

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 - 2	Typical Cross Sections and Details
D Sheets	Mainline Plan and Profile Sheets
* D.1	Plan & Profile Legend & Symbol Information Sheet
* D.2	IA 93
G Sheets	Survey Sheets
G.1 - 3	Reference Ties and Bench Marks
J Sheets	Traffic Control and Staging Sheets
J.1	Traffic Control Plan
V Sheets	Bridge and Culvert Situation Plans
* V.1	Bridge and Culvert Situation Plans
W Sheets	Mainline Cross Sections
W.1	Cross Sections Legend & Symbol Information Sheet
W.2 - 5	Mainline Cross Sections
	* Color Plan Sheets

H Sheets



PLANS OF PROPOSED IMPROVEMENT ON THE
PRIMARY ROAD SYSTEM
FAYETTE COUNTY
BRIDGE REPLACEMENT

IA 93 - Stream 0.7 mi W of Co Rd V68

SCALES: As Noted

Refer to the Proposal Form for list of applicable specifications.

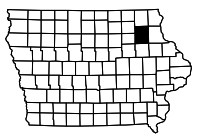
Value Engineering Saves. Refer to Article 1105.14 of the Specifications.



REVISIONS

TOTAL	16
PROJECT IDENTIFICATION NUMBER	19-33-093-010
PROJECT NUMBER	BRF-093-2(22)--38-33
R.O.W. PROJECT NUMBER	

For Project Location Map
Refer to Sheet No. A.02



DESIGN DATA RURAL			
2024	AADT	1,600	V.P.D.
2044	AADT	1,700	V.P.D.
2044	DHV	170	V.P.H.
	TRUCKS	11	%
	Total		
	Design ESALs	--	

INDEX OF SEALS		
SHEET NO.	NAME	TYPE
A.1	Michael J. Janecek	Primary Signature Block
V.1	Phillip M. Harpole	Hydraulic Design

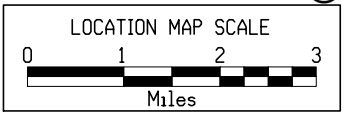
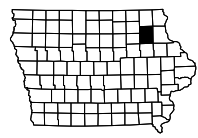
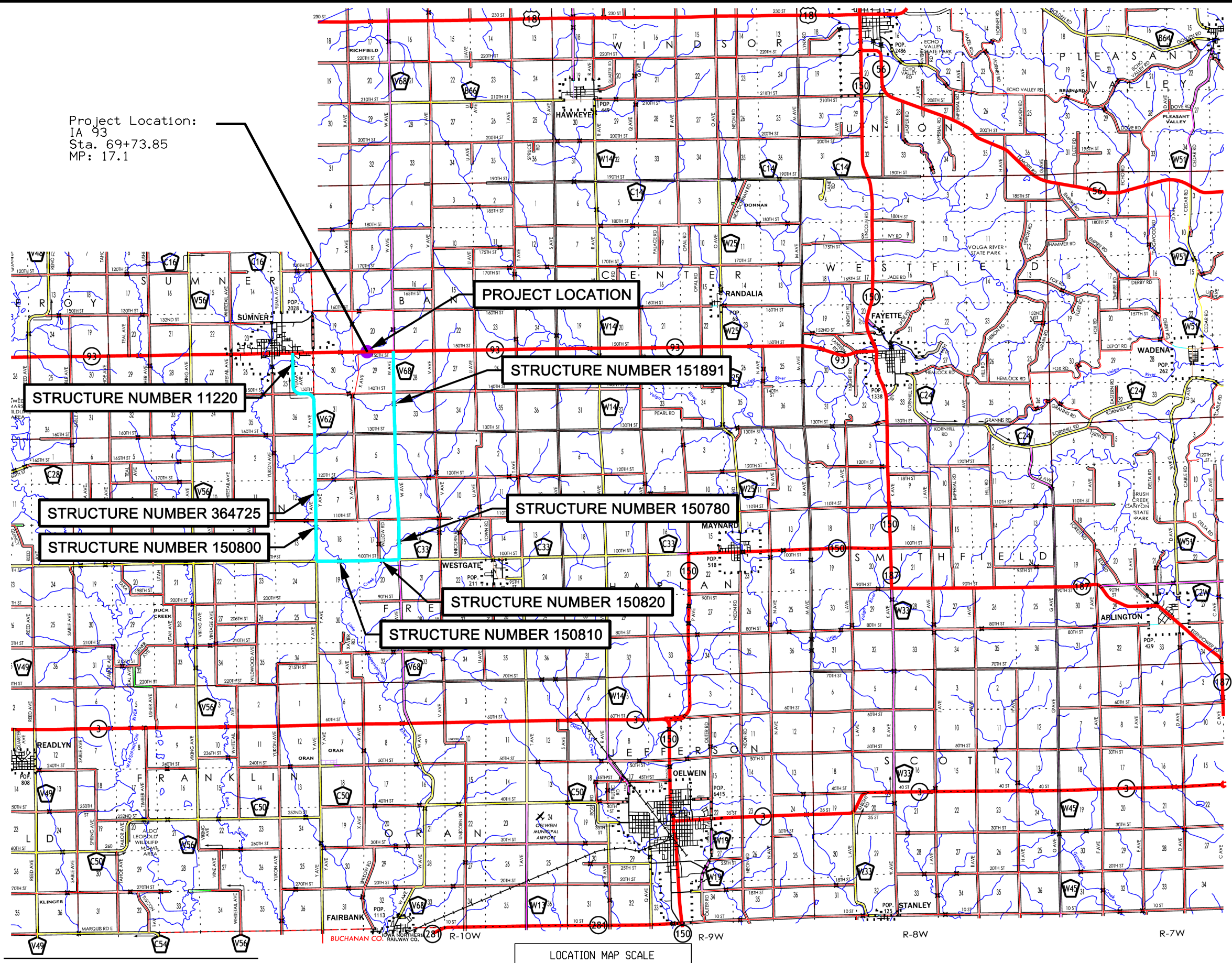
D4 PLAN – August 22, 2023

PRELIMINARY PLANS

Subject to change by final design.

