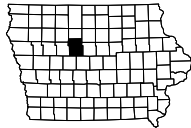


WEBSTER COUNTY

RCB CULVERT REPLACEMENT
BRFN-175-6(41)--39-94

LETTING DATE
DEC 16, 2025



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 - 4	Typical Cross Sections and Details
D Sheets	Mainline Plan and Profile Sheets
* D.1	Plan & Profile Legend & Symbol Information Sheet
* D.2 - 3	IA 175 <<<< H SHEETS
J Sheets	Traffic Control and Staging Sheets
J.1	Traffic Control Plan
J.1	511 Travel Restrictions
J.1	Coordinated Operations
V Sheets	Bridge and Culvert Situation Plans
* V.1 - 4	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



PLANS OF PROPOSED IMPROVEMENT ON THE

PRIMARY ROAD SYSTEM

WEBSTER COUNTY

RCB CULVERT REPLACEMENT

Drainage Ditch #52 0.8 mi E of Co Rd P29

SCALES: As Noted

Refer to the Proposal Form for list of applicable specifications.

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



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

REVISIONS

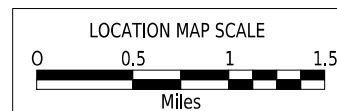
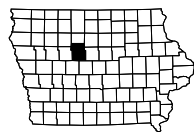
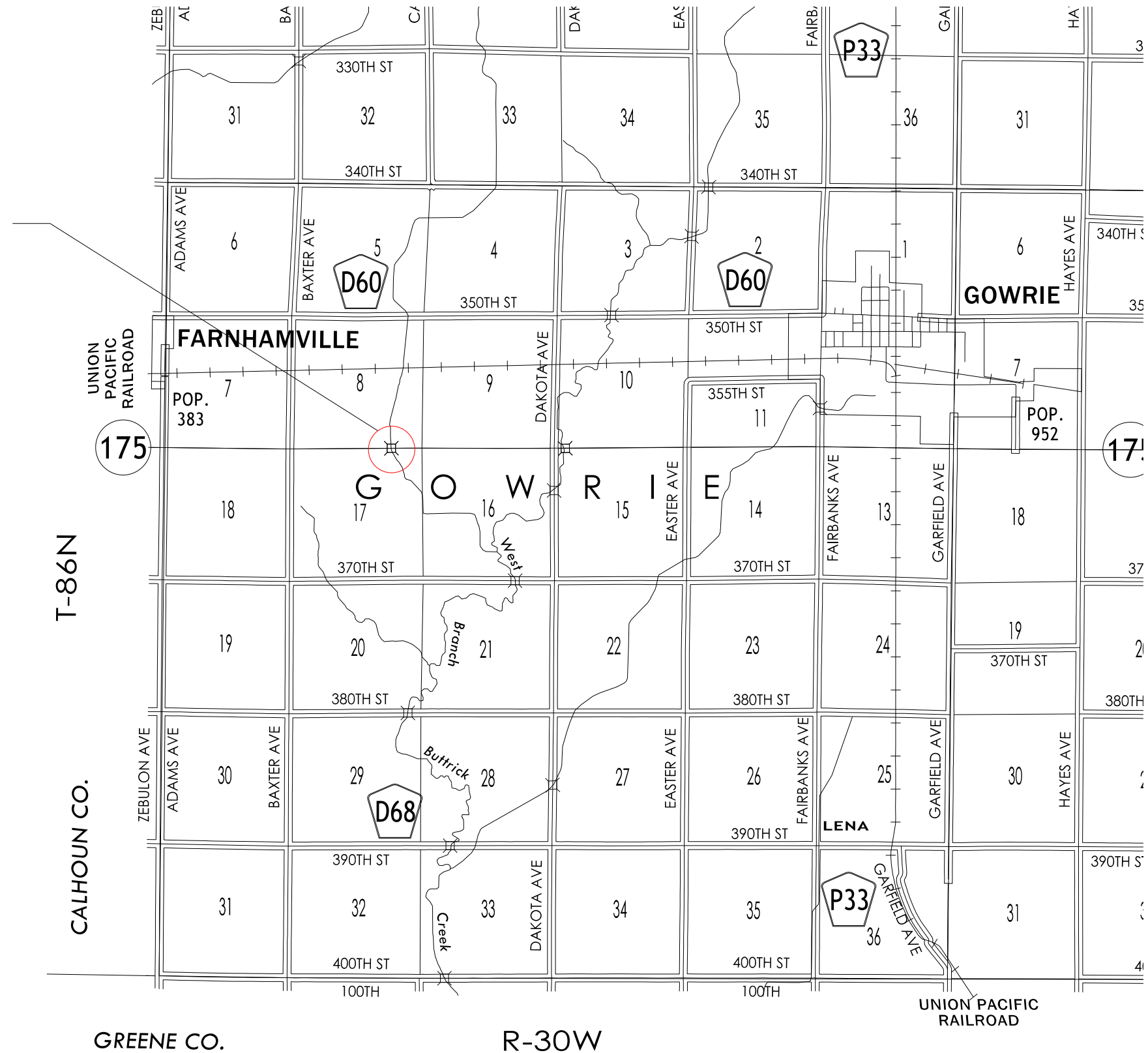
	TOTAL
	19
PROJECT IDENTIFICATION NUMBER	
20-94-175-030	
PROJECT NUMBER	
BRFN-175-6(41)--39-94	
R.O.W. PROJECT NUMBER	
STPN-175-6(42)-2J-94	

PRELIMINARY PLANS

Subject to change by final design.

D5 PLAN – Date: 1-14-2025

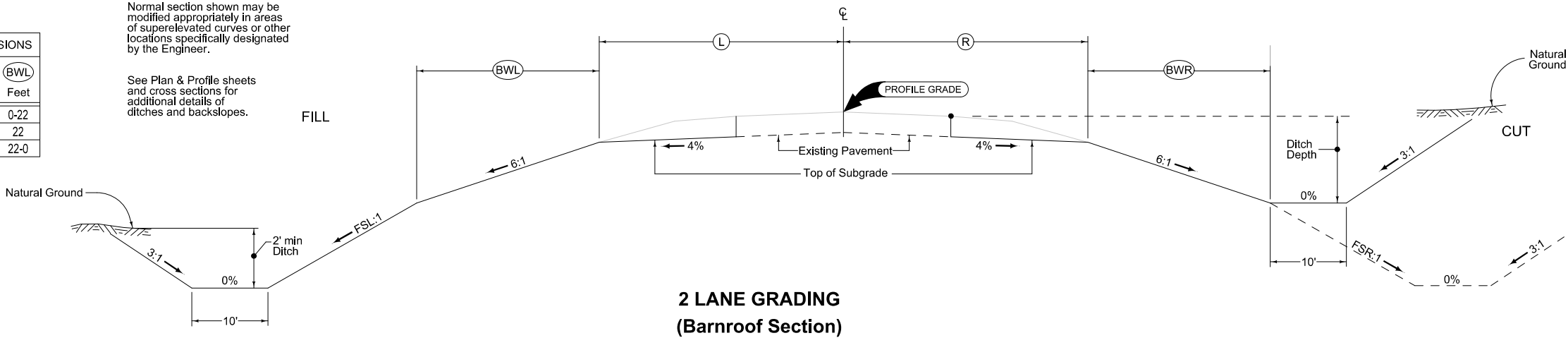
Drainage Ditch #52
Sta. 980+73.19
FHWA# 52350 (EXST)
MAINT. No. 9413.4S175



LOCATION		DIMENSIONS	
STATION TO STATION		(L) Feet	(BWL) Feet
979+64.00	980+46.06	16	0-22
980+46.06	981+00.94	16	22
981+00.94	981+83.00	16	22-0

Normal section shown may be modified appropriately in areas of superelevated curves or other locations specifically designated by the Engineer.

