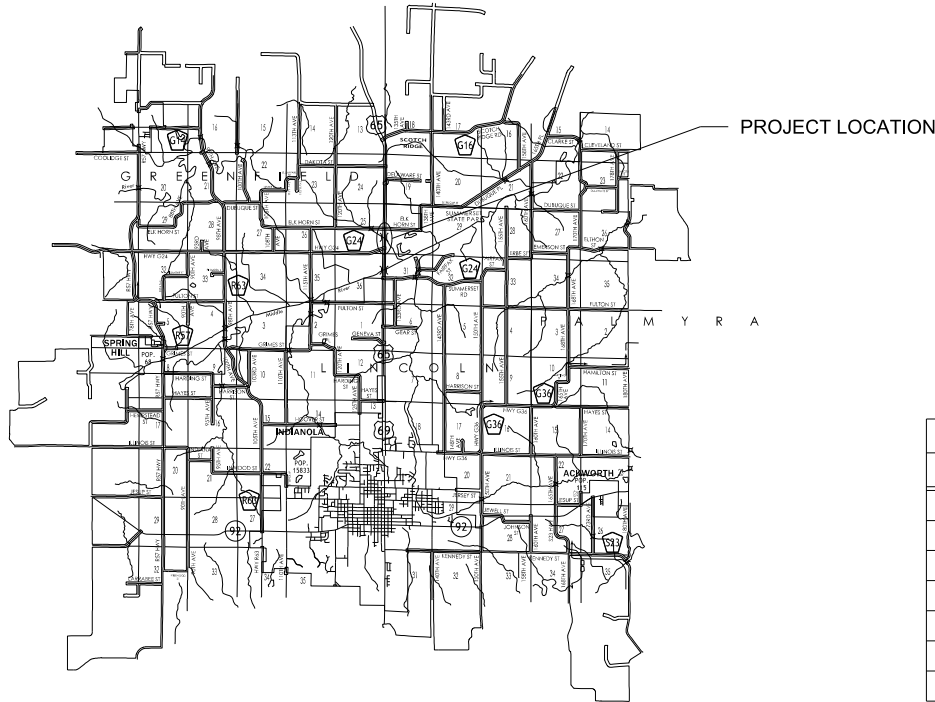
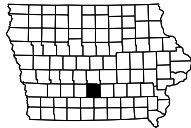


WARREN COUNTY

Bridge Replacement
BRF-065-3(087)--38-91

LETTING DATE
Nov 17 2026



INDEX OF SHEETS	
No.	DESCRIPTION
A Sheets	Title Sheets
A.1	Title Sheet
B Sheets	Typical Cross Sections and Details
B.1 - 3	Typical Cross Sections and Details
D Sheets	Mainline Plan and Profile Sheets
* D.1	Plan & Profile Legend & Symbol Information Sheet
* D.2	ML65 Plan and Profile
G Sheets	Survey Sheets
G.1	Survey Information
G.2	Control Point Vacinity Map
G.3	Horizontal and Vertical Point Control
J Sheets	Traffic Control and Staging Sheets
J.1	Traffic Control Plan
J.2	Staging Notes
* J.3	Traffic Control & Staging Legend & Symbol Info. Sheet
* J.4 - 12	Staging and Traffic Control Sheets
U Sheets	500 Series, Mod.Stds. and Detail Sheets
U.1	500 Series, Modified Standards and Detail Sheets
V Sheets	Bridge and Culvert Situation Plans
* V.1	Bridge and Culvert Situation Plans
* V.2	Bridge and Culvert Site Plans
* V.3	Bridge Staging Plans
W Sheets	Mainline Cross Sections
* W.1	Cross Sections Legend & Symbol Information Sheet
* W.2 - W.15	Mainline Cross Sections
* Color Plan Sheets	

<<<-- H SHEETS



PLANS OF PROPOSED IMPROVEMENT ON THE
PRIMARY ROAD SYSTEM
WARREN COUNTY
Bridge Replacement
US 65 Bridge over Stream
0.2 miles N. of Co. Rd. G24 (NB)

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

PROJECT IDENTIFICATION NUMBER	TOTAL
	40
22-91-065-010	
PROJECT NUMBER	
BRF-065-3(087)--38-91	
R.O.W. PROJECT NUMBER	
NHSN-065-3(088)--2R-91	

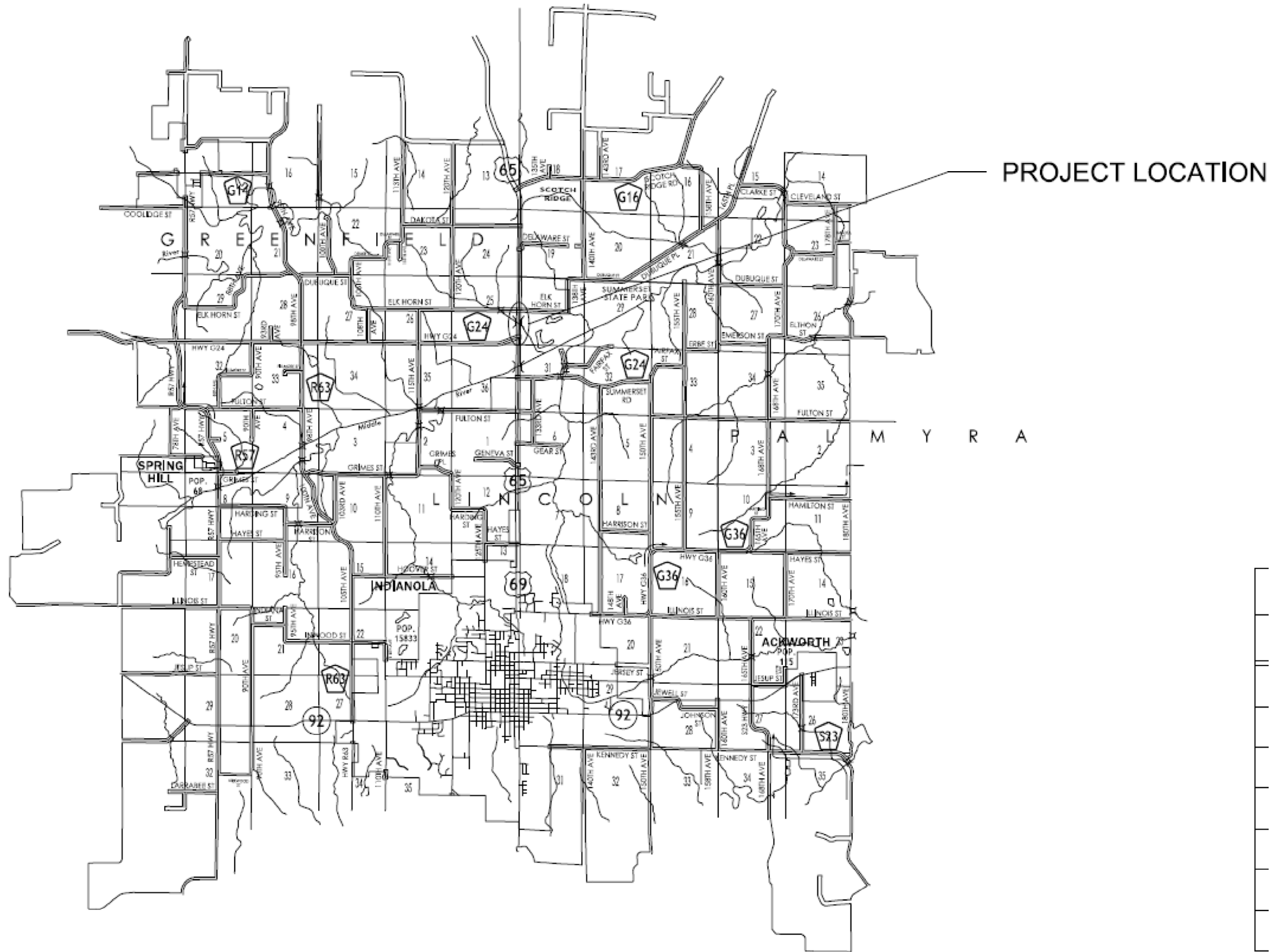
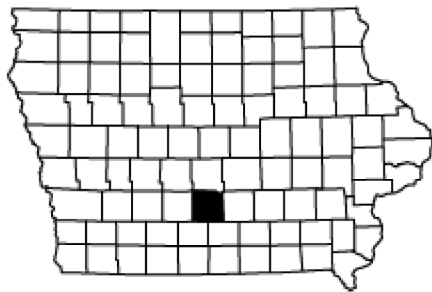
P9 PLAN - Date: 5-14-25
D4 PLAN - Date: 7-21-26

PRELIMINARY PLANS

Subject to change by final design.

D5 PLAN - Date: 12-20-24

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



PCC SHOULDER

Shoulder Jointing:
Longitudinal joint: BT-1 or BT-5
Transverse Joint: C (match existing ML joint spacing)

4_P_PCC			
Direction of Travel	BEGIN STATION	END STATION	(P) Feet
NB	836+21.91	838+82.05	6
NB	841+80.14	844+10.14	6

Paved Shoulder at Guardrail

PCC Shoulder Jointing:
Longitudinal joint: BT-1 or BT-5
Transverse joints: C (match existing ML joint spacing)

4_P_Guard_04-21-20			
Direction of Travel	BEGIN STATION	END STATION	(P) Feet
NB	836+21.91	836+41.91	3.6
NB	836+41.91	838+82.05	Varies

Detour Pavement

PCC Shoulder Jointing:
Longitudinal joint: B
Transverse joints: C
HMA Shoulder Jointing:
Longitudinal joint: B

Custom				
Direction of Travel	BEGIN STATION	END STATION	(P) Feet	SPECIAL BACKFILL (CY)
NB	836+27.17	839+50.00	4	90
NB	839+50.00	839+96.81	2	7.9
NB	840+82.38	844+25.83	4	96.4

PCC SHOULDER

Shoulder Jointing:
Longitudinal joint: BT-1 or BT-5
Transverse Joint: C (match existing ML joint spacing)

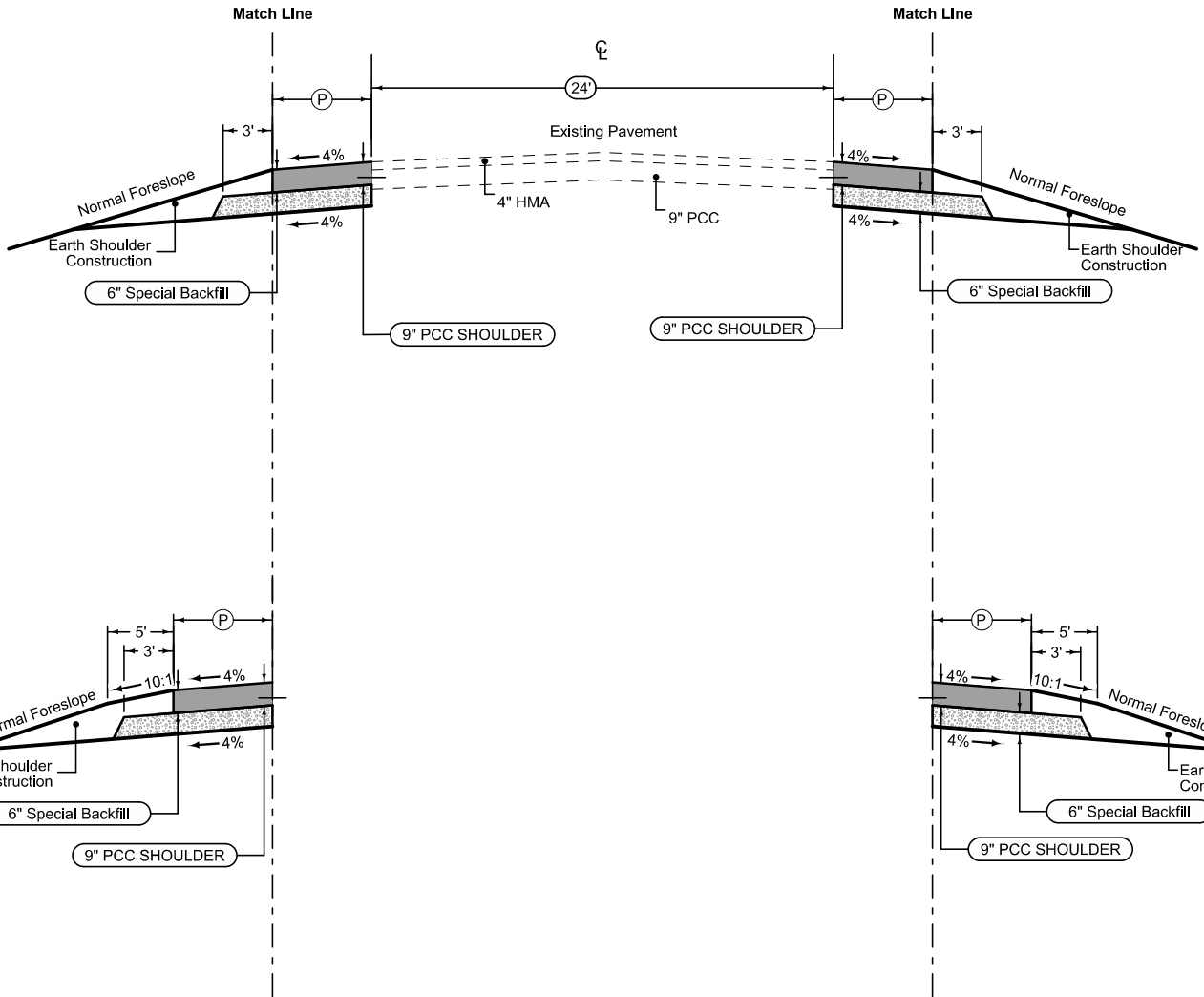
4_P_PCC			
Direction of Travel	BEGIN STATION	END STATION	(P) Feet
NB	836+10.00	838+82.05	10
NB	841+80.14	842+55.00	11.6
NB	842+55.00	844+55.00	10

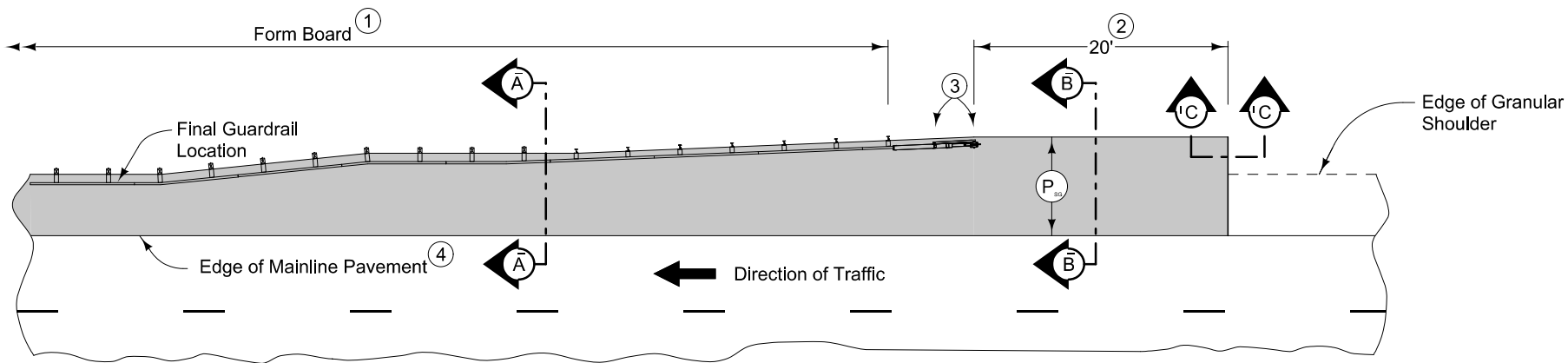
Paved Shoulder at Guardrail

PCC Shoulder Jointing:
Longitudinal joint: BT-1 or BT-5
Transverse joints: C (match existing ML joint spacing)

4_P_Guard_04-21-20			
Direction of Travel	BEGIN STATION	END STATION	(P) Feet
NB	836+36.32	836+56.32	13.6
NB	836+56.32	838+82.05	Varies

U.S. 65





PLAN VIEW

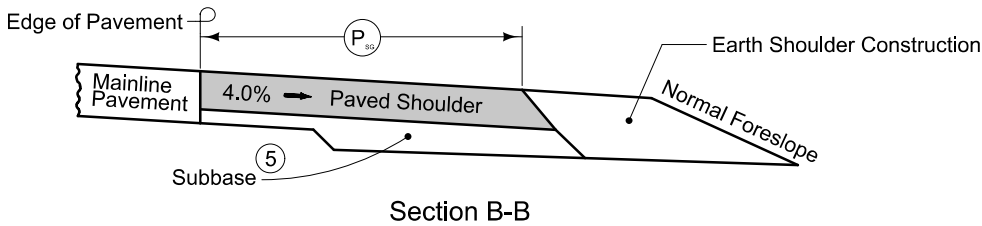
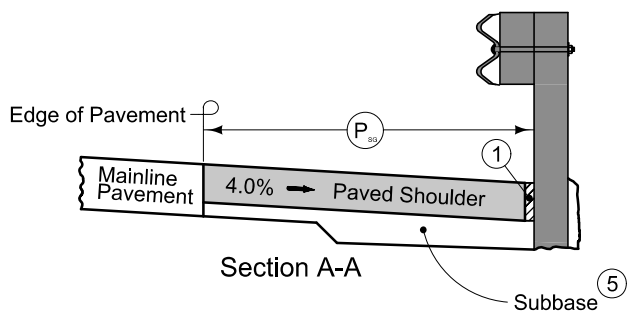
9" PCC Paved Shoulder at guardrail with the following jointing layout:

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.

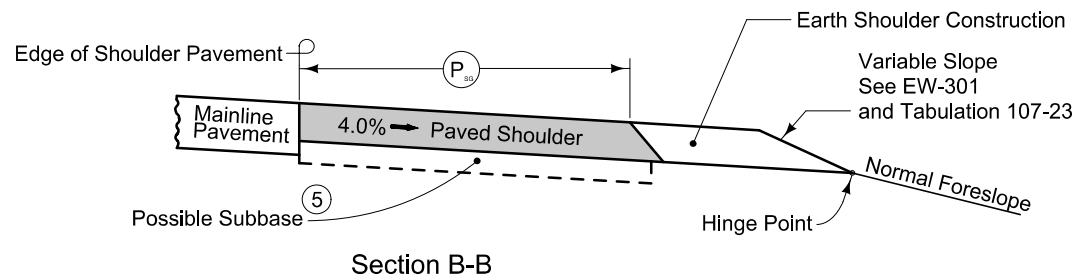
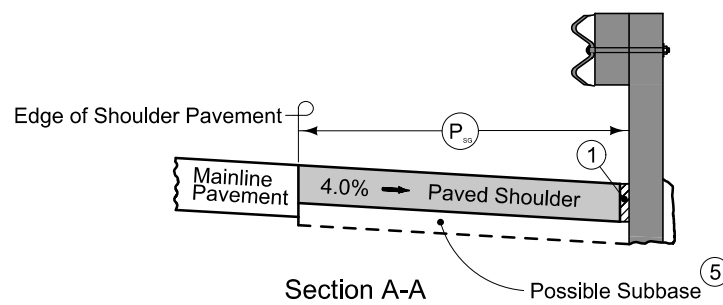
Compaction of HMA is required to face of guardrail post. Hand compaction will be allowed under guardrail. Removal and reinstallation of guardrail will be allowed with no additional payment.

