BRIDGE REPAIR
IM-29-5(70)75--13-43

HARRISON COUNTY

11-23-93 GAN 1393 HARRISON (ABRAMS)

CONVENTIONAL SIGNS

- DIVIDED HIGHWAY
- PAVED ROAD
- BITUMINOUS ROAD
- GRAVEL ROAD
- EARTH ROAD
- INTERSTATE HIGHWAY
- UNITED STATES HIGHWAY
- STATE HIGHWAY
- COUNTY HIGHWAY
- RAILROAD
- PIPLINE
- 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 REPAIR

ON I-29 OVER U.S.30 INTERCHANGE
WEST OF MISSOURI VALLEY

SCALES: As Noted

The standard specifications, series of 1992 of the Iowa Department of Transportation, shall apply to construction work on this project.
(PLUS CURRENT SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS)

Reduced 50%± Do Not Scale

STATE	FHWA REGION	F.Y.	SHEET	TOTAL
IOWA	7		1	30

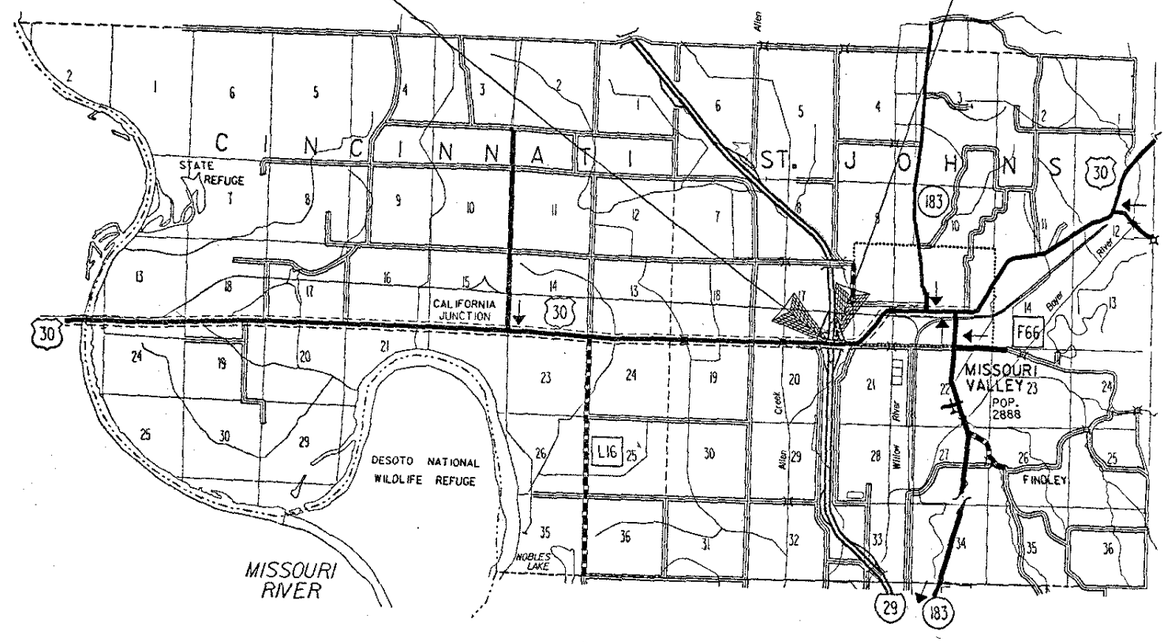
PROJECT NUMBER
IM-29-5(70)75--13-43
R.O.W. PROJECT NUMBER

PIN
92-43-010-1

NO.	INDEX OF SHEETS DESCRIPTION
1	TITLE SHEET
2	BRIDGE ESTIMATE SHEET FOR DESIGN 1393
2-13	BRIDGE DESIGN 1393
~~14~~	~~BRIDGE ESTIMATE SHEET FOR DESIGN 1593~~
~~14-23~~	~~BRIDGE DESIGN 1593~~
24	ROAD ESTIMATE SHEET
25-30	ROAD SHEETS

DESIGN NO. 1393 S.B. LANE

~~DESIGN NO. 1593 N.B. LANE~~



N
29-(75)-5

931426
011496
011497
011498
062
SJF

LOCATION MAP SCALE
0 1 Miles 2 3
1 2 3 4 5 Kilometers

VALUE ENGINEERING SAVES
REFER TO THE GENERAL NOTES ON SHEET 2 OF 30

STANDARD ROAD PLANS				STANDARD BRIDGE PLANS		
IDENT	DATE	IDENT	DATE	STANDARD	ISSUED	REVISED
RE-2A	2-17-87	RF-18E	2-23-93			
RE-2B	10-22-93	RH-50	6-15-93			
RE-7	4-28-92	RH-51	2-23-93			
RE-12A	10-11-88	RH-52	9-29-92			
RE-12B	1-9-90	RK-19A	9-29-92			
RE-47	11-10-87	RK-19F	2-23-93			
RE-48A	6-15-93	RL-11	10-11-88			
RE-52	10-22-93	RL-12	4-4-89			
RE-53	2-23-93	RS-62	2-23-93			
RE-65	1-7-92	RS-63A	9-29-92			
RE-67	7-16-91	RS-63B	9-29-92			
RE-68	8-8-89					
RE-69	10-22-93					

REVISIONS

Iowa Department of Transportation

AUTHORIZED FOR LETTING
George T. Sisson 9-21-93
DEPUTY CHIEF ENGINEER DATE

150

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 A Dougherty
Iowa Registration No. 4449 Date 9/20/93

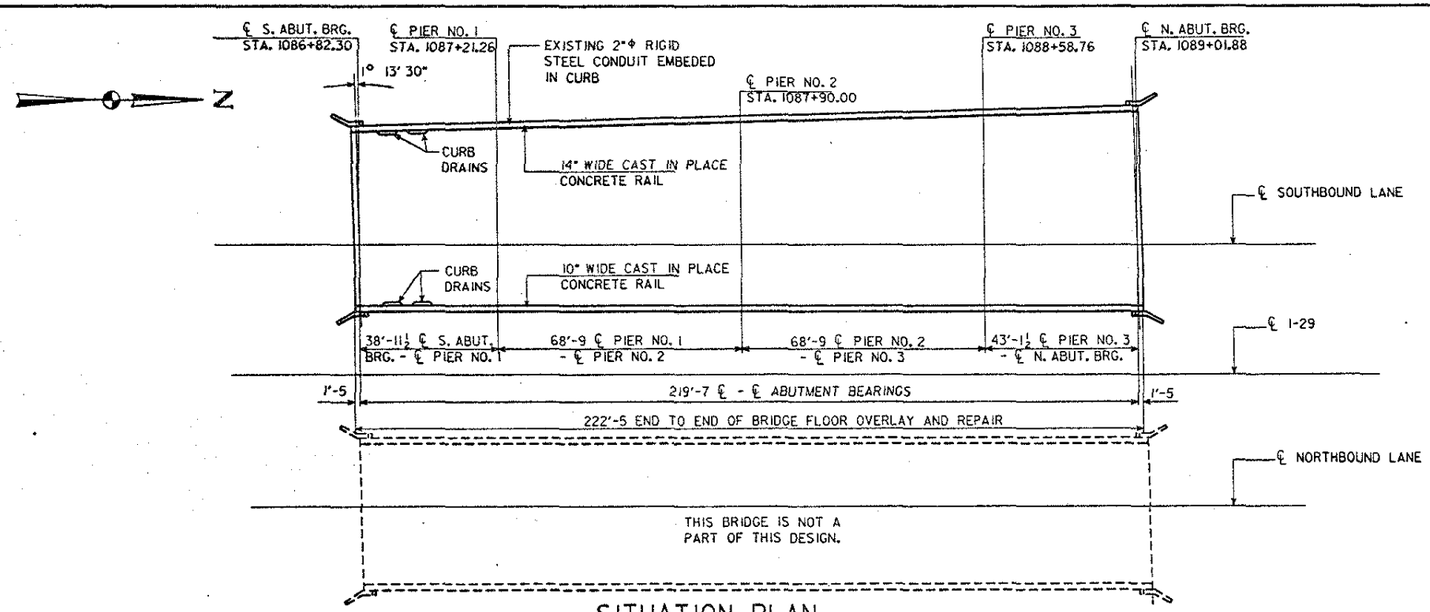
U.S. DEPARTMENT OF TRANSPO
FEDERAL HIGHWAY ADMINIS
APPROVED

FOR THE DIVISION ADMINISTRA

Over

LETTING DATE 11-23-93 STATE CONTROL SECTION NUMBER 43-0800 & 43-0900 STEVE FILE NO. 28688 HARRISON COUNTY PROJECT NO. IM-29-5(70)75--13-43 SHEET NO. 1

11-23-93 GAN 1393 HARRISON (ABRAMS)



SITUATION PLAN
(EXISTING GUARDRAIL NOT SHOWN)

TOTAL ESTIMATED BRIDGE QUANTITIES

ITEM NO.	ITEM	UNIT	QUANTITY
1	CLASS A BRIDGE FLOOR REPAIR	SQ. YD.	34
2	BRIDGE FLOOR OVERLAY	SQ. YD.	1342
3	TEMPORARY BARRIER RAIL - FURNISH ONLY	L. F.	590
4	TEMPORARY BARRIER RAIL - PLACE ONLY	L. F.	1160
5	CONCRETE BARRIER RAIL - CAST IN PLACE	L. F.	452.8
6	CURB DRAIN MODIFICATION	L. S.	LUMP SUM
7	REMOVAL OF EXISTING HANDRAIL	L. S.	LUMP SUM

ESTIMATE REFERENCE INFORMATION

ITEM NO.	
2	INCLUDES COST OF FURNISHING AND PLACING CONCRETE SEALER.
3 & 4	ALL TEMPORARY BARRIER RAIL SHALL BE NOMINAL 10' LONG CONCRETE UNITS.
5.	INCLUDES 33.3 CU. YDS. OF STRUCTURAL CONCRETE, 5012 LBS. OF EPOXY COATED REINFORCING STEEL, GALVANIZED STEEL PLATES, AND ANCHORAGE SYSTEM AS SHOWN ON DESIGN SHEET 9.
6.	INCLUDES 2.3 CU. YDS. OF STRUCTURAL CONCRETE, 674 LBS OF EPOXY COATED REINFORCING STEEL, 10" PVC DRAIN PIPE WITH ANCHORS, AND REMOVALS REQUIRED FOR DRAIN MODIFICATION.

GENERAL NOTES:

THIS DESIGN IS FOR REPAIR OF THE EXISTING 219'-7 x VARIABLE PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE ON SOUTHBOUND I-80. THE BRIDGE WAS ORIGINALLY BUILT UNDER DESIGN 465 HARRISON COUNTY. PLANS OF THE EXISTING STRUCTURES MAY BE OBTAINED AT THE AMES OFFICE OF THE IOWA D.O.T. - HIGHWAY DIVISION.

WORK SHALL CONSIST OF THE FOLLOWING:

1. CLASS A BRIDGE FLOOR REPAIR.
2. BRIDGE FLOOR OVERLAY.
3. REMOVING ALUMINUM HANDRAILS.
4. REMOVING CONCRETE END POSTS AT ALL FOUR CORNERS ON THIS BRIDGE.
5. PLACING CAST-IN-PLACE BARRIER RAILS.
6. *MODIFY EXISTING CURB DRAINS.*
7. REMOVE EXISTING GUARDRAIL
8. INSTALL NEW GUARDRAIL.
9. REMOVE EXISTING APPROACH PAVEMENTS ON BOTH ENDS OF BRIDGE.
10. CONSTRUCT NEW BRIDGE APPROACH PAVEMENTS ON BOTH ENDS OF BRIDGE.

PLAN QUANTITY OF FLOOR REPAIR IS BASED ON TWO TIMES THE SHADED AREAS SHOWN ON THE "SURVEY PLOT" IN THESE PLANS. SHADED AREAS 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.

PRESENT FLOOR THICKNESS IS ABOUT $6\frac{1}{16}$ INCHES. THE CONTRACTOR SHALL EXERCISE EXTREME CARE IN REMOVING CONCRETE IN ORDER TO PREVENT UNNECESSARY *UNBONDING OF REINFORCING* STEEL.

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

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 ½" 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.

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 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.

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.

UTILITY COMPANIES WHOSE FACILITIES ARE KNOWN TO BE WITHIN THE CONSTRUCTION LIMITS, SHALL BE NOTIFIED BY THE CONTRACTOR OF THE CONSTRUCTION STARTING DATE.

ALL REINFORCEMENT SUPPLIED FOR THIS STRUCTURE IS TO BE GRADE 60.

REINFORCING STEEL IS TO BE SECURELY WIRED IN PLACE BEFORE CONCRETE IS POURED.

THE PRICE BID FOR "REMOVAL OF EXISTING HANDRAIL" SHALL INCLUDE ALL *COSTS ASSOCIATED WITH DISMANTLING THE EXISTING ALUMINUM HANDRAIL* (APPROX. 427 L.F. AND 52 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.

IN ADDITION TO THE REQUIREMENTS OF ARTICLE 2413.09, BOTH ABUTMENT BRIDGE SEATS SHALL HAVE AN APPLICATION OF CONCRETE SEALER IN ACCORDANCE WITH SUB-ARTICLE 2403.21 (D).

THE CONTRACTOR IS ENCOURAGED TO TAKE FULL ADVANTAGE OF SPECIFICATION 1105.15 -- VALUE ENGINEERING INCENTIVE PROPOSAL. A PAMPHLET AND CONCEPTUAL PROPOSAL FORM WILL BE AVAILABLE AT THE PRECONSTRUCTION CONFERENCE.

SPECIFICATIONS:

CONSTRUCTION: IOWA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS, CURRENT SERIES, 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 1992.
REINFORCING STEEL IN ACCORDANCE WITH SECTION 8, GRADE 60.
CONCRETE IN ACCORDANCE WITH SECTION 8, f'c = 3,500 PSI.
STRUCTURAL STEEL IN ACCORDANCE WITH SECTION 10. ASTM A-36.