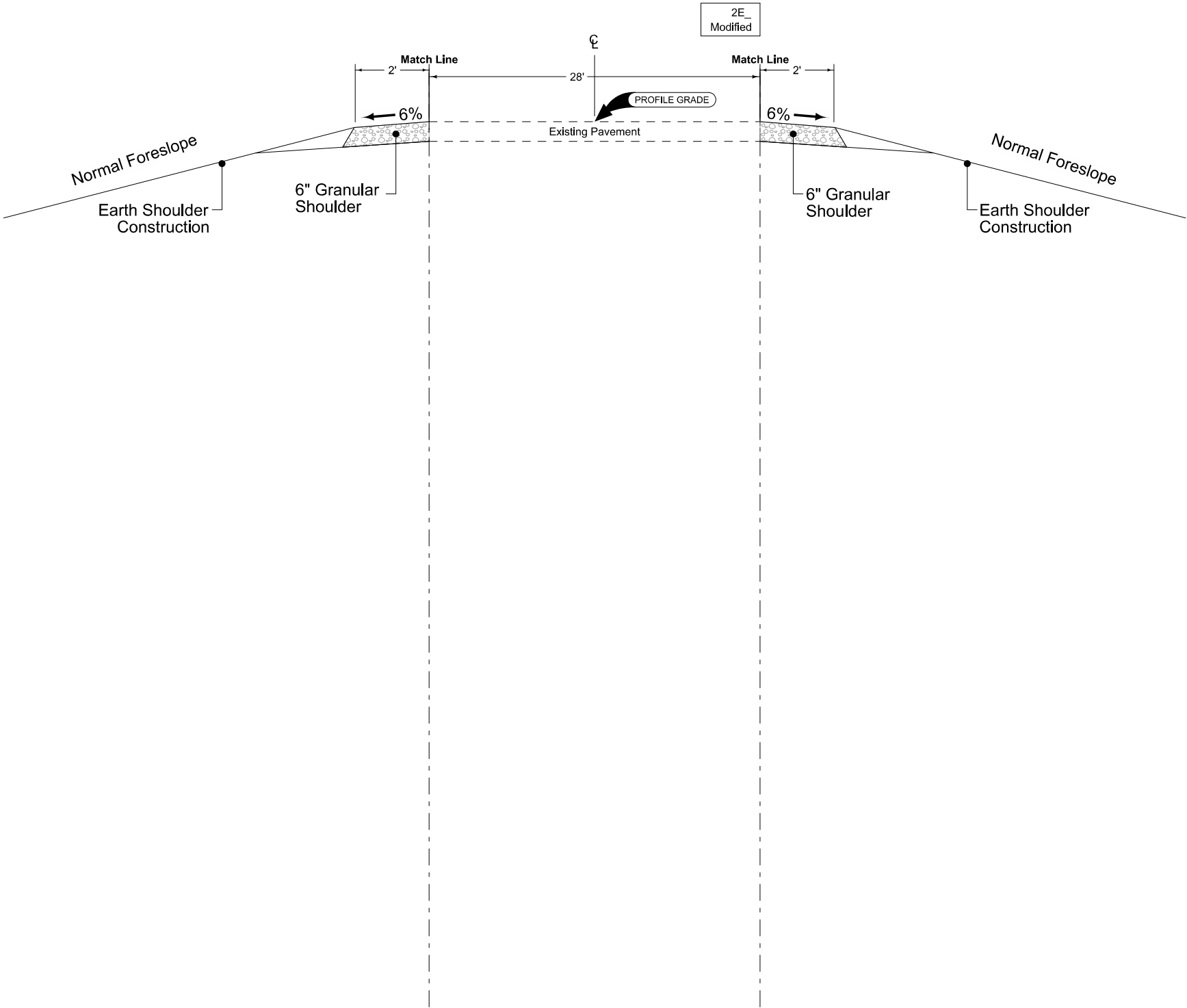
See Plan & Profile sheets and cross sections for additional details of ditches and backslopes.



LOCATION		DIMENSIONS	
STATION TO STATION		(R) Feet	(BWR) Feet
979+64.00	980+46.06	16	0-18
980+46.06	981+00.94	16	18
981+00.94	981+83.00	16	18-0

Granular Shoulder

2_G_ Modified		
STATION TO STATION		Ⓞ Feet
979+64.00	981+83.00	2

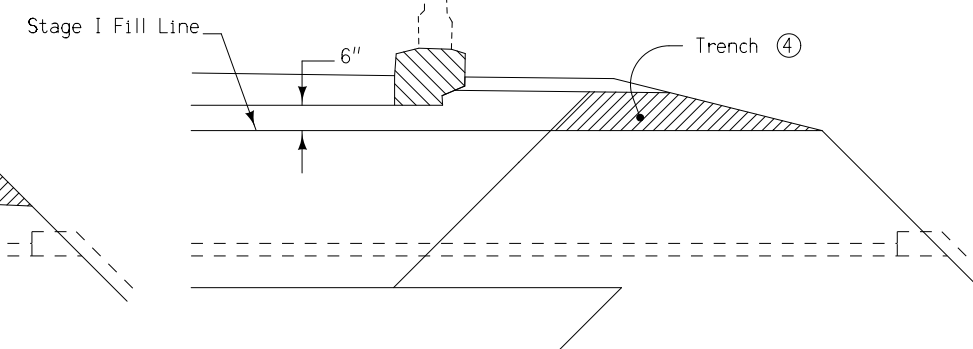
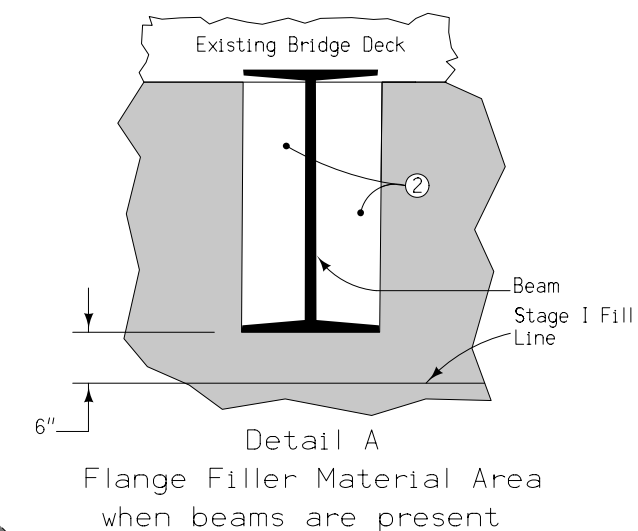


Granular Shoulder

2_G_ Modified		
STATION TO STATION		Ⓞ Feet
979+64.00	981+83.00	2

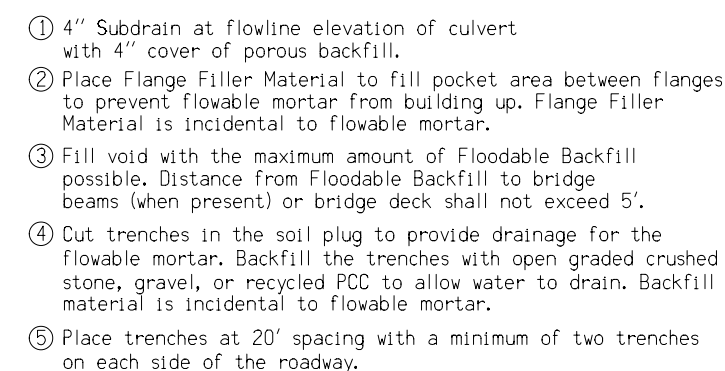
See Tab 112-9 for shoulder quantities.

