

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 - 3	Typical Cross Sections and Details
D Sheets	Mainline Plan and Profile Sheets
* D.1	Plan & Profile Legend & Symbol Information Sheet
* D.2 - 5	IA 3
E Sheets	Side Road Plan and Profile Sheets
* E.1	R Avenue
G Sheets	Survey Sheets
G.1	Reference Ties and Bench Marks
G.2	Horizontal Control Tab. & Super for all Alignments
J Sheets	Traffic Control and Staging Sheets
* J.1	Traffic Control Plan
* J.2	Traffic Control & Staging Legend & Symbol Info. Sheet
* J.3	Detour Route
V Sheets	Bridge and Culvert Situation Plans
* V.1 - 4	IA 3 over Little Sioux River
* V.5 - 8	Little Sioux River Overflow Bridge
* VW.1 - 2	IA 3 Culvert Cross Sections
* VX.1 - 2	Sideroad Culvert Cross Sections
W Sheets	Mainline Cross Sections
* W.1	Cross Sections Legend & Symbol Information Sheet
* W.2 - 46	Mainline Cross Sections
X Sheets	Side Road Cross Sections
* X.1 - 7	Side Road Cross Sections
* Color Plan Sheets	

H Sheets



PLANS OF PROPOSED IMPROVEMENT ON THE
PRIMARY ROAD SYSTEM
CHEROKEE COUNTY
Preliminary Engineering
1.3 mi E of US 59 to 1.8 mi E of US 59,
including Little Sioux River and Overflow Bridges

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
20-18-003-030
PROJECT NUMBER
NHSX-003-2(78)--3H-18
R.O.W. PROJECT NUMBER
NHSN-003-2(85)--2R-18

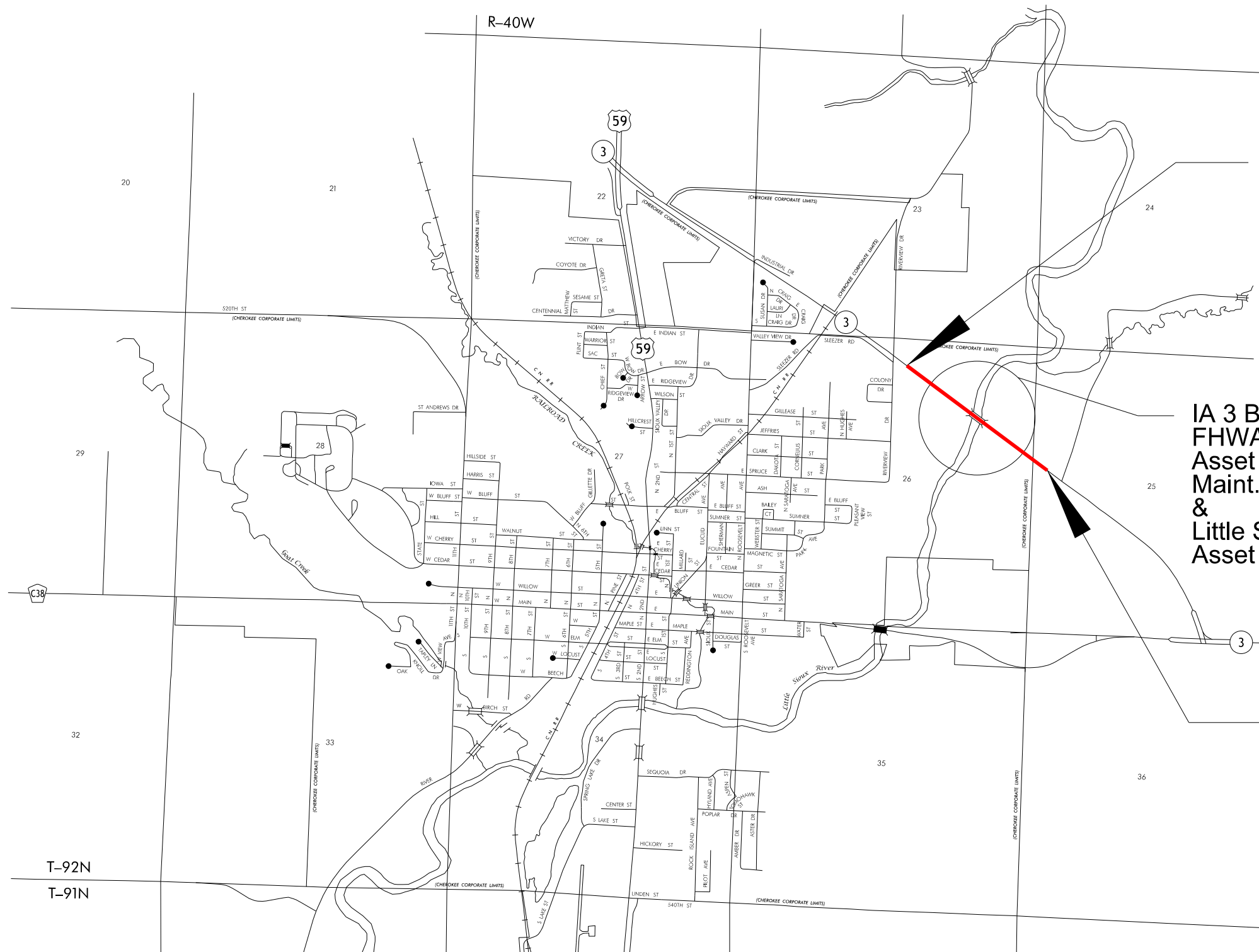
DESIGN DATA RURAL			
2026	AADT	3,400	V.P.D.
2046	AADT	3,500	V.P.D.
20	DHV	--	V.P.H.
TRUCKS		24	%
Total Design ESALs		--	

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

PRELIMINARY PLANS

Subject to change by final design.

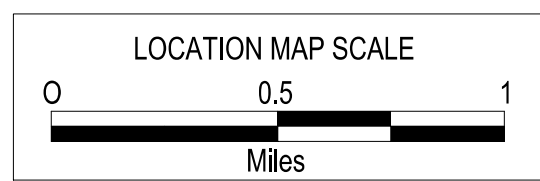
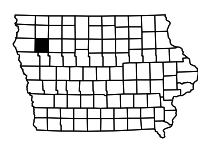
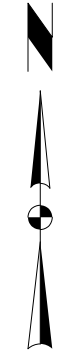
D5 PLAN - Date: 01/05/2023



IA 3
 STA. 945+00.00
 MP 61.94
 BEGIN CONSTRUCTION

IA 3 Bridge Over Little Sioux
 FHWA #19460 (Existing)
 Asset ID / FHWA #19461 (New)
 Maint. #1862.0S003
 &
 Little Sioux River Overflow Bridge
 Asset ID / FHWA #701190 (New)

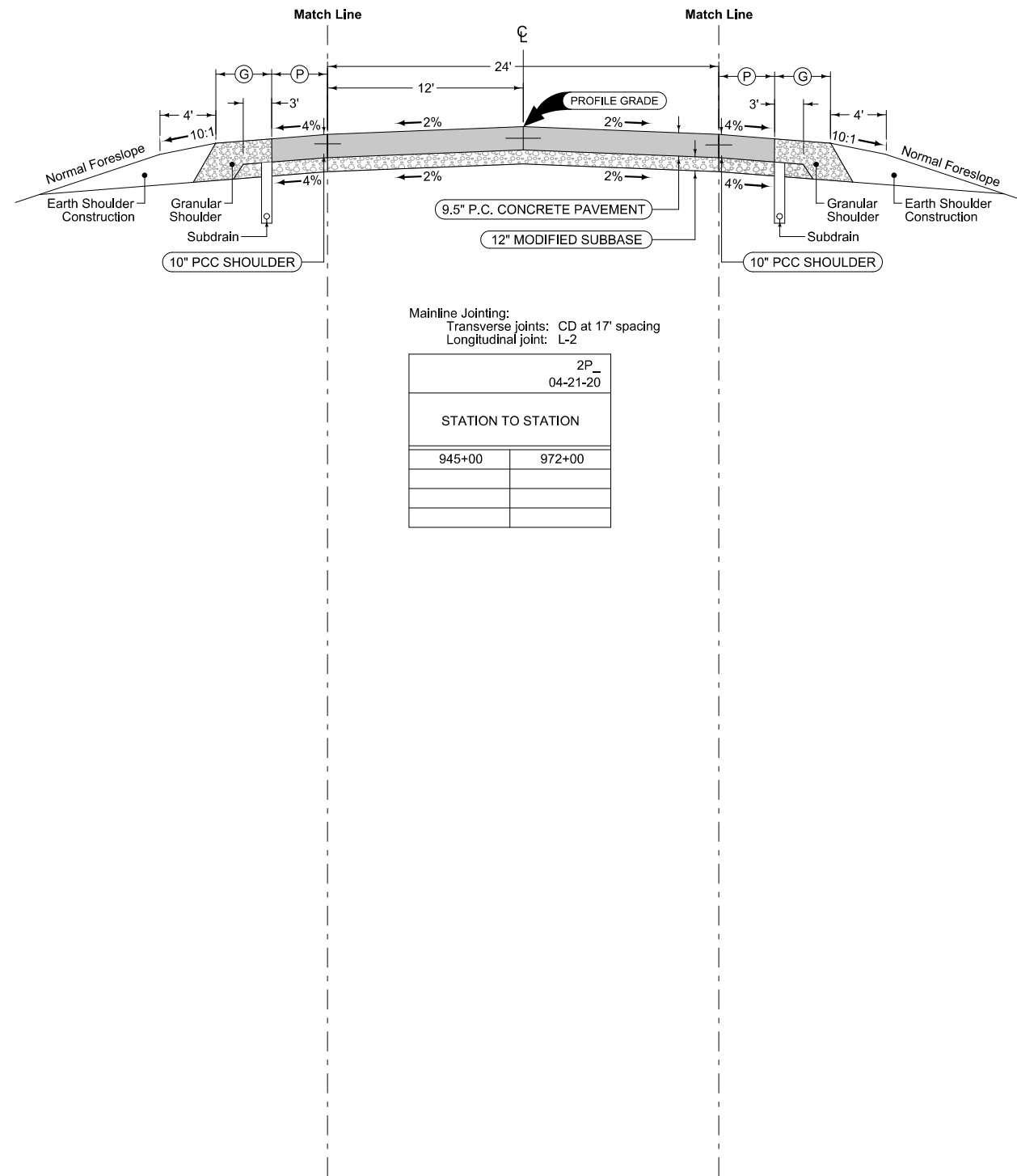
IA 3
 STA. 972+00.00
 MP 62.45
 END CONSTRUCTION



**Full Depth PCC
Combination Shoulder**

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

2_C_FullPCC_04-20-21			
STATION TO STATION		(P) Feet	(G) Feet
945+00	972+00	6	4



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

2P_04-21-20	
STATION TO STATION	
945+00	972+00

**Full Depth PCC
Combination Shoulder**

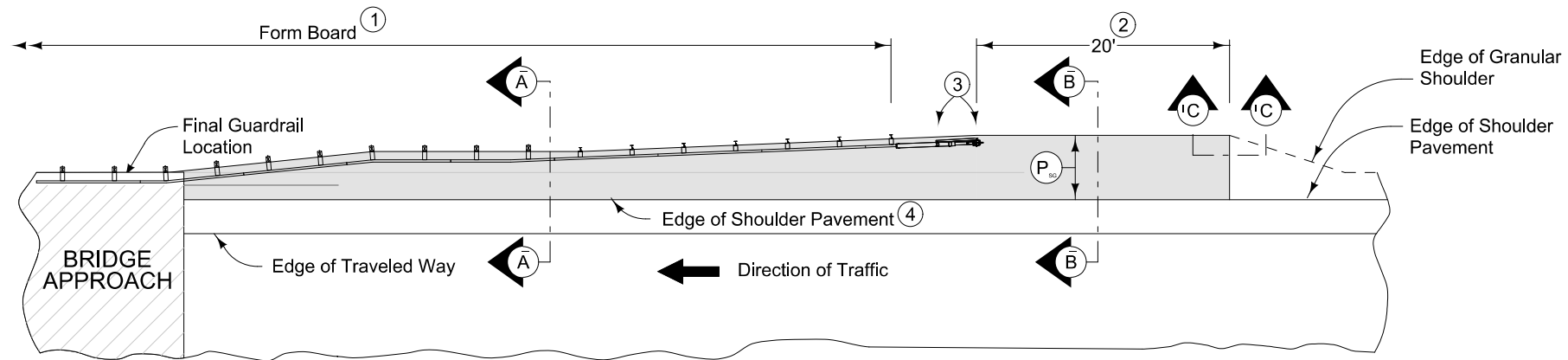
Shoulder Jointing:
Longitudinal joint: BT-2, L-2 or KT-2
Transverse joints: C at 17' spacing

2_C_FullPCC_04-20-21			
STATION TO STATION		(P) Feet	(G) Feet
945+00	972+00	6	4

See Tab 100-24M

See Tab 112-9M for shoulder quantities.

IA HIGHWAY 3



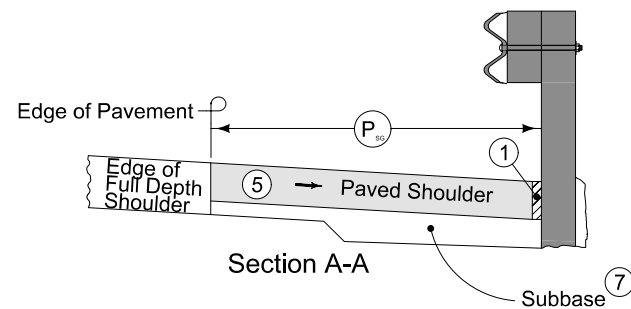
PLAN VIEW

6" PCC Paved Shoulder at guardrail with the following jointing layout:

Match mainline pavement joint spacing. When mainline pavement is 8" or greater in thickness, place additional transverse 'C' joints in shoulder at mid-panel of the mainline pavement. Place longitudinal 'C' joint at P/2 from edge of mainline pavement when P is greater than 10' wide. Terminate longitudinal joint at transverse joint less than 10' in length.

Refer to Tabulation 112-9 for shoulder quantities.

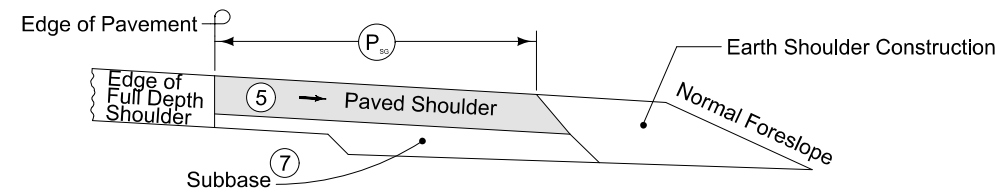
- ① When guardrail posts are installed prior to construction of PCC paved shoulder, fasten form board to the face of guardrail posts for the length shown.
- ② Continue paved shoulder 20 feet beyond the center of the first post.
- ③ Shoulder may be notched for first 2 posts or post sleeves may be installed through pavement. Do not drive posts through pavement.
- ④ 'KT' (per PV-101) joint for PCC shoulder.
- ⑤ Match shoulder slope.
- ⑥ The Contractor has the option to pave the paved shoulder at guardrail and the partial width paved shoulder as one operation.
- ⑦ Refer to other details in the plan.



Section A-A

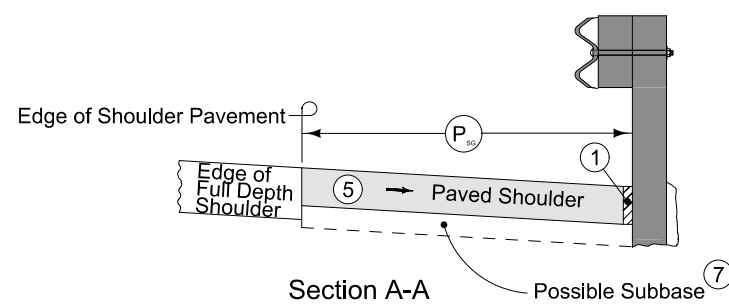
Subbase ⑦

NEW CONSTRUCTION ⑥



Section B-B

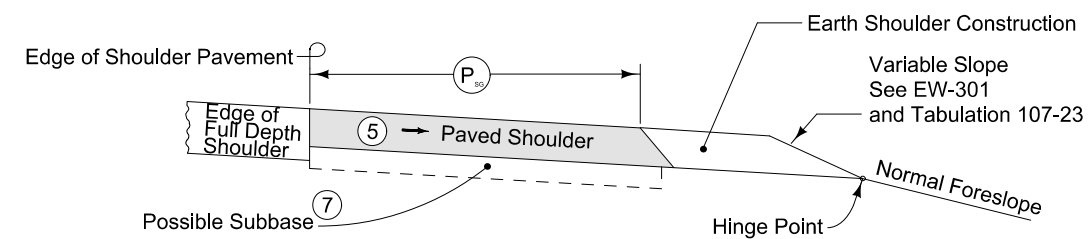
NEW CONSTRUCTION ⑥



Section A-A

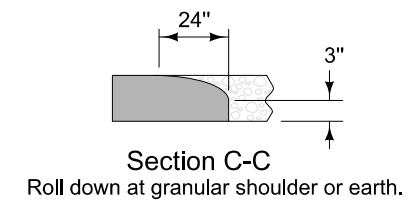
Possible Subbase ⑦

EXISTING SHOULDER



Section B-B

EXISTING SHOULDER



PAVED SHOULDER AT GUARDRAIL
(ADJACENT TO PARTIAL WIDTH PAVED SHOULDER)

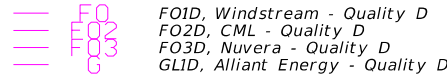
SURVEY SYMBOLS

- 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

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



Alliant Energy (ANW)
 Field Engineer
 800-255-4268
 locate_IPL@alliantenergy.com

City of Cherokee (CKE)
 Mark Napier
 712-225-0668
 cityckwd@ncn.net

CML Telephone Cooperative (CML)
 Bruce Johnson
 712-443-8222
 cmltelco@netins.net

MidAmerican Electric (M13E)
 John Roest
 712-548-6157
 jhroest@midamerican.com

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 Heather Murphy
 712-548-6157
 hrmurphy@midamerican.com

Windstream Communications (MFS)
 Locate Desk
 800-289-1901
 locate.desk@windstream.com

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 Thomas Mier
 712-434-5989
 tommier@nuvera.net

Mediacom (WINIA)
 Mike Lawler
 515-571-2183
 mlawler@mediacomcc.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.	
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

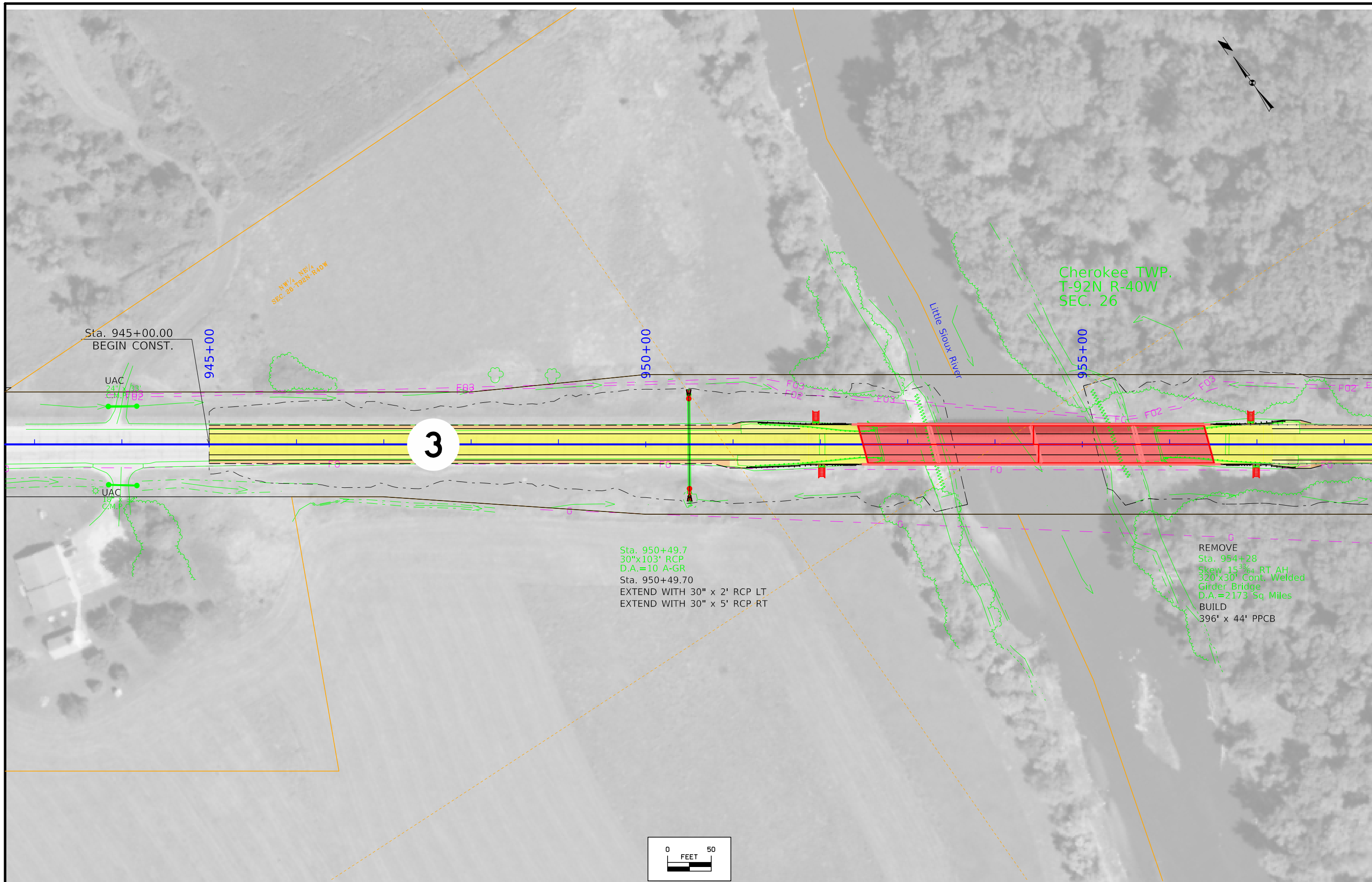
- Reference Point
- Station
- Survey Line
- Section Corner
- Ground Line Intercept
- Saw Cut
- Guardrail
- Trench Drain
- HighTension Cable Guardrail
- Sheet Pile
- Pavement Removal
- Clearing & Grubbing Area

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)



Sta. 945+00.00
BEGIN CONST.

945+00

950+00

955+00

NW/4, NE/4
SEC. 26-T92N-R40W

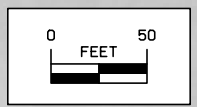
Cherokee TWP.
T-92N R-40W
SEC. 26

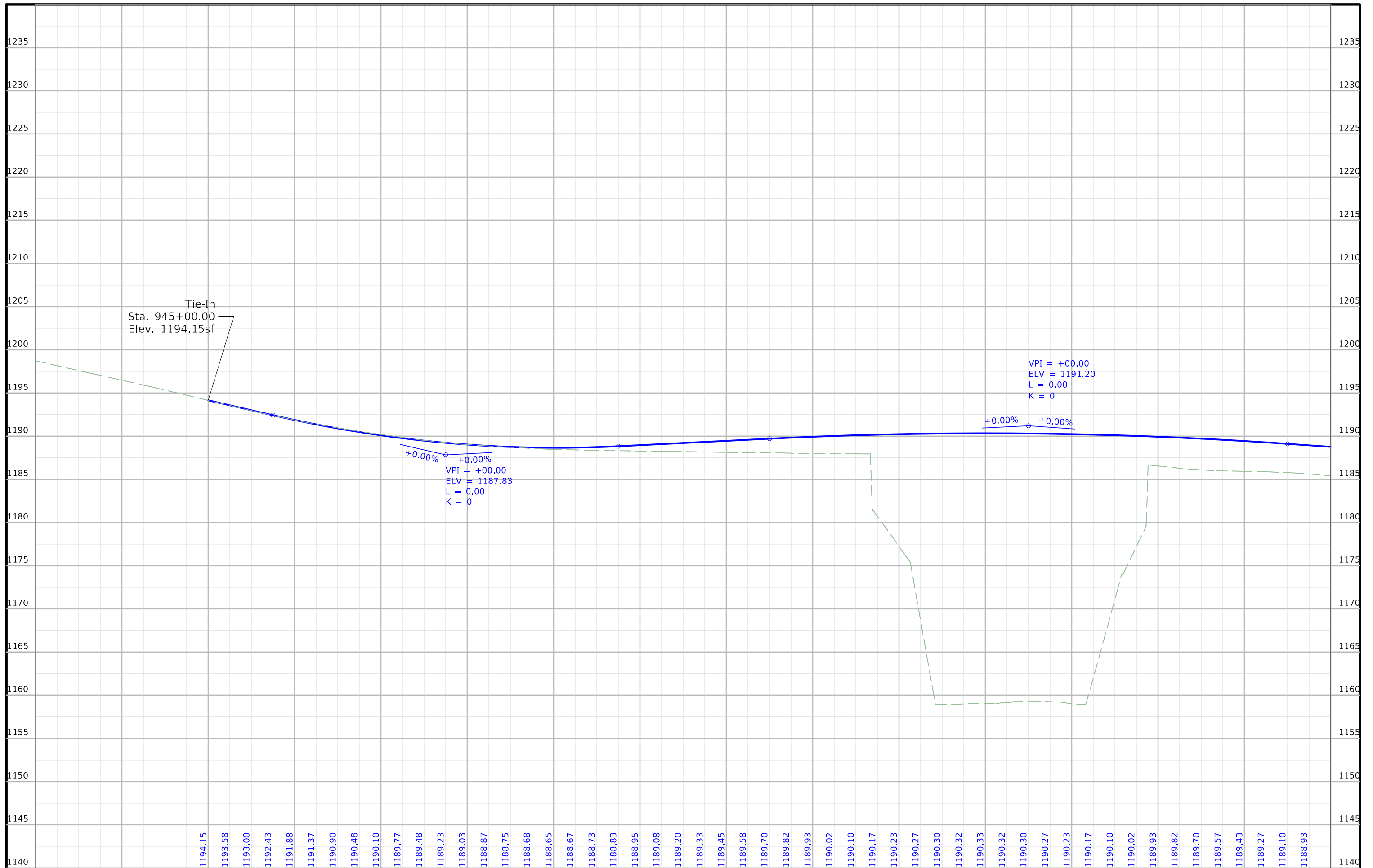
Little Sioux River

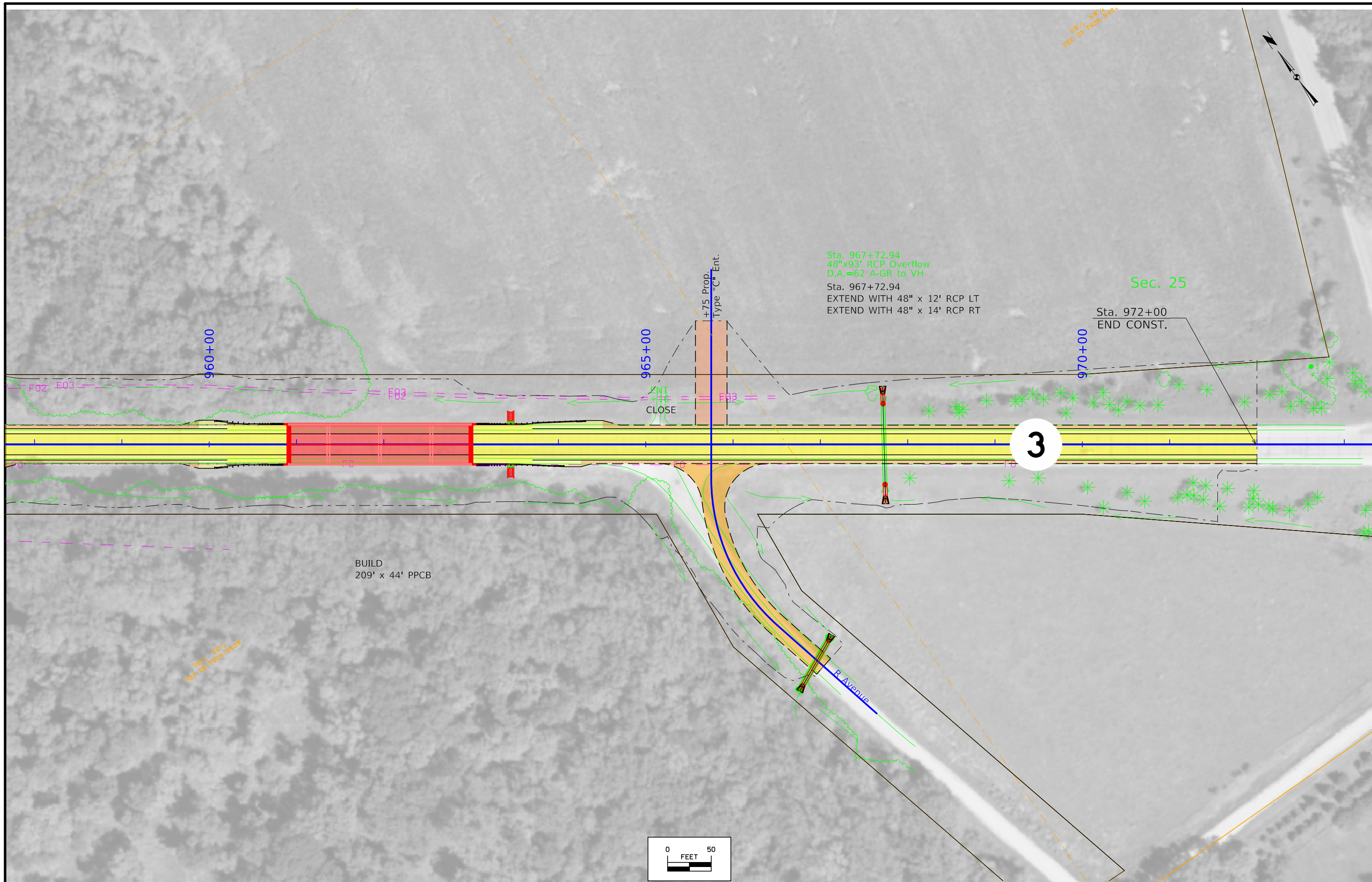
3

Sta. 950+49.7
30"x103' RCP
D.A.=10 A-GR
Sta. 950+49.70
EXTEND WITH 30" x 2' RCP LT
EXTEND WITH 30" x 5' RCP RT

REMOVE
Sta. 954+28
Skew 15³/₆₄ RT AH
320'x30' Cont. Welded
Girder Bridge
D.A.=2173 Sq Miles
BUILD
396' x 44' PPCB







SW 1/4 NW 1/4
SEC. 25-192N-R40E

Sta. 967+72.94
48"x93' RCP Overflow
D.A.=62 A-GR to VH
Sta. 967+72.94
EXTEND WITH 48" x 12' RCP LT
EXTEND WITH 48" x 14' RCP RT

Sec. 25

Sta. 972+00
END CONST.

960+00

965+00

970+00

3

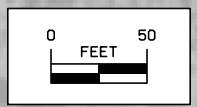
BUILD
209' x 44' PPCB

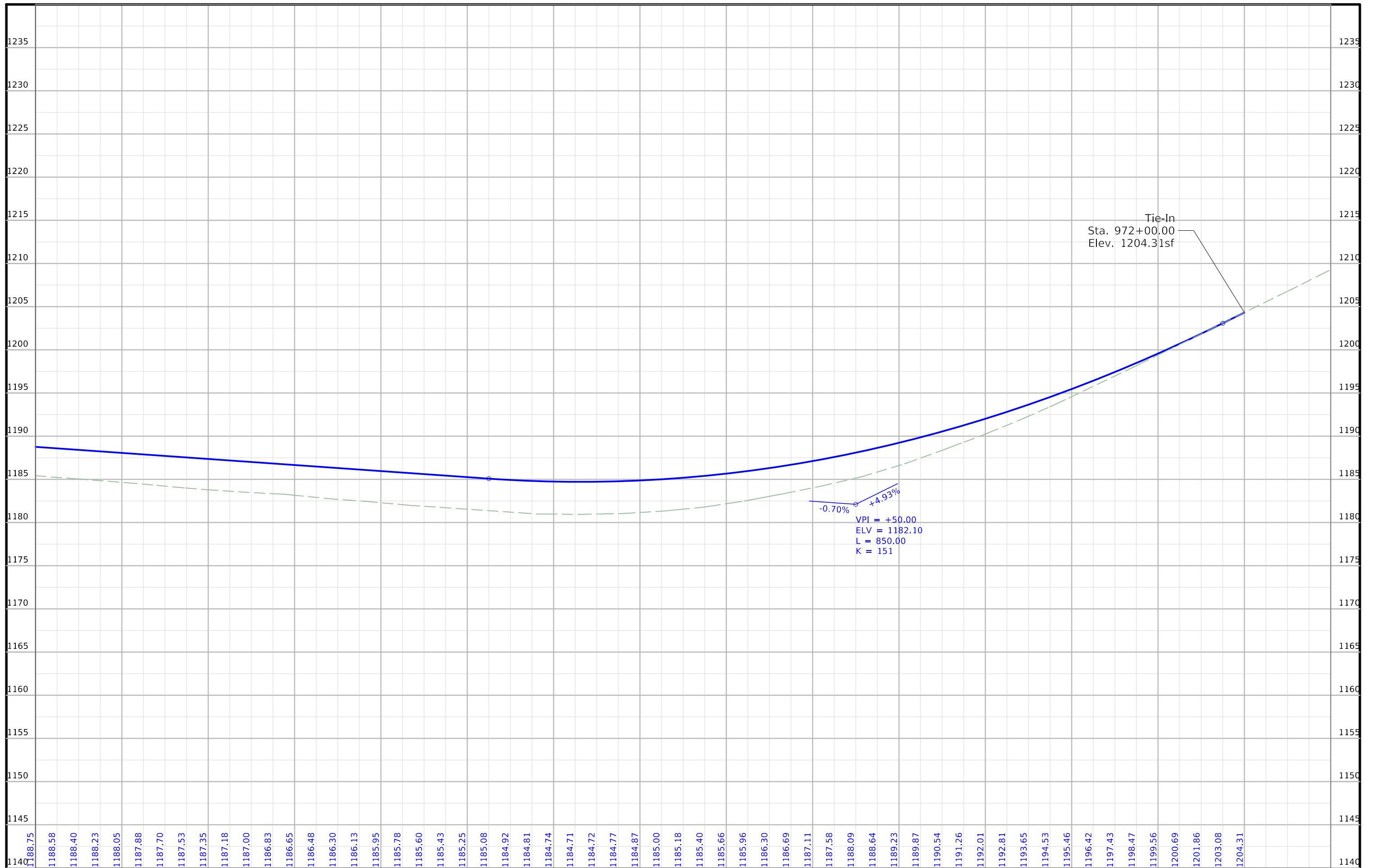
SE 1/4 NW 1/4
SEC. 25-192N-R10W

+7.5 Prop.
Type "C" Ent.

