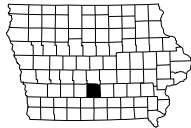


WARREN COUNTY

RCB Culvert-Unspecified
BRF-092-5(071)--38-91

LETTING DATE
1-19-2028



INDEX OF SHEETS	
No.	DESCRIPTION
A Sheets	Title Sheets
A.1	Title Sheet
A.2	Location Map Sheet
A.3 - 8	Concept
A.9 - 11	Design Criteria
B Sheets	Typical Cross Sections and Details
B.1	Typical Cross Sections and Details
D Sheets	Mainline Plan and Profile Sheets
* D.1	Plan & Profile Legend & Symbol Information Sheet
* D.2	IA 92
G Sheets	Survey Sheets
G.1	Reference Ties and Bench Marks
G.2 - 3	Horizontal Control Tab. & Super for all Alignments
J Sheets	Traffic Control and Staging Sheets
* J.1	Traffic Control Plan
* J.1	Coordinated Operations
* J.1	511 Travel Restrictions
* J.2	Detour Route
V Sheets	Bridge and Culvert Situation Plans
V.1	TSL Sta. 106+98.06 Twin 12'x8'x105' RCB Culvert
W Sheets	Mainline Cross Sections
W.1	Cross Sections Legend & Symbol Information Sheet
W.2 - 8	Mainline Cross Sections
Z Sheets	Entrance Cross Sections
Z.1	IA 92 Entrance Cross Sections Sta. 105 & 109
* Color Plan Sheets	



PLANS OF PROPOSED IMPROVEMENT ON THE
PRIMARY ROAD SYSTEM
WARREN COUNTY
RCB Culvert-Unspecified
Stream 1.9 mi E of IA 28

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
..
PROJECT IDENTIFICATION NUMBER
21-90-063-010
PROJECT NUMBER
BRF-092-5(071)--38-91
R.O.W. PROJECT NUMBER
NHSX-092-5(072)--2R-91

Dates:
05 Nov. 21, 2025
04 Sept. 22, 2027

INDEX OF SEALS			
SHEET NO.	NAME	TYPE	BID QUANTITY SHEETS
A.1	Kelly C. Bell	Primary Signature Block	X
V.1	X	Hydraulic Signature Block	X

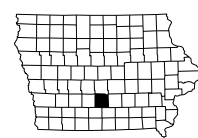
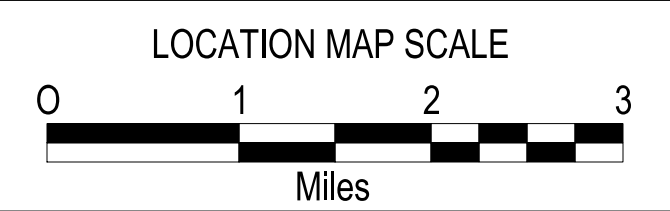
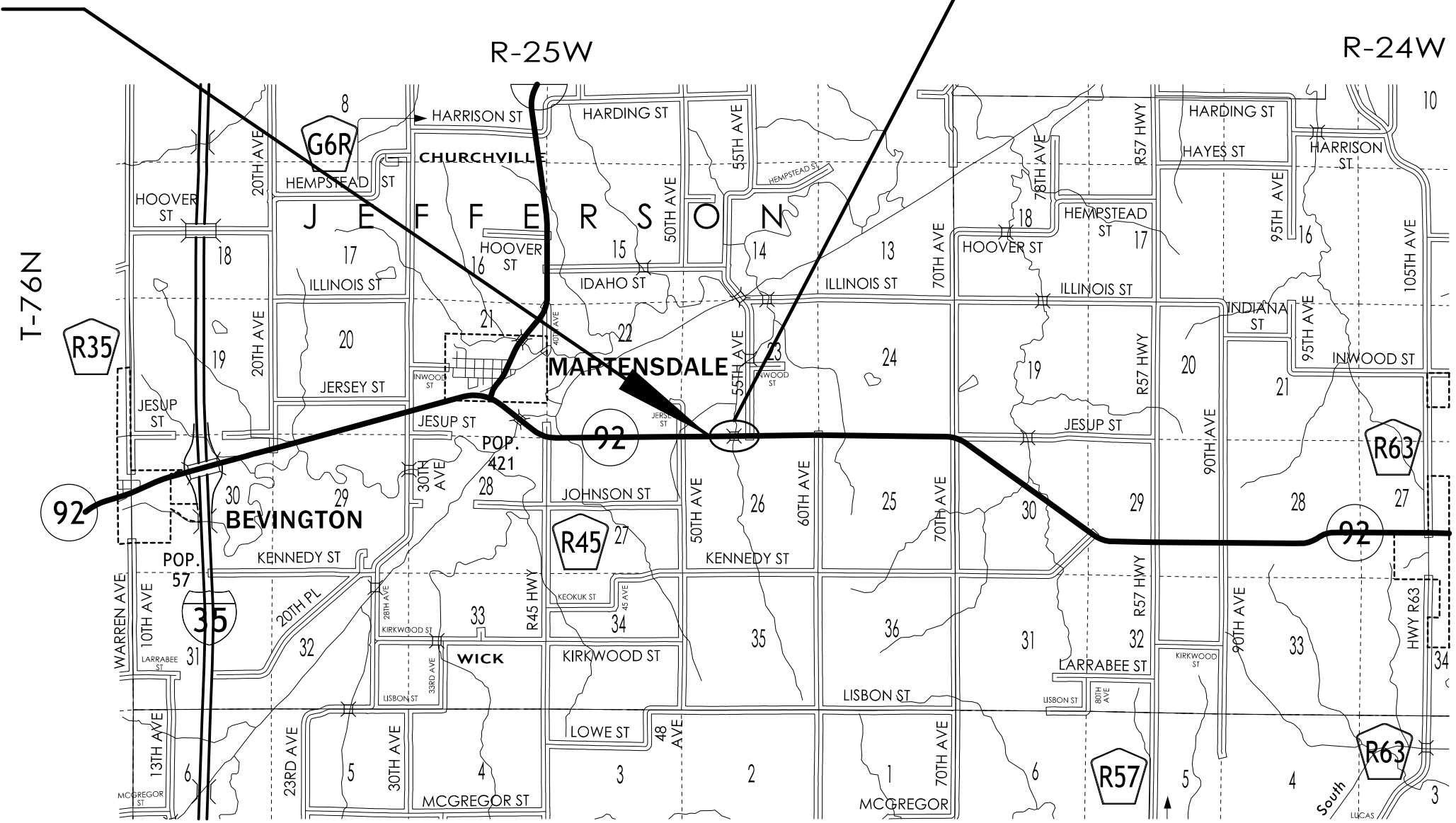
PRELIMINARY PLANS

Subject to change by final design.

D2/D3 PLAN - Date: November 10, 2025

BRIDGE
US-92 over drainage ditch
STA. 176+xx
FHWA# 51120 (EXST)
FHWA# xxxxx(NEW)

PROJECT LOCATION



IOWA DEPARTMENT OF TRANSPORTATION

TO OFFICE:

District 5

DATE:

March 13, 2025

ATTENTION:

Robert Younie

PROJECT:

Warren County
BRF-092-5(071)--38-91
Project Code: 23-91-092-010

FROM:

John E. Bartholomew

BUREAU:

Design

SUBJECT:

Project Concept Statement; (Final Approval, D0)

This project involves the replacement of the IA 92 culvert (FHWA No. 51120; Maint. No 9123.2S092) over the stream 1.9 miles east of IA 28.

A concept review was held on November 26, 2024. Those present included Steve McElmeel, Bob Younie, Darrick Bielser, Dale Harmon, and Marv May from the District 5 Office; Jimmy Ellis from the Bridges and Structures Bureau; Brandy Beavers, Shawn Goetz, and Christine Schwake from the Location and Environment Bureau; and Kent Nicholson, Kevin Patel, and Hollie Richey from the Design Bureau.

The alternative considered was:
1. Replace with a twin 12’ x 6’ x 105’ RCB utilizing off-site detour **(Estimated Cost \$715,627)**

Alternative 1 is the preferred alternative. Additional right of way may be required. Traffic will be maintained by offsite detour.

The Draft Project Concept Statement was sent out for review and comment with concerns to be resolved by **Wednesday, March 12, 2025**. No comments were received during the review period.

This project is recommended for construction in FY 2028. The Design Bureau will coordinate plan preparation with assistance from the Bridges and Structures Bureau.

JEB: YG
Attach.
cc:

- C. Purcell
M. Dell
M. A. Swenson
S. Majors
D. L. Newell
W. A. Sorenson
A. A. Welch
B. Hofer
H. Naraghi
M. Todsén
M. Solberg
L. Armstrong
R. Meyer
M. E. Khoda
S. McElmeel
B. Lauderman
J. Woodcock

K. D. Nicholson
J. S. Nelson
D. E. Sprengeler
A. Poole
B. Bradley
E. C. Wright
J. Harris
G. Karssen
S. Anderson
B. Dolan
T. Gustafson
N. Abuissa
J. Hauber
K. Olson
D. Bielser
H. Torres-Cacho
B. M. Clancy

B. Smith
M. Nop
C. C. Poole
K. Brink
J. W. Laaser-Webb
M. E. Ross
M. Van Dyke
R. Harris
D. Stokes
T. Lovan
D. Dudley
J. Ellis
S. Sersland
P. Leanos
B. Beavers
J. Garton
B. Porter

FINAL PROJECT CONCEPT STATEMENT

IA 92 Culvert over Stream 1.9 mi E of IA 28

Warren County
BRF-092-5(071)--38-91
Project Code: 23-91-092-010
Maint. No. 9123.2S092
FHWA No. 51120

Highway Division
Design Bureau

John Bartholomew, P.E.
515-239-1540

March 13, 2025

Warren County
BRF-092-5(071)--38-91
Project Code: 23-91-092-010
Page 2



Figure 1: With route, 2024



Figure 3: Against route, 2024



Figure 2: Right profile, 2024



Figure 4: Left profile, 2024

I. STUDY AREA

A. Project Description

This project involves the replacement of the IA 92 culvert (FHWA No. 51120; Maint. No 9123.2S092) over the stream 1.9 miles east of IA 28.

