Bridge Replacement-PPCB
BRF-175-2(009)--38-97

Woodbury COUNTY

LETTING DATE 12/15/2026

Index of Sheets

No.	Description
Sheets	Bridge Plan
A.1	Title Sheet
A.2	Location Map Sheet
V.1	Estimated Quantities - Design 0125
V.1 - V.26	Design 0125
SPS Sheets	Bridge Plan Soils Sheets
SPS.1 - SPS.2	Bridge Plan Soils Sheets
Road Sheets	Road Plan
A.3-W.7	Road Plans
C.1-C.4	Estimated Quantities - Road
C.6	Standard Plans - Road

IOWA DOT

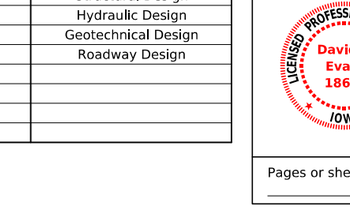
PLANS OF PROPOSED IMPROVEMENT ON THE

PRIMARY ROAD SYSTEM
Woodbury COUNTY
Bridge Replacement-PPCB

IA 175 over Reynolds Creek
1.6 mi W of Co Rd L37

Refer to the Plan Sheets for list of applicable specifications.

Value Engineering Saves. Refer to Article 1105.13 of the Specifications.



Revisions

	TOTAL
	81
PROJECT IDENTIFICATION NUMBER	
20-97-175-010	
PROJECT NUMBER	
BRF-175-2(009)--38-97	
R.O.W. PROJECT NUMBER	
PROJECT DIRECTORY NUMBER	
9717501020	

Scan the QR code or click the link below to leave plan quality feedback and help us improve future projects.

Design QR Feedback Link



Design Data Rural

2024 AADT	1240	V.P.D.
2061 AADT	1,640	V.P.D.
TRUCKS	12	%
Total Design ESALs		

Index of Seals

Sheet No.	Name	Type
A.1	David R. Evans	Structural Design
V.4	Brian J. Birkland	Hydraulic Design
SPS.1, CS.1	Xinyi Jiang	Geotechnical Design
A.3	Chase A. Holein	Roadway Design

Structural Design

LICENSED PROFESSIONAL ENGINEER
David R. Evans
18670
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.

Signature 10-01-2026 Date

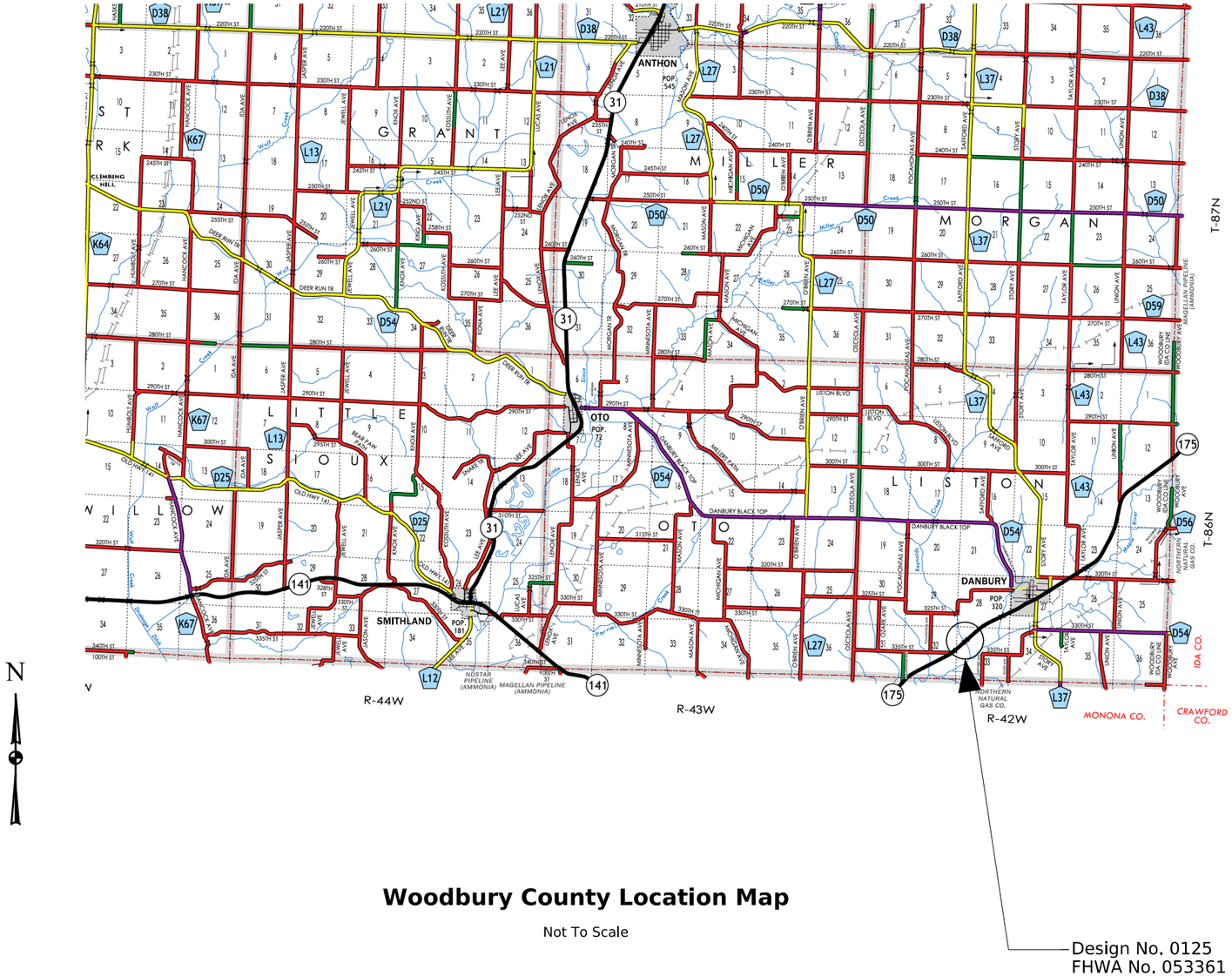
David R. Evans
Printed or Typed Name

My license renewal date is December 31, 2027

Pages or sheets covered by this seal: A.1, A.2, V.1-V.26 of 81

FILE NO. 32160	ENGLISH	DESIGN TEAM DK/TWE/CY	Woodbury COUNTY	PROJECT NUMBER BRF-175-2(009)--38-97	SHEET NUMBER A.1	

4:59:48 PM 10/1/2026 awilso1 pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\9717501020\Bridge\(009)_Bridge Replacement - PPCB\SHT_97175009_DOT_0125_53361_Z04.dgn



LEGEND

- INTERSTATE HIGHWAY
- PRIMARY HIGHWAY-DIVIDED
- PRIMARY HIGHWAY
- PORTLAND CEMENT CONCRETE ROAD
- ASPHALT ROAD
- BITUMINOUS ROAD
- GRAVEL ROAD
- EARTHEN ROAD

- INTERSTATE HIGHWAY
- UNITED STATES HIGHWAY
- STATE HIGHWAY
- COUNTY HIGHWAY

- RAILROAD
- PIPELINE
- AIRPORT
- HYDROLOGY
- BRIDGE

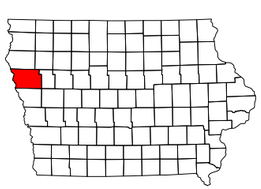
- STATE BOUNDARY
- COUNTY BOUNDARY
- CORPORATE BOUNDARY
- TOWNSHIP LINE
- SECTION LINE
- ROAD NAMES — ABBEY ROAD
- UNINCORPORATED PLACE — **ELWOOD**

- STATE PARKS
- STATE INSTITUTIONS
- FEDERAL LAND

Woodbury County Location Map

Not To Scale

Design No. 0125
FHWA No. 053361



FILE NO. 32160	ENGLISH	DESIGN TEAM DK/TWE/CY	Woodbury COUNTY	PROJECT NUMBER BRF-175-2(009)--38-97	SHEET NUMBER A.2

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ESTIMATED BRIDGE QUANTITIES

ITEM NO.	ITEM CODE	ITEM	UNIT	TOTAL
1	2104-2710020	EXCAVATION, CLASS 10, CHANNEL	CY	679.1
2	2401-6745625	REMOVAL OF EXISTING BRIDGE	LS	1
3	2402-2720000	EXCAVATION, CLASS 20	CY	150
4	2403-0100010	STRUCTURAL CONCRETE (BRIDGE)	CY	291.8
5	2403-1000005	FIBER REINFORCEMENT FOR STRUCTURAL CONCRETE	CY	231.8
6	2403-1000010	TRIAL BATCH AND TEST PLACEMENT (FIBER REINFORCED CONCRETE)	LS	1
7	2404-7775000	REINFORCING STEEL	LB	226
8	2404-7775005	REINFORCING STEEL, EPOXY COATED	LB	66864
9	2404-7775009	REINFORCING STEEL, STAINLESS STEEL	LB	3092
10	2407-0564135	BEAMS, PRETENSIONED PRESTRESSED CONCRETE, BTD135	EACH	6
11	2408-7800000	STRUCTURAL STEEL	LB	4045
12	2414-6424110	CONCRETE BARRIER RAILING	LF	324
13	2501-0201057	PILES, STEEL, HP 10 X 57	LF	1870
14	2501-6335010	PREBORED HOLES	LF	220
15	2507-2638650	BRIDGE WING ARMORING - EROSION STONE	SY	24.7
16	2507-3250005	ENGINEERING FABRIC	SY	1134.1
17	2507-6800061	REVETMENT, CLASS E	TON	1086.4
18	2526-8285040	CONSTRUCTION SURVEY, LOCATION SURVEY	LS	1
19	2533-4980005	MOBILIZATION	LS	1

ESTIMATE REFERENCE INFORMATION

ITEM NO.	ITEM CODE	ITEM DESCRIPTION
1	2104-2710020	EXCAVATION, CLASS 10, CHANNEL ---
2	2401-6745625	REMOVAL OF EXISTING BRIDGE Contractor to add the following information when submitting the Iowa DNR "Notification of Demolition" form: Name of Asbestos Inspector: Brad Azeltine Date Inspected: 3/11/2020 IA License Number: Iowa DOT Inspector Phone: 515-290-2687 Procedure used to detect the presence of asbestos materials: Polarized Light Microscopy (PLM)
3	2402-2720000	EXCAVATION, CLASS 20 ---
4	2403-0100010	STRUCTURAL CONCRETE (BRIDGE) Includes all resilient 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 3 inch diameter PVC plastic pipe and expanding foam in the abutment wings.
5	2403-1000005	FIBER REINFORCEMENT FOR STRUCTURAL CONCRETE Includes furnishing and incorporating fiber reinforcement in the concrete for the bridge deck (179.1 CY), abutment diaphragms/extension (52.7 CY). Refer to the "Developmental Specification for Fiber Reinforcement for Structural Concrete".
6	2403-1000010	TRIAL BATCH AND TEST PLACEMENT (FIBER REINFORCED CONCRETE) - -
7	2404-7775000	REINFORCING STEEL ---
8	2404-7775005	REINFORCING STEEL, EPOXY COATED - -
9	2404-7775009	REINFORCING STEEL, STAINLESS STEEL ---
10	2407-0564135	BEAMS, PRETENSIONED PRESTRESSED CONCRETE, BTD135 Includes abutment bearing material. See Materials IM 570 Appendix I for allowable bearing substitutes at integral abutments. Includes Contractor filling out beam numbers by location and beam seat elevations in "PPC Beam Data Spreadsheet" and forwarding electronic spreadsheet to the Engineer.
11	2408-7800000	STRUCTURAL STEEL Includes 8 drains at 120 lb each.
12	2414-6424110	CONCRETE BARRIER RAILING 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	2501-6335010	PREBORED HOLES ---

ESTIMATE REFERENCE INFORMATION

ITEM NO.	ITEM CODE	ITEM DESCRIPTION
15	2507-2638650	BRIDGE WING ARMORING - EROSION STONE Includes furnishing and placing engineering fabric, erosion stone, and all required excavating, shaping and compacting for wing armoring.
16	2507-3250005	ENGINEERING FABRIC Engineering fabric shall be material as specified for embankment erosion control in accordance with Article 4196.01,B,3, of the Standard Specifications.
17	2507-6800061	REVETMENT, CLASS E Estimated at 1.5 ton/cu yd. Class E revetment shall meet requirements of Article 4130. Broken Concrete and Granite are not allowed.
18	2526-8285040	CONSTRUCTION SURVEY, LOCATION SURVEY - -
19	2533-4980005	MOBILIZATION - -

Roadway Quantities shown elsewhere in these plans.

Design For 0 Degree Skew

135'-0" x 44'-0" Pretensioned Prestressed Concrete Beam Bridge

135'-0" Single Span

Estimated Quantities

STA. 243+47.00 (IA 175)

Turn-in Date: Oct. 2026

Woodbury County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0125 | Design Sheet No. 1 of 26 | FHWA No. 053361

Summary of Concrete Quantities

Location	Structural Concrete
West Abutment Footing	23.4
East Abutment Footing	23.4
Bridge Deck + Abut.	(f) 231.8
Abutment Wings	13.2
Total (Cu. Yds.)	291.8

(f) Designates fiber reinforcement required. Refer to the Developmental Specification for Fiber Reinforcement for Structural Concrete.

Summary of Reinforcing Steel

Location	Non-Coated Reinforcing Steel	Stainless Steel Reinforcing Steel	Epoxy Coated Reinforcing Steel
Bridge Deck + Abutment Footing **	226	----------	59,398
Abutment Wings	----------	----------	1,292
Barrier Rail - North Rail	----------	1,088	2,497
Barrier Rail - South Rail	----------	1,088	2,497
Barrier Rail End Section	----------	4 at 229 = 916	4 at 295 = 1,180
** Includes Abutment Diaphragms			
Total (Lbs.)	226	3,092	66,864

Summary of Excavation

Location	Class 20 Excavation
West Abutment	75
East Abutment	75
Total (Cu. Yds.)	150

Summary of Foundations

Location	Substructure Type	Foundation Type	Number	Length (Lin. Ft.)	Total (Lin. Ft.)
West Abutment	Integral Abutment	HP10x57	11	90	990
East Abutment	Integral Abutment	HP10x57	11	80	880

Summary of Structural Steel

Location	Total (Lbs.)
Bridge Deck Drains	960
Diaphragms	3,085
Total (Lbs.)	4,045

Summary of Bearings

Location	Bearing Type	Number	Associated Bid Item
West Abutment	3 x 3 Bar	6	Incidental Item
East Abutment	3 x 3 Bar	6	Incidental Item

Design For 0 Degree Skew

135'-0" x 44'-0" Pretensioned Prestressed Concrete Beam Bridge

135'-0" Single Span

Summary Quantities

STA. 243+47.00 (IA 175)

Turn-in Date: Oct. 2026

Woodbury County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0125 | Design Sheet No. 2 of 26 | FHWA No. 053361

General Notes - Woodbury 0125
(Bridge Replacement - PPCB)

This design is for the replacement of the existing 120'-0" x 26'-0" Concrete Slab Bridge (Design No. 6451) with a year of construction of 1952, with a 135'-0" x 44'-0" Pretensioned Prestressed Concrete Beam Bridge on IA 175 over Reynolds Creek in Woodbury County. Electronic plans of the existing structure are available to the Contractor as part of the E-Files supplied with the contract documents.

The lump sum bid for "Removal of Existing Bridge" shall include the removal of the existing 120'-0" x 26'-0" Concrete Slab Bridge (Design No. 6451). Removals shall be in accordance with Section 2401, of the Standard Specifications.

Faint lines on plans indicate the existing structure.

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 starting date.

This bridge 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.

All reinforcing bars and bars noted as dowels supplied for this structure shall be deformed reinforcement unless otherwise noted or shown.

Minimum clear distance from face of concrete to near reinforcing bar is to be 2" unless otherwise shown.

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.

Concrete barrier rails placed using the slipform method will require the use of a Class BR Concrete in accordance with Article 2513.03, A, 2, 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).

The contractor shall be responsible for ensuring stability of prestressed concrete beams during erection and construction up through the concrete bridge deck reaching its full 28-day strength. The contractor shall provide sufficient temporary anchor bracing at beam ends and temporary intermediate bracing as needed to ensure prestressed beam stability. Partial or fully installed permanent bracing as shown in these design plans shall not be assumed sufficient to brace prestressed beams during erection and construction. Temporary bracing shall not be welded to prestressed beam stirrups.

The Bridge Contractor is to clear and/or shape the channel within approximate limits of the areas as shown on the "Situation Plan" and "Longitudinal Section Along Centerline of Bridge" sheets.

Specifications:

Design:

AASHTO LRFD Bridge Design Specifications, 10th Ed., Series of 2024, except as noted in the current Iowa Bridge Design Manual.

Construction:

Iowa Department of Transportation Standard Specifications for Highway and Bridge Construction, Series 2023, plus applicable General Supplemental Specifications, Developmental Specifications, Supplemental Specifications, and Special Provisions shall apply to construction work on this project.

"DS for Fiber Reinforcement for Structural Concrete."

Design Stresses:

Design stresses for the following materials are in accordance with the AASHTO LRFD Bridge Design Specifications, 10th Ed., Series of 2024, except as noted in the current Iowa Bridge Design Manual.

Reinforcing steel in accordance with LRFD AASHTO Section 5, Grade 60, for epoxy and non-coated bars, and Grade 60 or 75 for stainless steel reinforcing.

Concrete in accordance with LRFD AASHTO Section 5, f'c = 4,000 psi.

Prestressed concrete beams, see Design Sheet 15.

Structural steel in accordance with LRFD AASHTO Section 6, ASTM A709 Grade 36 or Grade 50 (AASHTO M270 Grade 36 or Grade 50).

The bridge contractor shall prebore holes for abutment piles. Holes shall be bored to the elevations shown on the "Longitudinal Section Along Centerline Roadway" on design sheet 4. Piles shall be driven through the holes to at least the specified design bearing.

Working Drawing and Calculation Submittals

Working drawings and calculations shall be submitted for the following items shown in the table below. (Note additional working drawings and calculations may be required in accordance with Article 1105.03 of the Standard Specifications.)

Submittal requirements for working drawings and calculations shall be in accordance with 1105.03 of the Standard Specifications for Highway and Bridge Construction of the Iowa Department of Transportation. The absence of a certification requirement for a submittal does not relieve the Contractor of the responsibility to attain certification.

Calculation submittals in this table which are associated with working drawing submittals shall be submitted on the same day. Review time for calculation submittals shall be of the same duration as and run concurrently with review time for associated working drawings. The calculation submittals listed in the table are not meant to be an exhaustive list and do not relieve the Contractor from providing additional calculation submittals if requested by the Engineer.

No.	Working Drawing Description	Working Drawing File Name Convention For Submittal	Certified by Iowa P.E. (Yes/No)
1	Deck Drain Details	(009)_Woodbury_0125_DeckDrains.pdf	No
2	Steel Intermediate Diaphragms	(009)_Woodbury_0125_Diaphragms.pdf	No

No.	Calculation Description	Calculation File Name Convention For Submittal	Certified by Iowa P.E. (Yes/No)

Bridge Deck Dimension Table

No.	Item	Unit	Quantity
1	Deck Length	L.F.	138
2	Minimum Deck Width	L.F.	47.2
3	Maximum Deck Width	L.F.	47.2
4	Deck Area	S.F.	6513.6

1. Deck length is measured from face-to-face of paving notches along the centerline of the roadway.
2, 3. Deck widths are measured from out-to-out of deck perpendicular to the centerline of roadway.
4. Deck area is to be based on the face-to-face paving notch distance and out-to-out deck dimensions.

Design History at this Site
(Includes this Design)

Des. No.	Type of Work
6451	Original Design
989	Bridge Deck Overlay
0125	Bridge Deck Replacement - PPCB

Bridge Coordinates

Location	CL W. Abut. Brg.	CL E. Abut. Brg.
North Edge of Deck	N=8487891.318	N=8487982.663
	E=14252892.418	E=14252991.821
CI Approach Roadway	N=8487873.953	N=8487965.298
	E=14252908.375	E=14253007.779
South Edge of Deck	N=8487856.588	N=8487947.933
	E=14252924.332	E=14253023.736

Note: An electronic file containing the Bridge Coordinate Data is available as part of the E-files supplied with the Contract Documents. The Contractor shall verify these coordinates with the Project Horizontal Control Information provided in the Road Plans.

Traffic Control Plan

The roadway will be closed to thru traffic. Refer to the Traffic Control Plan shown elsewhere in these plans.

Design For 0 Degree Skew

135'-0" x 44'-0" Pretensioned Prestressed Concrete Beam Bridge

135'-0" Single Span

General Notes

STA. 243+47.00 (IA 175)

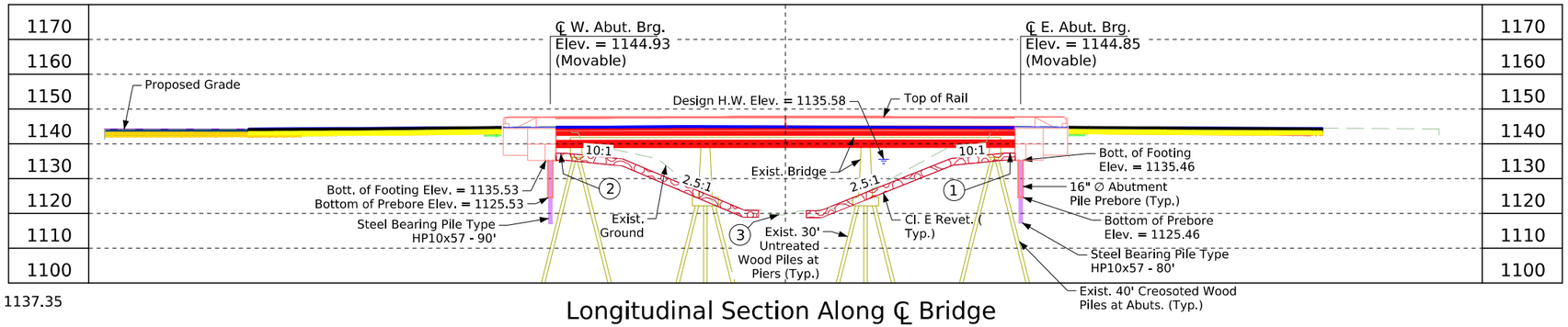
Turn-in Date: Oct. 2026

Woodbury County

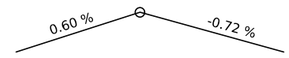
IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0125 | Design Sheet No. 3 of 26 | FHWA No. 053361

Control Point: 971750337 CP SET FENO MONUMENT EAST EDGE FIELD ENT ON S. SIDE IA 175 APPROX. 350 FT EAST INTERSECTION IA 175 & 335TH ST, N=8486713.73, E=14251639.34, EL.=1142.60
971750346 CP SET FENO MONUMENT ON N. SIDE IA 175 NEAR ROW POST APPROX. 1 MILE WEST OF D54, N=8489919.34, E=14255377.65, EL.=1138.91



Longitudinal Section Along ℄ Bridge



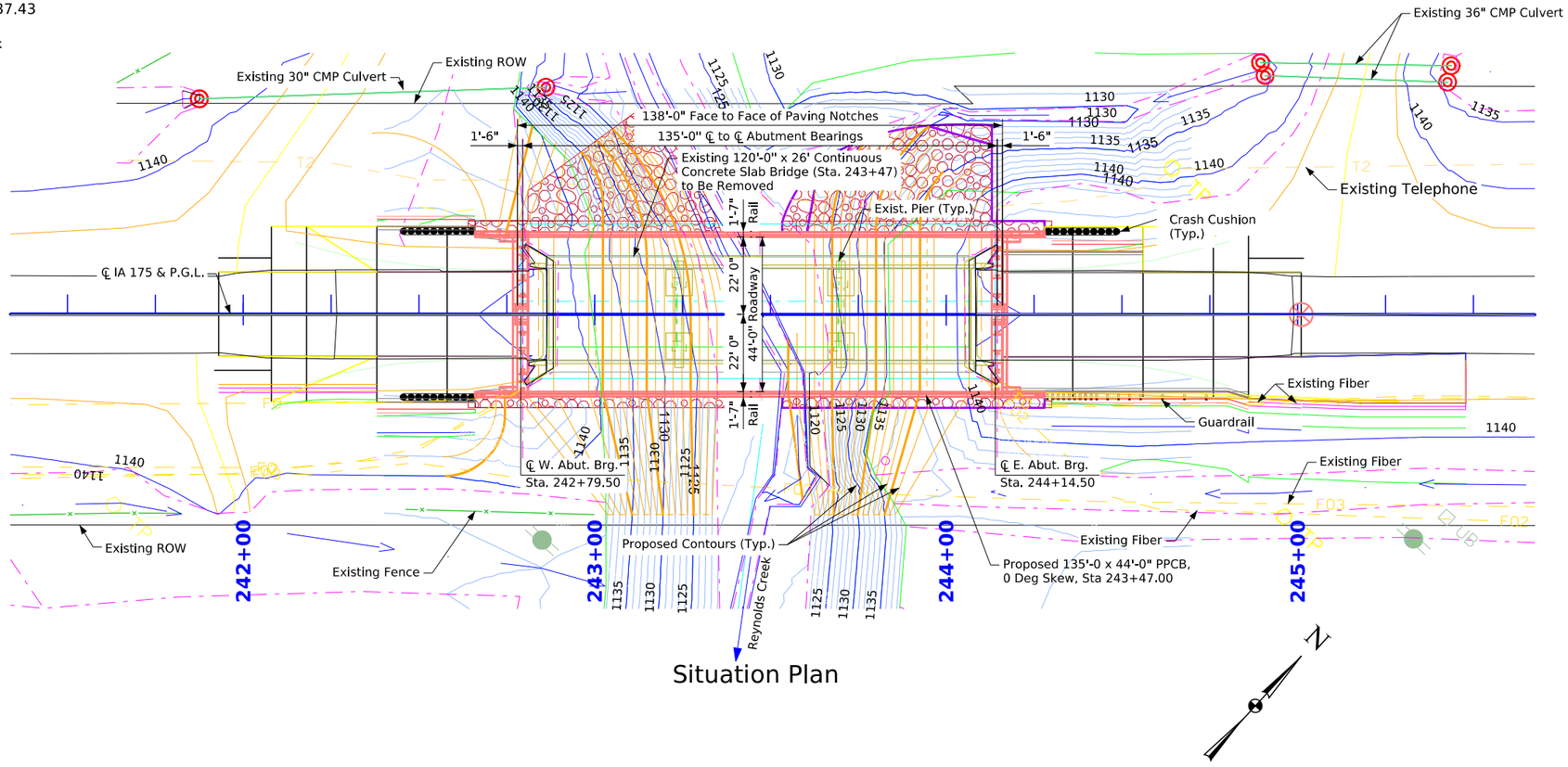
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VPI Elev. = 1145.40

Proposed Profile Grade ℄ IA 175

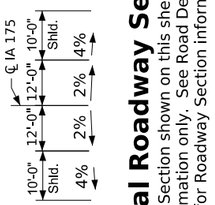
① Top of East Berm Elev. = 1137.35

② Top of West Berm Elev. = 1137.43

③ Streambed Elev. = 1119.55 ±



Situation Plan



Typical Roadway Section

Roadway Section shown on this sheet are for information only. See Road Design sheet for Roadway Section information.

Hydraulic Data

RIDB: REYNOLDSC_WOOD_0.48
Drainage Area = 24.2 Sq. Mi.
Site Stream Slope (HGL) = 0.24% (12.7 Ft./Mi.)

Discharges from USGS Regression Equations
USGS Report SIR 2013-5086, Region 2 Eq.

Operational Low Beam = 1139.10
Channel Low Beam = 1139.29

Avg. Low Water Stage = 1120.6
Extreme Highwater = Unknown
Roadway Overtop 1142.0
Overtopping ~0.2mi. Northeast of Bridge

Q_{50} (Design)= 5,530 cfs
Stage = 1135.58
Avg. Bridge Velocity = 6.6 fps
Operational Freeboard = 3.52 Ft.

Q_{100} = 6,500 cfs
Stage = 1136.68
Backwater = 0.00 Ft.
Avg. Bridge Velocity = 6.9 fps
Operational Freeboard = 2.42 Ft.

Q_{200} = 8,370 cfs
Stage = 1138.17
Backwater = 0.04 Ft.
Avg. Bridge Velocity = 7.4 fps
Operational Freeboard = 0.93 Ft.
Calculated Scour = 1118.3

Q_{500} = 9,080 cfs
Stage = 1138.61
Backwater 0.07 Ft.
Avg. Bridge Velocity = 7.6 fps
Operational Freeboard = 0.49 Ft.
Calculated Scour = 1118.2

Note:

Top of bridge deck at centerline roadway is 0.03' below the profile grade to account for deck cross slope and parabolic crown.

Class E revetment stone is embedded.

Utilities Note:

Utilities shown on this sheet are for information only. See Road Design sheets for utility information.

General Utility Symbols:

FO - Fiber Optic Line T - Telephone Line

Location

IA 175 over Reynolds Creek
T-86N R-42W
Section 33
Liston Township
Woodbury County
FHWA No. 53360 (Existing)
FHWA No. 53361 (Proposed)
Bridge Maint. No. 9734.0S175
Latitude 42.222031°
Longitude -95.745518°

Hydraulic Design

LICENSED PROFESSIONAL ENGINEER
Brian J. Birkland
17375
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.

Signature Brian J. Birkland 9-15-2026 Date

Printed or Typed Name Brian J. Birkland

My license renewal date is December 31, 2026

Pages or sheets covered by this seal: V.4-V.6

Design For 0 Degree Skew
135'-0" x 44'-0" Pretensioned Prestressed Concrete Beam Bridge
135'-0" Single Span

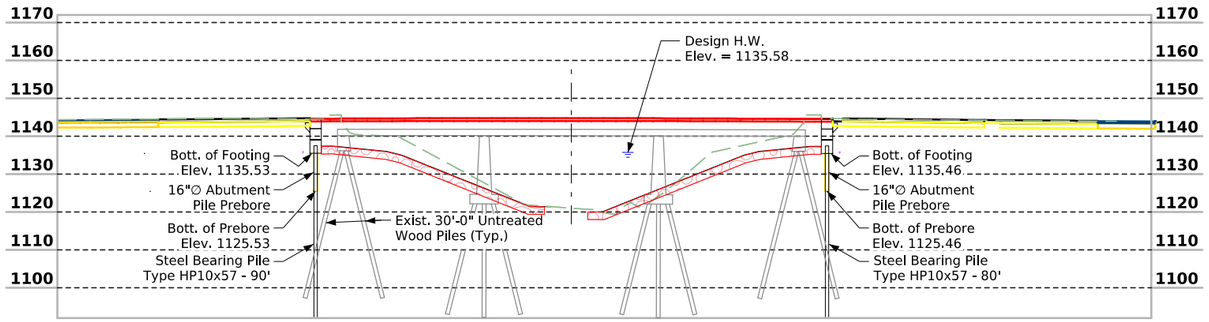
Situation Plan
STA. 243+47.00 (IA 175) Turn-in Date: Oct. 2026

Woodbury County
IOWA DEPARTMENT OF TRANSPORTATION
Design No. 0125 Design Sheet No. 4 of 26 FHWA No. 053361

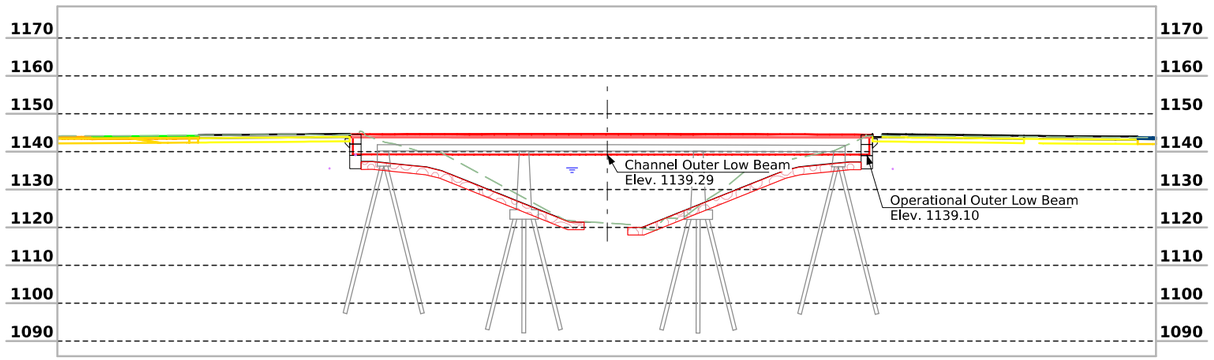
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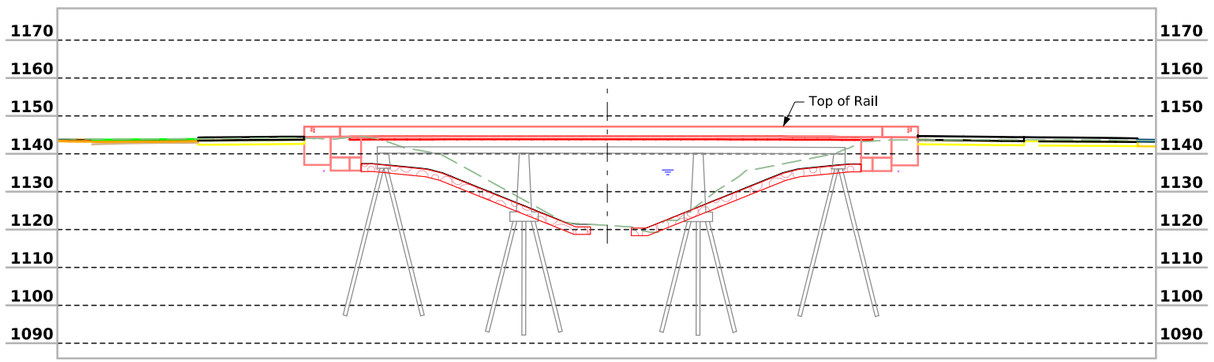
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BRG TSL Longitudinal Section Along ℄ Bridge Pile



BRG TSL Longitudinal Section Along ℄ Bridge Low Beam



BRG TSL Longitudinal Section Along ℄ Bridge Rail

Design For 0 Degree Skew

135'-0" x 44'-0" Pretensioned Prestressed Concrete Beam Bridge

135'-0" Single Span

Situation Details

STA. 243+47.00 (IA 175)

Turn-in Date: Oct. 2026

Woodbury County

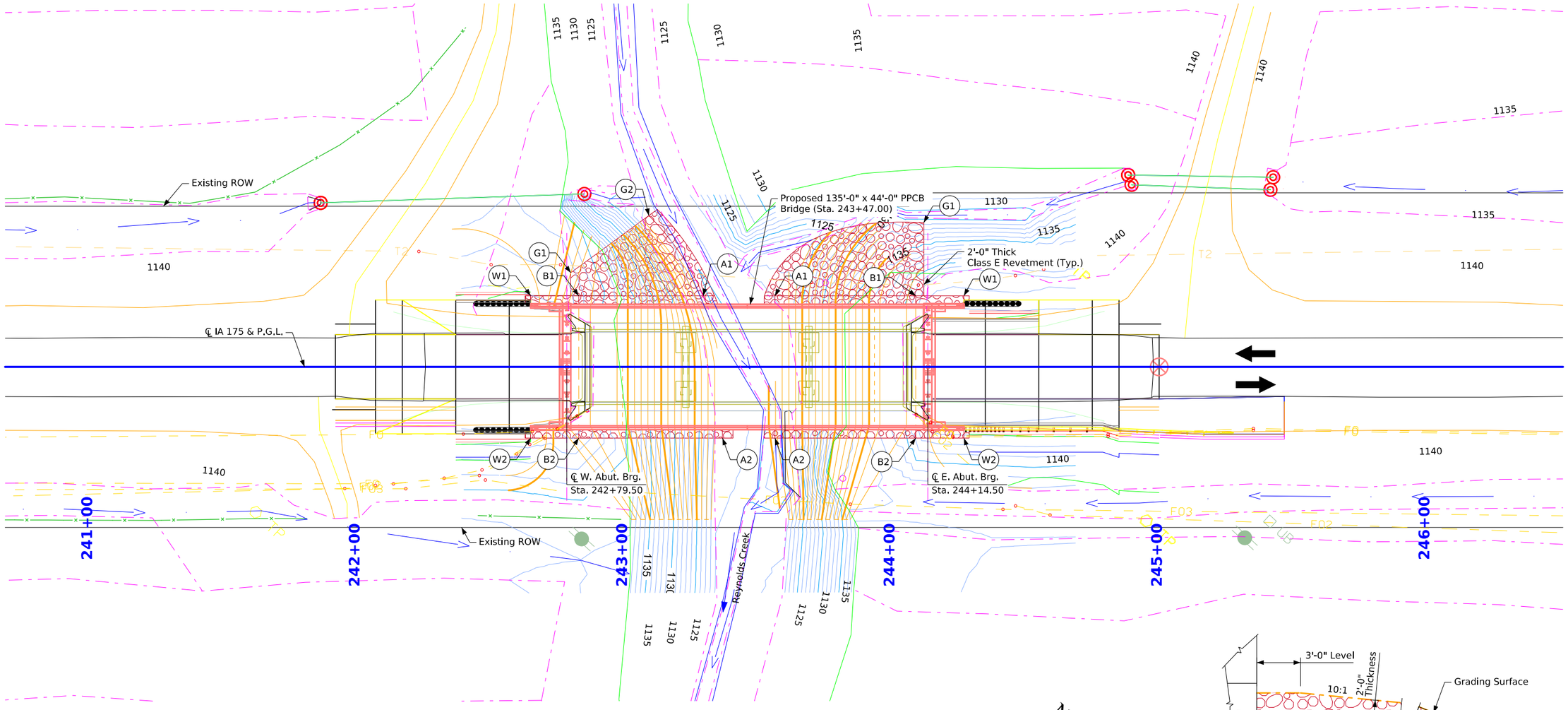
IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0125 | Design Sheet No. 5 of 26 | FHWA No. 053361

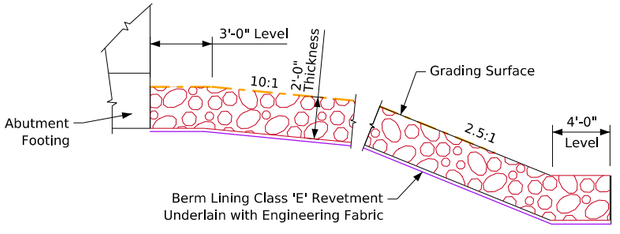
FILE NO. 32160	ENGLISH	DESIGN TEAM DK/TWE/CY	Woodbury COUNTY	PROJECT NUMBER BRF-175-2(009)--38-97	SHEET NUMBER V.5	

SYSTEMTIME SYSTEMDATE USERNAME DGNSPEC

Control Point: 971750337 CP SET FENO MONUMENT EAST EDGE FIELD ENT ON S. SIDE IA 175 APPROX. 350 FT EAST INTERSECTION IA 175 & 335TH ST, N=8486713.73, E=14251639.34, EL.=1142.60
971750346 CP SET FENO MONUMENT ON N. SIDE IA 175 NEAR ROW POST APPROX. 1 MILE WEST OF D54, N=8489919.34, E=14255377.65, EL.=1138.91



Site Plan



Section Thru Embedded Berm Lining

Normal to Berm Slope

Berm Slope Location Table

Points	West Abutment			East Abutment		
	Station	Offset	Elev.	Station	Offset	Elev.
A1	243+30.52	26.58' Lt.	1120.57	243+57.33	26.58' Lt.	1122.09
A2	243+37.73	26.58' Rt.	1121.53	243+57.33	26.58' Rt.	1120.66
B1	242+84.00	26.58' Lt.	1137.43	244+10.00	26.58' Lt.	1137.35
B2	242+84.00	26.58' Rt.	1137.43	244+10.00	26.58' Rt.	1137.35
G1	242+81.00	35.18' Lt.	1139.00	244+13.00	53.90' Lt.	1130.67
G2	243+10.18	56.54' Lt.	1121.50	--	--	--
W1	242+66.00	26.58' Lt.	1144.31	244+28.00	26.58' Lt.	1144.21
W2	242+66.00	26.58' Rt.	1144.31	244+28.00	26.58' Rt.	1144.21

Berm slope elevations reflect the grading surface.

