BRIDGE REPAIR

FN-34-6(46)--21-59

LUCAS COUNTY

CONVENTIONAL SIGNS

STATE LINE
COUNTY LINE
TOWNSHIP LINE
SECTION LINE
CORPORATION LINE
URBAN BOUNDRY
R.O.W. LINES
SURVEY LINES
SECTION CORNER
PROPOSED PROFILE GRADE
RAILROAD
FIELD TILE
UNDERGROUND LINES
CULVERTS
UTILITY POLES
FENCES
TREES OR BRUSH
STREAM
DIKE
COUNTY ROAD NUMBER
PRIMARY ROAD NUMBER
U.S. ROAD NUMBER
INTERSTATE ROAD NUMBER

IOWA

DEPARTMENT OF TRANSPORTATION

Highway Division

PLANS OF PROPOSED IMPROVEMENTS ON THE

PRIMARY ROAD SYSTEM

LUCAS COUNTY

BRIDGE REPAIR

ON U.S. 34 - OVER BURLINGTON NORTHERN RAILROAD - AT THE SOUTH EDGE OF LUCAS CORP LINE

SCALES: 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)

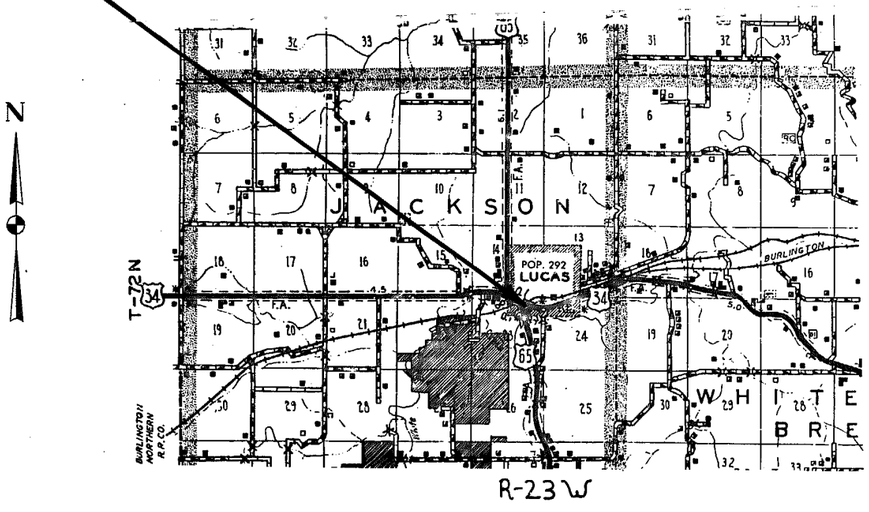
STATE	FHWA REGION	F.Y.	SHEET	TOTAL
IOWA	7		1	18

PROJECT NUMBER
FN-34-6(46)--21-59
R.O.W. PROJECT NUMBER
PIN
90-59-030-1

INDEX OF SHEETS

NO.	DESCRIPTION
1	TITLE SHEET
2-18	BRIDGE DESIGN NO. 390

DESIGN NO. 390



LOCATION MAP SCALE
0 1 2 3
Miles

891609
005066
001
SJK

STANDARD ROAD PLANS			
IDENT	DATE	IDENT	DATE
RH-51	08-08-89		
RH-52	08-08-89		
RS-2	10-11-88		
RS-3	11-15-88		

STANDARD BRIDGE PLANS		
STANDARD	ISSUED	REVISED

60

REVISIONS

Iowa Department of Transportation

AUTHORIZED FOR LETTING
W. C. Gustason 10-10-89
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 Wendal Johnston
Iowa Registration No. 4316 Date 10/11/89

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
APPROVED

FOR THE DIVISION ADMINISTRATOR DATE

Dist #5 Chariton

LETTING DATE October 20, 1989 STATE CONTROL SECTION NUMBER 59-0200 FILE NO. 28016 LUCAS COUNTY PROJECT NO. FN-34-6(46)--21-59 SHEET NO. 1

GENERAL NOTES

THIS DESIGN IS FOR REPAIR TO THE EXISTING DAMAGED 210'-0 X 48' CONTINUOUS 1-BEAM BRIDGE ON U.S. 34 OVER THE BURLINGTON NORTHERN RAILROAD. ORIGINAL DESIGN IS DESIGN NO. 173 LUCAS COUNTY. PLANS OF THE EXISTING STRUCTURE MAY BE OBTAINED AT THE AMES OFFICE OF THE IOWA D.O.T. - HIGHWAY DIVISION. REPAIRS SHALL INCLUDE REPLACING A PORTION OF THE SOUTH ABUTMENT BACKWALL, REPLACING THE STEEL EXPANSION PLATE OVER THE MEDIAN AT THE SOUTH ABUTMENT, REMOVING AND REPLACING A PORTION OF THE SOUTH APPROACH PAVEMENT AND MEDIAN, AND REMOVING AND REPLACING A PORTION OF THE BRIDGE SLAB ON THE EASTBOUND LANE.

TRAFFIC SHALL BE MAINTAINED AT ALL TIMES IN ACCORDANCE WITH THE "TRAFFIC CONTROL PLAN" NOTE.

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 REINFORCEMENT SUPPLIED FOR THIS DESIGN MAY BE GRADE 40, 50, OR 60 IN ACCORDANCE WITH THE SPECIFICATIONS.

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

THE BID ITEM "REMOVAL OF CONCRETE" SHALL INCLUDE REMOVAL AND DISPOSAL OF THE FOLLOWING: PORTION OF SOUTH ABUTMENT BACKWALL, PORTION OF SUPERSTRUCTURE MEDIAN AT SOUTH END OF BRIDGE, AND A PORTION OF THE BRIDGE SLAB IN THE EASTBOUND ROADWAY. REMOVAL AND DISPOSAL SHALL BE IN ACCORDANCE WITH SECTION 2401 OF THE STANDARD SPECIFICATIONS. ANY DAMAGE TO CONCRETE, REINFORCING STEEL, AND STRUCTURAL STEEL (INCLUDING DAMAGE TO PAINT) NOT TO BE REMOVED SHALL BE RESPONSIBILITY OF THE CONTRACTOR AND REPAIRED BY HIM AT NO EXTRA COST TO THE STATE. ALL MATERIALS REMOVED SHALL BECOME THE PROPERTY OF THE CONTRACTOR.

THE BID ITEM "REMOVAL OF PAVEMENT" SHALL INCLUDE ALL COSTS ASSOCIATED WITH REMOVING PORTIONS OF THE APPROACH PAVEMENT AND MEDIAN AS NOTED AND SHOWN ON THESE PLANS. ALL MATERIALS REMOVED SHALL BECOME THE PROPERTY OF THE CONTRACTOR.

IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE WASTE AREAS OR DISPOSAL SITES FOR EXCESS MATERIAL SUCH AS BROKEN CONCRETE, A.C.C. LEVELING COURSE, EXCAVATION, ETC. NO PAYMENT FOR OVERHAUL WILL BE ALLOWED FOR MATERIALS HAULED TO THESE SITES.

IT WILL BE NECESSARY TO SUPPORT THE EXISTING EMBANKMENT BENEATH PAVEMENT NOT TO BE REMOVED DURING THE TIME THAT THE EXCAVATION IS OPEN. THE METHOD OF SUPPORT SHALL BE APPROVED BY THE ENGINEER. ALL COSTS ASSOCIATED WITH SUPPORTING THE EXISTING EMBANKMENT SHALL BE INCLUDED IN THE UNIT PRICE BID FOR "CLASS 20 EXCAVATION".

CONCRETE SEALER IS TO BE APPLIED TO CLASS D STRUCTURAL CONCRETE AT THE TOP OF THE SOUTH ABUTMENT BACKWALL AND THE EXPOSED SUPERSTRUCTURE MEDIAN AT SOUTH END OF BRIDGE. THE SEALER MATERIAL, SURFACE PREPARATION, AND APPLICATION SHALL BE IN ACCORDANCE WITH 2403.23D. ALL COSTS ASSOCIATED WITH THIS APPLICATION OF CONCRETE SEALER SHALL BE INCLUDED IN THE UNIT PRICE BID FOR "STRUCTURAL CONCRETE".

THE CONTRACTOR SHALL CONSTRUCT NEW BRIDGE APPROACH PAVEMENT AND MEDIAN AS NOTED AND SHOWN. THE PRICE BID FOR "BRIDGE APPROACH SECTION, REINFORCED, AS PER PLAN" SHALL BE FULL COMPENSATION FOR FURNISHING AND INSTALLING THE P.C. CONCRETE APPROACH PAVEMENT AND THE P.C. CONCRETE MEDIAN, INCLUDING EXCAVATION, BACKFILL, REINFORCING STEEL AND JOINT MATERIAL AS SHOWN AND NOTED.

THE A.C. LEVELING COURSE THAT IS REMOVED DURING PAVEMENT REMOVAL WILL BE REPLACED BY LOCAL HIGHWAY DIVISION MAINTENANCE FORCES BEFORE TRAFFIC IS ALLOWED BACK ON THE REPAIRED APPROACH PAVEMENT. THE CONTRACTOR SHALL GIVE ADEQUATE PRIOR NOTICE SO THAT THE A.C. MAY BE PLACED DURING NORMAL WORKING HOURS AND WORKING DAYS OF MAINTENANCE.

ALL BACKFILL BEHIND THE NEW ABUTMENT BACKWALL IS TO BE GRANULAR BACKFILL AS SHOWN.

PLAN QUANTITY OF "GRANULAR BACKFILL" INCLUDES THE VOLUME REQUIRED BEHIND THE BACKWALL AND THE VOLUME REQUIRED BENEATH FOE P.C. CONCRETE MEDIAN FOR THE LIMITS AS SHOWN AND NOTED.

THE NEW MEDIAN EXPANSION PLATES ARE TO BE BLAST CLEANED AND PAINTED AFTER FIELD WELDING AND INSTALLATION. THE BLAST CLEANING PREPARATION IS TO COMPLY WITH THE STEEL STRUCTURES PAINTING COUNCIL SPECIFICATIONS SSPC-SP7, BSAL. THE PLATES ARE TO BE GIVEN ONE COAT OF RUST-OLEUM PRIMER AND ONE COAT OF RUST-OLEUM FINAL COAT OR AN APPROVED EQUAL PRIMER AND FINAL COAT. THE COLOR OF DRY PAINT SHOULD APPROXIMATE THE COLOR OF CONCRETE.

THE BID ITEM "STRUCTURAL STEEL" SHALL INCLUDE ALL COSTS ASSOCIATED WITH FURNISHING AND INSTALLING THE NEW MEDIAN EXPANSION PLATES AS SHOWN AND NOTED.

PLAN QUANTITY OF "REMOVAL OF PAVEMENT" AND "BRIDGE APPROACH SECTION, REINFORCED, AS PER PLAN" INCLUDES THE AREAS OF APPROACH PAVEMENT AND INTEGRAL CURB. ALL COSTS ASSOCIATED WITH REMOVAL OF THE P.C. CONCRETE MEDIAN SHALL BE INCLUDED IN THE PRICE BID FOR "REMOVAL OF PAVEMENT". ALL COSTS ASSOCIATED WITH FURNISHING AND PLACING THE P.C. CONCRETE MEDIAN SHALL BE INCLUDED IN THE PRICE BID FOR "BRIDGE APPROACH SECTION, REINFORCED, AS PER PLAN". AREA OF P.C. CONCRETE MEDIAN IS NOT INCLUDED IN PLAN QUANTITY OF "REMOVAL OF PAVEMENT" OR "BRIDGE APPROACH SECTION, REINFORCED, AS PER PLAN".

TOTAL ESTIMATED QUANTITIES

ITEM Nº	ITEM		UNITS	QUANTITY
1	Structural Concrete		Cu.Yds.	5.9
2	Reinforcing Steel		lbs.	1286
3	Structural Steel		lbs.	60
4	Class 20 Excavation		Cu.Yds.	5
5	Granular Backfill		Tons	18
6	Bridge Approach Section, Reinforced, As Per Plan		Sq.Yds.	18
7	Removal of Concrete		L.S.	Lump Sum
8	Removal of Pavement		Sq.Yds.	18
9	Pavement Markings		Station	106.4
10	Traffic Control		L.S.	Lump Sum
11	Temporary Floodlighting		L.S.	Lump Sum
12	Temporary Attenuator		Only	2
13	Temporary Barrier Rail	Furnish Only	Lin.Ft.	340
14		Place Only	Lin.Ft.	340

ITEM Nº ESTIMATE REFERENCE INFORMATION:

1 Includes Concrete Sealer for exposed top of abutment backwall and superstructure median at South end of bridge. Structural Concrete shall be Class D.
4 Includes cost of support for existing embankment during construction.
6 Includes the cost of all equipment, labor and materials (including 297 lbs. of reinforcing steel and all required joint material).
8 Includes removal of A.C. leveling course over P.C. Pavement to be removed.
9 See Traffic Control Layout Sheet, Tab. 108-22, and Detail 9001.
10 See Traffic Control Plan ; Tab. 108-23.
11 See Traffic Control Layout Sheet, and detail sheet 570-2.
12 See Traffic Control Layout Sheet, and Design Sheet 16.
13 & 14 All temporary barrier rail shall be a combination of nominal 20' long steel units and nominal 10' long concrete units.

