	DESCRIPTION
1	TITLE SHEET
2	ESTIMATE SHEET
3-11 12-15	BRIDGE DESIGN NO. 192 ROAD SHEETS

STANDARD ROAD PLANS			
IDENT	DATE	IDENT	DATE
RK-17	1-9-90		
RS-62	10-11-88		
RS-63A	8-8-89		
RH-51	10-2-90		
RH-52	10-2-90		

STANDARD BRIDGE PLANS		
STANDARD	ISSUED	REVISED

DESIGN DATA RURAL			
1991	AADT	8130	V.P.D.
201	AADT		V.P.D.
201	DHV		V.P.D.
TRUCKS			%

REVISIONS	

Iowa Department of Transportation

AUTHORIZED FOR LETTING
George F. Brown 9-4-91
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 Wm. A. Ziegler
Iowa Registration No. 44491 Date 8/31/91

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
APPROVED

FOR THE DIVISION ADMINISTRATOR DATE

** INCLUDES BOTH BRIDGE AND ROAD QUANTITIES

DESIGN NO. 192 OVER BURCHAM DITCH STATION 1655+40.00				
HARRISON COUNTY MAINTENANCE NO. 4386.5L029				
SECTION 12 T-79N R-45W CLAY TWP.				
DESIGN FOR REPAIR TO SOUTHBOUND LANE OF				
TWIN 115'-0 X 39'				
CONTINUOUS CONCRETE SLAB BRIDGE				
ESTIMATE OF QUANTITIES				
FINAL	NO.	ITEM	UNIT	TOTAL
QUANT.				
50.44	** 1	CLASS A BRIDGE FLOOR REPAIR	SQ.YD.	65
823.39	** 2	BRIDGE FLOOR OVERLAY	SQ.YD.	890
460.0	3	TEMPORARY BARRIER RAIL-FURNISH ONLY	L.F.	460
900.0	4	TEMPORARY BARRIER RAIL-PLACE ONLY	L.F.	900
488.0	5	CONCRETE SEALER AS PER PLAN	SQ.FT.	436
92.55	6	PAVEMENT MARKINGS	STA.	192.47
\$2000.00	7	TRAFFIC CONTROL	LUMP SUM	SEE T.C.P.
\$1000.00	8	TEMPORARY FLOODLIGHTING	LUMP SUM	LUMP SUM
45.70	9	8001 CLASS B REPAIR		
	10			
	11			
	12			

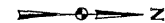
ESTIMATE REFERENCE INFORMATION	
DATA LISTED BELOW IS FOR INFORMATIONAL PURPOSES ONLY AND SHALL NOT CONSTITUTE A BASIS FOR ANY EXTRA WORK ORDERS	
ITEM NO.	DESCRIPTION
1 - 2	SEE STANDARD ROAD PLAN RK-17. ESTIMATED FOR 3 PANELS PER SIDE OF THE BRIDGE. (39' X 20', 24' X 20' AND 24' X 20').
3 - 4	ALL TEMPORARY BARRIER RAIL SHALL BE NOMINAL 10' LONG CONCRETE UNITS.
6	SEE TAB. 108-22 AND 521-20 DETAIL SHEET FOR MORE INFORMATION.
7	SEE DETAIL SHEET 521-20.
8	SEE DETAIL SHEETS 570-2 AND 521-20.

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

8/30/91 *GARY A. NOVEY* REG. NO. 8704
DATE GARY A. NOVEY

ESTIMATE SHEET

15 DATE 9-8-88
HSTD01038.S01--LEP: THIS SHEET REDRAWN, DEVICE:ZHA04200,004 ARCH.TAPE NO. 15



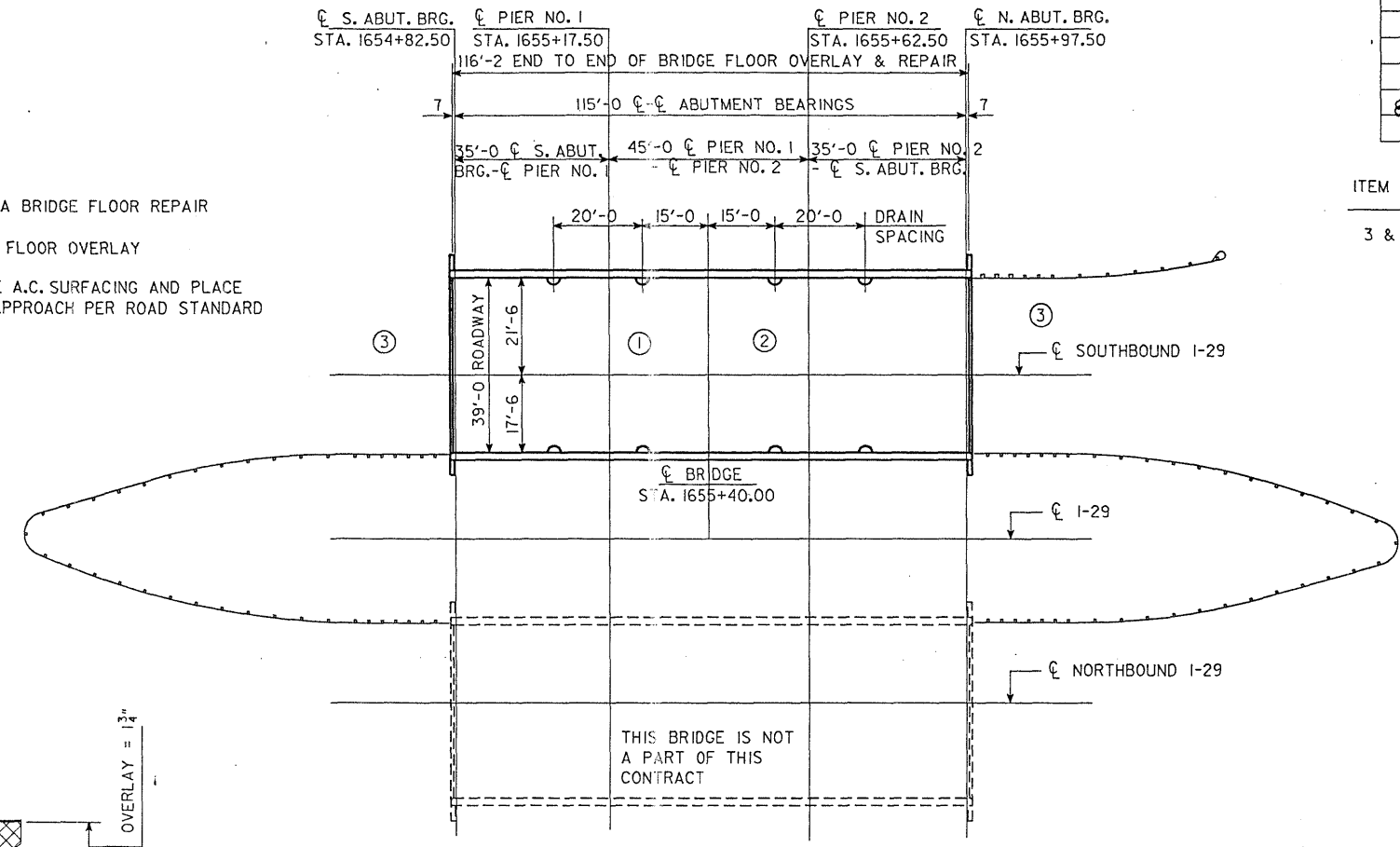
TOTAL ESTIMATED BRIDGE QUANTITIES

ITEM NO.	ITEM	UNIT	QUANTITY
1	CLASS A BRIDGE FLOOR REPAIR	SQ. YD.	5
2	BRIDGE FLOOR OVERLAY	SQ. YD.	503
3	TEMPORARY BARRIER RAIL - FURNISH ONLY	L.F.	460
4	TEMPORARY BARRIER RAIL - PLACE ONLY	L.F.	900
5	CONCRETE SEALER AS PER PLAN	SQ. FT.	436
8001	CLASS B REPAIR	SQ. YD.	457

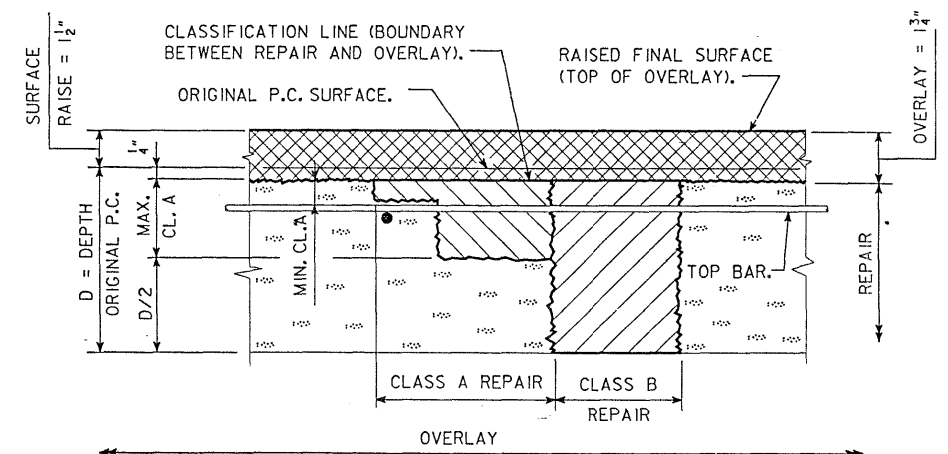
- ① CLASS A BRIDGE FLOOR REPAIR
- ② BRIDGE FLOOR OVERLAY
- ③ REMOVE A.C. SURFACING AND PLACE P.C.C. APPROACH PER ROAD STANDARD RK-17.

ITEM NO. ESTIMATE REFERENCE INFORMATION

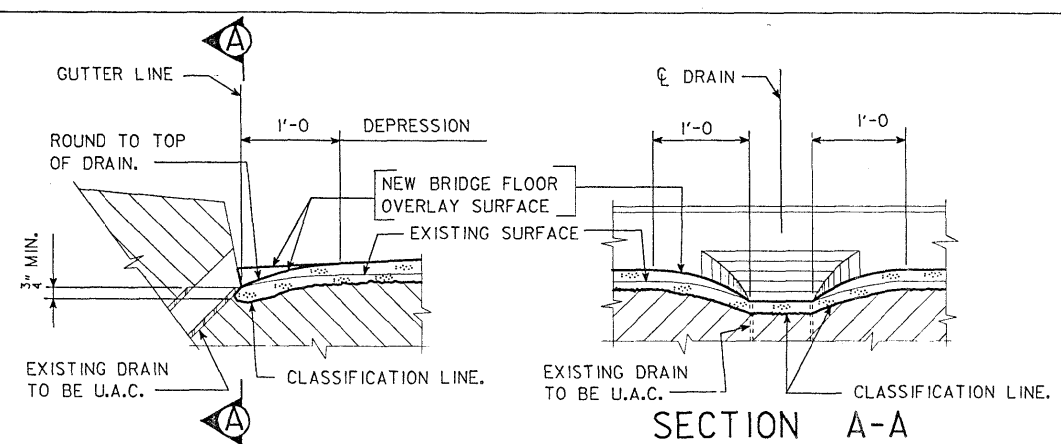
3 & 4 ALL TEMPORARY BARRIER RAIL SHALL BE NOMINAL 10' LONG CONCRETE UNITS.



SITUATION PLAN



REPAIR AND OVERLAY DEFINITION



SECTION A-A
FLOOR REPAIR DETAIL AT DRAIN
(REQUIRED AT 8 LOCATIONS)

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 1989.
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.

