RECONSTRUCTION - BRIDGE SUPER REPLACEMENT
BRF-034-7(130)--38-90

LETTING DATE 4-17-12

WAPELLO COUNTY

LEGEND

INTERSTATE ROUTE	29
FREEWAY OR EXPRESSWAY ROUTE	69
U.S. NUMBERED ROUTE	6
STATE NUMBERED ROUTE	44
COUNTY NUMBERED ROUTE	A13
LOCAL ROAD OR CITY STREET	
RAILROAD	
CORPORATION LINE	
SECTION LINE	
CUL DE SAC	
SECTION, TOWNSHIP & RANGE NUMBERS	9 , T-8IN , R-30W

Iowa Department of Transportation
Highway Division

PLANS OF PROPOSED IMPROVEMENTS ON THE

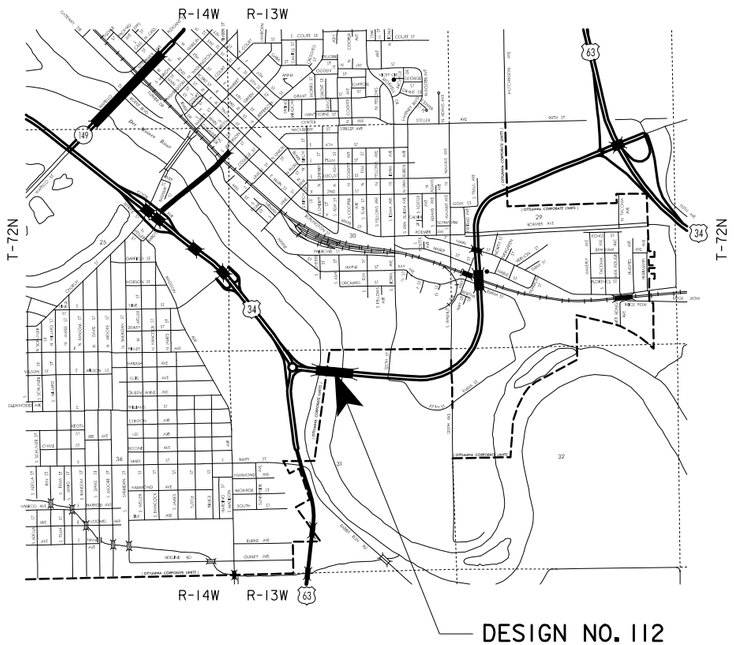
PRIMARY ROAD SYSTEM

WAPELLO COUNTY

RECONSTRUCTION - BRIDGE SUPER REPLACEMENT

US 34/63 OVER DES MOINES RIVER
IN OTTUMWA

THE IOWA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION, SERIES 2009, PLUS APPLICABLE GENERAL SUPPLEMENTAL SPECIFICATIONS, DEVELOPMENTAL SPECIFICATIONS, SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS SHALL APPLY TO CONSTRUCTION WORK ON THIS PROJECT.



LOCATION MAP

	TOTAL SHEETS
	89
PROJECT NUMBER	
BRF-034-7(130)--38-90	
R.O.W. PROJECT NUMBER	
PROJECT IDENTIFICATION NUMBER	
06-90-034-020	

INDEX OF SHEETS

REVISIONS

IOWA ONE CALL
1-800-292-8989 | 811
www.iowaonecall.com
Know what's below. Call before you dig.

STANDARD ROAD PLANS

STANDARD ROAD PLANS ARE LISTED ON SHEET NUMBER C.3

DESIGN DATA URBAN

2010	AADT	13,800	V.P.D.
2030	AADT	21,500	V.P.D.
2024	DHV	2,144	V.P.H.
TRUCKS		8	%
ESALs per day		4,100,000	

INDEX OF SEALS

SHEET NO.	NAME	TYPE
1	WILLIAM D. TUCKER	STRUCTURAL DESIGN
1	CHRISTINE E. KING	HYDRAULIC DESIGN
A.1	PAUL W. FLATTERY	ROADWAY DESIGN

HYDRAULIC DESIGN

LICENSED PROFESSIONAL ENGINEER
Christine E. King
12753
IOWA

I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

Christine E King 1-30-12
Signature Date

Christine E. King
Printed or Typed Name

My license renewal date is December 31, 2012

Pages or sheets covered by this seal: SHEET 4 OF 89

STRUCTURAL DESIGN

LICENSED PROFESSIONAL ENGINEER
William D. Tucker
11362
IOWA

I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

William D. Tucker 1-30-12
Signature Date

William D. Tucker
Printed or Typed Name

My license renewal date is December 31, 2013

Pages or sheets covered by this seal: SHEETS 1 THRU 46 OF 89

PROJECT DIRECTORY NAME: 9003402006

DESIGN TEAM WDT/DAW/DLB	ENGLISH	IOWA DOT * OFFICE OF BRIDGES AND STRUCTURES	FILE NO. 30503	WAPELLO COUNTY	PROJECT NUMBER BRF-034-7(130)--38-90	SHEET NUMBER

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ESTIMATED BRIDGE QUANTITIES

ITEM NO.	ITEM CODE	ITEM	UNIT	TOTAL	AS BUILT QUAN.
1	2401-6745625	REMOVAL OF EXISTING BRIDGE	LS	1.00	
2	2402-2720000	EXCAVATION, CLASS 20	CY	258	
3	2403-0100010	STRUCTURAL CONCRETE (BRIDGE)	CY	385.8	
4	2403-7000210	HIGH PERFORMANCE STRUCTURAL CONCRETE	CY	972.5	
5	2403-7000220	TRIAL BATCH HIGH PERFORMANCE STRUCTURAL CONCRETE	LS	1.00	
6	2404-7775000	REINFORCING STEEL	LB	40,163	
7	2404-7775005	REINFORCING STEEL, EPOXY COATED	LB	343,060	
8	2404-7775009	REINFORCING STEEL, STAINLESS STEEL	LB	146	
9	2408-7800000	STRUCTURAL STEEL	LB	1,043,308	
10	2413-1200000	STEEL EXTRUSION JOINT WITH NEOPRENE	LF	82.0	
11	2413-1200100	NEOPRENE GLAND INSTALLATION AND TESTING	LF	82.0	
12	2414-6424110	CONCRETE BARRIER RAILING	LF	805.4	
13	2501-0201057	PILES, STEEL, HP 10 X 57	LF	600	
14	2533-4980005	MOBILIZATION	LS	1.00	

ESTIMATE REFERENCE INFORMATION

ITEM NO.	ITEM CODE	DESCRIPTION
1	2401-6745625	**REMOVAL OF EXISTING BRIDGE** INCLUDES REMOVAL OF EXISTING SHEET PILING AT ABUTMENTS AS NECESSARY TO CONSTRUCT STAGE 2 OF ABUTMENTS AND AFTER BACKFILLING.
2	2402-2720000	**EXCAVATION, CLASS 20** - -
3	2403-0100010	**STRUCTURAL CONCRETE (BRIDGE)** THIS BID ITEM INCLUDES THE CONCRETE FOR THE ABUTMENTS AND PIERS. INCLUDES COST OF FURNISHING AND PLACING SPLASH BASINS (INCLUDING EXCAVATION, EROSION STONE OR CLASS E REVETMENT, AND ENGINEERING FABRIC). INCLUDES ALL PREFORMED EXPANSION JOINT FILLER REQUIRED. INCLUDES FURNISHING AND PLACING SUBDRAIN (INCLUDING EXCAVATION), FLOODABLE BACKFILL, POROUS BACKFILL, GEOTEXTILE FABRIC, WATER FLOODING, AND SUBDRAIN OUTLET AT ABUTMENTS. INCLUDES FURNISHING AND PLACING CONCRETE SEALER ON ABUTMENT SEATS AS NOTED IN THESE PLANS. INCLUDES FURNISHING AND PLACING ENGINEERING FABRIC, MACADAM STONE, 4" x 6" TREATED TIMBERS, $\frac{1}{2}$" DIAMETER STEEL PINS (OR REBARS), AND ALL REQUIRED EXCAVATING, SHAPING AND COMPACTING FOR WING ARMORING. INCLUDES FURNISHING AND PLACING 3 INCH DIAMETER PVC PLASTIC PIPE AND EXPANDING FOAM IN THE ABUTMENT WINGS.
4	2403-7000210	**HIGH PERFORMANCE STRUCTURAL CONCRETE** THIS BID ITEM INCLUDES THE CONCRETE FOR THE SLAB AND ABUTMENT DIAPHRAGMS. REFER TO THE DEVELOPMENTAL SPECIFICATION FOR "HIGH PERFORMANCE CONCRETE FOR STRUCTURES" FOR ADDITIONAL INFORMATION.
5	2403-7000220	**TRIAL BATCH HIGH PERFORMANCE STRUCTURAL CONCRETE** - -
6	2404-7775000	**REINFORCING STEEL** INCLUDES MECHANICAL SPLICE COUPLERS FOR THE PIER STEM TO CAP REINFORCING.
7	2404-7775005	**REINFORCING STEEL, EPOXY COATED** - -
8	2404-7775009	**REINFORCING STEEL, STAINLESS STEEL** - -
9	2408-7800000	**STRUCTURAL STEEL** INCLUDES 28 DRAINS AT 157 LB EACH AND 261 LB OF LUBRICATED BRONZE PLATE. INCLUDES $\frac{1}{8}$ INCH NEOPRENE SHEETS.

ESTIMATE REFERENCE INFORMATION

ITEM NO.	ITEM CODE	DESCRIPTION
10	2413-1200000	**STEEL EXTRUSION JOINT WITH NEOPRENE** THE QUANTITY IS BASED ON THE LENGTH OF STEEL EXTRUSION REQUIRED. THE NEOPRENE GLAND IS NOT INCLUDED. THE FULL LENGTH OF THE NEOPRENE GLAND REQUIRED WAS PROVIDED IN THE STAGE 1 PROJECT BRF-034-7(131)--38-90. INCLUDES ALL NECESSARY HARDWARE AND ACCESSORIES INCLUDING THE ANCHORAGE SYSTEM, TEMPORARY ERECTION MATERIAL AND THE $\frac{3}{8}$" BARRIER PLATES AND MEDIAN PLATES WITH THEIR ANCHORAGE SYSTEM. EXCLUDES INSTALLATION OF NEOPRENE GLAND.
11	2413-1200100	**NEOPRENE GLAND INSTALLATION AND TESTING** INCLUDES INSTALLATION OF NEOPRENE GLAND AND WATER TESTING OF JOINT.
12	2414-6424110	**CONCRETE BARRIER RAILING** INCLUDES MATERIAL AND LABOR ASSOCIATED WITH PROVIDING AND INSTALLING THE RIGID STEEL CONDUIT, JUNCTION BOXES AND FITTINGS. INCLUDES 1,608 LF OF 2" DIAMETER RIGID STEEL CONDUIT. INCLUDES 84.6 CY OF CLASS C OR CLASS BR STRUCTURAL CONCRETE. IF PLACEMENT OF CONCRETE IS DONE BY THE SLIPFORMING METHOD, CLASS BR CONCRETE IS REQUIRED. CAST-IN-PLACE BARRIER RAILS SHALL USE CLASS C MIX. PRICE BID FOR THIS ITEM SHALL INCLUDE THE COST OF CAST-IN-PLACE FORMS IF REQUIRED FOR PLACEMENT OF THE CONCRETE.
13	2501-0201057	**PILES, STEEL, HP 10 X 57** - -
14	2533-4980005	**MOBILIZATION** - -

NOTE:
ROADWAY QUANTITIES SHOWN ELSEWHERE IN THESE PLANS.

DESIGN FOR 0° SKEW

770'-0 x 77' CONTINUOUS WELDED GIRDER BRIDGE STAGE 2

115'-0 END SPANS 4-135'-0 INTERIOR SPANS

QUANTITIES

STATION: 1935+86.00 JANUARY, 2012

WAPELLO COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 1 OF 45 FILE NO. 30503 DESIGN NO. 112

GENERAL NOTES:

THIS DESIGN IS FOR STAGE 2 REPLACEMENT (EB SUPERSTRUCTURE) OF THE EXISTING 750'X 56' CONTINUOUS WELDED PLATE GIRDER BRIDGE SUPERSTRUCTURE, DESIGN NO. 164 WAPELLO COUNTY, AND WIDENING AND RAISING THE SOUTH PORTION OF THE EXISTING PIER CAPS. STAGE I CONSTRUCTION WAS DONE UNDER DESIGN 111 WAPELLO COUNTY. PLANS OF THE EXISTING BRIDGE WILL BE MADE AVAILABLE TO THE CONTRACTOR. CONTACT THE OFFICE OF CONTRACTS - HIGHWAY DIVISION - IOWA D.O.T. - AMES.

THE LUMP SUM BID FOR "REMOVAL OF EXISTING BRIDGE" SHALL INCLUDE REMOVAL OF THE EXISTING EB SUPERSTRUCTURE; SOUTH PORTION OF THE EXISTING ABUTMENTS; AND A PORTION OF THE EXISTING STEM AND CAP ON THE SOUTH END OF THE PIERS. CARE SHALL BE TAKEN NOT TO DAMAGE THE EXISTING REINFORCING STEEL IN THE PIERS THAT IS TO BE INCORPORATED INTO THE NEW CONSTRUCTION.

REMOVALS SHALL BE IN ACCORDANCE WITH SECTION 2401 OF THE STANDARD SPECIFICATIONS. PARTIAL REMOVALS OF CONCRETE SHALL BE INITIATED WITH A $\frac{3}{4}$ INCH SAW CUT.

ANY DAMAGE TO ANY STEEL OR CONCRETE NOT TO BE REMOVED SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND REPAIRED AT NO EXTRA COST TO THE STATE.

THE BRIDGE CONTRACTOR WILL BE THE ONLY CONTRACTOR AT THE SITE AND IS RESPONSIBLE FOR THE COMPLETION OF ALL WORK AS DETAILED AND NOTED IN THESE PLANS.

THE CONTRACTOR SHALL NOTE THE STANDARD ABUTMENT DETAILS HAVE BEEN MODIFIED TO OFFSET THE ABUTMENT FOOTING FROM THE WINGWALL AND THE ABUTMENT FOOTING FROM THE BACKWALL TO AID IN TYING THE REINFORCING STEEL BETWEEN THE FOOTING TO WINGWALL AND THE FOOTING TO BACKWALL.

FAINT LINES ON PLANS INDICATE THE EXISTING STRUCTURE.

THE CITY AND UTILITY COMPANIES WHOSE FACILITIES ARE SHOWN ON THE PLANS OR KNOWN TO BE WITHIN THE CONSTRUCTION LIMITS SHALL BE NOTIFIED BY THE BRIDGE CONTRACTOR OF THE CONSTRUCTION STARTING DATE.

THE BRIDGE CONSTRUCTION IS IN CLOSE PROXIMITY TO EXISTING ALLIANT ENERGY OVERHEAD TRANSMISSION LINES. THE TRANSIMISSION LINES LOCATED AT THE WEST END OF THE BRIDGE OVER THE ROADWAY WILL BE REMOVED AND NOT REPLACED UNTIL AFTER CONSTRUCTION. THE TRANSMISSION LINES CROSSING THE RIVER AND LOCATED NORTH OF THE BRIDGE WILL BE DE-ENERGIZED FOR THE DURATION OF THE PROJECT, BUT THE GROUNDED CONDUCTOR WILL BE LEFT IN PLACE. THE GROUNDED CONDUCTOR WILL HAVE APPROXIMATELY 62 FEET HORIZONTAL CLEARANCE FROM THE EDGE OF THE EXISTING WESTBOUND BRIDGE. THE GROUNDED CONDUCTOR'S LOWER ELEVATION IS APPROXIMATELY 676. THE CONTRACTOR SHALL NOT WORK WITHIN THE MINIMUM DISTANCE SPECIFIED BY THE OCCUPATION SAFETY AND HEALTH ADMINISTRATION (OSHA), OF ANY CONDUCTOR WHILE THE LINE IS ENERGIZED. WHEN THE LINE IS DE-ENERGIZED, THE CONTRACTOR SHALL NOT WORK WITHIN 2 FEET OF ANY CONDUCTOR. THE CONTRACTOR SHALL NOTIFY ALLIANT ENERGY AT PHONE NUMBER 1-800-255-4268 A MINIMUM OF 14 CALENDAR DAYS IN ADVANCE OF ANY REQUEST TO DE-ENERGIZE THE TRANSMISSION LINES.

SUBSTRUCTURE CONCRETE SHALL BE PROTECTED FROM STAINING BY A WRAPPING OF POLYETHYLENE OR SIMILAR MATERIALS WHICH SHALL BE LEFT IN PLACE AND KEPT IN A SERVICEABLE CONDITION UNTIL AFTER THE DECK HAS BEEN PLACED. IF SUBSTRUCTURE CONCRETE IS STAINED, THE STAINS SHALL BE REMOVED BY METHODS APPROVED BY THE ENGINEER. ALL COSTS ASSOCIATED WITH THE PROTECTION AND ANY REQUIRED CLEANING OF THE SUBSTRUCTURE CONCRETE SHALL BE INCLUDED IN THE PRICE BID FOR "STRUCTURAL STEEL".

CONCRETE BARRIER RAILS PLACED USING THE SLIPFORM METHOD WILL REQUIRE THE USE OF A CLASS BR CONCRETE IN ACCORDANCE WITH ARTICLE 2513.03B OF THE STANDARD SPECIFICATIONS. CAST-IN-PLACE BARRIER RAILS SHALL USE CLASS C MIX. CLASS D CONCRETE IS NOT PERMITTED FOR CONCRETE BARRIER RAILS (CAST-IN-PLACE OR SLIPFORMED METHOD).

THESE BRIDGE PLANS LABEL ALL REINFORCING STEEL WITH ENGLISH NOTATION (5a1 IS $\frac{5}{8}$ INCH DIAMETER BAR). ENGLISH REINFORCING STEEL RECEIVED IN THE FIELD MAY DISPLAY THE FOLLOWING "BAR DESIGNATION". THE "BAR DESIGNATION" IS THE STAMPED IMPRESSION ON THE REINFORCING BARS, AND IS EQUIVALENT TO THE BAR DIAMETER IN MILLIMETERS.

ENGLISH SIZE	3	4	5	6	7	8	9	10	11
BAR DESIGNATION	10	13	16	19	22	25	29	32	36

THE CITY OF OTTUMWA FLOOD CONTROL LEVEE LOCATED AT THE WEST END OF THE BRIDGE SHALL NOT BE DISTURBED EXCEPT TO PLACE FILL FOR THE PERMANENT ACCESS ROAD TIE IN AND TEMPORARY LEVEE CROSSING AS DETAILED IN THESE PLANS. SURVEY THE LEVEE BEFORE AND AFTER CONSTRUCTION AT THE LOCATION OF THE TEMPORARY LEVEE CROSSING TO ENSURE THE LEVEE IS RESTORED TO ITS ORIGINAL CONDITION. EQUIPMENT LOADING ON THE TEMPORARY LEVEE CROSSING SHALL BE LIMITED TO AN AXLE LOAD OF 20,000 POUNDS OR TRACK LOAD OF 12.4 PSI. ALL COSTS ASSOCIATED WITH CONSTRUCTING AND REMOVAL OF THE TEMPORARY LEVEE CROSSING, INCLUDING RESTORING THE LEVEE TO ITS ORIGINAL CONDITION, SHALL BE CONSIDERED INCIDENTAL TO OTHER CONSTRUCITON.

THIS BRIDGE SUBSTRUCTURE IS DESIGNED FOR HS-25 LOADING, PLUS 20 LBS. PER SQUARE FOOT OF ROADWAY FOR FUTURE WEARING SURFACE.

THIS BRIDGE SUPERSTRUCTURE IS DESIGNED FOR HL-93 LOADING, PLUS 20 LBS. PER SQUARE FOOT OF ROADWAY FOR FUTURE WEARING SURFACE.

IT SHALL BE THE BRIDGE CONTRACTOR'S RESPONSIBILITY TO PROVIDE SITES FOR EXCESS EXCAVATED MATERIAL. NO PAYMENT FOR OVERHAUL WILL BE ALLOWED FOR MATERIAL HAULED TO THESE SITES.

SOVEREIGN LANDS CONSTRUCTION PERMIT 11-100 SHALL APPLY TO WORK ON THIS PROJECT. THE CONSERVATION OFFICER IN CHARGE OF THE AREA SHALL BE CONTACTED AT LEAST 48 HOURS PRIOR TO COMMENCING WORK. CONTACT BOB STUCHEL AT 641-777-2169.

FLOOD PLAIN DEVELOPMENT PERMIT NUMBER FP 2010-144 SHALL APPLY TO WORK ON THIS PROJECT.

THIS STRUCTURE SHALL BE BUILT WITH WEATHERING STEEL. ALL STRUCTURAL STEEL, EXCEPT AS NOTED, SHALL CONFORM TO ASTM A709 GRADE 50W. PAINTING REQUIREMENTS FOR THIS STRUCTURE SHALL BE IN ACCORDANCE WITH ARTICLE 2408.02, Q, OF THE STANDARD SPECIFICATIONS.

NEOPRENE SHEETS UNDER BEARINGS ARE A PART OF THE STRUCTURAL STEEL QUANTITY. UNIT PRICE BID FOR "STRUCTURAL STEEL" SHALL INCLUDE ALLOWANCE FOR COST OF NEOPRENE SHEETS.

A SCRAPE SAMPLE WAS TAKEN FROM AN AREA OF THIS BRIDGE TO GET AN INDICATION OF THE EXISTENCE OF AND LEVEL OF TOTAL CHROMIUM AND TOTAL LEAD. ANALYSIS OF TOTAL LEAD ON THIS SAMPLE WAS 1560 PARTS PER MILLION (PPM) (INCLUDES 0.19 PPM LEACHABLE). ANALYSIS OF TOTAL CHROMIUM ON THIS SAMPLE WAS 731 PPM (INCLUDES <0.05 PPM LEACHABLE). THESE ANALYSES SHOW THE EXISTENCE OF THESE TWO TOXIC CONSTITUENTS. LEVELS INDICATED BY THESE TESTS COULD CREATE CONDITIONS ABOVE REGULATORY LIMITS FOR HEALTH AND SAFETY REQUIREMENTS. NO OTHER CONSTITUENTS WERE ANALYZED. THE BIDDER SHOULD NOT RELY ON THE DEPARTMENT'S TESTING AND ANALYSIS FOR ANY PURPOSE OTHER THAN AS AN INDICATION OF THE EXISTENCE OF THESE TWO TOXIC CONSTITUENTS.

KEYWAY DIMENSIONS SHOWN ON THE PLANS ARE BASED ON NOMINAL DIMENSIONS UNLESS STATED OTHERWISE. IN ADDITION, THE BEVEL USED ON THE KEYWAY SHALL BE LIMITED TO A MAXIMUM OF 10 DEGREES FROM VERTICAL.

DESIGN HISTORY AT THIS SITE

DES. NO.	TYPE OF WORK
164	ORIGINAL DESIGN
882	FATIGUE CRACK RETROFIT
189	BRIDGE FLOOR REPAIR
111	STAGE I SUPERSTRUCTURE REPLACEMENT (W.B.) & PIER WIDENING
112	STAGE 2 SUPERSTRUCTURE REPLACEMENT (E.B.) & PIER CAP WIDENING

SPECIFICATIONS:

DESIGN: SUBSTRUCTURE: AASHTO SERIES OF 2002.
SUPERSTRUCTURE: AASHTO LRFD, 4TH ED., SERIES OF 2007.

CONSTRUCTION: IOWA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION, SERIES 2009, PLUS APPLICABLE GENERAL SUPPLEMENTAL SPECIFICATIONS, DEVELOPMENTAL SPECIFICATIONS, SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS SHALL APPLY TO CONSTRUCTION WORK ON THIS PROJECT INCLUDING DEVELOPMENTAL SPECIFICATION FOR HIGH PERFORMANCE CONCRETE FOR STRUCTURES, DEVELOPMENTAL SPECIFICATIONS FOR FLOATING SILT CURTAIN, AND DEVELOPMENTAL SPECIFICATIONS FOR TEMPORARY LANE SEPARATOR SYSTEM.

DESIGN STRESSES:

DESIGN STRESSES FOR THE FOLLOWING MATERIALS ARE IN ACCORDANCE WITH THE AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, SERIES OF 2002 AND AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 4TH ED., SERIES OF 2007.

REINFORCING STEEL IN ACCORDANCE WITH STANDARD AASHTO SECTION 8 AND LRFD AASHTO SECTION 5, GRADE 60.

CONCRETE IN ACCORDANCE WITH STANDARD AASHTO SECTION 8, AND LRFD AASHTO SECTION 5, f'c = 3,500 PSI, EXCEPT BRIDGE DECK CONCRETE AS NOTED.

BRIDGE DECK f'c = 5,000 PSI.

STRUCTURAL STEEL IN ACCORDANCE WITH STANDARD AASHTO SECTION 10 AND LRFD AASHTO SECTION 6. ASTM A709 GRADE 36, GRADE 50, AND GRADE 50W (AASHTO M270 GRADE 36, GRADE 50, AND GRADE 50W).

TRAFFIC CONTROL PLAN

NOTE: THE ROADWAY WILL BE OPEN TO THRU TRAFFIC. THE BIKE PATHS AT EACH BERM WILL BE CLOSED. REFER TO THE TRAFFIC CONTROL PLAN ON THE ROAD PLAN IN THESE PLANS.

DESIGN FOR 0° SKEW

770'-0 x 77' CONTINUOUS WELDED GIRDER BRIDGE STAGE 2

115'-0 END SPANS 4-135'-0 INTERIOR SPANS

GENERAL NOTES

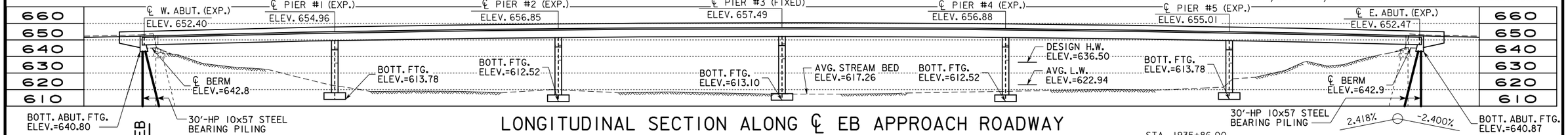
STATION: 1935+86.00 JANUARY, 2012

WAPELLO COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 2 OF 45 FILE NO. 30503 DESIGN NO. 112

BENCH MARK NO. 559 - STA 1932+12.44, 32.07' RT., FD. DOT BUTTON SE COR. BRG. - ELEV.=653.04



LONGITUDINAL SECTION ALONG ℄ EB APPROACH ROADWAY

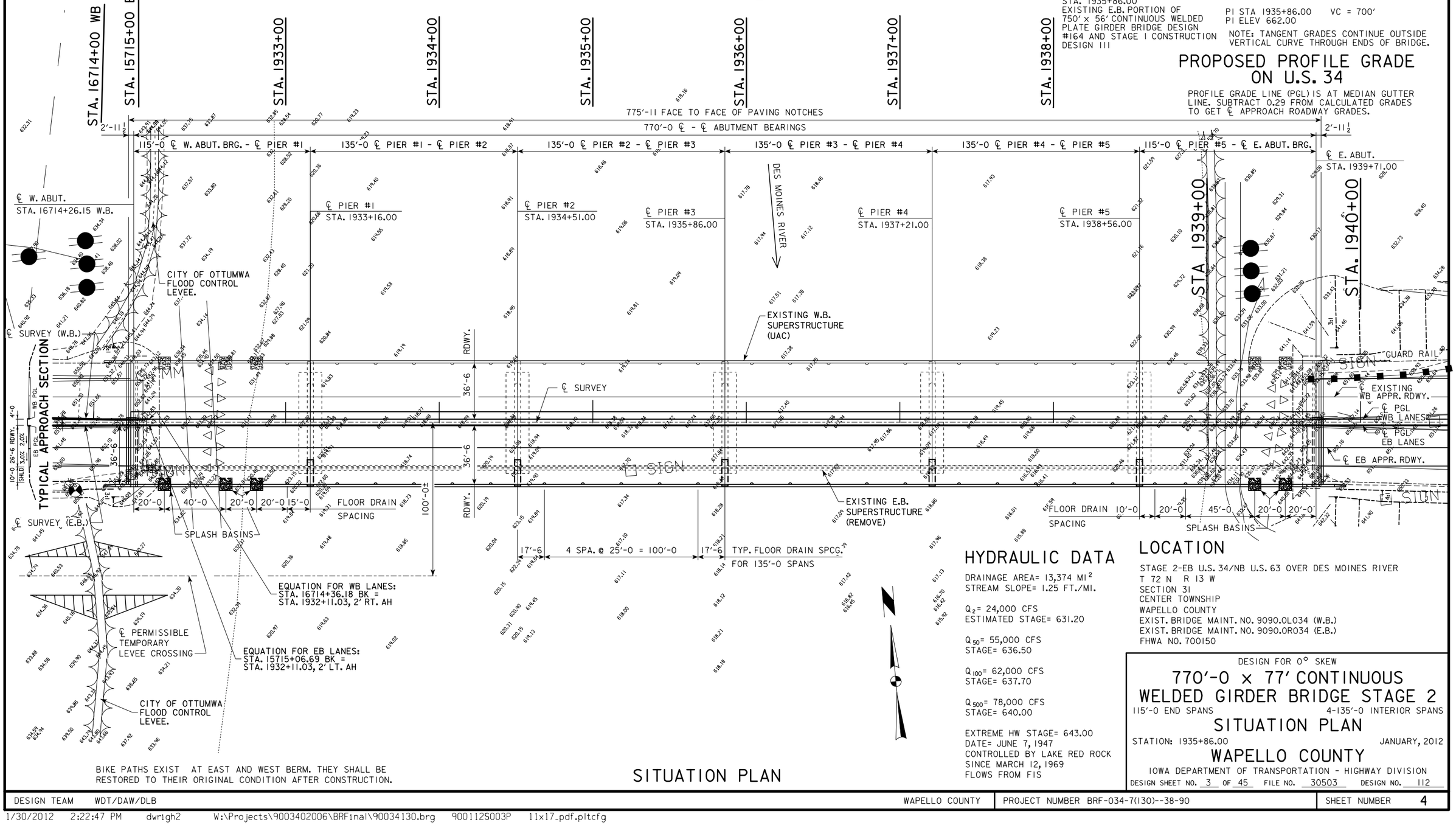
STA. 1935+86.00
EXISTING E.B. PORTION OF
750' x 56' CONTINUOUS WELDED
PLATE GIRDER BRIDGE DESIGN
#164 AND STAGE I CONSTRUCTION
DESIGN III

PI STA 1935+86.00 VC = 700'
PI ELEV 662.00

NOTE: TANGENT GRADES CONTINUE OUTSIDE VERTICAL CURVE THROUGH ENDS OF BRIDGE.

PROPOSED PROFILE GRADE ON U.S. 34

PROFILE GRADE LINE (PGL) IS AT MEDIAN GUTTER LINE. SUBTRACT 0.29 FROM CALCULATED GRADES TO GET ℄ APPROACH ROADWAY GRADES.



BIKE PATHS EXIST AT EAST AND WEST BERM. THEY SHALL BE RESTORED TO THEIR ORIGINAL CONDITION AFTER CONSTRUCTION.

SITUATION PLAN

HYDRAULIC DATA

DRAINAGE AREA= 13,374 MI^2
STREAM SLOPE= 1.25 FT./MI.

Q_2= 24,000 CFS
ESTIMATED STAGE= 631.20

Q_{50}= 55,000 CFS
STAGE= 636.50

Q_{100}= 62,000 CFS
STAGE= 637.70

Q_{500}= 78,000 CFS
STAGE= 640.00

EXTREME HW STAGE= 643.00
DATE= JUNE 7, 1947
CONTROLLED BY LAKE RED ROCK
SINCE MARCH 12, 1969
FLOWS FROM FIS

LOCATION

STAGE 2-EB U.S. 34/NB U.S. 63 OVER DES MOINES RIVER
T 72 N R 13 W
SECTION 31
CENTER TOWNSHIP
WAPELLO COUNTY
EXIST. BRIDGE MAINT. NO. 9090.0L034 (W.B.)
EXIST. BRIDGE MAINT. NO. 9090.0R034 (E.B.)
FHWA NO. 700150

DESIGN FOR 0° SKEW

770'-0 x 77' CONTINUOUS WELDED GIRDER BRIDGE STAGE 2

115'-0 END SPANS 4-135'-0 INTERIOR SPANS

SITUATION PLAN

STATION: 1935+86.00 JANUARY, 2012

WAPELLO COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 3 OF 45 FILE NO. 30503 DESIGN NO. 112

DESIGN TEAM WDT/DAW/DLB | WAPELLO COUNTY | PROJECT NUMBER BRF-034-7(130)--38-90 | SHEET NUMBER 4

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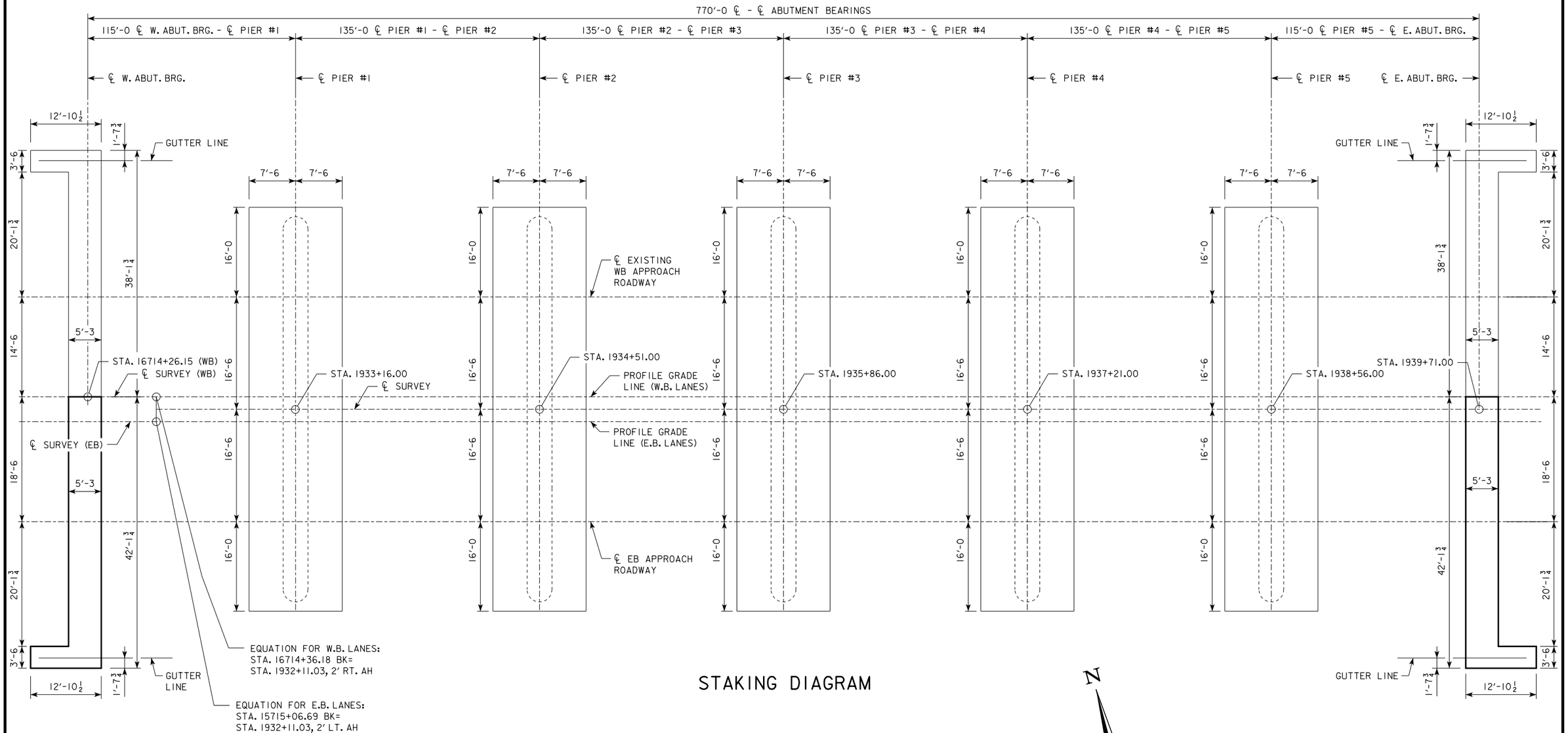


STAKING DIAGRAM

DESIGN FOR 0° SKEW

770'-0 x 77' CONTINUOUS WELDED GIRDER BRIDGE STAGE 2

115'-0 END SPANS — 4-135'-0 INTERIOR SPANS

STAKING DIAGRAM

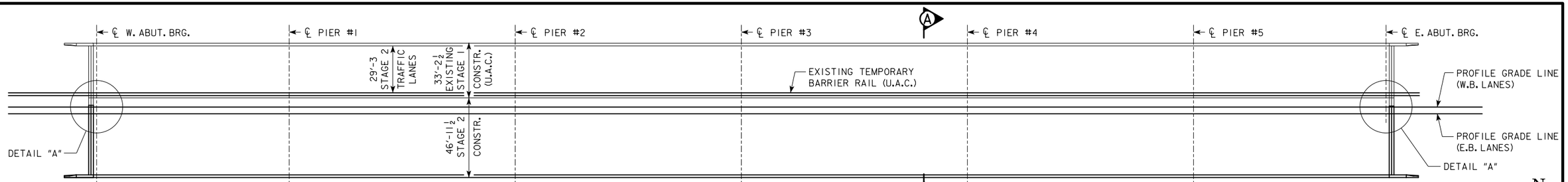
STATION: 1935+86.00 — JANUARY, 2012

WAPELLO COUNTY

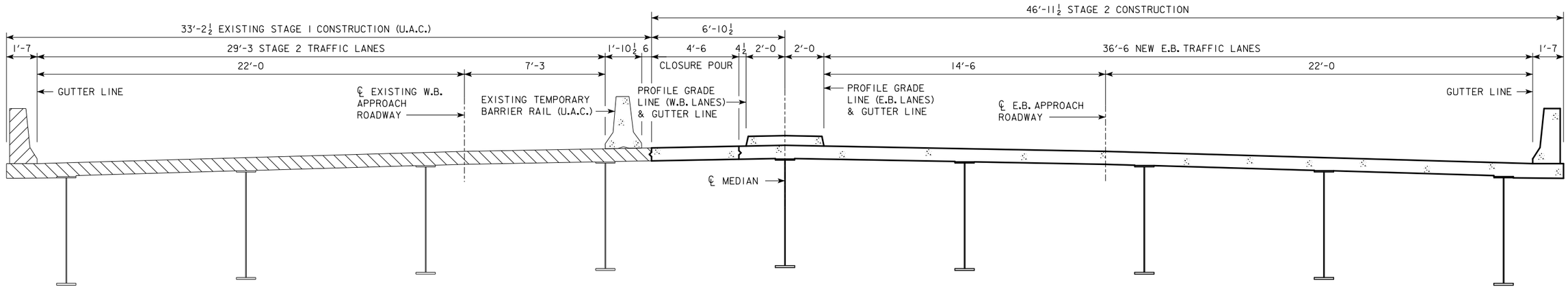
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 4 OF 45 FILE NO. 30503 DESIGN NO. 112

DESIGN TEAM WDT/DAW/DLB	WAPELLO COUNTY	PROJECT NUMBER BRF-034-7(130)--38-90	SHEET NUMBER 5



PLAN - STAGE 2 CONSTRUCTION



SECTION A-A

LOOKING EAST

STAGING NOTES:

1. PLACE TRAFFIC CONTROL MEASURES ON THE EXISTING W.B. SUPERSTRUCTURE AND SHIFT ALL TRAFFIC TO THE W.B. SUPERSTRUCTURE IN ACCORDANCE WITH THE TRAFFIC CONTROL PLAN NOTE ON THE ROAD SHEETS.

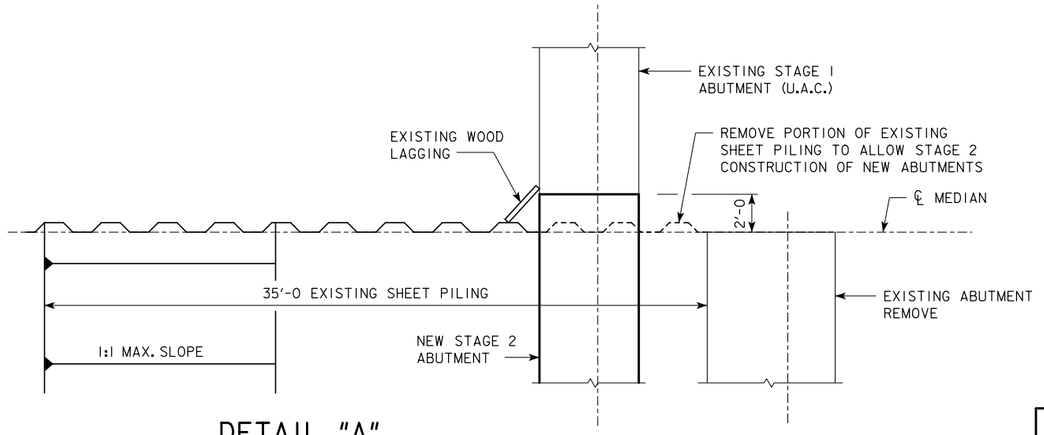
2. REMOVE THE ENTIRE EXISTING E.B. SUPERSTRUCTURE AND APPROACH PAVEMENT TO CENTERLINE OF THE MEDIAN. THE EXISTING TBR ON THE EXISTING E.B. SUPERSTRUCTURE SHALL BE REMOVED AND BECOME THE PROPERTY OF THE CONTRACTOR.

3. REMOVE EXISTING ABUTMENTS TO THE SOUTH AND THE PORTION OF EXISTING SHEET PILING TO ALLOW STAGE 2 CONSTRUCTION OF NEW ABUTMENTS. REMOVE PORTION OF THE EXISTING PIER CAPS AND STEMS TO THE SOUTH. CONSTRUCT STAGE 2 OF NEW ABUTMENTS AND WIDEN AND RAISE THE SOUTH HALF OF THE EXISTING PIERS.

4. CONSTRUCT STAGE 2 OF THE SUPERSTRUCTURE. PLACE CLOSURE POUR.

5. REMOVE SHEET PILING AFTER BACKFILLING ABUTMENTS. THE WOOD LAGGING MAY REMAIN IN PLACE. THE SHEET PILING SHALL BECOME THE PROPERTY OF THE CONTRACTOR.

6. SHIFT E.B. TRAFFIC TO THE NEW E.B. TRAFFIC LANES AND REMOVE THE TBR. TBR SHALL BECOME THE PROPERTY OF THE CONTRACTOR.



DETAIL "A"

(WEST ABUTMENT ORIENTATION SHOWN, EAST ABUTMENT DETAILS ARE SIMILAR.)

DESIGN FOR 0° SKEW

770'-0 x 77' CONTINUOUS WELDED GIRDER BRIDGE STAGE 2

115'-0 END SPANS — 4-135'-0 INTERIOR SPANS

STAGE 2 DETAILS

STATION: 1935+86.00 — JANUARY, 2012

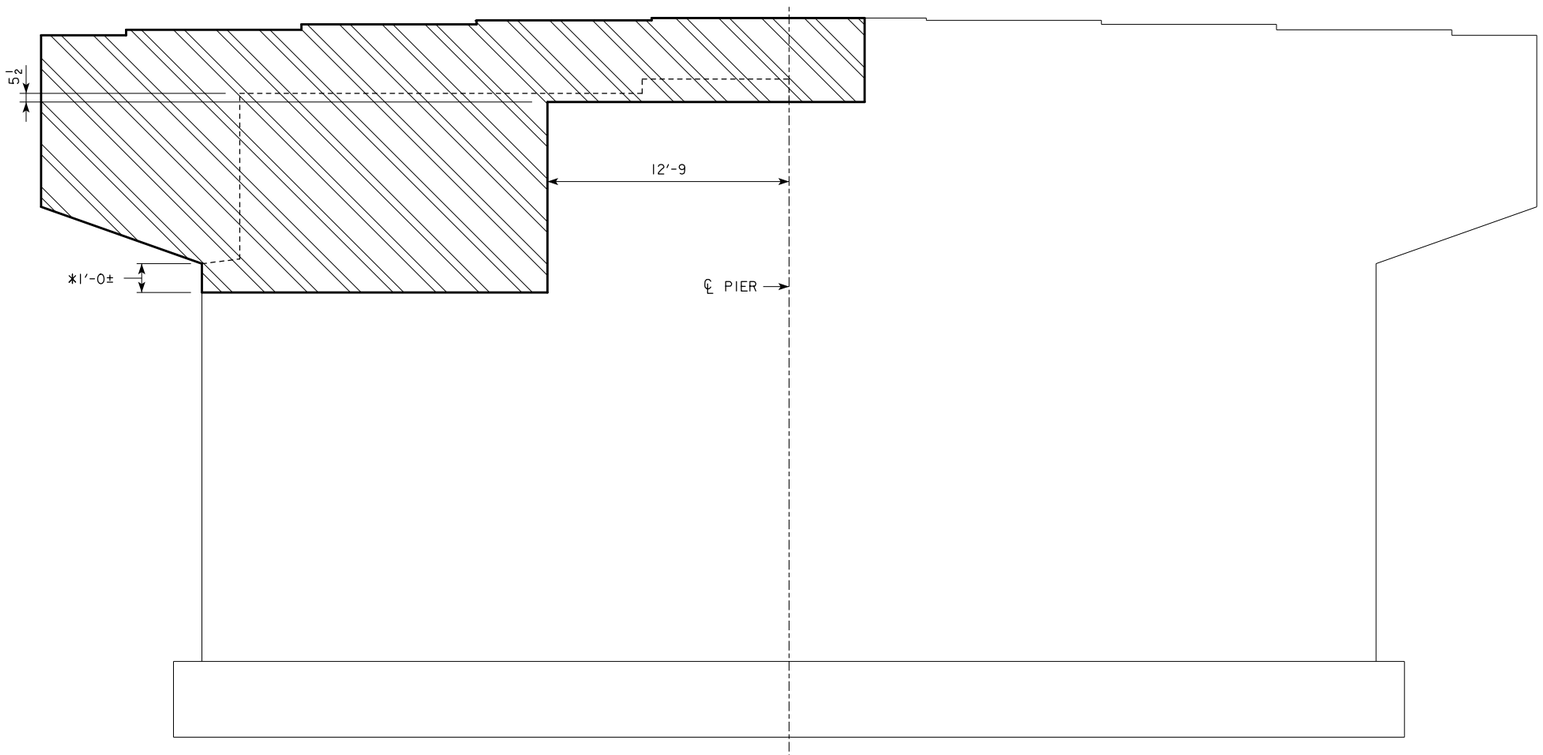
WAPELLO COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 5 OF 45 FILE NO. 30503 DESIGN NO. 112

DESIGN TEAM WDT/DAW/DLB	WAPELLO COUNTY	PROJECT NUMBER BRF-034-7(130)--38-90	SHEET NUMBER 6

1/30/2012 2:22:50 PM dwrigh2 W:\Projects\9003402006\BRFinal\90034130.brg 900112S005 11x17_pdf.pltcfg

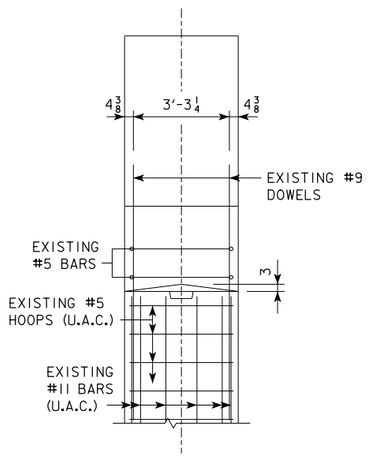


TYPICAL PIER ELEVATION

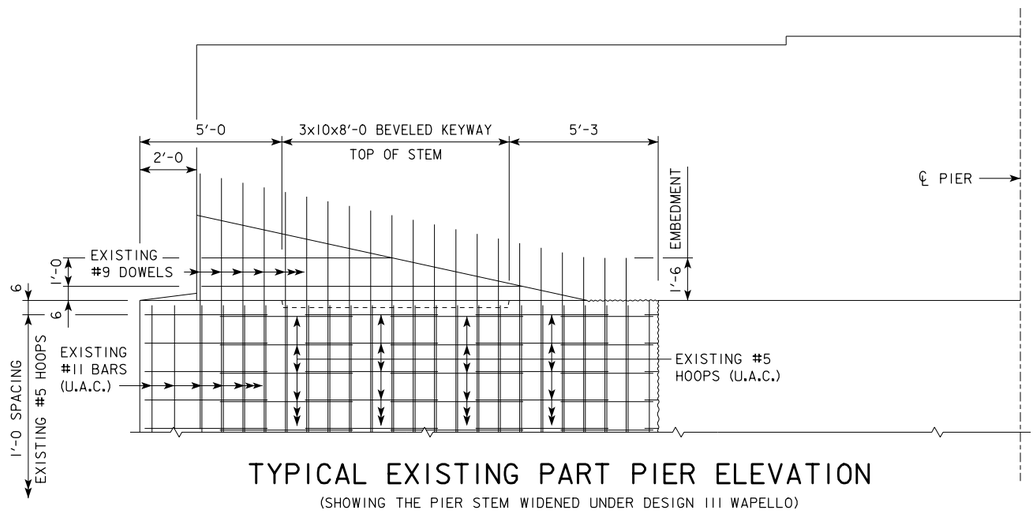
LOOKING WEST
DASHED LINES SHOW LIMITS OF EXISTING PIER.

*THIS REMOVAL DIMENSION WILL BE CONTROLLED BY THE TYPE OF SPLICE COUPLER USED TO EXTEND THE EXISTING NO. 11 BARS FROM THE STEM INTO THE NEW PIER CAP. THE DIMENSION WAS ASSUMED TO BE 1'-0 FOR DETERMINING CONCRETE QUANTITIES.

THE EXISTING #9 DOWELS MAY BE CUT AT THE STEM REMOVAL LINE AND REMOVED TO FACILITATE EXTENDING THE EXISTING #11 STEM VERTICAL BARS INTO THE CAP WITH MECHANICAL SPLICE COUPLERS. EXTREME CARE SHALL BE TAKEN WHEN CUTTING THE #9 DOWELS SO THE EXISTING #11 BARS ARE NOT NICKED OR OTHERWISE DAMAGED.

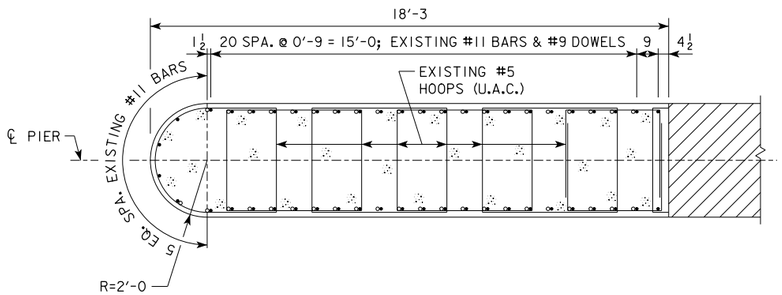


PART END ELEVATION



TYPICAL EXISTING PART PIER ELEVATION

(SHOWING THE PIER STEM WIDENED UNDER DESIGN III WAPELLO)



TYPICAL SECTION THRU EXISTING STEM

DESIGN FOR 0° SKEW

770'-0 x 77' CONTINUOUS WELDED GIRDER BRIDGE STAGE 2

115'-0 END SPANS — 4-135'-0 INTERIOR SPANS

PIER STAGING DETAILS

STATION: 1935+86.00 — JANUARY, 2012

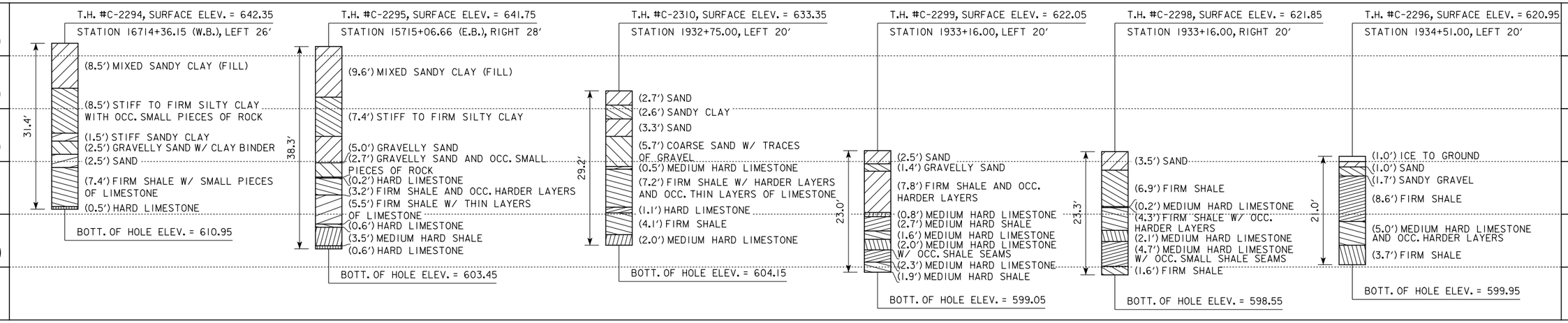
WAPELLO COUNTY

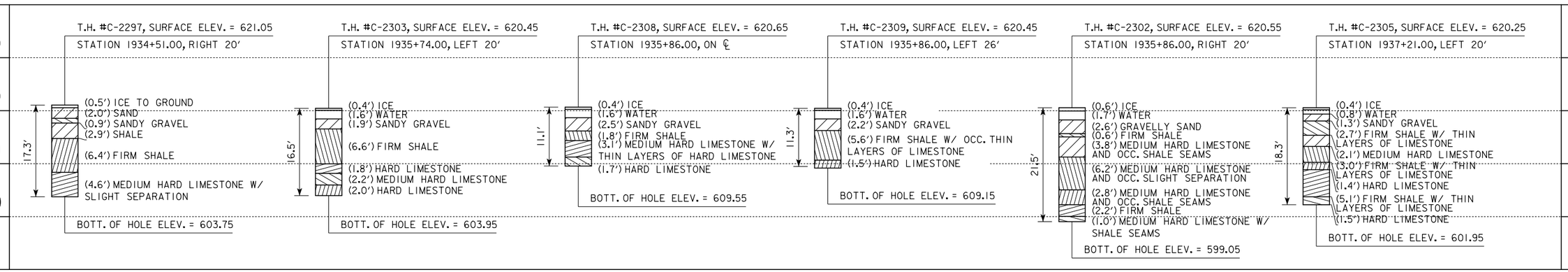
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

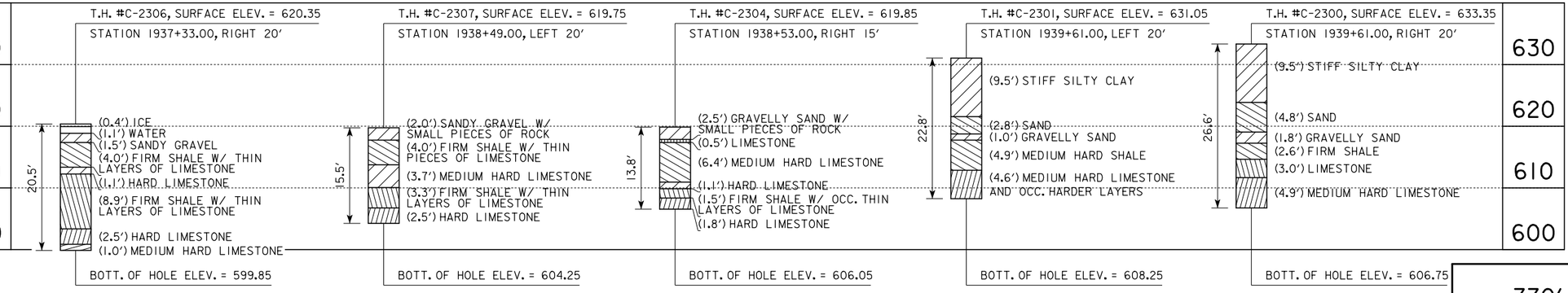
DESIGN SHEET NO. 6 OF 45 — FILE NO. 30503 — DESIGN NO. 112

DESIGN TEAM WDT/DAW/DLB | WAPELLO COUNTY | PROJECT NUMBER BRF-034-7(130)--38-90 | SHEET NUMBER 7

BENCH MARK NO. 559 - STA 1932+12.44, 32.07' RT., FD. DOT BUTTON SE COR. BRG. - ELEV.=653.04







SOIL BORINGS

DATE OF SOIL BORINGS = 1-14-64

DESIGN FOR 0° SKEW

770'-0 x 77' CONTINUOUS WELDED GIRDER BRIDGE STAGE 2

115'-0 END SPANS 4-135'-0 INTERIOR SPANS

SOIL BORINGS

STATION: 1935+86.00 JANUARY, 2012

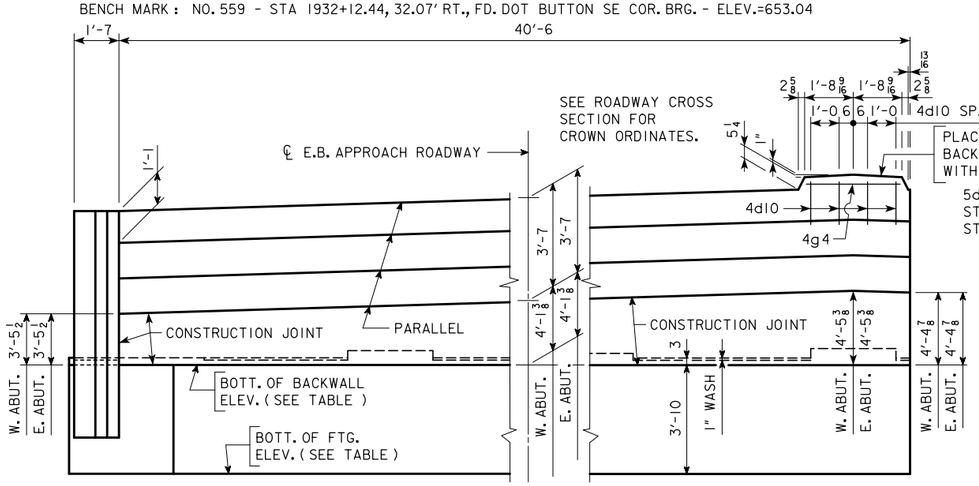
WAPELLO COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 7 OF 45 FILE NO. 30503 DESIGN NO. 112

DESIGN TEAM WDT/DAW/DLB	WAPELLO COUNTY	PROJECT NUMBER BRF-034-7(130)--38-90	SHEET NUMBER 8

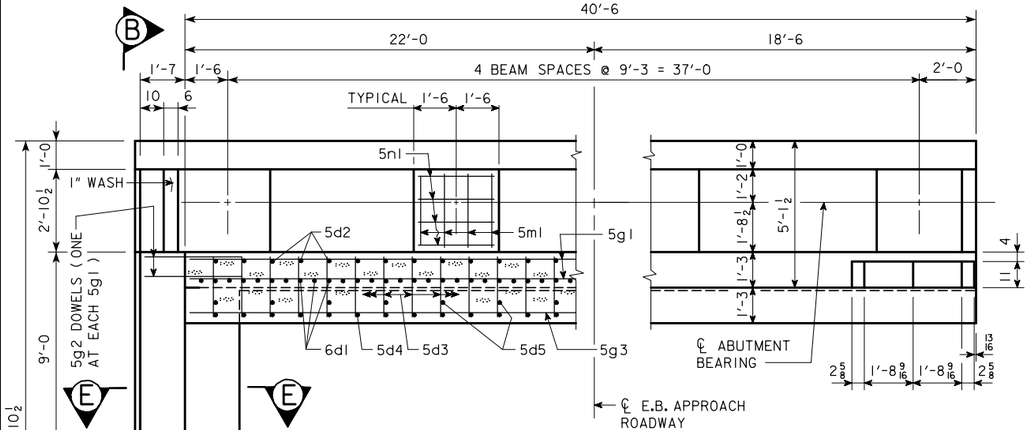
BENCH MARK : NO. 559 - STA 1932+12.44, 32.07' RT., FD. DOT BUTTON SE COR. BRG. - ELEV.=653.04



REAR ELEVATION

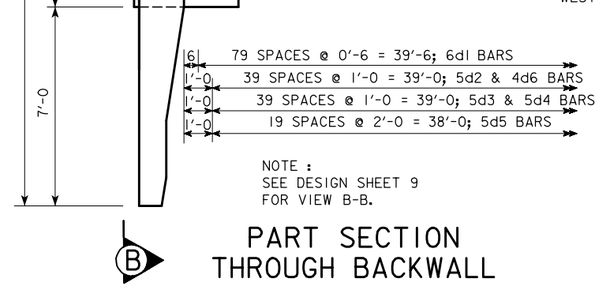
(EAST ABUTMENT ORIENTATION SHOWN
WEST ABUTMENT DETAILS ARE SIMILAR)

NOTE :
PLACE 5m1 AND 5n1 BARS
UNDER EACH BEAM.



