

RCB - CULVERT REPLACEMENT
STPN-006-6(080)--2J-48

IOWA COUNTY

LETTING DATE
FEB 16 2027

Index of Sheets	
No.	Description
Sheets	
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<-- H Sheet

PLANS OF PROPOSED IMPROVEMENT ON THE
PRIMARY ROAD SYSTEM
IOWA COUNTY
RCB - CULVERT REPLACEMENT
1.9 Mi E of
IA 220 / Co Rd W16

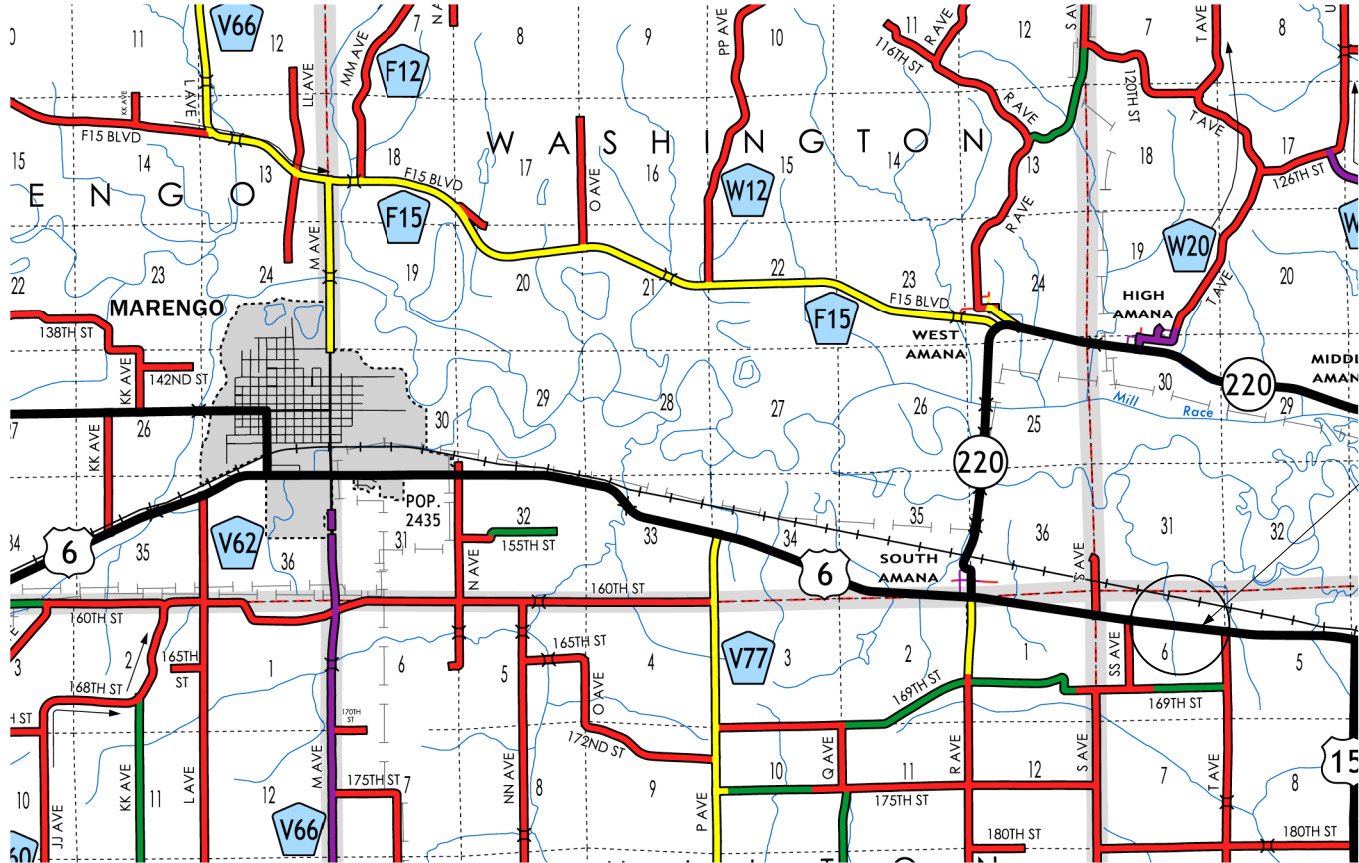
SCALES: As Noted

Refer to the Proposal Form for list of applicable specifications.

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

**IOWA**
ONE CALL
1-800-292-8989
www.iowadonecall.com

**811**
Know what's below.
Call before you dig.



PROJECT LOCATION
STATION 1125+98.00

PRELIMINARY PLANS

Subject to change by final design.

D5 PLAN - Date: X

REVISIONS

TOTAL

PROJECT IDENTIFICATION NUMBER

24-48-006-020

PROJECT NUMBER

STPN-006-6(080)--2J-48

R.O.W. PROJECT NUMBER

FILE NO.