ENT
CLOSE

R Avenue

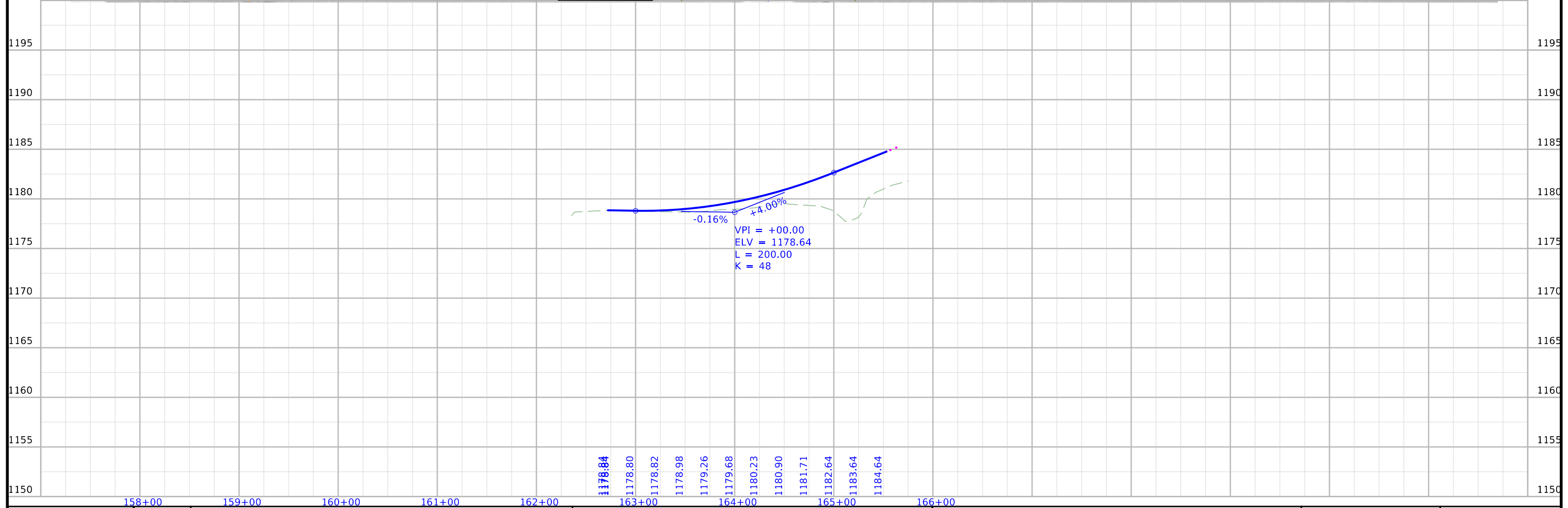
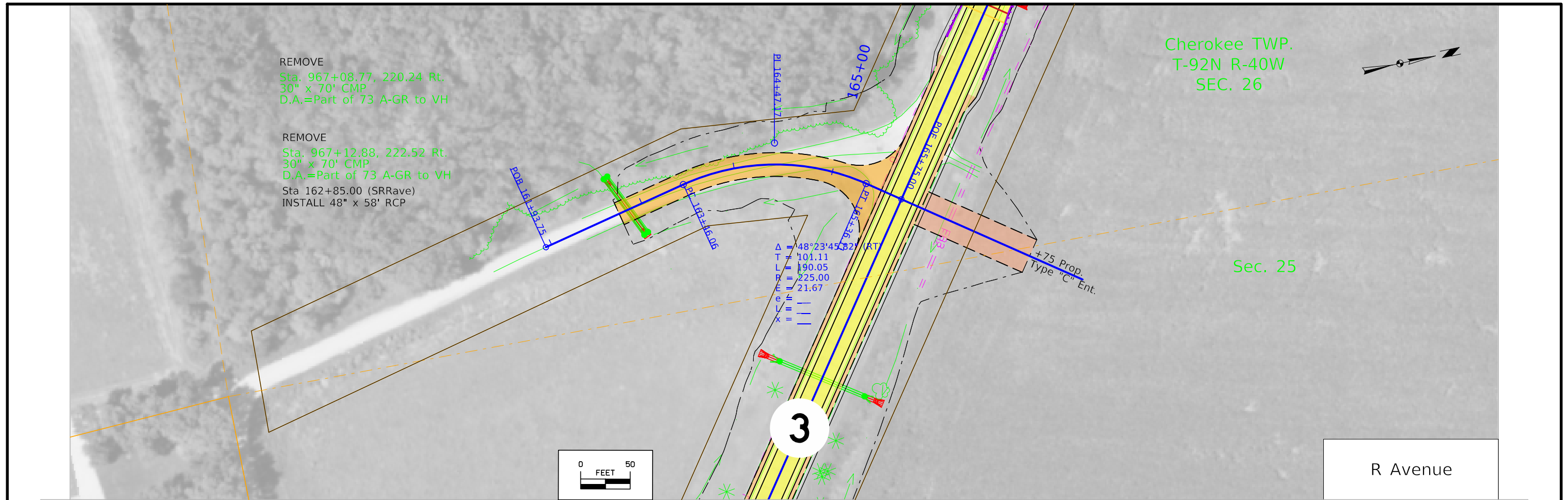




Tie-In
Sta. 972+00.00
Elev. 1204.31sf

-0.70%
+4.93%
VPI = +50.00
ELV = 1182.10
L = 850.00
K = 151

FILE NO.	ENGLISH	DESIGN TEAM Flattery\Bell	CHEROKEE COUNTY	PROJECT NUMBER NHSX-003-2(78)--3H-18	SHEET NUMBER D.5
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FILE NO.	ENGLISH	DESIGN TEAM FlatteryBell	CHEROKEE COUNTY	PROJECT NUMBER NHSX-003-2(78)--3H-18	SHEET NUMBER E.1
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Survey Information

Cherokee County
NHSX-003-2(78)--3H-18
Location: 1.3 mi E of US 59 to 1.8 mi E of US 59, including Little Sioux
River and Overflow Bridges
Type of Work: Bridge Replacement; New Bridge
Project Directory: 1800303020
PIN: 20-18-003-030
Sap-0778.3

This survey observed 2 NGS GPS control with published NAVD88 heights to compare to local ground control:

NGS mark designated B24 (PID NL0265) has a published E lev. of 1442.038
Survey E lev. = 1442.114

NGS mark designated Z25 (PID NL0512) has a published Elev. of 1214.725
Survey E lev. = 1214.538

Horizontal Control

The project coordinate system for this survey is Iowa RCS Zone 4 (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 concurrent 6 hour static observations on Project Pts. 72, B24, Z25, 18003061, and 18003062.

Alignment Information

The horizontal alignment for this survey is a retrace of Paving Plans F-Project No. 1082(4). Survey stationing was equated to the plan POT at Sta. 973+94.0 and run back and ahead without equation throughout the survey.

Survey stationing relates to as built plan stationing as follows:

POT Sta. 973+94.0 Paving Plans F-Project No. 1082(4)
Survey POT Sta. 973+94.0

Party Personnel

Clayton Henningsen- Survey Party Chief
Jason Arn- Survey Party Chief

Date(s) of Survey

Begin Date 09/27/2021
End Date 10/28/2021

General Information

Measurement units for this survey are U S survey feet. This survey is for proposed bridge reconstruction on US 3 over Little Sioux River 1.5 mile east of US 59. This is a partial field survey with photo control.

Vertical Control

Vertical datum for this survey is NAVD88 (Computed using Geoid12b). GRS80 Ellipsoidal Height was computed at project Pts. 72, B24, Z25, 18003061, and 18003062 by doing concurrent 5 hour static observations. The project control is relative to nearby Iowa RTN Base Stations.

This survey observed 1 County GPS control with published NAVD88 heights to compare to local ground control:

Cherokee County GPS Network mark designated 2000-072 has a published Elev. of 1208.92
Survey Elev. = 1208.77

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 - Ia. RCS Zone 04
VERT. DATUM: NAVD88 - Geoid Model g2012bu3

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) EPOCH 2010.00
 1a. Regional Coordinate System Zone 04

VERT. DATUM: NAVD88
 Geoid Model g2012bu3
 Project Control Marks are Bench Marks

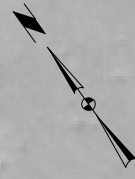
Point Name	North	East	Elevation	Feature Definition-Description
18003061	8684264.462	14312071.908	1207.773	CP 18003061 FROM THE INTERSECTION OF US 59 AND IA 3 AT THE NORTH END OF CHEROKEE GO 1.25 MILES SOUTHEAST ALONG IA 3 A ROW RAIL WITH A CUT X ON TOP IN THE NORTH DITCH 49 FEET NORTHEAST OF EDGE OF PAVEMENT 28 FEET SOUTHEAST OF WELL NEXT TO A METAL T POST WITH AN ORANGE SLEEVE
18003062	8682191.503	14314755.499	1210.074	CP 18003062 FROM THE INTERSECTION OF US 59 AND IA 3 AT THE NORTH END OF CHEROKEE GO 1.9 MILES SOUTHEAST ALONG IA 3 A FENO TYPE MONUMENT SET IN THE SOUTH DITCH ABOUT 0.3 DEEP 11 FEET WEST OF METAL SIGN POST 18 FEET NORTHWEST OF A FIBERGLASS GAS PIPELINE SIGN 23 FEET SOUTHWEST OF EDGE OF PAVEMENT
Z25	8682230.4	14308121.509	1214.538	BM Z25 FROM THE INTERSECTION OF US 59 AND E BLUFF ST IN CHEROKEE GO EAST 500 FEET ALONG E BLUFF ST TO CENTRAL ST THEN GO 1 BLOCK NORTHEAST ALONG CENTRAL ST TO THE INTERSECTION OF CENTRAL ST AND SPRUCE ST FOUND NGS DISK MARKED Z25 95 FEET WEST OF P POLE AT INTERSECTION OF CENTRAL ST AND SPRUCE ST 18 FEET WEST OF EDGE OF BIKE PATH 10 FEET SOUTH OF EDGE OF SPRUCE ST 7 FEET SOUTHEAST OF A P POLE

NOTE:

The first two digits in the control point name refer to the county number.
 The next 3 digits refer to the highway number.
 The next 3 digits refer to the highway milepost.
 The last digit refers to the distance from the referenced milepost to the nearest tenth of a mile.

NO ACCESS RIGHTS ARE TO BE ACQUIRED ON THIS PROJECT.

ACCESS CONTROL PREVIOUSLY ACQUIRED.



Cherokee TWP.
T-92N R-40W
SEC. 26

HY-VEE FOOD STORES, INC.

JEFFERY R & LISA J LUNDQUIST

CHEROKEE INDUSTRIAL CORPORATION

Parcel NVP-A

Parcel NVP-C

NW 1/4, NE 1/4
SEC. 26 T92N R40W

NW 1/4, NE 1/4
SEC. 26 T92N R40W

STA. 945+00.00
BEGIN CONST.

945+00 946+00 947+00 948+00 949+00 950+00 951+00 952+00 953+00 954+00 955+00 956+00 957+00 958+00 959+00 960+00

956+11
C 80'± Ex.R.W

956+37
C 96'

960+11
C 93'

3

3

DOC # 74-1656

S2D2 INVESTMENTS,
LLC

Sta. 950+49.7
30"x103" RCP
D.A.=10 A-GR
Sta. 950+49.70
EXTEND WITH 30" x 2' RCP LT
EXTEND WITH 30" x 5' RCP RT

REMOVE
Sta. 954+28
Skew 15 3/4 RT AH
320'x30' Cont. Welded
Girder Bridge
D.A.=2173 Sq Miles
BUILD
396' x 44' PPCB

SW 1/4, NE 1/4
SEC. 26 T92N R40W

CHEROKEE INDUSTRIAL CORPORATION

ROBERT BUSH

Parcel NVP-B

Parcel NVP-D

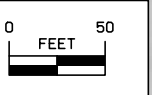
SW 1/4, NE 1/4
SEC. 26 T92N R40W

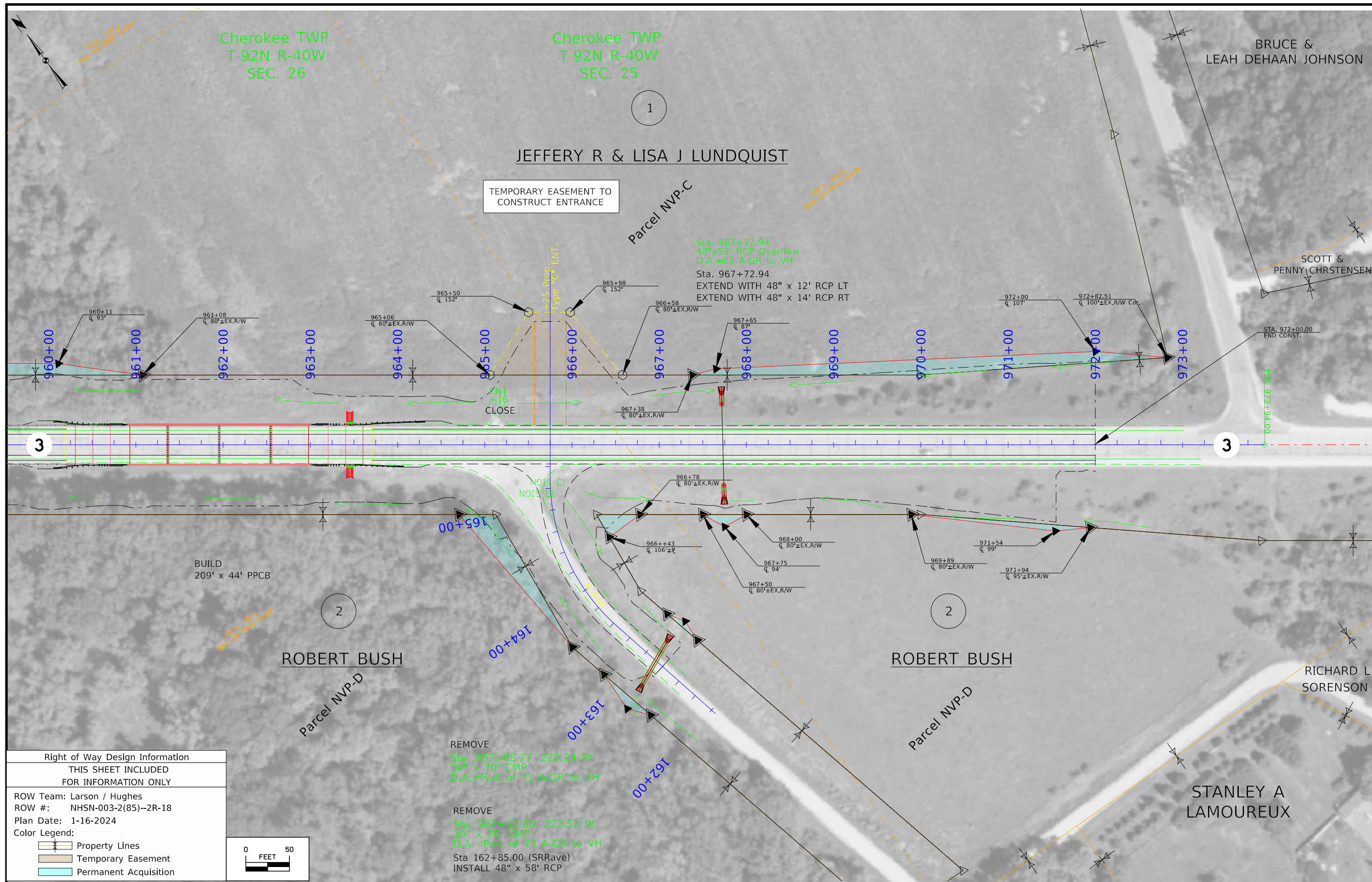
Little Spook River

Right of Way Design Information
THIS SHEET INCLUDED
FOR INFORMATION ONLY

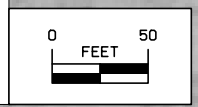
ROW Team: Larson / Hughes
ROW #: NHSN-003-2(85)--2R-18
Plan Date: 1-16-2024

Color Legend:
Property Lines
Temporary Easement
Permanent Acquisition





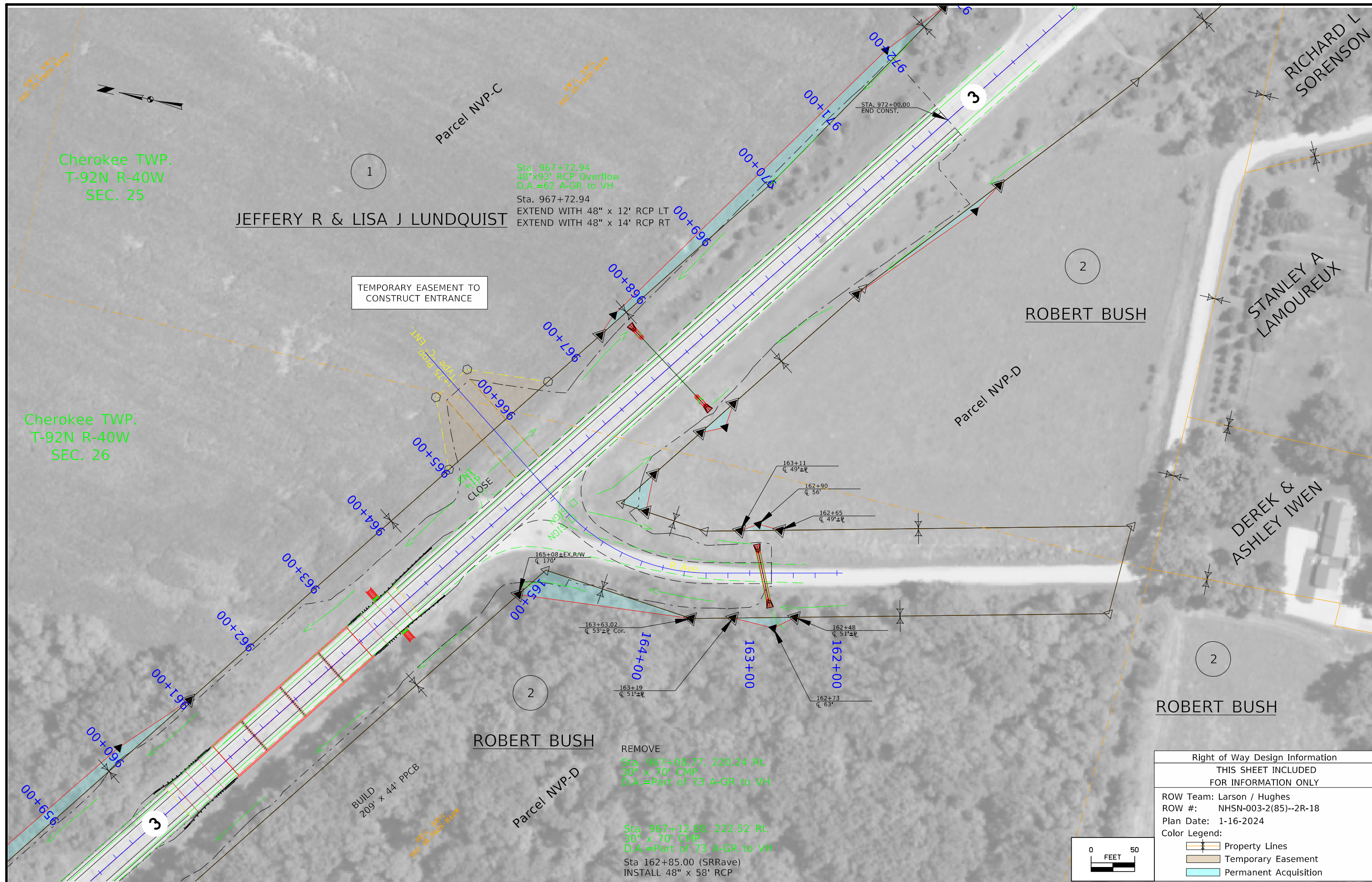
Right of Way Design Information	
THIS SHEET INCLUDED FOR INFORMATION ONLY	
ROW Team: Larson / Hughes	
ROW #: NHSN-003-2(85)--2R-18	
Plan Date: 1-16-2024	
Color Legend:	
	Property Lines
	Temporary Easement
	Permanent Acquisition



REMOVE
Sta. 967+08.77, 220.24 Rt.
30" x 70' CMP
D.A.=Part of 73 A-GR to VH

REMOVE
Sta. 967+12.88, 222.52 Rt.
30" x 70' CMP
D.A.=Part of 73 A-GR to VH

Sta. 162+85.00 (SRRave)
INSTALL 48" x 58' RCP



108-23A
08-01-08

TRAFFIC CONTROL PLAN

Traffic on IA 3 will be maintained via offsite detour.

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
			No Travel Restrictions Expected									

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	

CROSS SECTION VIEW COLOR LEGEND OF TRAFFIC CONTROL AND STAGING SHEETS

SHADING	Design Color No.	
Green, Light	(225)	Existing Pavement Shading
Gray, Light	(48)	Previously Constructed Pavement Shading
Gray, Med	(80)	Previously Constructed Granular Surface Shading
Blue, Light	(230)	Proposed Pavement Shading
Lavender	(9)	Temporary Pavement Shading
Brown, Med	(237)	Future Proposed Pavement Shading

CROSS SECTION VIEW PATTERN AND SYMBOL LEGEND OF TRAFFIC CONTROL AND STAGING SHEETS

	Pavement Removal		Proposed Granular Shoulder
	Proposed Granular Subbase		Temporary Shoulder
	Proposed Special Backfill		Existing Shoulder Strengthening
	Temporary Barrier Rail		Permanent Barrier Rail
			Channelizing Device

PLAN VIEW COLOR LEGEND OF TRAFFIC CONTROL AND STAGING SHEETS

LINEWORK	Design Color No.	
Green	(2)	Existing Topographic Features and Labels
Magenta	(5)	Pavement Marking Call Outs
Blue	(1)	Proposed Alignment, Stationing, Tic Marks, and Alignment Annotation
Yellow	(4)	Pavement Markings, Yellow
Off White	(254)	Pavement Markings, White
Violet	(15)	Temporary barrier rail, Unpinned
Flush Orange	(228)	Temporary barrier rail, Pinned

SHADING	Design Color No.	
Green, Light	(225)	Existing Pavement Shading
Gray, Light	(48)	Previously Constructed Pavement Shading
Gray, Med	(80)	Proposed Granular Surface Shading
Gray, Med	(80)	Previously Constructed Granular Surface Shading
Blue, Light	(230)	Proposed Pavement Shading
Lavender	(9)	Temporary Pavement Shading
Brown, Light	(236)	Proposed Grading Limits Shading
Pink, Dark	(13)	Proposed MSE or CIP Wall Shading
Red	(3)	Proposed Bridge Shading and Sign Trusses
Black w/Gray, Light Fill	(0,48)	Previously Constructed Structure

PLAN VIEW PATTERN AND SYMBOL LEGEND OF TRAFFIC CONTROL AND STAGING SHEETS

	Channelizing Device		Crash Cushion (Temp or Perm)
	Drum		Traffic Signal
	Temporary Lane Separator		Flagger
	Tubular Marker		Temporary Floodlighting
	Channelizer Marker		Traffic Sign
	Concrete Barrier Marker		Type III Barricade
	Delineator		Type A Warning Light
	Temporary Barrier Rail		Direction of Traffic
	Pavement Removal		Safety Closure
	Sand Barrel Layout		Lane Identification

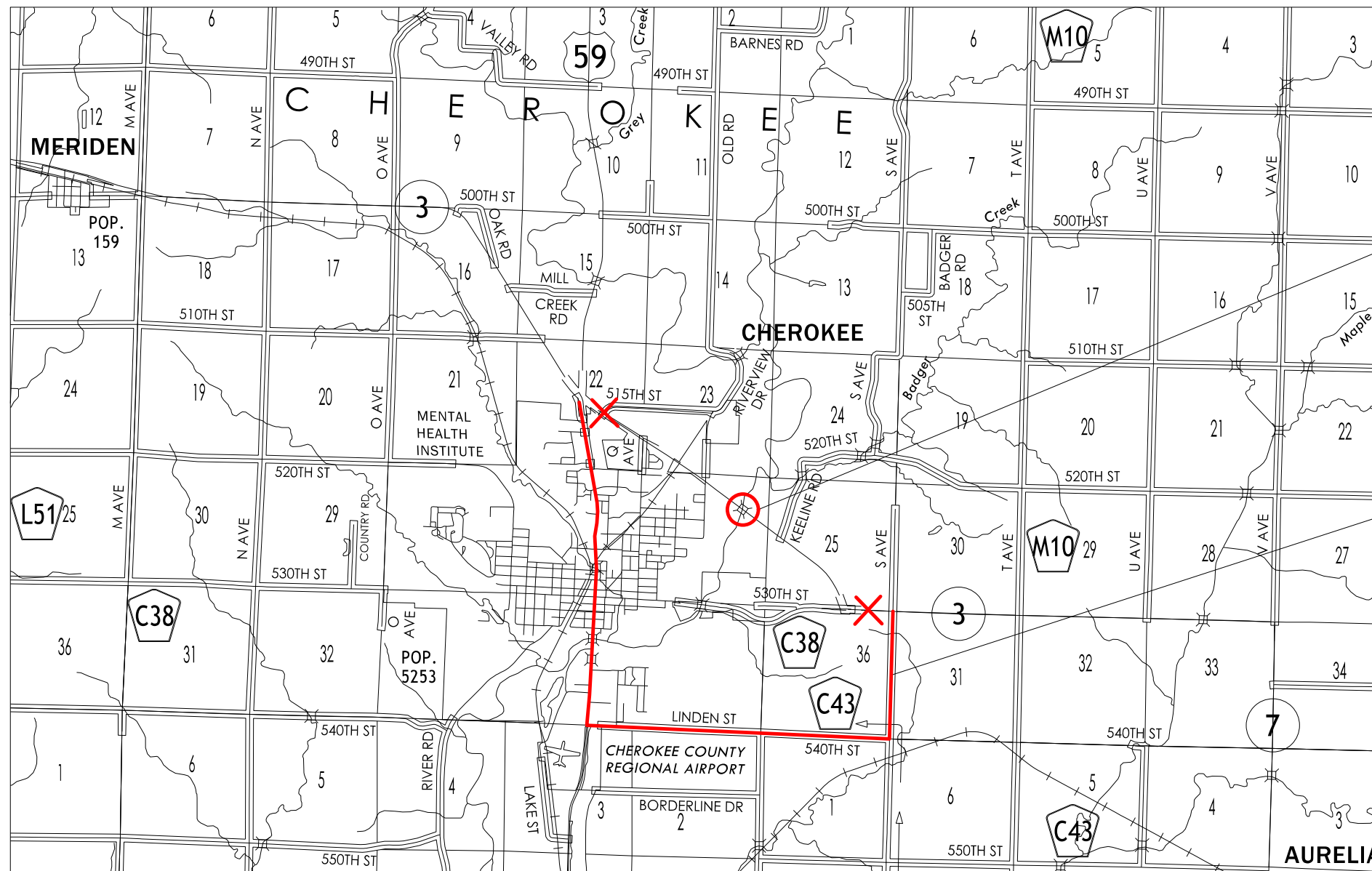
NOTE: Device spacing according to Standard Road Plans unless specifically dimensioned.

TRAFFIC CONTROL AND STAGING LEGEND AND SYMBOL INFORMATION SHEET

(COVERS SHEET SERIES J)

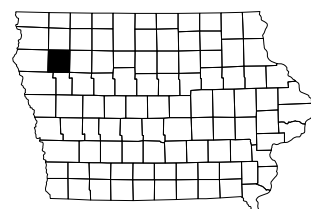
FILE NO.	ENGLISH	DESIGN TEAM	COUNTY	PROJECT NUMBER	SHEET NUMBER J.2
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CHEROKEE COUNTY



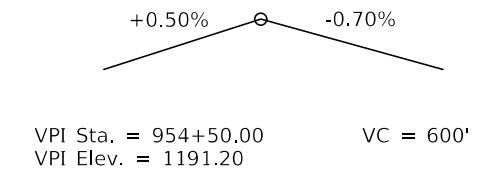
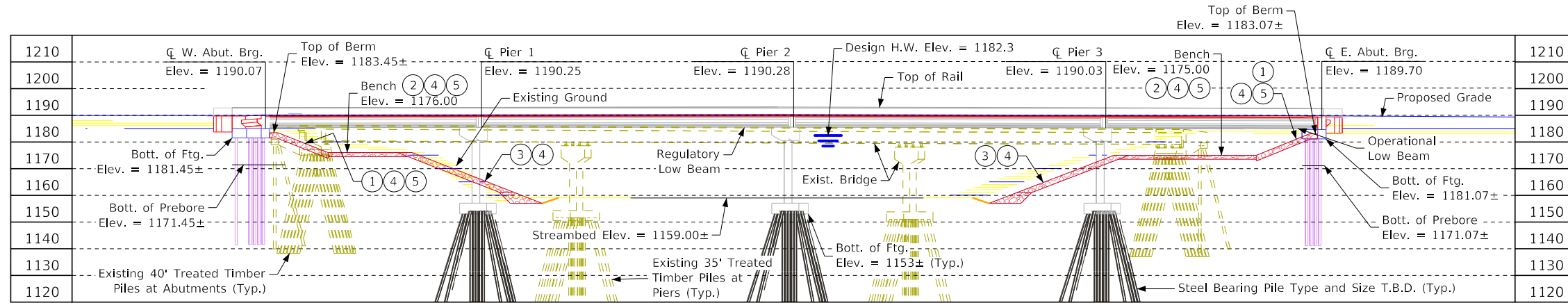
STA 954+28
 MP 62.10
 FHWA 19460
 Maint. 1862.0S003
 Design 4950

DETOUR



1.3 MI E TO 1.8 MI E OF US 59, INCLUDING
 LITTLE SIOUX RIVER AND OVERFLOW BRIDGES
 NHSX-003-2(78)--3H-18
 PIN: 20-18-003-030

18



Longitudinal Section Along Centerline Approach Roadway

Notes:
Top of bridge deck crown is 0.03' below profile grade.

Class 'E' revetment stone is embedded.

See Sheet 2 for Berm and Channel Bank Grading Control Location points.

- ① Berm Lining - 2.5:1 Slope Normal to Abutment (2' Thick Class 'E' Revetment, Embedded).
- ② Bench - 1.5' Thick Class 'E' Revetment (Embedded).
- ③ Channel Bank Lining - 2.5:1 Slope Normal to Abutment (2' Thick Class 'E' Revetment w/Thickened Base, Embedded).
- ④ Salvaged existing revetment can be used removed and reused at berm and bench.
- ⑤ U.A.C. existing revetment where possible.

Proposed Profile Grade - IA 3

Hydraulic Data

Drainage Area (D.A.) = 2,183 Sq. Mi.
Stream Slope = 2.52 Ft./Mi.
Avg. Low Water Stage = EL. 1161.3

Q₂₅ = 19,520 CFS (25,540 CFS)
Stage = EL. 1180.8

Q₅₀ = 23,160 CFS (31,370 CFS)
Stage = EL. 1182.3
Regulatory Low Beam = EL. 1185.2
Avg. Bridge Velocity = 4.1 FPS

Q₁₀₀ = 26,800 CFS (37,170 CFS)
100 Yr. Operational Stage = EL. 1183.5
Backwater = -0.33 Ft./0.46 Ft.
Avg. Bridge Velocity = 4.5 FPS

Q₁₀₀ = 28,690 CFS (39,900 CFS)
100 Yr. Projected Stage = EL. 1184.1
Operational Low Beam = EL. 1184.7

Q₂₀₀ = 33,840 CFS (48,100 CFS)
200 Yr. Projected Stage = EL. 1185.6
Avg. Bridge Velocity = 5.1 FPS
Calculated Design Scour = EL. 1145.9

Q₅₀₀ = 37,060 CFS (54,700 CFS)
500 Yr. Projected Stage = EL. 1186.7
Avg. Bridge Velocity = 5.6 FPS
Calculated Check Scour = EL. 1144.4

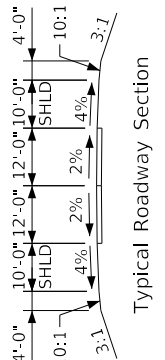
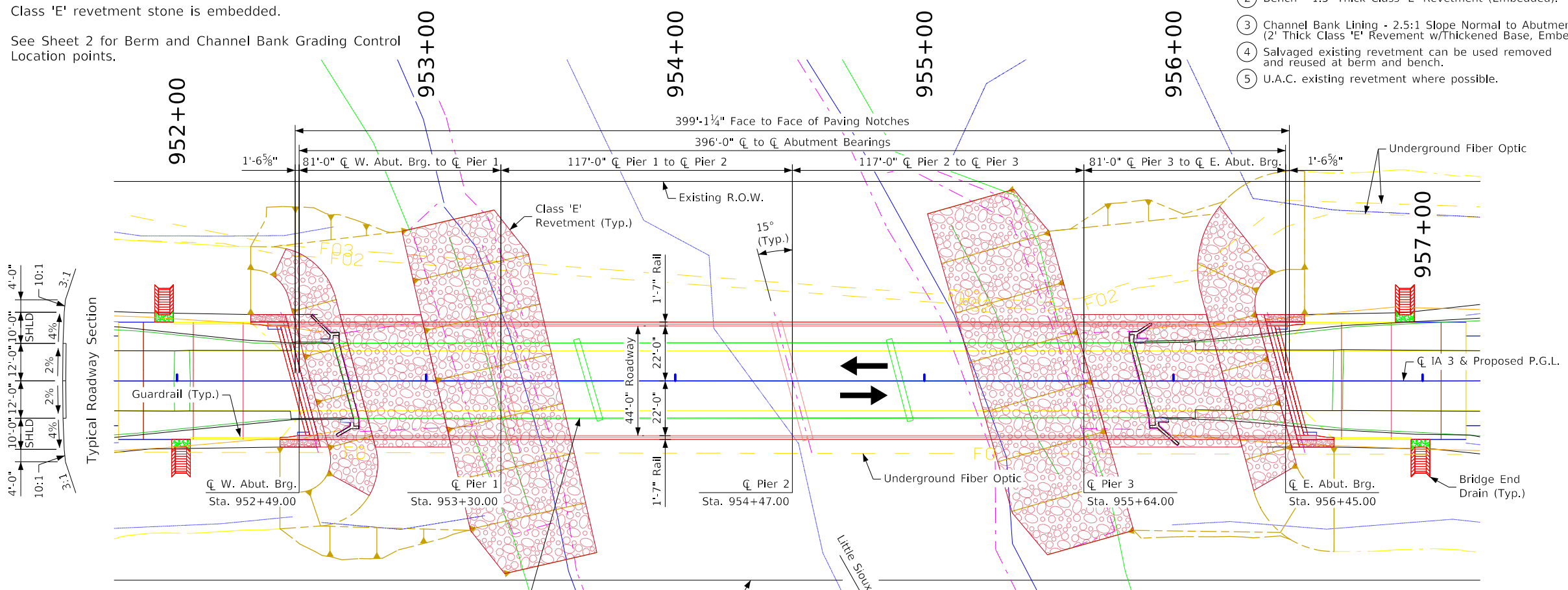
Q₁₀₀ = 32,430 CFS (45,400 CFS)
100 Yr. NFIP Stage = EL. 1185.1
Backwater = +0.06 Ft./ - Ft.
Avg. Bridge Velocity = 4.9 FPS

Roadway Overtop = 39,580 CFS
Roadway Overtop = EL. 1184.71
STA 964+30

Discharges in parans. represents total streamflow.

Backwater references change from existing/pre-development condition near first high-damage potential development upstream of project site (east floodplain just upstream of IA 3).

Preliminary



Traffic Estimate

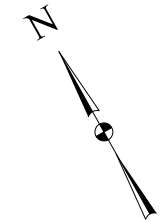
2026 AADT	3,400	V.P.D.
2046 AADT	3,500	V.P.D.
Trucks	24 %	

Utility Legend

- FO — Underground Fiber Optic (Windstream)
- FO2 — Underground Fiber Optic 2 (CML)
- FO3 — Underground Fiber Optic 3 (Nuvera)
- G — Underground Gas (Alliant Energy)

Existing 320' x 30' Continuous Welded Plate Girder bridge, Design No. 1159, to be removed.