The alternative considered was:

1. Replace with a twin 12' x 6' x 105' RCB utilizing off-site detour **(Estimated Cost \$715,627)**

Alternative 1 is the preferred alternative due to anticipated discharge values at the project site.

B. Need for Project

This is a 97' x 21' concrete box culvert bridge that was built in 1928 and reconstructed in 1966 and 1992. The bottom of the deck and barrel walls have spalls, leaching cracks, and some rust staining. The wings have several cracks with leaching and spalled areas. Due to the condition, the culvert should be replaced.

C. Present Facility

The existing structure is a 97' x 21', concrete box culvert constructed in 1928.

IA 92 in the project area was originally 18' wide 10"-7"-10" PCC slab with 6' wide granular shoulders and 3:1 foreslopes for less than 6' of fill, constructed in 1930. Type B ACC resurfacing was accomplished in 1952 with 1.5" binder course and 1.5" surface course to form a 20' wide pavement surface with 5' paved shoulders. Bituminous seal coat was applied in 1983. ACC resurfacing and widening to 24' pavement and 5' paved shoulders was completed in 1992 with 0.75" milling, 1.5" type 'B' binder course, and 1.5" type 'A' surface course. PCC patching was done in 2017. ACC resurfacing was done in 2023 with 1.5" of milling, 1.5" HMA base course, and 1.5" HMA surface course. The existing pavement is 24' wide with 8' combination paved and gravel shoulders.

D. Traffic Estimates

The 2028 construction year and 2048 design year average daily traffic estimates are 3300 ADT with 12% trucks and 3800 ADT with 12% trucks, respectively.

E. Sufficiency Ratings

IA 92 is classified as an "Area Development" route and is a maintenance service level "C" roadway. The Bridge Condition Index is 41.4 and the Bridge Condition Rating is "Fair".

F. Access Control

Access rights will not be acquired for this project.

G. Crash History

During the five-year study period from January 1, 2020 through December 31, 2024, there were 3 personal property crashes.

The Potential for Crash Reduction (PCR) level and value at the intersection of IA 92 and 55th Ave is negligible and 0.0 crash/year for all crashes, respectively.

II. PROJECT CONCEPT

A. Feasible Alternatives

Alternative #1 - Replace with a culvert

The existing 97' x 21' concrete box culvert bridge will be replaced with a twin 12' x 6' x 105' reinforced concrete box (RCB) placed at a 0 degree skew. The typical cross section will consist of 24' wide pavement with 8' combination (4' paved and 4' granular) shoulders.

The roadway will be reconstructed on the existing vertical and horizontal alignment. Channel shift is not needed. The flow line of the box will not be buried below the existing flow line in the channel due to the flume at the culvert outlet and splash basin. The existing ditches will need to be relocated to meet the inlet and outlet flowlines of the new RCB. Class E revetment will be placed at the ends of the RCB.

Apply erosion control and rural seeding and fertilizing to all disturbed areas.

Right of way appears to be required for this project.

Traffic will be maintained by an off-site detour.

Bridge Items	Estimated Costs
Remove Exist. RCB Culvert 3,255 sf @ \$10.00/sf	\$32,550
RCB Culvert (CIP/PC) - 303.6cy @ \$900/cy	273,240
Flume and Splash Basin-150.00 @ \$900/cy	135,000
Revetment - 500tons @ \$50/ton	25,000
Mobilization (10%)	46,579
M & C (20%)	93,158
Bridge Costs	\$605,527

Roadway Items	
Removal of Pavement	7,100
PCC Pavement	17,200
Modified Subbase	6,800
Paved Shoulder	5,300
Granular Shoulder	1,600
Flooded Backfill	17,300
Clearing and Grubbing	5,500
Seeding and Fertilizing	800
Erosion Control	5,500
Right of Way	10,000
Traffic Control - 5%	5,500
Mobilization - 5%	5,500
M & C - 20%	22,000
Roadway Costs	\$110,100

Project Total	\$715,627
---------------	-----------

B. Detour Analysis

IA 92 will be closed and an offsite detour will be utilized. It is anticipated the detour will be in place for approximately 30 days. The detour would follow IA 28 north from the junction with IA 92 then east on County Hwy G24 to the junction with U.S. 65, then south on U.S. 65 back onto IA 92 in Indianola. Out of distance travel is 18.3 miles. The total distance user cost is anticipated to be \$421,200. The cost for county road maintenance will be \$16,100 as calculated by the Gas Tax Method. Detour signing costs will be \$10,000.

C. Recommendations

It is recommended that the present structure be replaced with a twin RCB utilizing offsite detour, as described in Alternative No. 1.

D. Construction Sequence

It is anticipated that all work on this project will be awarded to one prime contractor. The Bridges and Structures Bureau will coordinate the plan preparation with assistance from the Design Bureau.

E. ADA Accommodations

There are no bike paths or sidewalks adjacent to IA 92; therefore, no ADA accommodations are planned in conjunction with this project.

F. Special Considerations

This will not be a traffic critical project.

The ABC Rating Score of 39 is less than the first stage filter threshold of 50, therefore this culvert will be replaced utilizing traditional construction methods.

No bike path or sidewalk will be required as part of this project.

Waterway is not on a state water trail or paddling route.

Survey downstream past the current splash basin is requested.

Right of Way may be required for this project.

The Location and Environment Bureau has no concerns for this project at this time.

G. Program Status

Site data has been developed by the Design Bureau. This project is listed in the 2025-2029 Iowa Transportation Improvement Program, with \$10,000 programmed for right of way in FY 2028, and \$940,000 for replacement in FY 2028. Costs for this project may be eligible for bridge replacement funds. A schedule of events will be developed following approval of the Project Concept.

JEB:YG

Utilities

Warren Water District
Stan Ripperger
sripperger@warrenwaterdistrict.com
515-962-1200

Lumen/CenturyLink
Steve Parker
CTL-RDMV-IA@lumen.com
515-265-0968

Verizon/MCI Communication Services
Thanh TK Nguyen
Thanh.nguyen3@verizon.com
515-783-7177

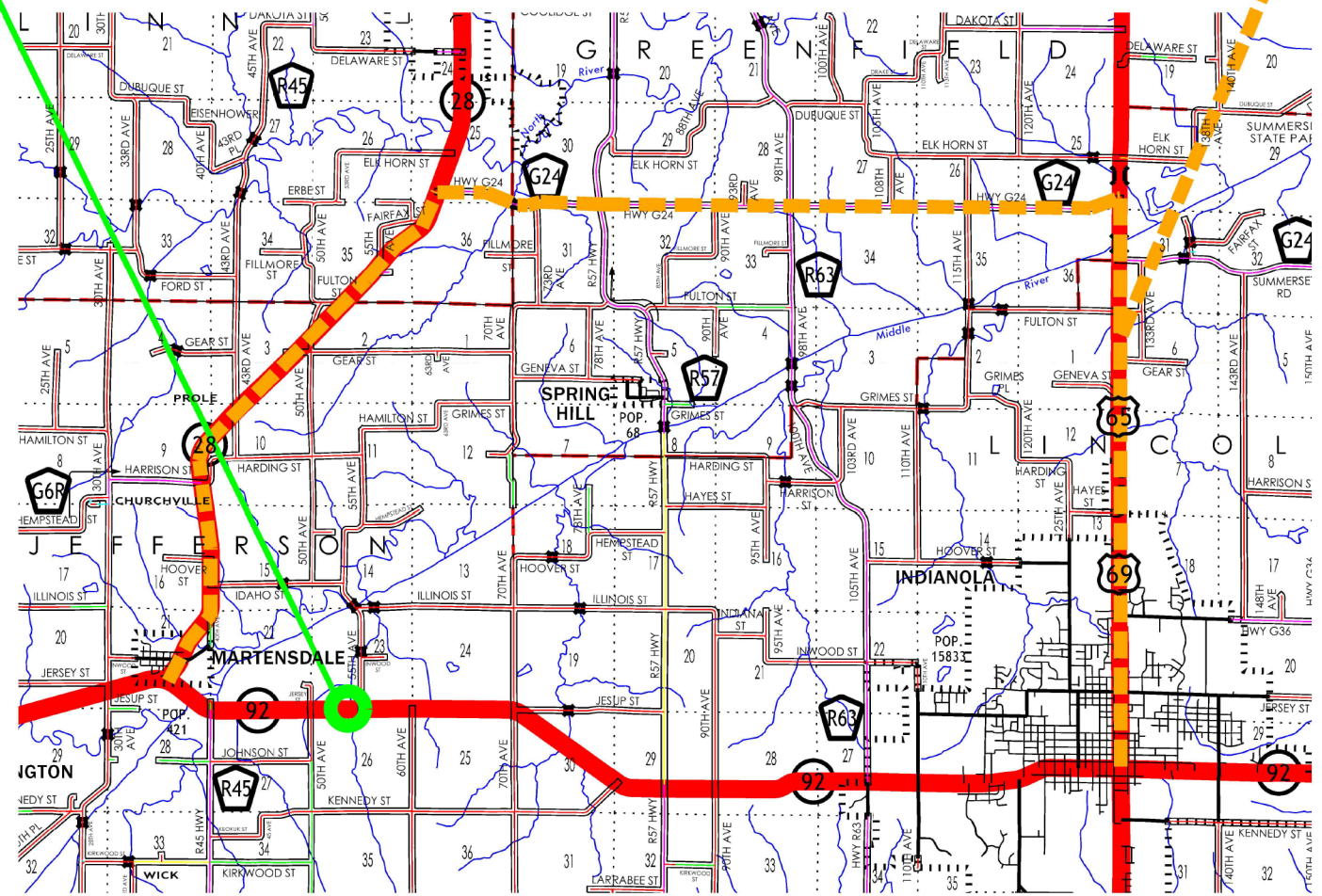
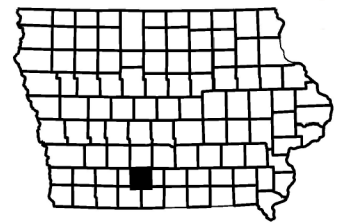
Aureon Technology
Jeff Klocko
Jeff.klocko@aureon.com
515-830-0445