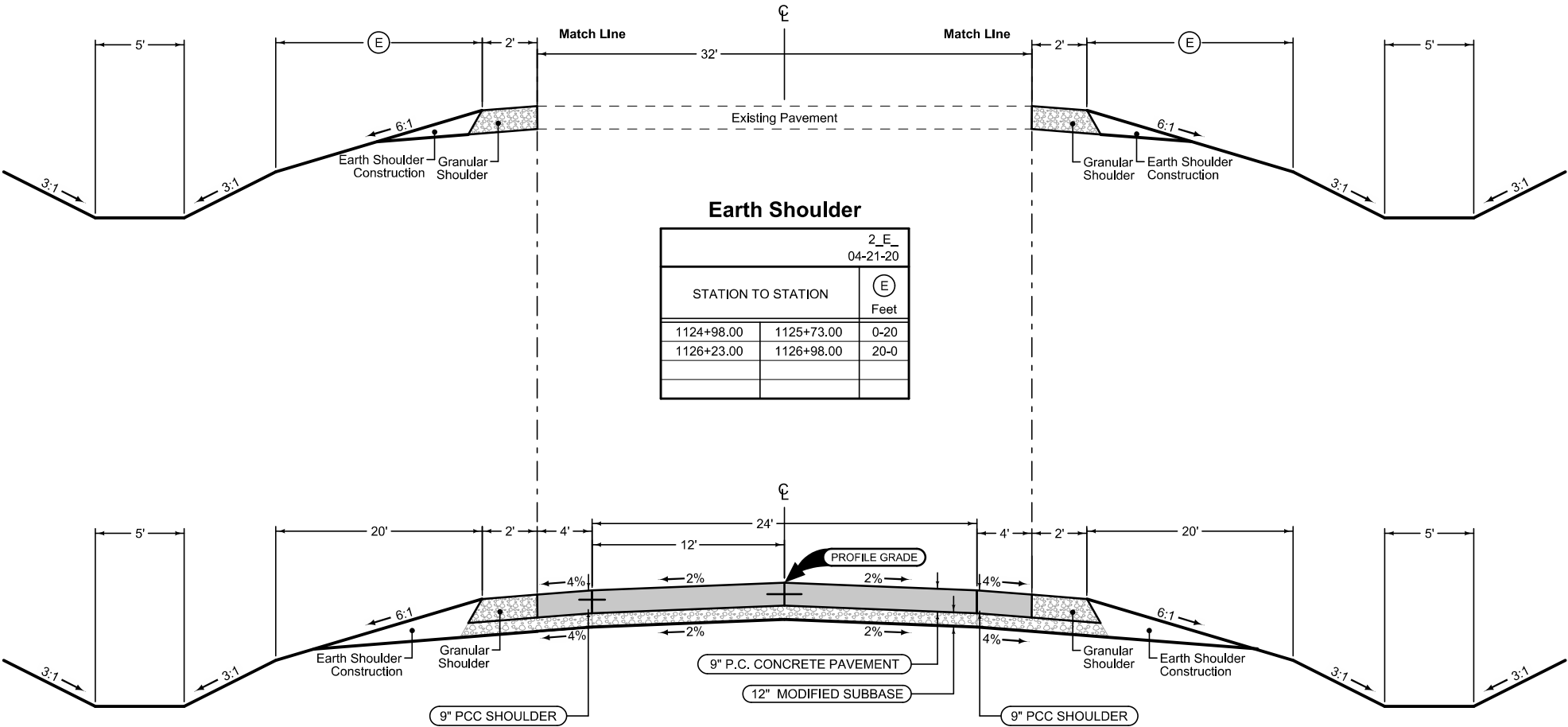
ENGLISH

DESIGN TEAM AECOM

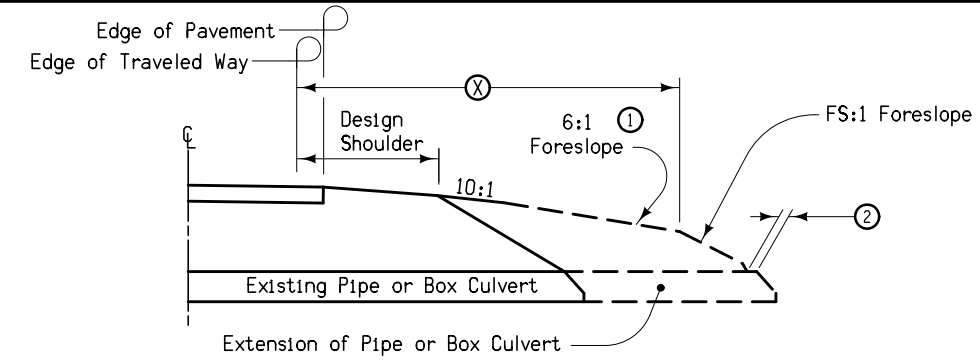
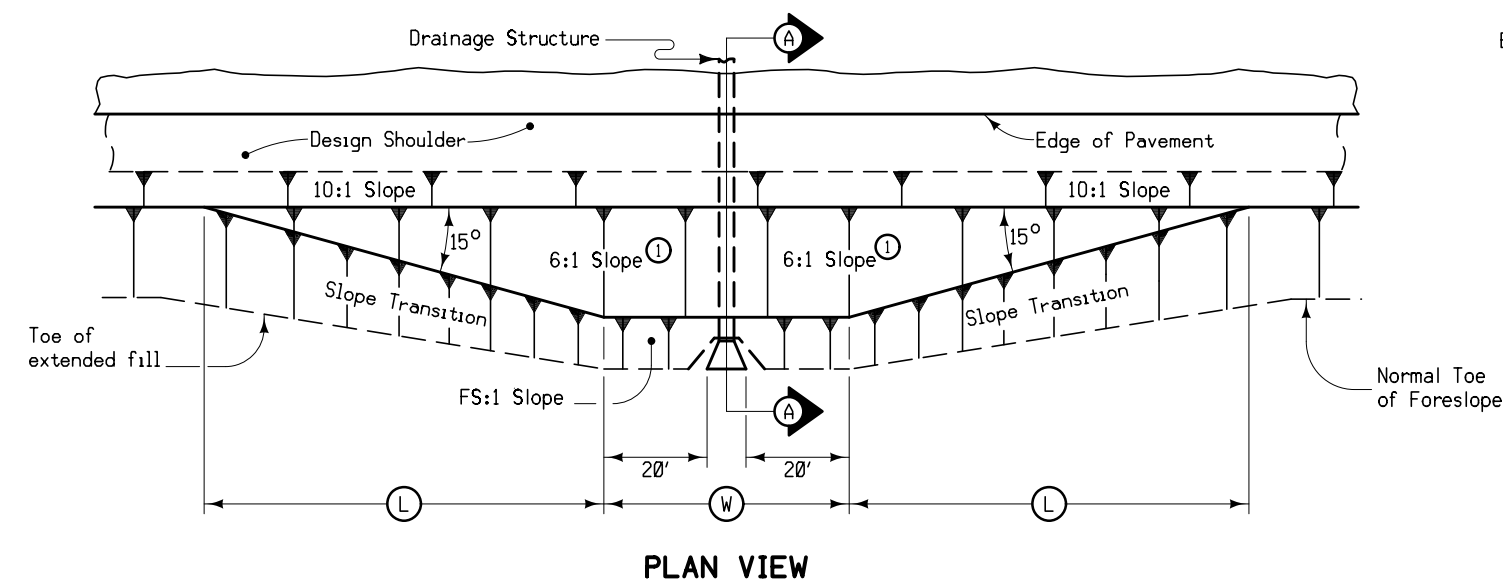
IOWA COUNTY

PROJECT NUMBER STPN-006-6(080)--2J-48

SHEET NUMBER A.1



Typical Cross Sections - US 6



SECTION A-A

STRUCTURE LOCATION		(W)	(L)	(X)	(FS)
STATION	SIDE	Feet	Feet	Feet	
1125+98	-	50'	75'	26'	3:1

Notes:

At locations where an extended or newly constructed drainage structure extends beyond the normal foreslope cover, flatten the foreslope as indicated so as to cover the structure. Minimum earth cover is 6".

- (1) Slope may be flatter than 6:1.
- (2) 6" Minimum for pipe installations or to top of headwall on R.C.B.
- (W) = Pipe or R.C.B. opening width plus 20 feet each side.

BARNROOF FORESLOPE
AT DRAINAGE STRUCTURE

	Interstate Highway Symbol
	U.S. Highway Symbol
	Iowa Highway Symbol
	County Road Highway Symbol
	Evergreen Tree
	Deciduous Tree
	Fruit Tree
	Shrub (Bushes)
	Timber
	Hedge
	Stump
	Swamp
	Rock Outcrop
	Broken Concrete
	Revetment (Rip Rap)
	Cemetery
	Grave
	Cave
	Sink Hole
	Board Fence
	Chain Link or Security Fence
	Wire Fence
	Terrace
	Earth Dam or Dike (Existing)
	Tile Outlet
	Edge of Water
	Existing Drainage
	Right of Way Rail or Lot Corner
	Concrete Monument
	Well
	Windmill
	Beehive Intake
	Existing Intake
	Existing Utility Access (Manhole)
	Fire Hydrant
	Water Hydrant (Rural)

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

Sub-Surface Utility Mapping Quality Level is in accordance with C/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	FO1D, Mediacom Iowa City - Quality D
F02	FO2D, South Slope Telephone - Quality D
F03	FO3D, Aureon Network Services - Quality D
W	WL1D, Amana Society Service Company - Quality D

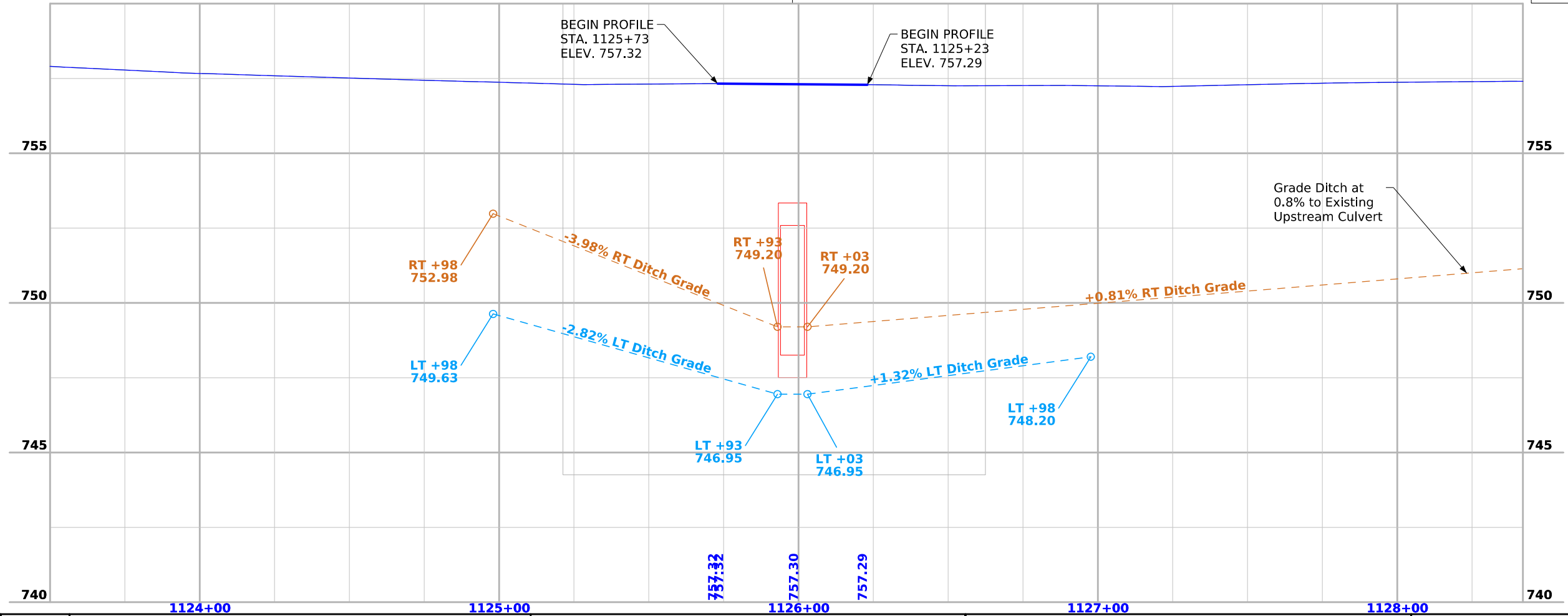
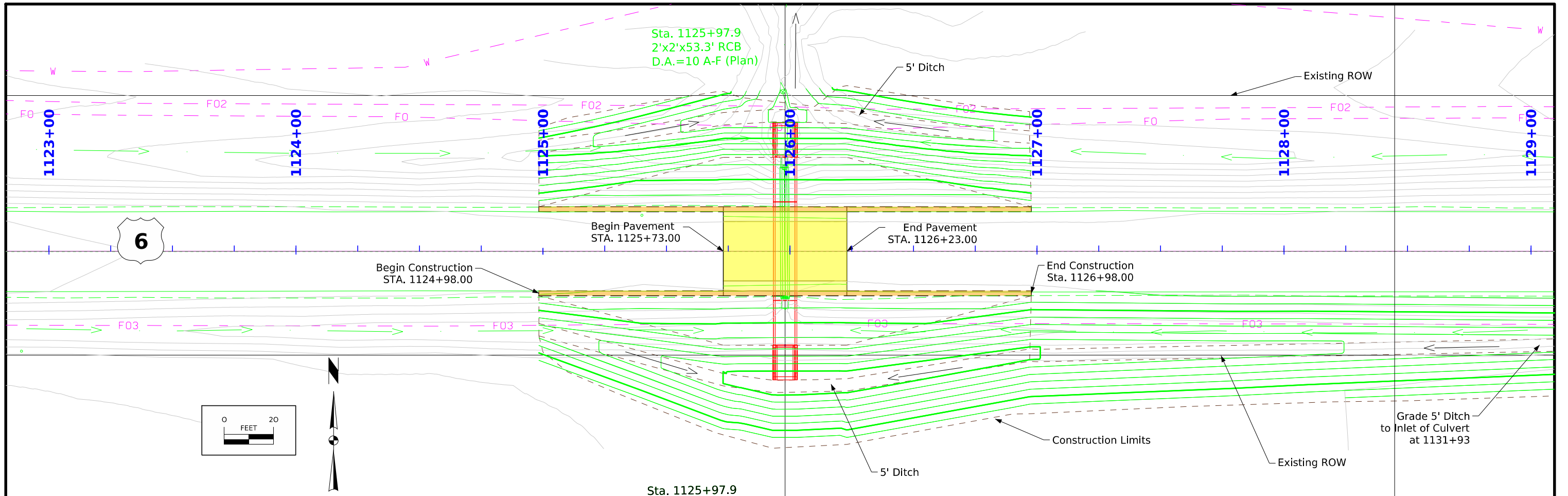
LINEWORK		Design Color No.
Green	(2)	Existing Topographic Features and Labels
Blue	(1)	Proposed Alignment, Stationing, Tic Marks, and Alignment Annotation
Magenta	(5)	Existing Utilities
SHADING		Design Color No.
Lavender	(9)	Temporary Pavement Shading
Yellow	(4)	Proposed Pavement Shading
Orange	(6)	Proposed 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