SPECIFICATIONS:

Construction: Iowa Department of Transportation Specifications, Series 1984, plus current Supplemental Specifications and Special Provisions.

LOCATION:

U.S. 34 over Burlington Northern R.R. Crossing # 884 (FRA-079097V)
Section 23
T-72 N R-23W
Jackson Twp.
Lucas County

Bridge Maintenance Nº 5932.35034

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

10/11/89 DATE — GARY A. NOVEY — REG. NO. 8704

Design For Repairs To 35°5' 30" Skew
210'-0 x 48' CONTINUOUS I-BEAM BRIDGE
64'-0 End Spans 82'-0 Center Span
GENERAL NOTES & QUANTITIES
Station: 807+91.95 (℄ U.S.34) R.R.X-ing Nº 884 Oct, 1989
LUCAS COUNTY
IOWA DEPARTMENT OF TRANSPORTATION-HIGHWAY DIVISION
Design Sheet No.: 1 Of 17 File No.: 2806 Design No.: 390

DESIGNED BY: G. Part DETAILED BY: R.Rysavy TRACED BY: CHECKED BY:

Section Leader G.A. Novey

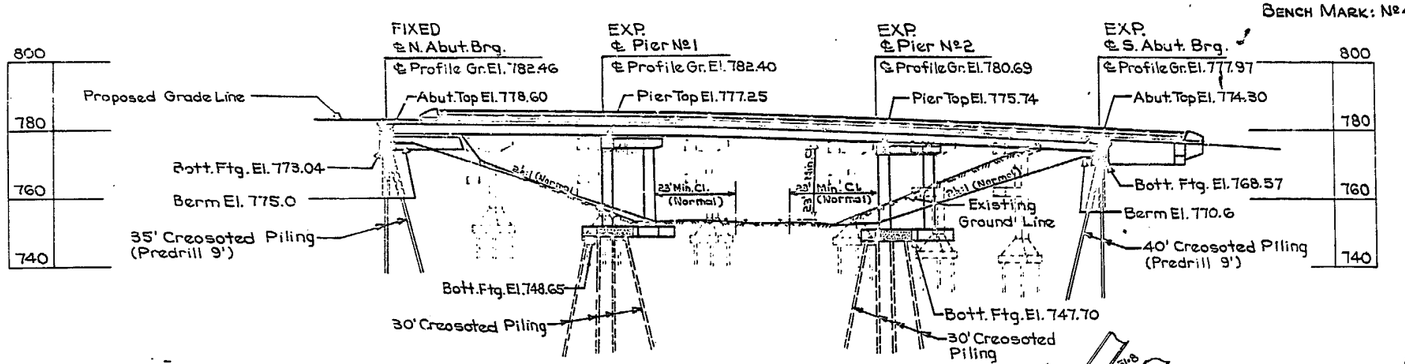
LUCAS COUNTY

PROJECT NUMBER: FN-34-6(46)--21-59

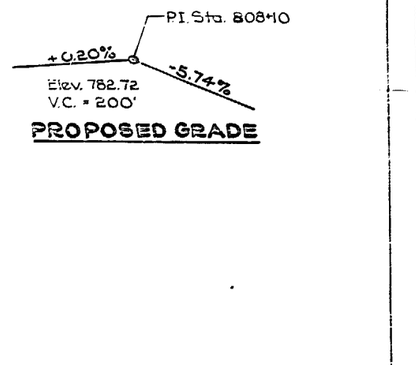
STATE	FHWA Region	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	7		2	18

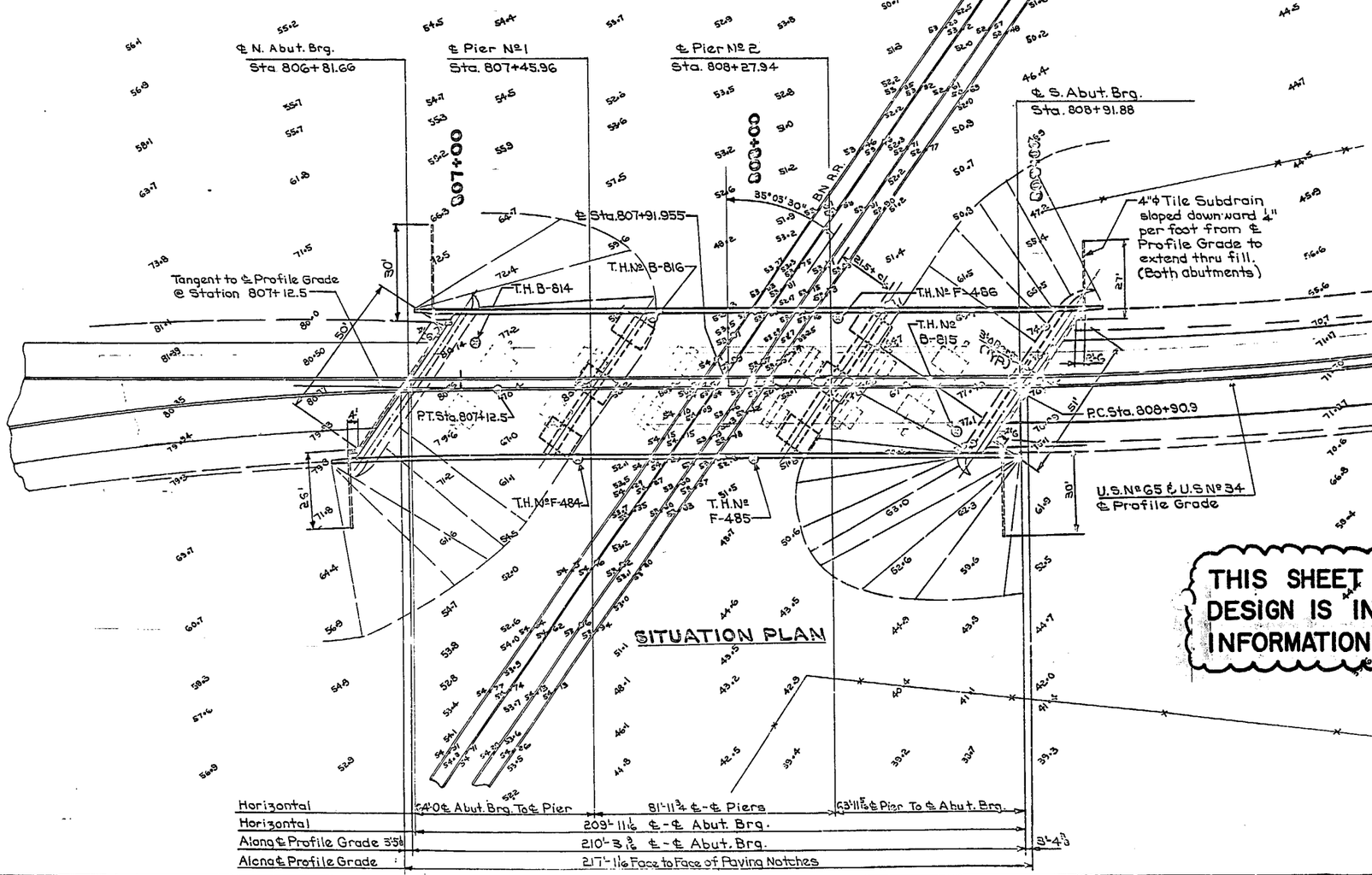
BRUNING 65219 WINDOW WORK SHEET 88-71848

BENCH MARK: №4 "X" at base of Hdrl. on N.E. Cor. of R.R. Overpass 15' Lt. of Sta. 807+15 Elev. 780.73



LONGITUDINAL SECTION ALONG ℄ PROFILE GRADE





SITUATION PLAN

LOCATION:
Iowa №34
Over B N RR
Jackson Twp.
Section 23
T-72 N R-23 W
Lucas County

TRAFFIC COUNT:
3000 VPD (1973)
2000 VPD (1993)

THIS SHEET FROM ORIGINAL DESIGN IS INCLUDED FOR INFORMATION ONLY.

Design For 35°05'30" Skew
210'-0 x 48' CONTINUOUS I-BEAM BRIDGE
64'-0 End Spans 82'-0 Interior Span
SITUATION PLAN
Station: 807+91.955 RR Xing №884 Aug. 1973
LUCAS COUNTY
IOWA STATE HIGHWAY COMMISSION
Design Sheet No.: 1 Of 23 File No.: 24587 Design No.: 173

DESIGN NO. 390
FILE NO. 28016
DES. SH. NO. 2 OF 17

DESIGNED BY: R. A. Henning
DETAILED BY: Otis Twedt Jr.
TRACED BY:
CHECKED BY: M. Trani
SECTION LEADER: William A. Smith
LUCAS COUNTY

PROJECT NUMBER	STATE	FED. ROAD DIST. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
FN-34-6(14)--21-59	IOWA	5		3	23

18

CIRCULAR CURVE SYSTEM

5-12-72

INC	P.C. STATION	P.C. COORDINATES	P.I. STATION	P.I. COORDINATES	P.T. STATION	P.T. COORDINATES	Δ	D	T	L	E	R	SUPERELEV. O	S	□
1	1788+55.9		1803+01.2		1807+12.5		42° 57' 30" Rt.	5° 00' 00"	450.91	659.17	85.52	1145.92	0.071	133	6"
2	Initiation of Curve														
	1799+57.7		1803+03.19		1803+65.73		43° 57' 30" Rt.	7° 00' 00"	330.26	627.98	64.15	818.51			
3	Proposed Tangent Initiation to Existing Curve														
	1799+57.7		1801+77.48		1803+87.07 (P.C.C.)		20° 02' 00" Rt.	7° 00' 00"	219.70	429.29	28.97	818.51			
4	2003+67.07 (P.C.C.)		2003+03.55		2005+18.88		13° 54' 30" Rt.	6° 00' 00"	116.46	231.81	7.08	954.93	0.071	224	169
5							31° 51' 25" Rt.	24° 54' 40"	65.64	127.28	9.18	220.00			

Equation:
P.T. Sta. 1805+85.73 (Line A)
= P.O.S.T. 308.23' Ahead of
P.I. Sta. 803+04.2 (Survey)

Equation:
P.T. Sta. 2806+18.88 (Line B)
= 4' Lt. P.O.S.T. 341.01' Ahead of
P.I. Sta. 803+04.2

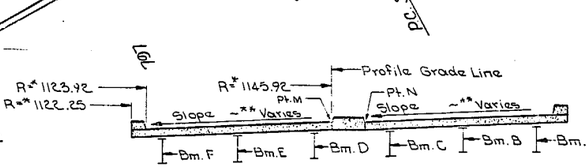
Sta. 807+84.05 Existing 156'-3" x 24' Concrete Deck Girder Bridge (To be removed by the Bridge Contractor).

Δ = 62° 00' Lt.
D = 5° 00'
T = 688.54'
L = 1240
E = 190.96
R = 1145.92

Sta. 807+91.955 Proposed 210' x 48' Continuous I-Beam Bridge.

P.I. Sta. 1802+88.13 Line A
P.I. Sta. 803+04.2 Survey
Line A
Line B - Use on Construction
P.I. Sta. 2805+03.55 Line B
Paved Island
Paved Median
Constant Slope
Uniform Transition
224.3'
160' Taper 15:1 Ratio
280' Taper 70:1 Ratio
34' Uniform From End of Bridge
Transition of Bridge
60' Uniform From End of Bridge
Constant Slope
Sta. 2805+40 Prop. 2A-3 Intake
158'
35° 05' 30"
P.C. Sta. 808+90.9
P.T. Sta. 807+32.97
BN R.R.
Equation:
P.O.C. Sta. 1803+87.07 (Line A)
= P.O.C. Sta. 2003+87.07 (Line B)
Equation:
P.O.C. Sta. 802+21.8
= P.I. Sta. 4+22.0
Equation:
P.O.C. Sta. 1802+13.93
= P.O.T. Sta. 4+54.47
Equation:
P.O.S.T. Sta. 802+03.10
= P.O.T. Sta. 4+81.80
P.C. Sta. 1799+57.78 (Match Line A)
P.C. Sta. 708+53.3
Line A
Survey ℄
℄ U.S. 34
℄ U.S. 65
Equation:
P.O.T. Sta. 704+23.55 (Survey)
= P.I. Sta. 1704+23.55 (Line A)
Δ = 1° 00' Lt.

GENERAL PLAN

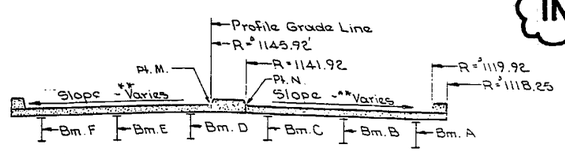


GENERAL BRIDGE CROSS SECTION
(From the North end of Bridge to Sta. 807+21.43)

* Radii shown are from the north end of the superstructure to the P.T. @ Sta. 807+12.50.

Note: Pt. M and Pt. N are the same Elevation.

** See "General Plan" on this sheet for Superelevation details. Slope = 0 at Sta. 807+21.43 (East Lane)



GENERAL BRIDGE CROSS SECTION
(From Sta. 807+21.43 to the South end of Bridge)

* Radii shown are from the P.C. Sta. 808+90.9 to the south end of the superstructure.

THIS SHEET FROM ORIGINAL DESIGN IS INCLUDED FOR INFORMATION ONLY.