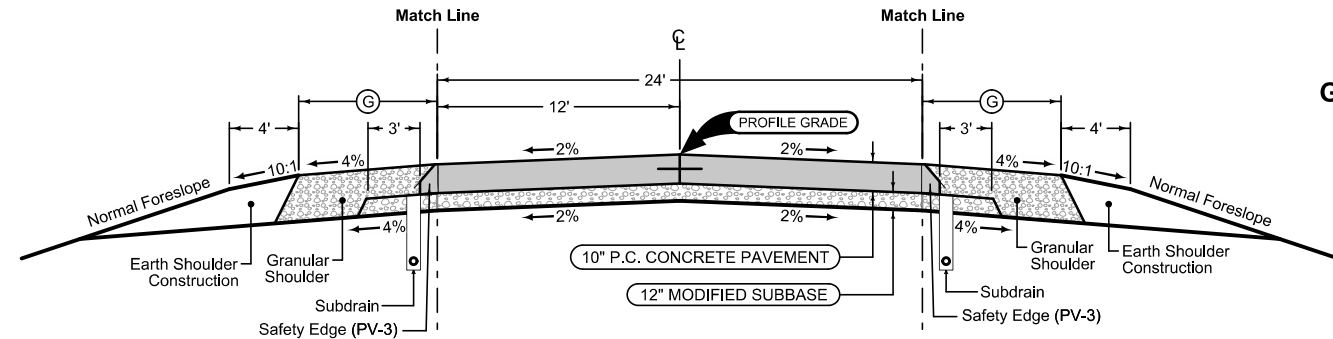
D5 PLAN – November 19, 2021

Project Location:
 IA 93
 Sta. 69+73.85
 MP: 17.1



Granular Shoulder with Safety Edge

2_G_		Ⓞ
04-21-20		
STATION TO STATION		Feet
69+00.00	70+65.77	8



Granular Shoulder with Safety Edge

2_G_		Ⓞ
04-21-20		
STATION TO STATION		Feet
69+00.00	70+65.77	8

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

2P_	
04-21-20	
STATION TO STATION	
69+00.00	70+65.77

See Tab 100-24 or 100-25 for pavement quantities.
 See Tab 112-9 for shoulder quantities.

IA 93

SURVEY SYMBOLS

- PI Tangent Point
- SCR Section Corner
- CP Control Point
- WC Wild Card (Misc. Field Shot)
- BM Bench Mark
- BNK Stream Bank
- TW Top of Water
- SBR Size of Bridge
- BL Topo Breakline
- D Centerline Draw or Stream (Down)
- FW Wire Fence
- GR Ground Shot
- ENU Edge Unpaved Entrance & Parking
- PIP Pipe Culvert
- PLG Location of General Photo
- PPA Power Pole Co. 1
- ENT Centerline BL of Entrance
- DU Centerline Draw or Stream (Up)
- SNP Unpaved Shoulder
- EP Edge of Paved Roads (ML or SR)
- C Centerline BL of Road (ML or SR)
- TPD Telephone Pedestal
- ROW Right of Way Mark
- OUT Tile Outlet
- GDL Guard Rail Steel
- BD Bridge Deck
- BRG Bridge
- CON Concrete or A/C Slab
- RIP Rip-Rap
- BLD Building or Foundation
- FWD Wood Fence
- EW Edge of Water
- BLS Bridge Low Steel
- BCL Bridge Centerline
- FO1D Fiber Optic Co. 1 - Quality D
- GL1D Gas Line Co. 1 - Quality D

UTILITY LEGEND

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

- PPA Power Pole Black Hills Energy
Jan Krueger
563-382-0953
jan.krueger@blackhillscorp.com
- FO - Windstream Communications - Quality D
800-289-1901
LOCATE.DESK@WINDSTREAM.COM
- GL Gas Line - Black Hills Energy - Quality D
Jan Krueger
563-382-0953
jan.krueger@blackhillscorp.com

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.	
Yellow	(4)	Highlight for Critical Notes or Features
Red	(3)	Delineates Restricted Areas
Lavender	(9)	Temporary Pavement Shading
Gray, Light	(48)	Proposed Pavement Shading
Gray, Med	(80)	Proposed Granular Shading
Gray, Dark	(112)	Proposed Grade and Pave Shading "In conjunction with a paving project"
Brown, Light	(236)	Grading Shading
Tan	(8)	Proposed Sidewalk Shading
Blue, Light	(230)	Proposed Sidewalk Landing Shading
Pink	(11)	Proposed Sidewalk Ramp Shading

PROFILE VIEW COLOR LEGEND OF PLAN AND PROFILE SHEETS

LINEWORK	Design Color No.	
Green	(2)	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