Estimated Berm Armoring Quantities

Location	Revetment CL. E (Ton)	Engineering Fabric (SY)	CL. 10 Channel Excavation (CY)
West Berm Abutment	525.4	549.4	328.4
East Abutment Berm	561.0	584.7	350.7
Totals	1086.4	1134.1	679.1

Excavation quantity calculated from grading surface. Excavation quantity if for embedded revetment core out only, and does not include excavation to the grading surface. Excavation quantity to the grading surface is determined by Road Design and included in the Road Plans.

Design For 0 Degree Skew

135'-0" x 44'-0" Pretensioned Prestressed Concrete Beam Bridge

135'-0" Single Span

Situation Plan - Site

STA. 243+47.00 (IA 175)

Turn-in Date: Oct. 2026

Woodbury County

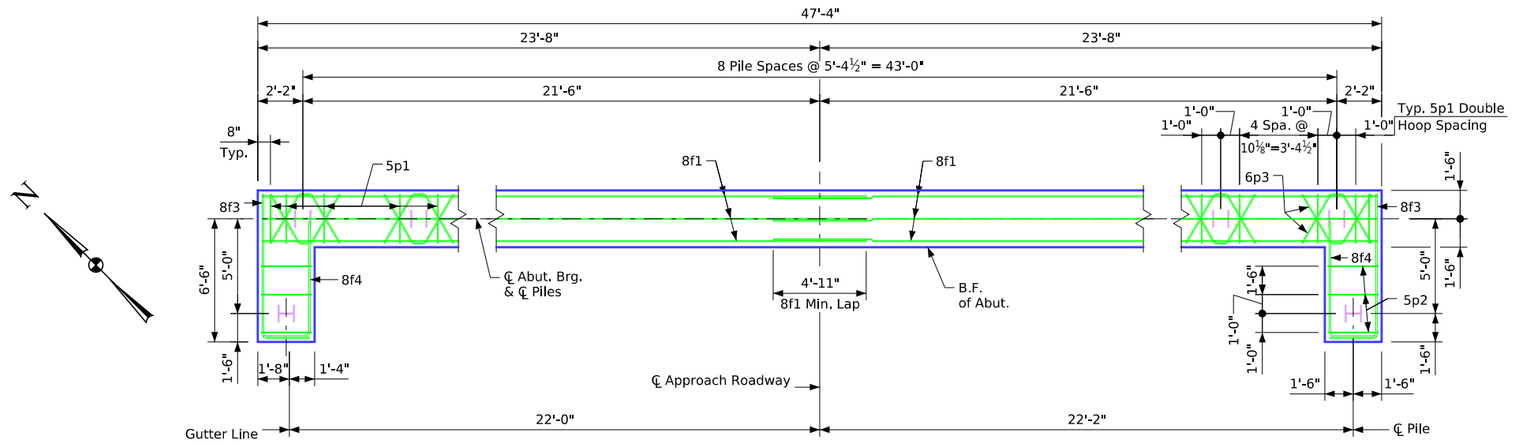
IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0125 Design Sheet No. 6 of 26 FHWA No. 053361

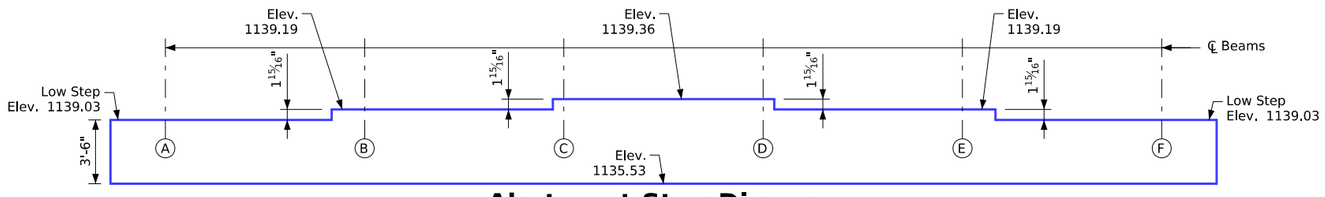
FILE NO. 32160	ENGLISH	DESIGN TEAM DK/TWE/CY	WoodburyCOUNTY	PROJECT NUMBER BRF-175-2(9)--38-97	SHEET NUMBER V.6	

SYSTEMTIME SYSTEMDATE USERNAME DGNSPEC

CONTROL POINT: 971750337 CP SET FENO MONUMENT EAST EDGE FIELD ENT ON S. SIDE IA 175 APPROX. 350 FT EAST INTERSECTION IA 175 & 335TH ST, N=8486713.73, E=14251639.34, EL.=1142.60
971750346 CP SET FENO MONUMENT ON N. SIDE IA 175 NEAR ROW POST APPROX. 1 MILE WEST OF D54, N=8489919.34, E=14255377.65, EL.=1138.91



West Abutment Pile Plan



Abutment Step Diagram

(Rear Elevation - West Abutment)

West Abutment Pile Design Notes:

The contract length of 90 feet for the west abutment piles is based on a mixed soil classification, a total factored axial load per pile (pu) of 214 kips, and a geotechnical resistance factor (phi) of 0.65.

The nominal axial bearing resistance for construction control was determined from a mixed soil classification and a geotechnical resistance factor (phi) of 0.65. Piles are assumed to be driven from a start elevation at the bottom of prebore.

West Abutment Pile Driving Notes:

The required nominal axial bearing resistance for west abutment piles is 164 tons at end of drive or retap. The pile contract length shall be driven as per plan unless piles reach refusal. Construction control requires a weap analysis with bearing graph.

Abutment Concrete Quantity

Location	Quantity
West Abutment Footing	23.4
Total (Cu. Yds.)	23.4

Note: Concrete quantities are included on the Summary Quantities Sheet.
Note: 11 – HP 10 x 57 steel bearing piling required.

Design For 0 Degree Skew

135'-0" x 44'-0" Pretensioned Prestressed Concrete Beam Bridge

135'-0" Single Span

Abutment West Footing Details

STA. 243+47.00 (IA 175)

Turn-in Date: Oct. 2026

Woodbury County

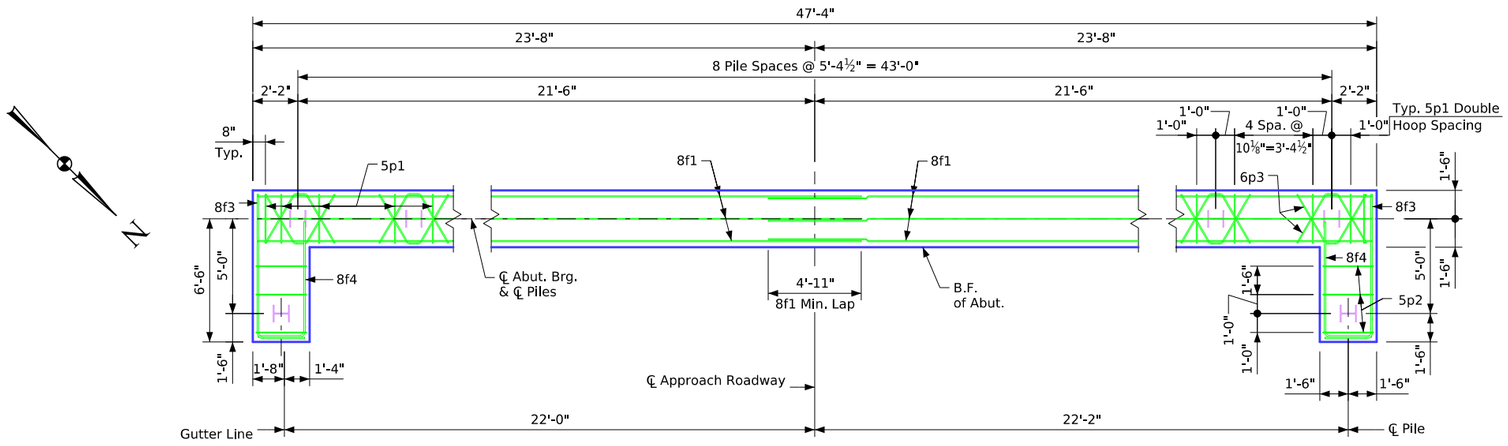
IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0125 | Design Sheet No. 7 of 26 | FHWA No. 053361

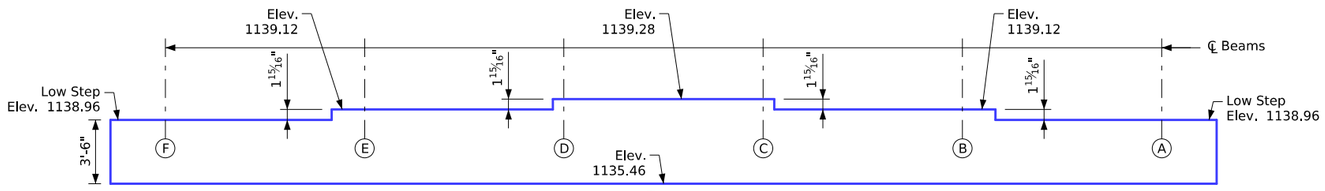
FILE NO. 32160	ENGLISH	DESIGN TEAM DK/TWE/CY	Woodbury COUNTY	PROJECT NUMBER BRF-175-2(009)--38-97	SHEET NUMBER V.7

12:13:24 PM 9/14/2026 tellio2 pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\9717501020\Bridge\(009)_Bridge Replacement - PPCB\SHT_97175009_DOT_0125_53361_Z04.dgn

CONTROL POINT: 971750337 CP SET FENO MONUMENT EAST EDGE FIELD ENT ON S. SIDE IA 175 APPROX. 350 FT EAST INTERSECTION IA 175 & 335TH ST, N=8486713.73, E=14251639.34, EL.=1142.60
971750346 CP SET FENO MONUMENT ON N. SIDE IA 175 NEAR ROW POST APPROX. 1 MILE WEST OF D54, N=8489919.34, E=14255377.65, EL.=1138.91



East Abutment Pile Plan



Abutment Step Diagram

(Rear Elevation - East Abutment)

East Abutment Pile Design Notes:

The contract length of 80 feet for the east abutment piles is based on a mixed soil classification, a total factored axial load per pile (pu) of 214 kips, and a geotechnical resistance factor (phi) of 0.65.

The nominal axial bearing resistance for construction control was determined from a mixed soil classification and a geotechnical resistance factor (phi) of 0.65. Piles are assumed to be driven from a start elevation at the bottom of prebore.

East Abutment Pile Driving Notes:

The required nominal axial bearing resistance for east abutment piles is 164 tons at end of drive or retap. The pile contract length shall be driven as per plan unless piles reach refusal. Construction control requires a weap analysis with bearing graph.

Abutment Concrete Quantity

Location	Quantity
East Abutment Footing	23.4
Total (Cu. Yds.)	23.4

Note: Concrete quantities are included on the Summary Quantities Sheet.
Note: 11 – HP 10 x 57 steel bearing piling required.

Design For 0 Degree Skew

135'-0" x 44'-0" Pretensioned Prestressed Concrete Beam Bridge

135'-0" Single Span

Abutment East Footing Details

STA. 243+47.00 (IA 175)

Turn-in Date: Oct. 2026

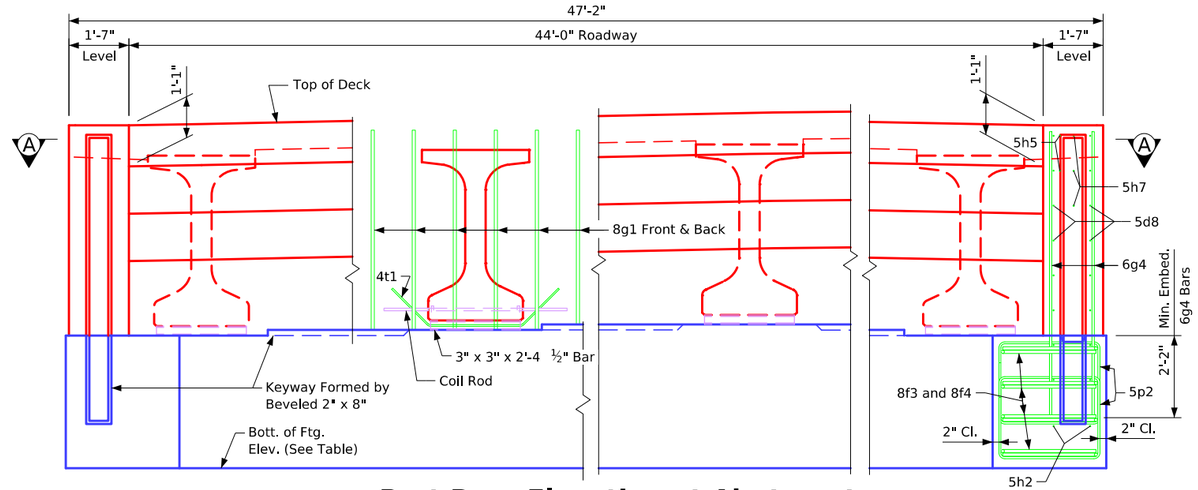
Woodbury County

IOWA DEPARTMENT OF TRANSPORTATION

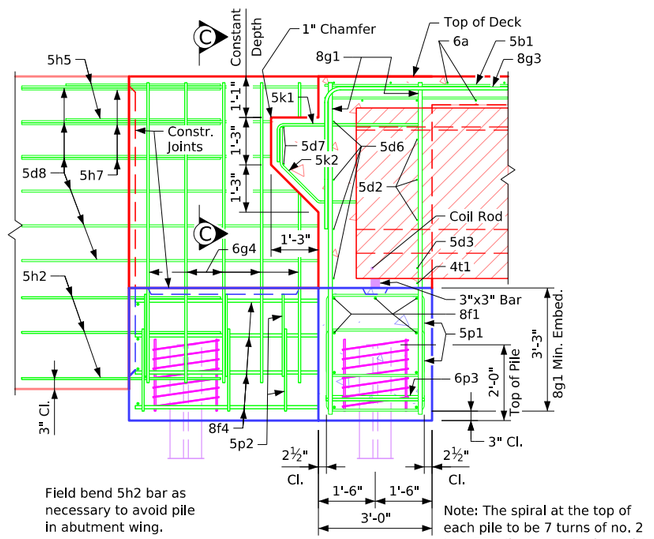
Design No. 0125 | Design Sheet No. 8 of 26 | FHWA No. 053361

FILE NO. 32160	ENGLISH	DESIGN TEAM DK/TWE/CY	Woodbury COUNTY	PROJECT NUMBER BRF-175-2(009)--38-97	SHEET NUMBER V.8

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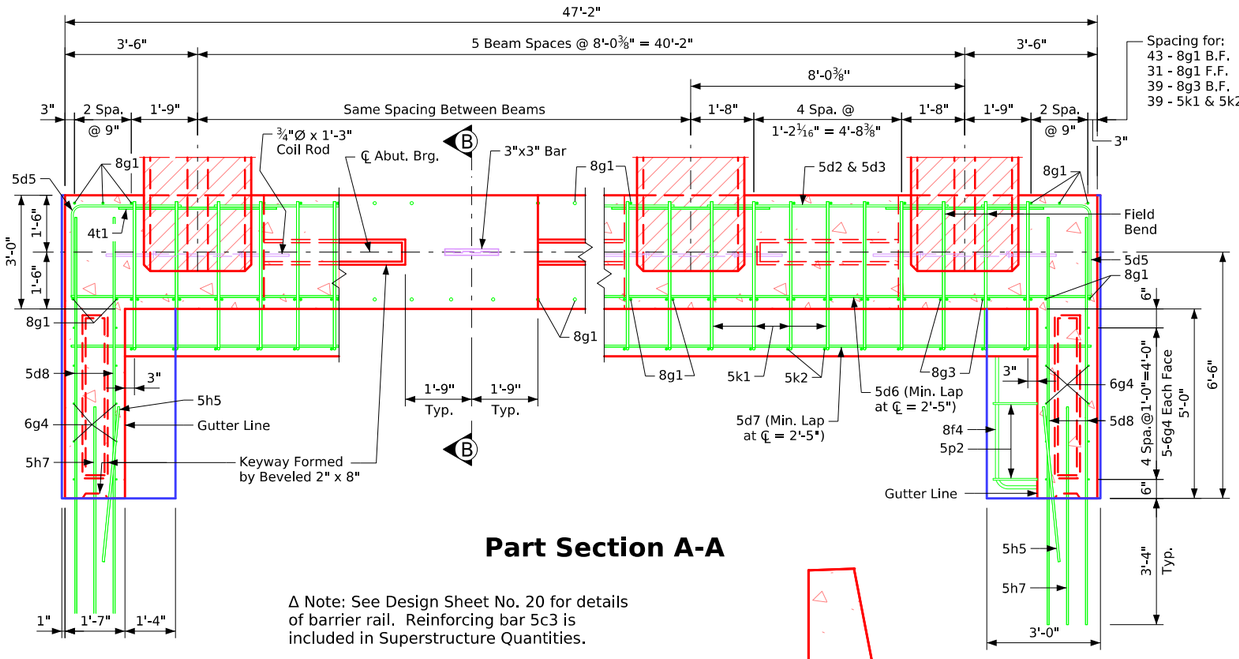
Part Rear Elevation at Abutment
(Wings not Shown)



Field bend 5h2 bar as necessary to avoid pile in abutment wing.

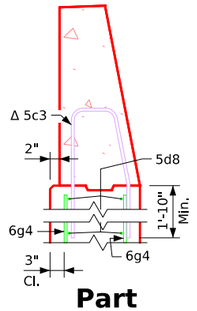
Note: The spiral at the top of each pile to be 7 turns of no. 2 bar, 21" diameter, 3" pitch with 3 - L⅞" x ⅞" x ⅛" spacers punched to hold spiral.

Part Section B-B



Part Section A-A

Δ Note: See Design Sheet No. 20 for details of barrier rail. Reinforcing bar 5c3 is included in Superstructure Quantities.



Part Section C-C

Abutment Notes:

Minimum clear distance from face of concrete to near reinforcing bar is to be 2" unless otherwise noted or shown.

If necessary to prevent damage to the end of the bridge deck and 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.

Design For 0 Degree Skew

135'-0" x 44'-0" Pretensioned Prestressed Concrete Beam Bridge

135'-0" Single Span

Abutment Details

STA. 243+47.00 (IA 175)

Turn-in Date: Oct. 2026

Woodbury County

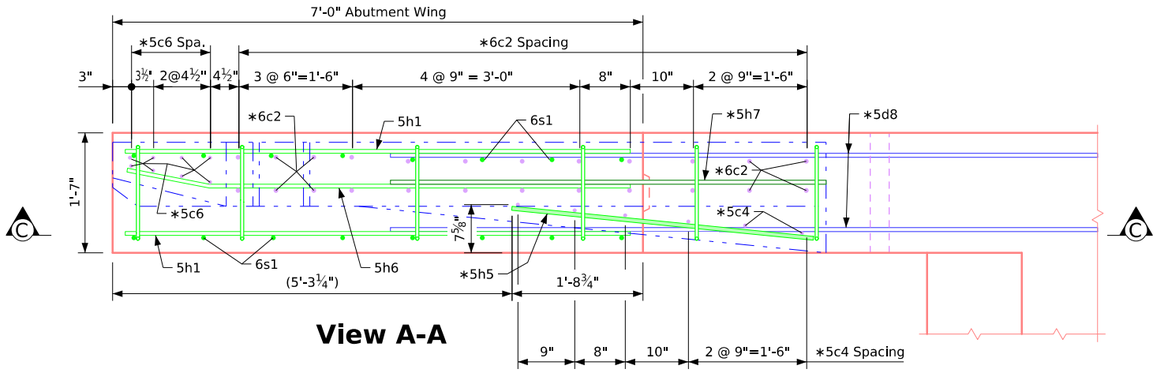
IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0125 | Design Sheet No. 9 of 26 | FHWA No. 053361

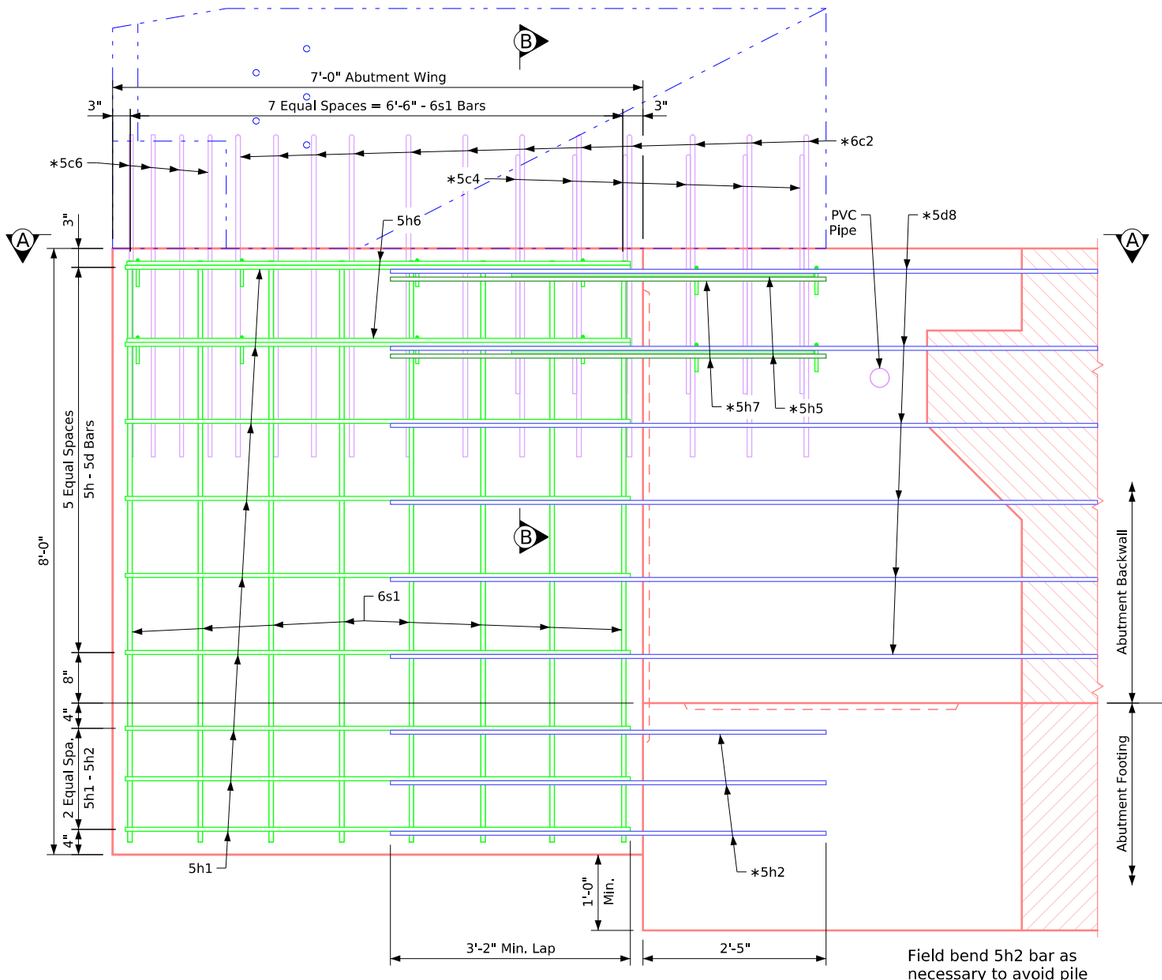
FILE NO. 32160	ENGLISH	DESIGN TEAM DK/TWE/CY	"BTC" or "BTD" Bulb Tee Beams - Integral Abutment Details - 0° Skew	Standard Sheet 2085-BTCD (Modified)	Woodbury COUNTY	PROJECT NUMBER BRF-175-2(009)--38-97	SHEET NUMBER V.9

12:13:25 PM 9/14/2026 tellio2 pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\9717501020\Bridge\(009)_Bridge Replacement - PPCB\SHT_97175009_DOT_0125_53361_Z04.dgn

Correction 04-14: Added Concrete Quantity Table & Referral Note to Summary Quantity Sheet. Removed Design Bearing Note for Abut. Piling from Abutment Notes.
Issued 02-08.
Revised 08-2024: Added missing 2'-2" vertical dim. in "Part Rear Elevation at Abutment" detail. Corrected misc. detailing errors. Updated "Abutment Step Diagram", removed the text and numbers to make the vertical dimensions neutral.
BTIntegralBridges.dgn - 2085-BTCD - This Sheet Re-Issued 11-2023. Sheet Format Update.

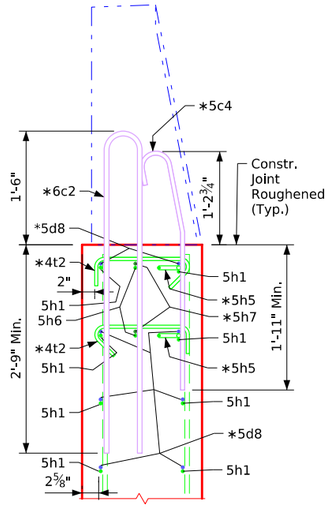


View A-A



Section C-C Abutment Wing - Elevation

Field bend 5h2 bar as necessary to avoid pile in abutment wing.



Section B-B

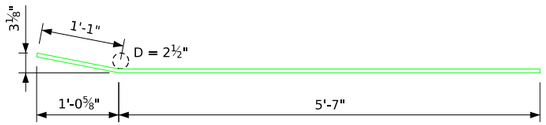
∗Barrier rail end section bars to be placed with abutment wing and abutment.

See Barrier Rail End Section Sheet on Design Sheet No. 22 and 23 for details of reinforcing bars 6c2, 5c4, 5c6 and 4t2.

See Abutment Details Sheet on Design Sheet No. 9 for details of reinforcing bars 5d, 5h2, 5h5 and 5h7.

Reinforcing Bar List - One Abut. Wing

Bar	Location	Shape	No.	Length	Weight
5h1	Horizontal Both Faces		18	6'-8"	125
5h6	Horizontal Wingwall		2	6'-8"	14
6s1	Vertical Both Faces		16	7'-8"	184
	Epoxy Reinforcing Total Weight (lbs.)				323



5h6

Bent Bar Details

Note: All Dimensions are out to out. D = Pin Diameter

Concrete Placement Summary

Section	Total
One Abutment Wing	3.3
Total (cu. yds.)	3.3

Note: Concrete and reinforcing steel quantities are included on the Summary Quantities Sheet.

Design For 0 Degree Skew

135'-0" x 44'-0" Pretensioned Prestressed Concrete Beam Bridge

135'-0" Single Span

Abutment Wing Details

STA. 243+47.00 (IA 175)

Turn-in Date: Oct. 2026

Woodbury County

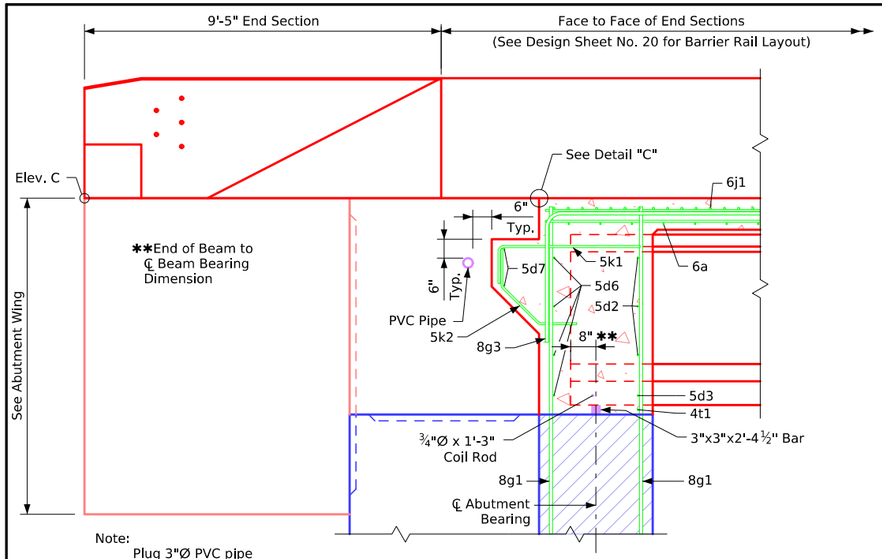
IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0125 | Design Sheet No. 10 of 26 | FHWA No. 053361

Revised 08-2024: Removed improperly placed bar label 6c1 in "Section B-B" details.
Revised 06-2025: Changed 5h6 bar length and quantity (was 6'-0" and 3 bars). Updated 4t2 bar shape and quantity shown. Flipped/switched orientation of horizontal and vertical bars in outside face of wingwall.
MiscellaneousBridges.dgn - 2113 - This Sheet Re-Issued 11-2023. Sheet Format Update.

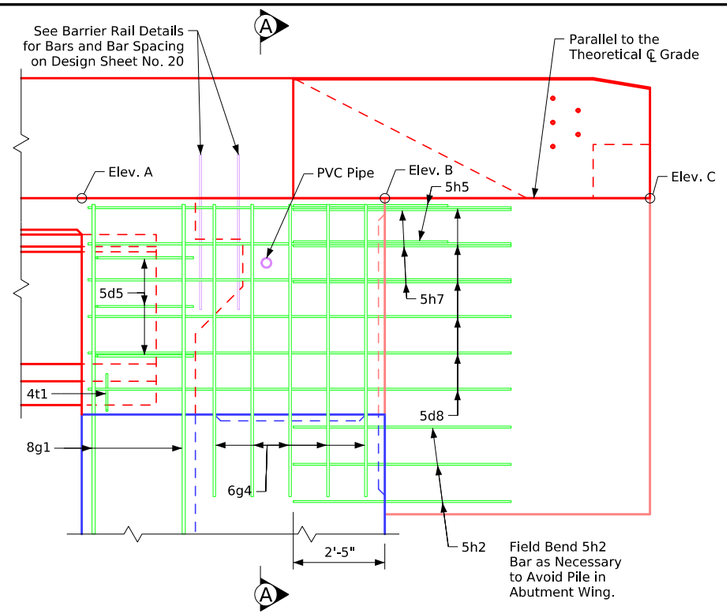
FILE NO. 32160	ENGLISH	DESIGN TEAM DK/TWE/CY	'BTD' & 'D' Beam Integral Abutment Wing Details	Standard Sheet 2113S	Woodbury COUNTY	PROJECT NUMBER BRF-175-2(009)--38-97	SHEET NUMBER V.10	

12:13:26 PM 9/14/2026 tellio2 pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\9717501020\Bridge\(009)_Bridge Replacement - PPCB\SHT_97175009_DOT_0125_53361_Z04.dgn



Part Longitudinal Section Near Gutter

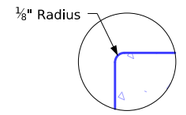
(For details of Intermediate Diaphragm see Design Sheet No. 17)



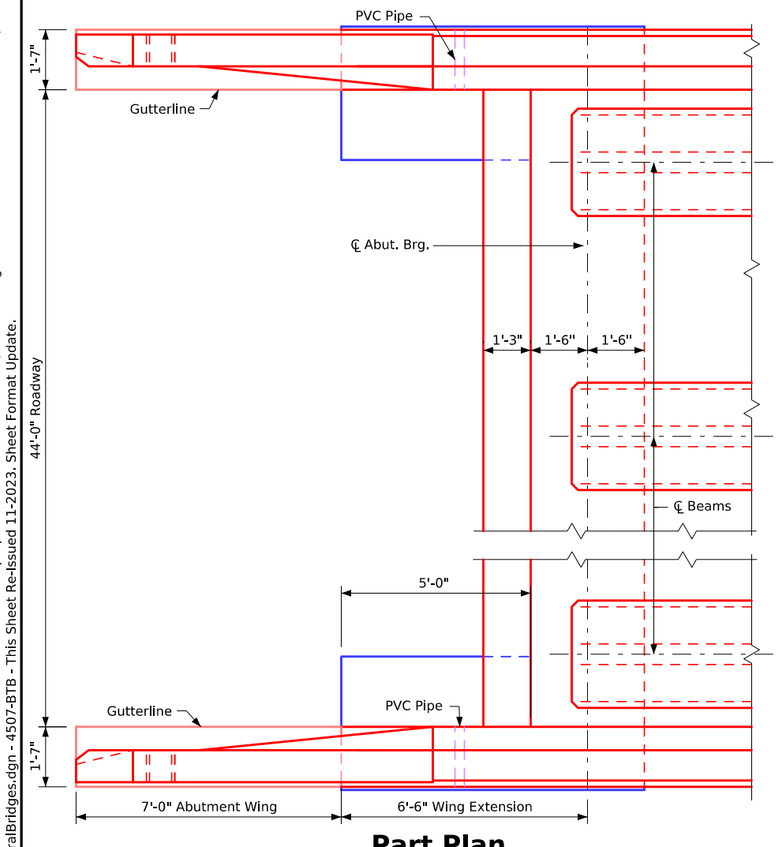
Part End View at Abutment

CONTROL POINT: 971750337 CP SET FENO MONUMENT EAST EDGE FIELD ENT ON S. SIDE IA 175 APPROX. 350 FT EAST INTERSECTION IA 175 & 335TH ST, N=8486713.73, E=14251639.34, EL.=1142.60

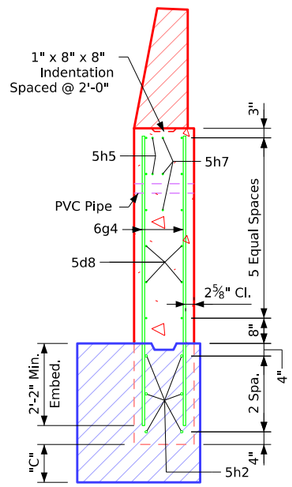
971750346 CP SET FENO MONUMENT ON N. SIDE IA 175 NEAR ROW POST APPROX. 1 MILE WEST OF D54, N=8489919.34, E=14255377.65, EL.=1138.91



Detail "C"



Part Plan



Section A-A

Table of Wingwall Elevations

Location	Dim "C"	Elev. A	Elev. B	Elev. C
N.W. Corner	0'-11 1/16"	1144.52	1144.49	1144.46
N.E. Corner	0'-10 13/16"	1144.45	1144.40	1144.36
S.W. Corner	0'-11 1/16"	1144.52	1144.49	1144.46
S.E. Corner	0'-10 13/16"	1144.45	1144.40	1144.36

Design For 0 Degree Skew

135'-0" x 44'-0" Pretensioned Prestressed Concrete Beam Bridge

135'-0" Single Span

Abutment Diaphragm Details

STA. 243+47.00 (IA 175)

Turn-in Date: Oct. 2026

Woodbury County

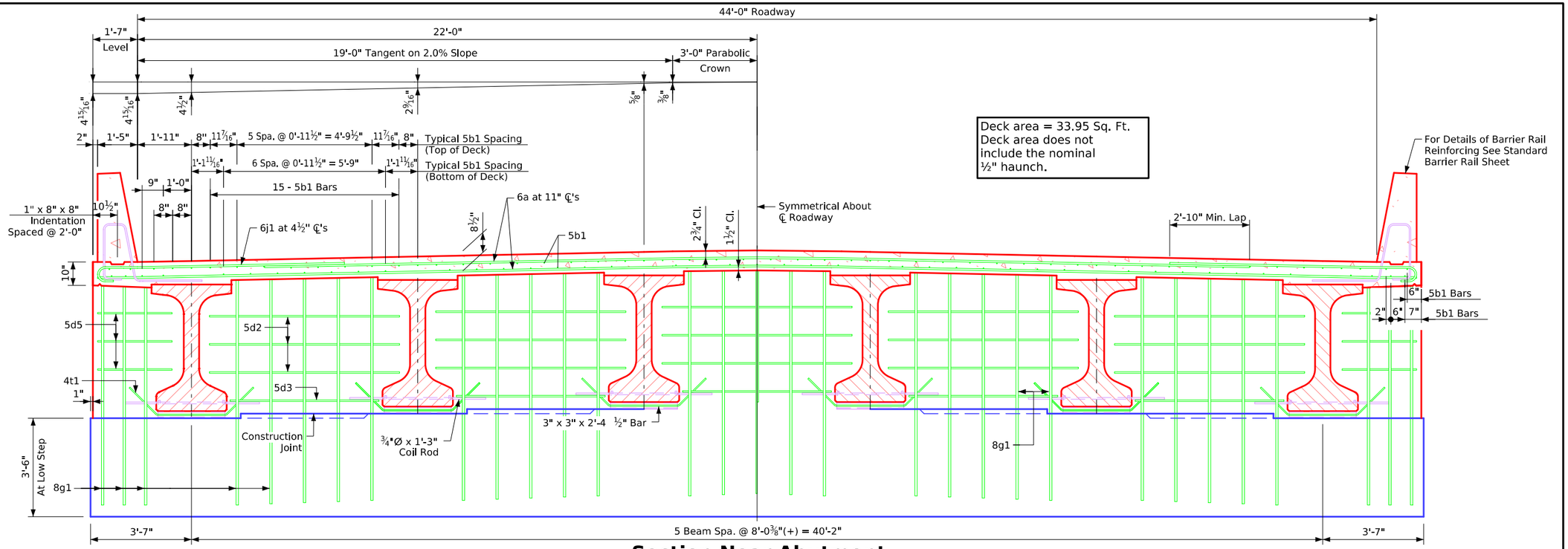
IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0125 | Design Sheet No. 11 of 26 | FHWA No. 053361

Revised 01-12: Added Field Bend 5h4 Bar to Avoid Pile in Abutment Wing Note.
Issued 02-08.
Revised 08-2024; Corrected "Detail X" to show the proper Bulb Tee Beam details. (Was showing the Standard AASHTO Beam details).
BTIntegralBridges.dgn - 4507-BTB - This Sheet Re-Issued 11-2023. Sheet Format Update.