Design For 35° 05' 30" Skew
210'-0 x 48' CONTINUOUS I-BEAM BRIDGE
64'-0 End Spans 82'-0 Interior Span

GENERAL PLAN

Station: 807+91.955 R.R. Xing № 884 Aug. 1973

LUCAS COUNTY
IOWA STATE HIGHWAY COMMISSION
Design Sheet № 3 Of 23 File № 24587 Design № 173

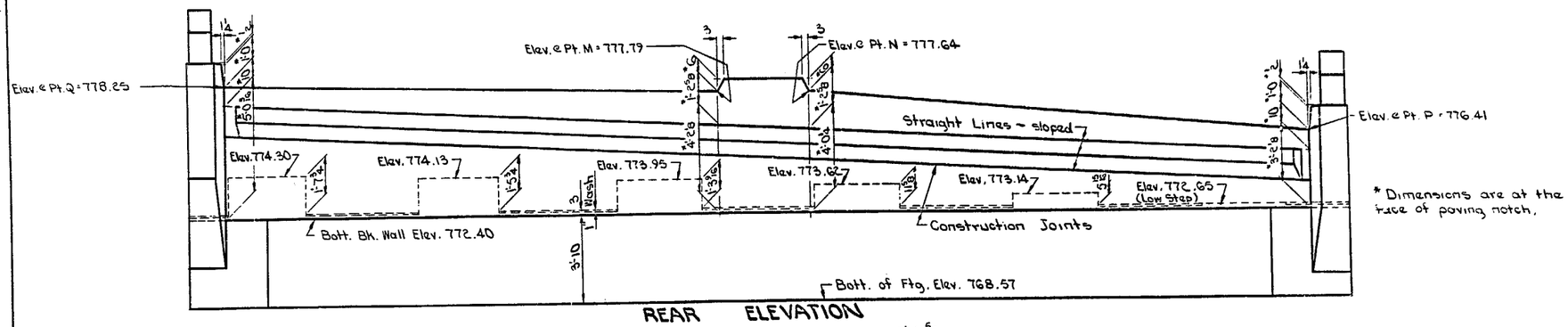
DESIGN NO. 390
FILE NO. 28016
DES. SH. NO. 3 OF 17

DESIGNED BY: R. H. Nenning
DETAILED BY:
TRACED BY:
CHECKED BY: H. Jasa

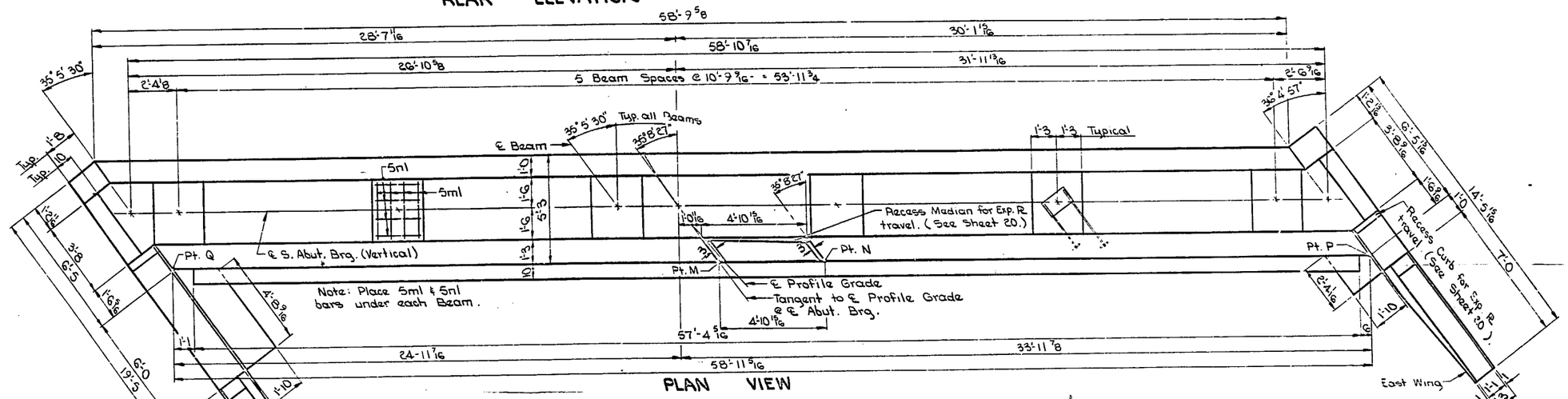
LUCAS COUNTY

PROJECT NUMBER	STATE	FED. ROAD DIST. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
FN-34-6(14)--21-59	IOWA	5		4	18

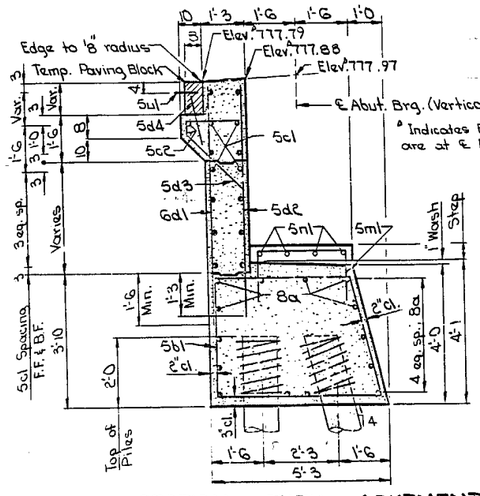
Bench Mark · N° 4 "x" At base of hdrl. on N.E. Cor of R.R. Overpass, 15' Lt. Sta. 807+15 El. 780.73.



REAR ELEVATION

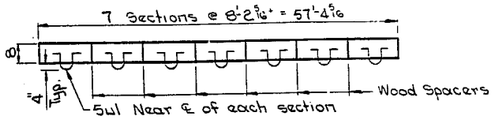


PLAN VIEW

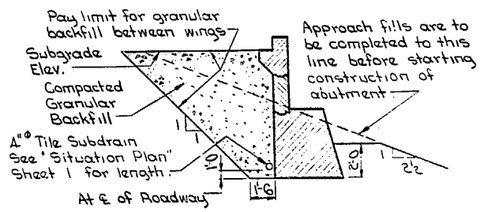


Indicates Elevations are at ℄ Profile Grade.

SECTION THRU ABUTMENT



PAVING BLOCK DETAIL



BACKFILL DETAIL

Note: Spirals at top of each pile are made up of 7 turns of 1/4" ⌀ rod, 21" diameter, 3" pitch, with 2-7/8" ⌀ 0.69 spacers punched to hold spiral.

THIS SHEET FROM ORIGINAL DESIGN IS INCLUDED FOR INFORMATION ONLY.

Design for 35° 5' 30" Skew

210'-0 × 48'-0 CONTINUOUS I-BEAM BRIDGE

64'-0 End Spans 82'-0 Center Span

SOUTH ABUTMENT DETAILS

Sta 807+91.96 R.R. X-ing # 684 Aug. 1973

LUCAS COUNTY

IOWA STATE HIGHWAY COMMISSION

Design Sheet N° 8 of 23 File N° 21587 Design N° 173

DESIGN NO. 390
FILE NO. 2801G
DES. SH. NO. 9 OF 17

PROJECT NUMBER
FN-34-C(12)--21--57

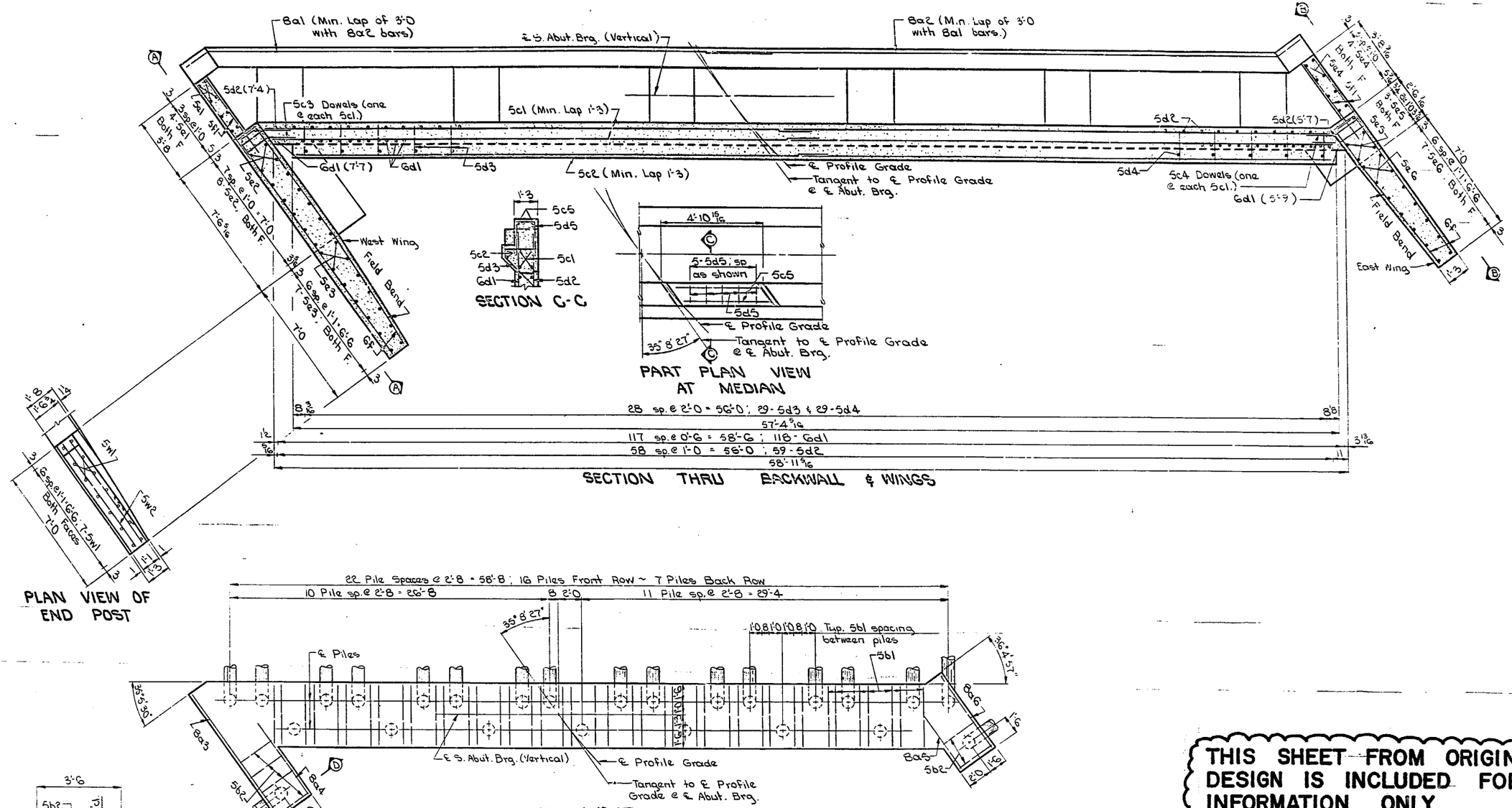
STATE	F.A. ROAD DIST. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	5		~~16~~	~~17~~ 17

DESIGNED BY: R.B. Hunsinger TRACED BY: Doug Warriner

DETAILED BY: Doug Warriner CHECKED BY: H. Tsai

LUCAS COUNTY

5 of 17



THIS SHEET FROM ORIGINAL DESIGN IS INCLUDED FOR INFORMATION ONLY.

Note See Sheet 10 for Views A-A & B-B

Design for 35° 5' 30" Skew

210'-0 × 48'-0 CONTINUOUS I-BEAM BRIDGE

64'-0 End Spans 82'-0 Center Span

SOUTH ABUTMENT DETAILS

Sta 807 + 71.76 R.R. X-ing # 884 Aug. 1973

LUCAS COUNTY

IOWA STATE HIGHWAY COMMISSION

Design Sheet N° 9 of 23 File N° 24587 Design N° 173

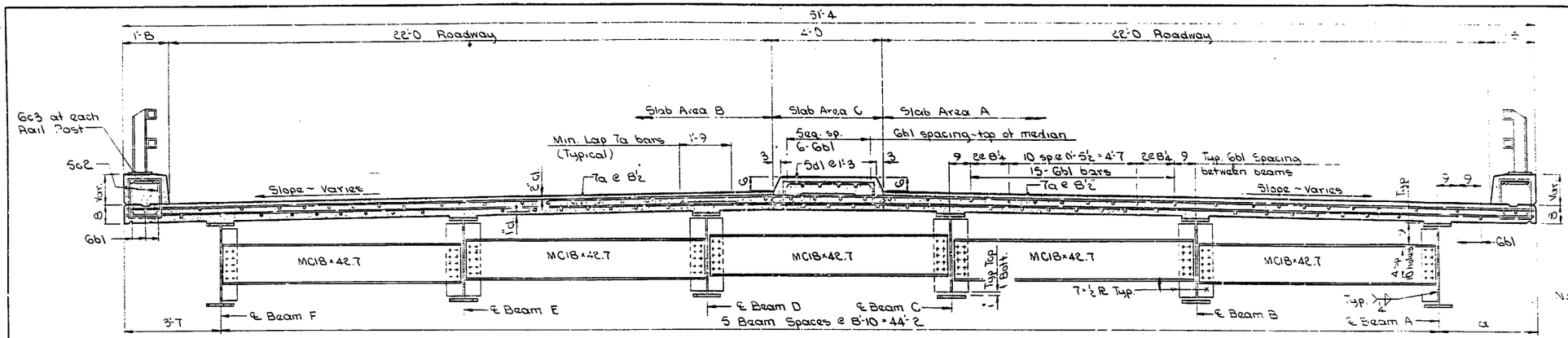
DESIGN NO. 390
FILE NO. 28016
DES. SH. NO. 5 OF 17