Lumen Longdistance
Kimberly Singleton
Kimberly.singleton@lumen.com
419-631-4683

STA 106 + 96.8
FHWA 51120
MAINT. NO. 9123.2S092
DESIGN 391

WARREN COUNTY

DETOUR



ON IA 92, 1.9 MILES EAST OF IA. 28,
STREAM
BRF-092-5(071)—38-91
PROJECT CODE: 23-91-092-010



Bridge Bureau Attachment for Concept Statement

Date: November 22, 2024
By: Jim Ellis
Location: IA 92 over Stream, 1.9 mi. E. of IA 28

County: Warren County
Phase No.: BRF-092-5(071)--38-91
Project Code: 23-91-092-010

1. Regulatory/Coordination
 - a. Iowa DNR Flood Plain permit = No
 - b. Iowa DNR Sovereign Lands permit = No
 - c. Local Record of Coordination = Yes
 - d. Flood Insurance Study = Possible - Shown as Zone A with no detailed flood insurance study on FEMA website. Panel number 19181C0275F effective date 11/16/2018. However, shows indication of detailed flood study with cross-section designated in GeoHEC-RAS. Need to investigate further during detailed hydraulic design.
 - e. Drainage District = No
 - f. Corps of Engineers Section 408 = No, no levees present
 - g. State Water Trail or Paddling Route = No
 - h. Historic Structure = 3 - May be Eligible for National Register.
 - i. Federally owned land in vicinity = No
 - j. USGS or Iowa Flood Center (IFC) gage or sensor impacted? No
2. Hydrologic/Hydraulic Analysis/RIDB Dataset
 - a. Design discharges determined = Yes-Used Iowa Culvert Program due to small size of drainage basin. Used AEPD spreadsheet to provide additional data to determine discharge ranges. 1987 Report numbers seem most representative of drainage basin size Q50=926cfs Q100=1,127cfs. Need to investigate further 2015 report for small drainage basins to verify final discharge numbers.
 - b. Hydraulic analysis done = Partial - Iowa Culvert Program - Need to continue with 2D GeoHEC-RAS model for detailed hydraulic review.
 - c. If DA > 10 sq. mi. Riverine Infrastructure Database (RIDB) dataset is required with B01 submittal = No - Drainage area smaller than 10 sq. mi., however RIDB stream reach available. RIDB dataset will be developed. MiddleR Trib22, RM 1.41.
 - d. If RIDB required = Yes - Project development hydraulic analysis will comply with the RIDB Guidelines at a minimum.
3. Structure/Roadway Layout Considerations
 - a. Roadway profile grade raise is not anticipated.
 - b. Shallow rock not indicated by existing as-built plans.
 - c. Channel shift needed - No.
4. Special construction issues
 - a. Shallow rock not present.
 - b. Propose that existing structure will be completely removed.
5. Special Survey = Yes, see below.

6. Aesthetic Enhancements = No
7. Other
 - a. Maintenance of Traffic - Don't anticipate staging.
 - b. Estimated detour 13.6 miles - proposed utilizing full closure with offsite detour. From IA 92, use R57 north (R57 Hwy.) to G24(Hwy G24). West on G24 to IA 28, south on IA 28 to IA 92.
 - c. Clear Zone 30 feet
 - d. Posted speed of 55 mph
 - e. Design speed of 60 mph

Special Survey:

Include survey downstream past current splash basin. Obtain enough survey distance downstream until small creek bottom is re-established beyond current splash basin limits.

Roadway			
PIN Number	23-91-092-010	Submittal Date	03/13/25
Project Number	BRF-092-5(071)--38-91		Approval Date
District	District 5	Assistant District Engineer	Steve McElmeel
County	WARREN	or	
Route	IA 92	Office Director	
Location	Stream 1.9 mi E of IA 28		
Work Type	3001-RCB Culvert-Unspecified		
Segment Manager			
Designer			

[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%	6%
Design lane width (ft)		12	12	12
Full depth paved width (ft)		12	12	12
Right turn lane (ft)		12	10	N/A
Climbing Lane (ft)		12	12	N/A
Left turn lane (ft)		12	10	N/A
Pavement cross-slope (on tangent sections)	Through lanes	2%	1.5% minimum, 2% maximum	2%
	Auxiliary and turn lanes	3%	3% maximum	N/A
	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	N/A
	Design speed ≥ 60 mph	4-inch sloped	6-inch sloped	N/A
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	N/A
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	--	
Bridge width—new*	Bridge length ≤ 200 ft	design lane widths + effective shoulder widths	design lane widths + effective shoulder widths	N/A
	Bridge length > 200 ft	design lane widths + effective shoulder widths	design lane width + 4' right and left of the design lane widths	N/A
Bridge width—existing*		design lane widths + no less than 2 ft left and right	design lane widths + 2 ft. offset left and right	N/A
Vertical clearance (ft) (above lanes, shoulders and 25 feet left and right of the center of railroad tracks)	Over primary	16.5	16	N/A
	Over non-primary	16.5 at interchange locations, 15 at all other locations	14	N/A
	Over railroad	23.3	23.3	N/A
	Sign trusses and pedestrian bridges	17.5	17	N/A
Structural Capacity		Contact Office of Bridges and Structures	Contact Office of Bridges and Structures	Contact Office of Bridges and Structures
Level of Service		B	B	C

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

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	--
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		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	N/A
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	—	—	—	N/A	
								5	5	4	4	4	4	3	
								5	5	4	4	4	4	N/A	
Clear zone			See "Preferred Clear Zone" table in Section 8A-2					See "Acceptable Clear Zone" table in Section 8A-2						30'	