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
DATE 8/23/91
GARY NOVEY
REG. NO. 8704

DESIGN HISTORY AT THIS SITE

DES. NO.	TYPE OF WORK
1965	ORIGINAL DESIGN
1289	C.I.P. BARRIER RAIL
192	OVERLAY & REPAIR

LOCATION:
MAINTENANCE NO. 4386.5L029
HARRISON COUNTY
T 79N R 45W
CLAY TWP.
SECTION 12
SOUTHBOUND I-29 OVER BURCHAM DITCH

DESIGN FOR REPAIR TO SOUTHBOUND LANE OF
TWIN 115'-0" x 39' CONTINUOUS
CONCRETE SLAB BRIDGE
35'-0" END SPANS 45'-0" CENTER SPAN
SITUATION PLAN
STATION: 1655+40.00 (I-29)
HARRISON COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
DESIGN SHEET NO. 1 OF 9 FILE NO. 28374 DESIGN NO. 192
AUGUST, 1991

GENERAL NOTES:

THIS DESIGN IS FOR THE REPAIR OF EXISTING 115'-0 x 39' CONTINUOUS CONCRETE SLAB BRIDGE ON I-29 SOUTHBOUND LANE, ORIGINAL DESIGN 1965, HARRISON COUNTY. PLANS OF THE EXISTING STRUCTURE MAY BE OBTAINED AT THE AMES OFFICE OF THE HIGHWAY DIVISION.

REPAIRS SHALL CONSIST OF THE FOLLOWING:

- 1. BRIDGE FLOOR REPAIR.
- 2. BRIDGE FLOOR OVERLAY.
- 3. A.C.C. REMOVAL ON BRIDGE APPROACHES AND PLACEMENT OF P.C.C. OVERLAY PER ROAD STANDARD RK-17.

PRESENT FLOOR THICKNESS IS ABOUT 19 INCHES. 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.

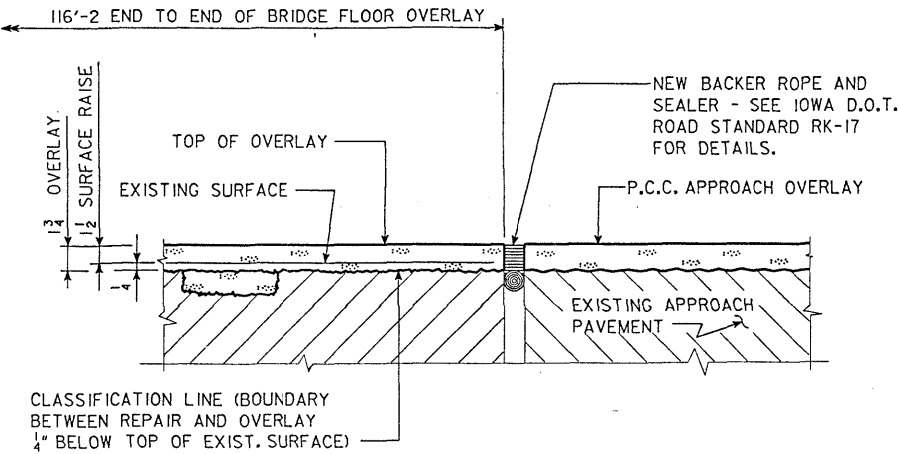
SURFACE RAISE, AS SHOWN ON THE PLANS, SHALL BE CONSIDERED A MINIMUM. IN ORDER TO LIMIT THE ADDITIONAL DEAD LOAD, SURFACE RAISE SHALL BE RESTRICTED TO A MAXIMUM OF 1/2" MORE THAN SHOWN ON THE PLANS. PROFILE MAY BE ADJUSTED TO THE EXTENT POSSIBLE WITHIN THESE LIMITS.

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

THE CONTRACTOR SHALL PLACE PORTLAND CEMENT CONCRETE OVERLAY ON THE BRIDGE APPROACH PAVEMENT AS NOTED AND SHOWN ON STANDARD ROAD PLAN RK-17. PAYMENT FOR THIS WORK SHALL BE AS NOTED ON STANDARD ROAD PLAN RK-17.

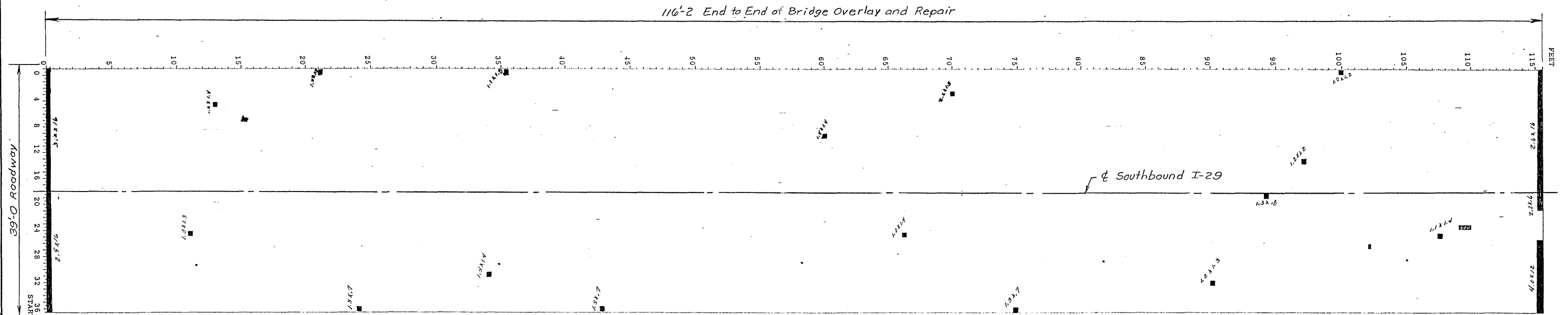
PLAN QUANTITY OF FLOOR REPAIR IS 1/2 OF THE FLOOR AREA. THE SHADED AREAS SHOWN ON THE "DELAMINATION PLOT" IN THESE PLANS REPRESENT CLASS A BRIDGE FLOOR REPAIR FOUND BY THE DELAMTECT PLOT. ACTUAL SPALLED AND HOLLOW AREAS AS DETERMINED BY THE ENGINEER AT THE TIME OF CONSTRUCTION, SHALL BE REPAIRED. THE ENTIRE CONCRETE SURFACE OF THE BRIDGE FLOOR, INCLUDING AREAS OVER BRIDGE FLOOR REPAIR, SHALL HAVE BRIDGE FLOOR OVERLAY.

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.



PART LONGITUDINAL SECTION ALONG ROADWAY BOTH ABUTMENTS

DESIGN FOR REPAIR TO SOUTHBOUND LANE OF
TWIN 115'-0 x 39' CONTINUOUS
CONCRETE SLAB BRIDGE
35'-0 END SPANS 45'-0 CENTER SPAN
GENERAL NOTES
STATION: 1655+40.00 (I-29) AUGUST, 1991
HARRISON COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
DESIGN SHEET NO. 2 OF 9 FILE NO. 28374 DESIGN NO. 192



DELAMINATION PLOT

Note: Hatched portions represent areas which have spalls and delaminations found by the Delamtect machine.
Plan quantity of floor repair is 1% of the floor area.

IOWA D.O.T.

192 Harrison

Bridge : 4386.5L029

Data Collected : Tue Aug 20 14:08:32 1991

Overall Length = 115 Feet 6 Inches Overall Width = 37 Feet 6 Inches
23116 Samples Taken 4334.250 Square Feet Measured
Delamination At = 400 Millivolts
8 Samples Delaminated 1.500 (0.035%) Square Feet Bad

Design for Repairs to Southbound Lane of
TWIN 115'-0 x 39' CONTINUOUS
CONCRETE SLAB BRIDGE
35'-0 End Spans 45'-0 Center Span
DELAMINATION PLOT
Station: 1655 + 40.00 (I-29) August, 1991
HARRISON COUNTY
IOWA DEPARTMENT OF TRANSPORTATION-HIGHWAY DIVISION
Design Sheet No.: 3 Of 9 File No.: 28374 Design No.: 192

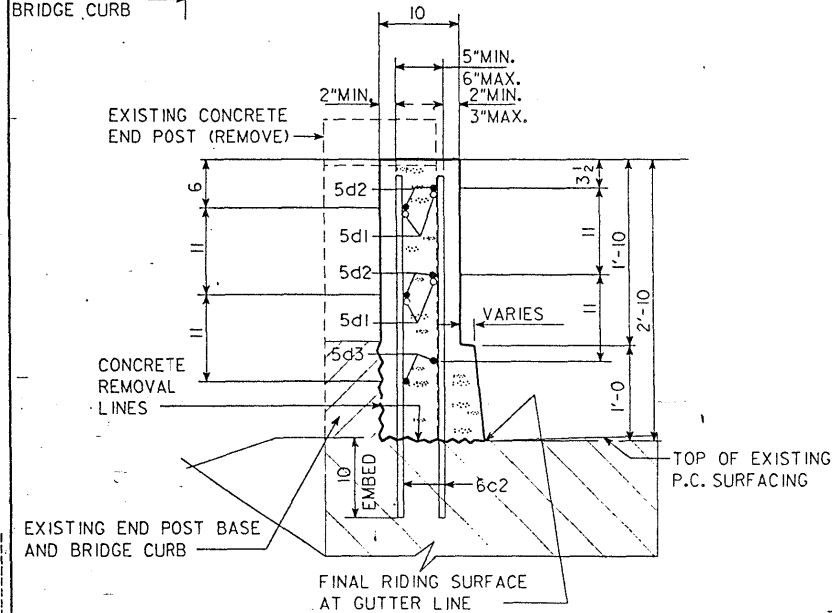
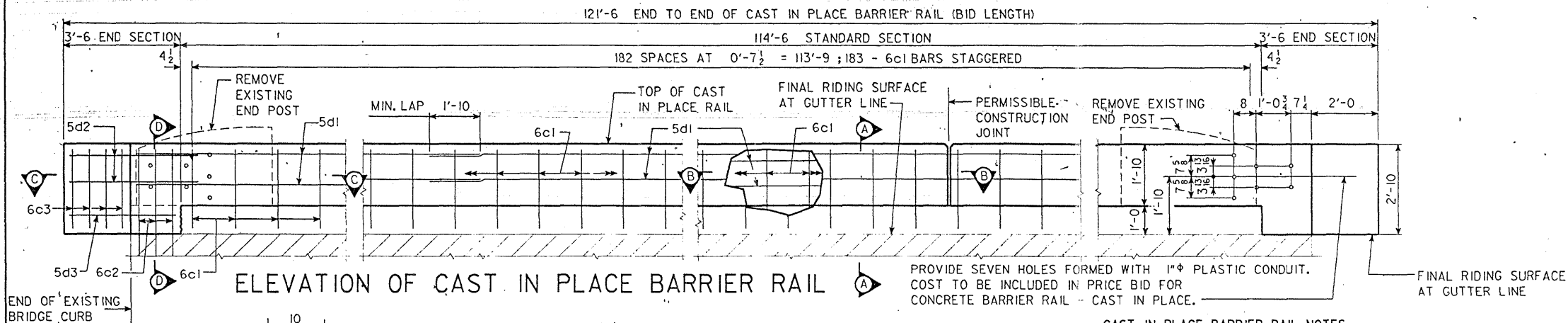
DESIGNED BY: S.K. Gupta
DETAILED BY: D. Heer
TRACED BY:
CHECKED BY: D. Heer

