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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	US 6 Plan and Profile
G Sheets	Survey Sheets
G.1 - 3	Survey Information <<< H SHEETS
J Sheets	Traffic Control and Staging Sheets
* J.1	Traffic Control Plan
* J.2	Detour Route
* J.3 - 4	Detour Signing Layout
V Sheets	Bridge and Culvert Situation Plans
V.1 - 2	Bridge and Culvert Situation Plans
W Sheets	Mainline Cross Sections
W.1	Cross Sections Legend & Symbol Information Sheet
W.2 - 7	Mainline Cross Sections
	* Color Plan Sheets



PLANS OF PROPOSED IMPROVEMENT ON THE
PRIMARY ROAD SYSTEM
JASPER COUNTY
RCB CULVERT REPLACEMENT

U.S. 6 CULVERT OVER DRAINAGE DITCH
0.5 MILES W OF THE W JCT CO RD T38

Refer to the Proposal Form for list of applicable specifications.

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

The Iowa Department of Transportation Standard Specifications for Highway and Bridge Construction, Series 2023, plus applicable General Supplemental Specifications, Developmental Specifications, Supplemental Specifications and Special Provisions shall apply to construction work on this project.

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811
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REVISIONS

TOTAL	
..	
PROJECT IDENTIFICATION NUMBER	
24-50-006-010	
PROJECT NUMBER	
NHSN-006-4(200)--2R-50	
R.O.W. PROJECT NUMBER	

DESIGN DATA RURAL

2023 AADT 2,480 V.P.D.
TRUCKS 5.85 %

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

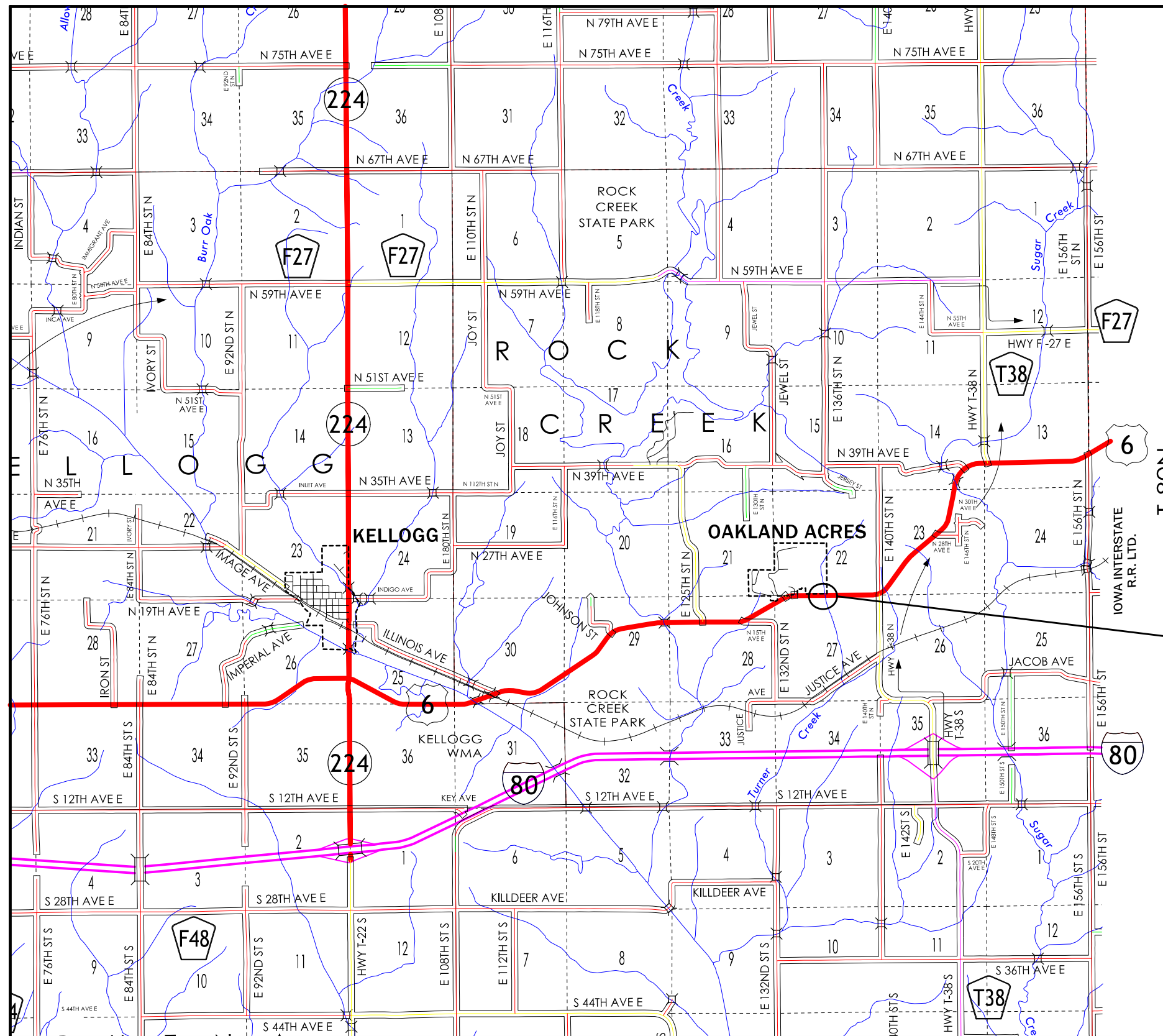
Pages or sheets covered by this seal: _____

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

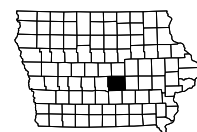
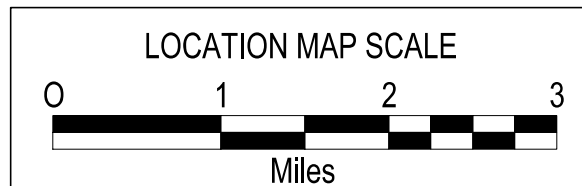
PRELIMINARY PLANS

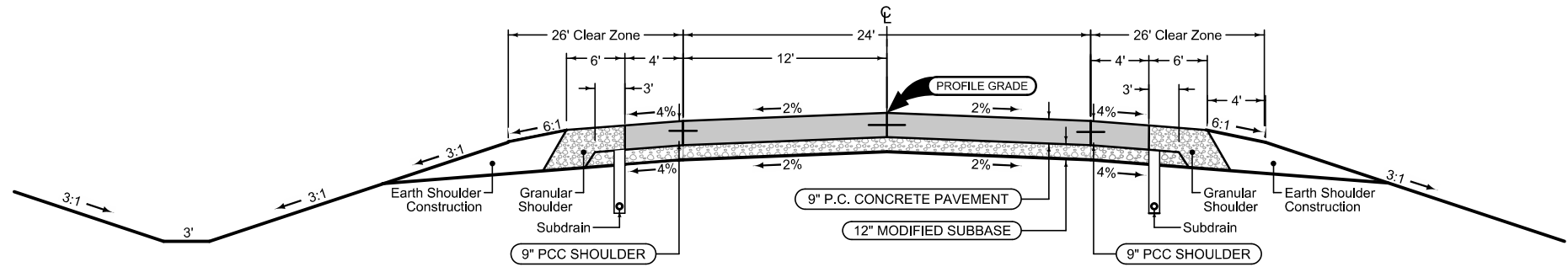
Subject to change by final design.