Situation Plan



Location

IA 3 over Little Sioux River
T-92N R-40W
Section 26
Cherokee Township
City of Cherokee
Cherokee County
FHWA No. 19461
Bridge Maint. No. 1862.0S003
Latitude 42.759954°
Longitude -95.528840°

Design For 15° R.A.
396'-0" x 44'-0" Prestressed Concrete Beam Bridge
2 - 81'-0" End Spans 2 - 117'-0" Interior Spans
Situation Plan
December, 2023
Cherokee County
IOWA DEPARTMENT OF TRANSPORTATION
Design No. 126 Design Sheet No. 1 of 3 FHWA No. 19461

Control Point: #18003061 CUT 'X' ON T/ ROW RAIL NORTH DITCH, N=8684264.462, E=14312071.908, EL=1207.773

West Berm Grading Control:

- (A1) 952+65.43 M.L., 26.58' LT., Edge Bench/Btm. Berm, SGCL, EL. 1176.00
- (A2) 952+79.63 M.L., 26.58' RT., Edge Bench/Btm. Berm, SGCL, EL. 1176.00
- (B1) 952+46.54 M.L., 26.58' LT., Top Berm, GCL, EL. 1183.45
- (B2) 952+38.61 M.L., 42.00' LT., Top Berm, GCL, EL. 1183.45
- (B3) 952+43.73 M.L., 53.00' LT., Btm. Berm, SGCL, EL. 1176.00
- (B4) 952+77.14 M.L., 46.00' RT., Btm. Berm, SGCL, EL. 1176.00
- (B5) 952+60.56 M.L., 37.00' RT., Top Berm, GCL, EL. 1183.45
- (B6) 952+60.78 M.L., 26.58' RT., Top Berm, GCL, EL. 1183.45

West Channel Bank Grading Control:

- (A3) 952+97.92 M.L., 26.58' LT., Edge Bench/Top Bank, SGCL, EL. 1176.00
- (A4) 953+10.12 M.L., 26.58' RT., Edge Bench/Top Bank, SGCL, EL. 1176.00
- (C1) 952+90.25 M.L., 60.00' LT., Top Bank, SGCL, EL. 1176.00
- (C2) 953+27.29 M.L., 68.49' LT., Btm. Bank, GCL, EL. 1157.00
- (C3) 953+41.33 M.L., 50.74' LT., Btm. Bank, GCL, EL. 1157.00
- (C4) 953+68.55 M.L., 68.87' RT., Btm. Bank, GCL, EL. 1157.00
- (C5) 953+31.51 M.L., 77.37' RT., Top Berm, SGCL, EL. 1176.00
- (C6) 953+17.78 M.L., 60.00' RT., Top Berm, SGCL, EL. 1176.00

East Berm Grading Control:

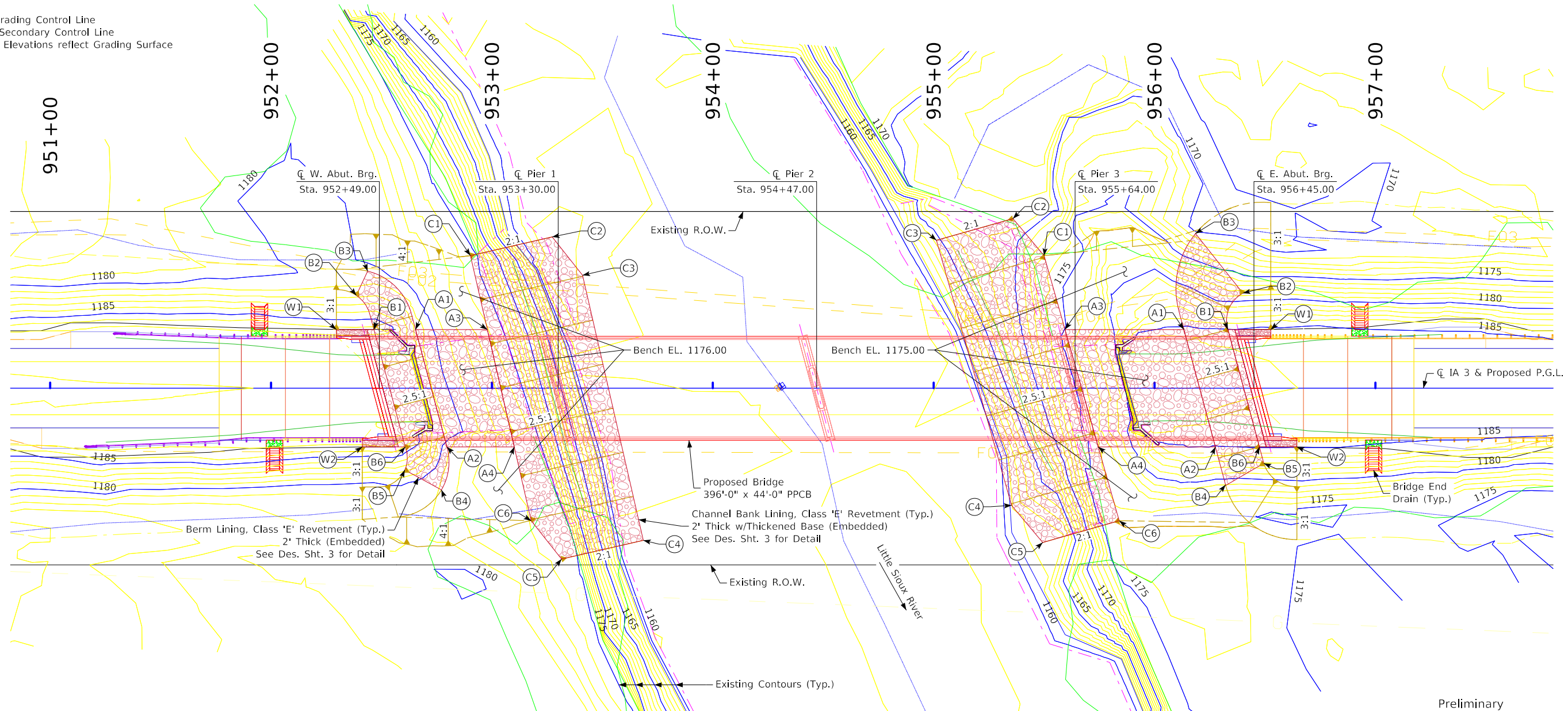
- (A1) 956+13.29 M.L., 26.58' LT., Edge Bench/Btm. Berm, SGCL, EL. 1175.00
- (A2) 956+27.53 M.L., 26.58' RT., Edge Bench/Btm. Berm, SGCL, EL. 1175.00
- (B1) 956+33.22 M.L., 26.58' LT., Top Berm, GCL, EL. 1183.07
- (B2) 956+39.99 M.L., 43.00' LT., Top Berm, GCL, EL. 1183.07
- (B3) 956+18.57 M.L., 70.00' LT., Btm. Berm, SGCL, EL. 1175.00
- (B4) 956+32.20 M.L., 44.00' RT., Btm. Berm, SGCL, EL. 1175.00
- (B5) 956+49.47 M.L., 34.00' RT., Top Berm, GCL, EL. 1183.07
- (B6) 956+47.46 M.L., 26.58' RT., Top Berm, GCL, EL. 1183.07

East Channel Bank Grading Control:

- (A3) 955+59.47 M.L., 26.58' LT., Edge Bench/Top Bank, SGCL, EL. 1175.00
- (A4) 955+74.53 M.L., 26.58' RT., Edge Bench/Top Bank, SGCL, EL. 1175.00
- (C1) 955+50.00 M.L., 60.00' LT., Top Bank, SGCL, EL. 1175.00
- (C2) 955+35.89 M.L., 76.79' LT., Top Bank, SGCL, EL. 1175.00
- (C3) 955+01.25 M.L., 66.98' LT., Btm. Bank, GCL, EL. 1157.00
- (C4) 955+35.25 M.L., 53.02' RT., Btm. Bank, GCL, EL. 1157.00
- (C5) 955+49.36 M.L., 69.81' RT., Btm. Bank, GCL, EL. 1157.00
- (C6) 955+84.00 M.L., 60.00' RT., Top Berm, SGCL, EL. 1175.00

Notes:

GCL - Grading Control Line
 SGCL - Secondary Control Line
 Grading Elevations reflect Grading Surface



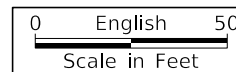
West Bridge Wing Grading Control:

- (W1) 952+29.55 M.L., 26.58' LT., EL. 1189.24
- (W2) 952+41.34 M.L., 26.58' RT., EL. 1189.28

East Bridge Wing Grading Control:

- (W1) 956+52.66 M.L., 26.58' LT., EL. 1188.90
- (W2) 956+64.45 M.L., 26.58' RT., EL. 1188.84

Site Plan



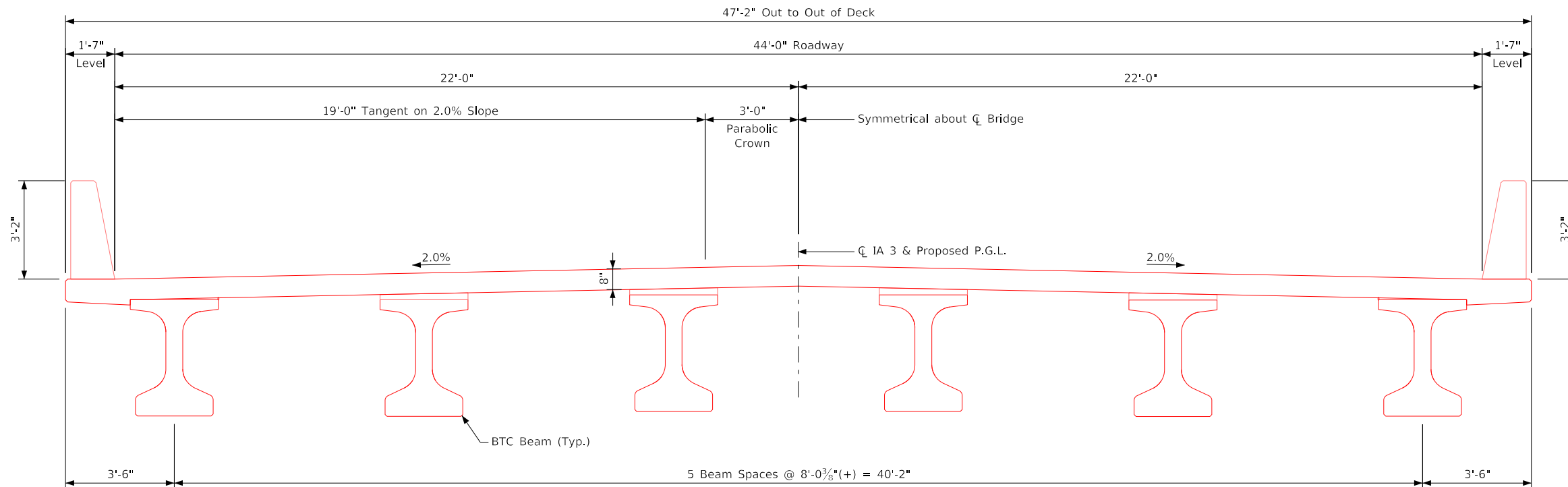
Preliminary

Design For 15° R.A.

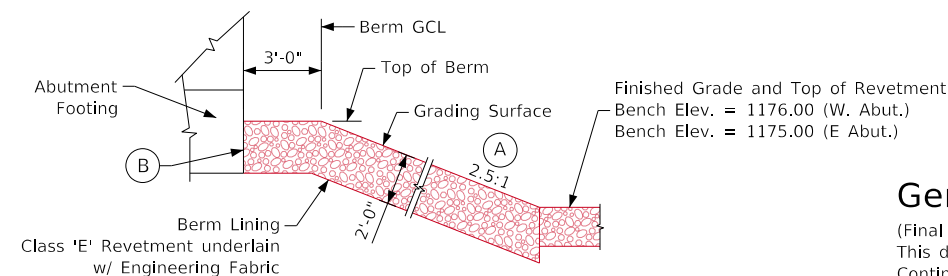
396'-0" x 44'-0" Prestressed Concrete Beam Bridge
 2 - 81'-0" End Spans 2 - 117'-0" Interior Spans
 Situation Plan - Site

STA. 954+47.00 (IA 3) December, 2023
Cherokee County
 IOWA DEPARTMENT OF TRANSPORTATION
 Design No. 126 Design Sheet No. 2 of 3 FHWA No. 19461





Transverse Section



Section Thru Berm Lining

General Notes:

(Final designer to include in final plans)
 This design is for the replacement of the existing 320'-0" x 30'-0" Continuous Welded Plate Girder bridge, Cherokee Design No. 1159, FHWA No. 19460, Maintenance No. 1862.05003.

Design Notes:

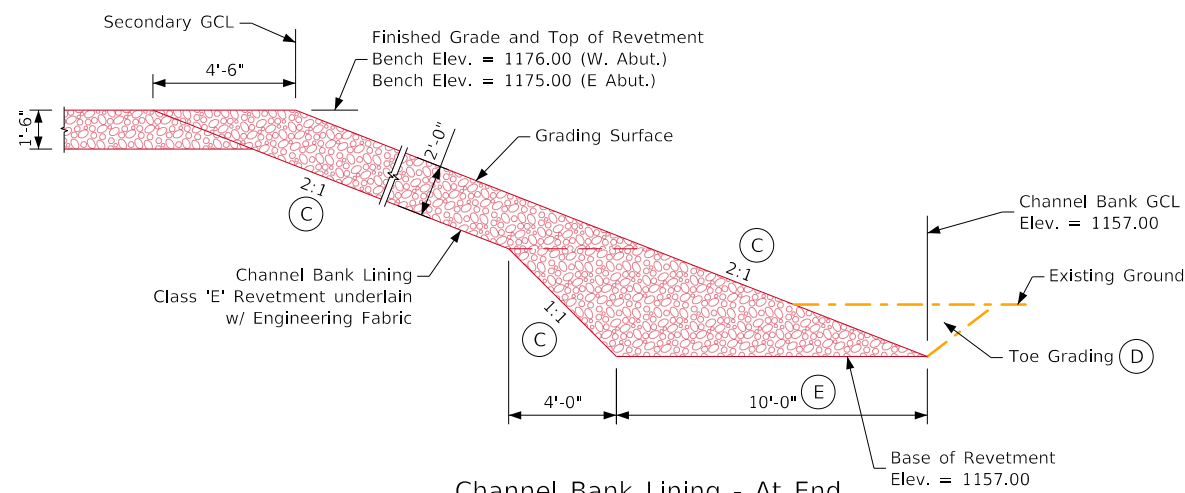
(Final designer to delete these notes from final Situation Plan.)
 TL-4 railing proposed.

Proposed Tee Piers - Pile size & length T.B.D. in final design.

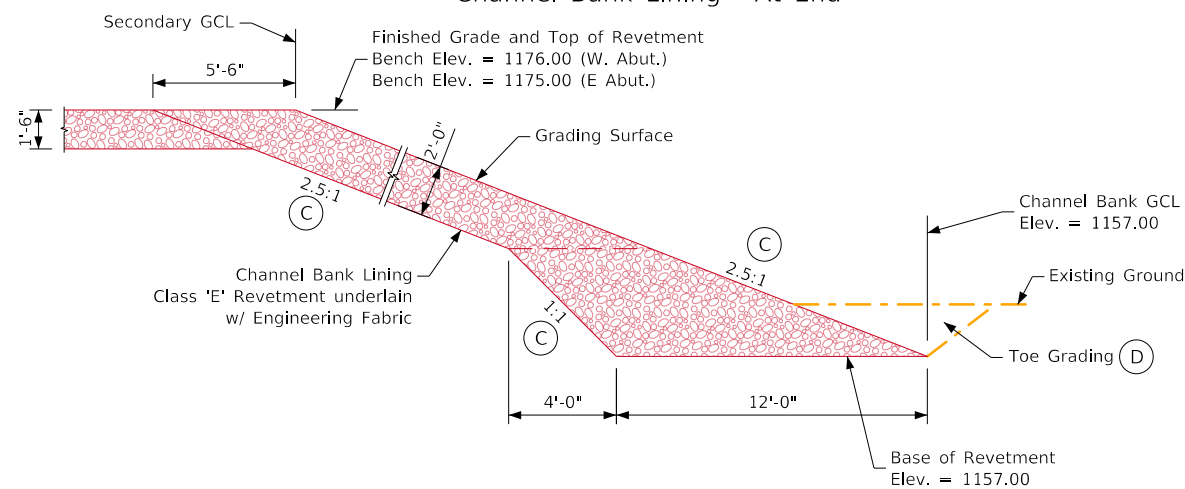
Provide vent holes in BTC80 (end span) beams.

The bridge will be designed to withstand the applicable effects of ice and horizontal stream loads and uplift forces associated with the Q_{100} .

An Iowa DNR Flood Plain Permit is required. Preliminary Design will submit the application and place the permit in the PW Regulatory_Permits subdirectory folder upon receipt.



Channel Bank Lining - At End



Channel Bank Lining - Typical

Section Thru Channel Bank Lining

- (A) Slope normal to abutment & berm Grading Control Line (GCL).
- (B) Carry engineering fabric up the face of abutment.
- (C) Slope normal to channel bank Grading Control Line (GCL).
- (D) Excavate to existing ground or fill w/ revetment as required.
- (E) Transition width from 12' Typ. to 10' at end through bank slope transition.

Estimated Revetment Quantities

Location	Revetment CL. 'E' (Ton)	Engineering Fabric (SY)	Excavation (CY)
West Berm & Channel Lining	1232.6	1324.8	770.4
East Berm & Channel Lining	1354.1	1486.9	846.4
Totals	2586.7	2811.7	1616.8

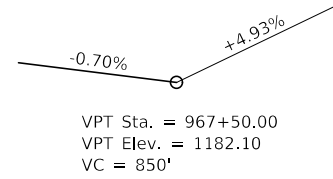
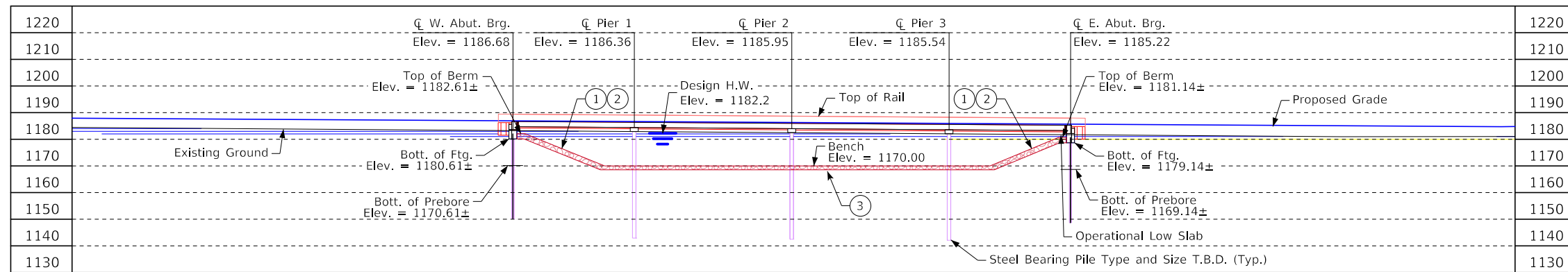
Excavation quantity calculated from grading surface.
 Does not include any deduction for salvaged revetment from existing banks.

Preliminary

Design For 15° R.A.
396'-0" x 44'-0" Pretensioned Prestressed Concrete Beam Bridge
 2 - 81'-0" End Spans 2 - 117'-0" Interior Spans
Situation Plan - Misc.
 STA. 954+47.00 (IA 3) December, 2023
Cherokee County
 IOWA DEPARTMENT OF TRANSPORTATION
 Design No. 126 Design Sheet No. 3 of 3 FHWA No. 19461



Control Point: #18003062 A FENO TYPE MONUMENT SET IN SOUTH DITCH ABOUT 0.3 FT. DEEP AND 11 FEET WEST OF METAL SIGN POST, N=8682191.503, E=14314755.499, EL=1210.074



Proposed Profile Grade - IA 3

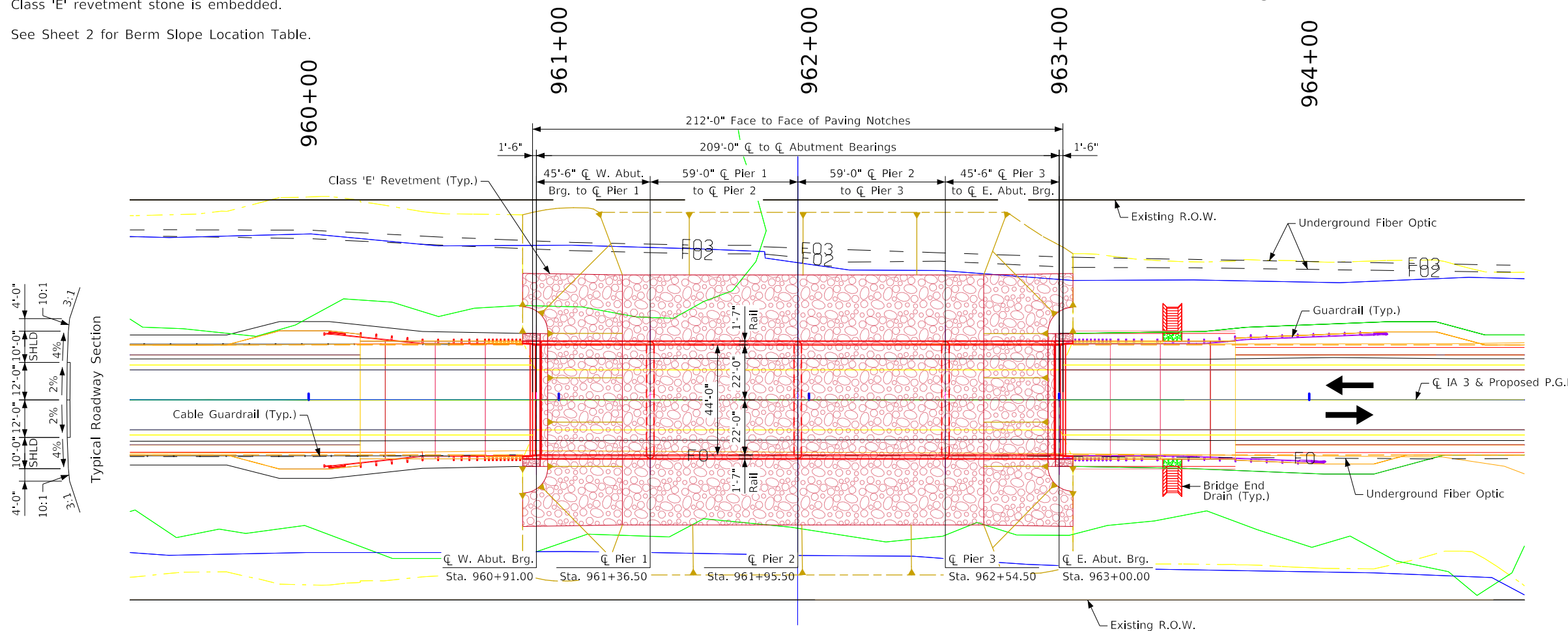
Notes:
Top of bridge slab crown is 0.03' below profile grade.

Class 'E' revetment stone is embedded.

See Sheet 2 for Berm Slope Location Table.

Longitudinal Section Along Centerline Approach Roadway

- ① 2.5:1 Slope (Grading Surface)
- ② 2' Thick Class 'E' Revetment (Embedded)
- ③ 1.5' Thick Class 'E' Revetment (Embedded)



Hydraulic Data

Drainage Area (D.A.) = 2,183 Sq. Mi.

Q₅₀ = 8,210 CFS (31,370 CFS)
Stage = EL. 1182.2
Avg. Bridge Velocity = 3.9 FPS

Q₁₀₀ = 10,370 CFS (37,170 CFS)
100 Yr. Operational
Stage = EL. 1183.4
Avg. Bridge Velocity = 4.4 FPS

Q₁₀₀ = 11,210 CFS (39,900 CFS)
100 Yr. Projected
Operational Low Slab = EL. 1182.8
Stage = EL. 1183.9
Avg. Bridge Velocity = 4.7 FPS

Q₂₀₀ = 13,090 CFS (48,100 CFS)
200 Yr. Projected
Stage = EL. 1185.5
Avg. Bridge Velocity = 5.5 FPS
Calculated Design Scour = EL. 1159.5

Q₅₀₀ = 13,870 CFS (54,700 CFS)
500 Yr. Projected
Stage = EL. 1186.6
Avg. Bridge Velocity = 5.8 FPS
Calculated Design Scour = EL. 1159.4

Discharge in parans. represents total streamflow.

Refer to Design No. 126 for general IA 3 crossing hydraulic data.

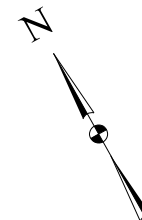
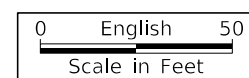
Traffic Estimate

2026 AADT 3,400 V.P.D.
2046 AADT 3,500 V.P.D.
Trucks 24 %

Utility Legend

- FO — Underground Fiber Optic (Windstream)
- FO2 — Underground Fiber Optic 2 (CML)
- FO3 — Underground Fiber Optic 3 (Nuvera)

Situation Plan



Location

IA 3 - Little Sioux River
Overflow Bridge
T-92N R-40W
Section 26
Cherokee Township
City of Cherokee
Cherokee County
FHWA No. 701190
Latitude 42.758763°
Longitude -95.526569°

Preliminary

Design For 0° Skew
209'-0" x 44'-0" Continuous Concrete Slab Bridge

2 - 45'-6" End Spans 2 - 59'-0" Interior Spans

Situation Plan

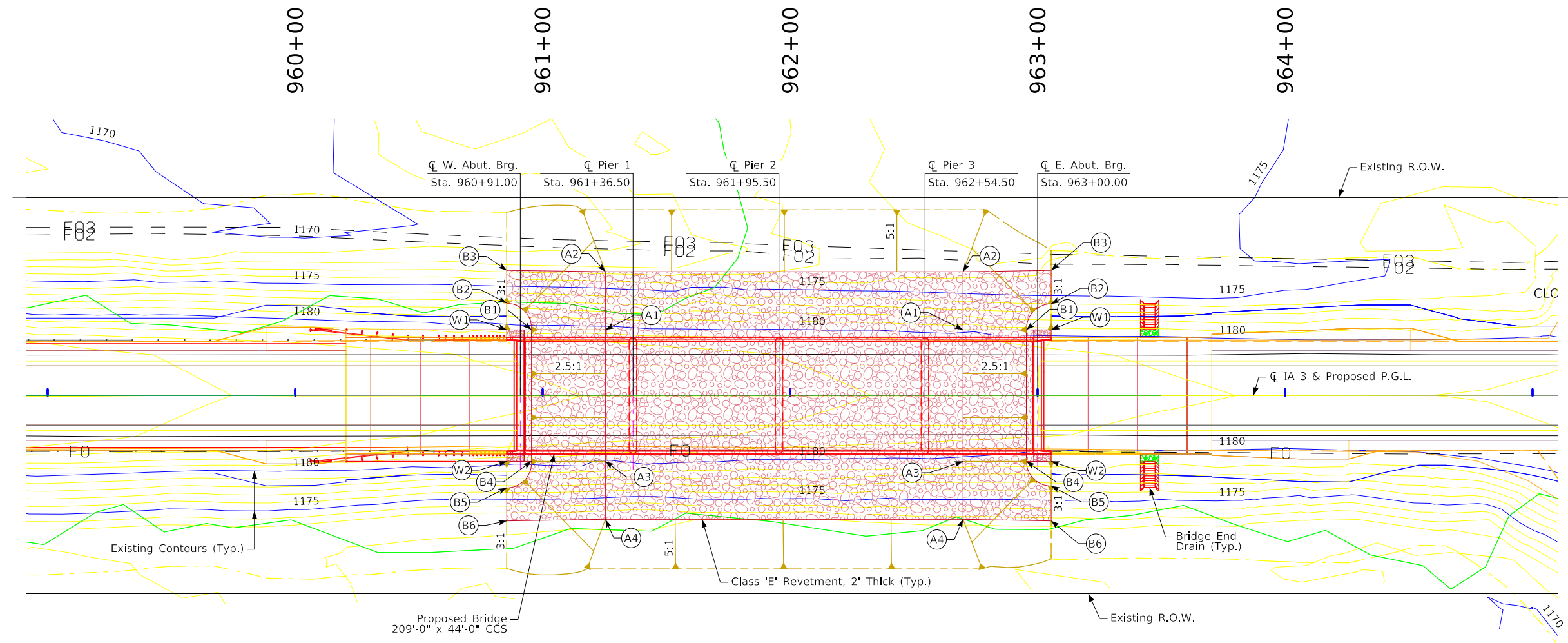
STA. 961+95.50 (IA 3) December, 2023

Cherokee County

IOWA DEPARTMENT OF TRANSPORTATION
Design No. 226 Design Sheet No. 1 of 3 FHWA No. 701190



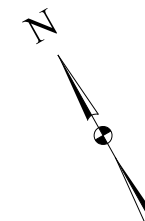
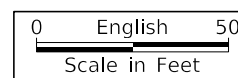
Control Point: #18003062 A FENO TYPE MONUMENT SET IN SOUTH DITCH ABOUT 0.3 FT. DEEP AND 11 FEET WEST OF METAL SIGN POST, N=8682191.503, E=14314755.499, EL=1210.074



Berm Slope Location Table						
Points	West Abutment			East Abutment		
	Station	Offset	Elev.	Station	Offset	Elev.
A1	961+25.38	26.58' LT.	1170.00	962+69.85	26.58' LT.	1170.00
A2	961+25.38	50.00' LT.	1170.00	962+69.85	50.00' LT.	1170.00
A3	961+25.38	26.58' RT.	1170.00	962+69.85	26.58' RT.	1170.00
A4	961+25.38	50.00' RT.	1170.00	962+69.85	50.00' RT.	1170.00
B1	960+95.50	26.58' LT.	1182.61	962+95.50	26.58' LT.	1181.14
B2	960+85.50	37.23' LT.	1182.61	963+05.50	37.02' LT.	1181.14
B3	960+85.50	50.61' LT.	1178.15	963+05.50	50.59' LT.	1176.62
B4	960+95.50	26.58' RT.	1182.61	962+95.50	26.58' RT.	1181.14
B5	960+85.50	37.23' RT.	1182.61	963+05.50	36.48' RT.	1181.14
B6	960+85.50	50.61' RT.	1178.15	963+05.50	50.59' RT.	1176.44
W1	960+85.50	26.58' LT.	1185.96	963+05.50	26.58' LT.	1184.42
W2	960+85.50	26.58' RT.	1185.96	963+05.50	26.58' RT.	1184.42

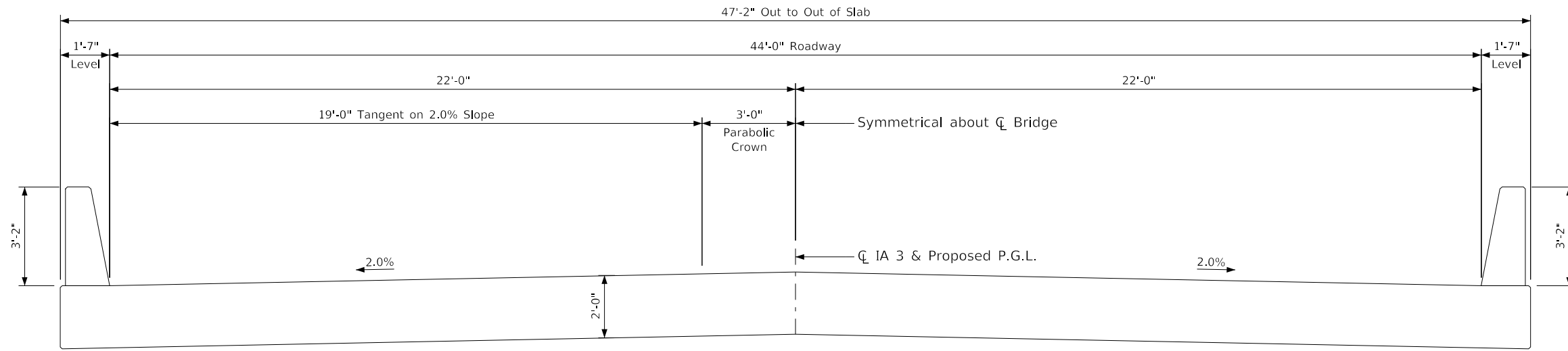
Berm slope elevations reflect the grading surface.

Situation Plan

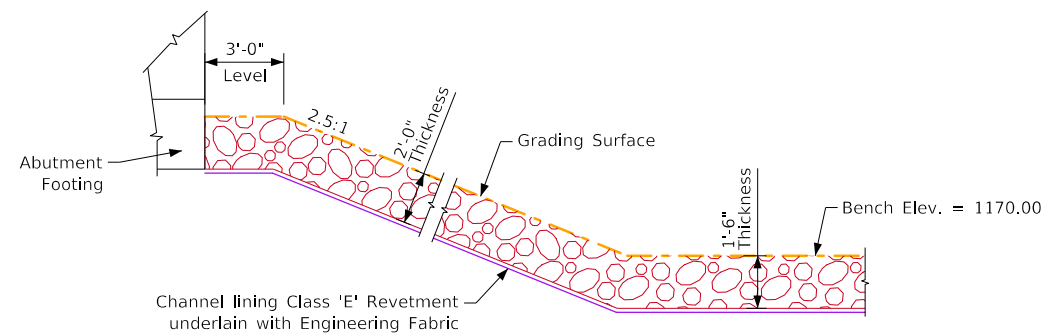


Preliminary
Design For 0° Skew
209'-0" x 44'-0" Continuous Concrete Slab Bridge
2 - 45'-6" End Spans 2 - 59'-0" Interior Spans
Situation Plan - Site
STA. 961+95.50 (IA 3) December, 2023
Cherokee County
IOWA DEPARTMENT OF TRANSPORTATION
Design No. 226 Design Sheet No. 2 of 3 FHWA No. 701190





Transverse Section



Section Thru Embedded Channel Lining
Normal to Berm Slope

General Notes:

(Final designer to include in final plans)
This design is for a new 209'-0" x 44'-0" Continuous Concrete Slab Bridge, Cherokee Co. Design 226, FHWA No. 701190, Maint. No. TBD.

Design Notes:

(Final designer to delete these notes from final Situation Plan.)
TL-4 railing proposed.

Proposed **Pile Bent Piers** with Non-Monolithic Pier Caps - Pile size & length T.B.D. in final design. Individual Pile Encasement.

The bridge will be designed to withstand the applicable effects of ice and the horizontal stream loads and uplift forces associated with the Q_{100} .

An Iowa DNR Flood Plain Permit is required. Preliminary Design will submit the application and place the permit in the PW Regulatory_Permits subdirectory folder upon receipt.

Estimated Revetment Quantities			
Location	Revetment CL. 'E' (Ton)	Engineering Fabric (SY)	Excavation (CY)
West Berm	442.2	459.1	276.4
East Berm	390.3	408.1	243.9
Channel	1284.2	1653.4	802.7
Totals	2116.7	2520.6	1323.0

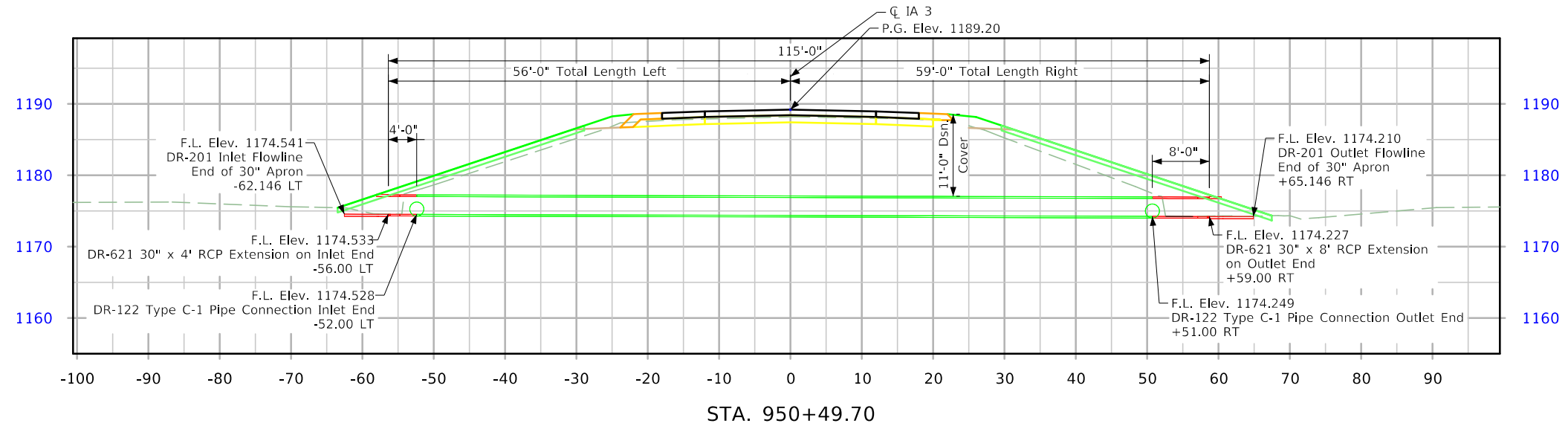
Excavation quantity calculated from grading surface.