Refer to Tabulation 112-9 for shoulder quantities.

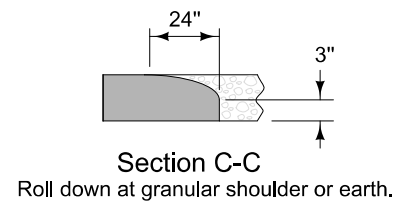
- ① PCC option only: When guardrail posts are installed prior to construction of PCC paved shoulder, fasten form board to the face of guardrail posts for the length shown.
- ② Continue paved shoulder 20 feet beyond the center of the first post.
- ③ Shoulder may be notched for first 2 posts or post sleeves may be installed through pavement. Do not drive posts through pavement.
- ④ 'BT' joint (per PV-101) for PCC shoulder. 'B' joint (per PV-101) for HMA shoulder.
- ⑤ Refer to other details in the plan.



NEW CONSTRUCTION



EXISTING SHOULDER



PAVED SHOULDER AT GUARDRAIL
(GRANULAR SHOULDER ADJACENT TO MAINLINE)

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

	PPA, MIDAMERICAN-ELEC
	FO1D, CENTURYLINK - Quality D
	FO2D, AUREON - Quality D
	FO3D, WINDSTREAM - Quality D
	TL1D, CENTURYLINK - Quality D
	WL1D, WARREN WATER DISTRICT - 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

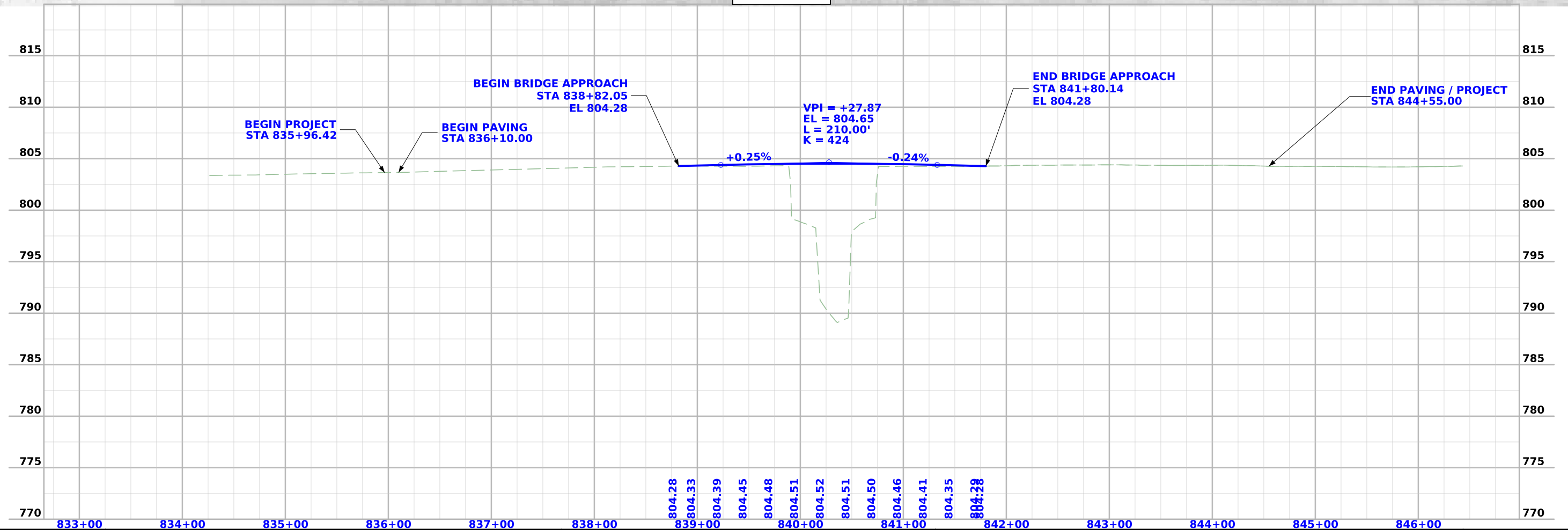
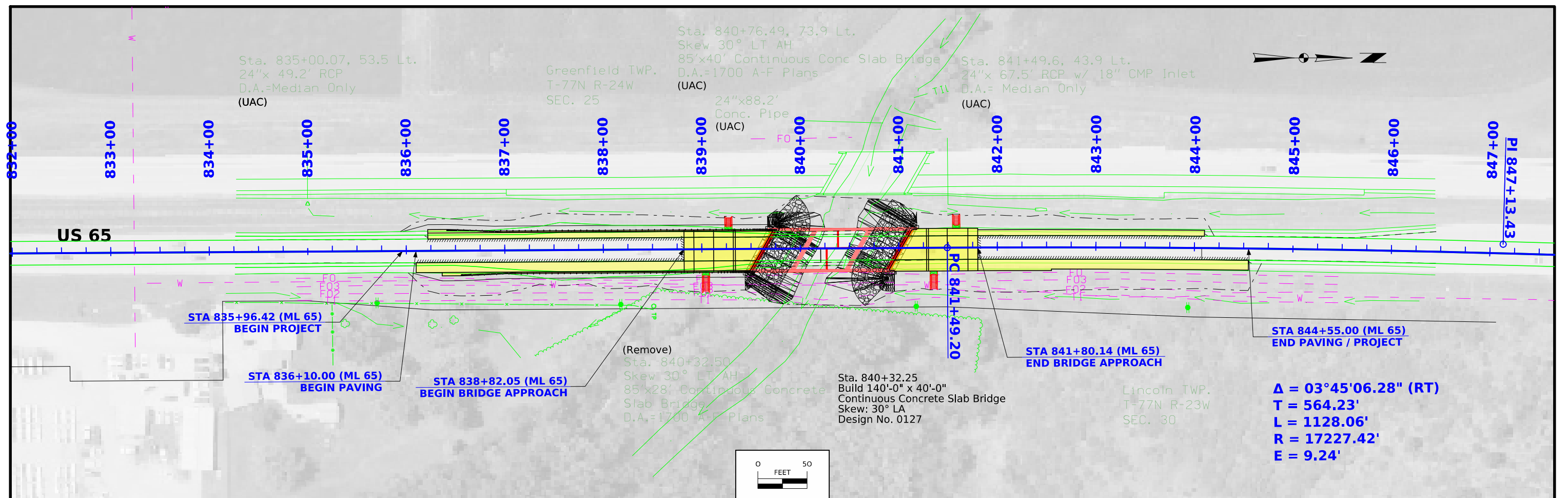
LINEWORK	Design Color No.		
Green	(10)		Existing Ground Line Profile
Blue	(1)		Proposed Profile and Annotation
Magenta	(5)		Existing Utilities
Blue, Light	(230)		Proposed Ditch Grades, Left
Black	(0)		Proposed Ditch Grades, Median
Rust	(14)		Proposed Ditch Grades, Right

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		

	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

PLAN AND PROFILE
LEGEND AND SYMBOL
INFORMATION SHEET

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



Survey Information

SURVEY INDEX

Warren County
Project Number: BRF-065-3(87)--38-91
Location: Stream 0.2 mi N of Co Rd G24 (NB)
PIN: 22-91-065-010
Type of Work: Bridge
Project Directory: 9106501022

Survey Personnel

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

Date(s) of Survey

Begin Date 10/19/2023
End Date 02/03/2024

General Information

This survey is for US Hwy 65 northbound bridge 0.2 mi north of county road G24. This survey request was for the US Hwy 65 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 08
(U.S. SURVEY FOOT)
VERTICAL DATUM: NAVD88
GEOID MODEL: 2018u3

Alignment Information

Alignment was created by the District 1 Land Survey Office.

District 1 Notes:
The horizontal alignment for US 65/69 is a retrace of PCC Paving Plan FN-69-3(8)—21-91. Stationing was held at PI STA 822+67.40 (FN-69-3(8)—21-91) and was run ahead to PI STA 898+10.20 (FN-69-3(8)—21-91) with three (3) equation stations.

Begin Project
PI STA 822+67.40 (FN-69-3(8)—21-91) = PI STA 822+67.40 (this survey) (#8000) also is NE COR 36-77-24 Found PK Nail in centerline of asphalt northbound lane US 65/69.

Equation PC STA 841+48.56 (FN-69-3(8)—21-91) = PC STA 841+48.56 (this survey) (#3504) Computed Point – nothing found or set.

PI STA 847+12.79 (FN-69-3(8)—21-91) = PI STA 847+12.79 (this survey) (#3500) Computed Point – nothing found or set.

PI STA 858+40.76 (FN-69-3(8)—21-91) = PI STA 858+40.85 (this survey) (#3501) Computed Point – nothing found or set.

EQUATION PT STA 864+04.50 (FN-69-3(8)—21-91) = PT STA 864+04.67 (this survey) (#3502) Computed Point – nothing found or set.

EQUATION 74-foot offset PT 864+04.50 (FN-69-3(8)—21-91) = 74-foot offset PT 864+04.67 (this survey) (#3503) Computed Point – nothing found or set.

PI STA 898+10.20 (FN-69-3(8)—21-91) = PI STA 898+10.12 (this survey) (#3000) Set Bridge Spike in asphalt patch best fit from ties.
END PROJECT

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 08 (U.S. Survey Foot)

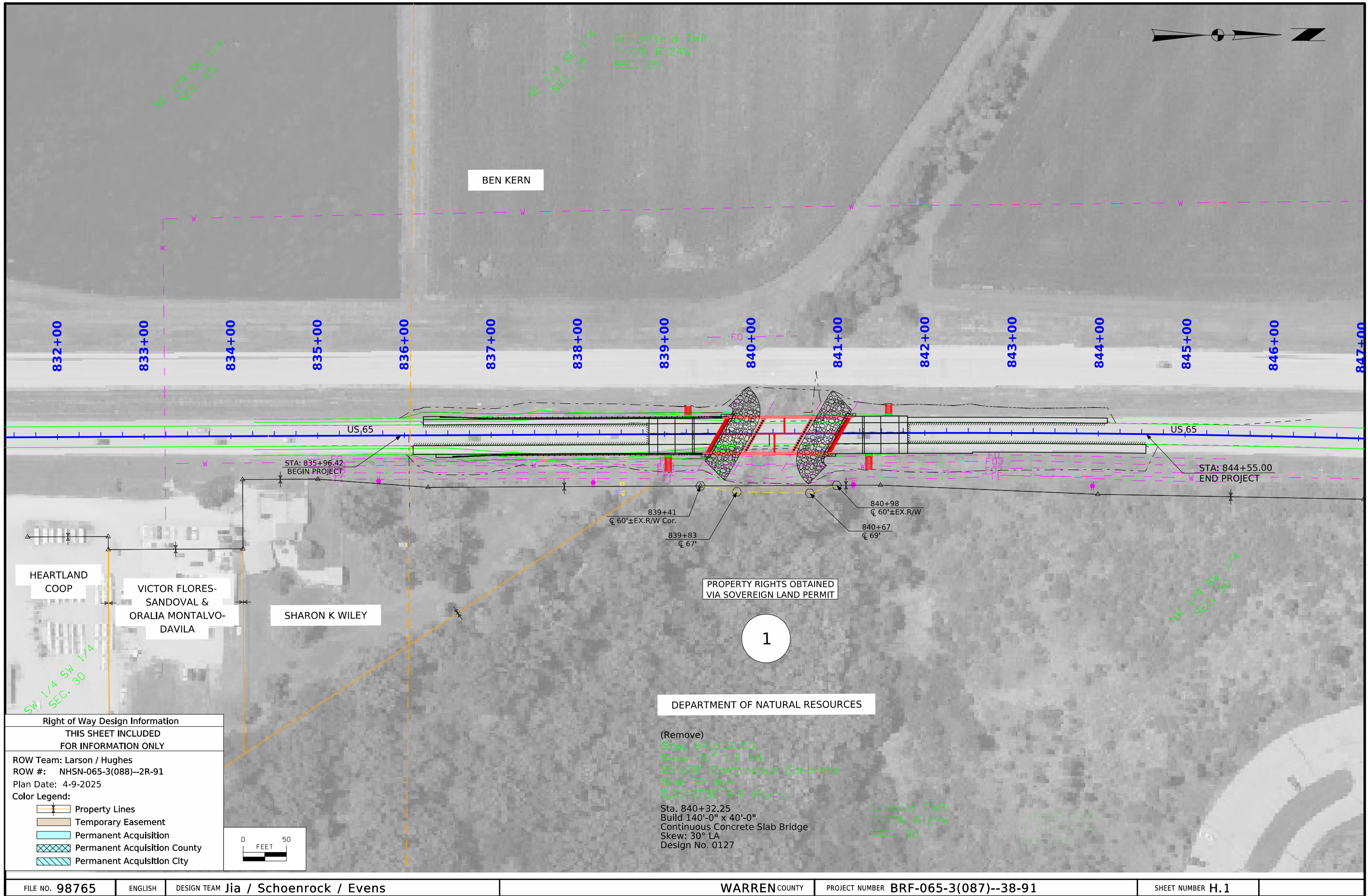
VERT. DATUM: NAVD88 - Geoid Model: 2018u3

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 08 (U.S. Survey Foot)
VERT. DATUM: NAVD88
Geoid Model: 2018u3

<u>Point Name</u>	<u>Northing</u>	<u>Easting</u>	<u>Elevation</u>	<u>Feature Definition-Description</u>
CP1	7433687.11	18543244.62	798.75	CP SET FENO MONUMENT IN NW QUAD INTERSECTION US 65 & COUNTY HWY G24
CP2	7435569.86	18543242.04	800.61	CP CUT X ON ROW RAIL IN SW QUAD US 65 & ELK HORN ST
CP3	7439149.96	18543328.50	907.21	CP CONC MONUMENT ON WEST TOP OF BACKSLOPE APPROX. 0.3 MI SOUTH INTERSECTION US 65 & DELAWARE ST
GPS4	7445249.74	18543016.03	926.84	CP REBAR W/ CAP AS DESCRIBED IN GOOD CONDITION

NO ACCESS RIGHTS ARE TO BE ACQUIRED ON THIS PROJECT.



108_23A 8/15/22
TRAFFIC CONTROL PLAN
At least one lane of traffic on NB US 65 shall be maintained at all times. Refer to J sheets for traffic control and staging plans.
The Contractor shall provide access to the east entrance and all side roads at all times.

108_26A
8/15/22

STAGING NOTES

STAGE 1
Traffic:
Shift NB U.S. 65 traffic to the outside lane following TC-418 for layout. Refer to other J sheets for details.

Construction:
Construct detour pavement from 836+27.17 to 844+25.83.

STAGE 2
Traffic:
Shift NB U.S. 65 traffic to the inside lane and the newly constructed outside shoulder and detour pavement via TBR. Refer to other J sheets for details.

Construction:
(1) Construct 17'-6" of the bridge (east side) and the corresponding approach pavement.
(2) Construct outside shoulder from 836+10.00 to 844+55.00 and guardrail.

STAGE 3
Traffic:
Shift NB U.S. 65 traffic to the newly constructed pavement in stage 2 via TBR. Refer to other J sheets for details.

Construction:
(1) Construct the rest of the bridge and approach pavement (west side).
(2) Construct outside shoulder from 836+21.91 to 844+10.14 and guardrail.

CROSS SECTION VIEW COLOR LEGEND OF TRAFFIC CONTROL AND STAGING SHEETS		
SHADING	Design Color No.	
Green, Light	(225)	Existing Pavement Shading
Gray, Light	(48)	Previously Constructed Pavement Shading
Gray, Med	(80)	Previously Constructed Granular Surface Shading
Blue, Light	(230)	Proposed Pavement Shading
Lavender	(9)	Temporary Pavement Shading
Brown, Med	(237)	Future Proposed Pavement Shading

CROSS SECTION VIEW PATTERN AND SYMBOL LEGEND OF TRAFFIC CONTROL AND STAGING SHEETS			
	Pavement Removal		Proposed Granular Shoulder
	Proposed Granular Subbase		Temporary Shoulder
	Proposed Special Backfill		Existing Shoulder Strengthening
	Temporary Barrier Rail		Permanent Barrier Rail
			Channelizing Device

PLAN VIEW COLOR LEGEND OF TRAFFIC CONTROL AND STAGING SHEETS			
LINEWORK	Design Color No.		
Green	(2)	Existing Topographic Features and Labels	
Magenta	(5)	Pavement Marking Call Outs	
Blue	(1)	Proposed Alignment, Stationing, Tic Marks, and Alignment Annotation	
Yellow	(4)	Pavement Markings, Yellow	
Off White	(254)	Pavement Markings, White	
Violet	(15)	Temporary barrier rail, Unpinned	
Flush Orange	(228)	Temporary barrier rail, Pinned	
SHADING	Design Color No.		
Green, Light	(225)	Existing Pavement Shading	
Gray, Light	(48)	Previously Constructed Pavement Shading	
Gray, Med	(6)	Proposed Granular Surface Shading	
Gray, Med	(80)	Previously Constructed Granular Surface Shading	
Blue, Light	(230)	Proposed Pavement Shading	
Lavender	(9)	Temporary Pavement Shading	
Brown, Light	(236)	Proposed Grading Limits Shading	
Pink, Dark	(13)	Proposed MSE or CIP Wall Shading	
Red	(3)	Proposed Bridge Shading and Sign Trusses	
Black w/Gray, Light Fill	(0,48)	Previously Constructed Structure	

