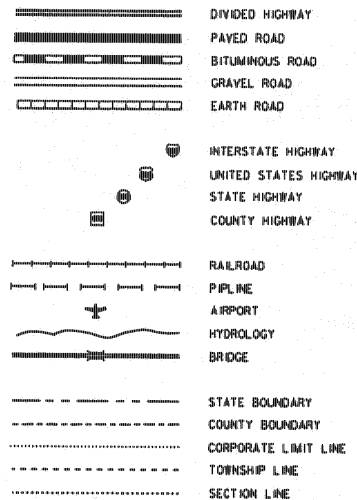


CONVENTIONAL SIGNS



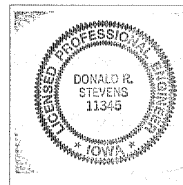
IOWA
DEPARTMENT OF TRANSPORTATION
Highway Division

PLANS OF IMPROVEMENTS ON THE
PRIMARY ROAD SYSTEM
MADISON COUNTY
BRIDGE REPAIR
ON IA 92 OVER
MIDDLE RIVER

SCALE: As Noted

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

DESIGN NO. 194



I hereby certify that this project was constructed in accordance with the contract documents, the "as-built" plans were prepared under my supervision, and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

Donald R. Stevens 1-13-99
Project Engineer Date

My license renewal date is December 31, 1999

Reviewed and forwarded to Ames:

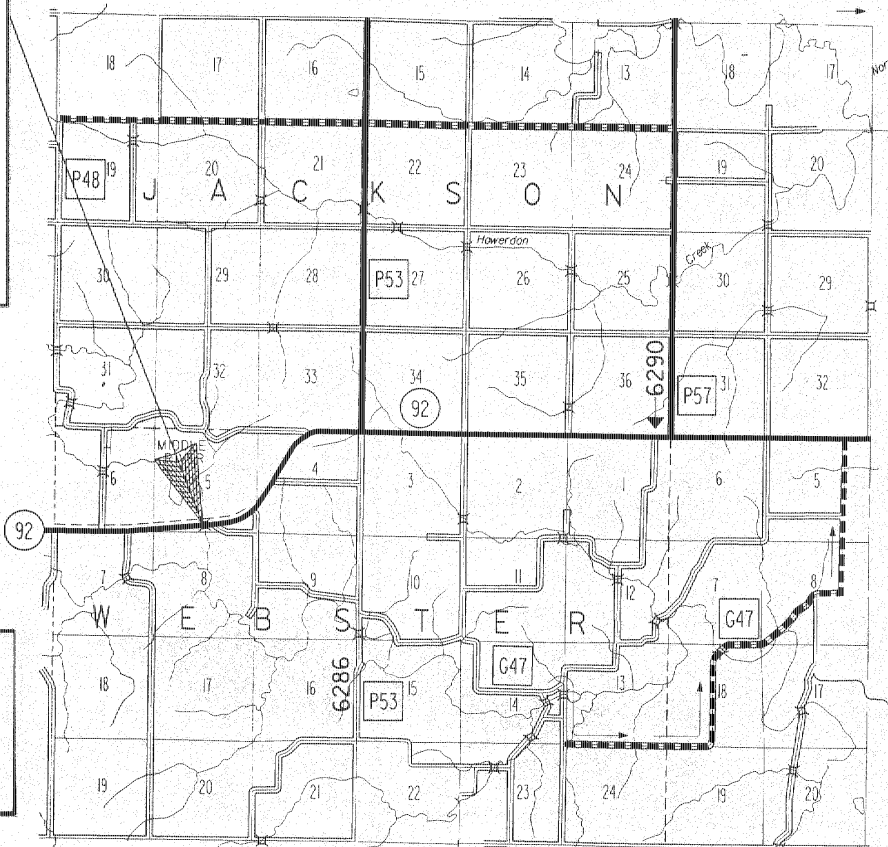
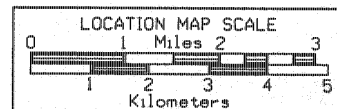
John E. Miller 02/03/00
Transportation Center Engineer Date

After microfilming, return original copy, 2 50% reduced prints and 1 full-size print(s) to: Southwest Iowa Transportation Center.

1994 Year CRAMER & ASSOC. Contractor DAN WICHART Project Inspector

THIS AS BUILT PLAN INCLUDES

YEAR WORK CONTRACTOR PROJ. INSPECTOR
1994 BRIDGE REPAIR CRAMER & ASSOC. DAN WICHART



MICROFILMED

R-29W

PROJECT PERSONNEL
DAN WICHART PROJECT INSPECTOR

DESIGN DATA RURAL			
1993 AADT	1220	V.P.D.	
201 AADT		V.P.D.	
201 DHV		V.P.H.	
TRUCKS		%	

INDEX OF SHEETS	
NO.	DESCRIPTION
1	TITLE SHEET
2	ROAD ESTIMATE SHEET
3	BRIDGE ESTIMATE SHEET
3-12	BRIDGE DESIGN NO. 194
13-14	ROAD SHEETS

VALUE ENGINEERING SAVES

REFER TO THE GENERAL NOTES ON SHEET 4 OF 14

STANDARD ROAD PLANS

IDENT	DATE
RG-1	11-10-92
RG-8	11-10-92
RH-50	6-15-93
RH-51	2-23-93
RH-52	9-29-92
RS-2	6-15-93
RS-3	2-23-93
RS-5A	10-22-93

STANDARD BRIDGE PLANS

STANDARD	ISSUED	REVISED

REVISIONS



AUTHORIZED FOR LETTING
George F. Sisson 11-9-93
DEPUTY CHIEF ENGINEER DATE

I hereby certify that this plan was prepared under my supervision and that engineering decisions with regard to the design were made by me or by other duly Registered Professional Engineers under the laws of the State of Iowa.

Name *Wm. A. August*
Iowa Registration No. 4449 Date *11/11/93*

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
APPROVED

FOR THE DIVISION ADMINISTRATOR DATE

LETTING DATE 01-07-94

STATE CONTROL SECTION NUMBER 61-0500

FILE NO. 28716

MADISON COUNTY

PROJECT NO. BRFN-92-4(21)--39-61

SHEET NO. 1

100-4A
07-30-93

ITEM CODE	DESCRIPTION
2102-2713300	Dispose ¹ of excess excavated material as per 213-1 and/or 213-7. See reference note for shoulder strengthening for additional information.
2122-7451000	For shoulder strengthening. See tab. 106-5 for locations and dimensions. See standard road plans RG-1 and RG-8 for method of construction. This work will be measured and paid for at the contract price per square yard. Asphalt cement, primer or tack coat bitumen, and joint construction shall be considered incidental to the price bid. Roughness pattern not required.
2527-9263110, 2527-9263130, 2527-9263180	See tab. 108-22.
2528-8400157	See tab. 108-27, standard road plan RS-5A, and detail sheet 570-2.
2528-8400256	See tab. 108-28 and standard road plan RS-5A.
2528-8445110	See tab. 108-23 and standard road plan RS-5A.

221-4

JRA-3

213-1

213-7

- process

100-0A
07-30-93

[illegible]

105-4
06-17-77

NUMBER	DATE	NUMBER	DATE	NUMBER	DATE
RG-1	11-10-92	RH-51	02-23-93	RS-3	02-23-93
RG-8	11-10-92	RH-52	09-29-92	RS-5A	10-22-93
RH-50	06-15-93	RS-2	06-15-93		

DESIGN DATA RURAL

V.P.D.

20 AADT V.P.D.

20 DHV Y.P.H.

TRUCKS _____ %

Name LLP

Long Registration No. 7229 Date 9/13/93

BRFN-92-4(21)--39-61

ROAD DESIGN • CADD • PRODUCED

STATE OF IOWA

FHWA REGION 7

FISCAL YEAR

MADISON

COUNTY

PROJECT NUMBER

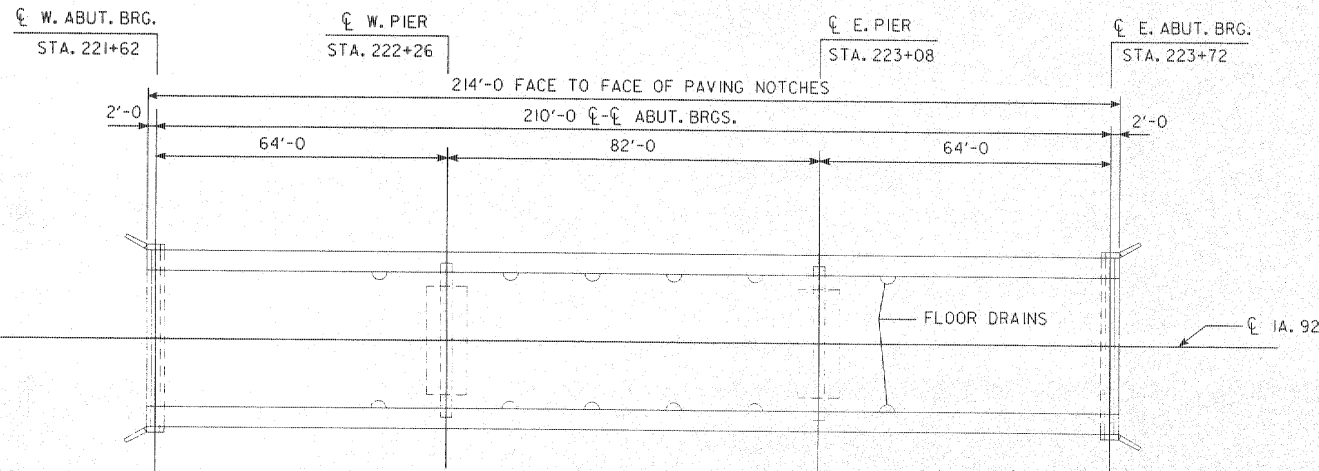
BRFN-92-4(21)--39-61

SHEET NUMBER

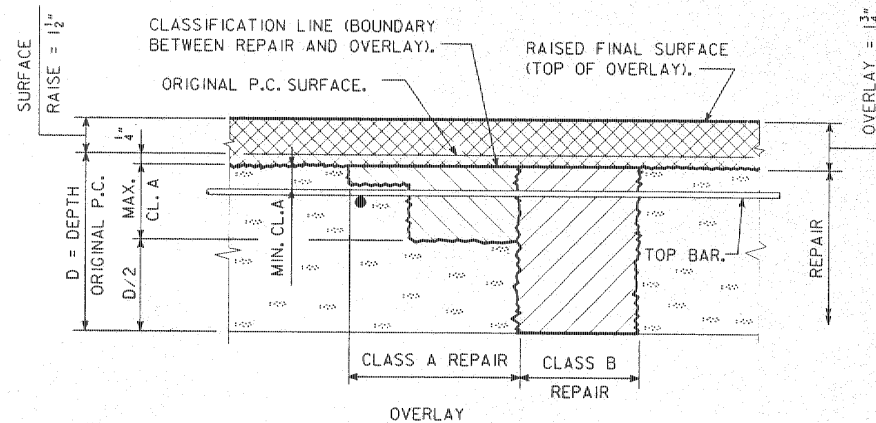
2 of 19

52

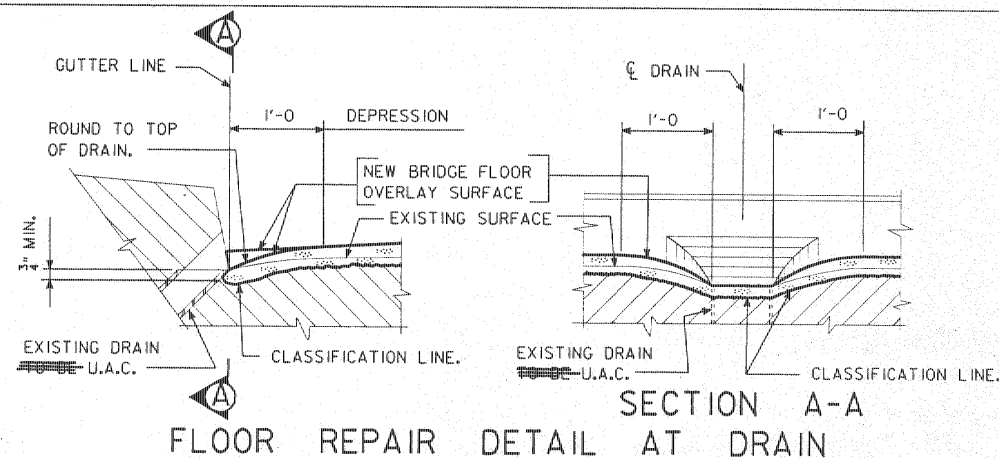
REVISED: "TOTAL ESTIMATED BRIDGE QUANTITIES" TABLE CHANGED, AASHTO SERIES CHANGED TO 1992. TAPE NO. 19, DATED 11-9-92.
REVISED: IDOT STANDARD SPECIFICATIONS, UPDATE: ARCH. TAPE NO. 12, DATE 4-20-92.
REVISED: 6-21-93 - ESTIMATE REFERENCE INFORMATION CHANGED FOR "CONCRETE BARRIER RAIL - CAST IN PLACE".
HST001038.S01-1LEP; THIS SHEET REDRAWN, DEVICE: ZHA0200.004) ARCH. TAPE NO. 15, DATE 9-8-88



SITUATION PLAN



REPAIR AND OVERLAY DEFINITION



(REQUIRED AT 12 LOCATIONS)

NOTE:
ROADWAY QUANTITIES SHOWN
ELSEWHERE IN THESE PLANS.

