

BRIDGE REPLACEMENT - PPCB  
BRF-014-6(42)--38-38

LETTING DATE  
10-15-2024

GRUNDY COUNTY



PLANS OF PROPOSED IMPROVEMENT ON THE  
**PRIMARY ROAD SYSTEM  
GRUNDY COUNTY**  
BRIDGE REPLACEMENT - PPCB  
Black Hawk Creek 1.5 mi S of S Jct Co Rd D35 in Grundy Center

SCALES: As Noted

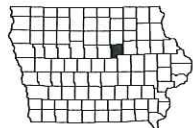
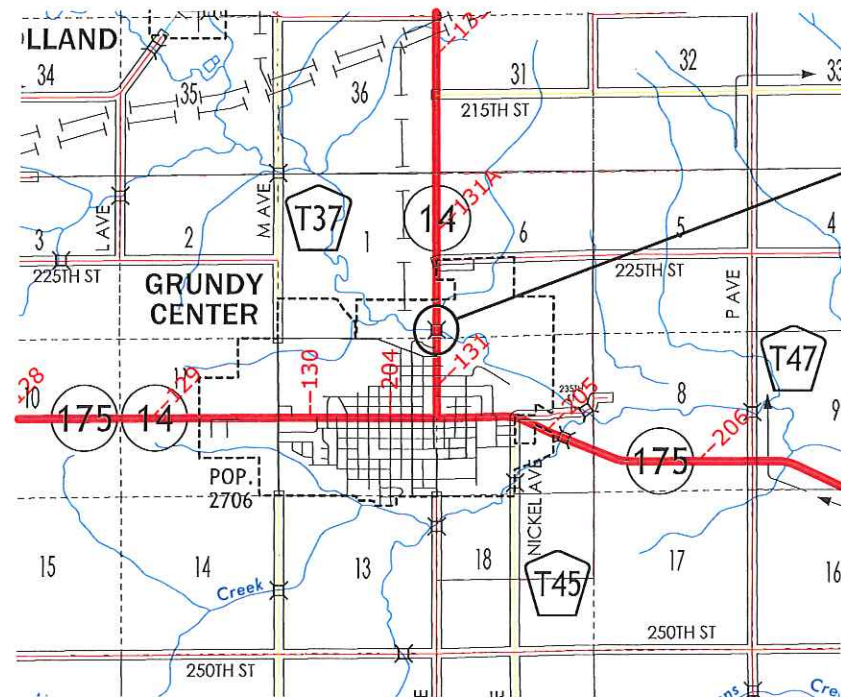
Refer to the Proposal Form for list of applicable specifications.

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

PROJECT LOCATION  
FHWA No. 25841  
MAINT. No. 3831.35014  
REF. LOC. 131.34



Field Exam 3/10/2022  
Attendees  
Jim Ellis  
Matt Vais  
Allison Smyth  
Jacob Imming  
Mike Schneider  
Dustin Skogerboe  
Mark Stephens  
Shannon Hardman  
Ben Adey



DESIGN DATA RURAL	
20 -- AADT	-- V.P.D.
20 -- AADT	-- V.P.D.
20 -- DHV	-- V.P.H.
TRUCKS	-- %
Total Design ESALs	--

INDEX OF SEALS		
SHEET NO.	NAME	TYPE
A.1	X	Primary Signature Block
X	X	X

D3 PLAN - Date: 11-19-2021  
D5 PLAN - Date: 3-25-2022  
D4 PLAN - Date: 6-18-2024

**PRELIMINARY PLANS**

Subject to change by final design.

D2 PLAN - Date: 2-14-2022

INDEX OF SHEETS	
No.	DESCRIPTION
<b>A Sheets</b>	<b>Title Sheets</b>
A.1	Title Sheet
A.1	Location Map Sheet
A.2	Field Exam Questions
A.3 - 7	Concept
<b>B Sheets</b>	<b>Typical Cross Sections and Details</b>
B.1 - 3	Typical Cross Sections and Details
<b>D Sheets</b>	<b>Mainline Plan and Profile Sheets</b>
* D.1	Plan & Profile Legend & Symbol Information Sheet
* D.2	IA 14
<b>G Sheets</b>	<b>Survey Sheets</b>
G.1	Horizontal Control Tab. & Super for all Alignments
G.2 - 4	Reference Ties and Bench Marks
<b>J Sheets</b>	<b>Traffic Control and Staging Sheets</b>
J.1	Traffic Control Plan
* J.2	Detour
<b>W Sheets</b>	<b>Mainline Cross Sections</b>
W.1 - 19	Mainline Cross Sections
	* Color Plan Sheets

REVISIONS		TOTAL
		--
PROJECT IDENTIFICATION NUMBER		
18-38-014-020		
PROJECT NUMBER		
BRF-014-6(42)--38-38		
R.O.W. PROJECT NUMBER		
NHSN-014-6(43)--2R-38		

FIELD EXAM CHECKLIST + NEEDED INFORMATION

FIELD EXAM NOTES

1. Duration of Project?  
*1*
2. Posted Speed Limit(s) and if different during construction.
3. Any sight distance a problems?  
*45*  
*No*
- Any overtopping problems within the project limits?  
*No*
5. Strengthening and leveling areas (Sta-Sta).  
*No*
6. Survey of culvert extensions (for RCB extensions 100' each side of RCB and 100' Lt. and Rt. of centerline at 25' intervals and provide 20-scale drawing).  
*No*
7. Survey of safety dikes (100' each side of proposed dike and to 100' from centerline of roadway).  
*No*
8. Survey and 20-scale of proposed right-turn lanes (from centerline of sideroad back 400' and to 75' from centerline of roadway. Cross section every 50').  
*No*
9. Survey of horizontal curves (at least three locations within full super. Edges and centerline).  
*No*
10. Embankment and pipe quantities for sideslopes (National Highway System (NHS) routes only). Items to be tabbed by location.
11. Any known utilities potentially needing relocated (Temp. or Permanently)?  
*Yes*
12. Names and addresses of affected utility companies.  
*Sean Passick*
13. Locations of entrances to be reshaped.  
*Sean Passick*
14. Any existing drainage issues?  
*No*
15. Any suspected wetland or environmental impacts?  
*No*
16. Condition of existing culverts needed, obtained by whom?  
*Yes, Black Hawk Creek and intermittent stream*
17. Any existing subdrain locations?  
*No*
18. Names of affected special events.
19. Locations of mailboxes to be relocated to a minimum of 8' from pavement edge.
20. Survey trees within the roadside recovery area (trees within \_\_\_ ft from edge of roadway are to be removed. Those outside \_\_\_ ft will be reviewed from survey data).  
*No*
21. Disposition of Exist. Bridge Approaches (UAC or Resurface them).  
*Check*
22. Number and location of EF joints.  
*New*
23. Disposition of bridge handrail and guardrail and posts.  
*Now*
24. Inventory of Existing Guardrail.  
*New*
25. Longitudinal joint repair locations.  
*Keep Guardrail*
26. Listing of adjustment of fixtures.  
*No*
27. Clearing and Grubbing quantities - by unit or area?  
*No*
27. If this is a resurf. proj., is Dist. Survey able to preserve Section Corners & points (if no then add these items under Construction Survey).  
*?*

*Dis. Survey, Const. survey for Bridge and Road*

FINAL PROJECT CONCEPT STATEMENT

IA 14 – Bridge over Black Hawk Creek 1.5 Miles South of South Junction County Road D35 in Grundy Center

Grundy County  
BRF-014-6(42)—38-38  
PIN: 18-38-014-020  
Maintenance No.: 3831.3S014  
FHWA No.: 25841

Benjamin Adey, PE  
District 1 Office  
August 18, 2021

I. STUDY AREA

A. Project Description

This project involves the replacement of the IA 14 176.5' x 30' I-Beam bridge (Maint. No. 3831.3S014) over Black Hawk Creek, 1.5 miles south of the south junction of county road D 35. The existing bridge will be replaced with a 214' x 40' PPCB Bridge. Traffic will be maintained using offsite detours throughout construction.

B. Need for Project

The existing structure is a 176.5' x 30' I-Beam Bridge constructed in 1931. The existing roadway width is less than the current design standards. Additionally, the current elevation of the bridge is too low, thus the beams will be inundated during a Q100 event. Due to the age and condition of the bridge, a replacement is recommended.

C. Present Facility

The existing structure is a 176.5' x 30' I-Beam Bridge built in 1931. The bridge handrail was replaced with barrier rail in 1987. The north bridge approach was replaced in 2001.



Bridge location (2021).

D. Traffic Estimates

The 2019 ADT was 3,740 vpd with 13.4% trucks.

E. Sufficiency Ratings

IA 14 is classified as an access route and is a maintenance service level "B" road. The federal bridge sufficiency rating is 60.8.

F. Access Control

Access rights will not be acquired for this project.

G. Crash History

During the five-year study period from January 1, 2016 through December 31, 2020, there were no recorded crashes.

II. PROJECT CONCEPT

A. Feasible Alternatives

Replace existing bridge with 214' x 40' PPCB Bridge. Traffic will be maintained via offsite detour.

**Bridge Items:**

Bridge – 217' x 43.2' @ \$115/sf	\$ 1,078,000
Remove Exist. Bridge – 176.5' x 33.2' @ \$10/sf	\$ 58,600
Revetment – 500 ton @ \$50/ton	\$ 25,000
Mobilization (10%)	\$ 116,200
<u>Contingency (20%)</u>	<u>\$ 255,600</u>
<b>Bridge Costs</b>	<b>\$ 1,533,400</b>

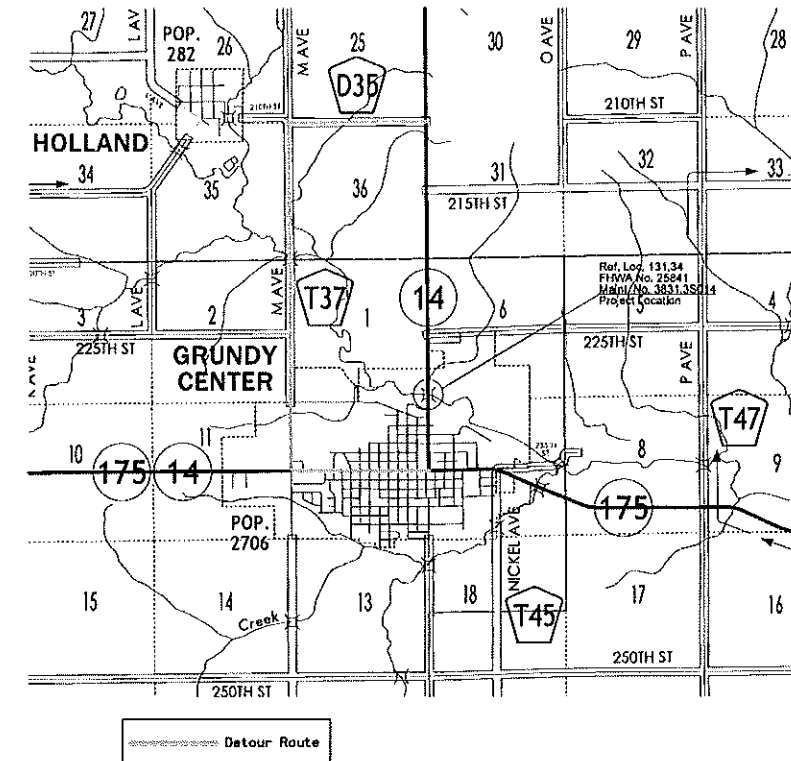
**Roadway Items:**

Embankment In Place (1,000 cu. yd. @ \$17/cu. yd.)	\$ 17,000
Modified Subbase (1,900 cu. Yd. @ \$45/cu. yd.)	\$ 85,500
Roadway Paving (3,200 SY @ \$75/sq. yd.)	\$ 240,000
Paved Shoulders (1,000 SY @ \$25/sq. yd.)	\$ 25,000
Granular Shoulder (500 TON @ \$25/ton)	\$ 12,500
Guardrail (4 corners @ \$15,000 each)	\$ 60,000
Paved Shoulders for Guardrail	\$ 65,000
Bridge Approaches (375 sq. yd. @ \$226/sq. yd.)	\$ 84,800
Traffic Control	\$ 10,000
Mobilization (10%)	\$ 60,000
<u>Contingency (20%)</u>	<u>\$ 120,000</u>
<b>Roadway Costs</b>	<b>\$ 779,000</b>

**Total Project Costs** **\$ 2,312,400**

B. Detour Analysis

IA 14 traffic will be maintained via an offsite detour utilizing IA 14, T37, and D35. IA 14 would be detoured for up to 7 months during construction. There is one LPA bridge on the proposed detour route (FHWA #165231) which can carry all legal loads.



C. Recommendations

It is recommended that the present structure be replaced with a 214' x 40' PPCB Bridge. The bridge will be raised 1.25' to allow freeboard during the Q100 event. The roadway will be reconstructed approximately 300 feet south and 900 feet north to accommodate the new bridge deck elevation. Roadway reconstruction should not impact the gas facility located approximately 800 feet north of the existing bridge. Traffic will be maintained using offsite detours throughout construction.

D. Construction Sequence

It is anticipated that all work on this project will be awarded to one prime contractor. The Bridges and Structures Bureau will design the bridge items and the District 1 Office will design the roadway items and provide final road plan sheets to the Bridges and Structures Bureau.

E. ADA Accommodations

There are no ADA facilities within the limits of this projects, and no new facilities will be added with this project.

F. Special Considerations

A bridge replacement on IA 175 over Munns Creek, project number BRFN-175-9(25)-29-38, is scheduled to be constructed in 2025.

This will not be a traffic critical project.

The project is in a 45 mph speed zone in the city limits of Grundy Center.

This project will require a 404 Permit.

There are most likely wetland areas adjacent to the bridge. If wetland impact exceeds 0.1 acre, wetland mitigation will be required.

A regulated intermittent stream runs parallel to IA 14 on the east and outlets into Black Hawk Creek. If stream impacts exceed 300 feet or 0.1 acre in channel loss, stream mitigation will be required.

No railroads exist within the limits of this project.

Right of Way may be required for this project.

A detour agreement with Grundy County will be required.

G. Program Status

This project is listed in the 2021-2025 Iowa Transportation Improvement Program, with \$2,436,000 programmed for bridge replacement and \$6,000 for Right of Way in FY 2025.

H. Project Schedule:

D00 – Pre-Design Concept	9-1-2021
D02 – Design Field Exam	10-29-2021
D03 – Plans for Preliminary Bridge	11-19-2021
B01 – Bridges and Structures Layout	2-25-2022
D05 – Plans to Right of Way	3-25-2022
D04 – Design Plans for Bridge	6-18-2024
B03 – Final Bridge Plans	8-6-2024
L05 – Letting – Bridge and Culverts	11-14-2025

Cc:

C. Purcell  
 S. J. Megivern  
 M. A. Swenson  
 S. Majors  
 B. Bradley  
 E. C. Wright  
 C. C. Poole  
 B. E. Azeltine  
 S. Anderson  
 K. K. Patel  
 D. R. Claman  
 M. E. Khoda  
 P. Schwarz  
 V. Brewer  
 J. Garton  
 A. Loonan  
 M. Solberg

M. J. Kennerly  
 J. S. Nelson  
 R. A. Younie  
 K. Brink  
 J. W. Laaser-Webb  
 M. E. Ross  
 B. Hofer  
 S. J. Gent  
 D. Stokes  
 S. Godbold  
 J. Hauber  
 K. Olson  
 M. Erickson  
 A. Loonan  
 A. Smyth  
 B. Ellis  
 B. Hucker

K. D. Nicholson  
 M. Nop  
 D. E. Sprengeler  
 D. L. Newell  
 W. A. Sorenson  
 A. A. Welch  
 M. Stephens  
  
 J. Vortherms  
 A. Abu-Hawash  
 S. Neubauer  
  
 M. Donovan  
  
 S. Nixon  
 B. Adey

**Bridge Cost Estimate for Concept Statement**

By: Matt Erickson

Date: 1/12/2021

**Location:**

IA 14 over Black Hawk Creek North of Grundy Center  
 County: Grundy Proj. No.: BRF-014-6(42)--38-38  
 Des. No.: 0124 Pin No.: 18-38-014-020  
 Maint. No.: 3831.3S014 FHWA No.: 25841  
 Section 1&6,T87N,R16,17W Sta.: 14+93.0  
 Functional Class: Rural-Principal Arterial ADT: 3,740 vpd

**Existing Bridge:**

Type: I-Beam Bridge Length x Width: 176.5' x 30'  
 Pier Type: T Pier Abut. Type: Stub  
 Spans: 42.7', 45.8', 45.8', 42.7' Approach Pavement Width: 24'  
 Skew: 0 Design Loading:  
 Drainage Area: 56.1 sq. mi.  
 Existing Bridge Width Acceptable: No  
 New/Reconstructed Roadway Width: 40.0'  
 Repair/Remodel by Staging Traffic: No

**Commentary:**

This project is for the replacement of the IA 14 (MP 131.3) bridge over Black Hawk Creek in the City of Grundy Center.