HARRISON COUNTY

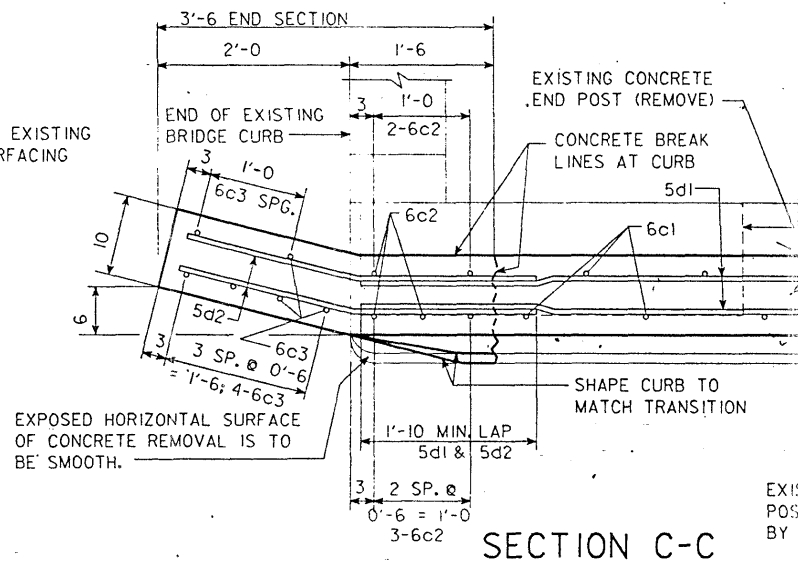
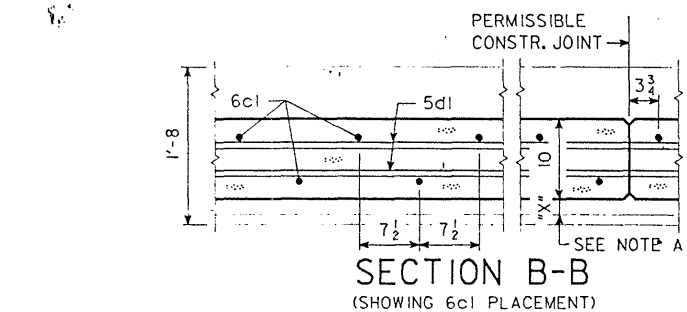
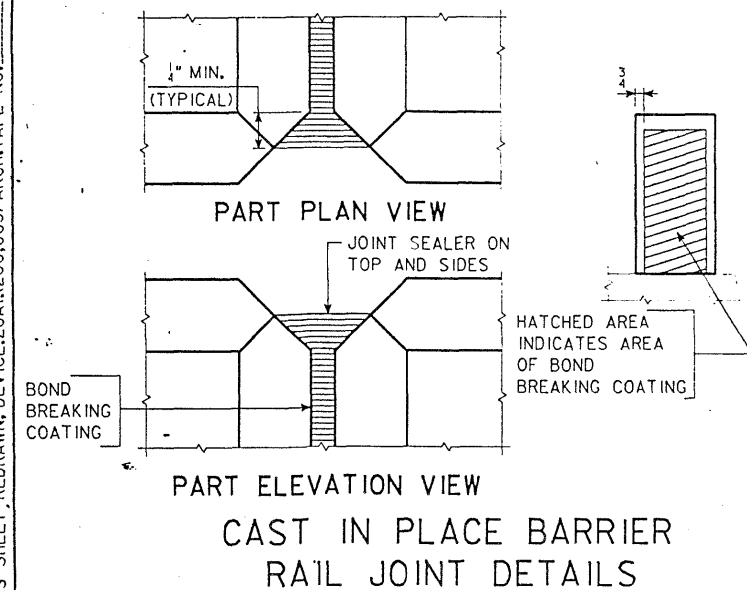
PROJECT NUMBER

STATE	FHWA Region	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	7		5	15

--GAIN: THIS SHEET, REDRAWN, DEVICE:ZGAI(200,003) ARCH. TAPE NO. DATE



NOTE: WHERE POSSIBLE EXISTING REINFORCING IN THE END OF CURB IS TO BE CAREFULLY EXPOSED AND INCORPORATED INTO NEW WORK.



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.

NOTE B:
EXISTING RAILS, RAIL POSTS, END POSTS AND PORTIONS OF THE END OF CURBS SHALL BE REMOVED. EXISTING BOLTS AND EXPOSED 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. IF THE EXISTING ANCHOR BOLTS ARE STAINLESS STEEL, THEY MAY BE LEFT IN PLACE AT THE CONTRACTOR'S OPTION SUBJECT TO APPROVAL OF THE ENGINEER. THE COST OF REMOVAL OF EXISTING END POSTS, AND PORTIONS OF THE END OF CURBS AND CUTTING OFF AND PAINTING OF EXISTING ANCHOR BOLTS AND REINFORCING SHALL BE CONSIDERED INCIDENTAL TO THE COST OF REMOVAL OF EXISTING HANDRAIL. THE BID ITEM "REMOVAL OF EXISTING HANDRAILS" SHALL INCLUDE ALL COSTS ASSOCIATED WITH DISASSEMBLING EXISTING HANDRAIL (APPROX. 217 L.F. AND 26 POSTS).

ALL ELEMENTS REMOVED SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE SITE BY HIM.

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 3/4" 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.

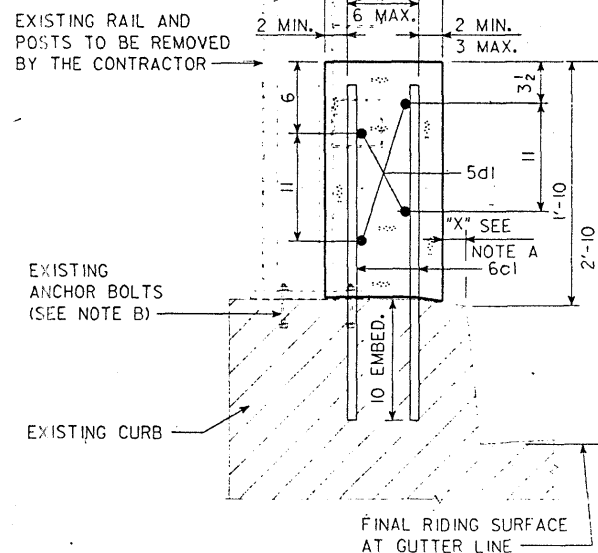
COST OF JOINT SEALER AND BOND BREAKER SHALL BE CONSIDERED INCIDENTAL TO OTHER CONSTRUCTION.

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 REINFORCING STEEL, AND 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.



THIS SHEET FROM ORIGINAL DESIGN IS INCLUDED FOR INFORMATION ONLY.

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:

- EPOXY GROUT SYSTEM IN ACCORDANCE WITH STANDARD SPECIFICATIONS ARTICLE 2301.15 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.

DESIGN FOR REPAIR TO SOUTHBOUND LANE OF
TWIN 115'-0x39' CONTINUOUS
CONCRETE SLAB BRIDGE

35'-0" END SPANS 45'-0" CENTER SPAN
CAST IN PLACE BARRIER RAIL DETAILS

STATION: 1655+40.00 (C 1-29) SEPTEMBER, 1989

HARRISON COUNTY

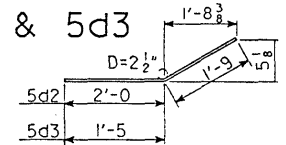
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 1 OF 1 FILE NO. 27886 DESIGN NO. 1289

EPOXY REINFORING STEEL-TWO RAILS						
BAR	LOCATION	SHAPE	NO.	LENGTH	LIN. FT.	WEIGHT
6c1	RAIL, VERTICAL		366	2'-5"	885	1329
6c2	END SECTION, VERTICAL		20	3'-6"	70	105
6c3	END SECTION, VERTICAL		24	2'-6"	60	90
5d1	RAIL, LONGITUDINAL		32	30'-9"	984	1026
5d2	END SECTION, LONGIT.		16	3'-9"	60	63
5d3	END SECTION, LONGIT.		8	3'-2"	25	26
TOTAL (LBS.)						2639

BENT BAR DETAILS

5d2 & 5d3



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

CONCRETE PLACEMENT SUMMARY

SECTION	TOTAL
STANDARD SECTION 229.0' AT 0.057 CU. YDS. PER LIN. FT	13.1
END SECTIONS, 4 AT 0.32 CU. YDS. PER SECTION	1.3
TOTAL (CU. YDS.)	14.4

TOTAL ESTIMATED QUANTITIES- TWO RAILS

ITEM NO.	ITEM	UNITS	QUANTITY
1	CONCRETE BARRIER RAIL - CAST IN PLACE	LIN. FT.	243.0
2	REMOVAL OF EXISTING HANDRAIL	L.S.	LUMP SUM

ITEM NO.

ESTIMATE REFERENCE INFORMATION

1 INCLUDES 14.4 CU. YDS. OF CLASS D CONCRETE AND 2639 LBS. OF EPOXY COATED REINFORCING STEEL. REINFORCING STEEL COMPRISED OF 1069 L.F. OF #5 BAR & 1015 L.F. OF #6 BAR.

DESIGN HISTORY AT THIS SITE

DES. NO.	TYPE OF WORK
1965	ORIGINAL DESIGN
1289	CAST IN PLACE BARRIER RAIL

LOCATION:

MAINTENANCE NO. 4386.5L029
HARRISON COUNTY
T-79N R-45W
CLAY TWP.
SECTION 12
SOUTHBOUND I-29 OVER
BURCHAM DITCH

DESIGN NO. 192
FILE NO. 28374
DES. SH. NO. 4 OF 9

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

CAST IN PLACE BARRIER RAIL

STANDARD SHEET 1031E

HARRISON COUNTY

PROJECT NUMBER

IR-29-5(59)86-12-43

STATE
IOWA

FHW
7

FISCAL
YEAR

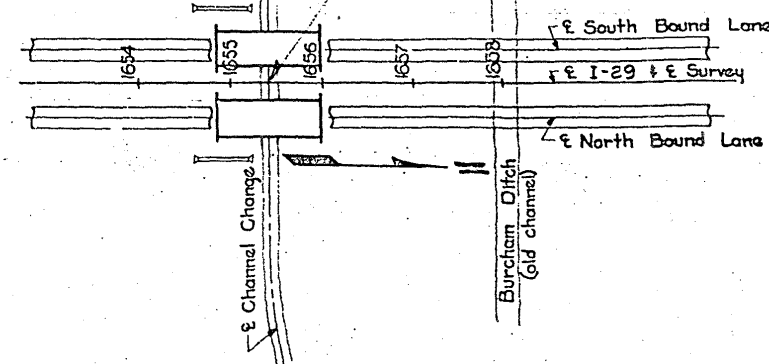
SHEET
NO.