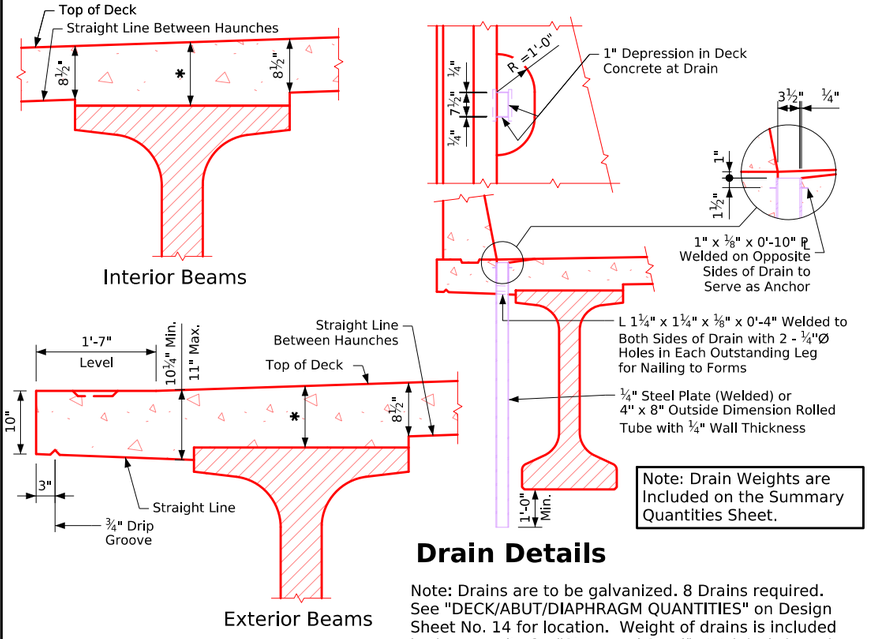
FILE NO. 32160	ENGLISH	DESIGN TEAM DK/TWE/CY	"BTC" or "BTD" Beams - Part Plan & Longitudinal Section - 0 Skew	Standard Sheet 4507-BTCD	Woodbury COUNTY	PROJECT NUMBER BRF-175-2(009)--38-97	SHEET NUMBER V.11

12:13:27 PM 9/14/2026 tellio2 pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\9717501020\Bridge\(009)_Bridge Replacement - PPCB\SHT_97175009_DOT_0125_53361_Z04.dgn



Section Near Abutment

Note: For details of Intermediate Diaphragm see Design Sheet No. 17.



Note: Drain Weights are Included on the Summary Quantities Sheet.

Drain Details

Note: Drains are to be galvanized. 8 Drains required. See "DECK/ABUT/DIAPHRAGM QUANTITIES" on Design Sheet No. 14 for location. Weight of drains is included in the quantity for "Structural Steel". Weight is based on rolled tube.

Data for One Drain	
Beam Size	BTD
Drain Weight (lbs.)	120
Drain Length (ft.)	6'-3 3/4"

Typical Deck and Haunch Detail

* For Deck Thickness Over Beams See "Haunch And Camber Details" on Design Sheet No. 19.

Superstructure Notes:

The bridge deck as shown includes ¾" integral wearing surface.

The abutment diaphragm concrete is to be placed monolithically with the bridge deck.

Cost of all resilient joint filler material is to be included in the price bid for "Structural Concrete (Bridge)".

All beams are to be set vertical.

Forms for the deck and barrier rail are to be supported by the prestressed concrete beams.

Clear distance from face of concrete to near reinforcing bar shall be 2" unless otherwise noted or shown.

All deck and diaphragm reinforcing is to be wired in place and adequately supported before concrete is placed.

Top transverse reinforcing steel is to be parallel to and 2¾" clear below top of deck. Bottom transverse reinforcing steel is to be parallel to and 1½" clear above bottom of deck. Top and bottom reinforcing steel is to be supported by individual bar chairs spaced at not more than 3'-0" centers longitudinally and transversely, or by continuous rows of bar high chairs or deck bolsters spaced 4'-0" apart. I.M. 451.01 requirements shall apply for bar chairs, bar high chairs, and deck bolsters.

Transverse deck reinforcing may be spliced with one lap located as follows:

Top bar - lap midway between beams (min. lap = 2'-10").

Bottom bars - lap over beams (min. lap = 3'-7").

Payment for reinforcing bars shall be based on no splices, and no allowance shall be made for the additional length of bar required for the use of splices.

Cost for bearing material is to be included in the price bid for "Pretensioned Prestressed Concrete Beams".

Design For 0 Degree Skew

135'-0" x 44'-0" Pretensioned Prestressed Concrete Beam Bridge

135'-0" Single Span

Bridge Cross Section

STA. 243+47.00 (IA 175)

Turn-in Date: Oct. 2026

Woodbury County

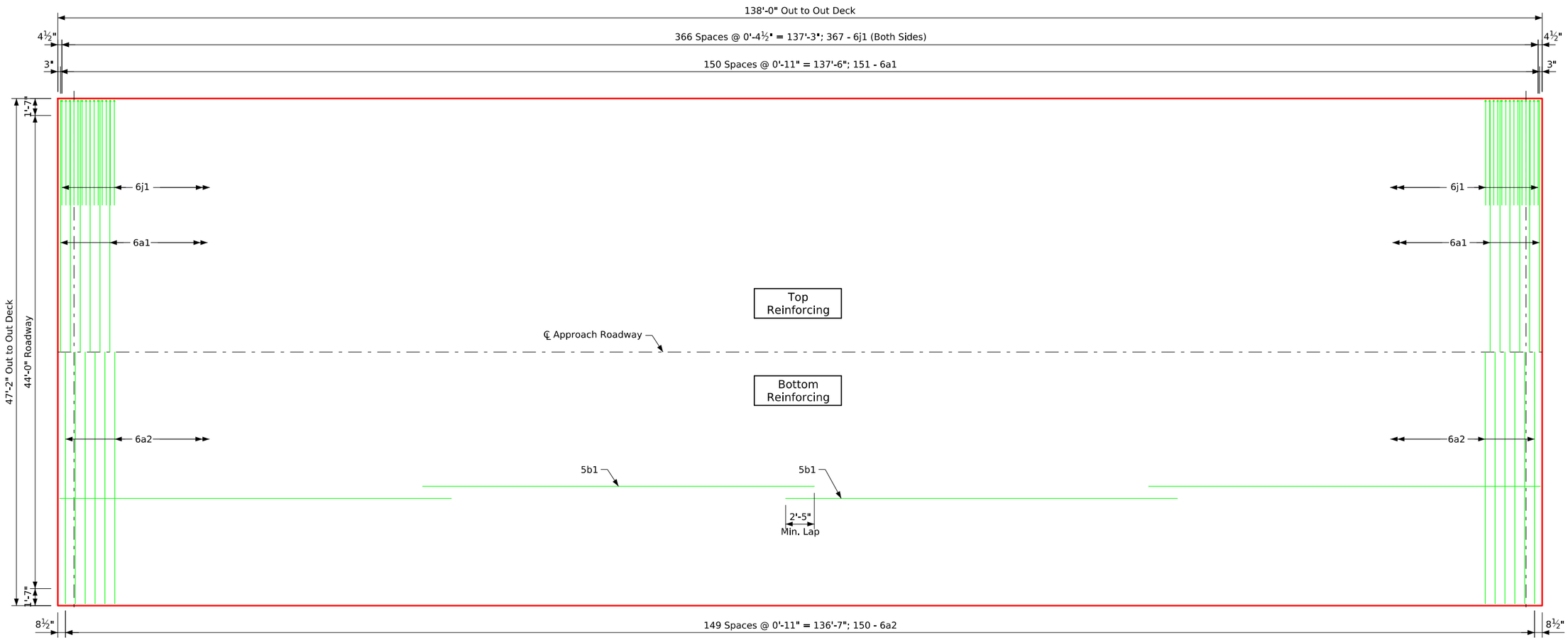
IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0125 | Design Sheet No. 12 of 26 | FHWA No. 053361

FILE NO. 32160	ENGLISH	DESIGN TEAM DK/TWE/CY	44' Roadway PPCB (BTD Beams - Integral Abut.) Cross Section (Spans 50'-135')	Standard Sheet 4384-BTD-6 (Modified)	Woodbury COUNTY	PROJECT NUMBER BRF-175-2(009)--38-97	SHEET NUMBER V.12

12:13:27 PM 9/14/2026 tellio2 pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\9717501020\Bridge\(009)_Bridge Replacement - PPCB\SHT_97175009_DOT_0125_53361_Z04.dgn

Correction 04-14: Added Concrete Quantity Table & Referral Note to Summary Quantity Sheet. Removed Design Bearing Note for Abut. Piling from Abutment Notes.
Issued 02-08.
BTIntegralBridges.dgn - 4384-BTD-6 - This Sheet Re-Issued 11-2023. Sheet Format Update.



Deck Reinforing Layout

Concrete Placement Notes:
An approved procedure is to place the concrete deck in one continuous pour beginning at one end of the bridge. The bridge engineer shall review any alternate procedures. The cost of any additional analysis and plan modifications shall be paid for by the contractor. The engineer shall determine if a retarding admixture is required to maintain plasticity of the concrete deck during placement.

Design For 0 Degree Skew

135'-0" x 44'-0" Pretensioned Prestressed Concrete Beam Bridge

135'-0" Single Span

Deck Reinforcing Layout

STA. 243+47.00 (IA 175)

Turn-in Date: Oct. 2026

Woodbury County

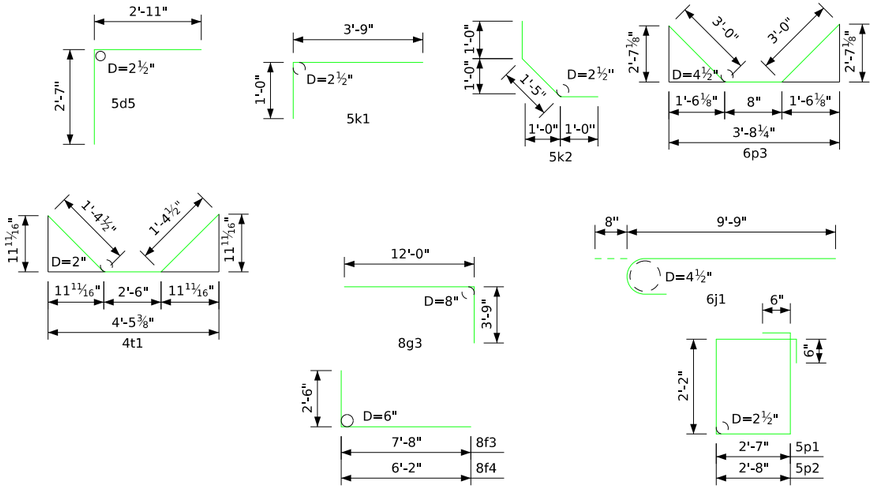
IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0125 | Design Sheet No. 13 of 26 | FHWA No. 053361

FILE NO. 32160	ENGLISH	DESIGN TEAM DK/TWE/CY	Woodbury COUNTY	PROJECT NUMBER BRF-175-2(009)--38-97	SHEET NUMBER V.13

12:13:28 PM 9/14/2026 tellio2 pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\9717501020\Bridge\(009)_Bridge Replacement - PPCB\SHT_97175009_DOT_0125_53361_Z04.dgn

Bent Bar Details



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

Non-Coated Reinforcing Steel - Deck, Abutment & Diaphragm

Bar	Location	Shape	No.	Length	Weight
#2	Pile Spiral		22	38'-6"	141
	Spiral Spacers, L⅞" x ⅞" x ⅛" x 0.70		66	1'-10"	85
	Non-Coated Reinforcing Steel Total Weight (lbs.)				226

Concrete Placement Quantities

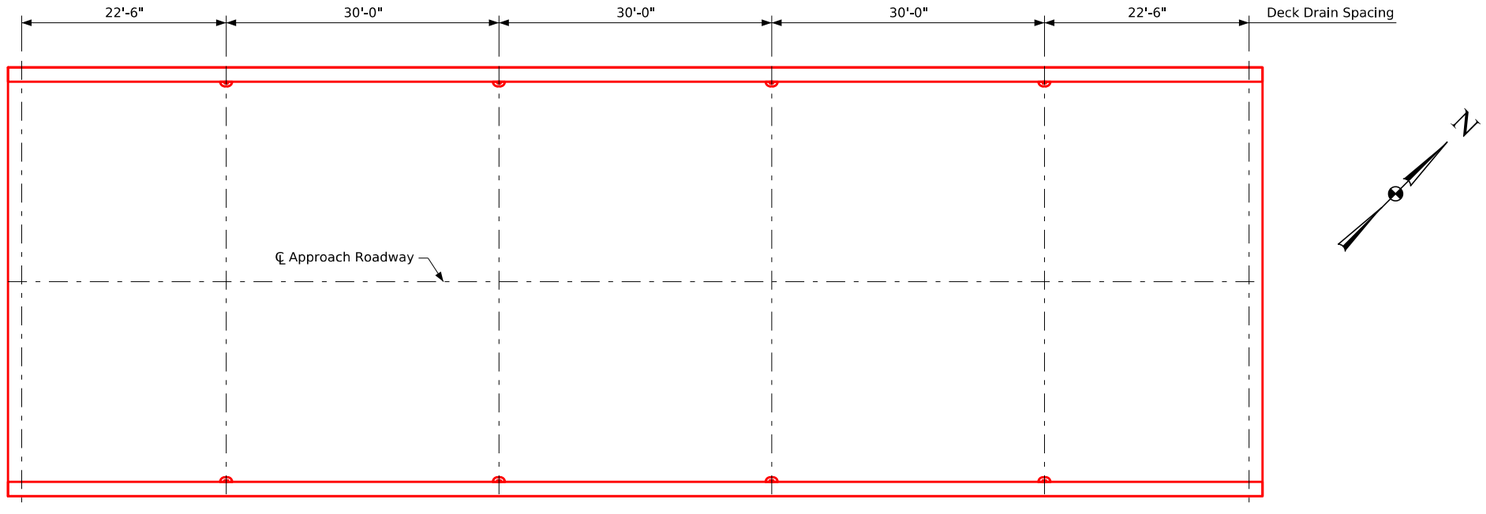
Location	Quantity
Deck & Abut. Diaph.	(f) 231.8
Total (Cu. Yds.)	(f) 231.8

Note: Concrete and Reinforcing Steel Quantities are included on the Summary Quantities Sheet.

(f) Designates fiber reinforcement required. Refer to the Developmental Specification for Fiber Reinforcement for Structural Concrete.

Epoxy Coated Reinforcing Steel - Deck, Abutment & Diaphragm

Bar	Location	Shape	No.	Length	Weight
6a1	Deck Transv. Top		151	31'-10"	7220
6a2	Deck Transv. Bott.		150	46'-10"	10,552
5b1	Deck Longit. Top & Bott.		388	36'-5"	14,737
5d2	Abut. Diaph. Longit.		30	7'-2"	224
5d3	Abut. Diaph. Longit.		10	5'-2"	54
5d5	Abut. Diaph. Ends		12	5'-6"	69
5d6	Abut. Diaph. Longit. B.F.		16	24'-7"	410
5d7	Paving Notch Longit.		8	24'-7"	205
5d8	Abut. Diaph. Wing. Longit.		48	10'-8"	534
8f1	Abut. Footing Longit. Both F.		36	26'-0"	2499
8f3	Abut. Extension Longit.		16	10'-2"	434
8f4	Abut. Extension Longit.		16	8'-8"	370
8g1	Abut. Vert. Both F.		148	8'-6"	3359
8g3	Abut. Diaph. Vert. B.F.		78	15'-9"	3280
6g4	Abut. Diaph. Wing. Ext. Vert.		40	7'-7"	456
5h2	Abut. To Wing Anchor		24	5'-9"	144
5h5	Abut. To Wing Anchor		8	4'-0"	33
5h7	Abut. To Wing Anchor		12	5'-9"	72
6j1	Top of Deck Transv. (at Rail)		734	10'-5"	11,484
5k1	Paving Notch		78	4'-9"	386
5k2	Paving Notch		78	3'-5"	278
5p1	Abut. Hoops		176	10'-6"	1927
5p2	Abut. Extension Hoops		24	10'-8"	267
6p3	Abut. Bott. at Piles		36	6'-8"	360
4t1	Under Beams at Abutments		12	5'-3"	42
	Epoxy Reinforcing Steel Total Weight (lbs.)				59,398



Deck Drain Layout

For Drain Detail see Design Sheet No. 12.

Design For 0 Degree Skew

135'-0" x 44'-0" Pretensioned Prestressed Concrete Beam Bridge

135'-0" Single Span

Deck/Abut/Diaphragm Quantities

STA. 243+47.00 (IA 175)

Turn-in Date: Oct. 2026

Woodbury County

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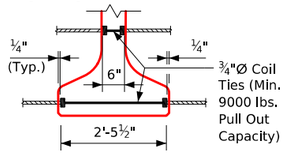
Design No. 0125 | Design Sheet No. 14 of 26 | FHWA No. 053361

FILE NO. 32160	ENGLISH	DESIGN TEAM DK/TWE/CY	Integral Abut. "BTC" & "BTD" Beams - Bar List & Super. Details - 0° Skew	Standard Sheet 4518-BTCD (Modified)	Woodbury COUNTY	PROJECT NUMBER BRF-175-2(009)--38-97	SHEET NUMBER V.14	

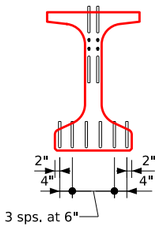
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Revised 07-15: Changed Concrete Placement Note to account for the possible addition of a retarding admixture to the concrete.
Issued 02-08.
BTIntegralBridges.dgn - 4518-BTCD - This Sheet Re-Issued 11-2023. Sheet Format Update.

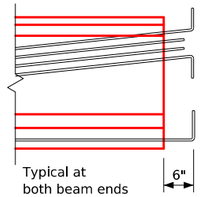
Number and exact location of coil ties to be as detailed on specific bridge design.



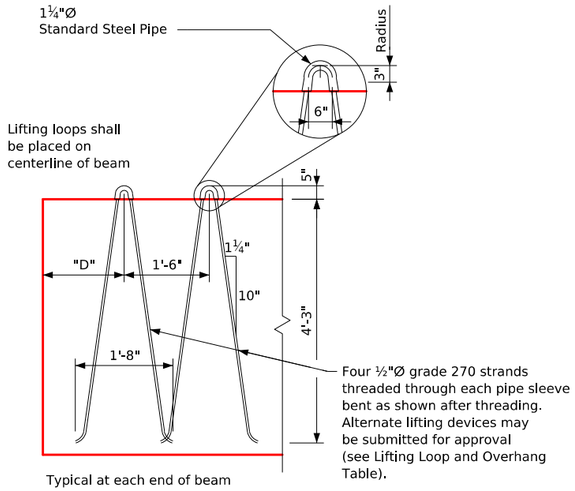
Coil Tie Detail



The top and bottom rows of the deflected strands are to be cut with 1'-2" projections which are to be shop bent as shown. The remaining top deflected strands are to be cut with 5" projections. Six bottom strands are to be cut with 1'-6" projections which are to be shop bent as shown. The remaining bottom strands are to be cut off reasonably flush with the concrete.



Strand Projection at Beam Ends When Embedded in Concrete End Diaphragm



Lifting Loop Detail

Lifting Loop and Overhang Table

Beams	Lifting Loops Each End	# of Strands Per Loop	D	Beam Overhang (ft.)
BTD135	2	4	9'-3"	16

Lifting loops shall carry loads equally.

BTD135 Beam Data

	BTD Beam	Span Length ℄-℄ Bearing	Overall Beam Length (L)	Concrete Strength f'ci (ksi.)	Concrete Strength f'c (ksi.)	Strand Size Dia. (in.)	Number of Strands Straight	Number of Strands Deflected	③ Total Initial Prestress (kips)	Hold Down Force (kips)	Camber (in.) ④ At Release	Camber (in.) ④ After Losses	Deflection (in.) Δ_D Immediate ① (elastic) Δ_I Steel Diaphragm	Deflection (in.) Δ_D Time ② (plastic) Δ_T Steel Diaphragm	Permissible Maximum Spacing HL-93 Loading Steel Diaphragm	Weight (tons)	Concrete (cu. yd.)	Reinforcing Steel (weight lb.)
⑤	BTD135	135'-0"	136'-4"	8.00	9.50	0.60"	46	12	2467	29.5	4.46"	7.14"	5.00"	1.25"	9'-0½"	53.2	26.2	3645

① Deflections at mid-span due to weight of deck and diaphragm. The deflections shown are for a deck (8.5") and haunch (1.5") weight of:

1.01 kips/ft. for 9'-0½" beam spacing and two steel diaphragms, (0.500 kips) placed 20'-0", on either side, of the beam ℄. For different deck and diapragm weights, deflections will be directly proportional.

② Deflections due to the combined effect of creep due to weight of deck and shrinkage of deck.

Total beam deflections at ℄ of span, Δ_D , due to weight of deck and diaphragms for detailing purpose:

(A) $\Delta_D=\Delta_I+\Delta_T$ for simple span.

(B) $\Delta_D=\Delta_I+\frac{3}{4}\Delta_T$ for end spans of continuous bridge.

(C) $\Delta_D=\Delta_I+\frac{1}{2}\Delta_T$ for interior spans of contiunous bridge.

③ Total initial prestress is based on 72.6% f's, f's= 270 ksi. and As= 0.217 in.^{2}.

④ Calculated design cambers are based on multipliers developed from research in Iowa.

⑤ Includes partial length debonded strands, see Beam Sheet for locations and details.

Beam Notes:

These beams are designed for AASHTO live loads as indicated in above table with an allowance of 20 lbs. per square foot of roadway for future wearing surface.

All PPC beams shall use high performance concrete (HPC) in accordance with the Standard Specifications.

Hold down points for deflected strands may be moved toward ends of beam a distance of 0.05 L maximum at producer's option.

All prestressing strands except lifting loop strands shall be 0.60 in. nominal diameter (nominal steel area = 0.217 in.^{2}) and conform to ASTM A416 Grade 270 Low Relaxation Strands. Minimum strand breaking strength shall be 58.6 kips.

Tops of beams are to be struck off level and finished as per Materials I.M.570.

Bearings shall be as detailed on other design sheets.

Beams to be used in bridges made continuous by the poured in place deck, are to be at least 28 days old before the deck is placed unless a shorter curing time is approved by the Bridge Engineer.

The portions of the prestressed beams that are to be embedded in the abutment and pier diaphragms shall be roughened for a distance of 10" from the beam end by sandblasting or other approved methods to provide suitable bond between the beam and the diaphragm in accordance with Article 2403.03, I, of the Standard Specifications.

All beams are to be increased in length to compensate for elastic shortening, creep and shrinkage.

For transporting, the allowable overhang is shown in the "Lifting Loop and Overhang Table".

The contractor shall assure the lateral stability of the BTD135 beam during handling, transporting and erection by providing temporary bracing as needed.

Holes must be cast in the web to accommodate the steel diaphragm attachments as detailed on the Steel Diaphragm Detail Sheet.

Minimum concrete f'c (at 28 days) and minimum f'ci at release are located in the BTD Beam Data Table above.

Four 0.60 in. diameter strands stressed to not more than 5000 lbs. each may be used in lieu of bars 5a1 and 5a2 in the top flange.

ΔΔ 5b1 and 6b3 bars to be epoxy coated
✱ 6b3 and 6b4 bars to be used in pairs

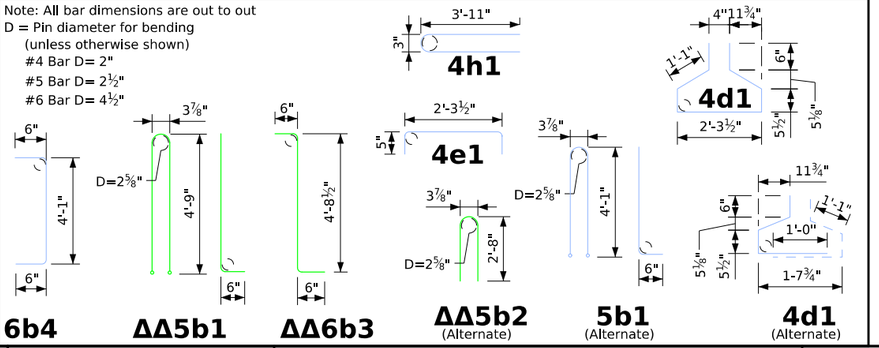
Note: All mild reinforcing steel can be epoxy coated at Contractor's option without modification to bar length or details at no additional cost to the State.

Reinforcing Bar List

	Beam Bar	Beam Shape	BTD135 No.	BTD135 Length
	5a1		12	33'-2"
	5a2		12	40'-0"
ΔΔ	5b1		111	10'-8"
ΔΔ✱	6b3		40	5'-9"
✱	6b4		24	5'-1"
	4c1		179	2'-7"
	4d1		132	6'-5"
	4e1		28	3'-2"
	4h1		6	8'-0"

Bent Bar Details

Note: All bar dimensions are out to out
D = Pin diameter for bending (unless otherwise shown)
#4 Bar D= 2"
#5 Bar D= 2½"
#6 Bar D= 4½"



Design Stresses:

Design stresses for the following materials are to be in accordance with AASHTO LRFD Bridge Design Specifications, Series of 2017.
Reinforcing steel in accordance with Section 5, Grade 60.
Concrete in accordance with Section 5.
Prestressing steel in accordance with Section 5, Grade 270.

Specifications:

Construction: Standard Specifications of the Iowa Department of Transportation, current series, with current applicable special provisions and supplemental specifications.
Design: AASHTO LRFD, Series of 2017 with minor modifications.

Alternate Bar Notes:

Alternate bars shown in Bent Bar Details may be used in lieu of reinforcing bars shown in bar list. No additional payment shall be made for use of alternate bars.

Design For 0 Degree Skew

135'-0" x 44'-0" Pretensioned Prestressed Concrete Beam Bridge

135'-0" Single Span

BTD135 Beam – Data Details

STA. 243+47.00 (IA 175)

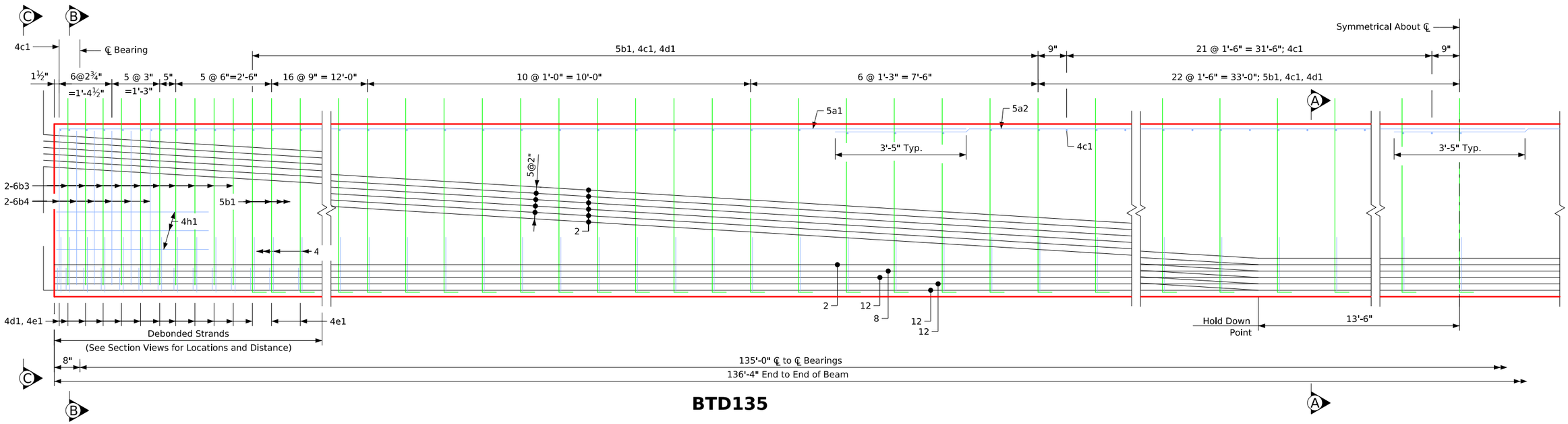
Turn-in Date: Oct. 2026

Woodbury County

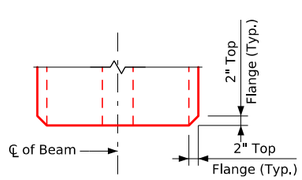
IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0125 | Design Sheet No. 15 of 26 | FHWA No. 053361

Correction 12-13: Coil Tie Detail was Changed to Reflect the Distance Between Coil Tie Anchors Embedded ¼ inch.
Revised 10-2024: Revised "At Release" and "After Losses" Camber Values, revised "Reinforcing Bar List" and "Reinforcing Steel, Weight" in the "BTD135 Beam Data" Table due to changes in 6b4, 4d1, and 4e1 bar quantity.
Added note for Debonded strands .
Issued 05-04,
Beams.dgn - 4748s1 - This Sheet Re-Issued 04-2024, Sheet Format Update.

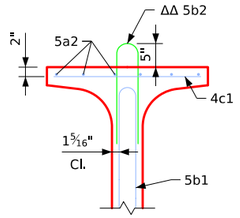


BTD135



Top View

The top flange beam corners are to be chamfered 2" as shown at both ends of the beam.



Section A-A

(Alternate)

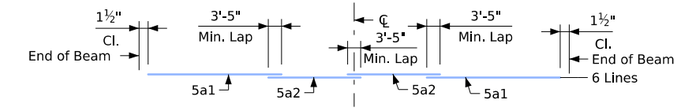
See Alternate Bar Note on Standard Sheet 4748s1.

Area = 748.8 in.^{2}

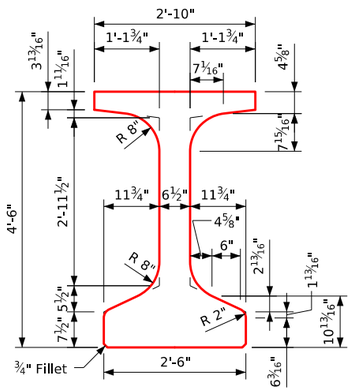
$\bar{y}_b$ = 24.64 in.

I = 285,860 in.^{4}

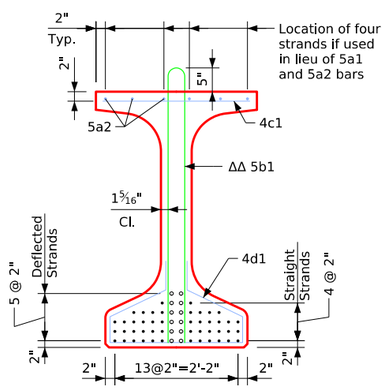
Beam Section Properties



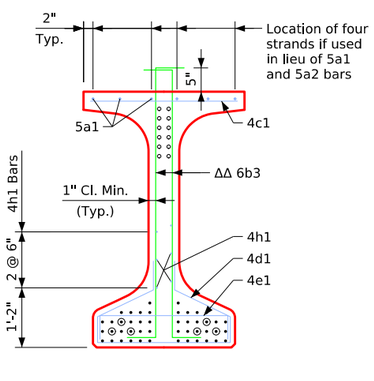
Top Flange Longitudinal Bar Layout



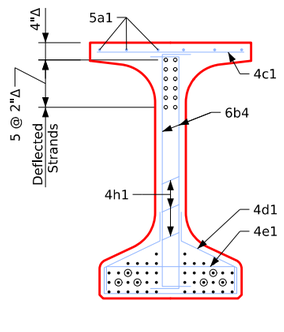
BTD Beam Cross Section



Section A-A



Section B-B



View C-C

- ○ Deflected Strands
- Δ Dimensions at End of Beam
- ΔΔ Epoxy Coated Bars
- ⊙ Strands Debonded:
  - 3'-0" from Beam Ends - 3rd Row from Bottom
  - 6'-0" from Beam Ends - 2nd Row from Bottom

Design For 0 Degree Skew

135'-0" x 44'-0" Pretensioned Prestressed Concrete Beam Bridge

135'-0" Single Span

BTD135 Beam Details

STA. 243+47.00 (IA 175)

Turn-in Date: Oct. 2026

Woodbury County

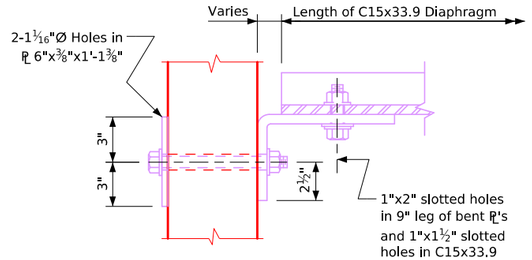
IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0125 | Design Sheet No. 16 of 26 | FHWA No. 053361

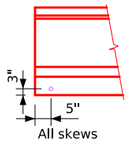
Issued 05-04.
Revision 10-07: 5b2 Bar Deleted. 5b1 Bar Lengthened to Extend 5 Inches Above Beam Top.
Revised 10-2024: Revised strand pattern moving 2 straight strands from row 4 up to row 5 from the bottom of the beam. Added 4 debonded strands to row 2 and 2 debonded strands to row 3 for a total of 6 debonded strands. Removed one set of 6b4, 4d1, and 4e1 bars from each end and revised spacing.
Revised 04-2026: Corrected detailing error of leader arrow locations on 6b3 and 6b4 bars at beam end in elevation view.
Beams.dgn - 4748s2 - This Sheet Re-Issued 04-2024, Sheet Format Update.