Note: A 1.25' Grade raise is requested to allow some freeboard. If the grade raise is not provided, the beams will be inundated during a Q100 event.

**Option A - Detour 214' x 40' PPCB Bridge**

Type: PPCB - BTB Beams Length x Width: 100' x 44'  
 Pier Type: T-Pier Abutment Type: Integral  
 Spans: 56', 82', 76' Skew: 0 degree  
 Stage Traffic: No

Costs:  
 Bridge - 217' x 43.2' @ \$115/sf = \$1,078,000  
 Remove Exist. Bridge - 176.5' x 33.2' @ \$10/sf = \$ 58,600  
 Revetment - 500 ton @ \$50/ton = \$ 25,000  
 Mobilization (10%) = \$ 116,200  
 Contingency (20%) = \$ 255,600  
 =====  
 Total Option A \$1,533,400

**Revisions:**

None

**Bridge Office Attachment for Concept Statement**

Date: January 12<sup>th</sup>, 2021

By: Matt Erickson

Location: IA 14 Over Black Hawk Creek

County: Monona

Project No.: BRFN-175-1(73)--39-67

Pin No.: 17-67-175-010

1. Regulatory/Coordination

- a. Iowa DNR Flood Plain permit = Yes
- b. Iowa DNR Sovereign Lands permit = No
- c. Local Record of Coordination = No
- d. Flood Insurance Study = No. Zone A, 19075C0310C
- e. Drainage District = No

2. Hydrologic/Hydraulic Analysis/RIDB Dataset

- a. Design discharges determined = Yes (USGS 13-5086)
- b. Hydraulic analysis done = Yes, IABB model with Lidar shows that a 1.25' grade raise is needed. Hecras will be completed with survey.
- c. Riverine Infrastructure Database = Yes (DA=56.1 sq.mi.)  
 -RIDB Location: BlackHawkC\_Black RM 39.42

3. Structure/Roadway Layout Considerations

- a. The bridge size shall be verified after survey is complete.

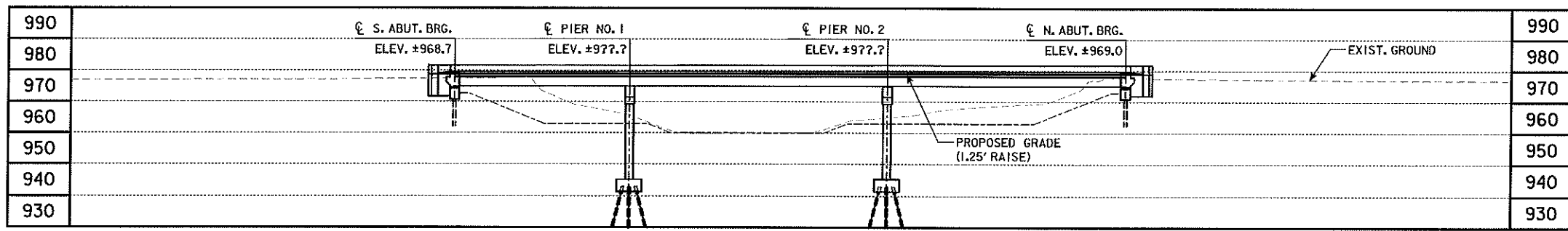
4. Special survey = Yes. See below.

5. Aesthetic enhancements = No.

**Special Survey:**

We request the following in addition to the routine survey data-

- A. Lowest ground and floor elevations for the 6 structures (Petromart, Blue Lake Wash And Storage buildings, NAPA Auto Parts /
- B. For the purpose of correlating the LiDAR to the project elevations. 3-5 shots approx. 20 feet apart along the flat pavement surface within a lane on IA 14 near the bridge replacement.

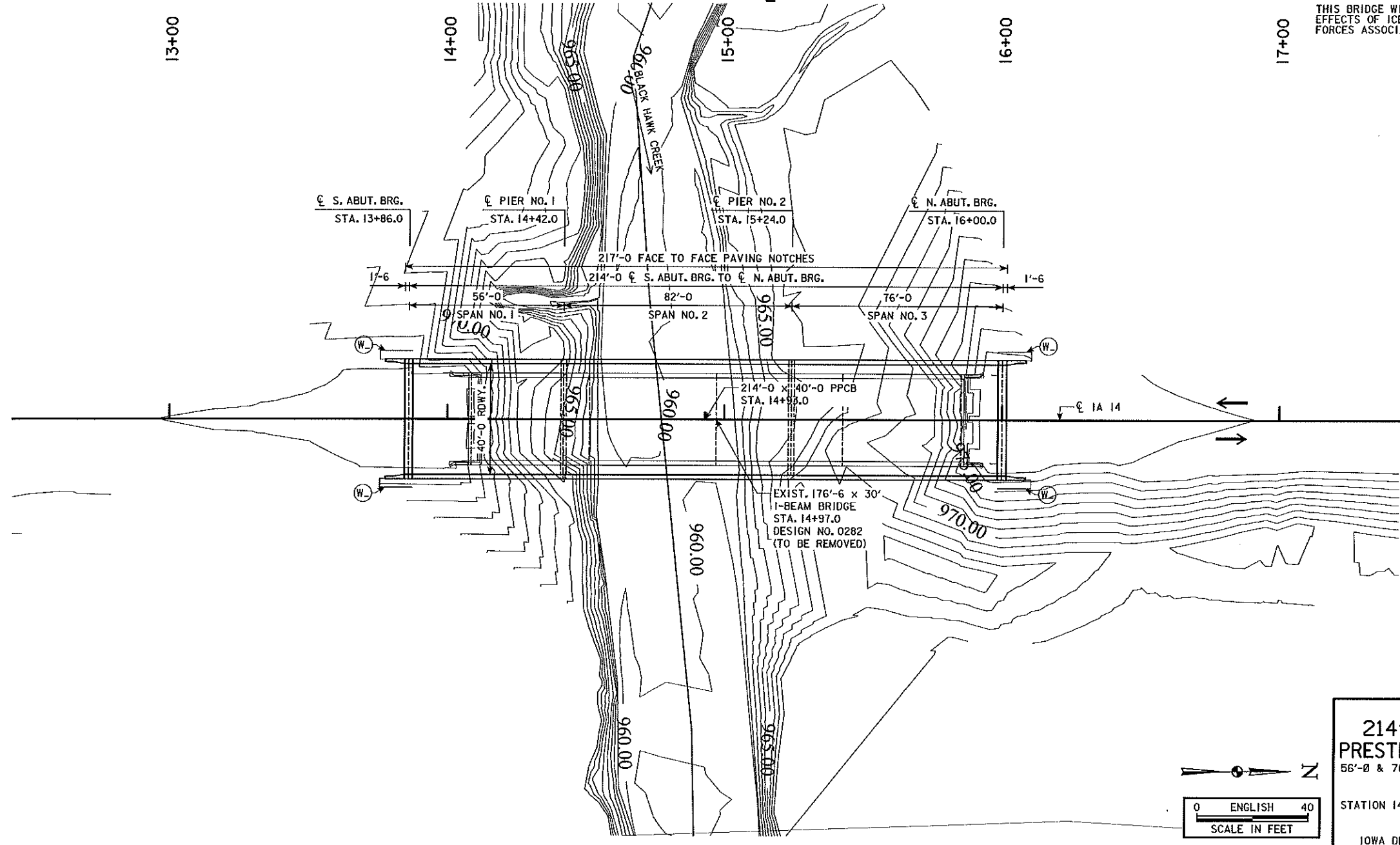


HYDRAULIC DATA	
990	DRAINAGE AREA = 56.1 SQ. MI.
980	STREAM SLOPE = 2.6 FT./MI.
970	Q <sub>50</sub> = 9,510 CFS
960	STAGE = 973.7
950	REGULATORY LOW BEAM = ????.?
940	BACKWATER = 0.7 FT.
930	AVG. BRIDGE VELOCITY = 4.6 FPS
	Q <sub>100</sub> = 11,200 CFS
	STAGE = 974.3
	OPERATIONAL LOW BEAM = ????.?
	BACKWATER = 0.9 FT.
	AVG. BRIDGE VELOCITY = 5.1 FPS

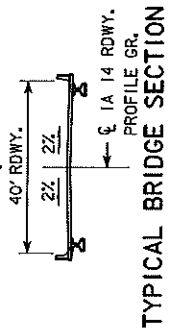
ABUT. DEPTH = 20' \* 2% + 2' + 8.5' + 3' + 3' + 3.5' = 8.025'

LONGITUDINAL SECTION ALONG CL APPROACH ROADWAY

THIS BRIDGE WILL BE DESIGNED TO WITHSTAND THE APPLICABLE EFFECTS OF ICE AND THE HORIZONTAL STREAM LOADS AND UPLIFT FORCES ASSOCIATED WITH THE Q100.



**LOCATION**  
 IA 14 OVER BLACK HAWK CREEK  
 T-87N R-16,17W  
 SECTIONS 1 AND 6  
 PALERMO AND WASHINGTON TOWNSHIPS  
 GRUNDY COUNTY  
 CITY OF GRUNDY CENTER  
 FHWA NO. 25841 (EXISTING)  
 BRIDGE MAINT. NO. 3831.35014  
 LATITUDE 42.369245°  
 LONGITUDE -92.768275°

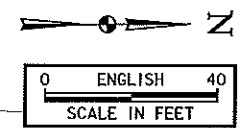


**TRAFFIC ESTIMATE**

202- AADT	-	V.P.D.
2044 AADT	4,200	V.P.D.
202- DHV	-	V.P.H.
TRUCKS	-	%
TOTAL	-	
DESIGN ESALs	-	

PRELIMINARY - CONCEPT

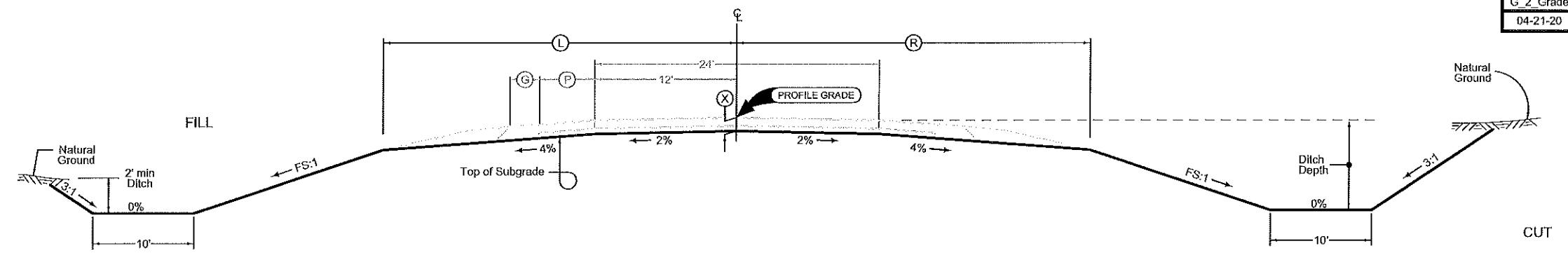
DESIGN FOR 0° SKEW  
**214'-0" X 40'-0" PRETENSIONED  
 PRESTRESSED CONCRETE BEAM BRIDGE**  
 56'-0" & 76'-0" END SPANS      82'-0" INTERIOR SPAN



STATION 14+93.00 (CL IA 14)      DECEMBER, 2020  
**GRUNDY COUNTY**  
 IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION  
 DESIGN SHEET NO. \_\_\_ OF ?    FILE NO. 32046    DESIGN NO. 0124

DESIGN TEAM	GRUNDY COUNTY	PROJECT NUMBER BRF-014-6(42)--38-38	SHEET NUMBER
1/11/2021 7:27:53 PM mericks C:\Users\mericks\Desktop\Grundy\STR_53014042.DOT_205.dgn TSL_38_0124 11x17.pdf.pltcf			

LOCATION		DIMENSIONS			
ROAD IDENTIFICATION	STATION TO STATION	Ⓐ Feet	Ⓑ Feet	Ⓒ Inches	FS
	109+75.00 112+21.48	36	36		3.5
	112+21.48 113+83.11	VAR.	VAR.		3.5
	115+97.11 117+58.47	VAR.	VAR.		3.5
	117+58.47 125+25.00	36	36		3.5

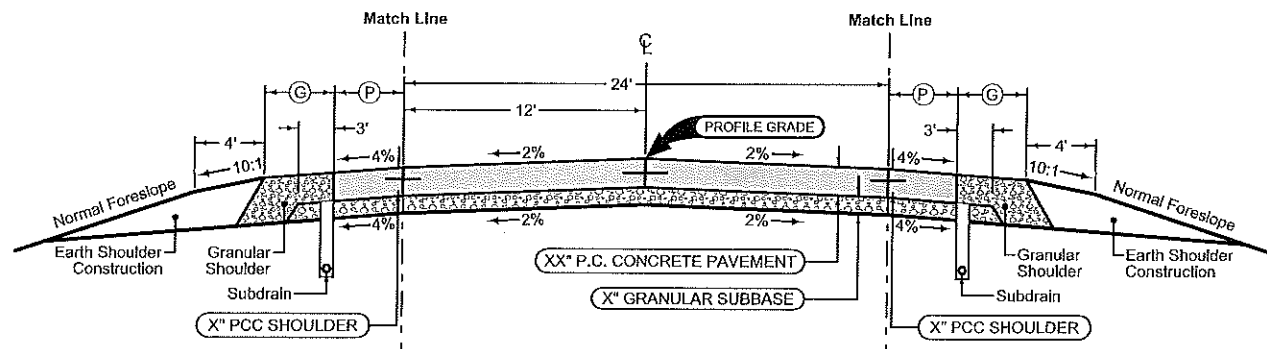


Normal section shown may be modified appropriately in areas of superelevated curves or other locations specifically designated by the Engineer.

See plan & profile sheets and cross sections for additional details of ditches and backslopes.