IOWA HIGHWAY 175

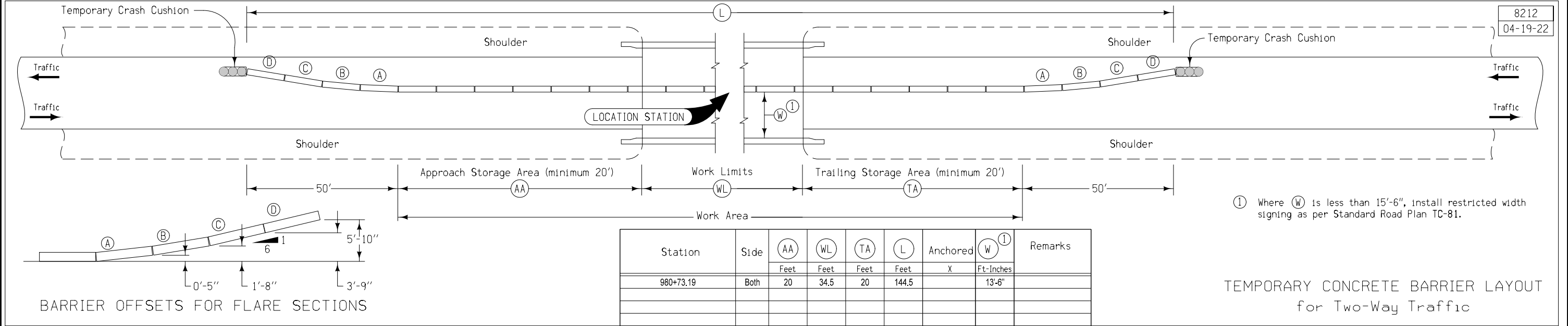
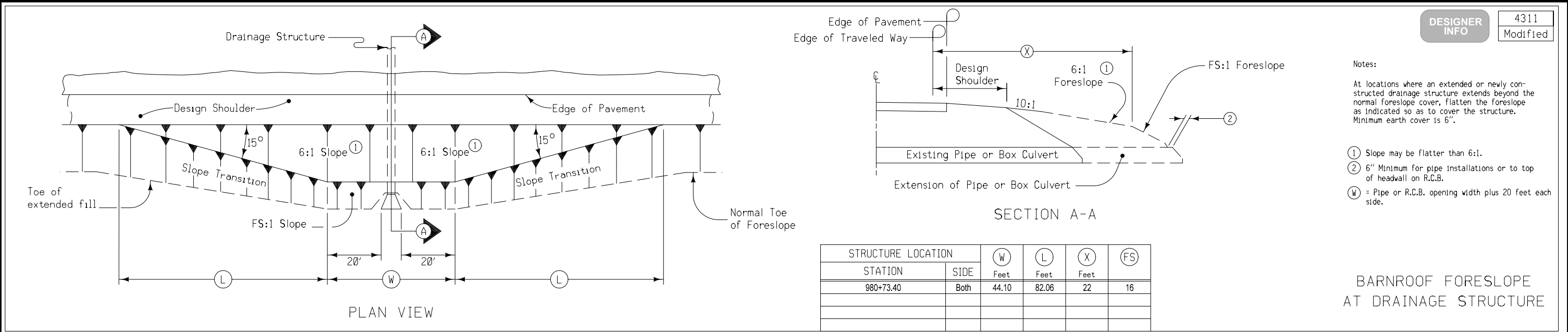


Detail B (Slab Bridge)

Detail B (Beam Bridge)



FILL FOR CULVERT USED
IN BRIDGE REPLACEMENTS



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, Midland Power Cooperative
 WL1D, Xenia Rural Water District - Quality D

PLAN VIEW COLOR LEGEND OF PLAN AND PROFILE SHEETS

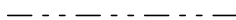
LINEWORK		Design Color No.
Green	(2)	 Existing Topographic Features and Labels
Blue	(1)	 Proposed Alignment, Stationing, Tic Marks, and Alignment Annotation
Magenta	(5)	 Existing Utilities
SHADING		Design Color No.
Lavender	(9)	 Temporary Pavement Shading
Yellow	(4)	 Proposed Pavement Shading
Orange	(6)	 Proposed Granular Shading
Orange	(70)	 Proposed Shoulder Granular Shading
Yellow	(68)	 Proposed Shoulder Paved Full Depth Shading
Yellow	(132)	 Proposed Shoulder Paved Partial Depth Shading
Gray, Dark	(112)	 Proposed Grade and Pave Shading "In conjunction with a paving project"
Brown, Light	(236)	 Grading Shading
Orange, Light	(134)	 Proposed Granular Entrance Shading
Yellow	(220)	 Proposed Paved Entrance Shading
Tan	(8)	 Proposed Sidewalk Shading
Blue, Light	(230)	 Proposed Sidewalk Landing Shading
Pink	(11)	 Proposed Sidewalk Ramp Shading
Green, Light	(225)	 Existing Pavement Shading
Red	(3)	 Proposed Structure Shading
Red	(3)	 Delineates Restricted Areas

