

Letting may need to change based on county project on detour route. District will check on schedule

INDEX OF SHEETS	
No.	DESCRIPTION
A Sheets	Title Sheets
A.1	Title Sheet
A.2	Location Map Sheet
A.3 - 4	Design Criteria Worksheets (Temporary)
B Sheets	Typical Cross Sections and Details
B.1 - 3	Typical Cross Sections and Details
C Sheets	Quantities and General Information
C.1 - 2	Estimated Project Quantities
C.3	Standard Road Plans
D Sheets	Mainline Plan and Profile Sheets
D.1	Plan & Profile Legend & Symbol Information Sheet
D.2 - 3	IA 141
G Sheets	Survey Sheets
G.1 - 3	Reference Ties and Bench Marks
G.4	Horizontal Control Tab. & Super for all Alignments
J Sheets	Traffic Control and Staging Sheets
J.1	Traffic Control Plan & Staging Notes
J.2	Staging and Traffic Control Sheets Stage ??
V Sheets	Bridge and Culvert Situation Plans
V.1 - 2	Bridge and Culvert Situation Plans
W Sheets	Mainline Cross Sections
W.1	Cross Sections Legend & Symbol Information Sheet
W.2 - 6	Mainline Cross Sections



PLANS OF PROPOSED IMPROVEMENT ON THE
PRIMARY ROAD SYSTEM
WOODBURY COUNTY
Bridge Replacement
IA 141 over Fork Little Sioux River
0.3 mile west of Secondary Road K64

Add U sheet for Guardrail layout. Show CL offsets at keypoints.

SCALES: As Noted

Refer to the Proposal Form for list of applicable specifications.

Value Engineering Saves. Refer to Article 1105.14 of the Specifications.

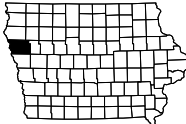


Ask District: Should existing steel beam guardrail be salvaged?

No

Traffic estimate recieved was for East Hornick

DOT will request and provide Design #, File #, and new FHWA #.



DESIGN DATA RURAL				
2024	AADT	1970	V.P.D.	
2049	AADT	2130	V.P.D.	
2049	DHV	xx	V.P.H.	
TRUCKS		xx	%	
Total				
Design ESALs		--		

INDEX OF SEALS			
SHEET NO.	NAME	TYPE	BID QUANTITY SHEETS
A.1	X	Primary Signature Block	X
X	X	X	X

PRELIMINARY PLANS

Subject to change by final design.

D2 PLAN-Date: 8/12/2025

REVISIONS

TOTAL
27

PROJECT IDENTIFICATION NUMBER

24-97-141-010

PROJECT NUMBER

BRFN-141-1(046)--39-97

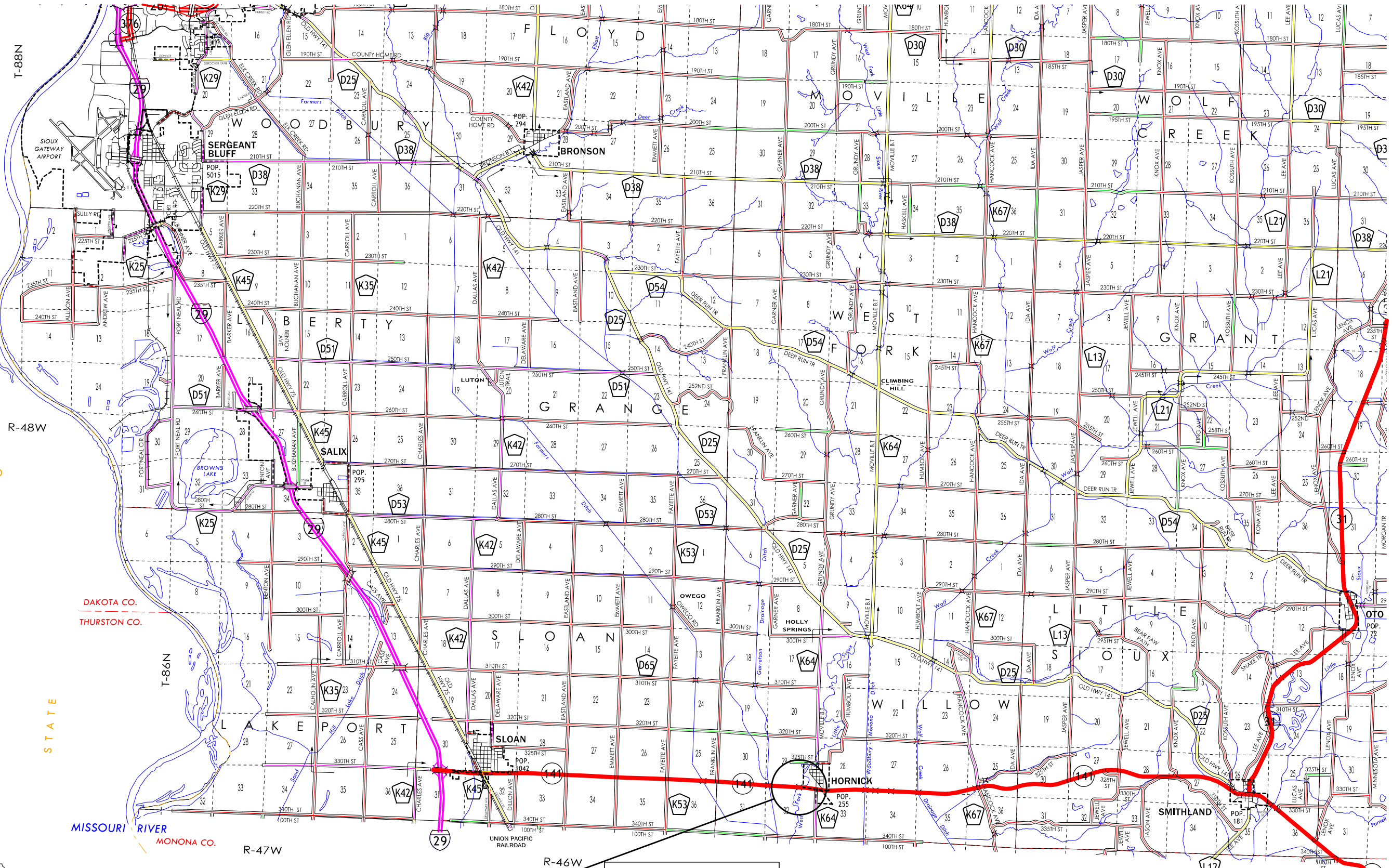
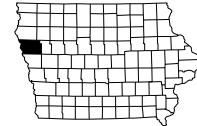
R.O.W. PROJECT NUMBER

STPN-141-1 (048)--2J-97

NEBRASKA

OF

STATE



IA 141 BRIDGE REPLACEMENT
FHWA NO. 053260



FILE NO. TBD	ENGLISH	DESIGN TEAM Stanley Consultants, Inc.	WOODBURY COUNTY	PROJECT NUMBER BRFN-141-1(046)--39-97	SHEET NUMBER A.2
3:15:50 PM	8/15/2025	9474	pw:\projectwise.dot.int\lan:PWMMain\Documents\Projects\9714101024\Design\CADD_Files\Sheet_Files\SHT_97141046_A01.dgn		

Roadway	IA 141		
PIN Number	24-97-141-010	Submittal Date	06/25/25
Project Number	BRFN-141-1(046)--39-97		Approval Date
District	District 3	Assistant District Engineer	Shane Tymkowicz
County	WOODBURY	or	
Route	IA 141	Office Director	
Location	on IA 141 over Fork Little Sioux River, 0.3 mile west of Secondary Road K64		
Work Type	Bridge Replacement		
Segment Manager			
Designer	Stanley Consultants		