Preliminary

Design For 0° Skew
209'-0" x 44'-0" Continuous Concrete Slab Bridge
 2 - 45'-6" End Spans 2 - 59'-0" Interior Spans
Situation Plan - Misc.
 STA. 961+95.50 (IA 3) December, 2023
Cherokee County
 IOWA DEPARTMENT OF TRANSPORTATION
 Design No. 226 Design Sheet No. 3 of 3 FHWA No. 701190



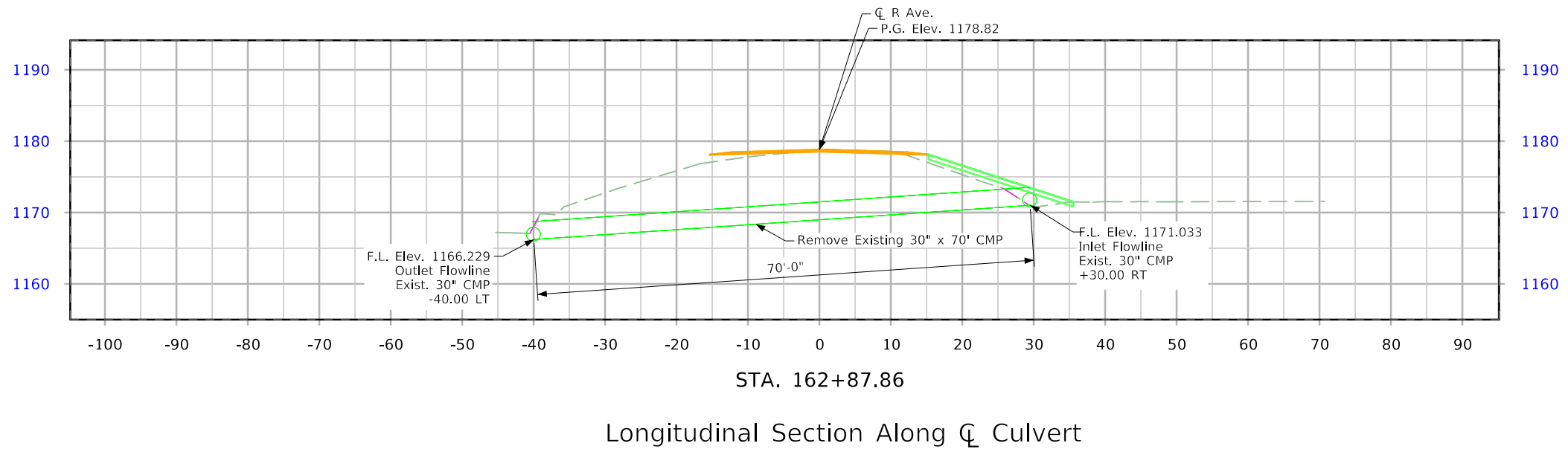
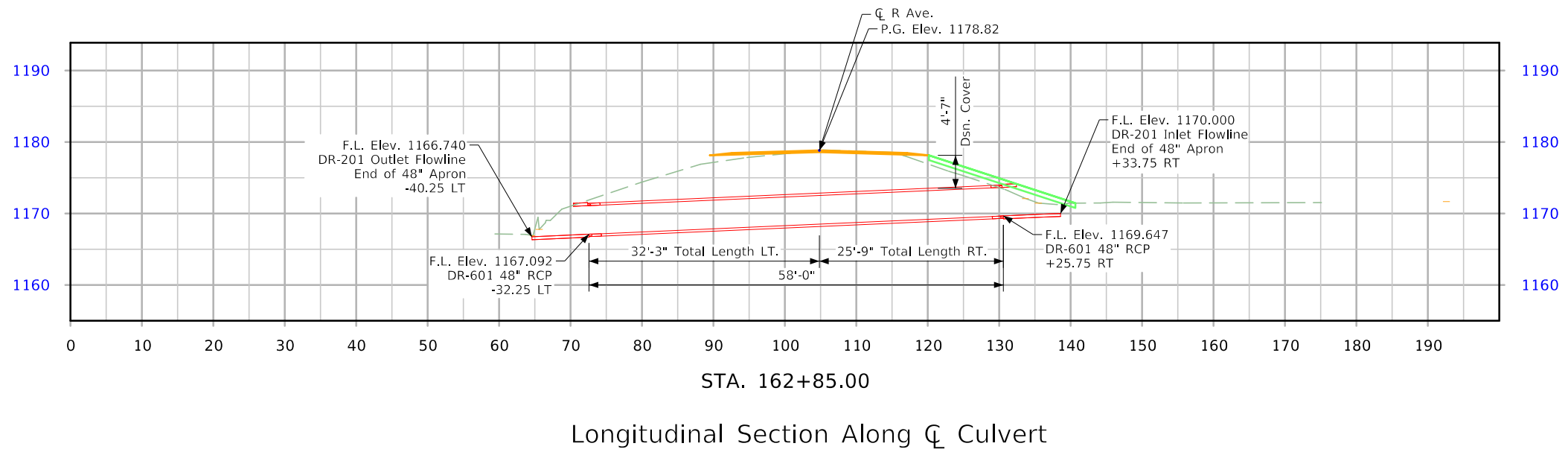
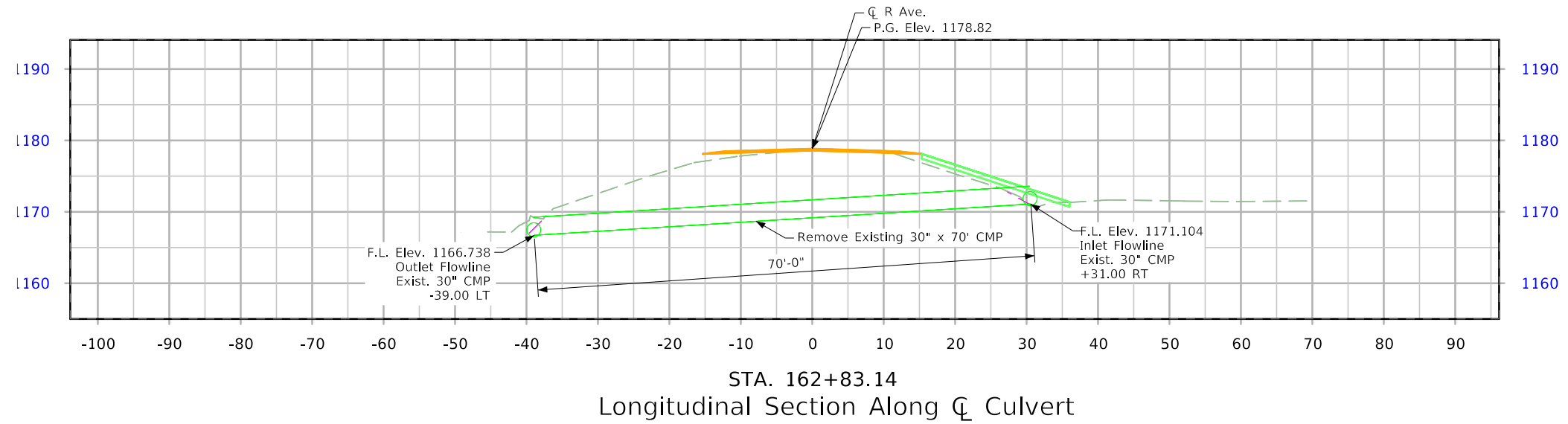
Remove both aprons and extend with DR-122 connections to existing pipe ditch to inlet and outlet.



Longitudinal Section Along CL Culvert

Skew 11°49'42" Right AHEAD. Install new 48" x 58' RCP. Remove Existing Pipes at Survey Sta. 162+83.14 & 162+87.86 or will be plugged and abandoned with flowable mortar.

R Avenue



CROSS SECTION VIEW COLOR LEGEND

Design Color No.	Feature	Design Color No.	Feature
Aggregate			
(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		
(188)	Revetment Class D	Grading	
(28)	Revetment Class E	(8)	Behind Curb Cut
(12)	Shoulder Special Backfill	(6)	Granular
(12)	Special Backfill	(13)	Granular Back Fill
(20)	Subbase	(48)	Rock Undercut
(20)	Subbase Lower	(8)	Shoulder Earth Fill
(20)	Subbase Upper	(2)	Side Slopes
(118)	Subgrade Treatment	(226)	Side Slopes Dressing
Asphalt			
(207)	HMA Base Course	Substrata	
(207)	HMA Interim Course	(128)	Boulder Substrata
(207)	HMA Surface Course	(48)	Broken Weathered Substrata
Concrete			
(0)	Barrier Concrete	(3)	Core Out Substrata
(0)	Barrier Concrete Footing	(203)	Existing Pavement Substrata
(0)	Curb Gutter	(6)	Loam Substrata
(48)	Flowable Mortar	(80)	Rock Substrata
(0)	Median Concrete	(4)	Select Sand Substrata
(0)	PCC Pavement	(3)	Shale Substrata
(0)	Sidewalk	(10)	Topsoil Substrata
Shoulder			
(209)	Shoulder HMA	Unsuitable / Waste	
(0)	Shoulder PCC	(3)	Unsuitable Type A
(6)	Shoulder Granular	(13)	Unsuitable Type B
		(11)	Unsuitable Type C
		(3)	Waste
Existing			
(0)	Existing Pavement		

NOTES:

Text

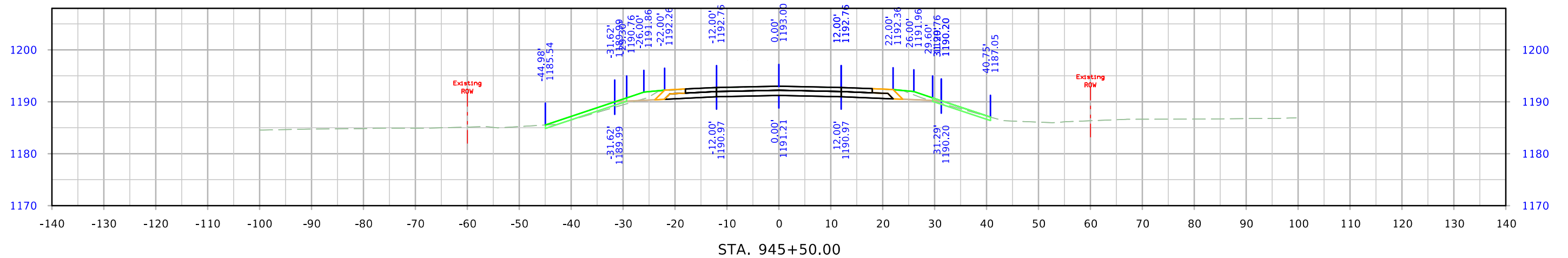
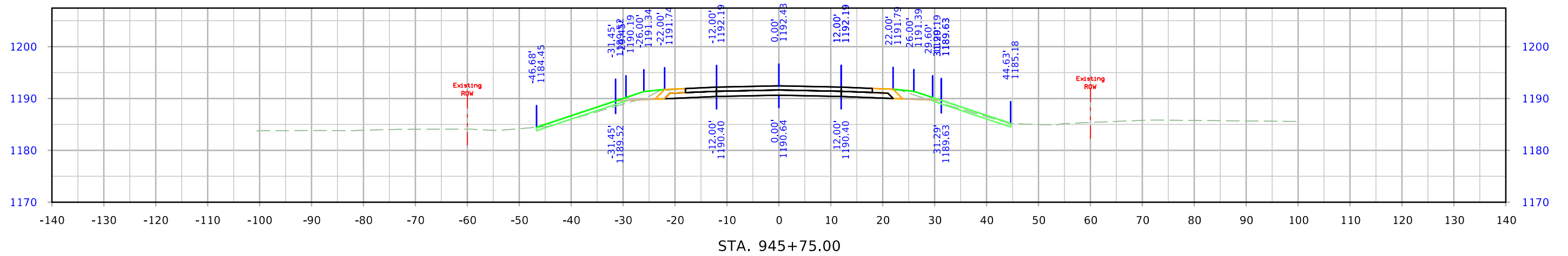
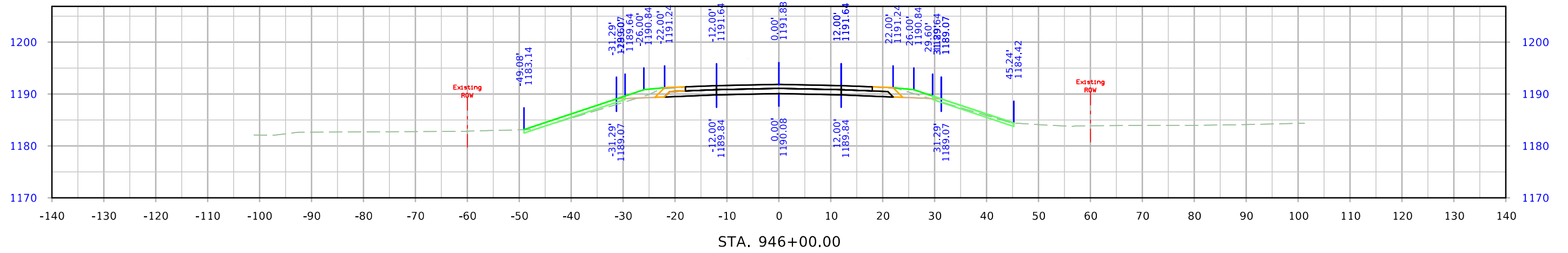
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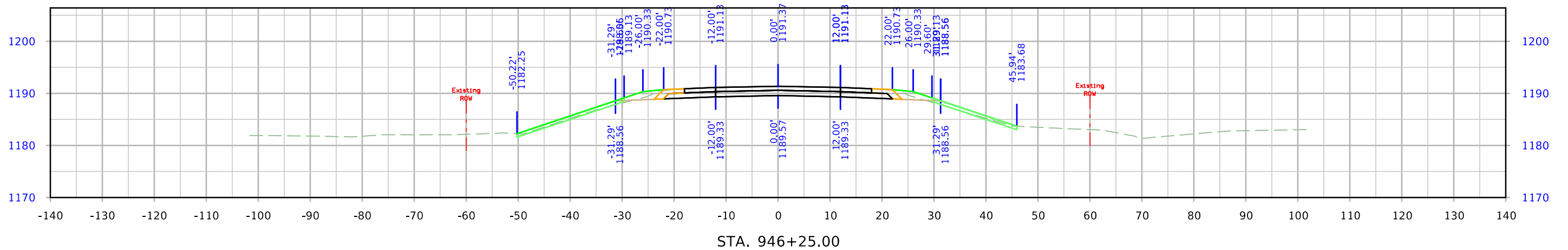
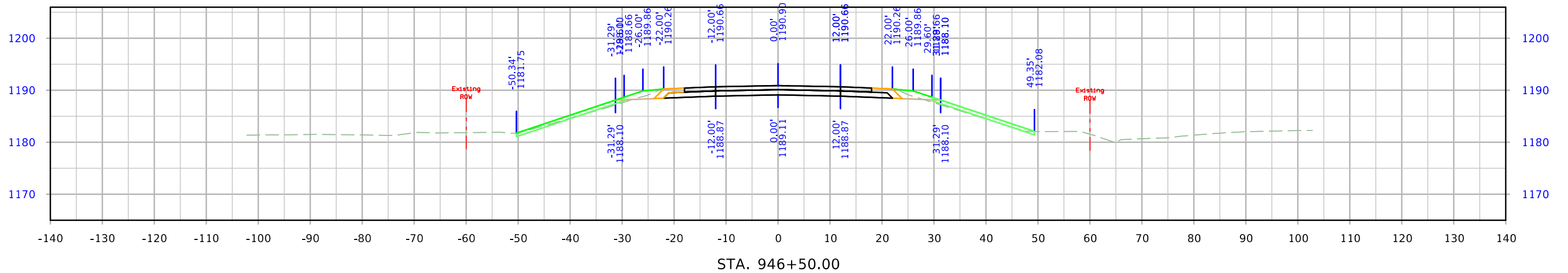
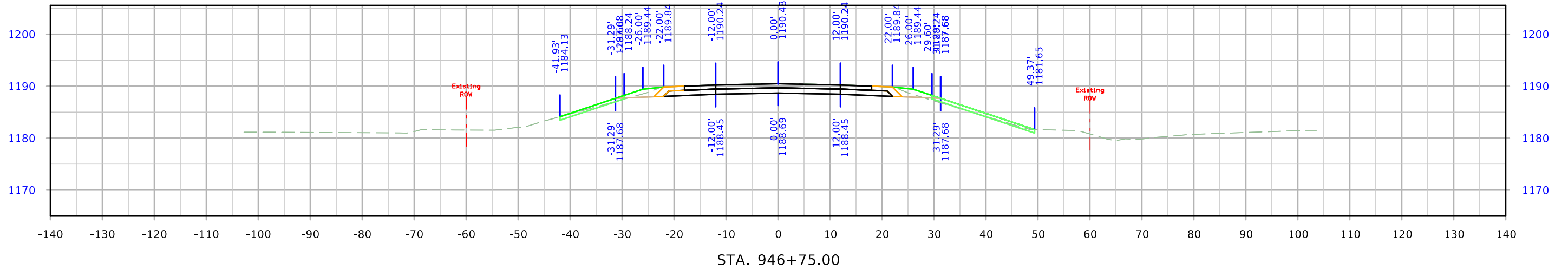
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(COVERS SHEET SERIES W, X, Y, & Z)