2 LANE GRADING





**Full Depth PCC Combination Shoulder**

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

2_C_FullPCC_04-21-20			
STATION TO STATION		(P) Feet	(G) Feet
109+75.00	112+54.38	4	6
117+38.34	122+50.00	4	6

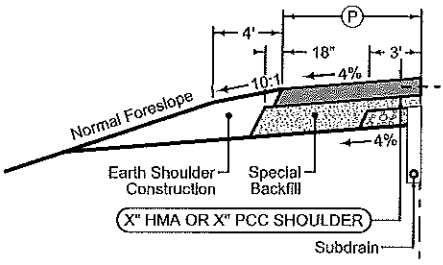
Mainline Jointing:  
 Transverse joints: CD at 17' spacing  
 Longitudinal joint: L-2

2P_04-21-20	
STATION TO STATION	
109+75.00	113+13.11
116+67.11	122+50.00

**Full Depth PCC Combination Shoulder**

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

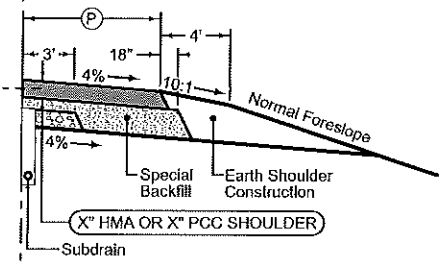
2_C_FullPCC_04-21-20			
STATION TO STATION		(P) Feet	(G) Feet
109+75.00	112+41.88	4	6
117+25.84	122+50.00	4	6



**Paved Shoulder at Guardrail**

PCC Shoulder Jointing:  
 Longitudinal joint: BT-1 or BT-5  
 Transverse joints: C at mainline spacing  
 HMA Shoulder Jointing:  
 Longitudinal joint: B

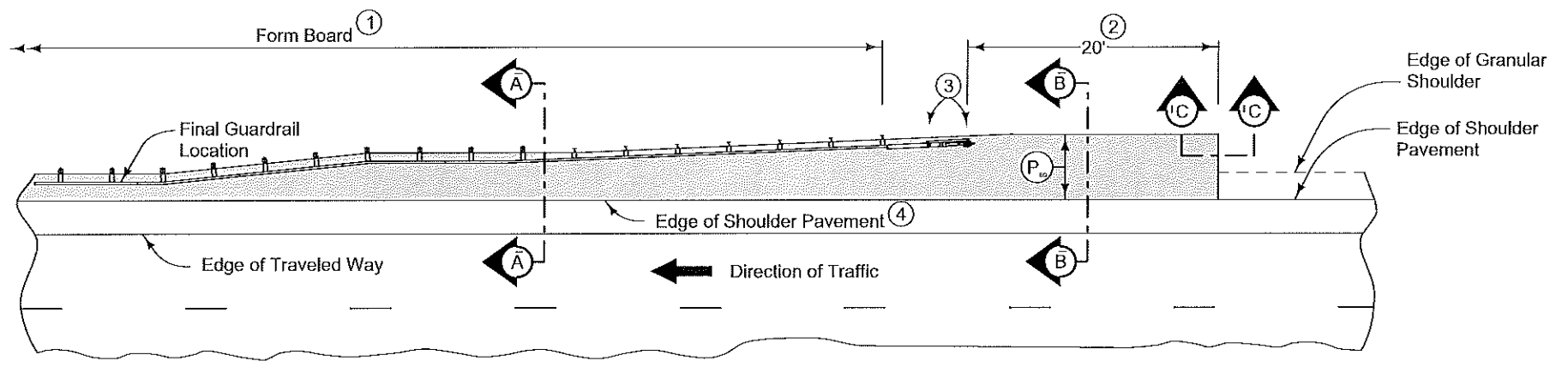
2_P_Guard_04-21-20		
STATION TO STATION		(P) Feet
112+54.38	113+13.11	VAR.
116+67.11	117+38.34	VAR.



**Paved Shoulder at Guardrail**

PCC Shoulder Jointing:  
 Longitudinal joint: BT-1 or BT-5  
 Transverse joints: C at mainline spacing  
 HMA Shoulder Jointing:  
 Longitudinal joint: B

2_P_Guard_04-21-20		
STATION TO STATION		(P) Feet
112+41.88	113+13.11	VAR.
116+67.11	117+25.84	VAR.



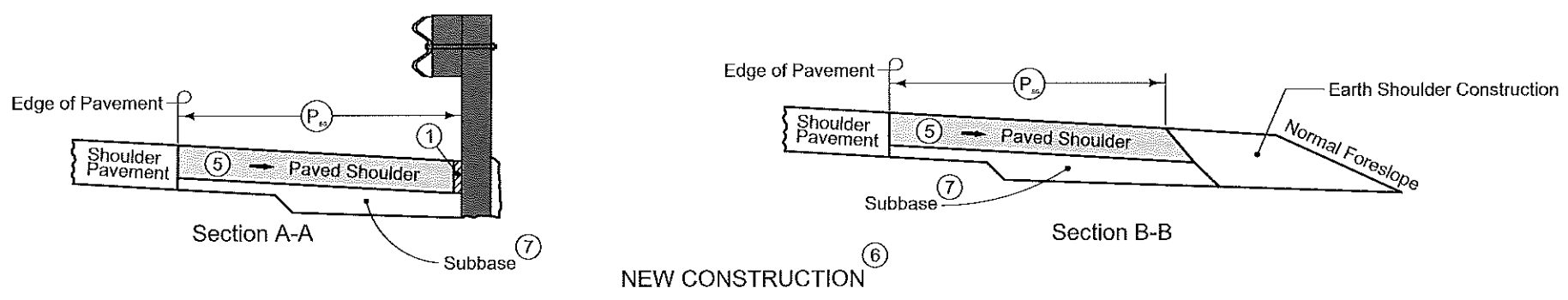
PLAN VIEW

9" HMA Paved Shoulder at guardrail. 8" PCC may be substituted 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' in length. Terminate longitudinal joint at transverse joint less than 10' in length.

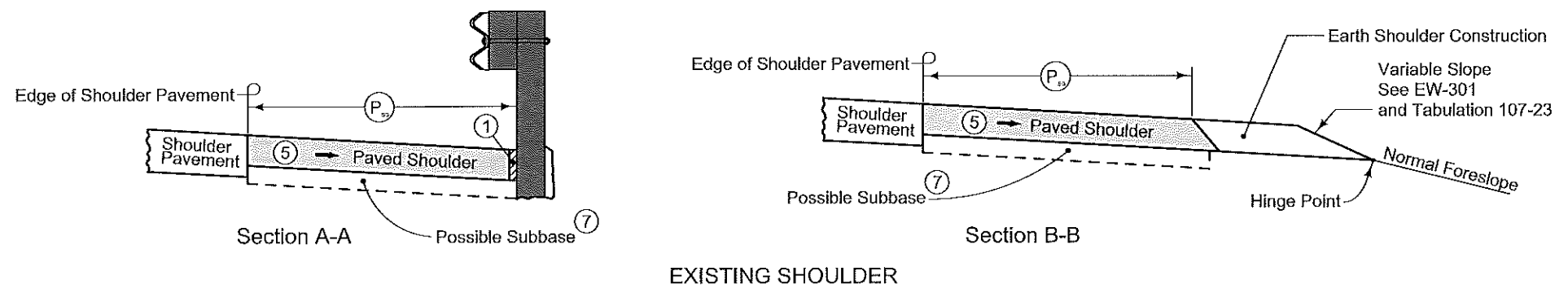
Compaction of HMA is required to face of guardrail post. Hand compaction will be allowed under guardrail. Removal and reinstallation of guardrail will be allowed with no additional payment.

Refer to Tabulation 112-9 for shoulder quantities.

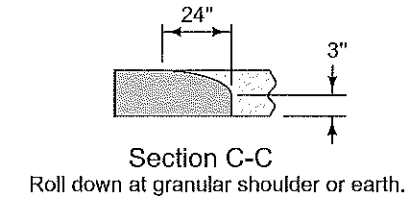


NEW CONSTRUCTION

- ① PCC option only: 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-1 joint for PCC shoulder. 'B' joint for HMA 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.



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

- Consumers Energy
- Grundy Center Municipal Utilities
- Aureon Network Services
- Windstream Communications
- Black Hills Energy
- City of Grundy Center
- Windstream Communications
- Windstream Communications

### 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
Gray, Light	(48)		Proposed Pavement Shading
Gray, Med	(80)		Proposed Granular Shading
Gray, Dark	(112)		Proposed Grade and Pave Shading "In conjunction with a paving project"
Brown, Light	(236)		Grading Shading
Tan	(8)		Proposed Sidewalk Shading
Blue, Light	(230)		Proposed Sidewalk Landing Shading
Pink	(11)		Proposed Sidewalk Ramp Shading

### PROFILE VIEW COLOR LEGEND OF PLAN AND PROFILE SHEETS

LINEWORK		Design Color No.	
Green	(2)		Existing Ground Line Profile
Blue	(1)		Proposed Profile and Annotation
Magenta	(5)		Existing Utilities
Blue, Light	(230)		Proposed Ditch Grades, Left
Black	(0)		Proposed Ditch Grades, Median
Rust	(14)		Proposed Ditch Grades, Right

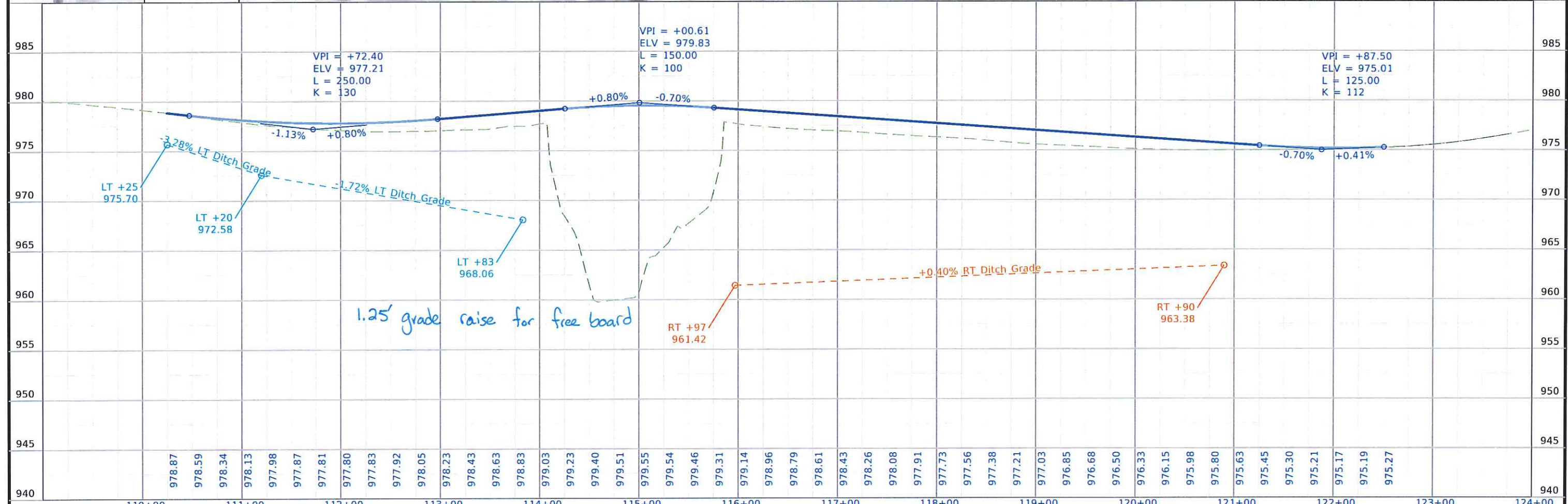
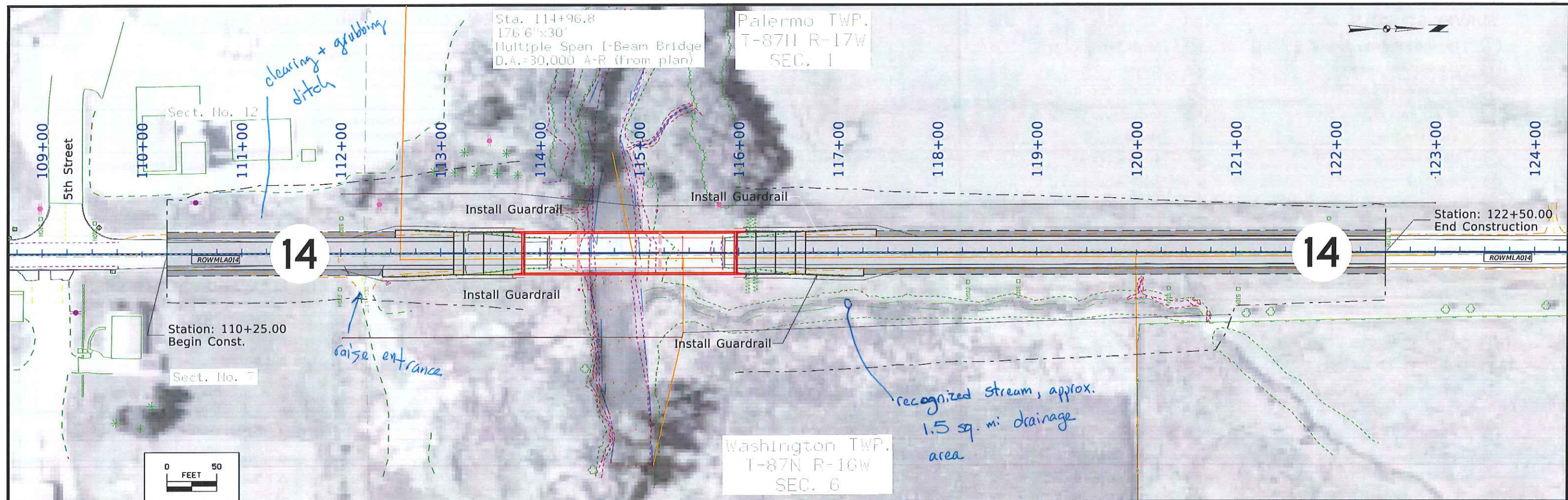
- Reference Point
- Station
- Survey Line
- Section Corner
- Ground Line Intercept
- Saw Cut
- Guardrail
- Trench Drain
- HighTension Cable Guardrail
- Sheet Pile
- Pavement Removal
- Clearing & Grubbing Area

### RIGHT-OF-WAY LEGEND

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

## PLAN AND PROFILE LEGEND AND SYMBOL INFORMATION SHEET

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



**ALIGNMENT COORDINATES**

Name	Location	Point on Tangent			Begin Spiral			Begin Curve			Simple Curve PI or Master PI of SCS			End Curve			End Spiral		
		Station	Coordinates		Station	Coordinates		Station	Coordinates		Station	Coordinates		Station	Coordinates		Station	Coordinates	
			Y (Northing)	X (Easting)		Y (Northing)	X (Easting)		Y (Northing)	X (Easting)		Y (Northing)	X (Easting)		Y (Northing)	X (Easting)		Y (Northing)	X (Easting)
IA 14		100+00.00	8796686.45	15359927.33															
IA 14		151+77.13	8801863.55	15359946.90															

## Survey Information

**Grundy County**  
**BRF-014-6(42)--38-38**  
**Black Hawk Creek 1.5 mi S of**  
**S Jct. Co Rd D35 in Grundy Center**  
**PIN 18-38-014-020**  
**Sap-0272.1**

### Party Personnel

Jason Page - Survey Party Chief  
John Hahn – Assistant Survey Party Chief

### Date(s) of Survey

Begin Date            10/16/2018  
End Date                05/26/2021

### General Information

Measurement units for this survey are US survey feet. This survey is for proposed Bridge reconstruction over Black Hawk Creek on Iowa Highway 14. Project datum and control information is provided by Design Survey Office. This project is a Partial DTM with Photo control.

### Vertical Control

Vertical datum for this survey is NAVD88 (Computed using Geoid12B). GRS80 Ellipsoidal Height was computed at project Pts. CP1, CP2 and L 30 by conducting two concurrent 6-hour static observations. The project control is relative to nearby Iowa RTN Base Stations.

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

NGS 2nd order class 0 mark designated L 30 has a published Elev. Of 967.87  
Survey Elev. = 968.241

### Horizontal Control

The project coordinate system for this survey is Iowa RCS Zone 5 (U.S. Survey Feet). This survey control is relative to laRTN reference stations. laRTN Reference Station coordinates are relative to the National Reference Station network datum: NAD83 (2011) for Epoch 2010.00. Coordinates were determined by conducting two six-hour

static observations. Additional control points were placed throughout the project using a GNSS Base-Rover setup relative to point CP1.