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

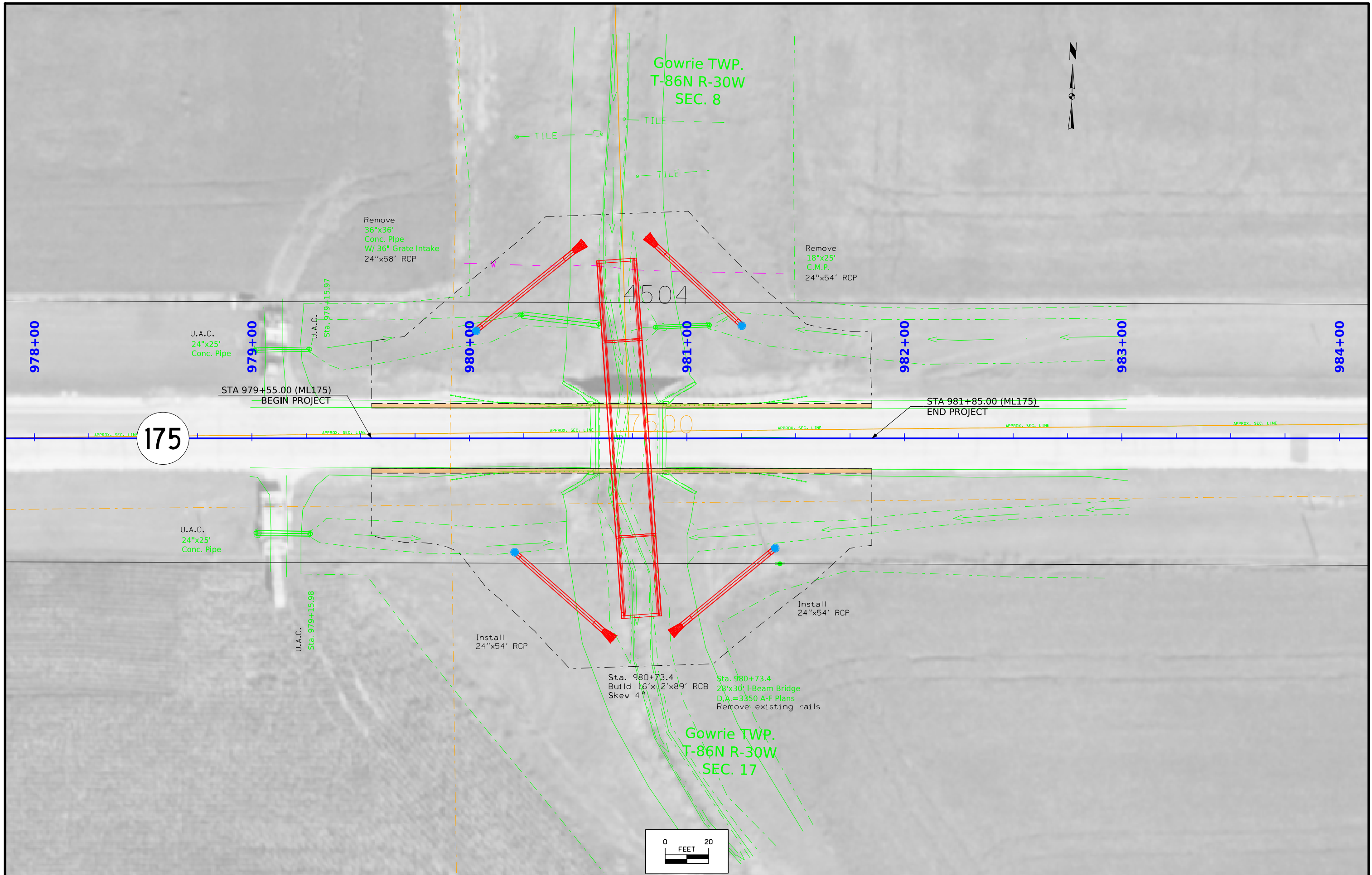
RIGHT-OF-WAY LEGEND

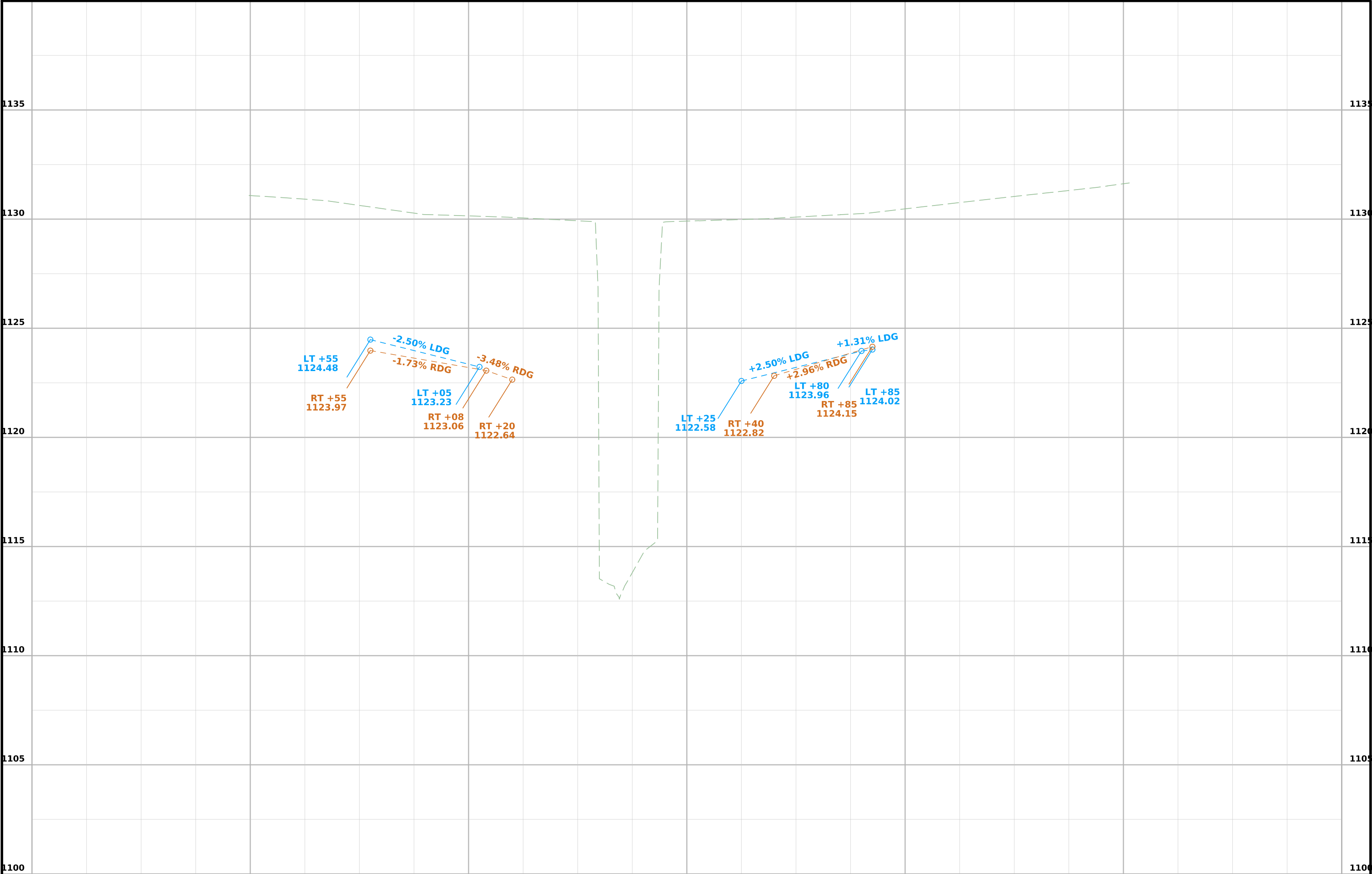
-  Proposed Right-of-Way
-  Existing Right of Way
-  Existing and Proposed Right-of-Way
-  Easement and Existing Right-of-Way
-  Easement (Temporary)
-  Easement
-  Access Control
-  Property Line

	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)





Webster		STPN-175-6(42)--2J-94				Project Code		20-94-175-030										
		Drainage Ditch #52 0.8 mi E of Co Rd P29																
		9417503020				Route		IA 175										
		State		County			City				Temp Ease							
Parcel No	Owner Name	Fee	Ease	Fee	Ease	Fee	Ease	Excess			Mitigation	Other	Relocation Needed	A/C Only	Total Acq			
1	Trent D & Marsha J Farnham	0.06 AC																
1D	Drainage Ditch #52																	
2	Dean P Farnham	0.07 AC																
3	P & E Legacy LLC	0.16 AC																

4 Parcels

2

Dean P Farnham

PERMANENT EASEMENT FOR
UTILITY PURPOSE

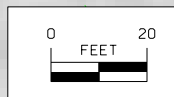
175

P & E Legacy LLC

Gowrie TWP.
T-86N R-30W
SEC. 17

1D

Drainage Ditch #52



Right of Way Design Information											
THIS SHEET INCLUDED FOR INFORMATION ONLY											
ROW Team: Larson / Hinrichsen ROW #: STPN-175-6(42)--2]-94 Plan Date: 2/28/2025 Color Legend: <table> <tr> <td></td> <td>Property Lines</td> </tr> <tr> <td></td> <td>Temporary Easement</td> </tr> <tr> <td></td> <td>Permanent Acquisition</td> </tr> <tr> <td></td> <td>Permanent Acquisition County</td> </tr> <tr> <td></td> <td>Permanent Acquisition City</td> </tr> </table>			Property Lines		Temporary Easement		Permanent Acquisition		Permanent Acquisition County		Permanent Acquisition City
	Property Lines										
	Temporary Easement										
	Permanent Acquisition										
	Permanent Acquisition County										
	Permanent Acquisition City										

108-23A
08-01-08

TRAFFIC CONTROL PLAN

Traffic on IA 175 shall be maintained at all times.

One lane of traffic shall be maintained at all times via the use of TC-217 with TBR and Signals during the removal of bridge rail, guardrail, and flowable mortar.

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
IA 175	E/W	Webster	Project Limits		Temporary Signal		Vertical	N/A	15'-00"	N/A	N/A	

1160		1160
1150	Existing 28'x30' Steel I-Beam Bridge to remain remove concrete curb and railing	1150
1140	Prop. 16' X 12' x 89' Single Cast In Place RCB Culvert	1140
1130	Proposed Profile Grade Elev. 1129.88	1130
1120	Existing Ground Line Design H.W. Elev. 1120.83 Flowline Elev. 1112.60	1120
1110	0.11% Slope Max Fill = 6.45'	1110
1100	Flowline Elev. 1112.55 Culvert Invert Elev. 1110.55	1100
1090	Culvert Invert Elev. 1110.50	1090



Design Notes:
1. Additional ROW is required and will be purchased in order to relocate the roadside ditches.

	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	<u>Eric J. Dean</u>
	Printed or Typed Name	<u>Eric J. Dean</u>
	My license renewal date is December 31,	<u>2026</u>
Pages or sheets covered by this seal: <u>V.1</u>		

General Notes:
This design is for the construction of a culvert underneath
the existing 28' x 30' I-Beam Bridge, Webster County
Design No. 1849, FHWA No. 52350, Maint. No. 9413.4S175.

RIDB: ButtrickC_W_Gre_Trib26_0.00
Drainage Area = 1.8 Sq. Mi.
Stream Slope (HGL) = 7.22 Ft./Mi.
Avg. Low Water Stage = 1113.38'

Q₅₀ = 505 cfs
Stage = 1120.16'
Avg. Bridge Velocity = 4.24 fps

$Q_{100} = 629 \text{ cfs}$
 Stage = 1120.83'
 Backwater = 0.0' Ft.
 Avg. Bridge Velocity = 4.91 fps

Q₂₀₀ = 764 cfs
Stage = 1021.58
Avg. Bridge Velocity = 5.97 fps

Q₅₀₀ = 953 cfs
Stage = 1122.57
Avg. Bridge Velocity = 7.45 fps

Roadway Overtop 1129.88
Sta. 980+90.50

IA 175 over Drainage Ditch #52
T-86N R-30W
Section 8-17
Gowrie Township
Webster County
Asset ID No. 900745
Bridge Maint. No. 9413.45175
Latitude: 42.267235°
Longitude: -94.364146°

2022 AADT	960 V.P.D.
Trucks	26 %
Total	
Design ESALs	730,000

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

W - Water Line - Power Poles

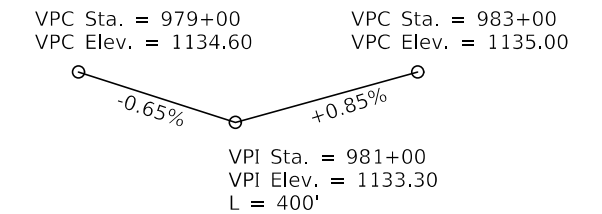


0 20
Scale In Feet

Design For 4 Degree Skew
16' x 12' x 89' Cast In Place
Reinforced Conc. Box Culvert

STA. 980+73.40 (IA 175)	Turn-In Date: Jan 2025	
Webster County		
IOWA DEPARTMENT OF TRANSPORTATION		
Design No. 126	Design Sheet No. 1 of 3	FHWA/Asset 900745

1160		1160
1150	Existing 28'x30' Steel I-Beam Bridge to remain remove concrete curb and railing	1150
1140	Prop. 16' X 12' x 88' Single Precast RCB Culvert	1140
1130	Design H.W. Elev. 1120.83	1130
1120	Existing Ground Line	1120
1110	Flowline Elev. 1112.60	1110
1100	Flowline Elev. 1112.55	1100
1090	Culvert Invert Elev. 1110.60	1090



Longitudinal Section Along Q_L Culvert

General Notes:
This design is for the construction of a culvert underneath
the existing 28' x 30' I-Beam Bridge, Webster County
Design No. 1849, FHWA No. 52350, Maint. No. 9413.4S175.