TOTAL
SHEETS

H431289.1 DEVICE: ZGAI(200,003) ARCH. TAPE NO. DATE

Sheet 6 of 15

Station 1655+40 Proposed
Twin 115'x39' Continuous Concrete
Slab Bridge



GENERAL PLAN
Scale 1" = 100'-0"

GENERAL NOTES:

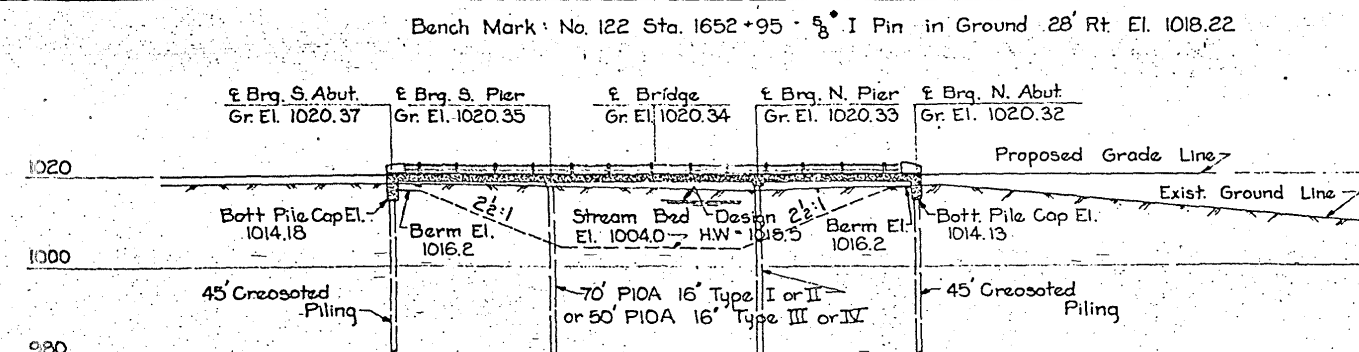
These bridges are designed for H20-S16-44 loading and alternate loading designated in B.P.R. PPM 20-4, Section 4c, plus an allowance of 19 lbs. per sq. ft. of roadway for future wearing surface.

The Bridge Contractor is to install the 4" tile subdrain behind each abutment as shown on the Situation Plan. The price bid for tile subdrain is to include the excavation necessary for installation.

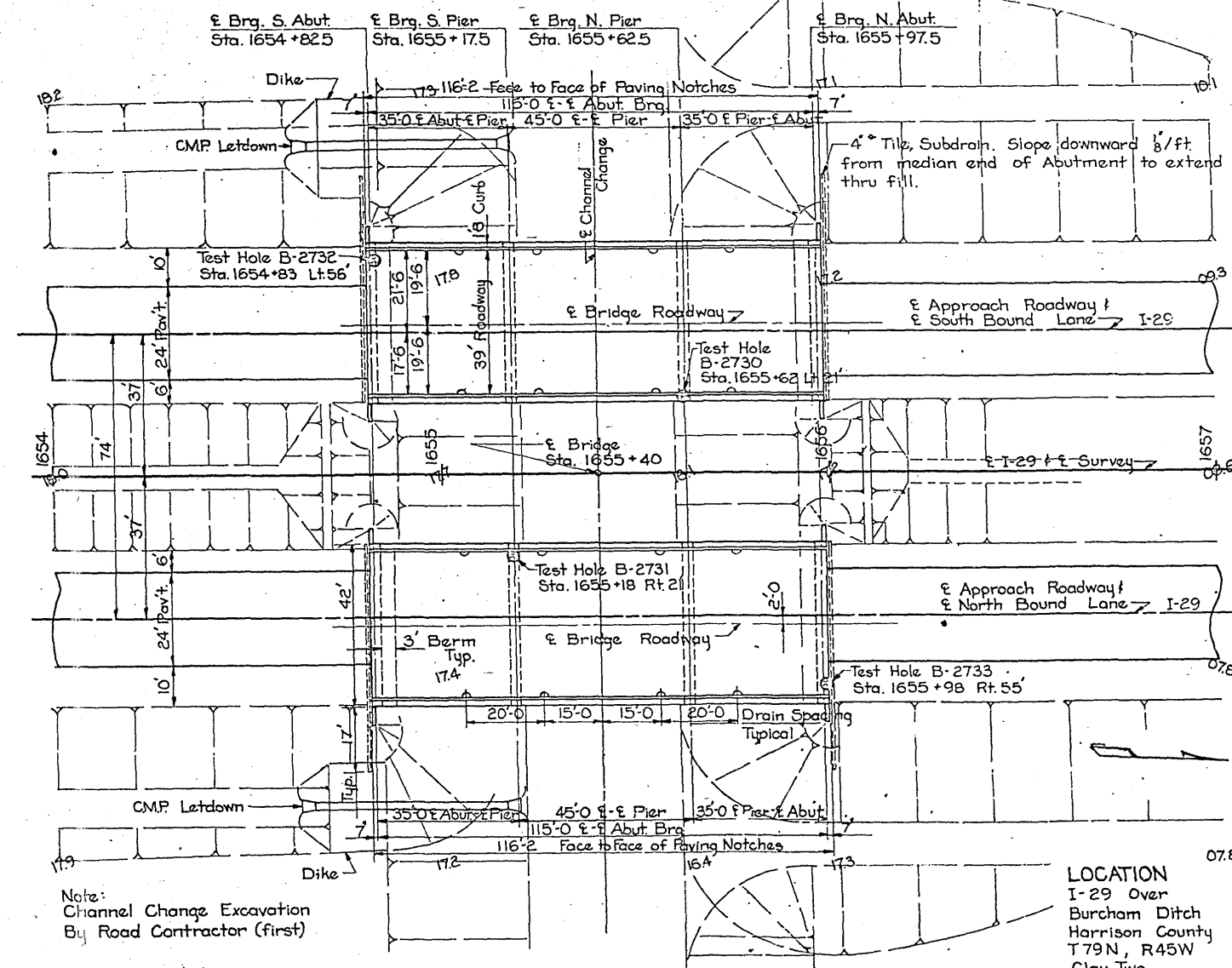
The approach fills are not a part of this contract but are to be in place and compacted before abutment piles are driven. The Bridge Contractor is to level off and shape the berms to the elevations and dimensions shown.

GRADE DATA

-0.04%



LONGITUDINAL SECTION ALONG ROADWAY
Scale 1" = 20'-0"



Note:
Channel Change Excavation
By Road Contractor (first)

HYDRAULIC DATA
Drainage Area = 5250 AcF
Design Q = 1500 cfs

SITUATION PLAN
Scale 1" = 20'-0"

TWIN 115'x39' CONTINUOUS CONCRETE SLAB BRIDGE

35'-0" End Spans 45'-0" Center Span
Concrete Floor & Substructure Tubular Handrail
GENERAL & SITUATION PLANS
Station 1655+40 Proj. N° I-16-29-5(9)85-43-9
HARRISON COUNTY

Iowa State Highway Commission
January 1966

Design N° 1965 Harrison County File N° 20677
Detailed & Traced by: RLO Checked by: WAL

144,006

TOTAL ESTIMATED QUANTITIES			
Item	2 Superstr.	4 Abuts.	Total
Structural Concrete Class D	642.2	652	707.4 cy.
Reinforcing Steel	130,854	13,152	143,006 lbs.
Aluminum Handrail			434.6 LF
Steel Handrail			434.6 LF
Granular Backfill		140	140 cy.
4" Tile Subdrain			236 LF
Crenosoted Piling		40 @ 45'	1800 LF
Class 20 Excavation		128	128 cy.
16" P10A	Type Furnish	40 @ 70'	2800 LF
Piling	Type II Drive	40 @ 70'	2800 LF
	Type III or IV	40 @ 50'	2000 LF

DESIGN STRESSES:

Design stresses for the following material are in accordance with A.A.S.H.O. Standard Specifications for Highway Bridges, Series of 1961.
Reinforcing Steel in accordance with Section 1.4.12 "Reinforcement" for Intermediate, Hard or Rail steel grade.
Concrete in accordance with Section 1.4.11.
f'c = 3500 psi.

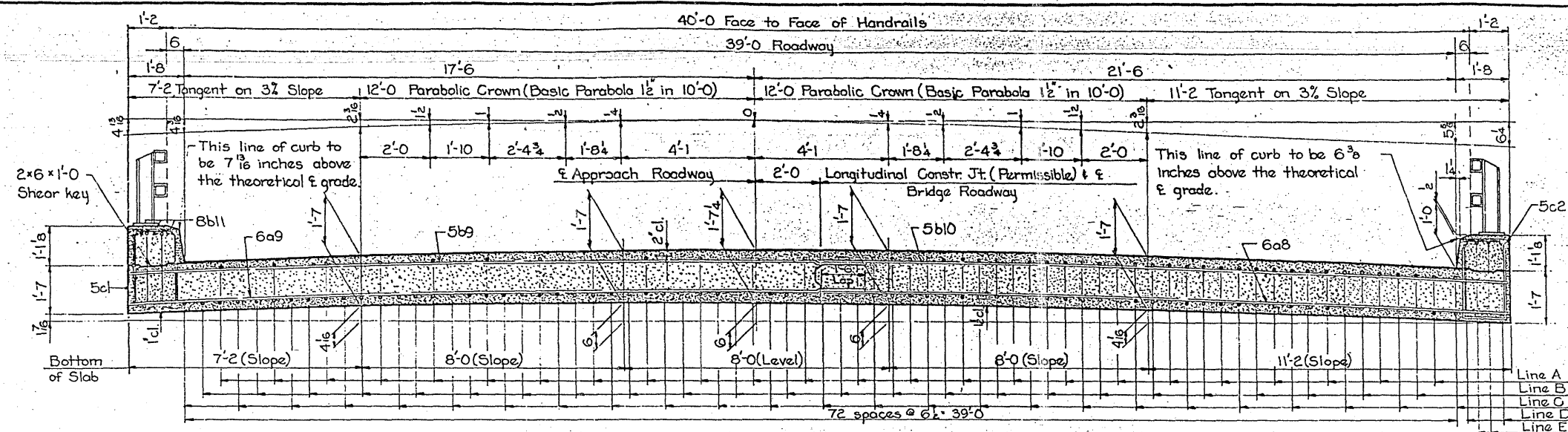
SPECIFICATIONS:

Design - A.A.S.H.O. Series of 1961.
Construction - Standard Specifications of the I.S.H.C. series of 1964, plus current special provisions and supplemental specifications.

THIS SHEET FROM ORIGINAL
DESIGN IS INCLUDED FOR
INFORMATION ONLY.

