

**BREMER CO.**  
**PCC PAVEMENT - GRADING**  
**NHSX-218-8(124)--3H-09**  
 LETTING DATE  
 XX-XX-XXXX

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## Highway Division

PLANS OF PROPOSED IMPROVEMENT ON THE

# PRIMARY ROAD SYSTEM BREMER COUNTY PCC PAVEMENT - GRADING

Cedar River in Janesville to IA 116 in Waverly

SCALES: As Noted

Refer to the Proposal Form for list of applicable specifications.

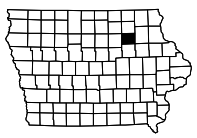
Value Engineering Saves. Refer to Article 1105.14 of the Specifications.



REVISIONS

TOTAL
537
PROJECT IDENTIFICATION NUMBER
06-07-218-010-02
PROJECT NUMBER
NHSX-218-8(124)--3H-09
R.O.W. PROJECT NUMBER

For Project Location Map  
Refer to Sheet No. A.2



DESIGN DATA URBAN			
2013	AADT	19,400	V.P.D.
2040	AADT	33,500	V.P.D.
20--	DHV	--	V.P.H.
	TRUCKS	12	%
	Total		
	Design ESALs	--	

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

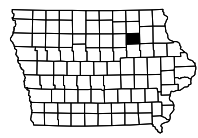
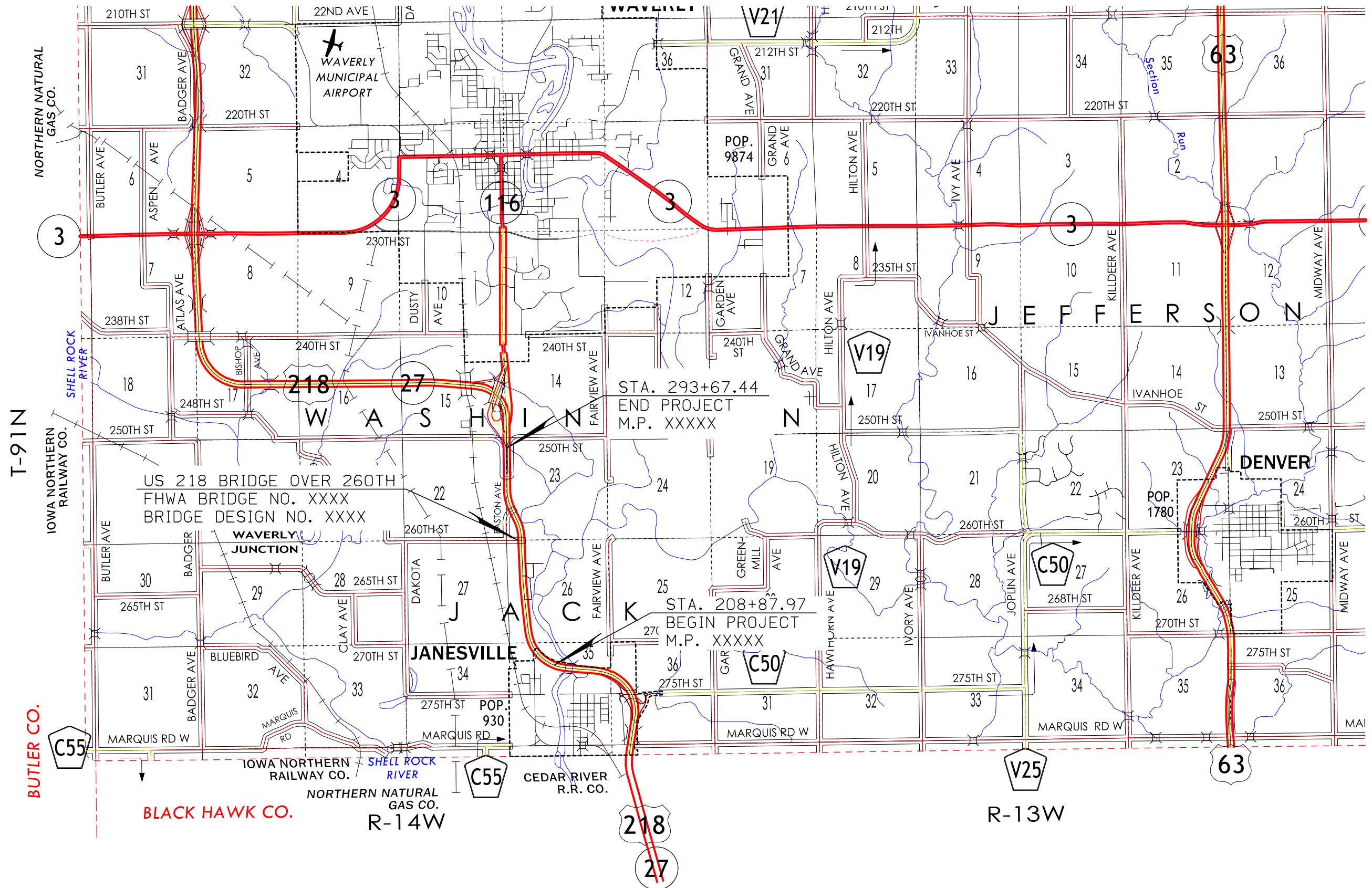
PRELIMINARY PLANS

Subject to change by final design.

D2 FIELD EXAM -

Date: March 2020





# Field Exam Checklist

- Bench information for foreslopes and/or backslopes.
- Cut and fill quantities with borrow or waste circled.

## Plan Review Prior to Field Exam

The Field Exam Engineer will review the plans to become familiar with the scope of the project and the proposed design. The following checklist is provided for this review:

- Are plans complete enough to conduct the field exam and are they legible?
- Check the typical section. Are L, R, and BW correct for the assumed pavement thickness?
- Review the disposition shown for all drainage areas, whether diversion of water appears possible, and if the outlets for drainage areas are being cut out.
- Is the proposed profile grade high enough for adequate snow storage or is it too high requiring too much borrow?
- Do taper lengths, spirals, vertical curves, etc. conform to current design standards?
- What are the right-of-way impacts? Are “line shifts” necessary to minimize excess right-of-way? Are right-of-way “need” lines shown on the plans?
- Is design year traffic for the mainline and side roads shown on the plans?
- Is/are detour route(s) required for construction? If so, have any recommendations been made by Design? Does the map on the title sheet cover the detour area?
- Review the proposals made for the disposition of waste.
- Review the proposals made for the disposition of removal items.
- Review whether the class of access control has been shown.

## Checklist for the Field Examination

- Review the preliminary plans for any new items that should be included and/or any old items that should be removed since the preliminary data was obtained.
- Review the profile grades and horizontal alignment to determine if it fits the terrain. Also, do the proposed horizontal and vertical geometrics provide a good economical design to accomplish the intended need?
- Review drainage in regard to the following aspects:
  - Does the proposed grade line provide adequate positive drainage?
  - What relationship does drainage have with adjacent property?
  - Are the proposed drainage structures satisfactory, is there a diversion of water, and what is the condition of the structures being extended?
  - Do structures in drainage channels need provisions for the future lowering of the channel (this is of particular importance in regard to river bottoms and Northern Iowa flatland); attention should be given to established drainage ditches?
  - Are ditches, as proposed, going to satisfactorily drain the road without excessive erosion problems or diversion of water?
  - Are there areas which appear to need intercepting ditches or are there any proposed which appear to be unnecessary?

- Determine if any “letdown” structures are needed in backslopes or side ditches.
- Examine channel changes to determine if they are warranted.
- Review the traffic management assessment provided by the Office of Traffic and Safety, or the traffic control/staging concept developed in the project concept or by the Project Management Team. Examine whether or not additional measures are required for traffic management to mitigate traffic congestion and whether or not the project is constructible as staged. While on the field exam, discuss and document the traffic control measures decided on. Measures may include modifying contract periods to accelerate project completion, use of lane rental or incentives/disincentives for timely contract completion, extra law enforcement, special traffic control details, additional motorist warning devices, etc.
- Review whether sideroads/interchanges need to be kept open to maintain access or if closures are necessary. Discuss detour/runarounds in regard to surfacing, potential improvements to the detour route for capacity, or other safety measures. Determine if a county agreement is necessary. Document the additional Traffic Control measures requested in the field exam letter in the paragraph on staging/traffic control.
- Review if there are areas that may need to involve possible winter carry over of traffic control in the construction zone. Determine who will be responsible for maintaining the traffic control during this time period.
- Review whether proposed drives and field entrances give satisfactory access and whether there is adequate sight distance on the side roads for entering the primary road. In addition, the team will determine whether there are any proposed drives or entrances which appear unneeded and unwarranted.
- Review whether the abutments of two span bridges over the mainline encroach on sight distance on horizontal curves.
- The indication of needed horizontal line shifts will be reviewed by the team and a determination made of the apparent effect of the proposed road on the adjacent right-of-way. Review damage to farmsteads; see if minimum ditches are possible. Can we provide mowable backslopes either in our design or in the ROW agreement?
- Do entrances provide access to every part of the property?
- Can entrances with steep grades be adjusted or moved in order to reduce the grade?
- The team will review soils from the following aspects:
  - Determine if there are areas that appear unstable and need special attention for grade or alignment.
  - Determine whether there is an estimate of “boulders” required for bid item. If so, this will normally be proposed by the Soils Engineer with District Office concurrence.
  - Determine whether there appears to be changes needed in the “shrink factors.” If so, this will normally be proposed by the Soils Engineer with District Office concurrence.
- The team will make proposals for borrow considering the following aspects:
  - Are there any particularly desirable areas for borrow?
  - Can excess right-of-way serve as borrow area?
  - Can the selected borrow improve either snow, aesthetics, or wetland mitigation?
  - If the borrow needs to be drained is there a suitable drainage channel? Who owns the drainage channel?
  - Consider oversize ditches and widened backslopes for borrow.

# Field Exam Checklist

Chapter 1—General Information

- The following aspects of roadside development and erosion control should be considered by the team:
  - Are there any areas requiring special erosion control work during grading?
  - Are there areas which might be considered scenic or historic which can be preserved or enhanced?
  - Can inlets of ditches be raised to help upstream erosion conditions?
  - Are proposed ditches going to satisfactorily drain the road without erosion problems or diversion of water?
  - Are there trees or similar environmentally sensitive areas which can be saved?
  - Are there any areas that appear to be wetlands and could line shifts minimize impacts to these areas? If line shifts cannot minimize the impacts, what type of mitigation is needed? Are there impacts to any ponds or ponds that need to be drained?
- Review the need for shielding obstacles, steep embankments, or other areas of concern. Review flattening foreslopes and extending culverts to eliminate the use of guardrail.
- Review the proposals for disposition of removal items such as pavement (will it be used as subbase?), bridges, culverts, guardrail, etc.
- Ascertain the stations of locating tile lines.
- Review the fencing requirements on fully controlled access roads with particular attention given to culvert areas and special ditch areas for livestock control.
- Review existing lighting at secondary and minor roads and determine who owns these and is responsible if they are disturbed. The location and construction of these should be noted.

## Field Exam Plan Notes

- The Field Exam Engineer should list all people participating in a field examination and their identification on the title sheet of the plans.
- The Field Exam Engineer will have the responsibility of obtaining notes documenting all decisions made during the field examination.
- The Field Exam Engineer should check each sheet of the plans to make sure all questions are answered and that all proposals are accounted for, approved, changed, or further courses of action indicated. General notes affecting the whole project should be on the title sheet.

## Post Field Exam

- The field exam plans will be reviewed with the Assistant Design Engineer, Design Projects Engineer, the designer, and the Field Exam Engineer following the field exam. After discussion of the plans, the Assistant Design Engineer initials and dates the field exam plan.
- A detailed post field exam letter will be written by the Field Exam Engineer covering all of the major areas of discussion, decisions made, and any requests for additional information, survey, or unanswered questions. All items of discussion and differing opinions must be resolved and documented in the letter.
- The field exam letter should be addressed to the District Office Design Engineer.
- Copies of the field exam letter should be sent to the following (use the applicable individual names in place of the position titles):

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# Concept Statement

Bremer County  
NHSX-218-8(124)—3H-09  
06-07-218-010-02

P00 Planning Concept Statement  
U.S. 218 from Cedar River to the Iowa 116 Interchange near Waverly  
Bremer County

Project No.: NHSX-218-8(124)—3H-09  
PIN: 06-07-218-010-02  
Date: 12/18/2015

## I. PROJECT DESCRIPTION AND HISTORY

### A. Project Description

The project entails upgrading approximately three miles of U.S. 218 from the Janesville Cedar River Bridge crossing north to the Iowa 116 interchange near Waverly in Bremer County Iowa. The current roadway is a 4-lane, rural facility with a divided median and has Priority III access control. The proposed upgrade will reduce access to interchanges only.



### B. Project History

The Iowa Department of Transportation initiated a Corridor Study of U.S. 218 from Mount Vernon Road north to the Iowa 116 interchange near Waverly in 2005. The purpose of the study was to look at safety improvements and traffic operations for the corridor by limiting access.

### C. Need for Project

The purpose and need for the project is to improve safety and operations of U.S. 218 between the Cedar River at Janesville and the Iowa 116 Interchange at

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Waverly. The crash rates for this segment of the highway is above the statewide average and current at grade intersections are not sufficient to meet the anticipated traffic capacity. With anticipated development in the area along with more commuter traffic between Waverly and Waterloo/Cedar Rapids, traffic volumes are projected to increase further.

## D. Environmental Status

The Environmental Assessment (EA) has been completed and was signed on March 11, 2015. The Finding of No Significant Impact (FONSI) was signed on August 21, 2015. Both documents can be referenced in the links below:

### FONSI

[pw:\projectwise.dot.int.lan:PWMain\Documents\Projects\0721801006\OLE\NEPA\A\Sec02 - Janesville\021\\_NEPA\\_Decision\\_Doc\\_\(CE\\_FONSI\\_ROD\)\](pw:\projectwise.dot.int.lan:PWMain\Documents\Projects\0721801006\OLE\NEPA\A\Sec02 - Janesville\021_NEPA_Decision_Doc_(CE_FONSI_ROD)\)

### Environmental Assessment (EA)

[pw:\projectwise.dot.int.lan:PWMain\Documents\Projects\0721801006\OLE\NEPA\A\Sec02 - Janesville\020\\_Doc\\_Final\20150311\\_020\\_Signed EA.pdf](pw:\projectwise.dot.int.lan:PWMain\Documents\Projects\0721801006\OLE\NEPA\A\Sec02 - Janesville\020_Doc_Final\20150311_020_Signed EA.pdf)

The NEPA/404 Concurrence process was followed for this project. Concurrence Points 1 and 2 were concurred on by the resource agencies on January 9, 2012. Concurrence Point 3 was concurred on December 17, 2013. The agencies were asked if they were agreeable to moving forward to permitting without holding a webinar for CP4. U.S. EPA and USACE were agreeable; Iowa DNR was open to either moving forward or holding a webinar for CP4. It was decided that this project will forego CP4 (Preferred Alternative), and the next time the agencies would see the project would be at permitting.

The NEPA/404 Concurrence process presented the corridor study area that was used to investigate all of the environmental resources (i.e. wetlands, streams, cultural, etc.). All resources within the corridor study area were documented. The study area can be referenced in the link below:

### Study Area

<pw:\projectwise.dot.int.lan:PWMain\Documents\Projects\0721801006\OLE\Location\Sec02\09218188.ole>

Model: ML\_0100\_OLE

Level name: oleProjectStudyArea

For each alternative within the corridor study area, an impact area was established. The impact area for each alternative was developed based on the

estimated intercept line with a buffer added to account for modifications due to further design refinements. The intent of the impact area is that any/all refinements/modifications made to an alignment will stay within the impact area. The impact area is what is cleared through the environmental document. A link to the impact area for the preferred alternative can be found below:

### Impact Area

<pw:\projectwise.dot.int.lan:PWMain\Documents\Projects\0721801006\OLE\Location\Sec02\09218188.ole>

Model: ML\_0100\_OLE

Level name: oleNEPAClearedArea

## E. Public Involvement Summary

The following is a summary of the public involvement activities that took place for the project.

November 1, 2011 – Public Information Meeting held to show members of the public Alternatives A, B, C, D, and E. The summary booklet is located at the following link:

[pw:\projectwise.dot.int.lan:PWMain\Documents\Projects\0721801006\OLE\PublicInvolvement\Section2\2011-11-1\\_PIM\PIMSummary\PIM\\_Summary\\_Booklet.pdf](pw:\projectwise.dot.int.lan:PWMain\Documents\Projects\0721801006\OLE\PublicInvolvement\Section2\2011-11-1_PIM\PIMSummary\PIM_Summary_Booklet.pdf)

September 25, 2012 – Land Owner Meeting was held to introduce a potential new alternative (Alternative F) for proposed improvement of U.S. 218. The below link provides details of the meeting:

[pw:\projectwise.dot.int.lan:PWMain\Documents\Projects\0721801006\OLE\PublicInvolvement\Section2\2012-9-25LOM\2012-9-25Landowner Meeting\\_Summary.pdf](pw:\projectwise.dot.int.lan:PWMain\Documents\Projects\0721801006\OLE\PublicInvolvement\Section2\2012-9-25LOM\2012-9-25Landowner Meeting_Summary.pdf)

August 14, 2013 – Public Information Meeting held to update the public on the project, present newly developed alternatives. (Alternative F, a 3-quadrant interchange, and a diamond interchange), and answer questions about the project. The summary booklet is located at the following link:

[pw:\projectwise.dot.int.lan:PWMain\Documents\Projects\0721801006\OLE\PublicInvolvement\Section2\2013-8-14PIM\2013-8-14PIMSummary\2013-8-14PIM\\_SummaryBooklet.pdf](pw:\projectwise.dot.int.lan:PWMain\Documents\Projects\0721801006\OLE\PublicInvolvement\Section2\2013-8-14PIM\2013-8-14PIMSummary\2013-8-14PIM_SummaryBooklet.pdf)



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June 2, 2015 - Public Hearing was held to discuss the proposed improvements along U.S. 218 from the Cedar River bridges in Janesville, Iowa north to the Iowa 116 Interchange. Below is the link to the public hearing transcript:

[pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0721801006\OLE\PublicInvolvement\Section2\2015\\_06\\_02\\_PH\Summary\\_Transcript\PH\\_Summary\\_Booklet.pdf](pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0721801006\OLE\PublicInvolvement\Section2\2015_06_02_PH\Summary_Transcript\PH_Summary_Booklet.pdf)

## II. EXISTING CONDITIONS

### A. Present Facility

The existing facility is a 4-lane rural facility with a divided median with access allowed at 1,000-foot spacing (priority III access). U.S. 218 from County Road C57 to Waverly was opened as a 4-lane facility in 1993. Currently, there are a total of 16 at-grade access points that allow direct access onto U.S. 218 from the Janesville Cedar River Bridge crossing north to the Iowa 116 interchange near Waverly. These include farm field accesses, residential accesses and public roadways.

### B. Traffic Estimates

The average daily traffic estimates are as follows:

Location	Year					
	1997	2001	2005	2013	2020	2040
Maple Street at North Limits of Janesville	12,300	15,500	16,700	20,400	21,500	31,500
Iowa 116 Interchange	13,300	15,600	17,000	20,400	23,700	34,660

In addition to overall traffic volumes increasing, the percentage of trucks has increased as well. In 1997, trucks were estimated to comprise 7% of the total volume; and by 2005, trucks had increased to 12%. By 2040, trucks are expected to be 14% of the total traffic volume on U.S. 218 in this segment.

Reference the below link for the full report of traffic information that was received:

<pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0721801006\OLE\Location\Sec02\TrafficData\Volumes\1939Ra.xlsx>

### C. Access Control

Currently, with Priority III access control in-place, U.S. 218 is congested and not operating at its maximum traffic carrying capacity.

### D. Crash History

A crash analysis was performed for the study area along U.S. 218 in Black Hawk and Bremer Counties using the Iowa DOT software Safety Analysis, Visualization and Exploration Resource (SAVER). Between 2006 and 2010, a total of 127 crashes occurred, of which 19 resulted in injuries. Most of the remaining crashes were property damage only crashes. The total number of crashes resulted in a crash rate of 131.8 per 100 million vehicle miles traveled, which is higher than the statewide average of 93 for an expressway. The length of the study area is 3.3 miles and the crashes are fairly evenly distributed along this portion of U.S. 218, which is not unexpected given the Priority III access control in this corridor.

The following link provided further breakdown of the crashes between 2006 and 2010:

[pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0721801006\OLE\Location\Sec02\TrafficData\Crash\featurecountprint\\_20110524\\_011307.htm](pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0721801006\OLE\Location\Sec02\TrafficData\Crash\featurecountprint_20110524_011307.htm)

## III. ALTERNATIVES ANALYSIS

### A. Range of Alternatives

Design Criteria was consistent for all alternatives. Refer to the design criteria worksheet located at:

[pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0721801006\OLE\Location\Sec02\LocationDesign\ProjectDesignCriteriaworksheet\\_218.xlsm](pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0721801006\OLE\Location\Sec02\LocationDesign\ProjectDesignCriteriaworksheet_218.xlsm)

#### **Alternative A**

Alternative A would add two lanes on the west side of the existing highway. Traffic on U.S. 218 would be shifted onto the west set of four lanes. The existing (easternmost) northbound lanes would be converted into a frontage road system that could be used by the Huber Addition and Anderson Subdivision, housing developments east of U.S. 218, to have access to Waverly to the north. It would eliminate all at-grade intersections. This frontage road would also connect from



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260th Street south to North Maple Street at Janesville. An access road would be provided between 260th and 250th Streets on the west side of U.S. 218.

This alternative would increase the out-of distance travel to Waverly or into Janesville to access U.S. 218 and would have high impacts due to frontage roads. In addition, this choice would require two fly-over bridges which are costly to construct and maintain.

The following link contains the display of this Alternative as presented at the November 11, 2011 public meeting:

[pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0721801006\OLE\PublicInvolvement\Section2\2011-11-1 PIM\ProjectStatement\2011\\_11\\_01 PIM\\_Alts\\_11x17.pdf](pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0721801006\OLE\PublicInvolvement\Section2\2011-11-1 PIM\ProjectStatement\2011_11_01 PIM_Alts_11x17.pdf)

## Alternative B

Alternative B would relocate the roadway to the west which would eliminate two curves just north of 260th Street. A portion of the existing highway would serve as a frontage road system in order to remove all at-grade intersections. The frontage road would connect to Maple Street in Janesville. An access road would be provided between 260<sup>th</sup> and 250th Streets on the west side of U.S. 218 to provide access to Waverly on the north.

This alternative would require two fly-over bridges which are expensive to construct and maintain. This alternative would increase the out-of-distance travel to Waverly or into Janesville to access U.S. 218 and would have high impacts due to frontage roads.

The following link contains the display of this Alternative as presented at the November 11, 2011 public meeting:

[pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0721801006\OLE\PublicInvolvement\Section2\2011-11-1 PIM\ProjectStatement\2011\\_11\\_01 PIM\\_Alts\\_11x17.pdf](pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0721801006\OLE\PublicInvolvement\Section2\2011-11-1 PIM\ProjectStatement\2011_11_01 PIM_Alts_11x17.pdf)

## Alternative C

Alternative C would relocate a portion of U.S. 218 to the west. The existing highway would be converted into a frontage road system as a way to remove all at-grade intersections and direct accesses to U.S. 218. The frontage road would connect to Maple Street at Janesville. An access road would be provided between

260th and 250<sup>th</sup> Streets on the west side of U.S. 218 to provide access to Waverly on the north.

This alternative would increase the out-of-distance travel to Waverly or into Janesville to access U.S. 218 and would have high impacts due to frontage roads. This alternative would require two fly-over bridges which are expensive to construct and maintain. This alternative would result in undesirable geometry due to the curvature of the alignment.

The following link contains the display of this Alternative as presented at the November 11, 2011 public meeting:

[pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0721801006\OLE\PublicInvolvement\Section2\2011-11-1 PIM\ProjectStatement\2011\\_11\\_01 PIM\\_Alts\\_11x17.pdf](pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0721801006\OLE\PublicInvolvement\Section2\2011-11-1 PIM\ProjectStatement\2011_11_01 PIM_Alts_11x17.pdf)

## Alternative D

Alternative D would relocate the 4-lane highway to the west slightly, which would eliminate one curve and flatten another curve. A portion of the existing highway would be re-used as a frontage roadway system so that all the at-grade intersections would be closed. The frontage road system would connect to Maple Street in Janesville. Access roads on the back side of properties (also referred to as backage roads) would be provided on the west side of U.S. 218 from Maple Street to 250th Street to provide a route to Waverly on the north.

This alternative would require two fly-over bridges which are expensive to construct and maintain. This alternative would increase the out-of distance travel to Waverly or into Janesville to access U.S. 218 and would have high impacts due to frontage roads.

The following link contains the display of this Alternative as presented at the November 11, 2011 public meeting:

[pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0721801006\OLE\PublicInvolvement\Section2\2011-11-1 PIM\ProjectStatement\2011\\_11\\_01 PIM\\_Alts\\_11x17.pdf](pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0721801006\OLE\PublicInvolvement\Section2\2011-11-1 PIM\ProjectStatement\2011_11_01 PIM_Alts_11x17.pdf)

## Alternative E

Alternative E would relocate the highway west to be adjacent to and parallel with the railroad until 260th Street where it would begin to curve back to the existing roadway. This alignment would flatten two curves, and the existing highway would be re-used as a frontage road system. This frontage road system would

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allow the elimination of all at grade intersections and would connect residents to Maple Street in Janesville as well as to Waverly to the north.

This alternative would require two fly-over bridges which are expensive to construct and maintain. This alternative would increase the out-of distance travel to Waverly or into Janesville to access U.S. 218 and would have high impacts due to frontage roads

The following link contains the display of this Alternative as presented at the November 11, 2011 public meeting:

[pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0721801006\OLE\PublicInvolvement\Section2\2011-11-1 PIM\ProjectStatement\2011\\_11\\_01 PIM\\_Alts\\_11x17.pdf](pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0721801006\OLE\PublicInvolvement\Section2\2011-11-1 PIM\ProjectStatement\2011_11_01 PIM_Alts_11x17.pdf)

## Alternative F

Alternative F differs from all the previous alternatives in that it includes an interchange at 260th Street. The proposed interchange would be a skewed 2-quadrant folded diamond interchange, with loop ramp exits. The interchange was at a skew to avoid a nearby residence and minimize other impacts. An access road would also be constructed from 260th Street south to Maple Street in Janesville. On the west side of U.S. 218, 250th Street/Eagle Avenue would be extended south to connect with the 260<sup>th</sup> Street interchange. This alternative would require one bridge instead of two, as in the previous alternatives. This frontage road would also be extended south to the Huber/Anderson Housing Additions on the east side of the highway so they would have connectivity to Waverly on the north as well as Janesville.

The 2-quadrant interchange configuration was shown at a public involvement meeting and was considered too complicated by members of the public, and there was a concern about out-of-distance travel. From an engineering perspective, drivers expect high-speed exits from the mainline. The northbound exit loop at 260th Street will require a reduced speed which would go against driver expectancy. The same exit goes beyond the bridge and reduces sight distance to the exit gore and the loop; this is known to cause an increase in crashes and has moderate safety impacts. The ramp/loop combination at the at-grade terminal increases the potential for wrong-way movements onto the freeway. Alternative F also impacts two National Register of Historic Places (NRHP) properties, requiring avoidance alternatives in accordance with 23 CFR 774. For these reasons, Alternative F was not developed further. Sub-alternatives to Alternative F (Alternatives G and H) were developed.

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The following link contains the display of this Alternative as presented at the August 14, 2013 public meeting:

[pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0721801006\OLE\Location\Sec02\PublicMeetings\20130814\\_PIM\20120925\\_US218\\_ALT\\_F.pdf](pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0721801006\OLE\Location\Sec02\PublicMeetings\20130814_PIM\20120925_US218_ALT_F.pdf)

## Alternative H

Alternative H was developed as a sub-alternative to F and was created to avoid the NRHP properties. In addition, this Alternative was developed due to some of the impacts and concerns related to the previous Alternatives (A through F) and were developed to a greater level of detail from an engineering perspective than any of the previous Alternatives.

Alternative H uses the same alignment as Alternative D, which moves the mainline slightly to the west and thereby would minimize impacts to the NRHP-eligible historic barn mentioned above. However, Alternative H includes an interchange at 260th Street. The interchange would be a 3-quadrant configuration, with the loop-ramp being located in the southwest quadrant of the intersection. This alternative would involve extending frontage and backage roads from 260th Street south to connect with Maple Street in Janesville. Also, 250th Street would be extended south to connect to 260th Street on the east side of U.S. 218. A portion of the existing northbound lanes of U.S. 218 would be used as frontage road for the Huber/Anderson Housing Additions so they could have connectivity to Waverly and Janesville.

This interchange configuration was not as desirable as the diamond interchange configuration as developed for Alternative G.

The following link contains the display of this Alternative as presented at the August 14, 2013 public meeting:

[pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0721801006\OLE\Location\Sec02\PublicMeetings\20130814\\_PIM\20130814\\_US218\\_3Quadrant.pdf](pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0721801006\OLE\Location\Sec02\PublicMeetings\20130814_PIM\20130814_US218_3Quadrant.pdf)

## IV. RECOMMENDED ALTERNATIVE

### A. Preferred Alternative

The preferred alternative for this area is Alternative G and the link to the display can be found below:

[pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0721801006\OLE\Location\Sec02\PublicMeetings\060215\\_Public\\_Hearing\Public\\_Hearing\\_060215.pdf](pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0721801006\OLE\Location\Sec02\PublicMeetings\060215_Public_Hearing\Public_Hearing_060215.pdf)

9

# Concept Statement

Bremer County  
NHSX-218-8(124)—3H-09  
06-07-218-010-02

Bremer County  
NHSX-218-8(124)—3H-09  
06-07-218-010-02

After reviewing the reasonable alternatives under consideration, Iowa DOT has identified Alternative G as the Preferred Alternative. This alternative is preferred because it meets the project purpose and need, while minimizing overall impacts. Tables 4-1 and 4-2 below summarize and compare impacts of all the Alternatives and the No Action Alternative.

**TABLE 4-1  
SUMMARY OF IMPACTS FOR ALTERNATIVES CONSIDERED BUT DISMISSED**

	Alt. A*	Alt. B*	Alt. C*	Alt. D*	Alt. E*	Alt. F*
Total ROW (Acres)	406	398	354	406	438	170
Farmland (Acres)	210	184	158	210	232	109
Floodplains (Acres)	15	15	16	15	13	13
Regulated Materials (Acres)	5	5	5	5	5	4
Historic Sites Impacted	Yes	Yes	Yes	Yes	Yes	Yes
Open Water (Acres)	1.2	1.5	1.3	1.2	1.6	0
Wetlands (Acres)	1.6	1.3	1.3	1.6	1.5	0.5
Businesses Acquired	0	0	1	0	0	1
Homes Displaced	15	15	15	15	18	3

\*Alternatives A-E were dismissed from further consideration once interchange alternatives were developed. Alternatives A-F, were not developed to the same level of engineering detail as Alternatives G and H

**TABLE 4-2  
SUMMARY OF IMPACTS FOR PREFERRED AND NO ACTION ALTERNATIVES**

	Preferred Alternative (Alternative G)	Alternative H	No Action Alternative
Total ROW (Acres)	224	236	0
Farmland (Acres)	94	105	0
Floodplains (Acres)	14	15	0
Regulated Materials (Acres)	1	1	0
Historic Sites Impacted	No	No	No
Open Water (Acres)	1.2	1.2	0
Wetlands (Acres)	0.67	0.67	0
Businesses Acquired	0	0	0
Homes Displaced	7	12	0

**B. Interchange Operations Report (IOR)**

An interchange operations report was developed for this project and the signed version can be referenced in the link below:

[pw:\projectwise.dot.int.lan:PWMain\Documents\Projects\0721801006\Concept\IOR\Final\US218\\_Final\\_IOR\\_121815.pdf](pw:\projectwise.dot.int.lan:PWMain\Documents\Projects\0721801006\Concept\IOR\Final\US218_Final_IOR_121815.pdf)

**C. Cost Estimate**

Project cost is estimated to be \$26 million as of fall 2015, refer to the following link for estimates on various components of the project:

[pw:\projectwise.dot.int.lan:PWMain\Documents\Projects\0721801006\OLE\Location\Sec02\Cost\\_Schedule\Preferred Alternative](pw:\projectwise.dot.int.lan:PWMain\Documents\Projects\0721801006\OLE\Location\Sec02\Cost_Schedule\Preferred Alternative)

**D. Design Decisions**

Below is the link to the design criteria:

[pw:\projectwise.dot.int.lan:PWMain\Documents\Projects\0721801006\OLE\Location\Sec02\LocationDesign\ProjectDesignCriteriaworksheet\\_218.xlsm](pw:\projectwise.dot.int.lan:PWMain\Documents\Projects\0721801006\OLE\Location\Sec02\LocationDesign\ProjectDesignCriteriaworksheet_218.xlsm)

**E. Project File Documentation**

The project file documentation can be found at the following link:

<pw:\projectwise.dot.int.lan:PWMain\Documents\Projects\0721801006\OLE\Location\Sec02\LocationDesign\Project Documentation Shell - V8.xlsx>

**F. Staging/Construction Sequence**

No special staging construction sequence has been determined at this time.

**G. Special Considerations**

The two barns on the Kellum farmstead are located on the northeast quadrant of U.S. 218 and 260th Street. Both are considered eligible for the National Register.

The Fox (formerly Miller) farmstead dates back to 1875 and consists of a house, barn and three out buildings. It is located on Eagle Avenue west of U.S. 218.

Although these structures will be avoided, their close proximity to construction activities makes them potentially subject to vibration impacts. Therefore, Iowa DOT will require vibration monitoring throughout construction. Additional information can be referenced by letter dated October 22, 2014, in Appendix B in the Environmental Assessment. Below is the link to the EA with Appendix B:

# Concept Statement

Bremer County  
 NHSX-218-8(124)—3H-09  
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Bremer County  
 NHSX-218-8(124)—3H-09  
 06-07-218-010-02

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 A\Sec02 - Janesville\020\_Doc\_Final\20150311\_020\_Signed EA.pdf

The preferred alternative is projected to impact 1.2 acres of open water and approximately 0.67 acre of wetland (see Table 5-1 of the EA). Given the extent of potential wetland impacts, a USACE Section 404 Clean Water Act Permit (Section 404 Permit) will be required. Should it be determined during the final design process that wetland impacts cannot be avoided, mitigation would occur at ratios determined by USACE.

Emergency responders, local residents and businesses, and the traveling public would be notified in advance of all temporary detours, closures and traffic control changes in the U.S. 218 corridor throughout the construction period. Local emergency responders will be consulted and coordinated with to ensure that response times remain acceptable. Adjacent property owners will also be consulted prior to construction to convey expectations.

H. Project Status

This project is currently not on the five year highway program

I. Project Management Team

Development on this project began and paused at various points in time. For that reason, participation on the Project Management Team (PMT) transitioned at different stages as staffing changed.

Soils Design	Bob Stanley
	Mathew Trainium
Systems Planning	Phil Mescher
Traffic and Safety	Eric Wright
OBS	Dave Claman

Office	Name
Design	Yanxiao Jia
	Fred Cerka
	Dan Ohman
District 2	Jon Ranney
	Mark Callahan
	Krista Rostad
OLE	Deeann Newell
	Roger Larson
	Tom Lovan
	Danny Zeimen
Project Scheduling	Mark Swensen
ROW	Mark Holm
	Tom Gettings

# Design Criteria

<b>Roadway</b>	<b>US 218</b>		
<b>PIN Number</b>	06-07-218-010	<b>Assistant District Engineer</b>	Nick Humpal
<b>Project Number</b>	NHSX-218-8(124)--3H-09	<b>Office Director</b>	
<b>District</b>	District 2	<b>Revision Date</b>	12/06/19
<b>County</b>	BREMER	<b>Approval Date</b>	01/26/20
<b>Route</b>	US 218	<b>Approval Date</b>	
<b>Location</b>	US 218 Cedar River in Janesville to IA 116 in Waverly		
<b>Work Type</b>	PCC Pavement - Grade and New		
<b>Segment Manager</b>	HR Green		
<b>Designer</b>	HR Green		

Rural Expressways (Rural Arterials)			
Design Element	Preferred	Acceptable Criteria	Project Values
Design speed (mph)	70	50	70
Maximum superelevation rate (Refer to Section 2A-2)	6%	8%	6%
Design lane width (ft)	12	12	12
Full depth paved width (ft)	12	12	12
Right turn lane or an auxiliary lane (ft)	12	10	N/A
Left turn lane (ft)	12	10	N/A
Pavement cross-slope (on tangent sections)	Through lanes 2%, However, when adjacent lanes slope in the same direction, increase slope by 0.5% per lane up to 3% Auxiliary and turn lanes 3% maximum Crown break at centerline 4%	1.5% minimum, 3% maximum 3% maximum 4% maximum	2% N/A 4%
Shoulder cross-slope (on tangent sections)	4%	Shoulder cross-slope cannot be less than the adjacent lane. 6% max for paved or granular shoulders, 8% max for earth shoulders	4%
Curb type (Refer to Section 3C-2)	Design speed = 50 or 55 mph 6-inch sloped Design speed ≥ 60 mph 4-inch sloped	6-inch standard 6-inch sloped	N/A
Foreslope (For fill areas greater than 40 ft, contact the Soils Design Section for assistance)	Adjacent to shoulder 10:1 for 4' then 6:1 Beyond standard ditch depth and design clear zone 3.5:1 Curbed roadways 2%	3:1 3:1 not steeper than 3:1	10:1 for 4' then 6:1 3.5:1 N/A
Backslope (For cut areas greater than 25 feet, contact the Soils Design Section for assistance with backslope benches.)	3:1	2.5:1	3:1
Transverse Slopes	w/ drainage structures 8:1 w/o drainage structures 10:1	6:1 6:1	8:1 10:1
Ditches (Refer to Section 3G-1)	Outside ditch (depth x width) (ft) 5 x 10 Median ditch depth (ft) 4	-- 2	5 x 10 4
Median width (ft) (Refer to Section 3E-1)	64	50	64
Bridge width—new*	Bridge length ≤ 200 ft design lane widths + effective shoulder widths Bridge length > 200 ft design lane widths + effective shoulder widths	design lane widths + effective shoulder widths design lane width + 4' right and left of the design lane widths	design lane widths + effective shoulder widths N/A
Bridge width—existing*	design lane widths + no less than 2 ft left and right	design lane widths + 2 ft left and right of the design lane widths	N/A
Vertical clearance (ft) (above lanes, shoulders and 25 feet left and right of the center of railroad tracks)	Over primary 16.5 Over non-primary 16.5 at interchange locations, 15 at all other locations Over railroad 23.3 Sign trusses and pedestrian crossings 17.5	16 14 23.3 17	16.5 N/A N/A 17.5
Structural Capacity	Contact Office of Bridges and Structures	Contact Office of Bridges and Structures	
Level of Service	B	B	B

\*FHWA notification via email is required if acceptable criteria is not met on the NHS system (No formal design exception required)

Design year ADT = >30,000 (1)									
Effective Shoulder Width and Type for Multilane Arterials									
Design Element	Preferred (Values shown in feet)				Acceptable (Values shown in feet)				Project Values
	Rural Roadways		Urban Roadways		Rural Roadways		Urban Roadways		
Auxiliary lanes or turn lanes with shoulders	6		6		6		0		N/A
Turn lanes with curbs	6		See Section 3C-2		6		0		N/A
Expressways	Outside				Median Side				
	Effective Shoulder Width	Paved Width	Effective Shoulder Width	Paved Width	Effective Shoulder Width	Paved Width	Effective Shoulder Width	Paved Width	
Routes where bicycles are to be accommodated	10	10	6	6	8	4	4	4	OUTSIDE 6"Paved,4"Granular
On roadways approaching urban areas (due to increased bike traffic)	10	10	6	6	8	0*	4	4	INSIDE 6"Paved
On all curves with a superelevation rate of 7.0% or greater	10	10	6	6	8	0*	4	4	
On roadways with design year ADT > 6500 vpd	10	6	6	6	8	0*	4	4	
On all other Expressways (Multilane Arterials)	10	6	6	6	8	0*	4	4	

\*Requires safety edge-See Section 3C-6  
Curbs should be located beyond the outer edge of the effective shoulder width in rural areas  
Refer to Section 3C-2 for curb offsets in urban areas

Notes:  
(1) Design year ADT is 31,800 North of 260th Street and 33,470 South of 260th Street

Roadway Design Speed (mph) = 70														
Design Criteria for High Speed Roadways														
Design Element	Design Speed, mph	Preferred Criteria					Acceptable Criteria					Project Values		
		50	55	60	65	70	75	50	55	60	65		70	75
Stopping sight distance (ft) (Refer to Section 5D-1)		425	495	570	645	730	820	425	495	570	645	730	820	730
Minimum horizontal curve radius (ft)	Method 5 superelevation and side friction distribution e <sub>min</sub> = 6% e <sub>min</sub> = 8%	833	1060	1330	1660	2040	2500	833	1060	1330	1660	2040	2500	2040
Minimum vertical curve length (ft) (Refer to Section 2B-1)	crest vertical curves	150	165	180	195	210	225	150	165	180	195	210	225	210
Minimum rate of vertical curvature (K)	sag vertical curves	84	114	151	193	247	312	84	114	151	193	247	312	247
Minimum gradient (%)	(Refer to Section 2B-1)	0.5					0.3% with a curb, 0.0% without a curb							
Maximum gradient (%)	(Refer to Section 2B-1)	4		3			7		6		4		3	
Clear zone		See "Preferred Clear Zone" table in Section 8A-2					See "Acceptable Clear Zone" table in Section 8A-2					34		



# Design Criteria

Effective Shoulder Width and Type for Ramps															
Design Element	Ramp Type												Project Values		
	Preferred						Acceptable								
	Diagonal		Loop	Semi-Directional		Directional	Diagonal		Loop	Semi-Directional		Directional			
	one lane	two lane		one lane	two lane		one lane	two lane		one lane	two lane				
Full depth paved width (ft)	16	24	18	16	24	16	24	14	22	17	14	22	14	22	16
Design lane width (ft)	16	12	18	16	12	16	12	14	11	17	14	11	14	11	16
Paved shoulder width (ft) (in the direction of travel)**	Left	4	4	4	4	4	4	4	4	4	4	4	4	4	N/A
	Right	6	6	6	6	6	8	8	6	6	6	6	8	8	
***Granular shoulder width (ft) (in the direction of travel)	Left	4	-	-	-	-	-	4	-	-	-	-	-	-	4
	Right	6	-	-	-	-	-	6	-	-	-	-	-	-	6
Curb type	Interstate	4-inch sloped						4-inch sloped						N/A	
	Non-Interstate	4-inch sloped						6-inch sloped							

\*For radii less than 500 feet, refer to design widths of pavement for turning roadways in [A Policy on Geometric Design of Highways and Streets](#)  
 \*\*Left and right shoulders widths may be reversed if needed to provide additional sight distance  
 \*\*\*Non-Interstate interchanges only

Notes:

MAX ADT = 1655

Ramp Design Speed (mph) = 60,40																	
Design Criteria for Ramps Based Upon Design Speed																	
Design Element	Preferred Criteria												Project Values				
	Design Speed, mph																
	25	30	35	40	45	50	55	60	25	30	35	40		45	50	55	60
Stopping sight distance (ft) (Refer to Section 6D-1)	155	200	250	305	360	425	495	570	155	200	250	305	360	425	495	570	305,570
Minimum horizontal curve radius (ft) and superelevation rate (Refer to Sections 2A-2 and 2A-3)	See Table 10 in Section 2A-3												485,1330				
Minimum vertical curve length (ft) (Refer to Section 2B-1)	crest vertical curves												roadways without fixed-source lighting				
	12	19	29	44	61	84	114	151	12	19	29	44		61	84	114	151
Minimum Rate of Vertical Curvature (Refer to Section 2B-1)	sag vertical curves												roadways with fixed-source lighting				
	26	37	49	64	79	96	115	136	26	37	49	64		79	96	115	136
Minimum gradient (%) (Refer to Section 2B-1)	0.5												0.3% with a curb, 0.0% without a curb	0.5%			
Maximum gradient (%) on ramps (Refer to Sections 2B-1)	4												Equal to the maximum upgrade gradient. In special cases, may be 2% greater but in no case greater than 8%	4%			
Clear zone	See "Preferred Clear Zone" table in Section 8A-2												See "Acceptable Clear Zone" table in Section 8A-2	30			

Ramp Design Speed (mph) = 60,40													
Design Speed for Ramps													
Design Element	Ramp Type												Project Values
	All curves near free flow terminals	Preferred				All curves near free flow terminals	Acceptable						
		Diagonal	Loop	Semi-Directional	Directional		Diagonal	Loop	Semi-Directional	Directional			
Design speed (mph)	60	40	30	50	60	50	35	25	40	40	60 FF, 40 AGT		
Maximum superelevation rate (Refer to Section 2A-2 for details)	6%	4%	6%			8%				6% FF, 4% AGT			

# Design Criteria

<b>Roadway</b>	<b>260TH STREET</b>		
<b>PIN Number</b>	06-07-218-010	<b>Assistant District Engineer</b>	Nick Humpal
<b>Project Number</b>	NHSX-218-8(124)--3H-09	<b>or</b>	
<b>District</b>	District 2	<b>Office Director</b>	
<b>County</b>	BREMER		
<b>Route</b>	US 218		
<b>Location</b>	US 218 Cedar River in Janesville to IA 116 in Waverly		
<b>Work Type</b>	PCC Pavement - Grade and New		
<b>Segment Manager</b>			
<b>Designer</b>	HR Green		
Design Manual Section 1C-1 Last Updated: 04-29-19			
<b>Rural Two-Lane Highways (Rural Arterials)</b>			
<b>Design Element</b>	<b>Preferred</b>	<b>Acceptable</b>	<b>Project Values</b>
Design speed (mph)	60	50	60 (40)
Maximum superelevation rate (Refer to Section 2A-2)	6%	8%	6%
Design lane width (ft)	12	12	12
Full depth paved width (ft)	12	12	12
Right turn lane (ft)	12	10	12
Climbing Lane (ft)	12	12	N/A
Left turn lane (ft)	12	10	12
Pavement cross-slope (on tangent sections)	Through lanes	1.5% minimum, 2% maximum	
	Auxiliary and turn lanes	3% maximum	
	Crown break at centerline	4% maximum	
Shoulder cross-slope (on tangent sections)	4%	Shoulder cross-slope cannot be less than the adjacent lane, 6% max for paved or granular shoulders, 8% max for earth shoulders	
Curb type (Refer to Section 3C-2)	Design speed = 50 or 55 mph	6-inch sloped	N/A
	Design speed ≥ 60 mph	4-inch sloped	N/A
Foreslope (For fill areas greater than 40 ft, contact the Soils Design Section for assistance)	Adjacent to shoulder	10:1 for 4' then 6:1	10:1 for 4' then 6:1
	Beyond standard ditch depth and design clear zone	3.5:1	3.5:1
Backslope (For cut areas greater than 25 feet, contact the Soils Design Section for assistance with backslope benches.)	Curbed roadways	2%	N/A
		not steeper than 3:1	N/A
Transverse Slopes	w/ drainage structures	8:1	8:1
	w/o drainage structures	10:1	10:1
Ditches (Refer to Section 3G-1)	Outside ditch (depth x width) (ft)	5 x 10	5 x 10
Bridge width—new*	Bridge length ≤ 200 ft	design lane widths + effective shoulder widths	N/A
	Bridge length > 200 ft	design lane widths + effective shoulder widths	design lane width + 4' right and left of the design lane widths
Bridge width—existing*	design lane widths + no less than 2 ft left and right	design lane widths + 2 ft. offset left and right	N/A
			N/A
Vertical clearance (ft) (above lanes, shoulders and 25 feet left and right of the center of railroad tracks)	Over primary	16.5	N/A
	Over non-primary	16.5 at interchange locations, 15 at all other locations	N/A
	Over railroad	23.3	N/A
Structural Capacity	Sign trusses and pedestrian bridges	17.5	17.5
Level of Service	Contact Office of Bridges and Structures	Contact Office of Bridges and Structures	N/A
	B	B	N/A
*FHWA notification via email is required if acceptable criteria is not met on the NHS system (No formal design exception is required)			

<b>Design year ADT = 3560 (1)</b>					
Design Manual Section 1C-1 Last Updated: 04-29-19					
<b>Effective Shoulder Width and Type for Two-Lane Highways</b>					
	Preferred (values shown in feet)		Acceptable (values shown in feet)		Project Values
	Rural Roadways	Urban Roadways	Rural Roadways	Urban Roadways	
Turn lanes with shoulders	6	6	Turn lanes with shoulders	6	0
Turn lanes with curbs	6	See Section 3C-2	Turn lanes with curbs	6	0
	Effective Shoulder Width	Paved Width	Effective Shoulder Width	Paved Width	
Climbing Lanes	6	4	Climbing Lanes	4	0
Two-Lane Highways	Effective Shoulder Width	Paved Width	Two-Lane Highways	Effective Shoulder Width	Paved Width
Routes where bicycles are to be accommodated	10	10	Design year ADT > 2000 vpd	8	0*
On roadways approaching urban areas (due to increased bike traffic)	10	10			
On all curves with a superelevation rate of 7.0% or greater	10	10			
On roadways with design year ADT > 5000	10	6	Design year ADT between 400 - 2000 vpd	6	0*
On all other NHS	10	6			
On non-NHS routes with design year ADT > 3000	10	6	Design year ADT < 400 vpd	4	0*
On non-NHS routes with design year ADT < 3000	8	0*			
*Requires safety edge-Refer to Section 3C-6					
Curbs should be located beyond the outer edge of the effective shoulder width in rural areas					
Refer to Section 3C-2 for curb offsets in urban areas					
Notes:					
(1) Maximum ADT along the corridor between RPA/C and Maple/Eagle					

<b>Roadway Design Speed (mph) = 40/60</b>		40 MPH applies only to taper ratios and turn lanes; 60 MPH for remainder													
Design Manual Section 1C-1 Last Updated: 04-29-19															
<b>Design Criteria for High Speed Roadways</b>															
Design Element	Preferred Criteria Design Speed, mph					Acceptable Criteria Design Speed, mph					Project Values				
	50	55	60	65	70	75	50	55	60	65		70	75		
Stopping sight distance (ft) (Refer to Section 5D-1)	425	495	570	645	730	820	425	495	570	645	730	820	570		
Minimum horizontal curve radius (ft) (Refer to Sections 2A-2 and 2A-3)	Method 5 superelevation and side friction distribution	e <sub>max</sub> = 6%	833	1060	1330	1660	2040	2500	833	1060	1330	1660	2040	2500	1330
			e <sub>max</sub> = 8%	--	--	--	--	--	758	960	1200	1480	1810	2210	N/A
Minimum vertical curve length (ft) (Refer to Section 2B-1)	crest vertical curves	150	165	180	195	210	225	150	165	180	195	210	225	180	
Minimum rate of vertical curvature (K) (Refer to Section 2B-1)	sag vertical curves	roadways without fixed source lighting	84	114	151	193	247	312	84	114	151	193	247	312	151
		roadways with fixed-source lighting	96	115	136	157	181	206	96	115	136	157	181	206	136
Minimum gradient (%) (Refer to Section 2B-1)	0.5					0.3% with a curb, 0.0% without a curb					0.5%				
Maximum gradient (%) (Refer to Section 2B-1)	Urban roadways Rural roadways interstates	4	3				7	6	6	--	--	--	3%		
		5	4				5	5	4	4	4	4			
		5	4				5	5	4	4	4	4			
Clear zone	See "Preferred Clear Zone" table in Section 8A-2					See "Acceptable Clear Zone" table in Section 8A-2					30				

# Design Criteria

<b>Roadway</b>	250TH STREET		
<b>PIN Number</b>	06-07-218-010	<b>Submittal Date</b>	12/6/2019
<b>Project Number</b>	NHSX-218-8(124)--3H-09	<b>Revision Date</b>	1/26/2020
<b>District</b>	District 2		
<b>County</b>	BREMER		
<b>Route</b>	US 218		
<b>Location</b>	US 218 Cedar River in Janesville to IA 116 in Waverly		
<b>Work Type</b>	PCC Pavement - Grade and New		
<b>Segment Manager</b>	Humpal		
<b>Designer</b>	HR Green		
<b>Design year ADT =</b>	300		

Secondary Roads			
Design Elements	Project value	Local Systems I.M. 3.210 value	Remarks
Design speed (mph)	50	50	
Design lane width (ft.)	12	11	Granular
Shoulder width (ft.)	4	4	Granular
Bridge width - new (ft.)	N/A	30	
Bridge width - existing (ft.)	N/A	22	
Maximum super elevation rate (%)	8	8	
Minimum radius (ft.)	758	758	
Stopping sight distance (ft.)	425	425	
Vertical curve length (ft.)	150	--	L=3 x Design Speed
Minimum rate of vertical curvature (K)	Crest	84	--
	Sag	96	--
Minimum gradient (%)	0.50%	--	
Maximum gradient (%)	6%	6%	
Foreslope	2:1	2:1	
Backslope	2:1	--	
Traverse slopes	6:1	--	
Clearzone	6 (1)	6	

Notes:

SR250 is Granular

(1) Value comes from I.M. No. 3.240, Page 3, Par.1, Very Low Volume Local Roads (ADT <= 400 vpd)

A 5x10 ditch will be developed where possible.

<b>Roadway</b>	EAGLE AVENUE		
<b>PIN Number</b>	06-07-218-010	<b>Submittal Date</b>	12/6/2019
<b>Project Number</b>	NHSX-218-8(124)--3H-09	<b>Revision Date</b>	1/26/2020
<b>District</b>	District 2		
<b>County</b>	BREMER		
<b>Route</b>	US 218		
<b>Location</b>	US 218 Cedar River in Janesville to IA 116 in Waverly		
<b>Work Type</b>	PCC Pavement - Grade and New		
<b>Segment Manager</b>	Humpal		
<b>Designer</b>	HR Green		
<b>Design year ADT =</b>	1260		

Secondary Roads			
Design Elements	Project value	Local Systems I.M. 3.210 value	Remarks
Design speed (mph)	55	55	
Design lane width (ft.)	12	11	Paved
Shoulder width (ft.)	6	6	2' Paved; 4' Granular
Bridge width - new (ft.)	N/A	30	
Bridge width - existing (ft.)	N/A	22	
Maximum super elevation rate (%)	8%	8%	
Minimum radius (ft.)	960	960	
Stopping sight distance (ft.)	495	495	
Vertical curve length (ft.)	165	--	L=3 x Design Speed
Minimum rate of vertical curvature (K)	Crest	114	--
	Sag	115	--
Minimum gradient (%)	0.50%	--	
Maximum gradient (%)	6%	6%	
Foreslope	3:1 (1)	3:1	
Backslope	2.5:1 (1)	--	
Traverse slopes	6:1	--	
Clearzone	20	20-24	

Notes:

(1) Foreslope and Backslope may be flattened when necessary to meet clearzone requirements.

A 5x10 ditch will be developed where possible.

# Design Criteria

<b>Roadway</b>	EASTON AVENUE		
<b>PIN Number</b>	06-07-218-010	<b>Submittal Date</b>	12/6/2019
<b>Project Number</b>	NHSX-218-8(124)--3H-09	<b>Revision Date</b>	1/26/2020
<b>District</b>	District 2		
<b>County</b>	BREMER		
<b>Route</b>	US 218		
<b>Location</b>	US 218 Cedar River in Janesville to IA 116 in Waverly		
<b>Work Type</b>	PCC Pavement - Grade and New		
<b>Segment Manager</b>	Humpal		
<b>Designer</b>	HR Green		
<b>Design year ADT =</b>	310		

Secondary Roads			
Design Elements	Project value	Local Systems I.M. 3.210 value	Remarks
Design speed (mph)	50	50	
Design lane width (ft.)	12	11	Paved
Shoulder width (ft.)	4	4	Granular
Bridge width - new (ft.)	N/A	30	
Bridge width - existing (ft.)	N/A	22	
Maximum super elevation rate (%)	8	8	
Minimum radius (ft.)	758	758	
Stopping sight distance (ft.)	425	425	
Vertical curve length (ft.)	150	--	L=3 x Design Speed
Minimum rate of vertical curvature (K)	Crest	84	--
	Sag	96	--
Minimum gradient (%)	0.50%	--	
Maximum gradient (%)	6%	6%	
Foreslope	2:1	2:1	
Backslope	2:1	--	
Traverse slopes	6:1	--	
Clearzone	6 (1)	6	

Notes:

SREASTON is Paved

(1) Value comes from I.M. No. 3.240, Page 3, Par.1, Very Low Volume Local Roads (ADT <= 400 vpd)

A 5x10 ditch will be developed where possible.

<b>Roadway</b>	MAPLE STREET		
<b>PIN Number</b>	06-07-218-010	<b>Submittal Date</b>	12/6/2019
<b>Project Number</b>	NHSX-218-8(124)--3H-09	<b>Revision Date</b>	1/26/2020
<b>District</b>	District 2		
<b>County</b>	BREMER		
<b>Route</b>	US 218		
<b>Location</b>	US 218 Cedar River in Janesville to IA 116 in Waverly		
<b>Work Type</b>	PCC Pavement - Grade and New		
<b>Segment Manager</b>	Humpal		
<b>Designer</b>	HR Green		
<b>Design year ADT =</b>	1990		

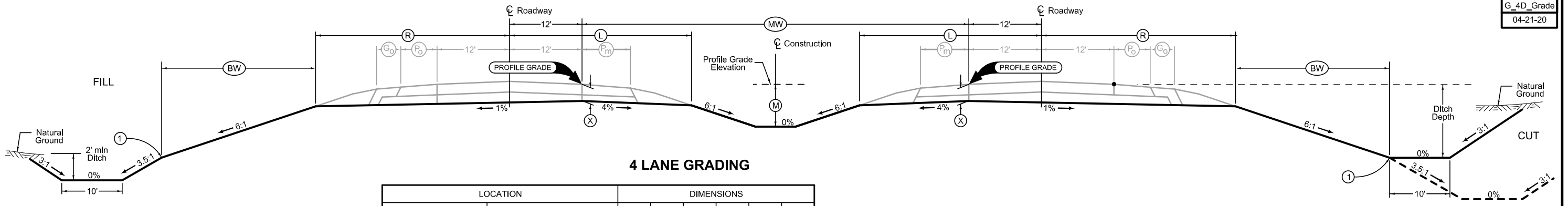
Secondary Roads			
Design Elements	Project value	Local Systems I.M. 3.210 value	Remarks
Design speed (mph)	60	60	
Design lane width (ft.)	12	12	Paved
Shoulder width (ft.)	8	8	4' Paved; 4' Granular
Bridge width - new (ft.)	N/A	40	
Bridge width - existing (ft.)	N/A	24	
Maximum super elevation rate (%)	8	8	
Minimum radius (ft.)	1200	1200	
Stopping sight distance (ft.)	570	570	
Vertical curve length (ft.)	180	--	L=3 x Design Speed
Minimum rate of vertical curvature (K)	Crest	151	--
	Sag	136	--
Minimum gradient (%)	0.5%	--	
Maximum gradient (%)	5%	5%	
Foreslope	4:1	4:1	
Backslope	3:1	--	
Traverse slopes	8:1	8:1	
Clearzone	30	30-40	

Notes:

A 5x10 ditch will be developed where possible.







**4 LANE GRADING**

LOCATION		DIMENSIONS						
ROAD IDENTIFICATION	STATION TO STATION	L Feet	R Feet	X Inches	BW Feet	MW Feet	M Feet	
US 218	208+87.97 - 293+67.44	34.9	35.3	22.5	10.7	64	4	

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.

① Refer to project plan and cross sections for specific location of foreslope change.

**US 218**

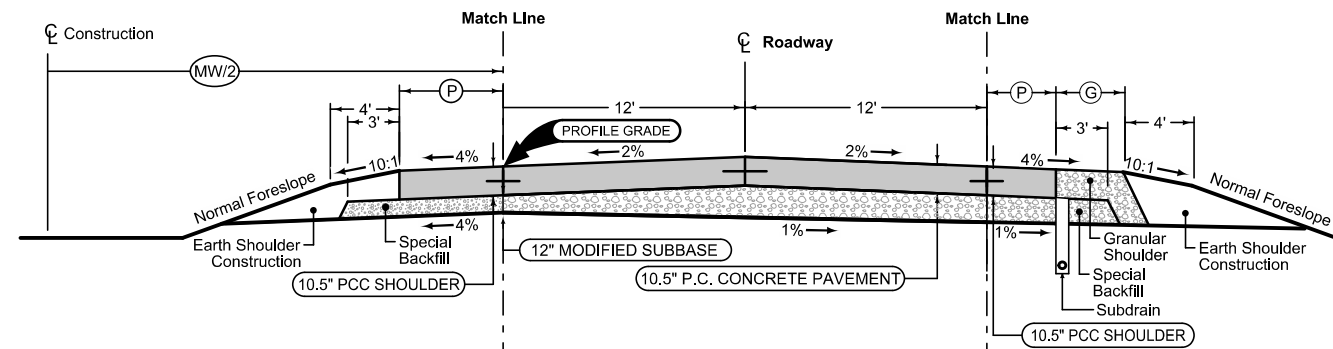












**Full Depth PCC Combination Shoulder**

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

4_C_FullPCC_Modified				
Direction of Travel	BEGIN STATION	END STATION	(P) Feet	(G) Feet
NB	208+87.97	293+67.44	6	4
SB	208+87.97	293+67.44	6	4

Section shown in the direction of traffic.

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

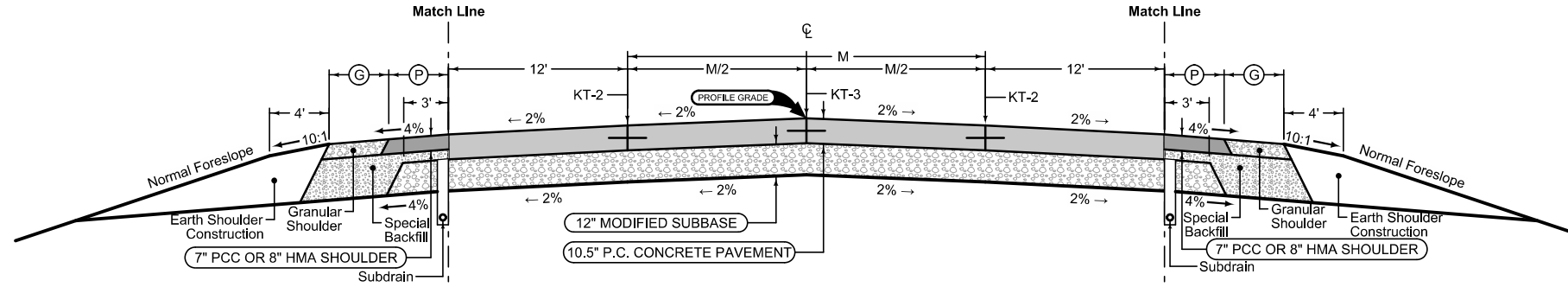
4DP_04-21-20			
Direction of Travel	BEGIN STATION	END STATION	(MW) Feet
NB	208+87.97	293+67.44	64
SB	208+87.97	293+67.44	64

**US 218**

**Combination Shoulder with Paved Shoulder Alternates**

PCC Shoulder Jointing:  
 Longitudinal joint: BT-1 or BT-5  
 Transverse joints: C at 17' spacing  
 HMA Shoulder Jointing:  
 Longitudinal joint: B

2_C_ Modified			
STATION TO STATION		(P) Feet	(G) Feet
7000+51.75	7007+18.51	6	4
7010+28.51	7021+45.21	6	4



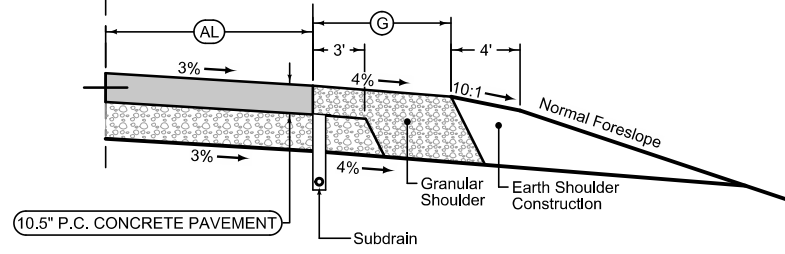
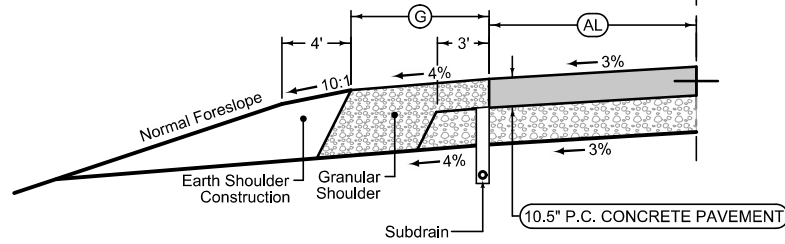
**Combination Shoulder with Paved Shoulder Alternates**

PCC Shoulder Jointing:  
 Longitudinal joint: BT-1 or BT-5  
 Transverse joints: C at 17' spacing  
 HMA Shoulder Jointing:  
 Longitudinal joint: B

2_C_ Modified			
STATION TO STATION		(P) Feet	(G) Feet
7000+51.75	7004+84.23	6	4
7010+28.51	7021+45.21	6	4

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

4UP_ Modified		
STATION TO STATION		(M) Feet
7000+51.75	7002+91.75	0-16
7002+91.75	7021+45.21	16



**Auxiliary Lane with Granular Shoulder**

Transverse joints: Match Mainline  
 Longitudinal joint: L or KT

2_AuxLane_PCC_2_G_ Modified			
STATION TO STATION		(G) Feet	(AL) Feet
7007+18.51	7010+28.51	6	12

**Auxiliary Lane with Granular Shoulder**

Transverse joints: Match Mainline  
 Longitudinal joint: L or KT

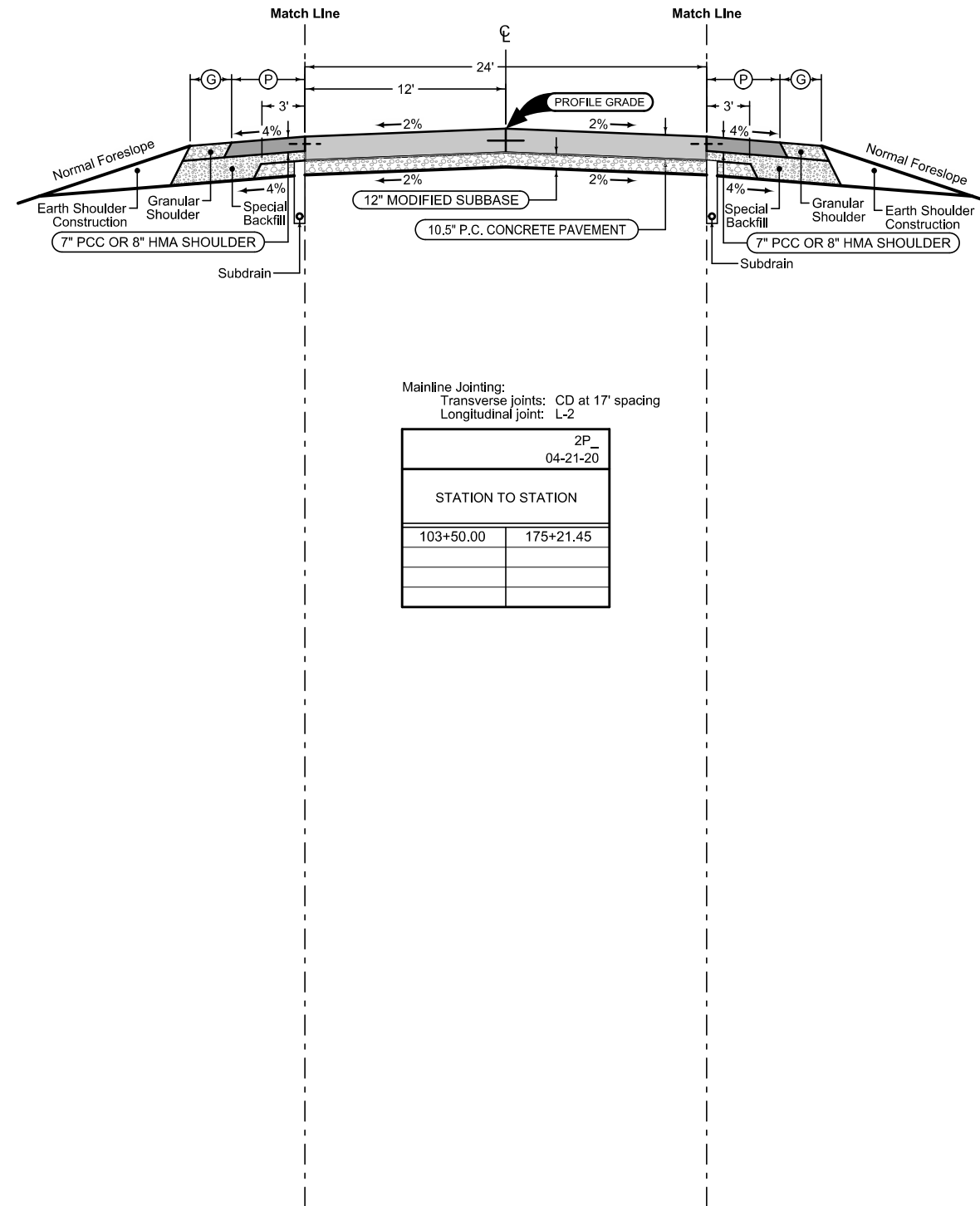
2_AuxLane_PCC_2_G_ Modified			
STATION TO STATION		(G) Feet	(AL) Feet
7004+84.23	7006+64.23	6	0-12
7006+64.23	7010+28.51	6	12

**260TH STREET**

**Combination Shoulder with Paved Shoulder Alternates**

PCC Shoulder Jointing:  
 Longitudinal joint: BT-1 or BT-5  
 Transverse joints: C at 17' spacing  
 HMA Shoulder Jointing:  
 Longitudinal joint: B

STATION TO STATION		(P) Feet	(G) Feet
103+50.00	175+21.45	4	4



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

STATION TO STATION	
103+50.00	175+21.45

**Combination Shoulder with Paved Shoulder Alternates**

PCC Shoulder Jointing:  
 Longitudinal joint: BT-1 or BT-5  
 Transverse joints: C at 17' spacing  
 HMA Shoulder Jointing:  
 Longitudinal joint: B

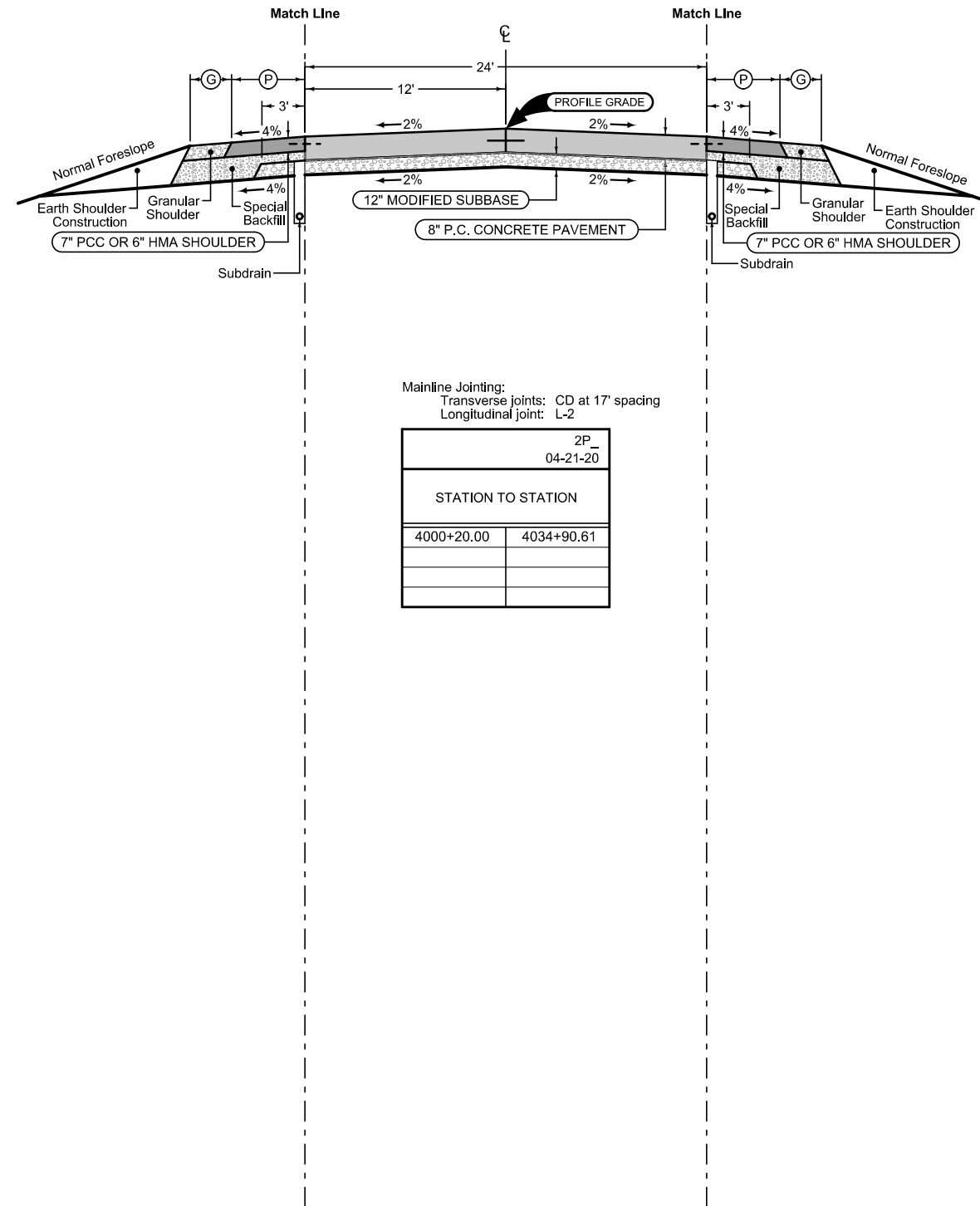
STATION TO STATION		(P) Feet	(G) Feet
103+50.00	175+21.45	4	4

**MAPLE STREET**

**Combination Shoulder with Paved Shoulder Alternates**

PCC Shoulder Jointing:  
 Longitudinal joint: BT-1 or BT-5  
 Transverse joints: C at 17' spacing  
 HMA Shoulder Jointing:  
 Longitudinal joint: B

STATION TO STATION		(P) Feet	(G) Feet
4000+20.00	4034+90.61	2	4



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

2P_	
04-21-20	
STATION TO STATION	
4000+20.00	4034+90.61

**Combination Shoulder with Paved Shoulder Alternates**

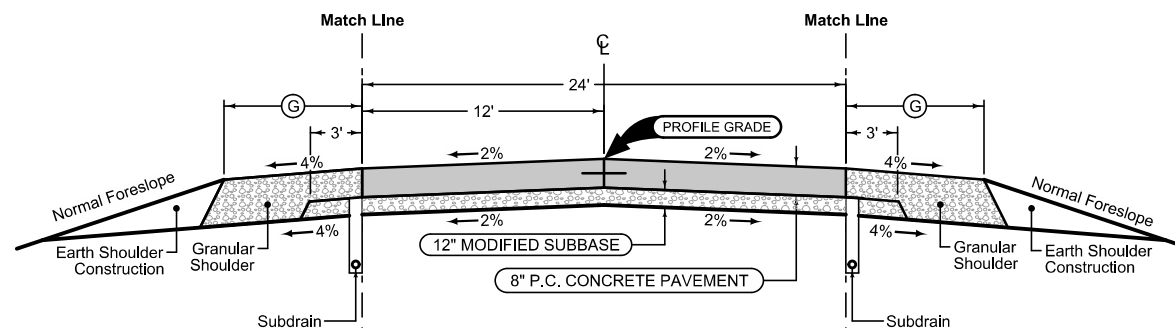
PCC Shoulder Jointing:  
 Longitudinal joint: BT-1 or BT-5  
 Transverse joints: C at 17' spacing  
 HMA Shoulder Jointing:  
 Longitudinal joint: B

STATION TO STATION		(P) Feet	(G) Feet
4000+20.00	4034+90.61	2	4

**EAGLE AVEUNE**

**Granular Shoulder**

2_G_SR_ Modified		
STATION TO STATION		Ⓞ Feet
8999+87.42	9018+40.00	4
9032+50.00	9043+75.76	4



**Granular Shoulder**

2_G_SR_ Modified		
STATION TO STATION		Ⓞ Feet
8999+87.42	9018+40.00	4
9032+50.00	9043+75.76	4

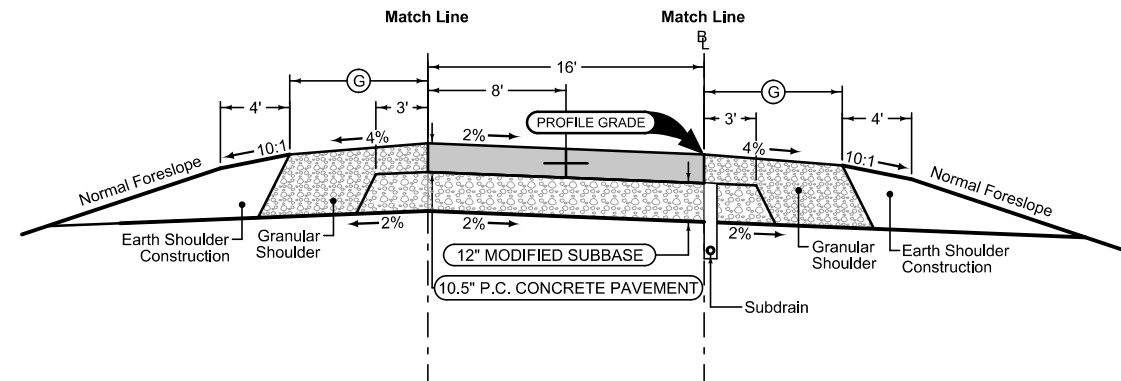
Mainline Jointing:  
 Transverse joints: CD at 17' spacing  
 Longitudinal joint: L-2

2P_ 04-21-20		
STATION TO STATION		
8999+87.42	9018+40.00	
9032+50.00	9043+75.76	

**EASTON AVENUE**

**Granular Shoulder**

1R_G_ Modified				
INTERCHANGE	RAMP	BEGIN STATION	END STATION	⊙ Feet
260th Street	A	1559+28.87	1573+98.93	4
260th Street	B	2542+98.94	2558+25.59	4
260th Street	C	3541+53.66	3559+29.98	4
260th Street	D	4558+23.68	4572+72.45	4



Section shown in the direction of traffic.

Ramp Jointing:  
Transverse joints: CD at 15' spacing.  
Longitudinal joints: L-2

**Granular Shoulder**

1R_G_ Modified				
INTERCHANGE	RAMP	BEGIN STATION	END STATION	⊙ Feet
260th Street	A	1559+28.87	1573+98.93	6
260th Street	B	2542+98.94	2558+25.59	6
260th Street	C	3541+53.66	3559+29.98	6
260th Street	D	4558+23.68	4572+72.45	6

1RP_ Modified				
INTERCHANGE	RAMP	BEGIN STATION	END STATION	
260th Street	A	1559+28.87	1573+98.93	
260th Street	B	2542+98.94	2558+25.59	
260th Street	C	3541+53.66	3559+29.98	
260th Street	D	4558+23.68	4572+72.45	

**US 218 RAMPS**

### SURVEY SYMBOLS

	Interstate Highway Symbol		Septic Tank		Existing Water Line
	U.S. Highway Symbol		Cistern		Existing Water Line (Second Company)
	Iowa Highway Symbol		L.P. Gas Tank (No Footing)		Existing Sanitary Sewer Line
	County Road Highway Symbol		Underground Storage Tank		Existing Telephone Line
	Evergreen Tree		Latrine		Existing Telephone Line (Second Company)
	Deciduous Tree		Luminaire		Existing Fiber Optics Telephone Line
	Fruit Tree		Traffic Signal		Existing Storm Sewer Line
	Shrub (Bushes)		Traffic Signal with Luminaire		Existing Gas Line
	Timber		Telephone Pedestal		Existing High Pressure Gas Line
	Hedge		Telephone Pedestal		Existing Gas Line (Second Company)
	Stump		Telephone Pole		Existing High Pressure Gas Line (Second Company)
	Swamp		Telephone Pole (Second Company)		Existing Power Line
	Rock Outcrop		Telephone Pole (Third Company)		Existing Power Line (Second Company)
	Broken Concrete		Telephone Pole (Fourth Company)		Cable Television Line
	Revetment (Rip Rap)		Telephone Pole (Fifth Company)		Guardrail (Beam or Cable)
	Cemetery		Power Pole		Guard Post (one or two)
	Grave		Power Pole (Second Company)		Guard Post (over two)
	Cave		Power Pole (Third Company)		Filler Pipe
	Sink Hole		Power Pole (Fourth Company)		Gas Valve
	Board Fence		Power Pole (Fifth Company)		Water Valve
	Chain Link or Security Fence		Electrical Highline Tower (Metal or Concrete)		Speed Limit Sign
	Wire Fence		Telephone Riser Pole		Mile Marker Post
	Terrace		Power Riser Pole		Sign
	Earth Dam or Dike (Existing)		Telegraph Pole		Traffic Signal Control Box
	Earth Dam or Dike (Proposed)		Satellite TV Dish		Rail Road Signal Control Box
	Tile Outlet		Water Hook Up		Telephone Switch Box
	Edge of Water		Radio Tower		Electric Box
	Existing Drainage		Tower Anchor		
	Proposed Drainage				
	Right of Way Rail or Lot Corner				
	Concrete Monument				
	Well				
	Windmill				
	Beehive Intake				
	Existing Intake				
	Proposed Intake				
	Existing Utility Access (Manhole)				
	Proposed Utility Access (Manhole)				
	Fire Hydrant				
	Water Hydrant (Rural)				

### 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.	
Yellow	(4)	Highlight for Critical Notes or Features
Red	(3)	Delineates Restricted Areas
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

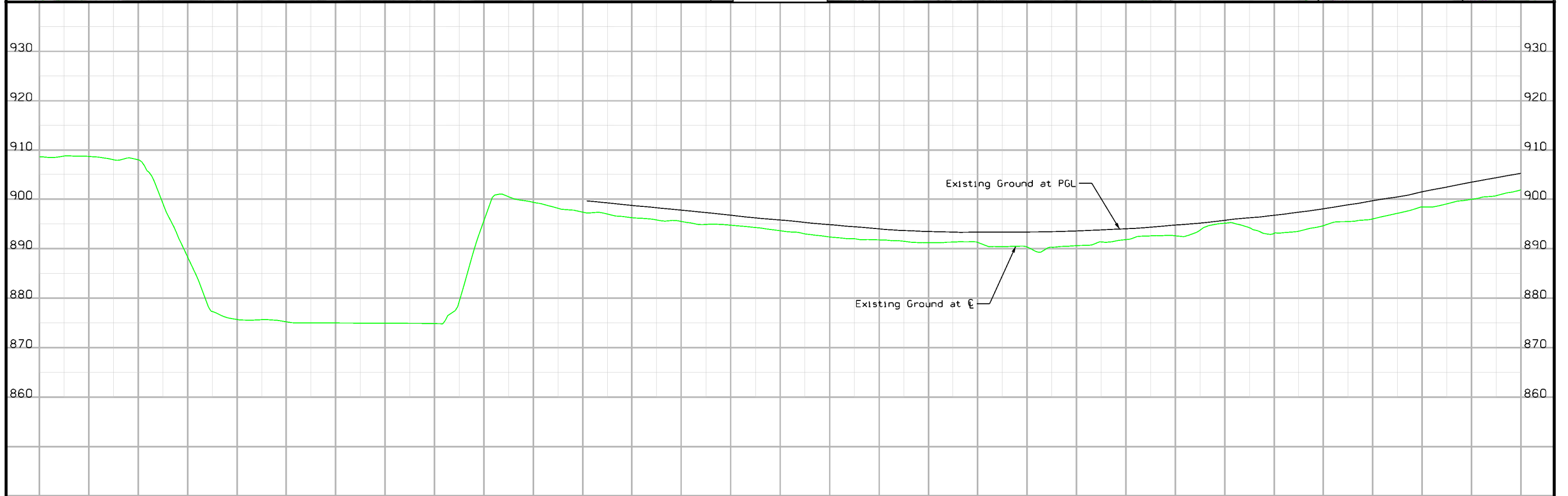
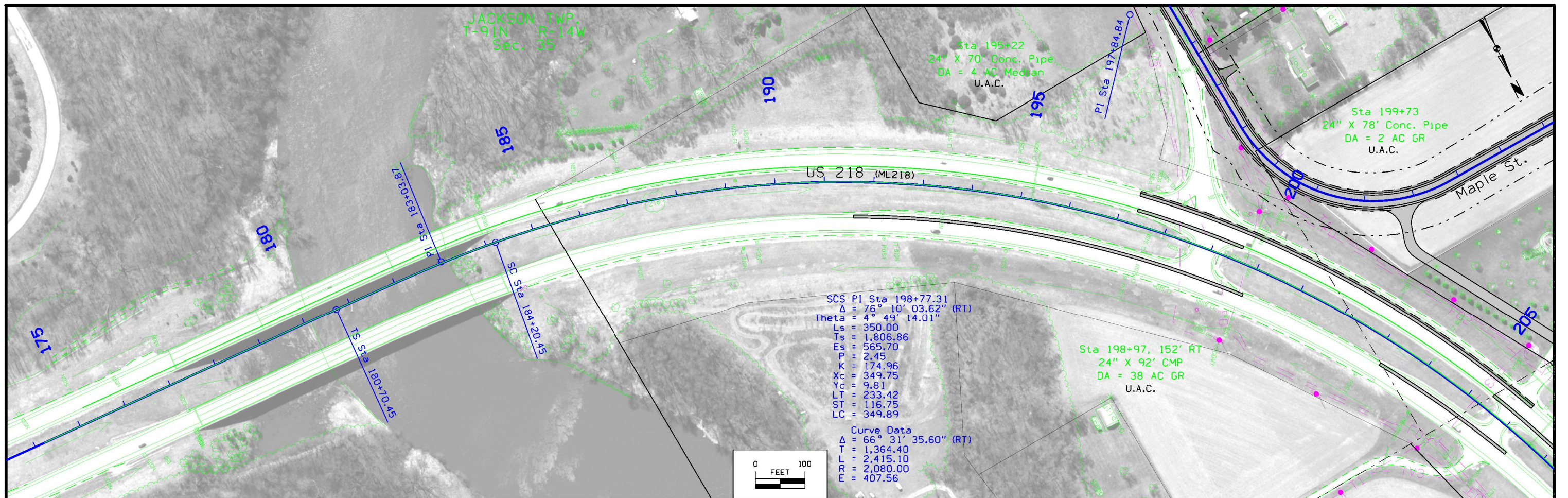
Symbol	Description
	Reference Point
	Station
	Survey Line
	Section Corner
	Ground Line Intercept
	Saw Cut
	Guardrail
	Trench Drain
	HighTension Cable Guardrail
	Sheet Pile
	Pavement Removal
	Clearing & Grubbing Area

Symbol	Description
	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

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

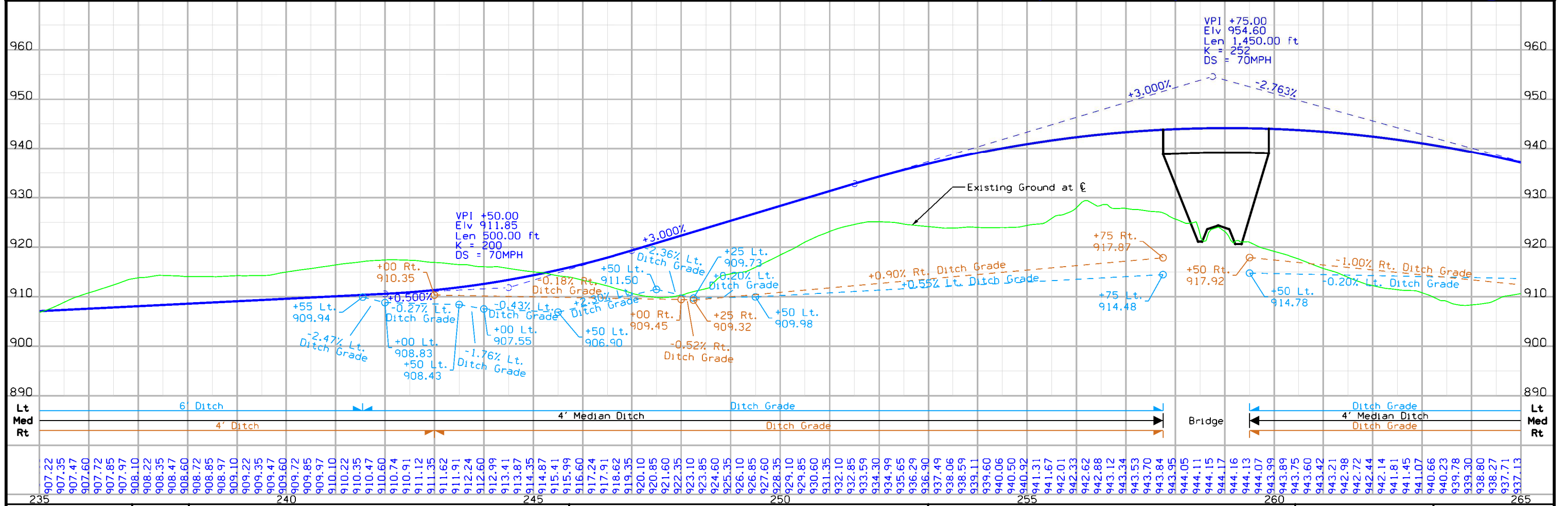
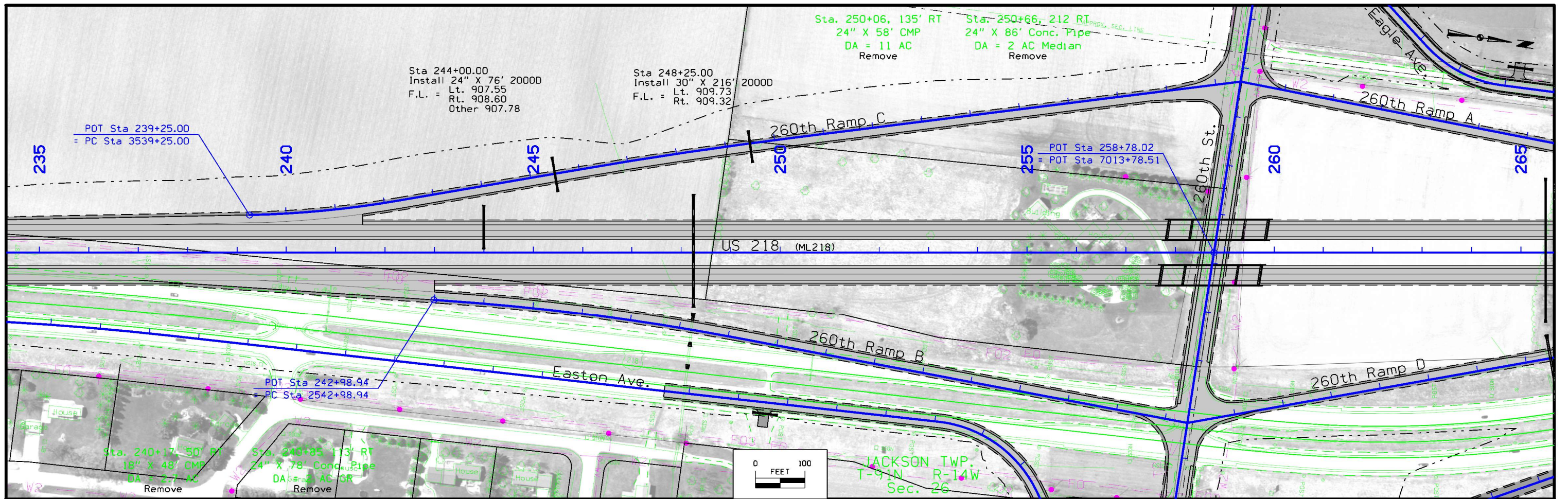






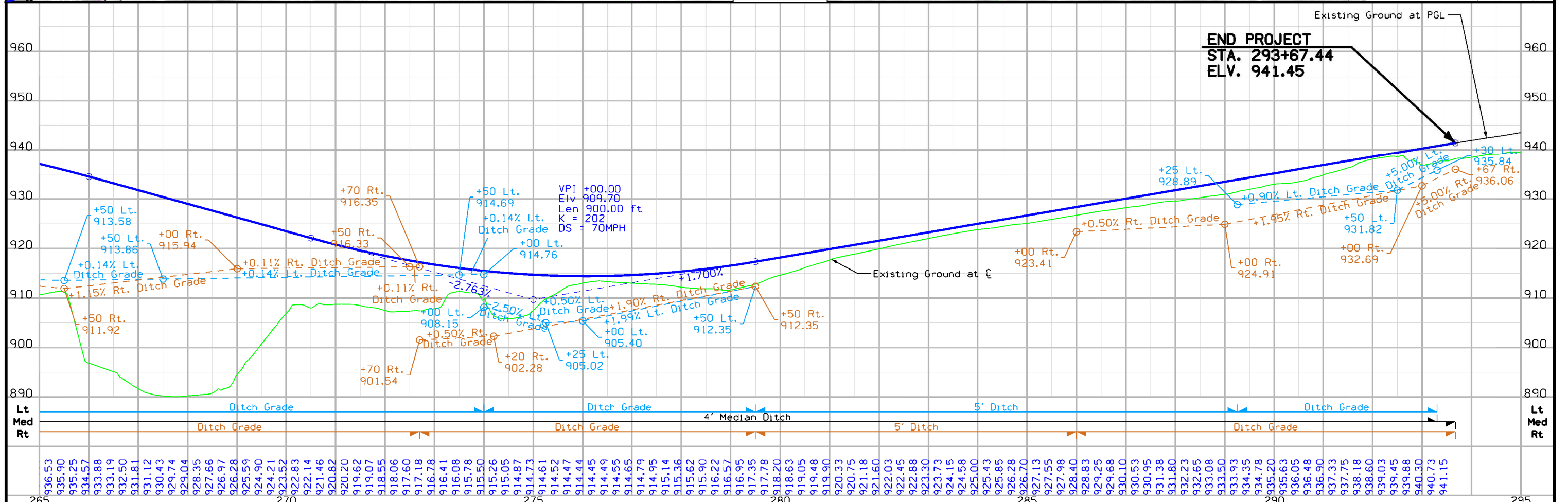
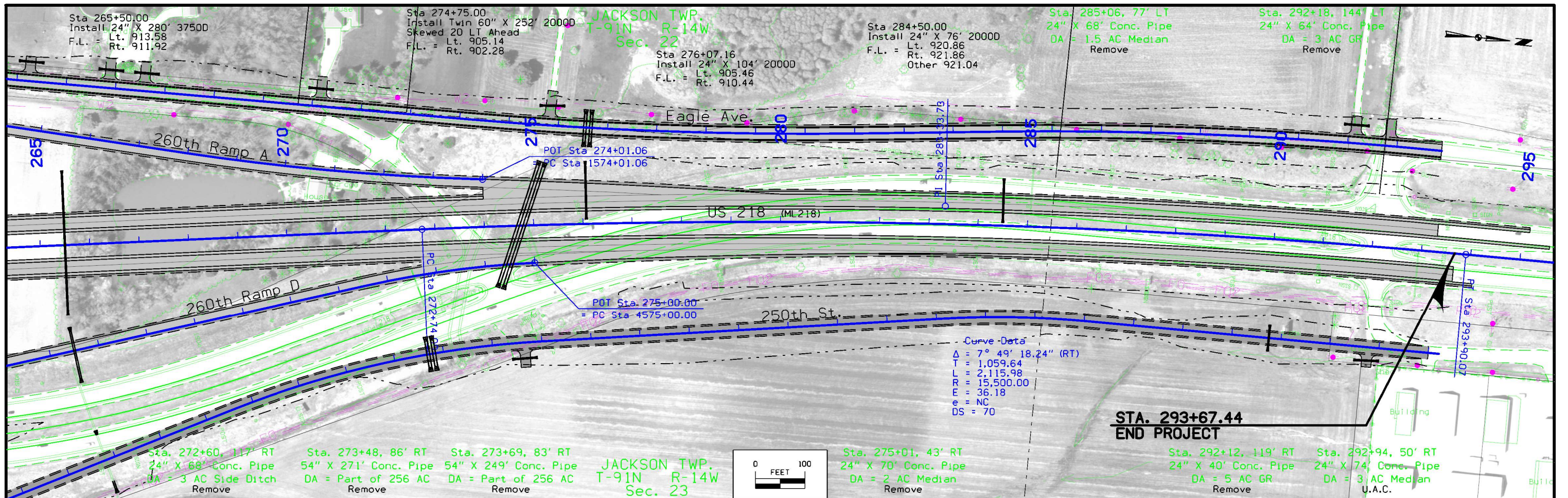




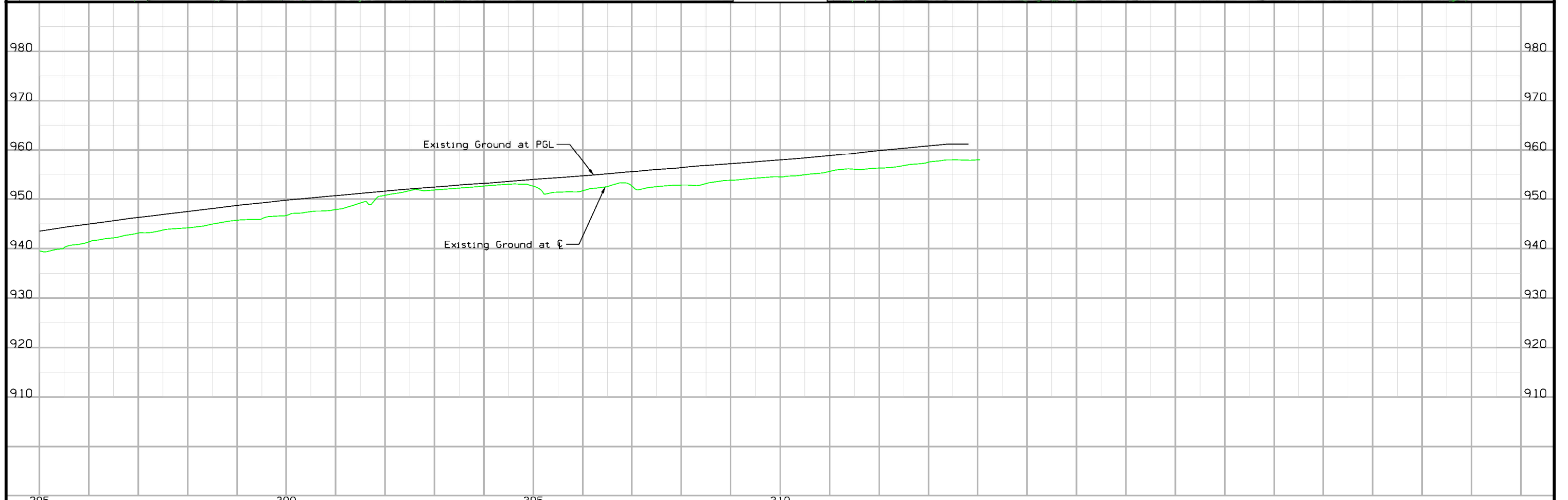
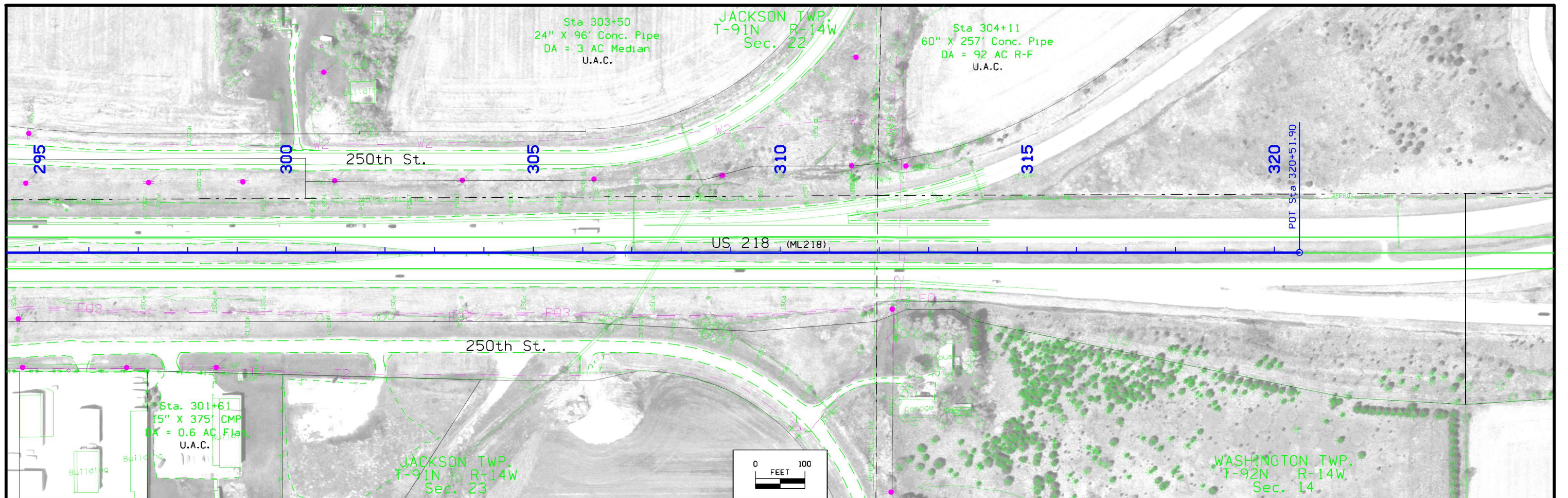


FILE NO.	ENGLISH	DESIGN TEAM	Iowa DOT \ HR Green, Inc.	BREMER	COUNTY	PROJECT NUMBER	NHSX-218-8(124)--3H-09	SHEET NUMBER	D.4
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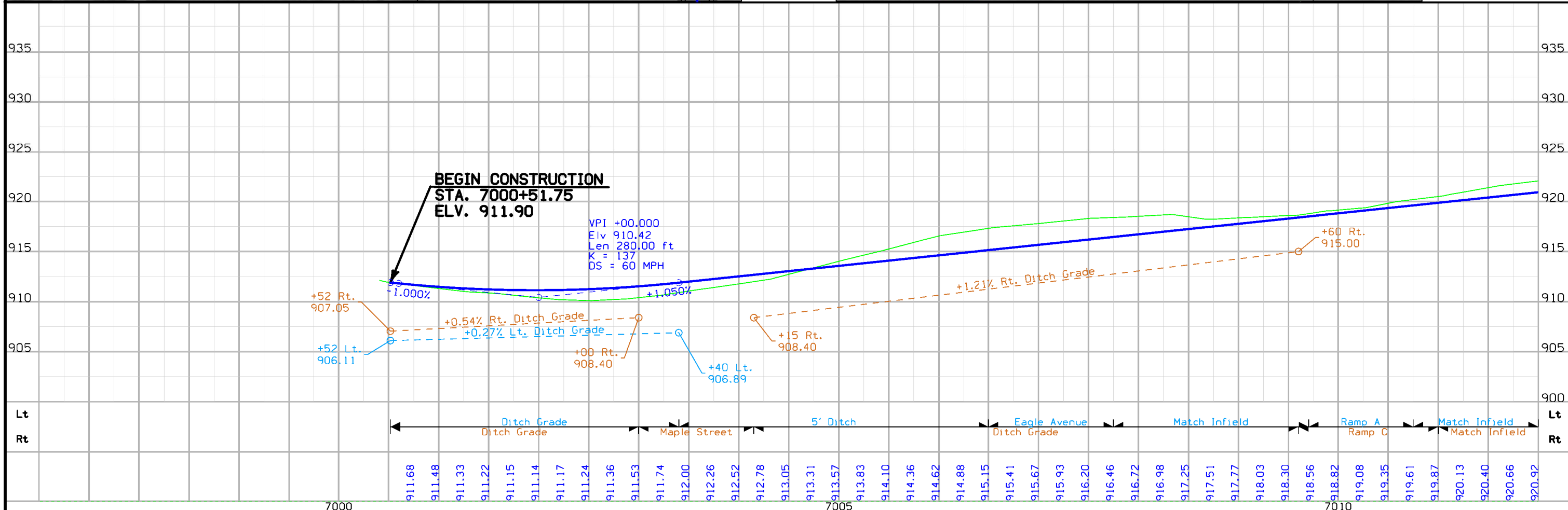
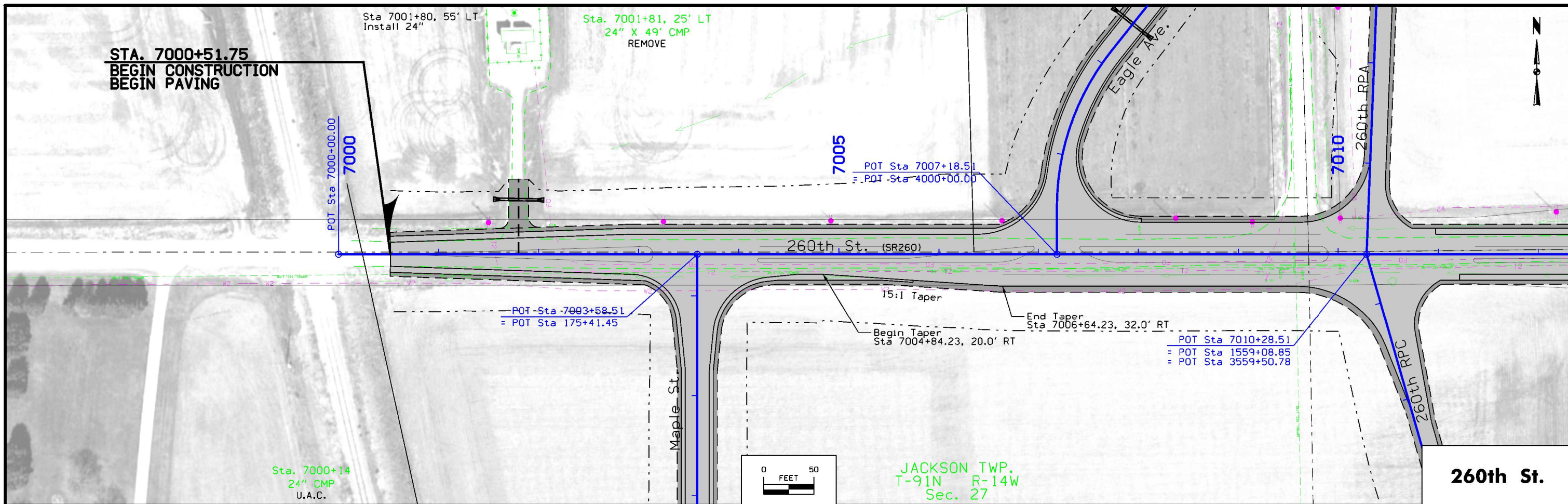




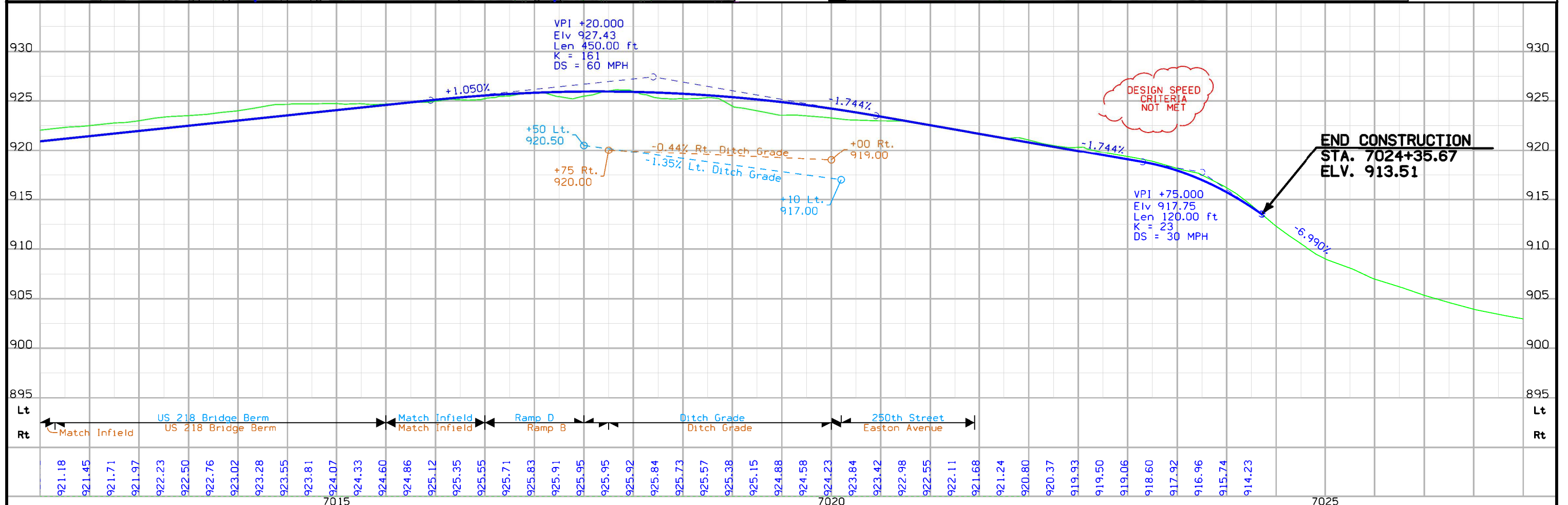
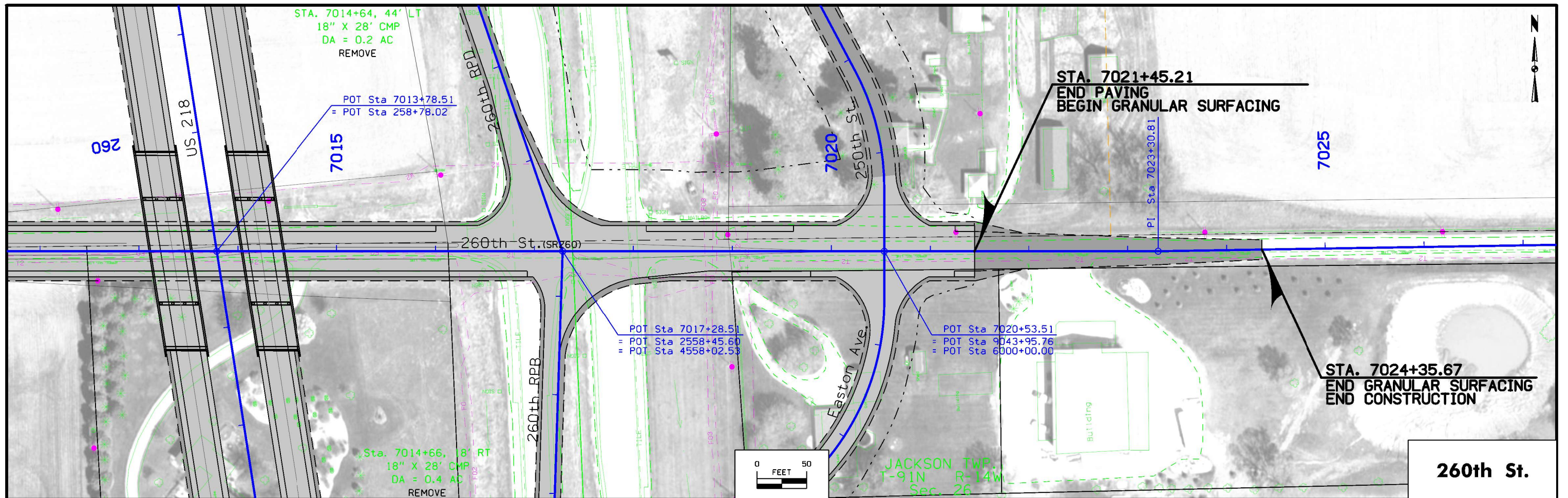






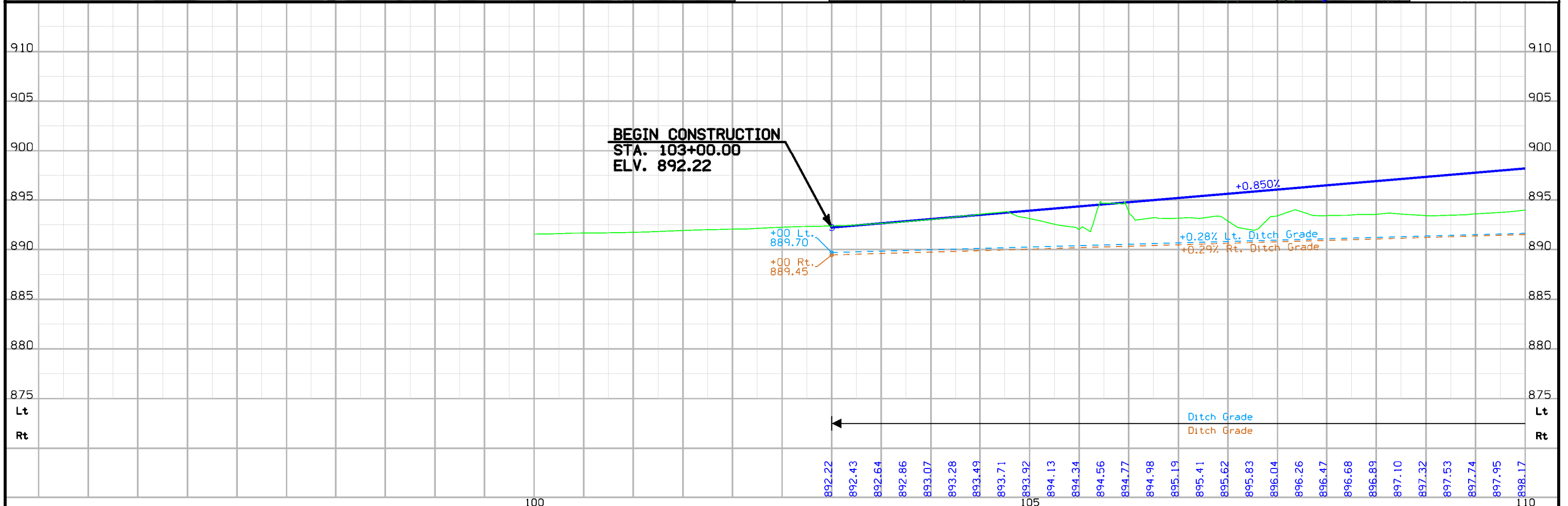
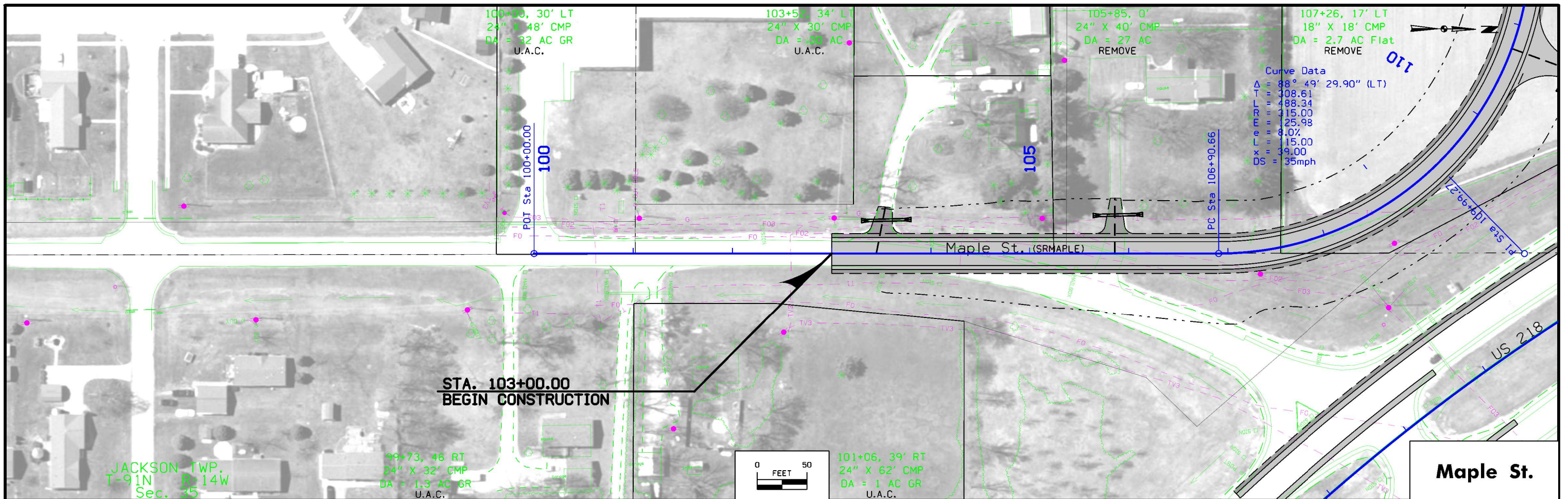






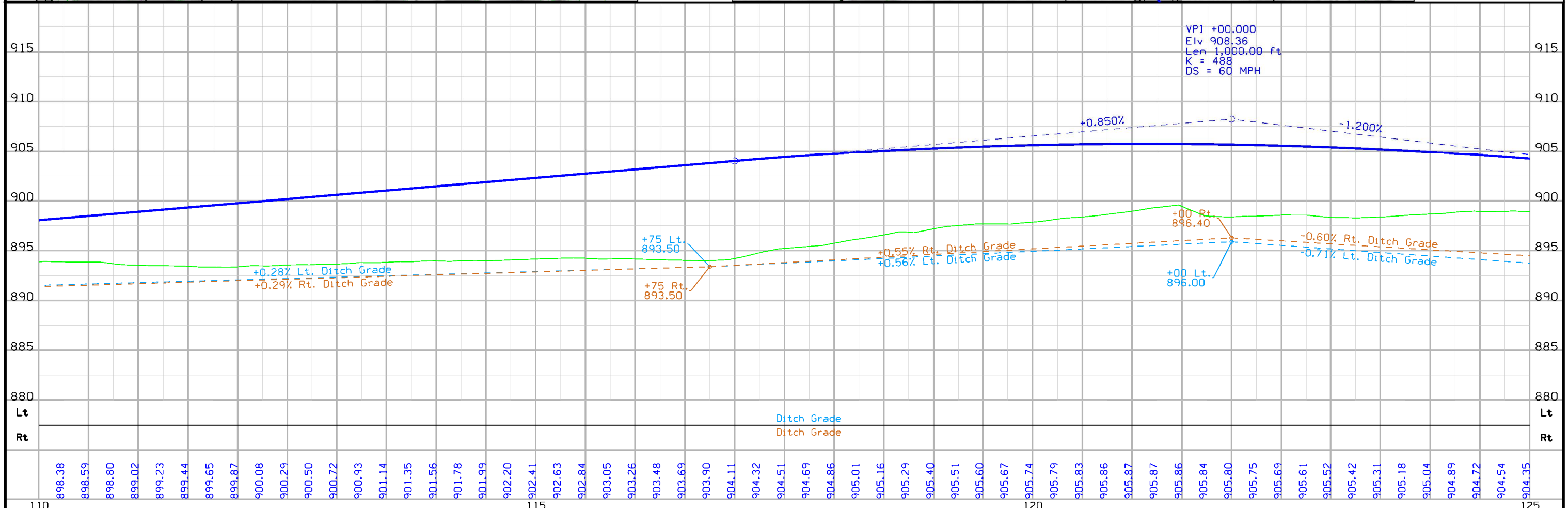
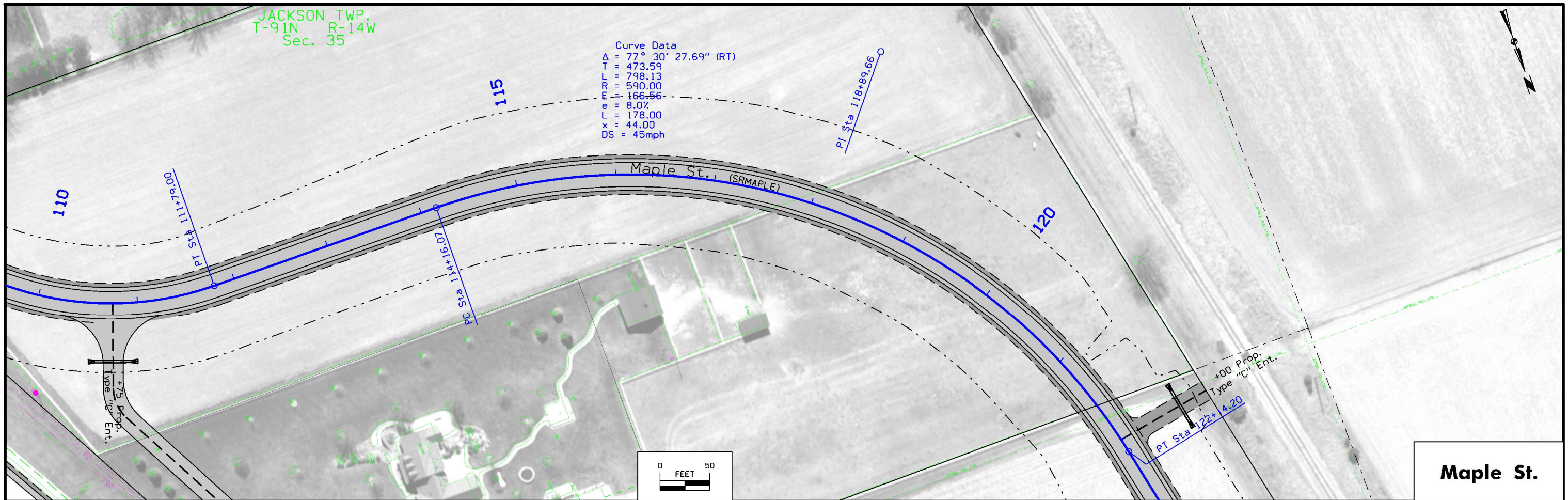
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FILE NO.	ENGLISH	DESIGN TEAM	Iowa DOT \ HR Green, Inc.	BREMER	COUNTY	PROJECT NUMBER	NHSX-218-8(124)--3H-09	SHEET NUMBER	E.3
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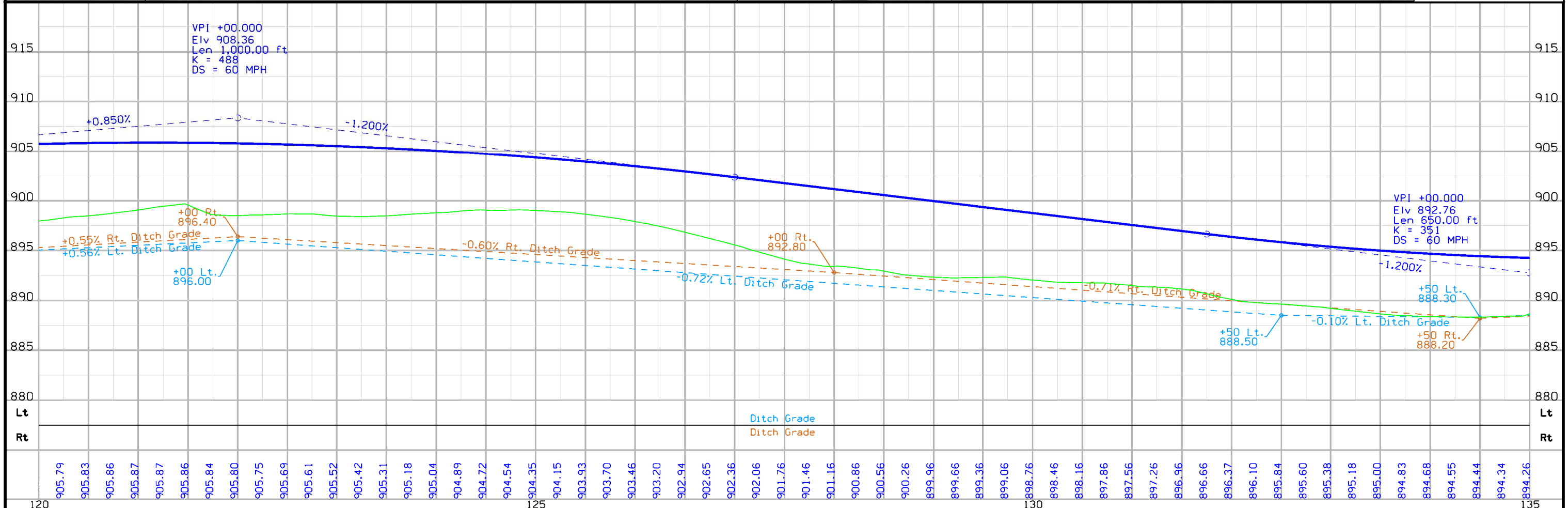
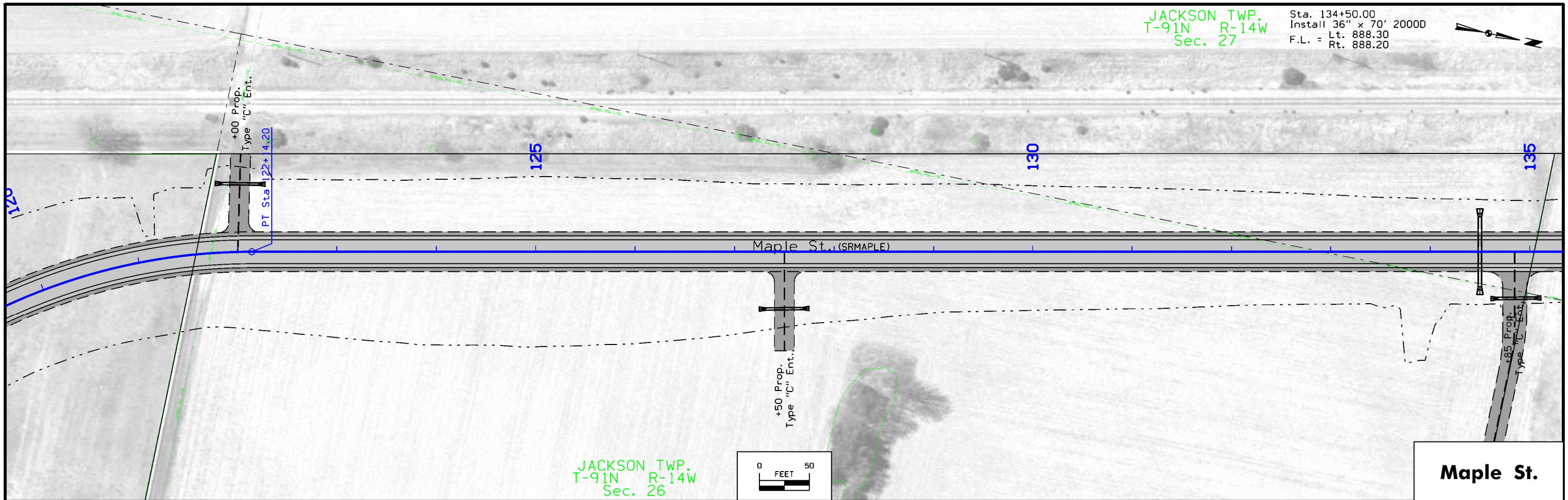






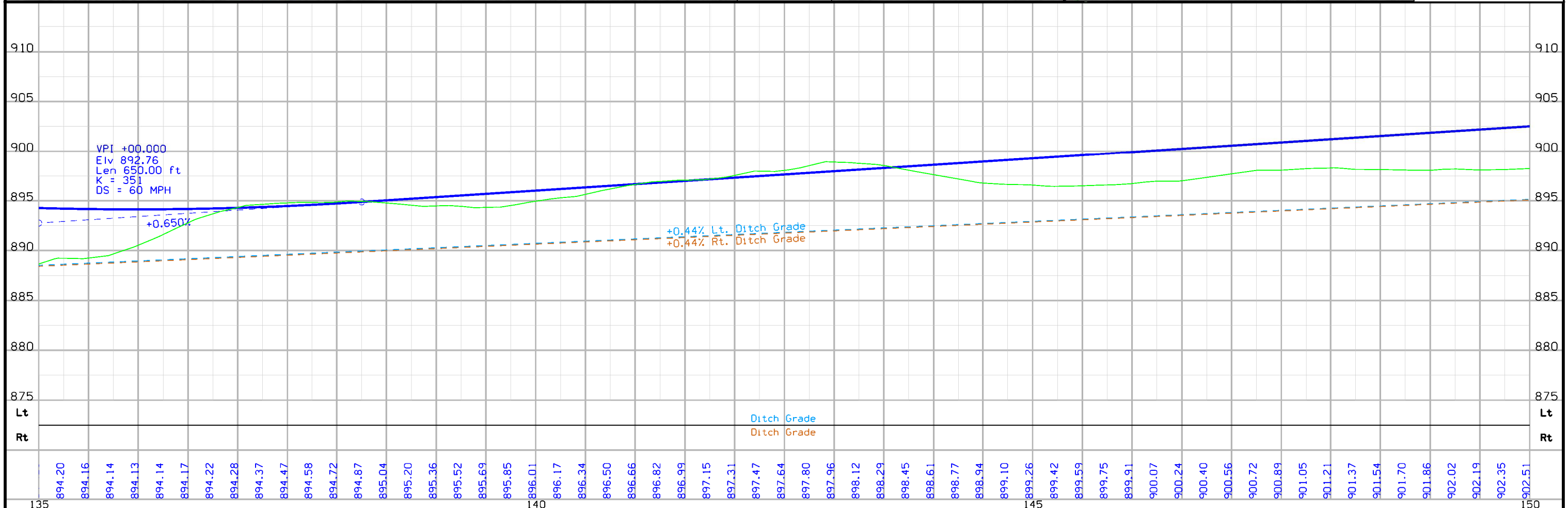
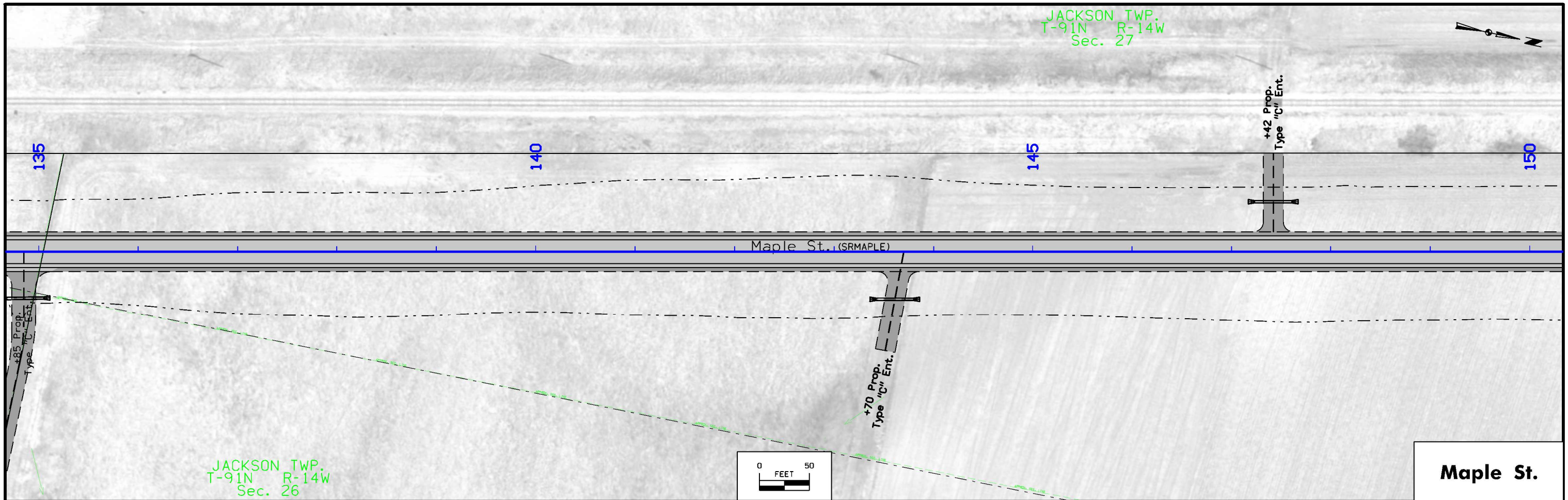
JACKSON TWP.  
T-91N R-14W  
Sec. 27

Sta. 134+50.00  
Install 36" x 70' 2000D  
F.L. = Lt. 888.30  
Rt. 888.20



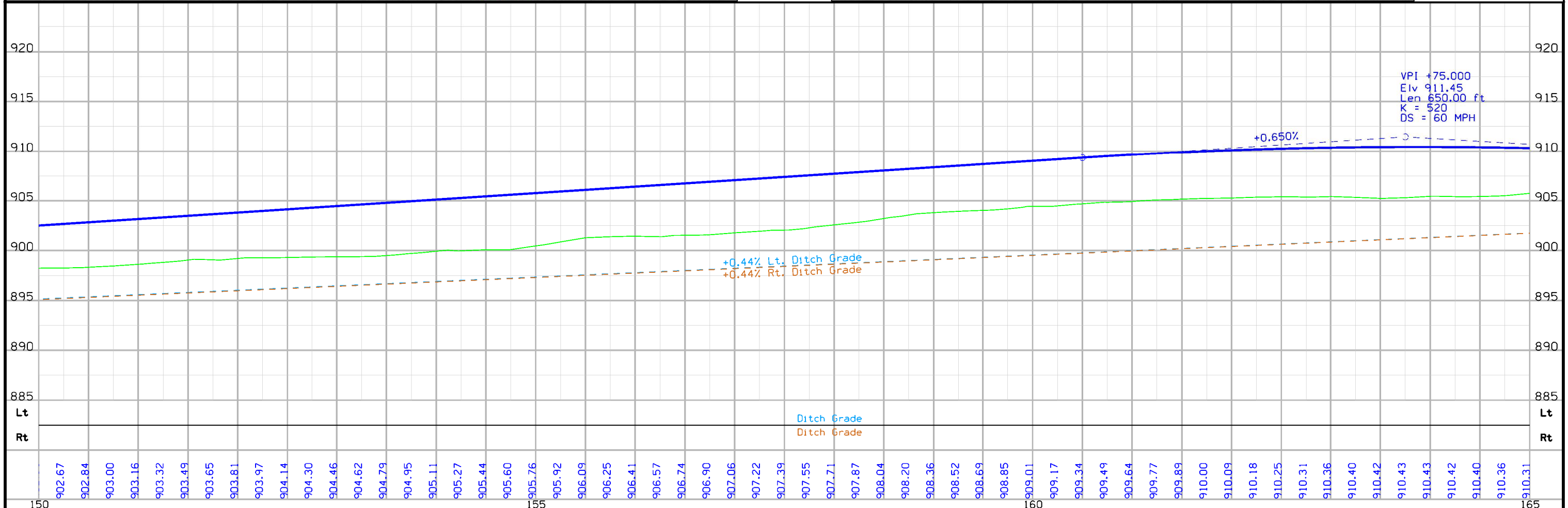
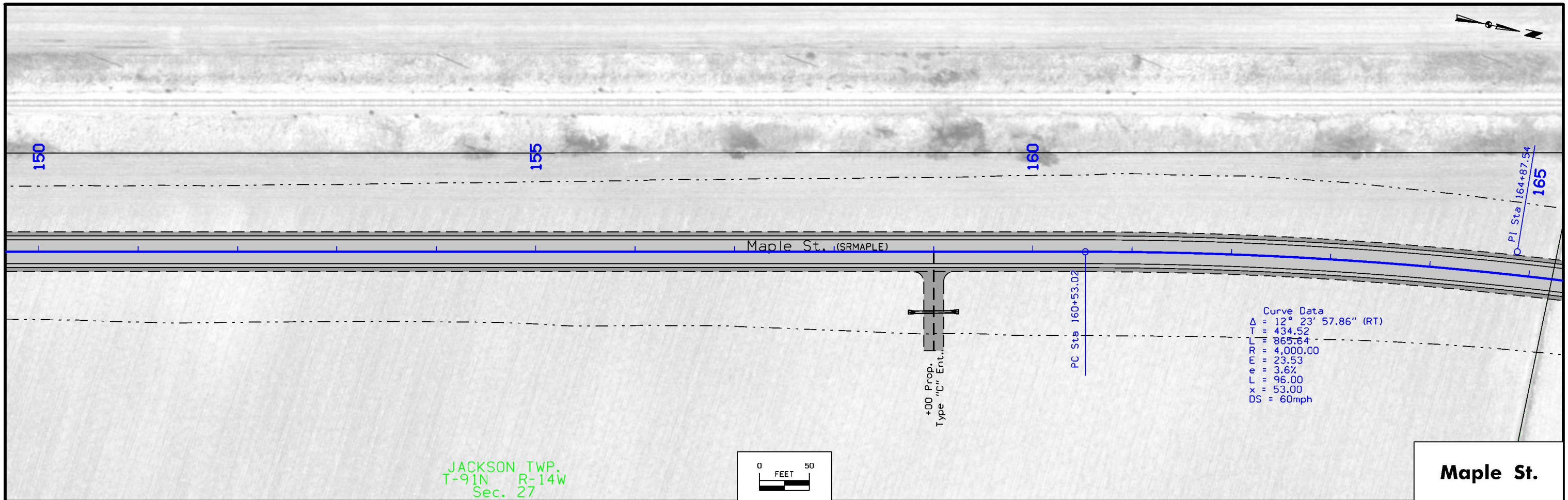
FILE NO.	ENGLISH	DESIGN TEAM	Iowa DOT \ HR Green, Inc.	BREMER	COUNTY	PROJECT NUMBER	NHSX-218-8(124)-3H-09	SHEET NUMBER	E.5
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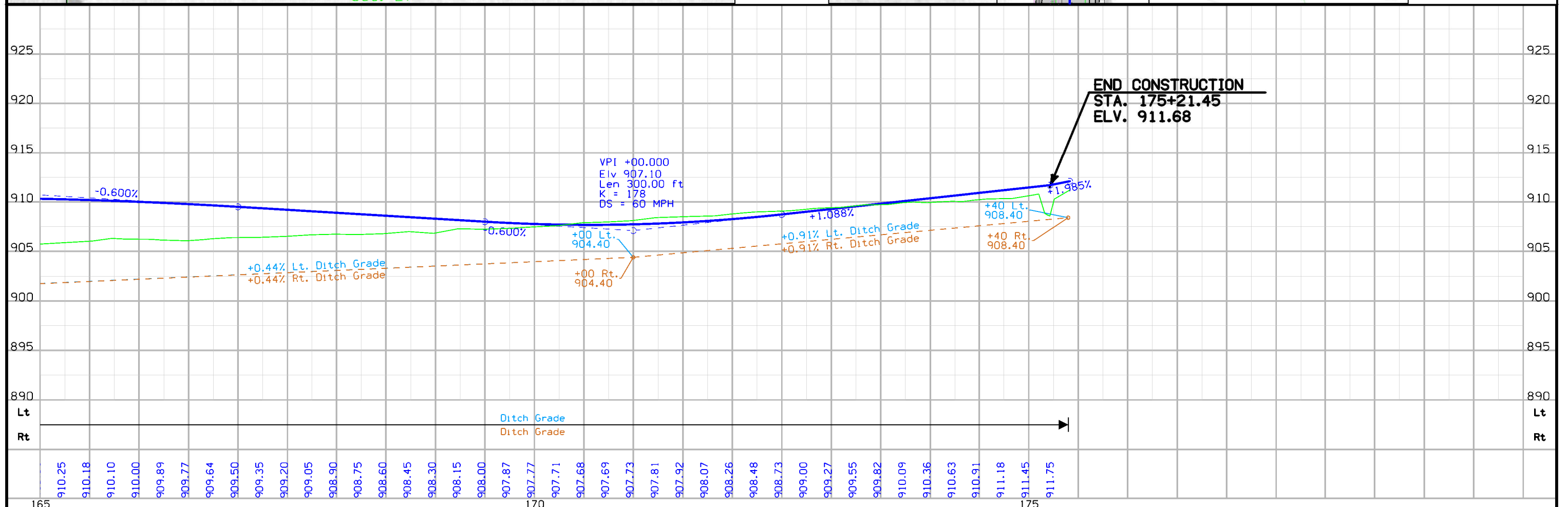
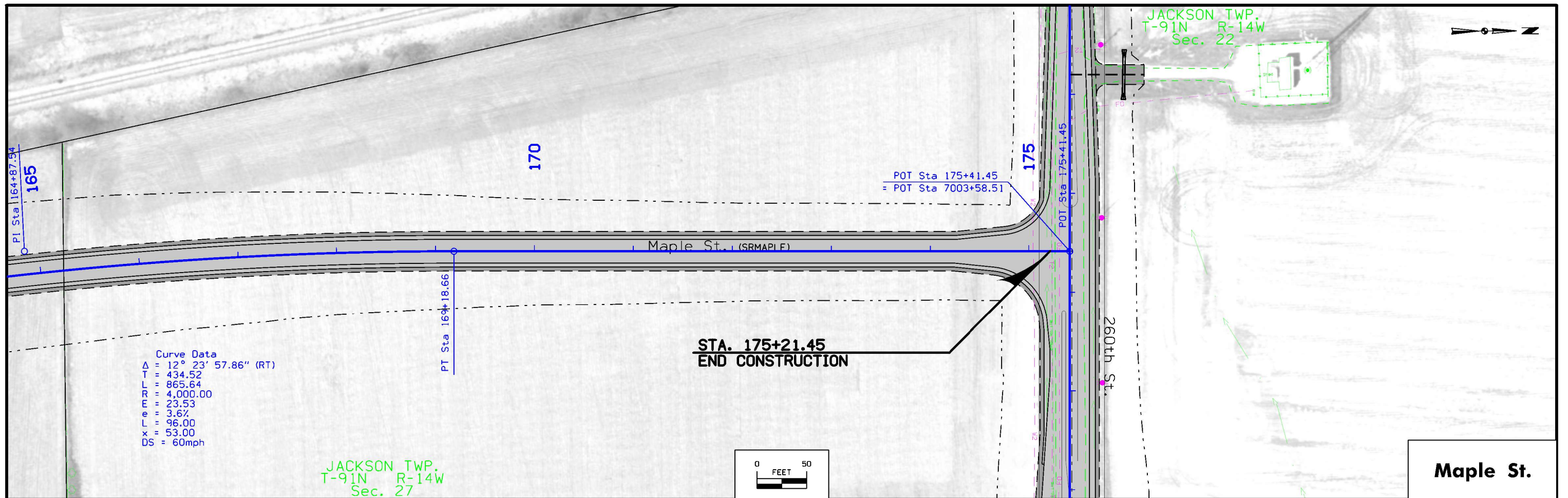
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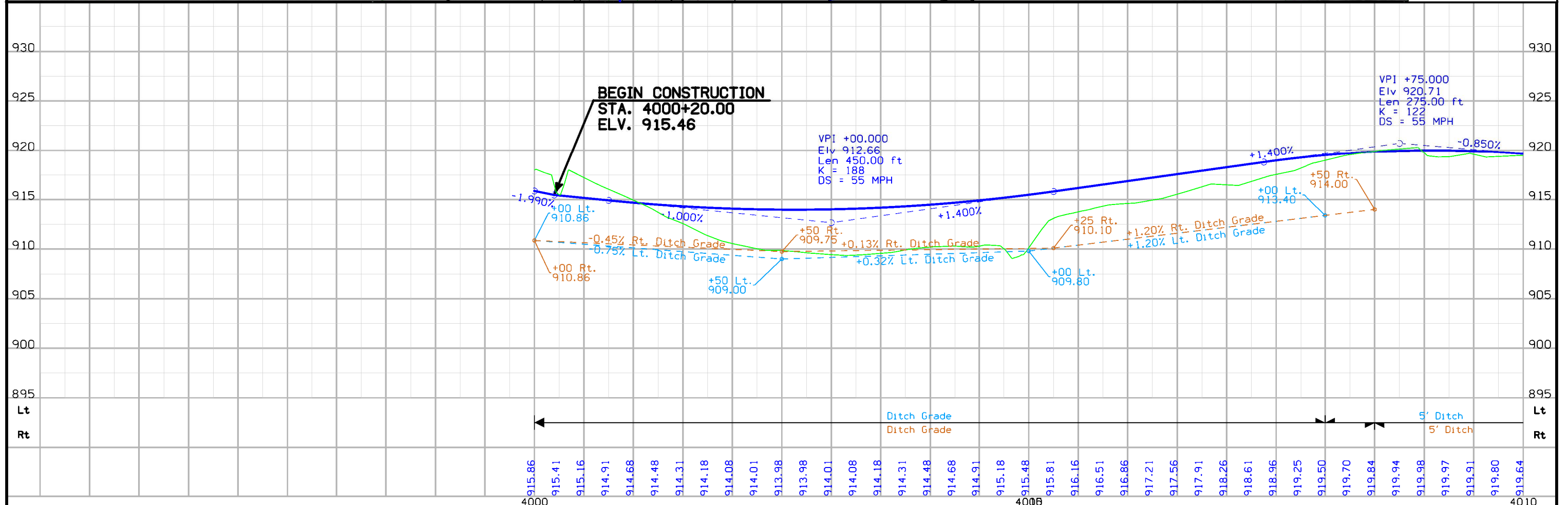
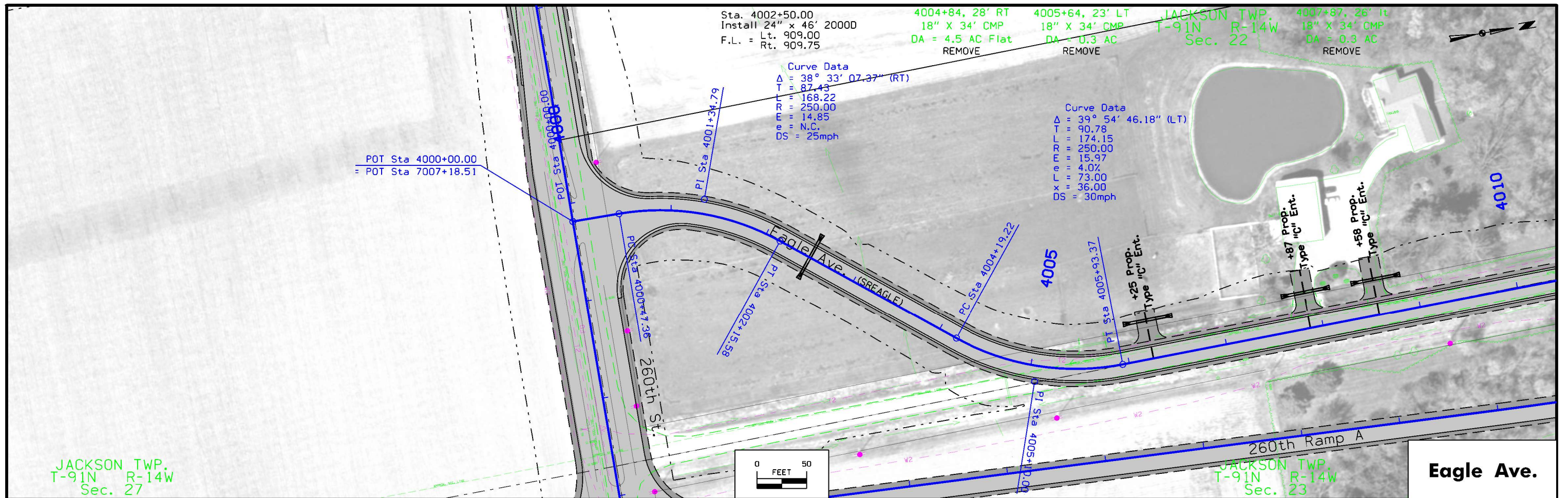


FILE NO.	ENGLISH	DESIGN TEAM	Iowa DOT \ HR Green, Inc.	BREMER	COUNTY	PROJECT NUMBER	NHSX-218-8(124)-3H-09	SHEET NUMBER	E.7
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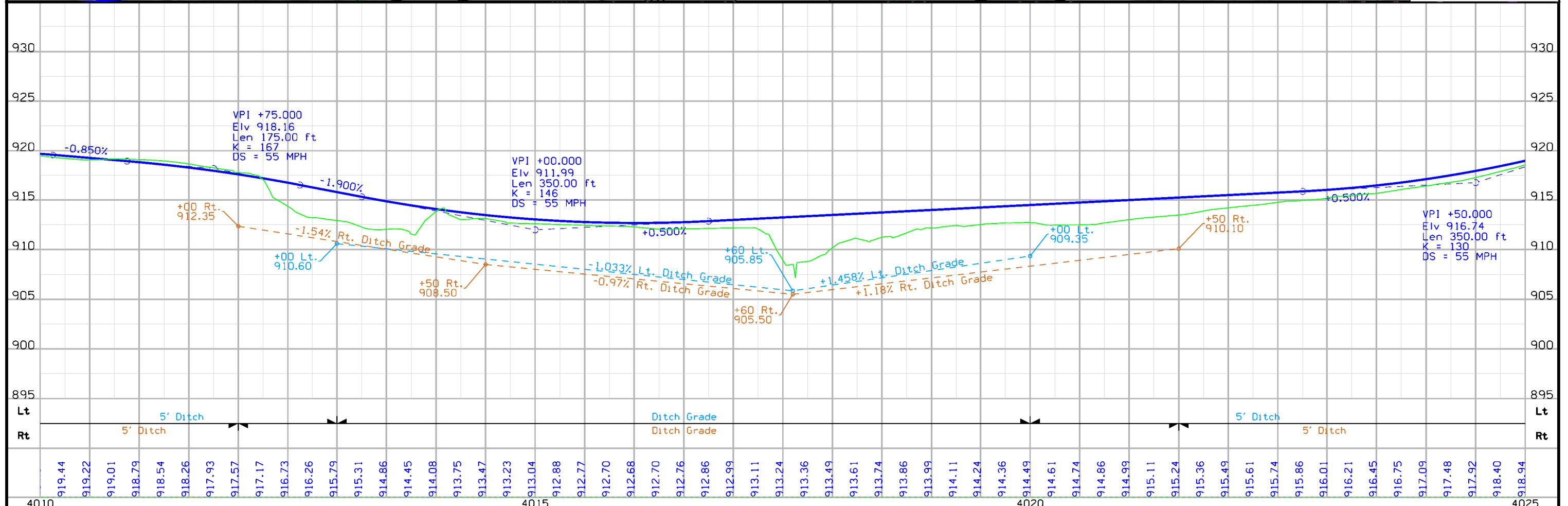
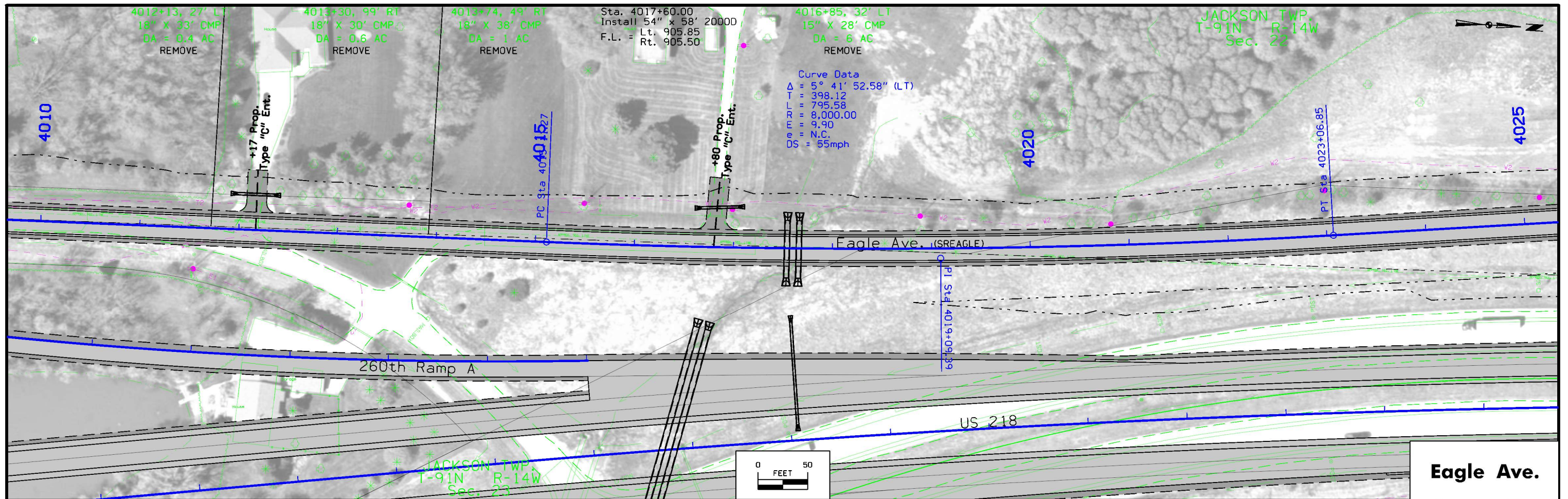








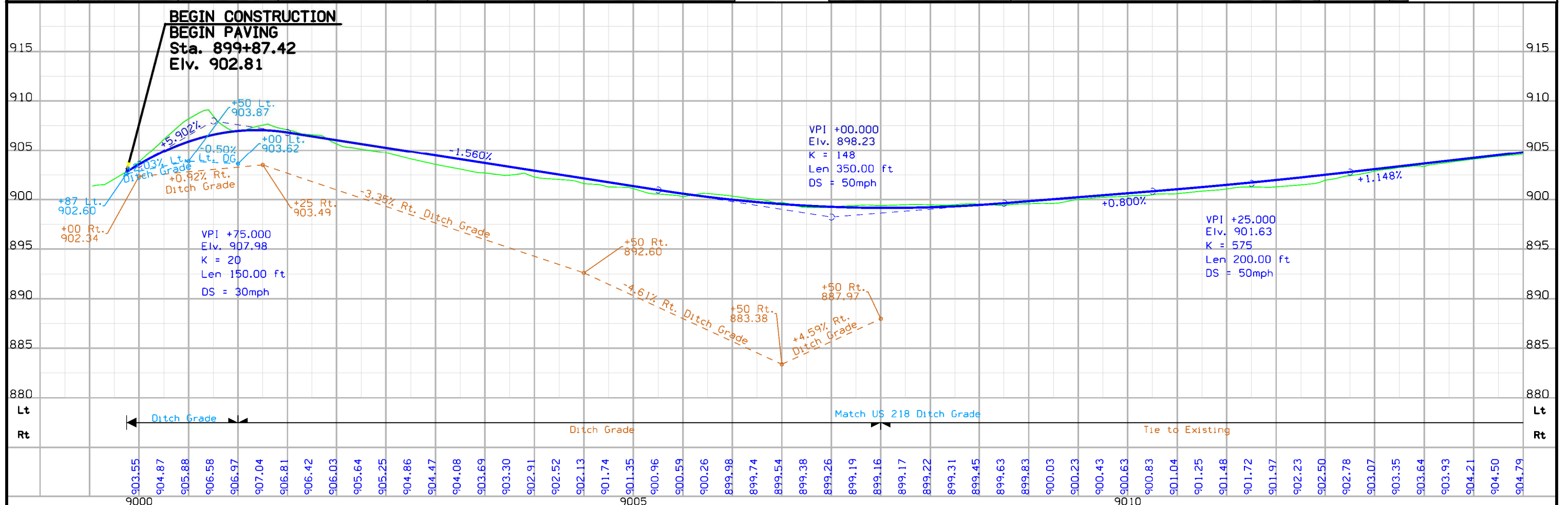
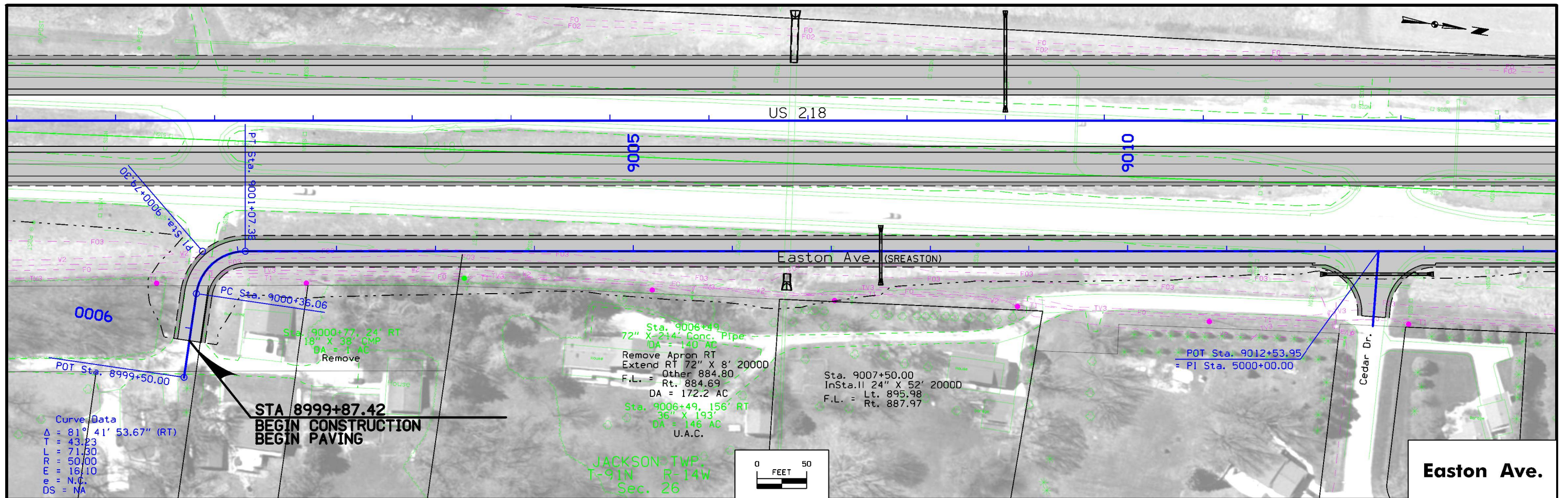






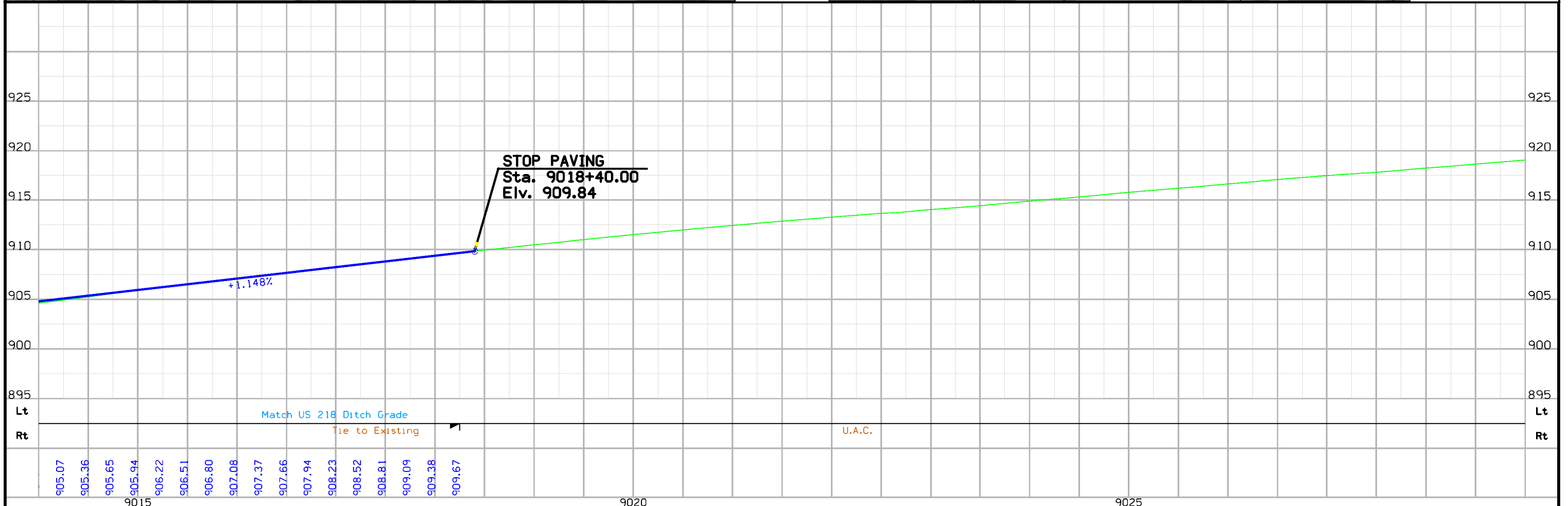
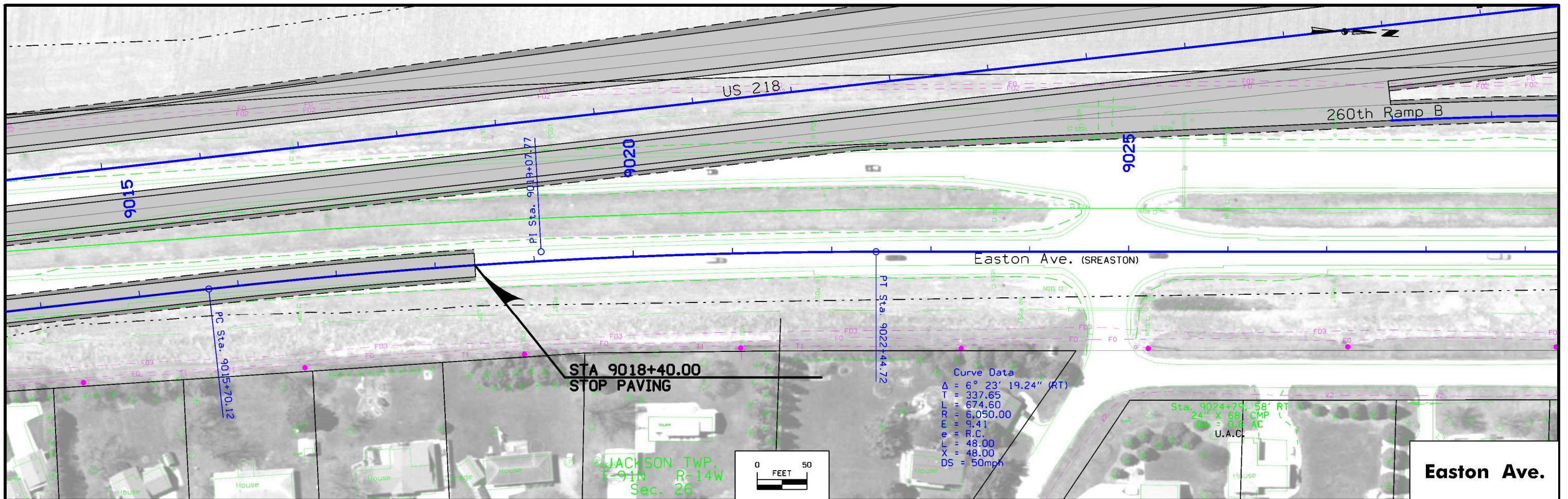




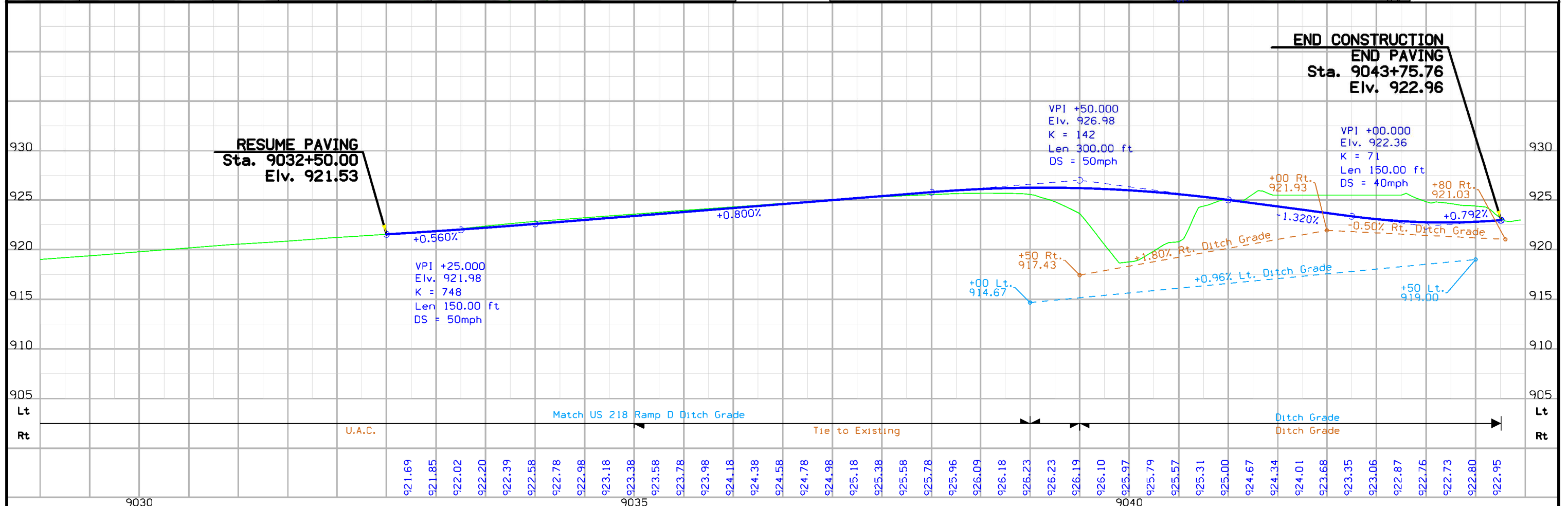
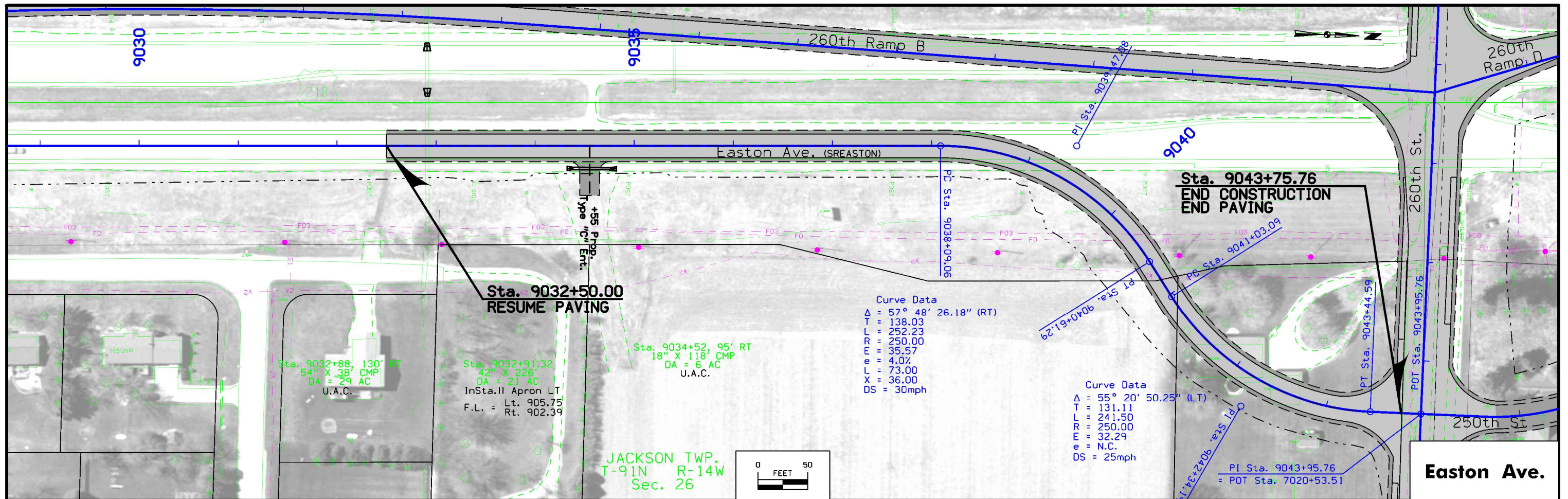


FILE NO.	ENGLISH	DESIGN TEAM	Iowa DOT \ HR Green, Inc.	BREMER	COUNTY	PROJECT NUMBER	NHSX-218-8(124)-3H-09	SHEET NUMBER	E.12
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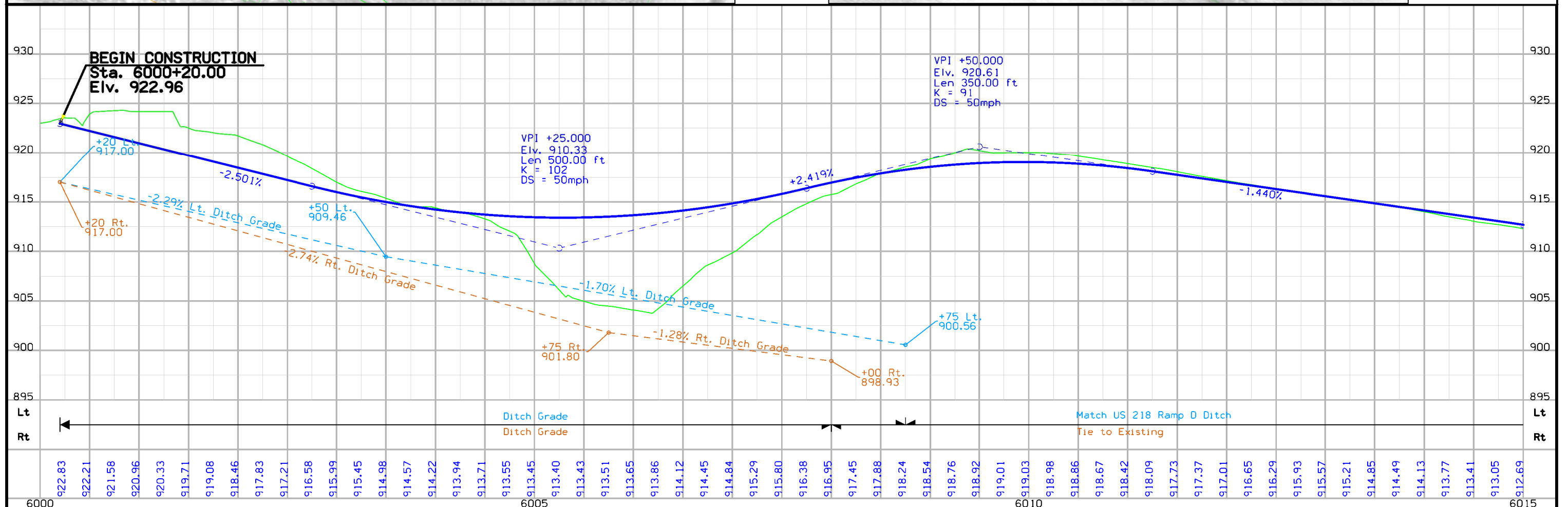
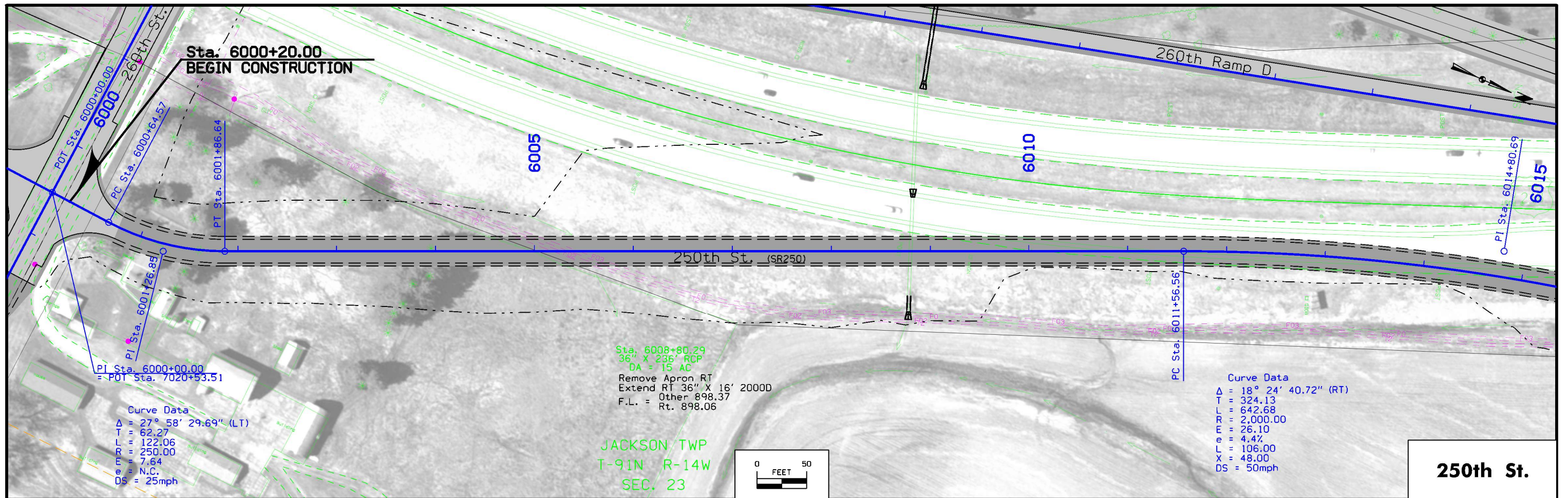




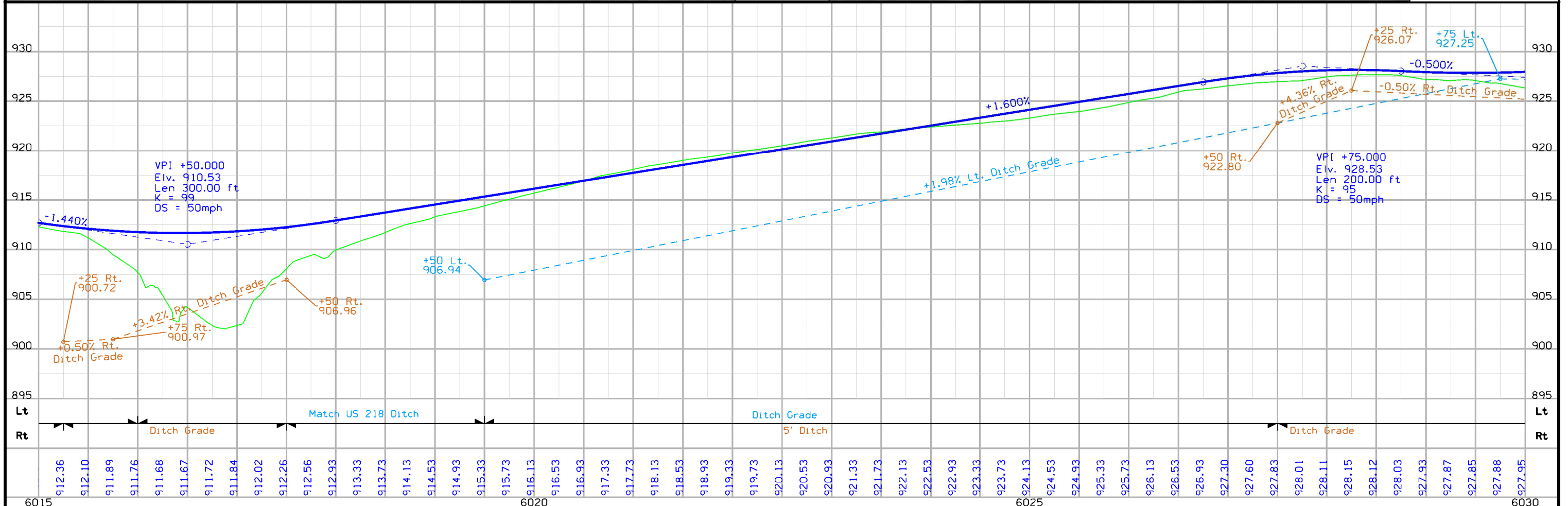
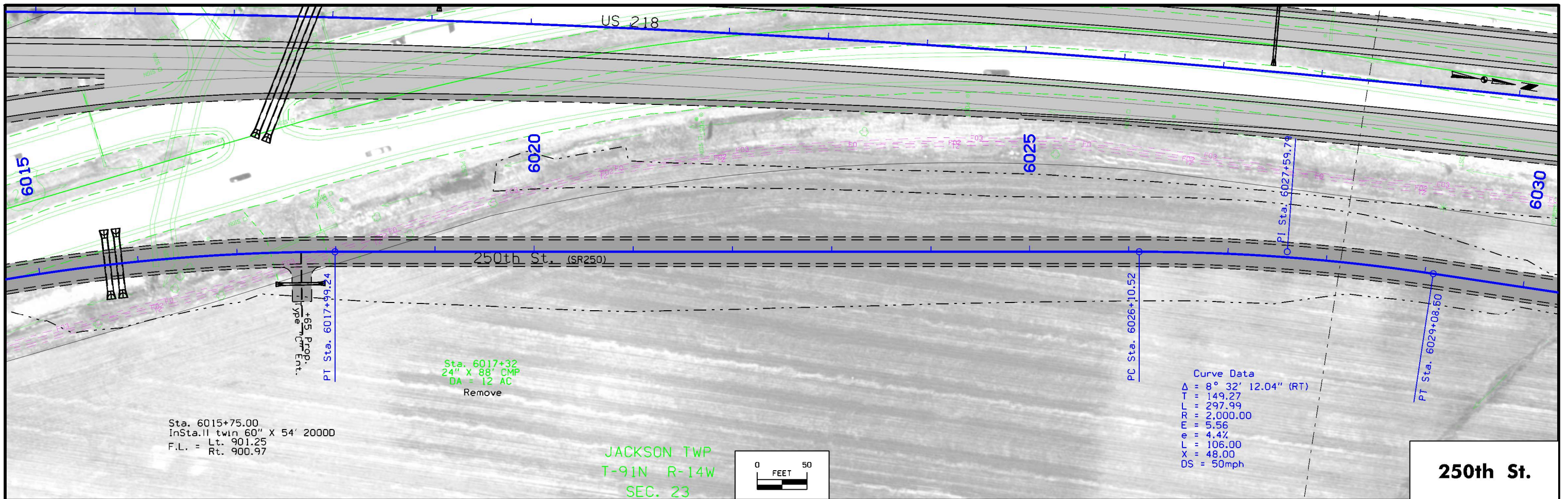


FILE NO.	ENGLISH	DESIGN TEAM	Iowa DOT \ HR Green, Inc.	BREMER	COUNTY	PROJECT NUMBER	NHSX-218-8(124)-3H-09	SHEET NUMBER	E.14
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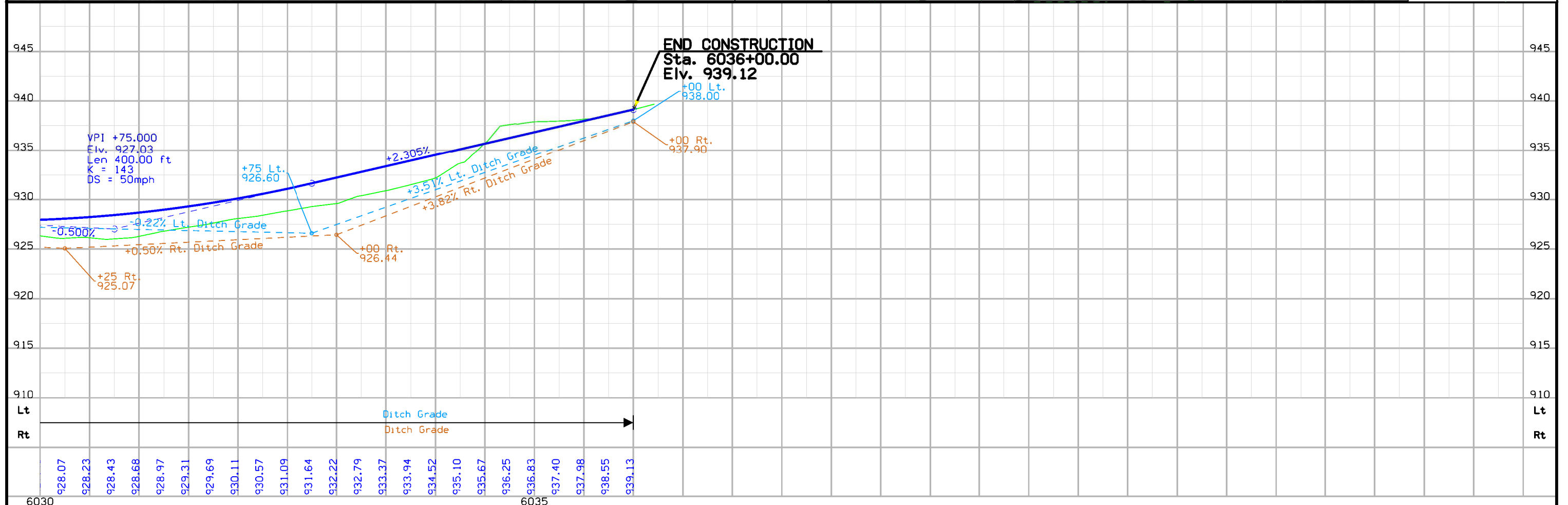
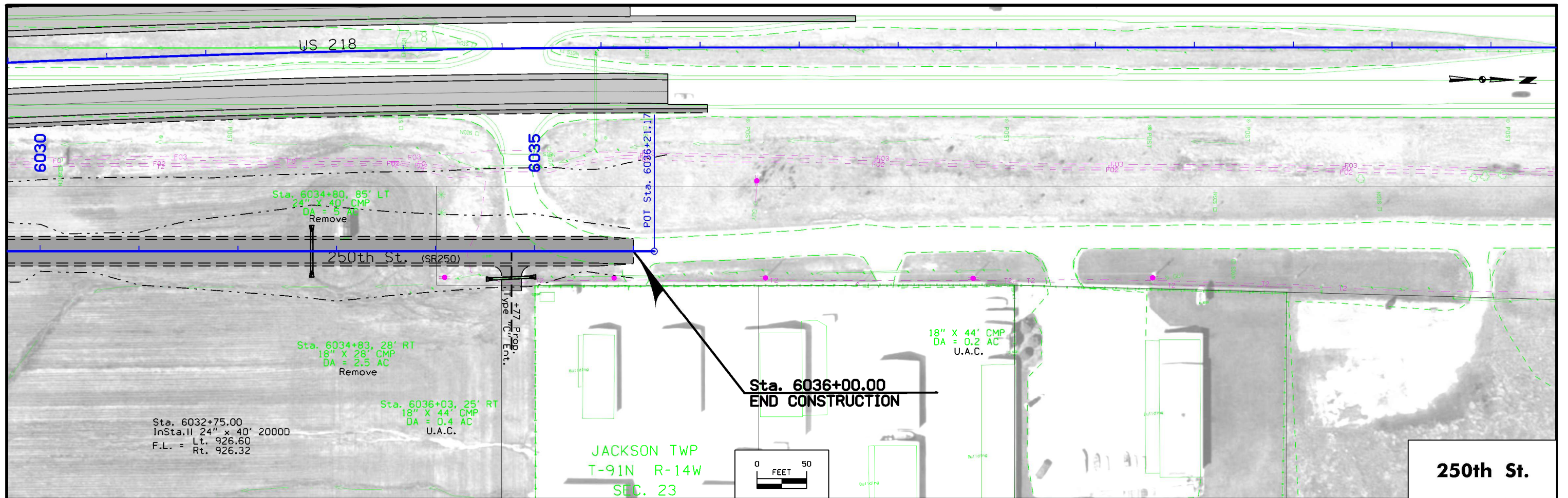




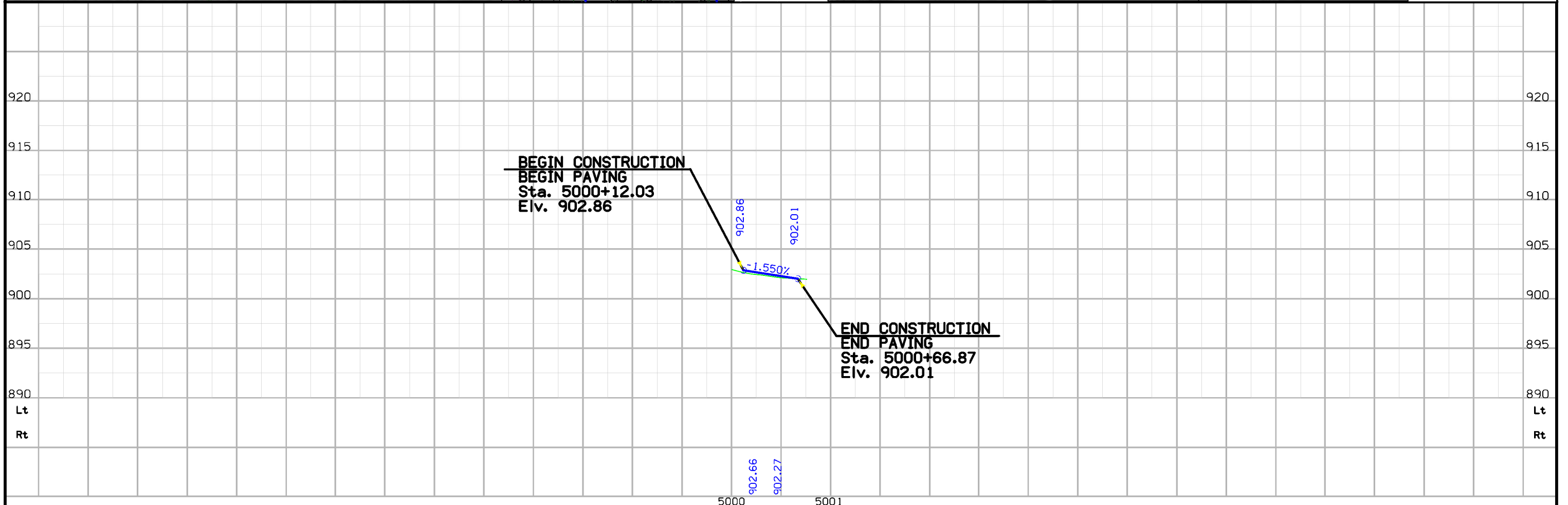
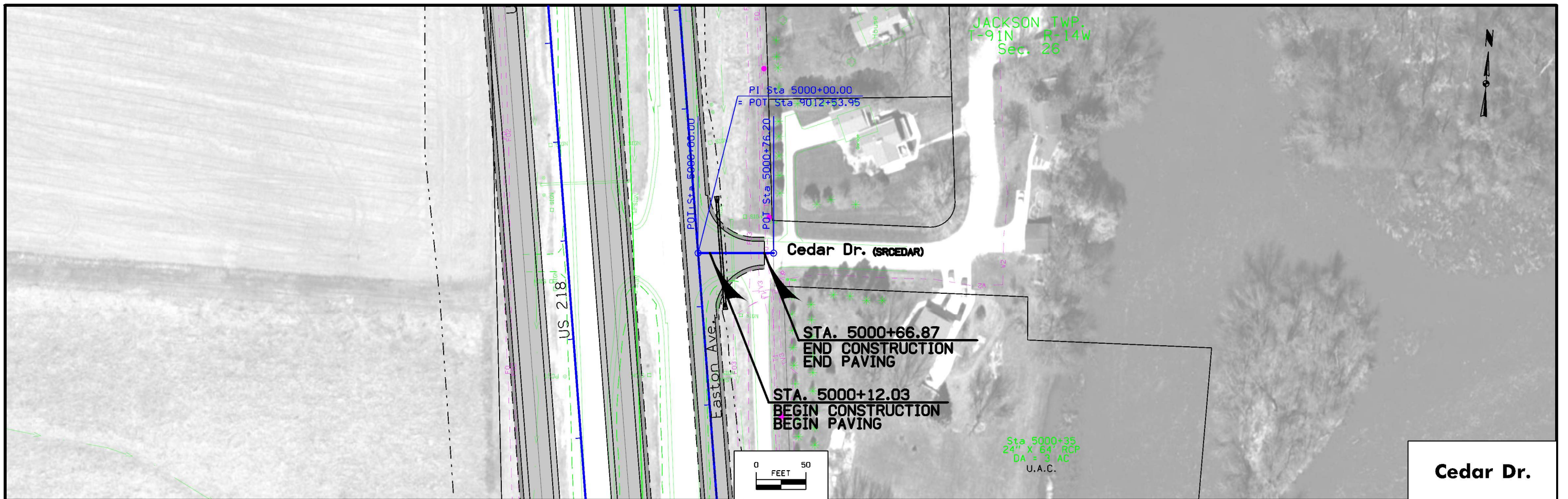




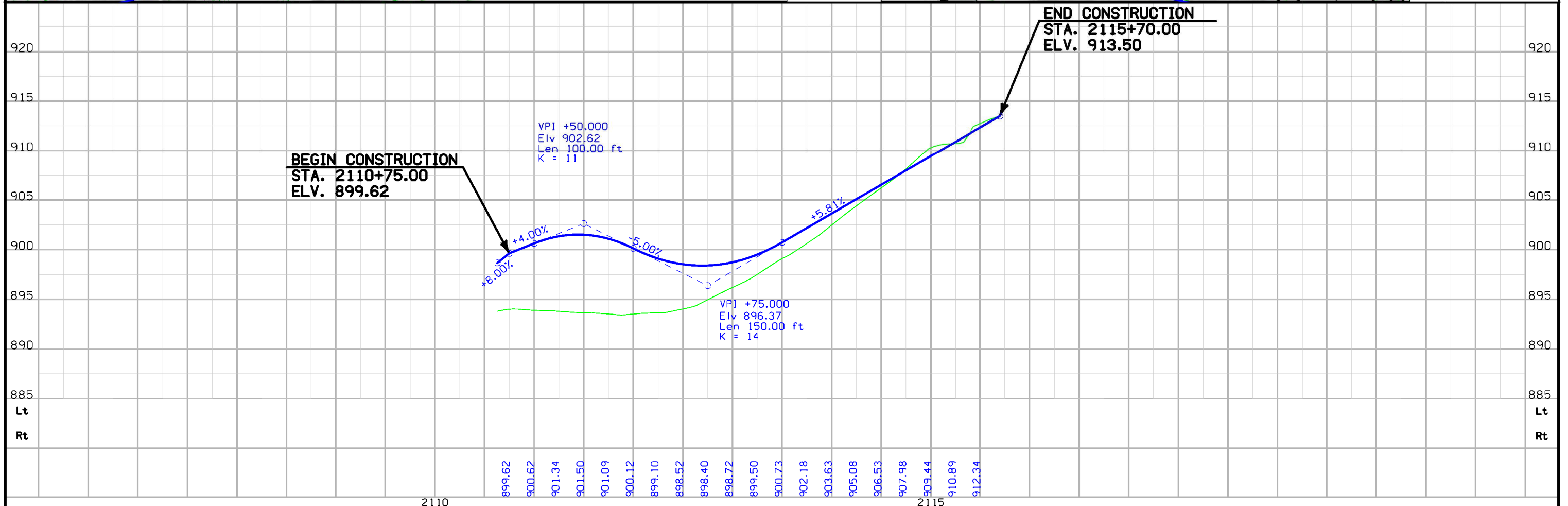
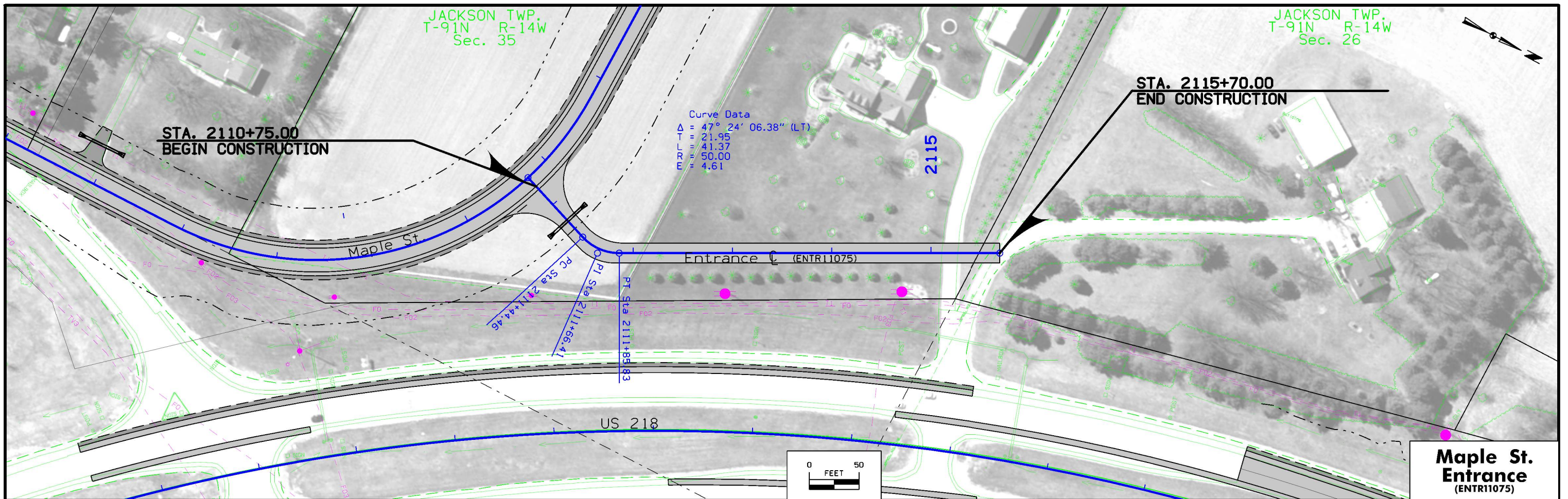














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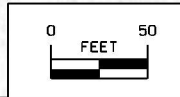
Curve Data  
 $\Delta = 11^\circ 49' 35.10''$  (RT)  
 T = 20.71  
 L = 41.28  
 R = 200.00  
 E = 1.07

Curve Data  
 $\Delta = 65^\circ 36' 32.77''$  (RT)  
 T = 64.46  
 L = 114.51  
 R = 100.00  
 E = 18.97

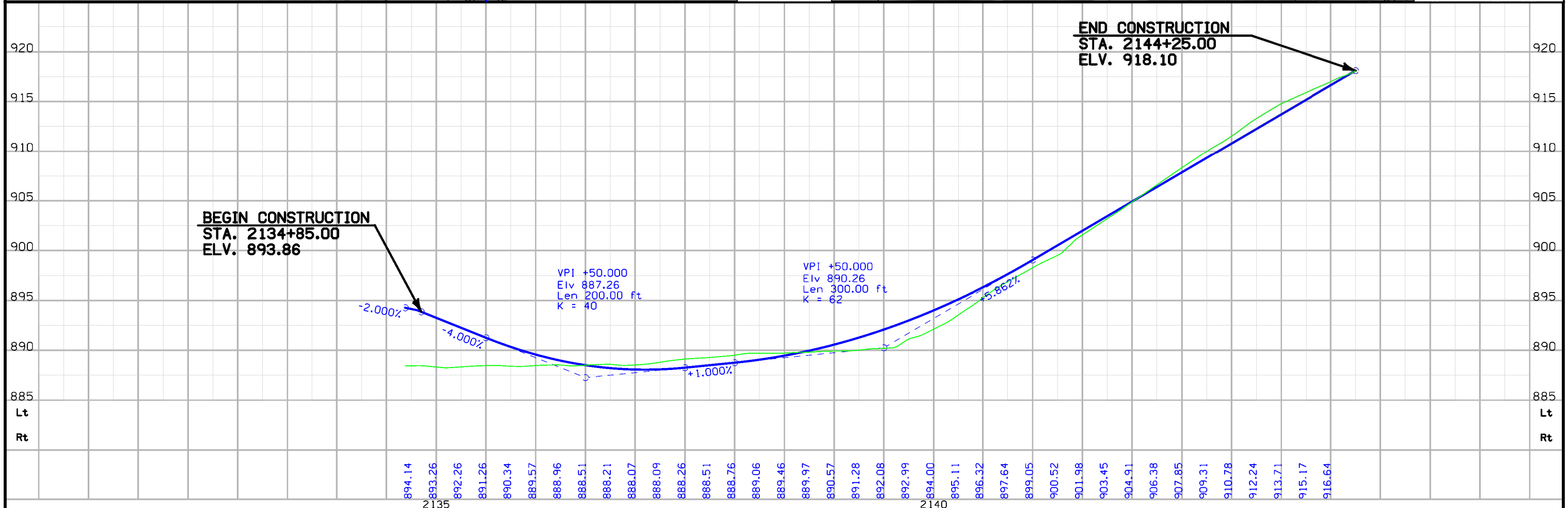
STA. 2134+85.00  
BEGIN CONSTRUCTION

STA. 2144+25.00  
END CONSTRUCTION

JACKSON TWP.  
T-91N R-14W  
Sec. 26



Maple St.  
Entrance  
(ENTR13485)



## Survey Information

Bremer County  
SAP 0667.3  
NHSX-218-8(124)--3H-09

**General Information**

This survey is in English Units. This project adjoins a 2005 IDOT survey along US 218 at Janesville. Control used in 2005 survey and new survey control was used on this project.