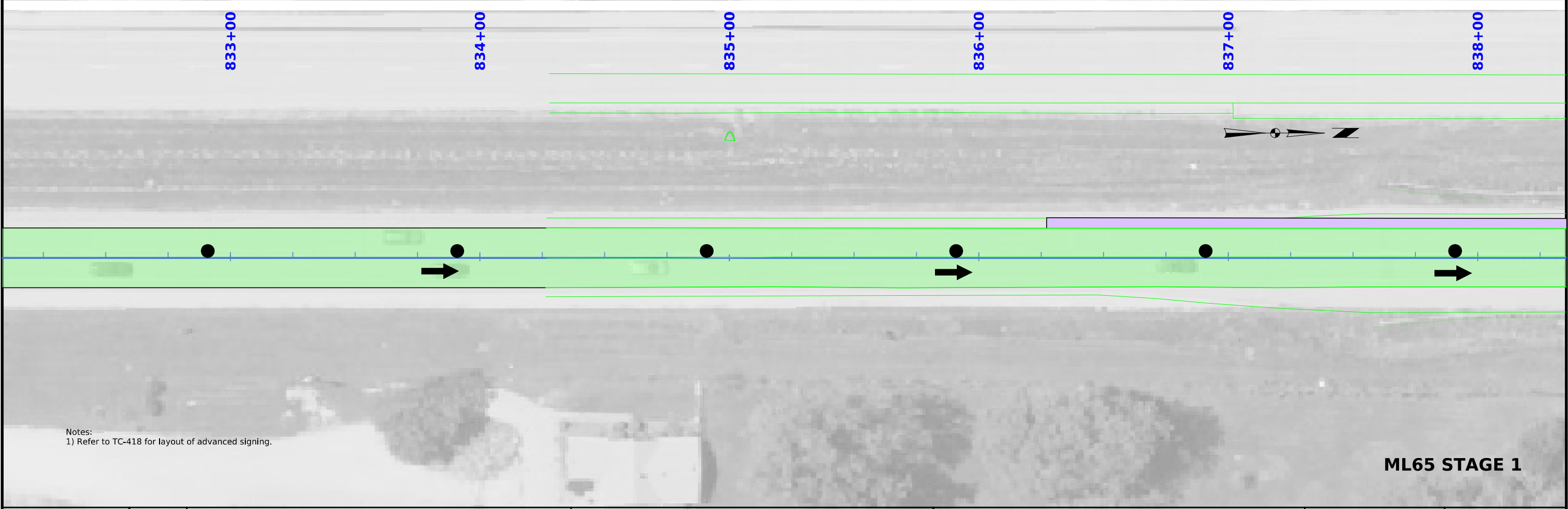
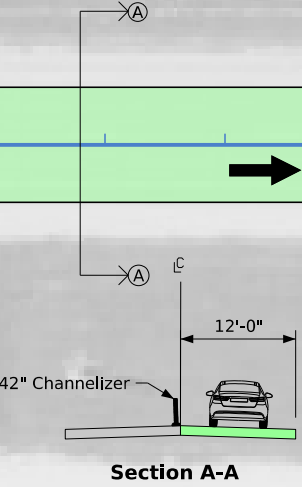
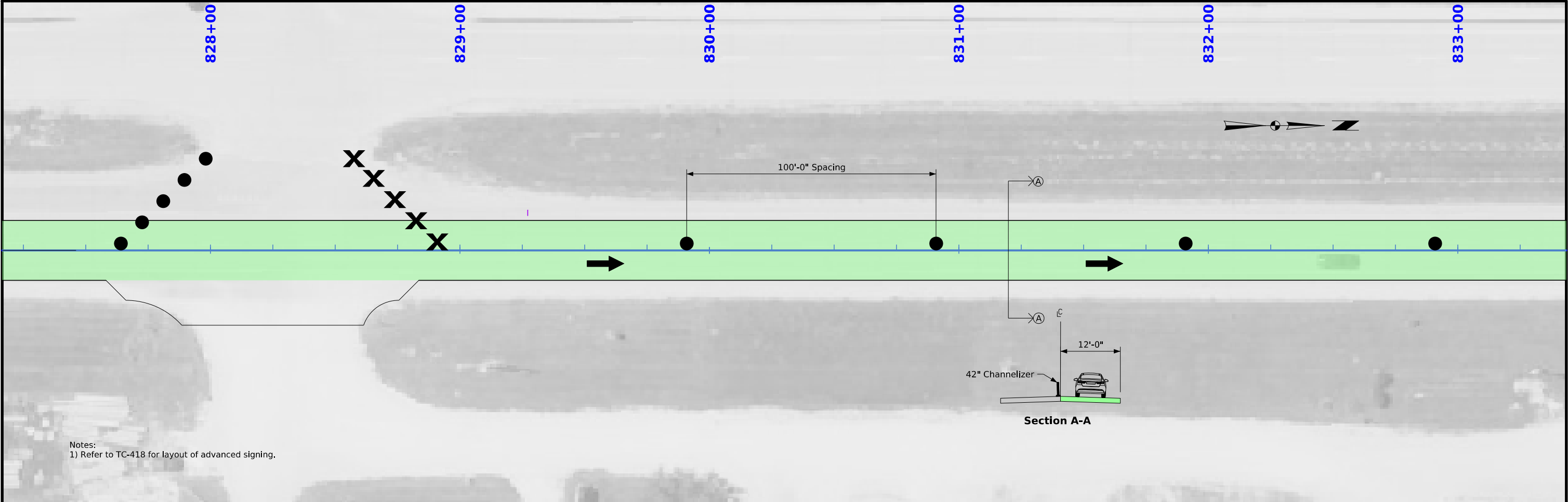
PLAN VIEW PATTERN AND SYMBOL LEGEND OF TRAFFIC CONTROL AND STAGING SHEETS			
	Channelizing Device		Crash Cushion (Temp or Perm)
	Drum		Traffic Signal
	Temporary Lane Separator		Flagger
	Tubular Marker		Temporary Floodlighting
	Channelizer Marker		Traffic Sign
	Concrete Barrier Marker		Type III Barricade
	Delineator		Type A Warning Light
	Temporary Barrier Rail		Direction of Traffic
	Pavement Removal		Safety Closure
	Sand Barrel Layout		Lane Identification

NOTE: Device spacing according to Standard Road Plans unless specifically dimensioned.

TRAFFIC CONTROL
AND
STAGING
LEGEND AND SYMBOL
INFORMATION SHEET

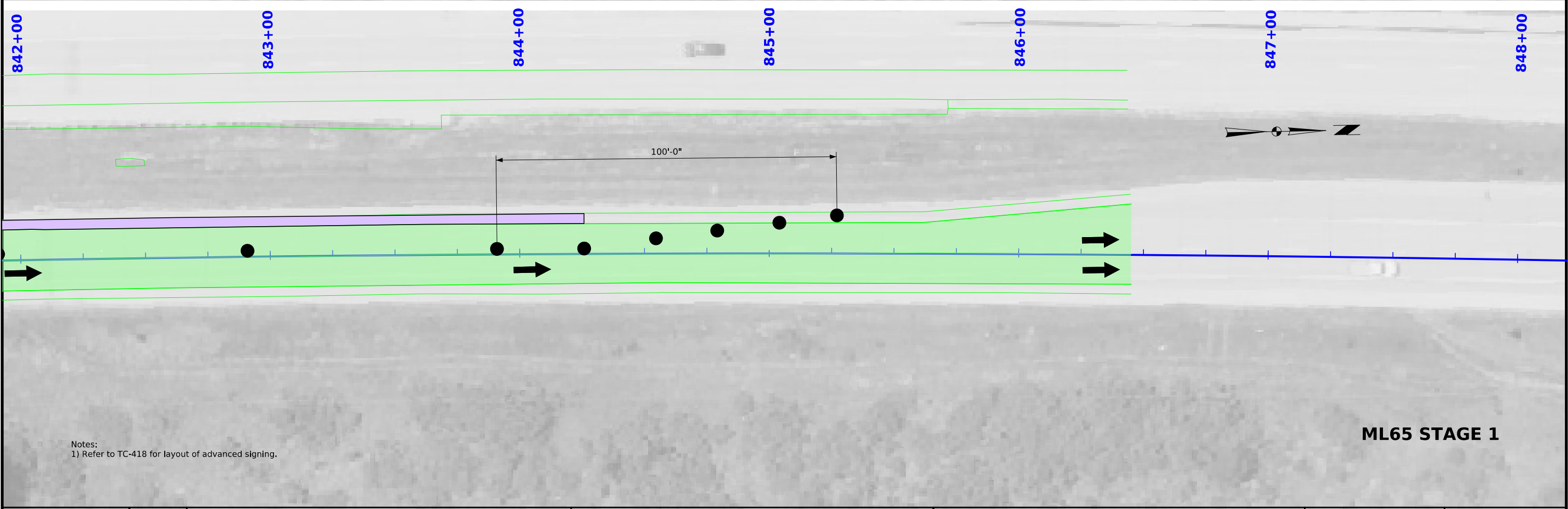
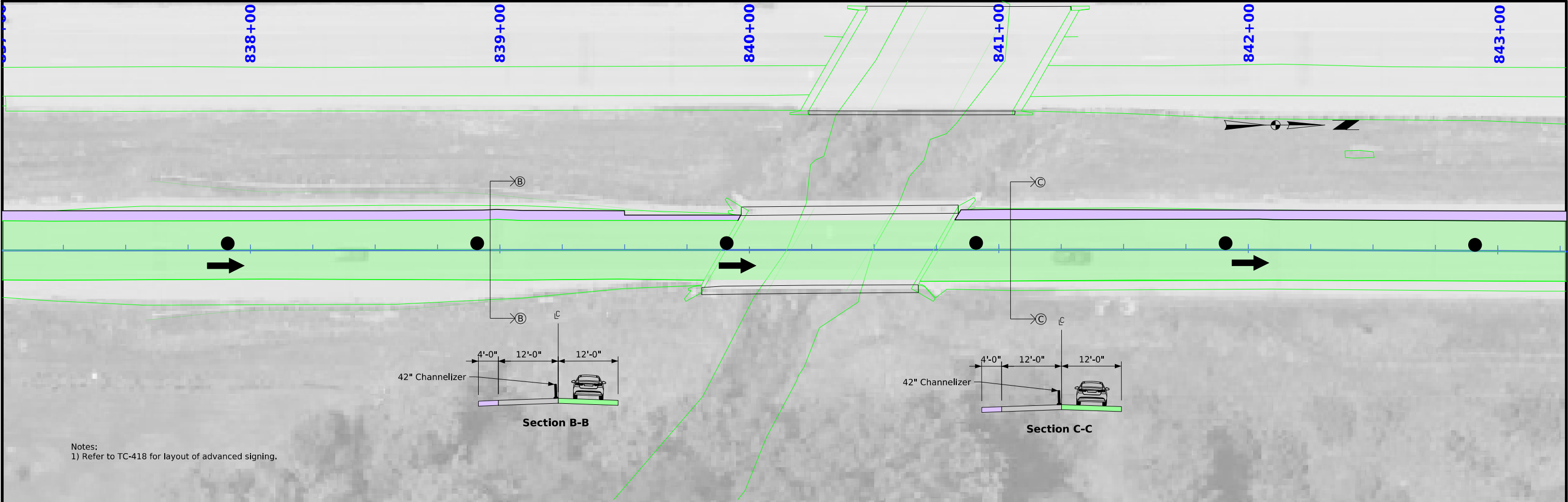
(COVERS SHEET SERIES J)





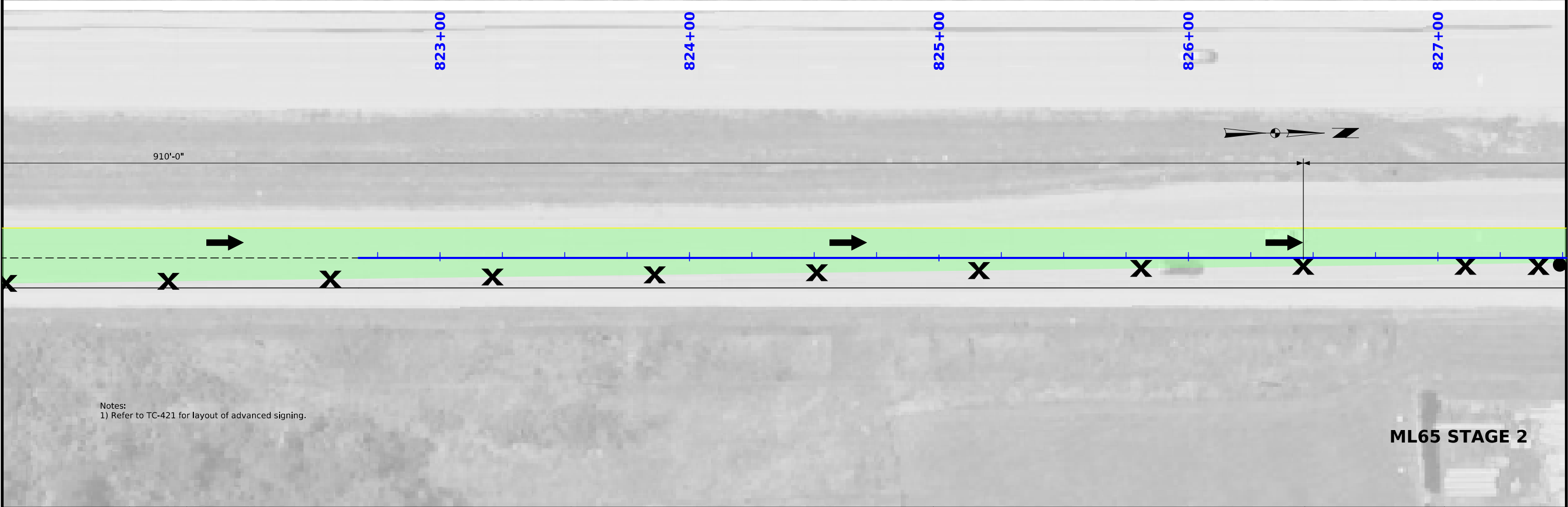
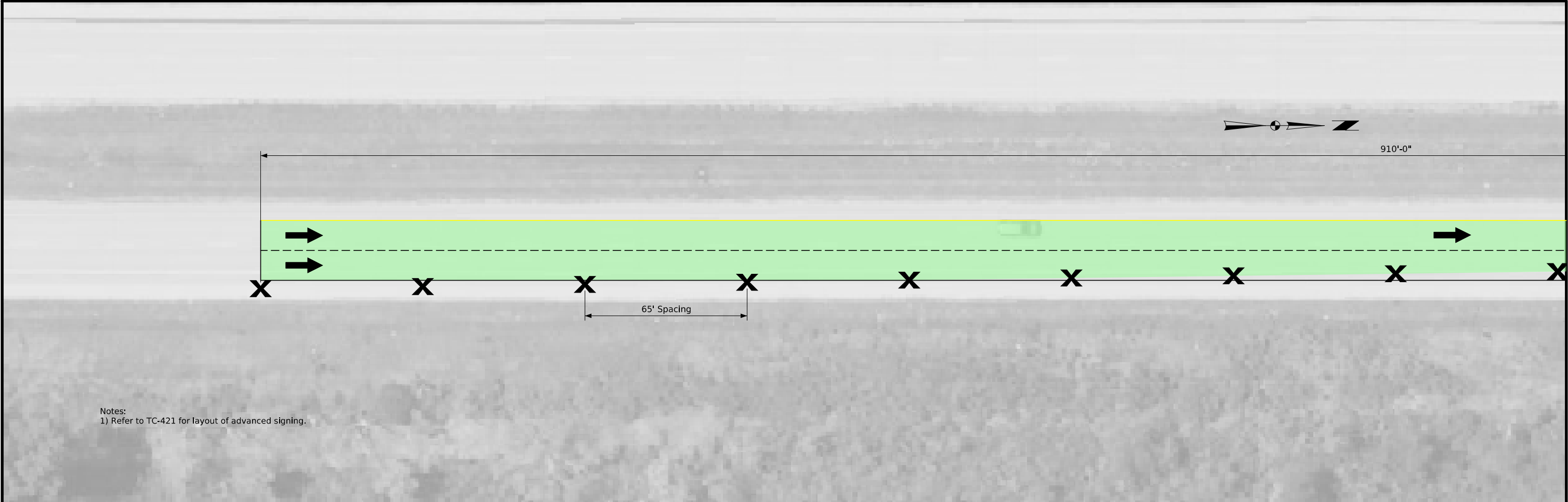
ML65 STAGE 1

FILE NO.	ENGLISH	DESIGN TEAM	Jia/Schoenrock/Evans	WARREN COUNTY	PROJECT NUMBER	BRF-065-3(087)--38-91	SHEET NUMBER	J.5
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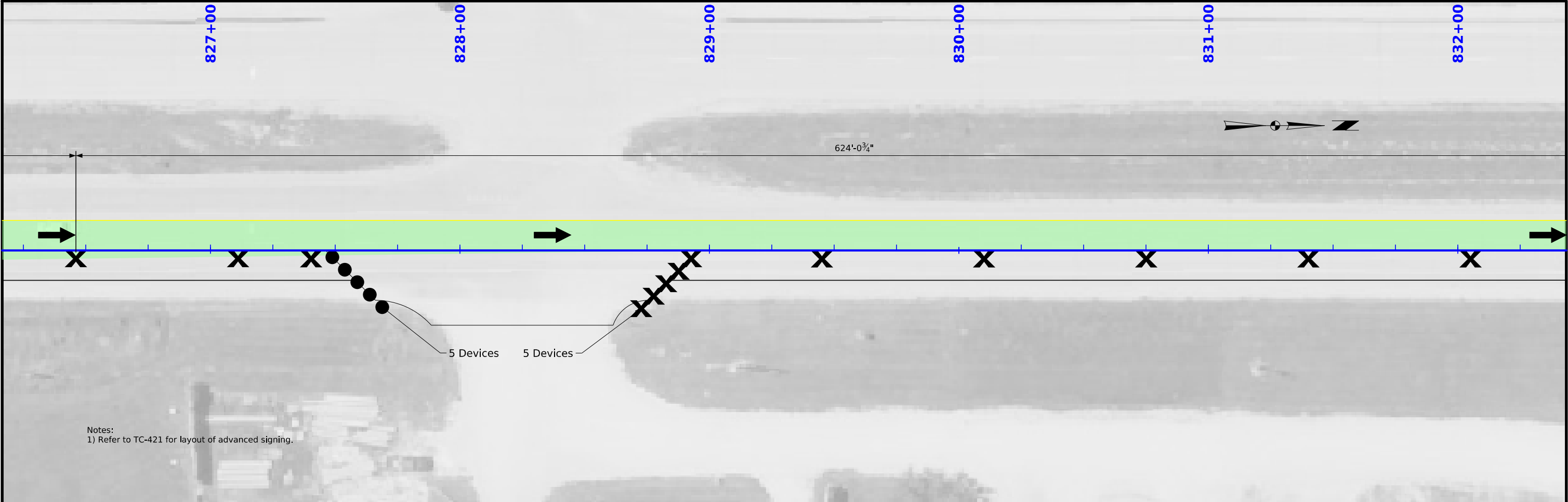
ML65 STAGE 1