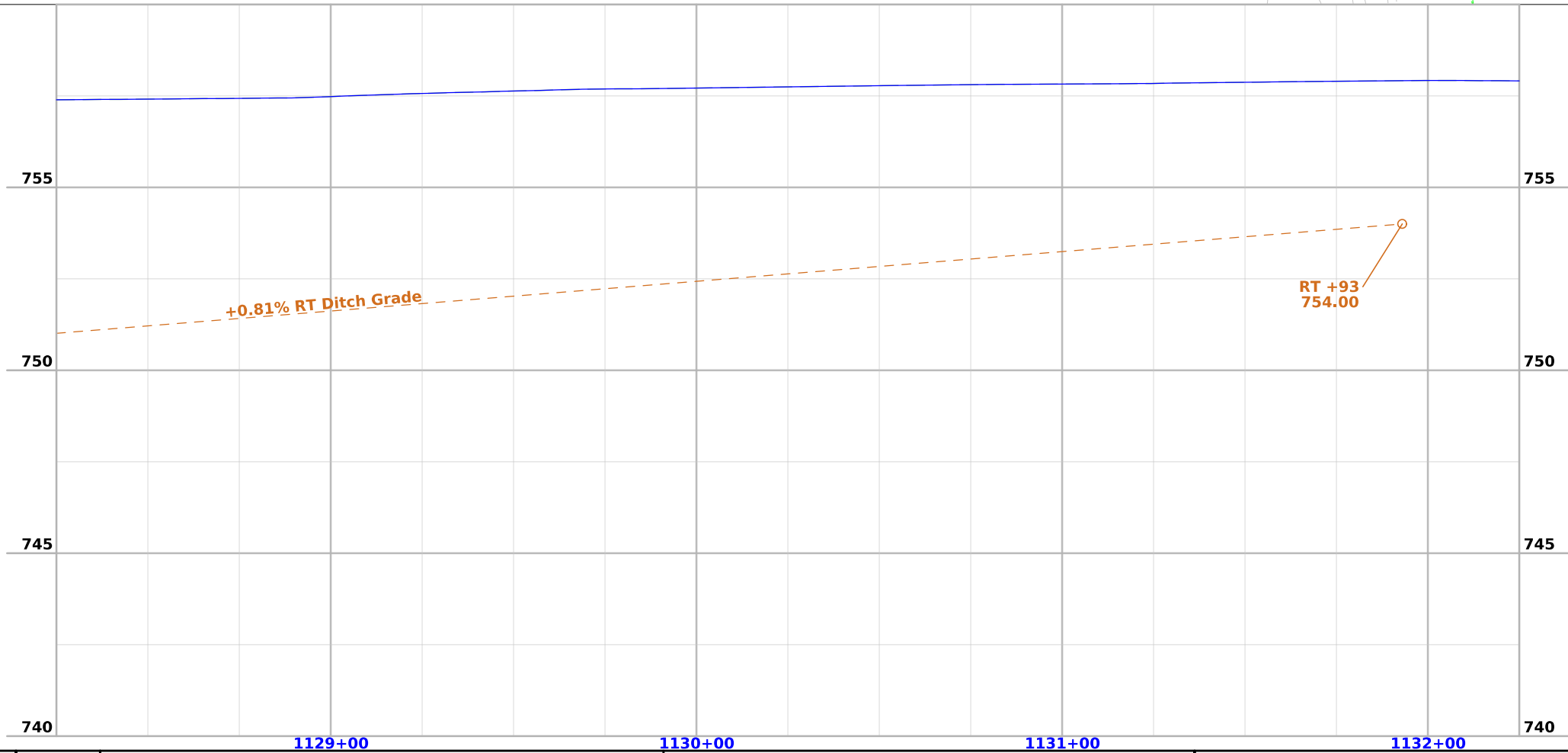
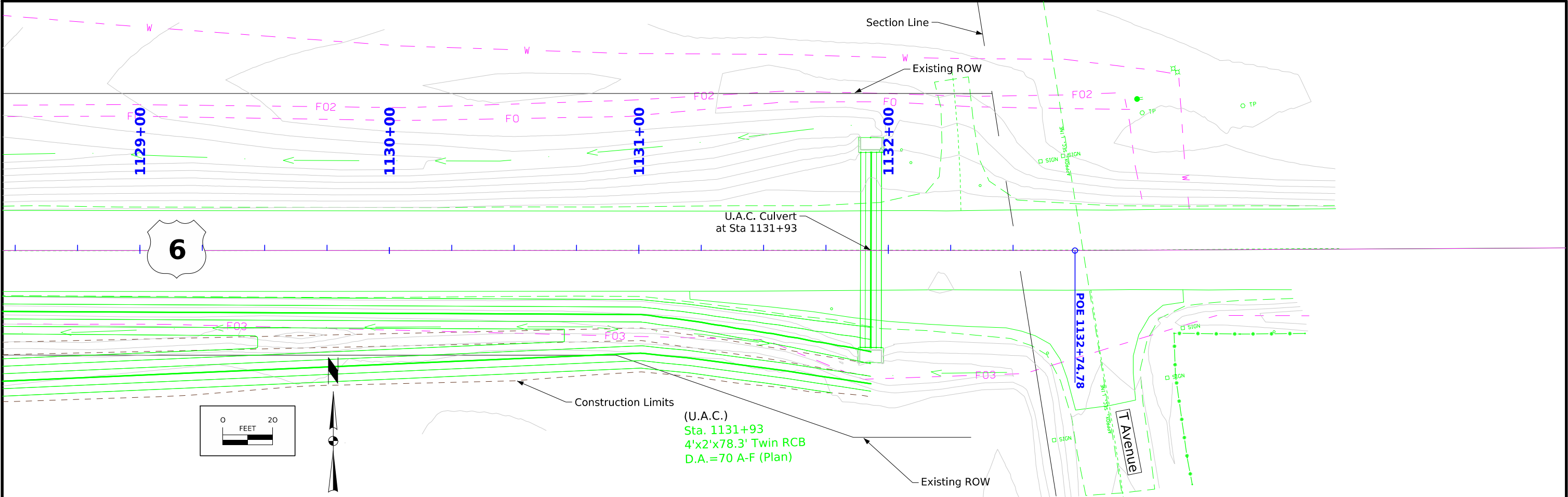
LINEWORK	Design Color No.	
Green	(10)	Existing Ground Line Profile
Blue	(1)	Proposed Profile and Annotation
Magenta	(5)	Existing Utilities
Blue, Light	(230)	Proposed Ditch Grades, Left
Black	(0)	Proposed Ditch Grades, Median
Rust	(14)	Proposed Ditch Grades, Right

- Proposed Right-of-Way
- 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
	Station
	Section Corner
	Ground Line Intercept
	Saw Cut
	Guardrail
	Trench Drain
	HighTension Cable Guardrail
	Sheet Pile
	Pavement Removal
	Clearing & Grubbing Area

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





Survey Information

County : Iowa
PIN : 24-48-006-020
Project Number: STPN-006-6(080)--2J-48
Location: Approx 1.9 mi E of IA 220/Co Rd W16
Type of Work: 3121-RCB Culvert Replacement - Single Box
Project Directory: 4800602024

Survey Personnel

Terry Haase – Construction Tech Senior
David Chapman – Construction Tech

Date(s) of Survey

Begin Date 07/11/2024
End Date 07/30/2024

General Information

This survey is for US 6 RCB Culvert Replacement at 1.9 mi E of IA 220/Co Rd W16.
This survey request was for the US 6 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

Nearby Iowa Real Time Network reference stations were utilized to obtain horizontal and vertical control on primary project control points. Three five-minute observations were taken with a minimum two-hour time span between and used in a weighted average to obtain final coordinate values. 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 10
(U.S. SURVEY FOOT)
VERTICAL DATUM: NAVD88
GEOID MODEL: 2018u3 or 2018u2

Alignment Information

The alignment for this project was provided by the District Land Survey Office.