TRAFFIC CONTROL PLAN

NOTE: THE ROADWAY WILL BE OPEN TO THRU TRAFFIC. REFER TO THE TRAFFIC CONTROL PLAN ON THE ROAD PLANS IN THESE PLANS.

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
9/20/93 DATE — GARY NOVEY — REG. NO. 8704

DESIGN HISTORY AT THIS SITE

DES. NO.	TYPE OF WORK
465	ORIGINAL DESIGN
1393	OVERLAY & REPAIR

LOCATION:

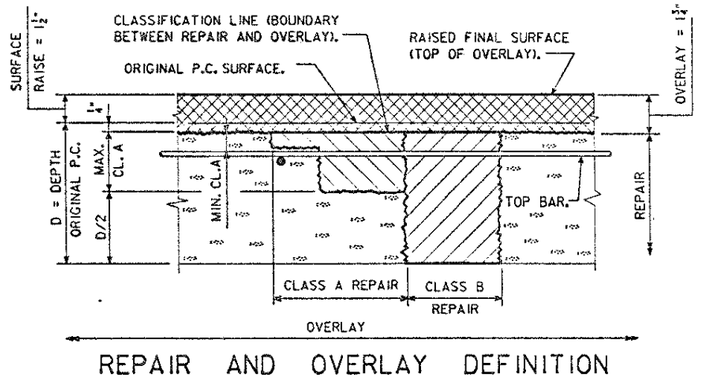
MAINT. NO. 4375.7L029
HARRISON COUNTY
T-78N R-44W
ST. JOHNS TWP.
SECTIONS 16, 17, 20, 21
I-29 OVER U.S. NO. 30

DESIGN FOR REPAIR TO 1° 13' 30" R.A. SKEW SOUTHBOUND
DUAL 219'-7 x VAR. PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGES
38'-11½ & 43'-1½ END SPANS 2 @ 68'-9 INTERIOR SPANS
SITUATION PLAN
STATION: 1068+28.60 (RT. LANE I-29)
STATION: 479+87.80 (LT. LANE U.S. NO. 30)
AUGUST, 1993
HARRISON COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
DESIGN SHEET NO. 1 OF 12 FILE NO. 28688 DESIGN NO. 1393

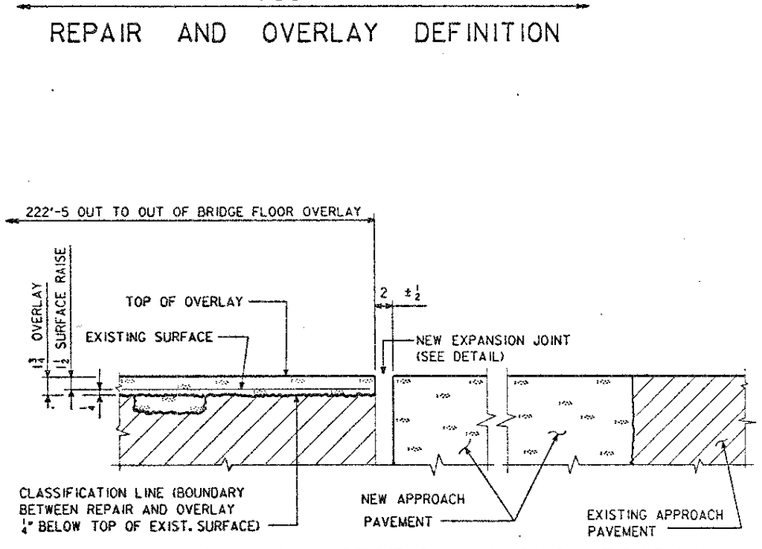
REVISED: "TOTAL ESTIMATED BRIDGE QUANTITIES" TABLE CHANGED, AASHTO SERIES CHANGED TO 1992. TAPE NO. 19. DATED 12-20-92
REVISED: IDOT STANDARD SPECIFICATIONS, UPDATE; ARCH. TAPE NO. 15 DATE 9-8-88
HSTOO1038.SOI-LEP; THIS SHEET REDRAWN, DEVICE:ZHAOI:200,0004) ARCH. TAPE NO. DATE 11-9-92.

DESIGNED BY S.K.GUPTA	TRACED BY C.E.COLE	SECTION LEADER: GARY NOVEY	DECK REPAIR - QUANTITIES	STANDARD SHEET 1038	HARRISON COUNTY	PROJECT NUMBER	IM-29-5(70)75--13-43	STATE	FHWA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
DETAILED BY C.E.COLE	CHECKED BY							IOWA	7		2	30

H431393.COI DEVICE : ZGAI:200,0031ARCH. TAPE No. DATE



REPAIR AND OVERLAY DEFINITION

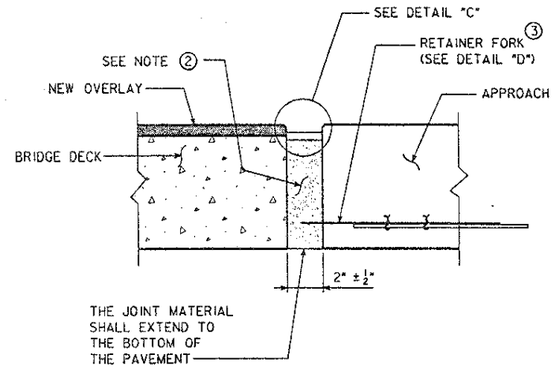


PART LONGITUDINAL SECTION ALONG ROADWAY
BOTH ABUTMENTS

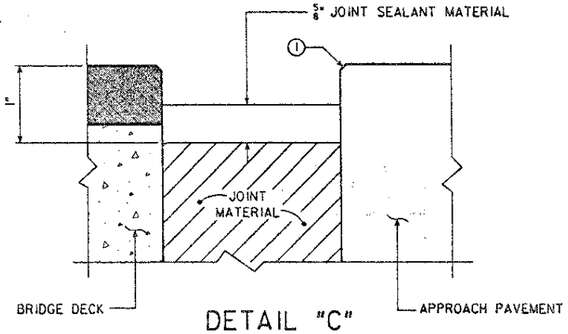
① EDGE WITH ¼" TOOL FOR LENGTH OF JOINT.

② PREFORMED JOINT MATERIAL, SEE MATERIALS I.M. 436.05 FOR LIST OF APPROVED MATERIALS.

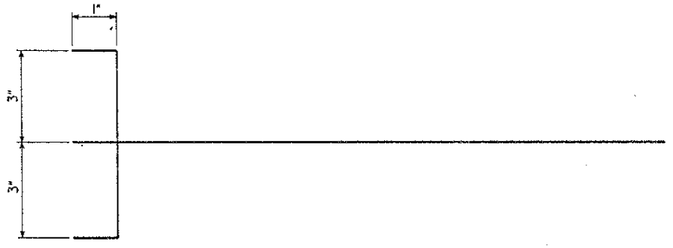
③ PLACE "CF" JOINT MATERIAL 1" LOWER THAN TOP OF PAVEMENT. ANCHOR WITH GALVANIZED RETAINER FORKS AT 24" CENTERS, TIE FORKS TO REINFORCING MAT OR PLACE ON SUPPORT CHAIRS.



EXPANSION JOINT



DETAIL "C"



DETAIL "D"
GALVANIZED RETAINER FORK
0 GAGE × 24" LONG WITH (3) PRONGS ON 3" CENTERS

Over

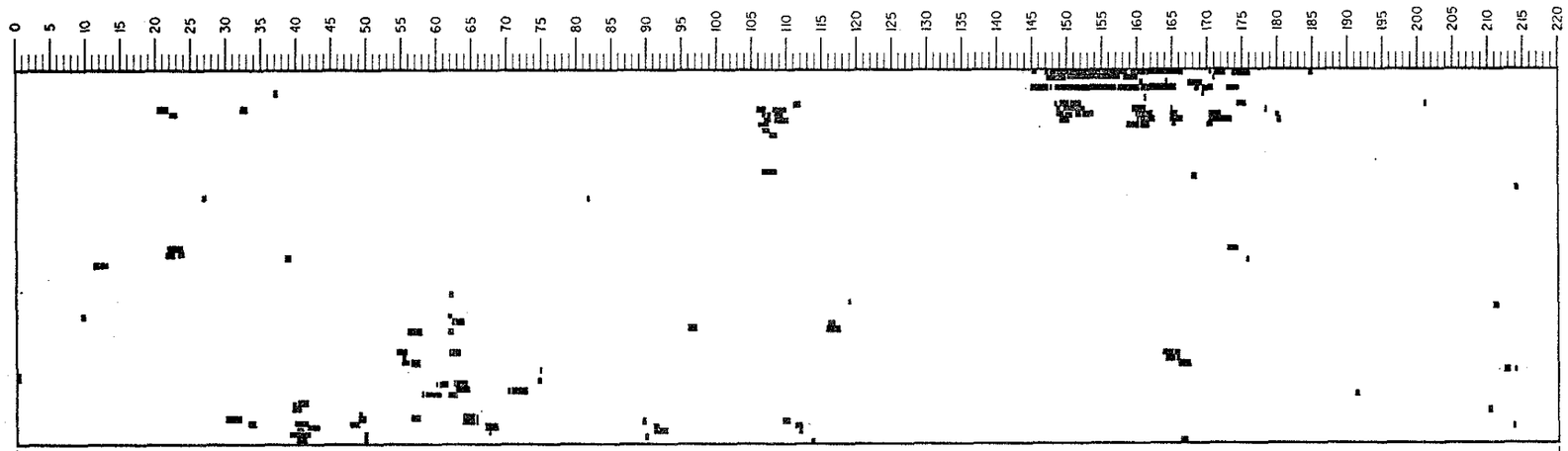
DESIGN FOR REPAIR TO 1° 13' 30" R.A. SKEW SOUTHBOUND
DUAL 219'-7 × VAR. PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGES
38'-11½ & 43'-1½ END SPANS 2 @ 68'-9 INTERIOR SPANS
REPAIR DETAILS
STATION: 1088+28.60 (RT. LANE I-29)
STATION: 479+87.80 (LT. LANE U.S. NO. 30)
AUGUST, 1993
HARRISON COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
DESIGN SHEET NO. 2 OF 12 FILE NO. 28688 DESIGN NO. 1393

DESIGNED BY S.K.GUPTA	TRACED BY G.DURBIN			PROJECT NUMBER	STATE	FHWA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
DETAILED BY G.DURBIN	CHECKED BY		HARRISON COUNTY		IOWA	7		3	30

h431393.S02 DEVICE : svr2/usr2/brg/lhg _____DATE_____

N

NOTE:
HATCHED PORTIONS REPRESENT AREAS WHICH HAVE SPALLS AND DELAMINATIONS. PLAN QUANTITY FOR CLASS "A" REPAIR IS BASED ON TWO TIMES THIS AREA.



222'-5 END TO END OF BRIDGE FLOOR OVERLAY AND REPAIR

SURVEY PLOT

DATED: MAY, 1993

DESIGN FOR REPAIR TO 1° 13' 30" R.A. SKEW SOUTHBOUND

DUAL 219'-7 x VAR. PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGES

38'-11½ & 43'-1½ END SPANS — 2 @ 68'-9 INTERIOR SPANS

SURVEY PLOT

STATION: 1088+28.60 (RT. LANE I-29)
STATION: 479+87.80 (LT. LANE U.S. NO. 30)

AUGUST, 1993

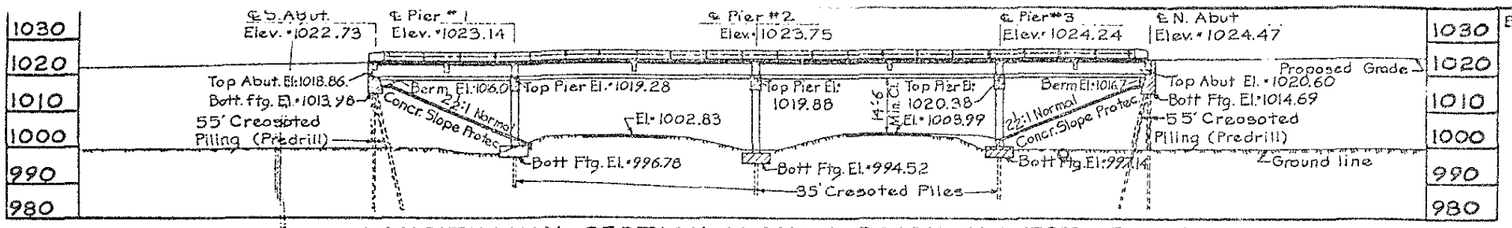
HARRISON COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 3 OF 12 — FILE NO. 28688 — DESIGN NO. 1393