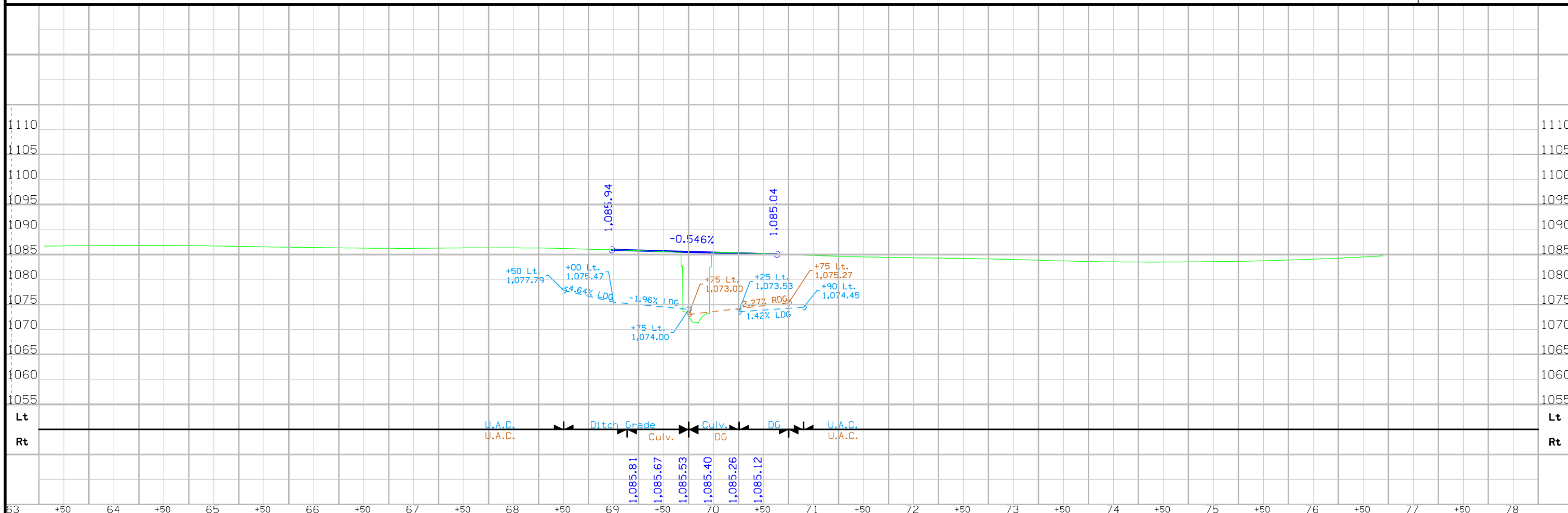
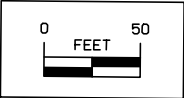
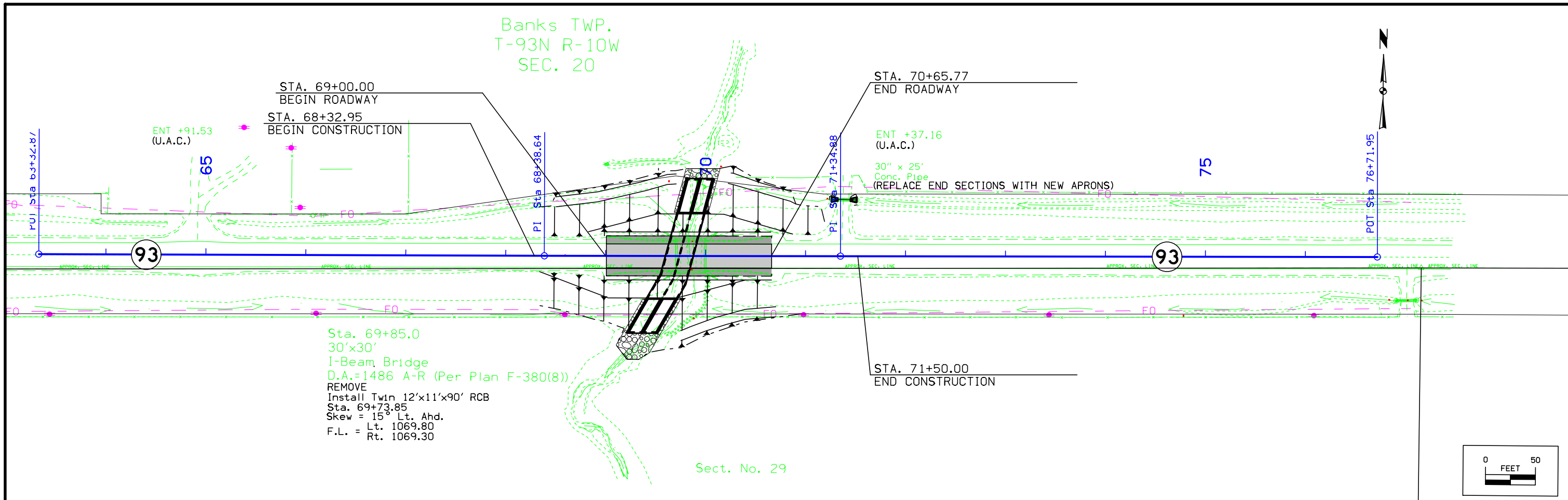
- Reference Point
- Station
- Survey Line
- Section Corner
- Ground Line Intercept
- Saw Cut
- Guardrail
- Trench Drain
- HighTension Cable Guardrail
- Sheet Pile
- Pavement Removal
- Clearing & Grubbing Area

- ### RIGHT-OF-WAY LEGEND
- Proposed Right-of-Way
 - Existing Right of Way
 - Existing and Proposed Right-of-Way
 - Easement and Existing Right-of-Way
 - Easement (Temporary)
 - Easement
 - Access Control
 - Property Line

PLAN AND PROFILE LEGEND AND SYMBOL INFORMATION SHEET

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

Banks TWP.
T-93N R-10W
SEC. 20



Survey Information

Fayette County
BRFN-093-2(22)--39-33
Stream 0.7 mi W of Co Rd V68
Bridge-Unspecified
PIN 19-33-093-010
Sap-958.0

General Information

Measurement units for this survey are US survey feet. This survey is for proposed Bridge replacement. Project datum and control information is provided by Design Survey Office. This project is a Full Field concept survey. This survey request was for the Iowa Hwy. 93 corridor only.

Vertical Control

Vertical datum for this survey is NAVD88 (Computed using Geoid12b). GRS80 Ellipsoidal Height was computed at project control Pts. 341, 93168, 93175, J 38 RESET, and JOHNSON by conducting two concurrent six-hour static observations. Additional benchmarks were placed throughout the project using a GNSS Base-Rover setup relative to Pt. 93168 and Pt. 93175. Two observations with a minimum of four-hours between were collected and used in a weighted average.