Bulb Tee "D" Beam Intermediate Diaphragm Structural Steel

One Beam Connection (Detail "F" and/or Detail "G")		No. of Beam Connections	Weight
Two - ⅞"Ø X 9¼" H.S. Bolts with Nuts & Washers = 4.8 Lbs.		12	58
One Detail "G"	Two - Bent ℄ 9" x 6" x ½" x 1'-1⅜" = 57.0 Lbs.	8	456
One Detail "F"	One - Backing ℄ 6" x ⅜" x 1'-1⅜" = 8.5 Lbs.	4	34
	One - Bent ℄ 9" x 6" x ½" x 1'-1⅜" = 28.5 Lbs.	4	114
One Diaphragm			
		Number of Diaphragms	
Eight - ⅞"Ø X 2¾" H.S. Bolts with Nuts & Washers = 10.3 Lbs.		10	103
	Length of Member		
One - C15 x 33.9 = 33.9 Lbs./Ft.	6'-10⅛"	10	2320
Intermediate Diaphragm Structural Steel - Total (Lbs.)			3,085

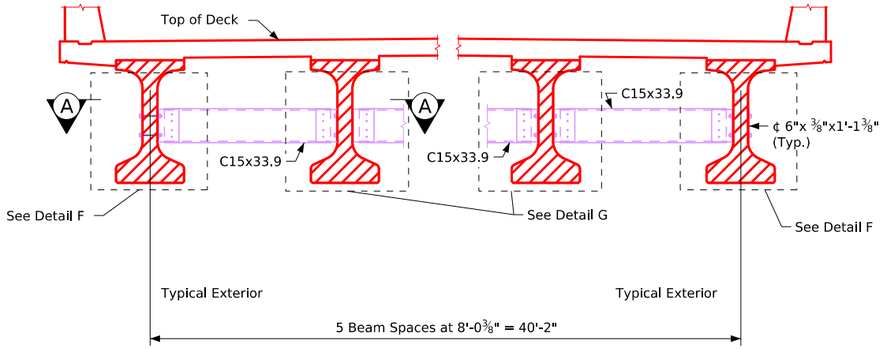


Section C-C

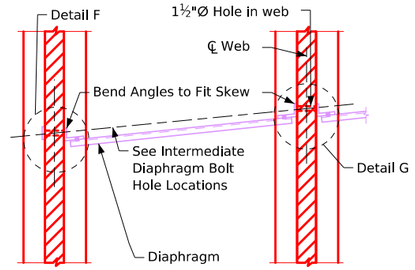


Integral Abutment

Beam Coil Tie Locations



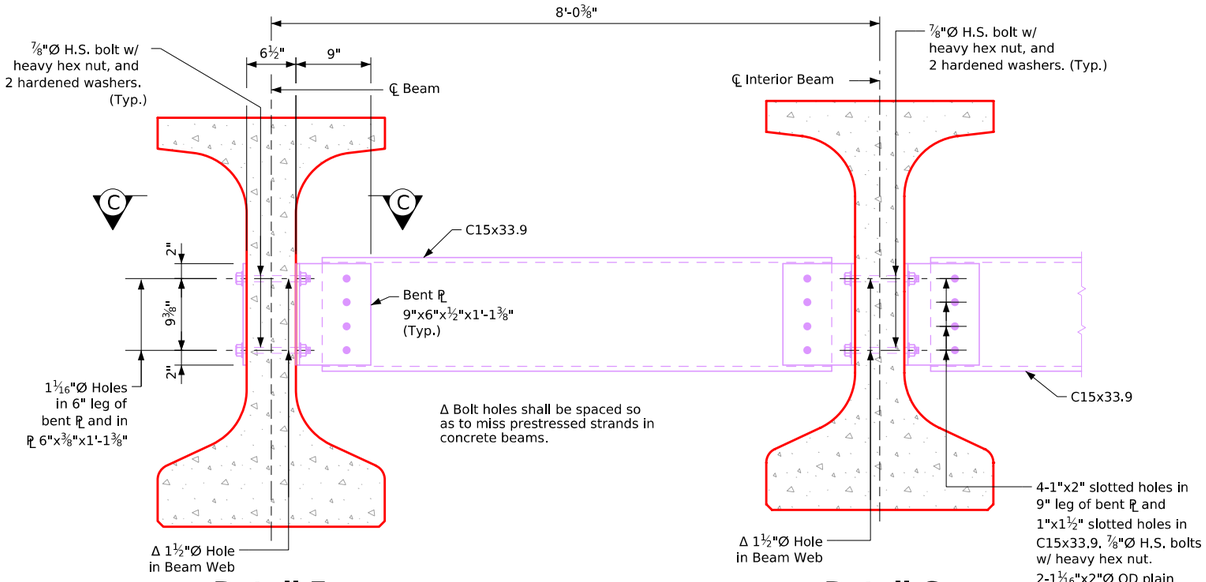
Section Showing Intermediate Diaphragms



Part Section A-A

NOTE; Structural Steel weight is included on the Summary Quantities Sheet.

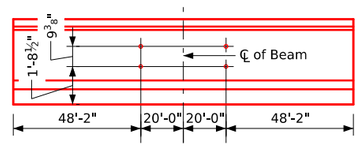
STRUCTURAL STEEL	
Weight	3,085 lbs.



Detail F

Detail G

Section Showing Intermediate Diaphragms At Exterior Bay



Intermediate Diaphragm Bolt Hole Locations

Notes:

All diaphragm materials, including bolts, nuts and washers shall be galvanized.

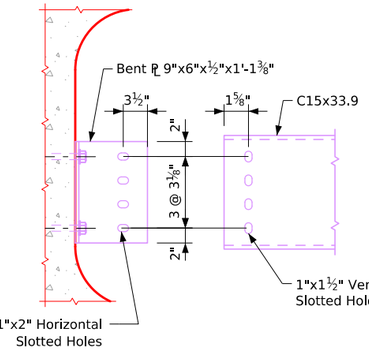
Shop drawings of the steel diaphragms showing layout and details of the diaphragms shall be submitted for approval.

All costs for furnishing and installing steel intermediate diaphragms shall be included in the price bid for Structural Steel.

The 1½"Ø holes for the ⅞"Ø H.S. bolts shall be cast into the web. Drilling is not allowed.

The ⅞"Ø H.S. bolts through the web shall have a thread length of 3" min. and 4" max. and shall meet the requirements of ASTM A449.

All bolts are to be tightened prior to placing bridge deck concrete with the following exception: Bolts in diaphragms located under longitudinal bridge deck construction joints shall not be tightened until stage two of the bridge deck has been placed.



Slotted Hole Details

Design For 0 Degree Skew

135'-0" x 44'-0" Pretensioned Prestressed Concrete Beam Bridge

135'-0" Single Span

Steel Intermediate Diaphragm Details

STA. 243+47.00 (IA 175)

Turn-in Date: Oct. 2026

Woodbury County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0125 | Design Sheet No. 17 of 26 | FHWA No. 053361

This Sheet Issued 06-14. Sheet 2 of 2.
Beams.dgn - 1036-2-BTD - This Sheet Re-issued 04-2024. Sheet Format Update.

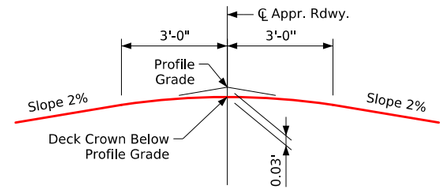
FILE NO. 32160	ENGLISH	DESIGN TEAM DK/TWE/CY	Steel Intermediate Diaphragms for "BTD" Beam Bridges	Standard Sheet 1036-1-BTD & 1036-2-BTD (Modified)	Woodbury COUNTY	PROJECT NUMBER BRF-175-2(009)--38-97	SHEET NUMBER V.17	

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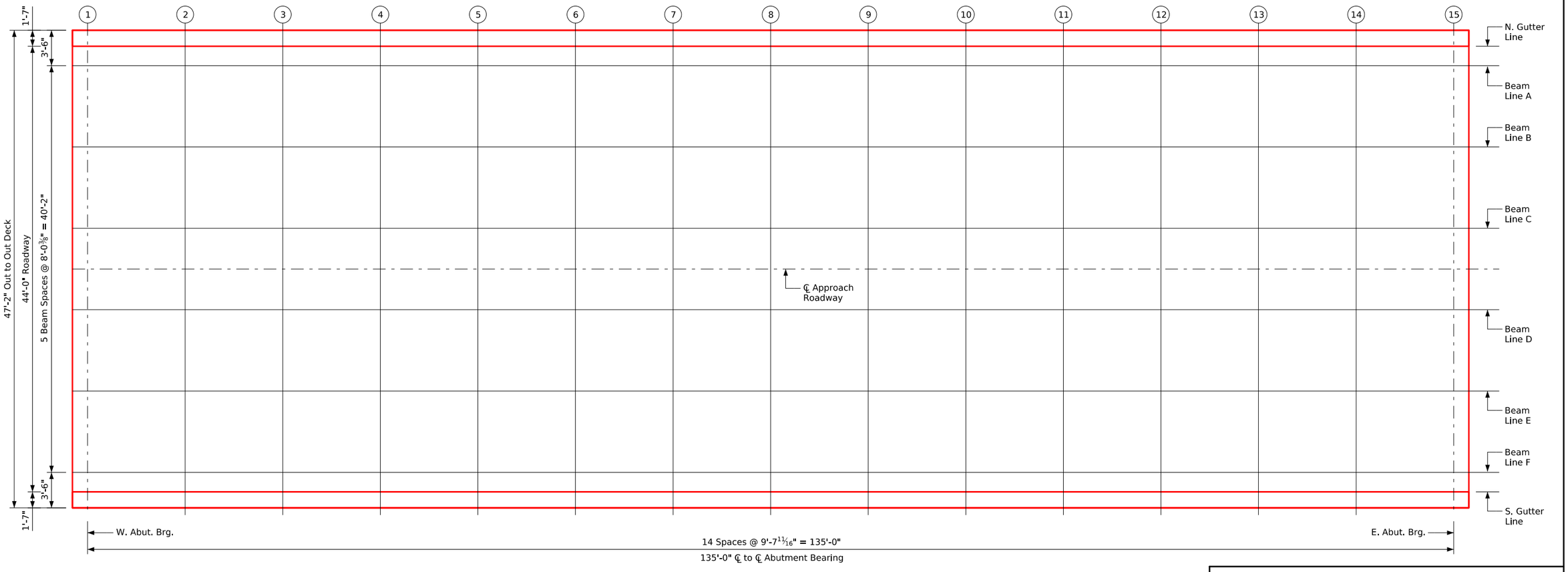
Control Point: 971750337 CP SET FENO MONUMENT EAST EDGE FIELD ENT ON S. SIDE IA 175 APPROX. 350 FT EAST INTERSECTION IA 175 & 335TH ST, N=8486713.73, E=14251639.34, EL.=1142.60
971750346 CP SET FENO MONUMENT ON N. SIDE IA 175 NEAR ROW POST APPROX. 1 MILE WEST OF D54, N=8489919.34, E=14255377.65, EL.=1138.91

TOP OF DECK ELEVATIONS

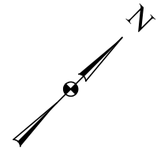
LOCATION	C.L. W. ABUT. BRG.														C.L. E. ABUT. BRG.
	LINE 1	LINE 2	LINE 3	LINE 4	LINE 5	LINE 6	LINE 7	LINE 8	LINE 9	LINE 10	LINE 11	LINE 12	LINE 13	LINE 14	LINE 15
NORTH GUTTER LINE	1144.52	1144.55	1144.58	1144.60	1144.62	1144.63	1144.63	1144.63	1144.62	1144.61	1144.58	1144.56	1144.52	1144.48	1144.44
BEAM LINE A	1144.55	1144.59	1144.62	1144.64	1144.66	1144.67	1144.67	1144.67	1144.66	1144.64	1144.62	1144.60	1144.56	1144.52	1144.48
BEAM LINE B	1144.72	1144.75	1144.78	1144.80	1144.82	1144.83	1144.83	1144.83	1144.82	1144.80	1144.78	1144.76	1144.72	1144.68	1144.64
BEAM LINE C	1144.88	1144.91	1144.94	1144.96	1144.98	1144.99	1144.99	1144.99	1144.98	1144.97	1144.94	1144.92	1144.88	1144.84	1144.80
℄ Appr. Rdwy.	1144.93	1144.96	1144.99	1145.01	1145.03	1145.04	1145.04	1145.04	1145.03	1145.02	1144.99	1144.97	1144.93	1144.89	1144.85
BEAM LINE D	1144.88	1144.91	1144.94	1144.96	1144.98	1144.99	1144.99	1144.99	1144.98	1144.97	1144.94	1144.92	1144.88	1144.84	1144.80
BEAM LINE E	1144.72	1144.75	1144.78	1144.80	1144.82	1144.83	1144.83	1144.83	1144.82	1144.80	1144.78	1144.76	1144.72	1144.68	1144.64
BEAM LINE F	1144.55	1144.59	1144.62	1144.64	1144.66	1144.67	1144.67	1144.67	1144.66	1144.64	1144.62	1144.60	1144.56	1144.52	1144.48
SOUTH GUTTER LINE	1144.52	1144.55	1144.58	1144.60	1144.62	1144.63	1144.63	1144.63	1144.62	1144.61	1144.58	1144.56	1144.52	1144.48	1144.44



Crown Template



Top of Deck Elevation Layout



Design For 0 Degree Skew

135'-0" x 44'-0" Pretensioned Prestressed Concrete Beam Bridge

135'-0" Single Span

Top of Deck Elevations

STA. 243+47.00 (IA 175)

Turn-in Date: Oct. 2026

Woodbury County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0125 | Design Sheet No. 18 of 26 | FHWA No. 053361

FILE NO. 32160	ENGLISH	DESIGN TEAM DK/TWE/CY	Woodbury COUNTY	PROJECT NUMBER BRF-175-2(009)--38-97	SHEET NUMBER V.18	

12:13:32 PM 9/14/2026 tellio2 pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\9717501020\Bridge\(009)_Bridge Replacement - PPCB\SHT_97175009_DOT_0125_53361_Z04.dgn

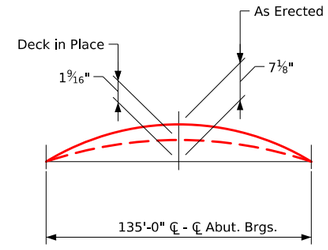
Control Point: 971750337 CP SET FENO MONUMENT EAST EDGE FIELD ENT ON S. SIDE IA 175 APPROX. 350 FT EAST INTERSECTION IA 175 & 335TH ST, N=8486713.73, E=14251639.34, EL.=1142.60
971750346 CP SET FENO MONUMENT ON N. SIDE IA 175 NEAR ROW POST APPROX. 1 MILE WEST OF D54, N=8489919.34, E=14255377.65, EL.=1138.91

BEAM LINE HAUNCH ELEVATIONS

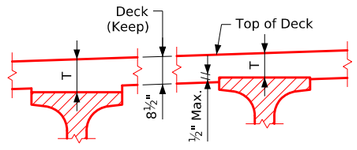
LOCATION	C.L. W. ABUT. BRG.														C.L. E. ABUT. BRG.
	LINE 1	LINE 2	LINE 3	LINE 4	LINE 5	LINE 6	LINE 7	LINE 8	LINE 9	LINE 10	LINE 11	LINE 12	LINE 13	LINE 14	LINE 15
BEAM LINE A	1143.85	1143.99	1144.11	1144.22	1144.31	1144.38	1144.41	1144.42	1144.40	1144.35	1144.28	1144.18	1144.06	1143.92	1143.77
BEAM LINE B	1144.01	1144.15	1144.27	1144.38	1144.47	1144.54	1144.57	1144.58	1144.56	1144.51	1144.44	1144.34	1144.22	1144.08	1143.93
BEAM LINE C	1144.17	1144.31	1144.43	1144.54	1144.63	1144.70	1144.73	1144.74	1144.72	1144.67	1144.60	1144.50	1144.38	1144.24	1144.09
BEAM LINE D	1144.17	1144.31	1144.43	1144.54	1144.63	1144.70	1144.73	1144.74	1144.72	1144.67	1144.60	1144.50	1144.38	1144.24	1144.09
BEAM LINE E	1144.01	1144.15	1144.27	1144.38	1144.47	1144.54	1144.57	1144.58	1144.56	1144.51	1144.44	1144.34	1144.22	1144.08	1143.93
BEAM LINE F	1143.85	1143.99	1144.11	1144.22	1144.31	1144.38	1144.41	1144.42	1144.40	1144.35	1144.28	1144.18	1144.06	1143.92	1143.77

Miscellaneous Data Table

	Beam Line		℄ W. Abut. Bearing													℄ E. Abut. Bearing
			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
Anticipated Deflection Due to Deck (in.)	All		0	1¼"	2⁷⁄₁₆"	3½"	4⅜"	5"	5⁷⁄₁₆"	5⁹⁄₁₆"	5⁷⁄₁₆"	5"	4⅜"	3½"	2⁷⁄₁₆"	1¼"	0
Cross Slope Adjustments (in.)	All		⁵⁄₁₆"														
Allowable Field Haunch (in. & ft.)	Max.	All	2½" (0.208')														
	Min.	All	-³⁄₁₆" (-0.013')														

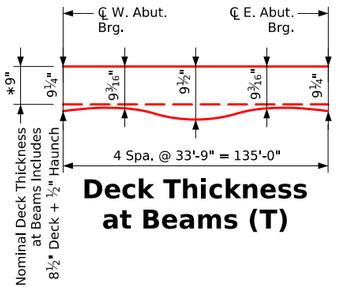


Beam Camber Data



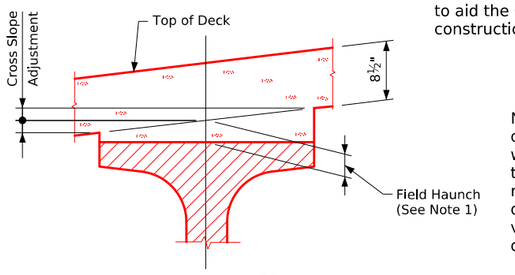
Deck Thickness Details

Note: Haunch locations are at the same location as the encircled letters and numbers shown on Top of Deck Elevations sheet.



Deck Thickness at Beams (T)

Note: The deck thickness (T) at beams is based on the anticipated beam camber and deflections. These values are used by the Designer to set beam elevations and estimate concrete quantities. Refer to the haunch data details sheet for additional information to aid the Contractor in setting the field haunches required for construction.



Hauch Detail

Note: Bridge seat elevations are set based on theoretical camber and beam deflections. These bridge seats will provide a theoretical beam haunch within design parameters. Field haunches are determined using surveyed top of beam elevations and "Beam Line Haunch Elevation" data. Allowable maximum and minimum "Field Haunch" values are given in inches and decimals of feet 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.

Note 1: To calculate field haunch required at each location, survey the beam tops consistent with the spacings shown on the "Top of Deck Elevations Layout". Subtract the surveyed beam shot from the "Beam Line Haunch Elevation". This value will be the haunch needed (see "Field Haunch" in haunch detail). The "Beam Line Haunch Elevation" includes adjustments for deck thicknesses and anticipated deflections. No additional calculations are required. If the field haunch exceeds the maximums and minimums shown in inches and decimals of feet in the miscellaneous data table, adjustments to the grade or additional haunch reinforcement will be required.

Design For 0 Degree Skew

135'-0" x 44'-0" Pretensioned Prestressed Concrete Beam Bridge

135'-0" Single Span

Deck Thickness & Camber Data

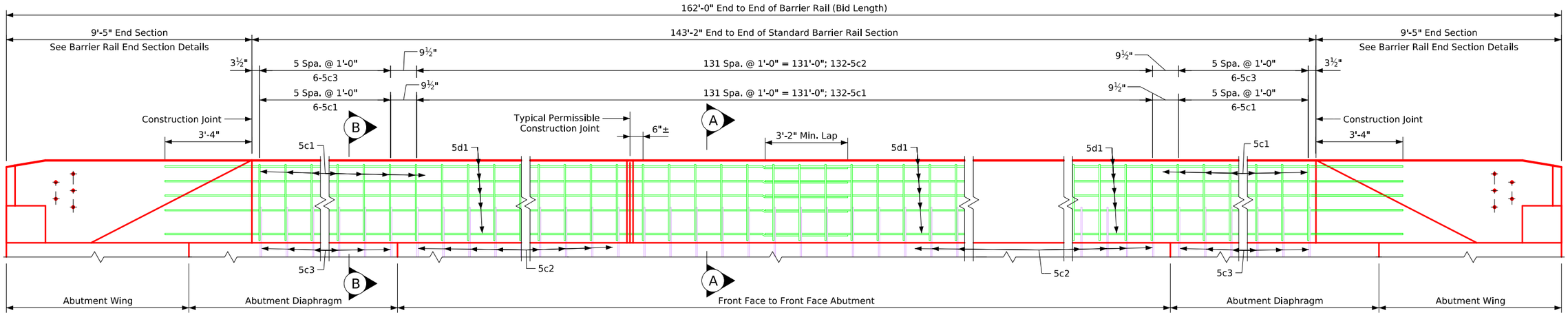
STA. 243+47.00 (IA 175) Turn-in Date: Oct. 2026

Woodbury County

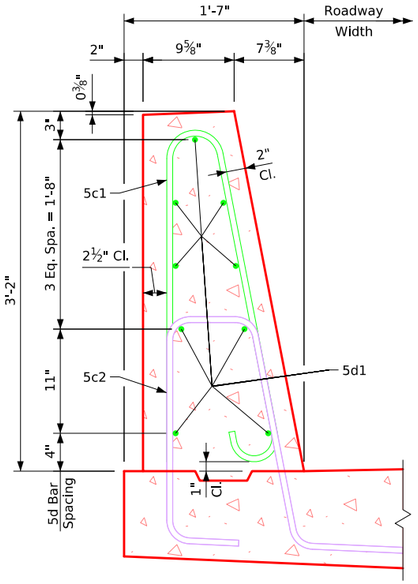
IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0125 Design Sheet No. 19 of 26 FHWA No. 053361

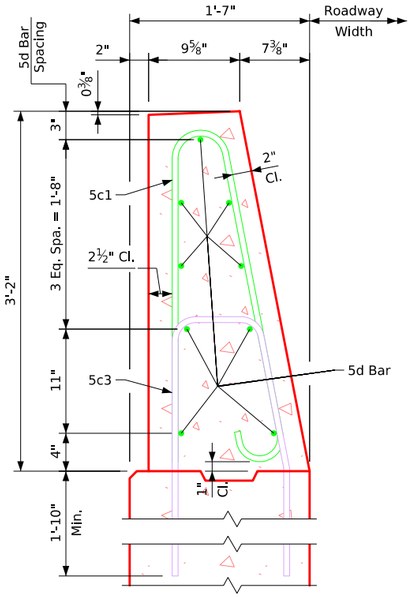
Issued 02-2008.
Revised 06-2012: The Allowable Field Haunch Max. & Min. Were Changed to Inches and Decimals of Feet. Note & Note 1 Were Changed. The Slab Haunch Locations Example was Replaced With a Note.
Revised 07-2019: Changed all References of "Slab" to "Deck".
MiscellaneousBridges.dgn - 1066 - This Sheet Re-Issued 11-2023. Sheet Format Update.



Elevation of Barrier Rail



Part Section A-A



Part Section B-B

Design For 0 Degree Skew

135'-0" x 44'-0" Pretensioned Prestressed Concrete Beam Bridge

135'-0" Single Span

Barrier Rail Details

STA. 243+47.00 (IA 175)

Turn-in Date: Oct. 2026

Woodbury County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0125 | Design Sheet No. 20 of 26 | FHWA No. 053361

Issued 04-14. Added Stainless Steel Reinforcing Bar List and Changed 5c2, 5c3, 5c14 Bars to Stainless Steel.
DeckRailBridges.dgn - 1020SC-1 -This Sheet Re-Issued 05-2024. Revised to Single Slope Barrier Shape. Sheet Format Update. (Sheet Number was Originally 1020SC).

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 either epoxy coated or stainless steel as shown. The stainless steel reinforcing steel shall be deformed bar grade 60 meeting the requirements of Construction and Materials I.M. 452.

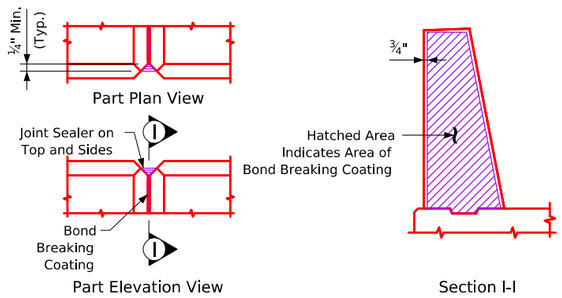
The concrete barrier rail is to be bid on a lineal foot basis. The number of linear feet of barrier rail installed will be paid for at the contract price per lineal foot based on plan quantities. Price bid for concrete barrier railing shall be full compensation for furnishing all material, excluding 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.

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.

All exposed corners on the top of the barrier and all other corners 90° or sharper to be filleted with a ¾" dressed and beveled strip.

Cross sectional area of the Standard Sections of the barrier rail = 3.50 square feet.



Barrier Rail Joint Details

Epoxy Coated Reinf. Steel - Two Rails

Section	Bar	Location	Shape	No.	Length	Weight
Standard Sections	5c1	Rail, Vertical		288	6'-8"	2003
	5d1	Rail, Longitudinal		72	39'-10"	2991
					Epoxy Reinf. Total Weight (lbs.)	4,994

Stainless Steel Reinf. Steel - Two Rails

Section	Bar	Location	Shape	No.	Length	Weight
Standard Sections	5c2	Rail, Vertical		264	7'-3"	1996
	5c3	Rail, Vertical		24	7'-2"	179
					Stainless Steel Reinf. Total Weight (lbs.)	2,176

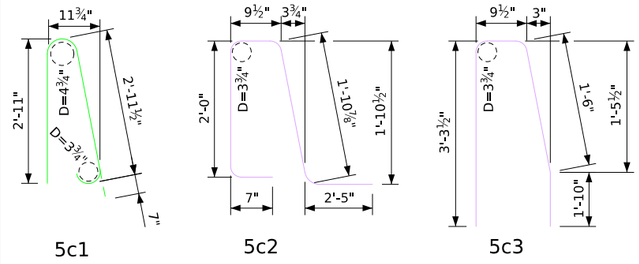
Concrete Placement Summary

Section	Total
Standard Section 286'-4" at 0.130 cu. yd. per ft.	37.2
Total (cu. yd.)	37.2

Concrete Barrier Rail Quantities

Item	Unit	Quantity
Concrete Barrier Railing	L.F.	324

Bent Bar Details



Note: All dimensions are out to out. D = Pin Diameter

Note: Reinforcing steel quantities are included on the Summary Quantities Sheet.

See Barrier Rail Details on Design Sheet No. 20 for details and sections.

Design For 0 Degree Skew

135'-0" x 44'-0" Pretensioned Prestressed Concrete Beam Bridge

135'-0" Single Span

Barrier Rail Details

STA. 243+47.00 (IA 175)

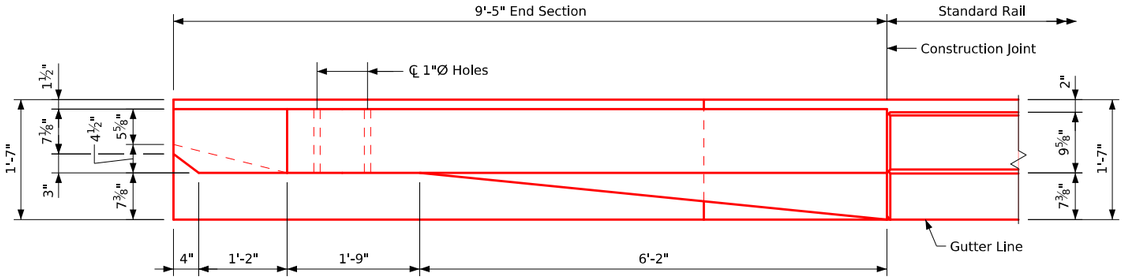
Turn-in Date: Oct. 2026

Woodbury County

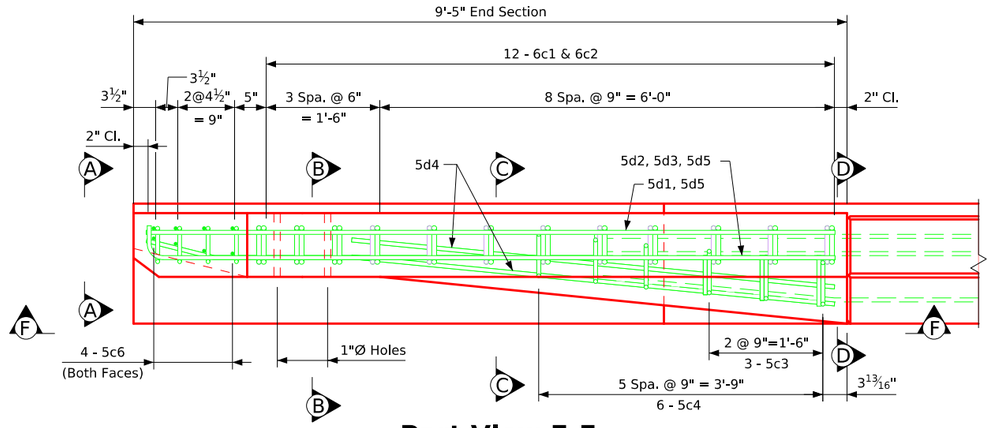
IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0125 | Design Sheet No. 21 of 26 | FHWA No. 053361

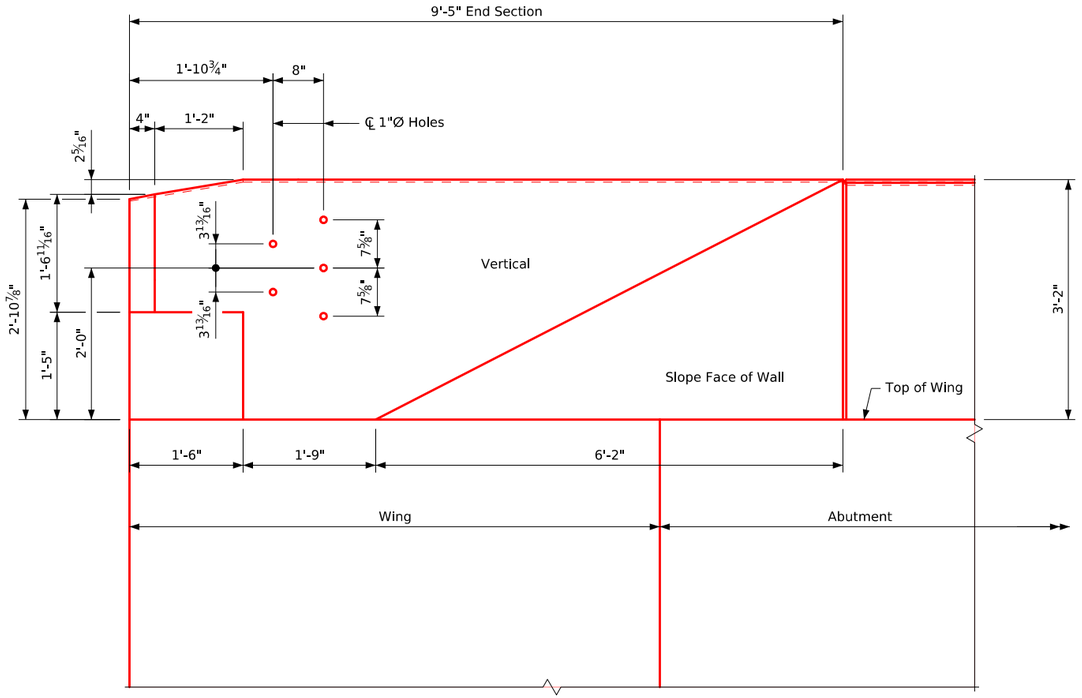
DeckRailBridges.dgn - 1020SC-2 -This Sheet Issued 05-2024. Additional Sheet for Clarity. (Sheet Number was Originally 1020SC).



Part Plan View

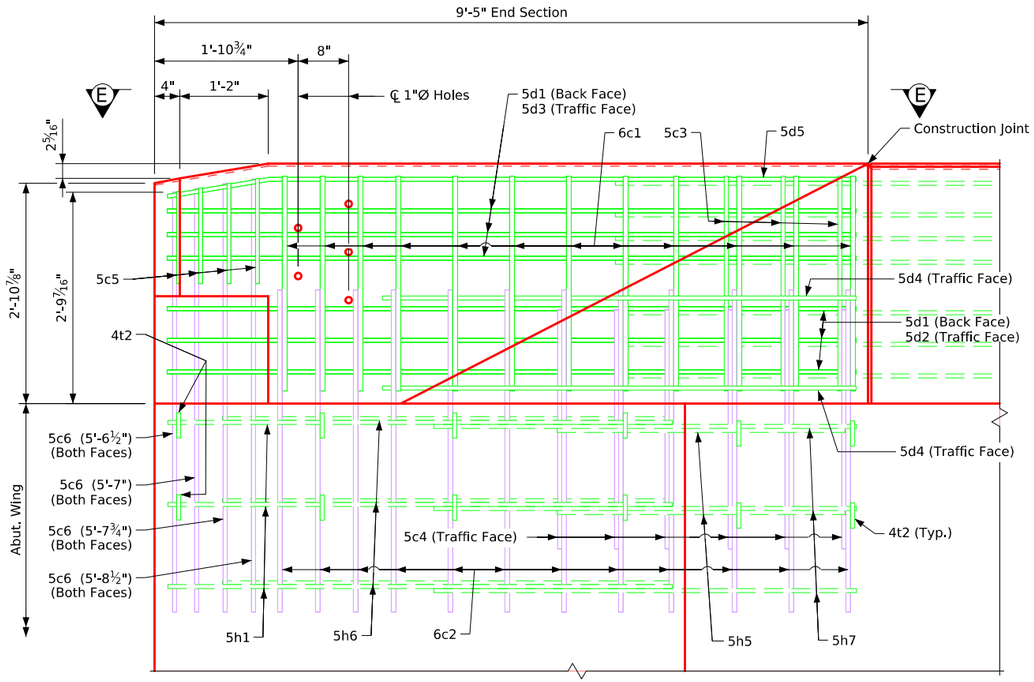


Part View E-E



Part Elevation View

Provide 5 holes formed with 1"Ø plastic conduit.
Cost to be included in price of bid for Concrete Barrier Railing.



Part View F-F

Notes: 4t2 placement - 6 bars each at top two rows of 5h1/d bars in abutment wing and abutment wing extension.

Construction joint between top of abutment wing and abutment wing extension with barrier rail is roughened concrete.

The 6c2, 5c4, 5c6, and 4t2 bars are to be placed with the abutment wing and abutment wing extension. The details for placement are shown on the Abutment Wing Sheet and Abutment Wing Extension Sheet.

Dashed lines below the top of wing are the abutment wing reinforcing steel. See Abutment Wing Sheet and Abutment Wing Extension Sheet for placement.

For Bar List, Bent Bar Details, View A-A, Sections B-B, C-C, and D-D see Design Sheet No. 23.