DESIGNED BY: R.B. Venning TRACED BY: Doug Warring
DETAILED BY: Doug Warring CHECKED BY: Ed Tassi

LUCAS COUNTY

PROJECT NUMBER	STATE	FED ROAD DIST NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
FN-34-6(14)--21-57	IOWA	5		11	17

6 of 17

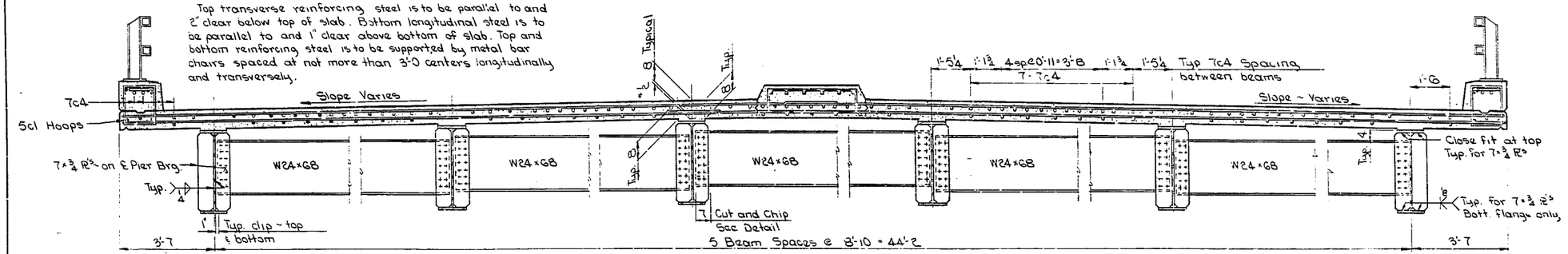


INTERMEDIATE CROSS SECTION

(From Sta. 807+21.43 to P.C. Sta. 808+90.9)

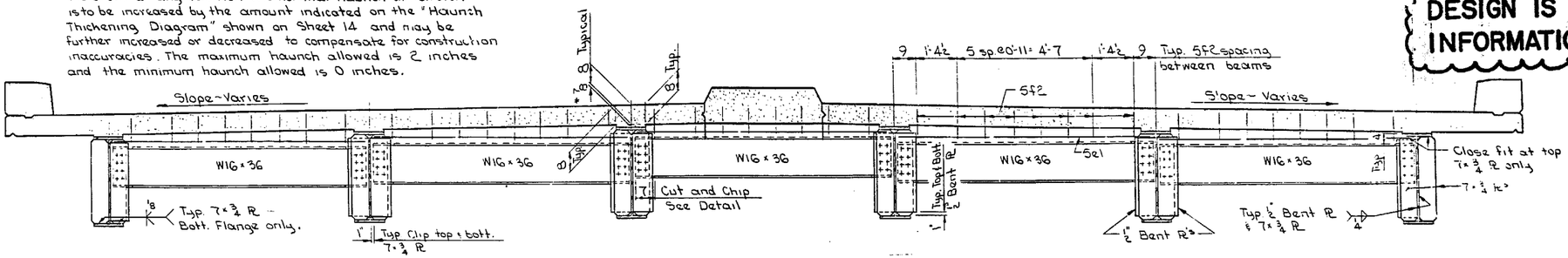
Note 'a' = 3'-7 from Sta. 807+12.5 to Sta. 808+70.9, and varies from Sta. 808+90.9 to South end of Bridge.

Top transverse reinforcing steel is to be parallel to and 2" clear below top of slab. Bottom longitudinal steel is to be parallel to and 1" clear above bottom of slab. Top and bottom reinforcing steel is to be supported by metal bar chairs spaced at not more than 3'-0 centers longitudinally and transversely.



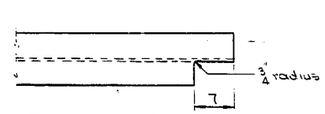
CROSS SECTION NEAR PIER DIAPHRAGMS

*The haunch dimensions shown are the nominal haunch dimensions at the bearings. For the slab thickness over the beam at any location the nominal haunch dimension is to be increased by the amount indicated on the "Haunch Thickening Diagram" shown on Sheet 14 and may be further increased or decreased to compensate for construction inaccuracies. The maximum haunch allowed is 2 inches and the minimum haunch allowed is 0 inches.

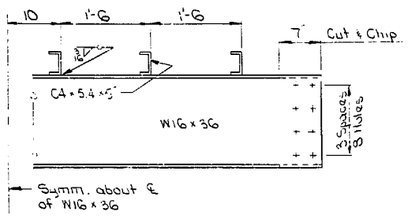


CROSS SECTION NEAR SOUTH ABUTMENT

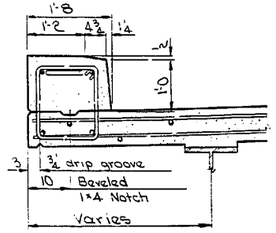
THIS SHEET FROM ORIGINAL DESIGN IS INCLUDED FOR INFORMATION ONLY.



CUT & CHIP DETAIL



ABUTMENT DIAPHRAGM DETAILS



CURB DETAILS

Design for 3'-3" Skew

210'-0 × 48'-0 CONTINUOUS I-BEAM BRIDGE

64'-0 End Spans 82'-0 Center Span

SUPERSTRUCTURE DETAILS

Sta. 807+91.36 R.R. X-ing # 884 Aug. 1973

LUCAS COUNTY

IOWA STATE HIGHWAY COMMISSION

Design Sheet No 16 of 23 File No 24587 Design No 173

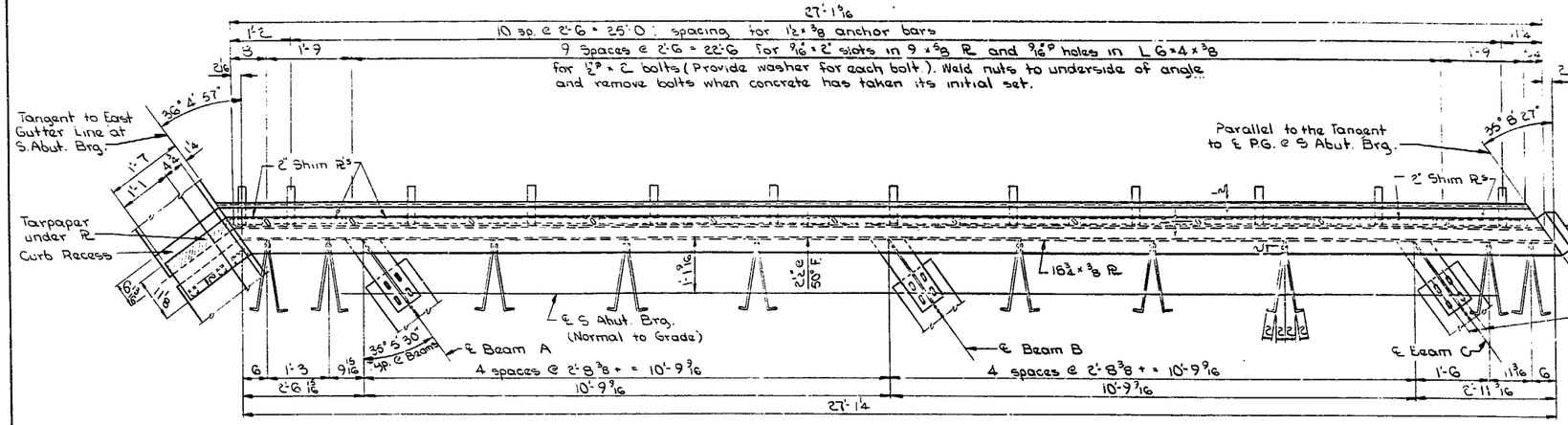
DESIGN NO. 390
FILE NO. 28016
DES. SH. NO. G OF 17

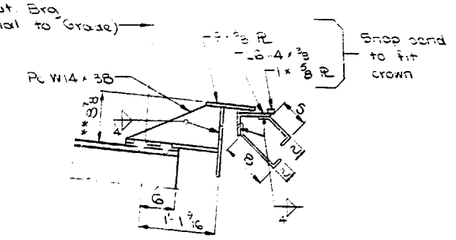
DESIGNED BY R.B. Manning TRACED BY Doug Waring
DETAILED BY Doug Waring CHECKED BY H. Tsai

LUCAS COUNTY

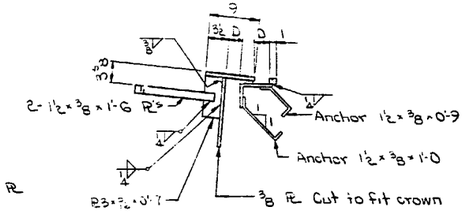
PROJECT NUMBER	STATE	FED ROAD DIST NO.	FISCAL YEAR	SHEET NO	TOTAL SHEETS
FN-34 G(14)--21-57	IOWA	5		19	25

7 of 18

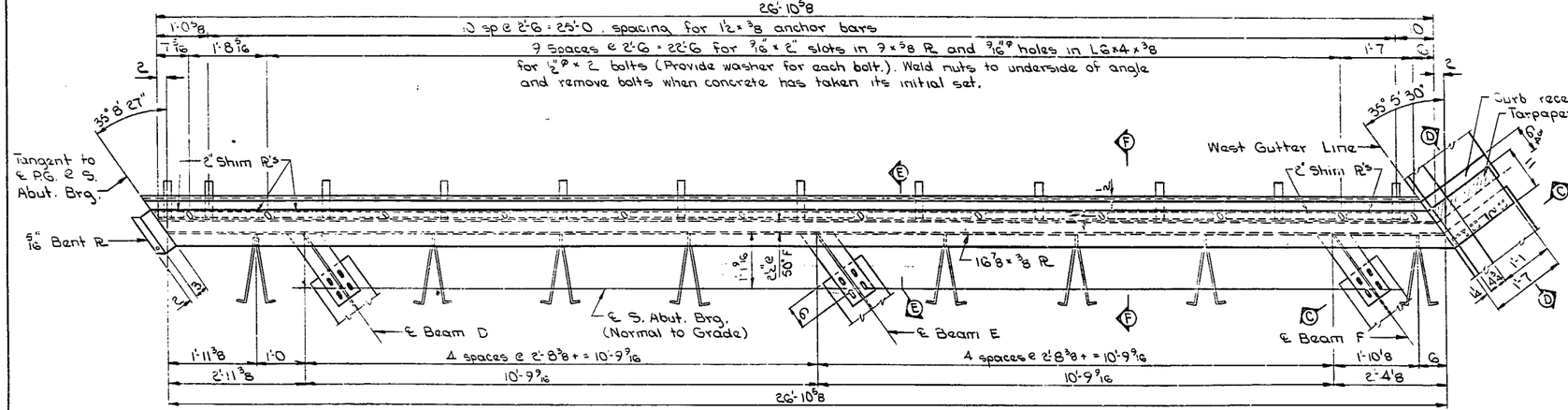




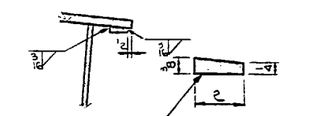
SECTION E-E



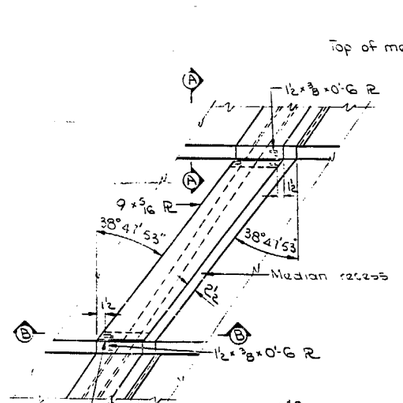
SECTION F-F



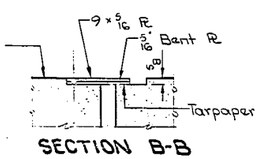
EXPANSION PLATE DETAILS ~ SOUTH ABUTMENT



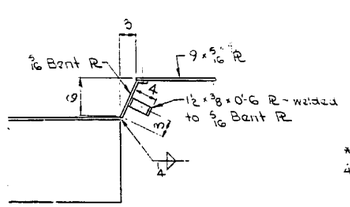
SHIM DETAIL



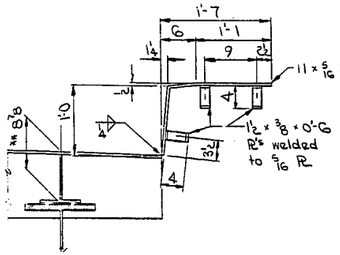
PLAN VIEW OF MEDIAN EXPANSION JOINT



SECTION B-B

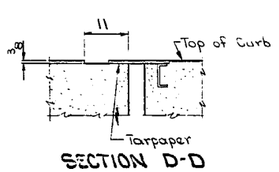


VIEW A-A



VIEW C-C

** Includes 2 - 6 1/2 x 1/8 shims (Furnish 4 shims for each W support.)



SECTION D-D

Note: Dimension "D" is 2 1/2" for a temperature of 50° F See "Rocker And Expansion Plate Setting" diagram on another sheet for settings for 10° F. and 90° F.