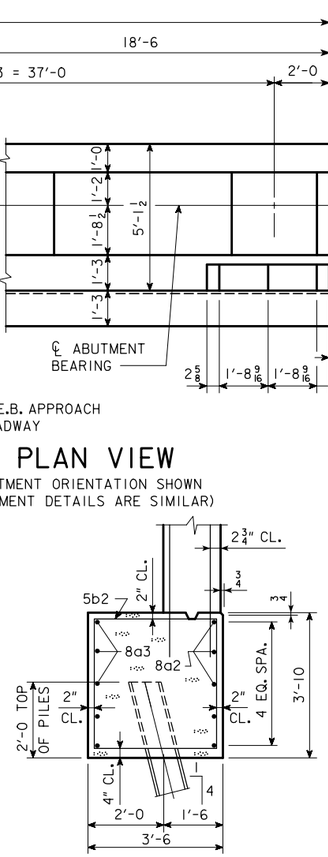
PART PLAN VIEW

(EAST ABUTMENT ORIENTATION SHOWN
WEST ABUTMENT DETAILS ARE SIMILAR)



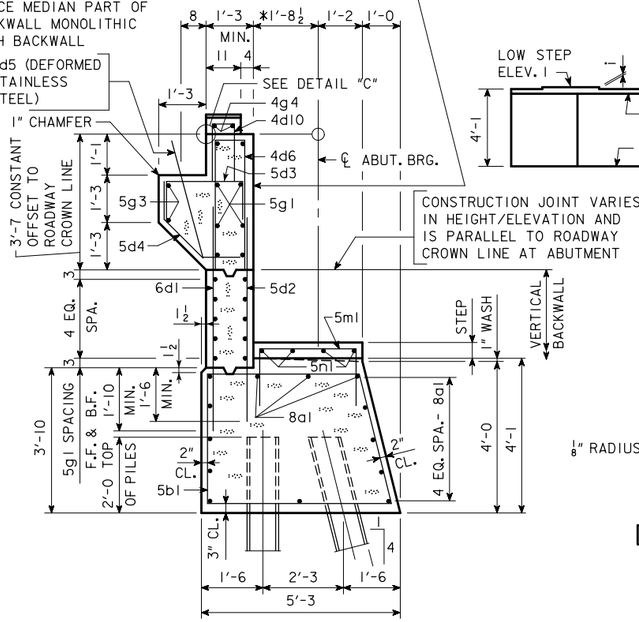
NOTE :
SEE DESIGN SHEET 9
FOR VIEW B-B.

PART SECTION THROUGH BACKWALL



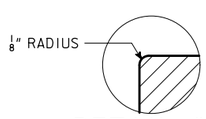
SECTION E-E

* THIS DIMENSION MAY VARY. TILTING OF THE PAVEMENT SUPPORT SECTION DURING CONSTRUCTION MAY BE NECESSARY TO ACCOMMODATE PROPER SETTING OF THE STRIP SEAL EXPANSION DEVICE OPENING.

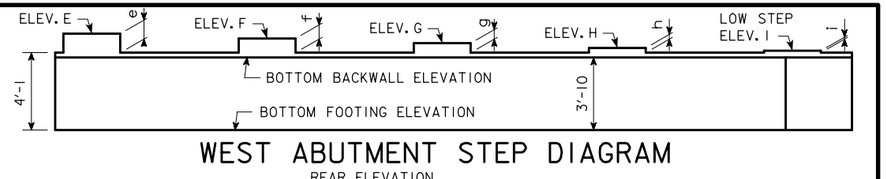


SECTION THROUGH ABUTMENT

EXPANSION DEVICE NOT SHOWN

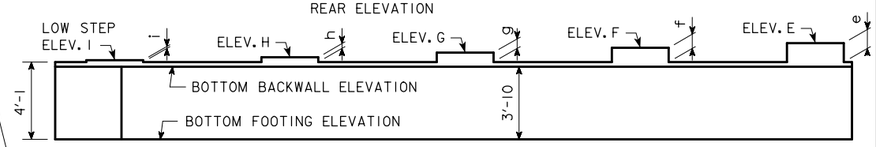


DETAIL "C"



WEST ABUTMENT STEP DIAGRAM

REAR ELEVATION



EAST ABUTMENT STEP DIAGRAM

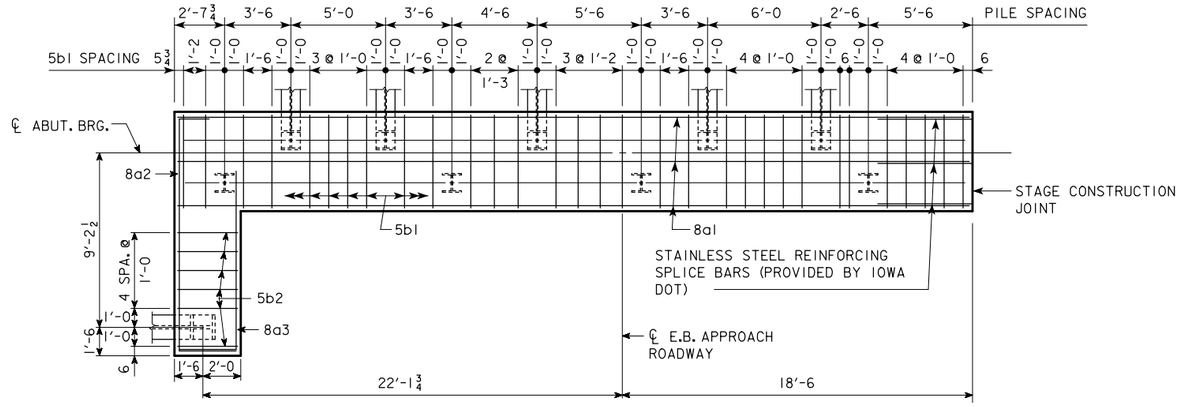
REAR ELEVATION

TABLE OF ABUTMENT ELEVATIONS

POINT	WEST ABUTMENT	EAST ABUTMENT
ELEV. E	645.82	645.89
ELEV. F	645.64	645.71
ELEV. G	645.43	645.50
ELEV. H	645.15	645.22
ELEV. I	644.88	644.95
BOTT.BACKWALL ELEV.	644.63	644.70
BOTT. FTG. ELEV.	640.80	640.87

TABLE OF ABUTMENT STEPS

STEP	WEST ABUTMENT	EAST ABUTMENT
e	11¼	11¼
f	9⅛	9⅛
g	6⅝	6⅝
h	3¼	3¼
i	0	0



PILING LAYOUT

(EAST ABUTMENT ORIENTATION SHOWN
WEST ABUTMENT DETAILS ARE SIMILAR)

NOTE :
DIMENSIONS SHOWN ON PILING LAYOUT ARE AT BOTTOM OF FOOTING.
BATTER PILES IN THE DIRECTION SHOWN.
10 - HP10x57 STEEL BEARING PILING REQUIRED
AT EACH ABUTMENT.

NOTE: BARRIER RAIL NOT SHOWN IN DETAILS.

DESIGN FOR 0° SKEW

770'-0 x 77' CONTINUOUS WELDED GIRDER BRIDGE STAGE 2

115'-0 END SPANS — 4-135'-0 INTERIOR SPANS

ABUTMENT DETAILS

STATION: 1935+86.00 — JANUARY, 2012

WAPELLO COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 8 OF 45 FILE NO. 30503 DESIGN NO. 112

DESIGN TEAM WDT/DAW/DLB | WAPELLO COUNTY | PROJECT NUMBER BRF-034-7(130)--38-90 | SHEET NUMBER 9

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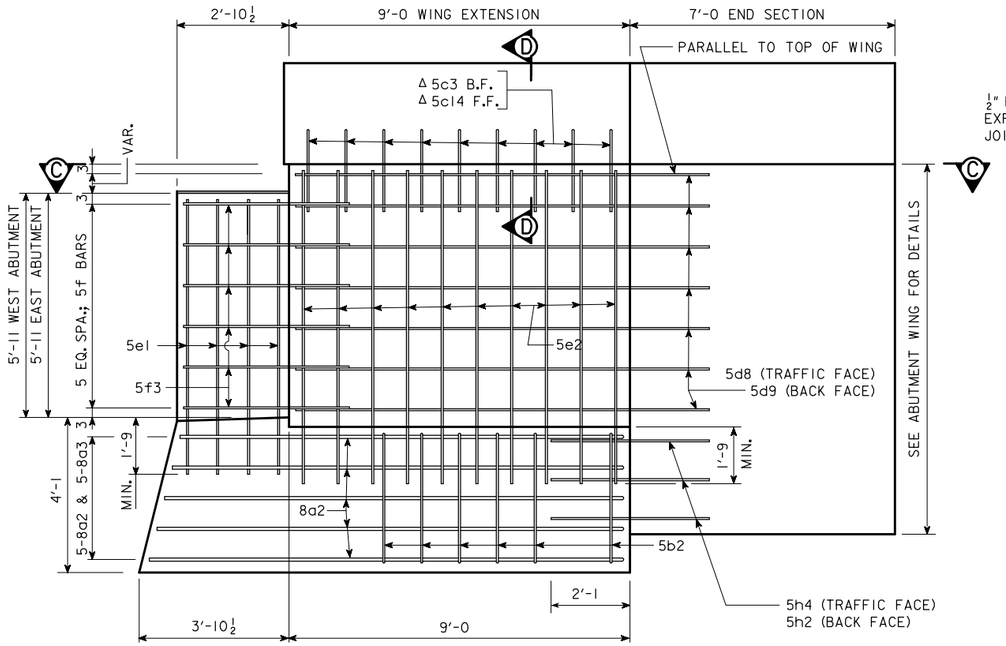
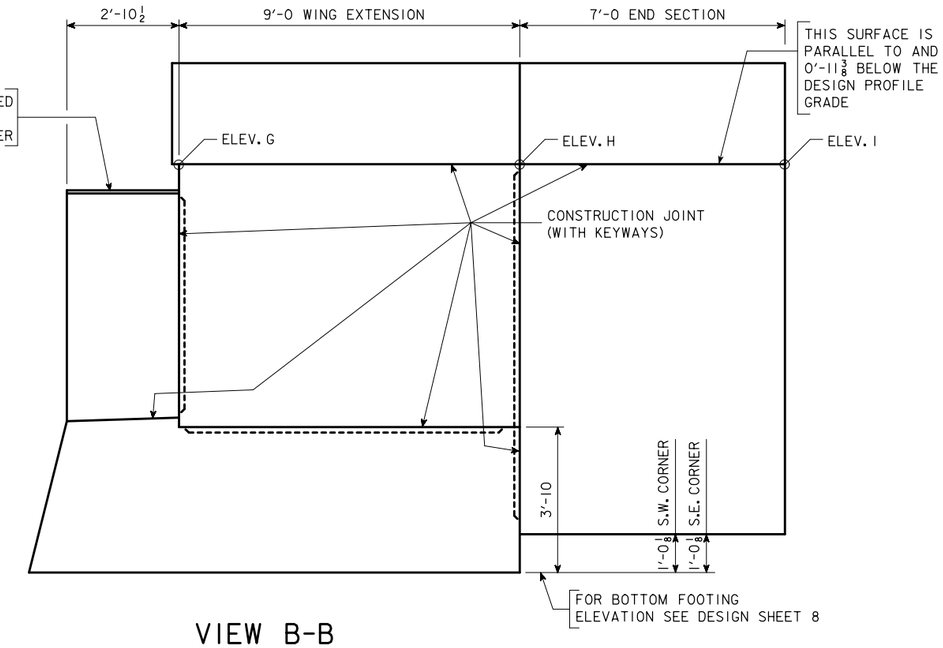
BENCH MARK: NO. 559 - STA 1932+12.44, 32.07' RT., FD. DOT BUTTON SE COR. BRG. - ELEV.=653.04

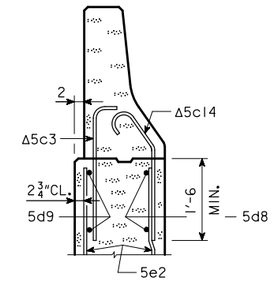


VIEW B-B

NOTE: FOR LOCATION OF VIEW B-B SEE DESIGN SHEET 8.

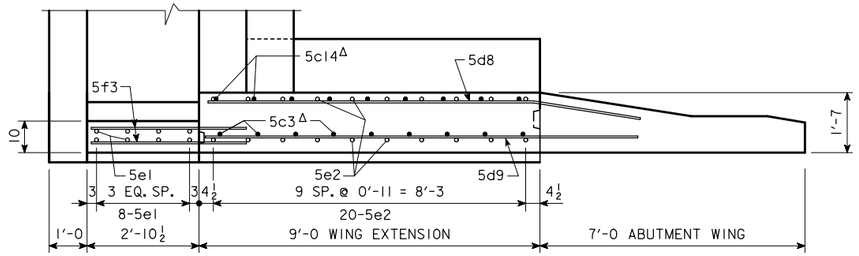


VIEW B-B



PART SECTION D-D

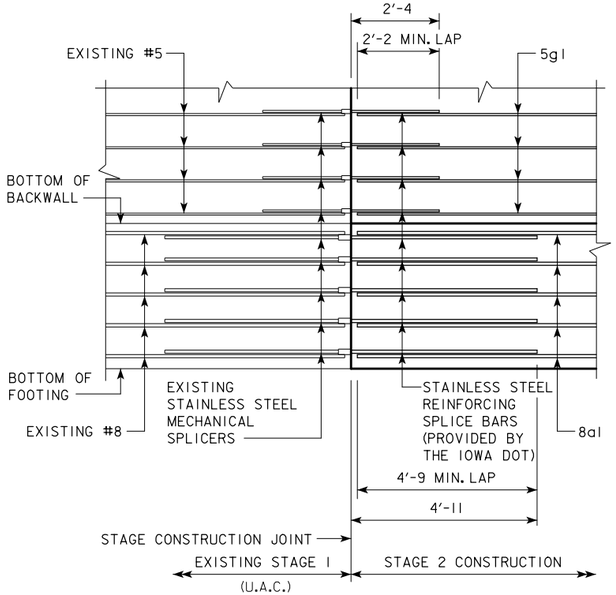
TABLE OF WINGWALL ELEVATIONS			
LOCATION	ELEV. G	ELEV. H	ELEV. I
S.W. CORNER	651.70	651.48	651.31
S.E. CORNER	651.77	651.55	651.39



SECTION C-C

NOTE: BARRIER RAIL NOT SHOWN.

Δ NOTE: SEE DESIGN SHEET 39 IN THESE PLANS FOR DETAILS OF BARRIER RAIL WING EXTENSIONS. REINFORCING BARS 5c3 AND 5c14 ARE INCLUDED IN THE SUPERSTRUCTURE QUANTITIES.



PART REAR ELEVATION AT STAGE CONSTRUCTION JOINT

MECHANICAL SPLICE NOTES:

THE 5g1 AND 5g3 BARS IN THE ABUTMENT BACKWALLS, AND THE 8a1 BARS IN THE ABUTMENT FOOTINGS SHALL BE SPLICED AT THE LOCATIONS SHOWN USING MECHANICAL SPLICE ASSEMBLIES. MECHANICAL SPLICE ASSEMBLIES CONSIST OF MECHANICAL SPLICERS AND REINFORCING SPLICE BARS AS REQUIRED TO FACILITATE THE USE OF THE MECHANICAL SPLICER. THE REINFORCING SPLICE BAR PORTION OF THE MECHANICAL SPLICE ASSEMBLIES WERE PROVIDED BY THE STAGE I CONTRACTOR AND STORED AT A LOCATION DETERMINED BY THE ENGINEER. TRANSPORTING AND INSTALLING THE REINFORCING SPLICE BARS IS CONSIDERED INCIDENTAL TO OTHER CONSTRUCTION. A TOTAL OF 66 STAINLESS STEEL SPLICE ASSEMBLIES WILL BE REQUIRED (20 FOR THE 5g BARS AND 13 FOR THE 8a BARS AT EACH ABUTMENT).

DESIGN FOR 0° SKEW

770'-0 x 77' CONTINUOUS WELDED GIRDER BRIDGE STAGE 2

115'-0 END SPANS 4-135'-0 INTERIOR SPANS

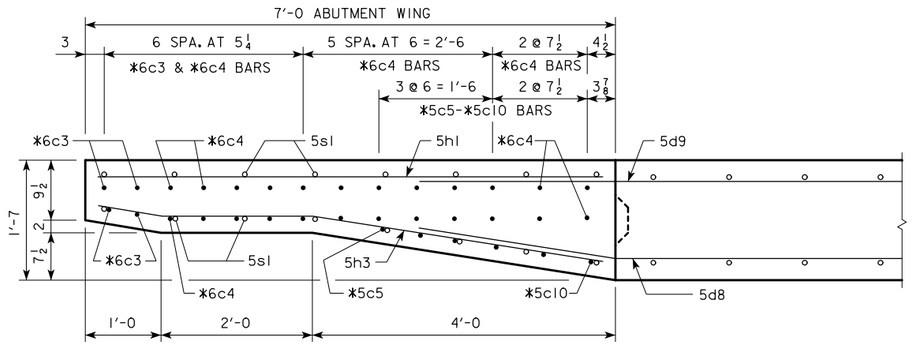
ABUTMENT DETAILS

STATION: 1935+86.00 JANUARY, 2012

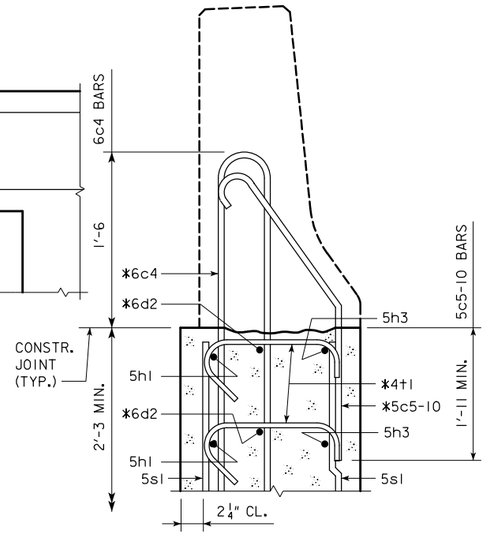
WAPELLO COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 9 OF 45 FILE NO. 30503 DESIGN NO. 112



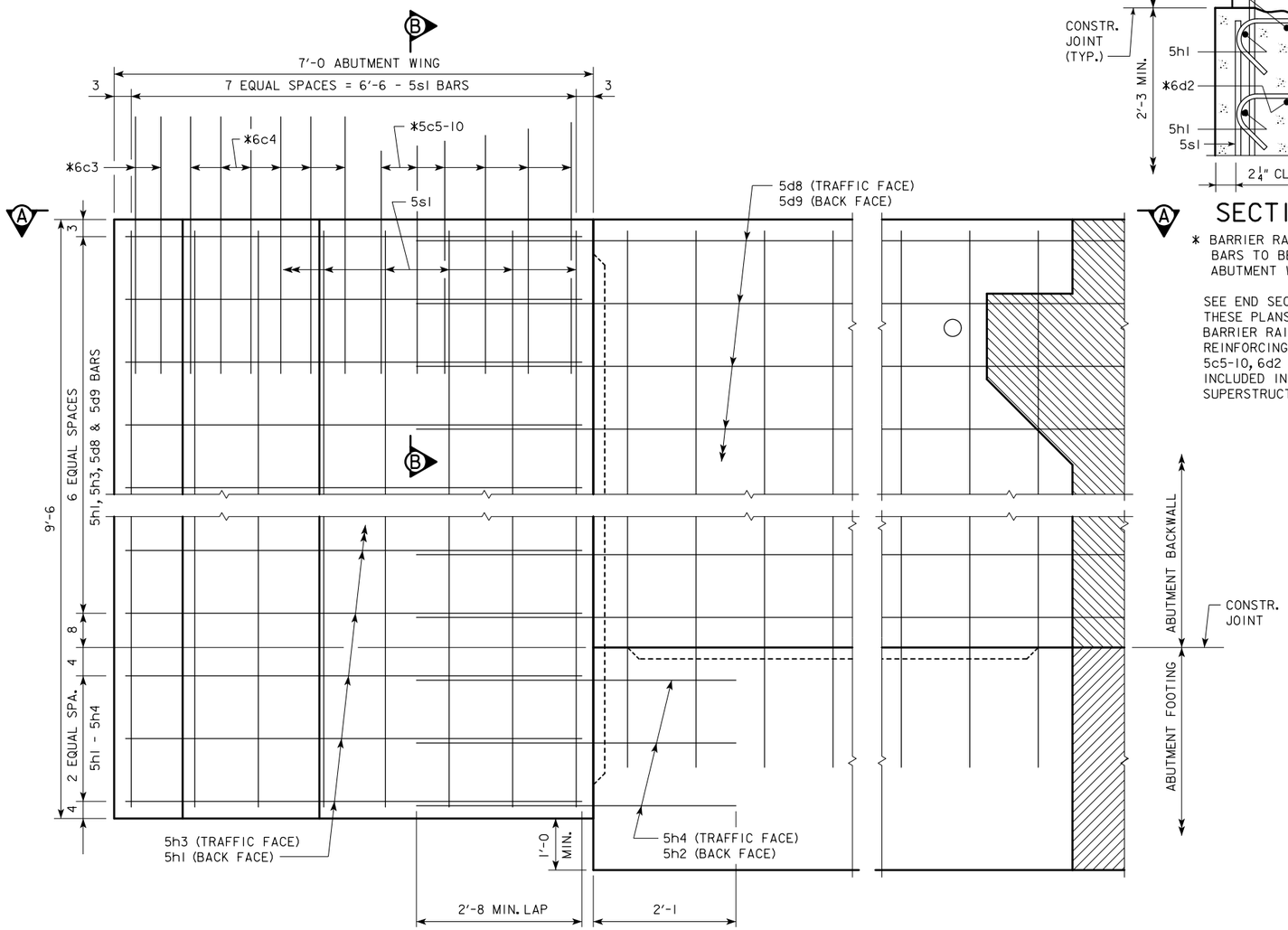
VIEW A-A



SECTION B-B

* BARRIER RAIL END SECTION BARS TO BE PLACED WITH ABUTMENT WING.

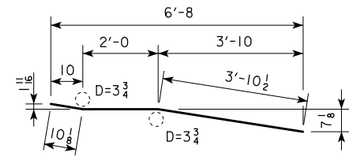
SEE END SECTION DETAILS IN THESE PLANS FOR DETAILS OF BARRIER RAIL END SECTION. REINFORCING BARS 6c3, 6c4, 5c5-10, 6d2 & 4t1 ARE INCLUDED IN THE SUPERSTRUCTURE QUANTITIES.



ABUTMENT WING - ELEVATION VIEW

REINFORCING BAR LIST - ONE ABUT. WING

BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
5h1	HORIZONTAL BACK FACE	——	10	6'-8	70
5h3	HORIZONTAL TRAFFIC FACE	——	10	6'-9	70
5s1	VERTICAL BOTH FACES	——	16	9'-1	152
				TOTAL WEIGHT (LBS.)	292



5h3

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

BENT BAR DETAILS

CONCRETE PLACEMENT SUMMARY

CONCRETE	TOTAL
ONE ABUTMENT WING	2.8
TOTAL (CU. YDS.)	2.8

NOTE:

REINFORCING STEEL QUANTITY AND CONCRETE QUANTITY ARE TO BE ADDED TO THE ABUTMENT QUANTITIES SHOWN ELSEWHERE IN THESE PLANS.

DESIGN FOR 0° SKEW

770'-0 x 77' CONTINUOUS WELDED GIRDER BRIDGE STAGE 2

115'-0 END SPANS 4-135'-0 INTERIOR SPANS

ABUTMENT WING DETAILS

STATION: 1935+86.00 JANUARY, 2012

WAPELLO COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 10 OF 45 FILE NO. 30503 DESIGN NO. 112

ENGLISH\MISCELLANEOUSBRIDGES.DGN - 2115 - THIS SHEET ISSUED 02-08.

DESIGN TEAM WDT/DAW/DLB	ABUTMENT WING DETAILS	STANDARD SHEET 2115	WAPELLO COUNTY	PROJECT NUMBER BRF-034-7(130)--38-90	SHEET NUMBER 11

1/30/2012 2:22:54 PM dwrigh2 W:\Projects\9003402006\BRFinal\90034130.brg 900112S010 11x17_pdf.pltcfg

ABUTMENT NOTES:

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

THE MASKWALL IS TO BE POURED BEFORE THE SUPERSTRUCTURE SLAB IS POURED.

CONSTRUCTION JOINT KEYWAYS ARE TO BE FORMED WITH BEVELED 2x6's.

THE PORTION OF THE BACKWALL CONTAINING THE ABUTMENT ANCHORAGE OF THE EXPANSION DEVICE IS TO BE PLACED AFTER THE BRIDGE FLOOR IS PLACED.

CONCRETE SEALER IS TO BE APPLIED TO THE ABUTMENT BRIDGE SEAT IN ACCORDANCE WITH THE CURRENT IOWA D.O.T. STANDARD SPECIFICATIONS.

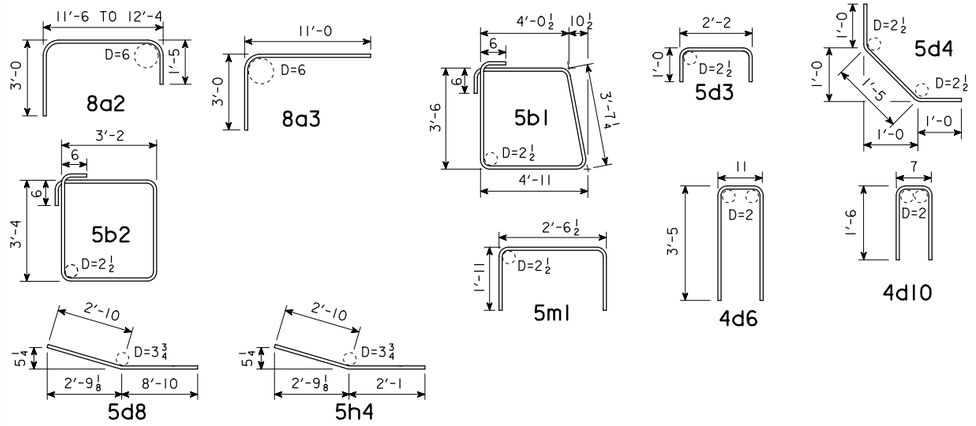
THE COST OF PREFORMED EXPANSION JOINT FILLER, AND COST OF FURNISHING AND PLACING CONCRETE SEALER IS TO BE INCLUDED IN THE PRICE BID FOR "STRUCTURAL CONCRETE (BRIDGE)".

THE DESIGN BEARING FOR THE ABUTMENT PILES IS 50 TONS.

ALL DEFORMED STAINLESS STEEL REINFORCING SHALL BE DEFORMED BARS GRADE 60, TYPE 304, 316L, OR 316 LN IN ACCORDANCE WITH ASTM A955/A955M-10, "STANDARD SPECIFICATION FOR DEFORMED AND PLAIN STAINLESS STEEL BARS FOR CONCRETE REINFORCEMENT." STAINLESS STEEL REINFORCING BARS SHALL BE FREE OF MILL SCALE. STAINLESS STEEL REINFORCING BARS WILL BE ACCEPTED BASED ON RECEIPT AND APPROVAL OF THE CERTIFIED MILL TEST REPORT, INCLUDING CORROSION TEST RESULTS, AS PER ASTM A955M. A CERTIFICATE OF COMPLIANCE IS ALSO REQUIRED THAT INDICATES THE STAINLESS STEEL REINFORCING BARS COMPLY WITH THE PROVISIONS OF ASTM A955/A955M. BAR SUPPORTS SHALL BE FOR USE WITH EPOXY COATED OR STAINLESS STEEL REINFORCING BARS. BAR SUPPORTS WITH DAMAGED COATING SHALL NOT BE USED. TIE WIRE SHALL BE IN ACCORDANCE WITH ASTM A493-09 "STANDARD SPECIFICATION FOR STAINLESS STEEL WIRE AND WIRE RODS FOR COLD HEADING AND COLD FORGING", 16.5 GAUGE OR HEAVIER. STAINLESS STEEL REBAR SHALL BE SHIPPED, HANDLED AND PLACED SUCH THAT CARBON STEEL DOES NOT COME IN CONTACT WITH THE STAINLESS STEEL REBAR. PADDING SHALL BE USED TO SEPARATE CARBON STEEL BUNDLING BANDS OR LIFTING DEVICES FROM THE STAINLESS STEEL REBAR. WIRE ROPE SHALL NOT BE USED IN LIFTING OR HANDLING THE STAINLESS STEEL REINFORCING. COVER STAINLESS STEEL REBAR WITH TARPS DURING OUTDOOR STORAGE. USE WOODEN SPACERS TO SEPARATE BUNDLES OF STAINLESS STEEL REBAR FROM OTHER TYPES OF REBAR. USE WOODEN SUPPORTS TO STORE STAINLESS STEEL REBAR OFF THE GROUND OR SHOP FLOOR.

IF NECESSARY TO PREVENT DAMAGE TO THE END OF THE BRIDGE DECK OR BACKWALL FROM CONSTRUCTION EQUIPMENT, AN APPROPRIATE METHOD OF PROTECTION APPROVED BY THE ENGINEER SHALL BE PROVIDED BY THE BRIDGE CONTRACTOR AT NO EXTRA COST TO THE STATE.

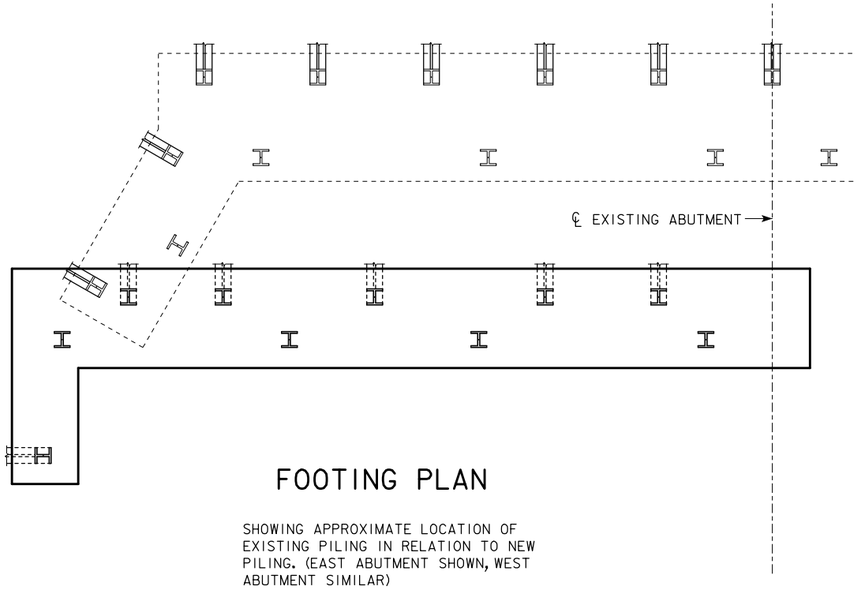
BENT BAR DETAILS



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

REINFORCING BAR LIST - ONE ABUTMENT

	BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
EPOXY COATED BARS	8a1	FOOTING LONGITUDINAL	——	13	41'-9	1449
	8a2	WING FOOTING	⌐	5	VARIES	218
	8a3	WING FOOTING	⌐	5	14'-0	187
	5b1	FOOTING HOOPS	⌐	31	17'-1	552
	5b2	WING FOOTING HOOPS	⌐	6	14'-0	88
	6d1	BACKWALL VERTICAL B.F.	——	80	9'-8	1162
	5d2	BACKWALL VERTICAL F.F.	——	40	9'-4	389
	5d3	PAVING NOTCH	⌐	40	4'-2	174
	5d4	PAVING NOTCH	⌐	40	3'-5	143
	4d6	BACKWALL VERTICAL HOOP	⊏⊐	40	7'-9	207
	5d8	WING EXTENSION FF HORIZONTAL	/	7	11'-8	85
	5d9	WING EXTENSION BF HORIZONTAL	——	7	11'-8	85
	4d10	BACKWALL MEDIAN VERTICAL HOOP	⊏⊐	4	3'-7	10
	5e1	MASKWALL VERTICAL	——	8	7'-6	63
	5e2	WINGWALL VERTICAL	——	20	8'-8	181
	5f3	MASKWALL HORIZONTAL	——	12	4'-9	59
	5g1	BACKWALL LONGITUDINAL	——	18	40'-2	754
	5g2	BACKWALL DOWELS	——	18	4'-5	83
	5g3	PAVING NOTCH LONGITUDINAL	——	2	40'-2	84
	4g4	BACKWALL MEDIAN LONGITUDINAL	——	2	3'-1	4
	5h2	WING TO FOOTING ANCHOR BFH	——	3	4'-11	15
	5h4	WING TO FOOTING ANCHOR FFH	/	3	4'-11	15
	5m1	BEAM STEPS TRANSVERSE	⌐	20	6'-5	134
	5n1	BEAM STEPS LONGITUDINAL	——	20	2'-8	56
		7'-0 ABUTMENT WING - SEE DES. SHT. 10				292
		REINFORCING STEEL - EPOXY COATED - TOTAL (LBS.)				6,489
S.S. BARS	5d5	PAVING NOTCH DOWELS (STAINLESS STEEL)	——	20	3'-6	73
		REINFORCING STEEL - STAINLESS STEEL - TOTAL (LBS.)				73



FOOTING PLAN

SHOWING APPROXIMATE LOCATION OF EXISTING PILING IN RELATION TO NEW PILING. (EAST ABUTMENT SHOWN, WEST ABUTMENT SIMILAR)

CONCRETE PLACEMENT QUANTITIES

LOCATION	WEST ABUT.	EAST ABUT.
FOOTING AND STEPS	34.1	34.1
BACKWALL BELOW CONSTR. JOINT	7.5	7.5
BACKWALL ABOVE CONSTR. JOINT	10.2	10.2
NORTH WINGWALL	3.7	3.7
BACKWALL MEDIAN	0.1	0.1
NORTH WING MASKWALL	0.5	0.5
WINGS 1 @ 2.8 C.Y. /ABUT.	2.8	2.8
TOTAL (C.Y.)	58.9	58.9

ESTIMATED QUANTITIES - BOTH ABUTMENTS

ITEM	UNIT	WEST ABUT.	EAST ABUT.	TOTAL
STRUCTURAL CONCRETE (BRIDGE)	C.Y.	58.9	58.9	117.8
REINFORCING STEEL - EPOXY COATED	LB.	6,489	6,489	12,978
REINFORCING STEEL - STAINLESS STEEL	LB.	73	73	146
CLASS 20 EXCAVATION	C.Y.	129	129	258
PILING HP 10x57	LIN.FT.	10 @ 30'	10 @ 30'	600

DESIGN FOR 0° SKEW

770'-0 x 77' CONTINUOUS WELDED GIRDER BRIDGE STAGE 2

115'-0 END SPANS 4-135'-0 INTERIOR SPANS

ABUTMENT DETAILS

STATION: 1935+86.00 JANUARY, 2012

WAPELLO COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 11 OF 45 FILE NO. 30503 DESIGN NO. 112

BENCH MARK : NO. 559 - STA 1932+12.44, 32.07' RT., FD. DOT BUTTON SE COR. BRG. - ELEV.=653.04

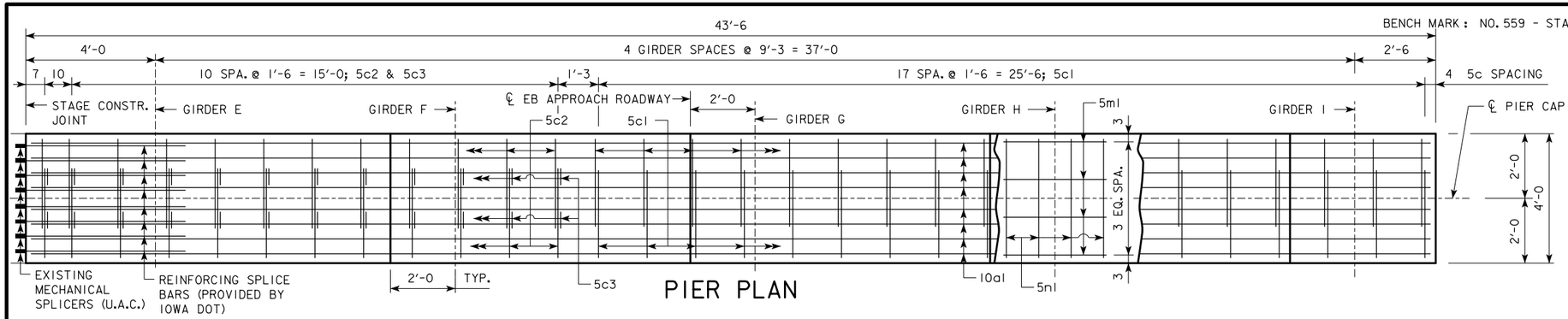
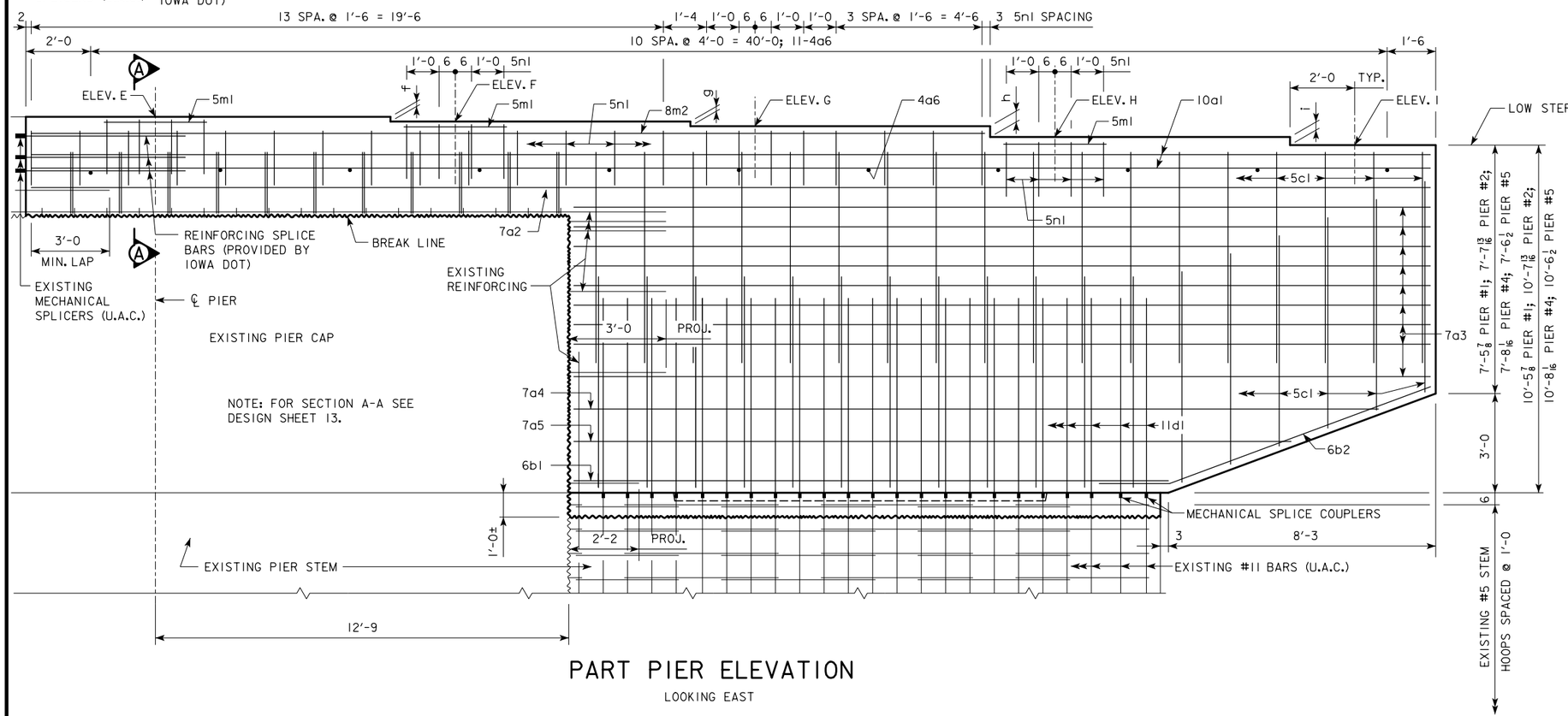
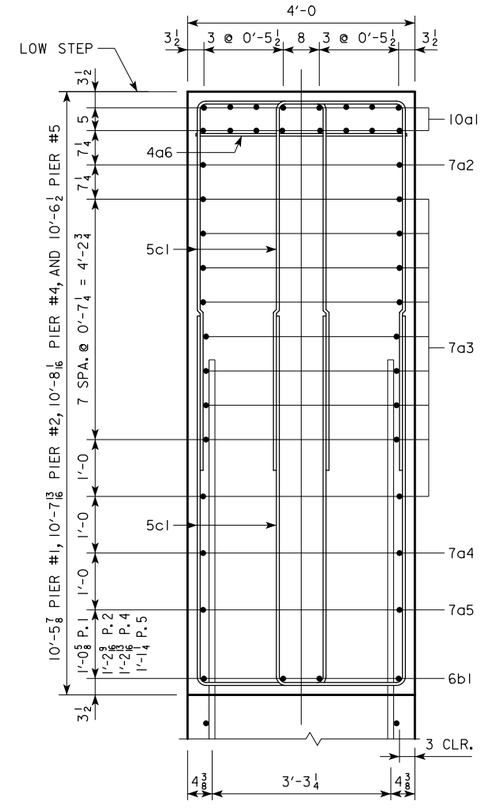


TABLE OF STEPS & ELEVATIONS				
STEP	PIER #1	PIER #2	PIER #4	PIER #5
f	2 3/16	2 1/4	2 1/4	2 3/16
g	2 1/2	2 3/8	2 3/8	2 1/2
h	3 3/8	3 3/8	3 3/8	3 3/8
i	3 1/4	3 3/8	3 3/8	3 1/4
ELEVATION	PIER #1	PIER #2	PIER #4	PIER #5
E	647.21	649.12	649.14	647.26
F	647.03	648.93	648.95	647.08
G	646.82	648.73	648.75	646.87
H	646.54	648.45	648.47	646.59
I	646.27	648.17	648.19	646.32



PART PIER ELEVATION

LOOKING EAST



SECTION THRU CAP

DESIGN FOR 0° SKEW

770'-0 x 77' CONTINUOUS WELDED GIRDER BRIDGE STAGE 2

115'-0 END SPANS 4-135'-0 INTERIOR SPANS

PIERS #1, #2, #4, & #5 DETAILS

STATION: 1935+86.00 JANUARY, 2012

WAPELLO COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 12 OF 45 FILE NO. 30503 DESIGN NO. 112

DESIGN TEAM WDT/DAW/DLB	WAPELLO COUNTY	PROJECT NUMBER BRF-034-7(130)--38-90	SHEET NUMBER 13

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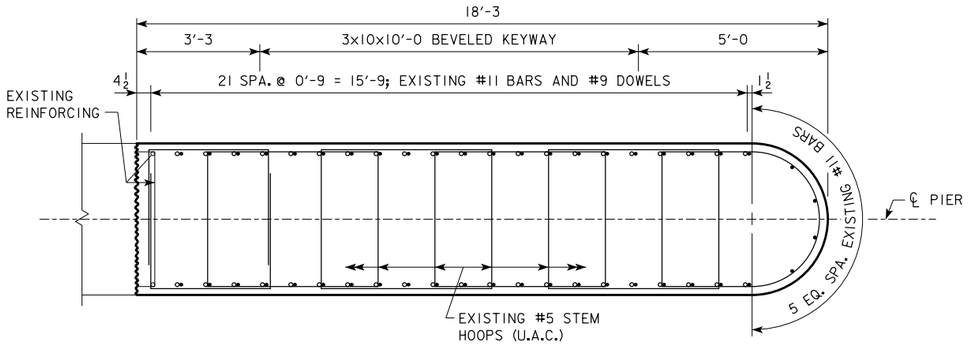
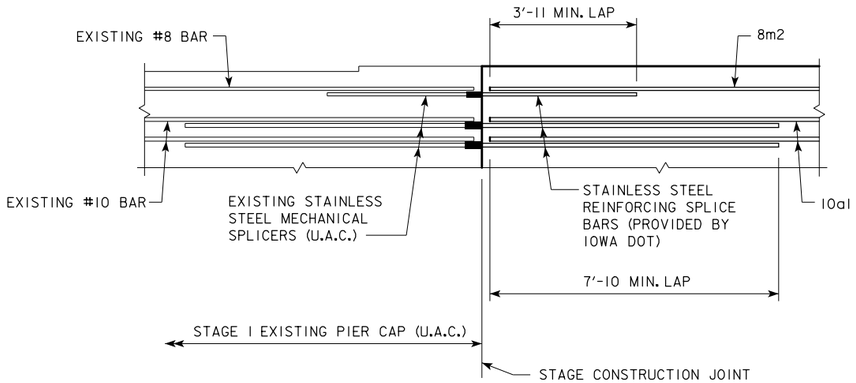


TYPICAL SECTION THRU EXISTING STEM



PART ELEVATION OF PIER CAP AT STAGE CONSTRUCTION JOINT

MECHANICAL SPLICE NOTES:

THE 10a1 and 8m2 BARS IN THE PIER CAPS SHALL BE SPLICED AT THE LOCATIONS SHOWN USING MECHANICAL SPLICE ASSEMBLIES. MECHANICAL SPLICE ASSEMBLIES CONSISTING OF MECHANICAL SPLICERS AND REINFORCING SPLICE BARS MEETING THE REQUIREMENTS OF MATERIALS IM 451 APPENDIX E WERE PROVIDED BY THE CONTRACTOR OF DESIGN III WAPELLO. THE STAINLESS STEEL REINFORCING SPLICE BAR PORTION OF THE MECHANICAL SPLICE ASSEMBLIES HAVE BEEN STORED AT A LOCATION AS DIRECTED BY THE ENGINEER.

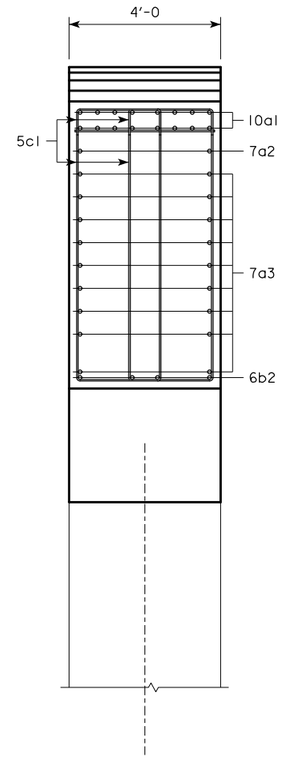
THE COST OF TRANSPORTING AND INSTALLING THE REINFORCING SPLICE BARS IS TO BE INCLUDED IN THE PRICE BID FOR "REINFORCING STEEL" AND NO SEPARATE PAYMENT WILL BE MADE. THE WEIGHT OF THE REINFORCING SPLICE BARS IS NOT INCLUDED IN THE QUANTITY SHOWN FOR "REINFORCING STEEL". A TOTAL OF 20 STAINLESS STEEL REINFORCING SPLICE BARS WILL BE REQUIRED (16 FOR THE 10a1 BARS AND 4 FOR THE 8m2 BARS AT EACH PIER).

THE EXISTING #11 BARS IN THE PIER STEMS SHALL BE SPLICED USING MECHANICAL SPLICE COUPLERS LOCATED AT THE TOP OF THE PIER STEM. THE MECHANICAL SPLICE COUPLER USED SHALL MEET THE REQUIREMENTS OF MATERIALS IM 451 APPENDIX E. THE COST OF THE SPLICE COUPLERS USED, WILL BE INCIDENTAL TO OTHER CONSTRUCTION AND NO SEPARATE PAYMENT WILL BE MADE.

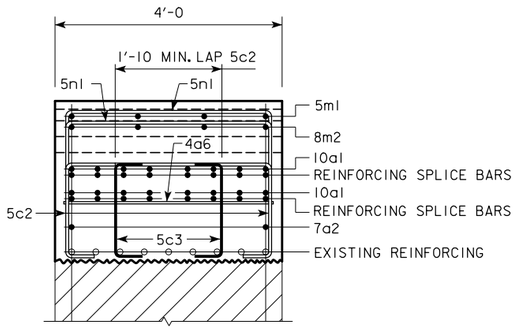
PIER NOTES:

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

CONSTRUCTION JOINT KEYWAYS ARE TO BE FORMED WITH A 3" x 10" x 10'-0 DRESSED AND BEVELED STRIP.

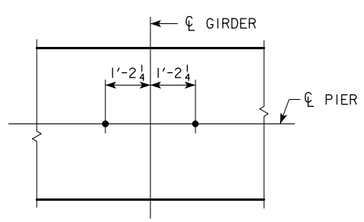


PART END ELEVATION



SECTION A-A

FOR LOCATION OF SECTION A-A SEE DESIGN SHEET 12.



ANCHOR BOLT LOCATION

DESIGN FOR 0° SKEW

770'-0 x 77' CONTINUOUS WELDED GIRDER BRIDGE STAGE 2

115'-0 END SPANS 4-135'-0 INTERIOR SPANS

PIERS #1, #2, #4, & #5 DETAILS

STATION: 1935+86.00 JANUARY, 2012

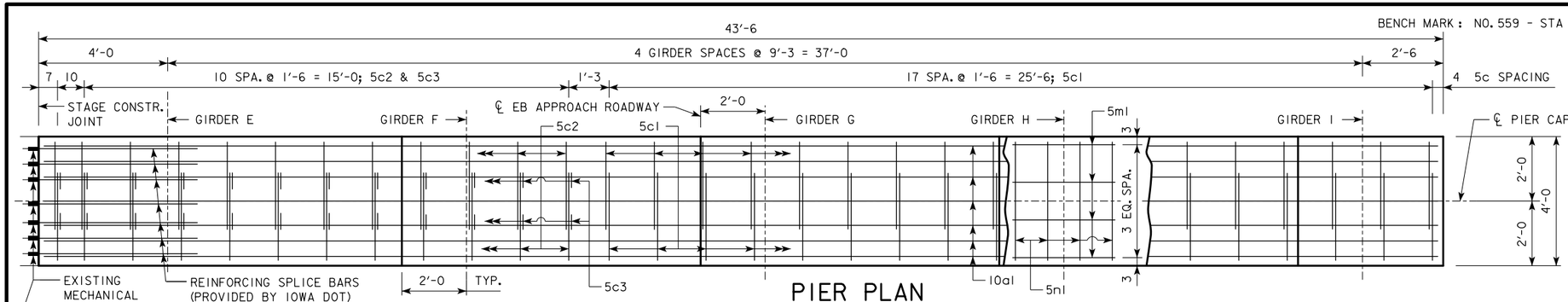
WAPELLO COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

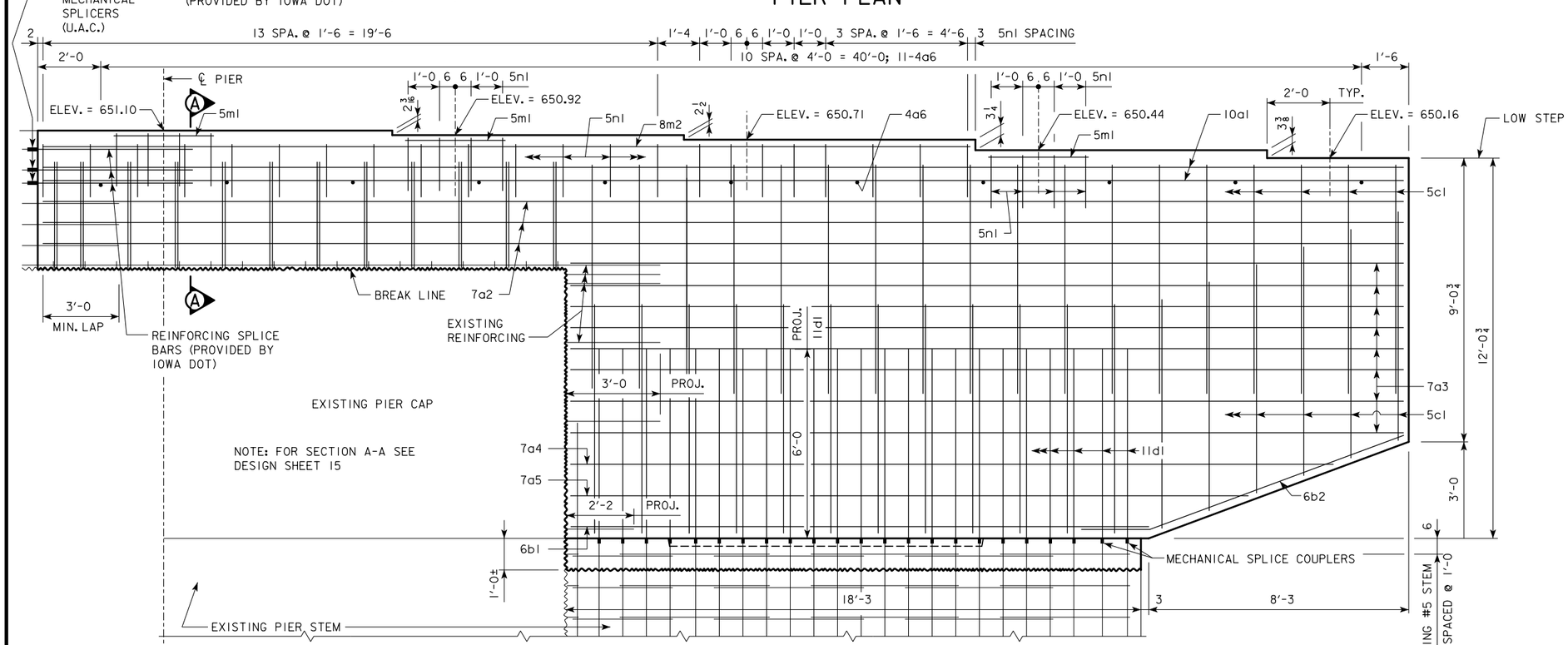
DESIGN SHEET NO. 13 OF 45 FILE NO. 30503 DESIGN NO. 112

DESIGN TEAM WDT/DAW/DLB	WAPELLO COUNTY	PROJECT NUMBER BRF-034-7(130)--38-90	SHEET NUMBER 14

BENCH MARK : NO. 559 - STA 1932+12.44, 32.07' RT., FD. DOT BUTTON SE COR. BRG. - ELEV.=653.04

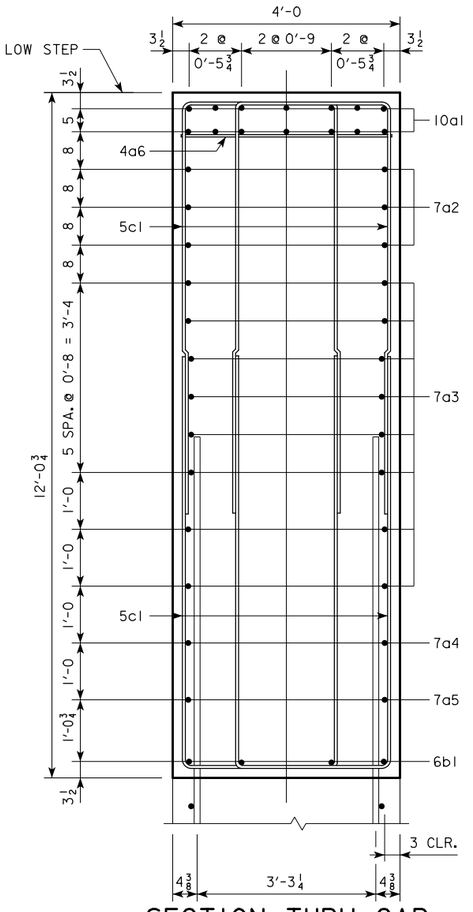


PIER PLAN



PART PIER ELEVATION

LOOKING EAST



SECTION THRU CAP

DESIGN FOR 0° SKEW

770'-0 x 77' CONTINUOUS WELDED GIRDER BRIDGE STAGE 2

115'-0 END SPANS — 4-135'-0 INTERIOR SPANS

PIER #3 DETAILS

STATION: 1935+86.00 — JANUARY, 2012

WAPELLO COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 14 OF 45 — FILE NO. 30503 — DESIGN NO. 112

DESIGN TEAM WDT/DAW/DLB | WAPELLO COUNTY | PROJECT NUMBER BRF-034-7(130)--38-90 | SHEET NUMBER 15

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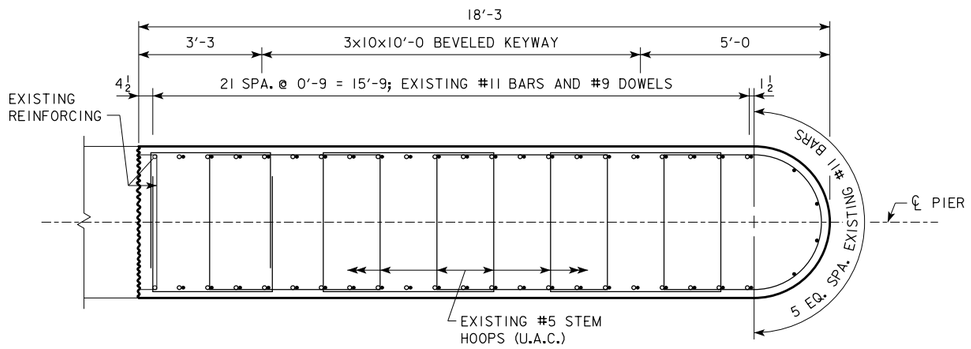
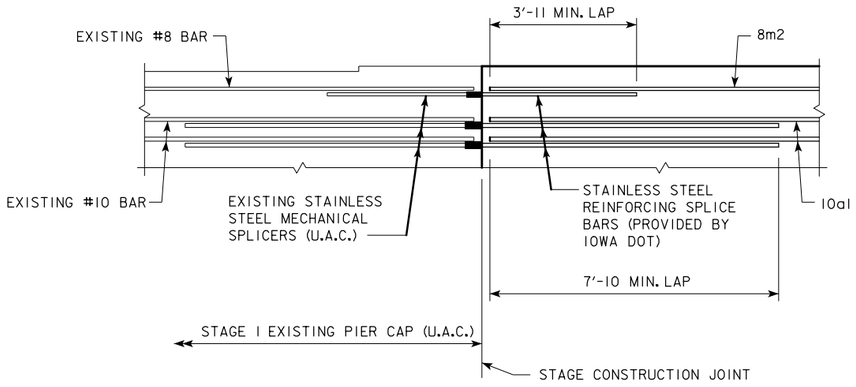


TYPICAL SECTION THRU EXISTING STEM



PART ELEVATION OF PIER CAP AT STAGE CONSTRUCTION JOINT

MECHANICAL SPLICE NOTES:

THE 10a1 and 8m2 BARS IN THE PIER CAPS SHALL BE SPLICED AT THE LOCATIONS SHOWN USING MECHANICAL SPLICE ASSEMBLIES. MECHANICAL SPLICE ASSEMBLIES CONSISTING OF MECHANICAL SPLICERS AND REINFORCING SPLICE BARS MEETING THE REQUIREMENTS OF MATERIALS IM 451 APPENDIX E WERE PROVIDED BY THE CONTRACTOR OF DESIGN III WAPELLO. THE STAINLESS STEEL REINFORCING SPLICE BAR PORTION OF THE MECHANICAL SPLICE ASSEMBLIES HAVE BEEN STORED AT A LOCATION AS DIRECTED BY THE ENGINEER.