DESIGNED BY S.K.GUPTA	TRACED BY		HARRISON COUNTY	PROJECT NUMBER	STATE	FHWA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
DETAILED BY G.DURBIN	CHECKED BY				IOWA	7		4	30

h431393.S03 DEVICE : svr2/usr2/brg/iha ---------DATE---------



B. M. #91: Sta. 1088+62 R.R. Spk. in S.E. Root of 24" Ash, Lt. 250, Elev. = 1000.40

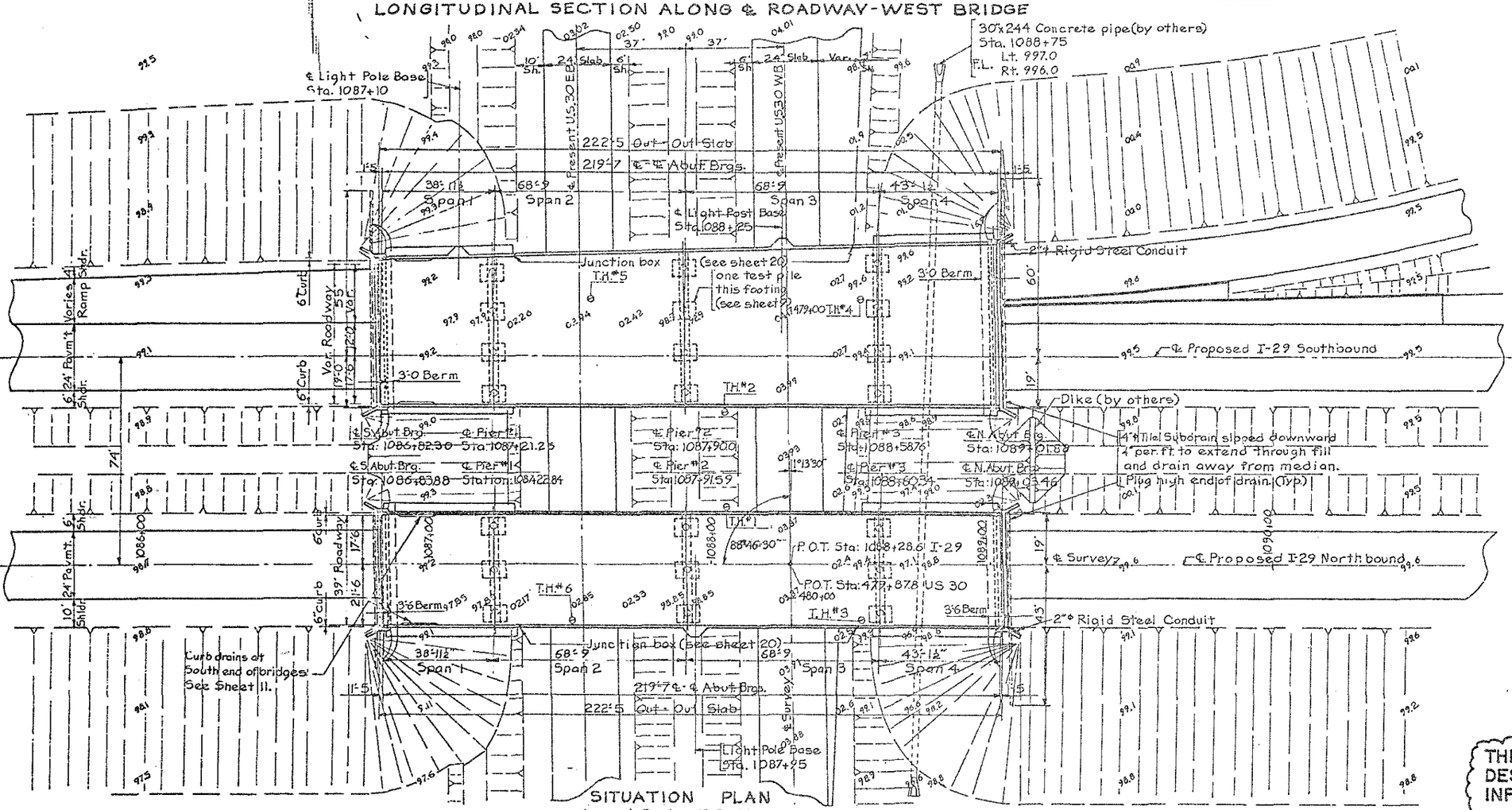
LONGITUDINAL SECTION ALONG ℄ ROADWAY-WEST BRIDGE

P.I. Sta: 1087+00
El. = 1025.73
+2.297 % -0.20 %
V.C. = 900'
M.O. = 2.809

I-29 Grade

U.A.C. Present Grade

Grade on U.S. #30



SITUATION PLAN

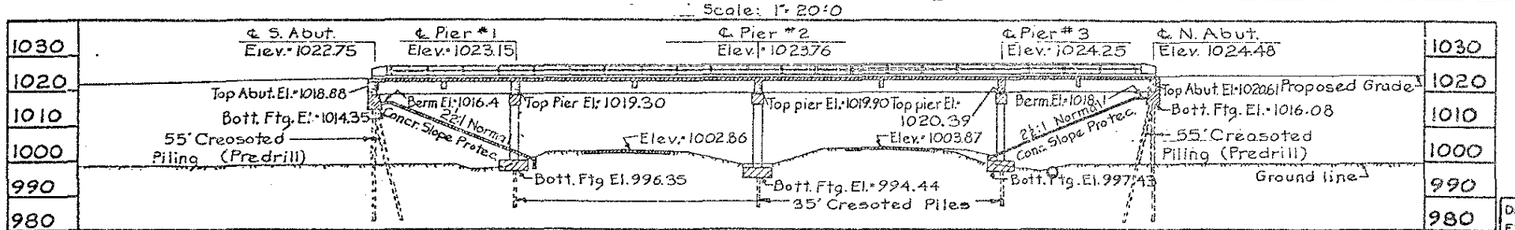
Scale: 1" = 20'-0"

Curve Data #51

Δ = 11° 15' Lt
D = 7° 30'
T = 75.25
L = 150.00
E = 3.70'
R = 764.0'

LOCATION:
St. Johns Twp.
Sec. 16, 17, 20, 21,
T-78-N R-44-W
Harrison County
On I-29
Over U.S. #30

THIS SHEET FROM ORIGINAL DESIGN IS INCLUDED FOR INFORMATION ONLY.



LONGITUDINAL SECTION ALONG ℄ ROADWAY-EAST BRIDGE

Design for 1°13'30" Skew
DUAL 219'-7"x39' & VARIABLE PRETENSIONED
PRESTRESSED CONCRETE BEAM BRIDGES
38'-11½ & 43'-1½ End Spans 2-68'-9 Interior Spa
Concrete Floor & Substructure Tubular Handr

SITUATION PLAN
Station: 1088+28.60 Rt. Lane I-29
479+87.80 Lt. Lane US 30
Proj. No. I-IG-29-5(78)78--5

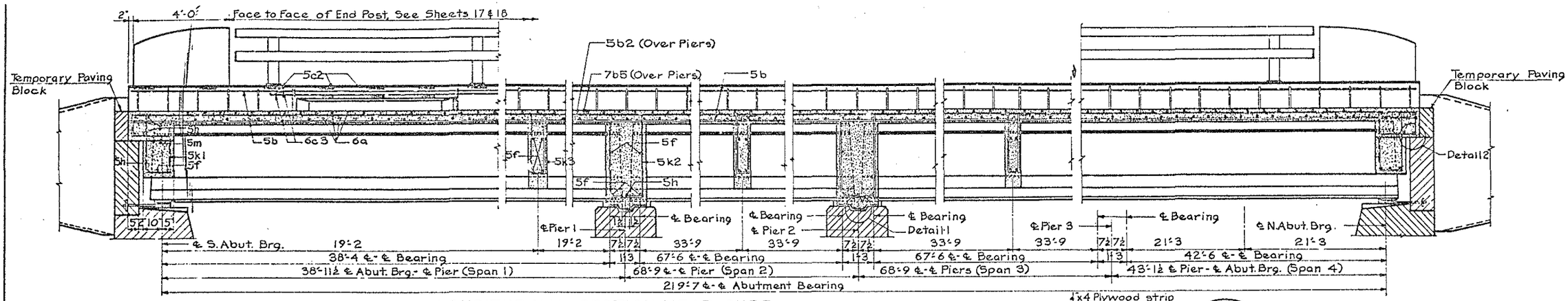
HARRISON COUNTY
IOWA STATE HIGHWAY COMMISSION
December, 1965
Sheet 2 of 21

DESIGN NO. 1393
FILE NO. 28688
DES. SH. NO. 4 OF 12

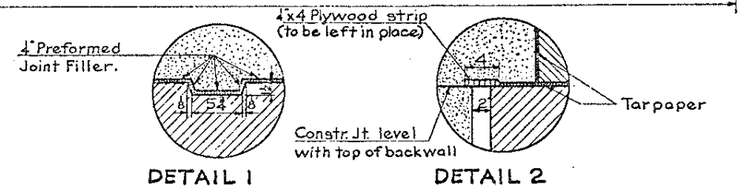
Design Nº 465 Harrison County File Nº 20676
5 of 30

Designed by: LEP Traced by: JK Checked by: G.J.P.

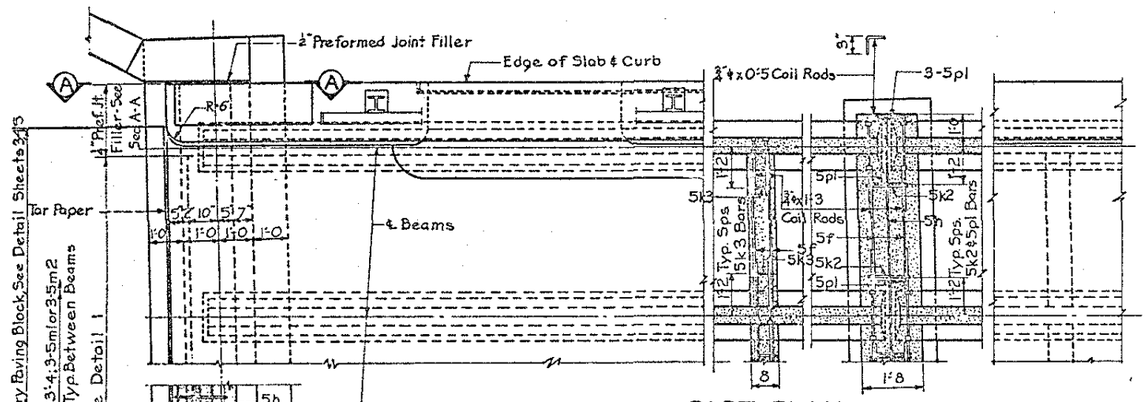
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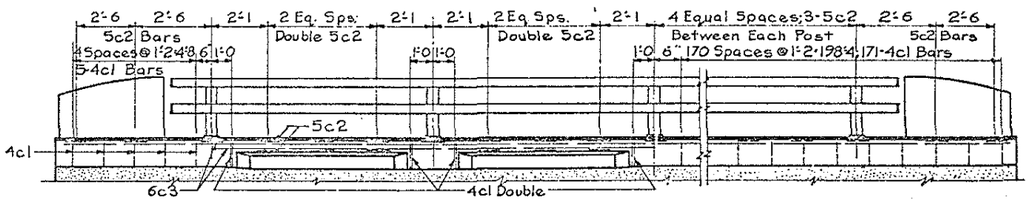


LONGITUDINAL SECTION NEAR CURB

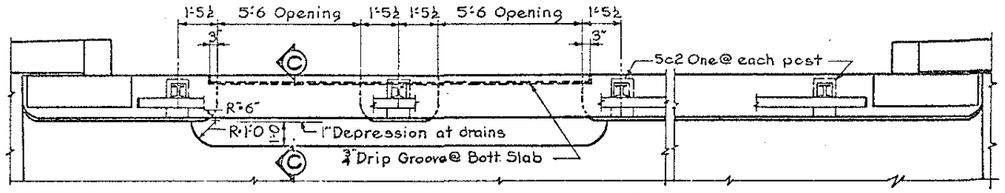


DETAIL 1 DETAIL 2

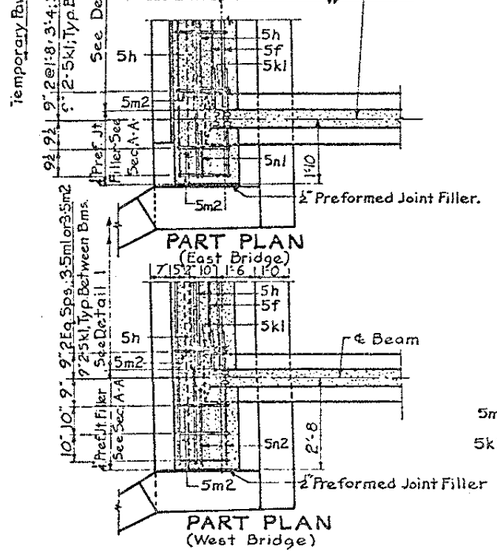




PART LONGITUDINAL SECTION SHOWING CURB DRAINS

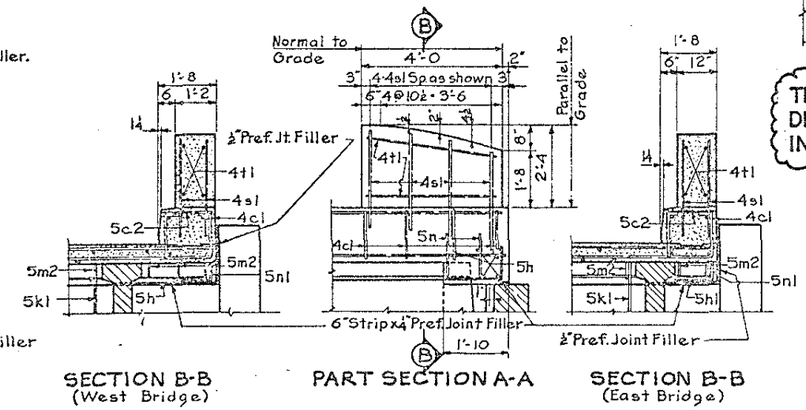


PART PLAN CURB DRAIN DETAILS



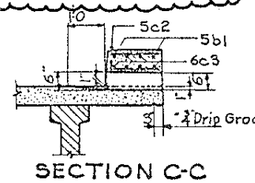
PART PLAN (East Bridge)

PART PLAN (West Bridge)

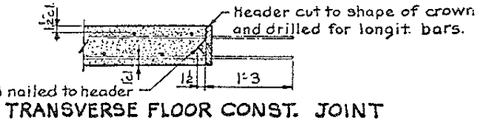


SECTION B-B (West Bridge) PART SECTION A-A SECTION B-B (East Bridge)

THIS SHEET FROM ORIGINAL DESIGN IS INCLUDED FOR INFORMATION ONLY.