D5 PLAN - Date: 01/31/2025



PROJECT LOCATION
STA. 2003+42.5





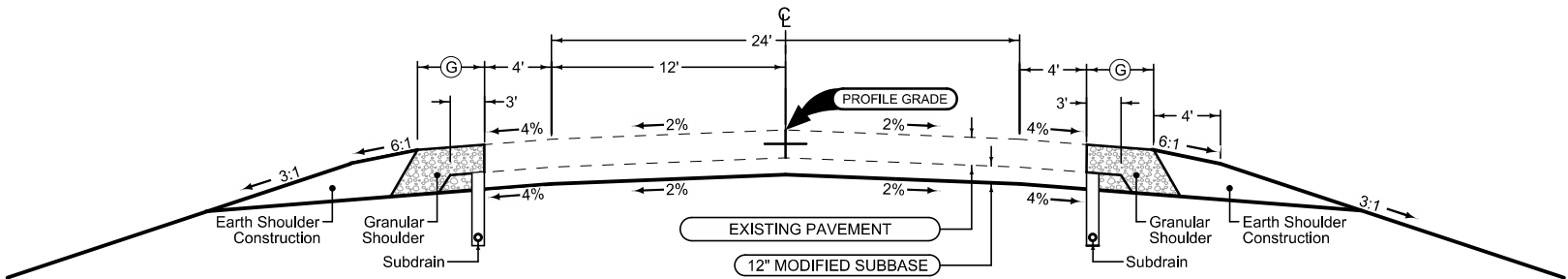
*SEE D-SHEETS FOR DITCH PROFILE

TYPICAL CROSS SECTION - US 6

STATION TO STATION	
2002 + 95.00	2003 + 88.00

Granular Shoulder

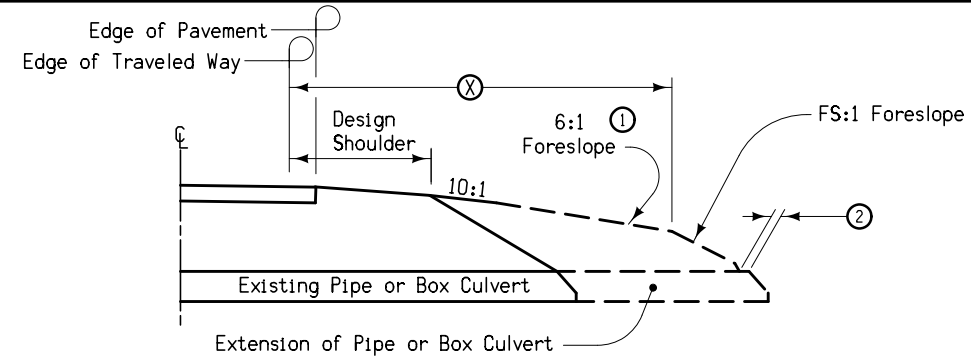
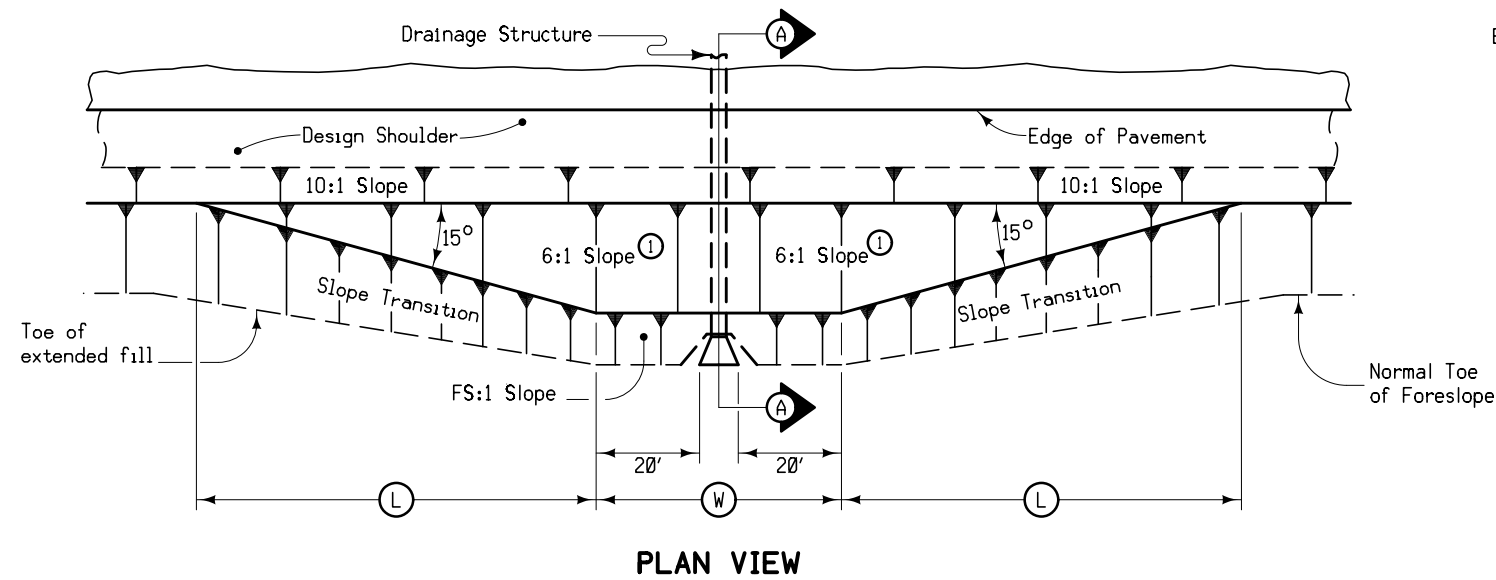
STATION TO STATION		⊕ Feet
2002 + 50.00	2002 + 95.00	6'
2003 + 88.00	2004 + 26.00	6'



TYPICAL CROSS SECTION - US 6

Granular Shoulder

STATION TO STATION		⊕ Feet
2002 + 50.00	2002 + 95.00	6'
2003 + 88.00	2004 + 26.00	6'



SECTION A-A

STRUCTURE LOCATION		(W)	(L)	(X)	(FS)
STATION	SIDE	Feet	Feet	Feet	
2003+42.50	BOTH	52	66	0-26	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 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, Windstream Communications - Quality D
— F02 —	F02D, Aureon Network Services - Quality D
— F03 —	F03D, Unite Private Networks - Quality D
— T1 —	TL1D, Sully Telephone Association - Quality D
— SAN —	Sanitary Sewer, Iowa Regional Utility Association - Quality D
— W —	WL1D, Iowa Regional Utility Association - Quality D
● PPA	Alliant Energy

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

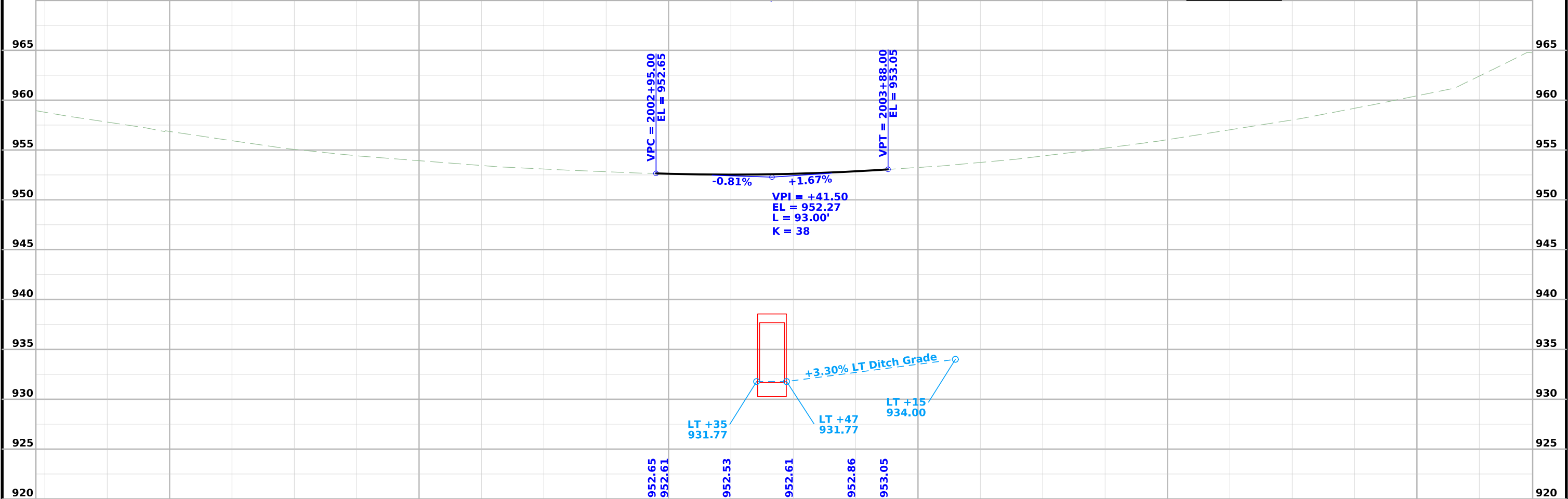
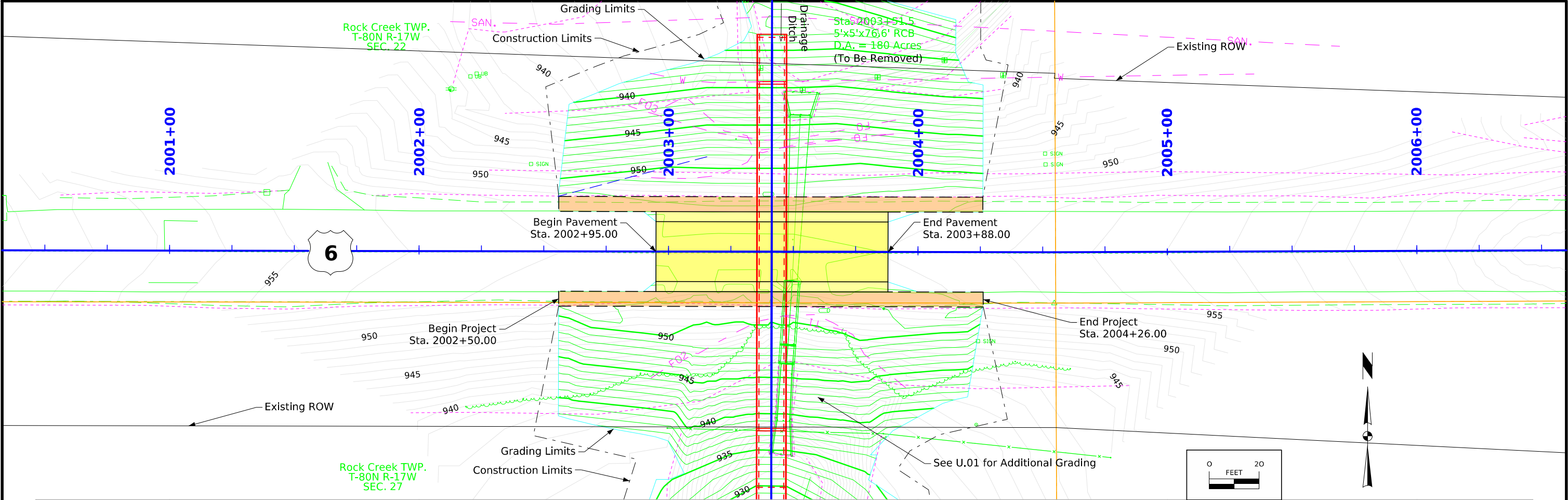
LEFT-OF-WAY LEGEND

	Reference Point
	Station
	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 Symbol
	Proposed Right-of-Way Line
	Existing Right of Way
	Existing and Proposed Right-of-Way
	Easement and Existing Right-of-Way
	Easement (Temporary) Symbol
	Easement (Temporary) Line
	Easement
C/A	Access Control
	Property Line Symbol
	Property Line

PLAN AND PROFILE LEGEND AND SYMBOL INFORMATION SHEET



Survey Information

SURVEY INDEX

County: Jasper
PIN: 24-50-006-010
Project Number: NHSN-006-4(200)—2R-50
Location: 0.5 mi W of the JCT Rd T38
Type of Work: Culvert Replacement
Project Directory: 5000601024

PROJECT DATUM: NAD83(2011) for EPOCH 2010.00 (IaRTN 2019 ADJUSTMENT)
COORDINATE SYSTEM: IOWA REGIONAL COORDINATE SYSTEM ZONE 09
(U.S. SURVEY FOOT)
VERTICAL DATUM: NAVD88
GEOID MODEL: 2018

Alignment Information

Provided by the Iowa DOT.