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.

Eric J. Dean

1-6-2025

Signature Eric J. Dean Date _____

Printed or Typed Name _____

My license renewal date is December 31, 2026

Pages or sheets covered by this seal: V.2

Plan Notes:

1. Drainage through existing culvert/channel must be maintained throughout construction.
2. Flow line of culvert has been set 2' below streambed.
3. RCB will be constructed under the existing bridge and flooded granular backfill and flowable mortar used to fill the void between the RCB and bridge deck before closing any lanes and before removing any of the existing bridge.

General Notes:
This design is for the construction of a culvert underneath
the existing 28' x 30' I-Beam Bridge, Webster County
Design No. 1849, FHWA No. 52350, Maint. No. 9413.4S175.

RIDB: ButtrickC_W_Gre_Trib26_0.00
Drainage Area = 1.8 Sq. Mi.
Stream Slope (HGL) = 7.22 Ft./Mi.
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Q₅₀ = 505 cfs
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Avg. Bridge Velocity = 4.24 fps

$Q_{100} = 629 \text{ cfs}$
 Stage = 1120.83'
 Backwater = 0.0' Ft.
 Avg. Bridge Velocity = 4.91 fps

Q₂₀₀ = 764 cfs
Stage = 1021.58
Avg. Bridge Velocity = 5.97 fps

Q₅₀₀ = 953 cfs
Stage = 1122.57
Avg. Bridge Velocity = 7.45 fps

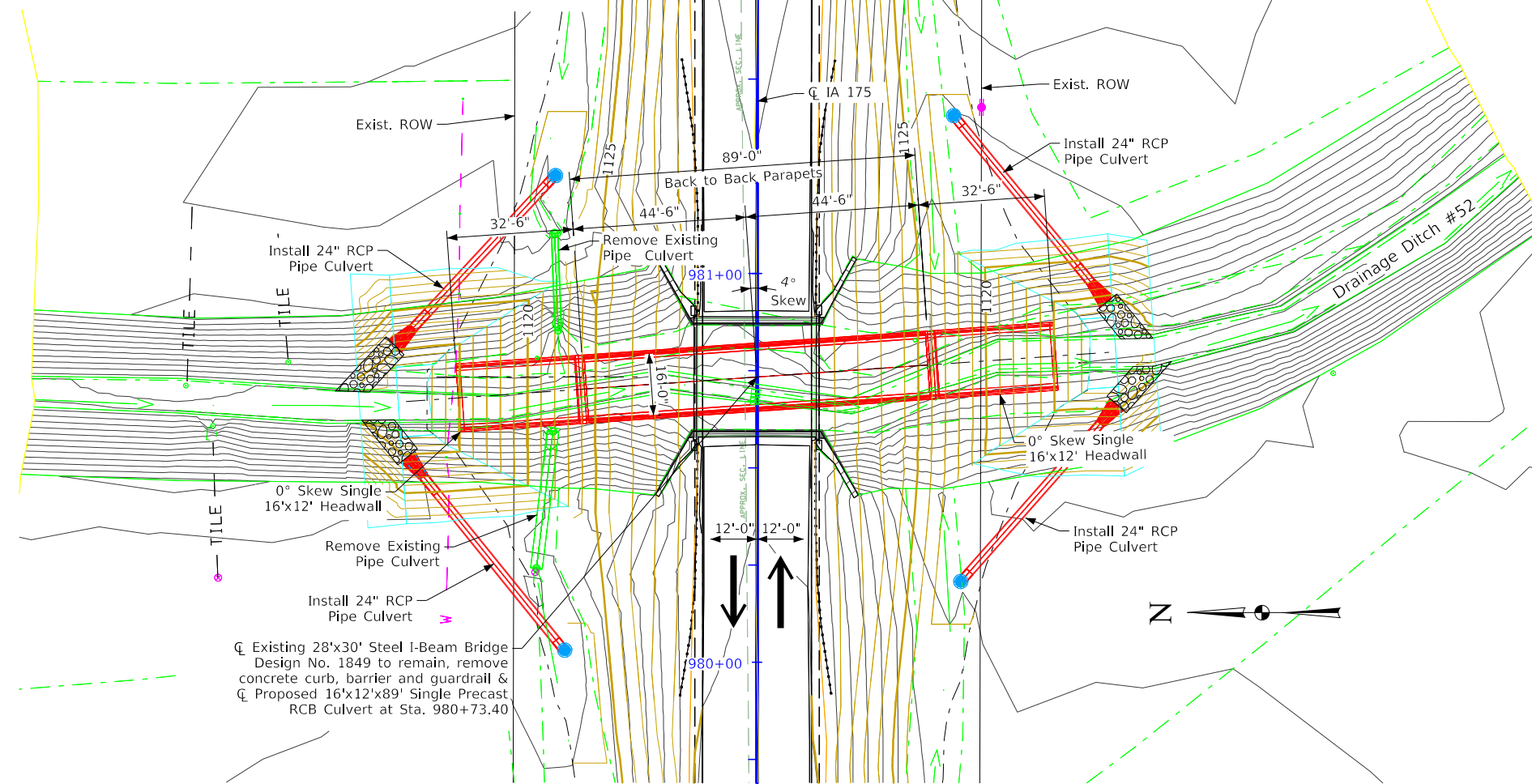
Roadway Overtop 1129.88
Sta. 980+90.50

IA 175 over Drainage Ditch #52
T-86N R-30W
Section 8-17
Gowrie Township
Webster County
Asset ID No. 900745
Bridge Maint. No. 9413.45175
Latitude: 42.267235°
Longitude: -94.364146°