Control Information - IDOT control monuments, Bremer County Monuments, and New RTN monuments were utilized as a basis for project control. 19 Control Points were held fixed in the RTK calibration.

- 4 held fixed Vertically; 114,204,306,998,
- 1 held fixed Horizontally; 18,
- 14 held fixed Vertically and Horizontally; 23-35,250

GENERAL INFORMATION FOR GPS PROJECT : NHSN-218-8(106)--2R-09

STATE PLANE COORDINATE ZONE 1401 ( IOWA NORTH LAMBERT )

STATE PLANE COORDINATES HELD AT POINT G018

AVERAGE PROJECT LATITUDE = 42 37 45.86408

RESULTING RADIUS = 6364731.445 (METERS)

MEAN PROJECT ELEVATION = 276.305 (METERS)

SEA LEVEL FACTOR = 0.999956590

AVERAGE PROJECT SCALE FACTOR = 0.999946289

COMBINED FACTOR (GRID) = 0.999902881

1 / GRID = 1.000097128

VERTICAL DATUM = NAVD 88 <> HORIZONTAL DATUM = NAD 83-1996

Local Project Plane Coordinate Conversion Equation:

- a. Local Project Coord y = [(State Plane y - hold point y) 1/grid factor] + hold point y
- b. Local Project Coord x = [(State Plane x - hold point x) 1/grid factor] + hold point x

ALL COORDINATES CONVERTED TO ENGLISH UNITS

POINT	STATE PLANE COORD(Y)	STATE PLANE COORD(X)	Point Scale Factor	PROJECT PLANE COORD(Y) (Grid)	PROJECT PLANE COORD(X) (Grid)	ESTIMATED GPS DERIVED ORTHOMETRIC Height
G010	3669368.66	5210761.46	0.99994709	3669366.19	5210762.12	892.07
G011	3673347.53	5209976.95	0.99994675	3673345.45	5209977.54	872.00
G012	3676384.95	5208747.25	0.99994652	3676383.17	5208747.72	868.36
G013	3679051.41	5208264.96	0.99994634	3679049.88	5208265.39	874.52
G014	3682551.10	5207318.37	0.99994612	3682549.91	5207318.70	874.46
G015	3685324.85	5206546.22	0.99994596	3685323.93	5206546.48	877.91
G016	3689022.15	5205629.32	0.99994578	3689021.60	5205629.49	890.31
G017	3691782.69	5204749.07	0.99994567	3691782.40	5204749.15	884.12
G018	3694759.04	5203921.53	0.99994557	3694759.04	5203921.53	888.32
G019	3697662.28	5203134.08	0.99994549	3697662.56	5203134.00	886.90
G020	3701007.65	5202951.41	0.99994543	3701008.26	5202951.31	926.25
G021	3701470.46	5204073.44	0.99994542	3701471.12	5204073.45	909.78
G022	3702491.38	5202107.92	0.99994540	3702492.14	5202107.74	926.23
G999	3688187.00	5189692.97	0.99994581	3688186.36	5189691.59	906.32
						Leveled Orthometric Height
G023	3702899.10	5199067.37	0.99994540	3702899.891	5199066.899	897.060
G024	3704559.93	5197985.47	0.99994538	3704560.882	5197984.893	907.635
G025	3706967.66	5197713.26	0.99994537	3706968.846	5197712.657	909.373
G026	3709092.24	5197619.98	0.99994537	3709093.632	5197619.368	924.349
G027	3710927.12	5197132.97	0.99994538	3710928.690	5197132.311	909.291
G028	3713481.12	5196622.64	0.99994540	3713482.938	5196621.931	958.364
G029	3716119.28	5196894.49	0.99994544	3716121.355	5196893.807	967.927
G030	3717115.88	5196225.66	0.99994546	3717118.051	5196224.973	995.705
31	3718673.477	5196705.346	0.99994548	3718675.800	5196704.645	991.672
32	3719994.866	5196508.409	0.99994552	3719997.317	5196507.689	994.115
33	3722141.361	5196609.951	0.99994554	3722144.021	5196609.241	954.492
34	3723688.261	5196527.834	0.99994556	3723691.071	5196527.116	946.131
35	3724814.136	5196628.703	0.99994558	3724817.055	5196627.995	949.030
250	3725236.633	5196339.069	0.99994558	3725239.593	5196338.333	940.802
						ASI County Orthometric Height
306	3730532.720	5180429.370	0.99990609	3730536.195	5180427.088	936.690(NGS 2nd "B 30")
170	3714386.170	5175582.920	0.99990522	3714388.076	5175580.168	943.86
114	3698846.890	5207454.050	0.99990728	3698847.287	5207454.393	901.17
204	3718083.640	5223282.180	0.99990240	3718085.905	5223284.060	1003.10(USGS 3rd "TT 5 JSC 1961")



# VERTICAL CONTROL

**Vertical Datum**

Bench marks observed in a 2005 IDOT Adams survey are included in this survey. Both surveys are relative to NAVD 88 vertical datum. The IDOT survey in 2005 originated and terminated on BM 500 (NGS E39) setting BM 522 along the way. In the 2005 survey the unadjusted elevation on BM 522 was 911.120. A digital level run in this survey between BM 522 & NGS BM named "Waverly" and located in Waverly was observed. The total length of that level run was 6.9 miles with a missed closure of 0.0972 feet when holding 911.12 on BM 522.

NGS datasheets show a vertical difference of 0.01' to 0.03' in the area (29 higher than 88) on BM E 39, (29 higher than 88) on Waverly BM between NAVD88 to NGVD29. Vertical Equations are as follows:

BM # 500 2005 Adams Survey Elev. =906.32 (NAVD 88)  
 = NGS E 39 Elev. =906.32 (NAVD 88)  
 = NGS E 39 Elev. =906.35 (NGVD29)

BM # 522 2005 Adams Survey Elev. =911.08 Adjusted  
 BM # 522 2005 Adams Survey Elev. =911.12 Unadjusted  
 = BM 522 Elev. =911.12 This Survey  
 = BM # 389.1 Elev. =911.14 F-218-7(93)-20-07 As built Plans

BM # 998 This Survey Elev. = 918.525 (NAVD 88)  
 = Waverly BMElev. = 918.525 (NAVD 88)  
 = Waverly BMElev. = 918.52 (NGVD29)

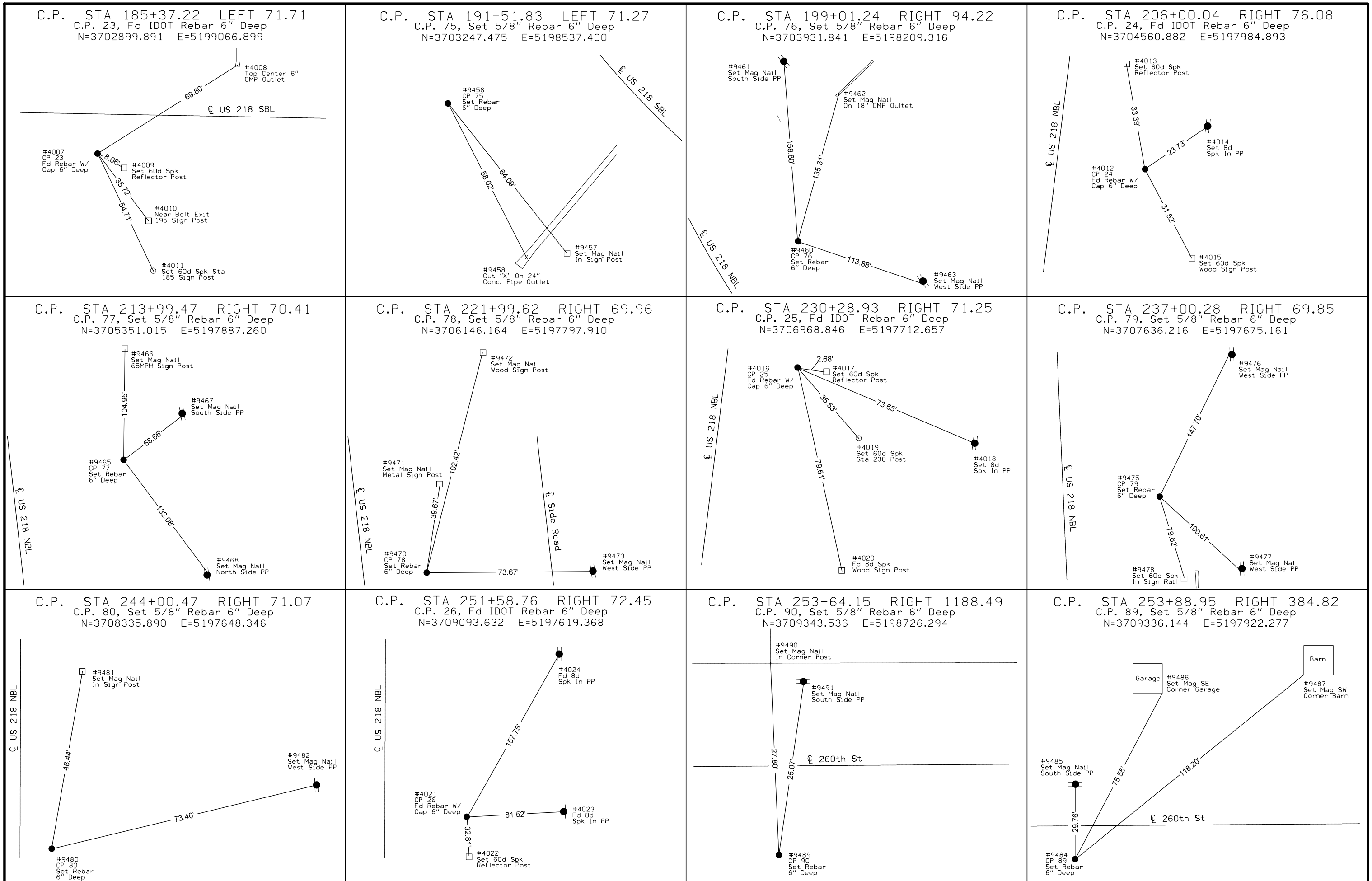
**BENCHMARKS**

**ELEVATION**

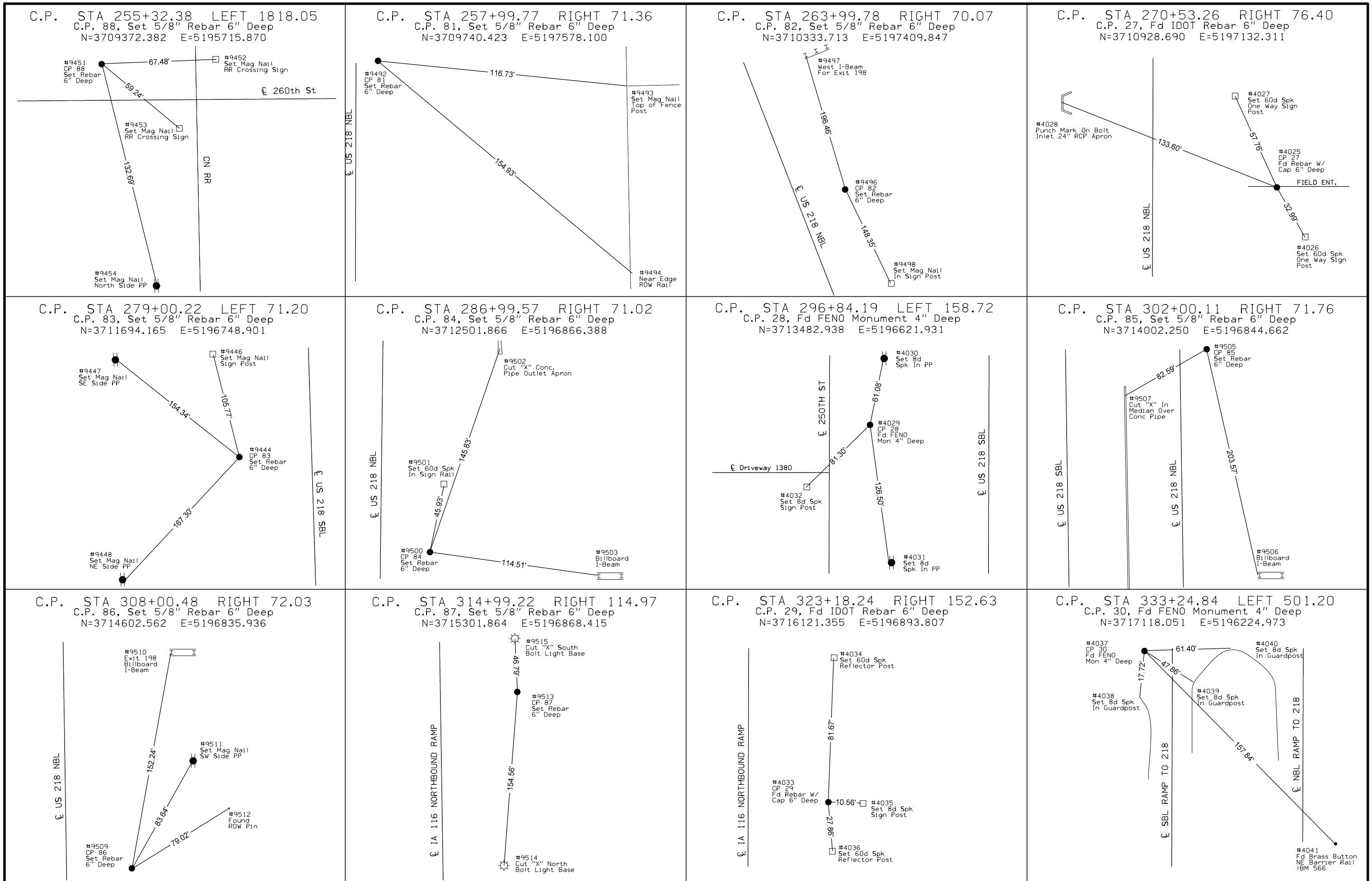
No. Sta.	Easting	Northing	Description	Elevation
No. 522 Sta.	173+03.826	24.446	Lt. Y:3702707.961 X:5200298.191 Fd DOT BM Button in N.E. Cor. S.B. U.S.#218 BR. Conc Barrier Rail. Cedar River Bridge. zc=918.081 Adams 2005 sur zc=918.14 BM #389.1 F-218-7(93)-20-07 As built Plans-----	911.120
No. 558 Sta.	195+39.342	107.959	Lt. Y:3703517.852 X:5198235.534 Set RR Spk S Side PP-----	893.426
No. 559 Sta.	217+61.722	103.259	Lt. Y:3705691.729 X:5197674.417 Set Mag Nail inlet end 72" RCP Apron-----	894.543
No. 560 Sta.	244+00.033	107.594	Lt. Y:3708328.305 X:5197469.846 Set Mag Nail inlet end 42" RCP Apron-----	912.136
No. 561 Sta.	254+23.613	155.997	Rt. Y:3709361.630 X:5197692.246 Center of rebar of C.M.-----	925.559
No. 562 Sta.	270+70.646	122.546	Lt. Y:3710858.529 X:5196945.333 Set Mag Nail inlet end 54" RCP Apron-----	909.433
No. 563 Sta.	289+13.076	158.912	Lt. Y:3712711.910 X:5196633.283 Set RR Spk SW Side PP-----	938.215
No. 564 Sta.	304+77.971	116.151	Lt. Y:3714277.270 X:5196652.608 Set Mag Nail inlet end 60" RCP Apron-----	947.838
No. 565 Sta.	329+80.769	631.079	Lt. Y:3716772.077 X:5196100.264 Fd DOT Brass Button SW BRG Barrier Rail SBL-----	998.633
No. 566 Sta.	331+76.339	447.708	Lt. Y:3716970.371 X:5196280.687 Fd DOT Brass Button NE BRG Barrier Rail NBL-----	998.704

**MISCELLANEOUS LOCATIONS**

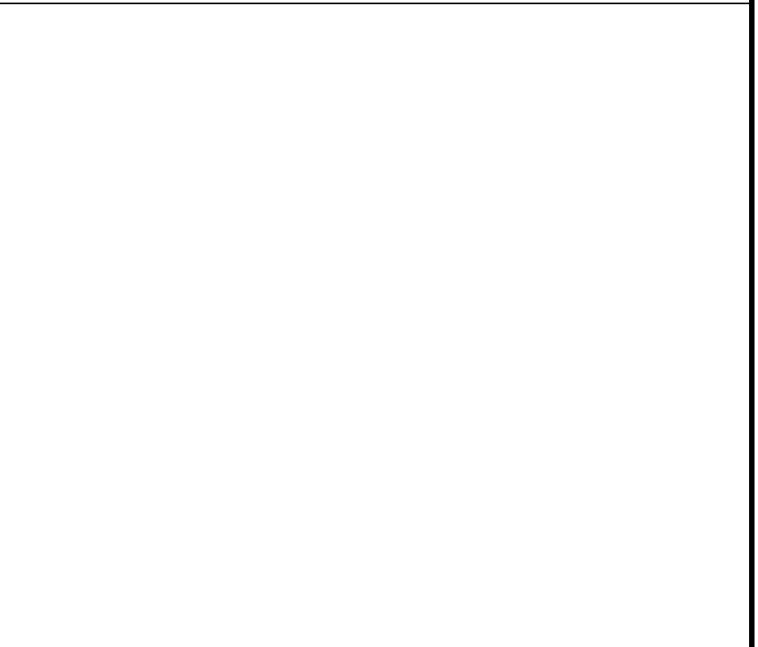
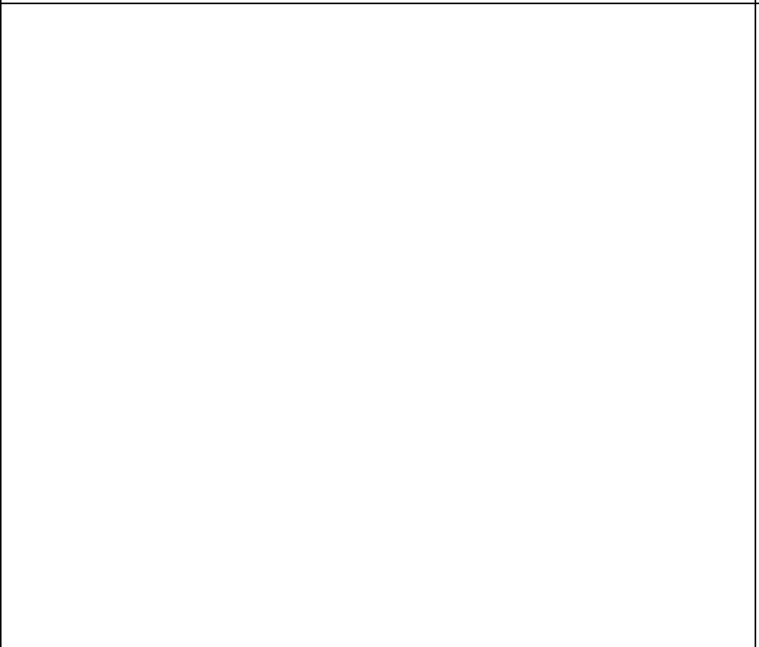
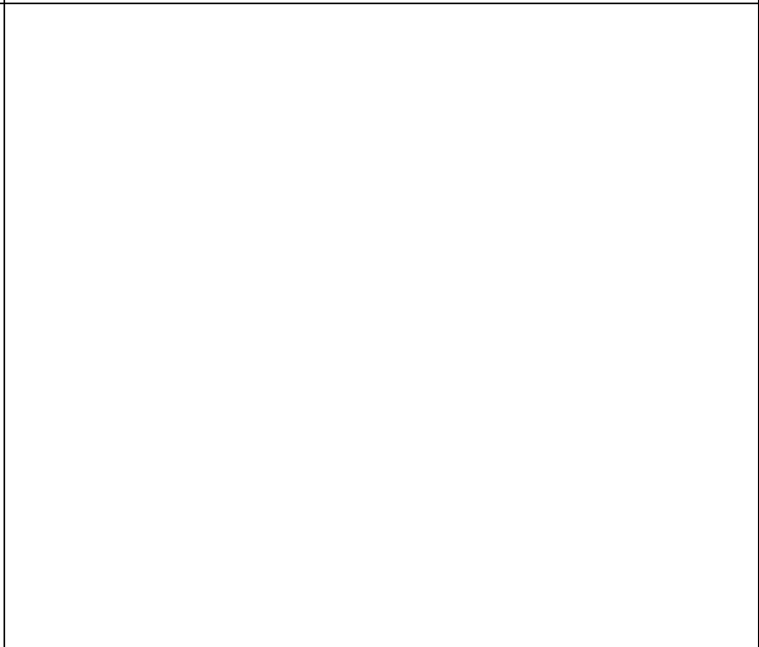
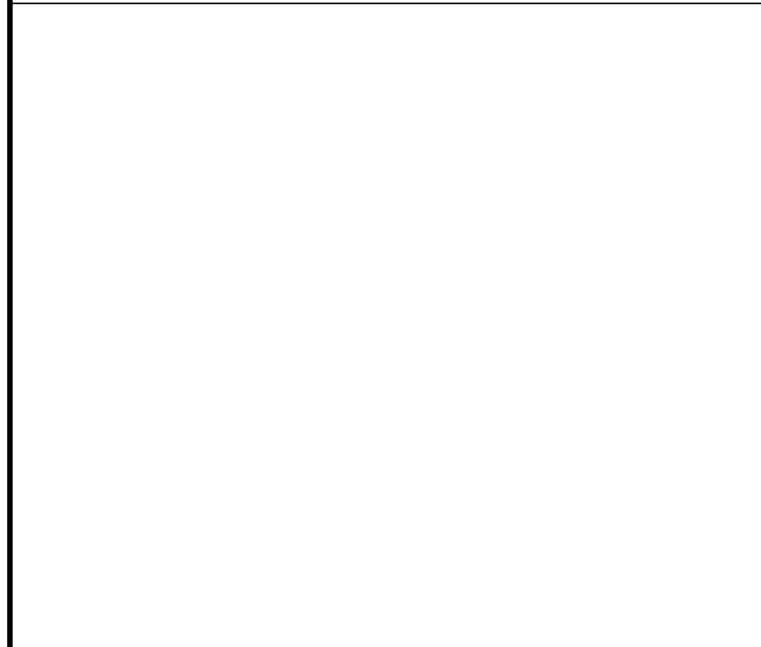
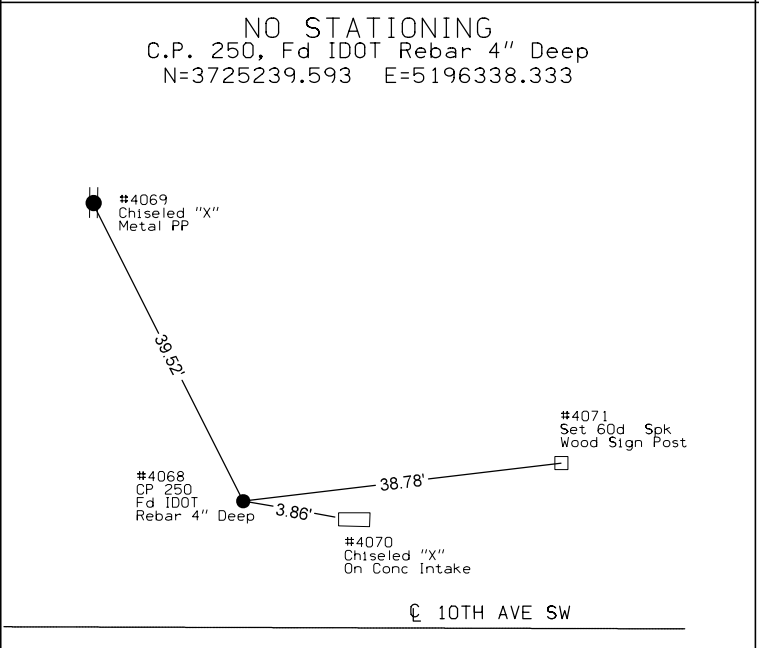
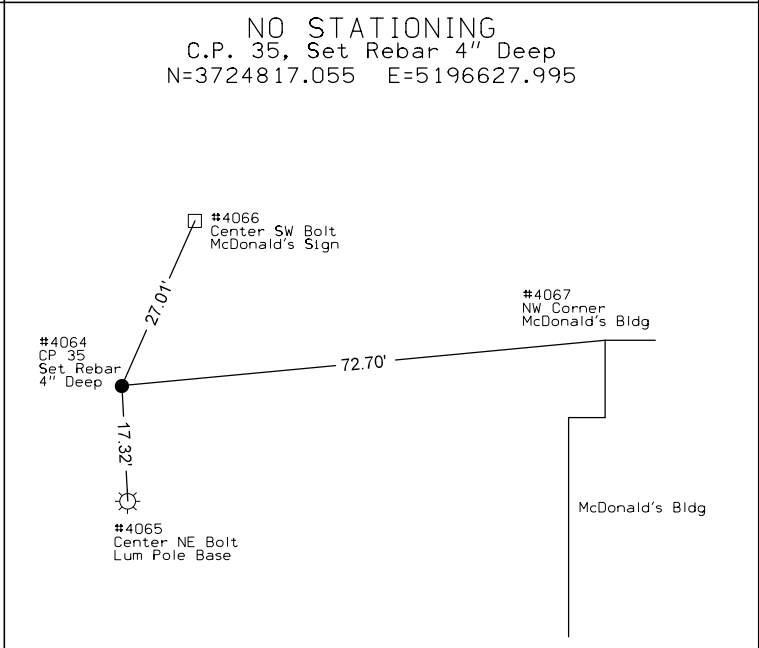
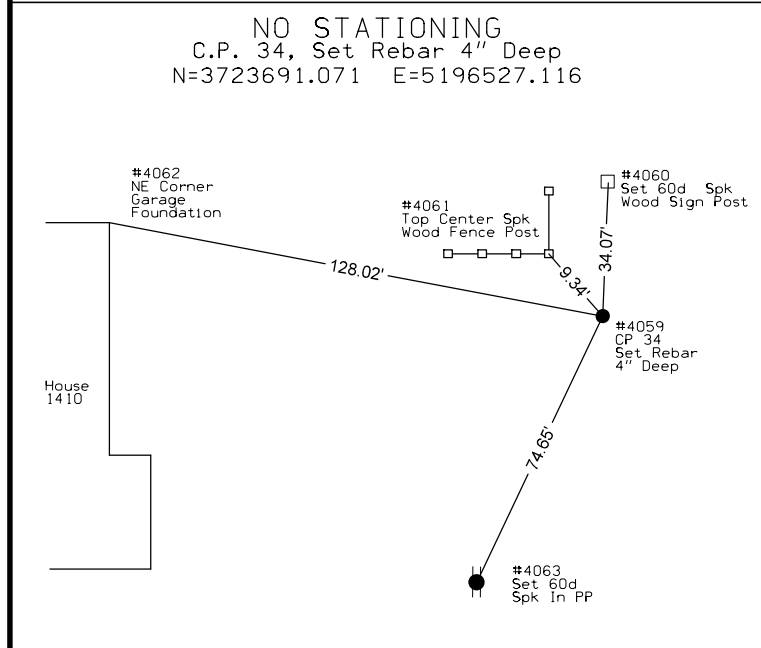
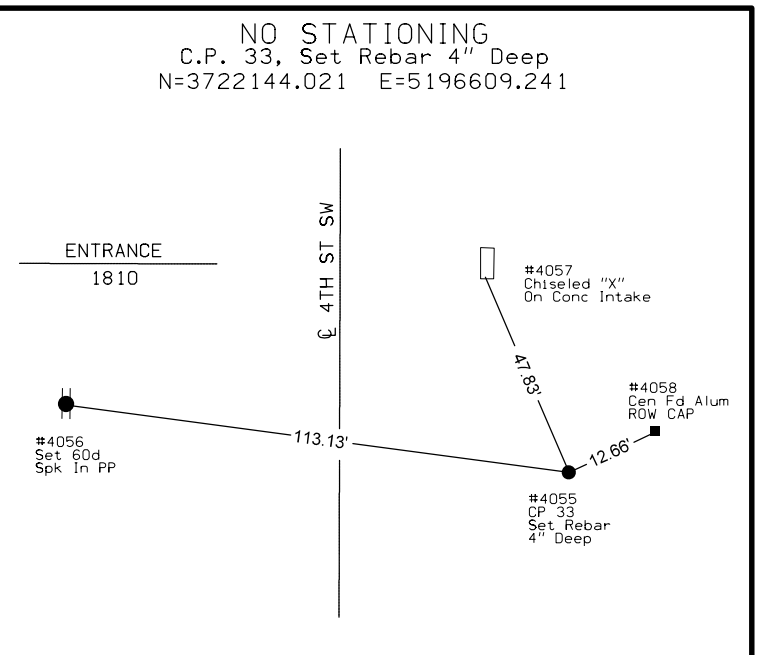
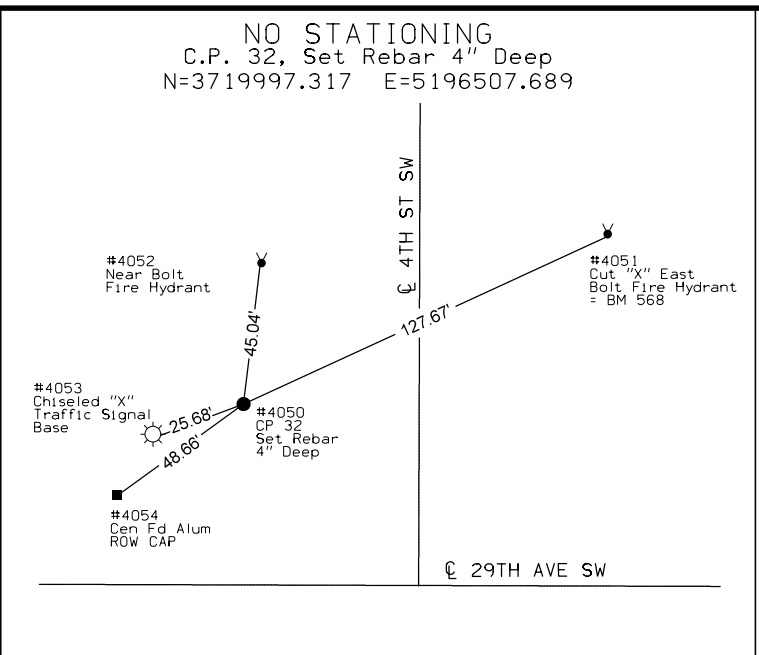
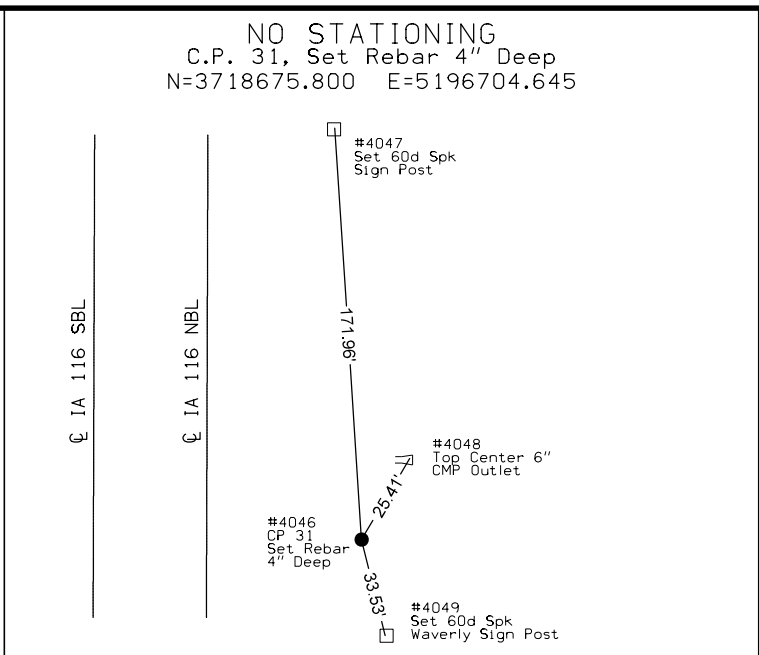
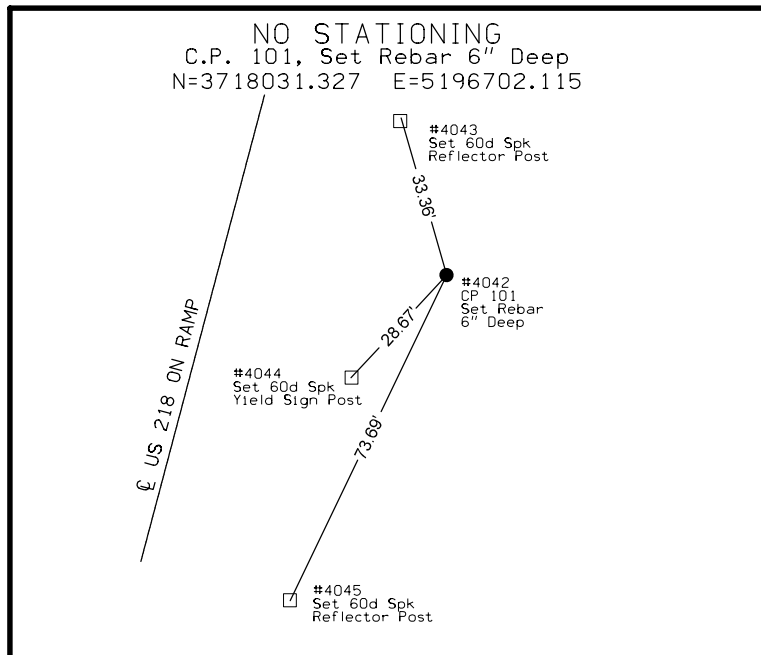
No. 306 Sta.	-----Y:3730536.195 X:5180427.088	FD NGS MONU B30 1934 NGS 2nd "B 30"-----	936.690
No. 567 Sta.	-----Y:3718273.167 X:5196588.405	Cut "X" E Bolt LUM BASE-----	988.102
No. 568 Sta.	-----Y:3720050.682 X:5196623.681	Fd "X" E Bolt Fire Hyd NE QUAD 29th Ave SW & 4th SW-----	998.502
No. 569 Sta.	-----Y:3720826.265 X:5196596.379	Set Mag Nail NE Cor Conc Intake SE Quad Walmart Ent & 4th SW-----	972.838
No. 570 Sta.	-----Y:3722416.245 X:5196618.636	Set Mag Nail SW Cor Conc Intake SE Quad Oak Ridge & 4th SW-----	952.559
No. 571 Sta.	-----Y:3724069.181 X:5196497.004	Fd "X" NW Bolt Fire Hyd-----	940.018
No. 572 Sta.	-----Y:3725256.887 X:5196494.619	Fd "X" E Bolt Fire Hyd NW Cor 10th Ave SW & 4th SW-----	948.232
No. 573 Sta.	-----Y:3726087.902 X:5196586.161	Fd "X" on bury Bolt FH SE Cor 8th Ave SW & 4th SW-----	920.903
No. 574 Sta.	-----Y:3726150.041 X:5197573.528	Fd "X" N Bolt Fire Hyd NE cor 8th Ave SW & 1st St SW-----	910.872
No. 575 Sta.	-----Y:3727065.698 X:5197501.987	Fd "X" NW Bolt Fire Hyd SW Cor 6th Ave SW & 1st St SW-----	912.333
No. 576 Sta.	-----Y:3728839.110 X:5197511.040	Fd "X" NW Bolt Fire Hyd SE Cor 1st Ave SW & 1st St SW-----	915.772
No. 577 Sta.	-----Y:3729264.762 X:5198024.891	Fd "X" NE Bolt Fire Hyd NE Cor Brg over Cedar River Just west of 1st St along Bremer Ave.-----	916.653
No. 998 Sta.	-----Y:3729577.981 X:5198795.007	Fd NGS 2nd Order BM "WAVERLY" SW Quad 1ST Ave NE & 3RD ST NE zc=918.525-----	918.525







FILE NO.	ENGLISH	DESIGN TEAM	Iowa DOT \ HR Green, Inc.	BREMER	COUNTY	PROJECT NUMBER	NHSX-218-8(124)--3H-09	SHEET NUMBER	G.4
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**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)
1	ML218	166+27.08	3702633.95	5201394.65															
2	ML218				180+70.45 R1	3702763.49	5199957.11												
3	ML218							184+20.45	3702804.65	5199609.65	183+03.87	3702784.44	5199724.63						
4	ML218				208+35.55 R1	3704367.55	5197947.26				197+84.84	3703040.87	5198265.86	208+35.55	3704367.55	5197947.26	184+20.45	3702804.65	
6	ML218							272+74.09	3710730.56	5196965.58	209+52.30	3704481.06	5197920.00				211+85.55	3704711.81	
7	ML218	320+51.90	3715499.10	5196749.66							283+33.73	3711778.06	5196805.60	293+90.07	3712837.57	5196789.67			
1	SR260	7000+00.00	3709354.48	5195797.84															
2	SR260	7023+30.81	3709347.74	5198128.64															
3	SR260	7028+08.98	3709354.07	5198606.77															
3	SR260	7031+52.29	3709359.51	5198950.04															
1	SRMaple	100+00.00	3702653.27	5198194.41															
2	SRMaple							106+90.66	3703343.85	5198183.36	109+99.27	3703652.42	5198178.42	111+79.00	3703653.81	5197869.82			
4	SRMaple							114+16.07	3703654.88	5197632.76	118+89.66	3703657.01	5197159.17	122+14.20	3704119.85	5197058.82			
6	SRMaple							160+53.02	3707871.49	5196245.36	164+87.54	3708296.14	5196153.29	169+18.66	3708730.66	5196154.54			
7	SRMaple	175+41.45	3709353.44	5196156.34															
1	SREagle	4000+00.00	3709352.40	5196516.34															
2	SREagle							4000+47.36	3709399.76	5196516.48	4001+34.79	3709487.19	5196516.73	4002+15.58	3709555.41	5196571.42			
4	SREagle							4004+19.22	3709714.30	5196698.79	4005+10.00	3709785.13	5196755.57	4005+93.37	3709875.89	5196753.68			
6	SREagle							4015+11.27	3710793.59	5196734.53	4019+09.39	3711191.62	5196726.23	4023+06.85	3711586.86	5196678.45			
8	SREagle							4025+91.70	3711869.65	5196644.26	4030+38.24	3712312.96	5196590.67	4034+83.84	3712759.47	5196586.74			
9	SREagle	4034+90.61	3712766.23	5196586.68															
1	SREASTON	8999+50.00	3705130.18	5198083.82															
2	SREASTON							9000+36.06	3705129.60	5197997.76	9000+79.30	3705129.32	5197954.53	9001+07.36	3705172.06	5197948.00			
4	SREASTON							9015+70.12	3706618.05	5197727.17	9019+07.77	3706951.83	5197676.19	9022+44.72	3707289.21	5197662.68			
6	SREASTON							9038+09.06	3708852.29	5197600.05	9039+47.08	3708990.21	5197594.52	9040+61.29	3709068.36	5197708.29			
8	SREASTON							9041+03.09	3709092.03	5197742.75	9042+34.19	3709166.27	5197850.81	9043+44.59	3709297.37	5197851.19			
9	SREASTON	9043+95.76	3709348.54	5197851.34															
1	SRCEDAR	5000+00.00	3706305.51	5197774.90															
1	SRCEDAR	5000+76.20	3706311.29	5197850.88															
1	SR250	6000+00.00	3709348.54	5197851.34															
2	SR250							6000+64.57	3709413.12	5197851.52	6001+26.85	3709475.39	5197851.70	6001+86.64	3709530.47	5197822.65			
4	SR250							6011+56.56	3710388.37	5197370.15	6014+80.69	3710675.07	5197218.93	6017+99.24	3710994.85	5197166.00			
6	SR250							6026+10.52	3711795.24	5197033.53	6027+59.79	3711942.51	5197009.15	6029+08.50	3712091.76	5197006.91			
7	SR250	6036+21.17	3712804.35	5196996.20															
1	RPA260	1559+08.85	3709351.51	5196826.34															
2	RPA260							1567+90.33	3710232.21	5196863.49	1570+87.82	3710529.43	5196876.03	1573+84.61	3710826.04	5196853.24			
3	RPA260	1574+01.06	3710842.45	5196851.98															
1	RPB260	2542+98.94	3707803.99	5197509.56															
2	RPB260							2543+10.64	3707815.65	5197508.57	2546+11.04	3708114.96	5197483.07	2549+10.71	3708415.17	5197493.59			
3	RPB260	2558+45.60	3709349.48	5197526.34															
1	RPC260							3539+25.00	3707408.39	5197396.06	3540+75.28	3707556.46	5197370.40	3542+25.00	3707699.04	5197322.91			
3	RPC260							3545+93.18	3708048.35	5197206.55	3548+19.13	3708262.72	5197135.14	3550+45.01	3708480.10	5197073.49			
4	RPC260	3559+50.78	3709351.51	5196826.34															
1	RPD260	4558+02.53	3709349.48	5197526.34															
2	RPD260							4571+56.98	3710631.88	5197090.45	4573+28.91	3710794.66	5197035.12	4575+00.00	3710964.50	5197008.39			

**SPIRAL OR CIRCULAR CURVE DATA**

Name	Location	ΔSCS	Horizontal Alignment Data												Remarks	
			Spiral Data								Curve Data					
			θS	Ls	Ts	Es	Xc	Yc	L.T.	S.T.	ΔC	T	L	R		E
C1	ML218	76°10'03.6"	4°49'14.0"	350	1806.862	565.699	349.752	9.811	233.42	116.745	66°31'35.6"	1364.397	2415.103	2080	407.565	
C2	ML218										7°49'18.2"	1059.637	2115.983	15500	36.178	
C1	SMaple										88°49'29.9"	308.605	488.341	315	125.979	
C2	SMaple										77°30'27.7"	473.59	798.131	590	166.563	
C3	SMaple										12°23'57.9"	434.518	865.642	4000	23.532	
C1	SREagle										38°33'07.4"	87.431	168.215	250	14.848	
C2	SREagle										39°54'46.2"	90.777	174.153	250	15.971	
C3	SREagle										5°41'52.6"	398.119	795.583	8000	9.9	
C4	SREagle										6°23'22.2"	446.535	892.144	8000	12.452	
C1	SREASTON										81°41'53.7"	43.234	71.295	50	16.1	
C2	SREASTON										6°23'19.2"	337.648	674.596	6050	9.415	
C3	SREASTON										57°48'26.2"	138.028	252.232	250	35.573	
C4	SREASTON										55°20'50.3"	131.106	241.498	250	32.292	
C1	SR250										27°58'29.7"	62.274	122.064	250	7.639	
C2	SR250										18°24'40.7"	324.132	642.676	2000	26.095	
C3	SR250										8°32'12.0"	149.269	297.986	2000	5.563	
C1	RPA260										6°48'35.5"	297.487	594.273	5000	8.842	
C1	RPB260										6°52'34.4"	300.393	600.064	5000	9.015	
C1	RPC260										8°35'39.7"	150.282	300	2000	5.638	
C2	RPC260										2°35'19.6"	225.953	451.829	10000	2.552	
C1	RPD260										9°49'36.4"	171.932	343.02	2000	7.377	

**SUPERELEVATION DATA**

See PV-300 Series

Road Identification	Circular Curve or Spiral Curve Name	Radius FT	Superelevation Data			Standard Road Plan	Section A-A	Section B-B	Section C-C	Section D-D	Section E-E	Section F-F	Case A	Case B	Case C	Case S	Case T	Case U	Remarks
			e %	L FT	x FT														
Maple St.	SRMAPLE_3	315	8.0	155	39	PV-301	105+43.41	105+82.16	106+21.16	107+37.16			106+90.66			106+59.66	106+59.66	107+17.79	
Maple St.	SRMAPLE_6	590	8.0	178	44	PV-301		112+97.53	112+58.53	111+32.50			111+79.00			112+10.00	112+10.00	111+51.88	
							123+82.80	123+38.80	122+94.80	121+60.80			122+14.20			122+49.80	122+49.80	121+83.05	
Eagle Ave.	SREAGLE_6	250	4.0	73	36.5	PV-301	4003+31.62	4003+68.12	4004+04.62	4004+41.12			4004+19.22			4004+41.12	4004+41.12		
							4006+80.97	4006+44.47	4006+07.97	4005+71.47			4005+93.37			4005+71.47	4005+71.47		
Easton Ave.	SREASTON_6	6050	2.0	48	48	PV-301	9014+88.52	9015+36.52	9015+84.52	9015+84.52				9015+70.12					
							9023+26.32	9022+78.32	9022+30.32	9022+30.32				9022+44.72					
Easton Ave.	SREASTON_9	250	4.0	73	36.5	PV-301	9037+21.46	9037+57.96	9037+94.46	9038+30.96			9038+09.06			9038+30.96	9038+30.96		Normal Crown 3%
							9041+48.89	9041+12.39	9040+75.89	9040+39.39			9040+61.29			9040+39.39	9040+39.39		Normal Crown 3%
250th St.	SR250_6	2000	4.4	106	48	PV-301	6010+10.09	6010+82.36	6011+54.63	6011+88.36			6011+56.56			6011+54.63			Normal Crown 3%
							6019+45.71	6018+73.44	6018+01.17	6017+67.44			6017+99.24			6018+01.17			Normal Crown 3%
250th St.	SR250_9	2000	4.4	106	48	PV-301	6024+64.04	6025+36.32	6026+08.59	6026+42.32			6026+10.52			6026+08.59			
							6030+54.98	6029+82.70	6029+10.43	6028+76.70			6029+08.50			6029+10.43			
Ramp A	RPA260_3	5000	3.0	93	62	PV-303	1567+87.23		1567+90.33	1568+18.23									
							1573+87.71		1573+84.61	1573+56.71									
Ramp B	RPB260_3	5000	3.0	93	62	PV-303	2543+07.54		2543+10.64	2543+38.54									
							2549+13.81		2549+10.71	2548+82.81									
Ramp C	RPC260_1	2000	5.4	168	62	PV-303	3538+69.40		3539+25.00	3539+75.40					3539+31.84	3539+31.84			
							3542+55.60		3542+00.00	3541+49.60					3541+93.16	3541+93.16			
Ramp D	RPD260_3	2000	5.4	168	62	PV-303	4571+01.38		4571+56.98	4572+07.38					4571+63.82	4571+63.82			
							4575+55.60		4575+00.00	4574+49.60					4574+93.16	4574+93.16			



108-23A  
08-01-08

### TRAFFIC CONTROL PLAN

Traffic control on this project shall be in accordance with the standard road plans shown in tabulation 105-4 and the specific layouts show in the plans. For additional complementary information, refer to Part 6 of the Manual on Uniform Traffic Control Devices (MUTCD).

One lane of traffic in each direction will be maintained on US 218 at all times.

108-26A  
08-01-08

### STAGING NOTES

#### STAGE 1

##### Traffic:

- Maintain existing traffic along US 218, all side roads, and private drives.

##### Construction:

- Grade Maple Street, north half of Eagle Avenue, interchange area of 260th Street, and 260th Street Ramps A and C.
- Install culverts within grading limits.

#### STAGE 2A

##### Traffic:

- Maintain existing traffic along US 218 and Easton Avenue.
- Temporary closure of Maple Street at US 218. Route traffic to detour as needed.
- Close 260th Street and route traffic to detour.
- Maintain one lane of traffic for private access only along Eagle Avenue.

##### Construction:

- Pave Maple Street, using stage construction at western tie in Janesville.
- Pave west section of 260th Street.
- Grade remaining south portion of Eagle Avenue and Pave entire route.
- Grading may continue on interchange area of 260th Street and 260th Street Ramps A and C.

#### STAGE 2B

##### Traffic:

- Open new Maple Street to traffic. Detour to remain in place for US 218 Access.
- Open new Eagle Avenue to Traffic
- 260th Remains closed with detour in place.
- Close median shoulders on US 218 in area of proposed temporary crossover.

##### Construction:

- Pave interchange area of 260th Street and 260th Street Ramps A and C.
- Construct US 218 Bridges over 260th Street.
- Pave 260th street between interchange ramps.
- Construct temporary crossover
- Construct temporary on-site detour at 260th street

#### STAGE 3

##### Traffic:

- Maple Street detour remains in place for access to US 218.
- Close US 218 access at 250th and route traffic to detour.
- Open 260th Street to traffic.
- Shift Southbound US 218 traffic to existing US 218 Northbound lanes, with head to head traffic, one lane in each direction via the temporary crossovers.

##### Construction:

- Grade and Pave remaining portions of proposed US 218 Southbound lanes and 260th Street Ramp A.
- Pave remaining portion of Eagle Avenue at 250th Street.

#### STAGE 4

##### Traffic:

- Maple Street and 250th Street detours remain in place.
- US 218 northbound traffic remains on existing US 218 while southbound traffic shifts to the previously constructed southbound lanes. Two lanes of traffic maintained in each direction.
- Open 260th Street Ramps A and C to traffic.

##### Construction:

- Winter season. Construction limited to work not affecting traffic.

#### STAGE 5A

##### Traffic:

- Maple Street and 250th Street detours remain in place for access to US 218.
- Shift Northbound US 218 traffic to previously constructed proposed US 218 Southbound lanes, with head to head traffic, one lane in each direction via the temporary crossovers.
- 260th Street maintains access to eastern properties with previously constructed on-site detour. Detour in place for access to US 218.

##### Construction

- Grade and Pave Easton Avenue, 250th Street, and the remaining east portion of 260th. Sequence construction to maintain access to all properties.

108-26A  
08-01-08

### STAGING NOTES

#### STAGE 5B

##### Traffic:

- Maple Street, 260th Street, and 250th Street detours remain in place for access to US 218.
- Maintain US 218 traffic in head-to-head configuration on proposed US 218 Southbound lanes.

##### Construction:

- Pave and grade remaining portions of US 218 Northbound and 260th Street Ramps B and D.

**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

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.










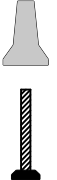
Project	Type of Work
	BRIDGE



**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, Pinned		Permanent Barrier Rail
	Temporary Barrier Rail, Unpinned		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.

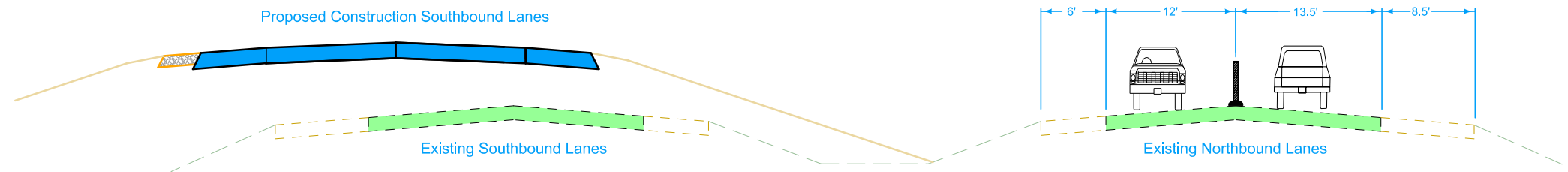
**TRAFFIC CONTROL  
AND  
STAGING  
LEGEND AND SYMBOL  
INFORMATION SHEET**

(COVERS SHEET SERIES J)

# Stage 2B

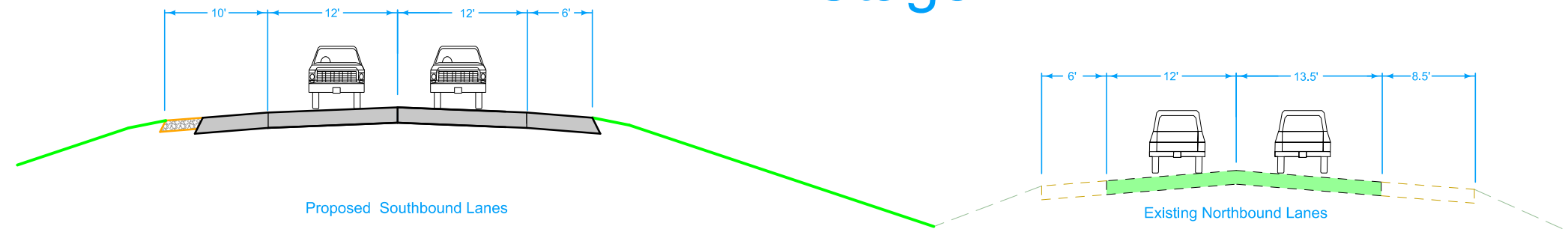


# Stage 3

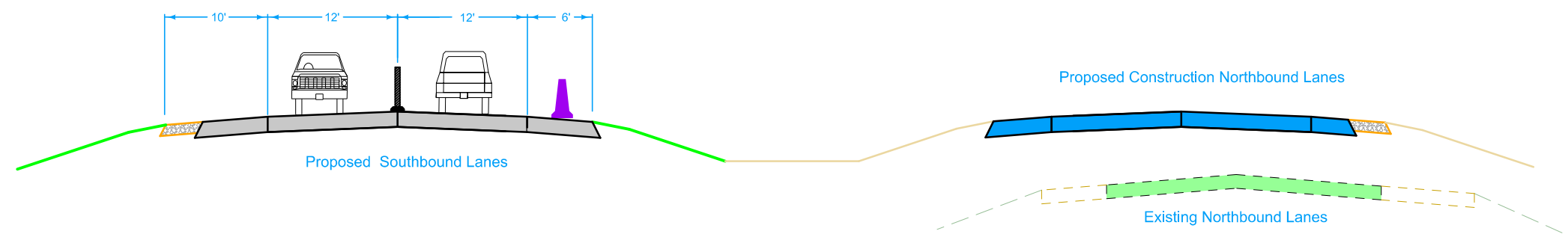




# Stage 4



# Stage 5B



JACKSON TWP  
T-91N R-14W  
SEC. 35



175

180

185

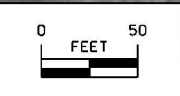


US 218 SOUTHBOUND



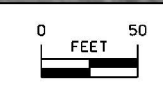
US 218 NORTHBOUND

CEDAR RIVER



Mainline US 218  
Stage 1





Mainline US 218  
Stage 1





SEC. 35

JACKSON TWP  
T-91N R-14W  
SEC. 26

205

210

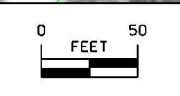
215

US 218 SOUTHBOUND

US 218 NORTHBOUND

EDGEBROOK DRIVE

Mainline US 218  
Stage 1





JACKSON TWP  
T-91N R-14W  
SEC. 26



220

225

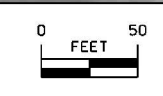
230

PROPOSED US 218 SOUTHBOUND

US 218 SOUTHBOUND

US 218 NORTHBOUND

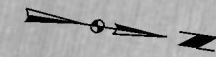
CEDAR DRIVE



Mainline US 218  
Stage 1



JACKSON TWP  
T-91N R-14W  
SEC. 26



235

240

245

PROPOSED 260TH RAMP C

PROPOSED US 218 SOUTHBOUND

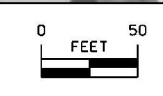
PROPOSED US 218 NORTHBOUND

US 218 SOUTHBOUND

US 218 NORTHBOUND

ISLAND VIEW DRIVE

HUBER ROAD



Mainline US 218  
Stage 1



JACKSON TWP  
T-91N R-14W  
SEC. 26

SEC. 27

SEC. 22



PROPOSED 260TH RAMP C

EAGLE AVENUE

PROPOSED 260TH RAMP A

250

255

260

PROPOSED US 218 SOUTHBOUND

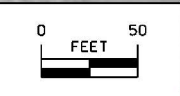
PROPOSED US 218 NORTHBOUND

260TH STREET

US 218 SOUTHBOUND

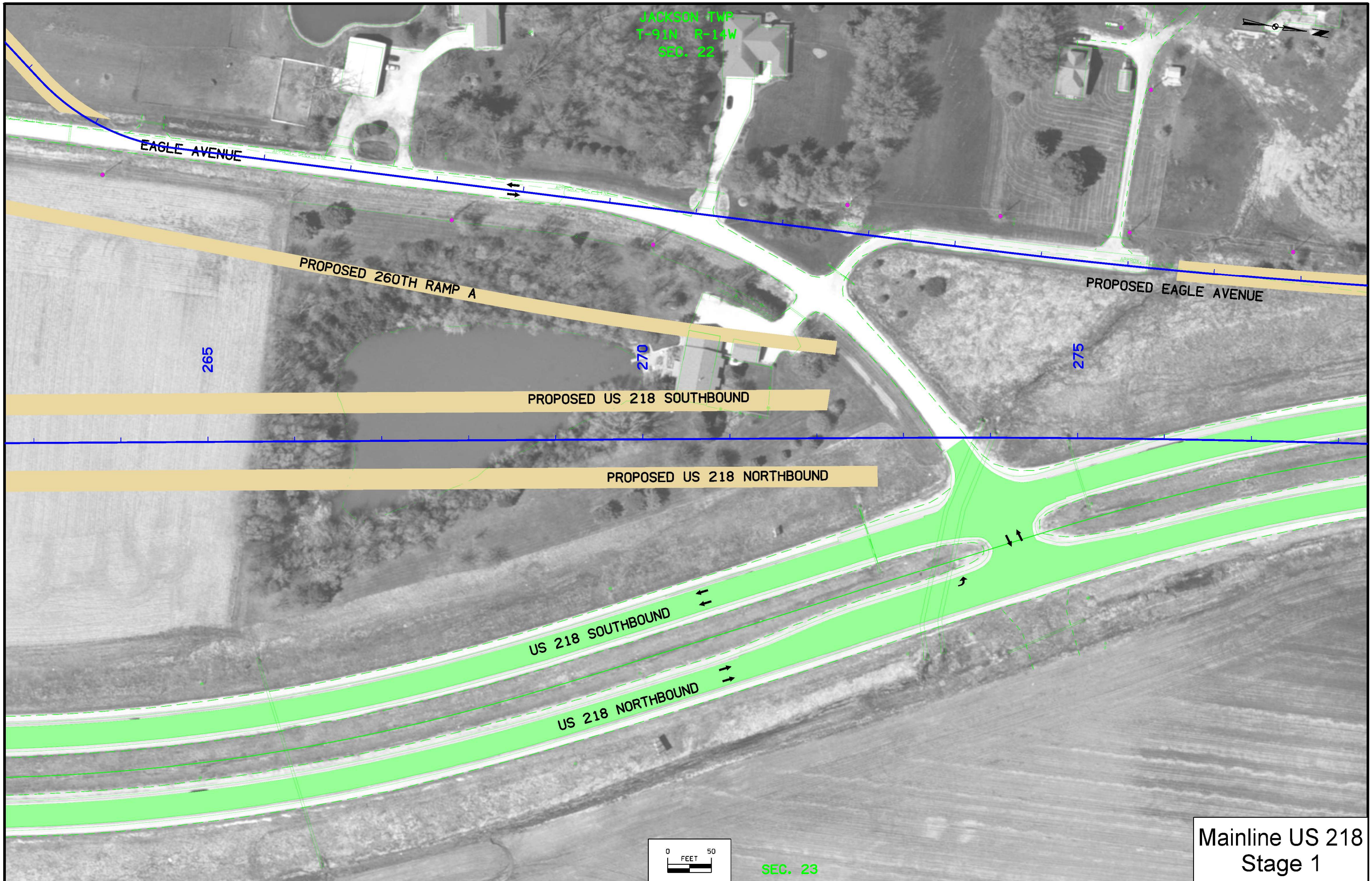
US 218 NORTHBOUND

Mainline US 218  
Stage 1

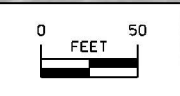


SEC. 23





Mainline US 218  
Stage 1



SEC. 23



JACKSON TWP  
T-91N R-14W  
SEC. 22



PROPOSED EAGLE AVENUE

250TH STREET

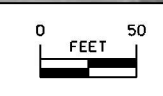
US 218 SOUTHBOUND

US 218 NORTHBOUND

280

285

290



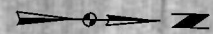
SEC. 23

Mainline US 218  
Stage 1





JACKSON TWP  
T-91N R-14W  
SEC. 22



250TH STREET

295

300

305

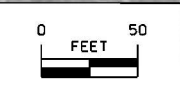
US 218 SOUTHBOUND

US 218 NORTHBOUND

250TH STREET

SEC. 23

Mainline US 218  
Stage 1





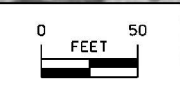
JACKSON TWP  
T-91N R-14W  
SEC. 22

WASHINGTON TWP  
T-91N R-14W  
SEC. 15



SEC. 23

SEC. 14



Mainline US 218  
Stage 1





JACKSON TWP  
T-91N R-14W  
SEC. 35



100

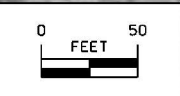
105

110

MAPLE STREET

US 218 SOUTHBOUND

US 218 NORTHBOUND



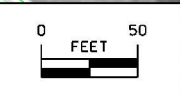
Maple Street  
Stage 1



JACKSON TWP  
T-91N R-14W  
SEC. 35



Maple Street  
Stage 1





JACKSON TWP  
T-91N R-14W  
SEC. 27



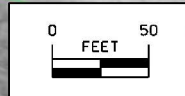
125

130

135

140

PROPOSED MAPLE STREET



SEC. 26

Maple Street  
Stage 1



JACKSON TWP  
T-91N R-14W  
SEC. 27



140

145

150

155

PROPOSED MAPLE STREET

APPROX. SEC. LINE

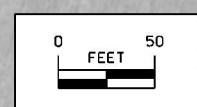
APPROX. SEC. LINE

APPROX. SEC. LINE

APPROX. SEC. LINE

APPROX. SEC. LINE

SEC. 26



Maple Street  
Stage 1



JACKSON TWP  
T-91N R-14W  
SEC. 27



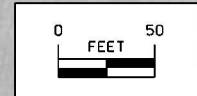
155

160

165

170

PROPOSED MAPLE STREET



Maple Street  
Stage 1



SEC. 27

JACKSON TWP  
T-91N R-14W  
SEC. 22

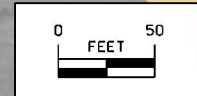


170

175

PROPOSED MAPLE STREET

260TH STREET



Maple Street  
Stage 1



JACKSON TWP  
T-91N R-14W  
SEC. 22

Sta 7001+80, 55' LT  
Install 24"

Sta. 7001+81, 25' LT  
24" X 49' CMP  
REMOVE

7000

7005

7010

260TH STREET

EAGLE AVENUE

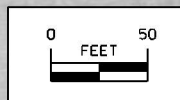
PROPOSED 260TH STREET RAMP A

Sta. 7000+14  
24" CMP  
U.A.C.

PROPOSED MAPLE STREET

PROPOSED 260TH STREET RAMP C

SEC. 27



260th Street  
Stage 1





260th Street  
Stage 1



JACKSON TWP  
T-91N R-14W  
SEC. 35



175

180

185

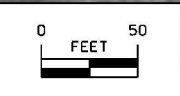


US 218 SOUTHBOUND



US 218 NORTHBOUND

CEDAR RIVER



Mainline US 218  
Stage 2A

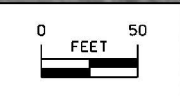
FILE NO.	ENGLISH	DESIGN TEAM Iowa DOT \ HR Green, Inc.	BREMER	COUNTY	PROJECT NUMBER	NHSX-218-8(124)--3H-09	SHEET NUMBER	J.24
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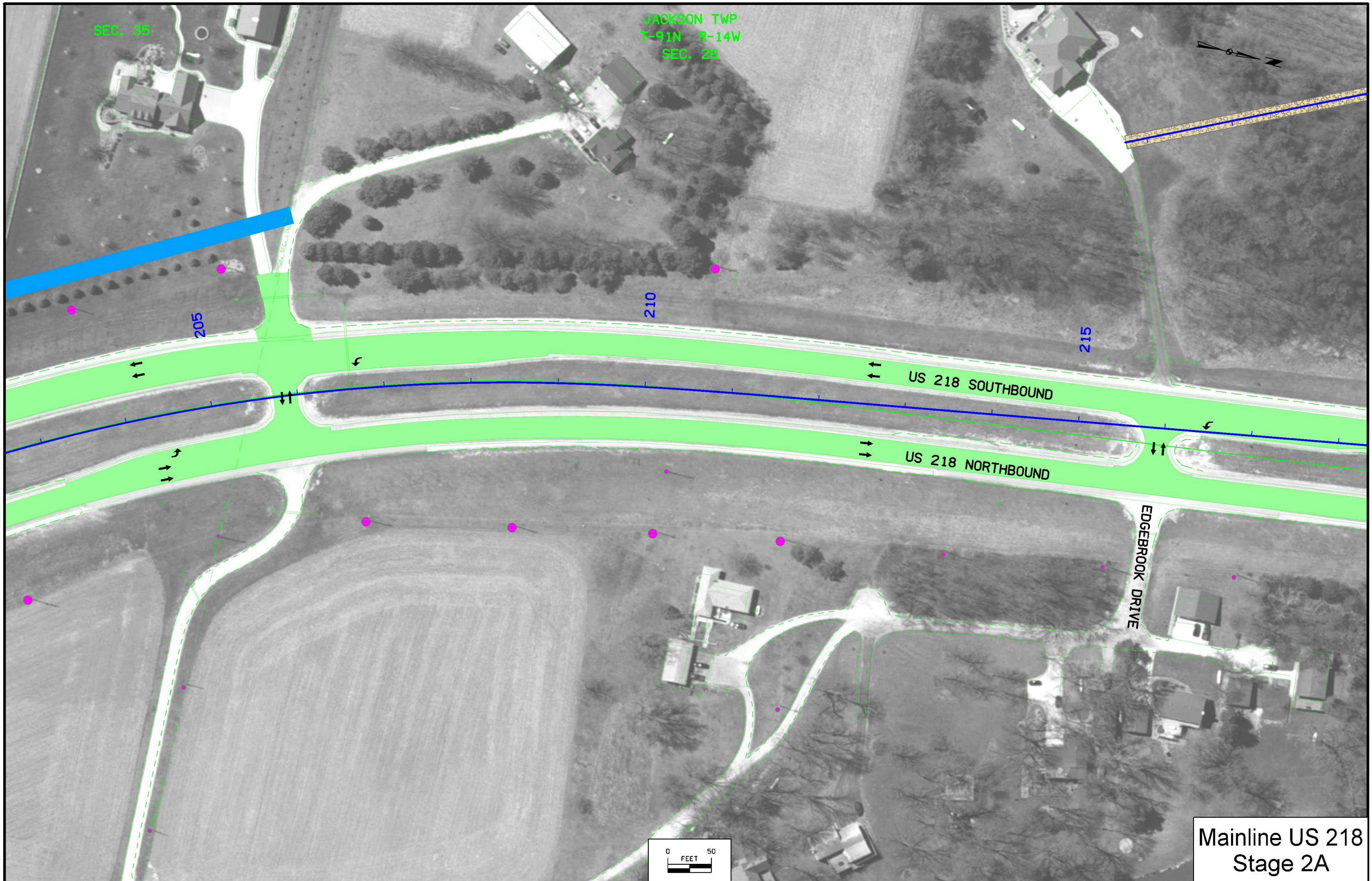


JACKSON TWP  
T-91N R-14W  
SEC. 35

Mainline US 218  
Stage 2A







Mainline US 218  
Stage 2A

FILE NO.	ENGLISH	DESIGN TEAM Iowa DOT \ HR Green, Inc.	BREMER COUNTY	PROJECT NUMBER NHSX-218-8(124)--3H-09	SHEET NUMBER J.26
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JACKSON TWP  
T-91N R-14W  
SEC. 26



220

225

230

PROPOSED US 218 SOUTHBOUND

US 218 SOUTHBOUND

US 218 NORTHBOUND

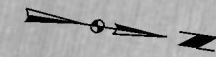
CEDAR DRIVE



Mainline US 218  
Stage 2A



JACKSON TWP  
T-91N R-14W  
SEC. 26



235

240

245

PROPOSED 260TH RAMP C

PROPOSED US 218 SOUTHBOUND

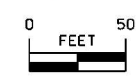
PROPOSED US 218 NORTHBOUND

US 218 SOUTHBOUND

US 218 NORTHBOUND

ISLAND VIEW DRIVE

HUBER ROAD



Mainline US 218  
Stage 2A



JACKSON TWP  
T-91N R-14W  
SEC. 26

SEC. 27

SEC. 22



PROPOSED 260TH RAMP C

EAGLE AVENUE

250

255

260

PROPOSED US 218 SOUTHBOUND

PROPOSED US 218 NORTHBOUND

260TH STREET

US 218 SOUTHBOUND

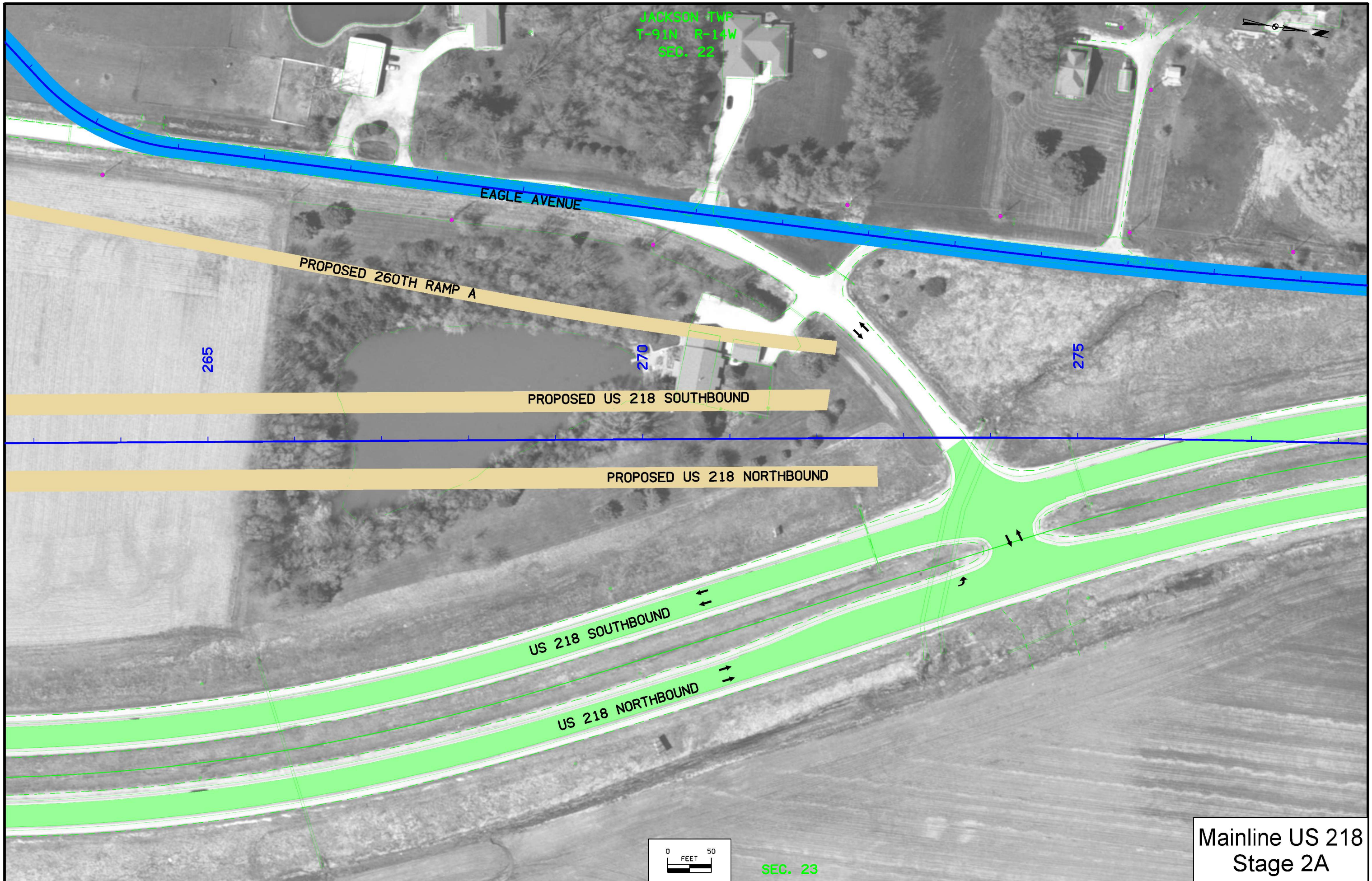
US 218 NORTHBOUND

SEC. 23

Mainline US 218  
Stage 2A







JACKSON TWP  
T-91N R-14W  
SEC. 22

EAGLE AVENUE

PROPOSED 260TH RAMP A

265

270

275

PROPOSED US 218 SOUTHBOUND

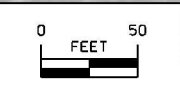
PROPOSED US 218 NORTHBOUND

US 218 SOUTHBOUND

US 218 NORTHBOUND

SEC. 23

Mainline US 218  
Stage 2A





JACKSON TWP  
T-91N R-14W  
SEC. 22



PROPOSED EAGLE AVENUE

280

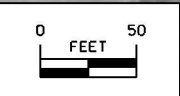
285

290

US 218 SOUTHBOUND ↑↑

US 218 NORTHBOUND ↓↓

250TH STREET



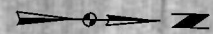
SEC. 23

Mainline US 218  
Stage 2A





JACKSON TWP  
T-91N R-14W  
SEC. 22



250TH STREET

295

300

305

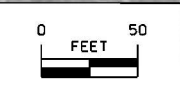
US 218 SOUTHBOUND

US 218 NORTHBOUND

250TH STREET

SEC. 23

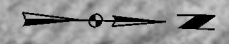
Mainline US 218  
Stage 2A





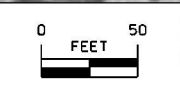
JACKSON TWP  
T-91N R-14W  
SEC. 22

WASHINGTON TWP  
T-91N R-14W  
SEC. 15



SEC. 23

SEC. 14



Mainline US 218  
Stage 2A

FILE NO.	ENGLISH	DESIGN TEAM <b>Iowa DOT \ HR Green, Inc.</b>	<b>BREMER</b> COUNTY	PROJECT NUMBER <b>NHSX-218-8(124)--3H-09</b>	SHEET NUMBER <b>J.33</b>
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JACKSON TWP  
T-91N R-14W  
SEC. 35



100

105

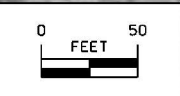
110

PROPOSED MAPLE STREET

MAPLE STREET

US 218 SOUTHBOUND

US 218 NORTHBOUND

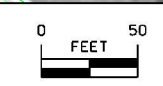
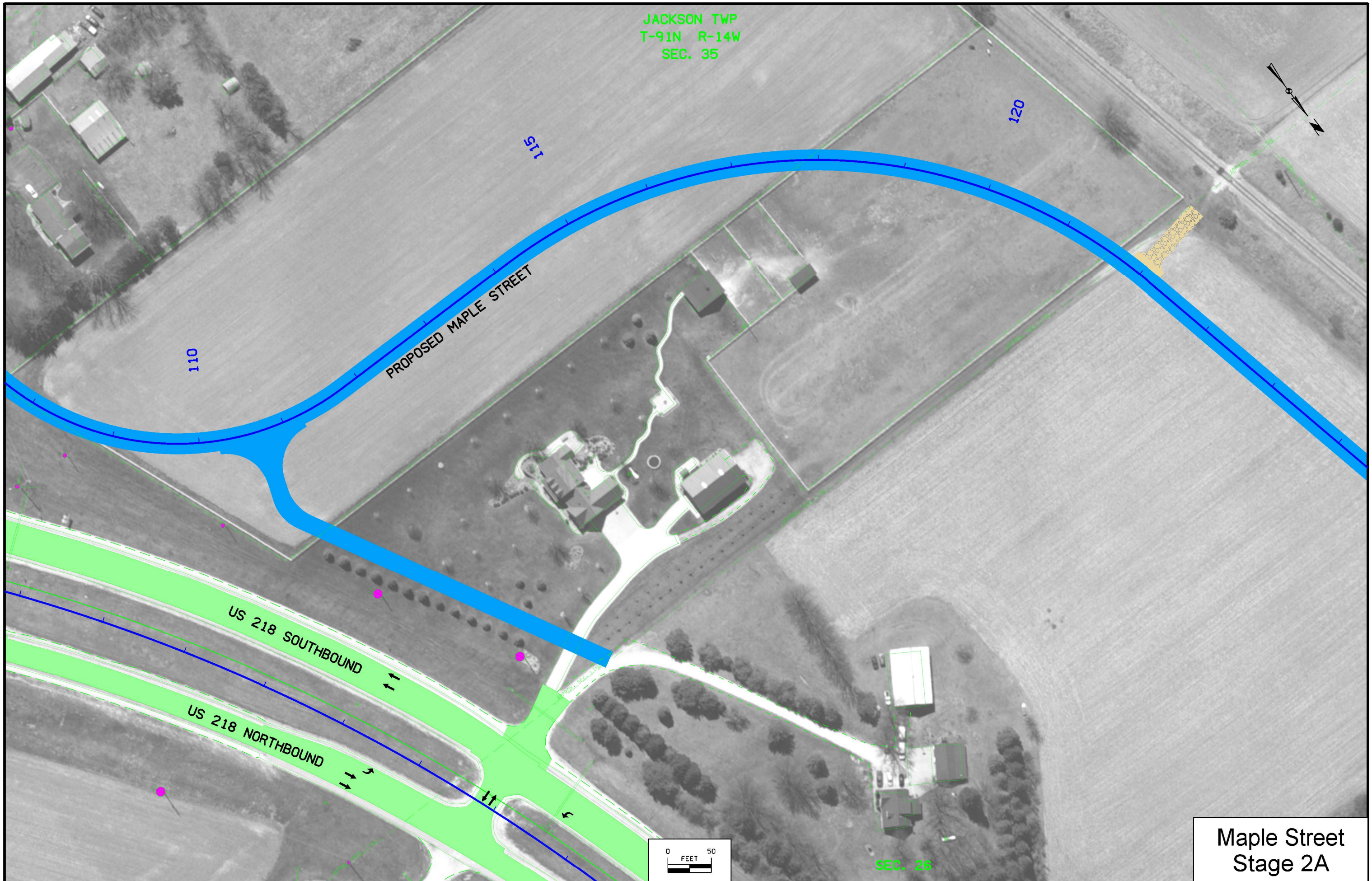


Maple Street  
Stage 2A

FILE NO.	ENGLISH	DESIGN TEAM	Iowa DOT \ HR Green, Inc.	BREMER COUNTY	PROJECT NUMBER	NHSX-218-8(124)-3H-09	SHEET NUMBER	J.34
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JACKSON TWP  
T-91N R-14W  
SEC. 35



Maple Street  
Stage 2A



JACKSON TWP  
T-91N R-14W  
SEC. 27



125

130

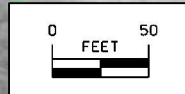
135

140

PROPOSED MAPLE STREET

SEC. 26

Maple Street  
Stage 2A





JACKSON TWP  
T-91N R-14W  
SEC. 27



140

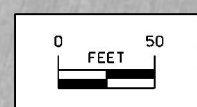
145

150

155

PROPOSED MAPLE STREET

SEC. 26



Maple Street  
Stage 2A



JACKSON TWP  
T-91N R-14W  
SEC. 27



155

160

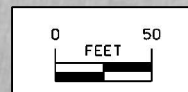
165

170

PROPOSED MAPLE STREET



APPROX. SEC. LINE



Maple Street  
Stage 2A



SEC. 27

JACKSON TWP  
T-91N R-14W  
SEC. 22



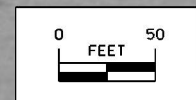
170

175

PROPOSED MAPLE STREET

260TH STREET

PROPOSED EAGLE AVENUE



Maple Street  
Stage 2A



JACKSON TWP  
T-91N R-14W  
SEC. 22



7000

7005

7010

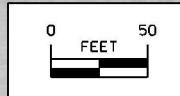
PROPOSED EAGLE AVENUE

PROPOSED 260TH STREET RAMP A

260TH STREET

PROPOSED MAPLE STREET

PROPOSED 260TH STREET RAMP C



SEC. 27

260th Street  
Stage 2A





JACKSON TWP  
T-91N R-14W  
SEC. 23

7015

7020

7025

260TH STREET

PROPOSED US 218 SOUTHBOUND

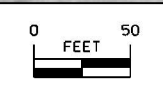
PROPOSED US 218 NORTHBOUND

US 218 SOUTHBOUND

US 218 NORTHBOUND

SEC. 26

260th Street  
Stage 2A





JACKSON TWP  
T-91N R-14W  
SEC. 35



175

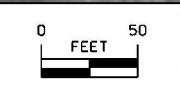
180

185

US 218 SOUTHBOUND ←

US 218 NORTHBOUND →

CEDAR RIVER



Mainline US 218  
Stage 2B

FILE NO.	ENGLISH	DESIGN TEAM Iowa DOT \ HR Green, Inc.	BREMER	COUNTY	PROJECT NUMBER	NHSX-218-8(124)--3H-09	SHEET NUMBER	J.42
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JACKSON TWP  
T-91N R-14W  
SEC. 35

PROPOSED MAPLE STREET

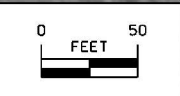
←← US 218 SOUTHBOUND

→→ US 218 NORTHBOUND

190

195

200



Mainline US 218  
Stage 2B





Mainline US 218  
Stage 2B



JACKSON TWP  
T-91N R-14W  
SEC. 26



220

225

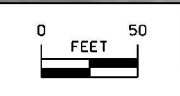
230

PROPOSED US 218 SOUTHBOUND

US 218 SOUTHBOUND

US 218 NORTHBOUND

CEDAR DRIVE

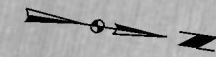


Mainline US 218  
Stage 2B

FILE NO.	ENGLISH	DESIGN TEAM <b>Iowa DOT \ HR Green, Inc.</b>	<b>BREMER</b> COUNTY	PROJECT NUMBER <b>NHSX-218-8(124)--3H-09</b>	SHEET NUMBER <b>J.45</b>
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JACKSON TWP  
T-91N R-14W  
SEC. 26



235

240

245

PROPOSED 260TH RAMP C

PROPOSED US 218 SOUTHBOUND

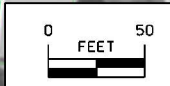
PROPOSED US 218 NORTHBOUND

US 218 SOUTHBOUND

US 218 NORTHBOUND

ISLAND VIEW DRIVE

HUBER ROAD



Mainline US 218  
Stage 2B



JACKSON TWP  
T-91N R-14W  
SEC. 26

SEC. 27

SEC. 22



PROPOSED 260TH RAMP C

PROPOSED 260TH RAMP A

250

255

260

PROPOSED US 218 SOUTHBOUND

PROPOSED US 218 NORTHBOUND

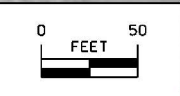
260TH STREET

US 218 SOUTHBOUND

US 218 NORTHBOUND

SEC. 23

Mainline US 218  
Stage 2B







JACKSON TWP  
T-91N R-14W  
SEC. 22

EAGLE AVENUE

PROPOSED 260TH RAMP A

265

270

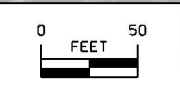
275

PROPOSED US 218 SOUTHBOUND

PROPOSED US 218 NORTHBOUND

US 218 SOUTHBOUND

US 218 NORTHBOUND



SEC. 23

Mainline US 218  
Stage 2B

FILE NO.	ENGLISH	DESIGN TEAM <b>Iowa DOT \ HR Green, Inc.</b>	<b>BREMER</b> COUNTY	PROJECT NUMBER <b>NHSX-218-8(124)-3H-09</b>	SHEET NUMBER <b>J.48</b>
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JACKSON TWP  
T-91N R-14W  
SEC. 22



EAGLE AVENUE

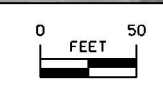
280

285

290

US 218 SOUTHBOUND

US 218 NORTHBOUND



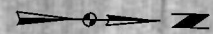
SEC. 23

Mainline US 218  
Stage 2B





JACKSON TWP  
T-91N R-14W  
SEC. 22



250TH STREET

295

300

305

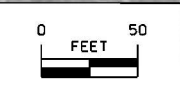
US 218 SOUTHBOUND

US 218 NORTHBOUND

250TH STREET

SEC. 23

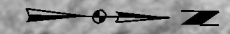
Mainline US 218  
Stage 2B





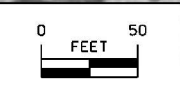
JACKSON TWP  
T-91N R-14W  
SEC. 22

WASHINGTON TWP  
T-91N R-14W  
SEC. 15



SEC. 23

SEC. 14



Mainline US 218  
Stage 2B

FILE NO.	ENGLISH	DESIGN TEAM <b>Iowa DOT \ HR Green, Inc.</b>	<b>BREMER</b> COUNTY	PROJECT NUMBER <b>NHSX-218-8(124)--3H-09</b>	SHEET NUMBER <b>J.51</b>
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JACKSON TWP  
T-91N R-14W  
SEC. 35

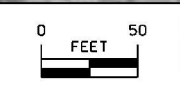


PROPOSED MAPLE STREET

US 218 SOUTHBOUND

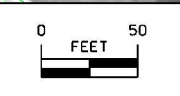
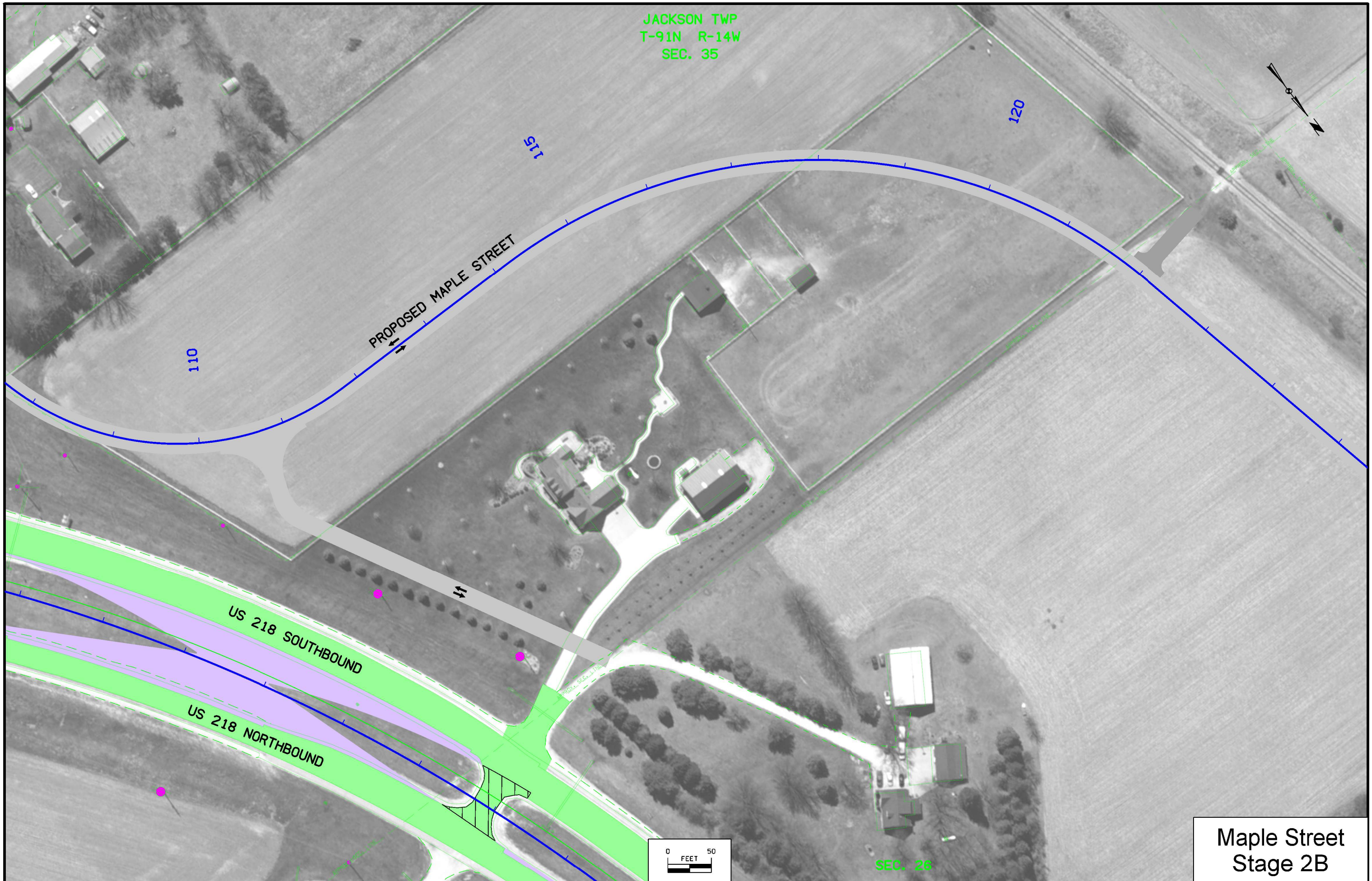
US 218 NORTHBOUND

Maple Street  
Stage 2B





JACKSON TWP  
T-91N R-14W  
SEC. 35



Maple Street  
Stage 2B



JACKSON TWP  
T-91N R-14W  
SEC. 27



125

130

135

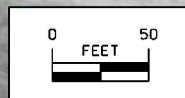
140

PROPOSED MAPLE STREET



SEC. 26

Maple Street  
Stage 2B





JACKSON TWP  
T-91N R-14W  
SEC. 27



140

145

150

155

PROPOSED MAPLE STREET



APPROX. SEC. LINE

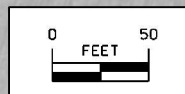
APPROX. SEC. LINE

APPROX. SEC. LINE

APPROX. SEC. LINE

APPROX. SEC. LINE

SEC. 26



Maple Street  
Stage 2B

FILE NO.	ENGLISH	DESIGN TEAM <b>Iowa DOT \ HR Green, Inc.</b>	<b>BREMER</b>	COUNTY	PROJECT NUMBER	<b>NHSX-218-8(124)--3H-09</b>	SHEET NUMBER	<b>J.55</b>
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JACKSON TWP  
T-91N R-14W  
SEC. 27



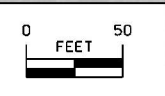
155

160

165

170

PROPOSED MAPLE STREET



Maple Street  
Stage 2B

FILE NO.	ENGLISH	DESIGN TEAM <b>Iowa DOT \ HR Green, Inc.</b>	<b>BREMER</b> COUNTY	PROJECT NUMBER <b>NHSX-218-8(124)--3H-09</b>	SHEET NUMBER <b>J.56</b>
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SEC. 27

JACKSON TWP  
T-91N R-14W  
SEC. 22



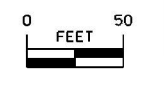
170

175

PROPOSED MAPLE STREET

260TH STREET

PROPOSED EAGLE AVENUE



Maple Street  
Stage 2B



JACKSON TWP  
T-91N R-14W  
SEC. 22



Sta. 7001+80, 55' LT  
Install 24"

Sta. 7001+81, 25' LT  
24" X 49' CMP  
REMOVE

Sta. 7000+14  
24" CMP  
U.A.C.

7000

7005

7010

260TH STREET

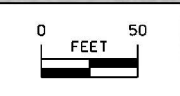
PROPOSED EAGLE AVENUE

PROPOSED 260TH STREET RAMP A

PROPOSED 260TH STREET RAMP C

PROPOSED MAPLE STREET

SEC. 27



260th Street  
Stage 2B





JACKSON TWP  
T-91N R-14W  
SEC. 23

7015

7020

7025

260TH STREET

PROPOSED US 218 SOUTHBOUND

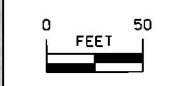
PROPOSED US 218 NORTHBOUND

US 218 SOUTHBOUND

US 218 NORTHBOUND

SEC. 26

260th Street  
Stage 2B



FILE NO.	ENGLISH	DESIGN TEAM	Iowa DOT \ HR Green, Inc.	BREMER	COUNTY	PROJECT NUMBER	NHSX-218-8(124)--3H-09	SHEET NUMBER	J.59
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JACKSON TWP  
T-91N R-14W  
SEC. 35



175

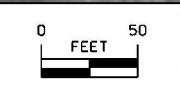
180

185

US 218 SOUTHBOUND ←

US 218 NORTHBOUND →

CEDAR RIVER



Mainline US 218  
Stage 3

FILE NO.	ENGLISH	DESIGN TEAM Iowa DOT \ HR Green, Inc.	BREMER	COUNTY	PROJECT NUMBER	NHSX-218-8(124)--3H-09	SHEET NUMBER	J.60
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JACKSON TWP  
T-91N R-14W  
SEC. 35

PROPOSED MAPLE STREET

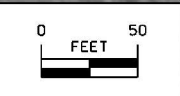
US 218 SOUTHBOUND

US 218 NORTHBOUND

190

195

200



Mainline US 218  
Stage 3





Mainline US 218  
Stage 3



JACKSON TWP  
T-91N R-14W  
SEC. 26



220

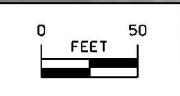
225

230

PROPOSED US 218 SOUTHBOUND

US 218

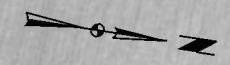
CEDAR DRIVE



Mainline US 218  
Stage 3



JACKSON TWP  
T-91N R-14W  
SEC. 26



235

240

245

PROPOSED 260TH RAMP C

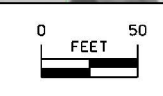
PROPOSED US 218 SOUTHBOUND

PROPOSED US 218 NORTHBOUND

US 218

ISLAND VIEW DRIVE

HUBER ROAD



Mainline US 218  
Stage 3



JACKSON TWP  
T-91N R-14W  
SEC. 26

SEC. 27

SEC. 22

PROPOSED 260TH RAMP C

PROPOSED 260TH RAMP A

260TH STREET

250

255

260

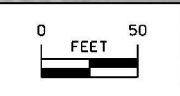
PROPOSED US 218 SOUTHBOUND

PROPOSED US 218 NORTHBOUND

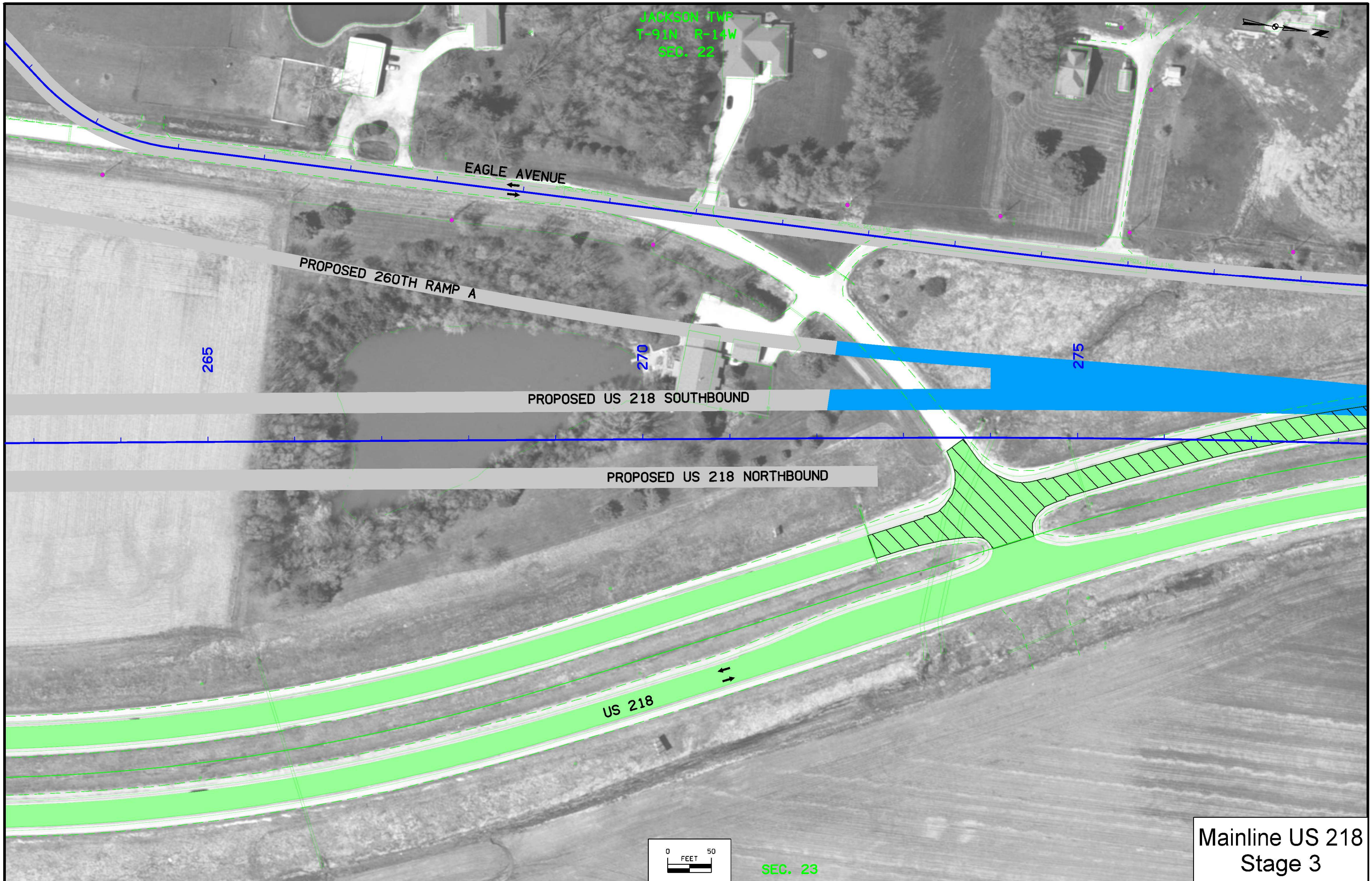
US 218

SEC. 23

Mainline US 218  
Stage 3







JACKSON TWP  
T-91N R-14W  
SEC. 22

EAGLE AVENUE

PROPOSED 260TH RAMP A

265

270

275

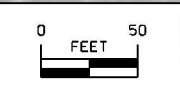
PROPOSED US 218 SOUTHBOUND

PROPOSED US 218 NORTHBOUND

US 218

SEC. 23

Mainline US 218  
Stage 3





JACKSON TWP  
T-91N R-14W  
SEC. 22



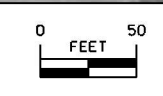
EAGLE AVENUE

280

285

290

US 218



SEC. 23

Mainline US 218  
Stage 3

FILE NO.	ENGLISH	DESIGN TEAM <b>Iowa DOT \ HR Green, Inc.</b>	<b>BREMER</b> COUNTY	PROJECT NUMBER <b>NHSX-218-8(124)-3H-09</b>	SHEET NUMBER <b>J.67</b>
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10:45:50 AM 2/28/2020 manders pw:\projectwise.dot.int.lan:PWMain\Documents\Projects\0721801006\Design\CADD\_Files\Sheet\_Files\SHT\_09218124SPN.J06.dgn





Mainline US 218  
Stage 3



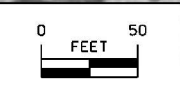
JACKSON TWP  
T-91N R-14W  
SEC. 22

WASHINGTON TWP  
T-91N R-14W  
SEC. 15



SEC. 23

SEC. 14



Mainline US 218  
Stage 3

FILE NO.	ENGLISH	DESIGN TEAM <b>Iowa DOT \ HR Green, Inc.</b>	<b>BREMER</b> COUNTY	PROJECT NUMBER <b>NHSX-218-8(124)--3H-09</b>	SHEET NUMBER <b>J.69</b>
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JACKSON TWP  
T-91N R-14W  
SEC. 22



7000

7005

7010

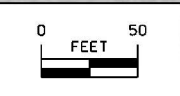
260TH STREET

PROPOSED EAGLE AVENUE

PROPOSED 260TH RAMP A

PROPOSED MAPLE STREET

PROPOSED 260TH RAMP C



SEC. 27

260th Sreet  
Stage 3





JACKSON TWP  
T-91N R-14W  
SEC. 23

260th Street  
Stage 3



JACKSON TWP  
T-91N R-14W  
SEC. 35



175

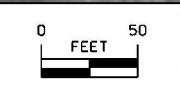
180

185

US 218 SOUTHBOUND ←

US 218 NORTHBOUND →

CEDAR RIVER



Mainline US 218  
Stage 4





JACKSON TWP  
T-91N R-14W  
SEC. 35

MAPLE STREET

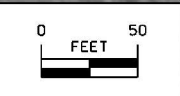
←← US 218 SOUTHBOUND

→→ US 218 NORTHBOUND

191

195

200



Mainline US 218  
Stage 4





SEC. 35

JACKSON TWP  
T-91N R-14W  
SEC. 26

205

210

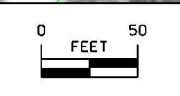
215

US 218 SOUTHBOUND

US 218 NORTHBOUND

EDGEBROOK DRIVE

Mainline US 218  
Stage 4





JACKSON TWP  
T-91N R-14W  
SEC. 26



220

225

230

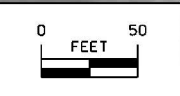


US 218 SOUTHBOUND



US 218 NORTHBOUND

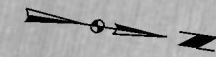
↑ ↓  
CEDAR DRIVE



Mainline US 218  
Stage 4



JACKSON TWP  
T-91N R-14W  
SEC. 26



235

240

245

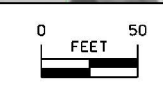
US 218 SOUTHBOUND

PROPOSED 260TH RAMP C

US 218 NORTHBOUND

ISLAND VIEW DRIVE

HUBER ROAD



Mainline US 218  
Stage 4



JACKSON TWP  
T-91N R-14W  
SEC. 26

SEC. 27

SEC. 22

← PROPOSED 260TH RAMP C

PROPOSED 260TH RAMP A

260TH STREET

US 218 SOUTHBOUND

250

255

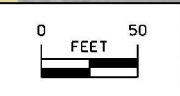
260

US 218 NORTHBOUND

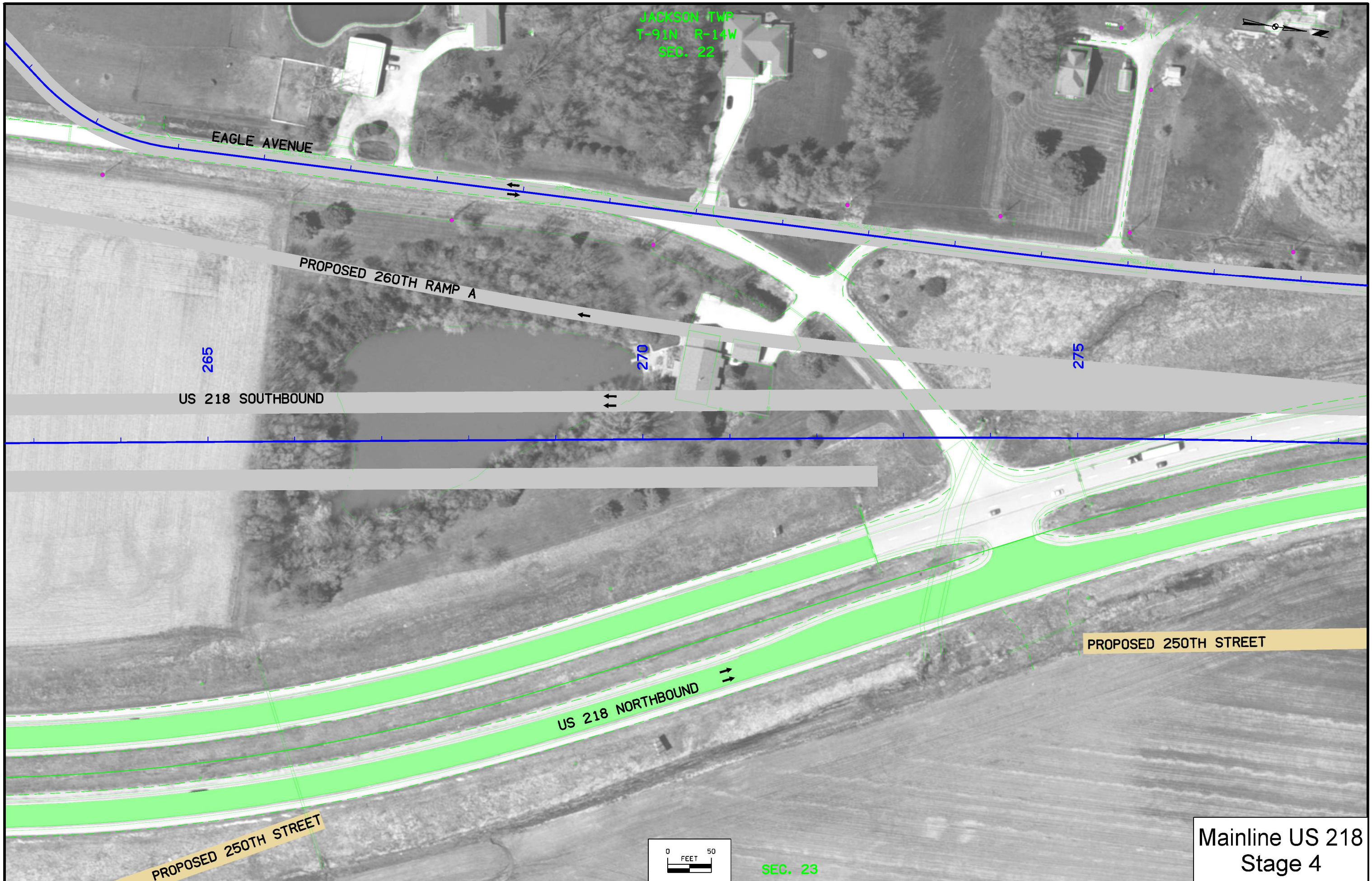
PROPOSED  
EASTON AVENUE

SEC. 23

Mainline US 218  
Stage 4







JACKSON TWP  
T-91N R-14W  
SEC. 22

EAGLE AVENUE

PROPOSED 260TH RAMP A

265  
US 218 SOUTHBOUND

270

275

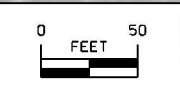
PROPOSED 250TH STREET

US 218 NORTHBOUND

PROPOSED 250TH STREET

SEC. 23

Mainline US 218  
Stage 4



FILE NO.	ENGLISH	DESIGN TEAM <b>Iowa DOT \ HR Green, Inc.</b>	<b>BREMER</b> COUNTY	PROJECT NUMBER <b>NHSX-218-8(124)-3H-09</b>	SHEET NUMBER <b>J.78</b>
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JACKSON TWP  
T-91N R-14W  
SEC. 22



EAGLE AVENUE

280

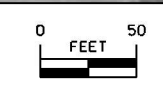
285

290

US 218 SOUTHBOUND

US 218 NORTHBOUND

PROPOSED 250TH STREET



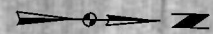
SEC. 23

Mainline US 218  
Stage 4





JACKSON TWP  
T-91N R-14W  
SEC. 22



250TH STREET

295

300

305

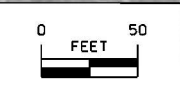
US 218 SOUTHBOUND

US 218 NORTHBOUND

250TH STREET

SEC. 23

Mainline US 218  
Stage 4





JACKSON TWP  
T-91N R-14W  
SEC. 22

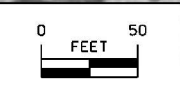
WASHINGTON TWP  
T-91N R-14W  
SEC. 15



US 218 SOUTHBOUND

US 218 NORTHBOUND

Mainline US 218  
Stage 4





JACKSON TWP  
T-91N R-14W  
SEC. 22



7000

7005

7010

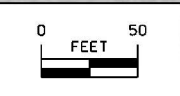
260TH STREET

PROPOSED EAGLE AVENUE

← PROPOSED 260TH RAMP A

PROPOSED MAPLE STREET

PROPOSED 260TH RAMP C



SEC. 27

260th Street  
Stage 4





JACKSON TWP  
T-91N R-14W  
SEC. 23

7015

7020

7025

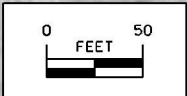
260TH STREET

US 218 SOUTHBOUND

US 218 NORTHBOUND

SEC. 26

260th Street  
Stage 4





JACKSON TWP  
T-91N R-14W  
SEC. 35



175

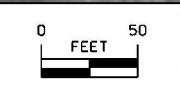
180

185

US 218 SOUTHBOUND ←

US 218 NORTHBOUND →

CEDAR RIVER



Mainline US 218  
Stage 5A

FILE NO.	ENGLISH	DESIGN TEAM Iowa DOT \ HR Green, Inc.	BREMER	COUNTY	PROJECT NUMBER	NHSX-218-8(124)--3H-09	SHEET NUMBER	J.84
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JACKSON TWP  
T-91N R-14W  
SEC. 35

MAPLE STREET

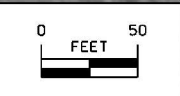
US 218 SOUTHBOUND

US 218 NORTHBOUND

195

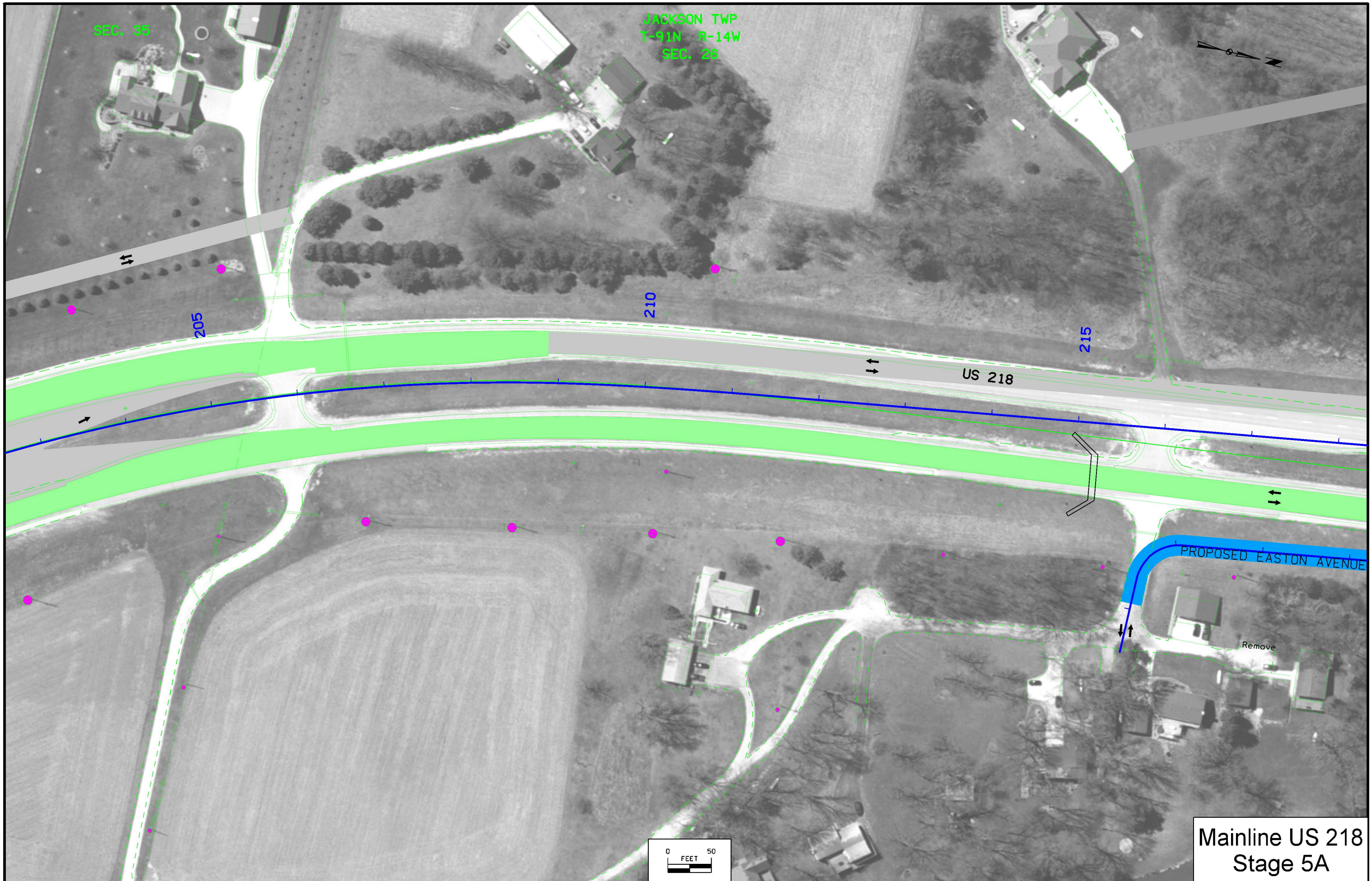
190

200



Mainline US 218  
Stage 5A





Mainline US 218  
Stage 5A



JACKSON TWP  
T-91N R-14W  
SEC. 26



220

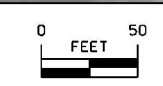
225

230

US 218

PROPOSED EASTON AVENUE

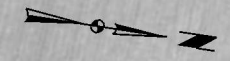
CEDAR DRIVE



Mainline US 218  
Stage 5A



JACKSON TWP  
T-91N R-14W  
SEC. 26



235

240

245

← PROPOSED 260TH RAMP C

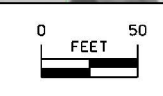
US 218



ISLAND VIEW DRIVE

HUBER ROAD

U.A.C.



Mainline US 218  
Stage 5A



JACKSON TWP  
T-91N R-14W  
SEC. 26

SEC. 27

SEC. 22



← PROPOSED 260TH RAMP C

→ PROPOSED 260TH RAMP A

250

255

260

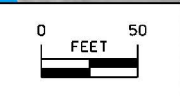
US 218

260TH STREET

PROPOSED EASTON AVENUE

+55 Prop.  
Type 'C' Ent.

S 218  
5A

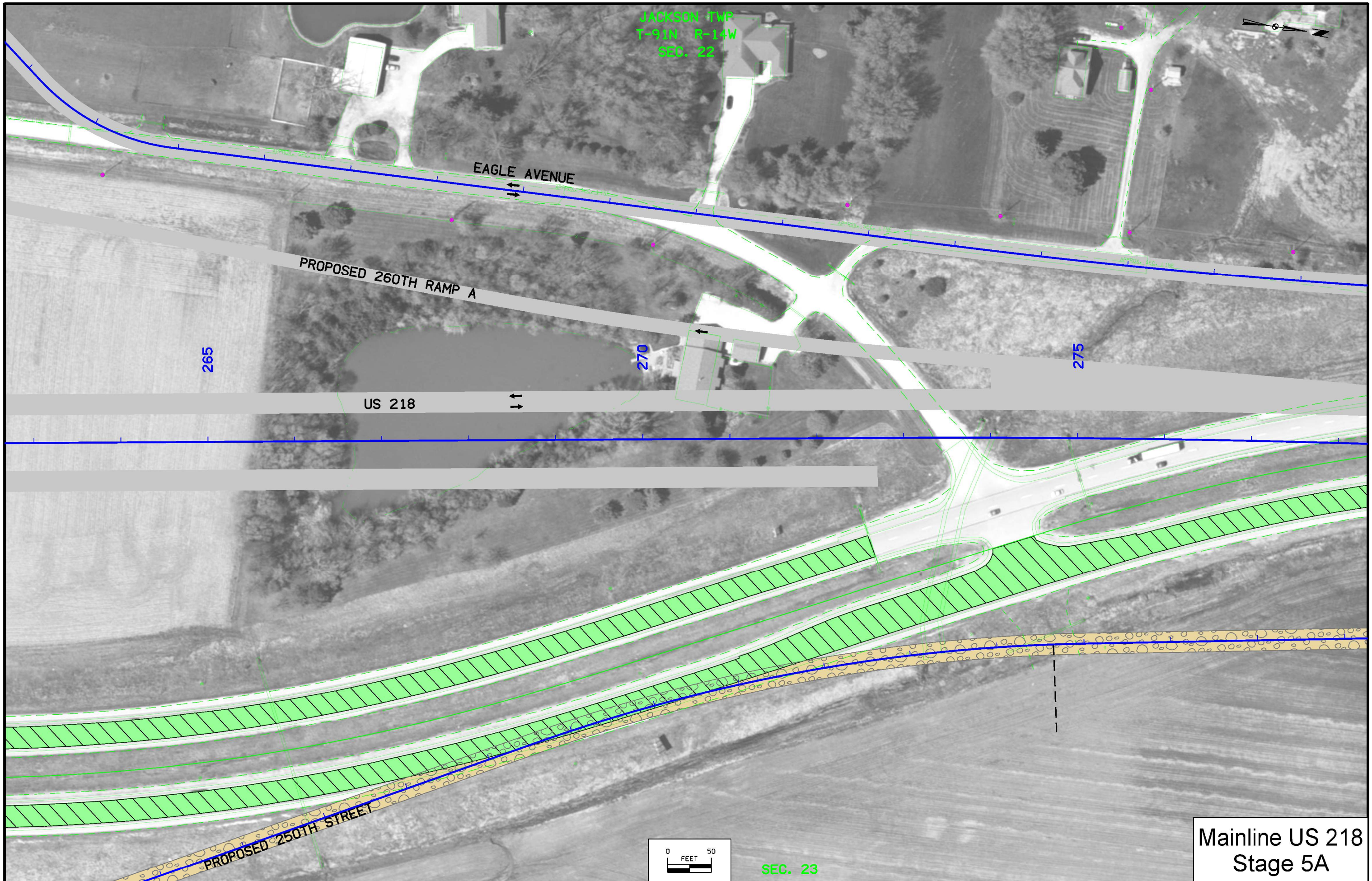


Mainline US 218  
Stage 5A

SEC. 23

FILE NO.	ENGLISH	DESIGN TEAM <b>Iowa DOT \ HR Green, Inc.</b>	<b>BREMER</b> COUNTY	PROJECT NUMBER <b>NHSX-218-8(124)-3H-09</b>	SHEET NUMBER <b>J.89</b>
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JACKSON TWP  
T-91N R-14W  
SEC. 22



EAGLE AVENUE



280

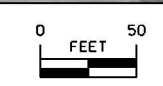
285

290

US 218



PROPOSED 250TH STREET



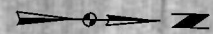
SEC. 23

Mainline US 218  
Stage 5A





JACKSON TWP  
T-91N R-14W  
SEC. 22



250TH STREET



295

300

305

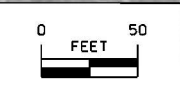
US 218



250TH STREET



U.A.C.



SEC. 23

Mainline US 218  
Stage 5A



JACKSON TWP  
T-91N R-14W  
SEC. 22

WASHINGTON TWP  
T-91N R-14W  
SEC. 15



US 218 SOUTHBOUND

US 218 NORTHBOUND

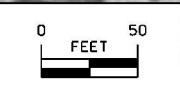
310

315

320

SEC. 23

SEC. 14



Mainline US 218  
Stage 5A

FILE NO.	ENGLISH	DESIGN TEAM <b>Iowa DOT \ HR Green, Inc.</b>	<b>BREMER</b> COUNTY	PROJECT NUMBER <b>NHSX-218-8(124)--3H-09</b>	SHEET NUMBER <b>J.93</b>
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JACKSON TWP  
T-91N R-14W  
SEC. 22



Sta. 7001+80, 55' LT  
Install 24"

Sta. 7001+81, 25' LT  
24" X 49' CMP  
REMOVE

7000

7005

7010

260TH STREET

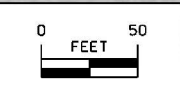
PROPOSED EAGLE AVENUE

PROPOSED 260TH RAMP A

Sta. 7000+14  
24" CMP  
U.A.C.

PROPOSED MAPLE STREET

PROPOSED 260TH RAMP C



SEC. 27

260th Street  
Stage 5A





260th Street  
Stage 5A



JACKSON TWP  
T-91N R-14W  
SEC. 35



175

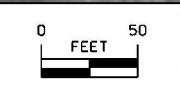
180

185

US 218 SOUTHBOUND ←

US 218 NORTHBOUND →

CEDAR RIVER



Mainline US 218  
Stage 5B

FILE NO.	ENGLISH	DESIGN TEAM Iowa DOT \ HR Green, Inc.	BREMER	COUNTY	PROJECT NUMBER	NHSX-218-8(124)--3H-09	SHEET NUMBER	J.96
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JACKSON TWP  
T-91N R-14W  
SEC. 35

MAPLE STREET

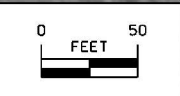
US 218 SOUTHBOUND

US 218 NORTHBOUND

190

195

200



Mainline US 218  
Stage 5B





Mainline US 218  
Stage 5B



JACKSON TWP  
T-91N R-14W  
SEC. 26



220

225

230

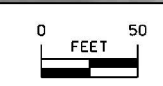


US 218



EASTON AVENUE

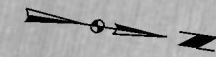
CEDAR DRIVE



Mainline US 218  
Stage 5B



JACKSON TWP  
T-91N R-14W  
SEC. 26



235

240

245

PROPOSED 260TH RAMP C

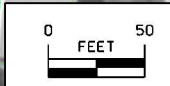
US 218

PROPOSED 260TH RAMP B

EASTON AVENUE

ISLAND VIEW DRIVE

HUBER ROAD



Mainline US 218  
Stage 5B



JACKSON TWP  
T-91N R-14W  
SEC. 26

SEC. 27

SEC. 22



PROPOSED 260TH RAMP C

PROPOSED 260TH RAMP A

250

255

260

US 218

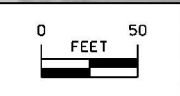
260TH STREET

PROPOSED 260TH RAMP B

PROPOSED 260TH RAMP D

EASTON AVENUE

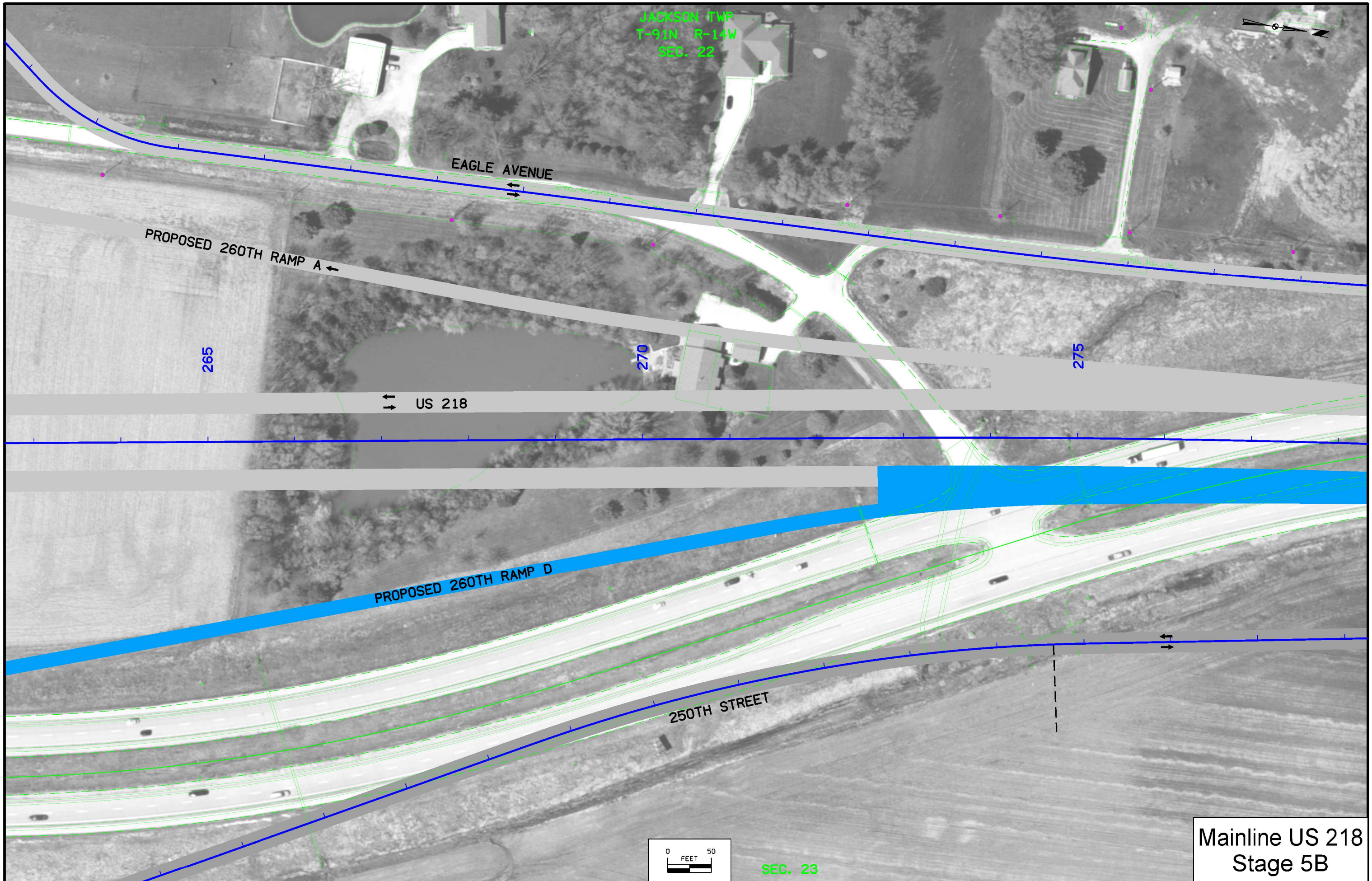
+55 Prop.  
Type 'C' Ent.



Mainline US 218  
Stage 5B

SEC. 23





JACKSON TWP  
T-91N R-14W  
SEC. 22

EAGLE AVENUE

PROPOSED 260TH RAMP A ←

265

US 218

270

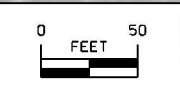
275

PROPOSED 260TH RAMP D

250TH STREET

SEC. 23

Mainline US 218  
Stage 5B





JACKSON TWP  
T-91N R-14W  
SEC. 22



EAGLE AVENUE

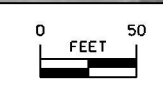
280

285

US 218

290

250TH STREET



SEC. 23

Mainline US 218  
Stage 5B

FILE NO.	ENGLISH	DESIGN TEAM <b>Iowa DOT \ HR Green, Inc.</b>	<b>BREMER</b> COUNTY	PROJECT NUMBER <b>NHSX-218-8(124)-3H-09</b>	SHEET NUMBER <b>J.103</b>
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Mainline US 218  
Stage 5B



JACKSON TWP  
T-91N R-14W  
SEC. 22

WASHINGTON TWP  
T-91N R-14W  
SEC. 15



US 218 SOUTHBOUND

US 218 NORTHBOUND

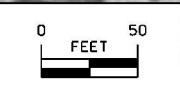
310

315

320

SEC. 23

SEC. 14



Mainline US 218  
Stage 5B



JACKSON TWP  
T-91N R-14W  
SEC. 22



Sta 7001+80, 55' LT  
Install 24"

Sta. 7001+81, 25' LT  
24" X 49' CMP  
REMOVE

7000

7005

7010

260TH STREET

PROPOSED EAGLE AVENUE

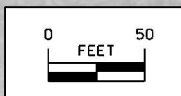
PROPOSED 260TH RAMP A

Sta. 7000+14  
24" CMP  
U.A.C.

PROPOSED MAPLE STREET

PROPOSED 260TH RAMP C

SEC. 27



260th Street  
Stage 5B



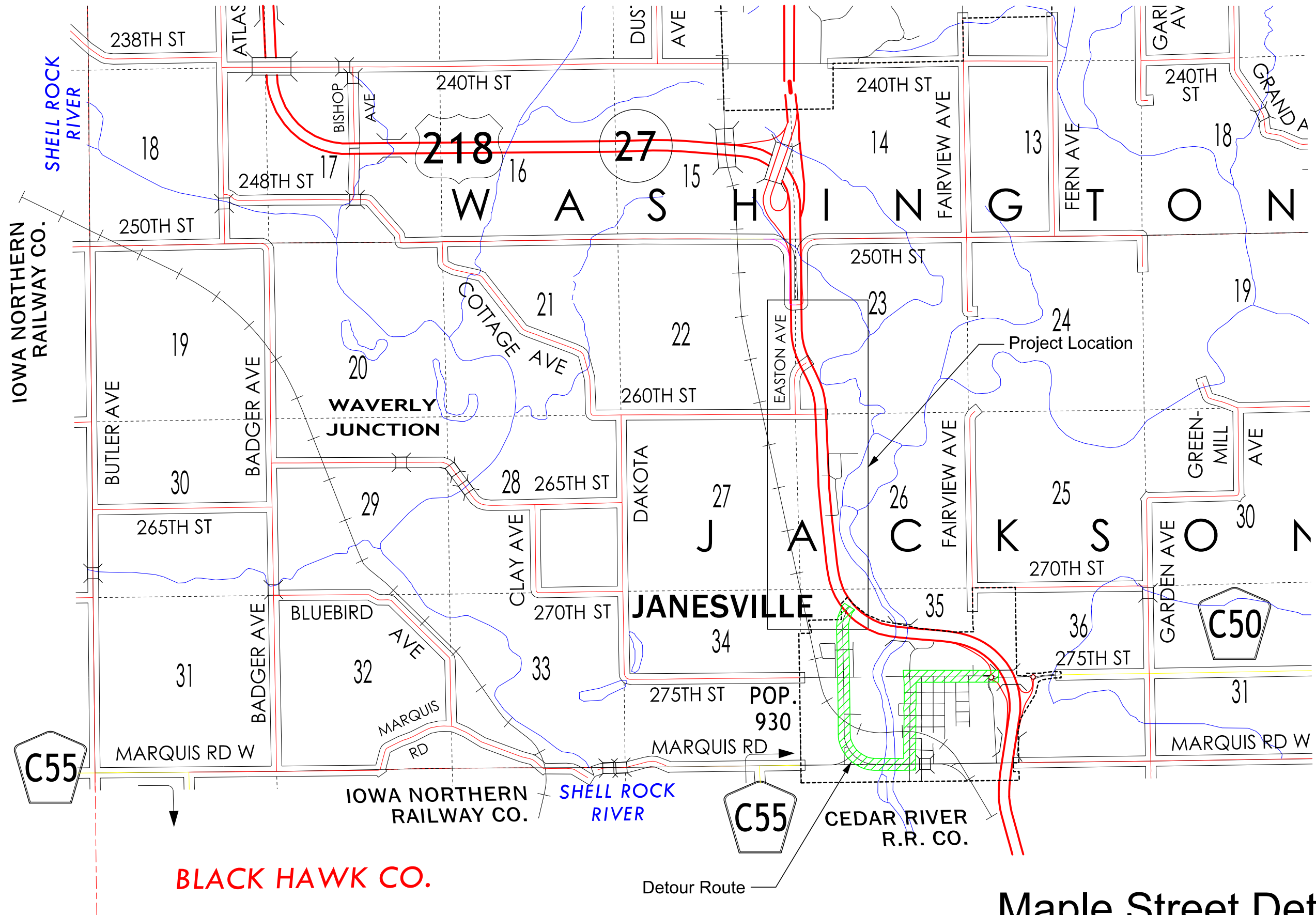


260th Street  
Stage 5B



**BUTLER CO.**

**BLACK HAWK CO.**



# Maple Street Detour



**BUTLER CO.**

**BLACK HAWK CO.**

IOWA NORTHERN RAILWAY CO.

IOWA NORTHERN RAILWAY CO.

CEDAR RIVER R.R. CO.

SHELL ROCK RIVER

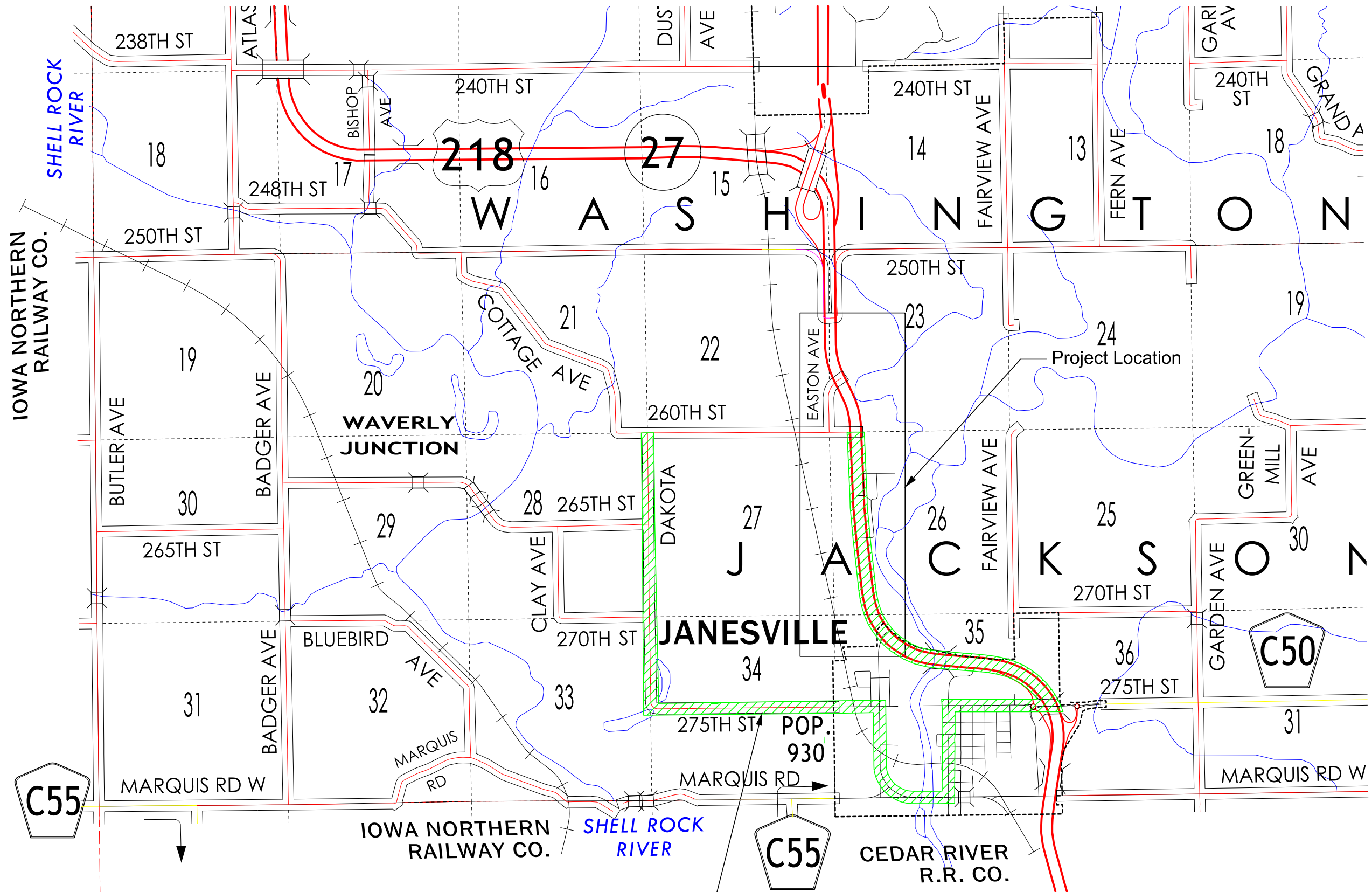
SHELL ROCK RIVER

WAVERLY JUNCTION

JANESVILLE

Detour Route

# 260th Street Detour



218

27

C50

C55

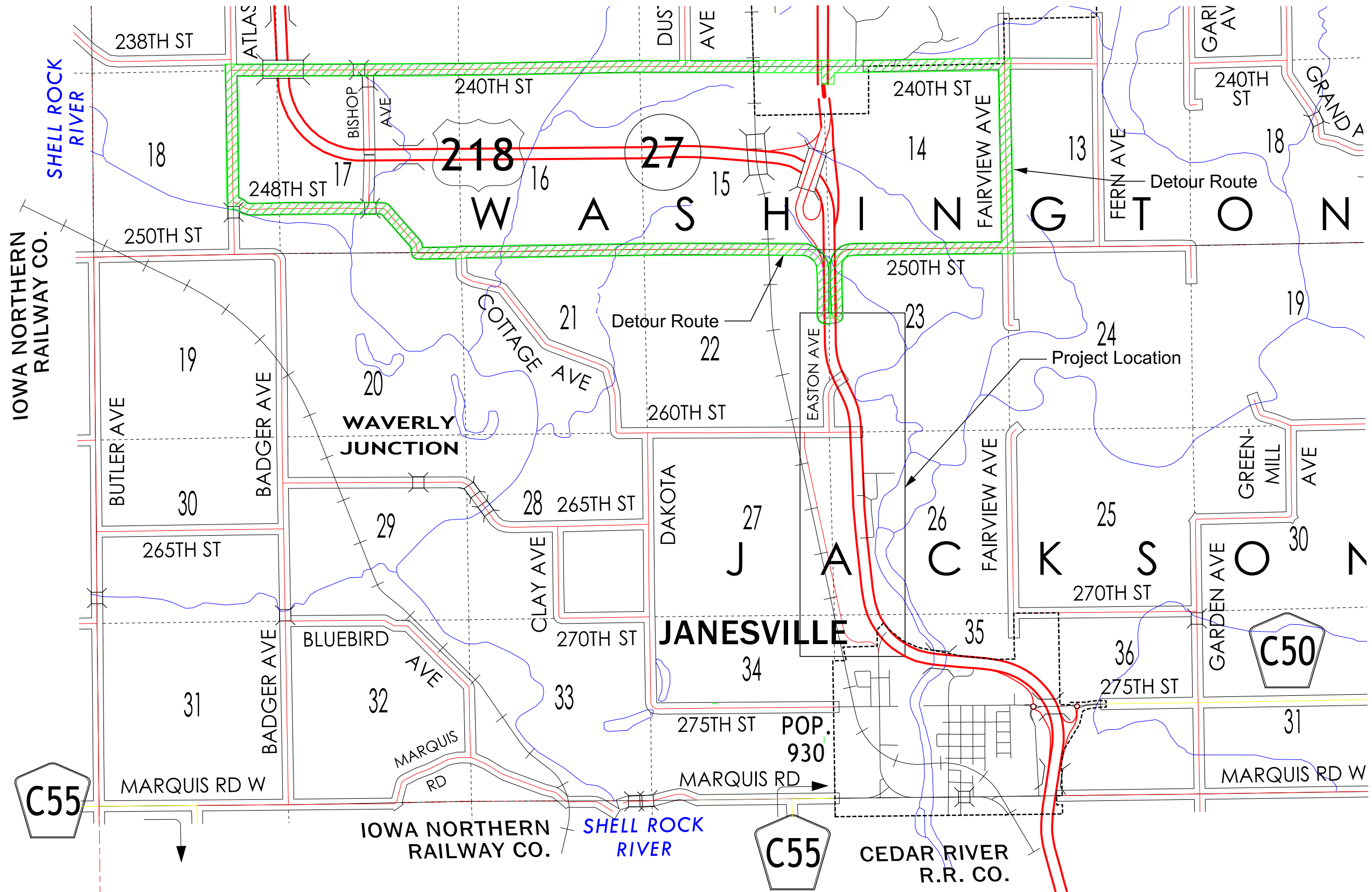
C55

POP. 930



**BUTLER CO.**

**BLACK HAWK CO.**



# 250th Street Detour









JACKSON TWP.  
T-91N R-14W  
Sec. 22

Curve Data  
 $\Delta = 6^\circ 48' 35.53''$  (LT)  
 $T = 297.49$   
 $L = 594.27$   
 $R = 5,000.00$   
 $E = 8.84$   
 $e = 3.02$   
 $x = 93$   
 $DS = 62$   
 $DS = 60$

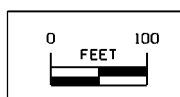
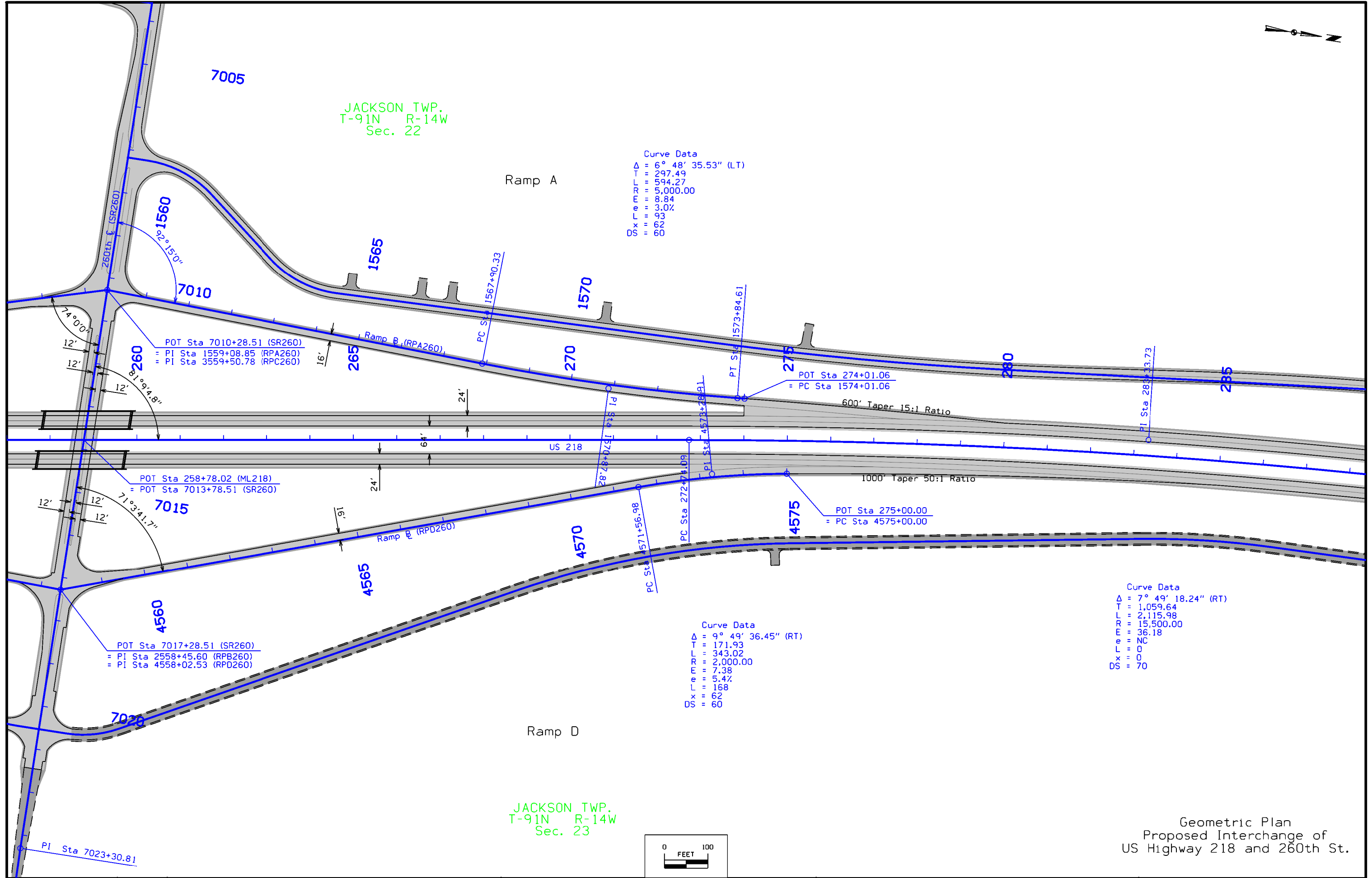
Ramp A

JACKSON TWP.  
T-91N R-14W  
Sec. 23

Ramp D

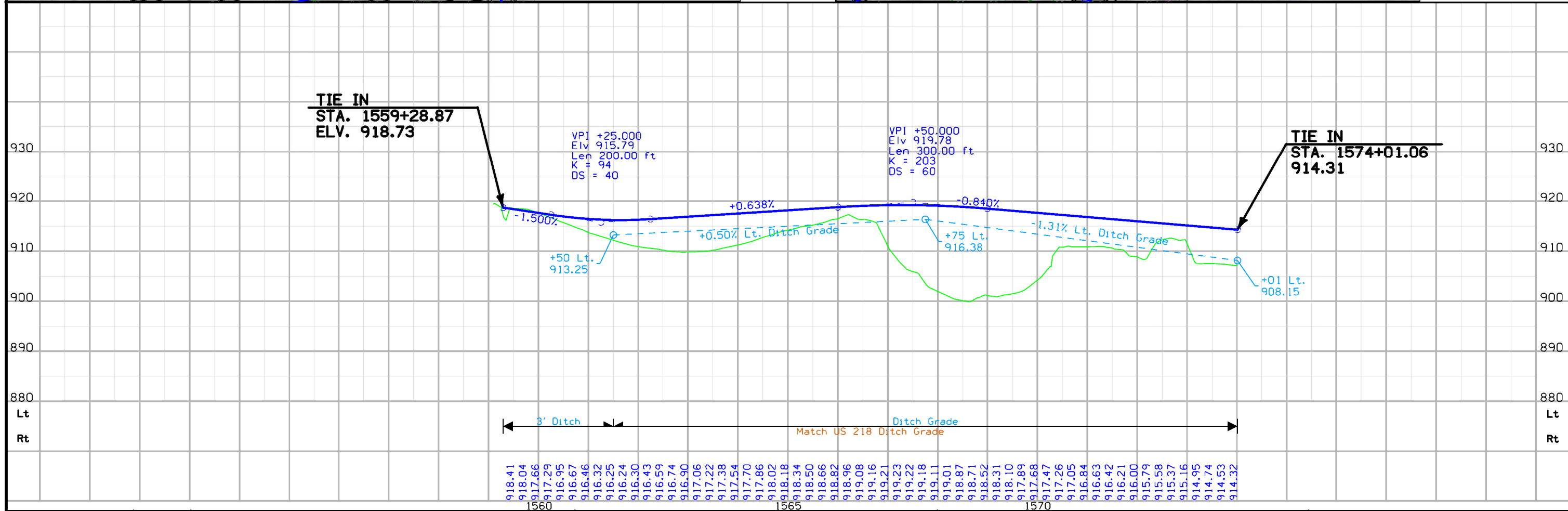
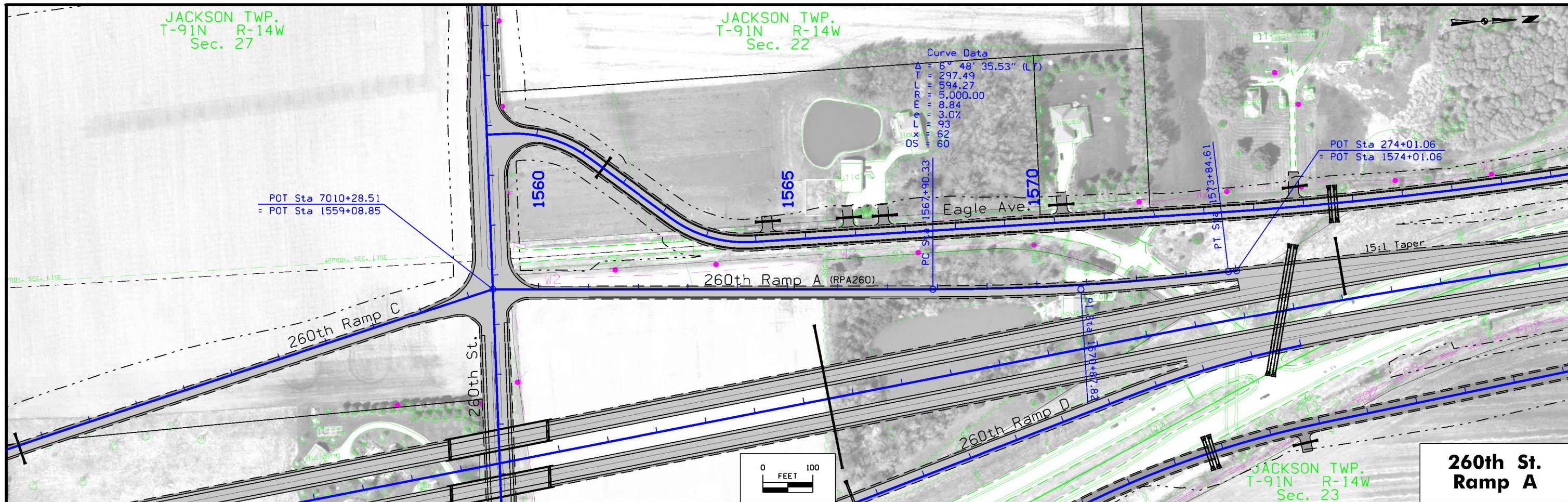
Curve Data  
 $\Delta = 9^\circ 49' 36.45''$  (RT)  
 $T = 171.93$   
 $L = 343.02$   
 $R = 2,000.00$   
 $E = 7.38$   
 $e = 5.42$   
 $L = 168$   
 $x = 62$   
 $DS = 60$

Curve Data  
 $\Delta = 7^\circ 49' 18.24''$  (RT)  
 $T = 1,059.64$   
 $L = 2,115.98$   
 $R = 15,500.00$   
 $E = 36.18$   
 $e = NC$   
 $L = 0$   
 $x = 0$   
 $DS = 70$

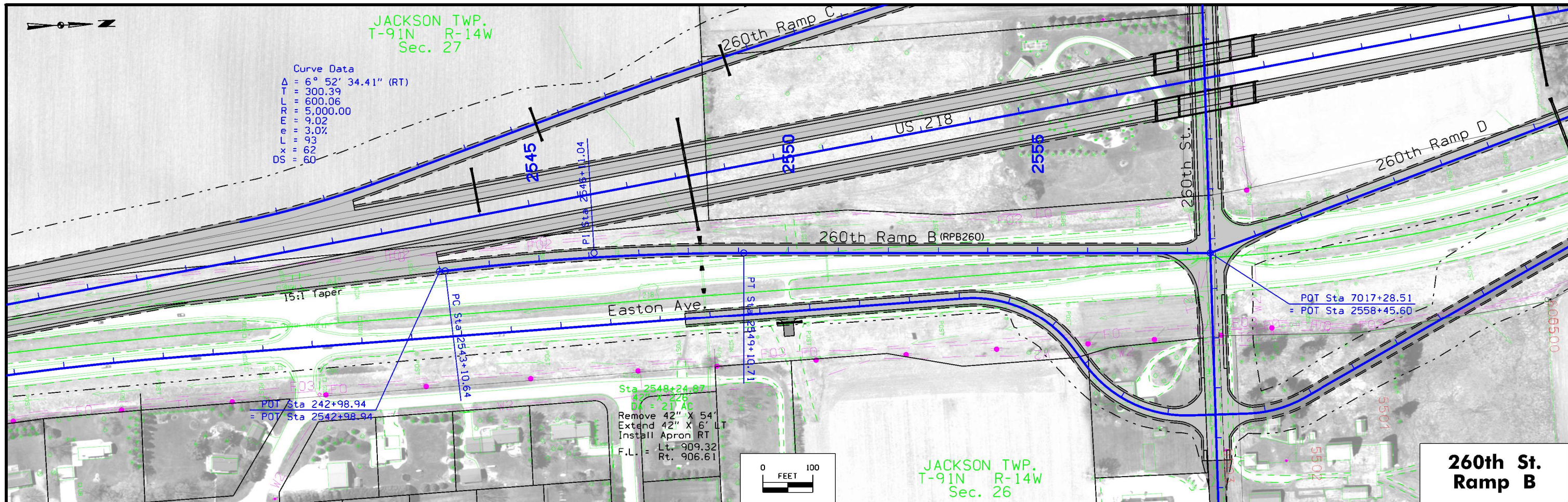


Geometric Plan  
 Proposed Interchange of  
 US Highway 218 and 260th St.