This survey observed 1 NGS Control Monument with published NAVD88 height to compare to local ground control:

NGS 3rd. order mark designated J 38 RESET has a published Elev. Of 1071.8
Survey Elev. = 1071.67

This survey observed 1 local area county Control Monument with published NAVD88 height to compare to local ground control:

Fayette County GPS Control Pt 341 has a published Elev. of 1165.00
Survey Elev. = 1164.89

This survey observed 1 As-Built plan benchmark to compare to local ground control:

BM 6A As-built Plans Project No. F-380(8) Elev. 1077.50
Survey Elev. = 1077.17

Survey elevations obtained on the bridge seats have a close vertical difference relationship with the plan bridge seat elevations as follows:

As-built Plan FA-380(8) Bridges and Culverts Design No. 1048

West abutment bridge seat plan elev. = 1082.89
Survey elev. = 1082.58

East abutment bridge seat plan elev. = 1082.78
Survey elev. = 1082.49

The average vertical difference of the As-built plan benchmark and the As-built plan bridge seat elevations is -0.31 to be applied to as built elevations.

Horizontal Control

The project coordinate system for this survey is Iowa RCS Zone 5 (U.S. Survey Feet). This survey control is relative to IaRTN reference stations. IaRTN Reference Station coordinates are relative to the National Reference Station network datum: NAD83 (2011) for Epoch 2010.00. Coordinates were determined by conducting two concurrent six-hour static observations at project control Pts. 341, 93168, 93175, J 38 RESET, and JOHNSON.

Alignment Information

The horizontal alignment for this survey is a retrace of As-built Plans Project No. F-380(8) Grading and Surfacing. Survey stationing was equated to the plan PI at Sta. 77+16.2 and run back and ahead without equation throughout the survey.

Survey stationing relates to as built plan stationing as follows:

PI Sta. 50+37.5 As-built Plans Project No. F-380(8)
Survey PI Sta. 50+37.94

PI Sta. 77+16.2 As-built Plans Project No. F-380(8)
Survey PI Sta. 77+16.20

POT Sta. 103+85.5 As-built Plans Project No. F-380(8)
Survey POT Sta. 103+85.58

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) EPOCH 2010.00

VERT. DATUM: NAVD88

1a. Regional Coordinate System Zone 5

Coordinate listing from next sheet will be used with 1aRTN for monument
recovery. No other reference ties are given.

HORIZONTAL AND VERTICAL PROJECT CONTROL COORDINATE LISTING

HORIZ. DATUM: NAD83(2011) EPOCH 2010.00

VERT. DATUM: NAVD88

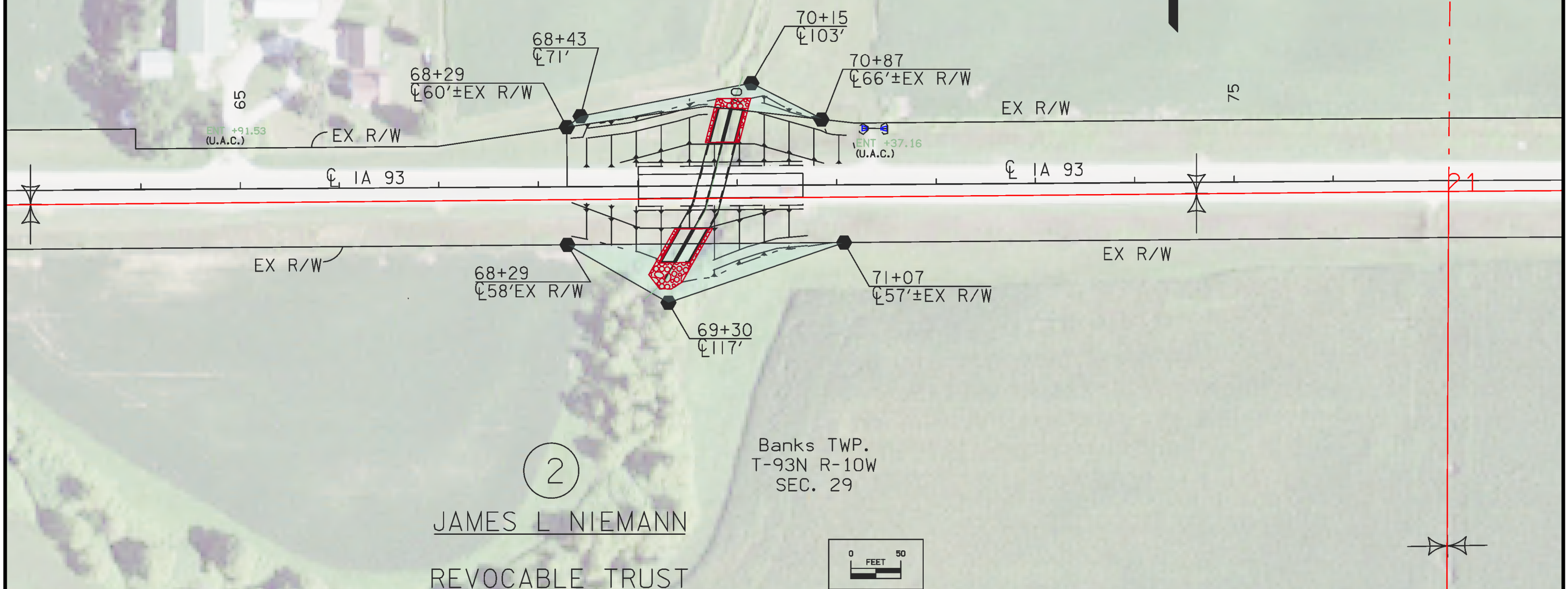
Ia. Regional Coordinate System Zone 5

Point Name	Northing	Easting	Elevation	Code - Description
341	8977390.543	15560825.317	1164.892	BM FD FAYETTE CO GPS CONTROL POINT 341_28 FT NORTH OF 160TH ST AND 33 FT WEST OF V AVE
J38 RESET	8966691.288	15548226.786	1071.670	BM FD NGS THIRD ORDER BENCH MARK J 38 RESET 160 FT EAST OF OLD RR GRADE TOP EAST END OF SOUTH HDWLL 4X6 RCB AND 17 FT SOUTH OF 140TH ST
JOHNSON	8972208.660	15560924.846	1178.429	BM FD NGS SECOND ORDER TRIANGULATION STATION JOHNSON 140 FT NORTH OF IA HWY 93 AND 40 FT EAST OF V AVE
93168	8972086.448	15550427.922	1076.226	BM FD ROW RAIL DRILL HOLE IN BALL 82 FEET EAST OF X AVE AND 58 FEET NORTH OF IA HWY 93
93175	8972110.745	15554220.381	1092.081	BM FD ROW RAIL DRILL HOLE IN BALL 60 FEET NORTH OF IA HWY 93 AND 40 FEET SOUTH OF ROW RAIL

NO ACCESS RIGHTS ARE TO BE ACQUIRED ON THIS PROJECT.