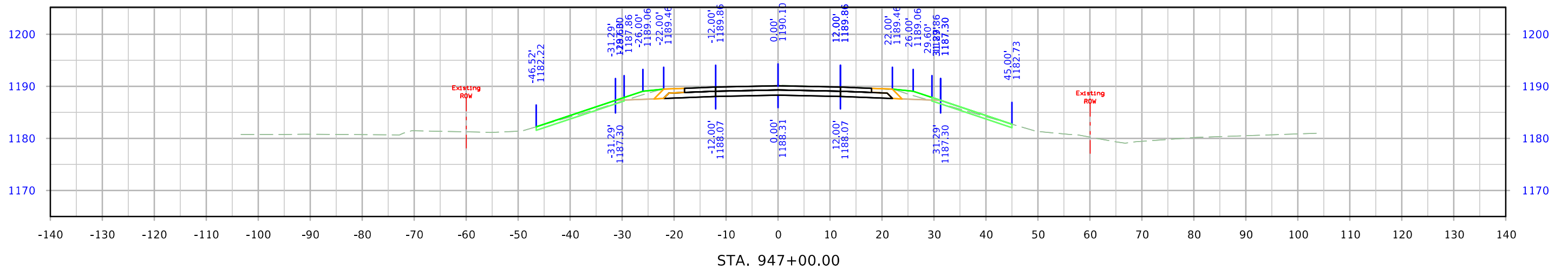
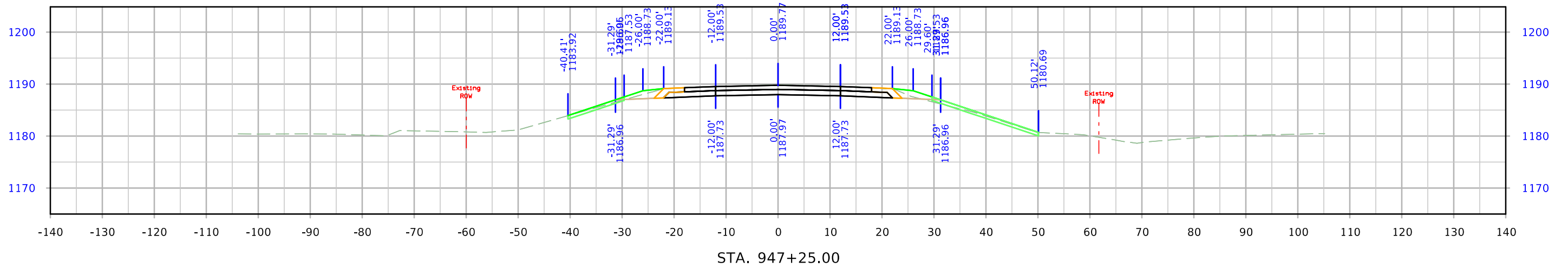
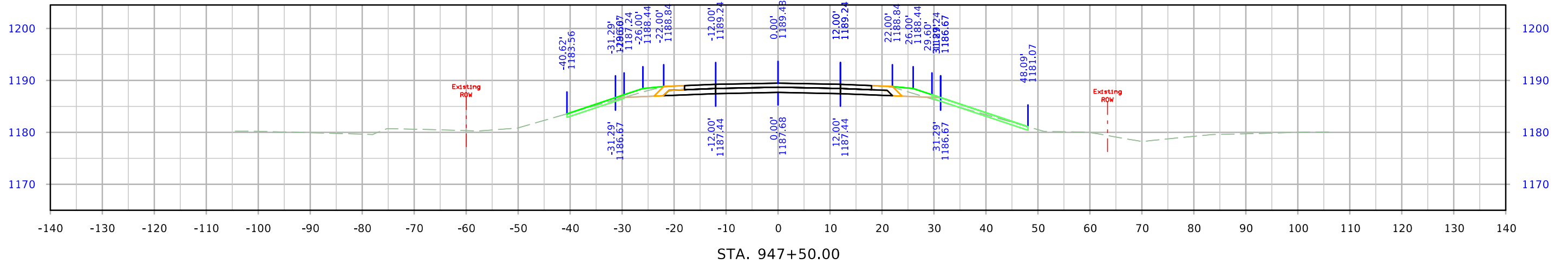
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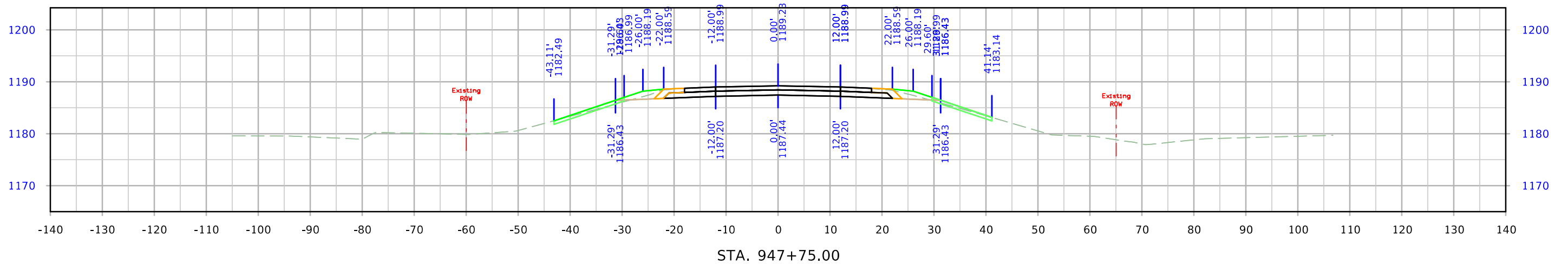
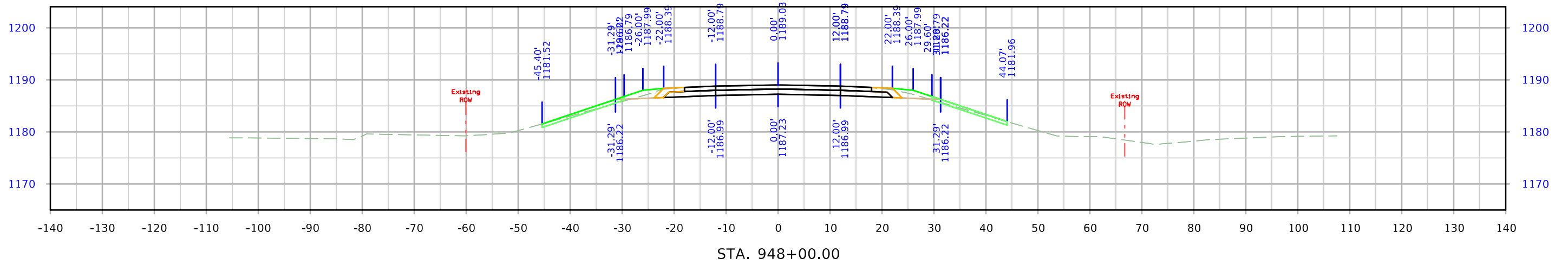
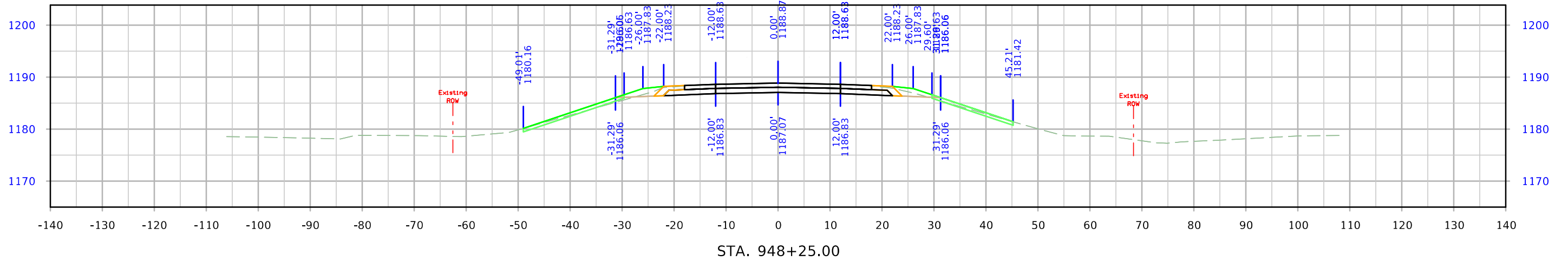
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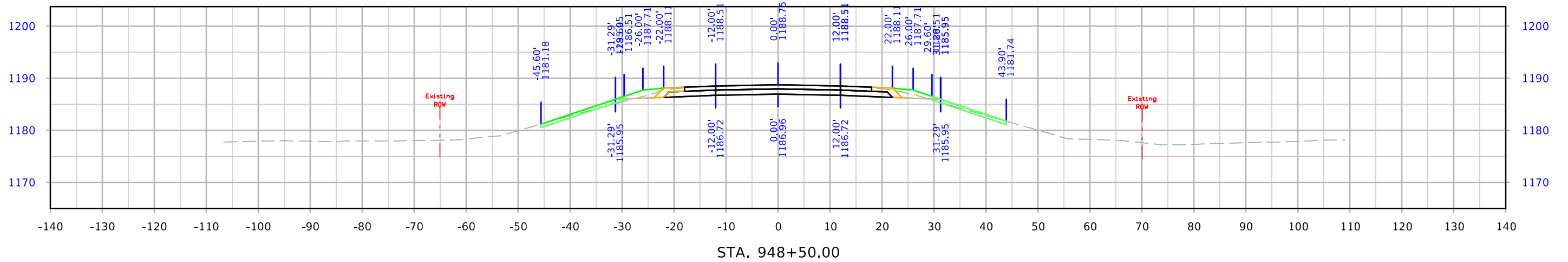
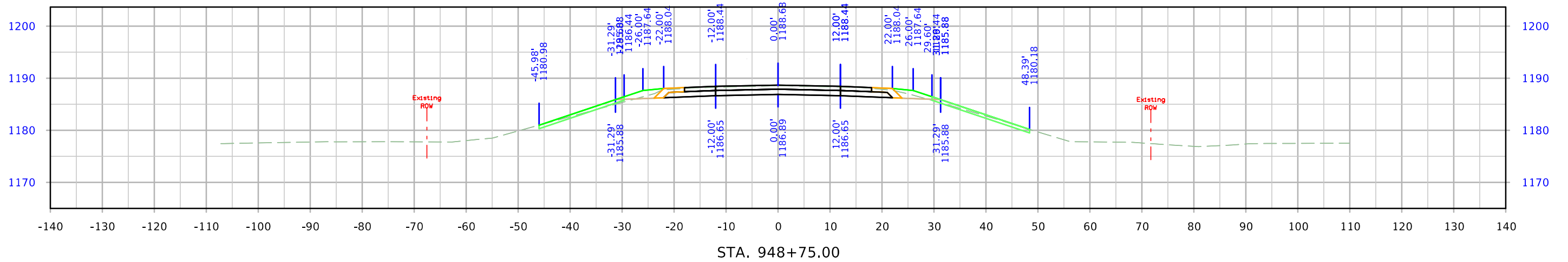
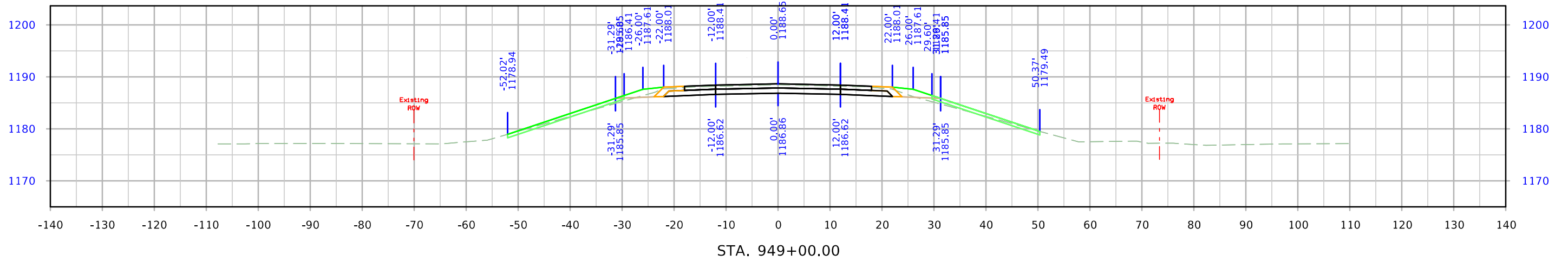
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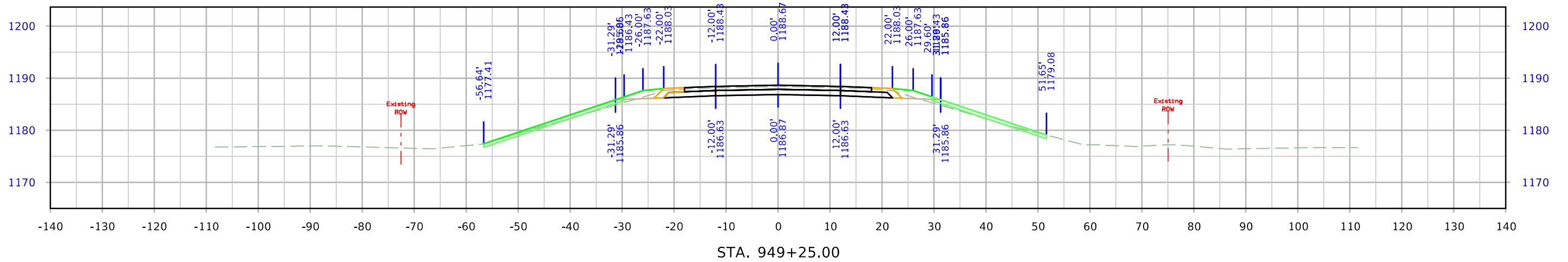
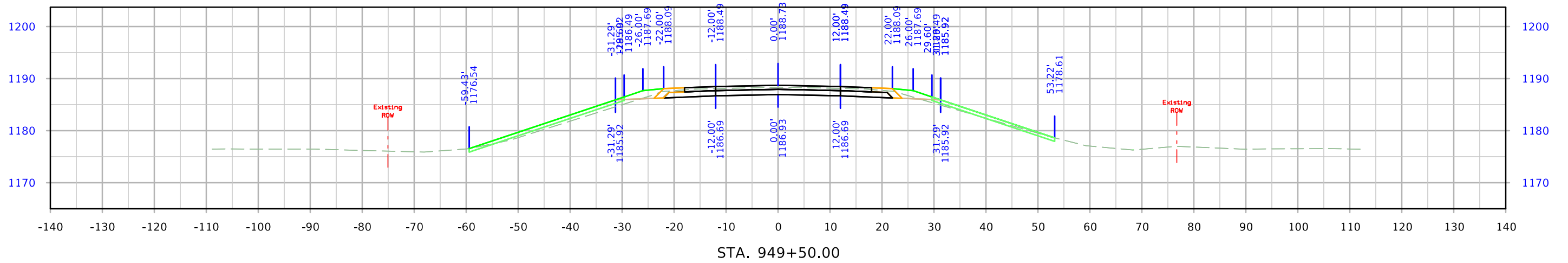
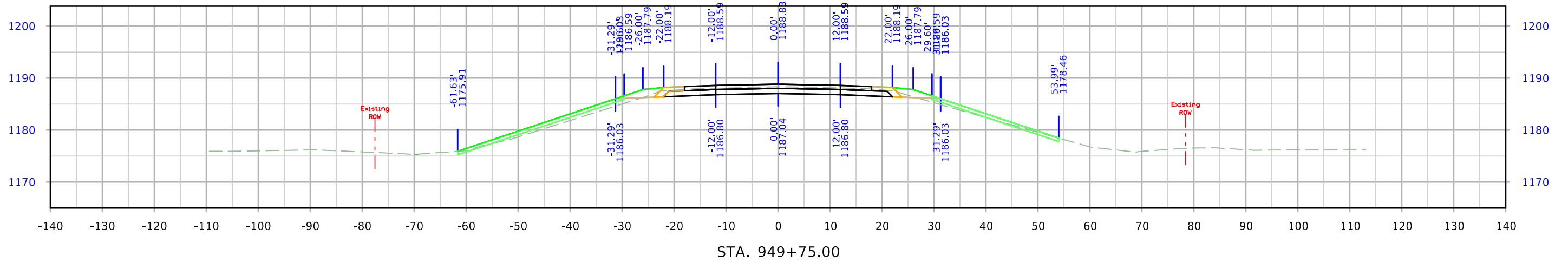
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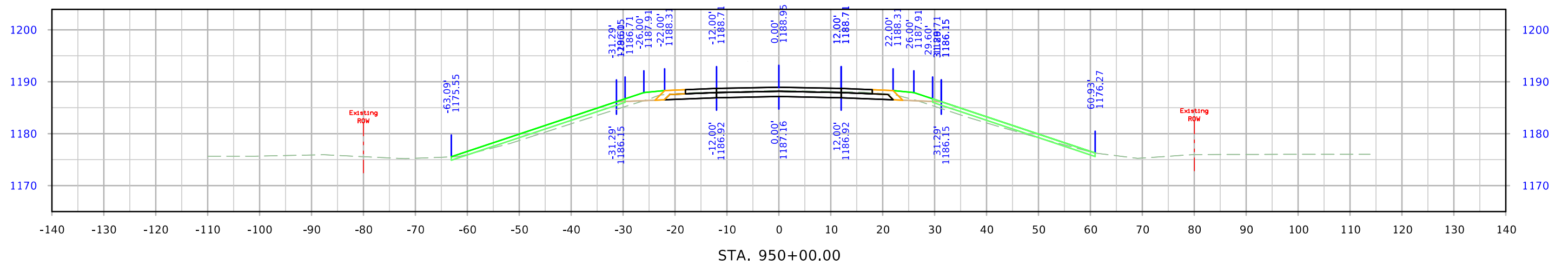
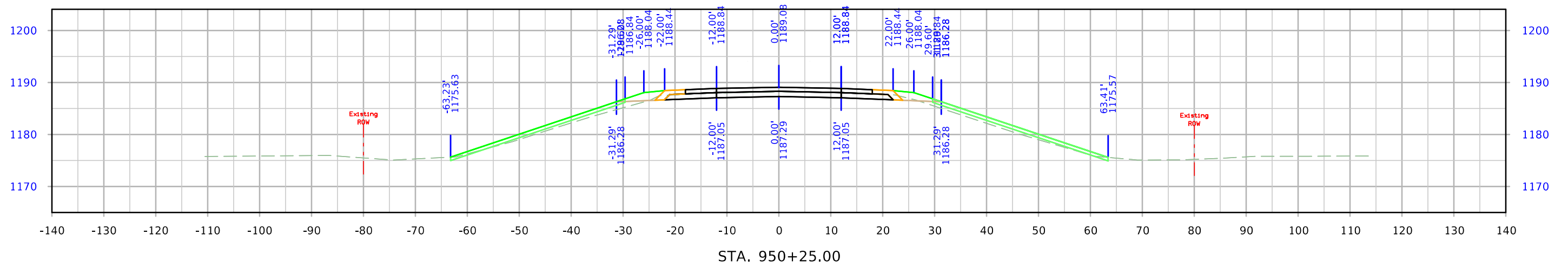
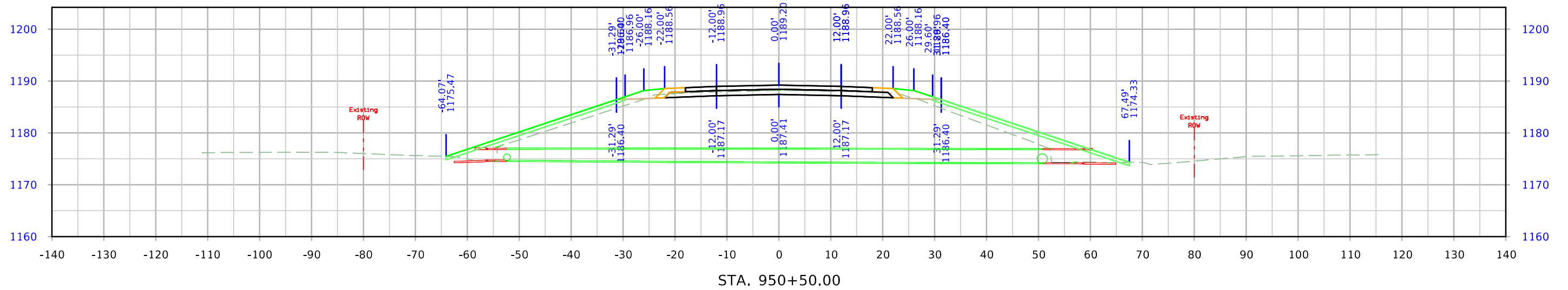
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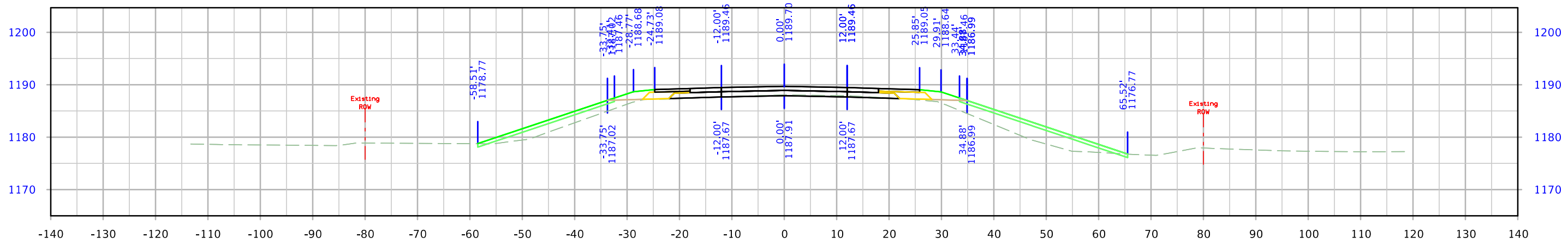
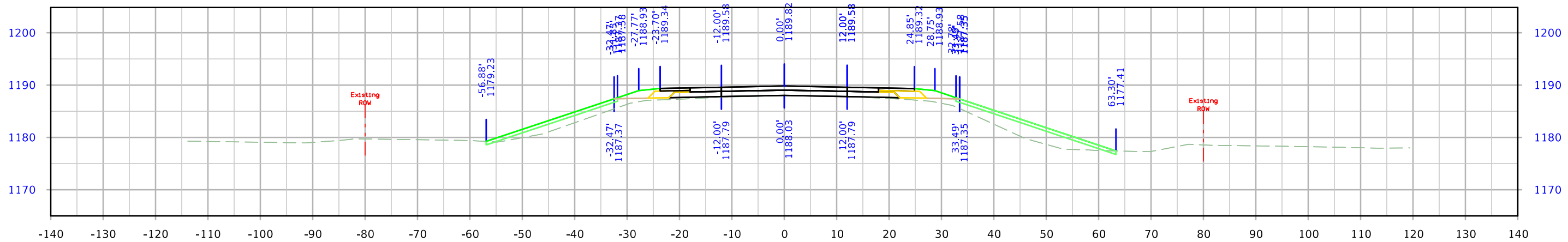
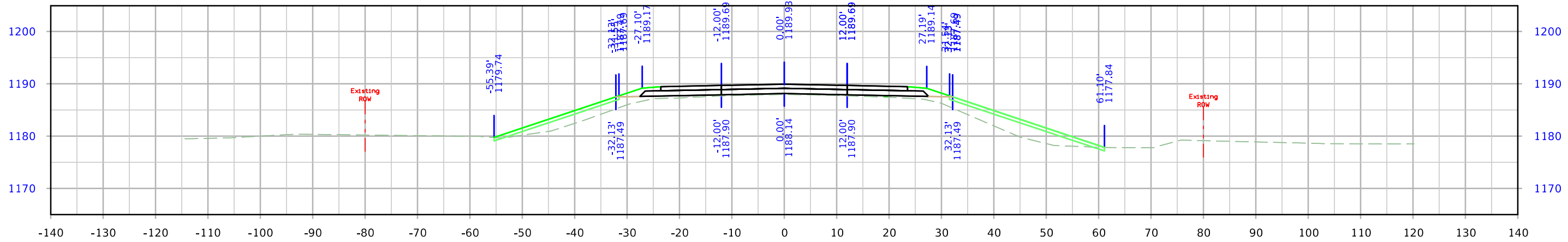
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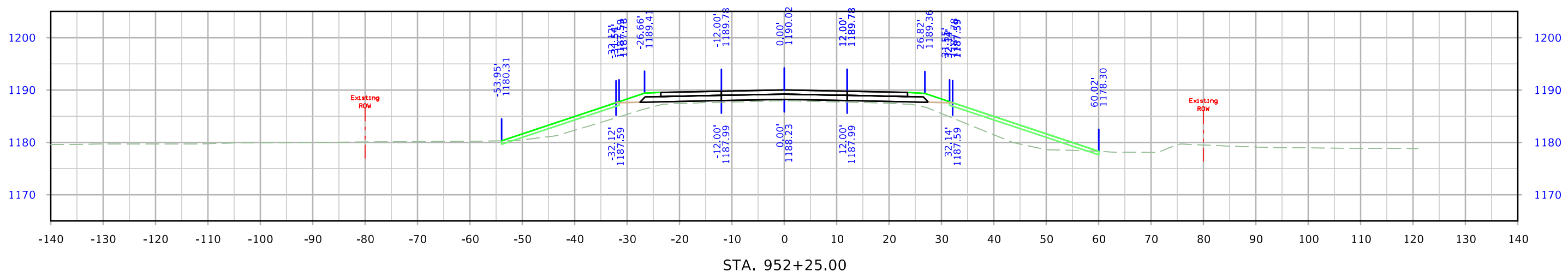
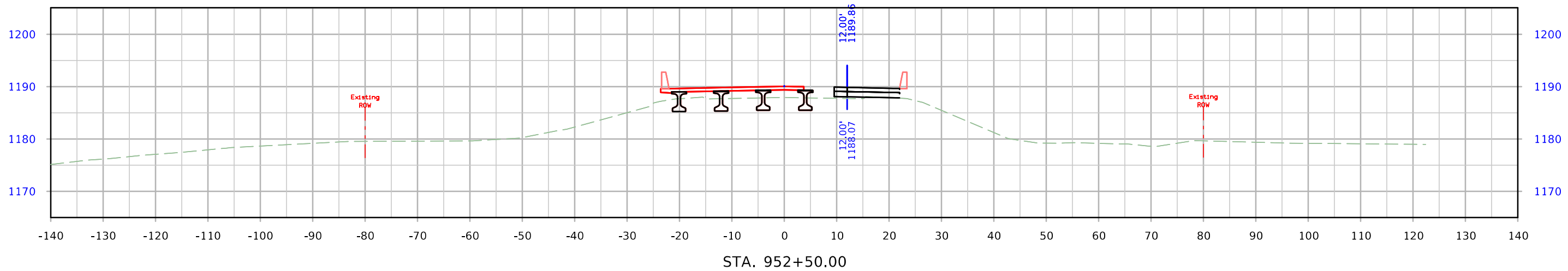
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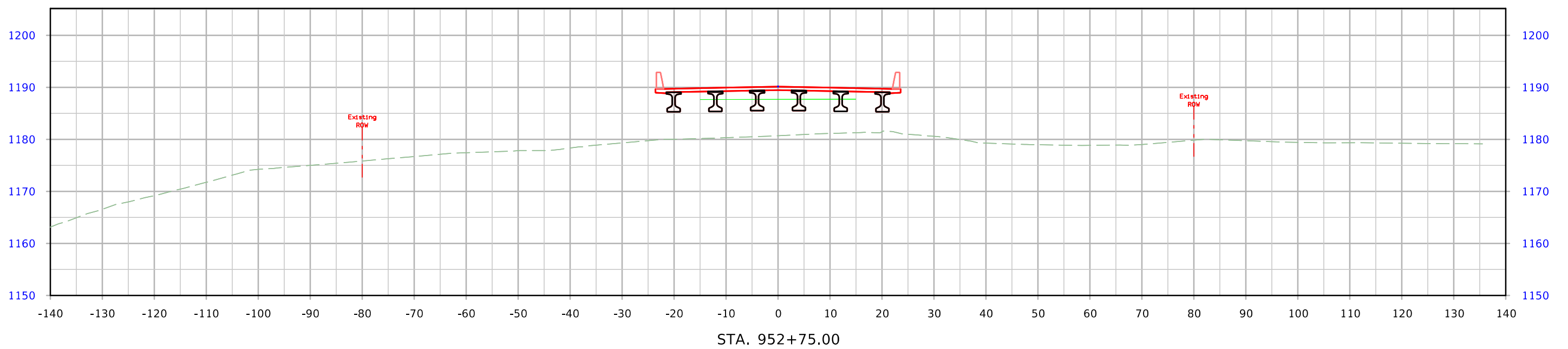
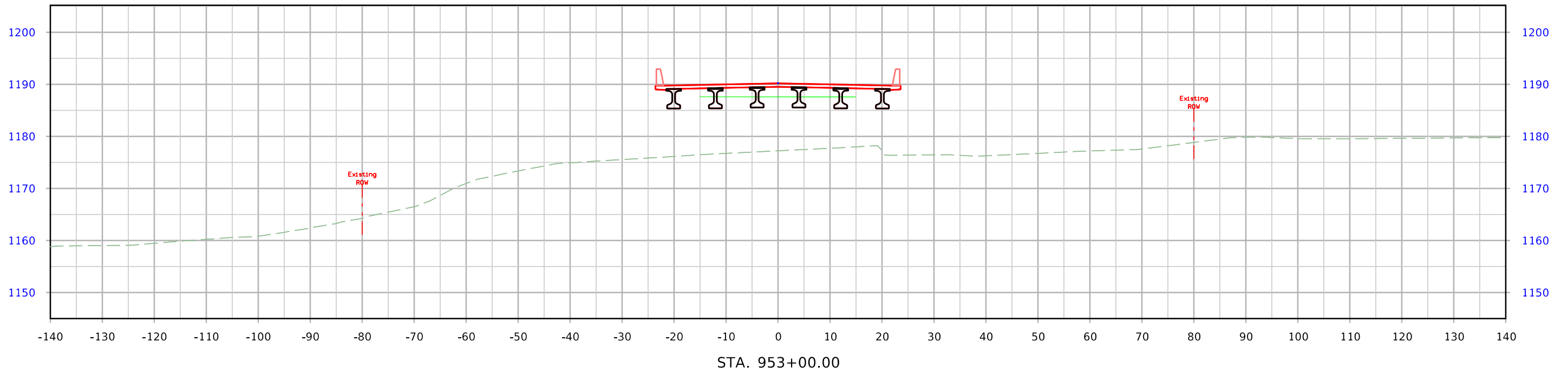
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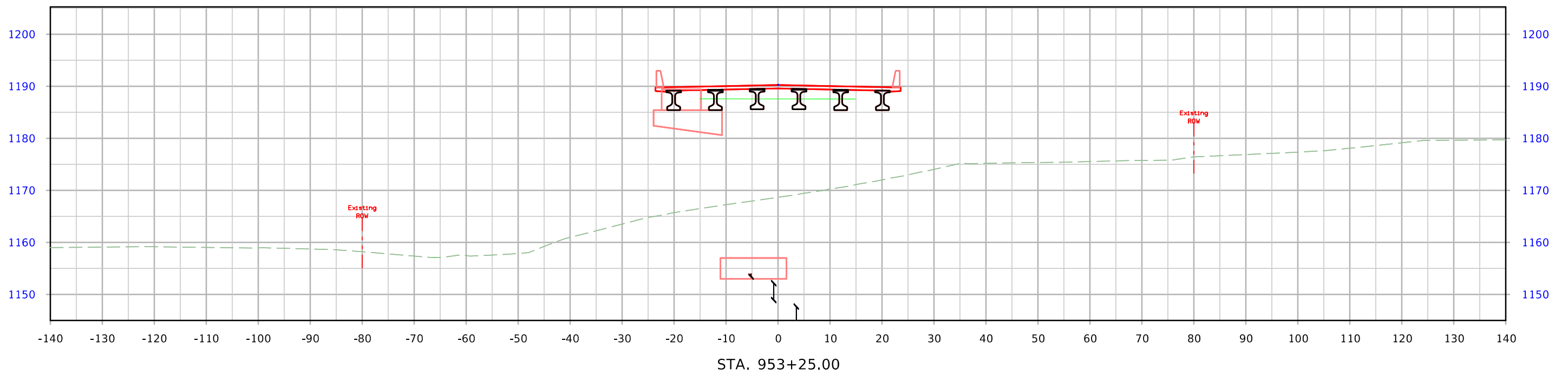
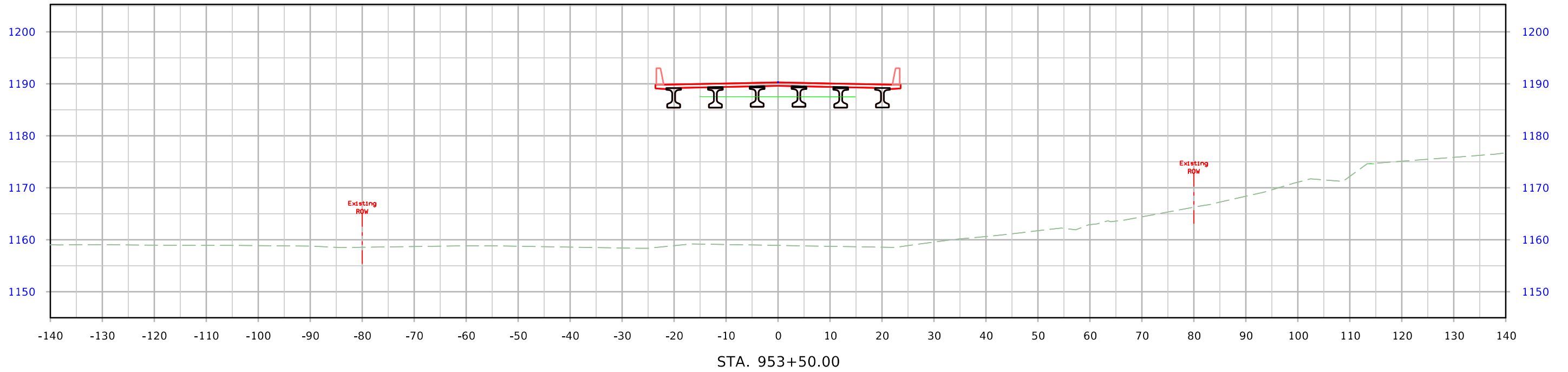
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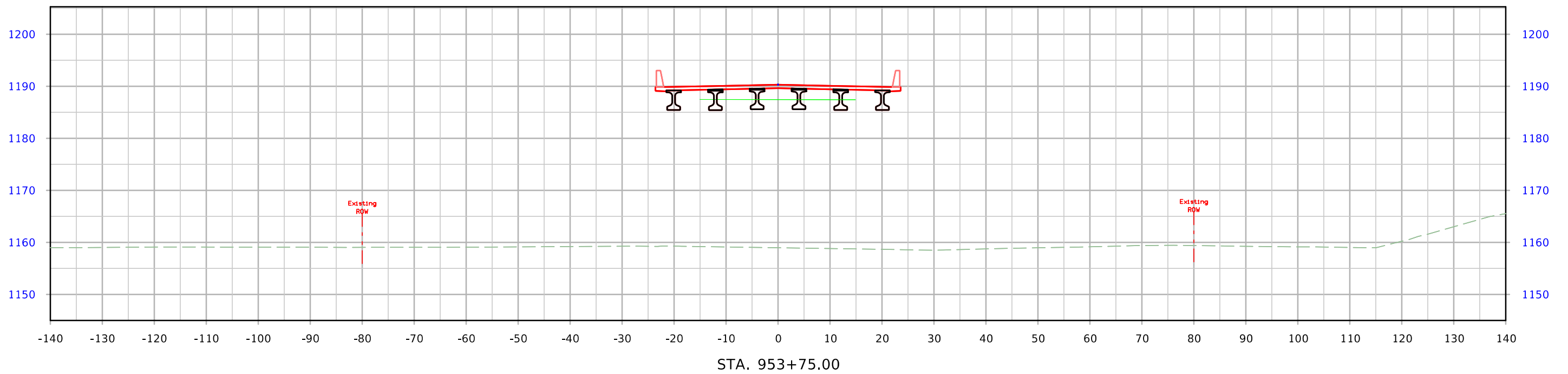
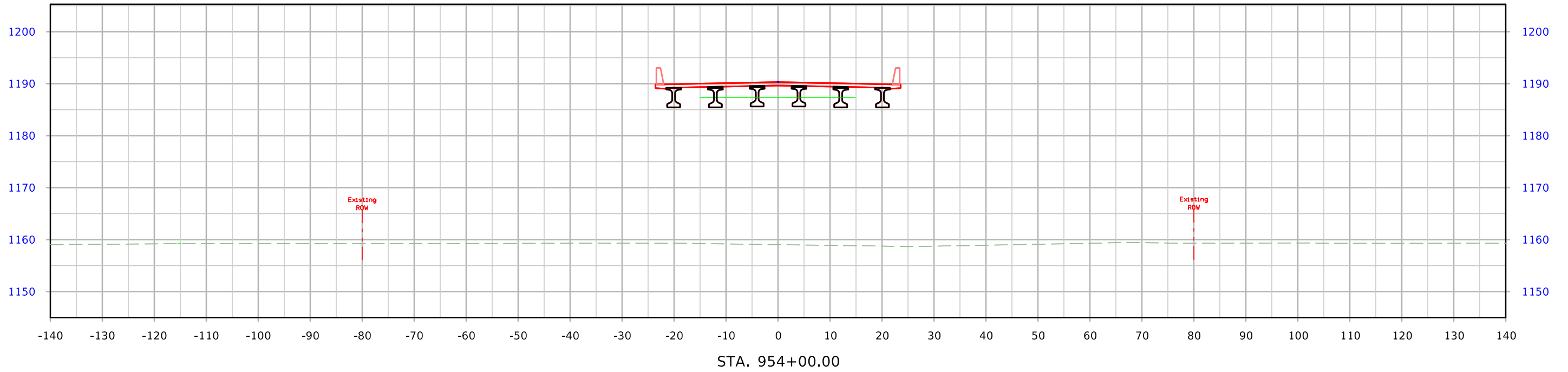
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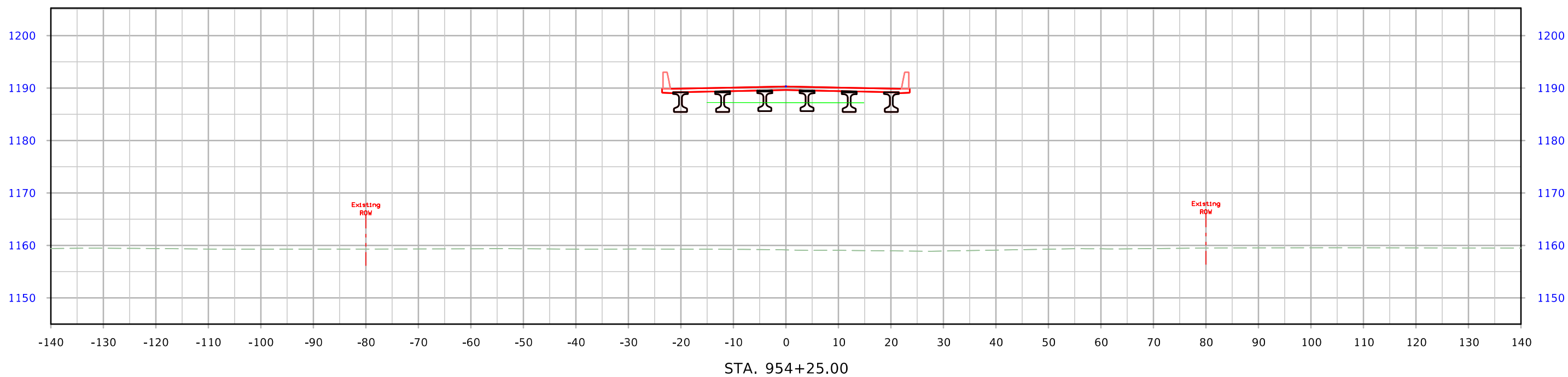
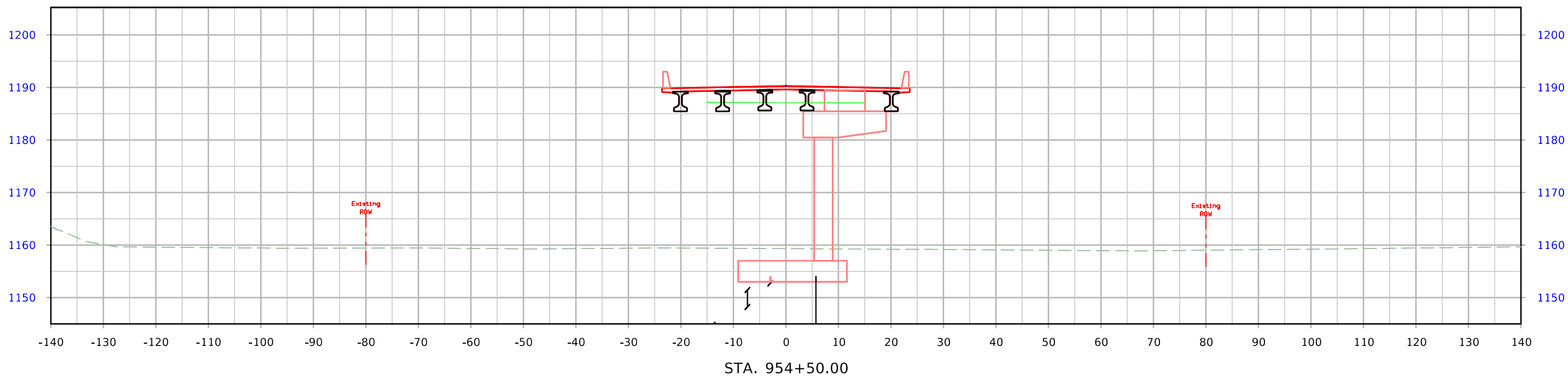
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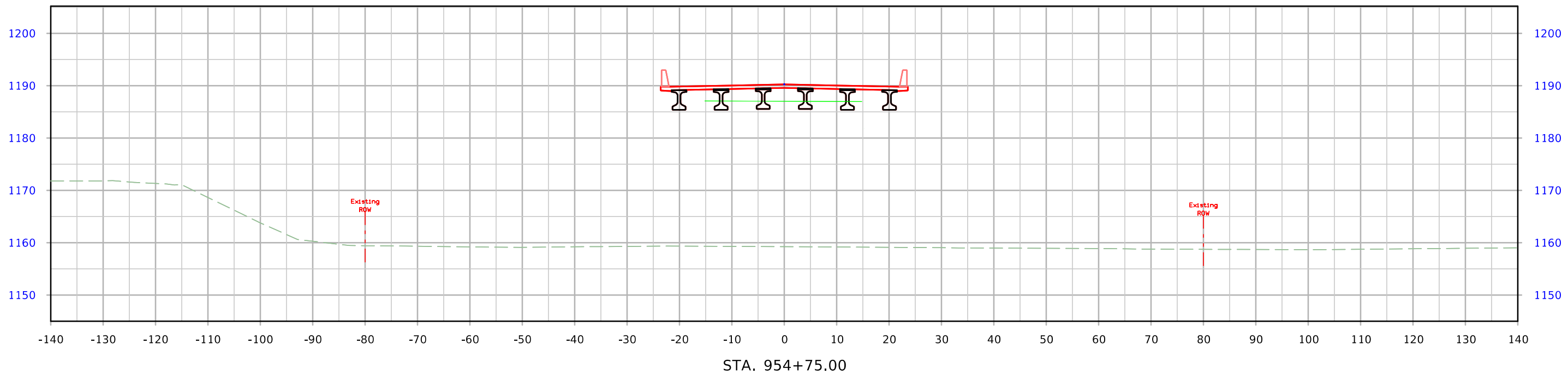
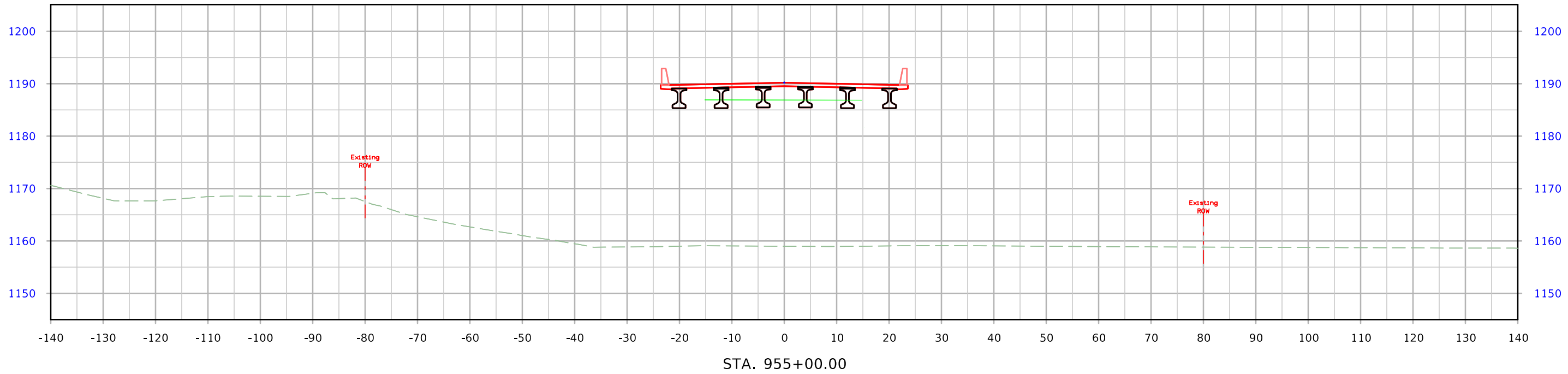
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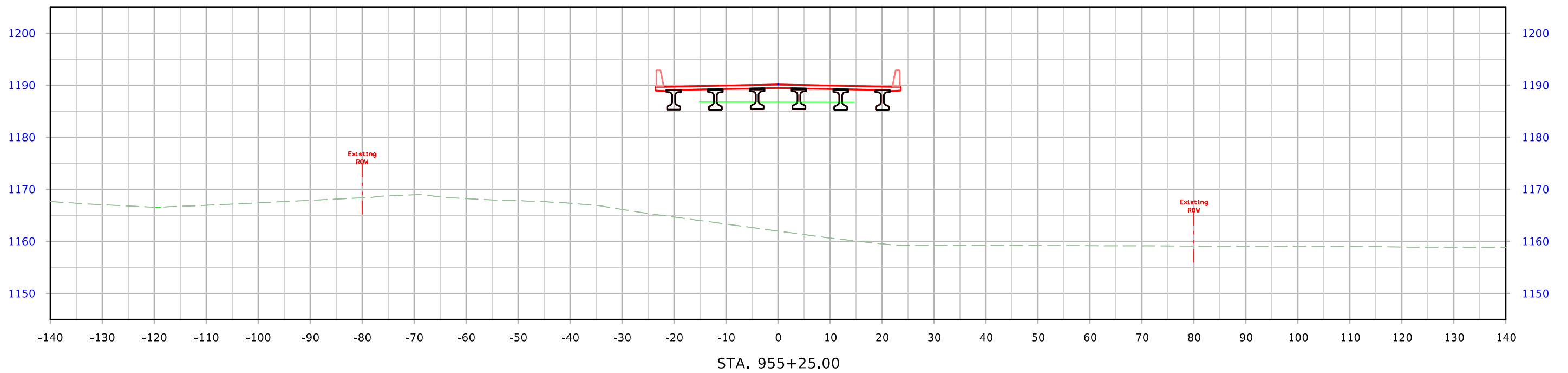
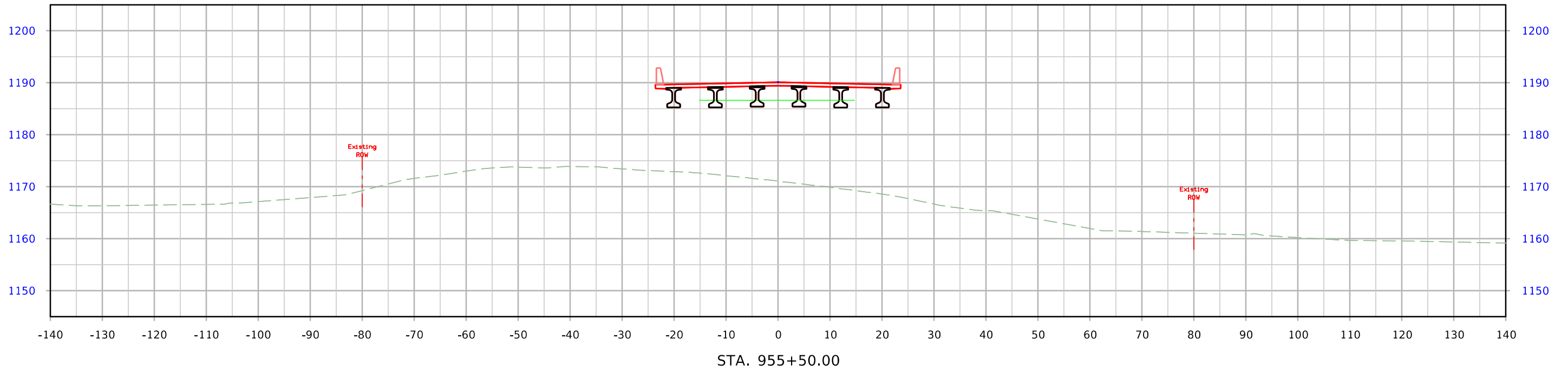
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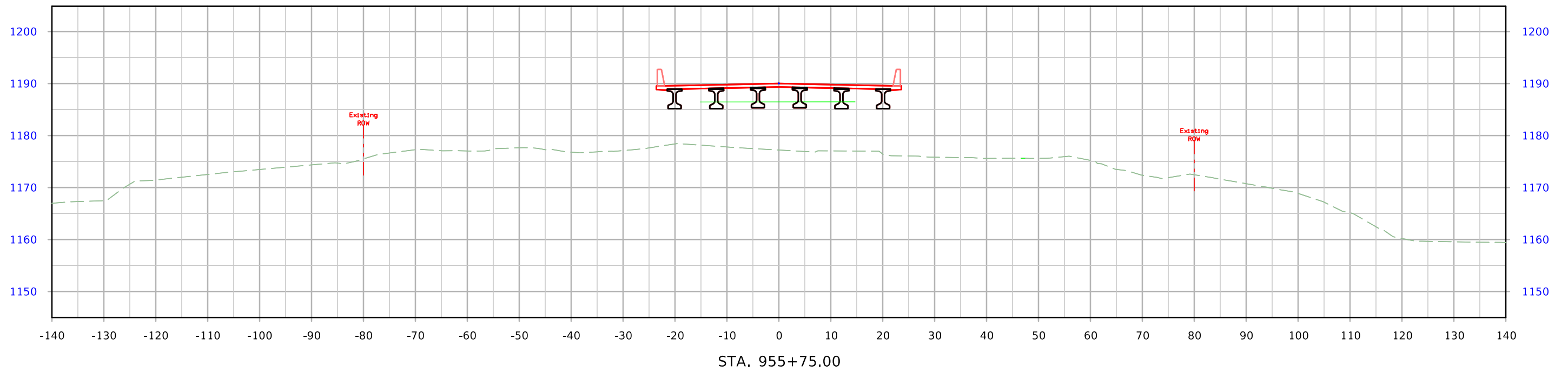
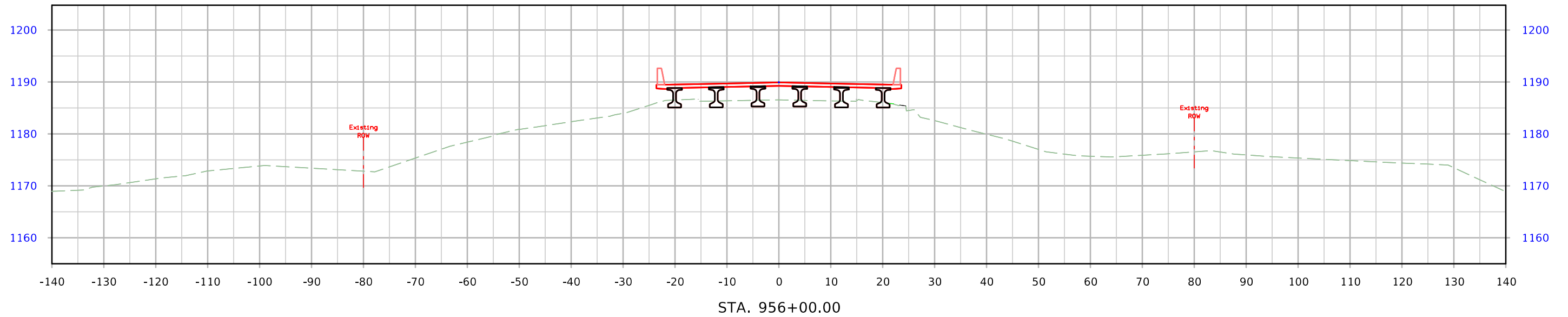
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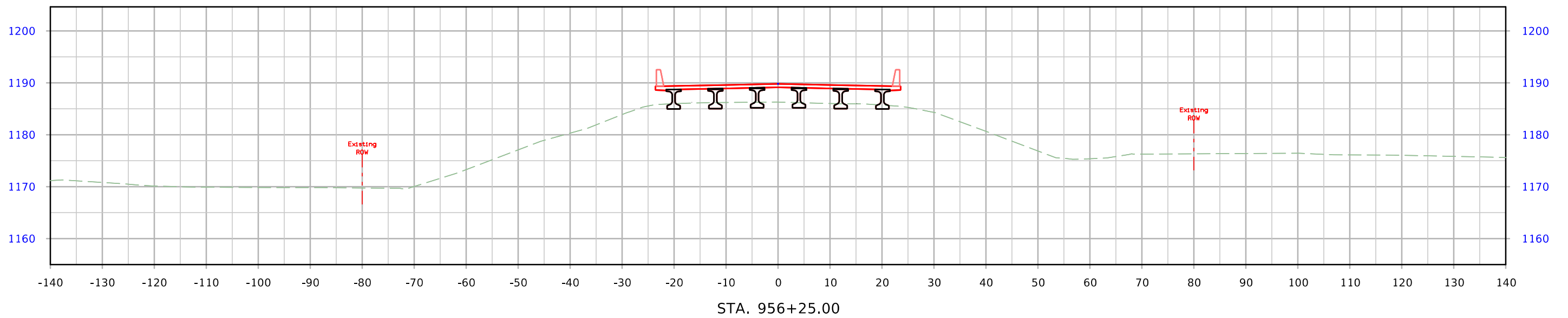
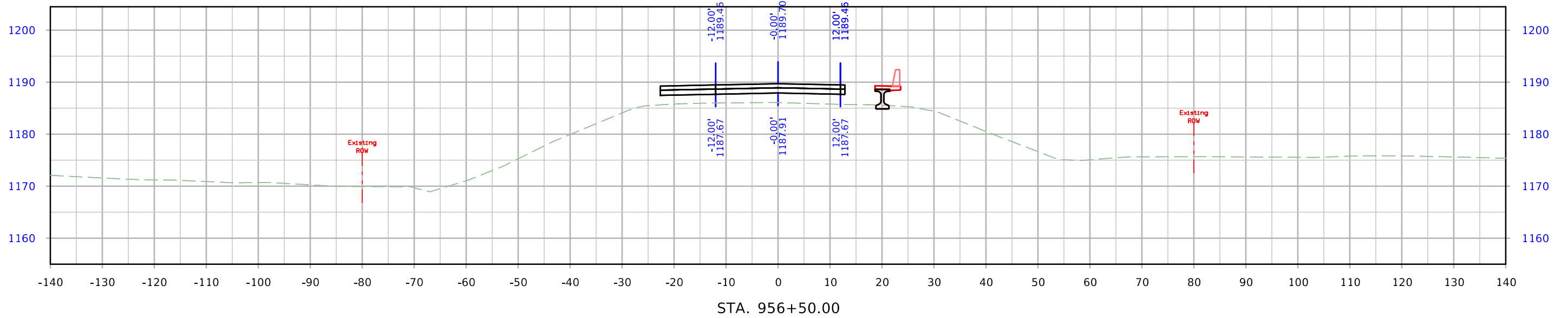
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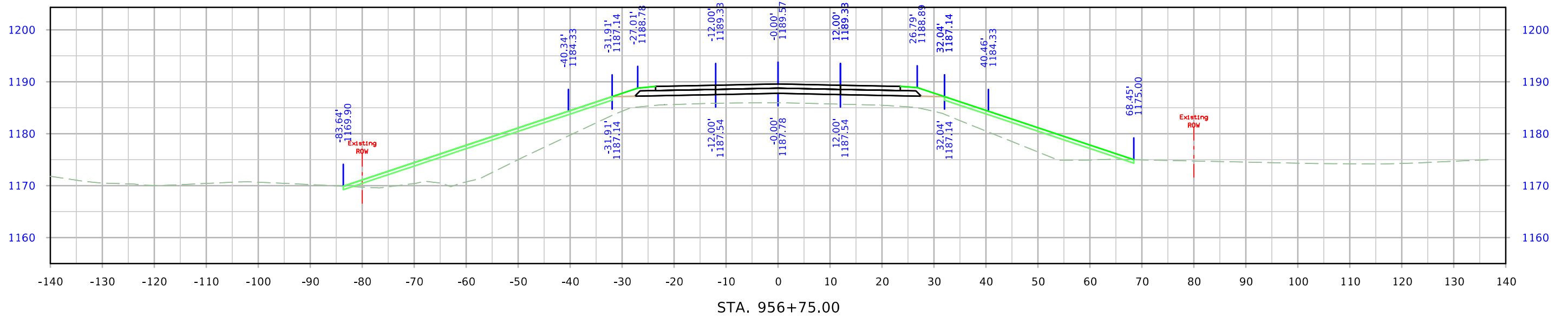
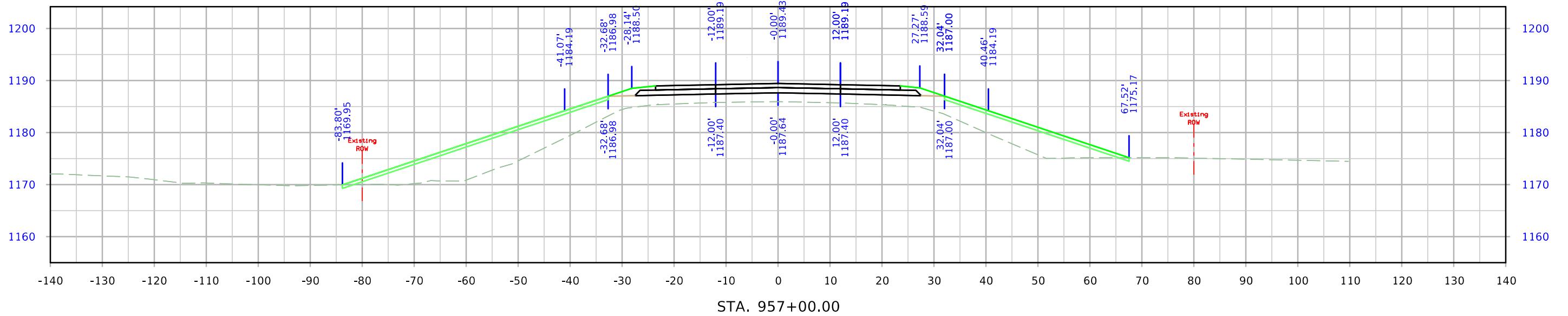
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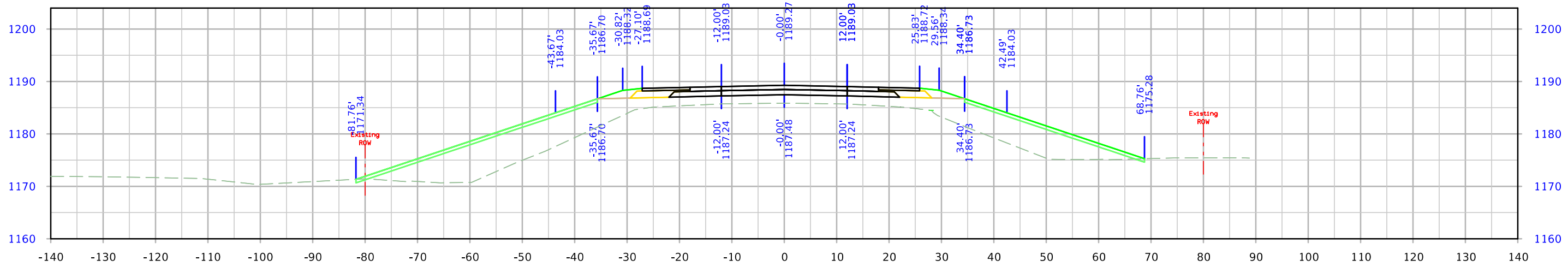
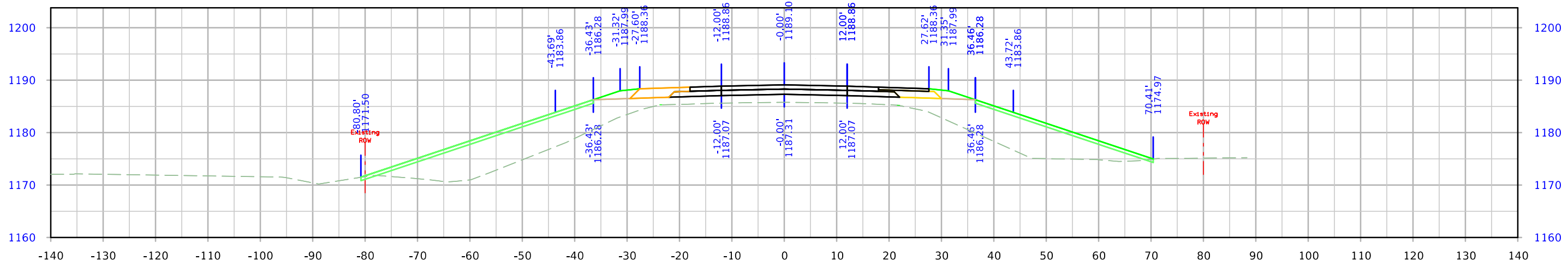
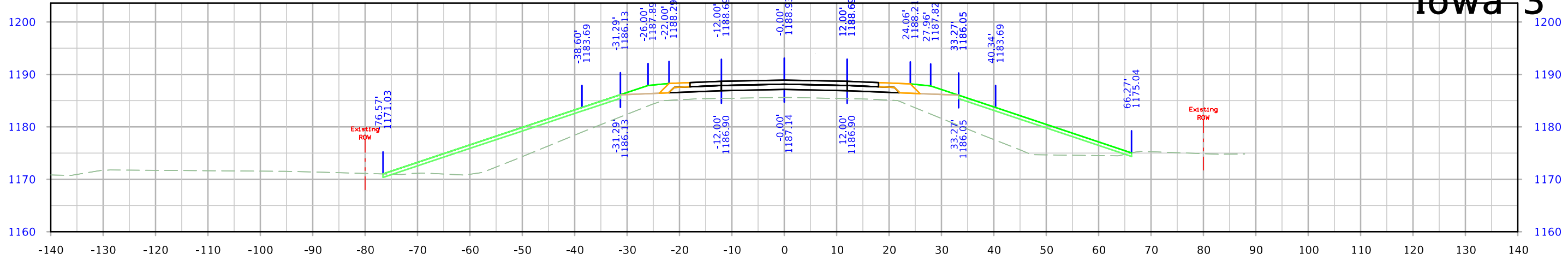
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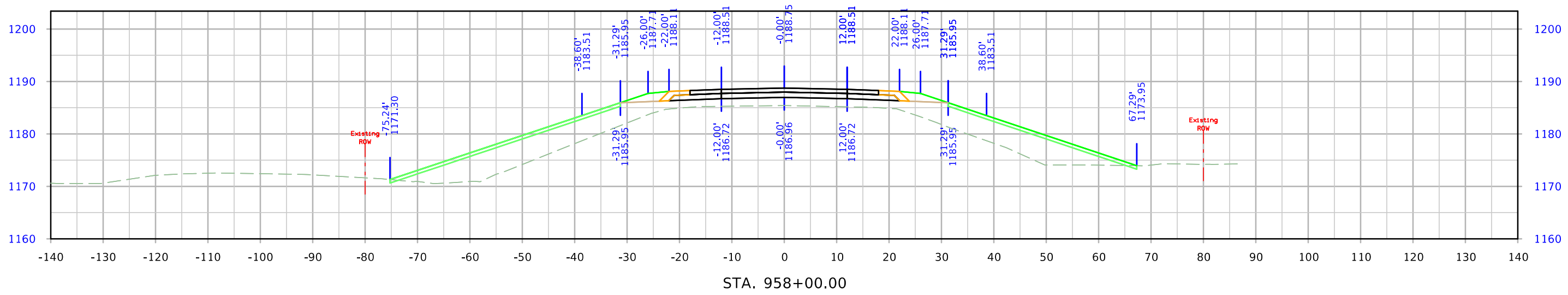
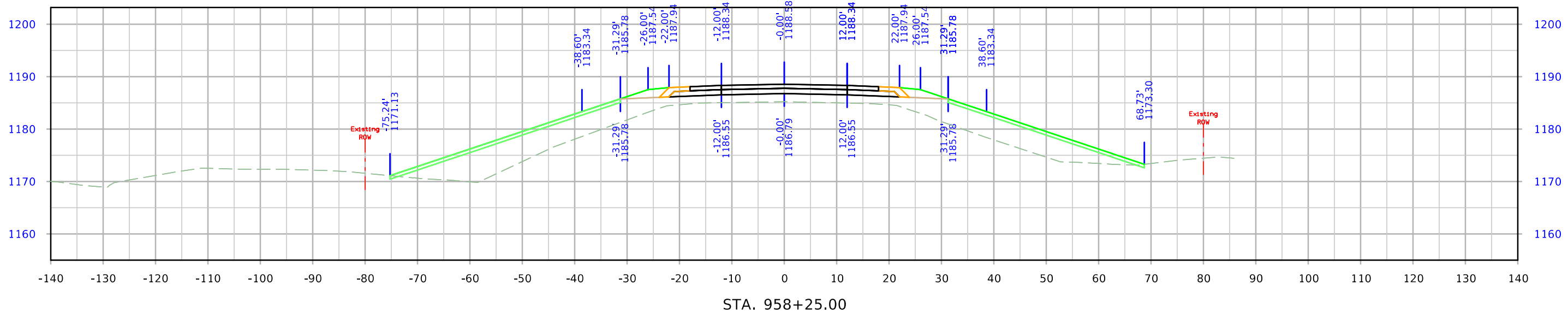