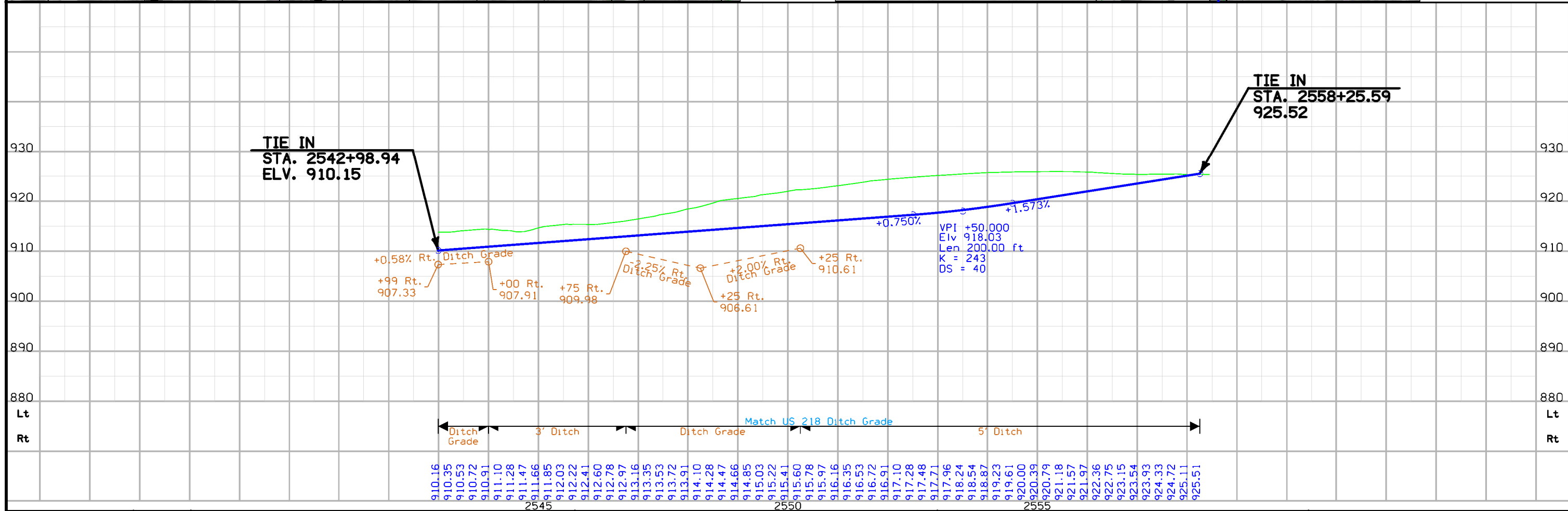




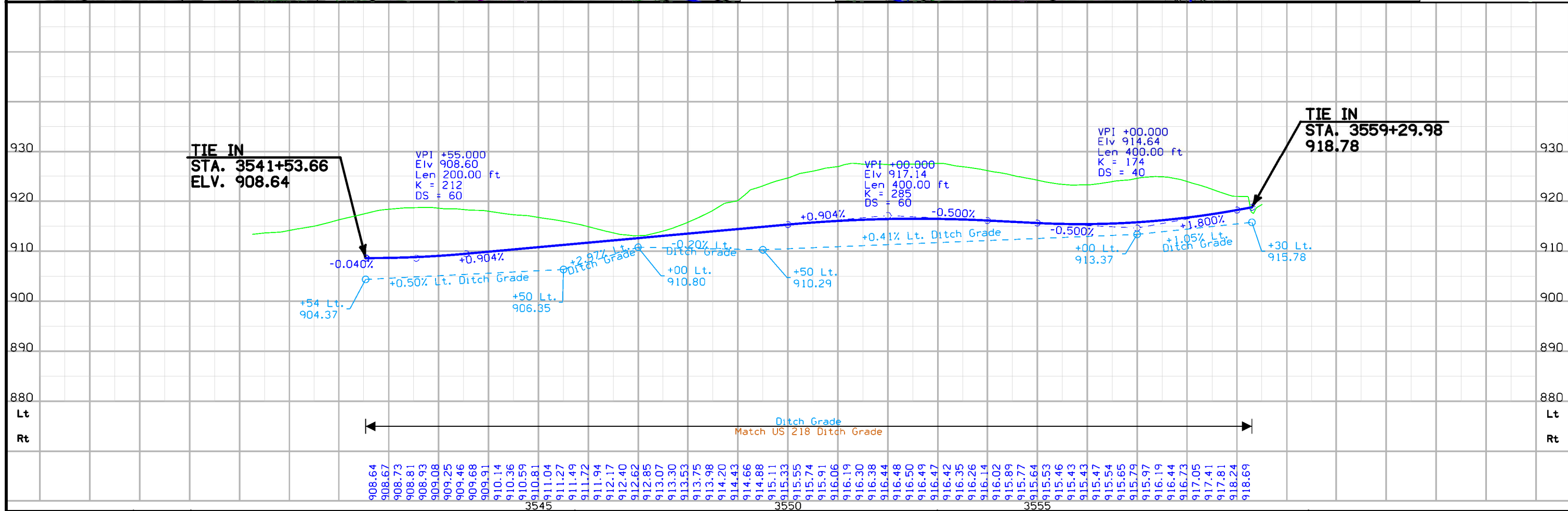
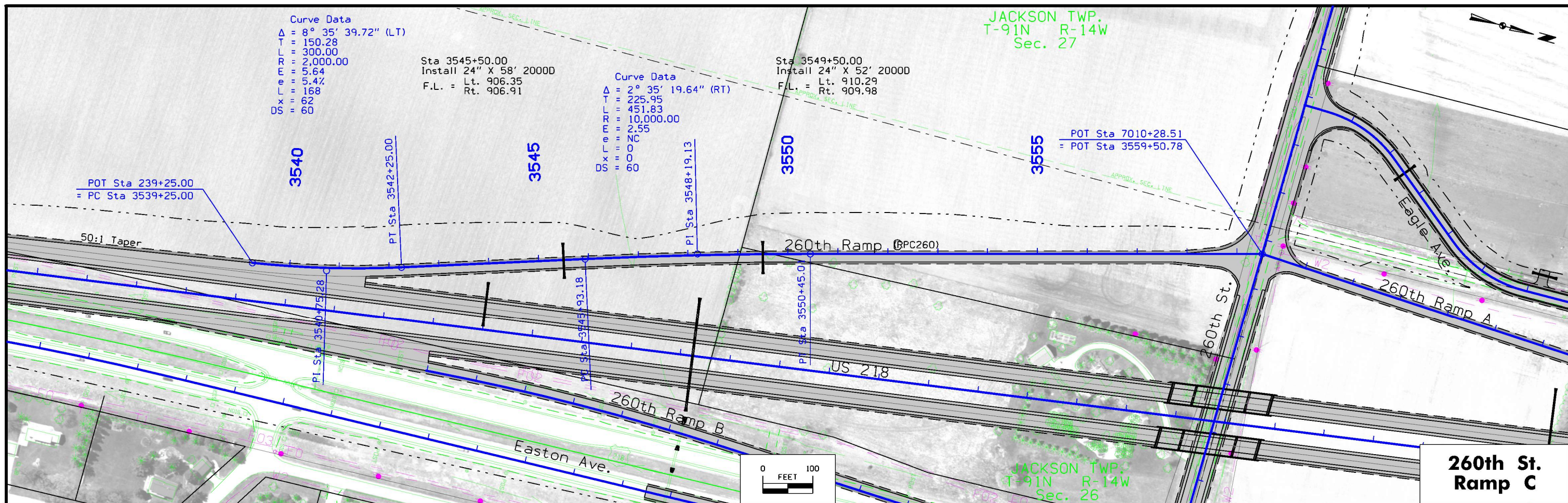




**260th St. Ramp B**

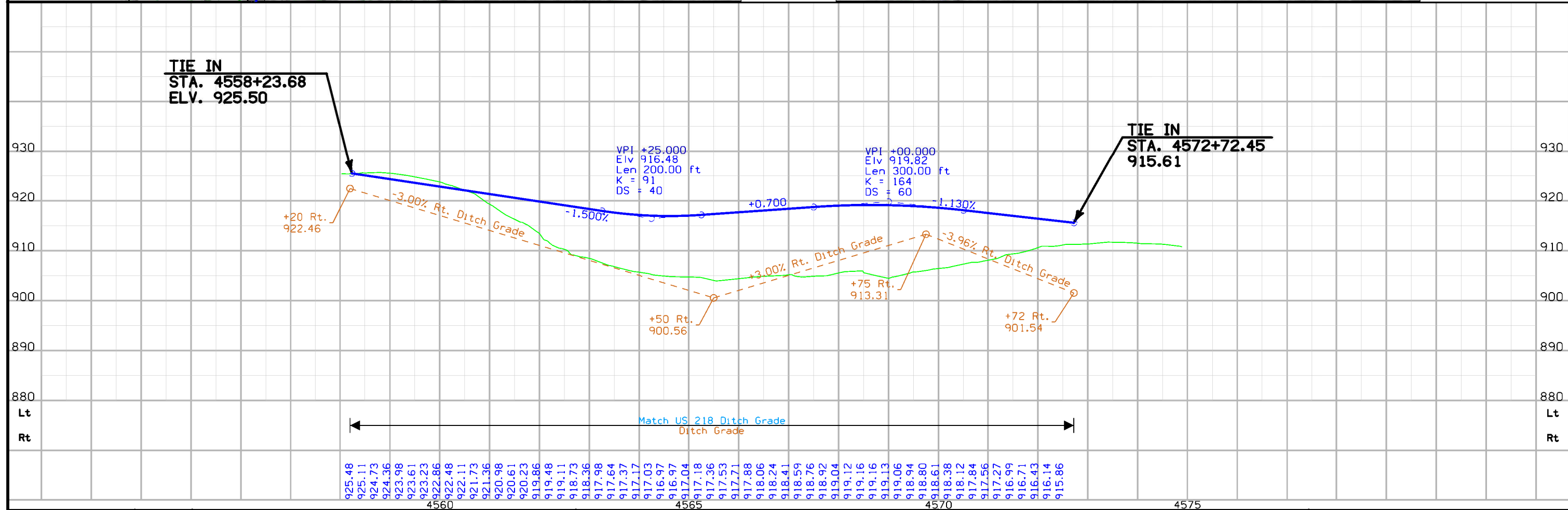
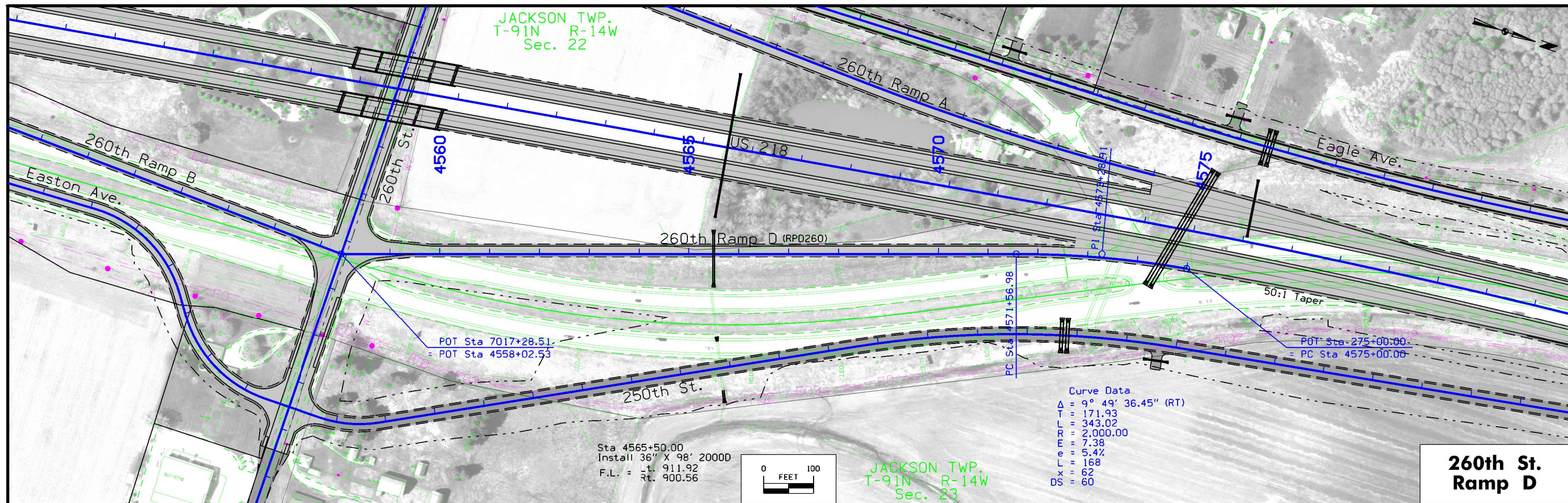






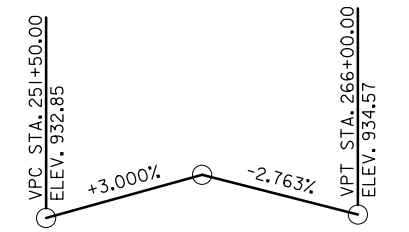
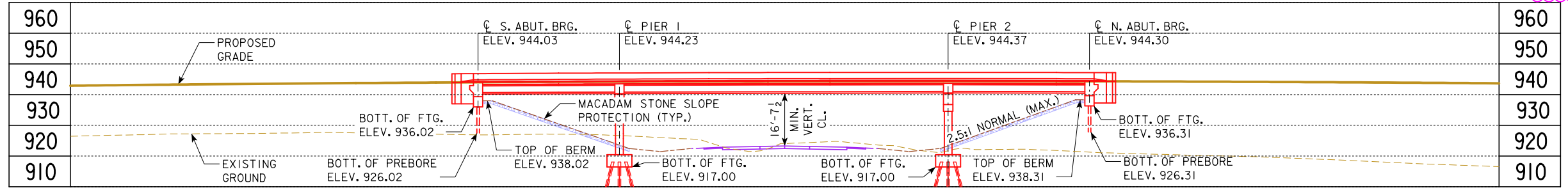
FILE NO.	ENGLISH	DESIGN TEAM Iowa DOT \ HR Green, Inc.	BREMER	COUNTY	PROJECT NUMBER NHSX-218-8(124)-3H-09	SHEET NUMBER K.5
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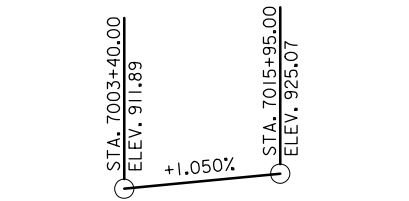


BENCH MARK NO. 960



VPI STA = 258+75.00 VC = 1450.00'  
 VPI ELEV = 954.60

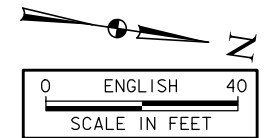
**PROPOSED PROFILE GRADE U.S. 218**



**PROPOSED PROFILE GRADE 260TH ST.**

**LOCATION**  
 N.B. U.S. 218 OVER 260TH ST.  
 T-9IN R-14W  
 SECTION 23 & 26  
 JACKSON TOWNSHIP  
 BREMER COUNTY  
 FHWA NO. ?  
 BRIDGE MAINT. NO. ?  
 LATITUDE 42.671297°  
 LONGITUDE -92.473794°

- NOTES:**
1. TOP OF BRIDGE DECK CROWN AT CL APPROACH ROADWAY IS 0.21' ABOVE PROFILE GRADE TO ACCOUNT FOR THE CROSS SLOPE AND PARABOLIC CROWN.
  2. PIER TYPE-FRAME. PIERS ARE EXEMPT FROM VEHICULAR COLLISION FORCE DESIGN.
  3. COLLISION FORCE DESIGN.
  4. BEAM TYPE-BTB.
  5. STANDARD INTEGRAL ABUTMENTS.
  6. BERM SLOPE-MACADAM STONE.
  7. VERTICAL CLEARANCE BASED ON 8.5" DECK THICKNESS AND 2" HAUNCH.
  8. MASH TL-4 (38") BRIDGE RAILING PROPOSED.
  9. PROPOSED GRADING BETWEEN THE BRIDGE BERM AND PROPOSED PAVEMENT CONFORMS TO IDOT STANDARD ROAD PLAN EW-211.



**LONGITUDINAL SECTION ALONG CL N.B. APPROACH ROADWAY**

**BERM SLOPE LOCATION TABLE**

POINTS	SOUTH ABUTMENT			NORTH ABUTMENT		
	STATION	OFFSET	ELEV.	STATION	OFFSET	ELEV.
A1	258+24.08	21.42' RT.	922.31	259+25.29	21.42' RT.	922.14
A2	258+16.43	70.58' RT.	922.83	259+17.63	70.58' RT.	922.66
B1	257+79.80	21.42' RT.	938.02	259+69.69	21.42' RT.	938.31
B2	257+72.02	70.58' RT.	938.02	259+61.90	70.58' RT.	938.31
W1	257+66.00	21.42' RT.	943.52	259+82.04	21.42' RT.	943.78
W2	257+59.67	70.58' RT.	943.40	259+75.70	70.58' RT.	943.72

BERM SLOPE ELEVATIONS REFLECT THE GRADING SURFACE

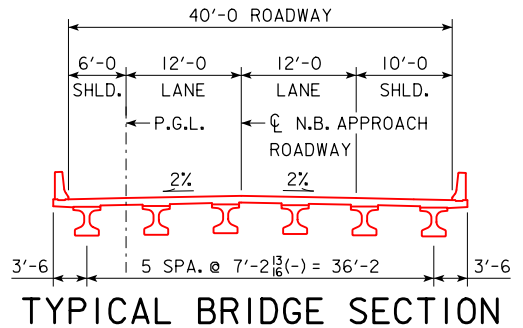
**TRAFFIC ESTIMATE**

2013 AADT	9,400	V.P.D.
2040 AADT	16,250	V.P.D.
2040 DHV	-	V.P.H.
TRUCKS	12	%
TOTAL DESIGN ESALS	-	-

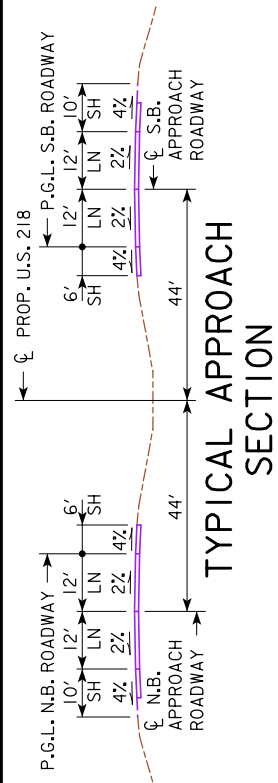
**MINIMUM VERTICAL CLEARANCE**  
 N.B. ROADWAY  
 OVERHEAD STATION = 258+68.04, OFFSET 64.08' RT.  
 OVERHEAD ELEVATION = 943.98  
 DEPTH OF SUPERSTRUCTURE = 3.88'  
 UNDERPASS STATION = 7014+43.37, OFFSET 0.00'  
 UNDERPASS ELEVATION = 923.48  
 MINIMUM VERTICAL CLEARANCE = 16.63'

**UTILITIES LEGEND:**

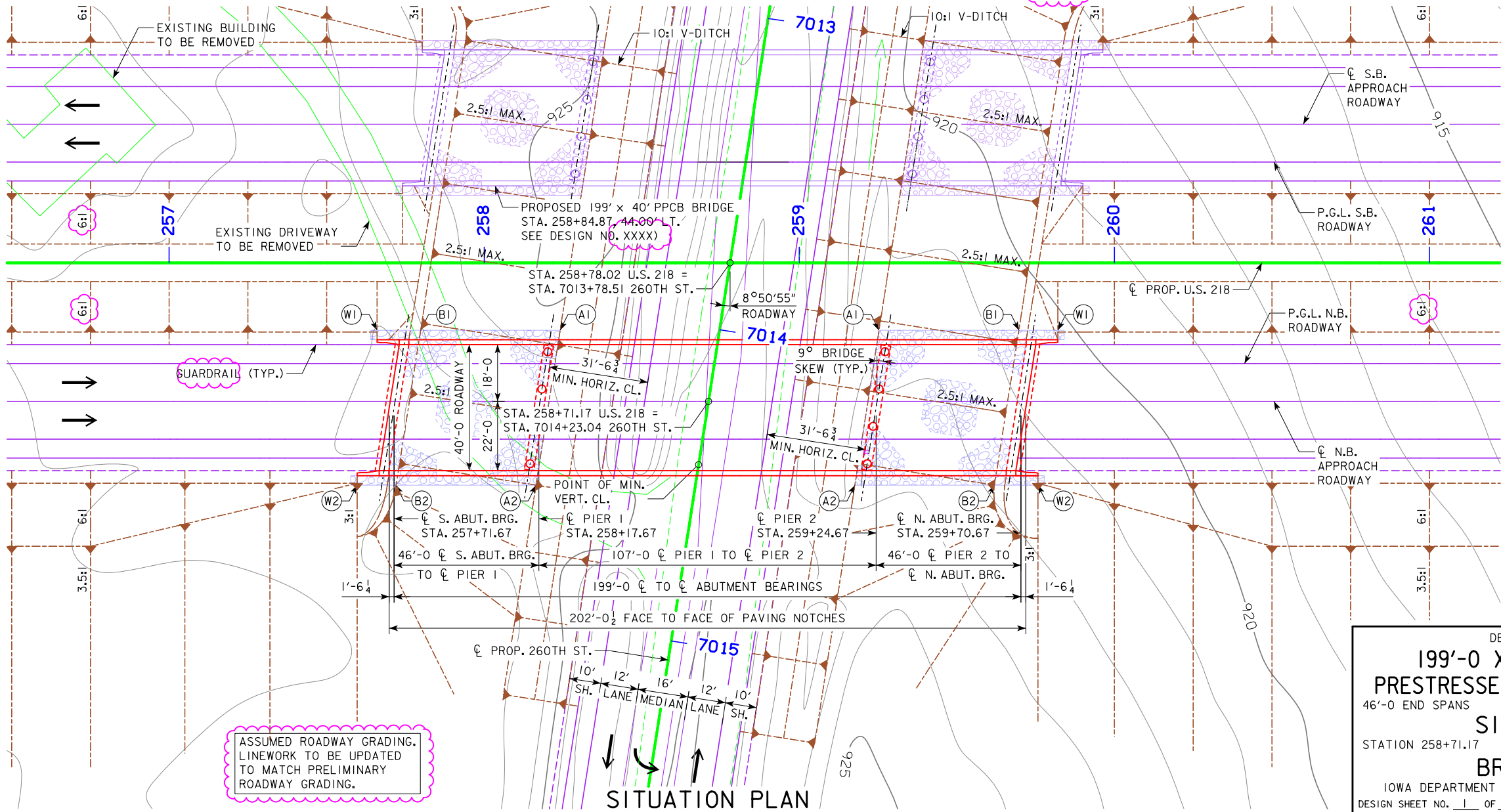
— AERIAL UTILITY LINE



**TYPICAL BRIDGE SECTION**



**TYPICAL APPROACH SECTION**

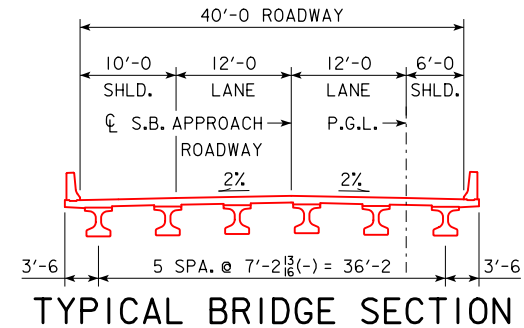
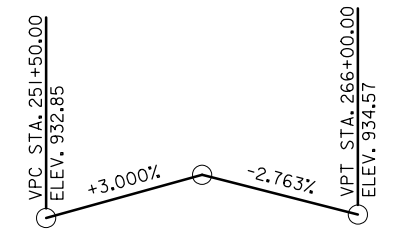
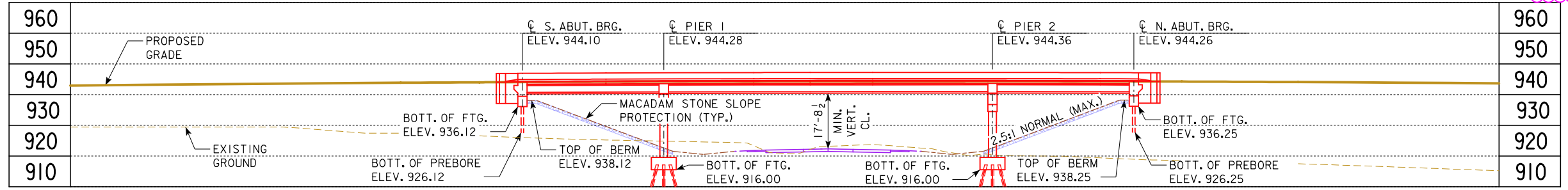


ASSUMED ROADWAY GRADING. LINEWORK TO BE UPDATED TO MATCH PRELIMINARY ROADWAY GRADING.

**SITUATION PLAN**

PRELIMINARY  
 DESIGN FOR 9° SKEW (L.A.)  
**199'-0 X 40'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE**  
 46'-0 END SPANS (BTB BEAMS) 107'-0 INTERIOR SPAN  
**SITUATION PLAN**  
 STATION 258+71.17 (N.B. U.S. 218 OVER 260TH ST.) MARCH, 2020  
**BREMER COUNTY**  
 IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION  
 DESIGN SHEET NO. 1 OF 1 FILE NO. ? DESIGN NO. ?





POINTS	SOUTH ABUTMENT			NORTH ABUTMENT		
	STATION	OFFSET	ELEV.	STATION	OFFSET	ELEV.
A1	258+38.41	70.58' LT.	921.33	259+39.61	70.58' LT.	921.16
A2	258+30.75	21.42' LT.	921.85	259+31.96	21.42' LT.	921.69
B1	257+94.14	70.58' LT.	938.12	259+84.02	70.58' LT.	938.25
B2	257+86.35	21.42' LT.	938.12	259+76.24	21.42' LT.	938.25
W1	257+80.34	70.58' LT.	943.51	260+96.37	70.58' LT.	943.66
W2	257+74.00	21.42' LT.	943.56	259+90.04	21.42' LT.	943.76

BERM SLOPE ELEVATIONS REFLECT THE GRADING SURFACE

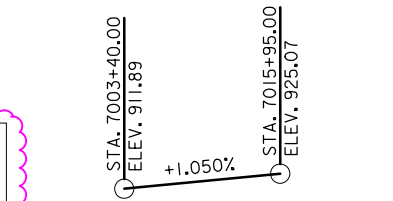
TRAFFIC ESTIMATE	
2013 AADT	9,150 V.P.D.
2040 AADT	15,800 V.P.D.
2040 DHV	- V.P.H.
TRUCKS	12 %
TOTAL DESIGN ESALS	-

**MINIMUM VERTICAL CLEARANCE**  
 S.B. ROADWAY  
 OVERHEAD STATION = 258+82.37, OFFSET 27.92' LT.  
 OVERHEAD ELEVATION = 944.08  
 DEPTH OF SUPERSTRUCTURE = 3.88'  
 UNDERPASS STATION = 7013+50.26, OFFSET 0.00'  
 UNDERPASS ELEVATION = 922.50  
 MINIMUM VERTICAL CLEARANCE = 17.71'

**UTILITIES LEGEND:**  
 - AERIAL UTILITY LINE

ASSUMED ROADWAY GRADING. LINEWORK TO BE UPDATED TO MATCH PRELIMINARY ROADWAY GRADING.

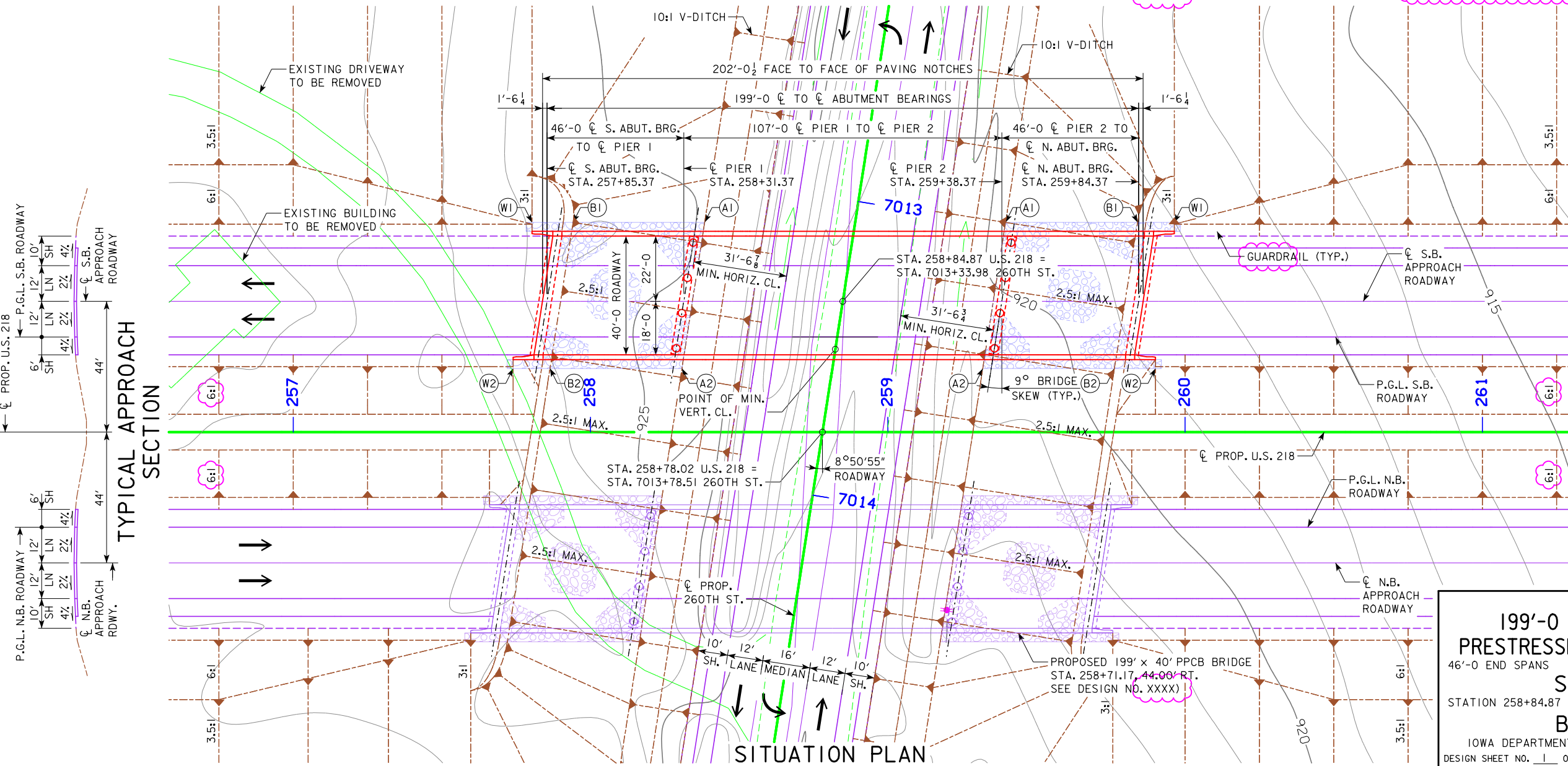
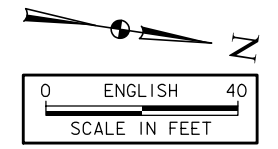
**PROPOSED PROFILE GRADE U.S. 218**



**PROPOSED PROFILE GRADE 260TH ST. LOCATION**

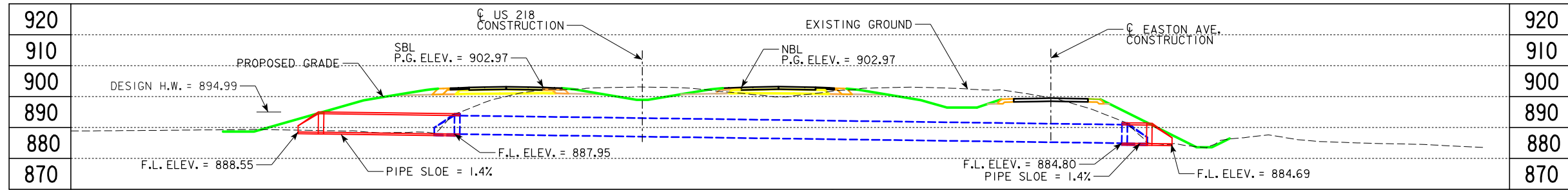
S.B. U.S. 218 OVER 260TH ST.  
 T-9IN R-14W  
 SECTION 23 & 26  
 JACKSON TOWNSHIP  
 BREMER COUNTY  
 FHWA NO. ?  
 BRIDGE MAINT. NO. ?  
 LATITUDE 42.671309°  
 LONGITUDE -92.474185°

- NOTES:**
- TOP OF BRIDGE DECK CROWN AT S.B. APPROACH ROADWAY IS 0.21' ABOVE PROFILE GRADE TO ACCOUNT FOR DECK CROSS SLOPE AND PARABOLIC CROWN. PIER TYPE-FRAME.
  - PIERS EXEMPT FROM VEHICULAR COLLISION FORCE DESIGN.
  - BEAM TYPE-BTB.
  - STANDARD INTEGRAL ABUTMENTS.
  - BERM SLOPE-MACADAM STONE.
  - VERTICAL CLEARANCE BASED ON 8.5" DECK THICKNESS AND 2" HAUNCH.
  - MASH TL-4 (38") BRIDGE RAILING PROPOSED.
  - PROPOSED GRADING BETWEEN THE BRIDGE BERM AND PROPOSED PAVEMENT CONFORMS TO IDOT STANDARD ROAD PLAN EW-211.



PRELIMINARY  
 DESIGN FOR 9° SKEW (L.A.)  
**199'-0" X 40'-0" PRETENSIONED  
 PRESTRESSED CONCRETE BEAM BRIDGE**  
 46'-0" END SPANS (BTB BEAMS) 107'-0" INTERIOR SPAN  
**SITUATION PLAN**  
 STATION 258+84.87 (S.B. U.S. 218 OVER 260TH ST.) MARCH, 2020  
**BREMER COUNTY**  
 IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION  
 DESIGN SHEET NO. 1 OF 1 FILE NO. ? DESIGN NO. ?





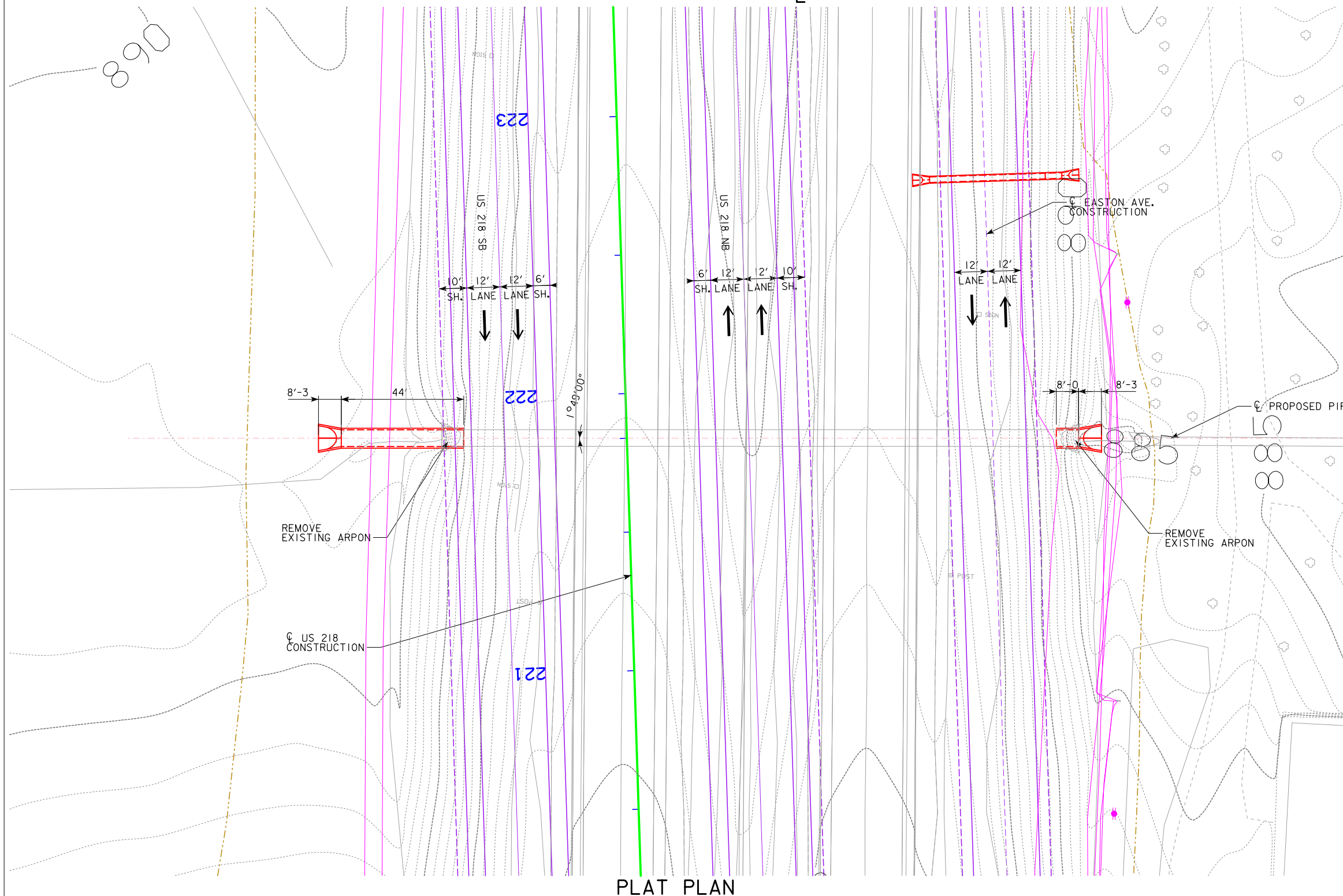
LONGITUDINAL SECTION ALONG CULVERT

LOCATION

US 218  
 T-91N R-14W  
 SECTION 26  
 JACKSON TOWNSHIP  
 BREMMER COUNTY

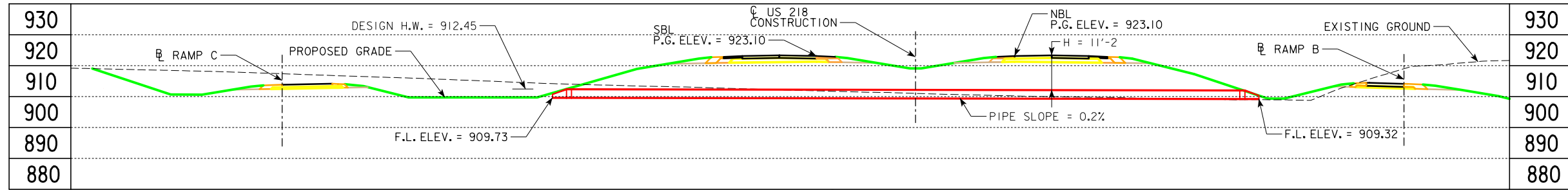
HYDRAULIC DATA

DRAINAGE AREA = 172.2 ACRES  
 DESIGN DISCHARGE = 218.91 CFS



PRELIMINARY  
 DESIGN FOR 1.8° SKEW (L.A.)  
**72" x 44' LT & 8' RT**  
**REINFORCED CONCRETE PIPE**  
**PLAT PLAN**  
 STATION 221+83.92 MARCH, 2020  
**BREMER COUNTY**  
 IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION  
 DESIGN SHEET NO. ? OF ? FILE NO. ? DESIGN NO. ?





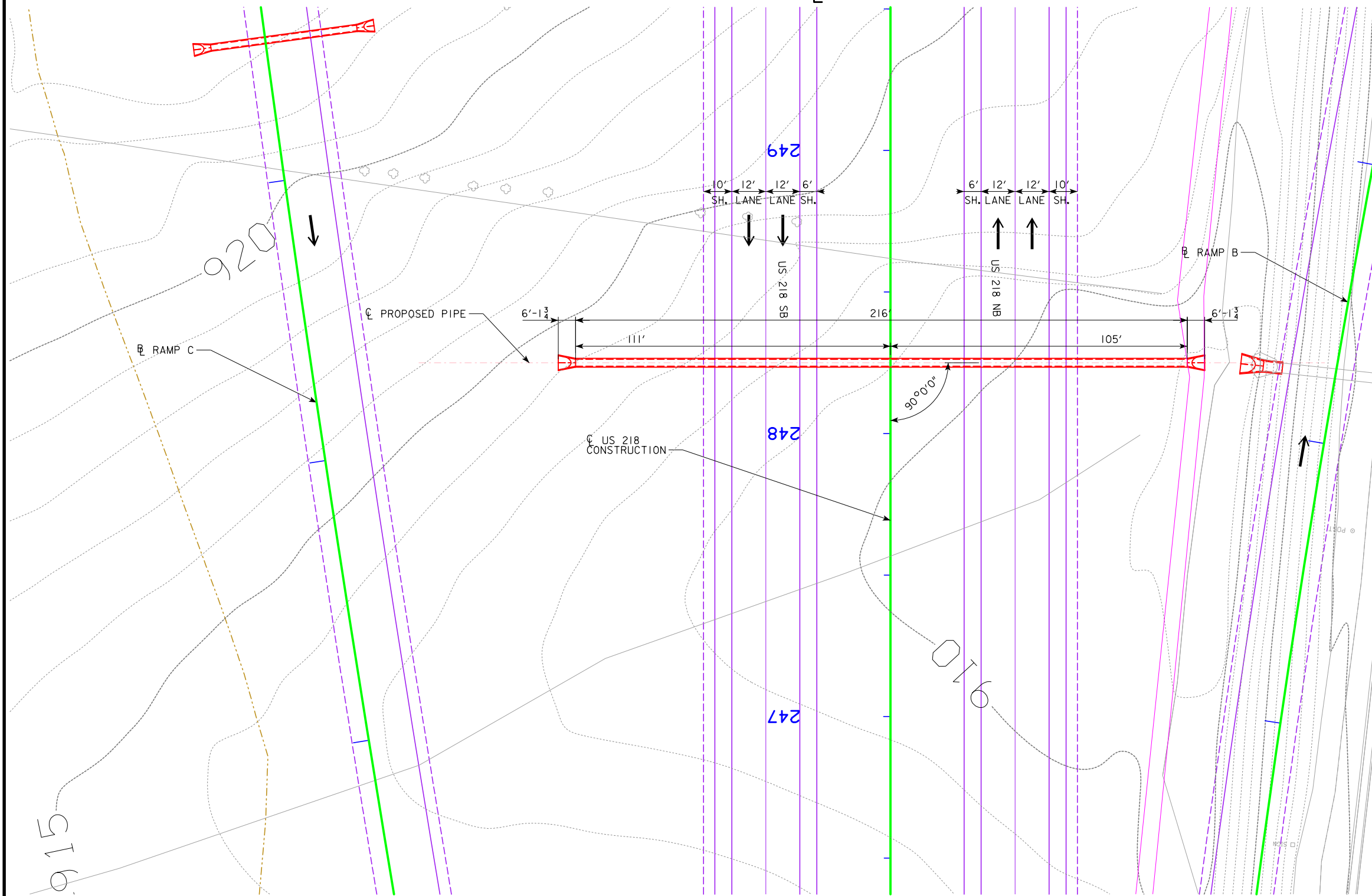
LONGITUDINAL SECTION ALONG CULVERT

LOCATION

US 218  
 T-91N R-14W  
 SECTION 26  
 JACKSON TOWNSHIP  
 BREMMER COUNTY

HYDRAULIC DATA

DRAINAGE AREA = 9.1 ACRES  
 DESIGN DISCHARGE = 24.91 CFS

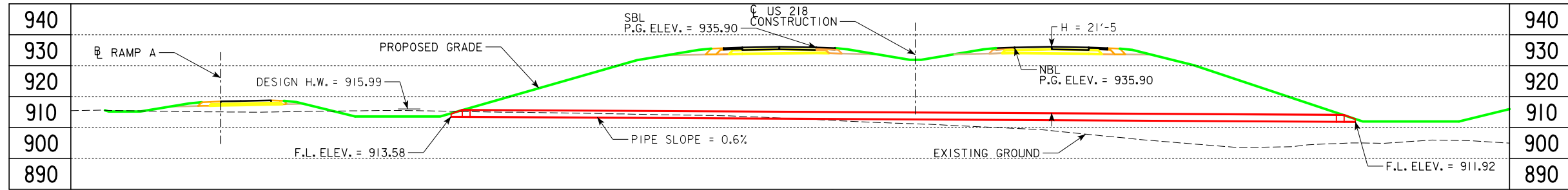


PLAT PLAN



PRELIMINARY  
 DESIGN FOR 0° SKEW  
**30" x 216'**  
**REINFORCED CONCRETE PIPE**  
**PLAT PLAN**  
 STATION 248+25.00 MARCH, 2020  
**BREMER COUNTY**  
 IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION  
 DESIGN SHEET NO. ? OF ? FILE NO. ? DESIGN NO. ?





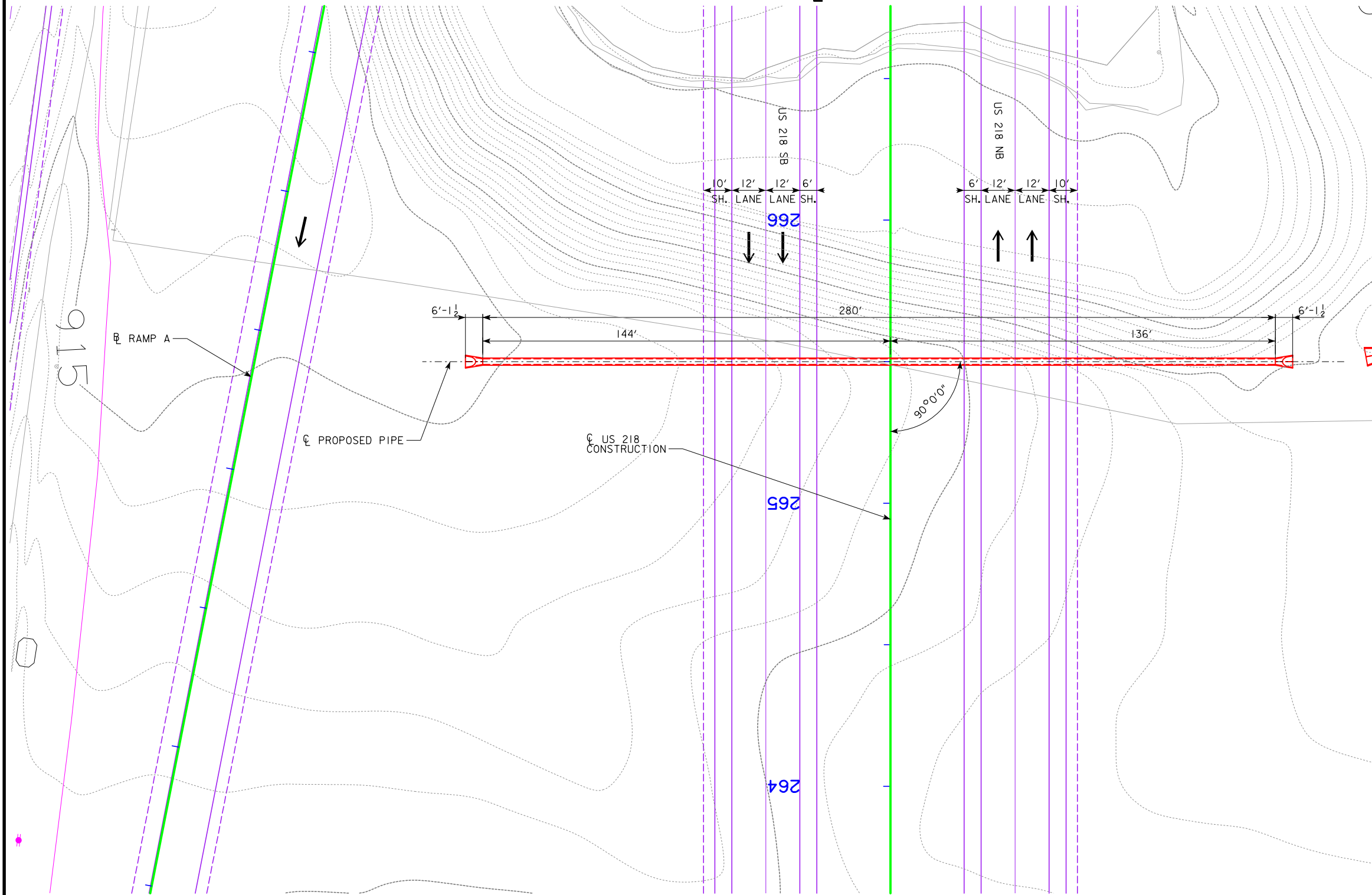
LONGITUDINAL SECTION ALONG  $\phi$  CULVERT

LOCATION

US 218  
T-91N R-14W  
SECTION 23  
JACKSON TOWNSHIP  
BREMER COUNTY

HYDRAULIC DATA

DRAINAGE AREA = 5.1 ACRES  
DESIGN DISCHARGE = 16.27 CFS

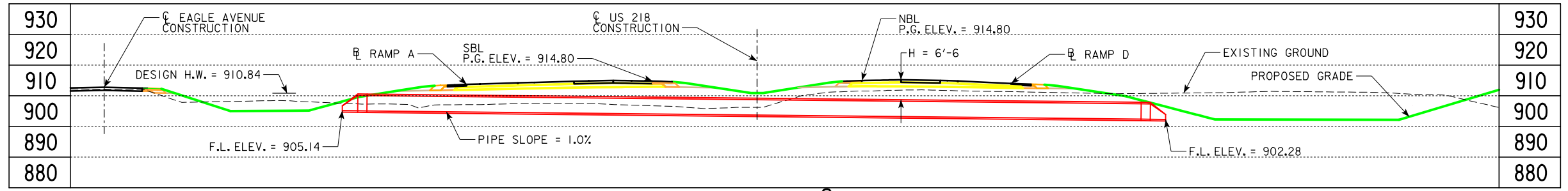


PLAT PLAN



PRELIMINARY  
DESIGN FOR 0° SKEW  
**24" x 280'**  
**REINFORCED CONCRETE PIPE**  
**PLAT PLAN**  
STATION 265+50.00 MARCH, 2020  
**BREMER COUNTY**  
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION  
DESIGN SHEET NO. ? OF ? FILE NO. ? DESIGN NO. ?





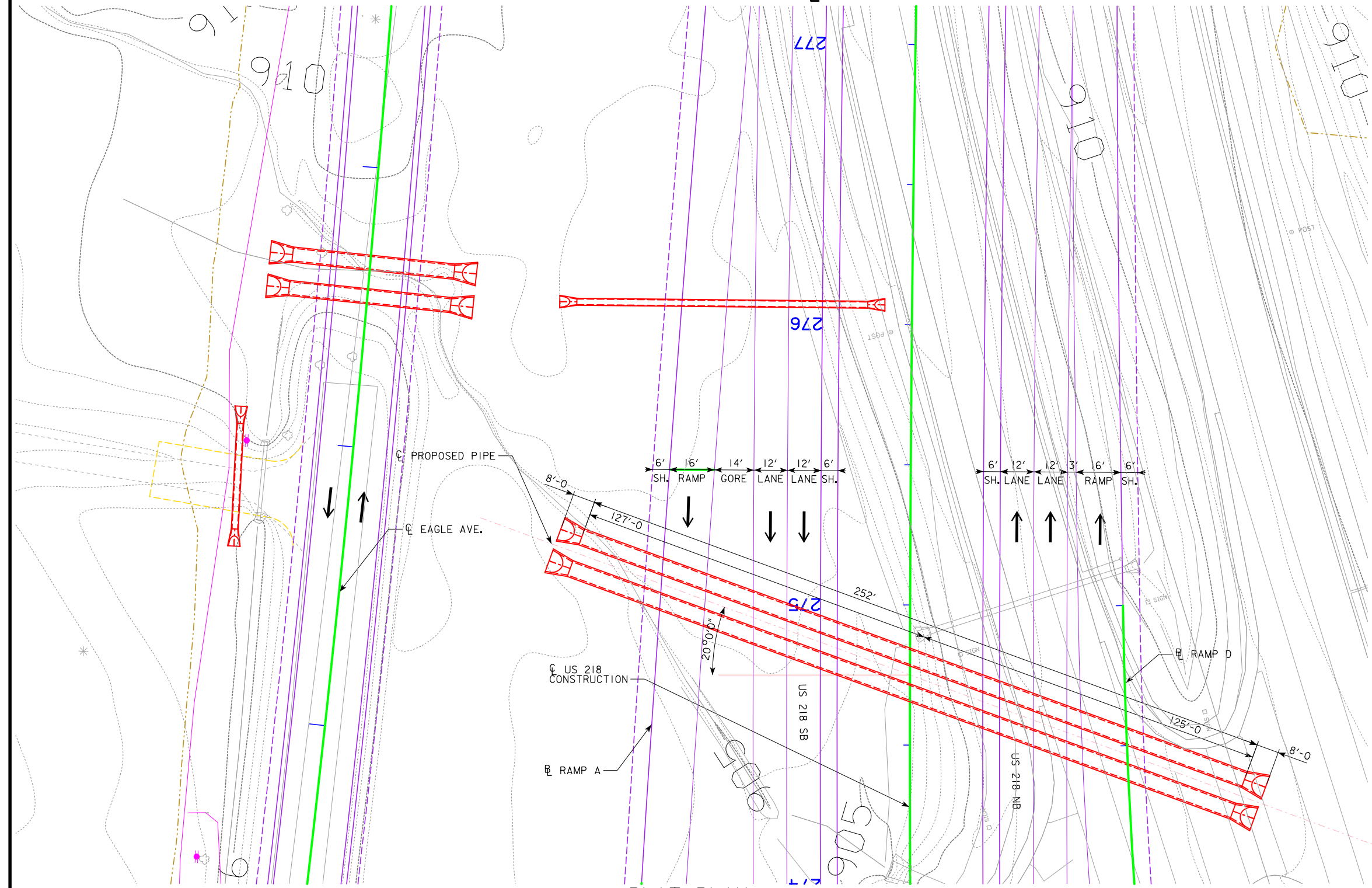
LONGITUDINAL SECTION ALONG  $\bar{C}$  CULVERT

LOCATION

US 218  
T-91N R-14W  
SECTION 23  
JACKSON TOWNSHIP  
BREMNER COUNTY

HYDRAULIC DATA

DRAINAGE AREA = 264.4 ACRES  
DESIGN DISCHARGE = 300.62 CFS



PLAT PLAN



PRELIMINARY  
DESIGN FOR 20° SKEW (L.A.)  
**TWIN 60" x 252'**  
**REINFORCED CONCRETE PIPE**  
**PLAT PLAN**  
STATION 274+75.00 MARCH, 2020  
**BREMNER COUNTY**  
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION  
DESIGN SHEET NO. ? OF ? FILE NO. ? DESIGN NO. ?



**LINE STYLE LEGEND OF CROSS SECTION SHEETS (ROAD)**

- Existing Ground Line
- ===== Proposed Template
- ===== Proposed Topsoil Placement
- Additional Topsoil Removal
- Subgrade Treatment
- Granular Shoulder
- ===== Pavement
- Existing Pipe\R/CB
- ===== Proposed Pipe\R/CB
- ===== Proposed Dike
- ===== All Elements Associated with Proposed Entrances

**LINE STYLE LEGEND OF CROSS SECTION SHEETS (SOILS)**

- TOPSOIL ----- Topsoil (Class 10)
- Slope Dressing Only
- CL 10 ----- Class 10 Materials
- SEL LO ----- Select Loams And Clay-Loams
- SEL SA ----- Select Sand
- UNS A ----- Unsuitable Type A Disposal
- UNS B ----- Unsuitable Type B Disposal
- UNS C ----- Unsuitable Type C Disposal
- SHALE ----- Shale
- WASTE ----- Waste
- B&W LS ----- Broken and Weathered Rock
- ROCK ----- Solid Rock
- BLDRS ----- Boulders

Note: All layer lines and descriptions identify layers above the line.

Note: Vertical or near vertical lines connecting soil layers at edges of cross sections are only for the purpose of calculating template quantities and do not depict soil stratification.

**SYMBOL LEGEND OF CROSS SECTION SHEETS**

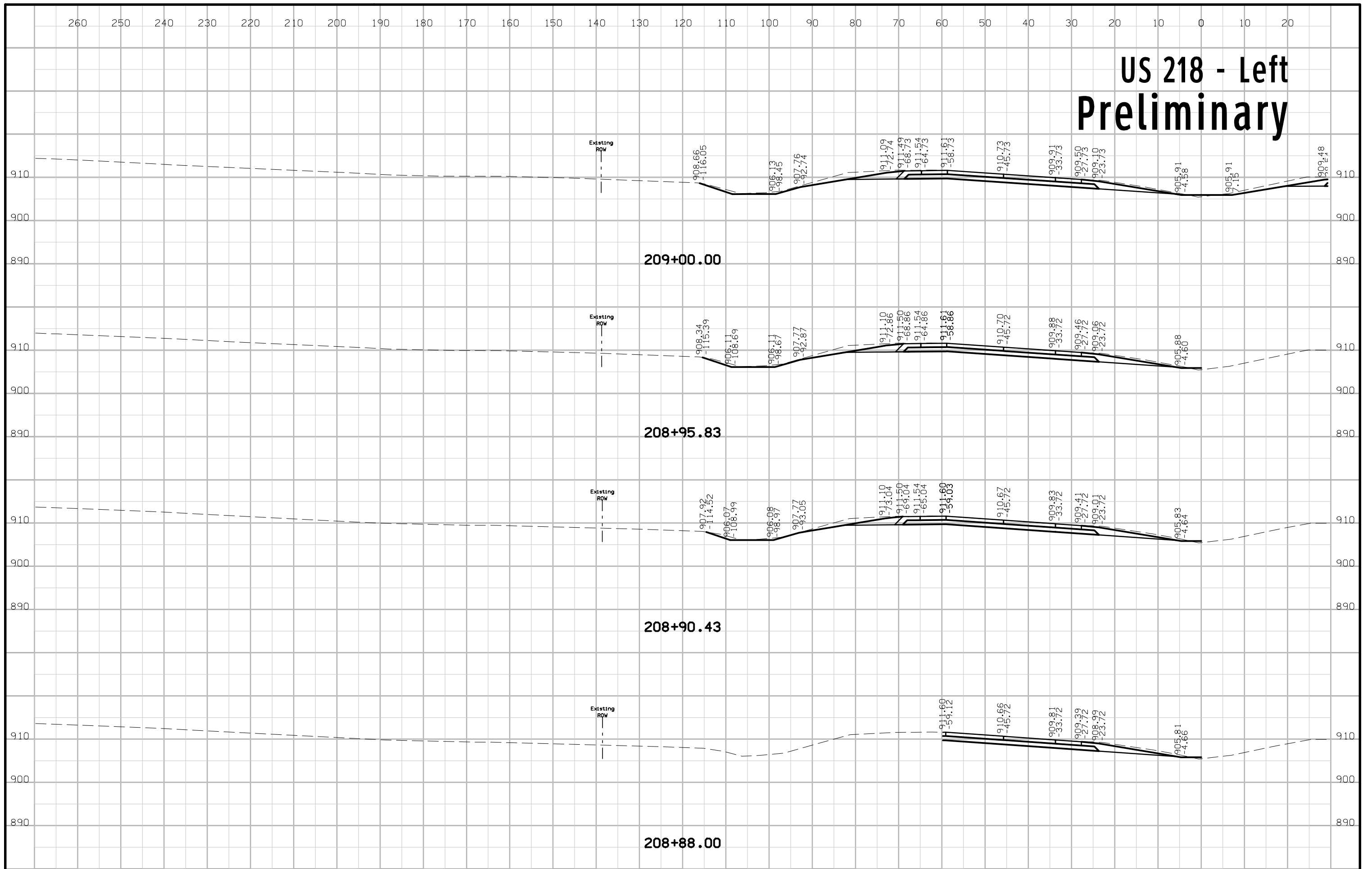
- Existing ROW  
----- Existing Right-of-Way Limit
- Proposed ROW  
----- Proposed Right-of-Way Limit
- Temporary ROW  
----- Temporary Right-of-Way Limit

**CROSS SECTION  
LEGEND AND SYMBOL  
INFORMATION SHEET**

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

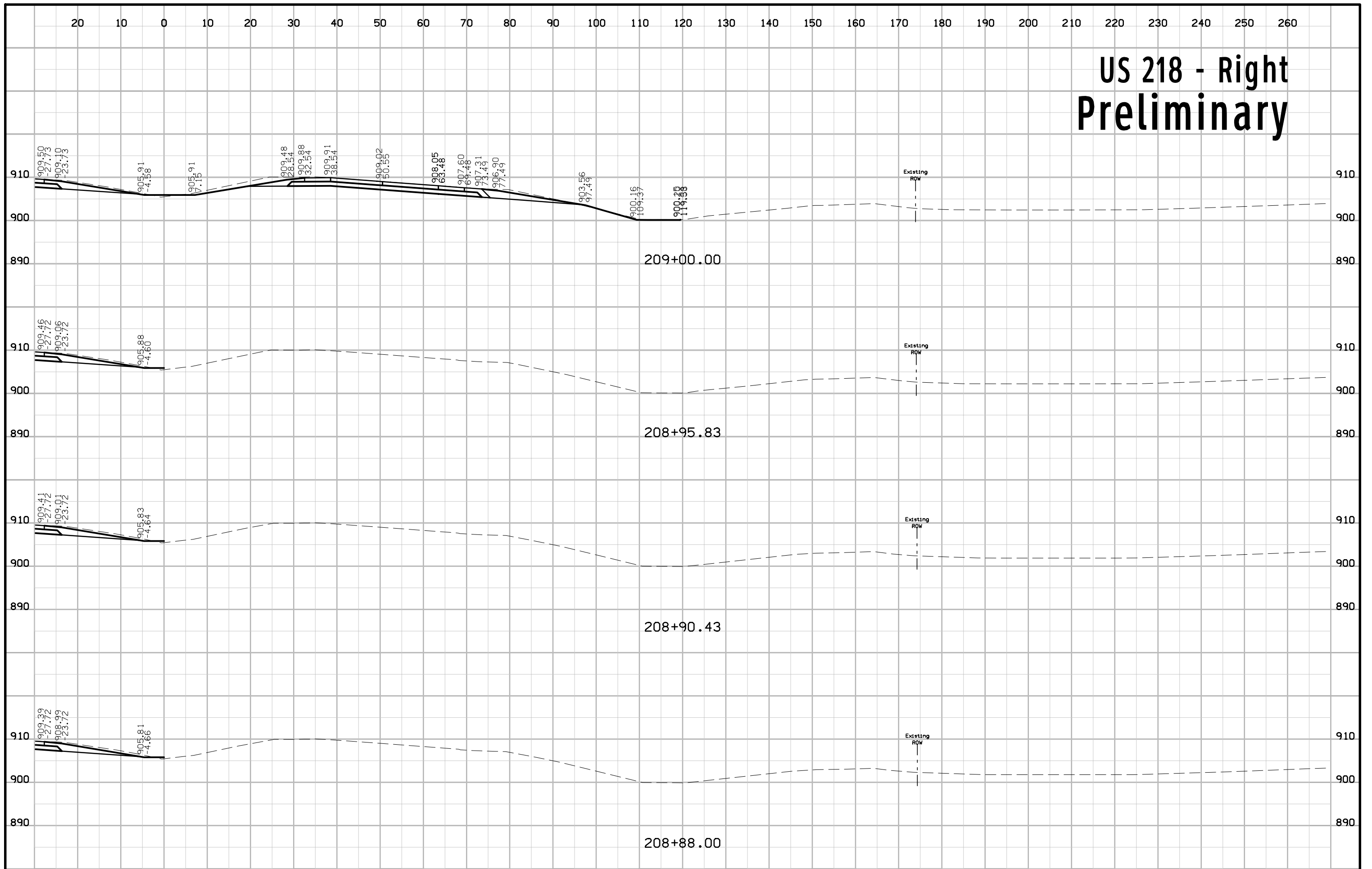


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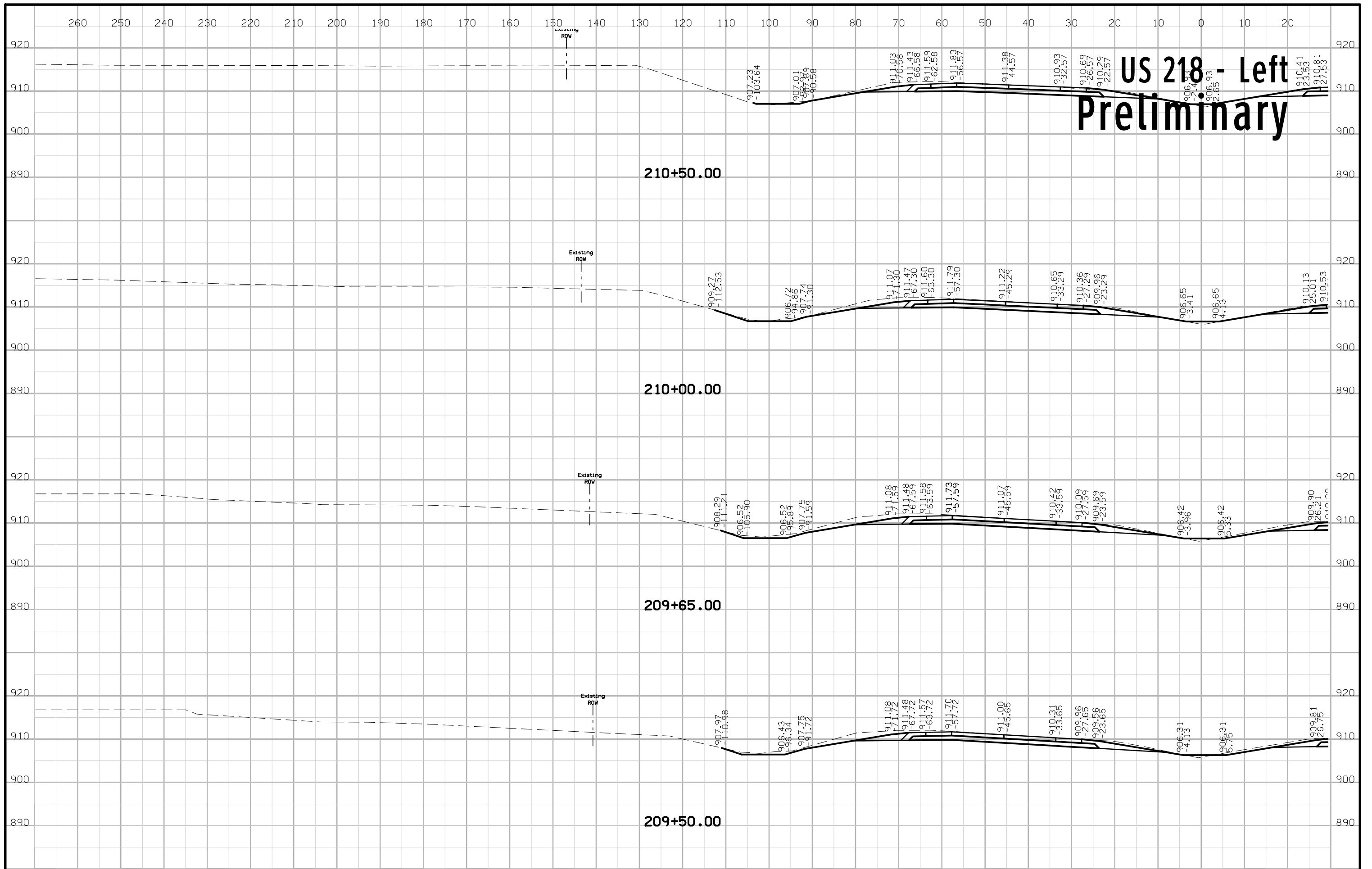




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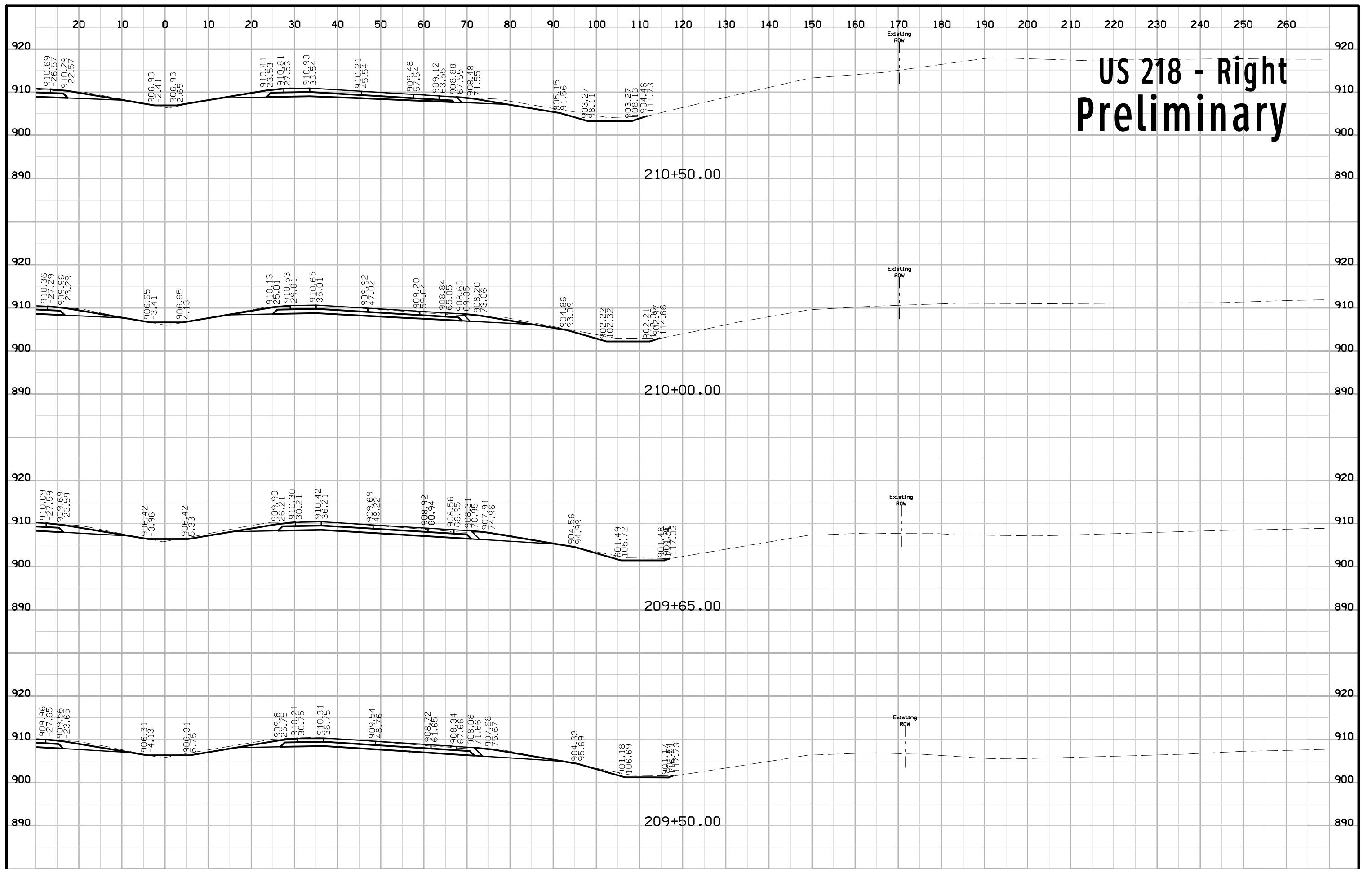






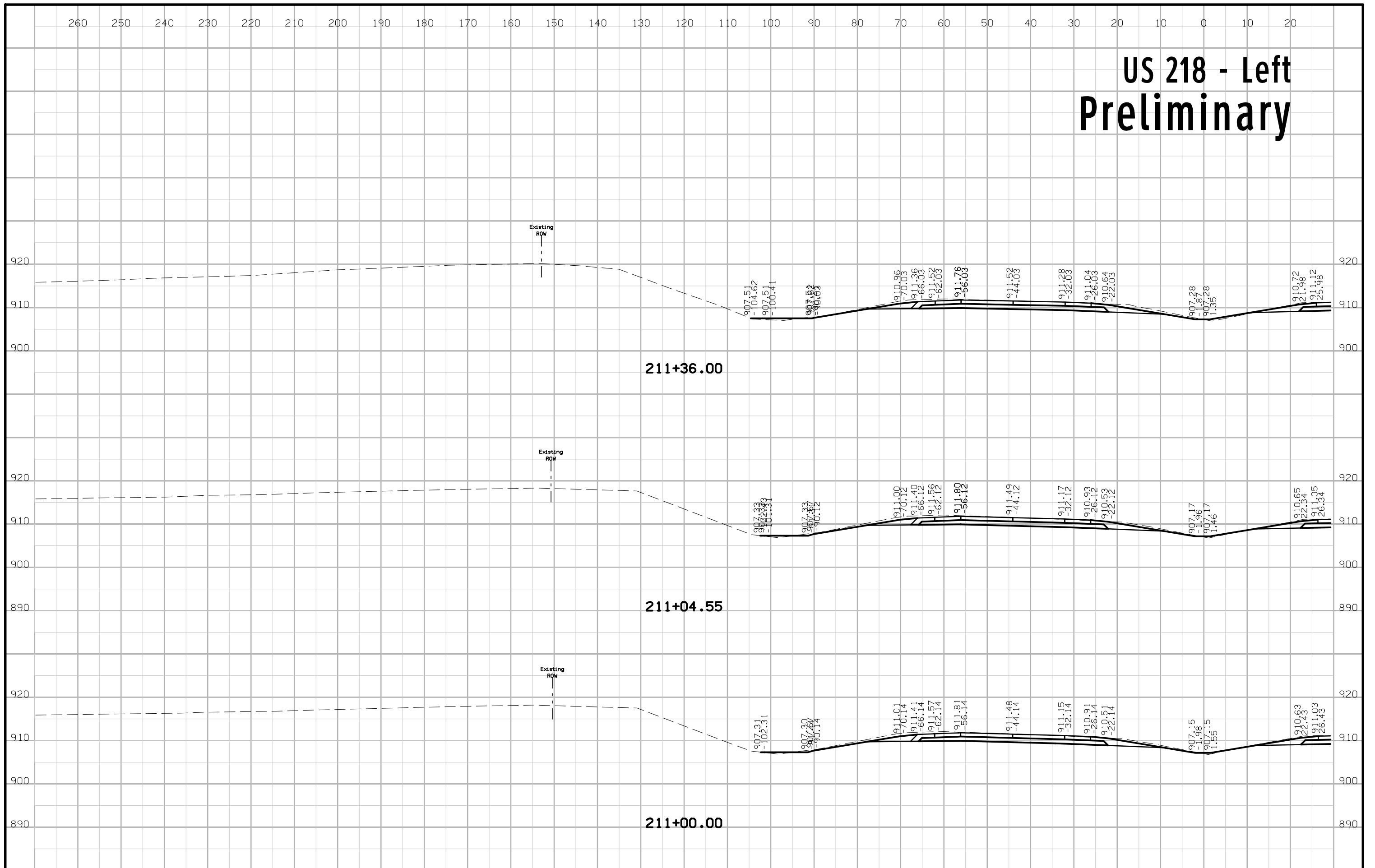


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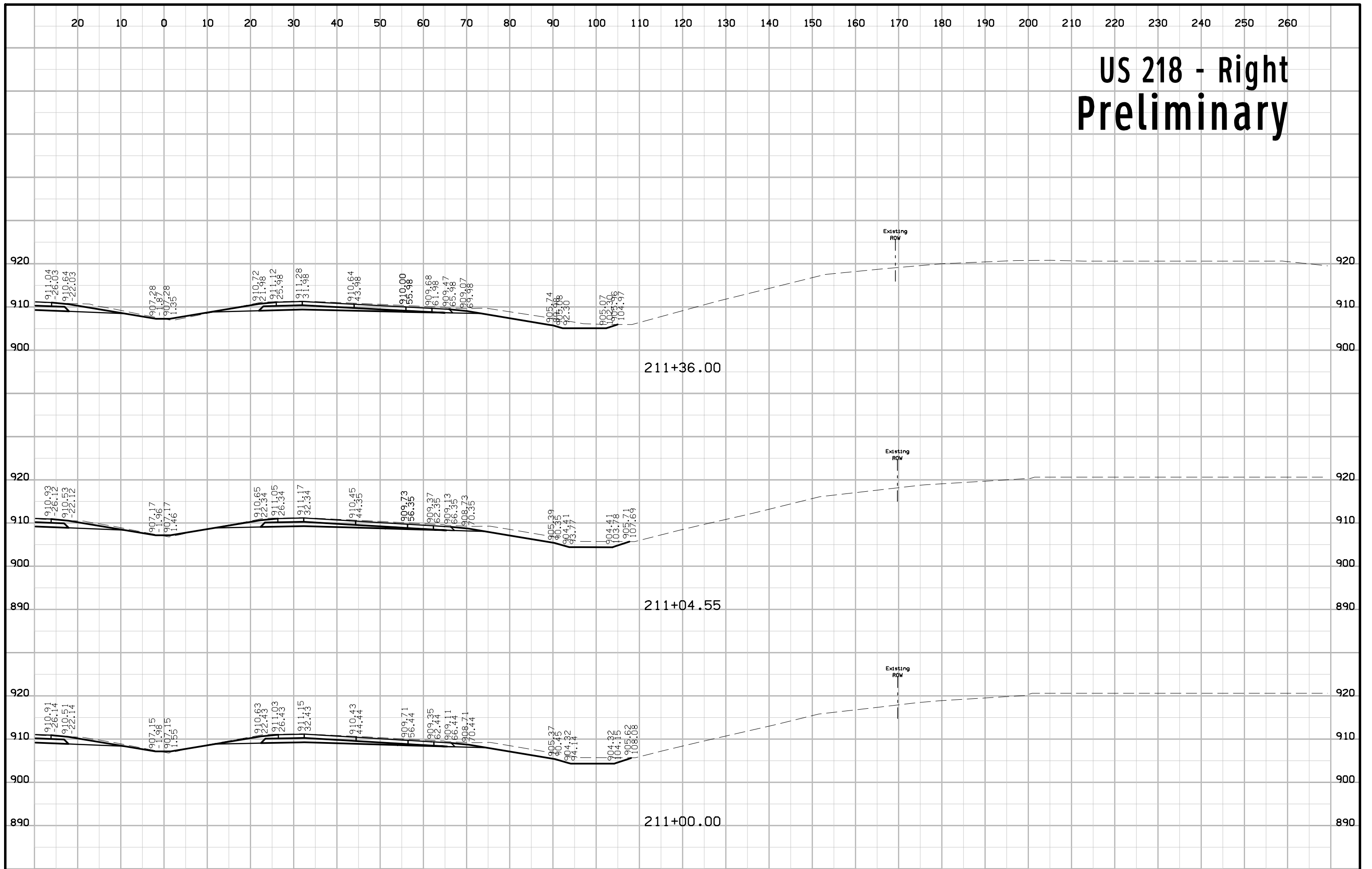


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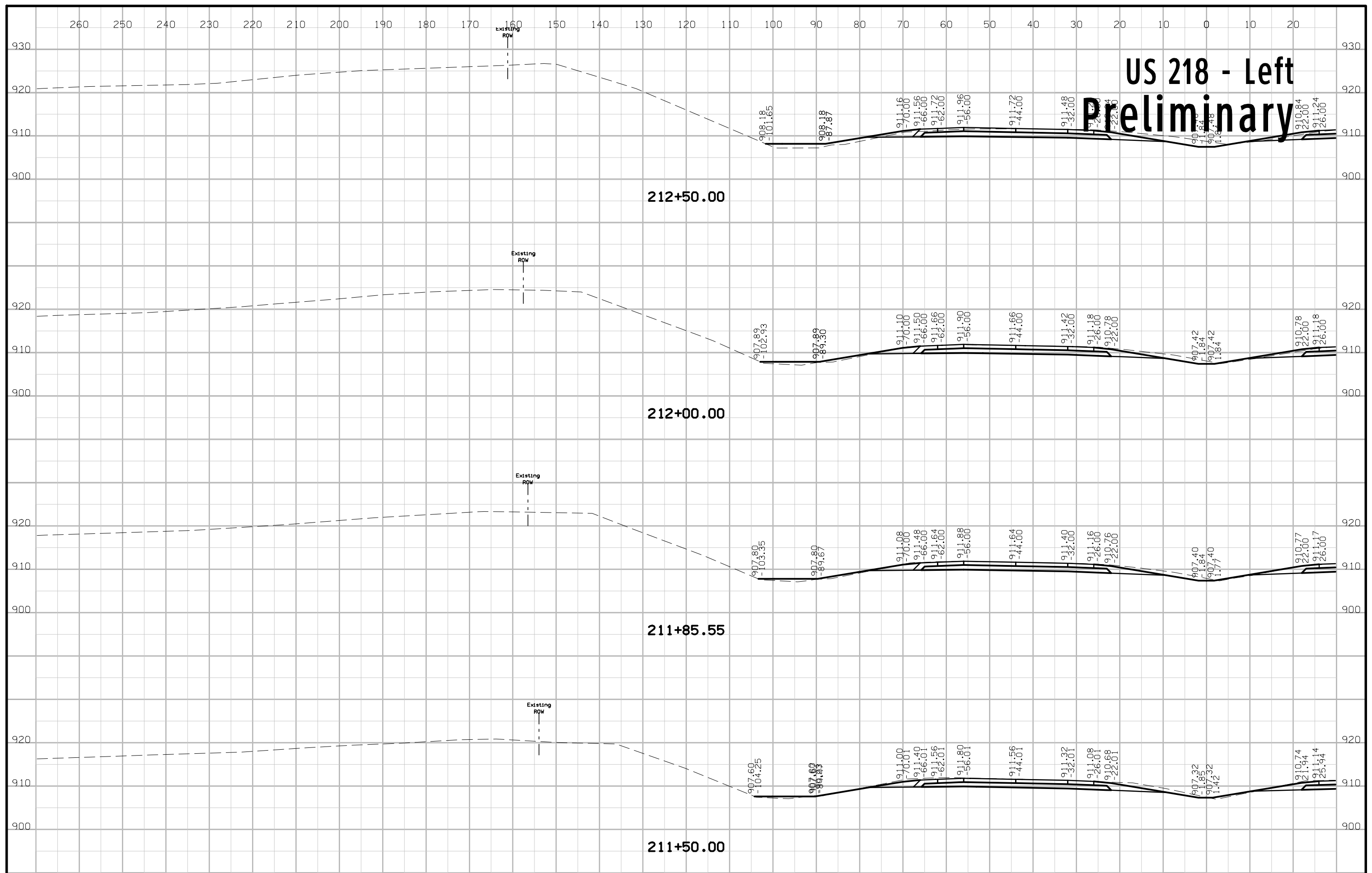


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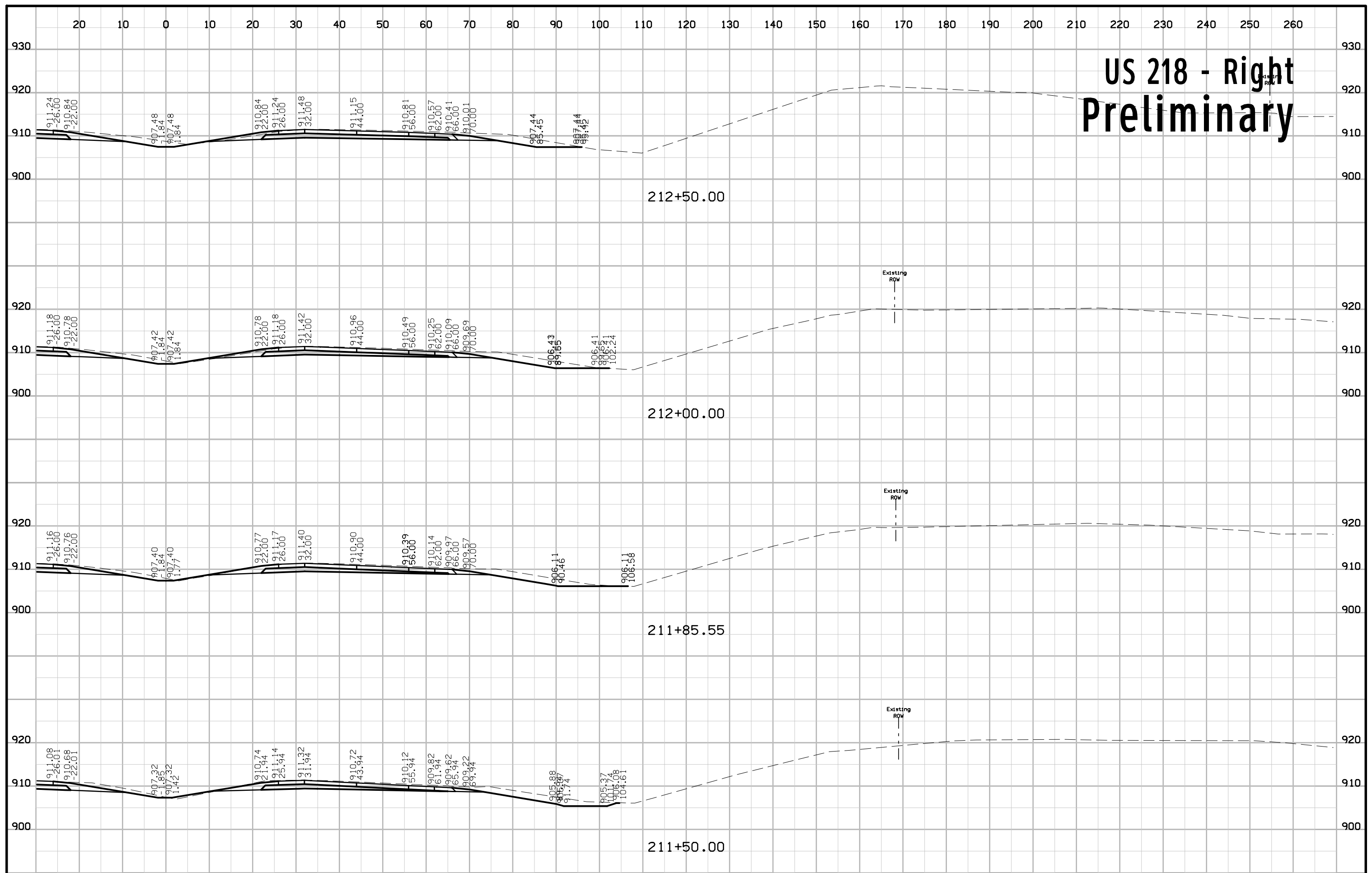


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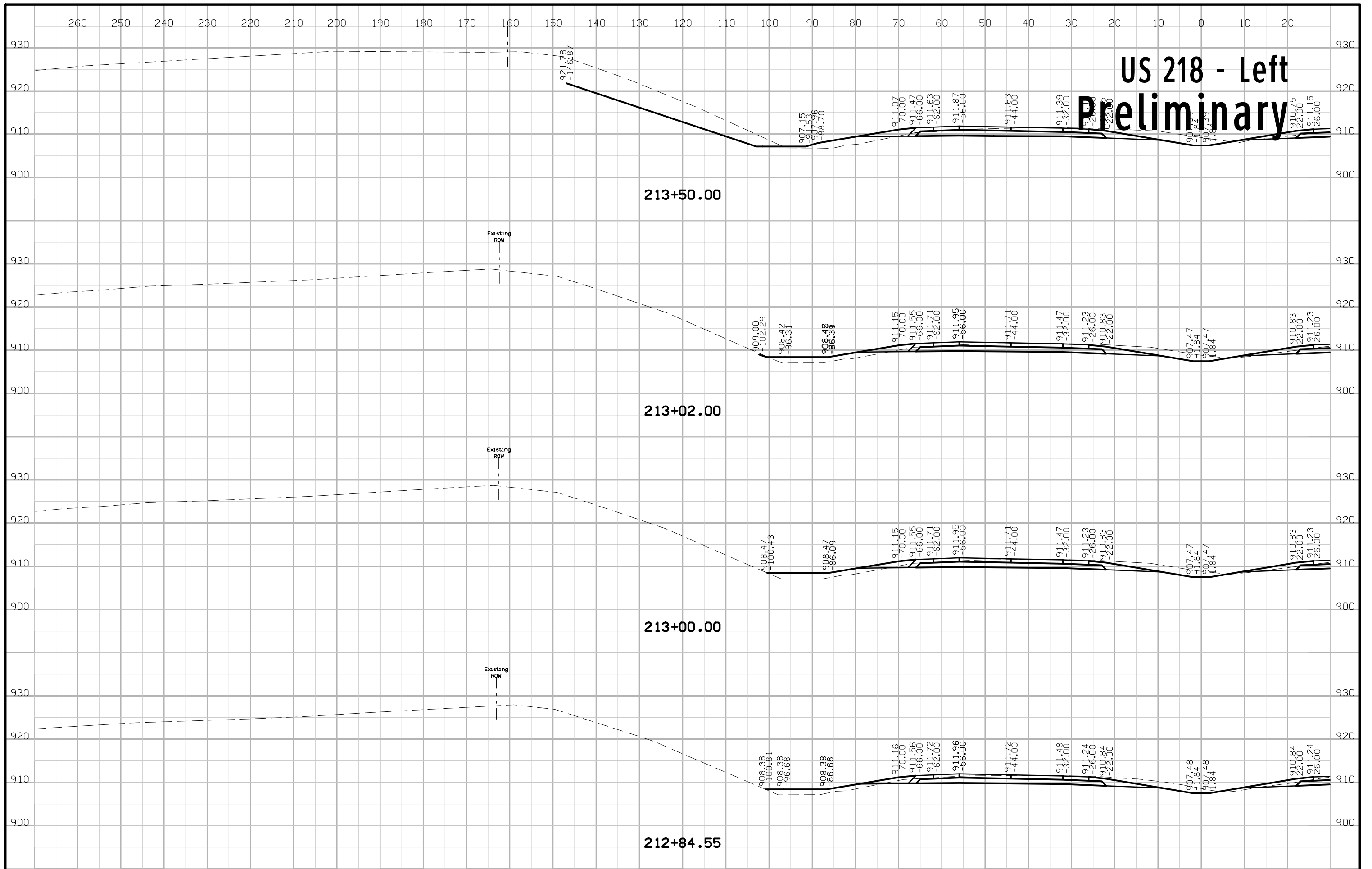




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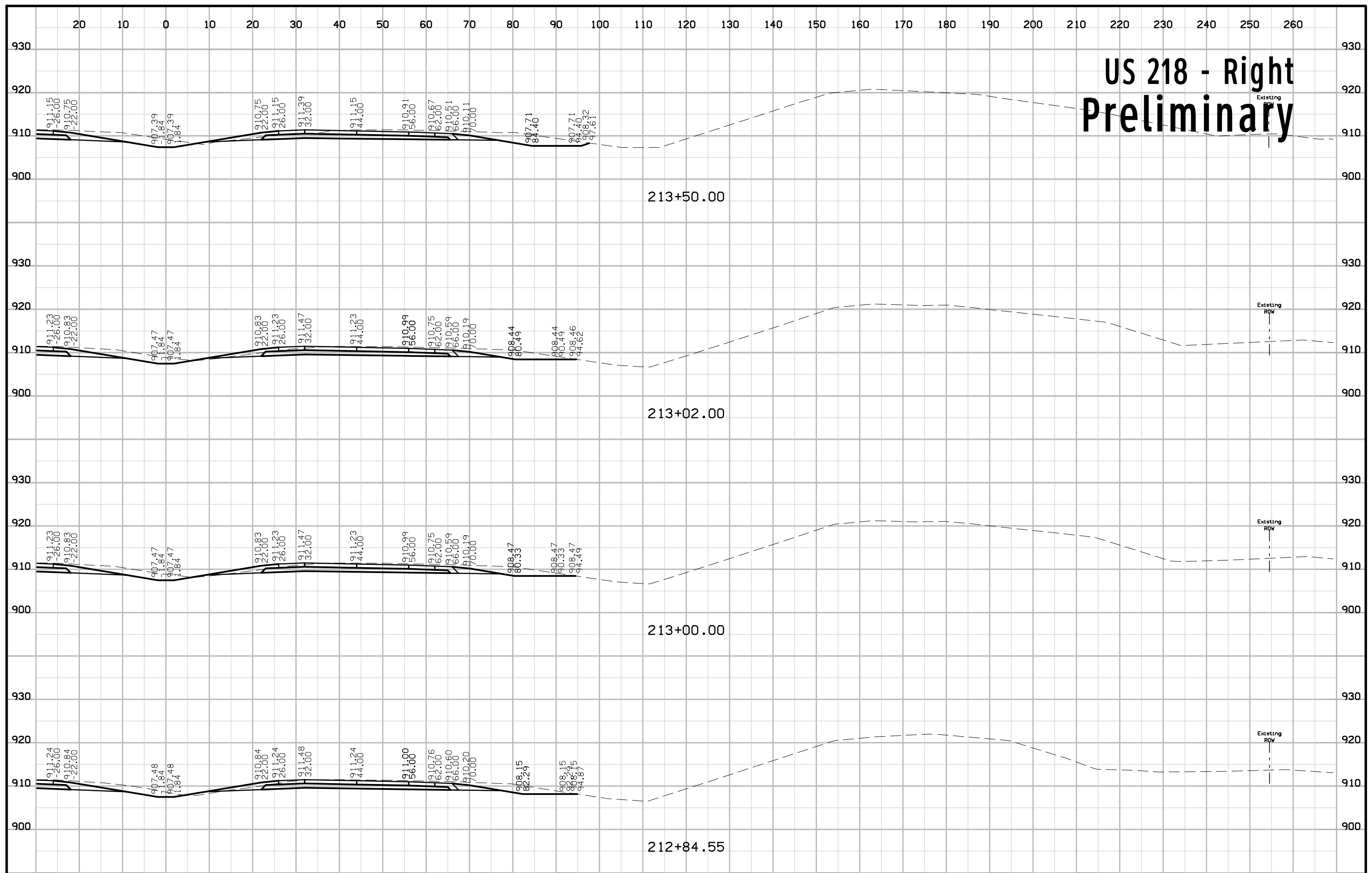






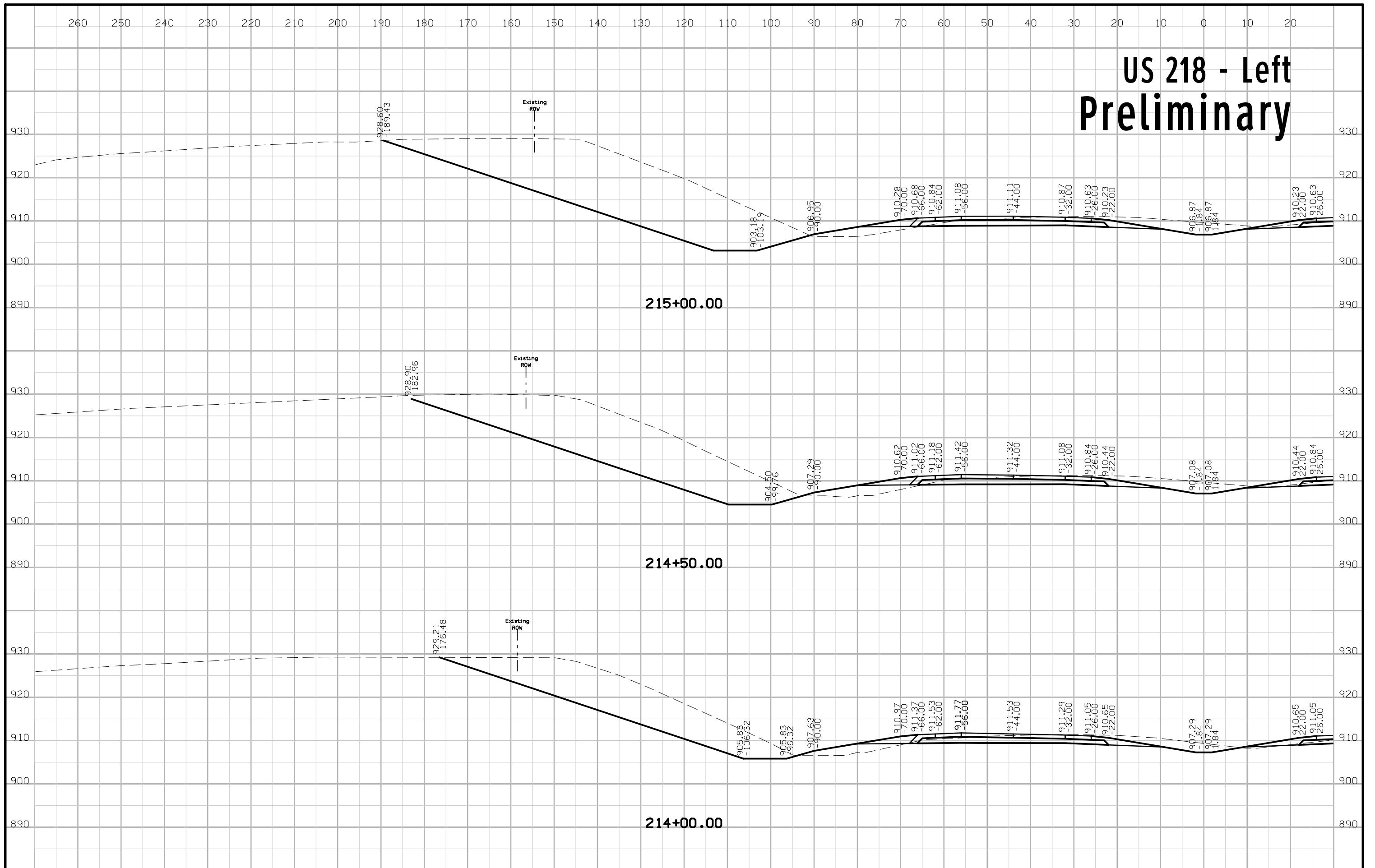


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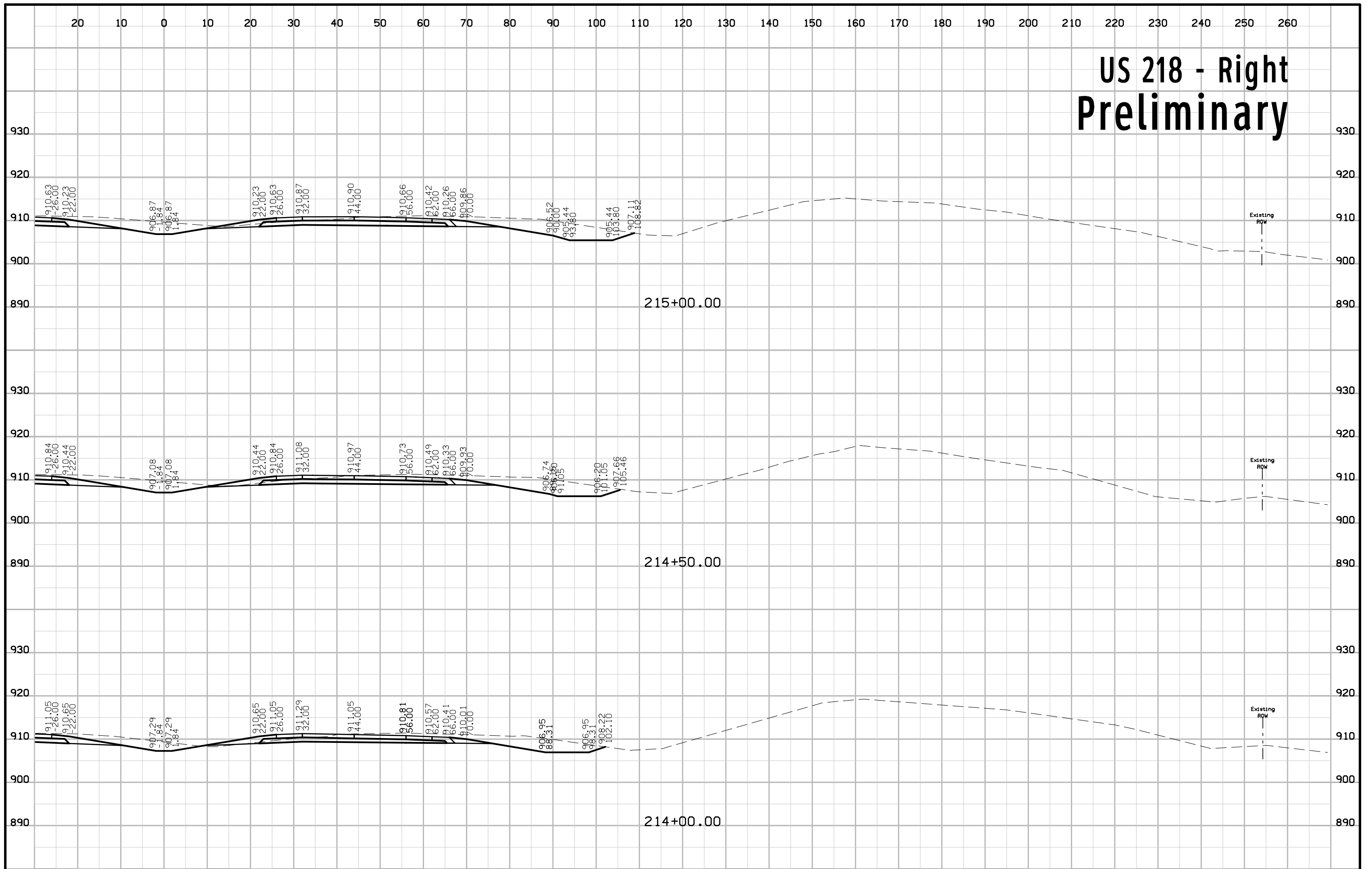


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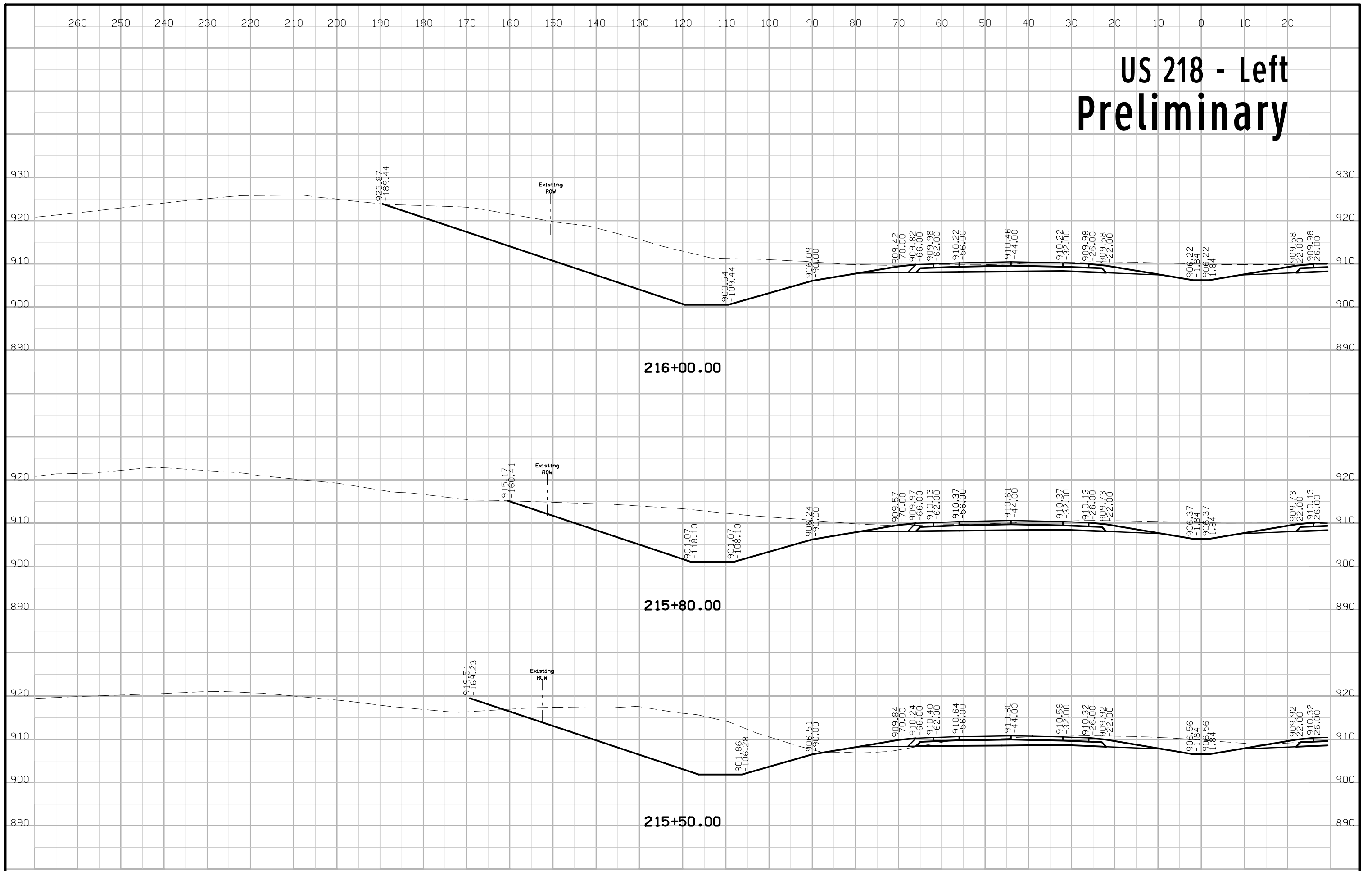


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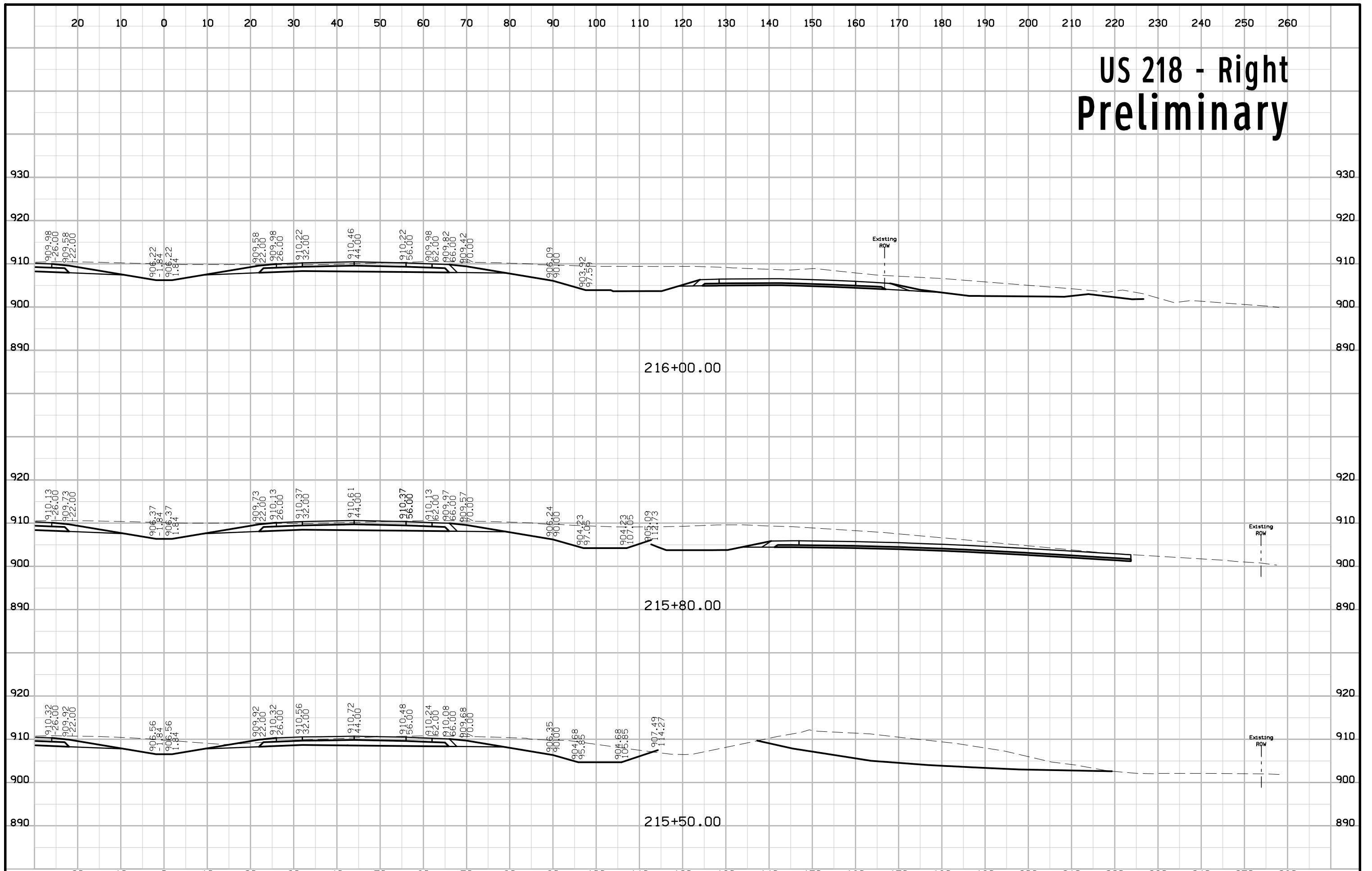


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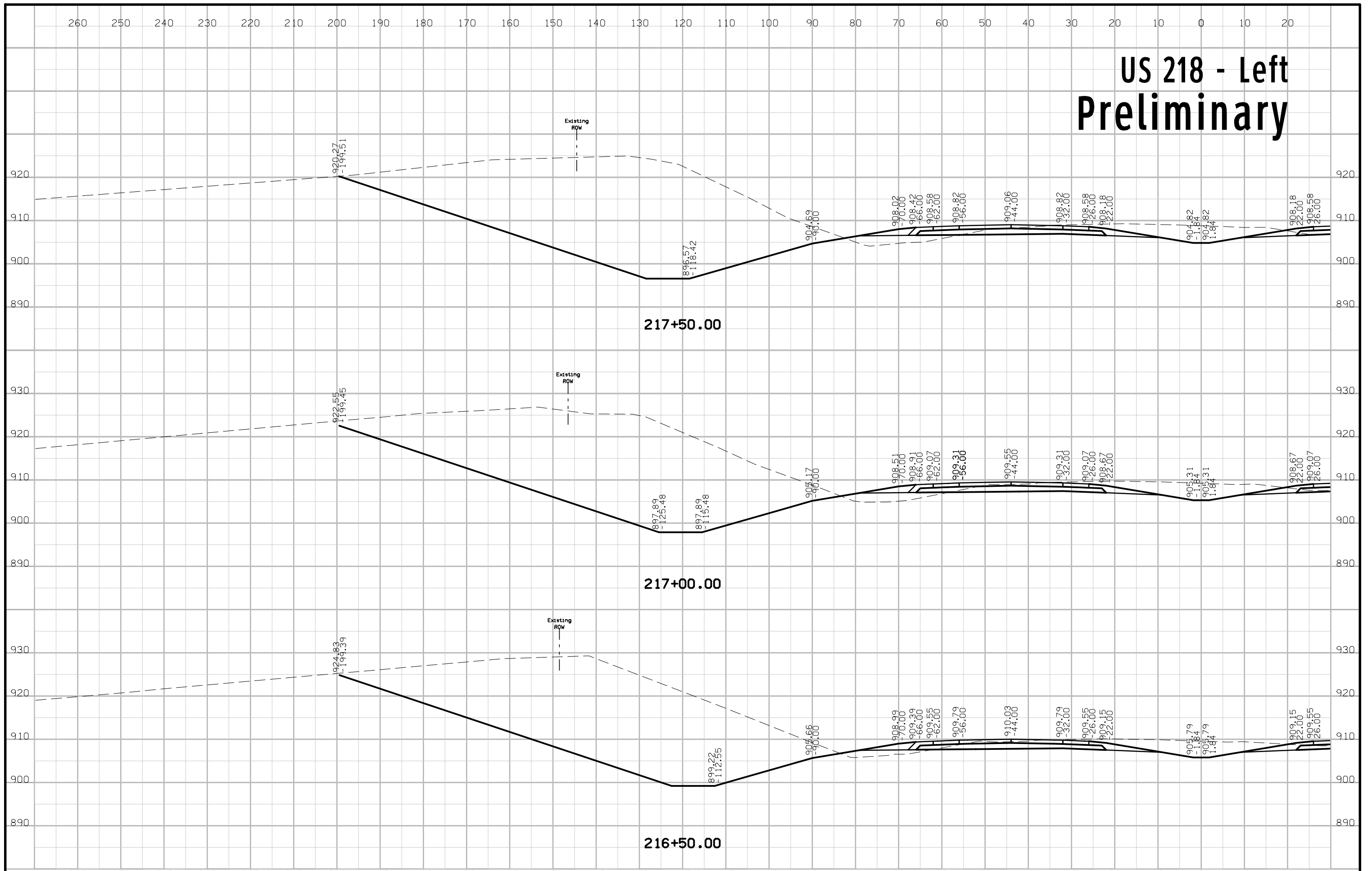


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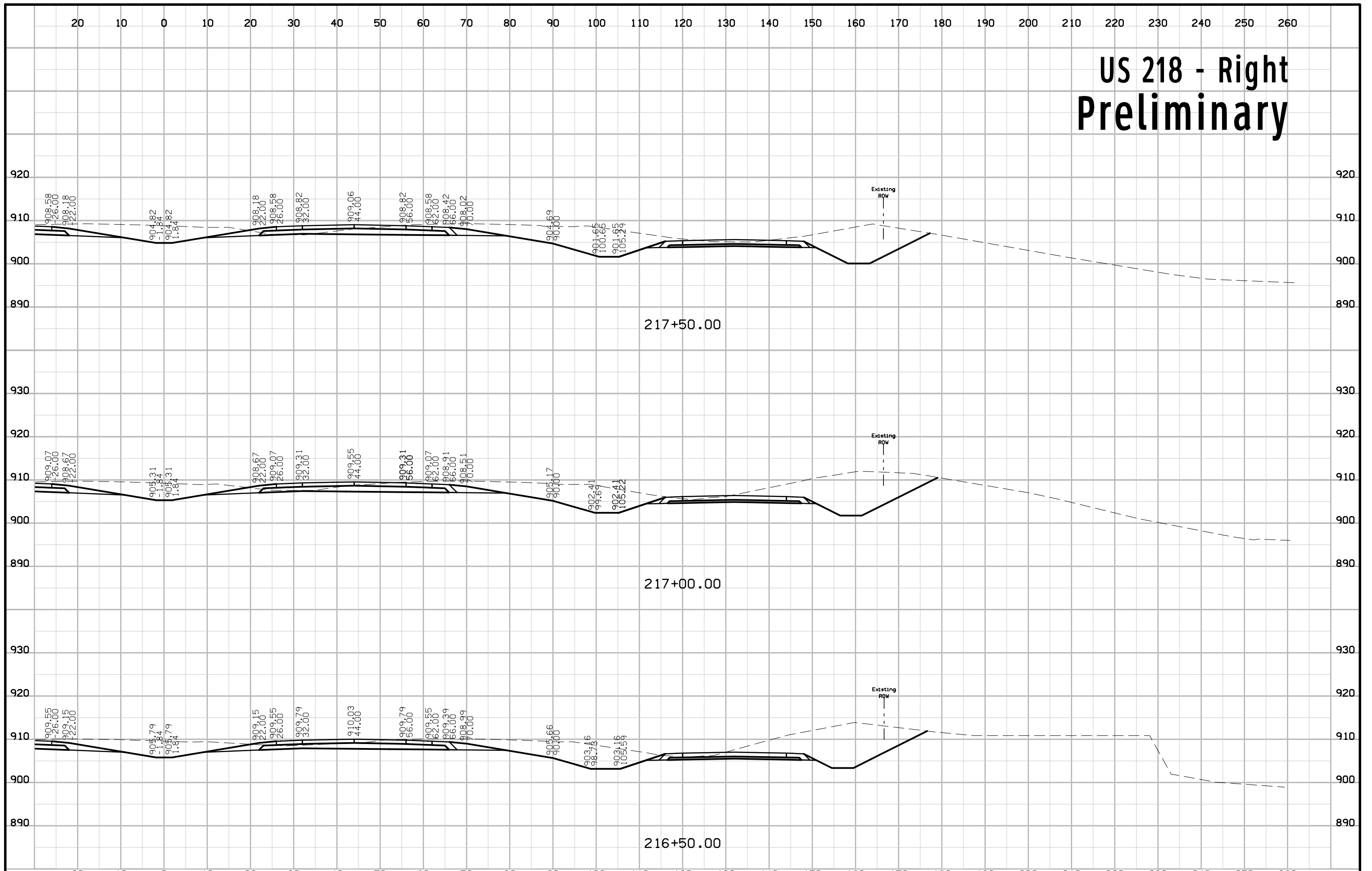


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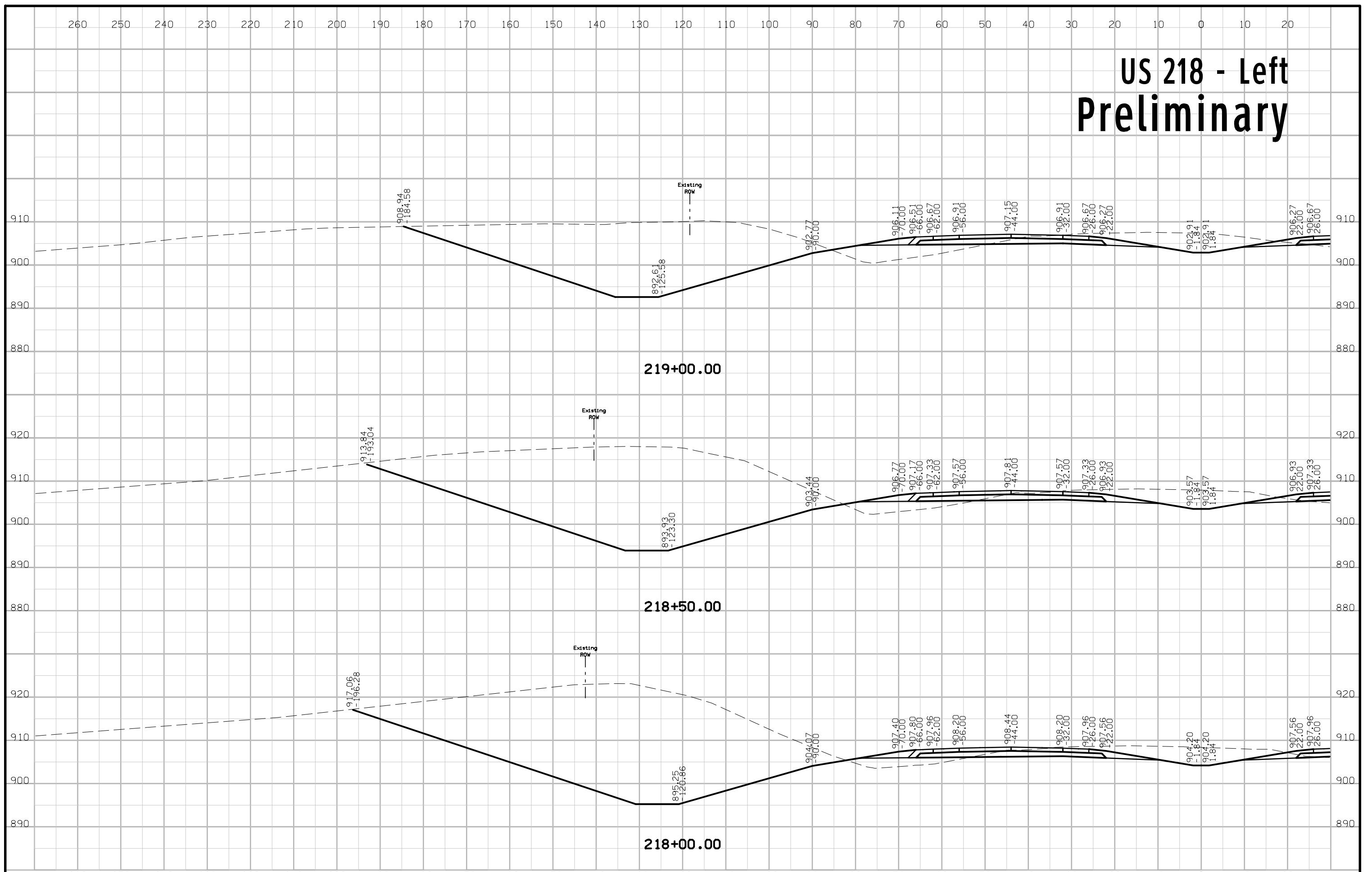


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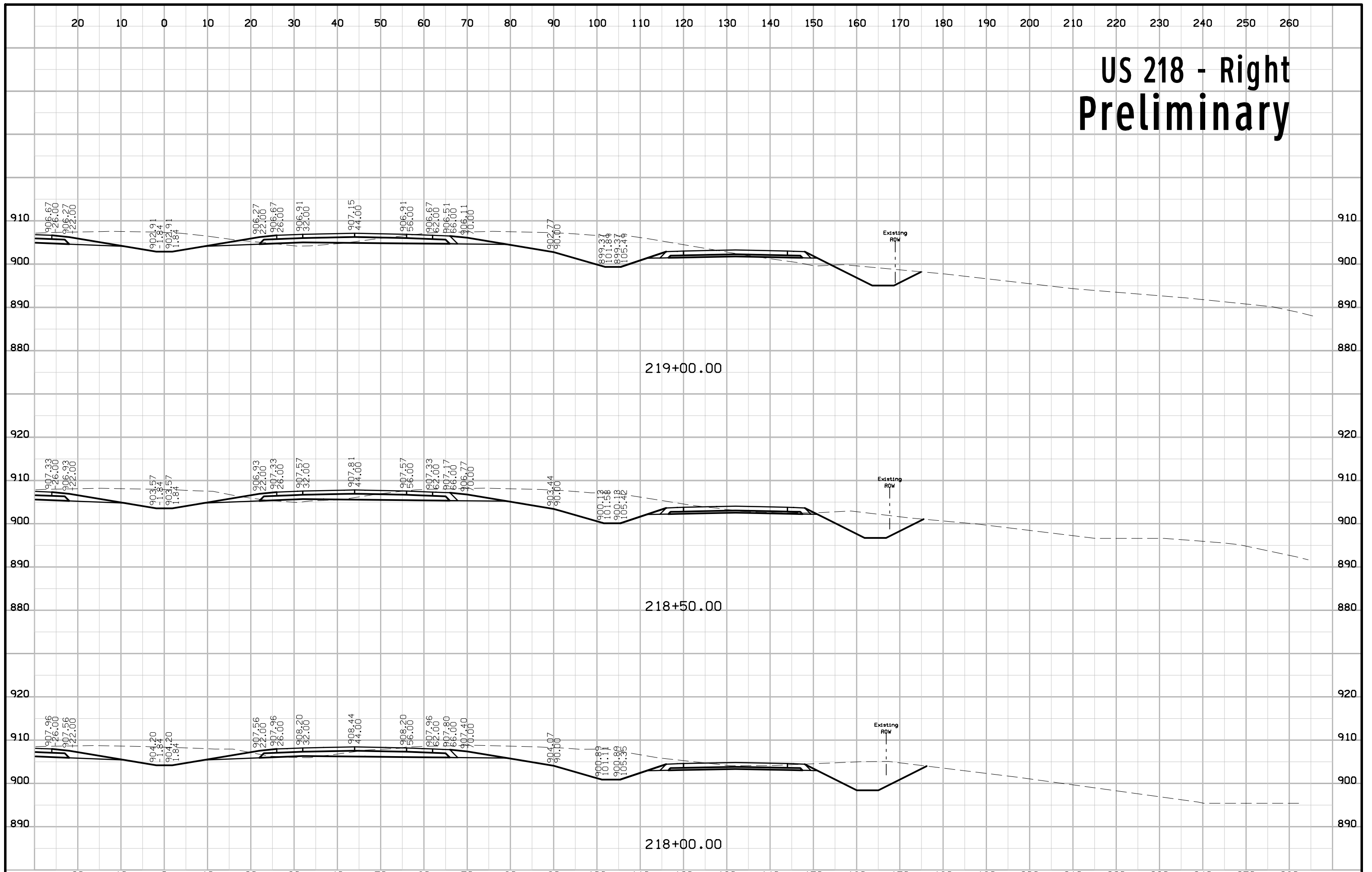


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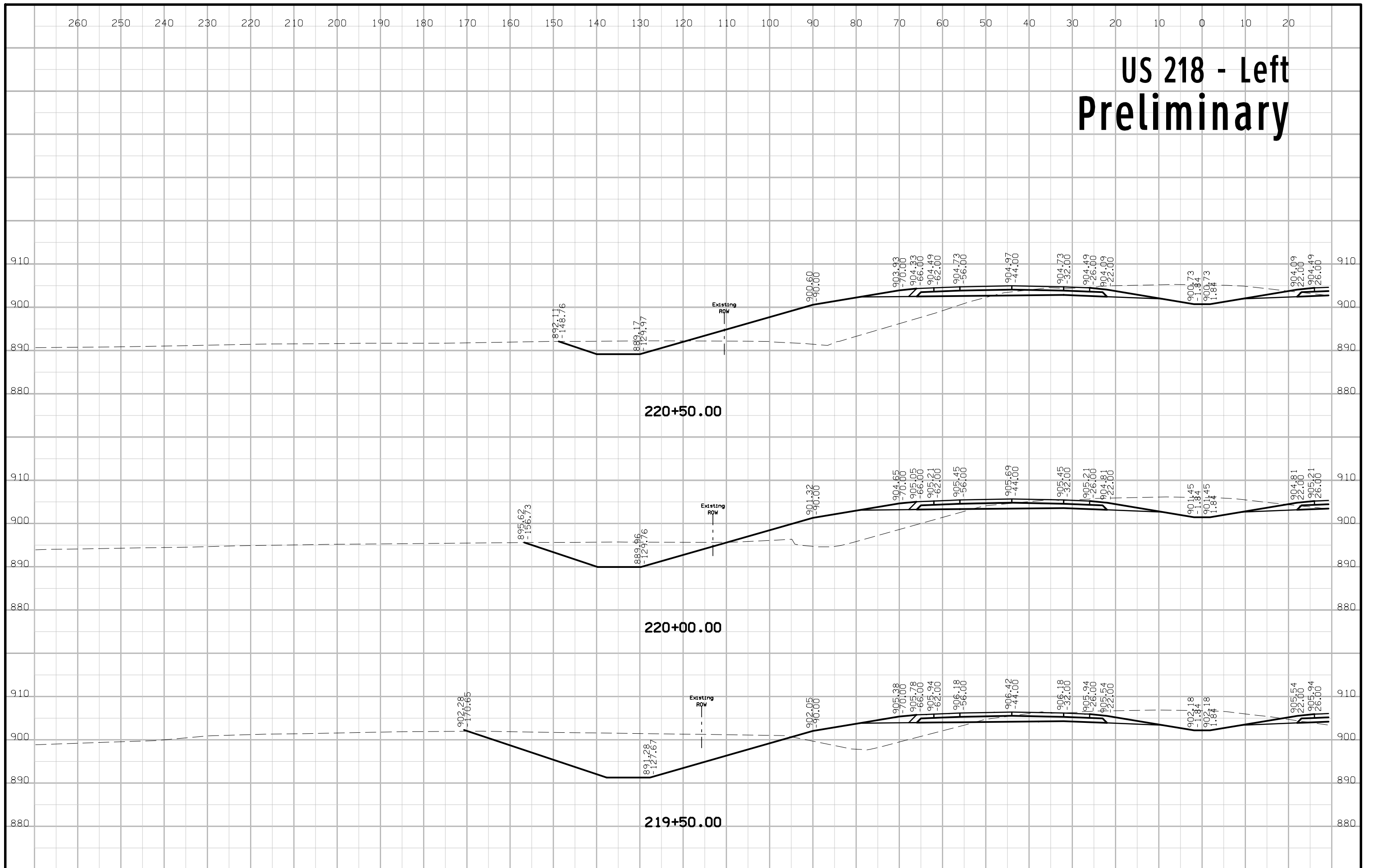


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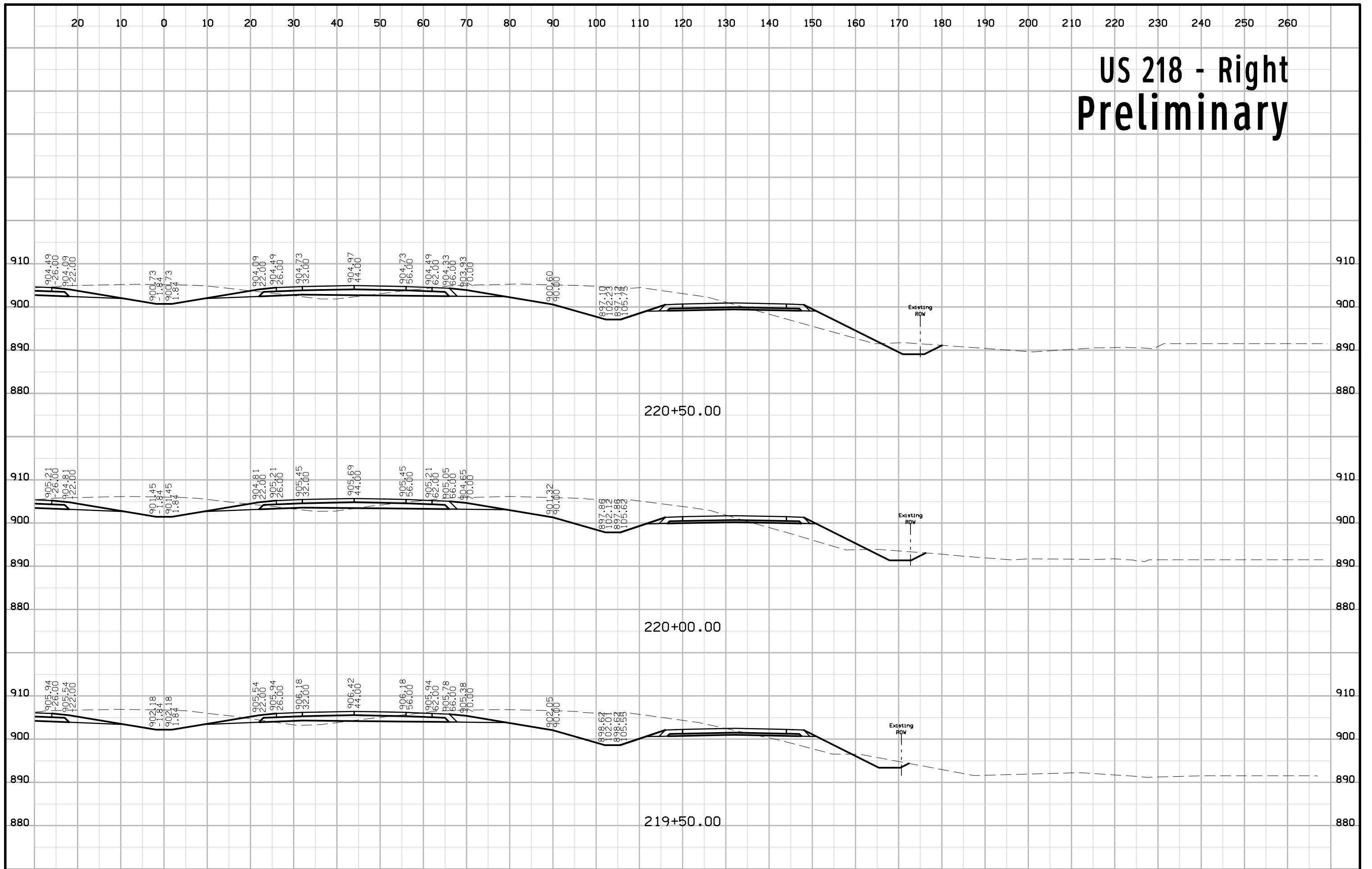


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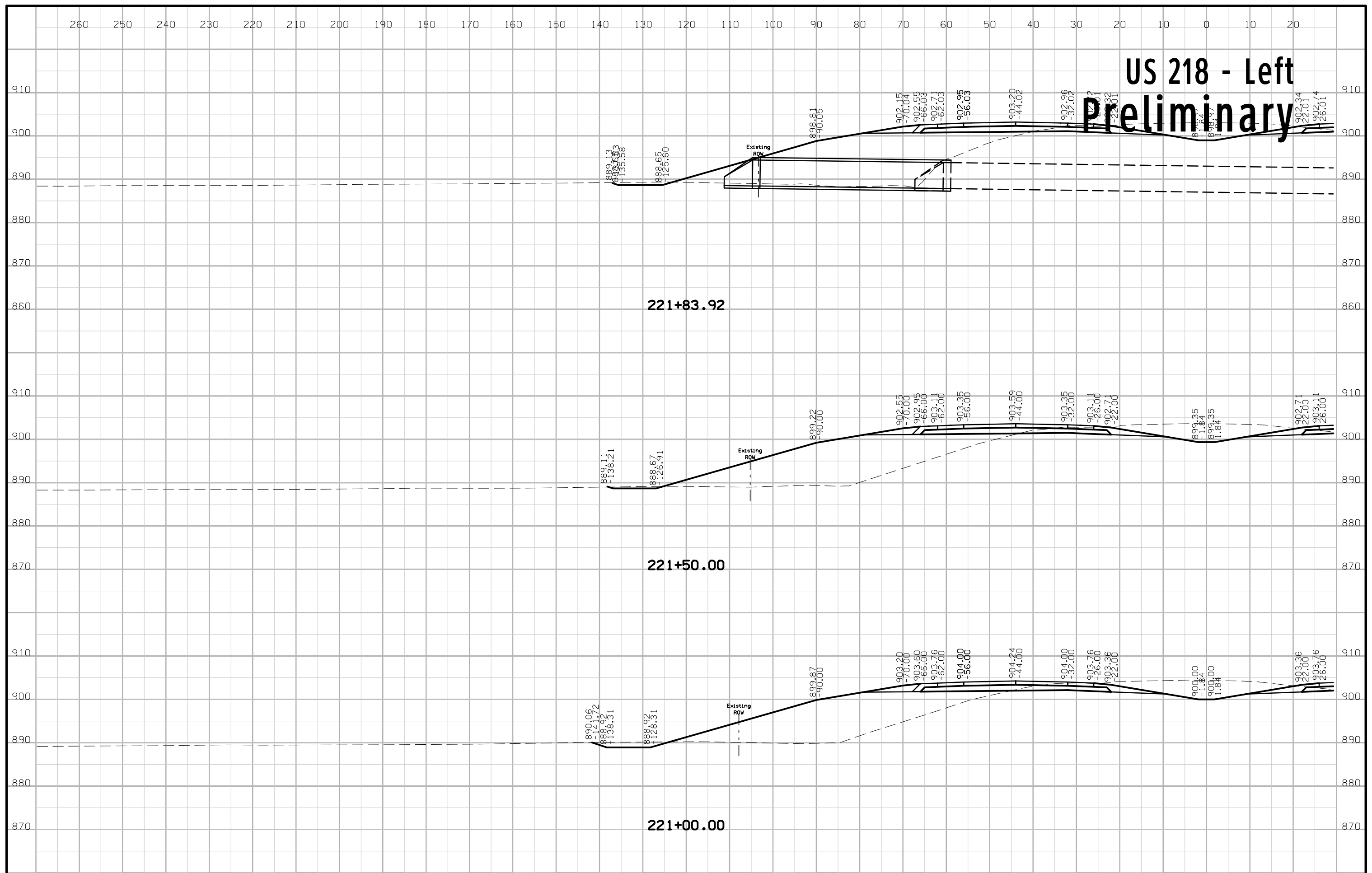


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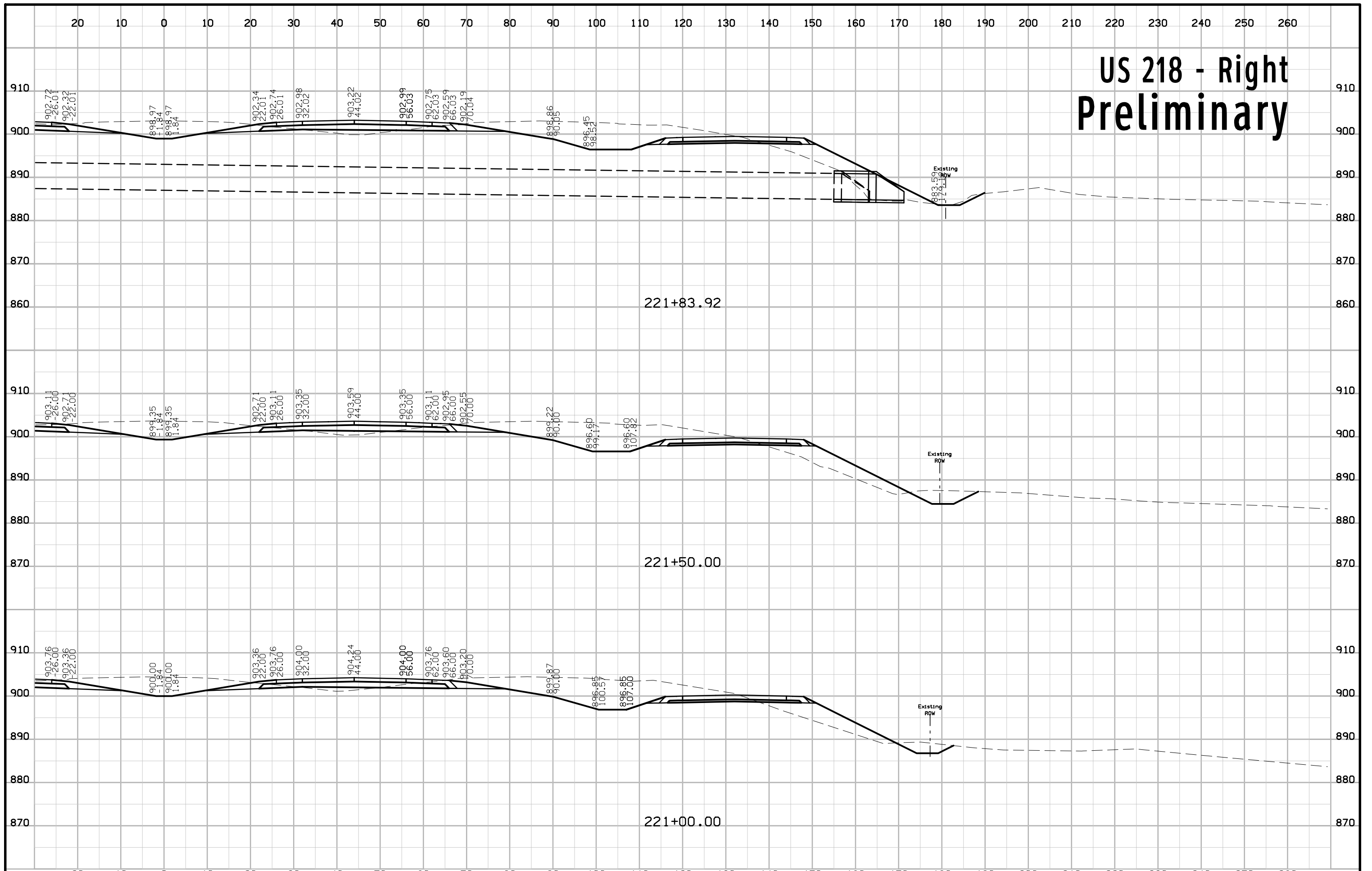


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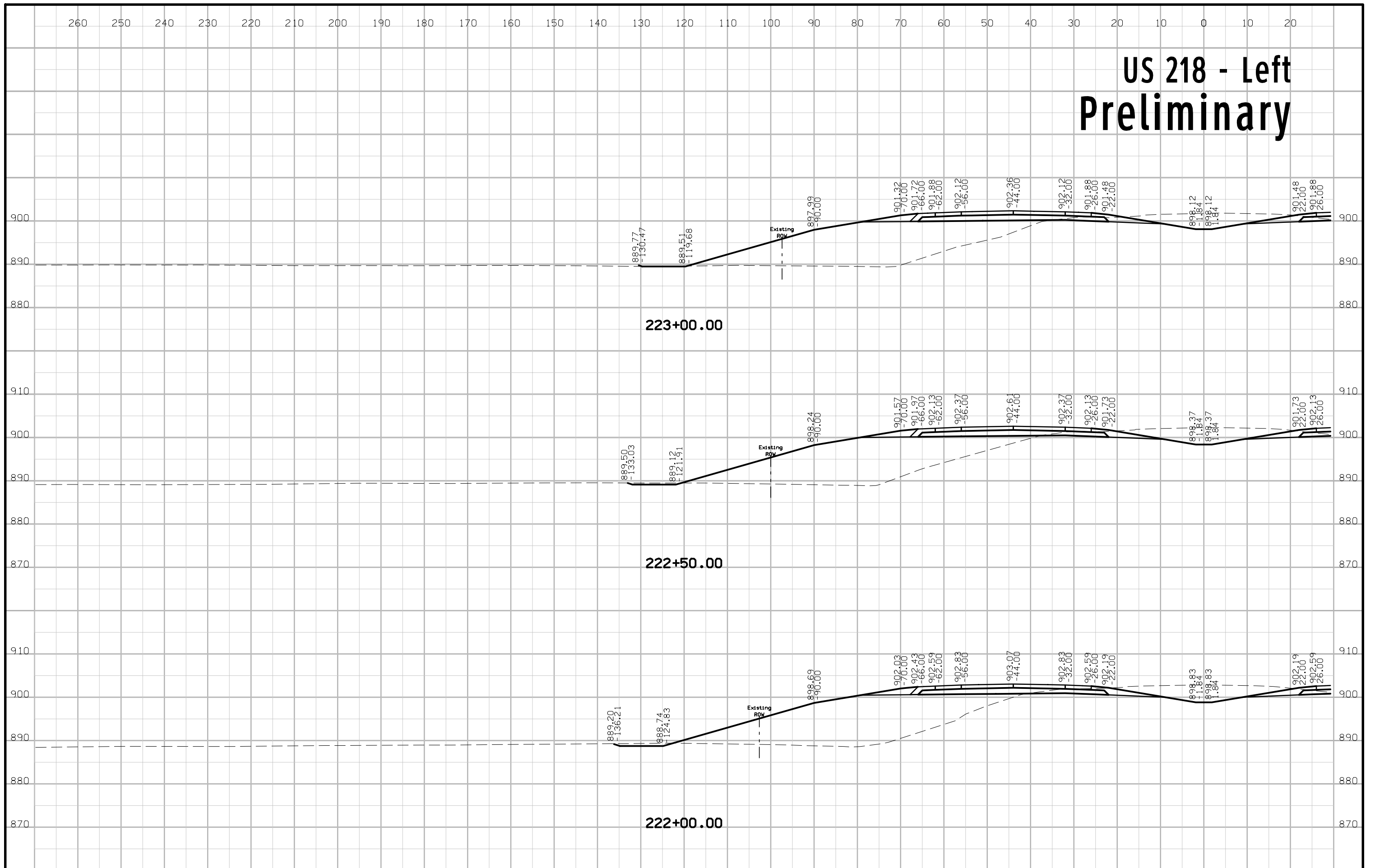


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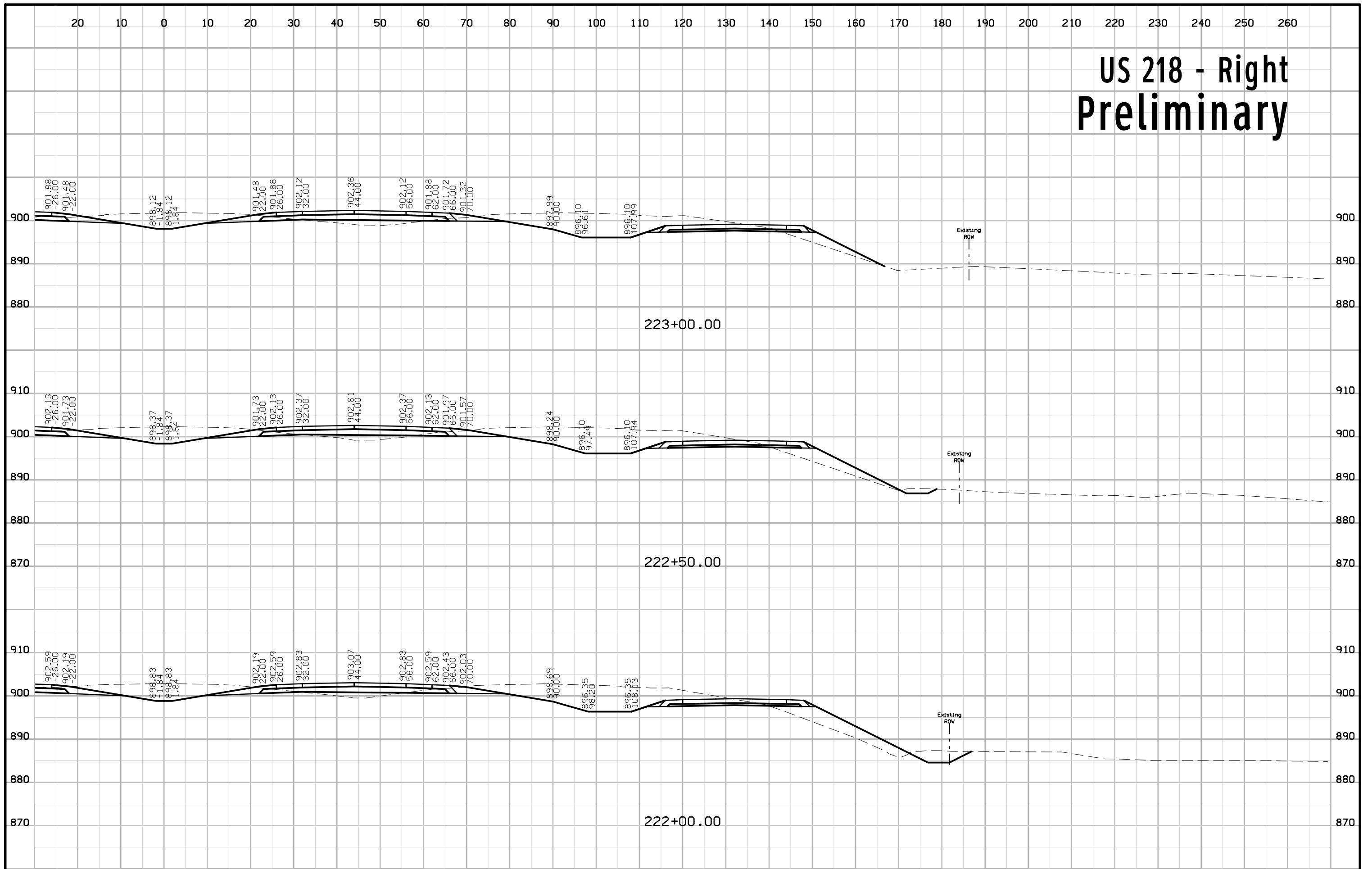


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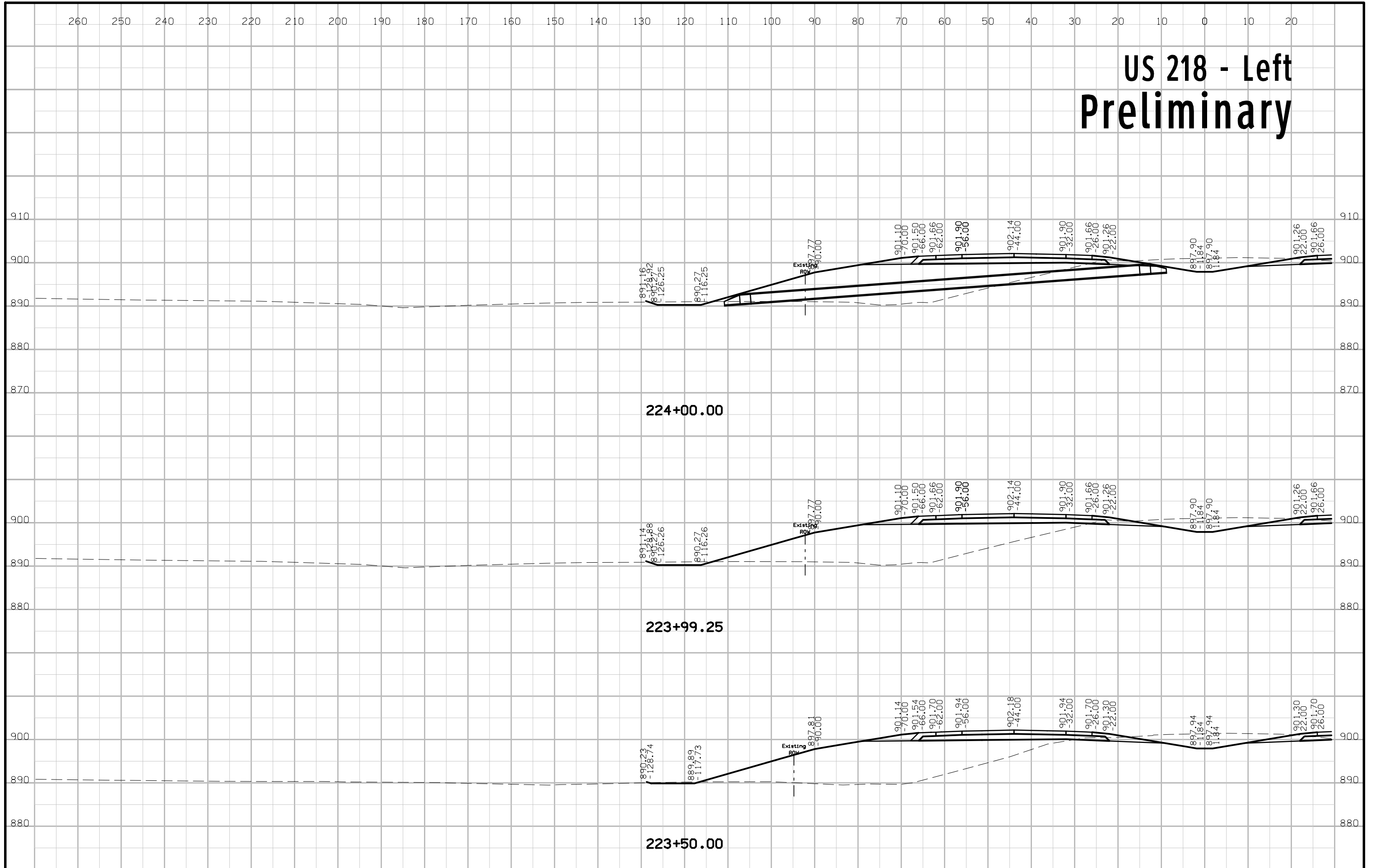


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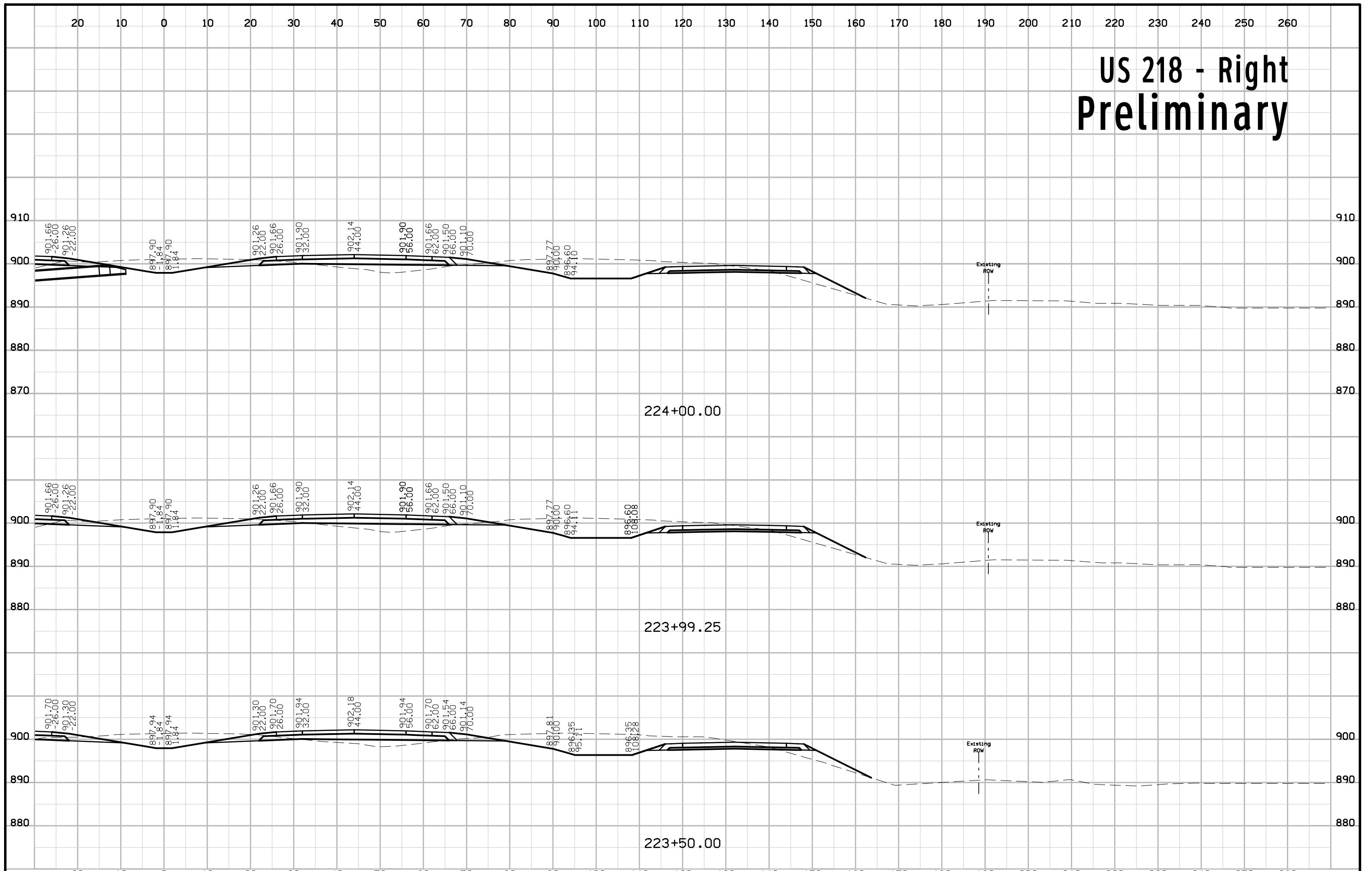


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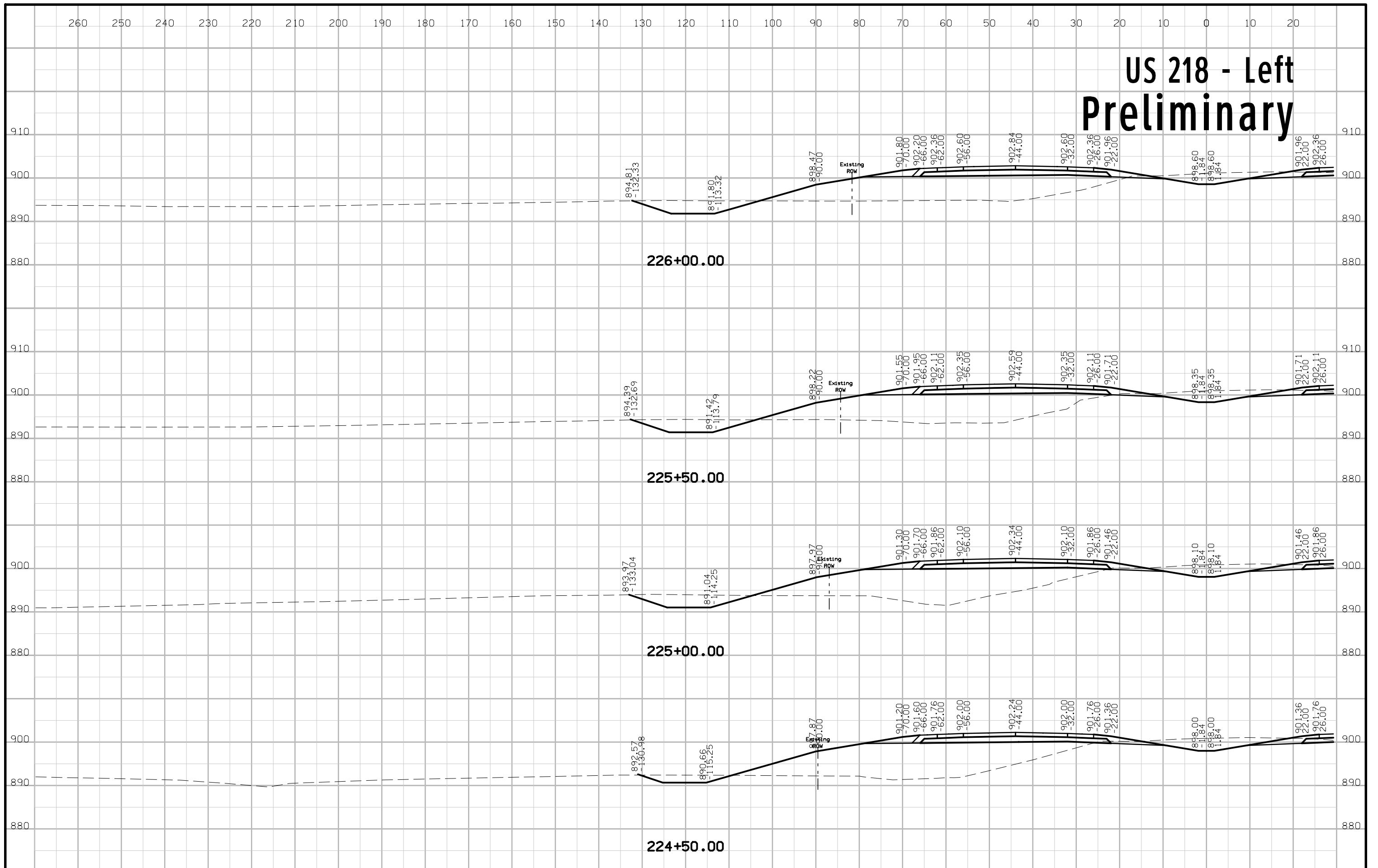


# US 218 - Right Preliminary





# US 218 - Left Preliminary





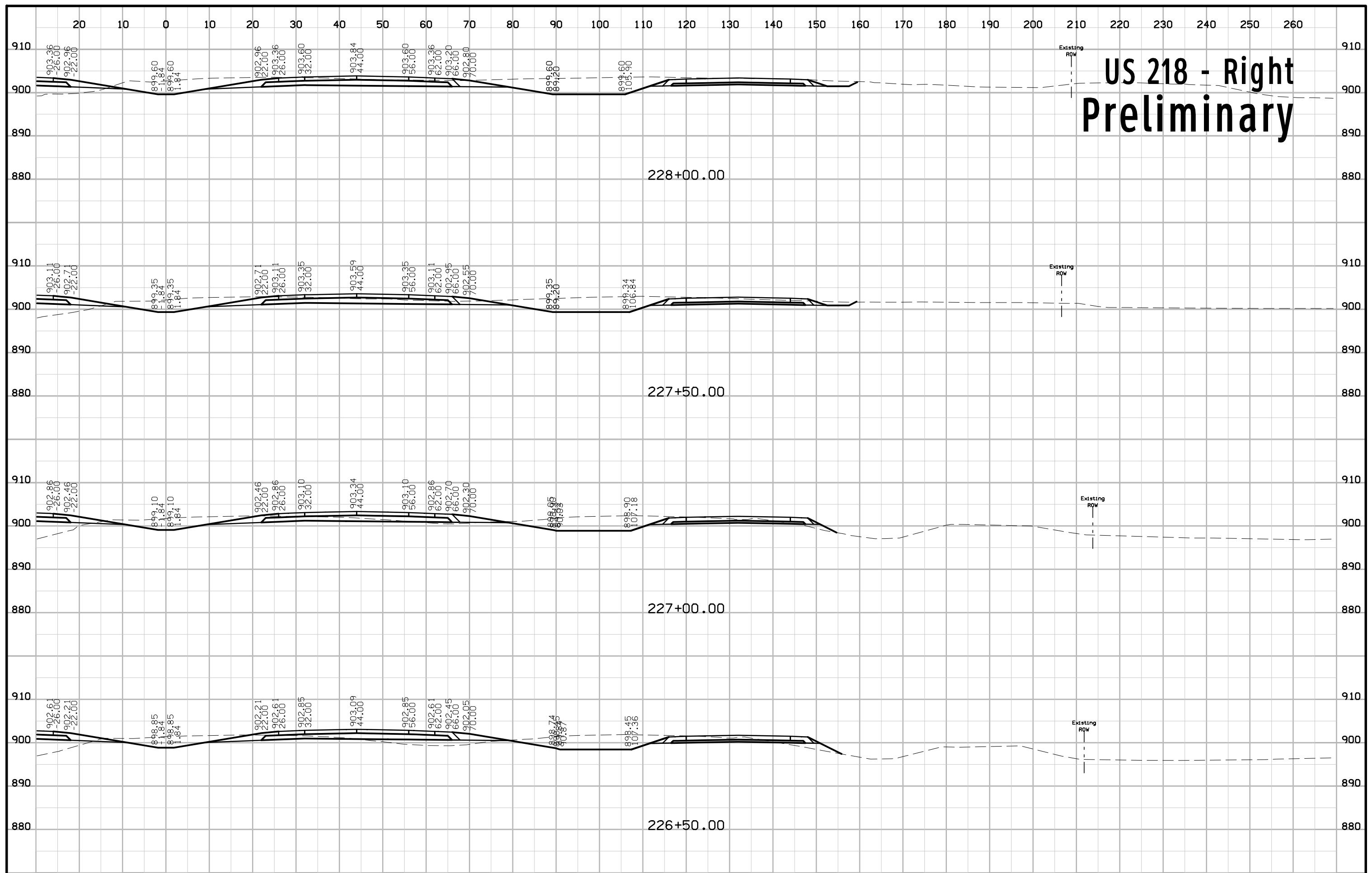






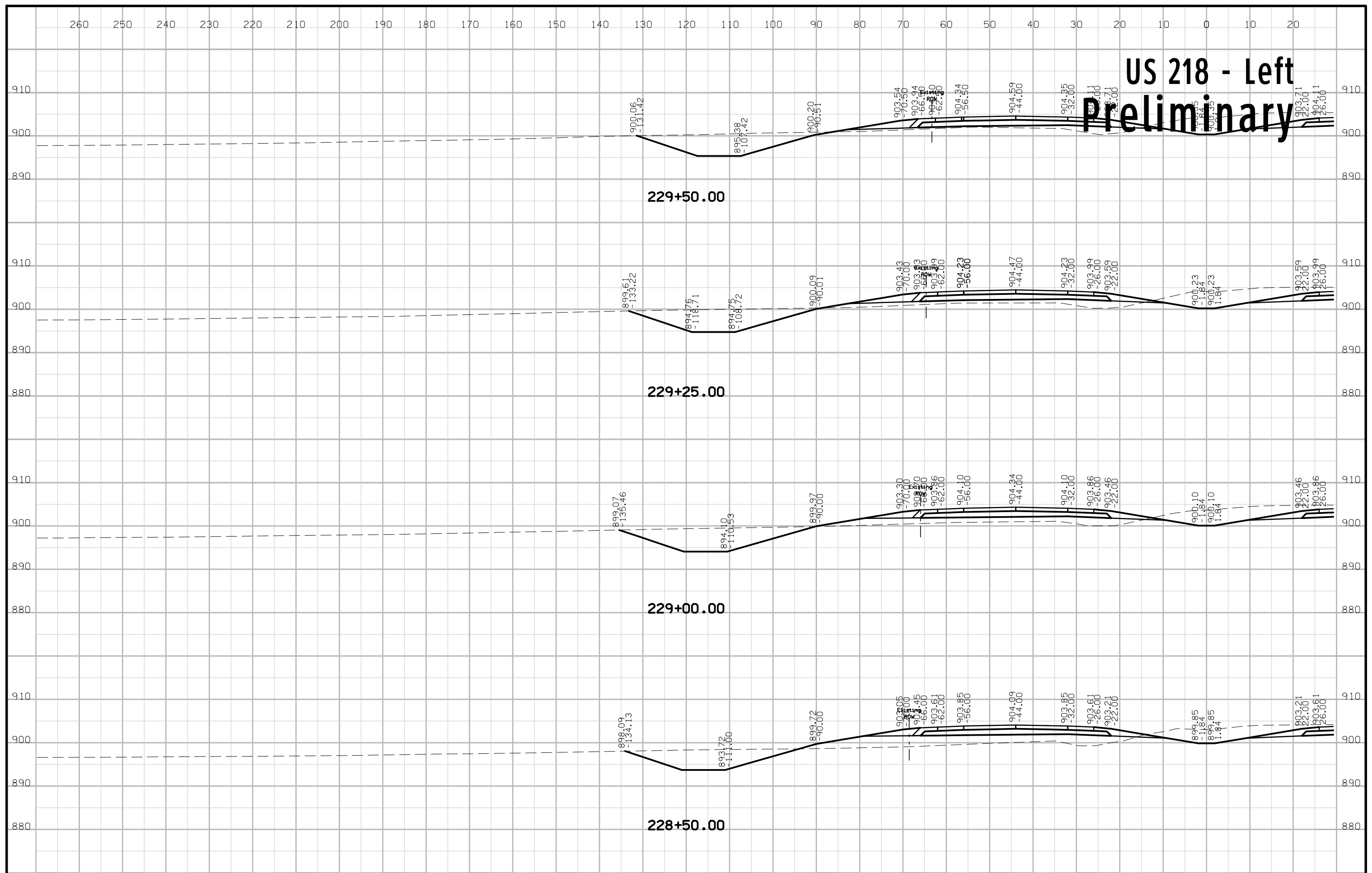


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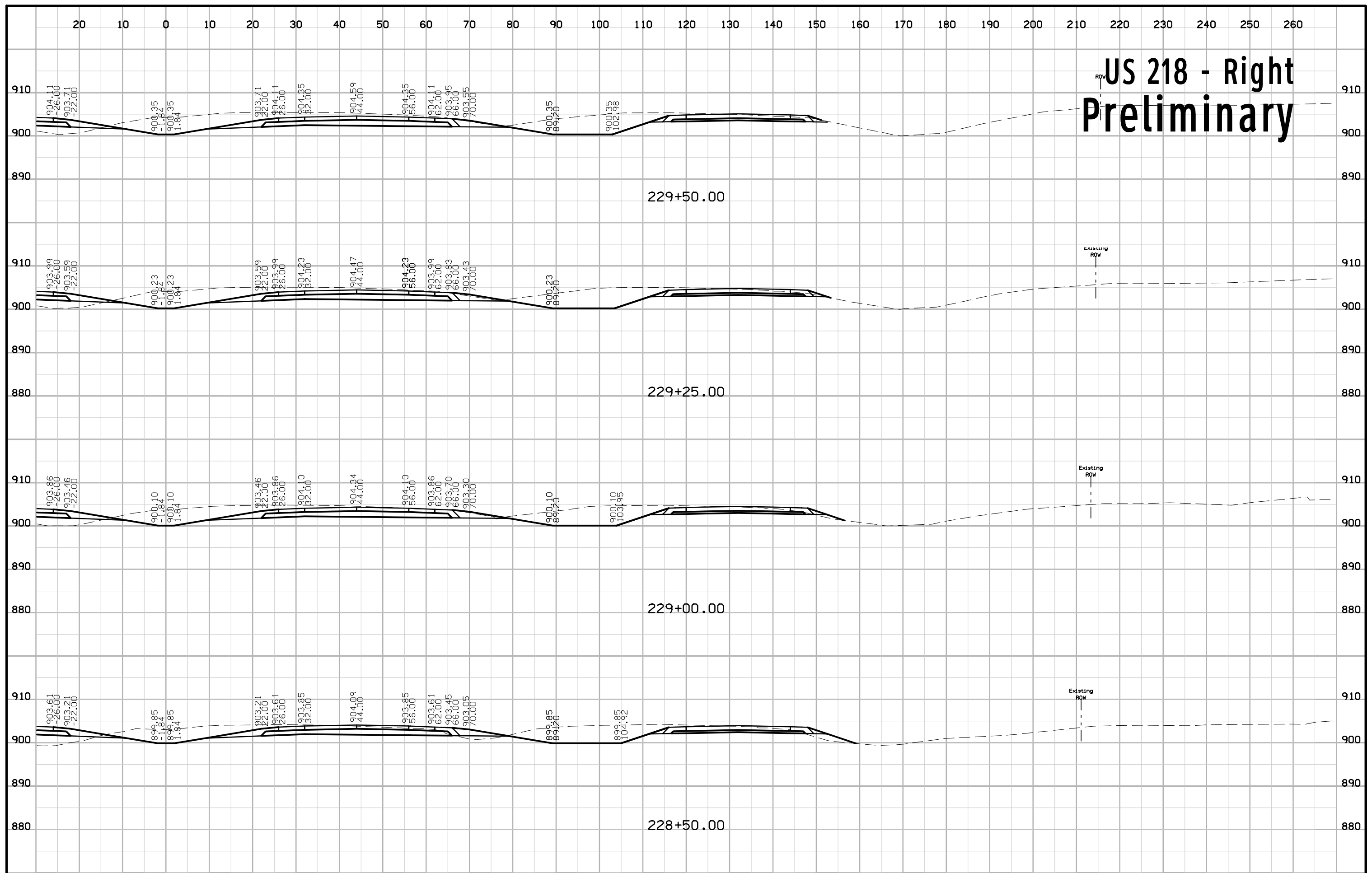


# US 218 - Left Preliminary





# US 218 - Right Preliminary

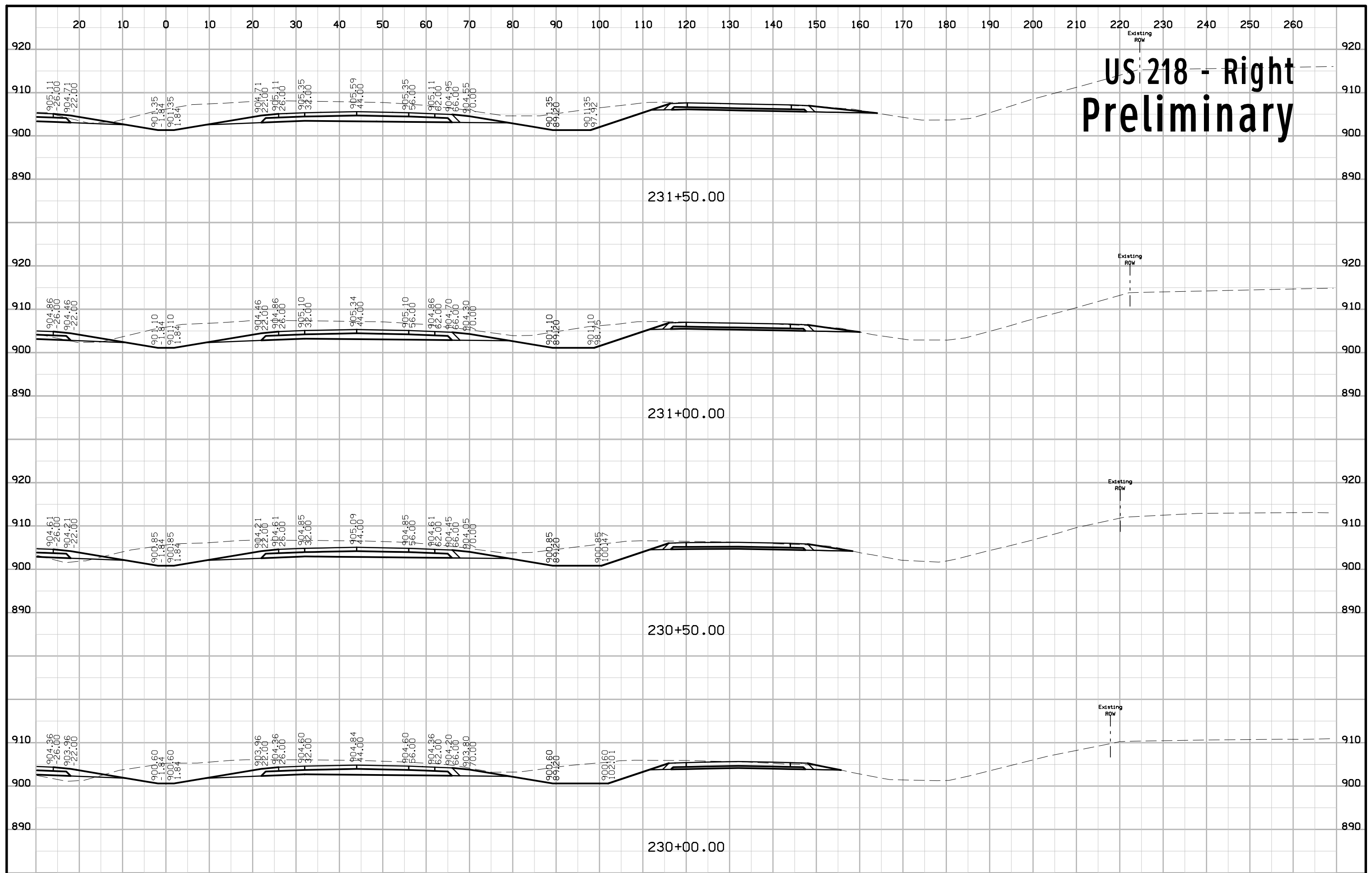






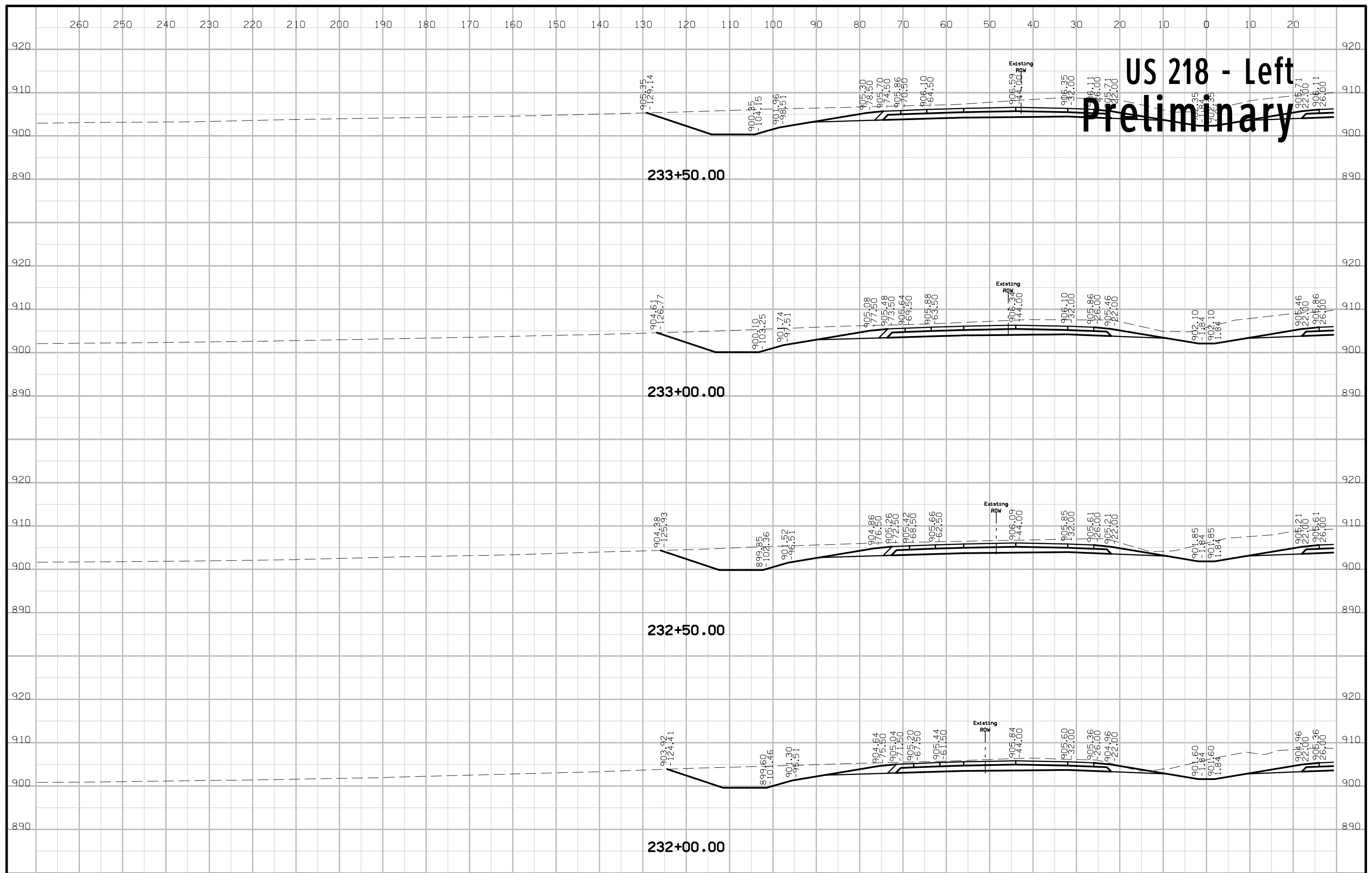


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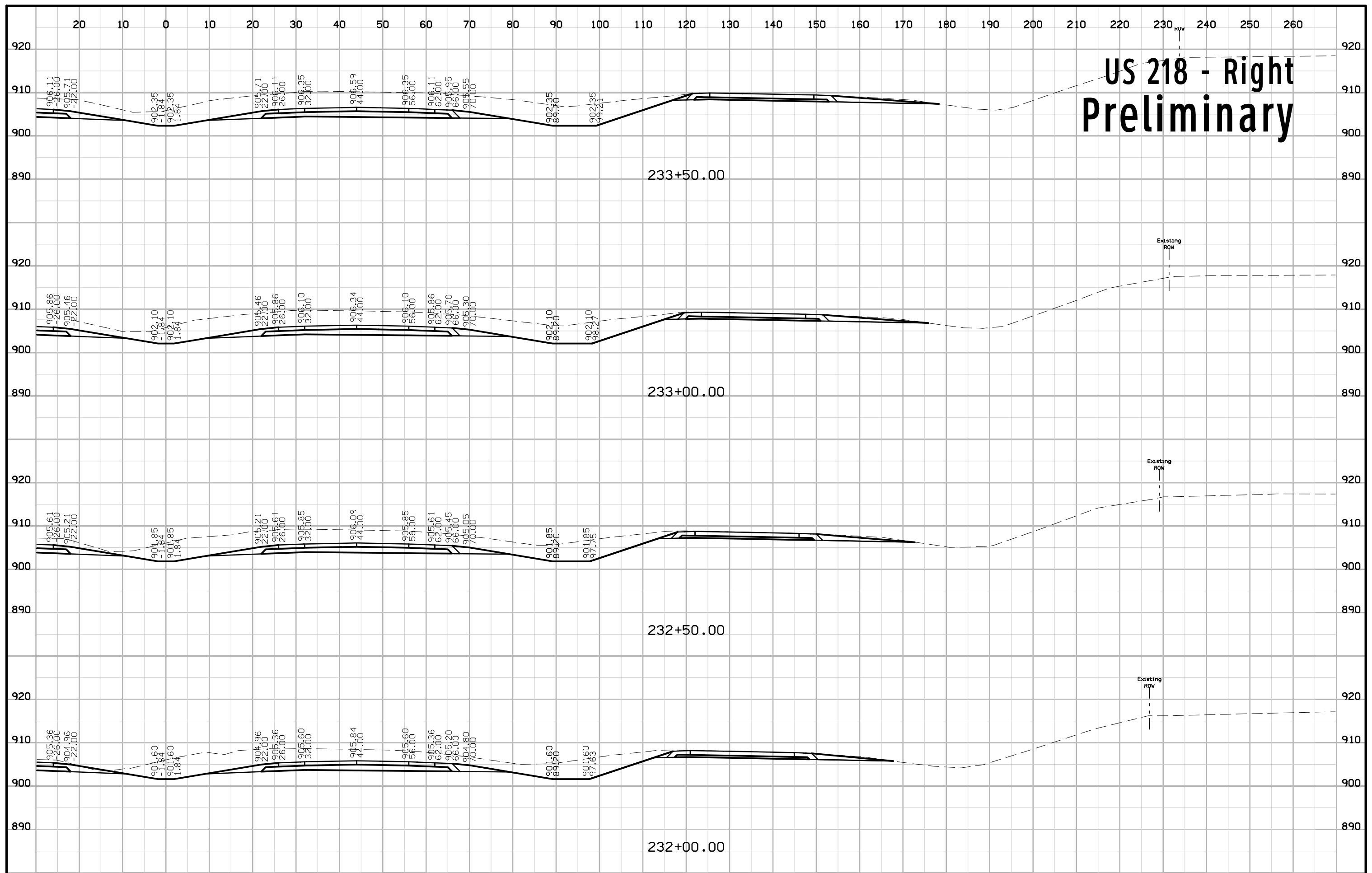