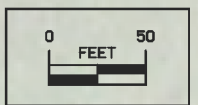
Banks TWP.
T-93N R-10W
SEC. 20

①
SHARON M RIES



Banks TWP.
T-93N R-10W
SEC. 29

②
JAMES L NIEMANN
REVOCABLE TRUST



Right of Way Design Information	
THIS SHEET INCLUDED FOR INFORMATION ONLY	
ROW Team: ATINKEN /JLARSON	
ROW #: STPN-093-2(23-2J-33)	
Plan Date: 12/14/21	
Color Legend:	
	Property Lines
	Temporary Easement
	Permanent Acquisition

108-23A
08-01-08

TRAFFIC CONTROL PLAN

- 1) While existing bridge is removed and replaced with a RCB, IA 93 traffic shall be maintained via off-site detour as shown on sheet A.2. (Using Co. Rd. V62, C33 and V68)
- 2) Detour signage shall be installed, maintained, and removed by District Maintenance. Road closure and safety closure related signage shall be installed, maintained, and removed by Contractor.

108-25
10-21-14

511 TRAVEL RESTRICTIONS

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
IA 93	Both	Fayette	0.7 Miles West of Co. Rd. V68	Stream			None					

111-01
04-17-12

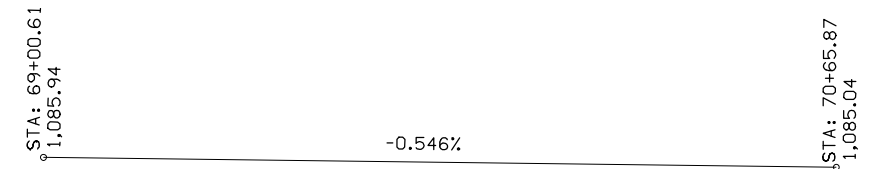
COORDINATED OPERATIONS

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	

1100		1100
1090		1090
1080		1080
1070		1070
1060	CLASS B REVETMENT UNDERLAIN WITH ENGINEERING FABRIC ELEV.= 1070.80	1060
1050		1050

BENCH MARK NO. 93168, N8972086.448, E15550427.922, BM FOUND ROW RAIL DRILL HOLE IN BALL 82 FEET EAST OF X AVE AND 60 FEET NORTH OF IA HWY 93, ELEVATION = 1076.23



LONGITUDINAL SECTION ALONG ϕ CULVERT

PROPOSED PROFILE GRADE IA 93

NOTES:

- GENERAL NOTES
- THIS DESIGN IS FOR THE REPLACEMENT OF THE EXISTING 28'x30' STEEL BEAM BRIDGE DESIGN NO. 287, FAYETTE FHWA NO. 24580, MAINT. NO. 3317.IS093.
- DESIGNER NOTES
- BURIED AND OVERHEAD UTILITIES TO BE RELOCATED TEMPORALLY OR PERMANENTLY AS REQUIRED FOR CONSTRUCTION.
- PLAN NOTES
- DRAINAGE THROUGH EXISTING CULVERT/CHANNEL MUST BE MAINTAINED THROUGHOUT CONSTRUCTION
 - FLOW LINE OF CULVERT HAS BEEN SET 1 FOOT BELOW STREAMBED.

HYDRAULIC DATA

DRAINAGE AREA = 2.43 SQ. MI.
 $Q_{50} = 1,743$ CFS
 HW ELEV. = 1078.10
 STREAM SLOPE = 30.60 FT./MI.
 $Q_{100} = 2,079$ CFS
 HW ELEV. = 1079.39
 $Q_{500} = 2,998$ CFS
 HW ELEV. = 1081.05

UTILITIES LEGEND:

- PPA Power Pole Black Hills Energy
- FO - Windstream Communications - Quality D
- GL Gas Line Black Hills Energy - Quality D