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

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 709, GRADE 36.

LOCATION:
MAINTENANCE NO. 6194.4S092
IA. 92 OVER MIDDLE RIVER
T-75N R-29W
SECTION 5
WEBSTER TWP
MADISON COUNTY

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT
PERSONAL SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER
UNDER THE LAWS OF THE STATE OF IOWA
DATE 10-8-93 GENE J. POLLMANN REG. NO. 4060

DESIGN HISTORY AT THIS SITE	
DES. NO.	TYPE OF WORK
965	ORIGINAL DESIGN
991	C.I.P. BARRIER RAIL

DESIGN FOR REPAIRS TO A 0° SKEW	
210'-0" x 30' CONTINUOUS I-BEAM BRIDGE	
64'-0" END SPANS	82'-0" CENTER SPAN
TOTAL ESTIMATED QUANTITIES	
STATION: 222+67	
MADISON COUNTY	
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION	
DESIGN SHEET NO. 1 OF 10	FILE NO. 28716
STATE IOWA	REGION 7
FISCAL YEAR	SHEET NO. 3
DATE	TOTAL SHEETS 19

TOTAL BRIDGE QUANTITIES

ITEM NO.	ITEM	UNIT	AS-BUILT QUANTITY
12	CLASS A BRIDGE FLOOR REPAIR	SQ. YD.	30.12
11	BRIDGE FLOOR OVERLAY	SQ. YD.	713
15	TEMPORARY BARRIER RAIL - FURNISH ONLY	L. F.	490
16	TEMPORARY BARRIER RAIL - PLACE ONLY	L. F.	980
10	STRUCTURAL STEEL	LBS.	1,325
13	CLEANING AND PAINTING STRUCTURAL STEEL	L.S.	\$300.00
14	CONTAINMENT	L.S.	\$300.00
17	MOBILIZATION	L.S.	\$11,000.00
8001	ADDS, INCENTIVE, PAVEMENT SMOOTHNESS	L.S.	\$2,000.00

ESTIMATE REFERENCE INFORMATION

2	INCLUDES COST OF FURNISHING AND PLACING CONCRETE SEALER.
3 & 4	ALL TEMPORARY BARRIER RAIL SHOULD BE NOMINAL 10' LONG CONCRETE UNITS.

DECK REPAIR - QUANTITIES

STANDARD SHEET 1038

MADISON COUNTY

PROJECT NUMBER

BRFN-92-4(21)--39-61

STATE IOWA

REGION 7

FISCAL YEAR

SHEET NO. 3

TOTAL SHEETS 19

DESIGNED BY J. Ogawa
CHECKED BY E. Ogawa

TRACED BY
SECTION LEADER: G. Pollmann

SAVE SET DATE

GENERAL NOTES:

THIS DESIGN IS FOR REPAIR TO THE EXISTING 210'-0 x 30' CONTINUOUS I-BEAM BRIDGE, ORIGINAL DESIGN NO. 965 MADISON COUNTY. PLANS OF THE EXISTING STRUCTURE MAY BE OBTAINED AT THE AMES OFFICE OF THE IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION. CONCRETE BARRIER RAIL HAS ALSO BEEN PUT ON THIS BRIDGE UNDER DESIGN NO. 991 MADISON COUNTY.

REPAIRS ~~AND~~ CONSIST OF THE FOLLOWING:

1. BRIDGE FLOOR REPAIR.
2. BRIDGE FLOOR OVERLAY.
3. APPLY CONCRETE SEALER TO ROADWAY GUTTER, FACE OF CURB AND TOP OF ABUTMENT FOOTINGS.
4. ADD RAISE PLATES TO EXISTING EXPANSION DEVICES AT BOTH ABUTMENTS.

PLAN QUANTITY OF FLOOR REPAIR IS BASED ON THE "SURVEY PLOT" AS SHOWN IN THESE PLANS. HATCHED PORTIONS REPRESENT CLASS A BRIDGE FLOOR REPAIR. CROSS HATCHED PORTIONS, IF SHOWN, REPRESENT CLASS B BRIDGE FLOOR REPAIR. 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 8 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" NOTE.

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

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

FAINT LINES ON PRINTS AND ON TRACINGS INDICATE EXISTING PORTION OF THE BRIDGE.

THE EXISTING FORMED STEEL BEAM GUARD RAIL AT BOTH ABUTMENTS SHALL BE USED AS CONSTRUCTED.

THE TOP OF ABUTMENT BACKWALLS BETWEEN GUTTER LINES AS SHOWN SHALL BE REPAIRED IN ACCORDANCE WITH THE SPECIFICATIONS FOR CLASS A BRIDGE FLOOR REPAIR AND BRIDGE FLOOR OVERLAY WITH THE FOLLOWING EXCEPTIONS:

1. THE LOWER LIMIT FOR CLASS A BRIDGE FLOOR REPAIR SHALL BE TO SUITABLE EXISTING CONCRETE, AS DETERMINED BY THE ENGINEER, BUT TO AT LEAST 2 INCHES BELOW THE BOTTOM LIMIT FOR BRIDGE FLOOR OVERLAY.
2. IF MACHINE FINISHING FOR THE TOP OF BACKWALL IS NOT PRACTICABLE, A MANUAL TYPE SCREED OR METAL PLATE, WITH APPROVED VIBRATORS ATTACHED, SHALL BE USED.

THE EXPOSED TOP OF BACKWALL AREAS AS SHOWN HAVE BEEN INCLUDED IN THE QUANTITIES SHOWN FOR CLASS A BRIDGE FLOOR REPAIR AND FOR BRIDGE FLOOR OVERLAY.

SURFACES OF EXISTING EXPANSION DEVICE ARE TO BE CLEANED OF EXISTING CORROSION AND PAINT IN PREPARATION FOR FIELD WELDING. THE $\frac{1}{2}$ " THICK RAISE PLATES FOR THE EXPANSION DEVICE ARE TO BE CLEANED AND PAINTED AFTER FIELD WELDING TO THE EXISTING EXPANSION DEVICE. THE CLEANING IS TO BE BY A NON-BLASTING METHOD AND IS TO COMPLY WITH THE STEEL STRUCTURES PAINTING COUNCIL SPECIFICATIONS SSPC-SP3. THE EXPOSED TOP SURFACES OF THE COMPLETED EXPANSION DEVICE 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 THE DRY PAINT SHOULD APPROXIMATE THE COLOR OF CONCRETE. ONLY THE EXPOSED SURFACES OF THE EXPANSION DEVICE AND RAISE PLATES ARE TO BE PAINTED, NO PAINTING OF OTHER STEEL IS REQUIRED. THIS WORK SHALL BE MEASURED AND PAID FOR AT THE CONTRACT UNIT PRICE PER LUMP SUM FOR THE BID ITEM "CLEANING AND PAINTING STRUCTURAL STEEL".

CONTAINMENT AND DISPOSAL OF WASTE SHALL BE IN ACCORDANCE WITH CURRENT SUPPLEMENTAL SPECIFICATIONS FOR "ENVIRONMENTAL PROTECTION FOR REMOVAL OF NON HAZARDOUS PAINT".

THE BID ITEM "STRUCTURAL STEEL" SHALL INCLUDE ALL COSTS ASSOCIATED WITH FURNISHING AND INSTALLING RAISE PLATES ON EXPANSION DEVICE AS SHOWN EXCEPT ITEMS INCLUDED IN THE BID ITEM "CLEANING AND PAINTING STRUCTURAL STEEL" AND THE BID ITEM "CONTAINMENT".

PAINT REMOVAL WASTE MATERIAL SHALL BE DELIVERED TO THE DOT CENTRAL COMPLEX EAST OF THE SIGN SHOP ON SOUTH 4TH ST. IN AMES. ALL COSTS ASSOCIATED WITH HAULING AND DEPOSITING OF WASTE AT THE DESIGNATED SITE/FACILITY SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND INCLUDED IN THE CONTRACT PRICE BID FOR "CONTAINMENT". PREDELIVERY ARRANGEMENTS SHALL BE MADE WITH A REPRESENTATIVE OF THE BUREAU OF MANAGEMENT AT TELEPHONE NUMBER 515-239-1040. THE CONTRACTOR IS NOT RESPONSIBLE FOR DISPOSAL OF WASTE AFTER IT HAS BEEN DELIVERED AND DEPOSITED AT THE DESIGNATED FACILITY IN AMES.

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 THE CONTRACTOR AT NO EXTRA COST TO THE STATE.

THE A.C. RUNOUT TAPER AT THE ENDS OF THE BRIDGE AS SHOWN WILL BE PLACED BY LOCAL HIGHWAY DIVISION MAINTENANCE FORCES BEFORE TRAFFIC IS SHIFTED TO NEW CONSTRUCTION. THE CONTRACTOR SHALL GIVE ADEQUATE PRIOR NOTICE SO THAT THE A.C. MAY BE PLACED DURING NORMAL WORKING HOURS AND WORKING DAYS OF MAINTENANCE.

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 HAULED TO THESE SITES.

THE BRIDGE 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.

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). AMOUNTS FOR ALL AREAS TO BE SEALED ARE CONSIDERED INCIDENTAL TO UNIT PRICE BID FOR BRIDGE FLOOR OVERLAY.