FILE NO.	ENGLISH	DESIGN TEAM	Jia/Schoenrock/Evans	WARREN COUNTY	PROJECT NUMBER	BRF-065-3(087)--38-91	SHEET NUMBER	J.6
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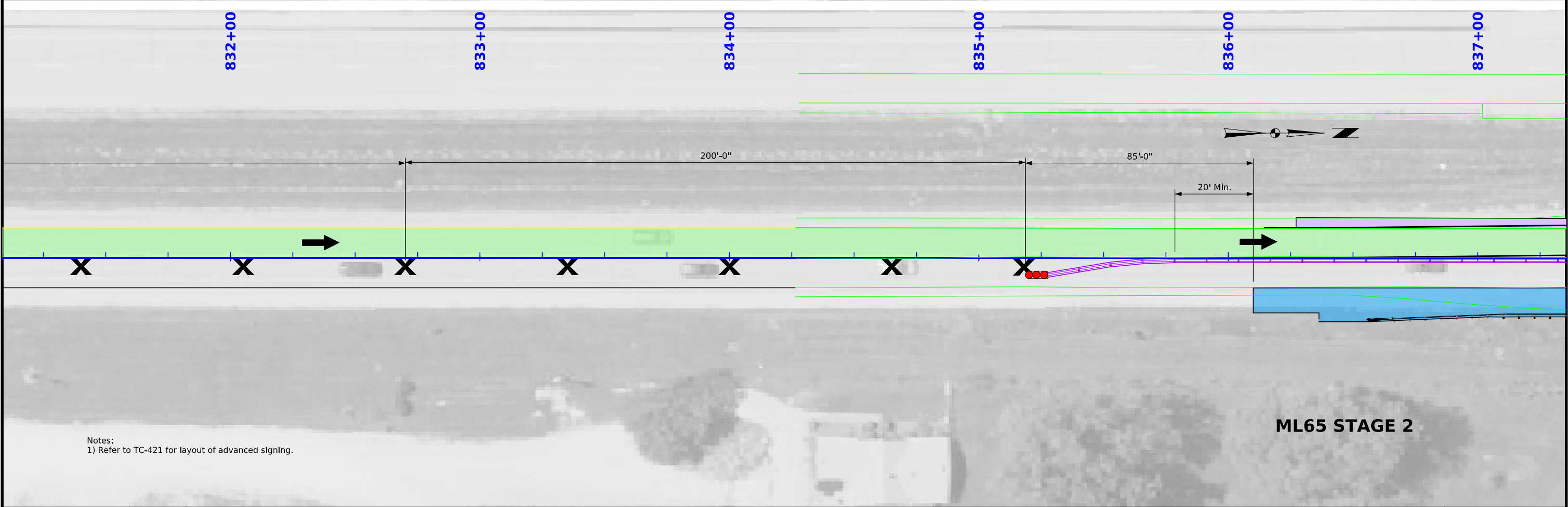


ML65 STAGE 2

FILE NO.	ENGLISH	DESIGN TEAM	Jia/Schoenrock/Evans	WARREN COUNTY	PROJECT NUMBER	BRF-065-3(087)--38-91	SHEET NUMBER	J.7
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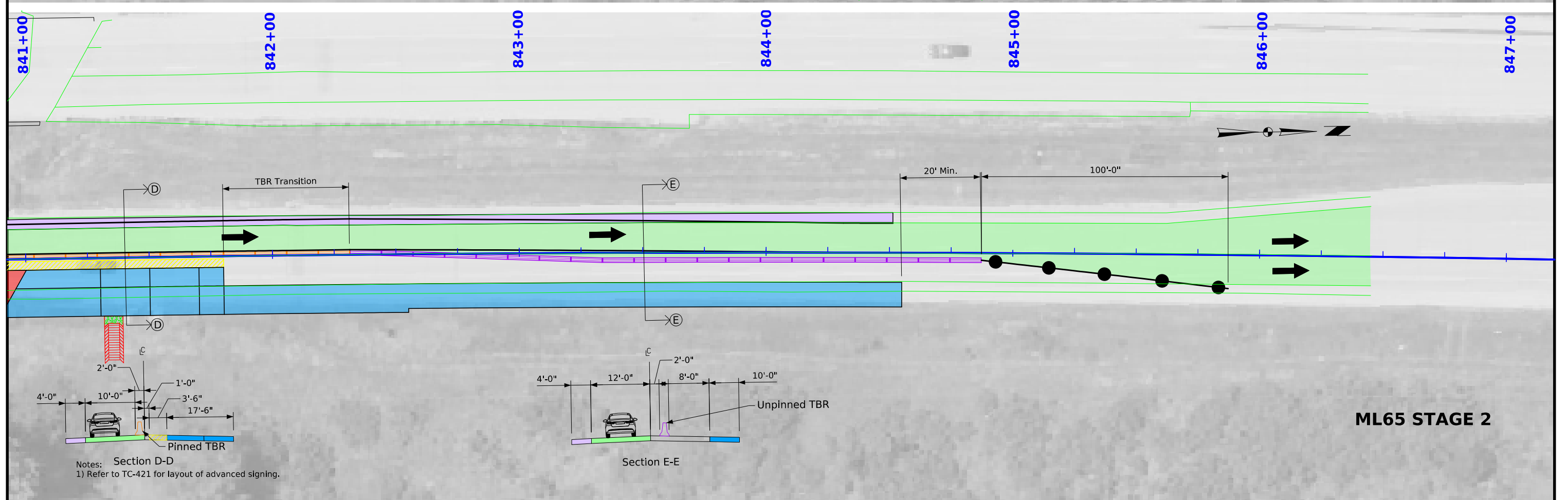
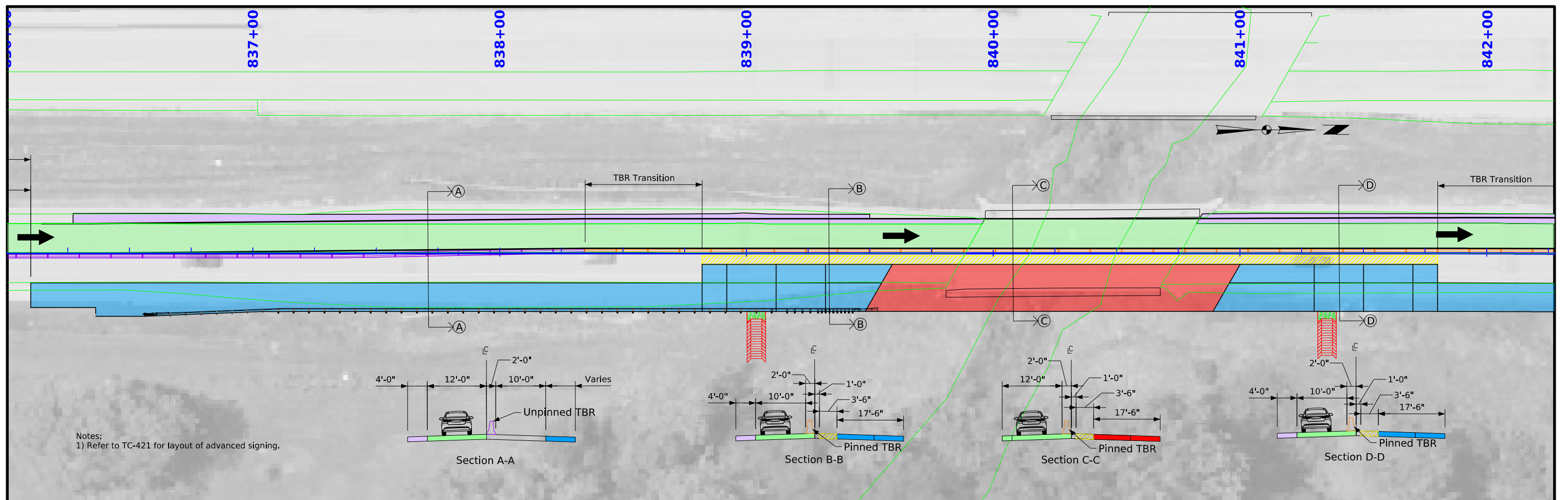
Notes:
1) Refer to TC-421 for layout of advanced signing.



Notes:
1) Refer to TC-421 for layout of advanced signing.

ML65 STAGE 2

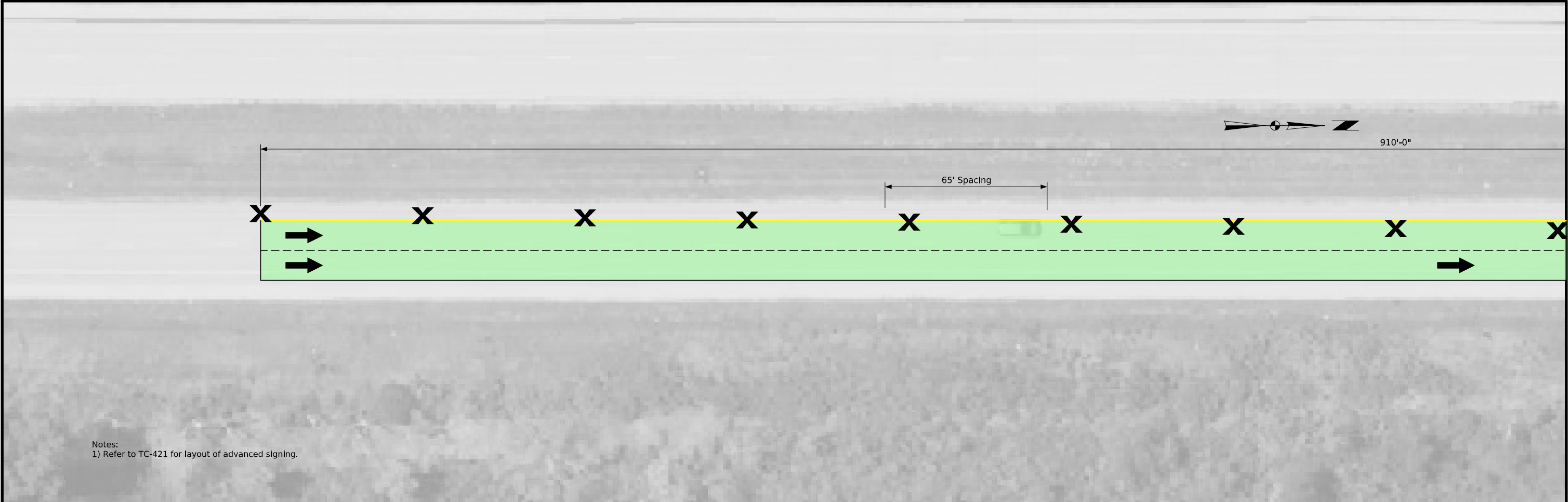
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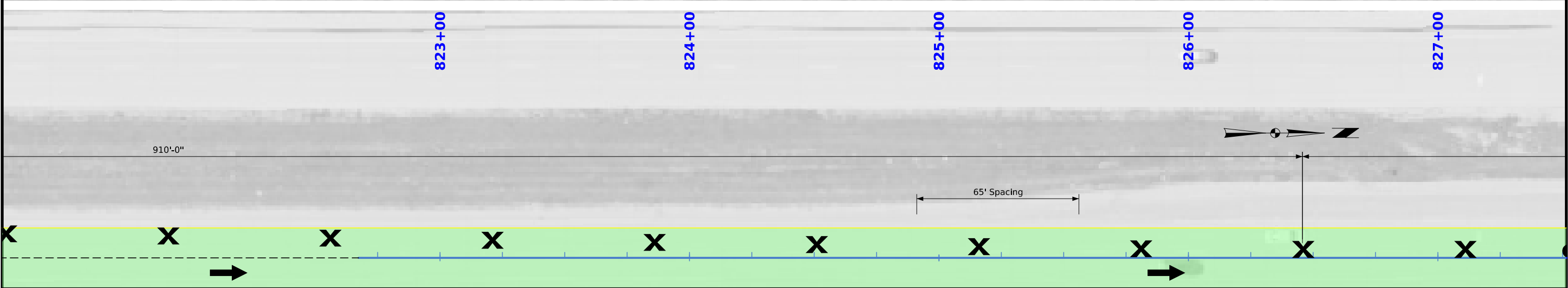
ML65 STAGE 2

FILE NO.	ENGLISH	DESIGN TEAM	Jia/Schoenrock/Evans	WARREN COUNTY	PROJECT NUMBER	BRF-065-3(087)--38-91	SHEET NUMBER	J.9
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2:04:25 PM 12/19/2024 tschoen pw:\NTP\wint1.dot.int.lan:PWMain\Documents\Projects\9106501022\Design\CADD_Files\Sheet_Files\SHT_91065087_J07.dgn



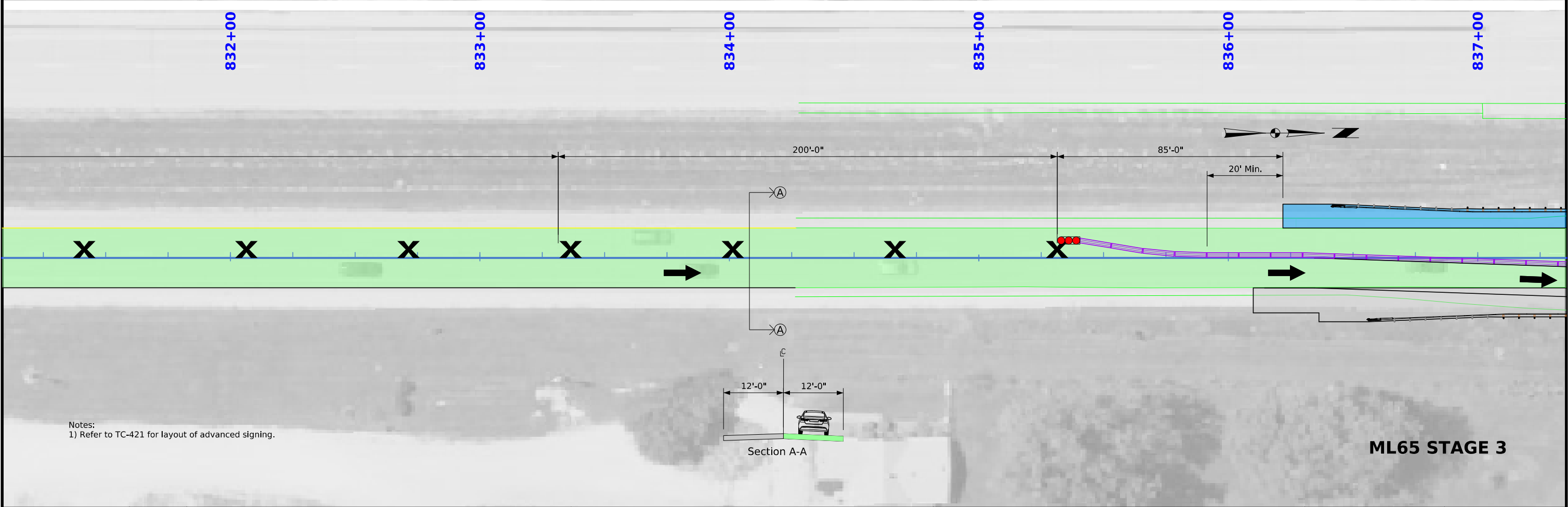
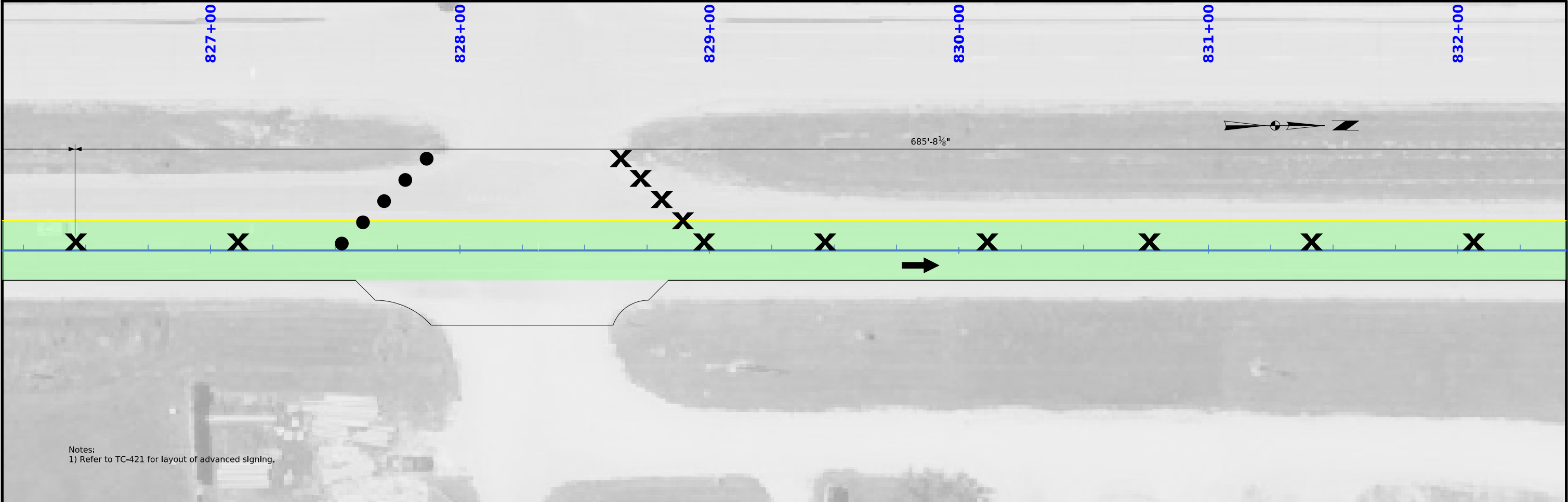
Notes:
1) Refer to TC-421 for layout of advanced signing.



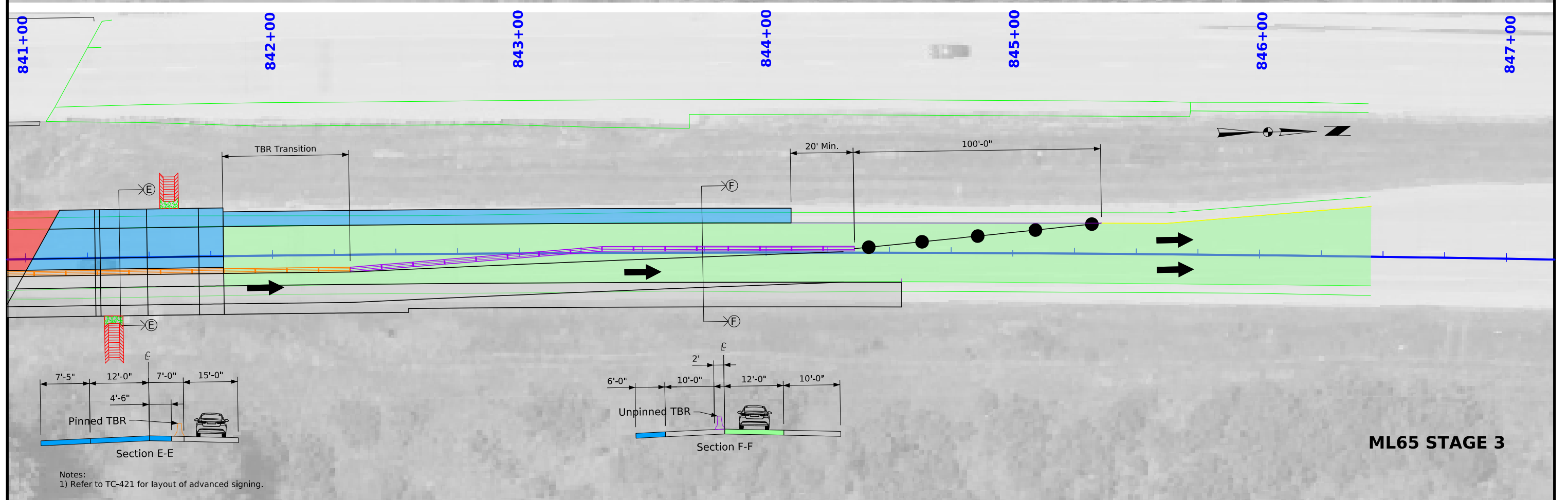
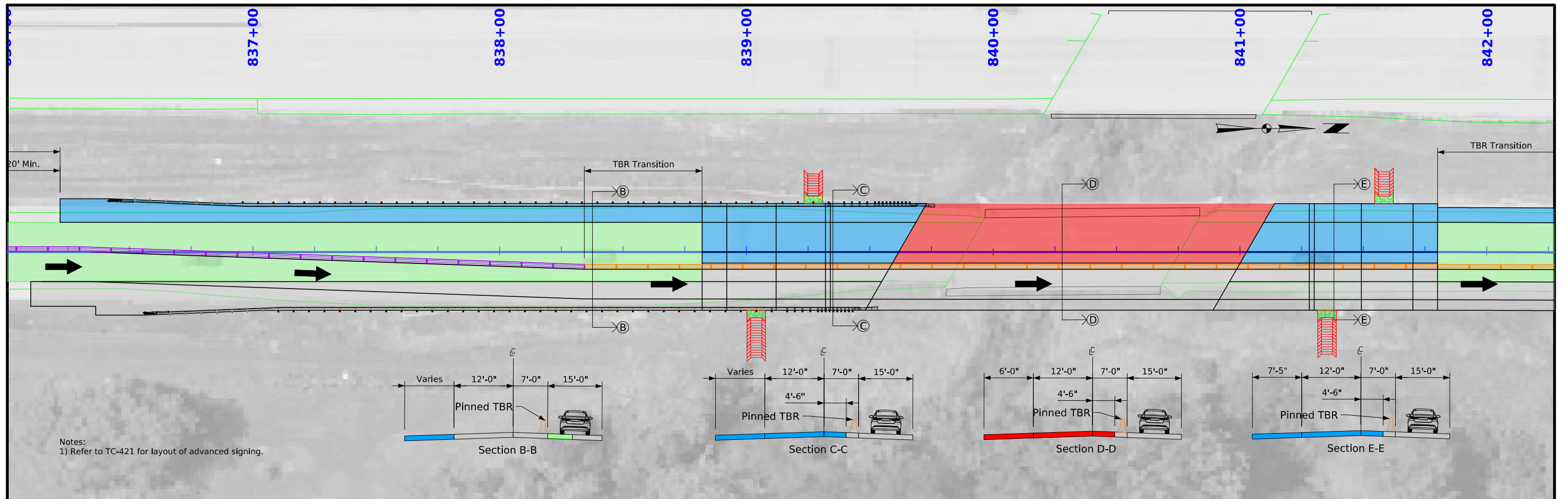
Notes:
1) Refer to TC-421 for layout of advanced signing.

