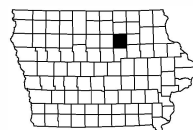


BUTLER COUNTY

BRIDGE - UNSPECIFIED
BRF-003-5(092)--38-12

LETTING DATE
11/16/27



INDEX OF SHEETS	
No.	DESCRIPTION
A Sheets	Title Sheets
A.1	Title Sheet
A.2	Location Map Sheet
B Sheets	Typical Cross Sections and Details
B.1	Typical Cross Sections and Details
C Sheets	Quantities and General Information
C.1	Access Points and Safety Ramps
D Sheets	Mainline Plan and Profile Sheets
D.1	Plan & Profile Legend & Symbol Information Sheet
D.2 - 3	ML IA3
G Sheets	Survey Sheets
G.1	Survey Information
G.2	Control Point Vicinity Map
G.3	Horizontal/Vertical Project Control Coordinate Listing
J Sheets	Traffic Control and Staging Sheets
J.1	Traffic Control Plan
J.2	Detour Map
V Sheets	Bridge and Culvert Situation Plans
V.1 - 6	Bridge and Culvert Situation Plans
W Sheets	Mainline Cross Sections
W.1	Cross Sections Legend & Symbol Information Sheet
W.2 - 14	Mainline Cross Sections



PLANS OF PROPOSED IMPROVEMENT ON THE
**PRIMARY ROAD SYSTEM
 BUTLER COUNTY
 BRIDGE - UNSPECIFIED**
 Boylan Creek 2.4 mi E of Co Rd T16

SCALES: As Noted

Refer to the Proposal Form for list of applicable specifications.

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



REVISIONS

TOTAL

35

PROJECT IDENTIFICATION NUMBER

23-12-003-010

PROJECT NUMBER

BRF-003-5(092)--38-12

R.O.W. PROJECT NUMBER

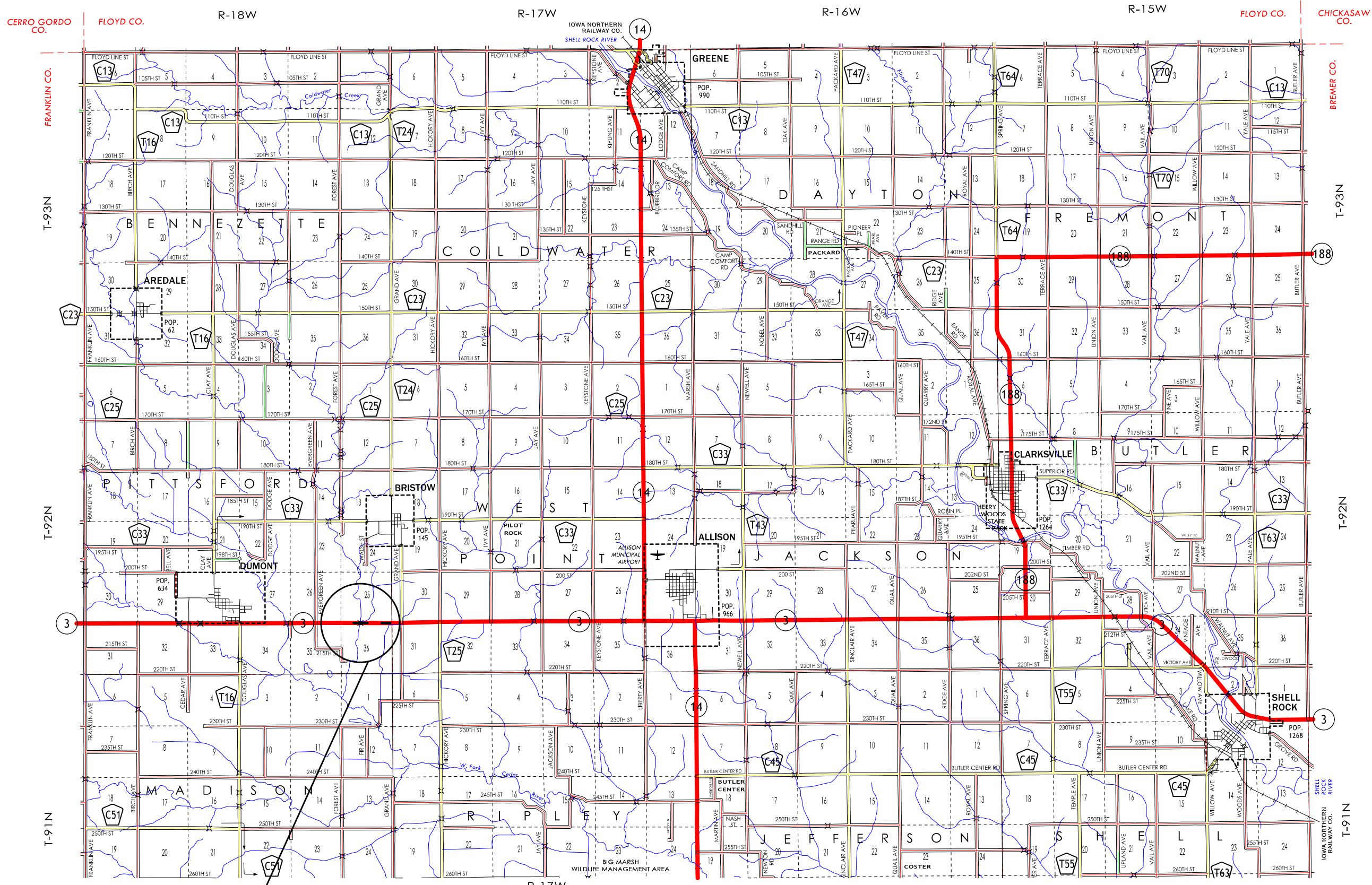
NHSN-003-5(093)--2R-12

DESIGN DATA RURAL			
2028	AADT	1100	V.P.D.
2048	AADT	1200	V.P.D.
20	DHV	-	V.P.H.
	TRUCKS	18	%
	Total		
	Design ESALs	-	

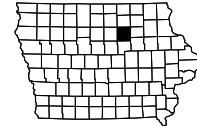
PRELIMINARY PLANS

Subject to change by final design.

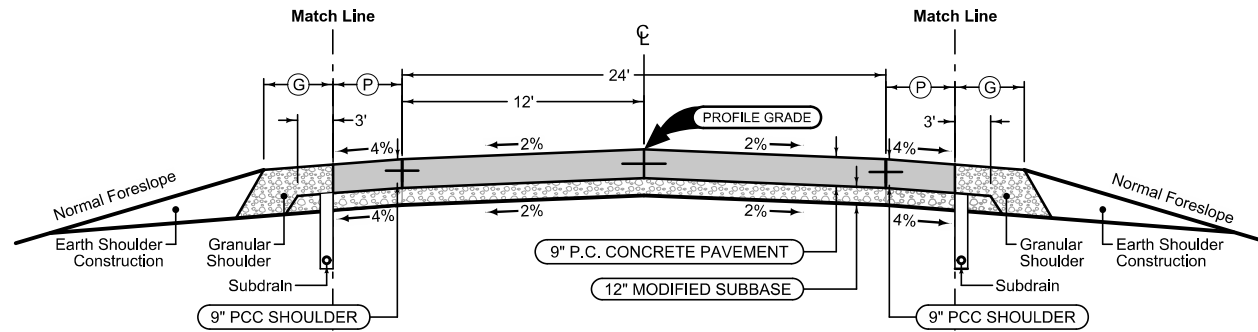
D5 PLAN - Date: 03/20/2026



PROJECT LOCATION
MAINT. NO. 1297.2S003
FHWA NO. 16510



FILE NO.	ENGLISH	DESIGN TEAM MILLER / DEWOLF / O'RILEY	BUTLER COUNTY	PROJECT NUMBER BRF-003-5(092)--38-12	SHEET NUMBER A.2
11:51:46 AM	3/19/2026	koriley	pw:\NTP\int1.dot.int.lan:P\WMain\Documents\Projects\1200301023\Design\CADD_Files\Sheet_Files\SH_12003092_A01.dgn		



Full Depth PCC Combination Shoulder

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

2_C_FullPCC_04-15-25			
STATION TO STATION		(P) Feet	(G) Feet
280+00.00	282+94.45	4'	4'
282+94.45	283+72.63	4'	
286+67.51	288+97.63	4'	
291+22.51	292+13.05	4'	
292+13.05	294+50.00	4'	4'
314+30.00	314+68.00		4'
314+68.00	315+62.00	4'	4'
315+62.00	316+00.00		4'

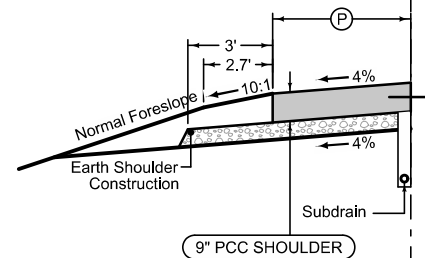
Mainline Jointing:
 Transverse joints: CD at 17' spacing
 Longitudinal joint: L-2

2P_04-21-20	
STATION TO STATION	
280+00.00	283+72.63
286+67.51	288+97.63
291+22.51	294+50.00
314+68.00	315+62.00

Full Depth PCC Combination Shoulder

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

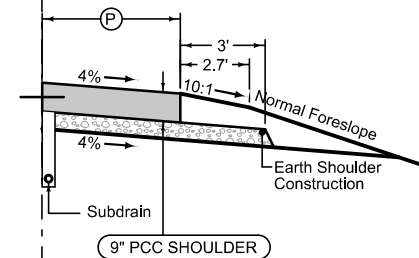
2_C_FullPCC_04-15-25			
STATION TO STATION		(P) Feet	(G) Feet
280+00.00	282+81.95	4'	4'
282+81.95	283+72.63	4'	
286+67.51	288+97.63	4'	
291+22.51	291+68.56	8'	
291+68.56	294+50.00	4'	4'
314+30.00	314+68.00		4'
314+68.00	315+62.00	4'	4'
315+62.00	316+00.00		4'



Paved Shoulder at Guardrail

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

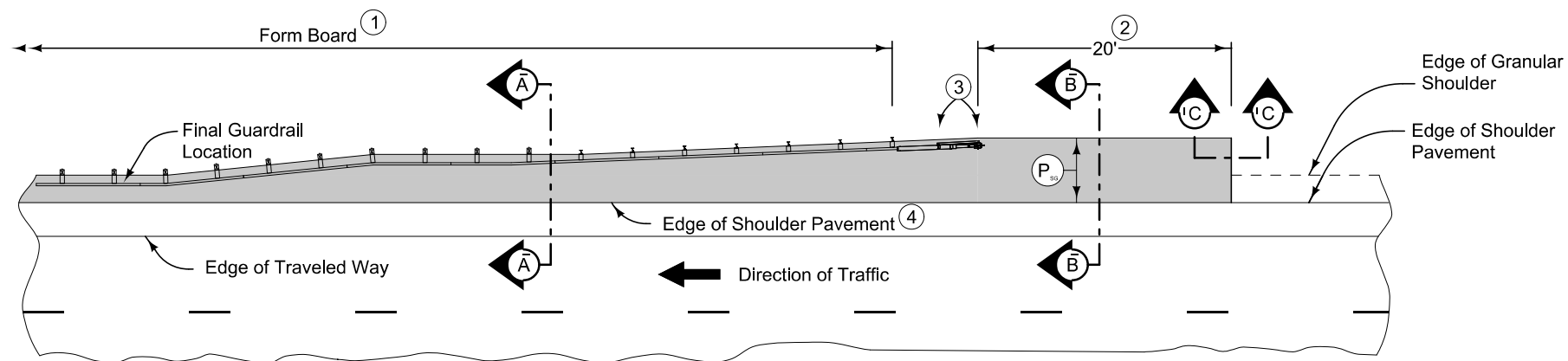
2_P_Guard_04-21-20		
STATION TO STATION		(P) Feet
282+94.45	283+72.63	Varies
286+67.51	288+97.63	5.6'
291+22.51	292+13.05	Varies



Paved Shoulder at Guardrail

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

2_P_Guard_04-21-20		
STATION TO STATION		(P) Feet
282+81.95	283+72.63	Varies
286+67.51	288+97.63	5.6'

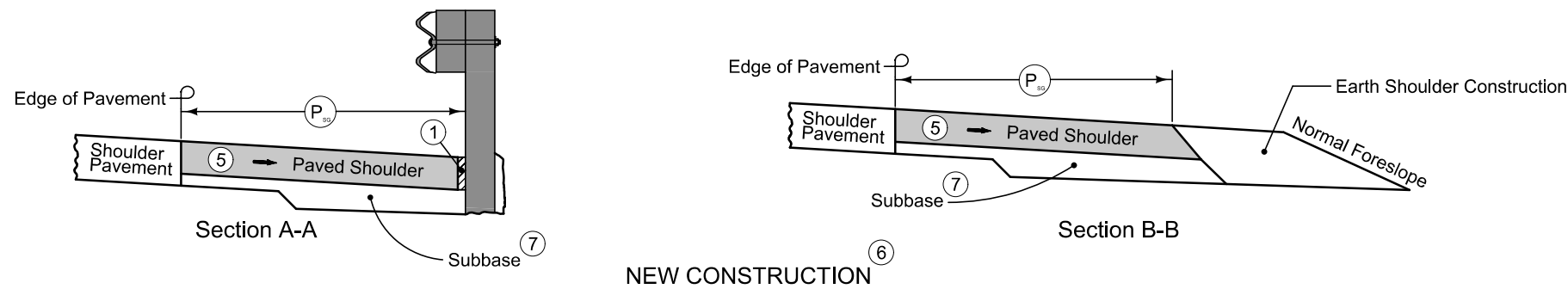


PLAN VIEW

8" PCC may be substituted with the following jointing layout:

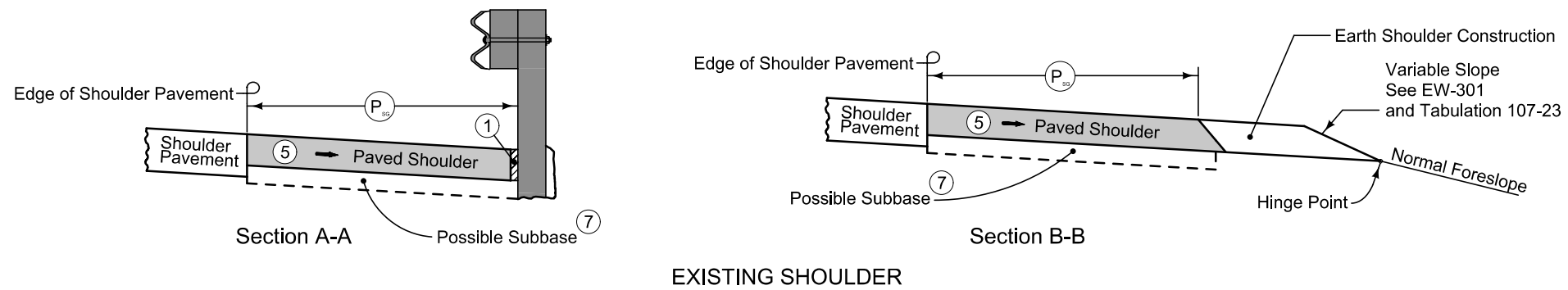
Match mainline pavement joint spacing. When mainline pavement is 8" or greater in thickness, place additional transverse 'C' joints in shoulder at mid-panel of the mainline pavement. Place longitudinal 'C' joint at P/2 from edge of mainline pavement when P is greater than 10' wide. Terminate longitudinal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

Refer to Tabulation 112-9 for shoulder quantities.

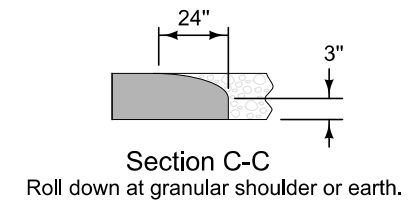


NEW CONSTRUCTION

- 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 'BT' (per PV-101) joint for PCC shoulder.
- ⑤ Match shoulder slope.
- ⑥ The Contractor has the option to pave the paved shoulder at guardrail and the partial width paved shoulder as one operation.
- ⑦ Refer to other details in the plan.



EXISTING SHOULDER



PAVED SHOULDER AT GUARDRAIL
(ADJACENT TO PARTIAL WIDTH PAVED SHOULDER)

ACCESS POINTS AND SAFETY RAMPS

Refer to Cross-Sections

Length of Unclassified Pipe calculated is based on using Corrugated Metal Pipe.

- (1) Refer to MI-210.
- (2) Refer to EW-501.
- (3) Refer to EW-501 or EW-502.

*Predetermined for access point not constructed with this project.