DESIGNED BY J. Clausen TRACED BY _____
DETAILED BY E. OGAWA CHECKED BY _____
h610194.s02

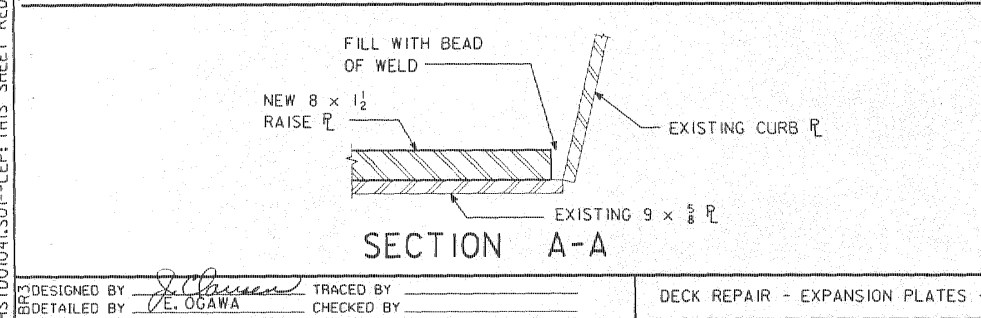
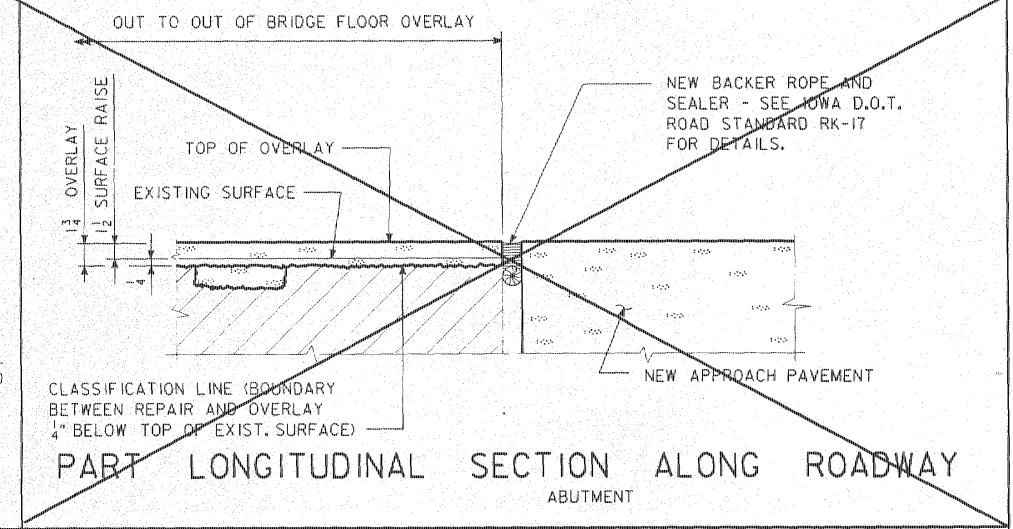
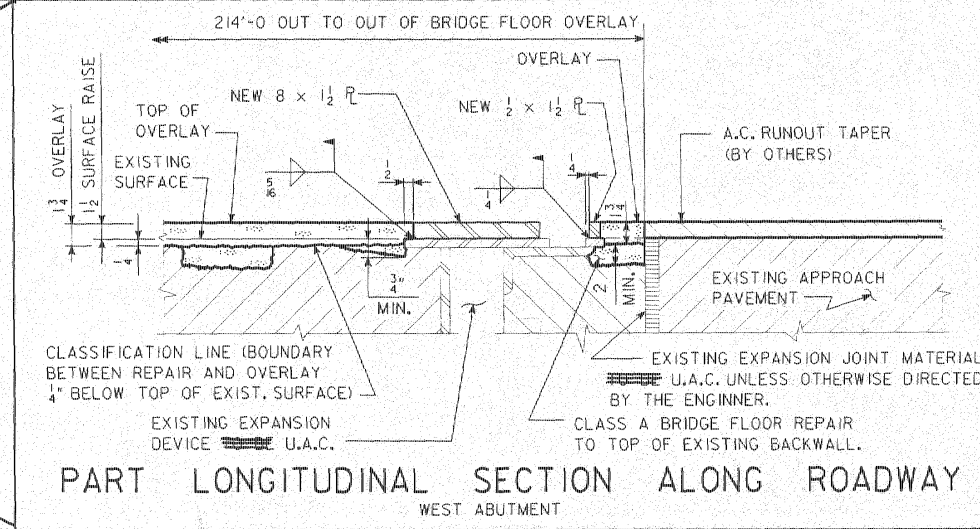
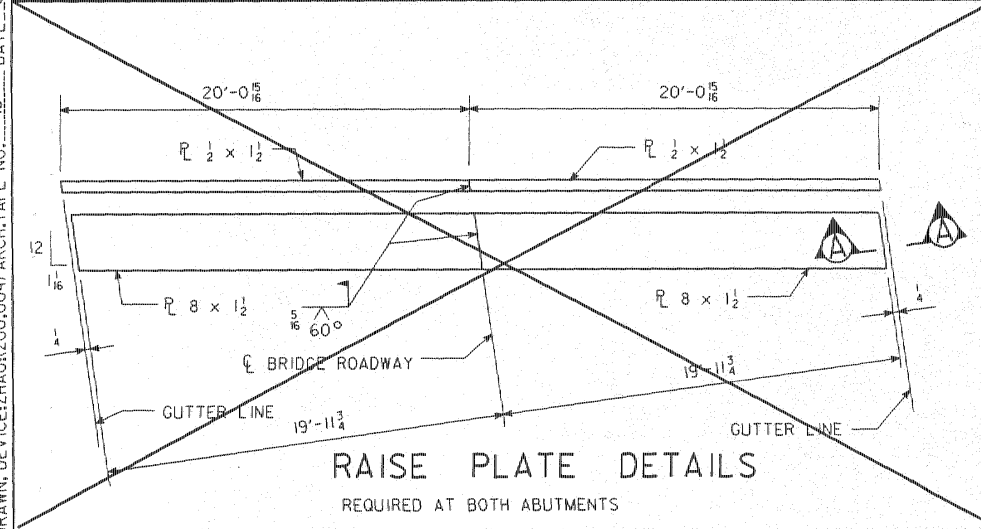
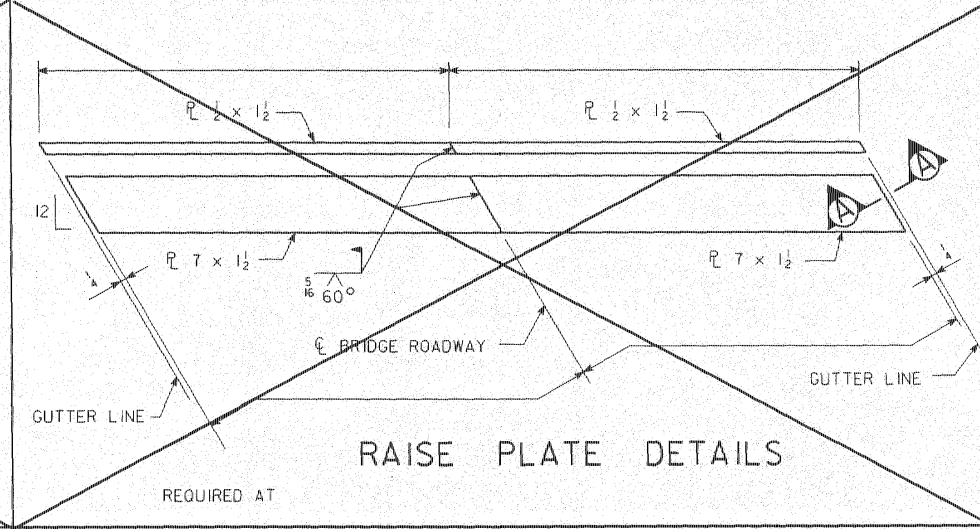
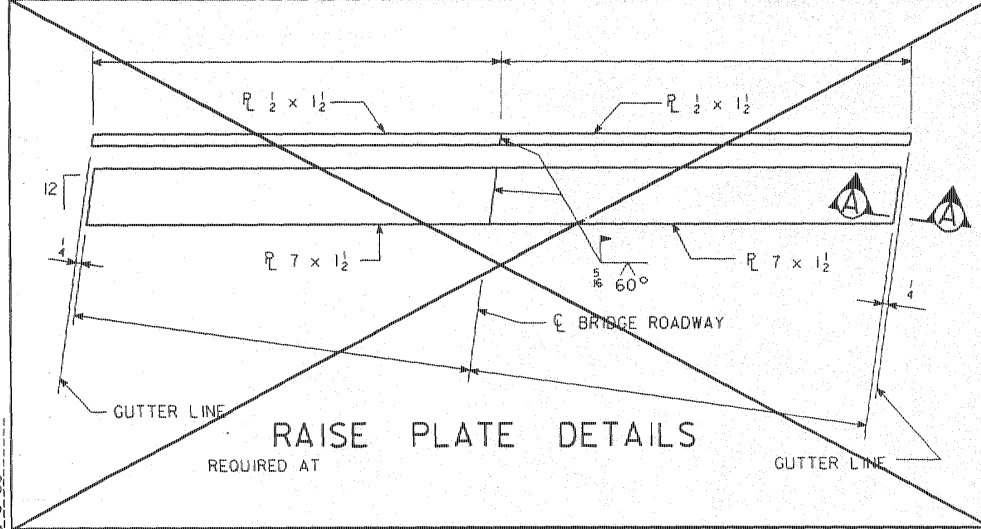
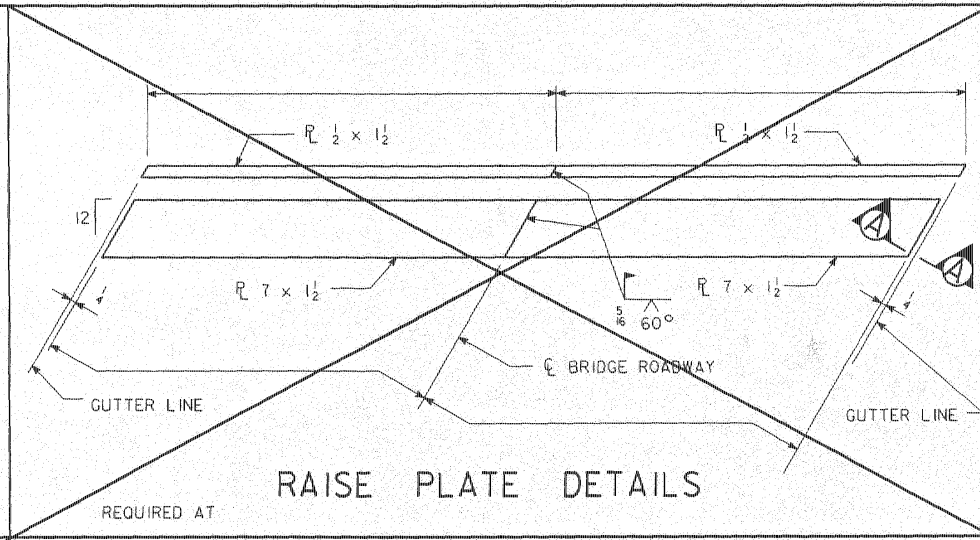
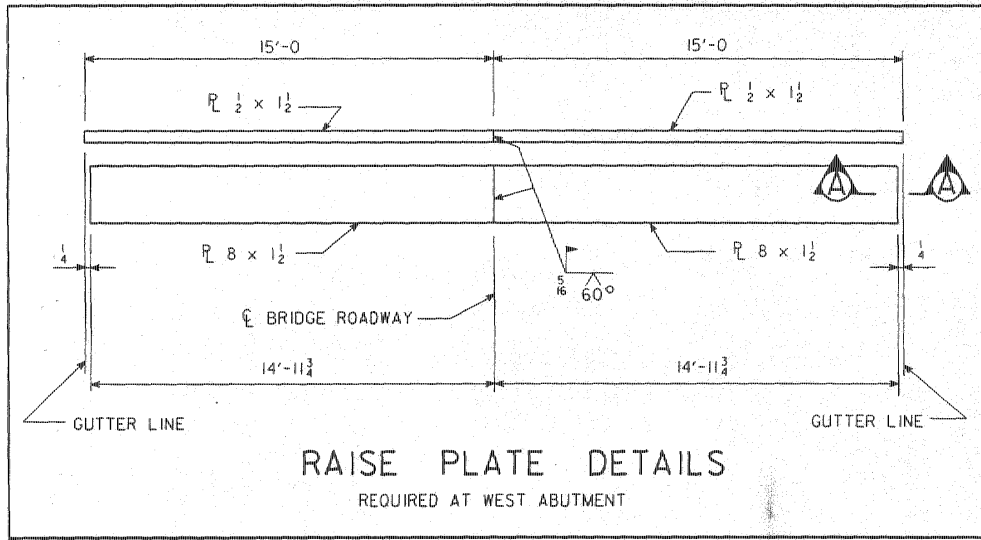
SAVE SET _____ DATE _____

MADISON COUNTY

PROJECT NUMBER

DESIGN FOR REPAIRS TO A 0° SKEW				
210'-0 x 30' CONTINUOUS I-BEAM BRIDGE				
64'-0 END SPANS		82'-0 CENTER SPAN		
GENERAL NOTES				
STATION: 222+67		OCTOBER, 1993		
MADISON COUNTY				
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION				
DESIGN SHEET NO.	2 OF 10	FILE NO.	28716	DESIGN NO. 194
STATE	FWHA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	7		4	14