THE COST OF TRANSPORTING AND INSTALLING THE REINFORCING SPLICE BARS IS TO BE INCLUDED IN THE PRICE BID FOR "REINFORCING STEEL" AND NO SEPARATE PAYMENT WILL BE MADE. THE WEIGHT OF THE REINFORCING SPLICE BARS IS NOT INCLUDED IN THE QUANTITY SHOWN FOR "REINFORCING STEEL". A TOTAL OF 18 STAINLESS STEEL REINFORCING SPLICE BARS WILL BE REQUIRED (14 FOR THE 10a1 BARS AND 4 FOR THE 8m2 BARS AT EACH PIER).

THE EXISTING #11 BARS IN THE PIER STEMS SHALL BE SPLICED USING MECHANICAL SPLICE COUPLERS LOCATED AT THE TOP OF THE PIER STEM. THE MECHANICAL SPLICE COUPLER USED SHALL MEET THE REQUIREMENTS OF MATERIALS IM 451 APPENDIX E. THE COST OF THE SPLICE COUPLERS USED, WILL BE INCIDENTAL TO OTHER CONSTRUCTION AND NO SEPARATE PAYMENT WILL BE MADE.

PIER NOTES:

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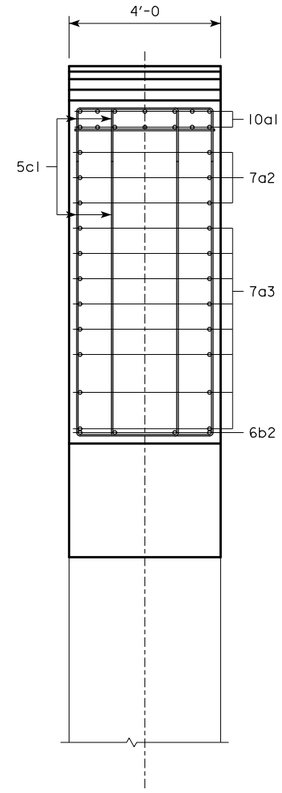
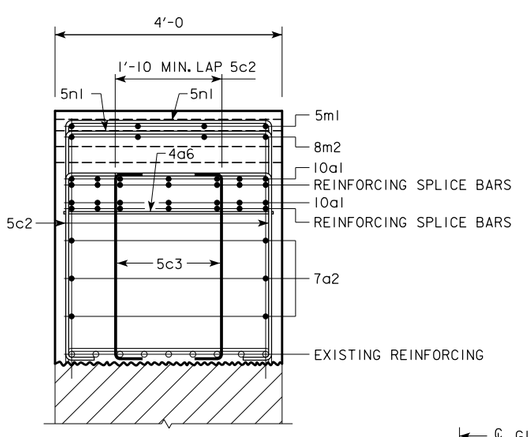
CONSTRUCTION JOINT KEYWAYS ARE TO BE FORMED WITH A 3" x 10" x 10'-0 DRESSED AND BEVELED STRIP.

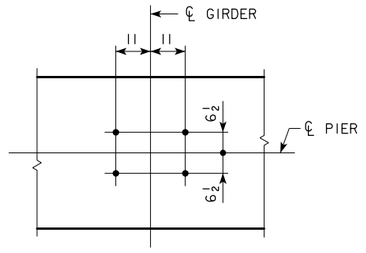


PART END ELEVATION



SECTION A-A

FOR LOCATION OF SECTION A-A SEE DESIGN SHEET 14.



ANCHOR BOLT LOCATION

DESIGN FOR 0° SKEW

770'-0 x 77' CONTINUOUS WELDED GIRDER BRIDGE STAGE 2

115'-0 END SPANS — 4-135'-0 INTERIOR SPANS

PIER #3 DETAILS

STATION: 1935+86.00 — JANUARY, 2012

WAPELLO COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 15 OF 45 FILE NO. 30503 DESIGN NO. 112

REINFORCING BAR LIST - PIER #1

BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
10a1	CAP, TOP, LONGIT.	——	16	43'-2	2972
7a2	CAP, SIDES, LONGIT.	——	2	43'-2	176
7a3	CAP, SIDES, LONGIT.	——	18	26'-5	972
7a4	CAP, SIDES, LONGIT.	——	2	24'-3	99
7a5	CAP, SIDES, LONGIT.	——	2	21'-6	88
4a6	CAP, TRANSVERSE	——	11	3'-8	27
6b1	CAP, BOTT., LONGIT.	——	4	18'-4	110
6b2	CAP, BOTT., CANTILEVER	⌐	4	10'-10	65
5c1	CAP, HOOPS	⊓	72	15'-4	1151
5c2	CAP, HOOPS	⌐	24	5'-1	127
5c3	CAP, HOOPS	[	24	2'-10	71
11d1	STEM TO CAP, VERTICAL	——	46	6'-4	1548
5m1	CAP, STEPS, LONGIT.	——	12	3'-2	40
8m2	CAP, STEPS, LONGIT.	——	4	29'-5	314
5n1	CAP, STEPS, TRANSV.	⊓	34	7'-0	248
	TOTAL (LBS.)				8,008

REINFORCING BAR LIST - PIER #2

BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
10a1	CAP, TOP, LONGIT.	——	16	43'-2	2972
7a2	CAP, SIDES, LONGIT.	——	2	43'-2	176
7a3	CAP, SIDES, LONGIT.	——	18	26'-5	972
7a4	CAP, SIDES, LONGIT.	——	2	24'-9	101
7a5	CAP, SIDES, LONGIT.	——	2	22'-0	90
4a6	CAP, TRANSVERSE	——	11	3'-8	27
6b1	CAP, BOTT., LONGIT.	——	4	18'-4	110
6b2	CAP, BOTT., CANTILEVER	⌐	4	10'-10	65
5c1	CAP, HOOPS	⊓	72	15'-4	1151
5c2	CAP, HOOPS	⌐	24	5'-3	131
5c3	CAP, HOOPS	[	24	3'-0	75
11d1	STEM TO CAP, VERTICAL	——	46	6'-4	1548
5m1	CAP, STEPS, LONGIT.	——	12	3'-2	40
8m2	CAP, STEPS, LONGIT.	——	4	29'-5	314
5n1	CAP, STEPS, TRANSV.	⊓	34	7'-0	248
	TOTAL (LBS.)				8,020

REINFORCING BAR LIST - PIER #3

BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
10a1	CAP, TOP, LONGIT.	——	14	43'-2	2600
7a2	CAP, SIDES, LONGIT.	——	6	43'-2	529
7a3	CAP, SIDES, LONGIT.	——	16	26'-5	864
7a4	CAP, SIDES, LONGIT.	——	2	24'-4	99
7a5	CAP, SIDES, LONGIT.	——	2	21'-7	88
4a6	CAP, TRANSVERSE	——	11	3'-8	27
6b1	CAP, BOTT., LONGIT.	——	4	18'-4	110
6b2	CAP, BOTT., CANTILEVER	⌐	4	10'-10	65
5c1	CAP, HOOPS	⊓	72	17'-3	1295
5c2	CAP, HOOPS	⌐	24	6'-8	167
5c3	CAP, HOOPS	[	24	4'-5	111
11d1	STEM TO CAP, VERTICAL	——	46	6'-4	1548
5m1	CAP, STEPS, LONGIT.	——	12	3'-2	40
8m2	CAP, STEPS, LONGIT.	——	4	29'-5	314
5n1	CAP, STEPS, TRANSV.	⊓	34	7'-0	248
	TOTAL (LBS.)				8,105

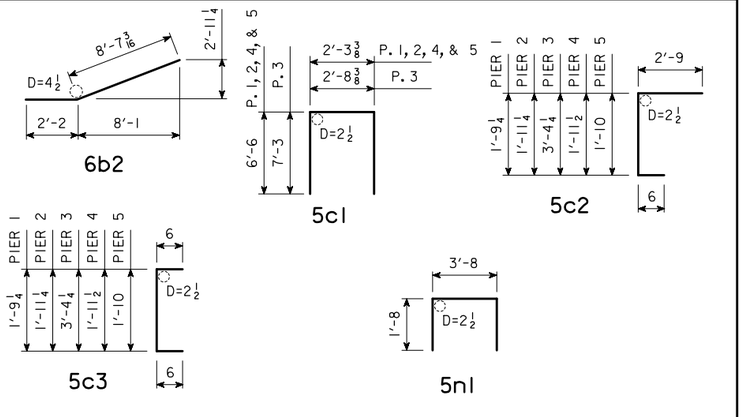
REINFORCING BAR LIST - PIER #4

BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
10a1	CAP, TOP, LONGIT.	——	16	43'-2	2972
7a2	CAP, SIDES, LONGIT.	——	2	43'-2	176
7a3	CAP, SIDES, LONGIT.	——	18	26'-5	972
7a4	CAP, SIDES, LONGIT.	——	2	24'-9	101
7a5	CAP, SIDES, LONGIT.	——	2	22'-0	90
4a6	CAP, TRANSVERSE	——	11	3'-8	27
6b1	CAP, BOTT., LONGIT.	——	4	18'-4	110
6b2	CAP, BOTT., CANTILEVER	⌐	4	10'-10	65
5c1	CAP, HOOPS	⊓	72	15'-4	1151
5c2	CAP, HOOPS	⌐	24	5'-3	131
5c3	CAP, HOOPS	[	24	3'-0	75
11d1	STEM TO CAP, VERTICAL	——	46	6'-4	1548
5m1	CAP, STEPS, LONGIT.	——	12	3'-2	40
8m2	CAP, STEPS, LONGIT.	——	4	29'-5	314
5n1	CAP, STEPS, TRANSV.	⊓	34	7'-0	248
	TOTAL (LBS.)				8,020

REINFORCING BAR LIST - PIER #5

BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
10a1	CAP, TOP, LONGIT.	——	16	43'-2	2972
7a2	CAP, SIDES, LONGIT.	——	2	43'-2	176
7a3	CAP, SIDES, LONGIT.	——	18	26'-5	972
7a4	CAP, SIDES, LONGIT.	——	2	24'-5	100
7a5	CAP, SIDES, LONGIT.	——	2	21'-8	89
4a6	CAP, TRANSVERSE	——	11	3'-8	27
6b1	CAP, BOTT., LONGIT.	——	4	18'-4	110
6b2	CAP, BOTT., CANTILEVER	⌐	4	10'-10	65
5c1	CAP, HOOPS	⊓	72	15'-4	1151
5c2	CAP, HOOPS	⌐	24	5'-1	127
5c3	CAP, HOOPS	[	24	2'-10	71
11d1	STEM TO CAP, VERTICAL	——	46	6'-4	1548
5m1	CAP, STEPS, LONGIT.	——	12	3'-2	40
8m2	CAP, STEPS, LONGIT.	——	4	29'-5	314
5n1	CAP, STEPS, TRANSV.	⊓	34	7'-0	248
	TOTAL (LBS.)				8,010

BENT BAR DETAILS



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

CONCRETE PLACEMENT QUANTITIES

LOCATION	PIER 1	PIER 2	PIER 3	PIER 4	PIER 5	TOTAL
CAP AND STEPS	48.4	49.4	58.5	49.5	48.7	254.5
STEM	2.7	2.7	2.7	2.7	2.7	13.5
TOTAL (CU. YDS.)	51.1	52.1	61.2	52.2	51.4	268.0

TOTAL ESTIMATED PIER QUANTITIES

ITEM	UNIT	PIER 1	PIER 2	PIER 3	PIER 4	PIER 5	QUANTITY
STRUCTURAL CONCRETE (BRIDGE)	CU. YDS.	51.1	52.1	61.2	52.2	51.4	268.0
REINFORCING STEEL	LBS.	8,008	8,020	8,105	8,020	8,010	40,163

DESIGN FOR 0° SKEW

770'-0 x 77' CONTINUOUS WELDED GIRDER BRIDGE STAGE 2

115'-0 END SPANS — 4-135'-0 INTERIOR SPANS

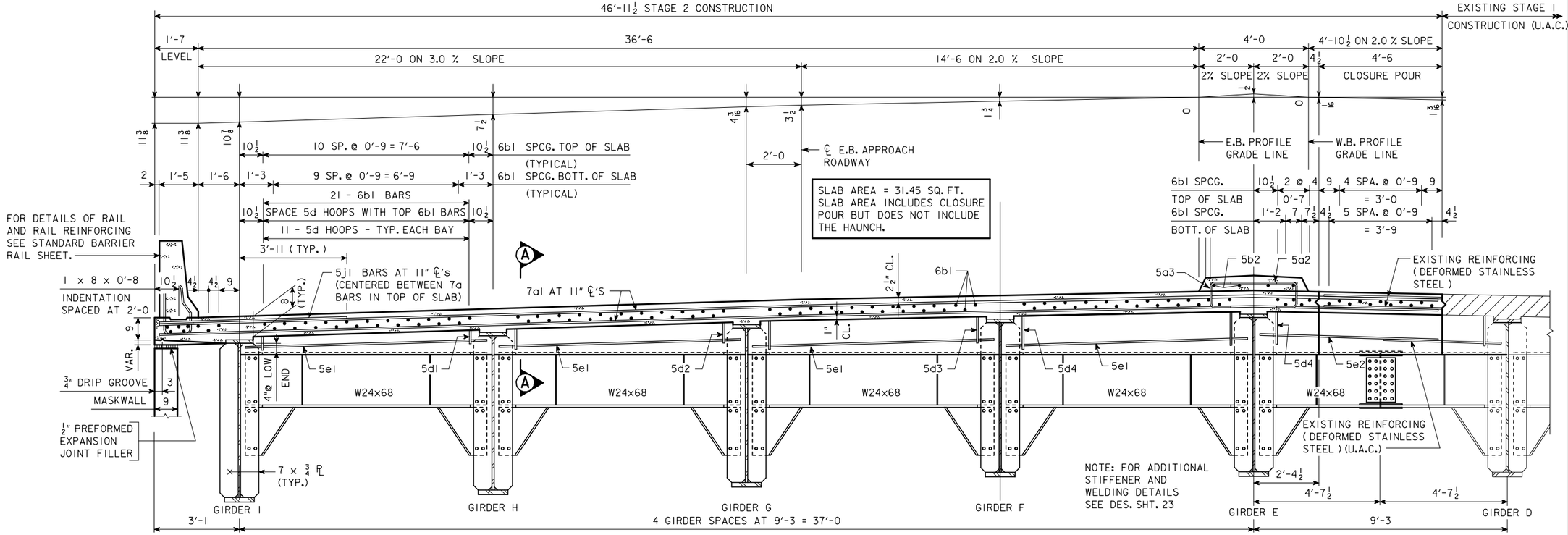
PIER DETAILS

STATION: 1935+86.00 — JANUARY, 2012

WAPELLO COUNTY

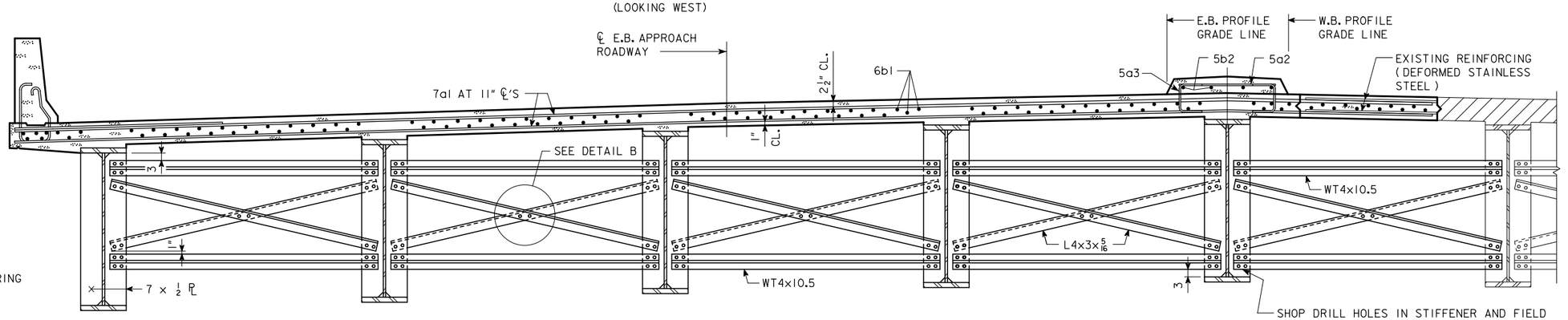
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 16 OF 45 FILE NO. 30503 DESIGN NO. 112



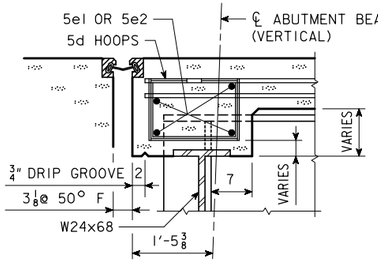
SECTION NEAR ABUTMENT

(LOOKING WEST)



SECTION NEAR INTERMEDIATE DIAPHRAGM

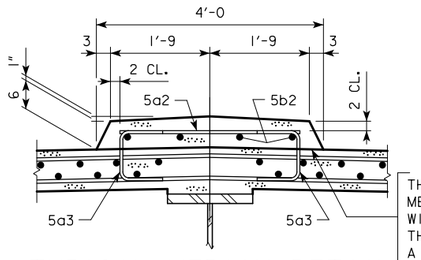
(LOOKING WEST)



SECTION A-A

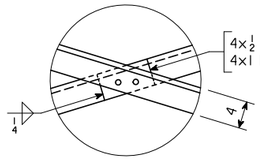
(NORMAL TO ABUTMENT)

NOTE: TRANSVERSE SLAB REINFORCING NOT SHOWN. PLACE 5d HOOPS PARALLEL TO LONGIT. 6b1 BARS.



THE SLAB SURFACE WITHIN THE LIMITS OF THE MEDIAN WILL HAVE A TINED FINISH. GROOVES WILL BE ¼ INCH IN DEPTH, SPACED AT NOT MORE THAN 1 INCH CENTER TO CENTER AND WILL HAVE A WIDTH OF ⅛ INCH ±1/16 INCH.

TYPICAL MEDIAN DETAIL



DETAIL B

DESIGN FOR 0° SKEW

770'-0 x 77' CONTINUOUS WELDED GIRDER BRIDGE STAGE 2

115'-0 END SPANS — 4-135'-0 INTERIOR SPANS

SUPERSTRUCTURE DETAILS

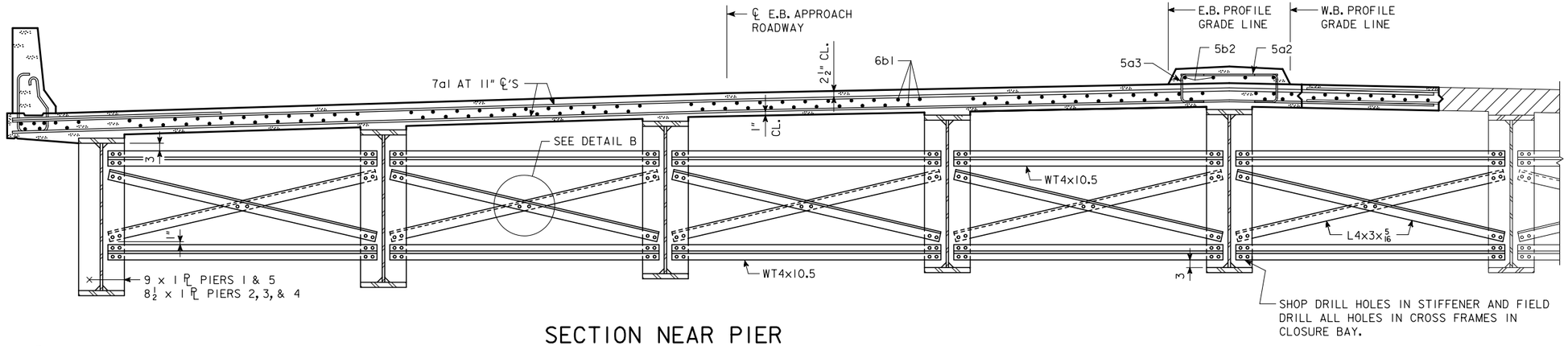
STATION: 1935+86.00 — JANUARY, 2012

WAPELLO COUNTY

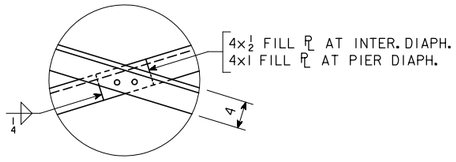
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 17 OF 45 FILE NO. 30503 DESIGN NO. 112

DESIGN TEAM WDT/DAW/DLB	WAPELLO COUNTY	PROJECT NUMBER BRF-034-7(130)--38-90	SHEET NUMBER 18



SECTION NEAR PIER
(LOOKING WEST)



DETAIL B

SUPERSTRUCTURE NOTES:

THE FLOOR SLAB AS SHOWN INCLUDES ½" INTEGRAL WEARING SURFACE.

FORMS FOR THE SLAB AND BARRIER RAIL ARE TO BE SUPPORTED BY THE GIRDERS.

CLEAR DISTANCE FROM FACE OF CONCRETE TO NEAR REINFORCING BAR SHALL BE 2 INCHES UNLESS OTHERWISE NOTED OR SHOWN.

TOP TRANSVERSE REINFORCING STEEL IS TO BE PARALLEL TO AND 2½" CLEAR BELOW TOP OF SLAB. BOTTOM TRANSVERSE 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 EPOXY COATED METAL BAR CHAIRS SPACED AT NOT MORE THAN 3'-0 CENTERS LONGITUDINALLY AND TRANSVERSELY, OR BY CONTINUOUS ROWS OF EPOXY COATED METAL BAR HIGH CHAIRS OR SLAB BOLSTERS SPACED 4'-0 APART.

ALL FIELD CONNECTIONS ARE TO BE BOLTED USING "HIGH STRENGTH BOLTS". UNLESS OTHERWISE NOTED, ALL OPEN HOLES ARE TO BE 15/16"Φ AND ALL BOLTS ARE TO BE 7/8"Φ.

BOTTOM FLANGES ARE TO BE PERPENDICULAR TO WEBS AT THE REACTION POINTS.

FILL PL THICKNESSES SHOWN ON PLANS ARE BASED ON NOMINAL GIRDER DIMENSIONS. THESE THICKNESSES ARE TO BE VERIFIED OR ADJUSTED DURING FABRICATION TO SECURE A CLOSE FIT. EACH FILL PLATE SHALL FIT TO THE NEAREST 1/16" IN THICKNESS AND SINGLE PLATES ARE REQUIRED AT EACH FILL LOCATION. GIRDERS ARE TO BE TRULY SQUARE AT SPLICE POINTS WITH FLANGES PERPENDICULAR TO WEBS.

THE DESIGN DRAWINGS INDICATE AWS PREQUALIFIED WELDED JOINTS. ALTERNATE JOINT DETAILS MAY BE SUBMITTED FOR APPROVAL.

MAGNETIC PARTICLE INSPECTION OF WELDS, IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS, WILL BE REQUIRED.

SHOP WELDED FLANGE SPLICES SHALL BE A MINIMUM OF 6 INCHES FROM A STIFFENER, 6 INCHES FROM A WEB SPLICE, AND 4 INCHES FROM A SHEAR CONNECTOR. WEB SPLICES SHALL BE A MINIMUM OF 6 INCHES FROM A STIFFENER. SPLICES SHALL NOT INTERFERE WITH ANY OTHER BRIDGE COMPONENTS. ALL SHOP WELDED BUTT SPLICES SHALL BE SHOWN ON THE SHOP DRAWINGS AND SUBJECT TO APPROVAL BY THE ENGINEER.

WEATHERING STEEL NOTES:

ALL STRUCTURAL STEEL, EXCEPT AS NOTED, SHALL CONFORM TO ASTM A709 GRADE 50W. THE MINIMUM YIELD POINT FOR GRADE 50W STRUCTURAL STEEL IS 50,000 PSI FOR PLATES 4 INCHES AND UNDER IN THICKNESS, AND ALL STRUCTURAL SHAPES. THE GRADE 50W STEEL IS A WEATHERING STEEL AND IS TO REMAIN UNPAINTED, EXCEPT AS NOTED.

FLOOR DRAINS INCLUDING PLATES WELDED TO THE DRAIN FOR DRAIN SUPPORT ARE TO BE GRADE 36 STEEL.

ALL PIECES COMPRISING THE ABUTMENT AND PIER BEARINGS SHALL COMPLY WITH THE REQUIREMENTS AS STATED IN THE NOTES ON DESIGN SHEETS 25, 26 & 27.

SHEAR STUDS ARE TO BE OF AN APPROVED TYPE LISTED IN MATERIALS I.M. 453.10, APPENDIX A.

THE FINISH ON FLOOR DRAINS, BEARINGS, AND WEATHERING STEEL SHALL BE IN ACCORDANCE WITH THE PLAN NOTES AND SECTION 2408, OF THE STANDARD SPECIFICATIONS. EXTERIOR SURFACES OF ALL GALVANIZED COMPONENTS WHICH ARE DESIGNATED IN THE CONTRACT DOCUMENTS TO BE PAINTED SHALL BE PREPARED ACCORDING TO ARTICLE 2509.03, OF THE STANDARD SPECIFICATIONS.

THE GRADE 50W STEEL FOR THE WEBS OF THE EXTERIOR GIRDERS OF THE BRIDGE SHALL BE OF THE SAME TYPE AND FROM THE SAME STEEL MILL.

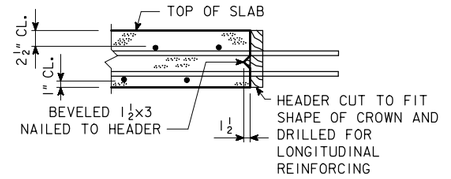
BOLTS FOR USE WITH WEATHERING STEEL SHALL BE A325 TYPE III WITH A563 GRADE DH3 NUTS AND F436 TYPE III WASHERS.

BOLTS USED TO SPLICE GIRDER SECTIONS ARE TO BE INSTALLED SUCH THAT NUTS ARE ON THE INSIDE FACE OF THE GIRDER WEBS FOR THE EXTERIOR GIRDERS, AND ON THE TOP OF BOTH TOP AND BOTTOM FLANGES OF ALL THE GIRDERS.

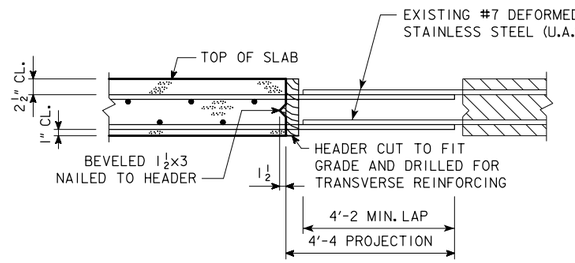
THE STEEL SHALL BE KEPT FREE OF OIL, GREASE, DIRT, CRAYON OR CHALK MARKS, CONCRETE SPATTER AND ANY OTHER FOREIGN MATTER THAT MAY AFFECT THE NATURAL OXIDATION OF THE STEEL. ANY FOREIGN MATTER REMAINING ON THE STEEL AFTER COMPLETION OF BRIDGE CONSTRUCTION SHALL BE REMOVED BY THE CONTRACTOR AS DIRECTED BY THE ENGINEER. THE RESULTANT SURFACE SHALL BE FREE OF ALL VISIBLE RESIDUES. ALL COSTS ASSOCIATED WITH CLEANING STEEL SURFACES SHALL BE BORNE BY THE BRIDGE CONTRACTOR.

SEAL MATERIAL FOR CAULKING SHALL BE NEUTRAL CURE AND NON SAG SILICONE. THREE PRODUCTS MEETING THESE CRITERIA ARE DOW 888, CSL342 JOINT SEALANT, OR CRAFCO ROAD SAVER SILICONE.

BEARING STIFFENERS MAY BE PLACED NORMAL TO GIRDER FLANGES.



TRANSVERSE SLAB CONSTRUCTION JOINT



LONGITUDINAL SLAB CONSTRUCTION JOINT

DESIGN FOR 0° SKEW

770'-0 x 77' CONTINUOUS WELDED GIRDER BRIDGE STAGE 2

115'-0 END SPANS — 4-135'-0 INTERIOR SPANS

SUPERSTRUCTURE DETAILS

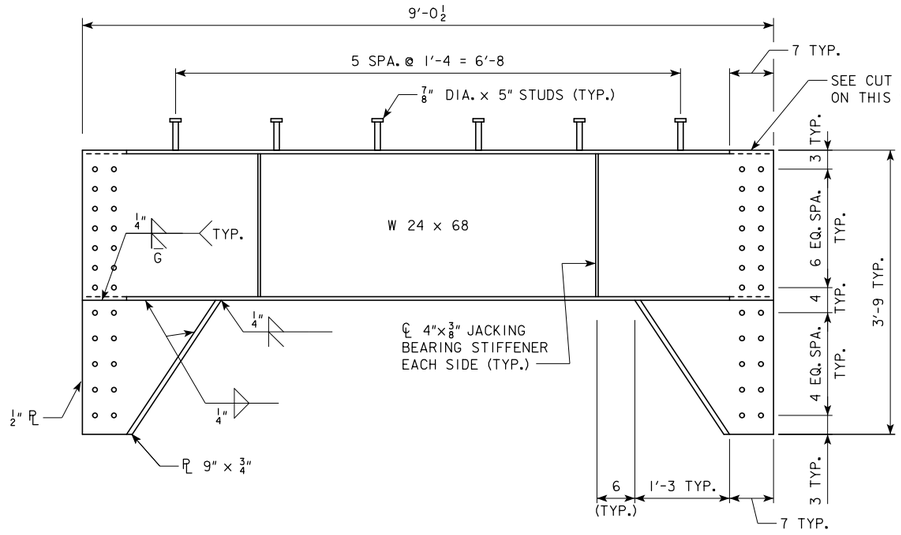
STATION: 1935+86.00 — JANUARY, 2012

WAPELLO COUNTY

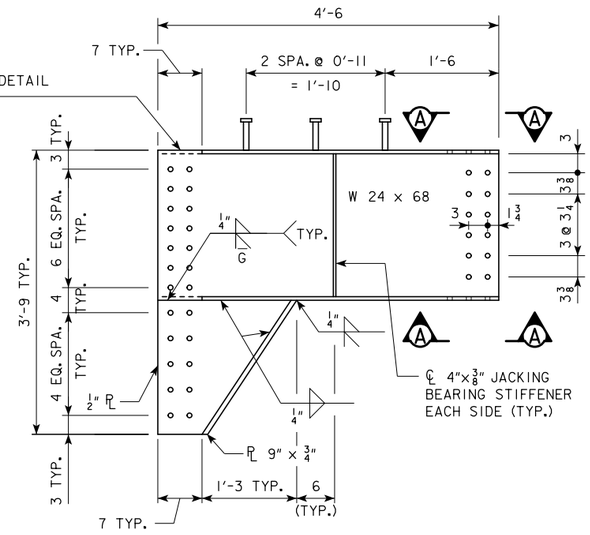
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 18 OF 45 — FILE NO. 30503 — DESIGN NO. 112

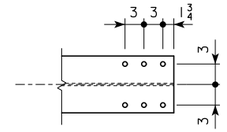
DESIGN TEAM WDT/DAW/DLB	WAPELLO COUNTY	PROJECT NUMBER BRF-034-7(130)--38-90	SHEET NUMBER 19



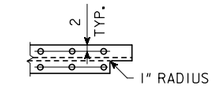
ABUTMENT DIAPHRAGM DETAIL



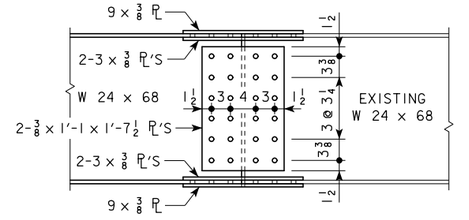
ABUTMENT DIAPHRAGM DETAIL
AT LONGITUDINAL CONSTRUCTION JOINT

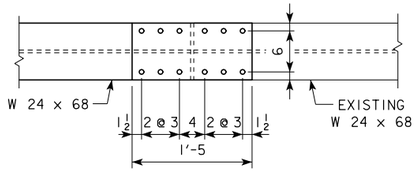


VIEW A-A



TYPICAL CUT & GRIND DETAIL





ABUTMENT DIAPHRAGM SPLICE DETAIL

DESIGN FOR 0° SKEW

770'-0 x 77' CONTINUOUS WELDED GIRDER BRIDGE STAGE 2

115'-0 END SPANS 4-135'-0 INTERIOR SPANS

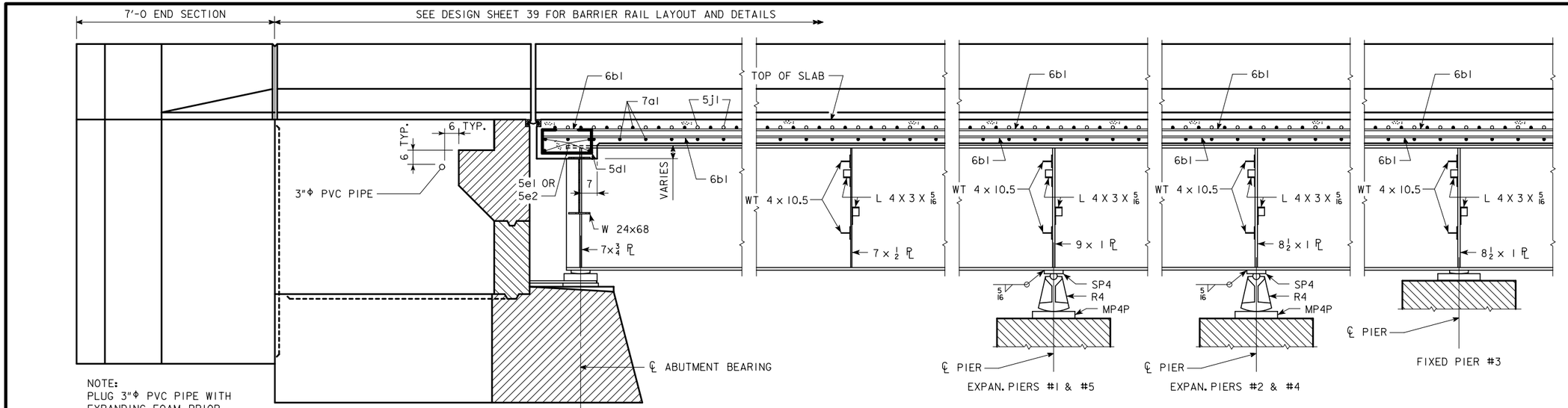
SUPERSTRUCTURE DETAILS

STATION: 1935+86.00 JANUARY, 2012

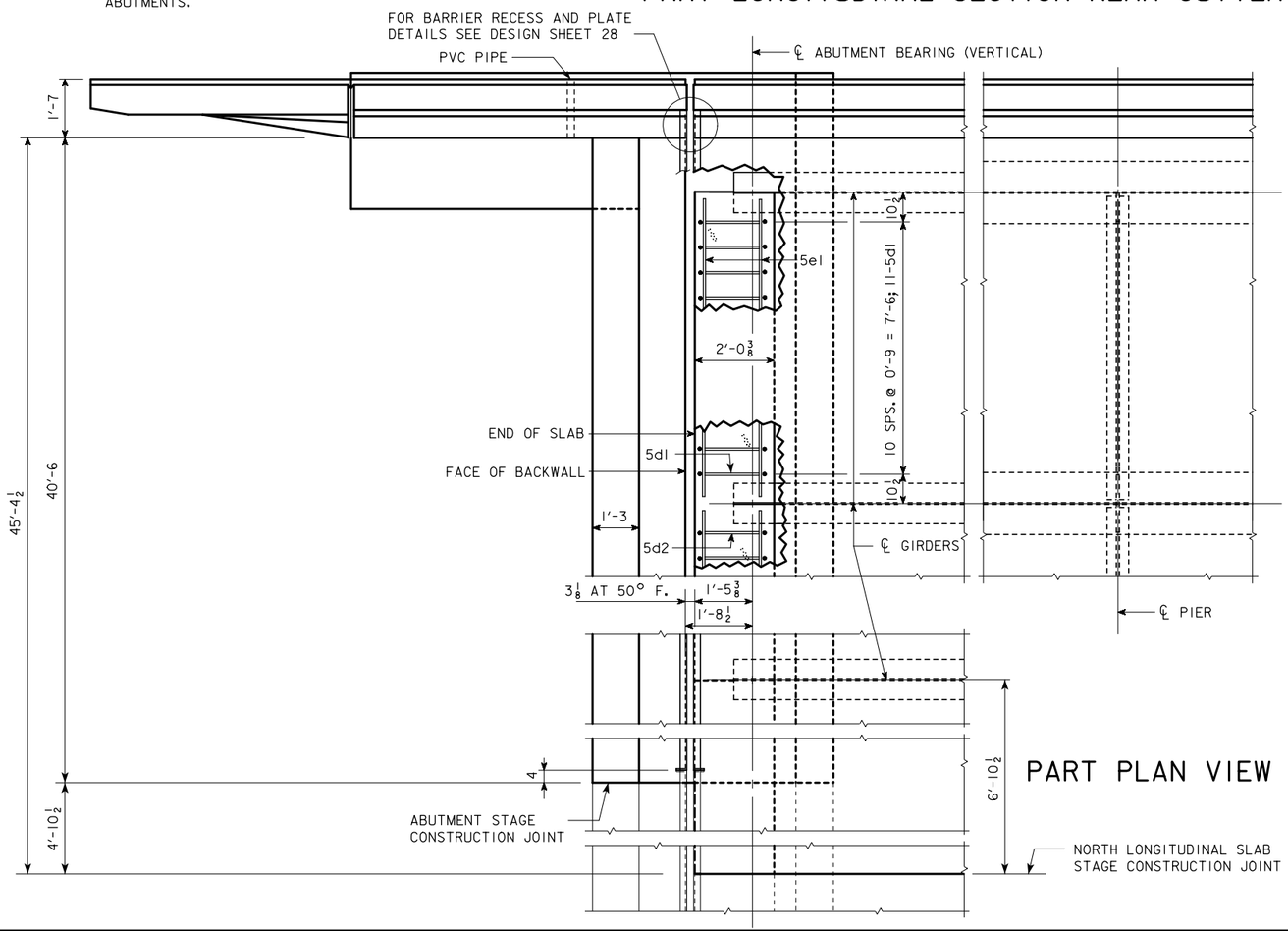
WAPELLO COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

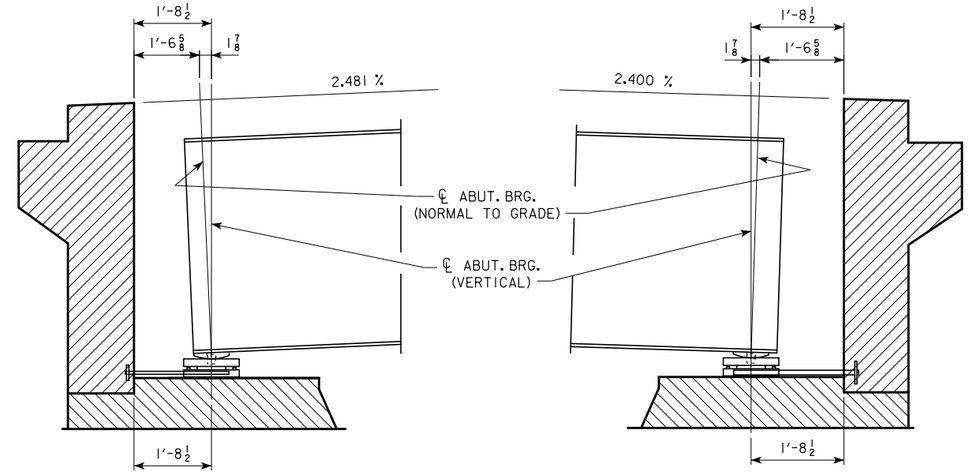
DESIGN SHEET NO. 19 OF 45 FILE NO. 30503 DESIGN NO. 112



PART LONGITUDINAL SECTION NEAR GUTTER



PART PLAN VIEW



WEST ABUT. EAST ABUT.

PART LONGITUDINAL SECTION

(SHOWING GRADE VARIATIONS ALONG ℄ ROADWAY AT ABUTMENTS.)

DESIGN FOR 0° SKEW

770'-0 x 77' CONTINUOUS WELDED GIRDER BRIDGE STAGE 2

115'-0 END SPANS 4-135'-0 INTERIOR SPANS

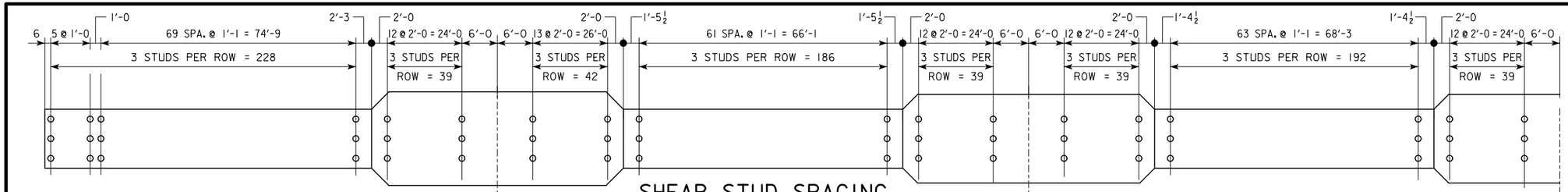
SUPERSTRUCTURE DETAILS

STATION: 1935+86.00 JANUARY, 2012

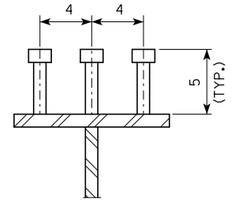
WAPELLO COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 20 OF 45 FILE NO. 30503 DESIGN NO. 112



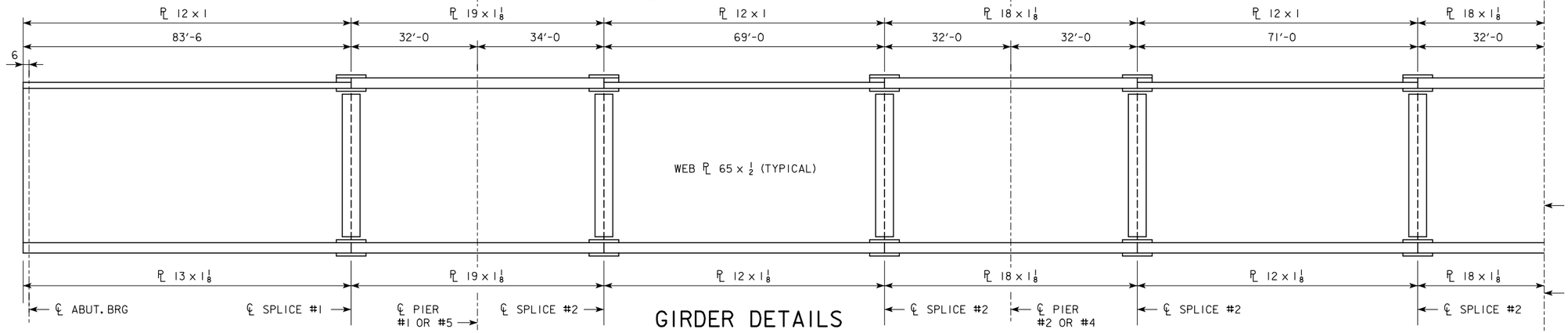
SHEAR STUD SPACING



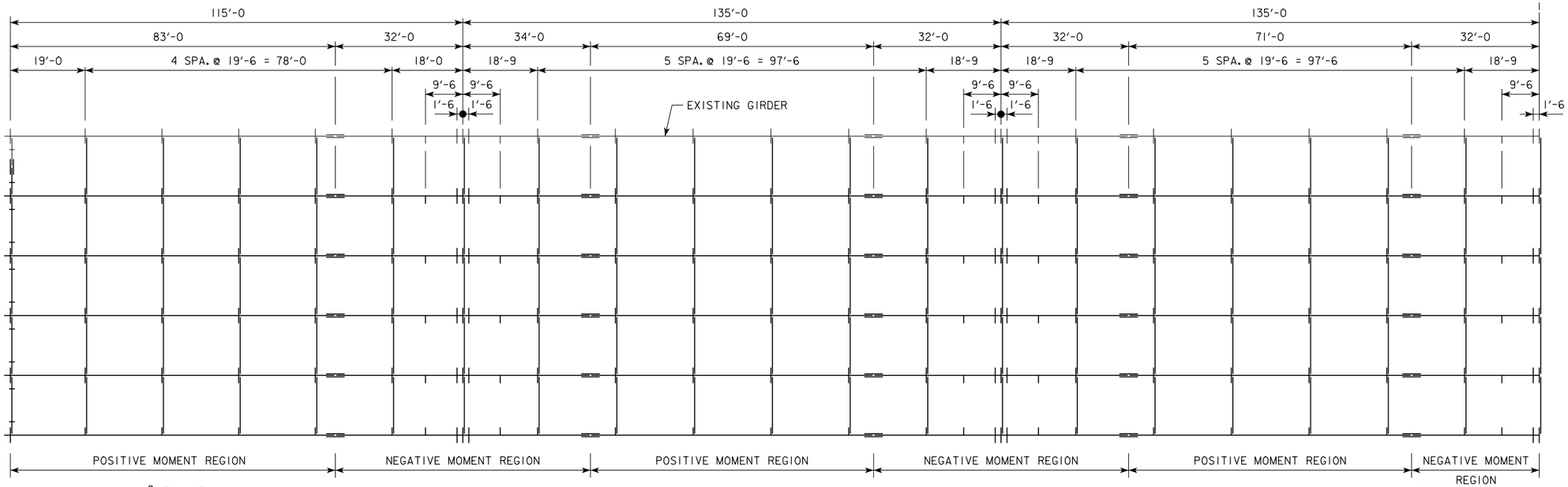
SHEAR STUD DETAIL

1,608-$\frac{7}{8}$"ΦX0'-5 SHEAR STUDS PER GIRDER

8,040-TOTAL SHEAR STUDS 5 GIRDERS

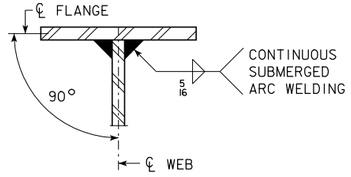


GIRDER DETAILS



STRUCTURAL STEEL LAYOUT

NOTE: THE TOP FLANGE IS THE COMPRESSION FLANGE IN THE POSITIVE MOMENT REGIONS. THE BOTTOM FLANGE IS THE COMPRESSION FLANGE IN THE NEGATIVE MOMENT REGIONS.



FLANGE TO WEB WELD DETAILS

DESIGN FOR 0° SKEW

770'-0 x 77' CONTINUOUS WELDED GIRDER BRIDGE STAGE 2

115'-0 END SPANS — 4-135'-0 INTERIOR SPANS

SUPERSTRUCTURE DETAILS

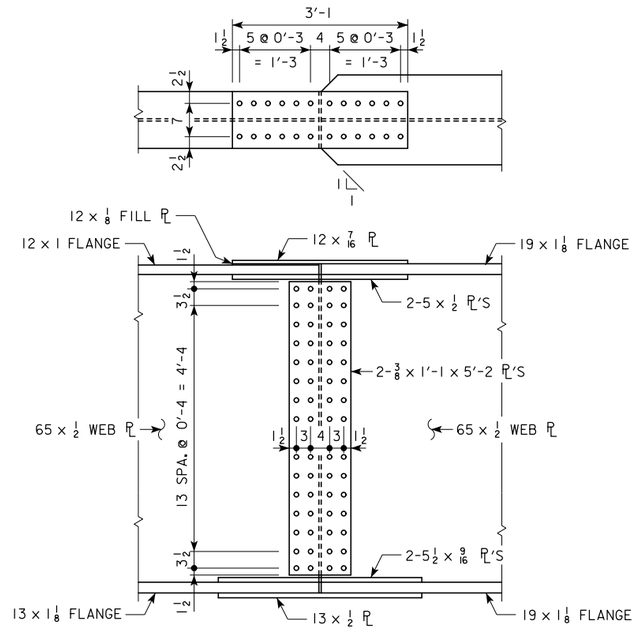
STATION: 1935+86.00 — JANUARY, 2012

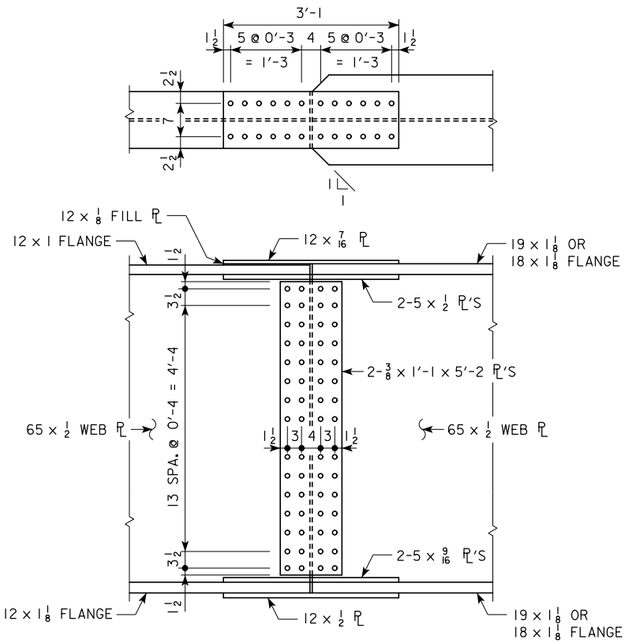
WAPELLO COUNTY

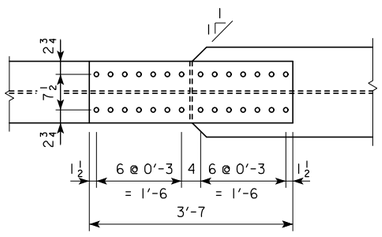
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 21 OF 45 FILE NO. 30503 DESIGN NO. 112

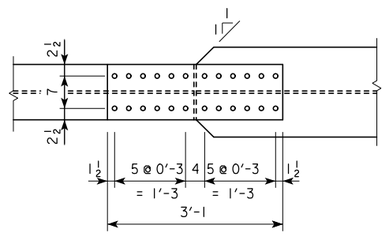
DESIGN TEAM WDT/DAW/DLB	WAPELLO COUNTY	PROJECT NUMBER BRF-034-7(130)--38-90	SHEET NUMBER 22







SPLICE #1



SPLICE #2

DESIGN FOR 0° SKEW

770'-0 x 77' CONTINUOUS WELDED GIRDER BRIDGE STAGE 2

115'-0 END SPANS 4-135'-0 INTERIOR SPANS

SPLICE DETAILS

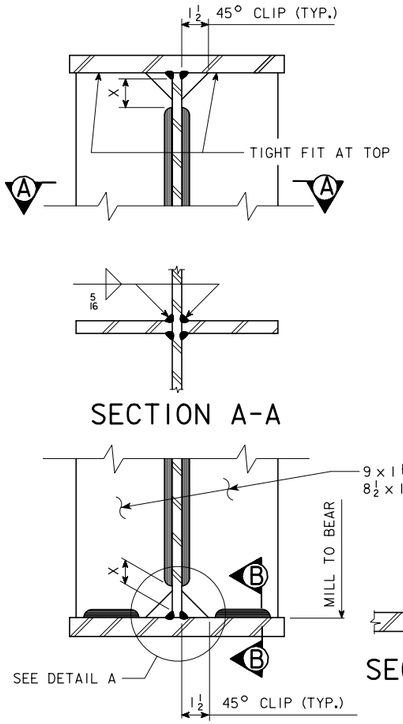
STATION: 1935+86.00 JANUARY, 2012

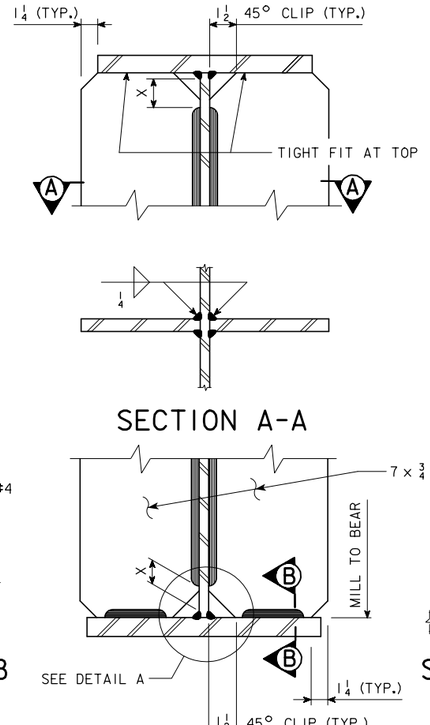
WAPELLO COUNTY

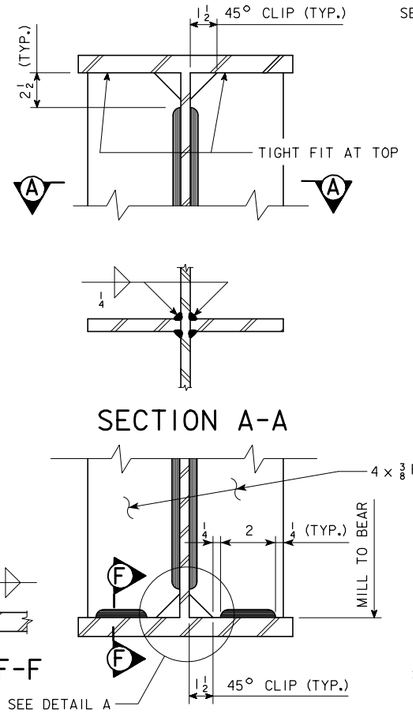
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

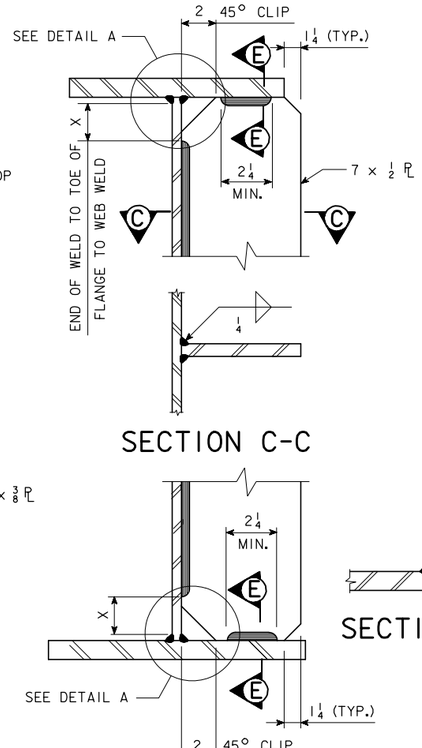
DESIGN SHEET NO. 22 OF 45 FILE NO. 30503 DESIGN NO. 112

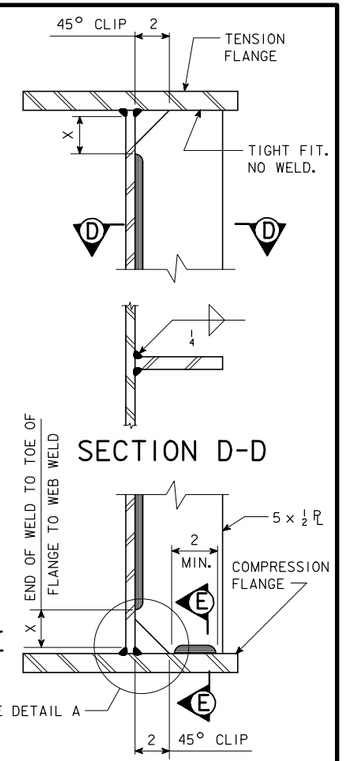
DESIGN TEAM WDT/DAW/DLB	WAPELLO COUNTY	PROJECT NUMBER BRF-034-7(130)--38-90	SHEET NUMBER 23









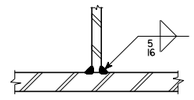


PIER AND JACKING BEARING STIFFENERS

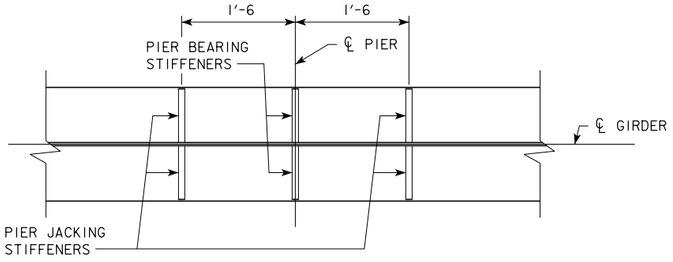
ABUTMENT BEARING STIFFENERS

ABUTMENT DIAPHRAGM JACKING BEARING STIFFENER

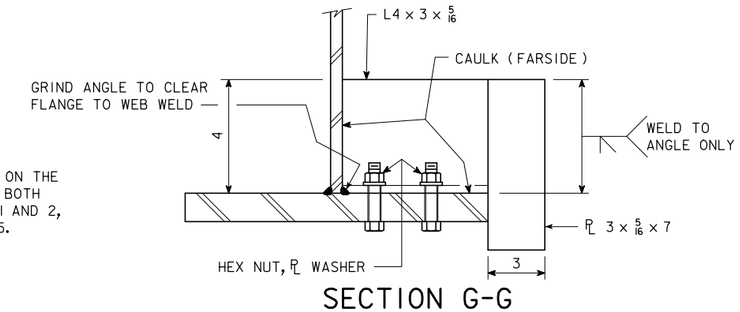
INTERMEDIATE DIAPHRAGM STIFFENER



INTERMEDIATE STIFFENER

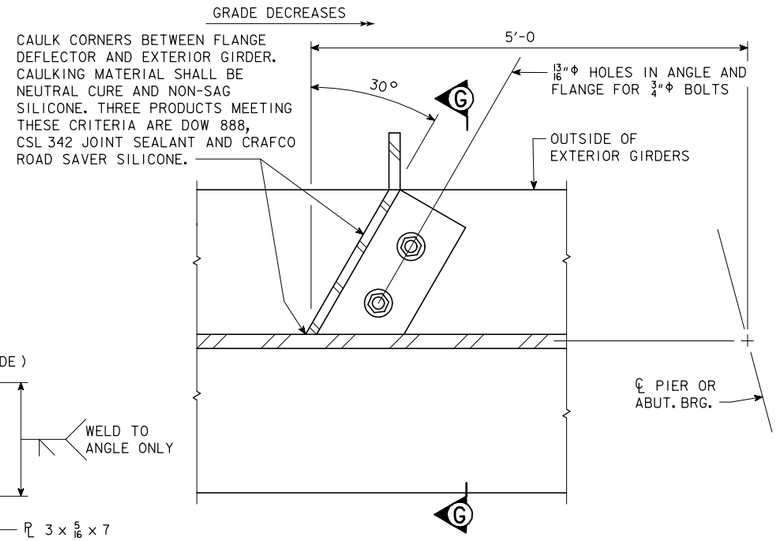


PART PLAN AT PIER



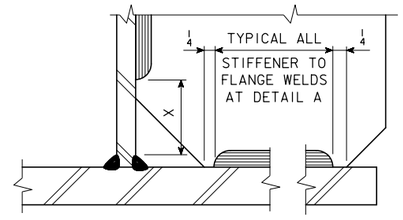
SECTION G-G

FLANGE DEFLECTORS ARE REQUIRED ON THE OUTSIDE OF THE EXTERIOR GIRDER AT BOTH ABUTMENTS, THE EAST SIDE OF PIERS 1 AND 2, AND THE WEST SIDE OF PIERS 4 AND 5.