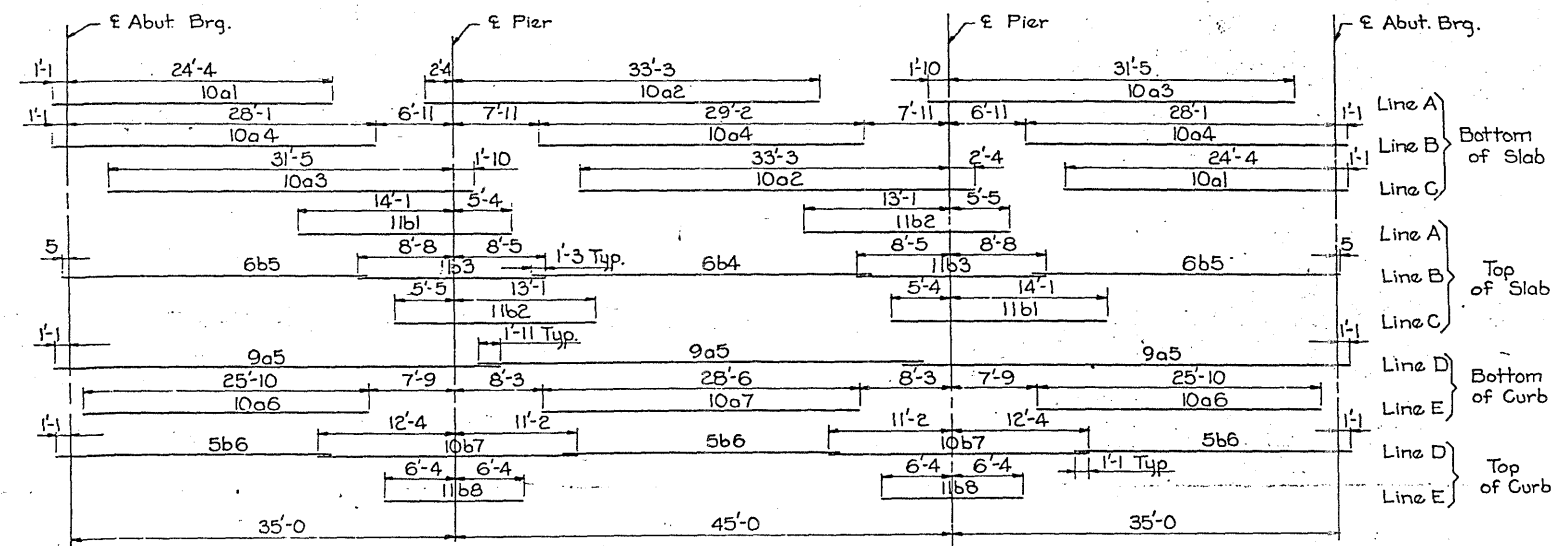
Revised 8-31-66 Reinforcing
Steel Quantity Changed

DESIGN NO. 192
FILE NO. 28374
DES. SH. NO. 5 OF 9

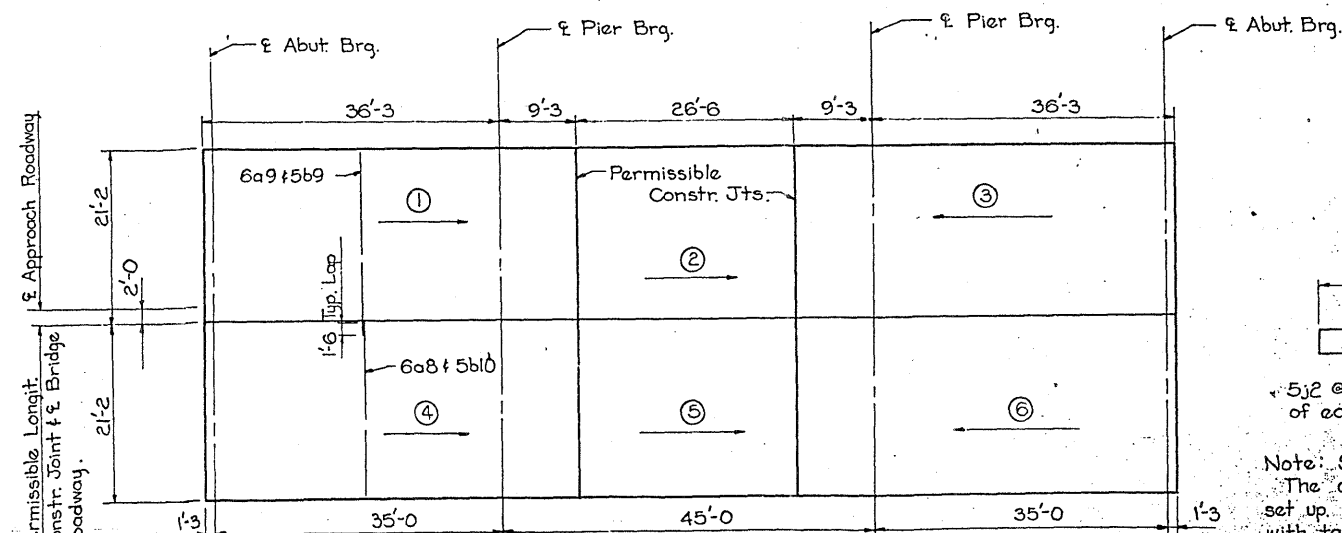


HALF SECTION NEAR ABUTMENT

HALF SECTION NEAR PIER

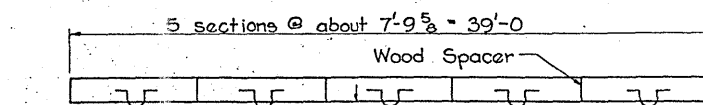
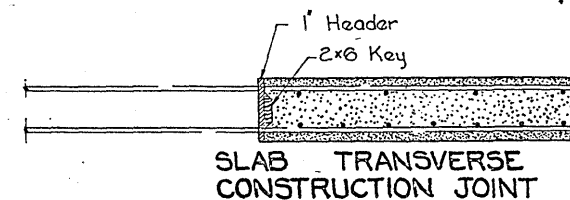


PLACEMENT FOR LONGITUDINAL REINFORCEMENT



CONCRETE PLACEMENT DETAILS
(Showing typical slab transverse bar placement)

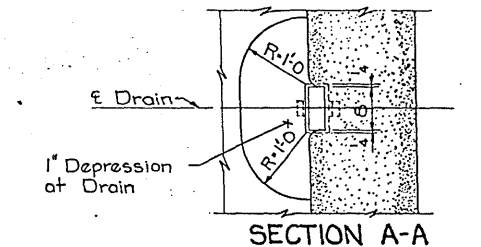
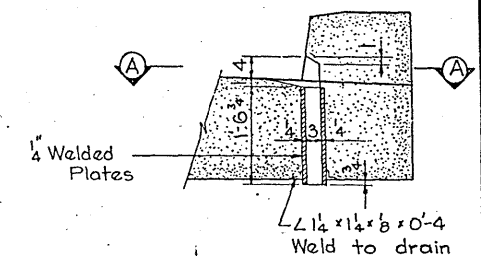
Revised 6-31-66: bar 8b11 added



PLAN OF PAVING BLOCK

Note: See Superstructure Reinforcing Bar List for bar details.
The concrete paving block is to be placed after the slab & curb have set up. Bend down 5j1 bars (structural grade) and line the notch with tar paper to prevent bond. The block is to be removed and the bars straightened as shown on the Longitudinal Section Near Curb on Sheet N° 4 before paving is poured.

CONCRETE PLACEMENT QUANT.	
Sections 1 & 3 2 @ 59.3	118.6 cy.
Sections 4 & 6 2 @ 59.1	118.2 cy.
Section 2 33.1	33.1 cy.
Section 5 33.0	33.0 cy.
Curbs 2 @ 7.4	14.8 cy.
End Posts	1.5 cy.
Pavement Block	1.9 cy.
Total	321.1 cy.



FLOOR DRAIN DETAILS

16 Drains required, WT = 32 lbs. each.
For location of drains see Situation Plan on sheet 1. Cost of drains to be included in price bid for concrete. A 4x8 outside dimension rolled tube with 1/4 walls may be substituted for the welded drain shown above.

THIS SHEET FROM ORIGINAL DESIGN IS INCLUDED FOR INFORMATION ONLY.

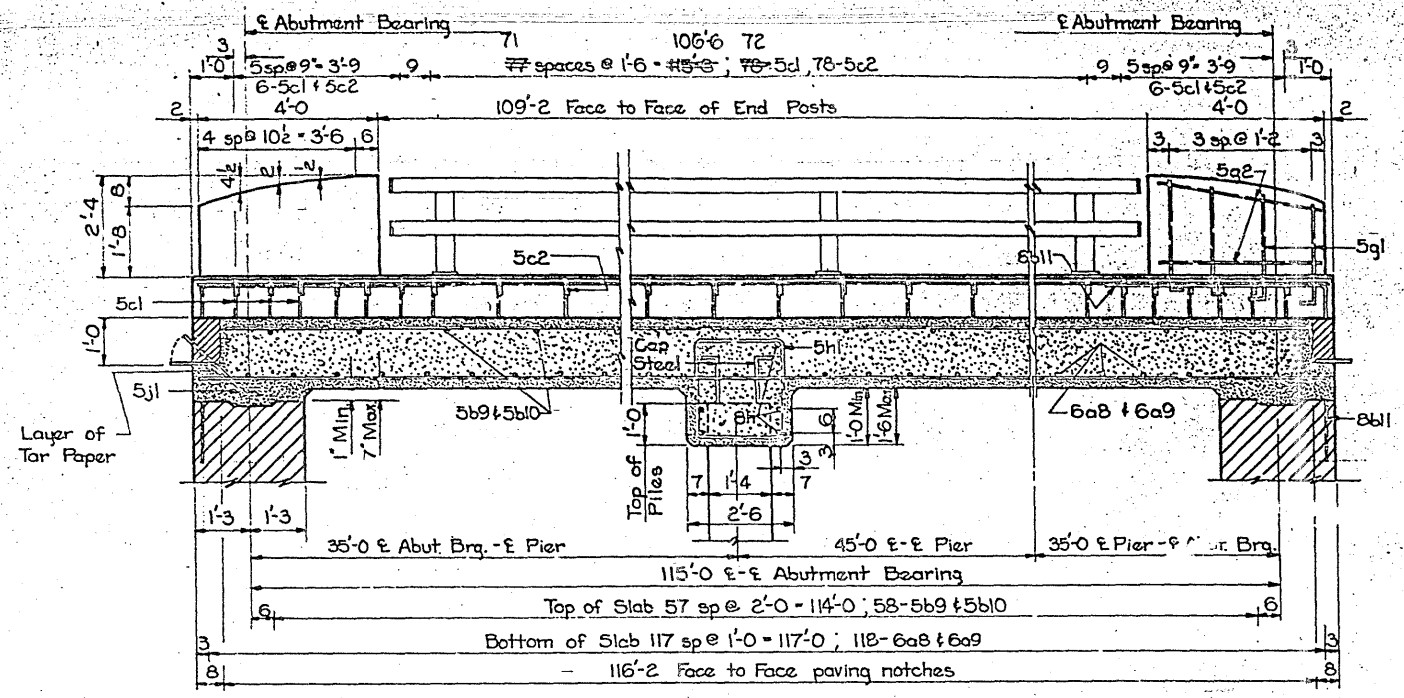
Design for
TWIN 115' x 39' CONTINUOUS CONCRETE SLAB BRIDGE

35'-0" End Spans 45'-0" Center Span
Concrete Floor & Substructure Tubular Handrail
SUPERSTRUCTURE DETAILS
Station 1655+40 Proj. N° 1-16-29-5(9)85**43-9
HARRISON COUNTY
Iowa State Highway Commission
January 1966 Sheet 3 of 6