ML65 STAGE 3

FILE NO.	ENGLISH	DESIGN TEAM	Jia/Schoenrock/Evans	WARREN COUNTY	PROJECT NUMBER	BRF-065-3(087)--38-91	SHEET NUMBER	J.10
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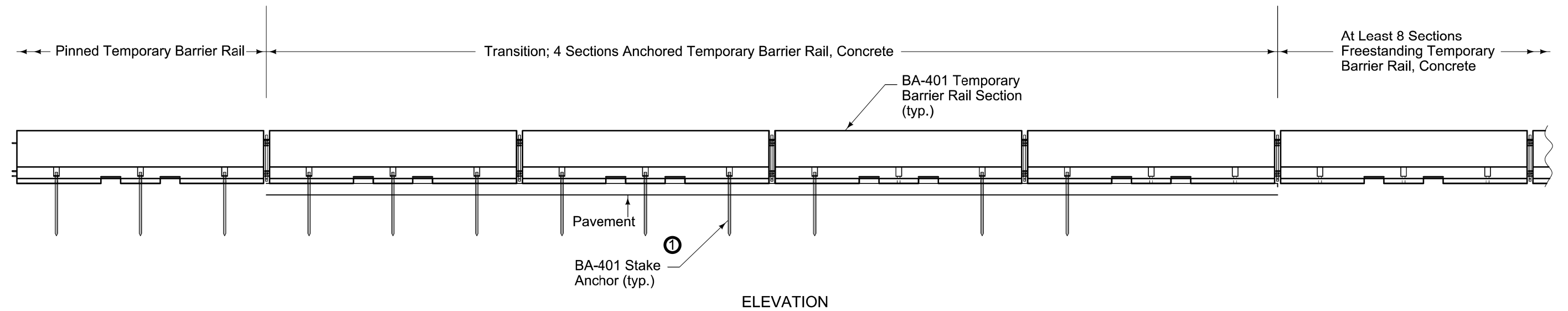
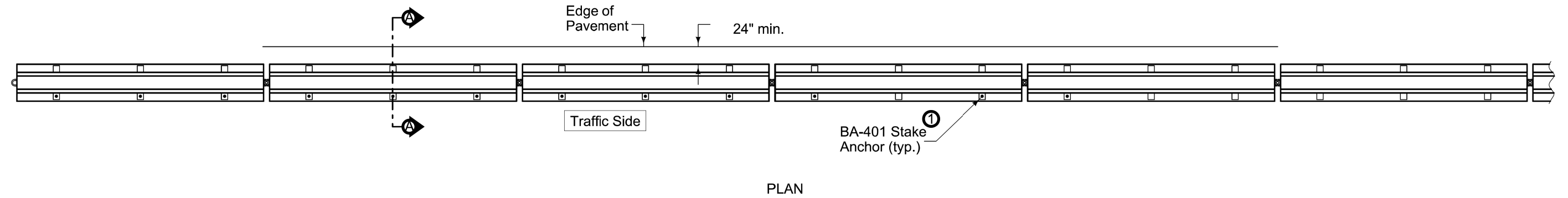


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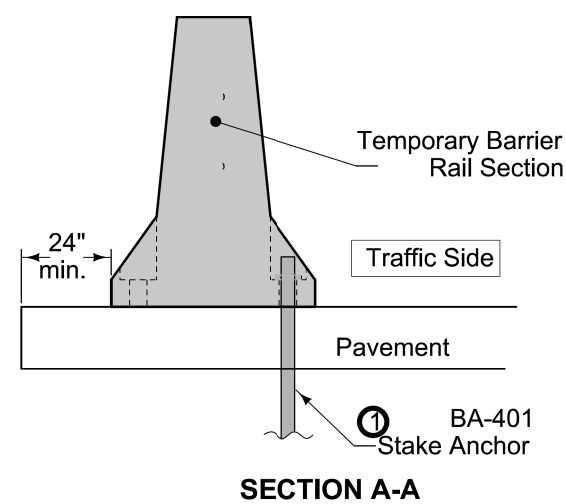
ML65 STAGE 3

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Install temporary barrier rail on a flat, level surface. Where anchored TBR sections are not located on existing pavement, construct a 2 inch minimum thickness HMA pad.

- ① Each transition requires nine (9) BA-401 stake anchors as shown. Use of the strap anchorage is not allowed in transition. When transition is placed on Composite or PCC Pavement pre-drill holes for stakes with 1½ inch core bit.



Transition from
Pinned TBR to
Unpinned TBR

Control Point: CP2, N 7435569.86, E 18543242.04 ,CP Cut X on Row Rail in SW Quad US 65 & Elk Horn St, Elev. = 800.61

General Notes:
This Design Is for the Replacement of the Existing 85' x 28' Continuous Concrete Slab Bridge, Warren Design No. 0251, FHWA No. 050930, Maint. No. 9164.6R065.

Top of Bridge Slab at Centerline Roadway is 0.03' Below the Profile Grade to Account for Deck Cross Slope and Parabolic Crown.

Design Notes:
See Design Sheet No. 3 for Staging Sequence Details.

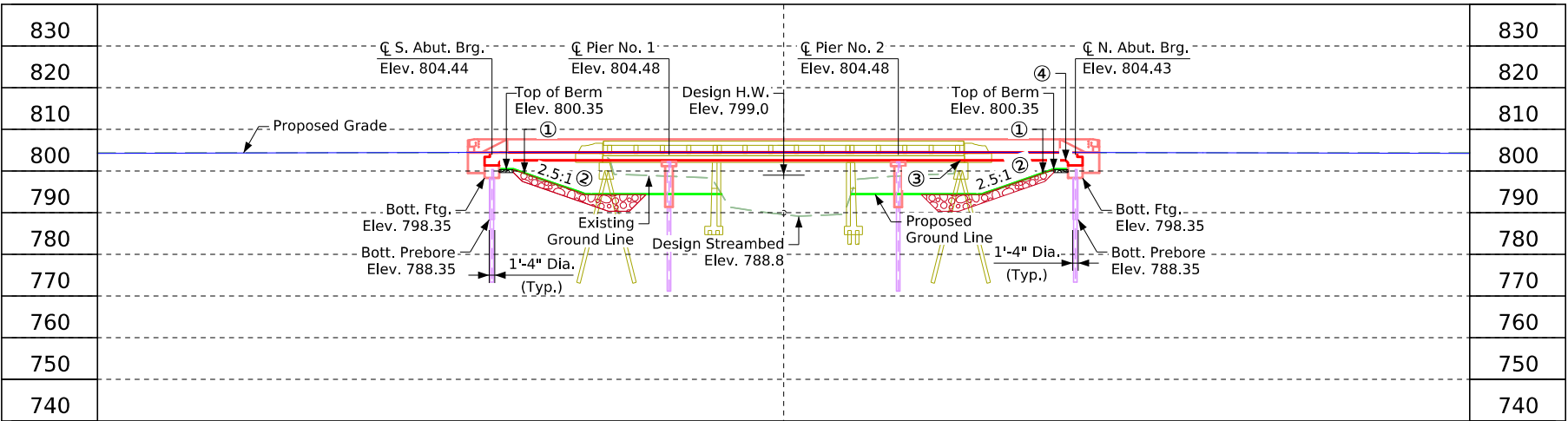
Standard Bridge Index No. J40, Verify Abutment, Wingwall, and End Barrier Geometries after Standard J40 Is Updated to the CONNECT Version.

TL-4 Single Slope Bridge Railing Proposed.

Pier Type - Fully Encased Pile Bent with an Assumed Cap Width of 3'-0" and Encasement Thickness of 22".

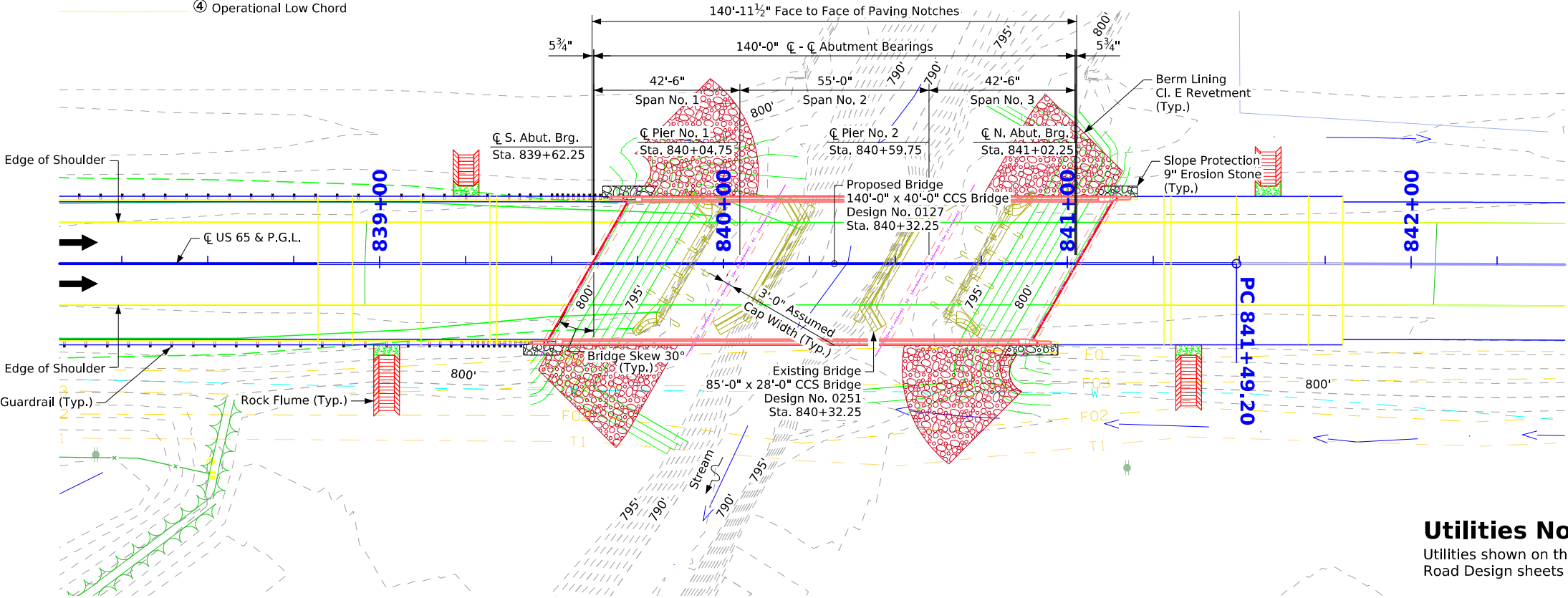
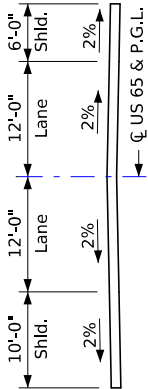
Final Design Shall Consider the Need for Temporary Shoring to Accommodate Staging of Bridge Construction and Include in the Final Plans as Necessary.

Class E Revetment Stone Is Embedded.

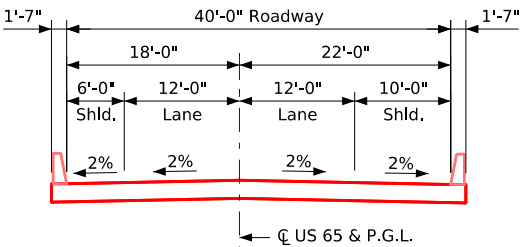


Longitudinal Section Along US 65

Typical Approach Section



Situation Plan



Typical Bridge Section
(Looking North)

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: *Spencer Kelly* Date: 11-01-2024

Printed or Typed Name: Spencer Kelly

My license renewal date is December 31, 2025

Pages or sheets covered by this seal: Sheets V.1 and V.2

Location

US 65 Over Stream
T-77N R-23/24W
Sections 25/30
Greenfield/Lincoln Townships
Warren County
FHWA No. 050931
Bridge Maint. No. 9164.6R065
Latitude 41.443149°
Longitude -93.558441°

Utilities Note:

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

Utility Legend:

FO - Buried Fiber Optic, Century Link
FO2 - Buried Fiber Optic, Aeron
FO3 - Buried Fiber Optic, Windstream
T1 - Buried Tele. Cable, Century Link
W - Water Main, Warren Water District

Design For 30° Skew (LA)

140'-0" x 40'-0" Continuous Concrete Slab Bridge

42'-6" End Spans 55'-0" Interior Span

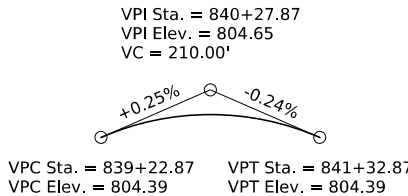
Situation Plan

STA. 840+32.25 (US 65) November 2024

Warren County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0127 Design Sheet No. 1 of 3 FHWA No. 050931



Profile Grade on
US 65 & P.G.L.

US 65
Traffic Estimate

2027 AADT 19,200 V.P.D.
2047 AADT 23,100 V.P.D.
2047 DHV 2,390 V.P.H.
Trucks 6%
Total Design ESALs ???

Hydraulic Data

RIDB: "MiddleR_Trib13_0.71"
Drainage Area = 2.1 Sq. Mi.
Stream Slope (HGL) = 13.2 Ft./Mi.
Avg. Low Water Stage = Elev. 790.0

Q₅₀ = 1,680 cfs
Stage = Elev. 799.0
Channel Low Chord = Elev. 802.1
Avg. Bridge Velocity = 6.05 fps

Q₁₀₀ = 2,000 cfs
Stage = Elev. 799.4
Operational Low Chord = Elev. 802.1
Backwater = 0.2 Ft.
Avg. Bridge Velocity = 6.17 fps

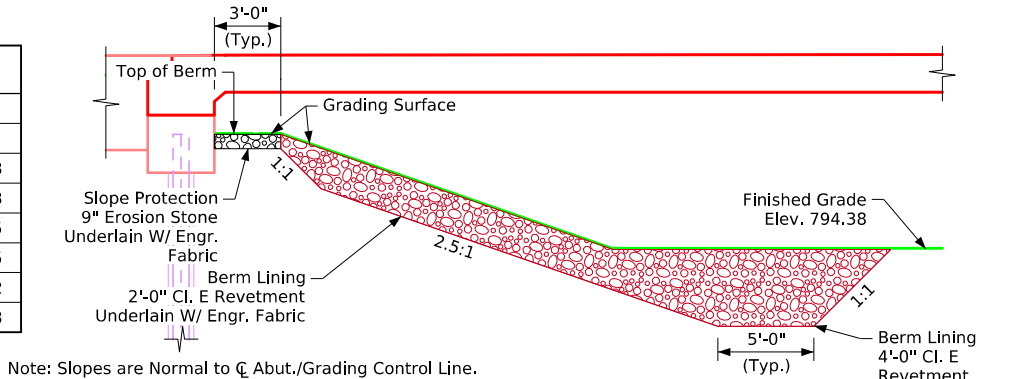
Q₂₀₀ = 2,620 cfs
Stage = Elev. 799.9
Calculated Design Scour = Elev. 780.7

Q₅₀₀ = 2,900 cfs
Stage = Elev. 800.2
Avg. Bridge Velocity = 6.91 fps
Calculated Check Scour = Elev. 778.4

Control Point: CP2, N 7435569.86, E 18543242.04 ,CP Cut X on Row Rail in SW Quad US 65 & Elk Horn St, Elev. = 800.61

Berm Slope Location Table						
Points	South Abutment			North Abutment		
	Station	Offset	Elev.	Station	Offset	Elev.
A1	839+96.26	22.58' Lt.	794.38	840+92.86	22.58' Lt.	794.38
A2	839+69.33	26.58' Rt.	794.38	840+65.92	26.58' Rt.	794.38
B1	839+80.48	22.58' Lt.	800.35	841+10.09	22.58' Lt.	800.35
B2	839+52.10	26.58' Rt.	800.35	840+81.71	26.58' Rt.	800.35
W1	839+66.91	22.58' Lt.	803.96	841+18.37	22.58' Lt.	803.92
W2	839+43.82	26.58' Rt.	803.84	840+95.28	26.58' Rt.	803.88

Berm slope elevations reflect the grading surface.