SECTION C-C



TRANSVERSE FLOOR CONST. JOINT

Design for 1° 13'30" Skew

DUAL 219'-7"x39'-6" VARIABLE PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGES

38'-11½" & 43'-1½" End Spans 2-68'-9" Interior Spans

Concrete Floor & Substructure Tubular Handrail

SUPERSTRUCTURE DETAILS

Sta. 1088+28.60 Rt. Lane I-29
Sta. 479+87.60 Lt. Lane U.S.#30

Proj. Nº I-IG-29-5(7)78**43-9

HARRISON COUNTY

IOWA STATE HIGHWAY COMMISSION

December, 1965

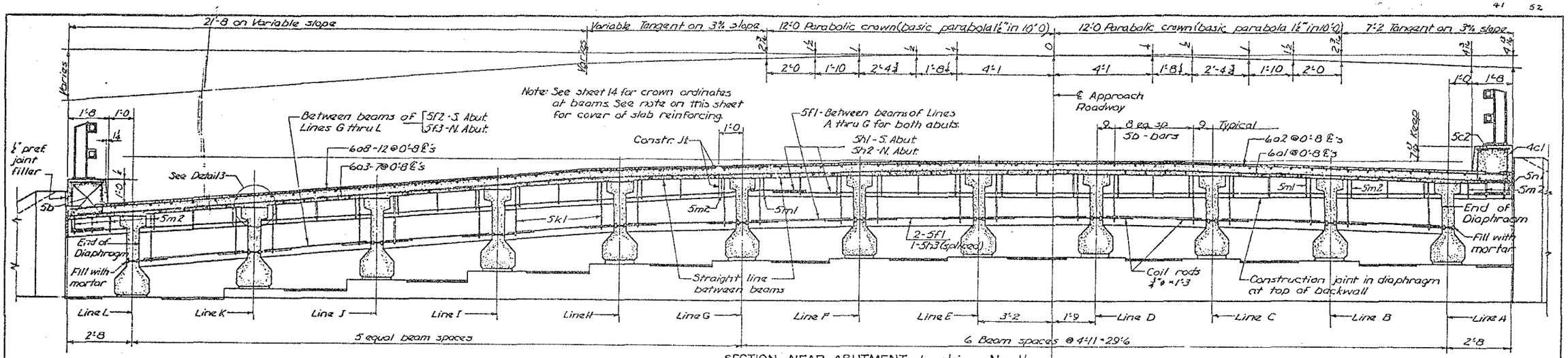
Sheet 11 of 21

DESIGN NO. 1393
FILE NO. 28688
DES. SH. NO. 5 OF 12

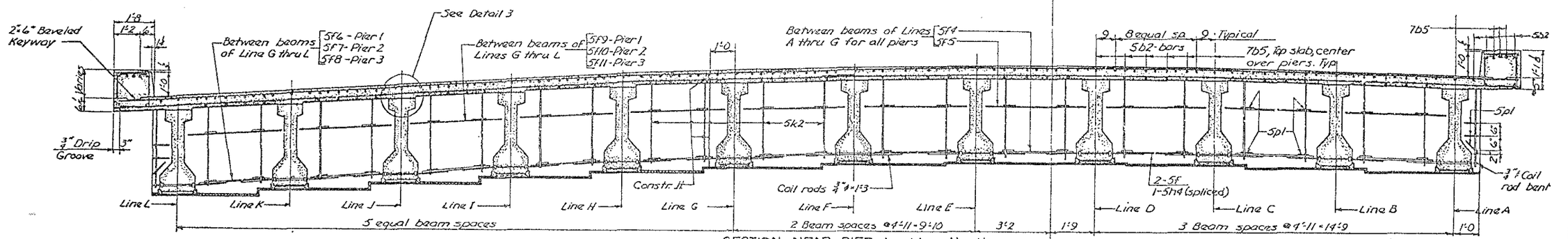
Design Nº 465 Harrison County File Nº 20676

Designed by: LEP Traced by: JK Checked by: G.J.P.

6 of 30



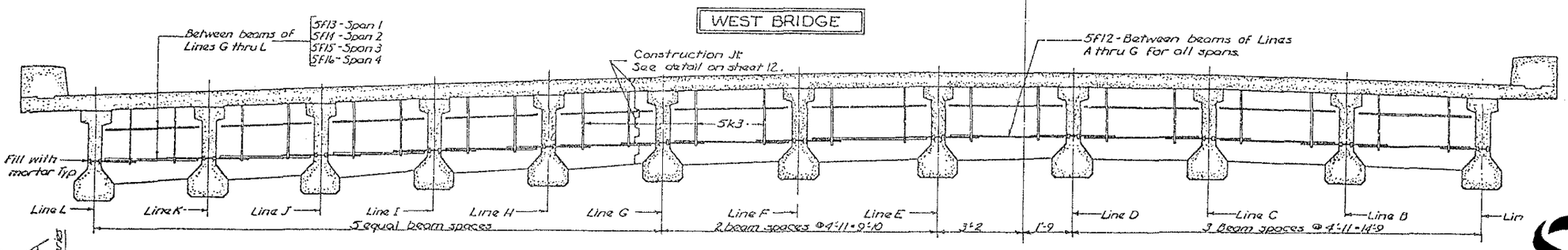
SECTION NEAR ABUTMENT - Looking North



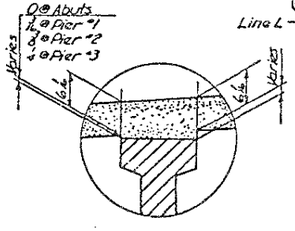
SECTION NEAR PIER Looking North
Railing Not Shown

* Indicates nominal dimensions

WEST BRIDGE



SECTION NEAR MID SPAN - Looking North
Slab and curb reinforcing and railing not shown.



DETAIL 3

Note: Detail 3 is typical at beams in Lines H, I, J, K & L. There is no slab thickening anticipated between these beams due to the haunch. The bottom of the slab is to be formed to the top of the beams in lines A thru G and the anticipated slab thickening for this portion of the slab is shown on sheet 15. The nominal slab thickness at ℄ of beam is to be 6¼ on lines A thru G.

THIS SHEET FROM ORIGINAL DESIGN IS INCLUDED FOR INFORMATION ONLY.

Note: Top transverse reinforcing is to be parallel to and 1½" clear below top of slab. Bottom longitudinal reinforcing steel is to be parallel to and 1" clear above bottom of slab. Top and bottom reinforcing steel is to be supported by individual bar chairs spaced at not more than 3'0 centers longit. and trans.

Over

Design for 1° 13' 30" Skew

DUAL 219'-7" x 39'-6" VAR. PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGES

30'-11½" & 43'-1½" End Spans — 2-68'-9 Interior Spans
Concrete Floor & Substructure — Tubular Handrail

SUPERSTRUCTURE DETAILS

Sta. 1083 + 28.40 Rt. Lane P-29
Sta. 479 + 87.80 Lt. Lane U-3 + 30
Project No. I-IG-29-5(7) 78 ** 43-9

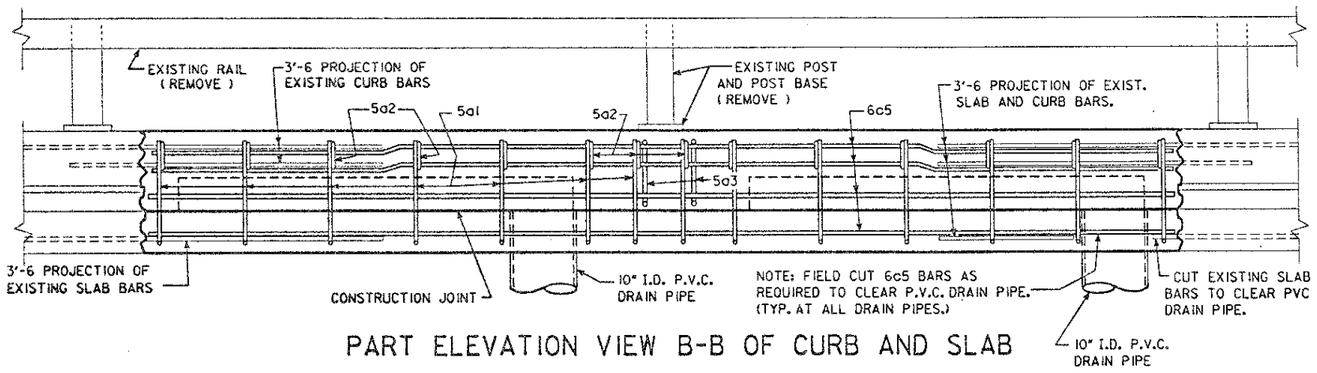
HARRISON COUNTY

Iowa State Highway Commission
December, 1965
Sheet 13 of 21

DESIGN NO. 1393
FILE NO. 28688
DES. SH. NO. 6 OF 12

Design No. 465 — Harrison County — 1 of 30 — File No. 20676

Designed by: LEP — Traced by: MH — Checked by: G.J.P.



PART ELEVATION VIEW B-B OF CURB AND SLAB

CURB DRAIN MODIFICATION NOTES:

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

ALL CURB DRAIN MODIFICATION CONCRETE IS TO BE CLASS D.

ALL REINFORCING IS TO BE EPOXY COATED.

P.V.C. DRAIN PIPE SHALL BE NONPERFORATED PIPE MEETING THE REQUIREMENTS OF ARTICLE 4146.04 OF THE STANDARD SPECIFICATIONS.

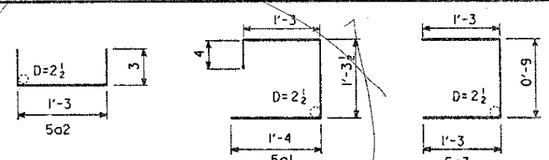
THE LUMP SUM BID FOR "CURB DRAIN MODIFICATION" IS TO INCLUDE ALL COSTS INVOLVED IN REMOVING THE EXISTING CONCRETE AS SHOWN ON THIS SHEET. IT SHALL ALSO INCLUDE THE COST OF FURNISHING NEW REINFORCING STEEL, STRUCTURAL CONCRETE, 10" I.D. PVC DRAIN PIPE PLUS ANCHORS AND ALL LABOR TO CONSTUCT THE DRAIN INTAKE AND DRAIN EXTENSION AS SHOWN ON THIS SHEET.

CONTRACTOR SHALL TAKE CARE WHEN MODIFYING THE DRAINS IN THE WEST RAIL SO AS NOT TO DISTURB THE EXISTING STEEL CONDUIT EMBEDDED IN THE CURB.

EPOXY REINF. BAR LIST - 2 DRAIN MODIFICATIONS

BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
5a1	SLAB TO CURB TRANSVERSE	⌐	28	4'-3	124
5a2	CURB TRANSVERSE	⌐	28	1'-9	51
5a3	SLAB TO CURB TRANSVERSE	⌐	4	3'-3	14
6c5	SLAB & CURB LONGITUDINAL	—	22	14'-8	485
				TOTAL LBS.	674

BENT BAR DETAILS

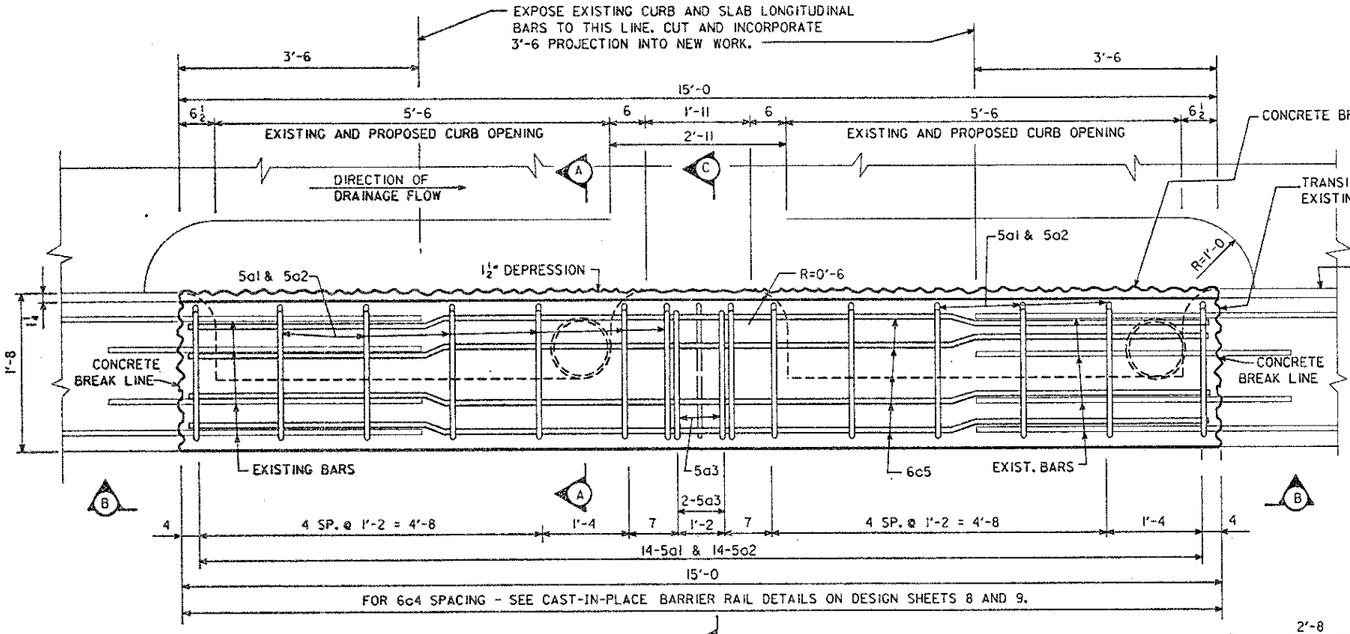


NOTE: ALL DIMENSIONS ARE OUT TO OUT. D= PIN DIAMETER.

CONCRETE PLACEMENT QUANTITIES

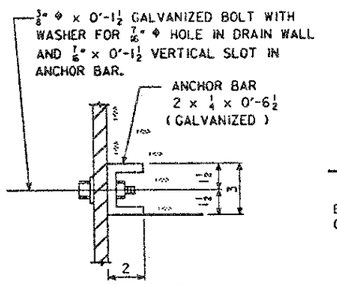
LOCATION	UNIT	QUANTITY
* CURB DRAINS 2 AT 1.14 CU. YD. EACH	CU. YD.	2.3

* INCLUDES 0.77 CU.YD. FOR CURB AND 0.37 CU.YD. FOR SLAB PER DRAIN.