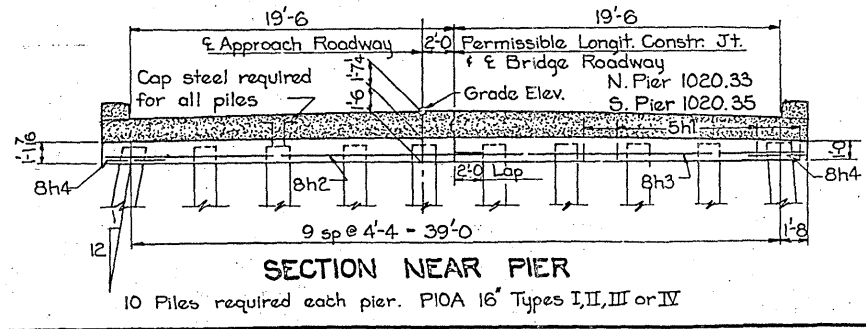
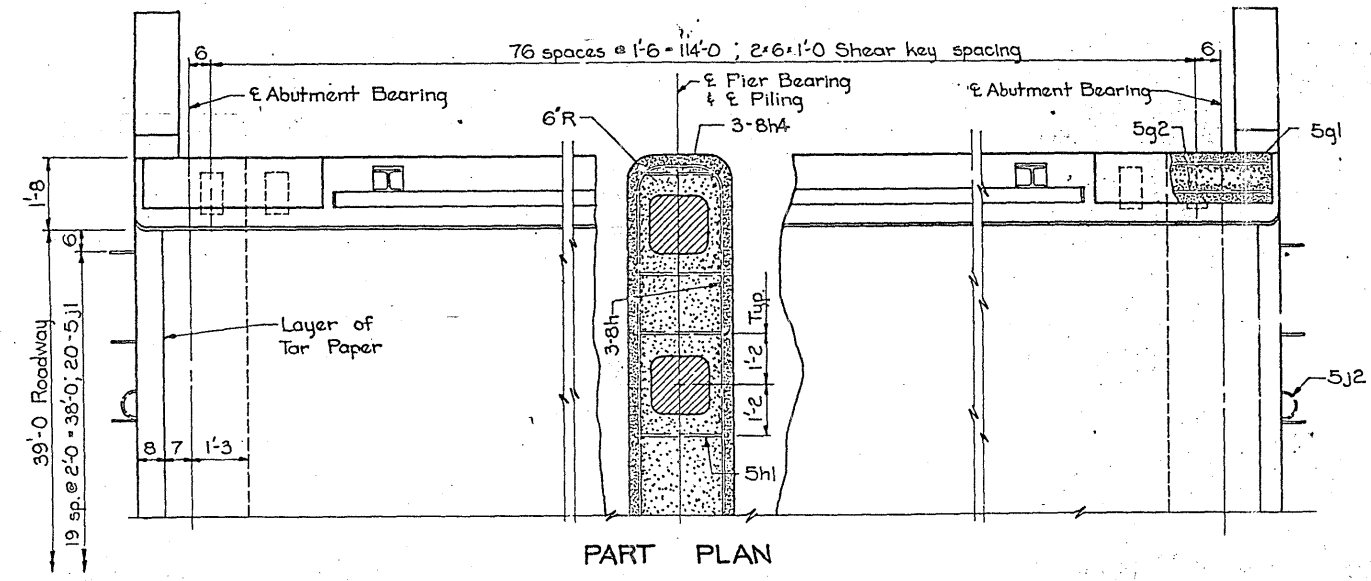
Design N° 1965 Harrison County File N° 20677
Sheet 8 of 15

Detailed by: *SW* Traced by: *SW* Checked by: *WAL*

Bench Mark: N° 122 Sta. 1652+95 - 8' 1 Pin In Ground 28 Rt. El. 1018.22



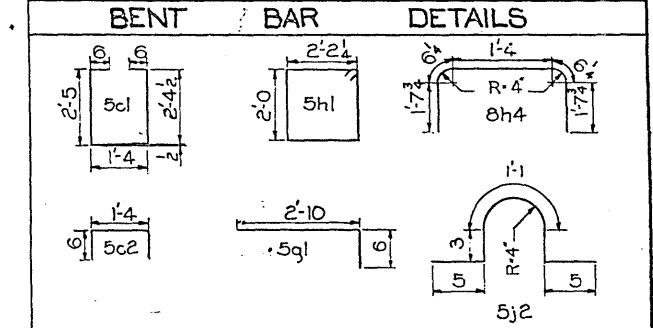
LONGITUDINAL SECTION NEAR CURB
Note: For rail post spacing see Sheets 5f & 6



Note:
Drive the Pier Piles to full penetration if practicable, but to not less than 36 tons bearing capacity. The Pier Piles are to be 16" concrete trestle piles (Type I, II, III or IV) as detailed on I.S.H.C. Standard P10A dated June 1959.
Cap steel is required and shall be included in the price bid for piling.

SUPERSTRUCTURE NOTES:
This bridge is designed for H20-S16-44 loading and the alternate loading designated in B.P.R. PPM 2A-4 Section 4c, plus an allowance of 19 lbs. per sq. ft. of roadway for future wearing surface.
The floor slab as shown includes 1/2" of wearing surface.
All exposed corners of 90° or sharper are to be filleted with a 3/4" dressed and beveled strip.
All reinforcing is to be securely wired in place and adequately supported on bar chairs spaced at not over 3'-0" centers longitudinally and transversely before concrete is placed.
Minimum clear distance from face of concrete to near reinforcing bar shall be 1 1/2" unless otherwise noted or shown.
Curbs are to be placed while the slab is supported by falsework. Each curb may be placed in one continuous pour. Falsework shall not be removed until curbs have developed a modulus of rupture of 600 p.s.i. or more.
The slab is to be placed in the sections as shown Sheet N° 3 and in the order indicated by the circled numbers. The arrows indicate the direction of pour. The interval between placing sections shall preferably not exceed 24 hours. Alternate procedures for placing slab concrete may be submitted for approval, together with a statement of the proposed method, and evidence that the contractor possesses the necessary equipment and facilities to accomplish the required results.

REINFORCING STEEL-ONE SUPERSTRUCTURE					
Bar	Location	Shape	No	Length	Weight
10a1	Bottom of Slab Longit.	---	49	25'-5"	5359
10a2	"	---	49	35'-7"	7500
10a3	"	---	49	33'-3"	7009
10a4	"	---	72	29'-2"	9036
9a5	Bottom Curb Longit.	---	12	40'-4"	1646
10a6	"	---	8	25'-10"	889
10a7	"	---	4	28'-6"	491
6a8	Bottom Slab Transverse	---	118	20'-10"	3692
6a9	"	---	118	22'-8"	4017
11b1	Top Slab Longit.	---	49	19'-5"	5055
11b2	"	---	49	18'-6"	4816
11b3	"	---	48	17'-1"	4357
6b4	"	---	24	30'-8"	1105
6b5	"	---	48	28'-0"	2019
5b6	"	---	12	24'-10"	311
10b7	"	---	8	23'-6"	309
11b8	"	---	8	12'-8"	538
5b9	Top Slab Transverse	---	58	22'-8"	1371
5b10	"	---	58	20'-10"	1260
5c1	Curb Hoops	168	158	6'-92"	1106
5c2	"	168	158	2'-2"	352
5g1	End Post Vertical	---	32	3'-3"	108
5g2	"	---	16	3'-8"	61
5h1	Pier, Drop Panel Hoops	---	40	9'-1"	379
8h2	"	---	12	22'-8"	726
8h3	"	---	12	20'-4"	650
8h4	"	---	12	5'-8"	181
5j1	Pavement Dowels	---	40	2'-0"	83
5j2	"	---	10	2'-3"	23
8b11	Top Curb Longit.	---	12	11'-5"	366
*Structural Grade				Total	65427
					64949



Note: All dimensions are out to out. Radii to E Bar

SUPERSTRUCTURE QUANT.-ONE BRIDGE		
Item	Amount	
Structural Concrete Class D	3211	cu.
Reinforcing Steel	65427	lbs.
16" P10A Piling	Type I, II or Type III, IV	Furnish 20 @ 70' Drive 20 @ 70' 1,400 L.F. 1,400 or L.F. 1,000 L.F.

THIS SHEET FROM ORIGINAL DESIGN IS INCLUDED FOR INFORMATION ONLY.

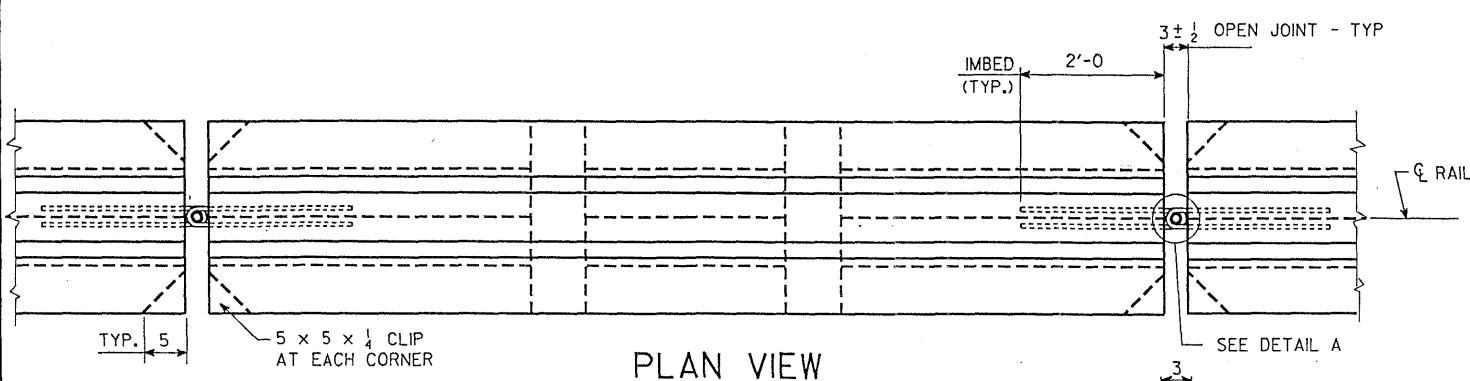
Revised 8-31-66: bar 8b11 and additional 5c1 & 5c2 added, Quantity Changed.