THIS SHEET FROM ORIGINAL DESIGN IS INCLUDED FOR INFORMATION ONLY.

Design for 35° 5' 30" Skew
210'-0 x 48'-0 CONTINUOUS I-BEAM BRIDGE
64'-0 End Spans 82'-0 Center Span
EXPANSION PLATE DETAILS
Sta. 807 + 91.96 R.R. X-ing # 884 Aug. 1973
LUCAS COUNTY
IOWA STATE HIGHWAY COMMISSION
Design Sheet No.: 20 Of 23 File No.: 2458T Design No.: 173

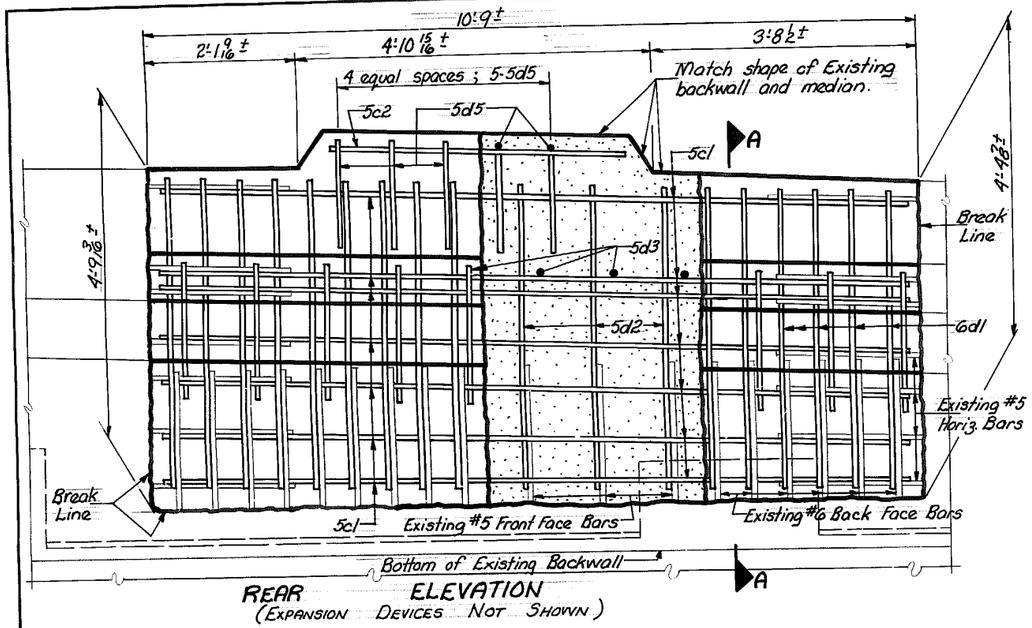
DESIGN NO. 390
FILE NO. 28016
DES. SH. NO. 7 OF 7

DESIGNED BY: R.B. Hennings
DETAILED BY: Doug Wayerings
TRACED BY: Doug Wayerings
CHECKED BY: H. Tsai

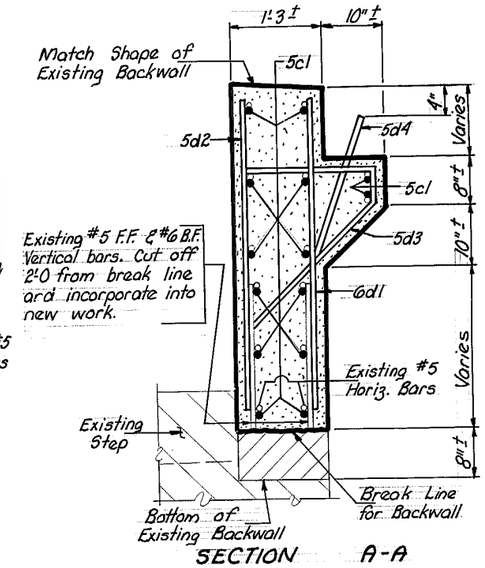
LUCAS COUNTY

PROJECT NUMBER	STATE	FED. ROAD DIST. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
FN-34-6(14)--21-59	IOWA	6		22	

8 18



REAR ELEVATION
(EXPANSION DEVICES NOT SHOWN)

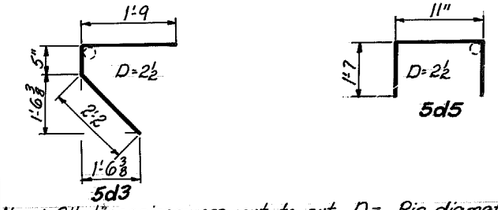


SECTION A-A

REINFORCING BAR LIST ~ SOUTH ABUTMENT

BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
5c1	Backwall, Horiz.	—	14	10'-5	152
5c2	Median, "	—	2	4'-0	8
6d1	Backwall, Vert., B.F.	—	21	4'-2	131
5d2	" , " , F.F.	—	11	4'-2	48
5d3	Paving Support, Vert.	⊃	11	4'-4	50
5d4	" " , Dowels	—	11	3'-0	34
5d5	Median, Hairpins	—	5	4'-1	21
				TOTAL (lbs.)	444

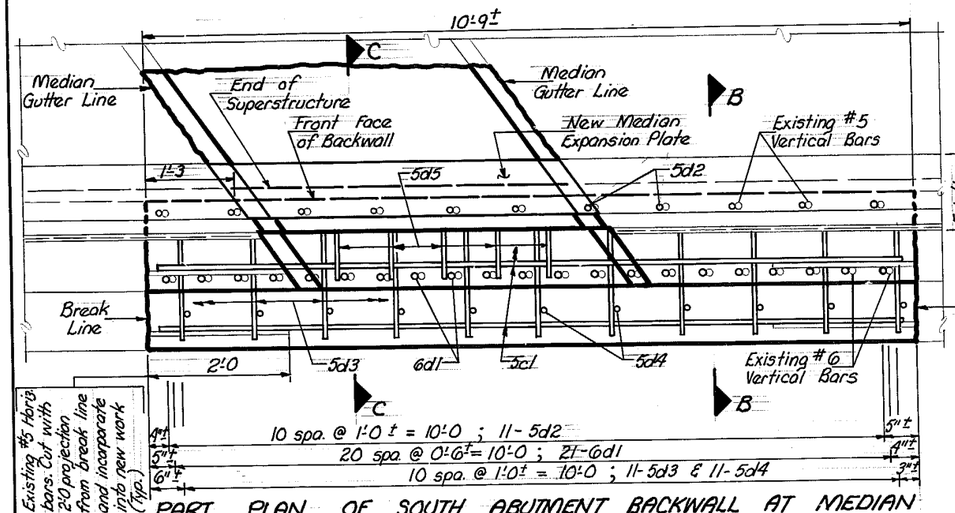
BENT BAR DETAILS



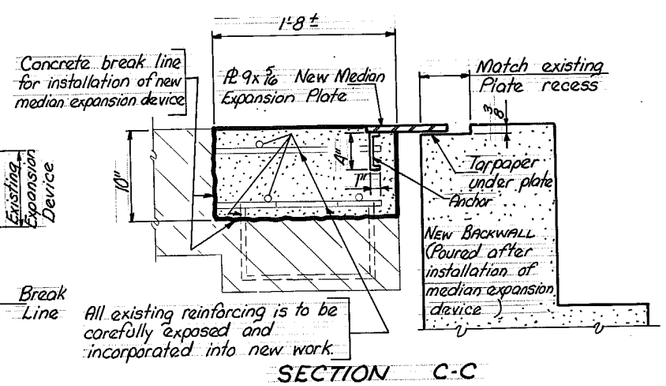
NOTE: All dimensions are out to out. D = Pin diameter.

CONCRETE PLACEMENT QUANTITIES

LOCATION	QUANTITY
Backwall and Median (Req'd. for Exp. Plate Installation	3.1
TOTAL - cu.yds.	3.1



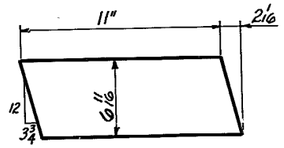
PART PLAN OF SOUTH ABUTMENT BACKWALL AT MEDIAN



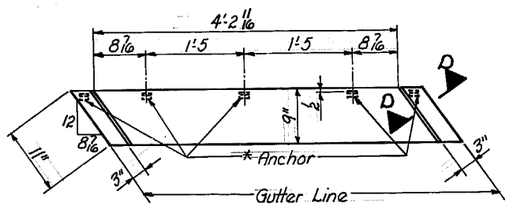
SECTION C-C

BACKWALL REPAIR NOTES

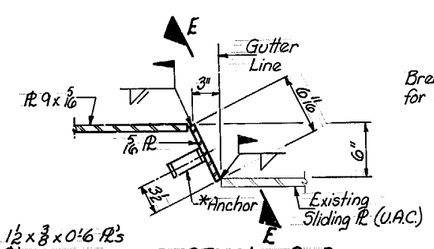
STRUCTURAL CONCRETE SHALL BE CLASS D.
MINIMUM LAP REQUIRED FOR THE NO. 5 BARS IS 1'-2
MINIMUM LAP REQUIRED FOR THE NO. 6 BARS IS 1'-5



SECTION E-E
(Details for cutting Battered Curb PL's)

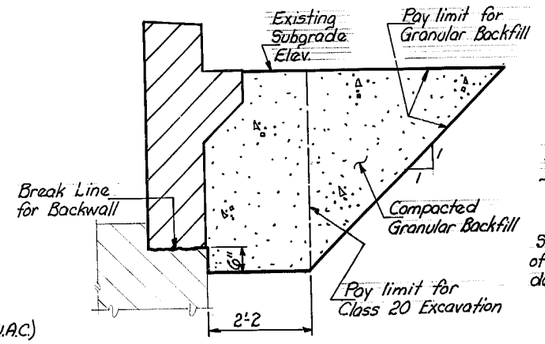


PLAN NEW MEDIAN EXPANSION PLATE DETAILS

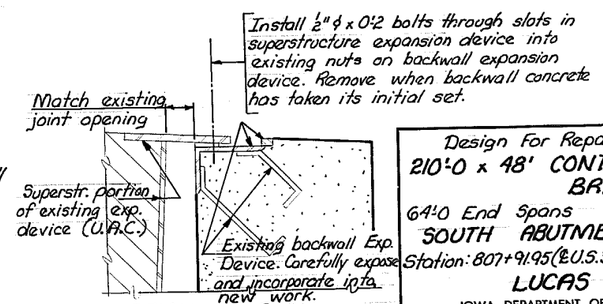


*Anchors to be 1 1/2 x 3/8 x 0'-6 PL's welded to 5/16 PL's.

SECTION D-D



EXCAVATION AND BACKFILL DETAIL



SECTION B-B
(TYPICAL FOR BOTH SIDES OF MEDIAN)

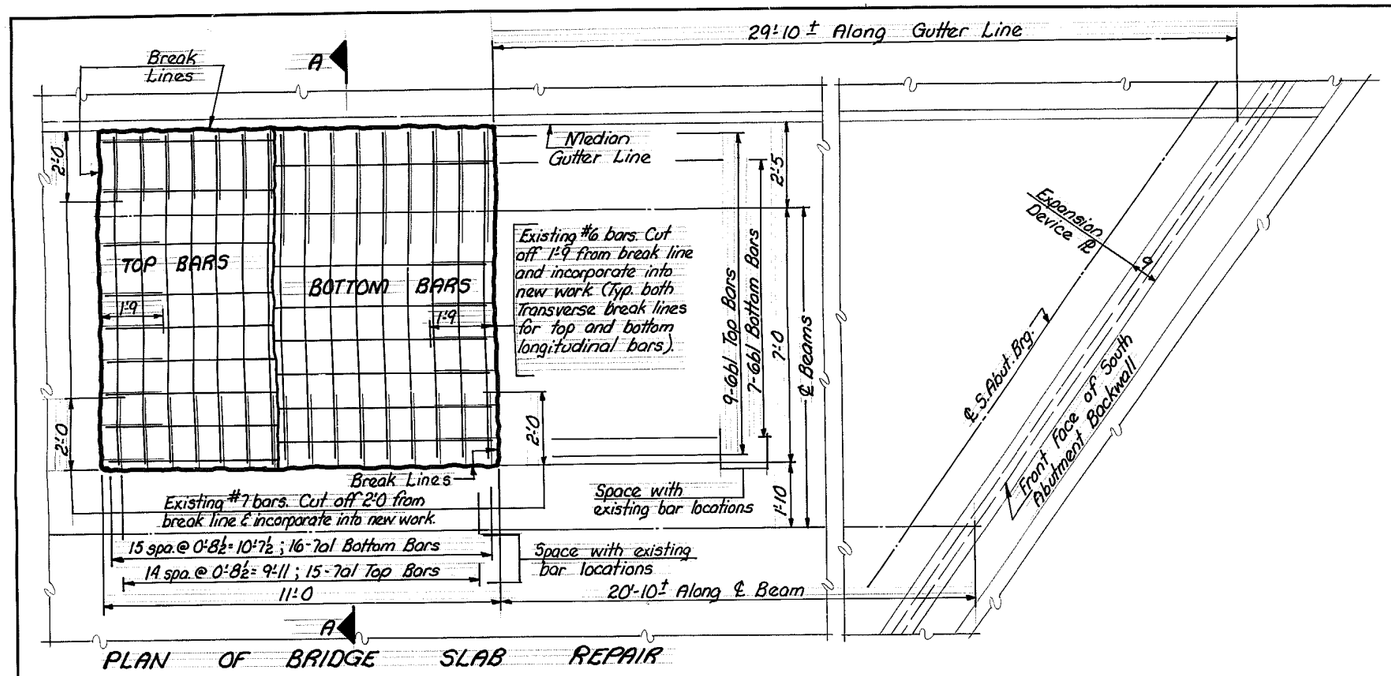
Design For Repairs To 35° 5' 30" Skew
210'-0 x 48' CONTINUOUS I-BEAM BRIDGE
64'-0 End Spans 82'-0 Center Span
SOUTH ABUTMENT REPAIR DETAILS
Station: 807+91.95 (P.U.S.34) R.R.X-ing No. 884 Oct., 1989
LUCAS COUNTY
IOWA DEPARTMENT OF TRANSPORTATION-HIGHWAY DIVISION
Design Sheet No.: 8 Of 17 File No.: 2806 Design No.: 390