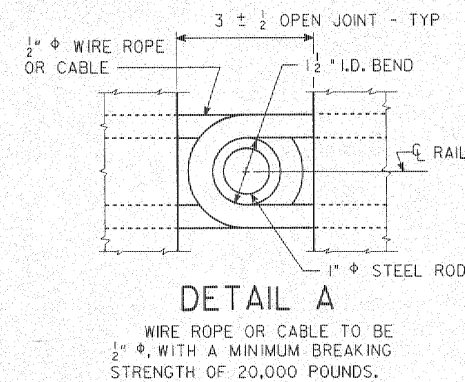
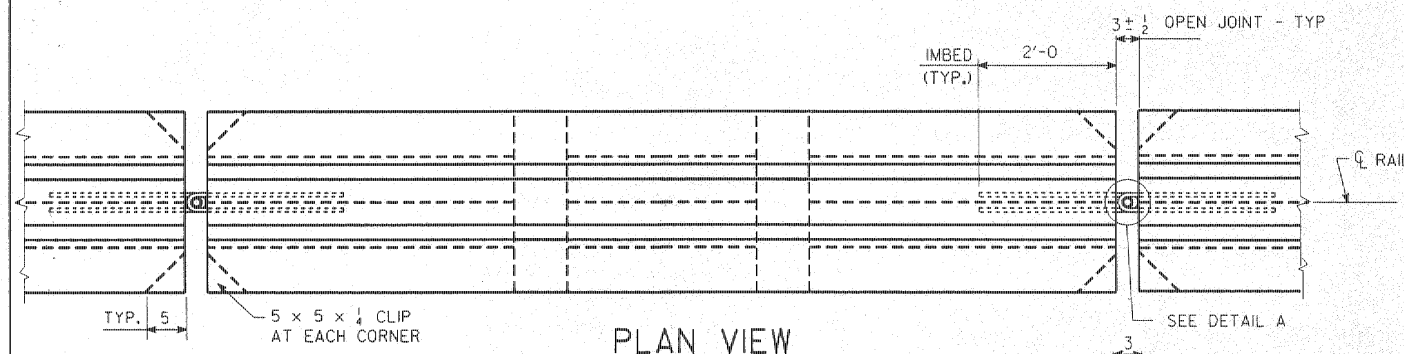
HSTD01041.S01--LEP: THIS SHEET REDRAWN, DEVICE:ZHAQ(200,004) ARCH.TAPE NO. 15 DATE 9-8-88



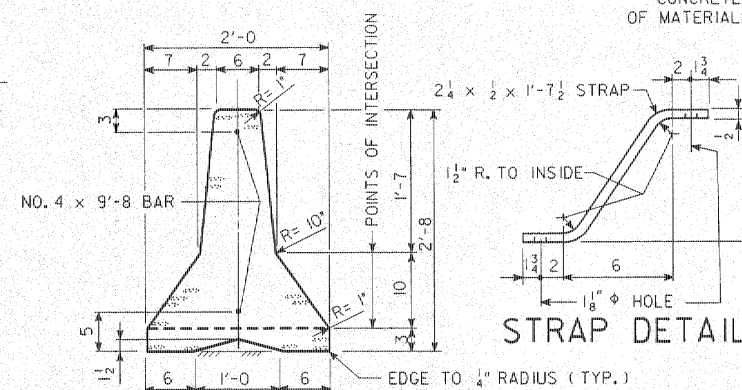
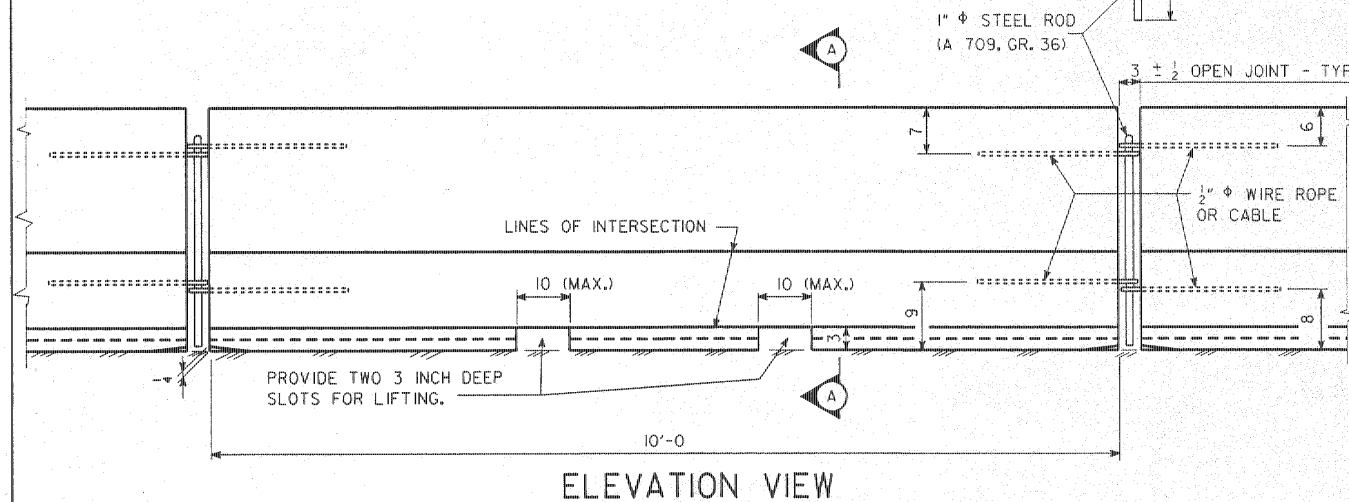
RAISE PLATE NOTES:
RAISE PLATES ~~SHALL~~ BE INSTALLED IN STAGES OVER ONE HALF OF THE BRIDGE AT A TIME. RAISE PLATES FOR EACH STAGE ~~SHALL~~ BE IN PLACE BEFORE THE NEW BRIDGE FLOOR OVERLAY FOR THAT STAGE IS PLACED.

DESIGN FOR REPAIRS TO A 0° SKEW
210'-0" x 30' CONTINUOUS I-BEAM BRIDGE
64'-0" END SPANS 82'-0" CENTER SPAN
REPAIR DETAILS
STATION: 222+67 OCTOBER, 1993
MADISON COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
DESIGN SHEET NO. 3 OF 10 FILE NO. 28716 DESIGN NO. 194
STATE IOWA FISCAL YEAR 7 SHEET NO. 5 TOTAL SHEETS 19

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: 10' LEP, THIS SHEET REDRAWN, DEVICE:ZHA04(200,004) ARCH:TAPE NO. 15 DATE 9-3-88.
REVISED: 6-21-93 - LIFTING SLOT DETAILS CHANGED.



NOTE:
BARRIER IS TO BECOME THE PROPERTY OF THE CONTRACTOR AT THE COMPLETION OF WORK AND REMOVED FROM THE SITE BY THE CONTRACTOR.
NO STATIONARY EQUIPMENT OR CONSTRUCTION MATERIAL IS TO BE PLACED IN FRONT OF THE TEMPORARY BARRIER RAIL AT ANY TIME.
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.
SHOULDER WIDTH AT THIS BRIDGE SITE IS 10 FEET, THEREFORE 16 CONCRETE BARRIER RAIL SECTIONS ARE REQUIRED FOR BRIDGE END "B".
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 1 1/2" 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 3/4" 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.

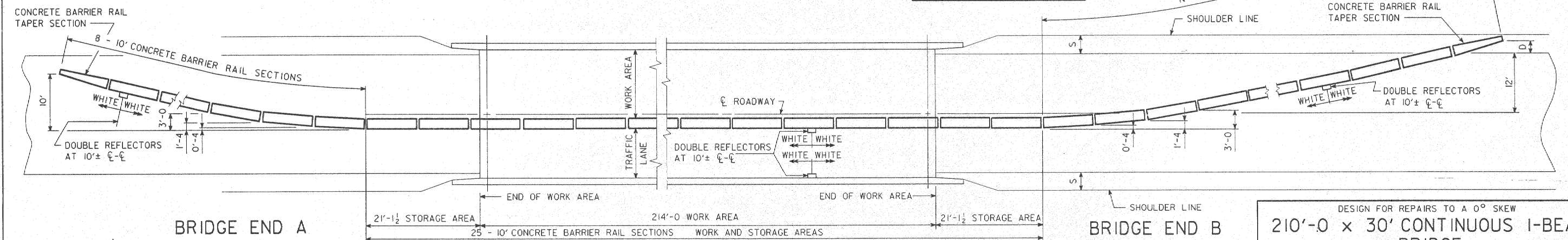
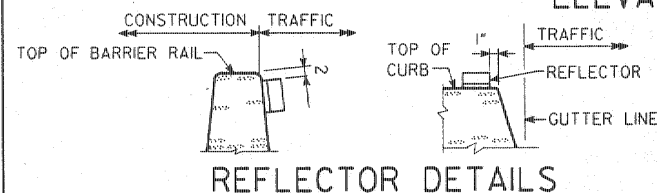
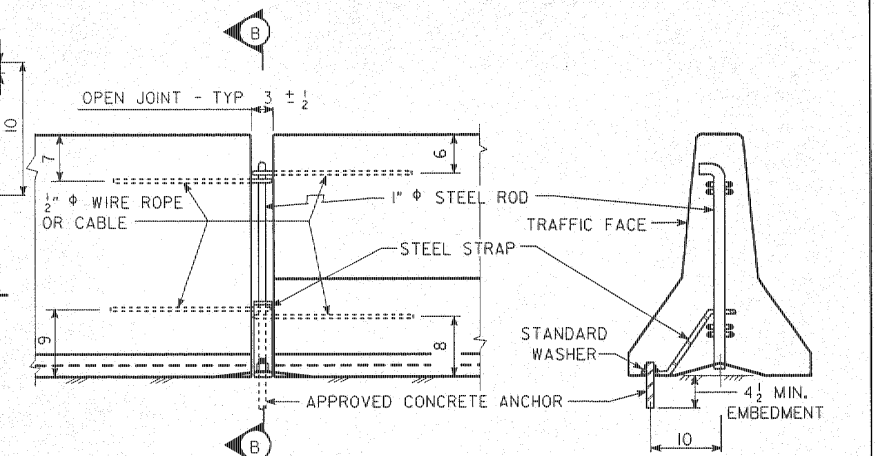


SECTION A-A

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

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

PART ELEVATION TEMPORARY BARRIER RAIL TIE DOWN DETAILS



TEMPORARY CONCRETE BARRIER RAIL LAYOUT FOR TWO WAY TRAFFIC

NOTE: THE LAYOUT SHOWN IS FOR ONE STAGE OF CONSTRUCTION AND WOULD BE THE SAME FOR THE OTHER STAGE BY ROTATING 180°.

QUANTITIES	
ITEM	AMOUNT
TEMPORARY BARRIER RAIL, FURNISH ONLY	490 L.F.
TEMPORARY BARRIER RAIL, PLACE ONLY	980 L.F.