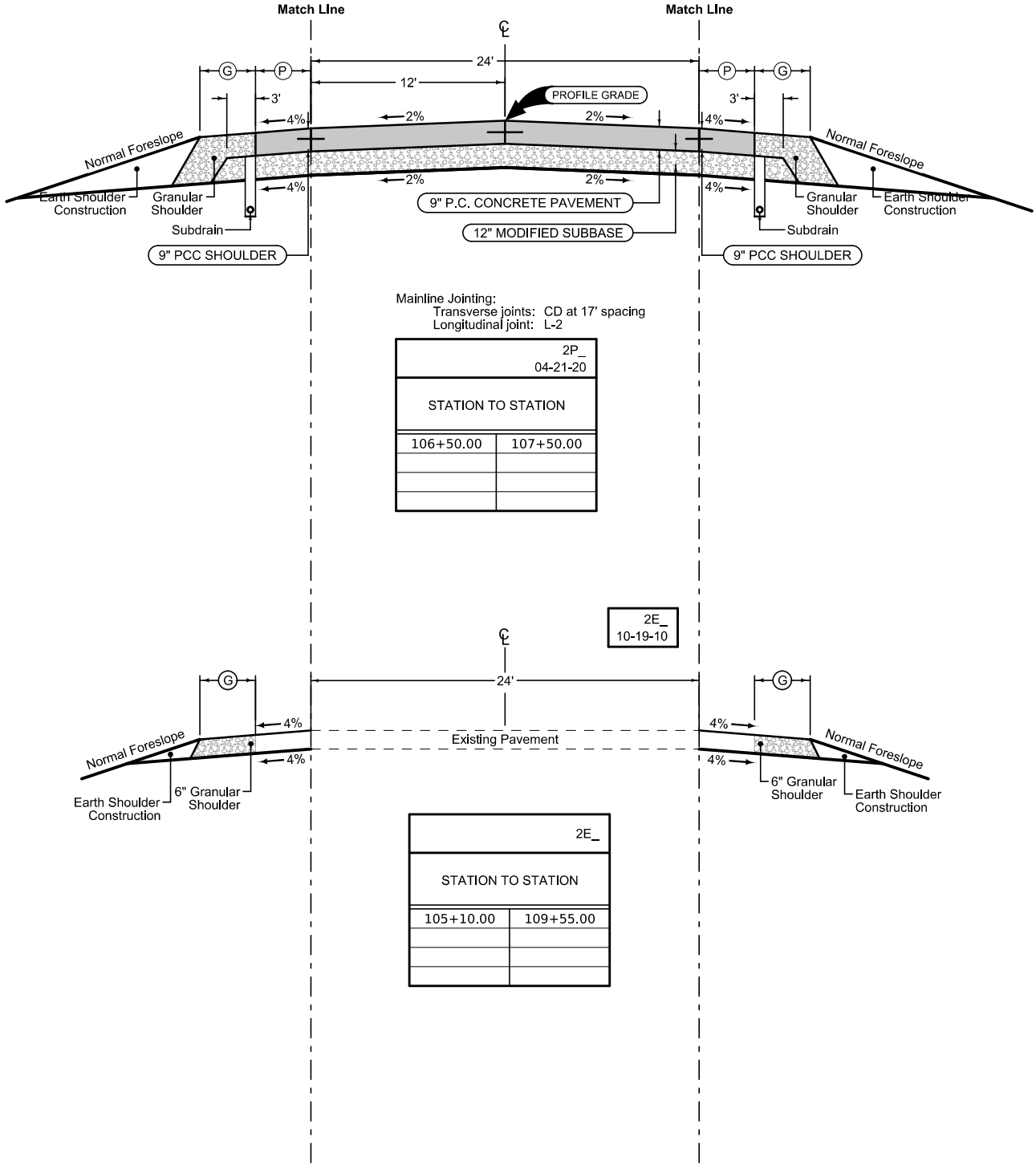
Full Depth PCC Combination Shoulder

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
106+50.00	107+50.00	4	4

Granular Shoulder

2_G_Modified		
STATION TO STATION		(G) Feet
105+10.00	108+90.00	4



Full Depth PCC Combination Shoulder

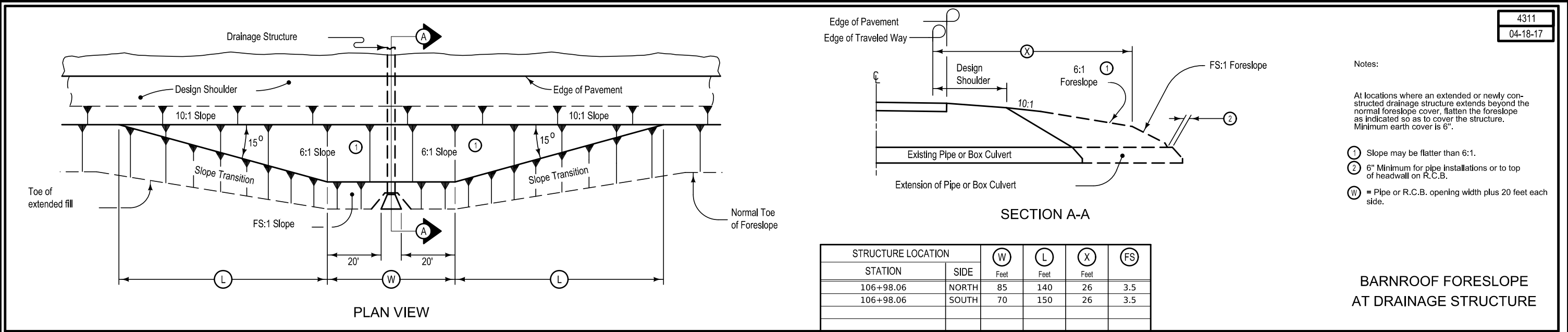
Shoulder Jointing:
Longitudinal joint: BT-2, or L-2
Transverse joints: C at 17' spacing

2_C_FullPCC_04-15-25			
STATION TO STATION		(P) Feet	(G) Feet
106+50.00	107+50.00	4	4

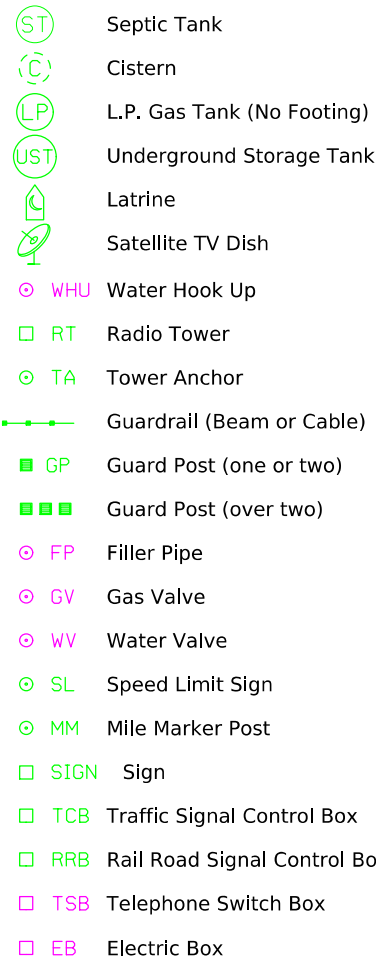
Granular Shoulder

2_G_Modified		
STATION TO STATION		(G) Feet
105+85.00	109+55.00	4

See Tab 100-24 for pavement quantities.
See Tab 112-9 for shoulder quantities.



	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)



SURVEYED UTILITY OWNER SYMBOLS

Sub-Surface Utility Mapping Quality Level is in accordance with CI/ASCE 38-02 Standard Guidelines for the Collection and Depiction of Existing Subsurface Utility Data.

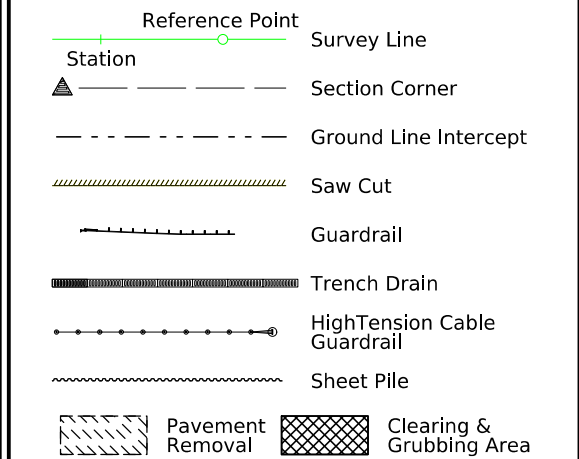
Remark Abbreviations

QLA Quality Level A Highest guideline quality level
QLD Quality Level D Lowest guideline quality level

- F0 — F01D, Centurylink - Quality D
- T1 — T11D, Centurylink - Quality D
- F02 — F02D, Aureon Network Services - Quality D
- W — WL1D, Warren Water District - Quality D
- ● — PPA, Clarke Electric COOP

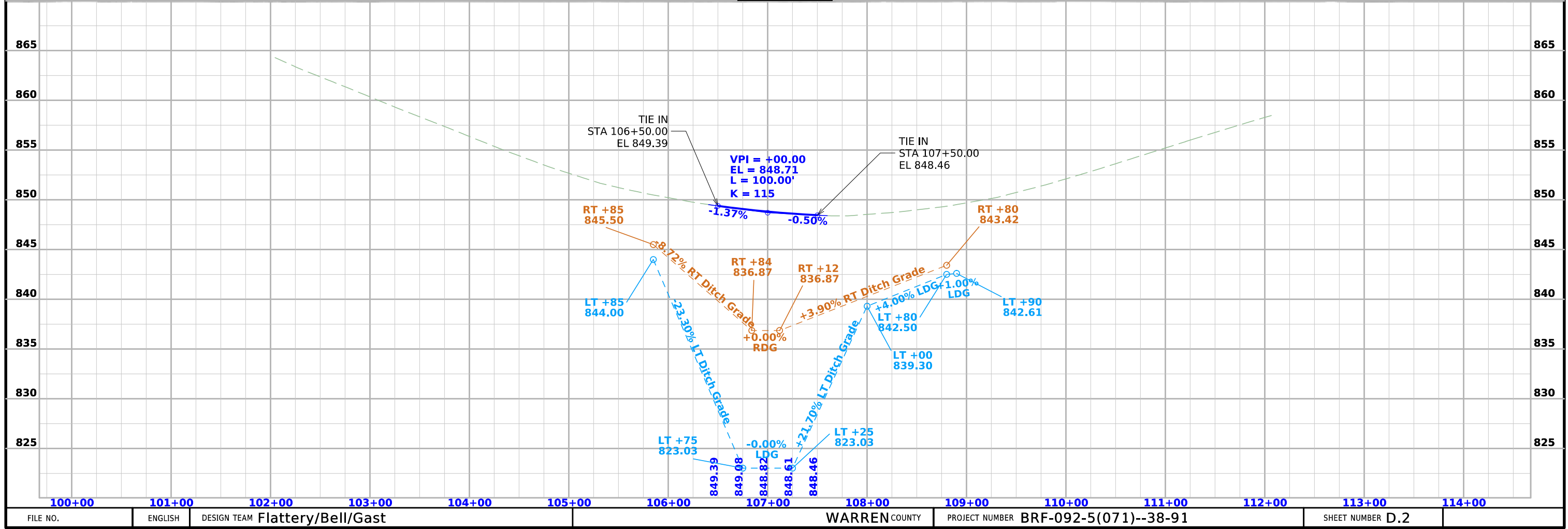
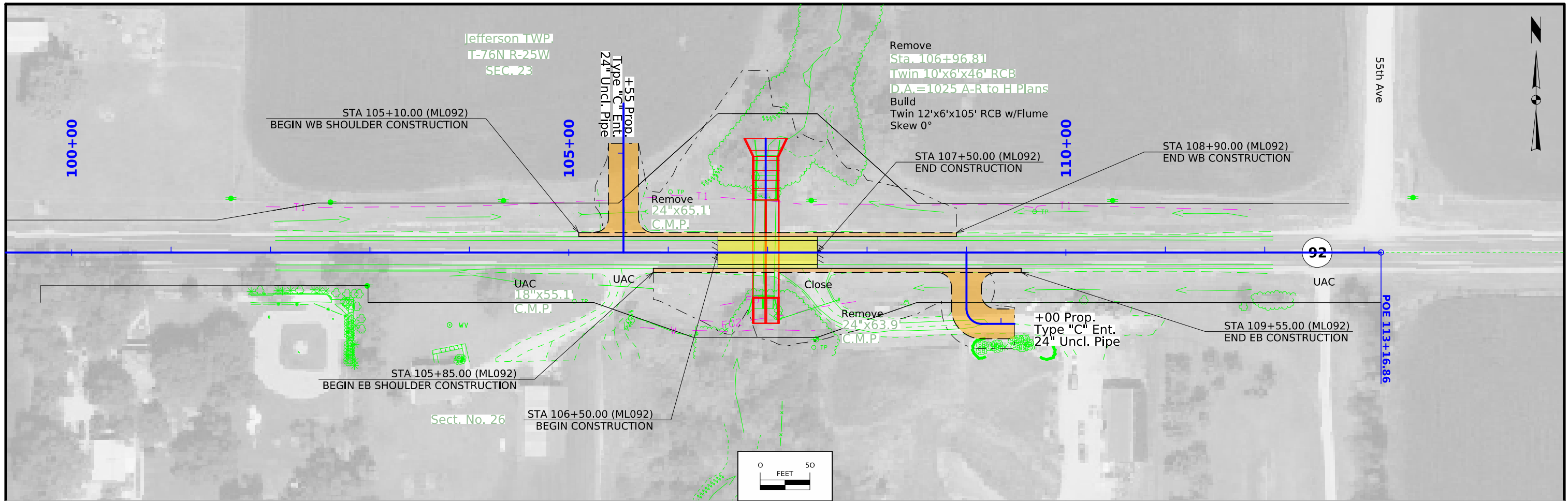
LINEWORK		Design Color No.		
Green	(2)		Existing Topographic Features and Labels	
Blue	(1)		Proposed Alignment, Stationing, Tic Marks, and Alignment Annotation	
Magenta	(5)		Existing Utilities	
SHADING		Design Color No.		Transparency
Pink, Dark	(13)		Temporary Pavement Shading	50%
Yellow	(4)		Proposed 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%