Design Manual Section 1C-1 Last Updated: 04-29-19		Rural Two-Lane Highways (Rural Arterials)		
Design Element		Preferred	Acceptable	Project Values
Design speed (mph)		60	50	60
Maximum superelevation rate (Refer to Section 2A-2)		6%	8%	NA
Design lane width (ft)		12	12	12
Full depth paved width (ft)		12	12	12
Right turn lane (ft)		12	10	NA
Climbing Lane (ft)		12	12	NA
Left turn lane (ft)		12	10	NA
Pavement cross-slope (on tangent sections)	Through lanes	2%	1.5% minimum, 2% maximum	2%
	Auxiliary and turn lanes	3%	3% maximum	NA
	Crown break at centerline	4%	4% maximum	4%
Shoulder cross-slope (on tangent sections)		4%	Shoulder cross-slope cannot be less than the adjacent lane, 6% max for paved or granular shoulders, 8% max for earth shoulders	4%
Curb type (Refer to Section 3C-2)	Design speed = 50 or 55 mph	6-inch sloped	6-inch standard	NA
	Design speed ≥ 60 mph	4-inch sloped	6-inch sloped	NA
Foreslope (For fill areas greater than 40 ft, contact the Soils Design Section for assistance)	Adjacent to shoulder	10:1 for 4' then 6:1	3:1	10:1 for 4' then 6:1
	Beyond standard ditch depth and design clear zone	3.5:1	3:1	3.5:1
	Curbed roadways	2%	not steeper than 3:1	NA
Backslope (For cut areas greater than 25 feet, contact the Soils Design Section for assistance with backslope benches.)		3:1	2.5:1	3:1
Transverse Slopes	w/ drainage structures	8:1	6:1	8:1
	w/o drainage structures	10:1	6:1	10:1
Ditches (Refer to Section 3G-1)	Outside ditch (depth x width) (ft)	5 x 10	--	5 x 10
Bridge width—new*	Bridge length ≤ 200 ft	design lane widths + effective shoulder widths	design lane widths + effective shoulder widths	44
	Bridge length > 200 ft	design lane widths + effective shoulder widths	design lane width + 4' right and left of the design lane widths	NA
Bridge width—existing*		design lane widths + no less than 2 ft left and right	design lane widths + 2 ft. offset left and right	30
Vertical clearance (ft) (above lanes, shoulders and 25 feet left and right of the center of railroad tracks)	Over primary	16.5	16	NA
	Over non-primary	16.5 at interchange locations, 15 at all other locations	14	NA
	Over railroad	23.3	23.3	NA
	Sign trusses and pedestrian bridges	17.5	17	NA
Structural Capacity		Contact Office of Bridges and Structures	Contact Office of Bridges and Structures	HL-93
Level of Service		B	B	B

*FHWA notification via email is required if acceptable critera is not met on the NHS system (No formal design exeption is required)

Discuss Foreslopes vs. ROW/Easement acquisition

3:1 is fine. Could go steeper behind guardrails if needed to avoid ROW.

Design year ADT = 2,130 (year-2049)

Discuss Traffic Count

Verification requested

Design Manual Section 1C-1
Last Updated: 04-29-19

Effective Shoulder Width and Type for Two-Lane Highways

Preferred (values shown in feet)			Acceptable (values shown in feet)			Project Values
	Rural Roadways	Urban Roadways		Rural Roadways	Urban Roadways	
Turn lanes with shoulders	6	6	Turn lanes with shoulders	6	0	NA
Turn lanes with curbs	6	See Section 3C-2	Turn lanes with curbs	6	0	NA
	Effective Shoulder Width	Paved Width		Effective Shoulder Width	Paved Width	
Climbing Lanes	6	4	Climbing Lanes	4	0	NA
Two-Lane Highways	Effective Shoulder Width	Paved Width	Two-Lane Highways	Effective Shoulder Width	Paved Width	
Routes where bicycles are to be accommodated	10	10	Design year ADT > 2000 vpd	8	0*	10
On roadways approaching urban areas (due to increased bike traffic)	10	10				
On all curves with a superelevation rate of 7.0% or greater	10	10				
On roadways with design year ADT > 5000	10	6	Design year ADT between 400 - 2000 vpd	6	0*	
On all other NHS	10	6				
On non-NHS routes with design year ADT > 3000	10	6	Design year ADT < 400 vpd	4	0*	
On non-NHS routes with design year ADT < 3000	8	0*				

*Requires safety edge-Refer to Section 3C-6

Curbs should be located beyond the outer edge of the effective shoulder width in rural areas

Refer to Section 3C-2 for curb offsets in urban areas

Notes:

Decision made during Concept phase to match 10' shoulder widths of nearby reconstructed IA 141 bridge rather than using minimum 8' wide shoulders per criteria.

No objections

Roadway Design Speed (mph) = 60

Design Manual Section 1C-1
Last Updated: 04-29-19

Design Criteria for High Speed Roadways

Design Element			Preferred Criteria						Acceptable Criteria						Project Values	
			Design Speed, mph						Design Speed, mph							
			50	55	60	65	70	75	50	55	60	65	70	75		
Stopping sight distance (ft) (Refer to Section 6D-1)			425	495	570	645	730	820	425	495	570	645	730	820	570	
Minimum horizontal curve radius (ft) (Refer to Sections 2A-2 and 2A-3)	Method 5 superelevation and side friction distribution	e _{max} = 6%	833	1060	1330	1660	2040	2500	833	1060	1330	1660	2040	2500	1330	
		e _{max} = 8%	--	--	--	--	--	--	758	960	1200	1480	1810	2210	NA	
Minimum vertical curve length (ft) (Refer to Section 2B-1)			150	165	180	195	210	225	150	165	180	195	210	225	180	
Minimum rate of vertical curvature (K) (Refer to Section 2B-1)	crest vertical curves	roadways without fixed-source lighting	84	114	151	193	247	312	84	114	151	193	247	312	151	
		sag vertical curves	roadways without fixed-source lighting	96	115	136	157	181	206	96	115	136	157	181	206	136
			roadways with fixed-source lighting	96	115	136	157	181	206	54	66	78	91	106	121	136
Minimum gradient (%) (Refer to Section 2B-1)			0.5						0.3% with a curb, 0.0% without a curb						0.5	
Maximum gradient (%) (Refer to Section 2B-1)		Urban roadways	4		3				7	6	6	--	--	--	3	
		Rural roadways							5	5	4	4	4	4		
		Interstates							5	5	4	4	4	4		
Clear zone			See "Preferred Clear Zone" table in Section 8A-2						See "Acceptable Clear Zone" table in Section 8A-2						30	

No objections

Mach Existing = 140

3:1 is fine. Could go steeper behind guardrails if needed to avoid ROW.

Discuss vs 3:1 Foreslopes

FILE NO. TBD

ENGLISH

DESIGN TEAM Stanley Consultants, Inc.

WOODBURY COUNTY

PROJECT NUMBER BRFN-141-1(046)--39-97

SHEET NUMBER A.4

8:11:03 AM

8/13/2025

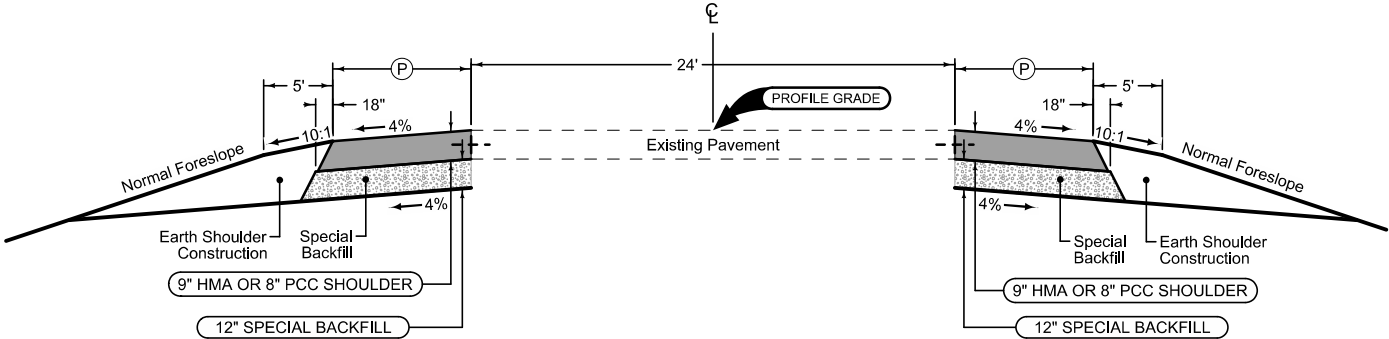
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Paved Shoulder at Guardrail

PCC Shoulder Jointing:
Longitudinal joint: BT-1 or BT-5
Transverse joints: C at mainline spacing
HMA Shoulder Jointing:
Longitudinal joint: B

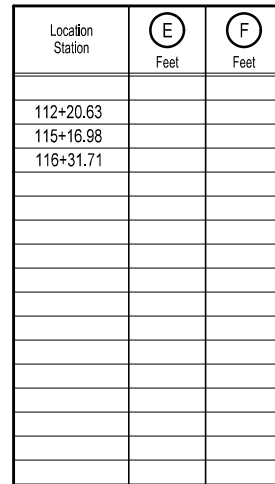
2_P_Guard_04-21-20		
STATION TO STATION		(P) Feet
110+19.52	111+99.75	8
111+99.75	112+39.80	13.9 - 13.1
115+00.20	115+65.76	11.8 - 13.6
115+65.76	117+20.48	8