Survey Personnel

Aaron Mueller – Professional Land Surveyor
Ethan Nicholas – Survey Party Chief
Joel Peters – Survey Member

Date(s) of Survey

Begin Date 11/06/2024
End Date 1/10/2025

General Information

This survey is for US Highway 6 RCB replacement. This survey request was for the US Hwy 6 corridor and existing culvert. 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

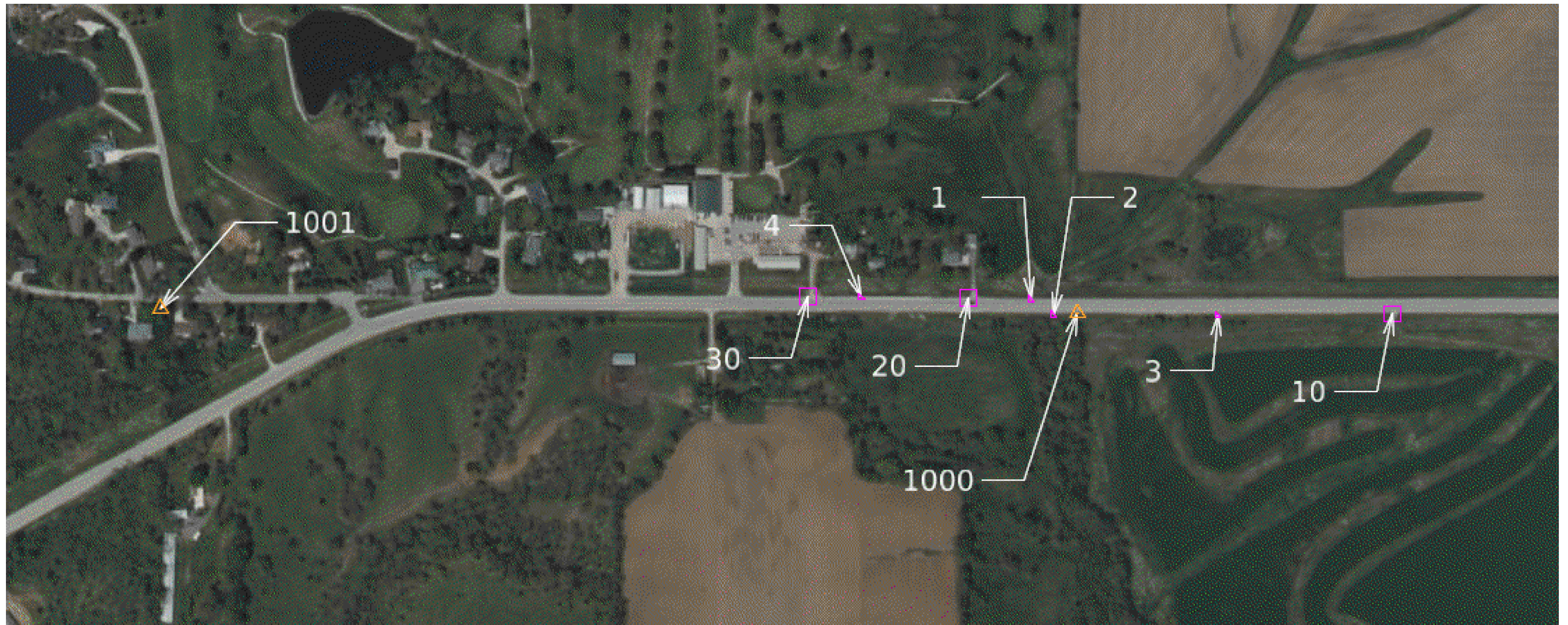
Primary Control: Three 1 Meter FENO monuments were set along US Highway 6, Points 10, 20, and 30. Each point had four six-minute observations using the Iowa RTN, One observation on January 7, 2025 and three observations on January 10, 2025.

Temporary Control: One 3-minute GPS observation using the Iowa RTN was taken on Points 1, 2, 3, and 4. Using the GPS locations, a total station was set on Point 2 and positioned by back sighting Point 3. Points 1, 3, and 4 were then measured for vertical verification or adjustment.

One 3-minute GPS observation was taken on section corner Points 1000 and 1001.

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 09 (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 09 (U.S. Survey Foot)
VERT. DATUM: NAVD88
Geoid Model: 2018u3

Point Number	Northing	Easting	Elevation	Description
1	7734578.054	19500403.8	951.55	CP 1/2" REBAR
2	7734533.537	19500469.4	951.956	CP 1/2" REBAR
3	7734532.479	19500943	973.49	CP 1/2" REBAR
4	7734583.781	19499915.8	970.03	CP 1/2" REBAR
1000	7734535.436	19500537.8	953.329	SCR 3/4" REBAR
1001	7734550.138	19497892.6	977.589	SCR CONC MON W/ BRASS CAP
10	7734534.471	19501447.6	994.3325	FENO
20	7734581.023	19500222.3	954.49725	FENO
30	7734585.052	19499762	978.045	FENO

Jasper

NHSN-006-4(203)--2R-50
0.5 mi W of the W Jct Co Rd T38
[5000601024](#)

Project Code

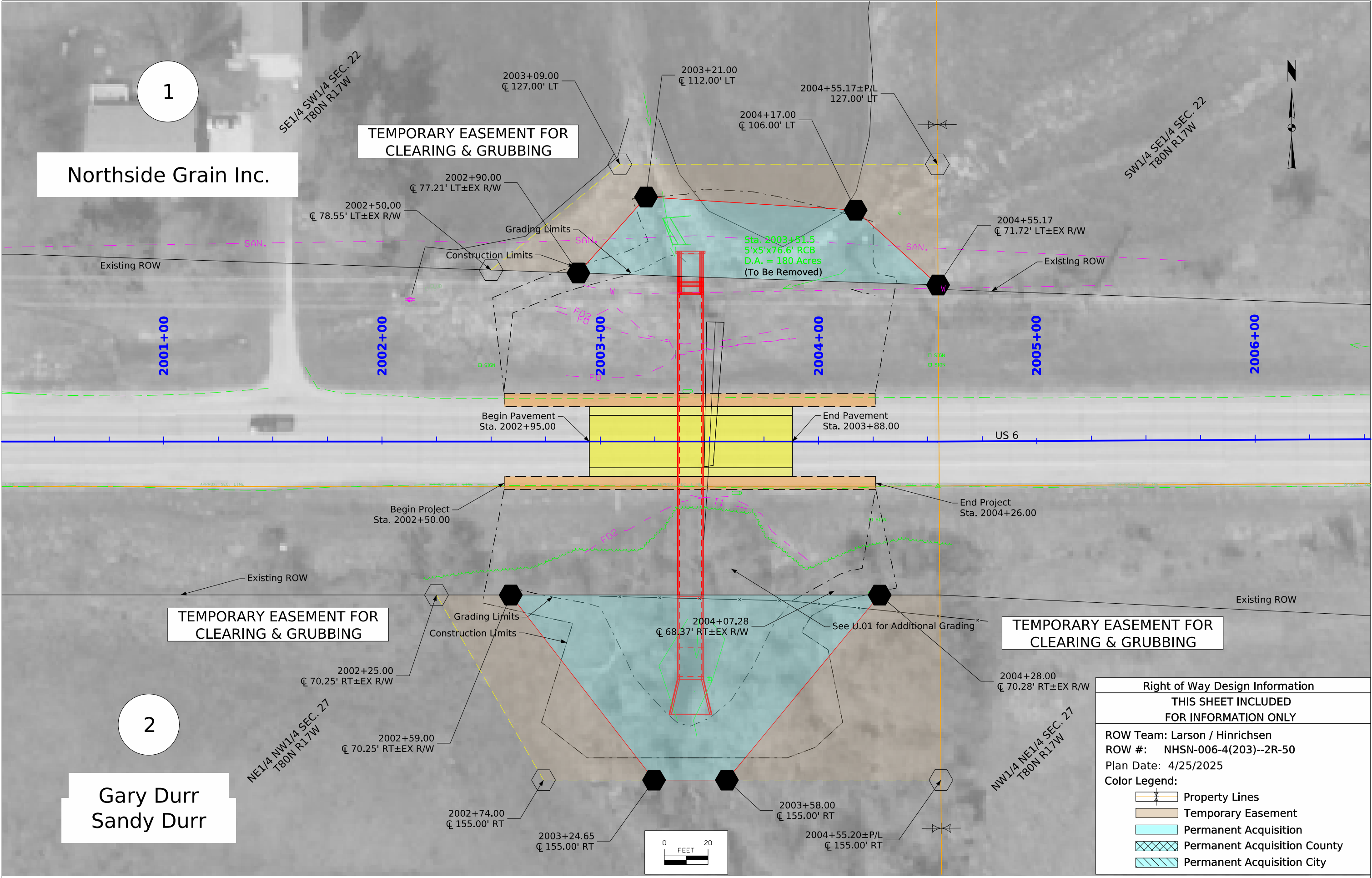
24-50-006-010

Route

US 6

		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	Northside Grain Inc.		4,483.00 SF							4,699.00 SF					
2	Gary & Sandy Durr		0.20 AC							0.20 AC					

2 Parcels



1

Northside Grain Inc.