Design For 0 Degree Skew

135'-0" x 44'-0" Pretensioned Prestressed Concrete Beam Bridge

135'-0" Single Span

Barrier End Section Details

STA. 243+47.00 (IA 175)

Turn-in Date: Oct. 2026

Woodbury County

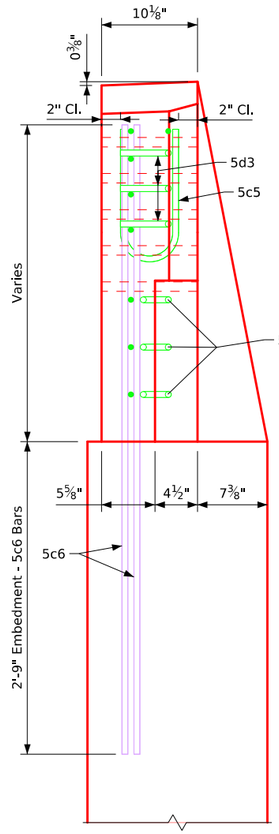
IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0125 | Design Sheet No. 22 of 26 | FHWA No. 053361

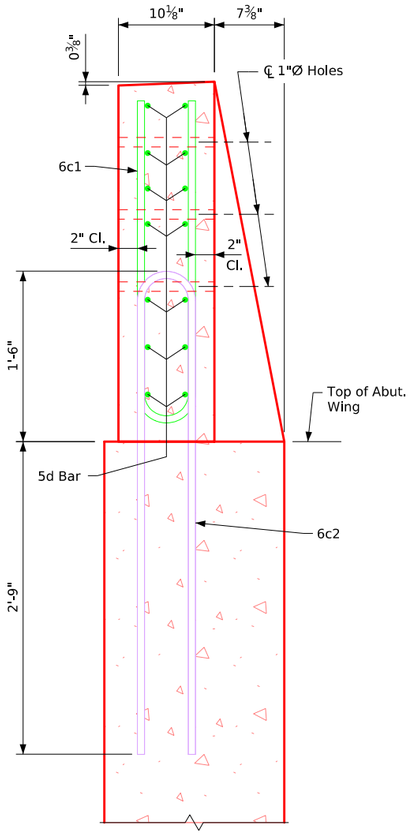
FILE NO. 32160	ENGLISH	DESIGN TEAM DK/TWE/CY	Barrier Rail End Section (Stainless) - (1 of 2)	Standard Sheet 1017S-1	Woodbury COUNTY	PROJECT NUMBER BRF-175-2(009)--38-97	SHEET NUMBER V.22	

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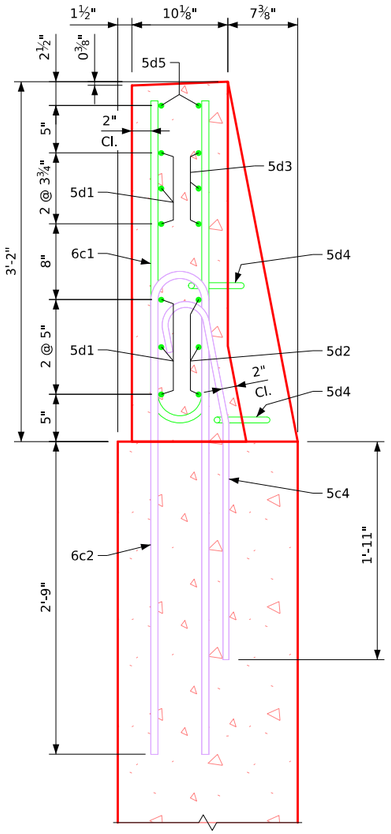
Issued 04-14. Added Stainless Steel Reinforcing Bar List and Changed 6c3, 6c4 & 5c5-10 Bars to Stainless Steel. DeckRailBridges.dgn - 1017 S-1 - This Sheet Re-Issued 05-2024. Sheet Format Update. (Sheet Number was Originally 1017S).



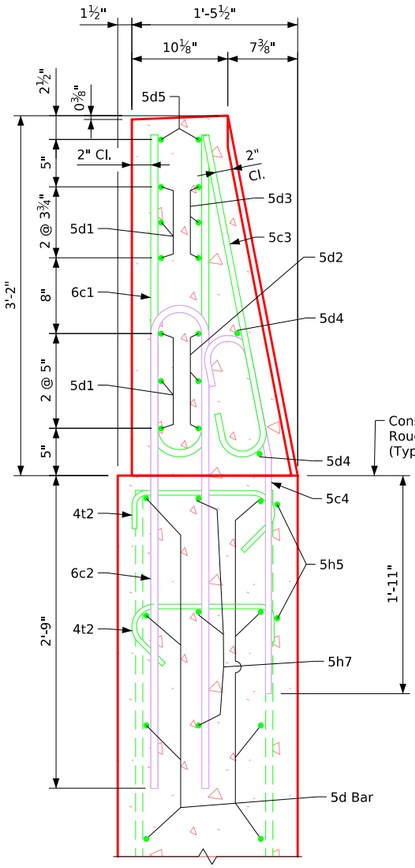
View A-A



Section B-B



Section C-C



Section D-D

Abutment wing bars in View A-A and Sections B-B & C-C are not shown for clarity.

Epoxy Coated Reinforcing Steel - One End Section

Bar	Location	Shape	No.	Length	Weight
6c1	Rail, Vertical		12	5'-11"	107
5c3	Rail, Vertical (Traffic Face)		3	3'-5"	11
5c5	Rail, Vertical (End)		4	Varies	14
5d1	Rail, Horizontal (Back Face)		6	9'-1"	57
5d2	Rail, Horizontal (Traffic Face)		3	9'-1"	28
5d3	Rail, Horizontal (Traffic Face)		3	9'-7"	30
5d4	Rail, Horizontal (Traffic Face)		2	6'-3"	13
5d5	Rail, Horizontal (Top)		2	9'-1"	19
4t2	Rail, Abutment Wing Tie Bars		12	2'-0"	17
			Epoxy Reinforcing Total Weight (lbs.)		295

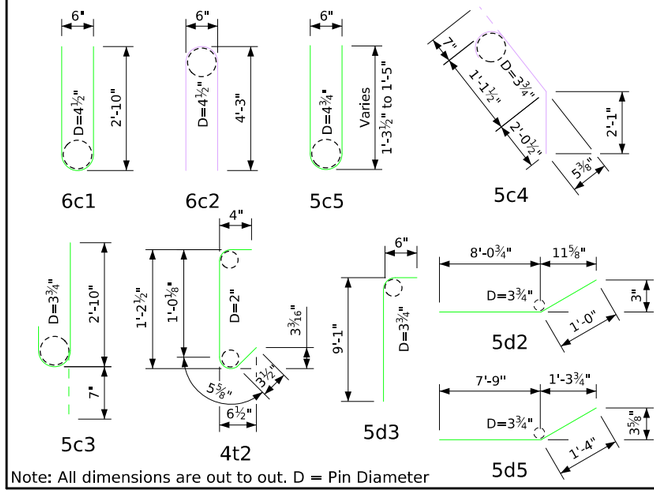
Stainless Steel Reinforcing Steel - One End Section

Bar	Location	Shape	No.	Length	Weight
6c2	Rail, Vertical		12	8'-9"	158
5c4	Rail, Vertical (Traffic Face)		6	3'-10"	24
5c6	Rail, Vertical (End)		8	Varies	47
			Stainless Steel Reinforcing Total Weight (lbs.)		229

Concrete Placement Summary

Section	Total
Barrier Rail, One End Section	1.0 cu. yd.

Bent Bar Details



Note: All dimensions are out to out. D = Pin Diameter

Note: Reinforcing steel quantities are included on the Summary Quantities Sheet.

Notes: 4t2 placement - 6 bars each at top two rows of 5h1/d bars in abutment wing and abutment wing extension.

Construction joint between top of abutment wing and abutment wing extension with barrier rail is roughened concrete.

The 6c2, 5c4, 5c6, and 4t2 bars are to be placed with the abutment wing and abutment wing extension. The details for placement are shown on the Abutment Wing Sheet and Abutment Wing Extension Sheet.

Dashed lines below the top of wing are the abutment wing reinforcing steel. See Abutment Wing Sheet and Abutment Wing Extension Sheet for placement.

For Plan and Elevation see Design Sheet No. 22.

Design For 0 Degree Skew

135'-0" x 44'-0" Pretensioned Prestressed Concrete Beam Bridge

135'-0" Single Span

Barrier End Section Details

STA. 243+47.00 (IA 175)

Turn-in Date: Oct. 2026

Woodbury County

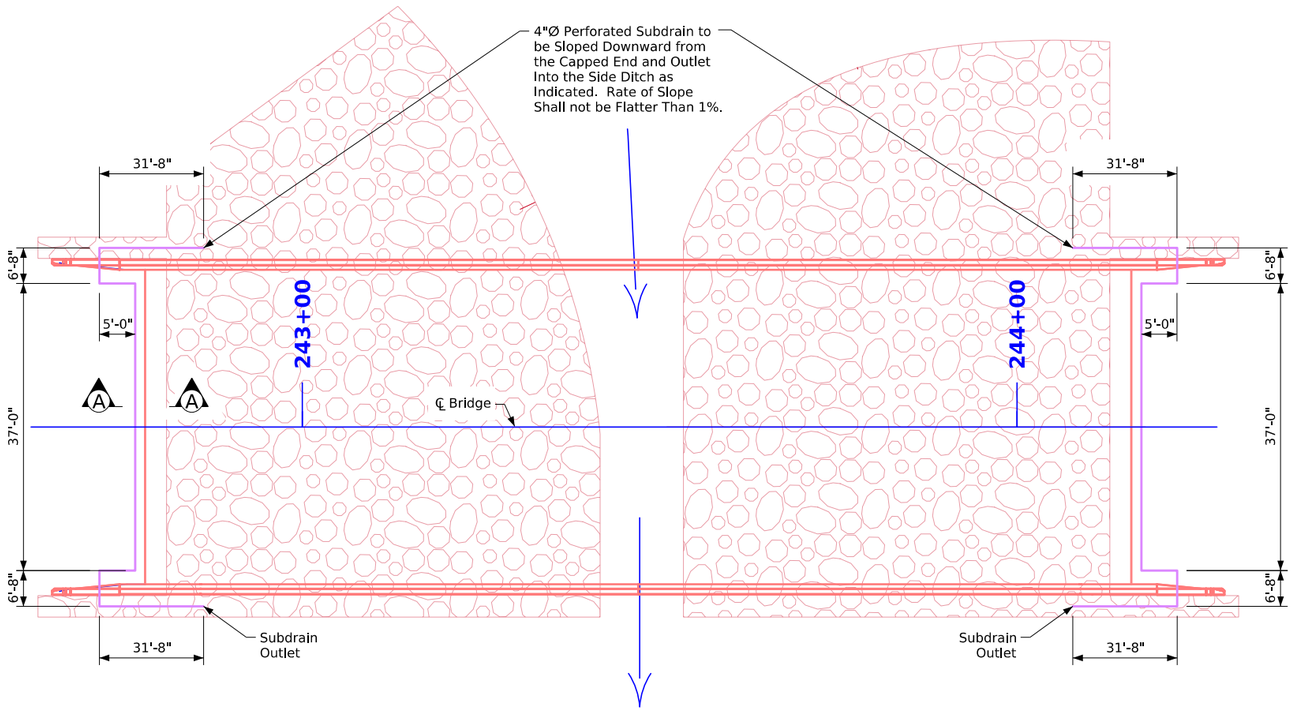
IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0125 | Design Sheet No. 23 of 26 | FHWA No. 053361

Note: Section A-A is shown on Abutment Backfill Details Sheet on Design Sheet No. 25.

Control Point:
971750337 CP SET FENO MONUMENT EAST EDGE FIELD ENT ON S. SIDE IA 175 APPROX. 350 FT EAST INTERSECTION IA 175 & 335TH ST, N=8486713.73, E=14251639.34, EL.=1142.60

971750346 CP SET FENO MONUMENT ON N. SIDE IA 175 NEAR ROW POST APPROX. 1 MILE WEST OF D54, N=8489919.34, E=14255377.65, EL.=1138.91



Situation Plan
Showing Subdrain Locations

Subdrain Notes:

This plan sheet shows details for placing all subdrains and subdrain outlets required for this structure.

The subdrains shall be 4"Ø and shall be in accordance with Article 4143.01, B, of the Standard Specifications.

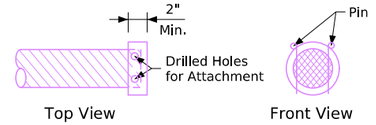
The subdrain outlet shall consist of a length of pipe with a removable rodent guard as detailed on this sheet. The length of the outlet pipe shall be determined by the revetment and it's placement location. The Contractor is to insure the outlet pipe is adequately strong enough and will not be damaged when revetment is placed. A check will be made at the subdrain outlet to insure that the subdrain is not damaged and is draining properly during the backfill flooding process. If a metal outlet pipe is used, it shall be 6"Ø and coupled to the 4"Ø subdrain in one of the two following ways.

-Use an inside fit reducer coupler (coupler must be inserted a minimum of 1'-0" into the metal outlet pipe).

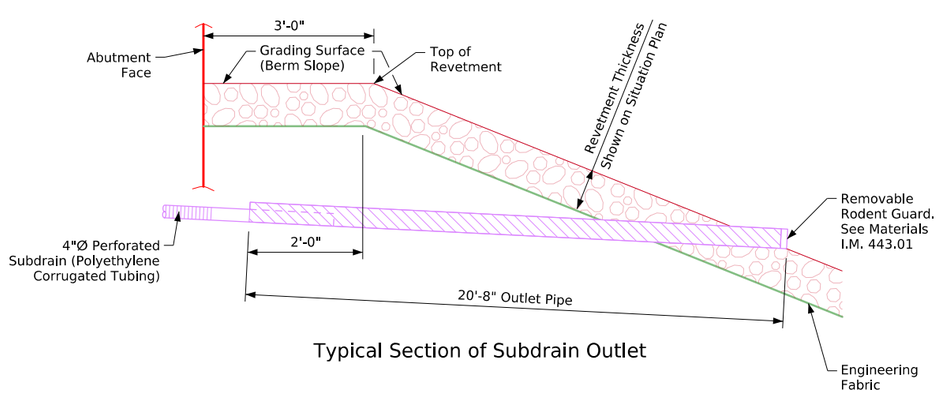
-Insert 1'-0" of the 4"Ø subdrain into the 6"Ø metal outlet pipe, then fully seal the entire opening with grout.

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.



Removable Rodent Guard Details



Typical Section of Subdrain Outlet

Revetment Stone (Embedded) Outlet Details

Subdrain Outlet Elevations

Location	Elevation
West Abutment	1134.96
East Abutment	1134.91

Design For 0 Degree Skew
135'-0" x 44'-0" Pretensioned Prestressed Concrete Beam Bridge
135'-0" Single Span

Subdrain Details
STA. 243+47.00 (IA 175)
Turn-in Date: Oct. 2026

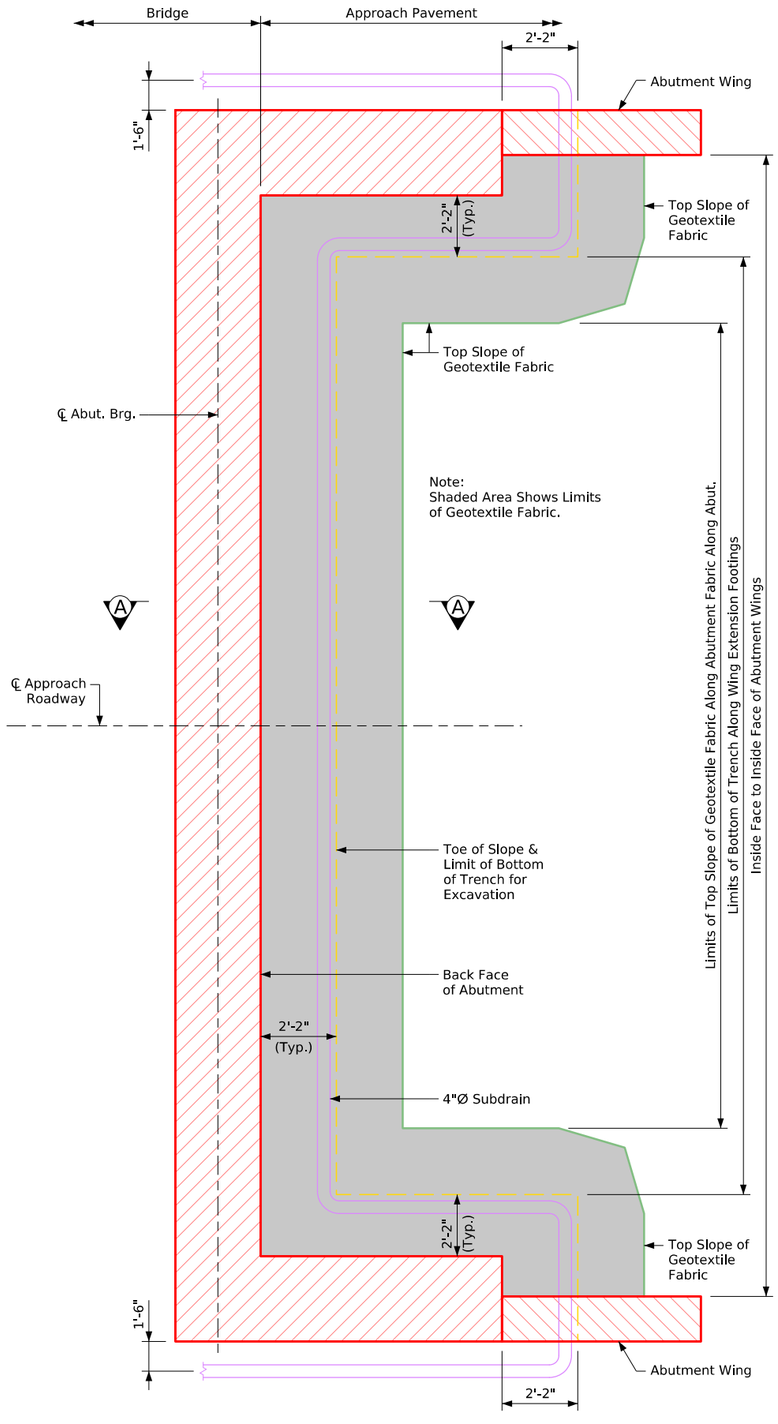
Woodbury County
IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0125 | Design Sheet No. 24 of 26 | FHWA No. 053361

Revised 10-14 - Two Additional Foreslope Protection Details were Added Outside of the Border to Show Revetment up to Back of Abutment Footing.
Revised 06-2024: Changed Control Point text (was Bench Mark).
ForeSlopeProtectionBridges.dgn - 1007C - This Sheet Issued 06-02 for Water Crossings.
ForeSlopeProtectionBridges.dgn - 1007C - This Sheet Redrawn 07-23.

FILE NO. 32160	ENGLISH	DESIGN TEAM DK/TWE/CY	Subdrain Details for Water Crossings	Standard Sheet 1007C	Woodbury COUNTY	PROJECT NUMBER BRF-175-2(009)--38-97	SHEET NUMBER V.24

12:13:37 PM 9/14/2026 tellio2 pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\9717501020\Bridge\(009)_Bridge Replacement - PPCB\SHT_97175009_DOT_0125_53361_Z04.dgn



Abutment Plan with Wing Extensions

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 ft 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 ft 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 ft 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"Ø hose should be sprayed in successive 6 ft to 8 ft increments for 5 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.

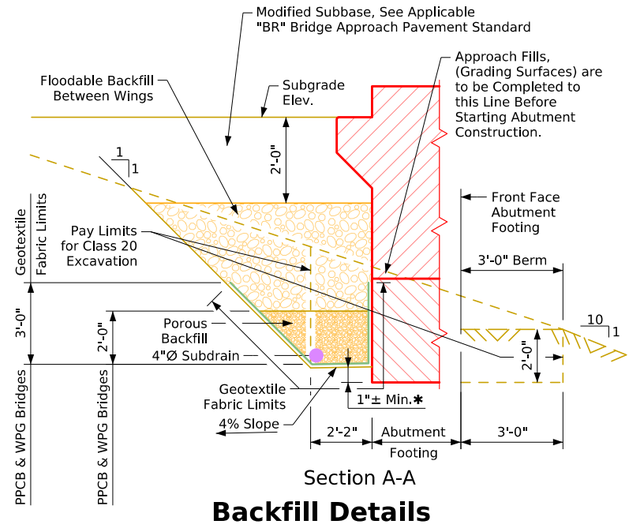
The cost of water required for flooding, subdrains, porous backfill, floodable backfill, and geotextile fabric furnished at the bridge abutments shall be included in the contract unit price bid for "Structural Concrete".

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.

The geotextile fabric shall be in accordance with Article 4196.01, B, 6 of the Standard Specifications. If the engineering fabric is lapped the laps shall be a minimum of 1 ft in length, shingle fashion with up slope lap piece on top and stapled for continuity.



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:
For Details not Shown on this Sheet which are Pertinent to this Structure See Subdrain Details Sheet on Design Sheet No. 24.

Design For 0 Degree Skew

135'-0" x 44'-0" Pretensioned Prestressed Concrete Beam Bridge

135'-0" Single Span

Abutment Backfill Details

STA. 243+47.00 (IA 175)

Turn-in Date: Oct. 2026

Woodbury County

IOWA DEPARTMENT OF TRANSPORTATION

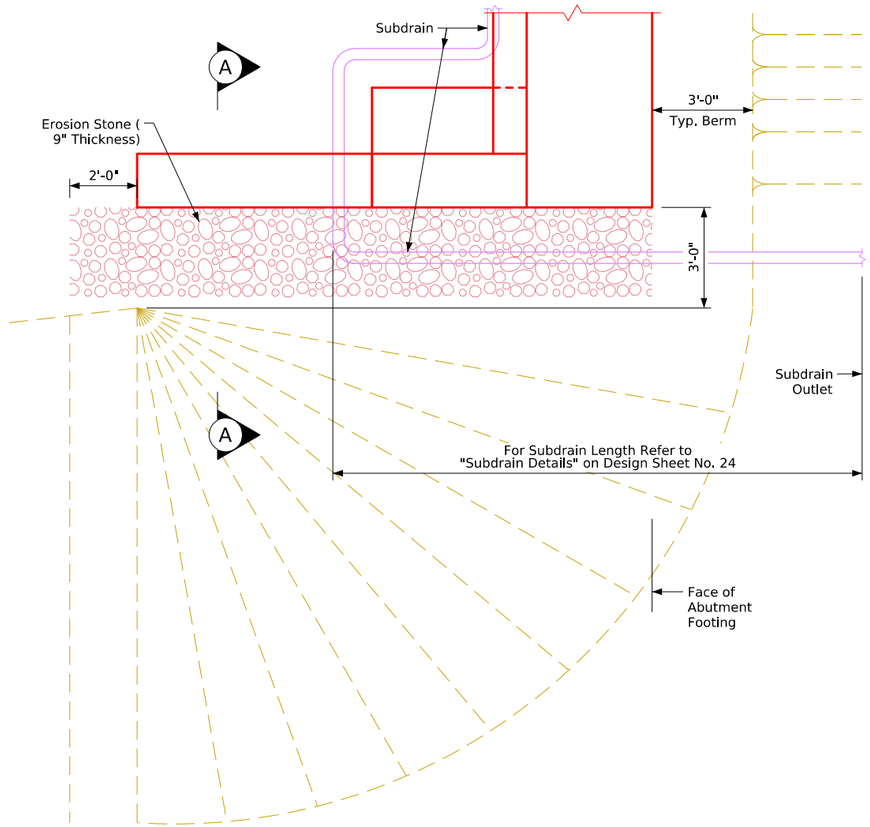
Design No. 0125 | Design Sheet No. 25 of 26 | FHWA No. 053361

FILE NO. 32160	ENGLISH	DESIGN TEAM DK/TWE/CY	Granular Backfill Details for Wing Extention Bridges	Standard Sheet 1007E	Woodbury COUNTY	PROJECT NUMBER BRF-175-2(009)--38-97	SHEET NUMBER V.25

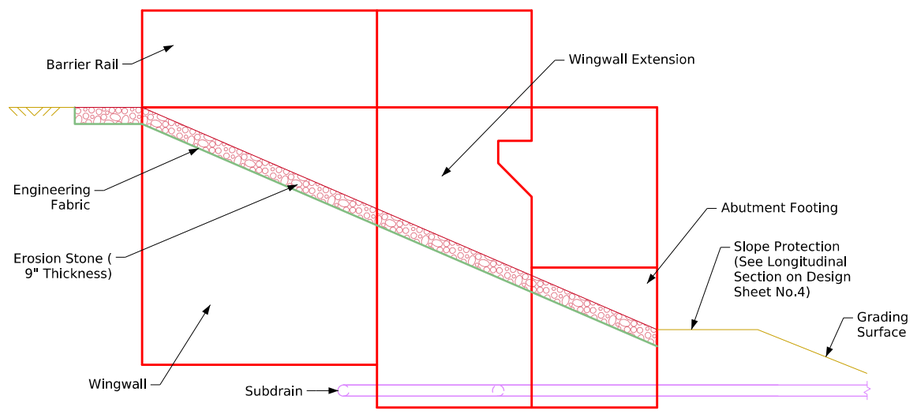
Revised 09-14 - The Technical Data Information Table was Removed and is Located in the Standard Specifications. Changed Surface Flooding Time to 5 Minute Increments.
Revised 09-2016 - Changed the Bridge Approach Pavement Standard to "BR" (WAS "RK").
ForeSlopeProtectionBridges.dgn - 1007E - This Sheet Issued 08-07.
ForeSlopeProtectionBridges.dgn - 1007E - This Sheet Redrawn 07-23.

12:13:38 PM 9/14/2026 tellio2 pw:\\NTPwint1.dot.int.lan:PWMain\Documents\Projects\9717501020\Bridge\(009)_Bridge Replacement - PPCB\SHT_97175009_DOT_0125_53361_Z04.dgn

Revised 06-14 - Added 2 Feet of Length of Erosion Stone in Front of the Bridge Wing.
Revised 09-2023: Changed direction of Section Director Arrows "A-A" to match what section view "Section A-A" is showing.
ForeSlopeProtectionBridges.dgn - 1005A - This Sheet Issued 06-02.
ForeSlopeProtectionBridges.dgn - 1005A - This Sheet Issued 07-23.

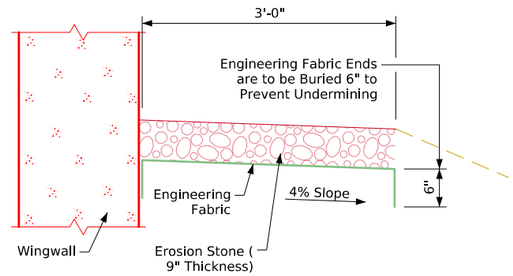


Top View of Wing Armoring with Wing Extension



Profile View of Wing Armoring with Wing Extension
(Integral Abutment with Wing Extensions)

A Check Shall be Made at the Subdrain Outlet to Insure that it is Draining Properly During the Backfill Flooding Process.



Section A-A

General Notes:

Erosion stone shall be placed along the sides of the wings 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 erosion stone at these locations shall be underlayed with engineering fabric in accordance with Article 4196.01, B, 3, of the Standard Specifications.

The erosion stone shall be in accordance with Section 4130, of the Standard Specifications. Material passing the 3 inch screen but 100% retained on a 1 inch screen may be used as choke stone.

The erosion stone shall be deposited, spread, consolidated and shaped by mechanical or hand methods that will provide uniform 9 inch depth and density and provide uniform surface appearance.

Payment for the bridge wing armoring will be bid per square yard. Cost will include engineering fabric, erosion stone, excavation, shaping, and compaction to dimensions shown in these plans. Bid item shall be "Bridge Wing Armoring - Erosion Stone".

Design For 0 Degree Skew

135'-0" x 44'-0" Pretensioned Prestressed Concrete Beam Bridge

135'-0" Single Span

Bridge Wing Details

STA. 243+47.00 (IA 175)

Turn-in Date: Oct. 2026

Woodbury County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0125 | Design Sheet No. 26 of 26 | FHWA No. 053361

FILE NO. 32160	ENGLISH	DESIGN TEAM DK/TWE/CY	Bridge Wing Armoring for Water Crossings	Standard Sheet 1005A	Woodbury COUNTY	PROJECT NUMBER BRF-175-2(009)--38-97	SHEET NUMBER V.26	

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THIS SHEET IS INCLUDED TO SHOW SOIL INFORMATION.
DETAILS AND NOTES SHOWN ELSEWHERE IN THESE PLANS SHALL BE USED FOR STRUCTURE CONSTRUCTION.

GEOTECHNICAL DESIGN

LICENSED PROFESSIONAL ENGINEER
XINYI JIANG
P29458
IOWA

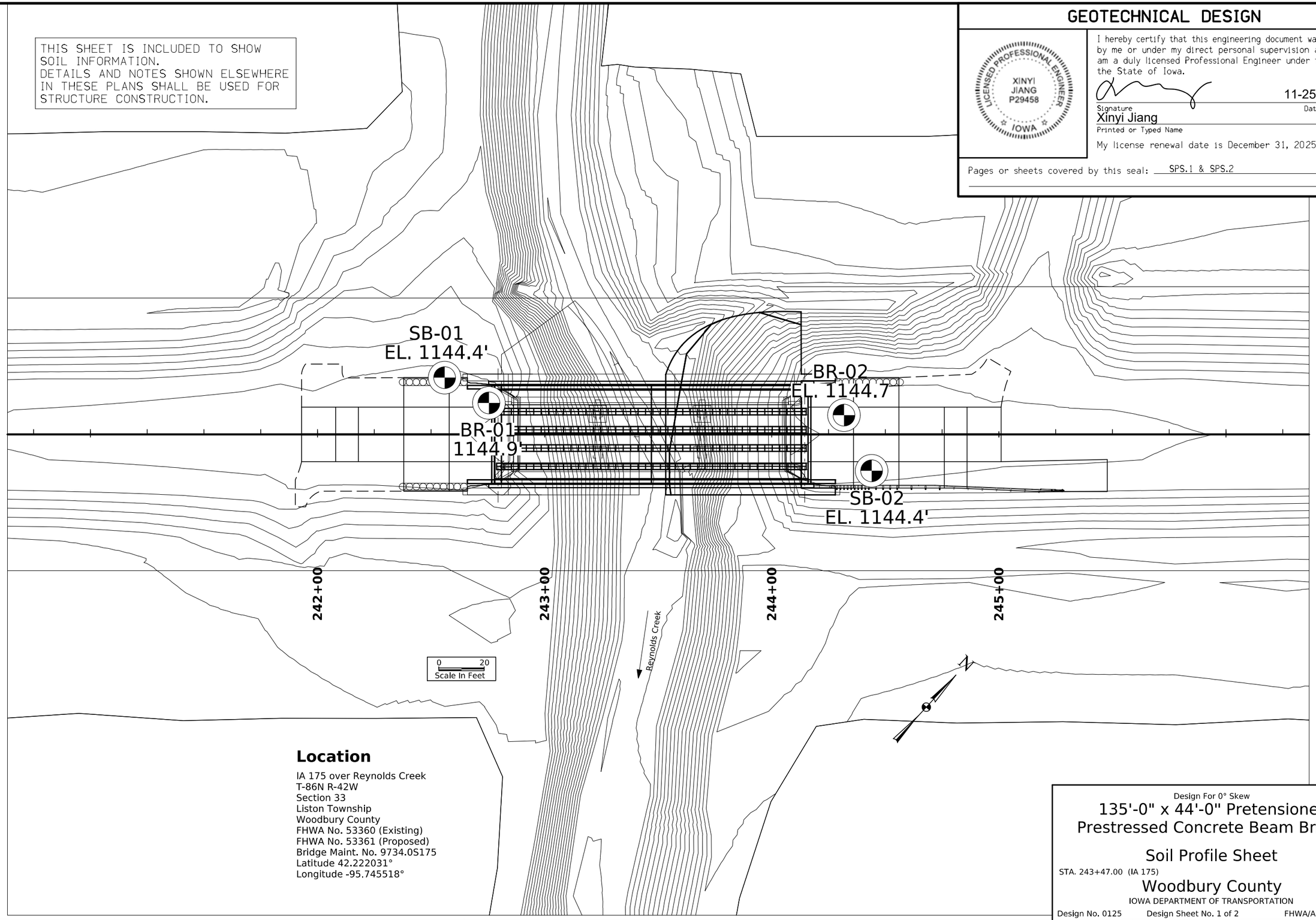
I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

Signature — Date: 11-25-2025

Xinyi Jiang
Printed or Typed Name

My license renewal date is December 31, 2025

Pages or sheets covered by this seal: SPS.1 & SPS.2



Location

IA 175 over Reynolds Creek
T-86N R-42W
Section 33
Liston Township
Woodbury County
FHWA No. 53360 (Existing)
FHWA No. 53361 (Proposed)
Bridge Maint. No. 9734.0S175
Latitude 42.222031°
Longitude -95.745518°

Design For 0° Skew

135'-0" x 44'-0" Pretensioned Prestressed Concrete Beam Bridge

Soil Profile Sheet

STA. 243+47.00 (IA 175)

Woodbury County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0125 | Design Sheet No. 1 of 2 | FHWA/Asset 053361

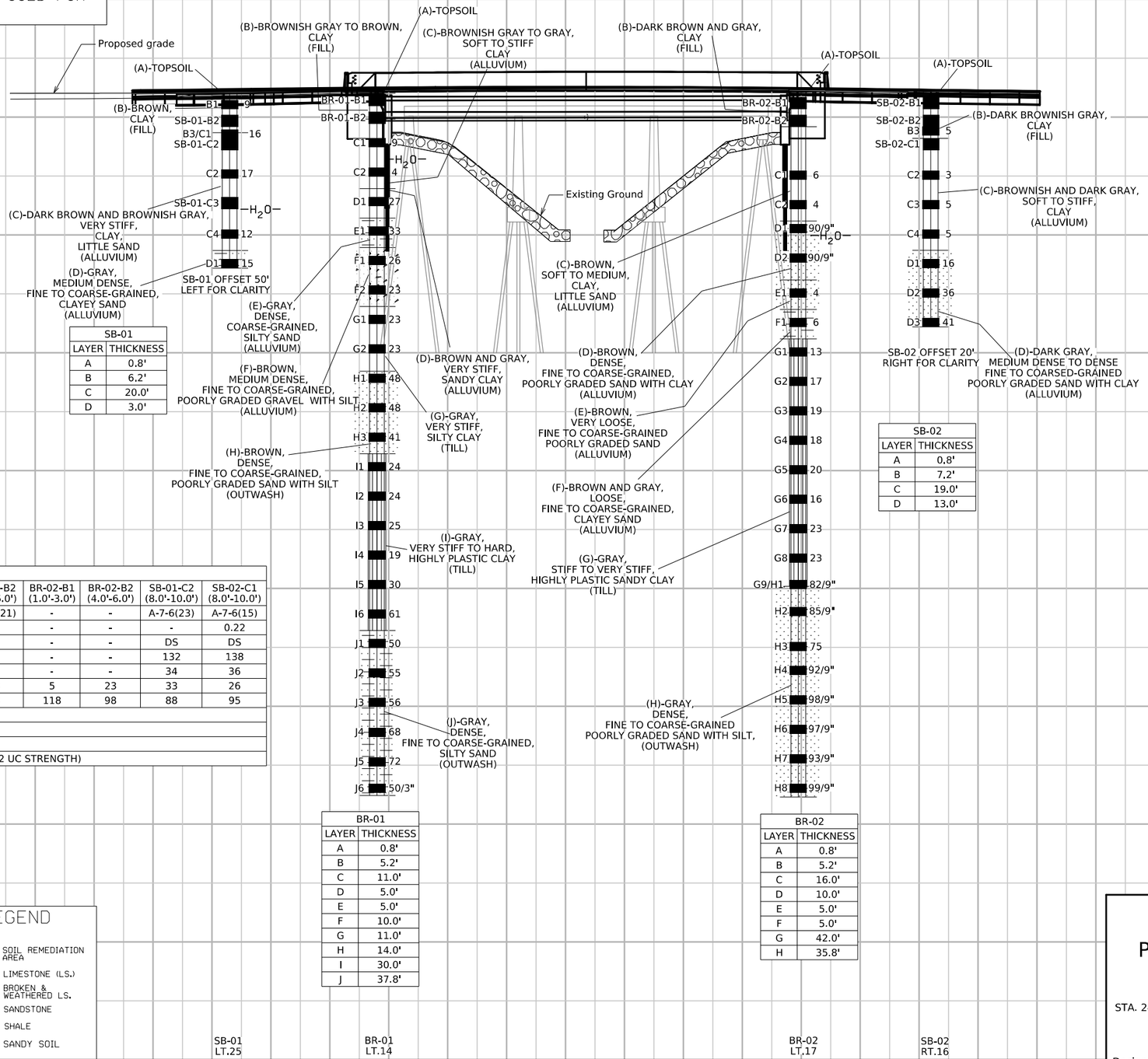
FILE NO. 32160	ENGLISH	DESIGN TEAM WHKS & Co./Braun Intertec	Woodbury COUNTY	PROJECT NUMBER BRF-175-2(009)--38-97	SHEET NUMBER SPS.1

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THIS SHEET IS INCLUDED TO SHOW SOIL INFORMATION.
DETAILS AND NOTES SHOWN ELSEWHERE IN THESE PLANS SHALL BE USED FOR STRUCTURE CONSTRUCTION.