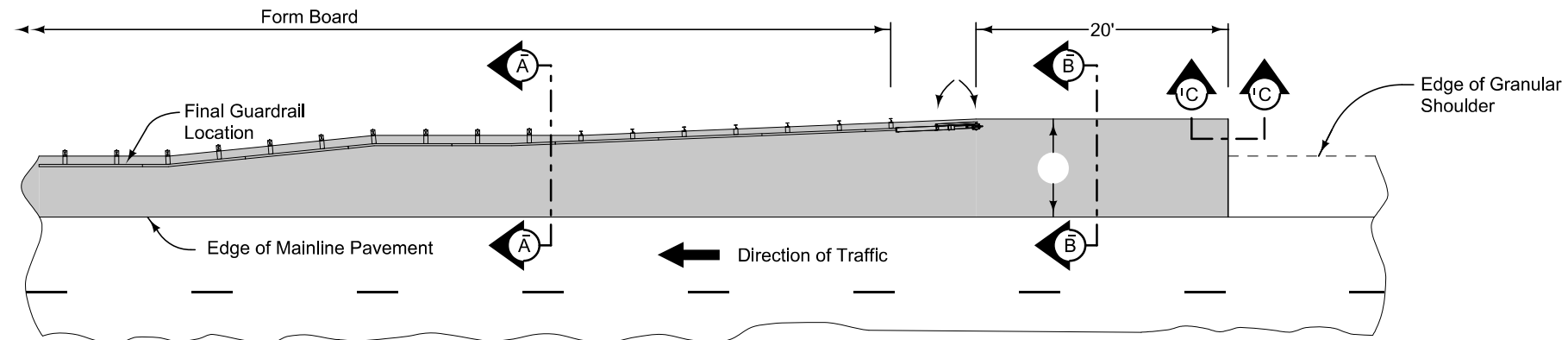
Paved Shoulder at Guardrail

PCC Shoulder Jointing:
Longitudinal joint: BT-1 or BT-5
Transverse joints: C at mainline spacing
HMA Shoulder Jointing:
Longitudinal joint: B

2_P_Guard_04-21-20		
STATION TO STATION		(P) Feet
110+19.52	111+74.31	8
111+74.31	112+39.80	13.9 - 12.1
115+00.20	115+40.26	12.6 - 13.3
115+40.26	117+20.48	8



Quantities included with mainline quantities.



PLAN VIEW

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.

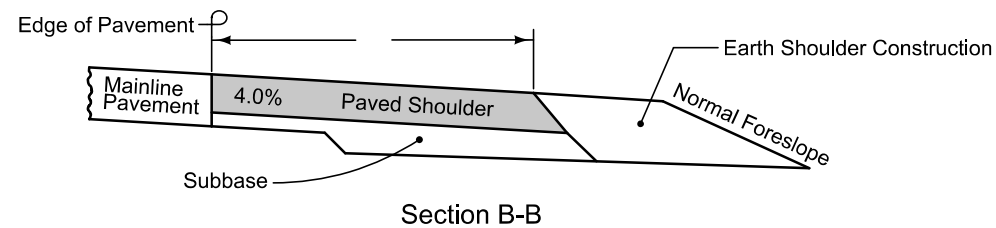
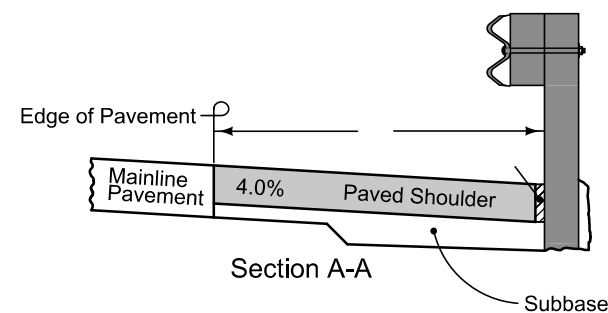
PCC option only: When guardrail posts are installed prior to construction of PCC paved shoulder, fasten form board to the face of guardrail posts for the length shown.

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

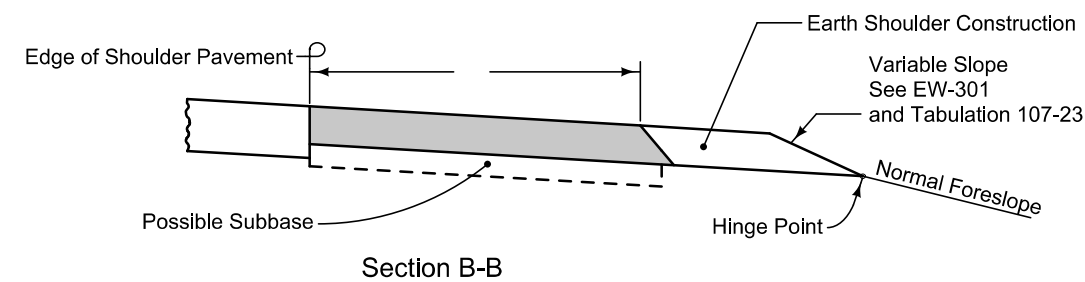
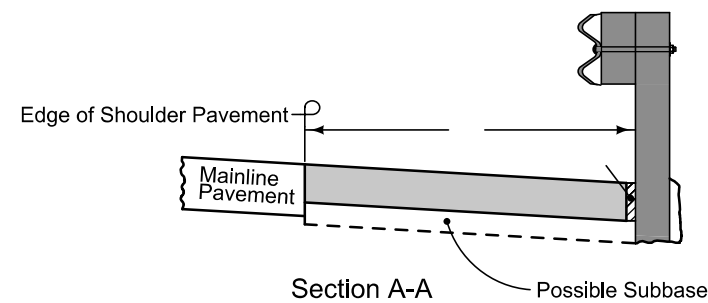
Shoulder may be notched for first 2 posts or post sleeves may be installed through pavement. Do not drive posts through pavement.

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

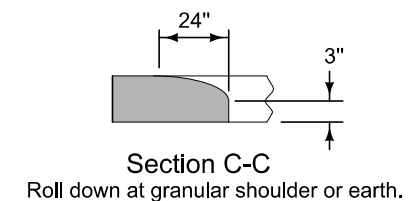
Refer to other details in the plan.



NEW CONSTRUCTION



EXISTING SHOULDER



PAVED SHOULDER AT GUARDRAIL
(GRANULAR SHOULDER ADJACENT TO MAINLINE)

ESTIMATED PROJECT QUANTITIES						100_01A 3/24/25
Line No.	Item No.	Item Code	Item	Unit	Total	As Built Qty.

100_01D
8/15/22

PROJECT DESCRIPTION

This project involves the replacement of the IA 141 bridge over Fork Little Sioux River, located 0.3 mile west of Secondary Road K64.

105_04 10/21/25 STANDARDS The following Standards apply to construction work on this project.		
Number	Date	Title
BA-200	4/15/2025	Steel Beam Guardrail Components
BA-202	4/15/2025	Steel Beam Guardrail Bolted End Anchor
BA-205	10/17/2023	Steel Beam Guardrail Tangent End Terminal (MASH TL-3)
BA-209	10/15/2024	Steel Beam Guardrail Barrier Transition Section (Mash Tl-3, 34in Mounting Height)
BA-221	10/18/2022	Steel Beam Guardrail Barrier Transition Section (MASH TL-2)
BA-225	10/17/2023	Steel Beam Guardrail Tangent End Terminal (MASH TL-2)
BA-250	10/21/2025	Steel Beam Guardrail Installation at Concrete Barrier or Bridge End Post (MASH TL-3)
BA-260	10/21/2025	Steel Beam Guardrail Installation at Concrete Barrier or Bridge End Post (MASH TL-2)
BR-205	10/21/2025	DOUBLE REINFORCED 12'' APPROACH (Slab Bridge)
BR-211	10/21/2025	Bridge Approach (Abutting PCC or Composite Pavement)
DR-303	10/17/2017	Subdrains (Longitudinal)
DR-306	10/17/2023	Precast Concrete Headwall for Subdrain Outlets
DR-651	4/18/2017	UNCLASSIFIED PIPE CULVERT
EC-201	4/20/2021	Silt Fence
EC-202	10/21/2014	Floating Silt Curtain
EC-204	10/19/2021	Perimeter, Slope and Ditch Check Sediment Control Devices
EC-303	10/19/2021	Stabilized Construction Entrance
EC-502	4/21/2015	Seeding in Rural Areas
EW-202	4/19/2016	Bridge Berm Grading without Recoverable Slope (Non-Barnroof Section)
EW-301	4/16/2024	Guardrail Grading
EW-401	10/20/2015	Temporary Stream Crossing, Causeway, or Equipment Pad
EW-402	4/18/2017	Temporary Stream Diversion
PM-110	10/15/2024	Line Types
PV-101	10/21/2025	Joints
PV-102	10/21/2025	PCC Curb Details
SI-172	4/19/2016	Delineators
SI-173	4/19/2016	Object Markers
SI-881	4/16/2019	Special Signs for Workzones
TC-1	10/15/2019	Work Not Affecting Traffic (Two-Lane or Multi-Lane)
TC-202	4/18/2023	Work Within 15 ft of Traveled Way
TC-252	10/21/2025	Routes Closed to Traffic