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.



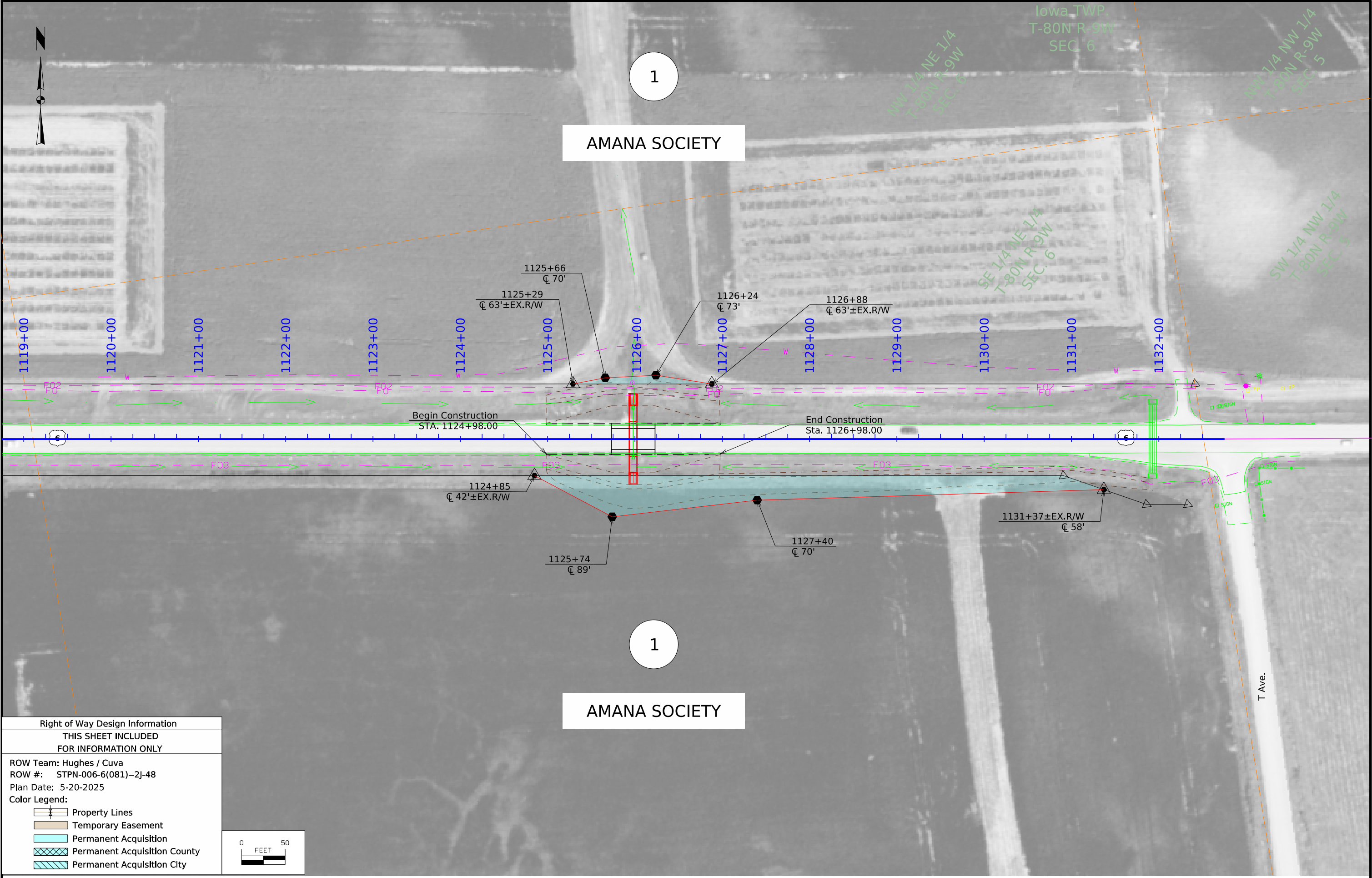
HORIZ. DATUM: NAD83(2011) for EPOCH 2010.00 (IaRTN 2019 Adjustment) - Iowa RCS Zone 10 (U.S. Survey Foot)

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

Point Name	Northing	Easting	Elevation	Code Description
20	7977186.77	20426567.04	764.10	CP SET 5/8 IP Flush w/ Ground Near Top of Back Slope
21	7977042.53	20427597.11	756.76	CP SET 5/8 IP Flush w/ Ground Near Top of Back Slope
22	7976995.45	20428515.83	756.29	CP SET 5/8 IP Flush w/ Ground West Side of Field Entrance
23	7976902.47	20428653.63	757.43	CP SET 5/8 IP Flush w/ Ground Near Top of Back Slope
50	7976996.24	20428507.78	756.54	BM Cut "X" on Outlet Headwall



Right of Way Design Information

THIS SHEET INCLUDED
FOR INFORMATION ONLY

ROW Team: Hughes / Cuva
ROW #: STPN-006-6(081)--2J-48
Plan Date: 5-20-2025
Color Legend:

Property Lines

Temporary Easement

Permanent Acquisition

Permanent Acquisition County

Permanent Acquisition City

0

50

FEET

108_25
3/28/24

511 TRAVEL RESTRICTIONS													
Line No.	Route	Direction	County	Location Description	Feature Crossed	Object Type	Maint. Bridge No. or Structure ID or FHWA No.	Type of Restriction	Existing Measurement	Construction Measurement	Construction Measurement as Signed	Projected As Built Measurement	Remarks
	U.S. 6	Both	Iowa	No Travel Restrictions Expected on Offsite Detour				None					

108_23A
8/15/22

TRAFFIC CONTROL PLAN

This project is not considered a Traffic Critical Project. No travel restrictions are expected on the offsite detour shown in these plans.

While the culvert construction is being completed, U.S. 6 traffic shall be maintained via an off-site detour detailed in these plans. Detours are to be furnished, maintained and removed by the Contractor. Refer to TC-252 for road closure and advanced signage details.

Contractor will furnish, install, maintain and remove detour signs. Detour sign layout and quantities shown in these plans are for reference only and exact location shall be determined in the field. All existing signs that conflict with the detour shall be covered. All material, equipment and labor shall be included in the Traffic Control bid item.

108_26A
8/15/22

STAGING NOTES

Stage 1

Install off-site detour signage on detour route before traffic begins use of the detour route.

With traffic using detour, perform the culvert construction work.

Stage 2

Remove off-site signage.