Boring No.	Date Drilled	GroundWater Level (Ft.)
SB-01	06/15/2025	20.0'
BR-01	07/12/2025	17.0'
BR-02	07/22/2025	25.0'
SB-02	06/16/2025	NA*

*Water Level obscured due to mud rotary drilling method



SB-01	
LAYER	THICKNESS
A	0.8'
B	6.2'
C	20.0'
D	3.0'

SB-02	
LAYER	THICKNESS
A	0.8'
B	7.2'
C	19.0'
D	13.0'

BR-01	
LAYER	THICKNESS
A	0.8'
B	5.2'
C	11.0'
D	5.0'
E	5.0'
F	10.0'
G	11.0'
H	14.0'
I	30.0'
J	37.8'

BR-02	
LAYER	THICKNESS
A	0.8'
B	5.2'
C	16.0'
D	10.0'
E	5.0'
F	5.0'
G	42.0'
H	35.8'

SHELBY TUBE CORE DATA						
CORE NO.	BR-01-B1 (1.0'-3.0')	BR-01-B2 (4.0'-6.0')	BR-02-B1 (1.0'-3.0')	BR-02-B2 (4.0'-6.0')	SB-01-C2 (8.0'-10.0')	SB-02-C1 (8.0'-10.0')
CLASSIFICATION (AASHTO)	-	A-7-6(21)	-	-	A-7-6(23)	A-7-6(15)
COEFF. CONSOL. FT2/DAY	-	-	-	-	-	0.22
TRIAXIAL COMPRESSION	-	-	-	-	DS	DS
COHESION, C - PSF	-	-	-	-	132	138
FRICTION ANGLE, f - Degrees	-	-	-	-	34	36
MOISTURE CONTENT %	26	23	5	23	33	26
DRY DENSITY - PCF	93	93	118	98	88	95
UU - UNCONSOLIDATED & UNDRAINED						
CU - CONSOLIDATED & UNDRAINED						
DS - DIREC SHEAR						
UC - UNCONFINED COMPRESSION (COHESION = 1/2 UC STRENGTH)						

LEGEND

WATER, DRY, PLUGGED, MOISTURE, SHELBY, BLOW COUNT, DENS. CORE, SAMPLE

BLOW COUNT
LAYER - NO. BLOWS
B2 5

DIAMOND CORE, SAND, GRAVELLY SAND, BOULDERS

SOIL REMEDIATION AREA, LIMESTONE (LS.), BROKEN & WEATHERED LS., SANDSTONE, SHALE, SANDY SOIL

Design For 0° Skew

135'-0" x 44'-0" Pretensioned Prestressed Concrete Beam Bridge

Soil Profile Sheet

STA. 243+47.00 (IA 175)

Woodbury County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0125 | Design Sheet No. 2 of 2 | FHWA/Asset 053361

FILE NO. 32160	ENGLISH	DESIGN TEAM WHKS & Co./Braun Intertec	Woodbury COUNTY	PROJECT NUMBER BRF-175-2(009)--38-97	SHEET NUMBER SPS.2

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INDEX OF SHEETS

No.	DESCRIPTION
A Sheets	**Title Sheets**
A.3	Index of Sheets
B Sheets	**Typical Cross Sections and Details**
* B.1 - 3	Typical Cross Sections and Details
C Sheets	**Quantities and General Information**
C.1 - 4	Estimated Project Quantities and Reference Notes
C.5	Project Description
C.6	Standards
C.7	Index of Tabulations
C.8 - 24	Tabulations
CS Sheets	**Soils Tabulations**
CS.1	Soils Tabulations
D Sheets	**Mainline Plan and Profile Sheets**
* D.1	Plan & Profile Legend & Symbol Information Sheet
* D.2	Iowa Highway 175 Plan and Profile
G Sheets	**Survey Sheets**
G.1 - 3	Reference Ties and Bench Marks
* G.4	Alignment Information
G.5	Horizontal Control Tabulations
J Sheets	**Traffic Control and Staging Sheets**
J.1	Traffic Control Plan
J.2	Staging Notes
J.3	Coordinated Operations
* J.4	Detour Plan
Q Sheets	**Soils Sheets**
* Q.1	Soils Legend & Symbol Information Sheet
* Q.2 - 3	Soils Sheets Iowa Highway 175
U Sheets	**Special Details**
* U.1	Iowa Highway 175Removal Plan
W Sheets	**Mainline Cross Sections**
* W.1	Cross Sections Legend & Symbol Information Sheet
* W.2 - 7	Mainline Cross Sections

* Color Plan Sheets

ROADWAY DESIGN

LICENSED PROFESSIONAL ENGINEER
CHASE A. HOLIEN
21998
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.

Chase Holien

Digitally signed by Chase Holien
Reason: I am the author of this document
Date: 2026.10.02 10:20:57-05'00'

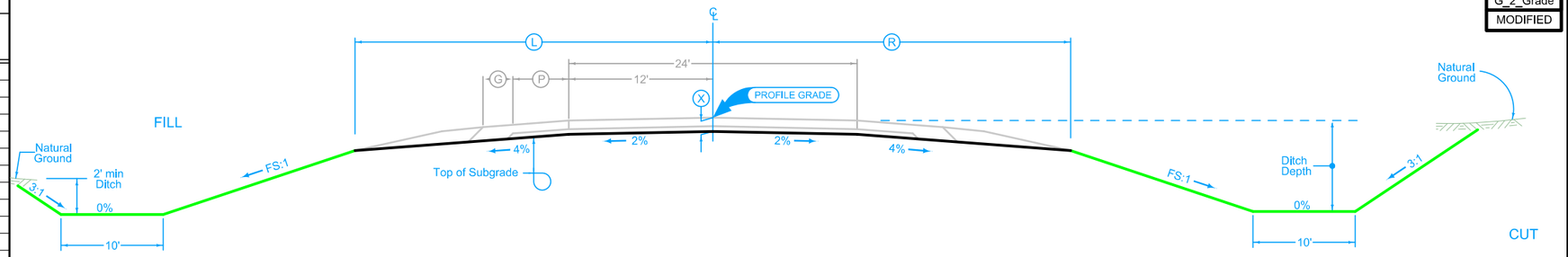
Signature Date

Chase A. Holien
Printed or Typed Name

My license renewal date is December 31, 2027

Pages or sheets covered by this seal: A.3, B.1-B.3, C.1-C.24, D.1-D.2, G.1-G.5, J.1-J.4, U.1, W.1-W.7

LOCATION			DIMENSIONS			
ROAD IDENTIFICATION	STATION TO STATION		(L) Feet	(R) Feet	(X) Inches	FS
Iowa Highway 175	241+93.00	242+08.00	36.3-31.3	36-29.5	16	3
Iowa Highway 175	244+86.00	245+01.00	30.9-43.9	31.4-31.9	16	3



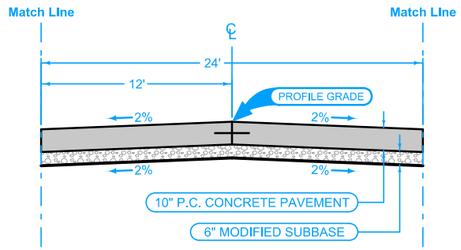
Normal section shown may be modified appropriately in areas of superelevated curves or other locations specifically designated by the Engineer.

See plan & profile sheets and cross sections for additional details of ditches and backslopes.

Bridge Approach Station Ranges are not included in this tabulation.

2 LANE GRADING

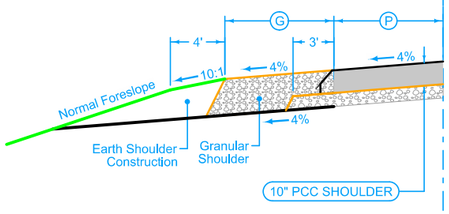
G_2_Grade
MODIFIED



Mainline Jointing:
Transverse joints: CD at 17' spacing
Longitudinal joint: L-2

2P_ 04-21-20	
STATION TO STATION	
241+93.00	242+08.00
244+86.00	245+01.00

Bridge Approach Pavement Stationing
is not included in this tabulation.



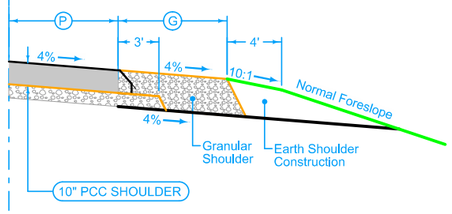
Full Depth PCC Shoulder

Shoulder Jointing:
Longitudinal joint: BT-2, or L-2
Transverse joints: C at 17' spacing

2_P_FullPCC_ 04-15-25		
STATION TO STATION		P Feet
241+93.00	242+08.00	4
244+86.00	245+01.00	4

Granular Shoulder

2_G_SR_ 04-21-20		
STATION TO STATION		G Feet
241+93.00	242+08.00	Varies
244+86.00	245+01.00	Varies



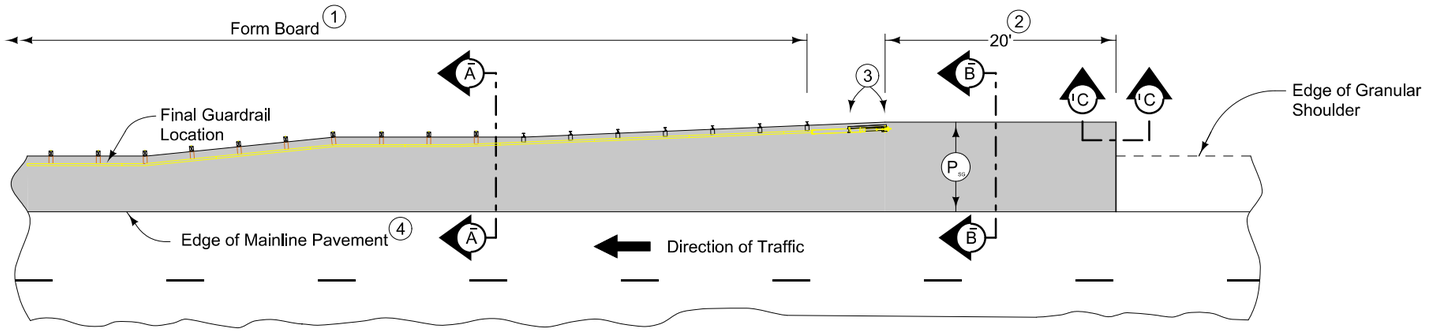
Full Depth PCC Shoulder

Shoulder Jointing:
Longitudinal joint: BT-2, or L-2
Transverse joints: C at 17' spacing

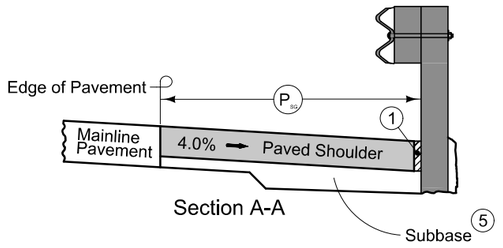
2_P_FullPCC_ 04-15-25		
STATION TO STATION		P Feet
241+93.00	242+08.00	4
244+86.00	245+01.00	4

Granular Shoulder

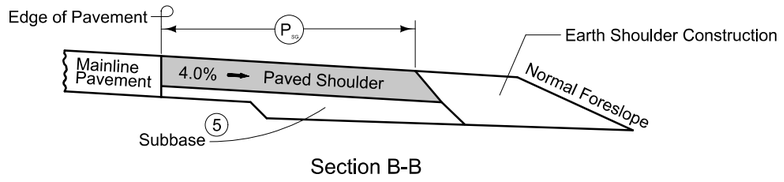
2_G_SR_ 04-21-20		
STATION TO STATION		G Feet
241+93.00	242+08.00	Varies



PLAN VIEW

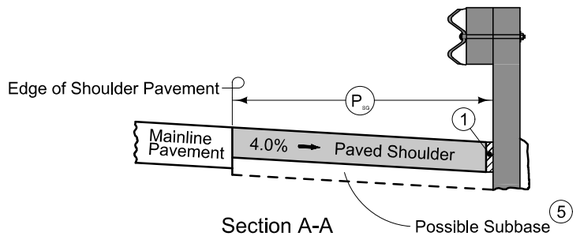


Section A-A

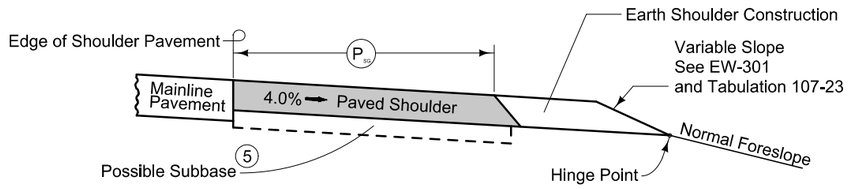


Section B-B

NEW CONSTRUCTION



Section A-A



Section B-B

EXISTING SHOULDER

DESIGNER INFO

7156
10-18-22

9" HMA Paved Shoulder at guardrail. 8" 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 'C' joints in shoulder at mid-panel of the mainline pavement. Place longitudinal 'C' joint at P/2 from edge of mainline pavement when P 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 and reinstallation of guardrail will be allowed with no additional payment.

Refer to Tabulation 112-9 for shoulder quantities.

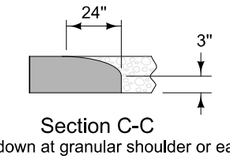
(1) PCC option only: When guardrail posts are installed prior to construction of PCC paved shoulder, fasten form board to the face of guardrail posts for the length shown.

(2) Continue paved shoulder 20 feet beyond the center of the first post.

(3) Shoulder may be notched for first 2 posts or post sleeves may be installed through pavement. Do not drive posts through pavement.

(4) 'KT' joint (per PV-101) for PCC shoulder.
'B' joint (per PV-101) for HMA shoulder.

(5) Refer to other details in the plan.



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

PAVED SHOULDER AT GUARDRAIL
(GRANULAR SHOULDER ADJACENT TO MAINLINE)

ESTIMATED PROJECT QUANTITIES AND REFERENCE NOTES

Roadway Items : Roadway Items

Item no.	Item Code	Item	Unit	Quantities Estimated Roadway Items	Estimate Reference Notes
1	2102-2625000	EMBANKMENT-IN-PLACE	CY	66	Provide borrow material according to Section 2102 of the Standard Specifications. Material shall be provided by the Contractor. Item is, generally, for construct the fore slopes. Item includes 66 CY of fill (7 CY south of the bridge and 59 CY north of the bridge). The bid item includes 30% shrinkage. Overhaul is incidental to roadway excavation on this project and will not be paid for separately.
2	2102-2710070	EXCAVATION, CLASS 10, ROADWAY AND BORROW	CY	14	Item is, generally, for excavating to construct Modified Subbase and PCC Pavement outside of the Bridge Approach Pavement (Excavation for Bridge Approach Pavement shall be paid per Standard Specification 2301.05.D). Item includes 14 CY of cut (7 CY south of the bridge and 7 CY north of the bridge). Overhaul is incidental to roadway excavation on this project and will not be paid for separately.
3	2102-2713090	EXCAVATION, CLASS 13, WASTE	CY	62.5	Refer to Tab. 112-09 on the C Sheets for additional information. Item is for the removal of existing granular shoulders. Dispose of excess material according to Article 1106.07 of the current specifications.
4	2105-8425015	TOPSOIL, STRIP, SALVAGE AND SPREAD	CY	235.7	Quantity will be computed on the basis of a uniform 8 inch cut, or the depth as specified in the contract documents over the area involved. Sufficient field measurements will be taken to assure reasonable conformity with the required depth of cut.
5	2115-0100000	MODIFIED SUBBASE	CY	38.01	Refer to Tabs. 100-24 and 112-09 on the C Sheets for additional information. Item is for constructing subbase under the PCC Pavement and under the Paved Shoulders. All modified subbase will be 6" deep and extend to 3' outside of the edge of pavement.
6	2121-7425020	GRANULAR SHOULDERS, TYPE B	TON	46.574	Refer to Typical 7110 in the B Sheets and Tab. 112-9 in the C Sheets for additional information.
7	2122-5190010	PAVED SHOULDER, P.C. CONCRETE, 10 IN.	SY	20.37	Refer to Tab. 112-09 on the C Sheets for additional information.
8	2122-5500090	PAVED SHOULDER, HOT MIX ASPHALT MIXTURE, 9 IN.	SY	90.7	Item is for paved shoulders adjacent to steel beam guardrail installation. See Detail 7156 on Sheet B.1 and Tab. 112-9 in the C sheets for additional information.

Item no.	Item Code	Item	Unit	Quantities Estimated Roadway Items	Estimate Reference Notes
9	2123-7450000	SHOULDER CONSTRUCTION, EARTH	STA	3.25	Item is for finish grading adjacent to all pavement (PCC Pavement, Bridge Approach, Paved Shoulder) and granular shoulders. Requires a minimum of 6 inches of topsoil. Place according to Article 2105.03,B of the Standard Specifications.
10	2301-0690203	BRIDGE APPROACH, BR-203	SY	754.72	Refer to Tab 112-06 on the C Sheets for additional information.
11	2301-1033100	STANDARD OR SLIP FORM PORTLAND CEMENT CONCRETE PAVEMENT, CLASS C, CLASS 3 DURABILITY, 10 IN.	SY	80	Refer to Tab 100-24 on the C Sheets for additional information.
12	2412-0000100	LONGITUDINAL GROOVING IN CONCRETE, BRIDGE DECK AND/OR APPROACHES	SY	1,346.27	Refer to Tab. 100-28 on the C Sheets for additional information.
13	2503-0500402	BRIDGE END DRAIN, DR-402	EACH	4	Refer to Tab. 104-08A on the C Sheets for additional information.
14	2505-4008120	REMOVAL OF STEEL BEAM GUARDRAIL	LF	286.2	Refer to Tab. 110-7A on the C Sheets for additional information. Removal of existing Delineator and posts shall be incidental to this item. All steel posts removed shall be the property of the Contractor.
15	2505-4008300	STEEL BEAM GUARDRAIL	LF	12.5	Refer to Tab 108-08A on the C Sheets for additional information.
16	2505-4008410	STEEL BEAM GUARDRAIL BARRIER TRANSITION SECTION, BA-201	EACH	1	
17	2505-4021010	STEEL BEAM GUARDRAIL END ANCHOR, BOLTED	EACH	1	
18	2505-4021720	STEEL BEAM GUARDRAIL TANGENT END TERMINAL, BA-205	EACH	1	
19	2510-6745850	REMOVAL OF PAVEMENT	SY	514.9	Refer to Tabs. 110-1 and 102-5 on the C Sheets for additional information. Item includes approximately 48 linear feet of full depth sawcut.

Item no.	Item Code	Item	Unit	Quantities Estimated Roadway Items	Estimate Reference Notes
20	2524-6765010	REMOVE AND REINSTALL SIGN AS PER PLAN	EACH	4	Refer to Tabulations 190-50 and 190-62. The Contractor shall remove each sign and the hardware used to secure the sign to another sign, posts, or sign support structure. For signs mounted directly to posts, removal of the sign shall include removal of the posts. Posts may be either wood posts or steel breakaway sign posts. The removal of concrete footings for steel breakaway sign posts will be measured and paid for separately. Holes remaining from the removal of wood posts shall be backfilled with suitable earth to the original level or to the natural ground surface in accordance with Article 2402.09 of the Standard Specifications. All steel posts removed shall remain the property of the DOT. Wood posts removed shall become the property of the Contractor. The Contractor shall deliver the wood posts to the DOT Maintenance Garage in Ida Grove, 2387 Keystone Ave. Box 122, Ida Grove, IA 51445. The contact is Chad Jochims (712-261-0199). **The existing sign shall be removed and stored. The Contractor shall remove the sign and transport it to a DOT storage area within 50 miles, as designated by the Engineer. The Contractor shall transport the sign back to the job site when ready for reinstallation. The Contractor shall furnish all necessary hardware to install the signs. When the new installation is similar to the original installation, unless otherwise noted, the existing hardware may be used to reinstall the sign. Signs damaged by the Contractor's activities shall be replaced at the Contractor's expense. Replacement materials shall be new. The DOT will furnish all details necessary for fabrication of the replacement materials. METHOD OF MEASUREMENT: The Engineer will count each sign removed and reinstalled. BASIS OF PAYMENT: For each sign removed and reinstalled, the Contractor shall be paid the contract unit price.
21	2527-9263209	PAINTED PAVEMENT MARKINGS, WATERBORNE OR SOLVENT-BASED	STA	6.93	Refer to Tab. 108-22 on the C Sheets for additional information.
22	2527-9270112	GROOVES CUT FOR PAVEMENT MARKINGS	STA	6.93	
23	2528-2518000	SAFETY CLOSURE	EACH	2	Refer to Tab. 108-13A on the C Sheets for additional information.
24	2528-8445110	TRAFFIC CONTROL	LS	1	Refer to Traffic Control Plan on Sheet J.1
25	2528-9290050	PORTABLE DYNAMIC MESSAGE SIGN (PDMS)	CDAY	0	See Proposal.
26	2551-0000230	PERMANENT CRASH CUSHION, SEVERE USE (SU)	EACH	3	Refer to Tab 108-30 on the C Sheets for additional information. All labor and hardware required to connect the Permanent Crash Cushion to the bridge end rail shall be included in the price bid for Permanent Crash Cushion, Severe Use (SU). Refer to standard specification for installation.
27	2602-0000020	SILT FENCE	LF	635	Refer to Tab. 100-17 on the C Sheets for additional information. The tabulation includes estimated locations for placement of "Silt Fence" to address erosion to be encountered during construction. Verify the specific locations with the Engineer prior to beginning placement. See Standard Road Plan EC-201. The engineer may adjust silt fence locations to fit field conditions.
28	2602-0000071	REMOVAL OF SILT FENCE OR SILT FENCE FOR DITCH CHECKS	LF	635	This item is included for silt fence and silt fence for ditch check removal required for staging reasons, removal to allow for replacement (replacement to be paid separately), or for areas that have achieved 70% permanent growth.This item is included for silt fence and silt fence for ditch check removal. Remove silt fence and posts after mulching or vegetation is established and approved by the engineer.

Item no.	Item Code	Item	Unit	Quantities	Estimate Reference Notes
				Estimated	
				Roadway Items	
29	2602-0000101	MAINTENANCE OF SILT FENCE OR SILT FENCE FOR DITCH CHECK	LF	635	This item is included for maintaining the new silt fence and silt fence ditch checks installed for the paving project.
30	2602-0000222	FLOATING SILT CURTAIN (CONTAINMENT)	LF	200	Refer to Tab. 100-10 on the C Sheets for additional information.
31	2602-0000230	CLEAN-OUT OF FLOATING SILT CURTAIN (CONTAINMENT)	LF	200	
32	2602-0000240	MAINTENANCE OF FLOATING SILT CURTAIN	LF	200	
33	2602-0000320	PERIMETER AND SLOPE SEDIMENT CONTROL DEVICE, 20 IN. DIA.	LF	580	Refer to Tab. 100-19 on the C Sheets for additional information. The tabulation includes estimated locations for placement of "Perimeter and Slope Sediment Control Device, 20 in. dia." to address erosion to be encountered during construction. Verify the specific locations with the Engineer prior to beginning placement. Bid item includes 25% additional quantity for field adjustments and replacements.
34	2602-0000351	REMOVAL OF PERIMETER AND SLOPE OR DITCH CHECK SEDIMENT CONTROL DEVICE	LF	580	Refer to Tab. 100-19 on the C Sheets for additional information. The tabulation includes estimated locations for placement of "Perimeter and Slope Sediment Control Device, 12 in. dia." to address erosion to be encountered during construction. Verify the specific locations with the Engineer prior to beginning placement. Bid item includes 25% additional quantity for field adjustments and replacements.

100_01D

8/15/22

PROJECT DESCRIPTION

This project is for bridge reconstruction and bridge approaches along IA 175 over Reynolds creek. It will involve removal and replacement of the existing bridge, bridge approach pavement, guardrails, granular shoulders and other miscellaneous work.

STANDARDS

The following Standards apply to construction work on this project.

Number	Date	Title
BA-200	10-20-26	Steel Beam Guardrail Components
BA-201	10-18-22	Steel Beam Guardrail Barrier Transition Section (MASH TL-3)
BA-202	10-20-26	Steel Beam Guardrail Bolted End Anchor
BA-250	10-20-26	Steel Beam Guardrail Installation at Concrete Barrier or Bridge End Post (MASH TL-3)
BR-203	10-20-26	Double Reinforced 12in Approach
BR-211	04-21-26	Bridge Approach (Abutting PCC or Composite Pavement)
DR-306	10-17-23	Precast Concrete Headwall for Subdrain Outlets
DR-402	04-16-24	Rock Flume for Bridge End Drain
EC-204	10-19-21	Perimeter, Slope and Ditch Check Sediment Control Devices
EC-502	04-21-15	Seeding in Rural Areas
EW-202	04-19-16	Bridge Berm Grading without Recoverable Slope (Non-Barnroof Section)
EW-301	10-20-26	Guardrail Grading
PM-110	10-15-24	Line Types
PV-101	10-20-26	Joints
SI-173	04-19-16	Object Markers
SI-211	10-18-22	Object Marker and Delineator Placement with Guardrail
TC-1	10-15-19	Work Not Affecting Traffic (Two-Lane or Multi-Lane)
TC-202	04-18-23	Work Within 15 ft of Traveled Way
TC-252	10-20-26	Routes Closed to Traffic

111_25
10/20/26

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3.0	100_17	TABULATION OF SILT FENCES	C.14
4.0	100_19	PERIMETER AND SLOPE SEDIMENT CONTROL DEVICE	C.15
5.0	100_24	PCC PAVEMENT	C.16
6.0	100_28	LONGITUDINAL GROOVING	C.20
7.0	101_16	ALIGNMENT COORDINATES	G.5
8.0	102_05	EXISTING PAVEMENT	C.8
9.0	104_08A	SCOUR PROTECTION OR ROCK FLUME FOR BRIDGE END DRAIN	C.17
10.0	105_04	STANDARD ROAD PLANS	C.6
11.0	108_08A	STEEL BEAM GUARDRAIL AT CONCRETE BARRIER OR BRIDGE RAIL END SECTION	C.21
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13.0	108_22	PAVEMENT MARKING LINE TYPES	C.23
14.0	108_23A	TRAFFIC CONTROL PLAN	J.1
15.0	108_26A	STAGING NOTES	J.2
16.0	108_30	CRASH CUSHIONS	C.22
17.0	110_01	REMOVAL OF PAVEMENT	C.9
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19.0	111_01	COORDINATED OPERATIONS	J.3
20.0	111_25	INDEX OF TABULATIONS	C.7
21.0	112_06	BRIDGE APPROACH SECTION	C.18
22.0	112_09	SHOULDERS	C.19
23.0	190_62	EXISTING SIGNS TO BE REMOVED	C.11

EXISTING PAVEMENT

Line No.	County	Route	Direction of Travel	Begin Ref. Location Sign	End Ref. Location Sign	Year	Type	Project Number	Surface Type	Surface Depth (IN)	Base Type	Base Depth (IN)	Subbase Type	Subbase Depth (IN)	Removal Type	Removal Depth (IN)	Coarse Aggregate Source	Coarse Aggregate Type	Course Aggregate Durability Class	Reinforcement Type	Remarks
1.0	Woodbury	IA 175	Both			1953	PCC	F-245(2)		8.0							SACTON	GRAVEL	3		
2.0	Woodbury	IA 175	Both			1970	AAC	FN-175-2(1)--21-97	AAC	1.0	AAC	2.0									

110_01
4/5/24

REMOVAL OF PAVEMENT

Refer to Tabulation 102-5.

* Not a bid item.

Line No.	Station From	Station To	Side	Pavement Type	Area (SY)	Saw Cut* (LF)	Remarks
1.0	241+93.00	242+86.37	Both	Composite	258.2	24.0	
2.0	244+08.46	245+01.00	Both	Composite	256.7	24.0	
Total					514.9	48.0	

110_07A

8/15/22

REMOVAL OF STEEL BEAM GUARDRAIL

(1) Lane(s) to which the installation is adjacent.
(2) Includes length of End Terminals and End Anchors.

Line No.	No.	Direction of Traffic (1)	Station From	Station To	Side	Removal of Guardrail (2) (LF)
1.0		EB	242+14.64	242+84.93	Right	71.1
2.0		EB	242+14.64	242+85.39	Left	71.5
3.0		WB	244+09.38	244+80.54	Right	71.8
4.0		WB	244+09.64	244+81.90	Left	71.8
Total						286.2

EXISTING SIGNS TO BE REMOVED

Line No.	Sign Number or Description	Location Station	Direction of Travel	Type 'A' Sign Assembly (RA) (EA)	Type 'B' Sign Assembly (RB) (EA)	Type 'A' Remove and Reinstall (RR) (EA)	Type 'B' Remove and Reinstall (RR) (EA)	Concrete Foundation (RF) (EA)	Support Structure & Foundation (RS) (EA)	Applicable Signing Notes	Remarks
1.0	OM-3R	242+86.00	EB	1							At Existing Bridge
2.0	OM-3L	242+86.00	EB	1							At Existing Bridge
3.0	OM-3L	244+08.00	WB	1							At Existing Bridge
4.0	OM-3R	244+08.00	WB	1							At Existing Bridge
Total				4							

108_13A
3/27/25

SAFETY CLOSURES

Station	Road Closure Qty.	Hazard Closure Qty.	Remarks
241+93.00		1	South Side
245+01.00		1	North Side
Total		2	

100_10

8/15/22

FLOATING SILT CURTAINS

Refer to EC-202

Line No.	Station	Hanging (LF)	Containment (LF)	Clean-out (Containment) (LF)	Maintenance of Floating Silt Curtain (LF)	Remarks
1.0	243+00.00	100.0			50.0	
2.0	244+00.00	100.0			50.0	
Total		200.0			100.0	

100_17
8/15/22

TABULATION OF SILT FENCES

Refer to EC-201

Line No.	Station From	Station To	Side	Length (FT)	Remarks
1.0	241+90.00	243+42.00	Right	152.00	
2.0	241+90.00	243+36.00	Left	146.00	
3.0	243+53.00	245+48.00	Right	195.00	
4.0	243+53.00	244+95.00	Left	142.00	
Total				635.00	

100_19

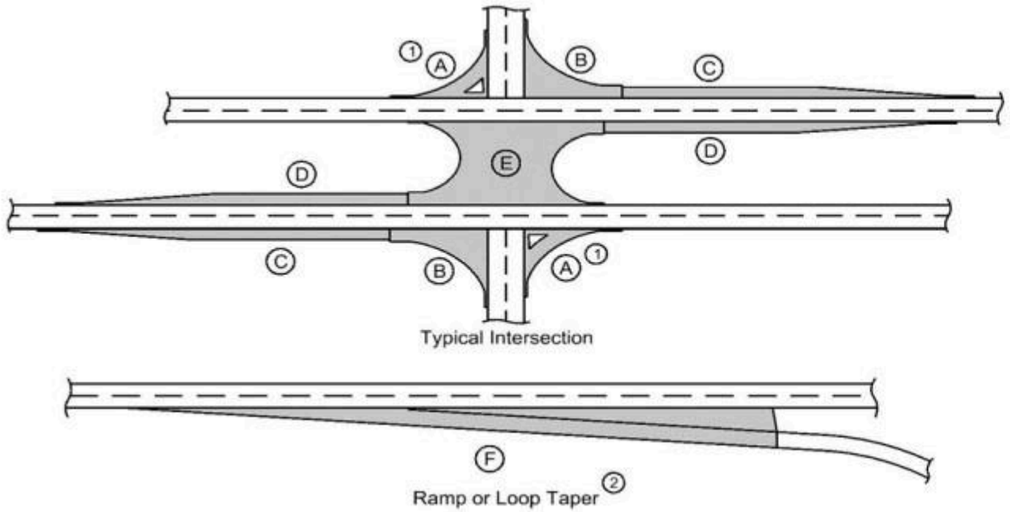
10/15/24

PERIMETER AND SLOPE SEDIMENT CONTROL DEVICE

Possible Standards: EC-204

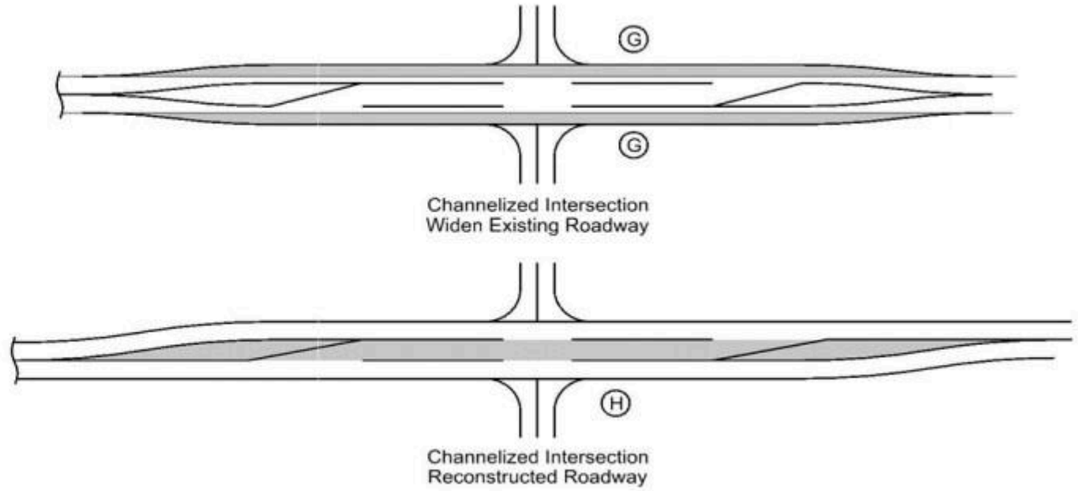
Line No.	Station From	Station To	Side	Sediment Control Device Type	Diameter Size	Length (LF)	Remarks
1.0	241+93.00	242+78.00	Right	Perimeter and Slope	20 inch	100.00	
2.0	241+93.00	242+78.00	Left	Perimeter and Slope	20 inch	100.00	
3.0	244+18.00	245+48.00	Right	Perimeter and Slope	20 inch	140.00	
4.0	244+18.00	245+00.00	Left	Perimeter and Slope	20 inch	100.00	
5.0	+.00			Perimeter and Slope	20 inch	140.00	+25% For Maintenance
6.0	+.00					580.00	Total

PCC PAVEMENT



Typical Intersection

Ramp or Loop Taper (2)



Channelized Intersection
Widen Existing Roadway

Channelized Intersection
Reconstructed Roadway

(1) Does not include raised island area or curb. Refer to tabulation 112-4 for quantities.
(2) Refer to PV-410, PV-411, PV-412, and PV-414.
(3) Quantity includes Pavement Header.

Line No.	Road Identification	Direction of Travel	Station From	Station To	Width (FT)	Length (FT)	Area (SY)	Area A(1) (SY)(3)	Area B (SY)(3)	Area C (SY)(3)	Area D (SY)(3)	Area E (SY)(3)	Area F(2) (SY)(3)	Area G (SY)(3)	Area H (SY)(3)	Area by Thickness - Thickness(IN)	Area by Thickness - Area (SY)	Polymer Grid (SY)	Special Backfill (TON)	Modified Subbase (CY)	Granular Subbase (SY)	Remarks
1.0	IA 175	EB	241+93.00	242+08.00	12.0	15.00	20.00									10.0	20.0			5.28		
2.0	IA 175	WB	241+93.00	242+08.00	12.0	15.00	20.00									10.0	20.0			5.28		
3.0	IA 175	EB	244+86.00	245+01.00	12.0	15.00	20.00									10.0	20.0			4.17		
4.0	IA 175	WB	244+86.00	245+01.00	12.0	15.00	20.00									10.0	20.0			5.28		
Total																	80			20.01		

The quantity for Modified Subbase under the PCC Paved Shoulder is included in this tabulation.

104_08A
8/15/22

SCOUR PROTECTION OR ROCK FLUME FOR BRIDGE END DRAIN

Refer to Standard Road Plan DR-401 and DR-402

Line No.	Bridge Station	Bridge Corner	Distance DI-1 or DI-2 (FT)	Bridge End Drain Type	Special Ditch Control, Wood Excelsior Mat EC-101 (SQ)	Turf Reinforced Mat (TRM) Type 2 EC-104 (SQ)	Transition Mat EC-105 (SF)	Macadam Stone Base (TONS)	Engineering Fabric (SY)	Erosion Stone (TON)	Remarks
1.0	243+47.00	SE	29.9	DR-402				1.160	32.8	19.800	
2.0	243+47.00	NE	43.8	DR-402				1.160	41.6	25.800	
3.0	243+47.00	NW	43.8	DR-402				1.160	35.9	21.948	
4.0	243+47.00	SW	43.8	DR-402				1.160	32.7	19.632	

BRIDGE APPROACH SECTION

Refer to the BR Series.