SURVEY SYMBOLS

	Interstate Highway Symbol		Septic Tank
	U.S. Highway Symbol		Cistern
	Iowa Highway Symbol		L.P. Gas Tank (No Footing)
	County Road Highway Symbol		Underground Storage Tank
	Evergreen Tree		Latrine
	Deciduous Tree		Satellite TV Dish
	Fruit Tree		Water Hook Up
	Shrub (Bushes)		Radio Tower
	Timber		Tower Anchor
	Hedge		Guardrail (Beam or Cable)
	Stump		Guard Post (one or two)
	Swamp		Guard Post (over two)
	Rock Outcrop		Filler Pipe
	Broken Concrete		Gas Valve
	Revetment (Rip Rap)		Water Valve
	Cemetery		Speed Limit Sign
	Grave		Mile Marker Post
	Cave		Sign
	Sink Hole		Traffic Signal Control Box
	Board Fence		Rail Road Signal Control Box
	Chain Link or Security Fence		Telephone Switch Box
	Wire Fence		Electric Box
	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		
	Water Hydrant (Rural)		

UTILITY LEGEND

— FO —	FO1D, Mid-American Energy - Quality D
— E1 —	EL1D, Mid-American Energy - Quality D
— G —	GL1D, Enterprise Products Operating - Quality D
— T1 —	TL1D, Iowa Western Telephone Company - Quality D

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

LEFT-OF-WAY LEGEND

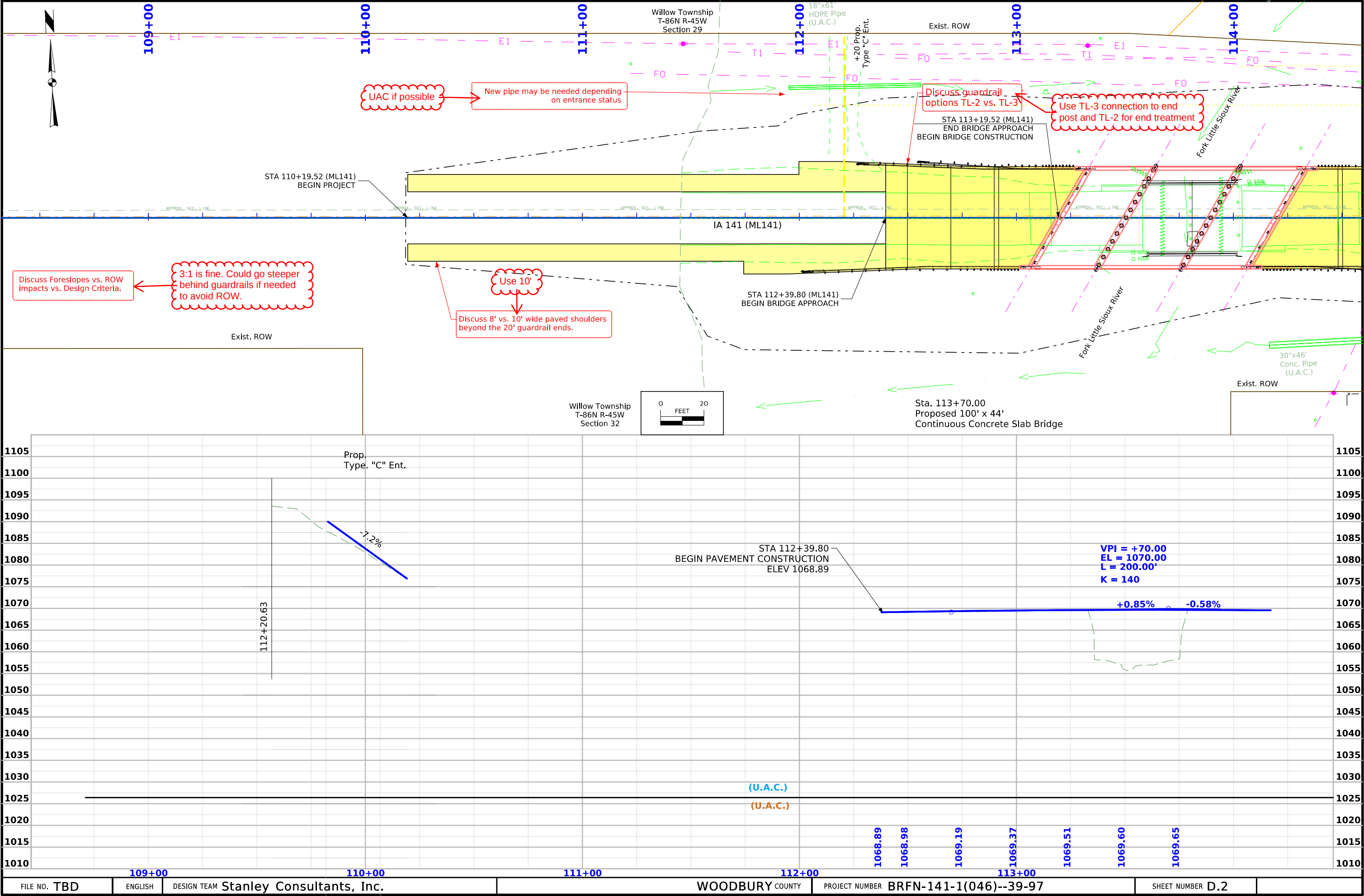
	Reference Point
	Survey Line
	Station
	Section Corner
	Ground Line Intercept
	Saw Cut
	Guardrail
	Trench Drain
	HighTension Cable Guardrail
	Sheet Pile
	Pavement Removal
	Clearing & Grubbing Area

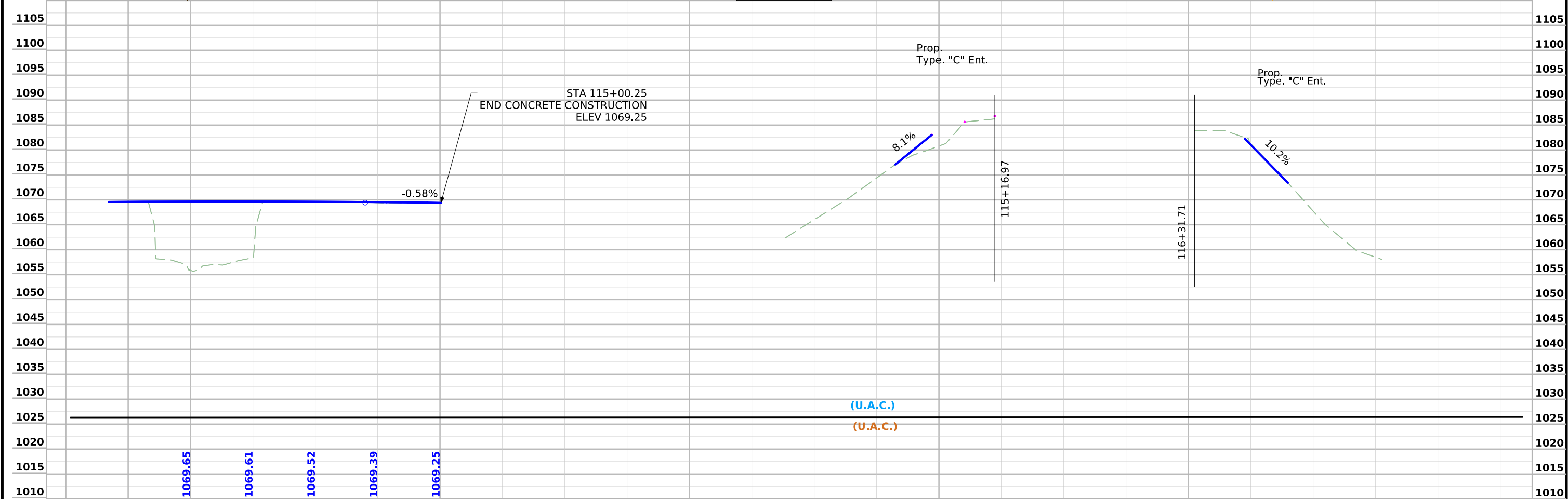
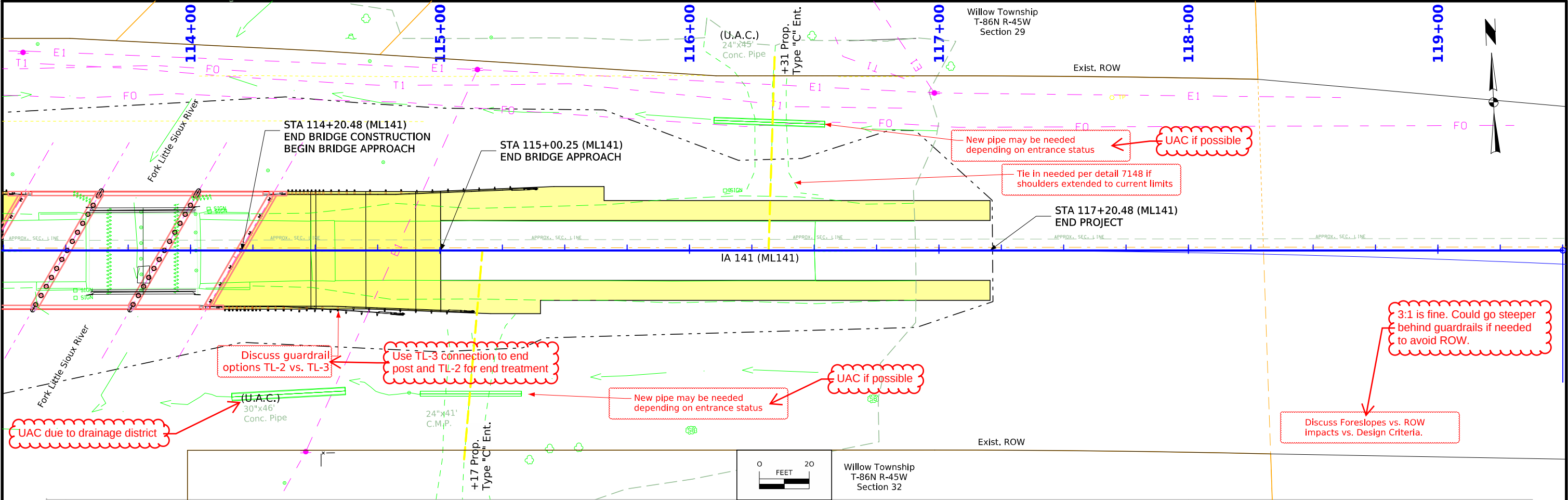
RIGHT-OF-WAY LEGEND