Line No.	Station	Side	Access Type	Descriptor	Case	Curb Type	Curb Length (1) (LF)	Width (FT)	PR (1) (2) (FT)	SR (2) (FT)	Pipe Culvert (H) (3) (FT)	Pipe Culvert Size (3) (IN)	Culvert Length (3) (LF)	Pipe Culvert Lt. (3) (LF)	Pipe Culvert Rt. (3) (LF)	Culvert Aprons (3) (No.)	Driveway Surface Type	Driveway Surface Area (SY)	Driveway Surfacing Material (TON)	Remarks
	291+34.00	Right	C		1			20.0	15.0			24.0	105.0	65.00	40.00	2	Granular		13.780	

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
- Water Hydrant (Rural)
- Septic Tank
- Cistern
- L.P. Gas Tank (No Footing)
- Underground Storage Tank
- Latrine
- Satellite TV Dish
- Water Hook Up
- Radio Tower
- Tower Anchor
- Guardrail (Beam or Cable)
- Guard Post (one or two)
- Guard Post (over two)
- Filler Pipe
- Gas Valve
- Water Valve
- Speed Limit Sign
- Mile Marker Post
- SIGN Sign
- Traffic Signal Control Box
- Rail Road Signal Control Box
- Telephone Switch Box
- Electric Box

UTILITY LEGEND

- FO1D, Fiber Optic Dumont Telephone - Quality D PPA, Power Pole MidAmerican Electric. 1
- Dumont Telephone Company Fiber Distribution**
Dumont Telephone Company Fiber Transmission
Dumont Telephone Company Telephone
 Terry Arenholz, Operations Manager
 506 Pine Street P. O. Box 349 Dumont, IA, 50625
 ph: 6418573211
 terryar@dumonttelephone.com
- MidAmerican Energy Company Electric Distribution**
 David Kline, Sr. Distribution Engineer, P.E.
 260 Fairview Ave Waterloo, IA, 50703
 ph: (319) 231-4726 cell: (319) 230-2781
 David.Kline@midamerican.com
- MidAmerican Energy Company Electric Transmission**
 Joshua Birmingham, High Voltage Engineering Manager
 106 E 2nd St Davenport, IA, 52801
 ph: (563) 726-1832 cell: (309) 207-6472
 joshua.birmingham@midamerican.com
- MidAmerican Energy Company Gas Distribution**
MidAmerican Energy Company Gas Transmission
 Molly Brouwer, Gas Engineering Tech
 212 S. Main St. Clarksville, IA, 50619
 ph: (319) 291-4737 cell: (319) 231-7606
 mcbrouwer@midamerican.com
- Northern Natural Gas Company Gas Distribution**
Northern Natural Gas Company Gas Transmission
 Jennifer Sweney, Right of Way Agent
 1120 Centre Pointe Dr. Ste. 400 Mendota Heights, MN, 55120
 ph: (651) 456-1762 cell: (651) 402-1776
 jennifer.sweney@nngco.com
- Rockwell Cooperative Telephone Association Telephone**
 Jason Dick, unknown
 ph: 6418223000
 rockwellcell@netins.net

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

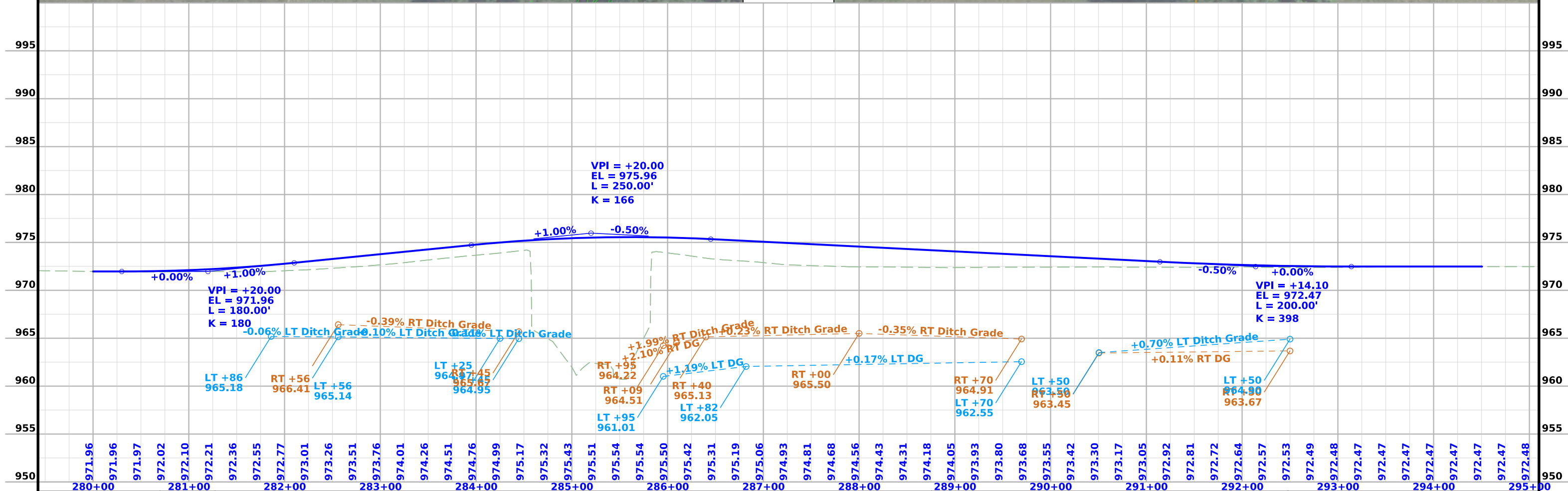
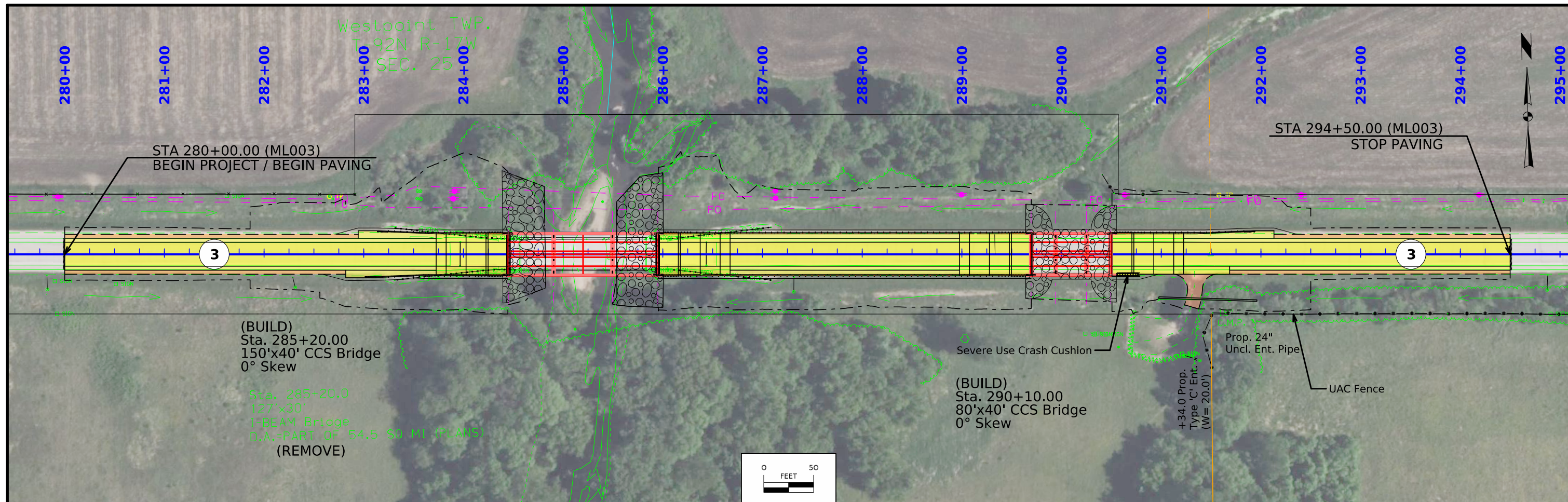
- Reference Point
- Station
- Survey Line
- Section Corner
- Ground Line Intercept
- Saw Cut
- Guardrail
- Trench Drain
- HighTension Cable Guardrail
- Sheet Pile
- Pavement Removal
- Clearing & Grubbing Area

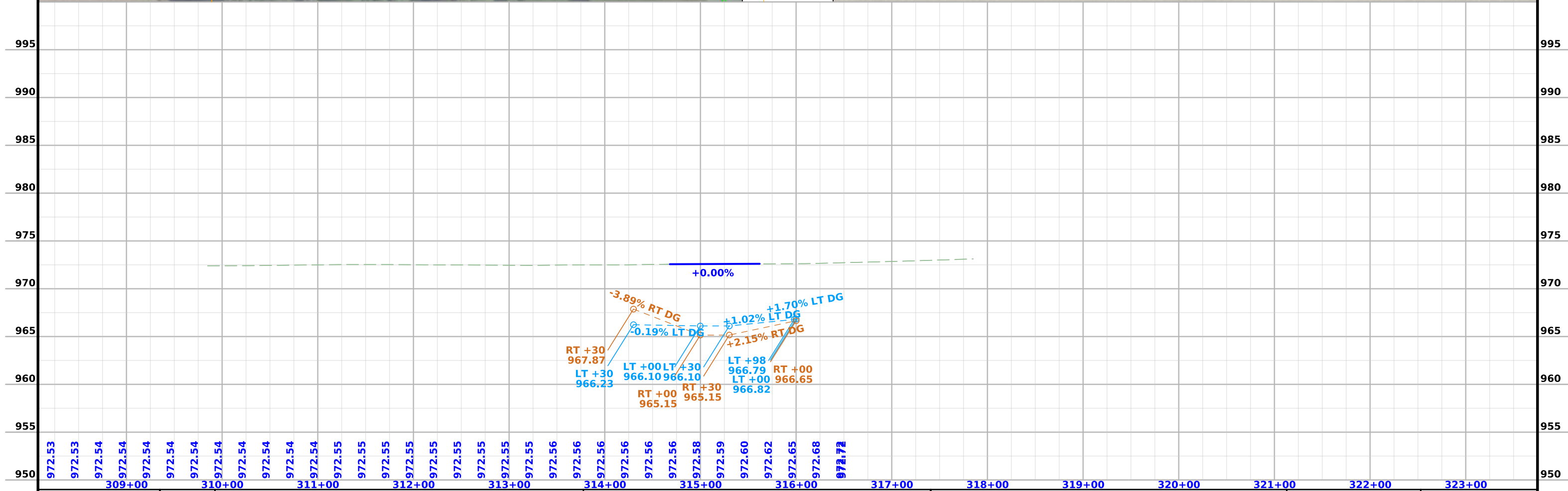
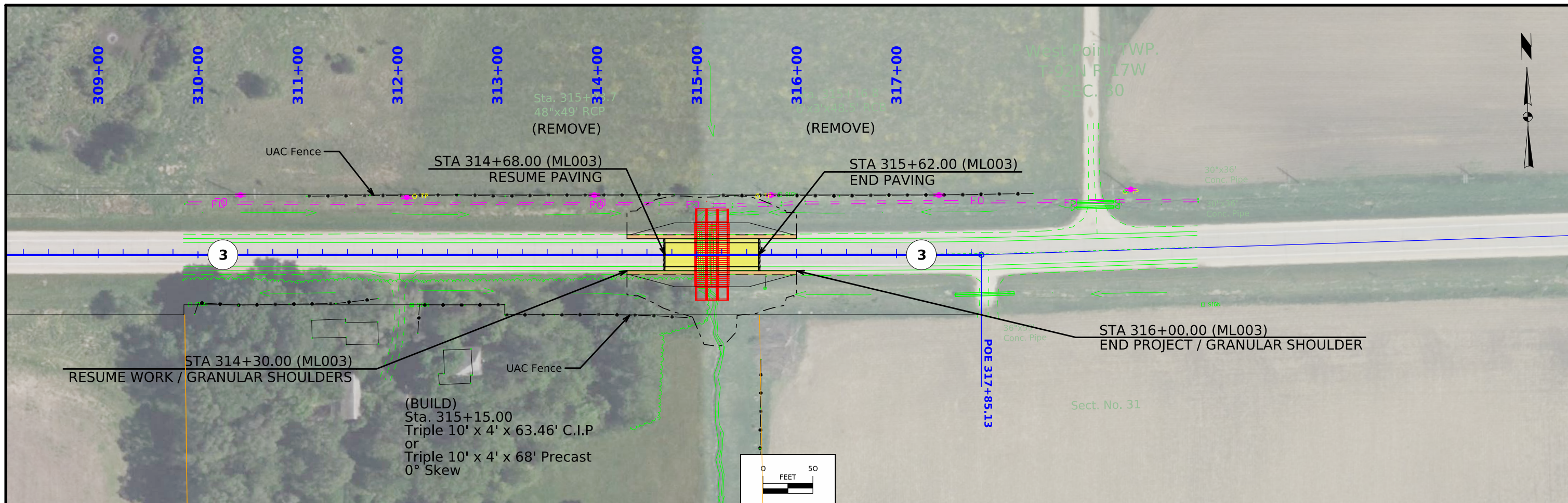
RIGHT-OF-WAY LEGEND

- 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.	ENGLISH	DESIGN TEAM	MILLER / DEWOLF / O'RILEY	BUTLER COUNTY	PROJECT NUMBER	BRF-003-5(092)--38-12	SHEET NUMBER	D.3
----------	---------	-------------	---------------------------	---------------	----------------	-----------------------	--------------	-----

Survey Information

SURVEY INDEX

County: Butler
Project Code: 23-12-003-010
Phase Number: BRF-003-5(092)--38-12
Location: Boylan Creek 2.4 mi E of Co Rd T16
Type of Work: Bridge-Unspecified
Project Directory: 1200301023

Survey Personnel

John Hahn – Survey Party Chief
Kokou Allade – Assistant Survey Party Chief

Date(s) of Survey

Begin Date 04/24/2024
End Date 11/4/2024

General Information

This survey is for the replacement of the IA 3 bridge (Maint. No 1297.2S003, FHWA 16510) over Boylan Creek. This survey request was for the IA Hwy 3 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 5
(U.S. SURVEY FOOT)
VERTICAL DATUM: NAVD88
GEOID MODEL: 2018u3

Alignment Information

The horizontal alignment for State Highway 3 this survey is a retrace of As-built Plans No. FN-558. Survey stationing was equated to the plan POT at Sta. 291+49.5 and carried ahead and back without equation throughout the survey.

Survey stationing relates to as built plan stationing as follows:

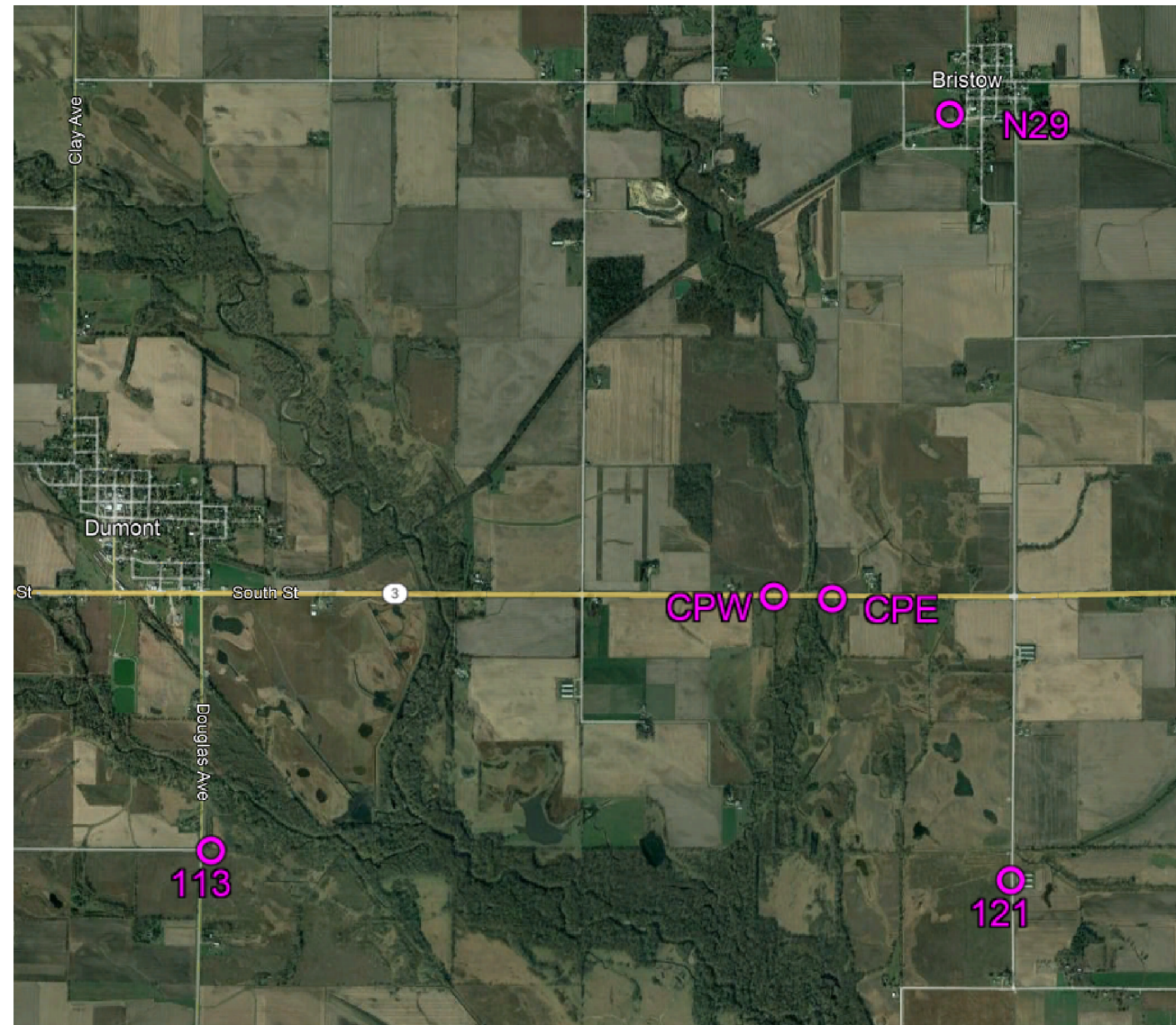
PI Sta. 265+29.0 As-built Plans Project No. FN-558
Survey POT Sta. 265+28.33

POT Sta. 291+49.5 As-built Plans Project No. FN-558
Survey PI Sta. 291+49.5

PI Sta. 317+85.0 As-built Plans Project No. FN-558
Survey POT Sta. 317+85.13

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 5 (U.S. Survey Foot)