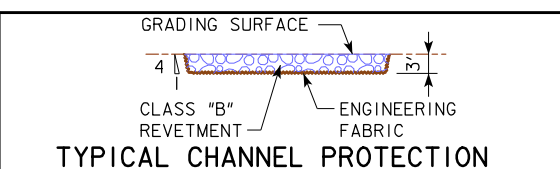
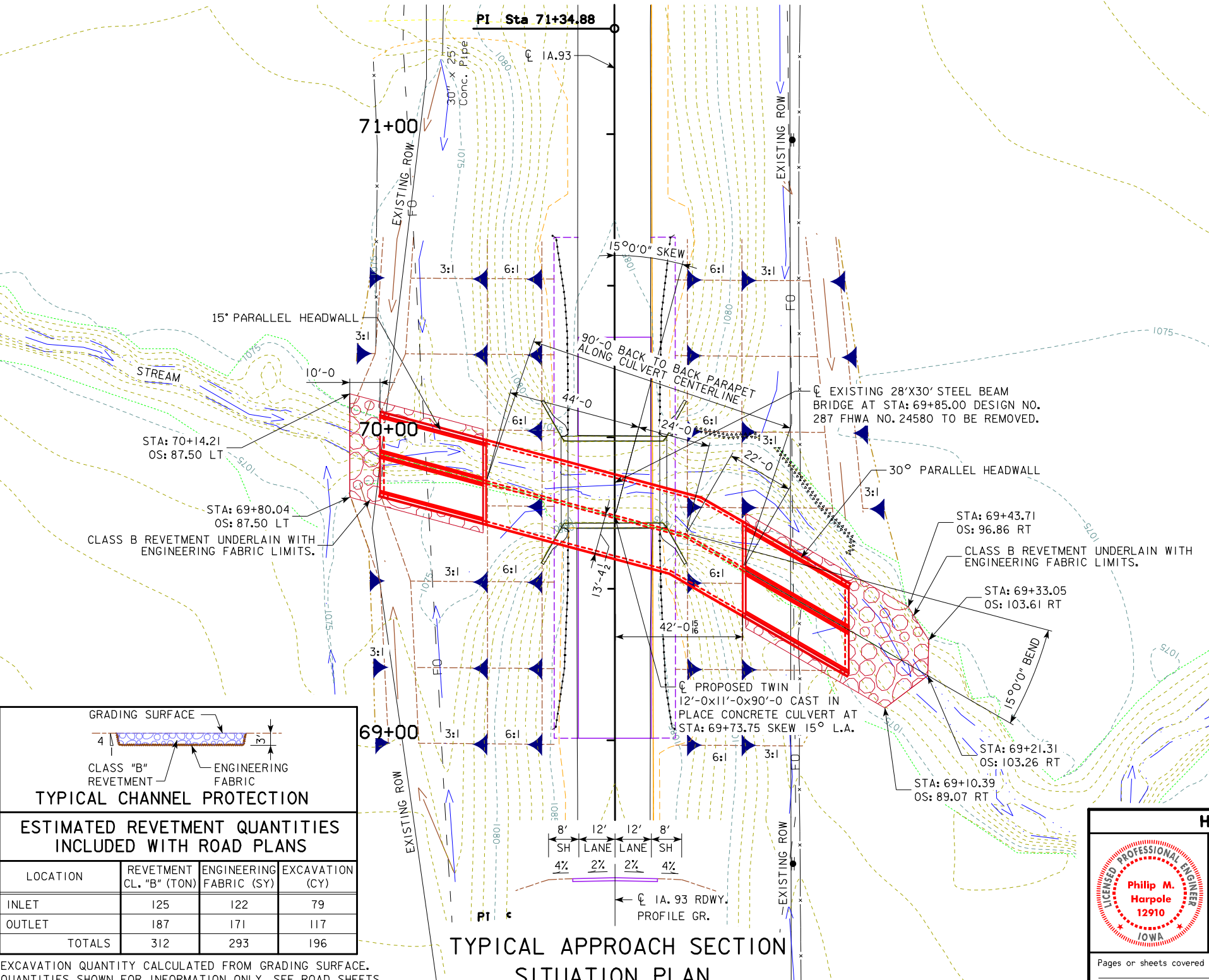
UTILITIES SHOWN ON THIS SHEET ARE FOR INFORMATION ONLY, SEE ROAD DESIGN SHEETS FOR FINAL UTILITY INFORMATION.

LOCATION

TRAFFIC ESTIMATE

IA. 93 OVER STREAM	2024 AADT	1600	V.P.D.
T-93N R-10W	2044 AADT	1700	V.P.D.
SECTION 20 - 29	2044 DHV	170	V.P.H.
BANKS TOWNSHIP	TRUCKS	11	%
FAYETTE COUNTY	TOTAL		
FHWA NO. 24581	DESIGN ESALS		
BRIDGE MAINT. NO.3317.IS093			
LATITUDE 42.847486°			
LONGITUDE -92.055557°			

PRELIMINARY



ESTIMATED REVETMENT QUANTITIES INCLUDED WITH ROAD PLANS

LOCATION	REVETMENT CL. "B" (TON)	ENGINEERING FABRIC (SY)	EXCAVATION (CY)
INLET	125	122	79
OUTLET	187	171	117
TOTALS	312	293	196

EXCAVATION QUANTITY CALCULATED FROM GRADING SURFACE. QUANTITIES SHOWN FOR INFORMATION ONLY. SEE ROAD SHEETS.

TYPICAL APPROACH SECTION SITUATION PLAN

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.

Philip M. Harpole 10-14-2021
 Signature Date
 Philip M Harpole
 Printed or Typed Name
 My license renewal date is December 31, 2021

Pages or sheets covered by this seal: V.1

DESIGN FOR 15° SKEW L.A.

TWIN 12'-0x11'-0x90'-0 CAST IN PLACE CONCRETE CULVERT

SITUATION PLAN

STATION 69+73.75 SEPTEMBER 2021

FAYETTE COUNTY

IOWA DEPARTMENT OF TRANSPORTATION

DESIGN SHEET NO. 1 OF 1 FILE NO. 31934 DESIGN NO. 124

LINE STYLE LEGEND OF CROSS SECTION SHEETS (ROAD)

- - - - - - Existing Ground Line
- Proposed Template
- Proposed Topsoil Placement
- - - - - Additional Topsoil Removal
- Subgrade Treatment
- - - - - Granular Shoulder
- Pavement
- - - - - Existing Pipe\RCB
- Proposed Pipe\RCB
- Proposed Dike
- All Elements Associated with Proposed Entrances

LINE STYLE LEGEND OF CROSS SECTION SHEETS (SOILS)

- Topsoil (Class 10)
- Slope Dressing Only
- Class 10 Materials
- Select Loams And Clay-Loams
- Select Sand
- Unsuitable Type A Disposal
- Unsuitable Type B Disposal
- Unsuitable Type C Disposal
- Shale
- Waste
- Broken and Weathered Rock
- Solid Rock
- Boulders

Note: All layer lines and descriptions identify layers above the line.

Note: Vertical or near vertical lines connecting soil layers at edges of cross sections are only for the purpose of calculating template quantities and do not depict soil stratification.