2

Gary Durr
Sandy Durr

Right of Way Design Information	
THIS SHEET INCLUDED FOR INFORMATION ONLY	
ROW Team: Larson / Hinrichsen	
ROW #: NHSN-006-4(203)--2R-50	
Plan Date: 4/25/2025	
Color Legend:	
	Property Lines
	Temporary Easement
	Permanent Acquisition
	Permanent Acquisition County
	Permanent Acquisition City

511 TRAVEL RESTRICTIONS													108_25 3/28/24
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	Jasper	No Travel Restrictions Expected on Offsite Detour				None					

STAGING NOTES	108_26A 8/15/22
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.	

UTILITIES (POINT 25 PROJECT)	262_05 9/28/22
This is a POINT 25 project and is subject to the provisions of IAC 761-115.25.	

TRAFFIC CONTROL PLAN	108_23A 8/15/22
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.	

COORDINATED OPERATIONS		111_01 10/14/22
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	
NHSN-006-4(200)--2R-50	RCB Culvert Replacement	



A

DETOUR
EAST
6
M4-8
M3-2
M1-4
M5-1R

B

DETOUR
EAST
6
M4-8
M3-2
M1-4
M5-1L

C

DETOUR
EAST
6
M4-8
M3-2
M1-4
M6-1R

D

DETOUR
EAST
6
M4-8
M3-2
M1-4
M6-1L

E

DETOUR
EAST
6
M4-8
M3-2
M1-4
M6-3

F

DETOUR
EAST
6
M4-8
M3-2
M1-4

G

DETOUR
AHEAD
W20-2

H

DETOUR
EAST
6
END
M4-8bP

I

DETOUR
EAST
6
M4-8
M3-2
M1-4
M6-2R

J

DETOUR
EAST
6
M4-8
M3-2
M1-4
M5-2R

K

ROAD CLOSED
R11-2

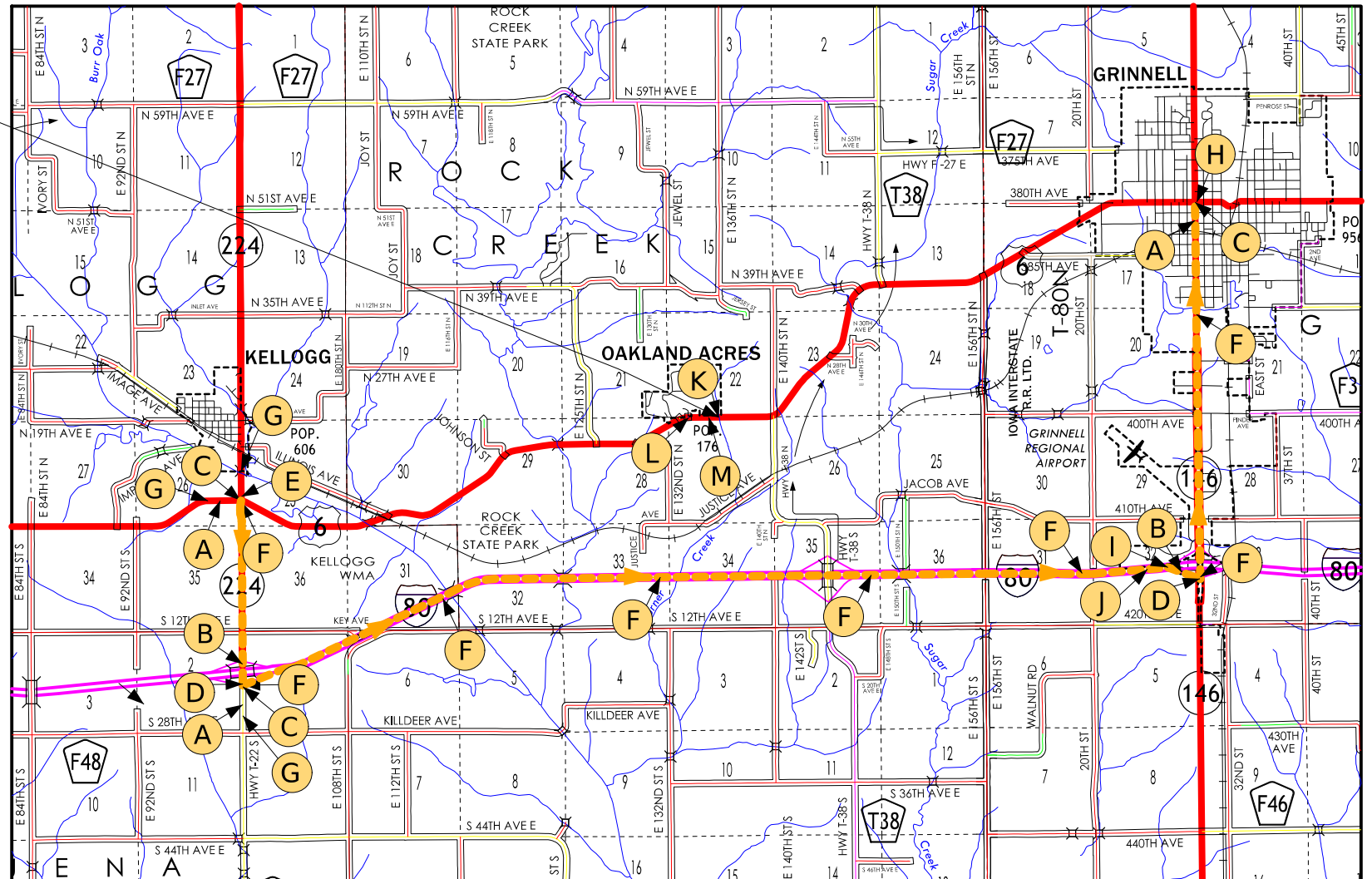
L

ROAD CLOSED
TO THRU TRAFFIC
R11-4

M

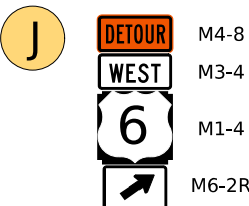
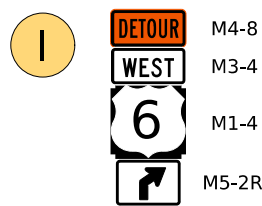
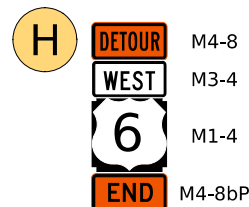
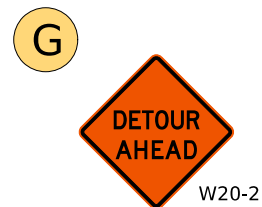
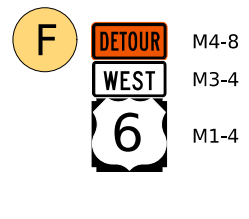
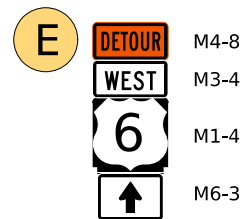
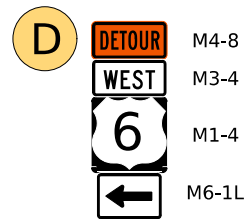
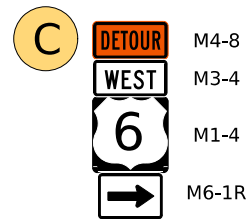
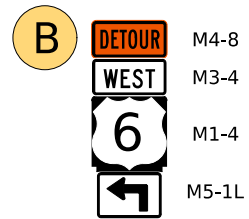
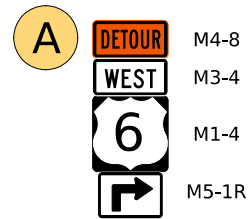
ROAD CLOSED
500 FT
W20-3