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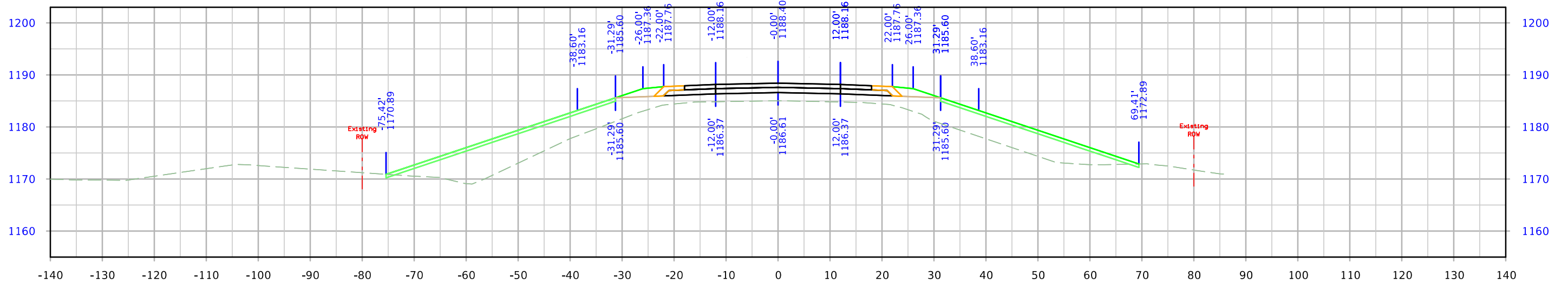
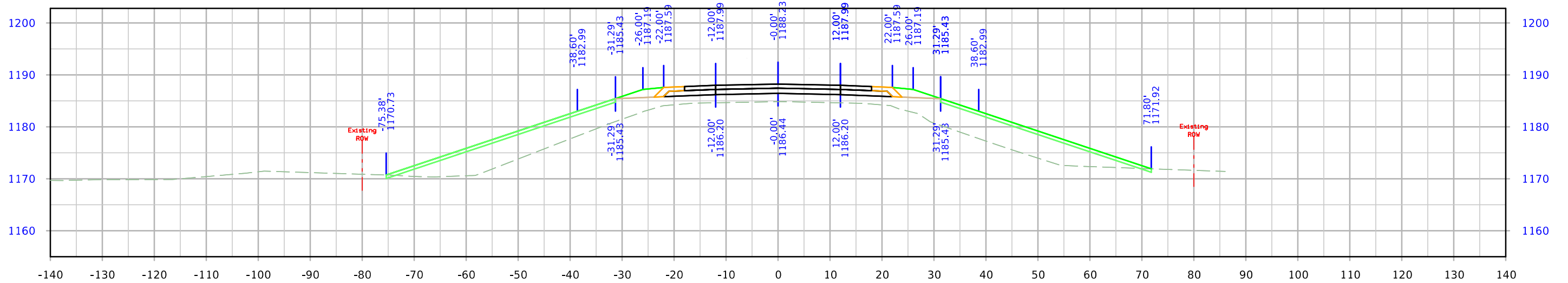


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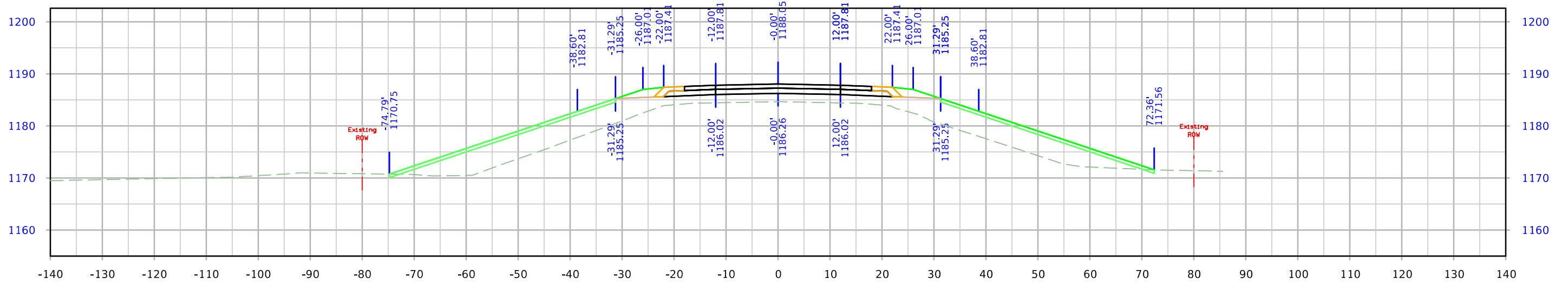
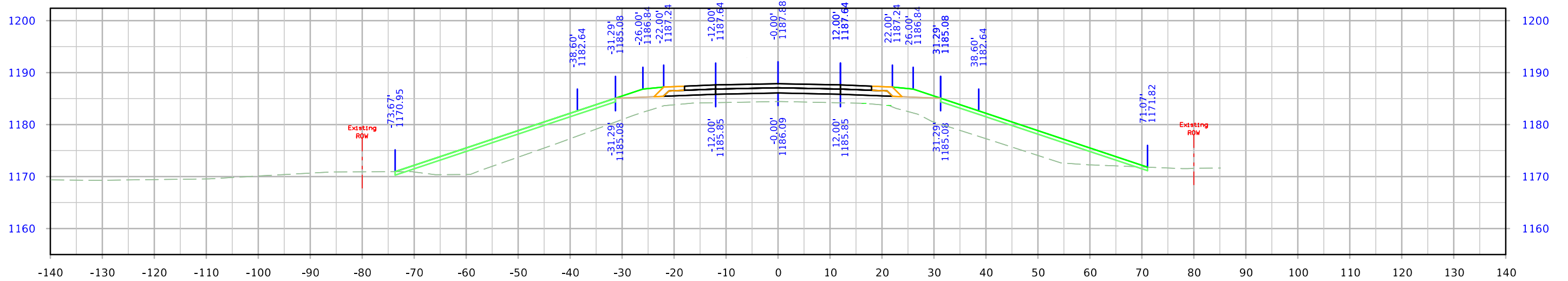