### Alignment Information

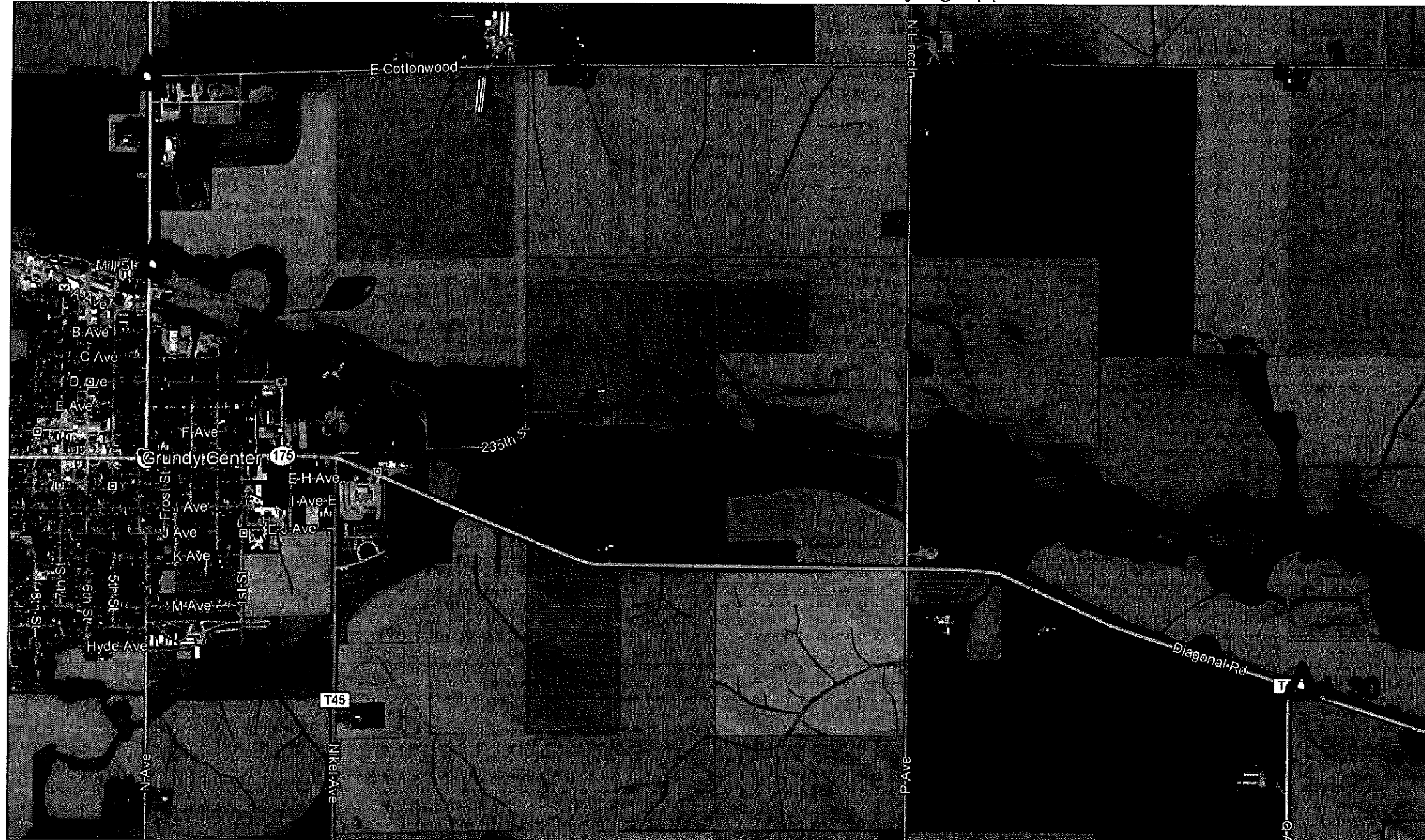
Alignment information was provided by the District 1 Land Survey Department.

### Utility Information

For utility details see Utility Survey and Ownership Report in the Utility folder of the PrelimSurvey project directory.

### CONTROL POINT VICINITY MAP

This map is a guide to the vicinity of the primary project control points  
Primary control is for use with RTK base stations and for RTN validation.  
Future surveys will use primary project control to establish temporary  
control as needed for construction or other surveying applications.



HORIZ. DATUM: NAD83(2011) EPOCH 2010.00

VERT. DATUM: NAVD88

1a. Regional Coordinate System Zone 5

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

HORIZONTAL AND VERTICAL PROJECT CONTROL COORDINATE LISTING

HORIZ. DATUM: NAD83(2011) EPOCH 2010.00

VERT. DATUM: NAVD88

Ia. Regional Coordinate System Zone 5

Point Name	Northing	Easting	Elevation	Code	Description
CP1	8797933.476	15359961.394	975.408	BM	SET FENO MONUMENT 230 FT SOUTH OF S BLACK HAWK CREEK 40 FT EAST OF CTR IA HWY 14 AND 20 FT NORTH OF CTR ENT TO EAST
CP2	8800514.504	15359891.178	1010.393	BM	DRILLED HOLE IN BALL OF ROW RAIL 20 FT SOUTH AND 40 FT WEST OF INTSEC IA HWY 14 AND E COTTONWOOD NEAR WOOD POST
L30	8792061.862	15375892.807	968.241	BM	FD NGS 2ND ORDER CLASS 0 BENCH MARK DESIGNATED L 30 AS DESCRIBED



**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
			None Anticipated									

108-23A  
08-01-08

**TRAFFIC CONTROL PLAN**

IA 14 will be closed at Black Hawk Creek. IA 14 traffic will be detoured using IA 175, T37 and D35. Refer to detour map on J.2 for details.

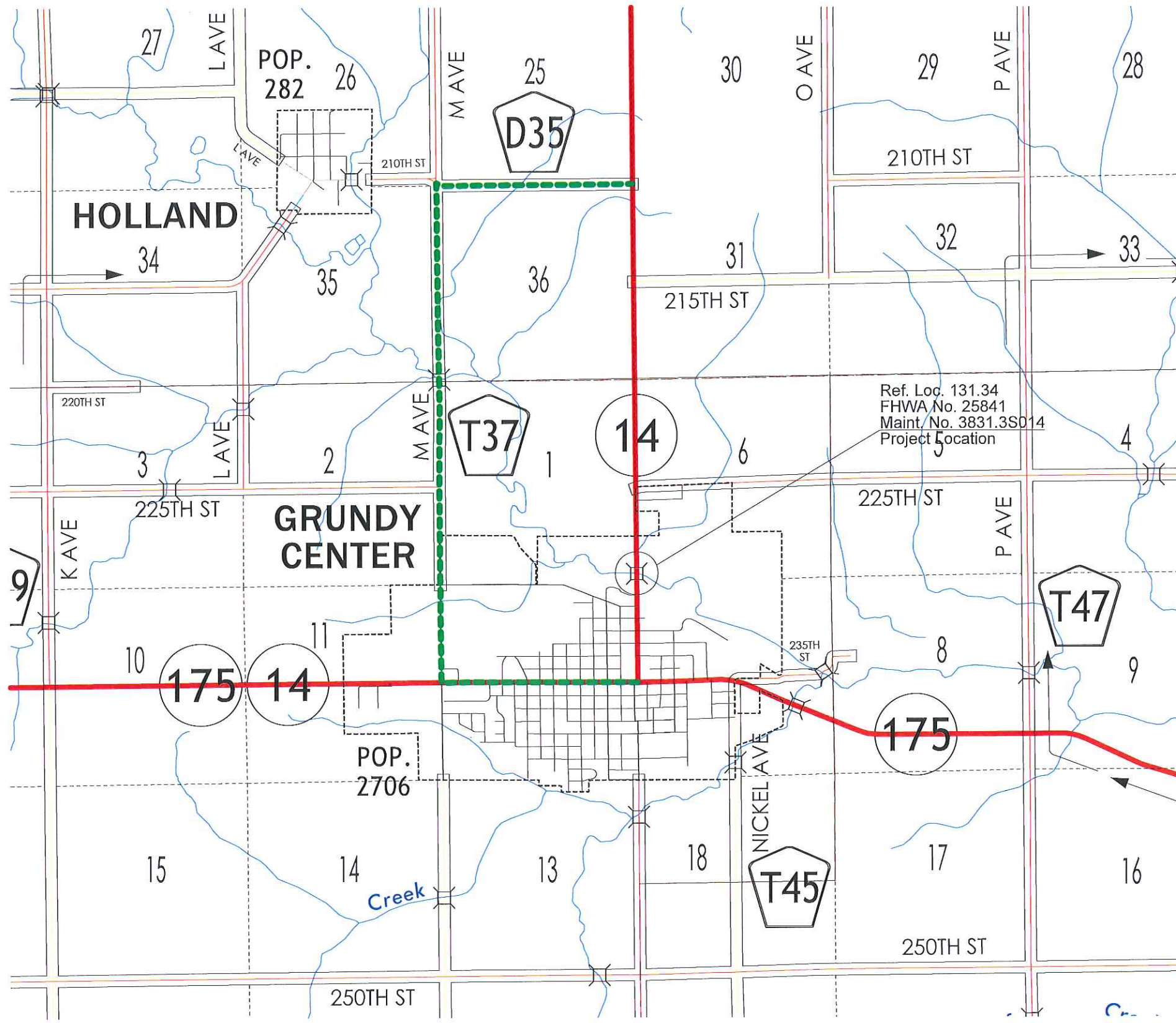
grandy county agreement

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.

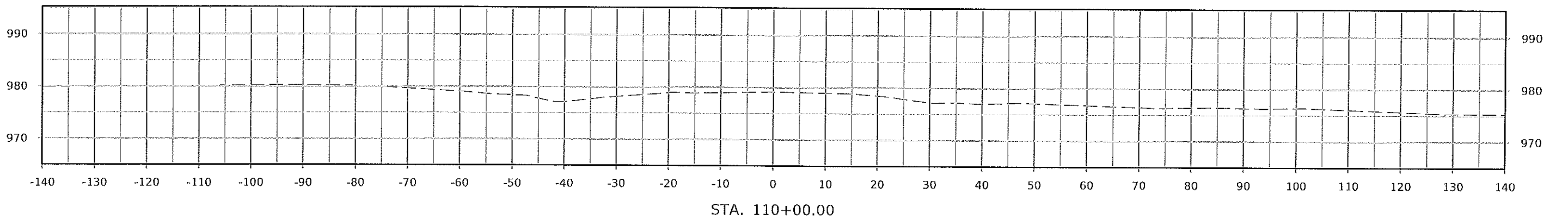
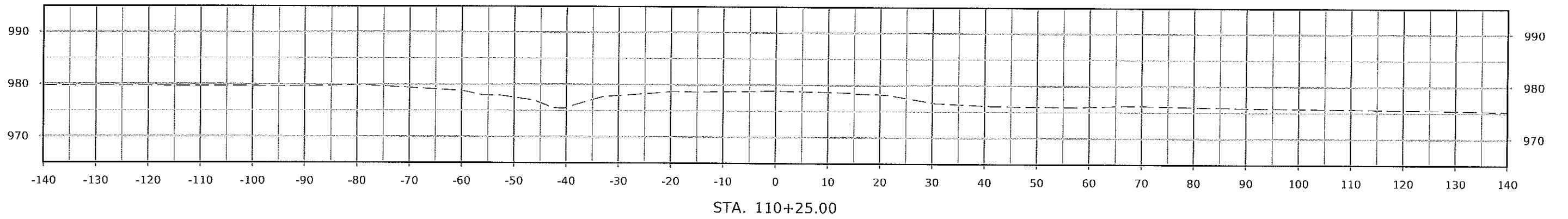
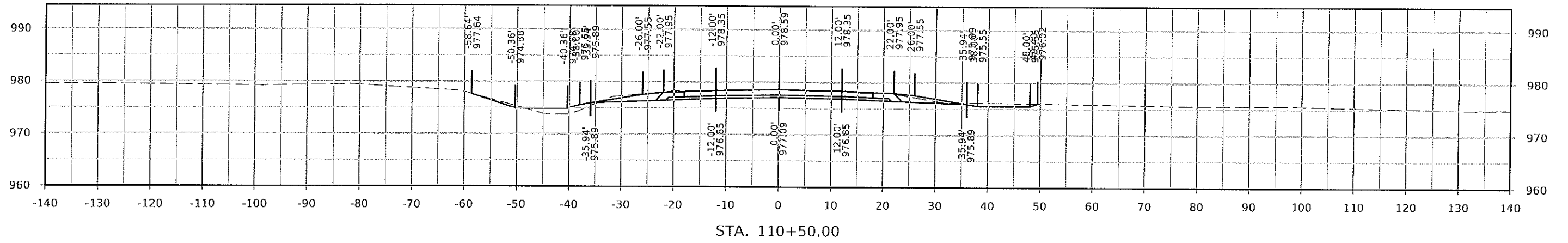
Project	Type of Work
To be determined	