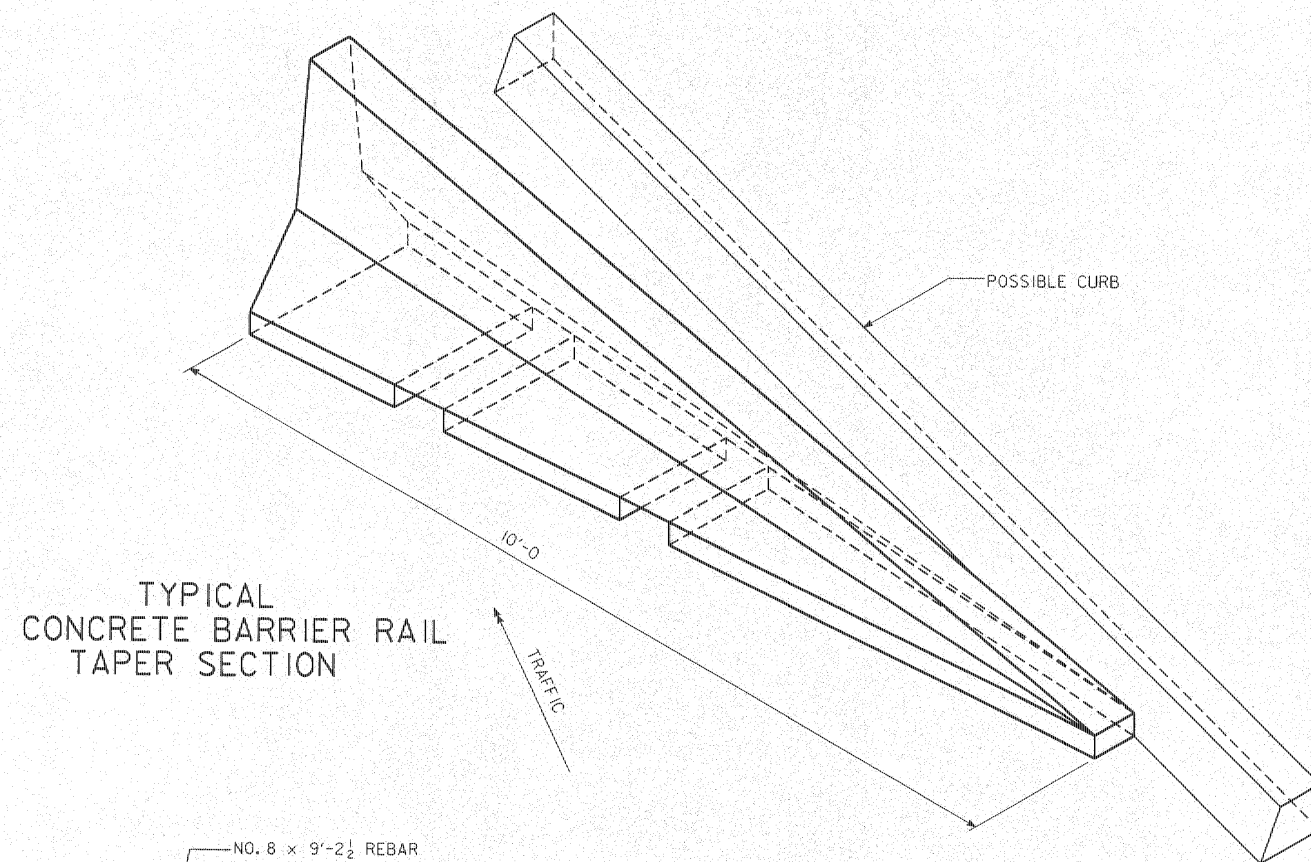
ITEM REFERENCE:
ALL TEMPORARY BARRIER RAIL SHALL BE NOMINAL 10' LONG CONCRETE UNITS.

DESIGN FOR REPAIRS TO A 0° SKEW	
210'-0" x 30' CONTINUOUS I-BEAM BRIDGE	
64'-0" END SPANS	82'-0" CENTER SPAN
TEMPORARY BARRIER RAIL-CONCRETE	
STATION: 222+67	OCTOBER, 1993
MADISON COUNTY	
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION	
DESIGN SHEET NO. 4 OF 10	FILE NO. 28716
STATE IOWA	FISCAL YEAR 7
SHEET NO. 6	TOTAL SHEETS 14

DESIGNED BY J. Ogawa	TRACED BY	TEMPORARY BARRIER RAIL-CONCRETE	STANDARD 1033
DETAILED BY E. Ogawa	CHECKED BY		
h610194.s04			

SAVE SET DATE

HSTD1034B--CJP: THIS SHEET ISSUED, DEVICE : ZHAH200.51 ARCH. TAPE NO. 9 DATE 10-12-89
REVISED: 6-21-93 - LIFTING SLOT DETAILS CHANGED.

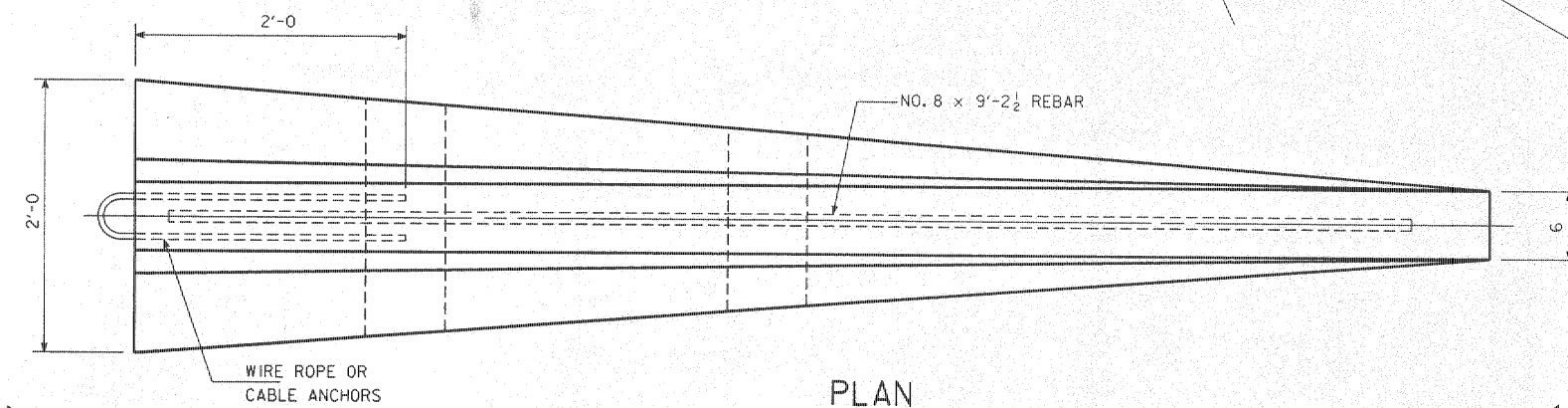


TYPICAL
CONCRETE BARRIER RAIL
TAPER SECTION

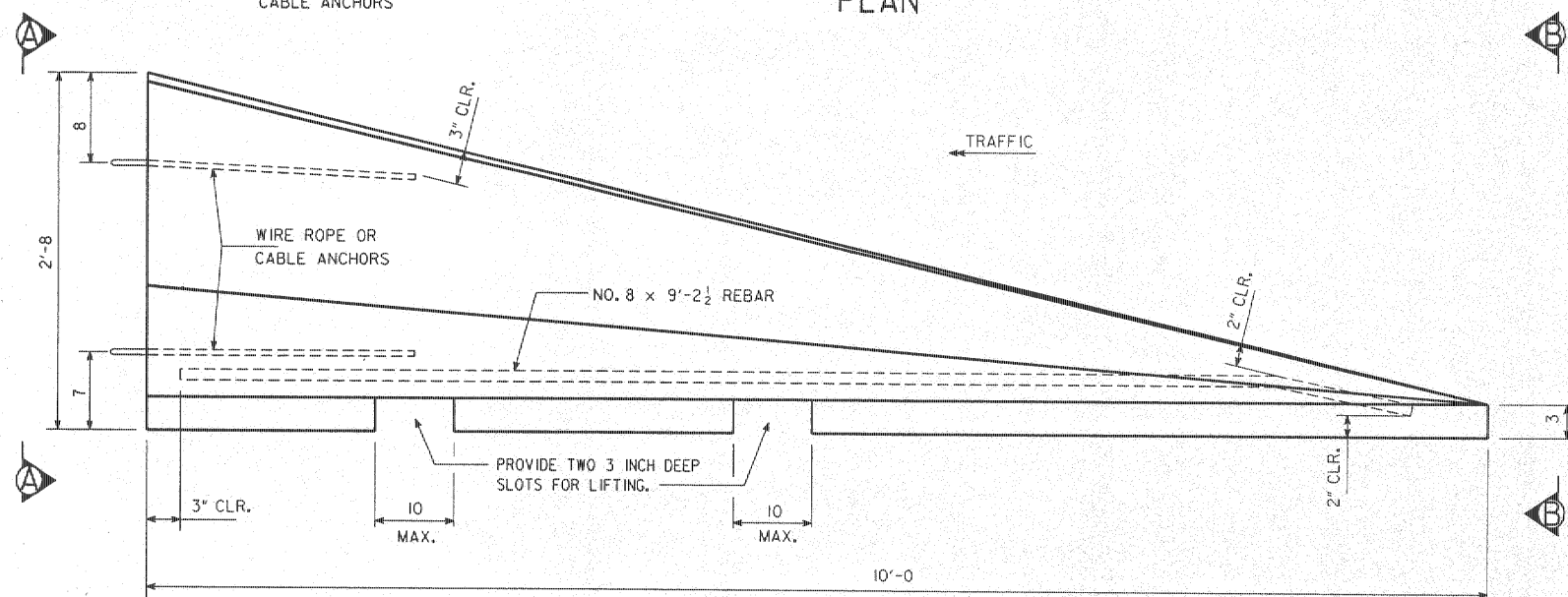
GENERAL NOTES:

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.

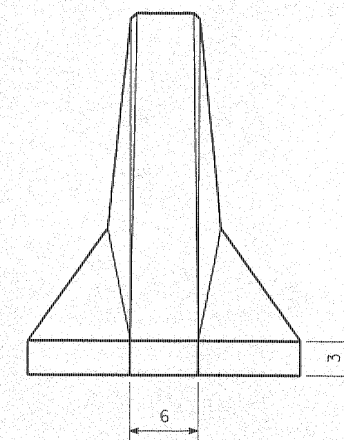
CONCRETE SHALL BE CLASS "D" STRUCTURAL CONCRETE PLACED AND FINISHED IN CONFORMANCE WITH CURRENT STANDARD SPECIFICATIONS FOR "STRUCTURAL CONCRETE". APPROXIMATELY 0.486 CU. YDS. OF CLASS "D" STRUCTURAL CONCRETE WILL BE REQUIRED FOR EACH TAPER SECTION.



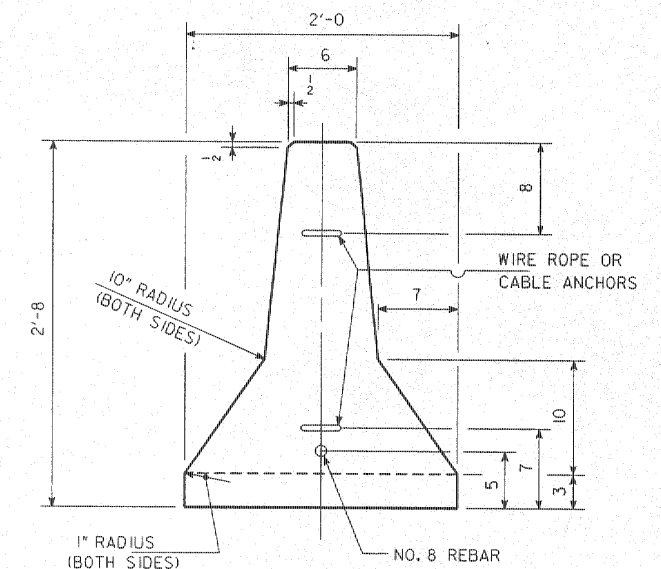
PLAN



SIDE ELEVATION



FRONT VIEW B-B



END VIEW A-A

DESIGN FOR REPAIRS TO A 0° SKEW				
210'-0 x 30' CONTINUOUS I-BEAM BRIDGE				
64'-0 END SPANS		82'-0 CENTER SPAN		
CONCRETE BARRIER RAIL TAPER SECTION				
STATION: 222+67		OCTOBER, 1993		
MADISON COUNTY				
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION				
DESIGN SHEET NO. <u>5</u> OF <u>10</u>		FILE NO. <u>28716</u>	DESIGN NO. <u>194</u>	
STATE	FHWA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	7		7	17