FLANGE DEFLECTOR DETAILS
(6 REQUIRED PER GIRDER LINE)

T - WEB THICKNESS	X = 5T WITH 2¼" MINIMUM
½	2½



DETAIL A

DESIGN FOR 0° SKEW

770'-0 × 77' CONTINUOUS WELDED GIRDER BRIDGE STAGE 2

115'-0 END SPANS 4-135'-0 INTERIOR SPANS

SUPERSTRUCTURE DETAILS

STATION: 1935+86.00 JANUARY, 2012

WAPELLO COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

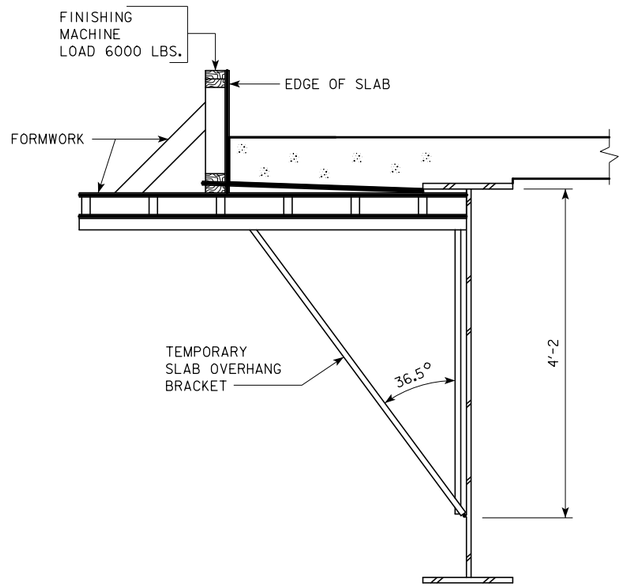
DESIGN SHEET NO. 23 OF 45 FILE NO. 30503 DESIGN NO. 112

REVISED 09-03 - CHANGES SECTION G-G.
ENGLISHBEAMS.DGN 1021 - THIS SHEET ISSUED 11-3-88.

DESIGN TEAM WDT/DAW/DLB	WELDING DETAILS	MODIFIED STANDARD SHEET 1021	WAPELLO COUNTY	PROJECT NUMBER BRF-034-7(130)--38-90	SHEET NUMBER 24

1/30/2012 2:23:05 PM dwrigh2 W:\Projects\9003402006\BRFinal\90034130.brg 900112S023 11x17_pdf.pltcfg

CORRECTION 10-10 - ADDED ARTICLE 2408.03.B.6.7, NONDESTRUCTIVE TESTING TO THE MAGNETIC PARTICLE INSPECTION OF WELDS.
ENGLISHSTUBBRIDGES.DGN - 4305A THIS SHEET ISSUED 04-07.



TEMPORARY SLAB OVERHANG BRACKET DETAIL

OVERHANG BRACKET NOTES:

A MAXIMUM FINISHING MACHINE LOAD AND THE ANGLE OF THE DIAGONAL MEMBER OF THE OVERHANG BRACKET SHOWN WERE ASSUMED BY THE DESIGNER. THESE ASSUMPTIONS, IN ADDITION TO OTHER CONSTRUCTION LOADINGS, WERE USED TO CHECK THE STRENGTH OF THE EXTERIOR GIRDER DURING CRITICAL STAGES OF CONSTRUCTION. IF THE FINISHING MACHINE LOAD OR ANGLE OF THE DIAGONAL MEMBER OF THE OVERHANG BRACKET DEVIATE SIGNIFICANTLY FROM VALUES SHOWN, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER THIS INFORMATION ON PROPOSED CONSTRUCTION EQUIPMENT TO BE USED.

IF THE VERTICAL HEIGHT OF THE OVERHANG BRACKET IS ADJUSTABLE, THE BASE OF THE BRACKET IS TO BE LOCATED AS CLOSE AS POSSIBLE TO THE BOTTOM FLANGE OF THE GIRDER.

DESIGN FOR 0° SKEW

770'-0 x 77' CONTINUOUS
WELDED GIRDER BRIDGE STAGE 2

115'-0 END SPANS 4-135'-0 INTERIOR SPANS

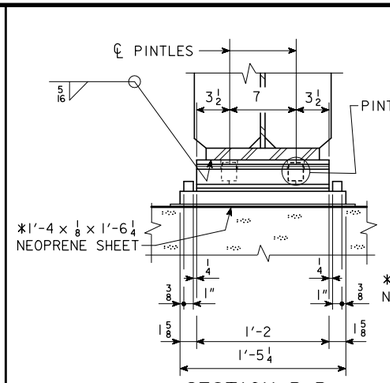
SUPERSTRUCTURE DETAILS

STATION: 1935+86.00 JANUARY, 2012

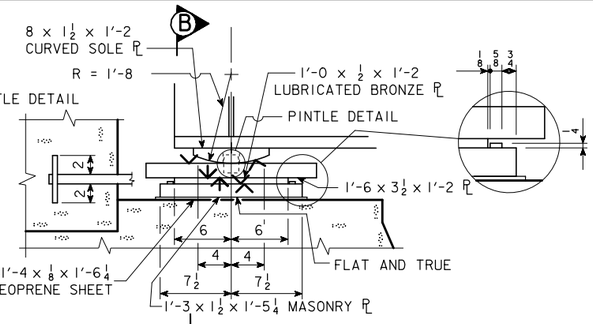
WAPELLO COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

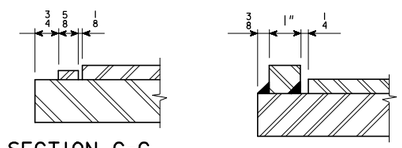
DESIGN SHEET NO. 24 OF 45 FILE NO. 30503 DESIGN NO. 112



SECTION B-B

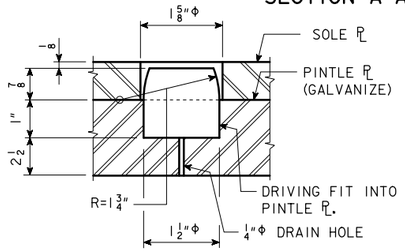


PART ELEVATION

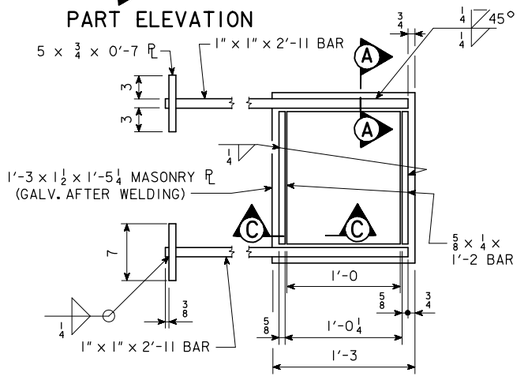


SECTION C-C

SECTION A-A



PINTLE DETAIL



PLAN OF MASONRY PL AND BRONZE PL

STEEL BEAM ABUTMENT BEARING DETAILS

ABUTMENT BEARING NOTES:

SURFACES MARKED " V " SHALL BE FINISHED ANSI 250 AND SURFACES MARKED " V " SHALL BE FINISHED ANSI 125.

THE SLIDING SURFACE OF THE BRONZE PL SHALL BE LUBRICATED IN ACCORDANCE WITH ARTICLE 4190.03, OF THE STANDARD SPECIFICATIONS AND THE BRONZE METAL SHALL BE CAST BRONZE IN ACCORDANCE WITH ARTICLE 4190.03, OF THE STANDARD SPECIFICATIONS. TOP EDGES OF BRONZE PL SHALL BE BEVELED ⅛".

MASONRY PLATES ARE TO BE SET ON A ⅛" NEOPRENE SHEET.

SOLE PLATES, PINTLE PLATES, MASONRY PLATES, AND LUBRICATED BRONZE PLATES ARE A PART OF THE SUPERSTRUCTURE STRUCTURAL STEEL QUANTITY. COST OF NEOPRENE SHEETS SHALL BE CONSIDERED INCIDENTAL TO THE STRUCTURAL STEEL BID ITEM. THE UNIT PRICE BID FOR "STRUCTURAL STEEL" SHALL INCLUDE ALLOWANCE FOR COST OF BRONZE PLATES.

THE PINTLE PLATE AND MASONRY PLATE SHALL MEET THE REQUIREMENTS OF ASTM A709 GRADE 50 AND BE GALVANIZED. WELDING SHALL BE DONE BEFORE GALVANIZING.

THE CURVED SOLE PLATE SHALL MEET THE REQUIREMENTS OF ASTM A709 GRADE 50W AND PAINTED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

DESIGN NOTE:

1. TOTAL VERTICAL DESIGN LOAD (DC + DW + LL + IM) AT SERVICE LIMIT STATE = 173 KIPS
2. BEARINGS AS DESIGNED WILL ALLOW UP TO 3 INCHES OF MOVEMENT EACH WAY OF CENTERLINE OF BEARING.

* THE ⅛ INCH NEOPRENE SHEETS ARE TO BE 50, 60, OR 70 DUROMETER HARDNESS AND SHALL BE 1 INCH GREATER IN LENGTH AND WIDTH THAN THE BOTTOM SURFACE OF THE MASONRY PLATES OR STEEL BEARINGS.

DESIGN FOR 0° SKEW

770'-0 x 77' CONTINUOUS WELDED GIRDER BRIDGE STAGE 2

115'-0 END SPANS — 4-135'-0 INTERIOR SPANS

SUPERSTRUCTURE DETAILS

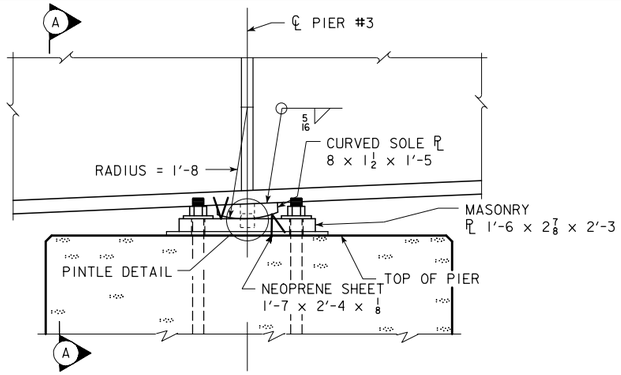
STATION: 1935+86.00 — JANUARY, 2012

WAPELLO COUNTY

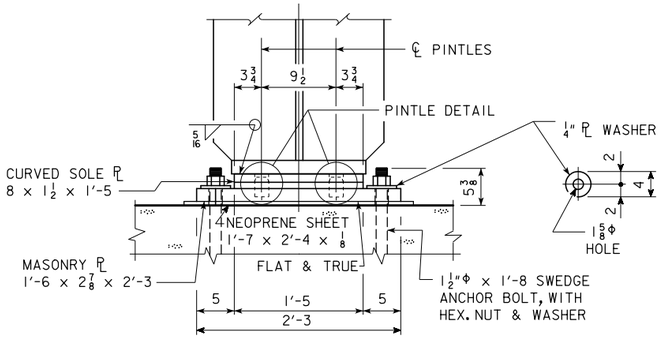
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 25 OF 45 — FILE NO. 30503 — DESIGN NO. 112

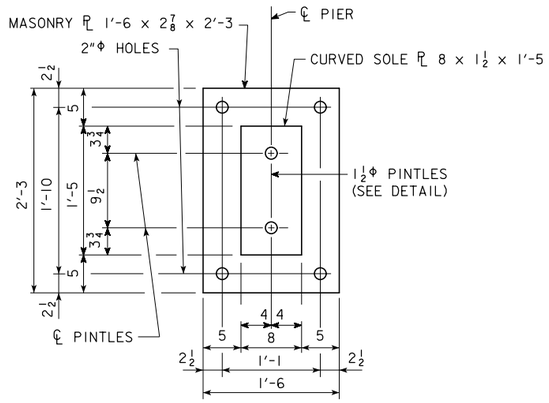
REVISION 09-10 - RE-SIZED THE NEOPRENE SHEETS
ENGLISH BEAMS.DGN - 4541 - THIS SHEET ISSUED 03-08.



PART ELEVATION



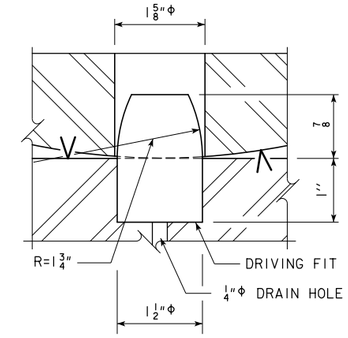
SECTION A-A



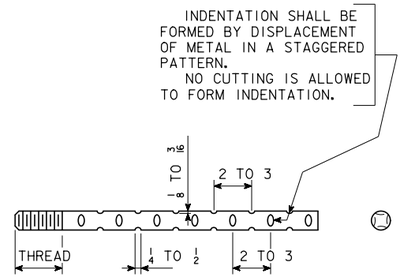
PLAN VIEW OF MASONRY AND SOLE PLATES

FIXED PIER #3

DESIGN NOTE:
TOTAL VERTICAL DESIGN LOAD (DC+DW+LL+IM)
AT SERVICE LIMIT STATE = 398 KIPS.



PINTLE DETAIL



ANCHOR BOLT SWEDGE DETAIL

BEARING NOTES:

SURFACES MARKED "V" SHALL BE FINISHED ANSI 250.
MASONRY PLATES ARE TO BE SET ON A 1/8" NEOPRENE SHEET.
THE 1/8 INCH NEOPRENE SHEETS ARE TO BE 50, 60, OR 70 DUROMETER HARDNESS AND SHALL BE 1 INCH GREATER IN LENGTH AND WIDTH THAN THE BOTTOM SURFACE OF THE MASONRY PLATES OR STEEL BEARINGS.
PINTLE PLATES, SOLE PLATES, ANCHOR BOLTS, AND MASONRY PLATES ARE A PART OF THE SUPERSTRUCTURE STRUCTURAL STEEL QUANTITY. COST OF NEOPRENE BEARING PADS AND 1/8" NEOPRENE SHEETS SHALL BE CONSIDERED INCIDENTAL TO THE BID ITEM "STRUCTURAL STEEL".
THE PINTLE PLATES, KEEPER BARS, AND MASONRY PLATES SHALL BE GALVANIZED. WELDING SHALL BE COMPLETED PRIOR TO GALVANIZING. THE SURFACES OF THE PINTLE PLATE IN CONTACT WITH THE CURVED SOLE PLATE AND THE LAMINATED NEOPRENE PAD SHALL BE FREE OF PROJECTIONS DUE TO GALVANIZING.
CURVED SOLE PLATES SHALL COMPLY WITH ASTM A 709 GRADE 50W AND PAINTED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.
KEEPER BARS, PINTLE PLATES AND MASONRY PLATES SHALL COMPLY WITH ASTM A 709 GRADE 50.
ANCHOR BOLTS, NUTS AND WASHERS SHALL MEET THE REQUIREMENTS OF IM 453.08.

DESIGN FOR 0° SKEW

770'-0 x 77' CONTINUOUS WELDED GIRDER BRIDGE STAGE 2

115'-0 END SPANS — 4-135'-0 INTERIOR SPANS

SUPERSTRUCTURE DETAILS

STATION: 1935+86.00 — JANUARY, 2012

WAPELLO COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 26 OF 45 FILE NO. 30503 DESIGN NO. 112

REVISED 08-09 - CHANGED THE END DIMENSIONS TO 3" FOR THE LONG KEEPER BARS.
ENGLISHBEAMS.DGN 1010 - THIS SHEET ISSUED 09-03

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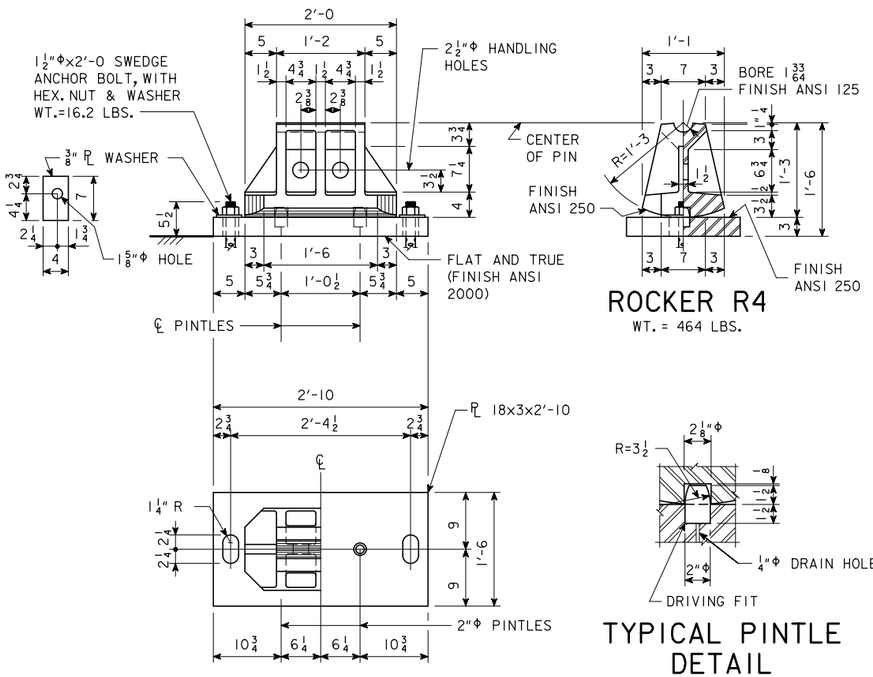


PIER MASONRY PLATE MP4P

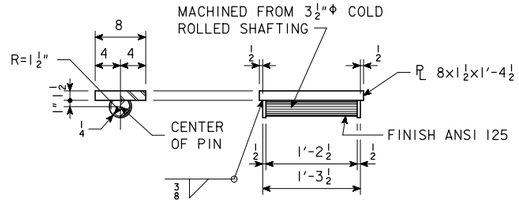
WT. = 462 LBS.

ROCKER R4

WT. = 464 LBS.

ANCHOR BOLT SWEDGE DETAIL

TYPICAL PINTLE DETAIL



SOLE PLATE SP4 FOR R4

WT. = 85 LBS.

BEARING NOTES:

CASTING R4 SHALL BE NODULAR IRON CASTING IN ACCORDANCE WITH ARTICLE 4153.04, OF THE STANDARD SPECIFICATIONS.

MASONRY PLATE MP4P SHALL BE EITHER NODULAR IRON CASTING IN ACCORDANCE WITH ARTICLE 4153.04, OF THE STANDARD SPECIFICATIONS OR STRUCTURAL STEEL COMPLYING WITH ASTM A-572 GRADE 50. PINS SHALL BE IN ACCORDANCE WITH ARTICLE 4153.02, OF THE STANDARD SPECIFICATIONS AND WITH ASTM A-108.

ANCHOR BOLTS SHALL BE SET IN ACCORDANCE WITH ARTICLE 2405.03, H, OF THE STANDARD SPECIFICATIONS.

PREPARATION OF BEARING AREA SHALL BE IN ACCORDANCE WITH ARTICLE 2408.03, M, OF THE STANDARD SPECIFICATIONS. THE BEDDING SHALL BE A SINGLE LAYER OF 1/8" NEOPRENE SHEET.

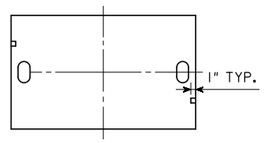
THE 1/8 INCH NEOPRENE SHEETS ARE TO BE 50, 60, OR 70 DUROMETER HARDNESS AND SHALL BE 1 INCH GREATER IN LENGTH AND WIDTH THAN THE BOTTOM SURFACE OF THE MASONRY PLATES OR STEEL BEARINGS.

AS SOON AS THE SURFACING PROCESS IS DONE, THE SURFACES FINISHED WITH AN ANSI 125 FINISH SHALL BE SHOP COATED WITH AN APPLICATION OF WATERPROOF NATIONAL LUBRICATING GREASE INSTITUTE NO. 3 MULTIPURPOSE GREASE. JUST BEFORE THE ERECTION OF THE STRUCTURAL STEEL IN THE FIELD, THE SHOP COATED SURFACES ARE TO BE WIPED CLEAN AND A FIELD COAT OF N.L.G.I. NO. 3 GREASE IS TO BE APPLIED.

AFTER MASONRY PLATES AND ROCKERS ARE IN CORRECT LOCATION, FILL SLOTTED HOLES AROUND ANCHOR BOLTS WITH A HYDRAULIC CEMENT OR POLYMER GROUT IN ACCORDANCE WITH ARTICLE 2405.03, H, OF THE STANDARD SPECIFICATIONS.

ALL MASONRY PLATES, SWEDGE ANCHOR BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED. GALVANIZING SHALL BE IN ACCORDANCE WITH ARTICLE 4100.07, OF THE STANDARD SPECIFICATIONS.

PLATE WASHERS SHALL BE ASTM A709 GRADE 36 (AAHSTO M270 GRADE) STEEL.



MP4P

PERMISSIBLE CORED HOLE (1 1/4"Φx1" DEEP) MAY BE INTRODUCED TO FACILITATE CLAMPING TO THE MILLING TABLE. THE CORED HOLE SHOULD BE LOCATED AT MID DEPTH OF PLATE.

PERMISSIBLE CLAMPING HOLES

DISTANCE FROM TOP OF SOLE PLATE TO BRIDGE SEAT	
ROCKERS	D*
R4	1'-8 5/8

* INCLUDING 1/8" NEOPRENE SHEET.

MAXIMUM REACTION (IN KIPS)	
R4	
475	

DESIGN FOR 0° SKEW

770'-0 x 77' CONTINUOUS WELDED GIRDER BRIDGE STAGE 2

115'-0 END SPANS — 4-135'-0 INTERIOR SPANS

SUPERSTRUCTURE DETAILS

STATION: 1935+86.00 — JANUARY, 2012

WAPELLO COUNTY

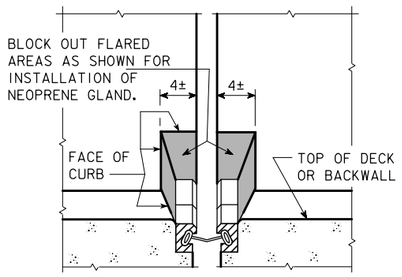
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 27 OF 45 FILE NO. 30503 DESIGN NO. 112

ENGLISHBEAMS.DGN 1009a - THIS SHEET ISSUED 05-10.

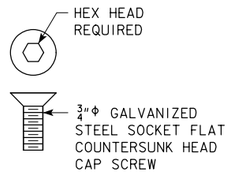
DESIGN TEAM WDT/DAW/DLB	PIER MASONRY PLATE & ROCKER BEARING STANDARDS	STANDARD SHEET 1009a	WAPELLO COUNTY	PROJECT NUMBER BRF-034-7(130)--38-90	SHEET NUMBER 28

1/30/2012 2:23:09 PM dwrigh2 W:\Projects\9003402006\BRFinal\90034130.brg 900112S027 11x17_pdf.pltcfg

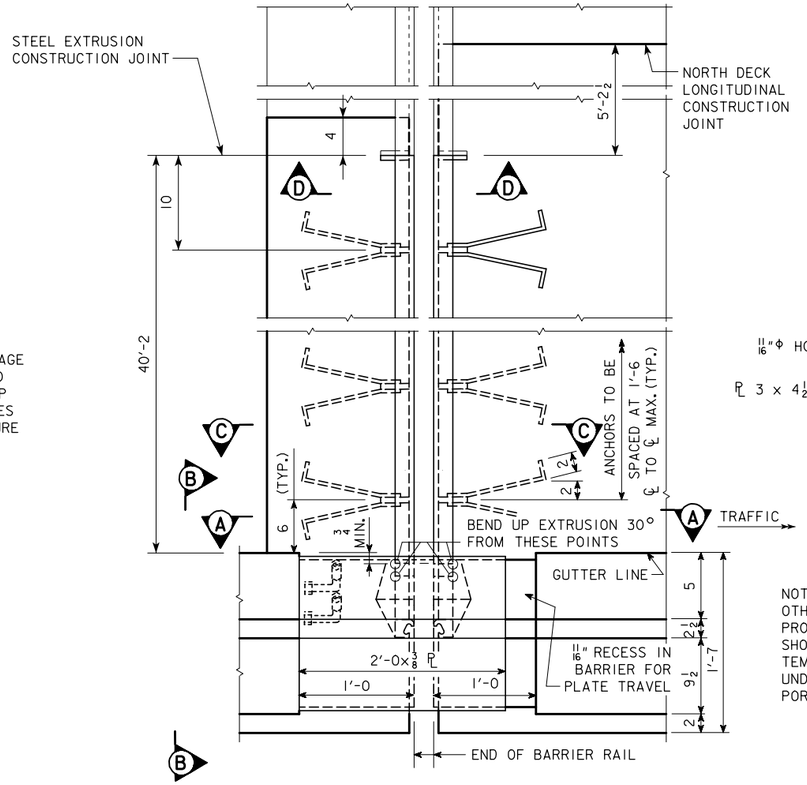


BLOCKOUT DETAIL

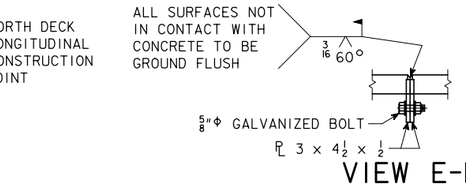
CONTRACTOR TO NOTE THAT THE CAP SCREW ANCHORAGE SYSTEM FOR THE $\frac{3}{8}$" BARRIER PLATES ARE ALWAYS TO BE PLACED ON THE ONCOMING TRAFFIC SIDE. THE CAP SCREW ANCHORAGE SYSTEM FOR THE $\frac{3}{8}$" MEDIAN PLATES ARE ALWAYS TO BE REPLACED ON THE SUPERSTRUCTURE SIDE.



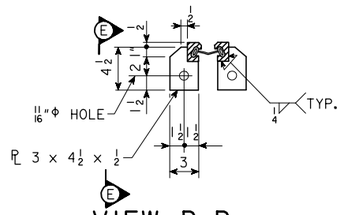
SOCKET FLAT COUNTERSUNK HEAD CAP SCREW DETAIL



PART PLAN VIEW OF EXPANSION DEVICE 0° SKEW



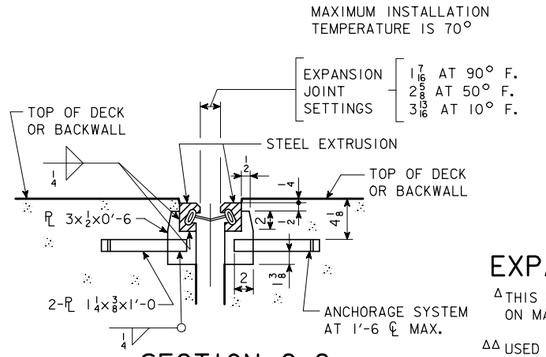
VIEW E-E



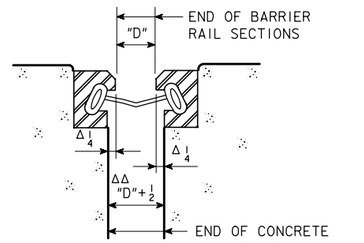
VIEW D-D

NOTE: JOINT SETTINGS FOR OTHER TEMPERATURES ARE PROPORTIONAL. TEMPERATURES SHOWN ARE CONCRETE DECK TEMPERATURES ON THE UNDERSIDE OR SHADED PORTION OF THE DECK.

NOTE:
SEE STANDARD SHEET 1026s2 FOR EXPANSION DEVICE NOTES CONTAINING THE STEEL EXTRUSION NOTES, NEOPRENE GLAND NOTES, AND WATERTIGHT INTEGRITY TESTING AND REPAIR NOTES.



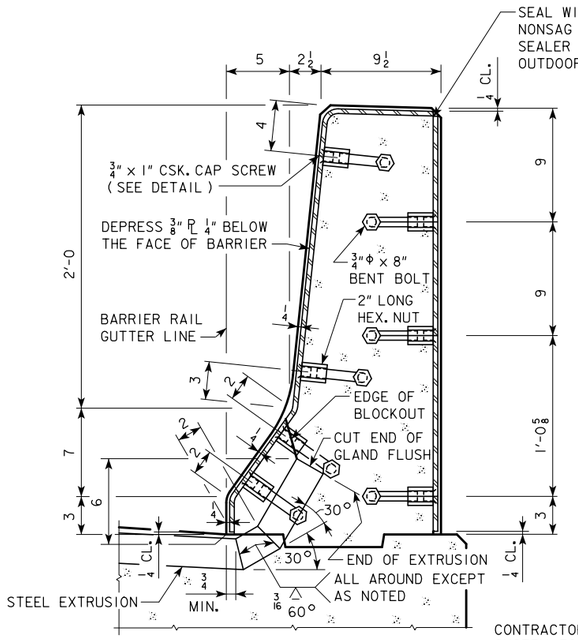
SECTION C-C



EXPANSION OPENING DETAIL

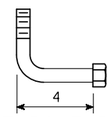
Δ THIS DIMENSION MAY VARY SLIGHTLY DEPENDING ON MANUFACTURER FURNISHING THE JOINT.

ΔΔ USED FOR ALL OUT TO OUT DIMENSIONS OF SLAB. THE DIMENSION MAY VARY SLIGHTLY DEPENDING ON MANUFACTURER FURNISHING THE JOINT.



SECTION B-B

NOTE: IT IS INTENDED THAT THE 11/16 INCH RECESSED AREA BE FORMED SO THAT WHEN THE ⅜" PLATE IS INSTALLED THE PLATE WILL BE ABLE TO MOVE FREELY IN THIS RECESSED AREA.

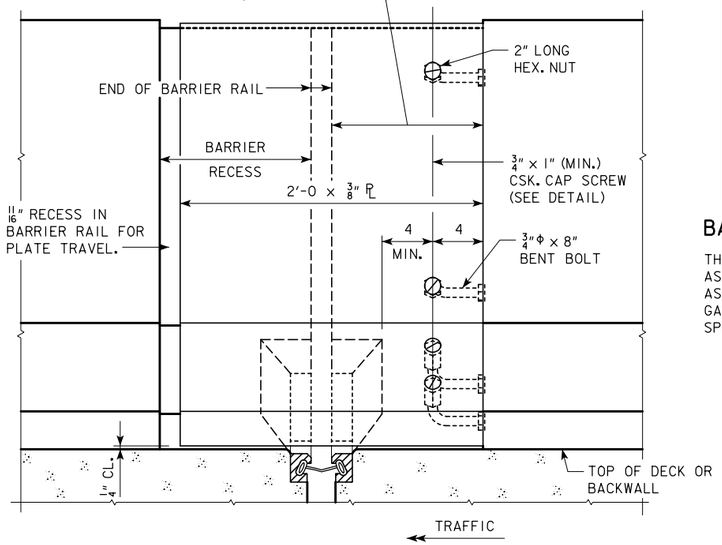


BENT BOLT DETAIL

8 INCH BOLTS ARE REQUIRED AT THE BARRIER RAIL.
7 INCH BOLTS ARE REQUIRED AT THE MEDIAN

CONTRACTOR TO NOTE THAT THE CAP SCREW ANCHORAGE SYSTEM FOR THE ⅜" BARRIER PLATES ARE ALWAYS TO BE PLACED ON THE ONCOMING TRAFFIC SIDE.

THIS PORTION OF THE ⅜" PLATE IS TO BE PAINTED WITH A COLORLESS OIL, OR SOME OTHER SATISFACTORY MEANS TO PREVENT CONCRETE FROM ADHERING TO THE PLATE SO THE PLATE CAN BE REMOVED IF NECESSARY. (TYP. ALL ⅜" PLATES)



SECTION A-A

TABLE OF APPROVED EXPANSION DEVICES		
MANUFACTURER	TYPE OF STEEL EXTRUSION	NEOPRENE GLAND
WATSON-BOWMAN & ACME CORP.	A	SE-500
APPROVED EQUAL		

BARRIER AND MEDIAN PLATE NOTE:

THE MATERIAL USED FOR THE BARRIER AND MEDIAN PLATES IS TO BE ASTM A-36 STEEL. THE BOLTS SHALL MEET THE REQUIREMENTS OF ASTM A-307. THE PLATES, BOLTS, NUTS AND CAP SCREWS ARE TO BE GALVANIZED IN ACCORDANCE WITH ARTICLE 4100.07 OF THE STANDARD SPECIFICATIONS.

DESIGN FOR 0° SKEW

770'-0 x 77' CONTINUOUS WELDED GIRDER BRIDGE STAGE 2

115'-0 END SPANS — 4-135'-0 INTERIOR SPANS

EXPANSION DEVICE DETAILS

STATION: 1935+86.00 — JANUARY, 2012

WAPELLO COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 28 OF 45 FILE NO. 30503 DESIGN NO. 112

REVISION 11-08 - STANDARD NUMBER CHANGED TO 1026s1. NOTES MOVED TO STANDARD 1026s2.
ENGLISHDECKRAILBRIDGES.DGN 1026 - THIS SHEET ISSUED 03-02.

STEEL EXTRUSION NOTES:

THE CONTRACTOR SHALL SUBMIT FOR APPROVAL SHOP DRAWINGS OF THE EXPANSION DEVICES SHOWING LAYOUT, MATERIAL TO BE USED, AND PROVISIONS FOR HOLDING DEVICE DURING PLACEMENT OF CONCRETE.

THE EXPANSION DEVICE SHALL BE GALVANIZED AFTER WELDING.

THE EXPANSION DEVICE IS TO BE PARALLEL TO GRADE.

CAP SCREWS SHALL BE COUNTERSUNK $\frac{1}{16}$" BELOW TOP OF THE PLATE.

THE MINIMUM GRADE OF STRUCTURAL STEEL FOR THE EXPANSION DEVICE SHALL BE ASTM A-36.

BLOCKOUT DETAILS MAY BE ALTERED FROM THOSE SHOWN PROVIDED THE GLAND MAY BE INSTALLED AND REMOVED IF NECESSARY AND THE CURB AREA REMAINS WATERTIGHT.

SHOP AND OR FIELD SPLICES OF THE STEEL EXTRUSION WILL BE PERMITTED. FIELD SPLICES OF THE STEEL EXTRUSION SHALL BE MADE AT THE STAGING JOINTS IF CONSTRUCTION IS STAGED. FIELD WELDS ON GALVANIZED ITEMS SHALL BE COATED WITH A ZINC RICH MATERIAL APPROVED BY THE ENGINEER. PIECES OF STEEL EXTRUSION IN THE 15 FT. TO 22 FT. RANGE SHALL BE USED TO FORM THE REQUIRED LENGTH. THE INDIVIDUAL LENGTH OF PIECES SHALL BE CHOSEN SO THAT A MINIMUM NUMBER OF SPLICES IS REQUIRED. ALL PIECES SHALL BE JOINED WITH A PREQUALIFIED PARTIAL PENETRATION SINGLE GROOVE WELD, AND ALL SURFACES NOT IN CONTACT WITH CONCRETE ARE TO BE GROUND FLUSH. NO WELD SHALL BE PERMITTED IN THE INTERNAL SECTION OF THE EXTRUSION WHERE THE NEOPRENE GLAND IS TO BE LOCATED.

THE NUMBER OF FEET OF STEEL EXTRUSION INSTALLED SHALL BE PAID FOR AT THE CONTRACT PRICE PER FOOT BASED ON PLAN QUANTITIES. THE PRICE BID FOR "STEEL EXTRUSION JOINT W/NEOPRENE" SHALL NOT INCLUDE THE COST OF FURNISHING OR INSTALLING THE NEOPRENE GLAND. THE FULL LENGTH OF NEOPRENE GLAND (78.6 FEET OF CONTINUOUS GLAND AT EACH ABUTMENT) WAS PROVIDED BY THE STAGE I CONTRACTOR IN DESIGN III WAPELLO COUNTY. THE CONTRACT PRICE BID FOR "STEEL EXTRUSION JOINT W/NEOPRENE" SHALL BE FULL COMPENSATION FOR FURNISHING AND INSTALLING STEEL EXTRUSIONS. THIS WORK WILL CONSIST OF FURNISHING ALL REQUIRED MATERIALS, (INCLUDING THE $\frac{3}{8}$" PLATES AT THE CURBS AND THEIR ANCHORAGE SYSTEMS), AND THE INSTALLATION AND ADJUSTMENT OF THE EXPANSION JOINTS IN ACCORDANCE WITH THE DETAILS SHOWN ON THE PLANS AND AS DIRECTED BY THE ENGINEER. THE FURNISHING AND INSTALLATION OF ALL NECESSARY HARDWARE AND ACCESSORIES AS SUPPLIED BY THE EXPANSION JOINT MANUFACTURER ARE TO BE INCLUDED IN THIS WORK, INCLUDING THE ANCHORAGE SYSTEM AND ANY TEMPORARY ERECTION MATERIAL. ALL WORK AND MATERIALS FOR THE INSTALLATION OF THE EXPANSION JOINTS ARE TO COMPLY WITH THE WRITTEN RECOMMENDATIONS OF THE EXPANSION JOINT MANUFACTURER.

NEOPRENE GLAND NOTES:

THE NEOPRENE GLAND IS TO BE PLACED AS ONE CONTINUOUS PIECE FROM END TO END OF THE STEEL EXTRUSION. THE PORTION OF THE NEOPRENE GLAND NOT INSTALLED DURING STAGE I (41.0 FEET AT EACH ABUTMENT) WILL BE FOUND ROLLED UP AND SECURED NEAR THE EXTRUSION CONSTRUCTION JOINT. REMOVING AND REINSTALLING A PORTION OF THE NEOPRENE GLAND TO PREVENT DAMAGE TO THE GLAND DURING WELDING OF THE STEEL EXTRUSION CONSTRUCTION JOINT, SHALL BE CONSIDERED INCIDENTAL TO OTHER CONSTRUCTION.

THE NEOPRENE GLAND SHALL CONFORM TO ASTM-2628 MODIFIED TO EXCLUDE RECOVER TEST AND COMPRESSION SET.

THE CONTRACTOR SHALL INSTALL THE GLAND ONLY WHEN THE DECK TEMPERATURE IS BETWEEN 40° F AND MAXIMUM INSTALLATION TEMPERATURE SHOWN IN THESE PLANS INCLUSIVE. THE DECK TEMPERATURE SHALL BE MEASURED BY RECORDING THE SURFACE TEMPERATURES ON THE UNDERSIDE OF THE DECK ADJACENT TO THE JOINTS. IF THE DECK TEMPERATURE DOES NOT FALL WITHIN THE SPECIFIED TEMPERATURE RANGE BEFORE THE CONTRACTOR HAS COMPLETED ALL OTHER REQUIRED WORK, IT WILL BE NECESSARY FOR THE CONTRACTOR TO RETURN TO THE PROJECT SITE TO COMPLETE INSTALLATION AND TESTING OF THE NEOPRENE GLAND. IF THE CONTRACTOR IS REQUIRED TO RETURN TO THE PROJECT SITE AFTER ALL OTHER REQUIRED WORK HAS BEEN COMPLETED, THE CONTRACTOR SHALL COMPLETE INSTALLATION AND TESTING OF NEOPRENE GLAND AT NO EXTRA CHARGE TO THE STATE.

THE NUMBER OF FEET OF NEOPRENE GLAND INSTALLED SHALL BE PAID FOR AT THE CONTRACT PRICE PER FOOT BASED ON PLAN QUANTITIES. THE PRICE FOR "NEOPRENE GLAND INSTALLATION AND TESTING" SHALL BE FULL COMPENSATION FOR INSTALLING AND TESTING OF THE NEW NEOPRENE GLAND. THIS WORK WILL CONSIST OF CLEANING THE EXTRUSION, INSTALLATION OF THE NEOPRENE GLAND AND WATER TIGHT TESTING OF THE EXPANSION JOINT SYSTEM. ALL WORK AND MATERIALS NECESSARY FOR THE INSTALLATION OF THE NEOPRENE GLAND SHALL COMPLY WITH THE RECOMMENDATIONS OF THE EXPANSION JOINT MANUFACTURER. THE PRICE BID FOR "NEOPRENE GLAND INSTALLATION AND TESTING" SHALL INCLUDE ALL WATERTIGHT INTEGRITY TESTING, LEAK REPAIRS AS DIRECTED BY THE ENGINEER, AND SUBSEQUENT WATERTIGHT TESTING UNTIL A LEAK FREE INSTALLATION IS ACHIEVED.

WATERTIGHT INTEGRITY TESTING AND REPAIR NOTES:

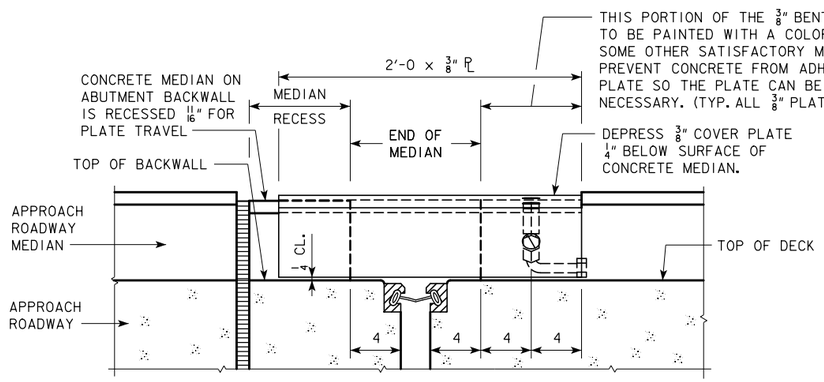
AFTER INSTALLATION OF EACH NEOPRENE GLAND, THE CONTRACTOR SHALL PERFORM WATERTIGHT INTEGRITY TESTS AT THE DECK LEVEL TO DETECT ANY LEAKAGE. THE TESTS ARE TO CHECK FOR LEAKAGE AT THE UPTURNED END OF THE EXPANSION DEVICE AND FOR LEAKAGE ALONG THE EXPANSION DEVICE ACROSS THE DECK AND ANY MEDIANS OR SIDEWALKS. THE CONTRACTOR MAY CONDUCT A SINGLE TEST OF THE ENTIRE DEVICE INCLUDING UPTURNED ENDS OR MAY CONDUCT SEPARATE TESTS OF UPTURNED ENDS AND ONE OR MORE TESTS OF OVERLAPPING LENGTHS BETWEEN THE UPTURNED END AND THE DECK LONGITUDINAL CONSTRUCTION JOINT.

AT THE UPTURNED END OF THE EXPANSION DEVICE, THE CONTRACTOR SHALL BLOCK OUT ON THE DECK AT LEAST 3 FEET OF THE EXPANSION DEVICE LEADING TO THE UPTURNED END AND FLOOD THE AREA. A MINIMUM WATER DEPTH OF 3" SHALL BE MAINTAINED AT THE GUTTERLINE FOR AT LEAST 30 MINUTES. DURING THE TEST, THE INSPECTOR SHALL OBSERVE FOR ANY OVERFLOW AT THE UPTURNED END. AT THE CONCLUSION OF THE TEST THE INSPECTOR WILL EXAMINE THE UNDERSIDE OF THE JOINT FOR LEAKAGE. THE EXPANSION DEVICE IS CONSIDERED WATERTIGHT IF THE INSPECTOR OBSERVES NO OVERFLOW DURING THE TEST AND IF NO DRIPPING WATER OR WATER DROPLETS ARE VISIBLE IN THE UNDERDECK AREAS NEAR THE UPTURNED END.

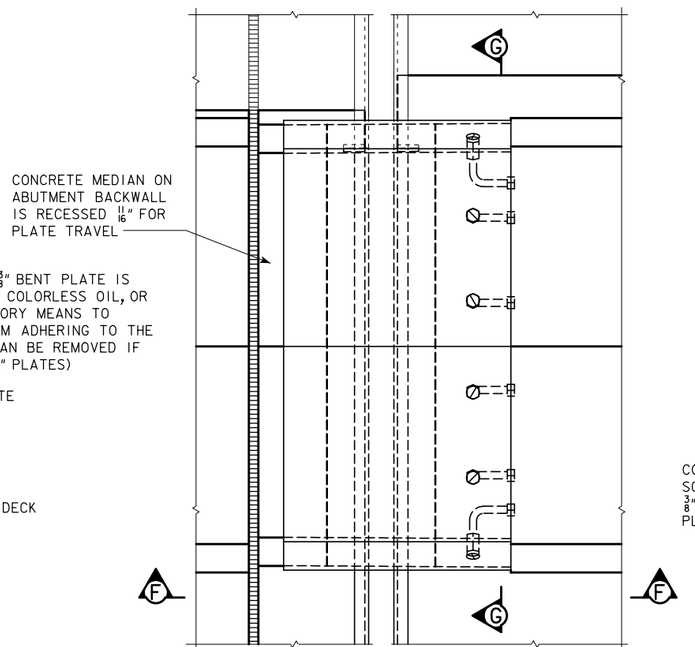
THE CONTRACTOR SHALL TEST THE EXPANSION DEVICE BETWEEN THE UPTURNED END AND THE DECK LONGITUDINAL CONSTRUCTION JOINT BY BLOCKING OUT AND COVERING THE DEVICE WITH PONDED OR FLOWING WATER TO A DEPTH OF AT LEAST 1" AT ALL POINTS, FOR AT LEAST 30 MINUTES. VERTICAL CURB SURFACES MAY BE TESTED WITH AN UNNOZZLED HOSE DELIVERING APPROXIMATELY ONE GALLON PER MINUTE DIRECTED TO FLOW OVER THE ENTIRE CURB HEIGHT FOR 30 MINUTES. AT THE CONCLUSION OF THE TEST, THE INSPECTOR WILL EXAMINE THE UNDERSIDE OF THE JOINT FOR LEAKAGE. THE EXPANSION DEVICE IS CONSIDERED WATERTIGHT IF NO DRIPPING WATER OR WATER DROPLETS ARE VISIBLE IN THE UNDERDECK AREAS ALONG THE FULL LENGTH OF THE EXPANSION JOINT. DAMP CONCRETE THAT DOES NOT SHOW DRIPPING WATER OR WATER DROPLETS IS NOT CONSIDERED A SIGN OF LEAKAGE.

IF THE EXPANSION DEVICE LEAKS AT AN UPTURNED END OR ALONG ITS LENGTH, THE CONTRACTOR SHALL LOCATE THE LEAK(S) AND TAKE REPAIR MEASURES TO STOP THE LEAKAGE. THE REPAIR MEASURES SHALL BE AS RECOMMENDED BY THE MANUFACTURER AND APPROVED BY THE ENGINEER PRIOR TO BEGINNING CORRECTIVE WORK.

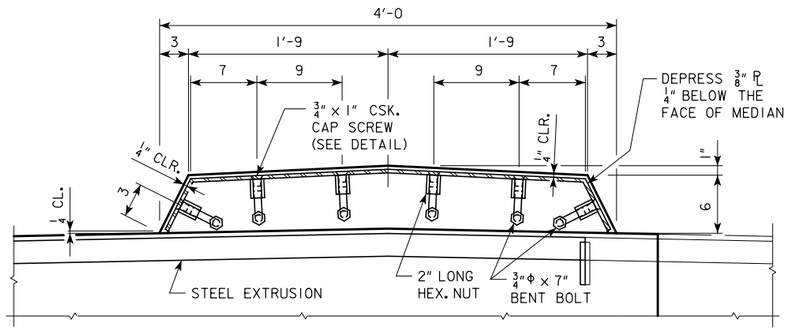
IF MEASURES TO ELIMINATE LEAKAGE ARE TAKEN, THE CONTRACTOR SHALL PERFORM SUBSEQUENT WATERTIGHT INTEGRITY TESTS SUBJECT TO THE SAME CONDITIONS AS THE ORIGINAL TEST.



SECTION F-F



PART PLAN VIEW OF EXPANSION DEVICE AT MEDIAN



SECTION G-G

CONTRACTOR TO NOTE THAT THE CAP SCREW ANCHORAGE SYSTEM FOR THE 3/8" MEDIAN PLATES ARE ALWAYS TO BE PLACED ON THE SUPERSTRUCTURE SIDE.

DESIGN FOR 0° SKEW

770'-0 x 77' CONTINUOUS WELDED GIRDER BRIDGE STAGE 2

115'-0 END SPANS — 4-135'-0 INTERIOR SPANS

EXPANSION DEVICE NOTES

STATION: 1935+86.00 — JANUARY, 2012

WAPELLO COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 29 OF 45 — FILE NO. 30503 — DESIGN NO. 112

DESIGN TEAM WDT/DAW/DLB	F-SHAPE EXPANSION DEVICE DETAILS STEEL EXTRUSION WITH NEOPRENE GLAND (2 OF 2)	MODIFIED STANDARD SHEET 1026s2	WAPELLO COUNTY	PROJECT NUMBER BRF-034-7(130)--38-90	SHEET NUMBER 30

ENGLISHDECKRAILBRIDGES.DGN - 1026s2 - THIS SHEET ISSUED 11-08.

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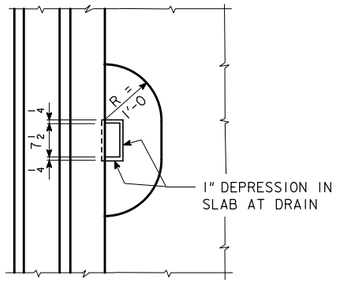
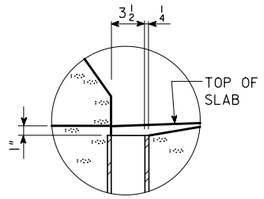
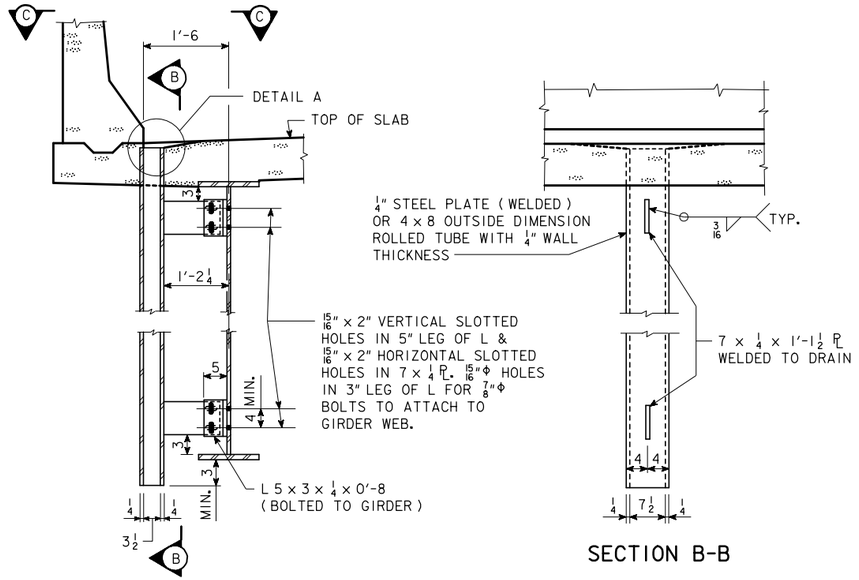


VIEW C-C



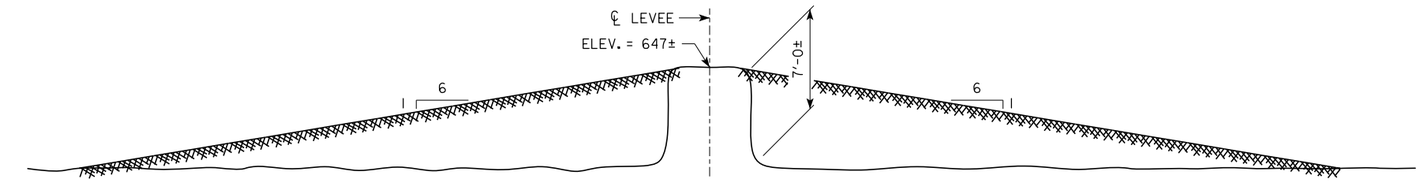
DETAIL A



SECTION B-B

DRAIN DETAILS

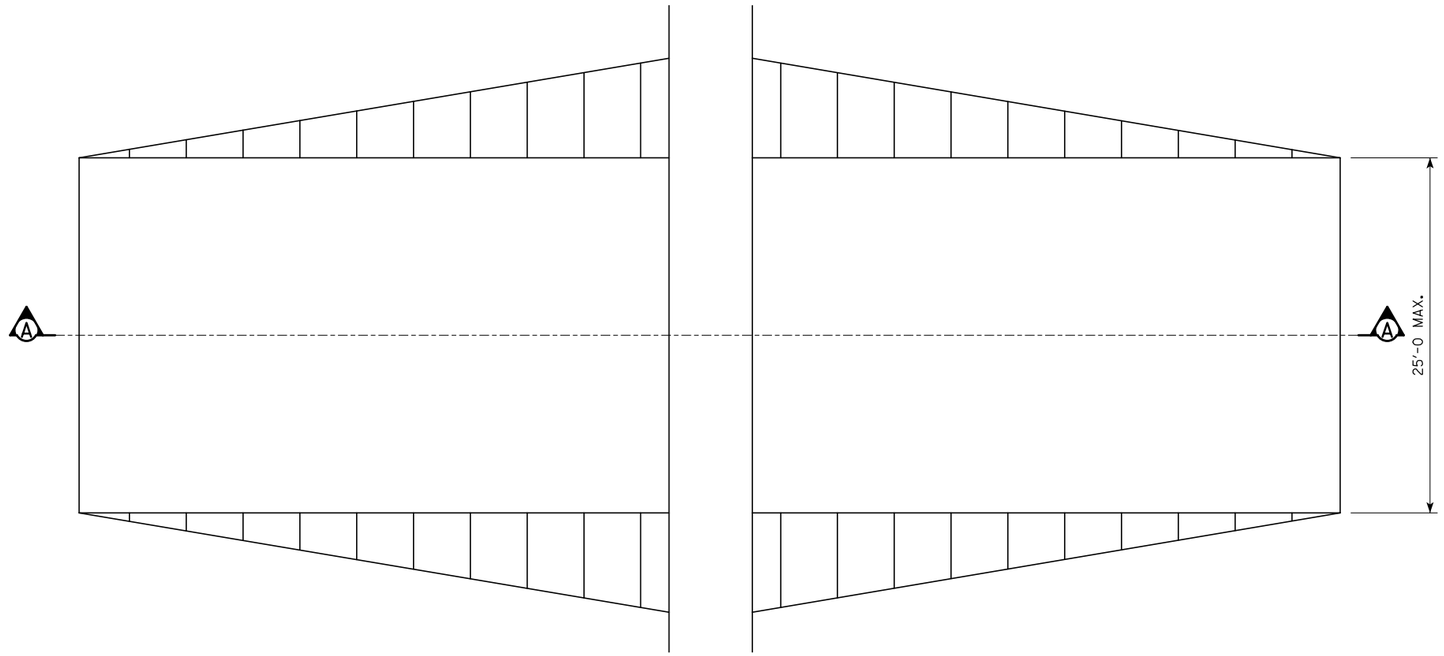
NOTE:
DRAINS ARE TO BE GALVANIZED AND PAINTED AS PER SPECIFICATION 2408.30. 28 DRAINS ARE REQUIRED. SEE "SITUATION PLAN" SHEET FOR LOCATION. WEIGHT OF ONE DRAIN = 157 LBS. WEIGHT OF DRAINS IS BASED ON ROLLED TUBE. LENGTH OF DRAIN IS TO BE 6'-8. WEIGHT OF DRAIN INCLUDES ANGLES AND PLATES.