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



	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
	Access Control
	Property Line Symbol
	Property Line

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



Survey Information

SURVEY INDEX

County: Warren
Project Code: 23-91-092-010
Phase Number: BRF-092-5(071)--38-91
Location: Stream 1.9 mi E of IA 28
Type of Work: Culvert-Unspecified
Project Directory: 9109201023

Survey Personnel

Clayton Henningsen – Survey Party Chief
Kokou Allade – Assistant Survey Party Chief

Date(s) of Survey

Begin Date 08/13/2024
End Date 12/04/2024

General Information

This survey is for IA Hwy 92 culvert repair at stream 1.9 mi east of IA 28. This survey request was for the IA Hwy 92 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

The horizontal alignment for IA Hwy 92 this survey is a retrace of As-built Plans No. P-1023. Survey stationing was equated to the plan PI at Sta. 86+41.6 and carried ahead without equation throughout the survey.

Survey stationing relates to as built plan stationing as follows:

PI Sta. 86+41.6 As-built Plans Project No. P-1023
Survey PI Sta. 86+41.6

PI Sta. 113+17.6 As-built Plans Project No. P-1023
Survey PI Sta. 113+16.86

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>
910921229	7406800.99	18502328.95	872.47	CP FENO MONUMENT SET ON SOUTH SIDE IA 92 ON WEST SIDE OF FIELD ENT
G018	7406772.35	18499353.62	884.37	CP REBAR AS DESRIBED LESS THE IDOT CAP
910921232	7406804.66	18503883.22	868.14	CP CONC MONUMENT IN SE QUAD INTERSECTION IA 92 & 55TH AVE

108-23A
08-01-08

TRAFFIC CONTROL PLAN

IA 92 traffic maintained using offiste detour.
See J Sheets for detour route.
Detour maintained by?

111-01
04-17-12

COORDINATED OPERATIONS

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

Project	Type of Work
	None provided.

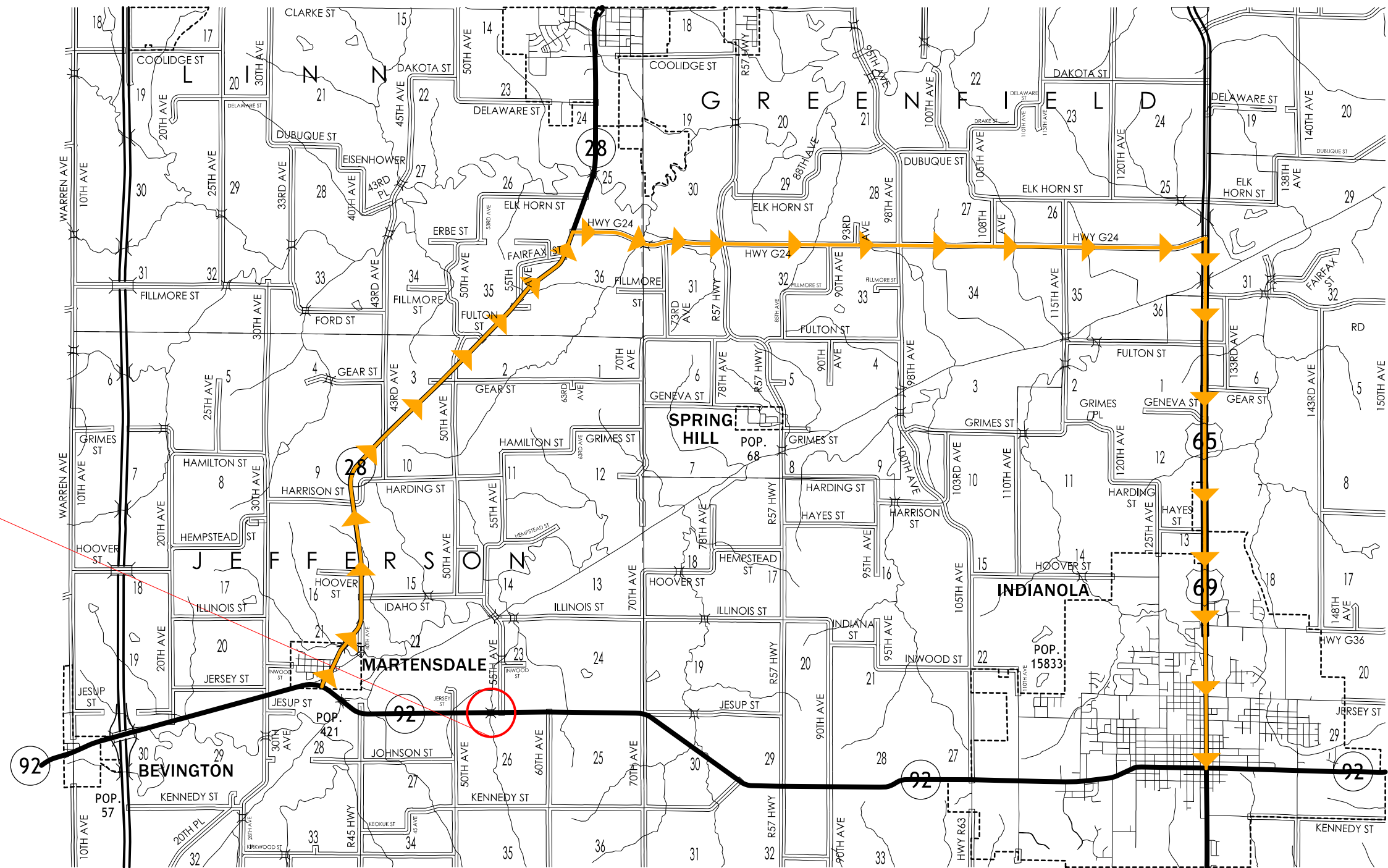
511 TRAVEL RESTRICTIONS													108-25 10-21-14
Route	Direction	County	Location Description	Feature Crossed	Object Type	Maint. Bridge No., Structure ID, or FHWA No.	Type of Restriction	Existing Measurement	Construction Measurement	Construction Measurement as Signed	Projected As Built Measurement	Remarks	
			No travel restrictions expected.										