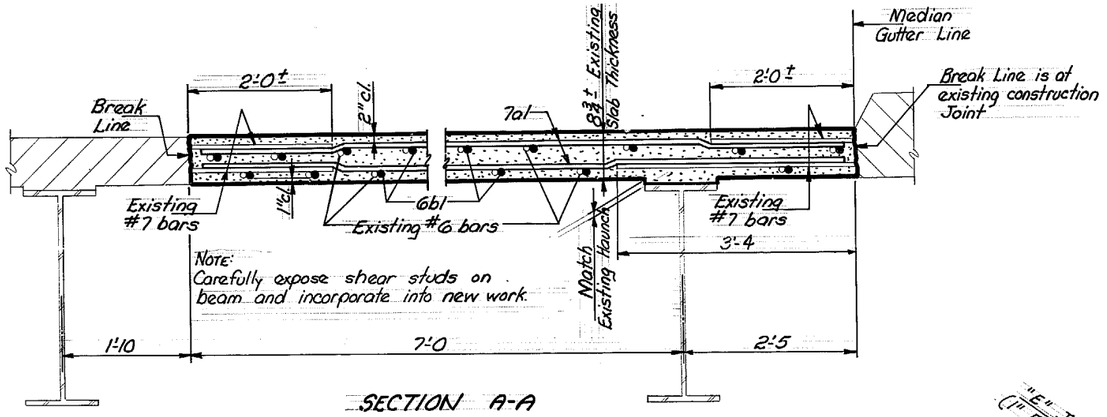
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	IOWA	7		9	18

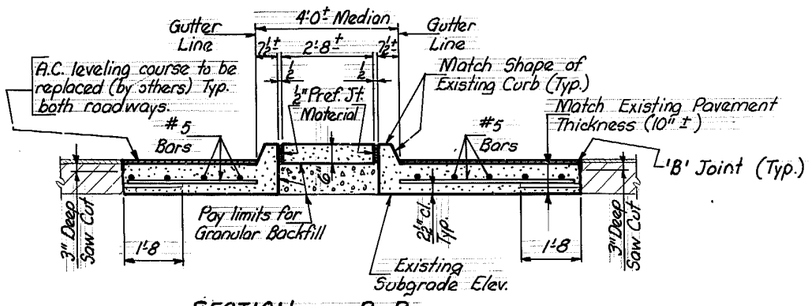
DESIGNED BY: G. Port TRACED BY:
DETAILED BY: R. Rysavy CHECKED BY:

LUCAS COUNTY

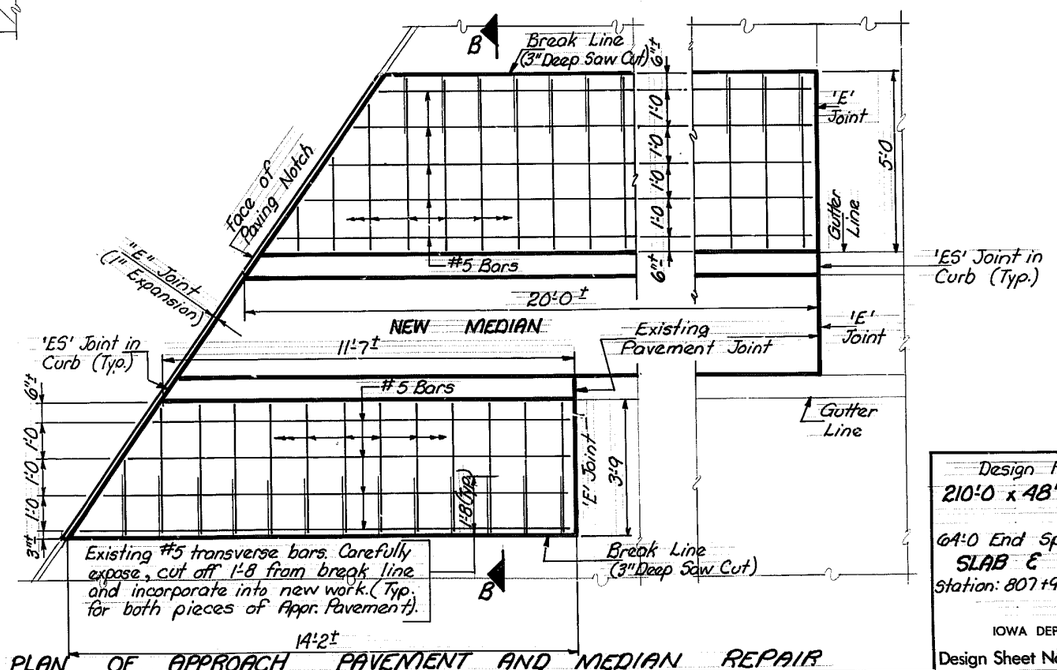
BRUNING 65219 BRIDGE WORK SHEET 0023MM







Reinforcing Required For Pavement Repair :
Eastbound Roadway : 4-#5 bars x 13'-10 long & 13-#5 bars x 3'-6 long.
Westbound Roadway : 5-#5 bars x 18'-10 long & 19-#5 bars x 4'-9 long.



REINFORCING BAR LIST ~ SUPERSTR.

Bar	Location	Shape	No.	Length	Weight
7al	Slab, Top & Bott., Transv.	——	31	9'-3	586
6bl	Slab, Top & Bott., Longit.	——	16	10'-8	256
				Total (lbs.)	842

CONCRETE PLACEMENT QUANTITIES

Location	Quantity
Slab	2.8
Total - c.u.yds. (Cl. "D")	2.8

NOTES FOR REPAIR OF APPROACH PAVEMENT AND MEDIAN

CONCRETE FOR PAVEMENT AND MEDIAN SHALL BE CLASS C.

THE A.C. LEVELING COURSE SHALL BE REMOVED BY THE CONTRACTOR OVER THE AREA OF PAVEMENT REMOVAL PRIOR TO SAW CUTTING OF THE P.C. PAVEMENT. ALL COSTS ASSOCIATED WITH THIS REMOVAL SHALL BE INCLUDED IN THE PRICE BID FOR "REMOVAL OF PAVEMENT".

DURING PAVEMENT REMOVAL IT MAY BE NECESSARY, AS DETERMINED BY THE ENGINEER, TO EXCAVATE SOME OF THE EXISTING SUBGRADE TO PROVIDE AN ADEQUATE BASE FOR THE NEW PAVEMENT. SUCH EXCAVATION, IF REQUIRED, WILL BE AS DIRECTED BY THE ENGINEER. BACKFILLING OF THIS EXCAVATION SHALL BE WITH A MATERIAL OF THE SAME TYPE AS REMOVED AS DIRECTED BY THE ENGINEER. EXCAVATION, IF REQUIRED, WILL BE CONSIDERED INCIDENTAL TO THE BID ITEM "REMOVAL OF PAVEMENT" AND BACKFILLING OF THIS EXCAVATION WILL BE CONSIDERED INCIDENTAL TO THE BID ITEM "BRIDGE APPROACH SECTION, REINFORCED, AS PER PLAN".

MINIMUM LAP REQUIRED FOR NEW BARS WITH THE EXISTING BARS IS 1'-5.

LENGTH OF REINFORCING BARS NOTED ON THIS SHEET ARE FOR THE LONGEST BAR REQUIRED. BARS SHALL BE FIELD CUT AS REQUIRED TO FIT WHERE REDUCED LENGTH IS NEEDED.

BRIDGE SLAB REPAIR NOTES

STRUCTURAL CONCRETE SHALL BE CLASS D.

MINIMUM LAP REQUIRED FOR THE NO. 6 BARS IS 1'-5.

MINIMUM LAP REQUIRED FOR THE NO. 7 BARS IS 1'-10

Design For Repairs To 35° 5' 30" Skew

210'-0 x 48' CONTINUOUS I-BEAM BRIDGE

64'-0 End Spans 82'-0 Center Span

SLAB & PAVEMENT REPAIR DETAILS

Station: 807+91.95 (E.U.S.34) R.R.X-ing No. 884 Oct., 1989

LUCAS COUNTY

IOWA DEPARTMENT OF TRANSPORTATION-HIGHWAY DIVISION

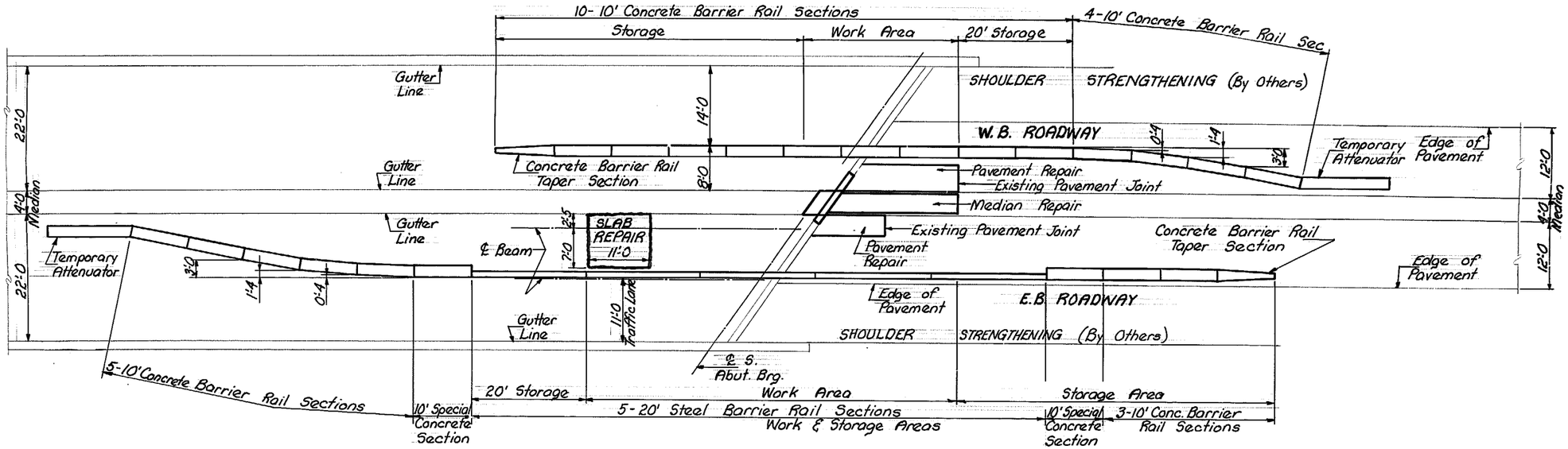
Design Sheet No.: 9 Of 17 File No.: 28016 Design No.: 340

DESIGNED BY: G. Port DETAILED BY: R. Rysavy TRACED BY: CHECKED BY:

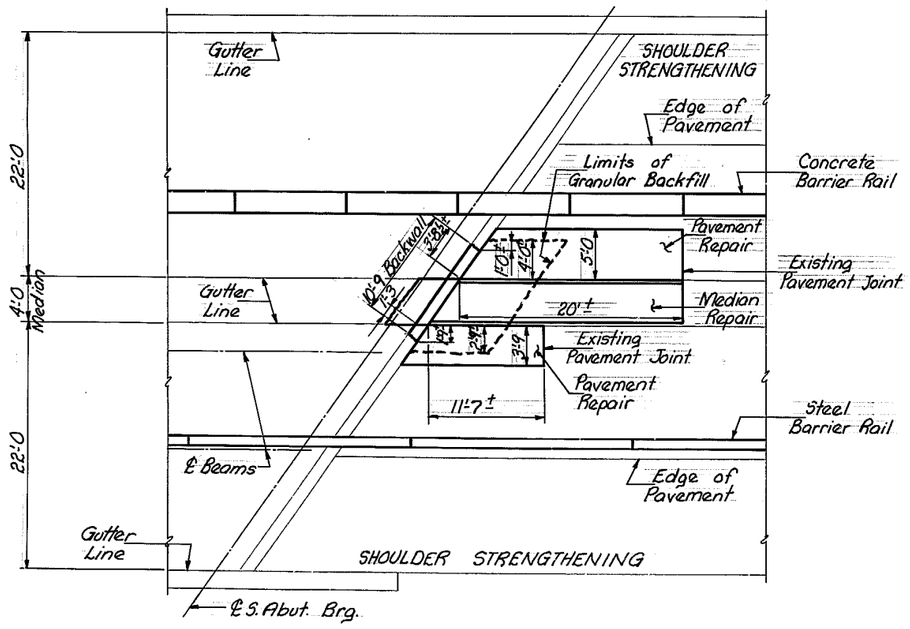
LUCAS COUNTY

PROJECT NUMBER	STATE	FHWA Region	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	IOWA	7		16	17

65219 BRIDGE WORKSHEET 08/31/89 BRUNING



TEMPORARY BARRIER RAIL LAYOUT



PART PLAN OF REPAIRS AT SOUTH ABUTMENT

TRAFFIC CONTROL PLAN

108-23
04-04-89

1. Traffic will be maintained on the project at all times.
2. Traffic control on this project shall be in accordance with Standard Road Plan RS-2, RS-3 and the special layout contained in the plans. For additional complementary information, refer to current "Supplemental Specification for Traffic Controls".
3. All traffic control devices, except special signs, shall be furnished, erected, maintained and removed by the contractor. Special signs shall be furnished by the Iowa D.O.T. and erected, maintained, removed and returned by the contractor.
4. The location for storage of equipment by the contractor during non-working hours shall be as approved by the engineer in charge of construction.
5. The engineer may require modificaitons to the pavement marking details shown. Conflicting permanent edgelines, centerlines or lanelines shall be removed and appropriate temporary lines placed. As applicable, permanent pavement markings shall be in place before the roadway is returned to normal traffic. The standard specifications series of 1984 and current supplemental specifications shall apply.
6. Proposed sign spacing may be modified as approved by the engineer to meet existing field restrictions or to prevent obstructions of the motorist's view of permanent signing.
7. Permanent signs conveying a message contrary to the message of the temporary signs and not applicable to the working conditions shall be covered by the contractor when directed by the engineer.
8. Proposed changes in the traffic control plan shall be reviewed with the Office of Construction before changes are made.
9. The bid item "Traffic Control" shall include the cost for all traffic control measures required of the contractor except those which are separate bid items or are incidental to other bid items.