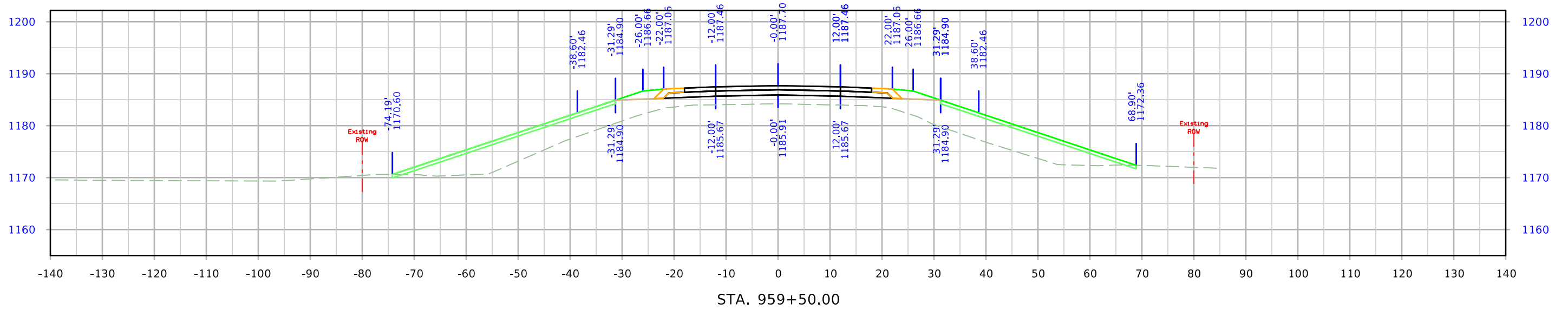
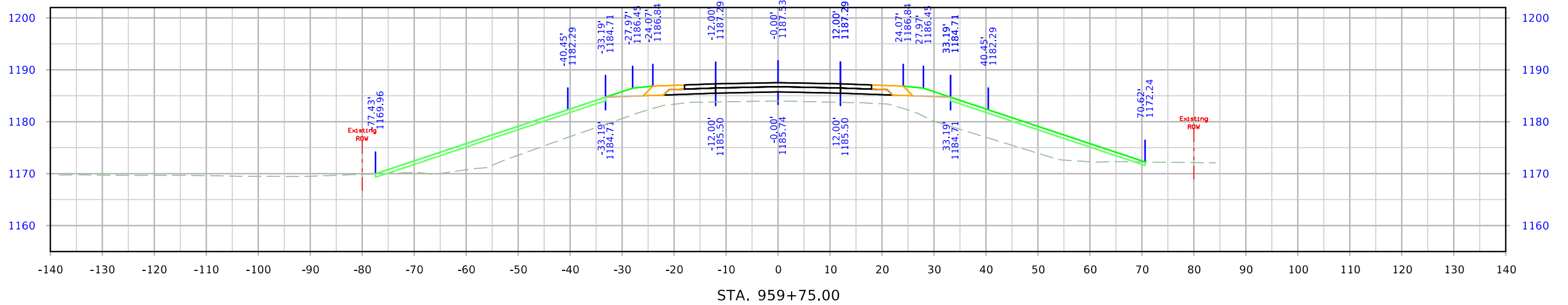
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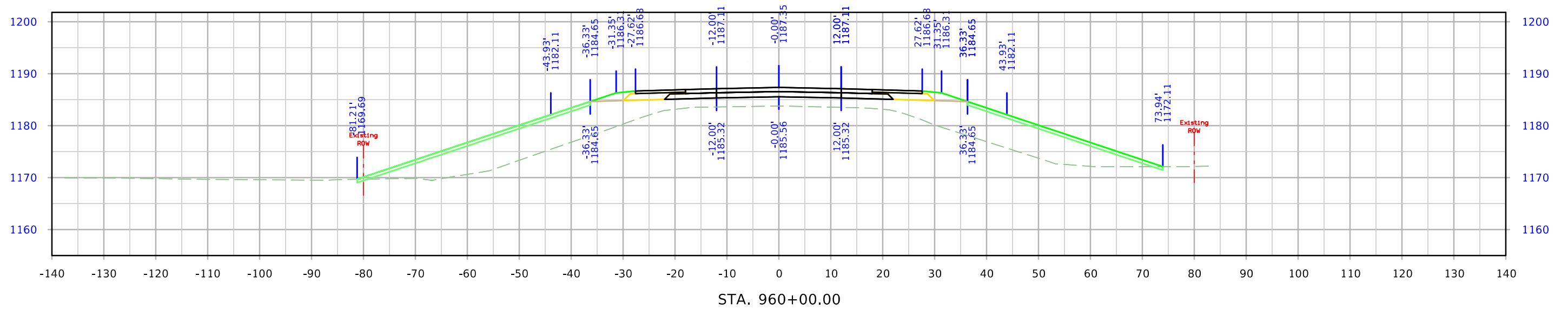
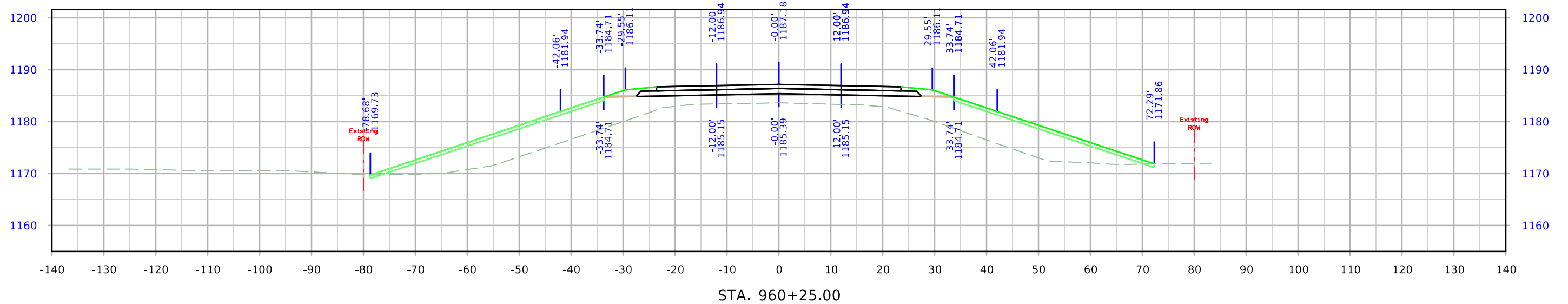
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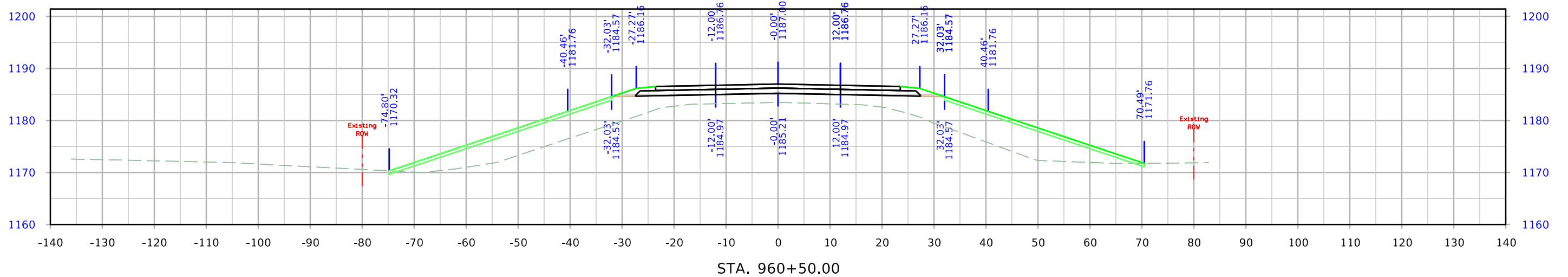
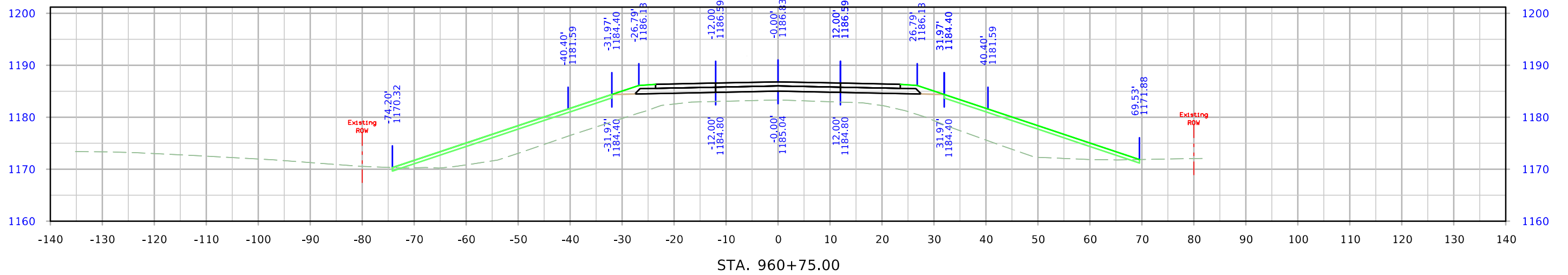
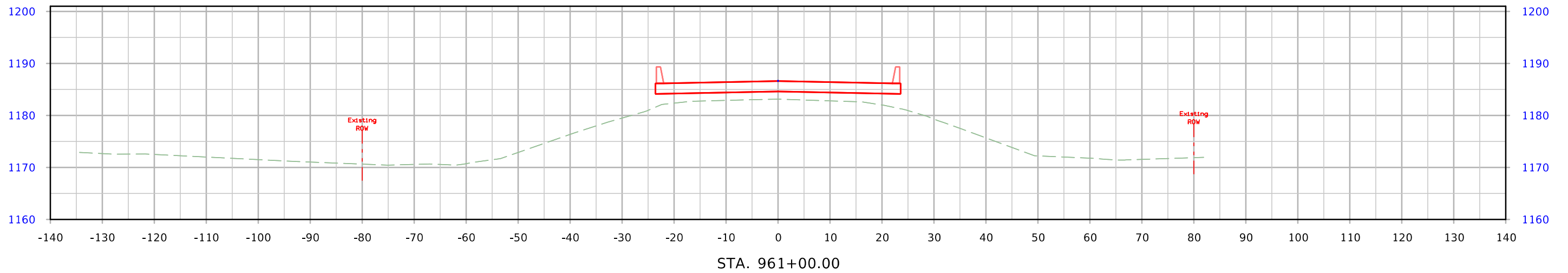
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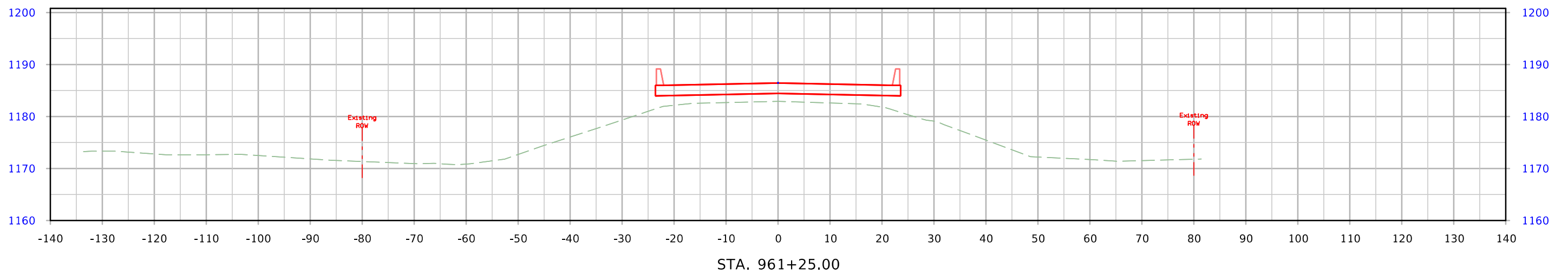
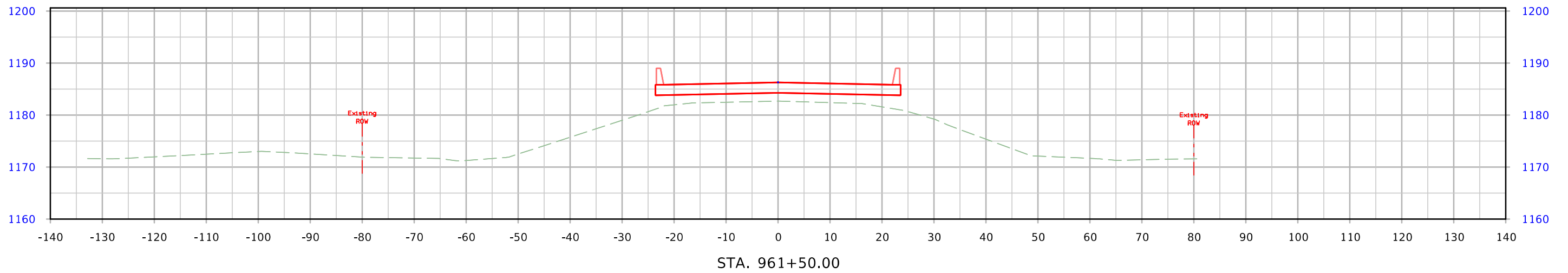
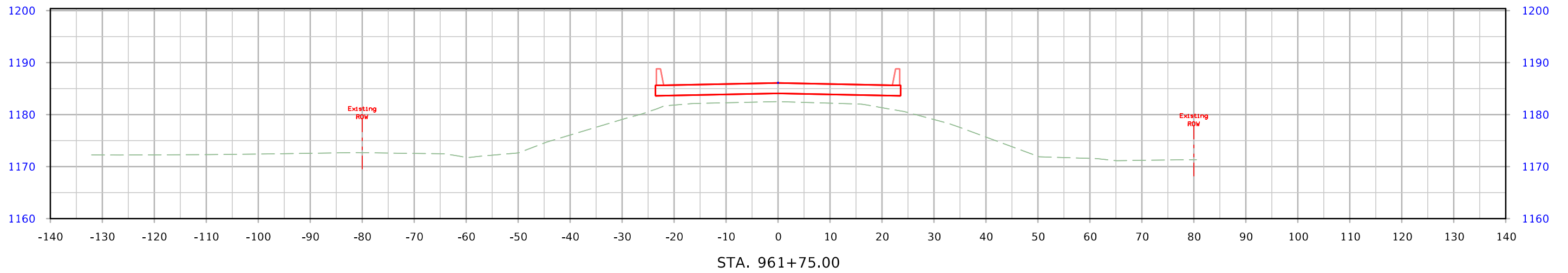
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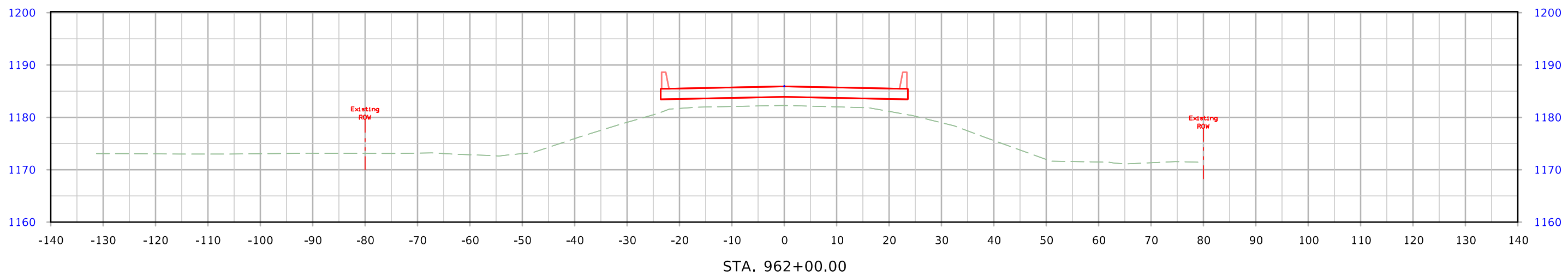
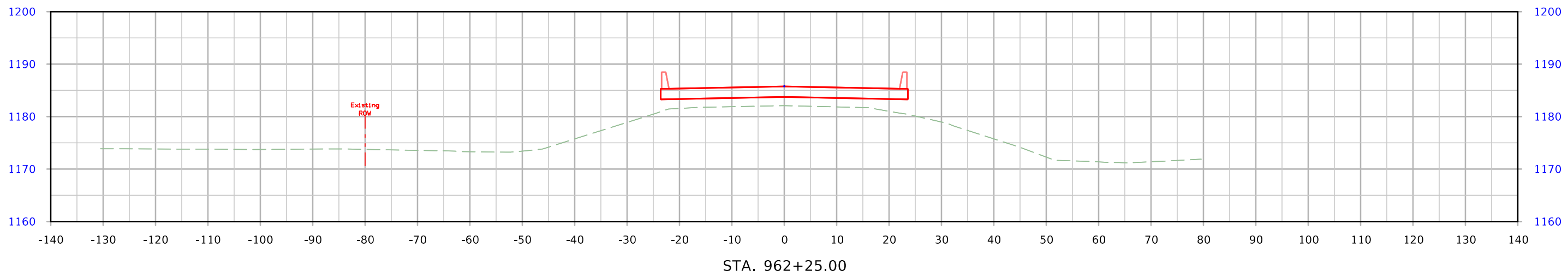
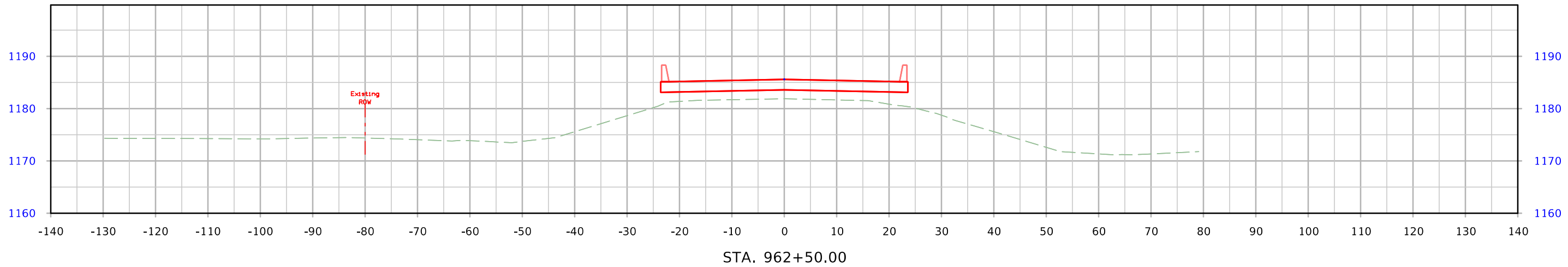
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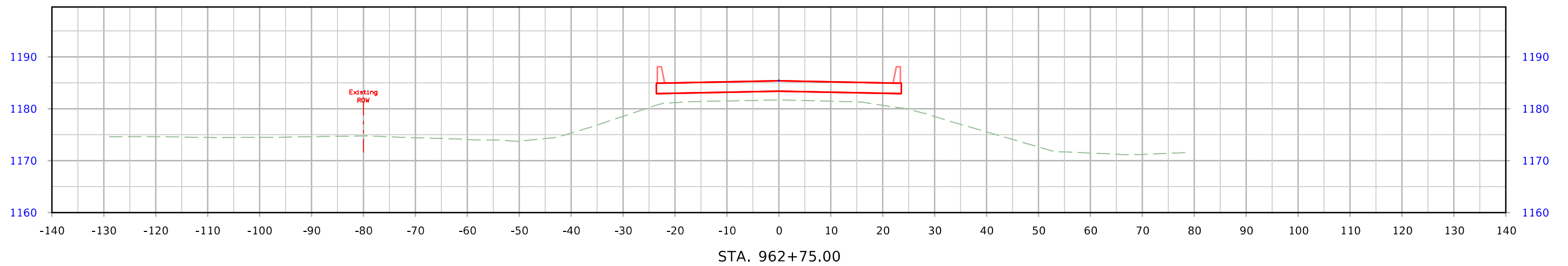
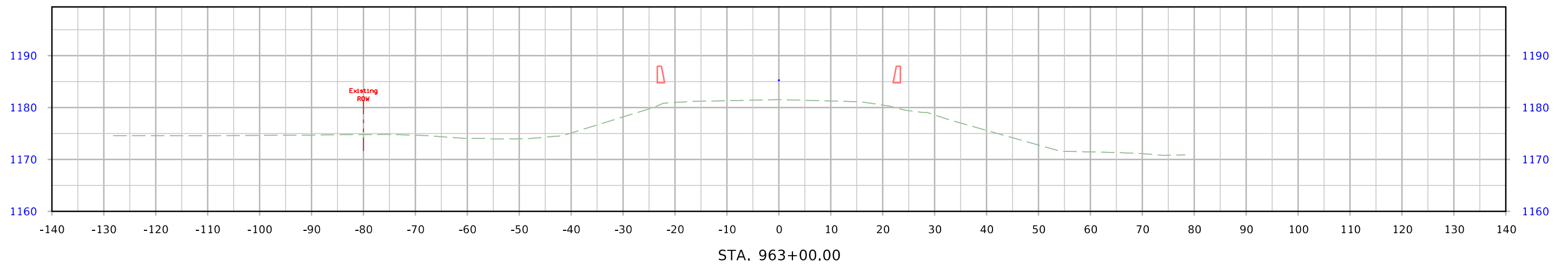
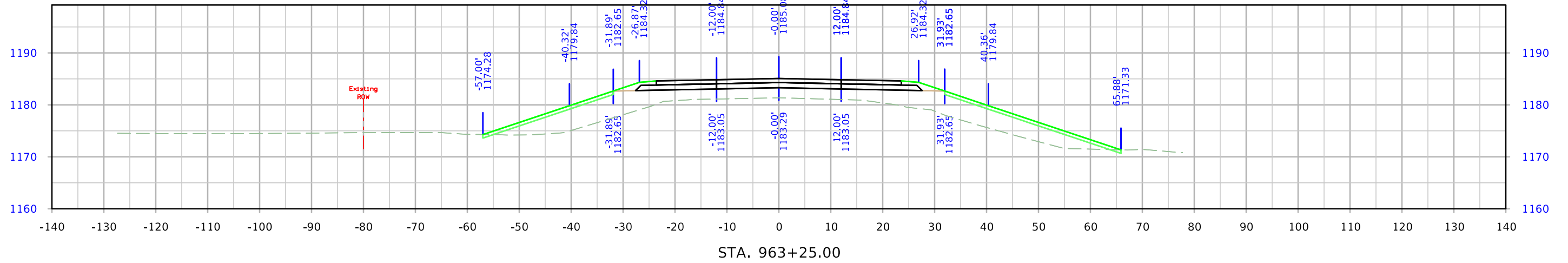
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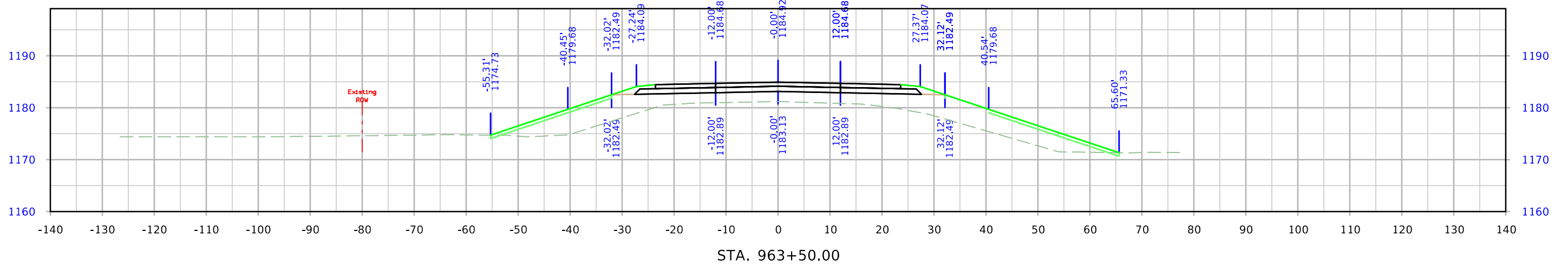
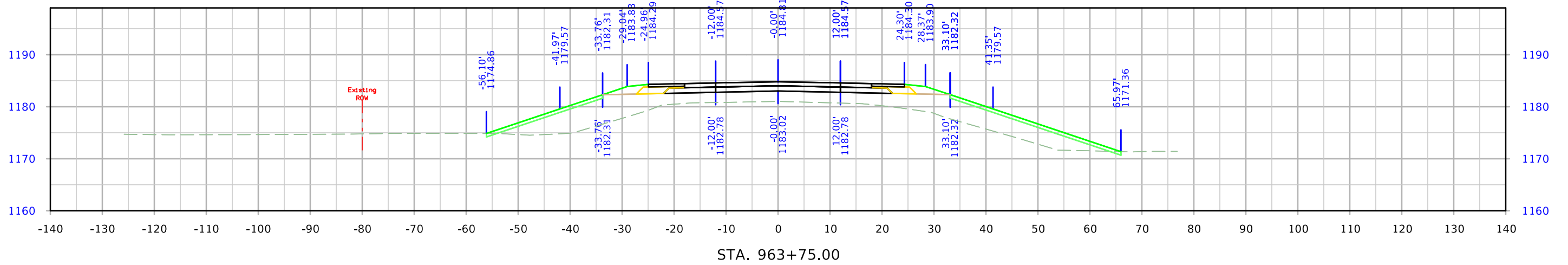
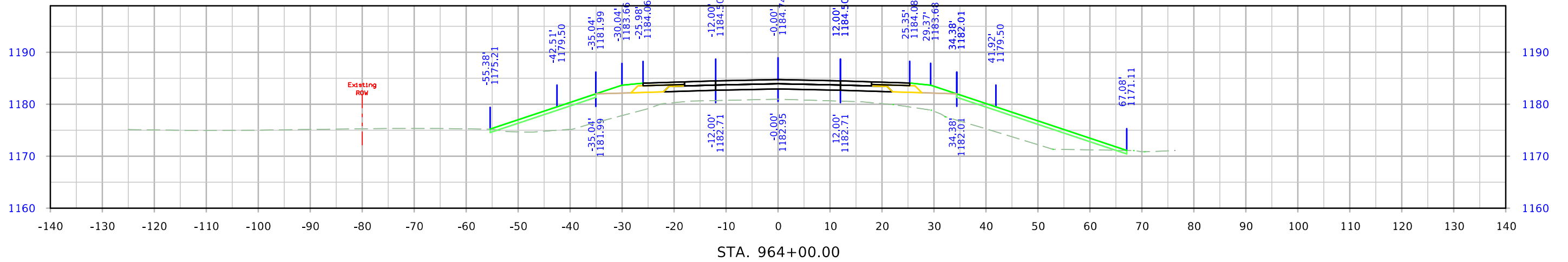
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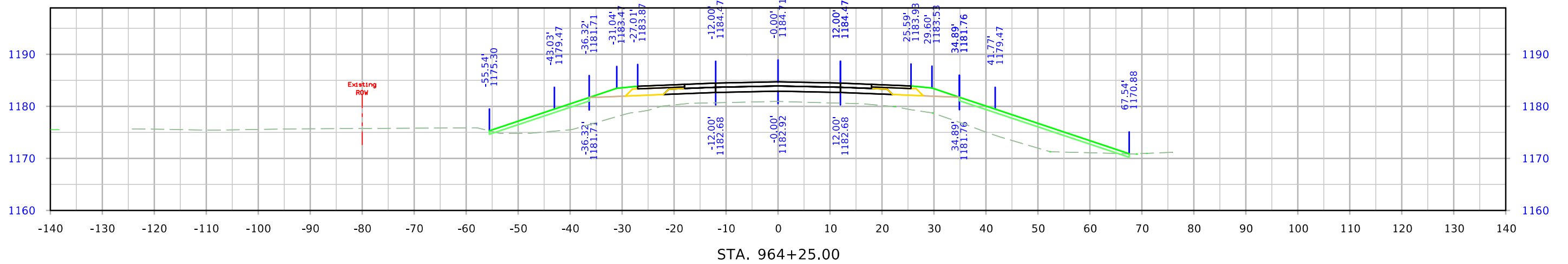
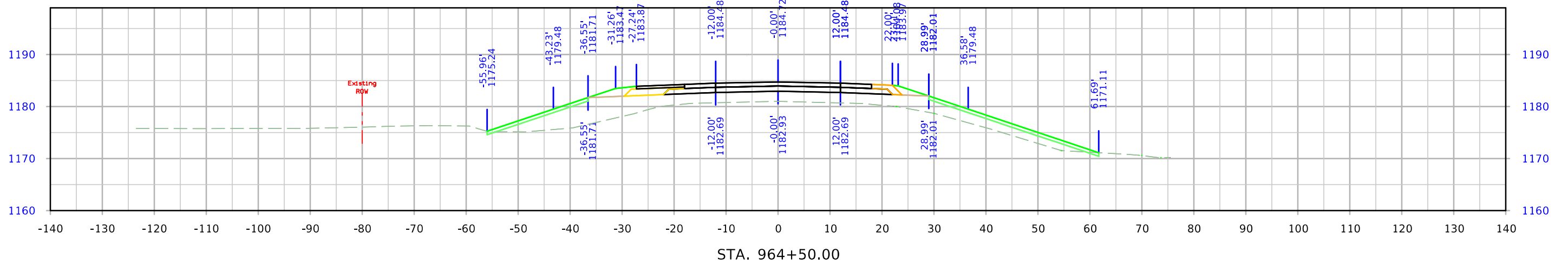
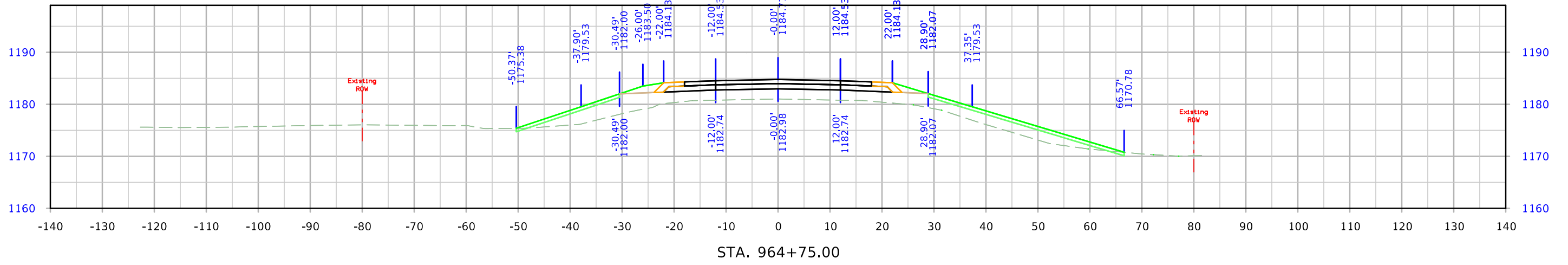
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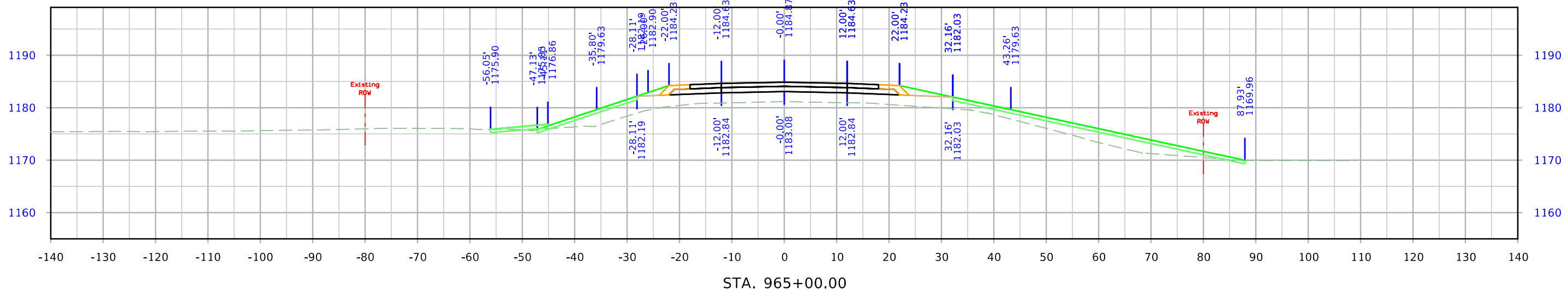
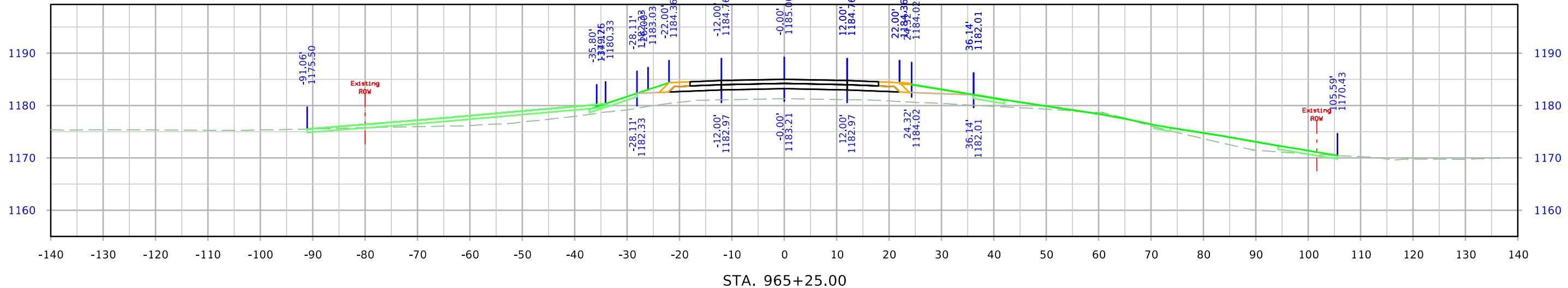
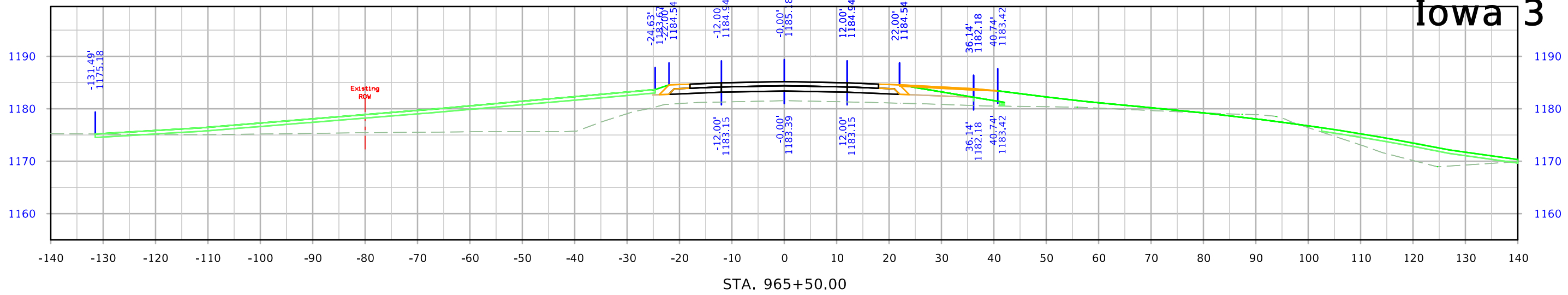
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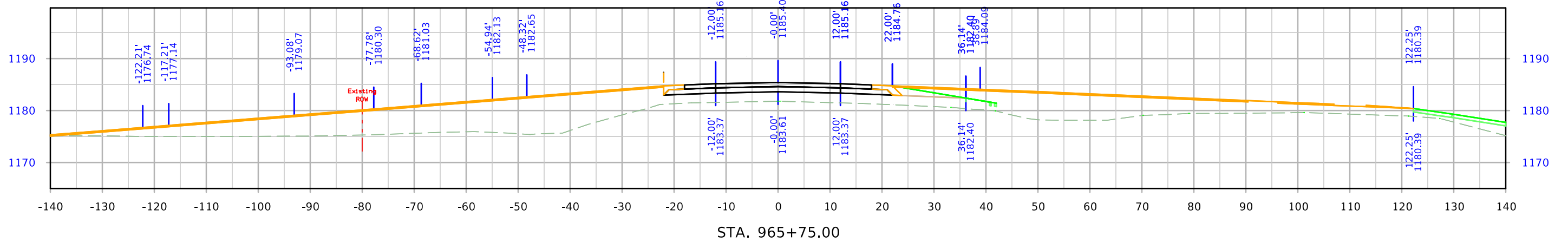
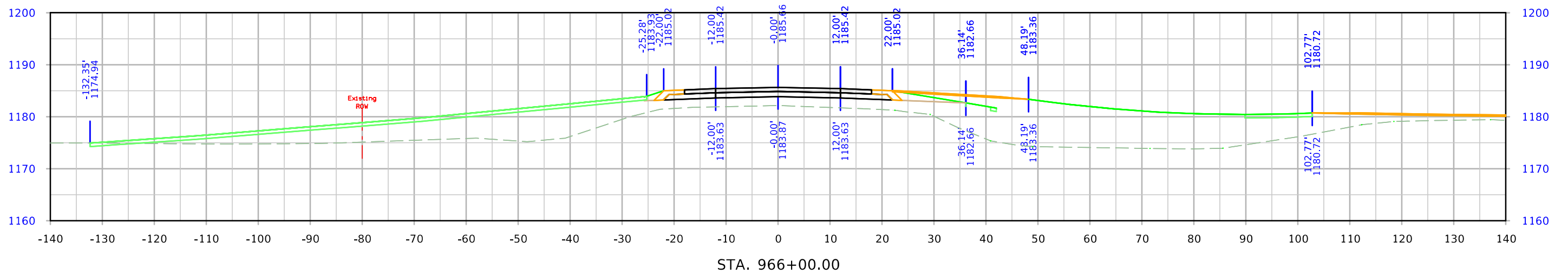
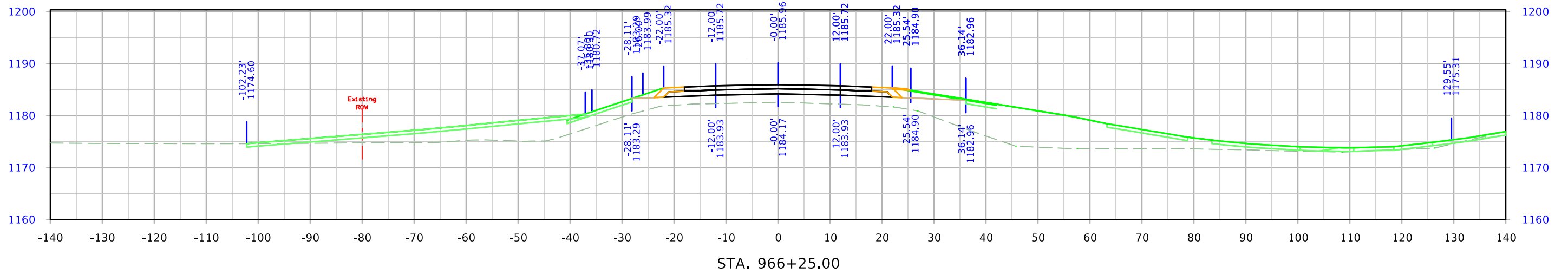
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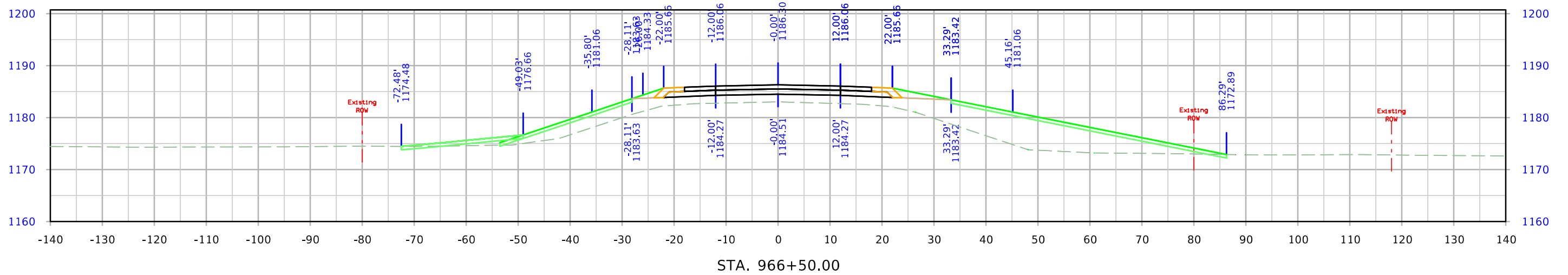
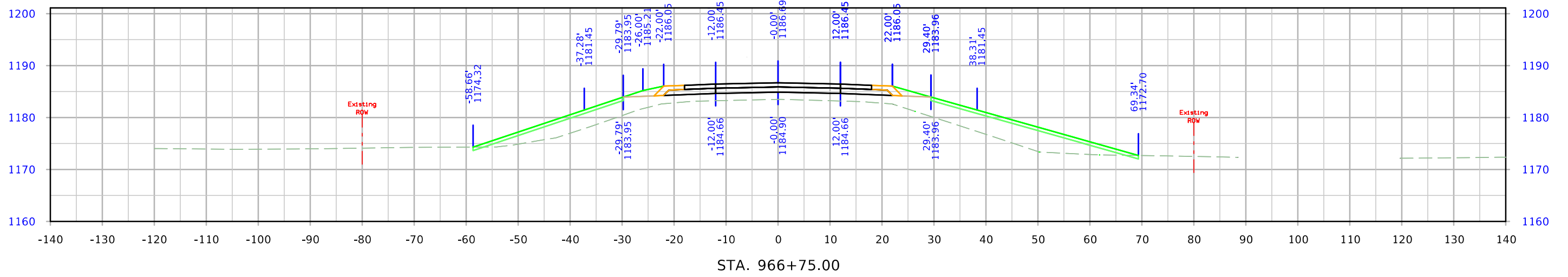
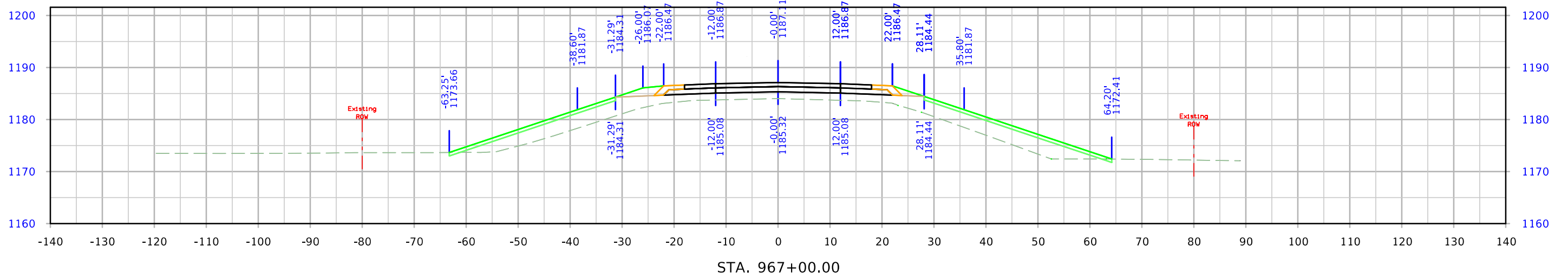
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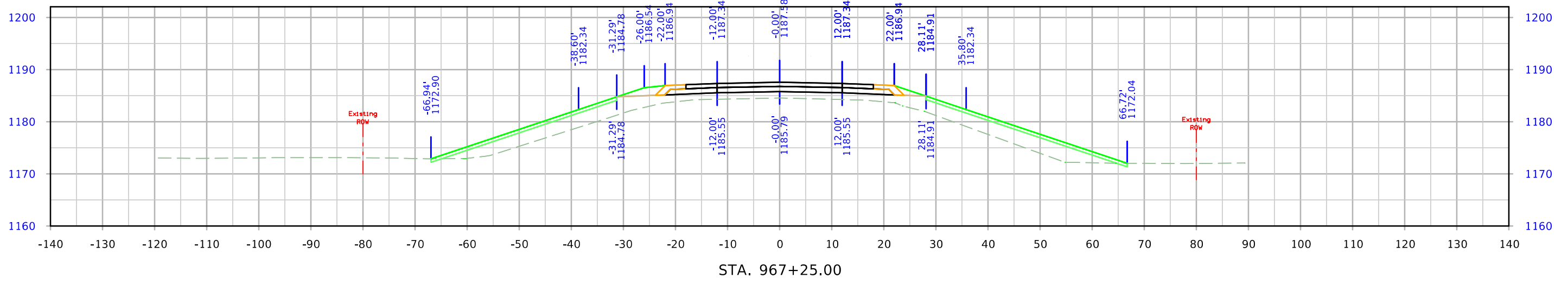
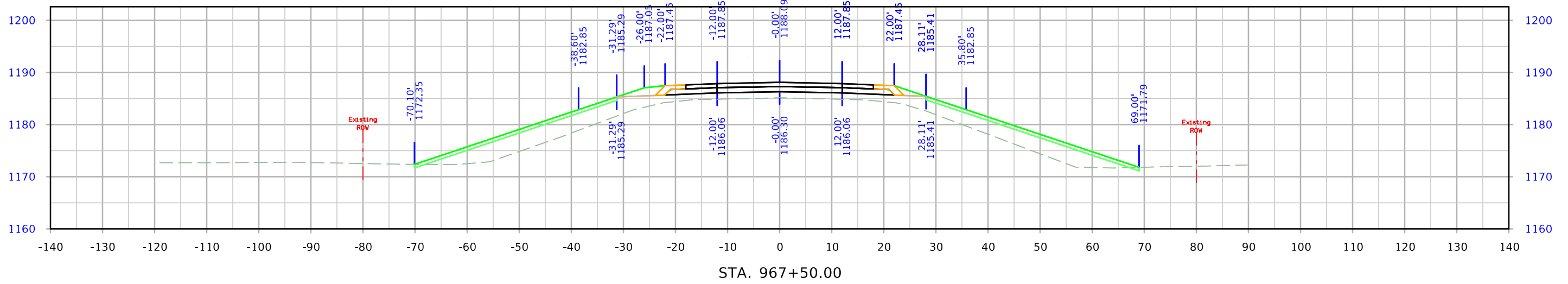
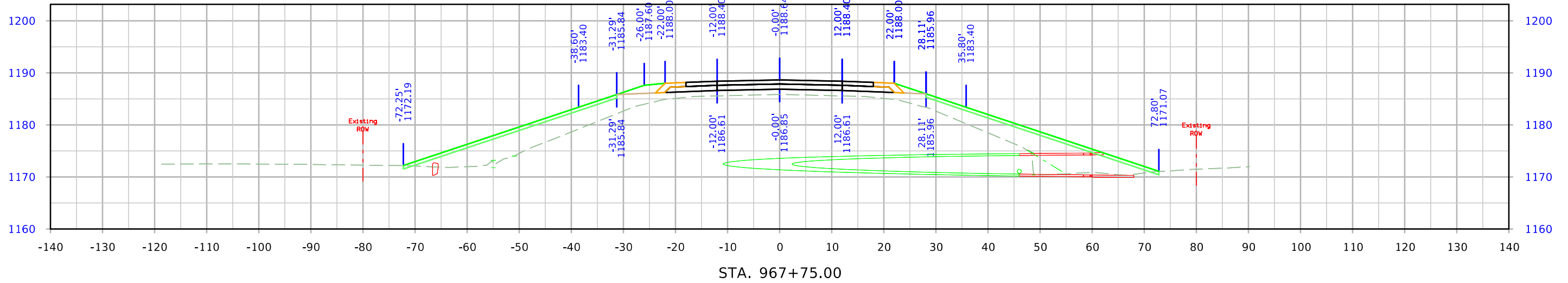
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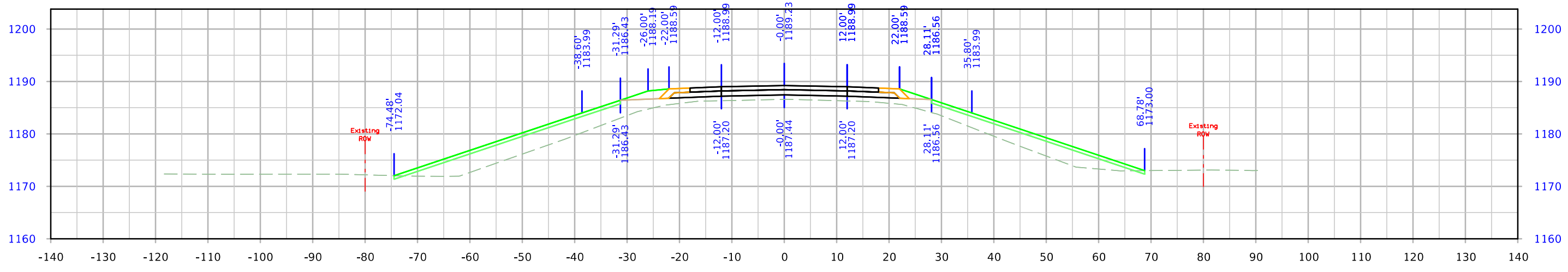
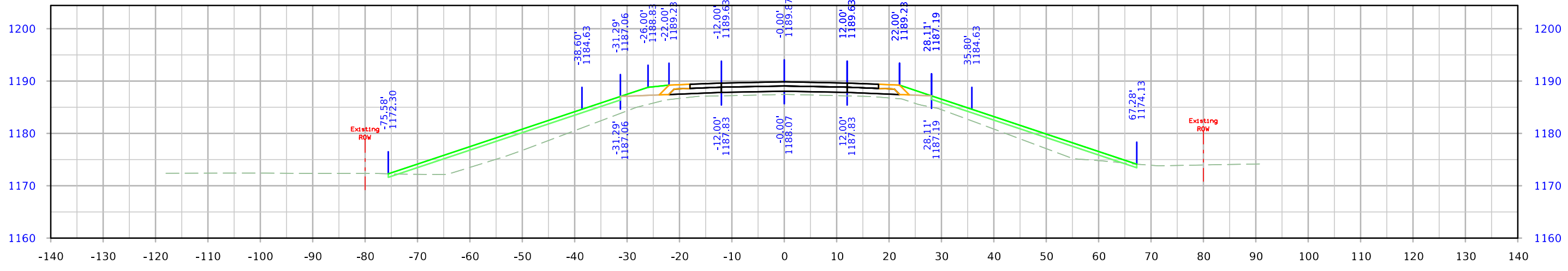
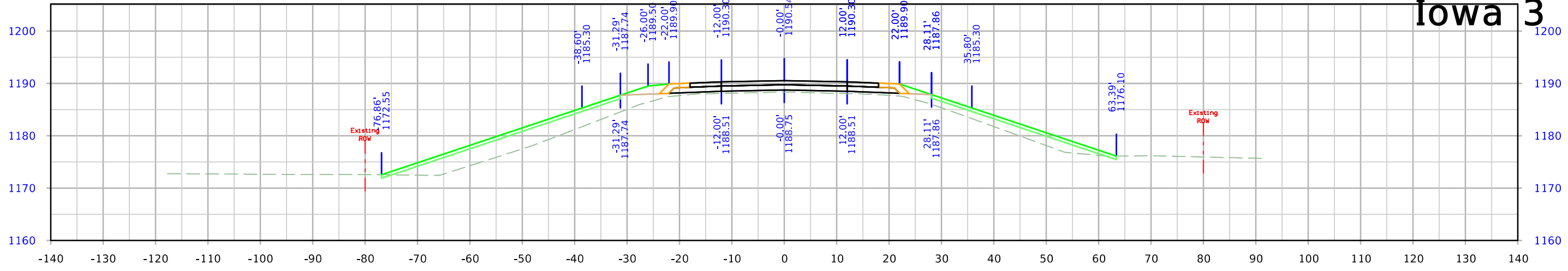
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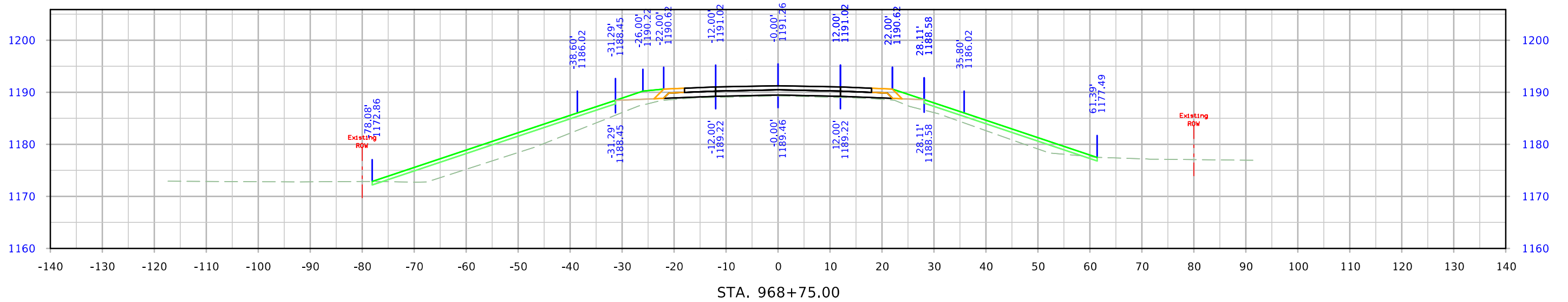
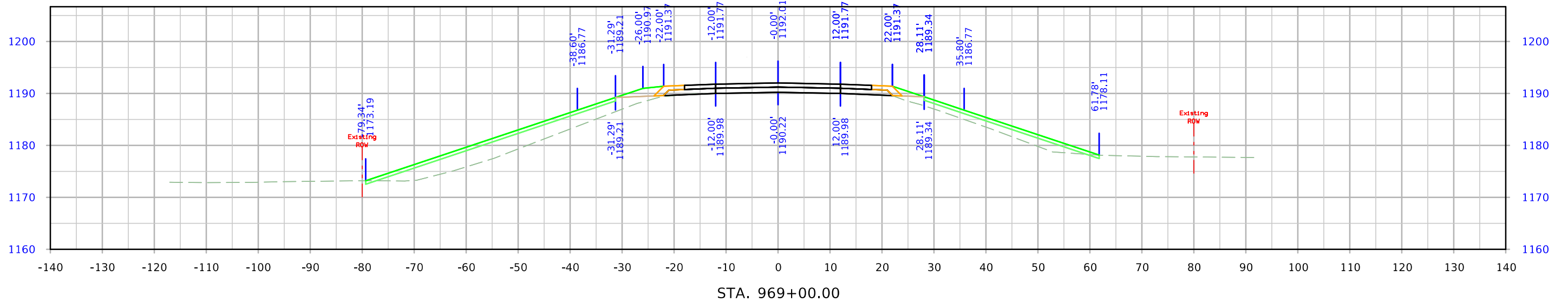