PROJECT
LOCATION



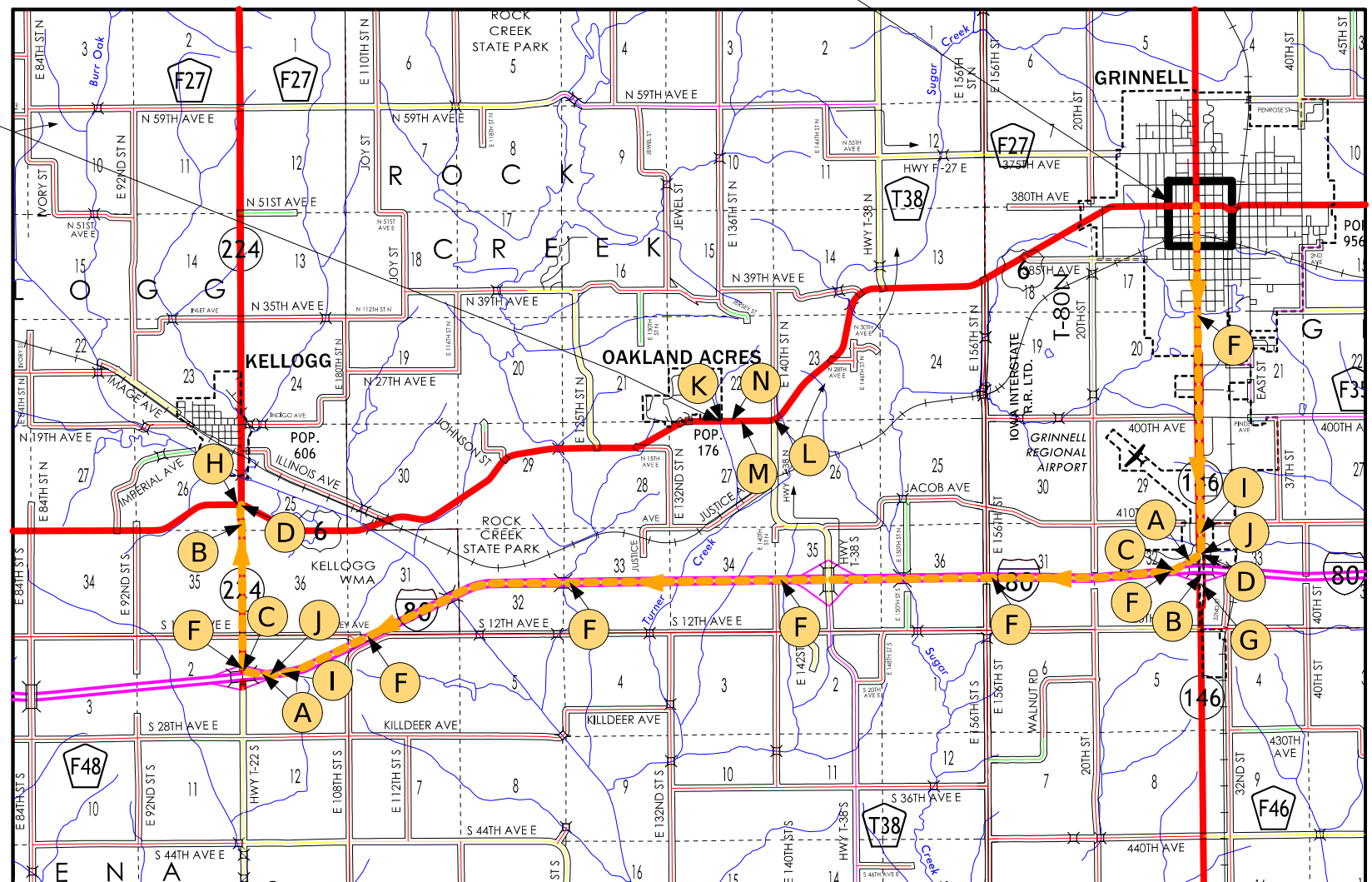
Note: Quantities and locations of detour signs are for guidance and estimating purposes only. Placement of detour signage, if modifications are needed, will be determined in the field by the Project Engineer.

Eastbound Detour
Signing Layout



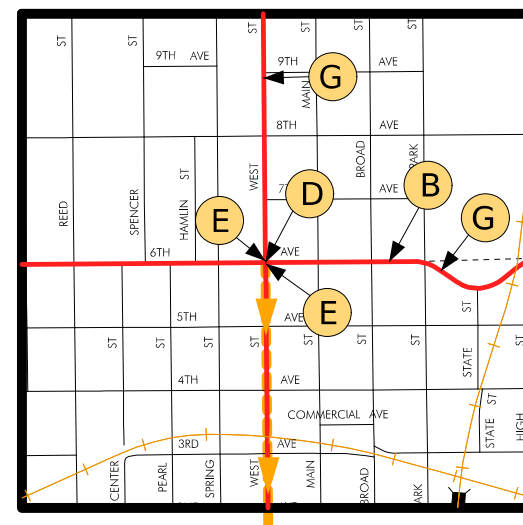
Note: Quantities and locations of detour signs are for guidance and estimating purposes only. Placement of detour signage, if modifications are needed, will be determined in the field by the Project Engineer.