	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)





Survey Information

SURVEY INDEX

County: Woodbury
PIN: 24-97-141-010
Project Number: BRFN-141-1(046)--39-97, STPN-141-1(048)--2J-97
Location: Fork Little Sioux River 0.3 mi W of Co Rd K64
Type of Work: Topographic Bridge Survey
Project Directory: 9714101024

Survey Personnel

Dave Overman – Survey Party Chief
Lee Budde – Survey Party Chief
Eric Green – Professional Land Surveyor
Jimmy Michael – Survey Party Chief
Jason Flaherty – Survey Party Chief
Ronaldo Polanco – Survey Party Chief

Date(s) of Survey

Begin Date 01/01/2025
End Date 02/11/2025

General Information

This survey is for the fork over Little Sioux River 0.3 mi W of Co Rd K64. This survey request was for the IA 141 corridor over the Little Sioux River fork. 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

Nearby Iowa Real Time Network reference stations were utilized to obtain horizontal and vertical control on primary project control points. Three five-minute observations were taken with a minimum two-hour time span between and used in a weighted average to obtain final coordinate values. For additional details of the control survey, contact the Preliminary Survey department.

Alignment Information

The horizontal alignment for U.S. Hwy 141 this survey is a retrace of As-built Plans 1961 No. F.N. 1040. Total distance inconsistency is 1.46 feet.

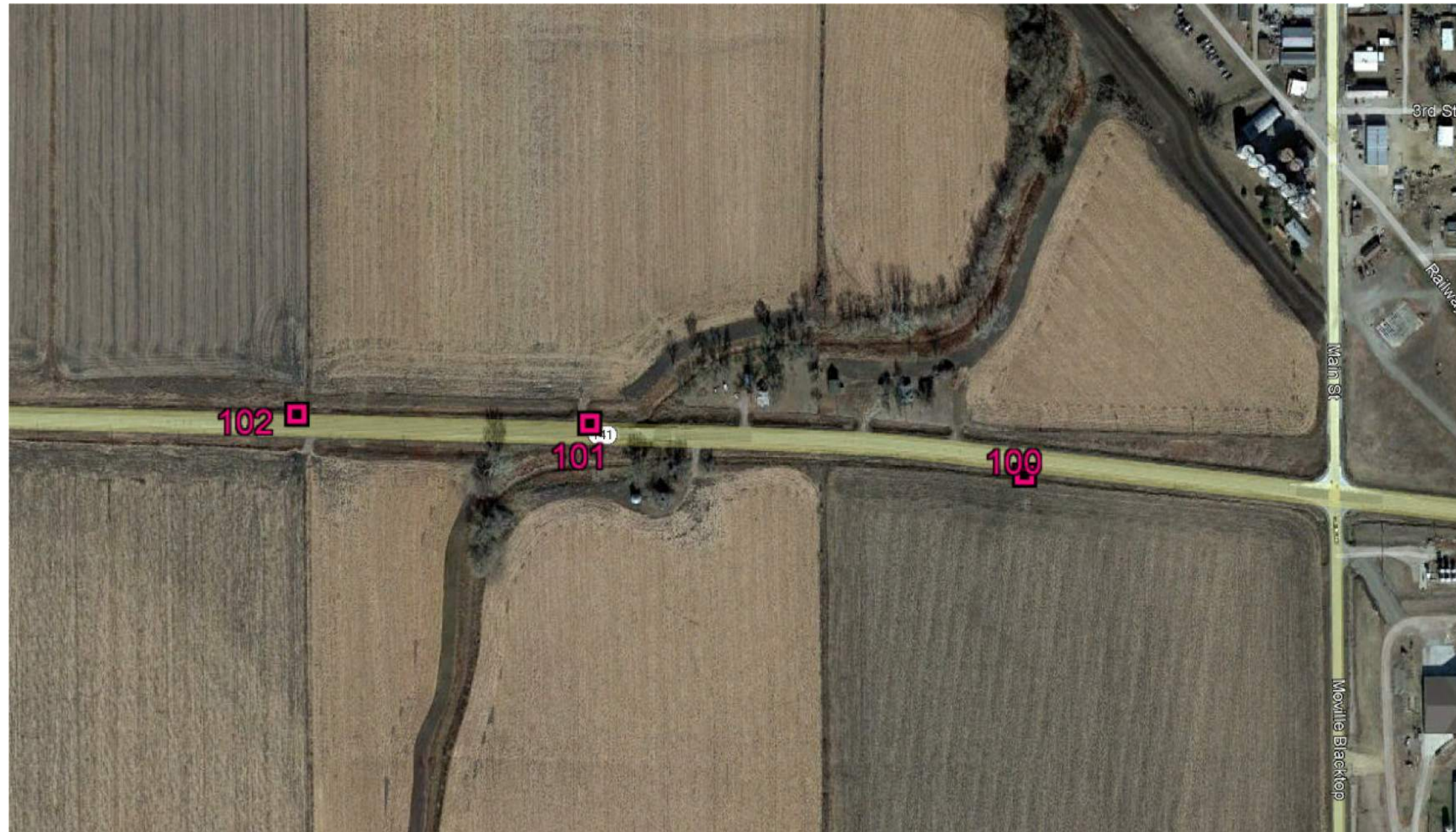
Survey stationing relates to as built plan stationing as follows:

N1/4 Sta. 521+75.35 As built Plans Project No. F.N. 1040
Survey POT Sta. 521+76.81

PI Sta 536+00 As built Plans Project No. F.N. 1040
Survey PI Sta. 536+00

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
100	8490884.12	14156876.01	1063.97	FENO SET 750 FEET WEST OF MAIN STREET ALONG SOUTH SHOULDER OF 141
101	8491031.21	14155774.15	1066.93	FENO SET 100 FEET WEST OF WEST BRIDGE ABUTMENT AND EAST SIDE OF FIELD ENTRANCE ALONG NORTH SHOULDER OF 141
102	8491065.28	14155029.68	1063.05	FENO SET 900 FEET WEST OF WEST BRIDGE ABUTMENT AND WEST SIDE OF FIELD ENTRANCE ALONG NORTH SHOULDER OF 141

101_16 10/25/24																				
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	1	ML141	105+26.90	8491029.026	14155059.693															
2.0	1	ML141	119+50.09	8490968.77	14156481.611															

108_23A
8/15/22

TRAFFIC CONTROL PLAN

IA 141
Both lanes of IA 141 will be closed to traffic for the duration of the project. Offsite detour shall be as shown on J sheets.

Private Entrances
Maintain traffic for the duration of the project.

The bridge on IA 141 over Fork Little Sioux River, located 0.3 mile west of Secondary Road K64 will be replaced. The current bridge is a 44' x 30' reinforced concrete slab bridge, built in 1952 and overlaid in 1990. The posted speed limit is 55 and the 2022 daily traffic (ADT) is estimated as 2,130 with 13% trucks.

Traffic will be detoured off-site during the project. The route will be South on County Hwy K64, then North on County Hwy K45.