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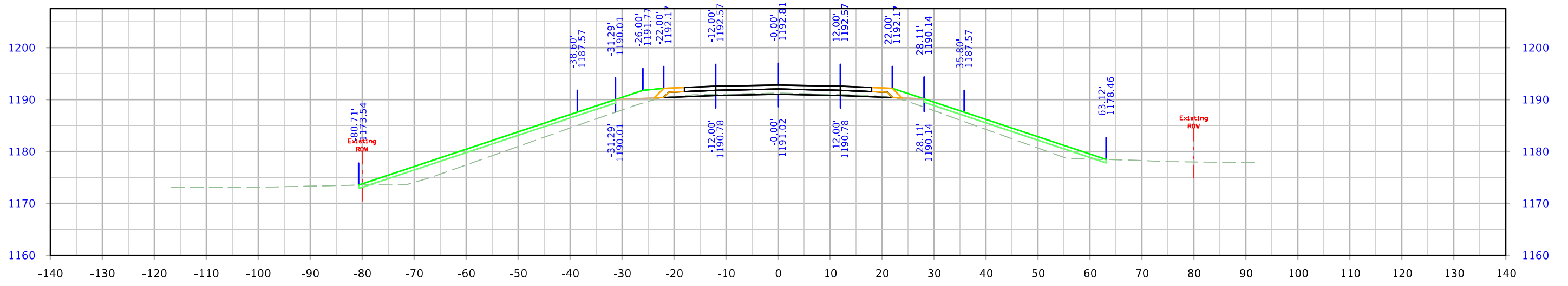
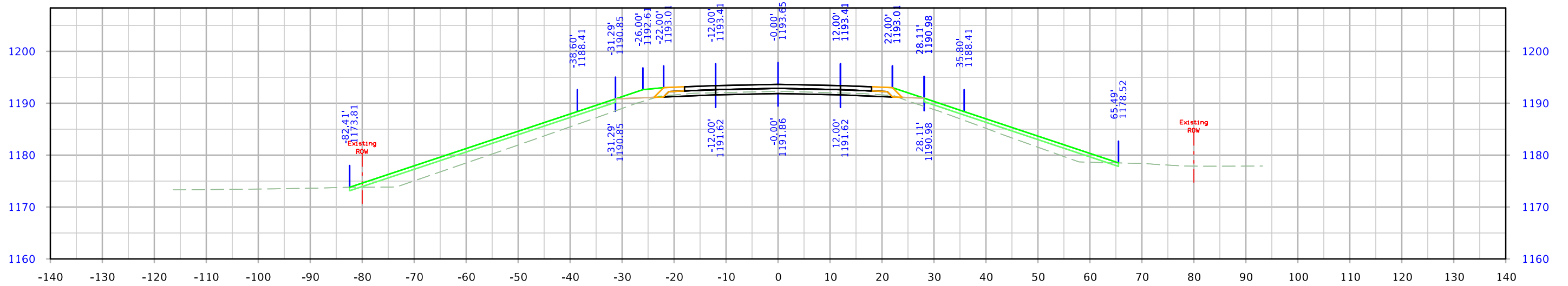


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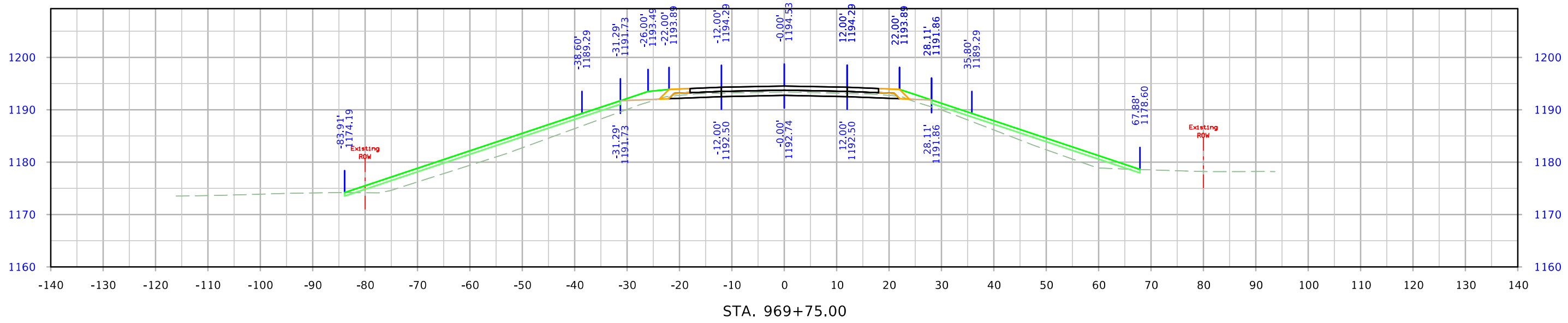
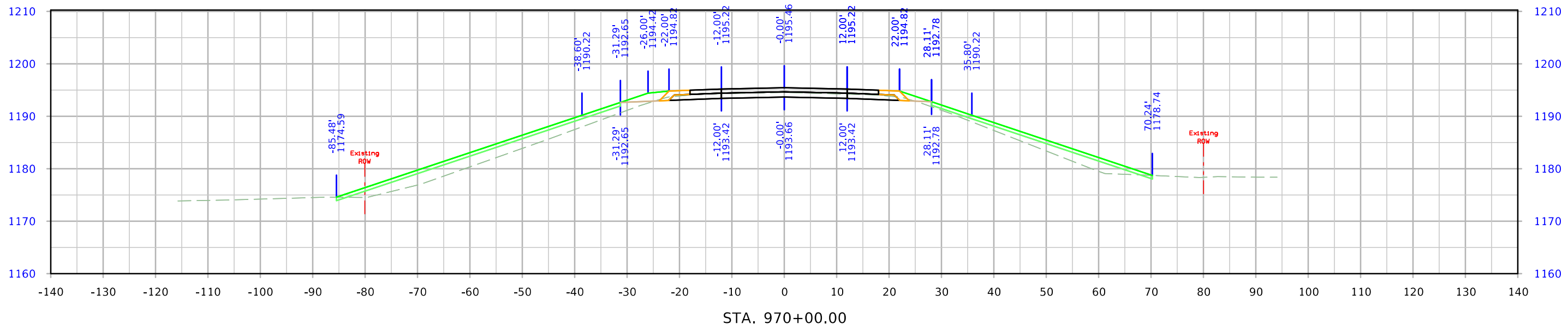




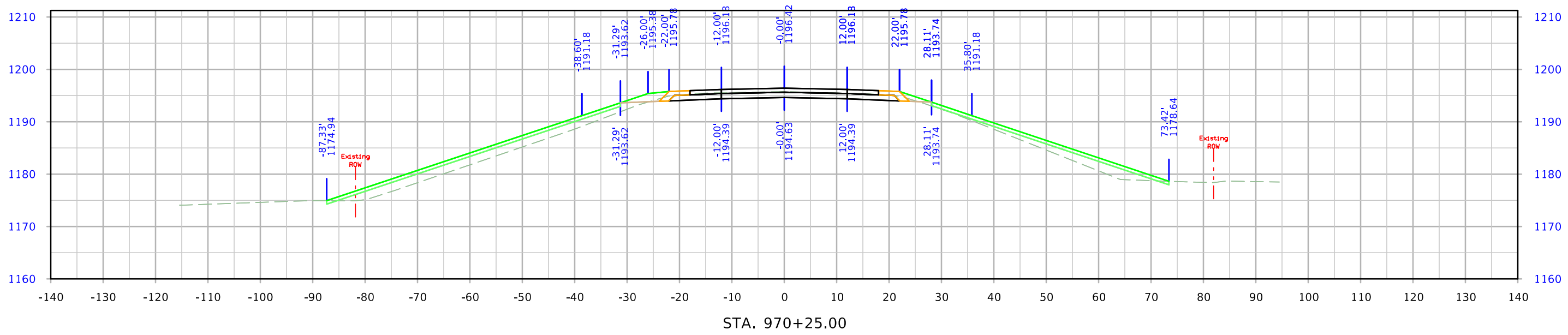
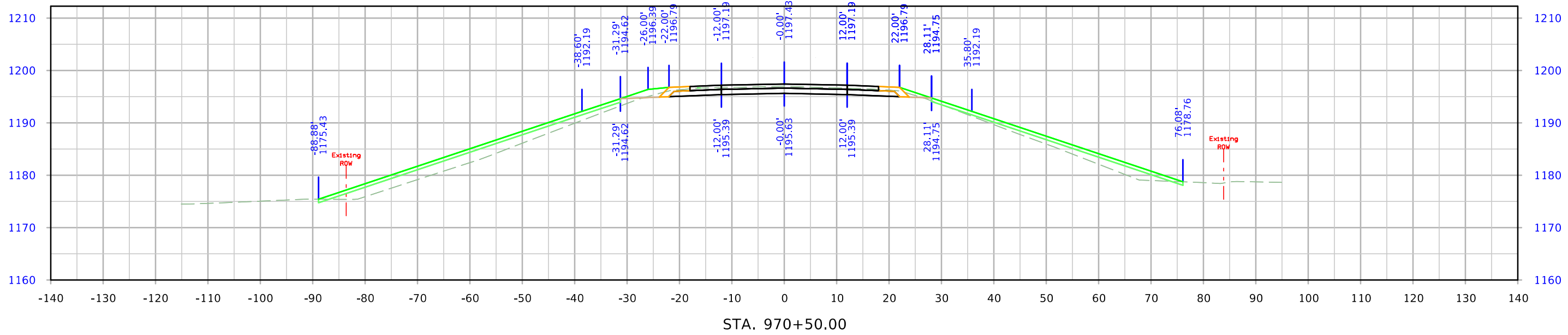
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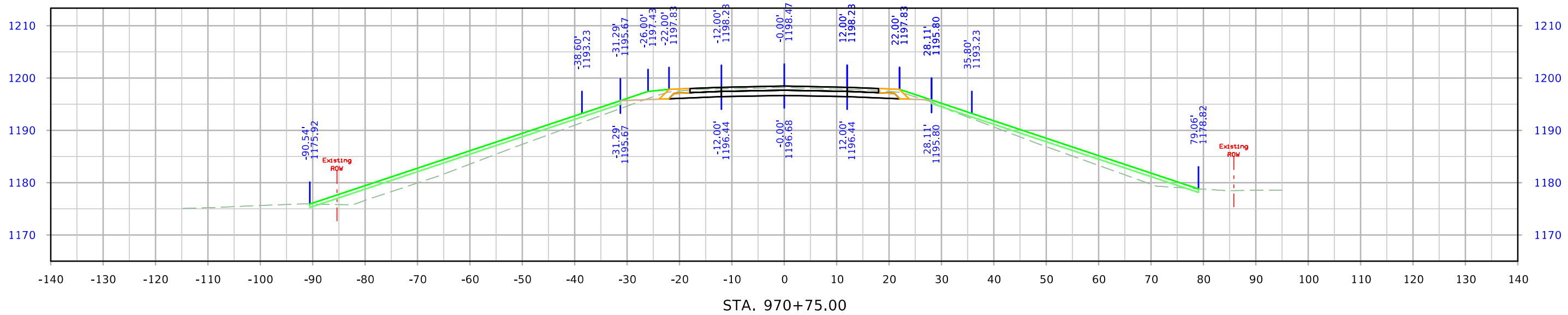
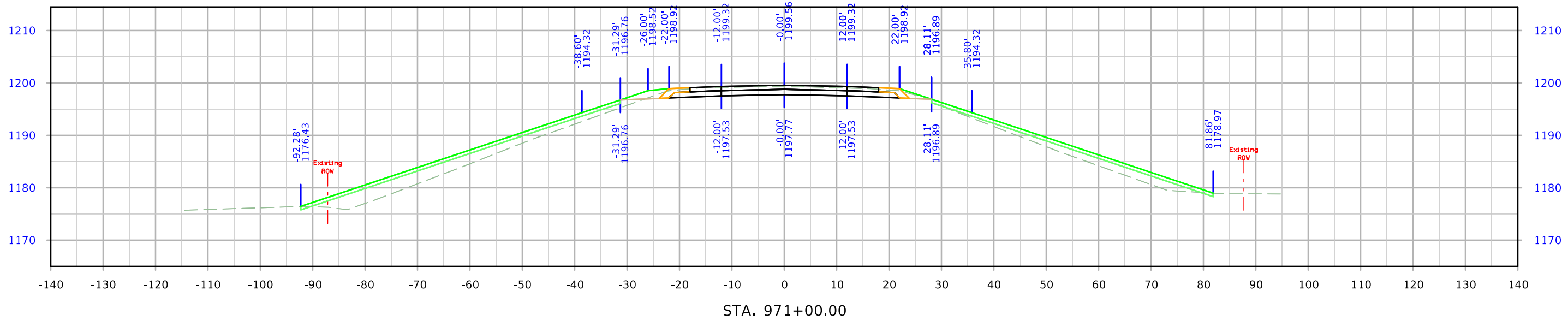
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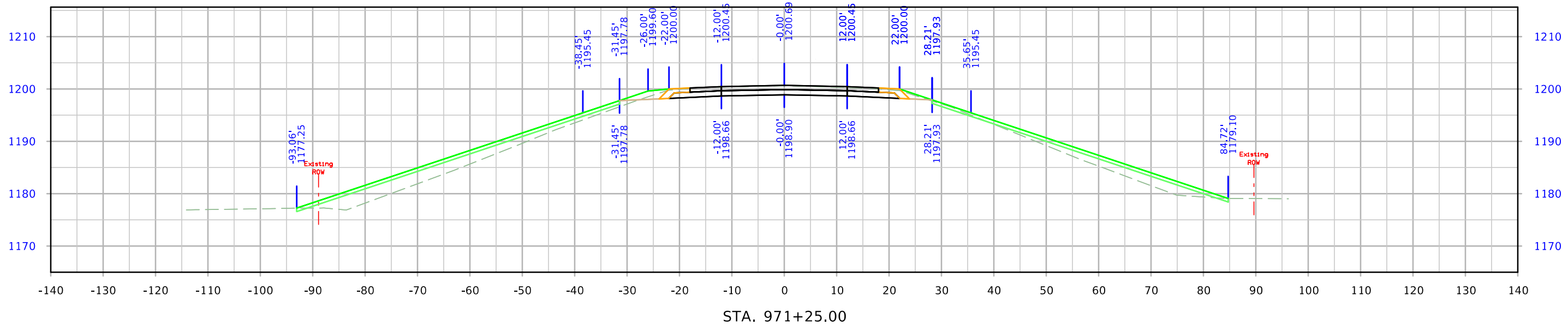
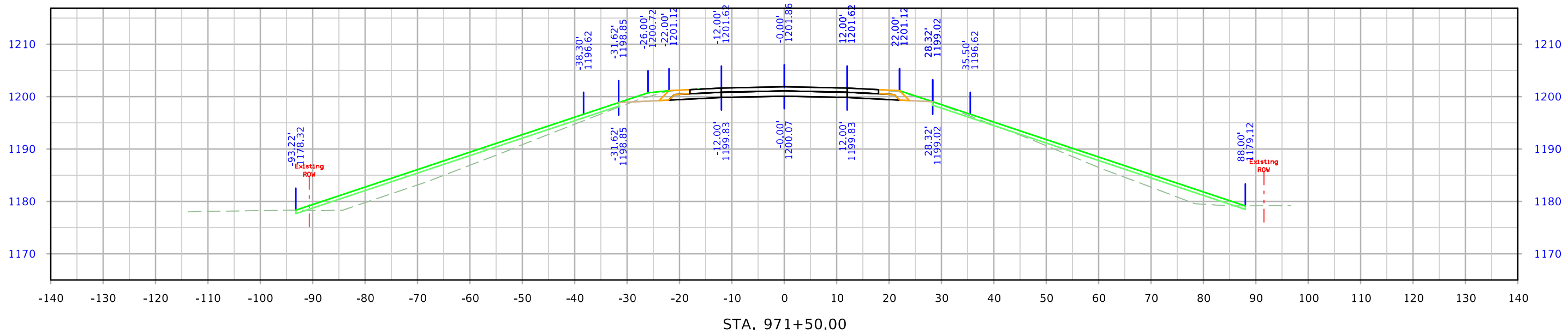
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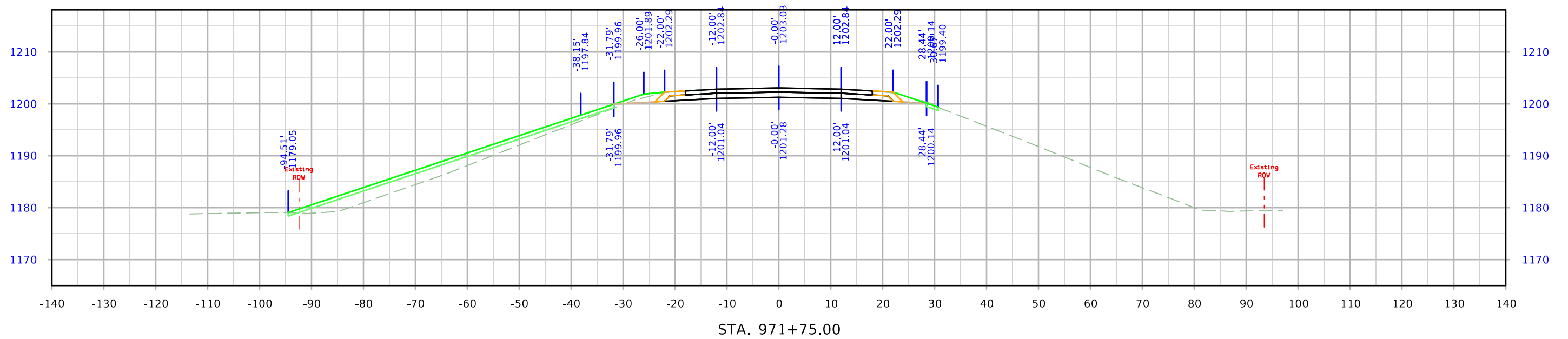
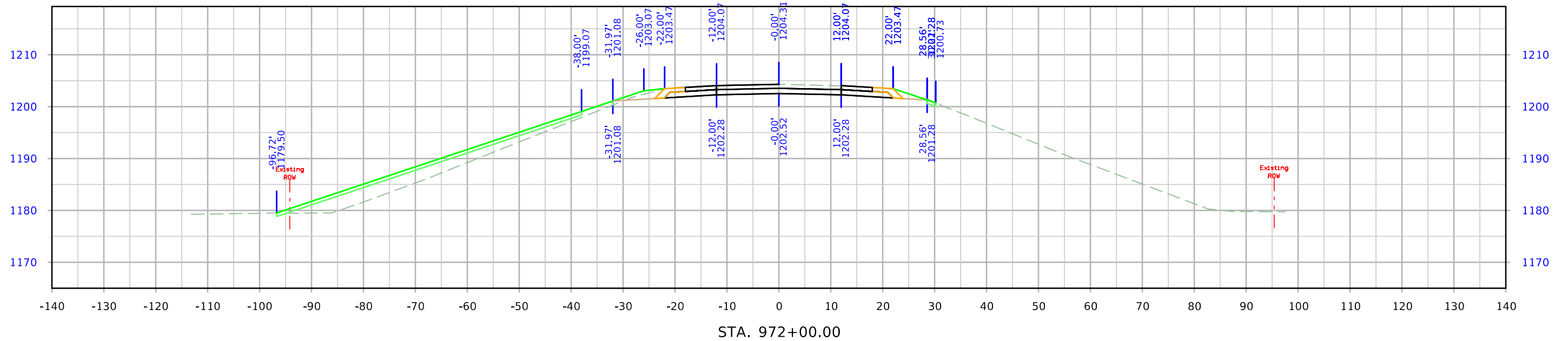
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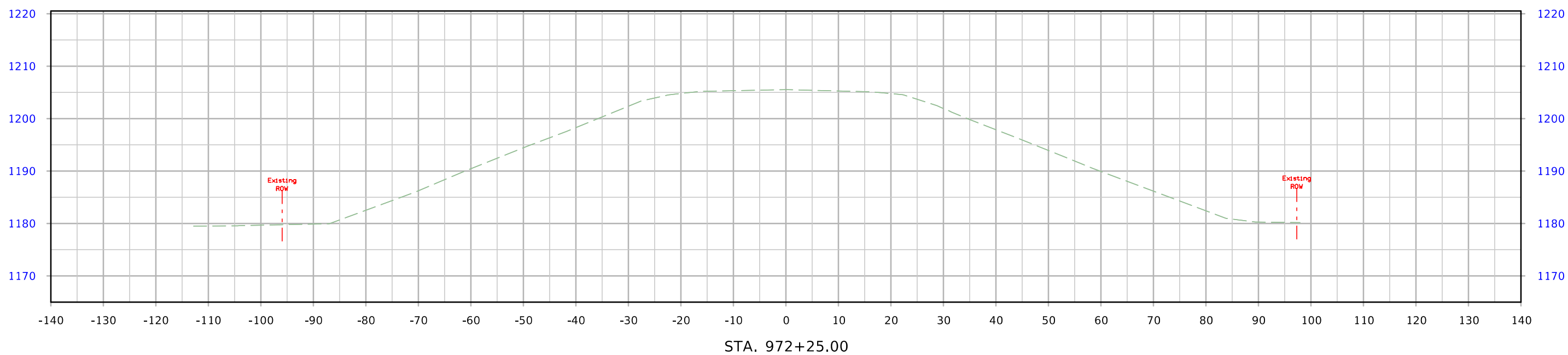
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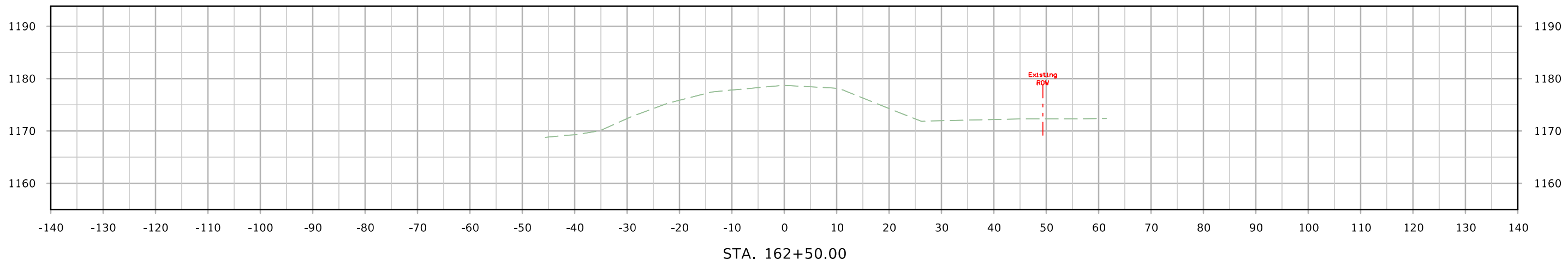
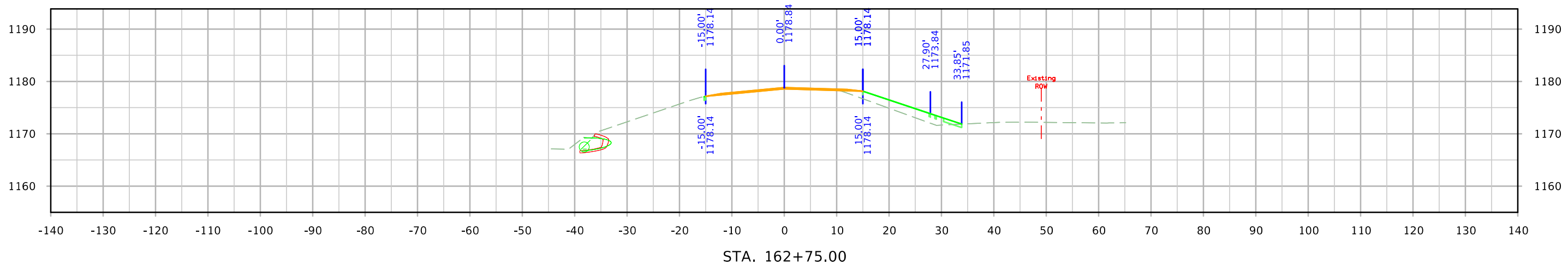
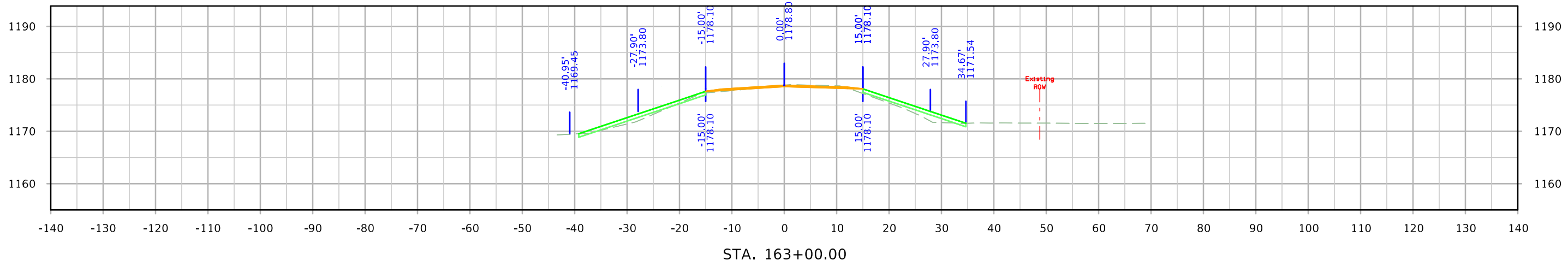
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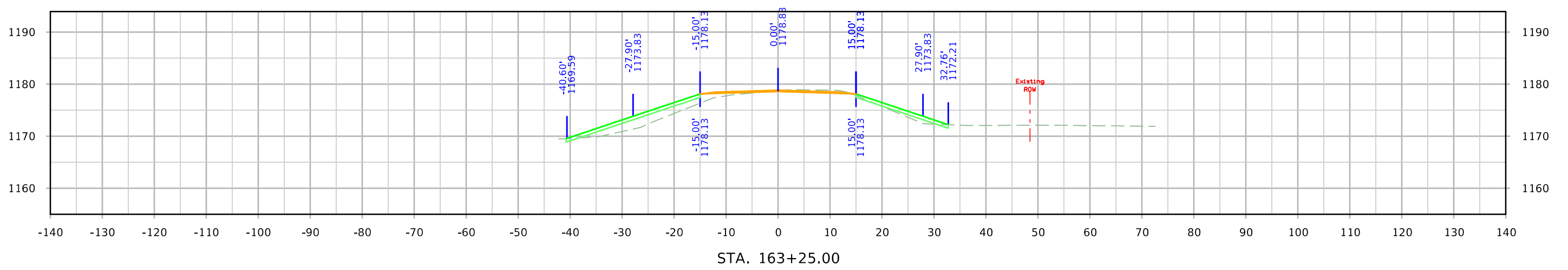
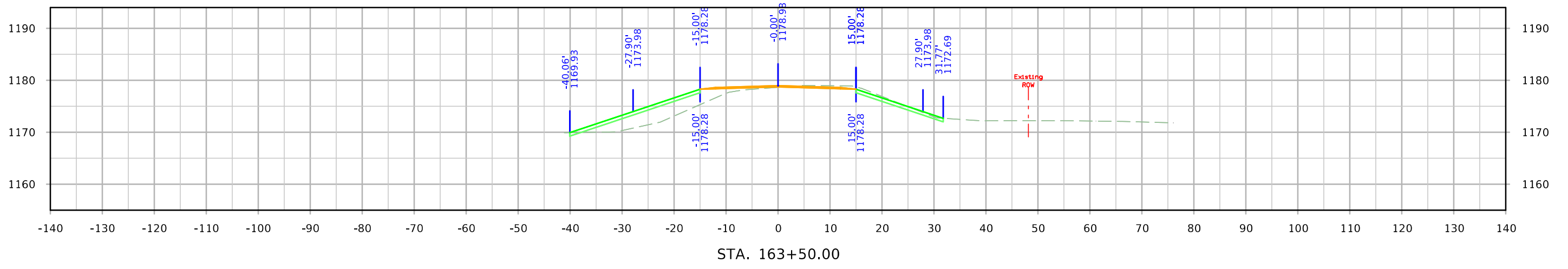
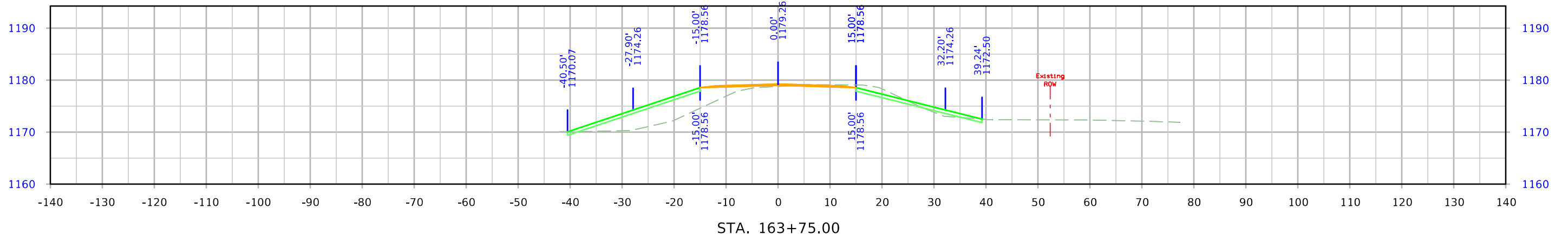
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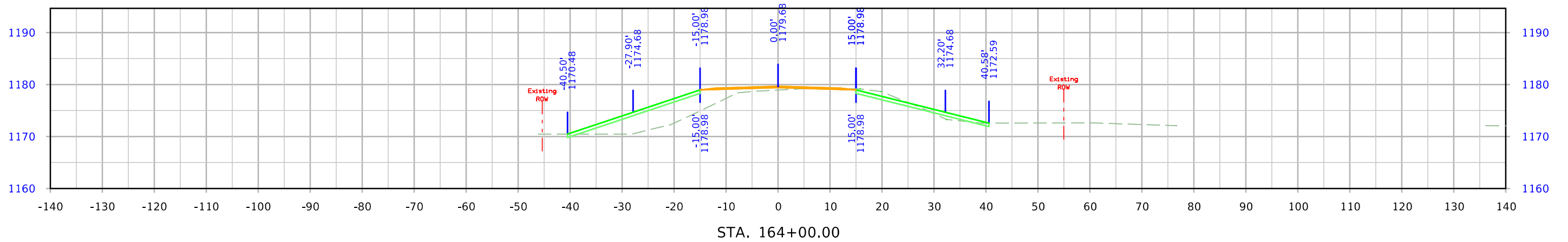
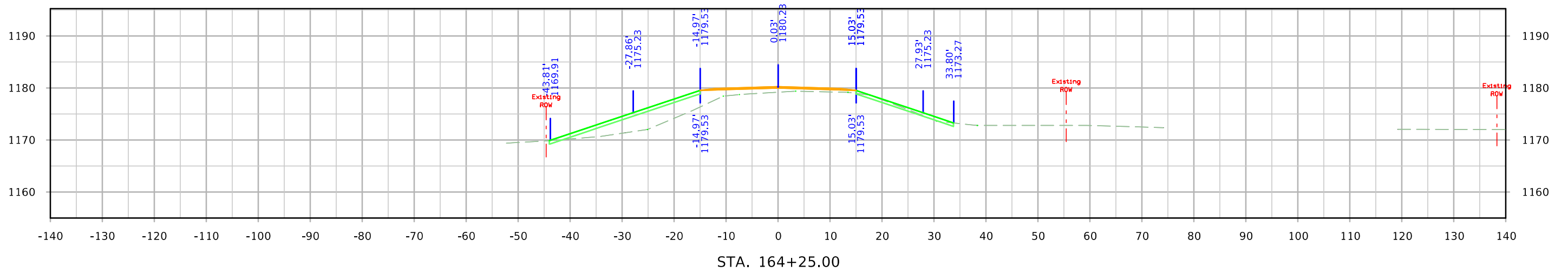
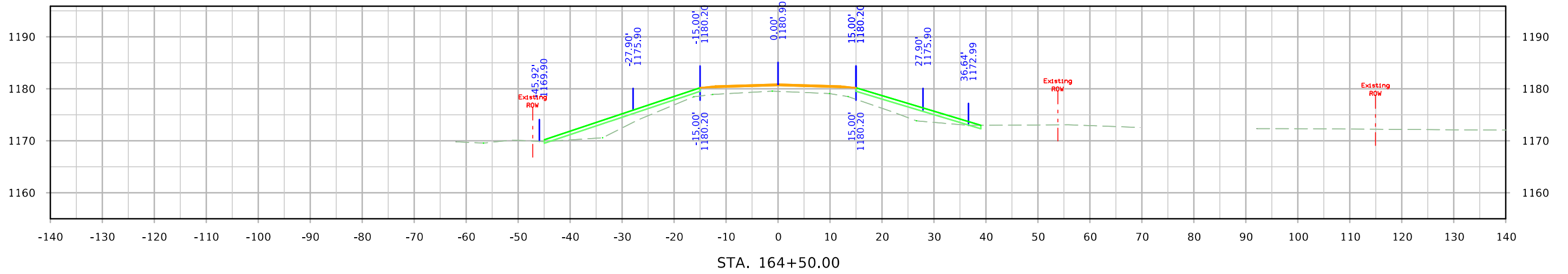
R Avenue



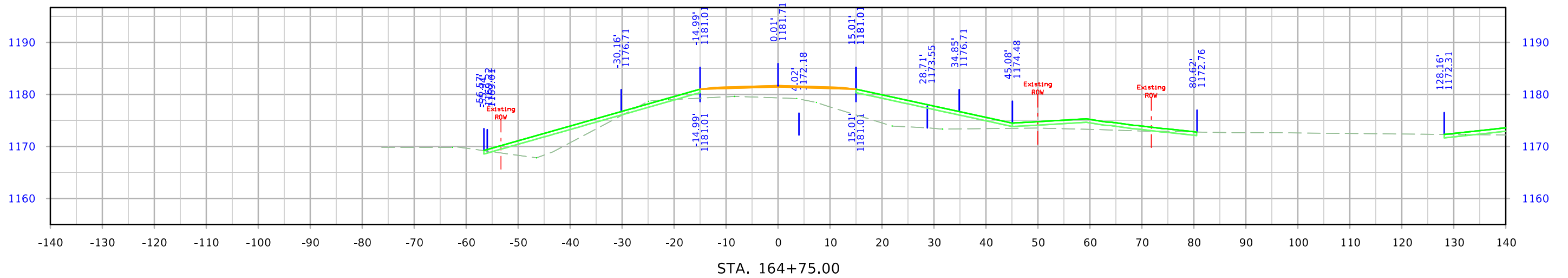
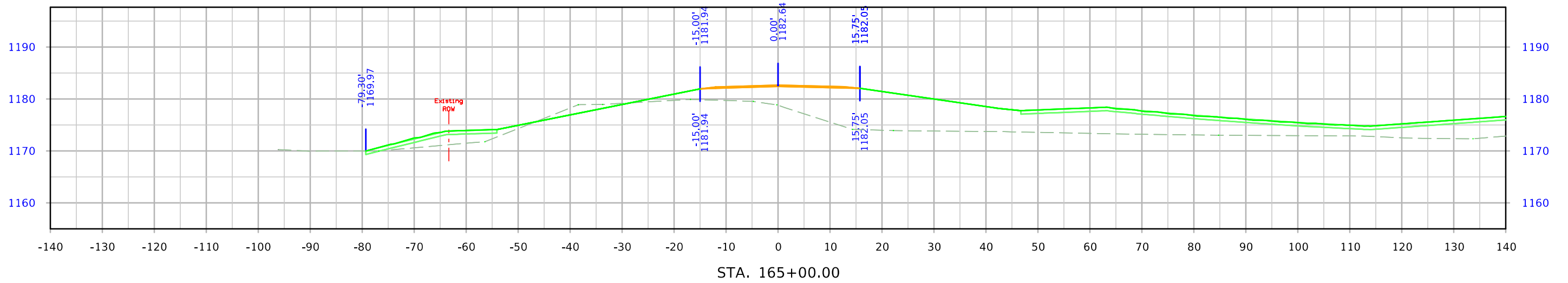
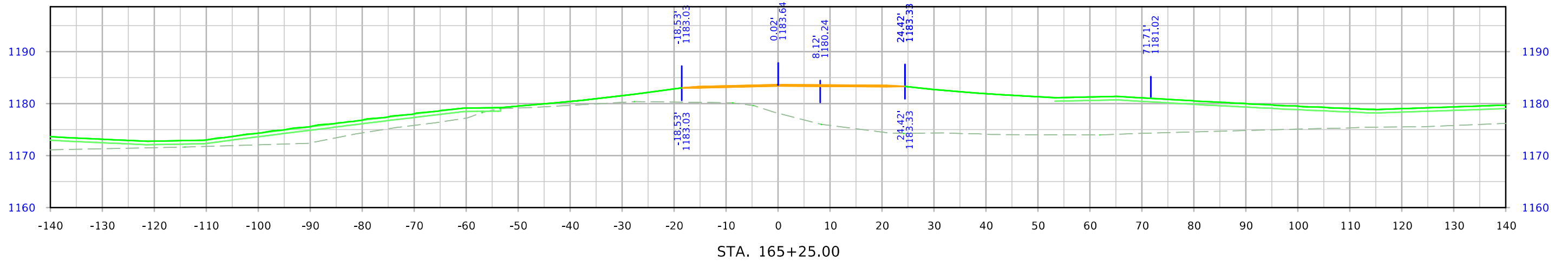
R Avenue



R Avenue



R Avenue



R Avenue