PROJECT LOCATION



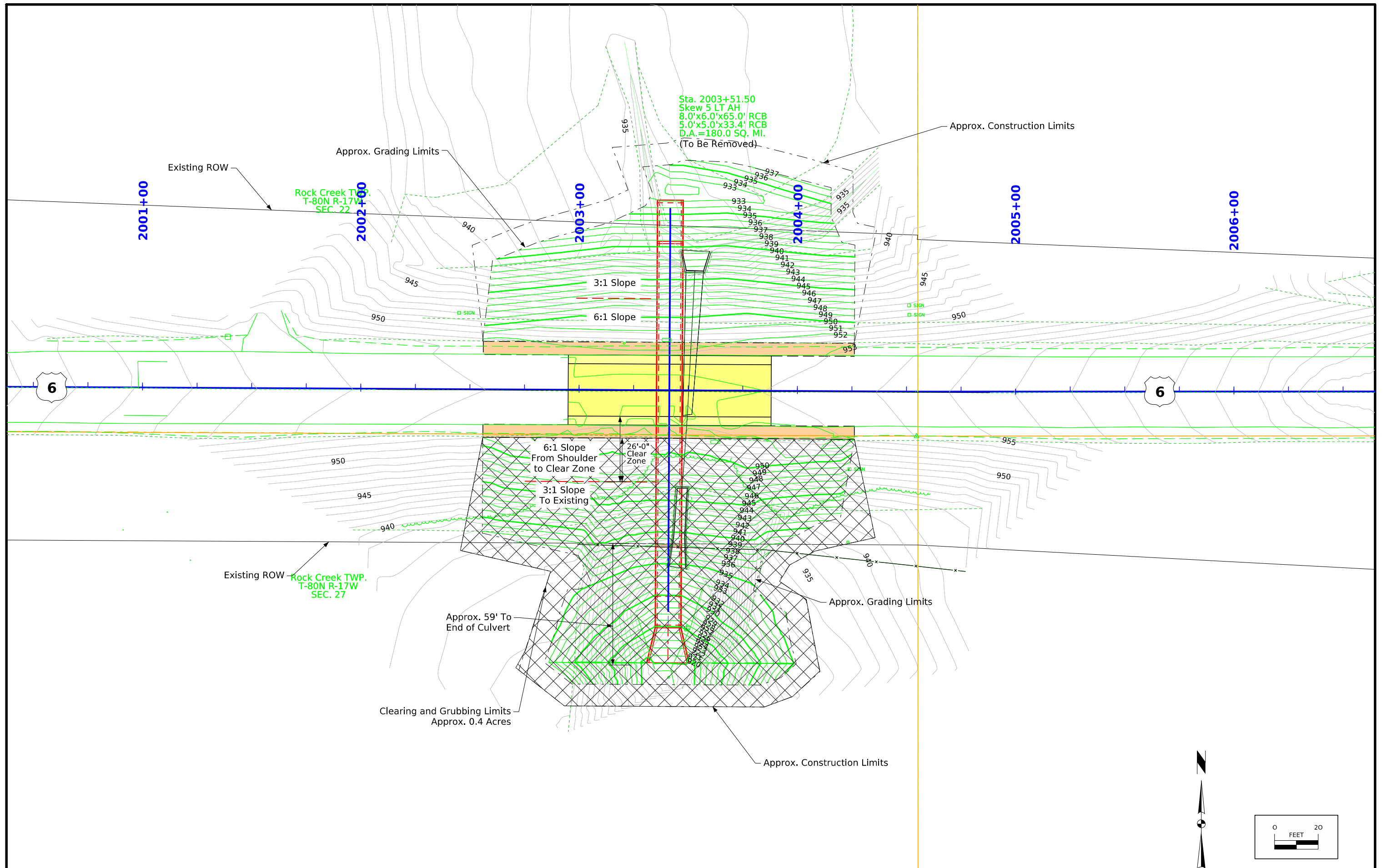
DETAIL A

DETAIL A

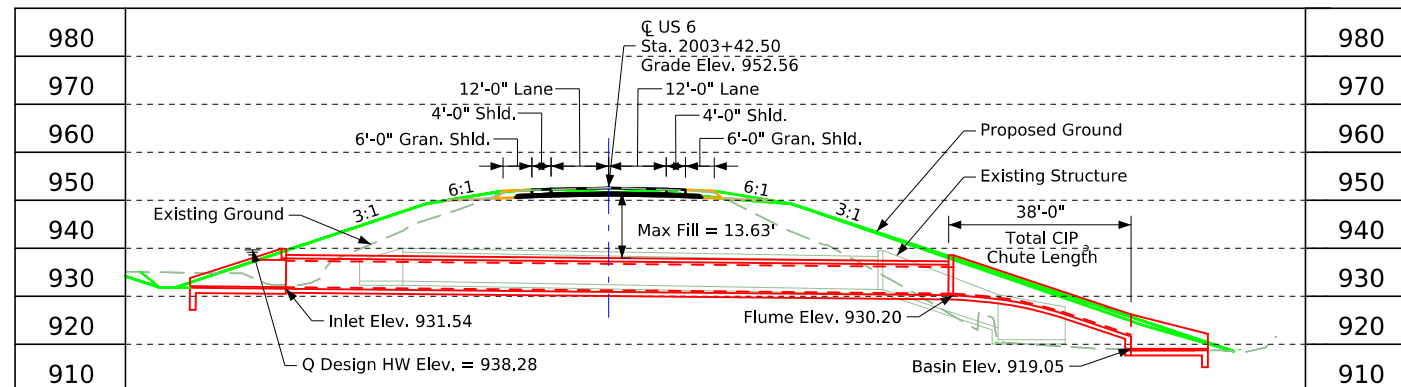


NOT TO SCALE

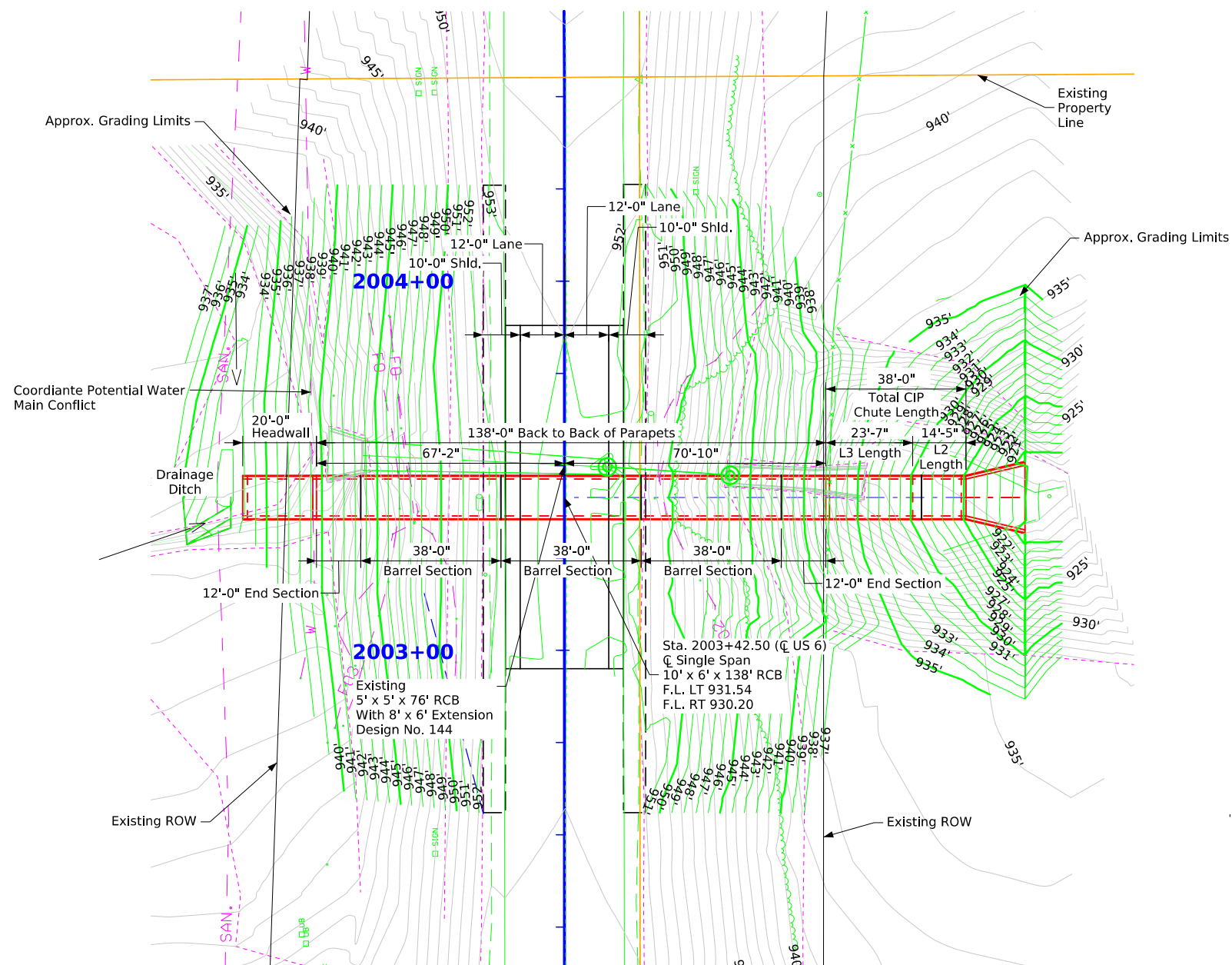
Westbound Detour
Signing Layout



Control Point: 1 Meter FENO Monument w/ Brass Disc
Pnt. No. : 20 N: 7734581.023 E: 19500222.290 Elev: 954.4973



Longitudinal Section Along C Culvert



Situation Plan

General Notes:

This design is for the replacement of the existing 5' x 5' x 76' Reinforced Concrete Box Culvert with a 8' x 6' Extension, Design No. 144

Design Notes:

- US 6 will be closed to traffic during construction and off-site detour will be utilized.

Plan Notes

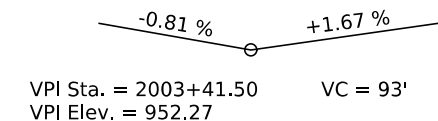
- Drainage through existing culvert must be maintained throughout construction.

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



Proposed Profile Grade on US 6

Hydraulic Data

RIDB: Not Applicable
Drainage Area = 253 Acres
Stream Slope = 75.3 Ft./Mi.
Q₅₀ = 438.36 cfs
HW Elev. = 938.28
Exit Velocity = 15.07 fps

Q₁₀₀ = 531.77 cfs
HW Elev. = 939.19
Exit Velocity = 15.82 fps

Location

U.S. 6 Over Drainage Ditch
T-80N R-17W
Section 22 & 27
Rock Creek Township
Jasper County
Latitude 41.717132°
Longitude -92.815080°

Traffic Estimate

2023 AADT	2,480 V.P.D.
TRUCKS	5.85 %

Hydraulic Design



LICENSED PROFESSIONAL ENGINEER
DANIEL D. KIMBALL
21090
IOWA

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 _____

DANIEL D. KIMBALL

Printed or Typed Name

Date _____

My license renewal date is December 31, 2025

Pages or sheets covered by this seal: _____

Design For 0 Degree

10'-0" x 6'-0" x 138'-0"

Cast-In-Place RCB

Situation Plan - CIP

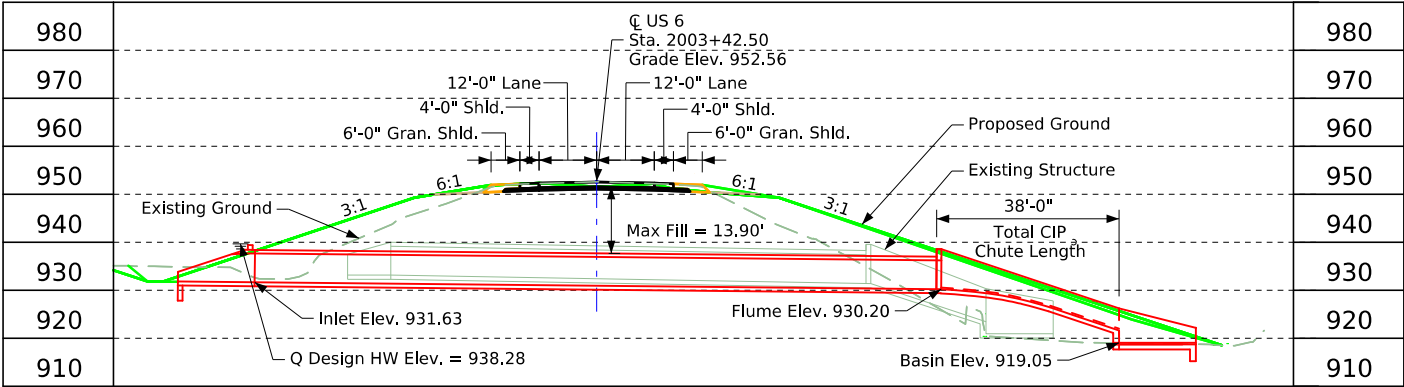
STA. 2003+42.50 (US 6) Turn-in Date: Jan 2026

JASPER County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0425 Design Sheet No. 1 of 1 FHWA/Asset 900885

Control Point: 1 Meter FENO Monument w/ Brass Disc
Pnt. No. : 20 N: 7734581.023 E: 19500222.290 Elev: 954.4973



Longitudinal Section Along Centerline of Culvert

General Notes:

This design is for the replacement of the existing 5' x 5' x 76' Reinforced Concrete Box Culvert with a 8' x 6' Extension, Design No. 144

Design Notes:

- US 6 will be closed to traffic during construction and off-site detour will be utilized.

Plan Notes

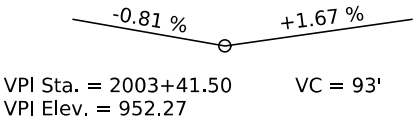
- Drainage through existing culvert must be maintained throughout construction.