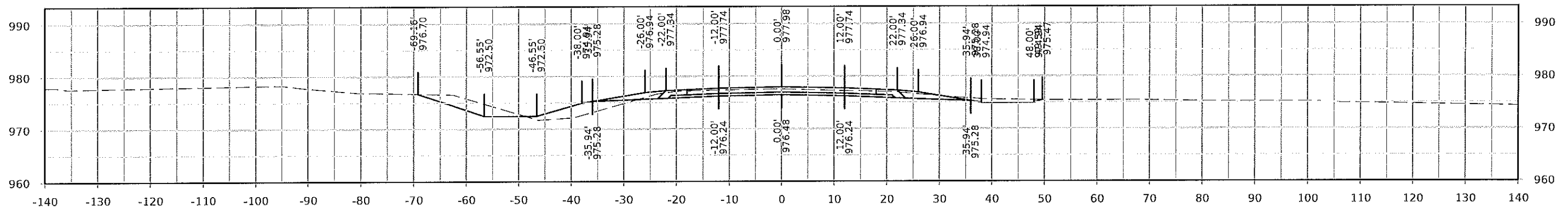


Ref. Loc. 131.34  
 FHWA No. 25841  
 Maint. No. 3831.3S014  
 Project Location

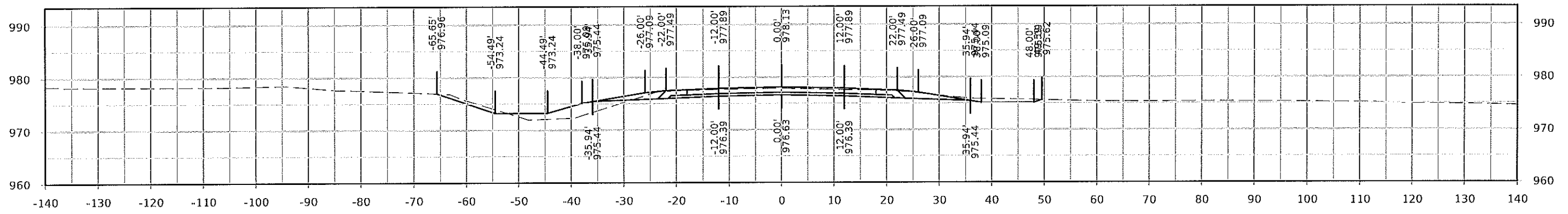
--- Detour Route

Detour Map

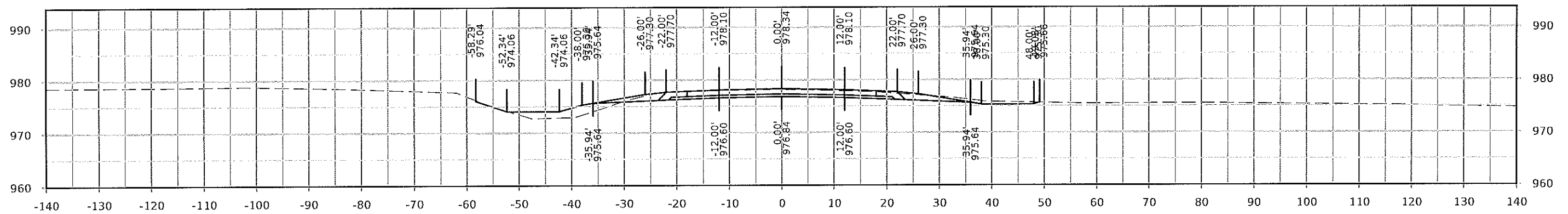




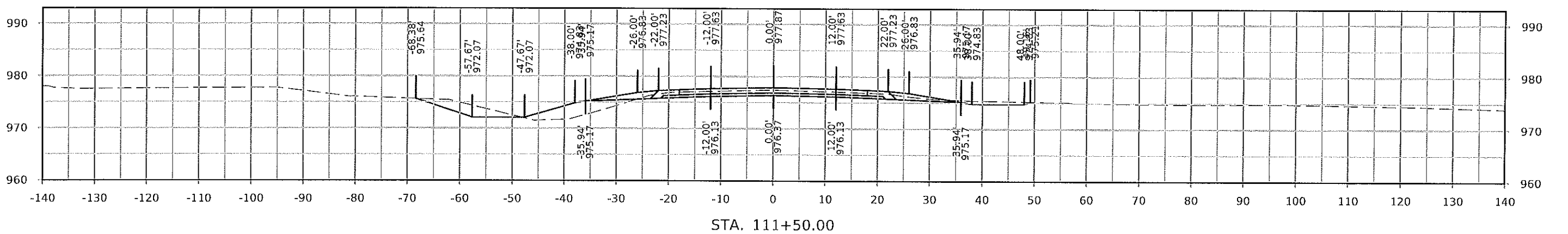
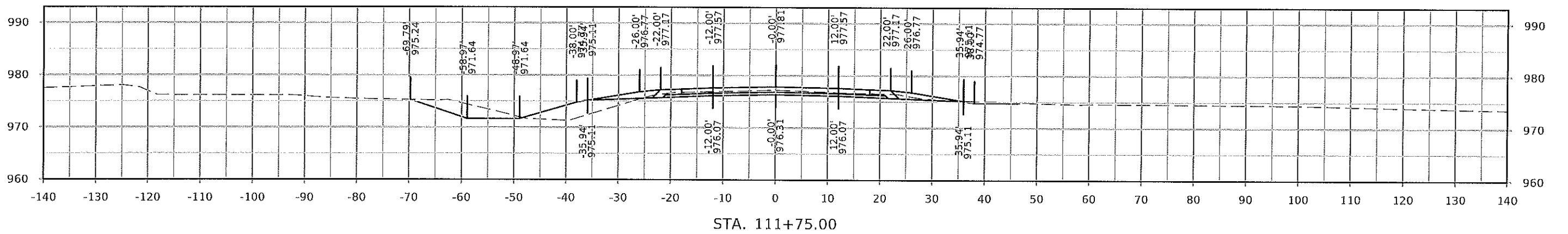
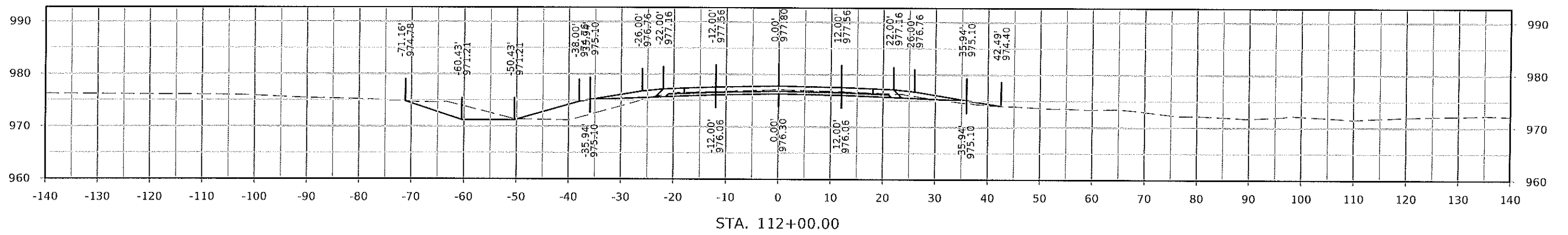
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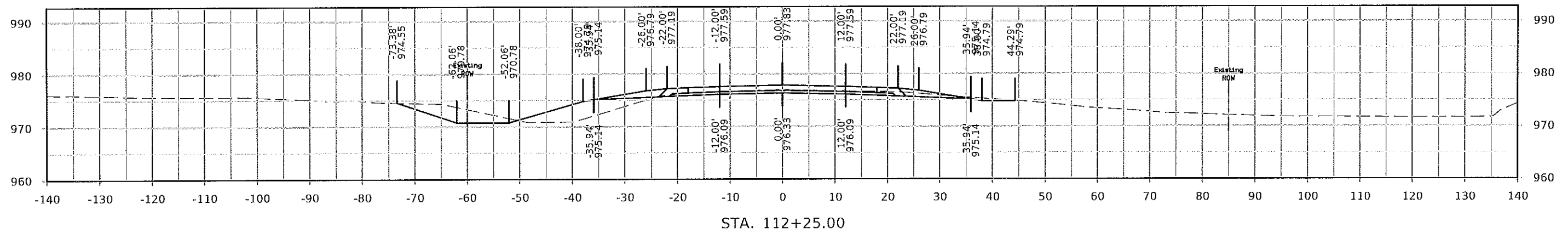
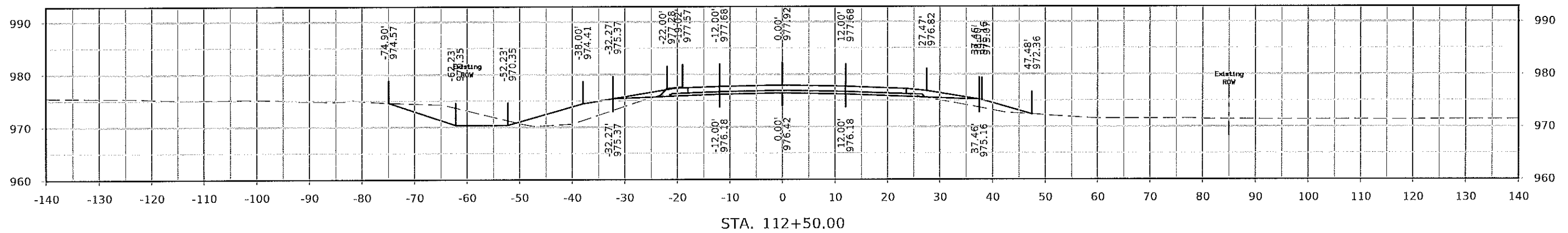
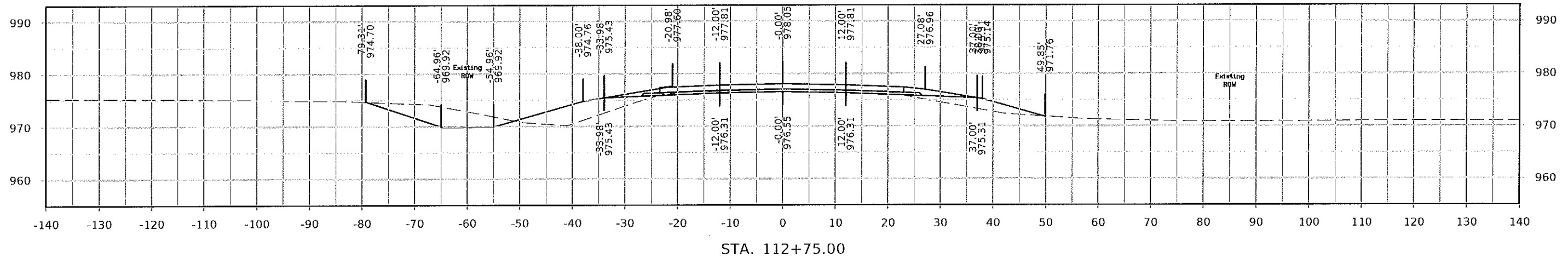


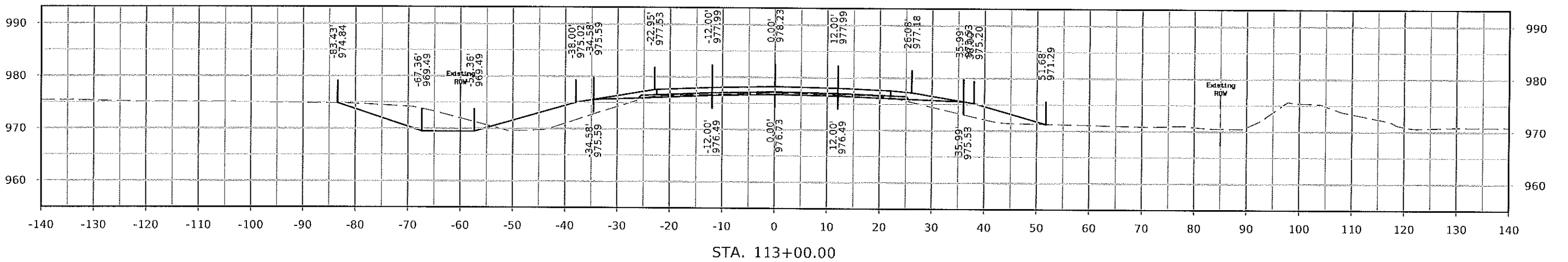
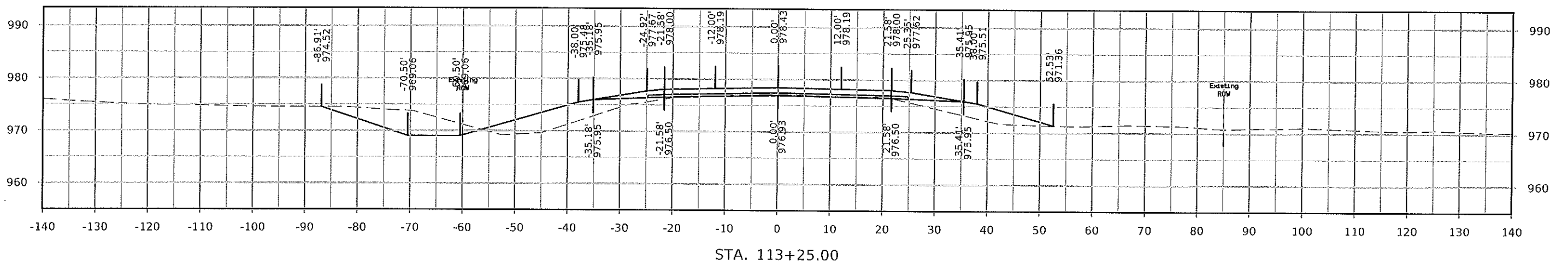
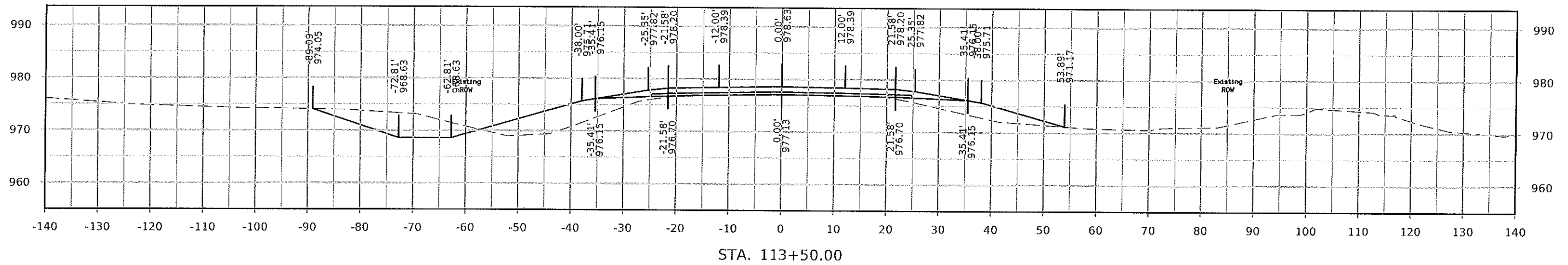
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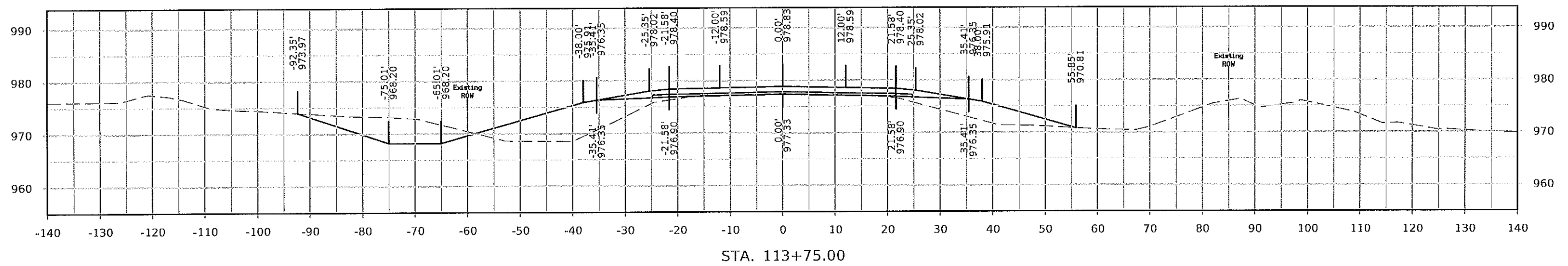
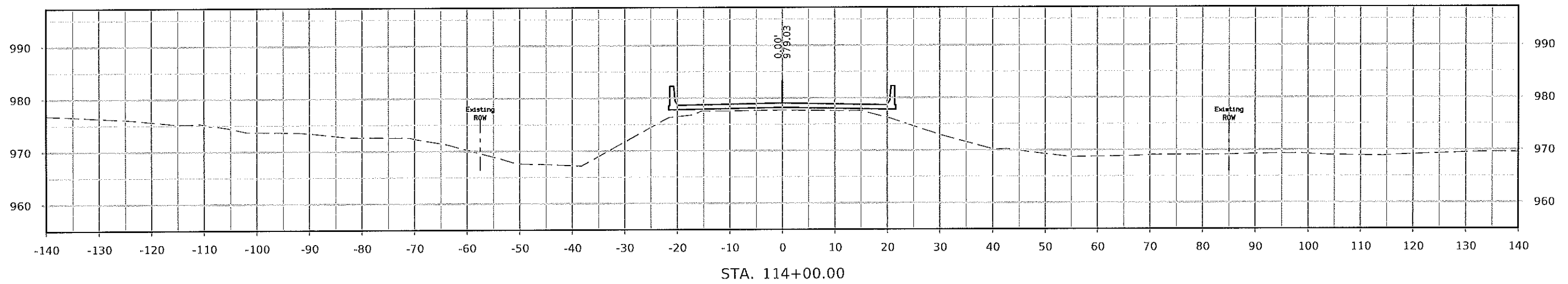
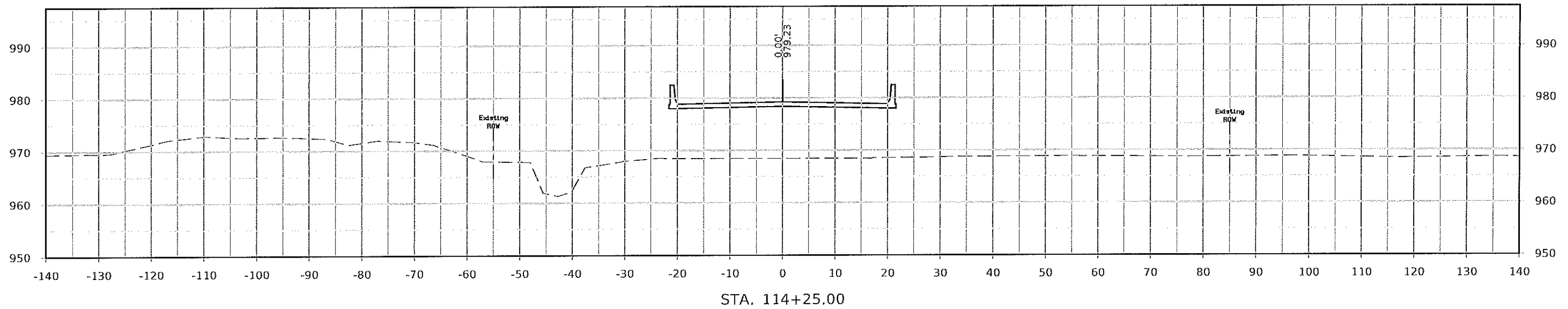