VERT. DATUM: NAVD88 - Geoid Model: 2018u3

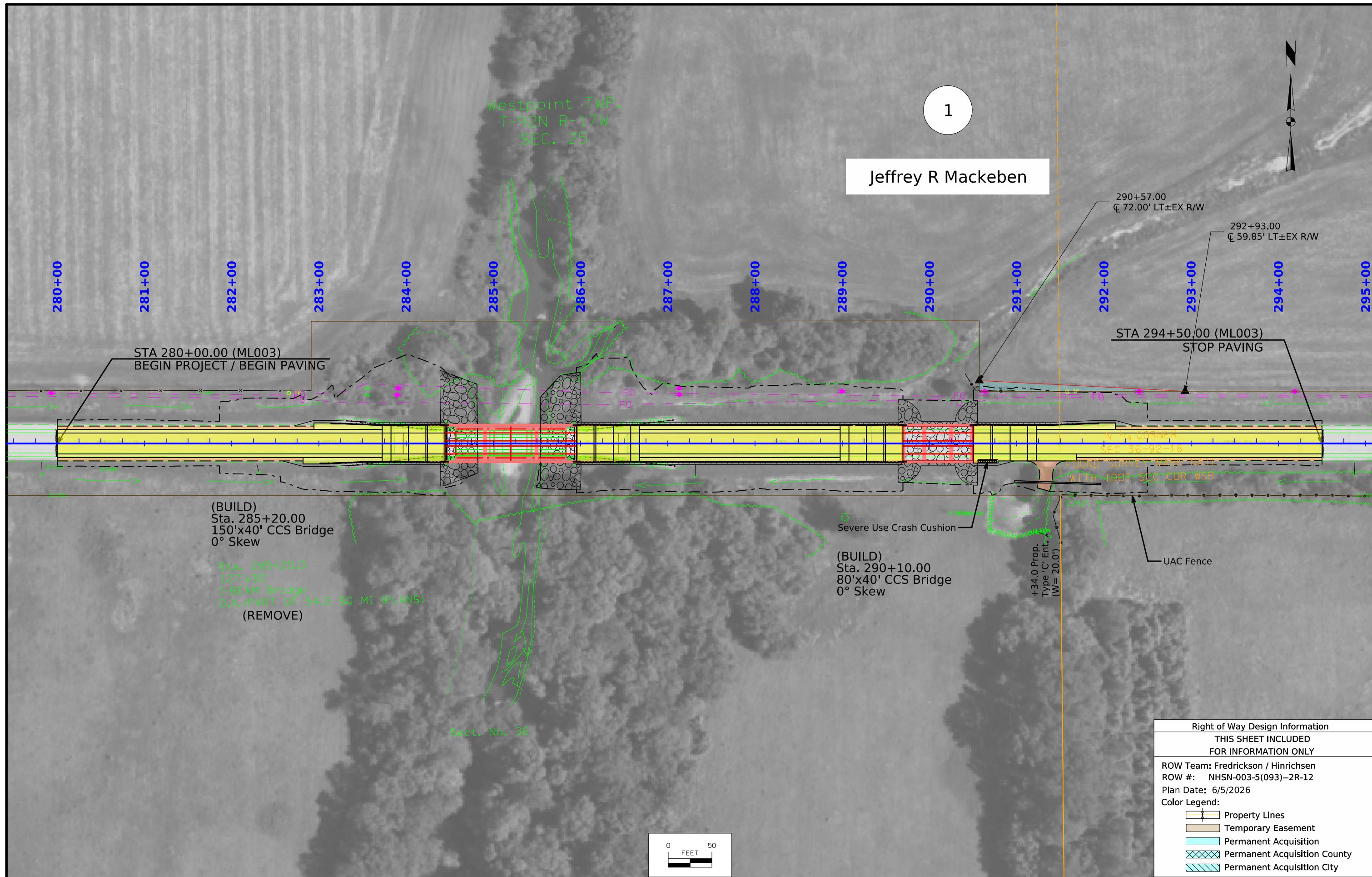
Coordinate listing from next sheet will be used with IaRTN for monument recovery. No other reference ties are given.

HORIZONTAL AND VERTICAL PROJECT CONTROL COORDINATE LISTING
 HORIZ. DATUM: NAD83(2011) for EPOCH 2010.00 (IaRTN 2019 Adjustment)
 Ia. Regional Coordinate System Zone 5 (U.S. Survey Foot)
 VERT. DATUM: NAVD88
 Geoid Model: 2018u3

Point Name	Northing	Easting	Elevation	Code/Description
121	8929351.42	15324267.51	964.42	CP Fnd Butler Co GPS Control Point as described
171	8930104.23	15307574.11	971.81	CP Fnd Butler Co GPS Control Point as described
CPE	8935158.65	15320632.46	966.18	CP Set FENO monument
CPW	8935218.99	15319468	967.19	CP Set FENO monument
N29	8944648.68	15322189.75	1027.80	CP Fnd NGS Second Order Class 0 vertical mark as described

NO ACCESS RIGHTS ARE TO BE ACQUIRED ON THIS PROJECT.

ACCESS CONTROL PREVIOUSLY ACQUIRED.



Westpoint TWP.
T-92N R-17W
SEC. 25

1

Jeffrey R Mackeben

280+00 281+00 282+00 283+00 284+00 285+00 286+00 287+00 288+00 289+00 290+00 291+00 292+00 293+00 294+00 295+00

STA 280+00.00 (ML003)
BEGIN PROJECT / BEGIN PAVING

STA 294+50.00 (ML003)
STOP PAVING

(BUILD)
Sta. 285+20.00
150'x40' CCS Bridge
0° Skew

Sta. 285+20.0
127'x30'
I-BEAM Bridge
D.A.=PART OF 54.5 SQ MI (PLANS)
(REMOVE)

(BUILD)
Sta. 290+10.00
80'x40' CCS Bridge
0° Skew

+34.0 Prop.
Type 'C' Ent.
(W= 20.0')

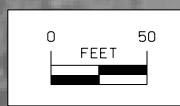
W 1/4 CORNER
SEC 36-92-18
EQUIDISTANTLY SPACED
WITH 100' SEC COR WSR

290+57.00
C 72.00' LT±EX R/W

292+93.00
C 59.85' LT±EX R/W

Sect. No. 36

Right of Way Design Information	
THIS SHEET INCLUDED FOR INFORMATION ONLY	
ROW Team: Fredrickson / Hinrichsen	
ROW #: NHSN-003-5(093)-2R-12	
Plan Date: 6/5/2026	
Color Legend:	
	Property Lines
	Temporary Easement
	Permanent Acquisition
	Permanent Acquisition County
	Permanent Acquisition City



108_23A
8/15/22

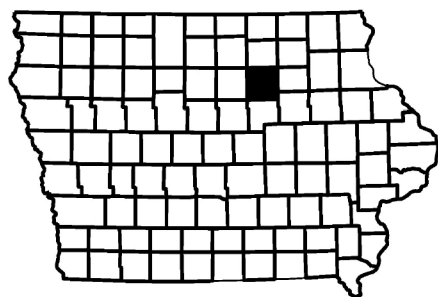
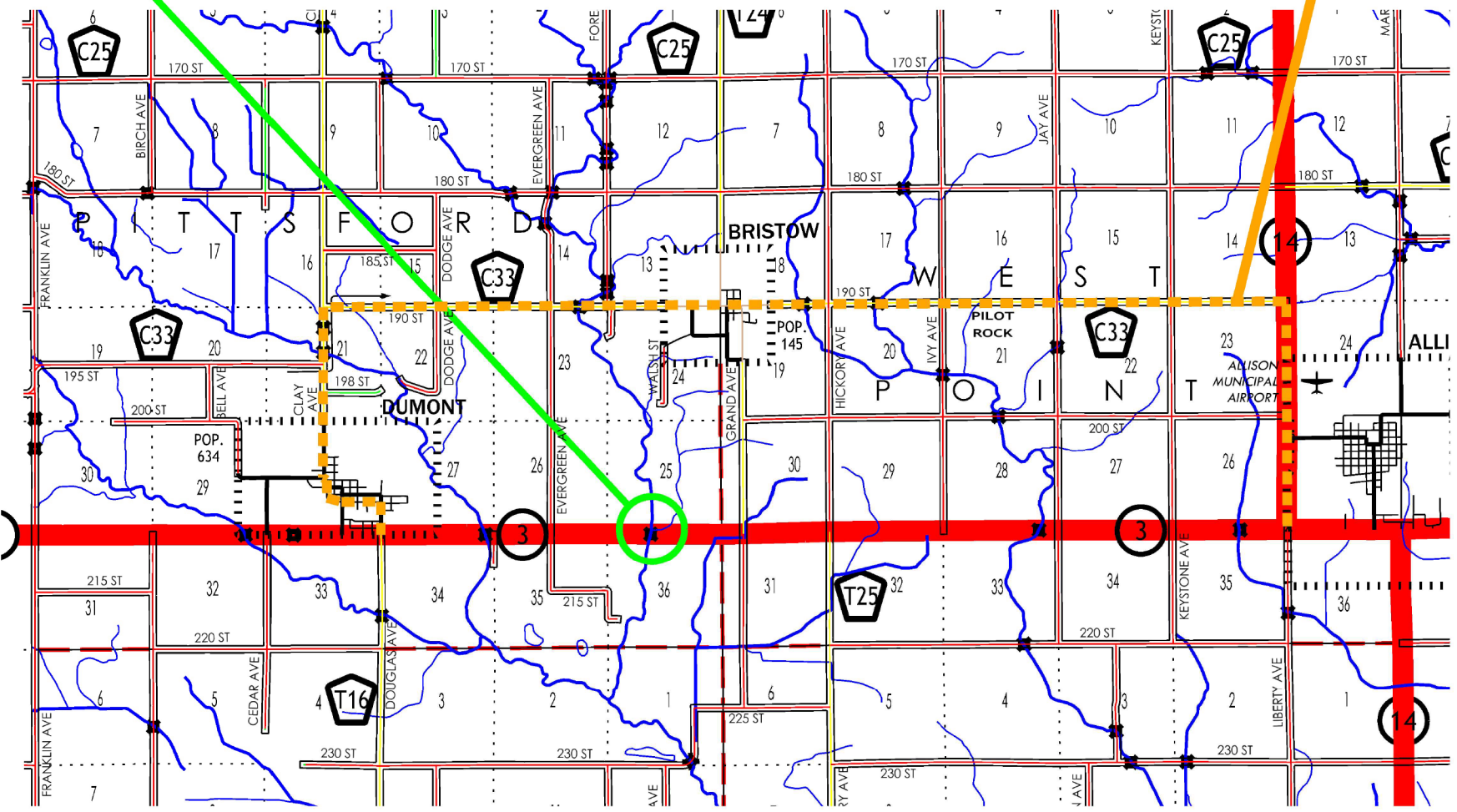
TRAFFIC CONTROL PLAN

Traffic on IA 3 will be maintained at all times via an off-site detour.

STA 285 + 28.4
 FHWA 16510
 MAINT. NO. 1297.7S003
 DESIGN 282

BUTLER COUNTY

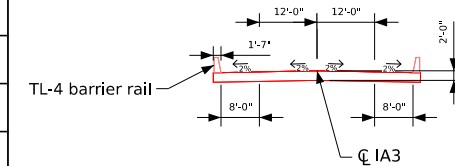
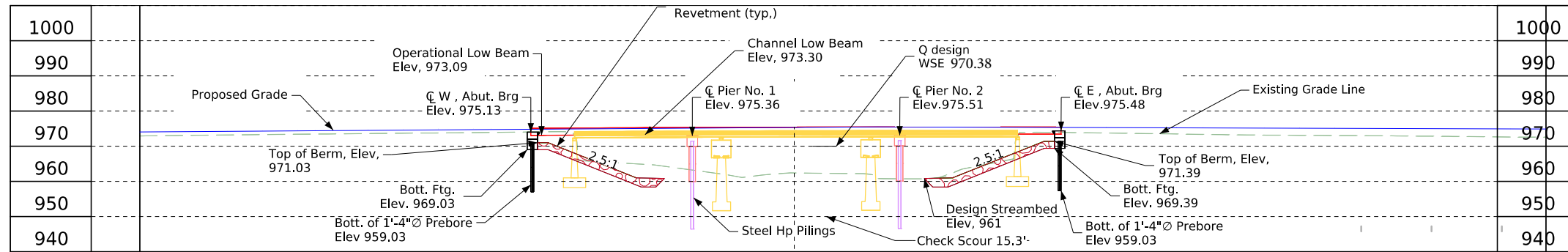
DETOUR



ON IA 3, OVER BOYLAN CREEK, 2.4 MILE OF
 CO RD T16
 BRF-003-5(092)—38-12
 PROJECT CODE: 23-12-003-010

12

Control Point: N29,8944648,677,15322189,754,1027,795,CP Fnd NGS Second Order Class 0 vertical mark as described

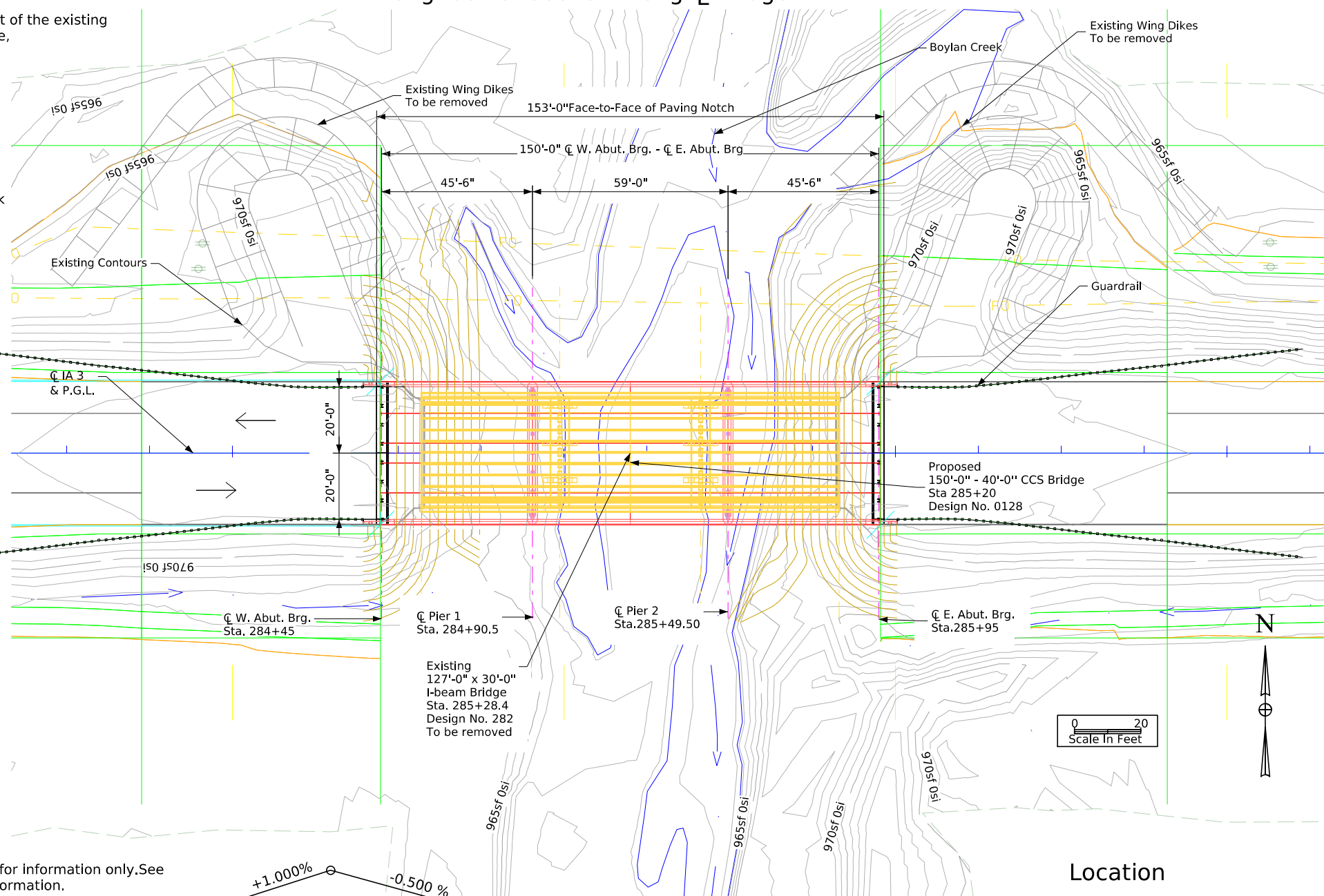


Typical Bridge Section

General Note:
 1- This design is for the replacement of the existing 127' x 30' Continuous I-Beam Bridge, Design No. 0282, FHWA No. 16510, Maint. No. 1297.25003

Plan notes:
 1- Top of bridge deck at centerline roadway is 0.03' below the profile grade to account for parabolic crown.

Design Notes:
 1- 1.5 T/C.Y Density used for 2' thick Embedded Class E revetment.
 2- TL-4 single slope Bridge Railing Proposed.
 3- Standard Bridge Index No. J40



Hydraulic Data

RIDB: "RIDB: BoylanC_But_1.9"
 Drainage Area = 58.9 Sq. MI.

Operational Low Beam = 973.09'
 Channel Low Beam = 973.3'

Q₅₀ = 3956.5 cfs (7300 cfs)
 Stage = 970.38'
 Operational Freeboard = 2.68 ft.
 Avg. Bridge Velocity = 3.88 fps

Q₁₀₀ = 4654.9 cfs (8500 cfs)cfs
 Stage = 970.70'
 Operational Freeboard = 2.33ft.
 Backwater = 1.358 ft.
 Avg. Bridge Velocity = 4.47 fps

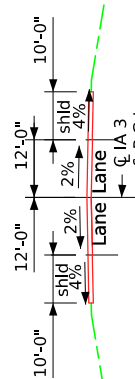
Q₂₀₀ = 5805.9 cfs (10700 cfs) cfs
 Stage = 971.19'
 Avg. Bridge Velocity = 5.35 fps
 Calculated Design Scour = 14.9 Ft

Q₅₀₀ = 6018.3 cfs (11400 cfs)cfs
 Stage = 971.28'
 Channel Freeboard = 1.70 ft.
 Avg. Bridge Velocity = 5.50 fps
 Calculated Check Scour = 15.3 Ft

Roadway Overtop 972'
 Sta. 303+06.00

Discharge in parentheses represents total streamflow.