- Field Entrances: 800 feet west of the bridge, north and south side (to remain open)
- Field Entrance: 100 feet west of the bridge, north side (to remain open)
- Field Entrance: 100 feet east of the bridge, south side (to remain open)
- Residential Entrance: 250 feet east of the bridge, north side (to remain open)
- Residential Entrance: 500 feet east of the bridge, north side (to remain open)
- Residential Entrance: 800 feet east of the bridge, north side (to remain open)

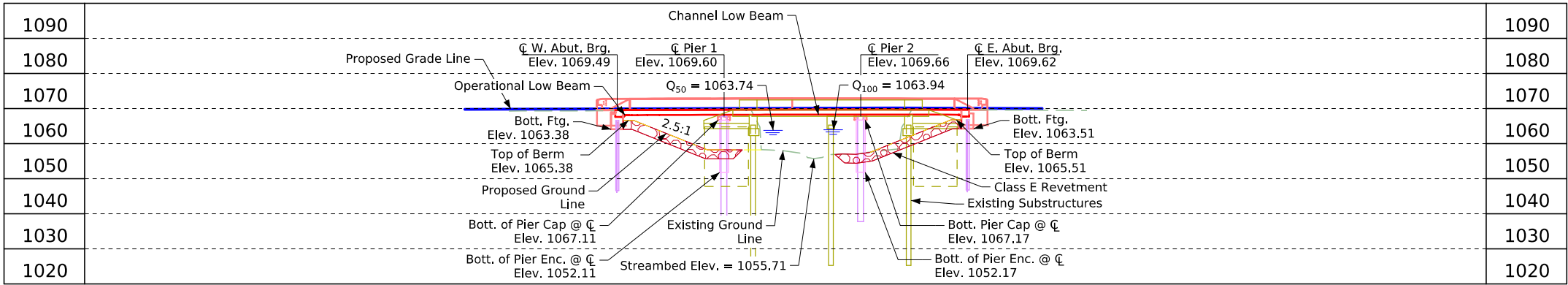
STA 113+81.00
FHWA 053260
Maint. 9709.05141

Detour Route
17.2 miles

Letting may need to change based on county project on detour route. District will check on schedule

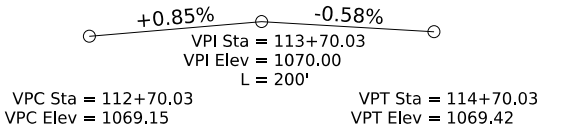


NOT TO SCALE



Note: CL elevations shown above reflect profile grade line elevations.
Top of bridge deck at centerline roadway is 0.03' below the profile grade to account for parabolic crown.

Longitudinal Section Along CL IA 141



Proposed Profile Grade IA 141

Hydraulic Data

Drainage Area = 3.56 sq. mi.
Stream Slope (HGL) = 4.52 ft./mi.
Avg. Low Water Stage = 1056.21

Q₅₀ = 2,370 cfs
Stage = 1063.74
Channel Low Beam = 1067.71
Avg. Bridge Velocity = 4.26 fps
Freeboard = 3.97 ft.

Q₁₀₀ = 2,860 cfs
Stage = 1063.94
Backwater = 0.14 ft.
Operational Low Beam = 1067.52
Avg. Bridge Velocity = 4.47 fps

Q₂₀₀ = 3,380 cfs
Stage = 1064.15
Calculated Design Scour = TBD

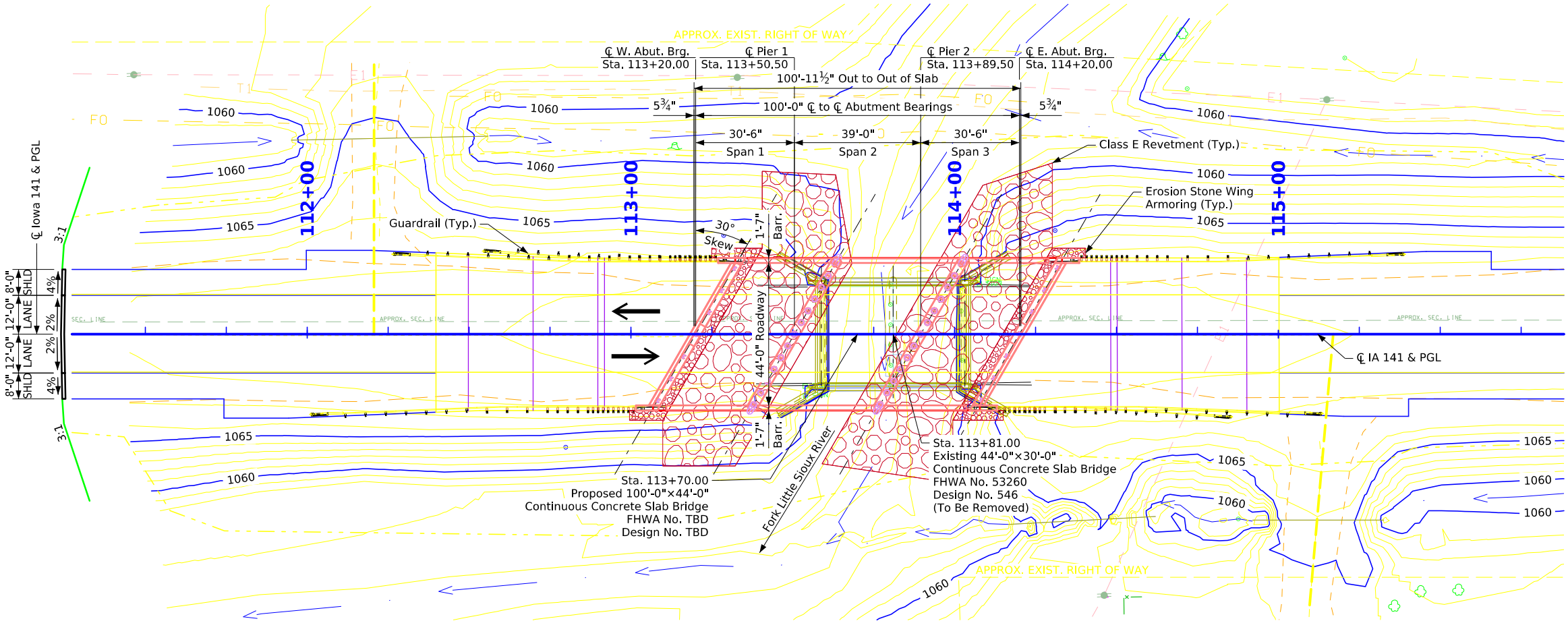
Q₅₀₀ = 4,000 cfs
Stage = 1064.63
Avg. Bridge Velocity = 2.49 fps
Calculated Design Scour = TBD

Utilities Legend:

- E1 - Electrical Line - Mid-American Energy
- FO - FO - Fiber Optic Line - Mid-American Energy
- T1 - Telephone Line - Iowa Western Telephone Co.

Traffic Estimate

2022 AADT 2,130 V.P.D.
TRUCKS 13 %



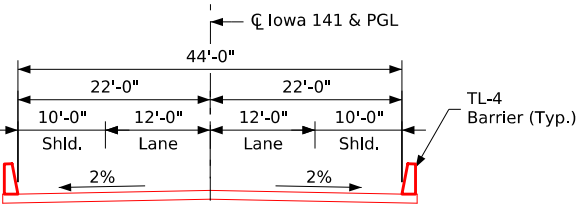
Situation Plan

0 20
Scale In Feet



Location

IA 141 over Fork Little Sioux River
T-86N R-45W
Section 32
Willow Township
Woodbury County
FHWA No. 53260
Bridge Maint. No. 9707.05141
Latitude 42.227162°
Longitude -96.103756°



Typical Bridge Section (Looking East)

Hydraulic Design



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

Signature Mark D. Werner Date
Printed or Typed Name
My license renewal date is December 31, 2025

Pages or sheets covered by this seal V.1

Design For 30° Skew (L.A.)
100'-0" x 44'-0" Continuous
Concrete Slab Bridge

30'-6" End Spans 39'-0" Interior Span

Situation Plan

STA. 113+70.00 (IA 141) Turn-in Date: Aug 2025

Woodbury County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. TBD Design Sheet No. 1 of 2 FHWA No. 53260

Design Notes

All units are in feet unless noted otherwise.
TL-4 Single Slope Bridge Railing proposed.
Pier Type - P10L Type 3 Use single row encased
Foundation type to be confirmed during final design.
Berm slopes to be confirmed during final design.
There is a potential for conflicts with existing foundations.
Existing abutment pile could potentially interfere with proposed pier pile.