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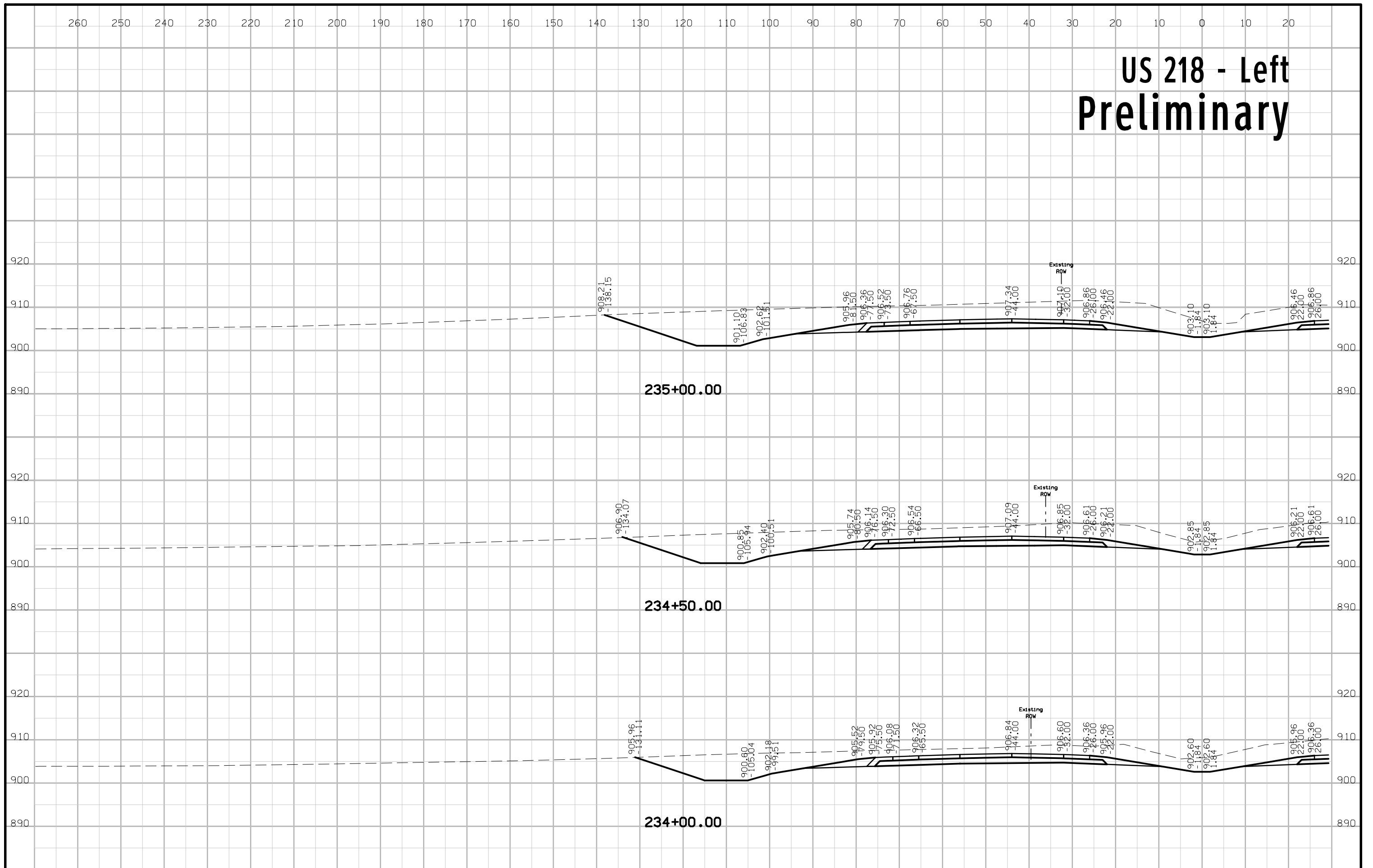






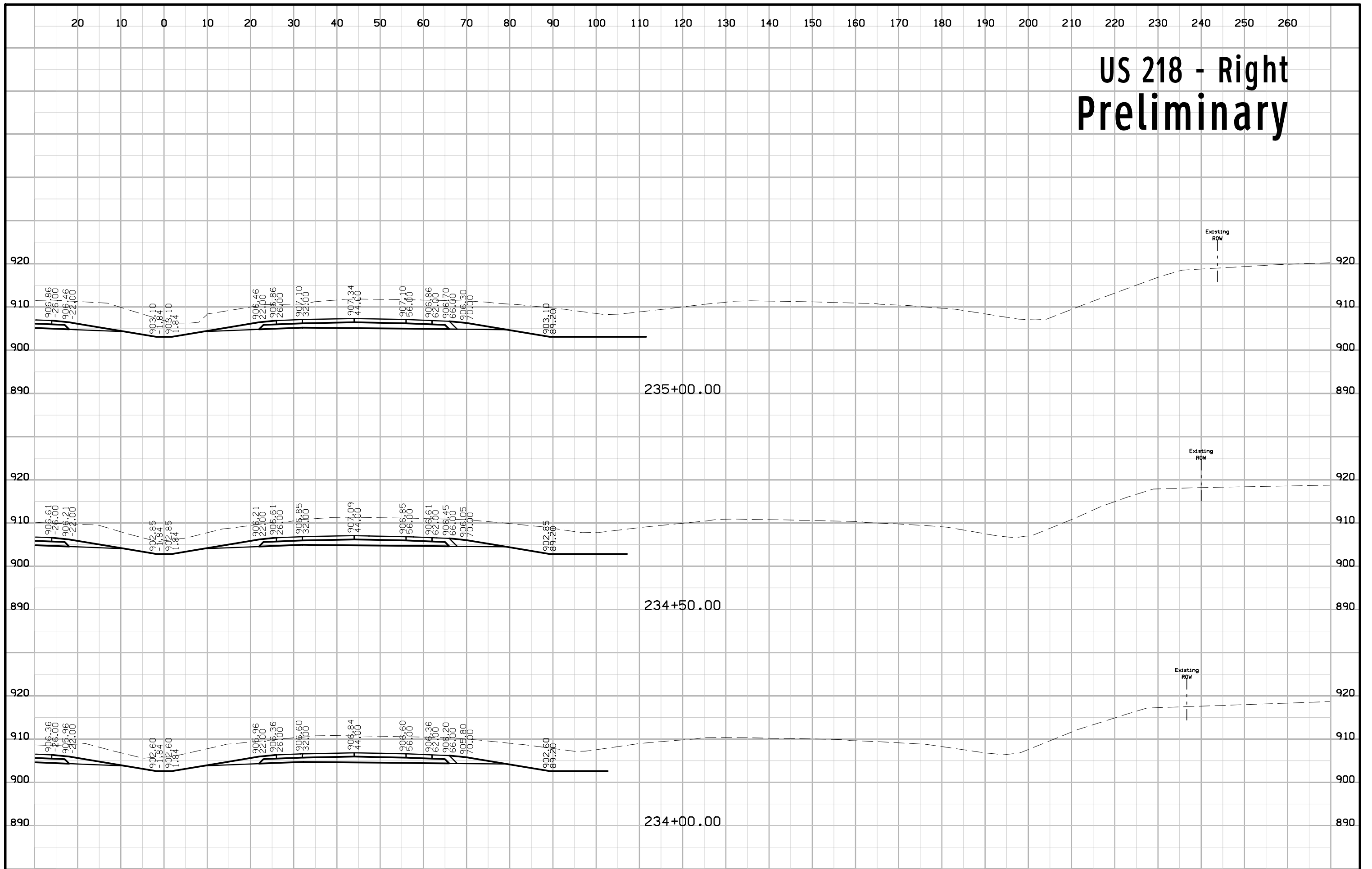


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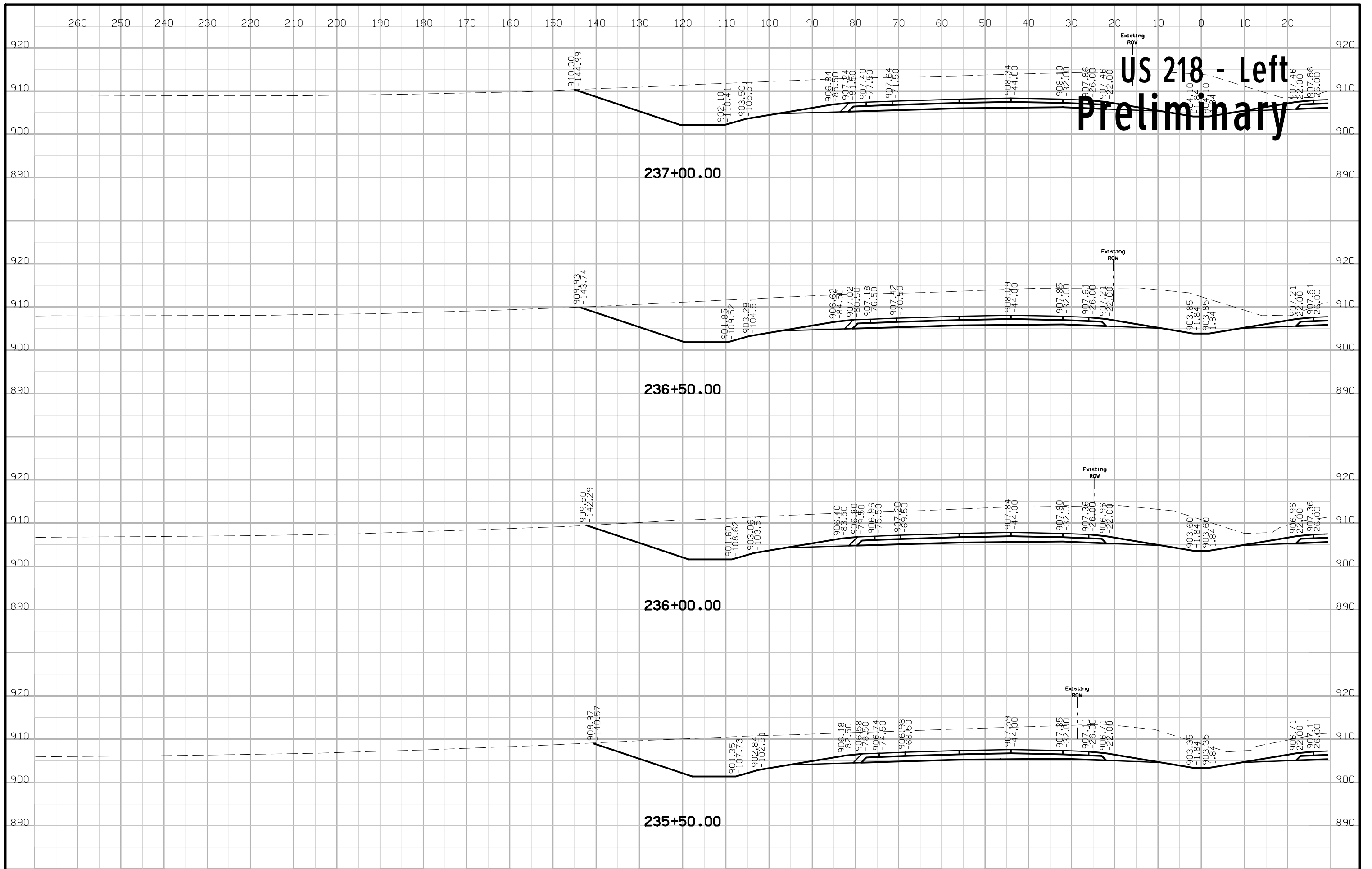




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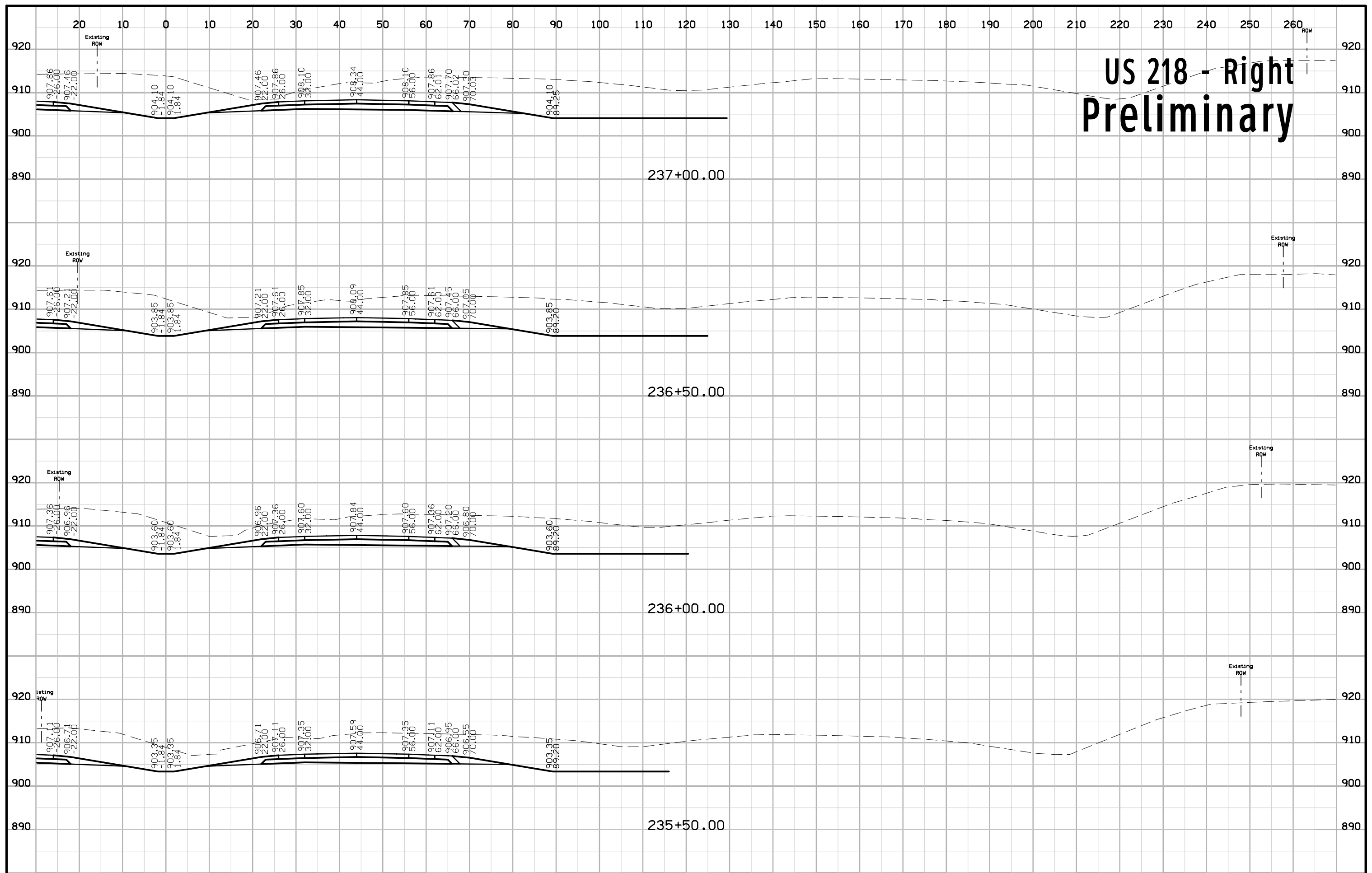




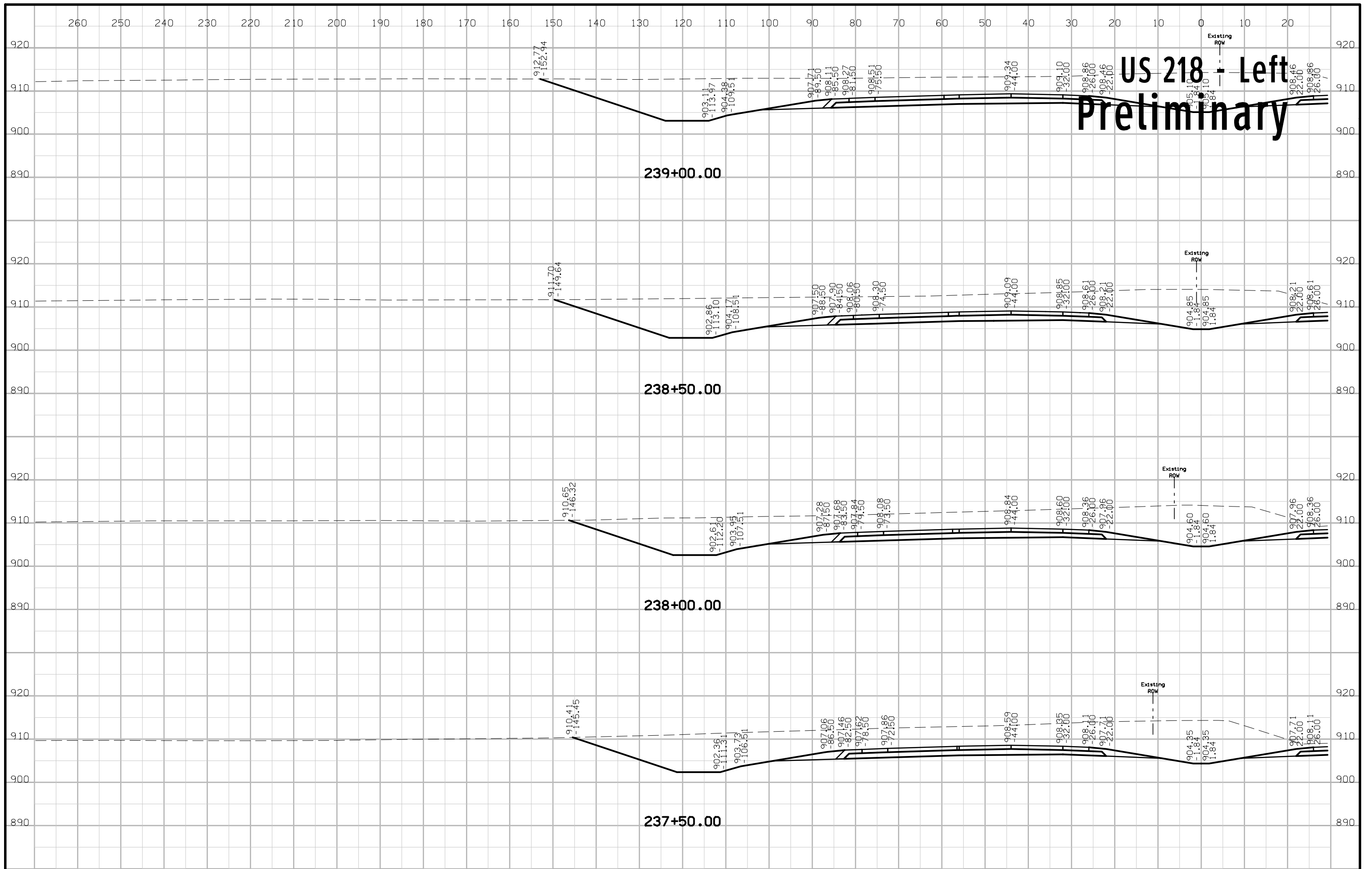
FILE NO.	ENGLISH	DESIGN TEAM	Iowa DOT \ HR Green, Inc.	BREMER	COUNTY	PROJECT NUMBER	NHSX-218-8(124)--3H-09	SHEET NUMBER	W.40
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# US 218 - Right Preliminary



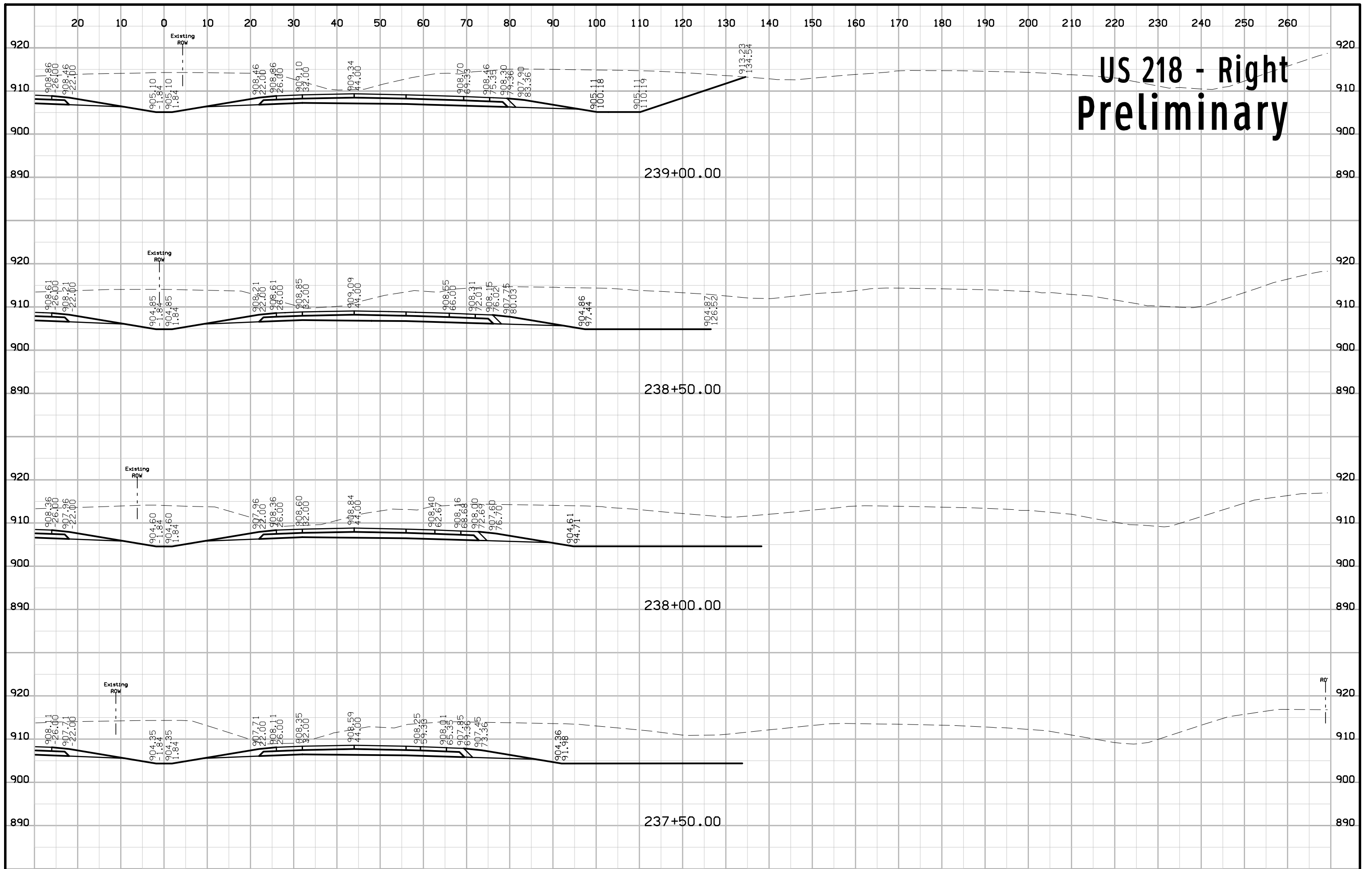




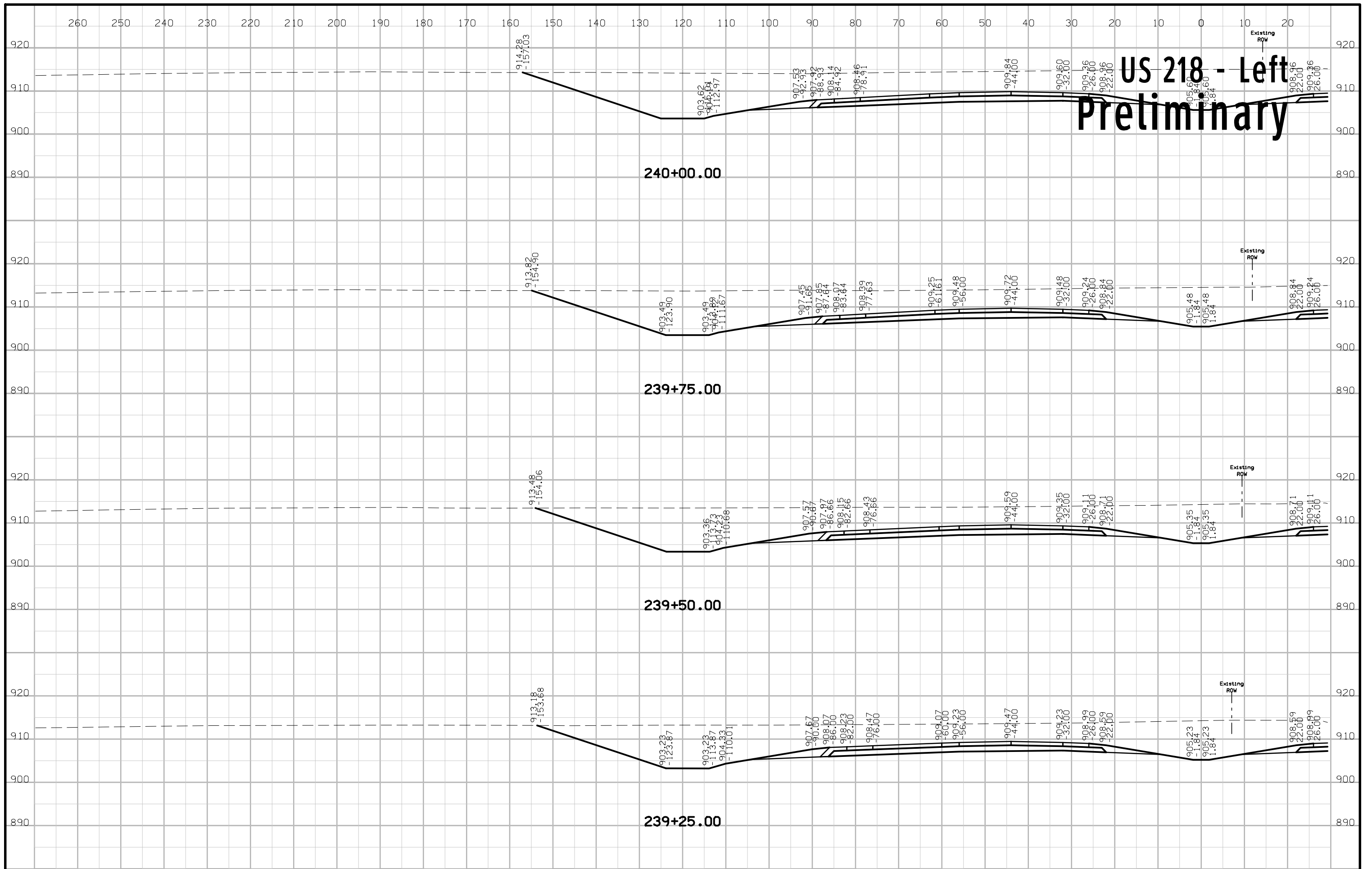
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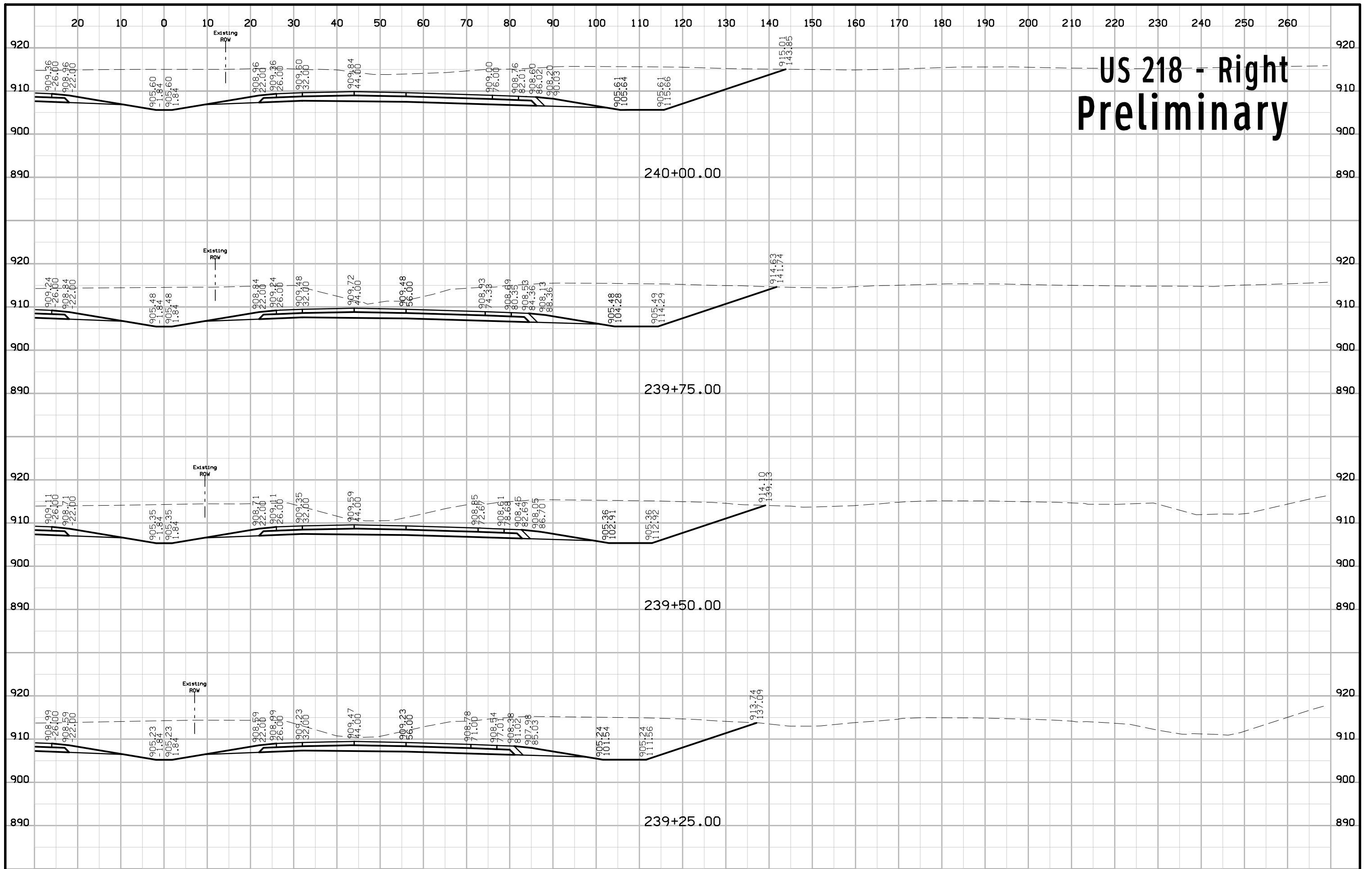




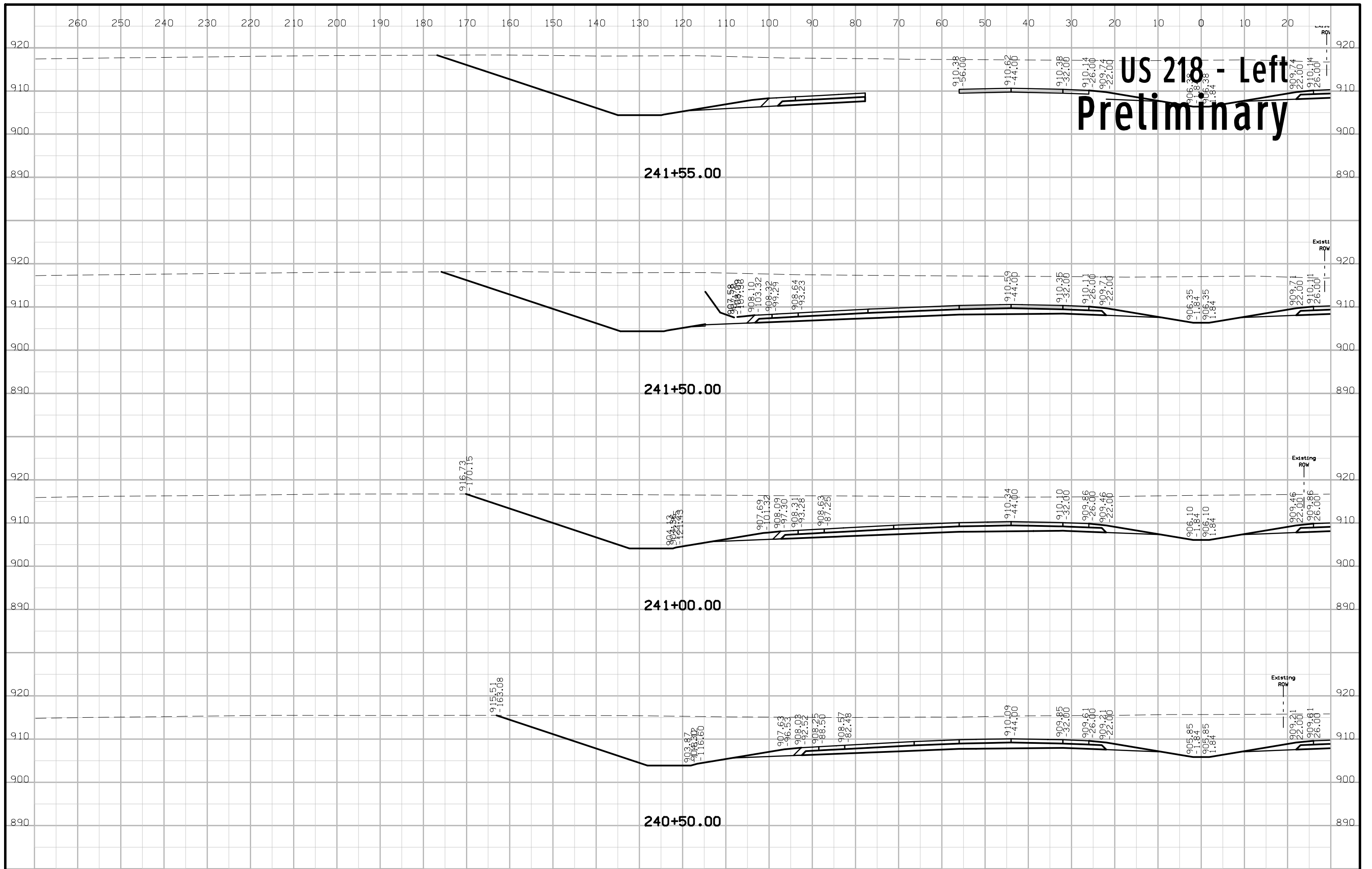




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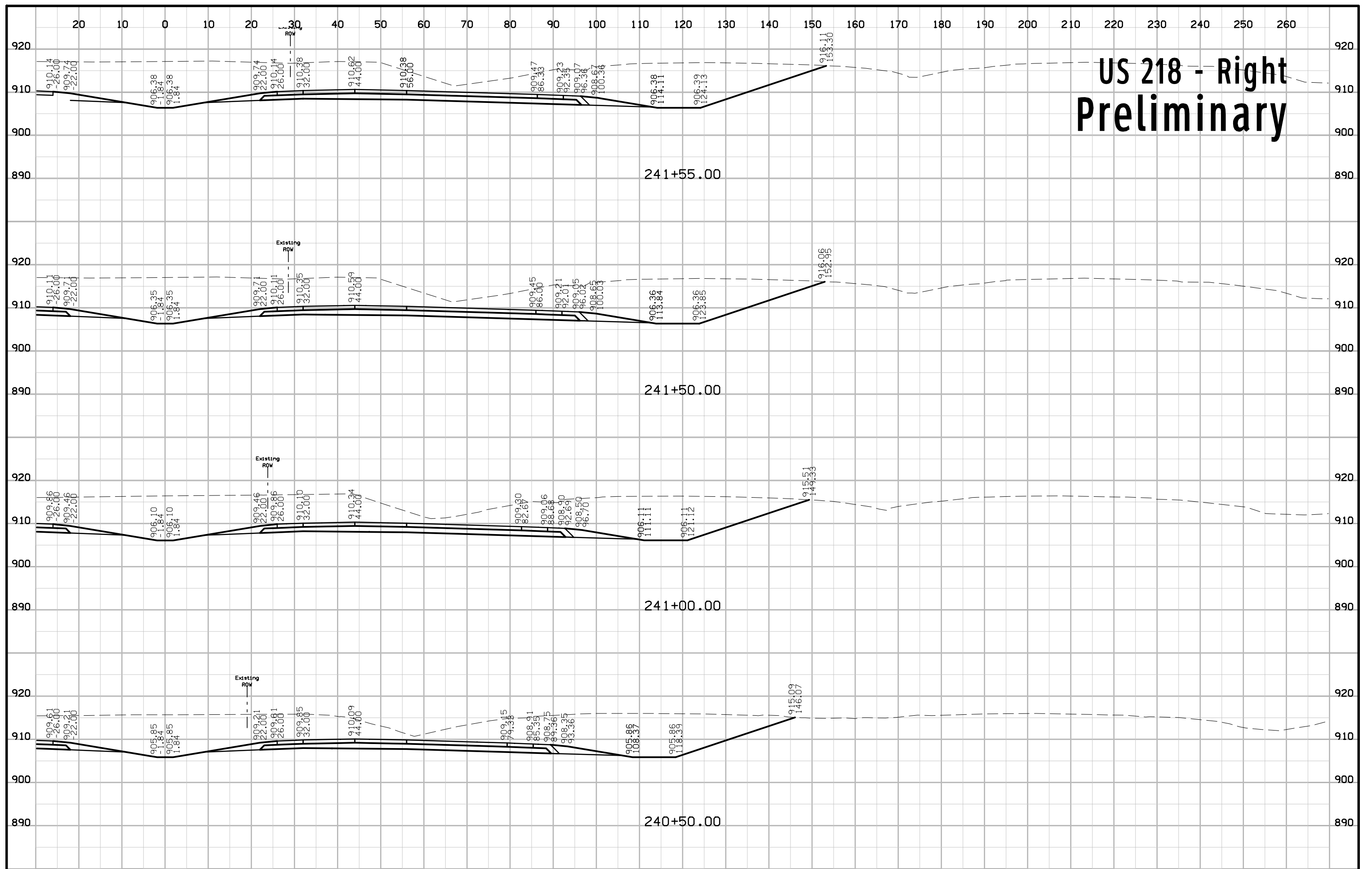




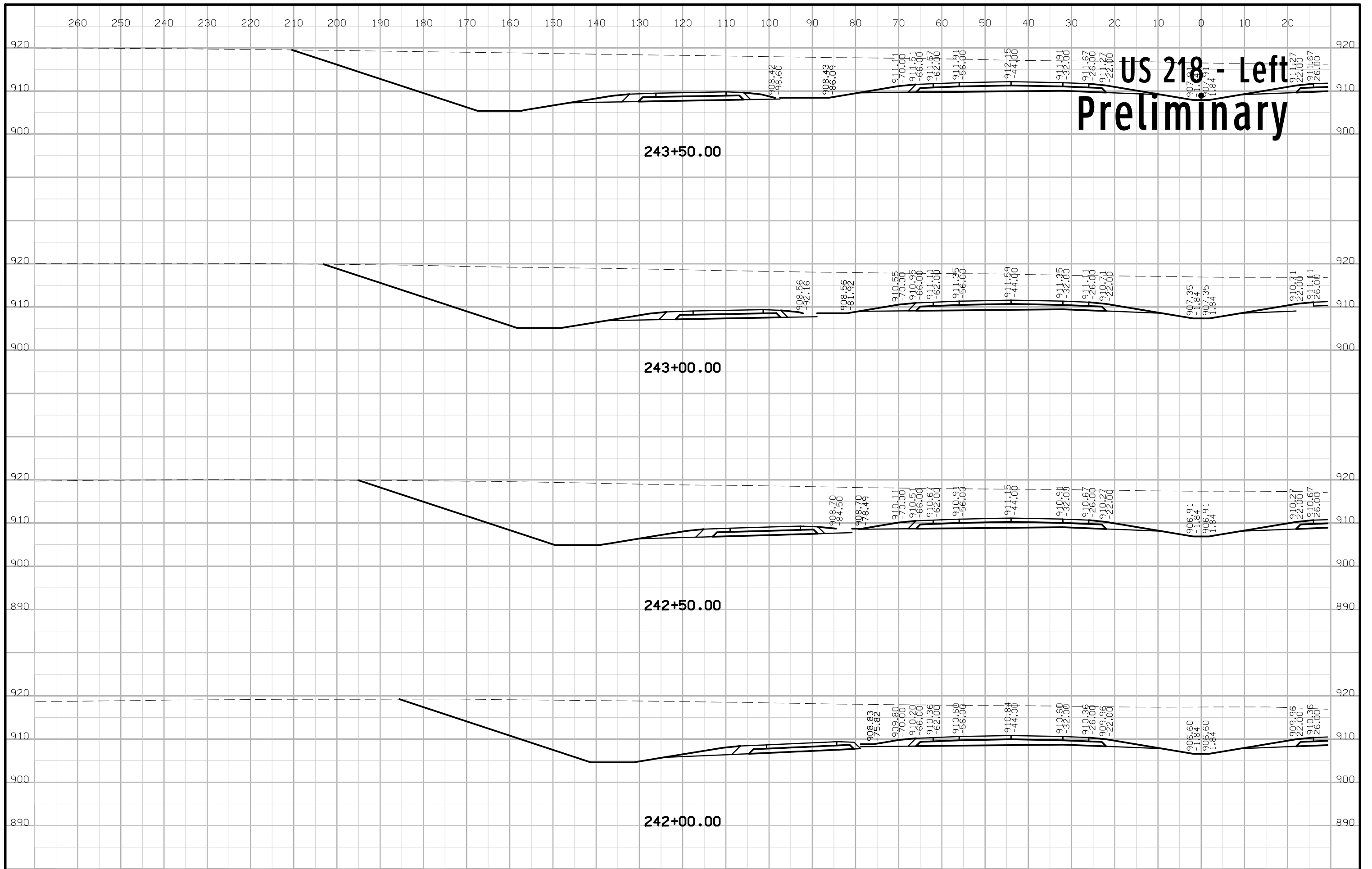
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# US 218 - Right Preliminary

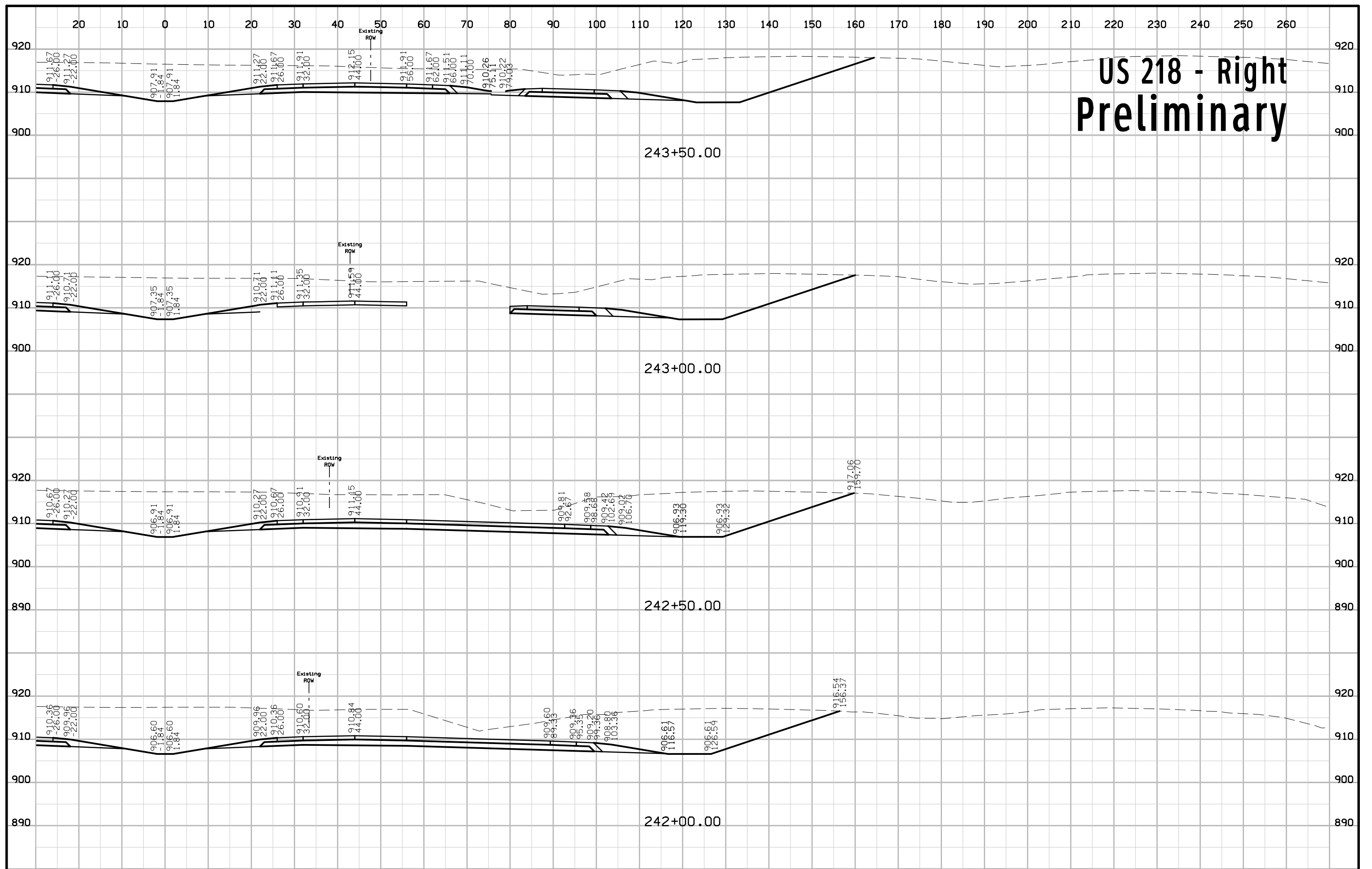






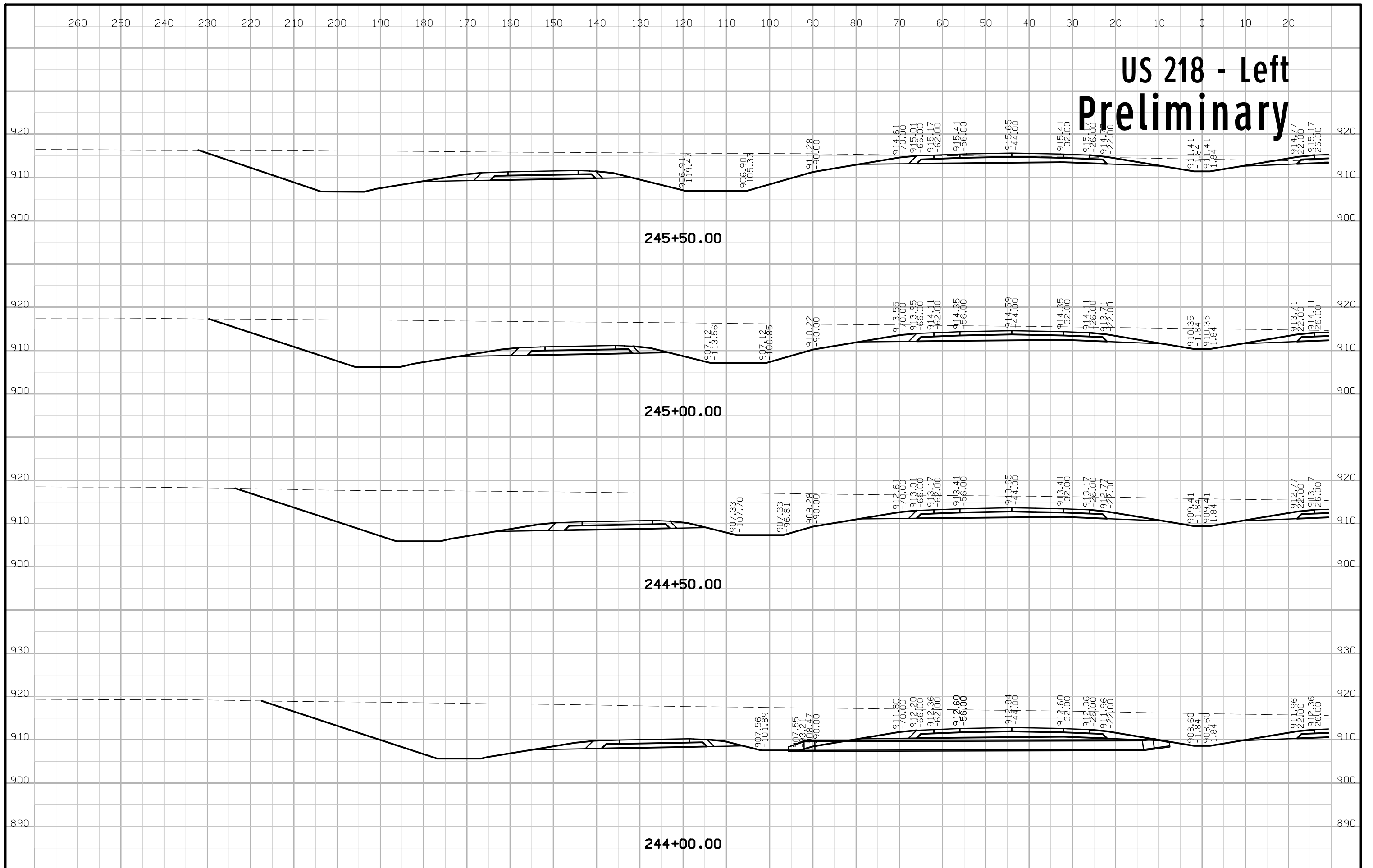


# US 218 - Right Preliminary



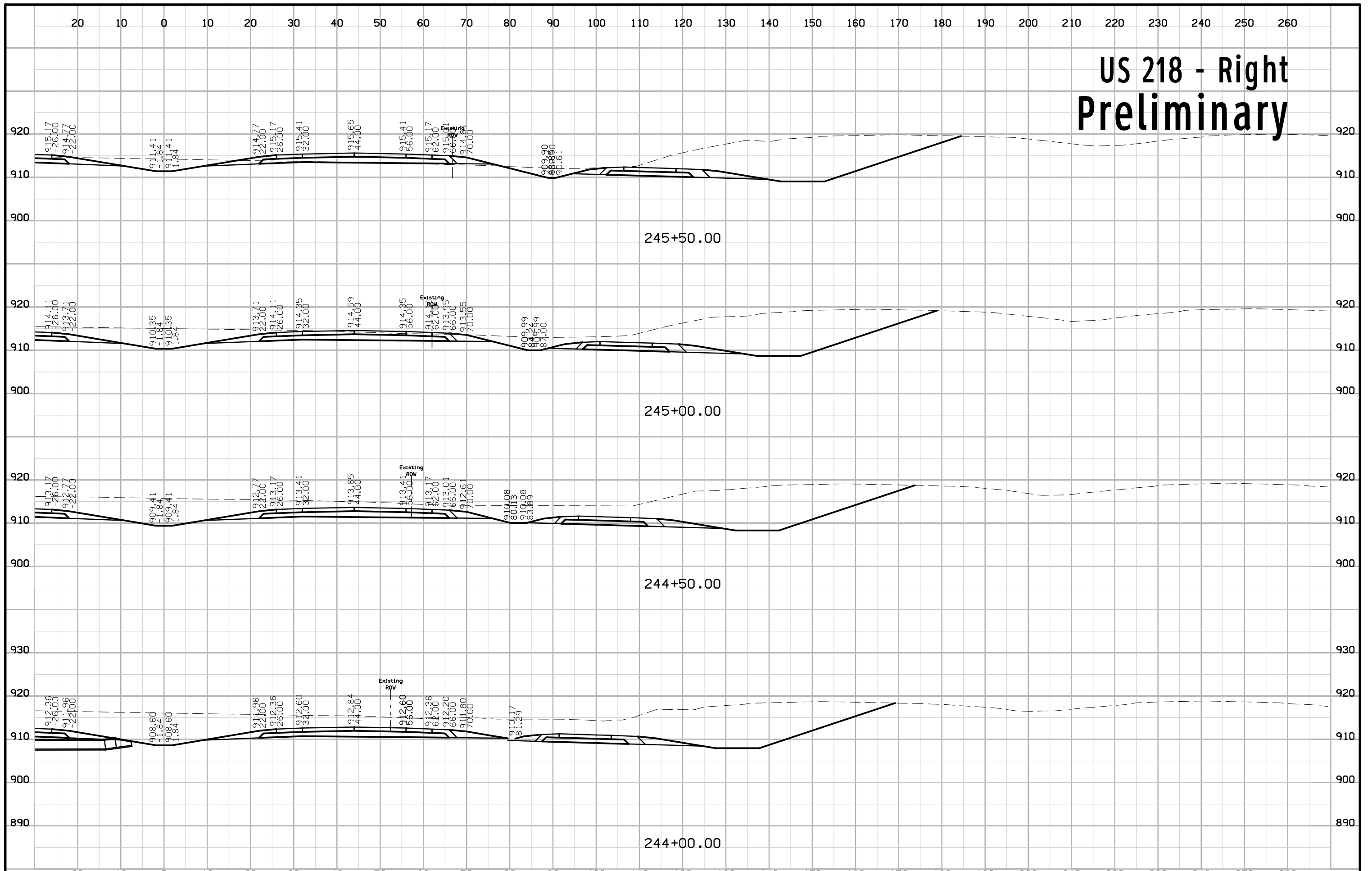


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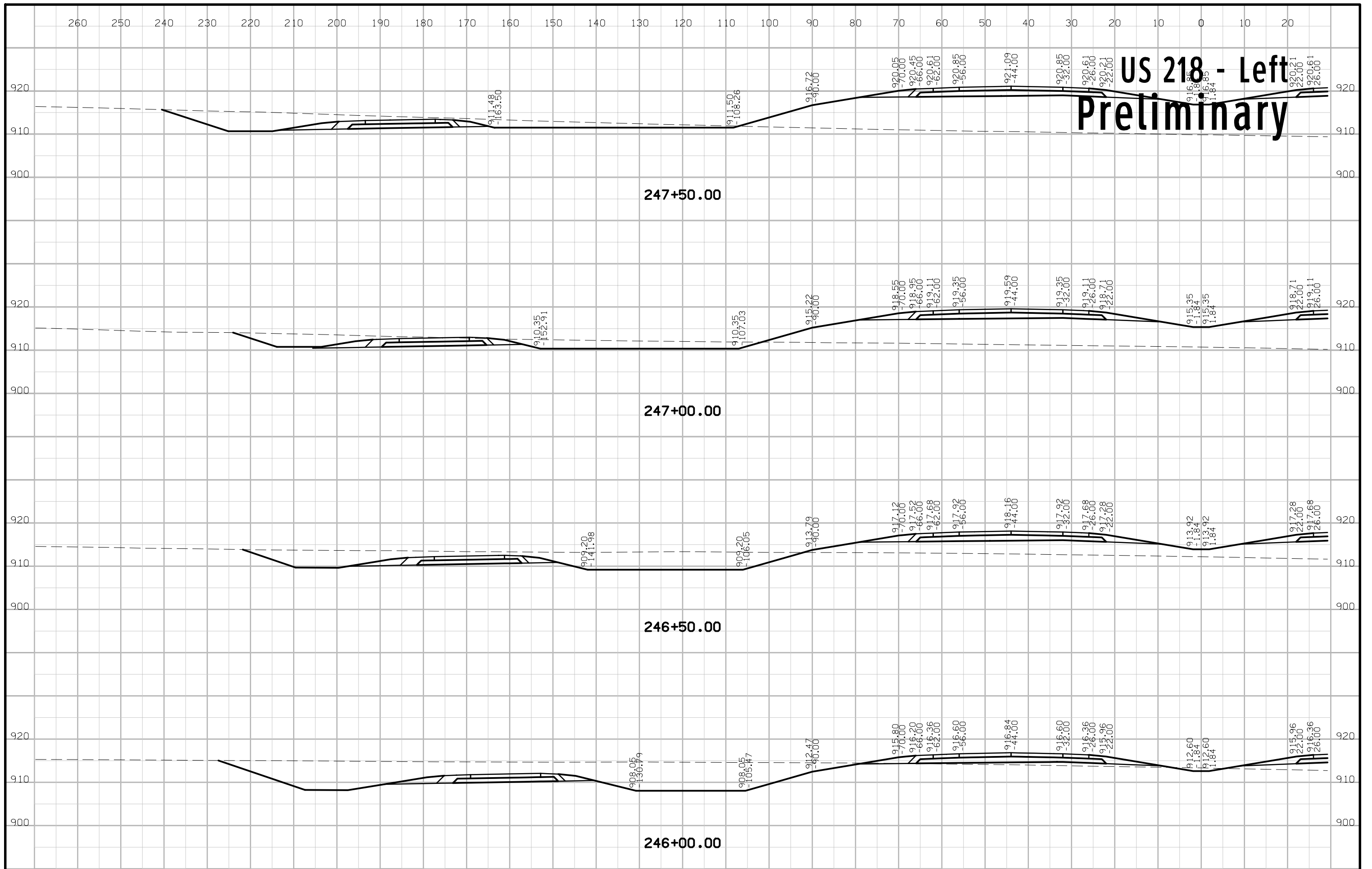




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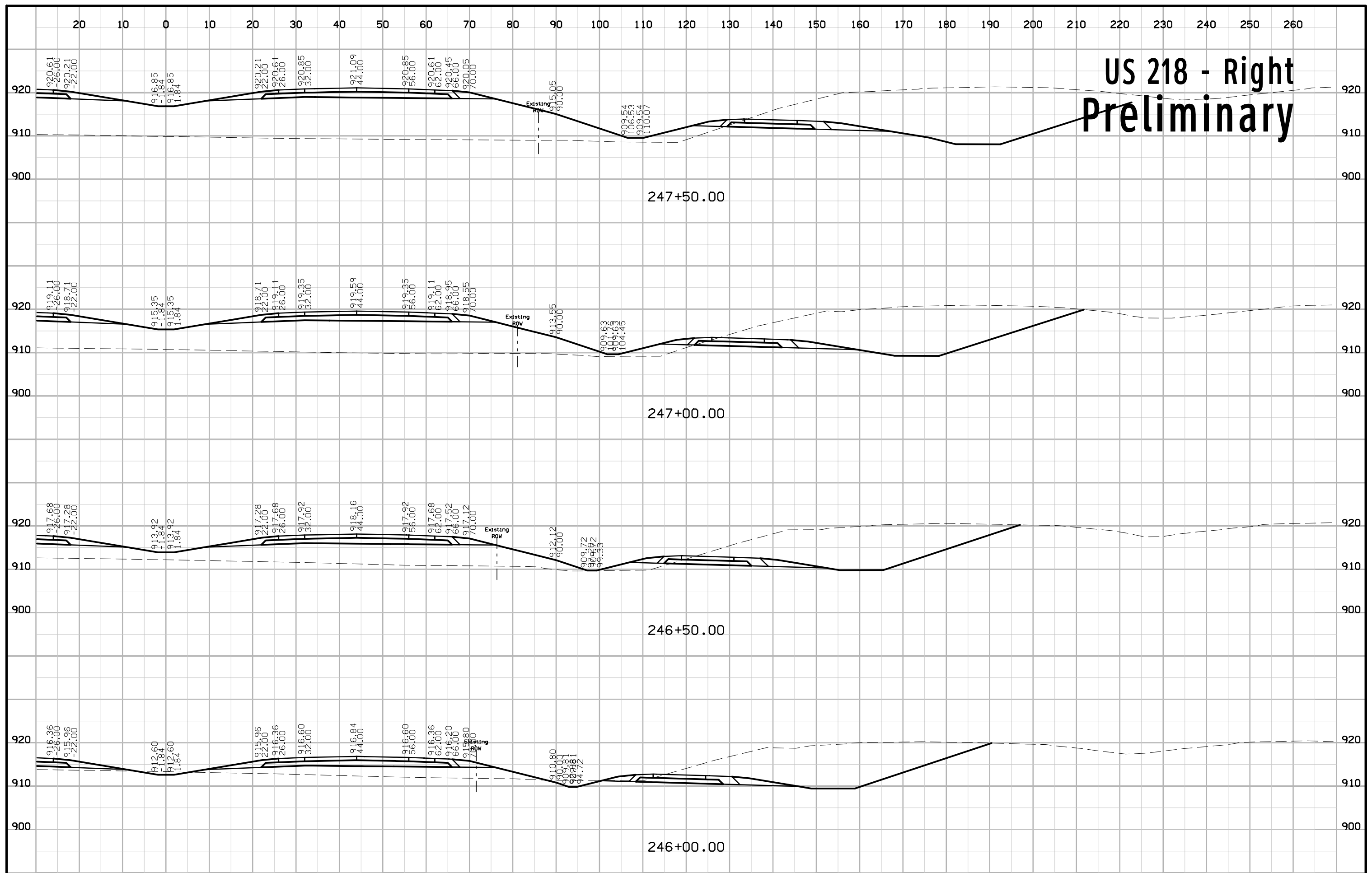






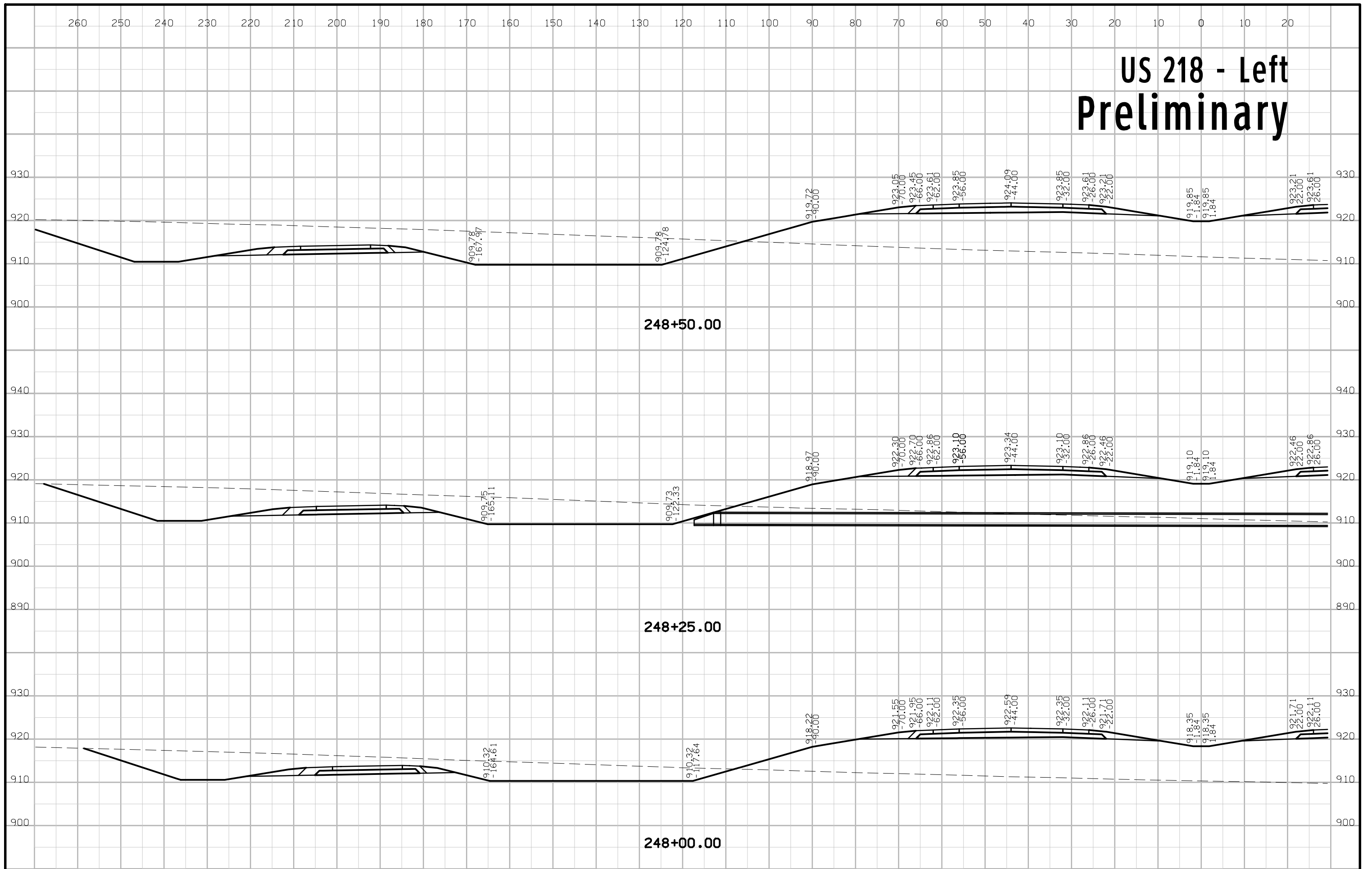


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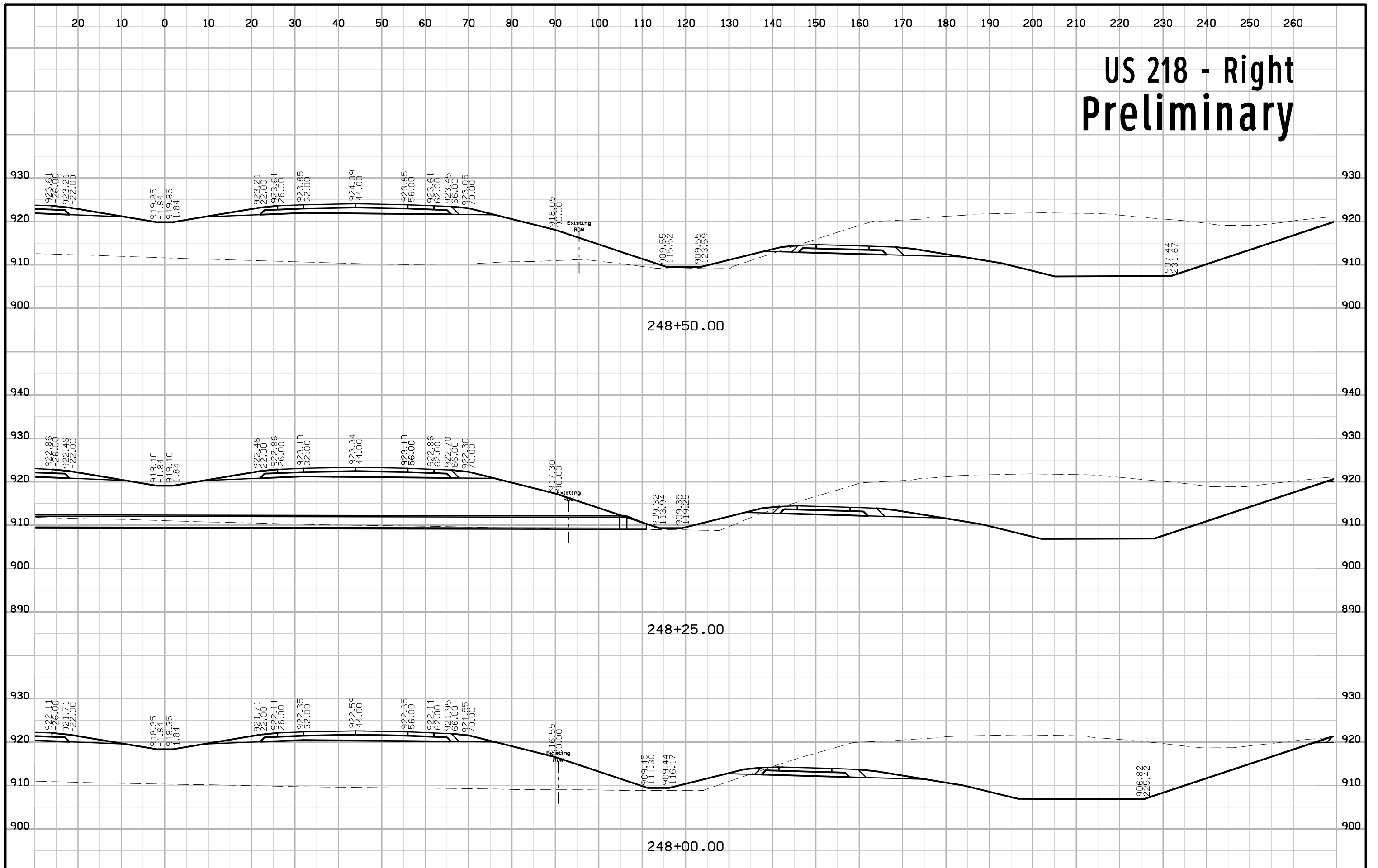


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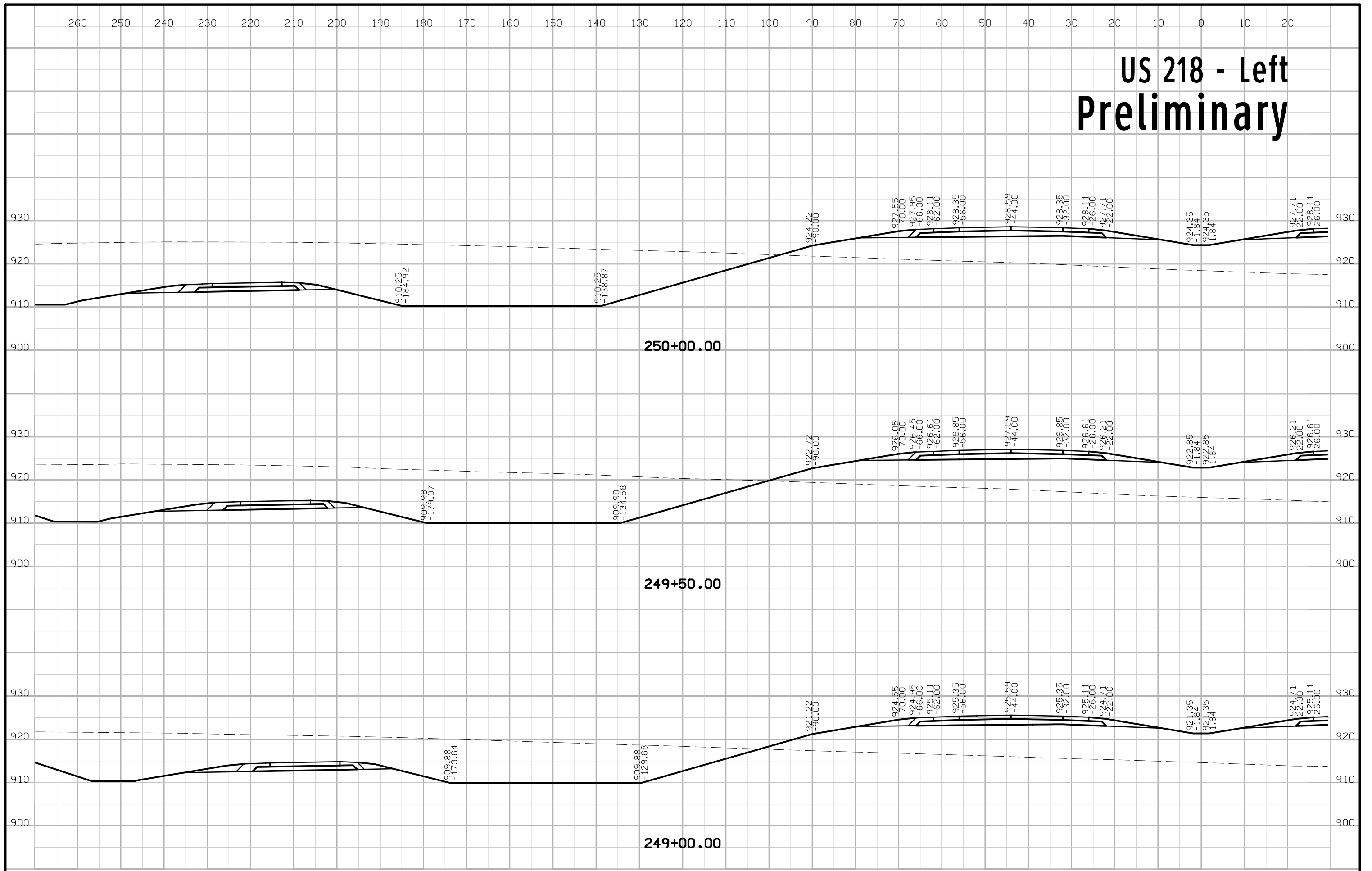


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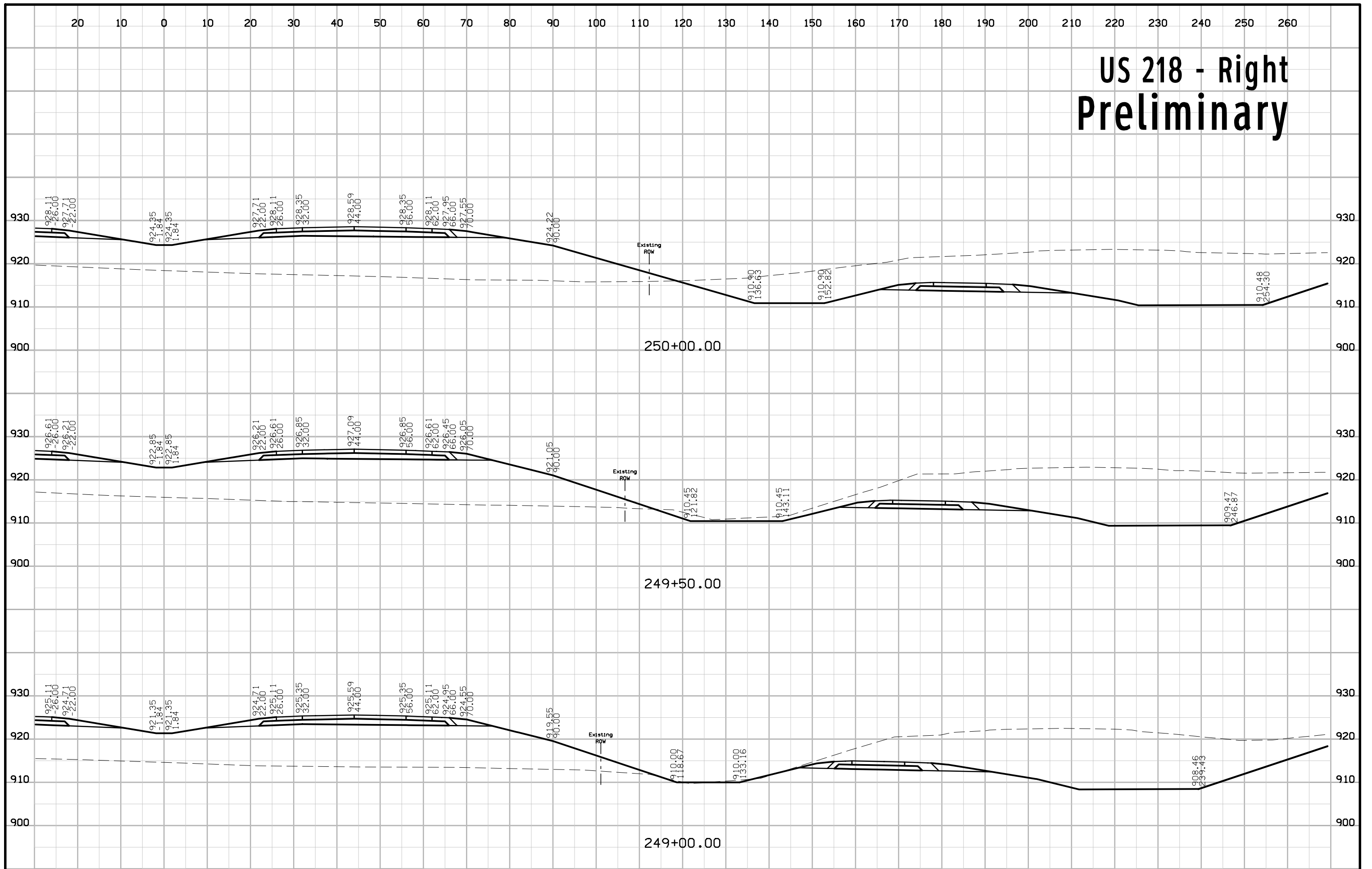


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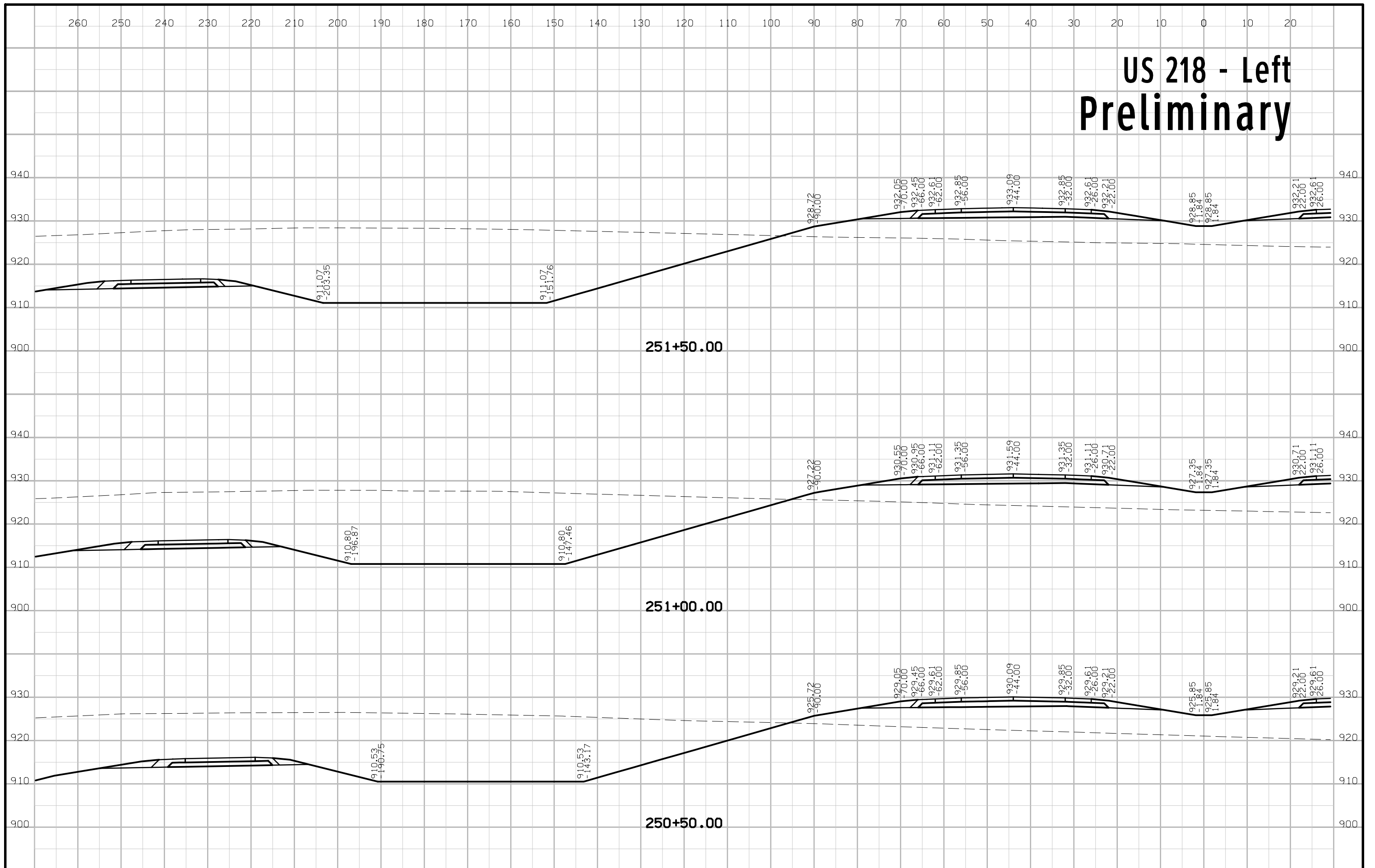


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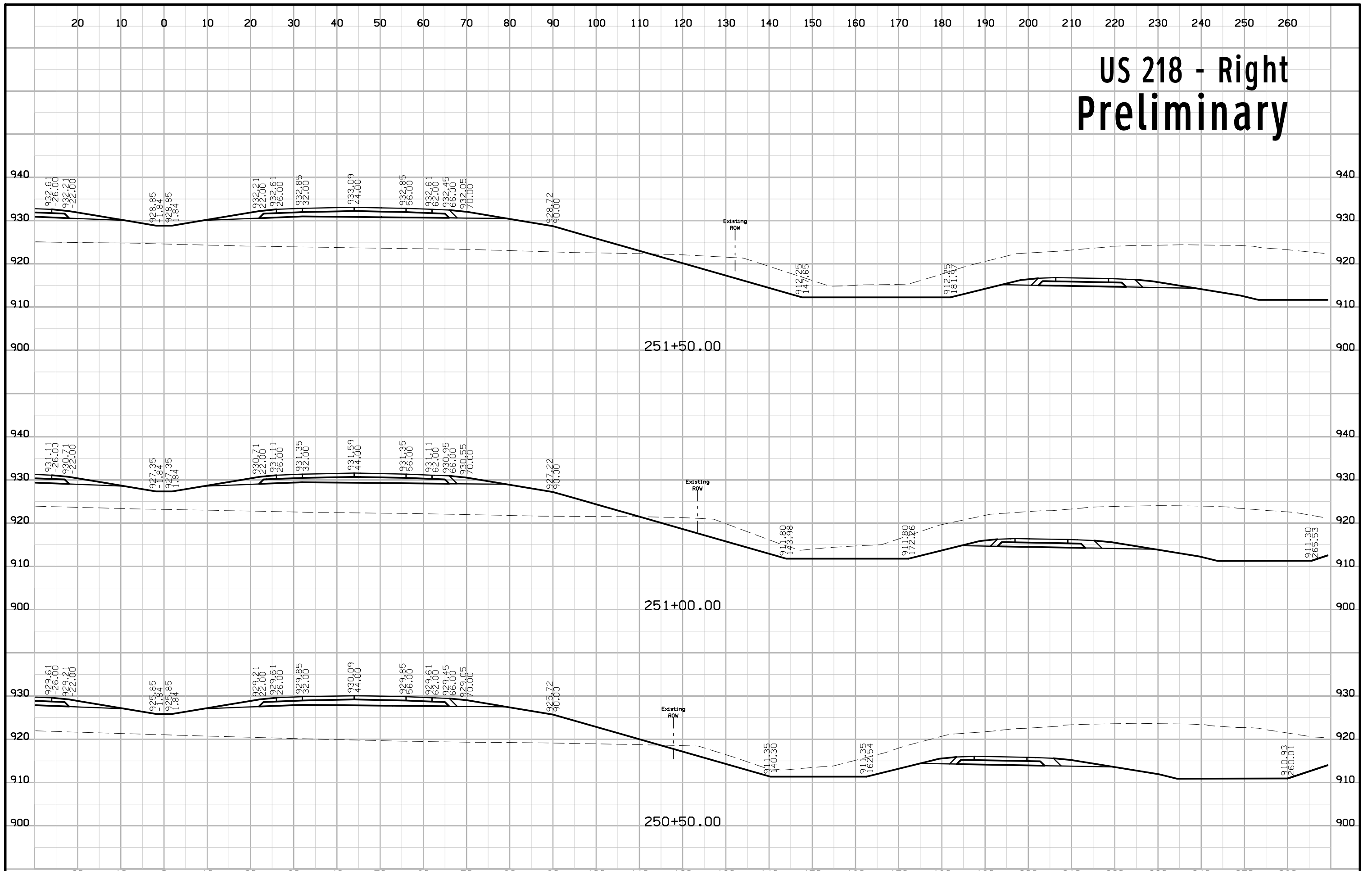


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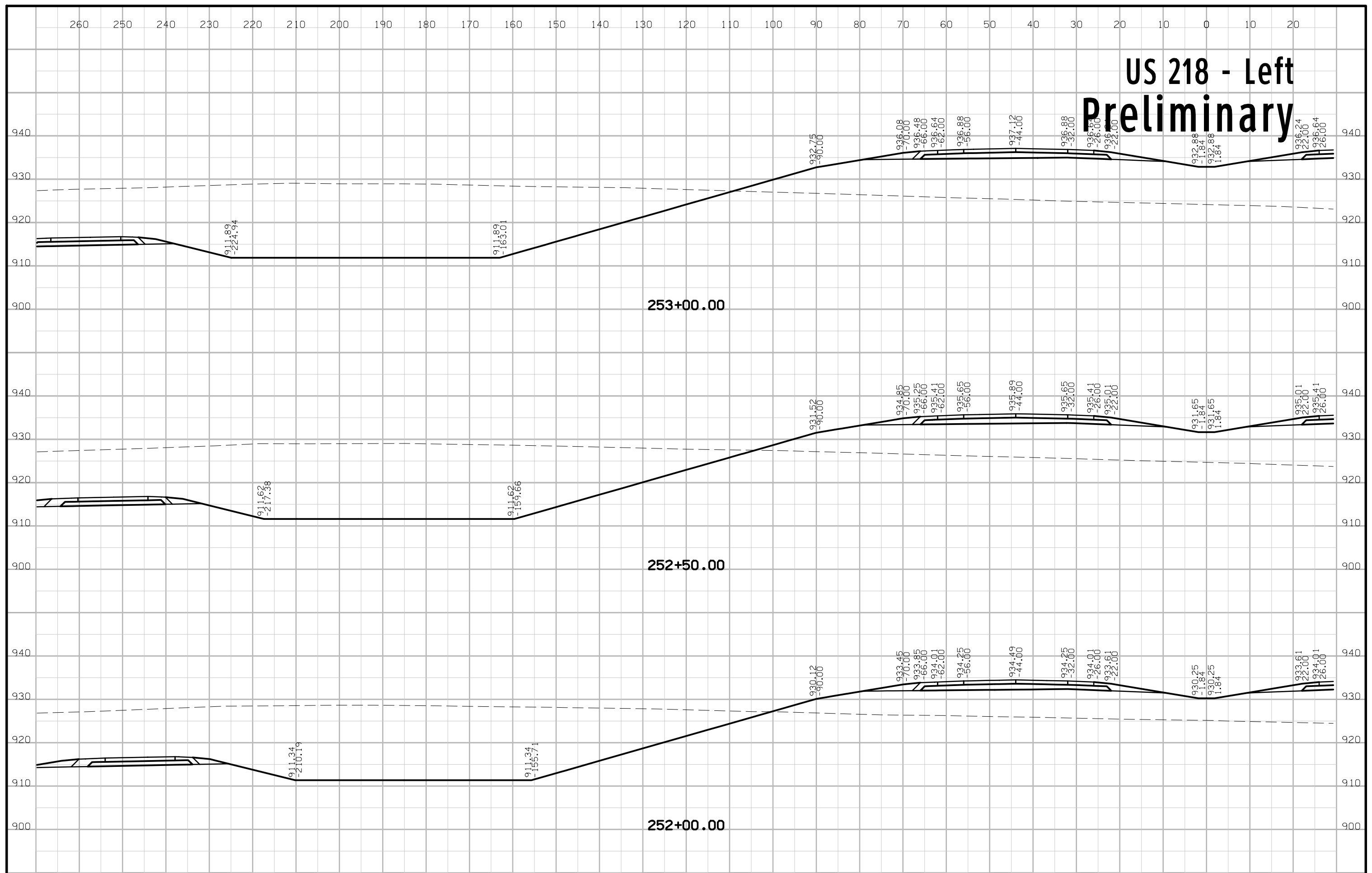


# US 218 - Right Preliminary





# US 218 - Left Preliminary

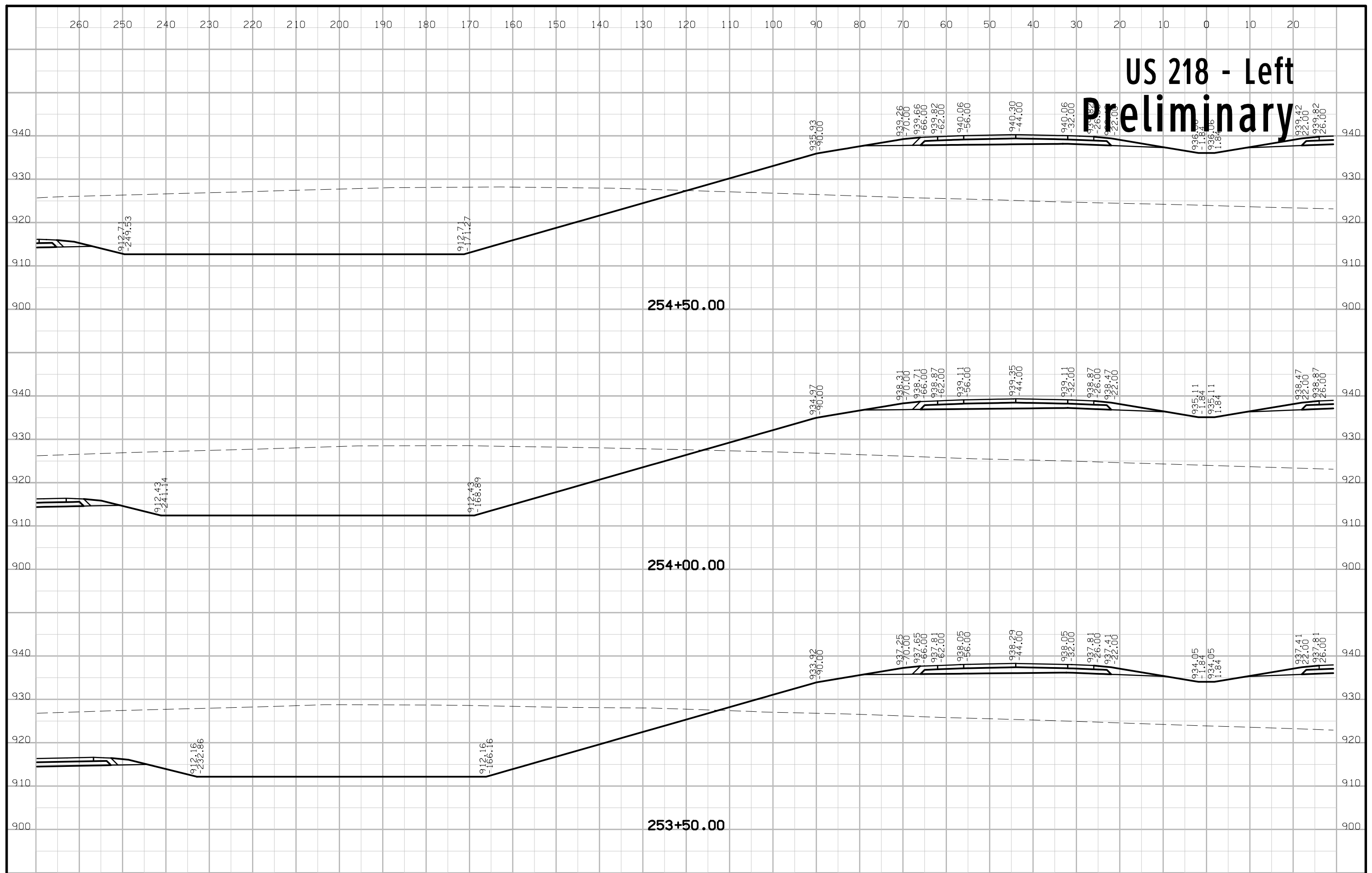






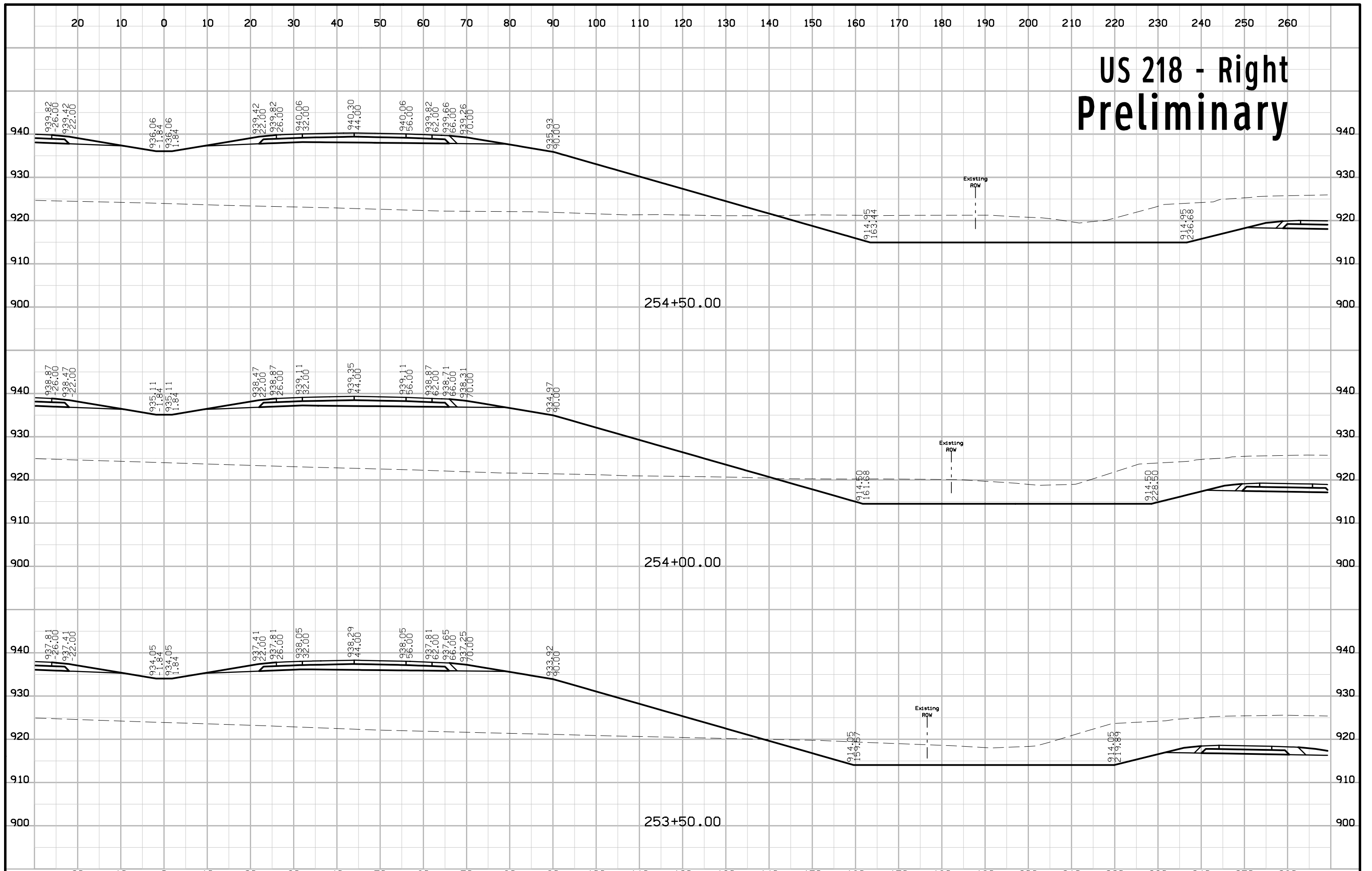


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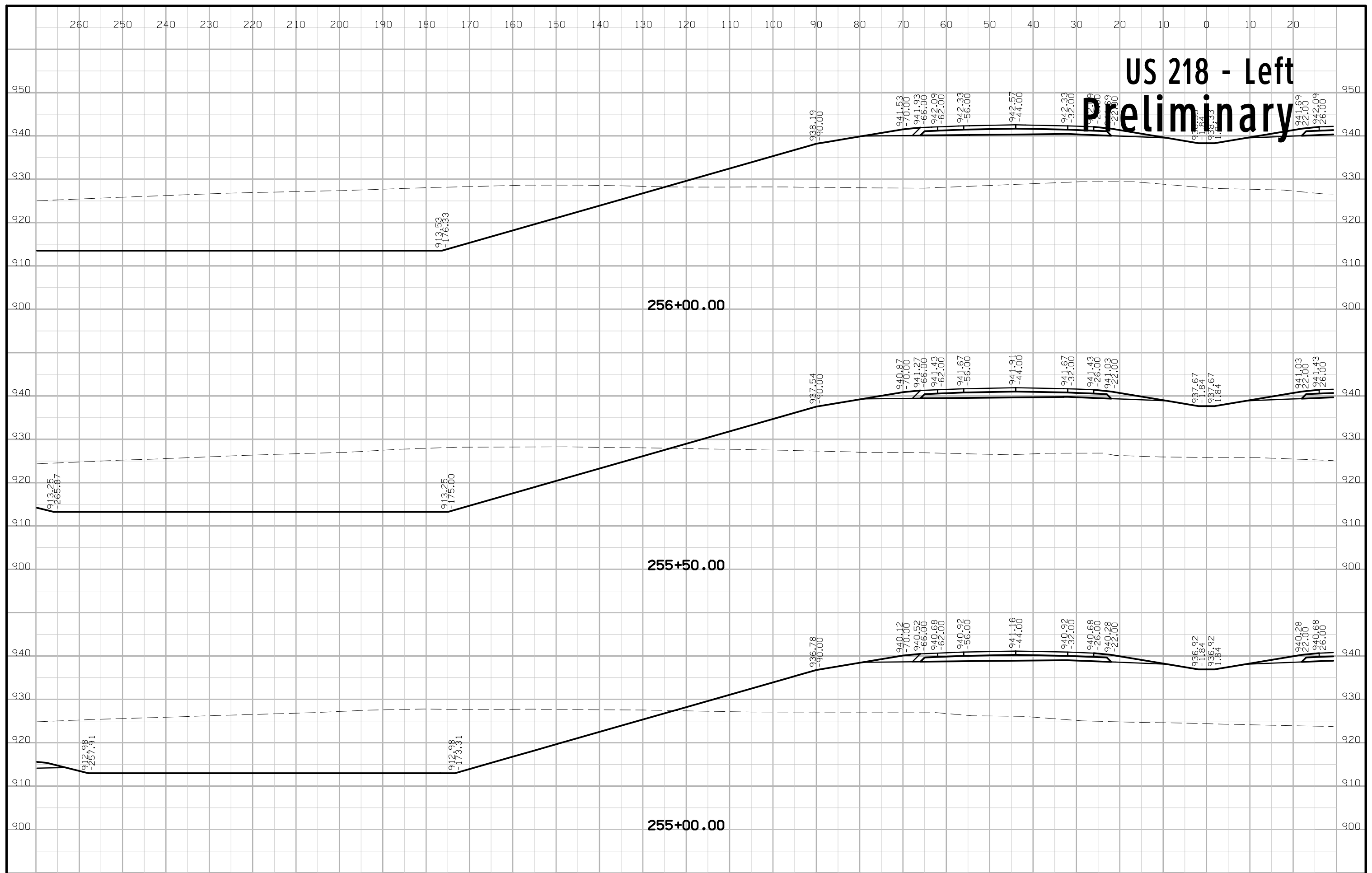


# US 218 - Right Preliminary





# US 218 - Left Preliminary

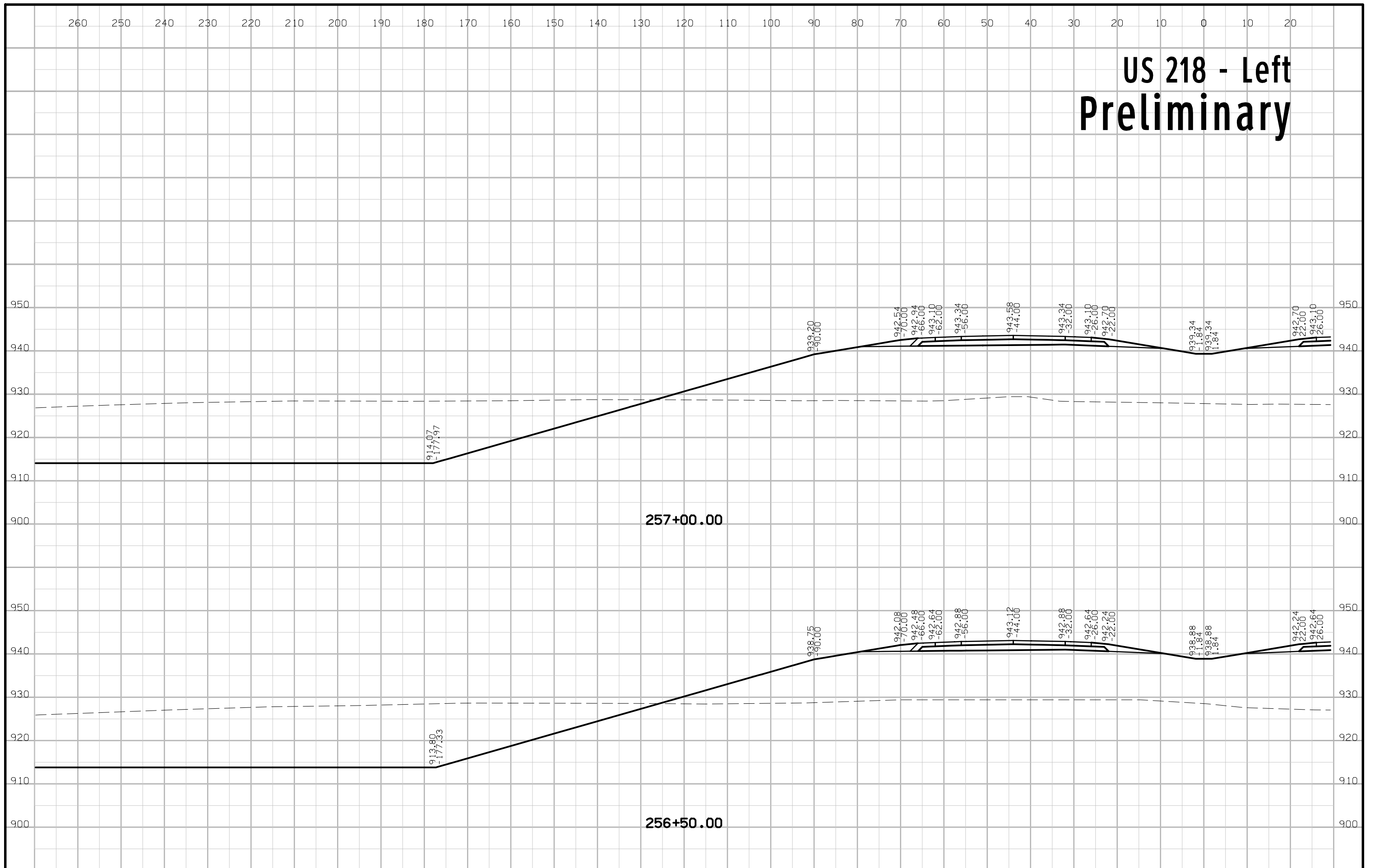






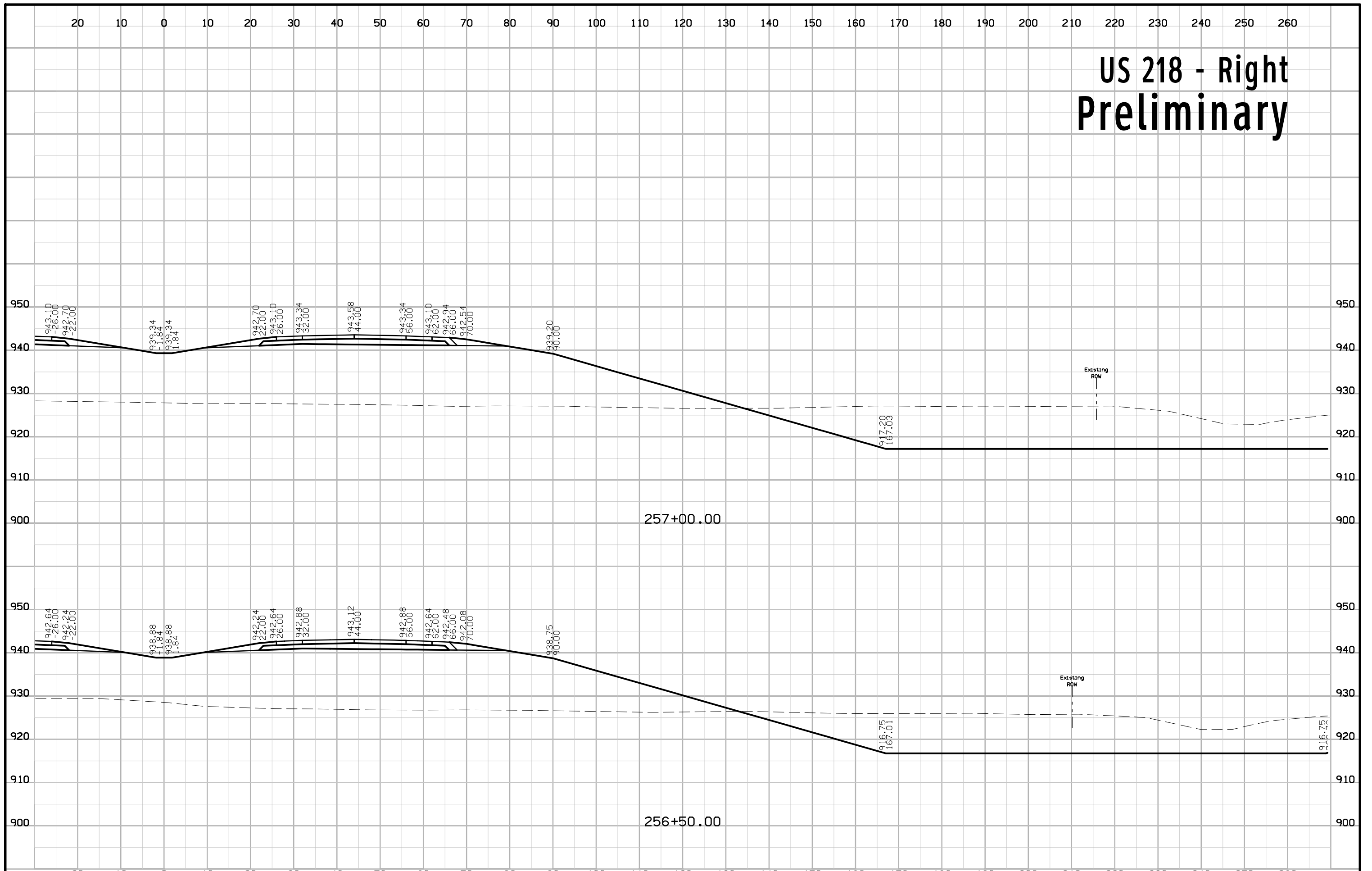


# US 218 - Left Preliminary



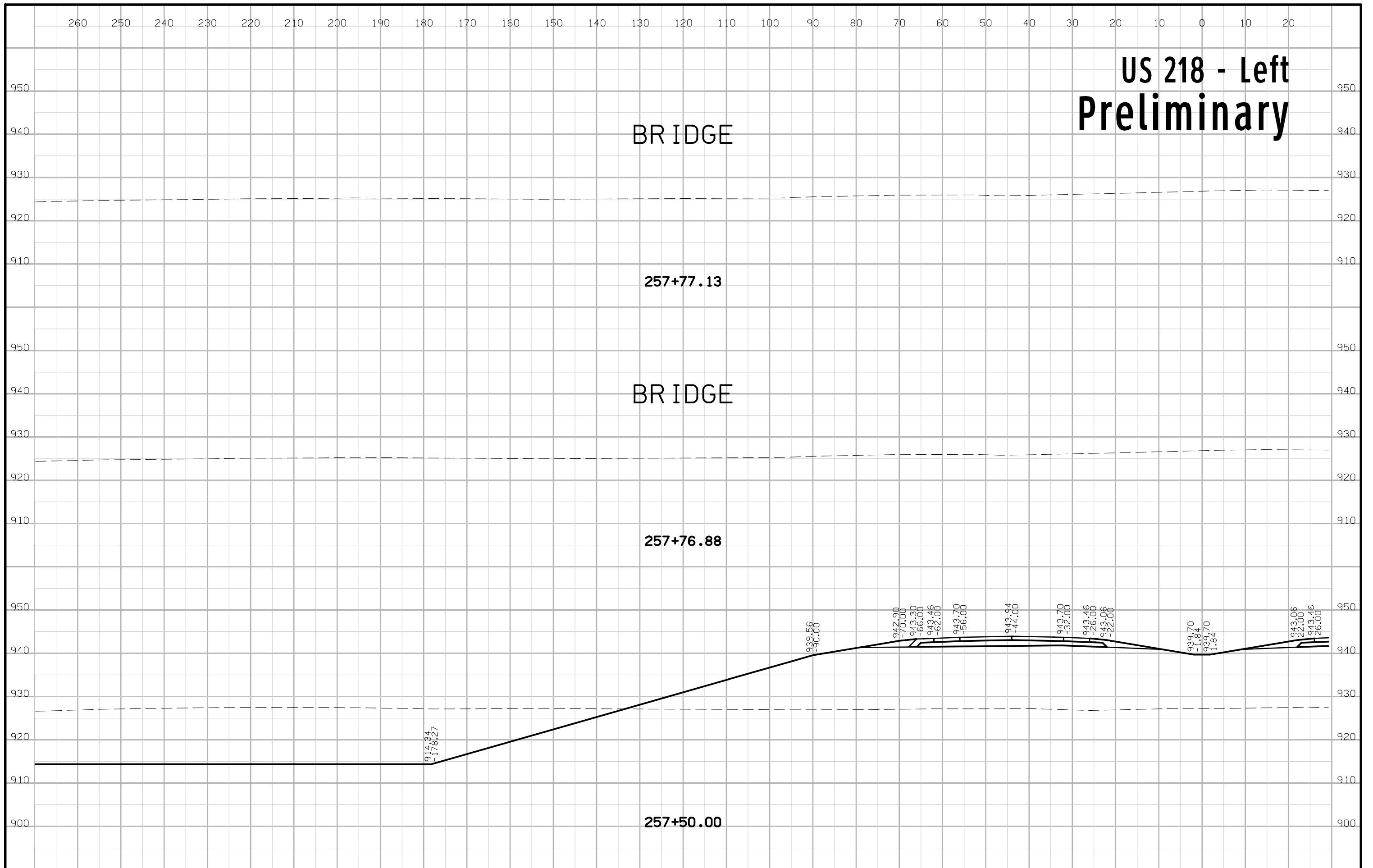


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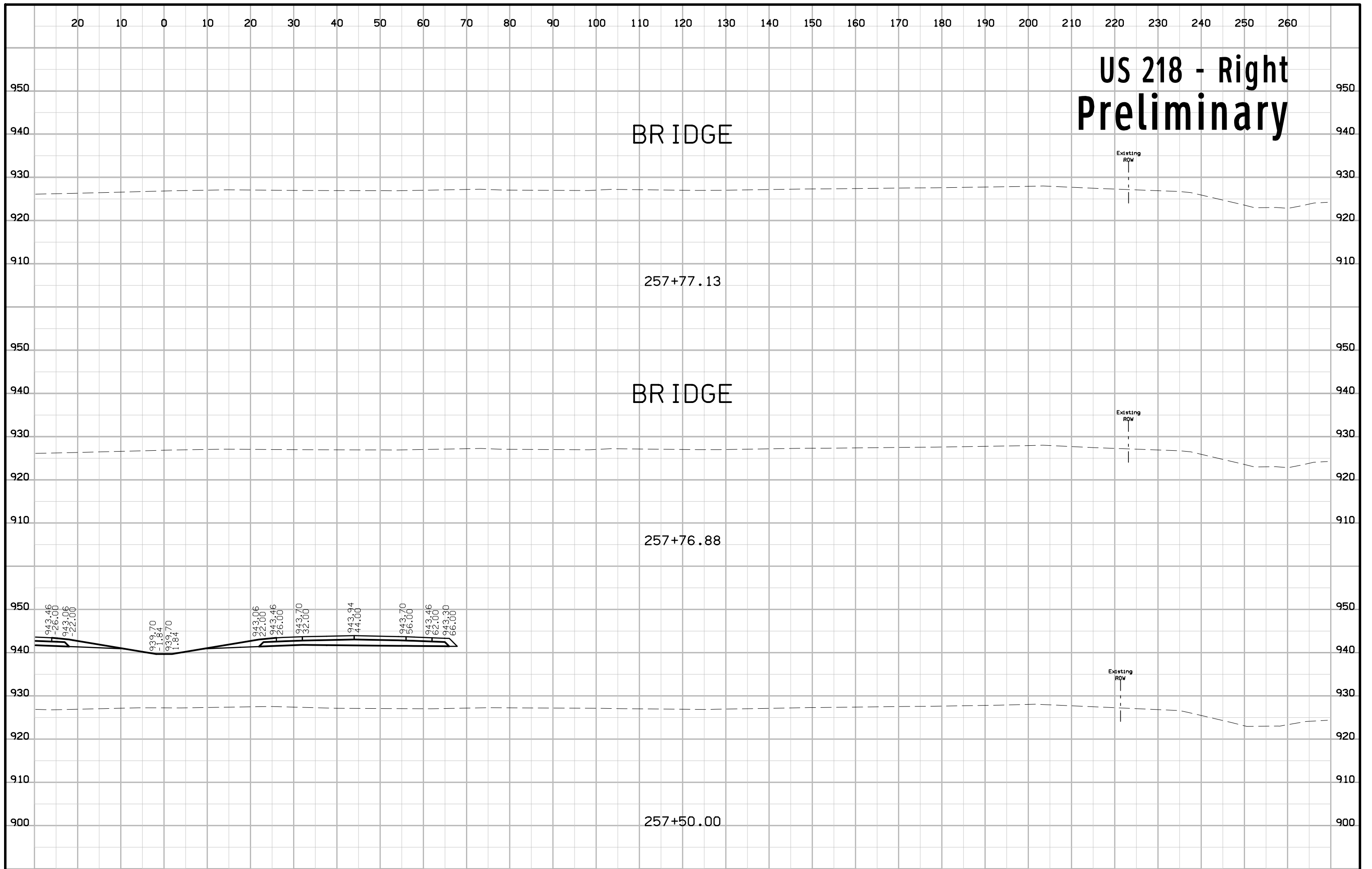


# US 218 - Left Preliminary





# US 218 - Right Preliminary





# US 218 - Left Preliminary

BRIDGE

259+00.00

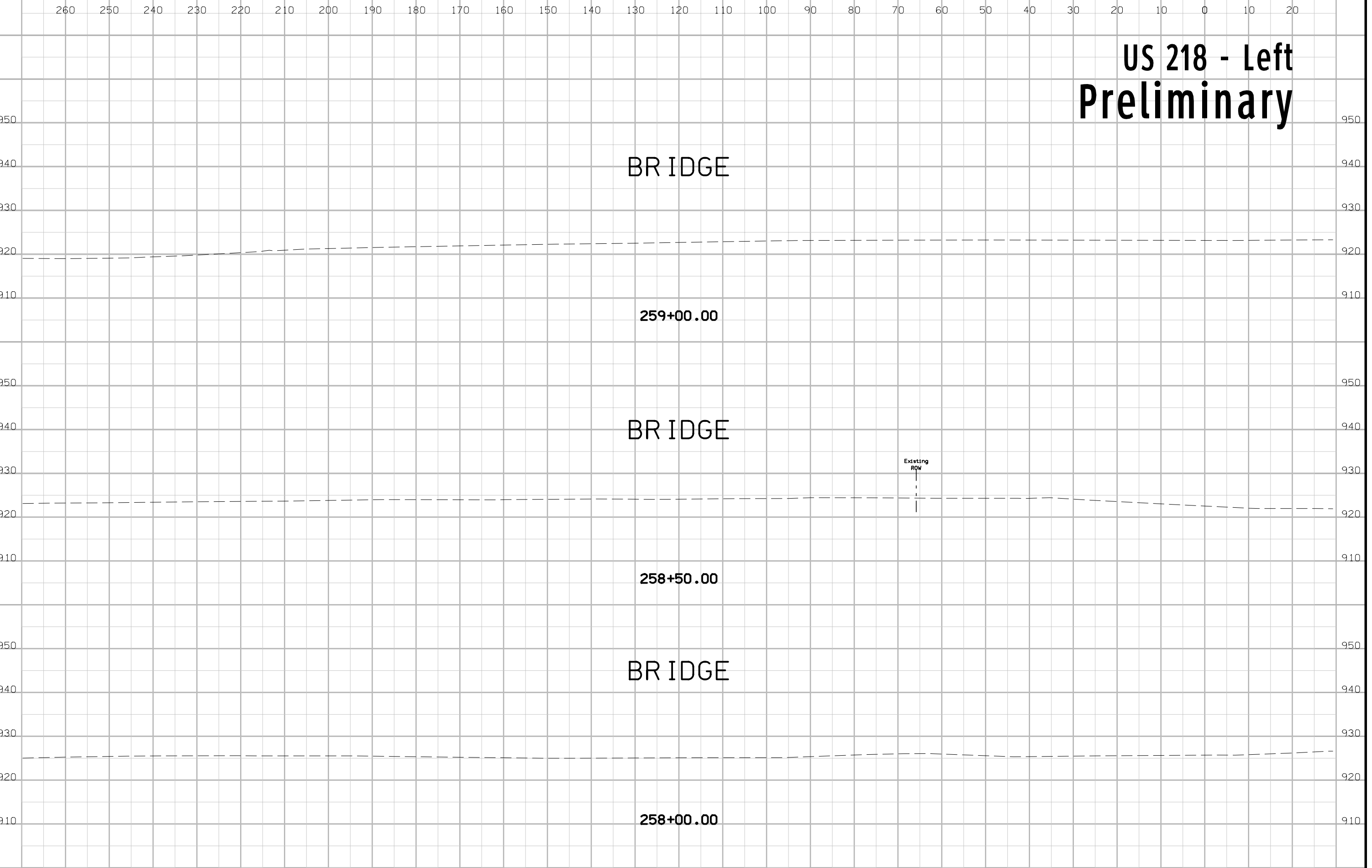
BRIDGE

Existing  
ROW

258+50.00

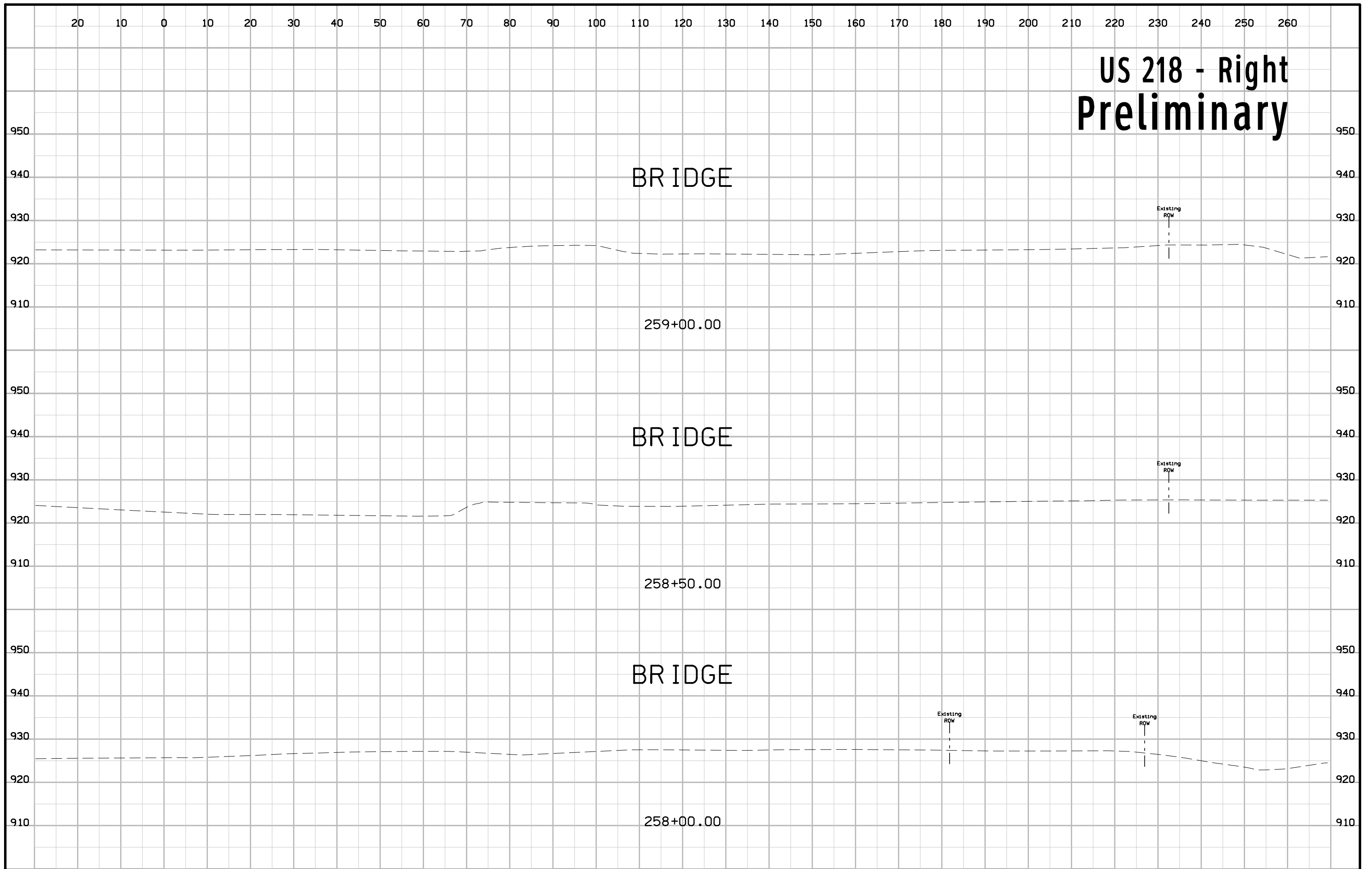
BRIDGE

258+00.00





# US 218 - Right Preliminary



FILE NO.	ENGLISH	DESIGN TEAM	Iowa DOT \ HR Green, Inc.	BREMER	COUNTY	PROJECT NUMBER	NHSX-218-8(124)--3H-09	SHEET NUMBER	W.71
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# US 218 - Left Preliminary

BRIDGE

259+78.91

BRIDGE

259+50.00

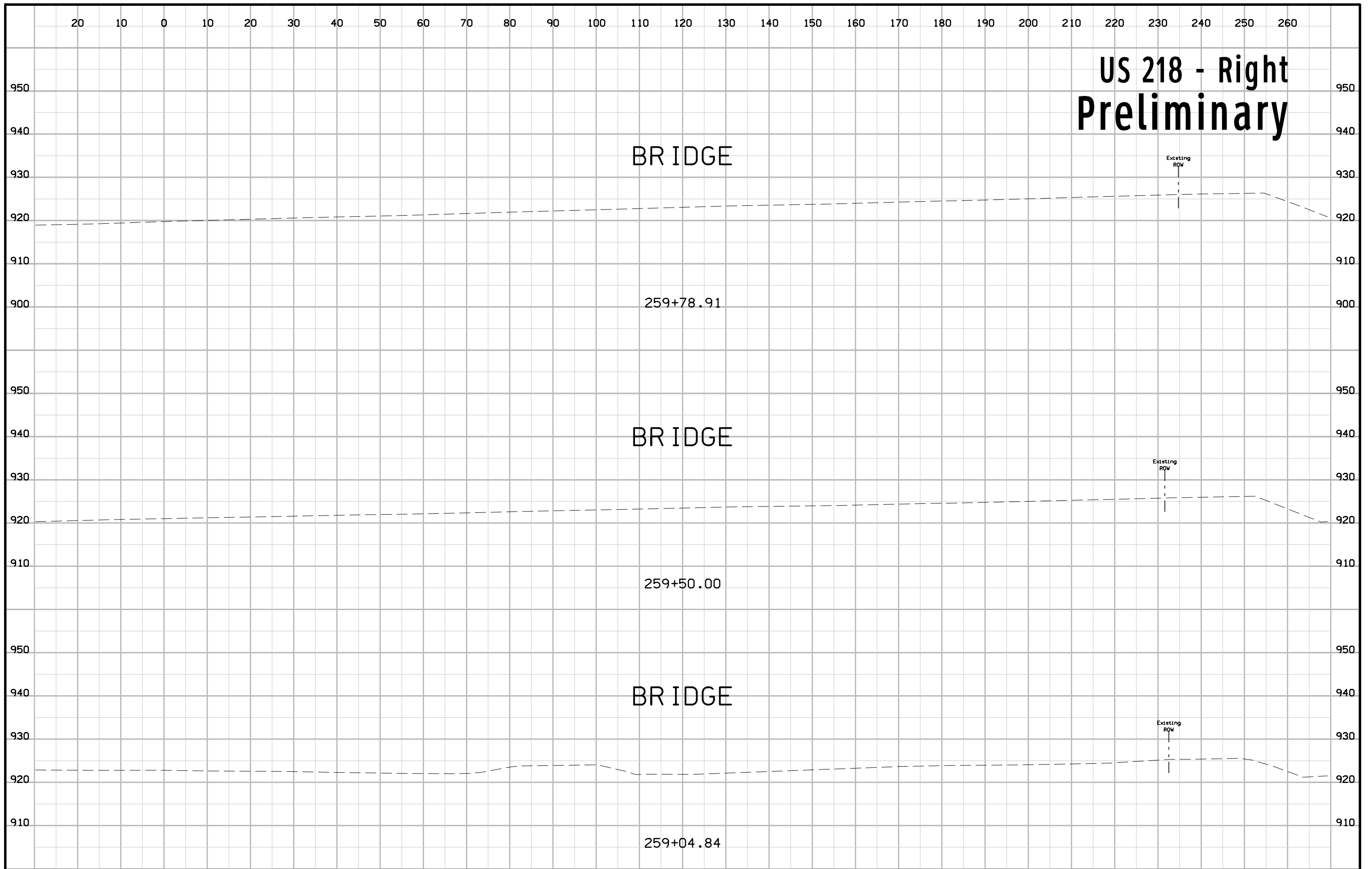
BRIDGE

259+04.84

Existing  
ROW



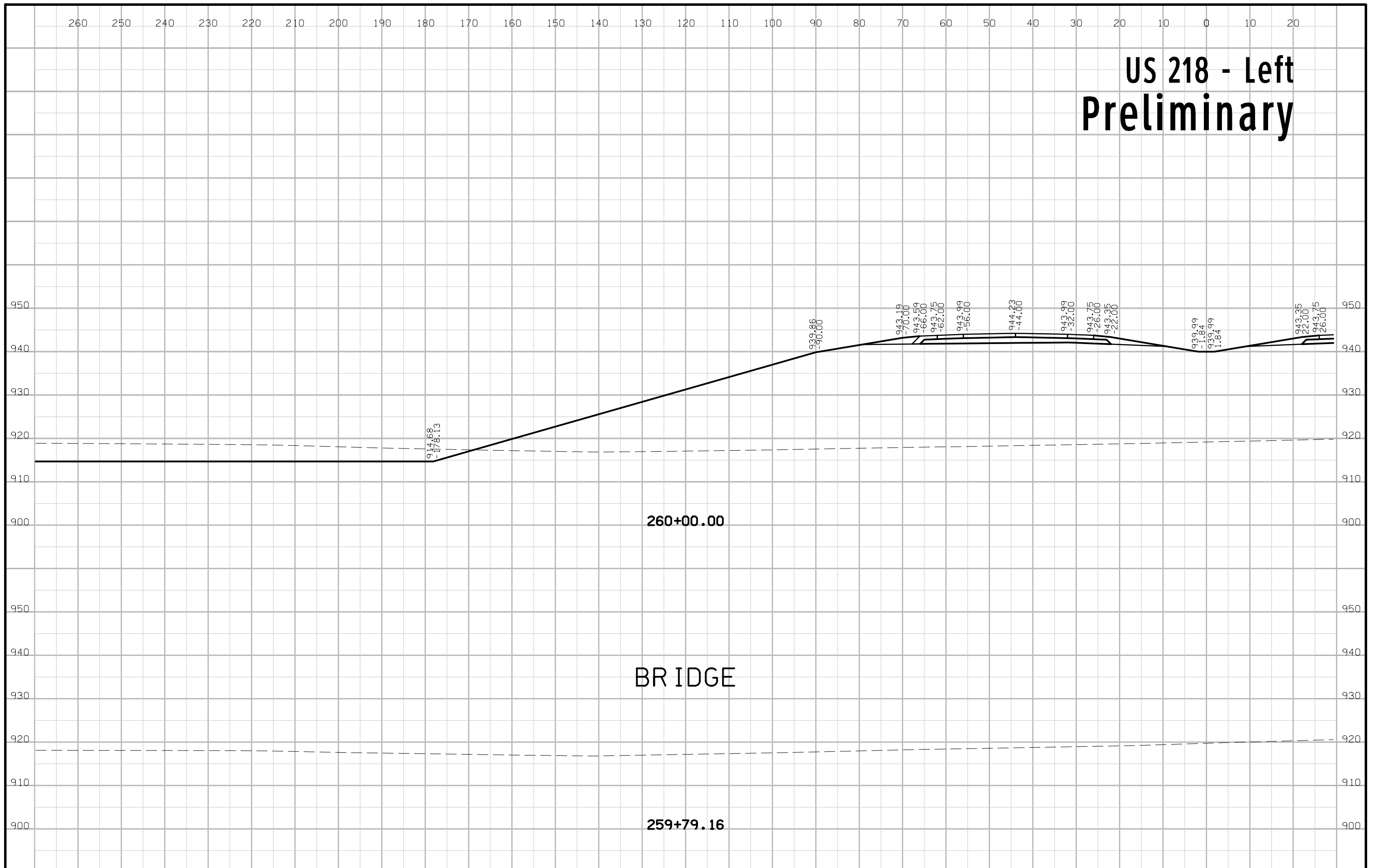
# US 218 - Right Preliminary



FILE NO.	ENGLISH	DESIGN TEAM	Iowa DOT \ HR Green, Inc.	BREMER	COUNTY	PROJECT NUMBER	NHSX-218-8(124)--3H-09	SHEET NUMBER	W.73
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# US 218 - Left Preliminary



260+00.00

BRIDGE

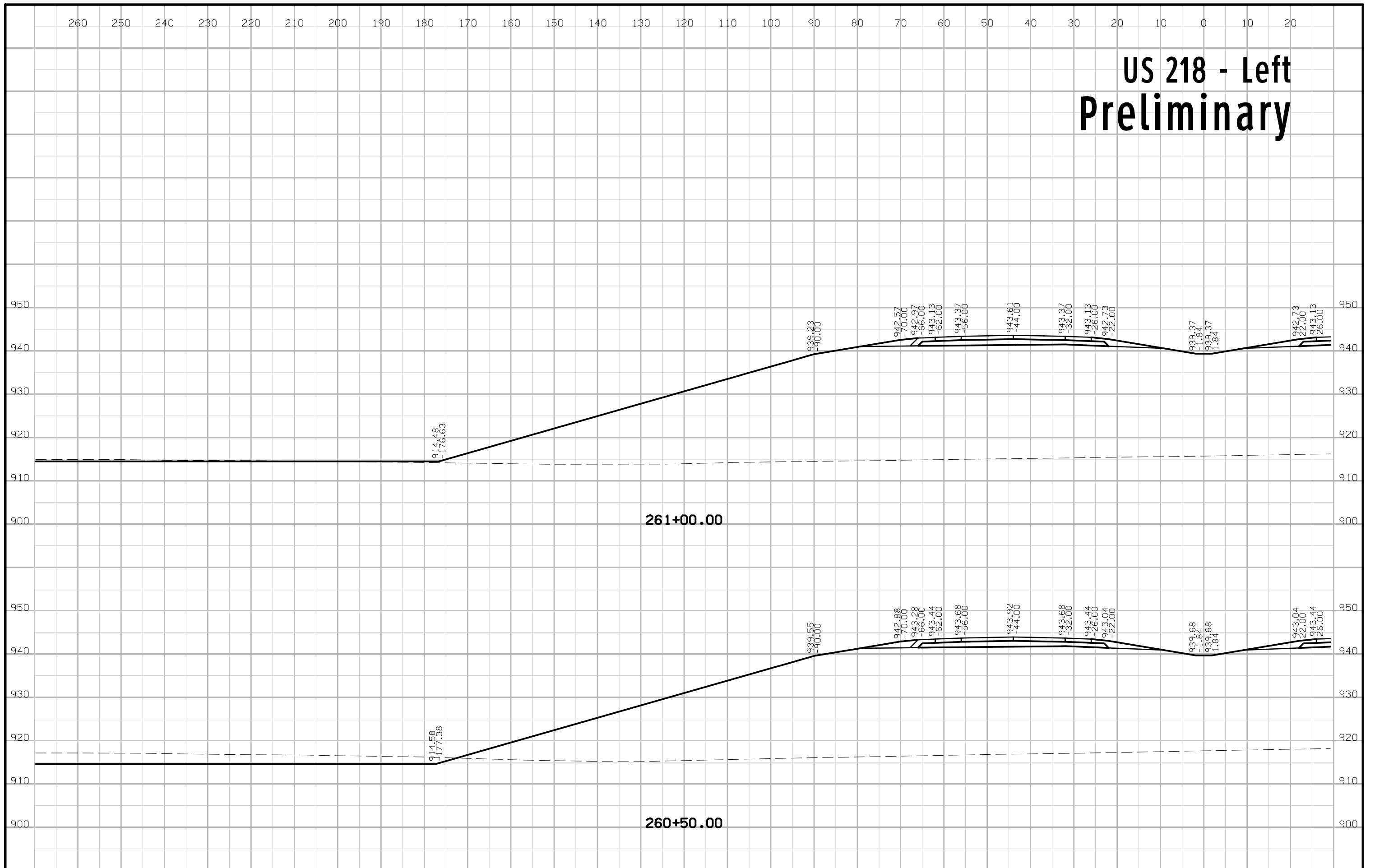
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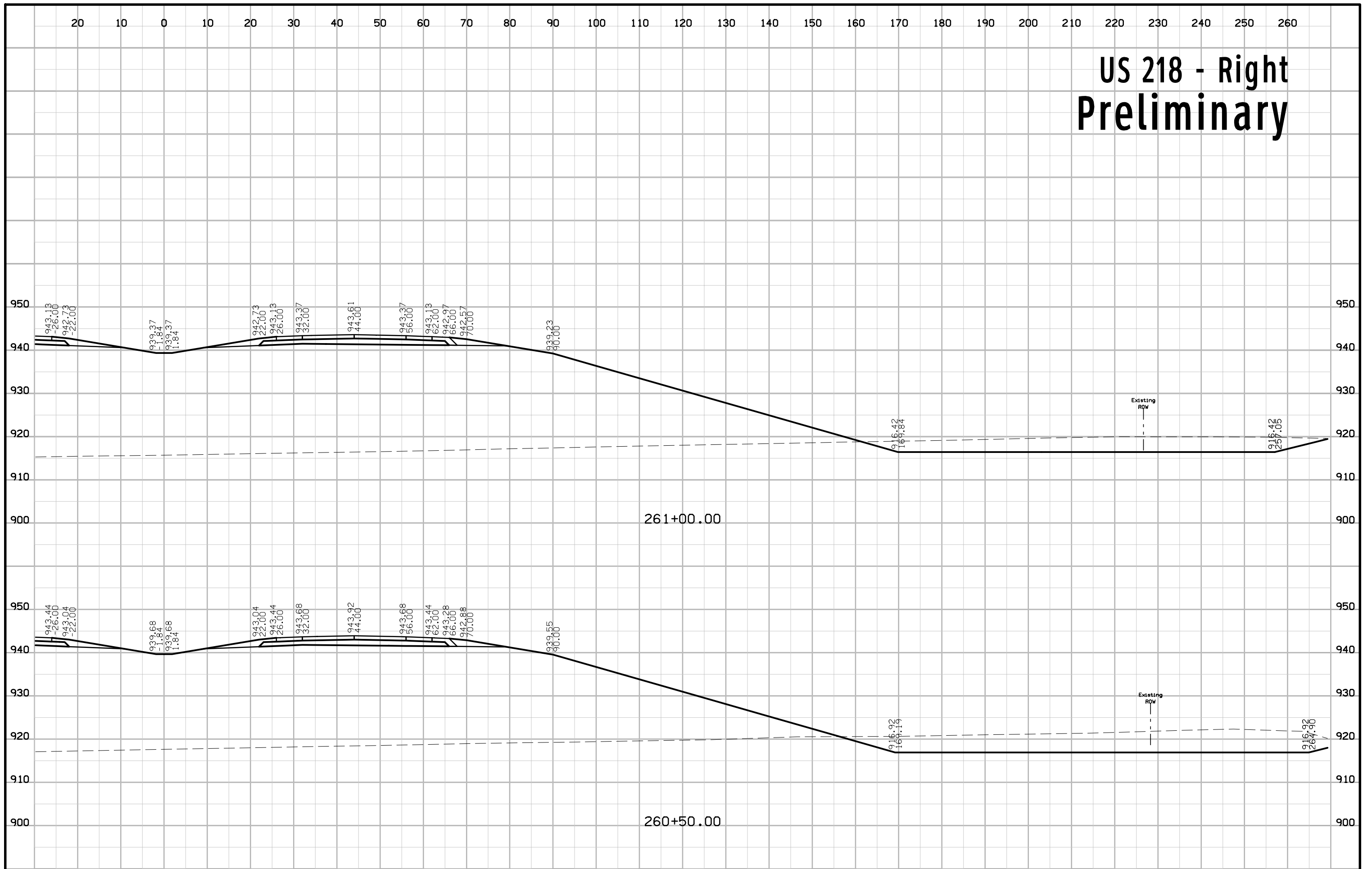


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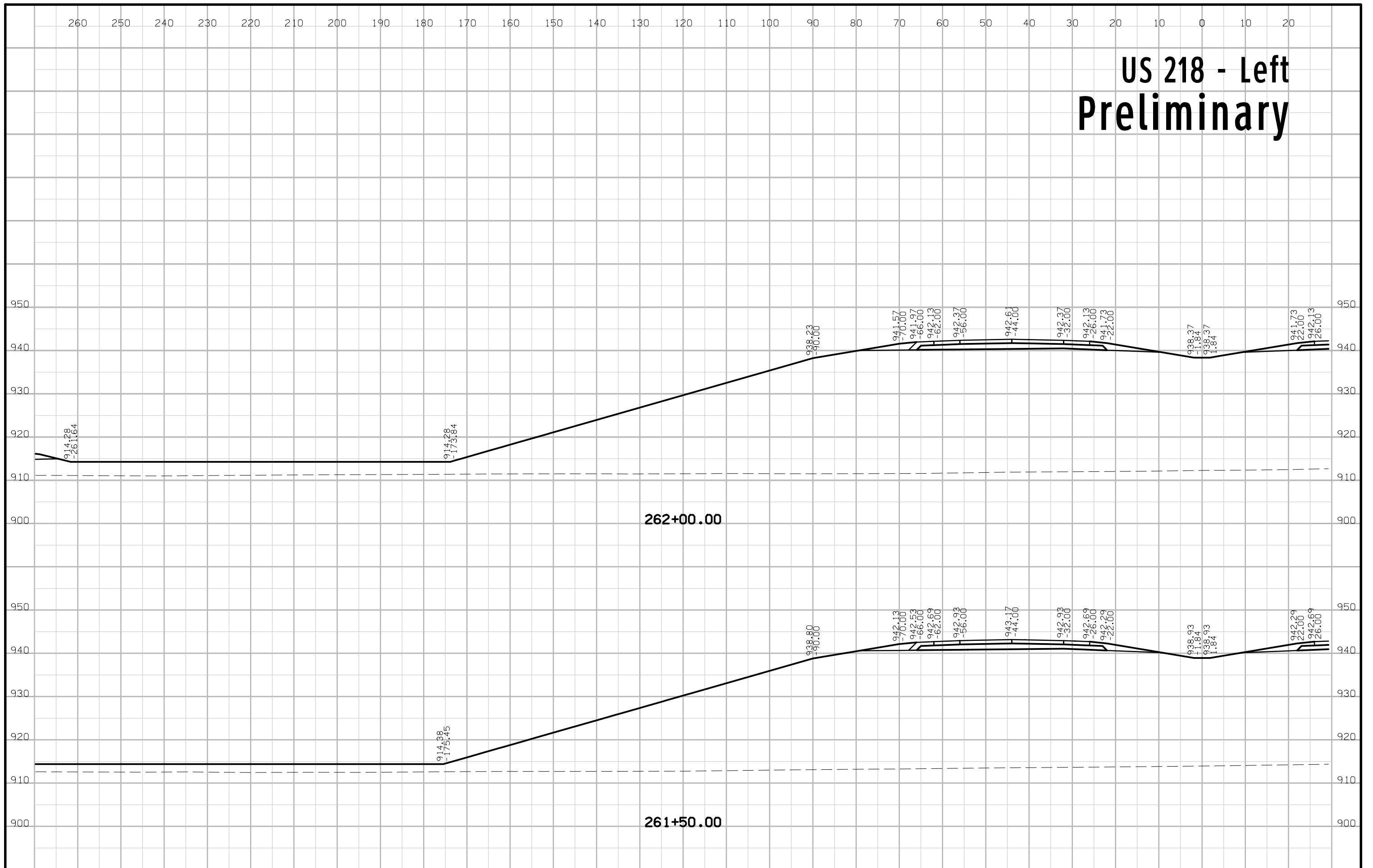


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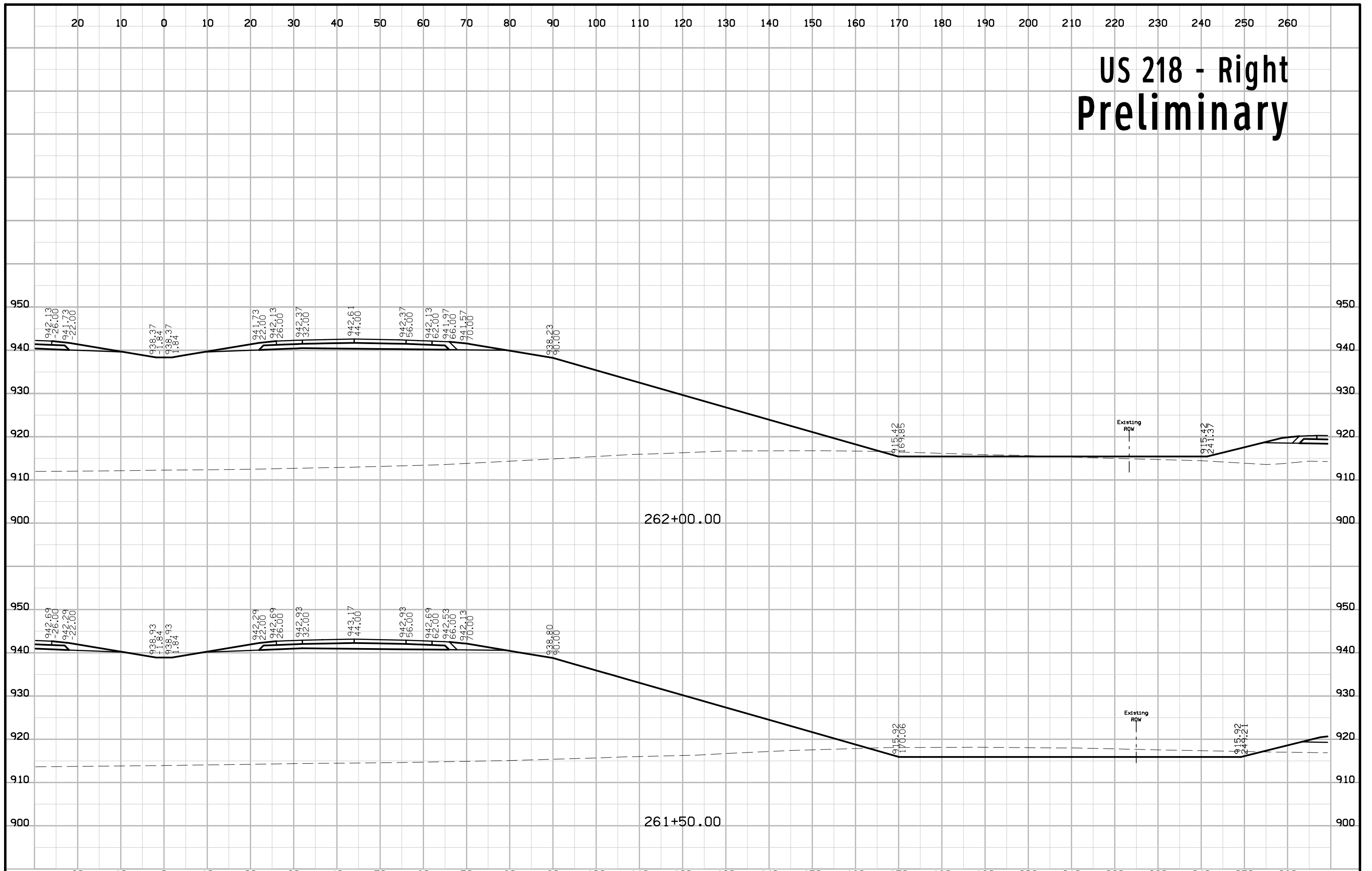


# US 218 - Left Preliminary





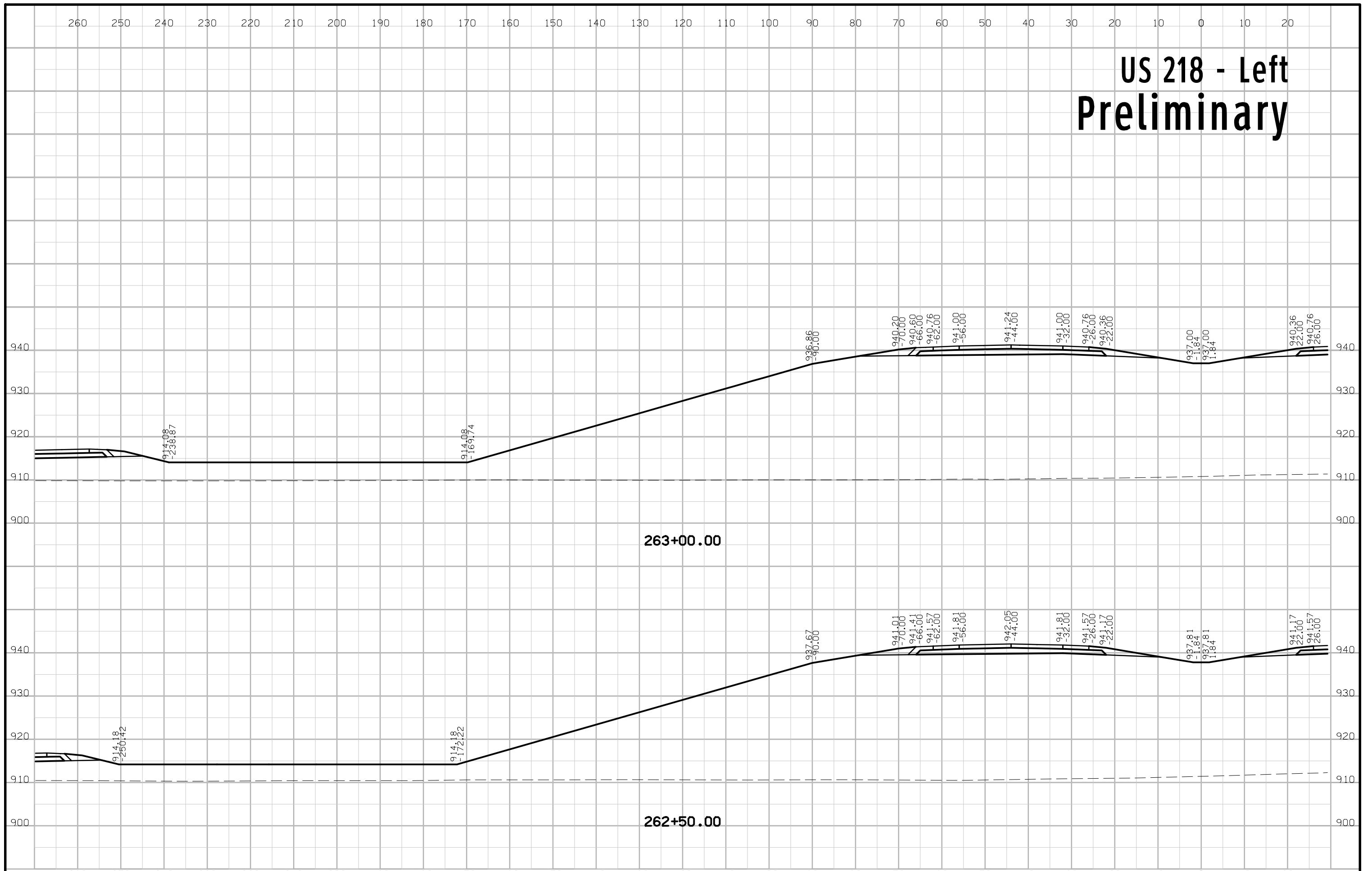
# US 218 - Right Preliminary



FILE NO.	ENGLISH	DESIGN TEAM	Iowa DOT \ HR Green, Inc.	BREMER	COUNTY	PROJECT NUMBER	NHSX-218-8(124)--3H-09	SHEET NUMBER	W.79
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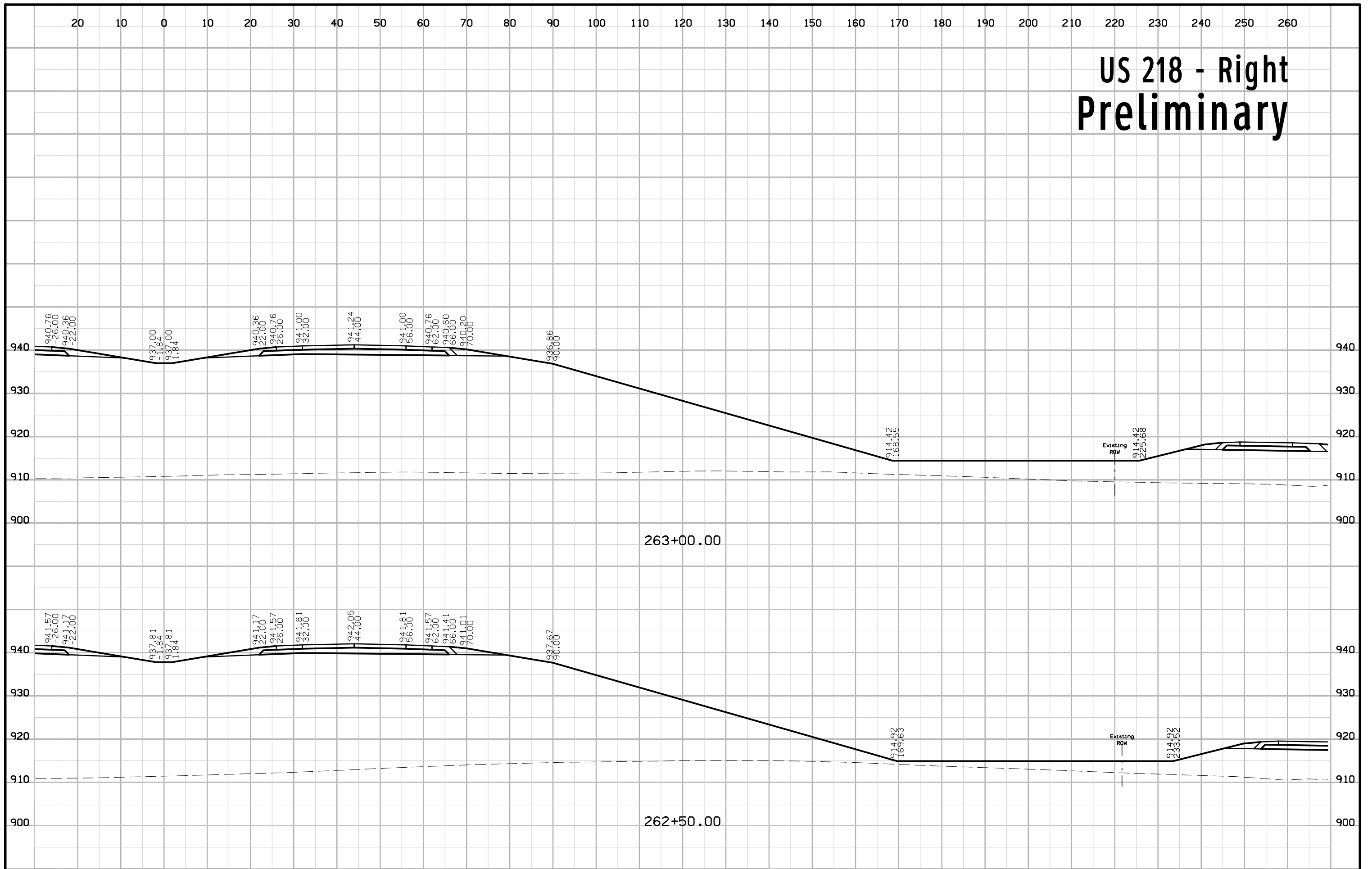