Typical Approach Section

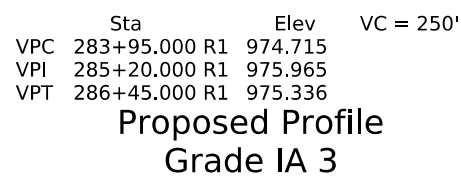


Utilities Note:

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

General Utility Symbols:

- E - Electric Line
- G - Gas Line
- SAN. - Sanitary Sewer
- T - Telephone Line
- W - Water Line
- FO - Fiber Optic Line
- GHP - Gas High Pressure
- ST S - Storm Sewer
- TV - TV
- ⊕ - Power Poles



Traffic Estimate

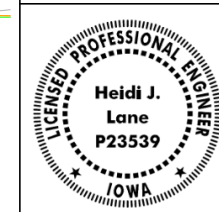
2028 AADT	1100 V.P.D.
2048 AADT	1200 V.P.D.
20?? DHV	?? V.P.H.
TRUCKS	18% %
Total Design ESALs	???

Location

IA 3 over Boylan creek
 T-92N R-18W
 Section 25 & 36
 Pittsford Township
 Butler County
 FHWA No. 16511
 Bridge Maint. No. 1297.25003
 Latitude 42.744833
 Longitude -92.919500

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.

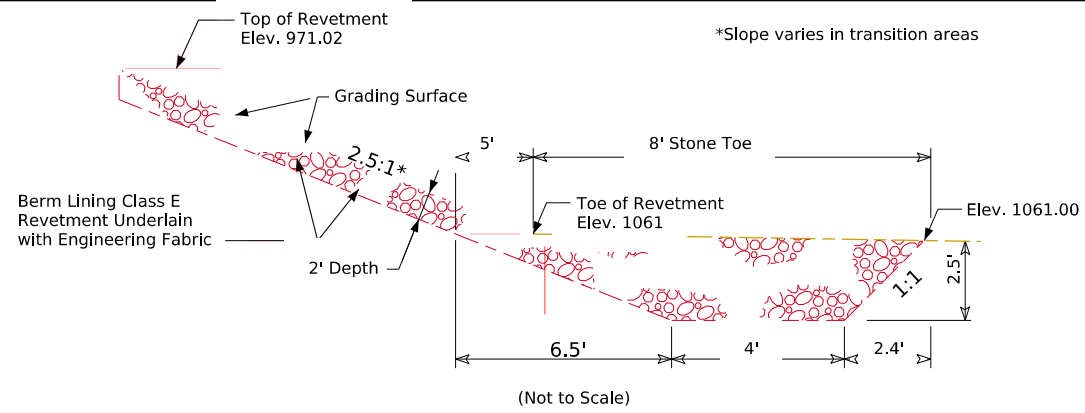


Signature: Heidi Lane, PE Date: 3/6/2026
 Printed or Typed Name: Heidi Lane, PE
 My license renewal date is December 31, 2027

Pages or sheets covered by this seat: V.1-V.6

Design For 0°
150'-0" x 40'-0" Continuous Concrete Slab Bridge

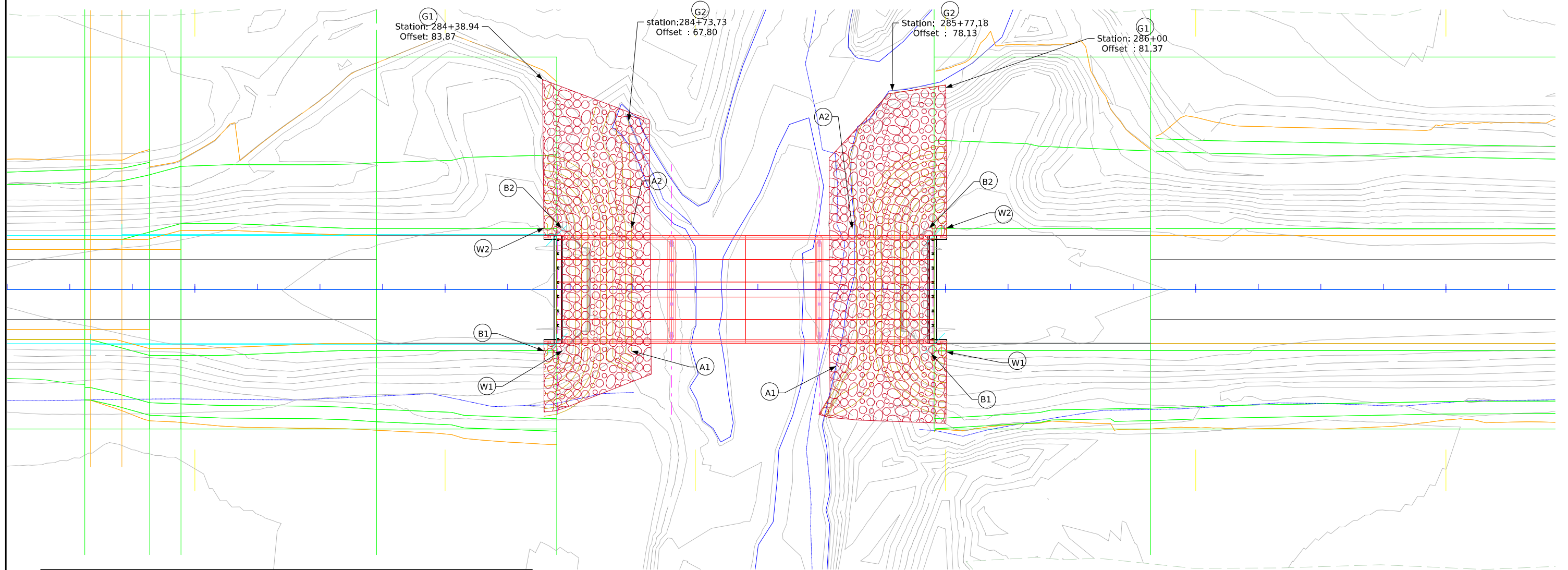
45'-6" End Spans 59'-0" Interior Span
Situation plan
 STA. 285+20.00 (IA 3) Turn-in Date: FEB 2026
Butler County
 IOWA DEPARTMENT OF TRANSPORTATION
 Design No. 0128 Design Sheet No. 1 of 2 FHWA/Asset 16511



Section Thru Embedded Revetment Berm

Points	West Abutment			East Abutment		
	Station	Offset	Elev.	Station	Offset	Elev.
A1	284+74.55	24.583	961	285+60	24.583	961
A2	284+74.55	24.583	961	285+60	24.583	961
B1	284+46.50	24.583	971.02	285+93.50	24.583	971.39
B2	284+46.50	24.583	971.02	285+93.50	24.583	971.39
W1	284+39.50	24.583	974.70	286+00.50	24.583	975.08
W2	284+39.50	24.583	974.70	286+00.50	24.583	975.08

Berm slope elevations reflect the grading surface.

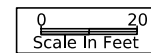


Estimated Berm Armoring Quantities

Location	Revetment CL. E (Ton)	Erosion Stone (Ton)	Engineering Fabric (SY)	CL. 10 Channel Excavation (CY)
Berm Lining - W.Abut	505	N/A	505	336
Berm Lining - E.Abut	630	N/A	630	420
Totals	1135		1135	756

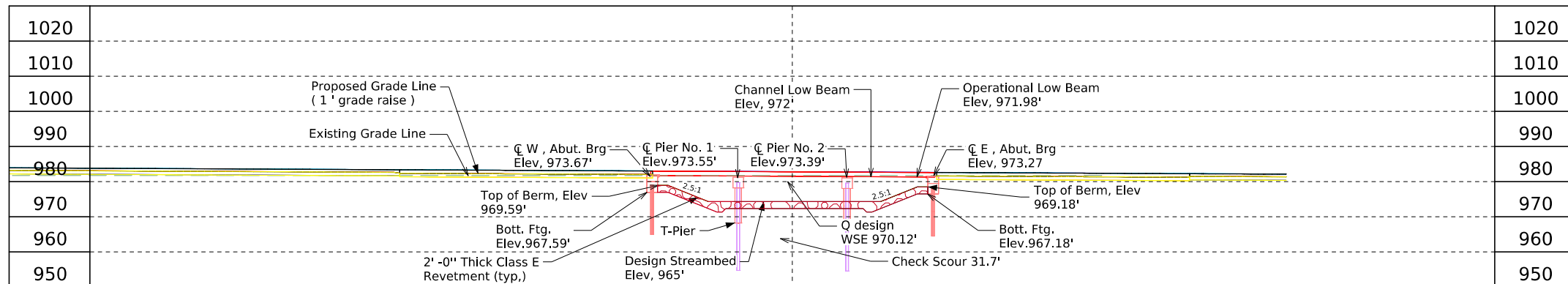
Excavation quantity calculated from grading surface. Excavation quantity if for embedded revetment core out only, and does not include excavation to the grading surface. Excavation quantity to the grading surface is determined by Road Design and included in the Road Plans.

Site Plan



Design For 0°
150'-0" x 40'-0" Continuous Concrete Slab Bridge
 45'-6 End Spans 59'-0 Interior Span
Situation plan - Site
 STA. 285+20.00 (IA 3) Turn-In Date: FEB 2026
Butler County
 IOWA DEPARTMENT OF TRANSPORTATION
 0128 Design Sheet No. 2 of 2 FHWA No. 16511

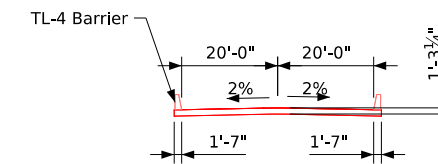
Control Point: N29,8944648.677,15322189.754,1027.795,CP Fnd NGS Second Order Class 0 vertical mark as described



Longitudinal Section Along Centerline of Bridge

General Note:
1-This design is for the placement of the Proposed 80' x 40' Continuous Concrete Slab overflow bridge Design No. 0228, FHWA No. 701385

Plan Notes:
1-Top of bridge deck at centerline roadway is 0.03' below the profile grade to account for the parabolic crown.



Typical Bridge Section

Hydraulic Data

RIDB: "RIDB: BoylanC_But_1.9"
Drainage Area = 58.9 Sq. Mi.

Operational Low Beam = 971.98'
Channel Low Beam = 972'

Q₅₀ = (Design Event) = 1784.7 cfs (7300 cfs) cfs
Stage = 970.12'
Operational Freeboard = 1.82 ft.
Avg. Bridge Velocity = 5.76 fps

Q₁₀₀ = 2008.7 cfs (8500 cfs)
Stage = 970.4
Operational Freeboard = 1.54 ft.
Backwater = ? ft.
Avg. Bridge Velocity = 6.36 fps

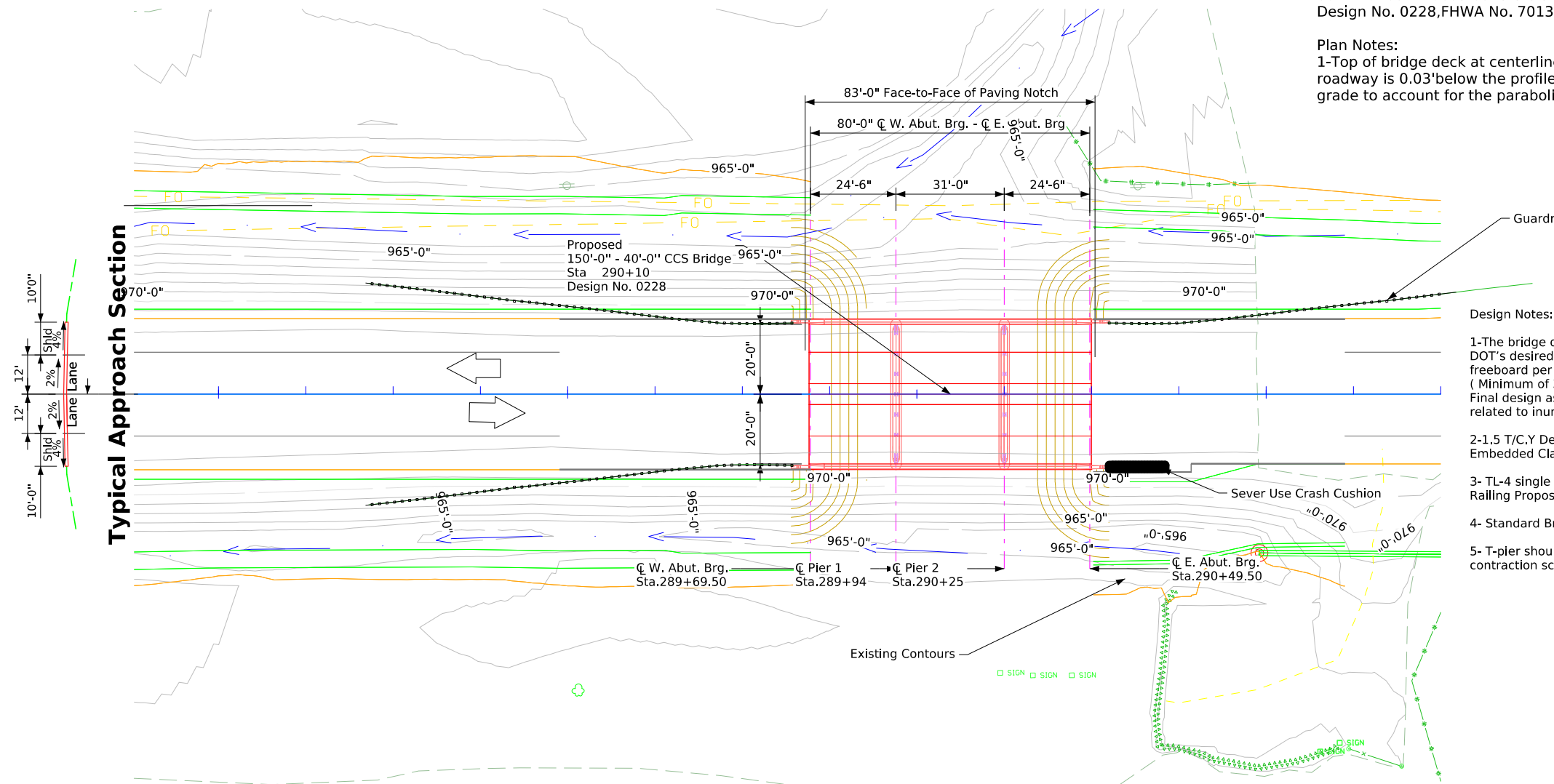
Q₂₀₀ = 2572.9 cfs (10700 cfs)
Stage = 970.93'
Avg. Bridge Velocity = 7.56fps
Calculated Design Scour = 30.9'

Q₅₀₀ = 2696.5 cfs (11400 cfs)
Stage = 971.02
Channel Freeboard = 0.88 ft.
Avg. Bridge Velocity = 7.73 fps
Calculated Check Scour = 31.7 Ft

Roadway Overtop 972.0
Sta. 303+06.00
Discharge in parentheses represents total streamflow

Location

IA 3 Over Boylan Creek Overflow
T-92N R-18W
Section 25&36
Pittsford Township
Butler County
FHWA No. 701385
Bridge Maint. No. TBD
Latitude 42.744806°
Longitude -92.917667°



Typical Approach Section

Design Notes:

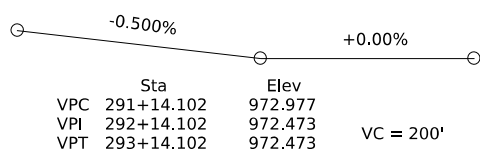
- 1-The bridge does not meet Iowa DOT's desired (operational or channel) freeboard per BDM 3.2.2.4 (Minimum of 3' at Q50) Final design aspects in the BDM related to inundation required.
- 2-1.5 T/C.Y Density used for 2' thick Embedded Class E revetment.
- 3- TL-4 single slope Bridge Railing Proposed.
- 4- Standard Bridge Index No. J40.
- 5- T-pier should be used due to the excessive contraction scour elevation.