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- T - Telephone Line
- W - Water Line
- FO - Fiber Optic Line
- GHP - Gas High Pressure
- ST S - Storm Sewer
- TV - TV
- Power Poles



Proposed Profile Grade on US 6

Hydraulic Data

RIDB: Not Applicable
Drainage Area = 253 Acres
Stream Slope = 75.3 Ft./Mi.
Q₅₀ = 438.36 cfs
HW Elev. = 938.28
Exit Velocity = 15.07 fps

Q₁₀₀ = 531.77 cfs
HW Elev. = 939.19
Exit Velocity = 15.82 fps

Location

U.S. 6 Over Drainage Ditch
T-80N R-17W
Section 22 & 27
Rock Creek Township
Jasper County
Latitude 41.717132°
Longitude -92.815080°

Traffic Estimate

2023 AADT 2,480 V.P.D.
TRUCKS 5.85 %



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: DANIEL D. KIMBALL
Printed or Typed Name: DANIEL D. KIMBALL
My license renewal date is December 31, 2025

Pages or sheets covered by this seal: _____

Design For 0 Degree
10'-0" x 6'-0" x 142'-0"
Precast RCB

Situation Plan - Precast

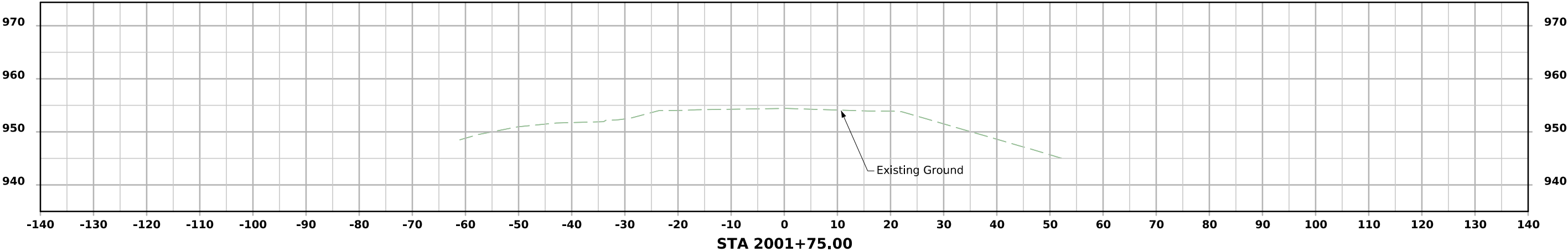
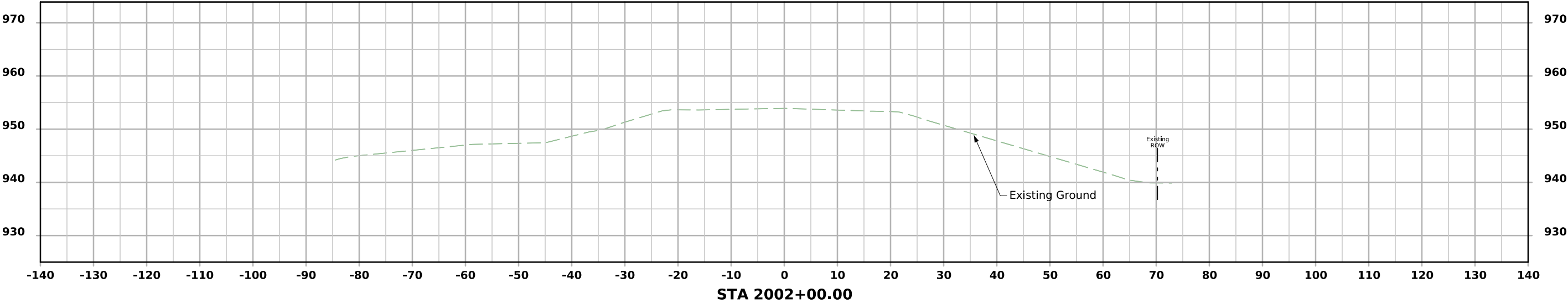
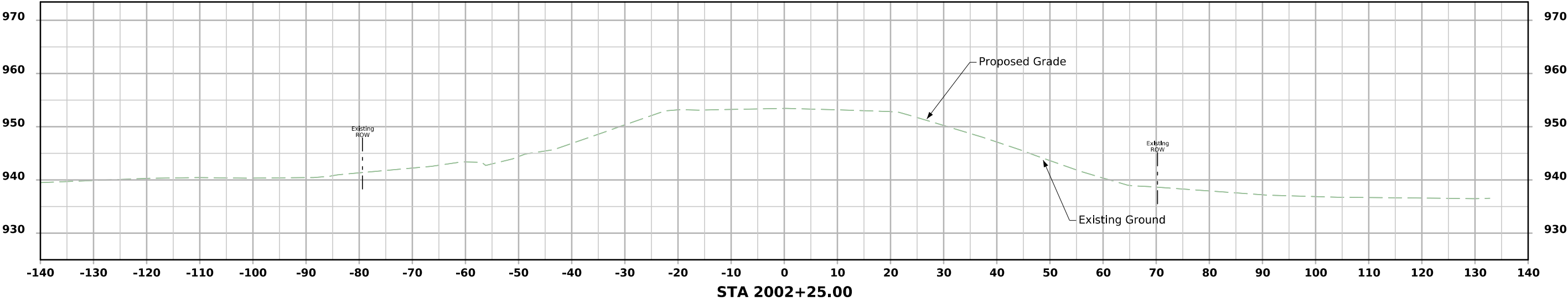
STA. 2003+42.50 (US 6) Turn-in Date: Jan. 2026
JASPER County
IOWA DEPARTMENT OF TRANSPORTATION
Design No. 0425 Design Sheet No. 1 of 1 FHWA/Asset 900885

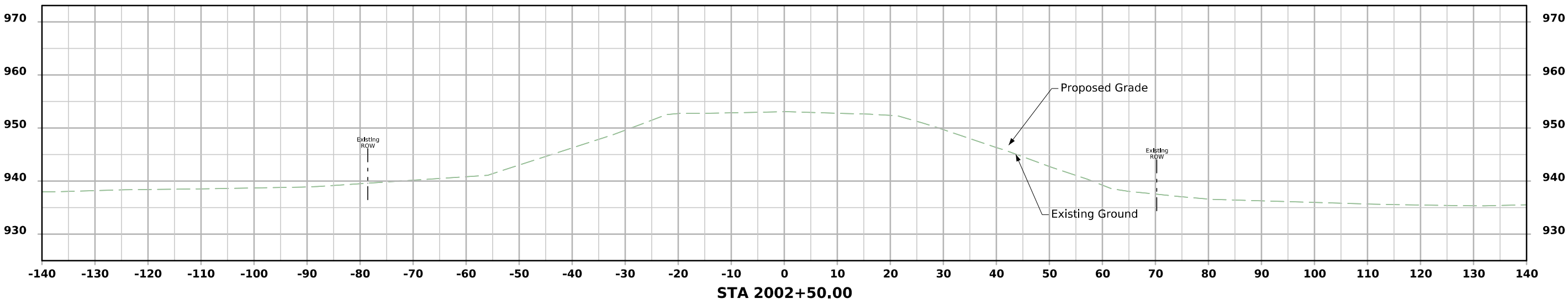
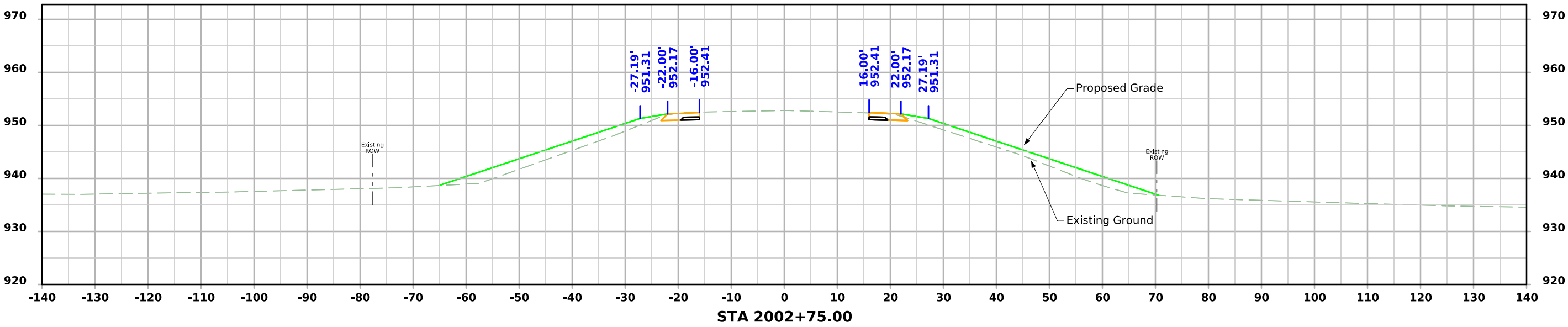
CROSS SECTION VIEW COLOR LEGEND			
Design Color No.	Feature	Design Color No.	Feature
Aggregate		Grading	
(64)	Choke Stone	(8)	Behind Curb Cut
(42)	Engineering Fabric	(6)	Granular
(8)	Flooded Backfill	(13)	Granular Back Fill
(92)	Macadam Stone	(48)	Rock Undercut
(20)	Modified	(8)	Shoulder Earth Fill
(12)	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		