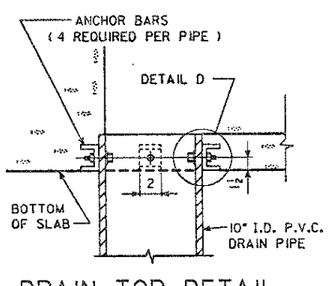


PLAN OF DRAIN MODIFICATION

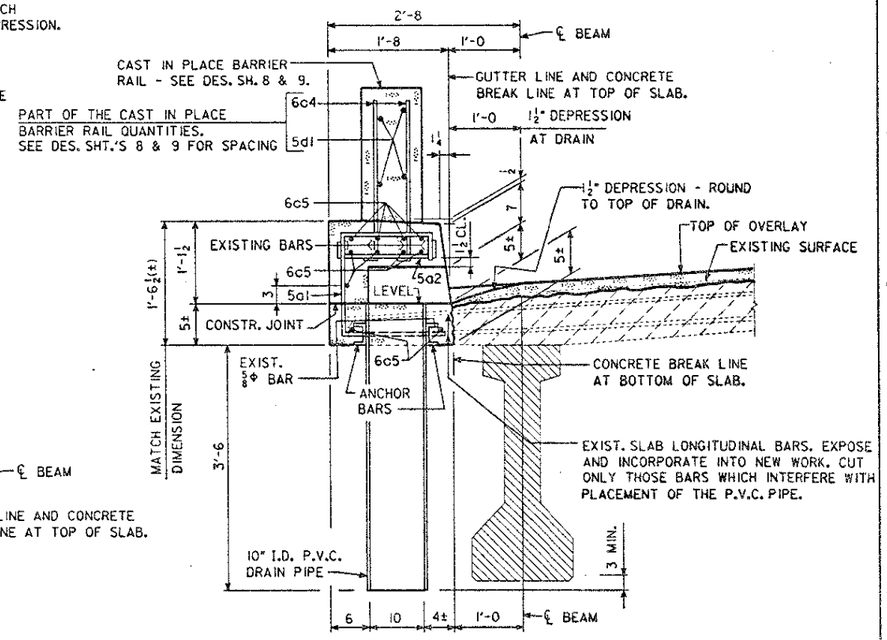
(2 DRAINS TO BE MODIFIED. CAST IN PLACE BARRIER RAIL NOT SHOWN.)
(ANCHOR BARS NOT SHOWN)



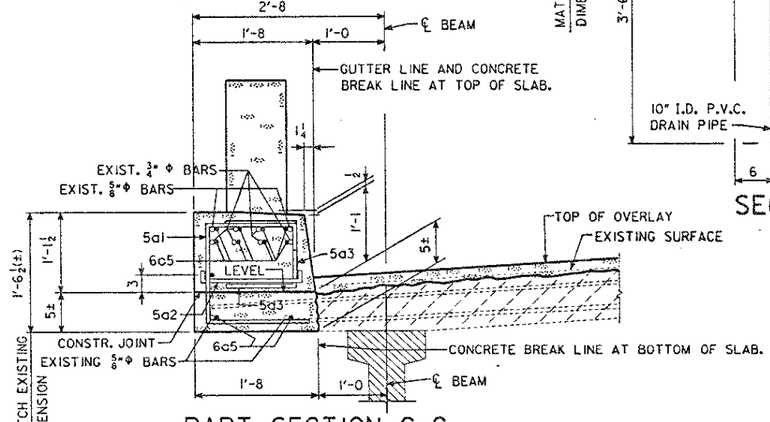
DETAIL D



DRAIN TOP DETAIL



SECTION A-A



PART SECTION C-C

DESIGN FOR REPAIR TO 1° 13' 30" R.A. SKEW SOUTHBOUND

DUAL 219'-7 x VAR. PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGES

38'-11½ & 43'-1½ END SPANS — 2 @ 68'-9 INTERIOR SPANS

CURB DRAIN MODIFICATION DETAILS

STATION: 1088+28.60 (RT. LANE 1-29)
STATION: 479+87.80 (LT. LANE U.S. NO. 30)

AUGUST, 1993

HARRISON COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

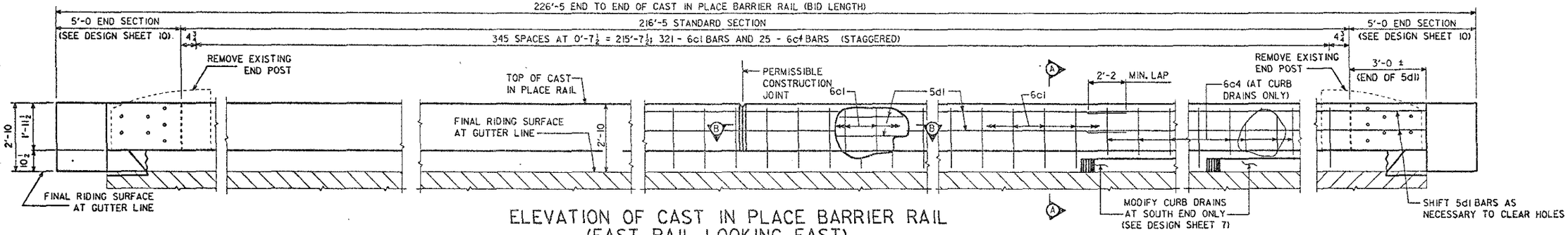
DESIGN SHEET NO. 7 OF 12 — FILE NO. 28688 — DESIGN NO. 1393

DESIGNED BY	S.K.GUPTA	TRACED BY	G.DURBIN
DETAILED BY	G.DURBIN	CHECKED BY	

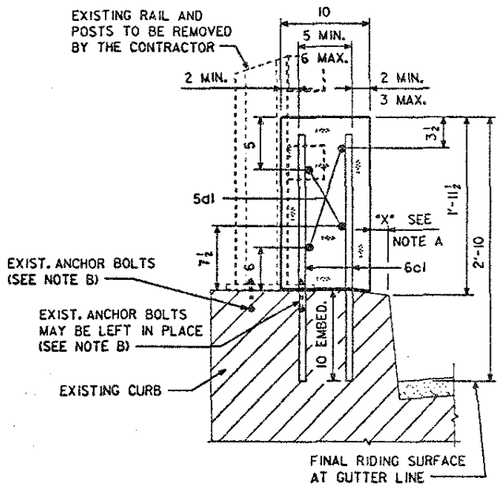
HARRISON COUNTY | PROJECT NUMBER

STATE	FHWA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	7		8	30

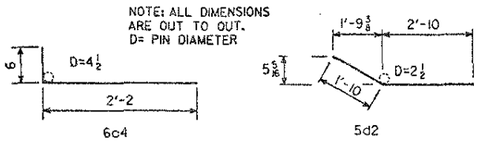
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ELEVATION OF CAST IN PLACE BARRIER RAIL (EAST RAIL LOOKING EAST)



SECTION A-A



BENT BAR DETAILS

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 STANDARD RAIL SECTION SHALL BE TRANSITIONED TO 2" AT THE END SECTION.

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.

DOWEL SETTING NOTE :
ALL 6c1, 6c3, 5d4 & SOME OF THE 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 6c1 AND 6c2 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.

THE 6c2 BARS SET IN THE AREA OF NEW CURB MAY BE PRESET INTO NEW CONCRETE WITH A 10" EMBEDMENT.
THE 6c3 AND 5d4 BARS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS FOR THE EPOXY GROUT SYSTEM ONLY AS NOTED IN PARAGRAPH "A" ABOVE.

EPOXY REINFORCING STEEL-EAST RAIL

BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
6c1	STANDARD RAIL, VERT.	——	321	2'-7	1245
6c2	END SECTION, VERTICAL	——	24	2'-7	93
6c3	END SECTION, VERTICAL	——	4	2'-7	16
5d1	STANDARD RAIL, LONGIT.	——	24	39'-0	976
5d2	END SECTION, LONGIT.	⟍	6	4'-8	29
5d3	END SECTION, LONGIT.	——	6	4'-8	29
5d4	CURB LONGIT., DOWEL	——	4	4'-3	18
6c4	STD. VERT. AT DRAINS	⌐	25	2'-8	100
				TOTAL (LBS.)	2506

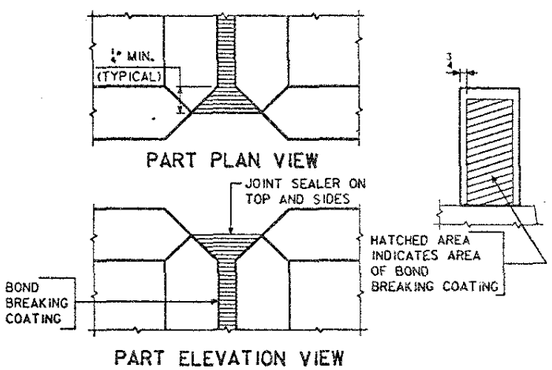
CONCRETE PLACEMENT SUMMARY - EAST RAIL

SECTION	TOTAL
STANDARD SECTION 216.4' @ 0.06 CU. YDS. PER LIN. FT	13.0
END SECTIONS 2 @ 0.6 CU. YDS. PER SECTION	1.2
TOTAL (CU. YDS.)	14.2

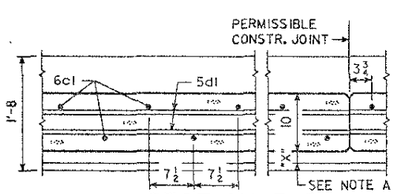
ESTIMATED QUANTITIES- TWO RAILS

ITEM NO.	ITEM	UNITS	QUANTITY
1	CONCRETE BARRIER RAIL, (CAST-IN-PLACE)	LIN. FT.	452.8

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.



CAST IN PLACE BARRIER RAIL JOINT DETAILS



SECTION B-B
(SHOWING 6c1 PLACEMENT)

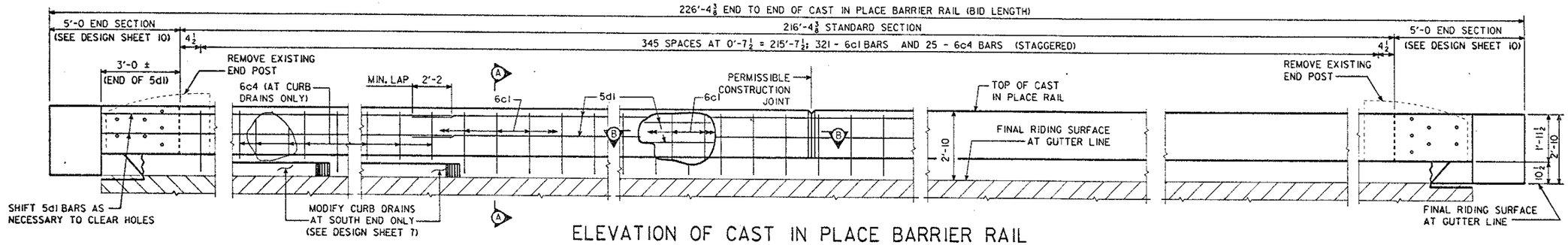
Over

DESIGN FOR REPAIR TO 1° 13' 30" R.A. SKEW SOUTHBOUND
DUAL 219'-7 x VAR. PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGES
38'-11½ & 43'-1½ END SPANS 2 @ 68'-9 INTERIOR SPANS
CAST IN PLACE BARRIER RAIL DETAILS (EAST RAIL)
STATION: 1088+28.60 (RT. LANE I-29)
STATION: 479+87.80 (LT. LANE U.S. NO. 30)
AUGUST, 1993
HARRISON COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
DESIGN SHEET NO. 8 OF 12 FILE NO. 28688 DESIGN NO. 1393

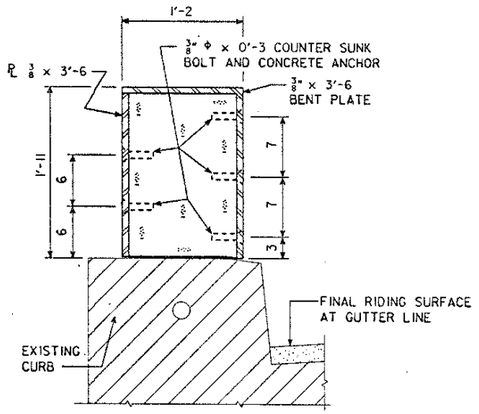
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HSTD1031C.SOI --LEFt THIS SHEET REDRAWN, DEVICE:ZHAG:i200,004) ARCH.TAPE NO. 000016 DATE 11-3-88

DESIGNED BY S.K.GUPTA	TRACED BY	CAST IN PLACE BARRIER RAIL	STANDARD SHEET 1031C	HARRISON COUNTY	PROJECT NUMBER	STATE	FHWA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
DETAILED BY G.DURBIN	CHECKED BY					IOWA	7		9	30

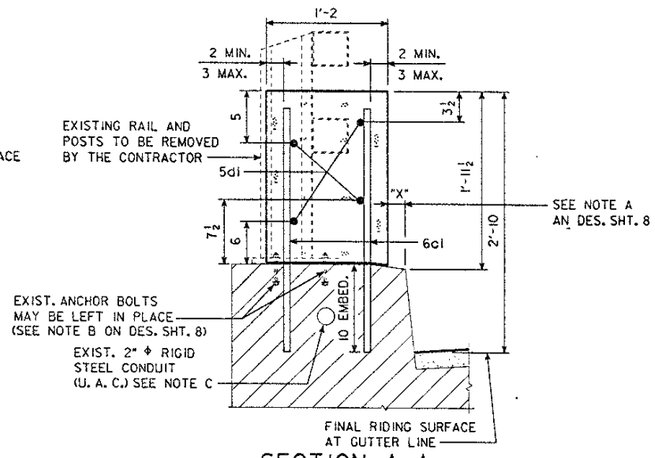
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ELEVATION OF CAST IN PLACE BARRIER RAIL (WEST RAIL LOOKING WEST)

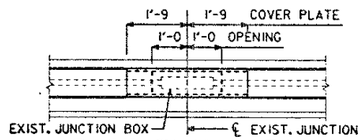


SECTION C-C

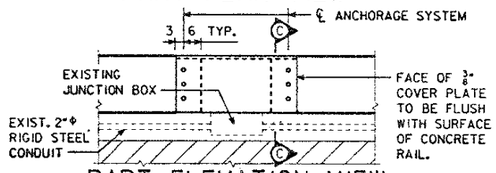


SECTION A-A

NOTE: FOR CAST IN PLACE BARRIER RAIL NOTES AND BENT BAR DETAILS SEE DESIGN SHEET 8.