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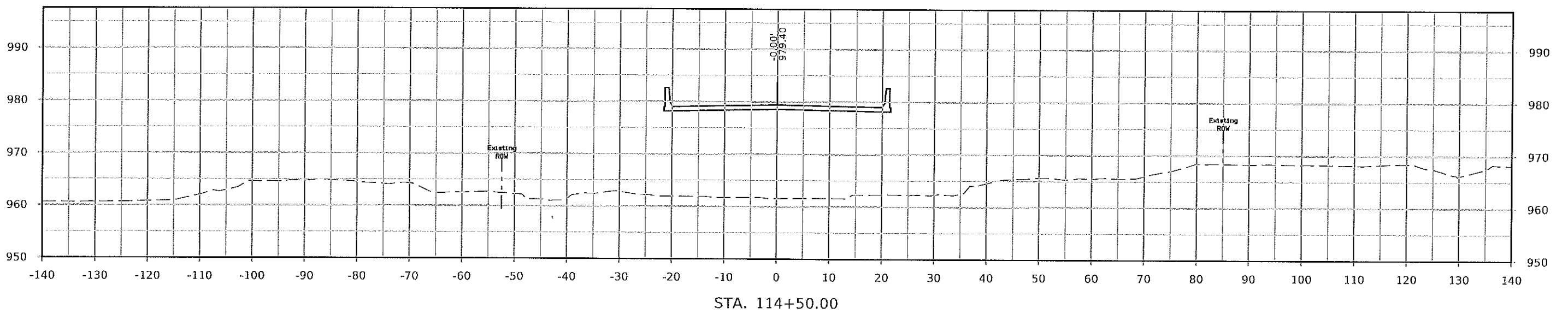
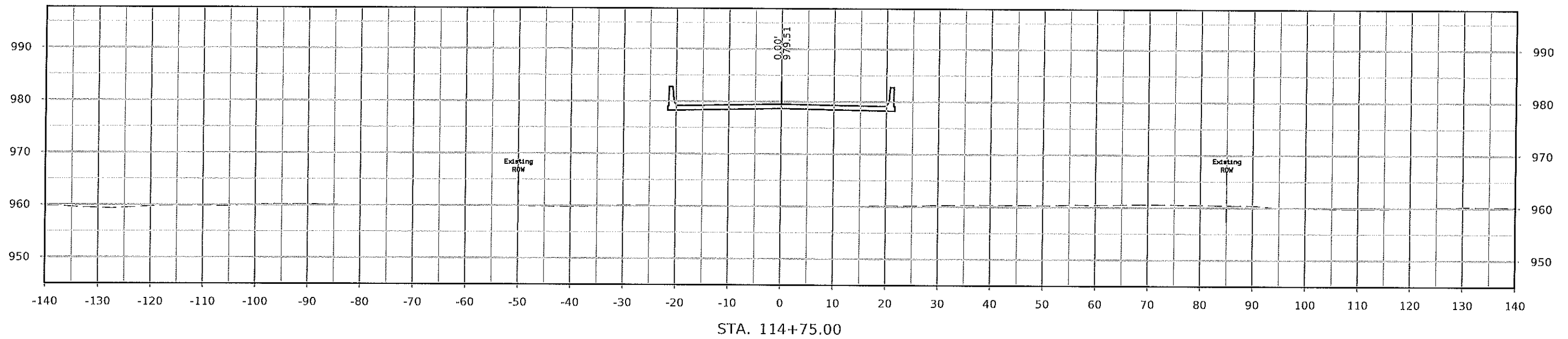


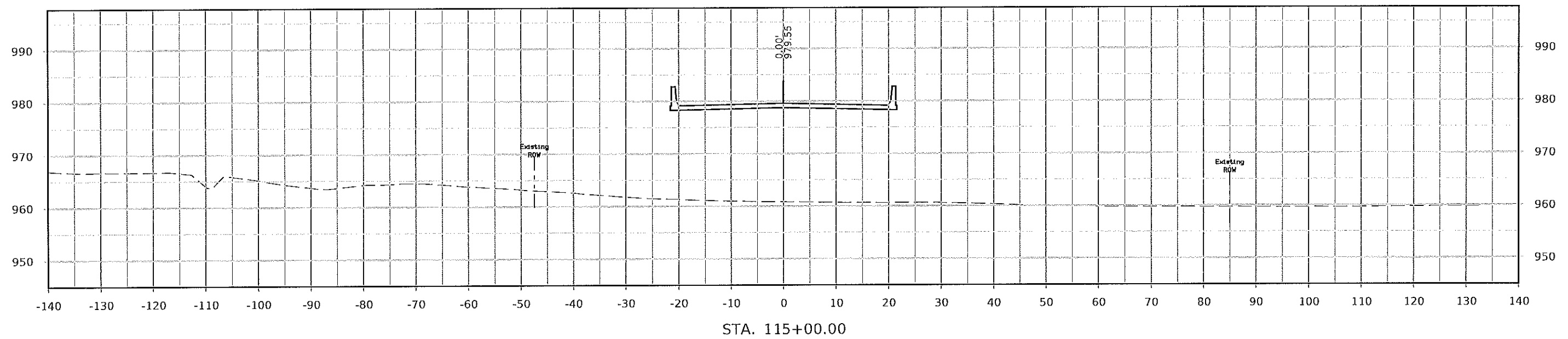
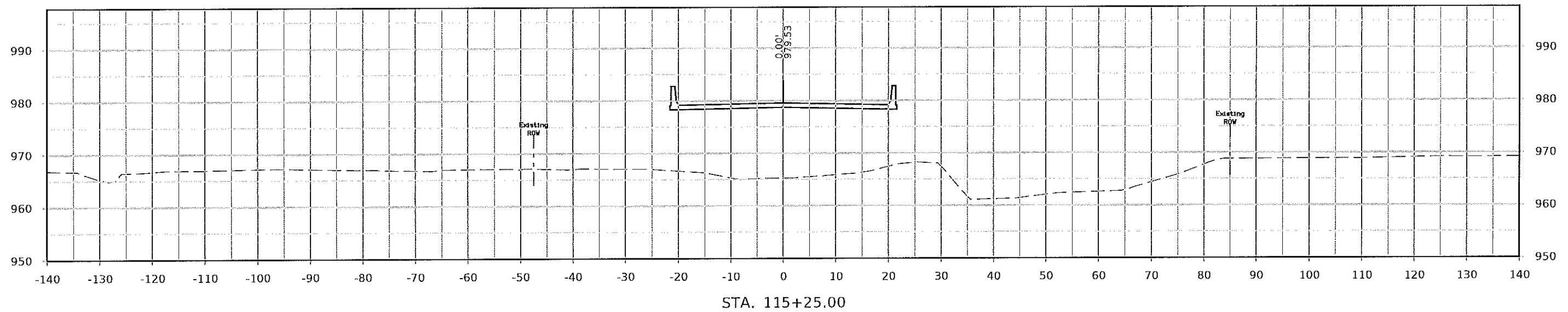


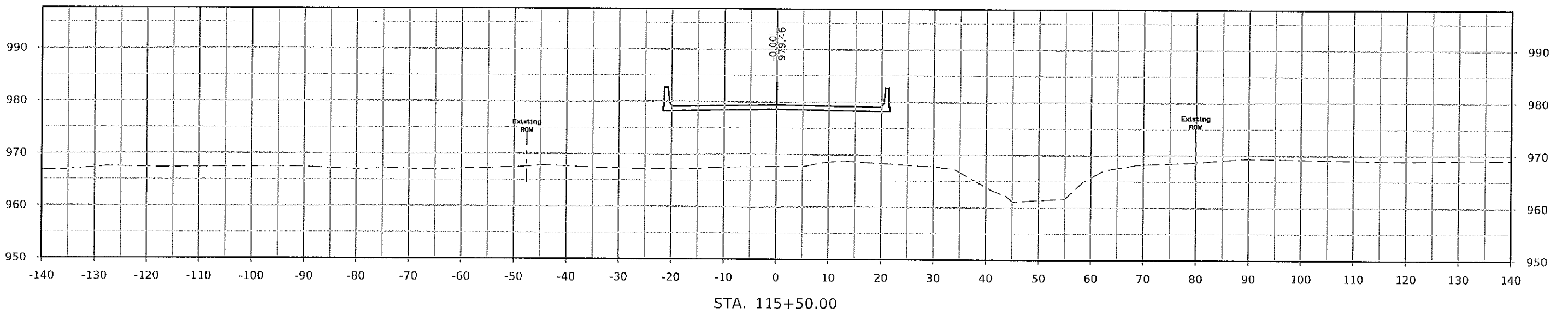
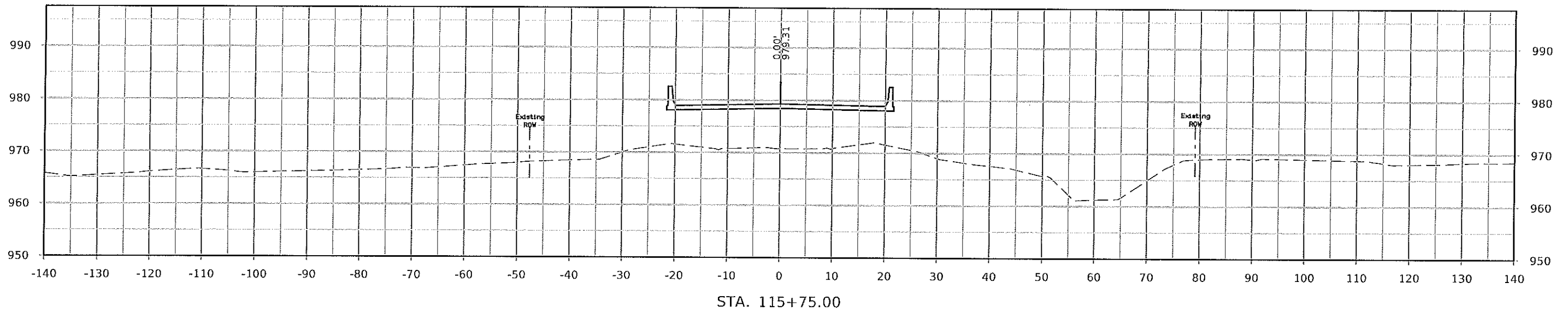