2022 AADT	960 V.P.D.
Trucks	26 %
Total	
Design ESALs	730,000

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

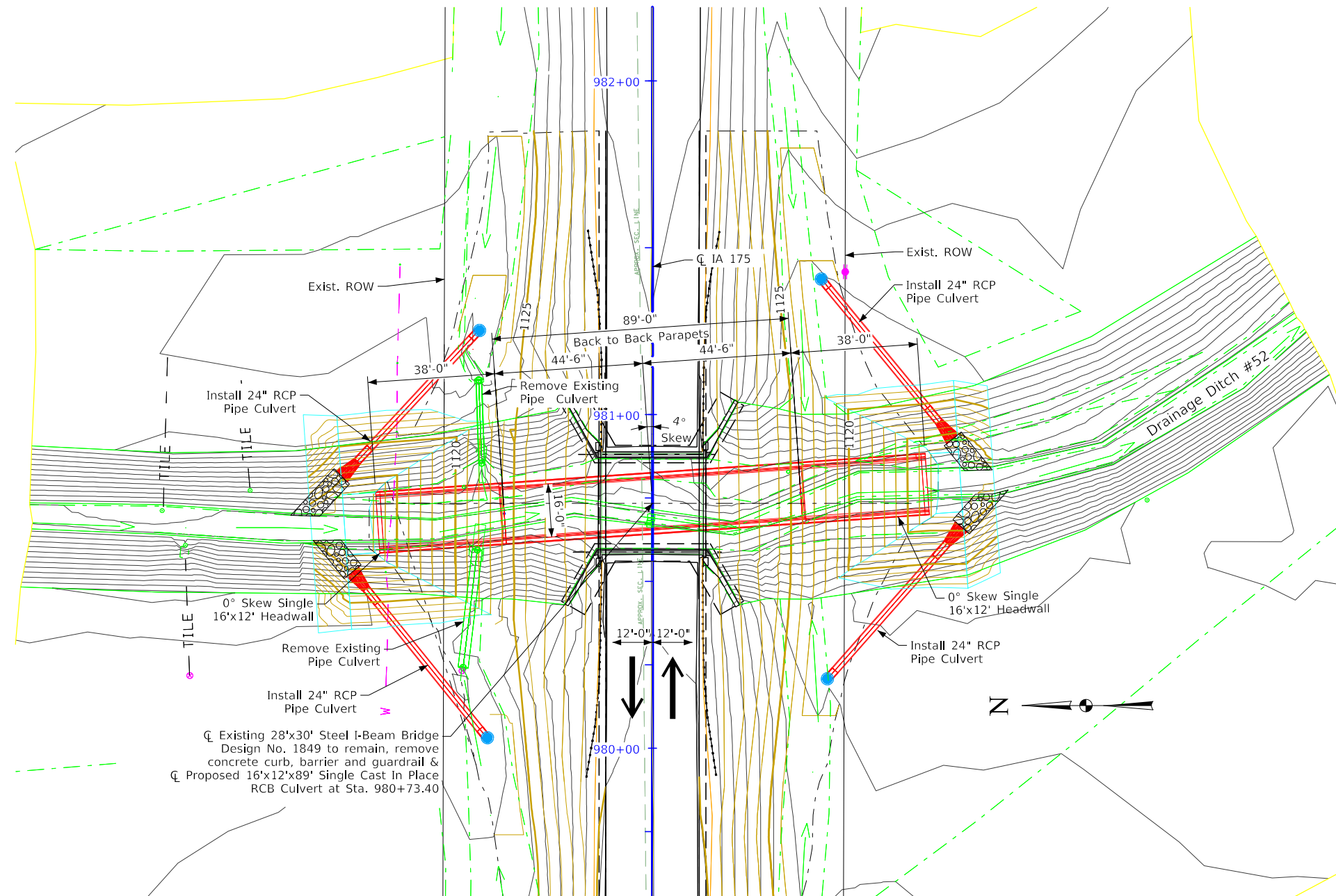
W - Water Line - Power Poles



Design For 4 Degree Skew
16' x 12' x 89' Precast
Reinforced Conc. Box Culvert

STA. 980+73.40 (IA 175) Turn-in Date: Jan 2025

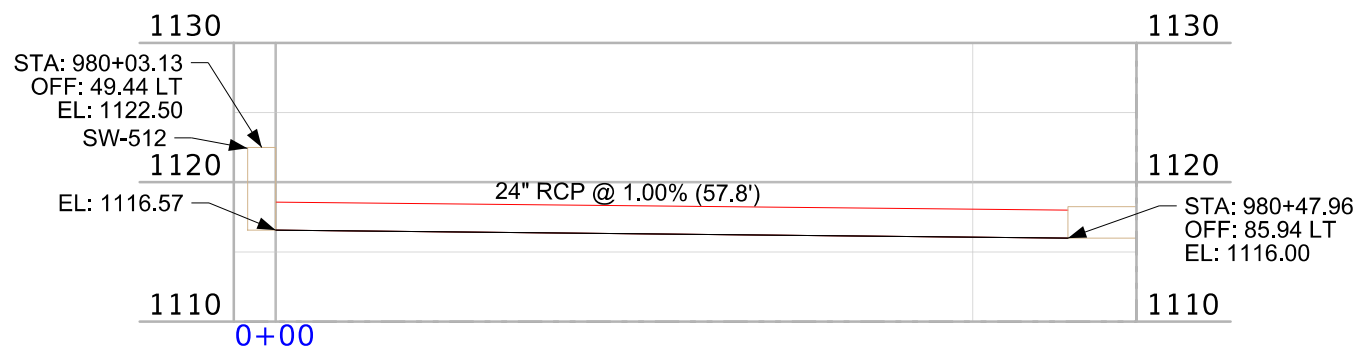
Design No. 126 Design Sheet No. 2 of 3 FHWA/Asset 900745



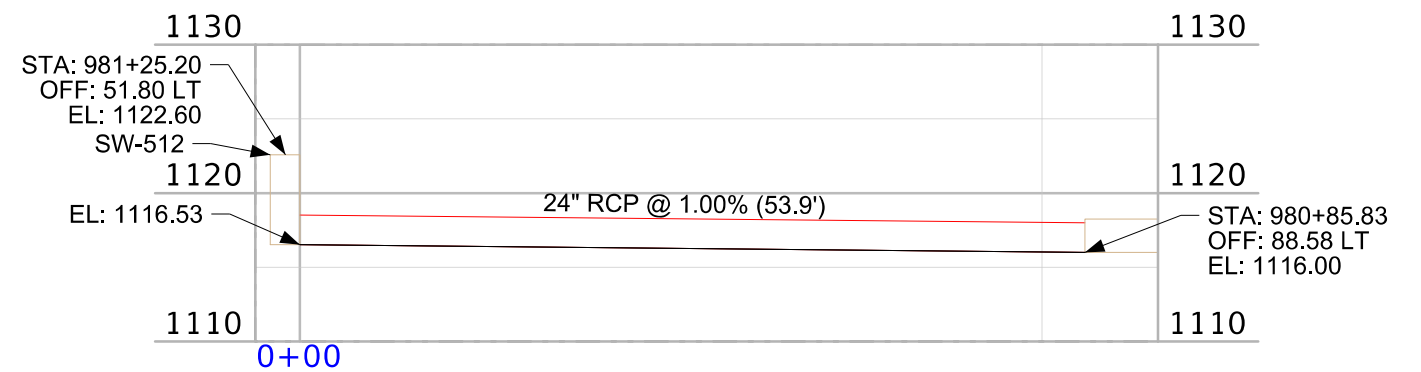
Site Plan

0 20
Scale In Feet

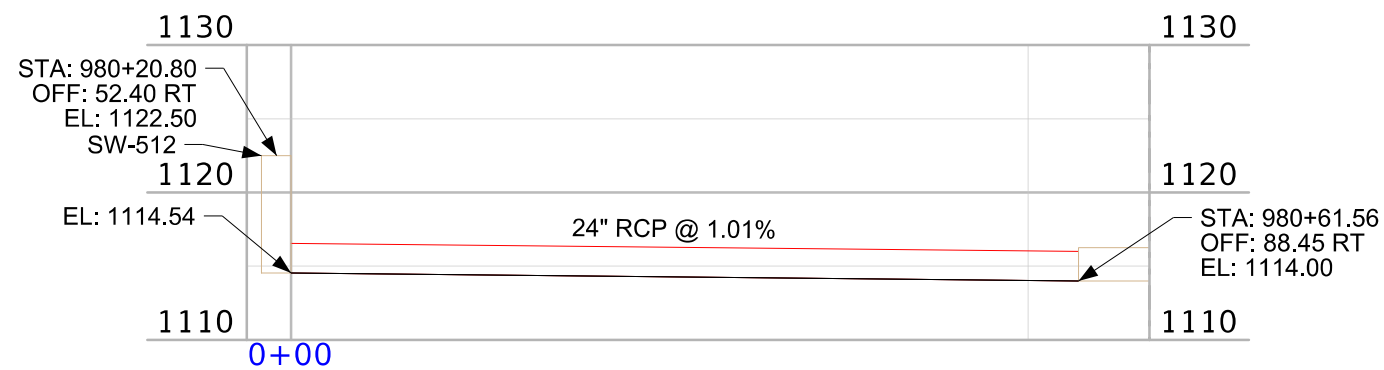
Design For 4 Degree Skew
**16' x 12' x 89' Cast In Place
 Reinforced Conc. Box Culvert**
 Situation Plan - Site
 STA. 980+73.40 (IA 175) Turn-In Date: Jan 2025
Webster County
 IOWA DEPARTMENT OF TRANSPORTATION
 Design No. 126 Design Sheet No. 3 of 3 FHWA/Asset 900745