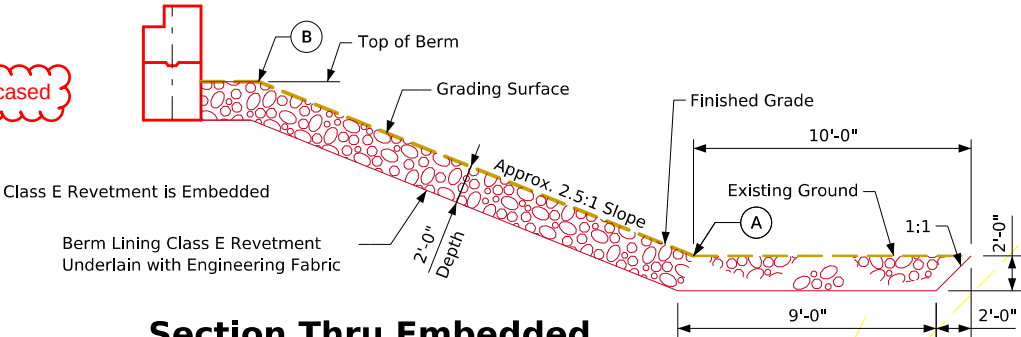
BENCHMARK NO. 100, N: 8490884.12, E: 14156876.01, ELEV. 1063.97; FENO SET 750 FEET WEST OF MAIN STREET ALONG SOUTH SHOULDER OF 141

Berm Slope Location Table

Points	West Abutment			East Abutment		
	Station	Offset	Elev.	Station	Offset	Elev.
A1	113+67.44	26.58' LT	1058.00	113+97.51	26.58' LT	1057.00
A2	113+40.37	26.58' RT	1058.00	113+66.81	26.58' RT	1057.00
B1	113+37.90	26.58' LT	1065.38	114+27.53	26.58' LT	1065.51
B2	113+12.50	26.58' RT	1065.38	114+02.10	26.58' RT	1065.51
W1	113+26.97	26.58' LT	1069.08	114+38.46	26.58' LT	1069.13
W2	113+01.57	26.58' RT	1068.94	114+13.03	26.58' RT	1069.19

Berm slope elevations reflect the grading surface.

Section Thru Embedded
Revetment Berm



APPROX. EXIST. RIGHT OF WAY

Site Plan

Estimated Berm Armoring Quantities				
Location	Revetment CL. E (Ton)	Erosion Stone (Ton)	Engineering Fabric (SY)	CL. 10 Channel Excavation (CY)
Berm Lining - West	350	10	385	235
Berm Lining - East	350	10	385	235
Totals	700	20	770	470

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.

Density used for Class E quantity calculations is 1.5 ton/cu. yd.

General Notes

This design is for the replacement of the existing 44'-0" x 30'-0" Continuous Concrete Slab Bridge, Woodbury Design No. 546, FHWA 53260, Maint. No. 9707.0S141.

Design For 30° Skew (L.A.)
100'-0" x 44'-0" Continuous
Concrete Slab Bridge

Site Plan

30'-6" End Spans 39'-0" Interior Span
STA. 113+70.00 (IA 141) Turn-in Date: Aug 2025
Woodbury County
IOWA DEPARTMENT OF TRANSPORTATION
Design No. TBD Design Sheet No. 2 of 2 FHWA No. 53260

CROSS SECTION VIEW COLOR LEGEND			
Design Color No.	Feature	Design Color No.	Feature
Aggregate		Grading	
(64)	Choke Stone	(8)	Behind Curb Cut
(42)	Engineering Fabric	(6)	Granular
(8)	Flooded Backfill	(13)	Granular Back Fill
(92)	Macadam Stone	(48)	Rock Undercut
(20)	Modified	(8)	Shoulder Earth Fill
(12)	Plowing Shaping	(2)	Side Slopes
(14)	Porous Backfill	(226)	Side Slopes Dressing
(8)	Revetment Class A	Substrata	
(6)	Revetment Class B	(128)	Boulder
(62)	Revetment Class C	(209)	Boulder Removed
(188)	Revetment Class D	(48)	Broken Weathered
(28)	Revetment Class E	(210)	Broken Weathered Removed
(12)	Shoulder Special Backfill	(3)	Core Out
(12)	Special Backfill	(115)	Core Out Remove Only
(20)	Subbase	(195)	Core Out Remove and Replace
(20)	Subbase Lower	(203)	Existing Pavement
(20)	Subbase Upper	(184)	Existing Pavement Remove Only
(118)	Subgrade Treatment	(200)	Existing Pavement Remove and Replace
Asphalt		(6)	Loam
(207)	HMA Base Course	(211)	Loam Removed
(207)	HMA Interim Course	(80)	Rock
(207)	HMA Surface Course	(212)	Rock Removed
Bridge		(4)	Select Sand
(0)	Bridge	(214)	Select Sand Removed
Concrete		(3)	Shale
(0)	Barrier Concrete	(215)	Shale Removed
(0)	Barrier Concrete Footing	(10)	Topsoil
(0)	Curb Gutter	(2)	Topsoil Remove Only
(48)	Flowable Mortar	(4)	Topsoil Remove and Replace
(0)	Median Concrete	Unsuitable / Waste	
(0)	PCC Pavement	(3)	Unsuitable Type A
(0)	Sidewalk	(216)	Unsuitable Type A Removed
Existing		(13)	Unsuitable Type B
(0)	Existing Pavement	(217)	Unsuitable Type B Removed
Shoulder		(11)	Unsuitable Type C
(209)	Shoulder HMA	(218)	Unsuitable Type C Removed
(0)	Shoulder PCC	(3)	Waste
(6)	Shoulder Granular	(219)	Waste Removed
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		

NOTES:

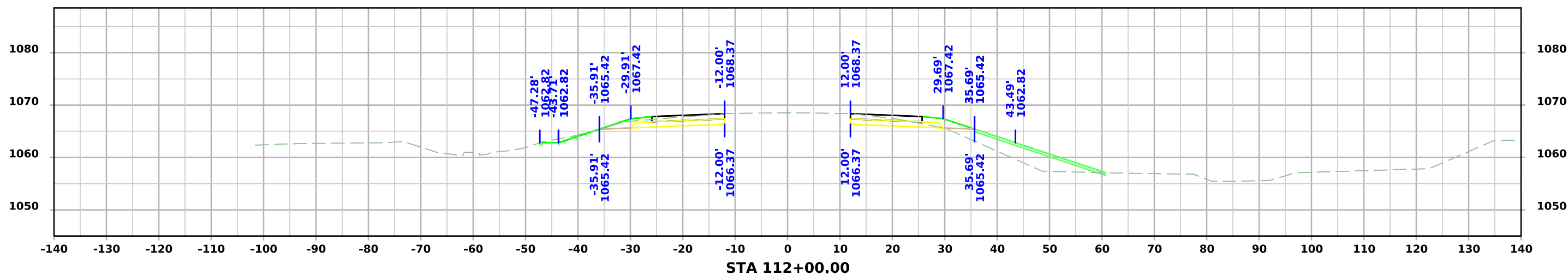
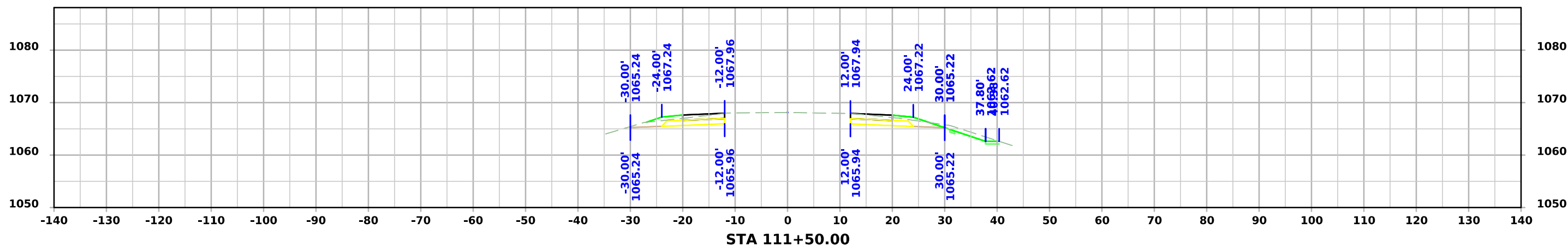
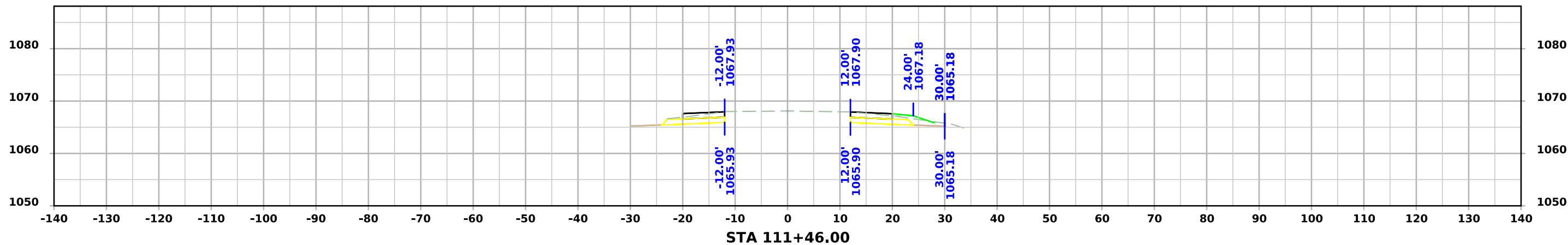
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NOTES:

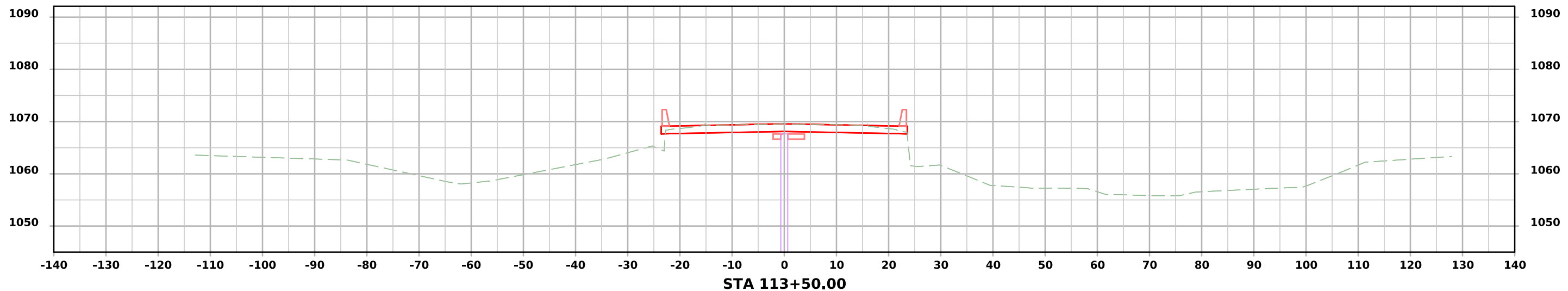
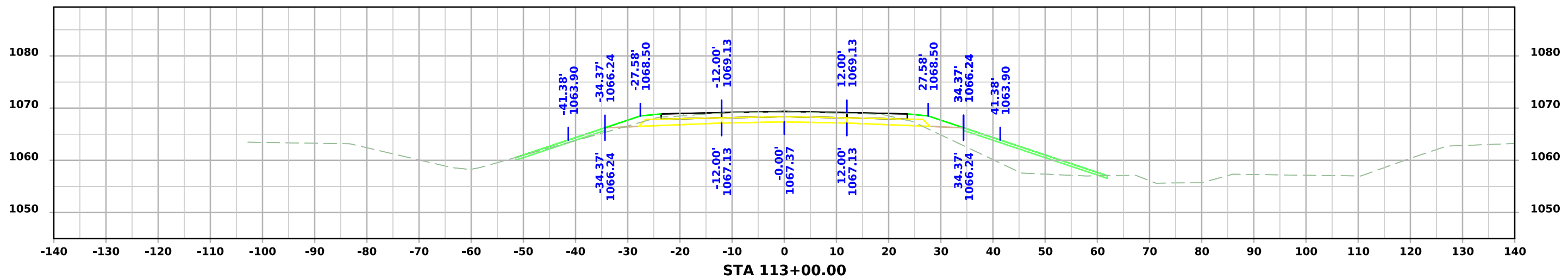
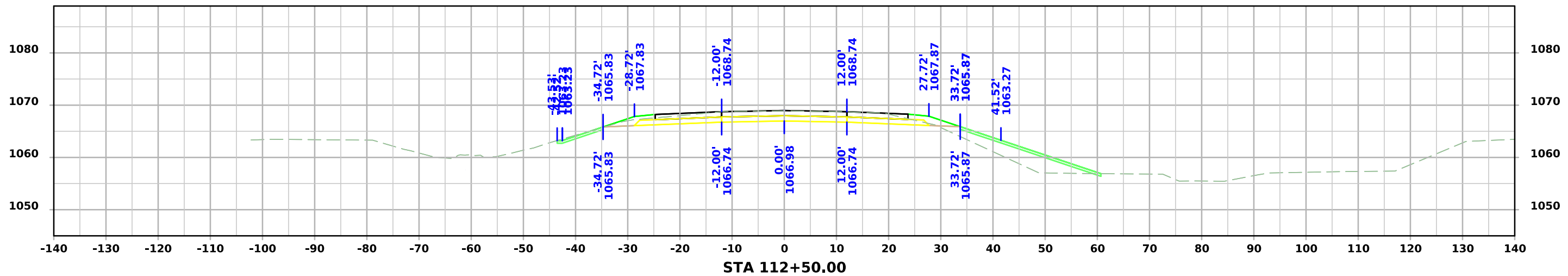
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CROSS SECTIONS
LEGEND AND INFORMATION SHEET

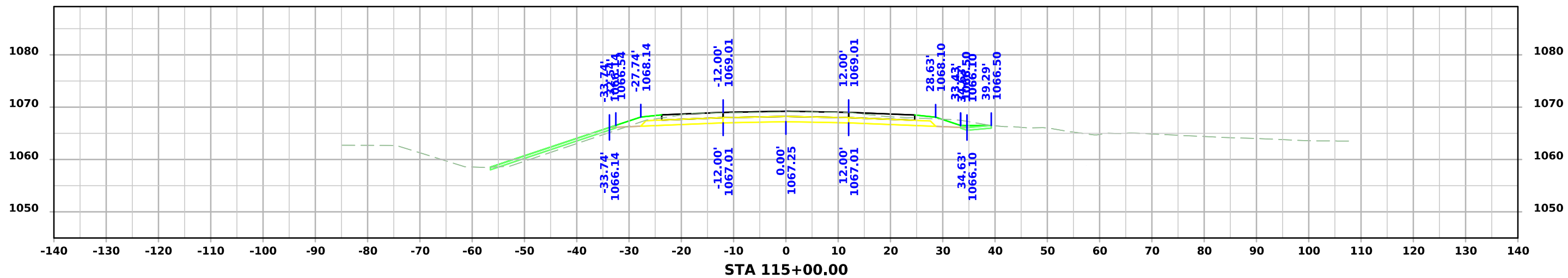
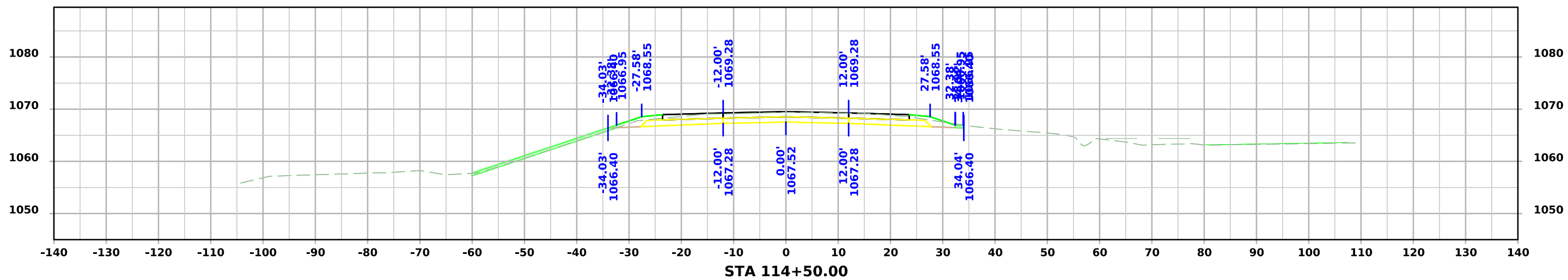
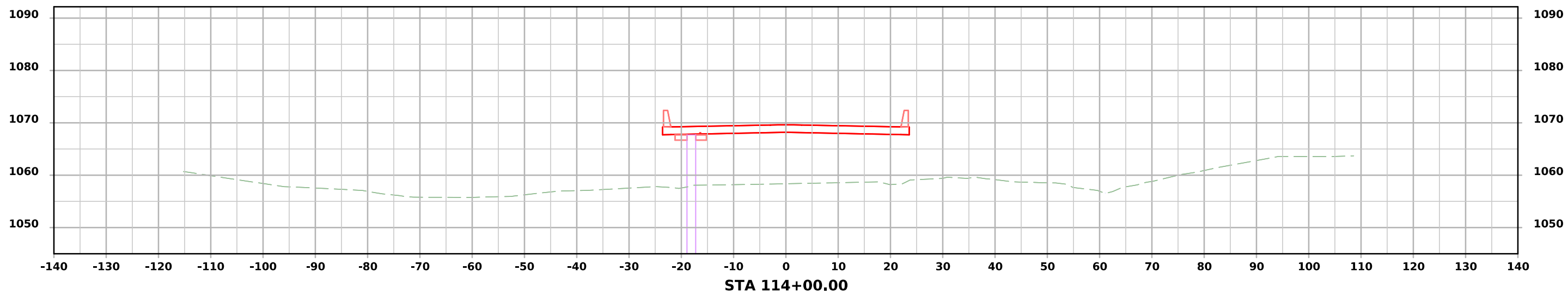
(COVERS SHEET SERIES W, X, Y, & Z)



IA 141



IA 141



IA 141