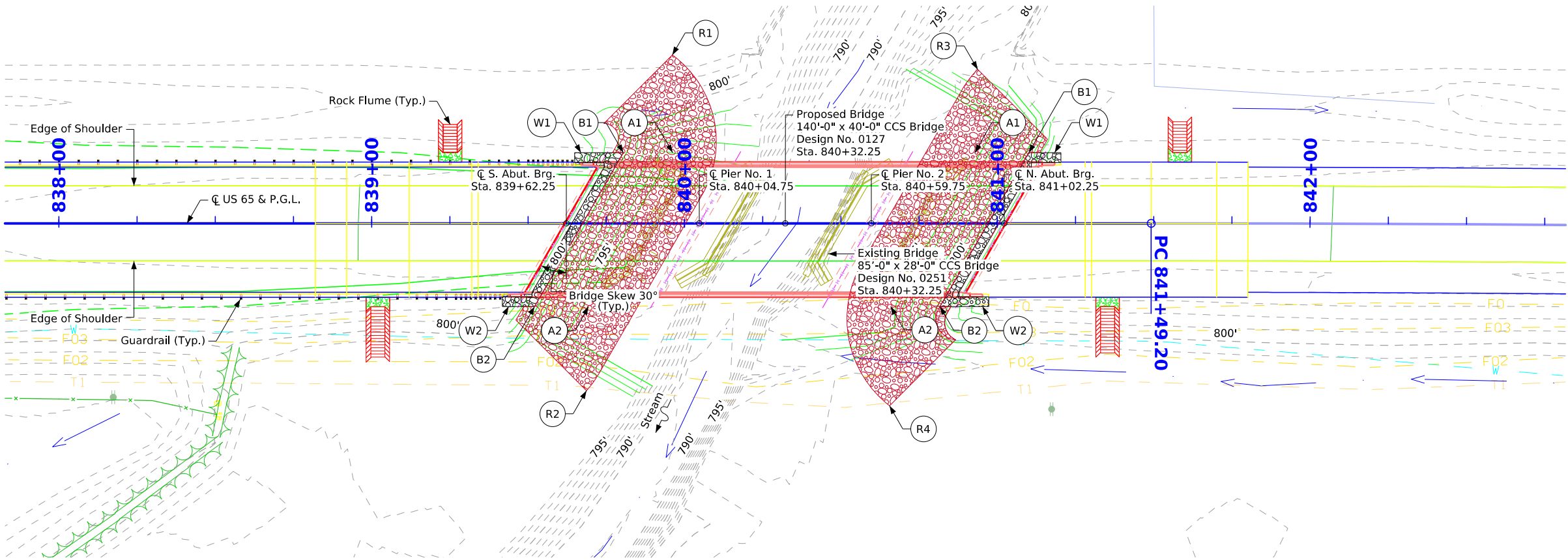


Section Through Berm Lining (Embedded)

Revetment Quantities				
Location	Revetment CL. E (Ton)	Erosion Stone (Ton)	Engineering Fabric (SY)	CL. 10 Channel Excavation (CY)
Berm Lining - South	538.5	-	335.3	336.6
Berm Lining - North	539.3	-	335.7	337.1
Stone Protection - South	-	10.2	25.5	6.4
Stone Protection - North	-	10.2	25.5	6.4
Totals	1077.8	20.4	722.0	686.4

Excavation quantity calculated from grading surface. Excavation quantity is 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.

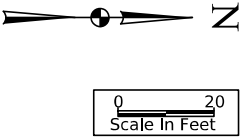
Revetment and erosion stone estimated at 1.6 Ton/CY.



Site Plan

Revetment Layout:

- R1 - Sta. 839+96.16, 53.83' Lt., West End Berm Lining
- R2 - Sta. 839+68.70, 53.47' Rt., East End Berm Lining
- R3 - Sta. 840+93.73, 49.23' Lt., West End Berm Lining
- R4 - Sta. 840+65.57, 58.30' Rt., East End Berm Lining



Design For 30° Skew (LA)

140'-0" x 40'-0" Continuous Concrete Slab Bridge

42'-6" End Spans55'-0" Interior Span

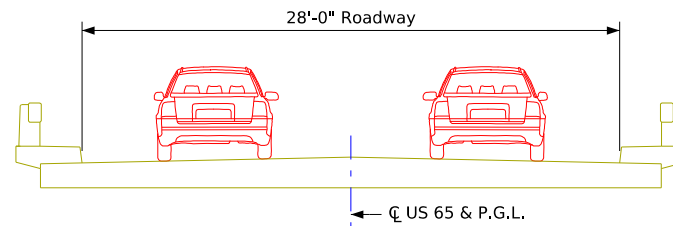
Site Plan

STA. 840+32.25 (US 65)November 2024

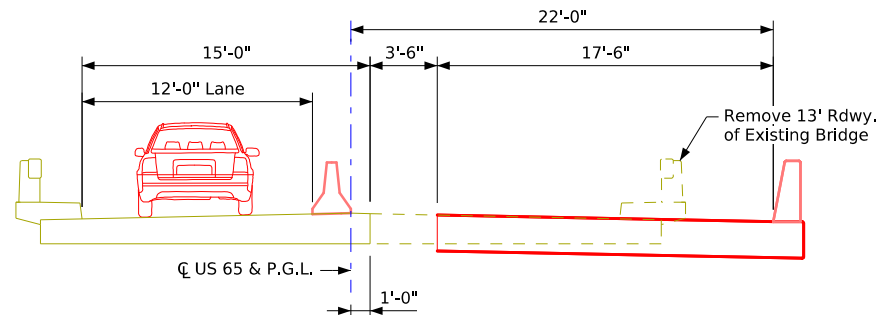
Warren County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0127Design Sheet No. 2 of 3FHWA No. 050931

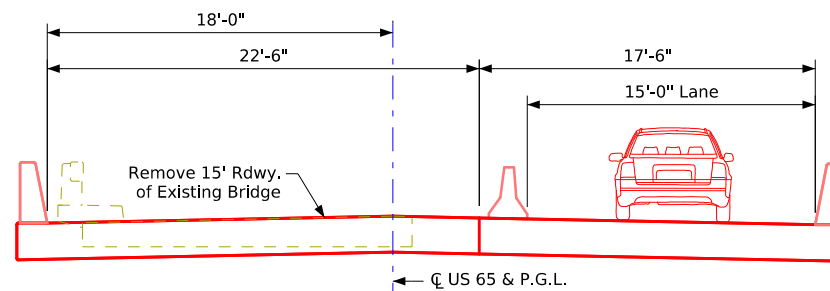


Typical Section - Existing



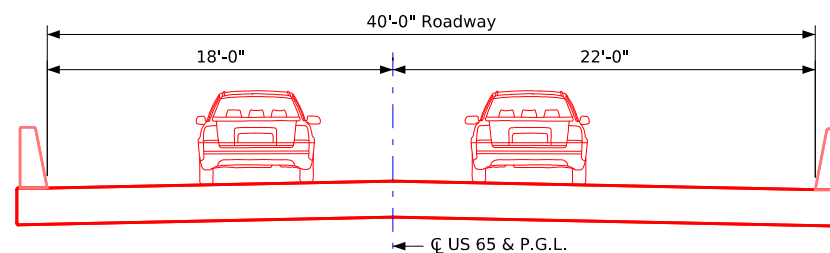
Typical Section - Stage 1

Stage 1 Traffic: 1 Lane at 12' Width
Stage 1 Construct: 17'-6"



Typical Section - Stage 2

Stage 2 Traffic: 1 Lane at 15' Width
Stage 2 Construct 22'-6"



Typical Section - Final

Notes:

Typical sections are looking North.

Design For 30° Skew (LA)

140'-0" x 40'-0" Continuous Concrete Slab Bridge

42'-6" End Spans 55'-0" Interior Span

Bridge Staging

STA. 840+32.25 (US 65) November 2024

Warren County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0127 Design Sheet No. 3 of 3 FHWA No. 050931

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:

Text

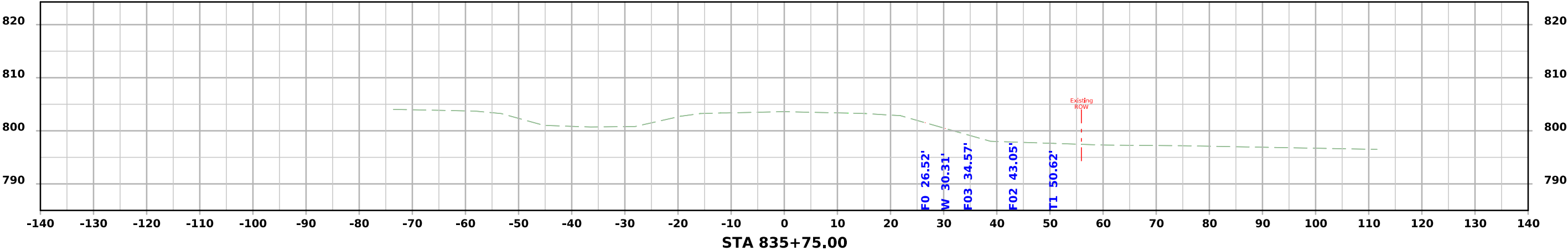
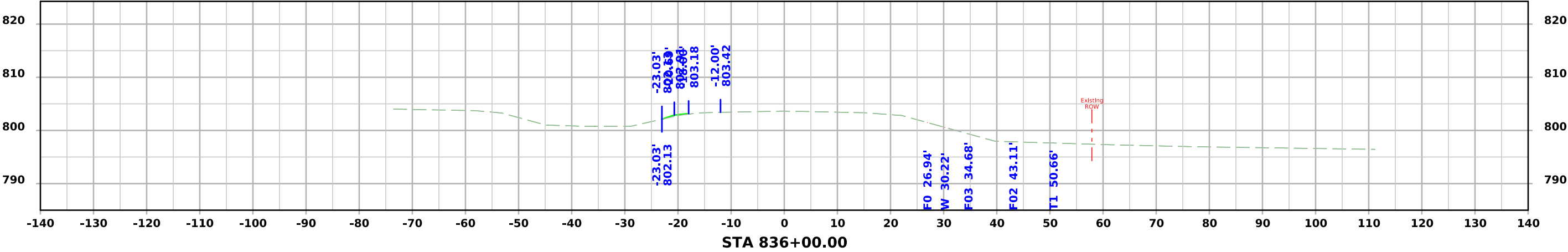
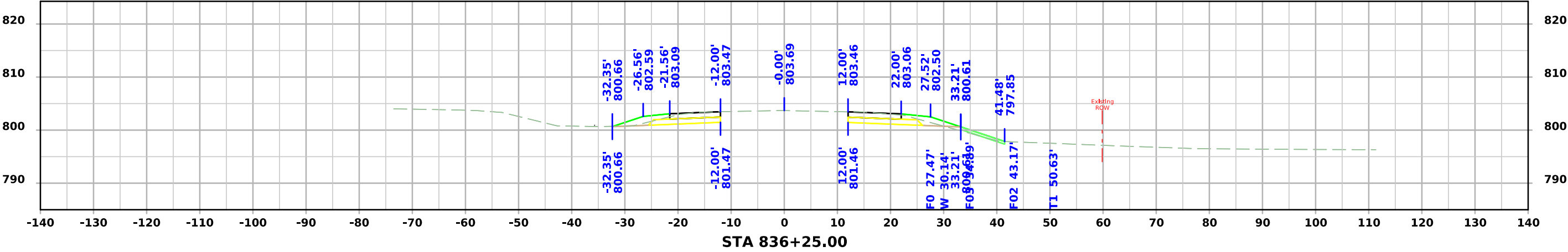
NOTES:

Text

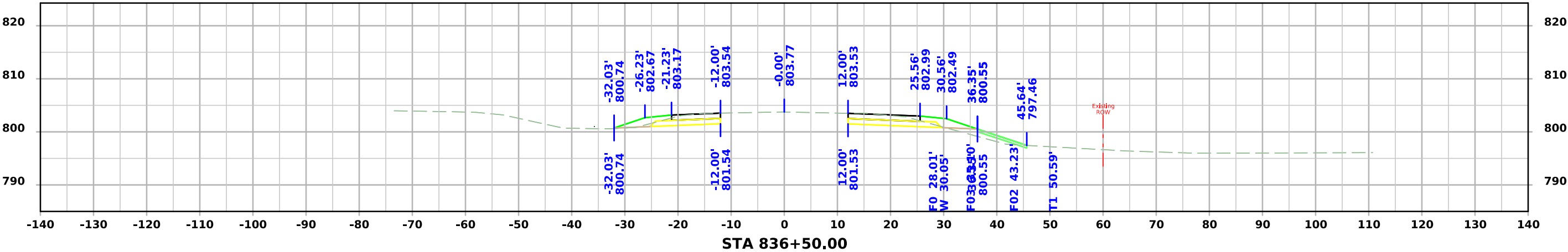
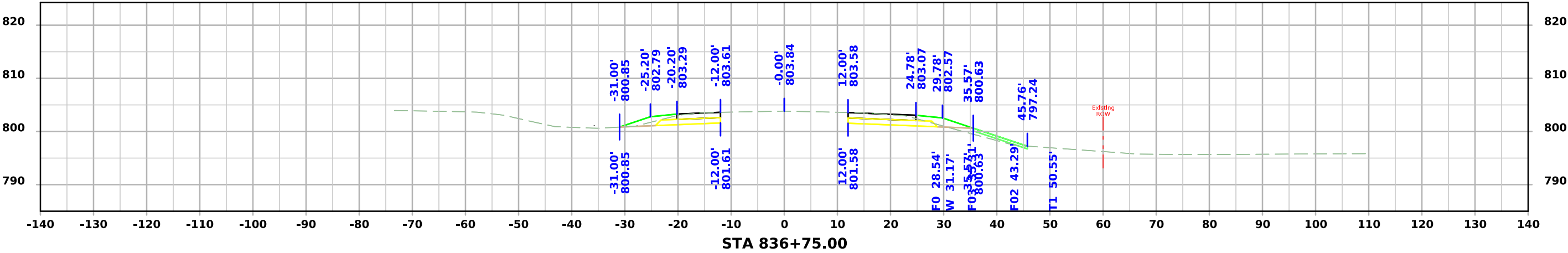
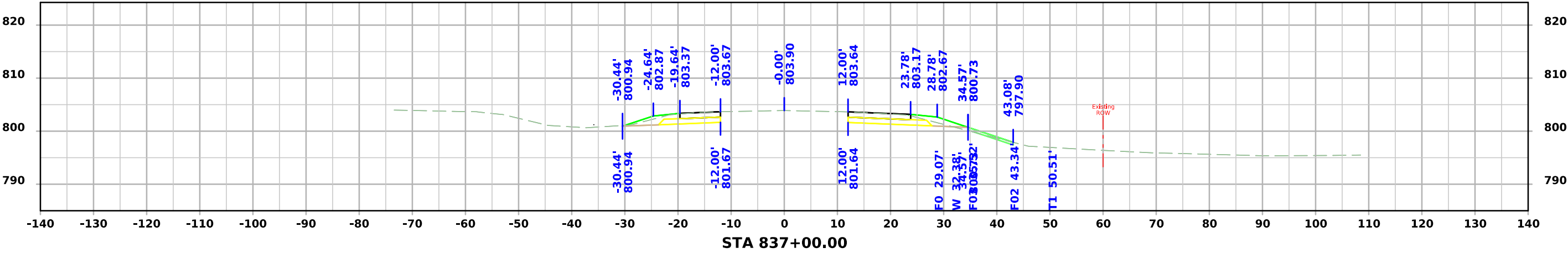
CROSS SECTIONS
LEGEND AND INFORMATION SHEET