NOT TO SCALE

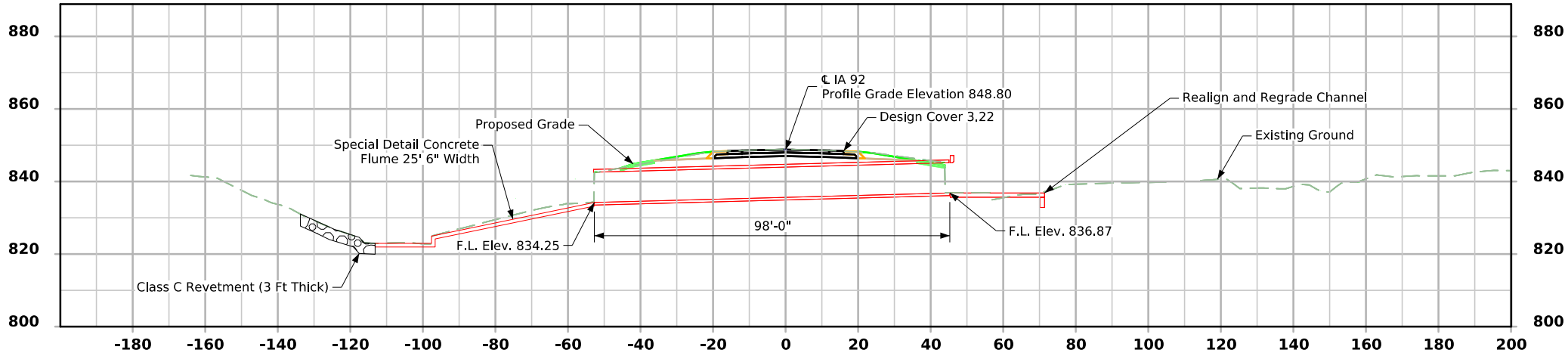


Detour Route
→

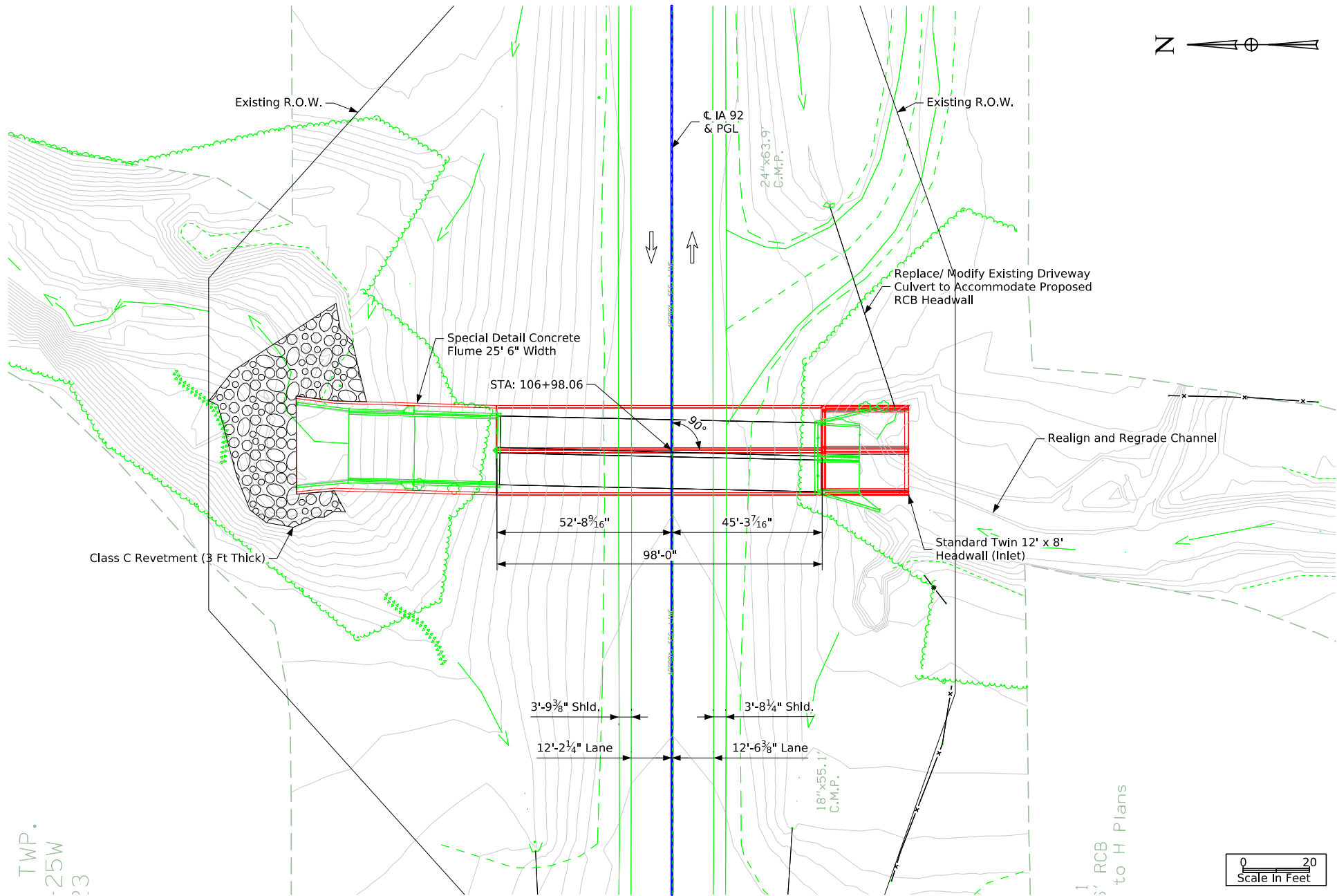
Project Location



Control Point: 910921232,7406804.659,18503883.220,868.144,CP CONC MONUMENT IN SE QUAD INTERSECTION IA 92 & 55TH AVE



STA 106+98.06
Longitudinal Section Along CL Culvert



Situation Plan

Hydraulic Data

RIDB: MiddleR_Trib22
Drainage Area = 1088 Acres
Stream Slope = 18.13 Ft./Mi.
 Q_{50} = 1858 cfs
HW Elev. = 847.09
Exit Velocity = 11.4 fps

Q_{100} = 2160 cfs
HW Elev. = 848.60
Exit Velocity = 11.8 fps

Location

IA 92 over Stream
T-76N R-25W
Section(s) 23
Jefferson Township
Warren County
Bridge Maint. No. 9123.2S092
Latitude 41.36665°
Longitude -93.70492°

Traffic Estimate

2028 AADT	3300 V.P.D.
2048 AADT	3800 V.P.D.
TRUCKS	12 %

Utilities Note:

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

General Utility Symbols:

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

Design For 0°
Twin 12'-0" x 8'-0" x 105'-0" Reinforced Concrete Box Culvert

Situation Plan - C.I.P.

STA. 106+98.06 (IA 92) Turn-in Date: September 2025

Warren County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. Design # Design Sheet No. 1 of 1 FHWA/Asset 51120

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:

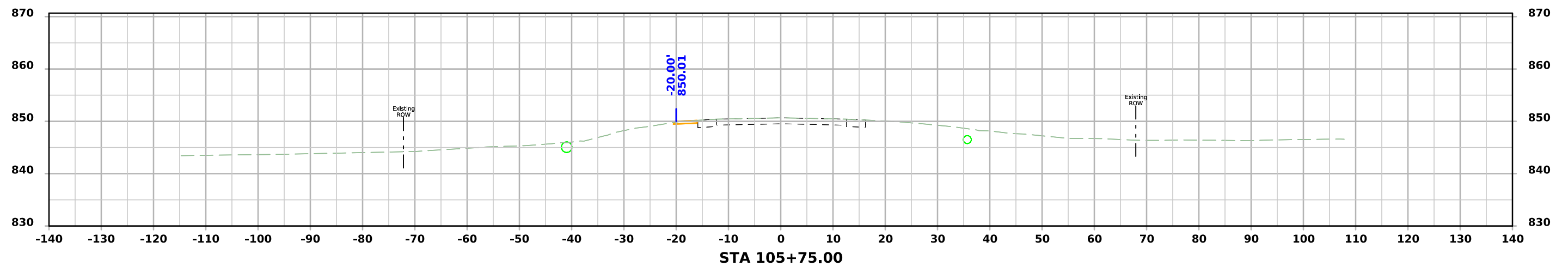
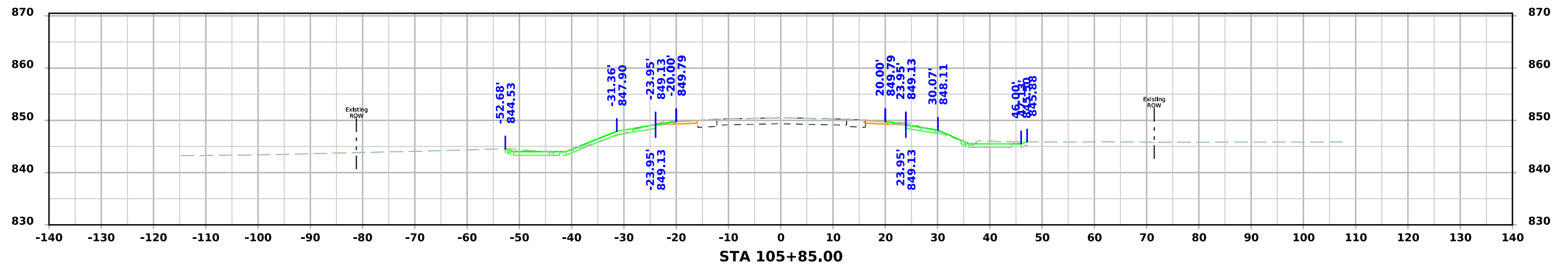
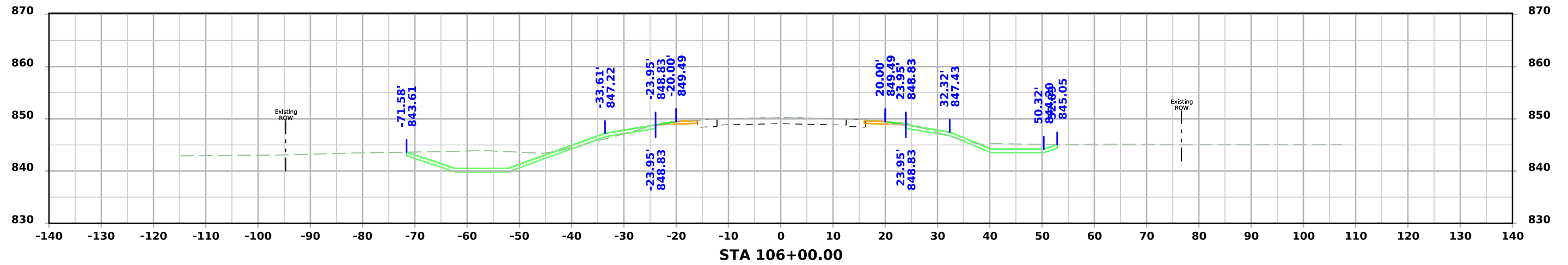
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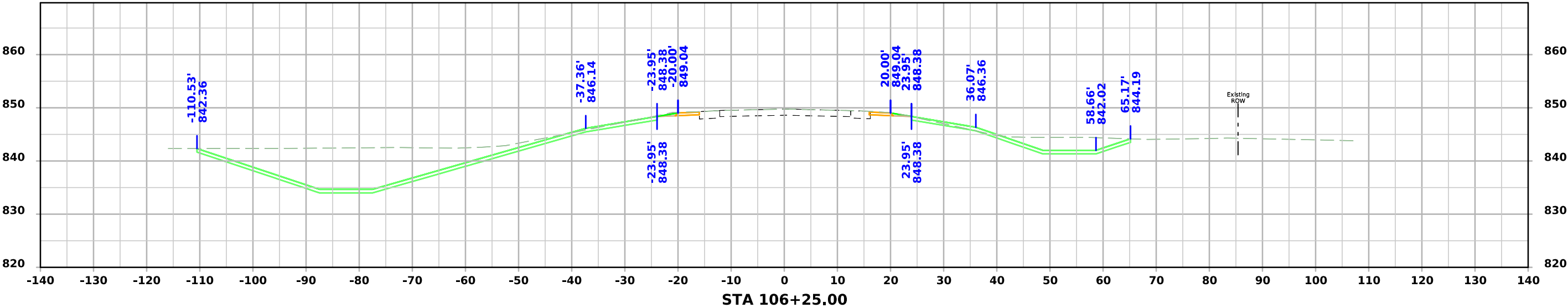
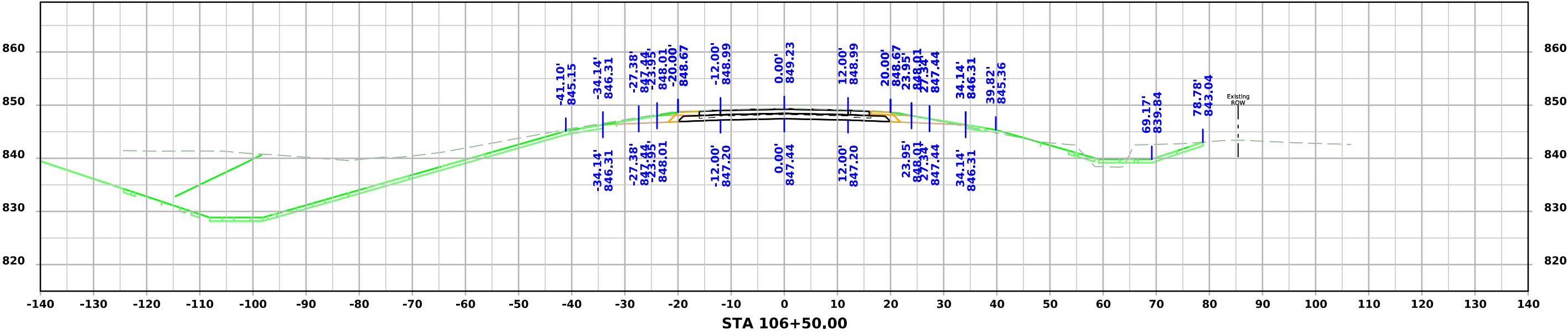
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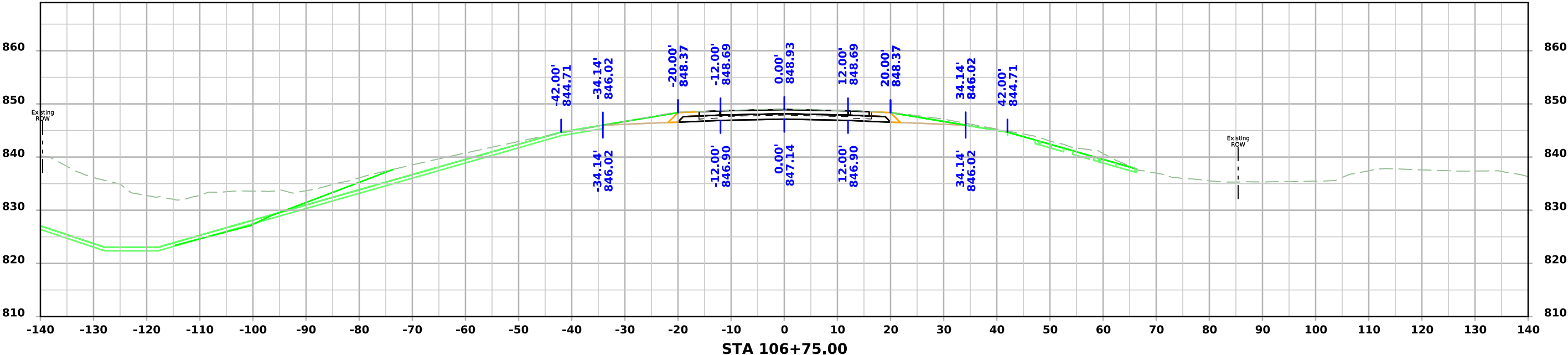
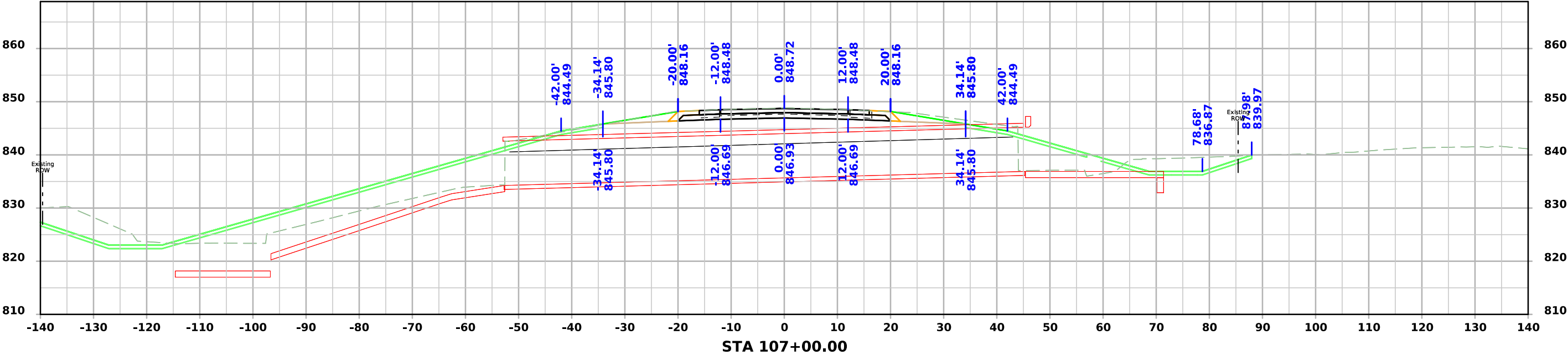
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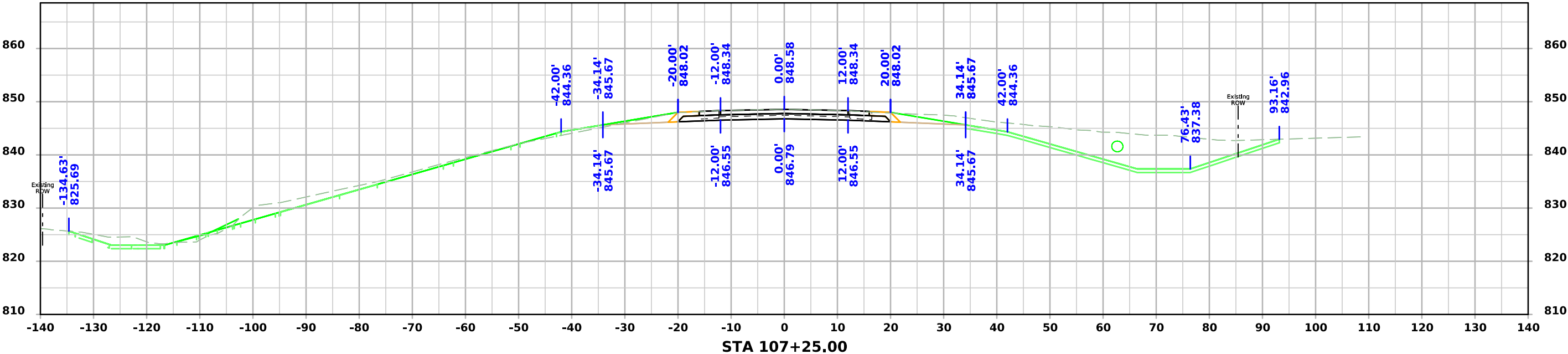
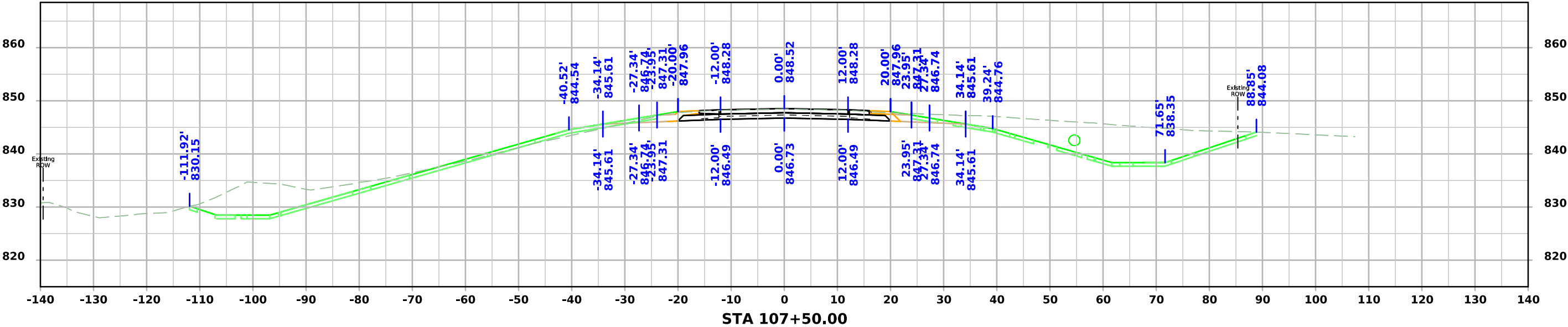
CROSS SECTIONS
LEGEND AND INFORMATION SHEET