PART PLAN VIEW



PART ELEVATION VIEW

THE CAST IN PLACE RAIL SHALL BE GAPPED AT EXISTING JUNCTION BOXES AS DETAILED. THE VERTICAL BARS SHALL BE SHIFTED AS REQUIRED AND THE LONGITUDINAL BARS SHALL BE FIELD CUT AS REQUIRED. CUT ENDS OF LONGITUDINAL BARS SHALL BE PATCHED WITH EPOXY. A ⅜" GALVANIZED PLATE SHALL FIT OVER THE GAPPED AREA IN THE RAIL AND SHALL BE HELD IN PLACE WITH COUNTERSUNK BOLTS AND CONCRETE ANCHORS. THE COST OF THE GALVANIZED PLATES AND ANCHORAGE SYSTEM SHALL BE INCIDENTAL TO THE COST OF THE CAST IN PLACE RAIL.

REQUIRED AT 2 EXISTING JUNCTION BOXES.

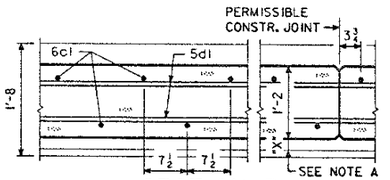
EPOXY REINFORCING STEEL - WEST RAIL

BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
6c1	STANDARD RAIL, VERT.	——	321	2'-7	1245
6c2	END SECTION, VERTICAL	——	24	2'-7	93
6c3	END SECTION, VERTICAL	——	4	2'-7	16
5d1	STANDARD RAIL, LONGIT.	——	24	39'-0	976
5d2	END SECTION, LONGIT.	⟋	6	4'-8	29
5d3	END SECTION, LONGIT.	——	6	4'-8	29
5d4	CURB LONGIT., DOWEL	——	4	4'-3	18
6c4	STD. VERT. AT DRAINS	⌐	25	2'-8	100
				TOTAL (LBS.)	2506

CONCRETE PLACEMENT SUMMARY - WEST RAIL

SECTION	TOTAL
STANDARD SECTION * 213.4' @ 0.084 CU. YDS. PER LIN. FT.	17.9
END SECTIONS 2 @ 0.6 CU. YDS. PER SECTION	1.2
* OPENING AT THE TWO JUNCTION BOX DEDUCTED.	
TOTAL (CU. YDS.)	19.1

NOTE C:
CARE SHALL BE EXERCISED WHEN DRILLING HOLES FOR THE CAST IN PLACE BARRIER RAIL DOWELS TO INSURE THE EXISTING CONDUIT IS NOT DAMAGED. ANY DAMAGE TO THE CONDUIT BY THE CONTRACTOR WILL BE THE RESPONSIBILITY OF THE CONTRACTOR AND REPAIRED BY HIM AT NO EXTRA COST TO THE STATE.



SECTION B-B
(SHOWING 6c1 PLACEMENT)

DESIGN FOR REPAIR TO 1° 13' 30" R.A. SKEW SOUTHBOUND

DUAL 219'-7 x VAR. PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGES

38'-11½ & 43'-1½ END SPANS — 2 @ 68'-9 INTERIOR SPANS

CAST IN PLACE BARRIER RAIL DETAILS (WEST RAIL)

STATION: 1088+28.60 (RT. LANE I-29)
STATION: 479+87.80 (LT. LANE U.S. NO. 30)

AUGUST, 1993

HARRISON COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

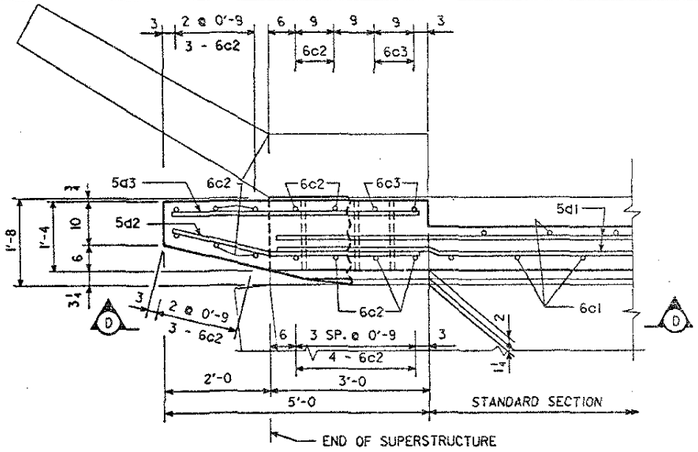
DESIGN SHEET NO. 9 OF 12 FILE NO. 28688 DESIGN NO. 1393

REVISED: OPENING AT JUNCT. BOX DEDUCTED, TAPE NO. 11 DATE 3-28-91
REVISED: BARRIER RAIL DETAILS CHANGED, TAPE NO. 9 DATE 2-26-90
HSTD1031D.SOI--LEP; THIS SHEET REDRAWN, DEVICE:ZHAO;(200,004) ARCH.TAPE NO. 000016 DATE 11-3-88

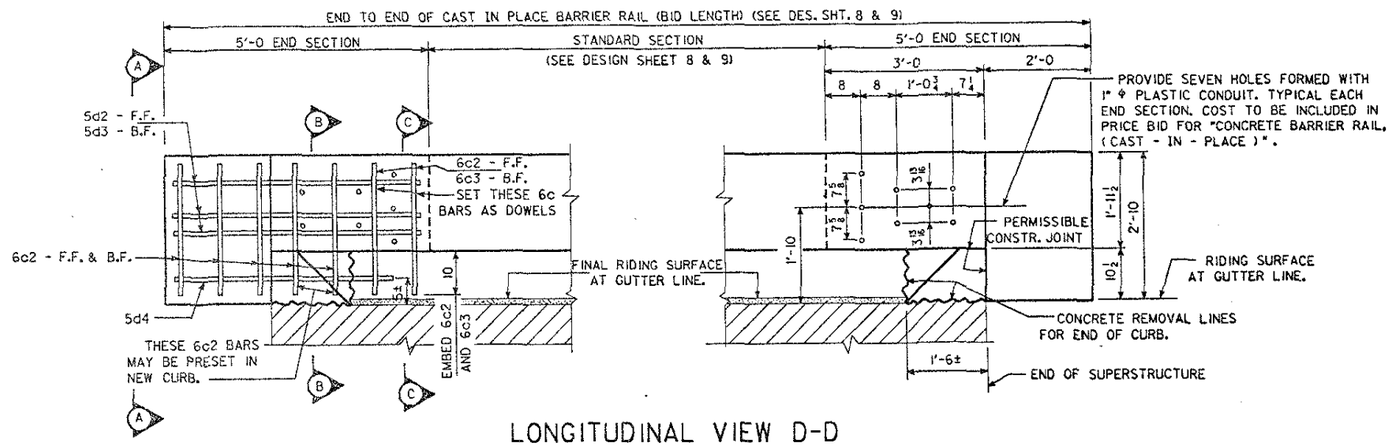
DESIGNED BY S.K.GUPTA TRACED BY DETAILED BY G.DURBIN CHECKED BY	CAST IN PLACE BARRIER RAIL	STANDARD SHEET 1031D	HARRISON COUNTY	PROJECT NUMBER	STATE: IOWA	FHWA REGION: 7

FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	10	30

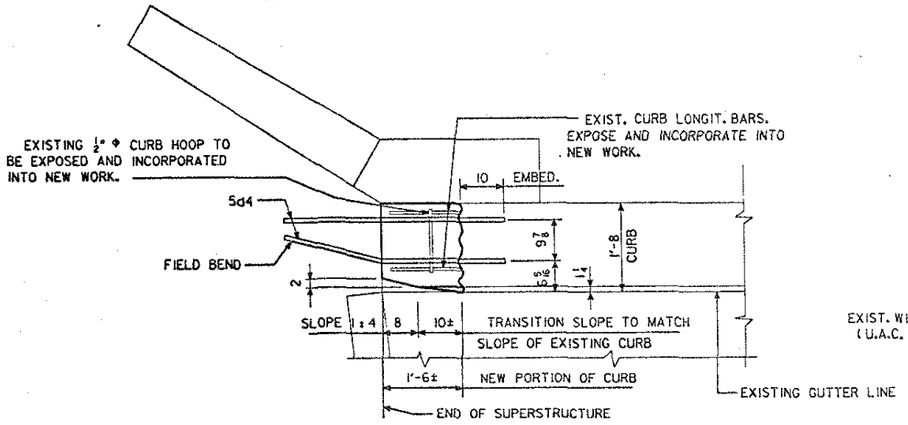
h431393.S09 DEVICE : svr2/usr2/brg/lha _____DATE_____



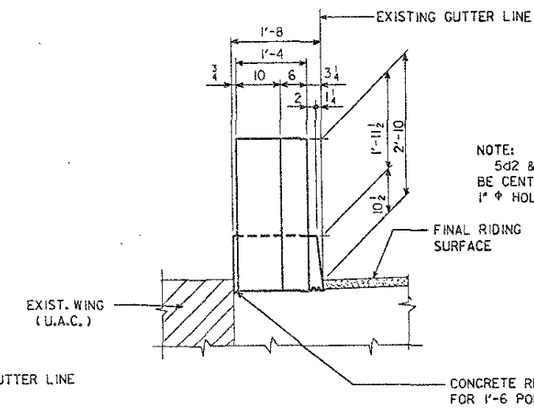
PLAN VIEW OF END SECTION



LONGITUDINAL VIEW D-D

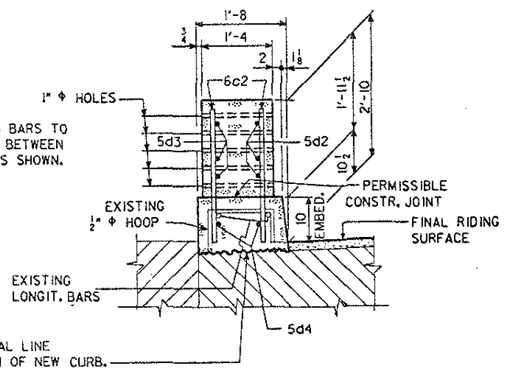


PLAN VIEW OF NEW PORTION OF CURB

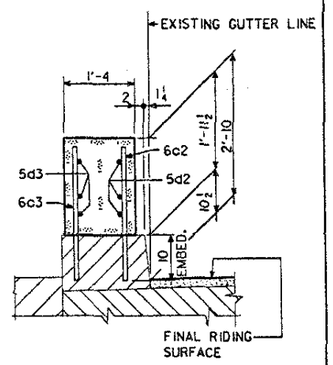


END VIEW A-A

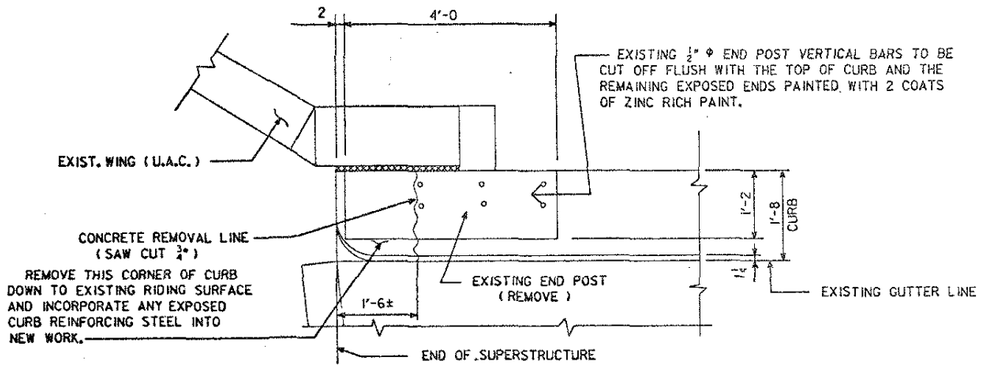
NOTE:
5d2 & 5d3 BARS TO
BE CENTERED BETWEEN
1" ϕ HOLES AS SHOWN.



SECTION B-B



SECTION C-C



PART PLAN VIEW AT CORNERS OF BRIDGE
(SHOWING EXISTING CONDITIONS AND REMOVAL DETAILS)

5'-0 END SECTION DETAILS

NOTE: SEE DESIGN SHEET 8 FOR CAST IN PLACE BARRIER RAIL NOTES.

Over

NOTE:
DETAILS SHOWN ON THIS SHEET ARE TYPICAL AT ALL FOUR CORNERS OF THE BRIDGE.