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

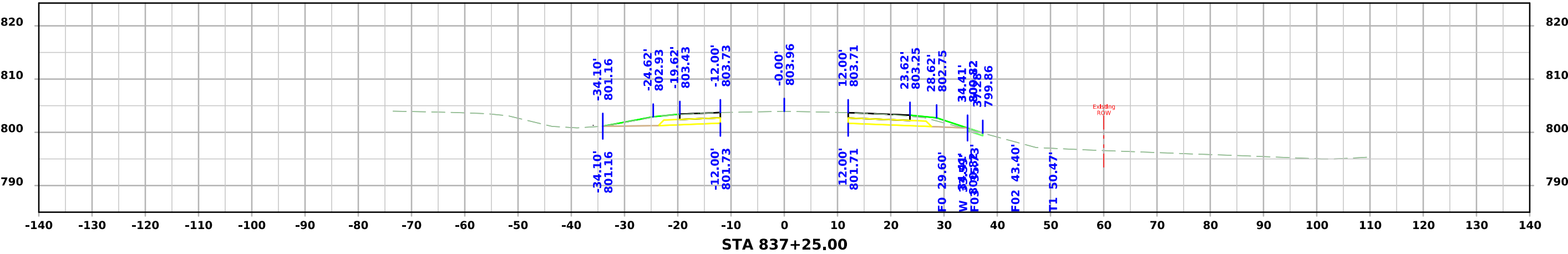
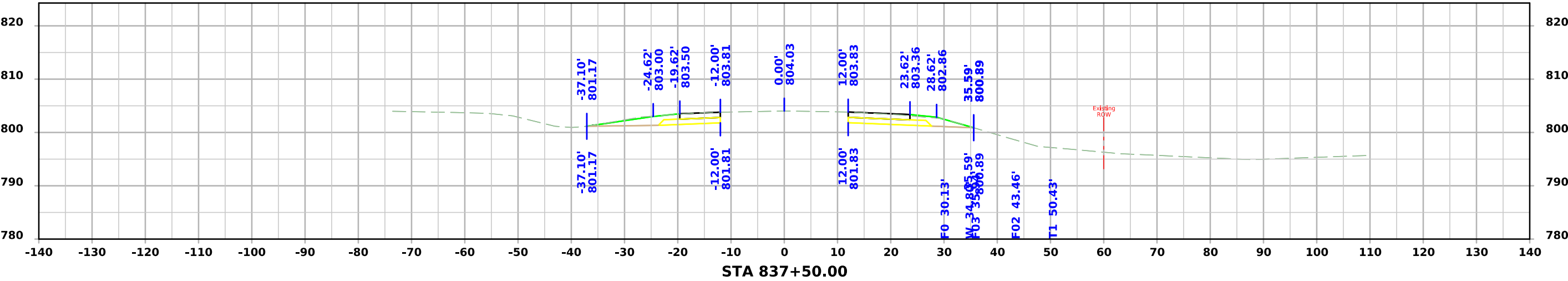
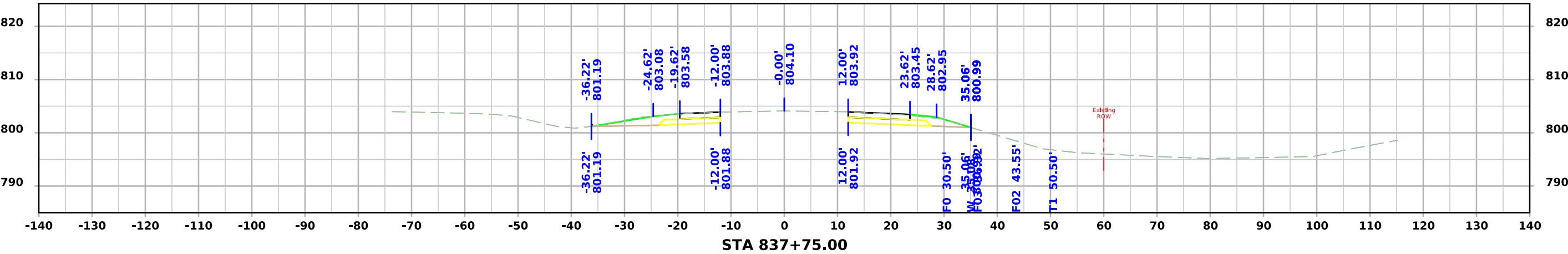
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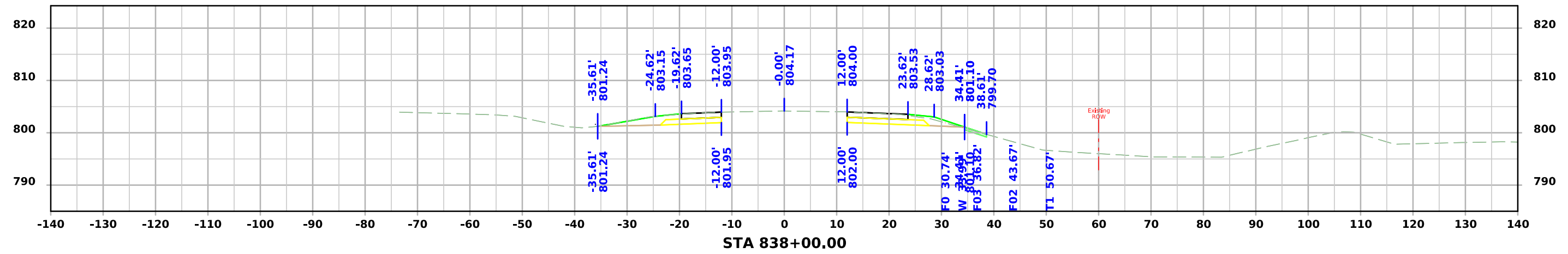
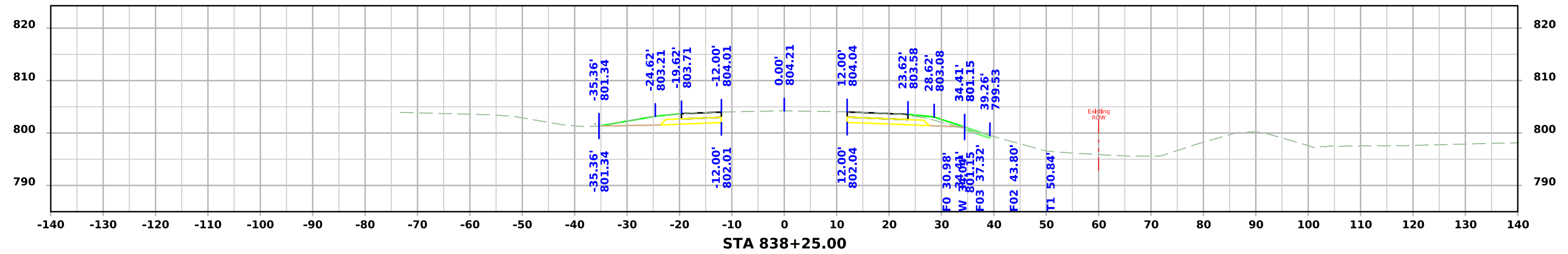
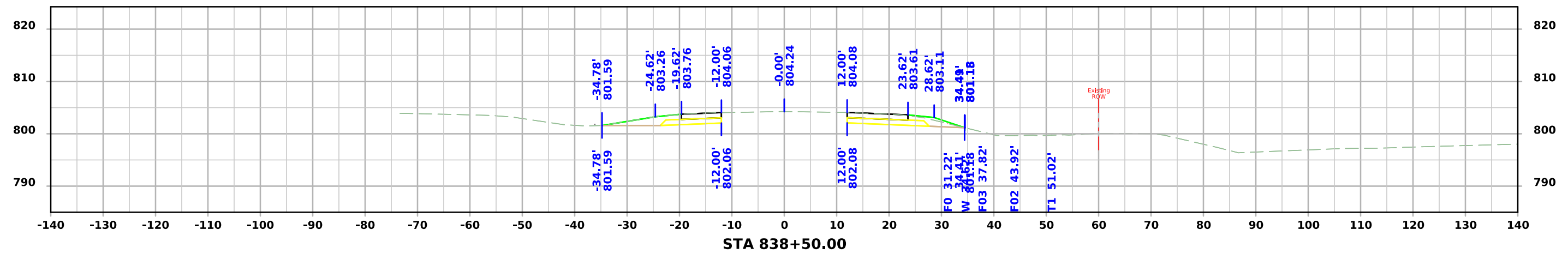
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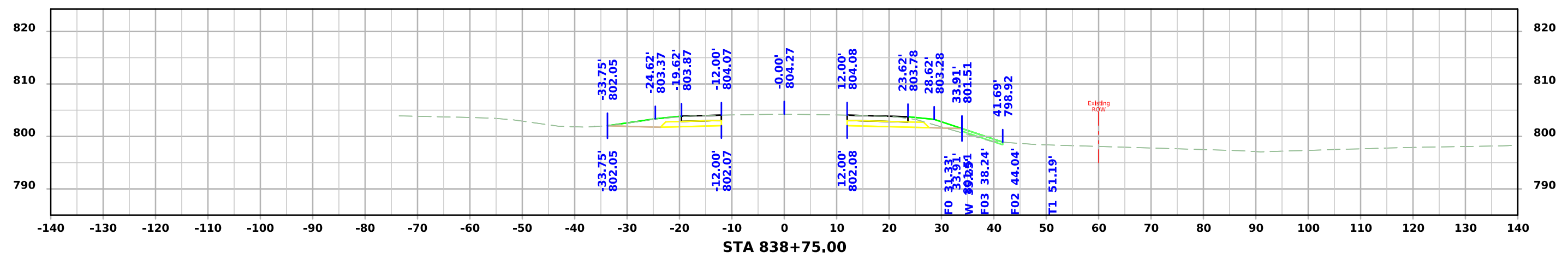
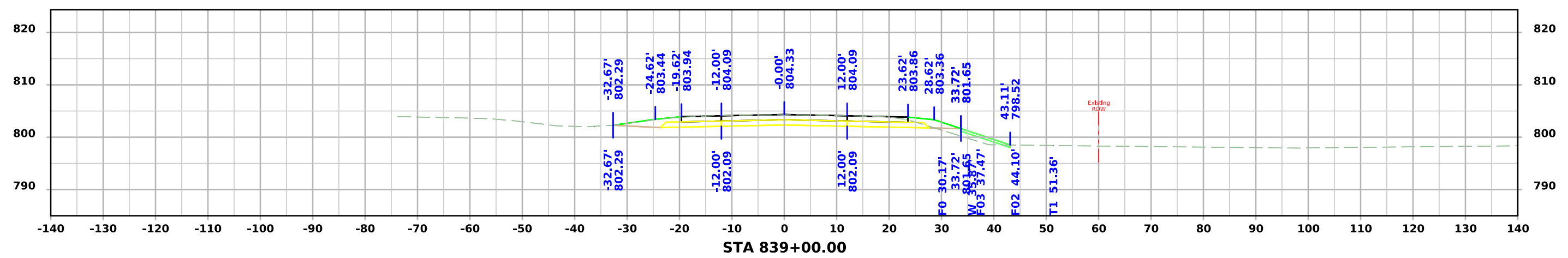
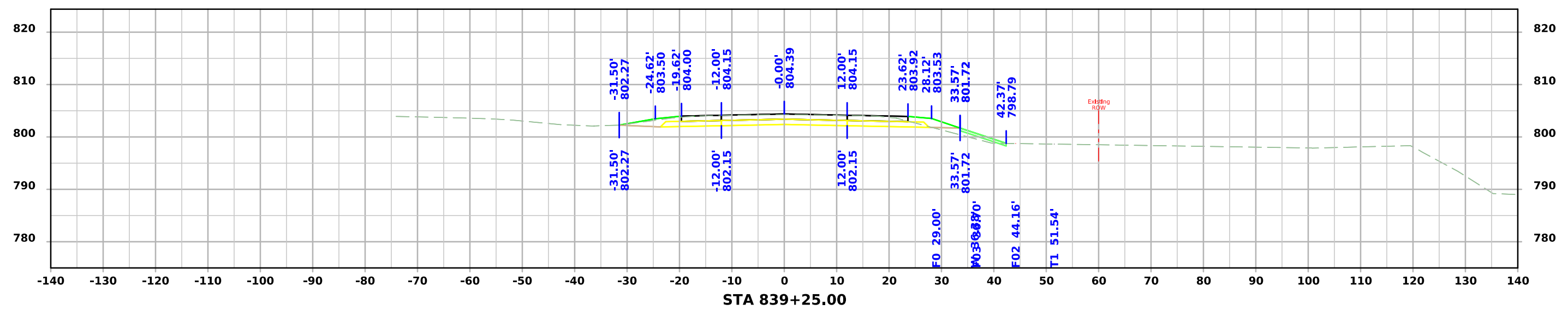
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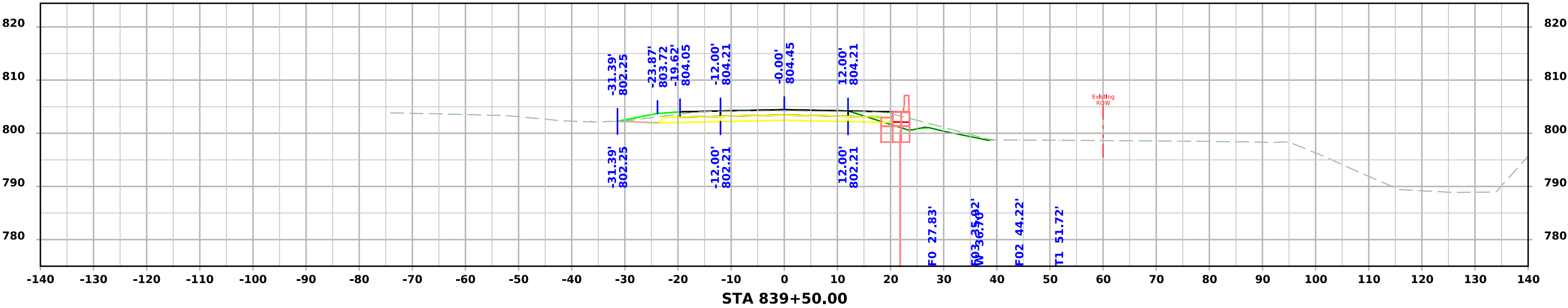
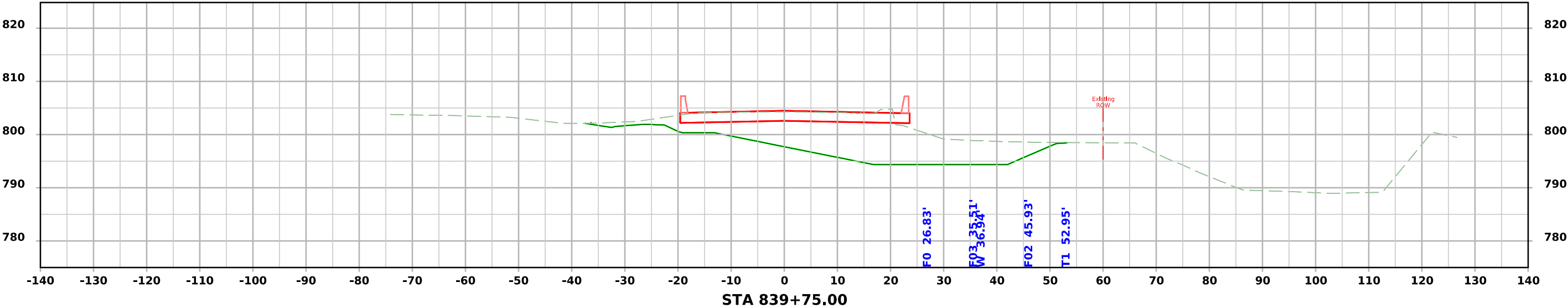
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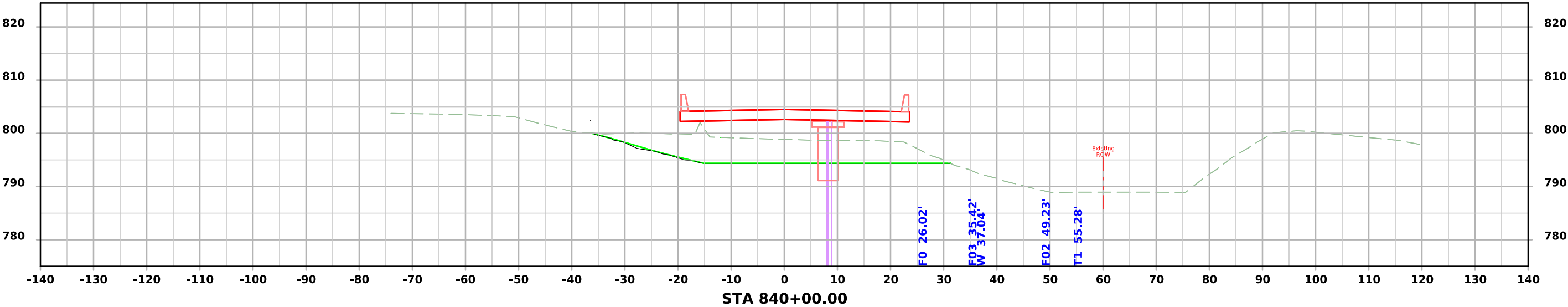
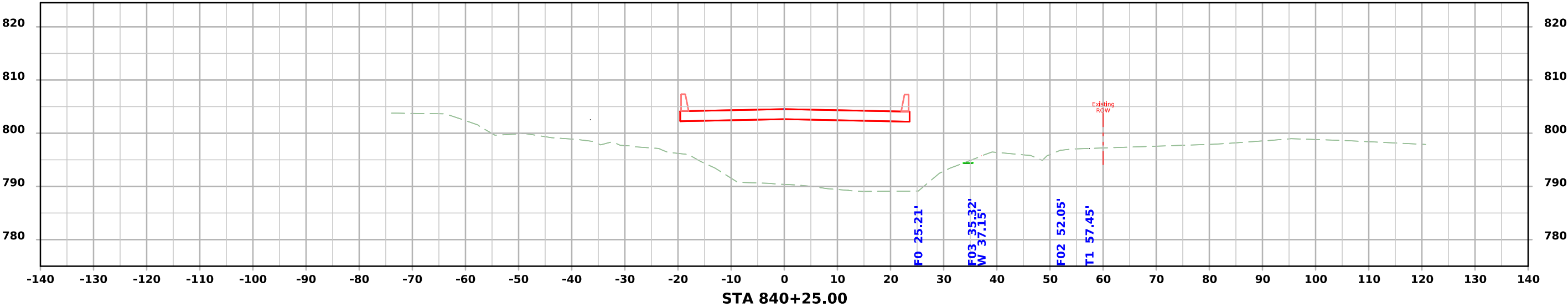
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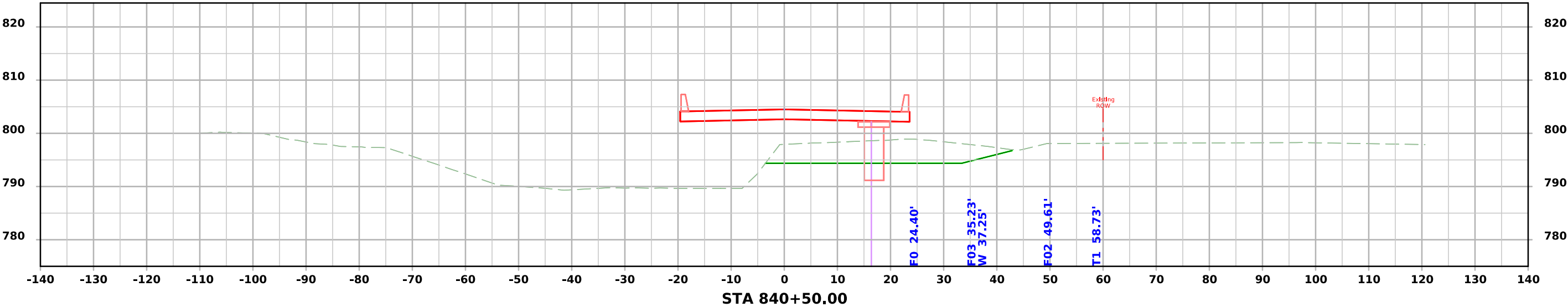
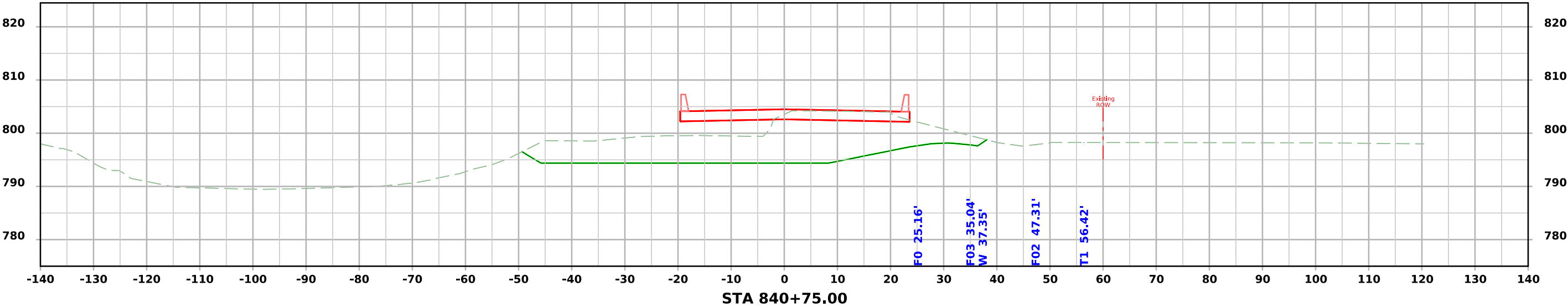