Utilities Note:

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

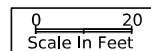
General Utility Symbols:

- E - Electric Line
- G - Gas Line
- SAN. - Sanitary Sewer
- T - Telephone Line
- W - Water Line
- FO - Fiber Optic Line
- GHP - Gas High Pressure
- ST S - Storm Sewer
- TV - TV
- Power Poles



Proposed Profile Grade IA 3

Situation Plan

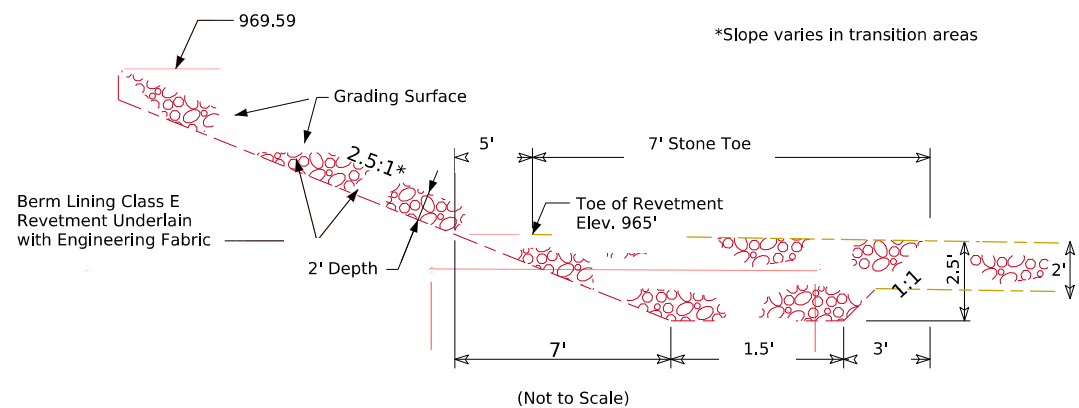


Traffic Estimate

2028 AADT	1100 V.P.D.
2048 AADT	1200 V.P.D.
20?? DHV	?? V.P.H.
TRUCKS	18 %
Total Design ESALS	???

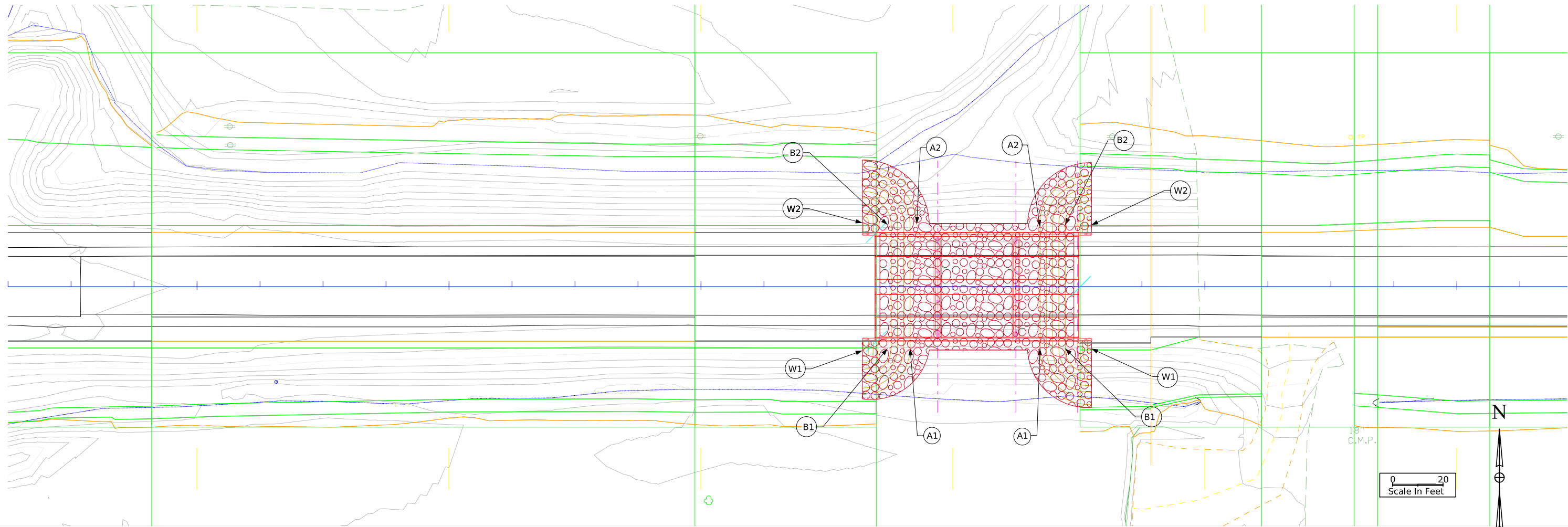
Design For 0°
80'-0 x 40'-0 Continuous Concrete Slab Bridge
24.5' End Spans 31' Interior Span
Situation Plan
STA. 290+10 (IA 3) Turn-In Date: FEB 2026
Butler County
IOWA DEPARTMENT OF TRANSPORTATION
Design No. 0228 Design Sheet No. 1 of 2 FHWA/Asset 701385

Control Point:



Points	West Abutment			East Abutment		
	Station	Offset	Elev.	Station	Offset	Elev.
A1	289+85	24.583	965	290+34	24.583	965
A2	289+85	24.583	965	290+34	24.583	965
B1	289+74	24.583	969.59	290+45	24.583	969.18
B2	289+74	24.583	969.59	290+45	24.583	969.18
W1	289+64	24.583	973.27	290+55	24.583	972.87
W2	289+64	24.583	973.27	290+55	24.583	972.87

Berm slope elevations reflect the grading surface.



Estimated Berm Armoring Quantities

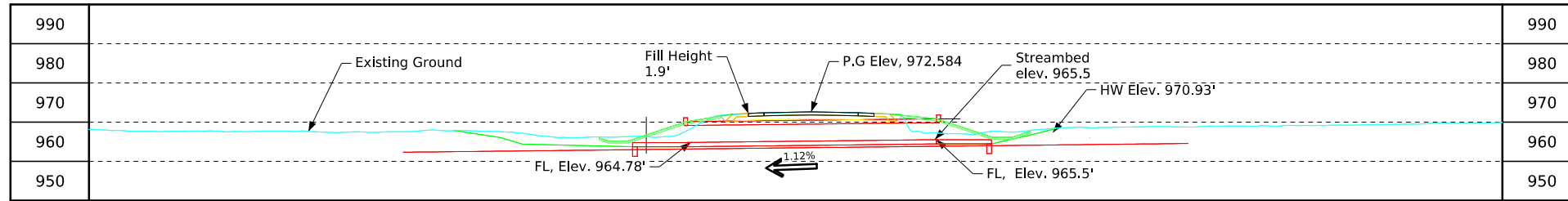
Location	Revetment CL. E (Ton)	Erosion Stone (Ton)	Engineering Fabric (SY)	CL. 10 Channel Excavation (CY)
Berm Lining - west Abut	220	XX	220	145
Berm Lining - East Abut	215		215	140
Bridge opening W stone - E Stone	220		220	140
Totals	655		655	425

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.

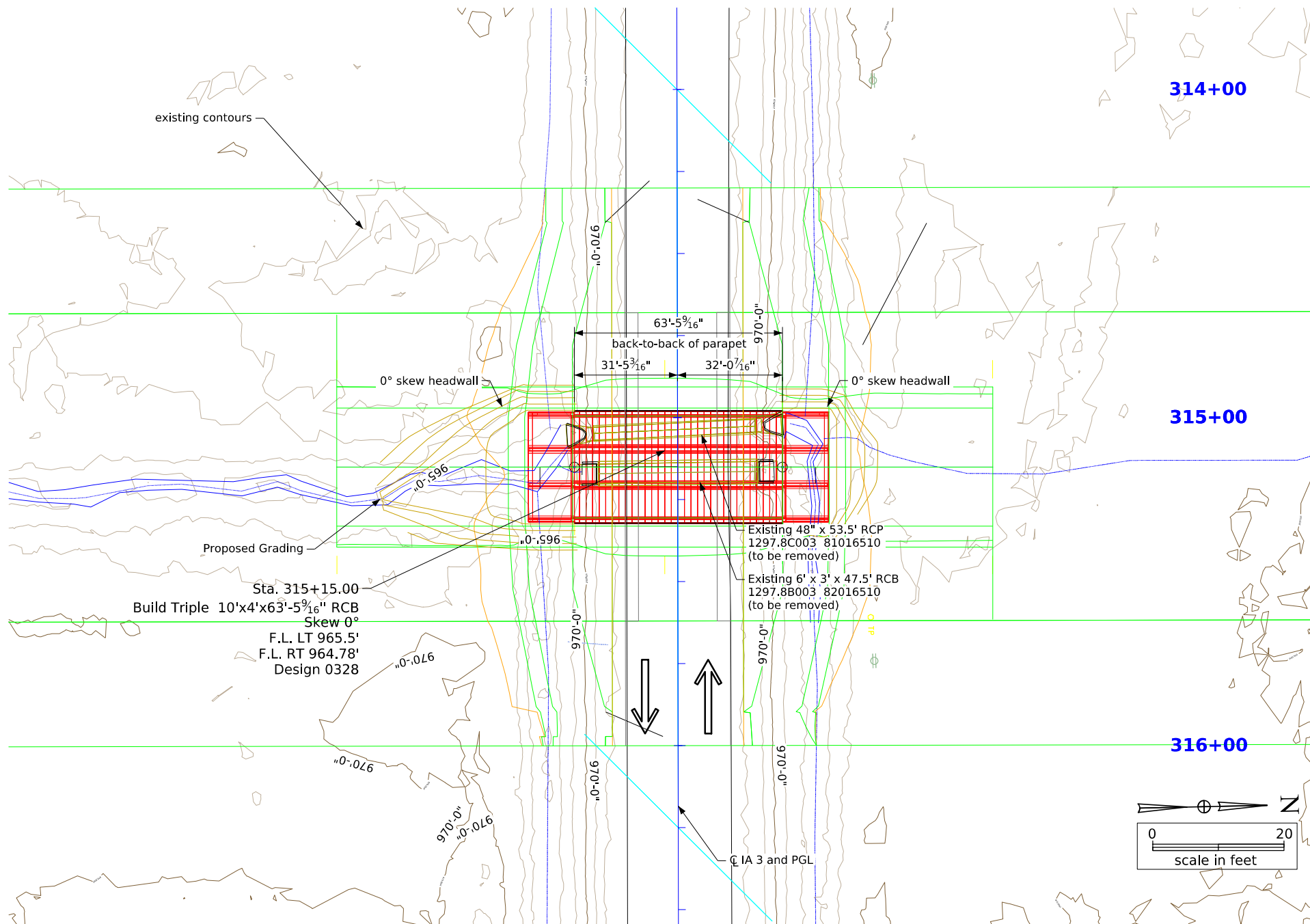
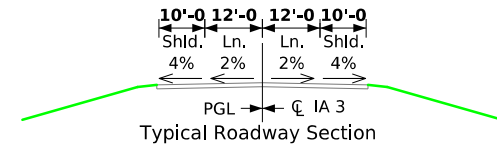
Site Plan

Design For 0°
80'-0 x 40'-0 Continuous Concrete Slab Bridge
 24.5' End Spans 31' Interior Span
Situation Plan - Site
 STA. 290+10 (IA 3) Turn-In Date: FEB 2026
Butler County
 IOWA DEPARTMENT OF TRANSPORTATION
 Design No. 0228 Design Sheet No. 2 of 2 FHWA No. 701385

Control Point: N29,8944648.677,15322189.754,1027.795,CP Fnd NGS Second Order Class 0 vertical mark as described



Longitudinal Section Along Centerline of Culvert - Sta. 315+15



Situation Plan

General Notes:

This design is for the replacement of the existing 48" x 53.5' RCP and 6'x3'x47.5' RCB, Maintenance Number 1297.8C003 and 1297.8B003 .

Utilities Note:

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

General Utility Symbols:

- E - Electric Line
- G - Gas Line
- SAN - Sanitary Sewer
- T - Telephone Line
- W - Water Line
- FO - Fiber Optic Line
- GHP - Gas High Pressure
- ST S - Storm Sewer
- TV - TV
- ⊕ - Power Poles

IA 3 Traffic Est. Proposed Profile Grade IA 3

2022 AADT	1080	V.P.D.
2048 AADT	1200	V.P.D.
20?? DHV	???	V.P.H.
Trucks	18	%
Total Design ESALs	---	

Hydraulic Data

RIDB: "RIDB: BoylanC_But_1.9"
Drainage Area = 58.9 sq.Mi

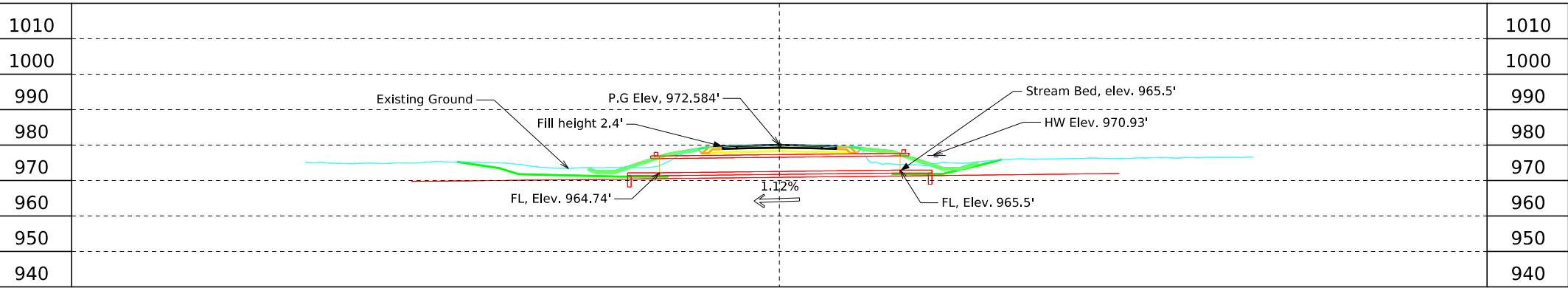
Location

Iowa 3 over Boylan Creek
East Overflow
T-92N, R-18W
Sections 25 and 36
Pittsford Township
Butler County
FHWA No. 701390
Latitude 42.744722°
Longitude -92.908361°

Q ₅₀ = (Design Event) = 434.7 cfs (7300 cfs)
HW Elev. = 970.93
Exit Velocity = 2.56 fps
Q ₁₀₀ = 531.8 cfs (8500 cfs)
HW Elev. = 971.4'
Exit Velocity = 2.86' fps
Discharge in parentheses represents total streamflow.

Design For 0° Skew
**Triple 10'x4'x63'-5⁹/₁₆" C.I.P
 Reinforced Concrete Box Culvert**
 Situation Plan - C.I.P
 Sta. 315+15.0 (Centerline IA 3) TSL Date: March 2024
Butler County
 IOWA DEPARTMENT OF TRANSPORTATION
 Design No. 0328 Design Sheet No. 1 of 2 FHWA 701390

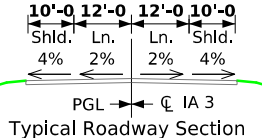
Control Point: N29,8944648.677,15322189.754,1027.795,CP Fnd NGS Second Order Class 0 vertical mark as described



General Note:

This design is for the replacement of the existing 48" x53.5' RCP and 6'x3'x47.5' RCB, Maintenance Number 1297.8C003 and 1297.8B003

Longitudinal Section Along CL Culvert

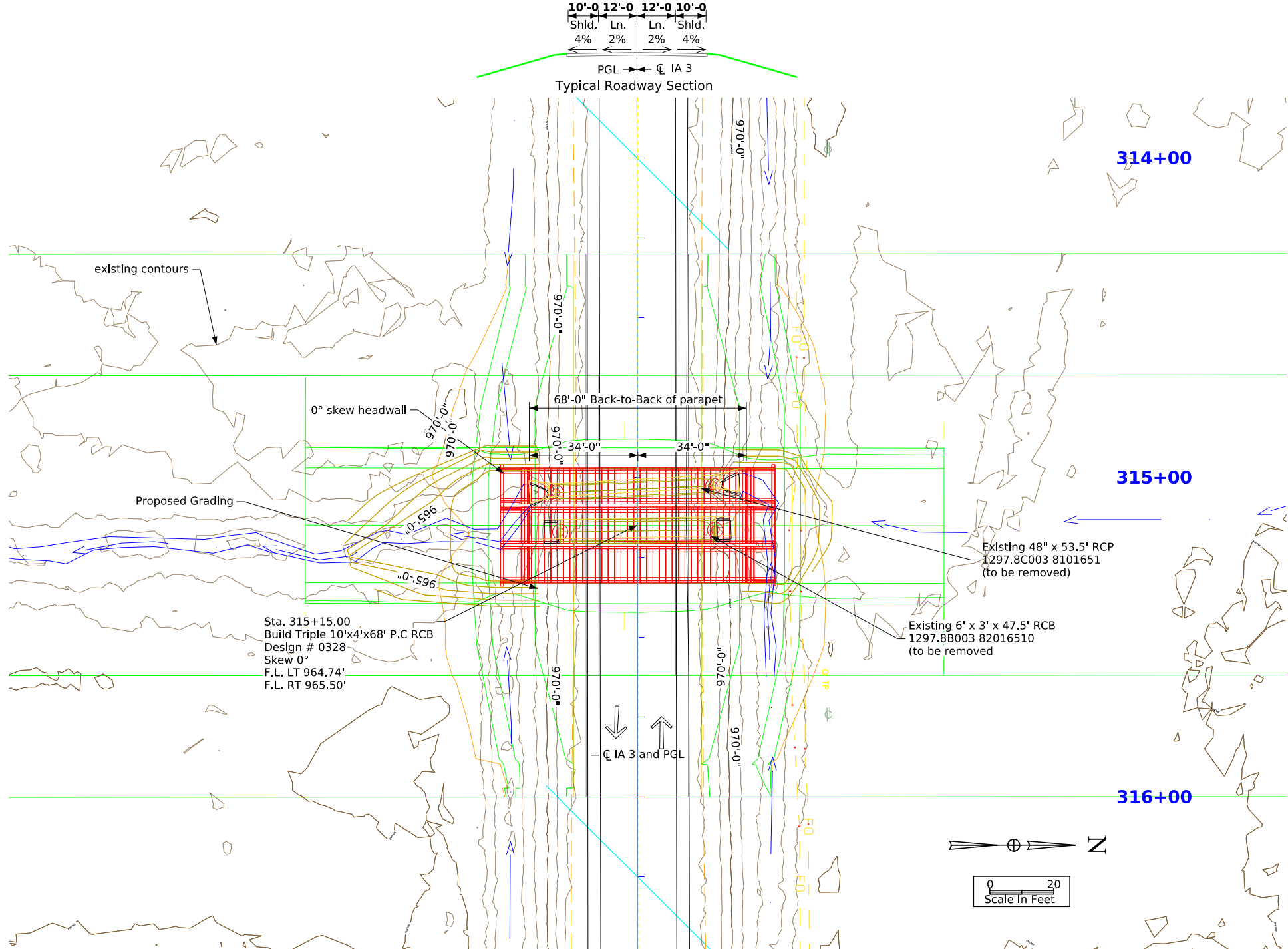


Utilities Note:

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

General Utility Symbols:

- E - Electric Line
- G - Gas Line
- SAN. - Sanitary Sewer
- T - Telephone Line
- W - Water Line
- FO - Fiber Optic Line
- GHP - Gas High Pressure
- STS - Storm Sewer
- TV - TV
- ⊕ - Power Poles



Traffic Estimate

2022 AADT	1080 V.P.D.
2048 AADT	1200 V.P.D.
20?? DHV	?? V.P.H.
TRUCKS	18% %
Total Design ESALs	

Proposed Profile Grade IA 3

Hydraulic Data

RIDB: "RIDB: BoylanC_But_1.9"
 Drainage Area =58.9 sq.MI

Q_{50} = (Design Event) = 434.7 cfs (7300 cfs) cfs
 HW Elev. = 970.93'
 Exit Velocity = 2.56 fps

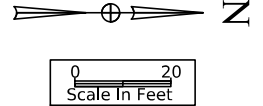
Q_{100} = 531.8 cfs (8500 cfs)
 HW Elev. = 971.4'
 Exit Velocity = 2.86' fps

Discharge in parentheses represents total streamflow.