# US 218 - Left Preliminary



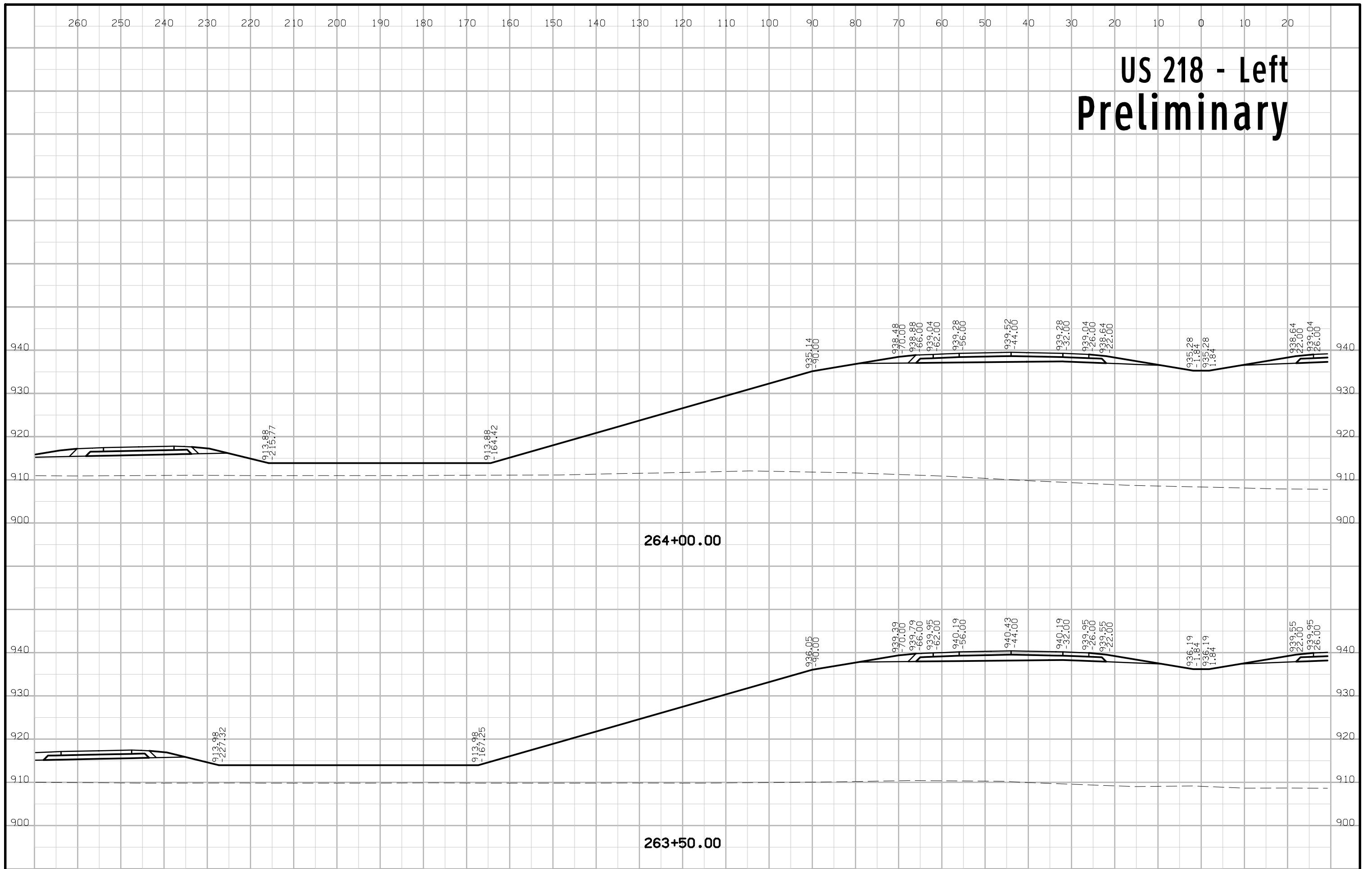


# US 218 - Right Preliminary



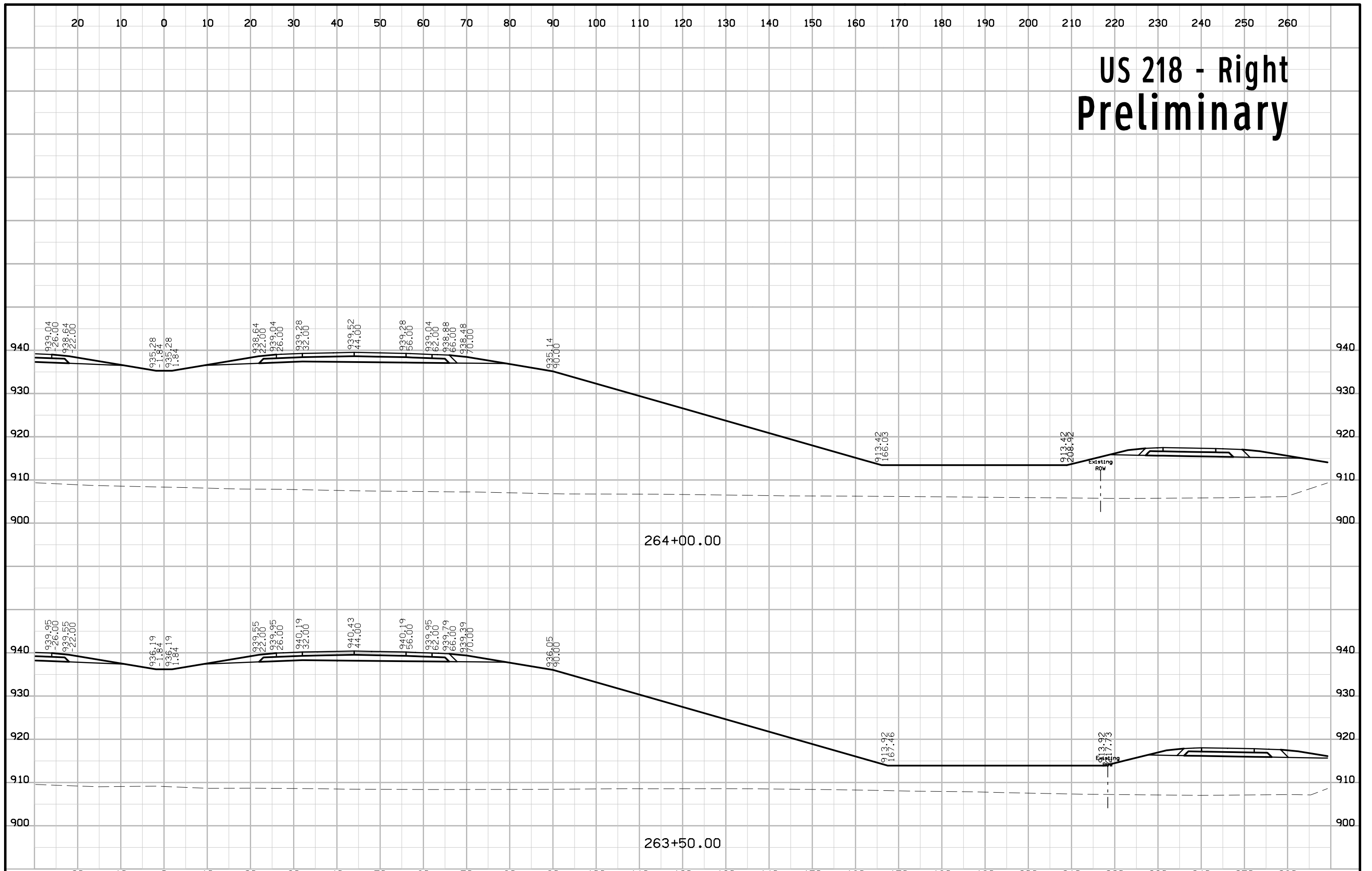


# US 218 - Left Preliminary



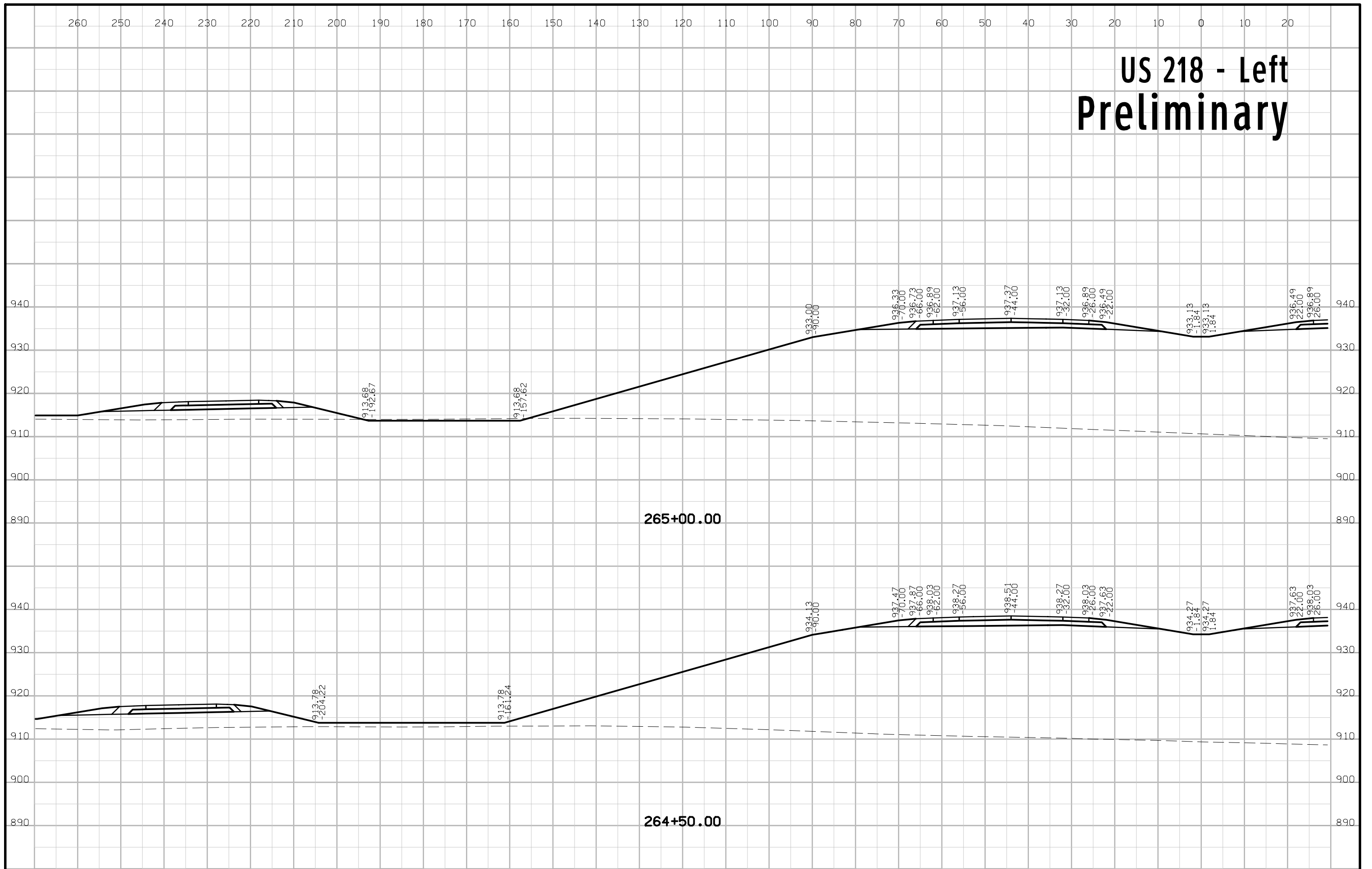


# US 218 - Right Preliminary



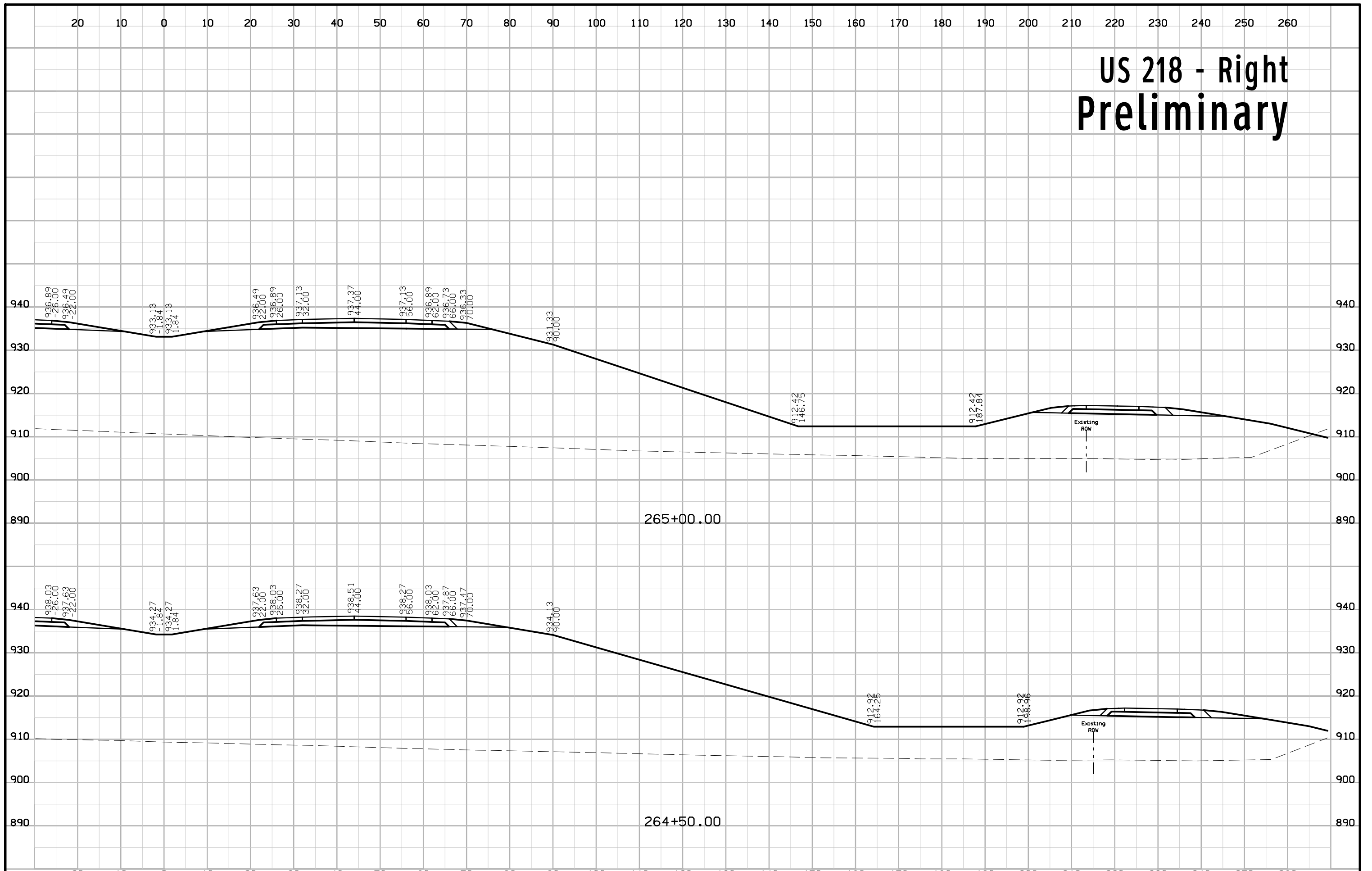


# US 218 - Left Preliminary



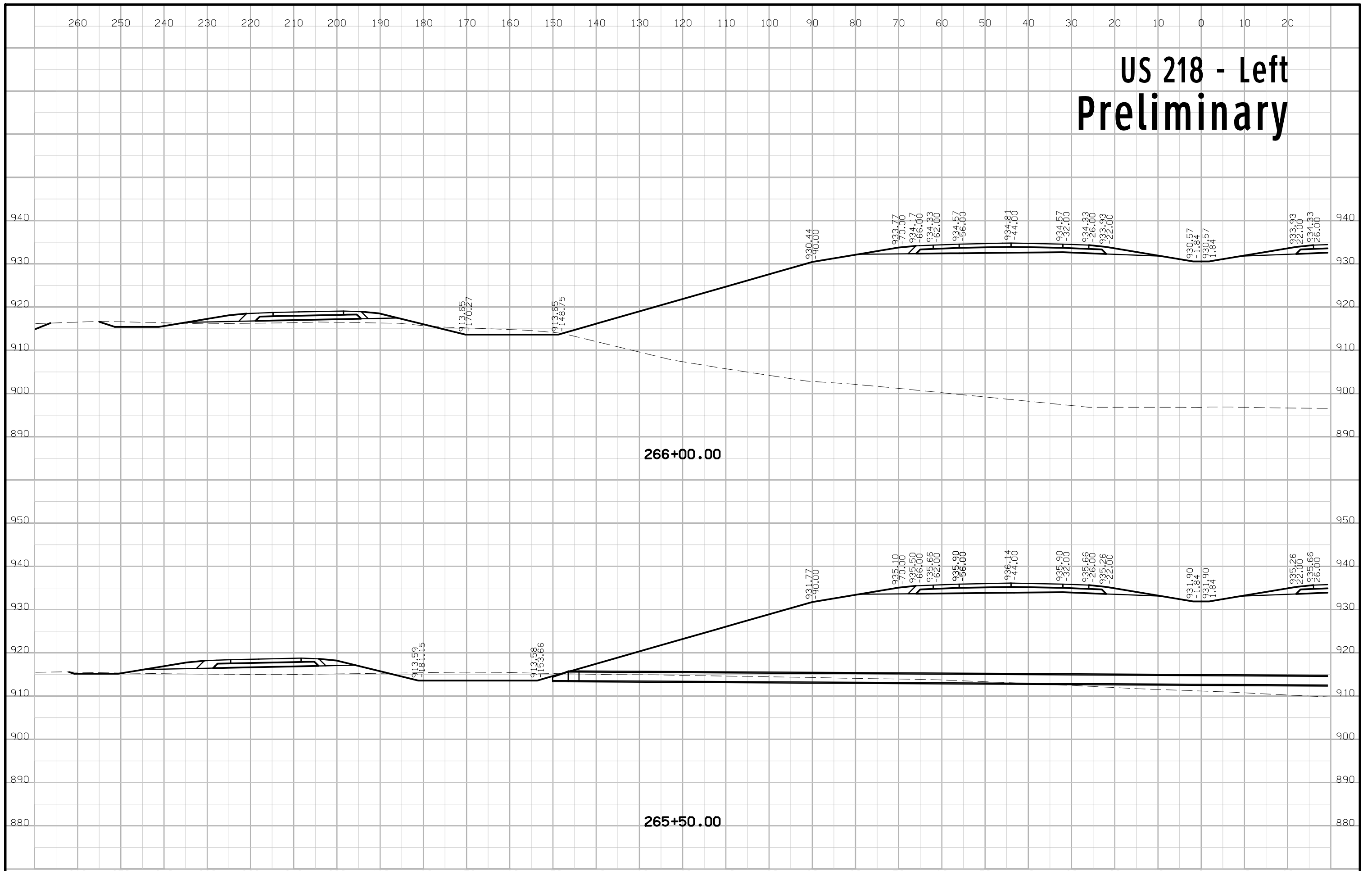


# US 218 - Right Preliminary



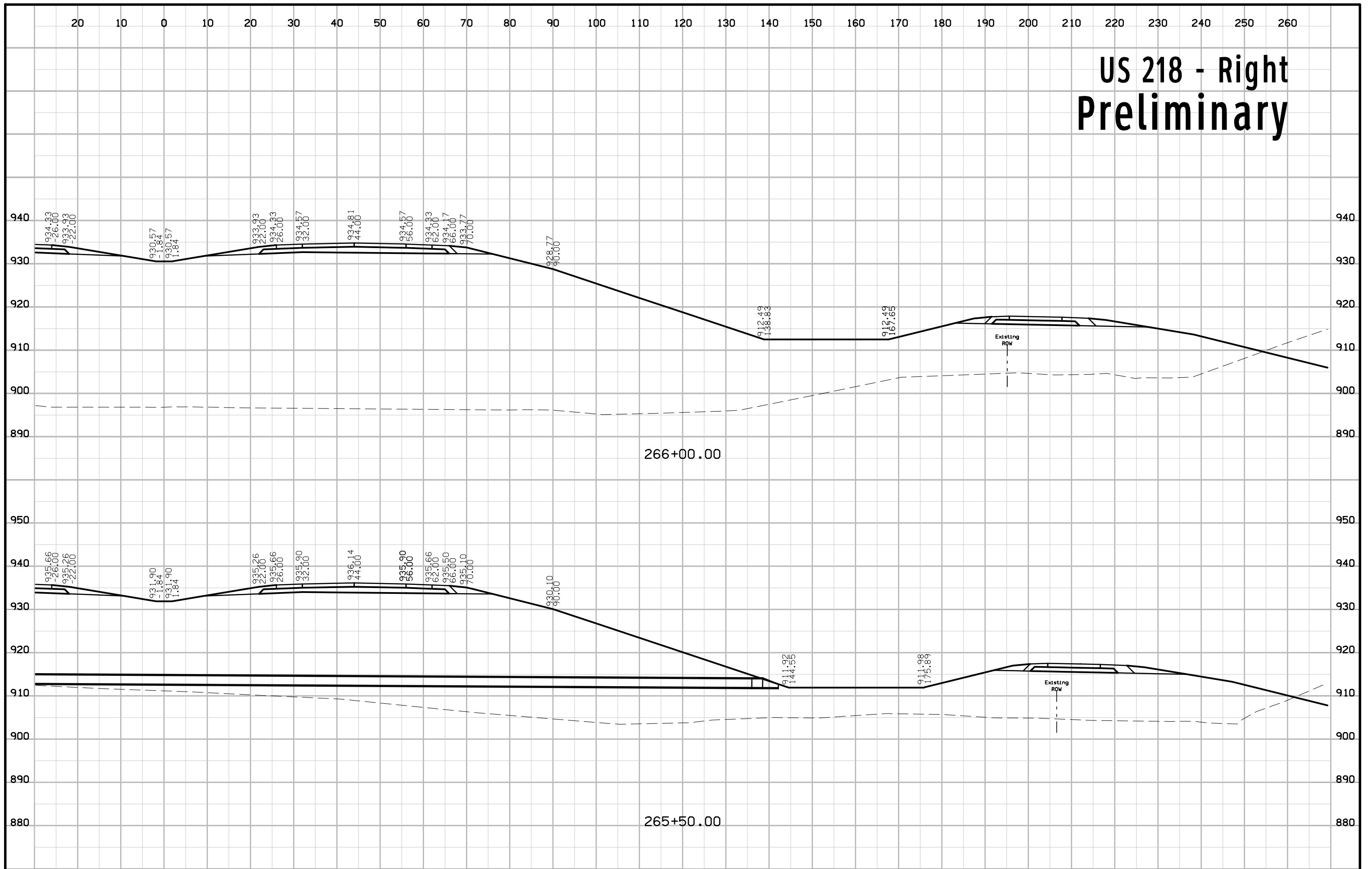


# US 218 - Left Preliminary





# US 218 - Right Preliminary

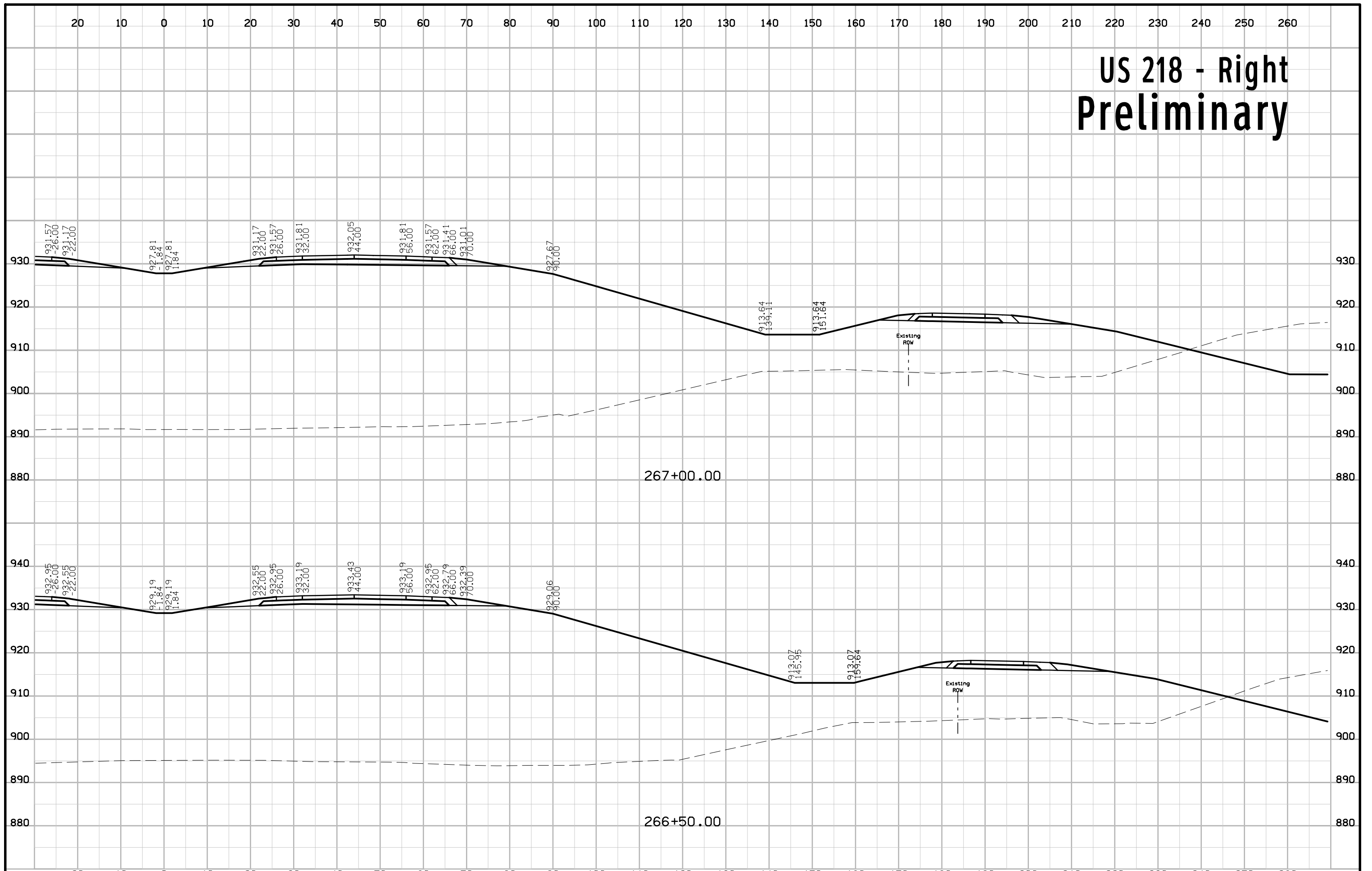






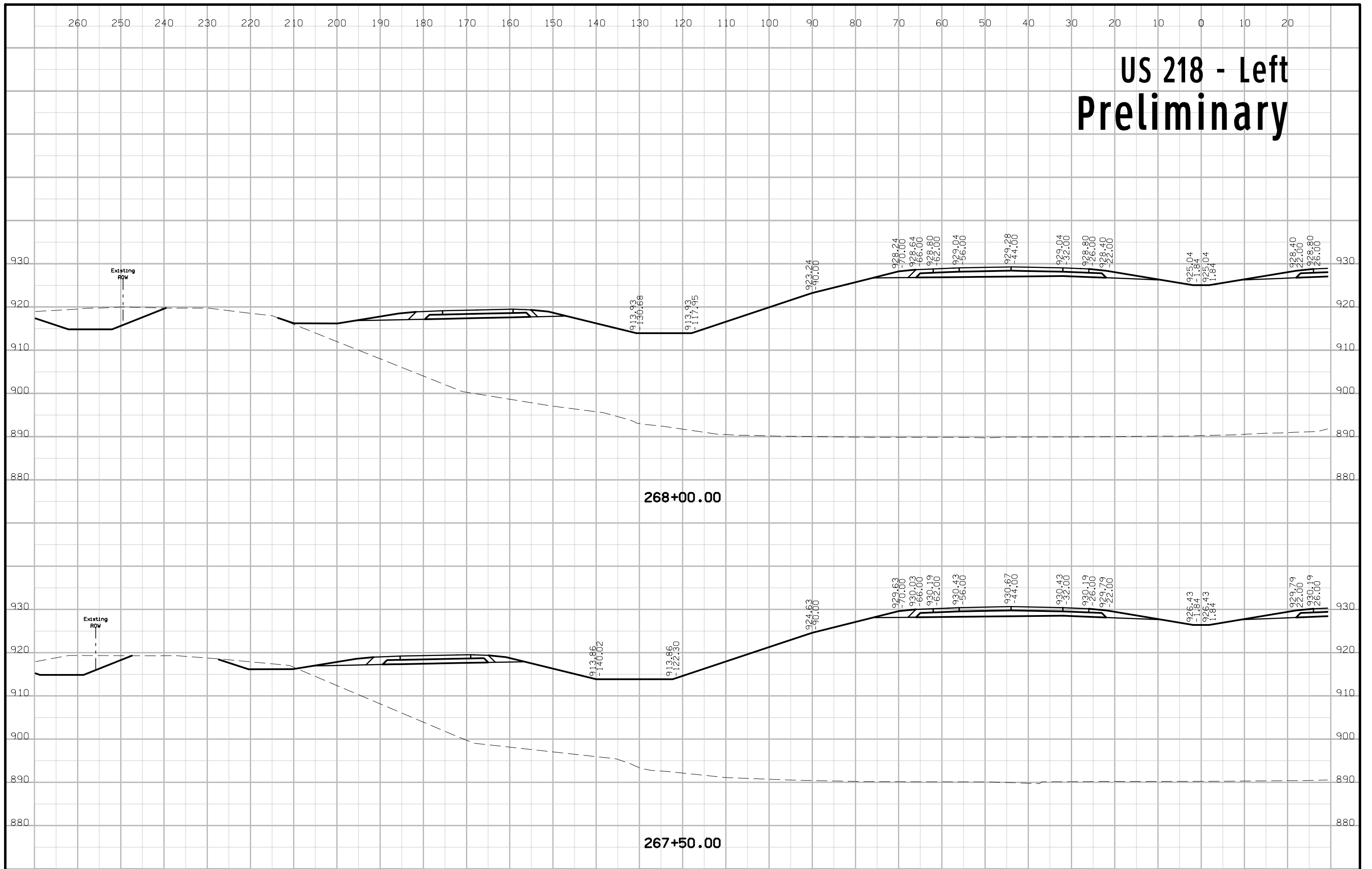


# US 218 - Right Preliminary



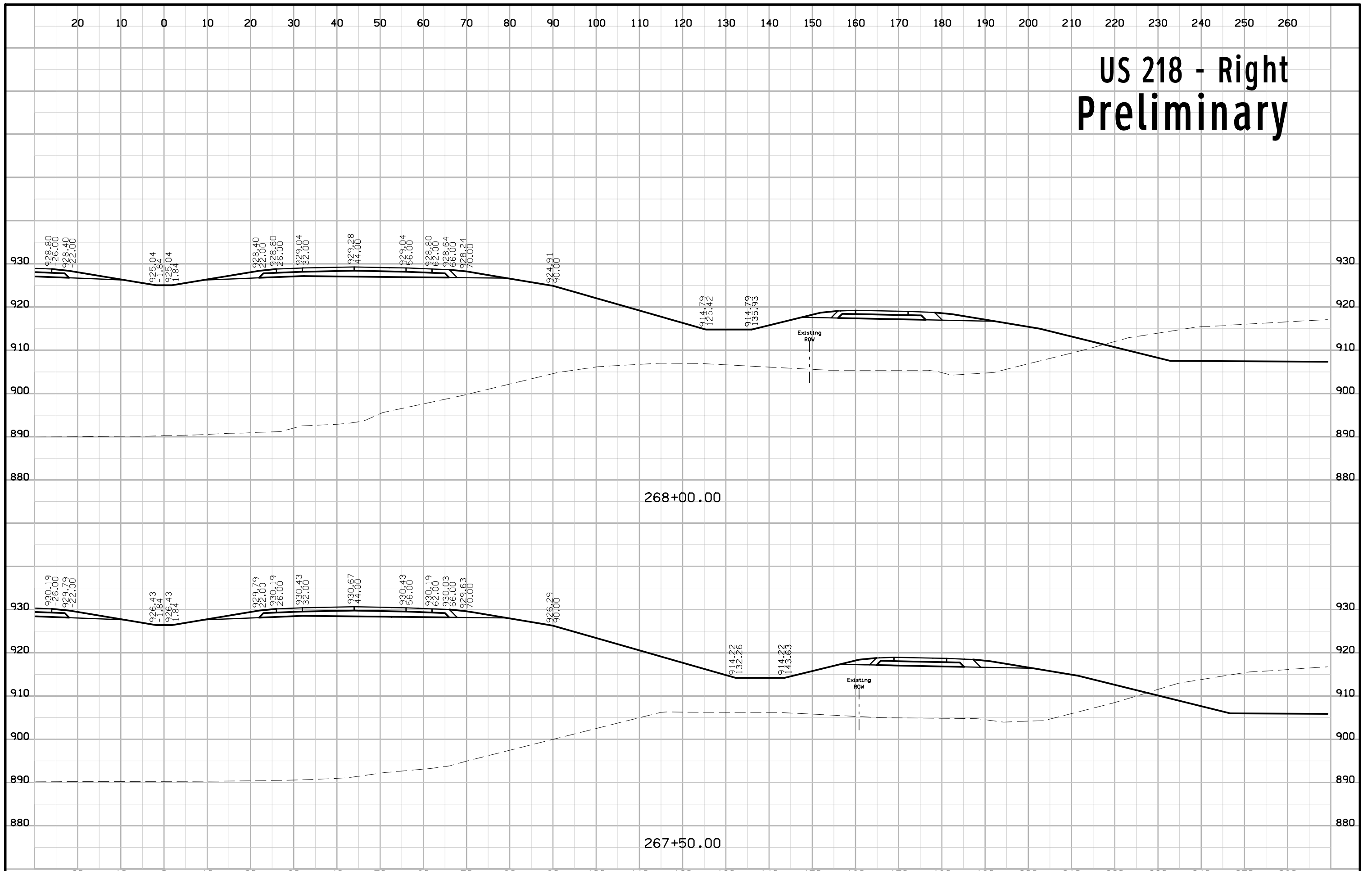


# US 218 - Left Preliminary



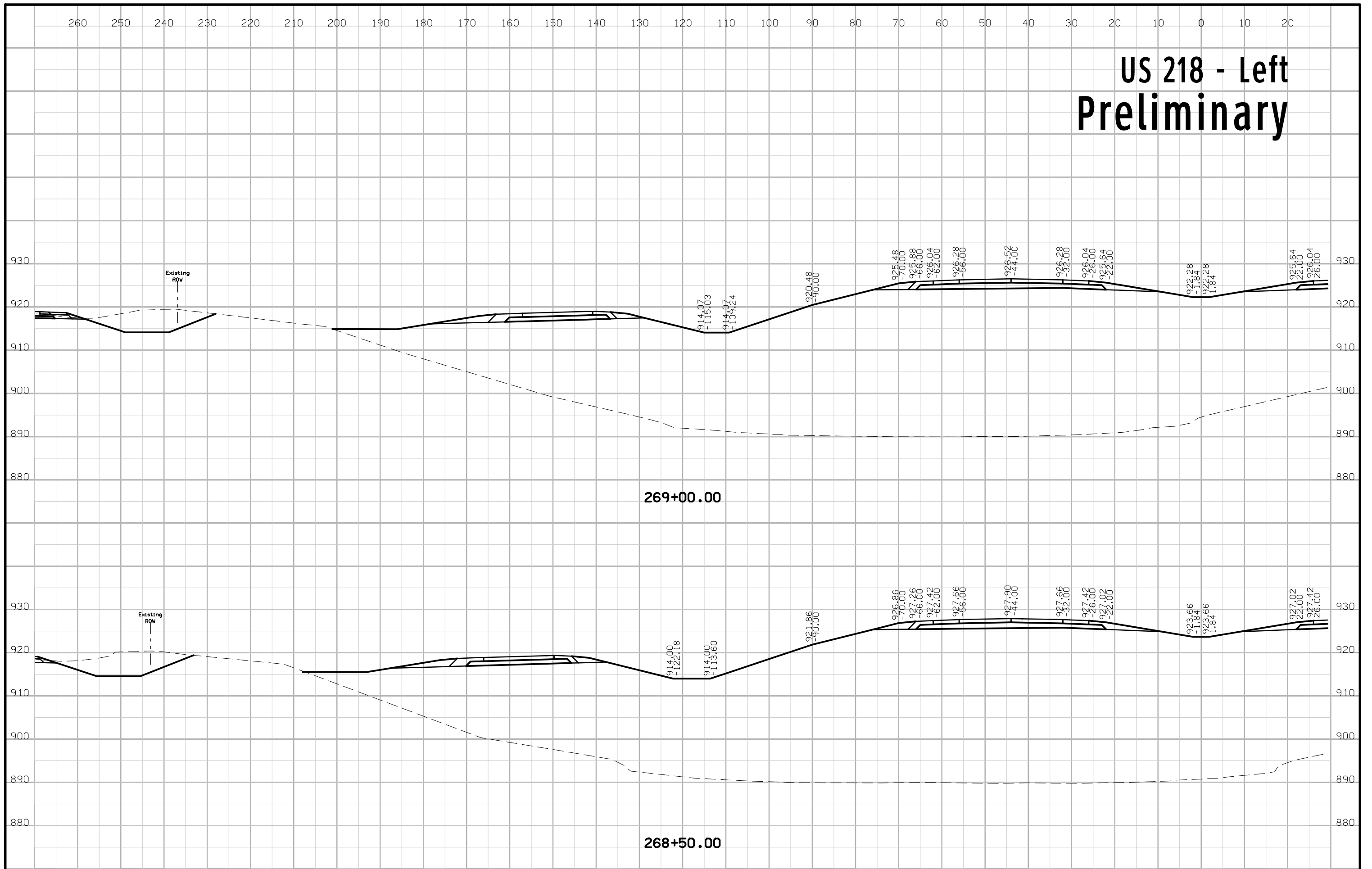


# US 218 - Right Preliminary



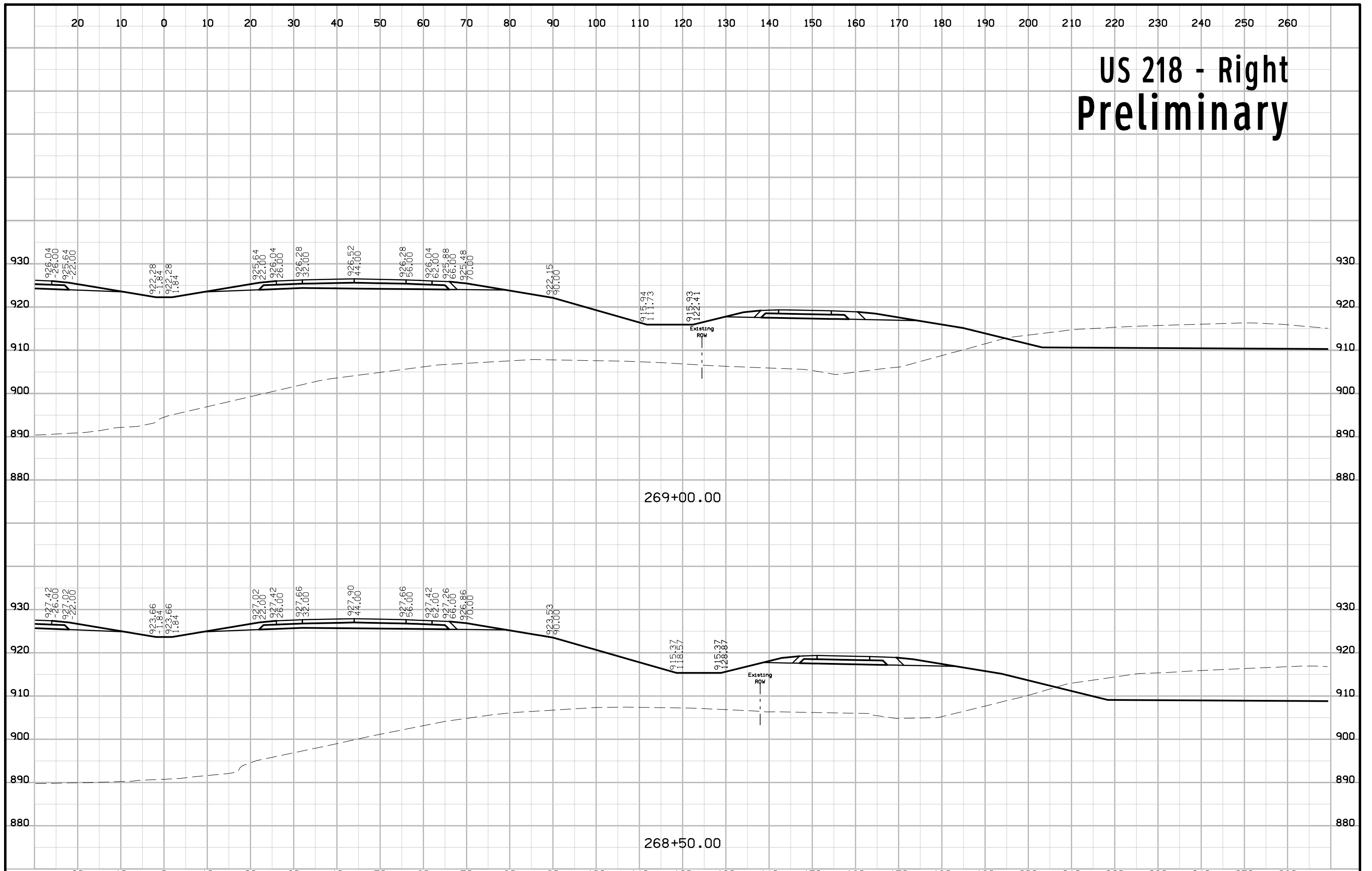


# US 218 - Left Preliminary



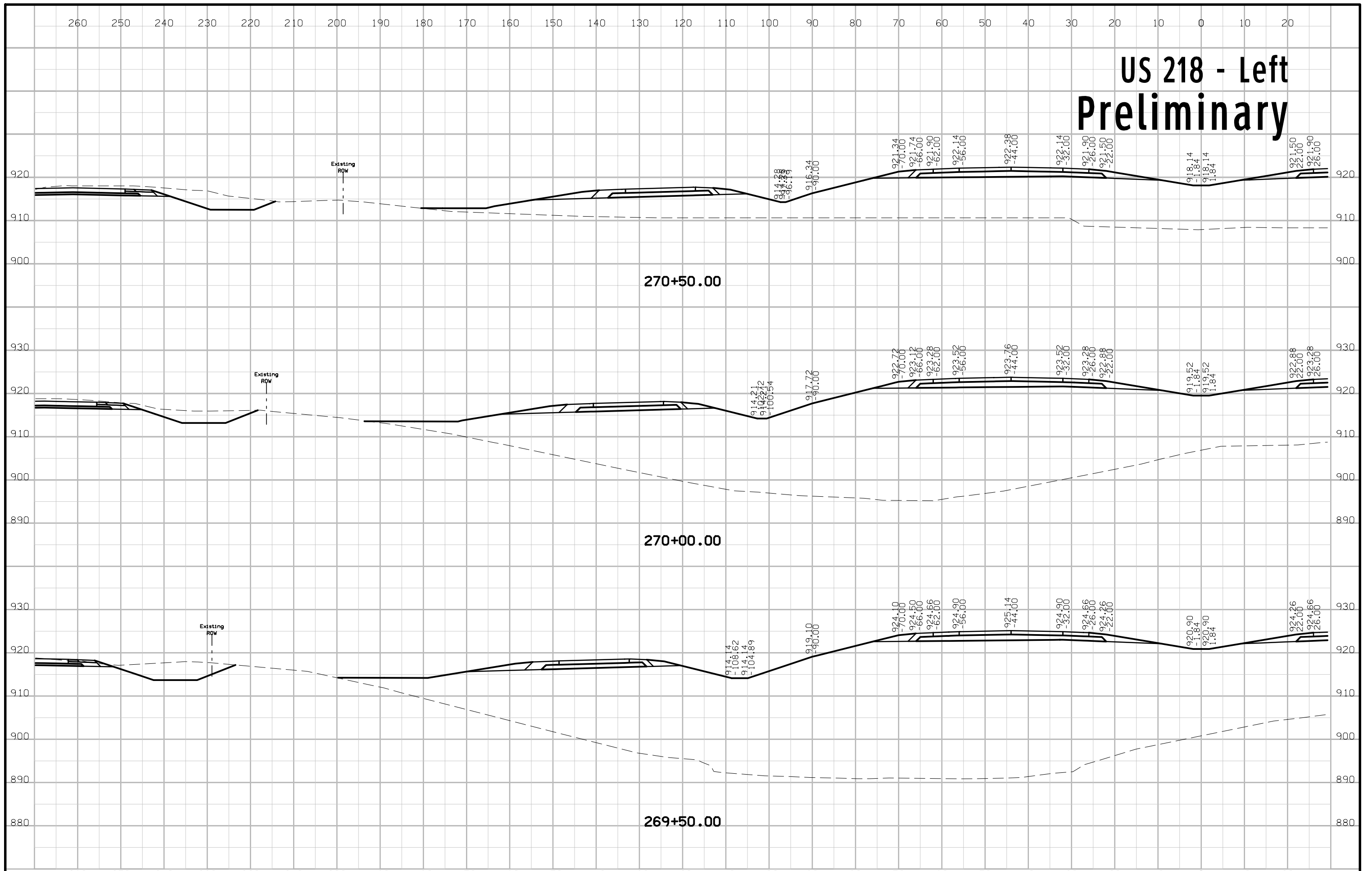


# US 218 - Right Preliminary



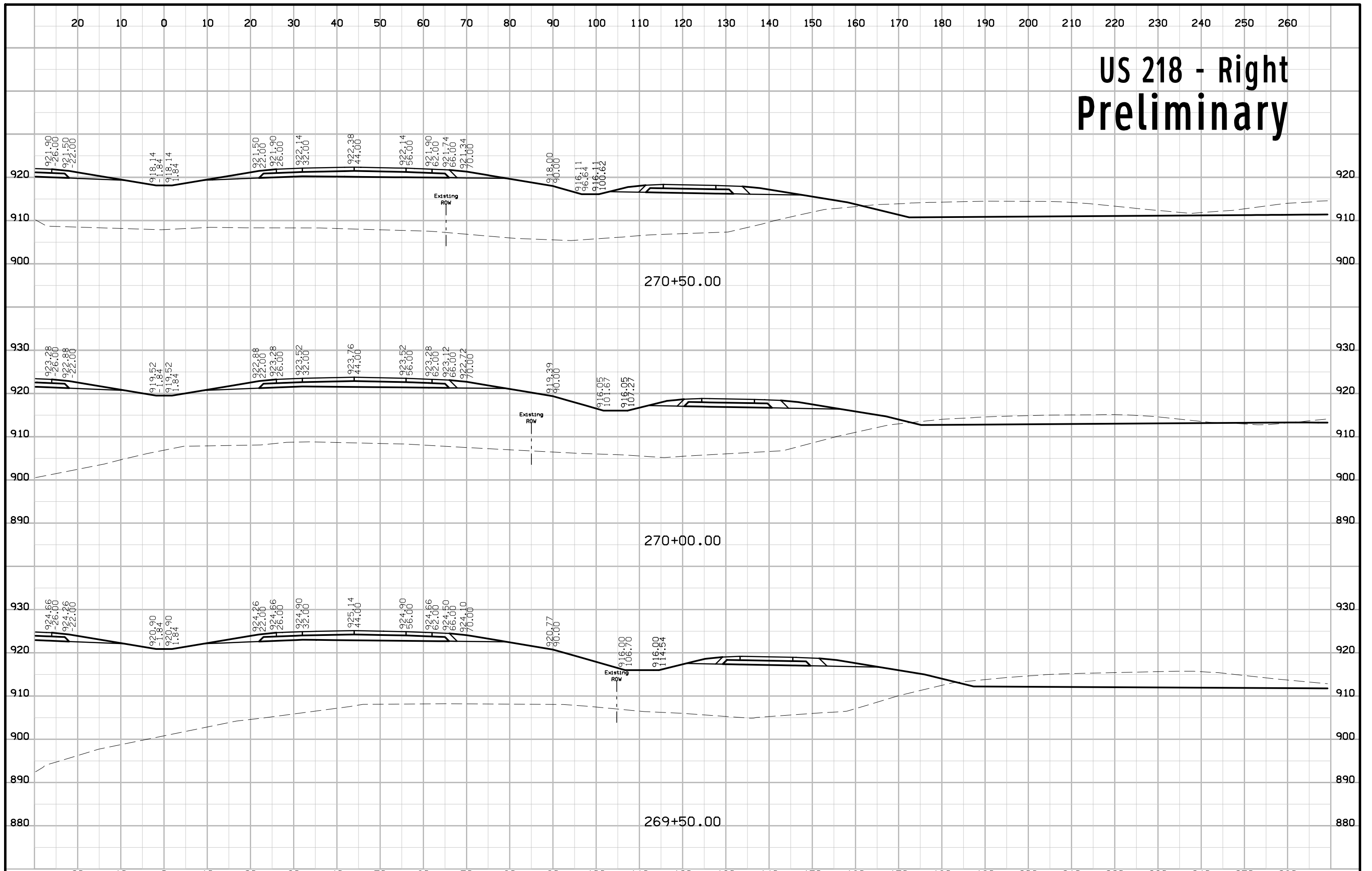


# US 218 - Left Preliminary





# US 218 - Right Preliminary

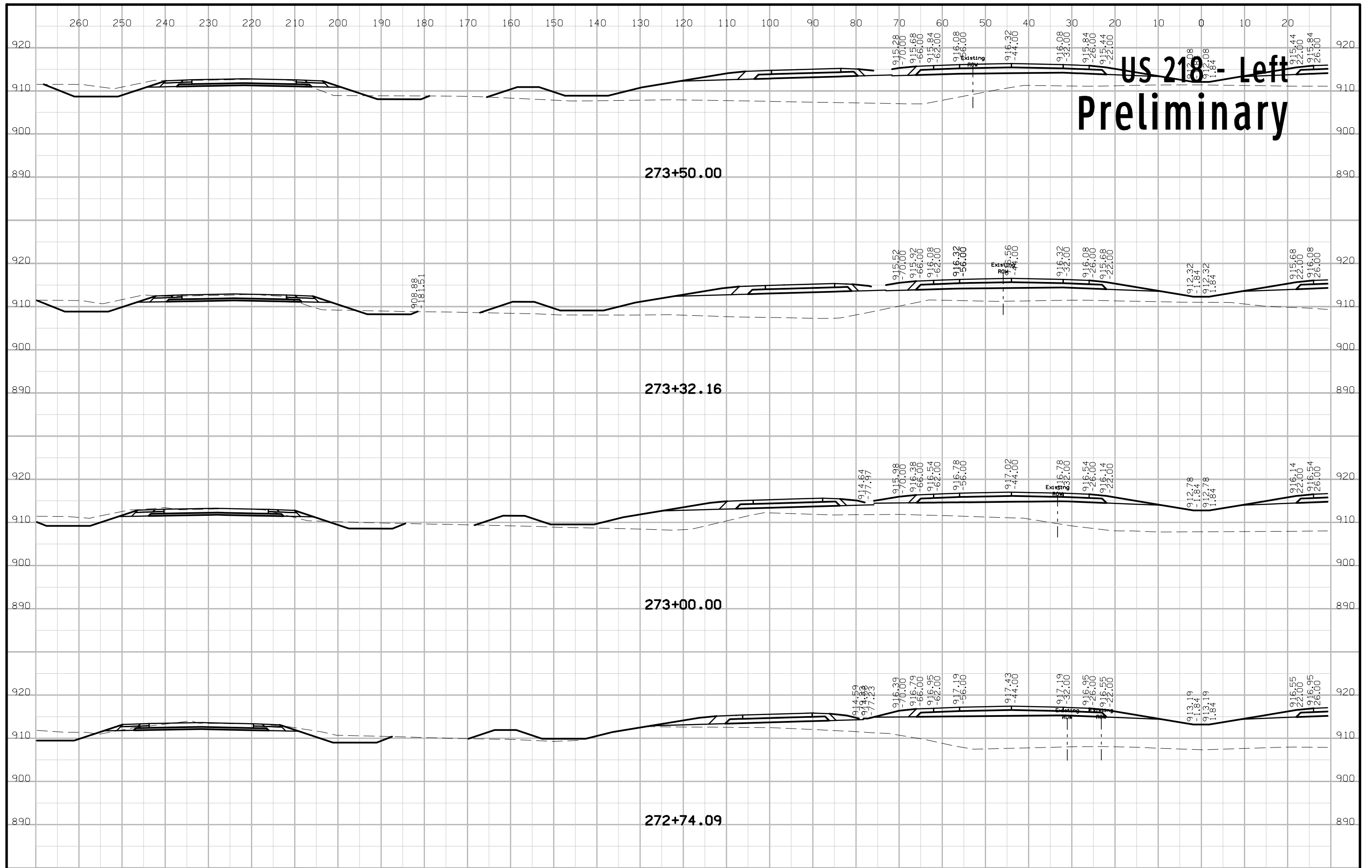






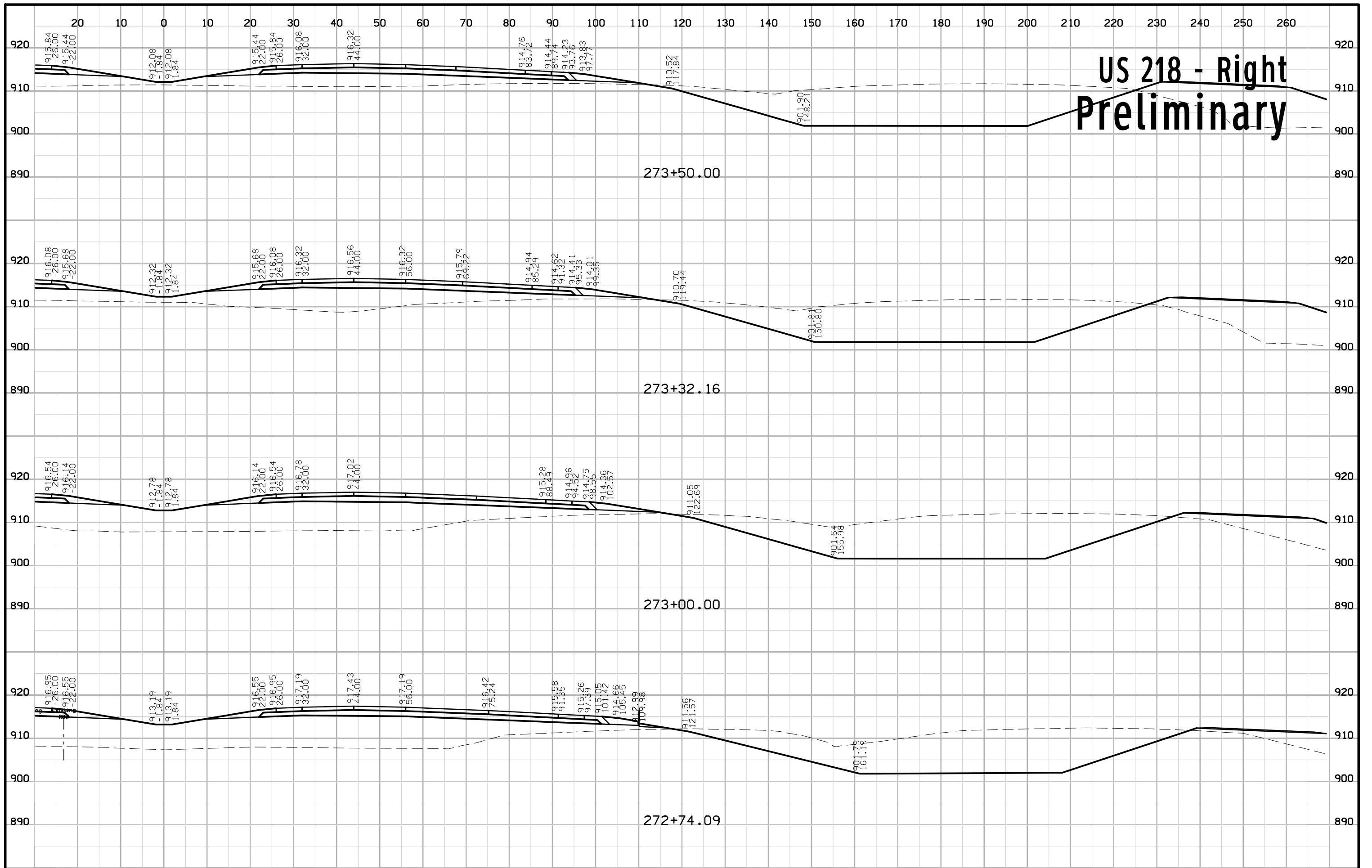






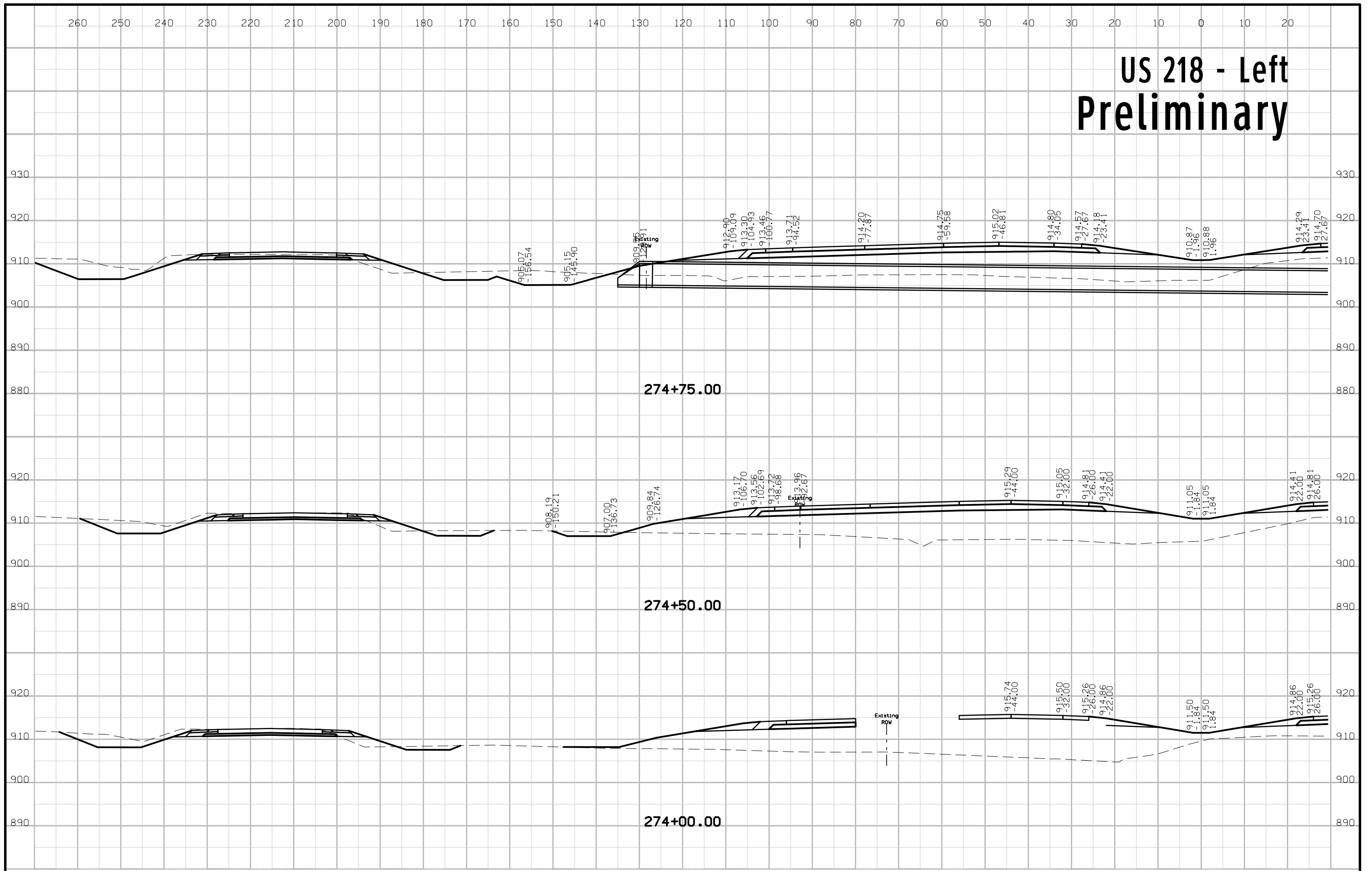
FILE NO.	ENGLISH	DESIGN TEAM	Iowa DOT \ HR Green, Inc.	BREMER COUNTY	PROJECT NUMBER	NHSX-218-8(124)--3H-09	SHEET NUMBER	W.98
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# US 218 - Right Preliminary

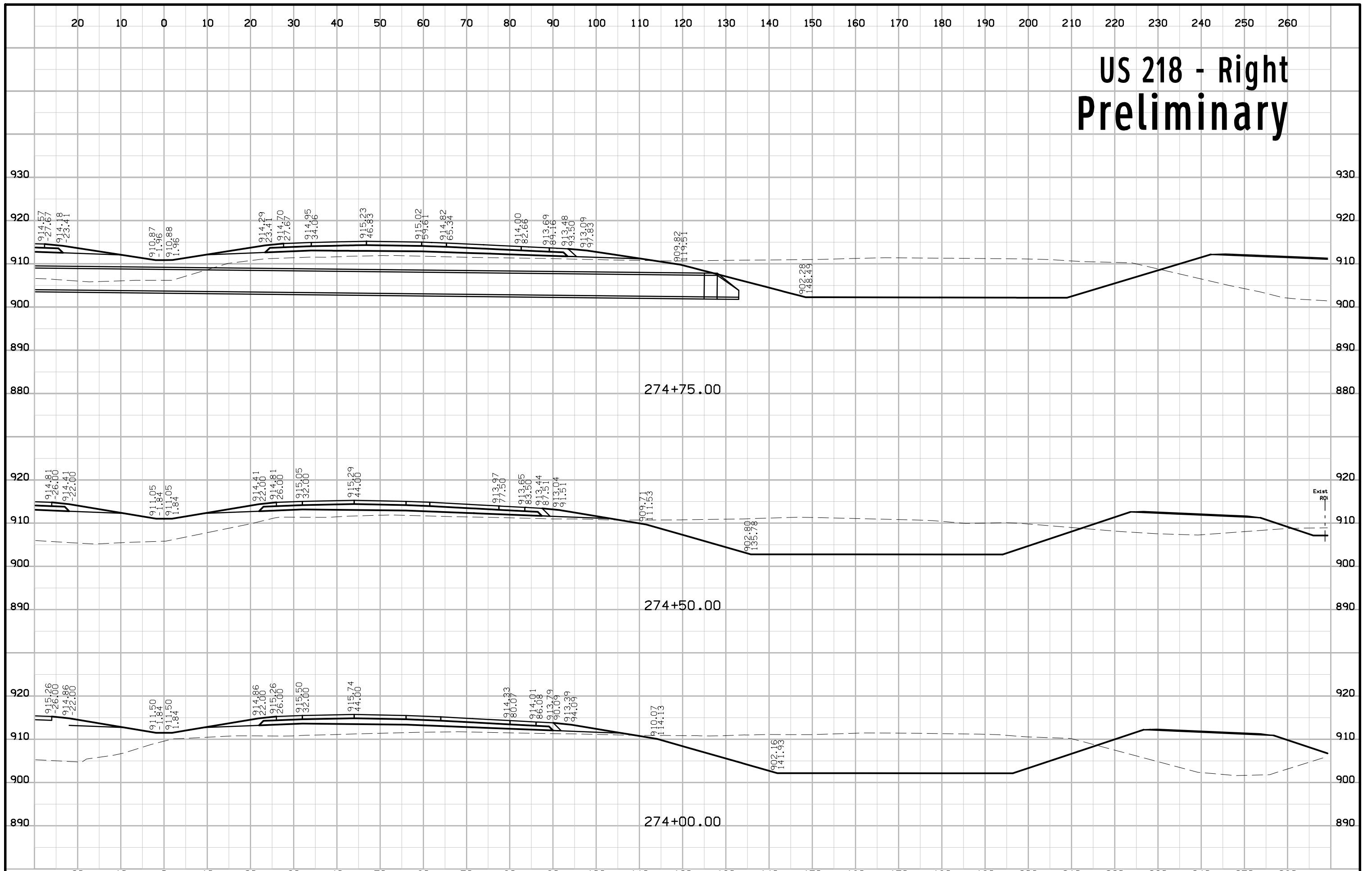




# US 218 - Left Preliminary

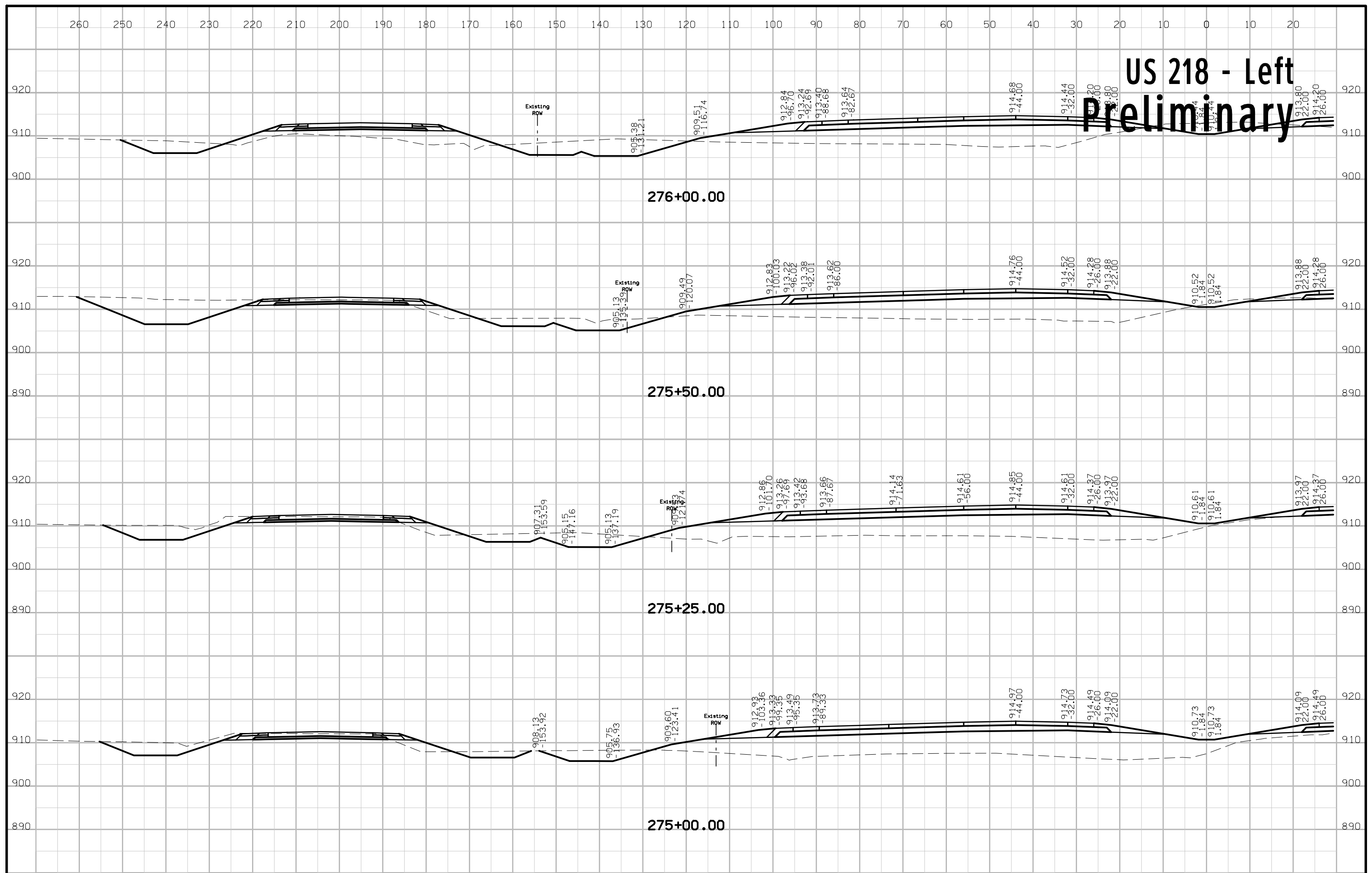


# US 218 - Right Preliminary

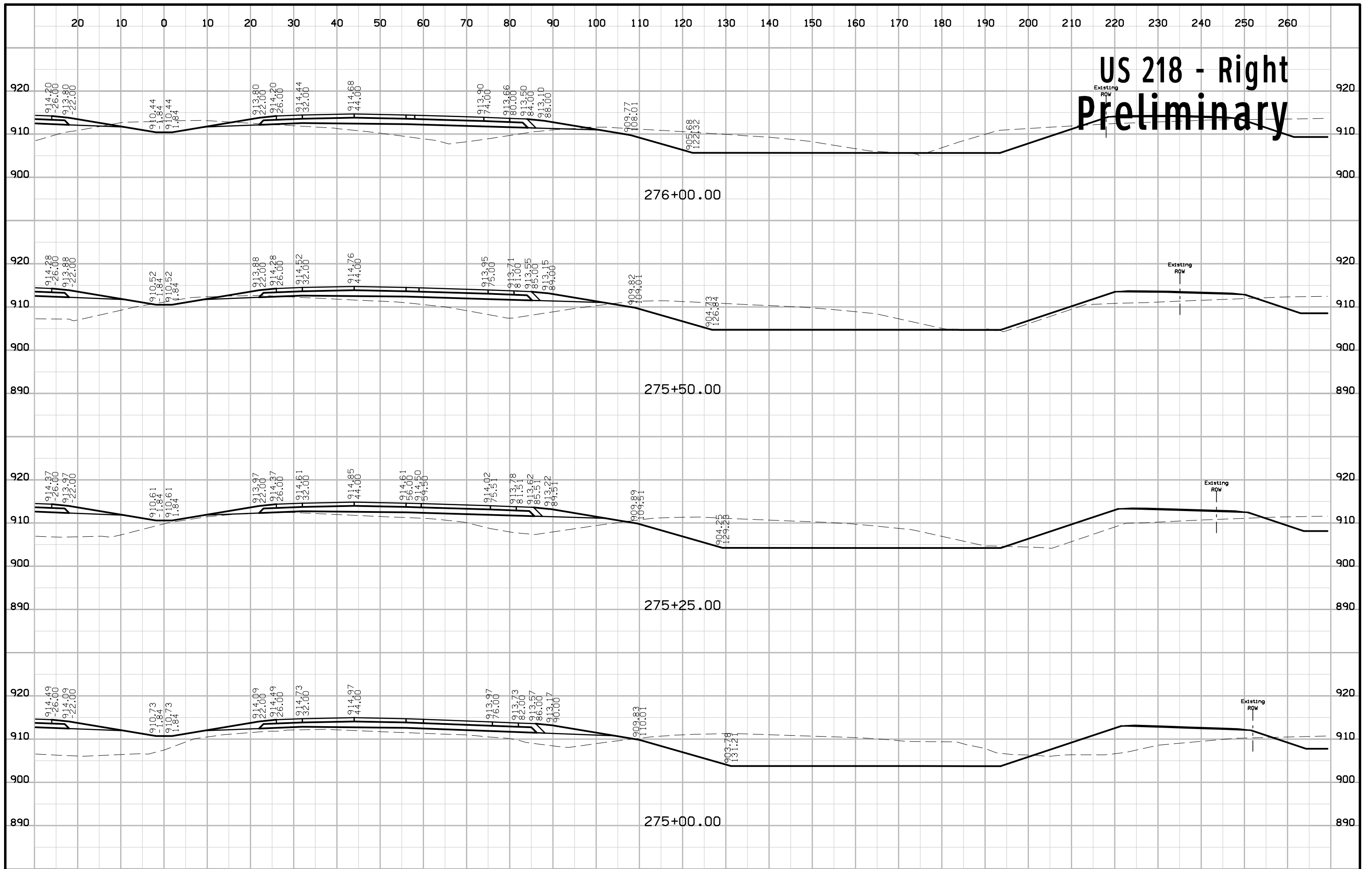




# US 218 - Left Preliminary

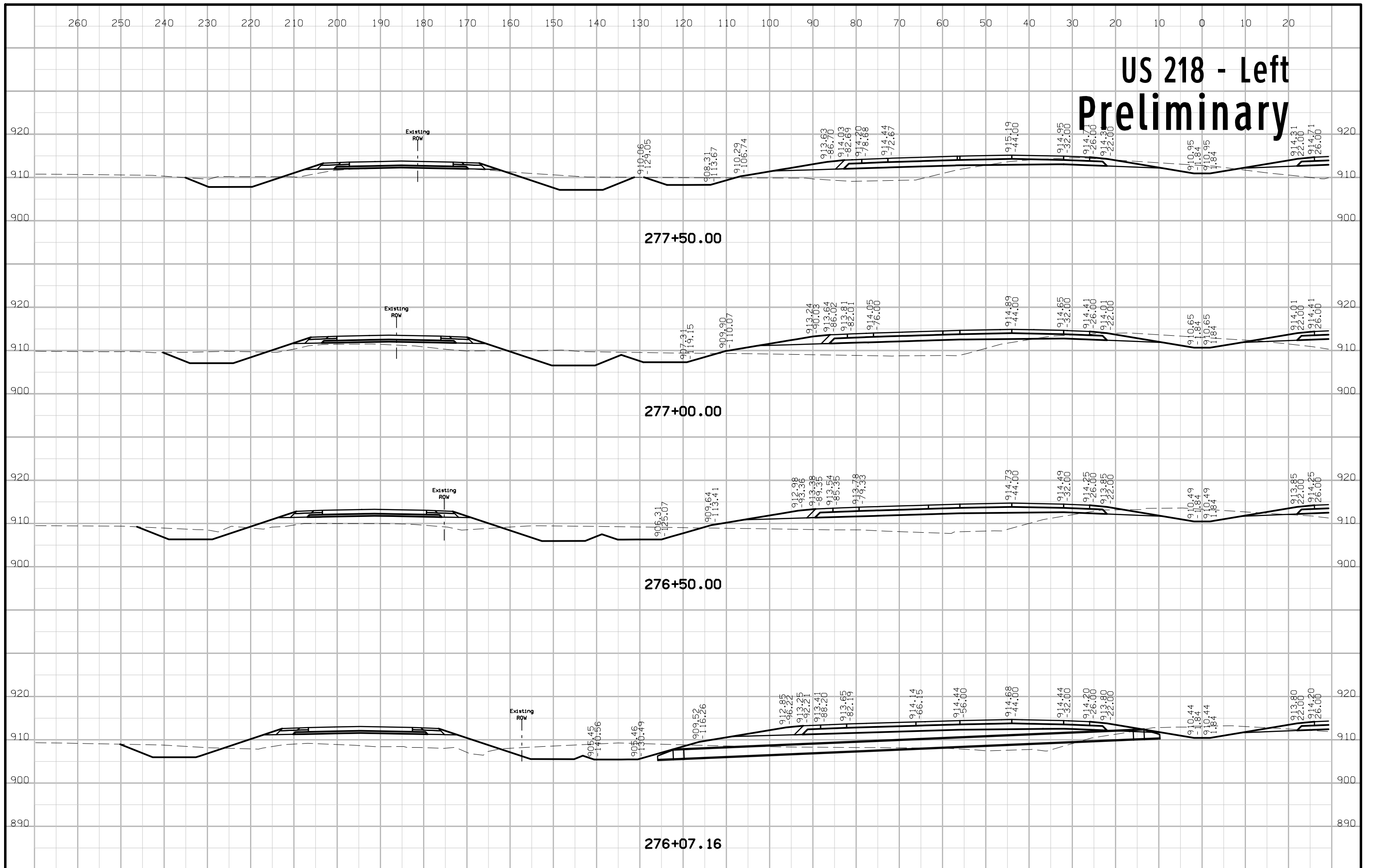


# US 218 - Right Preliminary



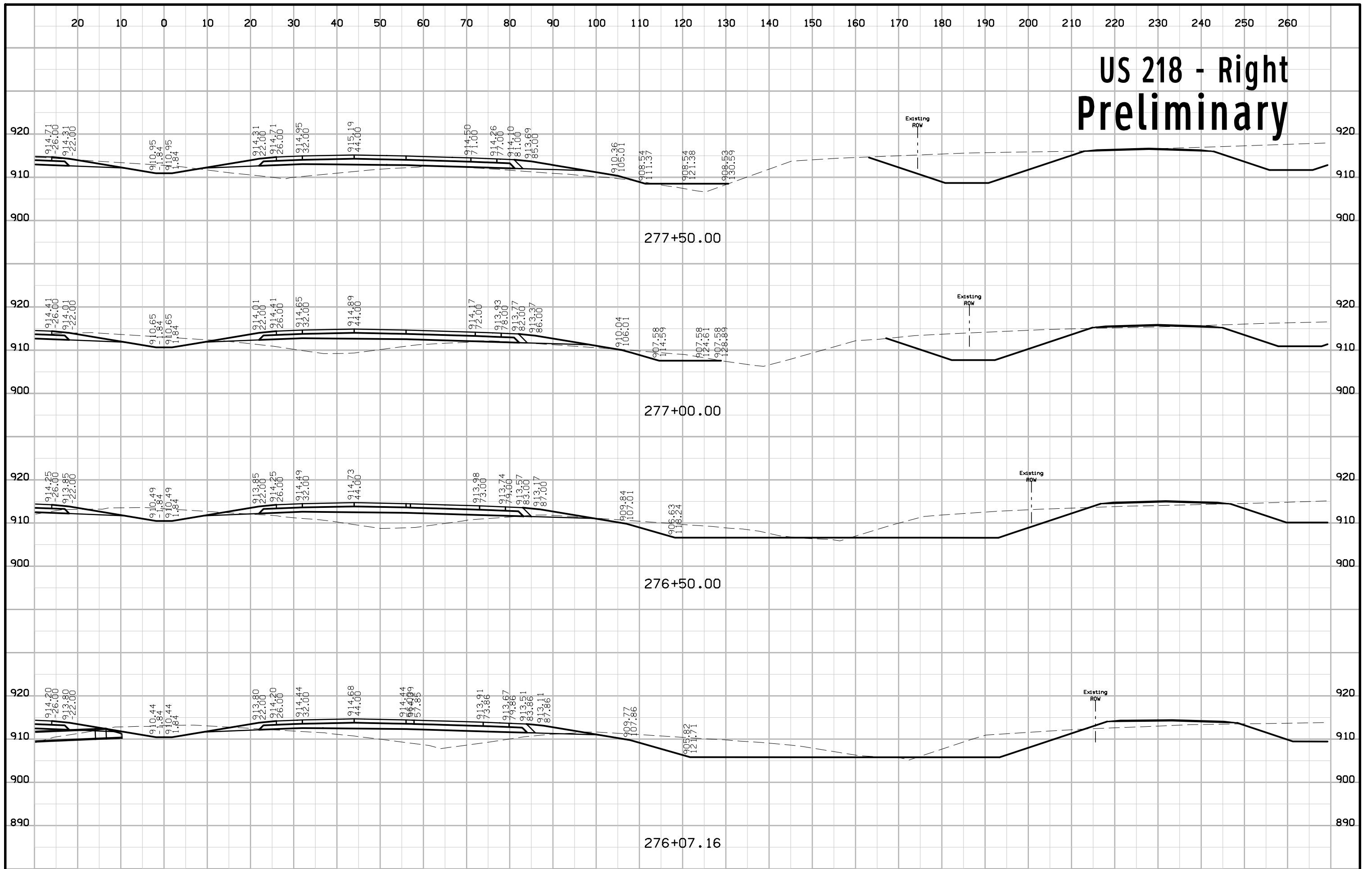


# US 218 - Left Preliminary



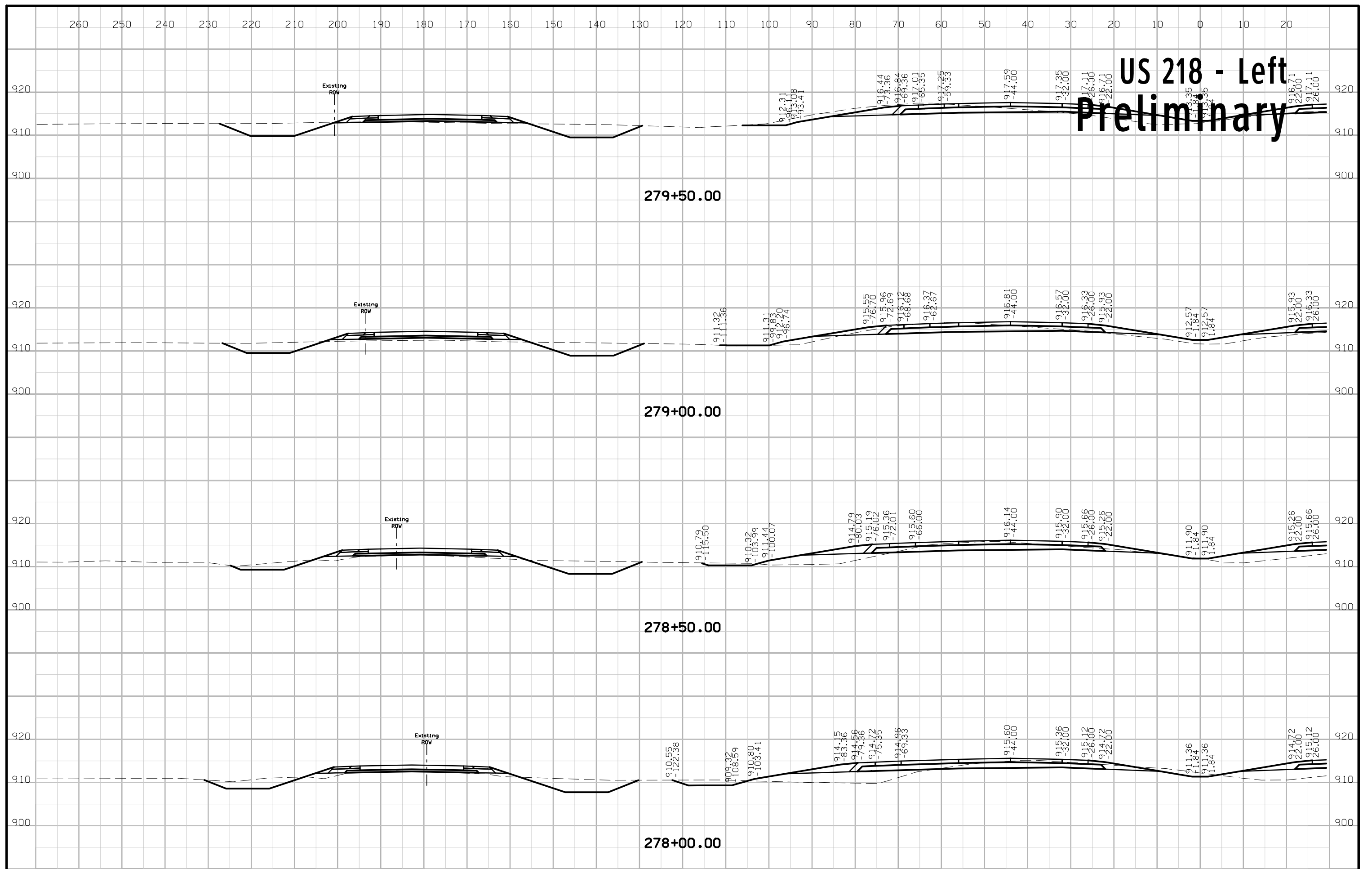
FILE NO.	ENGLISH	DESIGN TEAM	Iowa DOT \ HR Green, Inc.	BREMER	COUNTY	PROJECT NUMBER	NHSX-218-8(124)--3H-09	SHEET NUMBER	W. 104
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# US 218 - Right Preliminary

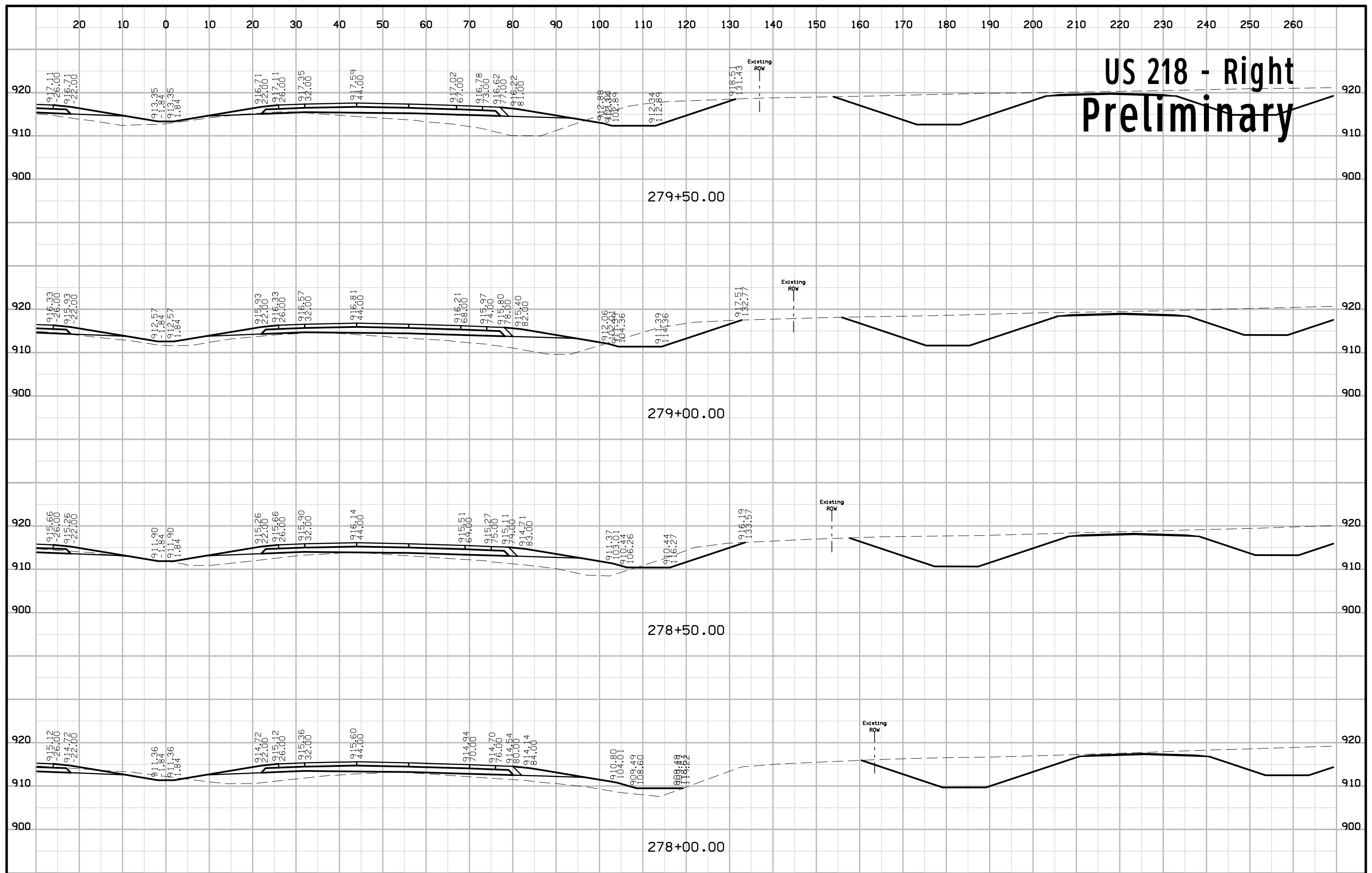




# US 218 - Left Preliminary

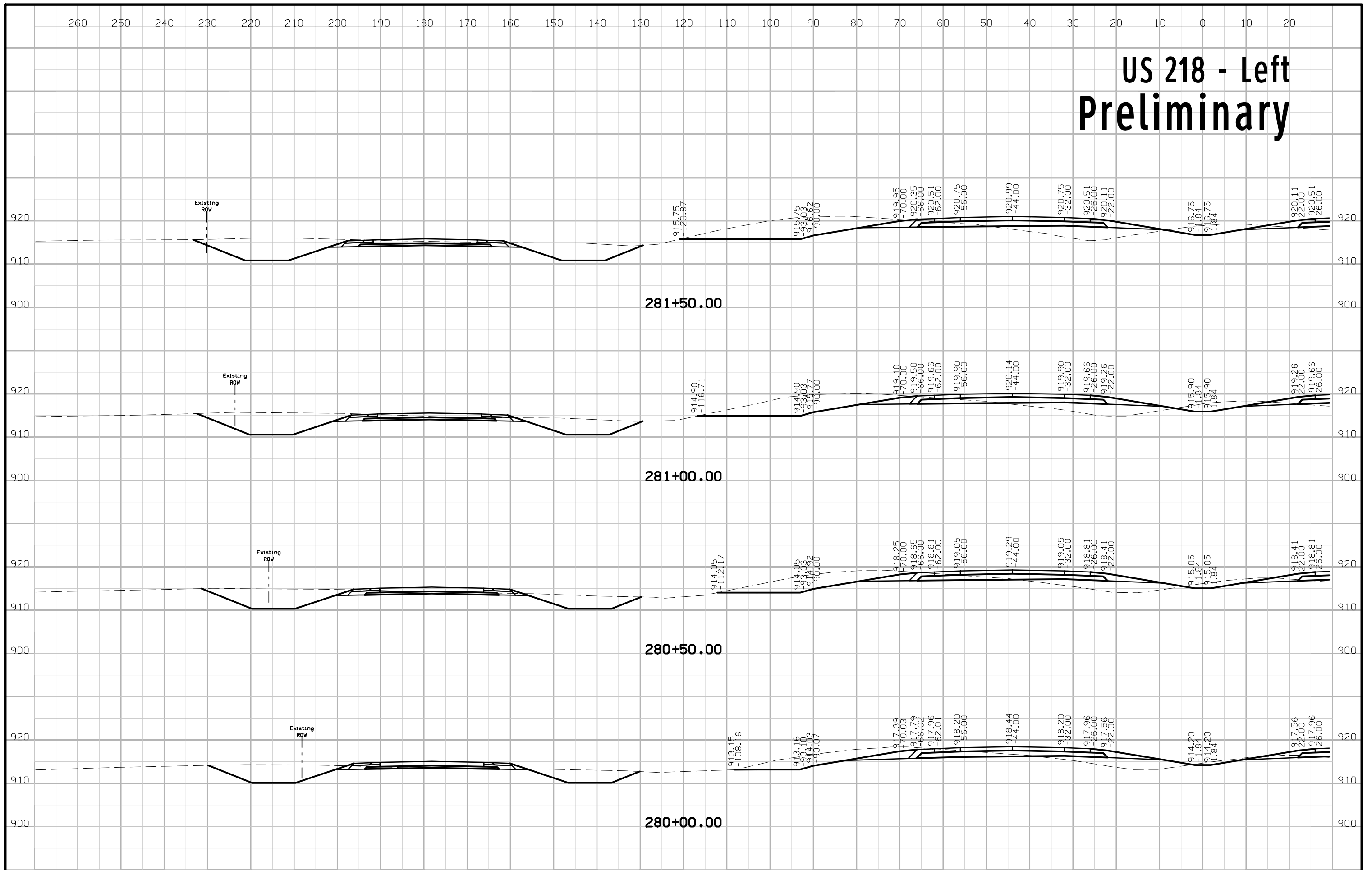


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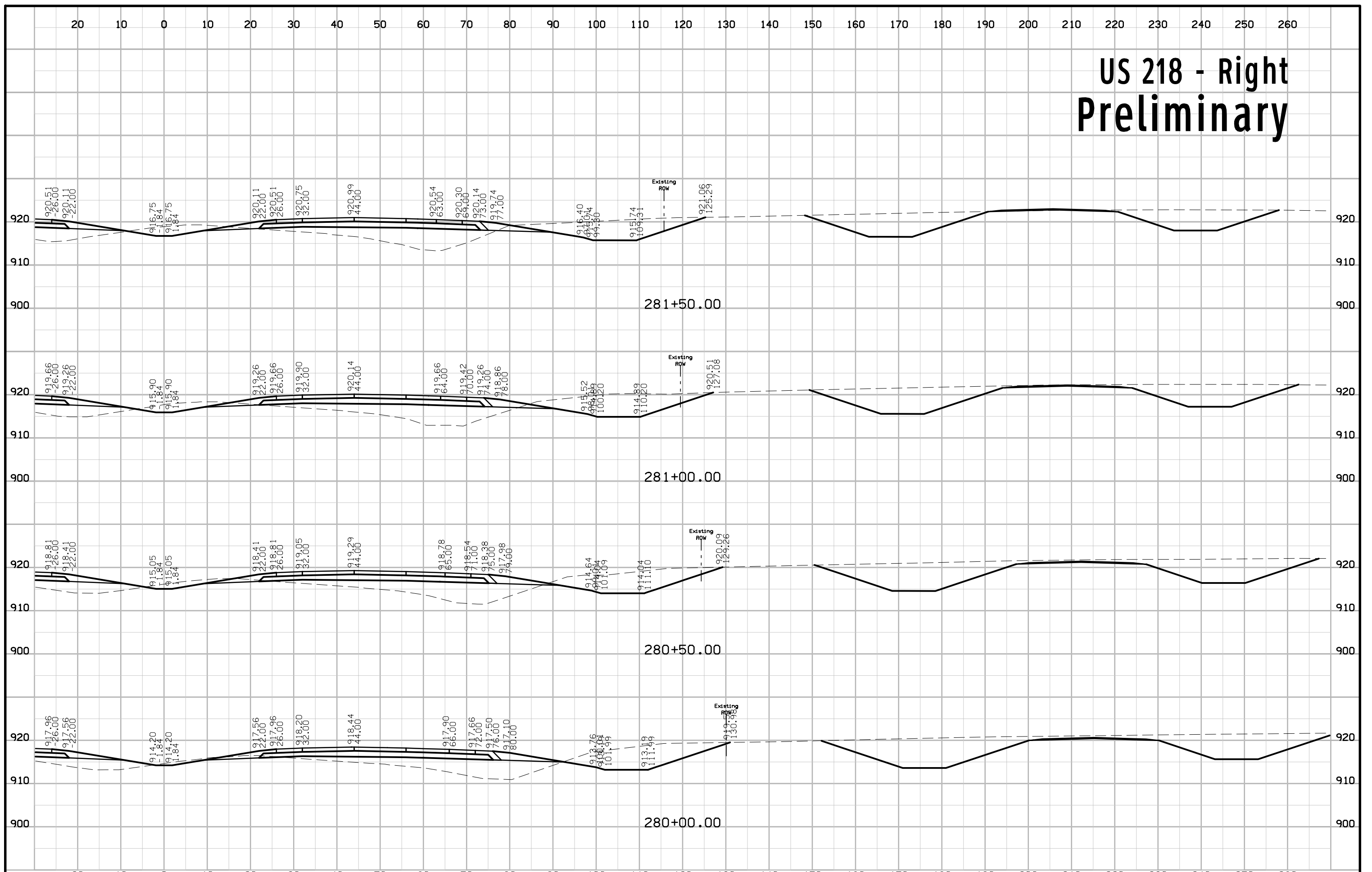




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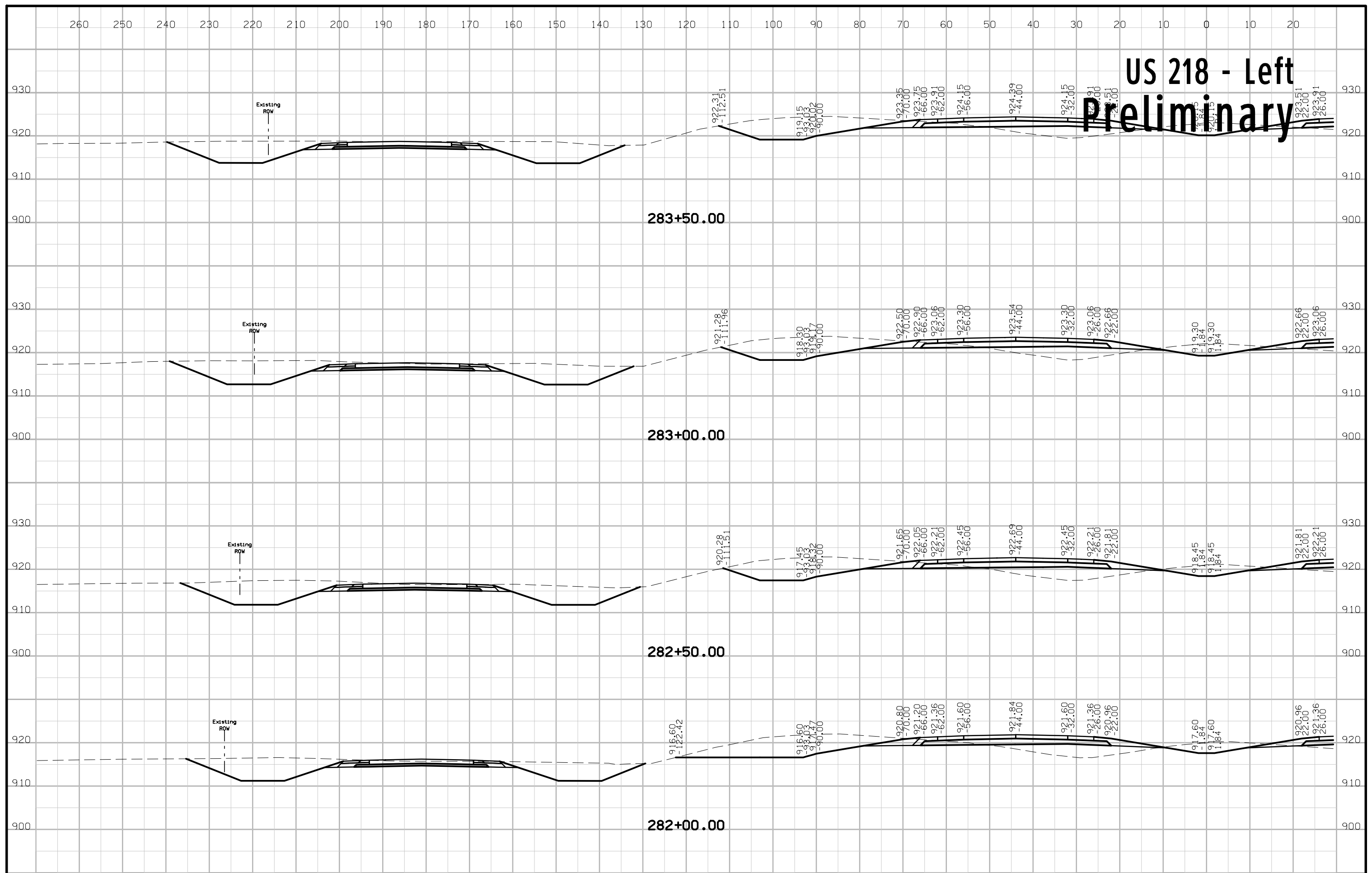


# US 218 - Right Preliminary

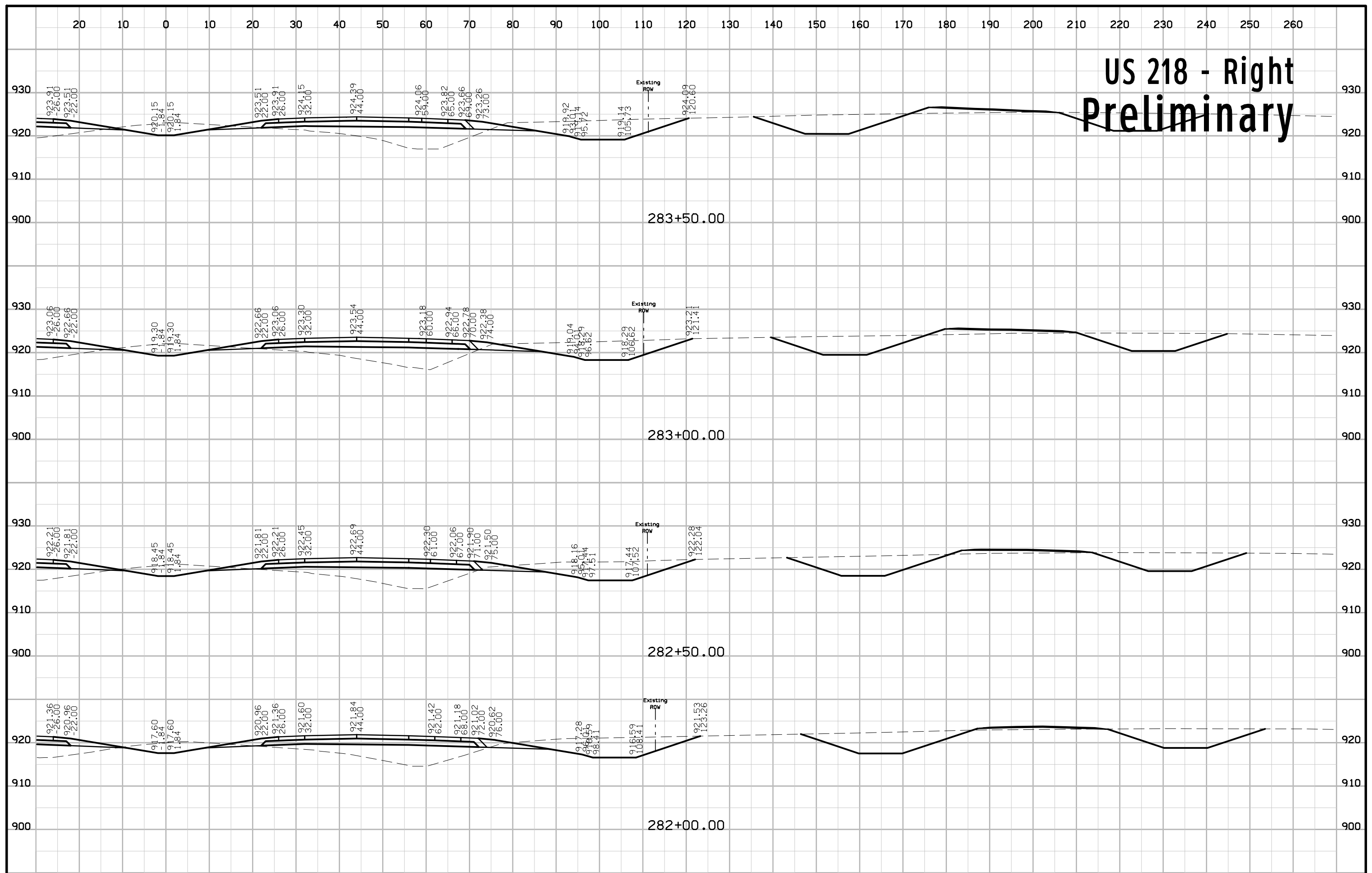




# US 218 - Left Preliminary

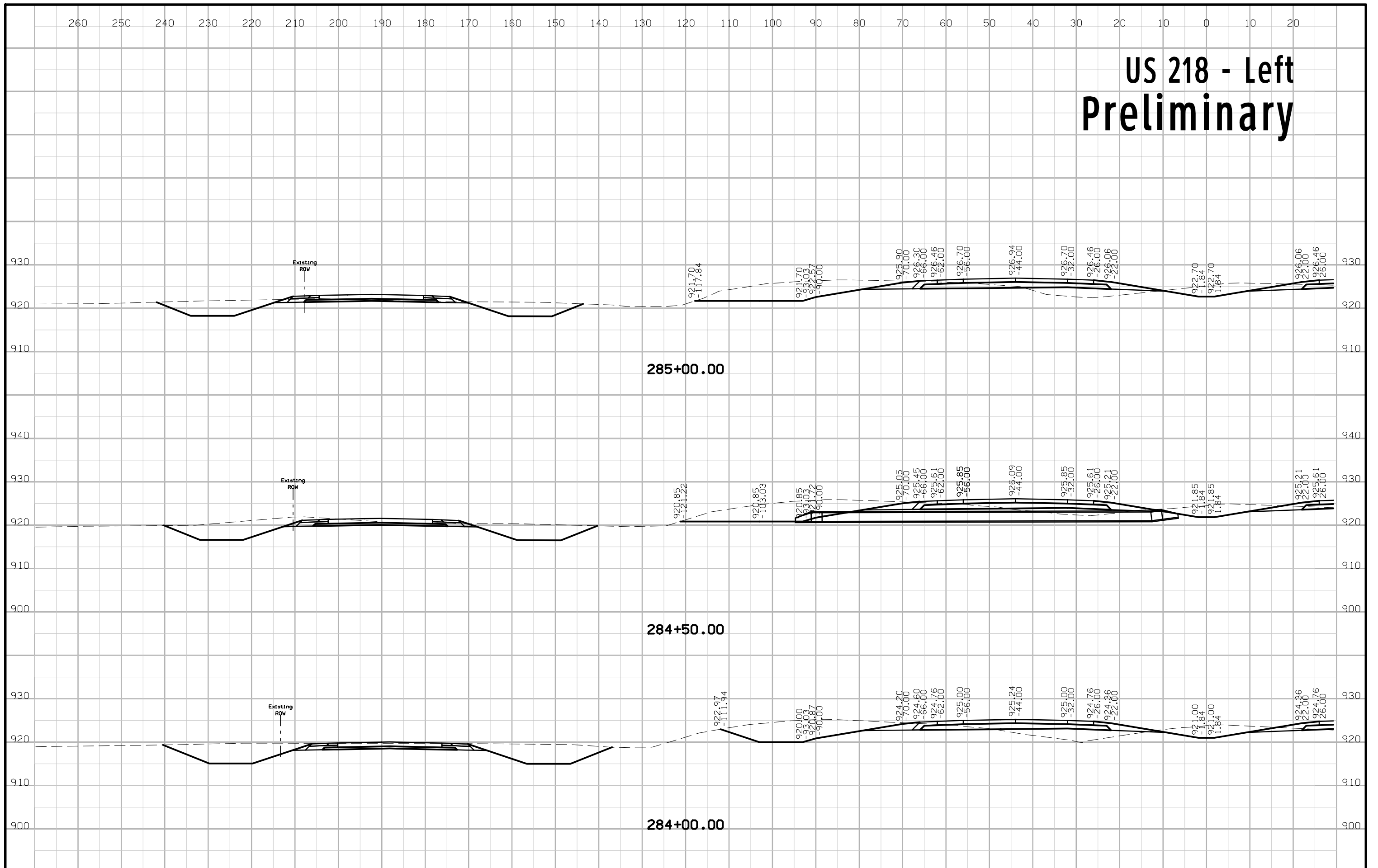


# US 218 - Right Preliminary

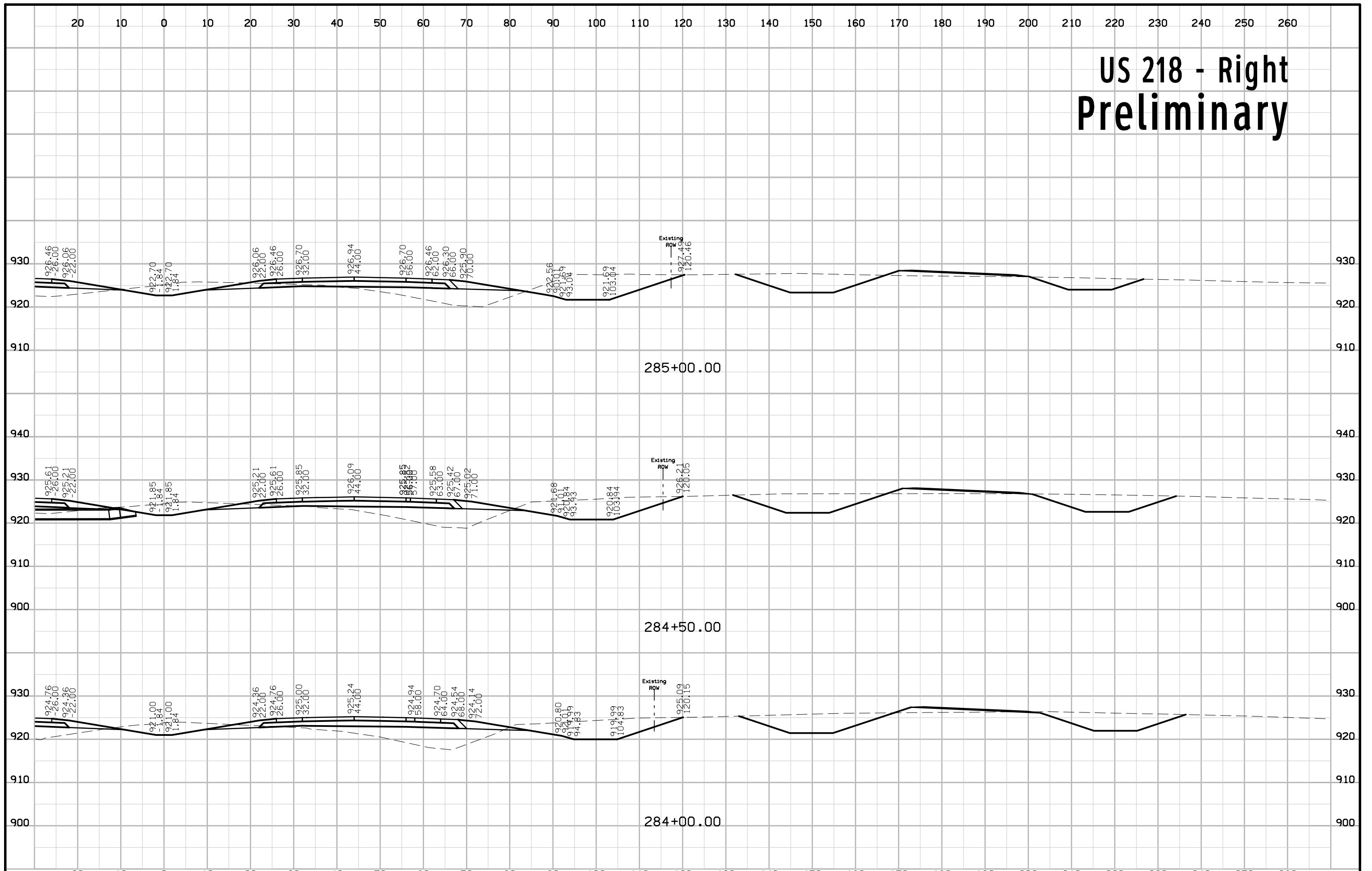




# US 218 - Left Preliminary

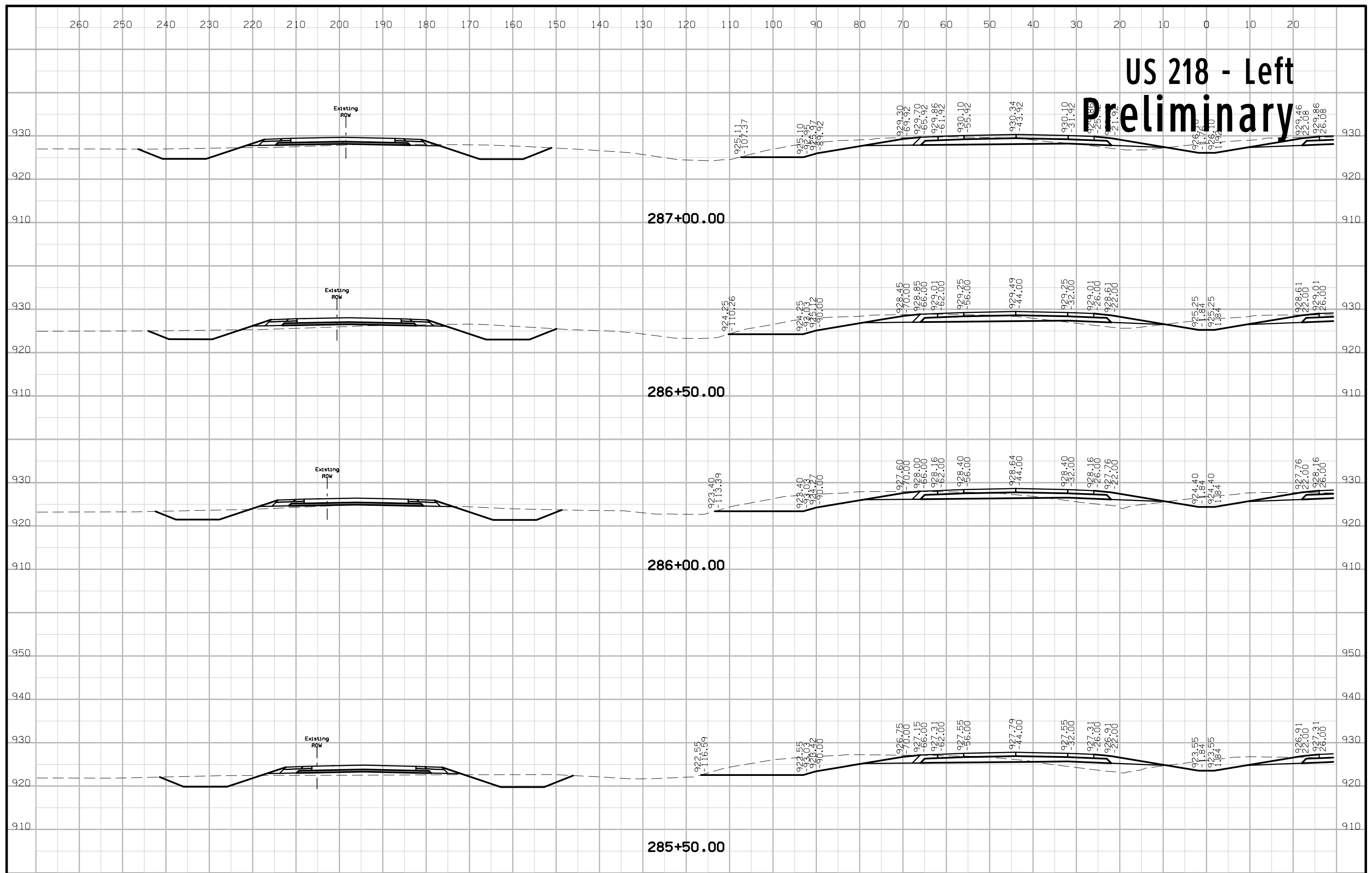


# US 218 - Right Preliminary

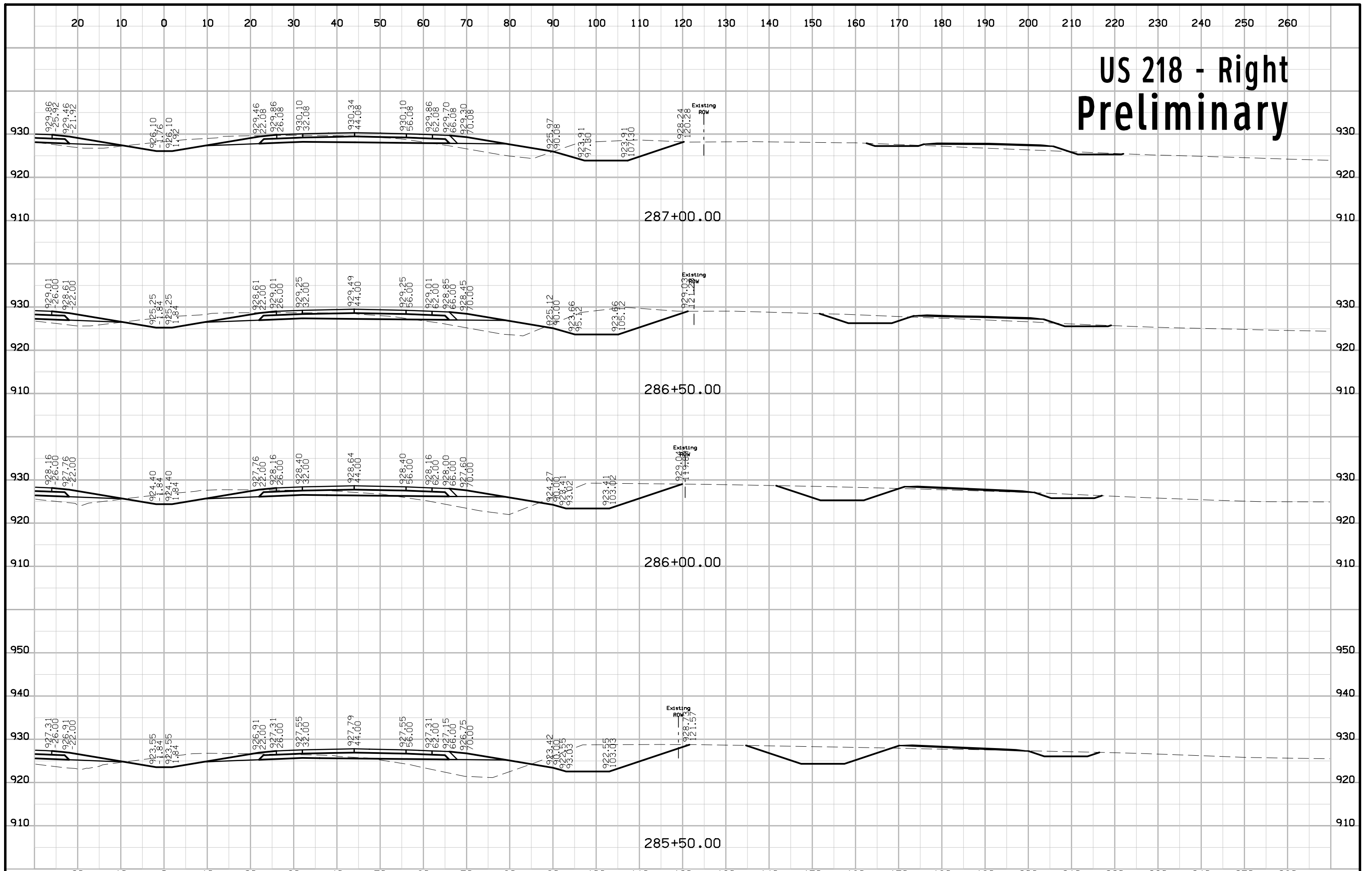




# US 218 - Left Preliminary

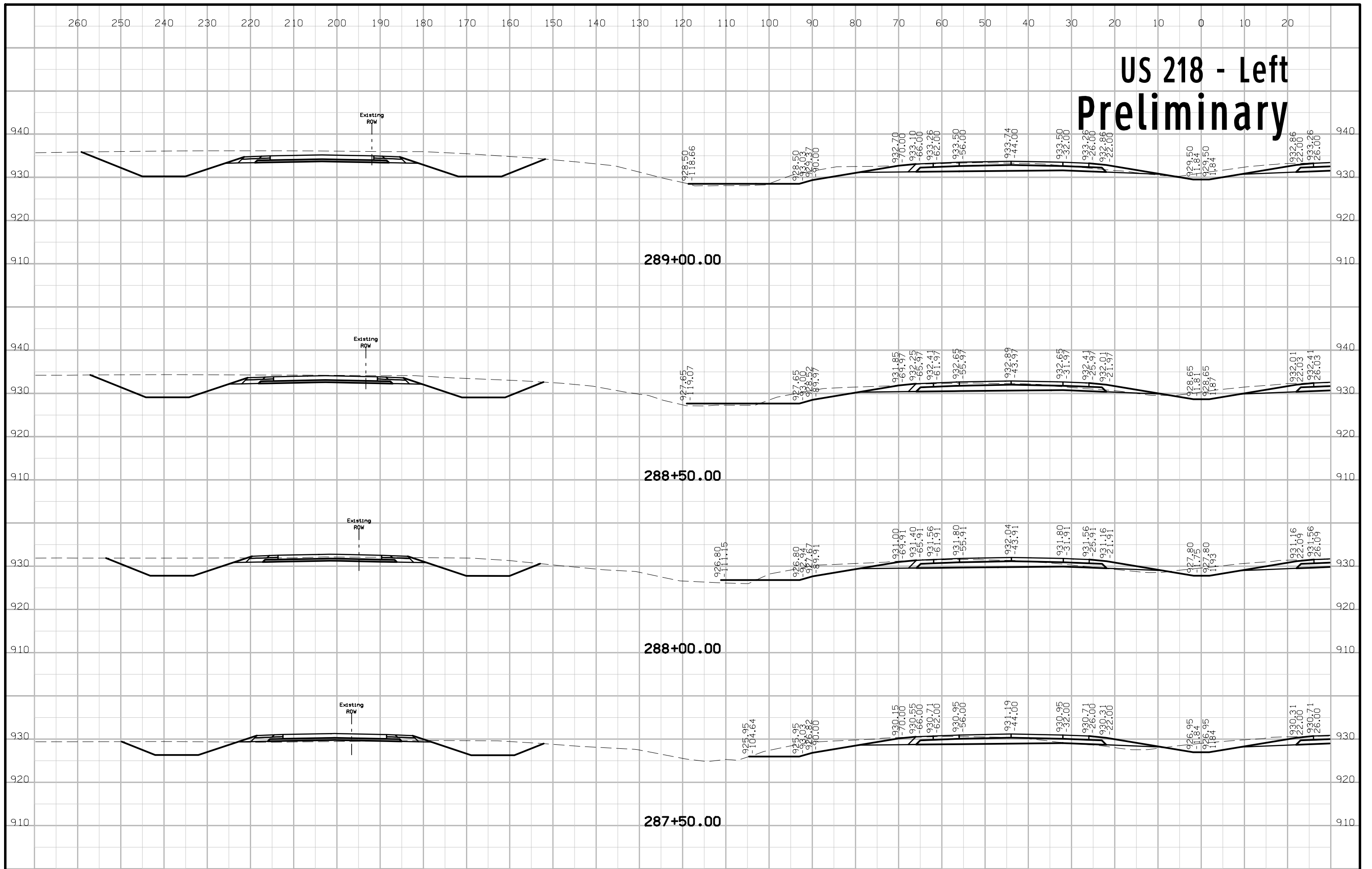


# US 218 - Right Preliminary

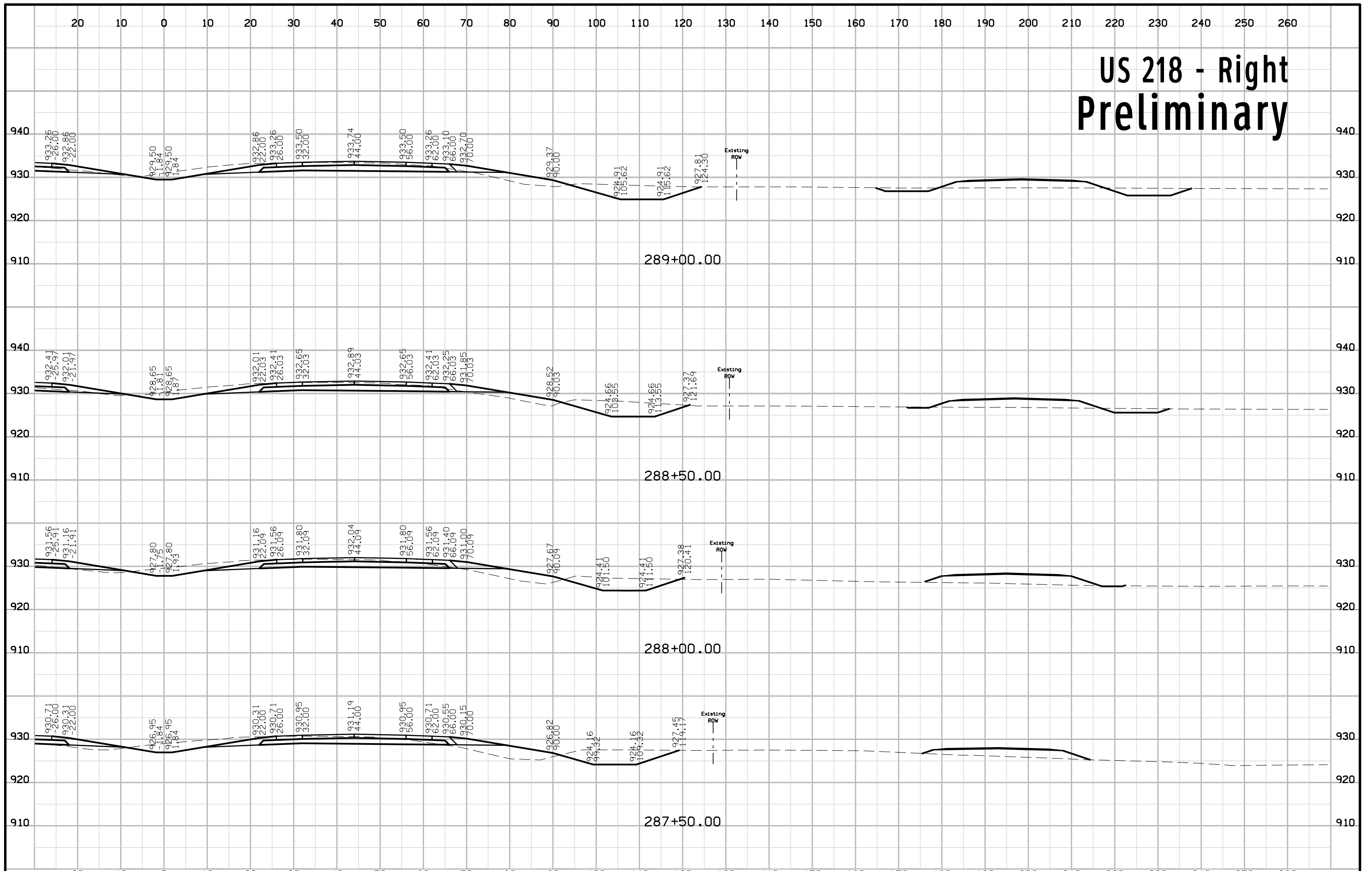




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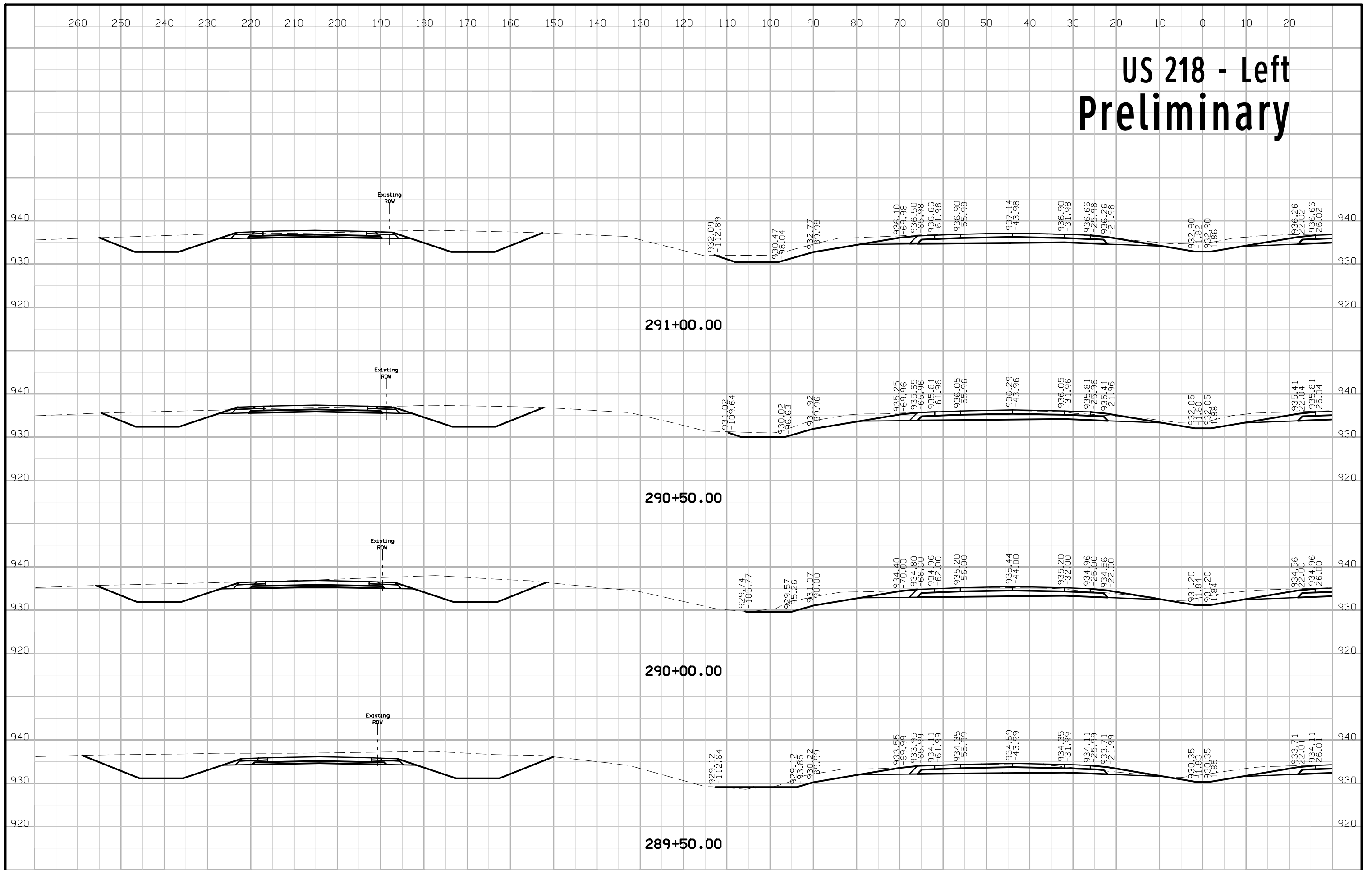


# US 218 - Right Preliminary





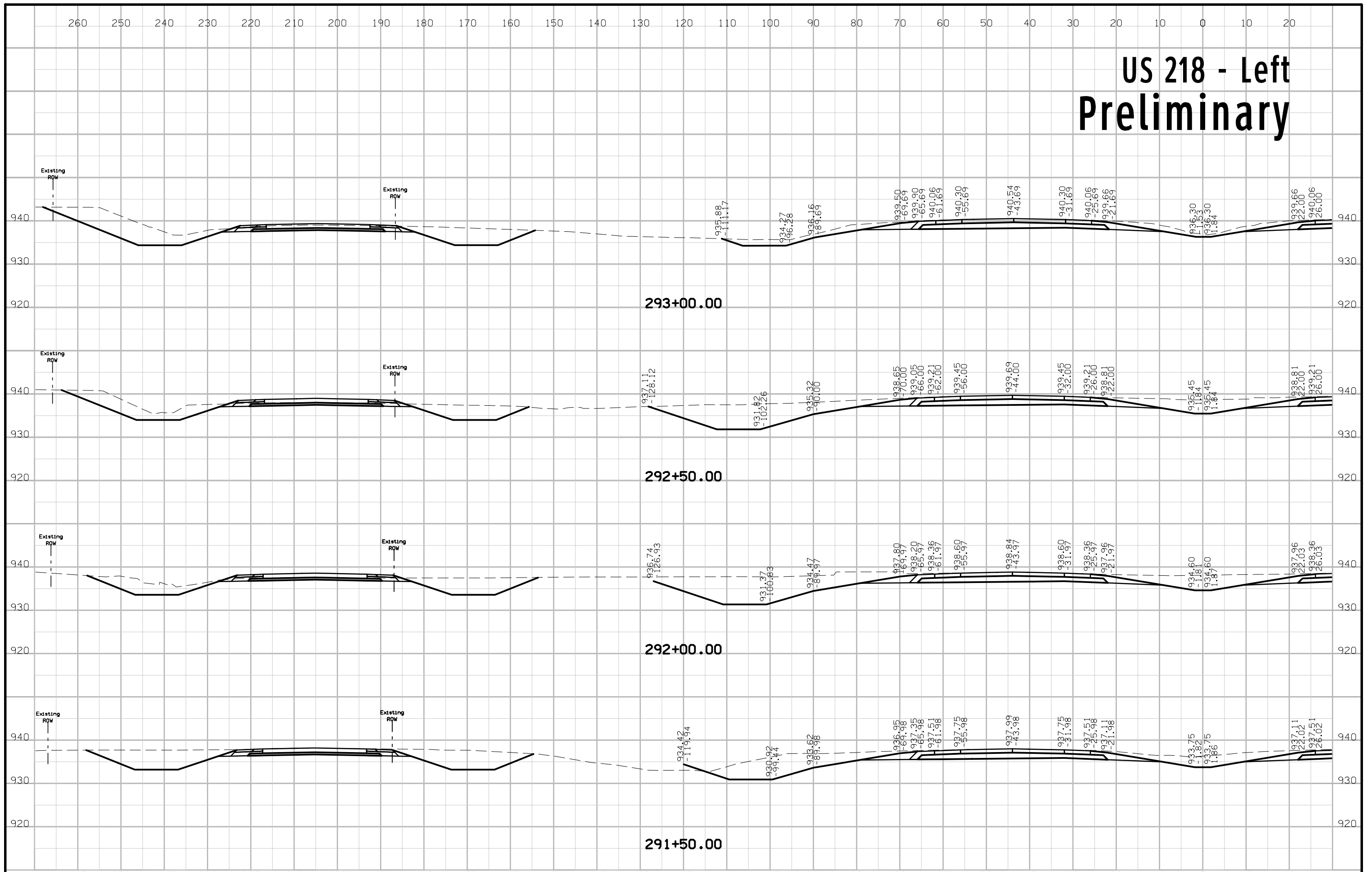
# US 218 - Left Preliminary



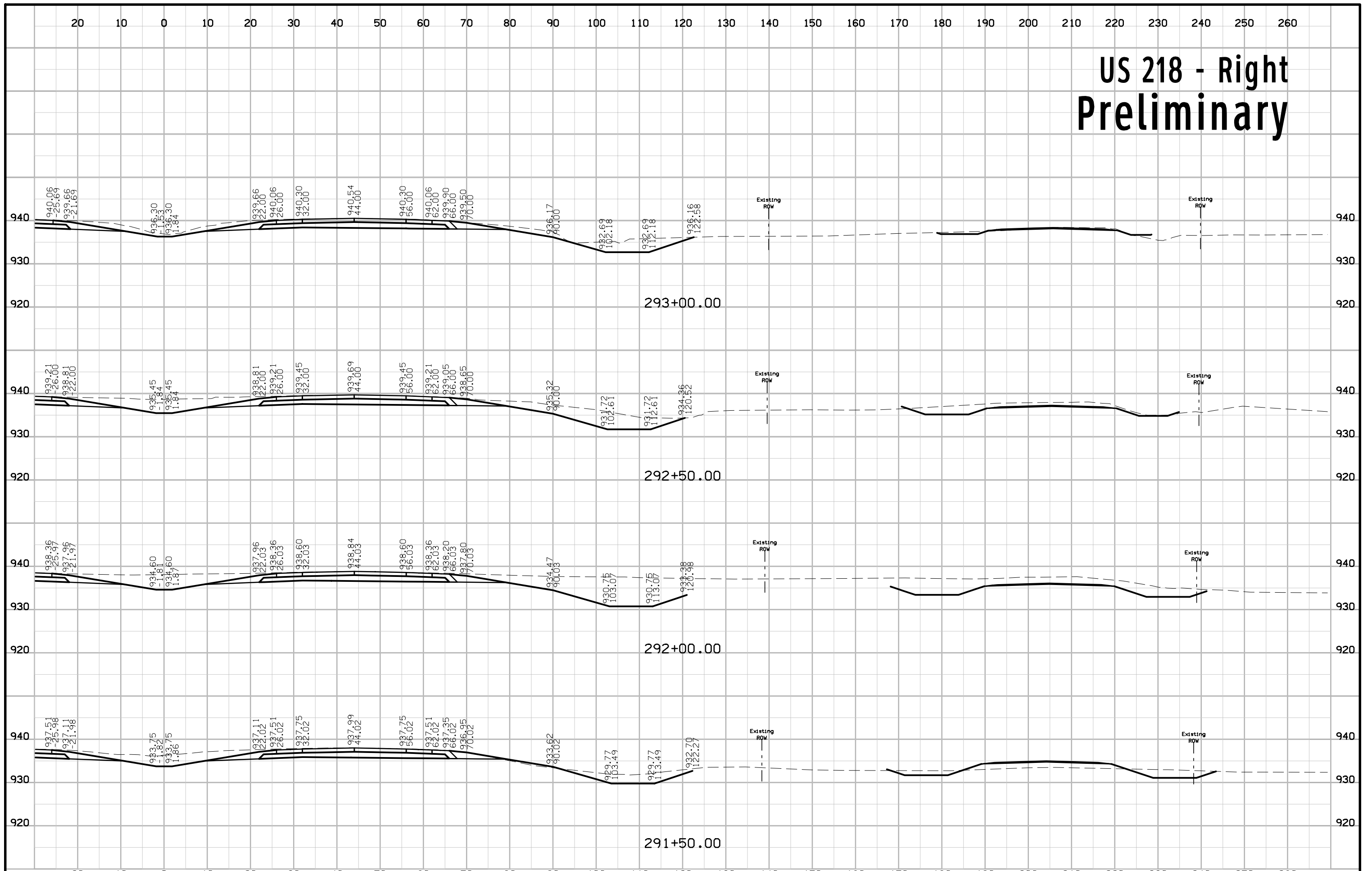




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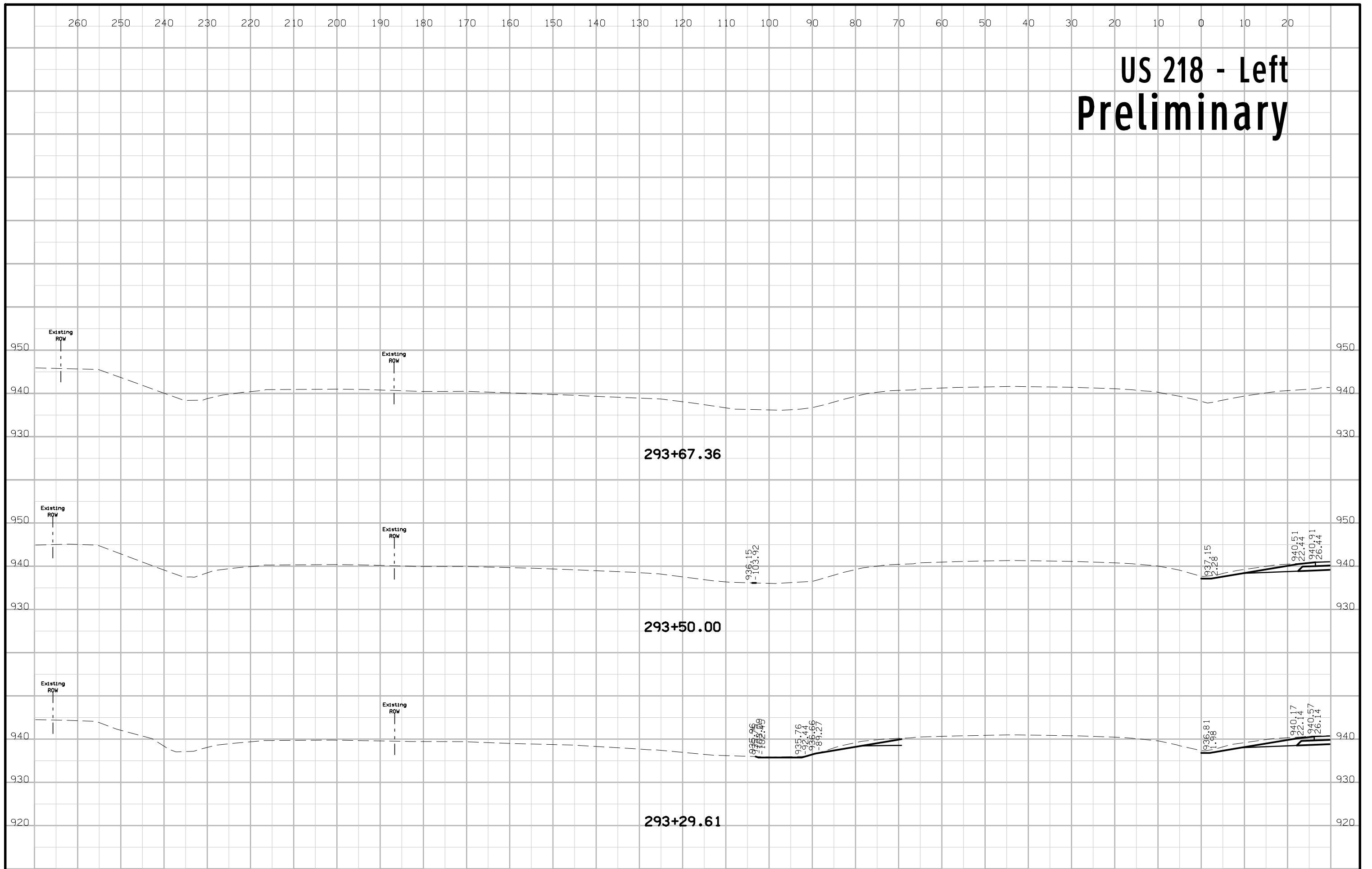


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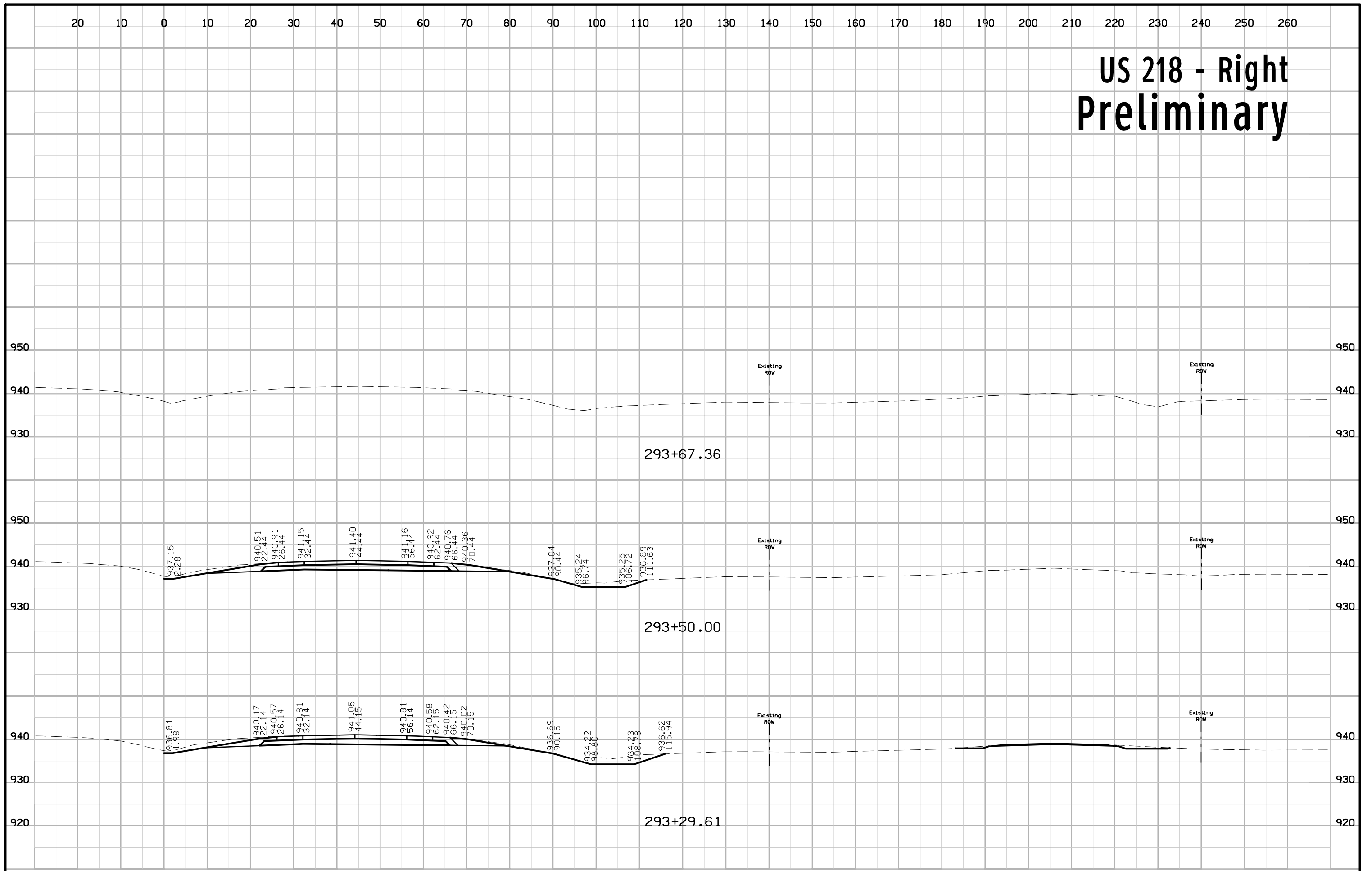




# US 218 - Left Preliminary

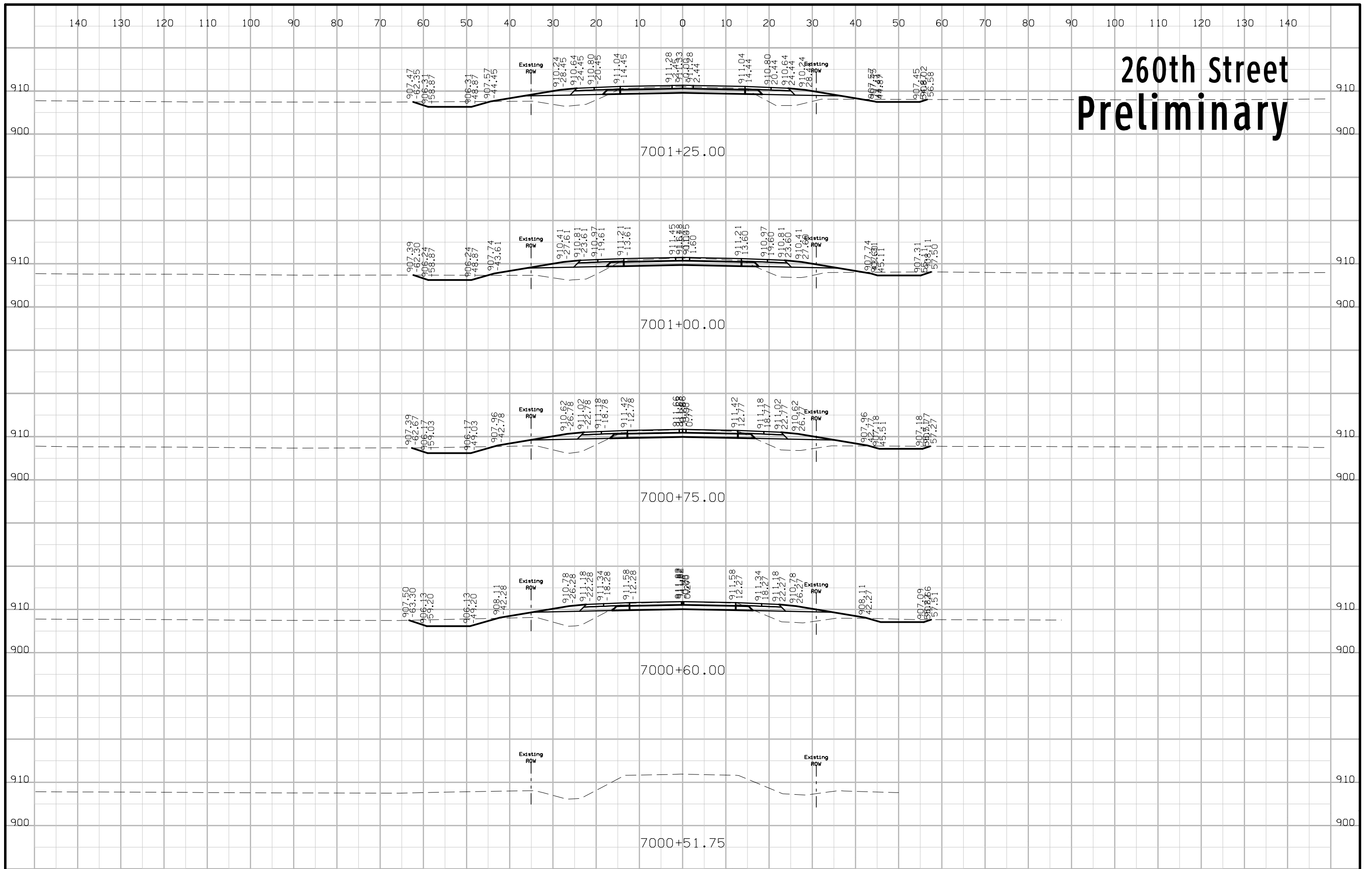


# US 218 - Right Preliminary





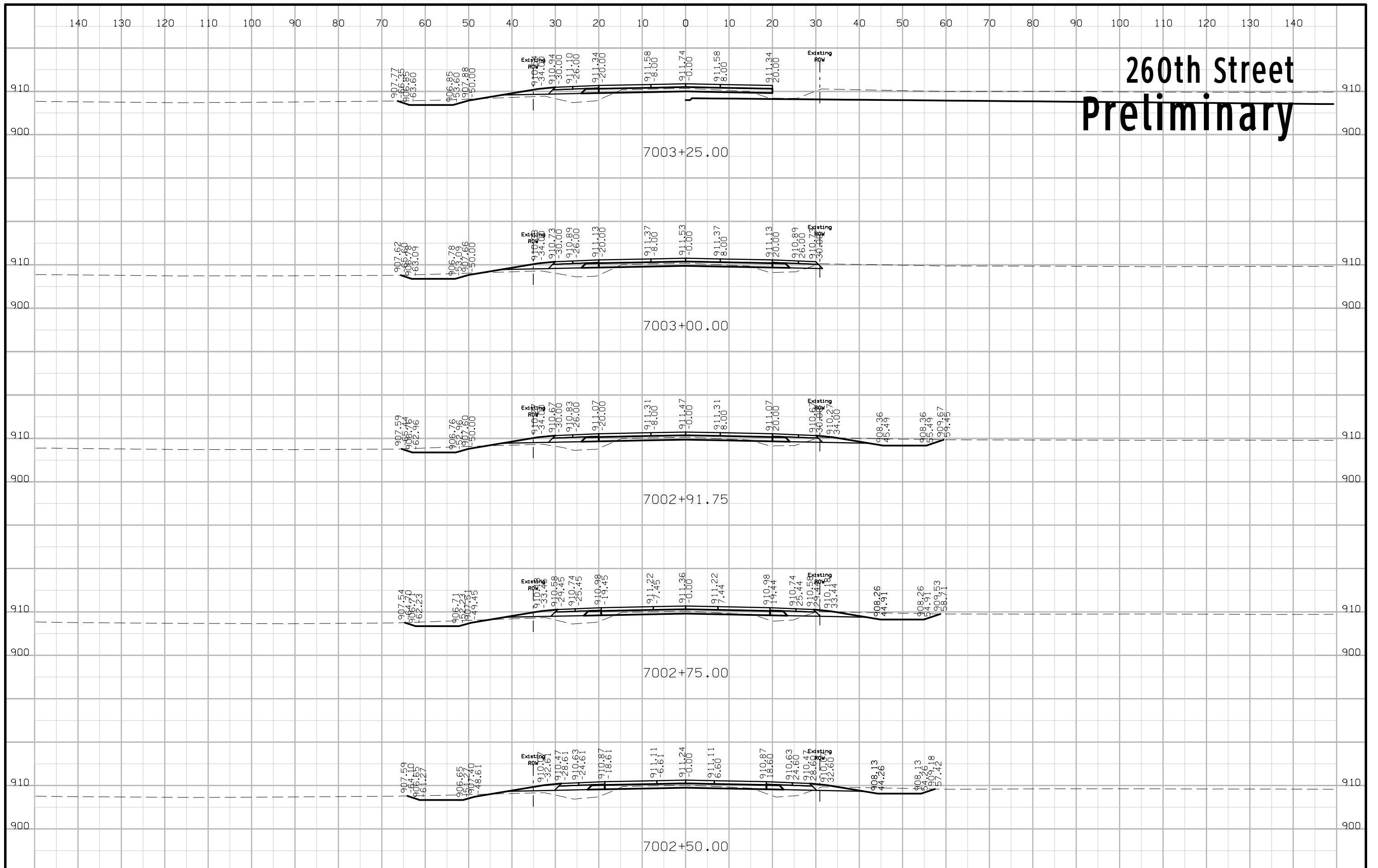
# 260th Street Preliminary



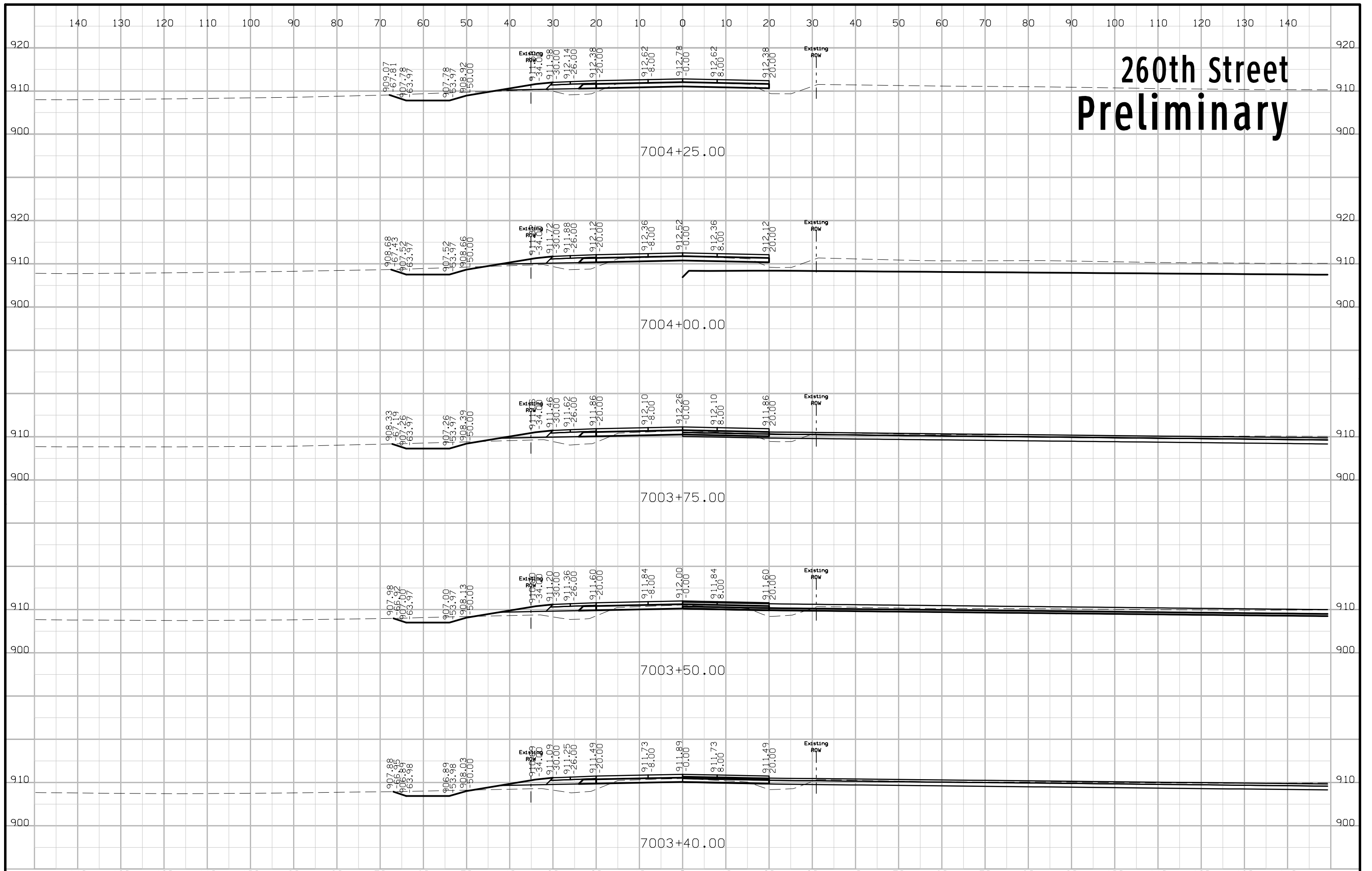




# 260th Street Preliminary

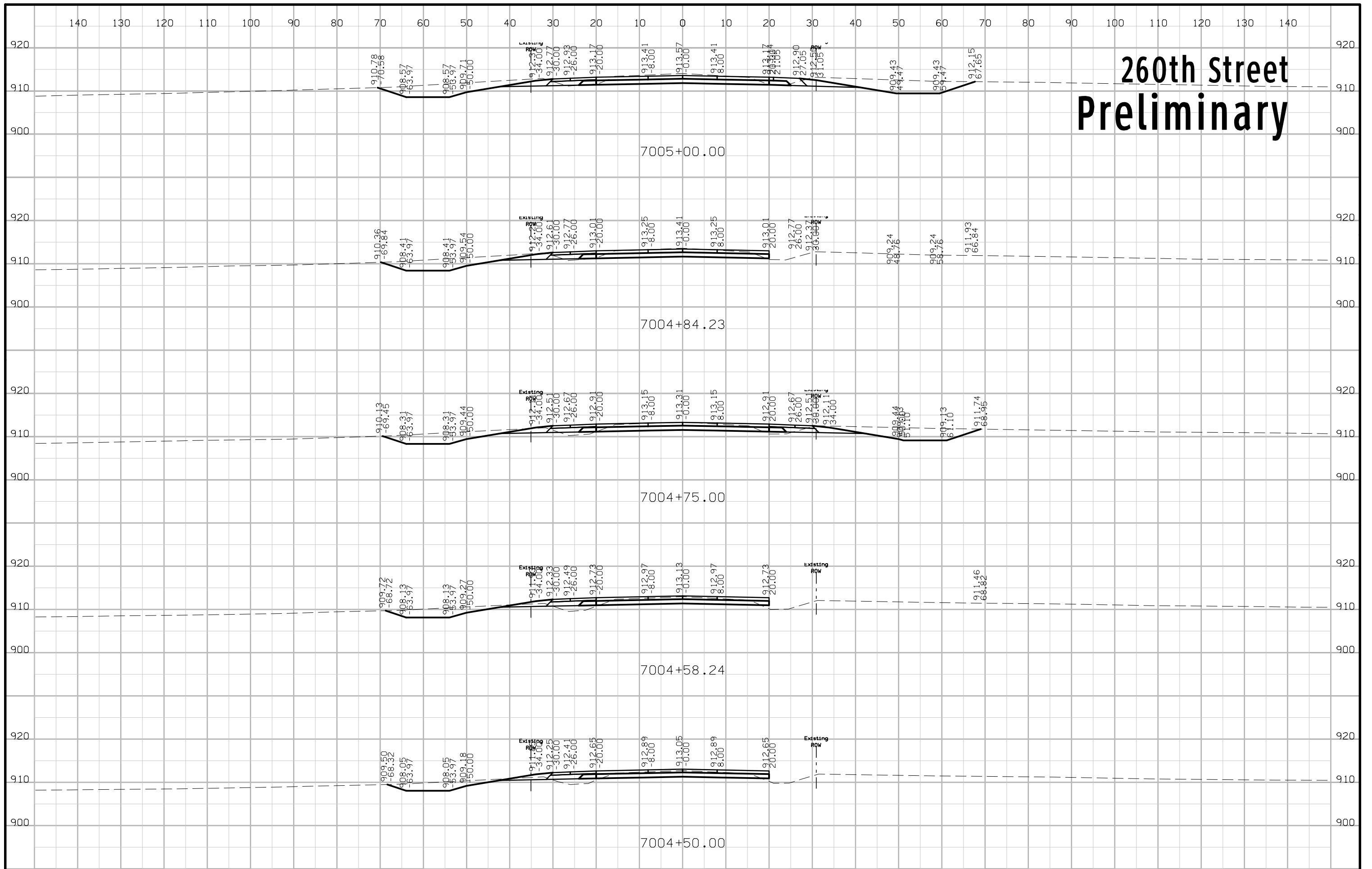


# 260th Street Preliminary

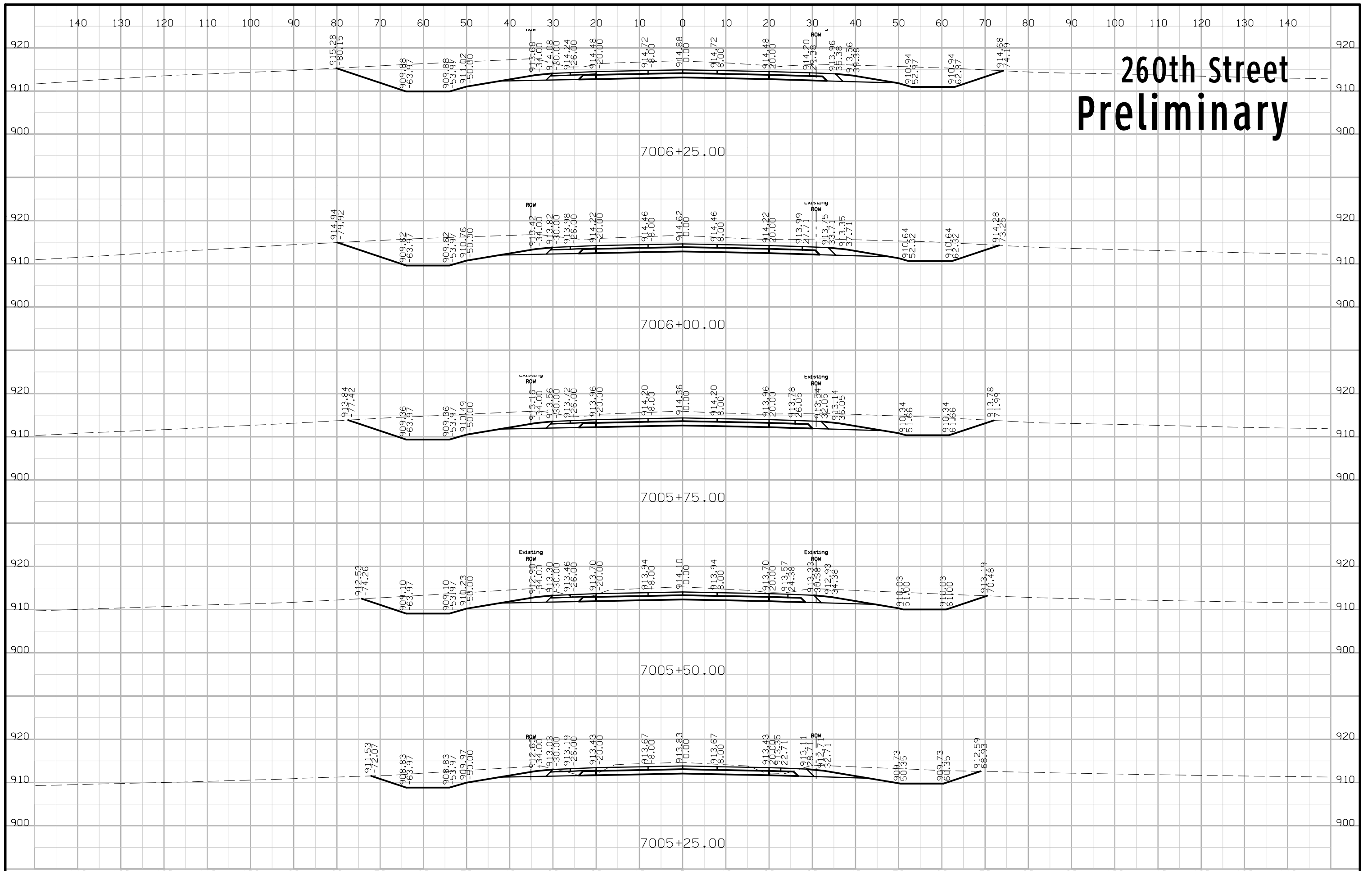




# 260th Street Preliminary

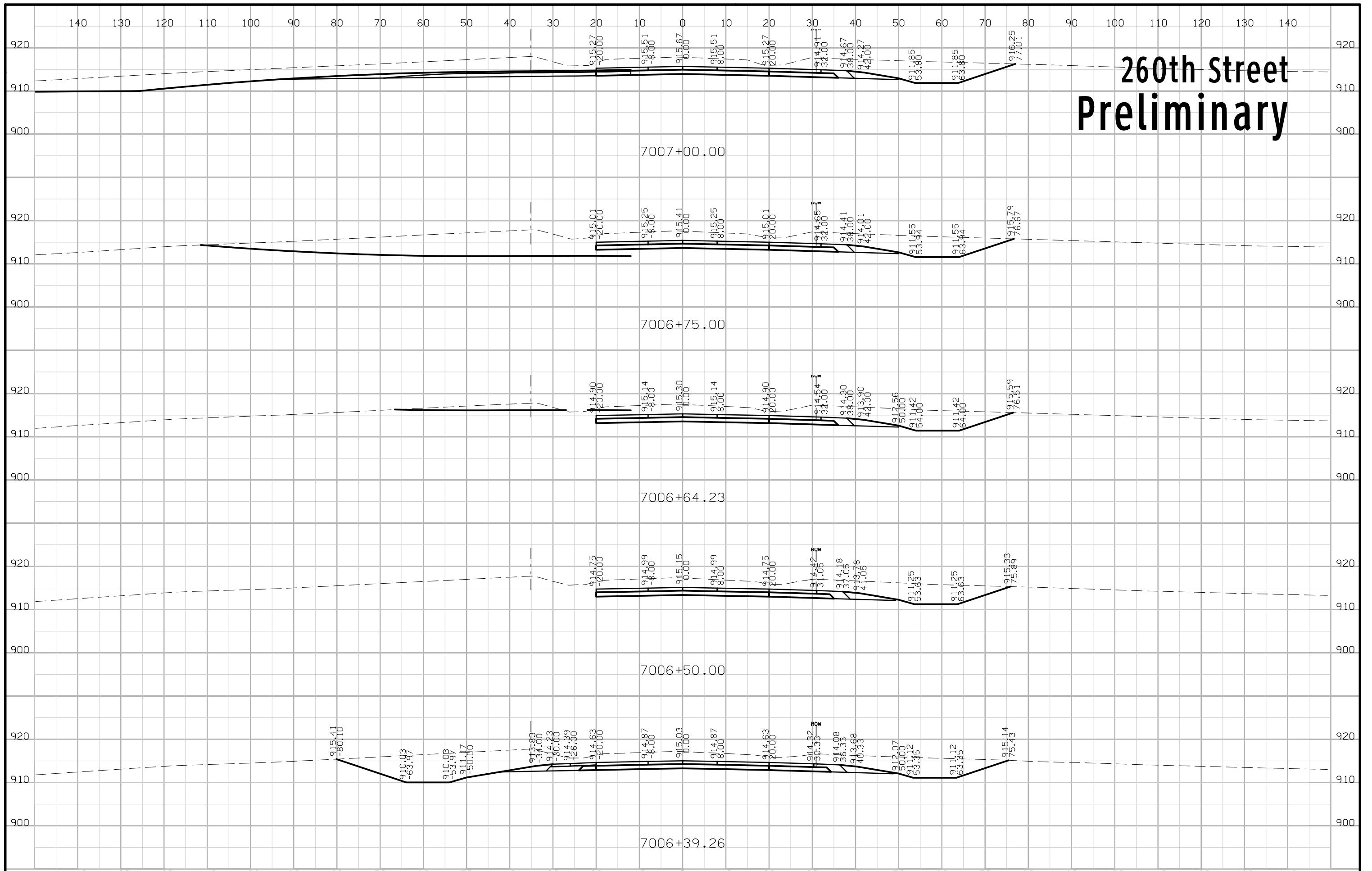


# 260th Street Preliminary

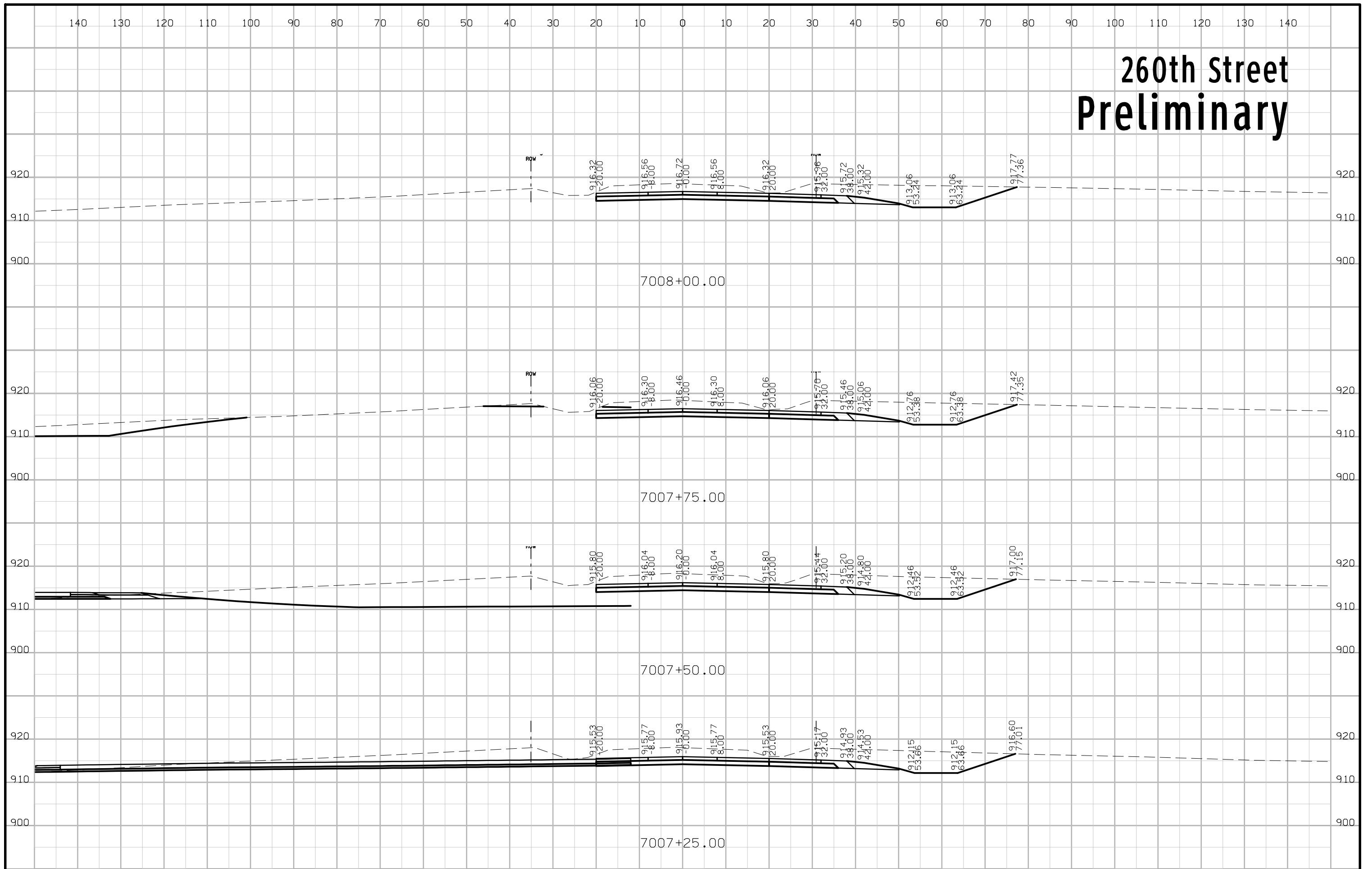




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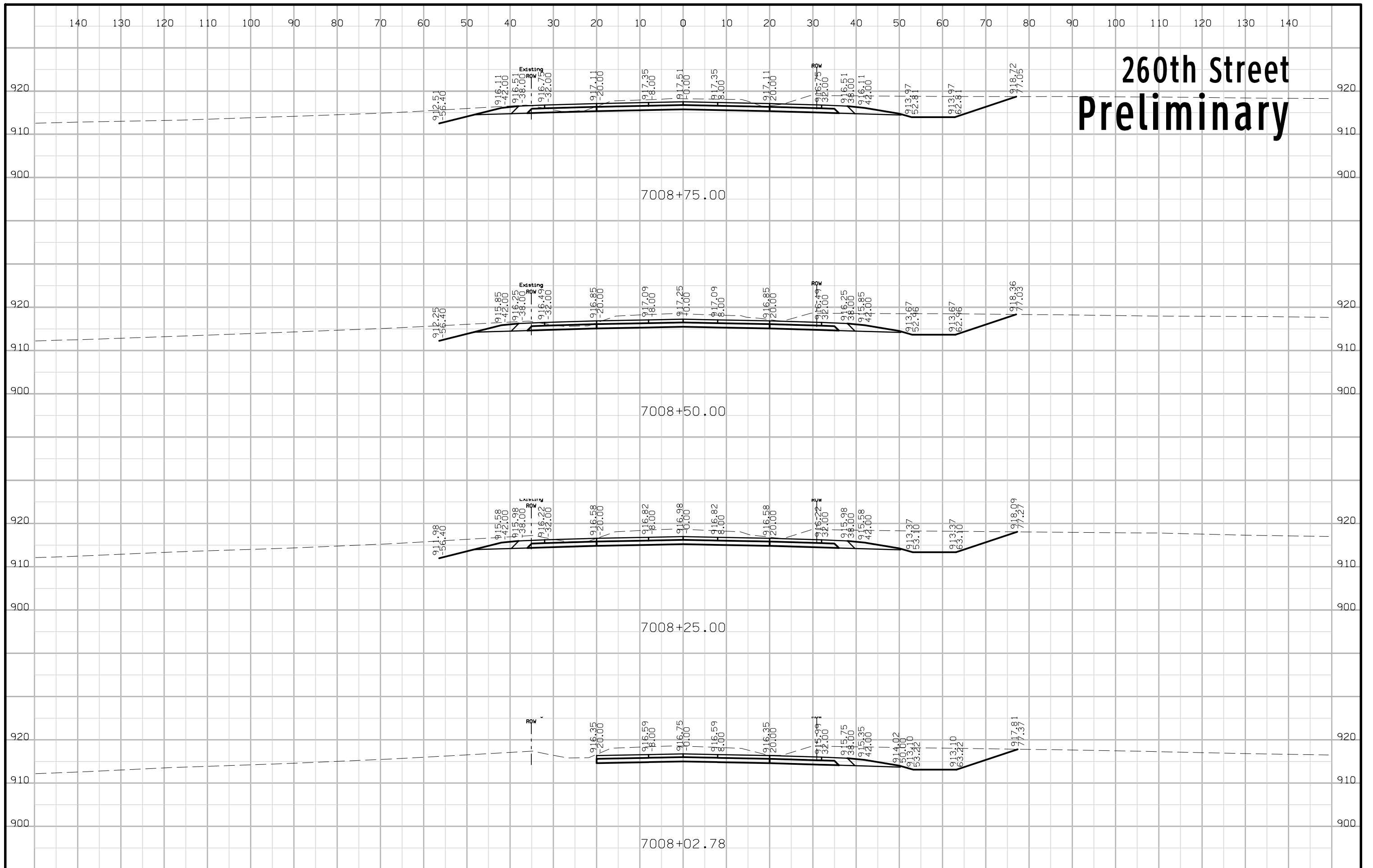


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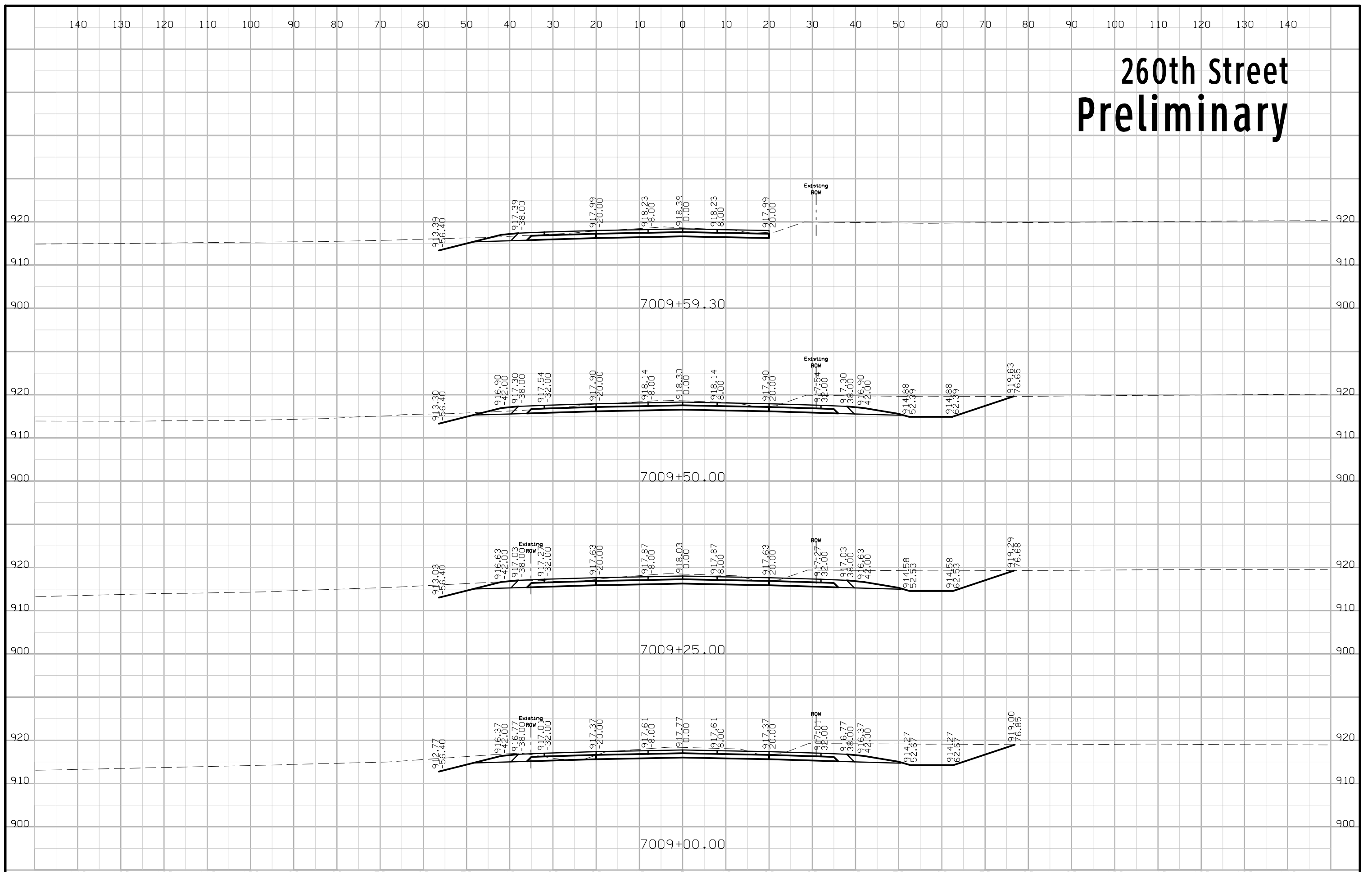




# 260th Street Preliminary

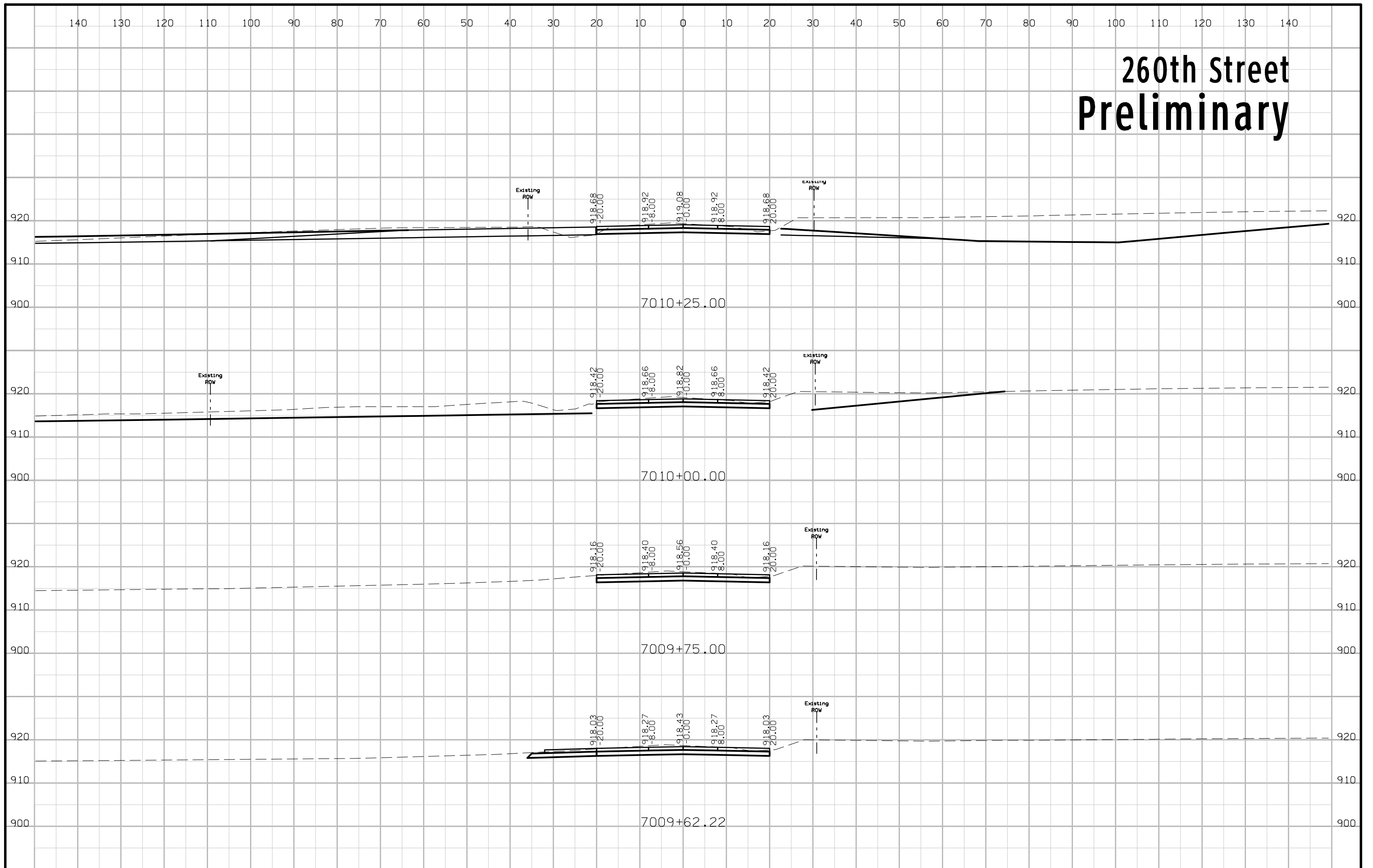


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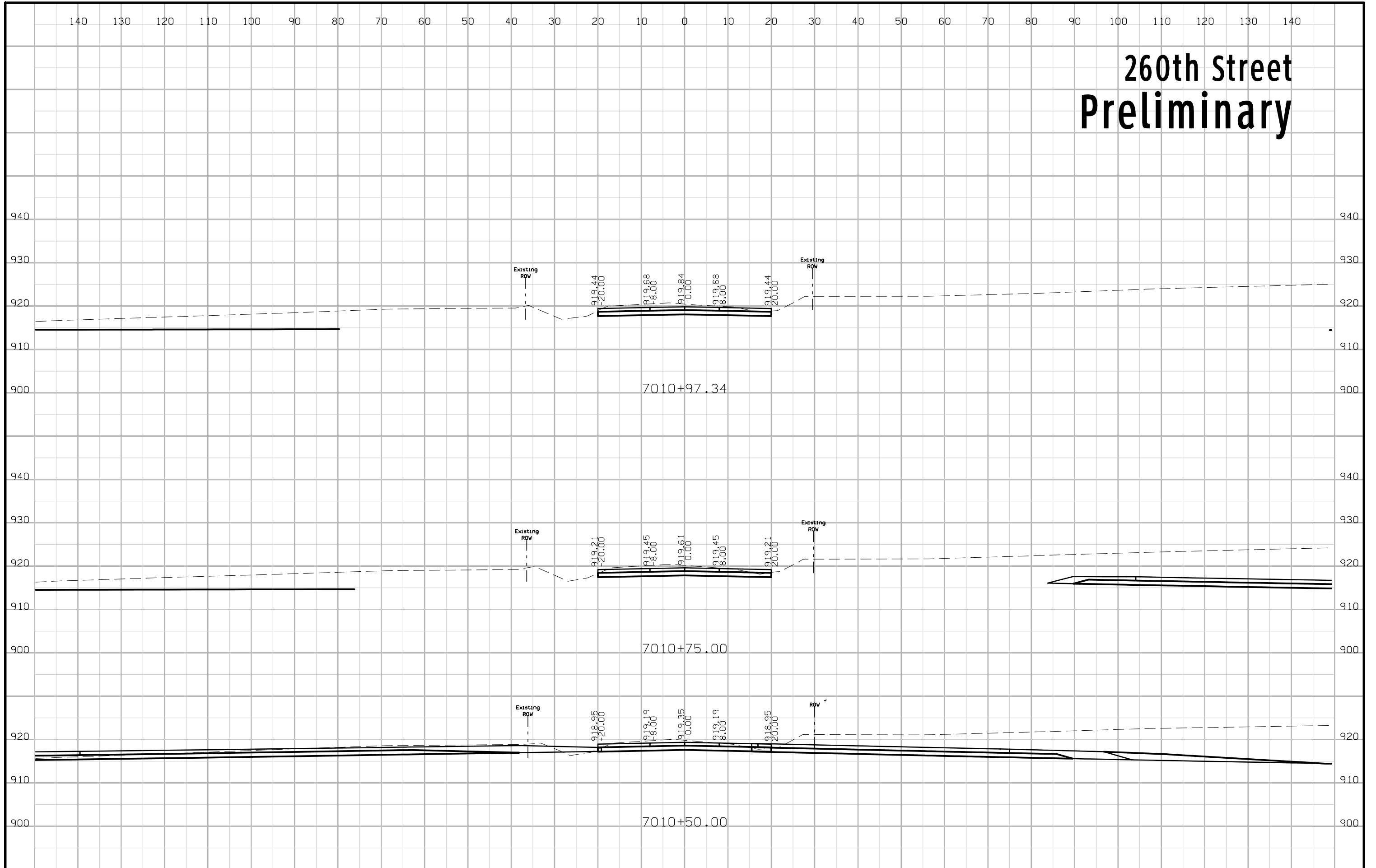




# 260th Street Preliminary

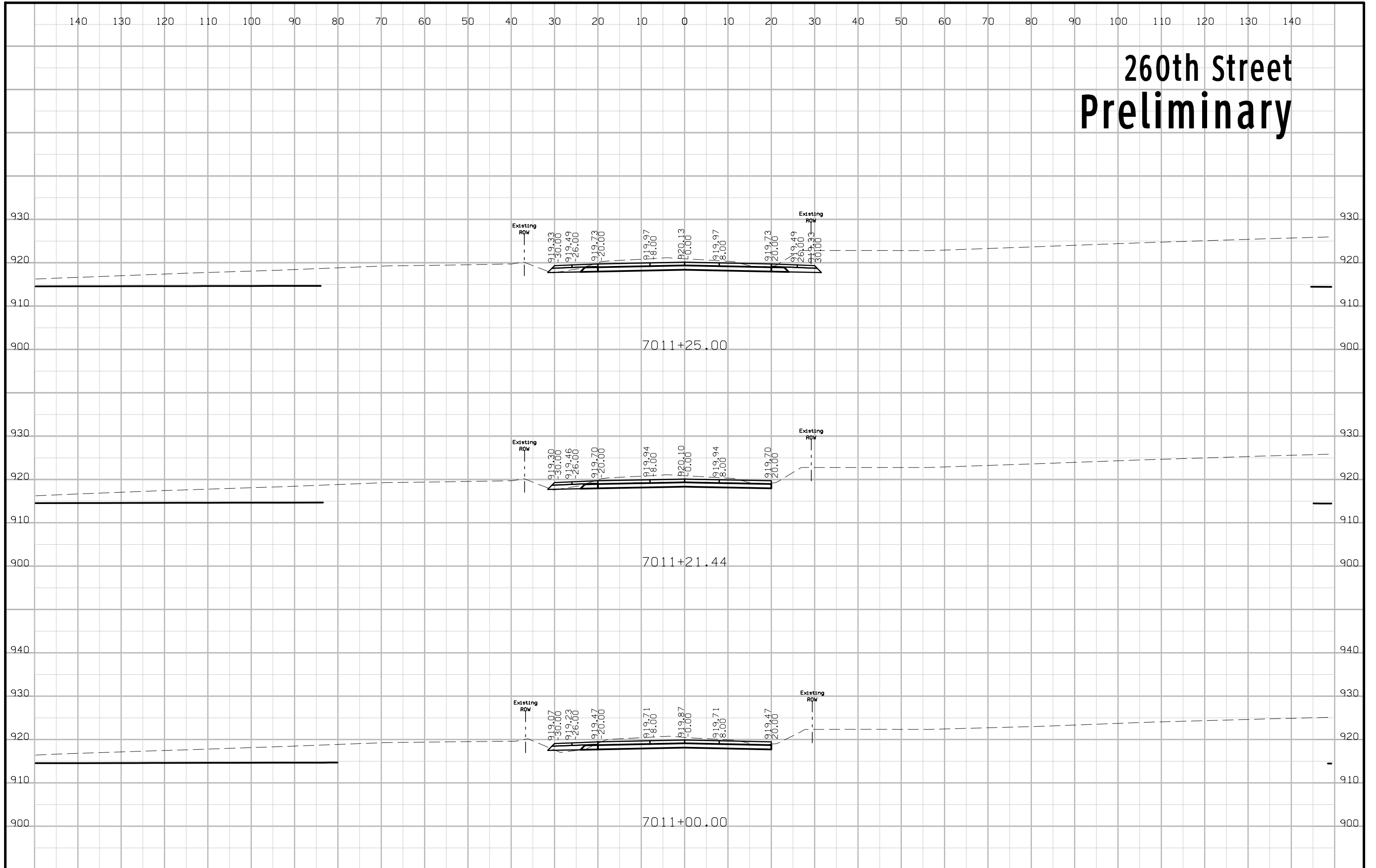


# 260th Street Preliminary

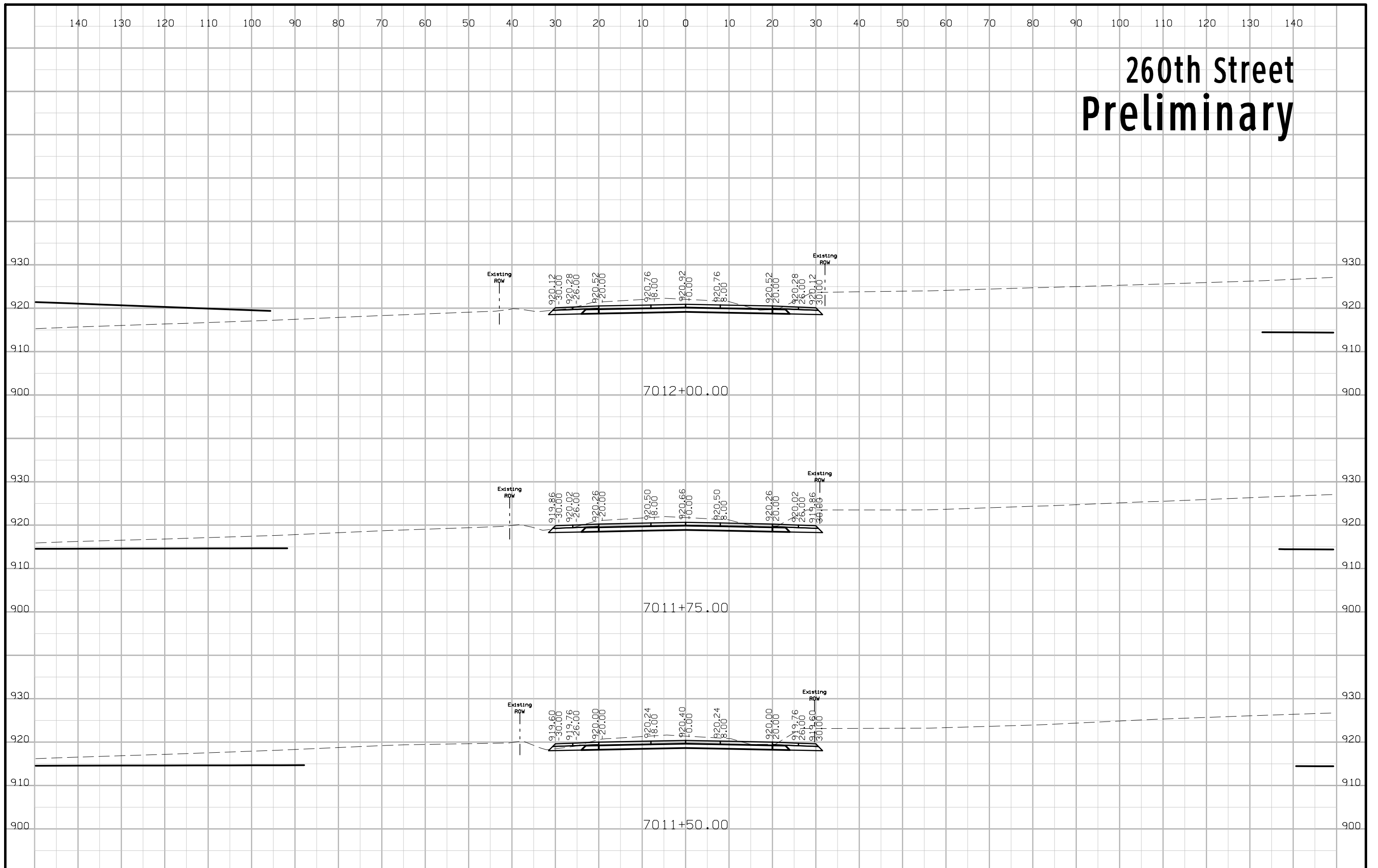




# 260th Street Preliminary

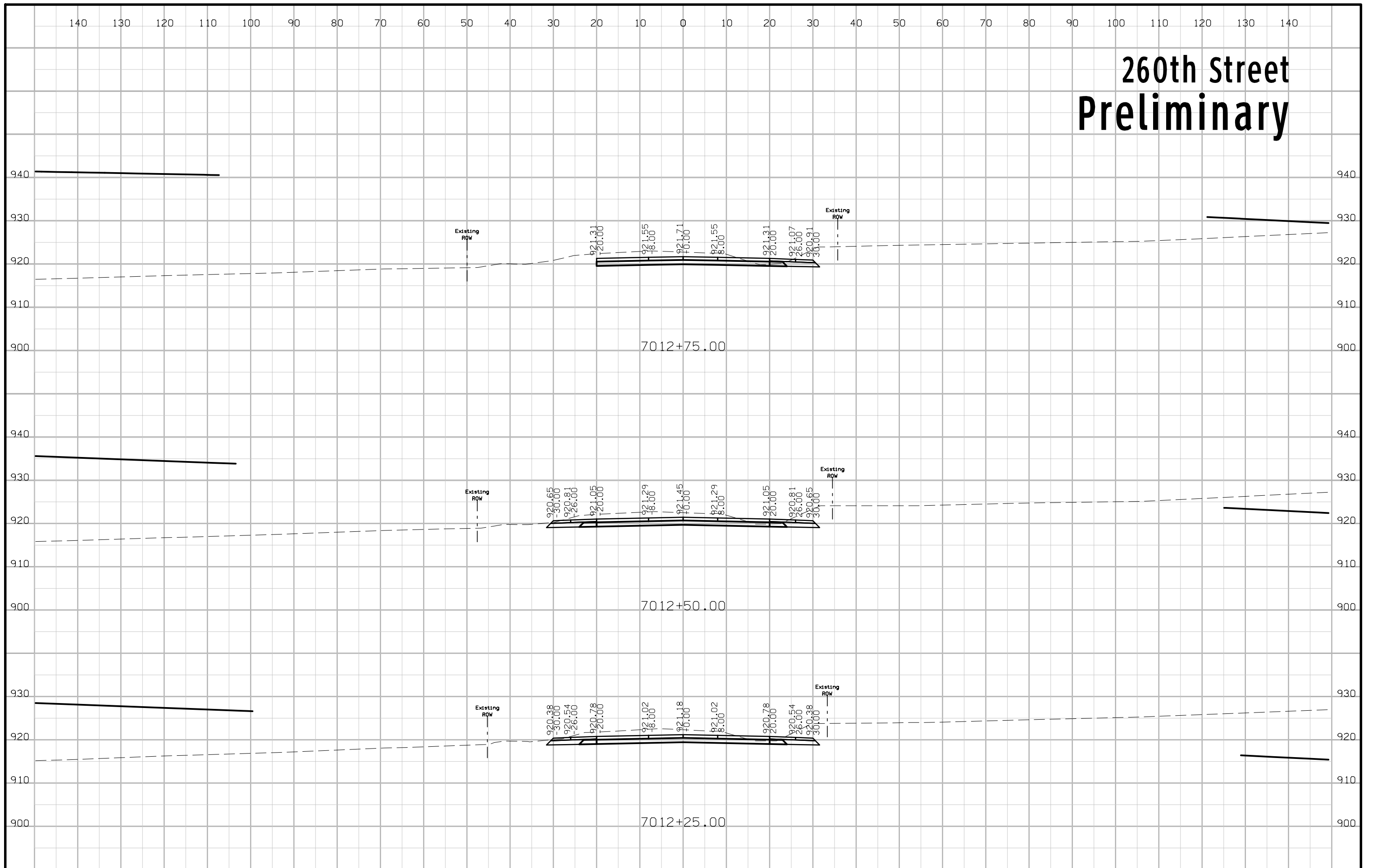


# 260th Street Preliminary

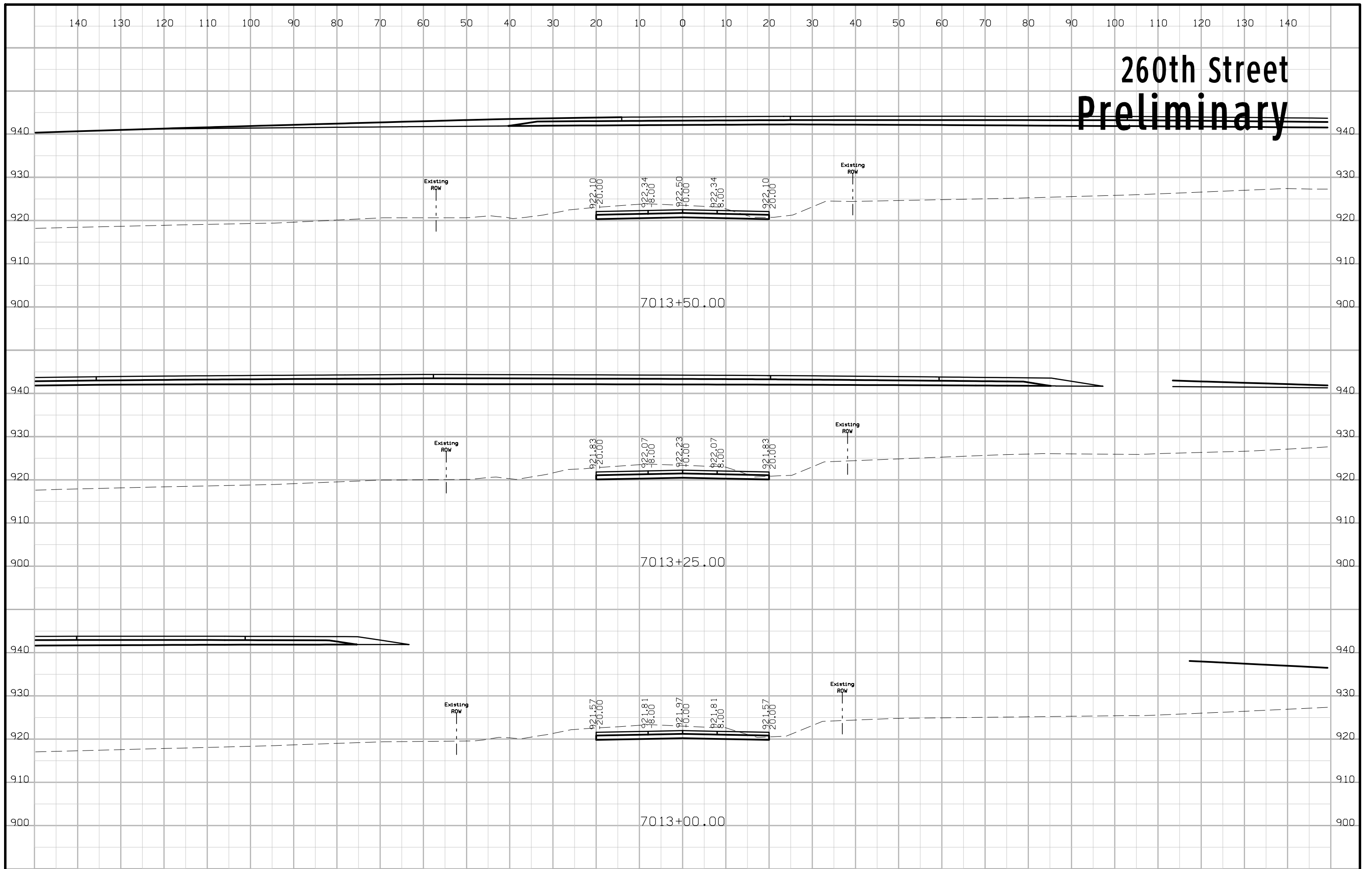




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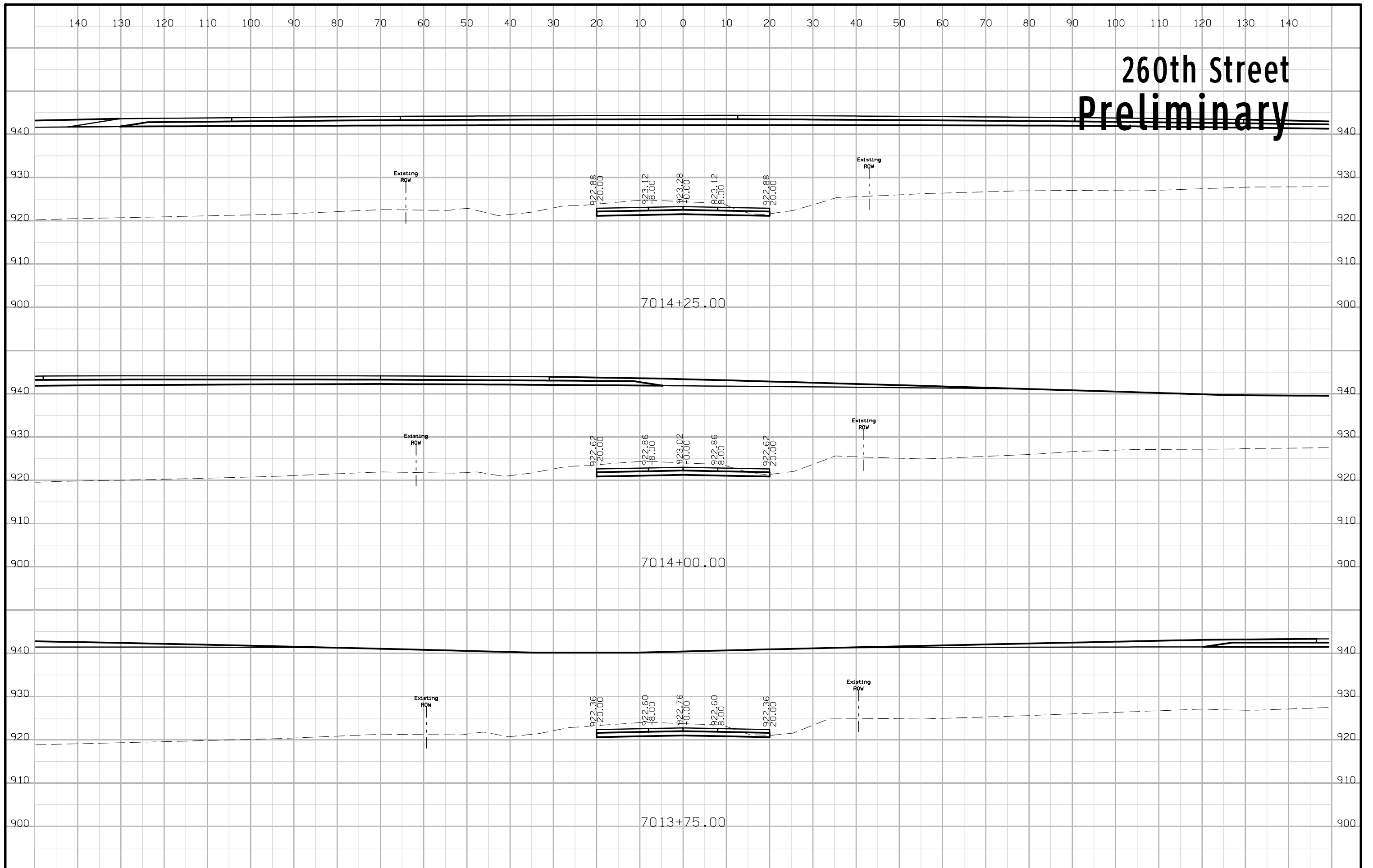