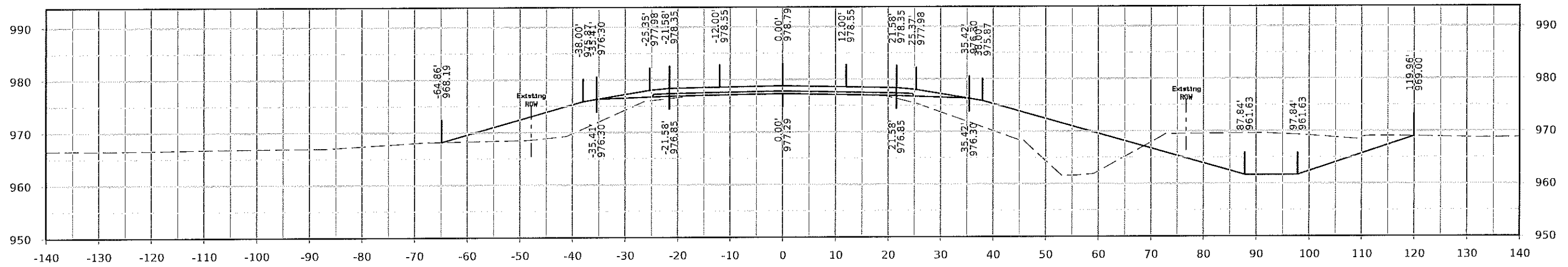




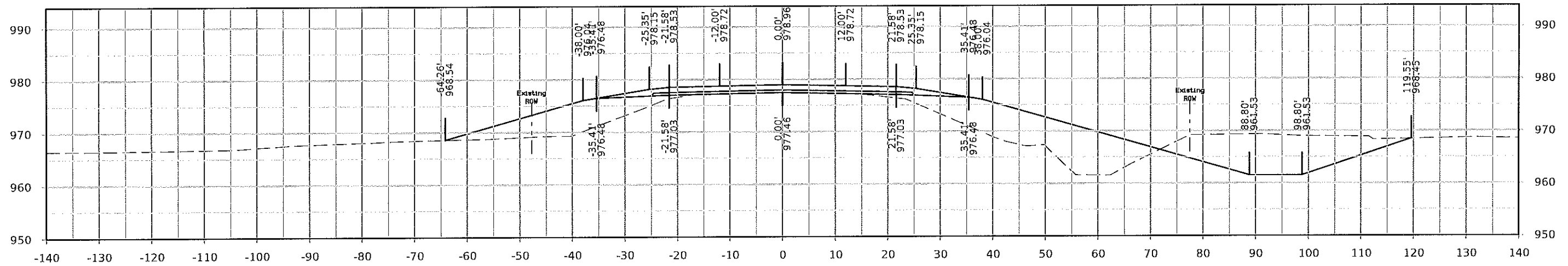




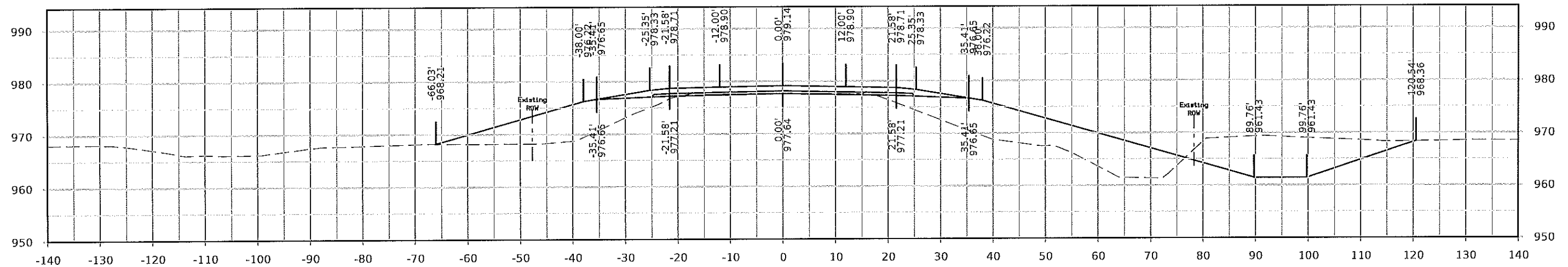




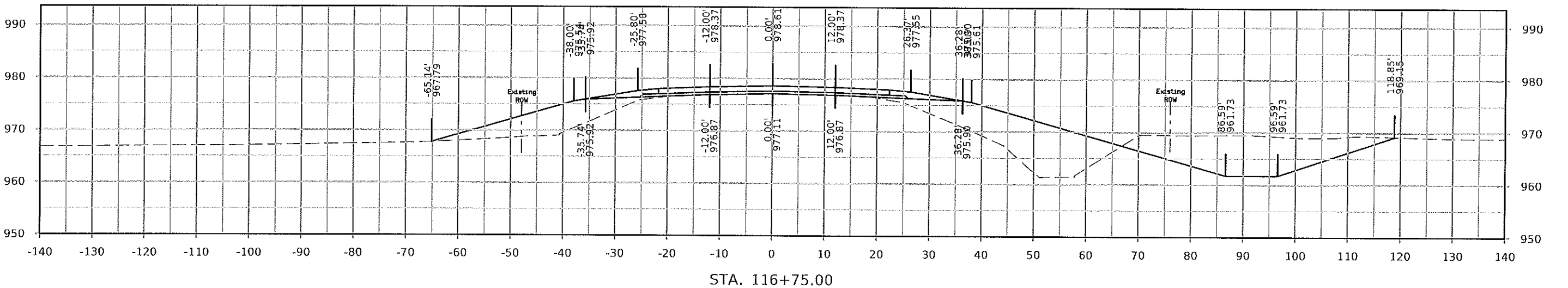
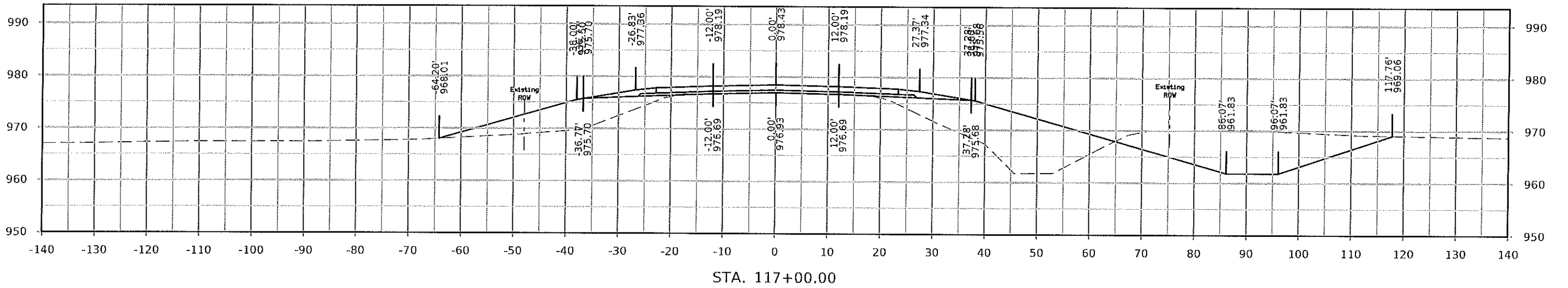
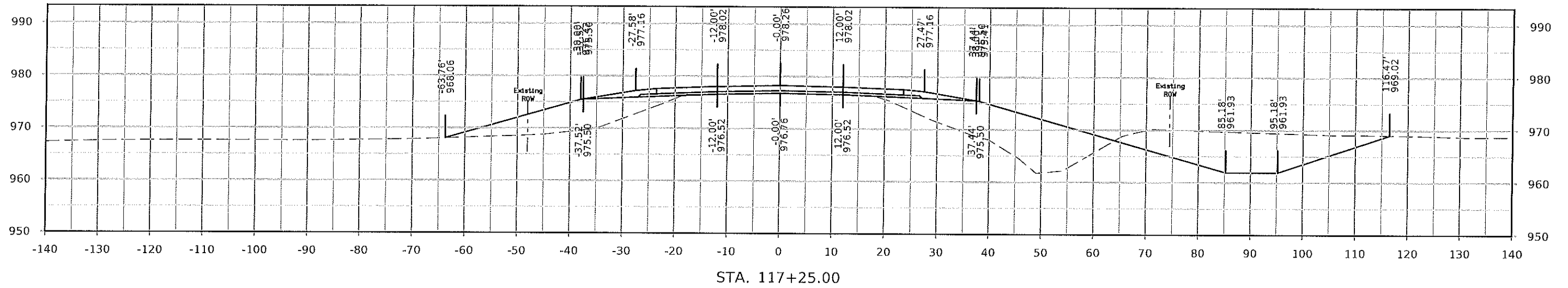
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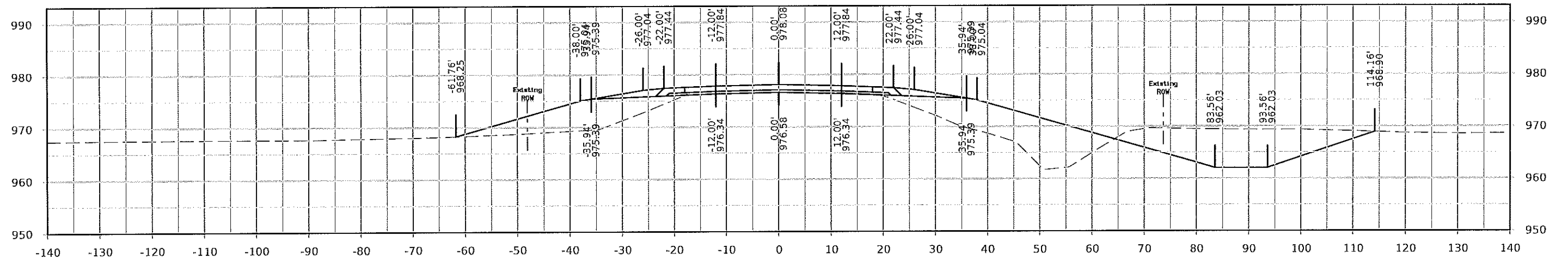
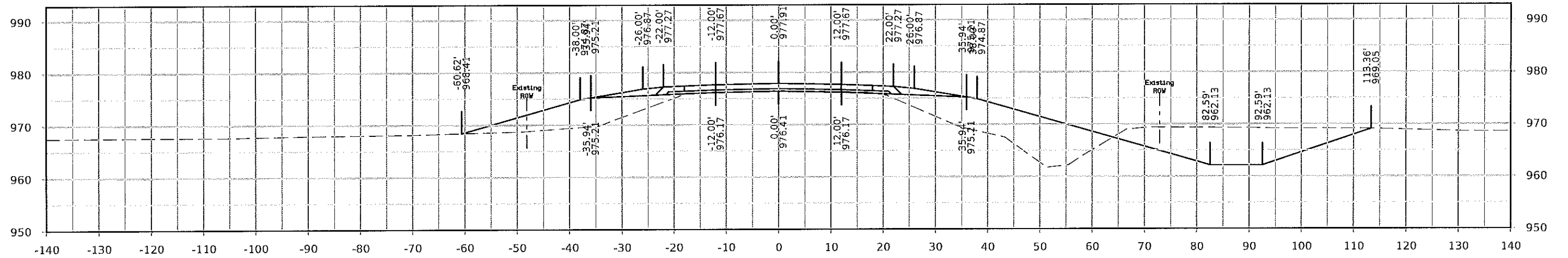
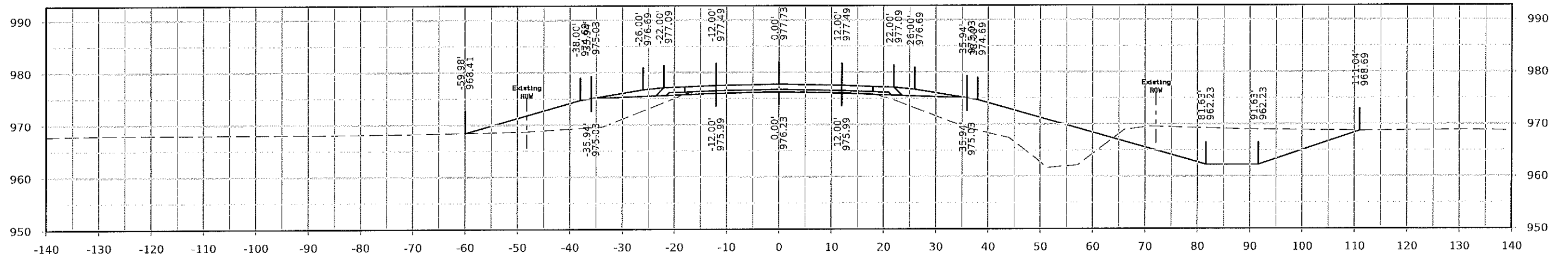


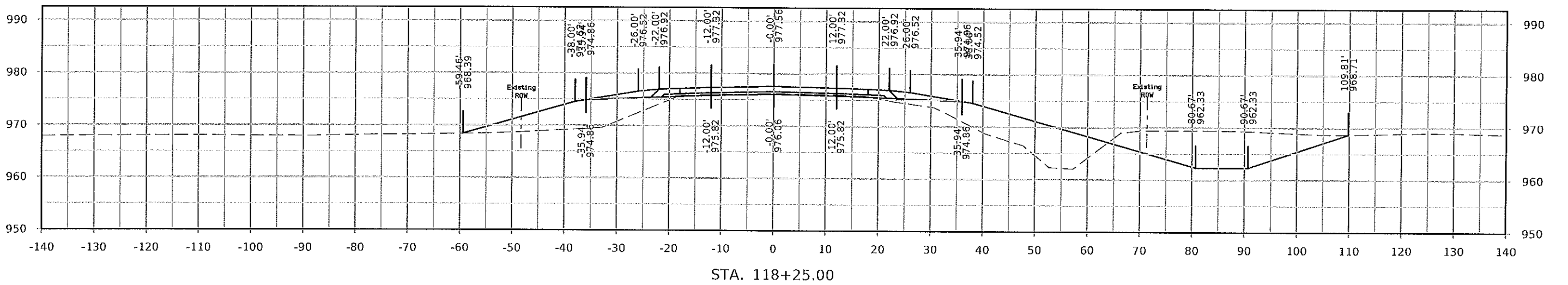
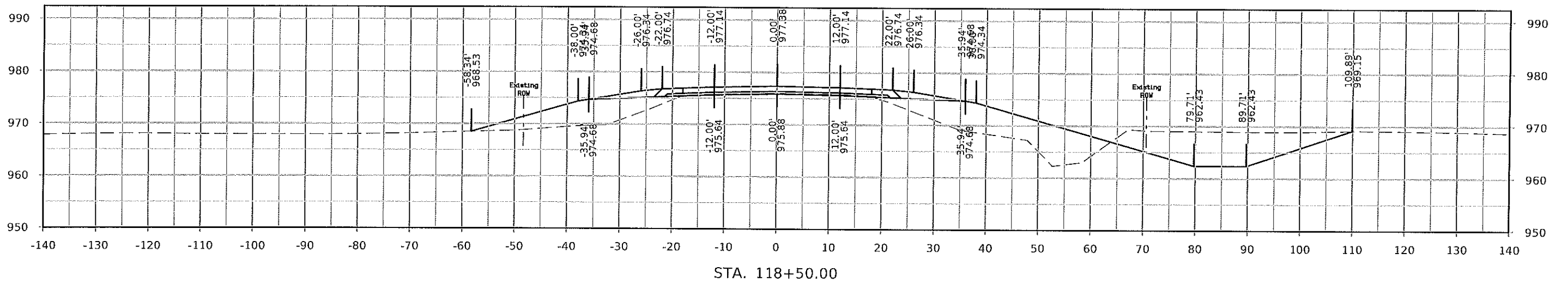
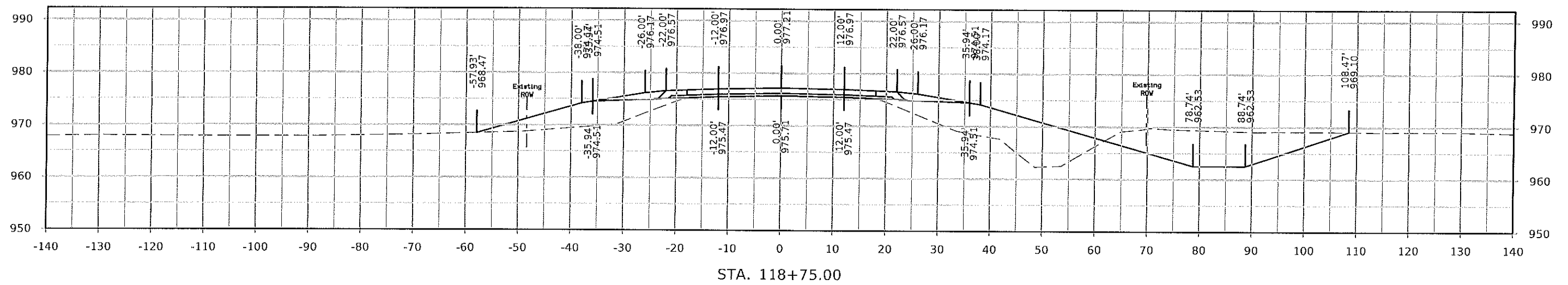
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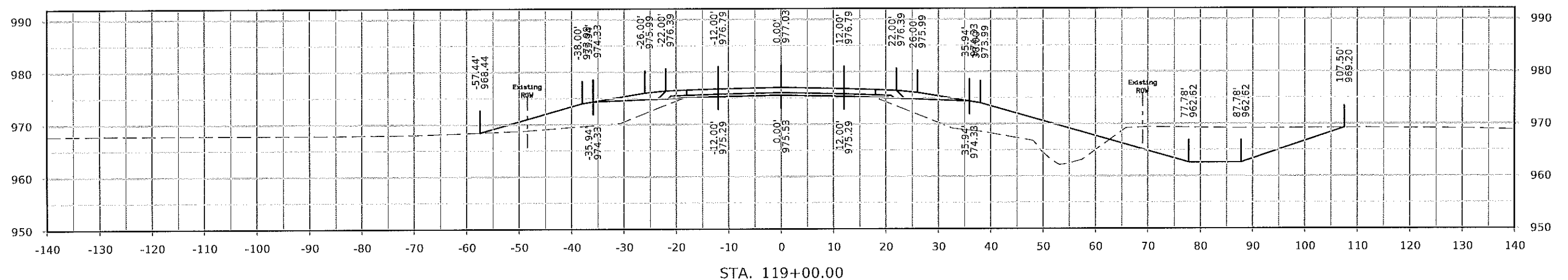
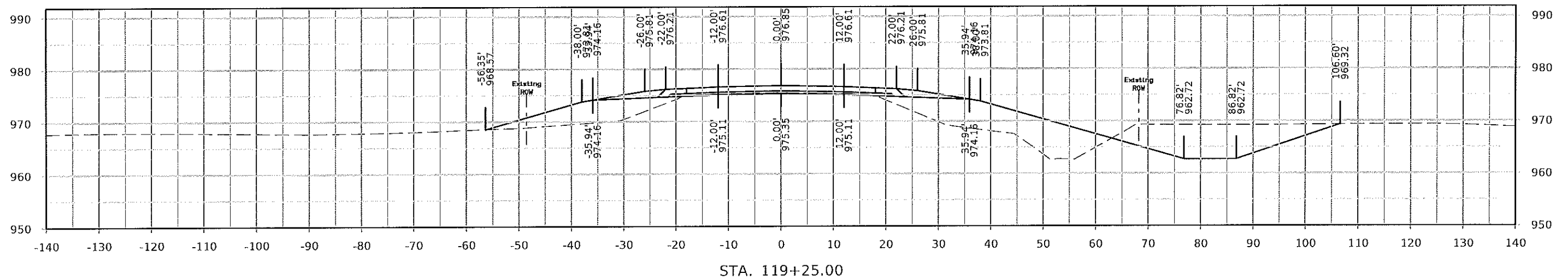
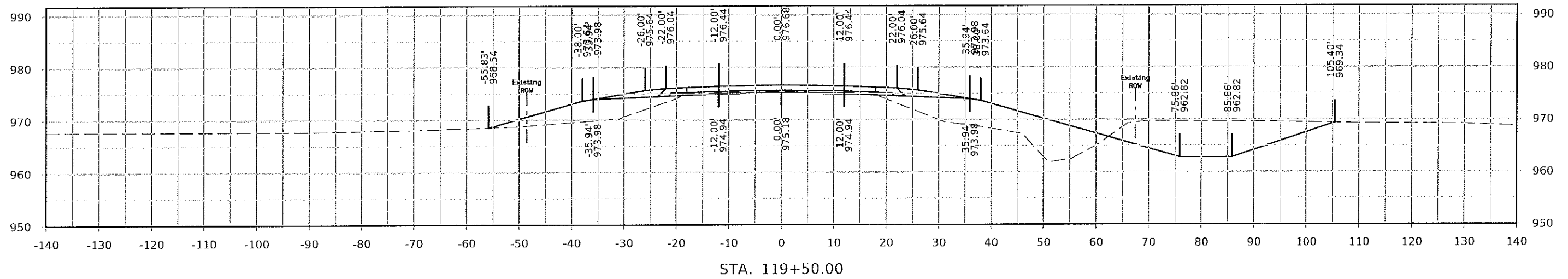