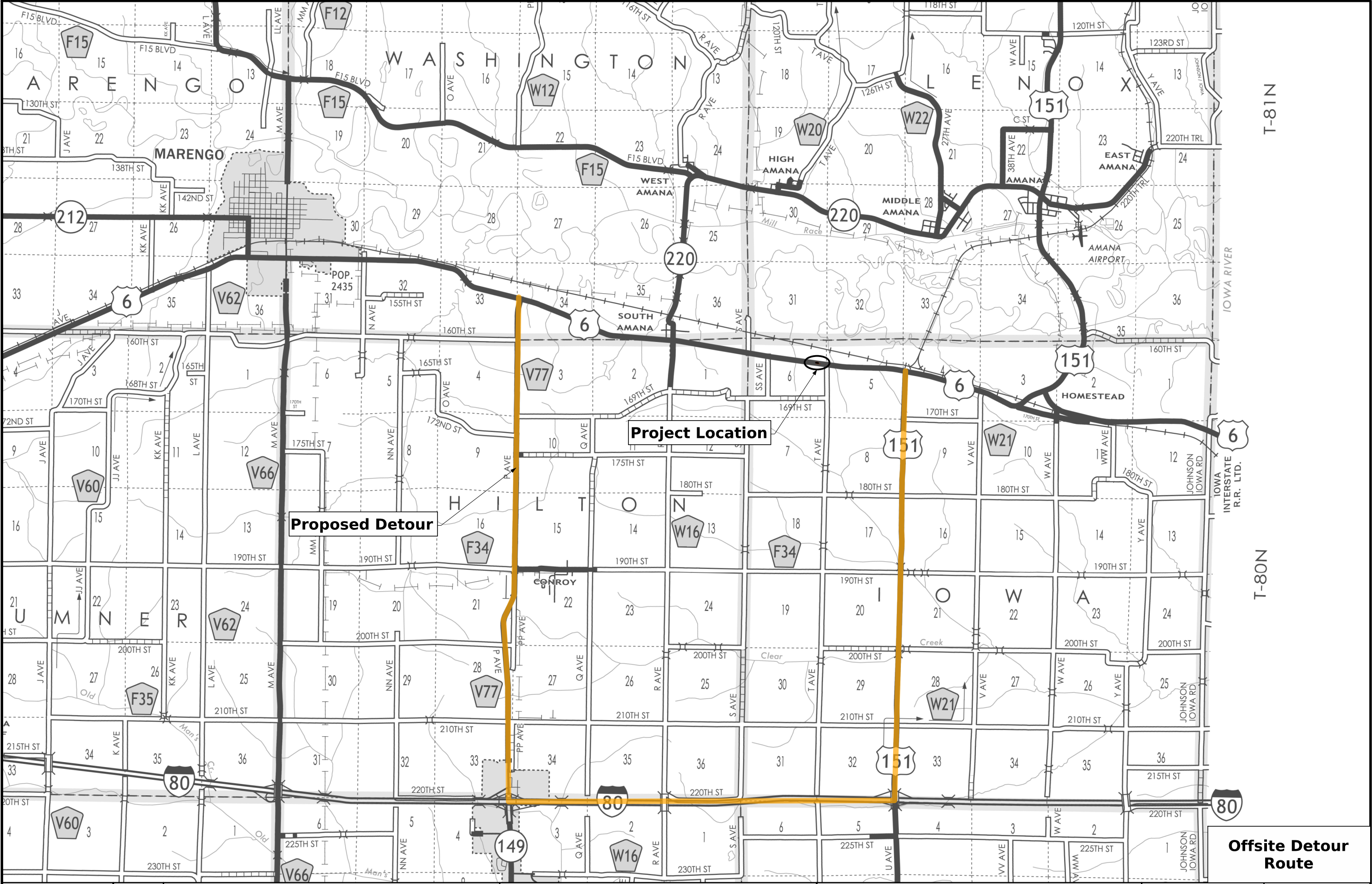
Reopen U.S. 6 to normal traffic pattern.

111_01
10/14/22

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



A

DEQF

EAST

6

M4-8

M3-2

M1-4

M5-1R

B

DEQF

EAST

6

M4-8

M3-2

M1-4

M5-1L

C

DEQF

EAST

6

M4-8

M3-2

M1-4

M6-1R

D

DEQF

EAST

6

M4-8

M3-2

M1-4

M6-1L

E

DEQF

EAST

6

M4-8

M3-2

M1-4

F

DEQF

EAST

6

END

M4-8

M3-2

M1-4

M4-8bP

G

DEQF

EAST

6

M4-8

M3-2

M1-4

M6-2R

H

DEQF

EAST

6

M4-8

M3-2

M1-4

M5-2R

I

DETOUR AHEAD

W20-2

J

ROAD CLOSED
4 MILES AHEAD
LOCAL TRAFFIC ONLY

DETOUR

R11-3a

M4-10R

PROJECT LOCATION
(SEE TC-252 FOR CLOSURE DETAILS)

NOT TO SCALE

DETOUR ROUTE

Note: Quantities and locations of detour signs are for guidance and estimating purposes only. Placement of detour signage, if modifications are needed, will be determined in the field by the Project Engineer.

Eastbound Detour
Signing Layout

FILE NO.	ENGLISH	DESIGN TEAM AECOM	IOWA COUNTY	PROJECT NUMBER STPN-006-6(080)--2J-48	SHEET NUMBER J.3
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A

DEQF

WEST

6

→

M4-8
M3-2
M1-4
M5-1R

B

DEQF

WEST

6

←

M4-8
M3-2
M1-4
M5-1L

C

DEQF

WEST

6

→

M4-8
M3-2
M1-4
M6-1R

D

DEQF

WEST

6

←

M4-8
M3-2
M1-4
M6-1L

E

DEQF

WEST

6

↗

M4-8
M3-2
M1-4

F

DEQF

WEST

6

END

M4-8
M3-2
M1-4
M4-8bP

G

DEQF

WEST

6

↖

M4-8
M3-2
M1-4
M6-2R

H

DEQF

WEST

6

↗

M4-8
M3-2
M1-4
M5-2R

I

DETOUR AHEAD

W20-2

J

ROAD CLOSED
1 MILE AHEAD
LOCAL TRAFFIC ONLY

DETOUR

R11-3a
M4-10L

PROJECT LOCATION
(SEE TC-252 FOR CLOSURE DETAILS)

NOT TO SCALE

DETOUR ROUTE

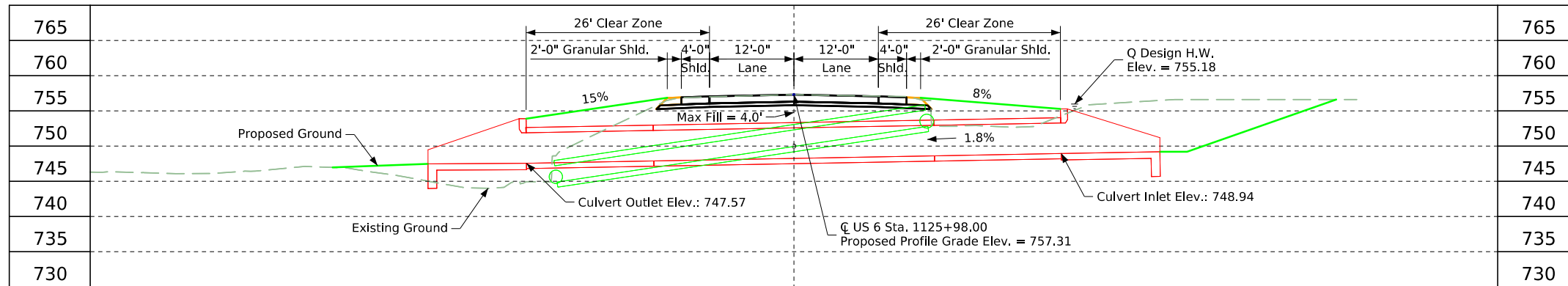
Note: Quantities and locations of detour signs are for guidance and estimating purposes only. Placement of detour signage, if modifications are needed, will be determined in the field by the Project Engineer.

Westbound Detour
Signing Layout

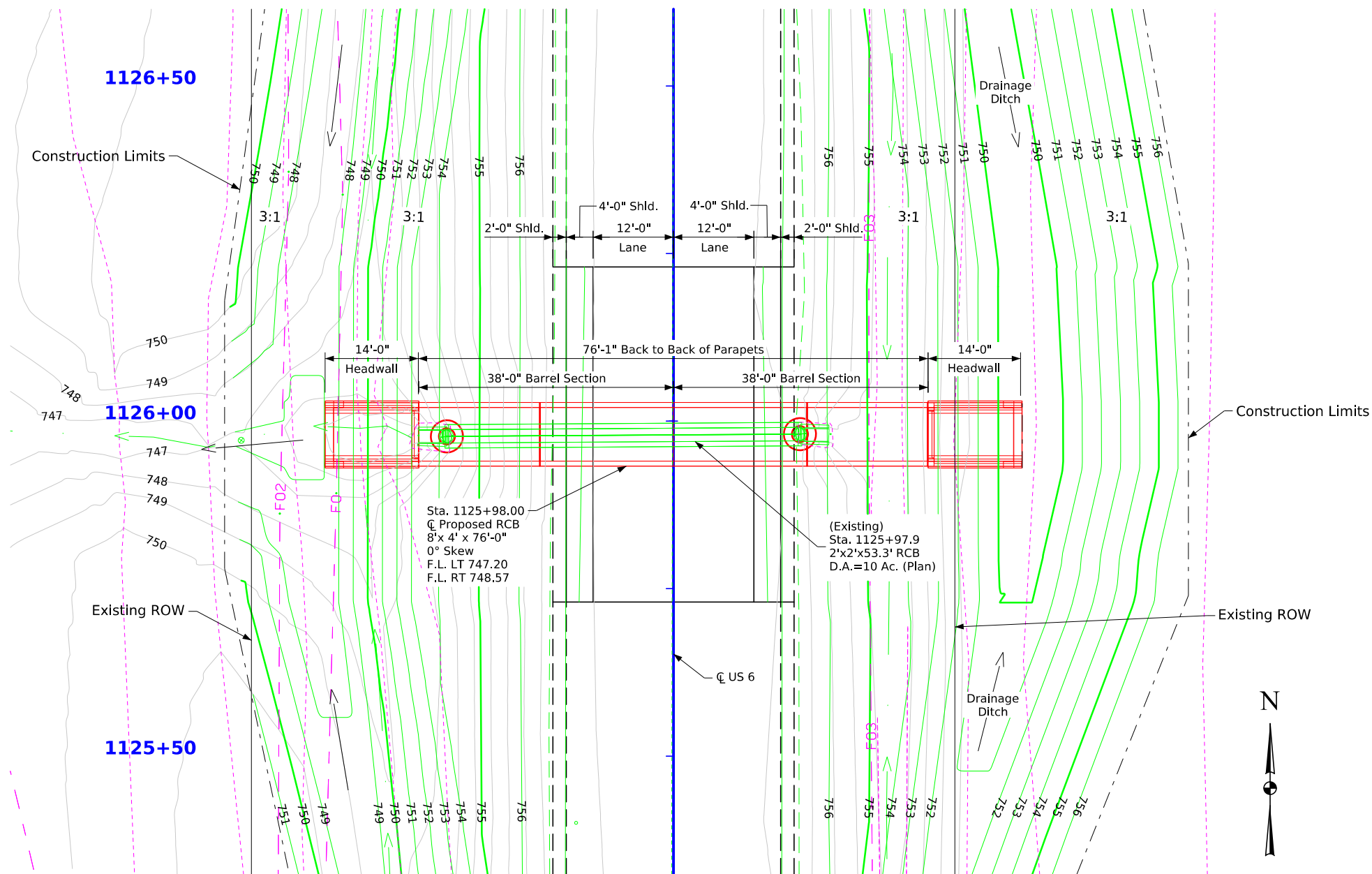
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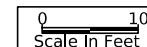
Control Point: Pt. No. 20, N: 7977186.771, E: 20426567.036, Elev: 764.104,
CP SET 5/8 IP Flush w/ Ground Near Top of Back Slope