# 260th Street Preliminary

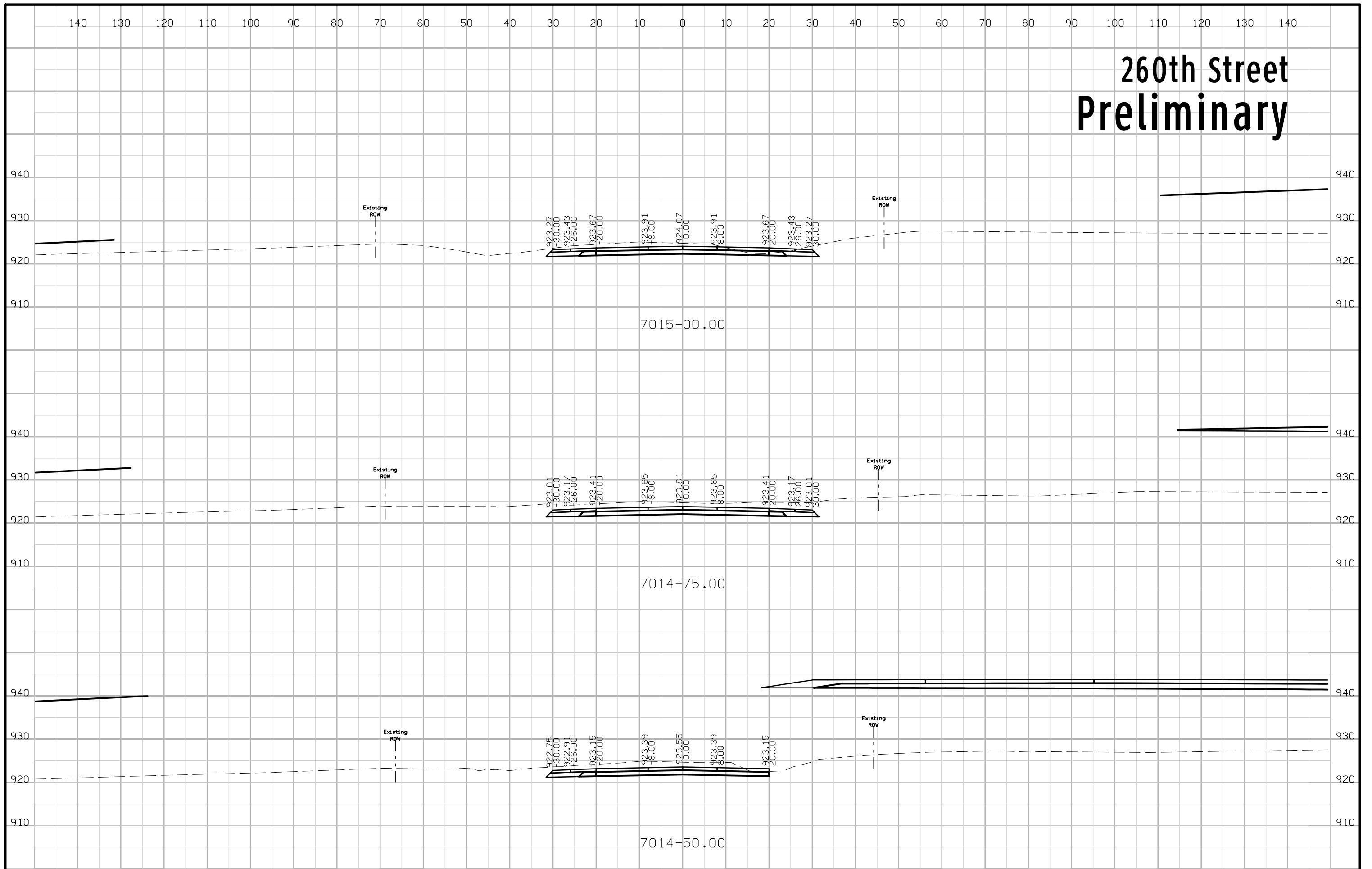




# 260th Street Preliminary

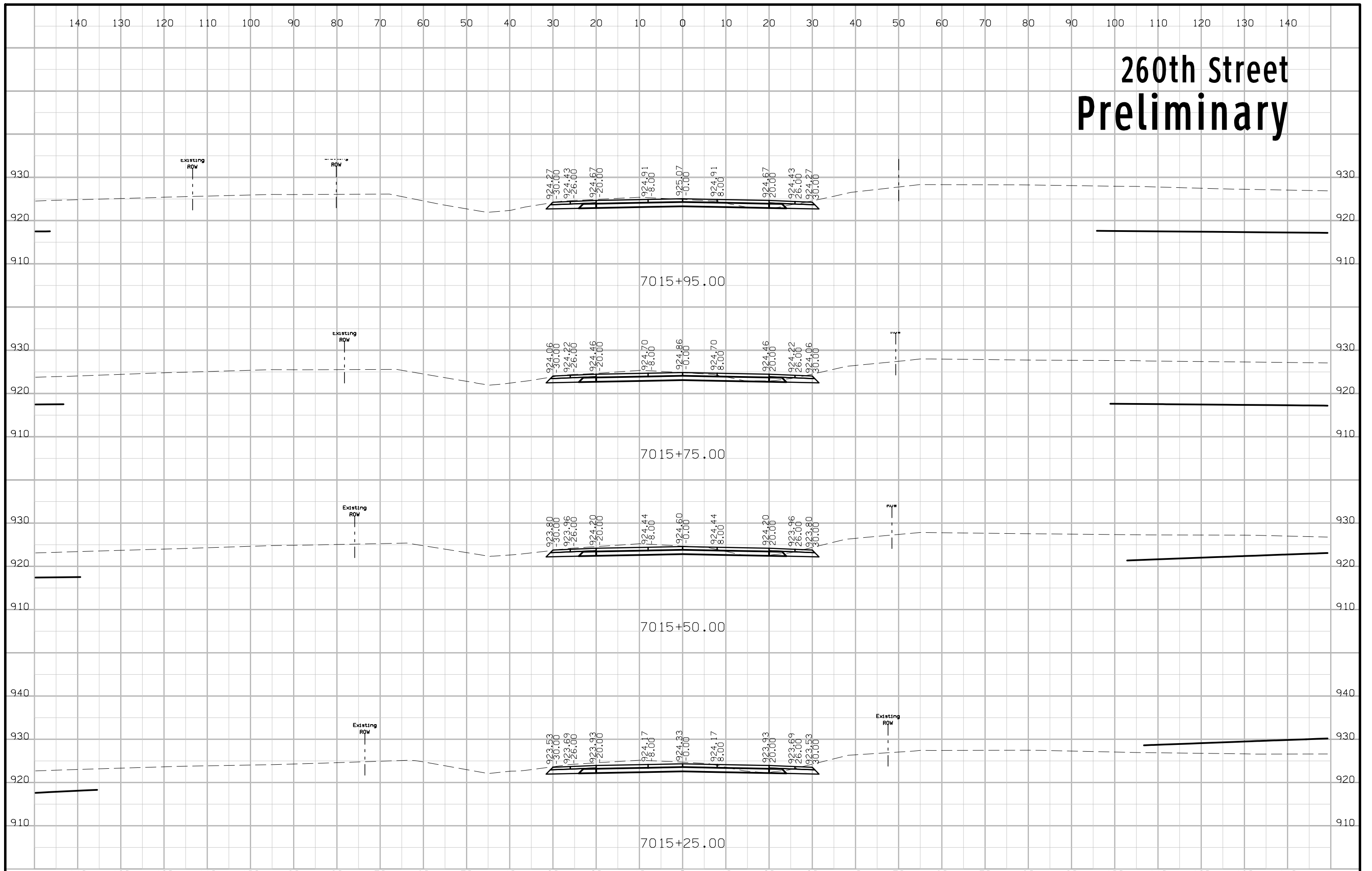


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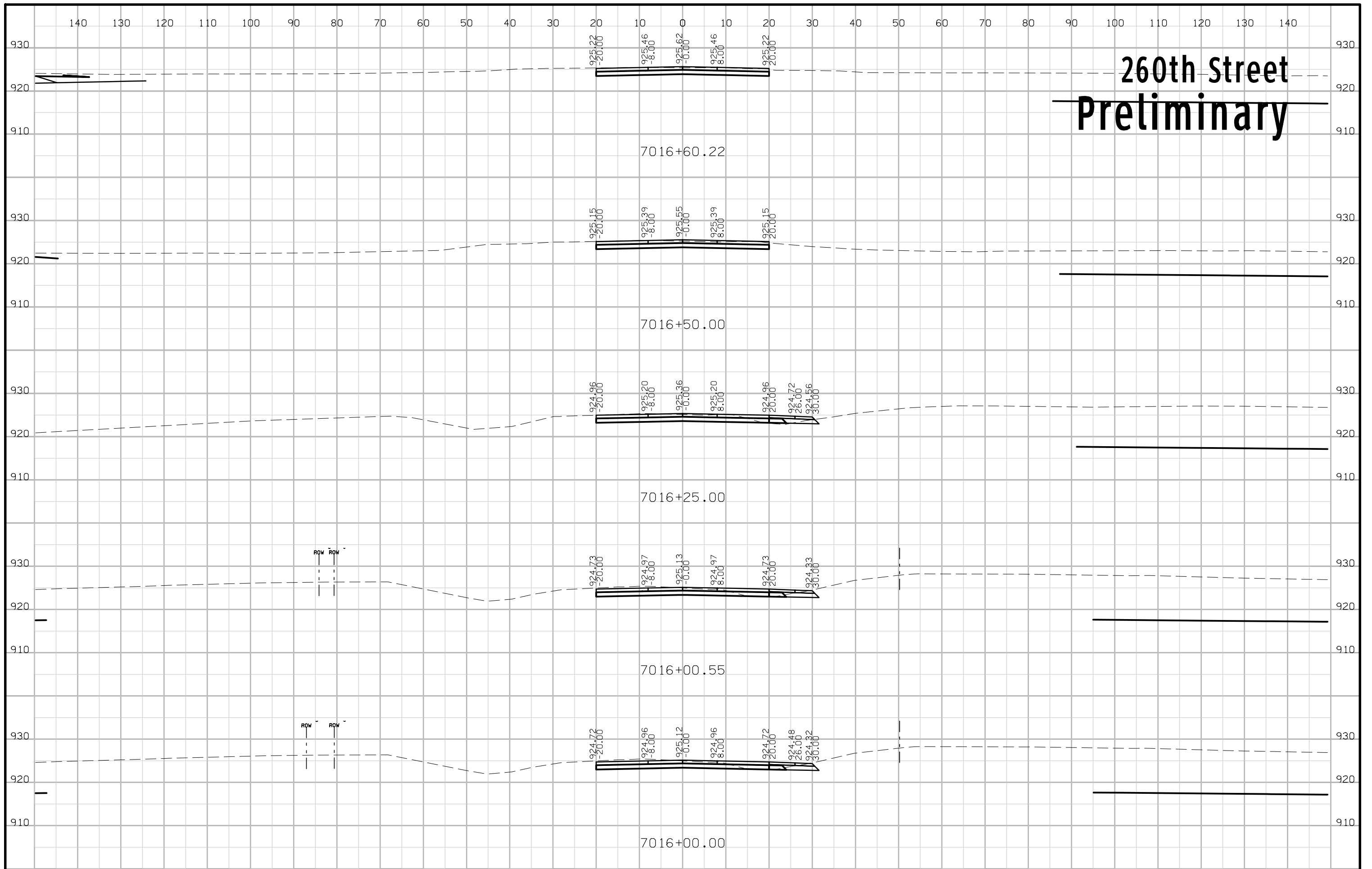




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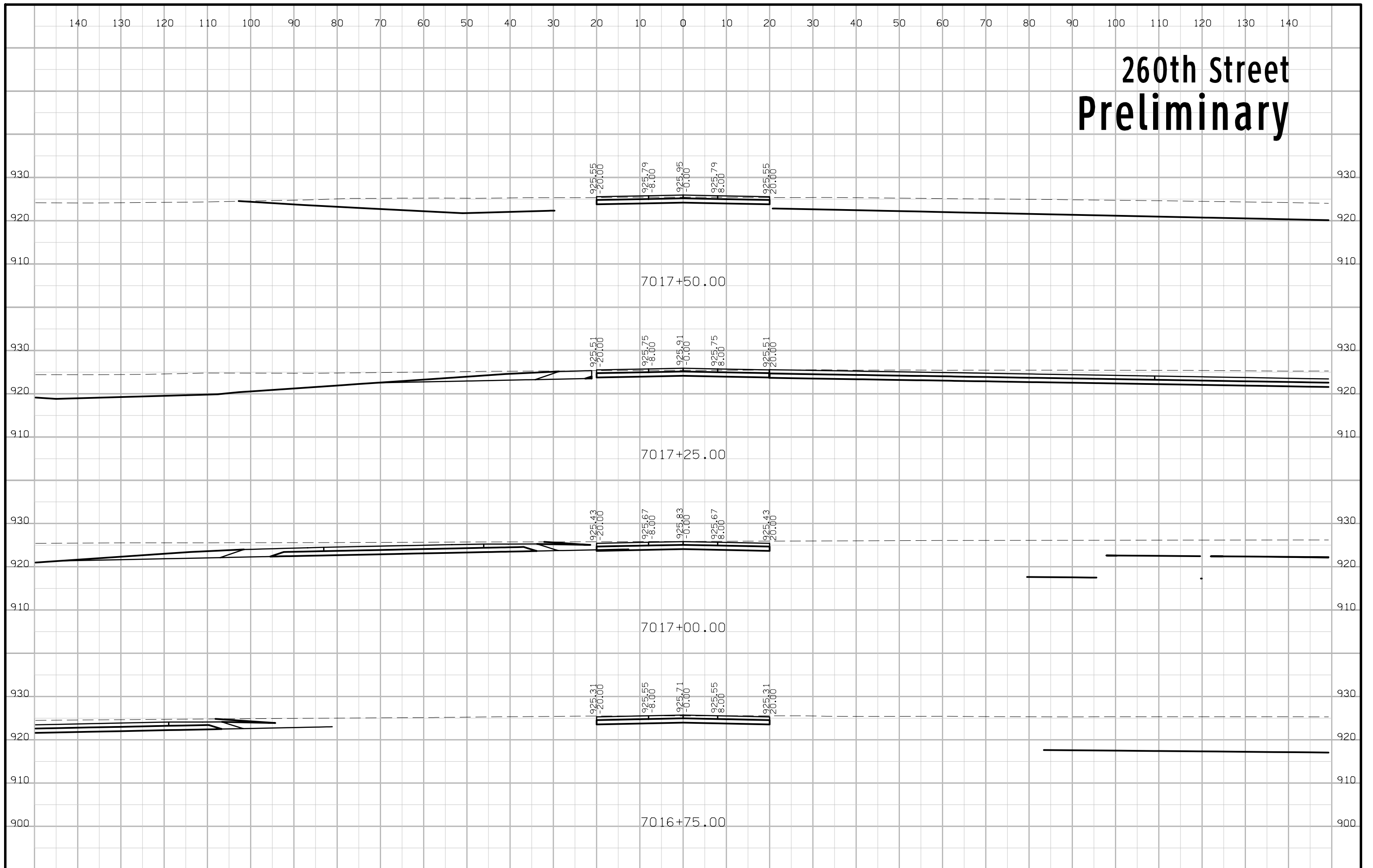


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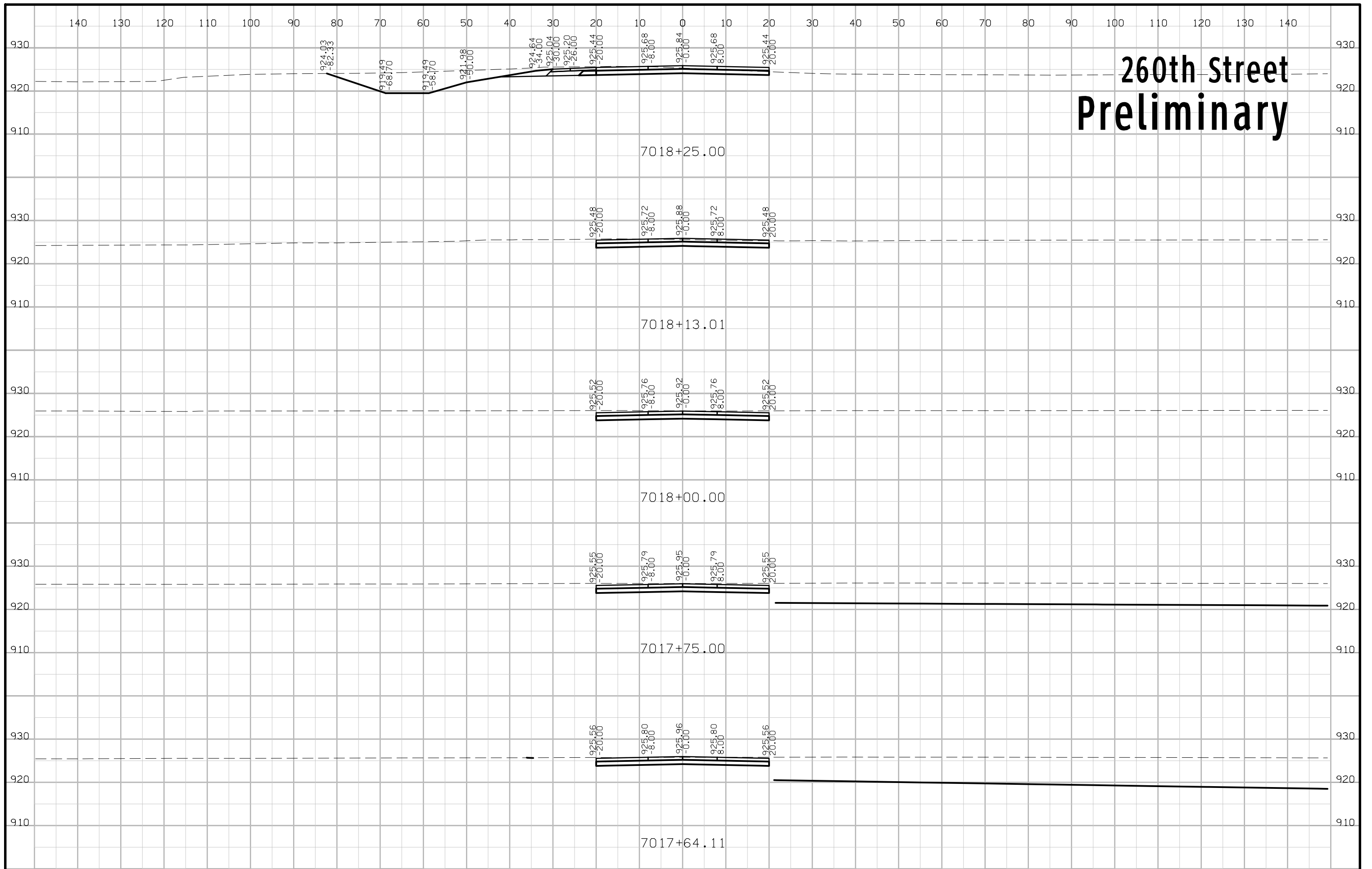




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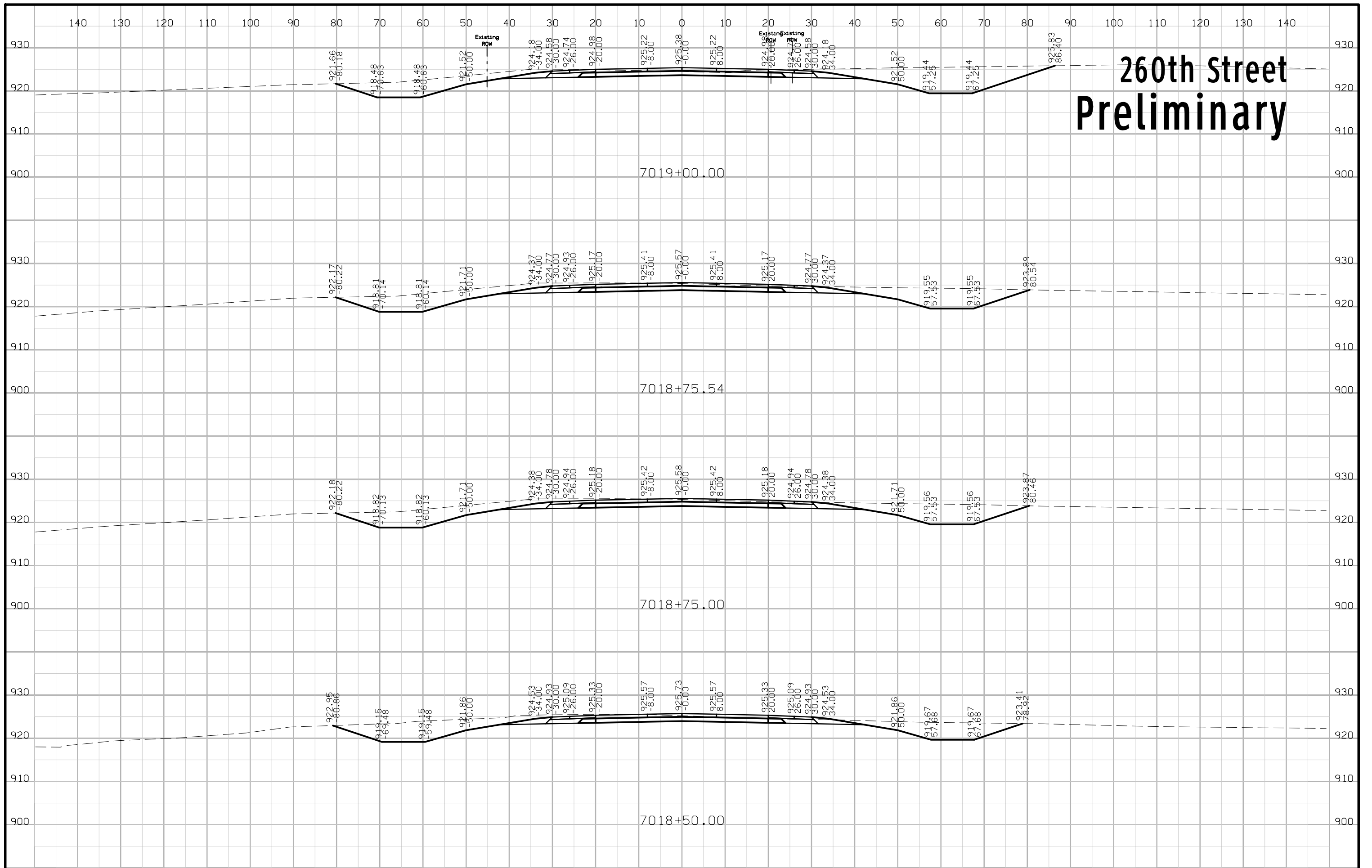


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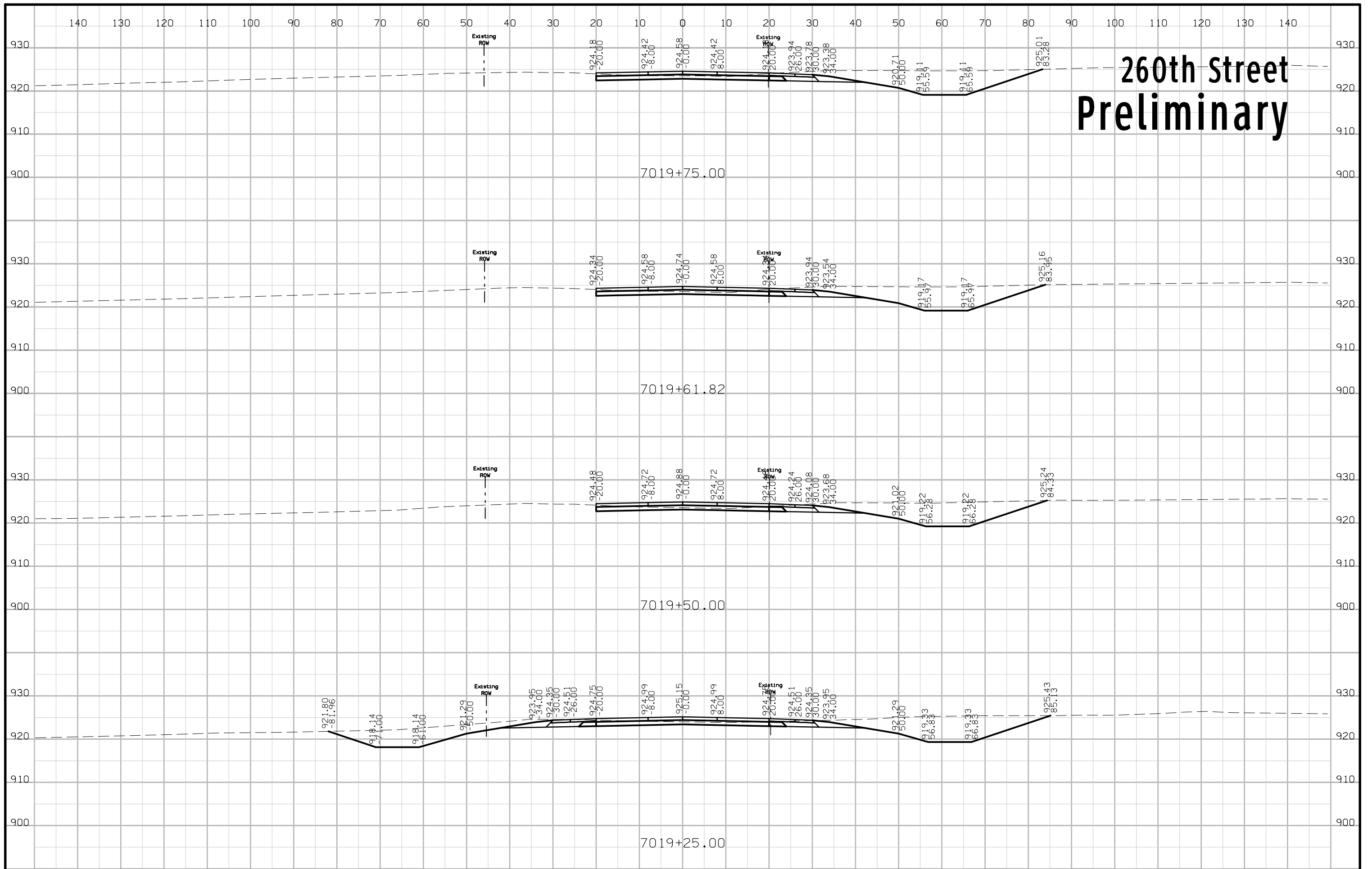




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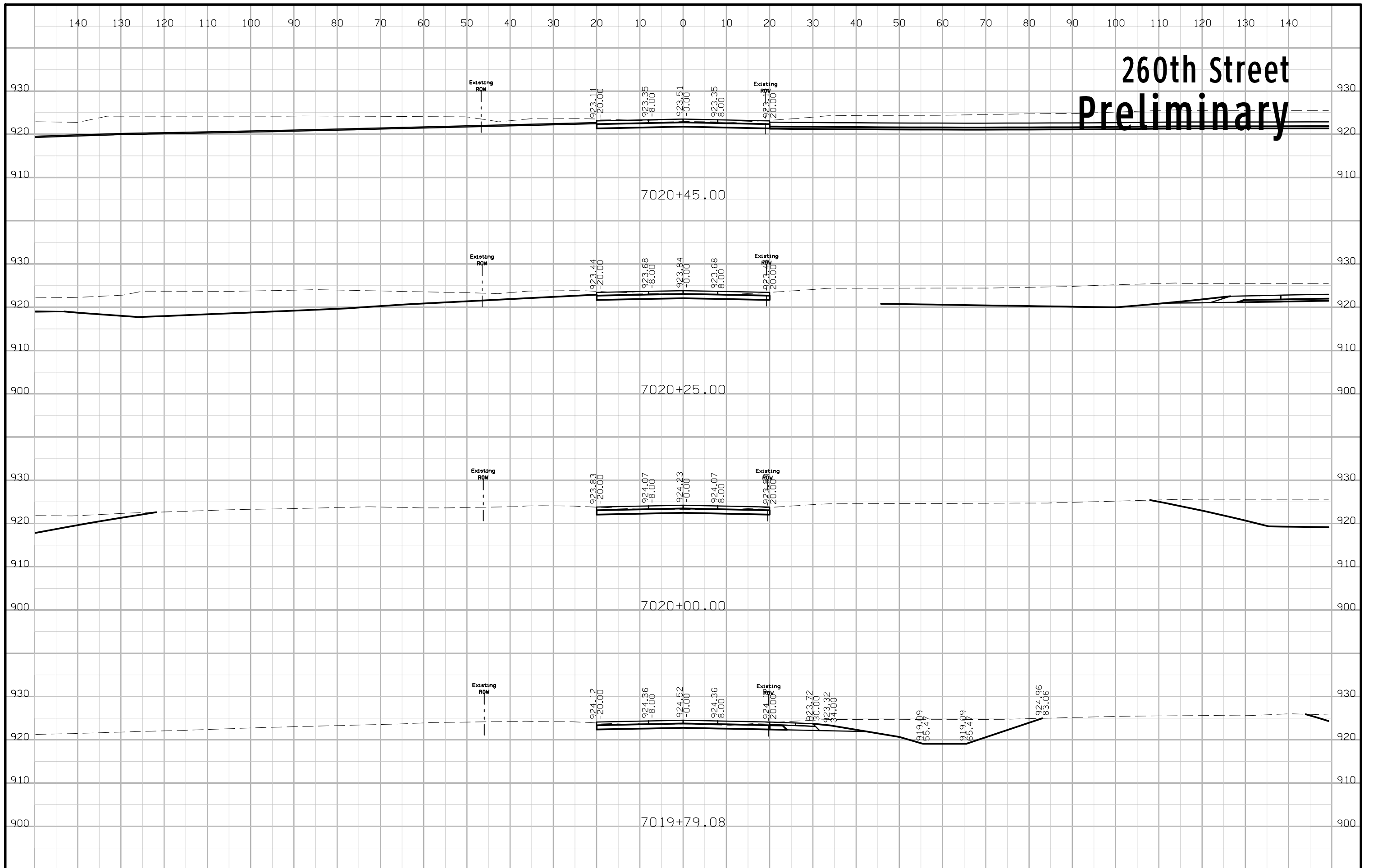


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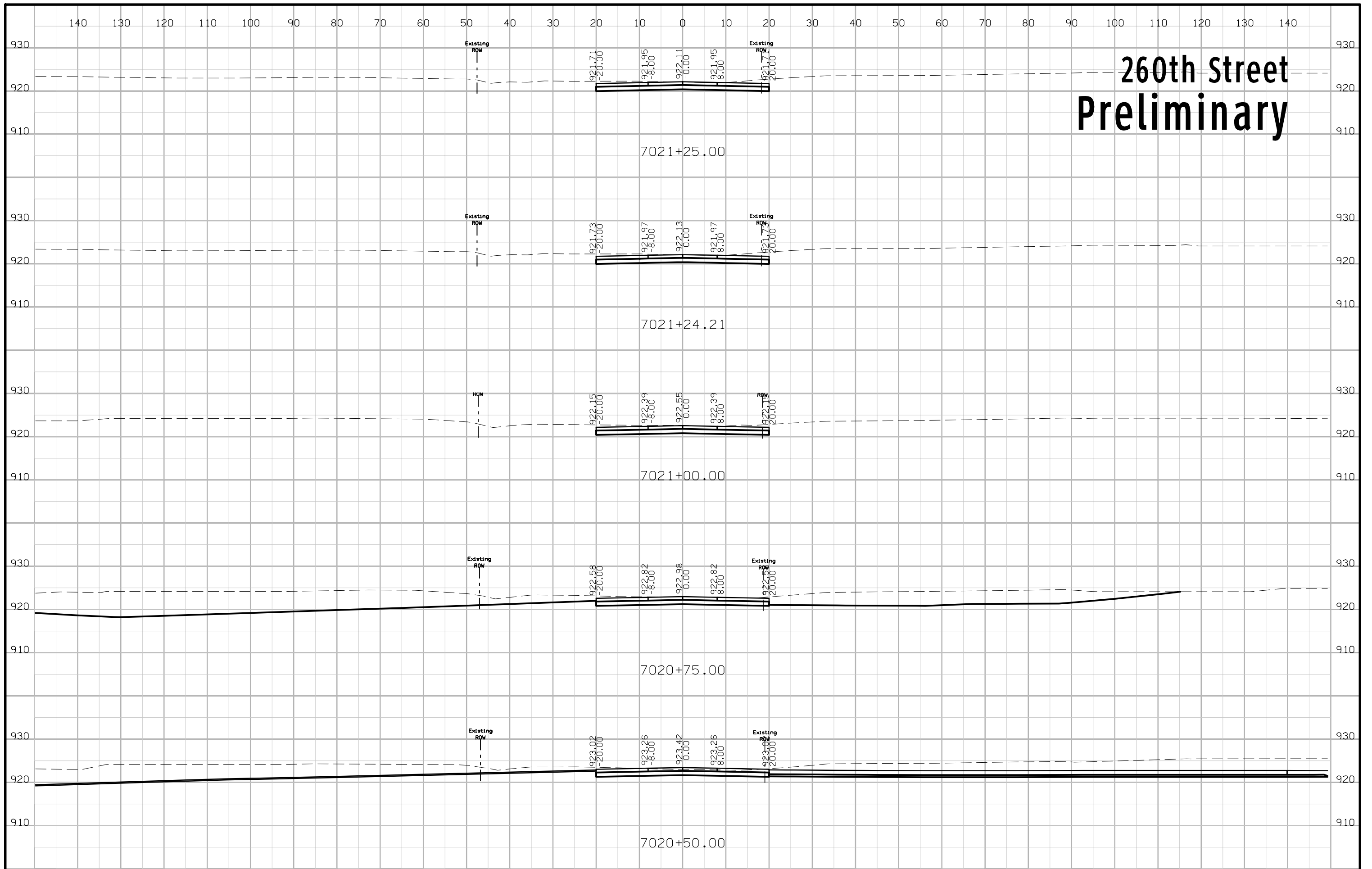




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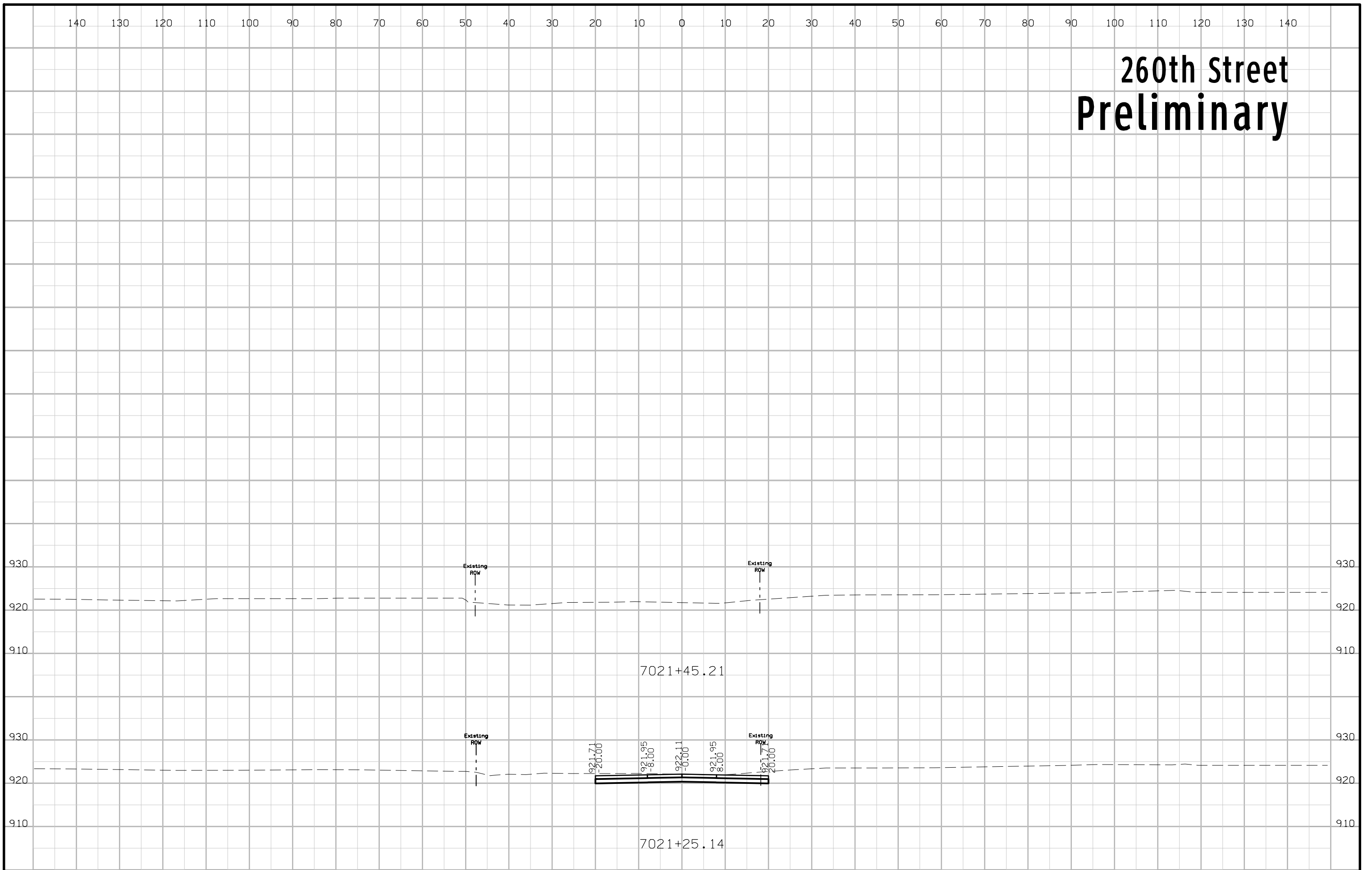


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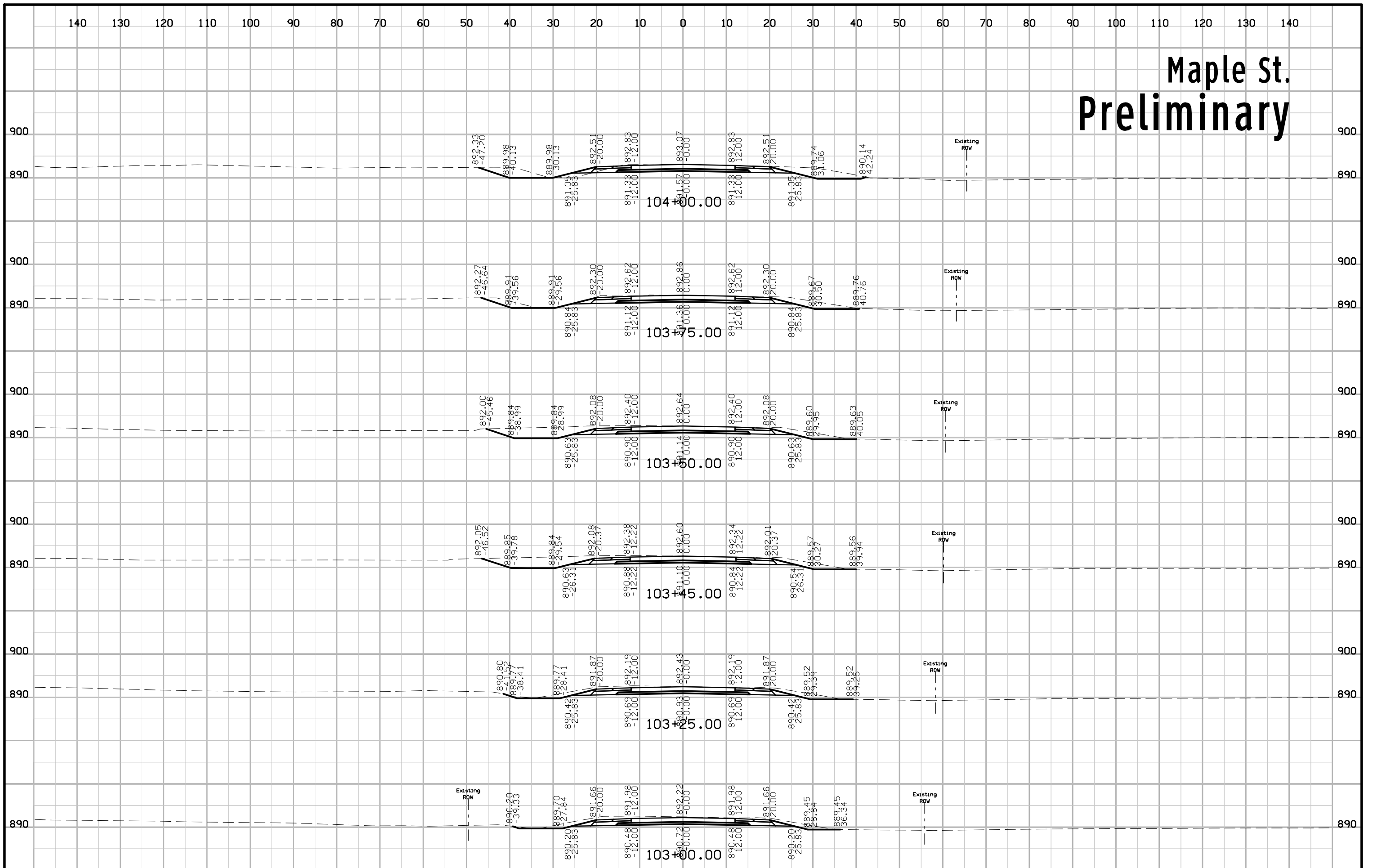




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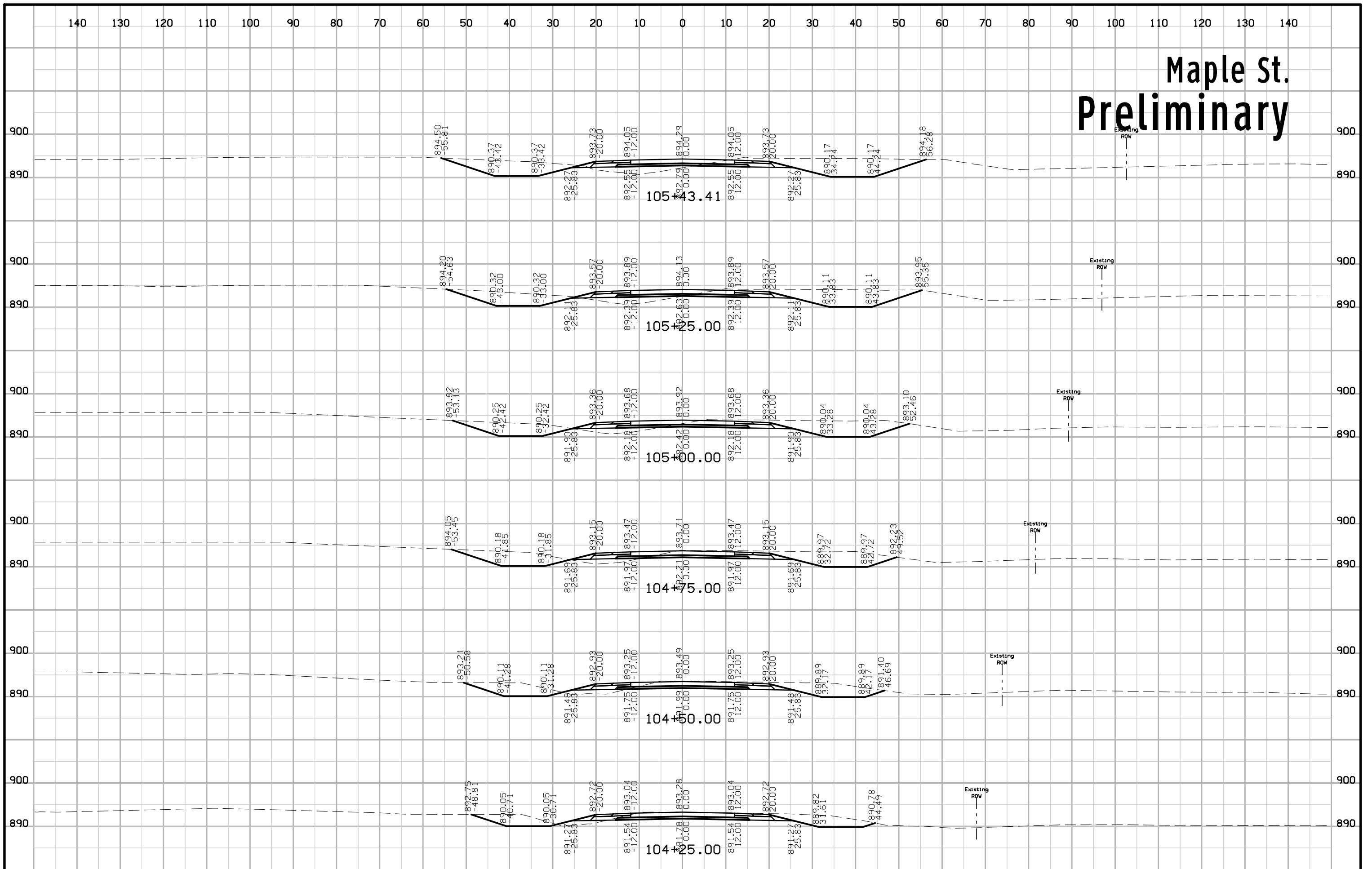


# Maple St. Preliminary

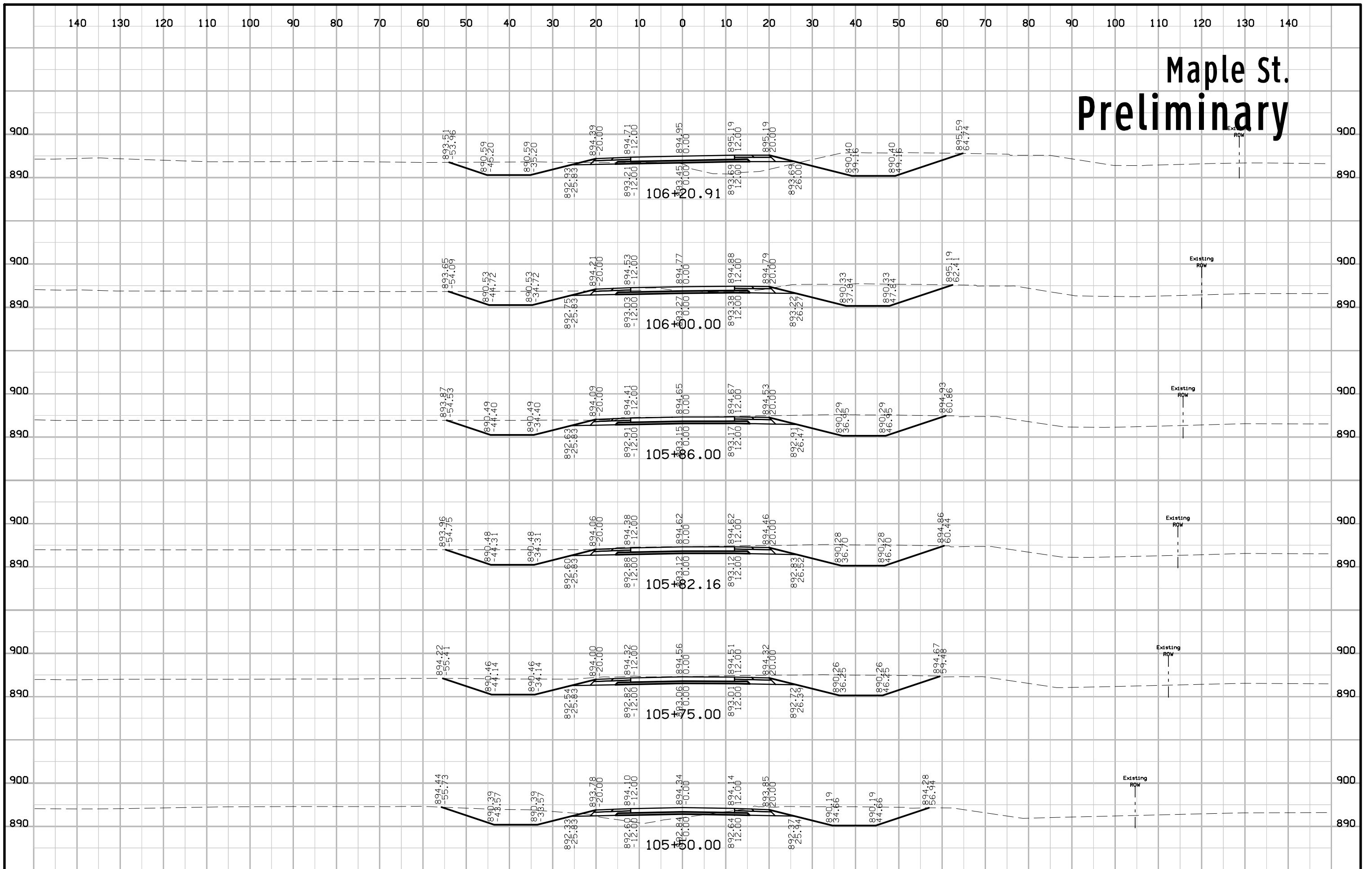




# Maple St. Preliminary

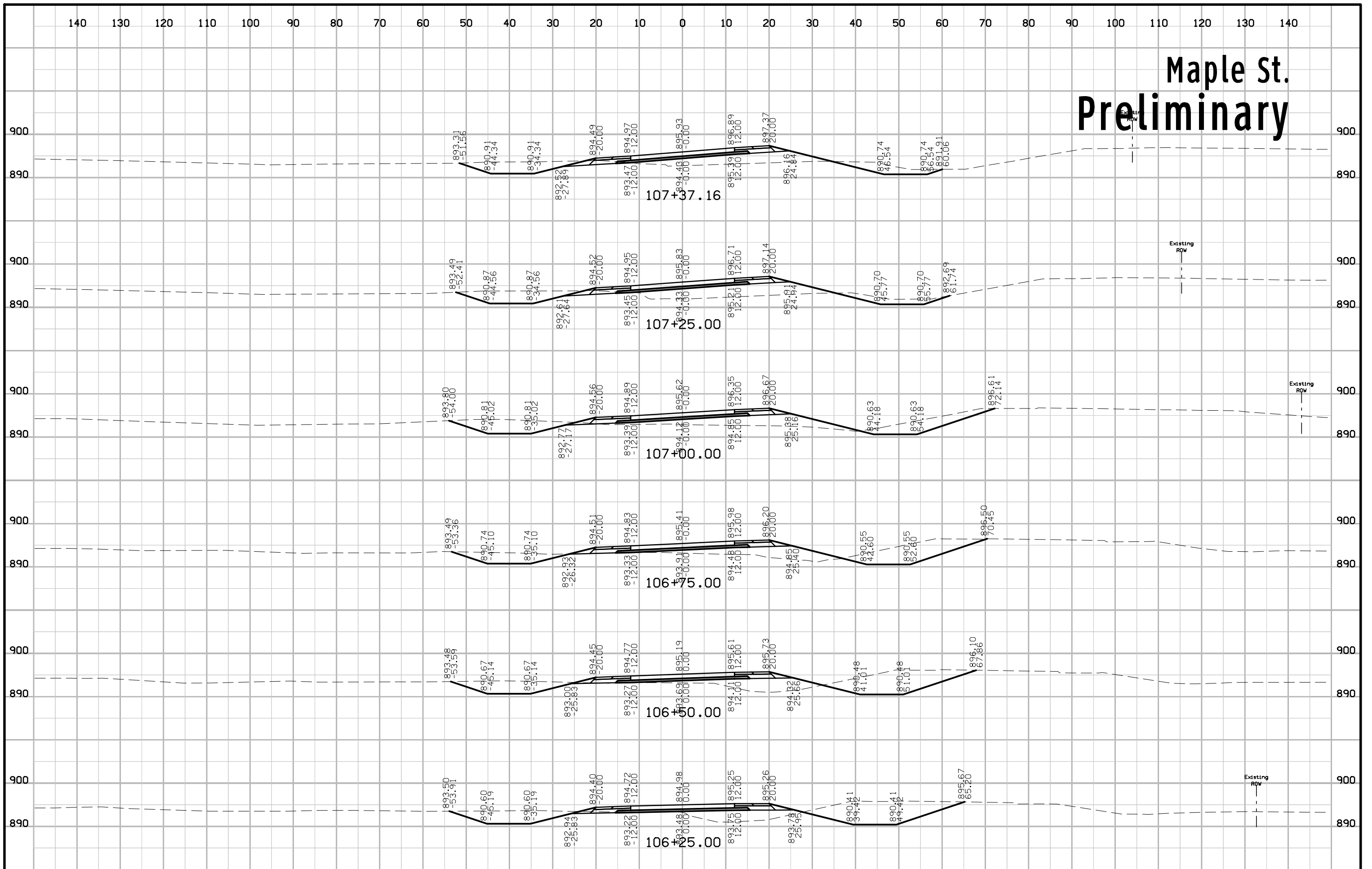


# Maple St. Preliminary

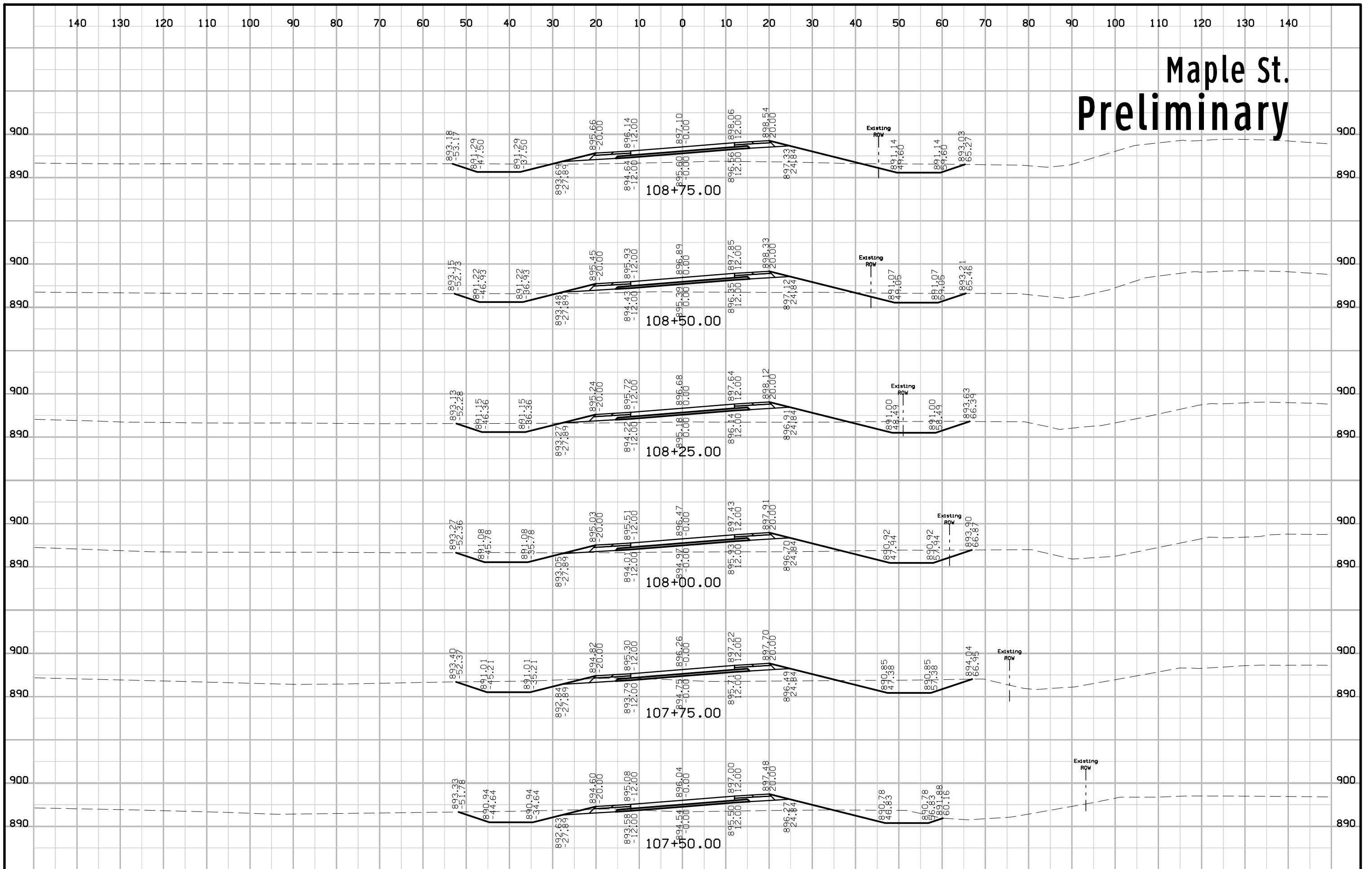




# Maple St. Preliminary

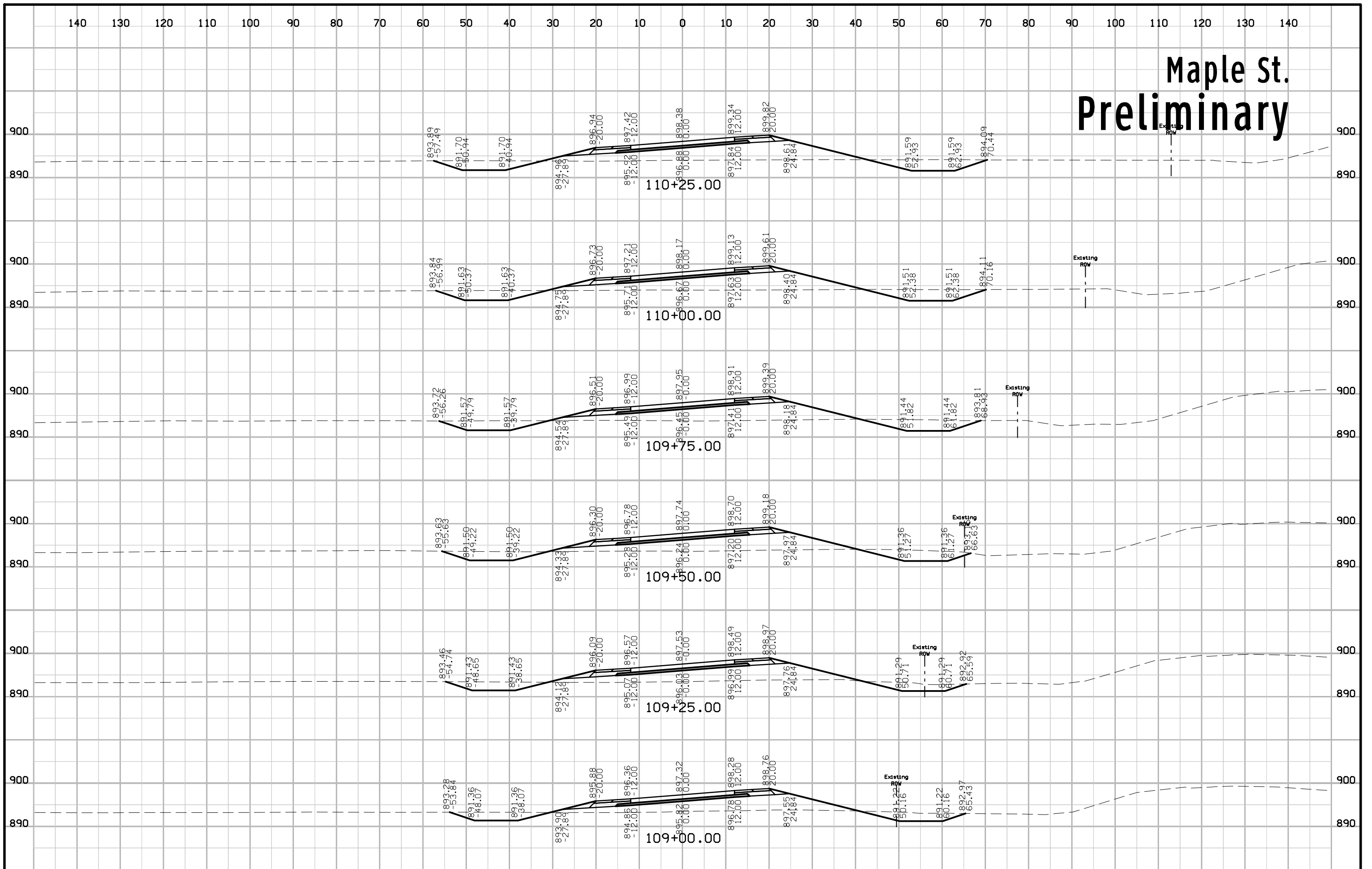


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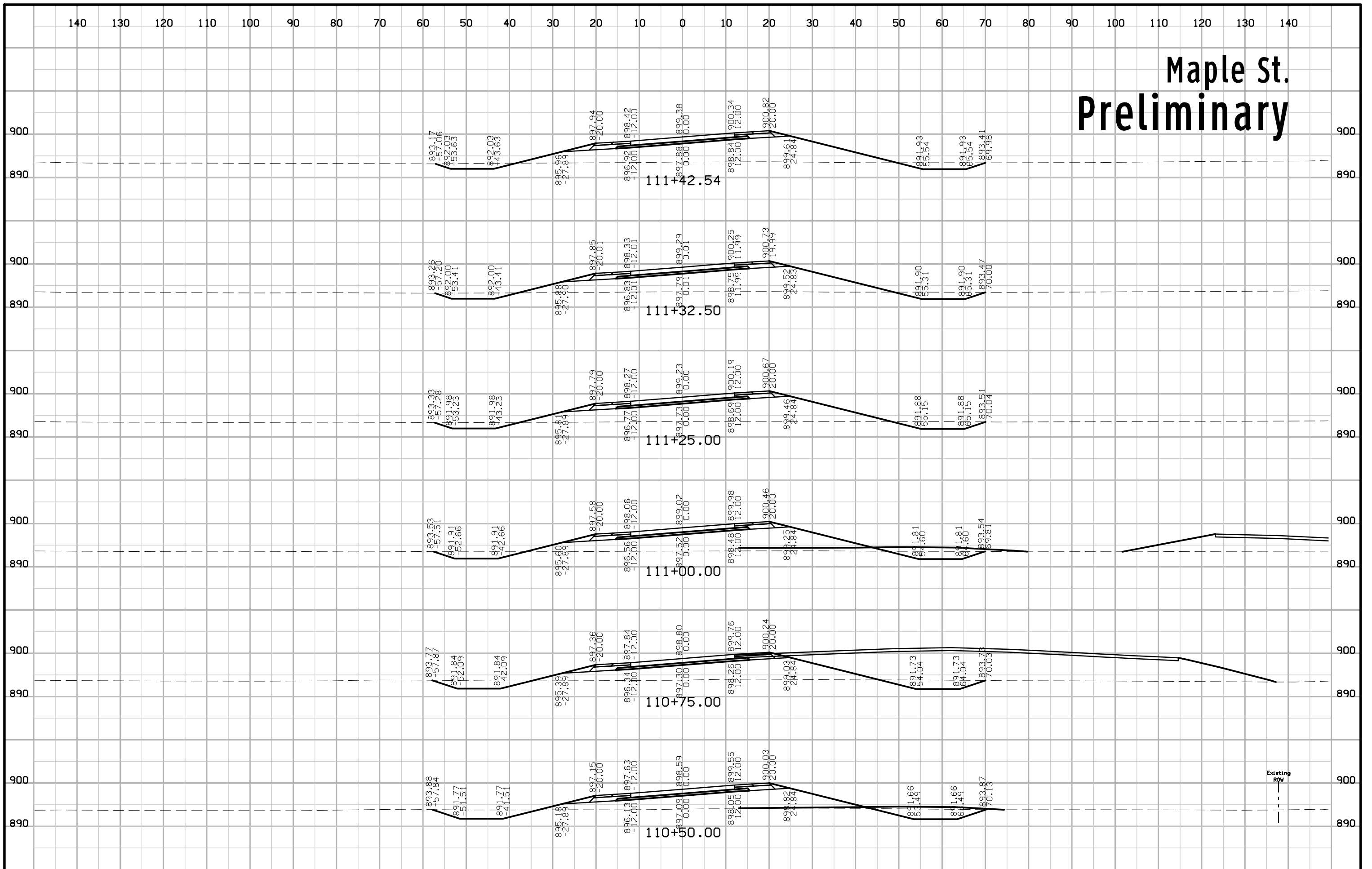




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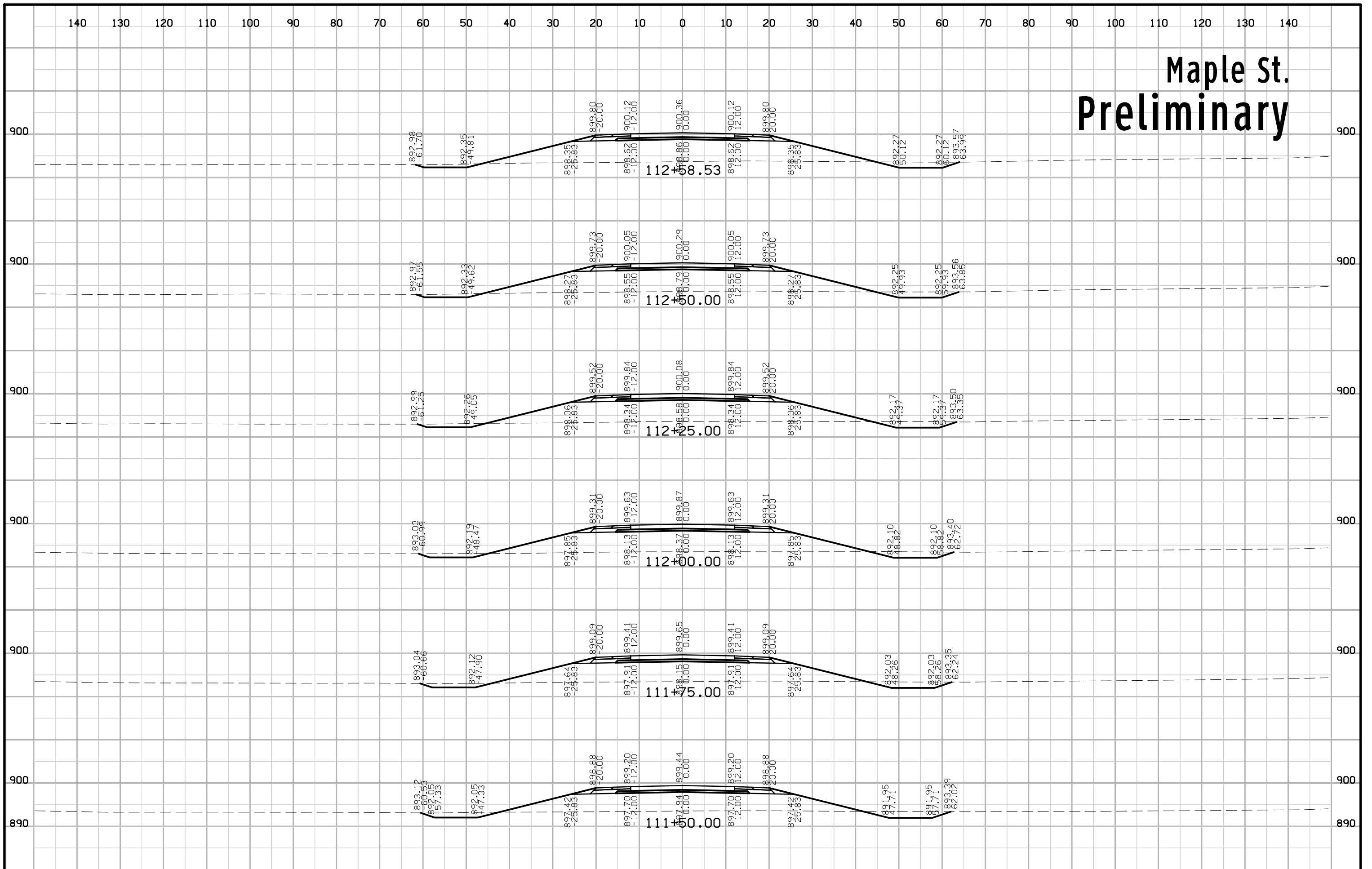


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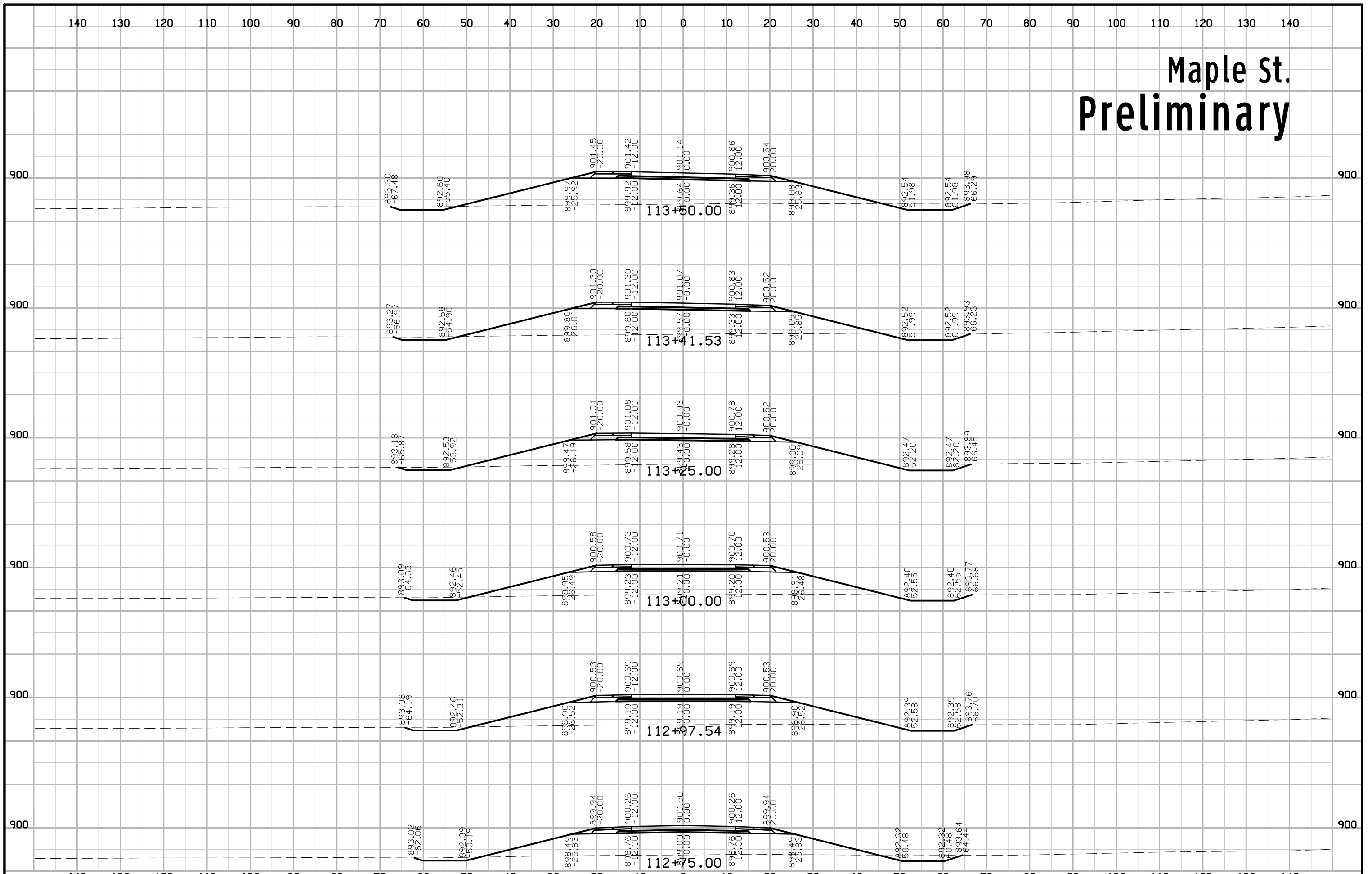




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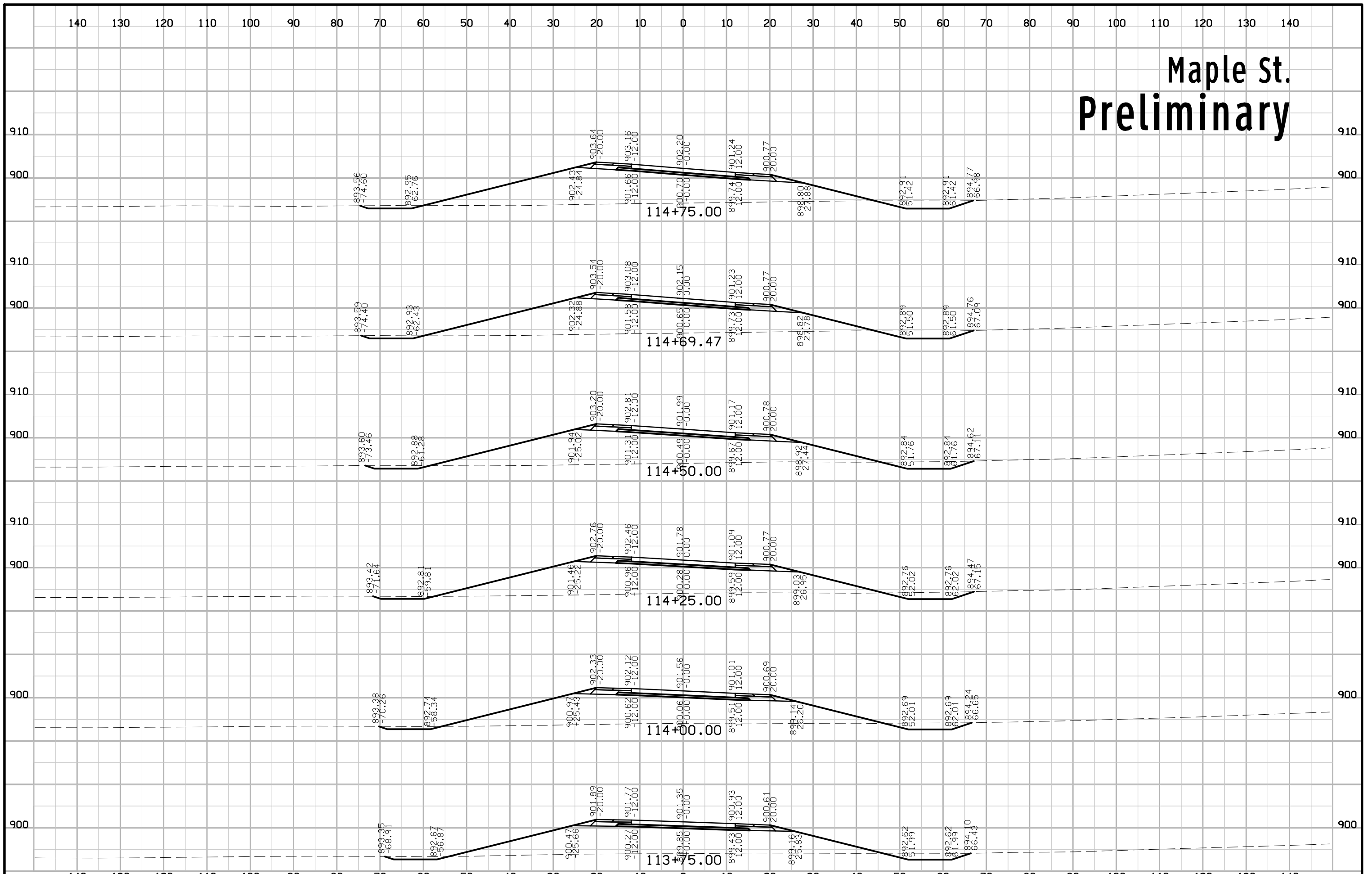


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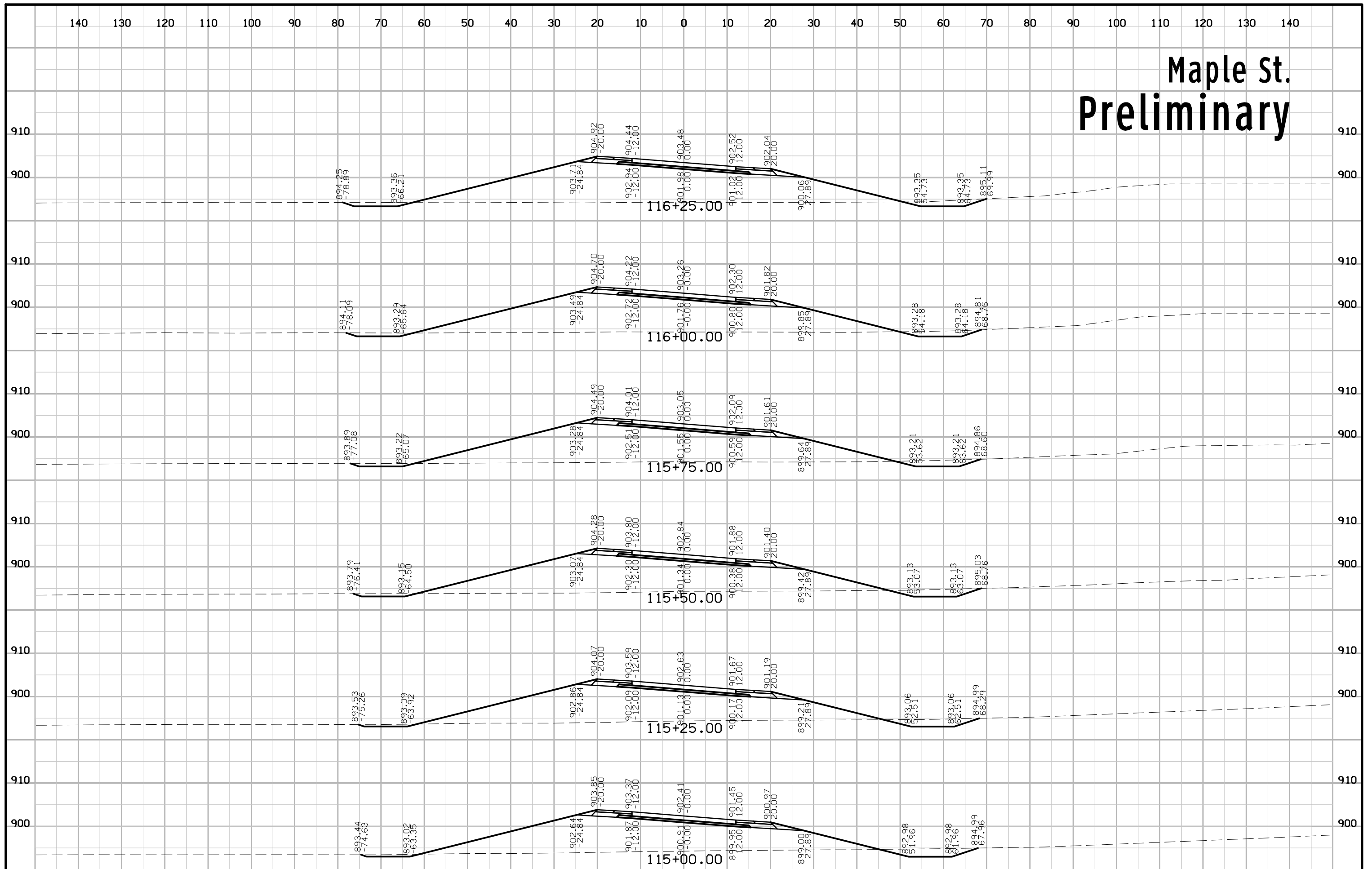




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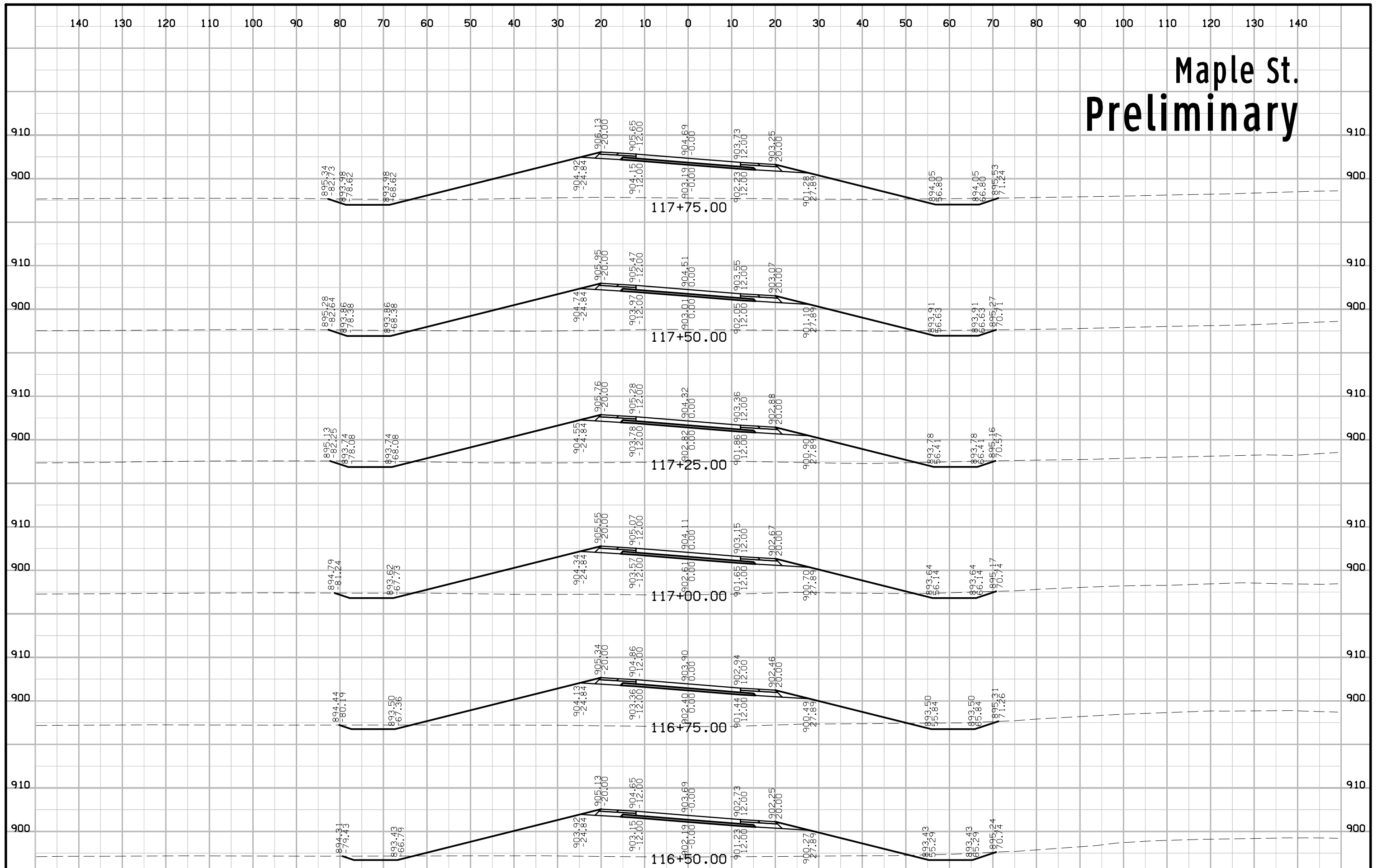


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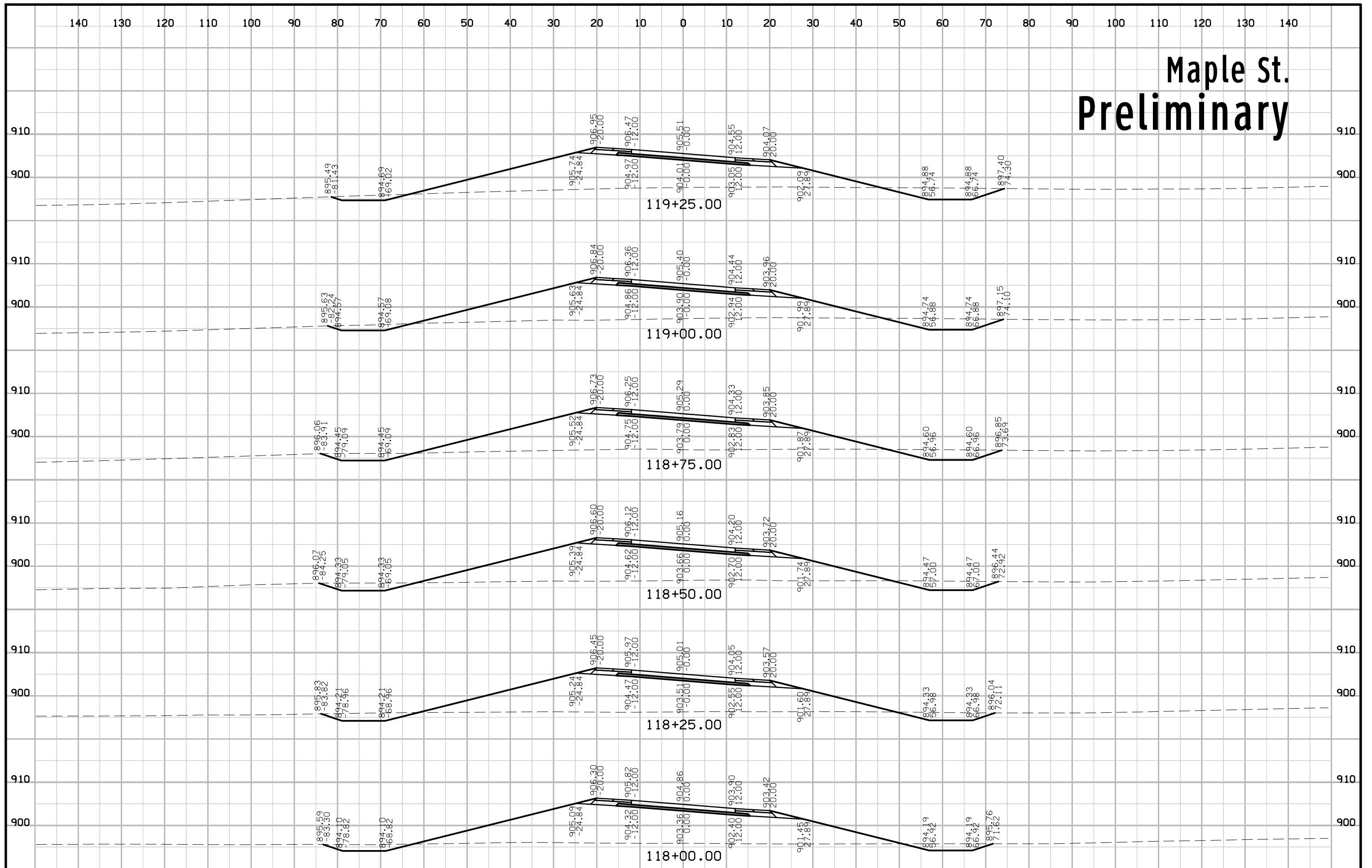




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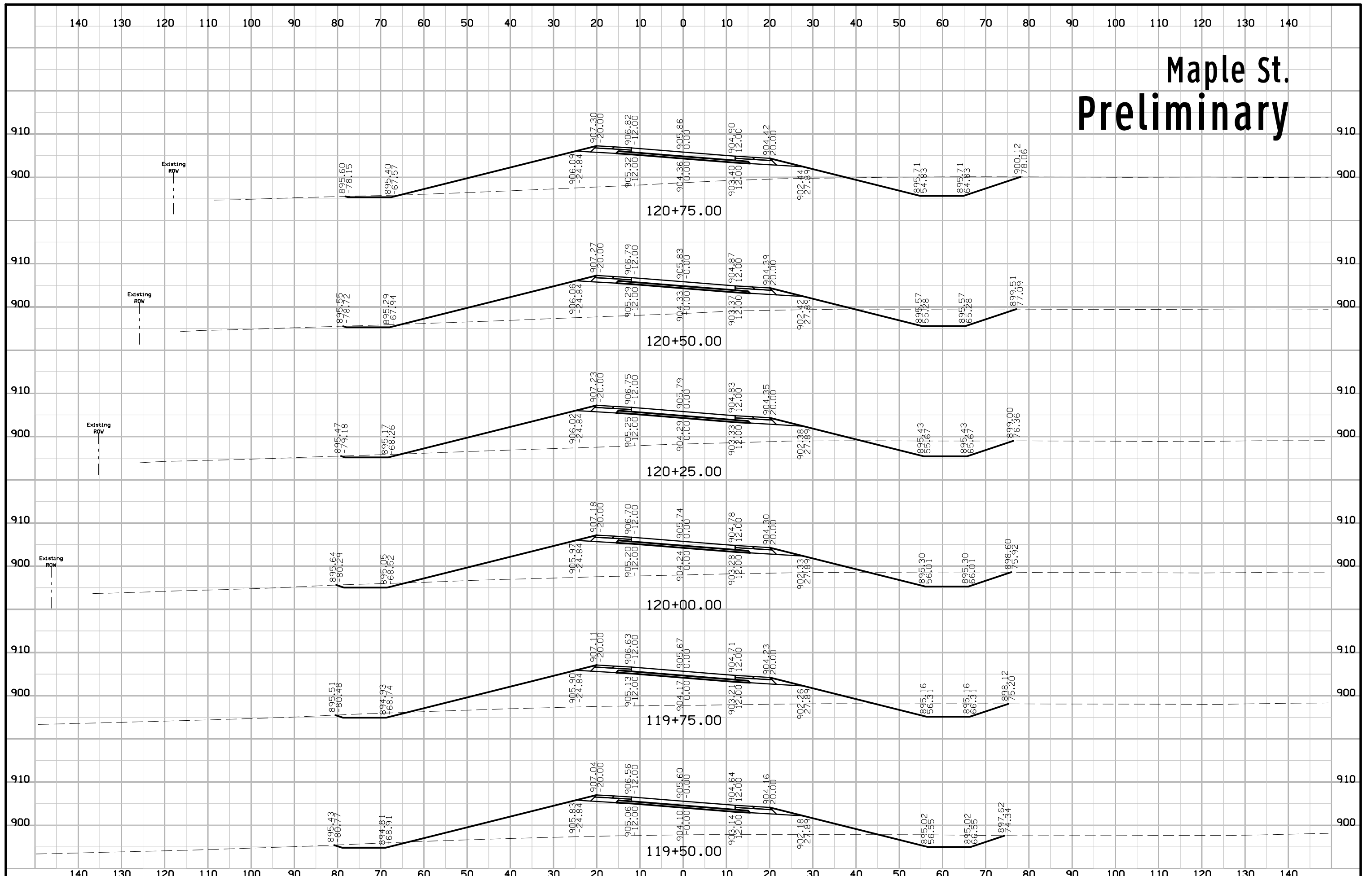


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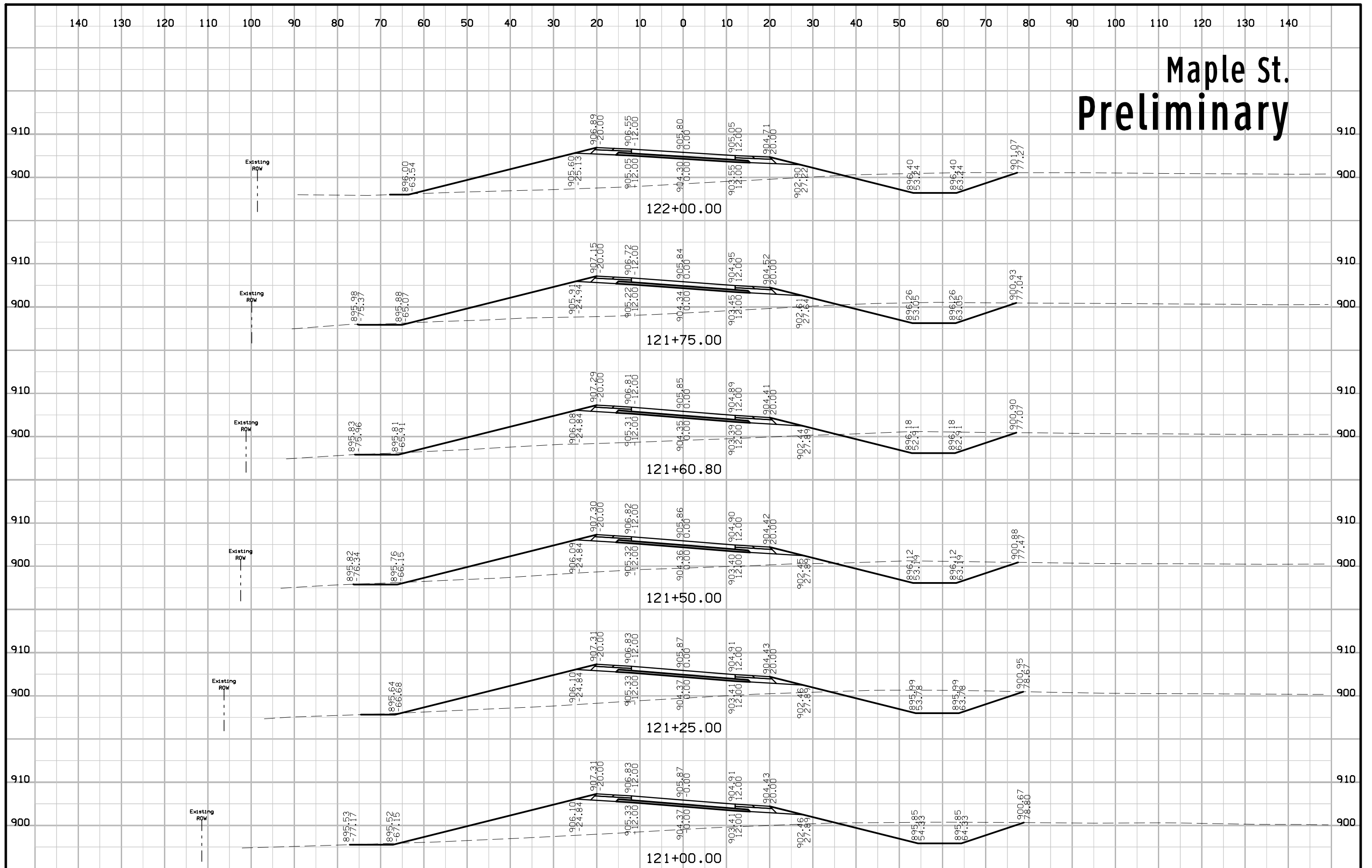




# Maple St. Preliminary



# Maple St. Preliminary



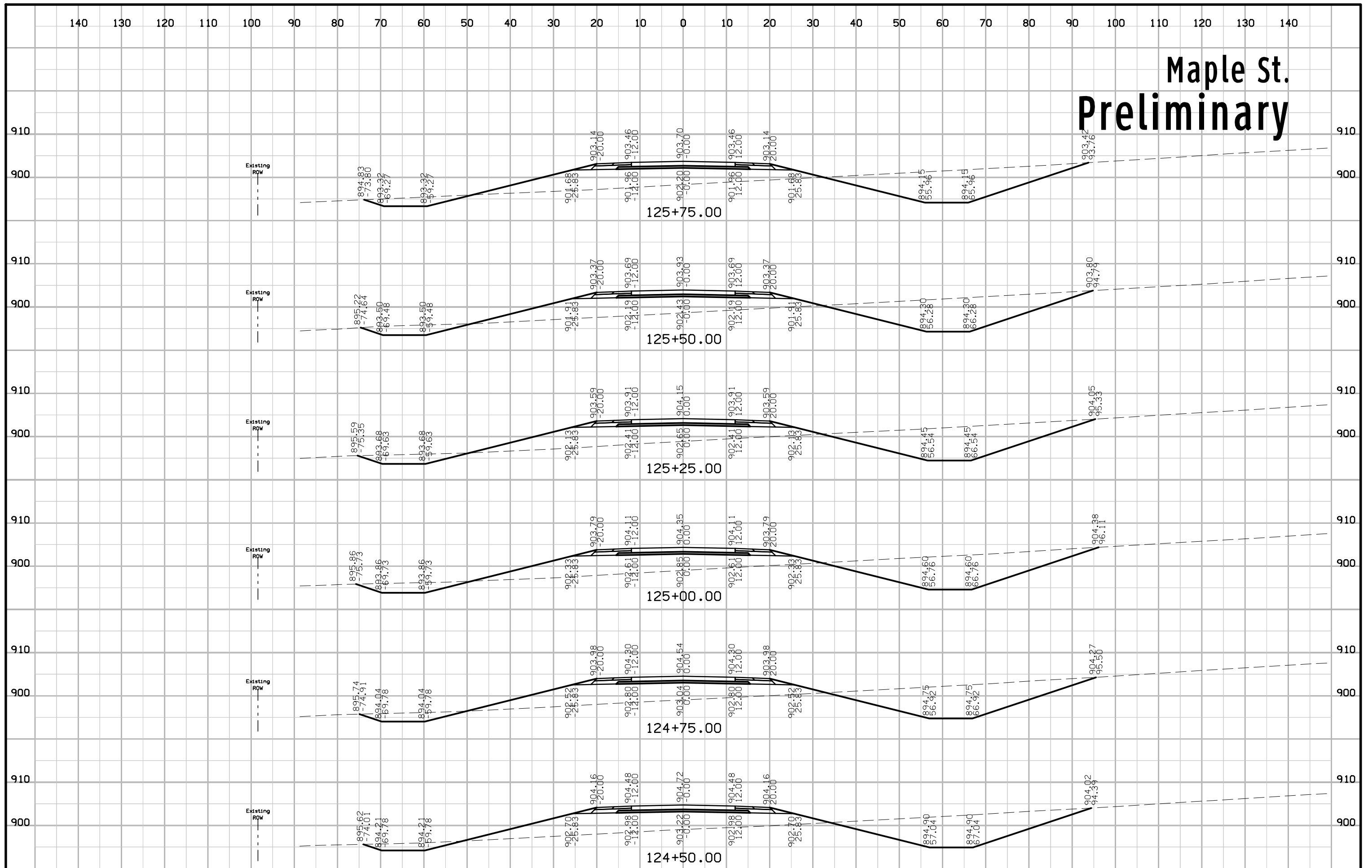




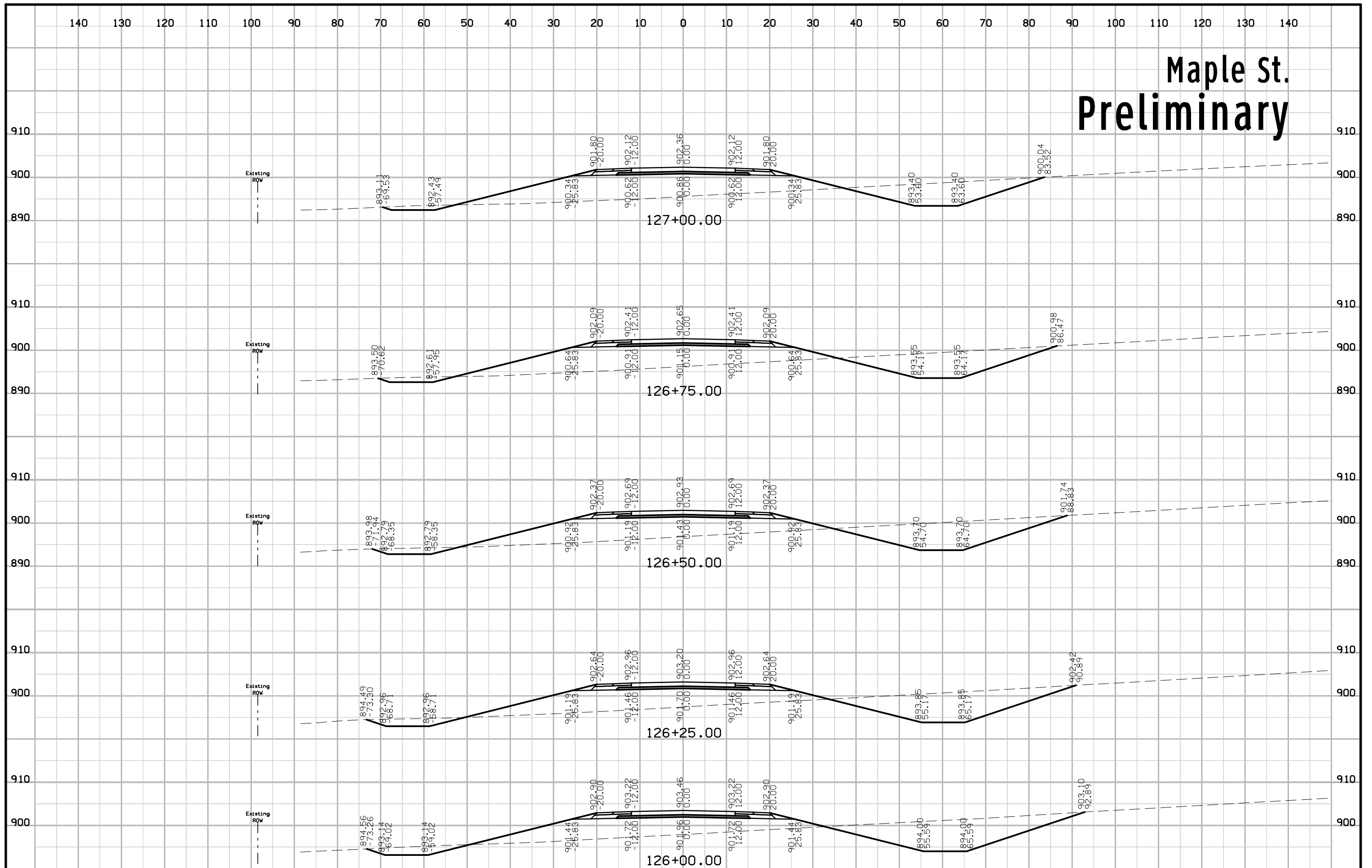




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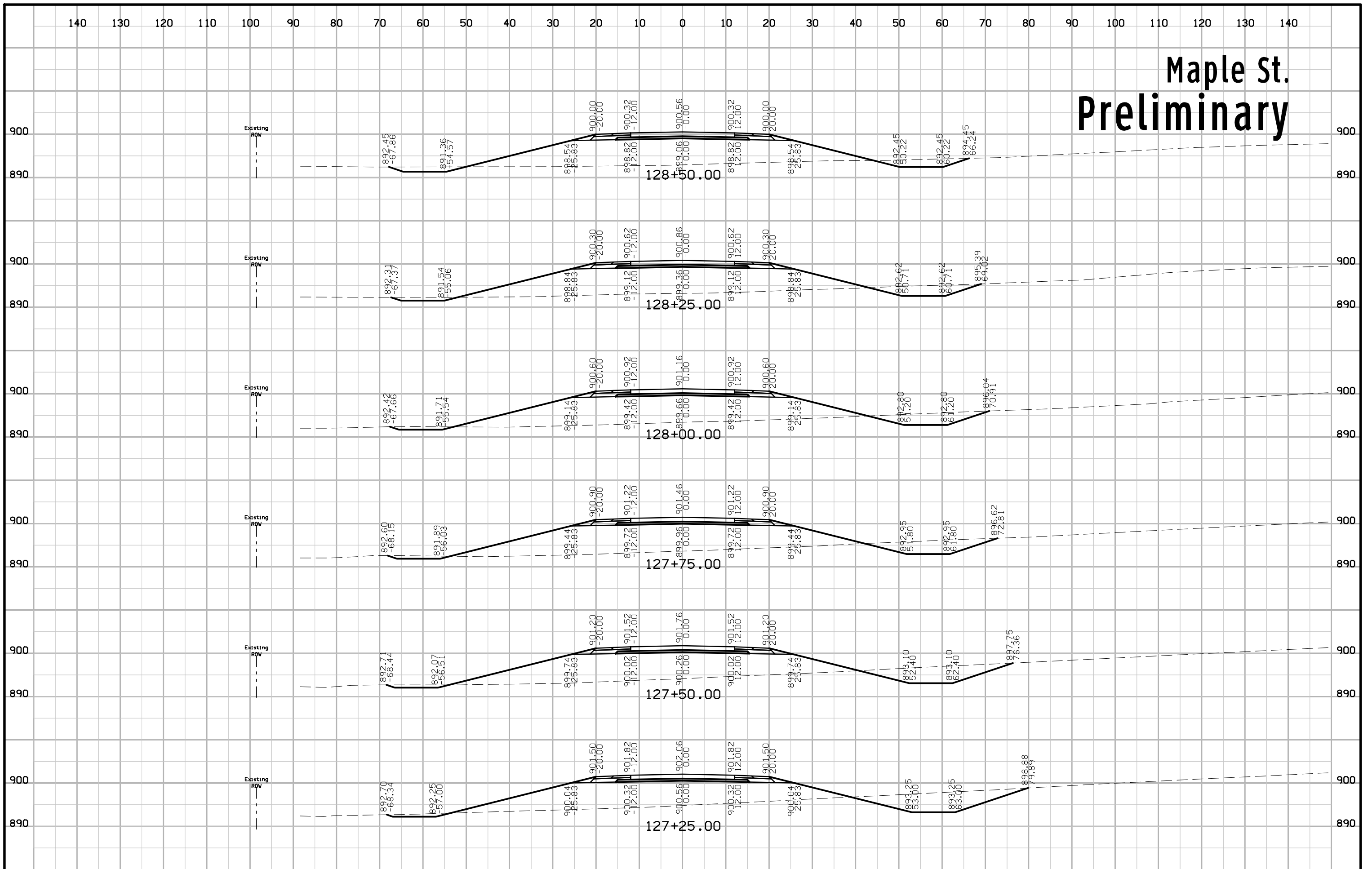


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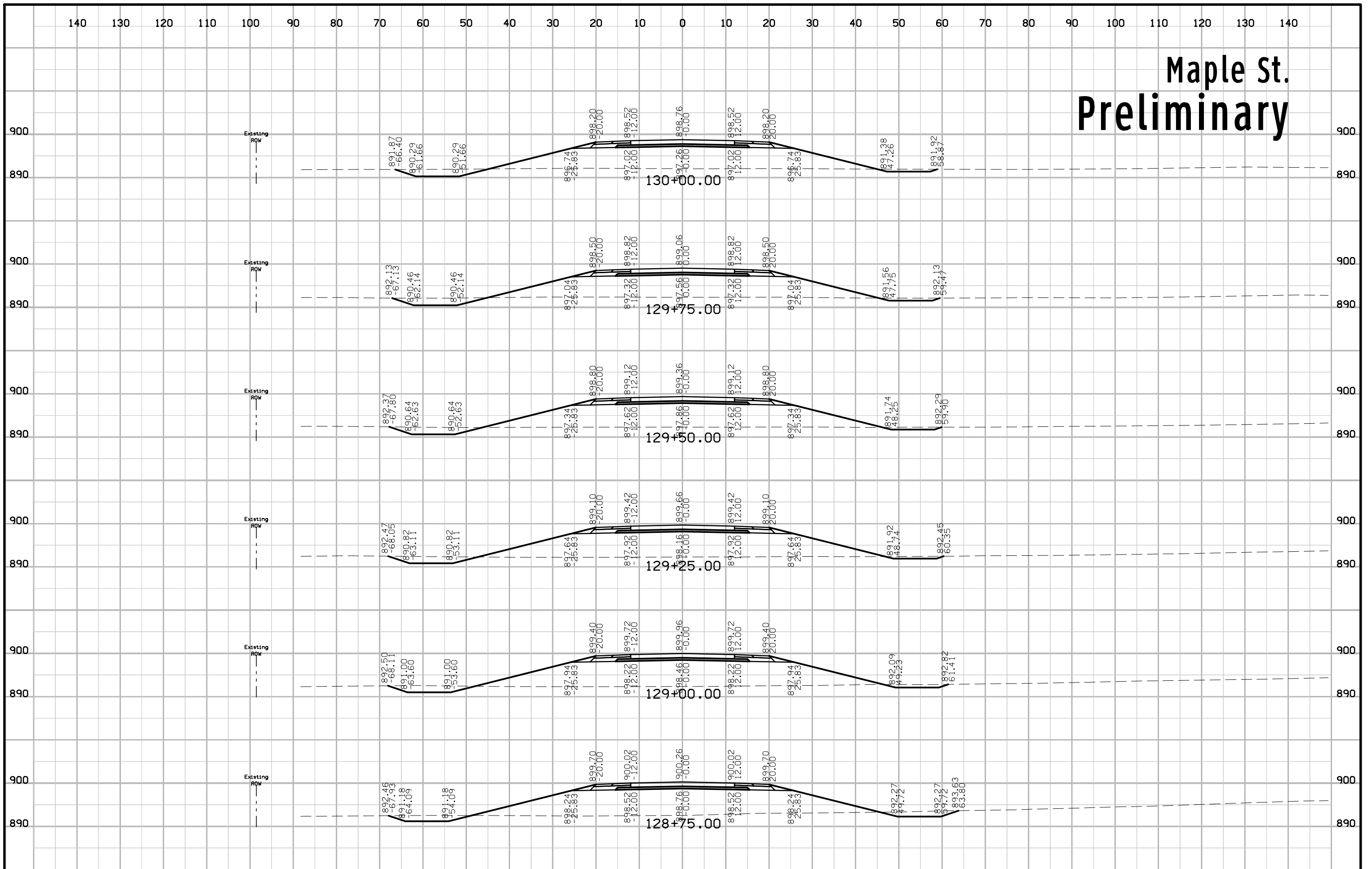




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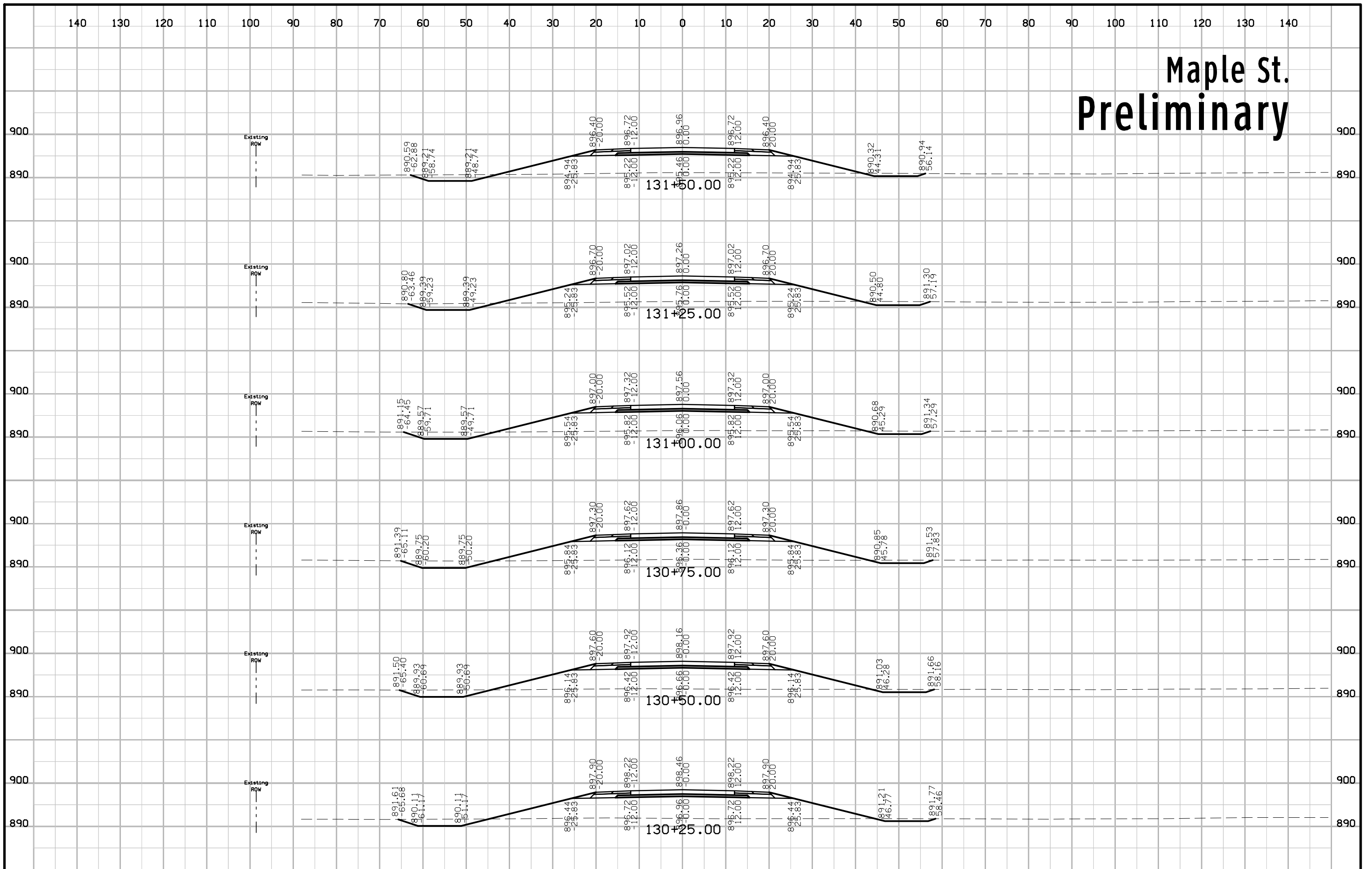


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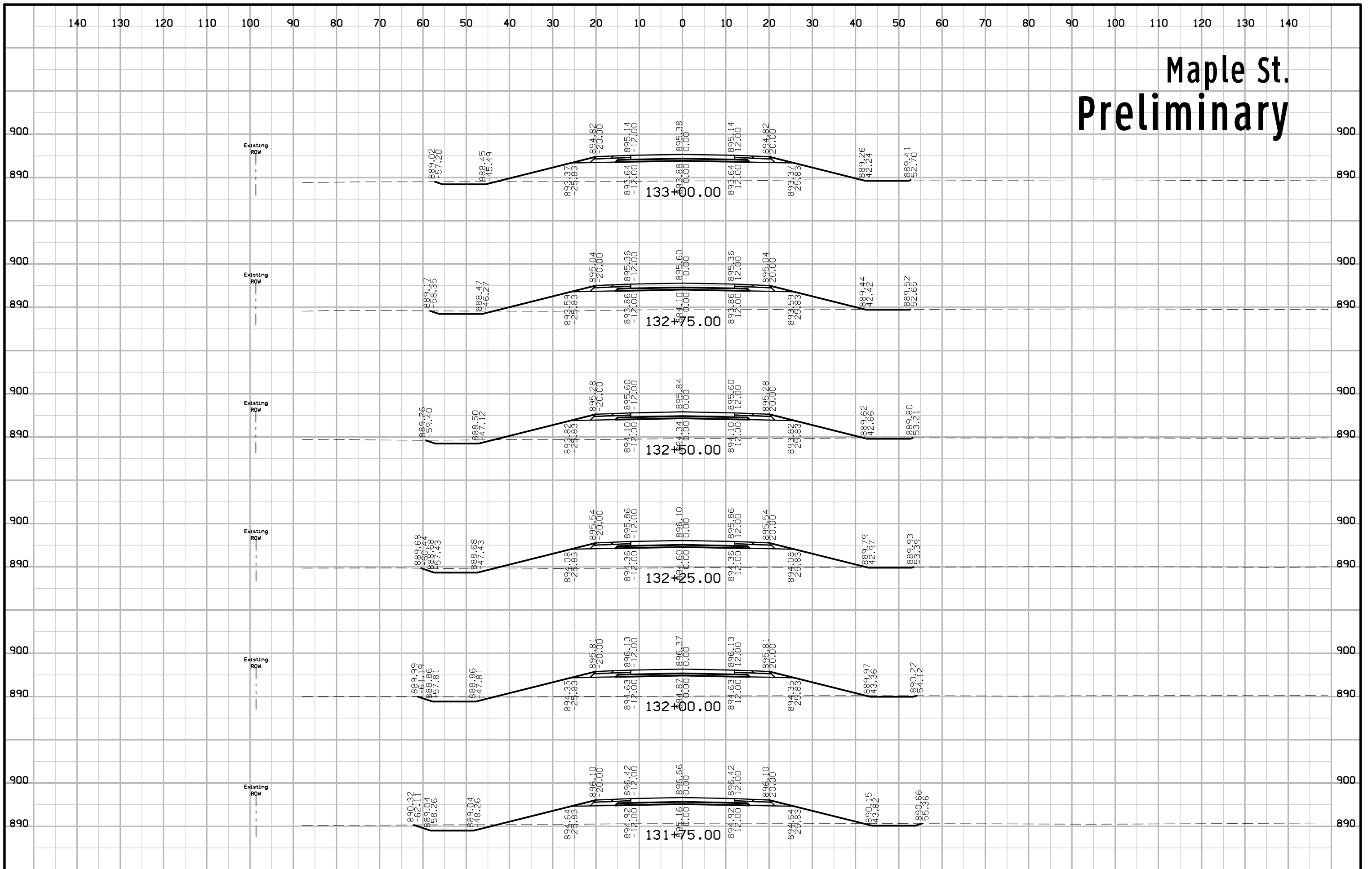




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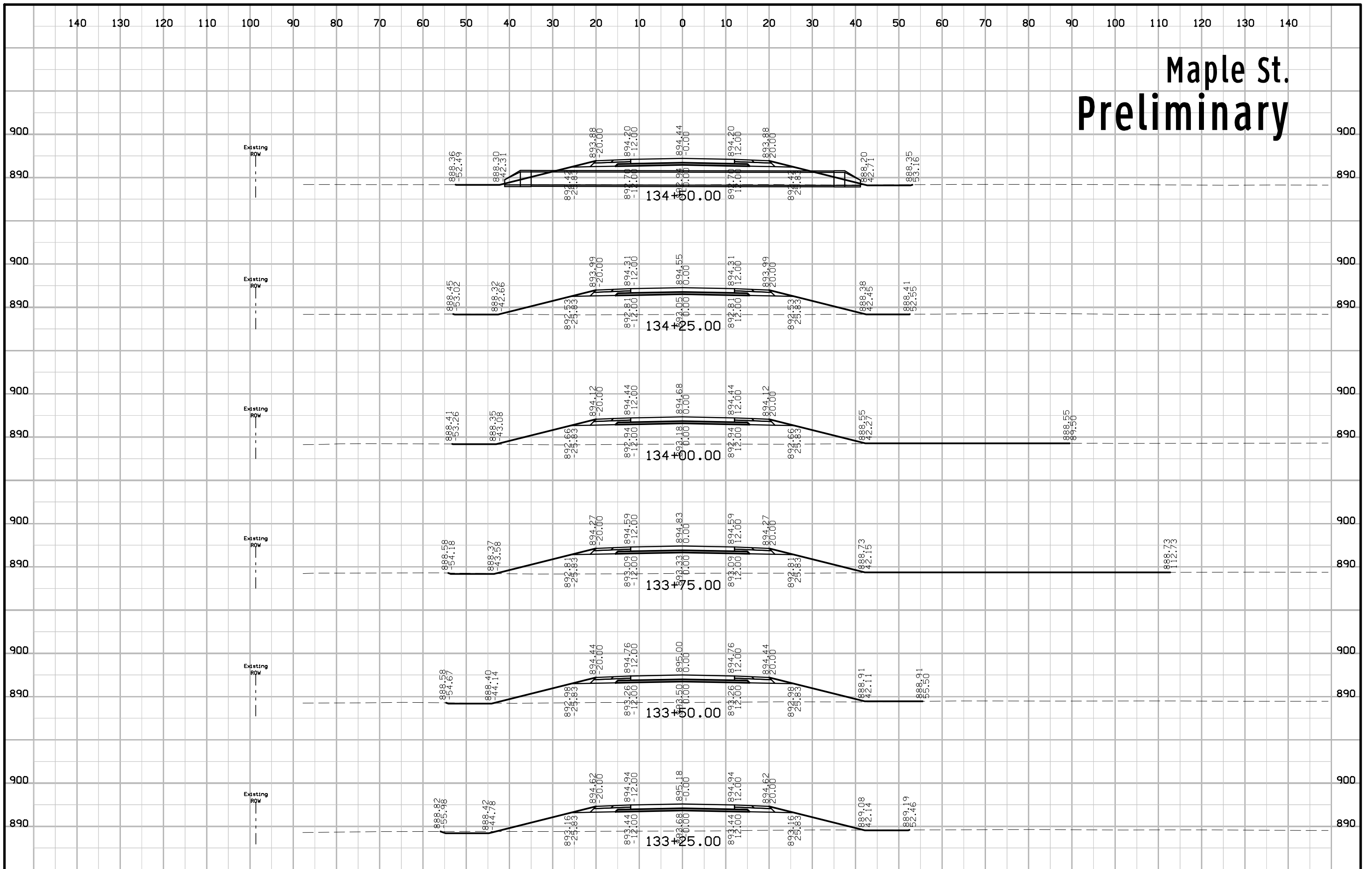


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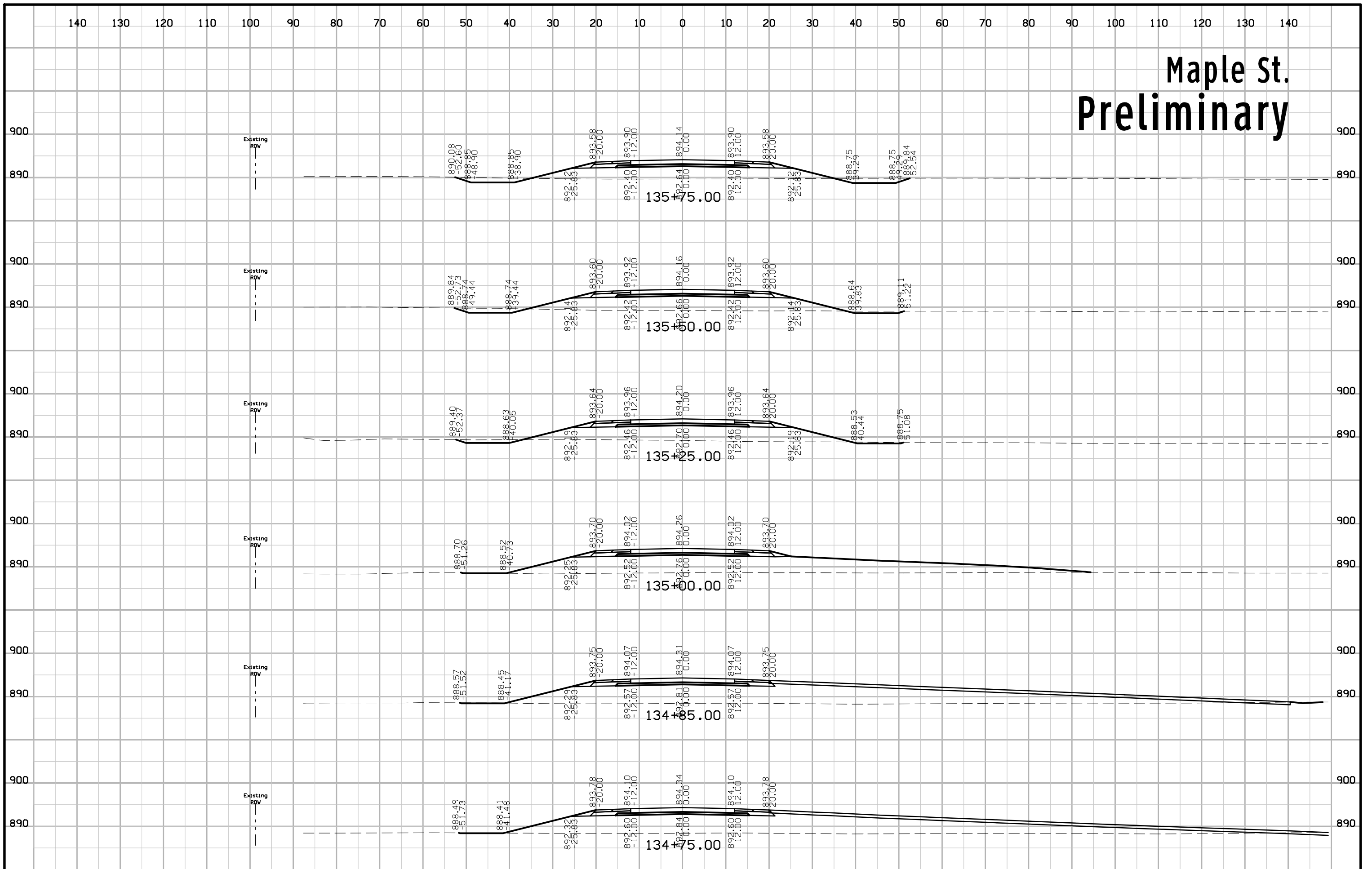




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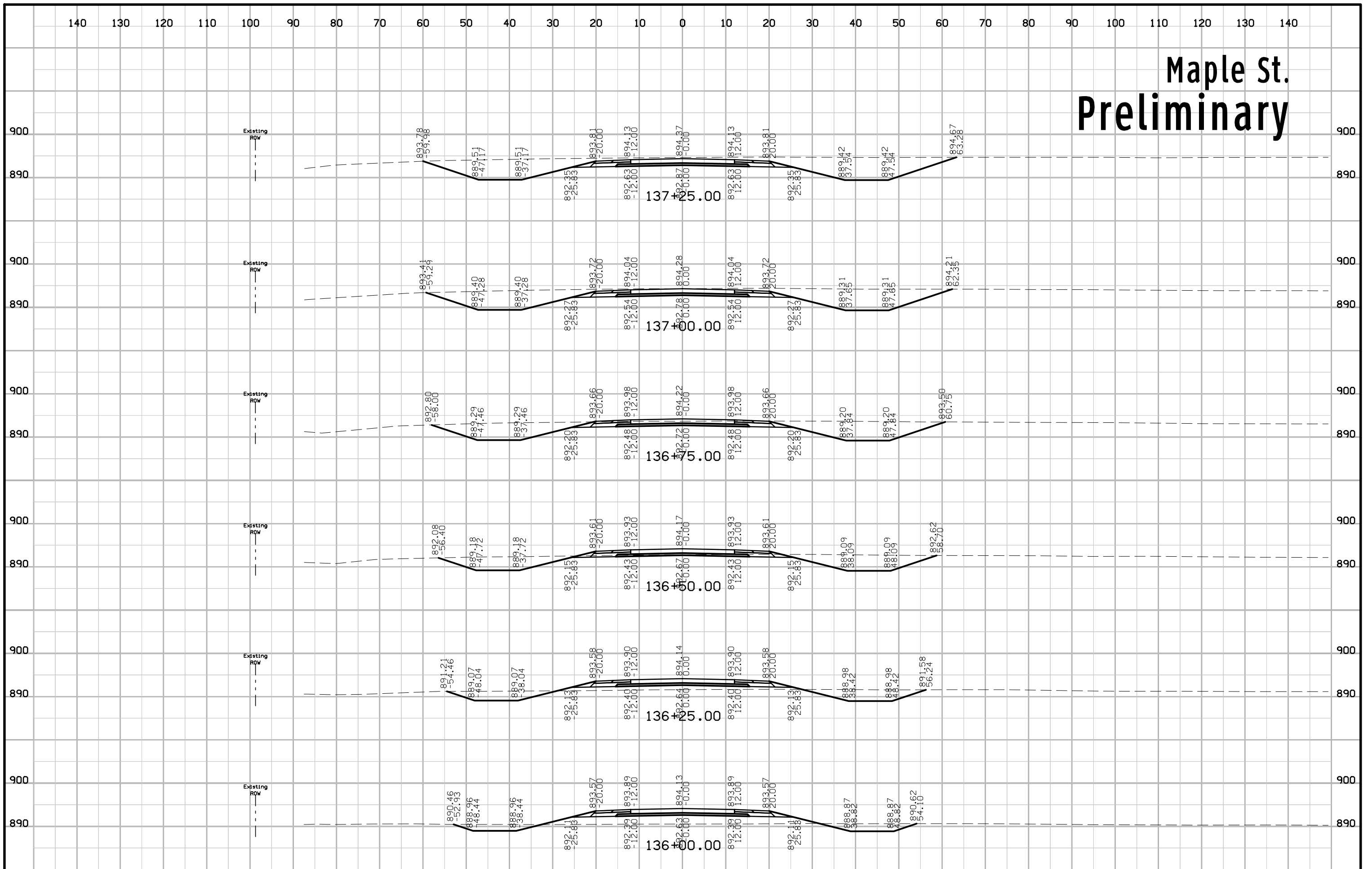


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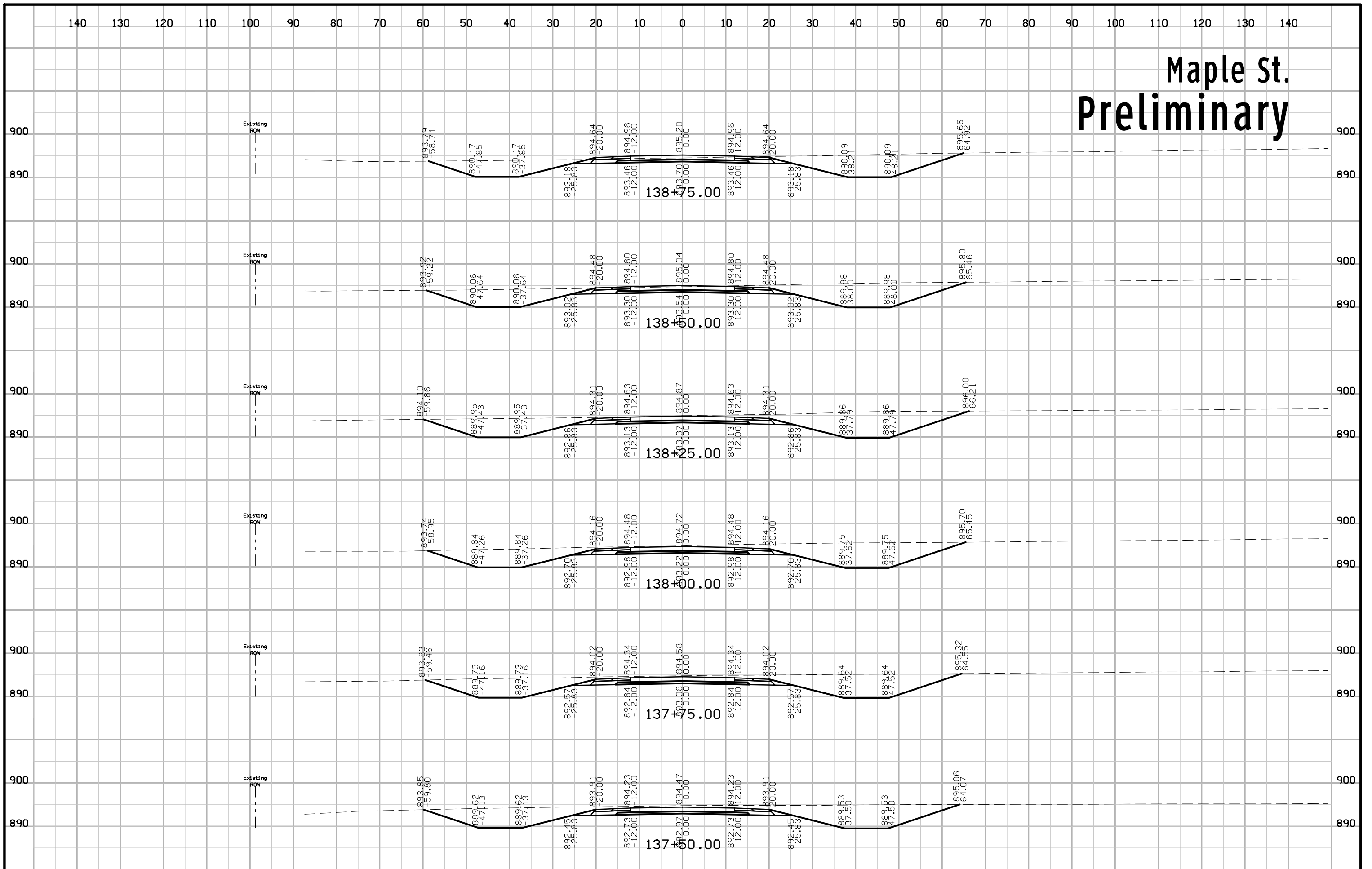




# Maple St. Preliminary

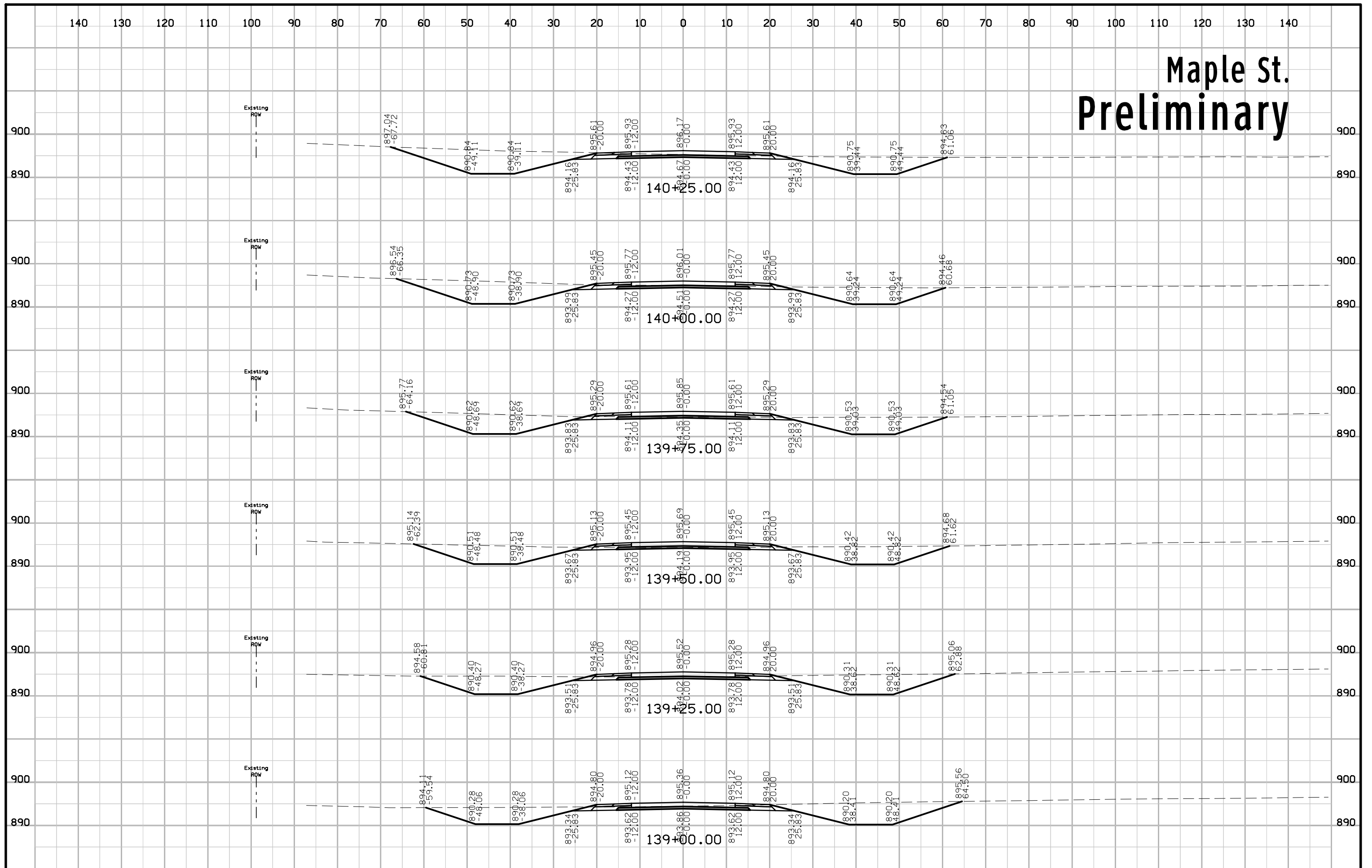


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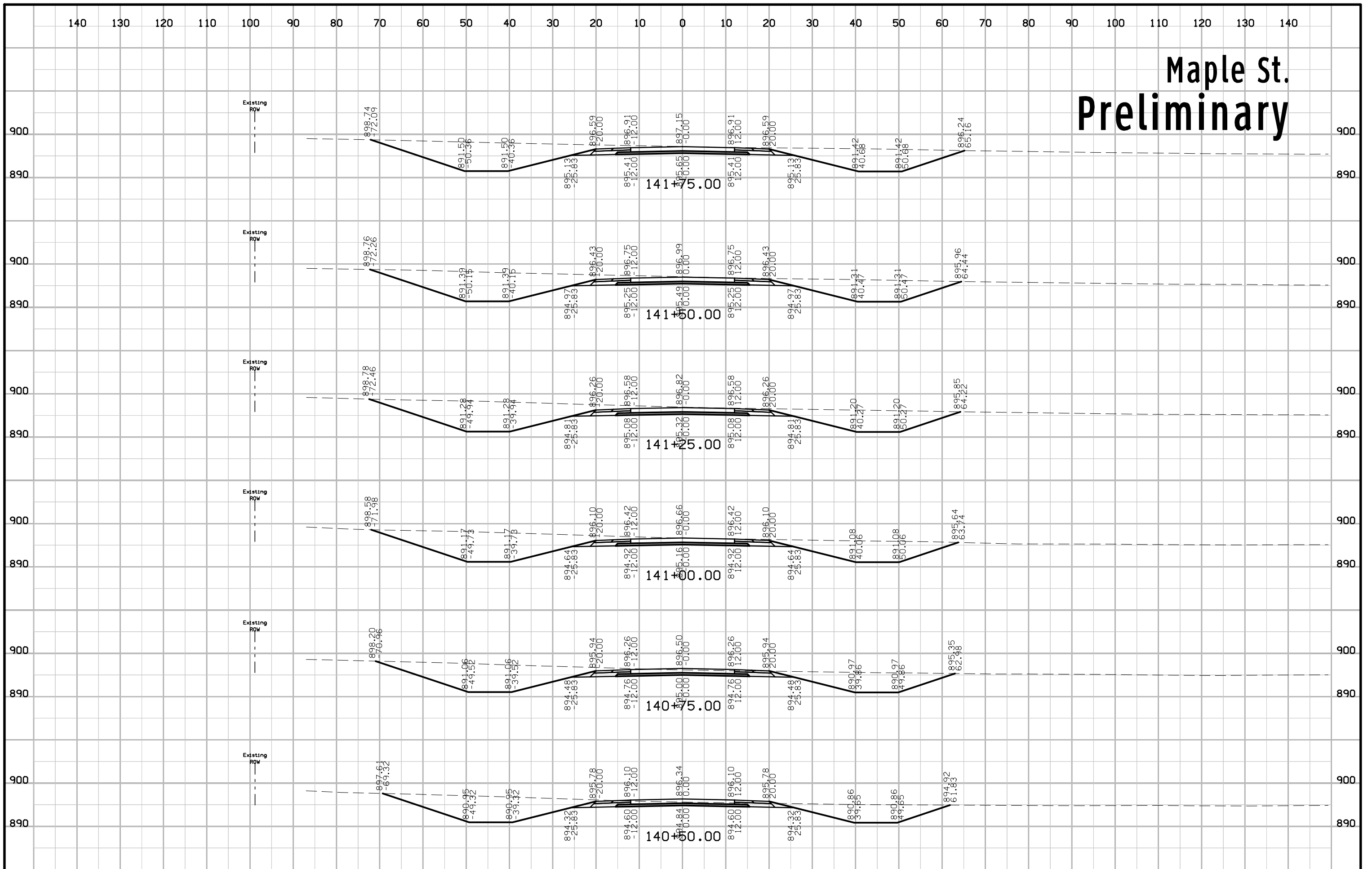




# Maple St. Preliminary

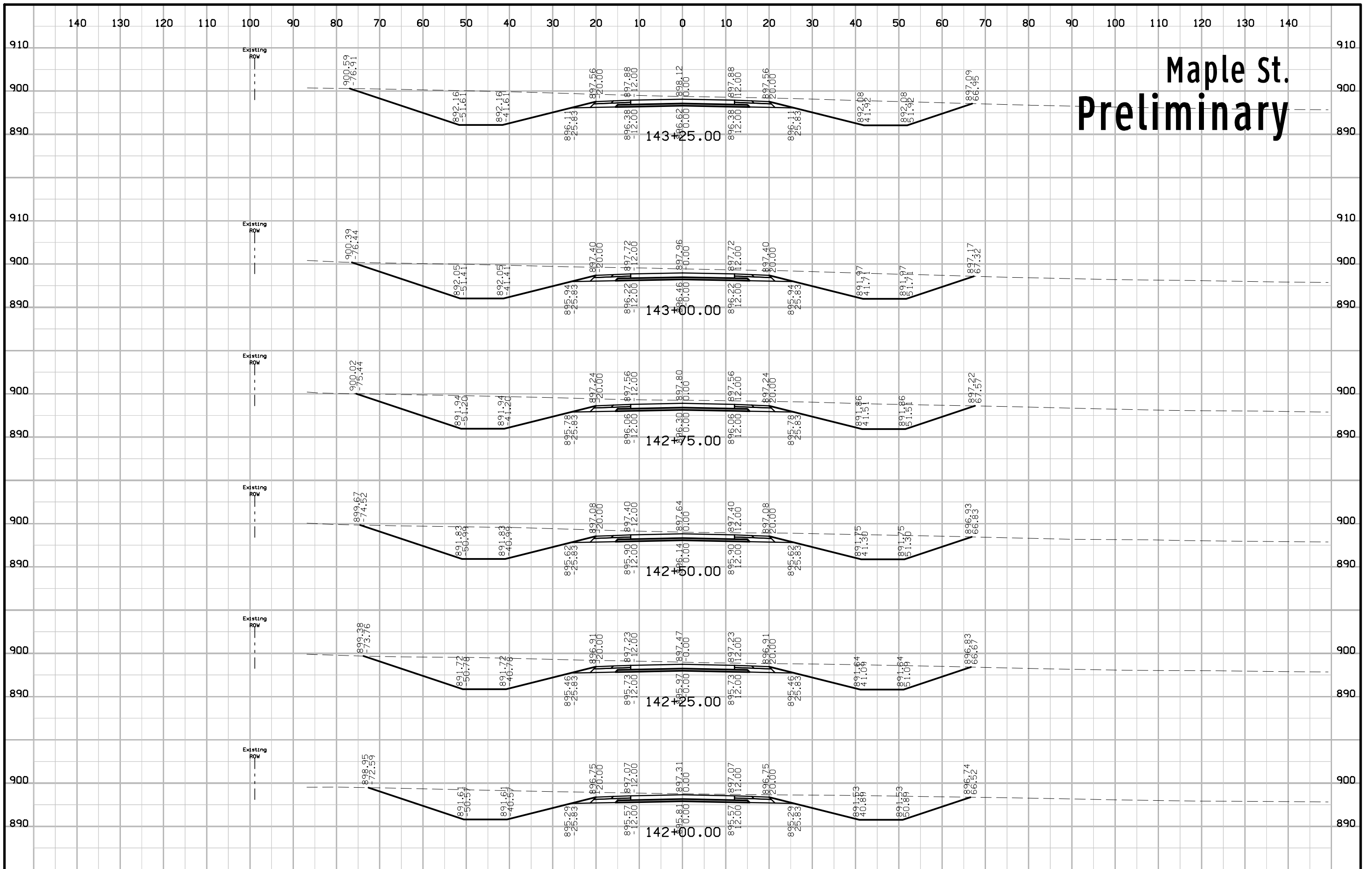


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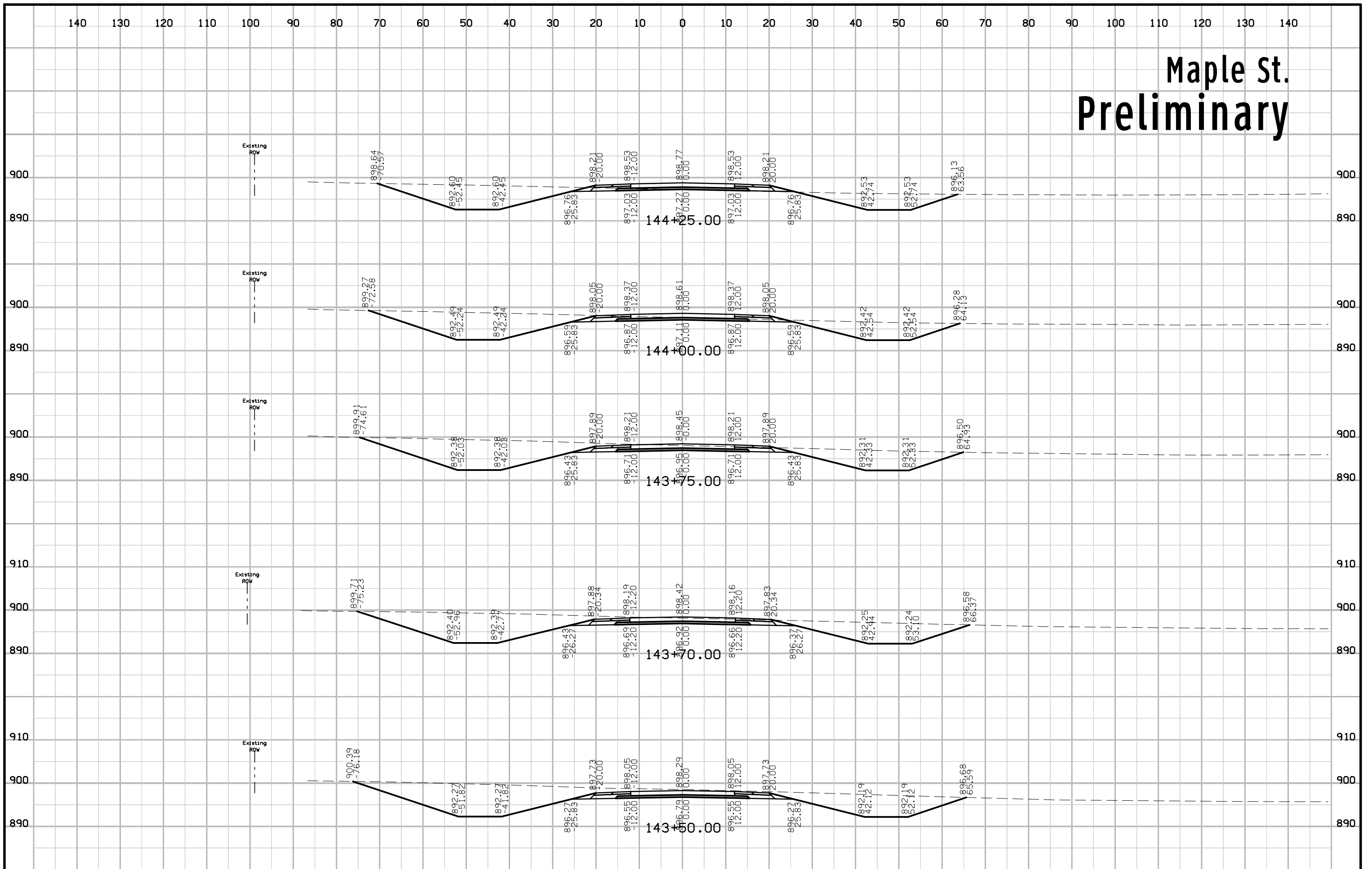




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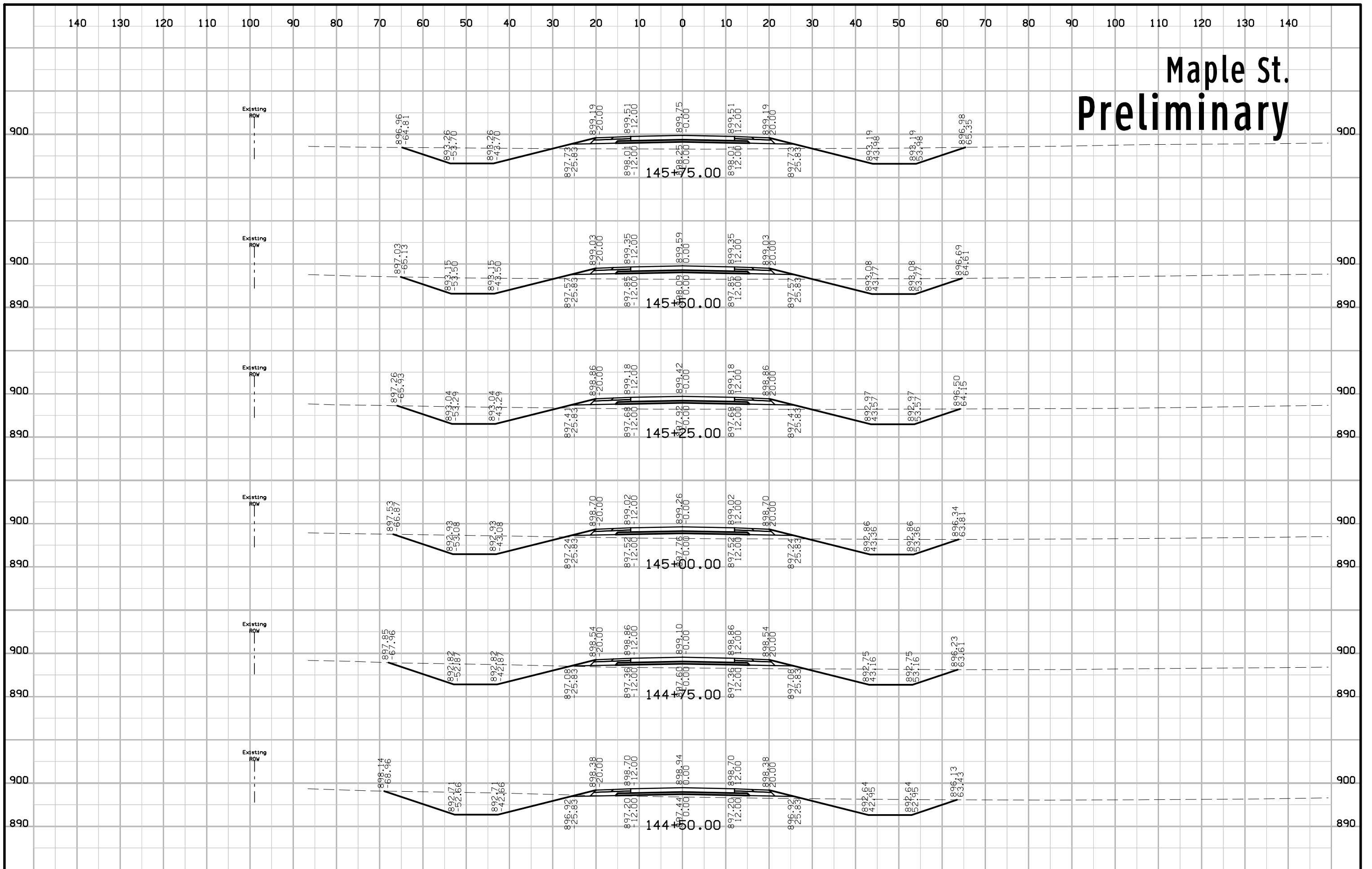


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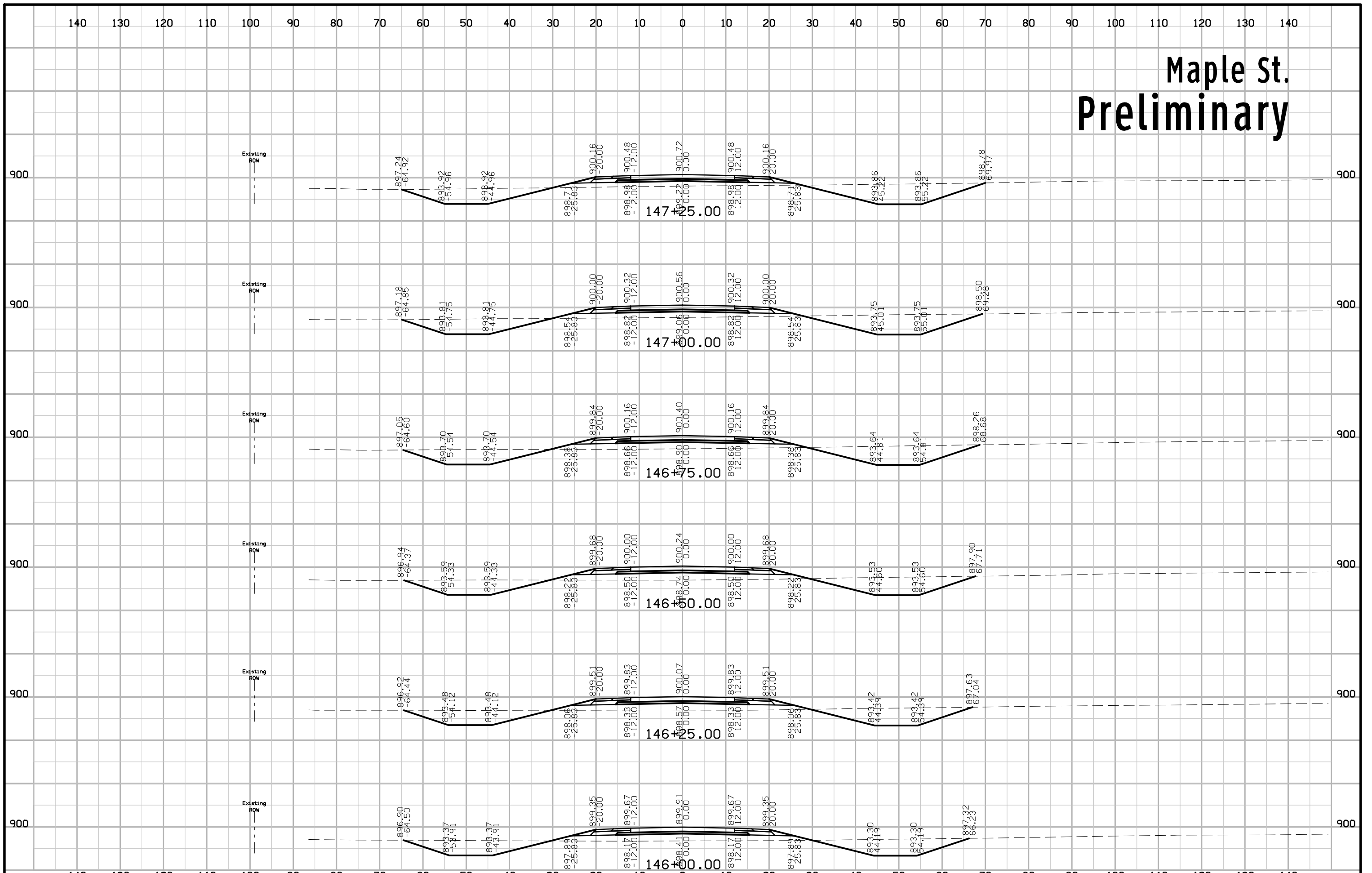




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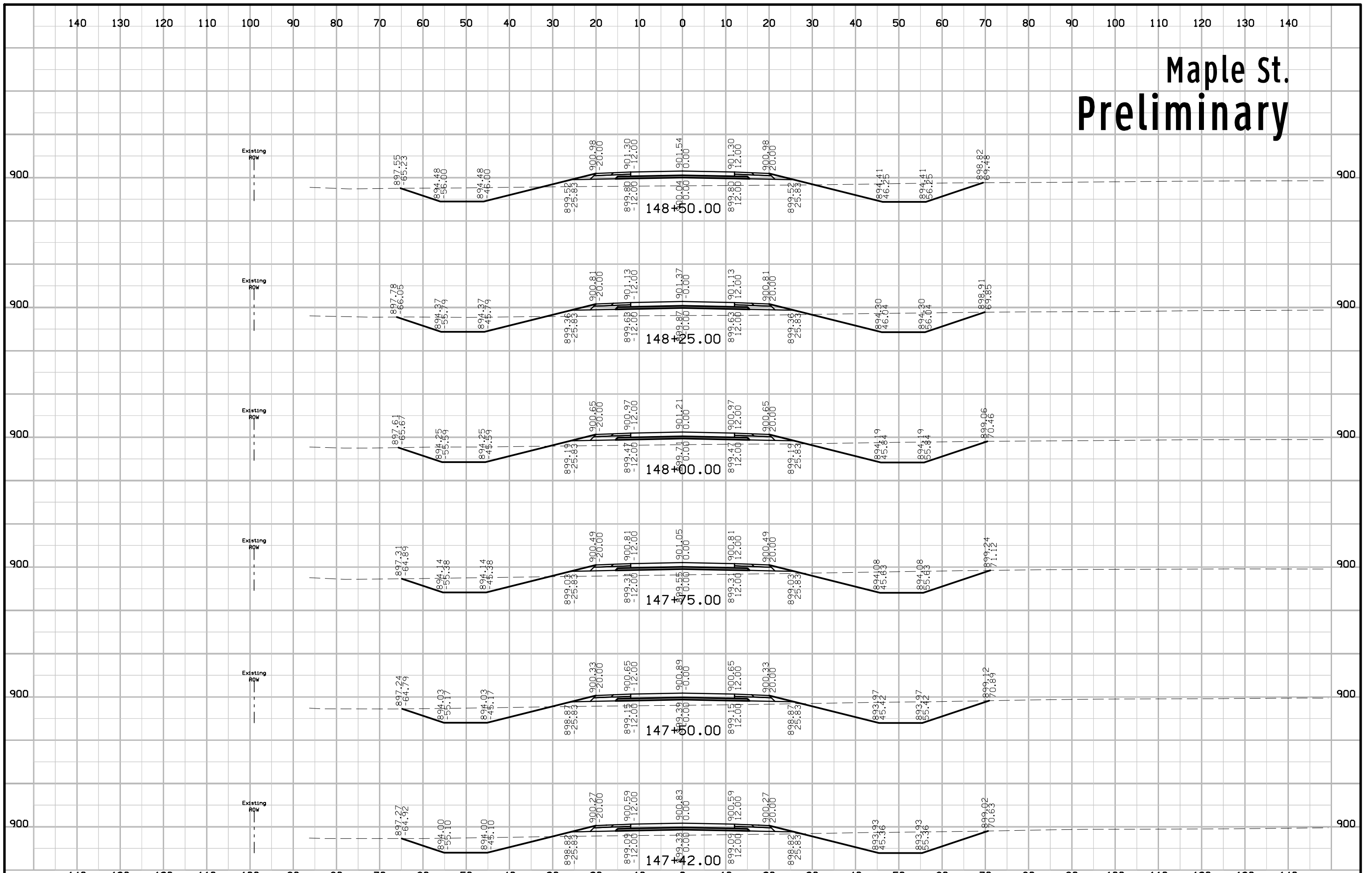


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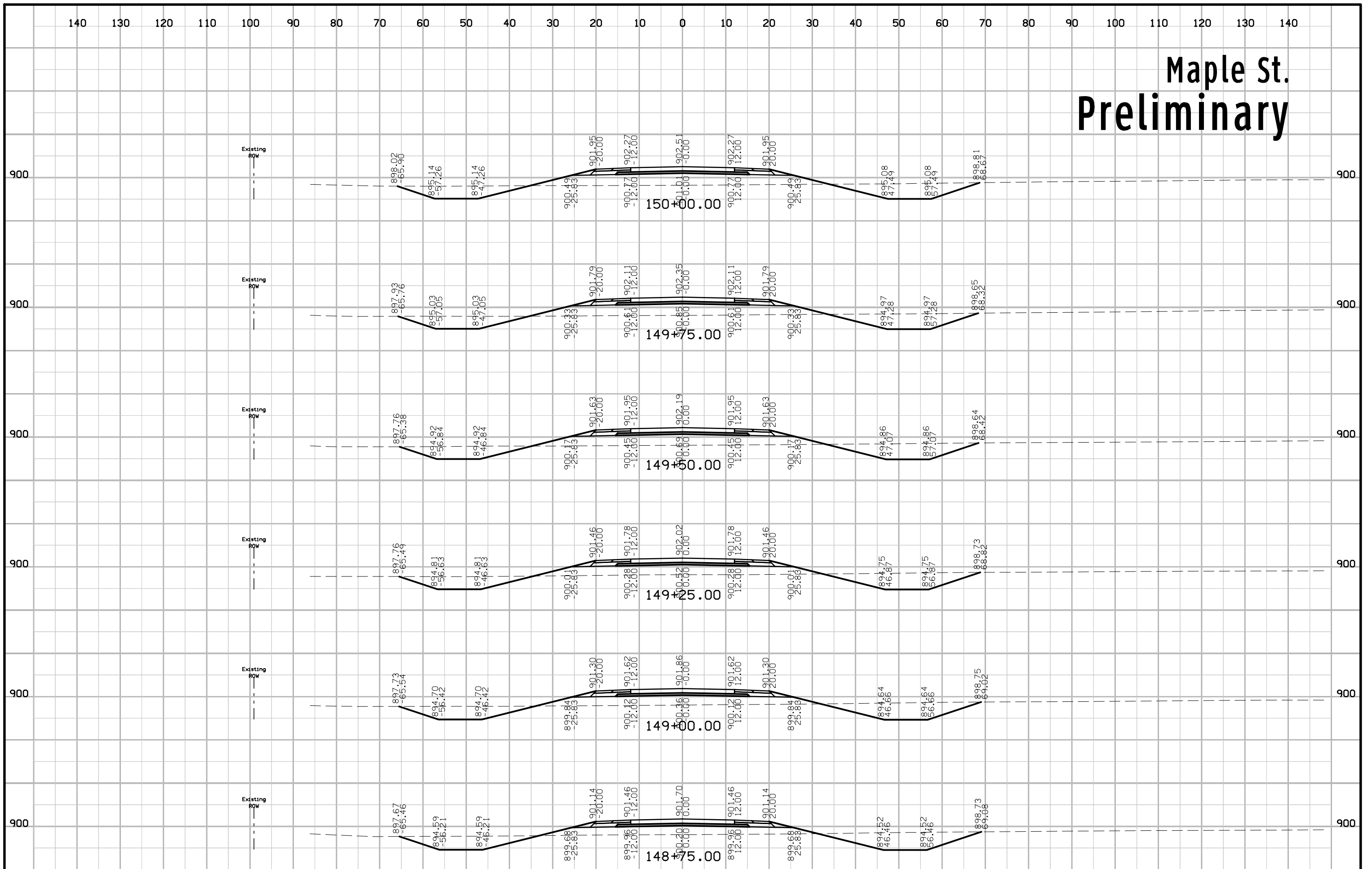




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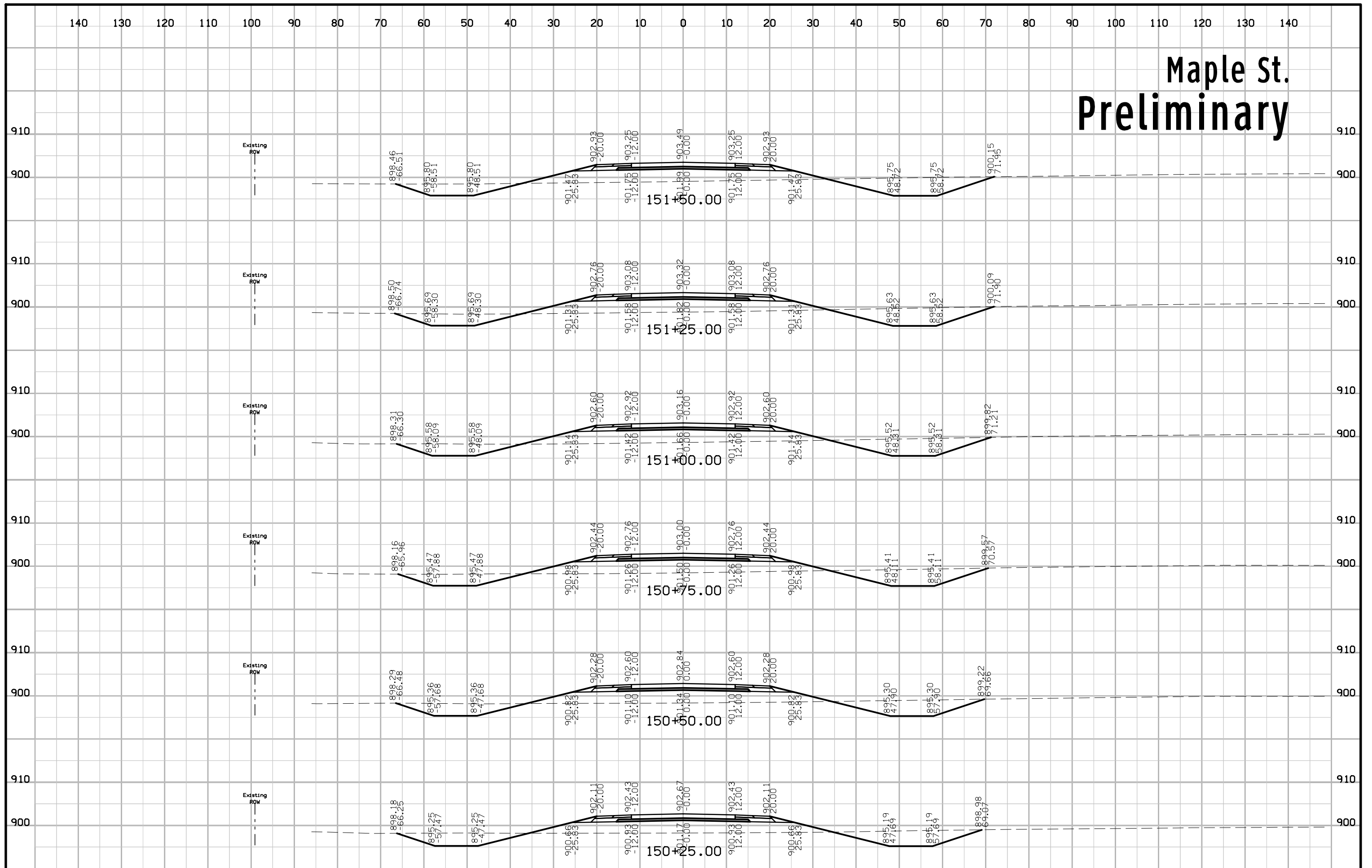


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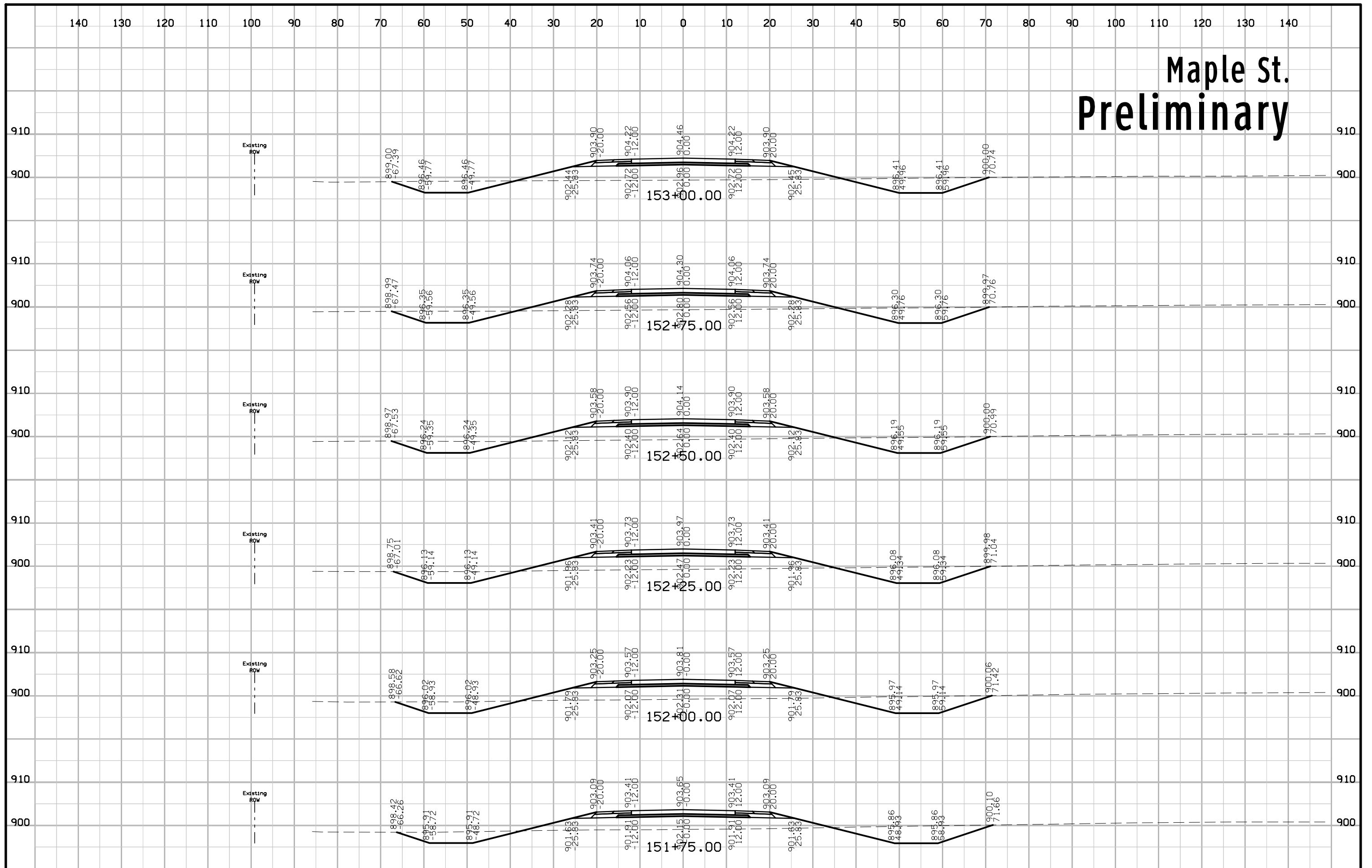




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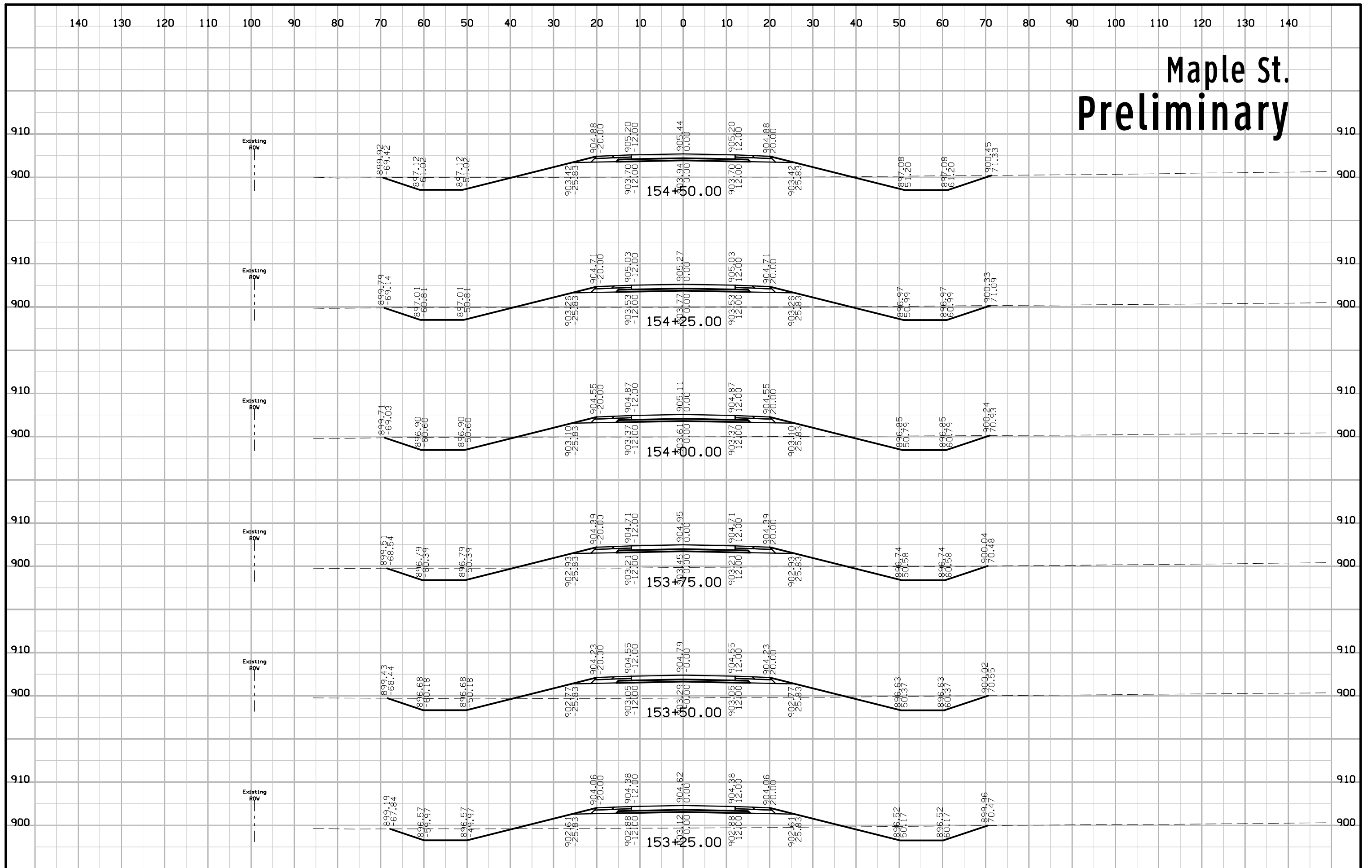