Location

Iowa 3 over Boylan Creek
 East Overflow
 T-92N R-18W
 Section 25 & 36
 Pittsford Township
 Butler County
 FHWA No. 701390
 Latitude 42.744722°
 Longitude -92.908361°

Situation Plan



Design For 0°

Triple 10'x4'x68' Precast Reinforced Concrete Box Culvert

Situation Plan - Precast

STA. 315+15.0 (IA 3) Turn-in Date: March 2024

Butler County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0328 Design Sheet No. 2 of 2 FHWA/Asset 701390

CROSS SECTION VIEW COLOR LEGEND

Design Color No.	Feature	Design Color No.	Feature
Aggregate			
(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
Grading			
(8)	Revetment Class A	(128)	Boulder
(6)	Revetment Class B	(209)	Boulder Removed
(62)	Revetment Class C	(48)	Broken Weathered
(188)	Revetment Class D	(210)	Broken Weathered Removed
(28)	Revetment Class E	(3)	Core Out
(12)	Shoulder Special Backfill	(115)	Core Out Remove Only
(12)	Special Backfill	(195)	Core Out Remove and Replace
(20)	Subbase	(203)	Existing Pavement
(20)	Subbase Lower	(184)	Existing Pavement Remove Only
(20)	Subbase Upper	(200)	Existing Pavement Remove and Replace
(118)	Subgrade Treatment	(6)	Loam
Substrata			
(207)	HMA Base Course	(211)	Loam Removed
(207)	HMA Interim Course	(80)	Rock
(207)	HMA Surface Course	(212)	Rock Removed
(0)	Bridge	(4)	Select Sand
(0)	Barrier Concrete	(214)	Select Sand Removed
(0)	Barrier Concrete Footing	(3)	Shale
(0)	Curb Gutter	(215)	Shale Removed
(48)	Flowable Mortar	(10)	Topsoil
(0)	Median Concrete	(2)	Topsoil Remove Only
(0)	PCC Pavement	(4)	Topsoil Remove and Replace
(0)	Sidewalk	Unsuitable / Waste	
(0)	Existing Pavement	(3)	Unsuitable Type A
(209)	Shoulder HMA	(216)	Unsuitable Type A Removed
(0)	Shoulder PCC	(13)	Unsuitable Type B
(6)	Shoulder Granular	(217)	Unsuitable Type B Removed
(112)	Noise Wall	(11)	Unsuitable Type C
(112)	Noise Wall Footing	(218)	Unsuitable Type C Removed
(112)	Retaining Wall Back	(3)	Waste
(112)	Retaining Wall Back Excavate	(219)	Waste Removed
(112)	Retaining Wall Face		
(112)	Retaining Wall Front Excavate		
(112)	Retaining Wall Front Footing		
(112)	Retaining Wall MSE Gutter		
(112)	Retaining Wall Reinforced Earth		
Concrete			
Asphalt			
Bridge			
Shoulder			
Structural			

NOTES:

Text

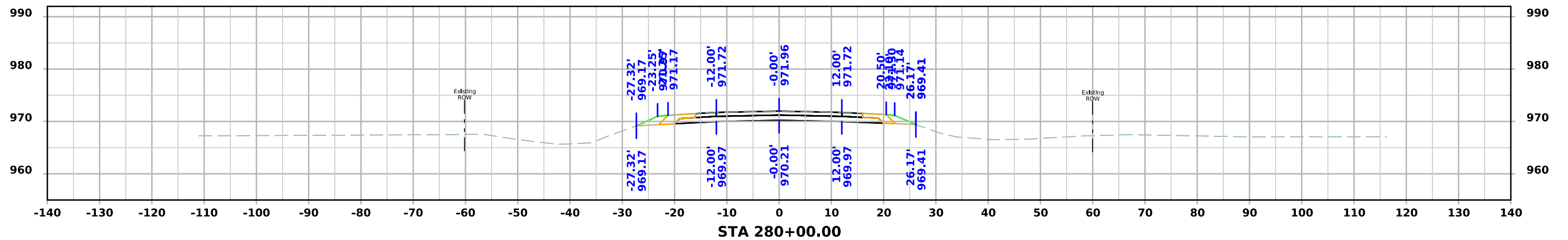
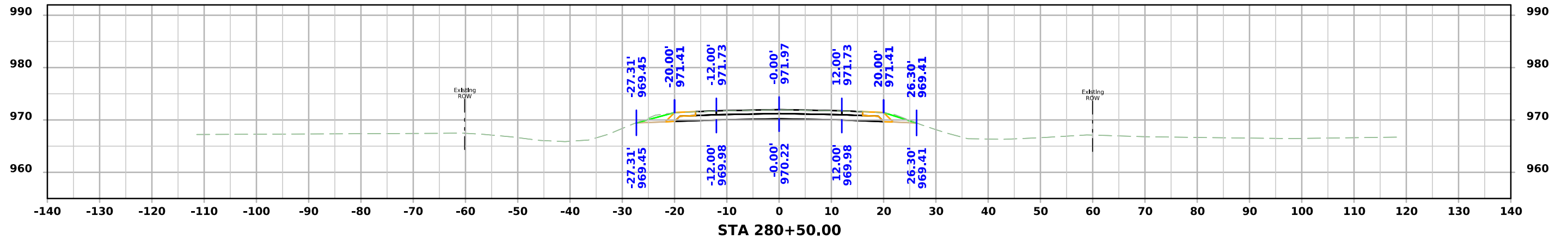
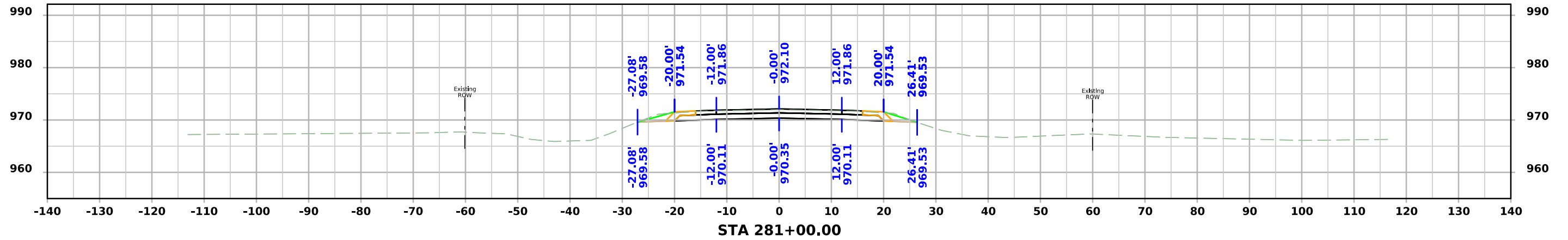
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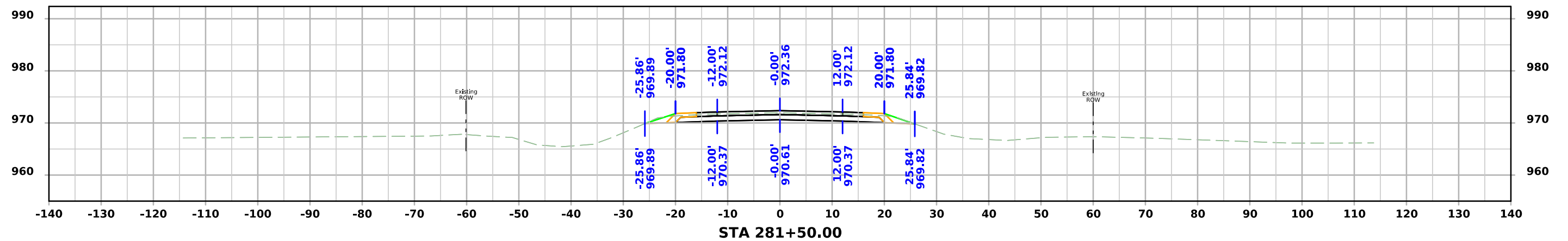
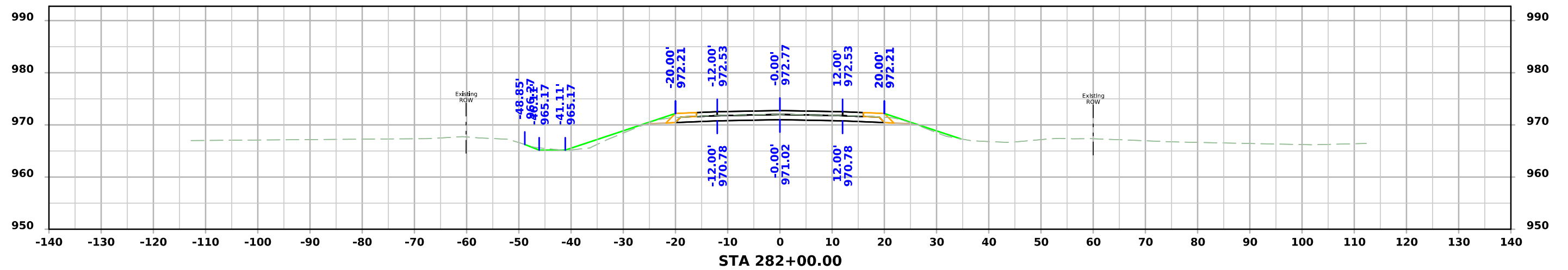
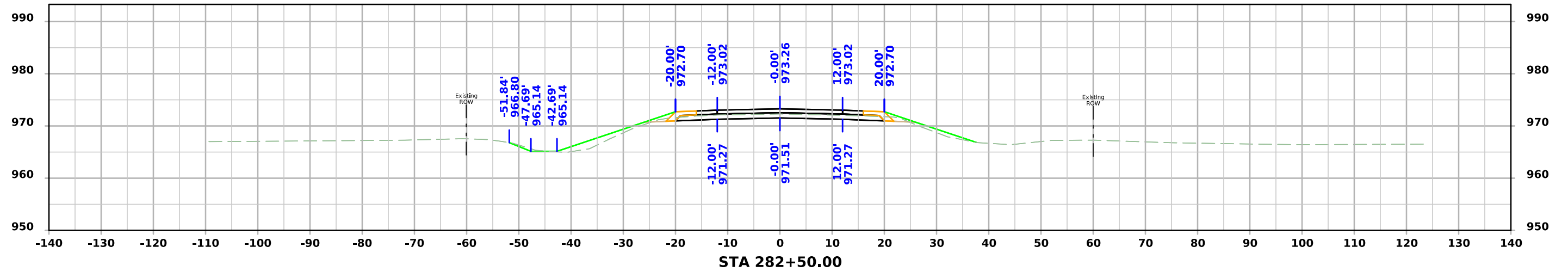
CROSS SECTIONS LEGEND AND INFORMATION SHEET

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

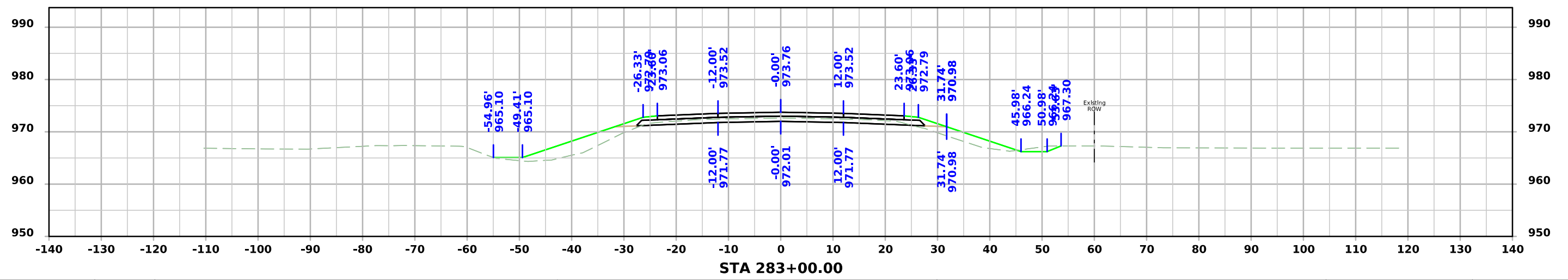
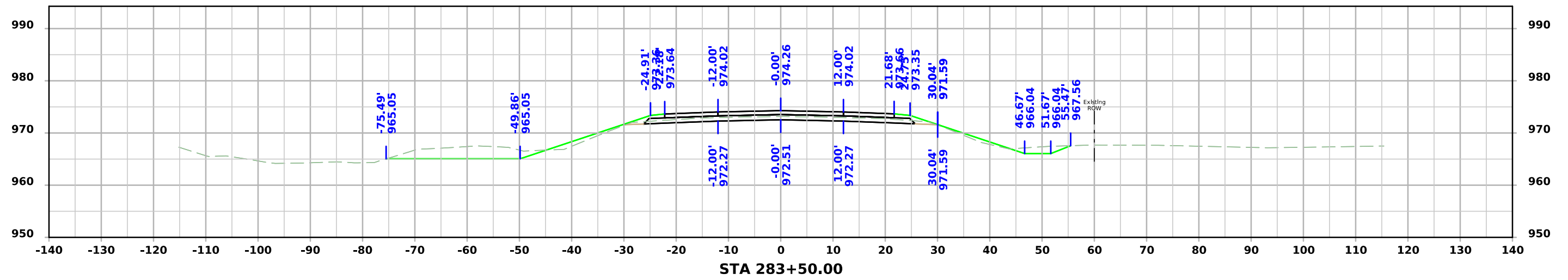
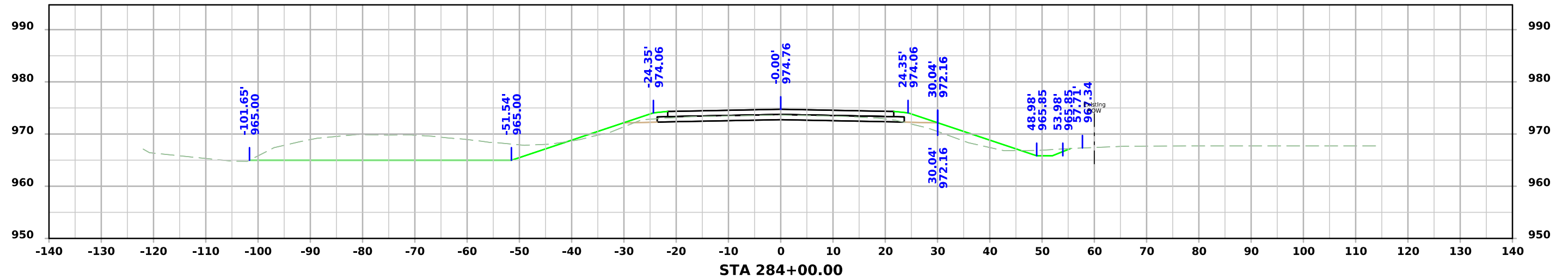
ML - IA 3



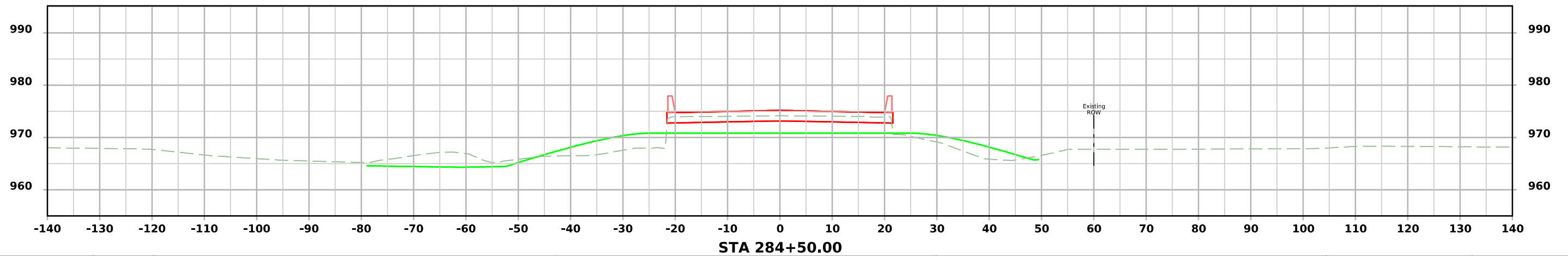
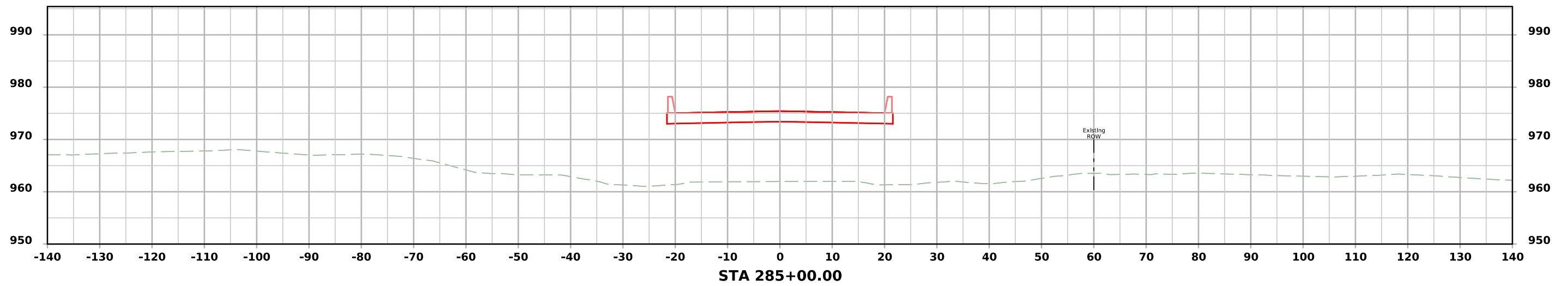
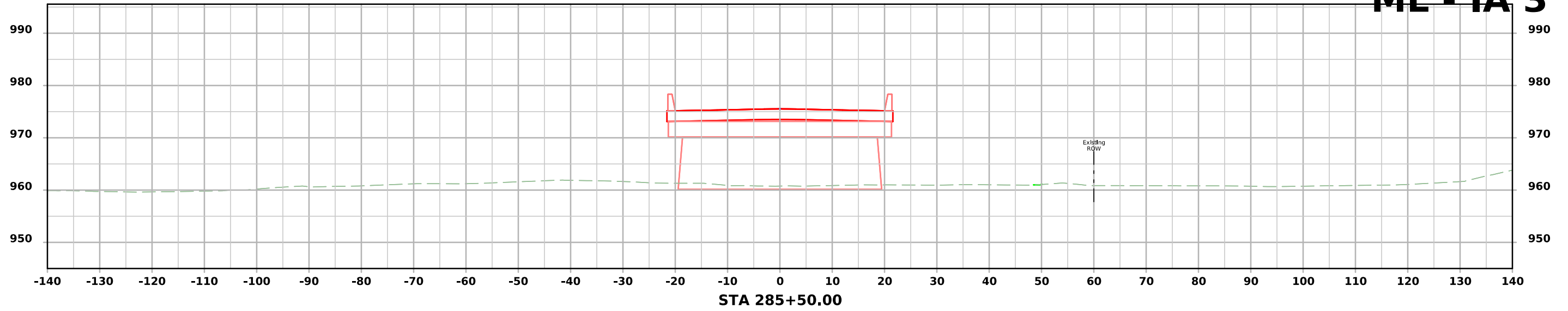
ML - IA 3