* Not a bid item
** Verify layout of bridge approach does not conflict with guardrail posts.

Line No.	Bridge Station	End	Skew Ahead Left (Degrees)	Skew Ahead Right (Degrees)	(T) Thickness (IN)	Pay Length (FT)	Right Edge Offset (FT) **	Left Edge Offset (FT) **	Non-Reinf. Area (SY)	Single-Reinf. Area (SY)	Double-Reinf. Area (SY)	SRP Approach	SRP Abutment Type	SRP Abutting Pavement	Perforated * 4" Subdrain (LF)	Subdrain * Outlet (STA)	Subdrain * Outlet Side	Porous * Backfill (CY)	Modified * Subbase (TON)	Polymer * Grid (SY)	Special * Backfill (TON)	Remarks
1.0	243+47.00	W			12.0	70.0	12	12	166.7	111.1	104.0	BR-203	Movable	BR-211	56.0	243+38.00	Right	1.6	363.129	453.2		West Approach
2.0	243+47.00	E			12.0	70.0	12	12	162.1	108.0	102.8	BR-203	Movable	BR-211	56.0	243+56.00	Right	1.6	355.643	443.0		East Approach
Total									328.73	219.14	206.85				112.0			3.2	718.772	896.18		

Curb shall not be constructed on the bridge corners (3 - SW, SE, NW) in which permanent crash cushions will be installed.

SHOULDERS

(1) Lane(s) to which the shoulder is adjacent.
(2) See Typ. 7156, 7157, or 7158.
(3) Bid Item.
(4) Applies only for Paved Shoulders constructed on project with existing granular shoulders.
(5) Bid Item. Typ. 7156, 7157, or 7158.
(6) Does not include shrink.
(7) Paved shoulder thickness specified in Remarks.
(8) Subbase type specified in Remarks.

Roadway Identification	Direction of Travel (1)	Station From	Station To	Side	P Width (FT)	P SG Width (2) (FT)	G Width (FT)	L Length (FT)	Class 13 Excavation (CY)(3)(4)	HMA (TON)	HMA (TON/ STA)	Binder (TONS)	Paved Shoulder (3) (SY)	Paved Shoulder at Grdrail (5)(7) (SY)	Reinforced Paved Shoulder(3) (SY)	Special Backfill HMA Alt. (3) (TON)	Special Backfill HMA Alt. (TON/STA)	Special Backfill PCC Alt. (3) (TON)	Special Backfill PCC Alt. (TON/STA)	Pavement Scarification (SY)	Polymer Grid (SY)	Subbase (3) (8) (CY)	Granular Shoulder (3) (TON)	Granular Shoulder (TON/STA)	Earth Shoulder Const. Alt (3) (STA)	Earth Shoulder Const. Alt HMA (6) (CY)	Earth Shoulder Const. Alt PCC (6) (CY)	Remarks
IA 175	EB	241+90.27	242+08.00	Right				17.73	7.4				6.9										13.893	78.356	0.18			
IA 175	WB	241+93.00	242+11.58	Left				18.58	8.3				6.7										15.704	84.522	0.19			
IA 175	WB	244+63.50	245+05.32	Left				41.82	9.0				6.8										16.977	100.520	0.42			
IA 175	EB	244+86.00	245+47.77	Right				61.77	37.8					90.7								18.00			0.62			
Total									62.5					90.7								18.00	46.574		1.41			

100_28
8/15/22

LONGITUDINAL GROOVING

Line No.	Location	Total (SY)	Remarks
1.0	243+47.00	365.4	West Approach
2.0	243+47.00	624.1	Bridge
3.0	243+47.00	356.8	East Approach
Total		1346.27	

STEEL BEAM GUARDRAIL AT CONCRETE BARRIER OR BRIDGE RAIL END SECTION

Possible Standards: BA-200, BA-201, BA-202, BA-205, BA-206, BA-209, BA-210, BA-211, BA-221, BA-225, BA-250, BA-260, LS-625, LS-626, LS-630, LS-635, SI-172, SI-173 and SI-211.

(1) Lane(s) to which the obstacle is adjacent.
(2) Not a bid item. Incidental to guardrail installation.

Line No.	Direction of Travel (1)	Side	Station	Offset (FT)	Barrier Transition Section	Barrier Transition Section (EA)	End Terminal	End Terminal Count (EA)	VT1 (LF)	VF (LF)	VT2 (LF)	ET (LF)	BA-211 Station	BA-211 (Type)	SI-211 (Type) (2)	Delineator SI-172 Type 1 (EA) (2)	Object Marker Type 2 (EA) (2)	Object Marker Type 3 Lt (EA)(2)	Object Marker Type 3 Rt (EA)(2)	Bolted End Anchor BA-202 (Type)	Bolted End Anchor BA-202 (EA)	Post Adapter BA-210 (EA)	Steel Beam Guardrail BA-200 (LF)	Remarks
1.0	EB	Right	244+18.58		BA-201	1	BA-205	1	53.125	0.00		47.70					3	1		D	1		12.5	

CRASH CUSHIONS

* Bid Item
1. Lane(s) to which the installation is adjacent.
2. Complete this section when using the Temporary Crash Cushion bid item and Earthwork is needed for Sand Barrel placement. Refer to BA-500.

Line No.	Lane	Station	Side	Obstacle Width (FT)	Crash Cushion Type	Crash Cushion Quantity	V (FT) (2)	W (FT) (2)	X (FT) (2)	Y (FT) (2)	Z (FT) (2)	Excavation Class 10* (CY)	Embankment in Place* (CY)	Obstacle Description	Remarks
1.0	EB	242+66.00	Right	1.6	Permanent	1								Bridge End	
2.0	WB	242+66.00	Right	1.6	Permanent	1								Bridge End	
3.0	WB	244+28.00	Right	1.6	Permanent	1								Bridge End	
Total						3									

PAVEMENT MARKING LINE TYPES

Line factors based on 6-inch wide continuous line.
*BCY4 - Place on the same side of the roadway to match existing markings near the project.
**NPY4 - Estimating purposes only. No Passing Zone Lines will be located in the field.
***MNY6 - Factor of 1.00 includes number of 6-inch passes to cover median nose area.

BCY4: Broken Centerline (Yellow) @ 0.17 | BCY6: Broken Centerline (Yellow) @ 0.25 | BLC6: Broken Line Contrast (White/Black) @ 0.50 | BLW4: Broken Lane Line (White) @ 0.17 | BLW6: Broken Lane Line (White) @ 0.25
CBW6: Crosswalk Bar (White) @ 10.00 | CHW8: Channelizing Line (White) @ 1.33 | CHW10: Channelizing Line (White) @ 1.67 | CHY8: Channelizing Line (Yellow) @ 1.33 | CHY10: Channelizing Line (Yellow) @ 1.67
CLW6: Crosswalk Line (White) @ 2.00 | DCY4: Double Centerline (Yellow) @ 1.34 | DCY6: Double Centerline (Yellow) @ 2.00 | DDY4: Double Dotted Line (Yellow) @ 0.44 | DDY6: Double Dotted Line (Yellow) @ 0.67
DLW4: Dotted Line (White) @ 0.22 | DLW6: Dotted Line (White) @ 0.33 | DLY4: Dotted Line (Yellow) @ 0.22 | DLY6: Dotted Line (Yellow) @ 0.33 | ELW4: Edge Line Right (White) @ 0.67
ELW6: Edge Line Right (White) @ 1.00 | ELY4: Edge Line Left (Yellow) @ 0.67 | ELY6: Edge Line Left (Yellow) @ 1.00 | LDW8: Lane Drop (White) @ 0.33 | LDW10: Lane Drop (White) @ 0.42
MNY6: Median Nose (Yellow) @ 1.00 | NPY4: No Passing Zone Line (Yellow) @ 0.84 | NPY6: No Passing Zone Line (Yellow) @ 1.25 | RLW4: Ramp Edge Line Right (White) @ 0.67 | RLW6: Ramp Edge Line Right (White) @ 1.00
RLY4: Ramp Edge Line Left (Yellow) @ 0.67 | RLY6: Ramp Edge Line Left (Yellow) @ 1.00 | SLW2: Stop Line (White) @ 4.00 | SLW4: Solid Lane Line (White) @ 0.67 | SLW6: Solid Lane Line (White) @ 1.00
SPW4: Sloped Curb 4" (White) @ 2.16 | SPW6: Sloped Curb 6" (White) @ 2.28 | SPY4: Sloped Curb 4" (Yellow) @ 2.16 | SPY6: Sloped Curb 6" (Yellow) @ 2.28 | STW6: Standard Curb 6" (Yellow) @ 2.03
STY6: Standard Curb 6" (Yellow) @ 2.03 | YLW2: Yield Line (White) @ 1.15

Line No.	Road ID	Station From	Station To	Lane	Marking Type	Left	Center	Right	Groove Marking Needed?	Groove Qty. (STA)	BCY6 Factored (STA)	BLW4 Factored (STA)	DCY4 Factored (STA)	ELW6 Factored (STA)	ELY4 Factored (STA)	Remarks
1.0	IA 175	241+93.00	245+01.00	Center	Waterborne/Solvent Paint		X		Yes	0.77	0.77					
2.0	IA 175	241+93.00	245+01.00	EB	Waterborne/Solvent Paint			X	Yes	3.08				3.08		
3.0	IA 175	241+93.00	245+01.00	WB	Waterborne/Solvent Paint			X	Yes	3.08				3.08		
4.0																Waterborne Total = 6.93 STA

232_03A
9/28/22

EROSION CONTROL (RURAL SEEDING)

Area to be seeded is estimated to be less than 1 acre. If the contractor determines the area exceeds 2 acres, notify the Engineer. Approved quantity in excess of 2 acres will be paid for as extra work according to Article 1109.03,B of the Standard Specifications.

Following the completion of work in a disturbed area and according to the seeding dates in Section 2601 of the Standard Specifications, place seed, fertilizer, and mulch on the disturbed area lying 8 feet adjacent to shoulder and median as follows:

Place seed and fertilize according to the requirements of Article 2601.03,C,3 and Section 4169 of the Standard Specifications.

Place mulch according to the requirements of Articles 2601.03,E,2,a and 4169.07,A of the Standard Specifications.

Preparing the seedbed, furnishing and applying seed, fertilizer, and mulch are all incidental to mobilization and will not be paid for separately.

232_03C
8/28/24

EROSION CONTROL (NATIVE GRASS SEEDING)

Area to be seeded is estimated to be less than 1 acre. If the Contractor determines the area exceeds 2 acres, notify the Engineer. Approved quantity in excess of 2 acres will be paid for as extra work according to Article 1109.03,B of the Standard Specifications.

Following the completion of work in a disturbed area and according to the seeding dates in Section 2601 of the Standard Specifications, place seed and mulch on the disturbed area lying 8 feet or more beyond the shoulder as follows:

SEED MIX:

Big bluestem (Andropogon geradii)	6 lbs. PLS/Acre (7.0 kg/ha)
Indiangrass (Sorghastrum nutans)	6 lbs. PLS/Acre (7.0 kg/ha)
Little bluestem (Schizachyrium scoparium)	6 lbs. PLS/Acre (7.0 kg/ha)
Partridge Pea (Chamaecrista fasciculata)	4 lbs. PLS/Acre (4.5 kg/ha)
Sideoats grama (Bouteloua curtipendula)	4 lbs. PLS/Acre (4.5 kg/ha)
Canada wildrye (Elymus canadensis)	2 lbs. PLS/Acre (2.2 kg/ha)
Switchgrass (Panicum virgatum)	1 lbs. PLS/Acre (1.1 kg/ha)
Oats (Avena sativa)	32 lbs./Acre (36.0 kg/ha)

Furnish Big bluestem, Indiangrass, Canada wildrye and Little bluestem that is debearded or equal to facilitate the application of seed.

Furnish seed certified as Source Identified Class (Yellow Tag) Source G0-Iowa. Oats are excluded from this requirement. Place seed according to the requirements of Article 4169.02 of the Standard Specifications.

Place mulch according to the requirements of Articles 2601.03,E,2,a and 4169.07,A of the Standard Specifications.

Preparing the seedbed, furnishing and applying seed and mulch are incidental to mobilization and will not be paid for separately.

232_11
6/21/23

EROSION CONTROL (STABILIZING CROP SEEDING)

Area to be seeded is estimated to be less than 1 acre. If the contractor determines the area exceeds 2 acres, notify the Engineer. Approved quantity in excess of 2 acres will be paid for as extra work according to Article 1109.03,B of the Standard Specifications.

If outside of permanent seeding dates in Section 2601 of the Standard Specifications, or if required by a storm water permit, place stabilizing crop, fertilizer, and mulch on the disturbed area as follows:

Place seed and fertilize according to the requirements of Article 2601.03,C,1 and Section 4169 of the Standard Specifications.

Place mulch according to the requirements of Articles 2601.03,E,2,a and 4169.07,A of the Standard Specifications.

Preparing the seedbed, furnishing and applying seed, fertilizer, and mulch are incidental to mobilization and will will not be paid for separately.

281_01
9/28/22

SECTION 404 PERMIT AND CONDITIONS

Construct this project according to the requirements of U.S. Army Corps of Engineers Nationwide, Permit No. 14. A copy of this permit is available from the Iowa DOT website (http://www.envpermits.iowadot.gov/). The U.S. Army Corps of Engineers reserves the right to visit the site without prior notice.

103-6
10-17-17

EMBANKMENT WITH MOISTURE CONTROL

Moisture Control is required for all Class 10 fill placed in all locations and depths. Stability berms placed outside the normal foreslope template and topsoil will not require Moisture Control.

103-7
08-01-08

SHRINKAGE DATA

Material	%	Remarks
Topsoil	40%	Shrinkage
Unsuitable Type B	35%	Shrinkage
Unsuitable Type C	35%	Shrinkage
Class 10	30%	Shrinkage
Select Loam (Clay)	20%	Shrinkage
Select Sand	15%	Shrinkage

103-10
04-18-17

TOPSOIL STRIPPING AND PLACEMENT

Location				Topsoil Stripping Thickness	Topsoil Placement Thickness	Remarks
Road Identification	Dir. of Traffic	Begin Station	End Station	IN	IN	
IA 175 ML	EB	241+93.00	245+01.00	10.0	8.0	
IA 175 ML	WB	241+93.00	247+00.00	10.0	8.0	

LICENSED PROFESSIONAL ENGINEER
XINYI JIANG P29458
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.

Signature 2/13/2026 Date

Xinyi Jiang
Printed or Typed Name

My license renewal date is December 31, 20 25

Pages or sheets covered by this seal: CS.1, Q.1-Q.3

SURVEY SYMBOLS

- Interstate Highway Symbol
- U.S. Highway Symbol
- Iowa Highway Symbol
- County Road Highway Symbol
- Evergreen Tree
- Deciduous Tree
- Fruit Tree
- Shrub (Bushes)
- Timber
- Hedge
- Stump
- Swamp
- Rock Outcrop
- Broken Concrete
- Revetment (Rip Rap)
- Cemetery
- Grave
- Cave
- Sink Hole
- Board Fence
- Chain Link or Security Fence
- Wire Fence
- Terrace
- Earth Dam or Dike (Existing)
- Tile Outlet
- Edge of Water
- Existing Drainage
- Right of Way Rail or Lot Corner
- Concrete Monument
- Well
- Windmill
- Beehive Intake
- Existing Intake
- Existing Utility Access (Manhole)
- Fire Hydrant
- WH Water Hydrant (Rural)
- ST Septic Tank
- C Cistern
- LP L.P. Gas Tank (No Footing)
- UST Underground Storage Tank
- Latrine
- Satellite TV Dish
- WHU Water Hook Up
- RT Radio Tower
- TA Tower Anchor
- Guardrail (Beam or Cable)
- GP Guard Post (one or two)
- Guard Post (over two)
- FP Filler Pipe
- GV Gas Valve
- WV Water Valve
- SL Speed Limit Sign
- MM Mile Marker Post
- SIGN Sign
- TCB Traffic Signal Control Box
- RRB Rail Road Signal Control Box
- TSB Telephone Switch Box
- EB Electric Box

UTILITY LEGEND

- FO FO1D, Long Lines - Quality D
- FO2 FO2D, CenturyIlnk - Quality D
- FO3 FO3D, Midamerican - Quality D
- T2 TL2D, Centurylink - Quality D
- PPA, Midamerican

PLAN VIEW COLOR LEGEND OF PLAN AND PROFILE SHEETS

LINEWORK	Design Color No.		
Green	(2)	Existing Topographic Features and Labels	
Blue	(1)	Proposed Alignment, Stationing, Tic Marks, and Alignment Annotation	
Magenta	(5)	Existing Utilities	
SHADING	**Design Color No.**		**Transparency**
Pink, Dark	(13)	Temporary Pavement Shading	50%
Yellow	(4)	Proposed Pavement Shading	50%
Orange	(6)	Proposed Granular Shading	50%
Orange	(70)	Proposed Shoulder Granular Shading	50%
Yellow	(68)	Proposed Shoulder Paved Full Depth Shading	50%
Yellow	(132)	Proposed Shoulder Paved Partial Depth Shading	50%
Brown, Light	(236)	Grading Shading	50%
Orange, Light	(134)	Proposed Granular Entrance Shading	50%
Yellow	(220)	Proposed Paved Entrance Shading	50%
Tan	(8)	Proposed Sidewalk Shading	50%
Blue, Light	(230)	Proposed Sidewalk Landing Shading	50%
Pink	(11)	Proposed Sidewalk Ramp Shading	50%
Red	(3)	Proposed Structure Shading	50%
Red	(3)	Delineates Restricted Areas	0%

PROFILE VIEW COLOR LEGEND OF PLAN AND PROFILE SHEETS

LINEWORK	Design Color No.	
Green	(10)	Existing Ground Line Profile
Blue	(1)	Proposed Profile and Annotation
Magenta	(5)	Existing Utilities
Blue, Light	(230)	Proposed Ditch Grades, Left
Black	(0)	Proposed Ditch Grades, Median
Rust	(14)	Proposed Ditch Grades, Right

- Reference Point / Station — Survey Line
- Section Corner
- Ground Line Intercept
- Saw Cut
- Guardrail
- Trench Drain
- HighTension Cable Guardrail
- Sheet Pile
- Pavement Removal
- Clearing & Grubbing Area

RIGHT-OF-WAY LEGEND

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

PLAN AND PROFILE LEGEND AND SYMBOL INFORMATION SHEET

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

FILE NO. 32160	ENGLISH	DESIGN TEAM WHKS & Co.	Woodbury COUNTY	PROJECT NUMBER BRF-175-2(009)--38-97	SHEET NUMBER D.1	

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Tom L & Mary C Cameron Trust

Existing ROW

U.A.C.

Reynolds Creek

Steven T Schrank

Limits of Construction

Install Permanent Crash Cushion

U.A.C.

241+00

242+00

243+00

244+00

245+00

246+00

T2

Place Granular Shoulder

STA 241+93.00 (SURML175A)
BEGIN CONSTRUCTION

175

Construct Approach Pavement
See SRP BR-201

Place Granular Shoulder

Construct Approach Pavement
See SRP BR-201

STA 245+01.00 (SURML175A)
END CONSTRUCTION

F0

F03

F02

Construct Paved Shoulder
See Sheet B.1

Existing ROW

Install Permanent Crash Cushion

Tom L & Mary C Cameron Trust

Limits of Construction

REMOVE
Sta. 243+47.3
120'x26' Continuous Conc
Slab Bridge
D.A.=25 Miles Sq-R to-H Plans

Install Steel Beam Guardrail
See SRP LS-630 for Details

Robert A Cord

0 20
FEET

IA HWY 175
PLAN & PROFILE

SSD = 915'
Design Speed = 60 mph
VPI = +47.00
EL = 1145.40
L = 200.00'
K = 151

TIE IN
STA. 241+93.00
Elv. = 1144.47

+0.60%

-0.72%

TIE IN
STA. 245+01.00
Elv. = 1144.29

1150

1145

1140

1135

1144.47 1144.51 1144.66 1144.81 1144.94 1145.02 1145.07 1145.07 1145.03 1144.95 1144.82 1144.66 1144.48 1144.30

241+00 242+00 243+00 244+00 245+00 246+00

FILE NO. 32160	ENGLISH	DESIGN TEAM WHKS & Co.	Woodbury COUNTY	PROJECT NUMBER BRF-175-2(009)--38-97	SHEET NUMBER D.2

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Imagery ©2026 Airbus

SURVEY INDEX

Woodbury County
BRF-175-2(009)--38-97
Reynolds Creek 1.6 mi W of Co Rd L37
PIN: 20-97-175-010
Type of Work: Bridge
Project Directory: 9717501020
SAP: 868.1

Survey Personnel

Clayton Henningsen – Survey Party Chief
Jason Arn – Survey Party Chief

Date(s) of Survey

Begin Date	08/08/2023
End Date	02/17/2024

General Information

This survey is for IA Hwy 175 at Reynolds Creek bridge 1.6 mi west of county road L37. This survey request was for the IA Hwy 175 corridor only. This project is a Full Field DTM survey.

Utility Information

For logging data and other utility details see Utility Survey and Ownership Report in the Utility folder of the PrelimSurvey project directory.

Project Control

Coordinates were determined for primary project control points by conducting concurrent six-hour static observations. Post processing is constrained to nearby Iowa Real Time Network reference stations. For additional details of the control survey, contact the Preliminary Survey department.

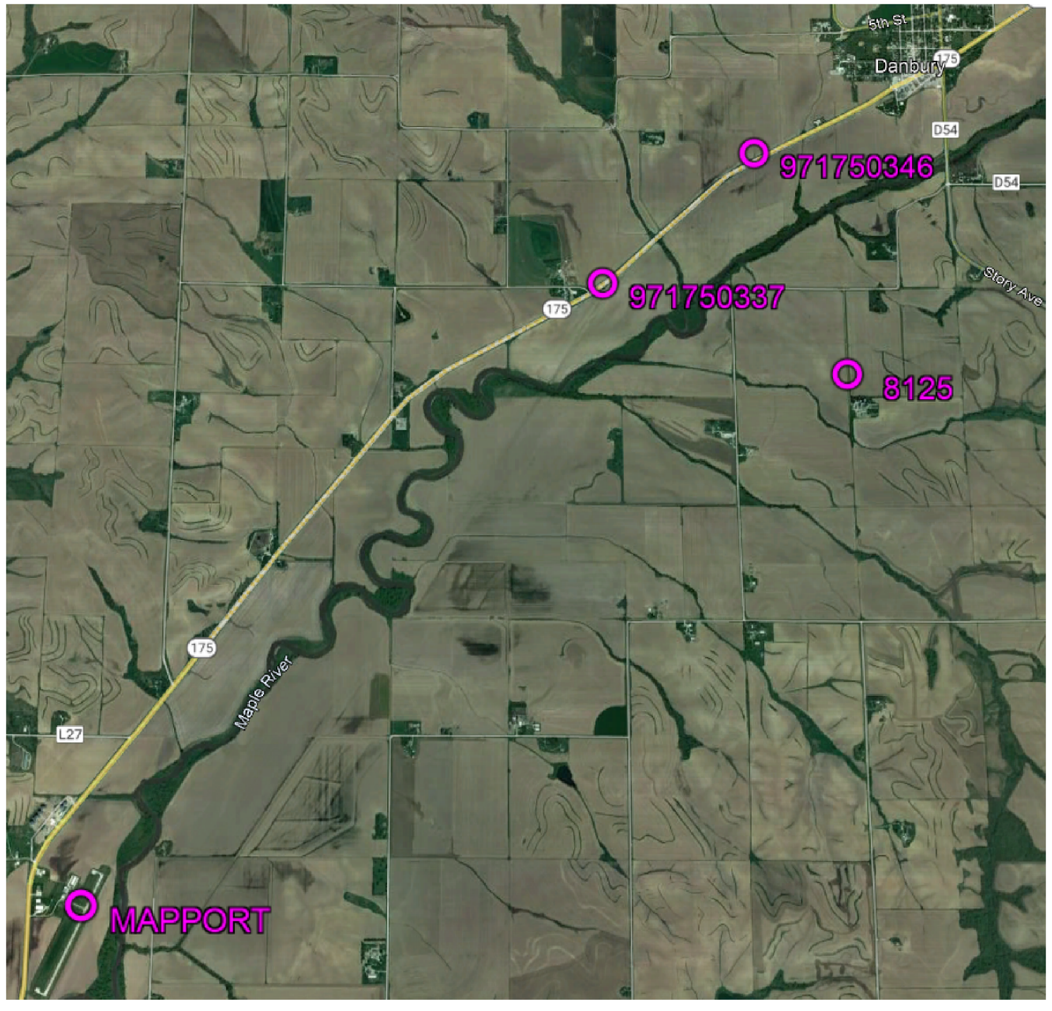
PROJECT DATUM: NAD83(2011) for EPOCH 2010.00 (IaRTN 2019 ADJUSTMENT)
COORDINATE SYSTEM: IOWA REGIONAL COORDINATE SYSTEM ZONE 04 (U.S. SURVEY FOOT)
VERTICAL DATUM: NAVD88
GEOID MODEL: 2018u3

Alignment Information

The horizontal alignment for IA Hwy 175 has been provided by the district 3 survey office.

CONTROL POINT VICINITY MAP

This map is a guide to the vicinity of the primary project control points. Primary control is for use with RTK base stations and for RTN validation. Future surveys will use primary project control to establish temporary control as needed for construction or other surveying applications.



HORIZ. DATUM: NAD83(2011) for EPOCH 2010.00 (IaRTN 2019 Adjustment) - Iowa RCS Zone 04 (U.S. Survey Foot)

VERT. DATUM: NAVD88 - Geoid Model: 2018u3

Coordinate listing from next sheet will be used with IaRTN for monument recovery. No other reference ties are given.

HORIZONTAL AND VERTICAL PROJECT CONTROL COORDINATE LISTING

HORIZ. DATUM: NAD83(2011) for EPOCH 2010.00 (IaRTN 2019 Adjustment)
Ia. Regional Coordinate System Zone 04 (U.S. Survey Foot)
VERT. DATUM: NAVD88
Geoid Model: 2018u3

Point Name	Northing	Easting	Elevation	Feature Definition-Description
8125	8484299.16	14257298.73	1196.43	CP WOODBURY CO MONUMENT AS DESCRIBED IN GOOD CONDITION
971750337	8486713.73	14251639.34	1142.60	CP SET FENO MONUMENT EAST EDGE FIELD ENT ON S. SIDE IA 175 APPROX. 350 FT EAST INTERSECTION IA 175 & 335TH ST
971750346	8489919.34	14255377.65	1138.91	CP SET FENO MONUMENT ON N. SIDE IA 175 NEAR ROW POST APPROX. 1 MILE WEST OF D54
MAPPORT	8472597.31	14239857.37	1114.43	CP NGS MONUMENT AS DESCRIBED IN GOOD CONDITION



FILE NO. 32160	ENGLISH	DESIGN TEAM WHKS & Co.	Woodbury COUNTY	PROJECT NUMBER BRF-175-2(009)--38-97	SHEET NUMBER G.4	

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ALIGNMENT COORDINATES

Line No.	Name	Location	Point on Tangent Station	Point on Tangent Y Northing	Point on Tangent X Easting	Begin Spiral Station	Begin Spiral Y Northing	Begin Spiral X Easting	Begin Curve Station	Begin Curve Y Northing	Begin Curve X Easting	Simple Curve PI or Master PI Station	Simple Curve PI or Master PI Y Northing	Simple Curve PI or Master PI X Easting	End Curve Station	End Curve Y Northing	End Curve X Easting	End Spiral Station	End Spiral Y Northing	End Spiral X Easting
1.0	SURML175A	IA 175	231+90.81	8487137.3150	14252106.7450															
2.0	SURML175A	IA 175	258+75.80	8488954.0520	14254083.7680															

108_23A
8/15/22

TRAFFIC CONTROL PLAN

The IA 175 bridge over Reynolds Creek will be reconstructed under a full road closure with a detour. Traffic will be detoured to the South with the following route.

The Contractor shall fabricate, install, maintain, and remove all detour signage required for the Iowa Highway 175 detours. All conflicting signing should be covered during while the detour is in use. Care shall be taken to maintain visibility of other signs while installing temporary detour signs. Spacing shall be per MUTCD requirements.

The Contractor is to furnish Portable Dynamic Message Signs (PDMS) on IA 175 (north and south of the project site) and IA 141 (east and west of IA 175). Refer to J Sheets for locations. The PDMS shall be supplied for 7 days before the project starts and remain in place throughout the duration of the project. The DOT will provide the message(s) for the PDMS boards.

Westbound traffic: Traffic will travel South on County L37 to County E16 for 4.8 miles. Then West to IA 175 for 4.3 miles. Total Detour length is 9.1 miles.

Eastbound traffic: Traffic will travel East on County E16 for 4.3 miles. Then North on County L37 for 4.8 miles. Total Detour length is 9.1 miles.

108_26A
8/15/22

STAGING NOTES

The IA 175 bridge over Reynolds Creek will be reconstructed under a full road closure with a detour.

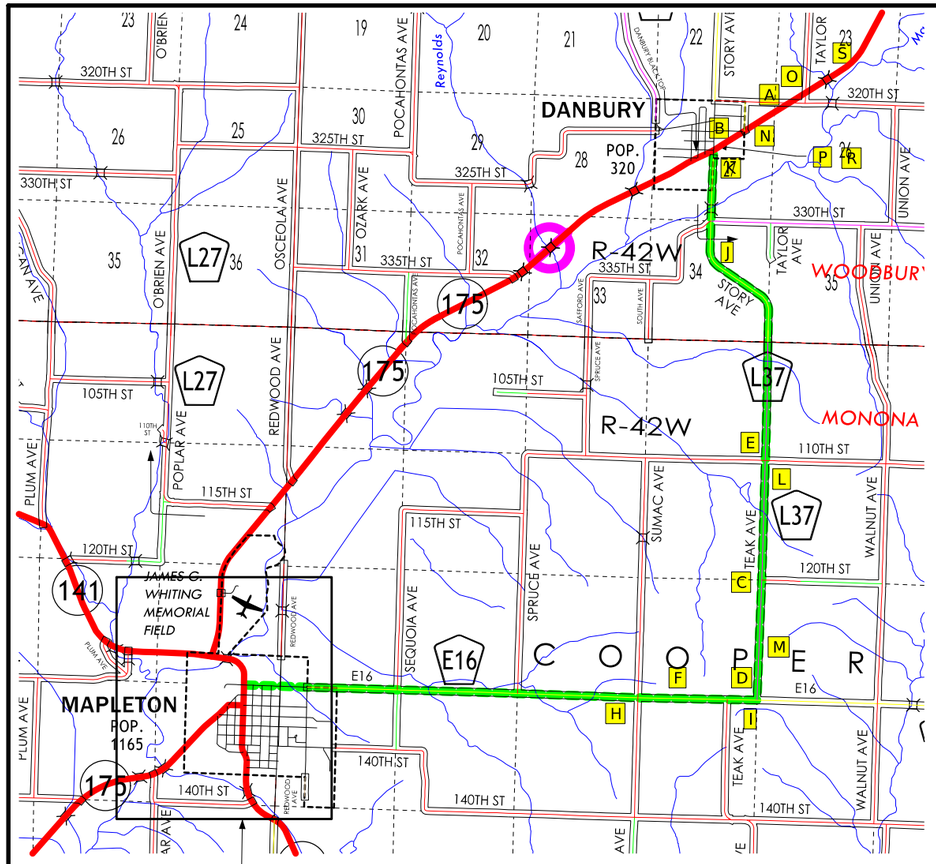
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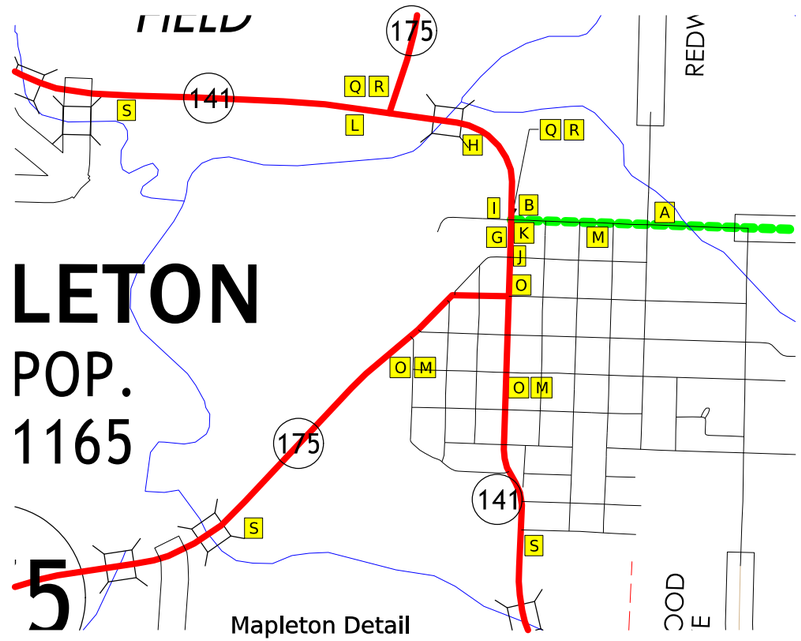
10/14/22

COORDINATED OPERATIONS

Other work in progress during the same period of time will include the construction of the projects listed. Coordinate operations with those of other contractors working within the same area.