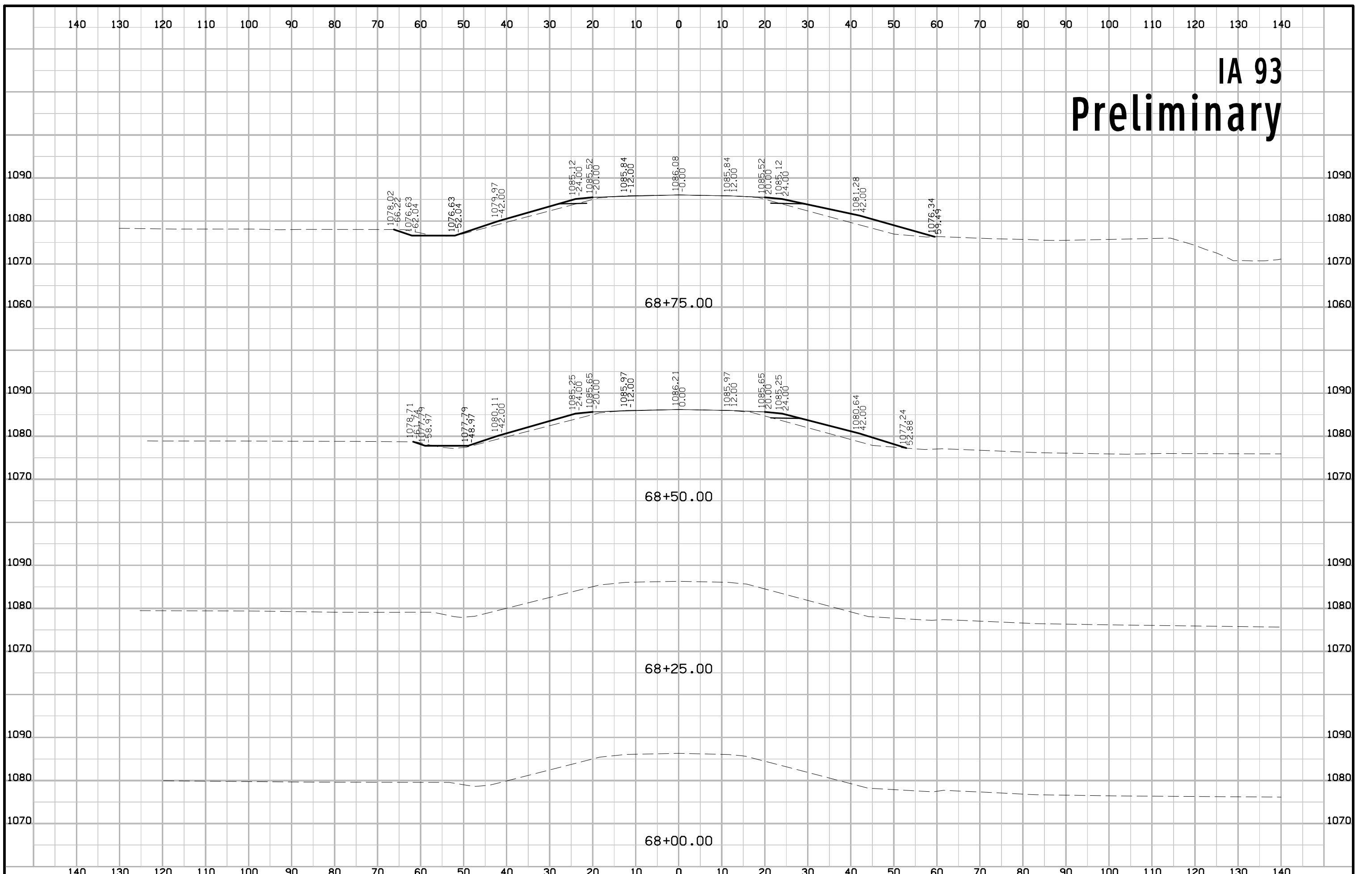
SYMBOL LEGEND OF CROSS SECTION SHEETS

- Existing ROW
|
Existing Right-of-Way Limit
- Proposed ROW
|
Proposed Right-of-Way Limit
- Temporary ROW
|
Temporary Right-of-Way Limit

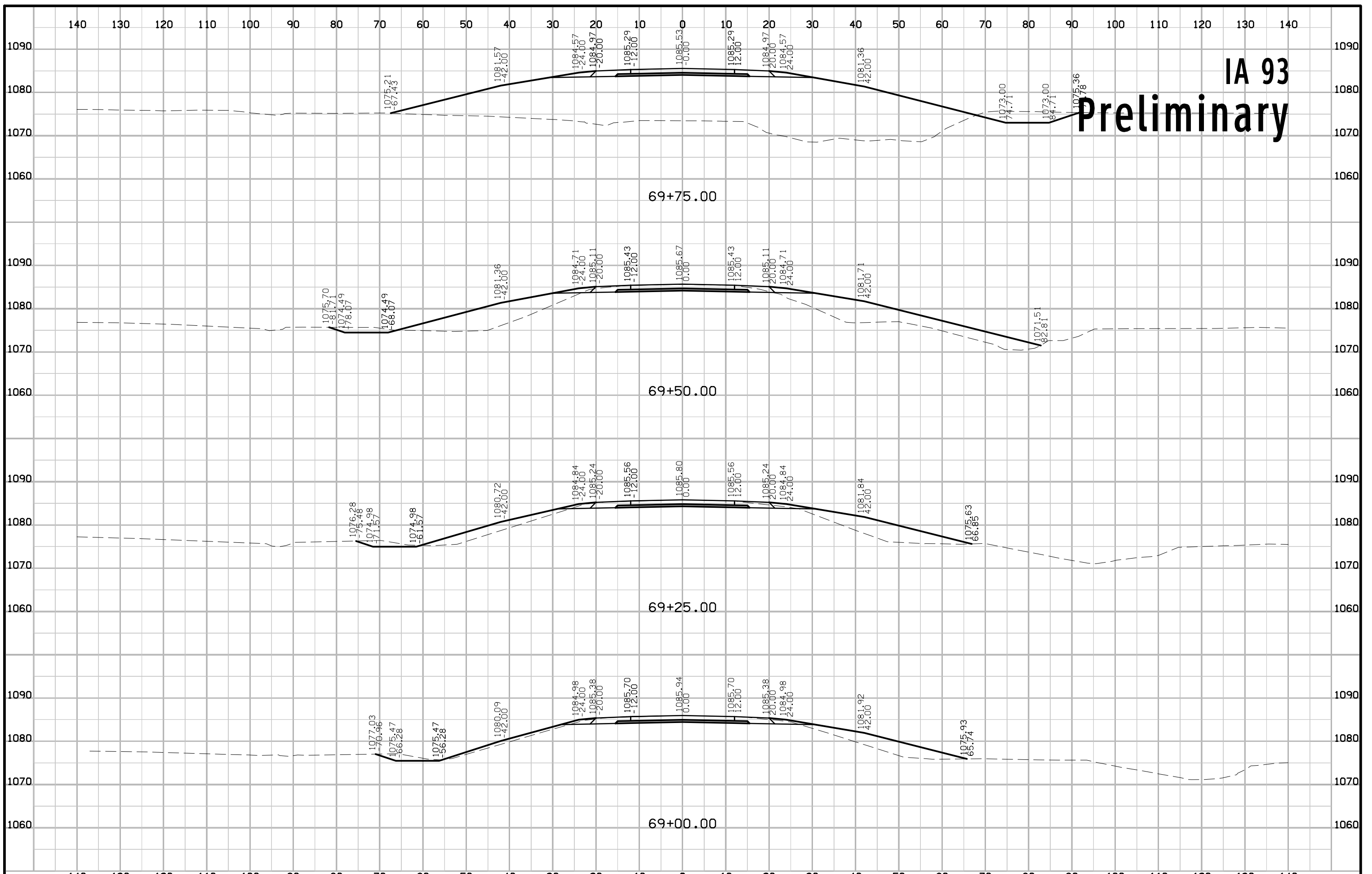
**CROSS SECTION
LEGEND AND SYMBOL
INFORMATION SHEET**