Longitudinal Section Along C Culvert



Situation Plan



Hydraulic Data

RIDB: Not Applicable
Drainage Area = Part of 97.6 Acres
Stream Slope = 187.175 Ft./Mi.
Q₅₀ = 330.94 cfs
HW Elev. = 755.18
Exit Velocity = 14.90 fps

Q₁₀₀ = 458.81 cfs
HW Elev. = 757.22
Exit Velocity = 15.84 fps

Traffic Estimate

2023 AADT	2600 V.P.D.
TRUCKS	13 %

Location

US 6 Over Drainage Ditch
T-80N R-9W
Section 06
Iowa Township
Iowa County
Latitude 41.770015°
Longitude -91.930931°



Proposed Profile Grade US 6

General Notes:

This design is for the replacement of the existing 2' x 2' x 53' RCB, Iowa Design No. 1229

Design Notes:

Design accounts for overflow conveyance from existing culverts at Sta. 1112+22 and Sta. 1131+93.

Utility coordination required for final design.

Flood plain permit not anticipated.

Utilities Note:

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

General Utility Symbols:

E - Electric Line
G - Gas Line
SAN. - Sanitary Sewer
T - Telephone Line
W - Water Line

FO - Fiber Optic Line
GHP - Gas High Pressure
ST S - Storm Sewer
TV - TV
● - Power Poles

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 Date
DANIEL D. KIMBALL
 Printed or Typed Name

My license renewal date is December 31, 2025

Pages or sheets covered by this seal: _____

Design For 0 Deg.

8' x 4' x 76'
Cast In Place RCB

Situation Plan - CIP

STA. 1125+98.00 (US 6)

Turn-in Date:

Iowa County

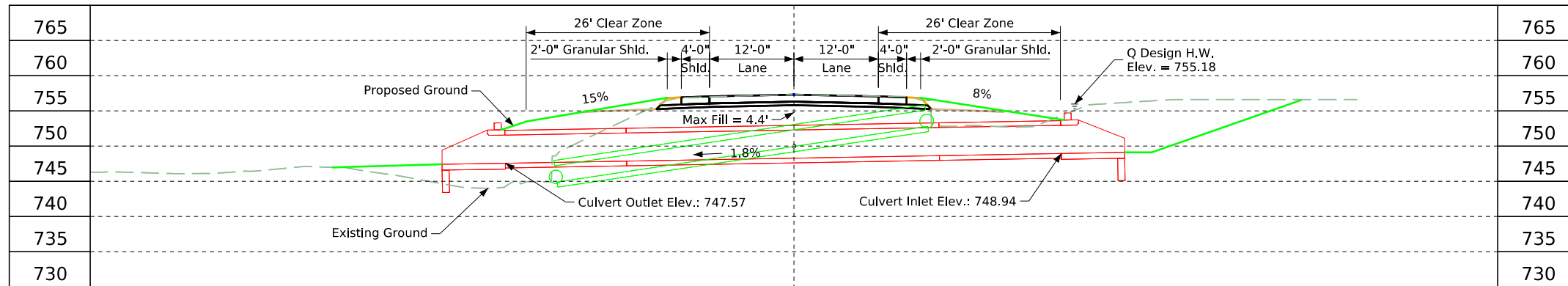
IOWA DEPARTMENT OF TRANSPORTATION

Design No.

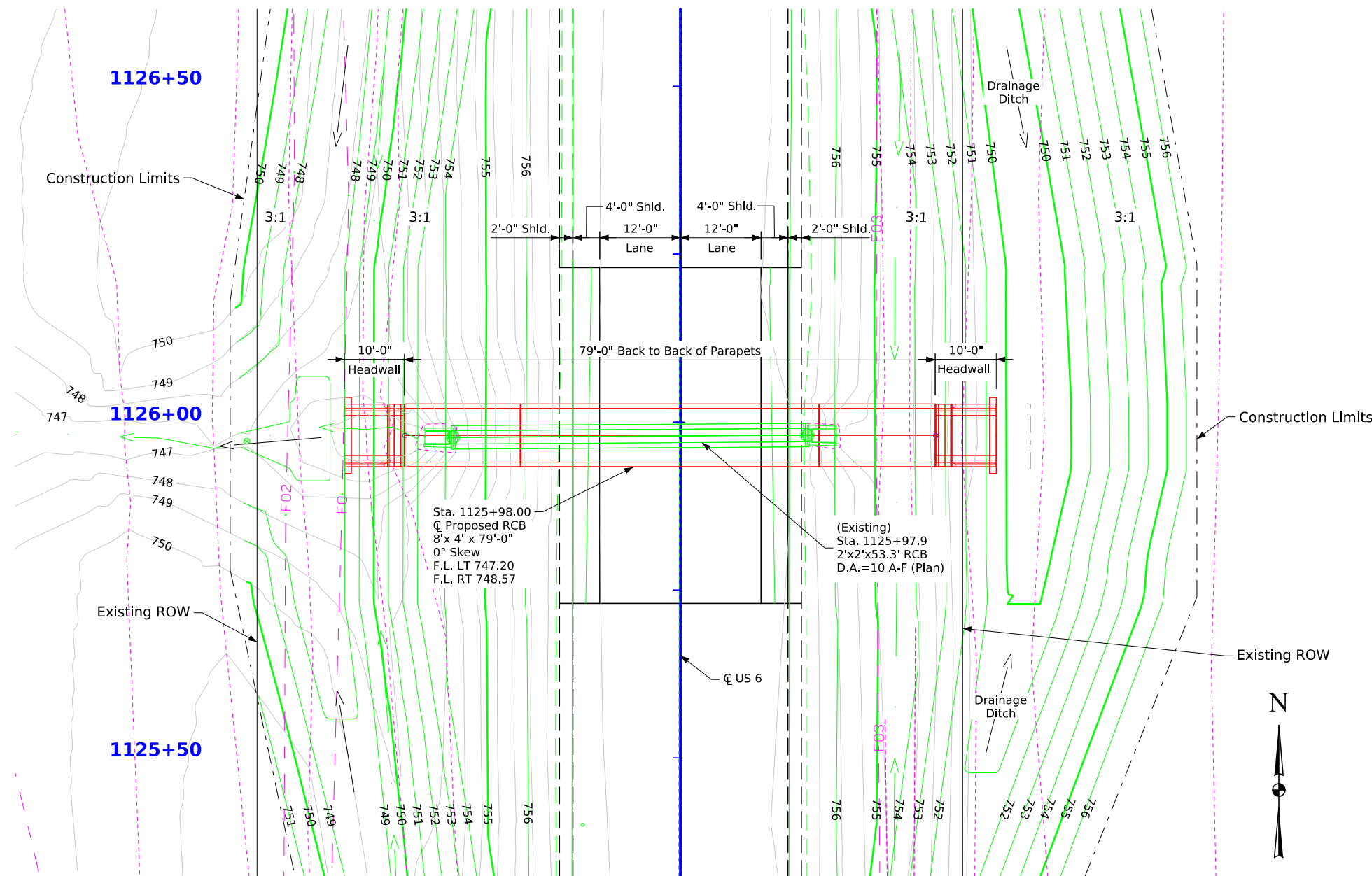
Design Sheet No. 1 of 2

FHWA/Asset

Control Point: Pt. No. 20, N: 7977186.771, E: 20426567.036, Elev: 764.104,
CP SET 5/8 IP Flush w/ Ground Near Top of Back Slope



Longitudinal Section Along C Culvert



Situation Plan

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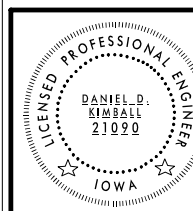
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SAN. - Sanitary Sewer
T - Telephone Line
W - Water Line

FO - Fiber Optic Line
GHP - Gas High Pressure
STS - Storm Sewer
TV - TV
● - Power Poles

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 _____ Date _____
DANIEL D. KIMBALL
Printed or Typed Name _____

My license renewal date is December 31, 2025

Pages or sheets covered by this seal: _____

Design For 0 Deg.
8' x 4' x 79'-0"
Precast RCB

Situation Plan - PC

STA. 1125+98.00 (US 6)

Turn-in Date:

Iowa County

IOWA DEPARTMENT OF TRANSPORTATION

Design No.