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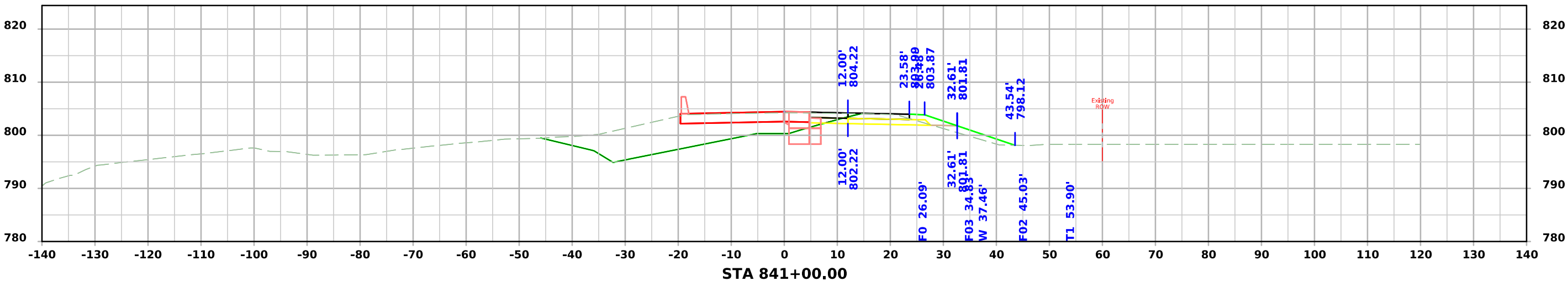
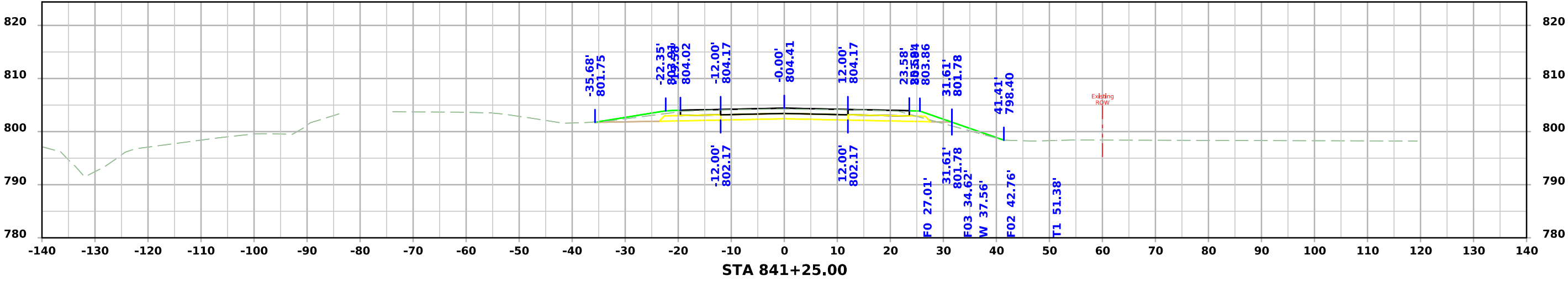
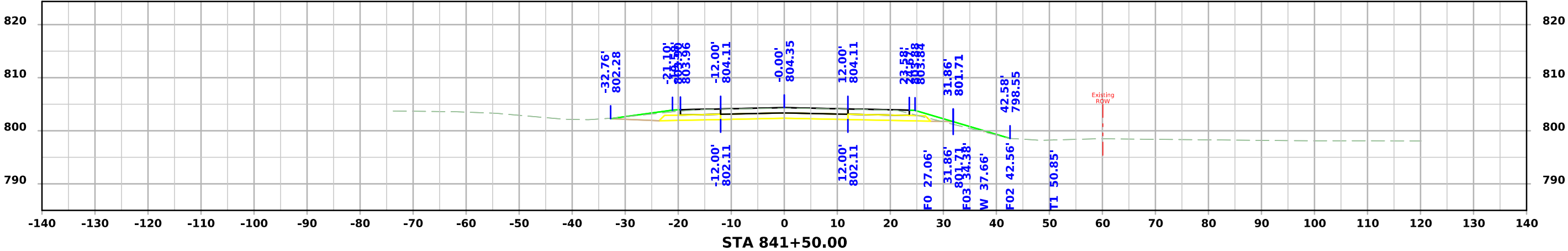
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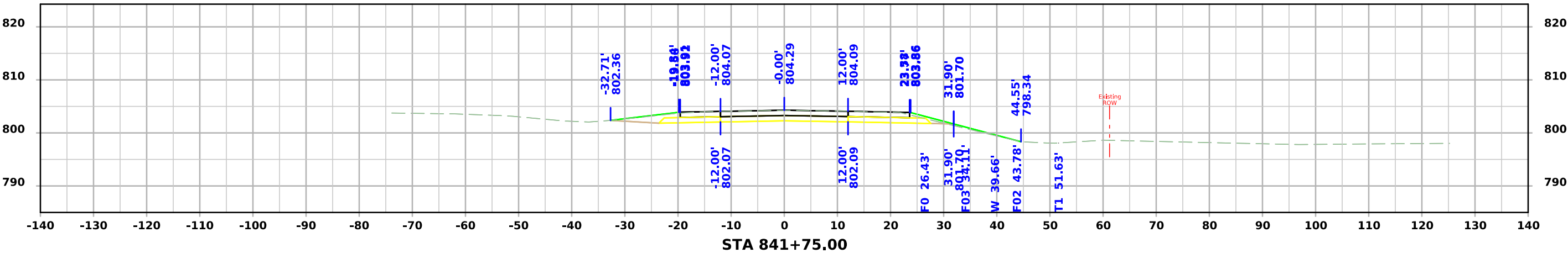
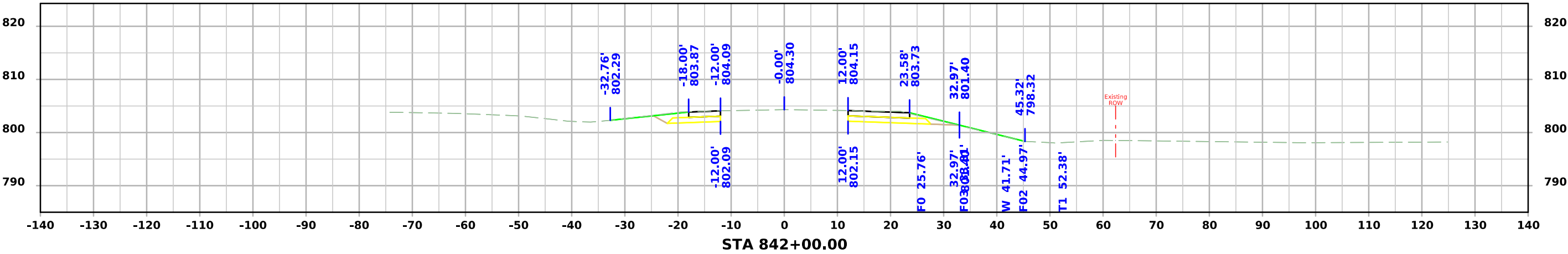
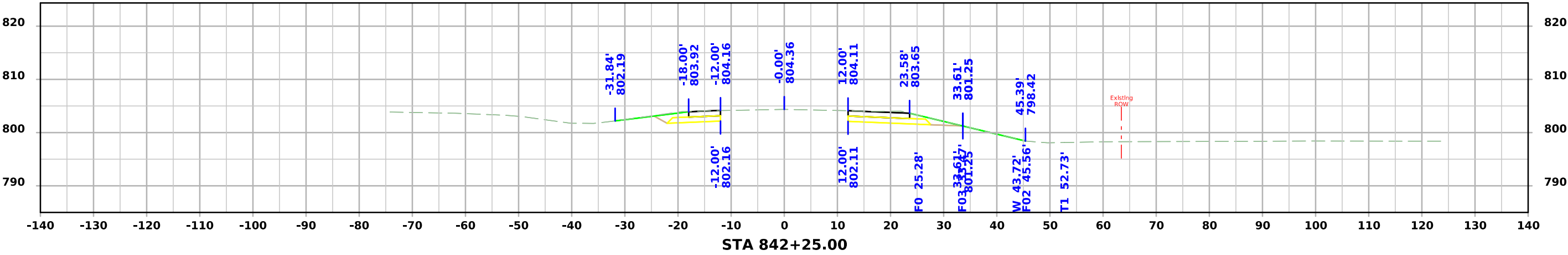
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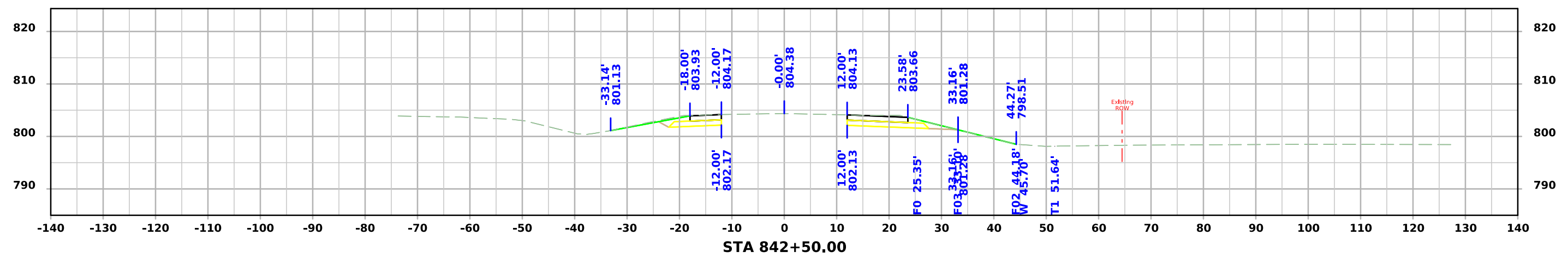
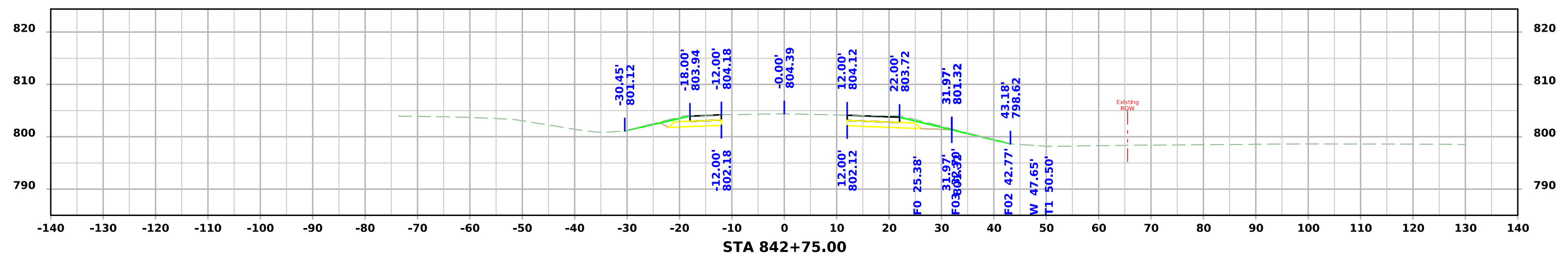
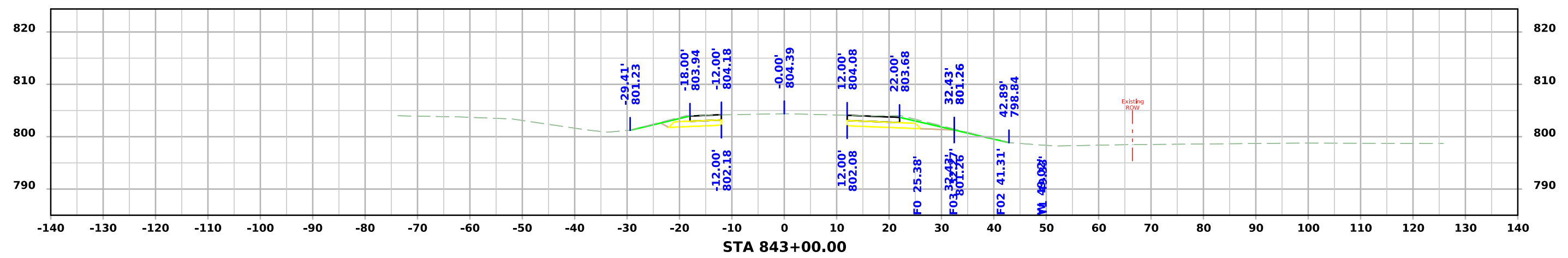
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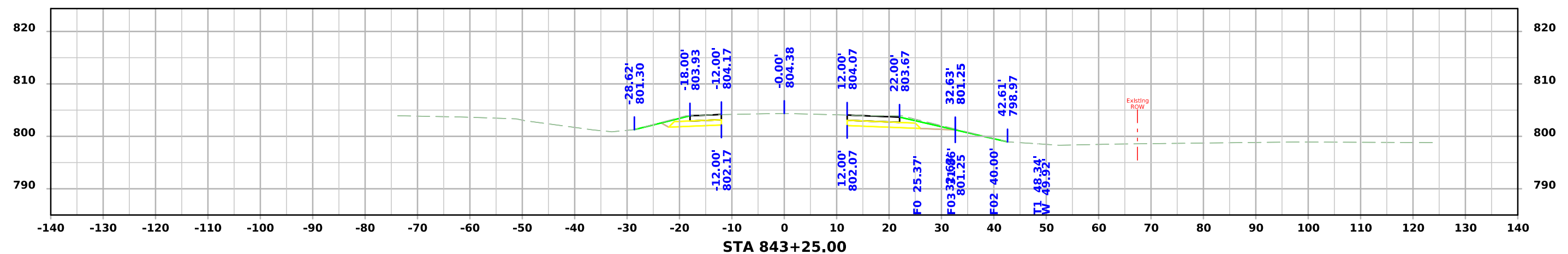
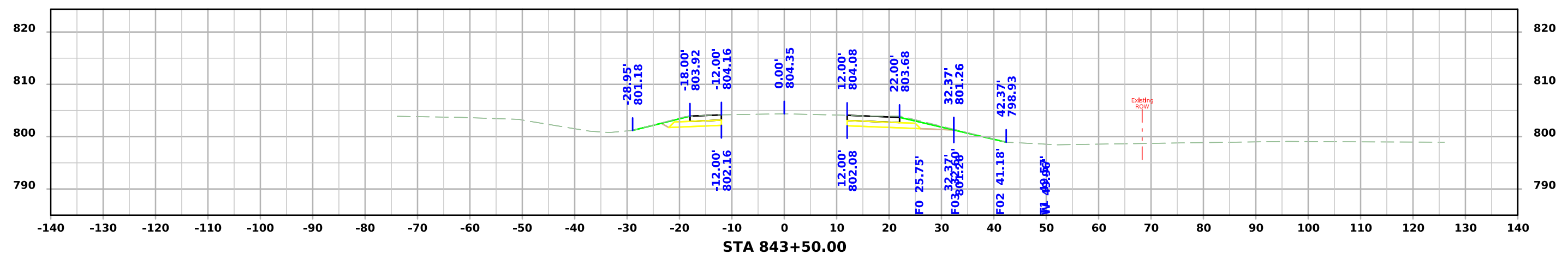
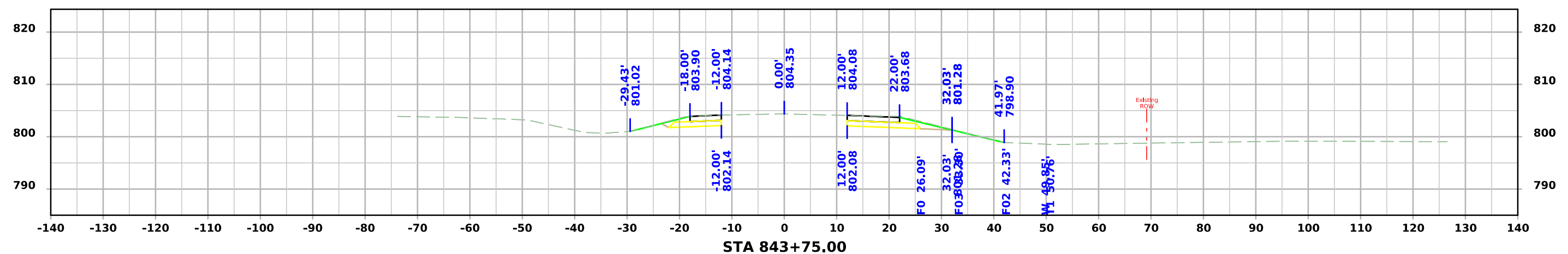
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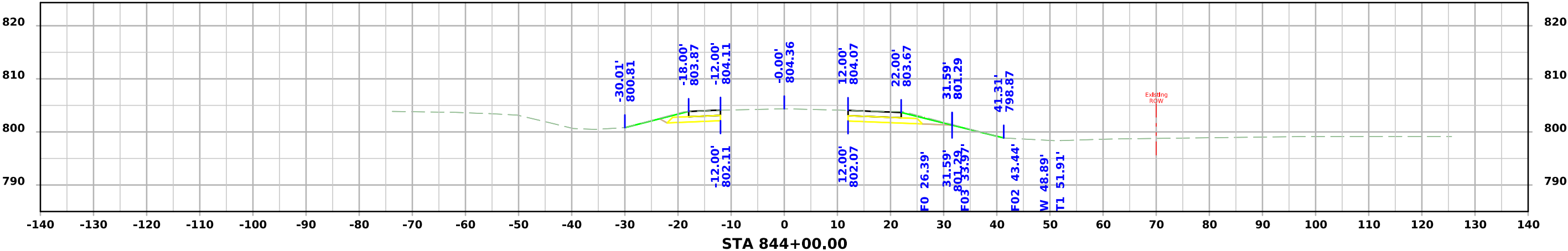
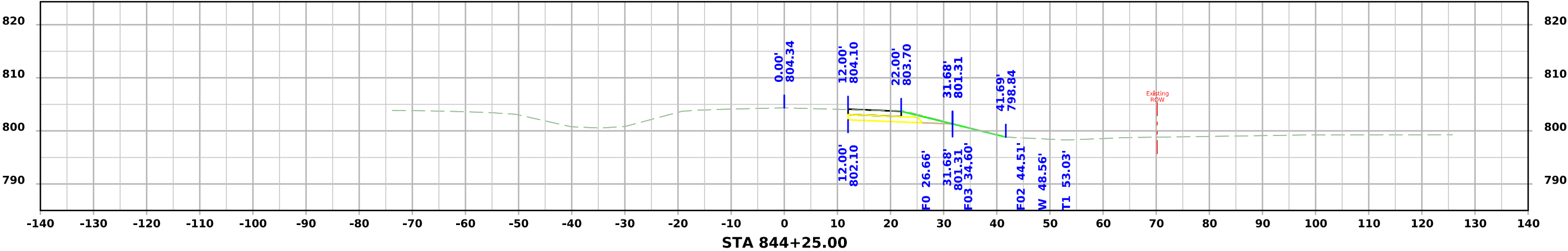
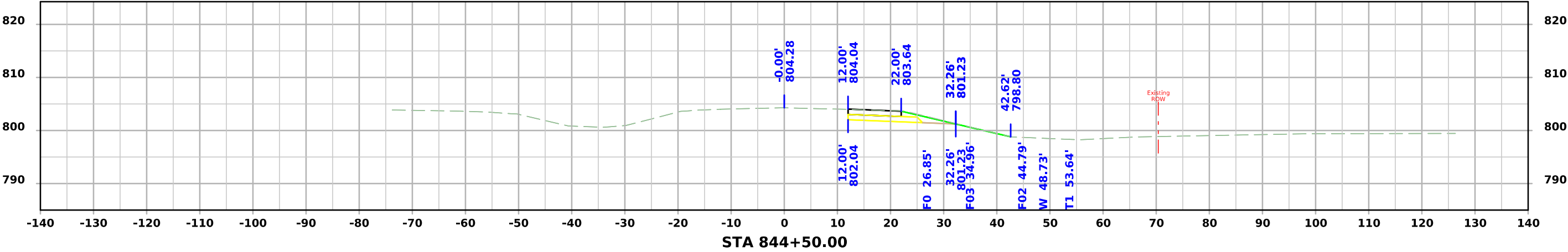
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