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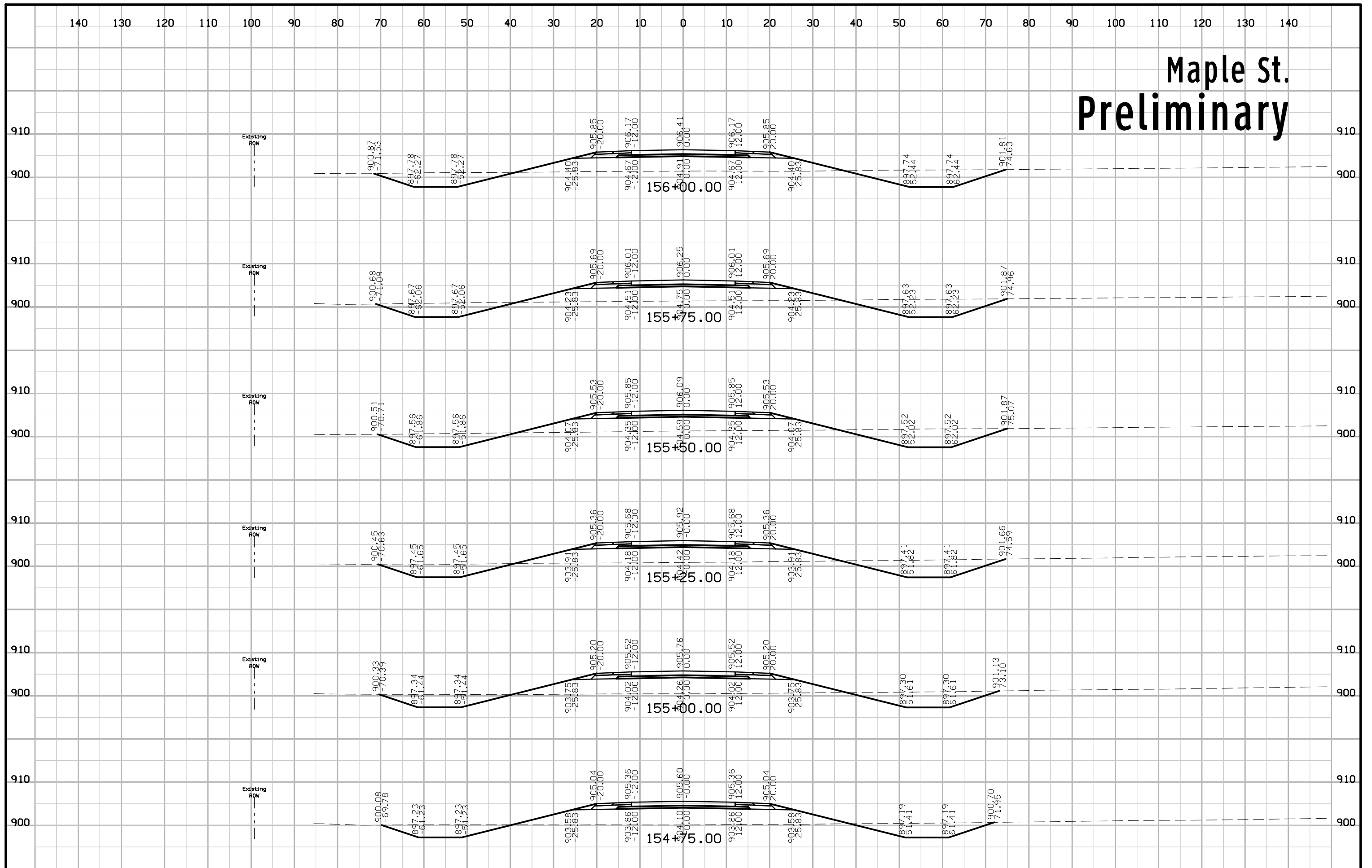




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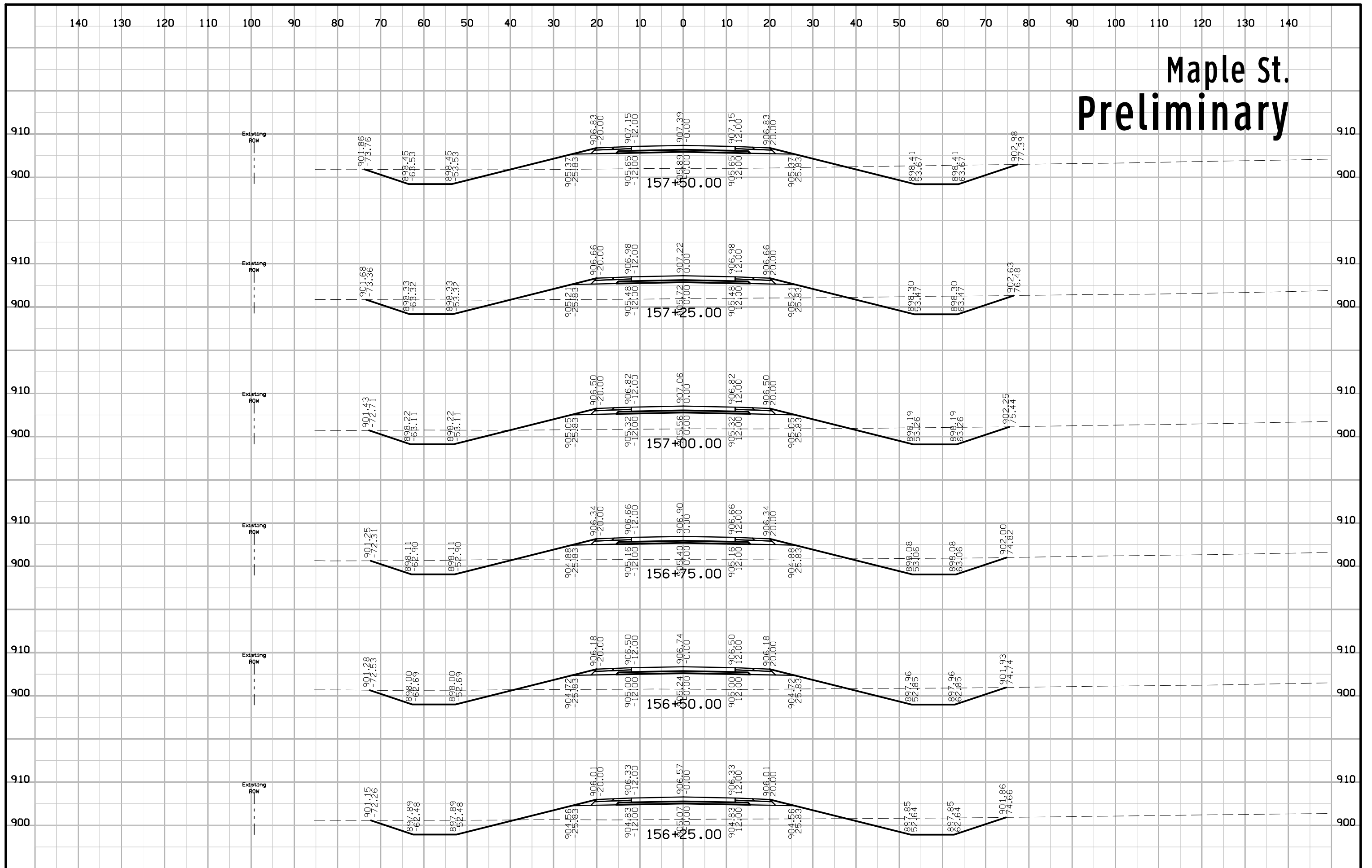


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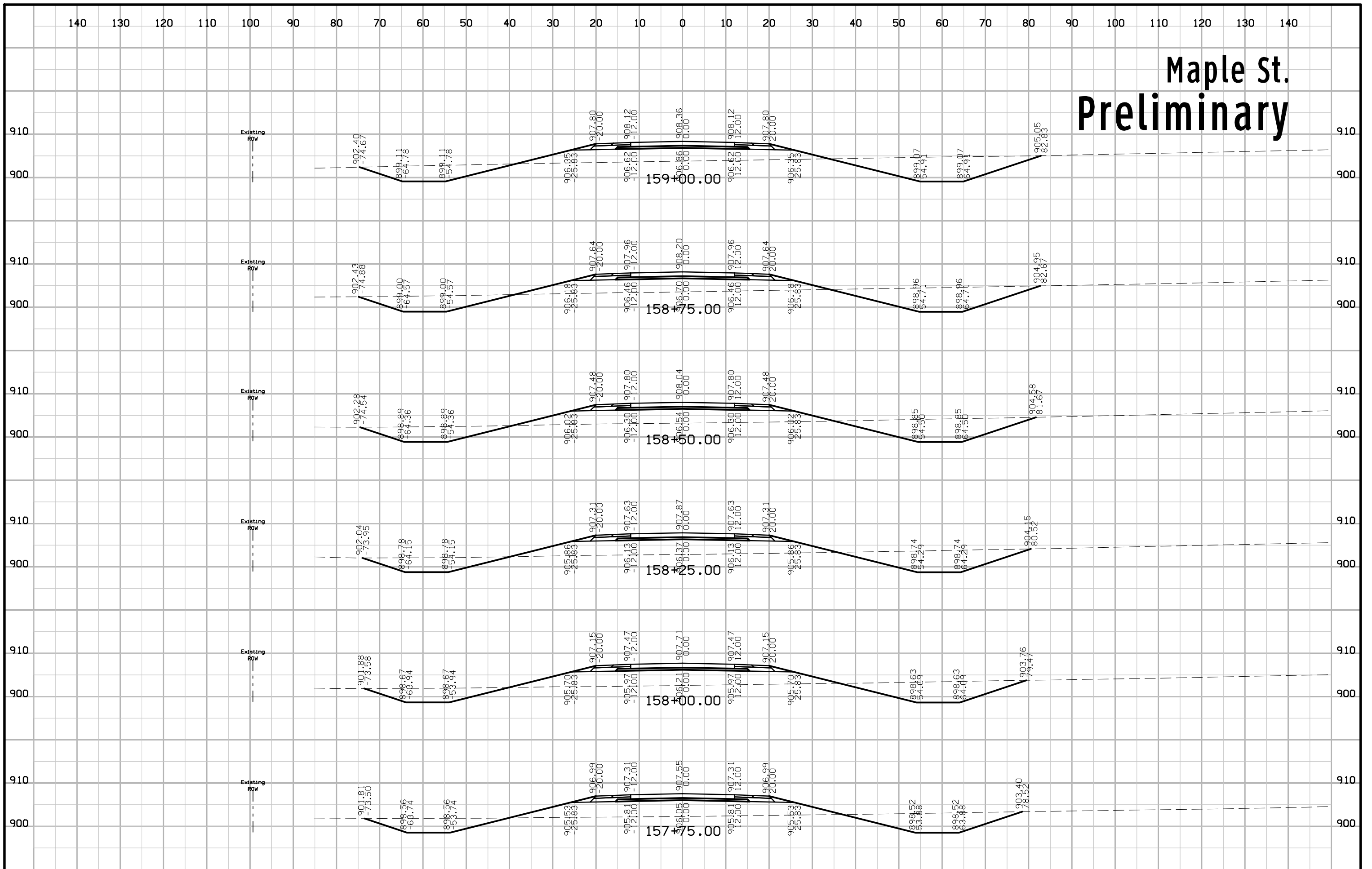




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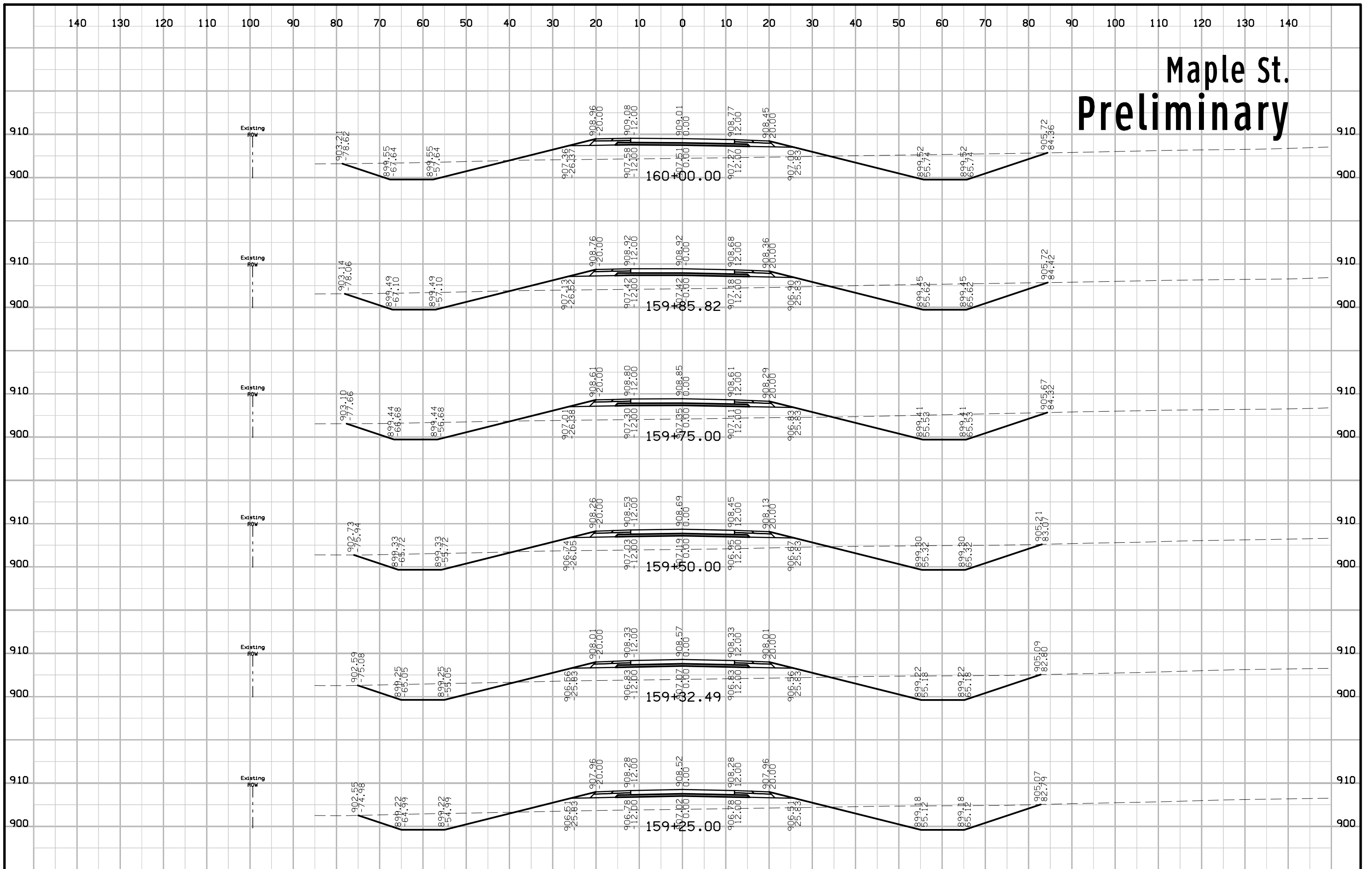


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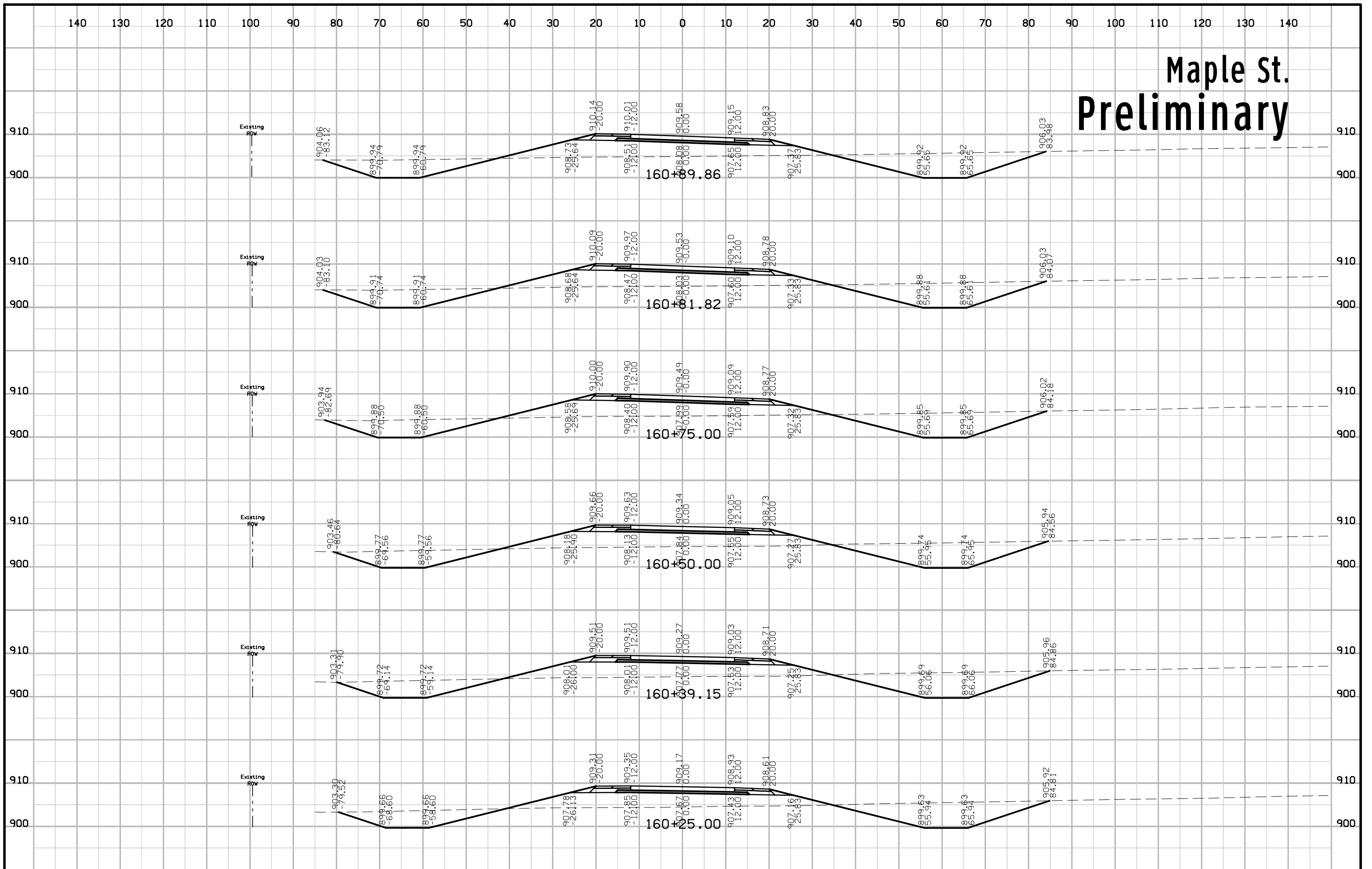




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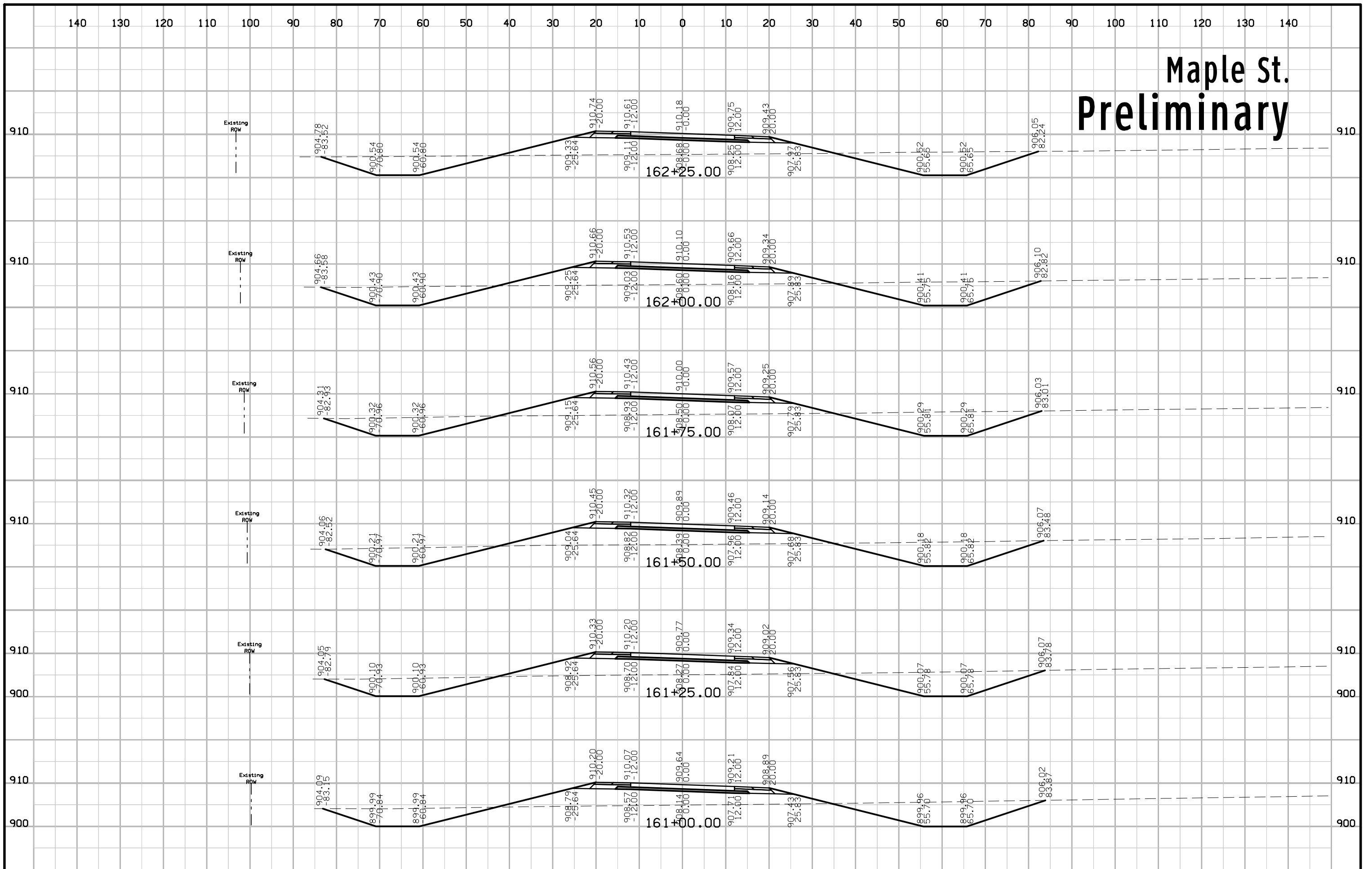


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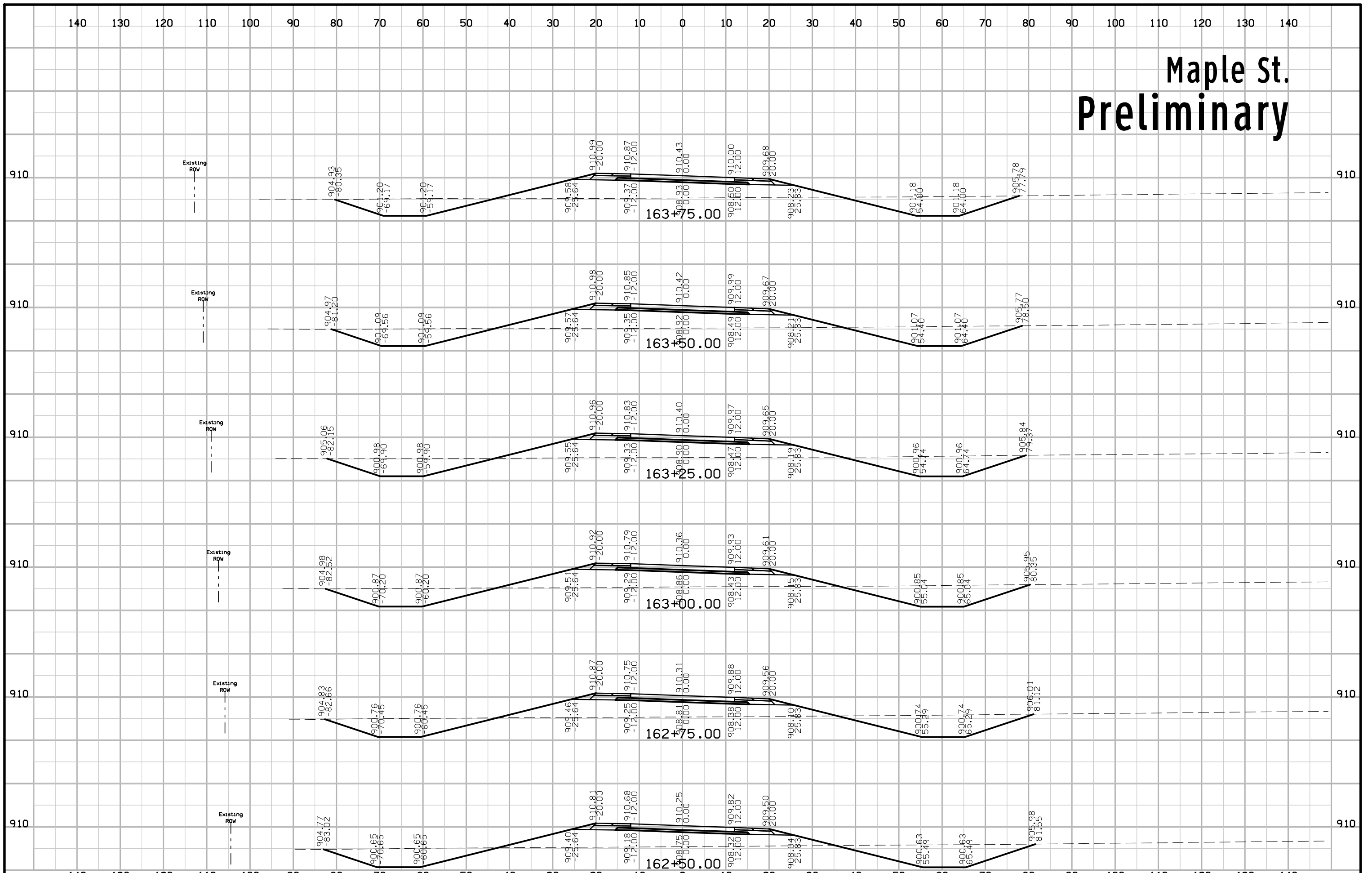




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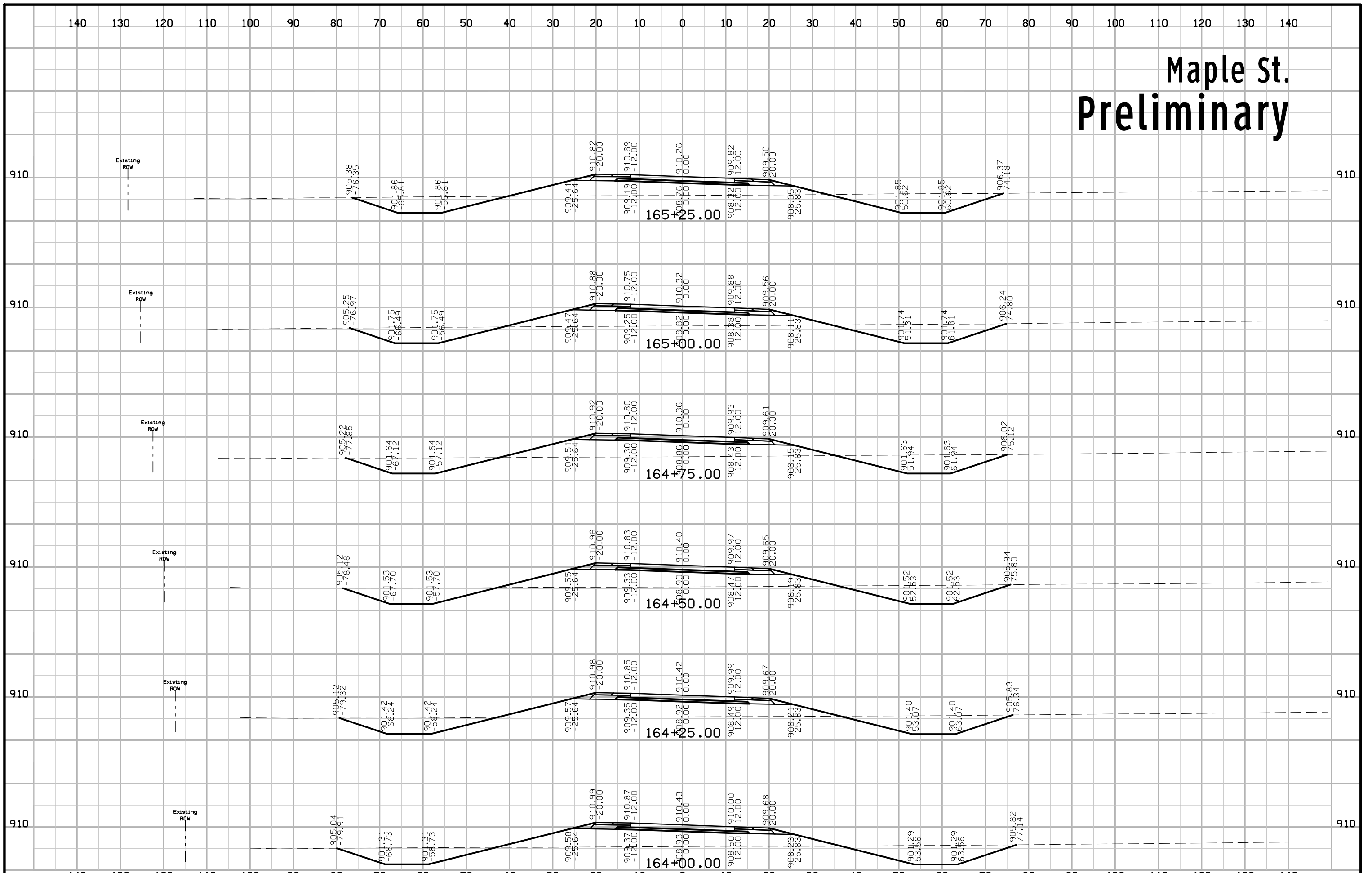


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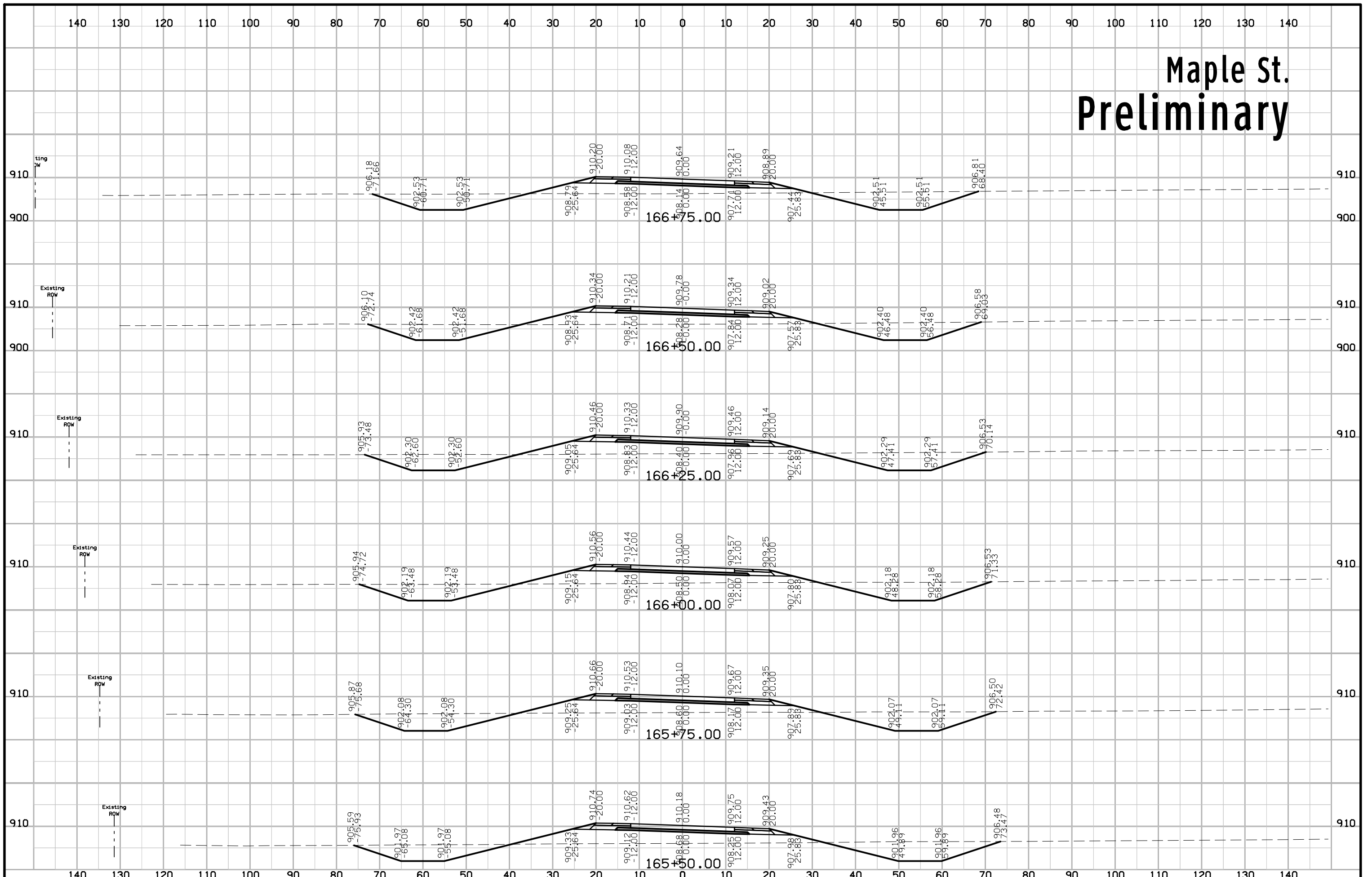




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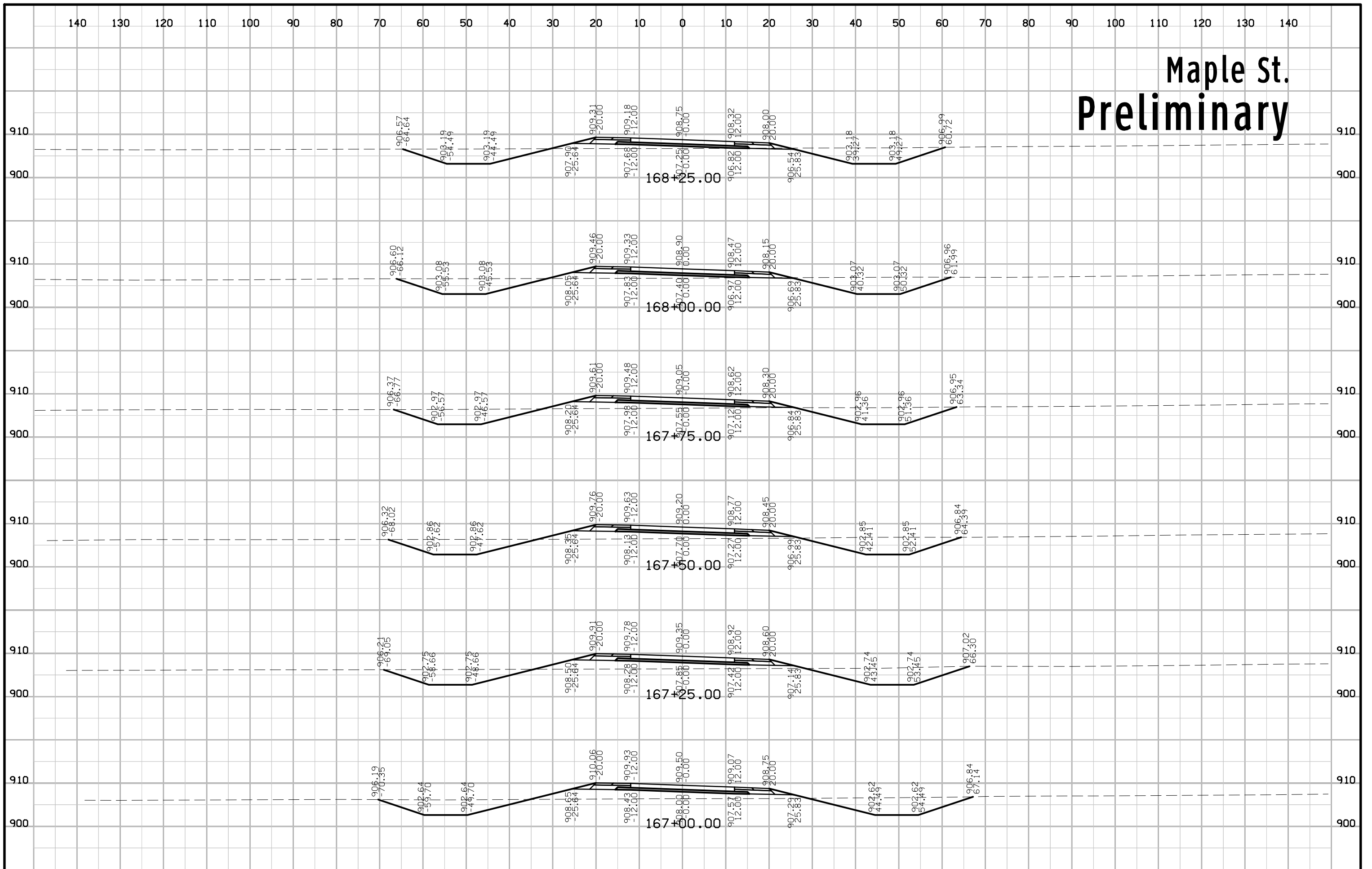


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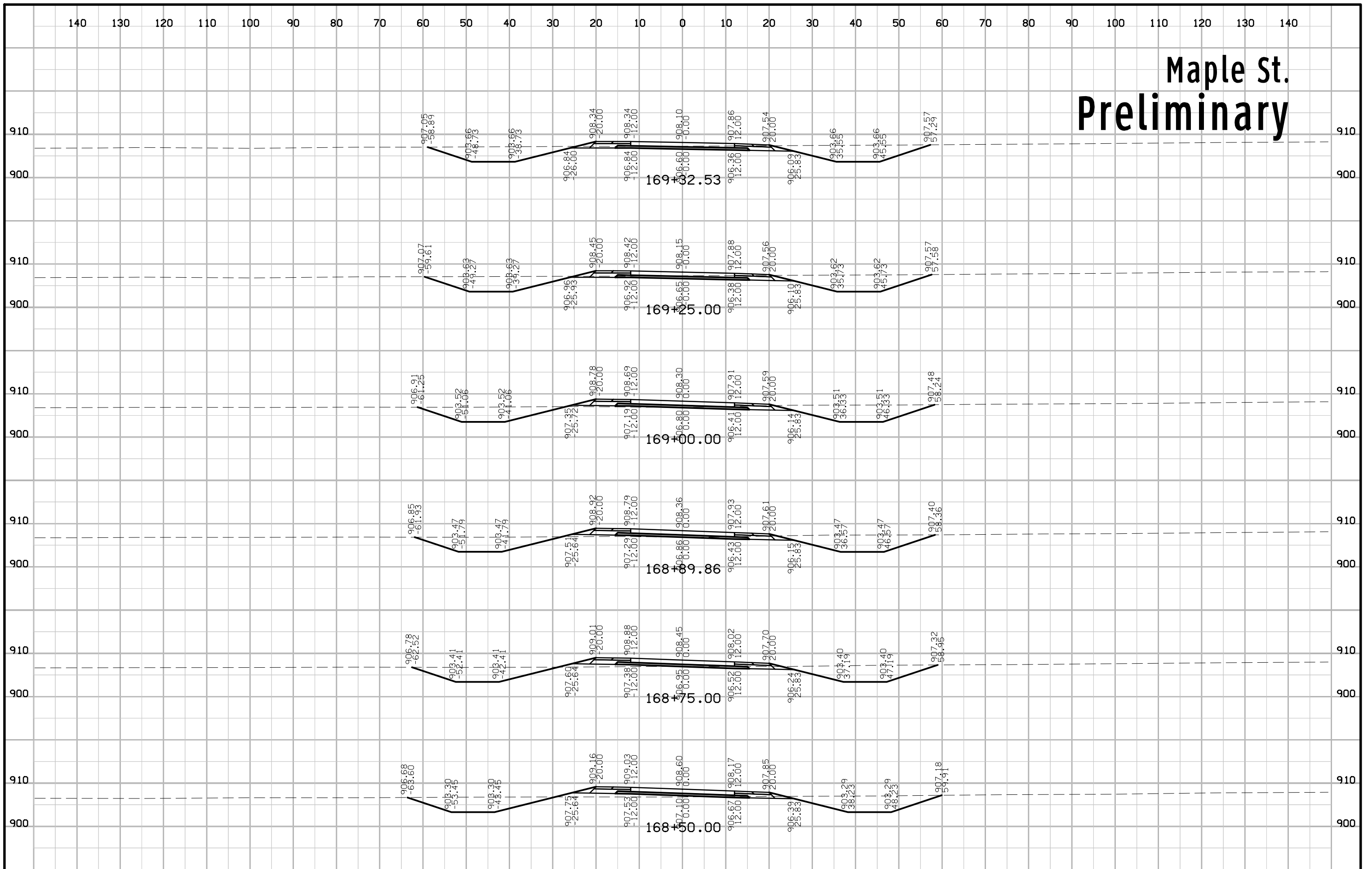




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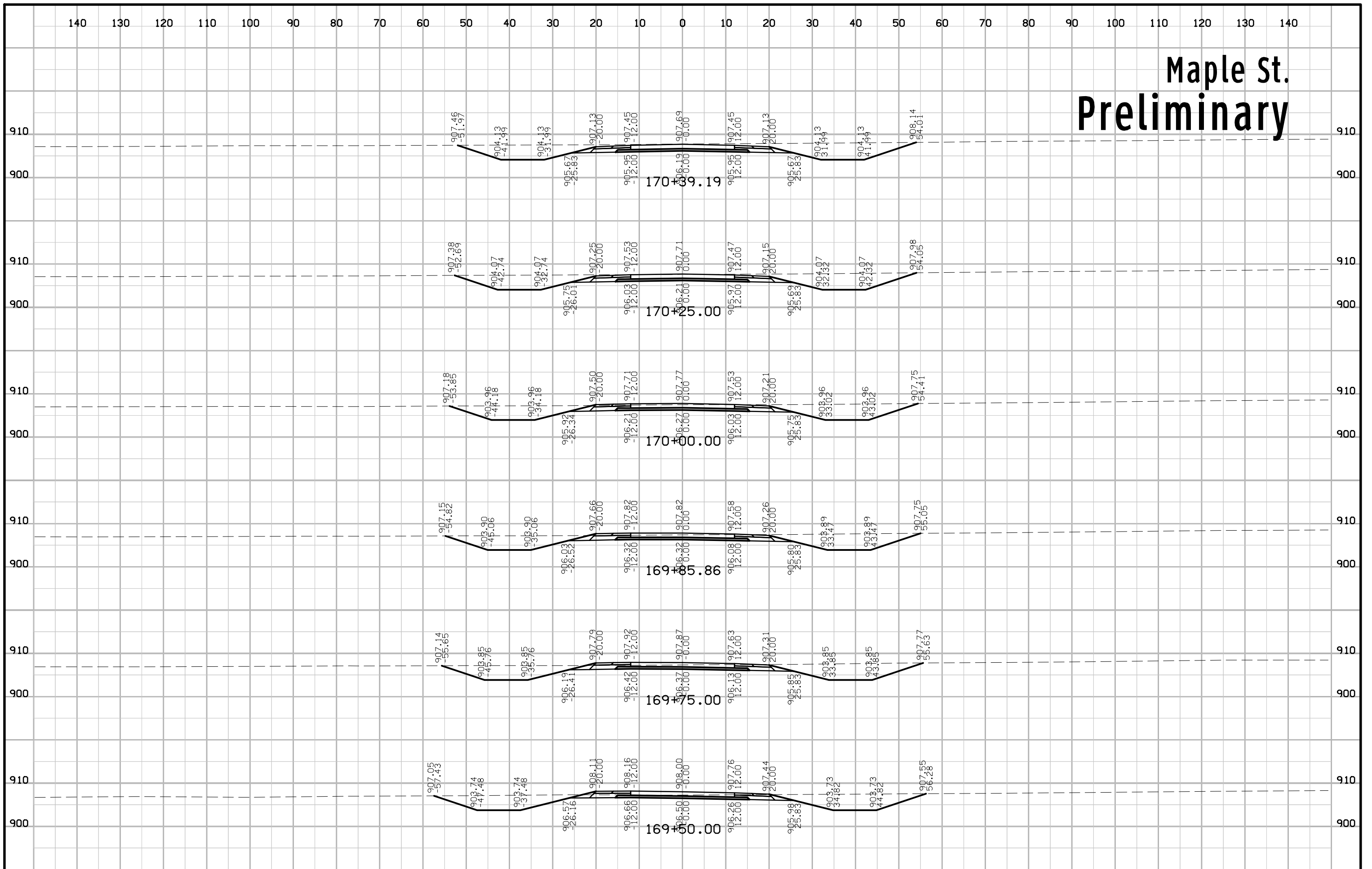


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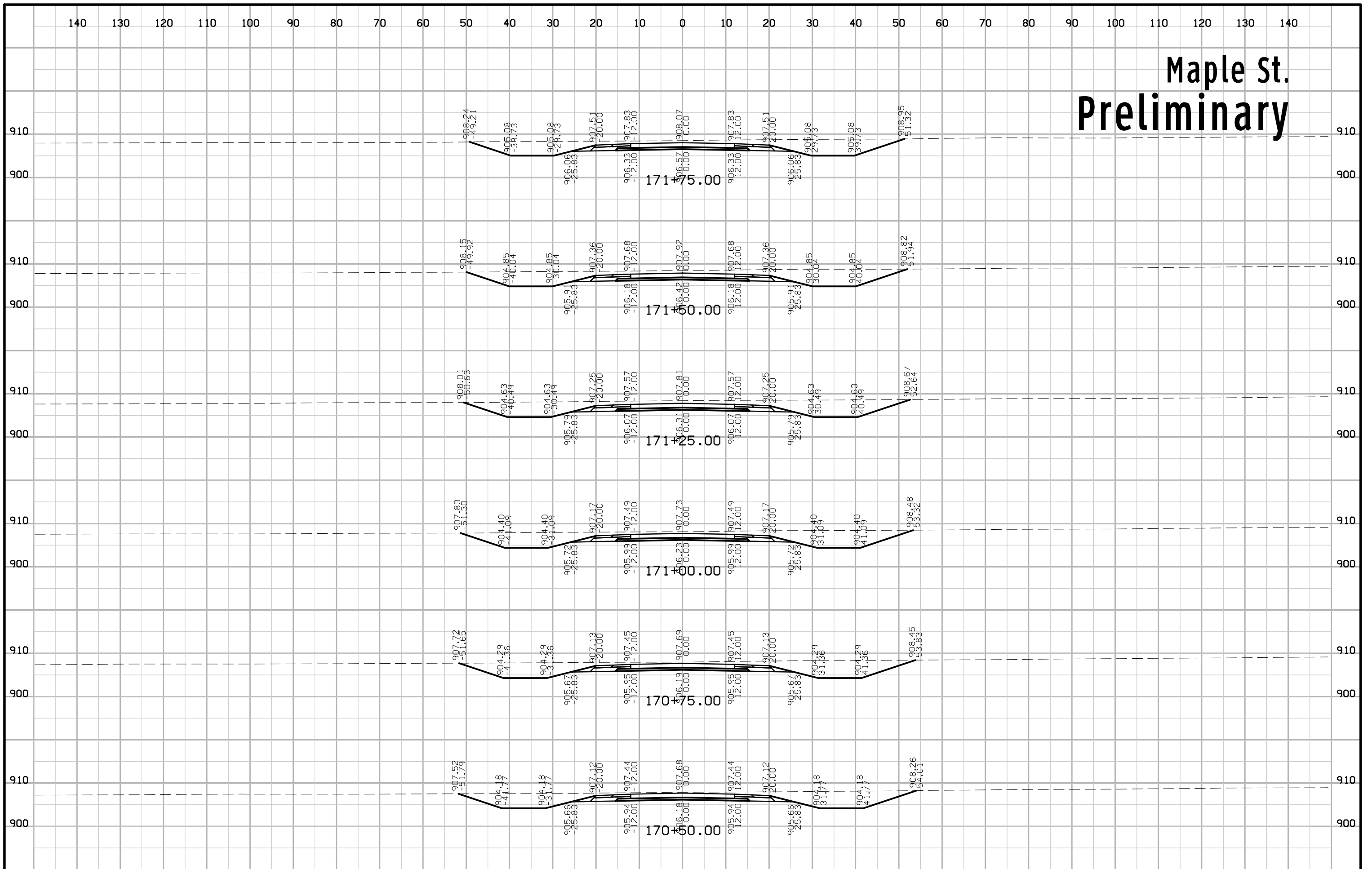




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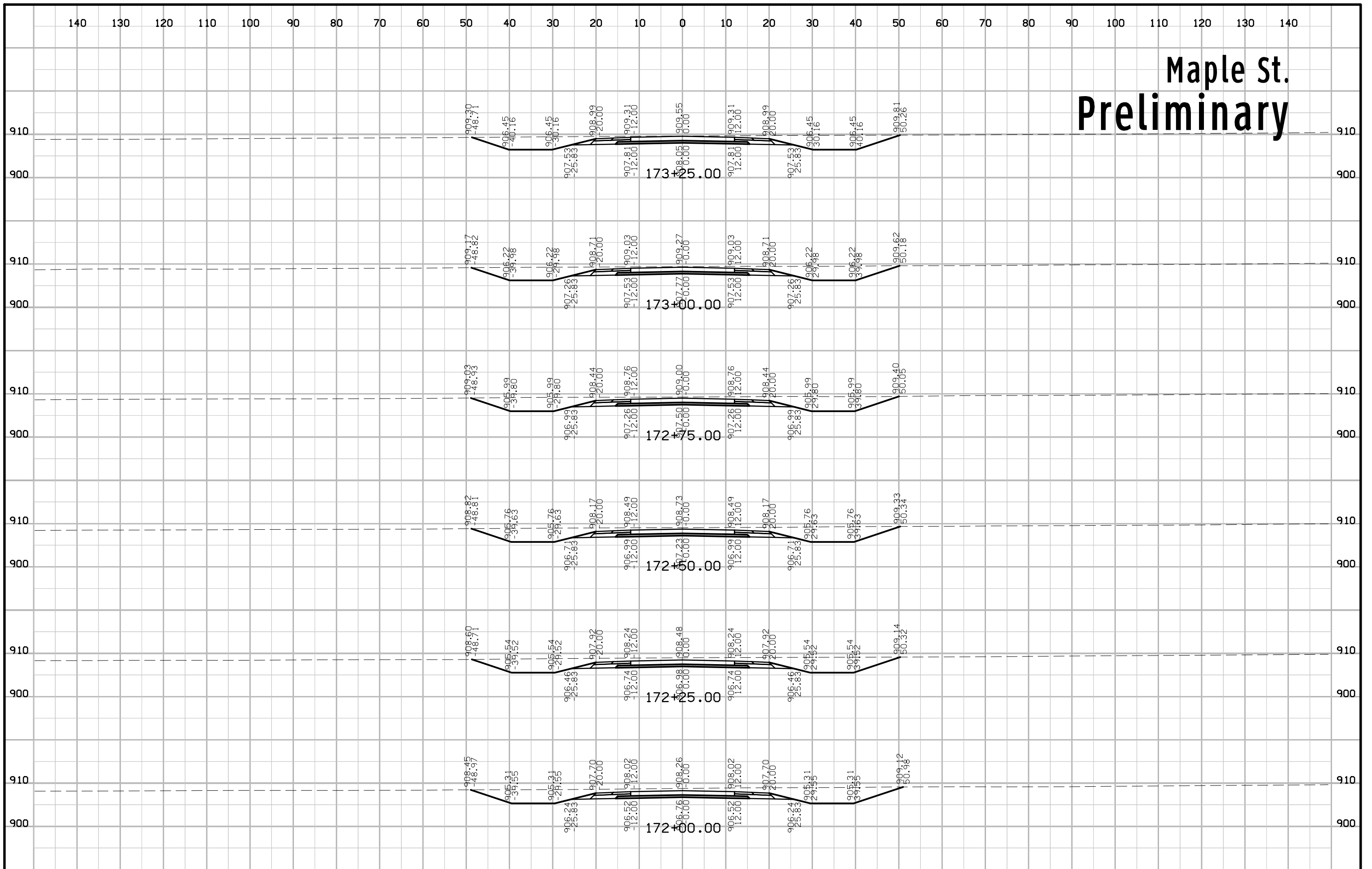


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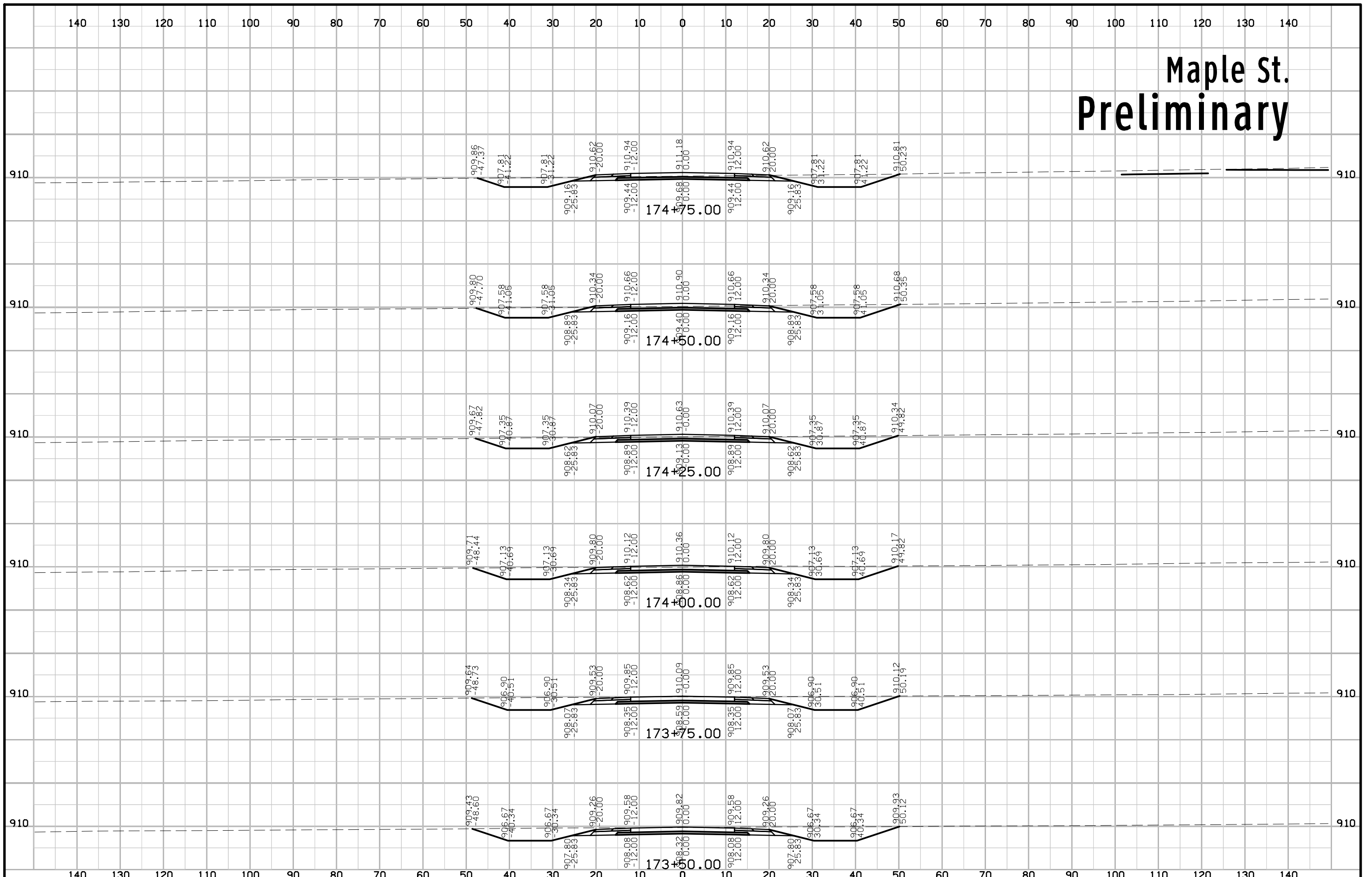




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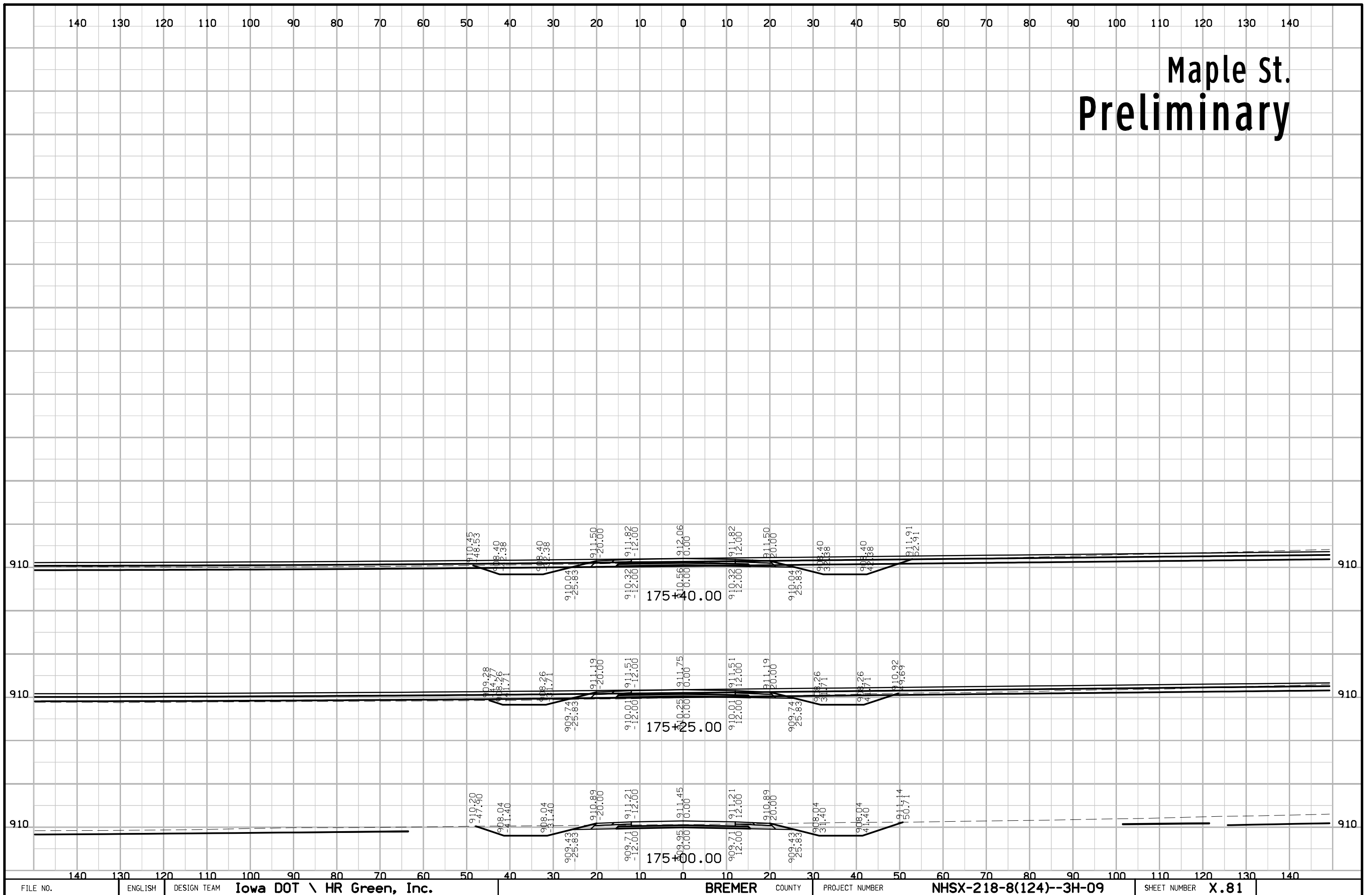


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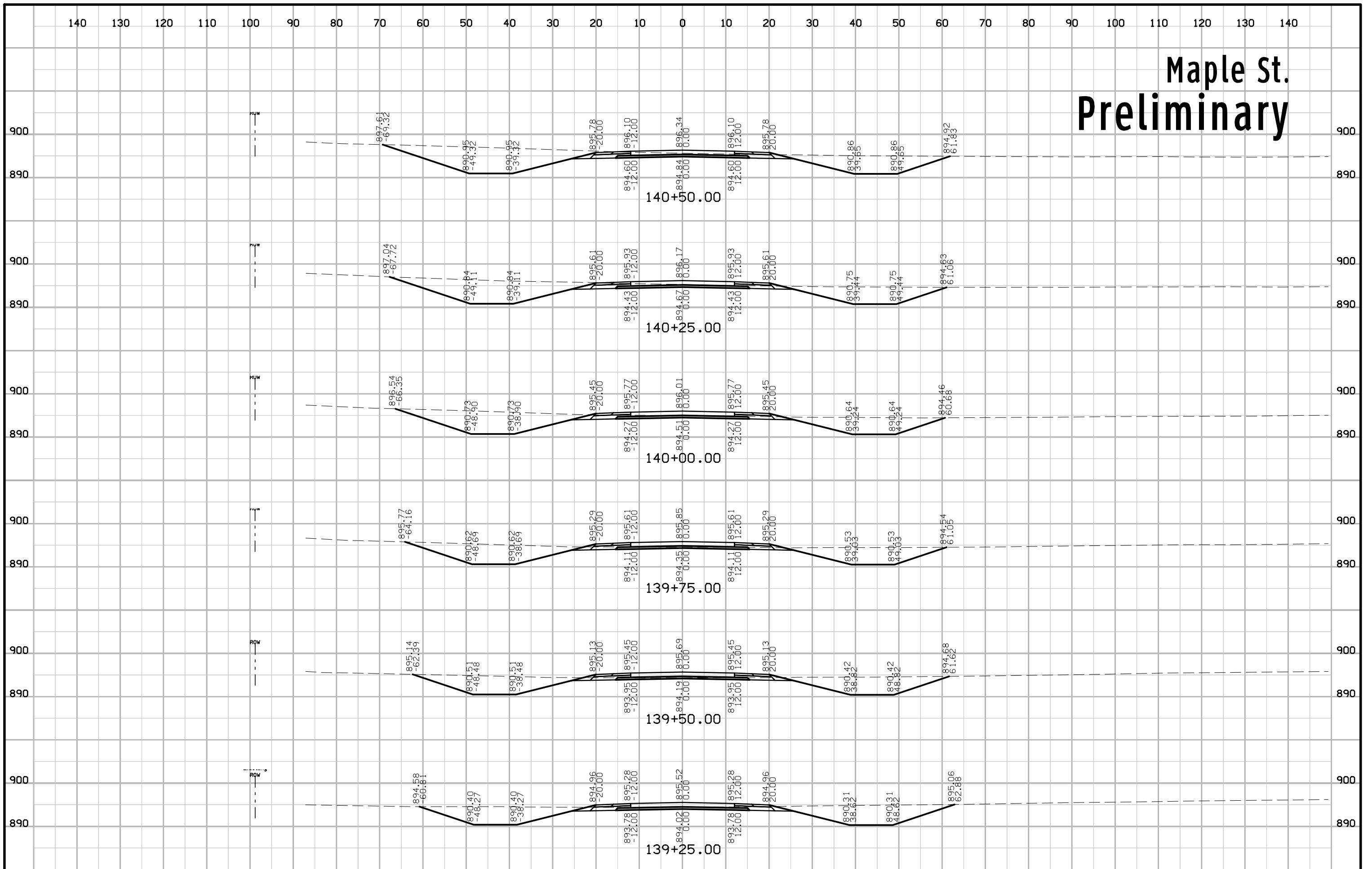




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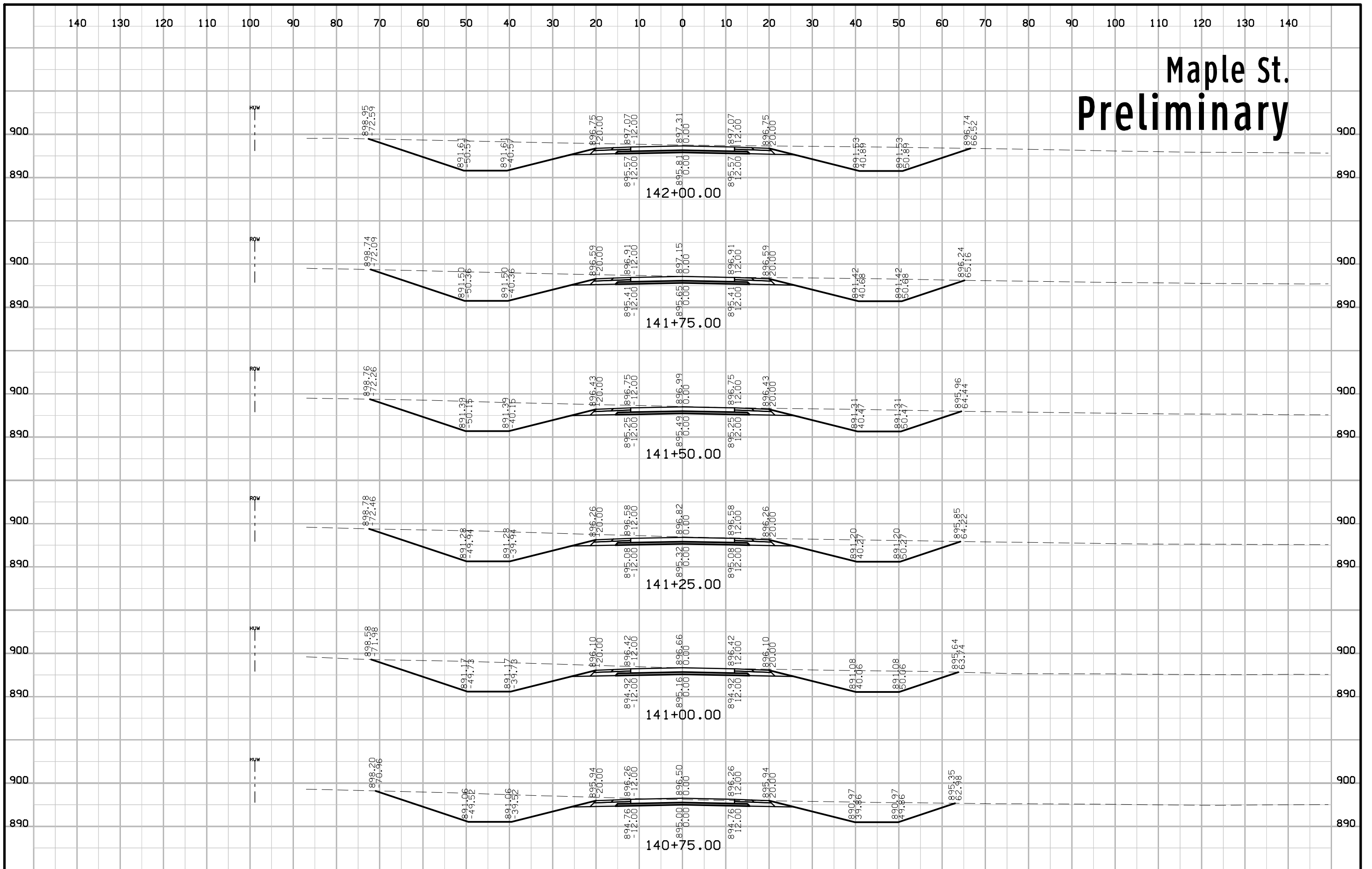


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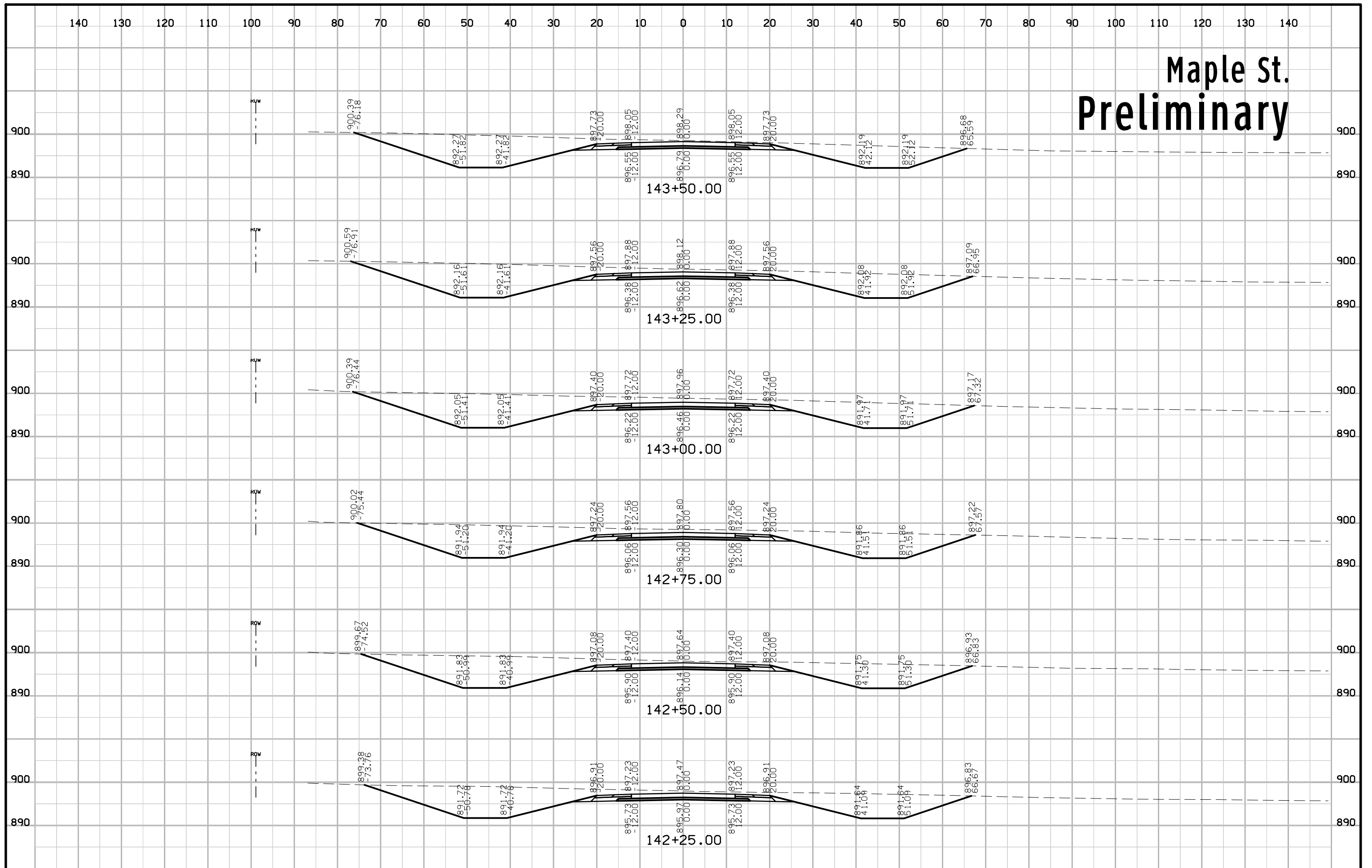




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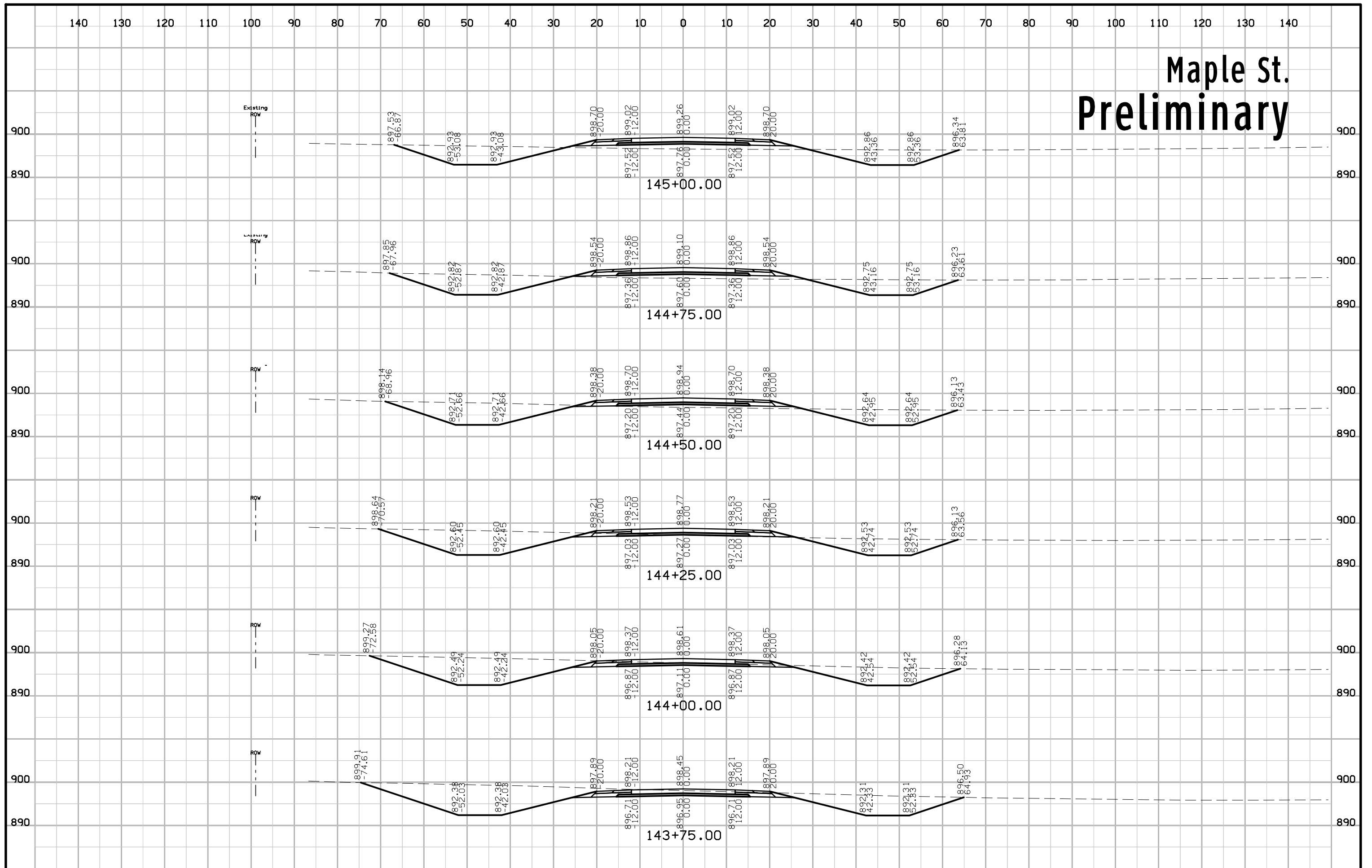


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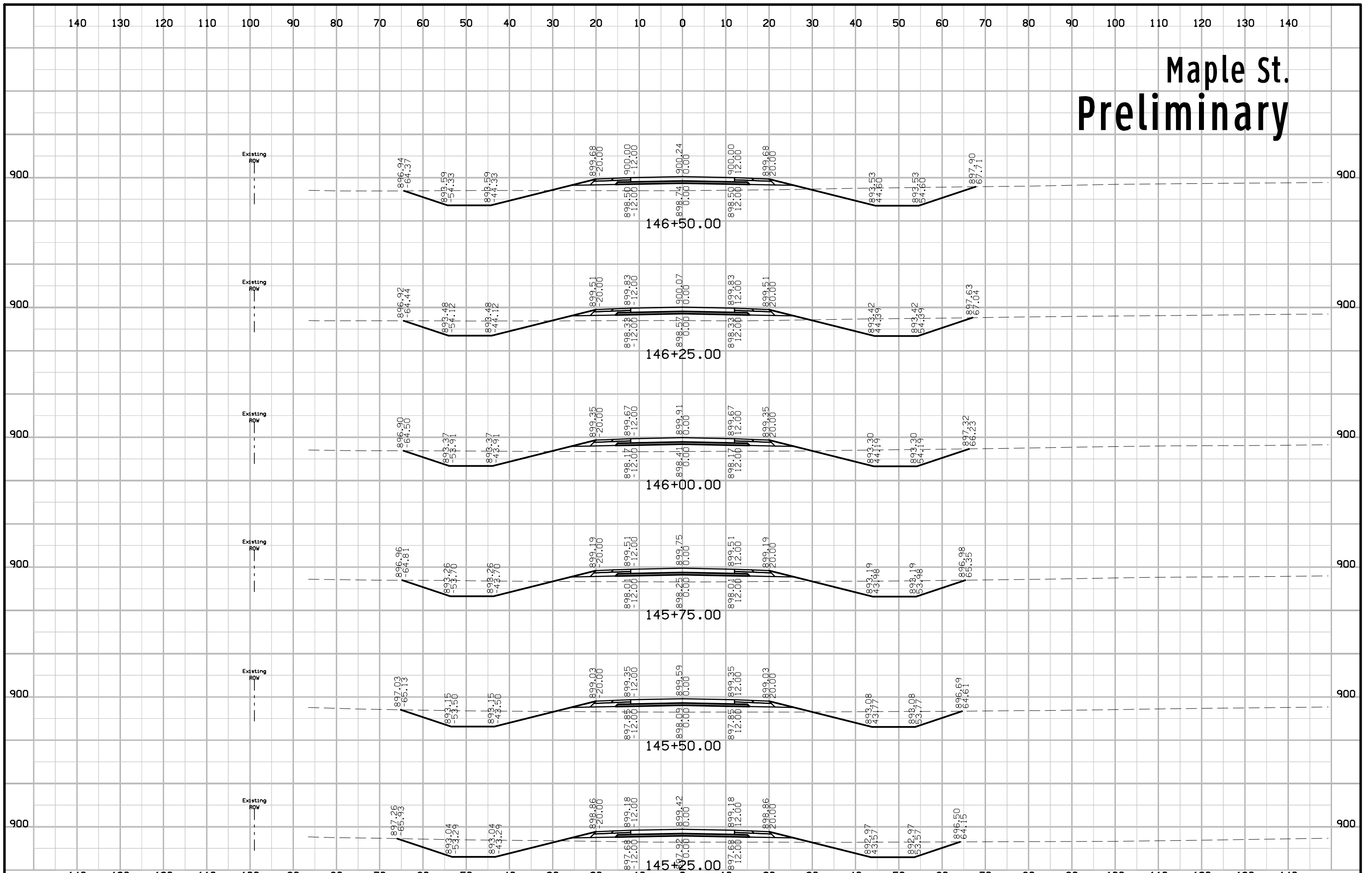




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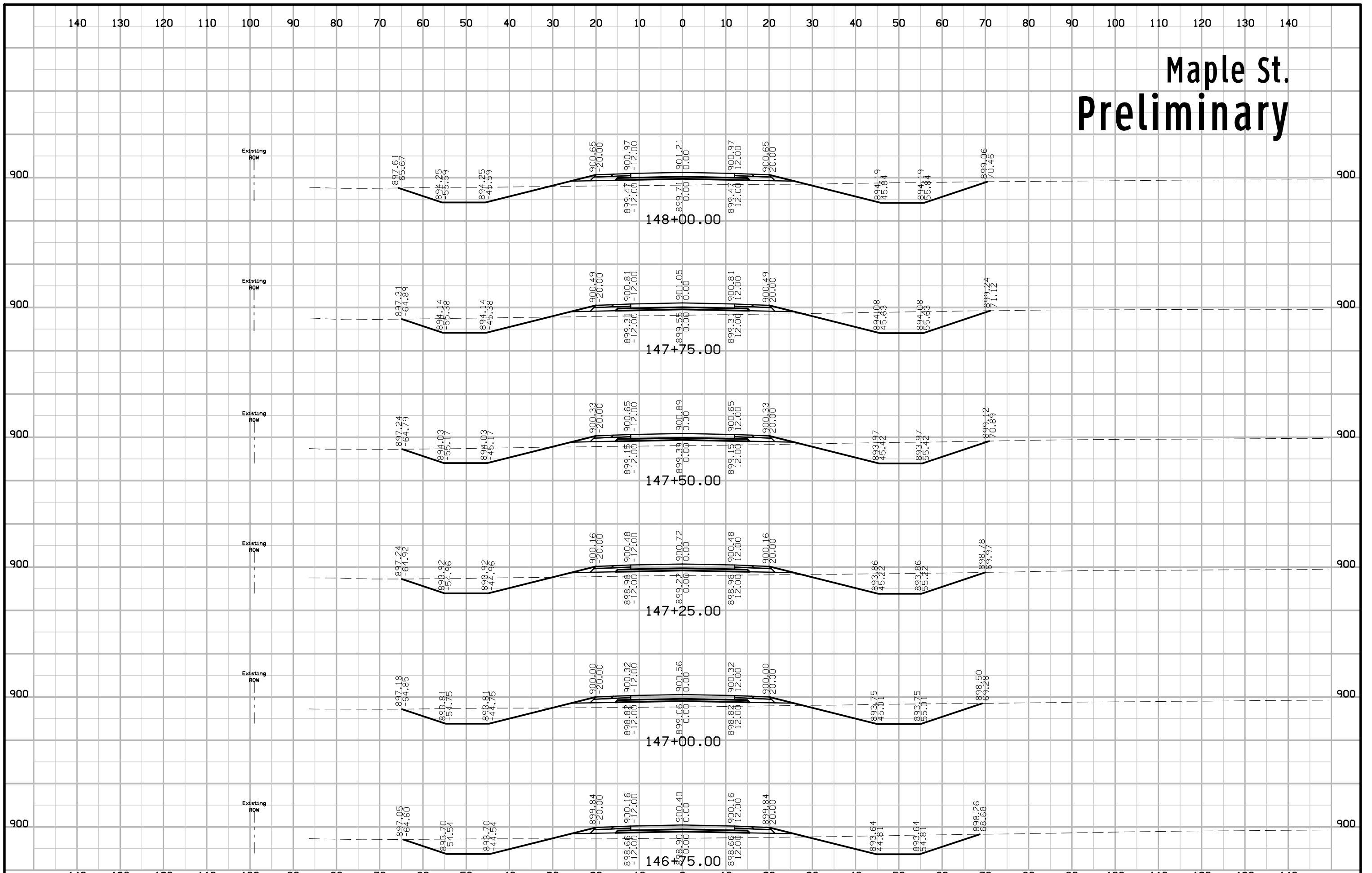


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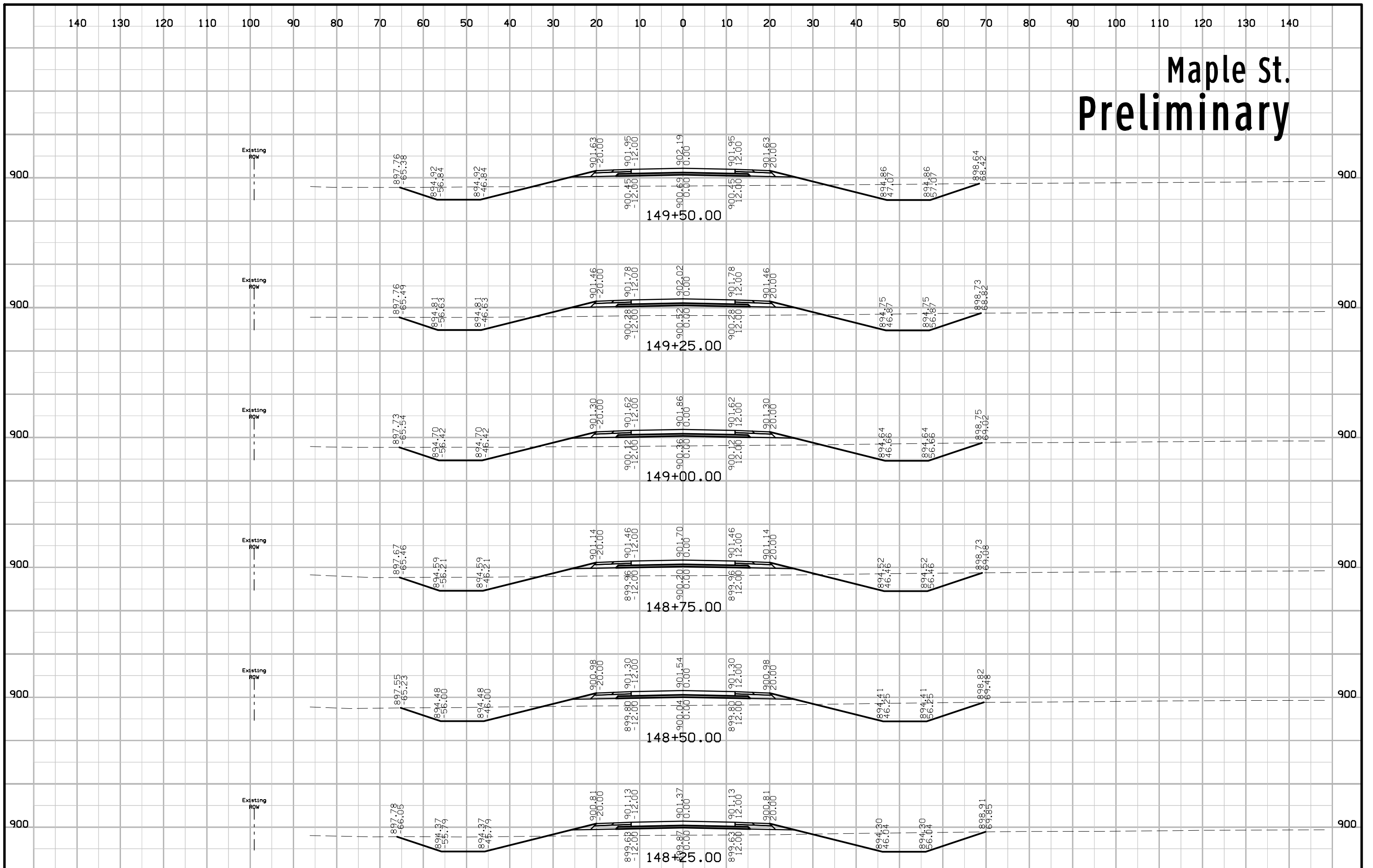




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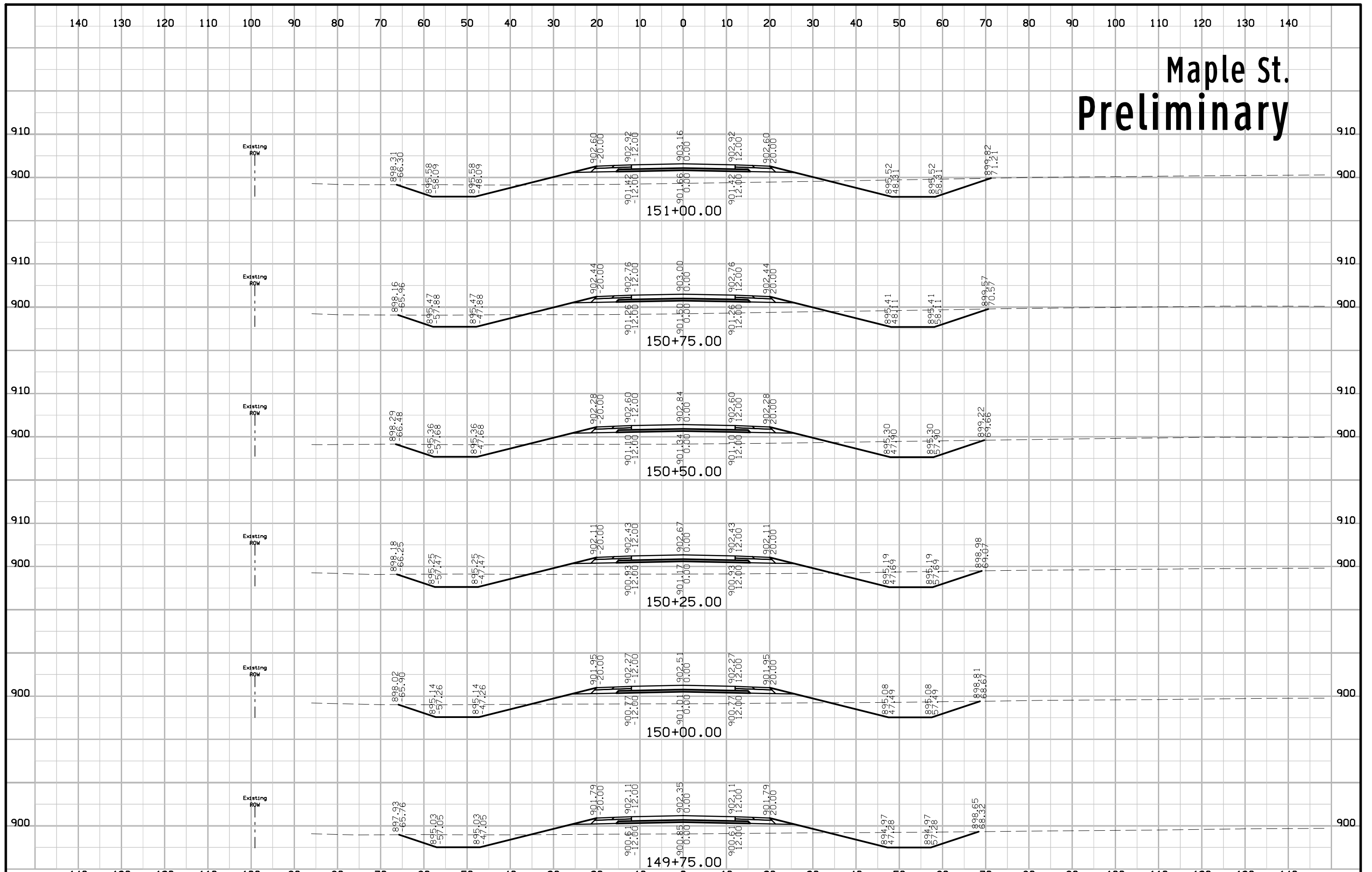


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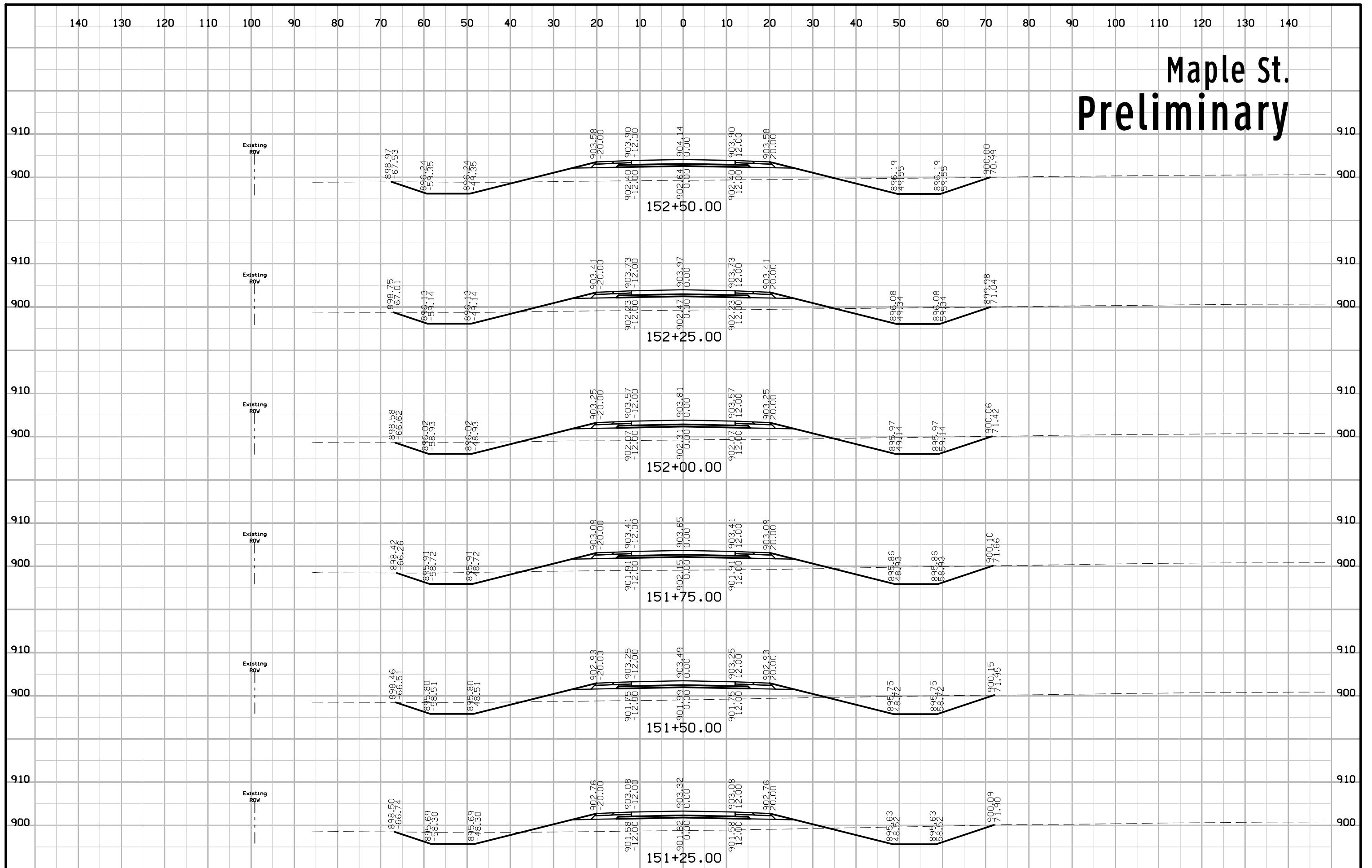




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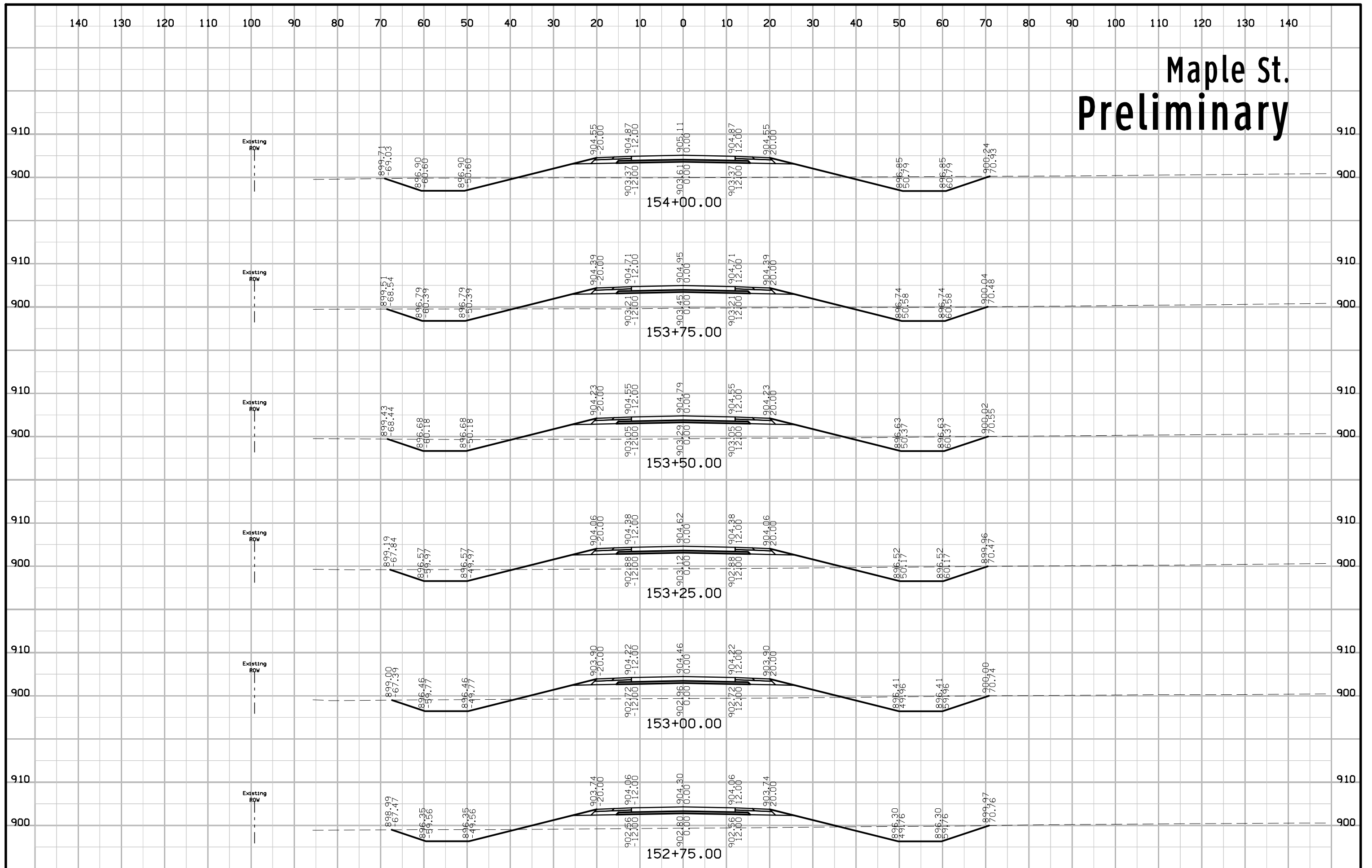


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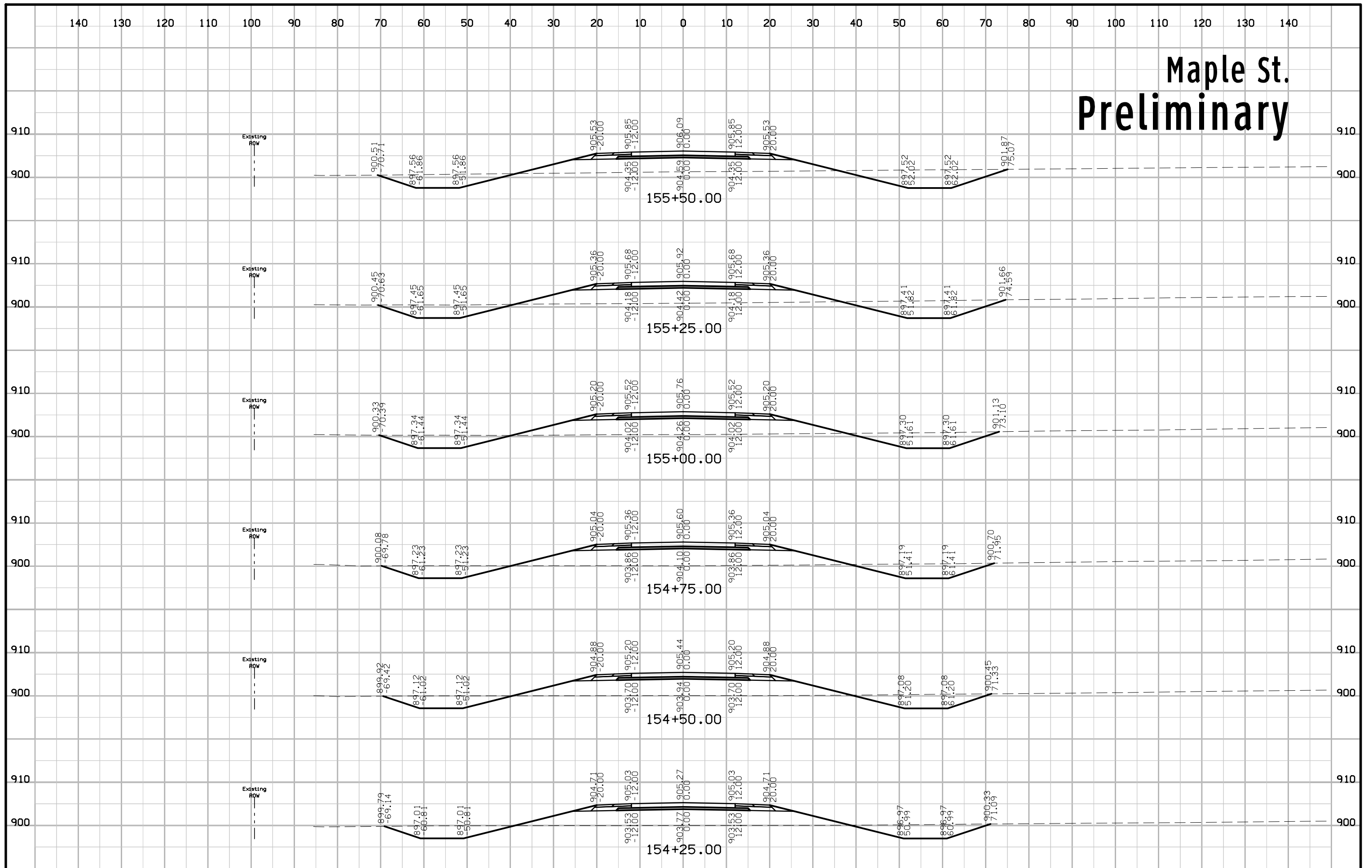




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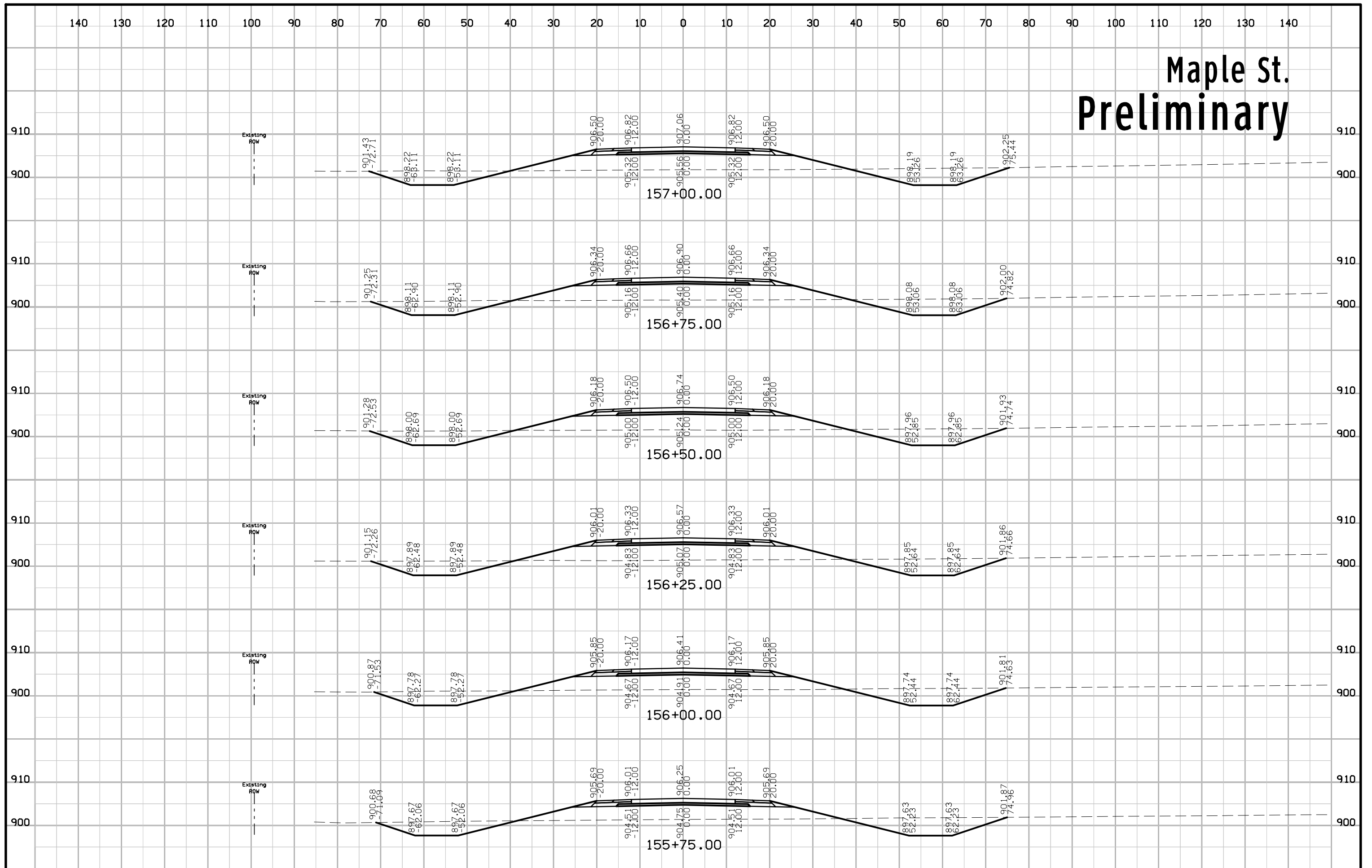


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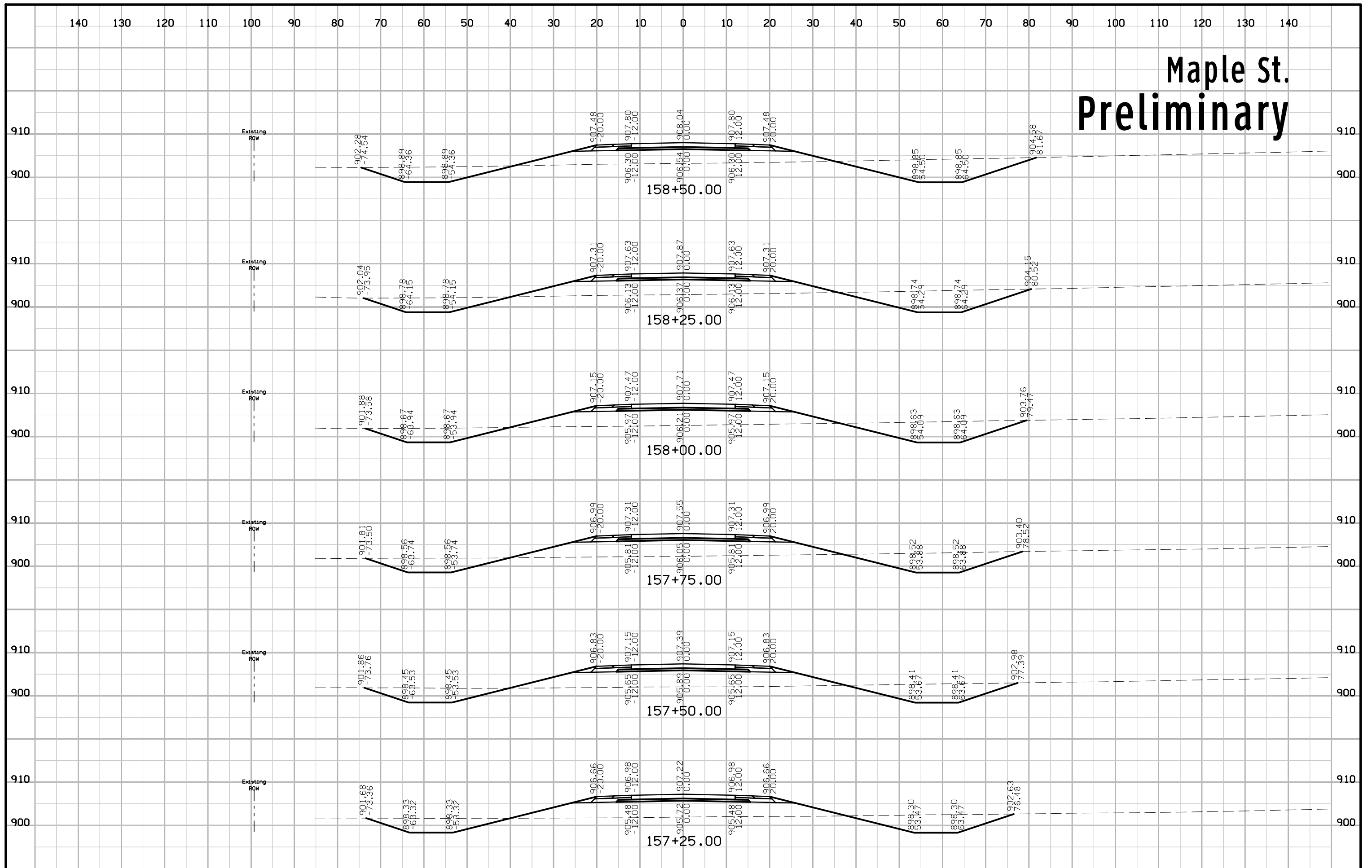




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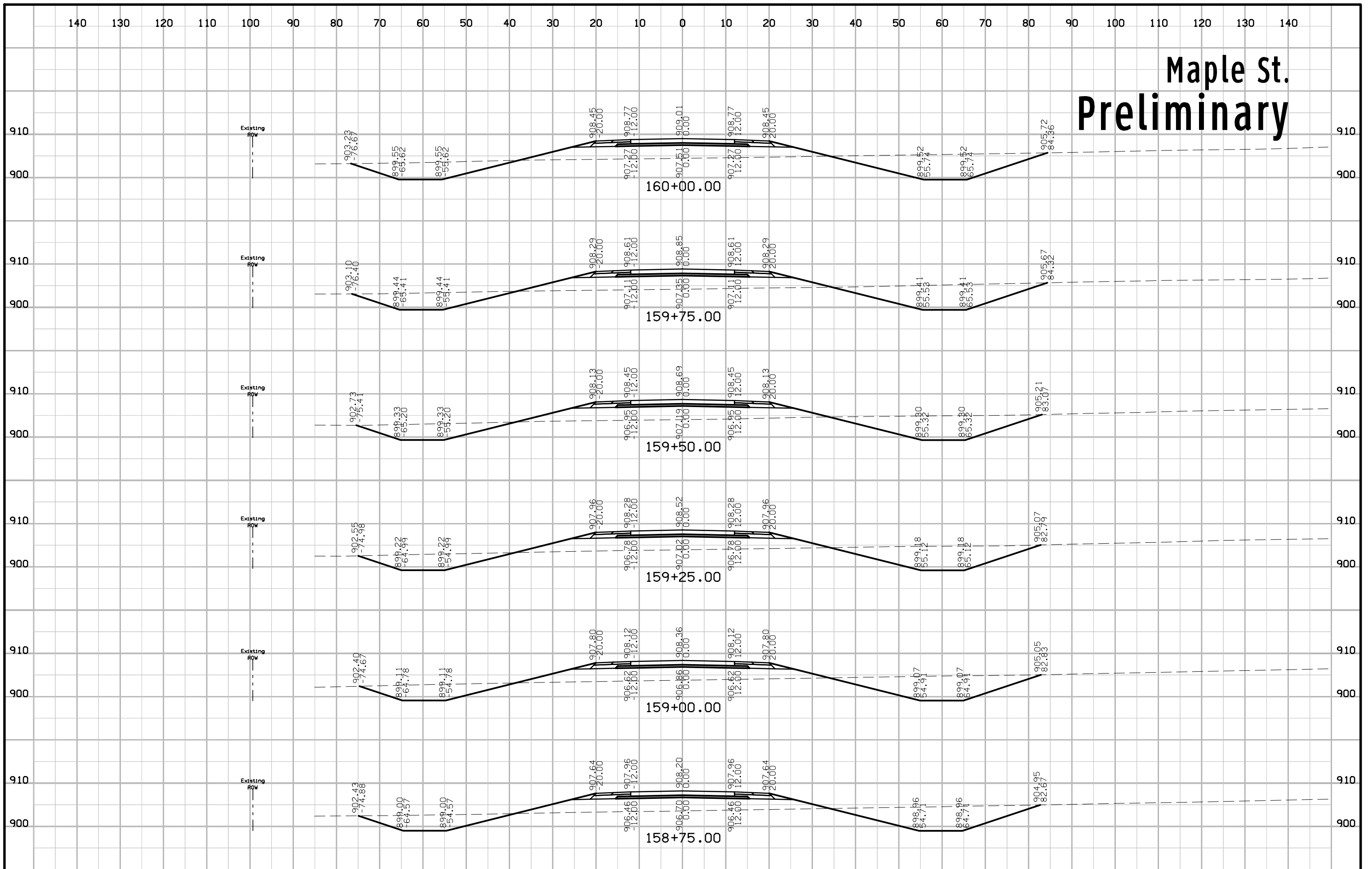


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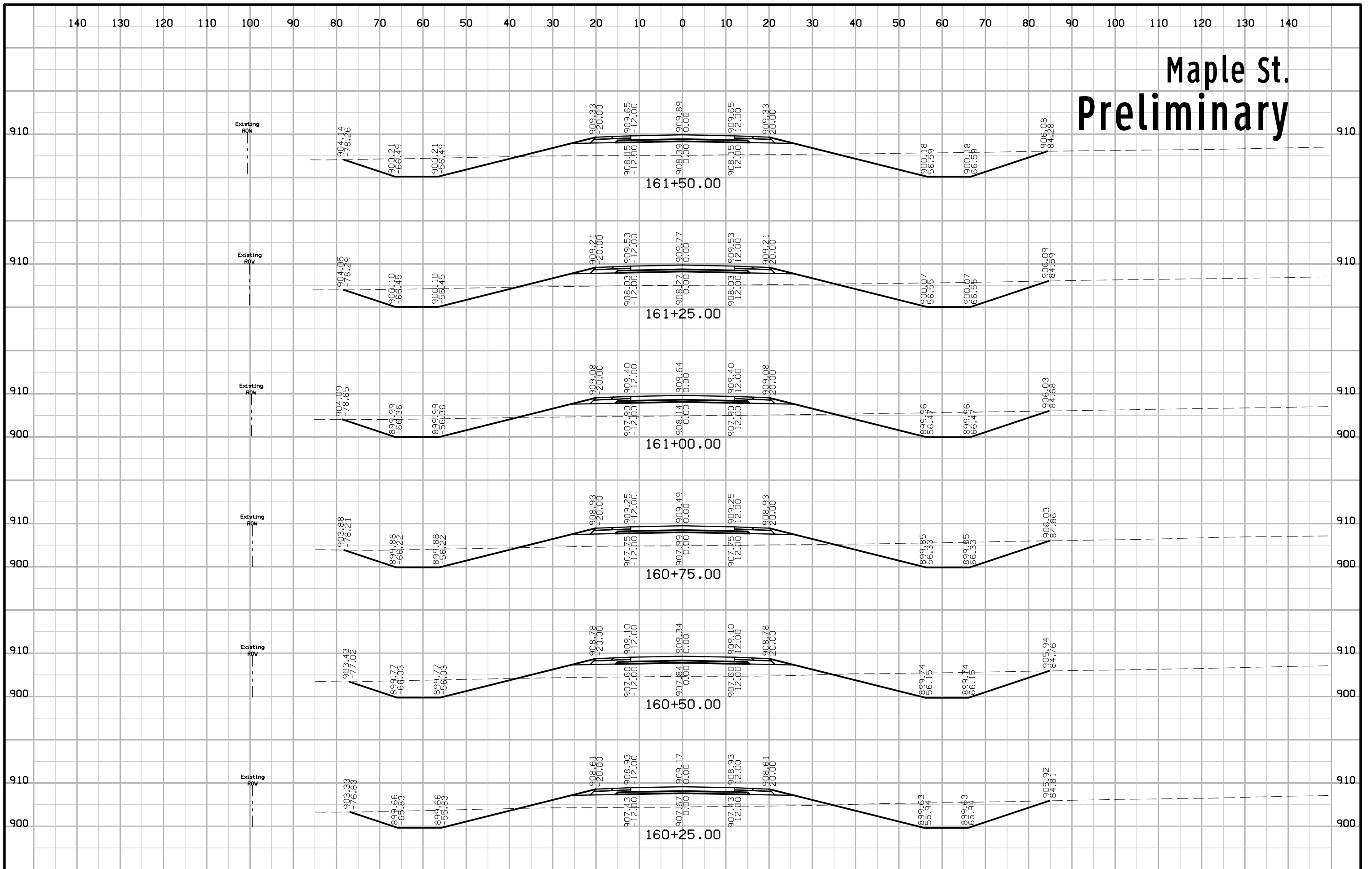




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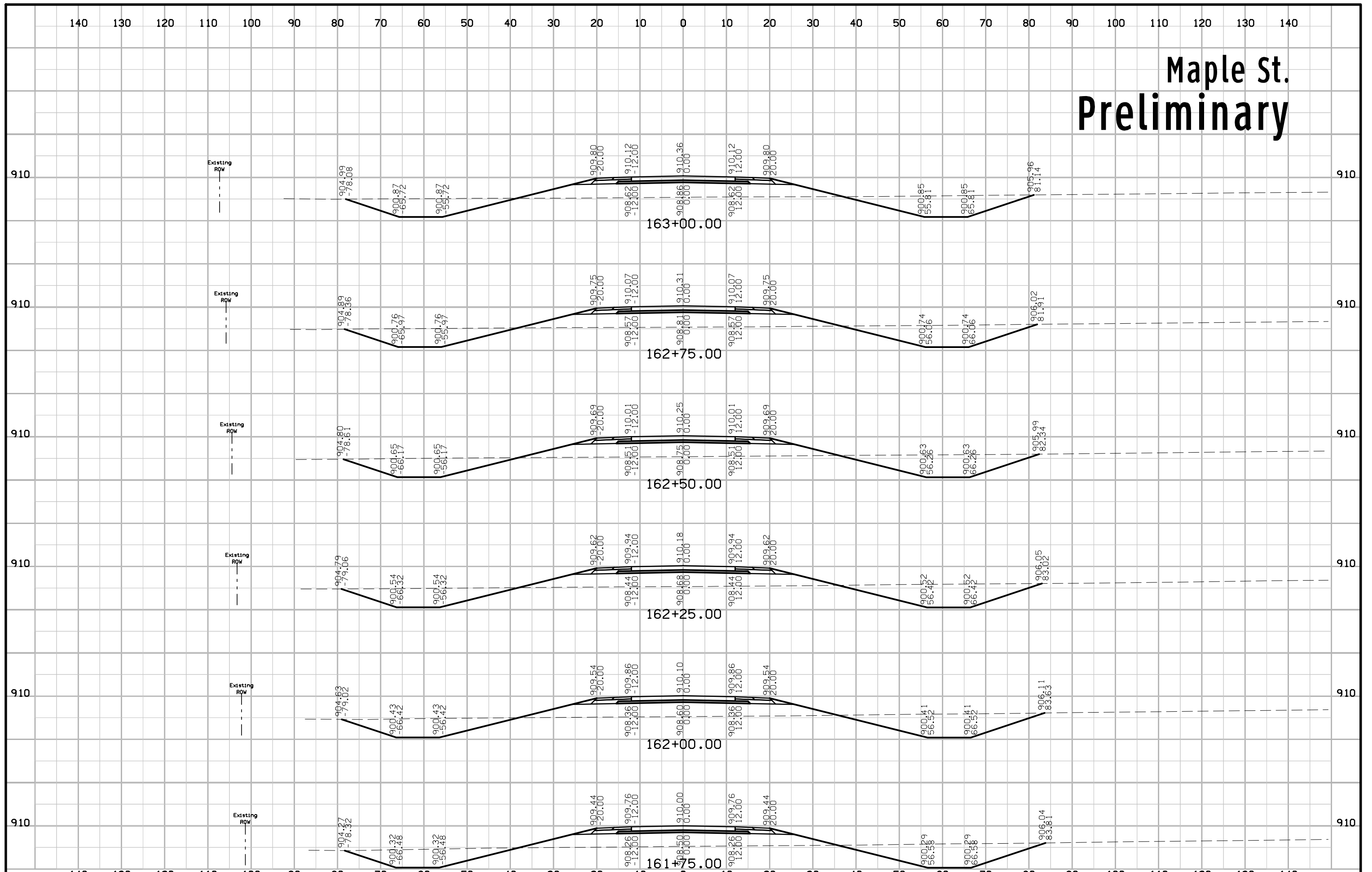


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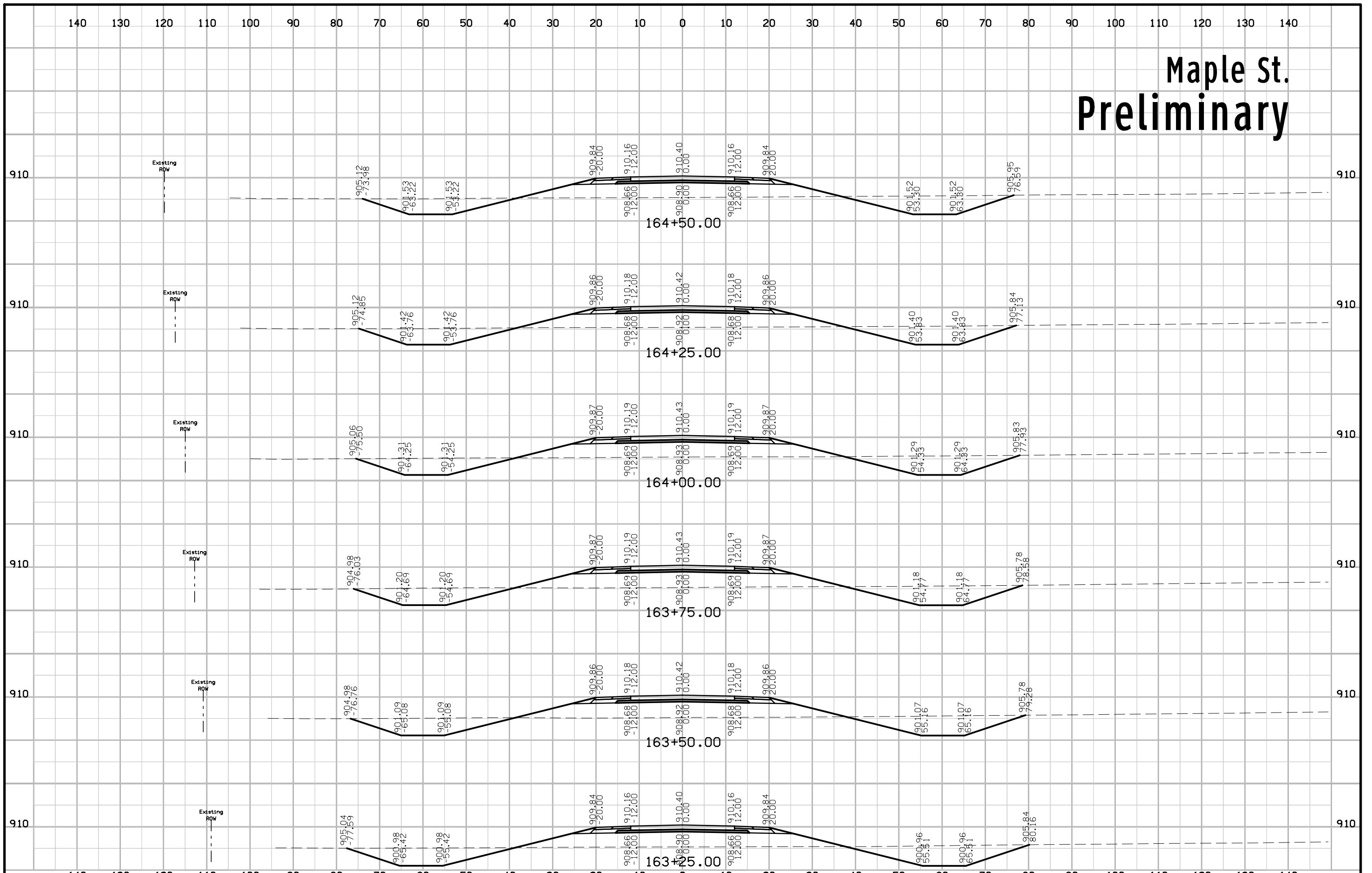




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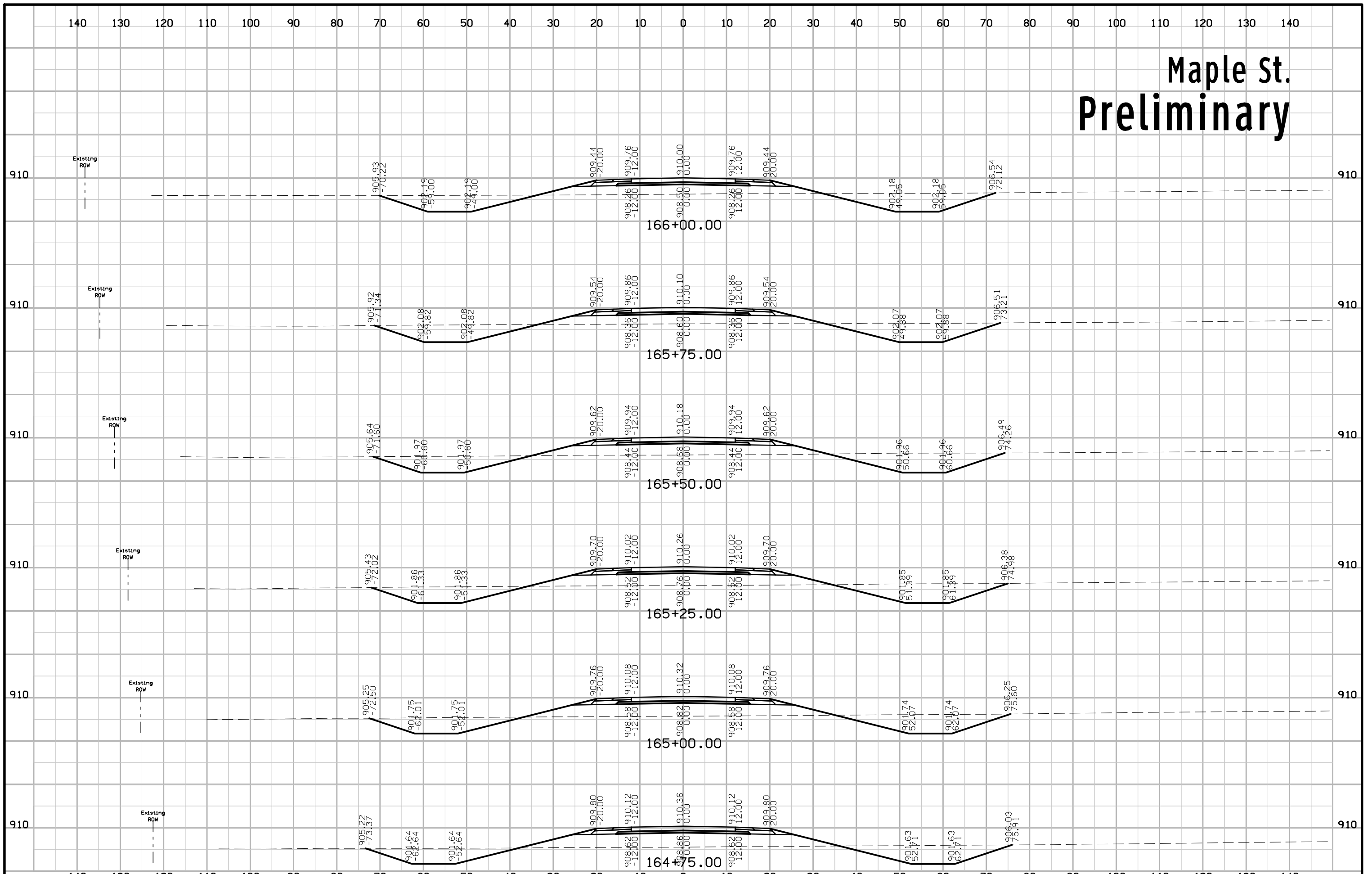


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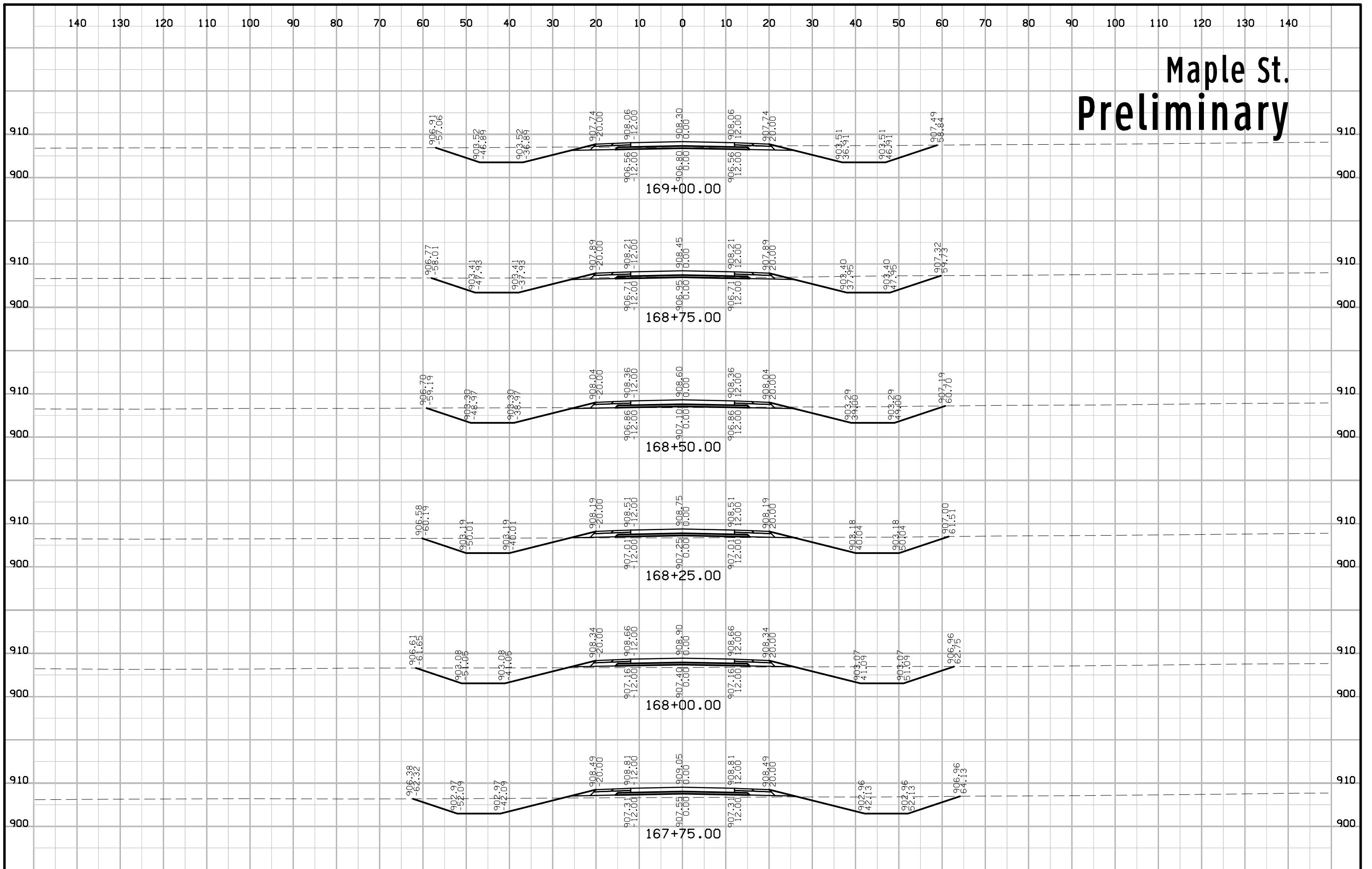
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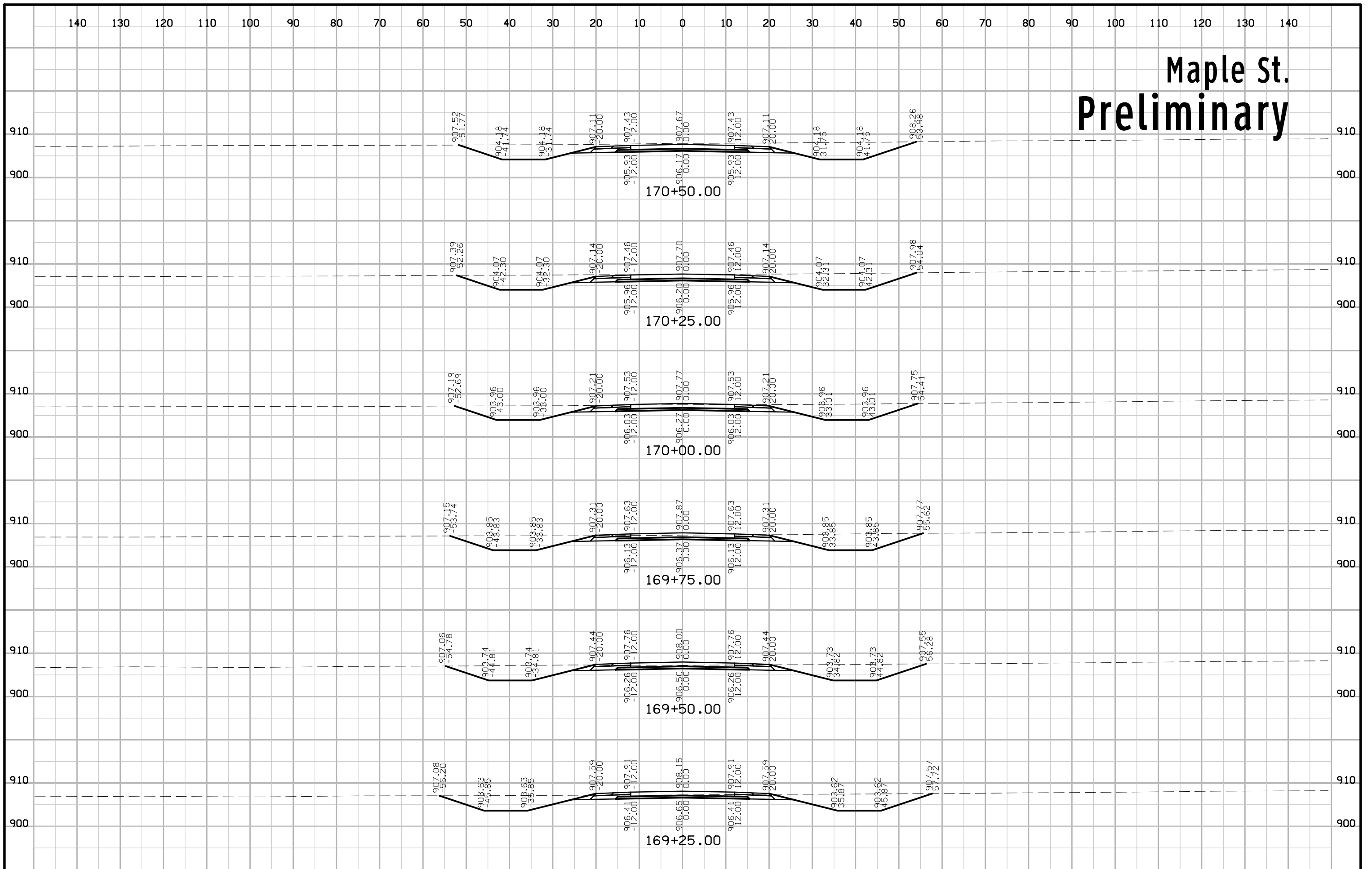




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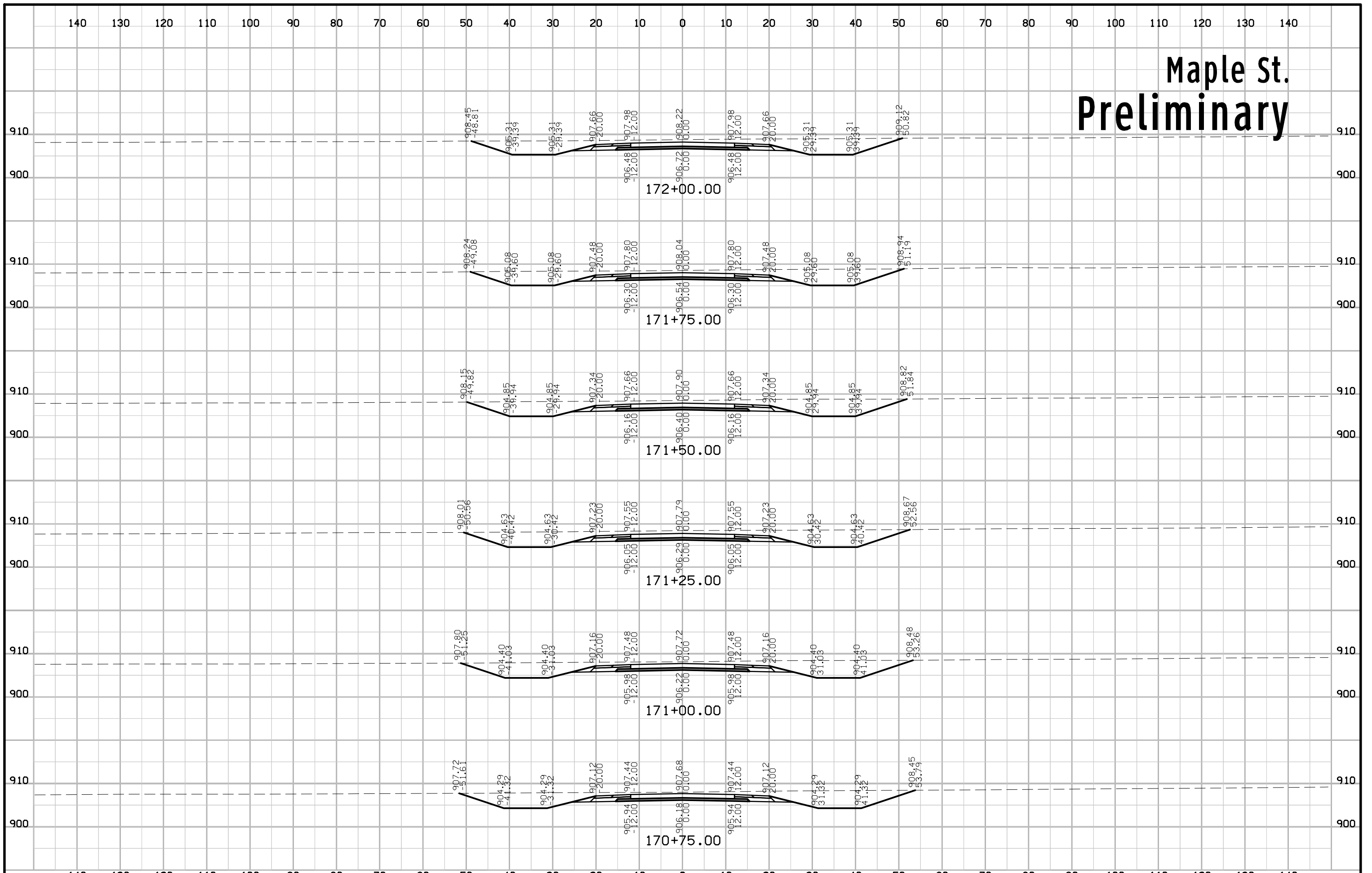


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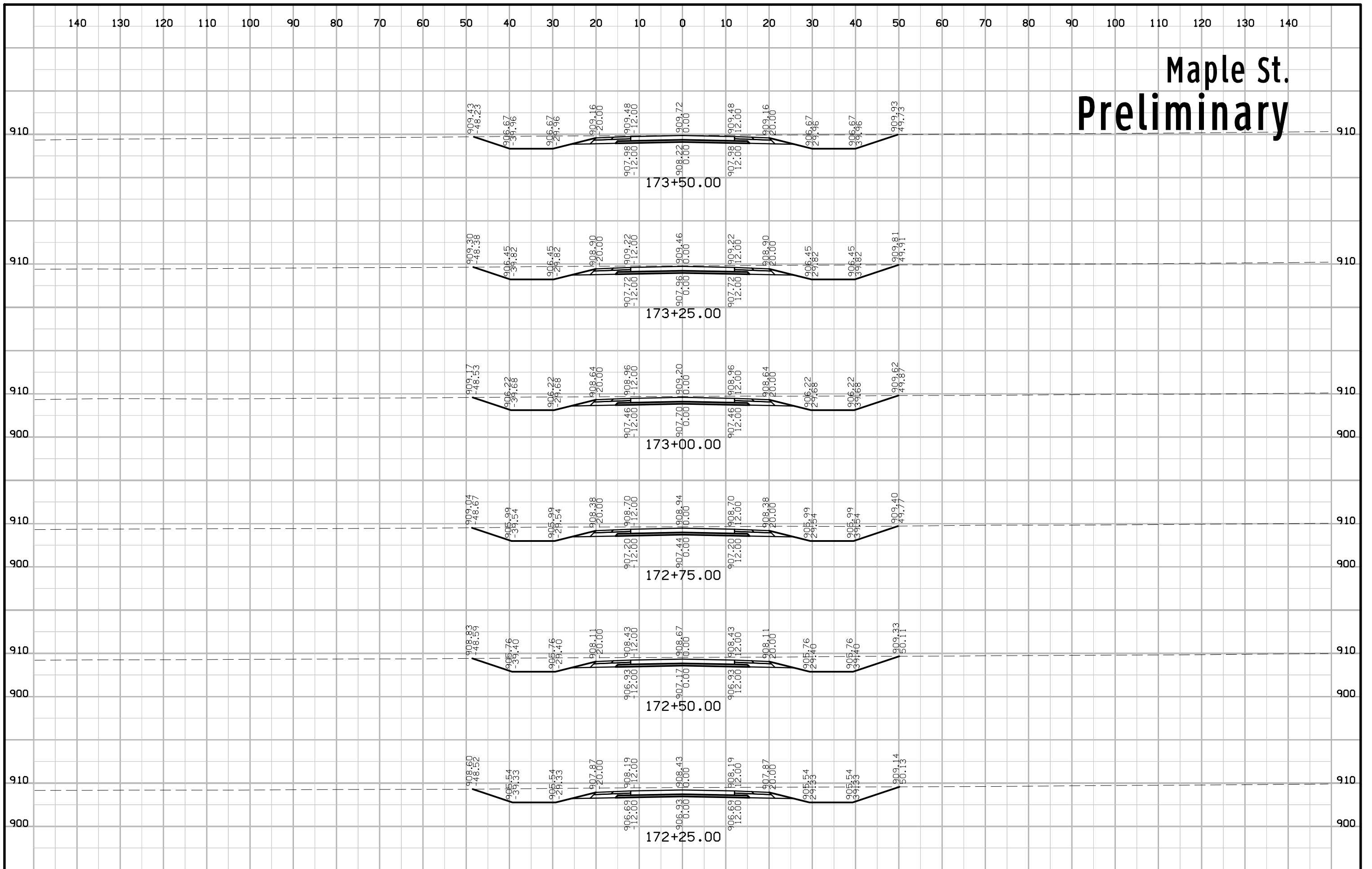




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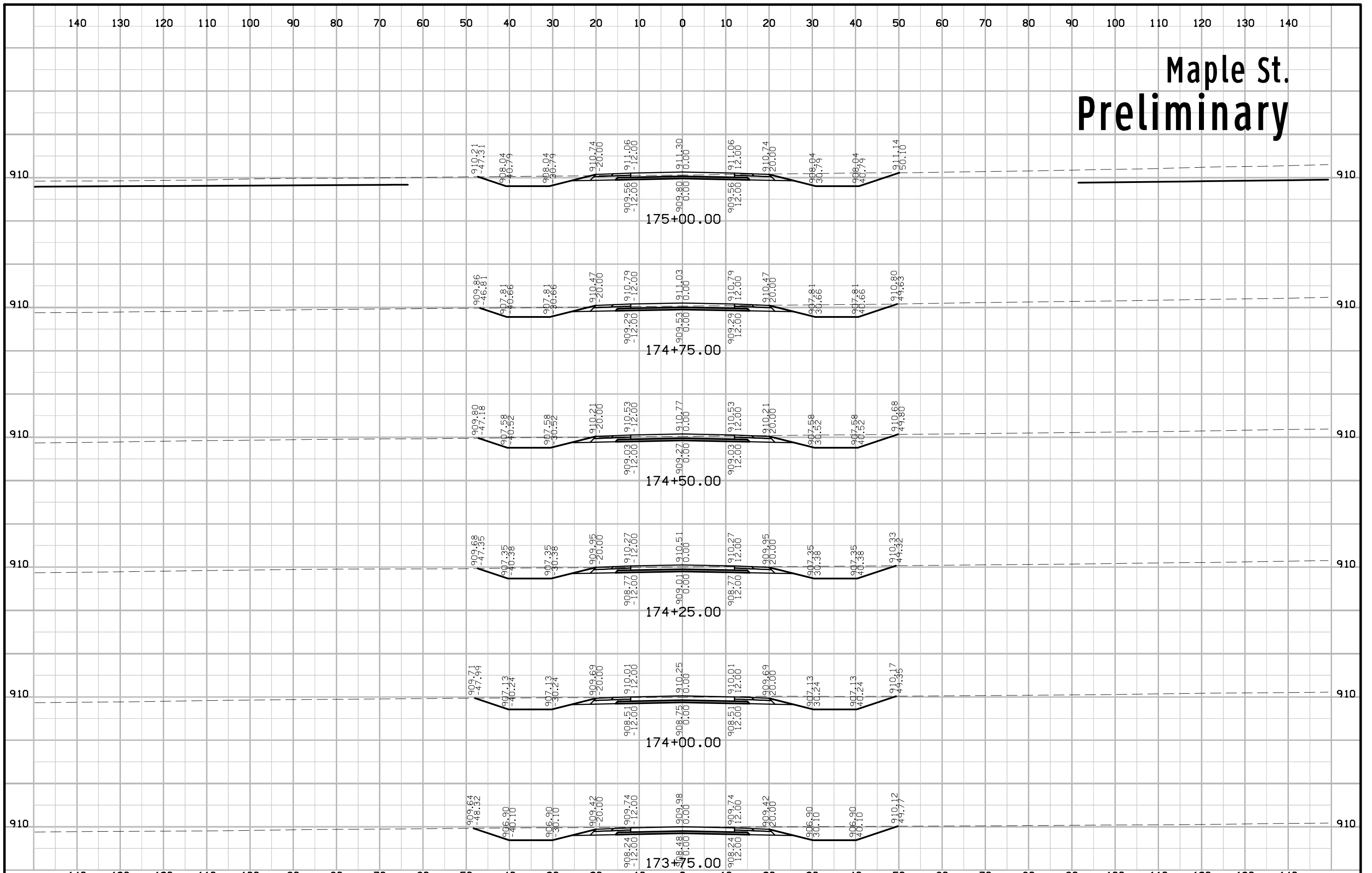


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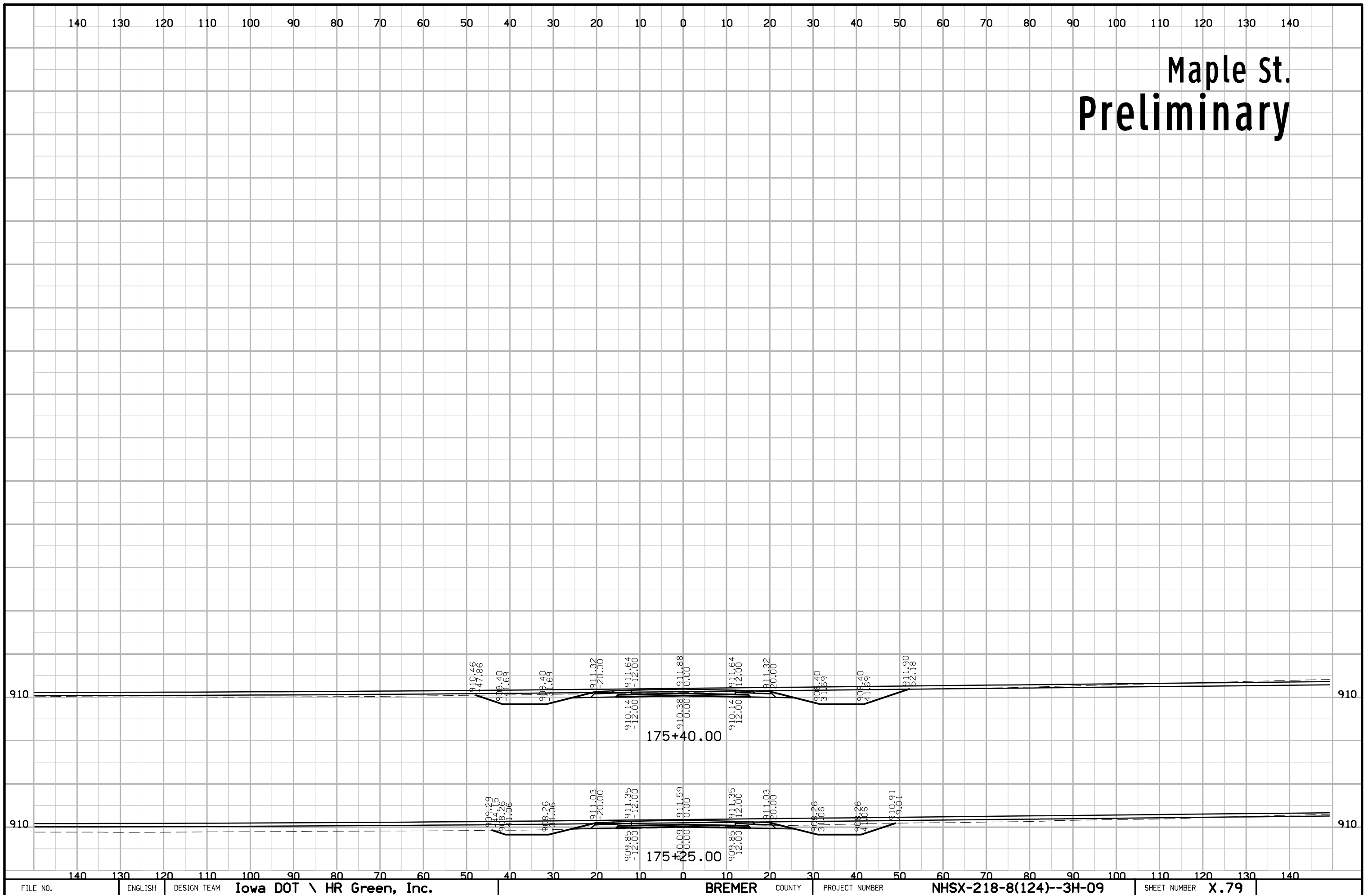




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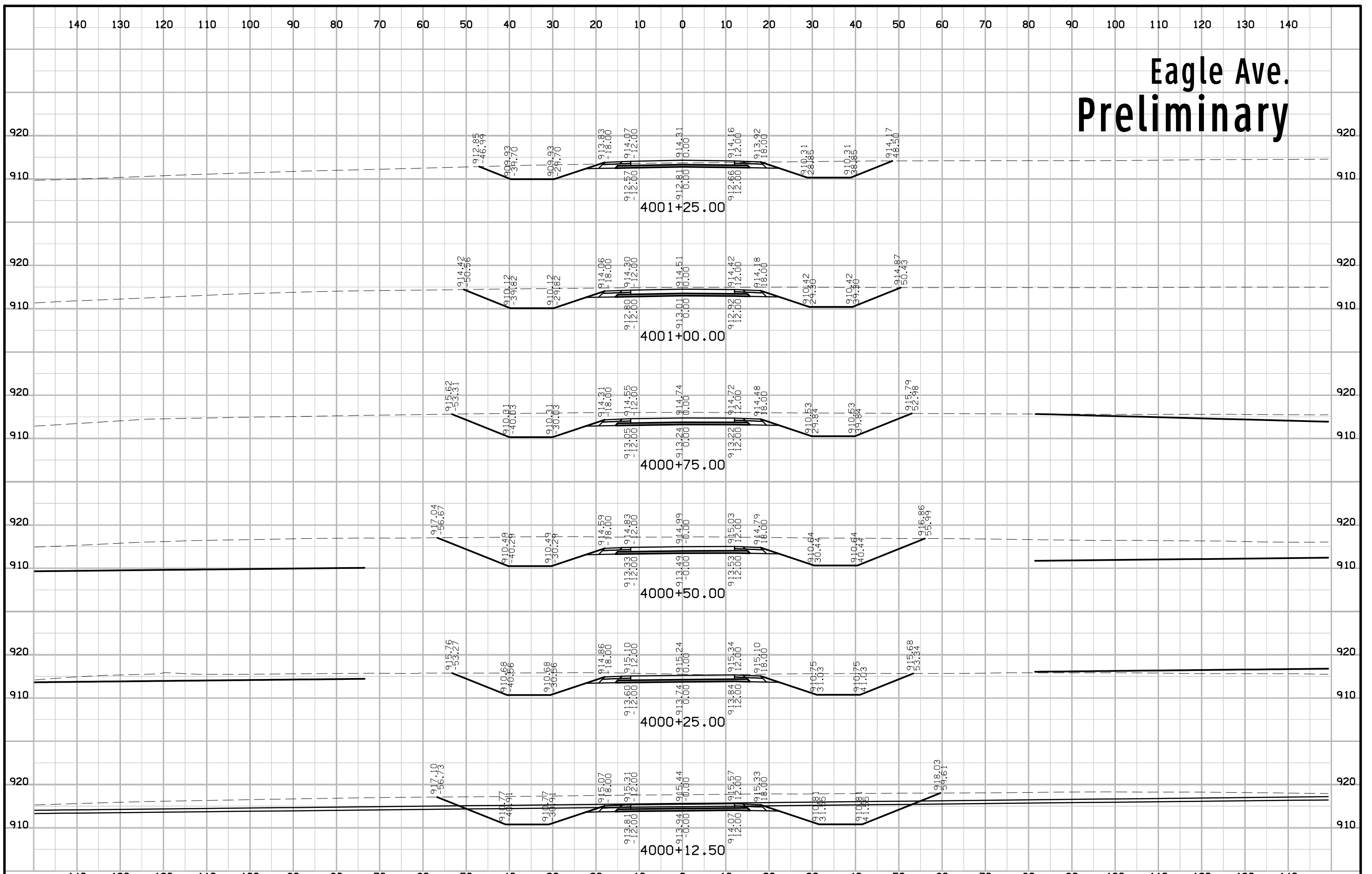


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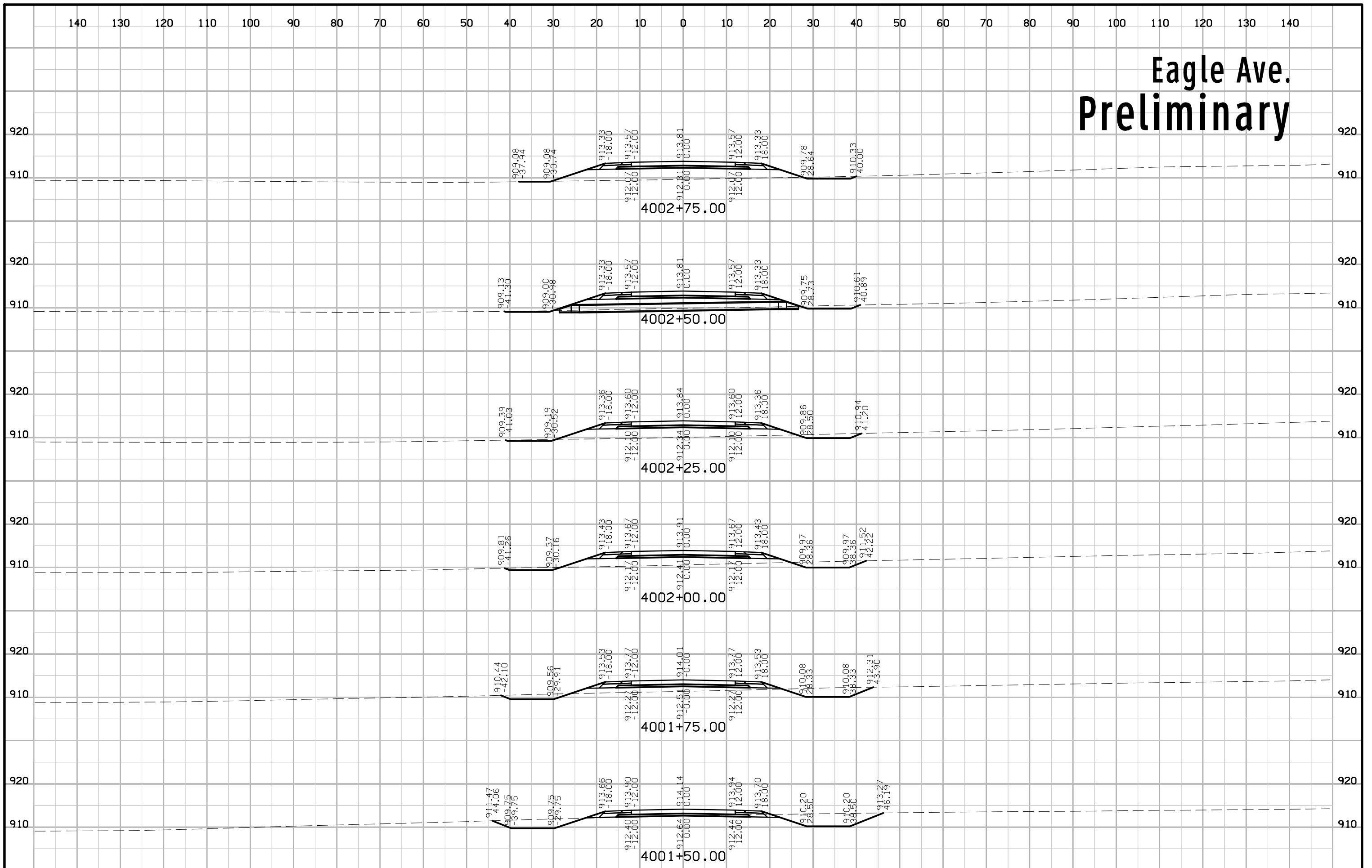




# Eagle Ave. Preliminary

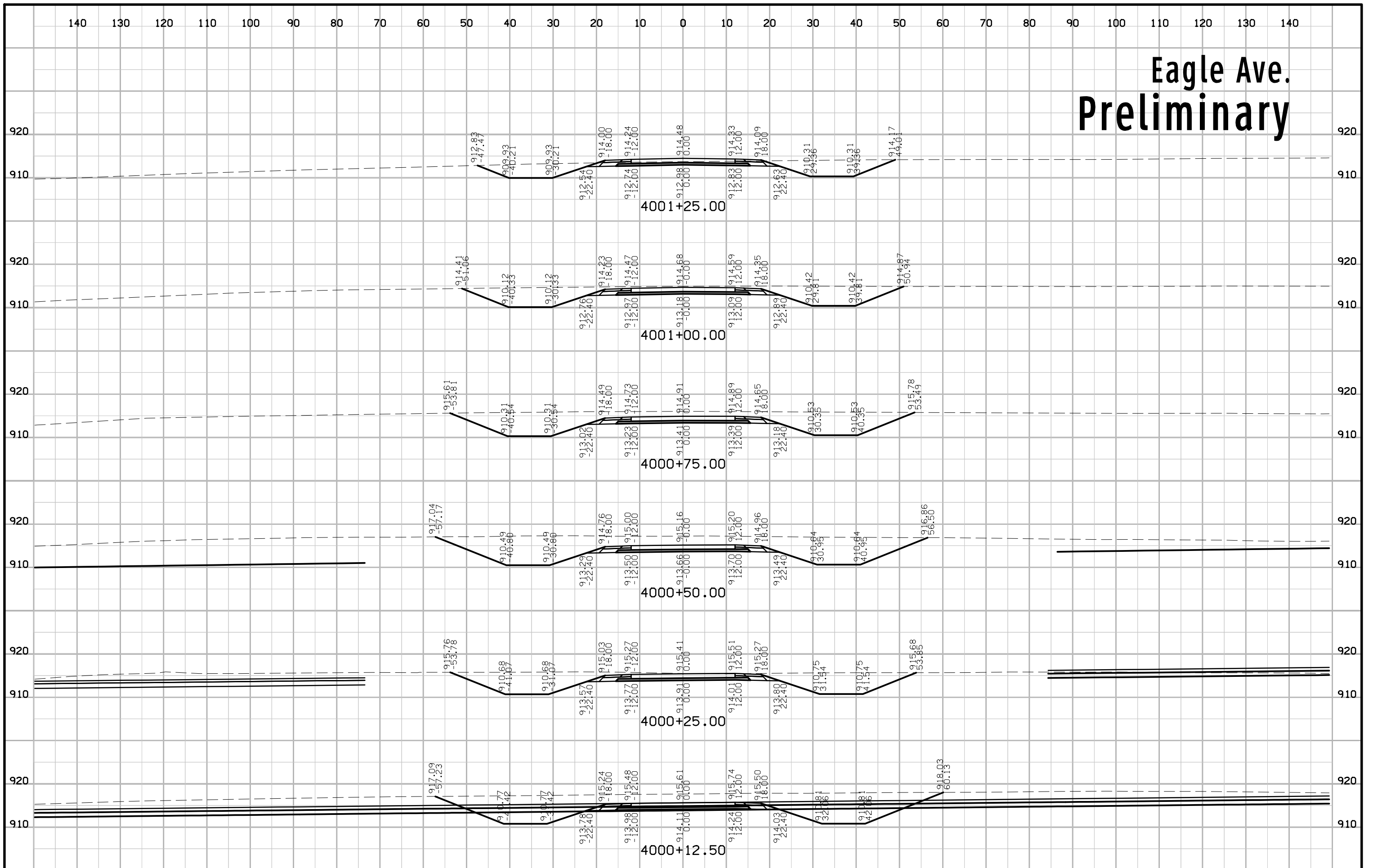


# Eagle Ave. Preliminary

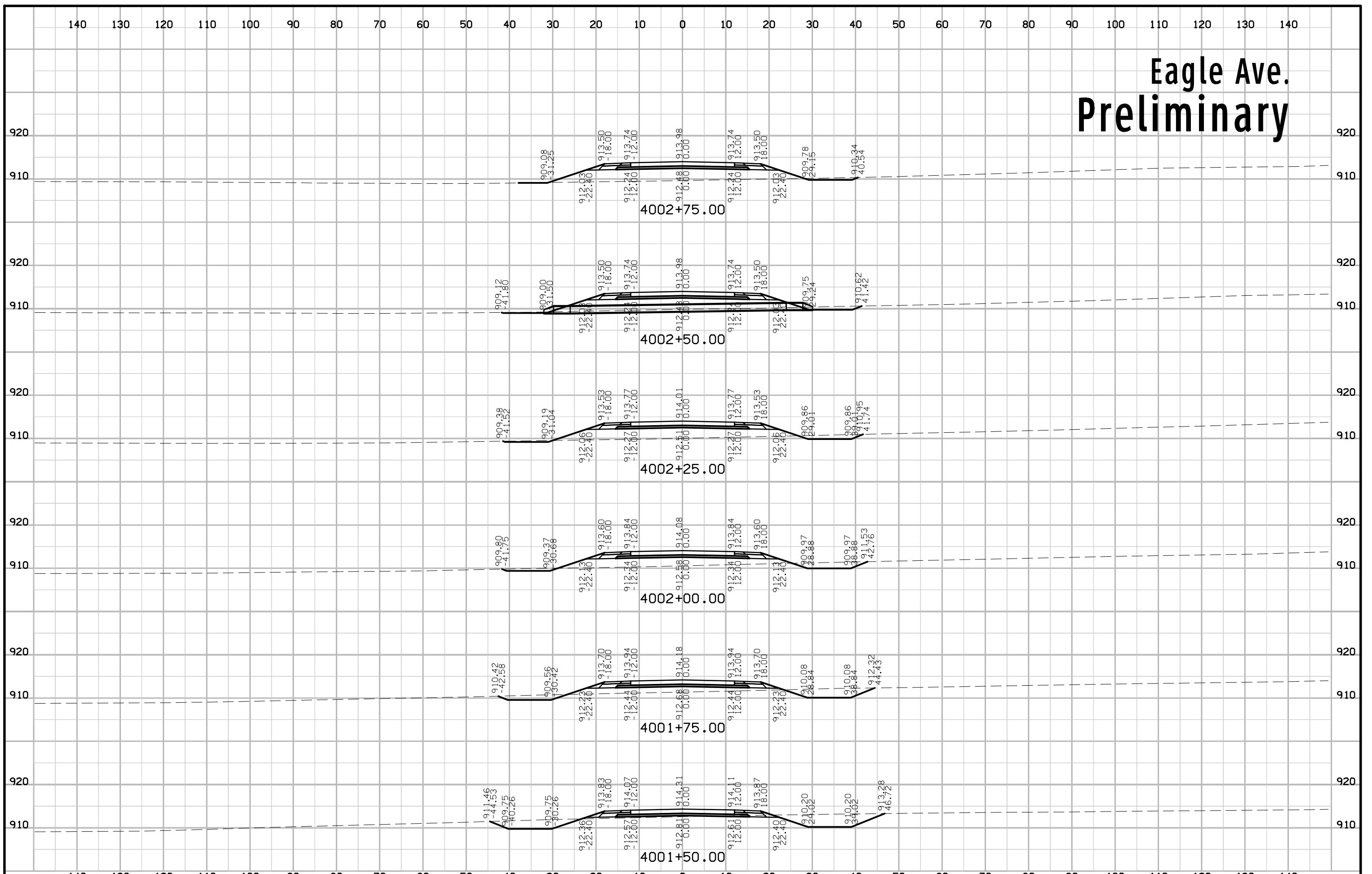




# Eagle Ave. Preliminary

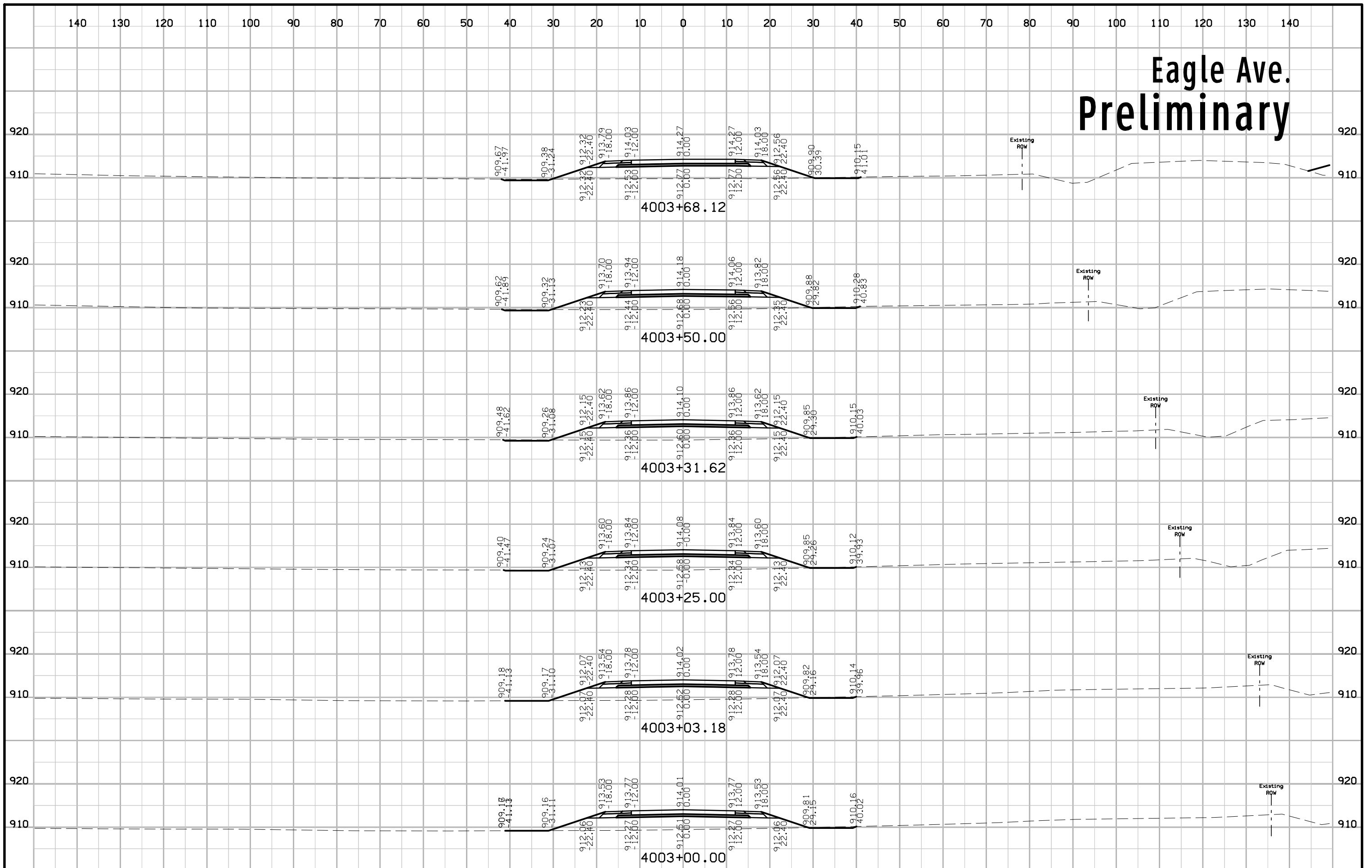


# Eagle Ave. Preliminary

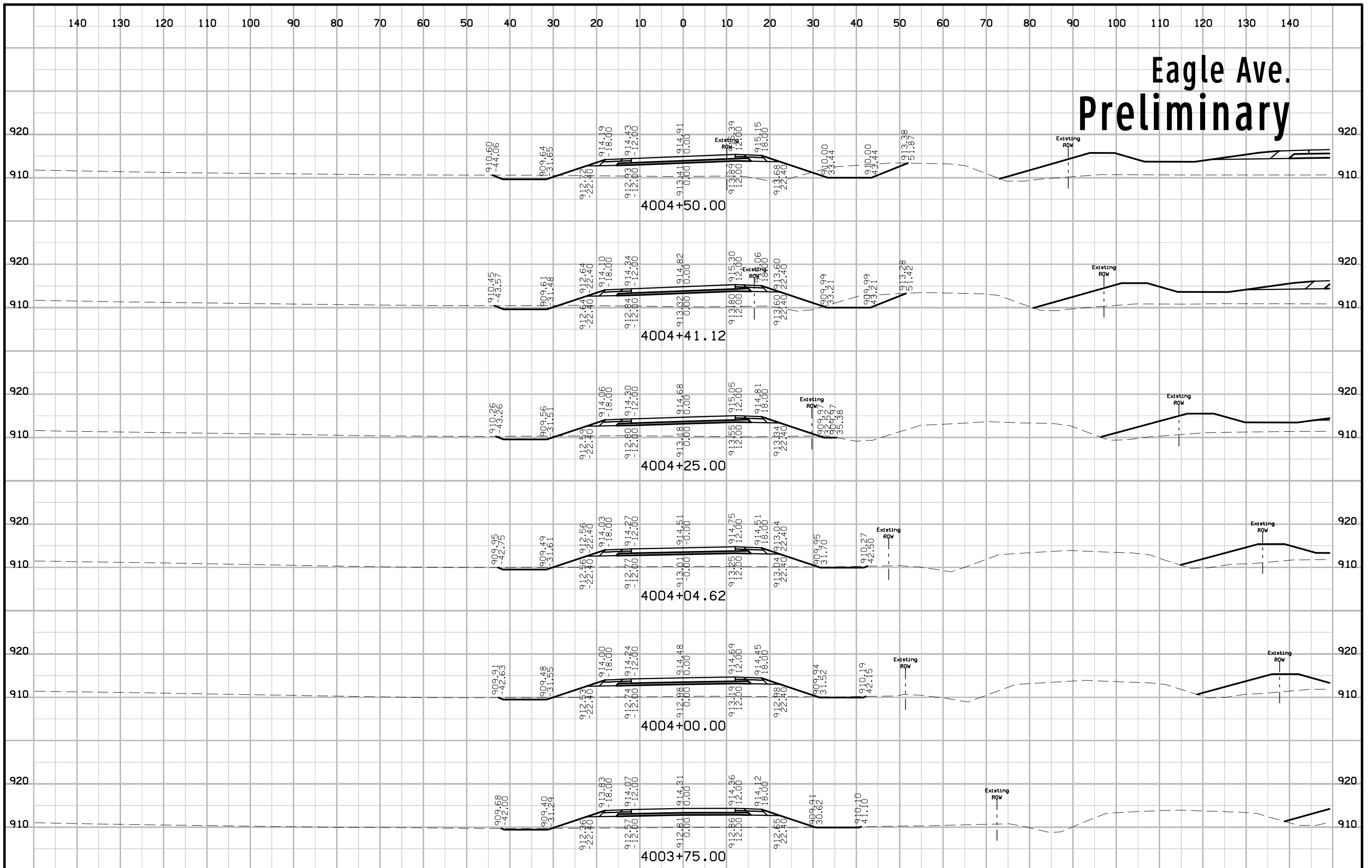




# Eagle Ave. Preliminary



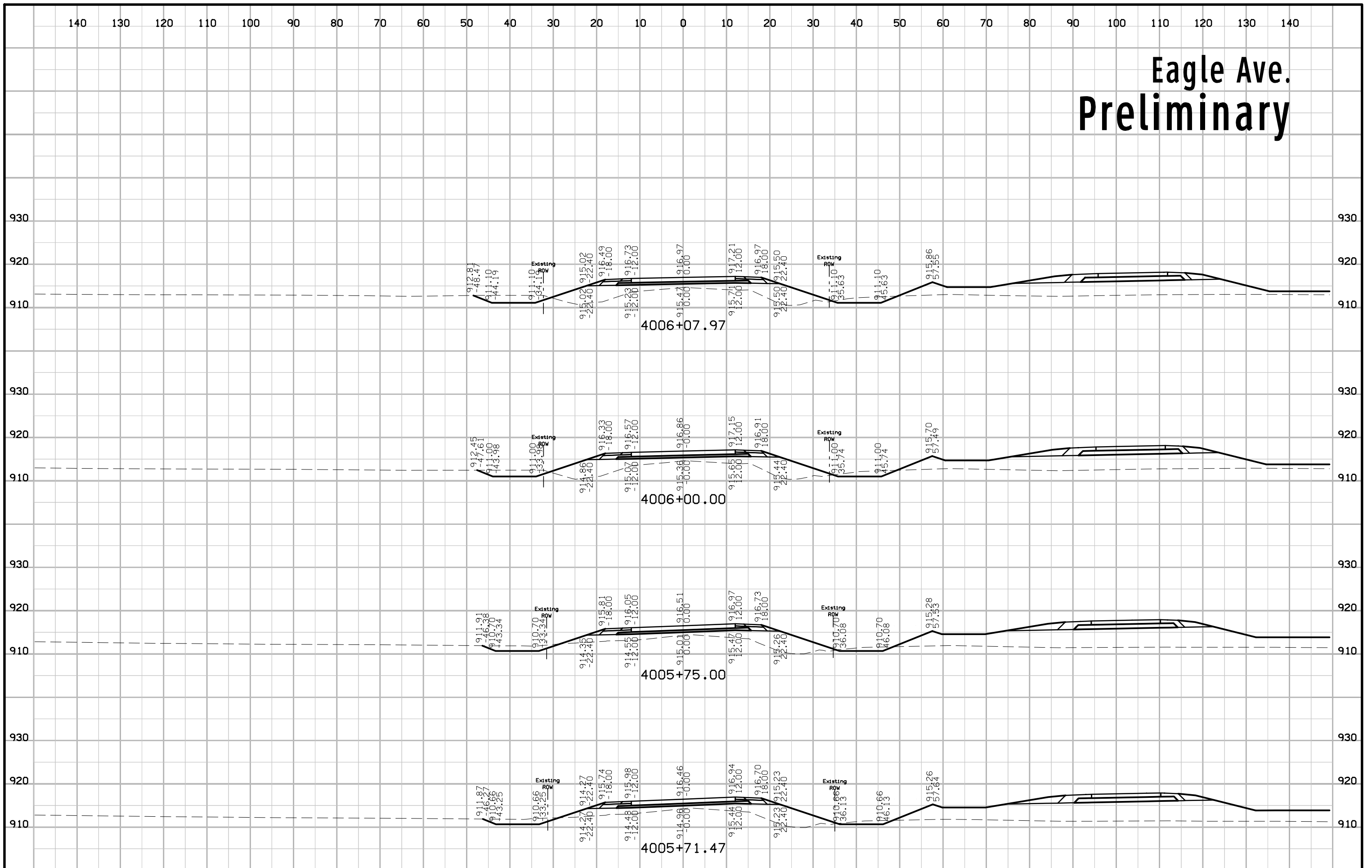
# Eagle Ave. Preliminary





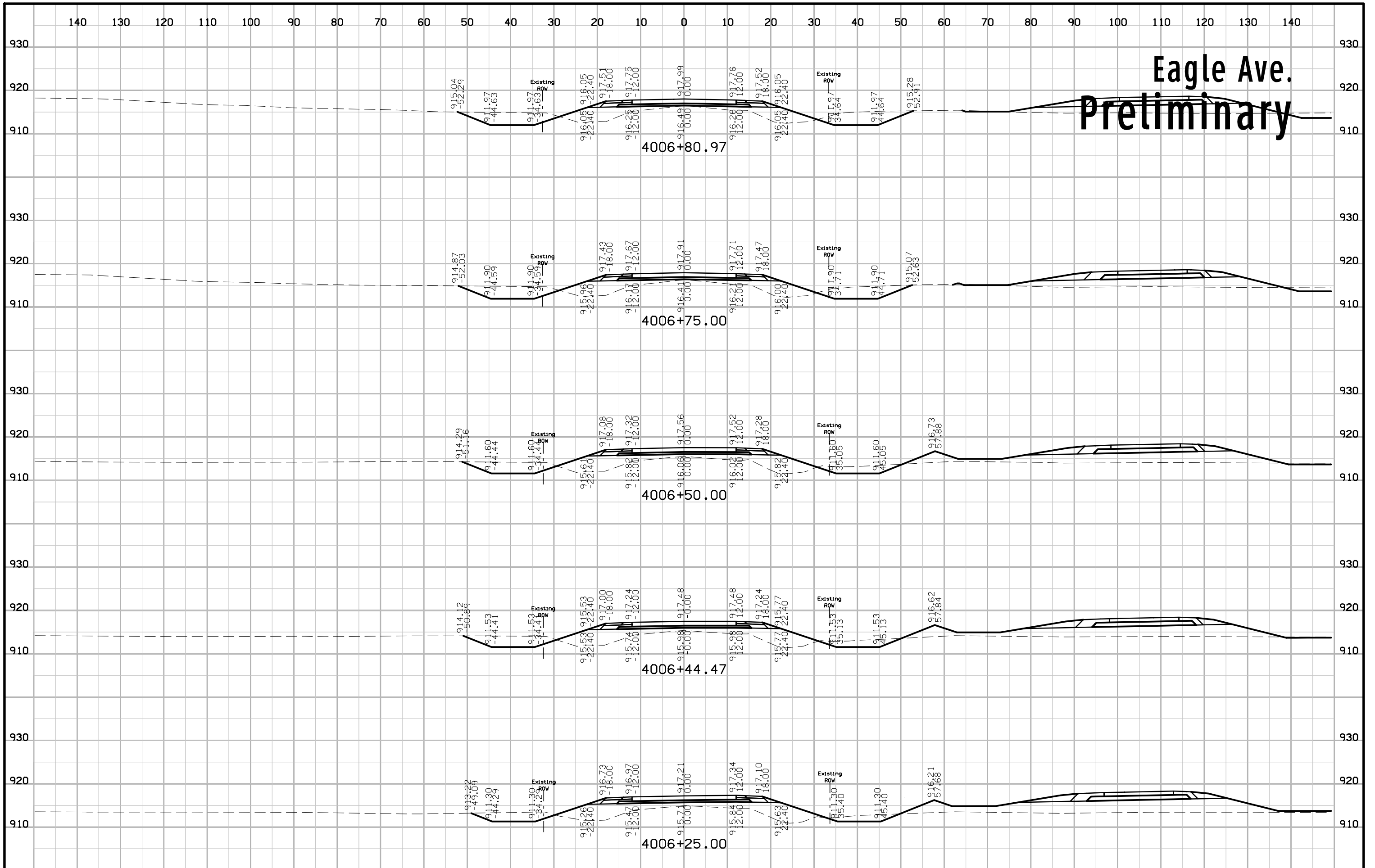


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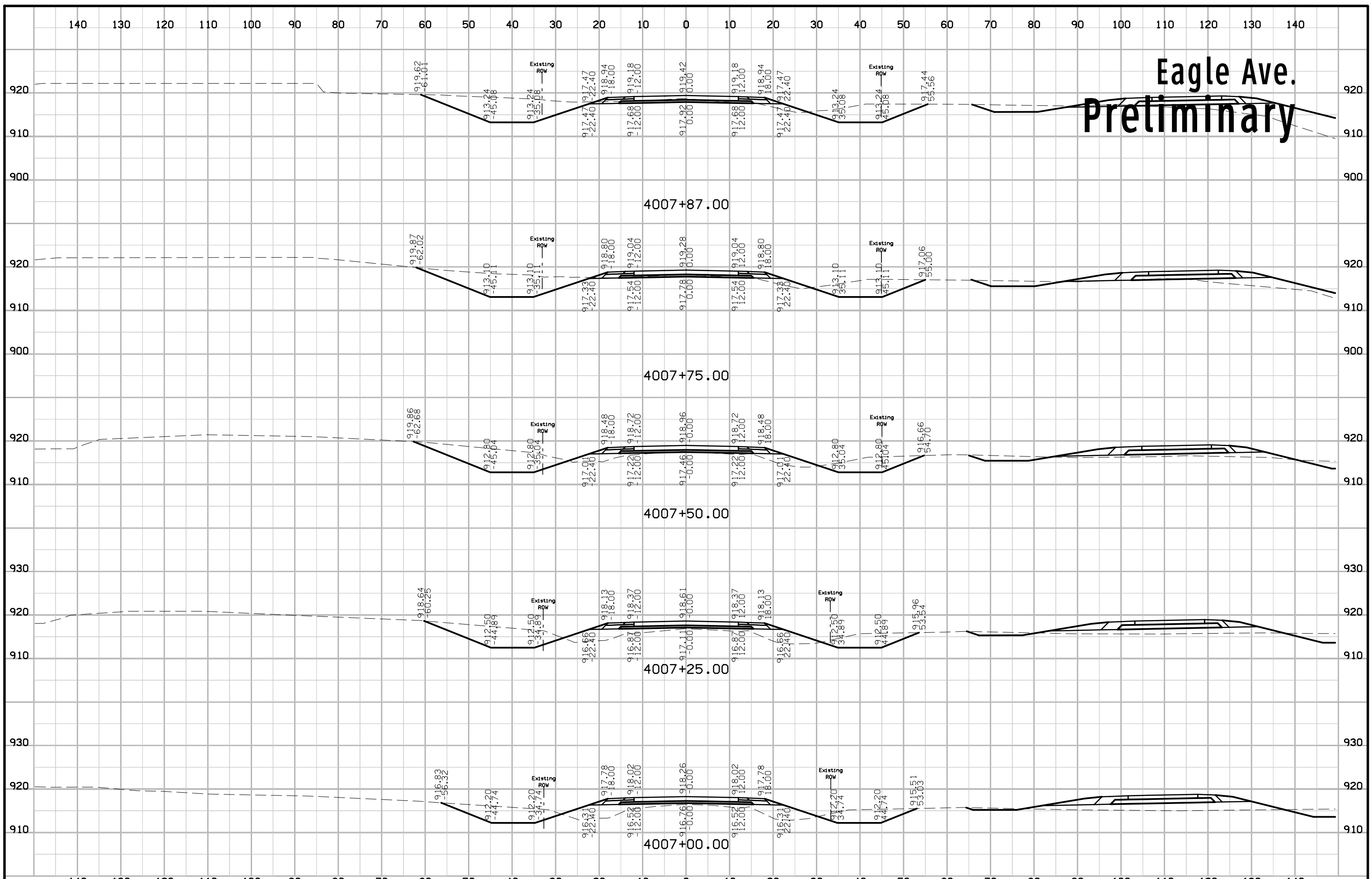