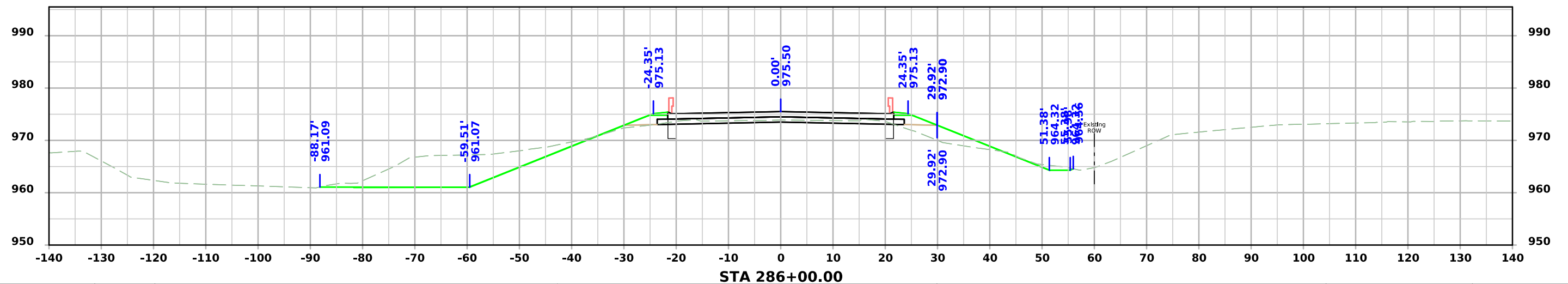
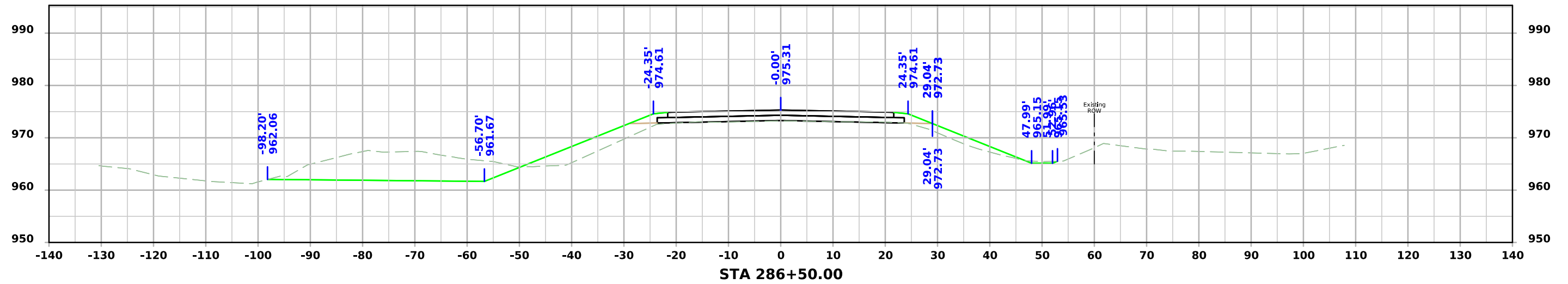
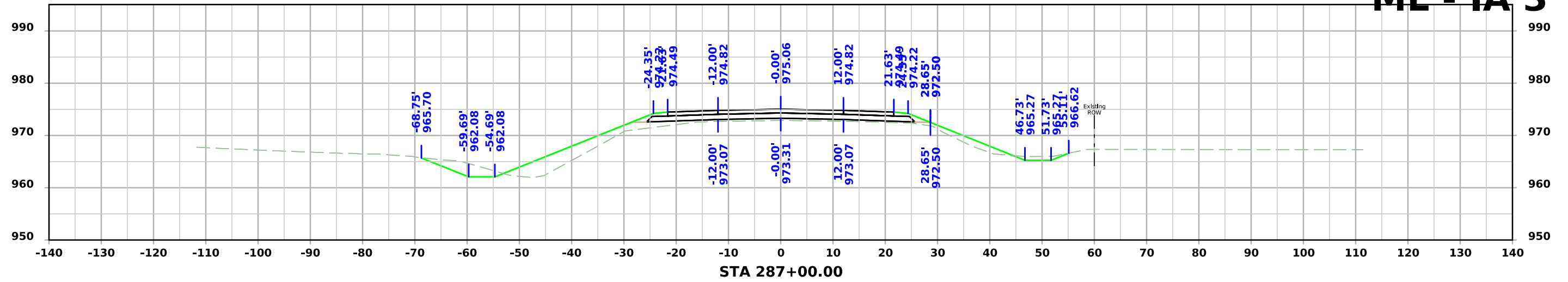
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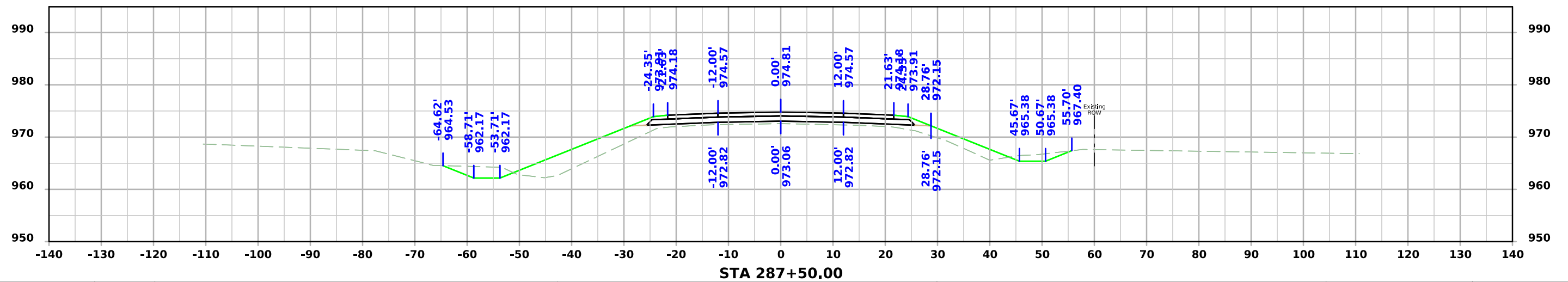
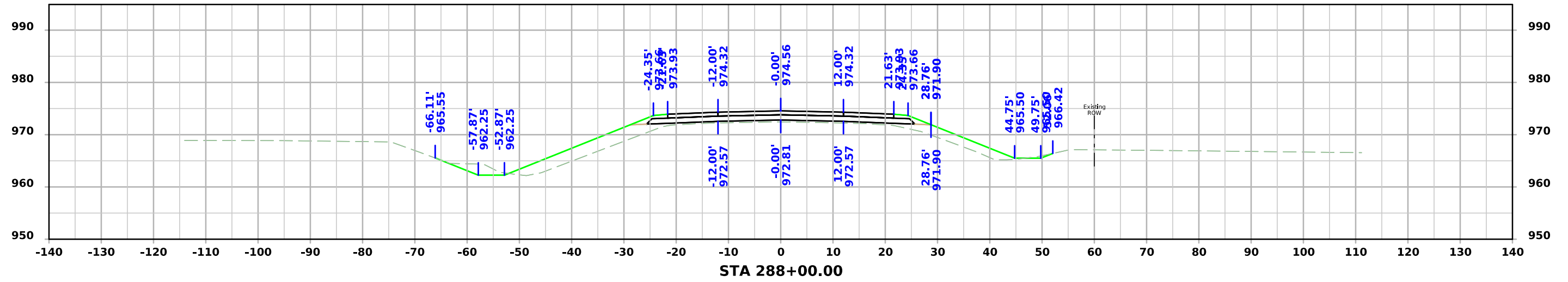
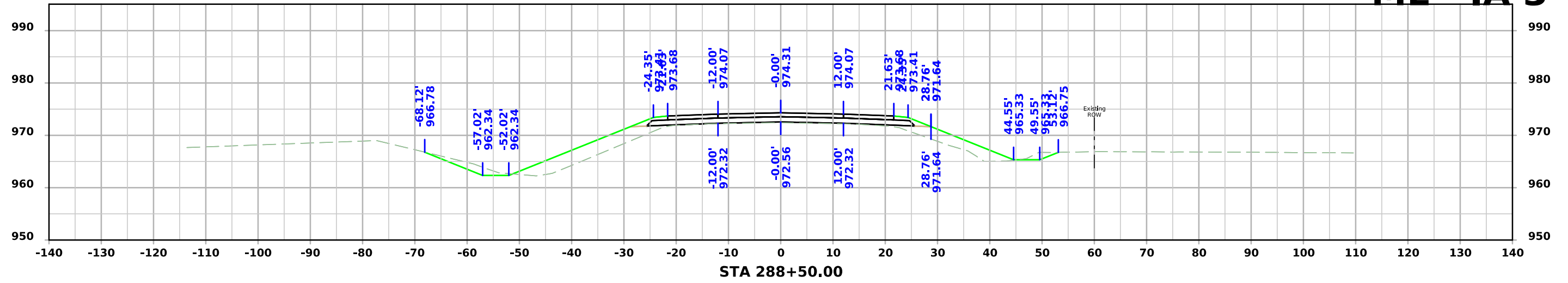
ML - IA 3



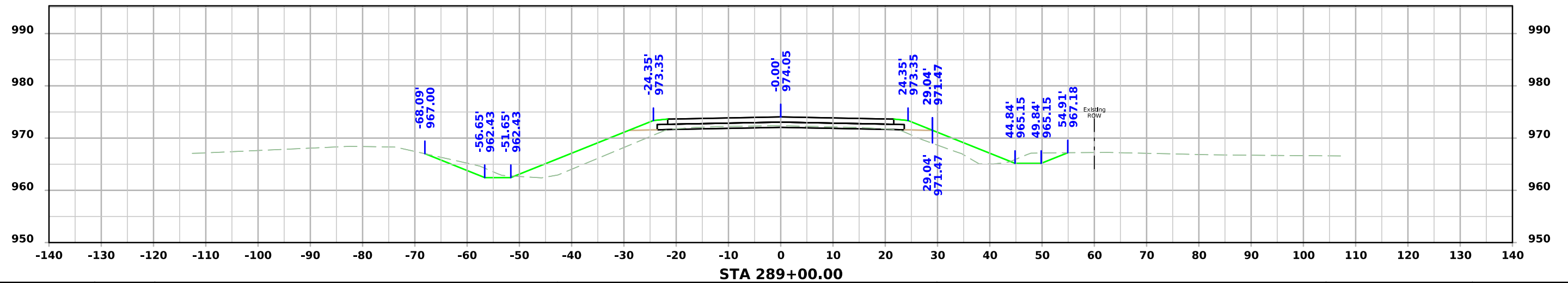
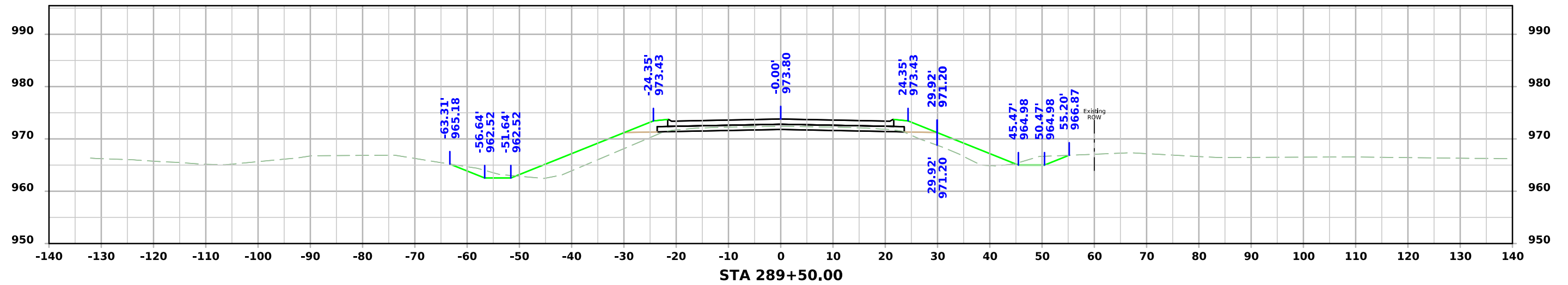
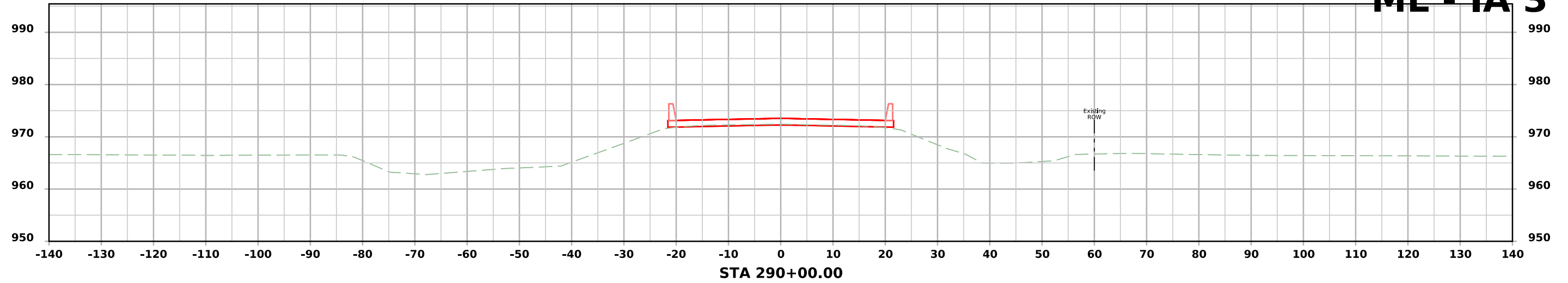
ML - IA 3



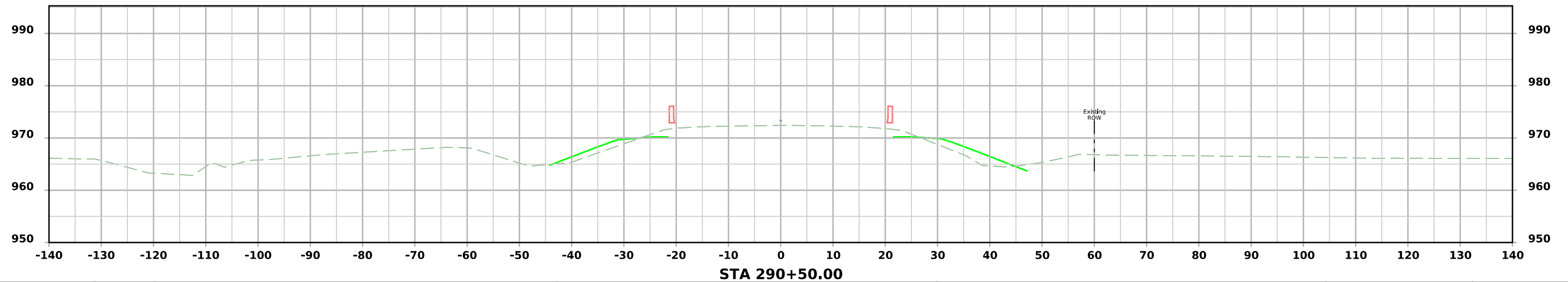
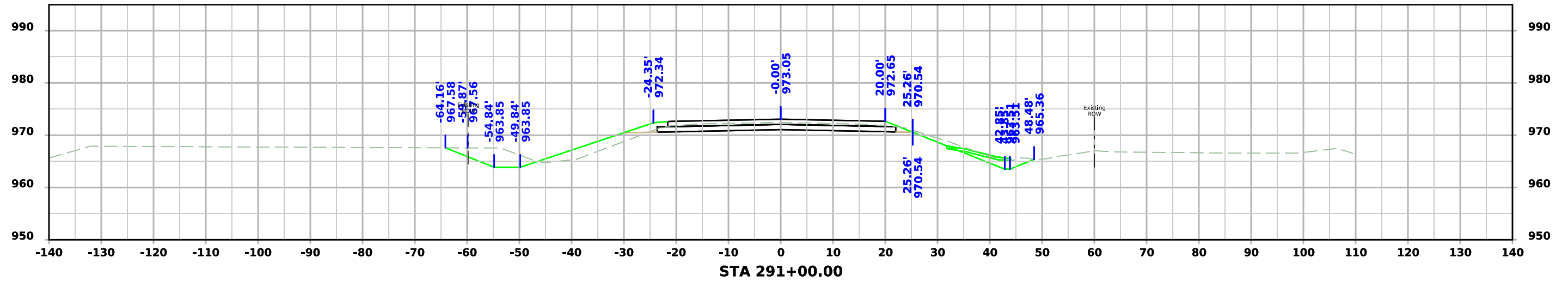
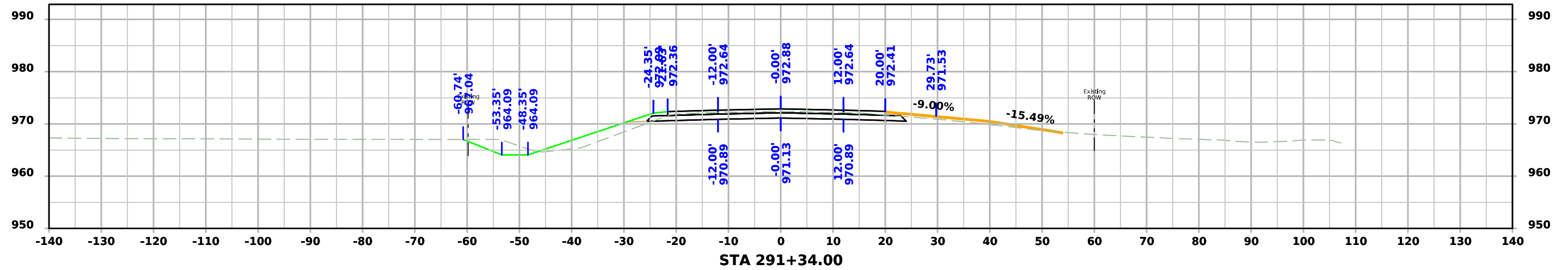
ML - IA 3