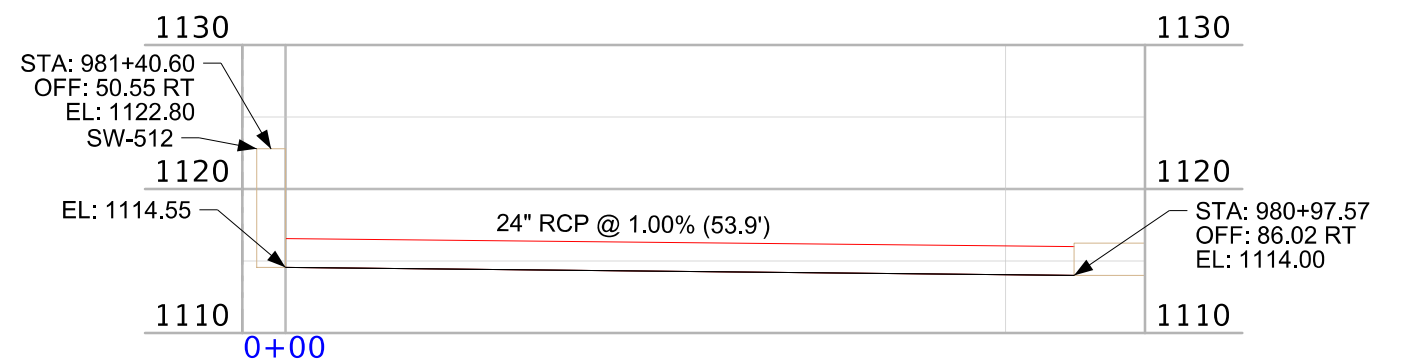
NORTHWEST
QUADRANT



NORTHEAST
QUADRANT



SOUTHWEST
QUADRANT



SOUTHEAST
QUADRANT

CROSS SECTION VIEW COLOR LEGEND			
Design Color No.	Feature	Design Color No.	Feature
Aggregate		Structural	
(64)	Choke Stone	(112)	Noise Wall
(42)	Engineering Fabric	(112)	Noise Wall Footing
(8)	Flooded Backfill	(112)	Retaining Wall Back
(92)	Macadam Stone	(112)	Retaining Wall Back Excavate
(20)	Modified	(112)	Retaining Wall Face
(12)	Plowing Shaping	(112)	Retaining Wall Front Excavate
(14)	Porous Backfill	(112)	Retaining Wall Front Footing
(8)	Revetment Class A	(112)	Retaining Wall MSE Gutter
(6)	Revetment Class B	(112)	Retaining Wall Reinforced Earth
(62)	Revetment Class C	Grading	
(188)	Revetment Class D	(8)	Behind Curb Cut
(28)	Revetment Class E	(6)	Granular
(12)	Shoulder Special Backfill	(13)	Granular Back Fill
(12)	Special Backfill	(48)	Rock Undercut
(20)	Subbase	(8)	Shoulder Earth Fill
(20)	Subbase Lower	(2)	Side Slopes
(20)	Subbase Upper	(226)	Side Slopes Dressing
(118)	Subgrade Treatment	Substrata	
Asphalt		(128)	Boulder Substrata
(207)	HMA Base Course	(48)	Broken Weathered Substrata
(207)	HMA Interim Course	(3)	Core Out Substrata
(207)	HMA Surface Course	(203)	Existing Pavement Substrata
Concrete		(6)	Loam Substrata
(0)	Barrier Concrete	(80)	Rock Substrata
(0)	Barrier Concrete Footing	(4)	Select Sand Substrata
(0)	Curb Gutter	(3)	Shale Substrata
(48)	Flowable Mortar	(10)	Topsoil Substrata
(0)	Median Concrete	Unsuitable / Waste	
(0)	PCC Pavement	(3)	Unsuitable Type A
(0)	Sidewalk	(13)	Unsuitable Type B
Shoulder		(11)	Unsuitable Type C
(209)	Shoulder HMA	(3)	Waste
(0)	Shoulder PCC		
(6)	Shoulder Granular		
Existing			
(0)	Existing Pavement		

NOTES:

Text

NOTES:

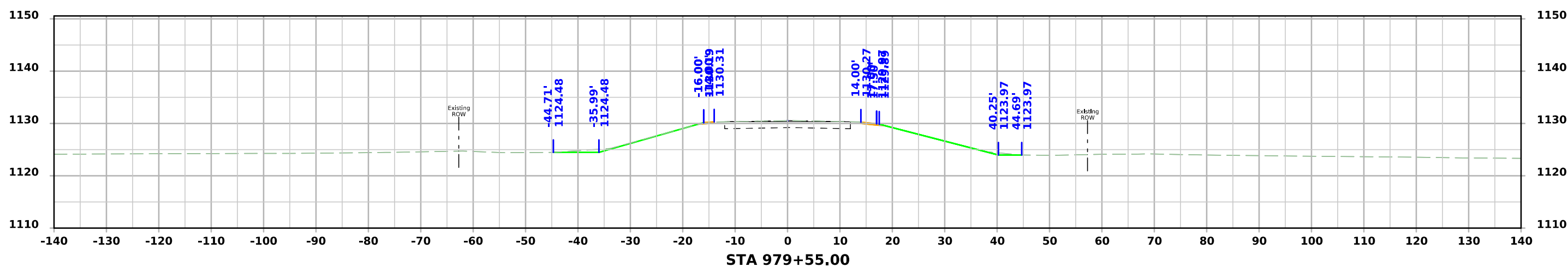
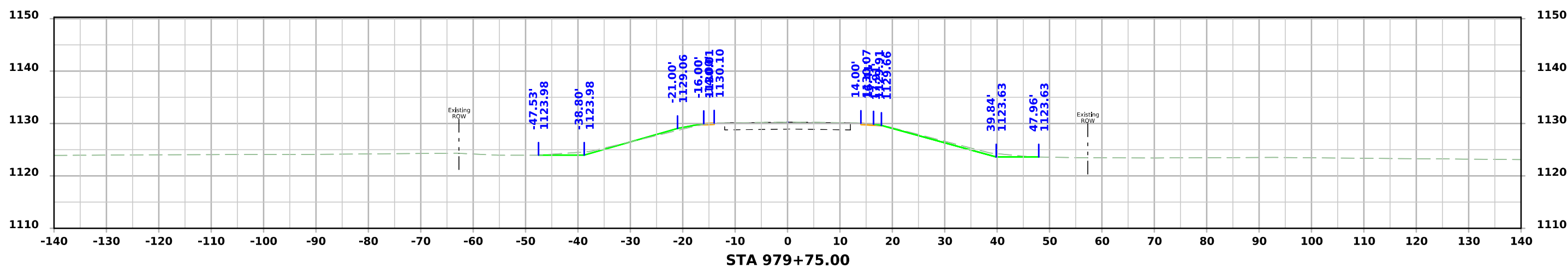
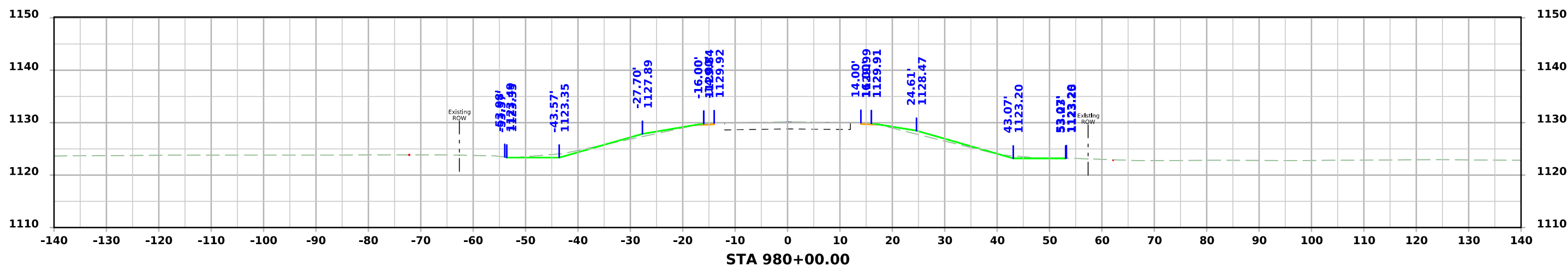
Text