Design Sheet No. 2 of 2

FHWA/Asset

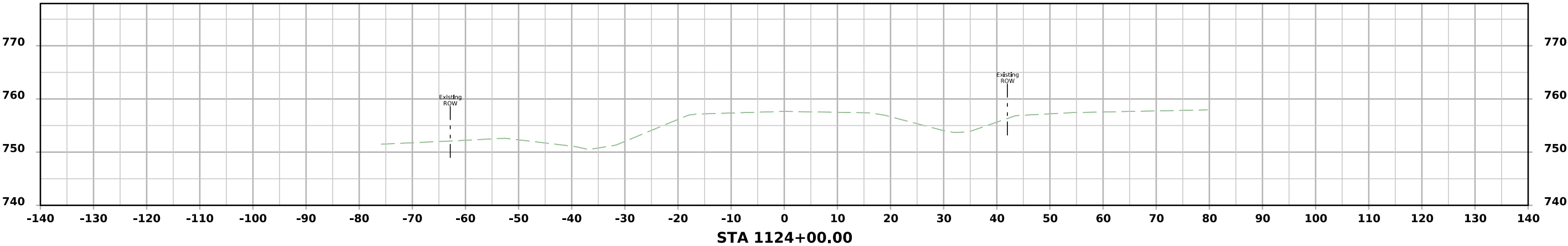
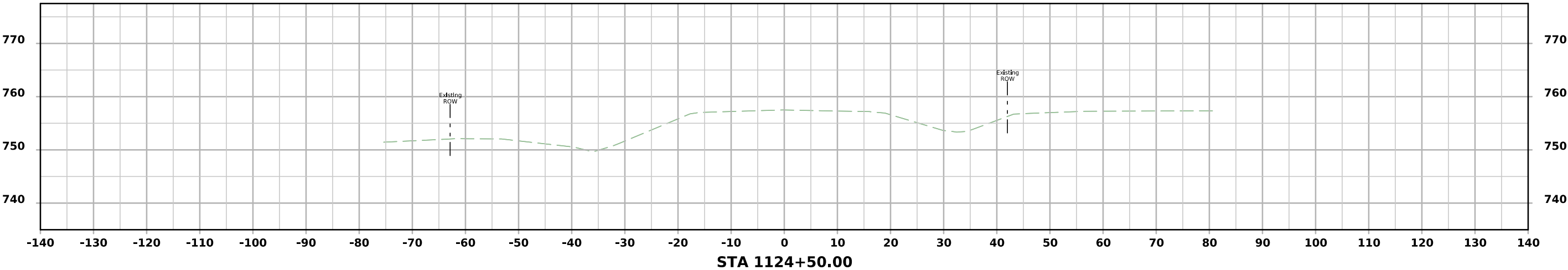
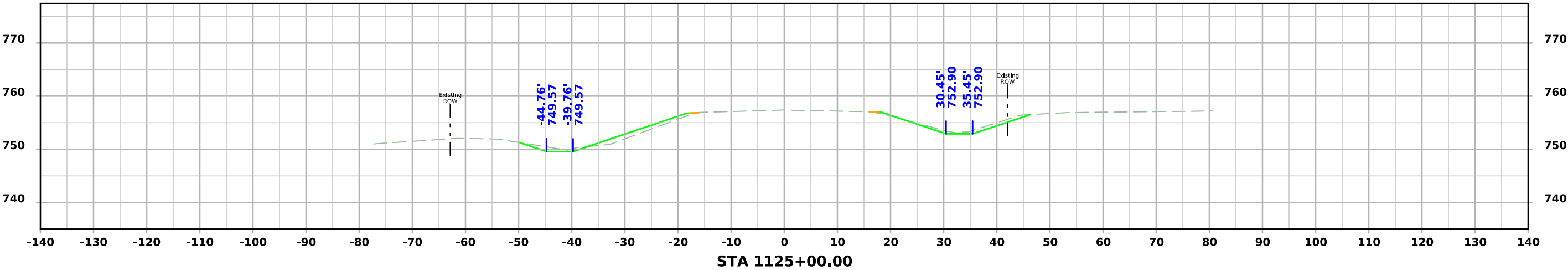
CROSS SECTION VIEW COLOR LEGEND			
Design Color No.	Feature	Design Color No.	Feature
Aggregate		Structural	
(64)	Choke Stone	(112)	Noise Wall
(42)	Engineering Fabric	(112)	Noise Wall Footing
(8)	Flooded Backfill	(112)	Retaining Wall Back
(92)	Macadam Stone	(112)	Retaining Wall Back Excavate
(20)	Modified	(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:

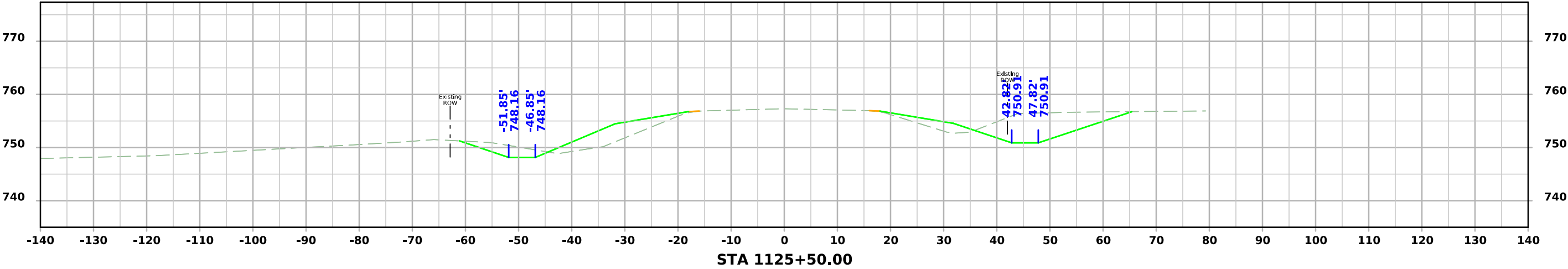
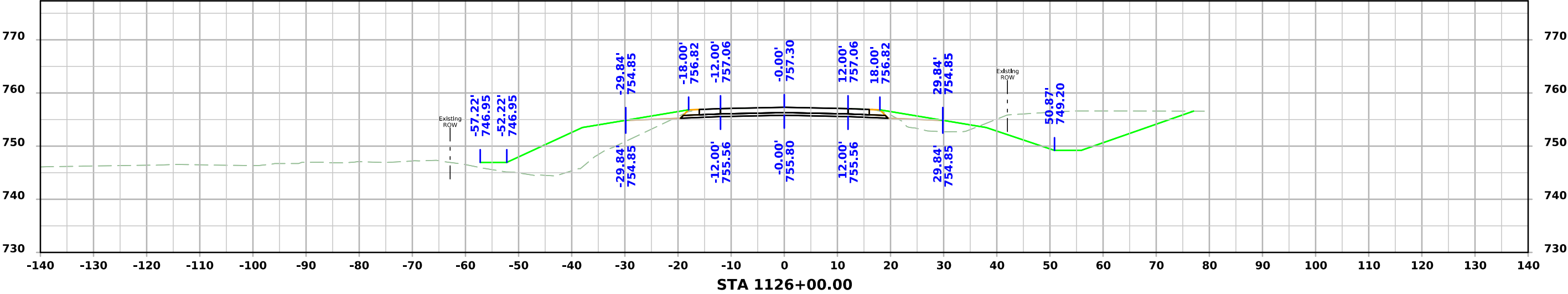
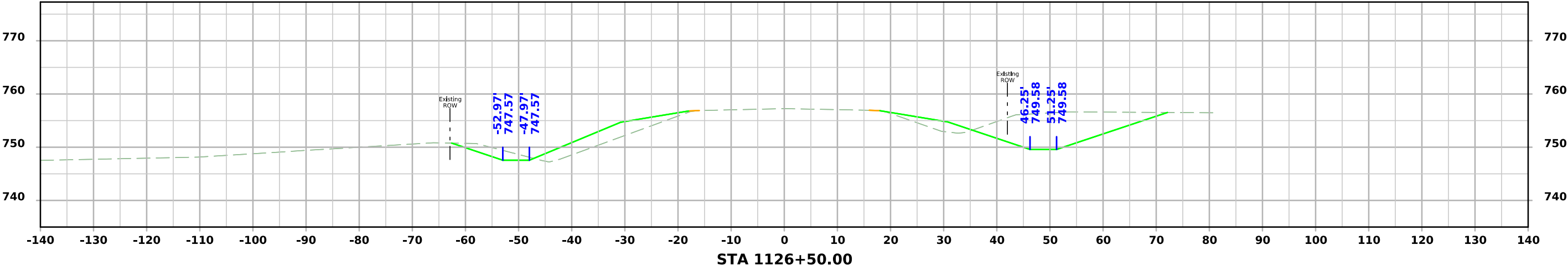
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CROSS SECTIONS
LEGEND AND INFORMATION SHEET
(COVERS SHEET SERIES W, X, Y, & Z)