DESIGN NO. 192
FILE NO. 28374
DES. SH. NO. 7 OF 9

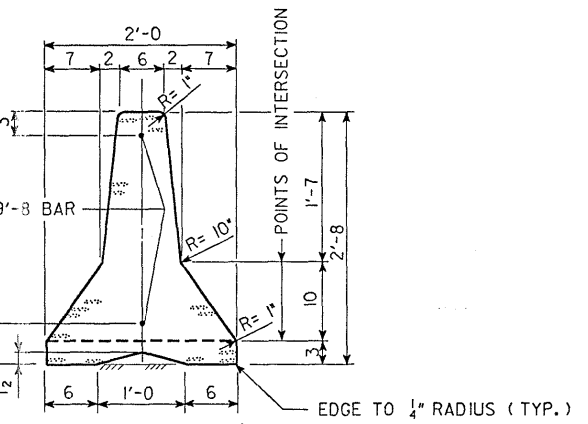
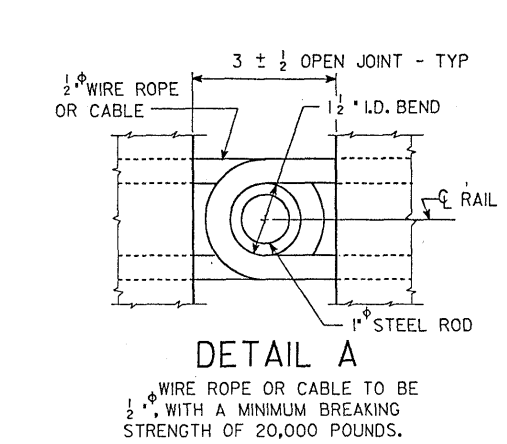
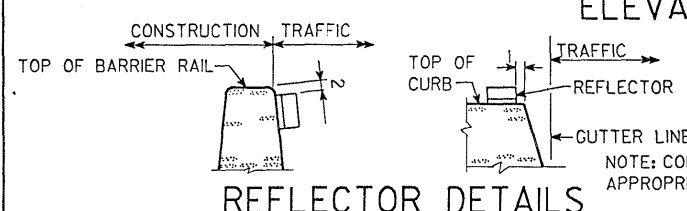
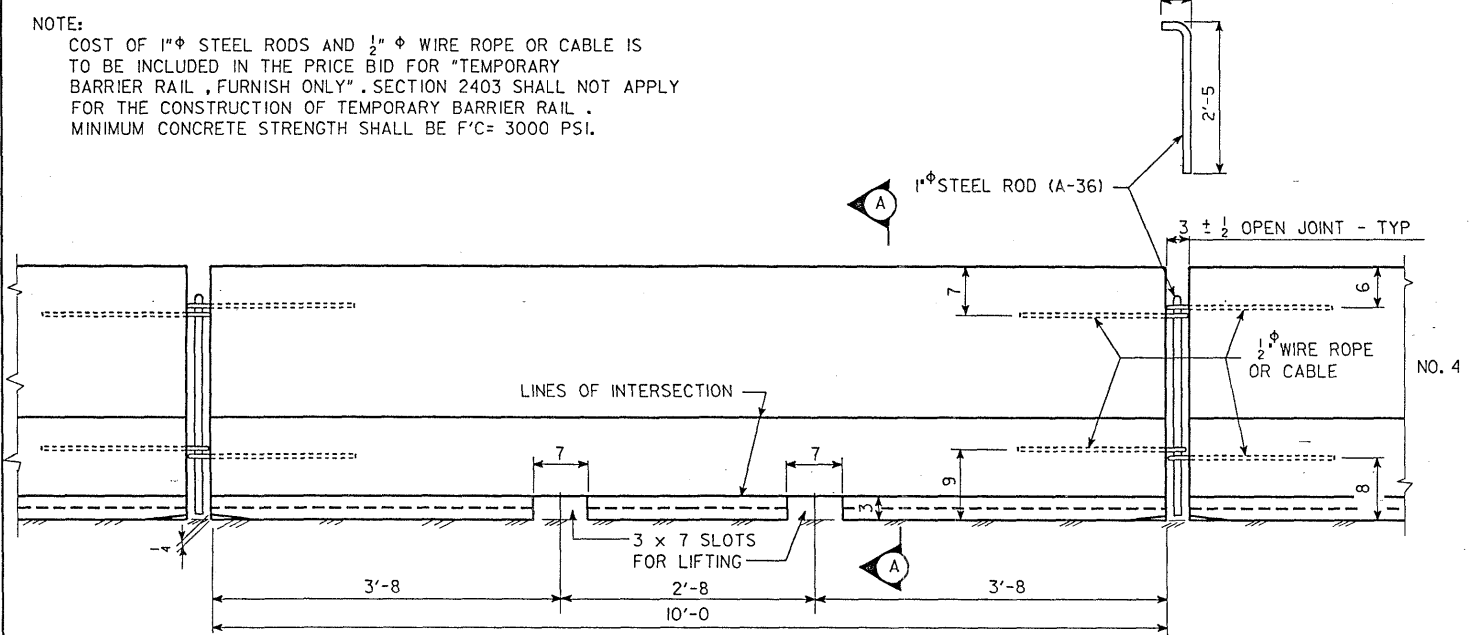
Design for
TWIN 115' x 39' CONTINUOUS CONCRETE SLAB BRIDGE
35'-0" End Spans 45'-0" Center Span
Concrete Floor & Substructure Tubular Handrail
SUPERSTRUCTURE DETAILS
Station 1655+40 Proj. N° I-IG-29-5(9)85 **43-9
HARRISON COUNTY
Iowa State Highway Commission
January 1966
Design N° 1965- Harrison County File N° 20677
Sheet 9 of 15

Detailed & Traced by: *AW* Checked by: *WAL*

REVISIONS: DIMENSION D AND NO. OF BARRIER RAIL SECTIONS CHANGED, TAPE NO. 9, DATED 7-3-90.
REVISED 1-17-89: BARRIER RAIL LAYOUT CHANGED, DEVICE:ZHAQ:(200,004) ARCH. TAPE NO. 10, DATE 1-25-89.
HSTD01032.S01--LEP: THIS SHEET REDRAWN, DEVICE:ZHAQ:(200,004) ARCH. TAPE NO. 15, DATE 9-8-88.



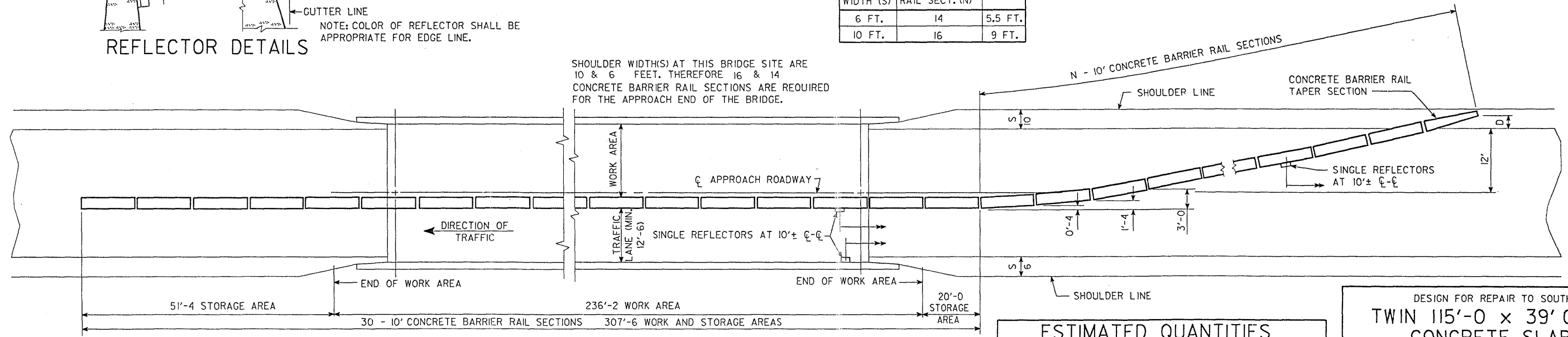
NOTE:
COST OF 1" ϕ STEEL RODS AND 1/2" ϕ WIRE ROPE OR CABLE IS TO BE INCLUDED IN THE PRICE BID FOR "TEMPORARY BARRIER RAIL, FURNISH ONLY". SECTION 2403 SHALL NOT APPLY FOR THE CONSTRUCTION OF TEMPORARY BARRIER RAIL. MINIMUM CONCRETE STRENGTH SHALL BE F'C= 3000 PSI.



SECTION A-A
CONTRACTOR MAY ADD EXTRA REINFORCING BARS TO INCREASE THE SERVICE LIFE OF THE RAIL SECTIONS.

SHOULDER WIDTH (S)	NO. OF BARRIER RAIL SECT. (N)	D
6 FT.	14	5.5 FT.
10 FT.	16	9 FT.

SHOULDER WIDTH(S) AT THIS BRIDGE SITE ARE 10 & 6 FEET. THEREFORE 16 & 14 CONCRETE BARRIER RAIL SECTIONS ARE REQUIRED FOR THE APPROACH END OF THE BRIDGE.



TEMPORARY CONCRETE BARRIER RAIL LAYOUT FOR ONE WAY TRAFFIC

ESTIMATED QUANTITIES	
ITEM	AMOUNT
TEMPORARY BARRIER RAIL, FURNISH ONLY	460 L.F.
TEMPORARY BARRIER RAIL, PLACE ONLY	900 L.F.

ITEM REFERENCE:
ALL TEMPORARY BARRIER RAIL SHALL BE NOMINAL 10' LONG CONCRETE UNITS.

DESIGN FOR REPAIR TO SOUTHBOUND LANE OF
TWIN 115'-0 x 39' CONTINUOUS CONCRETE SLAB BRIDGE
35'-0 END SPANS 45'-0 CENTER SPAN
TEMPORARY BARRIER RAIL-CONCRETE
STATION: 1655+40.00 (1-29) AUGUST, 1991
HARRISON COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
DESIGN SHEET NO. 8 OF 9 FILE NO. 28374 DESIGN NO. 192

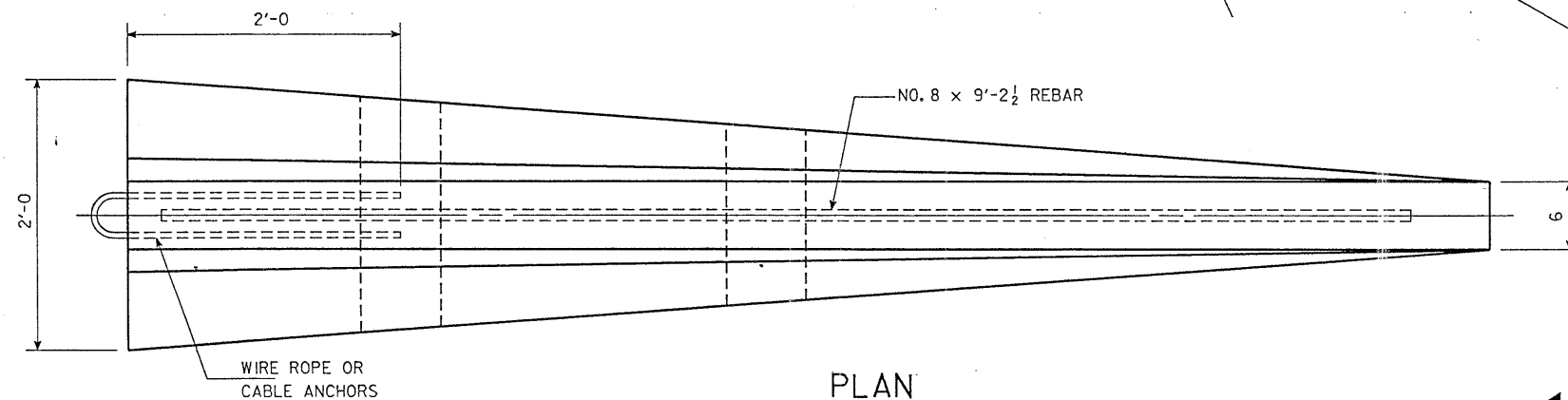
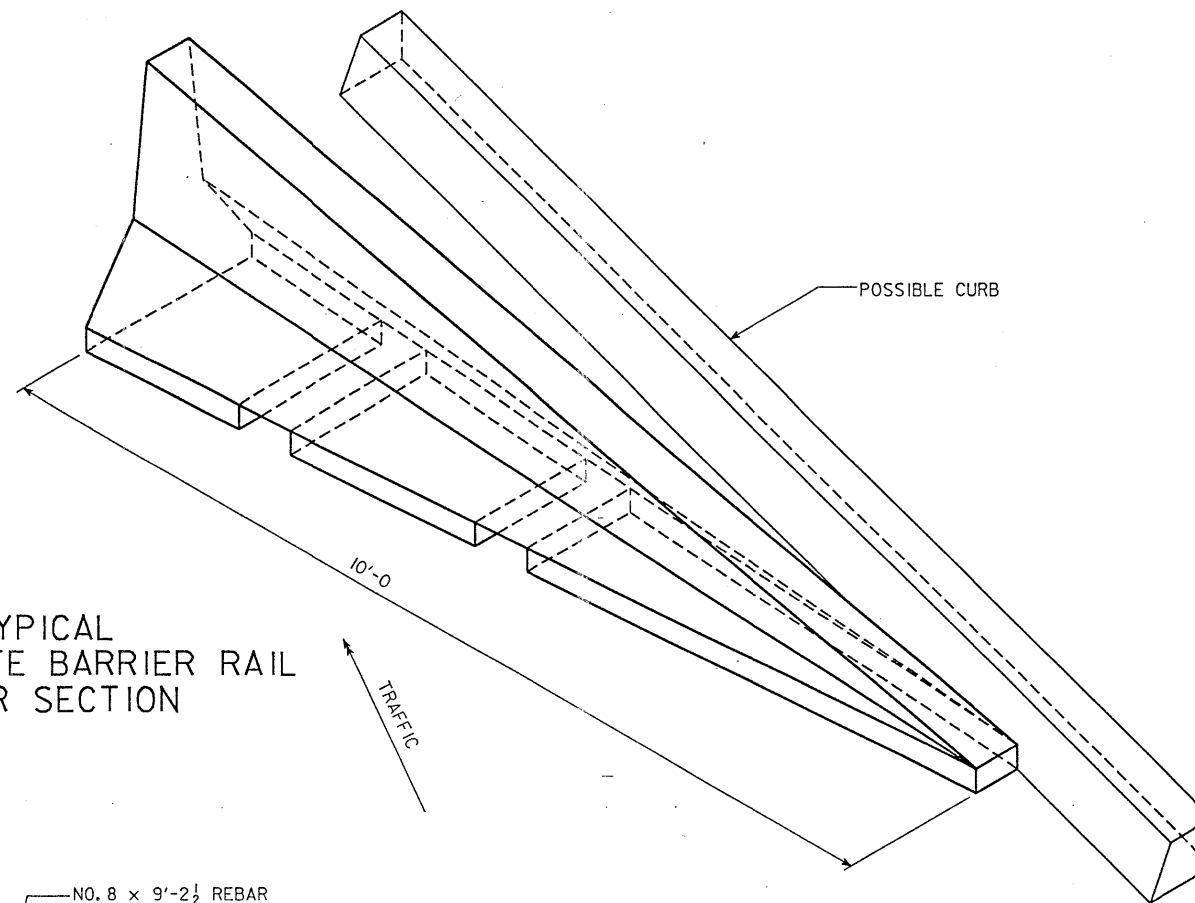
STATE	FWA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	7		10	15