ESTIMATED QUANTITIES

Item	Amount
Temporary Barrier Rail, Furnish Only	340 L.F.
Temporary Barrier Rail, Place Only	340 L.F.

ITEM REFERENCE:
All concrete barrier rail shall be nominal 10' long units. All steel barrier rail shall be nominal 20' long units.

NOTE: For details of Concrete & Steel Barrier Rail Details, See des. shts 11 & 12.

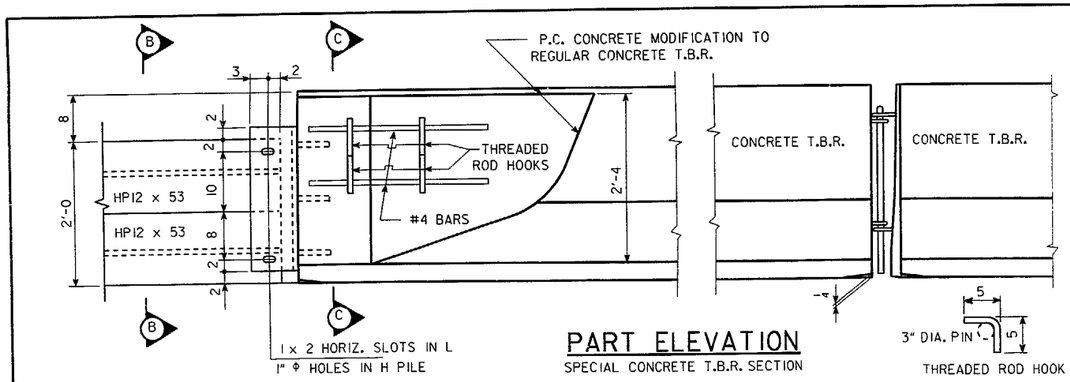
Design for Repairs To 35° 5' 30" Skew
210'-0 x 48' CONTINUOUS I-BEAM BRIDGE
64'-0 End Spans 82'-0 Center Span
TEMPORARY BARRIER RAIL LAYOUT
Station: 807+91.95 (℄ U.S. 34) R.R. X-ing No. 884 Oct., 1989
LUCAS COUNTY
IOWA DEPARTMENT OF TRANSPORTATION-HIGHWAY DIVISION
Design Sheet No.: 10 Of 17 File No.: 28016 Design No.: 390

BRUNING 65219 BRIDGE WORK SHEET

DESIGNED BY: G. Port TRACED BY:
DETAILED BY: R. Rysavy CHECKED BY:

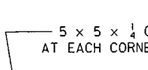
LUCAS COUNTY

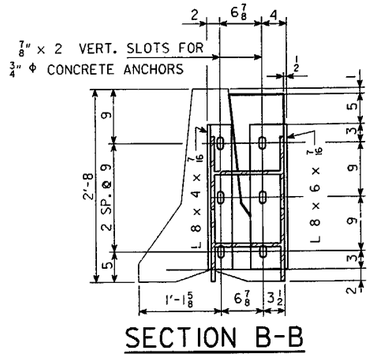
PROJECT NUMBER	STATE	FHWA Region	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	IOWA	7		11	17



PART ELEVATION

SPECIAL CONCRETE T.B.R. SECTION



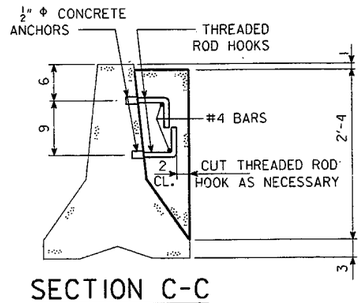


SECTION B-B

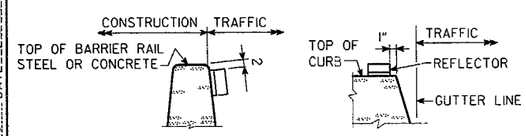
PART PLAN

SPECIAL CONCRETE T.B.R. SECTION

NOTE:
COST OF CONCRETE RAIL MODIFICATION AND OF ALL CONNECTION MATERIAL IS TO BE INCLUDED IN THE PRICE BID FOR "TEMPORARY BARRIER RAIL, FURNISH ONLY".



SECTION C-C



REFLECTOR DETAILS

NOTE FOR SPECIAL T.B.R. SECTIONS:
DEFINITION: T.B.R. = TEMPORARY BARRIER RAIL
REGULAR T.B.R. SECTIONS ARE DETAILED ON STD. SHEET 2 OF 2.
EXCEPT FOR MODIFICATION AND BOLTED CONNECTION, THE SPECIAL CONCRETE T.B.R. SECTION IS TO BE THE SAME AS THE REGULAR CONCRETE T.B.R. SECTION. EXCEPT FOR CONNECTION DETAIL, THE STEEL T.B.R. SECTION AT THE FLARE JUNCTION IS TO BE THE SAME AS THE REGULAR STEEL T.B.R. SECTION.

NOTE:
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.

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

DETAILS ON THIS SHEET SHOW CONSTRUCTION OF A SPECIAL CONCRETE TEMPORARY BARRIER RAIL SECTION BY MODIFICATION OF A REGULAR CONCRETE TEMPORARY BARRIER RAIL SECTION. AFTER INSTALLATION OF 1/2 INCH DIAM. ANCHORS AND REINFORCEMENT, THE INTERFACING SURFACE FOR THE ADDITION SHALL BE THOROUGHLY SANDBLASTED. GROUT SHALL BE SCRUBBED ON THE PREPARED SURFACE JUST PRIOR TO CONCRETE PLACEMENT. GROUT AND P.C. CONCRETE SHALL BE AS FOR FLOOR REPAIR, 2413.02A OF STANDARD SPECIFICATIONS, EXCEPT THAT CONCRETE SLUMP SHALL BE AS SPECIFIED BY 2403.03E. THE MODIFICATION SHALL BE CURED ACCORDING TO APPROPRIATE REQUIREMENTS OF 2403.11 EXCEPT THAT CURE TIME SHALL BE 72 HOURS. AFTER REMOVAL OF FORMS AND BEFORE APPLYING CURING COMPOUND, THE CONSTRUCTION JOINTS SHALL BE SEALED WITH GROUT. THE 3/4 INCH DIAMETER CONCRETE ANCHORS SHALL NOT BE INSTALLED UNTIL AFTER CURE EXCEPT THAT APPROVED INSERTS MAY BE SUBSTITUTED FOR INCORPORATION IN FRESH CONCRETE.

THE CONTRACTOR MAY SUBMIT DETAILS FOR MONOLITHIC CONSTRUCTION OF THE COMPLETE SECTION OF SPECIAL CONCRETE TEMPORARY BARRIER RAIL FOR APPROVAL.

SECTION 2403 OF THE STANDARD SPECIFICATIONS SHALL NOT APPPLY FOR THE REGULAR CONCRETE TEMPORARY BARRIER RAIL OR FOR THE MONOLITHIC CONSTRUCTION OF THE SPECIAL CONCRETE TEMPORARY BARRIER RAIL. HOWEVER, MINIMUM CONCRETE STRENGTH FOR ANY CONSTRUCTION SHALL BE F'C = 3000 PSI.

CONCRETE ANCHORS ARE TO BE APPROVED AND AS LISTED IN CURRENT MATERIALS I.M. 453.09. 3/4 INCH DIAMETER ANCHORS SHALL HAVE A MINIMUM PULL - OUT STRENGTH OF 14,000 LBS. AND SHALL BE FLUSH TYPE WITH CAP SCREWS. 1/2 INCH DIAMETER ANCHORS SHALL HAVE MINIMUM PULL - OUT STRENGTH OF 7,000 LBS. AS NOTED ABOVE, APPROVED INSERTS MAY BE SUBSTITUTED FOR INCORPORATION IN FRESH CONCRETE.

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".

SURFACE FINISH FOR TEMPORARY CONCRETE BARRIER RAIL SHALL BE IN ACCORDANCE WITH ARTICLE 2403.23B OF THE STANDARD SPECIFICATIONS.

DESIGN FOR REPAIRS TO 35° 5' 30" SKEW

210'-0x48' CONTINUOUS I-BEAM BRIDGE

64'-0 END SPANS — 82'-0 CENTER SPAN

TEMPORARY BARRIER RAIL - COMBINATION

STATION : 807+91.95(C U.S.34)R.R.X-ING 884 — OCT., 1989

LUCAS COUNTY

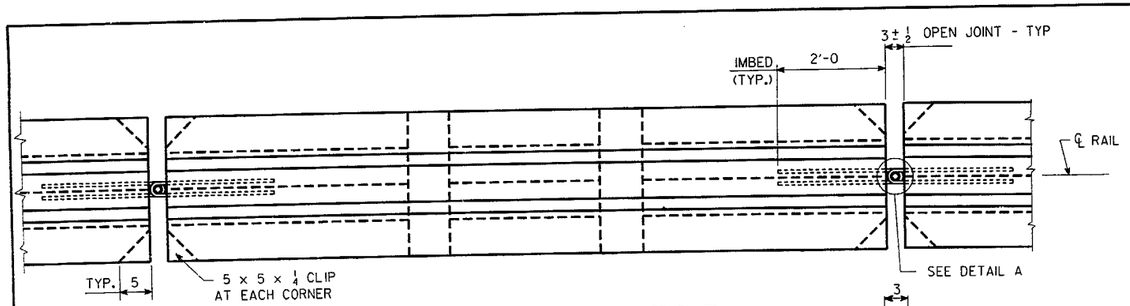
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 11 OF 17 — FILE NO. 28016 — DESIGN NO. 390

DESIGNED BY	DETAILED BY	TRACED BY	CHECKED BY	TEMPORARY BARRIER RAIL - COMBINATION WITH TIE DOWNS	(1 OF 2)	STANDARD 1034	LUCAS COUNTY	PROJECT NUMBER	STATE	FHWA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
C.L.PORT	C.E.COLE	C.E.COLE							IOWA	7		12	18

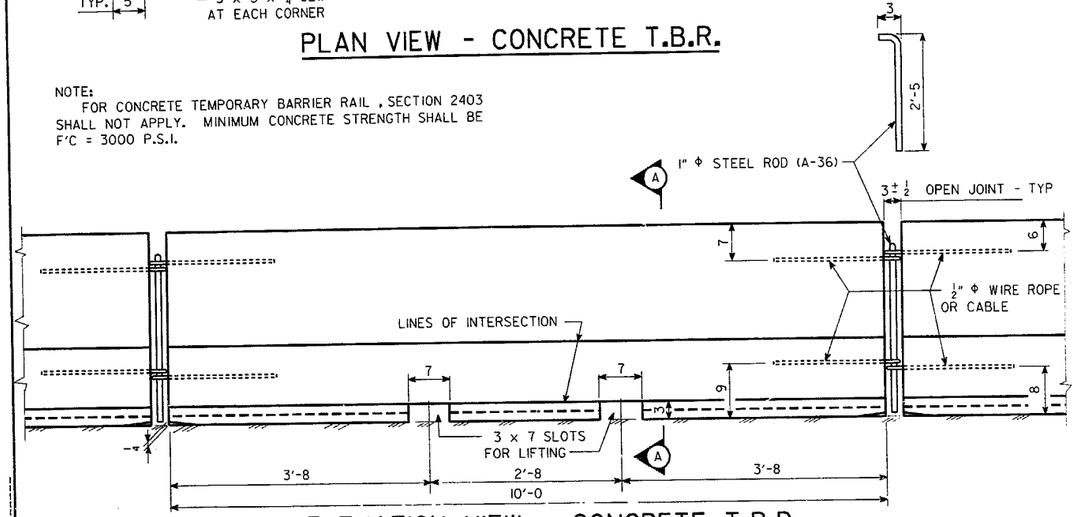
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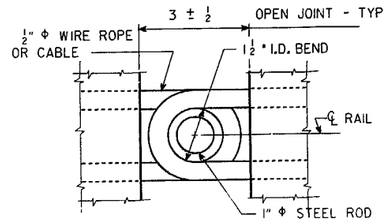


PLAN VIEW - CONCRETE T.B.R.