SECTION A-A

EQUIPMENT LOADING:
AXLE: 20,000 LB. MAX.
TRACK: 12.4 PSI. MAX.

SURVEY LEVEE BEFORE AND AFTER CONSTRUCTION TO ENSURE IT IS RESTORED TO ORIGINAL CONDITION.



TYPICAL PLAN LEVEE CROSSING

DESIGN FOR 0° SKEW

770'-0 x 77' CONTINUOUS WELDED GIRDER BRIDGE STAGE 2

115'-0 END SPANS 4-135'-0 INTERIOR SPANS

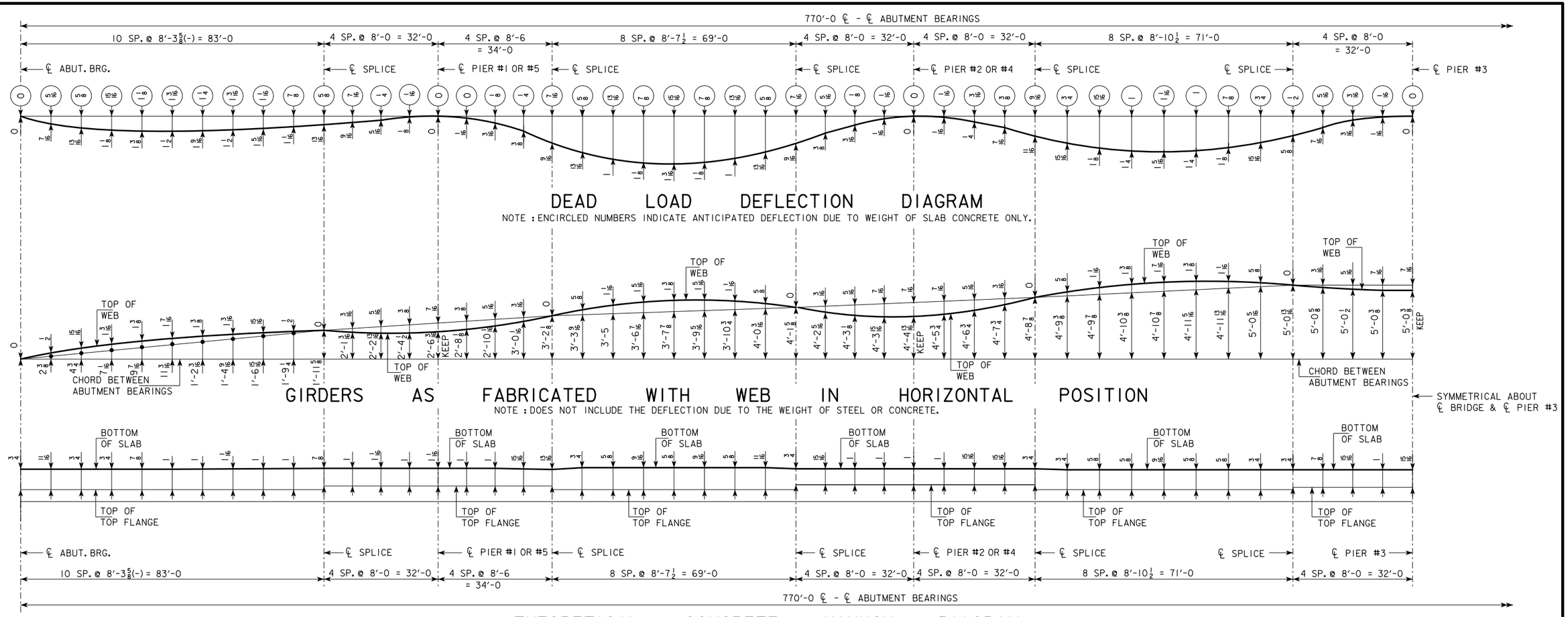
DRAIN & TEMP. LEVEE CROSSING DETAILS

STATION: 1935+86.00 JANUARY, 2012

WAPELLO COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 30 OF 45 FILE NO. 30503 DESIGN NO. 112



DEAD LOAD DEFLECTION DIAGRAM

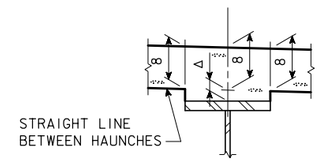
NOTE : ENCIRCLED NUMBERS INDICATE ANTICIPATED DEFLECTION DUE TO WEIGHT OF SLAB CONCRETE ONLY.

GIRDERS AS FABRICATED WITH WEB IN HORIZONTAL POSITION

NOTE : DOES NOT INCLUDE THE DEFLECTION DUE TO THE WEIGHT OF STEEL OR CONCRETE.

SYMMETRICAL ABOUT ℄ BRIDGE & ℄ PIER #3

THEORETICAL CONCRETE HAUNCH DIAGRAM



TYP. SLAB & HAUNCH DETAIL

Δ CONCRETE HAUNCH DIMENSION MEASURED BETWEEN BOTTOM OF SLAB AND TOP OF TOP FLANGE PLATE AS SHOWN ON THE "THEORETICAL CONCRETE HAUNCH DIAGRAM".

THE MAXIMUM EMBEDMENT OF THE EDGE OF THE TOP FLANGE IN THE SLAB SHALL BE $\frac{1}{2}$ INCH. SHEAR STUDS ARE TO HAVE A MINIMUM PENETRATION OF 2 INCHES INTO THE SLAB AND BE AT LEAST $2\frac{1}{2}$ INCHES CLEAR OF THE TOP OF THE SLAB. THESE REQUIREMENTS WERE USED IN SETTING THE MAXIMUM AND MINIMUM ALLOWABLE FIELD HAUNCH VALUES SHOWN IN THE "MISCELLANEOUS DATA TABLE" SHOWN ELSEWHERE ON THESE PLANS.

MOMENT AND REACTION TABLE

MOMENTS IN FOOT-KIPS — REACTIONS IN KIPS

LOAD NAME	LOAD KIPS/FT		POSITIVE MOMENT						NEGATIVE MOMENT						REACTION							
			SPANS 1 & 6		SPANS 2 & 5		SPANS 3 & 4		PIERS 1 & 5		PIERS 2 & 4		PIER 3		ABUTMENTS		PIERS 1 & 5		PIERS 2 & 4		PIER 3	
	EXT.	INT.	EXT.	INT.	EXT.	INT.	EXT.	INT.	EXT.	INT.	EXT.	INT.	EXT.	INT.	EXT.	INT.	EXT.	INT.	EXT.	INT.	EXT.	INT.
*DC 1	0.785	0.939	892	1036	605	702	646	751	-1776	-2063	-1628	-1890	-1680	-1951	42.6	49.5	142.9	166.0	134.9	156.8	137.0	159.2
**DC 2	0.213	0.150	209	149	171	123	175	126	-322	-223	-308	-215	-312	-217	9.5	6.7	29.5	20.8	28.6	20.2	28.8	20.2
**DW	0.170	0.170	168	170	137	140	141	144	-258	-255	-247	-245	-251	-248	7.6	7.6	23.7	23.7	23.0	23.0	23.2	23.2
LIVE LOAD + IMPACT HL-93			2169	2032	2200	1972	2250	2017	-1880	-1734	-1874	-1688	-2120	-1893	90.0	108.8	162.8	196.2	160.8	193.9	161.9	195.1
LIVE LOAD DISTRIBUTION FACTOR (NO. OF LANES)			0.746	0.697	0.746	0.665	0.746	0.665	0.746	0.697	0.746	0.680	0.746	0.680	0.746	0.901	0.746	0.901	0.746	0.901	0.746	0.901

NOTE: MOMENTS AND REACTIONS ARE UNFACTORED.
* LOAD VALUES DO NOT INCLUDE GIRDER WEIGHT. MOMENT AND REACTION VALUES DO INCLUDE GIRDER WEIGHT.
** DC2 LOAD IS ONE HALF OF BARRIER RAIL FOR EXTERIOR GIRDER AND ONE HALF OF MEDIAN FOR INTERIOR GIRDER.
DW LOAD IS FUTURE WEARING SURFACE DISTRIBUTED EQUALLY TO ALL GIRDERS.

DESIGN FOR 0° SKEW

770'-0 x 77' CONTINUOUS WELDED GIRDER BRIDGE STAGE 2

115'-0 END SPANS — 4-135'-0 INTERIOR SPANS

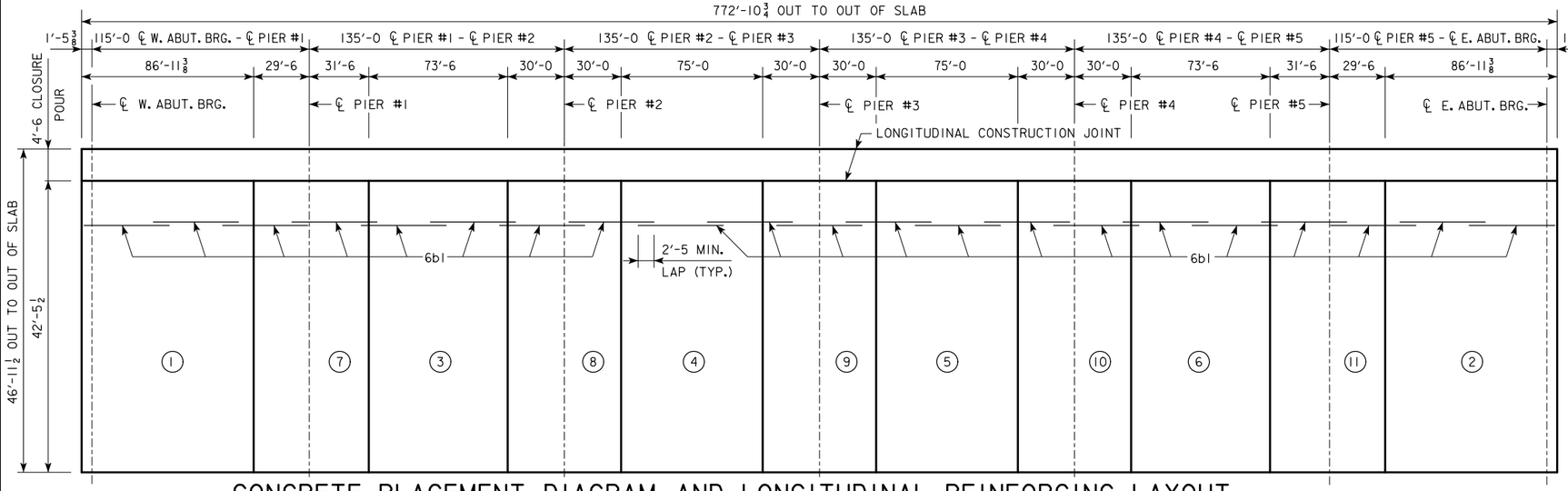
SUPERSTRUCTURE DETAILS

STATION: 1935+86.00 — JANUARY, 2012

WAPELLO COUNTY

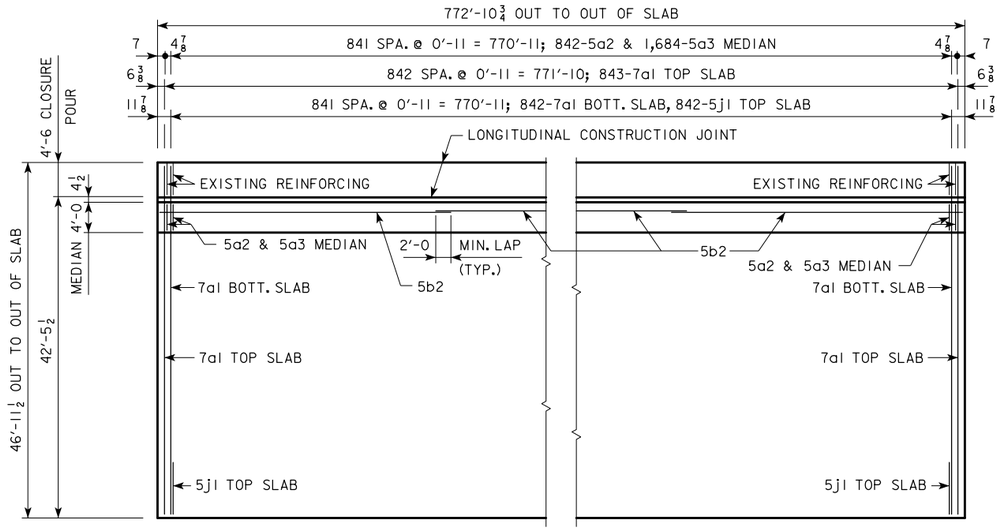
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 31 OF 45 — FILE NO. 30503 — DESIGN NO. 112



CONCRETE PLACEMENT DIAGRAM AND LONGITUDINAL REINFORCING LAYOUT

NOTE: CONCRETE DECK SLAB SHALL BE PLACED IN SECTIONS AND SEQUENCES INDICATED. ALTERNATE PROCEDURES FOR PLACING SLAB CONCRETE MAY BE SUBMITTED FOR APPROVAL TOGETHER WITH A STATEMENT OF THE PROPOSED METHOD AND EVIDENCE THAT THE CONTRACTOR POSSESSES THE NECESSARY EQUIPMENT AND FACILITIES TO ACCOMPLISH THE REQUIRED RESULTS. ANY ALTERNATE PROCEDURE HOWEVER, MUST PROVIDE FOR THE PLACING OF THE END SPANS BEFORE THE PLACING OF THE ADJACENT INTERIOR SPANS.



TRANSVERSE & MEDIAN LONGITUDINAL REINFORCING LAYOUT

CONC. PLACEMENT QUANTITIES

LOCATION	QUANTITY
SECTION 1, SLAB & ABUT. DIAPH.	94.9
SECTION 2, SLAB & ABUT. DIAPH.	94.9
SECTION 3, SLAB	78.4
SECTION 4, SLAB	80.0
SECTION 5, SLAB	80.0
SECTION 6, SLAB	78.4
SECTION 7, SLAB	65.8
SECTION 8, SLAB	64.6
SECTION 9, SLAB	64.6
SECTION 10, SLAB	64.6
SECTION 11, SLAB	65.8
CLOSURE POUR, SLAB & ABUT. DIAPHS.	86.6
MEDIAN	53.9
TOTAL (CU. YDS.)	972.5

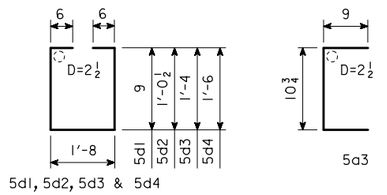
ESTIMATED QUANTITIES SUPERSTR.

ITEM	UNIT	QUANTITY
HIGH PERFORMANCE STRUCTURAL CONCRETE	CU. YD.	972.5
REINFORCING STEEL EPOXY COATED	LBS.	330,082
STRUCTURAL STEEL	LBS.	1,043,308
STEEL EXTRUSION JOINT WITH NEOPRENE	L.F.	82.0

REINFORCING BAR LIST-SUPERSTRUCTURE

EPOXY COATED REINFORCING

BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
7a1	SLAB TRANSV. TOP & BOTT.	——	1685	46'-8	160,728
5a2	MEDIAN TRANSV.	——	844	3'-2	2,788
5a3	MEDIAN TRANSV.	[	1688	2'-5	4,255
6b1	SLAB LONGIT. TOP & BOTT.	——	2268	39'-2	133,424
5b2	MEDIAN LONGIT.	——	84	38'-9	3,395
5d1	ABUT. DIAPH. HOOPS	⊏⊐	22	4'-2	96
5d2	ABUT. DIAPH. HOOPS	⊏⊐	22	4'-9	109
5d3	ABUT. DIAPH. HOOPS	⊏⊐	22	5'-4	122
5d4	ABUT. DIAPH. HOOPS	⊏⊐	38	5'-8	225
5e1	ABUT. DIAPH. LONGIT.	——	32	8'-11	298
5e2	ABUT. DIAPH. LONGIT.	——	8	6'-7	55
5j1	SLAB TRANSV. TOP (AT RAIL)	——	842	6'-10	6001
	BARRIER RAIL - SEE DES. SHT. NO. 39				18,586
	REINFORCING STEEL EPOXY COATED - TOTAL (LBS.)				330,082



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

BENT BAR DETAILS

BEARING AND ROCKER SETTINGS

TEMP. AT TIME OF SETTING (F)	W. ABUT.	PIER #1	PIER #2	PIER #3	PIER #4	PIER #5	E. ABUT.
10°	$-1\frac{3}{16}$	$-\frac{13}{16}$	$-\frac{7}{16}$	0	$-\frac{7}{16}$	$-\frac{13}{16}$	$-1\frac{3}{16}$
50°	0	0	0	0	0	0	0
90°	$+1\frac{3}{16}$	$+\frac{13}{16}$	$+\frac{7}{16}$	0	$+\frac{7}{16}$	$+\frac{13}{16}$	$+1\frac{3}{16}$

NOTE: SET BEARINGS OR TILT ROCKERS IN DIRECTION SHOWN FOR TEMPERATURES ABOVE 50° AND IN THE OPPOSITE DIRECTION FOR TEMPERATURES BELOW 50°. SETTINGS FOR OTHER TEMPERATURES ARE PROPORTIONAL.

DESIGN FOR 0° SKEW

770'-0 x 77' CONTINUOUS WELDED GIRDER BRIDGE STAGE 2

115'-0 END SPANS — 4-135'-0 INTERIOR SPANS

SUPERSTRUCTURE DETAILS

STATION: 1935+86.00 — JANUARY, 2012

WAPELLO COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

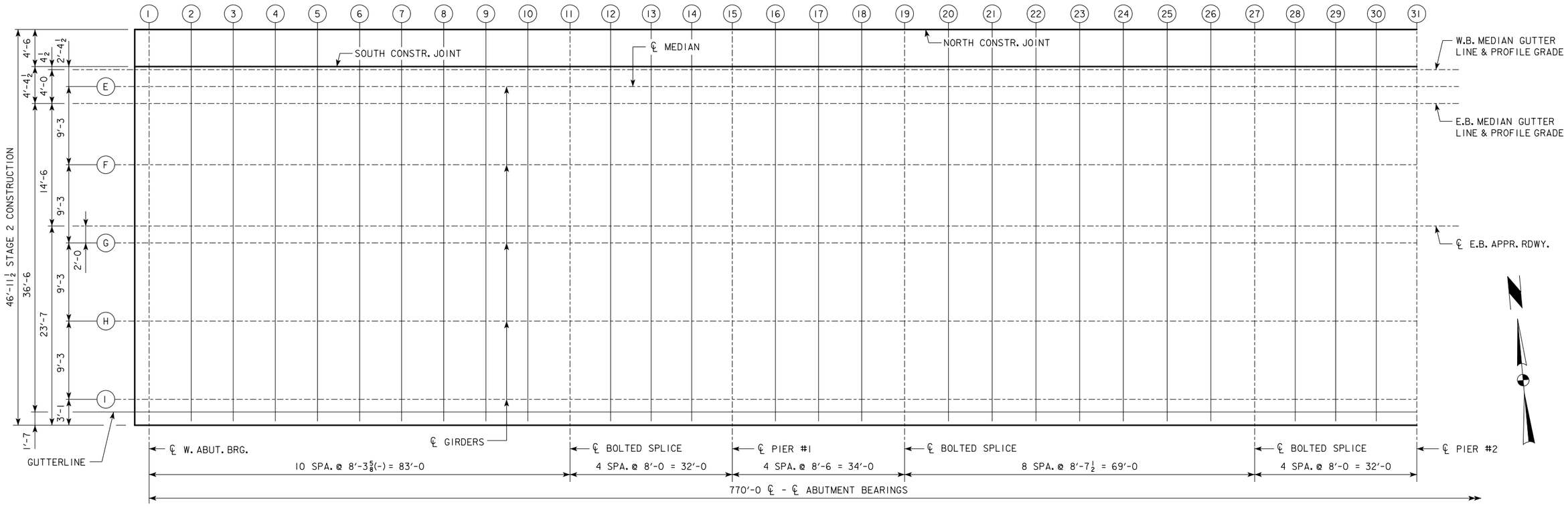
DESIGN SHEET NO. 32 OF 45 — FILE NO. 30503 — DESIGN NO. 112

DESIGN TEAM WDT/DAW/DLB | WAPELLO COUNTY | PROJECT NUMBER BRF-034-7(130)--38-90 | SHEET NUMBER 33

BENCH MARK NO. 559 - STA 1932+12.44, 32.07' RT., FD. DOT BUTTON SE COR. BRG. - ELEV.=653.04

TABLE OF TOP OF SLAB ELEVATIONS

LOCATION	℄ W. ABUT. BEARING										℄ BOLTED SPLICE				℄ PIER #1				℄ BOLTED SPLICE								℄ BOLTED SPLICE				℄ PIER #2
	LINE 1	LINE 2	LINE 3	LINE 4	LINE 5	LINE 6	LINE 7	LINE 8	LINE 9	LINE 10	LINE 11	LINE 12	LINE 13	LINE 14	LINE 15	LINE 16	LINE 17	LINE 18	LINE 19	LINE 20	LINE 21	LINE 22	LINE 23	LINE 24	LINE 25	LINE 26	LINE 27	LINE 28	LINE 29	LINE 30	LINE 31
NORTH CONSTR. JOINT	652.59	652.79	652.99	653.20	653.40	653.60	653.79	653.98	654.16	654.35	654.52	654.69	654.85	655.00	655.15	655.31	655.46	655.61	655.75	655.89	656.02	656.15	656.27	656.39	656.50	656.61	656.71	656.80	656.89	656.97	657.05
SOUTH CONSTR. JOINT	652.68	652.88	653.08	653.29	653.49	653.69	653.88	654.07	654.25	654.44	654.61	654.78	654.94	655.09	655.24	655.40	655.55	655.70	655.84	655.98	656.11	656.24	656.36	656.48	656.59	656.70	656.80	656.89	656.98	657.06	657.14
WB MEDIAN GUTTER LINE	652.69	652.89	653.09	653.29	653.49	653.69	653.89	654.08	654.26	654.44	654.62	654.78	654.94	655.10	655.25	655.41	655.56	655.70	655.85	655.98	656.12	656.25	656.37	656.49	656.60	656.71	656.81	656.90	656.99	657.07	657.14
E	652.73	652.93	653.13	653.33	653.53	653.73	653.93	654.12	654.30	654.48	654.66	654.82	654.98	655.14	655.29	655.45	655.60	655.74	655.89	656.02	656.16	656.29	656.41	656.53	656.64	656.75	656.85	656.94	657.03	657.11	657.18
EB MEDIAN GUTTER LINE	652.69	652.89	653.09	653.29	653.49	653.69	653.89	654.08	654.26	654.44	654.62	654.78	654.94	655.10	655.25	655.41	655.56	655.70	655.85	655.98	656.12	656.25	656.37	656.49	656.60	656.71	656.81	656.90	656.99	657.07	657.14
F	652.55	652.75	652.95	653.15	653.35	653.55	653.74	653.93	654.12	654.30	654.47	654.64	654.80	654.95	655.11	655.26	655.41	655.56	655.70	655.84	655.97	656.10	656.22	656.34	656.45	656.56	656.66	656.75	656.84	656.92	657.00
℄ EB APPROACH RDWY.	652.40	652.60	652.80	653.00	653.20	653.40	653.60	653.79	653.97	654.15	654.33	654.49	654.65	654.81	654.96	655.12	655.27	655.41	655.56	655.69	655.83	655.96	656.08	656.20	656.31	656.42	656.52	656.61	656.70	656.78	656.85
G	652.34	652.54	652.74	652.94	653.14	653.34	653.54	653.73	653.91	654.09	654.27	654.43	654.59	654.75	654.90	655.06	655.21	655.35	655.50	655.63	655.77	655.90	656.02	656.14	656.25	656.36	656.46	656.55	656.64	656.72	656.79
H	652.06	652.26	652.46	652.67	652.87	653.07	653.26	653.45	653.63	653.82	653.99	654.16	654.32	654.47	654.62	654.78	654.93	655.08	655.22	655.36	655.49	655.62	655.74	655.86	655.97	656.08	656.18	656.27	656.36	656.44	656.52
I	651.79	651.99	652.19	652.39	652.59	652.79	652.98	653.17	653.36	653.54	653.71	653.88	654.04	654.19	654.35	654.50	654.65	654.80	654.94	655.08	655.21	655.34	655.46	655.58	655.69	655.80	655.90	655.99	656.08	656.16	656.24
SOUTH GUTTER LINE	651.74	651.94	652.14	652.34	652.54	652.74	652.94	653.13	653.31	653.49	653.67	653.83	653.99	654.15	654.30	654.46	654.61	654.75	654.90	655.03	655.17	655.30	655.42	655.54	655.65	655.76	655.86	655.95	656.04	656.12	656.19



TOP OF SLAB ELEVATION LOCATIONS

DESIGN FOR 0° SKEW

770'-0 x 77' CONTINUOUS WELDED GIRDER BRIDGE STAGE 2

115'-0 END SPANS — 4-135'-0 INTERIOR SPANS

TOP OF SLAB ELEVATIONS

STATION: 1935+86.00 — JANUARY, 2012

WAPELLO COUNTY

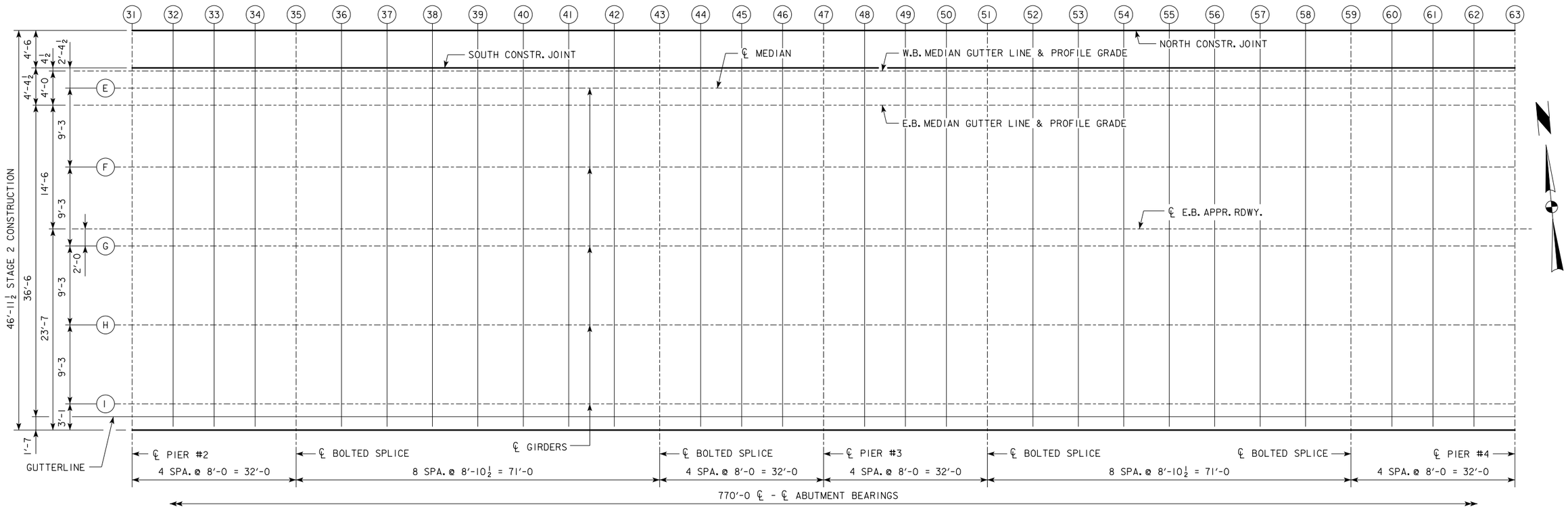
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 33 OF 45 FILE NO. 30503 DESIGN NO. 112

BENCH MARK NO. 559 - STA 1932+12.44, 32.07' RT., FD. DOT BUTTON SE COR. BRG. - ELEV.=653.04

TABLE OF TOP OF SLAB ELEVATIONS

LOCATION	℄ PIER #2				℄ BOLTED SPLICE									℄ BOLTED SPLICE				℄ PIER #3				℄ BOLTED SPLICE									℄ BOLTED SPLICE				℄ PIER #4
	LINE 31	LINE 32	LINE 33	LINE 34	LINE 35	LINE 36	LINE 37	LINE 38	LINE 39	LINE 40	LINE 41	LINE 42	LINE 43	LINE 44	LINE 45	LINE 46	LINE 47	LINE 48	LINE 49	LINE 50	LINE 51	LINE 52	LINE 53	LINE 54	LINE 55	LINE 56	LINE 57	LINE 58	LINE 59	LINE 60	LINE 61	LINE 62	LINE 63
NORTH CONSTR. JOINT	657.05	657.12	657.19	657.25	657.31	657.37	657.43	657.48	657.52	657.56	657.60	657.63	657.65	657.66	657.68	657.68	657.69	657.69	657.68	657.67	657.65	657.63	657.61	657.57	657.54	657.49	657.44	657.39	657.33	657.27	657.21	657.14	657.07
SOUTH CONSTR. JOINT	657.14	657.21	657.28	657.34	657.40	657.46	657.52	657.57	657.61	657.65	657.69	657.72	657.74	657.75	657.77	657.77	657.78	657.78	657.77	657.76	657.74	657.72	657.70	657.66	657.63	657.58	657.53	657.48	657.42	657.36	657.30	657.23	657.16
WB MEDIAN GUTTER LINE	657.14	657.22	657.29	657.35	657.41	657.47	657.53	657.58	657.62	657.66	657.69	657.72	657.75	657.76	657.77	657.78	657.78	657.78	657.78	657.77	657.75	657.73	657.70	657.67	657.63	657.59	657.54	657.49	657.43	657.37	657.31	657.24	657.17
E	657.18	657.26	657.33	657.39	657.45	657.51	657.57	657.62	657.66	657.70	657.73	657.76	657.79	657.80	657.81	657.82	657.82	657.82	657.82	657.81	657.79	657.77	657.74	657.71	657.67	657.63	657.58	657.53	657.47	657.41	657.35	657.28	657.21
EB MEDIAN GUTTER LINE	657.14	657.22	657.29	657.35	657.41	657.47	657.53	657.58	657.62	657.66	657.69	657.72	657.75	657.76	657.77	657.78	657.78	657.78	657.78	657.77	657.75	657.73	657.70	657.67	657.63	657.59	657.54	657.49	657.43	657.37	657.31	657.24	657.17
F	657.00	657.07	657.14	657.21	657.26	657.33	657.38	657.43	657.48	657.52	657.55	657.58	657.60	657.62	657.63	657.64	657.64	657.64	657.63	657.62	657.61	657.59	657.56	657.53	657.49	657.45	657.40	657.34	657.28	657.23	657.16	657.10	657.02
℄ EB APPR. RDWY.	656.85	656.93	657.00	657.06	657.12	657.18	657.24	657.29	657.33	657.37	657.40	657.43	657.46	657.47	657.48	657.49	657.49	657.49	657.49	657.48	657.46	657.44	657.41	657.38	657.34	657.30	657.25	657.20	657.14	657.08	657.02	656.95	656.88
G	656.79	656.87	656.94	657.00	657.06	657.12	657.18	657.23	657.27	657.31	657.34	657.37	657.40	657.41	657.42	657.43	657.43	657.43	657.43	657.42	657.40	657.38	657.35	657.32	657.28	657.24	657.19	657.14	657.08	657.02	656.96	656.89	656.82
H	656.52	656.59	656.66	656.72	656.78	656.84	656.90	656.95	656.99	657.03	657.07	657.10	657.12	657.13	657.15	657.15	657.16	657.16	657.15	657.14	657.12	657.10	657.08	657.04	657.01	656.96	656.91	656.86	656.80	656.74	656.68	656.61	656.54
I	656.24	656.31	656.38	656.45	656.50	656.57	656.62	656.67	656.72	656.76	656.79	656.82	656.84	656.86	656.87	656.88	656.88	656.88	656.87	656.86	656.85	656.83	656.80	656.77	656.73	656.69	656.64	656.58	656.52	656.47	656.40	656.34	656.26
SOUTH GUTTER LINE	656.19	656.27	656.34	656.40	656.46	656.52	656.58	656.63	656.67	656.71	656.74	656.77	656.80	656.81	656.82	656.83	656.83	656.83	656.83	656.82	656.80	656.78	656.75	656.72	656.68	656.64	656.59	656.54	656.48	656.42	656.36	656.29	656.22



TOP OF SLAB ELEVATION LOCATIONS

DESIGN FOR 0° SKEW

770'-0 x 77' CONTINUOUS WELDED GIRDER BRIDGE STAGE 2

115'-0 END SPANS — 4-135'-0 INTERIOR SPANS

TOP OF SLAB ELEVATIONS

STATION: 1935+86.00 — JANUARY, 2012

WAPELLO COUNTY

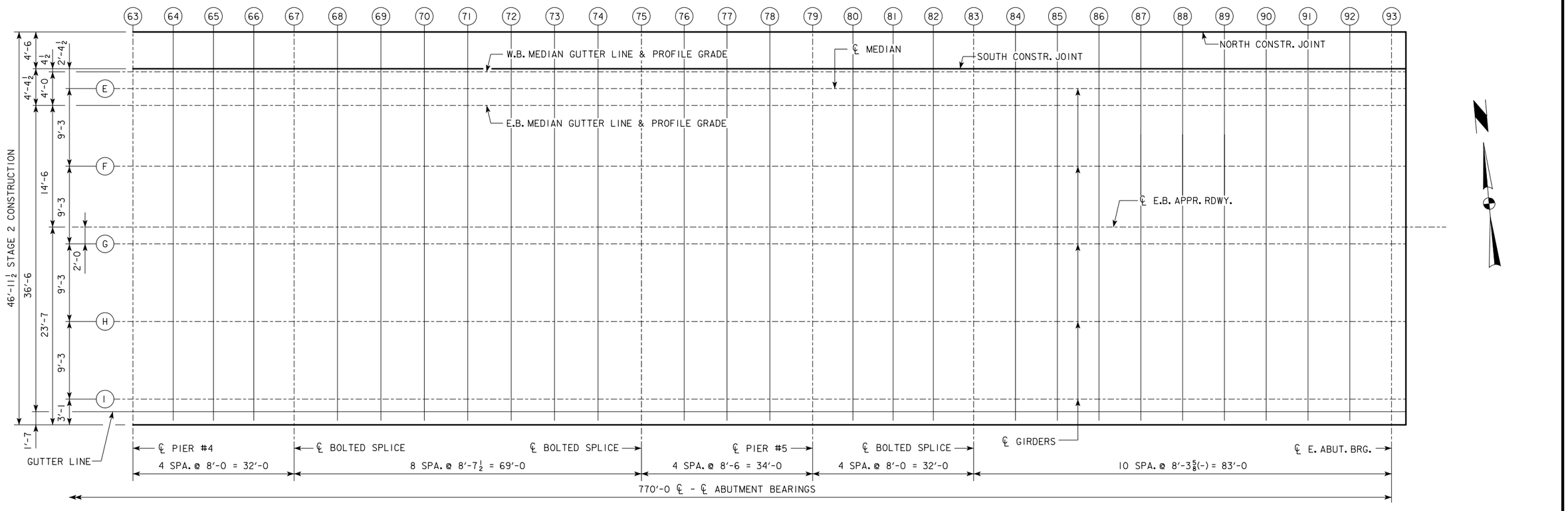
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 34 OF 45 FILE NO. 30503 DESIGN NO. 112

BENCH MARK NO. 559 - STA 1932+12.44, 32.07' RT., FD. DOT BUTTON SE COR. BRG. - ELEV.=653.04

TABLE OF TOP OF SLAB ELEVATIONS

LOCATION	℄ PIER #4				℄ BOLTED SPLICE								℄ BOLTED SPLICE				℄ PIER #5				℄ BOLTED SPLICE										℄ E. ABUT. BEARING
	LINE 63	LINE 64	LINE 65	LINE 66	LINE 67	LINE 68	LINE 69	LINE 70	LINE 71	LINE 72	LINE 73	LINE 74	LINE 75	LINE 76	LINE 77	LINE 78	LINE 79	LINE 80	LINE 81	LINE 82	LINE 83	LINE 84	LINE 85	LINE 86	LINE 87	LINE 88	LINE 89	LINE 90	LINE 91	LINE 92	LINE 93
NORTH CONSTR. JOINT	657.07	657.00	656.92	656.83	656.74	656.64	656.54	656.42	656.31	656.19	656.06	655.93	655.79	655.65	655.51	655.36	655.20	655.05	654.90	654.74	654.58	654.40	654.22	654.04	653.85	653.66	653.46	653.26	653.06	652.86	652.66
SOUTH CONSTR. JOINT	657.16	657.09	657.01	656.92	656.83	656.73	656.63	656.51	656.40	656.28	656.15	656.02	655.88	655.74	655.60	655.45	655.29	655.14	654.99	654.83	654.67	654.49	654.31	654.13	653.94	653.75	653.55	653.35	653.15	652.95	652.75
W.B. MEDIAN GUTTER LINE	657.17	657.09	657.01	656.93	656.84	656.74	656.63	656.52	656.41	656.28	656.16	656.03	655.89	655.75	655.60	655.45	655.30	655.15	655.00	654.84	654.67	654.50	654.32	654.14	653.95	653.75	653.56	653.36	653.16	652.96	652.76
E	657.21	657.13	657.05	656.97	656.88	656.78	656.67	656.56	656.45	656.32	656.20	656.07	655.93	655.79	655.64	655.49	655.34	655.19	655.04	654.88	654.71	654.54	654.36	654.18	653.99	653.79	653.60	653.40	653.20	653.00	652.80
E.B. MEDIAN GUTTER LINE	657.17	657.09	657.01	656.93	656.84	656.74	656.63	656.52	656.41	656.28	656.16	656.03	655.89	655.75	655.60	655.45	655.30	655.15	655.00	654.84	654.67	654.50	654.32	654.14	653.95	653.75	653.56	653.36	653.16	652.96	652.76
F	657.02	656.95	656.87	656.78	656.69	656.59	656.49	656.38	656.26	656.14	656.01	655.88	655.74	655.60	655.46	655.31	655.15	655.00	654.85	654.69	654.53	654.35	654.17	653.99	653.80	653.61	653.41	653.21	653.01	652.81	652.62
℄ EB APPROACH RDWY.	656.88	656.80	656.72	656.64	656.55	656.45	656.34	656.23	656.12	655.99	655.87	655.74	655.60	655.46	655.31	655.16	655.01	654.86	654.71	654.55	654.38	654.21	654.03	653.85	653.66	653.46	653.27	653.07	652.87	652.67	652.47
G	656.82	656.74	656.66	656.58	656.49	656.39	656.28	656.17	656.06	655.93	655.81	655.68	655.54	655.40	655.25	655.10	654.95	654.80	654.65	654.49	654.32	654.15	653.97	653.79	653.60	653.40	653.21	653.01	652.81	652.61	652.41
H	656.54	656.47	656.39	656.30	656.21	656.11	656.01	655.89	655.78	655.66	655.53	655.40	655.26	655.12	654.98	654.83	654.67	654.52	654.37	654.21	654.05	653.87	653.69	653.51	653.32	653.13	652.93	652.73	652.53	652.33	652.13
I	656.26	656.19	656.11	656.02	655.93	655.83	655.73	655.62	655.50	655.38	655.25	655.12	654.98	654.84	654.70	654.55	654.39	654.24	654.09	653.93	653.77	653.59	653.41	653.23	653.04	652.85	652.65	652.45	652.25	652.05	651.86
SOUTH GUTTER LINE	656.22	656.14	656.06	655.98	655.89	655.79	655.68	655.57	655.46	655.33	655.21	655.08	654.94	654.80	654.65	654.50	654.35	654.20	654.05	653.89	653.72	653.55	653.37	653.19	653.00	652.80	652.61	652.41	652.21	652.01	651.81



TOP OF SLAB ELEVATION LOCATIONS

DESIGN FOR 0° SKEW

770'-0 x 77' CONTINUOUS WELDED GIRDER BRIDGE STAGE 2

115'-0 END SPANS — 4-135'-0 INTERIOR SPANS

TOP OF SLAB ELEVATIONS

STATION: 1935+86.00 — JANUARY, 2012

WAPELLO COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 35 OF 45 FILE NO. 30503 DESIGN NO. 112

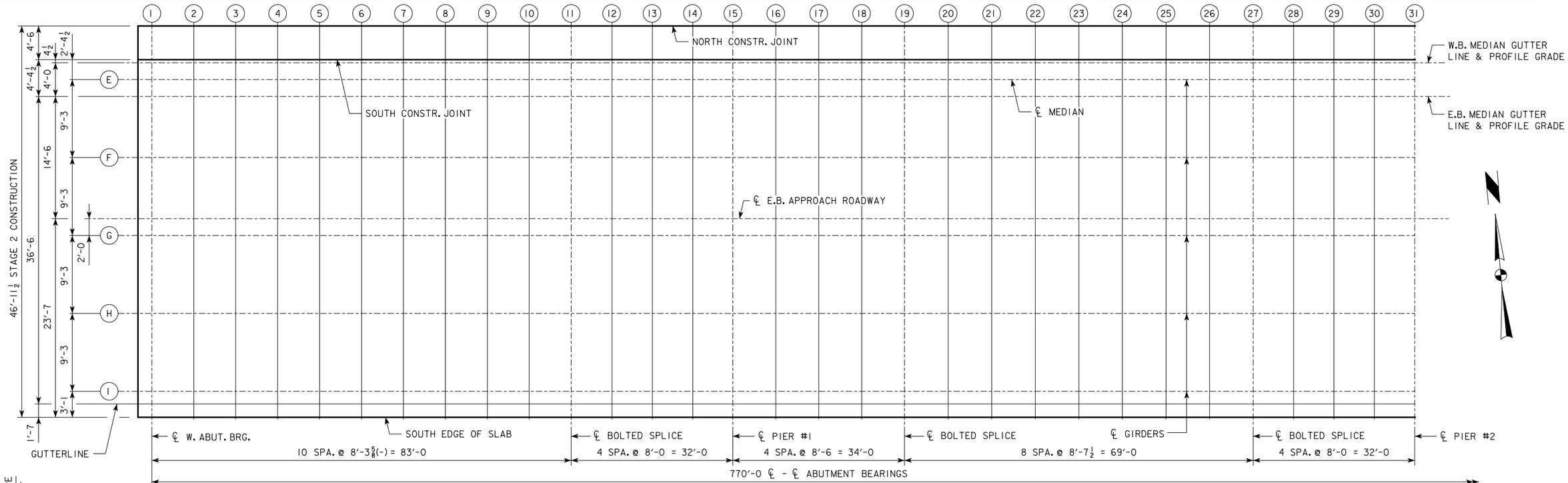
BENCH MARK NO. 559 - STA 1932+12.44, 32.07' RT., FD. DOT BUTTON SE COR. BRG. - ELEV.=653.04

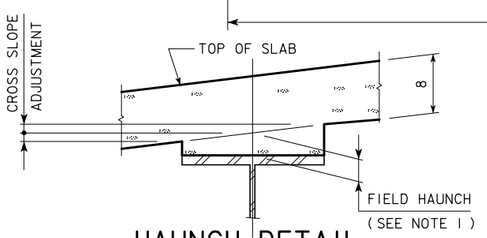
TABLE OF GIRDER LINE SLAB HAUNCH ELEVATIONS

GIRDER LINE	℄ W. ABUT. BEARING										℄ BOLTED SPLICE				℄ PIER #1				℄ BOLTED SPLICE								℄ BOLTED SPLICE				℄ PIER #2
	LINE 1	LINE 2	LINE 3	LINE 4	LINE 5	LINE 6	LINE 7	LINE 8	LINE 9	LINE 10	LINE 11	LINE 12	LINE 13	LINE 14	LINE 15	LINE 16	LINE 17	LINE 18	LINE 19	LINE 20	LINE 21	LINE 22	LINE 23	LINE 24	LINE 25	LINE 26	LINE 27	LINE 28	LINE 29	LINE 30	LINE 31
E	652.06	652.29	652.52	652.74	652.96	653.17	653.36	653.55	653.72	653.89	654.05	654.19	654.34	654.48	654.62	654.78	654.94	655.10	655.26	655.41	655.56	655.69	655.82	655.93	656.04	656.13	656.22	656.30	656.37	656.44	656.52
F	651.88	652.11	652.33	652.56	652.77	652.98	653.18	653.36	653.54	653.70	653.86	654.01	654.15	654.29	654.44	654.60	654.76	654.92	655.07	655.23	655.37	655.51	655.63	655.75	655.85	655.95	656.04	656.11	656.19	656.26	656.33
G	651.67	651.90	652.13	652.35	652.57	652.78	652.97	653.16	653.33	653.50	653.66	653.80	653.95	654.09	654.23	654.39	654.55	654.71	654.87	655.02	655.17	655.30	655.43	655.54	655.65	655.74	655.83	655.91	655.98	656.05	656.13
H	651.40	651.63	651.85	652.07	652.29	652.50	652.70	652.88	653.06	653.22	653.38	653.52	653.67	653.81	653.96	654.11	654.28	654.43	654.59	654.74	654.89	655.03	655.15	655.27	655.37	655.47	655.55	655.63	655.70	655.78	655.85
I	651.12	651.35	651.57	651.80	652.01	652.22	652.42	652.60	652.78	652.94	653.10	653.25	653.39	653.53	653.68	653.84	654.00	654.16	654.31	654.47	654.61	654.75	654.87	654.99	655.09	655.19	655.28	655.35	655.43	655.50	655.57

MISCELLANEOUS DATA TABLE

	GIRDER LINE		℄ W. ABUT. BEARING										℄ BOLTED SPLICE				℄ PIER #1				℄ BOLTED SPLICE								℄ BOLTED SPLICE				℄ PIER #2
			LINE 1	LINE 2	LINE 3	LINE 4	LINE 5	LINE 6	LINE 7	LINE 8	LINE 9	LINE 10	LINE 11	LINE 12	LINE 13	LINE 14	LINE 15	LINE 16	LINE 17	LINE 18	LINE 19	LINE 20	LINE 21	LINE 22	LINE 23	LINE 24	LINE 25	LINE 26	LINE 27	LINE 28	LINE 29	LINE 30	LINE 31
ANTICIPATED DEFLECTION DUE TO SLAB (in)	ALL		0	$\frac{5}{16}$	$\frac{5}{8}$	$\frac{15}{16}$	$1\frac{1}{8}$	$1\frac{3}{16}$	$1\frac{1}{4}$	$1\frac{3}{16}$	$1\frac{1}{16}$	$\frac{7}{8}$	$\frac{5}{8}$	$\frac{7}{16}$	$\frac{1}{4}$	$\frac{1}{16}$	0	0	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{7}{16}$	$\frac{5}{8}$	$\frac{13}{16}$	$\frac{7}{8}$	$\frac{15}{16}$	$\frac{7}{8}$	$\frac{13}{16}$	$\frac{5}{8}$	$\frac{7}{16}$	$\frac{5}{16}$	$\frac{1}{8}$	$\frac{1}{16}$	0
CROSS SLOPE ADJUSTMENTS (in)	G, H, & I		$\pm\frac{3}{16}$										$\pm\frac{5}{16}$								$\pm\frac{3}{16}$								$\pm\frac{1}{4}$				
	E & F		$\pm\frac{1}{8}$										$\pm\frac{3}{16}$								$\pm\frac{1}{8}$								$\pm\frac{3}{16}$				
ALLOWABLE FIELD HAUNCH (in)	MAX.	ALL	$2\frac{7}{8}$																														
	MIN.	G, H & I	$-\frac{5}{16}$										$-\frac{3}{16}$								$-\frac{5}{16}$								$-\frac{1}{4}$				
		E & F	$-\frac{3}{8}$										$-\frac{5}{16}$								$-\frac{3}{8}$								$-\frac{5}{16}$				





HAUNCH DETAIL

SLAB HAUNCH LOCATIONS

NOTE 1:
TO CALCULATE FIELD HAUNCH NEEDED AT EACH LOCATION, SURVEY THE GIRDER TOPS CONSISTENT WITH THE SPACINGS SHOWN ON THE "HAUNCH LOCATIONS" DIAGRAM. SUBTRACT THE SURVEYED GIRDER SHOT FROM THE "GIRDER LINE HAUNCH ELEVATION". THIS VALUE WILL BE THE HAUNCH NEEDED (SEE "FIELD HAUNCH" IN HAUNCH DETAIL). THE "GIRDER LINE HAUNCH ELEVATION" INCLUDES ADJUSTMENTS FOR SLAB THICKNESSES AND ANTICIPATED DEFLECTIONS. NO ADDITIONAL CALCULATIONS ARE REQUIRED. IF THE FIELD HAUNCH EXCEEDS THE MAXIMUMS AND MINIMUMS INDICATED IN THE MISC. DATA TABLE, ADJUSTMENTS TO THE GRADE OR ADDITIONAL HAUNCH REINFORCEMENT WILL BE REQUIRED.

NOTE:
BRIDGE SEAT ELEVATIONS ARE SET BASED ON THEORETICAL CAMBER AND GIRDER DEFLECTIONS. THESE BRIDGE SEATS WILL PROVIDE A THEORETICAL GIRDER HAUNCH WITHIN DESIGN PARAMETERS. FIELD HAUNCHES ARE DETERMINED USING SURVEYED TOP OF GIRDER ELEVATIONS AND "GIRDER LINE HAUNCH ELEVATION" DATA. ALLOWABLE MAXIMUM AND MINIMUM "FIELD HAUNCH" VALUES ARE GIVEN IN THE "MISCELLANEOUS DATA" TABLE. "CROSS SLOPE ADJUSTMENT" VALUES WILL AID THE CONTRACTOR IN DETERMINING ACTUAL FORMED HAUNCH DIMENSIONS AT THE EDGES OF THE TOP FLANGE.

DESIGN FOR 0° SKEW

770'-0 x 77' CONTINUOUS WELDED GIRDER BRIDGE STAGE 2

115'-0 END SPANS 4-135'-0 INTERIOR SPANS

SLAB HAUNCH DATA DETAILS

STATION: 1935+86.00 JANUARY, 2012

WAPELLO COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 36 OF 45 FILE NO. 30503 DESIGN NO. 112

DESIGN TEAM WDT/DAW/DLB | WAPELLO COUNTY | PROJECT NUMBER BRF-034-7(130)--38-90 | SHEET NUMBER 37

1/30/2012 2:23:17 PM dwrigh2 W:\Projects\9003402006\BRFinal\90034130.brg 900112S036 11x17_pdf.pltcfg

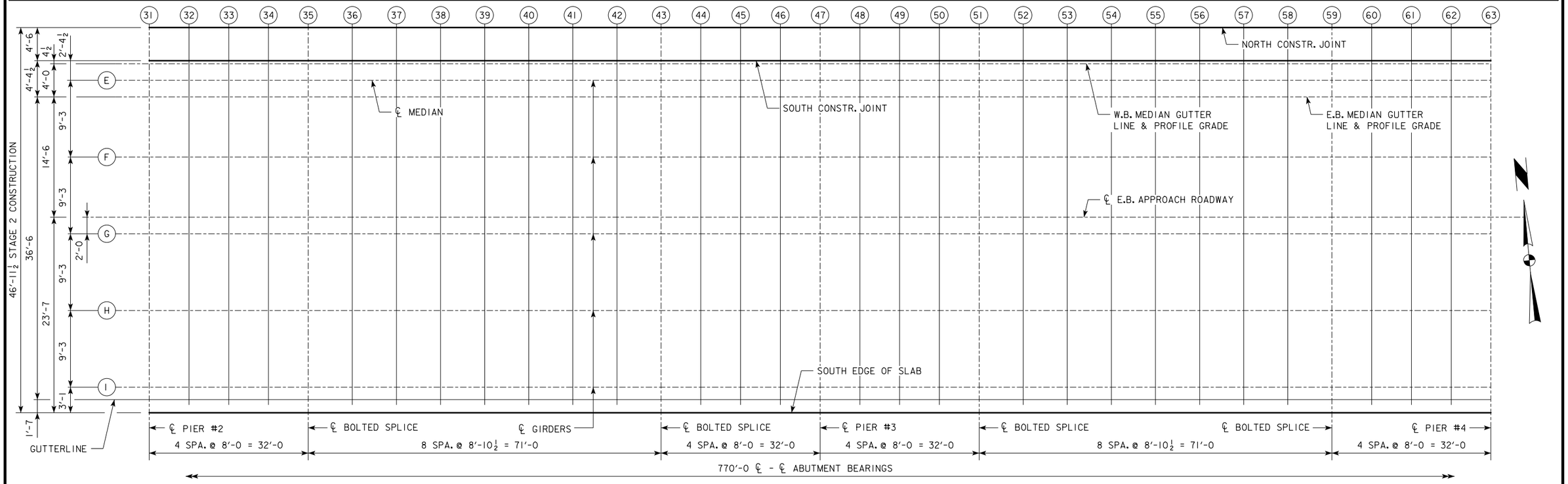
BENCH MARK NO. 559 - STA 1932+12.44, 32.07' RT., FD. DOT BUTTON SE COR. BRG. - ELEV.=653.04

TABLE OF GIRDER LINE SLAB HAUNCH ELEVATIONS

GIRDER LINE	℄ PIER #2				℄ BOLTED SPLICE								℄ BOLTED SPLICE				℄ PIER #3				℄ BOLTED SPLICE								℄ BOLTED SPLICE				℄ PIER #4
	LINE 31	LINE 32	LINE 33	LINE 34	LINE 35	LINE 36	LINE 37	LINE 38	LINE 39	LINE 40	LINE 41	LINE 42	LINE 43	LINE 44	LINE 45	LINE 46	LINE 47	LINE 48	LINE 49	LINE 50	LINE 51	LINE 52	LINE 53	LINE 54	LINE 55	LINE 56	LINE 57	LINE 58	LINE 59	LINE 60	LINE 61	LINE 62	LINE 63
E	656.52	656.60	656.67	656.75	656.83	656.91	656.98	657.04	657.08	657.12	657.14	657.16	657.16	657.16	657.16	657.16	657.16	657.16	657.16	657.17	657.17	657.16	657.15	657.13	657.10	657.05	656.99	656.92	656.85	656.77	656.70	656.62	656.54
F	656.33	656.41	656.49	656.57	656.64	656.72	656.79	656.85	656.90	656.93	656.96	656.97	656.98	656.98	656.98	656.97	656.97	656.98	656.98	656.98	656.98	656.98	656.97	656.94	656.91	656.86	656.81	656.74	656.66	656.59	656.51	656.43	656.36
G	656.13	656.21	656.28	656.36	656.44	656.52	656.59	656.65	656.69	656.73	656.75	656.77	656.77	656.77	656.77	656.77	656.77	656.77	656.77	656.78	656.78	656.77	656.76	656.74	656.71	656.66	656.60	656.53	656.46	656.38	656.31	656.23	656.15
H	655.85	655.93	656.01	656.09	656.16	656.24	656.31	656.37	656.42	656.45	656.48	656.49	656.50	656.50	656.49	656.49	656.49	656.49	656.50	656.50	656.50	656.50	656.48	656.46	656.43	656.38	656.32	656.26	656.18	656.11	656.03	655.95	655.88
I	655.57	655.65	655.73	655.81	655.88	655.96	656.03	656.09	656.14	656.17	656.20	656.21	656.22	656.22	656.22	656.21	656.21	656.22	656.22	656.22	656.22	656.22	656.21	656.18	656.15	656.10	656.05	655.98	655.90	655.83	655.75	655.67	655.60

MISCELLANEOUS DATA TABLE

	GIRDER LINE		℄ PIER #2				℄ BOLTED SPLICE								℄ BOLTED SPLICE				℄ PIER #3				℄ BOLTED SPLICE								℄ BOLTED SPLICE				℄ PIER #4
			LINE 31	LINE 32	LINE 33	LINE 34	LINE 35	LINE 36	LINE 37	LINE 38	LINE 39	LINE 40	LINE 41	LINE 42	LINE 43	LINE 44	LINE 45	LINE 46	LINE 47	LINE 48	LINE 49	LINE 50	LINE 51	LINE 52	LINE 53	LINE 54	LINE 55	LINE 56	LINE 57	LINE 58	LINE 59	LINE 60	LINE 61	LINE 62	LINE 63
ANTICIPATED DEFLECTION DUE TO SLAB (in)	ALL		0	1/16	3/16	3/8	9/16	3/4	15/16	1	1 1/16	1	7/8	3/4	1/2	5/16	3/16	1/16	0	1/16	3/16	5/16	1/2	3/4	7/8	1	1 1/16	1	15/16	3/4	9/16	3/8	3/16	1/16	0
CROSS SLOPE ADJUSTMENTS (in)	G, H, & I		± 1/4				± 3/16								± 1/4				± 3/16												± 1/4				
	E & F		± 3/16				± 1/8								± 3/16				± 1/8												± 3/16				
ALLOWABLE FIELD HAUNCH (in)	MAX.	ALL	2 7/8																																
	MIN.	G, H & I	- 1/4				- 5/16								- 1/4				- 5/16												- 1/4				
		E & F	- 5/16				- 3/8								- 5/16				- 3/8												- 5/16				



SLAB HAUNCH LOCATIONS

SEE NOTES AND HAUNCH DETAIL ON DESIGN SHEET 36.