Project	Type of Work
To be Provided at Pre-Construction Meeting	





Detour Route

Project Location

A	B	C	D
DETOUR / WEST / 175  M4-8, 24" x 12" M3-4, 24" x 12" M1-5, 30" x 24" M5-1B, 21" x 15"	DETOUR / WEST / 175  M4-8, 24" x 12" M3-4, 24" x 12" M1-5, 30" x 24" M6-1, 21" x 15"	DETOUR / WEST / 175  M4-8, 24" x 12" M3-4, 24" x 12" M1-5, 30" x 24" M5-1, 21" x 15"	DETOUR / WEST / 175  M4-8, 24" x 12" M3-4, 24" x 12" M1-5, 30" x 24" M6-1, 21" x 15"
E	**F**	**G**	**H**
DETOUR / WEST / 175 M4-8, 24" x 12" M3-4, 24" x 12" M1-5, 30" x 24" M6-3, 21" x 15"	DETOUR / WEST / 175 M4-8, 24" x 12" M3-4, 24" x 12" M1-5, 30" x 24"	DETOUR / END / WEST / 175 M4-8, 24" x 12" M4-8b, 24" x 18" M3-4, 24" x 12" M1-5, 30" x 24"	DETOUR / EAST / 175 M4-8, 24" x 12" M3-2, 24" x 12" M1-5, 30" x 24" M5-1B, 21" x 15"
I	**J**	**K**	**L**
DETOUR / EAST / 175  M4-8, 24" x 12" M3-2, 24" x 12" M1-5, 30" x 24" M6-1, 21" x 15"	DETOUR / EAST / 175  M4-8, 24" x 12" M3-2, 24" x 12" M1-5, 30" x 24" M5-1, 21" x 15"	DETOUR / EAST / 175  M4-8, 24" x 12" M3-2, 24" x 12" M1-5, 30" x 24" M6-1, 21" x 15"	DETOUR / EAST / 175  M4-8, 24" x 12" M3-2, 24" x 12" M1-5, 30" x 24" M6-3, 21" x 15"
M	**N**	**O**	**P**
DETOUR / EAST / 175  M4-8, 24" x 12" M3-2, 24" x 12" M1-5, 30" x 24"	DETOUR / END / EAST / 175  M4-8, 24" x 12" M4-8b, 24" x 18" M3-2, 24" x 12" M1-5, 30" x 24"	DETOUR AHEAD  W20-2, 48" x 48"	DETOUR  M4-10, 48" x 18"
Q	**R**	**S**	
DETOUR  M4-10, 48" x 18"	ROAD CLOSED  R11-2, 48" x 30" Type III Barricade	Message Content Provided by the Engineer XXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXX PDMS	

DETOUR ROUTE DETAIL

FILE NO.	ENGLISH	DESIGN TEAM WHKS & Co.	WOODBURY COUNTY	PROJECT NUMBER BRF-175-2(009)--38-97	SHEET NUMBER J.4

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SURVEY SYMBOLS

- Interstate Highway Symbol
- U.S. Highway Symbol
- Iowa Highway Symbol
- County Road Highway Symbol
- Evergreen Tree
- Deciduous Tree
- Fruit Tree
- Shrub (Bushes)
- Timber
- Hedge
- Stump
- Swamp
- Rock Outcrop
- Broken Concrete
- Revetment (Rip Rap)
- Cemetery
- Grave
- Cave
- Sink Hole
- Board Fence
- Chain Link or Security Fence
- Wire Fence
- Terrace
- Earth Dam or Dike (Existing)
- Tile Outlet
- Edge of Water
- Existing Drainage
- Right of Way Rail or Lot Corner
- Concrete Monument
- Well
- Windmill
- Beehive Intake
- Existing Intake
- Existing Utility Access (Manhole)
- Fire Hydrant
- WH Water Hydrant (Rural)
- Septic Tank
- C Cistern
- LP L.P. Gas Tank (No Footing)
- UST Underground Storage Tank
- Latrine
- Satellite TV Dish
- WHU Water Hook Up
- RT Radio Tower
- TA Tower Anchor
- Guardrail (Beam or Cable)
- GP Guard Post (one or two)
- Guard Post (over two)
- FP Filler Pipe
- GV Gas Valve
- WV Water Valve
- SL Speed Limit Sign
- MM Mile Marker Post
- SIGN Sign
- TCB Traffic Signal Control Box
- RRB Rail Road Signal Control Box
- TSB Telephone Switch Box
- EB Electric Box

UTILITY LEGEND

F02 — — T2 — —
CENTURYLINK
Sadie Hull
918-547-0247
sadie.hull@lumen.com

F0 — —
LONG LINES BROADBAND
Miles Patton
712-271-5550
miles.patton@longlines.biz

MIDAMER-ELEC
Gerald Rickabaugh
712-277-7476
gerald.rickabaugh@midamerican.com

MIDAMER-GAS
Gerald Rickabaugh
712-277-7476
gerald.rickabaugh@midamerican.com

F03 — — —
MIDAMER-FIBER
Telecom On Call
515-281-2313
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TEKSTAR COMMUNICATIONS INC
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PLAN VIEW COLOR LEGEND OF PLAN AND PROFILE SHEETS

LINEWORK	Design Color No.	
Green	(2)	Existing Topographic Features and Labels
Blue	(1)	Proposed Alignment, Stationing, Tic Marks, and Alignment Annotation
Magenta	(5)	Existing Utilities
SHADING	**Design Color No.**	
Lavender	(9)	Temporary Pavement Shading
Yellow	(4)	Proposed Pavement Shading
Orange	(6)	Proposed Granular Shading
Orange	(70)	Proposed Shoulder Granular Shading
Yellow	(68)	Proposed Shoulder Paved Full Depth Shading
Yellow	(132)	Proposed Shoulder Paved Partial Depth Shading
Gray, Dark	(112)	Proposed Grade and Pave Shading "In conjunction with a paving project"
Brown, Light	(236)	Grading Shading
Orange, Light	(134)	Proposed Granular Entrance Shading
Yellow	(220)	Proposed Paved Entrance Shading
Tan	(8)	Proposed Sidewalk Shading
Blue, Light	(230)	Proposed Sidewalk Landing Shading
Pink	(11)	Proposed Sidewalk Ramp Shading
Green, Light	(225)	Existing Pavement Shading
Red	(3)	Proposed Structure Shading
Red	(3)	Delineates Restricted Areas

PROFILE VIEW COLOR LEGEND OF PLAN AND PROFILE SHEETS

LINEWORK	Design Color No.	
Green	(10)	Existing Ground Line Profile
Blue	(1)	Proposed Profile and Annotation
Magenta	(5)	Existing Utilities
Blue, Light	(230)	Proposed Ditch Grades, Left
Black	(0)	Proposed Ditch Grades, Median
Rust	(14)	Proposed Ditch Grades, Right

PATTERN AND SYMBOL LEGEND OF SOILS SHEETS

Date(s) Drilled 7-12-2025

- Drill
- Dig/Core
- Water
- Treatment
- Sandstone
- Dry
- Sand Blanket
- Unsuitable A
- Sample
- Soil Remediation Area
- Unsuitable B
- Plugged
- Select Soil
- Unsuitable C
- Moisture
- Select Sand
- Sandy Soil
- Shelby
- Slope Dressing Only
- Boulders
- Blow Count
- Broken and Weathered Rock
- Shale
- Dens. Core
- Rock
- Gravely Sand

- Reference Point / Station — Survey Line
- Section Corner
- Ground Line Intercept
- Saw Cut
- Guardrail
- Trench Drain
- HighTension Cable Guardrail
- Sheet Pile

RIGHT-OF-WAY LEGEND

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

NOTE: Sounding and test boring data shown in the plans were accumulated for designing and estimating purposes. Their appearance on the plans does not constitute a guarantee that conditions other than those indicated will be encountered. Details and notes shown elsewhere shall be used for roadway and structure construction.

SOILS LEGEND AND SYMBOL INFORMATION SHEET

(COVERS SHEET SERIES Q)

FILE NO.	ENGLISH	DESIGN TEAM **WHKS & Co. / Braun Intertec**	**WOODBURY** COUNTY	PROJECT NUMBER **BRF-175-2(009)--38-97**	SHEET NUMBER **Q.1**

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THIS SHEET IS INCLUDED TO SHOW SOIL INFORMATION.
DETAILS AND NOTES SHOWN ELSEWHERE IN THESE PLANS SHALL BE USED FOR STRUCTURE CONSTRUCTION.

Tom L & Mary C Cameron Trust

Existing ROW

Limits of Construction

36"x54.3' C.M.P. U.A.C.

36"x52.1' C.M.P. U.A.C.

30"x98.7' C.M.P. U.A.C.

Reynolds Creek

241+00

242+00

243+00

244+00

245+00

246+00

T2

TP

BEGIN CONSTRUCTION STA. 241+93.00

END CONSTRUCTION STA. 245+01.00

SB-01

BR-01

BR-02

SB-02

IA 175

IA 175

F0

F02

F03

UB

Limits of Construction

Existing ROW

Construct Paved Shoulder See Sheet B.1

Tom L & Mary C Cameron Trust

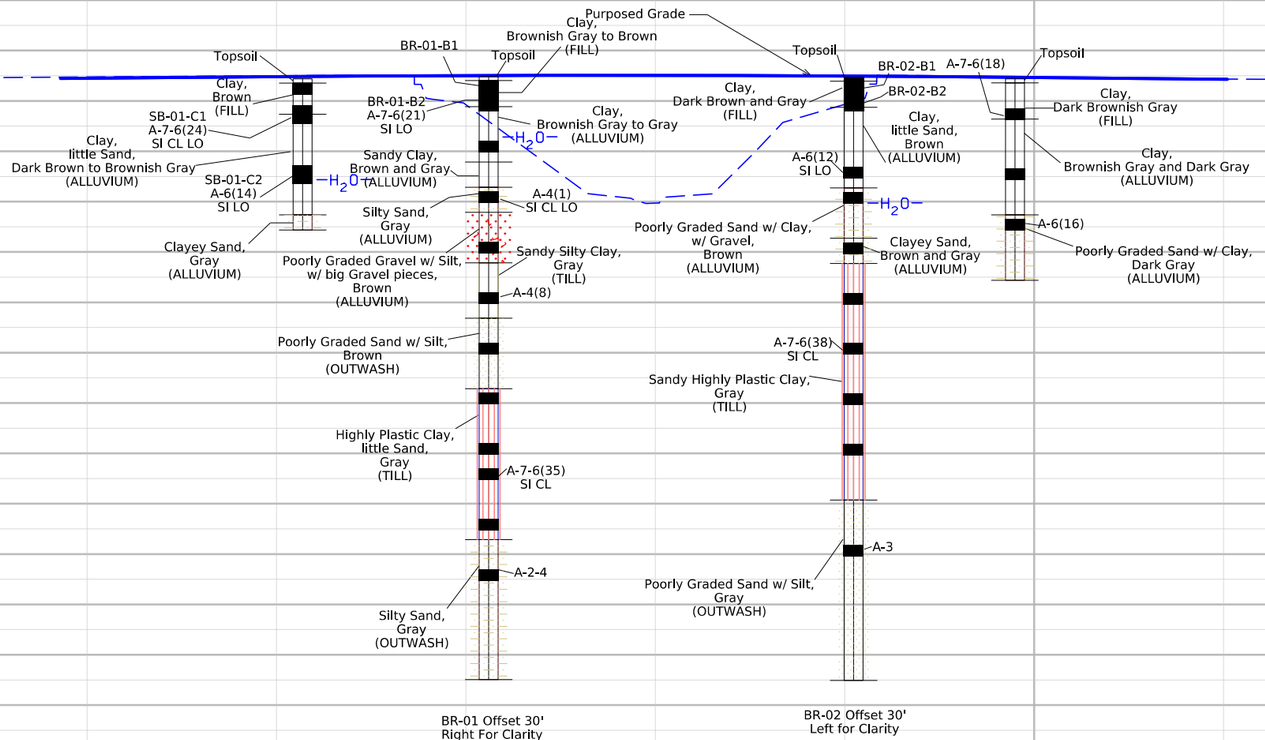
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FILE NO.	ENGLISH	DESIGN TEAM **WHKS & Co. / Braun Intertec**	**WOODBURY** COUNTY	PROJECT NUMBER **BRF-175-2(9)--38-97**	SHEET NUMBER **Q.2**	

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Cut Moisture	19,33,33	26,23,30,21,28,24,13,23,25,26,25,25	5,23,36,12,7,26,34,28,44,23	32,26,27,14
Cut Density (lb/ft3)	--,88,--	93,93,--,--,--,--,--,--,--,--,--,--	118,98,--,--,--,--,--,--,--,--	--,91,--,--
Plastic Limit	--,26,21	--,20,--,NP,--,18,--,--,--,19,--,NP	--,--,24,--,--,--,22,--,--,NP	24,22,19,--

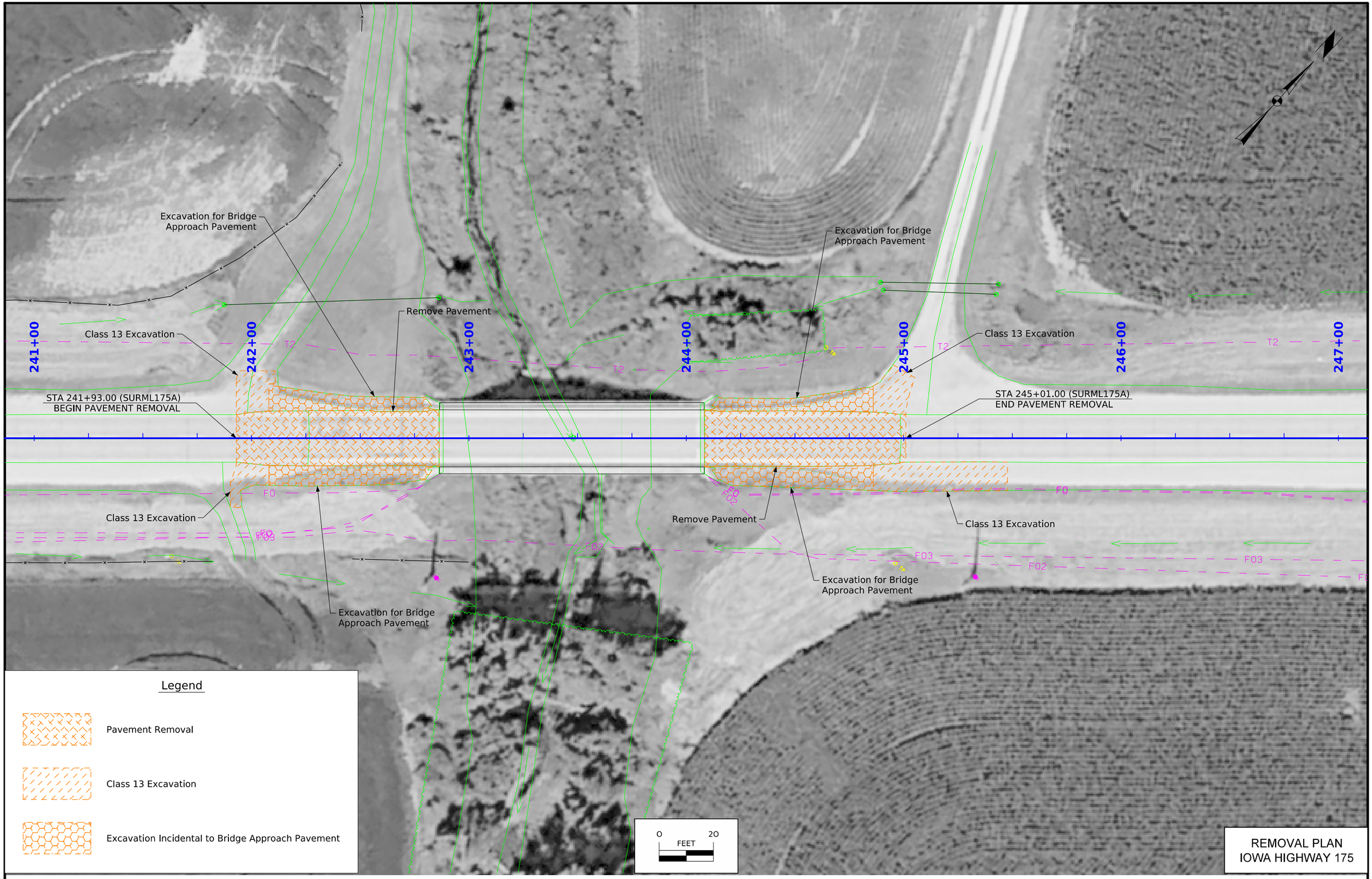
THIS SHEET IS INCLUDED TO SHOW SOIL INFORMATION.
DETAILS AND NOTES SHOWN ELSEWHERE IN THESE PLANS SHALL BE USED FOR STRUCTURE CONSTRUCTION.



		SB-01 LT.25	BR-01 LT.14	BR-02 LT.17	SB-02 RT.16	
241+00	242+00	243+00	244+00	245+00	246+00	

FILE NO.	ENGLISH	DESIGN TEAM WHKS & Co. / Braun Intertec	WOODBURY COUNTY	PROJECT NUMBER BRF-175-2(009)--38-97	SHEET NUMBER Q.3

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Imagery ©2026 Airbus

CROSS SECTION VIEW COLOR LEGEND

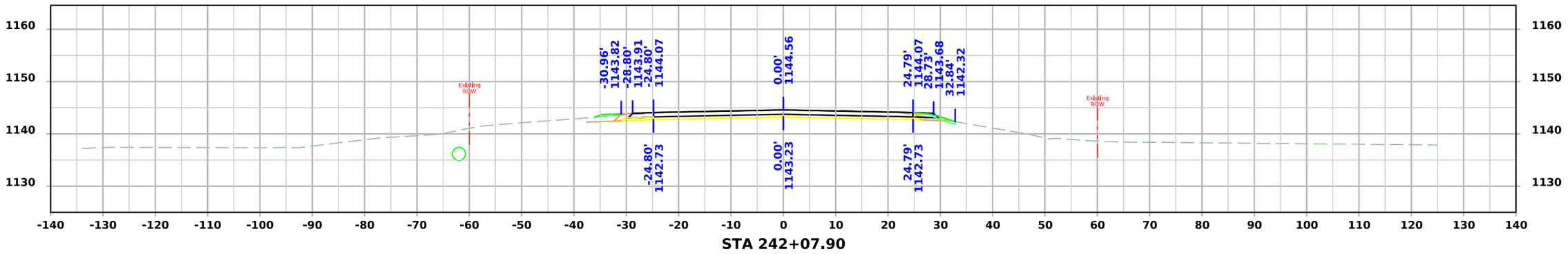
Design Color No.	Feature
Aggregate	
(64)	Choke Stone
(42)	Engineering Fabric
(8)	Flooded Backfill
(92)	Macadam Stone
(20)	Modified
(12)	Plowing Shaping
(14)	Porous Backfill
(8)	Revetment Class A
(6)	Revetment Class B
(62)	Revetment Class C
(188)	Revetment Class D
(28)	Revetment Class E
(12)	Shoulder Special Backfill
(12)	Special Backfill
(20)	Subbase
(20)	Subbase Lower
(20)	Subbase Upper
(118)	Subgrade Treatment
Asphalt	
(207)	HMA Base Course
(207)	HMA Interim Course
(207)	HMA Surface Course
Bridge	
(0)	Bridge
Concrete	
(0)	Barrier Concrete
(0)	Barrier Concrete Footing
(0)	Curb Gutter
(48)	Flowable Mortar
(0)	Median Concrete
(0)	PCC Pavement
(0)	Sidewalk
Existing	
(0)	Existing Pavement
Grading	
(8)	Behind Curb Cut
(6)	Granular
(13)	Granular Back Fill
(48)	Rock Undercut
(8)	Shoulder Earth Fill
(2)	Side Slopes
(226)	Side Slopes Dressing
Shoulder	
(209)	Shoulder HMA
(0)	Shoulder PCC
(6)	Shoulder Granular

Design Color No.	Feature
Structural	
(112)	Noise Wall
(112)	Noise Wall Footing
(112)	Retaining Wall Back
(112)	Retaining Wall Back Excavate
(112)	Retaining Wall Face
(112)	Retaining Wall Front Excavate
(112)	Retaining Wall Front Footing
(112)	Retaining Wall MSE Gutter
(112)	Retaining Wall Reinforced Earth
Substrata	
(128)	Boulder
(48)	Broken Weathered
(3)	Core Out
(203)	Existing Pavement
(6)	Loam
(80)	Rock
(4)	Select Sand
(3)	Shale
(10)	Topsoil
Unsuitable / Waste	
(3)	Unsuitable Type A
(13)	Unsuitable Type B
(11)	Unsuitable Type C
(3)	Waste

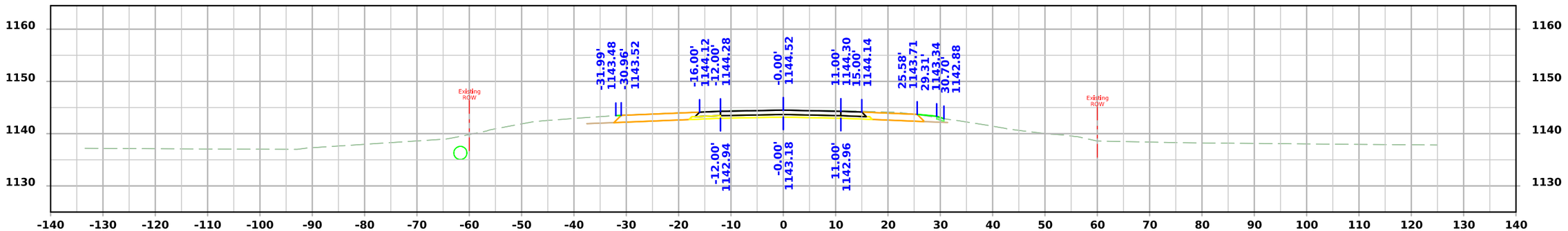
CROSS SECTIONS
LEGEND AND INFORMATION SHEET

(COVERS SHEET SERIES W, X, Y, & Z)

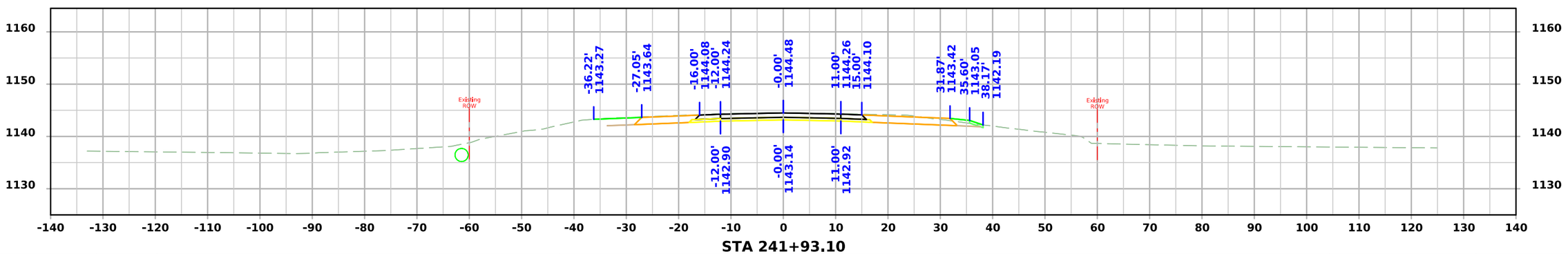
ML - IA175



STA 242+07.90



STA 242+00.00

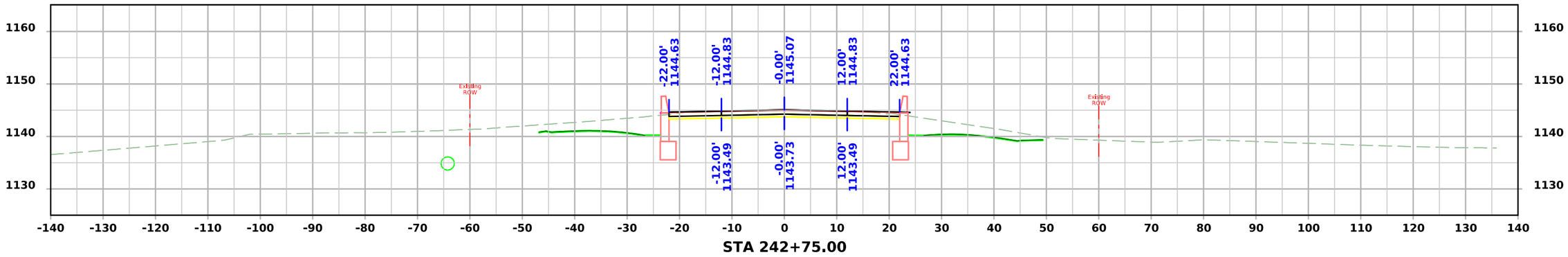


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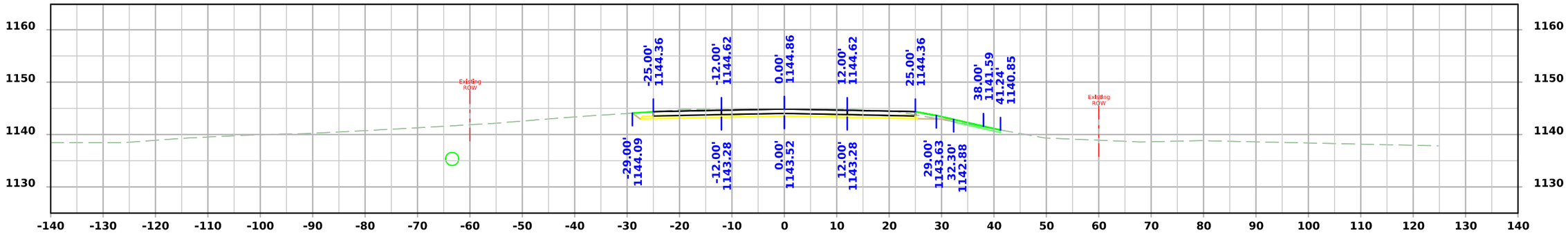
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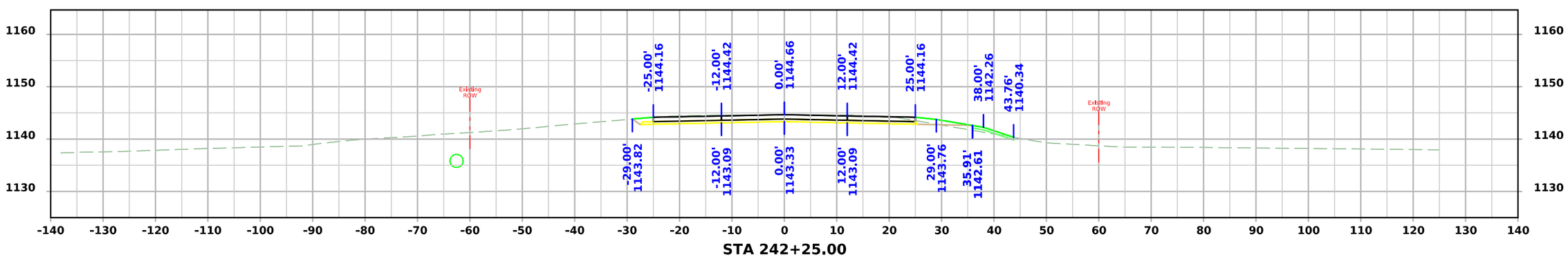
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STA 242+75.00



STA 242+50.00

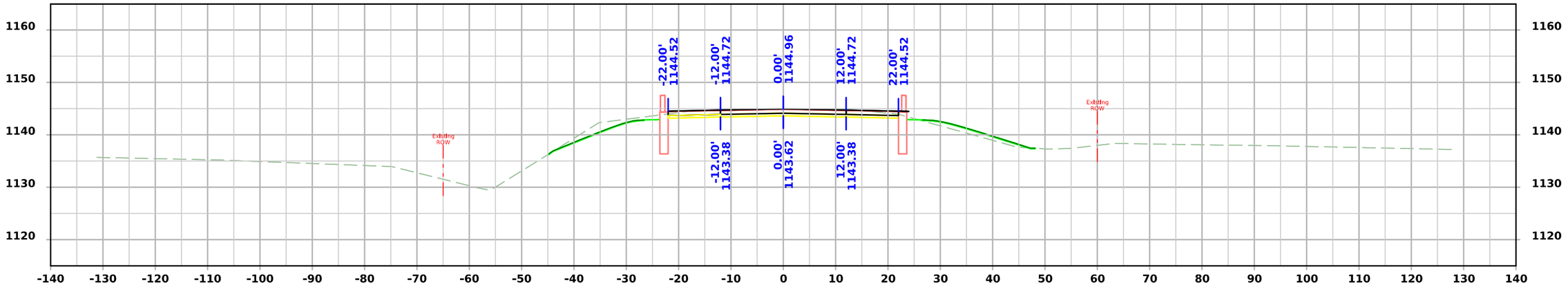


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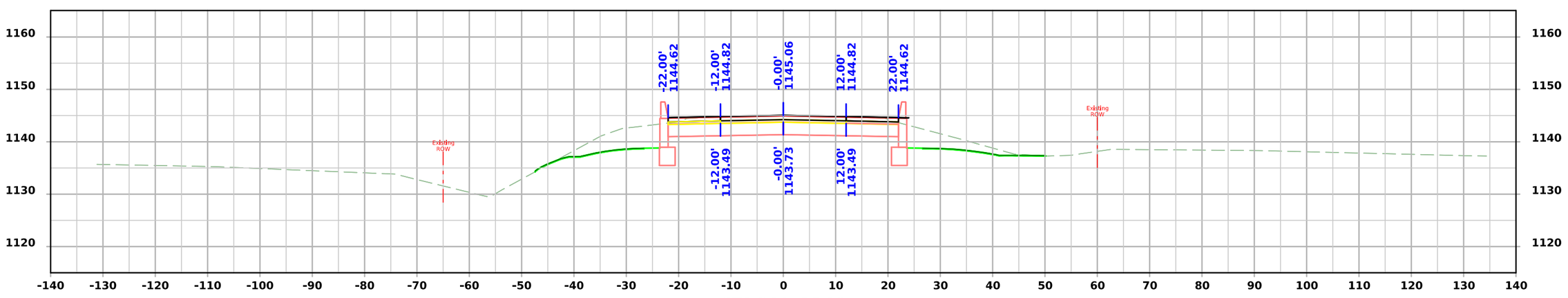
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ML - IA175



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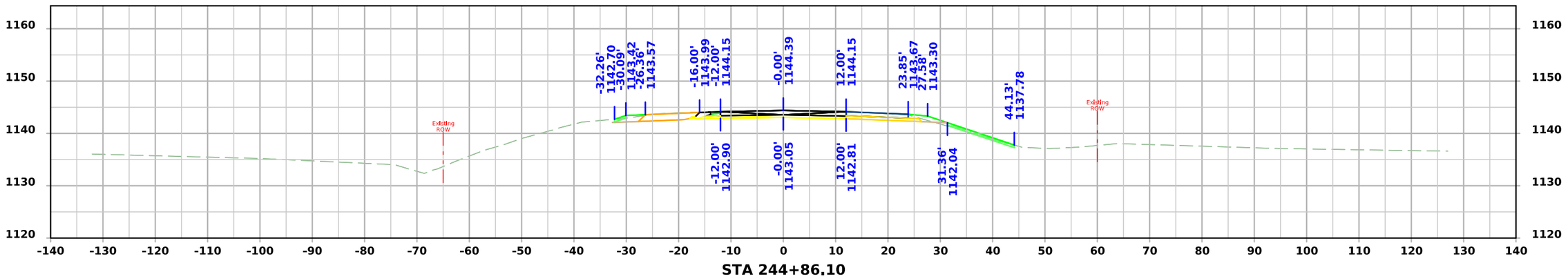


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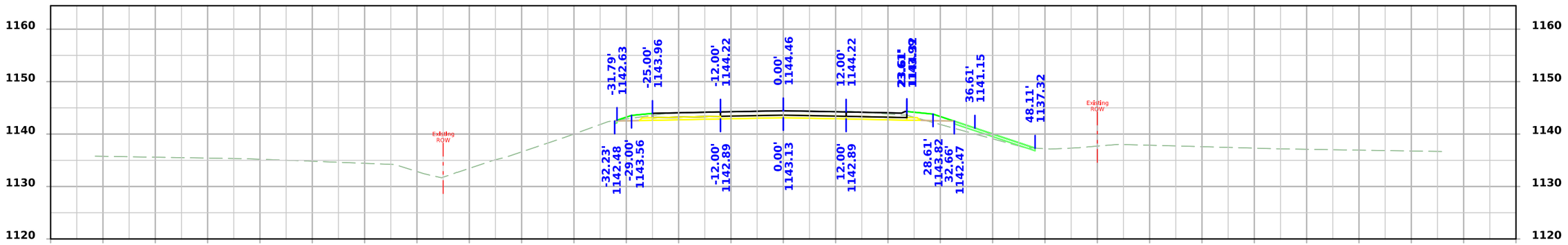
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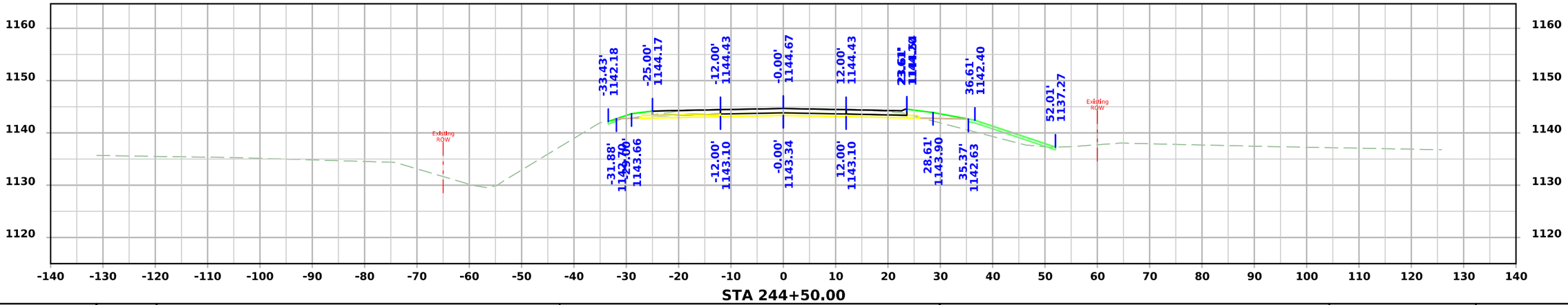
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STA 244+86.10



STA 244+75.00

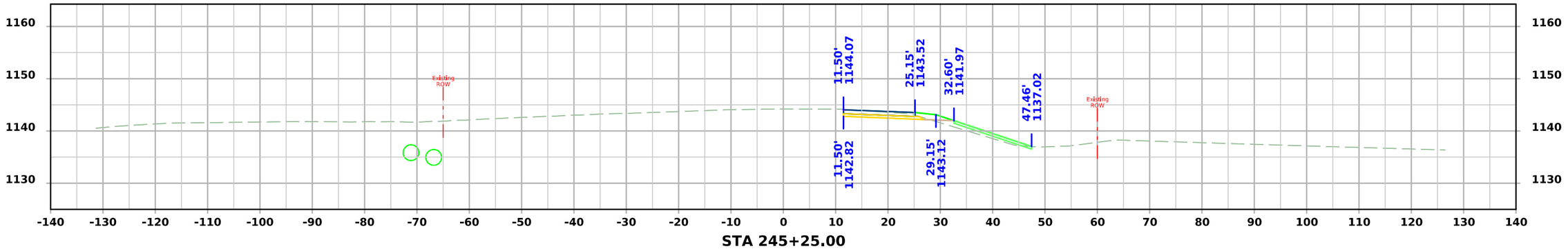


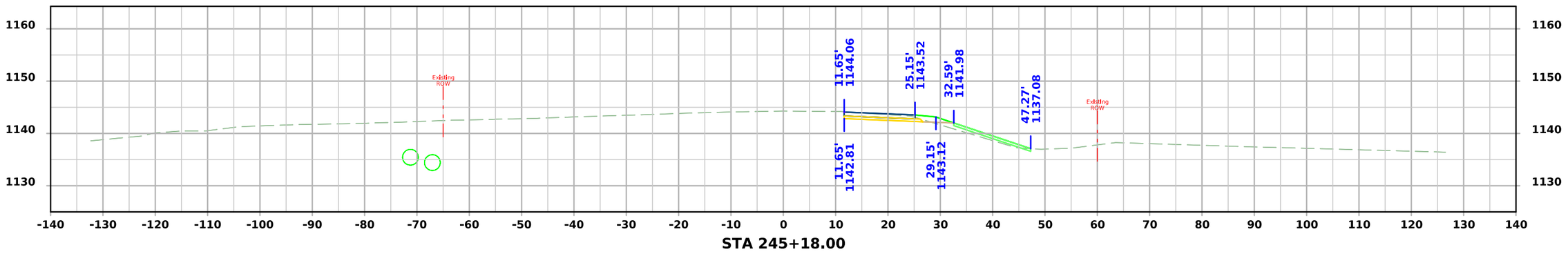
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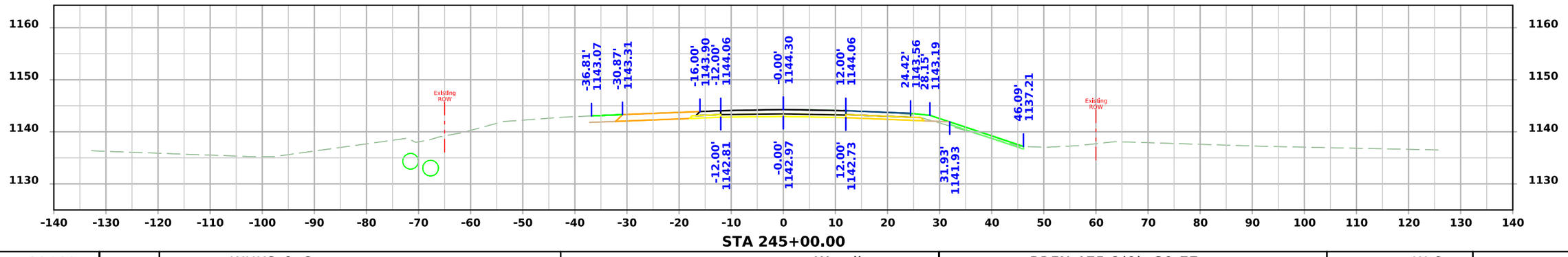
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ML - IA175



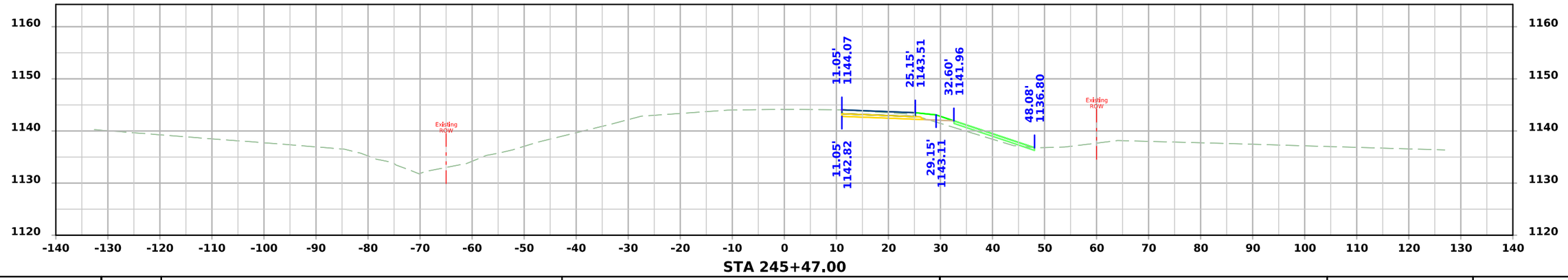




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ML - IA175



STA 245+47.00

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