DESIGN FOR REPAIR TO 1° 13' 30" R.A. SKEW SOUTHBOUND
DUAL 219'-7 x VAR. PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGES
38'-11½ & 43'-1½ END SPANS 2 @ 68'-9 INTERIOR SPANS

5'-0 END SECTION DETAILS

STATION: 1088+28.60 (RT. LANE I-29)
STATION: 479+87.80 (LT. LANE U.S. NO. 30)
AUGUST, 1993

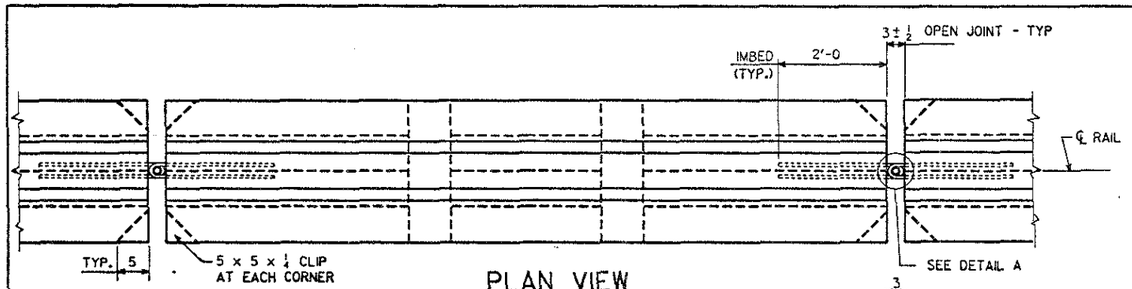
HARRISON COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 10 OF 12 FILE NO. 28688 DESIGN NO. 1393

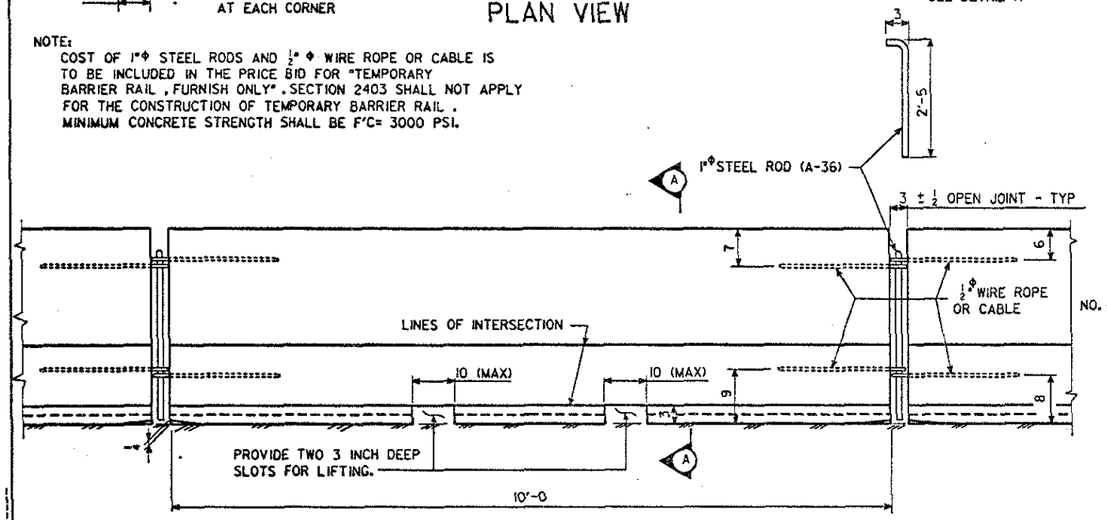
DESIGNED BY	DETAILED BY	TRACED BY	CHECKED BY		HARRISON COUNTY	PROJECT NUMBER	STATE	FHWA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
S.K.GUPTA	G.DURBIN						IOWA	7		11	30

h431393.s10 DEVICE : svr2/usr2/brg/lha _____DATE_____

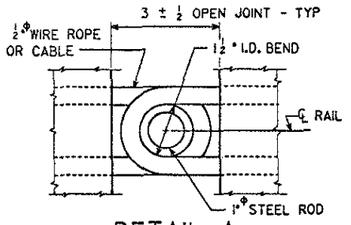


PLAN VIEW

NOTE:
COST OF 1"Φ STEEL RODS AND ½" 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.

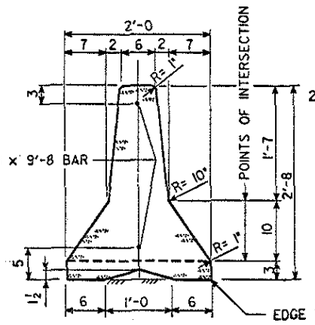


ELEVATION VIEW



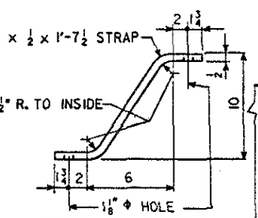
DETAIL A

½"Φ WIRE ROPE OR CABLE TO BE ½"Φ WITH A MINIMUM BREAKING STRENGTH OF 20,000 POUNDS.

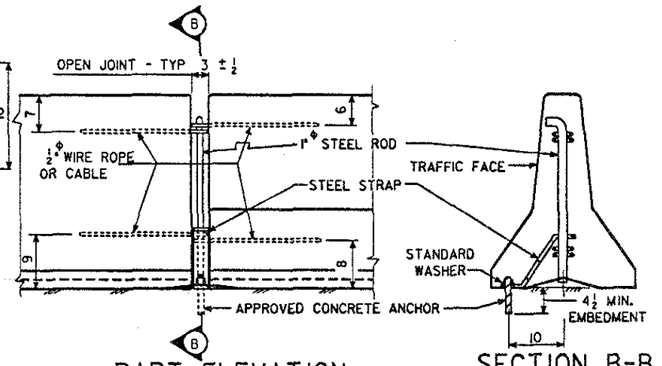


SECTION A-A

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



STRAP DETAIL



PART ELEVATION

SECTION B-B

TEMPORARY BARRIER RAIL TIE DOWN DETAILS

NOTE:
BARRIER IS TO BECOME THE PROPERTY OF THE CONTRACTOR AT THE COMPLETION OF WORK AND REMOVED FROM THE SITE BY THE CONTRACTOR.

A 12'-6 LANE SHALL BE AVAILABLE FOR TRAFFIC. SCREED EXTENSION OR OVERLAP BEYOND THE LONGITUDINAL CONSTRUCTION JOINT MAY BE LESS THAN THE 6 INCHES REQUIRED BY SUB-ARTICLE 2413.03C.1. THE ENGINEER MAY REQUIRE ADDITIONAL VIBRATION OR SPECIAL FINISHING PROCEDURES ADJACENT TO THE LONGITUDINAL CONSTRUCTION JOINT.

TRAFFIC REFLECTORS SHALL BE A RETRO-REFLECTIVE TYPE, APPROVED BY THE ENGINEER, AND THEY SHALL BE LOCATED AS SHOWN ON THIS SHEET. THE CONTRACTOR SHALL MAINTAIN THE REFLECTORS AND SHALL PROMPTLY REPLACE ANY MISSING OR DAMAGED UNITS. ALL COSTS FOR FURNISHING, INSTALLING AND MAINTAINING REFLECTORS SHALL BE INCLUDED IN THE PRICE BID FOR "TEMPORARY BARRIER RAIL, PLACE ONLY".

REFER TO OTHER DETAILS, NOTES, AND QUANTITY ITEMS ELSEWHERE IN THESE PLANS FOR TRAFFIC CONTROL TO BE ESTABLISHED IN CONJUNCTION WITH THE TEMPORARY BARRIER RAIL.

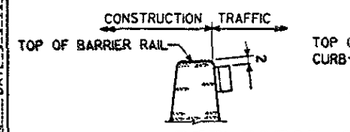
NO STATIONARY EQUIPMENT OR CONSTRUCTION MATERIAL IS TO BE PLACED IN FRONT OF THE TEMPORARY BARRIER RAIL AT ANY TIME.

SURFACE FINISH FOR TEMPORARY CONCRETE BARRIER RAIL SHALL BE IN ACCORDANCE WITH ARTICLE 2403.21B OF THE STANDARD SPECIFICATIONS.

ALL COSTS FOR TIE DOWNS SHALL BE INCLUDED IN THE PRICE BID FOR "TEMPORARY BARRIER RAIL, PLACE ONLY".

TIE-DOWNS ARE REQUIRED ONLY WHERE THE TEMPORARY BARRIER RAIL IS ADJACENT TO A DROP-OFF. HOLES FOR CONCRETE ANCHORS MAY BE DRILLED AFTER POSITIONING TEMPORARY BARRIER RAIL. CONCRETE ANCHORS ARE TO BE SET SO THAT THE ANCHORS CAN BE REMOVED AT LEAST 1½" BELOW THE CONCRETE SURFACE AND THE REMAINING HOLE FILLED WITH A NEAT MIXTURE OF SAND-CEMENT GROUT. CONCRETE ANCHORS ARE TO BE REMOVED, WITHOUT DAMAGING THE SURROUNDING CONCRETE, ONLY AFTER THE TEMPORARY BARRIER RAIL IS NO LONGER NEEDED AT THE PARTICULAR LOCATION.

CONCRETE ANCHORS ARE TO BE A MINIMUM OF ¾"Φ AND AS OTHERWISE SPECIFIED IN CURRENT OFFICE OF MATERIALS I.M. 453.09 WITH A PULL-OUT STRENGTH OF 16,000 LBS. BASED ON 4,000 P.S.I. CONCRETE.

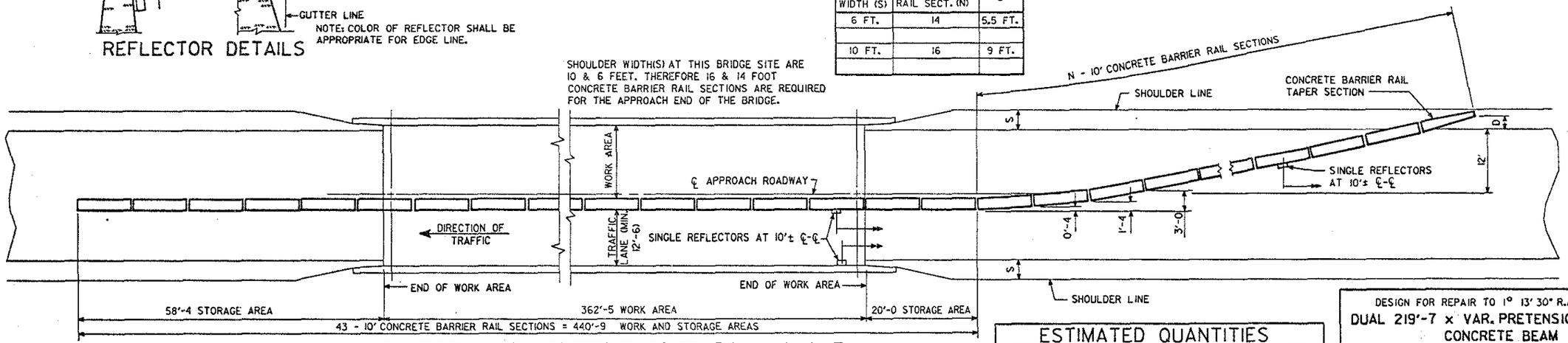


REFLECTOR DETAILS

NOTE: COLOR OF REFLECTOR SHALL BE APPROPRIATE FOR EDGE LINE.

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 FOOT 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	590 L.F.
TEMPORARY BARRIER RAIL, PLACE ONLY	1160 L.F.

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

DESIGN FOR REPAIR TO 1° 13' 30" R.A. SKEW SOUTHBOUND

DUAL 219'-7 x VAR. PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGES

38'-11½ & 43'-1½ END SPANS 2 @ 68'-9 INTERIOR SPANS

TEMPORARY BARRIER RAIL-CONCRETE

STATION: 1088+28.60 (RT. LANE I-29)
STATION: 479+87.80 (LT. LANE U.S. NO. 30)

AUGUST, 1993

HARRISON COUNTY

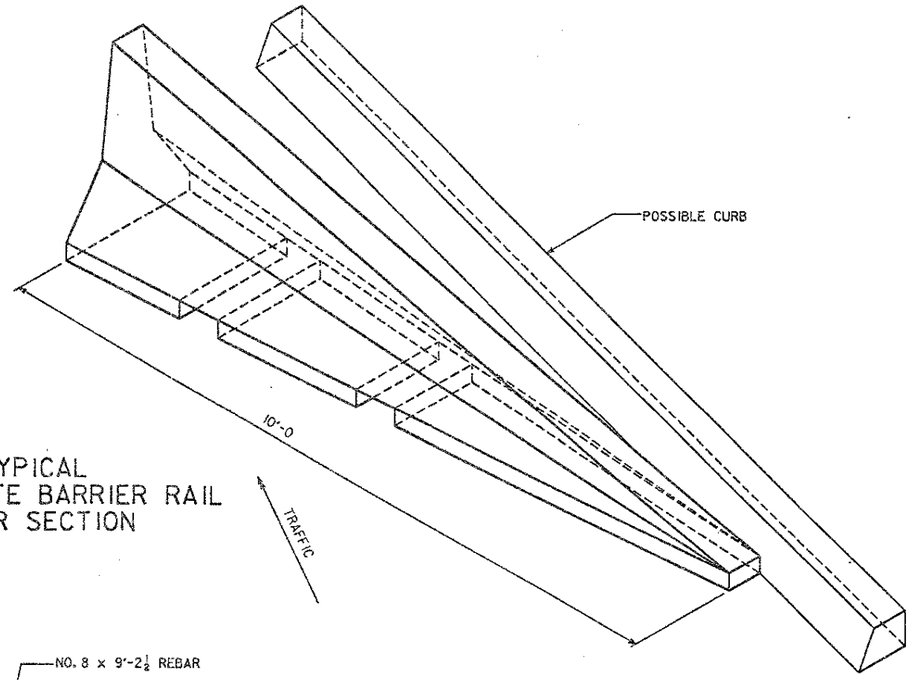
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 11 OF 12 FILE NO. 28688 DESIGN NO. 1393

REVISED: SPECIFICATION ARTICLE NUMBER CHANGED, TAPE NO. 19, DATED 11-9-92
REVISED: 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:ZHAO:(200,0041) ARCH, TAPE NO. 10 DATE 1-25-89
HSTD01032.SO1--LEP; THIS SHEET REDRAWN, DEVICE:ZHAO:(200,0041) ARCH, TAPE NO. 15 DATE 9-8-88