DESIGNED BY *J. Ogawa* TRACED BY _____
REVIEWED BY E. OGAWA CHECKED BY _____
h610194.s05

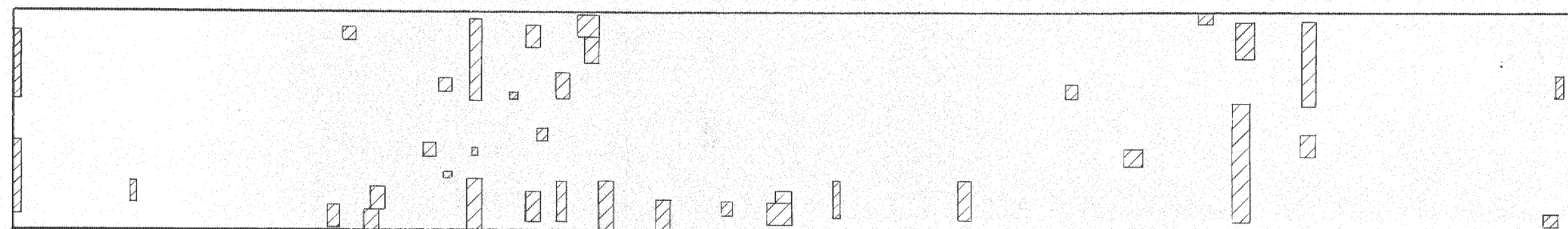
SAVE SET DATE _____

CONCRETE BARRIER RAIL TAPER SECTION

STANDARD 1034B

MADISON COUNTY

PROJECT NUMBER



SURVEY PLOT

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



DESIGN FOR REPAIRS TO A 0° SKEW
210'-0 x 30' CONTINUOUS I-BEAM
BRIDGE
64'-0 END SPANS 82'-0 CENTER SPAN
STATION: 222+67
MADISON COUNTY
IOWA DEPARTMENT OF TRANSPORTATION-HIGHWAY DIVISION
Design Sheet No.: 6 Of 10 File No.: 28716 Design No.: 194

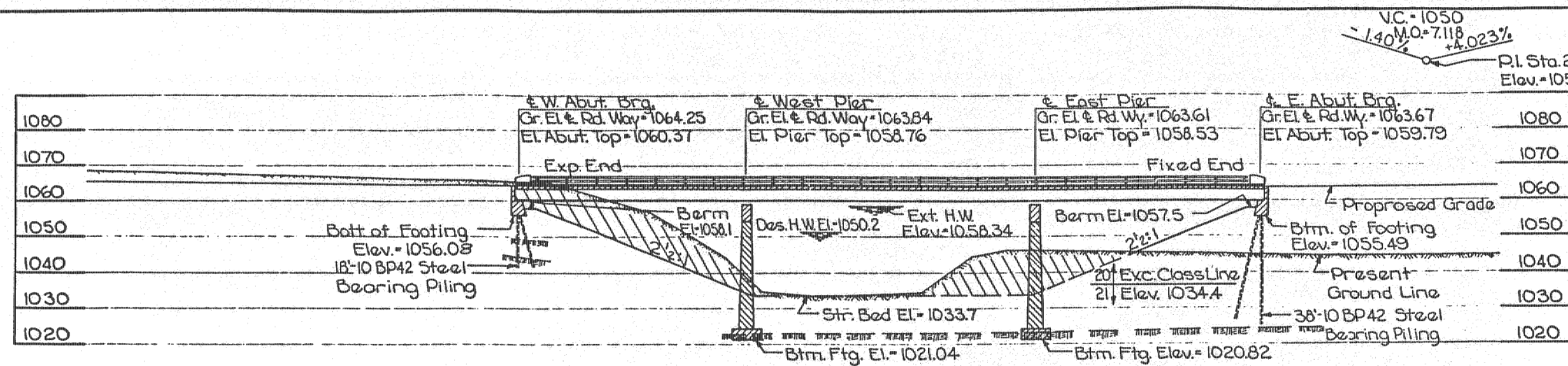
65219 BRIDGE WORK SHEET 000 31446

DESIGNED BY: J. Hansen TRACED BY: _____
DETAILED BY: Craig E. Riecken CHECKED BY: _____

Madison COUNTY

PROJECT NUMBER

STATE	IHWA Region	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	7		8	14



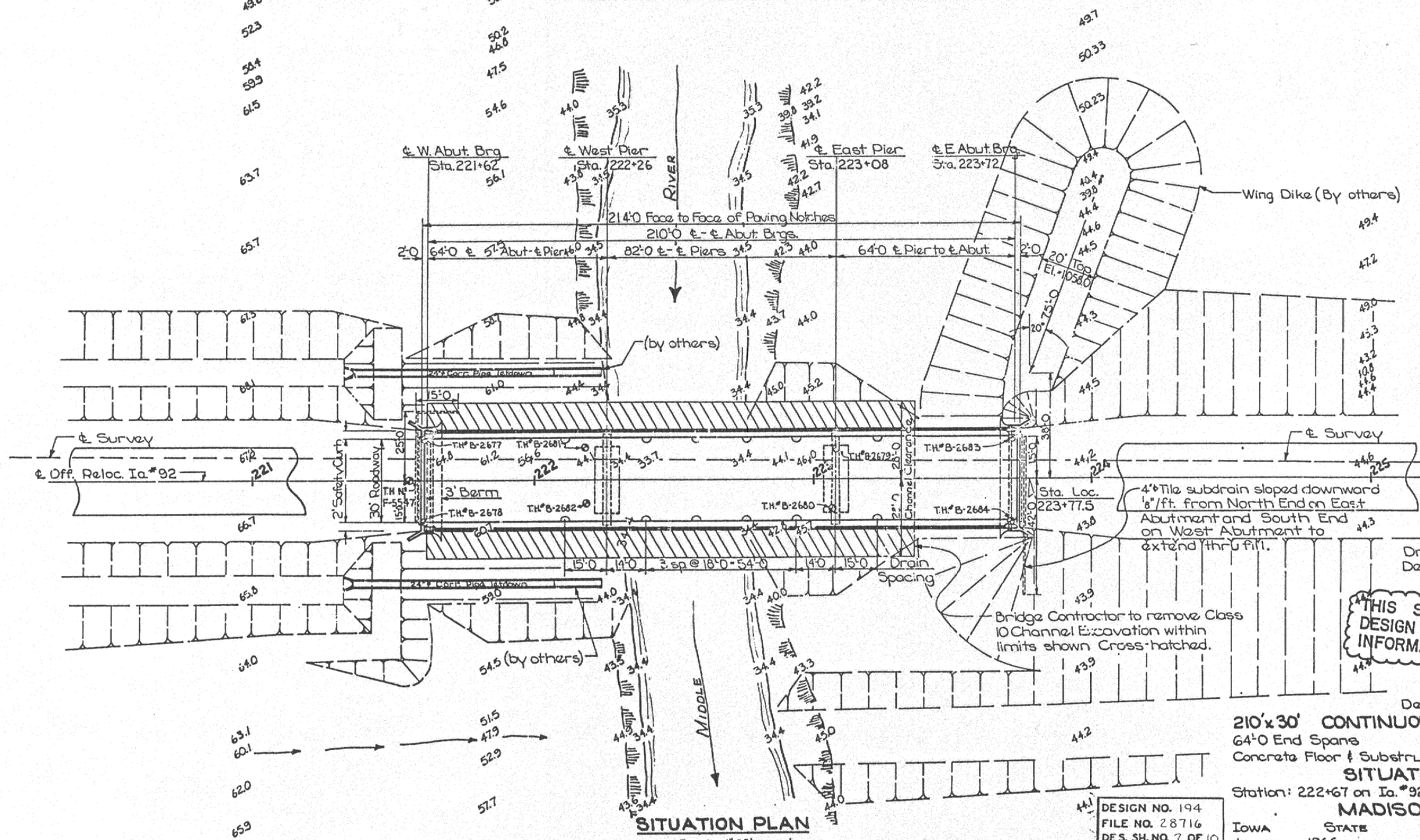
VC = 1050
M.O. = 7.118
+1.023%

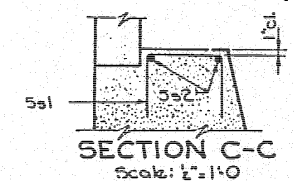
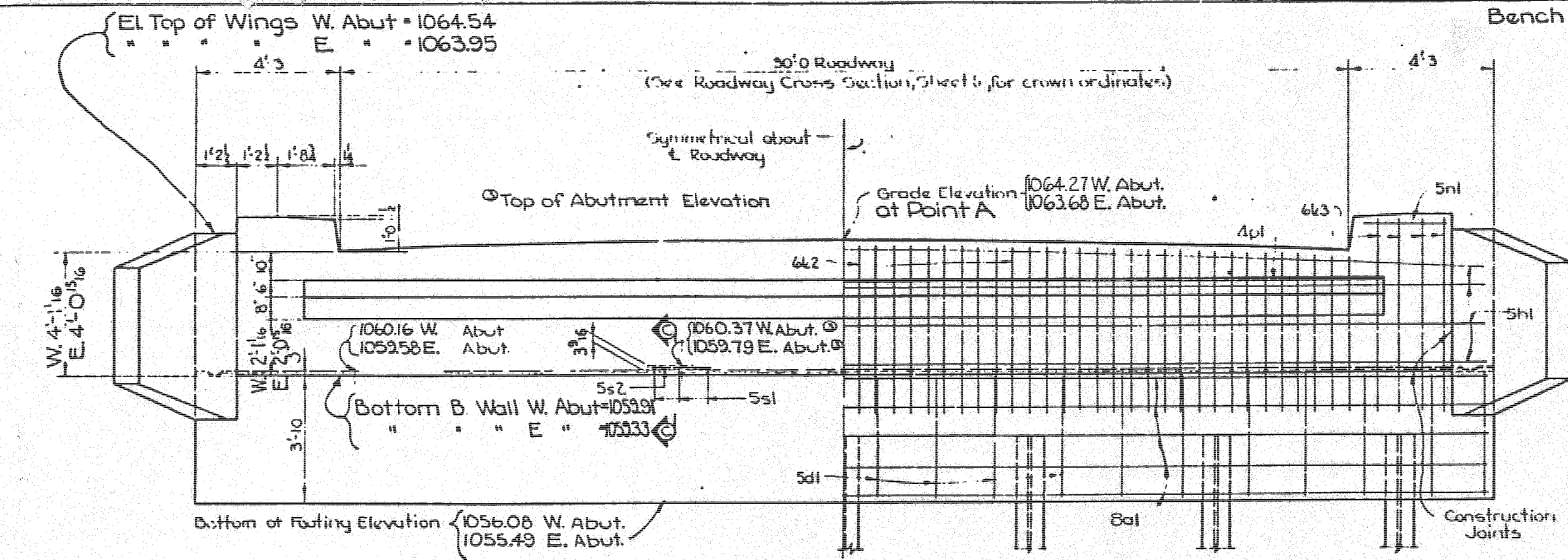
Bench Mark #17 Sta. 222+45 Set R.R. Spk. in North Side 18" Walnut West Bank of Middle River 179' Rt Elev. = 1045.91.

P.I. Sta. 225+75
Elev. = 1058.15

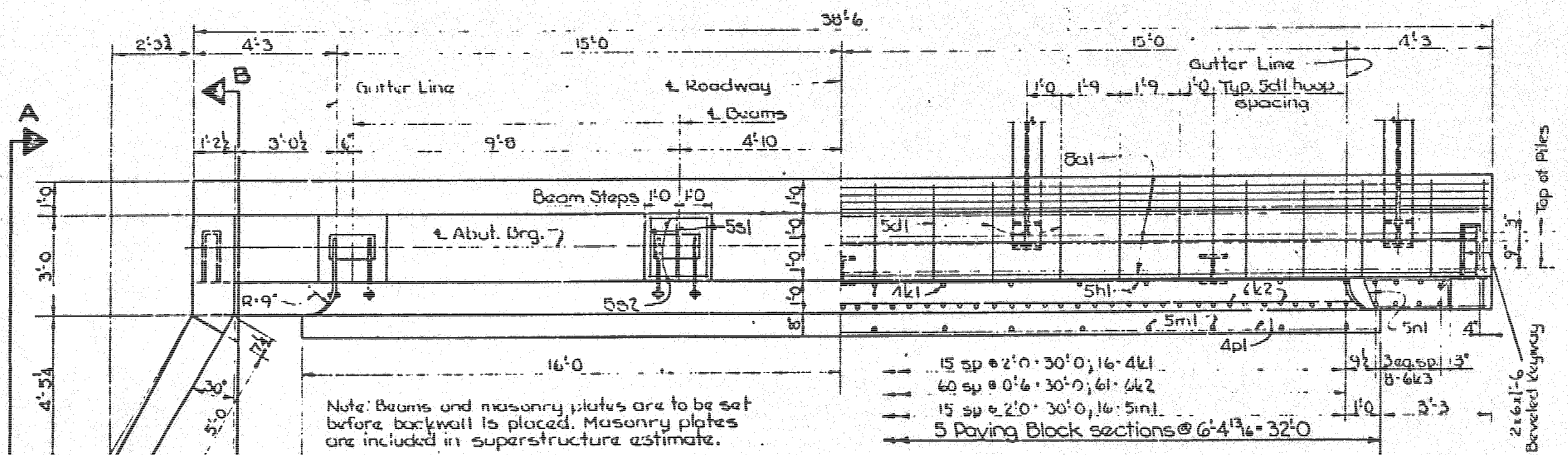
NOTE:
Engineer to re-establish the following bench mark on new structure. Information as to location and elevation new bench mark is to be sent to I.N.R.C., State House, Des Moines, Ia.
Chiseled "a" on the down-stream end of left bridge seat Elev. = 1047.07 M.S.L.