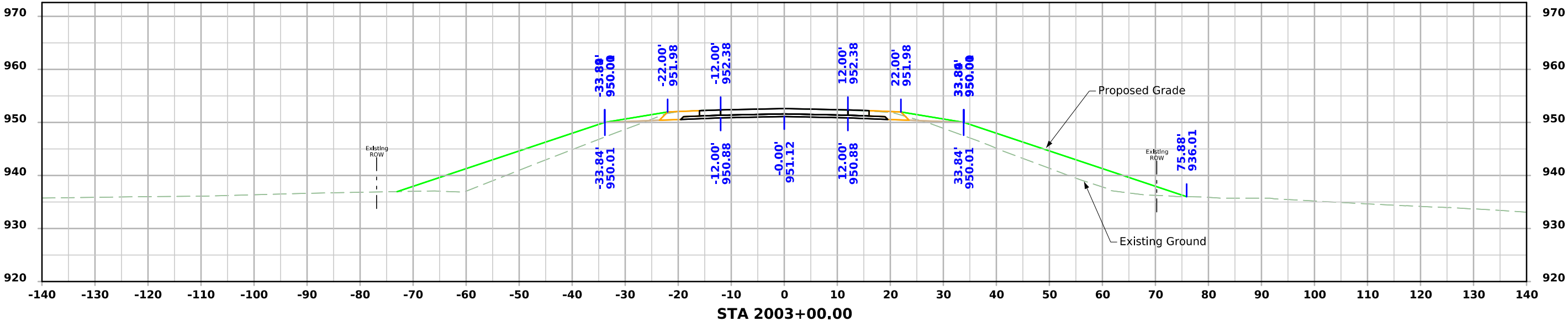
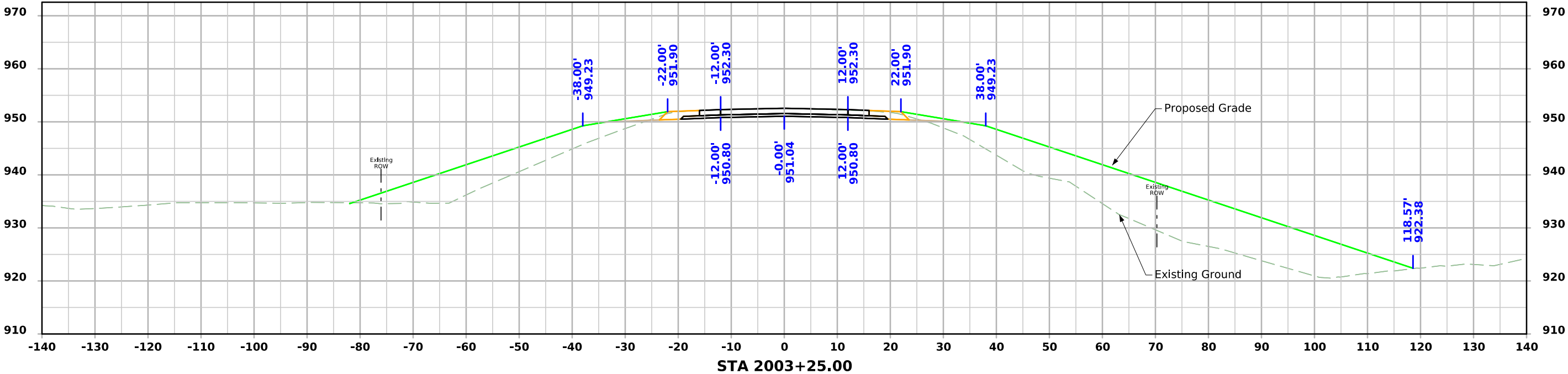
NOTES:

NOTES:

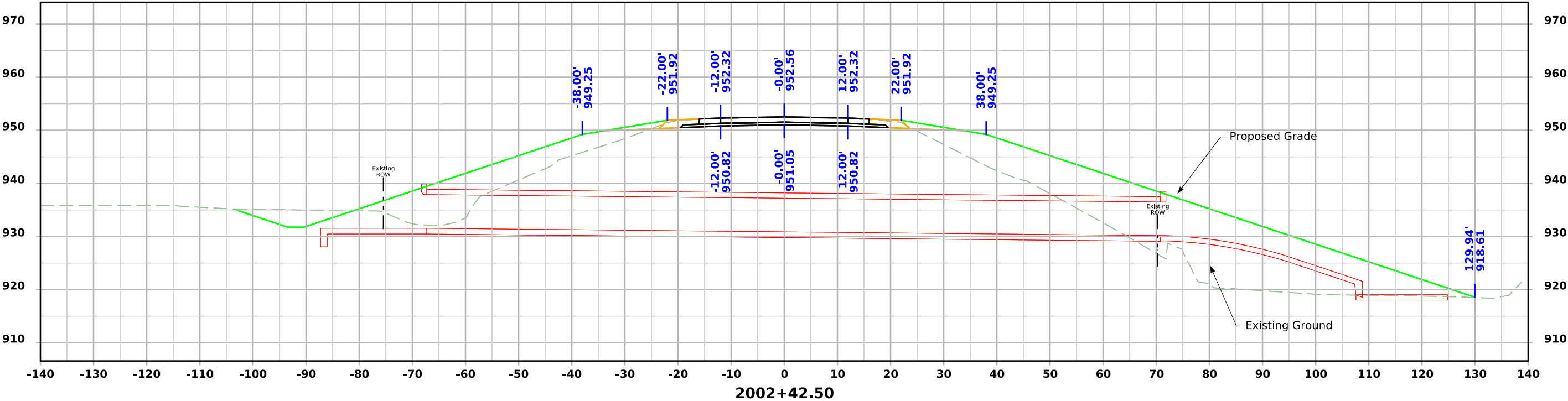
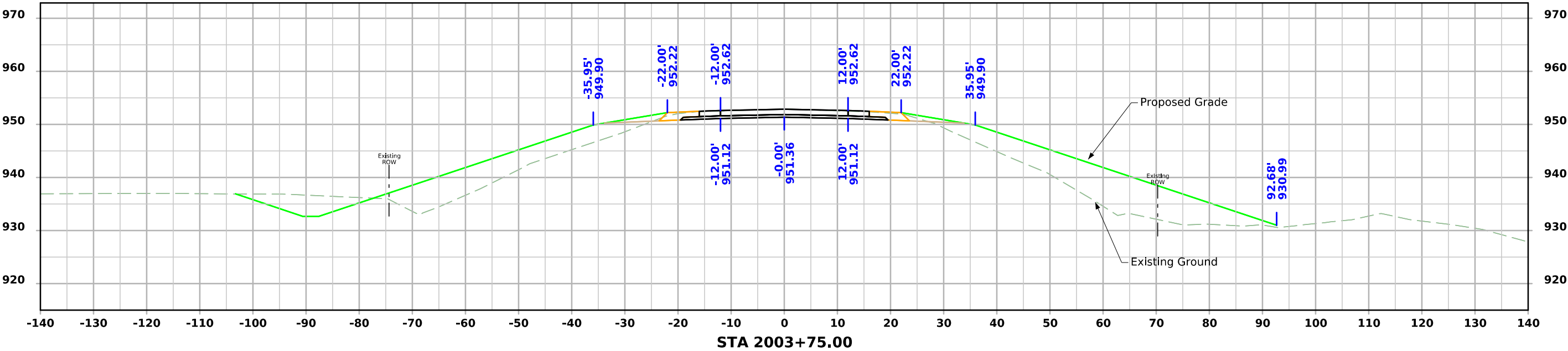
CROSS SECTIONS
LEGEND AND INFORMATION SHEET

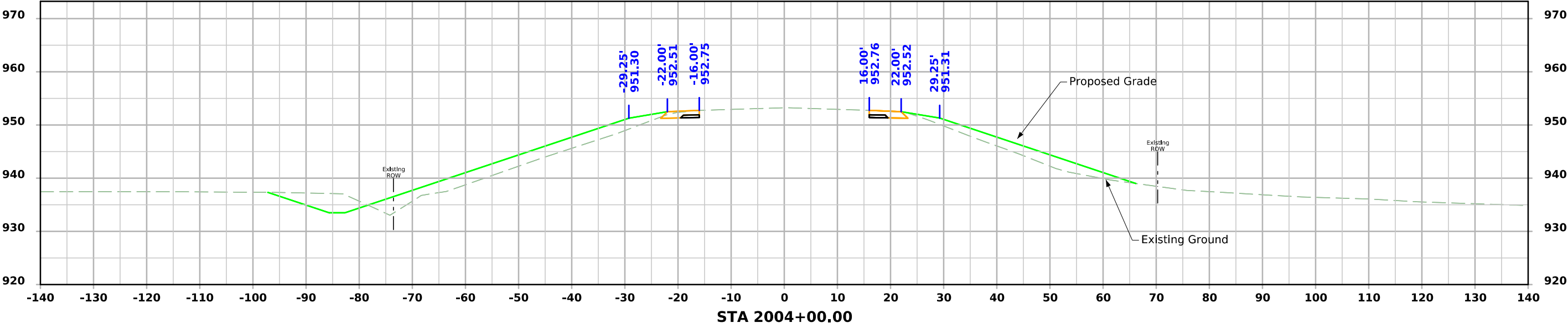
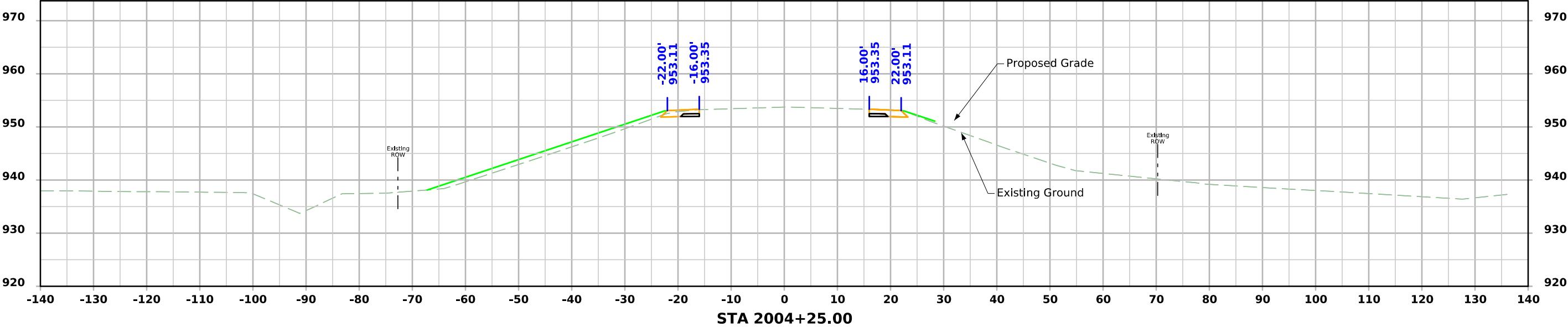






US 6





US 6