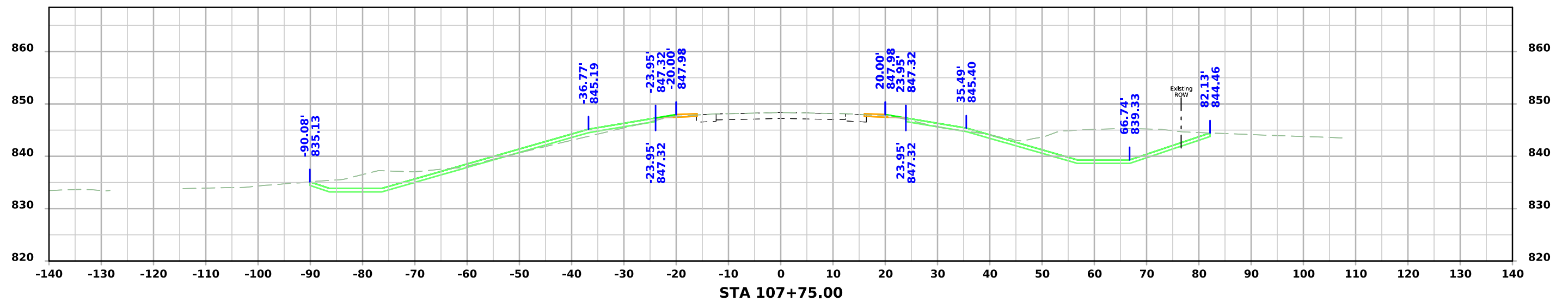
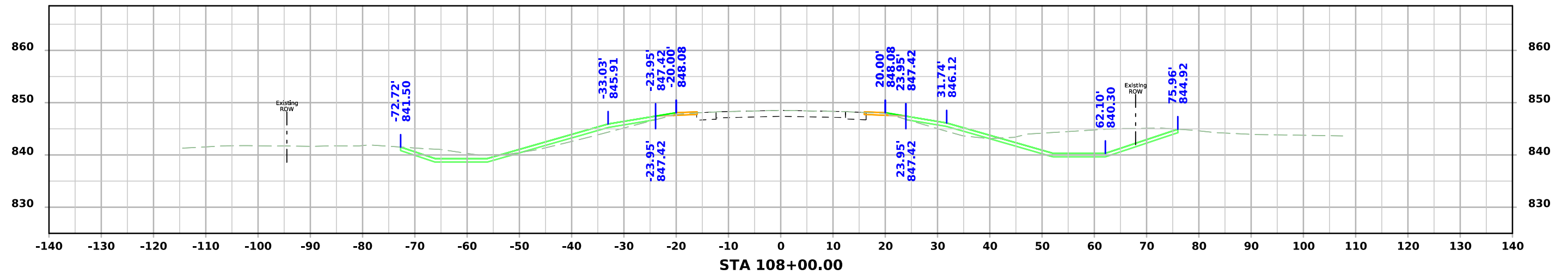
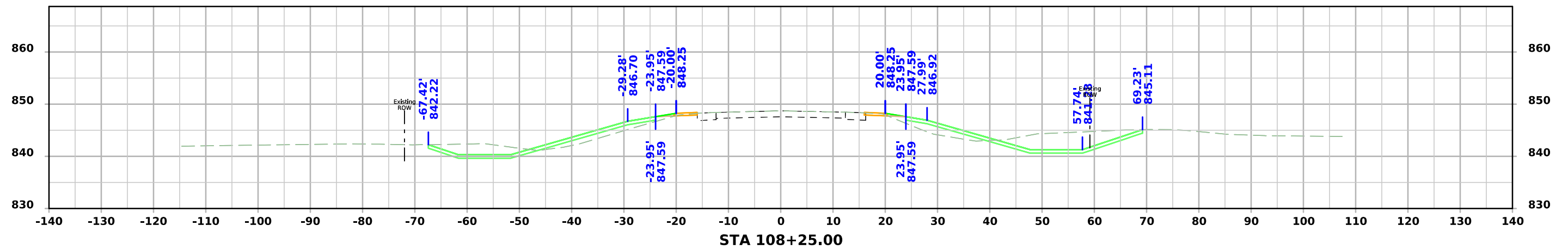
(COVERS SHEET SERIES W, X, Y, & Z)

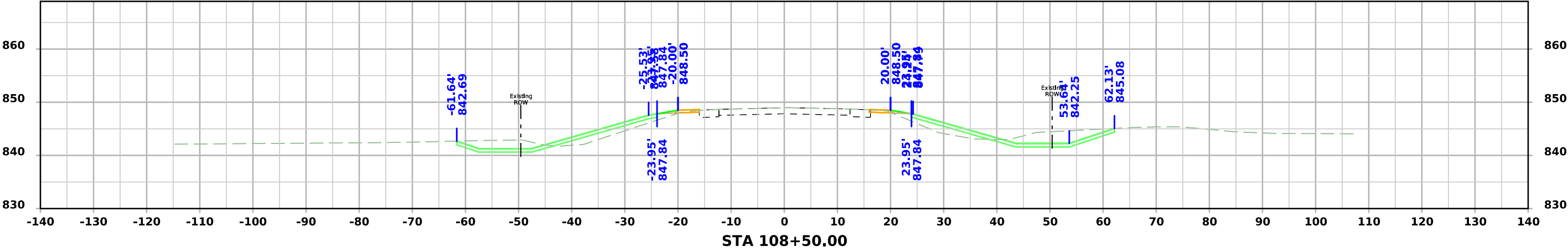
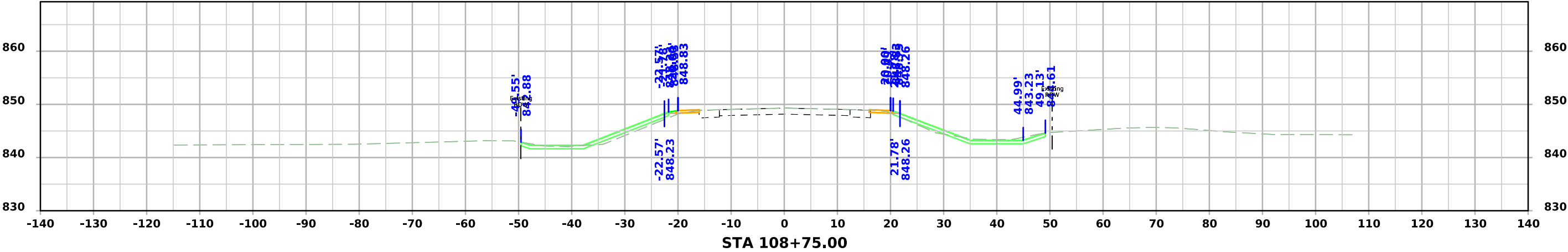
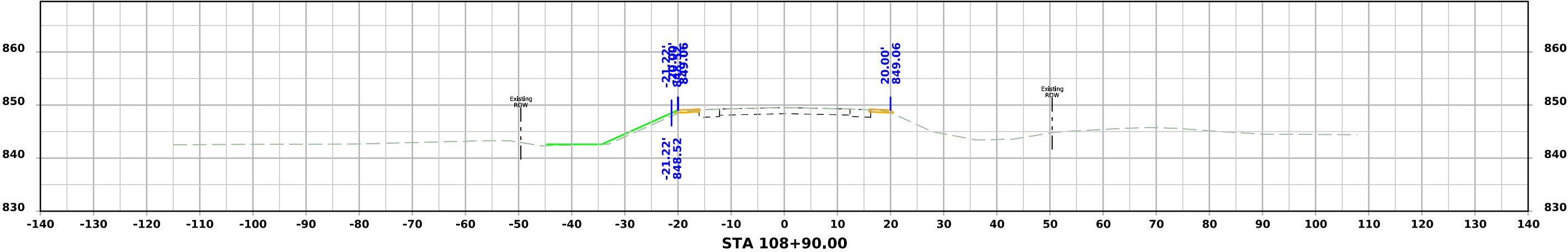


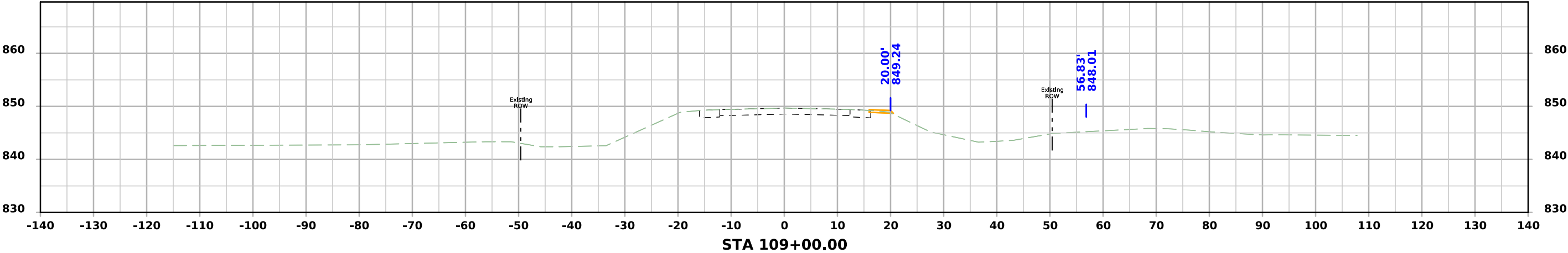












IA 92 Entrances