LONGITUDINAL SECTION ALONG & ROADWAY



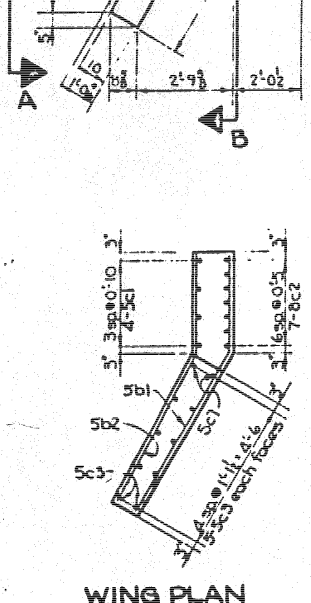


BACKFACE ELEVATION
Scale: 3/8"=1'-0"

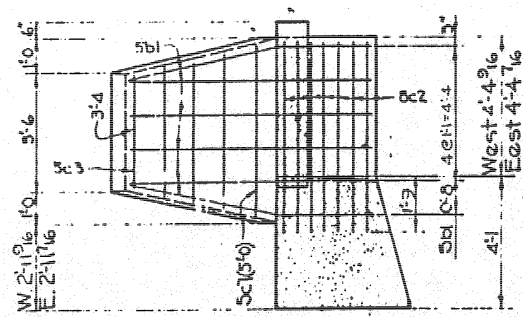


HALF PLAN
Scale: 3/8"=1'-0"

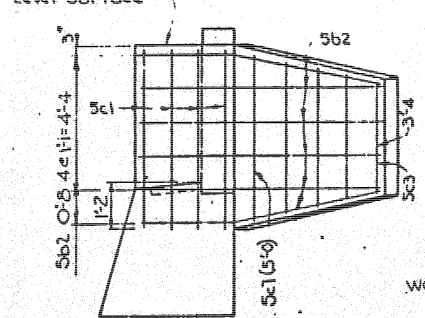
HALF FOOTING PLAN WITH BACKWALL
(Wing Removed)
Scale: 3/8"=1'-0"



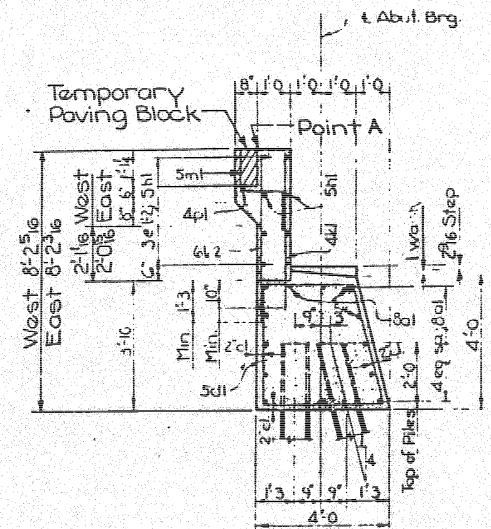
WING PLAN



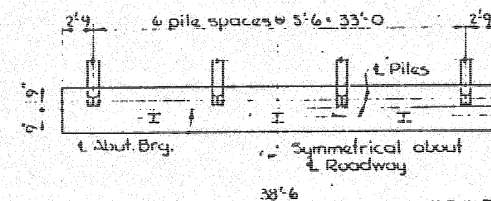
SECTION B-B
(Showing Backface Reinforcing)



VIEW A-A
(Showing Frontface Reinforcing)

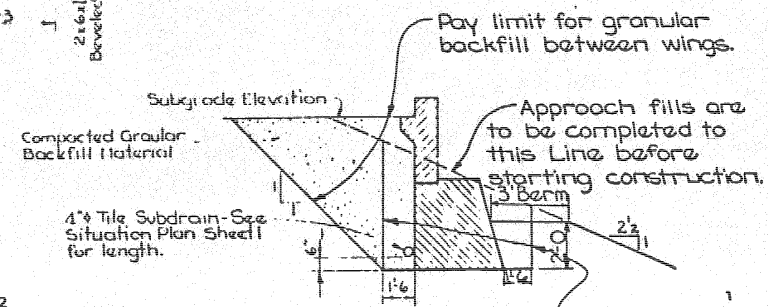


SECTION @ ROADWAY
Note: Expansion plate is not shown.

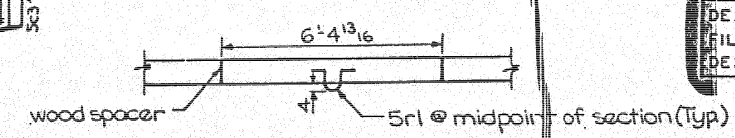


PILE PLAN

Note: Front piles are to be battered 1:4 in the direction shown. Piles shall be driven to practical refusal in limestone. The number of piles is based on a 55 ton bearing capacity per pile. Dimensions shown are at bottom of footing. 14-10 BP42 Steel Piles are required.

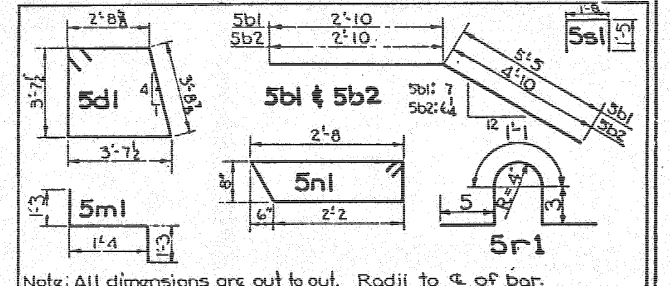


BACKFILL DETAIL



PAVING BLOCK DETAIL

REINFORCING STEEL ~ ONE ABUTMENT					
Bar	Location	Shape	N ^o	Length	Weight
8s1	Footings, Longitudinal	—	13	38'-2"	132.5
5s1	Wing	BFH	12	8'-3"	103
5s2	Wing	FFH	12	7'-8"	96
9s1	Wing	FFV	8	5'-4"	44
8s2	Wing	BFV	14	5'-11"	221
5s3-7	Wing	BFV & FFV	20	Varies	87
5s3	Footings, Hoops	—	22	14'-5"	331
5s1	Backwall, Horizontal	—	8	38'-2"	318
4s1	Backwall, FFV	—	16	4'-11"	53
6s2	Backwall, BFV	—	61	5'-4"	489
6s3	Backwall, BFV & FFV	—	16	6'-2"	148
5s1*	Backwall, Notch	—	16	3'-8"	61
5s1	Backwall, Curb, Horizontal	—	2	7'-1"	15
4s1	Backwall, Notch, Horizontal	—	1	31'-8"	21
5s1	Paving Block Hoops	—	5	2'-3"	12
5s1	Beam Seat	—	12	4'-4"	54
5s2		—	8	1'-8"	14
Total, lbs.					3392



CONCRETE PLACEMENT QUANTITIES ~ ONE ABUT	
Footings	89 cu. yds.
Backwall	6.6 "
Wings	3.0 "
Temporary Paving Block	0.8 "
Total	30.3 cu. yds.

ESTIMATED QUANTITIES ~ TWO ABUTMENTS	
Concrete	606 cu. yds.
Reinforcing Steel	6,784 lbs.
Class 20 Excavation	80 c.y.
10 BP42 Steel	Furnish 70 18'
Bearing Piling	Drive 70 38'
Granular Backfill	108 c.y.