DESIGN FOR 0° SKEW

770'-0 x 77' CONTINUOUS WELDED GIRDER BRIDGE STAGE 2

115'-0 END SPANS — 4-135'-0 INTERIOR SPANS

SLAB HAUNCH DATA DETAILS

STATION: 1935+86.00 — JANUARY, 2012

WAPELLO COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 37 OF 45 — FILE NO. 30503 — DESIGN NO. 112

DESIGN TEAM WDT/DAW/DLB | WAPELLO COUNTY | PROJECT NUMBER BRF-034-7(130)--38-90 | SHEET NUMBER 38

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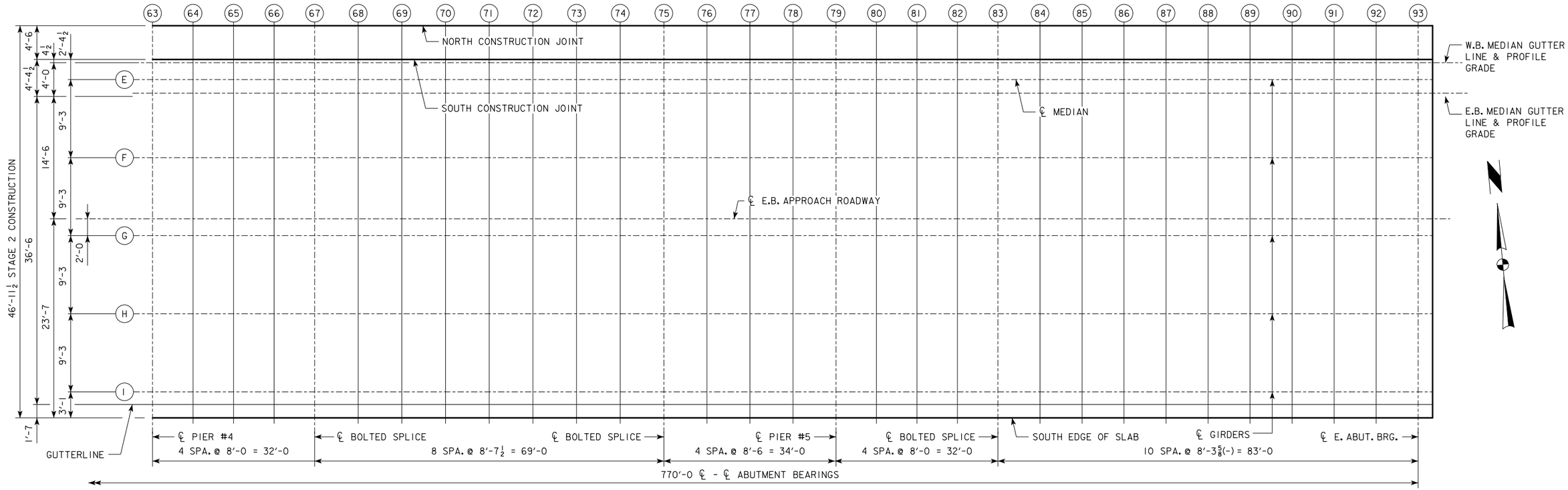
BENCH MARK NO. 559 - STA 1932+12.44, 32.07' RT., FD. DOT BUTTON SE COR. BRG. - ELEV.=653.04

TABLE OF GIRDER LINE SLAB HAUNCH ELEVATIONS

GIRDER LINE	℄ PIER #4				℄ BOLTED SPLICE								℄ BOLTED SPLICE				℄ PIER #5				℄ BOLTED SPLICE										℄ E. ABUT. BEARING
	LINE 63	LINE 64	LINE 65	LINE 66	LINE 67	LINE 68	LINE 69	LINE 70	LINE 71	LINE 72	LINE 73	LINE 74	LINE 75	LINE 76	LINE 77	LINE 78	LINE 79	LINE 80	LINE 81	LINE 82	LINE 83	LINE 84	LINE 85	LINE 86	LINE 87	LINE 88	LINE 89	LINE 90	LINE 91	LINE 92	LINE 93
E	656.54	656.47	656.40	656.33	656.25	656.17	656.07	655.97	655.86	655.73	655.60	655.45	655.30	655.15	654.99	654.83	654.67	654.53	654.39	654.25	654.10	653.94	653.78	653.61	653.42	653.23	653.02	652.81	652.59	652.36	652.13
F	656.36	656.29	656.21	656.14	656.07	655.98	655.89	655.78	655.67	655.55	655.41	655.27	655.12	654.96	654.80	654.64	654.49	654.34	654.20	654.06	653.92	653.76	653.60	653.42	653.24	653.04	652.84	652.62	652.40	652.18	651.95
G	656.15	656.08	656.01	655.94	655.86	655.78	655.68	655.58	655.47	655.34	655.21	655.06	654.91	654.76	654.60	654.44	654.28	654.14	654.00	653.86	653.71	653.55	653.39	653.22	653.03	652.84	652.63	652.42	652.20	651.97	651.74
H	655.88	655.80	655.73	655.66	655.58	655.50	655.40	655.30	655.19	655.06	654.93	654.78	654.63	654.48	654.32	654.16	654.01	653.86	653.72	653.58	653.43	653.28	653.11	652.94	652.76	652.56	652.35	652.14	651.92	651.69	651.47
I	655.60	655.53	655.45	655.38	655.31	655.22	655.13	655.02	654.91	654.79	654.65	654.51	654.36	654.20	654.04	653.88	653.73	653.58	653.44	653.30	653.16	653.00	652.84	652.66	652.48	652.28	652.08	651.86	651.64	651.42	651.19

MISCELLANEOUS DATA TABLE

	GIRDER LINE		℄ PIER #4				℄ BOLTED SPLICE								℄ BOLTED SPLICE				℄ PIER #5				℄ BOLTED SPLICE										℄ E. ABUT. BEARING
			LINE 63	LINE 64	LINE 65	LINE 66	LINE 67	LINE 68	LINE 69	LINE 70	LINE 71	LINE 72	LINE 73	LINE 74	LINE 75	LINE 76	LINE 77	LINE 78	LINE 79	LINE 80	LINE 81	LINE 82	LINE 83	LINE 84	LINE 85	LINE 86	LINE 87	LINE 88	LINE 89	LINE 90	LINE 91	LINE 92	LINE 93
ANTICIPATED DEFLECTION DUE TO SLAB (in)	ALL		0	1/16	1/8	5/16	7/16	5/8	13/16	7/8	15/16	7/8	13/16	5/8	7/16	1/4	1/8	0	0	1/16	1/4	7/16	5/8	7/8	1 1/16	1 3/16	1 1/4	1 3/16	1 1/8	15/16	5/8	5/16	0
CROSS SLOPE ADJUSTMENTS (in)	G, H, & I		± 1/4				± 3/16								± 5/16					± 3/16													
	E & F		± 3/16				± 1/8								± 3/16					± 1/8													
ALLOWABLE FIELD HAUNCH (in)	MAX.	ALL	2 7/8																														
	MIN.	G, H & I	- 1/4				- 5/16								- 3/16					- 5/16													
		E & F	- 5/16				- 3/8								- 5/16					- 3/8													



SLAB HAUNCH LOCATIONS

SEE NOTES AND HAUNCH DETAIL ON DESIGN SHEET 36.

DESIGN FOR 0° SKEW

770'-0 x 77' CONTINUOUS WELDED GIRDER BRIDGE STAGE 2

115'-0 END SPANS 4-135'-0 INTERIOR SPANS

SLAB HAUNCH DATA DETAILS

STATION: 1935+86.00 JANUARY, 2012

WAPELLO COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 38 OF 45 FILE NO. 30503 DESIGN NO. 112

DESIGN TEAM WDT/DAW/DLB | WAPELLO COUNTY | PROJECT NUMBER BRF-034-7(130)--38-90 | SHEET NUMBER 39

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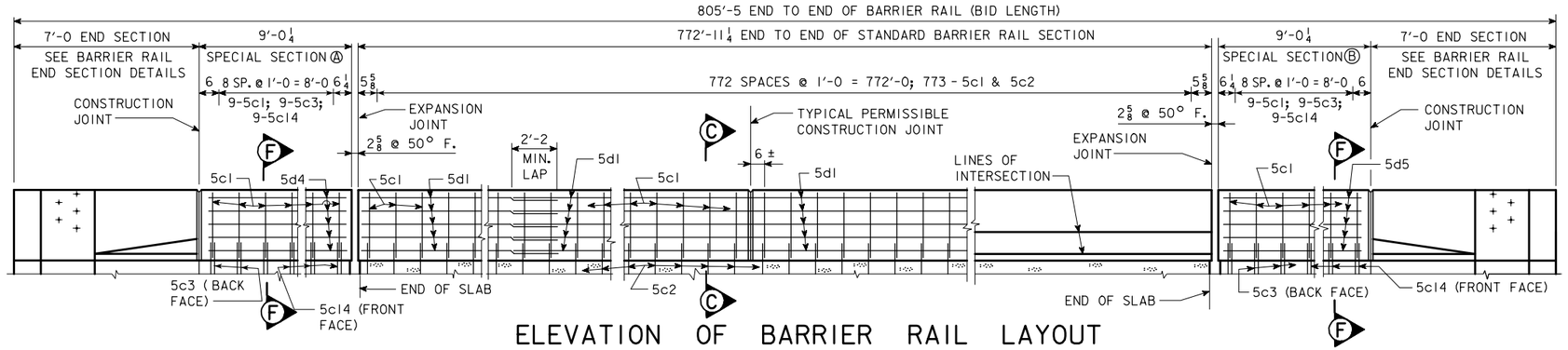
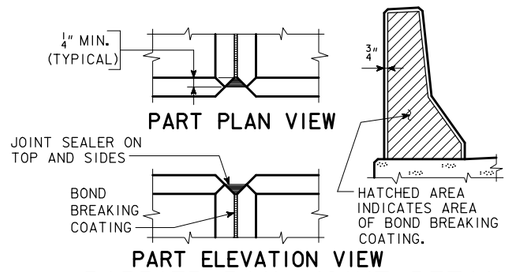


ELEVATION OF BARRIER RAIL LAYOUT

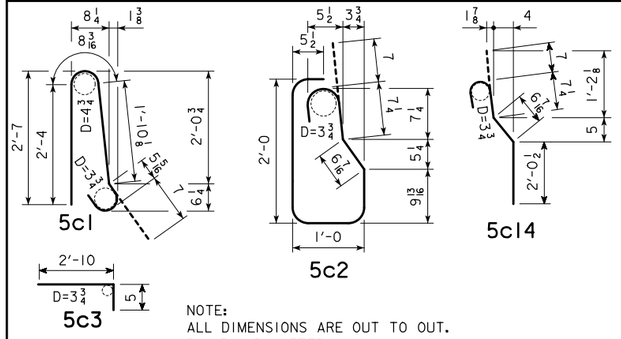


BARRIER RAIL JOINT DETAILS

EPOXY REINF. STEEL-ONE BARRIER RAIL

SECTION	BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
STANDARD SECTION	5c1	VERTICAL		773	5'-11	4771
	5c2	VERTICAL		773	6'-0	4837
	5d1	LONGITUDINAL		189	38'-11	7672
SPECIAL SECTIONS (ALL REINFORCING REQUIRED)	5c1	VERTICAL		18	5'-1	95
	5c3	VERTICAL		18	3'-3	61
	5c14	VERTICAL		18	3'-10	72
	5d4	LONGIT.- SPECIAL SECTIONS Ⓐ		9	8'-8	81
	5d5	LONGIT.- SPECIAL SECTIONS Ⓑ		9	8'-8	81
	BARRIER RAIL END SECTION			2 AT 458 LBS.		916
(INCLUDE WITH SUPERSTRUCTURE REINFORCING)				TOTAL (LBS.)		18,586

BENT BAR DETAILS



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

CONCRETE PLACEMENT SUMMARY

SECTION		TOTAL
STANDARD SECTION	772.94' @ 0.1052 CU. YD. PER FT.	81.3
SPECIAL SECTION Ⓐ	9.02' @ 0.1052 CU. YD. PER FT.	1.0
SPECIAL SECTION Ⓑ	9.02' @ 0.1052 CU. YD. PER FT.	1.0
BARRIER RAIL END SECTION	2 @ 0.65 CU. YD.	1.3
	TOTAL (CU. YD.)	84.6

CONCRETE BARRIER RAIL QUANTITIES

ITEM	UNIT	QUANTITY
CONCRETE BARRIER RAILING	L.F.	805.4

BARRIER RAIL NOTES:

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

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

ALL BARRIER RAIL REINFORCING STEEL IS TO BE EPOXY COATED.

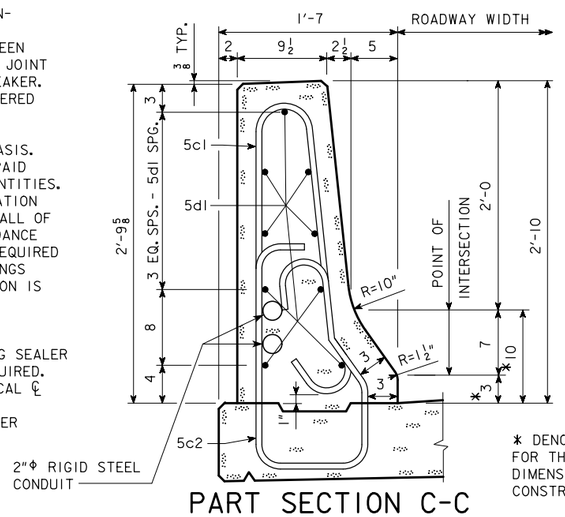
THE CONCRETE BARRIER RAIL IS TO BE BID ON A LINEAL FOOT BASIS. THE NUMBER OF LINEAL FEET OF BARRIER RAIL INSTALLED WILL BE PAID FOR AT THE CONTRACT PRICE PER LINEAL FOOT BASED ON PLAN QUANTITIES. PRICE BID FOR CONCRETE BARRIER RAILING SHALL BE FULL COMPENSATION FOR FURNISHING ALL MATERIAL, EXCLUDING REINFORCING STEEL, AND ALL OF THE EQUIPMENT AND LABOR REQUIRED TO ERECT THE RAIL IN ACCORDANCE WITH THESE PLANS AND CURRENT SPECIFICATIONS. IF CONDUIT IS REQUIRED IN THIS PLAN THE RIGID STEEL CONDUIT, JUNCTION BOXES AND FITTINGS INCLUDING LABOR AND ANY ADDITIONAL WORK TO DO THE INSTALLATION IS CONSIDERED INCIDENTAL TO THE COST OF THE RAILING.

ALL BARRIER RAIL REINFORCING STEEL IS TO BE INCLUDED WITH THE SUPERSTRUCTURE REINFORCING STEEL.

THE JOINT SEALER SHALL BE LIGHT GRAY NONSAG LATEX CAULKING SEALER MARKETED FOR OUTDOOR USE. NO TESTING OR CERTIFICATION IS REQUIRED.

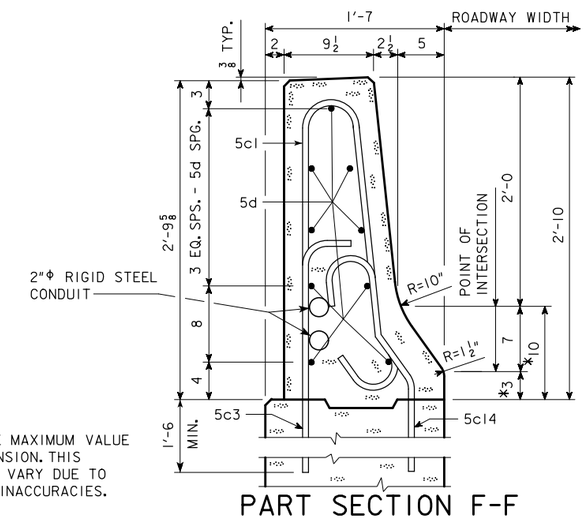
TOP OF THE BARRIER RAIL IS TO BE PARALLEL TO THE THEORETICAL ℄ GRADE.

CROSS SECTIONAL AREA OF THE STANDARD SECTION OF THE BARRIER RAIL = 2.84 SQUARE FEET.



PART SECTION C-C

* DENOTES THE MAXIMUM VALUE FOR THIS DIMENSION. THIS DIMENSION MAY VARY DUE TO CONSTRUCTION INACCURACIES.



PART SECTION F-F

DESIGN FOR 0° SKEW

770'-0 x 77' CONTINUOUS WELDED GIRDER BRIDGE STAGE 2

115'-0 END SPANS — 4-135'-0 INTERIOR SPANS

CONCRETE BARRIER RAIL DETAILS

STATION: 1935+86.00 — JANUARY, 2012

WAPELLO COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 39 OF 45 FILE NO. 30503 DESIGN NO. 112

CORRECTION 05-08 - BARRIER RAIL END SECTION QUANTITIES CORRECTED.
ENGLISHDECKRAILBRIDGES.DGN 1020B - THIS SHEET ISSUED 02-00

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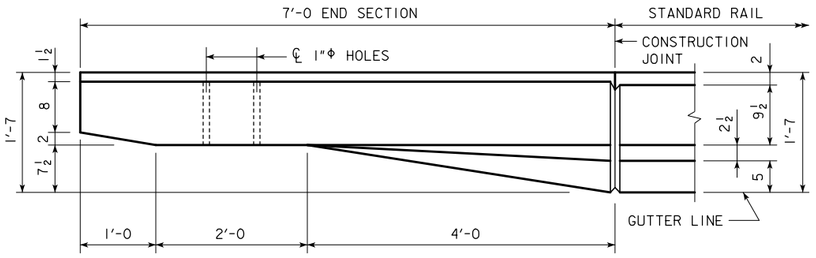
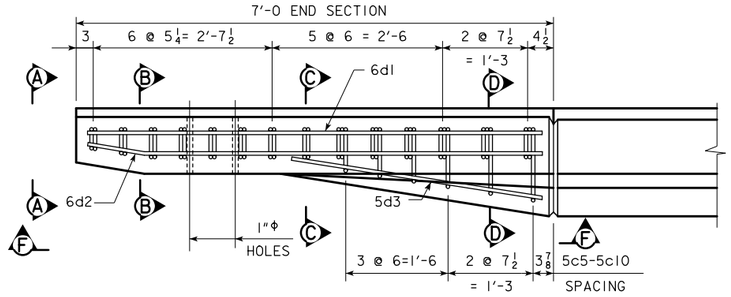
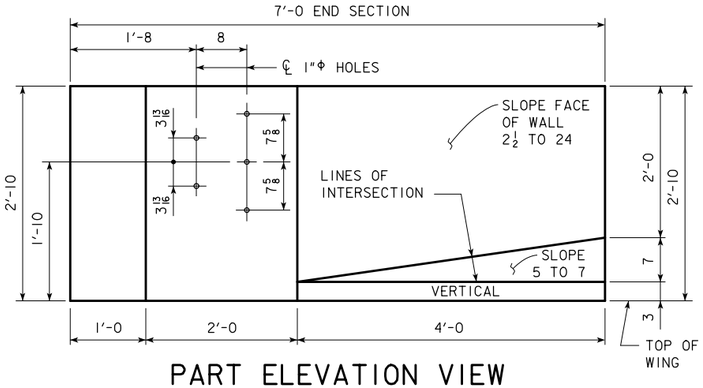


PART PLAN VIEW

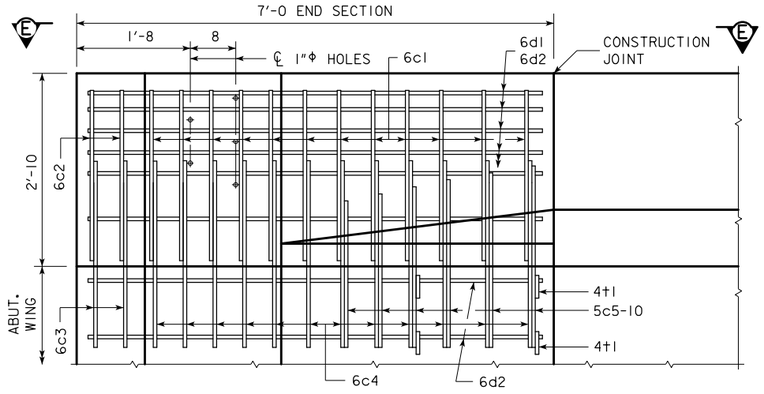


PART VIEW E-E

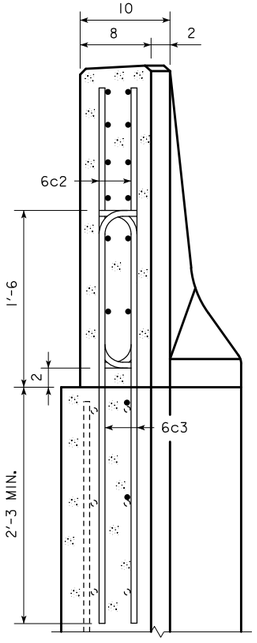


PART ELEVATION VIEW

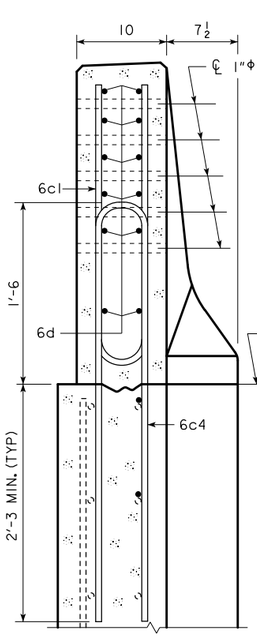
PROVIDE 5 HOLES FORMED WITH 1"Φ PLASTIC CONDUIT. COST TO BE INCLUDED IN PRICE BID FOR CONCRETE BARRIER RAILING.



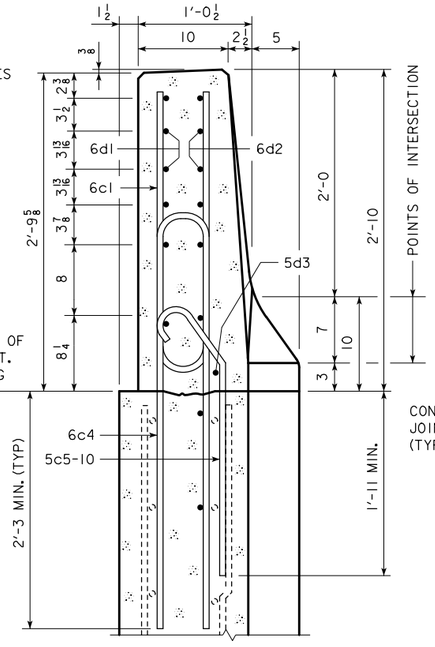
PART VIEW F-F



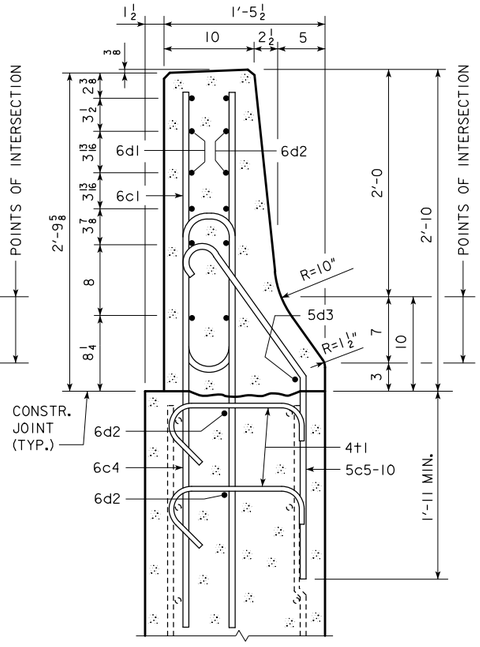
VIEW A-A



SECTION B-B



SECTION C-C



SECTION D-D

NOTE:
4t1 PLACEMENT- 2 BARS EACH LEVEL OF 6d2 IN WING FOOTING.

NOTE:
CONSTRUCTION JOINT BETWEEN TOP OF WING AND BARRIER RAIL IS ROUGHENED CONCRETE.

NOTE:
THE 10" RADIUS AND 1½" RADIUS ARE TYPICAL AND SHALL BE USED WHEN CONSTRUCTING THE CORNERS FOR VIEW A-A, SECTION B-B, SECTION C-C AND SECTION D-D.

NOTE:
THE 6c4, 6c3, 5c5-10, 2 - 6d2 AND 4t1 BARS ARE TO BE PLACED WITH THE ABUTMENT WING. THE DETAILS FOR PLACEMENT ARE SHOWN ON THE WING ABUTMENT SHEET.

NOTE:
DASHED LINES BELOW THE TOP OF WING ARE THE ABUTMENT WING REINFORCING STEEL. SEE WING ABUTMENT SHEET FOR PLACEMENT.

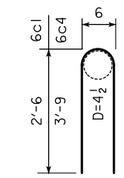
EPOXY REINFORCING STEEL - ONE END SECTION

BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
6c1	VERTICAL		12	5'-6	99
6c2	VERTICAL		4	2'-10	17
6c3	VERTICAL		4	4'-1	25
6c4	VERTICAL		12	8'-0	144
5c5-10	VERTICAL		6	VARIES	23
6d1	HORIZONTAL		6	6'-8	60
6d2	HORIZONTAL		8	6'-9	81
5d3	HORIZONTAL		1	3'-9	4
4t1	ABUTMENT WING TIE BARS		4	VARIES	5
(INCLUDE WITH BARRIER RAIL REINFORCING)		TOTAL WEIGHT (LBS.)			458

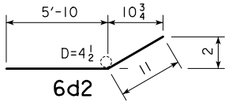
CONCRETE PLACEMENT SUMMARY

SECTION	TOTAL
BARRIER RAIL ONE END SECTION	0.65 CU. YD.

BENT BAR DETAILS

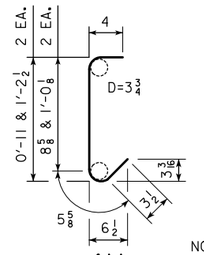


6c1 & 6c4

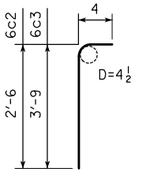


6d2

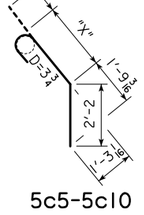
BAR	"X"
5c5	0'-6½
5c6	0'-8½
5c7	0'-10¼
5c8	1'-0¼
5c9	1'-2
5c10	1'-4



4t1



6c2 & 6c3



5c5-5c10

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

DESIGN FOR 0° SKEW

770'-0 x 77' CONTINUOUS WELDED GIRDER BRIDGE STAGE 2

115'-0 END SPANS 4-135'-0 INTERIOR SPANS

END SECTION DETAILS

STATION: 1935+86.00 JANUARY, 2012

WAPELLO COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 40 OF 45 FILE NO. 30503 DESIGN NO. 112

REVISION 02-08 - REINFORCING STEEL PATTERN & SIZE CHANGED AND WEIGHT ADJUSTED. CONCRETE THICKNESS WAS INCREASED ½" AND QUANTITY ADJUSTED.
ENGLISHDECKRAILBRIDGES.DGN 1017 - THIS SHEET ISSUED 09-01

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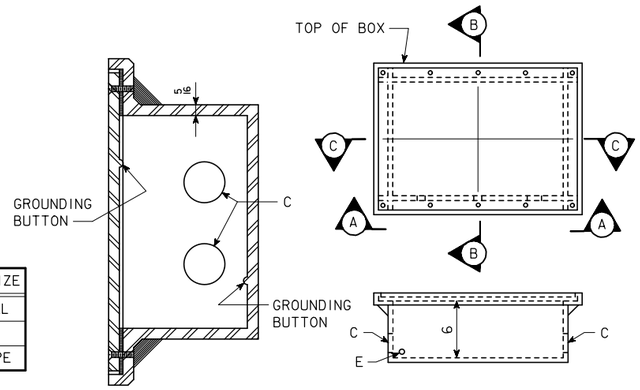
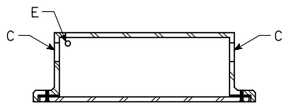
BOSSED FOR	HOLE	FOR CONDUIT SIZE
5 THREADS	C	2"Φ RIGID STEEL
NONE	E	$\frac{1}{2}$"Φ COPPER PIPE

NOTE:
THE GROUNDING BUTTONS ARE TO BE BLIND DRILLED AND TAPPED FOR $\frac{3}{8}$"Φ × 0'-0$\frac{3}{4}$" BOLTS.



SECTION B-B

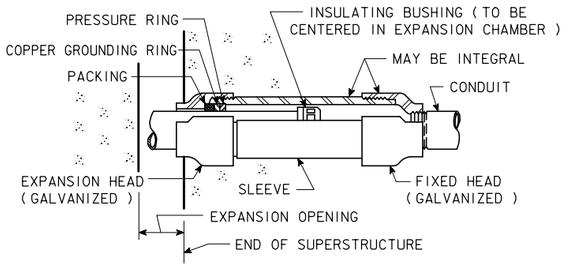
VIEW A-A



SECTION C-C

RM-37, TYPE I JUNCTION BOX

WATERTIGHT, CAST IRON - FLUSH MOUNT



EXPANSION CHAMBER LENGTH IS 9 INCHES.

EXPANSION FITTING DETAIL

(4 REQUIRED)

LIGHTING NOTES:

SEE RM-37 STANDARD ROAD PLAN FOR ADDITIONAL INFORMATION ON JUNCTION BOXES.

CONSTRUCTION SHALL CONFORM TO THE CURRENT IOWA D.O.T. STANDARD AND SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS.

CONDUIT INSTALLATION SHALL BE IN ACCORDANCE WITH ARTICLE 2523.03, N, OF THE STANDARD SPECIFICATIONS.

ALL "C" ENTRANCE HOLES IN JUNCTION BOXES SHALL BE DRILLED AND TAPPED FOR THE SPECIFIED CONDUIT SIZE. ALL OTHER HOLES SHALL HAVE A CONCRETE - TIGHT SLIP FIT. CONDUIT ENDS SHALL NOT PROTRUDE INTO JUNCTION BOX MORE THAN $\frac{1}{4}$". DRAIN PIPE END SHALL BE FLUSH WITH INSIDE SURFACE OF BOX. GROUNDING BUTTONS SHALL BE LOCATED APPROXIMATELY 3" FROM THE INSIDE SURFACE OF THE BOX WALL, AND NOT CLOSER THAN 3" TO THE EDGE OF ANY HOLE IN THE BOX FLOOR. HOLES FOR DRAIN PIPE SHALL BE PLACED IN THE LOW CORNER OF THE BOX, WITH A MINIMUM CLEARANCE OF 1" BETWEEN THE EDGE OF THE HOLE AND THE INSIDE SURFACE OF THE BOX WALL. TYPICAL DETAILS ARE SHOWN ON THIS SHEET.

THE RIGID STEEL CONDUIT, JUNCTION BOXES AND FITTINGS INCLUDING LABOR AND ANY ADDITIONAL WORK TO DO THE INSTALLATION IS CONSIDERED INCIDENTAL TO THE COST OF THE RAILING.

EXPANSION FITTING SHALL BE AS SPECIFIED OR AS APPROVED BY THE ENGINEER. TYPICAL DETAILS ARE SHOWN ON THIS SHEET.

NOTE: FOR LOCATION OF CONDUITS NEEDED SEE DES. SH. 42.

DESIGN FOR 0° SKEW

770'-0 x 77' CONTINUOUS WELDED GIRDER BRIDGE STAGE 2

115'-0 END SPANS 4-135'-0 INTERIOR SPANS

LIGHTING DETAILS

STATION: 1935+86.00 JANUARY, 2012

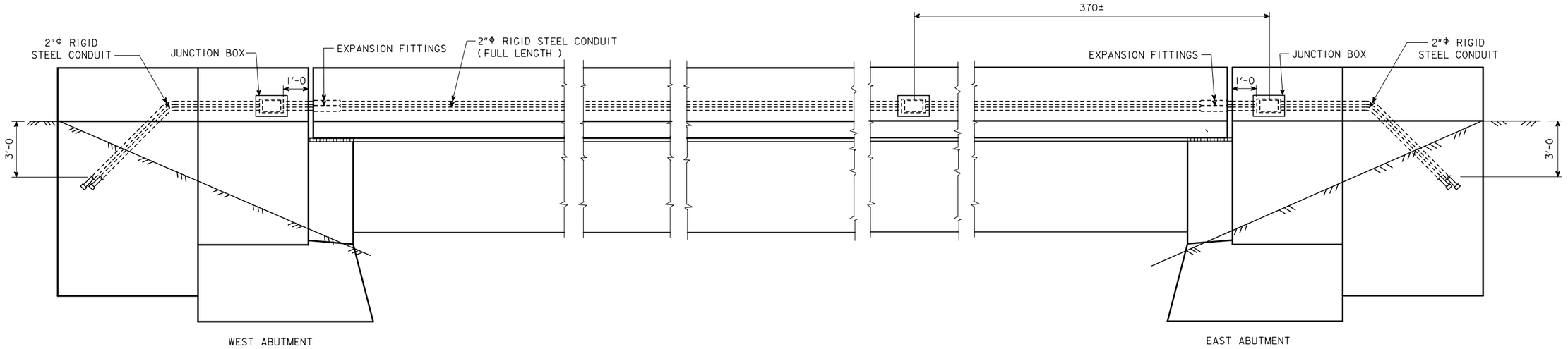
WAPELLO COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

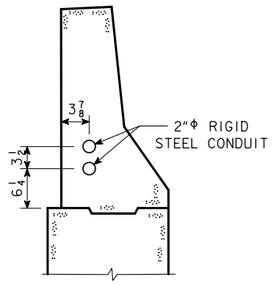
DESIGN SHEET NO. 41 OF 45 FILE NO. 30503 DESIGN NO. 112

CORRECTION 10-10 - CHANGED THE CONDUIT INSTALLATION ARTICLE 2523 TO ARTICLE 2523.03, N.
ENGLISHDECKRAILBRIDGES.DGN 1030AS1 - THIS SHEET REDRAWN 9-8-88

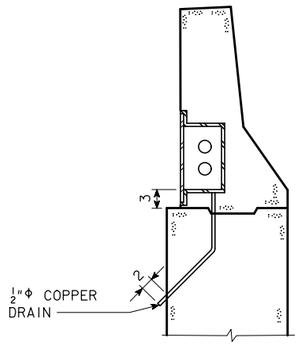
1/30/2012 2:23:21 PM dwrigh2 W:\Projects\9003402006\BRFinal\90034130.brg 900112S041 11x17_pdf.pltcfg



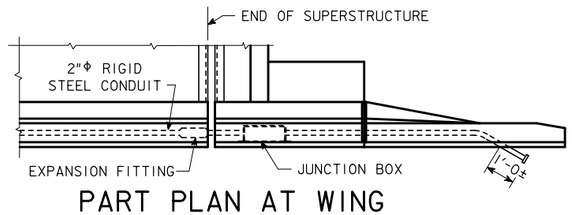
EXTERIOR ELEVATION - SOUTH BARRIER RAIL - LOOKING NORTH



SECTION THRU BARRIER RAIL



SECTION THRU JUNCTION BOX



PART PLAN AT WING

DESIGN FOR 0° SKEW

770'-0 x 77' CONTINUOUS WELDED GIRDER BRIDGE STAGE 2

115'-0 END SPANS 4-135'-0 INTERIOR SPANS

LIGHTING DETAILS

STATION: 1935+86.00 JANUARY, 2012

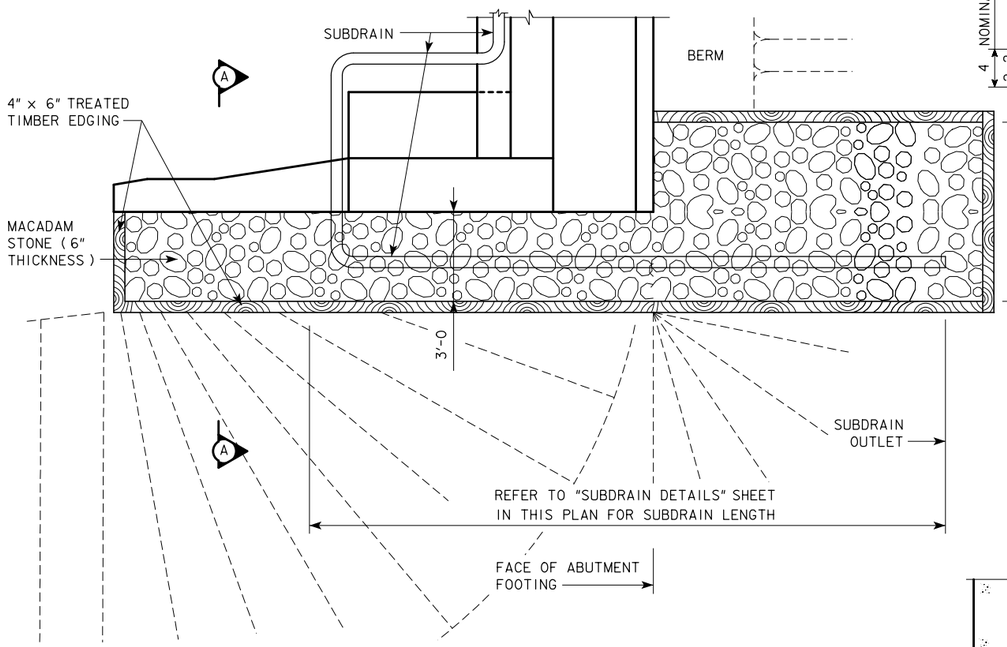
WAPELLO COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

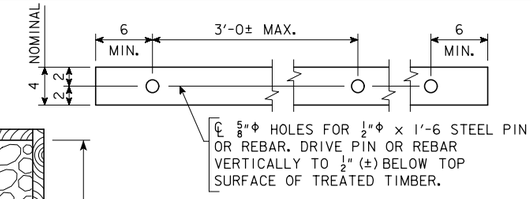
DESIGN SHEET NO. 42 OF 45 FILE NO. 30503 DESIGN NO. 112

CORRECTION 06-08 - CHANGED WING SHAPE IN ALL EXAMPLES. REMOVED TEMPORARY PAVING BLOCK IN PART PLAN AT WING VIEW. CHANGED CONDUIT SHAPE AT ENDS.
ENGLISHDECKRAILBRIDGES.DGN 1030AS2 - THIS SHEET ISSUED 09-03.

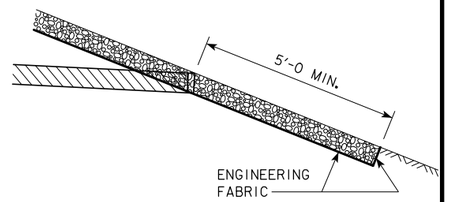
DESIGN TEAM WDT/DAW/DLB	LIGHTING DETAILS (2 OF 2)	STANDARD SHEET 1030A	WAPELLO COUNTY	PROJECT NUMBER BRF-034-7(130)--38-90	SHEET NUMBER 43



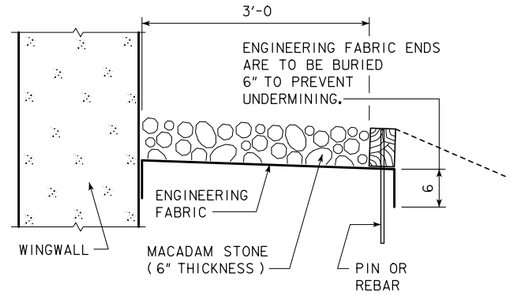
TOP VIEW OF WING ARMORING WITH WING EXTENSION



4" x 6" TREATED TIMBER EDGING DETAILS

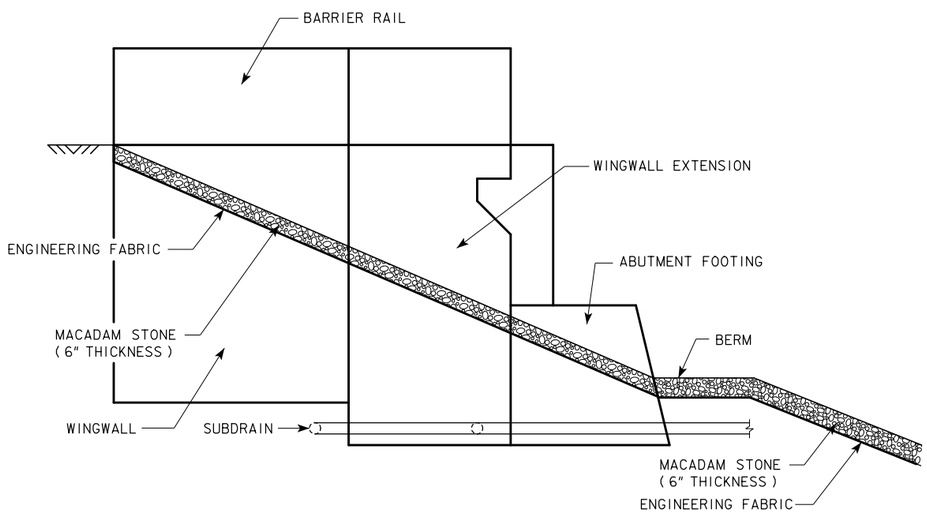


TYPICAL SECTION OF SUBDRAIN OUTLET



SECTION A-A

THE MACADAM STONE USED IN THE BRIDGE WING ARMORING DETAILS SHALL NOT BE SUBSTITUTED WITH REVETMENT MATERIAL. IF CLASS B OR CLASS E REVETMENT IS PRESENT, THE CONTRACTOR SHALL REMOVE THE REVETMENT TO THE ARMORING DIMENSIONS. THE REMOVED REVETMENT SHALL BE PLACED AS DIRECTED BY THE ENGINEER. IN ADDITION, A CHECK SHALL BE MADE AT THE SUBDRAIN OUTLET TO INSURE THAT IT IS DRAINING PROPERLY DURING THE BACKFILL FLOODING PROCESS.



PROFILE VIEW OF WING ARMORING WITH WING EXTENSION
(STUB ABUTMENT WITH WING EXTENSIONS)

GENERAL NOTES:

MACADAM STONE SHALL BE PLACED ALONG THE SIDE OF THE WING AND ABUTMENT FOOTING AS SHOWN IN SECTION A-A. THIS IS TYPICAL AT EACH CORNER OF THE BRIDGE UNLESS OTHERWISE NOTED IN THE PLANS. THE MACADAM STONE AT THESE LOCATIONS SHALL BE UNDERLAYED WITH ENGINEERING FABRIC IN ACCORDANCE WITH ARTICLE 4196.01, B, 3, OF THE STANDARD SPECIFICATIONS.

THE MACADAM STONE SHALL BE IN ACCORDANCE WITH SECTION 4122, OF THE STANDARD SPECIFICATIONS, COARSE MATERIAL (NO CHOKE STONE IS ALLOWED).

WOOD PRESERVATIVE TREATMENT FOR THE TIMBER EDGING SHALL MEET THE REQUIREMENTS FOR GUARDRAIL POSTS, SAWED FOUR SIDES, IN ACCORDANCE WITH SECTION 4161, OF THE STANDARD SPECIFICATIONS.

THE MACADAM STONE SHALL BE DEPOSITED, SPREAD, CONSOLIDATED AND SHAPED BY MECHANICAL OR HAND METHODS THAT WILL PROVIDE UNIFORM 6" DEPTH AND DENSITY AND PROVIDE UNIFORM SURFACE APPEARANCE.

PAYMENT FOR THE BRIDGE WING ARMORING SHALL BE INCIDENTAL TO THE BID ITEM "STRUCTURAL CONCRETE (BRIDGE)" AND SHALL INCLUDE COSTS OF ALL MATERIAL AND LABOR TO CONSTRUCT THE WING ARMORING AS SHOWN ON THESE PLANS.

DESIGN FOR 0° SKEW

770'-0 x 77' CONTINUOUS WELDED GIRDER BRIDGE STAGE 2

115'-0 END SPANS — 4-135'-0 INTERIOR SPANS

BRIDGE WING ARMORING

STATION: 1935+86.00 — JANUARY, 2012

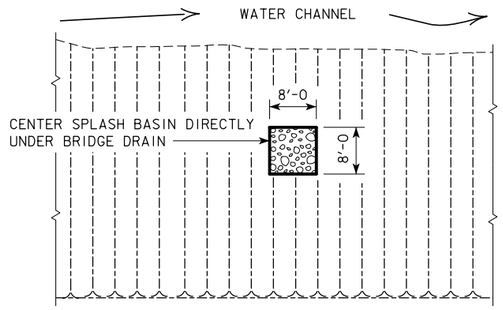
WAPELLO COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 43 OF 45 — FILE NO. 30503 — DESIGN NO. 112

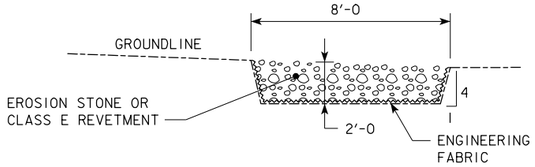
REVISED 10-09 - THE SPECIFICATION REFERENCES CHANGED AND ADDED A STATEMENT ABOUT NO SUBSTITUTION FOR MACADAM STONE.
ENGLISHFORESLOPEPROTECTIONBRIDGES.DGN 1005A - THIS SHEET ISSUED 06-02.

BENCH MARK NO. 559 - STA 1932+12.44, 32.07' RT., FD. DOT BUTTON SE COR. BRG. - ELEV.=653.04

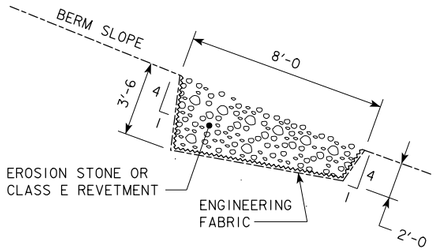


SPLASH BASIN UNDER BRIDGE DRAIN PLAN VIEW

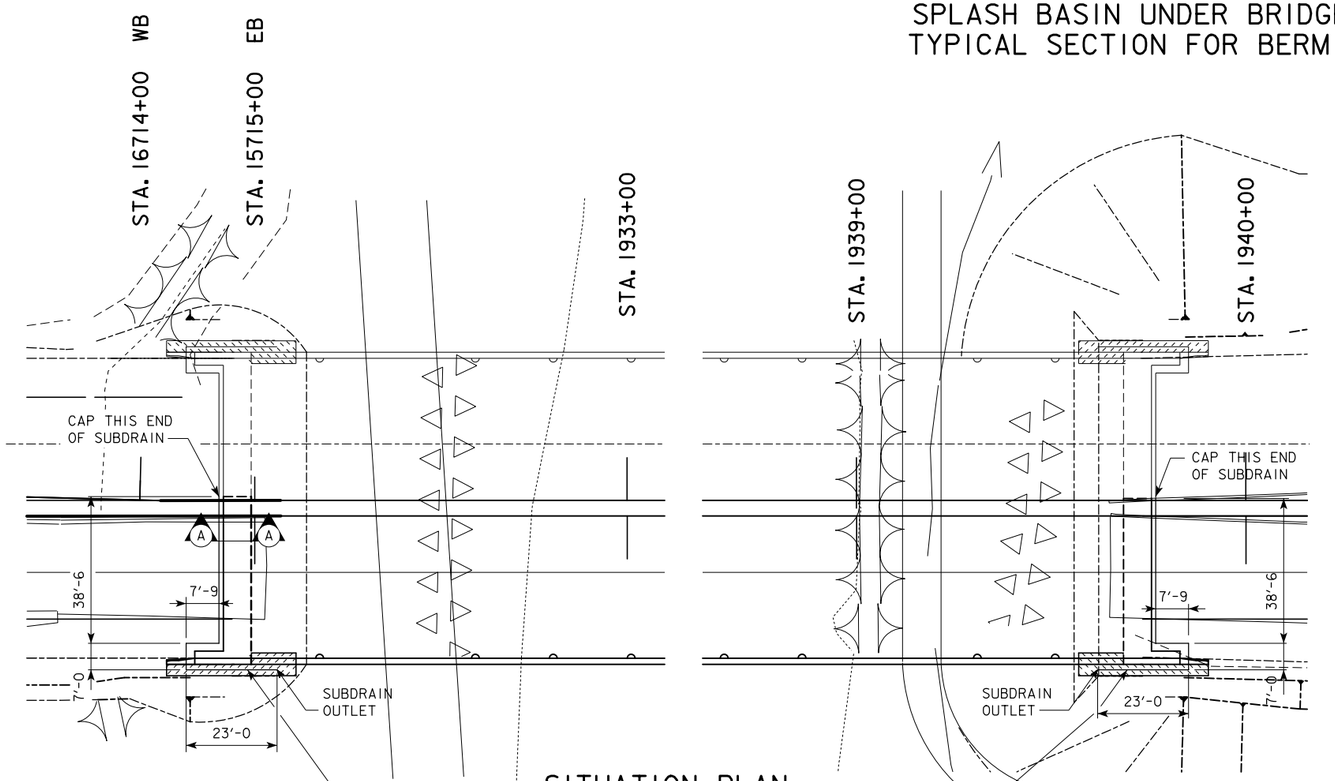
FOR LOCATIONS OF FLOOR DRAINS AND SPLASH BASINS SEE SITUATION PLAN.



SPLASH BASIN UNDER BRIDGE DRAIN TYPICAL SECTION FOR EXISTING GRADES



SPLASH BASIN UNDER BRIDGE DRAIN TYPICAL SECTION FOR BERM SLOPES



SITUATION PLAN

SHOWING SUBDRAINS

4"Φ PERFORATED SUBDRAIN TO BE SLOPED DOWNWARD FROM THE CAPPED END AND OUTLET AS INDICATED. RATE OF SLOPE SHALL NOT BE FLATTER THAN 2%.

NOTE:
SECTION A- A IS SHOWN ON ABUTMENT BACKFILL DETAILS SHEET.

SUBDRAIN NOTES:

THIS PLAN SHEET SHOWS DETAILS FOR PLACING ALL SUBDRAINS AND SUBDRAIN OUTLETS REQUIRED FOR THIS STRUCTURE.

THE SUBDRAINS SHALL BE 4" IN DIAMETER AND SHALL BE IN ACCORDANCE WITH ARTICLE 4143.01, B, OF THE STANDARD SPECIFICATIONS. THE SUBDRAIN OUTLET SHALL CONSIST OF A 6'-0 LENGTH OF PIPE WITH A REMOVABLE RODENT GUARD AS DETAILED ON THIS SHEET.

THE COST OF FURNISHING AND PLACING SUBDRAIN (INCLUDING EXCAVATION), GRANULAR BACKFILL, POROUS BACKFILL, AND SUBDRAIN OUTLET IS TO BE INCLUDED IN THE PRICE BID FOR "STRUCTURAL CONCRETE (BRIDGE)". NO EXTRA PAYMENT WILL BE MADE.

THE DIMENSIONS SHOWN FOR THE PROPOSED SUBDRAINS ARE BASED ON THE PROPOSED GRADING LAYOUT OF BRIDGE BERMS. THE DIMENSIONS SHOWN ARE FOR ESTIMATING ONLY. REQUIRED LENGTHS AND GENERAL LOCATIONS OF SUBDRAINS ARE SUBJECT TO CHANGE DUE TO FIELD ADJUSTMENTS OF THE GRADING LAYOUT.

SPLASH BASIN NOTES:

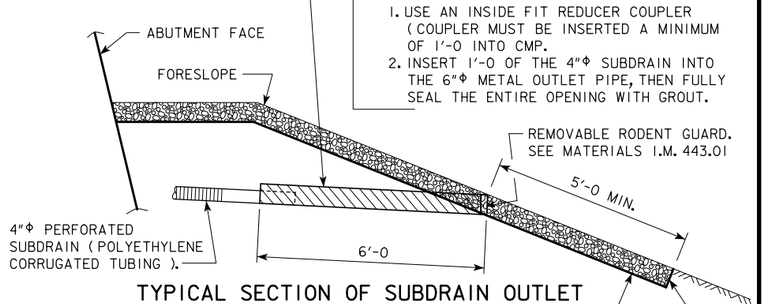
THE COST OF FURNISHING AND PLACING SPLASH BASINS (INCLUDING EXCAVATION, EROSION STONE OR CLASS E REVETMENT, AND ENGINEERING FABRIC) IS TO BE INCLUDED IN THE PRICE BID FOR "STRUCTURAL CONCRETE (BRIDGE)". NO EXTRA PAYMENT WILL BE MADE. TOTAL NUMBER OF SPLASH BASINS = 5.

SUBDRAIN OUTLET ELEVATIONS

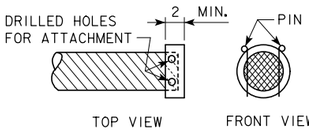
LOCATION	ELEVATION
WEST ABUTMENT	640.7
EAST ABUTMENT	640.8

6"Φ CORRUGATED METAL PIPE OUTLET, OR 4"Φ CORRUGATED DOUBLE-WALLED PE OR PVC PIPE OUTLET WITH AN APPROPRIATE COUPLER. IF METAL PIPE IS USED, THE PIPES SHOULD BE COUPLED IN ONE OF THE TWO FOLLOWING WAYS.

1. USE AN INSIDE FIT REDUCER COUPLER (COUPLER MUST BE INSERTED A MINIMUM OF 1'-0 INTO CMP.
2. INSERT 1'-0 OF THE 4"Φ SUBDRAIN INTO THE 6"Φ METAL OUTLET PIPE, THEN FULLY SEAL THE ENTIRE OPENING WITH GROUT.



TYPICAL SECTION OF SUBDRAIN OUTLET



REMOVABLE RODENT GUARD DETAILS

OUTLET DETAILS

DESIGN FOR 0° SKEW

770'-0 x 77' CONTINUOUS WELDED GIRDER BRIDGE STAGE 2

115'-0 END SPANS 4-135'-0 INTERIOR SPANS

SPLASH BASIN & SUBDRAIN DETAILS

STATION: 1935+86.00 JANUARY, 2012

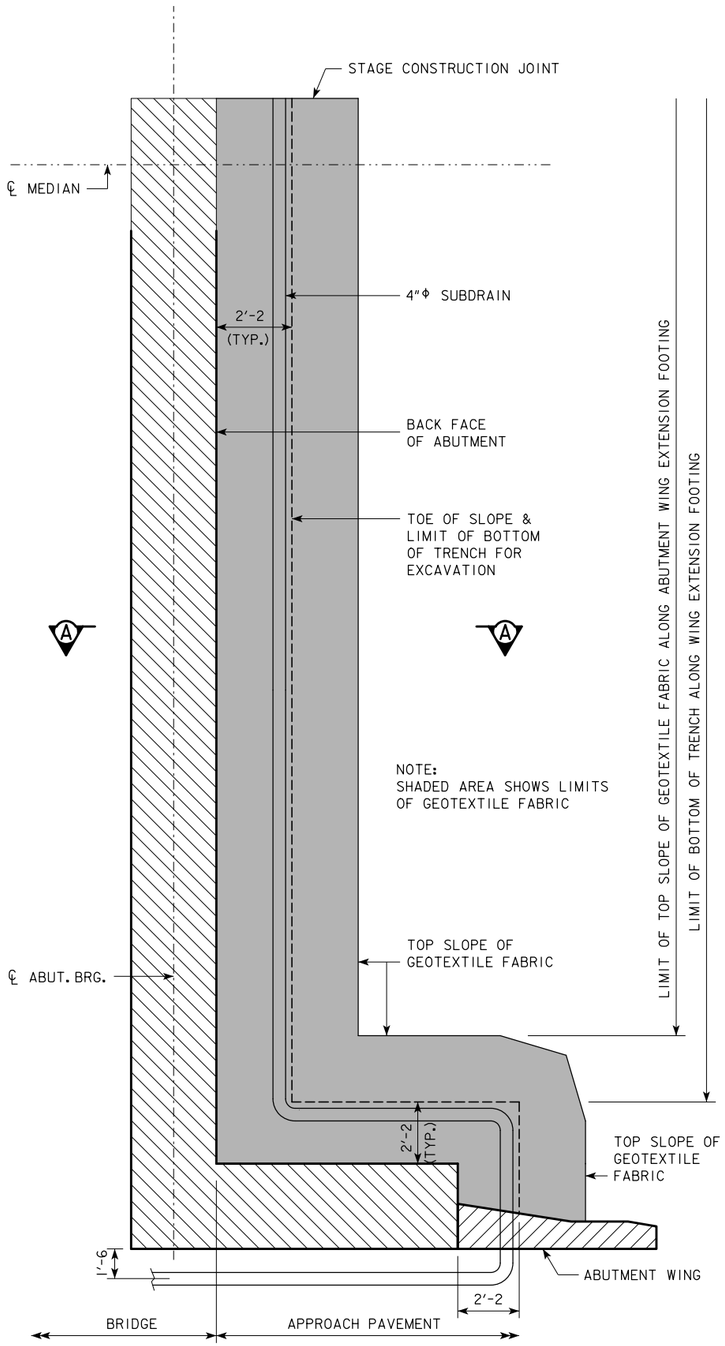
WAPELLO COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 44 OF 45 FILE NO. 30503 DESIGN NO. 112

REVISED 10-09 - THE SPECIFICATION REFERENCES CHANGED.
ENGLISHFORESLOPEPROTECTIONBRIDGES.DGN 1007C - THIS SHEET ISSUED 06-02 FOR WATER CROSSINGS.