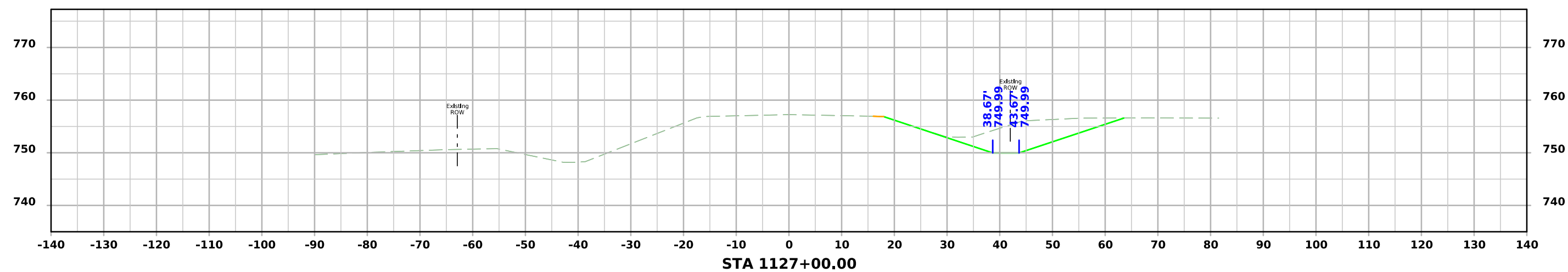
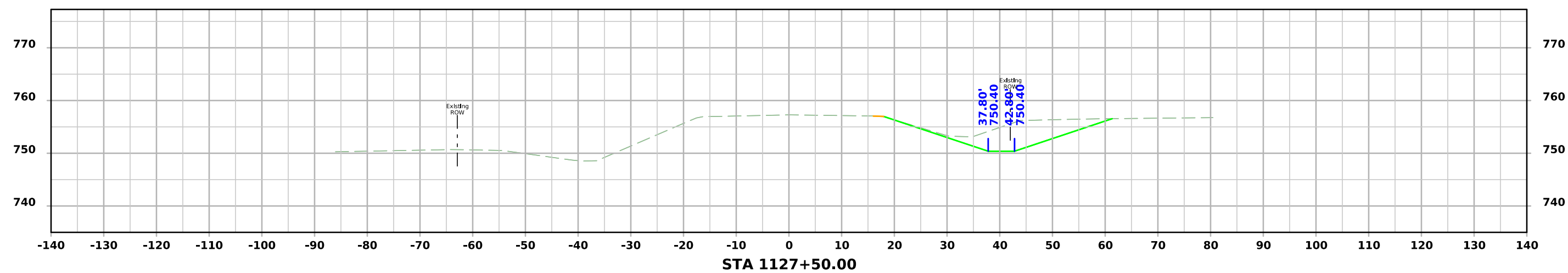
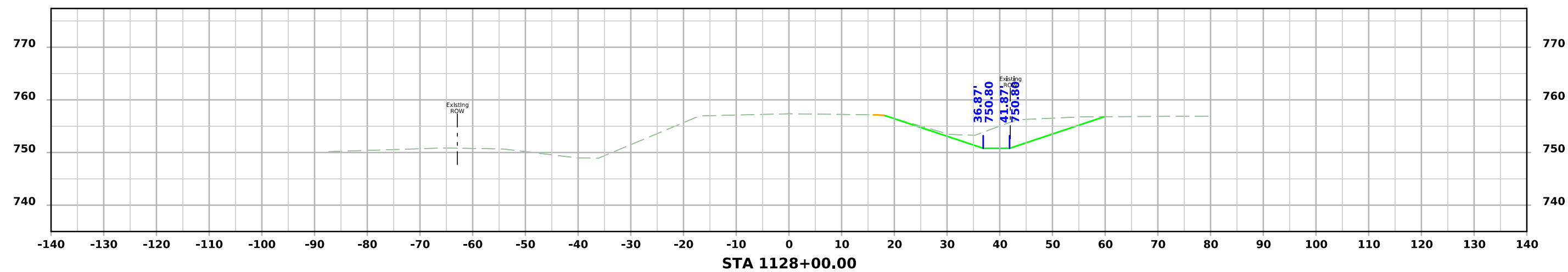
US 6



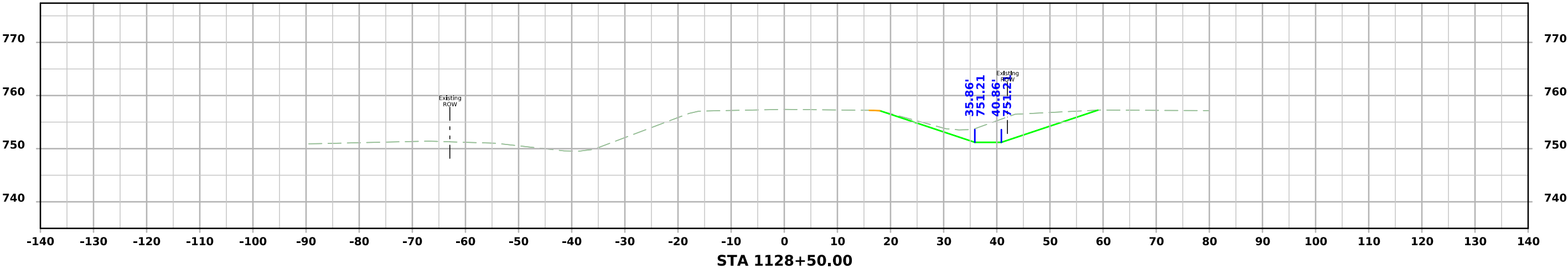
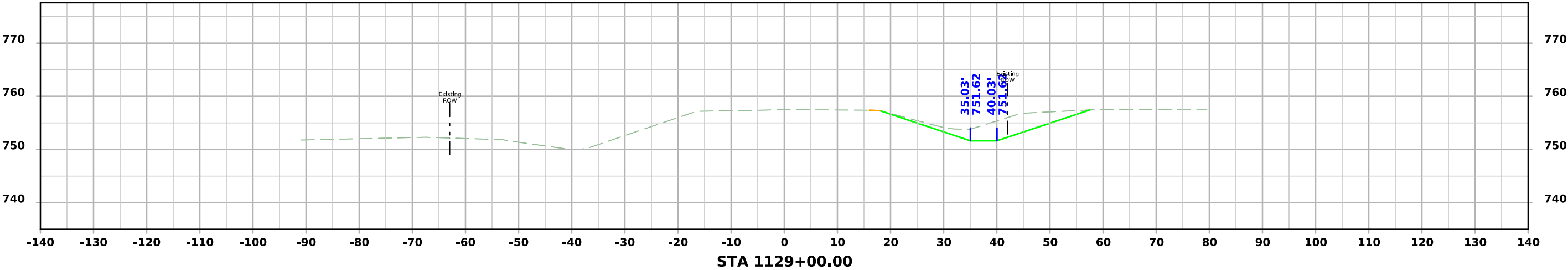
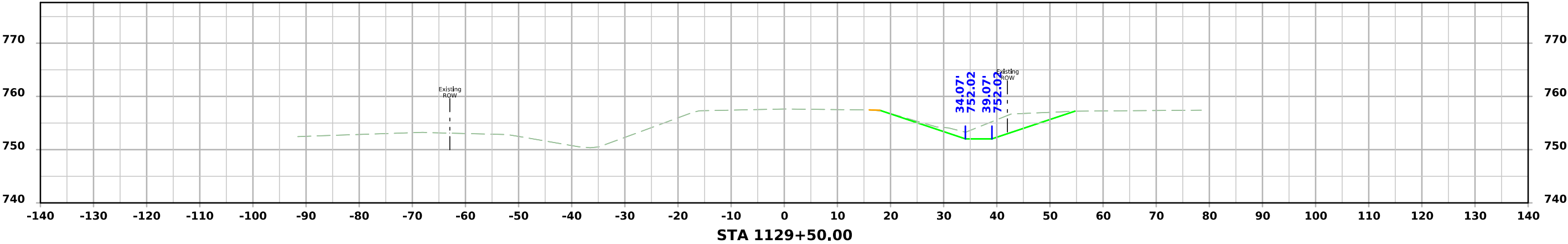
US 6



US 6



US 6



US 6