CROSS SECTIONS

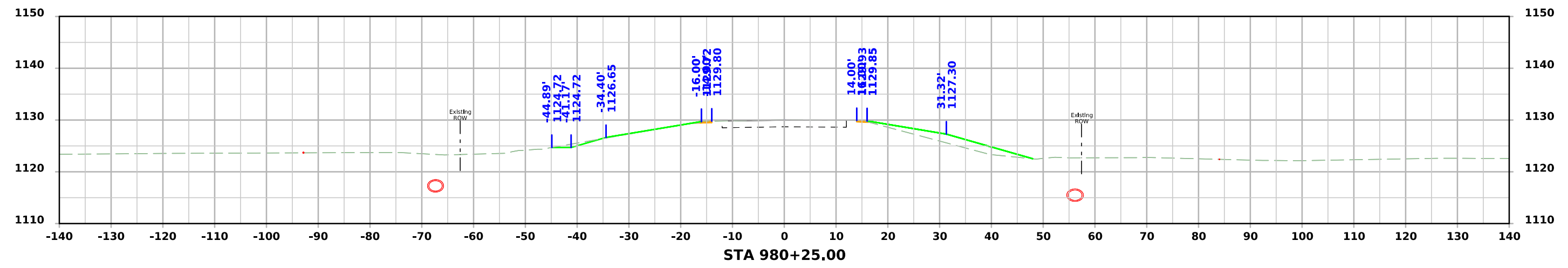
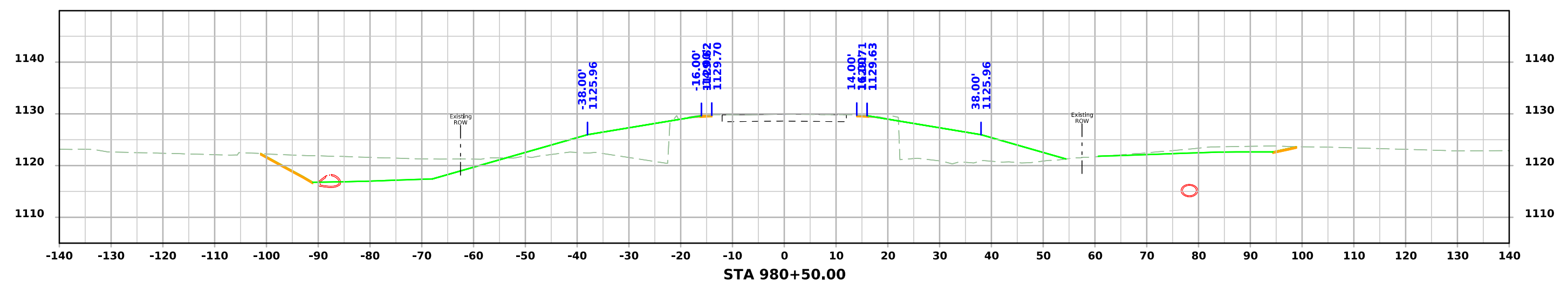
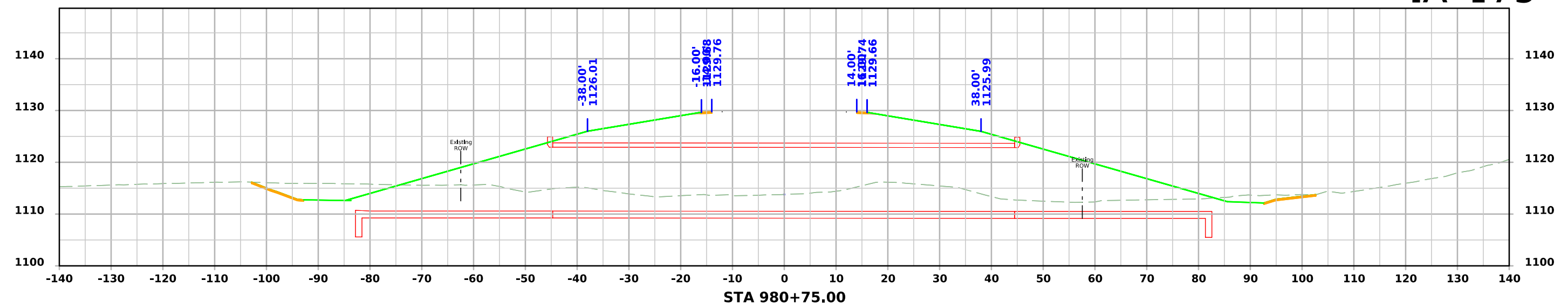
LEGEND AND INFORMATION SHEET

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

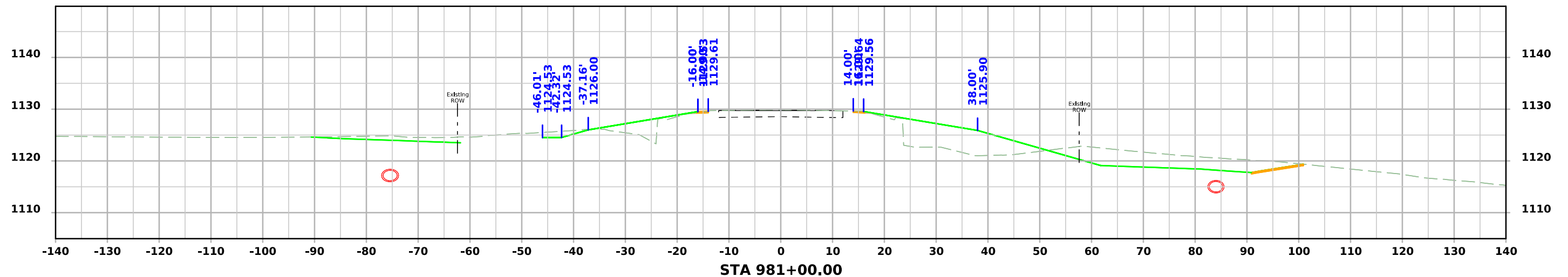
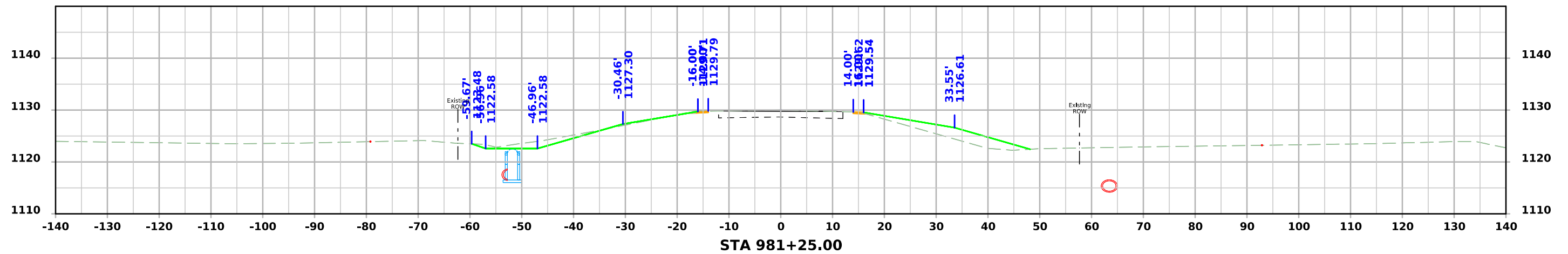
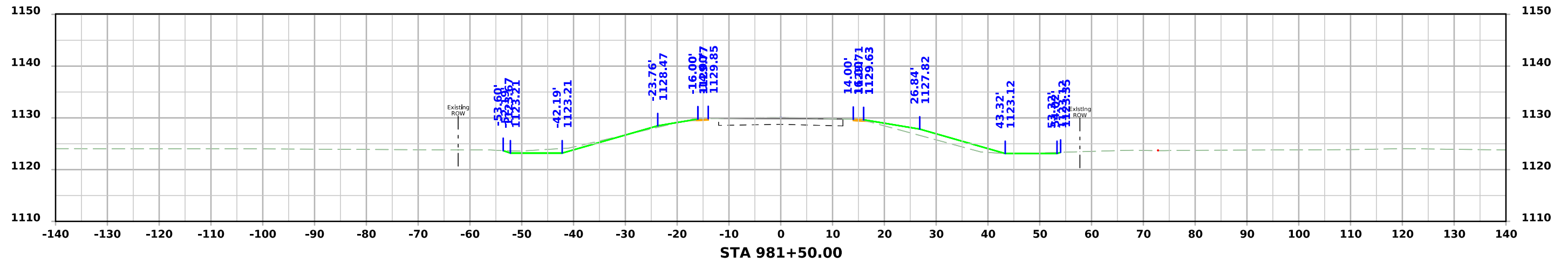
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