DESIGN TEAM WDT/DAW/DLB	SPLASH BASIN & SUBDRAIN DETAILS (WATER CROSSING)	STANDARD SHEET 1007C	WAPELLO COUNTY	PROJECT NUMBER BRF-034-7(130)--38-90	SHEET NUMBER 45



ABUTMENT PLAN WITH WING EXTENSIONS

TECHNICAL DATA INFORMATION - GEOTEXTILE FABRIC				
MECHANICAL PROPERTIES	TEST METHOD	UNIT	MINIMUM AVERAGE ROLL VALUE	
			MD	CD
TENSILE STRENGTH (AT 5% STRAIN)	ASTM D 4595	kN/m (LBS/FT)	19.8 (1356)	19.8 (1356)
APPARENT OPENING SIZE (AOS)	ASTM D 4751	mm (U.S. SIEVE)	0.43 MAX (#40)	
FLOW RATE	ASTM D 4491	$L/MIN/m^2$ ($GAL/MIN/FT^2$)	733 (18)	
UV RESISTANCE (AT 500 HOURS)	ASTM D 4355	% STRENGTH RETAINED	70	

ABUTMENT BACKFILL PROCESS:

THE BASE OF THE EXCAVATION SUBGRADE BEHIND THE ABUTMENT IS TO BE GRADED WITH A 4% SLOPE AWAY FROM THE ABUTMENT FOOTING AND A 2% CROSS SLOPE IN THE DIRECTION OF THE SUBDRAIN OUTLET. THIS EXCAVATION SHAPING IS TO BE DONE PRIOR TO BEGINNING INSTALLATION OF THE GEOTEXTILE AND BACKFILL MATERIAL.

AFTER THE SUBGRADE HAS BEEN SHAPED, THE GEOTEXTILE FABRIC SHALL BE INSTALLED IN ACCORDANCE WITH THE DETAILS SHOWN. THE FABRIC IS INTENDED TO BE INSTALLED IN THE BASE OF THE EXCAVATION AND EXTENDED VERTICALLY UP THE ABUTMENT BACKWALL, ABUTMENT WING WALLS, AND EXCAVATION FACE TO A HEIGHT THAT WILL BE APPROXIMATELY 1 TO 2 FOOT HIGHER THAN THE HEIGHT OF THE POROUS BACKFILL PLACEMENT AS SHOWN IN THE "BACKFILL DETAILS" ON THIS SHEET. THE STRIPS OF THE FABRIC PLACED SHALL OVERLAP APPROXIMATELY 1 FOOT AND SHALL BE PINNED IN PLACE. THE FABRIC SHALL BE ATTACHED TO THE ABUTMENT BY USING LATH FOLDED IN THE FABRIC AND SECURED TO THE CONCRETE WITH SHALLOW CONCRETE NAILS. THE FABRIC PLACED AGAINST THE EXCAVATION FACE SHALL BE PINNED.

WHEN THE FABRIC IS IN PLACE, THE SUBDRAIN SHALL BE INSTALLED DIRECTLY ON THE FABRIC AT THE TOE OF THE REAR EXCAVATION SLOPE. A SLOT WILL NEED TO BE CUT IN THE FABRIC AT THE POINT WHERE THE SUBDRAIN EXITS THE FABRIC NEAR THE END OF THE ABUTMENT WING WALL.

POROUS BACKFILL IS THEN PLACED AND LEVELED, NO COMPACTION IS REQUIRED.

THE REMAINING WORK INVOLVES BACKFILLING WITH FLOODABLE BACKFILL, SURFACE FLOODING, AND VIBRATORY COMPACTION. THE FLOODABLE BACKFILL MATERIAL SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. THE FLOODABLE BACKFILL SHALL BE PLACED IN INDIVIDUAL LIFTS, SURFACE FLOODED, AND COMPACTED WITH VIBRATORY COMPACTION TO ENSURE FULL CONSOLIDATION. LIMIT THE LOOSE LIFTS TO NO MORE THAN 2 FEET OF THICKNESS.

START SURFACE FLOODING FOR EACH FLOODABLE BACKFILL LIFT AT THE HIGH POINT OF THE SUBDRAIN AND PROGRESS TO THE LOW POINT WHERE THE SUBDRAIN EXITS THE FABRIC. TO ENSURE UNIFORM SURFACE FLOODING, WATER RUNNING FULL IN A 2-INCH DIAMETER HOSE SHOULD BE SPRAYED IN SUCCESSIVE 6-FOOT TO 8-FOOT INCREMENTS FOR 3 MINUTES WITHIN EACH INCREMENT.

FLOODABLE BACKFILL LIFT PLACEMENT, FLOODING, AND COMPACTION SHALL PROGRESS UNTIL THE REQUIRED FULL THICKNESS OF THE ABUTMENT BACKFILL HAS BEEN COMPLETED.

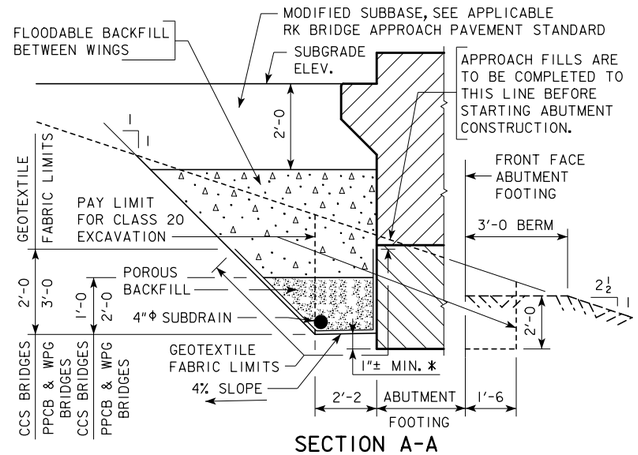
WATER REQUIRED FOR FLOODING, SUBDRAINS, POROUS BACKFILL, FLOODABLE BACKFILL, AND GEOTEXTILE FABRIC FURNISHED AT THE BRIDGE ABUTMENTS WILL NOT BE MEASURED SEPARATELY FOR PAYMENT.

THE COST OF WATER REQUIRED FOR FLOODING, SUBDRAINS, POROUS BACKFILL, FLOODABLE BACKFILL, AND GEOTEXTILE FABRIC FURNISHED AT THE BRIDGE ABUTMENTS SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE BID FOR STRUCTURAL CONCRETE (BRIDGE).

NOTE:

SUBDRAIN SHALL SLOPE DOWNWARD 2% FROM ℄ APPROACH ROADWAY WHEN OUTLETTING BOTH SIDES OF THE ABUTMENT.

SUBDRAIN SHALL SLOPE DOWNWARD 2% FROM HIGH END WHEN OUTLETTING AT ONE END OF THE ABUTMENT.



SECTION A-A

BACKFILL DETAILS

NOTE: GEOTEXTILE FABRIC WILL BE ATTACHED TO FACE OF ABUTMENT FOOTING AND WINGS.

* DIMENSION VARIES DUE TO 2% SUBDRAIN SLOPE.

NOTE:
SEE SUBDRAIN DETAILS SHEET FOR DETAILS NOT SHOWN ON THIS SHEET WHICH ARE PERTINENT TO THIS STRUCTURE.

DESIGN FOR 0° SKEW

770'-0 x 77' CONTINUOUS WELDED GIRDER BRIDGE STAGE 2

115'-0 END SPANS 4-135'-0 INTERIOR SPANS

ABUTMENT BACKFILL DETAILS

STATION: 1935+86.00 JANUARY, 2012

WAPELLO COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 45 OF 45 FILE NO. 30503 DESIGN NO. 112

REVISION 10-09 - CHANGED PERMEABILITY DATA TO APPARENT OPENING SIZE DATA.
ENGLISHFORESLOPEPROTECTIONBRIDGES.DGN - 1007E - THIS SHEET ISSUED 08-07.

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INDEX OF SHEETS

* Color Plan Sheets

Design No. 0112
File No. 30503

Wapello County

ROADWAY DESIGN

I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

Signature — 2-6-2012 Date

Paul W. Flattery
Printed or Typed Name

My license renewal date is December 31, 2013

Pages or sheets covered by this seal: A.1, B.1-B.3, C.1-C.9, D.1-D.2, G.1-G.3, J.1-J.10, U.1-U.3, W.1-W.12

ENGLISH	IOWA DOT	DESIGN TEAM Flattery\Johnson	WAPELLO COUNTY	PROJECT NUMBER BRF-034-7(130)--38-90	SHEET NUMBER A.1

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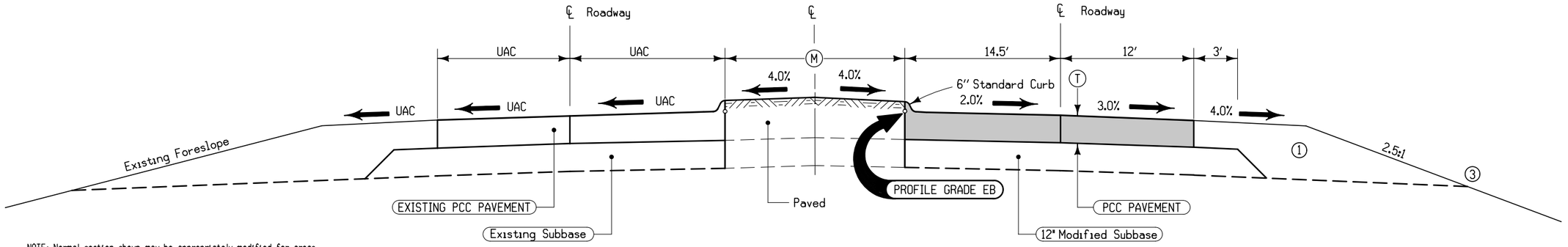


NOTE: Normal section shown may be appropriately modified for areas specifically designated by the Engineer such as intersections or superelevated curves.

(1) Refer to Typical SHLD 1 and Typical 7156 for details of shoulder design and construction.

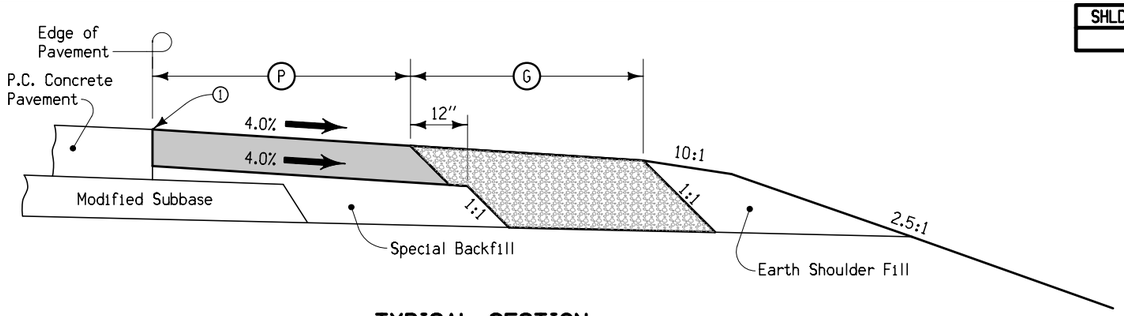
(2) Eqn: Sta. 15715+06.69 BK = 1932+11.03, 2′ LT. AH

(3) Refer to Cross Sections for side slopes behind guardrail.

LOCATION			(T)	(M)	SHOULDER TYPE
ROAD IDENTIFICATION	STATION TO STATION		Inches	Feet	
(2) US 34 EB	15713+50.00	15714+26.66	12	7.4-5.3	Combination

TYPICAL CROSS SECTION
4-LANE DIVIDED ROADWAY
PCC PAVEMENT WITH CURBED MEDIAN

SHLD-1



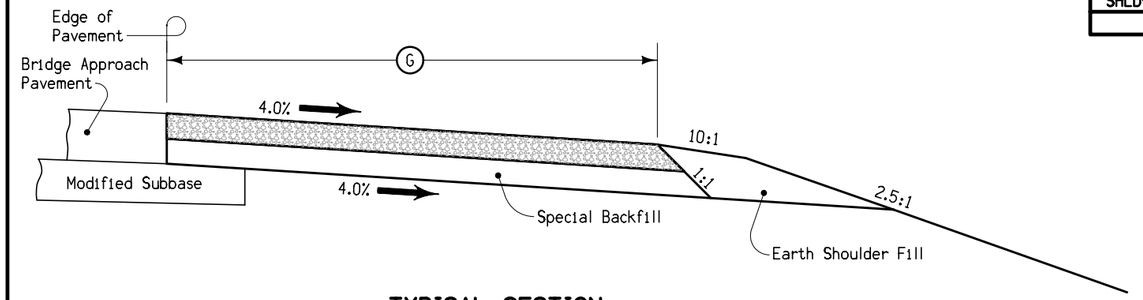
TYPICAL SECTION
6″ HMA Paved Shoulder

LOCATION			(P)	(G)	SIDE	Remarks
ROAD IDENTIFICATION	STATION TO STATION		Feet	Feet		
US 34 EB	15713+50.00	15713+69.28	6	8.0-8.6	RT	See Tab 112-9 for Quantities.

Notes:

(1) 'B' Joint

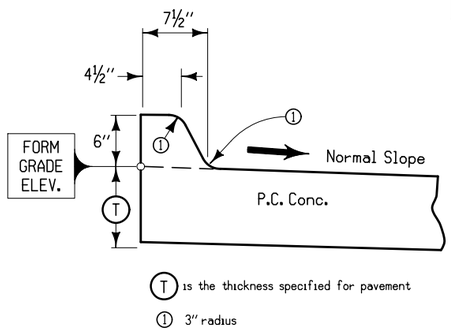
SHLD-2



TYPICAL SECTION
Granular Shoulder

LOCATION			(G)	SIDE	Remarks
ROAD IDENTIFICATION	STATION TO STATION		Feet		
US 34 EB	1940+12.26	1940+42.25	10.0	RT	See Tab 112-9 for Quantities.

6127M
MODIFIED



(T) is the thickness specified for pavement

(1) 3″ radius

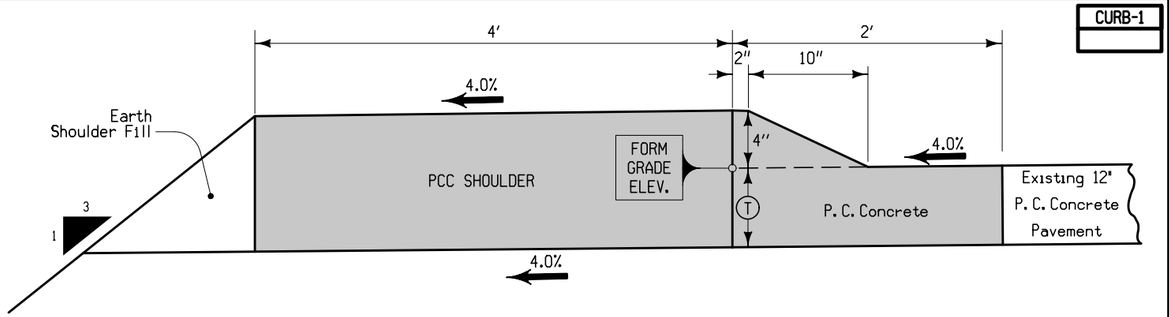
DETAILS OF INTEGRAL
6″ STANDARD CURB

Design No. 0112
File No. 30503

ENGLISH	IOWA DOT	DESIGN TEAM Flattery\Johnson	WAPELLO COUNTY	PROJECT NUMBER BRF-034-7(130)--38-90	SHEET NUMBER B.1

9:01:19 AM 2/5/2012 ajohns1 W:\Projects\9003402006\Design\(130)_Bridge\90034130B.sht

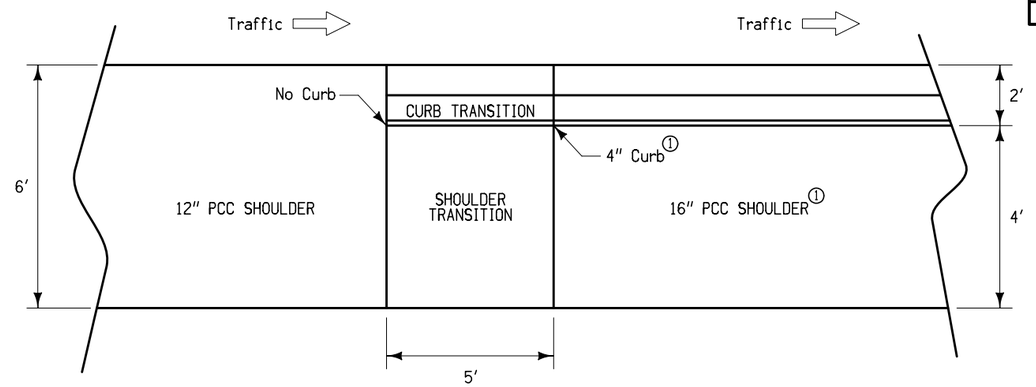
CURB-1



LOCATION			T	2' CURB & GUTTER	PCC SHOULDER	EARTH SHOULDER CONSTRUCTION	
ROAD IDENTIFICATION	STATION TO STATION		Inches	Feet	SY	STA	CY
Roundabout LEG2 to LEG3	12708+38.17	412+40.20	12	250.4	111.3	2.50	24.8
Roundabout LEG4 to LEG5	412+40.20	15710+77.29	12	171.9	76.4	1.72	17.0
Roundabout LEG6 to LEG1	16710+19.80	11708+79.37	12	195.4	86.8	1.95	19.3
		Totals		617.7	274.5	6.17	61.1

SLOPED 4" PCC CURB & GUTTER

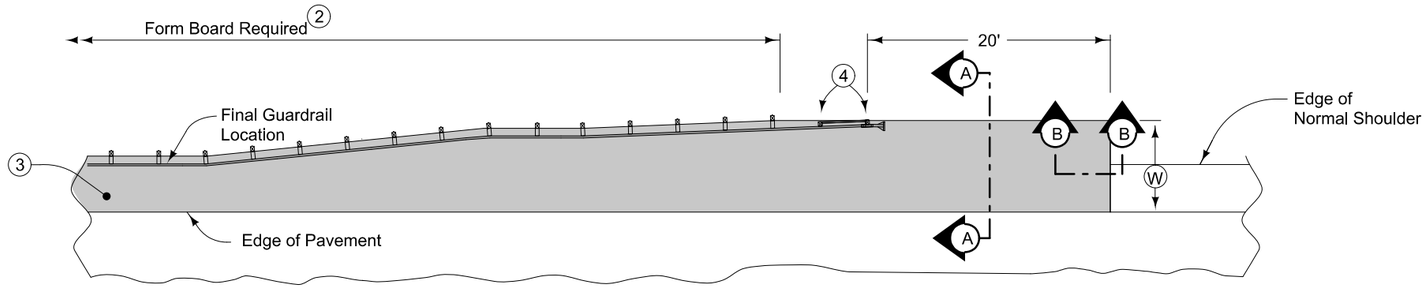
CURB-2



NOTES:
① See Typical CURB1 for details.

12" to 16" CURB TRANSITION

7156
04-17-12

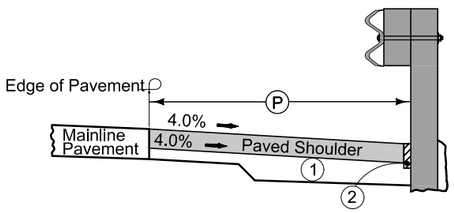


6" HMA Paved Shoulder at guardrail. 7" PCC may be substituted with the following jointing layout:

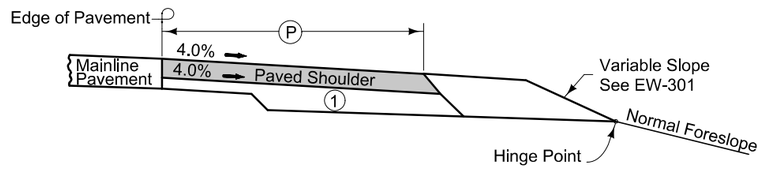
Match mainline pavement joint spacing. When mainline pavement is 8" or greater in thickness, place additional transverse joints in shoulder at mid-panel of the mainline pavement. Place longitudinal joint at W/2 from edge of mainline pavement when W is greater than 10' wide. Terminate longitudinal joint at transverse joint less than 10' in length.

Compaction of HMA is required to face of guardrail post. Hand compaction will be allowed under guardrail. Removal & reinstallation of guardrail will be allowed with no additional payment.

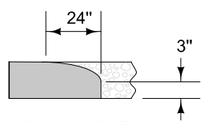
Refer to Shoulder tabulation (112-9) for quantities.



Typical Section with Form Board



Section A-A



Section B-B
Roll down at granular shoulder or earth.

① 6" subgrade treatment.

② When guardrail posts are installed prior to construction of paved shoulder, nail 1" x 6" untreated form boards along the face of guardrail posts for the length shown. This board is to prevent shoulder material from contacting the sides of the posts and altering the function of the guardrail. Form board not required for final 2 posts.

③ Continue paved shoulder to existing paved shoulder or 20' beyond the end of guardrail.

④ Shoulder may be notched for final 2 posts or post sleeves may be installed through pavement.

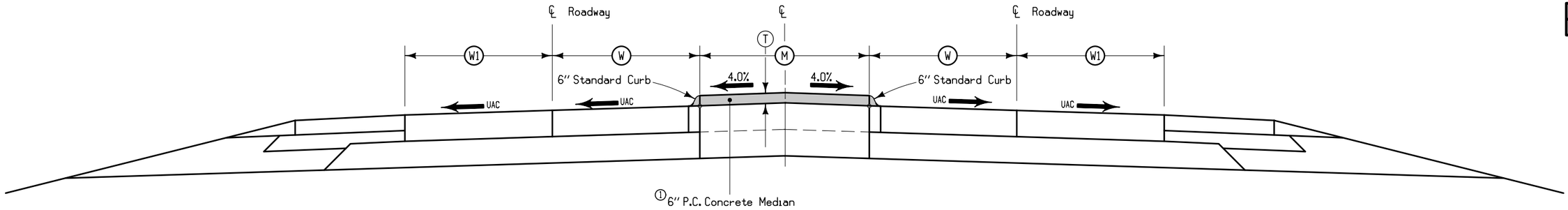
PAVED SHOULDER AT GUARDRAIL

Design No. 0112
File No. 30503

ENGLISH	IOWA DOT	DESIGN TEAM Flattery\Johnson	WAPELLO COUNTY	PROJECT NUMBER BRF-034-7(130)--38-90	SHEET NUMBER B.2

9:01:20 AM 2/5/2012 ajohns1 W:\Projects\9003402006\Design\(130)_Bridge\90034130B.sht

X-OVER

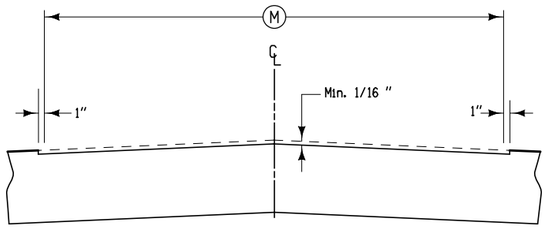


LOCATION			T	M	W	W1	PCC MEDIAN
ROAD IDENTIFICATION	STATION TO STATION		Inches	Feet	Feet	Feet	SY
US 34 EB	15712+74.16	15714+26.66	6	9.5-5.3	UAC	UAC	125.5
		Total					125.5

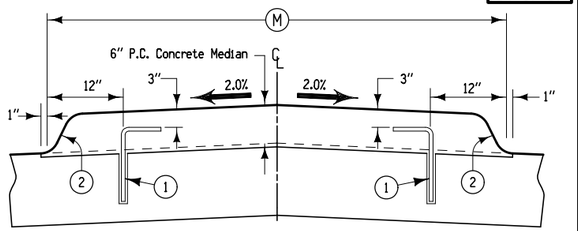
NOTES:
① See Typical 6149 for details.

TYPICAL CROSS SECTION FOR PCC PAVEMENT CURBED MEDIAN AT CROSSOVER

6149
04-17-07

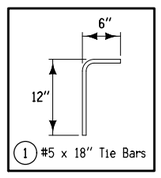


Details of Milling



Details of Median Placement

Notes:
This section may be appropriately modified in areas specifically designated by the Engineer.
Use 'C' joints in the doweled median and match the location of all transverse and longitudinal joints to the joints in the existing pavement.
Place tie bars at 24" C-C longitudinal spacing between joints in existing pavement. Drill ¾" holes for tie bars and epoxy to new pavement. See Tabulation 112-5 for additional details. Epoxy material shall be as specified in Materials IM491.11, appendix C.



② 6" Standard Curb

DOWELED MEDIAN WITH STANDARD CURB

Design No. 0112
File No. 30503

ENGLISH	IOWA DOT	DESIGN TEAM Flattery\Johnson	WAPELLO COUNTY	PROJECT NUMBER BRF-034-7(130)--38-90	SHEET NUMBER B.3

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100-1D
10-18-05

PROJECT DESCRIPTION

This project includes the Eastbound bridge and bridge approach replacement along US 34. Also included is the replacement of guardrail, the placement of paved shoulders, and curb and shoulder work inside the roundabout. Traffic will be maintained on US 63 and US 34 at all times with two way, two lane traffic in the westbound lanes by utilizing crossovers.

100-1C
04-17-12

ESTIMATED PROJECT QUANTITIES (UP TO A 5 DIVISION PROJECT)

Division 1: US 34 roadway, bridge approach, and shoulder items.
Division 2: Guardrail deliver and stockpile item.

Item No.	Item Code	Item	Unit	Quantities										
				Estimated						As Built				
				Division 1	Division 2	Division 3	Division 4	Division 5	Total	Division 1	Division 2	Division 3	Division 4	Division 5
1	2102-0425070	SPECIAL BACKFILL	TON	93.4					93.4					
2	2102-2625000	EMBANKMENT-IN-PLACE	CY	16.5					16.5					
3	2102-2713090	EXCAVATION, CLASS 13, WASTE	CY	186.8					186.8					
4	2115-0100000	MODIFIED SUBBASE	CY	80					80					
5	2121-7425010	GRANULAR SHOULDERS, TYPE A	TON	29.9					29.9					
6	2122-5190501	PAVED SHOULDER, PORTLAND CEMENT CONCRETE (PAVED SHOULDER PANEL FOR BRIDGE END DRAIN)	SY	73.3					73.3					
7	2122-5500060	PAVED SHOULDER, HOT MIX ASPHALT MIXTURE, 6 IN.	SY	118.1					118.1					
8	2123-7450000	SHOULDER CONSTRUCTION, EARTH	STA	7.97					7.97					
9	2301-0690200	BRIDGE APPROACH, RK-20	SY	553.5					553.5					
10	2301-1033120	STANDARD OR SLIP FORM PORTLAND CEMENT CONCRETE PAVEMENT, CLASS C, CLASS 3 DURABILITY, 12 IN.	SY	210					210					
11	2301-4875006	MEDIAN, P.C. CONCRETE, 6 IN.	SY	125.5					125.5					
12	2412-0000100	LONGITUDINAL GROOVING IN CONCRETE	SY	3741					3741					
13	2505-4008120	REMOVAL OF STEEL BEAM GUARDRAIL	LF	105					105					
14	2505-4008300	STEEL BEAM GUARDRAIL	LF	12.5					12.5					
15	2505-4008400	STEEL BEAM GUARDRAIL BARRIER TRANSITION SECTION	EACH	1					1					
16	2505-4021010	STEEL BEAM GUARDRAIL END ANCHOR, BOLTED	EACH	1					1					
17	2505-4021700	STEEL BEAM GUARDRAIL END TERMINAL	EACH	1					1					
18	2510-6745850	REMOVAL OF PAVEMENT	SY	1117.7					1117.7					
19	2511-7526006	SIDEWALK, P.C. CONCRETE, 6 IN.	SY	58.4					58.4					
20	2512-1725206	CURB AND GUTTER, P.C. CONCRETE, 2.0 FT.	LF	617.7					617.7					
21	2518-6910000	SAFETY CLOSURE	EACH	4					4					
22	2520-3350010	FIELD LABORATORY	EACH	1					1					
23	2526-8285000	CONSTRUCTION SURVEY	LS	1					1					
24	2527-9263109	PAINTED PAVEMENT MARKING, WATERBORNE OR SOLVENT-BASED	STA	44.88					44.88					
25	2527-9263112	PAINTED PAVEMENT MARKINGS, HIGH-BUILD WATERBORNE	STA	60.82					60.82					
26	2527-9263131	WET RETROREFLECTIVE REMOVABLE TAPE MARKINGS	STA	32.57					32.57					
27	2527-9263180	PAVEMENT MARKINGS REMOVED	STA	104.07					104.07					
28	2528-8400048	TEMPORARY BARRIER RAIL, CONCRETE	LF	1125					1125					
29	2528-8400157	TEMPORARY FLOODLIGHTING LUMINAIRE	EACH	4					4					
30	2528-8445110	TRAFFIC CONTROL	LS	1					1					
31	2528-8445113	FLAGGERS	EACH	See Proposal					See Proposal					
32	2528-9109020	TEMPORARY LANE SEPARATOR SYSTEM	LF	1299					1299					
33	2529-5070110	PATCHES, FULL-DEPTH FINISH, BY AREA	SY	28.3					28.3					
34	2529-5070120	PATCHES, FULL-DEPTH FINISH, BY COUNT	EACH	2					2					
35	2533-4980005	MOBILIZATION	LS	1					1					
36	2555-0000010	DELIVER AND STOCKPILE SALVAGED MATERIALS	LS		1				1					
37	2599-9999018	PAVED SHOULDER, P.C. CONCRETE, 16 IN.	SY	274.5					274.5					
38	2601-2643401	TURF REINFORCEMENT MAT	SQ	8.2					8.2					
39	2601-2700010	OUTLET OR CHANNEL SCOUR PROTECTION	SF	64					64					
40	2602-0000020	SILT FENCE	LF	268.8					268.8					
41	2602-0000212	FLOATING SILT CURTAIN (HANGING)	LF	500					500					
42	2602-0000312	PERIMETER AND SLOPE SEDIMENT CONTROL DEVICE, 12 IN. DIA.	LF	200					200					

Design No. 0112
File No. 30503

ESTIMATE REFERENCE INFORMATION

Item No.	Item Code	Description
1	2102-0425070	**SPECIAL BACKFILL**
		See Typical SHLD-1, Typical SHLD-2, Typical 7156, and Tab 112-9 for details and locations.
-	-	-
2	2102-2625000	**EMBANKMENT-IN-PLACE**
		11.0 cubic yards for the construction of guardrail blisters. See Tab 107-23 and cross sections for details and locations.
		5.5 cubic yards for sideslope sliver fill behind east approach. See cross sections for details.
		Material should be generated from a contractor furnished borrow. No payment for overhaul will be allowed.
-	-	-
3	2102-2713090	**EXCAVATION, CLASS 13, WASTE**
		Quantity includes 80.0 cubic yards for the subbase (see Typical 3208M and Tab 100-24) and 106.8 cubic yards for the shoulders (see Typical SHLD-1, Typical SHLD-2, Typical 7156, and Tab 112-9).
-	-	-
4	2115-0100000	**MODIFIED SUBBASE**
		See Typical 3208M and Tab 100-24 for details and locations.
-	-	-
5	2121-7425010	**GRANULAR SHOULDERS, TYPE A**
		See Typical SHLD-1, Typical SHLD-2, and Tab 112-9 for details and locations.
-	-	-
6	2122-5190501	**PAVED SHOULDER, PORTLAND CEMENT CONCRETE (PAVED SHOULDER PANEL FOR BRIDGE END DRAIN)**
		See Tab 104-8A for details and locations.
-	-	-
7	2122-5500060	**PAVED SHOULDER, HOT MIX ASPHALT MIXTURE, 6 IN.**
		See Typical SHLD-1, Typical 7156, and Tab 112-9 for details and locations.
-	-	-
8	2123-7450000	**SHOULDER CONSTRUCTION, EARTH**
		See Typical SHLD-1, Typical SHLD-2, Typical CURB-1, Typical 7156, and Tab 112-9 for details and locations.
		Requires 88.7 cubic yards of Topsoil for Earth Shoulder Fill. No payment for overhaul allowed for this material. Material shall be contractor borrow.
-	-	-
9	2301-0690200	**BRIDGE APPROACH, RK-20**
		See Tab 112-6 and Detail Sheet U.1 for details and locations.
-	-	-
10	2301-1033120	**STANDARD OR SLIP FORM PORTLAND CEMENT CONCRETE PAVEMENT, CLASS C, CLASS 3 DURABILITY, 12 IN.**
		See Typical 3208M and Tab 100-24 for details and locations.
-	-	-
11	2301-4875006	**MEDIAN, P.C. CONCRETE, 6 IN.**
		See Typical X-OVER and Typical 6149 for details and locations.
-	-	-
12	2412-0000100	**LONGITUDINAL GROOVING IN CONCRETE**
		Quantity includes 3290 square yards on the bridge deck and 451.0 square yards on the bridge approaches. See Tab 100-28 for details and locations.
-	-	-
13	2505-4008120	**REMOVAL OF STEEL BEAM GUARDRAIL**
		See Tab 110-7A for details and locations. All beam guardrail is to be delivered to the Ottumwa Maintenance Garage and stockpiled as directed by the Engineer. All posts shall become the property of the Contractor.
-	-	-
14	2505-4008300	**STEEL BEAM GUARDRAIL**
15	2505-4008400	**STEEL BEAM GUARDRAIL BARRIER TRANSITION SECTION**
16	2505-4021010	**STEEL BEAM GUARDRAIL END ANCHOR, BOLTED**
17	2505-4021700	**STEEL BEAM GUARDRAIL END TERMINAL**
		See Tab 107-23 and Tab 108-8A for details and locations.
-	-	-
18	2510-6745850	**REMOVAL OF PAVEMENT**
		Quantity includes 705.9 square yards for the roadway, bridge approaches, and shoulders and 411.8 square yards for the shoulders at the roundabout. See Tab 102-5, Tab 110-1, and Detail Sheet U.3 for details and locations.
-	-	-
19	2511-7526006	**SIDEWALK, P.C. CONCRETE, 6 IN.**
		See Tab 113-1 for details and locations.
-	-	-
20	2512-1725206	**CURB AND GUTTER, P.C. CONCRETE, 2.0 FT.**
		See Typical CURB-1, Typical CURB-2, and Detail Sheet U.3 for details and locations.
-	-	-
21	2518-6910000	**SAFETY CLOSURE**
		See Tab 108-13A and J Sheets for details and locations.
-	-	-
22	2520-3350010	**FIELD LABORATORY**
		- -
-	-	-
23	2526-8285000	**CONSTRUCTION SURVEY**
		- -
-	-	-
24	2527-9263109	**PAINTED PAVEMENT MARKING, WATERBORNE OR SOLVENT-BASED**
25	2527-9263112	**PAINTED PAVEMENT MARKINGS, HIGH-BUILD WATERBORNE**
26	2527-9263131	**WET RETROREFLECTIVE REMOVABLE TAPE MARKINGS**
27	2527-9263180	**PAVEMENT MARKINGS REMOVED**
		See Tab 108-22 for details and locations.
-	-	-
28	2528-8400048	**TEMPORARY BARRIER RAIL, CONCRETE**
		See Tab 108-33 and J Sheets for details and locations.
-	-	-

100-4A
10-29-02

ESTIMATE REFERENCE INFORMATION

Item No.	Item Code	Description
29	2528-8400157	**TEMPORARY FLOODLIGHTING LUMINAIRE**
		See Tab 108-27 and J Sheets for details and locations.
-	-	-
30	2528-8445110	**TRAFFIC CONTROL**
		See J Sheets for details. Also includes 8 Type III Barricades for the bike trail closure. See Tab 113-2 and Detail Sheet U.2 and for details and locations.
-	-	-
31	2528-8445113	**FLAGGERS**
		- -
-	-	-
32	2528-9109020	**TEMPORARY LANE SEPARATOR SYSTEM**
		See Tab 108-35 and J Sheets for details and locations.
-	-	-
33	2529-5070110	**PATCHES, FULL-DEPTH FINISH, BY AREA**
34	2529-5070120	**PATCHES, FULL-DEPTH FINISH, BY COUNT**
		See Tab 102-6C for details and locations.
-	-	-
35	2533-4980005	**MOBILIZATION**
		- -
-	-	-
36	2555-0000010	**DELIVER AND STOCKPILE SALVAGED MATERIALS**
		See Tab 100-13 for details and locations.
-	-	-
37	2599-9999018	**PAVED SHOULDER, P.C. CONCRETE, 16 IN.**
		See Typical CURB-1, Typical CURB-2, and Detail Sheet U.3 for details and locations. The contractor shall install paved shoulder as per Section 2122 of the current specifications.
-	-	-
38	2601-2643401	**TURF REINFORCEMENT MAT**
39	2601-2700010	**OUTLET OR CHANNEL SCOUR PROTECTION**
		See Tab 104-8A for details and locations.
-	-	-
40	2602-0000020	**SILT FENCE**
		This item includes 25% more silt fence than the Tab 100-17 quantity for field adjustment and replacements.
		See Tab 100-17 for details and locations.
-	-	-
41	2602-0000212	**FLOATING SILT CURTAIN (HANGING)**
		See Tab 100-10 for details and locations.
-	-	-
42	2602-0000312	**PERIMETER AND SLOPE SEDIMENT CONTROL DEVICE, 12 IN. DIA.**
		This item is included for the temporary perimeter sediment control and water velocity reduction on slopes.
		Wattles and sediment logs shall consist of wood excelsior or straw contained in a tube of ultraviolet (UV) degradable open weave fabric (synthetic netting). Wattle or sediment log installation shall be as per manufacturer's recommended installation procedures.
		Filter socks shall be a continuous, tubular, knitted mesh netting with 3/8" opening, constructed of 5-mil thickness, photodegradable HDPE. The filter material shall be compost from an approved source meeting Article 4169.08 of the Standard Specifications. The sock shall be filled by blowing the filter material into the tube with a special pneumatic blower truck or similar device. Hand filling is not an acceptable means to fill the sock. Compost filter socks shall be installed as per manufacturer's recommended installation procedures.
-	-	-

Design No. 0112
File No. 30503

105-4
10-18-11

STANDARD ROAD PLANS

The following Standard Road Plans apply to construction work on this project.

Number	Date	Title
BA-200	10-18-11	Steel Beam Guardrail Components
BA-201	10-19-10	Steel Beam Guardrail Barrier Transition Section
BA-202	10-18-11	Steel Beam Guardrail Bolted End Anchor
BA-205	10-18-11	Steel Beam Guardrail End Terminal
BA-250	10-18-11	Steel Beam Guardrail Installation at Concrete Barrier or Bridge End Post
BA-401	04-20-10	Temporary Barrier Rail (Precast Concrete)
EC-201	04-20-10	Silt Fence
EC-202	04-17-12	Floating Silt Curtain
EW-202	04-17-12	Bridge Berm Grading without Recoverable Slope (Non-Barnroof Section)
EW-301	04-19-11	Guardrail Grading
PM-110	04-19-11	Line Types
PV-101	04-17-12	Joints
PV-102	04-19-11	PCC Curb Details
RF-19E	10-20-09	Outlets for Longitudinal, Transverse and Backslope Subdrains
RF-39	04-19-11	Scour Protection for Bridge End Drain
RK-20	04-17-12	Double Reinforced 12" Approach
RM-37	10-21-08	Junction Box (Cast Iron)
RM-48	10-17-06	Temporary Floodlighting
RR-4	04-19-11	Full Depth PCC Patch with Dowels
SI-173	04-20-10	Object Markers
SI-211	10-19-10	Object Marker and Delineator Placement with Guardrail
TC-1	10-18-11	Work Not Affecting Traffic (Two-Lane or Multi-Lane)
TC-81	04-20-10	Restricted Width Signing (Less Than 14.5 Feet)
TC-212	04-17-12	Spot Location Lane Closure with Flaggers
TC-402	04-17-12	Shoulder Closure (Multi-Lane)
TC-433	10-18-11	Pavement Marking Operations

111-25
10-18-11

INDEX OF TABULATIONS

232-3A
04-17-12

EROSION CONTROL (RURAL SEEDING)

Following the completion of work, place seed, fertilizer, and mulch on the portion of the area lying 8 feet adjacent to shoulder as follows:

SEEDING:
3 lbs. of Fescue or Fawn per 1000 sq. ft.

FERTILIZER:
17 lbs. of 13-13-13 (or equivalent) commercial fertilizer per 1000 sq. ft.

MULCH:
70 lbs. of dry cereal straw per 1000 sq. ft. Consolidate all mulch into the soil using a mulch stabilizer.

Preparing the seedbed and furnishing and applying seed, fertilizer, and mulch is incidental to mobilization. No extra compensation will be allowed.

232-3C
04-17-12

EROSION CONTROL (NATIVE GRASS SEEDING)

Following the completion of work, place seed, fertilizer, and mulch on the portion of the area lying 8 feet or more beyond the shoulder as follows:

SEEDING MIXTURE: Seeding Rate: 2 lbs. per 1000 sq. ft.

Canadian Wildrye (PLS)	10.0%
Indiangrass (PLS)	7.5%
Big Bluestem (PLS)	7.5%
Switchgrass (PLS)	2.5%
Little Bluestem (PLS)	2.5%
Sideoats Grama (PLS)	2.5%
Grain Rye	17.5%
Fescue, Tall	30.0%
Ryegrass, Perennial	20.0%

FERTILIZER:
5 lbs. of 13-13-13 (or equivalent) commercial fertilizer per 1000 sq. ft.

MULCH:
70 lbs. of dry cereal straw per 1000 sq. ft. Consolidate all mulch into the soil using a mulch stabilizer.

Preparing the seedbed and furnishing and applying seed, fertilizer, and mulch is incidental to mobilization. No extra compensation will be allowed.

232-8
10-18-11

EROSION CONTROL (DISTURBED AREAS)

Ensure the top 6 inches of the disturbed areas are free of rock and debris and are suitable for the establishment of vegetation, subject to the Engineer's approval.

232-10
10-28-97

EROSION CONTROL (EQUIPMENT FOR MAINTENANCE)

The contractor is expected to have materials, equipment, and labor available on a daily basis to install and maintain erosion control features on the project. This may involve seeding, silt fence, rock ditch checks, silt basins, or silt dikes.

252-1
10-18-11

DETOURS (INCIDENTAL)

Blading, shaping, and other work in preparation for maintaining temporary crossovers or detours is incidental to other work. Furnish and spread additional granular surfacing needed for temporary crossings or detours during construction at the contract price.

281-1
10-18-11

SECTION 404 PERMIT AND CONDITIONS

Construct this project according to the requirements of U.S. Army Corps of Engineers Nationwide Permit 14 - Linear Transportation Projects. Permit No. 2010-1570. A copy of this permit is available from the Iowa DOT Office of Contracts upon request. The U.S. Army Corps of Engineers reserves the right to visit the site without prior notice.

Design No. 0112
File No. 30503

102-5
Modified

EXISTING PAVEMENT

No.	Location					Year	Type	Project Number	Surface		Base		Subbase		Removal		Coarse Aggregate			Reinforcement	Remarks
	County	Route	Dir. of Travel	Begin Milepost	End Milepost				Type	Depth IN	Type	Depth IN	Type	Depth IN	Type	Depth IN	Source	Type	Durability Class	Type	
1	Wapello	US 034	EB	189.98	191.1	1995		NHS-34-7(45)--19-90	AAC	2	AAC	2					Douds Stone	Dust			
2						1967		F-U-34-7(6)--25-90	PCC	10							Douds Stone				

110-1
08-01-08

REMOVAL OF PAVEMENT

Refer to Tabulation 102-5

* Not a Bid Item

Begin Station	End Station	Pavement Type	Area SY	Saw Cut* LF	Intakes and Utility Accesses No.	Remarks
15713+50.00	15715+03.00	PCC	486.0	30.7		Includes roadway, approach, shoulder and curb.
1939+65.25	1940+41.04	PCC	219.9	25.9		Includes approach and curb.
12708+38.17	412+40.20	PCC	166.9			Shoulder from LEG2 to LEG3 and outside roundabout.
412+40.20	15710+77.29	PCC	114.6			Shoulder from LEG3 to LEG5 and outside roundabout.
16710+19.80	11708+79.37	PCC	130.3			Shoulder from LEG6 to LEG1 and outside roundabout.
	Total		1117.7			

110-13
04-20-10

DELIVERY AND STOCKPILING

Item Description	Quantity	Units	Delivery Location	Contact Name & Number	Remarks
Steel Beam Guardrail	105.0	LF	IDOT, Ottumwa Maint. Garage	IDOT, Ottumwa Maintenance Garage	(1)
			2930 North Court	Tony Sebben, Area Maint. Supervisor	
			Ottumwa, IA	Office: (641) 684-8231	
Notes:					
(1) Located approximately 1.5 miles south of the US 63/IA 149 interchange.					

100-10
10-18-11

FLOATING SILT CURTAINS

Refer to EC-202

Station	Hanging LF	Containment LF	Clean-out (Containment) LF	Remarks
1935+86.00	250.0			east river bank
1935+86.00	250.0			west river bank
Total	500.0			

110-7A
04-17-12

REMOVAL OF STEEL BEAM GUARDRAIL

* Not a bid item

(1) Lane(s) to which the installation is adjacent.

Location No.	Location (1) Direction of Traffic	Location Station to Station		Location Side	Guardrail and End Terminal/Anchor* LF
1	EB	15713+97.80	15715+02.80	Out	105.0
			Total		105.0

100-17
04-20-10

TABULATION OF SILT FENCES

Refer to EC-201

Location Begin Station	Location End Station	Location Side	Length LF	Remarks
15713+50.00	15714+90.00	Out	140.0	
1939+75.00	1940+50.00	Out	75.0	
Tab Quantity			215.0	
Bid Quantity			268.8	

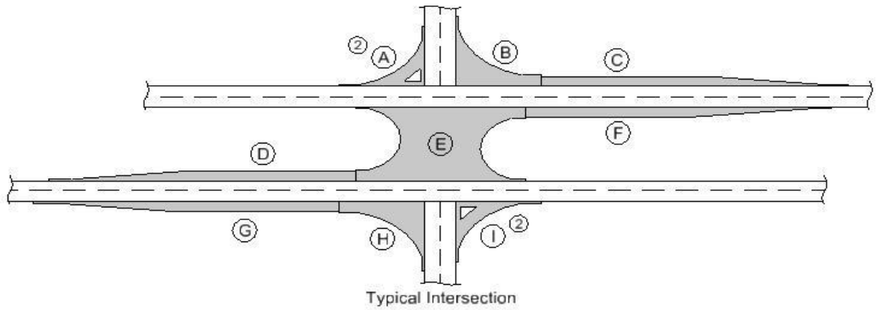
100-28
10-19-10

LONGITUDINAL GROOVING

Location	Total SY	Remarks
US 34 EB		
West Approach	224.6	
Bridge	3290.0	
East Approach	226.4	
Total	3741.0	

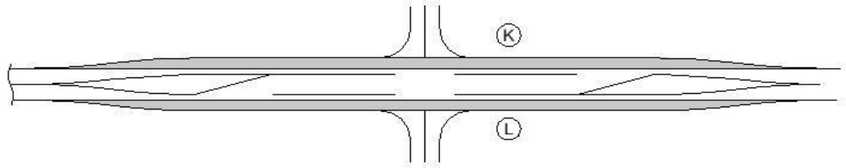
Design No. 0112
File No. 30503

TABULATION OF PAVEMENT

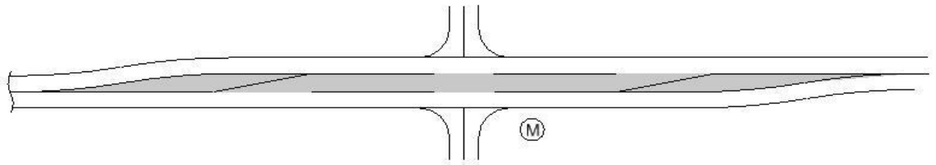


Typical Intersection

Ramp or Loop Taper (3)



Channelized Intersection
Widen Existing Roadway



Channelized Intersection
Reconstructed Roadway

(1) Quantity includes Pavement Header.

(2) Does not include Island area.

(3) Refer to PV-410, PV-411, PV-412, and PV-414.

Location						Area (1)													Total Area By Pavement Thickness		Island	Modified Subbase	Remarks
Road Indentification	Station to Station		Width	Length	Area	A (2)	B	C	D	E	F	G	H	I (2)	J	K	L	M	SY		SY	CY	
			FT	FT	SY														10 IN	10½ IN			
US 34 EB	15713+50.00	15714+26.66	24-25.3	76.7	210.0																	80.0	
		Totals			210.0																	80.0	

FULL-DEPTH PATCHES

Refer to Standard Roads Plans RR-1, RR-2, RR-4, RR-18, and RR-26

Location			Dimension			PCC Patches			HMA Patches	Composite HMA	Subbase Patches	Subbase Patch w/ 'EF' Joint	Patch Subdrain	'CD' Joints	'CT' Joints	'EF' Joints	Anchor Lugs Removal	Remarks
Count	Station or Milepost	Lane	Length	Width	Patch Thickness	With Dowels RR-4	Without Dowels RR-2	C R C RR-18								RR-1		
		L, R, or B	FT	FT	IN	SY	SY	SY	SY	TON	SY	SY	No.	No.	No.	No.	No.	
2	1940+41.04	B	10.0	25.5	14.0	28.3												
2	Totals					28.3												

SCOUR PROTECTION OR ROCK FLUME FOR BRIDGE END DRAIN

(1) Not a Bid Item

Refer to Standard Road Plan RF-39 or RF-40

Location			Shoulder				Rock Flume RF-40			Scour Protection RF-39		Remarks
Bridge Station	Bridge Corner	Distance DI-1 or DI-2	Panels Required	PCC	Polymer Grid (1)	Modified Subbase (1)	Macadam Stone Base (1)	Engineering Fabric (1)	Erosion Stone (1)	Outlet or Channel Scour Protection	Turf Reinforced Mat (TRM)	
			A B C or D	Sq.Yds.	Sq.Yds.	Tons	Material Tons	Sq.Yds.	Tons	Sq. Feet	Squares	
1935+86.00	SW	51.0	B and C	48.9	48.9	41.070				32.0	4.5	
1935+86.00	SE	31.0	A	24.4	24.4	23.100				32.0	3.7	
Totals				73.3						64.0	8.2	

Design No. 0112
File No. 30503

112-6
10-21-08

BRIDGE APPROACH SECTION

Refer to the RK-Series.

* Not a bid item

Location		Approach Pavement					Fixed or Movable Abutment	Subdrain					* Modified Subbase	* Polymer Grid	Remarks
Bridge Station	End	(T) Thickness	Pay Length	Non-Reinf. Pavement Area (2) (1)	Single-Reinf. Pavement Area (1)	Double-Reinf. Pavement Area		* Perforated Subdrain 4"	* Subdrain Outlet		* Porous Backfill	Class 'A'* Crushed Stone Backfill			
		Inches	FT	SY	SY	SY	F or M	LF	STA	Side	CY	CY	TON	SY	
1935+86.00	West	12.0	70.0	125.1	60.3	84.0	F	56.0	15714+36.66	Out	9.0	0.3	243.410	261.9	
1935+86.00	East	12.0	70.0	139.8	60.3	84.0	F	54.0	1940+31.49	Out	9.0	0.3	243.410	261.9	
Totals				264.9	120.6	168.0									

Notes:

(1) Quantities include 6" standard curb along median. See Detail Sheet U.1.

(2) Quantity also includes pavement for the raised median. See Detail Sheet U.1.

107-23
10-18-11

GRADING FOR GUARDRAIL INSTALLATIONS

(1) Lane(s) to which the installation is adjacent. Refer to EW-301

Location				Foreslope at Guardrail	Dimensions (Feet)									Earthwork		Remarks
No.	(1) Direction of Traffic	Station	Side		(X1)	(Y1)	(X2)	(Y2)	(X3)	(Y3)	(X4)	(Y4)	(Z)	Excavation Class 10	Embankment In Place	
														CY	CY	
1	EB	15714+78.93	Out	2.5:1	40.0	5.2					90.2	6.5	38.8		11.0	
		Total													11.0	

108-8A
10-19-10

STEEL BEAM GUARDRAIL AT CONCRETE BARRIER OR BRIDGE END POST

Refer to BA-200, BA-201, BA-202, BA-205, BA-250, SI-172, SI-173 and SI-211.

(1) See Standards for list of materials.

Location Station			Layout Lengths				Delineators and Object Markers					Bid Items (1)						Remarks
			(VT1)	(VF)	(VT2)	(ET)	Type	Delineator Type 1	Object Marker Type 2	Object Marker Type 3		End Anchor Bolted	Barrier Transition Section	Steel Beam Guardrail	End Terminal Standard	End Terminal Flared for Cable Connection	End Terminal Adapter	
						Terminal		White		OM-3L	OM-3R	BA-202	BA-201	BA-200	BA-205	BA-206	BA-210	
No.	Station	Offset	LF	LF	LF	LF		No.	No.	No.	No.	Type	No.	LF	No.	No.	No.	
1	15714+78.93	37.26' RT	40.625			50.0					1	A	1	12.5	1			
	Totals											1	1	12.5	1			

Design No. 0112
File No. 30503

ENGLISH	IOWA DOT	DESIGN TEAM Flattery\Johnson	WAPELLO COUNTY	PROJECT NUMBER BRF-034-7(130)--38-90	SHEET NUMBER C.6

2/6/2012 11:10:37 AM ajohns1 W:\Projects\9003402006\Design\(130)_Bridge\90034130c01.xlsm

PAVEMENT MARKING LINE TYPES

See PM Series

*BCY4 - Place on the same side of the roadway to match existing markings near the project.
**NPY4 - For estimating purposes only. No Passing Zone Lines will be located in the field.

DCY4: Double Centerline (Yellow) @ 2.00 BLW4: Broken Lane Line (White) @ 0.25 ELW4: Edge Line Right (White) @ 1.00 ELY4: Edge Line Left (Yellow CHW8: Channelizing Line (White) @ 2.00
CHY8: Channelizing Line (Yellow) @ 2.00

Location								Length by Line Type (Unfactored)											Remarks
Road ID	Station to Station		Dir. of Travel	Marking Type	Side			DCY4	BLW4	ELW4	ELY4	CHW8	CHY8						
					L	C	R	STA	STA	STA	STA	STA	STA	STA	STA	STA	STA	STA	
REMOVAL																			
(Stage 1)																			
US 34	15712+07.11	15713+00.00	EB	Removal		x			0.93										
US 34	15714+04.47	1982+62.00	WB	Removal		x			51.53										
US 34	15714+05.95	1941+93.61	WB	Removal			x				10.83								
US 34	15712+92.26	15714+26.68	WB	Removal			x				1.34								
US 34	15713+31.18	15714+06.14	WB	Removal	x					0.75									
US 63	408+75.00	411+10.00	NB	Removal			x		2.35										
(Final)																			
US 34	15712+92.26	15714+02.99	WB	Removal	x							1.13							
US 34	15712+70.10	15713+35.23	WB	Removal	x								0.65						
US 34	15712+70.10	15714+04.47	WB	Removal	x								1.37						
US 34	15712+07.11	15714+05.95	EB	Removal			x					2.02							
US 34	1939+41.19	1940+39.90	WB	Removal	x							1.00							
US 34	1939+40.82	1940+73.58	WB	Removal		x		1.34											
US 34	1940+73.58	1941+93.60	WB	Removal	x								1.23						
US 34	1939+40.46	1941+93.62	WB	Removal	x							2.57							
US 34	1952+34.00	1959+43.60	WB	Removal	x					7.25									
US 34	15714+02.99	1939+41.19	WB	Removal	x					8.34									
US 34	15714+04.47	1939+40.82	WB	Removal		x		8.32											
US 34	15714+05.95	1939+40.46	WB	Removal	x					8.30									
US 34	1940+73.58	1942+04.67	WB	Removal	x						1.31								
US 34	1942+04.67	1952+34.00	WB	Removal	x					10.29									
US 63	409+75.00	411+10.00	NB	Removal			x					1.35							
	Removal Subtotal							9.66	54.81	34.93	13.48	8.07	3.25						
	Quantity Factors							2.00	0.25	1.00	1.00	2.00	2.00						
	Totals							19.32	13.70	34.93	13.48	16.14	6.50						**Grand Total Length Removal = 104.07**
REMOVABLE TAPE																			
US 34	15712+92.26	15714+02.99	WB	Wet Retroreflective Removable Tape	x							1.13							
US 34	15712+70.10	15713+35.23	WB	Wet Retroreflective Removable Tape	x								0.65						
US 34	15712+70.10	15714+04.47	WB	Wet Retroreflective Removable Tape	x								1.37						
US 34	15712+07.11	15714+05.95	EB	Wet Retroreflective Removable Tape			x					2.02							
US 34	1939+41.19	1940+39.90	WB	Wet Retroreflective Removable Tape	x							1.00							
US 34	1939+40.82	1940+73.58	WB	Wet Retroreflective Removable Tape		x		1.34											
US 34	1940+73.58	1941+93.60	WB	Wet Retroreflective Removable Tape	x								1.23						
US 34	1939+40.46	1941+93.62	WB	Wet Retroreflective Removable Tape	x							2.57							
US 34	1952+34.00	1959+43.60	WB	Wet Retroreflective Removable Tape	x					7.25									
US 63	409+75.00	411+10.00	NB	Wet Retroreflective Removable Tape			x					1.35							
	Removable Tape Subtotal							1.34	0.00	7.25	0.00	8.07	3.25						
	Quantity Factors							2.00	0.25	1.00	1.00	2.00	2.00						
	Totals							2.68	0.00	7.25	0.00	16.14	6.50						**Grand Total Length Remov. Tape = 32.57**
PLACEMENT																			
(Stage 1)																			
US 34	15714+02.99	1939+41.19	WB	Waterborne/Solvent Paint	x					8.34									
US 34	15714+04.47	1939+40.82	WB	Waterborne/Solvent Paint		x		8.32											
US 34	15714+05.95	1939+40.46	WB	Waterborne/Solvent Paint	x					8.30									
US 34	1940+73.58	1942+04.67	WB	Waterborne/Solvent Paint	x						1.31								
US 34	1942+04.67	1952+34.00	WB	Waterborne/Solvent Paint	x					10.29									
	Placement Waterborne Subtotal							8.32	0.00	26.93	1.31	0.00	0.00						
	Quantity Factors							2.00	0.25	1.00	1.00	2.00	2.00						
	Totals							16.64	0.00	26.93	1.31	0.00	0.00						**Grand Total Length Placement Waterborne = 44.88**

(Continued on Next Sheet.)

Design No. 0112
File No. 30503

108-22
10-18-11

PAVEMENT MARKING LINE TYPES

See PM Series

*BCY4 - Place on the same side of the roadway to match existing markings near the project.
**NPY4 - For estimating purposes only. No Passing Zone Lines will be located in the field.