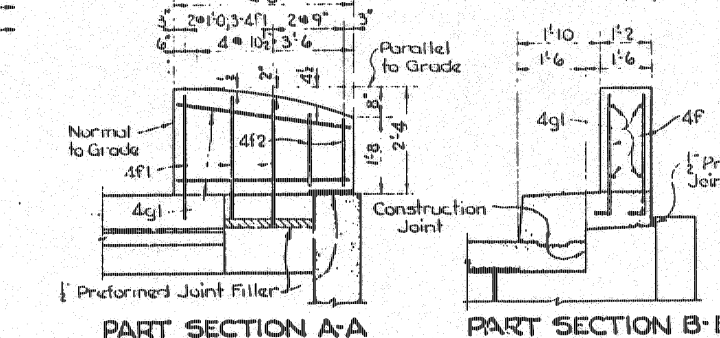
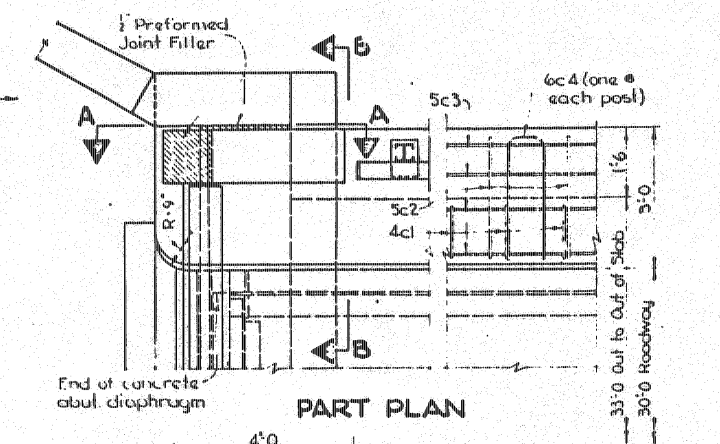
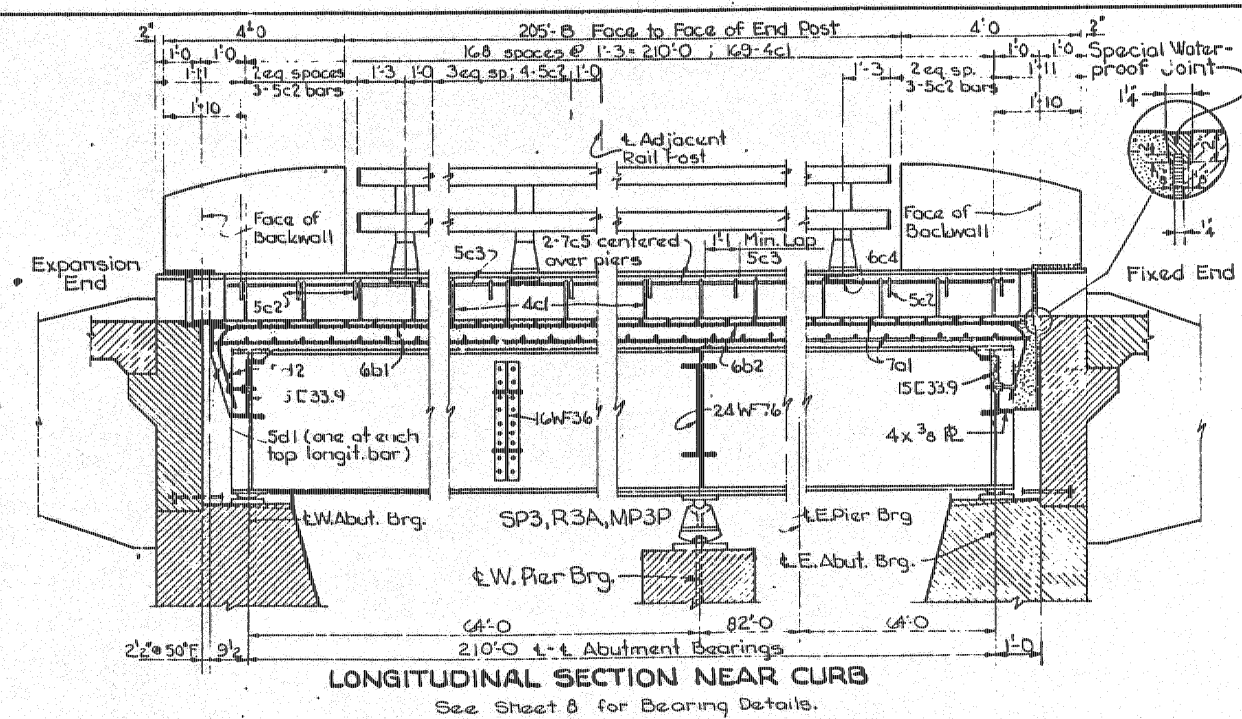
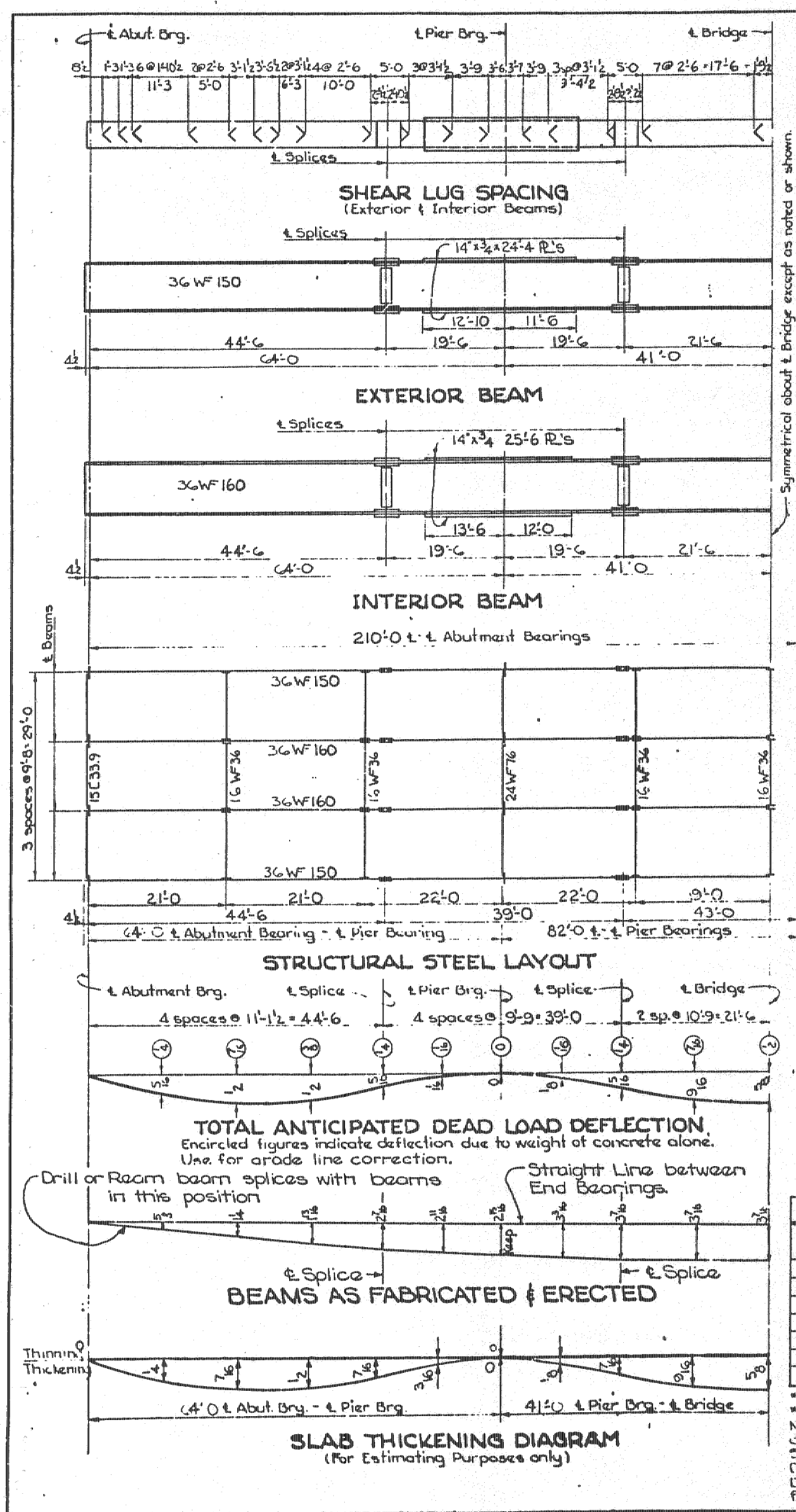
ABUTMENT NOTES:
All exposed corners of 40" or sharper are to be filleted with a 3" dressed and beveled strip.
Reinforcing steel is to be securely wired in place before concrete is poured.
Minimum clear distance from face of concrete to near reinforcing bar is to be 2" unless otherwise noted or shown.
All backfill behind the abutment wing is to be granular backfill. The remainder of the abutment excavation is to be filled with soil.
The concrete paving block is to be placed after the backwall is in place. Bend down 5s1 dowels (structural grade) and line the notch with tarpaper to prevent bond. Block is to be removed and bar straightened before pavement is placed.

THIS SHEET FROM ORIGINAL DESIGN IS INCLUDED FOR INFORMATION ONLY.

DESIGN NO. 194
FILE NO. 28716
DES. SH. NO. 8 OF 10

Design for
210'-0" x 30' CONTINUOUS I-BEAM BRIDGE
6'-0" End Spans 82'-0" Center Span
Concrete Floor & Substructure Tubular Handrail
ABUTMENT DETAILS
Station 222+67 on Ia. 92 Proj. No. F-92-4(1) 2064
MADISON COUNTY
Iowa State Highway Commission
January 1966
Sheet 4 of 10

Design No. 965 Madison County File No. 21900
Designed by: A.G.L. Traced by: [Signature]
10 of 19

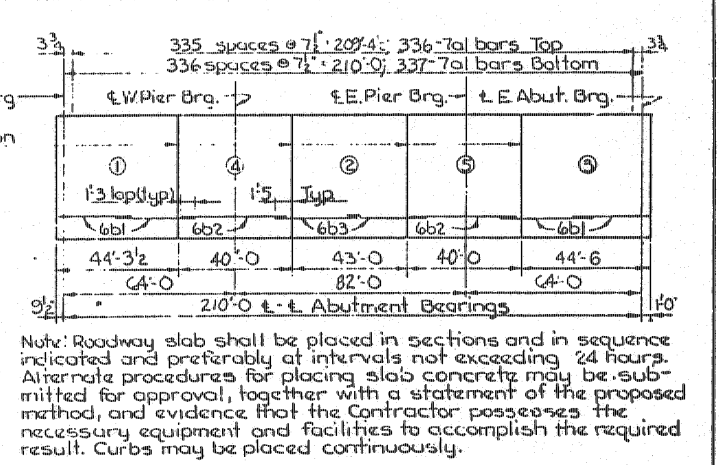
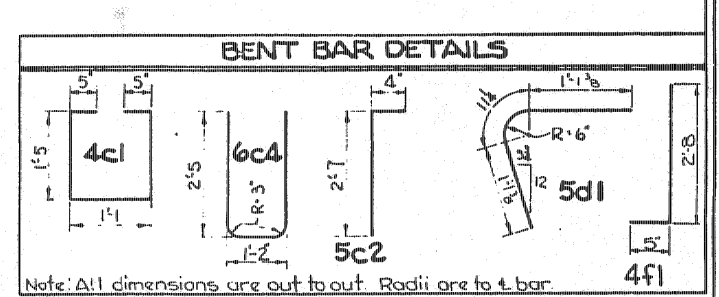


Moments in Ft.-Kips				MOMENTS & REACTIONS				Reactions in Kips				
	Loads		Pos. Mom. End Span		Neg. Mom. Pier		Pos. Mom. Ctr. Span		Abut. Reaction		Pier Reaction	
	Ext.	Int.	Ext.	Int.	Ext.	Int.	Ext.	Int.	Ext.	Int.	Ext.	Int.
C.L. N°1	0.807	1.259	199.8	313.35	499.7	779.6	179.1	280.9	18.0	28.1	66.7	104.1
DL N°2	0.621	0.102	170.8	28.1	337.3	55.4	183.4	30.1	14.6	2.4	50.6	8.3
U.L.L.	0.432	0.5624	—	—	204.8	343.8	—	—	—	—	41.6	48.5
C.L.L.	0.374	0.374	—	—	177.8	207.5	—	—	—	—	19.6	22.84
H20-S16	24.096	28.128	537.4	627.3	—	—	560.0	653.7	44.8	53.3	—	—
Impact	—	—	140.0	163.1	118.0	138.0	134.4	157.0	11.9	13.9	15.5	18.1
Total	—	—	—	—	1427.6	1524.3	—	—	89.3	97.7	194	201.8

* Upper figure is for moment, lower figure is for shear.
 ** Pier increase = 14%. — Total not given due to composite action.
 Note: Moments & Reactions shown are for normal Live Load & Impact. Positive moments due to Dead Load N°2 and Live Load and Impact are resisted by composite action. Shear lugs insure composite action.
 Dead Load N°1 includes weights of slab, beams, diaphragms, cover plates, and shear lugs.
 Dead Load N°2 includes weights of curbs, rail, rail posts, rail post anchorages, and future wearing surface.

REINFORCING STEEL - SUPERSTRUCTURE

Bar	Location	Shape	N°	Length	Weight
7a1	Slab, Transverse, Top & Bottom	613	32-8	4,493.7	
6b1	Slab, Longitudinal, Top & Bottom, 1 & 3	196	23-5	6,894	
6b2	Slab, Longitudinal, Top & Bottom, 4 & 5	98	39-8	5,839	
6b3	Slab, Longitudinal, Top & Bottom, 2	98	23-7	3,471	
4c1	Curb, Transverse, Hoops	338	4-6	1,016	
5c2	Curb, Transverse	204	2-10	603	
5c3	Curb, Longitudinal	48	36-2	1,811	
6c4	Curb, Transverse @ Posts	50	5-10	438	
7c5	Curb, Longitudinal @ Pier	8	33-0	491	
5d1	End Diaphragm, Vertical	48	3-2	159	
5d2	End Diaphragm, Horizontal	2	28-8	60	
4f1	Wing Post, Vertical	24	3-0	48	
4f2	Wing Post, Vertical	16	1-5	15	
4g1	Wing Post, Horizontal	16	3-8	39	
Total, lbs.					65,821



CONCRETE PLACEMENT QUANTITIES

Sections	Quantity
Section 1	38.5 cu.yds
Section 2	36.9 "
Sections	39.2 "
Sections 4 & 5	2 @ 32.6 = 65.2 "
Curbs	42.2 "
End Posts	1.5 "
Total	223.5 cu.yds

ESTIMATED QUANTITIES - SUPERSTRUCTURE

Item	Quantity
Structural Concrete Class D	223.5 cu.yds
Reinforcing Steel	65,821 lbs.
Structural Steel	182,636 lbs.

THIS SHEET FROM ORIGINAL DESIGN IS INCLUDED FOR INFORMATION ONLY.

DESIGN NO. 194
 FILE NO. 28716
 DES. SH. NO. 9 OF 10

Design for
210'-0" x 30' CONTINUOUS I-BEAM BRIDGE
 4'-0" End Spans
 Concrete Floor & Substructure
 82'-0" Center Span
 Tubular Handrail

SUPERSTRUCTURE DETAILS
 Station: 222+67 on Ia. 92
 Project No. F-92-4(1) - 20-61
MADISON COUNTY
 Iowa State Highway Commission
 January, 1966
 Design: N. 365
 Checked by: WAL