NOTE:
FOR CONCRETE TEMPORARY BARRIER RAIL, SECTION 2403 SHALL NOT APPLY. MINIMUM CONCRETE STRENGTH SHALL BE F'C = 3000 P.S.I.

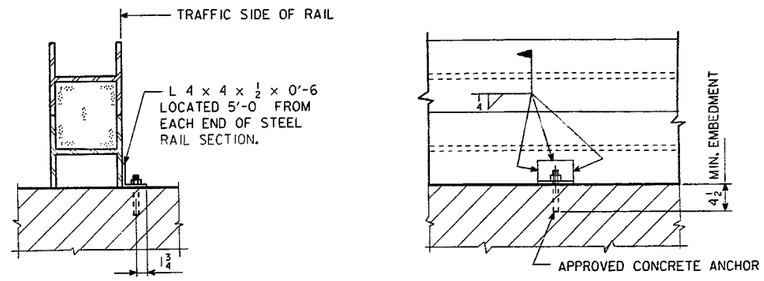


ELEVATION VIEW - CONCRETE T.B.R.



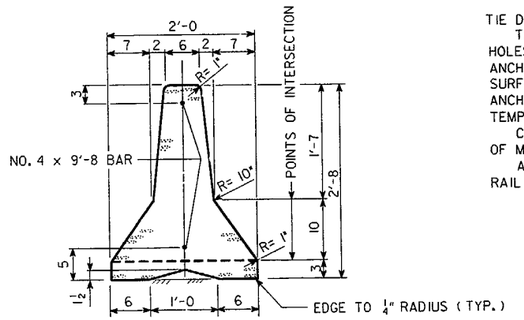
DETAIL A

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



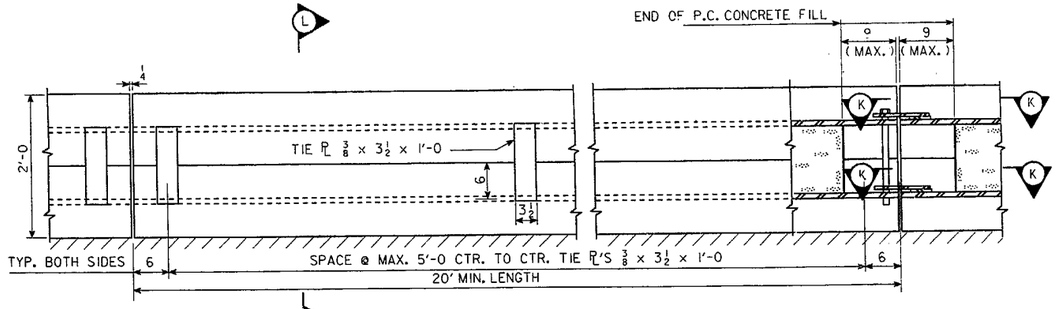
TEMPORARY BARRIER RAIL TIE - DOWN DETAILS

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

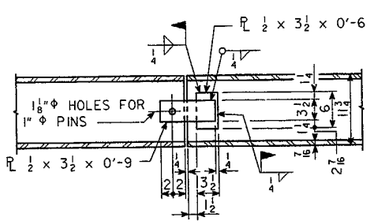


SECTION A-A

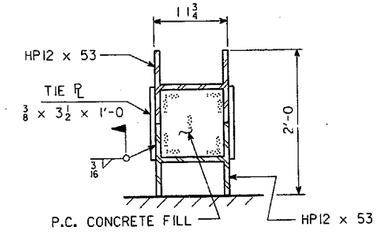
CONTRACTOR MAY ADD EXTRA REINFORCING BARS TO INCREASE THE SERVICE LIFE OF THE CONCRETE RAIL SECTIONS.



ELEVATION VIEW - STEEL T.B.R.



SECTION K-K



SECTION L-L

NOTE FOR STEEL TEMPORARY BARRIER RAIL:
HP12x53 SECTIONS ARE TO BE JOINED BEFORE P.C. CONCRETE FILL IS PLACED. HP SECTIONS MAY BE JOINED BY TIE PLATES AS DETAILED OR BY OTHER MEANS APPROVED BY THE ENGINEER. HP SECTIONS SHALL BE FREE FROM EXCESSIVE SWEEP AND CAMBER; STRAIGHTENING MAY BE REQUIRED BY THE ENGINEER IN ORDER TO PRODUCE A STABLE BARRIER.
CONCRETE MIX FOR THE P.C. FILL MAY BE ANY HIGHWAY DIVISION SPECIFICATION MIX OR MAY BE A COMMERCIAL READY - MIX WITH A MINIMUM F'C = 2500 P.S.I. THE FILL MAY BE DEPOSITED BY A METHOD ACCEPTABLE TO THE ENGINEER. JOINTS ARE TO BE REASONABLY MORTAR TIGHT, AND MORTAR EXTRUSIONS SHALL BE CLEANED FLUSH WITH THE OUTSIDE OF THE BARRIER. LIMITS OF FILL SHOWN ARE APPROXIMATE AND MAY BE ROUGH OR SLUMPED DEPENDING ON THE METHOD OF BULK HEADING.
CARE SHALL BE TAKEN IN MOVING THE BARRIER FOR STAGE 2 CONSTRUCTION SO THAT THE NEW CONCRETE OF STAGE I WILL NOT BE DAMAGED. ANY DAMAGE SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
SEE STANDARD SHEET 1 OF 2 FOR ADDITIONAL NOTES.

DESIGN FOR REPAIRS TO 35° 5' 30" SKEW
210'-0x48' CONTINUOUS I-BEAM BRIDGE
64'-0 END SPANS — 82'-0 CENTER SPAN
TEMPORARY BARRIER RAIL - COMBINATION
STATION : 807+91.95(℄U.S.34)R.R.X-ING 884 — OCT., 1989
LUCAS COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
DESIGN SHEET NO. 12 OF 17 — FILE NO. 28016 — DESIGN NO. 390

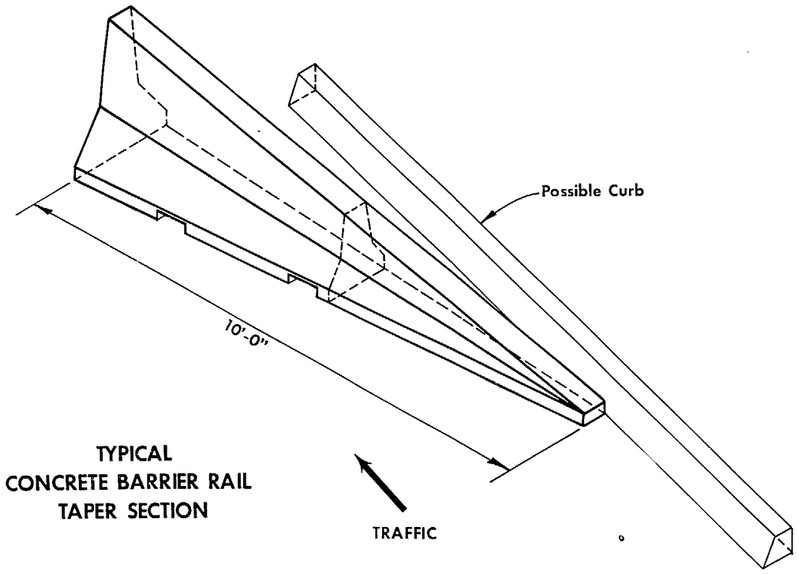
DESIGNED BY	C.L.PORT	TRACED BY	C.E.COLE
DETAILED BY	C.E.COLE	CHECKED BY	

TEMPORARY BARRIER RAIL - COMBINATION WITH TIE DOWNS (2 OF 2) | STANDARD 1034A | LUCAS COUNTY | PROJECT NUMBER

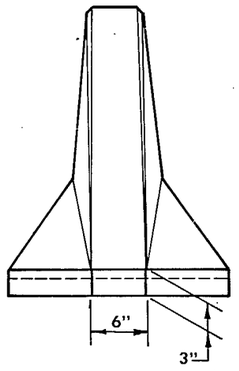
STATE	FHWA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	7		12	17

H59390.2 DEVICE: ZGAI:[200,003]ARCH. TAPE No. _____DATE_____

HSTD1034A.SO1--1EP: THIS SHEET REDRAWN, DEVICE:ZHAO:[200,004] ARCH.TAPE NO.____15____ DATE 9-8-88



TYPICAL CONCRETE BARRIER RAIL TAPER SECTION

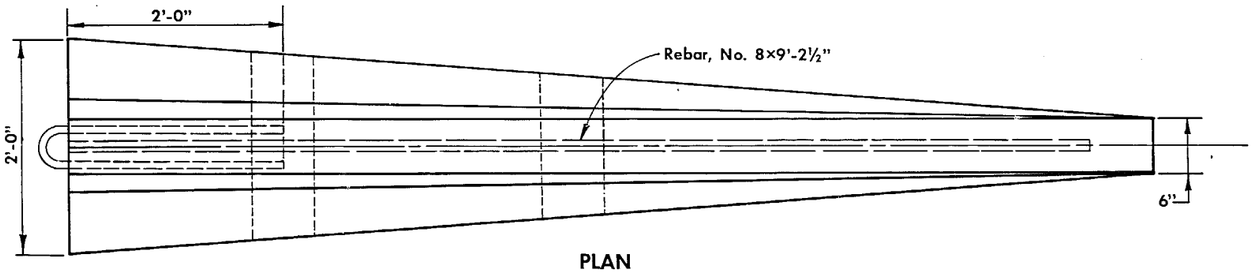


FRONT ELEVATION

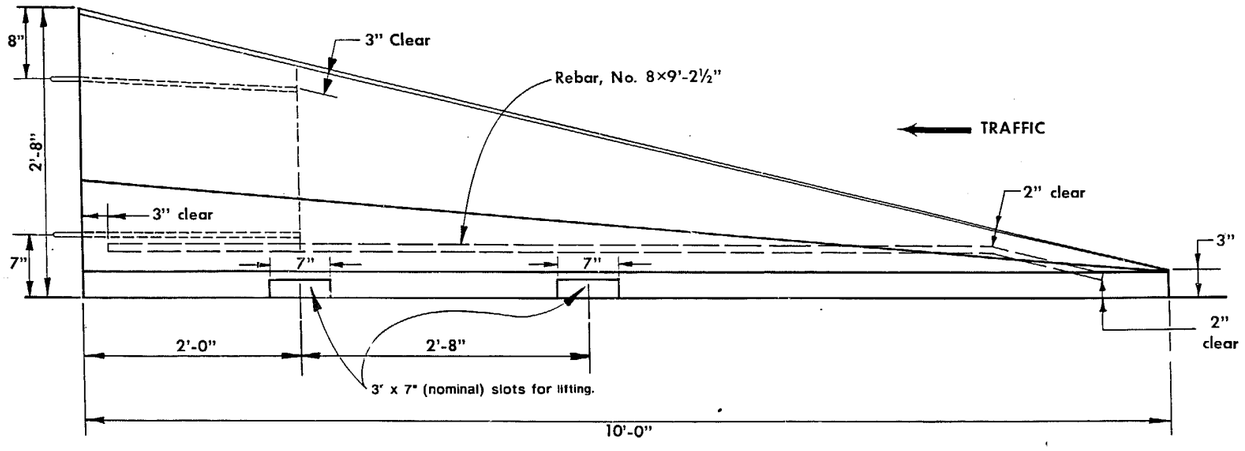
GENERAL NOTES:

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.

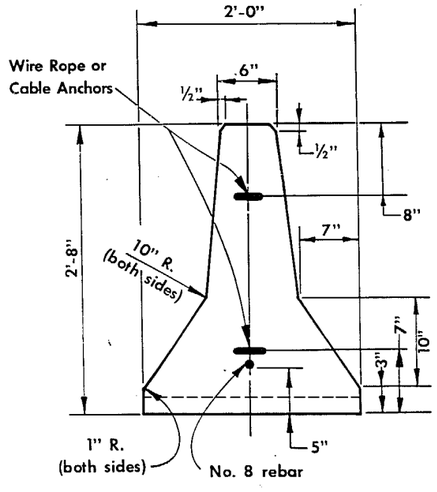
Concrete shall be Class 'D' Structural Concrete placed and finished in conformance with current standard specifications for "Structural Concrete". Approximately 0.486 cu. yds. of Class 'D' Structural Concrete will be required for each taper section.



PLAN



SIDE ELEVATION



FULL SECTION

DETAIL SHEET 540-1

Revision Date 05-10-88

CONCRETE BARRIER RAIL TAPER SECTION

(Pre-Cast)

Design Sheet Nº. 13 Of 17 File Nº. 28016 Design Nº. 390

STATE OF IOWA	FHWA REGION 7	FISCAL YEAR		Lucas COUNTY	PROJECT NUMBER	SHEET NUMBER 14	TOTAL SHEETS 18