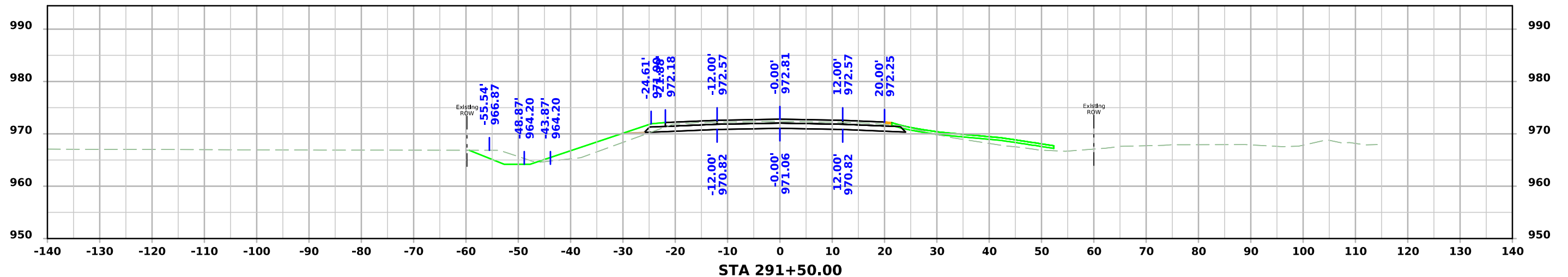
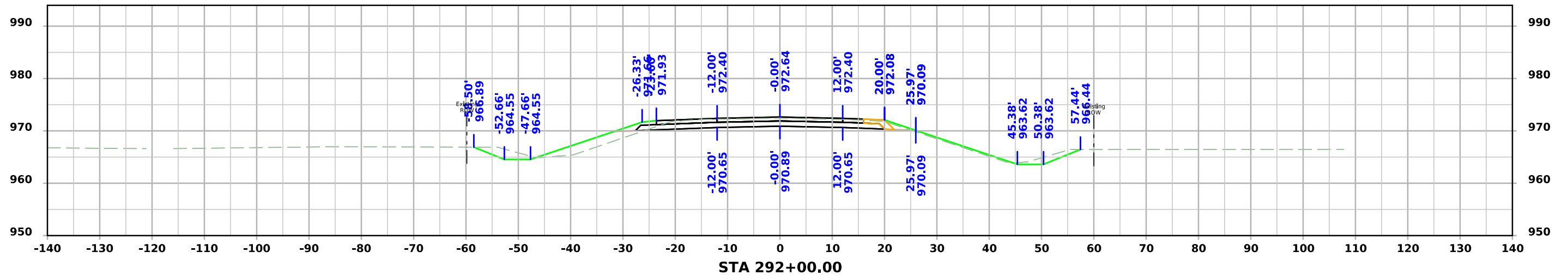
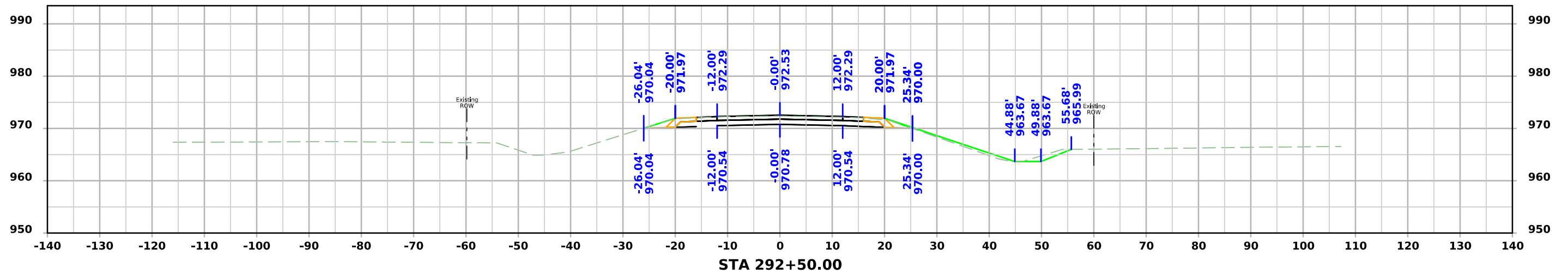
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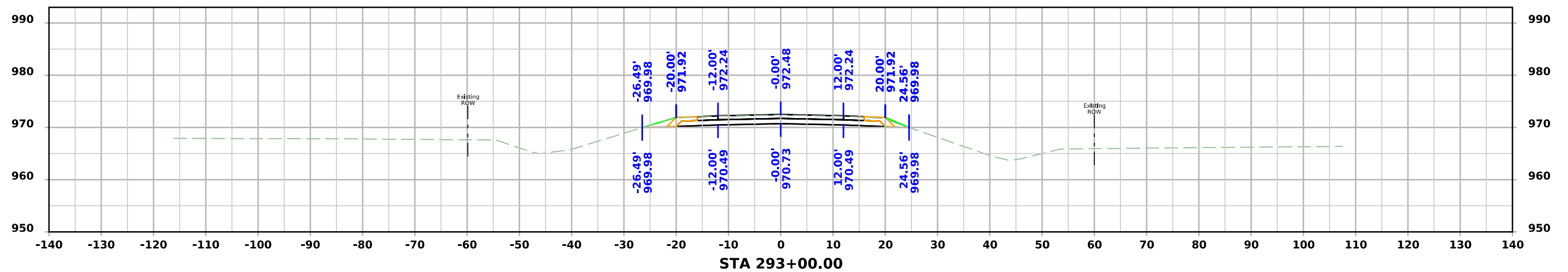
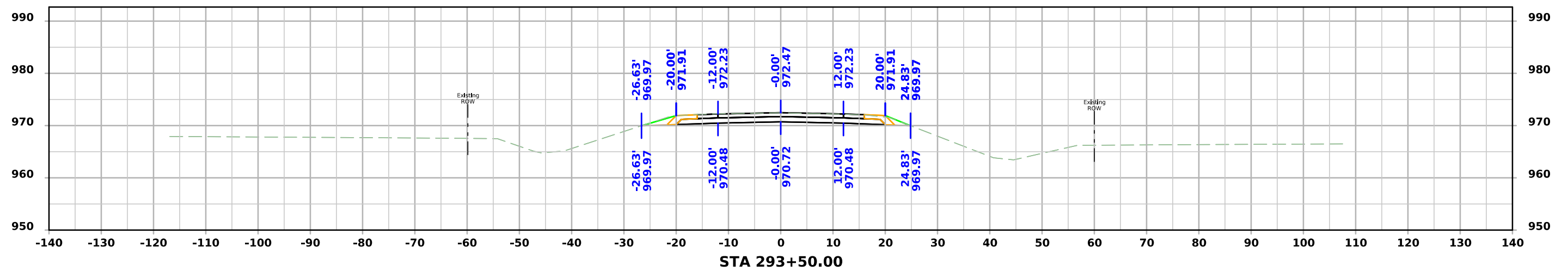
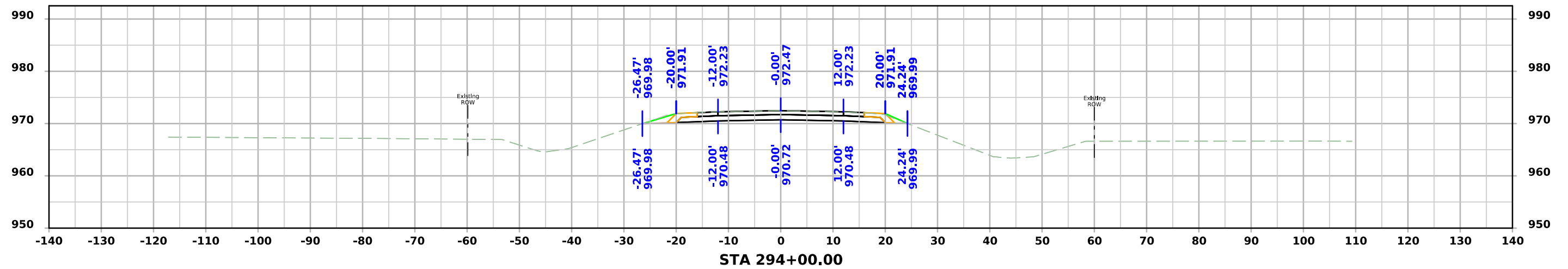
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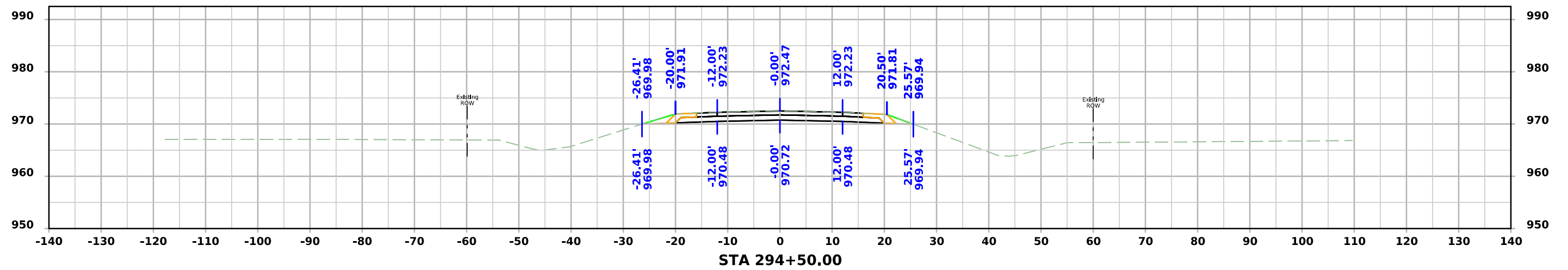
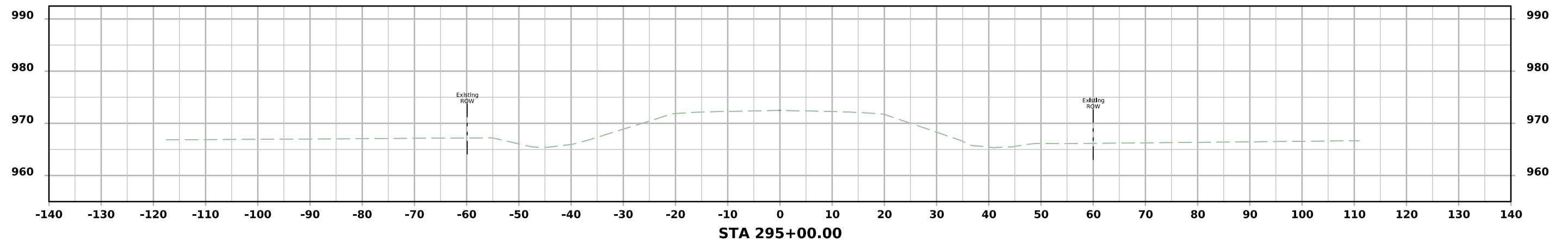
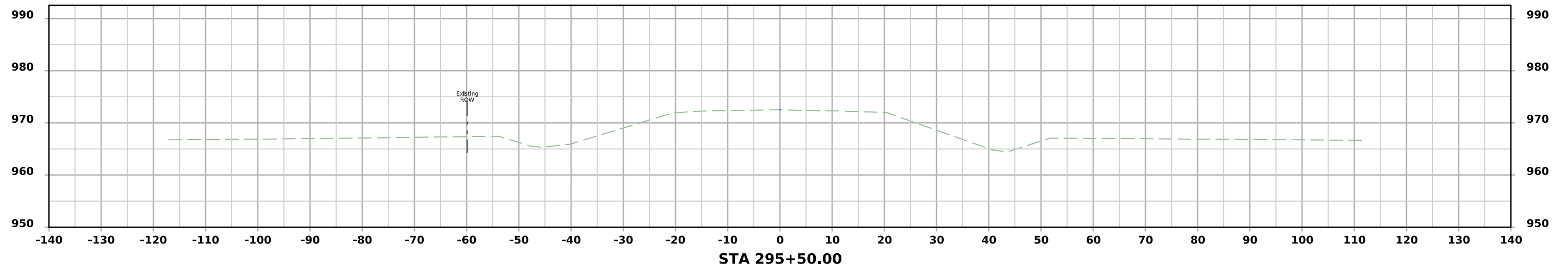
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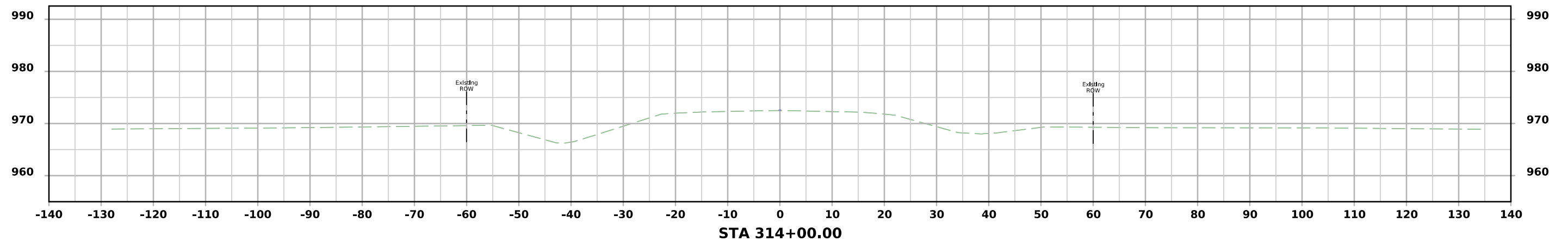
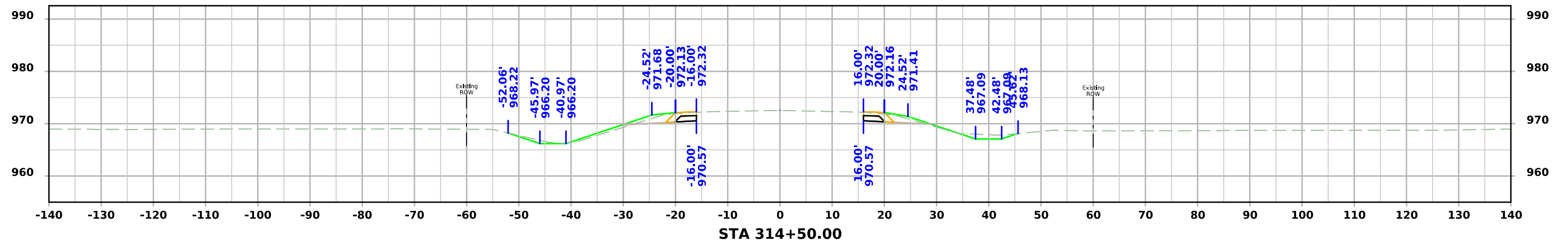
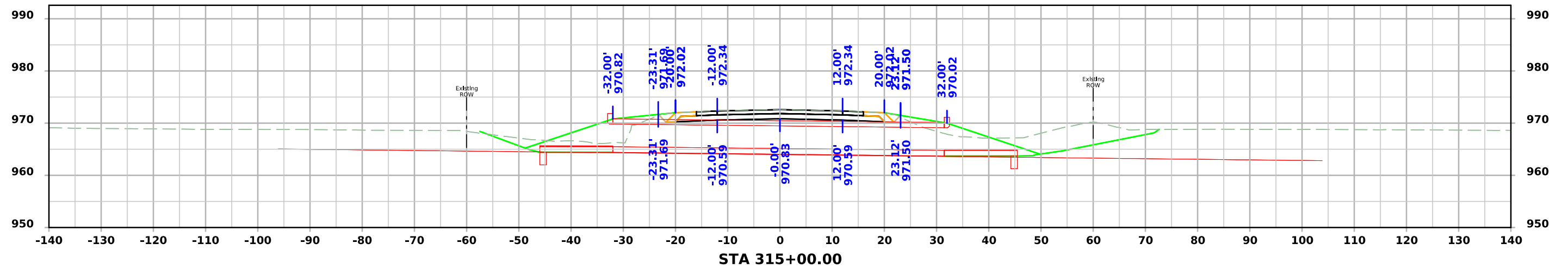
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