GENERAL NOTES:

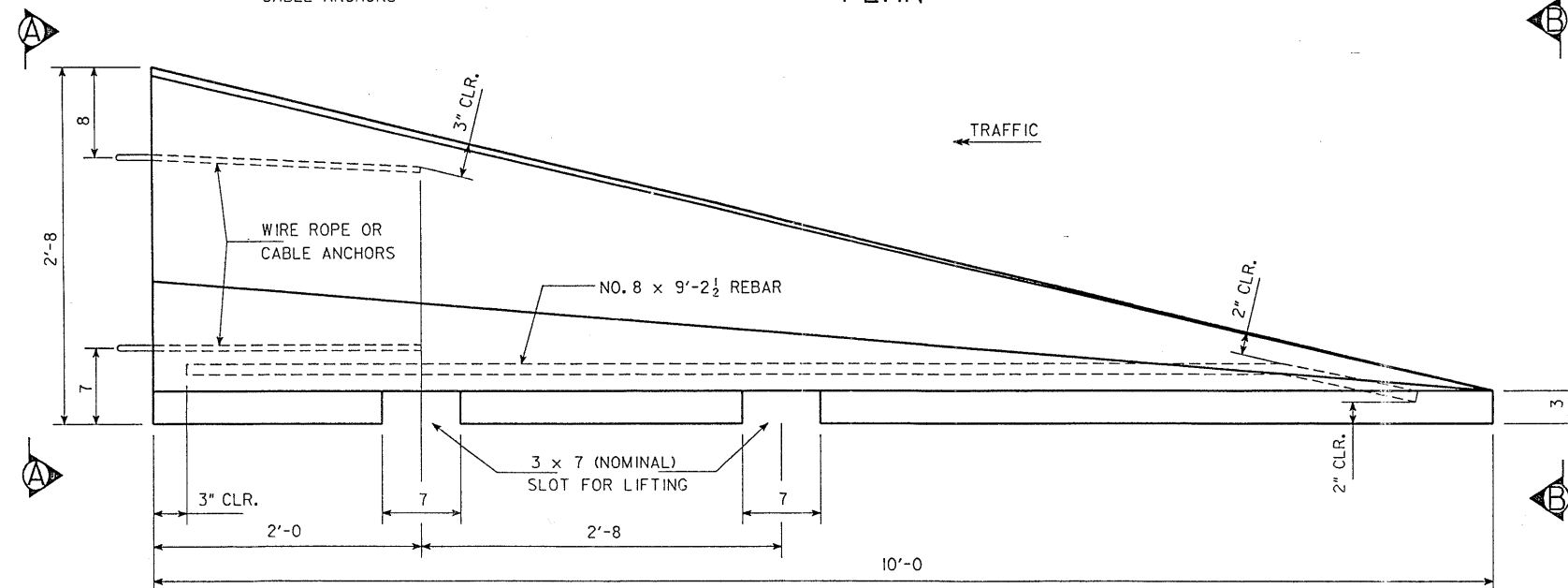
DETAILS SHOWN HEREON ARE FOR THE CONSTRUCTION OF A PRECAST CONCRETE BARRIER RAIL TAPER SECTION. DETAILS SHOWN ARE TYPICAL. ALTERNATE DESIGN DETAILS MAY BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO CONSTRUCTION.

CONCRETE SHALL BE CLASS "D" STRUCTURAL CONCRETE PLACED AND FINISHED IN CONFORMANCE WITH CURRENT STANDARD SPECIFICATIONS FOR "STRUCTURAL CONCRETE". APPROXIMATELY 0.486 CU. YDS. OF CLASS "D" STRUCTURAL CONCRETE WILL BE REQUIRED FOR EACH TAPER SECTION.

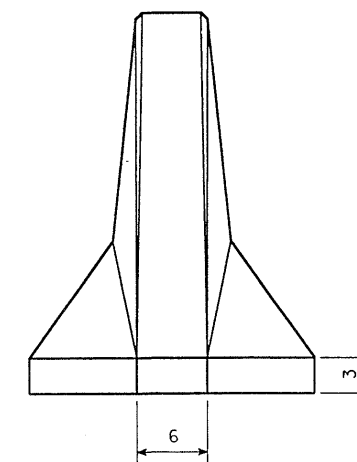
TYPICAL CONCRETE BARRIER RAIL TAPER SECTION



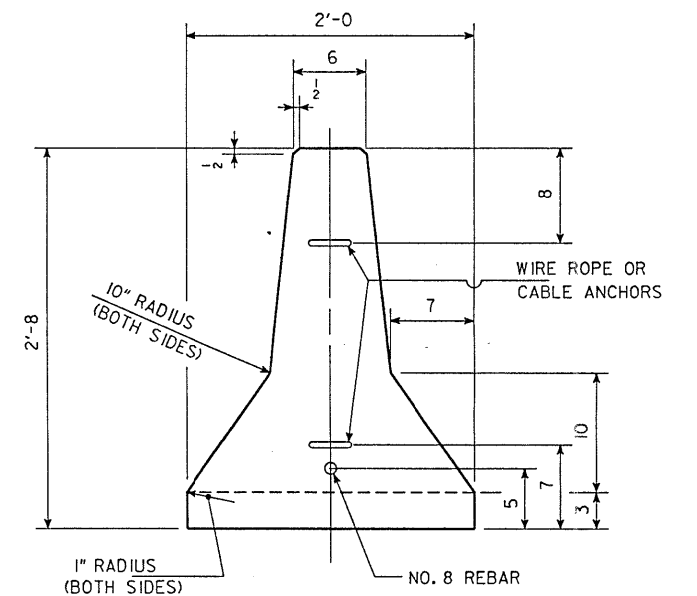
PLAN



SIDE ELEVATION



FRONT VIEW B-B



END VIEW A-A

DESIGN FOR REPAIR TO SOUTHBOUND LANE OF				
TWIN 115'-0 x 39' CONTINUOUS				
CONCRETE SLAB BRIDGE				
35'-0 END SPANS		45'-0 CENTER SPAN		
CONCRETE BARRIER RAIL TAPER SECTION				
STATION: 1655+40.00 (1-29)			AUGUST, 1991	
HARRISON COUNTY				
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION				
DESIGN SHEET NO. <u>9</u> OF <u>9</u>		FILE NO. <u>28374</u>		DESIGN NO. <u>192</u>
STATE	FHWA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	7		11	15

DESIGNED BY S.K.GUPTA
 TRACED BY C.E.COLE
 CHECKED BY D.J.HEER

CONCRETE BARRIER RAIL TAPER SECTION

1034B
 ISSUE DATE 10/89

HARRISON COUNTY

PROJECT NUMBER

H43192.S04 DEVICE : ZGAI:200,003JARCH. TAPE No. DATE

HSTD 1034B--GJP: THIS SHEET ISSUED, DEVICE : ZGAI:200,003J ARCH. TAPE NO. 9 DATE 10-12-89

TRAFFIC CONTROL PLAN108-2311-10-83

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/or appropriate Detail Sheets (if included in the plans). 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 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.

EROSION CONTROL (Incidental):

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 or Fawn per 1000 sq. ft.

FERTILIZER:

17 lbs of 13-13-13 (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, fertilizer, and mulch to all disturbed areas on this project shall be considered incidental to work on this project and no extra compensation will be allowed.

04-04-89213-1

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.

10-02-90213-7

Unless otherwise directed or authorized, all asphaltic cement concrete and other bituminous materials which are not specifically addressed or described in the plans shall become the property of the contractor.

The contractor in accordance with current rules and regulations of the Iowa Department of Natural Resources may:

1. With the approval of the Engineer, blend or otherwise process the material for use with shoulder or special backfill aggregate, for use on the project.

2. With the approval of the Engineer, place with material in areas designated by the Engineer as Soil Aggregate Subbase without extra charge.

3. Remove the material from the project and stockpile for the contractor's future use.

4. Dispose of in a licensed landfill.

1-20-84221-4

In order to avoid any unnecessary surface breaks or premature spalling, the contractor is cautioned to exercise extreme care when performing any of the necessary saw-cutting operations for the proposed pavement removal.

1-20-84261-1

Where public utility fixtures are shown as existing on the plans or encountered within the construction area, it shall be the responsibility of the contractor to notify the owners of those utilities prior to the beginning of any construction. The contractor shall afford access to these facilities for necessary modification of services. Underground facilities, structures and utilities have been plotted from available surveys and records, and therefore their locations must be considered approximate only. It is possible there may be others, the existence of which is presently not known or shown. It is the contractor's responsibility to determine their existence and exact location and to avoid damage thereto. No claims for additional compensation will be allowed to the contractor for any interference or delay caused by such work.

ESTIMATE REFERENCE INFORMATION100-411-10-83

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

ITEM NO.

DESCRIPTION

1-2. See Standard Road Plan RK-17, Estimated for 3 panels per side of the bridge. (39'X 20', 24'X 20', and 24'X 20')

3. See Tab.108-22 and 521-20 detail sheet for more information.

4. See detail sheet 521-20.

5. See detail sheets 570-2 and 521-20.

ESTIMATED ROADWAY QUANTITIES100-0001-20-84

NO.	ITEM	UNIT	TOTAL
1	Bridge Floor Overlay	Sq.Yds.	387
2	Class 'A' Bridge Floor Repair	Sq.Yds.	60
3	Pavement Markings	Sta.	92.47
4	Traffic Control	LumpSum	See TCP
5	Temporary Floodlighting	LumpSum	LumpSum

STANDARD ROAD PLANS105-406-17-77

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

NUMBER	DATE	NUMBER	DATE	NUMBER	DATE
RK-17	1-9-90				
RS-62	10-11-88				
RS-63A	8-8-89				
RH-51	10-02-90				
RH-52	10-02-90				

101-4

DESIGN DATA RURAL

1991 AADT 8130 V.P.D.

20 AADT V.P.D.

20 OHV V.P.H.

TRUCKS %

REGISTERED PROFESSIONAL ENGINEERJOHN R. ABRAMS7229IOWA

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 *7/5/91*