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

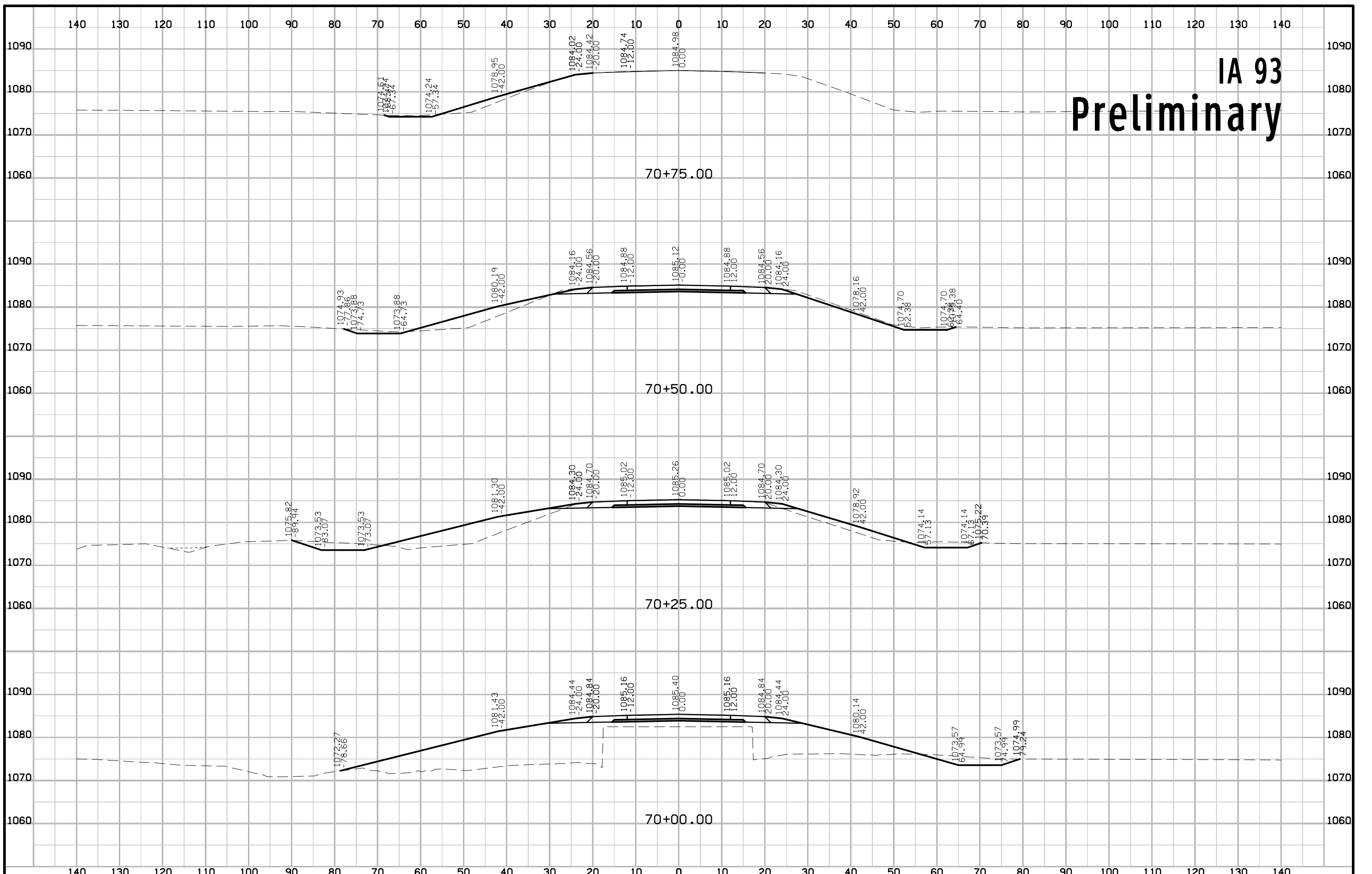
IA 93 Preliminary



IA 93 Preliminary



IA 93 Preliminary



IA 93 Preliminary