DESIGNED BY S.K.GUPTA	TRACED BY C.E.COLE	TEMPORARY BARRIER RAIL-CONCRETE	STANDARD 1032	HARRISON COUNTY	PROJECT NUMBER	STATE	FHWA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
DETAILED BY C.E.COLE	CHECKED BY					IOWA	7		12	30

h431393.s11 DEVICE : ZGA:(200,0031)ARCH. TAPE No. _____ DATE _____

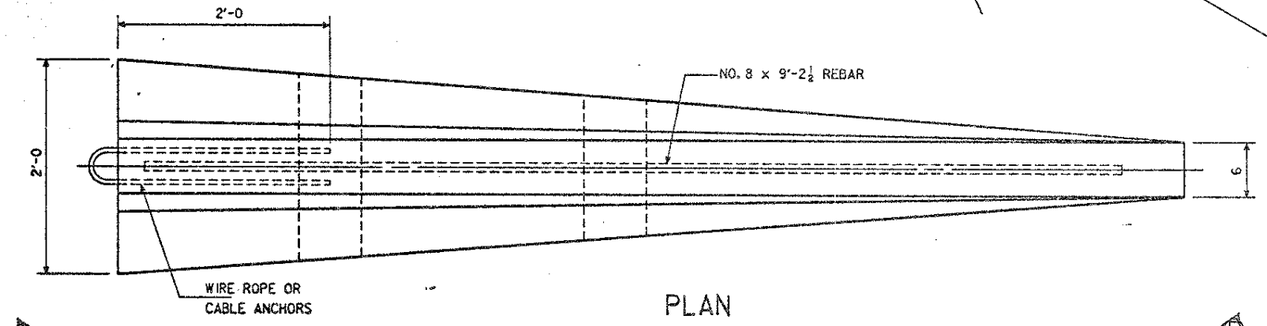


TYPICAL
CONCRETE BARRIER RAIL
TAPER SECTION

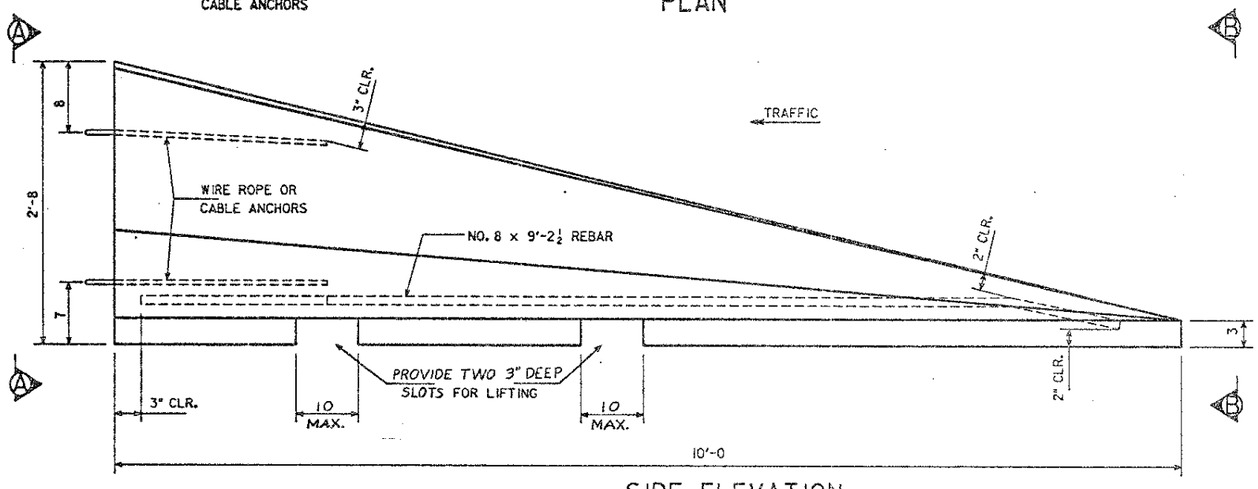
GENERAL NOTES:

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.

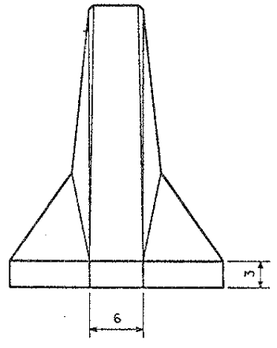
CONCRETE SHALL BE CLASS "D" STRUCTURAL CONCRETE PLACED AND FINISHED IN CONFORMANCE WITH CURRENT STANDARD SPECIFICATIONS FOR "STRUCTURAL CONCRETE". APPROXIMATELY 0.486 CU. YDS. OF CLASS "D" STRUCTURAL CONCRETE WILL BE REQUIRED FOR EACH TAPER SECTION.



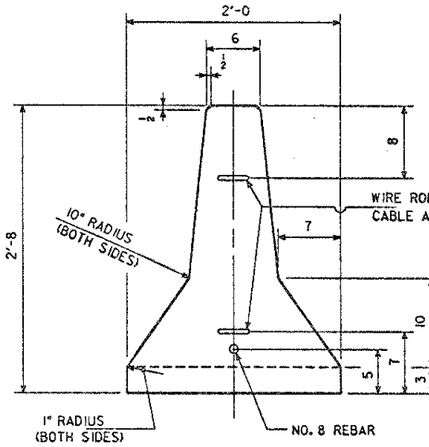
PLAN



SIDE ELEVATION



FRONT VIEW B-B



END VIEW A-A

Over

DESIGN FOR REPAIR TO 1° 13' 30" R.A. SKEW SOUTHBOUND
DUAL 219'-7 x VAR. PRETENSIONED PRESTRESSED
CONCRETE BEAM BRIDGES
38'-11½ & 43'-1½ END SPANS 2 @ 68'-9 INTERIOR SPANS
CONCRETE BARRIER RAIL TAPER SECTION
STATION: 1088+28.60 (RT. LANE I-29)
STATION: 479+87.80 (LT. LANE U.S. NO. 30)
AUGUST, 1993
HARRISON COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
DESIGN SHEET NO. 12 OF 12 FILE NO. 28688 DESIGN NO. 1393

REVISED: 6-21-93 LIFTING SLOT DETAILS CHANGED
HSTD1034B--CJP; THIS SHEET ISSUED, DEVICE : ZHAL[200,51 ARCH. TAPE NO. 9 DATE 10-12-89

DESIGNED BY S.K.GUPTA	TRACED BY C.E.COLE	CONCRETE BARRIER RAIL TAPER SECTION	1034B ISSUE DATE 10/89	HARRISON COUNTY	PROJECT NUMBER	STATE	FHWA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
DETAILED BY C.E.COLE	CHECKED BY					IOWA	7		12	30

h431393.si2 DEVICE : ZGAL[200,003]ARCH. TAPE No. _____ DATE _____

ESTIMATE REFERENCE INFORMATION

100-4A
07-30-93

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

ITEM CODE	DESCRIPTION
2102-2625000	Approved material to be obtained by the contractor outside of existing right-of-way. No payment for overhaul will be allowed. See tab. 107-23.
2301-0685100	See RK-19F and tab. 112-6.
2505-4020152, 2505-4020153, 2505-4020250, 2505-4020251, 2505-4020400, 2505-4021690	See tab. 108-8A.
2505-6745740, 2505-6745749,	See tab. 110-7A
2510-6745850	See tab. 110-1.
2524-9220020, 2524-9220030	See tab. 108-17. Removal of existing object markers, delineators, and posts to be incidental.
2527-9263110, 2527-9263130, 2527-9263180	See tab. 108-22.
2528-8400157	See tab. 108-27, Detail sheets 521-20 & 570-2.
25998-6745855	See tab. 110-7.

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 stabilizer.

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.

DESIGN No 1593

DESIGN NO.1393
FILE NO. 28688

ESTIMATED ROADWAY QUANTITIES

100-0A
07-30-93

ITEM CODE	ITEM	UNIT	TOTAL	AS BUILT QUAN.
2102-2625000	Embankment-In-Place	CY	120.000	
2301-0685100	Bridge Approach Sections	SY	728.000	
2505-4020152	Guardrail, End Anchorage, Beam, RE-52	Only	4.000	
2505-4020153	Guardrail, End Anchorage, Beam, RE-53	Only	2.000	
2505-4020250	Guardrail, Formed Steel Beam	LF	525.000	
2505-4020251	Guardrail, Formed Steel Thrie Beam	LF	250.000	
2505-4020400	Guardrail, Posts, Beam	Only	130.000	
2595-4021690	Guardrail, End Anchorage, Beam, RE-69	Only	8.000	
2505-6745740	Removal of Guardrail End Anchorage	Only	6.000	
2505-6745749	Removal of Guardrail	LF	906.000	
2510-6745850	Removal of Pavement	SY	728.000	
2524-9220020	Object Marker, Type 2	Only	10.000	
2524-9220030	Object Marker, Type 3	Only	4.000	
2527-9263110	Painted Pavement Marking	Sta	81.560	
2527-9263130	Removable Tape Marking	Sta	47.600	
2527-9263180	Pavement Marking Removed	Sta	77.860	
2528-8400157	Temporary Floodlighting Luminaire	Only	4.000	
2528-8445110	Traffic Control	LS	1.000	
2599-6745855	Removal of Posts	Only	168.000	

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-65	01-07-92	RK-19F	02-23-93
RE-2B	10-22-93	RE-67	07-16-91	RL-11	10-11-88
RE-7	04-28-92	RE-68	08-08-89	RL-12	04-04-89
RE-12A	10-11-88	RE-69	10-22-93	RS-62	02-23-93
RE-12B	01-09-90	RF-19E	02-23-93	RS-63A	09-29-92
RE-47	11-10-87	RH-50	06-15-93	RS-63B	09-29-92
RE-48A	06-15-93	RH-51	02-23-93		
RE-52	10-22-93	RH-52	09-29-92		
RE-53	02-23-93	RK-19A	09-29-92		

DESIGN DATA RURAL

101-4

1993	AADT	9200	V.P.D.
20	AADT		V.P.D.
20	DHV		V.P.H.
TRUCKS			%

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 [signature]

Iowa Registration No. 7229 Date 9/15/92

FLD

ROAD DESIGN • CADD • PRODUCED	STATE OF IOWA	FHWA REGION 7	FISCAL YEAR	HARRISON COUNTY	PROJECT NUMBER	IM-29-5(70)75--13-43	SHEET NUMBER 24 of 30

01-20-84 204-1

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.

01-20-84 204-2

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.

8-20-85 204-3

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.

10-22-93 204-4

All guardrail materials that are removed and not reused on this project shall become the property of the contractor. Any material to be used on this project that is damaged due to the carelessness of the contractor shall be replaced at the contractor's expense without cost to the State of Iowa.

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.

10-02-90 213-7

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.

01-20-84 221-4

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.

06-22-84 251-2

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.

TABULATION OF TEMPORARY FLOODLIGHTING LUMINAIRES

108-27 Modified

NO.	LOCATION STATION	TYPE	NUMBER LUMIN.	REMARKS
	1088+28.60	570-2	4	NBL & SBL

REMOVAL OF PAVEMENT

110-1 07-21-87

STATION TO STATION		AREA Sq. Yds.	SAW CUT Lin. Ft.	REMARKS
1089+01	1089+81	428	48	
1086+12	1086+82	300	36	

TRAFFIC CONTROL PLAN

108-23 04-04-89

1. Through traffic will be maintained on the project at all times. The On Loop From U.S. 30 to southbound I-29 will be closed to traffic while the approachs and deck repairs are being completed on the outside lane of southbound of I-29. Through traffic will be maintained during work on the inside lane of I-29.
2. Traffic control on this project shall be found in accordance with the RS series of Standard Road Plans found in Tab. 105-4 on the Title Sheet and/or appropriate Detail Sheets included in the plans. For additional complementary information, refer to the current 'Supplemental Specifications for Traffic Control'.
3. All traffic control devices shall be furnished, erected, maintained and removed by the contractor.
4. Article 2528.12 of the Standard Specifications requires maintenance of all traffic control devices, including maintenance of the devices during nonworking hours, in order to assure proper operation.
5. When used for traffic control or protection of the work site, safety fence must be firmly supported in a vertical position. Related costs will be included in the traffic control bid item.
6. Where possible, all post-mounted signs shall be placed at least 2 feet beyond the curb or edge of the shoulder.
7. The location for storage of equipment by the contractor during non-working hours shall be approved by the engineer in charge of construction. Parking of private vehicles on interstate right-of-way will not be allowed. Parking of unattended equipment within the median or overnight storage of equipment within 50 feet of the edge of pavement will not be allowed.
8. The engineer may require modifications of pavement marking details shown. Conflicting permanent edge lines, center lines and lane lines shall be removed. As applicable, permanent edge lines, center lines, and lane lines shall be placed before the roadway is returned to traffic. The current Standard Specifications and supplemental specifications shall apply.
9. Proposed sign spacing may be modified, as approved by the engineer, to meet existing field conditions or to prevent obstruction of the motorist's view of permanent signing.
10. Permanent signing that conveys a message contrary to the message of the temporary signing and is not applicable to the working conditions shall be covered by the contractor when directed by the engineer.
11. Proposed changes in the traffic control plan shall be reviewed with the Office of Construction before changes are made.
12. 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.

TABULATION OF BRIDGE APPROACH SECTION

(Refer to Standard Road Plan RF-19D, RF-19E, RK-16, RK-19A, RK-19B, RK-19C, RK-19D, RK-19E, RK-19F, RK-19G, RK-19H, or RK-19J) ① Not a bid item

112-6 10-22-93

LOCATION		APPROACH PAVEMENT					Fixed or Movable Abutment	SUBDRAIN					APPROACH SUBGRADE		REMARKS
Bridge Station Southbound	End	Case	(PN) for Case '2'	(T) Thickness Inches	Non-Reinf. Pavement Area Sq. Yds.	Reinforced Pavement Area Sq. Yds.	F or M	Perforated Subdrain ① 4" Lin. Ft.	Subdrain Outlet ① Station	Side	Porous ① Backfill Cu. Yds.	Class 'A' Crushed Stone ① Backfill Cu. Yds.	Special Backfill ① Sq. Yds.	Engeering Fabric ① Sq. Yds.	
1088+28.60	N	1		12	245	183 80'	F	40	1089+72	R	2.0	0.2	467	467	①
1088+28.60	S	1		12	189	111 70'	F	40	1086+22	R	2.0	0.2	397	397	②

① Southbound bridge, includes Loop and Gore area. Pay limit is 80'. On ramp will be closed when outside lane is being worked on.
② Southbound bridge, includes Loop taper. Pay limits is 70'. On ramp will be closed when outside lane is being worked on.

Over

DESIGN No. 1393

DESIGN NO. 1593
FILE NO. 28688

ROAD DESIGN • CADD • PRODUCED | STATE OF IOWA | FHWA REGION 7 | FISCAL YEAR | HARRISON COUNTY | PROJECT NUMBER IM-29-5(70)75--13-43 | SHEET NUMBER 25 of 30