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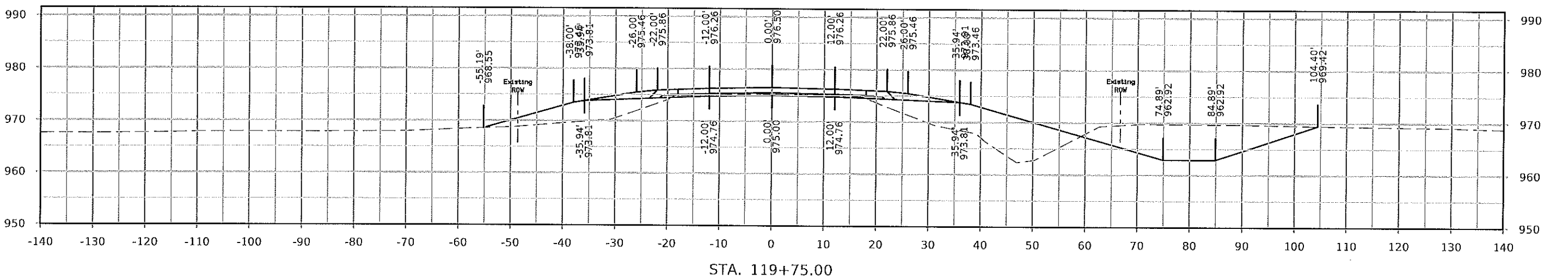
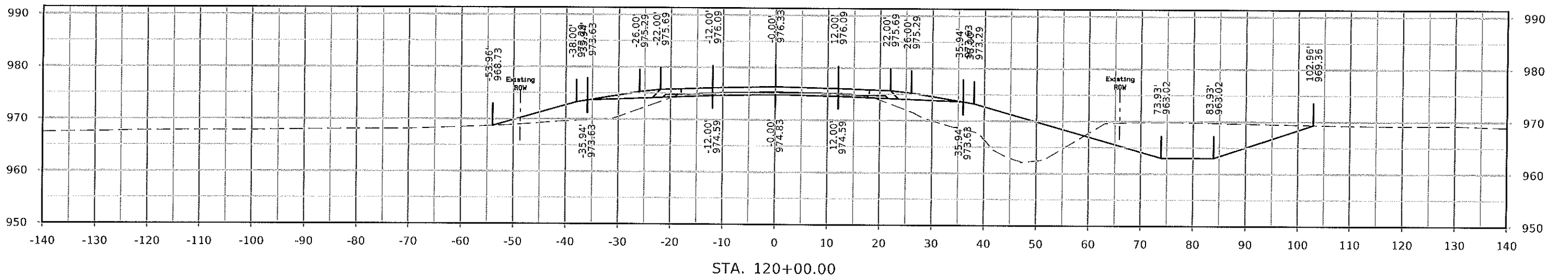
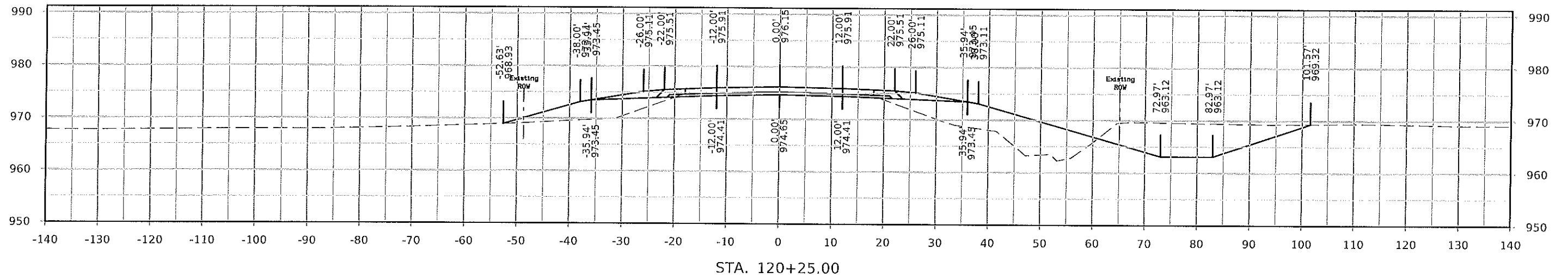


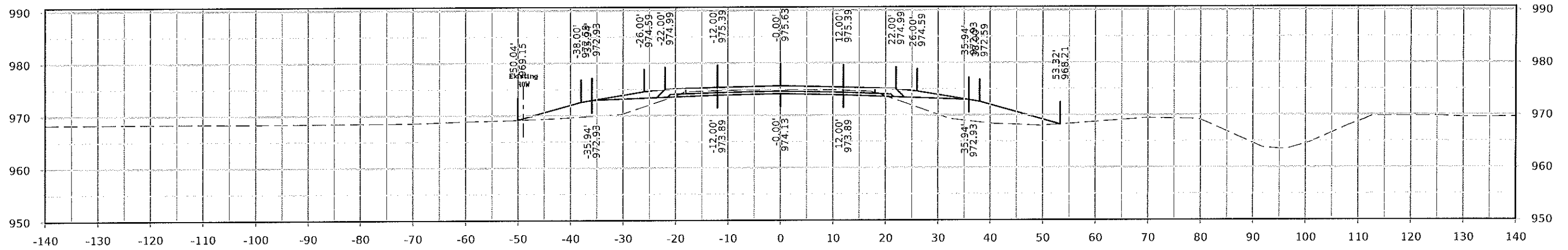




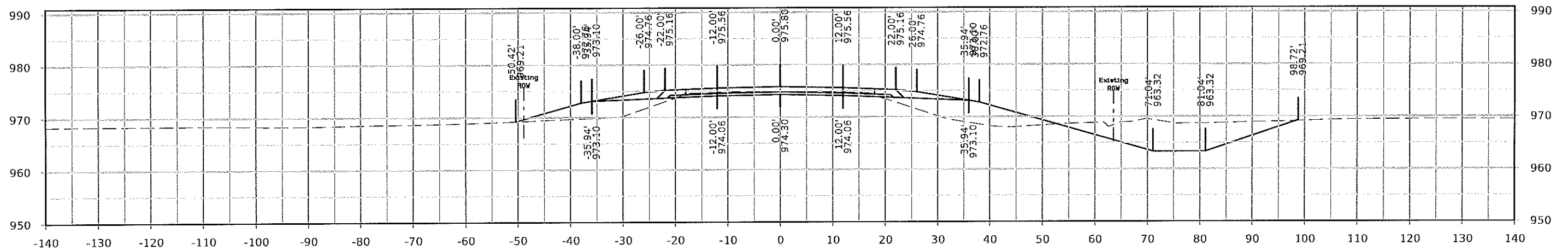




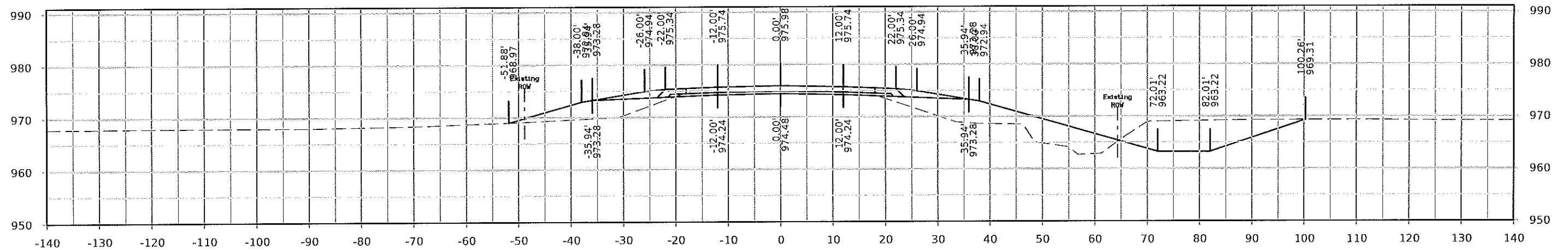




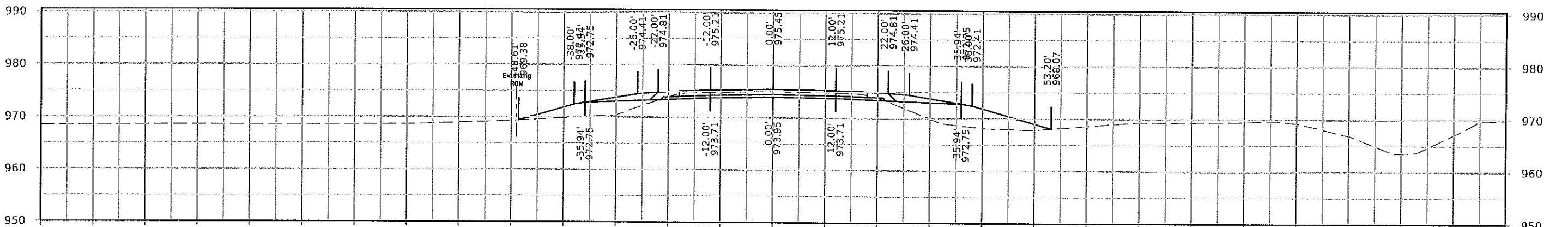
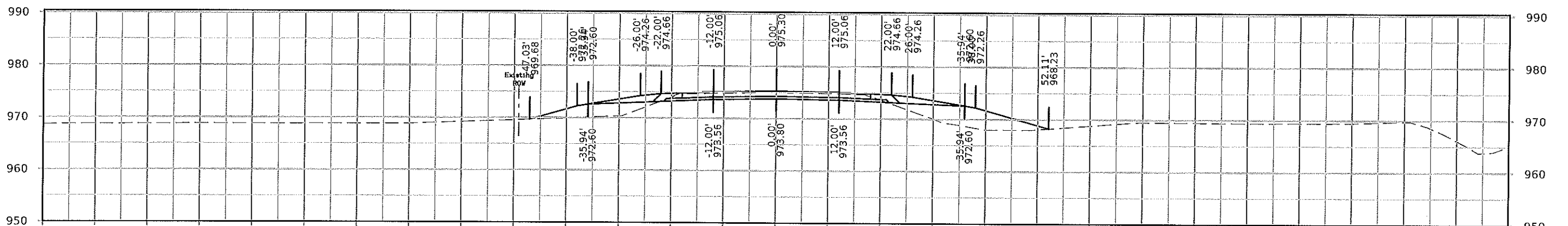
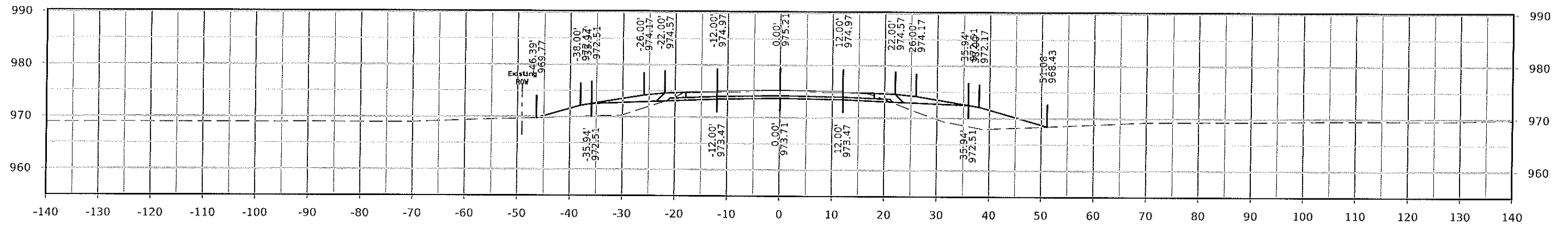
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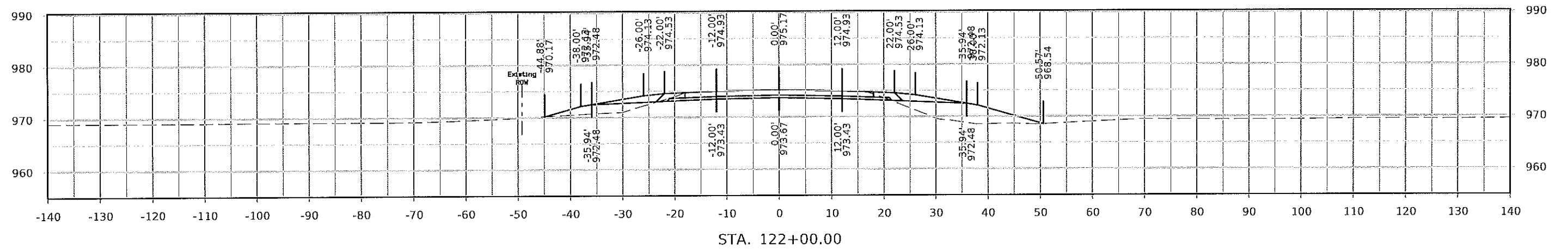
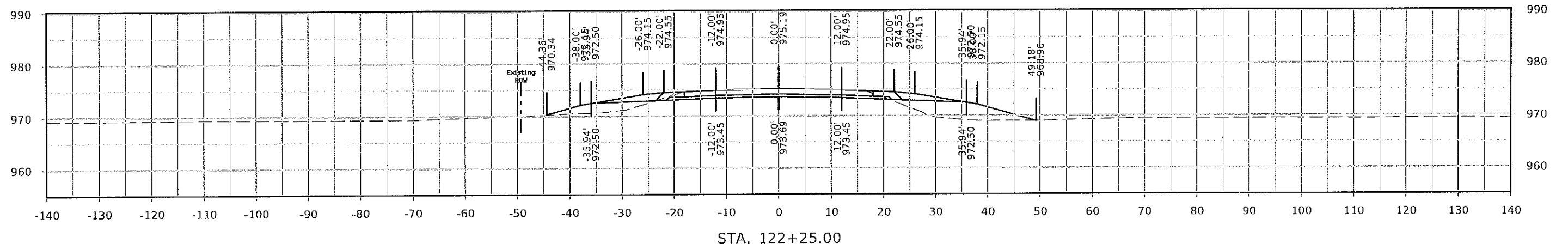
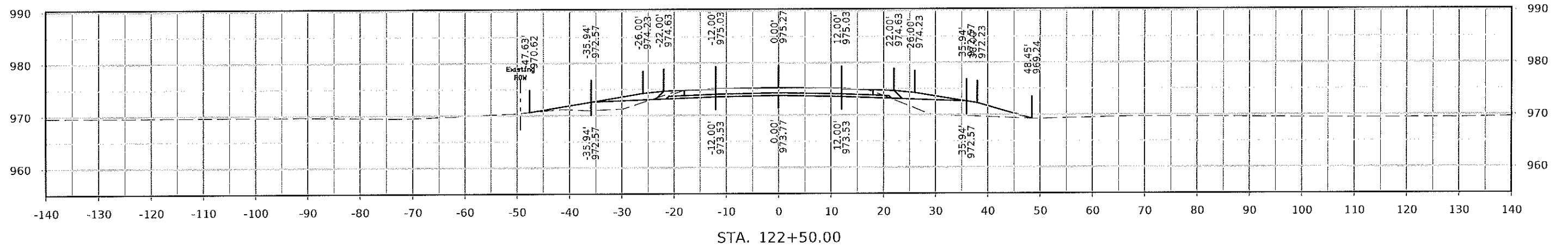


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STA. 120+50.00





Preliminary - IA 14