DCY4: Double Centerline (Yellow) @ 2.00 BLW4: Broken Lane Line (White) @ 0.25 ELW4: Edge Line Right (White) @ 1.00 ELY4: Edge Line Left (Yellow CHW8: Channelizing Line (White) @ 2.00
CHY8: Channelizing Line (Yellow) @ 2.00

Location								Length by Line Type (Unfactored)										Remarks
Road ID	Station to Station		Dir. of Travel	Marking Type	Side L	Side C	Side R	DCY4 STA	BLW4 STA	ELW4 STA	ELY4 STA	CHW8 STA	CHY8 STA					
(Final)																		
US 34	15713+49.99	1940+41.92	EB	Highbuild Waterborne Paint			x			9.88								
US 34	15712+07.11	1942+05.96	EB	Highbuild Waterborne Paint		x			12.95									
US 34	15712+70.10	1941+93.60	EB	Highbuild Waterborne Paint			x				12.20							
US 34	15712+70.56	1941+93.61	WB	Highbuild Waterborne Paint	x						12.19							
US 34	15714+06.09	1982+62.00	WB	Highbuild Waterborne Paint		x			51.52									
US 34	15713+52.74	1940+40.64	WB	Highbuild Waterborne Paint	x					9.84								
US 63	408+75.00	411+10.00	NB	Highbuild Waterborne Paint			x		2.35									
Placement Highbuild Waterborne Subtotal								0.00	66.82	19.72	24.39	0.00	0.00					
Quantity Factors								2.00	0.25	1.00	1.00	2.00	2.00					
Totals								0.00	16.71	19.72	24.39	0.00	0.00					**Grand Total Length Placement Highbuild Waterborne = 60.82**

108-27
08-01-08

TEMPORARY FLOODLIGHTING LUMINAIRES

No.	Location Station	Type	Number Lumin.	Remarks
1	15712+84.00	Offset	1	
2	15714+04.00	Offset	1	
3	1941+04.00	Offset	1	
4	1941+84.00	Offset	1	
	Total		4	

108-33
04-20-10

TEMPORARY BARRIER RAIL

Refer to BA-400 and BA-401

No.	Station to Station		Length LF	(Select One) Concrete BA-401	(Select One) Steel BA-400	Remarks
1	15712+64.85	1941+15.86	1125.0	x		Stage 1
		Total	1125.0			

108-35
04-17-12

TEMPORARY LANE SEPARATOR SYSTEM

Refer to J sheets.

Station to Station		Length LF	Remarks
15712+70.56	15713+35.23	65.0	
15712+70.10	1942+04.50	1234.0	
	Total	1299.0	

108-13A
08-01-08

SAFETY CLOSURES

Refer to Section 2518 of the Standard Specifications

Station	Closure Type Road Qty.	Closure Type Hazard Qty.	Remarks
(1)	1		
15713+05.00	1		
15713+40.00		1	
(2)	1		
Totals	3	1	

Notes:
(1) Place on south end of Leg 7 ramp for US 63 NB traffic.
(2) Place on north end of Leg 8 ramp.

113-2
10-18-11

SIDEWALK CLOSURES

Refer to Detail Sheet U.2.

*Assumes 6 foot wide barricade.
Closures may need to be removed and re-established.

Location	Side	Type III Barricades* No.	Remarks
Bike trail under west side of bridge.	North	2	200 feet north of the bridge.
Bike trail under west side of bridge.	South	2	200 feet south of the bridge.
Bike trail under east side of bridge.	North	2	200 feet north of the bridge.
Bike trail under east side of bridge.	South	2	200 feet south of the bridge.

Design No. 0112
File No. 30503

SHOULDERS

(1) Lane(s) to which the shoulder is adjacent.
(2) Bid Item
(3) Applies only for Paved Shoulders constructed on project with existing granular shoulders.
(4) Does not include shrink.

Calculations assume a HMA unit weight (lbs/cf) of 0, a Special Backfill unit weight (lbs/cf) of 140, and a Granular Shoulder unit weight (lbs/cf) of 140.

Location					Quantities																
Road Identification	(1) Direction Of Traffic	Station to Station		Side	(P) Width	(G) Width	(L) Length	Class 13 Excavation (3)	HMA Base Widening (3)		Hot Mix Asphalt		Paved Shoulder	Reinforced Paved Shoulder	Special Backfill		Modified Subbase	Granular Shoulder		Earth Shoulder Construction		Remarks
					FT	FT	FT	CY (2)	TON (2)	TON/STA	TON	TON/STA	SY (2)	SY (2)	TON (2)	TON/STA	CY (2)	TON (2)	TON/STA	STA (2)	CY (4)	
HMA Paved Shoulder																					
US 34	EB	15713+50.00	15713+69.28	Out	6.0	8.0-8.6	19.5	17.5			5.14	26.37	13.0		9.2	47.20		19.1	98.00	0.19	3.2	
HMA Paved Shoulder at Guardrail																					
US 34	EB	15713+69.28	15714+01.27	Out	14.6	0.0	32.0	36.1			20.16	63.02	51.9		38.8	121.29		0.0		0.32	8.6	
US 34	EB	15714+01.27	15714+36.64	Out	14.6-12.6	0.0	35.4	40.6			20.79	58.78	53.2		34.1	96.41		0.0		0.35	8.7	
Behind Bridge Approach and Shoulder Panels																					
US 34	EB	15714+36.64	15714+78.93	Out			42.3	0.0					0.0		0.0			0.0		0.42	3.9	
US 34	EB	1939+89.98	1940+12.26	Out			22.3	0.0					0.0		0.0			0.0		0.22	1.1	
Granular Shoulder																					
US 34	EB	1940+12.26	1940+42.25	Out	0.0	10.0	30.0	12.6					0.0		11.3	37.67		10.8	36.00	0.30	2.1	
			Totals					106.8					118.1		93.4			29.9		1.80	27.6	

SIDEWALKS

See MI-220 and S Sheets

Road Identification	Station to Station		Side	4" PCC Sidewalk	6" PCC Sidewalk	_" PCC Sidewalk	Detectable Warnings	Remarks
				SY	SY	SY	SF	
Bike Trail under west side of bridge.			West		29.2			
Bike Trail under east side of bridge.			East		29.2			
		Total			58.4			

Design No. 0112
File No. 30503

SURVEY SYMBOLS

- D Centerline Draw or Stream (Down)
- SIGN SI Sign
- GDL Guard Rail (Rail and Cable)
- DU Centerline Draw or Stream (Up)
- LUM Luminaire
- MH Utility Access (Manhole)
- SNP Unpaved Shoulder
- ROW Right of Way Rail
- PPA Power Pole Co. 1
- DIK Centerline of Dike or Dam
- MM Mile Marker Post
- BNK Stream Bank
- EG Edge of Gravel Road
- ENT Centerline BL of Entrance
- RIP Rip-Rap
- TDC Tree Deciduous
- SIGN SL Speed Limit Sign
- FO FOA Underground Fiber Optic Co. 1
- E1 ELA Underground Electric Line Co. 1
- St.S. STA Storm Sewer Line Co. 1
- Treeline Left
- Treeline Right

UTILITY LEGEND

- ALLIANT ENERGY
- FO ICN
- E1 CITY OF OTTUMWA
- St.S. CITY OF OTTUMWA

PLAN VIEW COLOR LEGEND OF PLAN AND PROFILE SHEETS

Green	(2)	Existing Topographic Features and Labels
Blue	(1)	Proposed Alignment, Stationing, Tic Marks, and Alignment Annotation
Purple	(5)	Existing Utilities
Yellow	(4)	Highlight for Critical Notes or Features
Red	(3)	Delineates Restricted Areas
Lavender	(9)	Detour Pavement Shading
Gray, Light	(48)	Proposed PCC Pavement Shading
Gray, Med	(80)	Proposed Granular Shading
Gray, Dark	(112)	Proposed HMA Pavement Shading
Brown, Light	(237)	Grading Shading
Cyan	(7)	Proposed Bridge Construction

PROFILE VIEW COLOR LEGEND OF PLAN AND PROFILE SHEETS

Green	(2)	Existing Ground Line Profile
Blue	(1)	Proposed Profile and Annotation
Purple	(5)	Existing Utilities
Blue, Light	(230)	Proposed Ditch Grades, Left
Black	(0)	Proposed Ditch Grades, Median
Rust	(14)	Proposed Ditch Grades, Right

CONVENTIONAL SIGNS

- Reference Point
- Survey Line
- Station
- Section Corner
- Clearing & Grubbing Area
- Pavement Removal

RIGHT-OF-WAY LEGEND

- Proposed Right-of-Way
- Existing Right-of-Way
- Existing and Proposed Right-of-Way
- Easement and Existing Right-of-Way
- Borrow
- Easement (Temporary)
- Easement
- Excess
- Property Line
- A/C Access Control

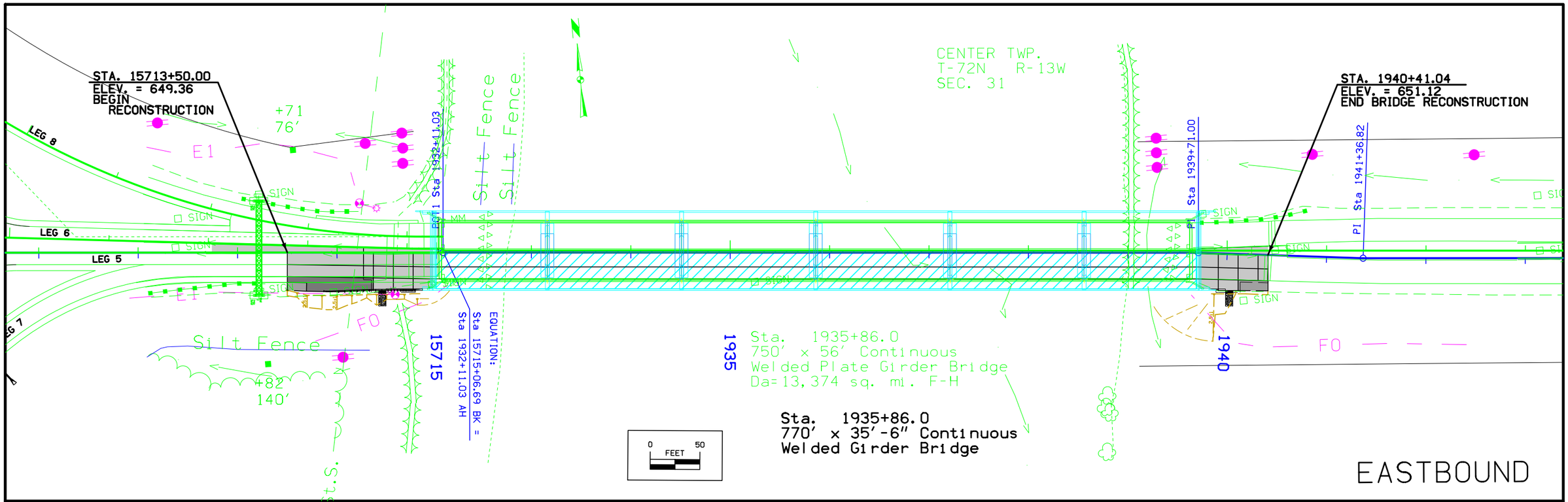
Design No. 0112
File No. 30503

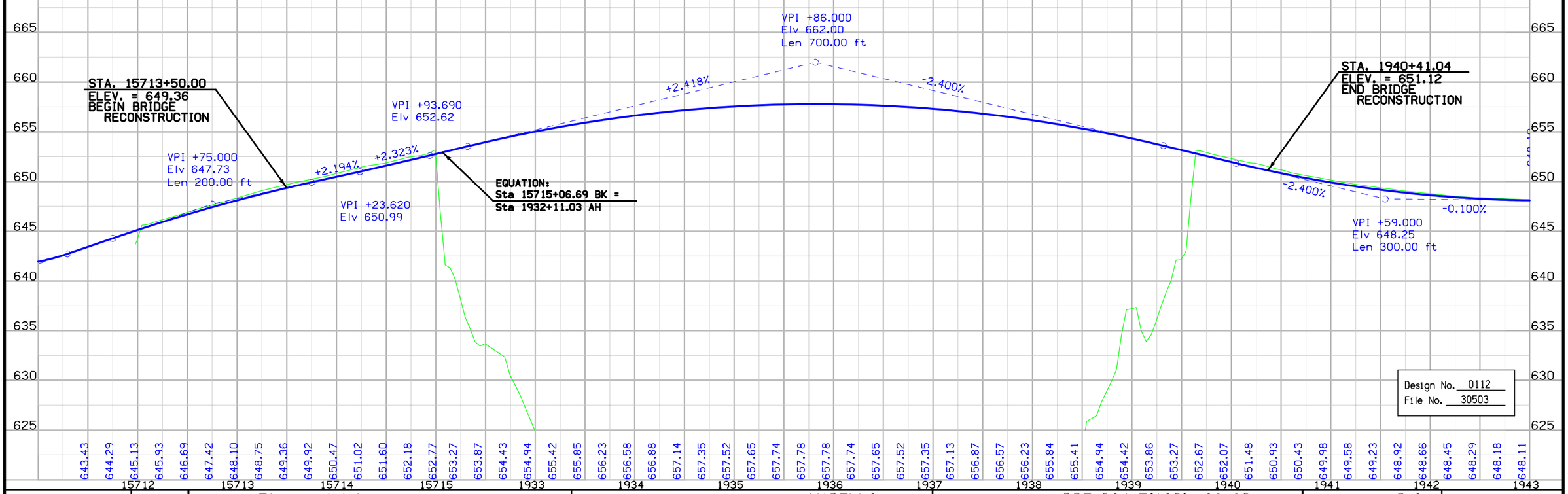
PLAN AND PROFILE LEGEND AND SYMBOL INFORMATION SHEET

(COVERS SHEET SERIES D, E, F, & K)

ENGLISH	IOWA DOT	DESIGN TEAM Flattery\Johnson	WAPELLO COUNTY	PROJECT NUMBER BRF-034-7(130)--38-90	SHEET NUMBER D.1

9:08:58 AM 2/5/2012 ajohns1 W:\Projects\9003402006\Design\(130)_Bridge\90034130_lgd.sht





Design No. 0112
File No. 30503

C	ENGLISH	IOWA DOT	DESIGN TEAM Flattery\Johnson	WAPELLO COUNTY	PROJECT NUMBER	BRF-034-7(130)--38-90	SHEET NUMBER D.2

9:10:44 AM 2/5/2012 ajohns1 W:\Projects\9003402006\Design\(130)_Bridge\90034130D_50scale.dgn

General Information

All measurements for this survey are in English Units.
This survey was collected by an IDOT Preliminary Survey Crew. This survey was a Full DTM survey with references.
Coordinates for this project are from a Consultant Survey (DOT GPS) Project No. NHS-63-1(41)*19-26

VERTICAL DATUM

The Vertical Datum for this survey is relative to NGS BENCH stamped B7. A three-wire bench run was ran through the project and returned in Proj. BRF-63-2(120)*38-90. Additional Benches were set for this project.

Equations are as follows:

BM 553 BM B7 (NAVD88)
Proj. No. BRF-63-2(120)*38-90 Dynamic Ht EL= 637.86 =

BM 553 This Survey EL= 637.86

Note: The Dynamic Height (637.86) was used for the original Bench run in Project BRF-63-2(120)*38-90. The NAVD88 height is 638.15

HORIZONTAL DATUM

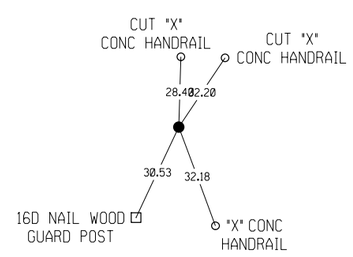
The horizontal alignment for this survey is a retrace of P.C.C Paving Plans FU-63-2(1)--90-7. Existing points were used and reset if not found in Proj. No. NHS-63-1(41)*19-26

Equations are as follows:

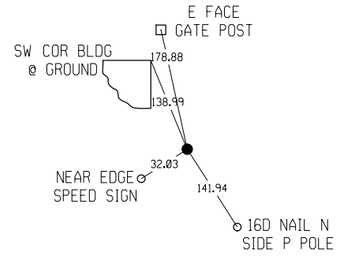
P.I. Sta 15715+06.69 Leg 5 back NHSN-063-2(74)--2R-90 =
Lateral Offset 2.00' North and Lt.
P.I. Sta 1932+11.03 This survey
P.I. Sta 16714+36.18 Leg 6 back NHSN-063-2(74)--2R-90 =
Lateral Offset 2.00' South and Rt.
P.I. Sta 1932+11.03 ahead This survey
P.I. Sta 1714+36.18 Leg 8 back NHSN-063-2(74)--2R-90 =
Lateral Offset 14.00' South and Rt.
P.I. Sta 1932+11.03 ahead This survey
P.I. Sta. 1932+11.03 This survey =
P.I. Sta 1932+11.03 (as built plan = # FU-63-2(1)--90-7

BENCHMARKS				ELEVATION
No. 556	Sta.1713+60.678	2263.844 Rt.	FD RR SPK E SIDE P POLE	639.989
No. 557	Sta.1713+52.903	1732.156 Rt.	SET RR SPK E SIDE P POLE	642.537
No. 558	Sta.1713+47.398	916.507 Rt.	SET RR SPK E SIDE P POLE	633.249
No. 559	Sta.1932+12.441	32.067 Rt.	FD DOT BUTTON SE COR BRG	653.037
No. 560	Sta.1939+60.238	31.545 Lt.	FD DOT BUTTON NE COR BRG	653.077

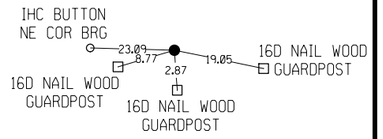
CP STA 1932+11.03,0.000
POINT #129
FD "X"
XC=1943334.57, YC=366550.85



GPS STA 1932+68.0,2350.9R
POINT #52
FD REBAR Ø.6 DEEP
XC=1943174.71, YC=364204.68



CP STA 1939+83.26,33.09LT
POINT #202
SET IRON PIN Ø.5 DEEP
XC=1944106.56, YC=366512.65



CP STA 1941+94.02,43.06RT
POINT #203
SET IRON PIN Ø.5 DEEP
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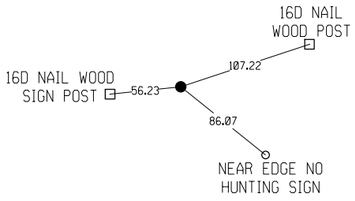
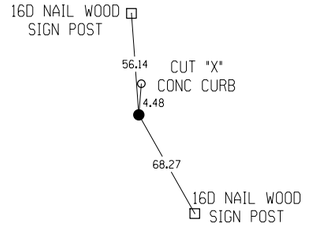
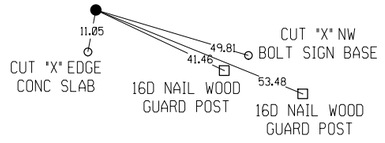


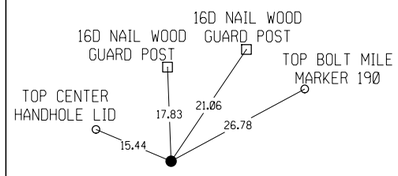
CP STA 1947+55.26,0.000
POINT #130
FD HINGE NAIL
XC=1944872.23, YC=366408.56



CP STA 15712+68.67,68.1LT
POINT #200
SET IRON PIN Ø.5 DEEP
XC=1943103.61, YC=366638.47



CP STA 15714+73.05,46.8RT
POINT #201
SET IRON PIN Ø.5 DEEP
XC=1943296.62, YC=366505.35



DETAILS OF REFERENCE INFORMATION

All References are Plumb Distances unless otherwise noted.

Design No. 0112
File No. 30503

ENGLISH	IOWA DOT	DESIGN TEAM Flattery\Johnson	WAPELLO COUNTY	PROJECT NUMBER BRF-034-7(130)--38-90	SHEET NUMBER G.1

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ALIGNMENT COORDINATES

101-16
10-20-09

Name	Location	Point on Tangent			Begin Spiral			Begin Curve			Simple Curve PI or Master PI of SCS			End Curve			End Spiral		
		Station	Coordinates		Station	Coordinates		Station	Coordinates		Station	Coordinates		Station	Coordinates		Station	Coordinates	
			Y (Northing)	X (Easting)		Y (Northing)	X (Easting)		Y (Northing)	X (Easting)		Y (Northing)	X (Easting)		Y (Northing)	X (Easting)		Y (Northing)	X (Easting)
ML034 (US 34 Survey Chain)																			
550		1932+11.00	366,550.85	1,943,334.56															
551		1947+55.23	366,408.56	1,944,872.23															
ML034EB (US 34 Westbound Lanes)																			
EB1		15710+29.39	366,592.55	1,942,859.10															
EB2		1932+11.03	366,548.85	1,943,334.40															
EBEQ1		1932+11.03	366,548.85	1,943,334.40															
EB3		1939+71.00	366,478.83	1,944,091.14															
EB4		1941+36.82	366,458.02	1,944,255.64															
EB5		1944+07.62	366,433.23	1,944,525.31															
MAINLINE (CIRCLE - Chain Name CIRCLE2)																			
CHUCK								0+00.00	366,682.97	1,942,826.36	0+00.21	366,682.86	1,942,826.53	5+02.24	366,682.74	1,942,826.71			
LEG 1 (Chain Name F1A)																			
11											11701+25.02	367,356.60	1,942,347.35						
CUR5								11707+25.30	366,875.25	1,942,706.01	11709+00.85	366,734.48	1,942,810.90	11710+56.97	366,561.46	1,942,781.19			
12											11713+97.51	366,225.84	1,942,723.55						
LEG 2 (Chain Name LEG2)																			
50											12701+00.00	367,349.22	1,942,298.08						
CUR51								12703+80.08	367,111.95	1,942,446.91	12706+00.00	366,925.66	1,942,563.77	12708+19.80	366,746.06	1,942,690.69			
52											12708+99.08	366,681.32	1,942,736.45						
LEG 3 & LEG 4 (Chain Name ML1A)																			
13											392+99.24	364,561.89	1,942,904.80						
14											398+38.28	365,092.70	1,942,811.00						
15											406+02.80	365,851.90	1,942,720.94						
CUR6								407+04.73	365,953.11	1,942,708.83	408+43.99	366,091.38	1,942,692.28	409+81.30	366,228.62	1,942,715.91			
16											414+39.70	366,680.37	1,942,793.70						
LEG 5 (Chain Name LEG5)																			
10502											15710+29.39	366,592.55	1,942,859.10						
10503											15715+06.69	366,548.85	1,943,334.40						
LEG 6 (Chain Name LEG6)																			
28											16709+60.43	366,608.42	1,942,862.26						
29											16714+05.29	366,555.65	1,943,303.97						
30											16714+36.18	366,552.83	1,943,334.74						
LEG 7 (Chain Name LEG7)																			
40											10409+81.30	366,223.19	1,942,747.45						
LEG7-1								10410+59.19	366,299.96	1,942,760.67	10413+36.43	366,573.17	1,942,807.71	10415+06.78	366,547.79	1,943,083.78			
41											10417+56.24	366,524.95	1,943,332.20						
LEG 8 (Chain Name SUR_D1A)																			
7											1695+00.00	367,852.83	1,941,966.73						
CUR3								1707+56.12	366,871.12	1,942,750.37	1711+04.87	366,598.56	1,942,967.94	1714+15.49	366,566.67	1,943,315.23			
8											1714+36.18	366,564.78	1,943,335.84						
LEG 9 (Chain Name SUR_E1A)																			
9											12700+22.31	367,401.99	1,942,236.67						
CUR4								12705+56.58	366,935.84	1,942,497.71	12707+19.35	366,793.82	1,942,577.24	12708+77.93	366,632.18	1,942,596.38			
10											12716+67.66	365,847.92	1,942,689.26						

Design No. 0112
File No. 30503

ENGLISH	IOWA DOT	DESIGN TEAM Flattery\Johnson	WAPELLO COUNTY	PROJECT NUMBER BRF-034-7(130)--38-90	SHEET NUMBER G.2

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SPIRAL OR CIRCULAR CURVE DATA

101-17
04-19-11

Name	Location	Δ_{scs}	Horizontal Alignment Data												Remarks
			Spiral Data								Curve Data				
			θs	Ls	Ts	Es	Xc	Yc	L.T.	S.T.	Δ_c	T	L	R	E	
MAINLINE (CIRCLE - Chain Name CIRCLE2)															
CHUCK											359° 42′ 12.54″ LT	0.21′	502.24′	80.00′	160.00′	
LEG 1 (Chain Name F1A)															
CUR5											46° 26′ 02.87″ RT	175.55′	331.67′	409.26′	36.06′	
LEG 2 (Chain Name LEG2)															
CUR51											3° 08′ 57.35″ LT	219.92′	439.72′	8,000.00′	3.02′	
LEG 3 & LEG 4 (Chain Name ML1A)															
CUR6											16° 35′ 39.12″ RT	139.26′	276.57′	954.93′	10.10′	
LEG 7 (Chain Name LEG7)															
LEG7-1											85° 28′ 59.13″ RT	277.24′	447.59′	300.00′	108.48′	
LEG 8 (Chain Name SUR_D1A)															
CUR3											46° 09′ 20.53″ LT	348.75′	659.37′	818.51′	71.20′	
LEG 9 (Chain Name SUR_E1A)															
CUR4											22° 29′ 39.88″ RT	162.77′	321.35′	818.51′	16.03′	

Design No. 0112
File No. 30503

102-15
08-01-08

TABULATION OF SPECIAL EVENTS

Event	Location	Date
None Provided		

108-23A
08-01-08

TRAFFIC CONTROL PLAN

1. Traffic will be maintained on US 63 and US 34 at all times.

2. Traffic control on this project will be in accordance with the J Sheets and Standard Road Plans listed in Tab 105-4 in the C Sheets.

   For additional complementary information, refer to Part 6 of the "Manual on Uniform Traffic Control Devices" and to the current Standard Specifications.

3. Two way, two lane traffic will be maintained in the westbound lanes by utilizing existing crossovers at Sta. 15713+50.40 and Sta. 1942+00.00 for the duration of the eastbound bridge replacement project.

4. See Staging Sheets for Leg 7 and Leg 8 ramp closure.

5. Close pedestrian bike paths under the east and west ends of the bridge for the duration of the project. See Detail Sheet U.2 and Tab 113-2.

6. TBR to reamin the property of the Iowa Department of Transportation upon completion of this project.

7. Construct curb and shoulder at the roundabout using TC-212.

108-26A
08-01-08

STAGING NOTES

1. The contractor shall stage construction such that all activity remains within the right of way shown in these plans.

2. The contractor shall stage equipment and materials in locations that do not interfere with access to and activities on adjacent property.

3. Situations may arise which will preclude adhering to the original construction sequence or which, in the opinion of the contractor, would readily lend themselves to more efficient staging operations. Should the contractor desire to deviate from the original plan, an alternative plan shall be submitted to the Engineer for review and approval.

4. The staging shown is one method for construction for the project. If the contractor should desire to deviate from the staging as shown, he should avail himself of Article 1105.15 of the Standard Specifications to request changes. Maintenance of traffic shall be according to Tab 108-23A; no deviations from the intent of the traffic control plan will be acceptable for Value Engineering proposal acceptance.

5. Stage 1 Notes:

   A.) Cover all existing roadway signs that conflict with construction traffic.

   B.) Shift Traffic:

   US 63 Traffic
   Northbound: Will merge left for the Leg 7 ramp closure. Traffic wanting to use US 34 EB will use the roundabout.

   US 34 Traffic
   Eastbound: Will use existing crossover west of the bridge at Sta. 15713+50.40 for two way, two lane traffic across the Westbound Des Moines River bridge to the existing crossover at Sta. 1942+00.00.

   Westbound: Will merge right to utilize the outside lane for two way, two lane traffic across the Westbound Des Moines River bridge.

   C.) Reconstruct eastbound bridge and bridge approaches.

   Final Stage Notes:

   A.) Uncover all existing roadway signs and shift traffic back to normal operations.

   B.) Construct curb and shoulder at the roundabout using TC-212.

Design No. 0112
File No. 30503

CROSS SECTION VIEW COLOR LEGEND OF TRAFFIC CONTROL AND STAGING SHEETS

Green, Light	(225)	Existing Pavement Surface
Gray, Light	(48)	Previously Constructed Pavement
Gray, Med	(80)	Previously Constructed Granular Surface
Blue, Light	(230)	Proposed Pavement
Lavender	(9)	Temporary Pavement
Brown, Med	(236)	Proposed Grading Limits
Brown, Light	(237)	Future Proposed Pavement

CROSS SECTION VIEW PATTERN AND SYMBOL LEGEND OF TRAFFIC CONTROL AND STAGING SHEETS

	Pavement Removal		Proposed Granular Shoulder
	Proposed Granular Subbase		Temporary Shoulder
	Proposed Special Backfill		Existing Shoulder Strengthening
	Constructed Granular Surface		Temporary Barrier Rail
	Temporary Lane Separator System		

PLAN VIEW COLOR LEGEND OF TRAFFIC CONTROL AND STAGING SHEETS

Green	(2)	Existing Topographic Features and Labels
Green, Light	(225)	Existing Pavement Shading
Purple	(5)	Pavement Marking Call Outs
Blue	(1)	Proposed Alignment, Stationing, Tic Marks, and Alignment Annotation
Gray, Light	(48)	Previously Constructed Pavement Shading
Gray, Med	(80)	Previously Constructed Granular Surface Shading
Yellow	(4)	Pavement Markings, Yellow
Off White	(254)	Pavement Markings, White
Blue, Light	(230)	Proposed Pavement Shading
Lavender	(9)	Detour Pavement Shading
Brown, Med	(236)	Proposed Grading Limits
Red	(3)	Proposed Bridges and Sign Trusses
Pink, Dark	(13)	Proposed MSE or CIP Wall

PLAN VIEW PATTERN AND SYMBOL LEGEND OF TRAFFIC CONTROL AND STAGING SHEETS

	42" Channelizer or Vertical Panel		Temporary Traffic Signal
	Drum		Traffic Sign
	Temporary Lane Separator System		Type III Barricade-Plan View
	Crash Cushion		Type A Warning Light
	Sequencing Arrow		Orange Plastic Safety Fence
	Direction of Traffic		Temporary Barrier Rail
	Temporary Floodlighting		

Design No. 0112
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TRAFFIC CONTROL AND STAGING LEGEND AND SYMBOL INFORMATION SHEET

(COVERS SHEET SERIES J)

ENGLISH	IOWA DOT	DESIGN TEAM Flattery\Johnson	WAPELLO COUNTY	PROJECT NUMBER BRF-034-7(130)--38-90	SHEET NUMBER J.2

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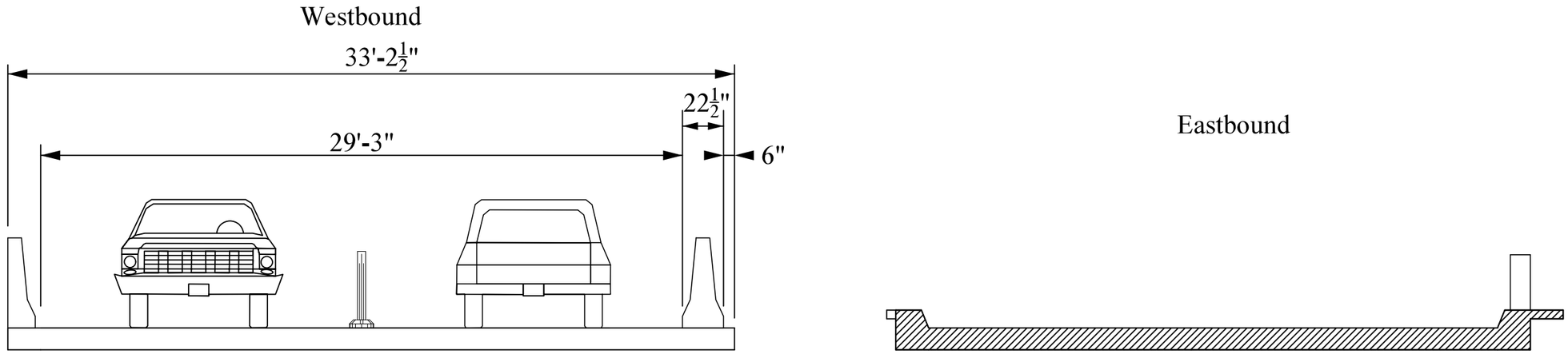
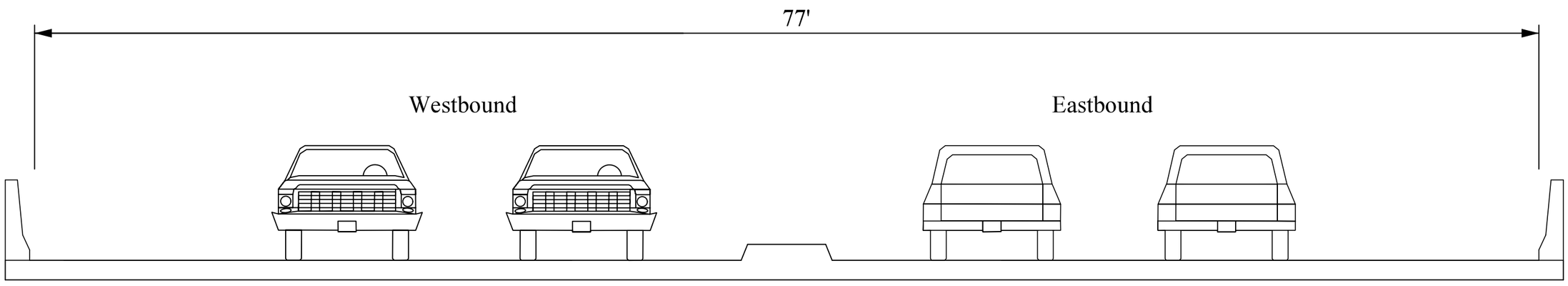


STAGE 1



FINAL

Design No. 0112
File No. 30503

ENGLISH	IOWA DOT	DESIGN TEAM Flattery\Johnson	WAPELLO COUNTY	PROJECT NUMBER BRF-034-7(130)--38-90	SHEET NUMBER J.3

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ROAD CLOSED
R11-2
48" x 30"
①

LEG 1
LEG 2
LEG 3
LEG 4
LEG 5
LEG 6
LEG 7
LEG 8

RAMP CLOSED
RAMP CLOSED

POT Sta 15710+29.39

END ROAD WORK
G20-2A
48" x 24"

CHW8 CHANNELIZING LINE (WHITE) TAPE
CHY8 CHANNELIZING LINE (YELLOW) TAPE

ROAD CLOSED
R11-2
48" x 30"

DO NOT PASS
R4-1
36" x 48"

60'

60'
℄ of Crossover

ROAD CLOSED
R11-2
48" x 30"
DETOUR
M4-10L
48" X 18"

W1-4L
48" x 48"

W6-3
48" x 48"

DCY4 DOUBLE CENTER LINE (YELLOW)
TEMPORARY LANE SEPARATOR SYSTEM

EQUATION:
Sta 15715+06.69 BK =
Sta 1932+11.03 AH

15711
15712
15713
15714
15715
1933

413
412
411

Matchline A
Matchline AA

① Place sign on north side of Leg 8 Ramp for road closure.

0 20
FEET

Design No. 0112
File No. 30503

STAGING AND TRAFFIC CONTROL LAYOUT (STAGE 1)

ENGLISH	IOWA DOT	DESIGN TEAM Flattery\Johnson	WAPELLO COUNTY	PROJECT NUMBER BRF-034-7(130)--38-90	SHEET NUMBER J.4

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Matchline A

Matchline B

PI Sta 1939+71.00

TEMPORARY LANE SEPARATOR SYSTEM

ELW4 EDGE LINE RIGHT (WHITE)

DCY4 DOUBLE CENTER LINE (YELLOW)

CHW8 CHANNELIZING LINE (WHITE) TAPE

W6-3
48" x 48"

DO NOT PASS
R4-1
36" x 48"

1933 1934 1935 1936 1937 1938 1939 1940

Design No. 0112
File No. 30503

0 FEET 20

STAGING AND TRAFFIC CONTROL LAYOUT (STAGE 1)

ENGLISH	IOWA DOT	DESIGN TEAM Flattery\Johnson	WAPELLO COUNTY	PROJECT NUMBER BRF-034-7(130)--38-90	SHEET NUMBER J.5

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Matchline B

Matchline C

Mount on back of barricade; back-to-back with "KEEP RIGHT" sign.

DO NOT PASS
R4-1
36" x 48"

KEEP RIGHT
R4-7b
36" x 48"

4 Foot Wide Type III Barricade

6-3
x 48"

PI Sta 1941+36.82

POT Sta 1944+07.62

40′

500′

40′ C/C

DCY4 DOUBLE CENTER LINE (YELLOW)

TEMPORARY LANE SEPARATOR SYSTEM

ELW4 EDGE LINE RIGHT (WHITE)

ELY4 EDGE LINE LEFT (YELLOW)

CHY8 CHANNELIZING LINE (YELLOW) TAPE

CHW8 CHANNELIZING LINE (WHITE) TAPE

20′ C/C

40′

150′

℄ of Crossover

END ROAD WORK
G20-2A
48" x 24"

1940 1941 1942 1943 1944

Design No. 0112
File No. 30503

0 20
FEET

STAGING AND TRAFFIC CONTROL LAYOUT (STAGE 1)

ENGLISH	IOWA DOT	DESIGN TEAM Flattery\Johnson	WAPELLO COUNTY	PROJECT NUMBER BRF-034-7(130)--38-90	SHEET NUMBER J.6

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Matchline C

Matchline D

IOWA AVENUE

ELW4 EDGE LINE RIGHT (WHITE) TAPE

ELW4 EDGE LINE RIGHT (WHITE) TAPE

35′ C/C

20′ C/C

Design No. 0112
File No. 30503

0 20
FEET

STAGING AND TRAFFIC CONTROL LAYOUT (STAGE 1)

ENGLISH	IOWA DOT	DESIGN TEAM Flattery\Johnson	WAPELLO COUNTY	PROJECT NUMBER BRF-034-7(130)--38-90	SHEET NUMBER J.7

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Matchline D

Matchline E

750′

250′

100′

250′

W4-2
48" x 48"

② MERGE

W4-2M
48" x 48"

ELW4 EDGE LINE
RIGHT (WHITE)

35′ C/C

② Refer to SI-881 for sign details.

0 FEET 20

Design No. 0112
File No. 30503

STAGING AND TRAFFIC CONTROL LAYOUT (STAGE 1)

ENGLISH	IOWA DOT	DESIGN TEAM Flattery\Johnson	WAPELLO COUNTY	PROJECT NUMBER BRF-034-7(130)--38-90	SHEET NUMBER J.8

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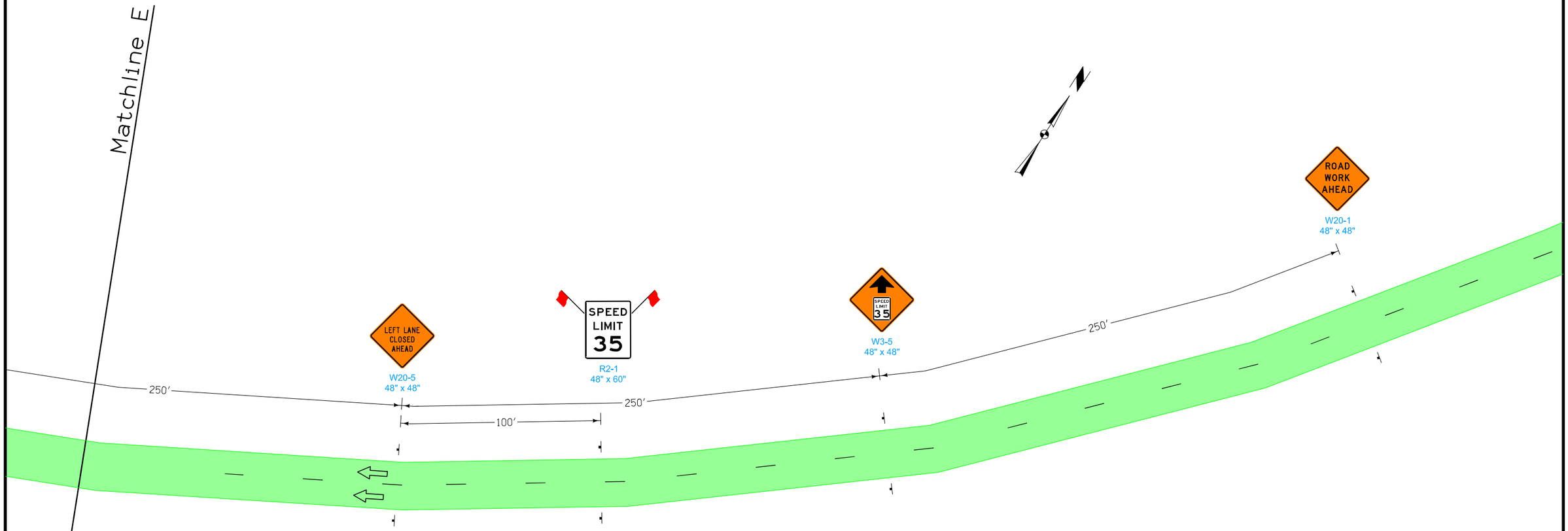

Design No. 0112
File No. 30503

0 20 FEET

STAGING AND TRAFFIC CONTROL LAYOUT (STAGE 1)

ENGLISH	IOWA DOT	DESIGN TEAM Flattery\Johnson	WAPELLO COUNTY	PROJECT NUMBER BRF-034-7(130)--38-90	SHEET NUMBER J.9

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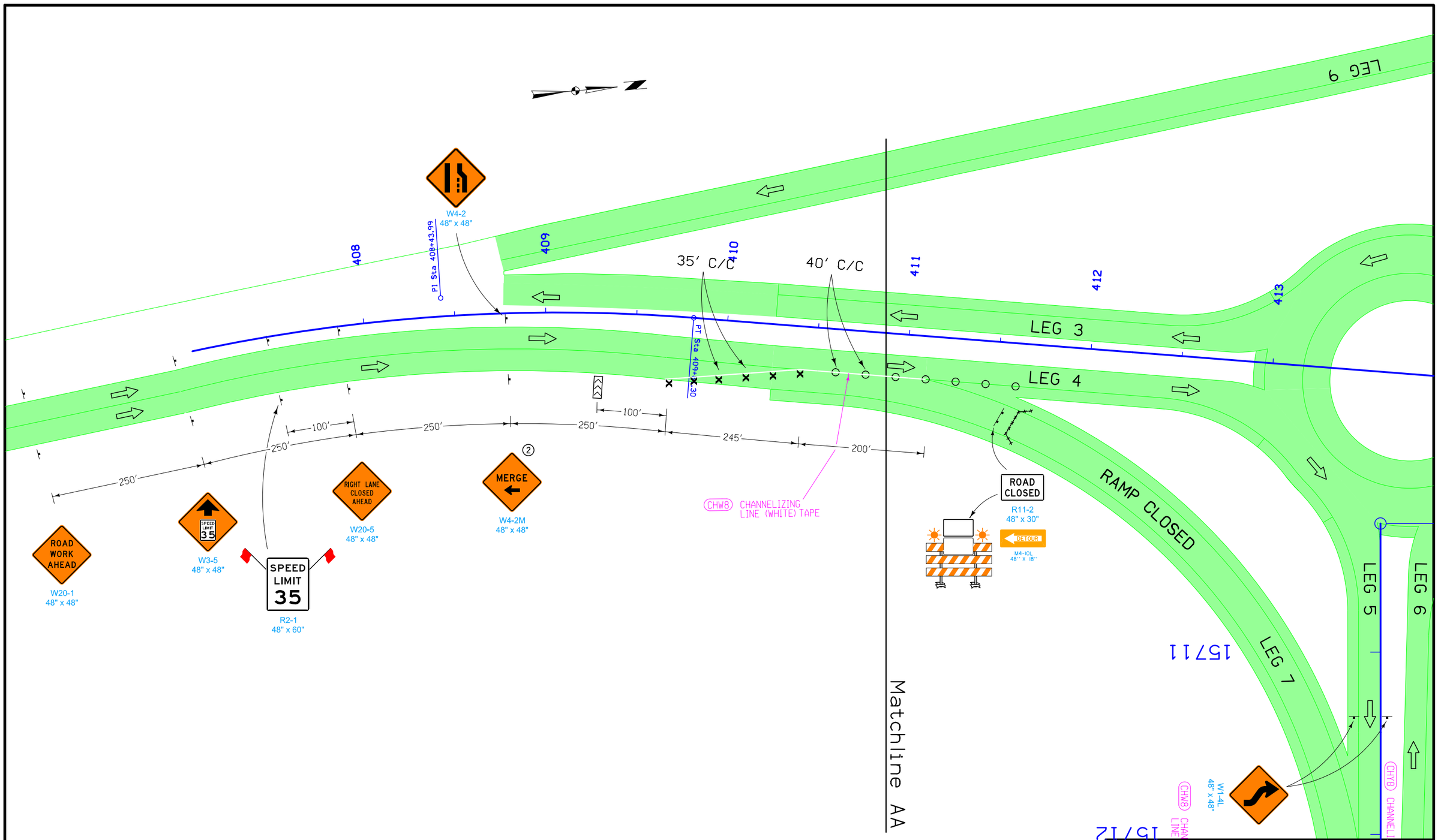

② Refer to SI-881 for sign details.

Design No. 0112
File No. 30503

STAGING AND TRAFFIC CONTROL LAYOUT
US 63 NB
(STAGE 1)

Not to Scale

ENGLISH	IOWA DOT	DESIGN TEAM Flattery\Johnson	WAPELLO COUNTY	PROJECT NUMBER BRF-034-7(130)--38-90	SHEET NUMBER J.10

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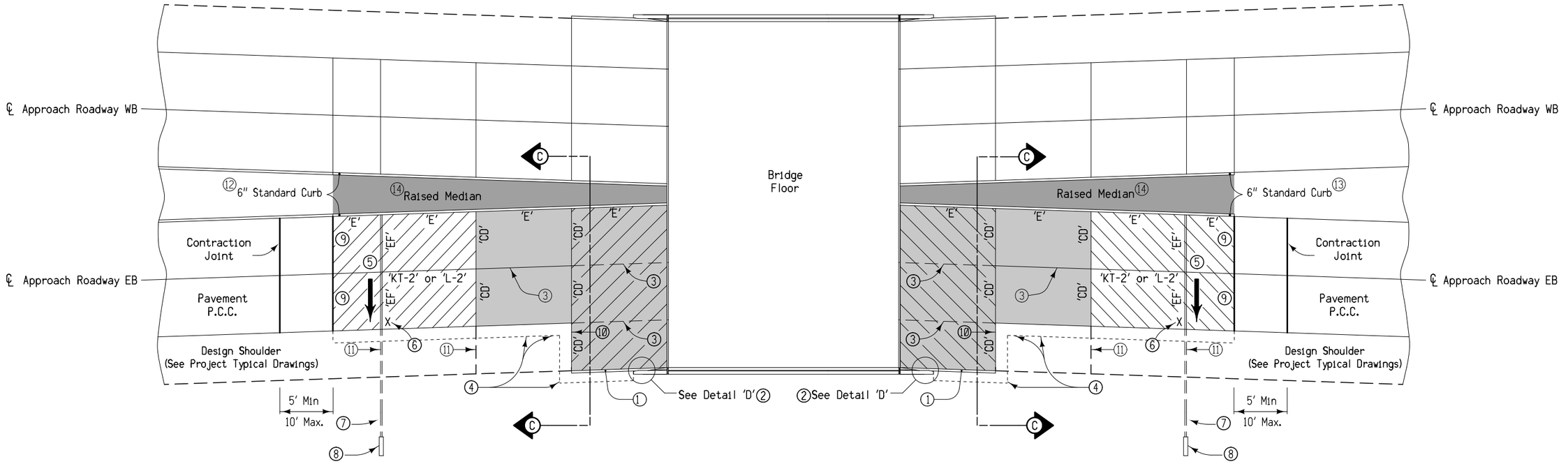
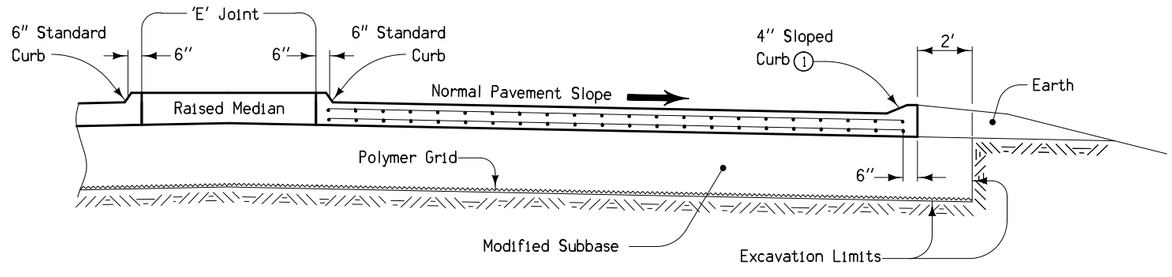


PLAN VIEW

1. Build 4 inch Sloped Curb, unless noted otherwise in the plans.
2. See Standard Road Plan RK-20, RK-25, or RK-26.
3. Longitudinal joint: (PV-101)
   Single Pour - Saw cut joint per detail B.
   Two Pours - Use 'KS-2' Joint (Double Reinforced Section).
   Use 'KS-1' Joint (Single Reinforced Section).
4. Polymer Grid and excavation limits of Modified Subbase 2' outside of pavement edge. See Standard Road Plan RK-20, RK-25, or RK-26.
5. Slope subdrain to drain.
6. An "X" shall be placed in the plastic concrete near the 'EF' joint at the outside edge of pavement.
7. 4 inch perforated subdrain (polyethylene, corrugated tubing).
8. See RF-19C or RF-19E for outlet details.
9. 'DW' or 'RT' Joint.
10. Use 'RD' Joint where PCC shoulder, 'B' Joint otherwise.
11. Extend 'CD' and 'EF' Joints where PCC Shoulder.
12. Tie to existing 6" curb
13. Runout 6" curb in 10'
14. Raised Median pavement incidental to the bridge approach.



SECTION C-C

Pay limits for contract item include the following areas:

- Double Reinforced Section
- Single Reinforced Section
- Non-Reinforced Section
- Raised Median

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For joint details, see PV-101.

BRIDGE APPROACH (MULTI-LANE, CURBED ROADWAY)

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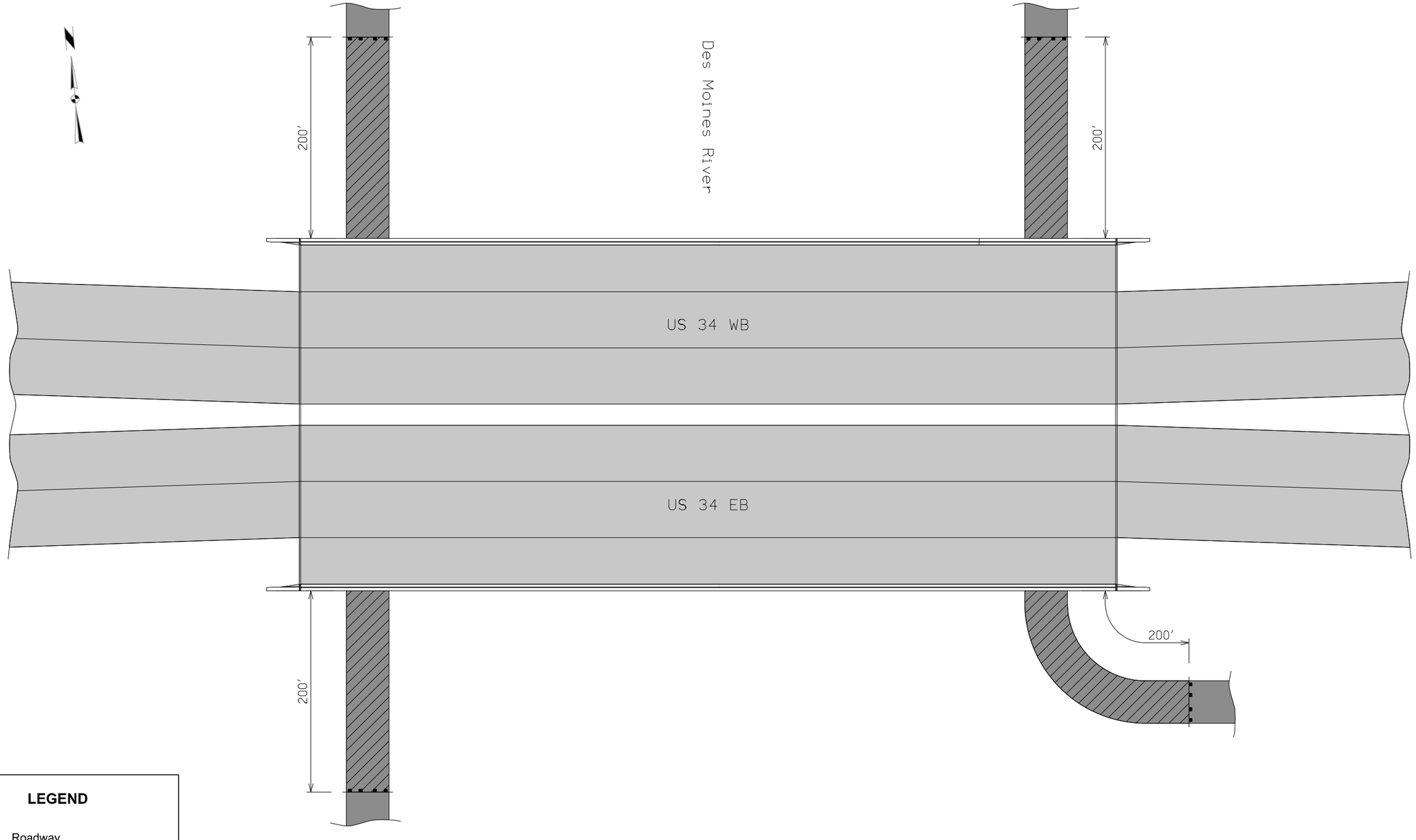

LEGEND

- Roadway
- Bike Trail
- Type III Barricade
- Work Area

See Tabulation: 113-2

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BIKE TRAIL CLOSURE

ENGLISH	IOWA DOT	DESIGN TEAM Flattery\Johnson	WAPELLO COUNTY	PROJECT NUMBER BRF-034-7(130)--38-90	SHEET NUMBER U.2

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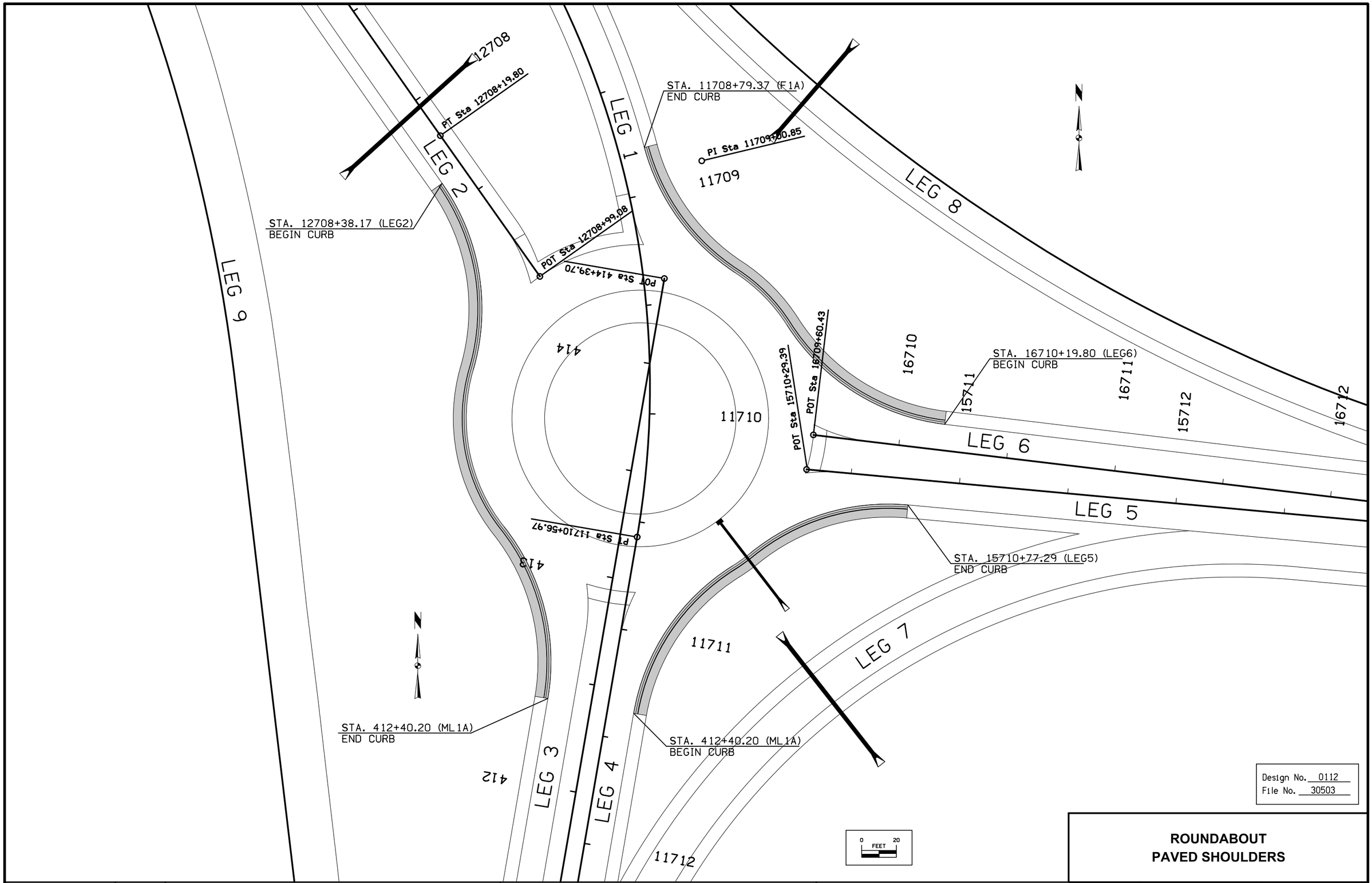

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ROUNDABOUT
PAVED SHOULDERS

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