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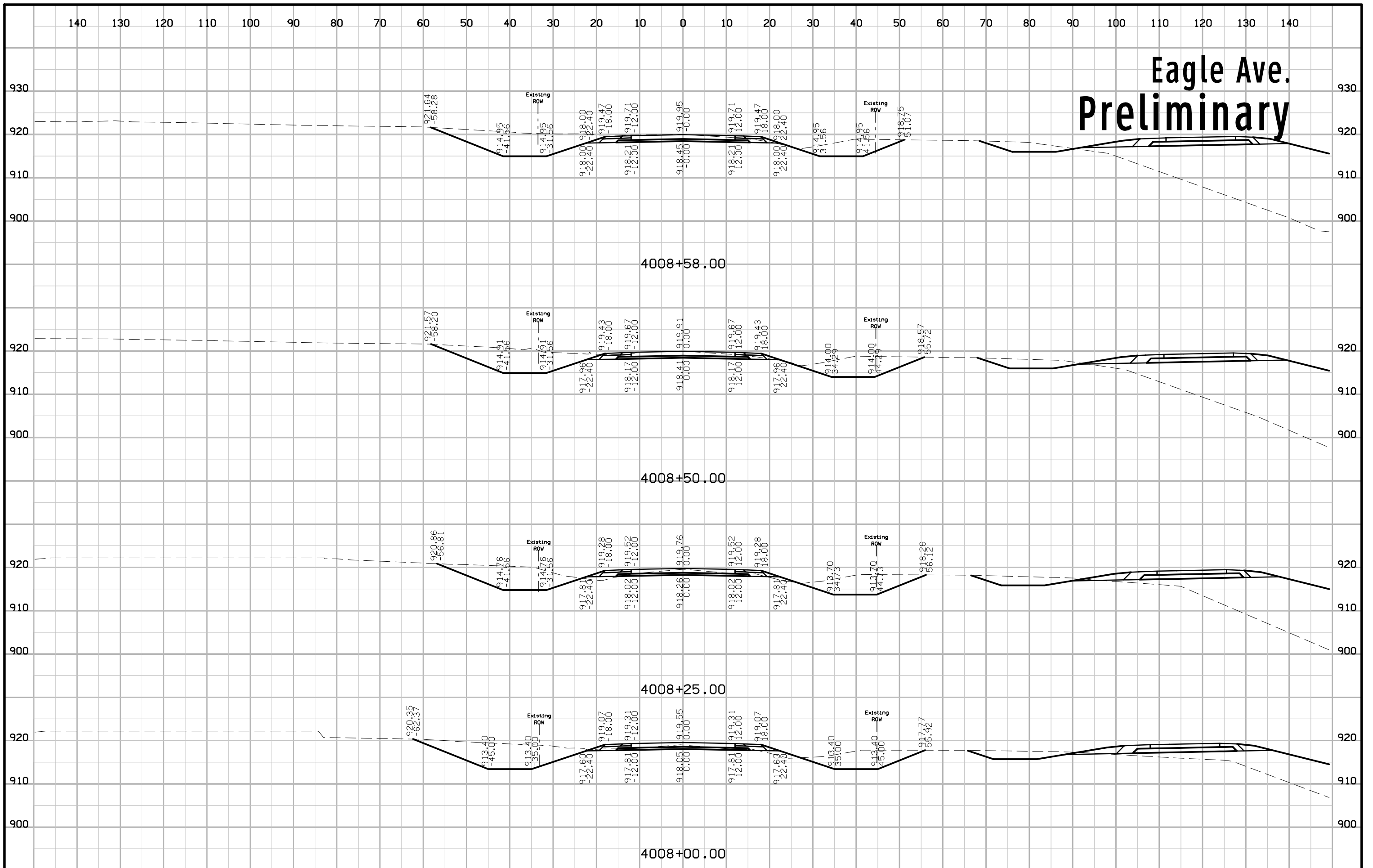
FILE NO.	ENGLISH	DESIGN TEAM	COUNTY	PROJECT NUMBER	SHEET NUMBER
					<b>X.88</b>

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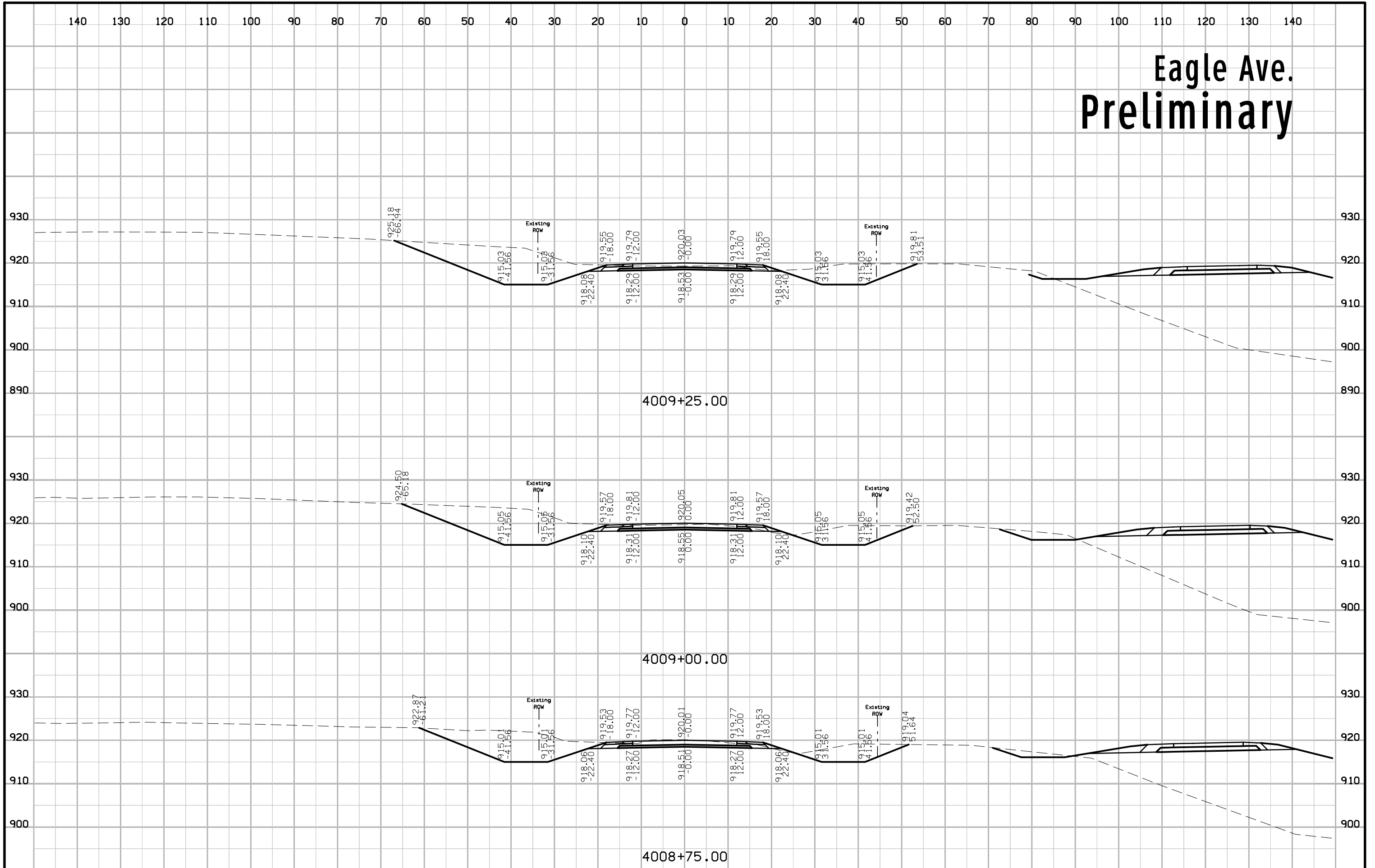




# Eagle Ave. Preliminary

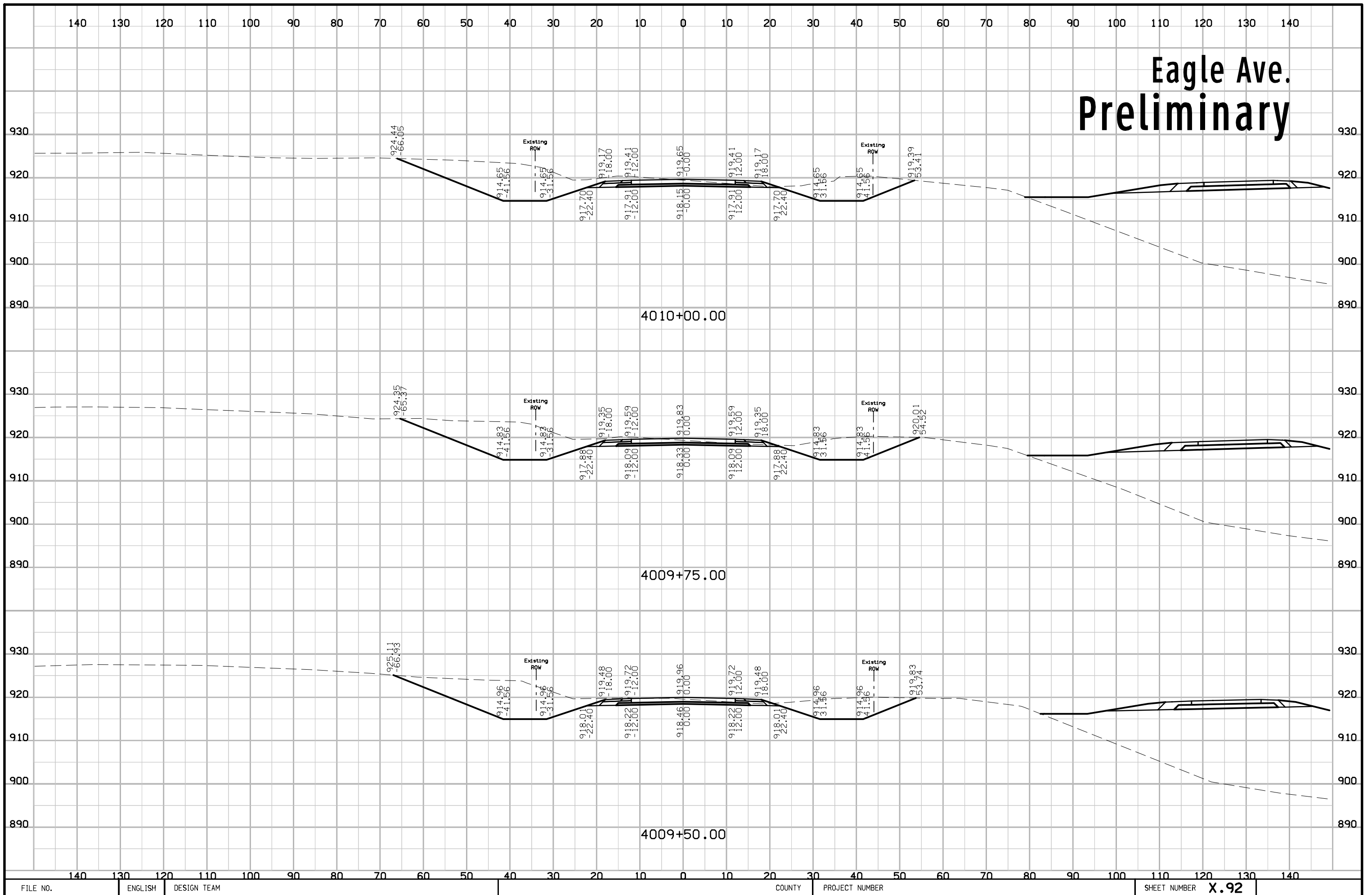


# Eagle Ave. Preliminary





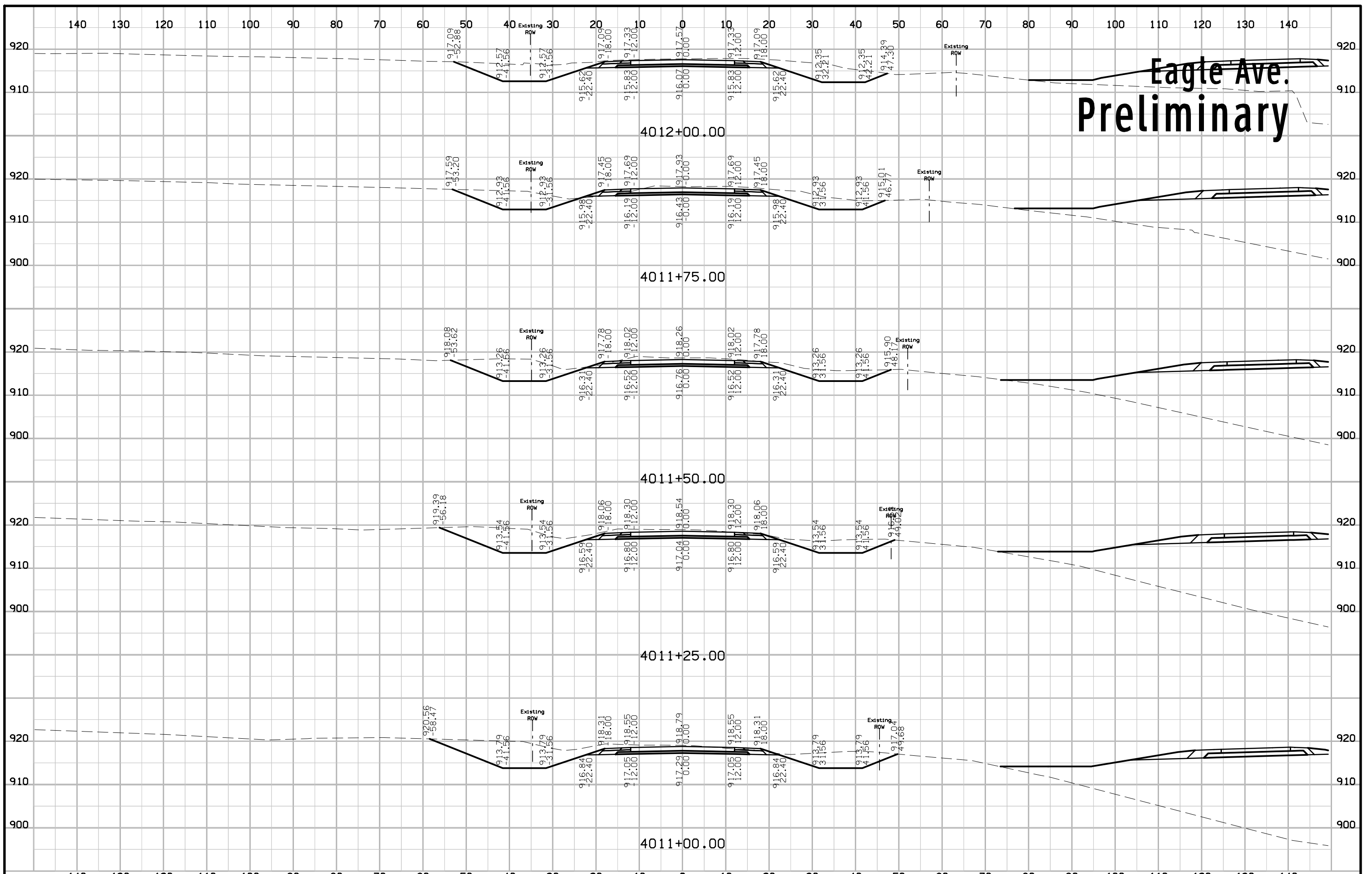
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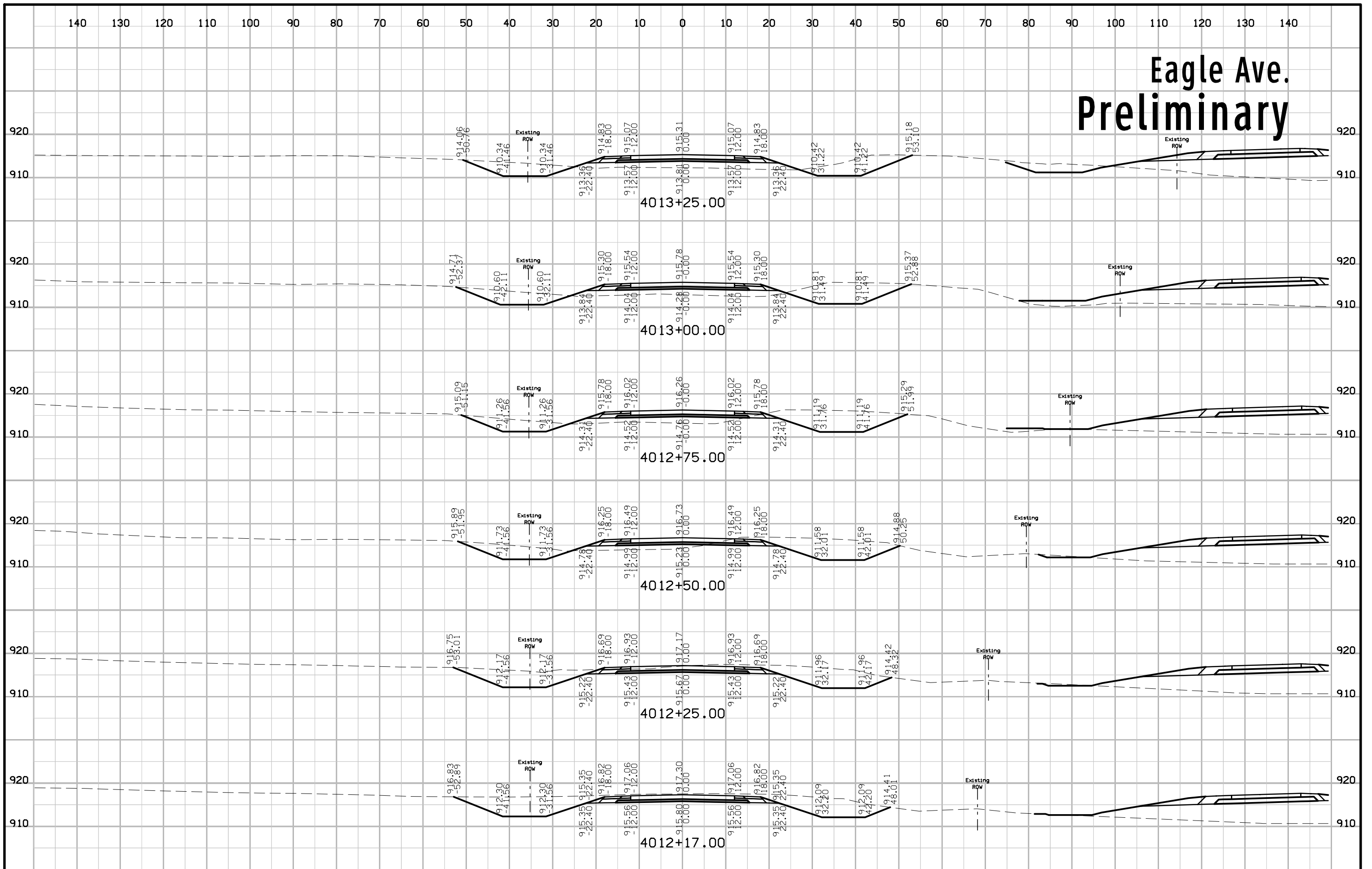




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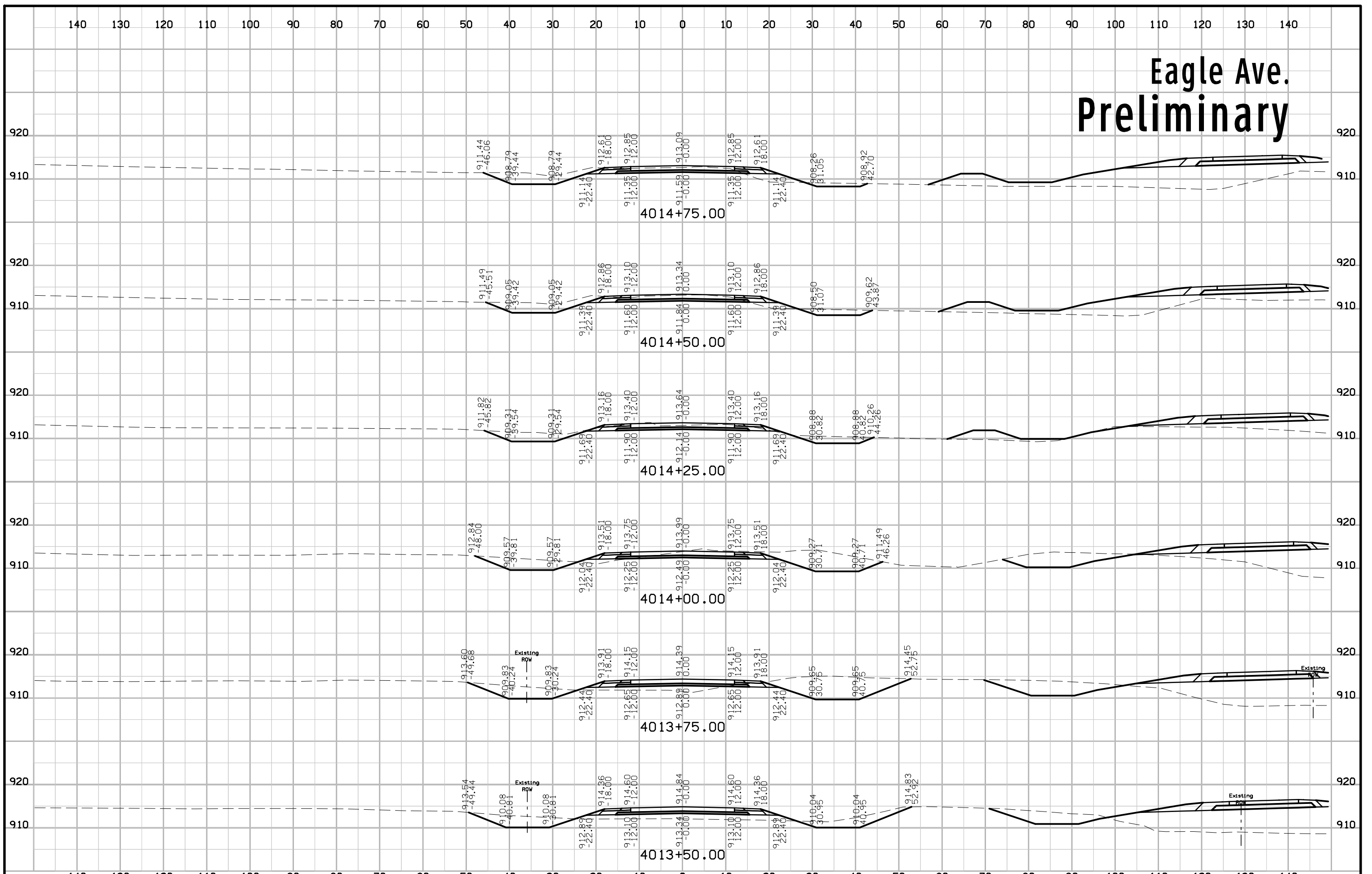


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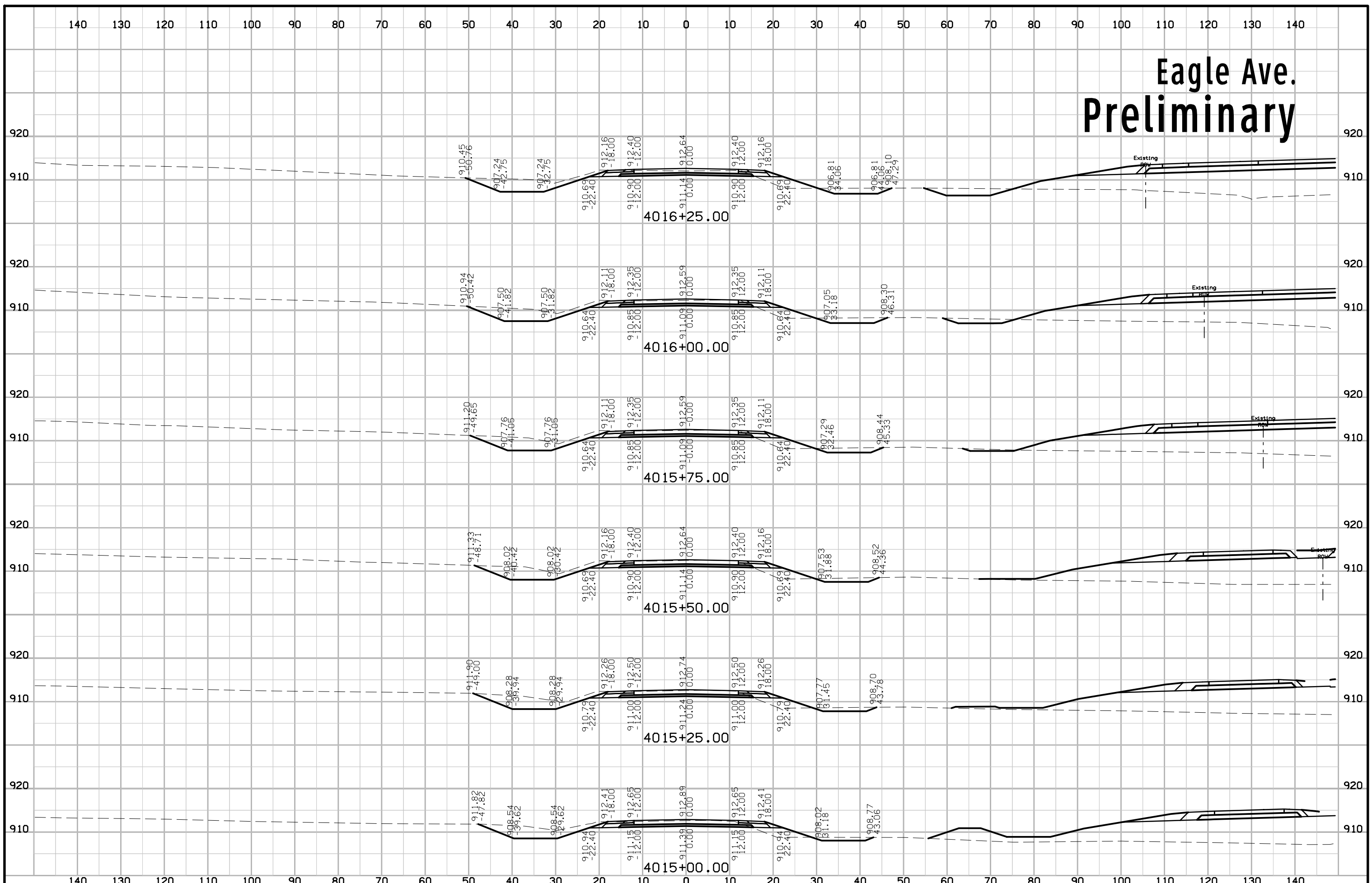


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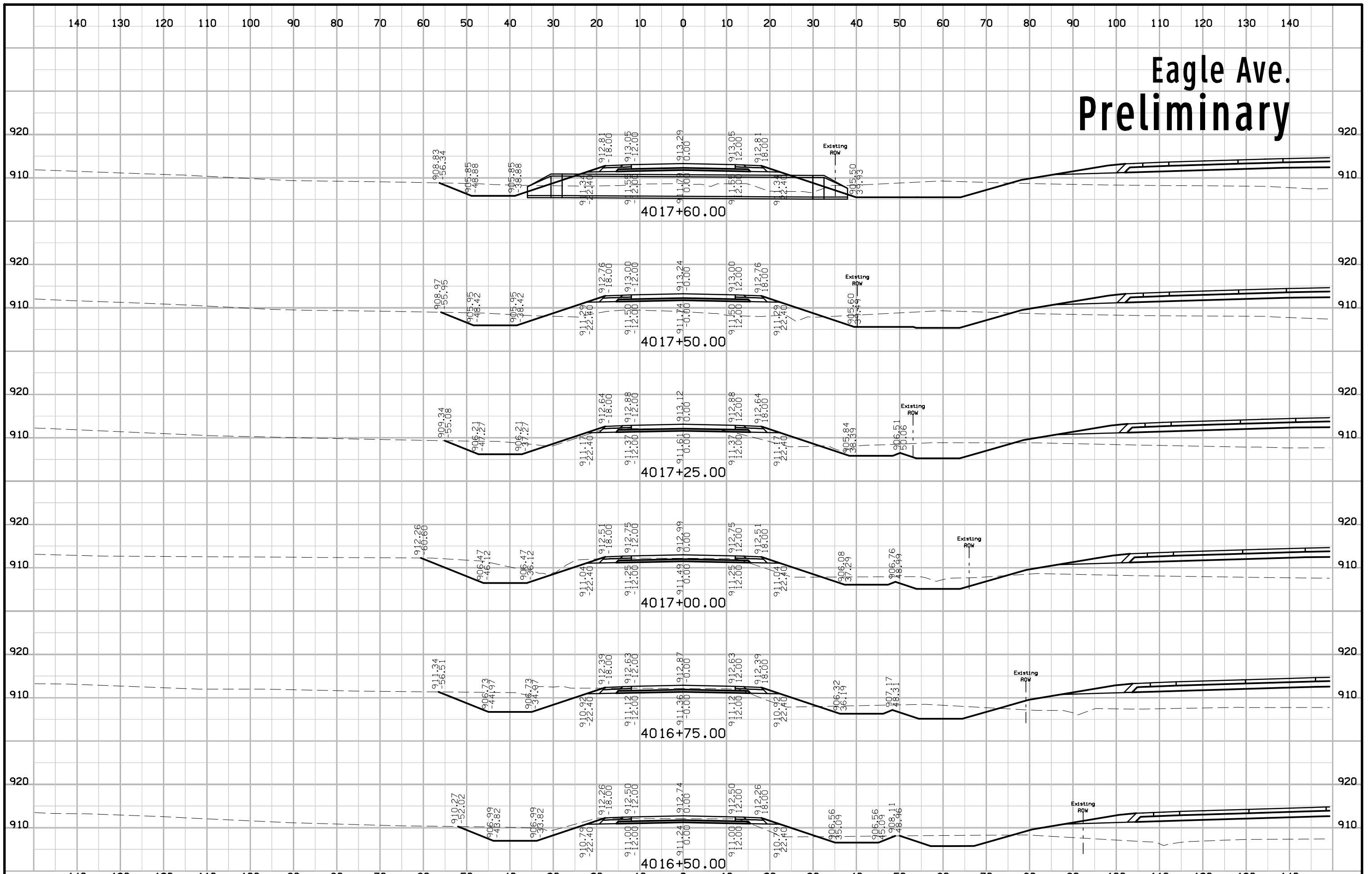
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					<b>X.96</b>

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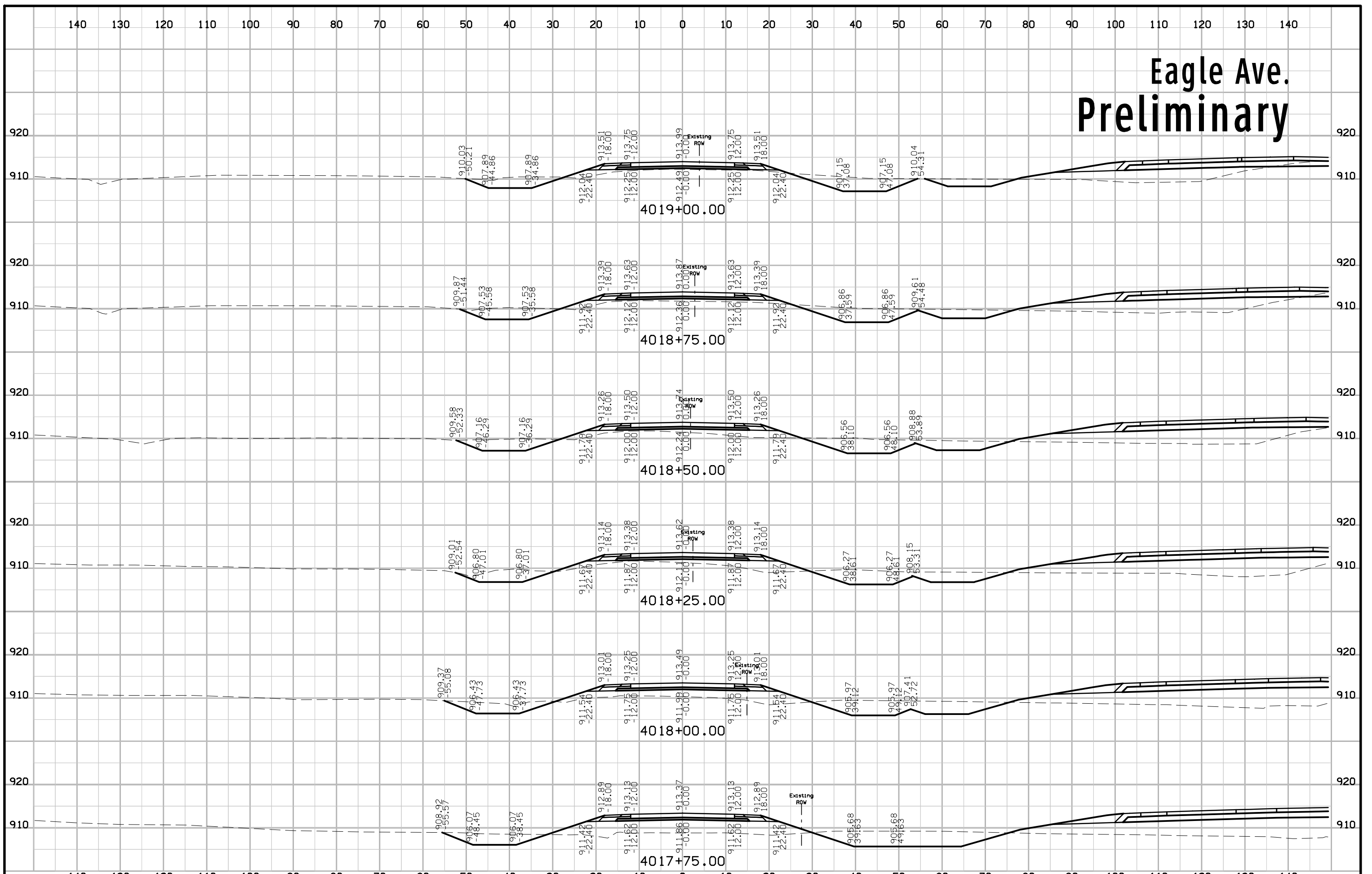




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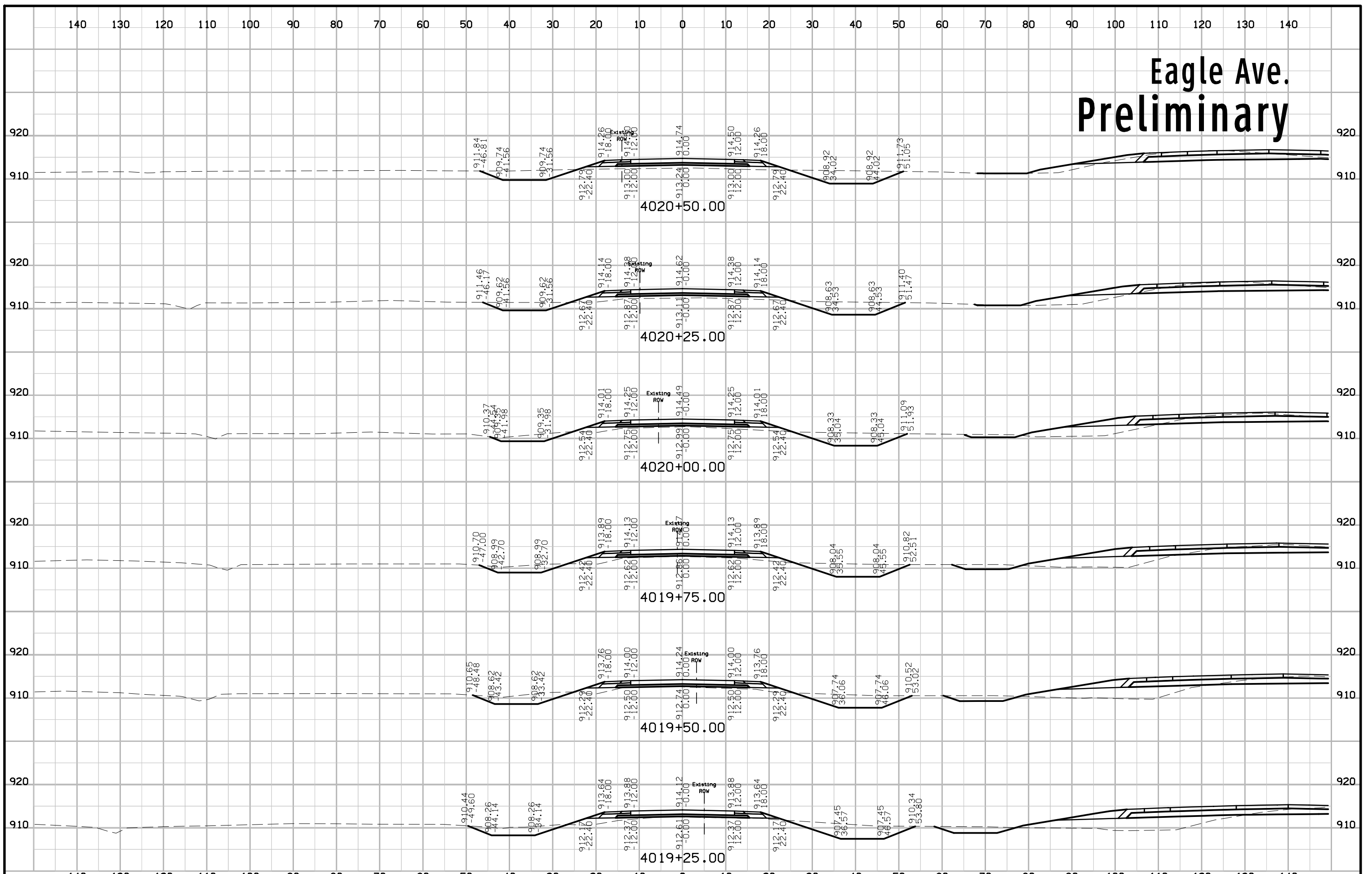
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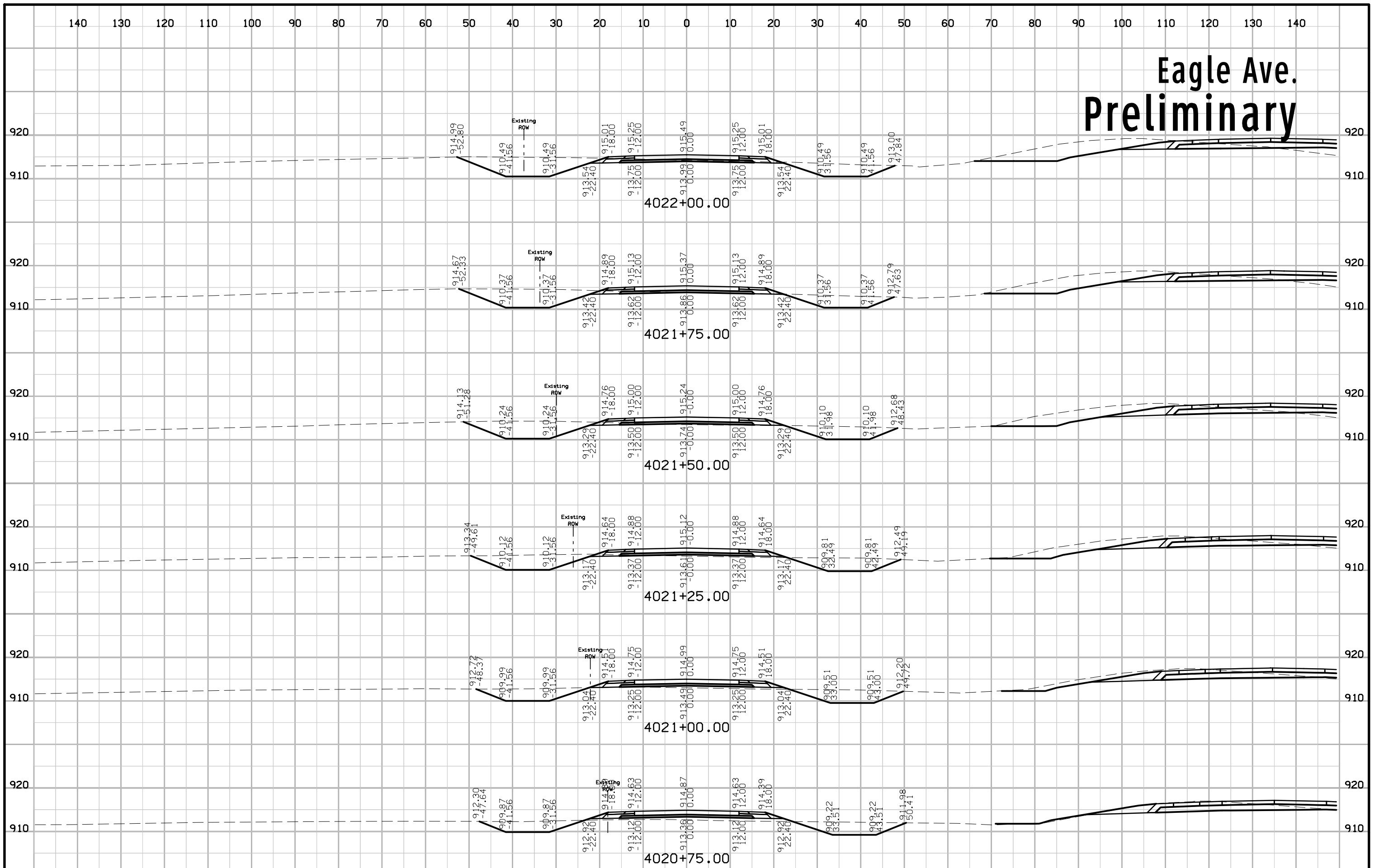
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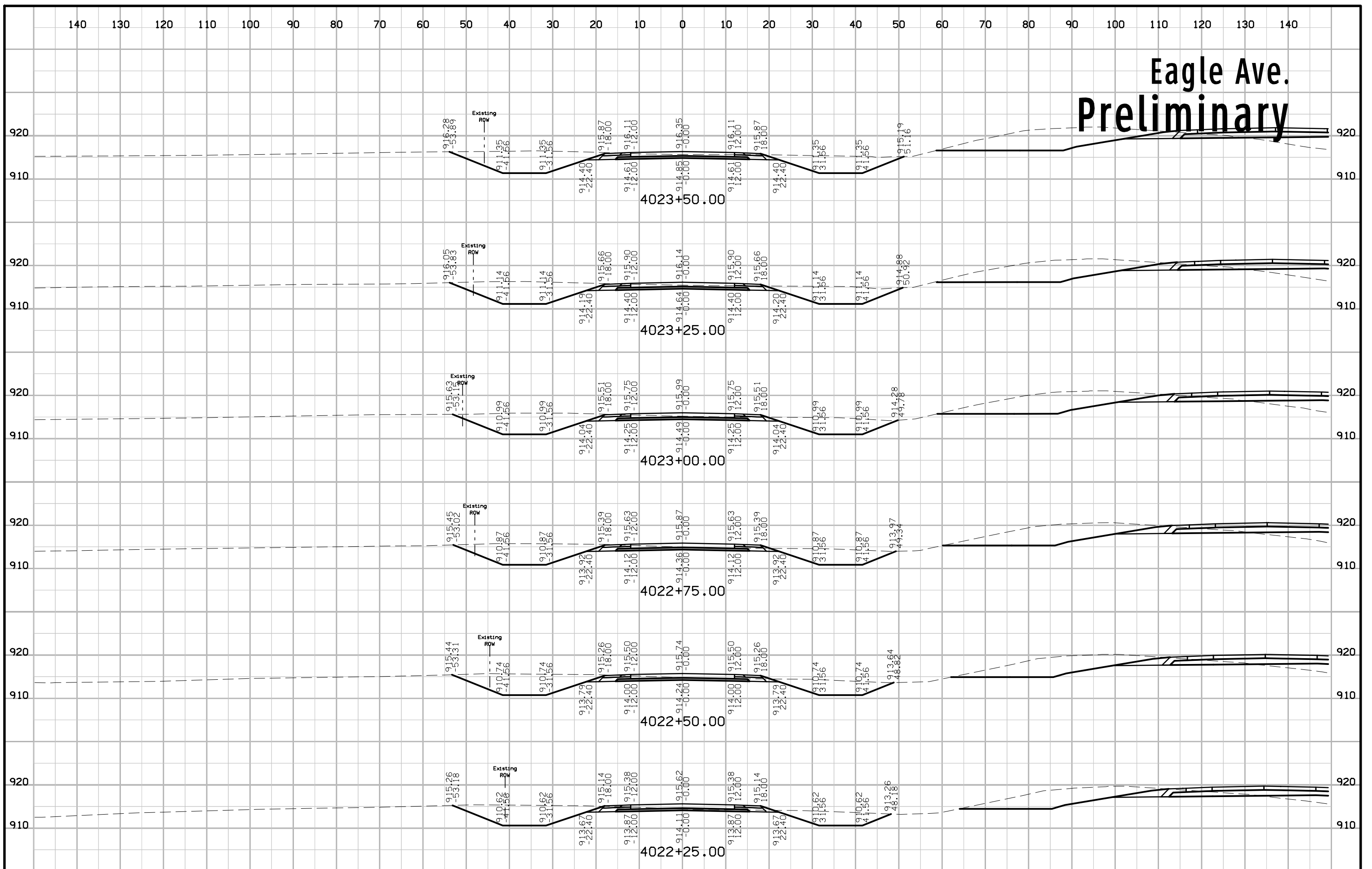


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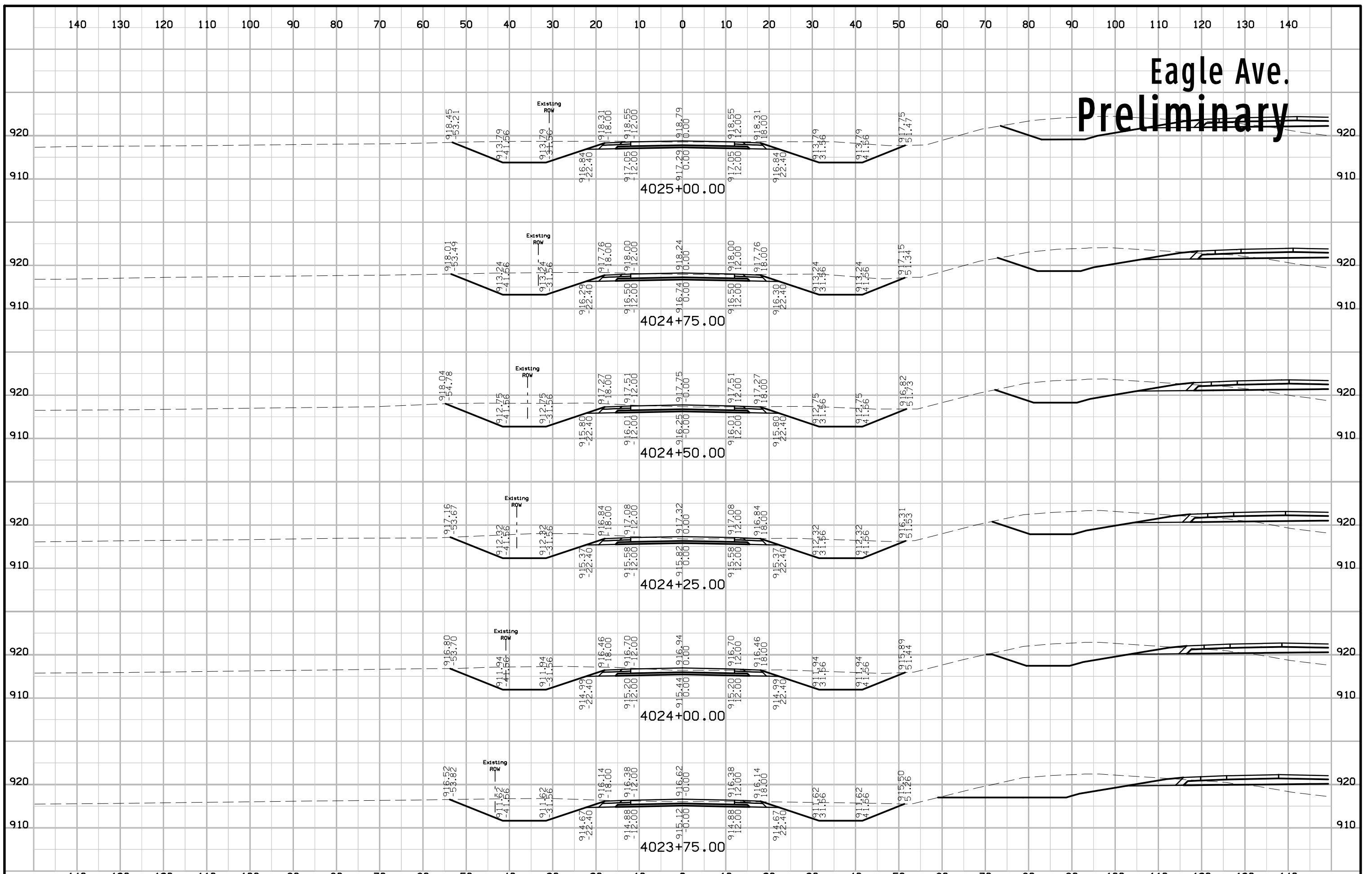


# Eagle Ave. Preliminary



FILE NO.	ENGLISH	DESIGN TEAM	COUNTY	PROJECT NUMBER	SHEET NUMBER
					X.102

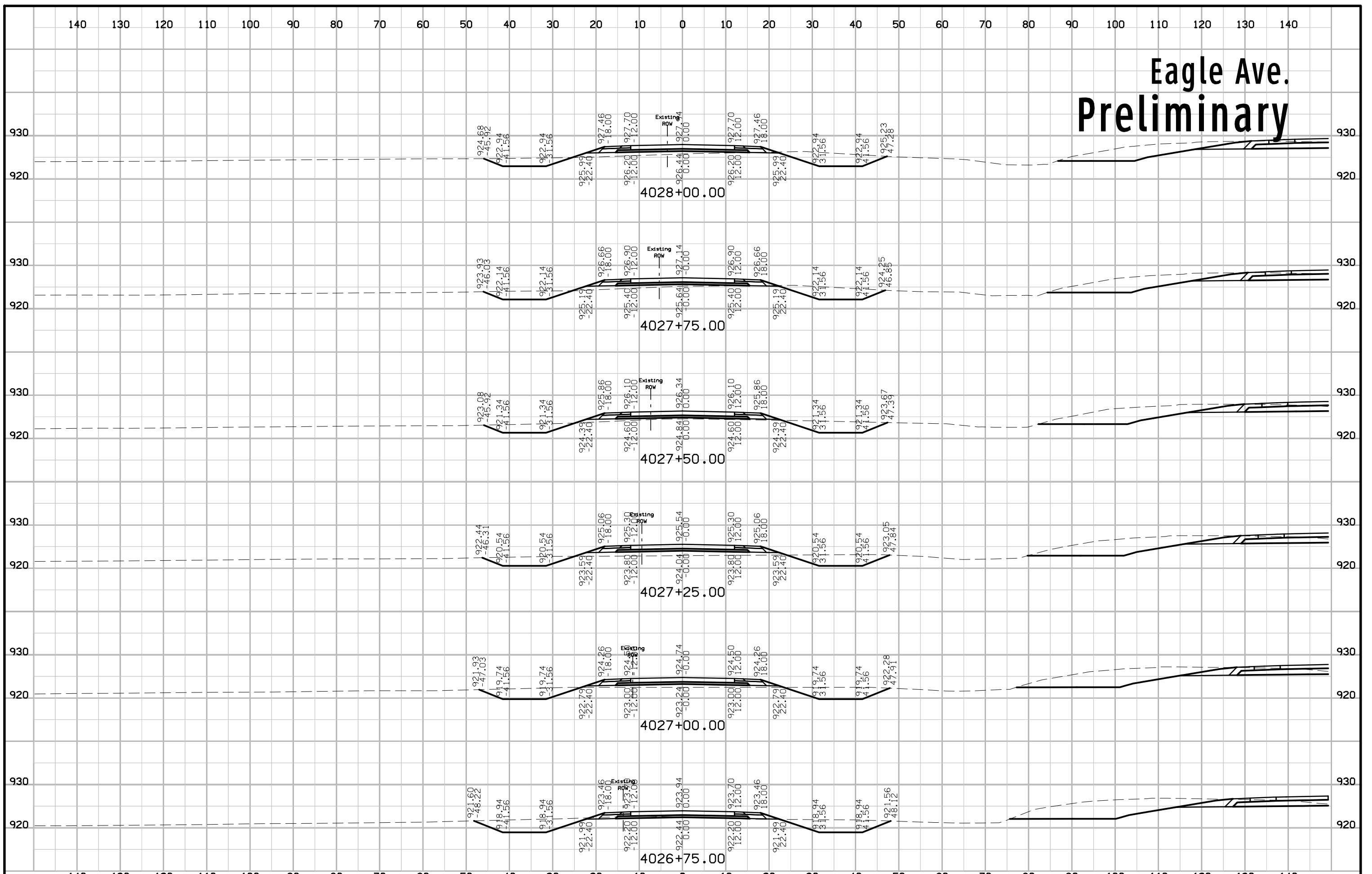
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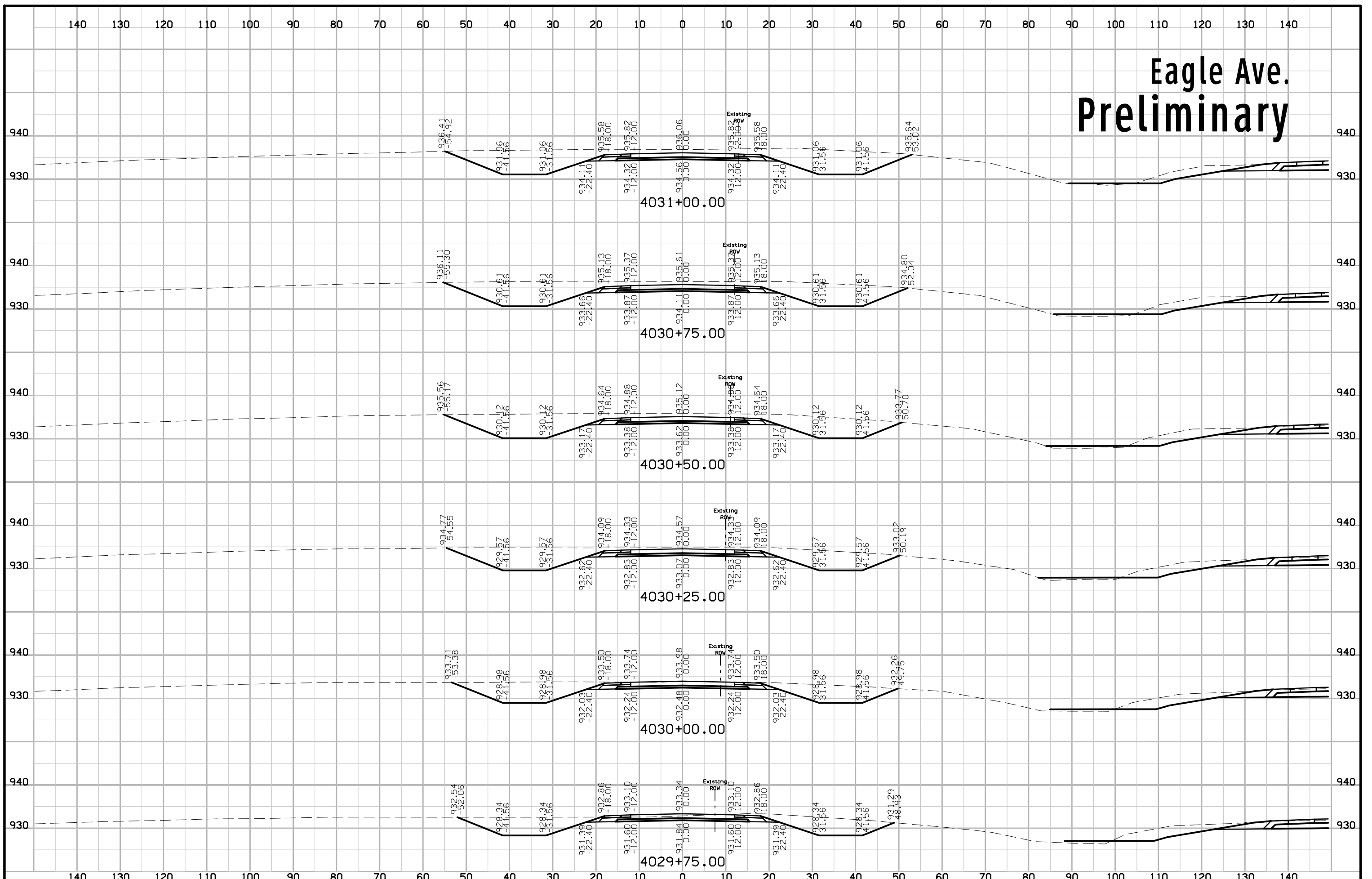
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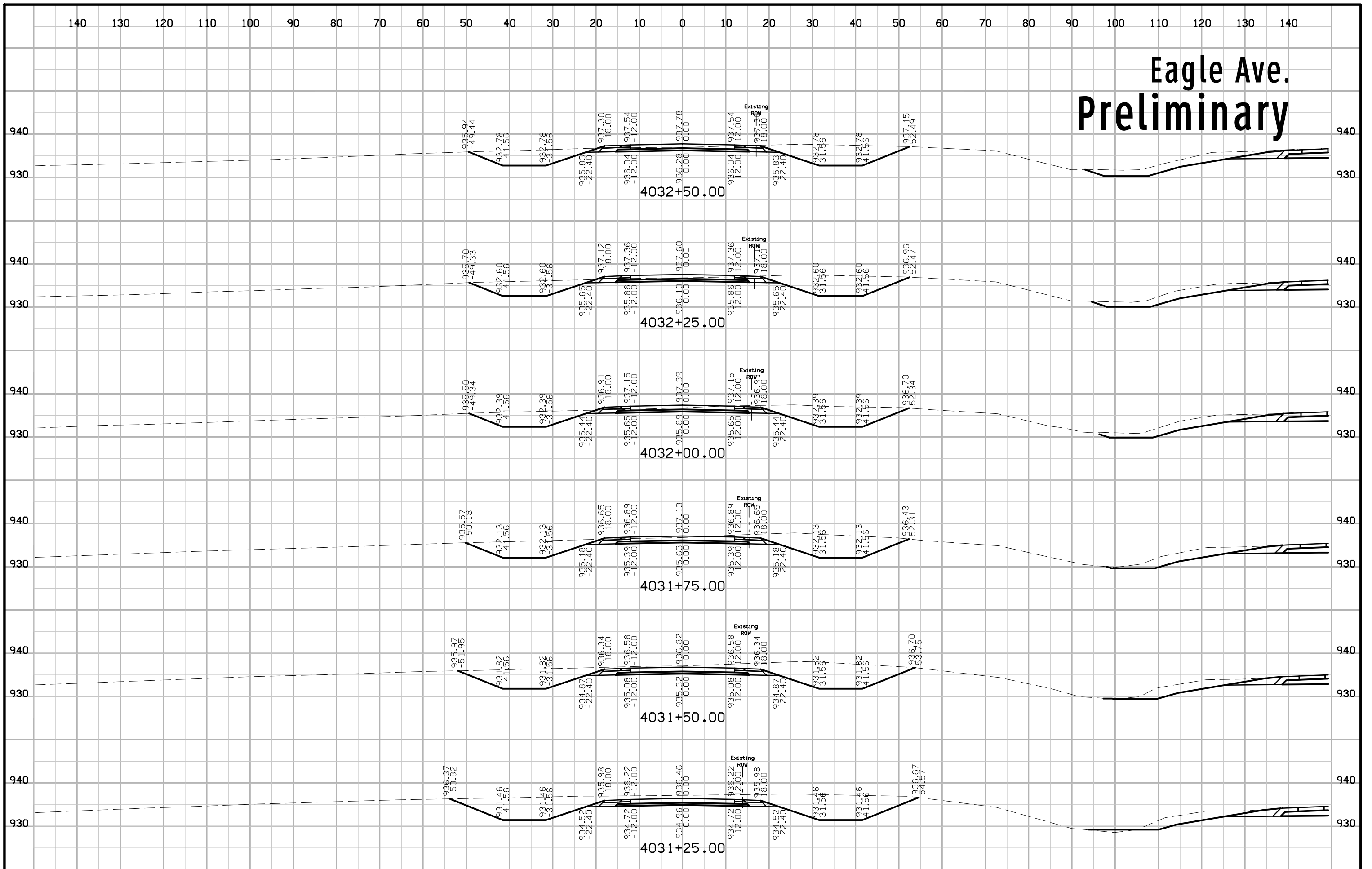


# Eagle Ave. Preliminary





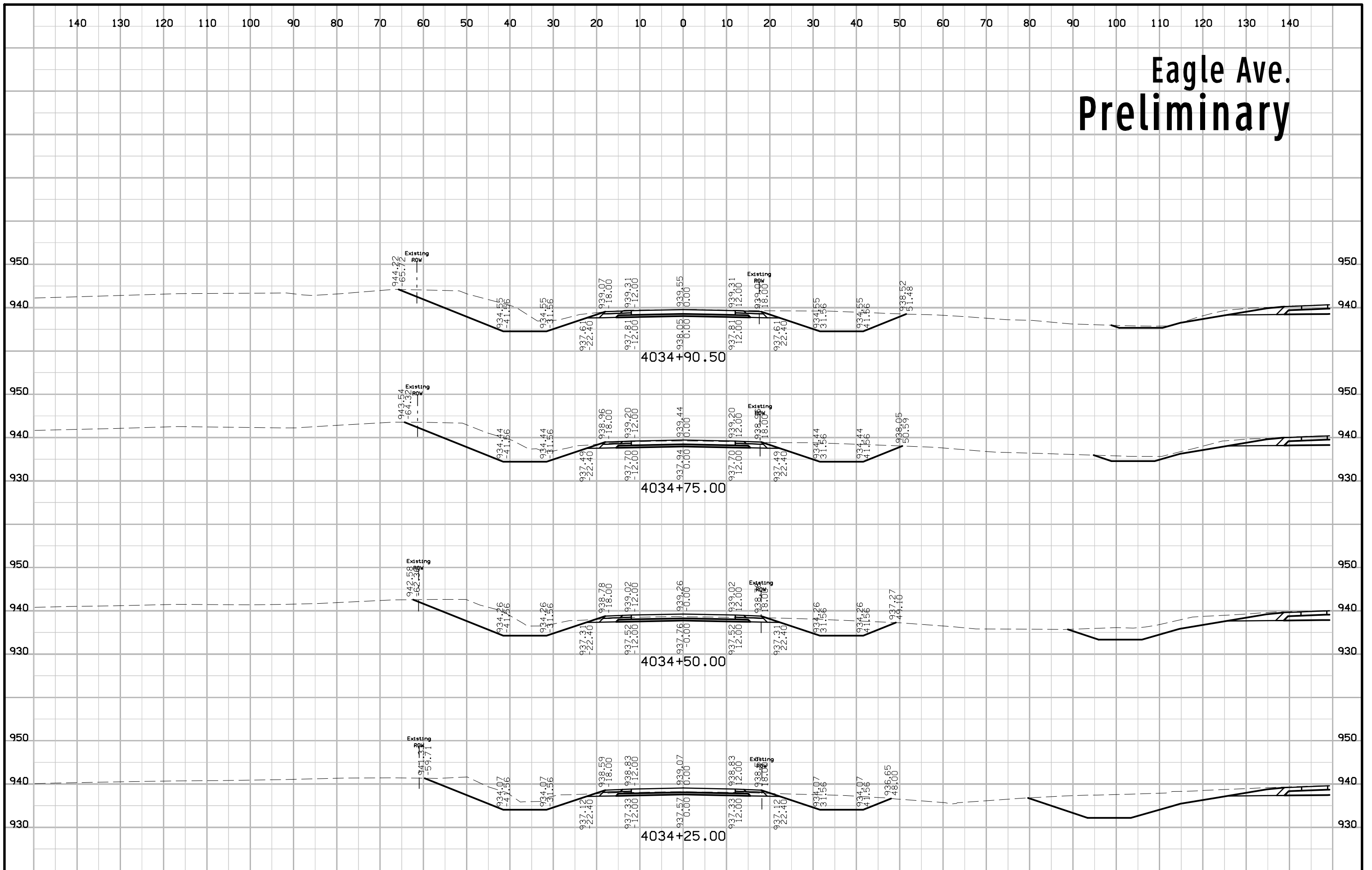
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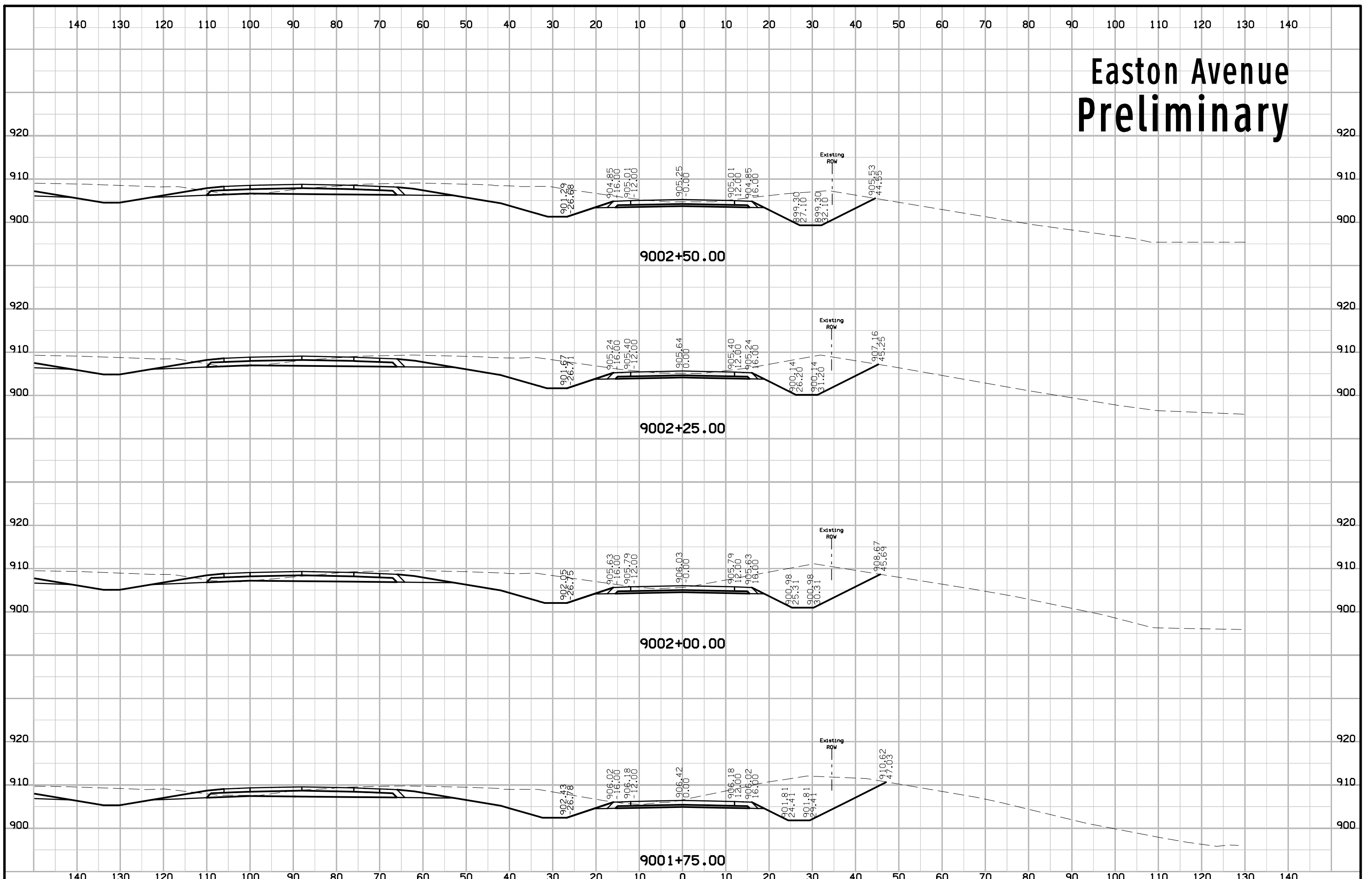




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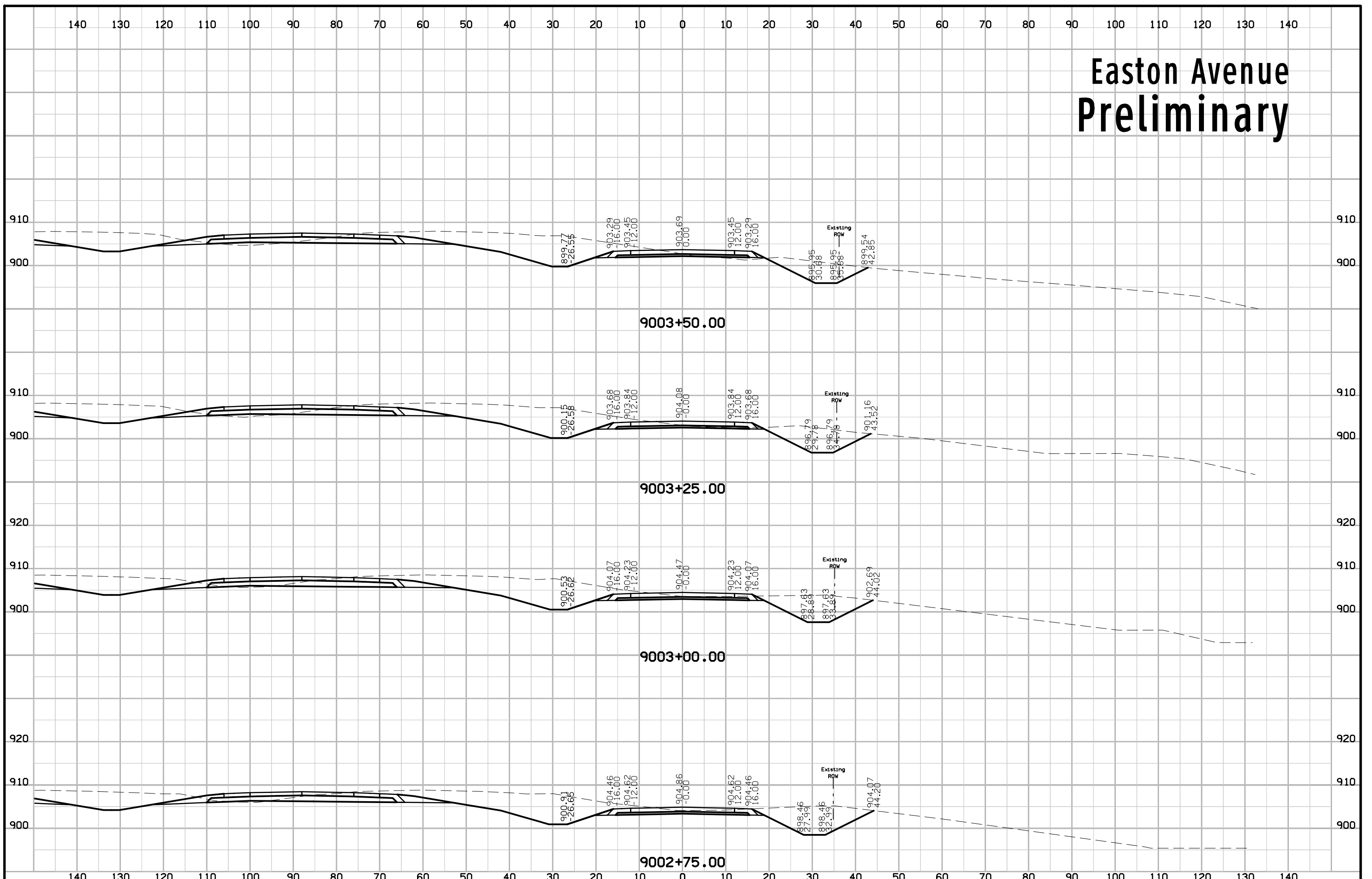


# Easton Avenue Preliminary

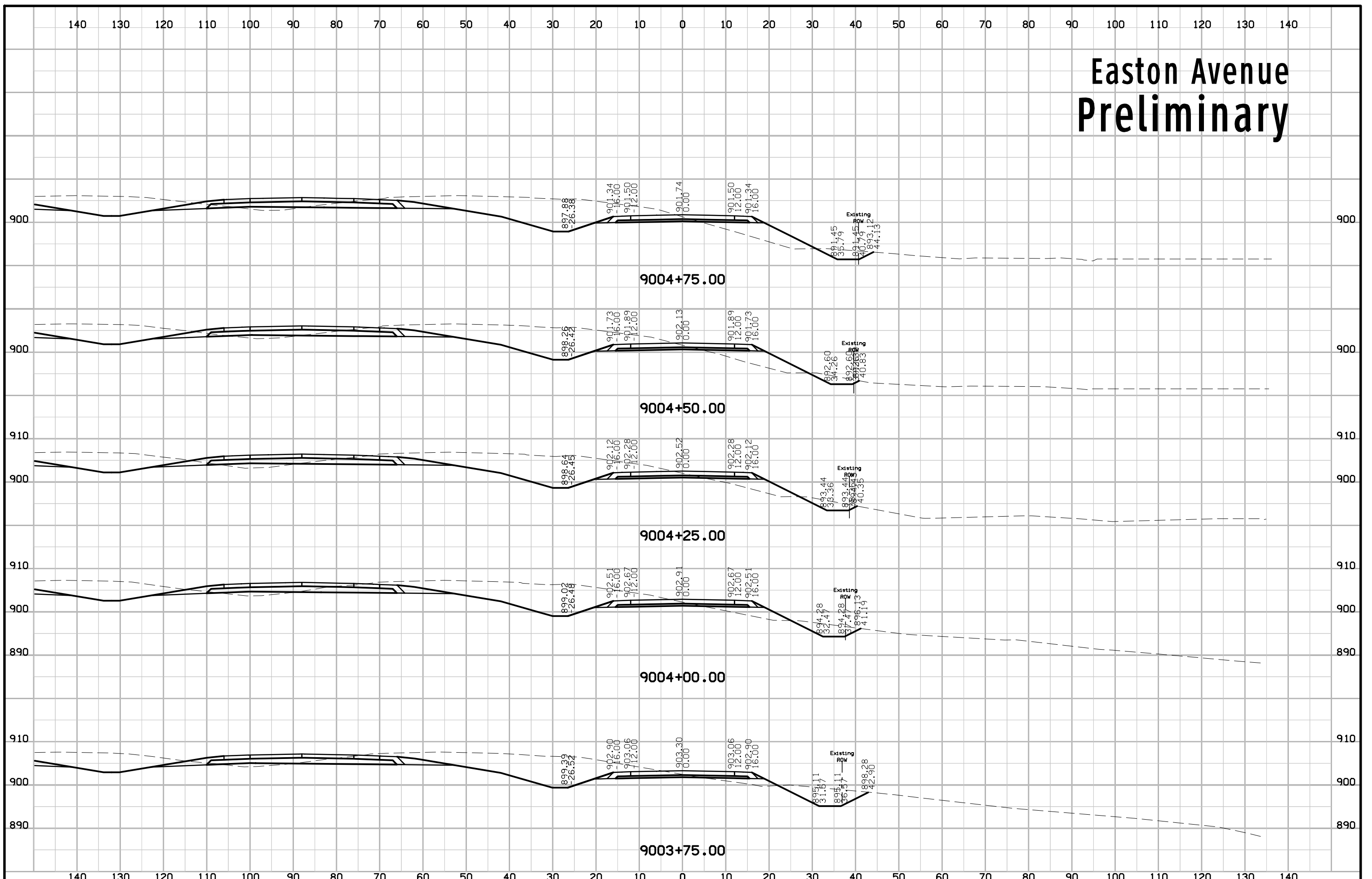




# Easton Avenue Preliminary

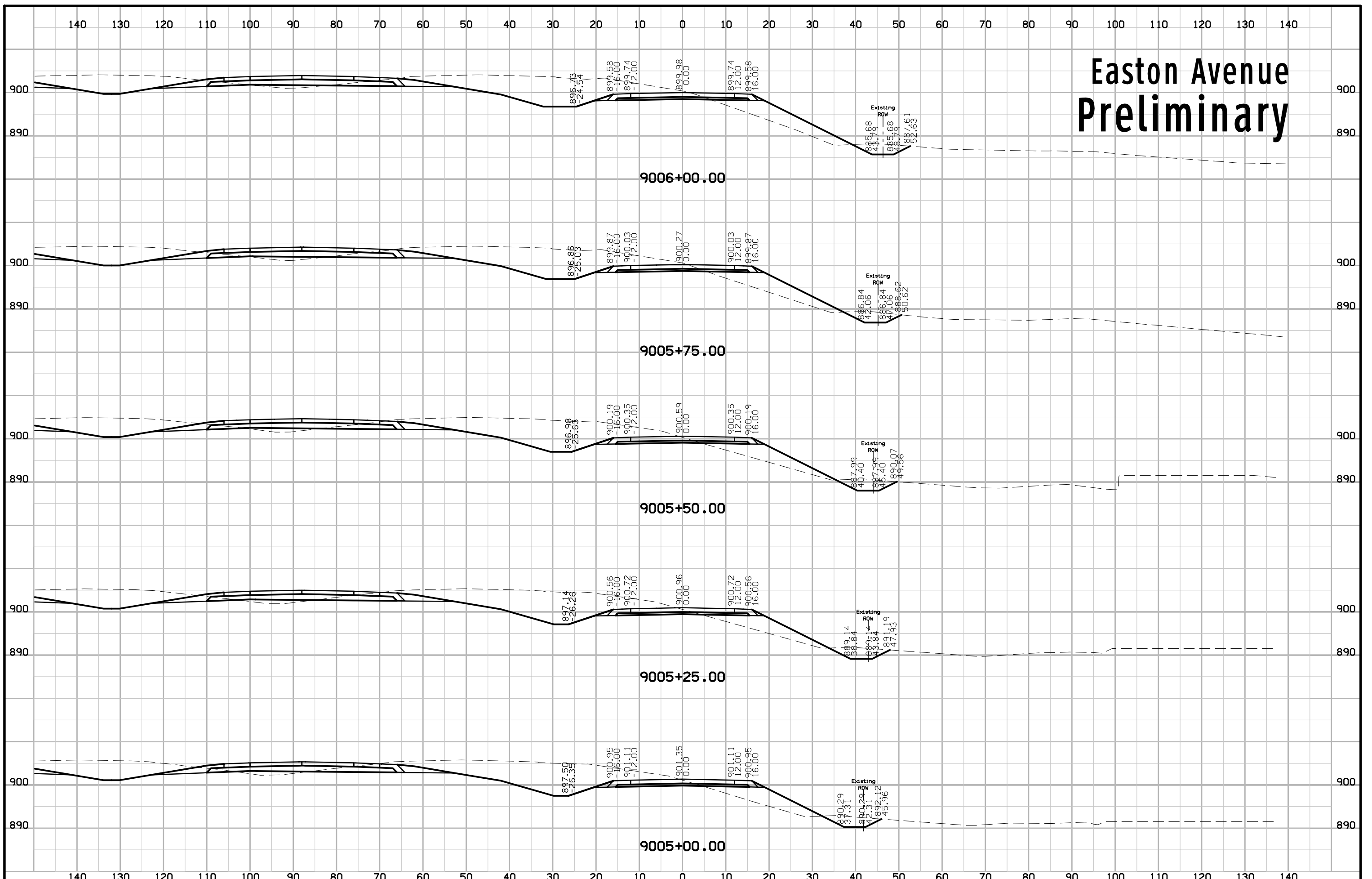


# Easton Avenue Preliminary

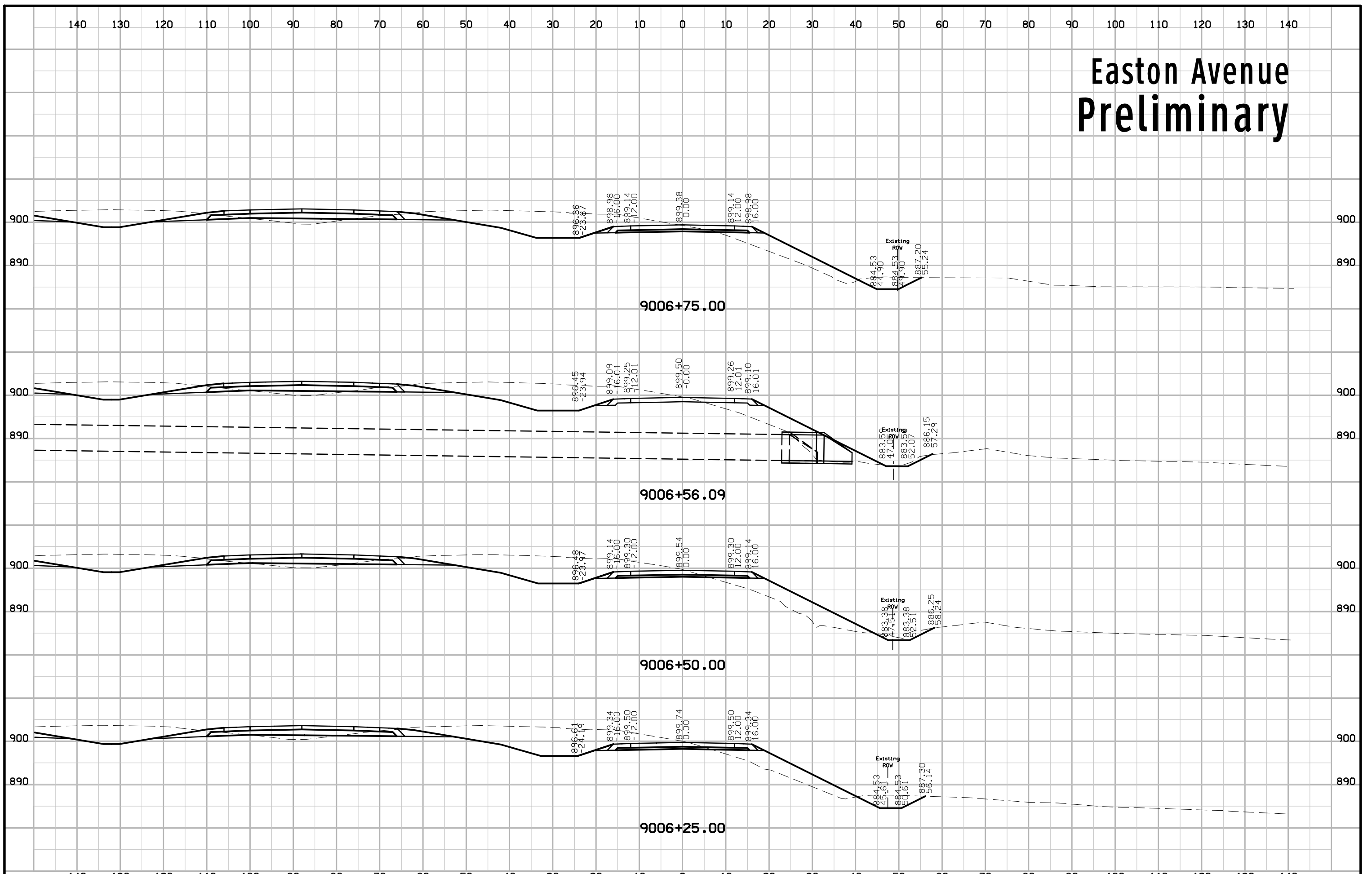




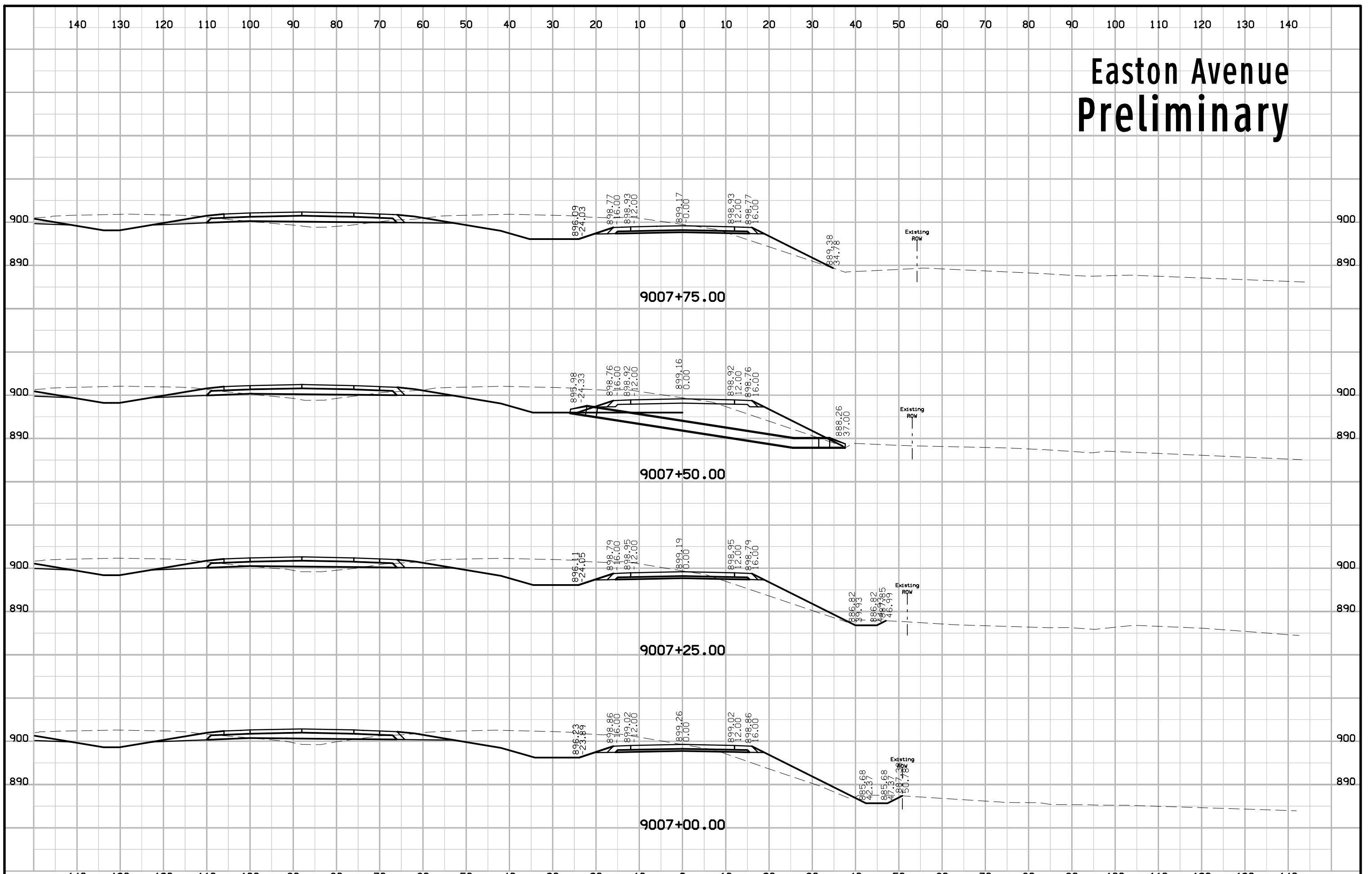
# Easton Avenue Preliminary



# Easton Avenue Preliminary



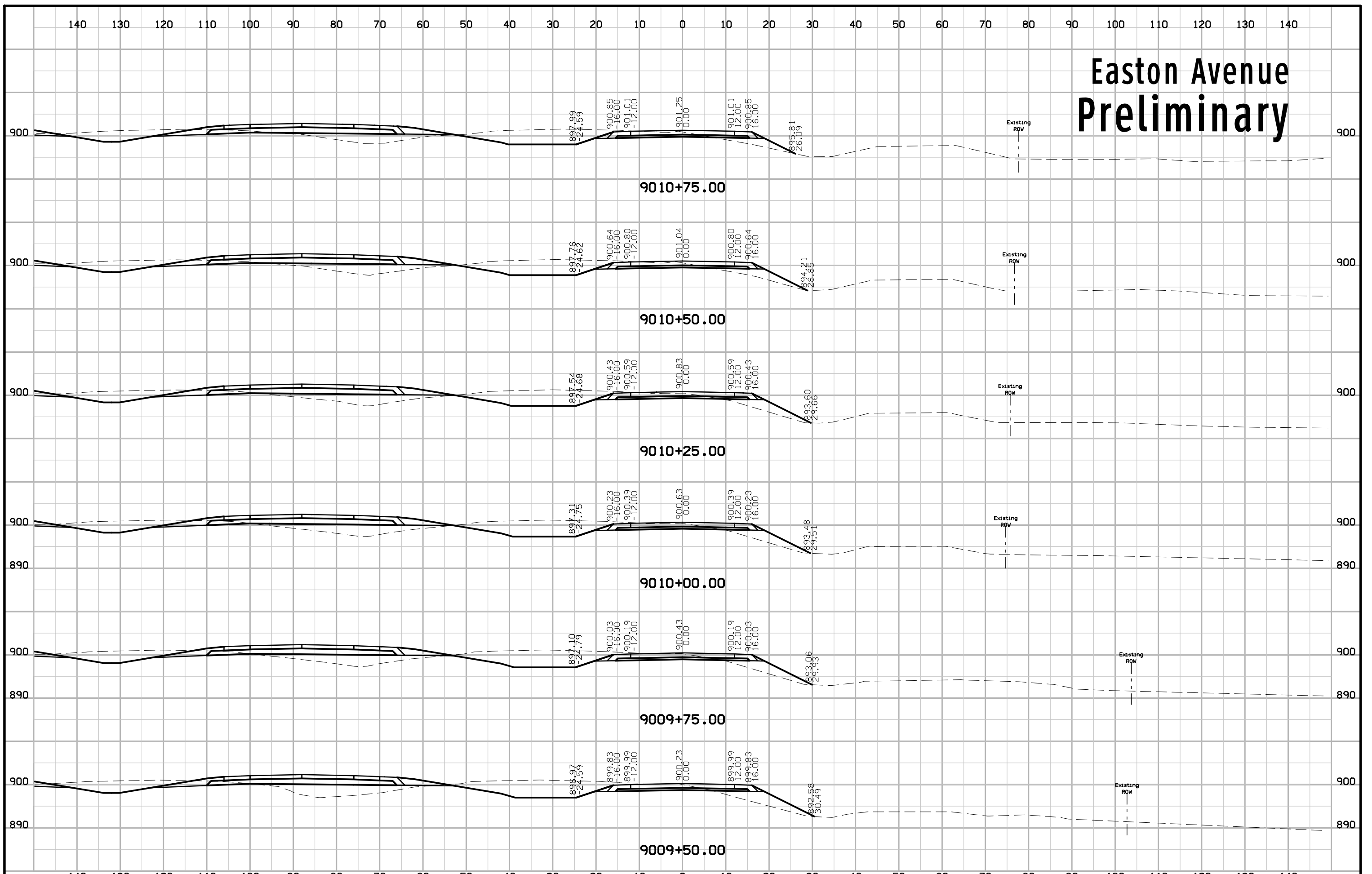
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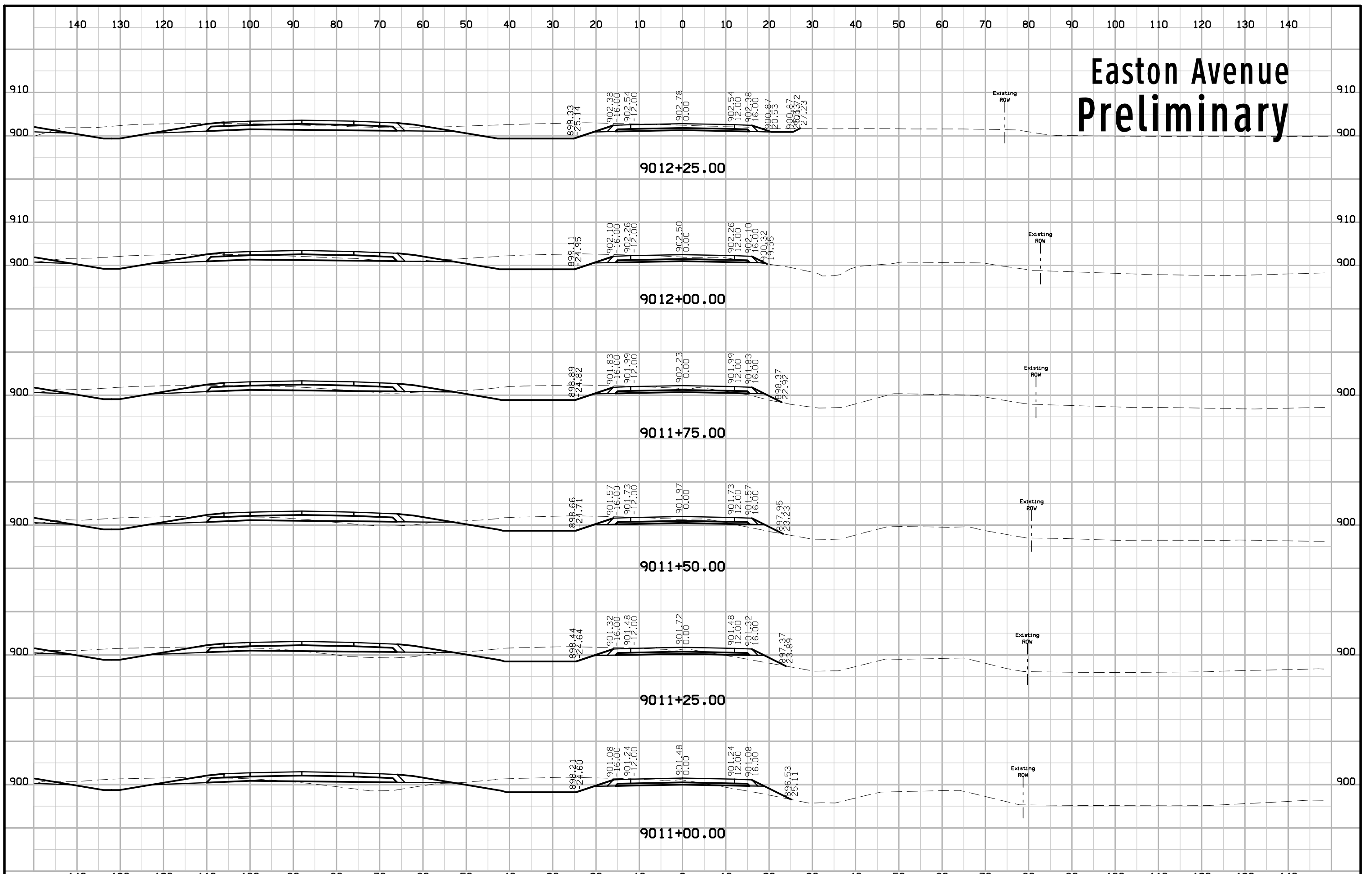




# Easton Avenue Preliminary



# Easton Avenue Preliminary

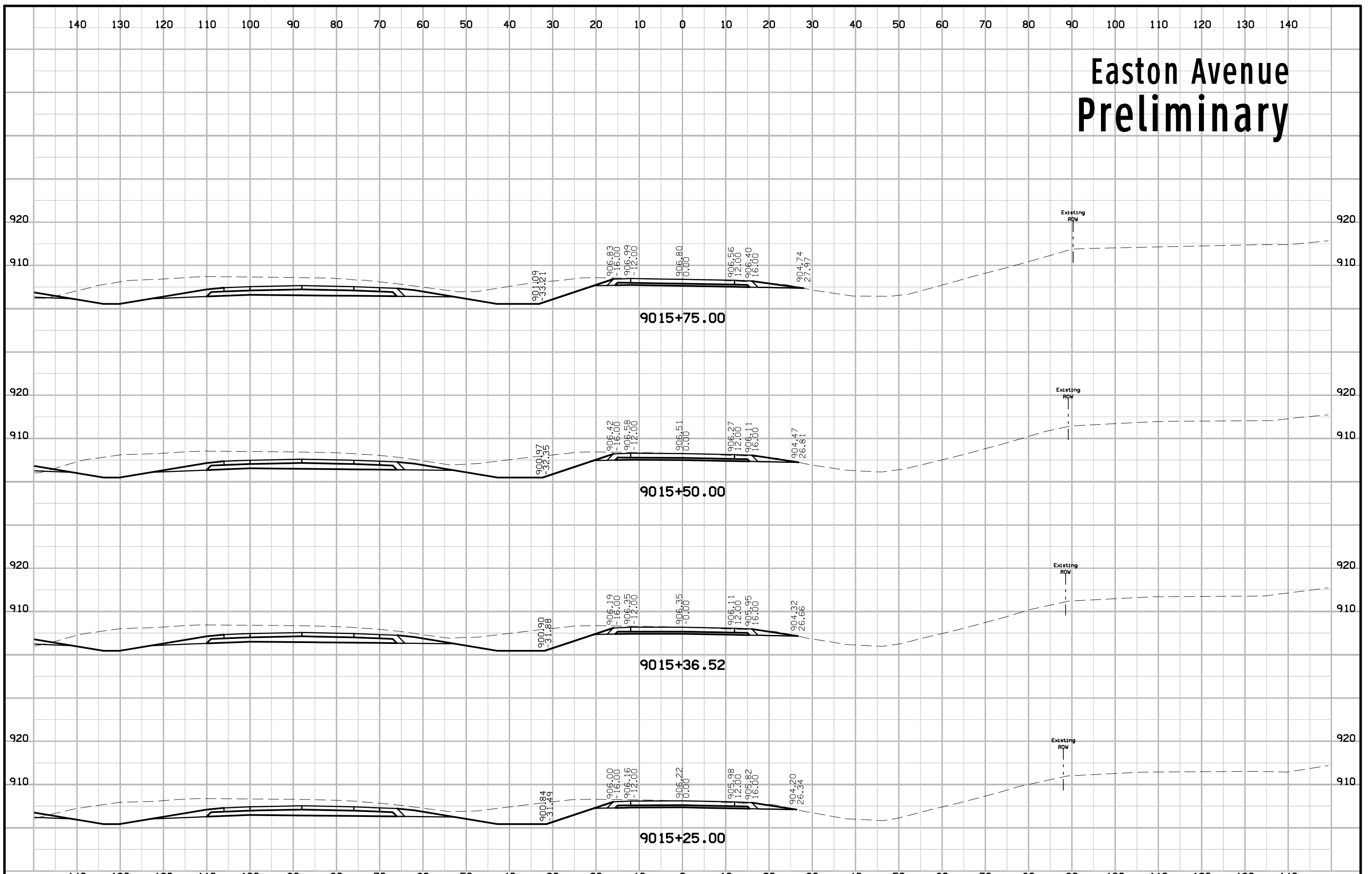






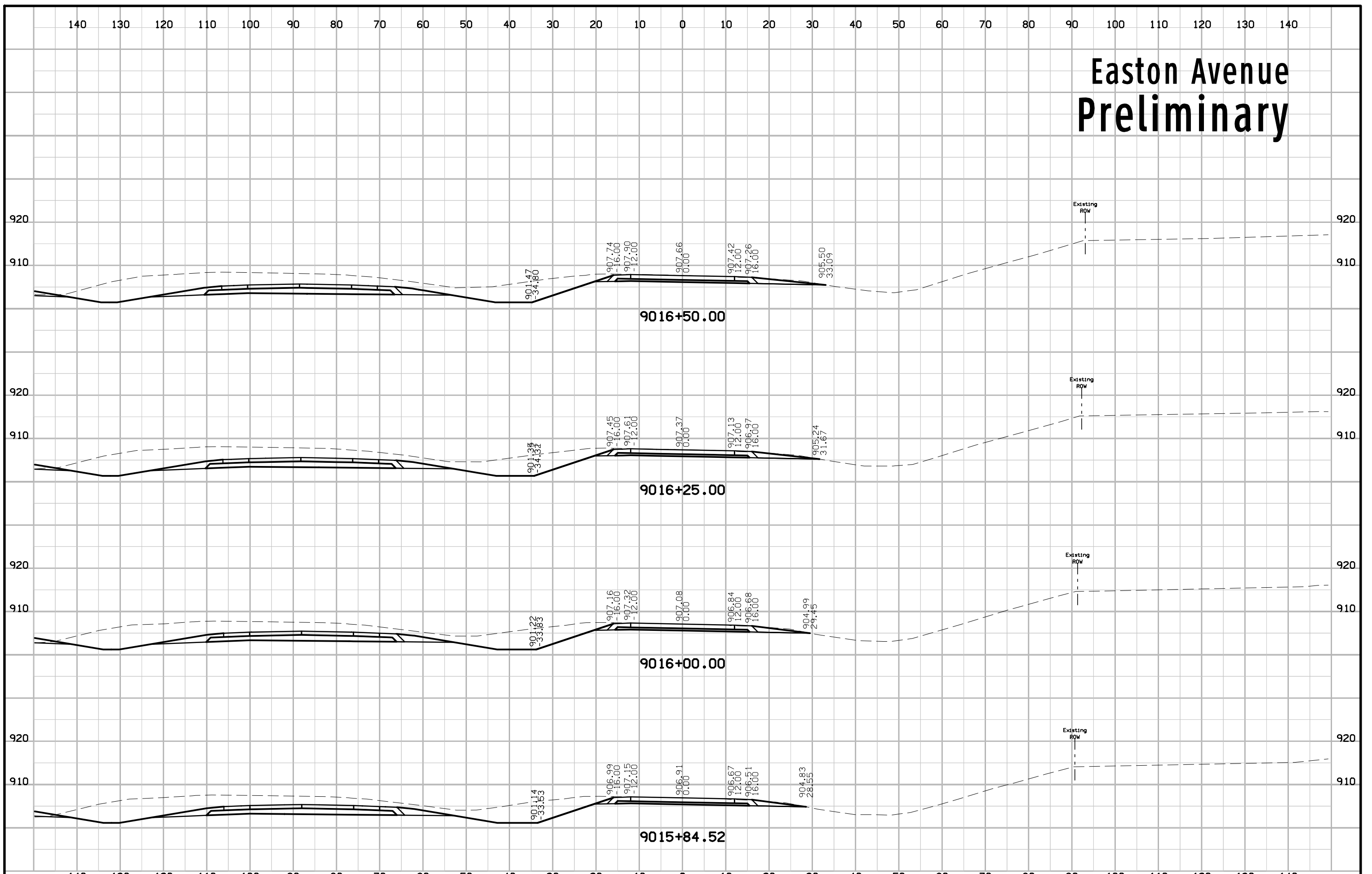


# Easton Avenue Preliminary

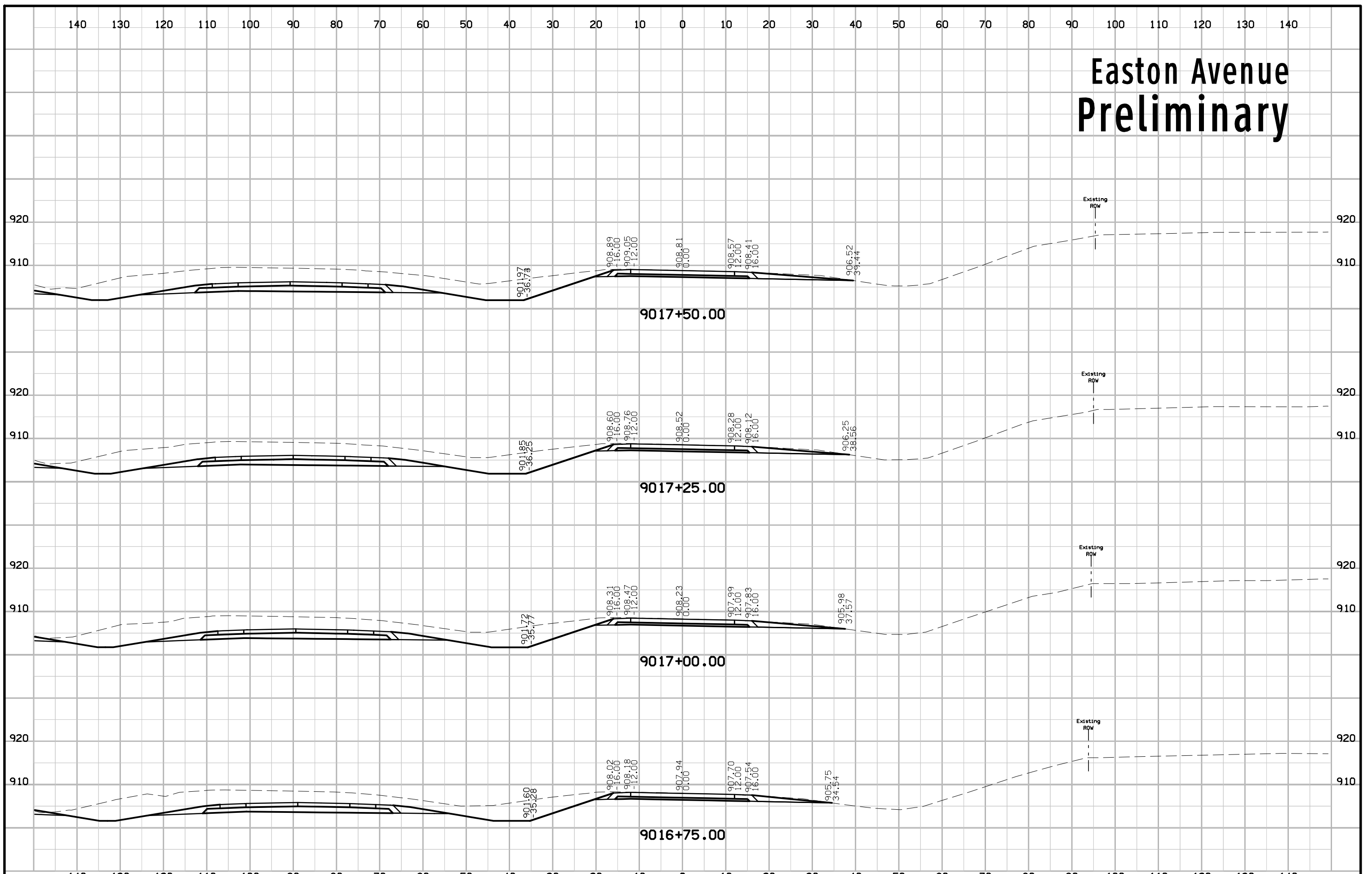




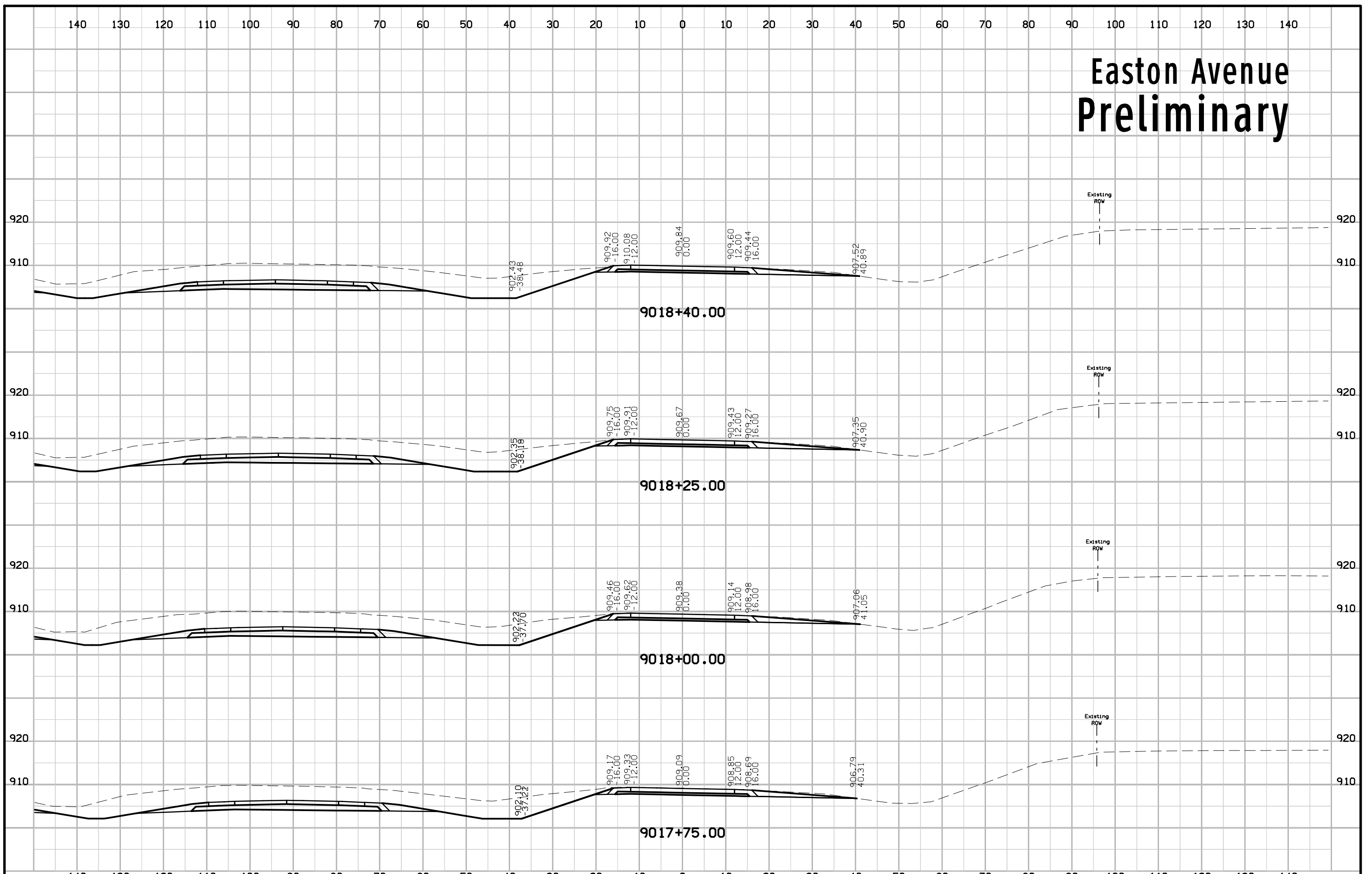
# Easton Avenue Preliminary



# Easton Avenue Preliminary

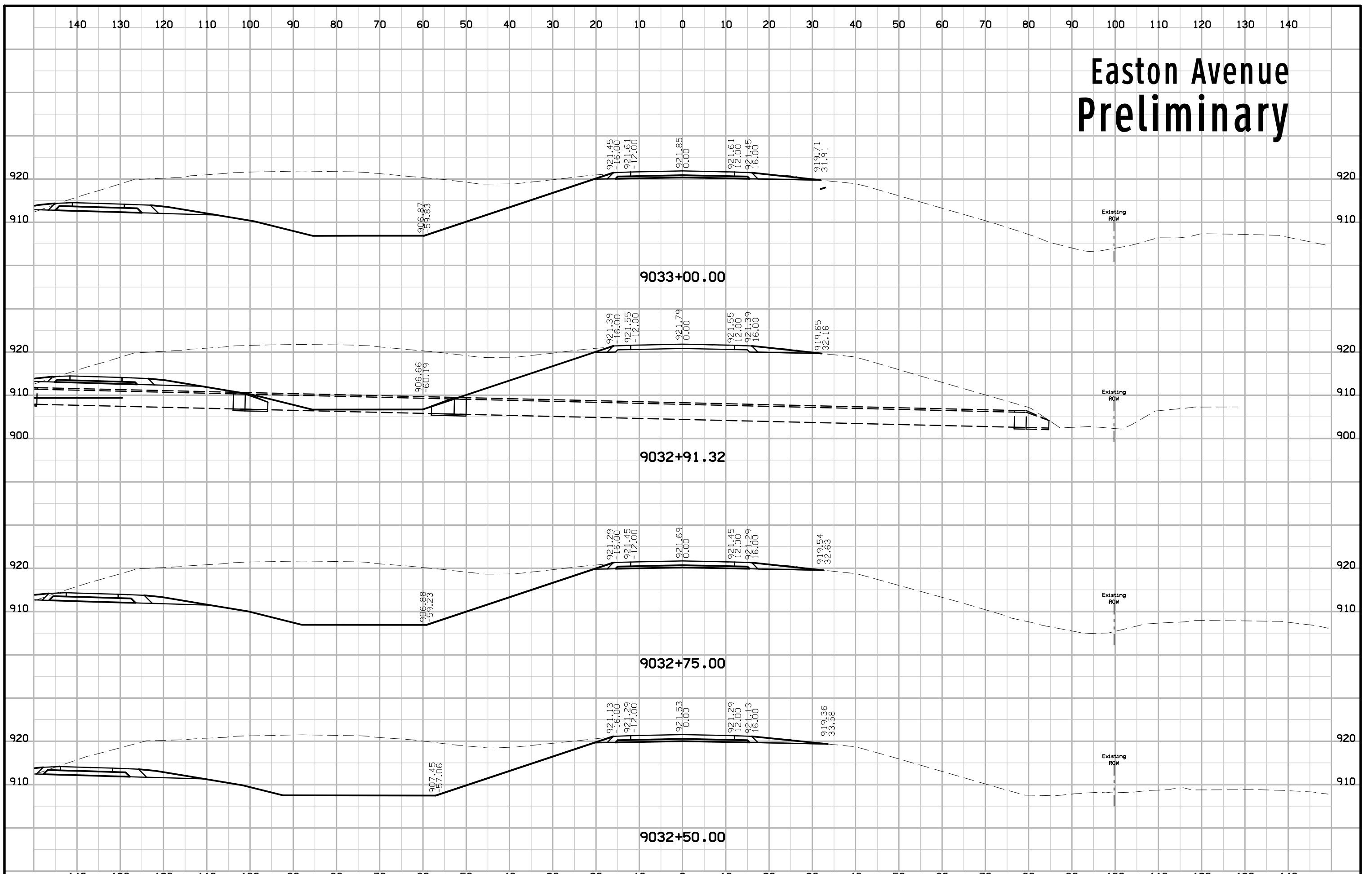


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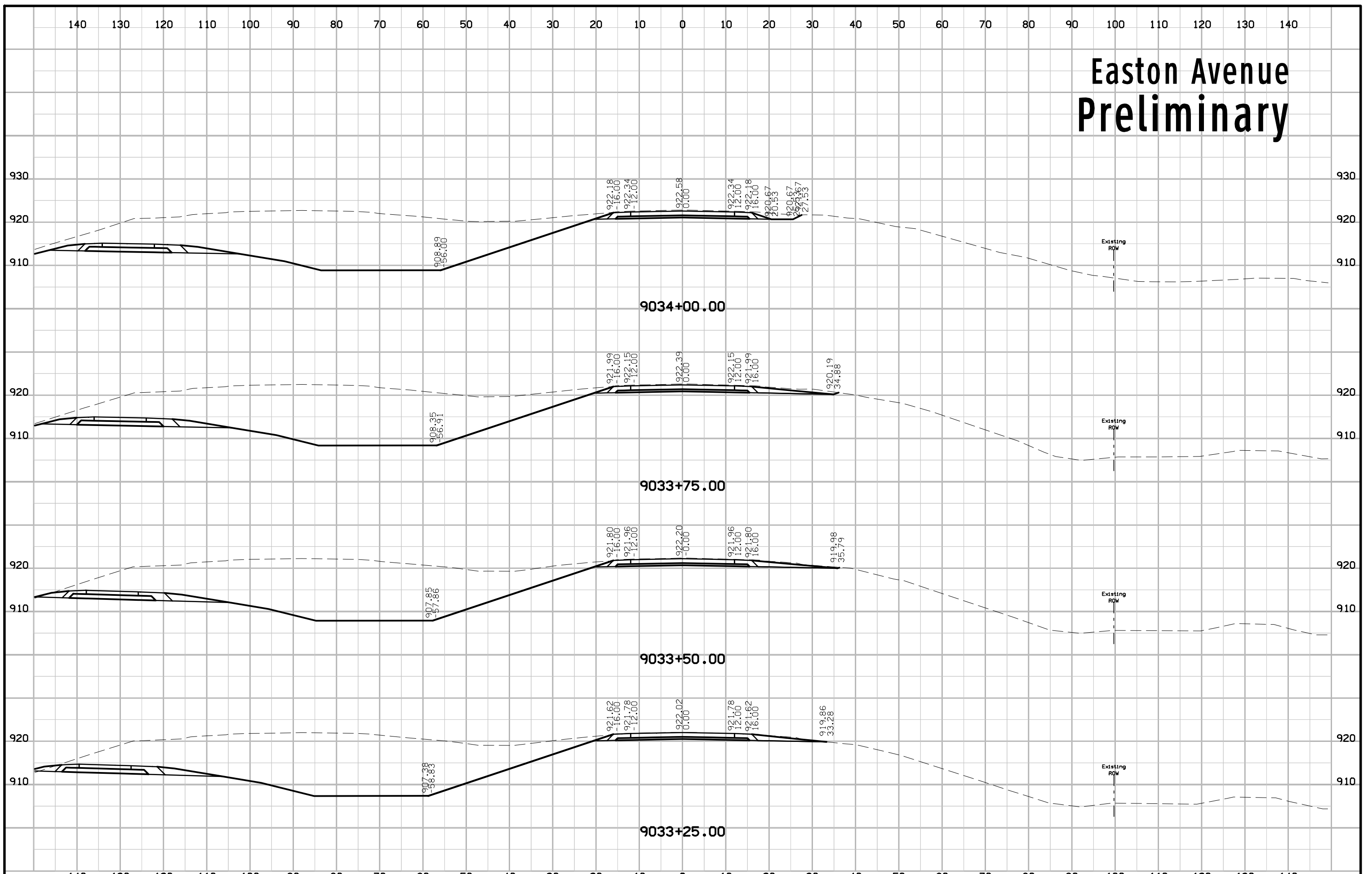




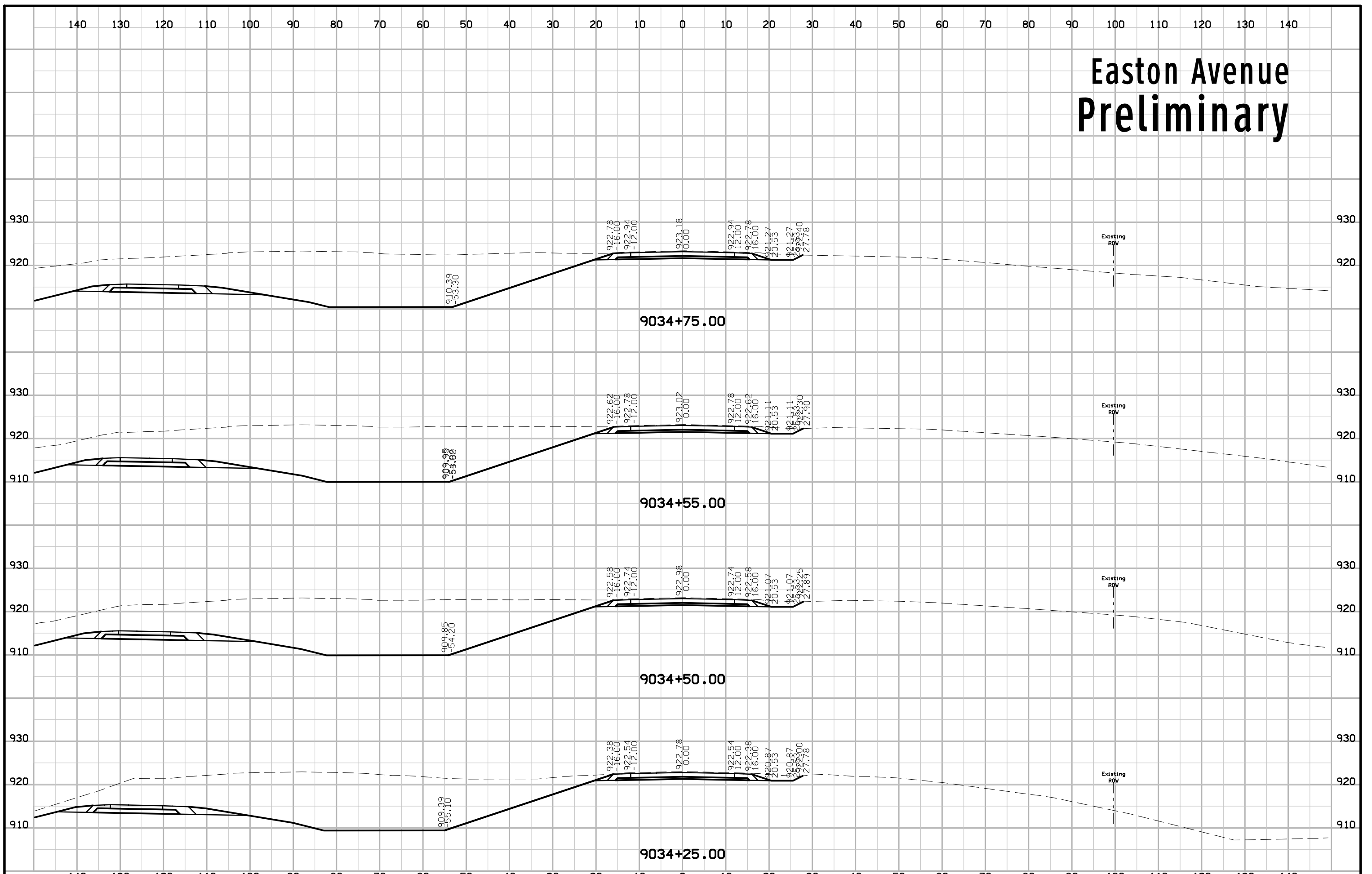
# Easton Avenue Preliminary



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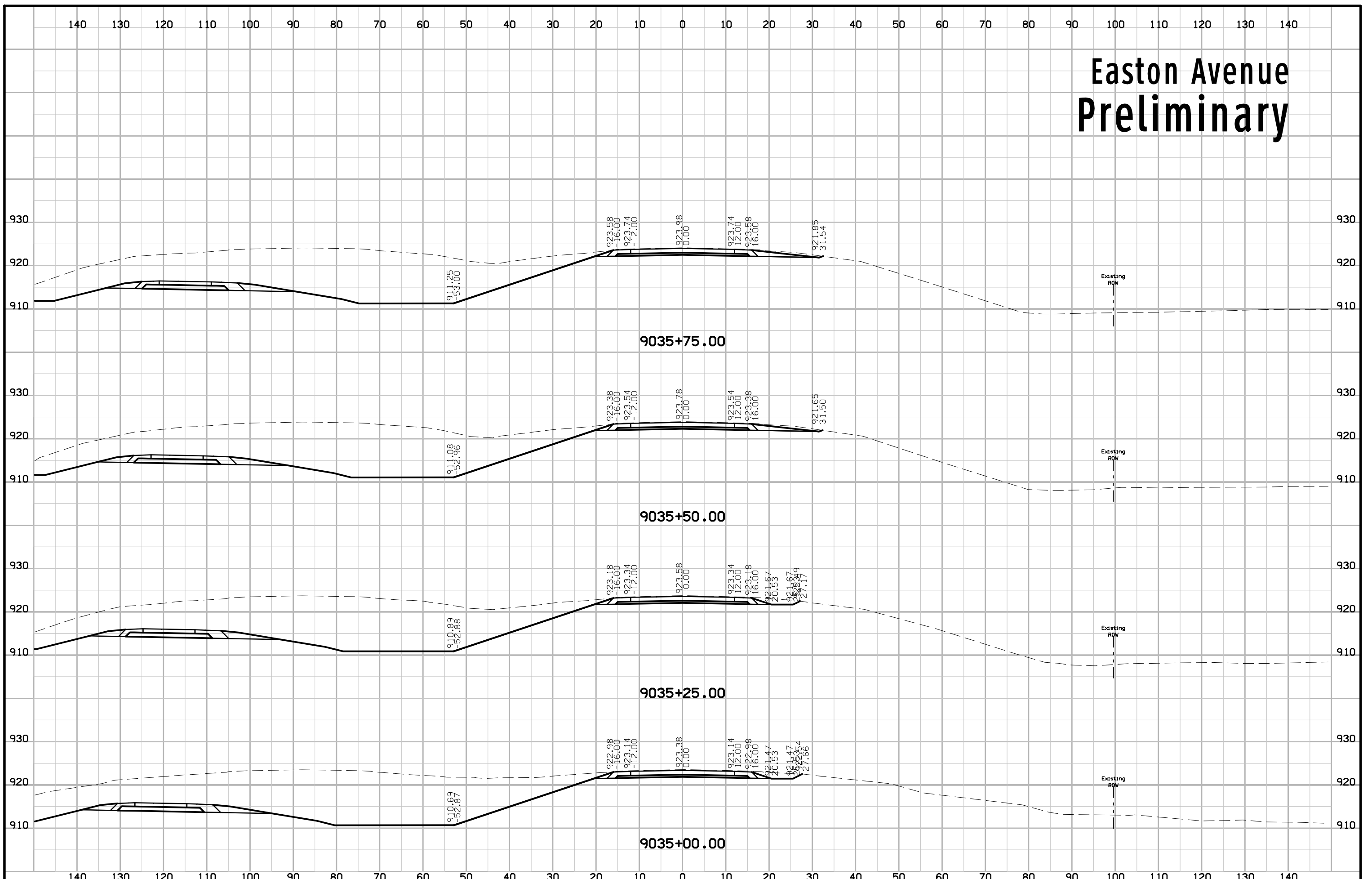


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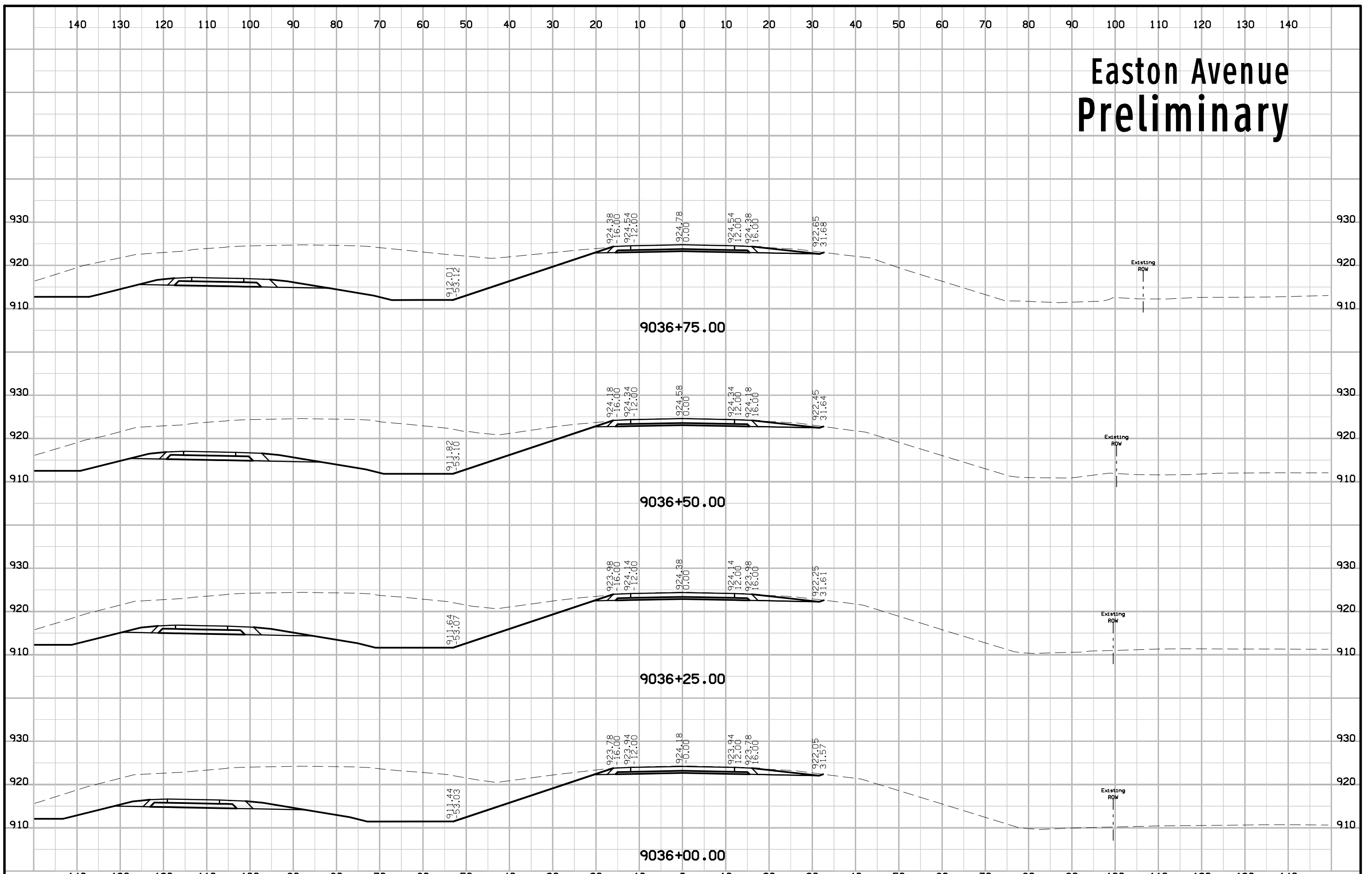




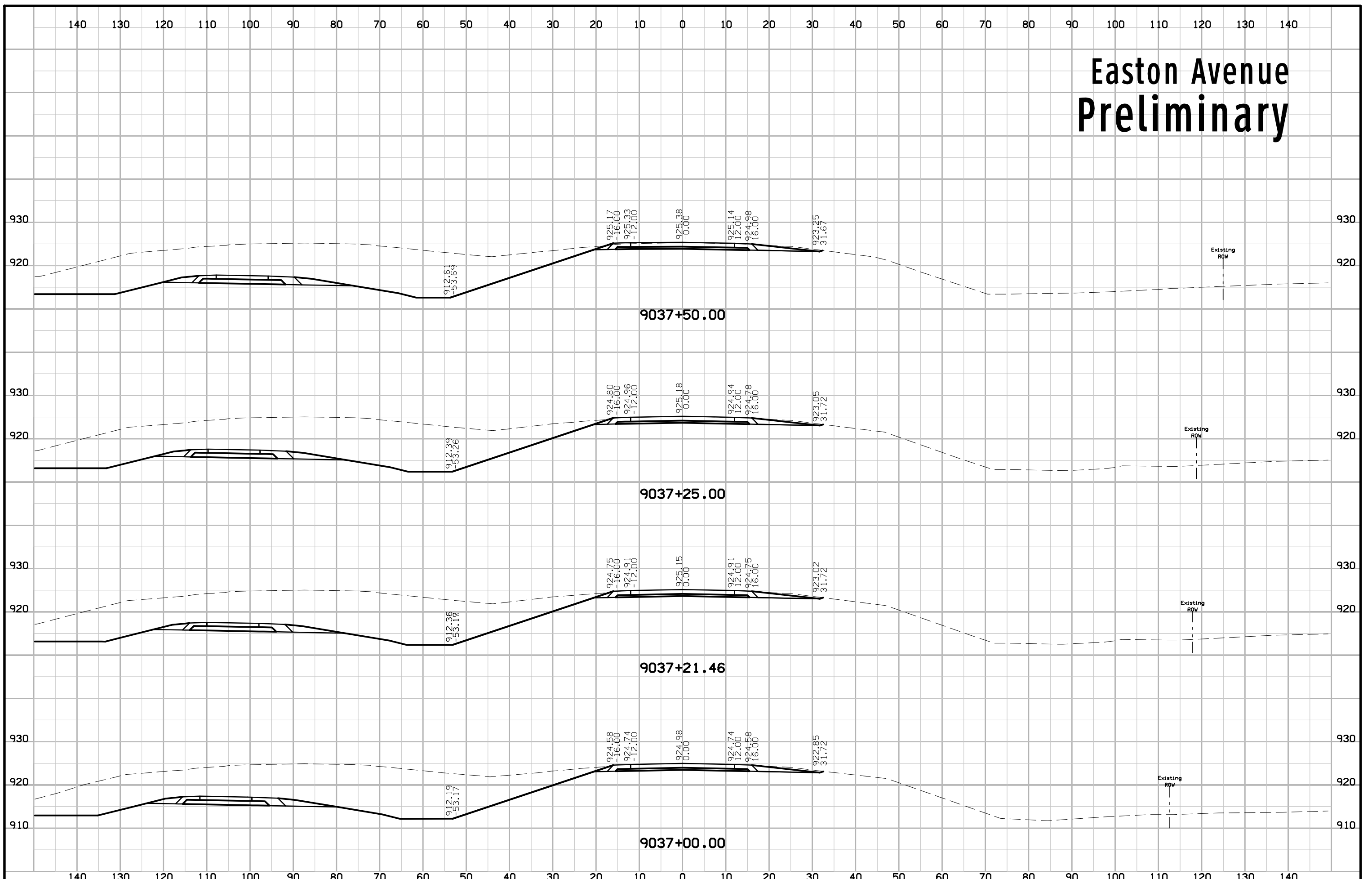
# Easton Avenue Preliminary



# Easton Avenue Preliminary

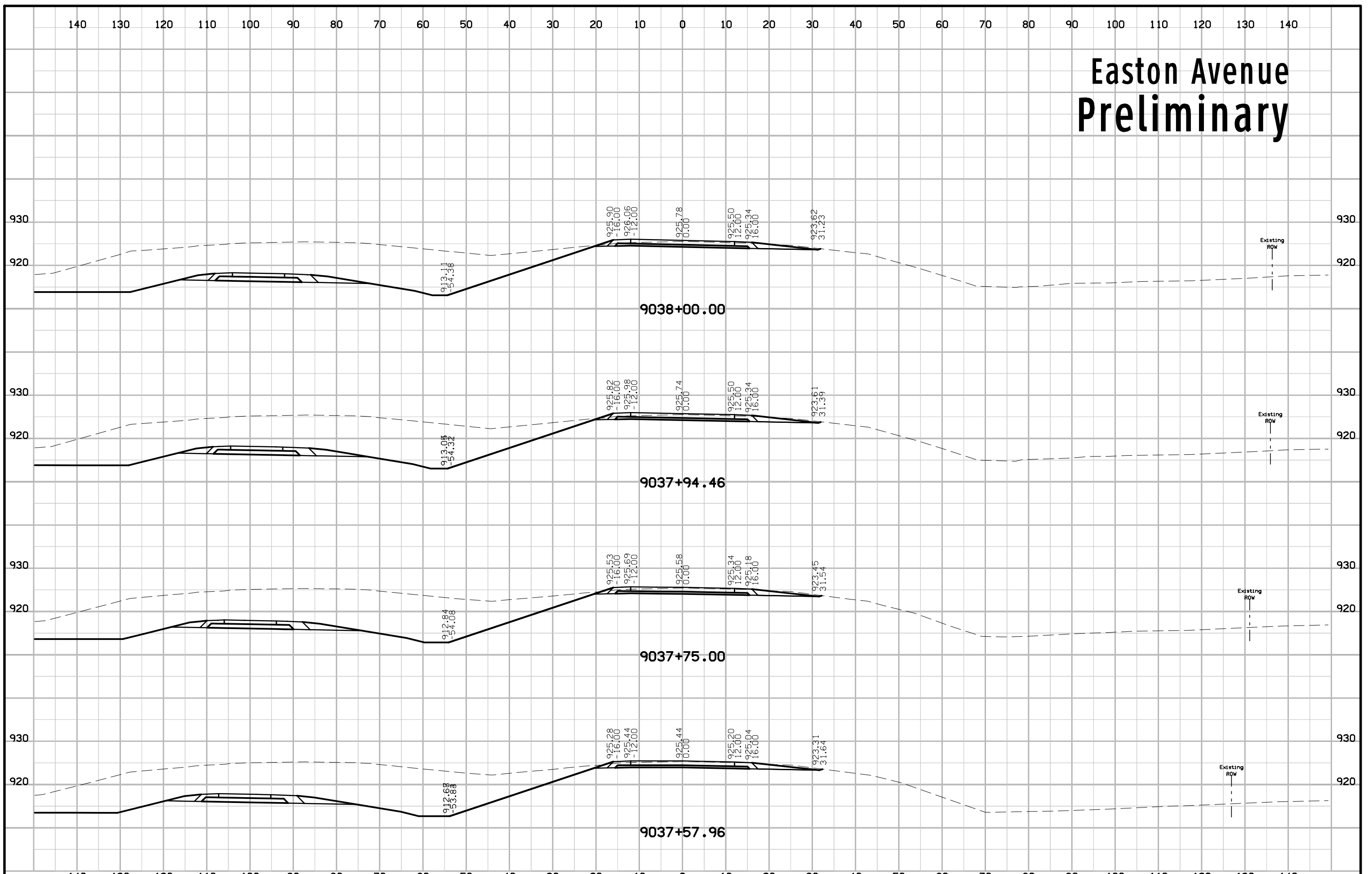


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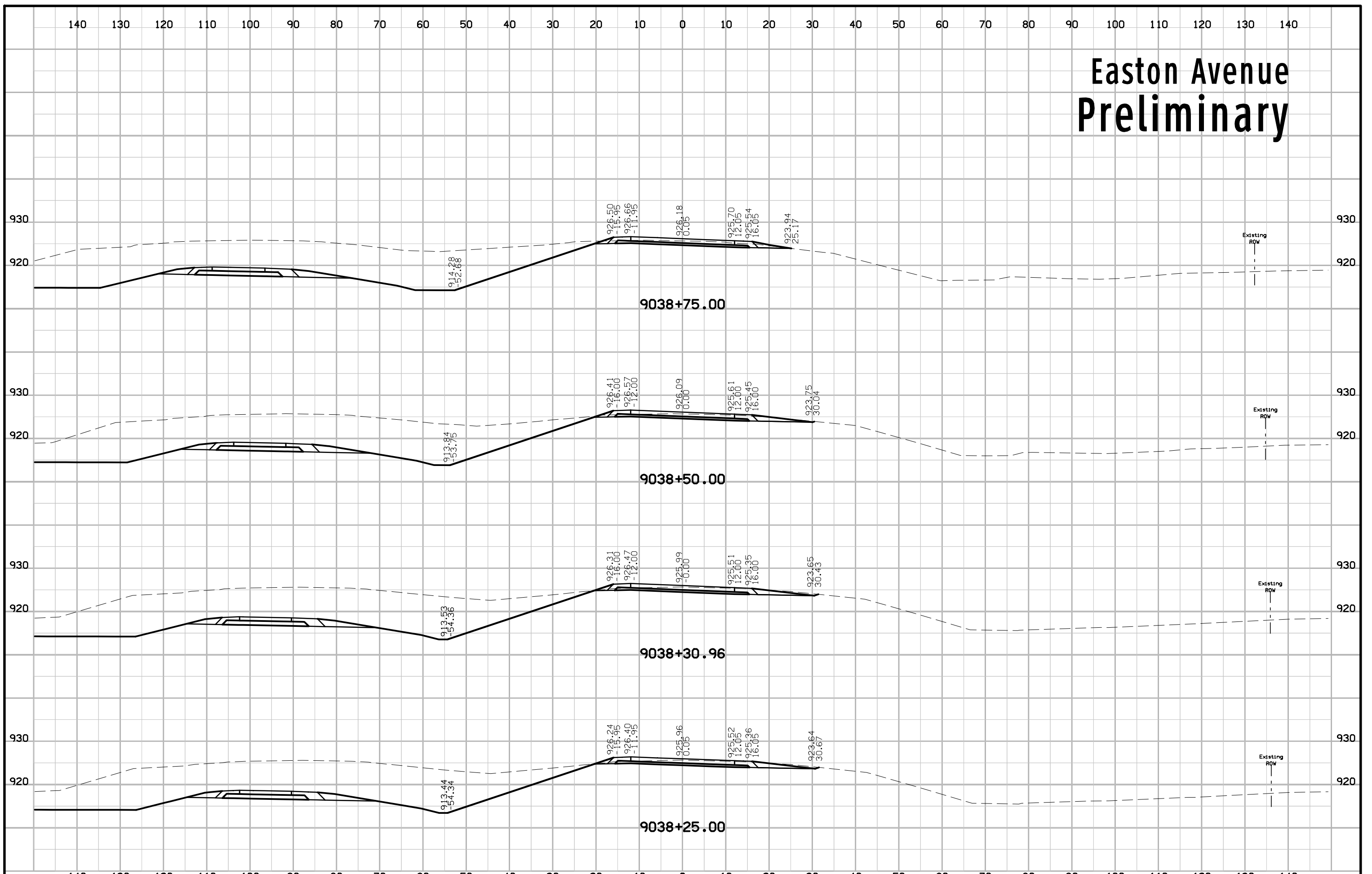




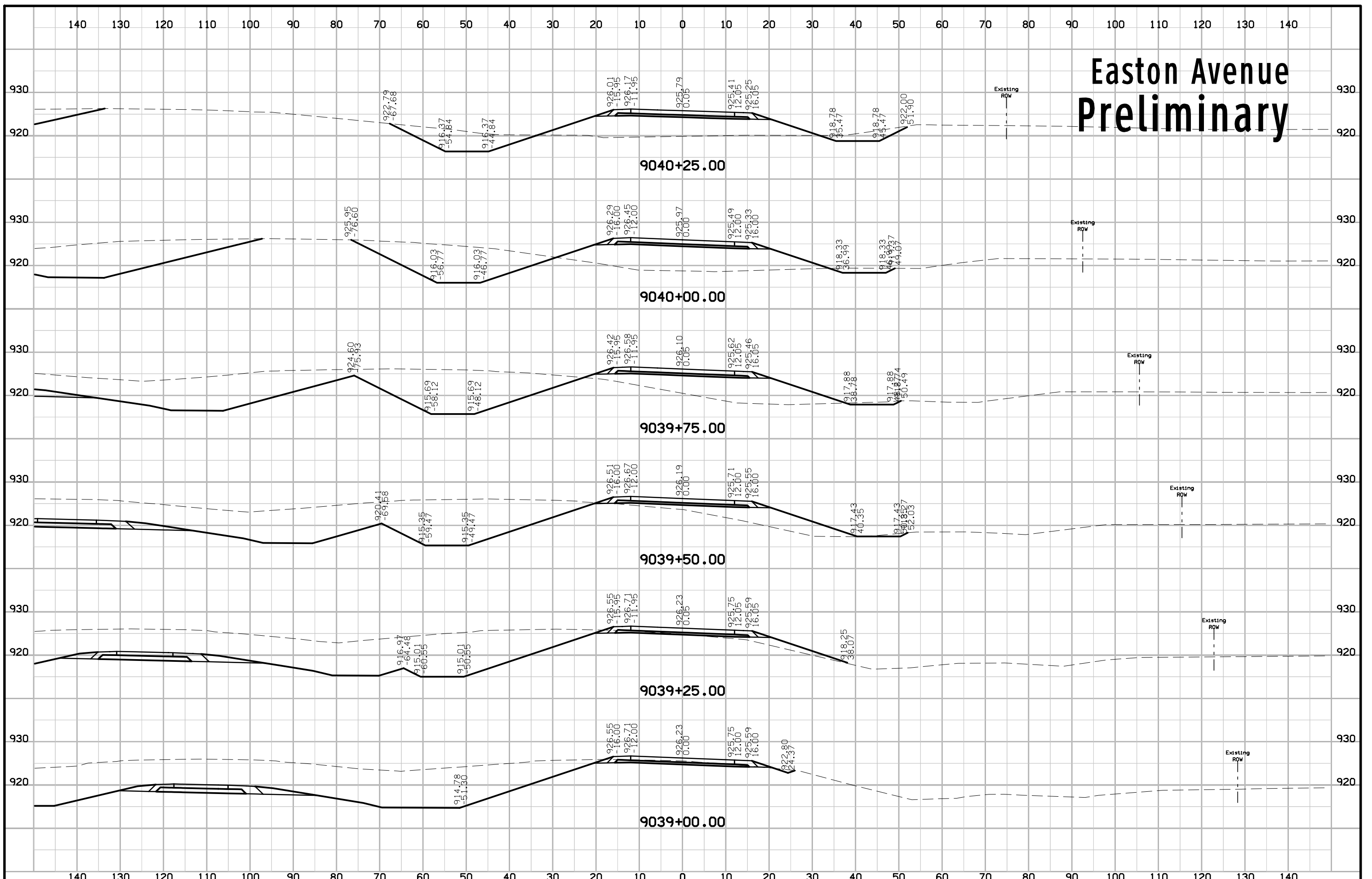
# Easton Avenue Preliminary



# Easton Avenue Preliminary

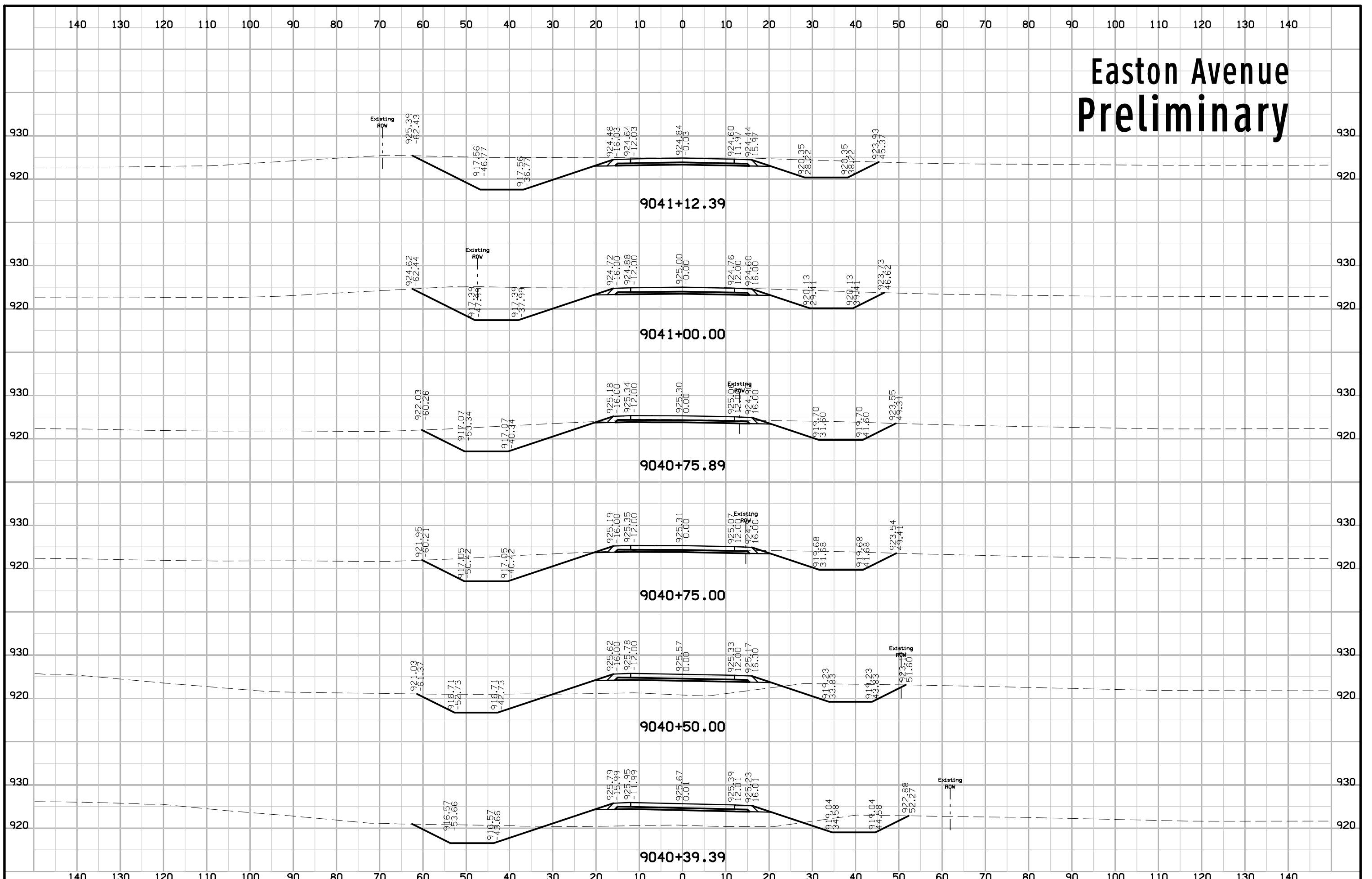


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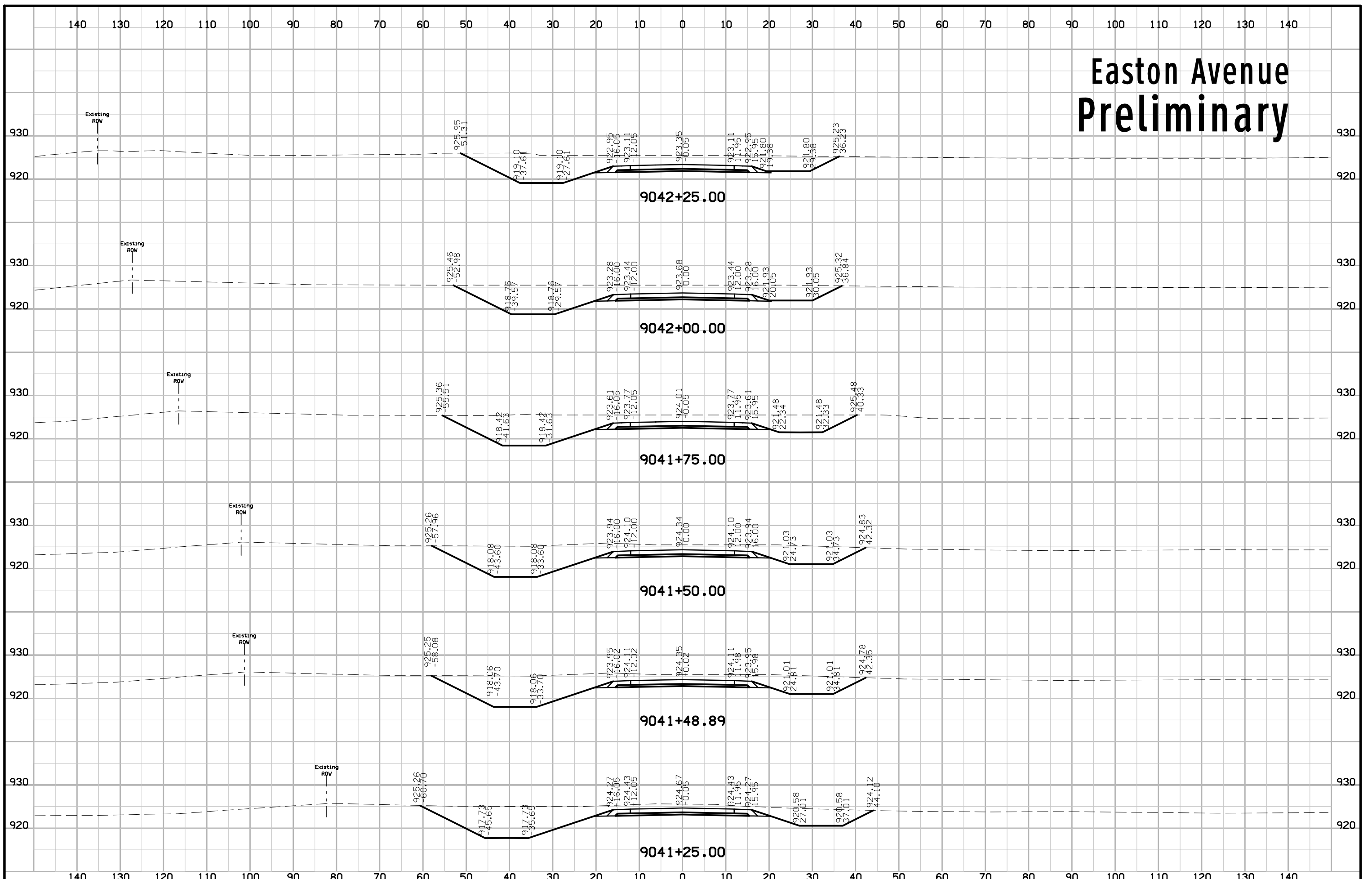




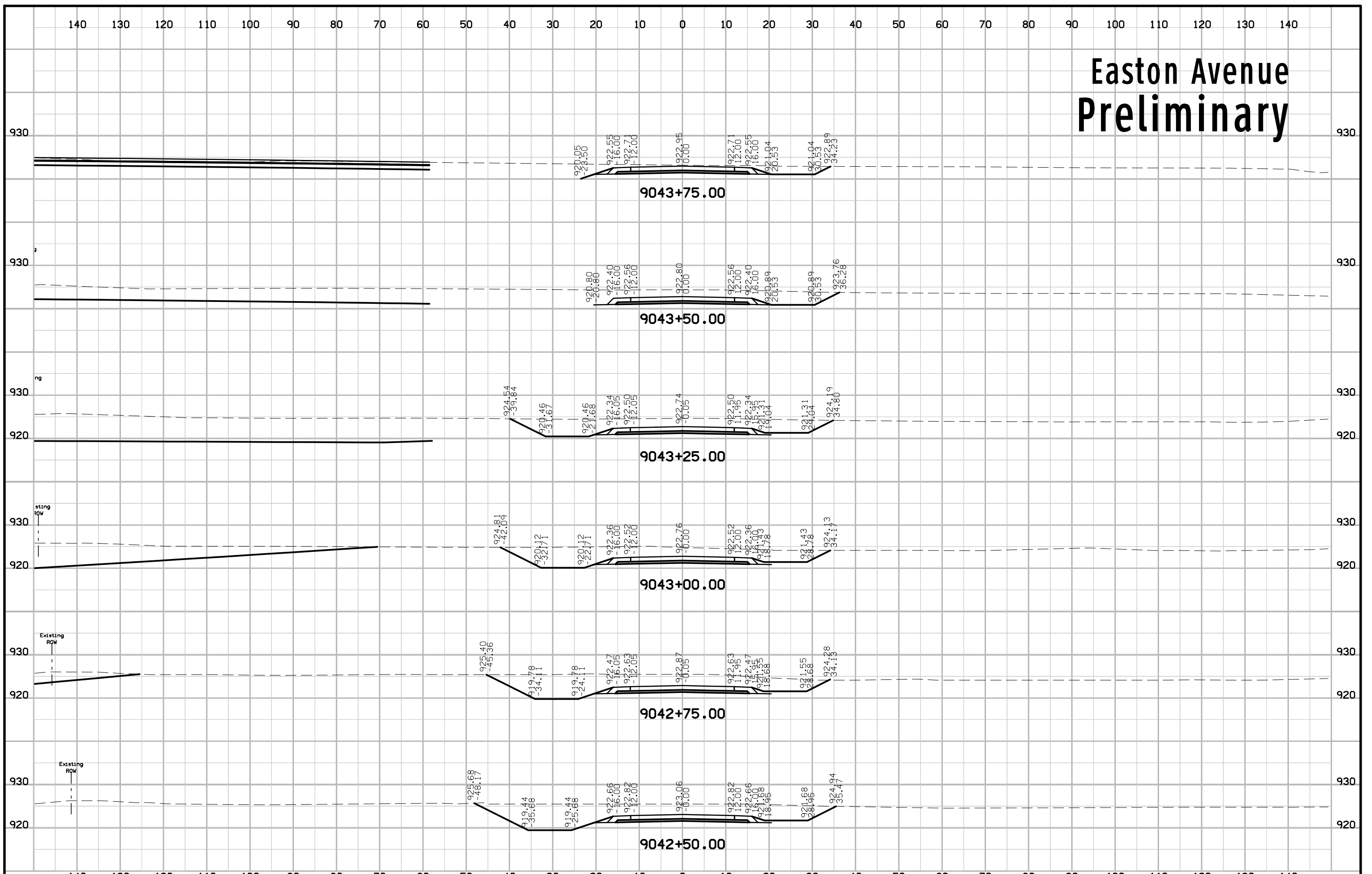
# Easton Avenue Preliminary



# Easton Avenue Preliminary

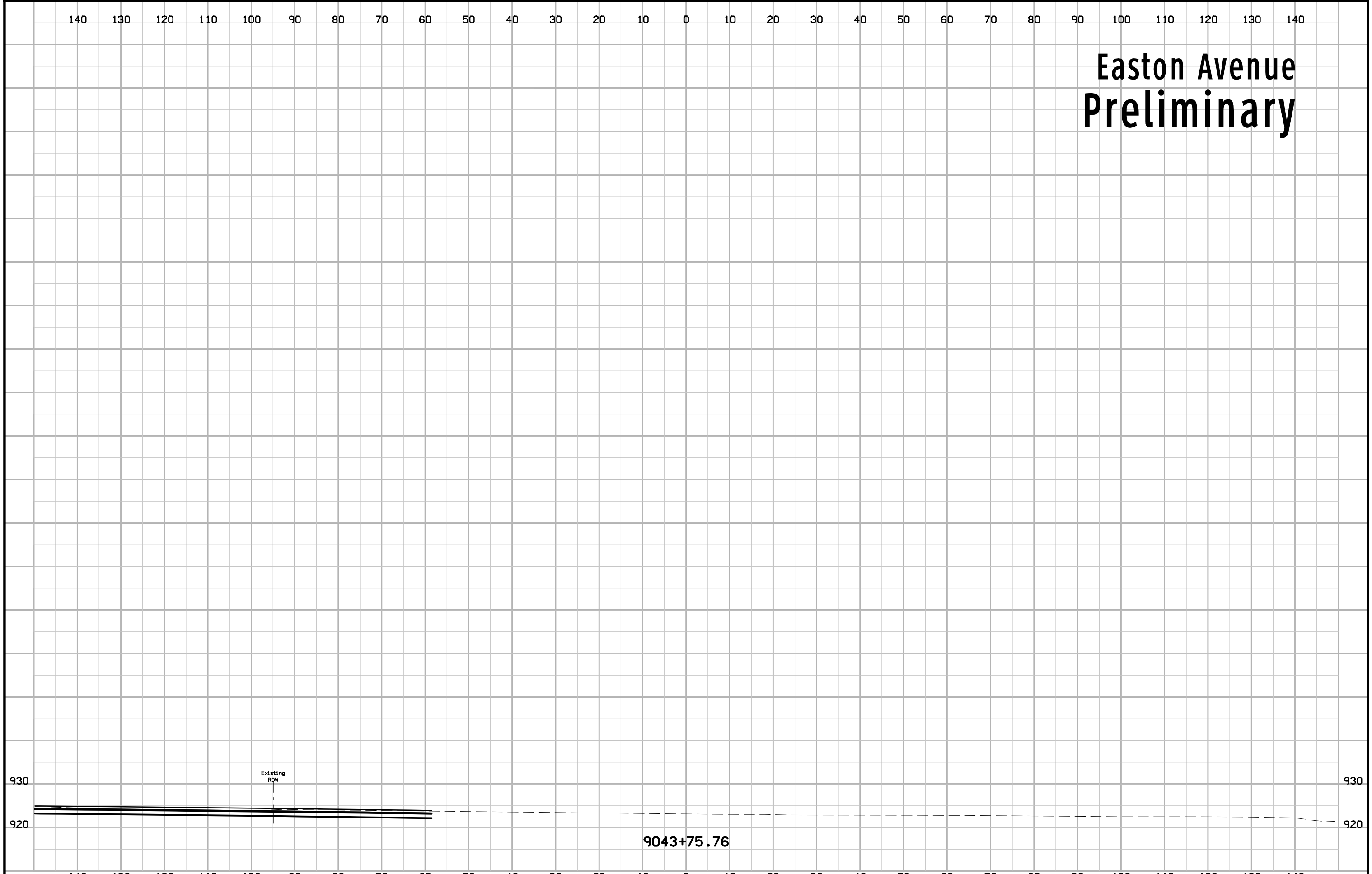


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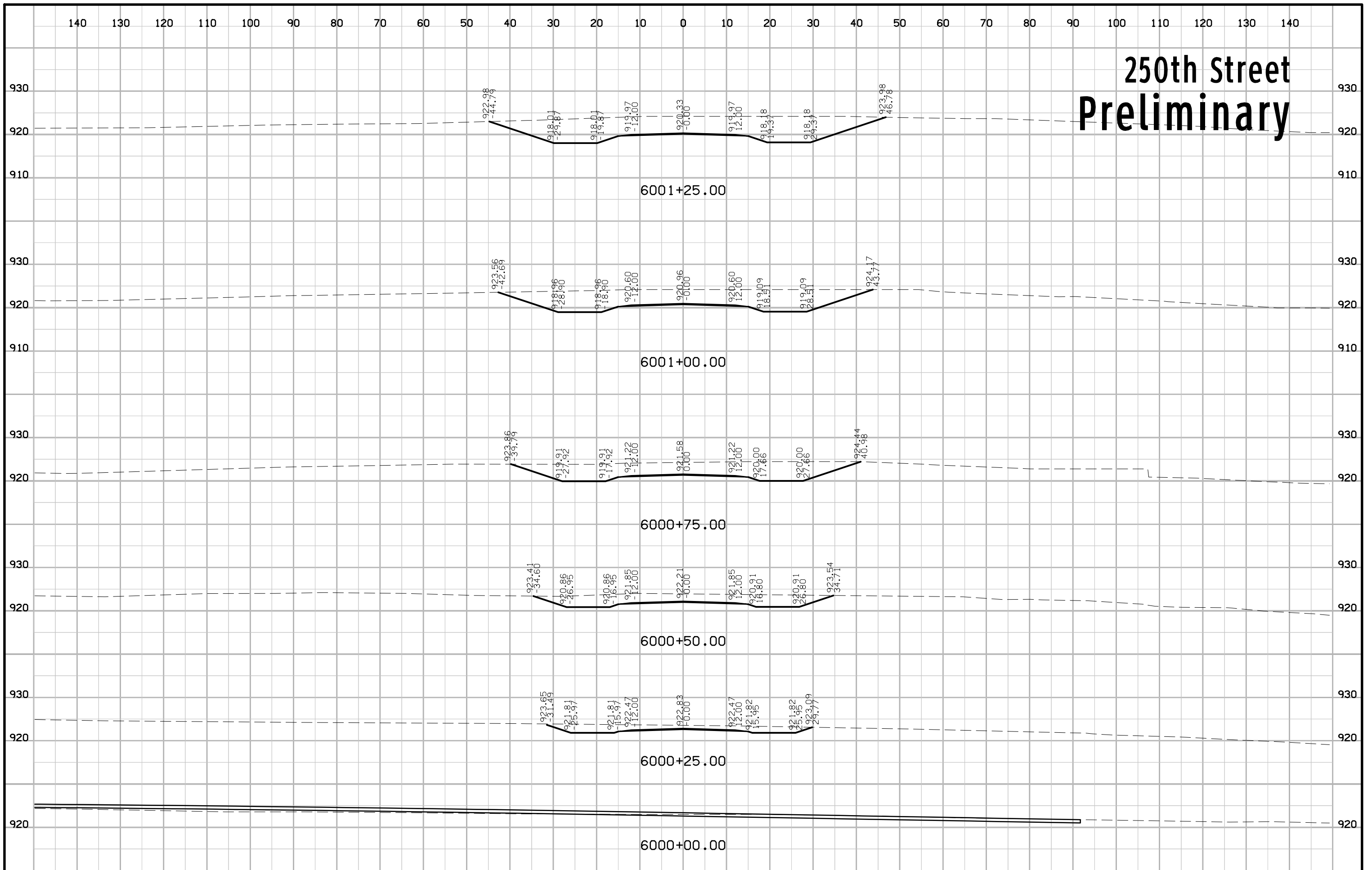


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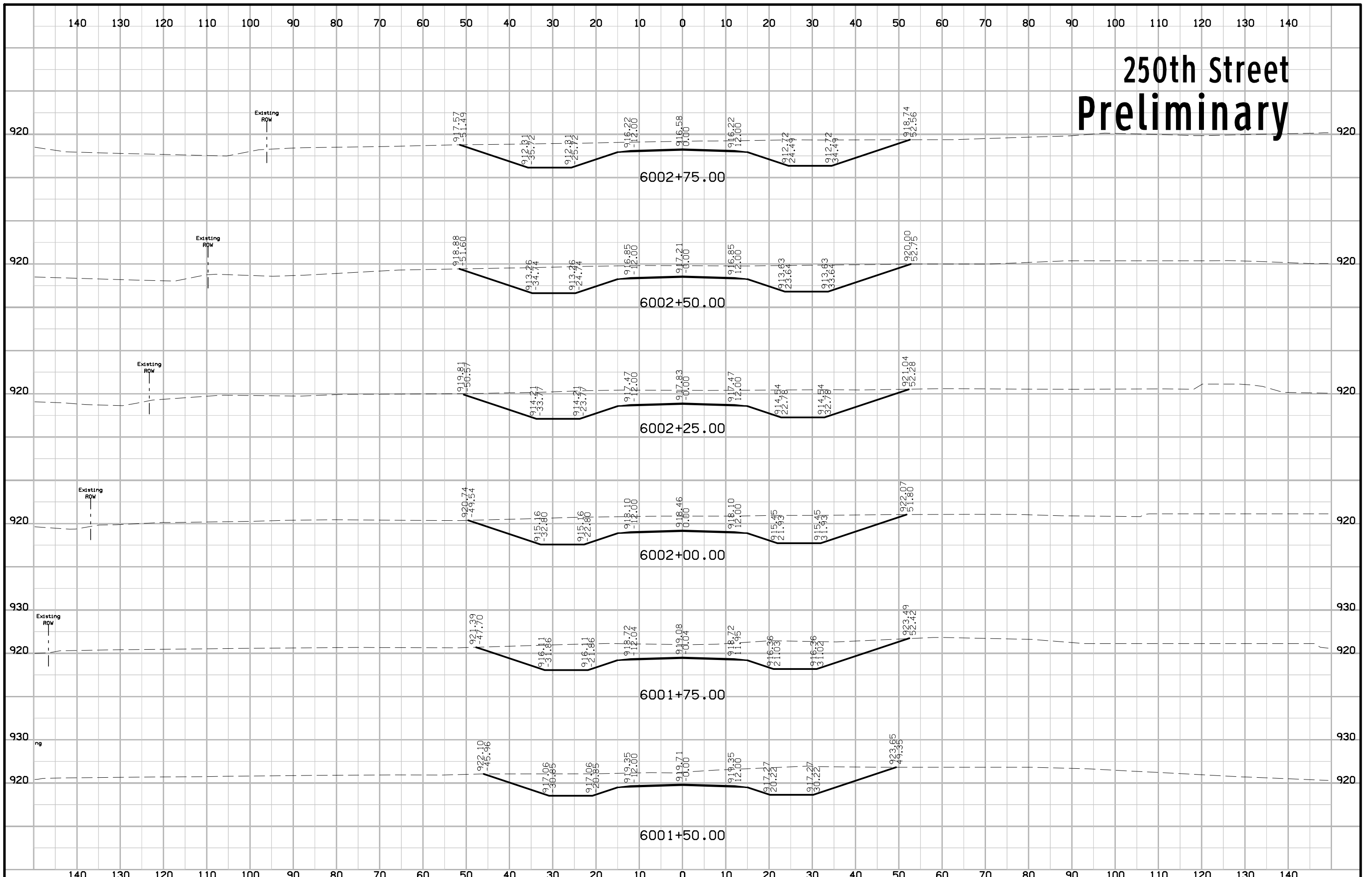


9043+75.76

# 250th Street Preliminary

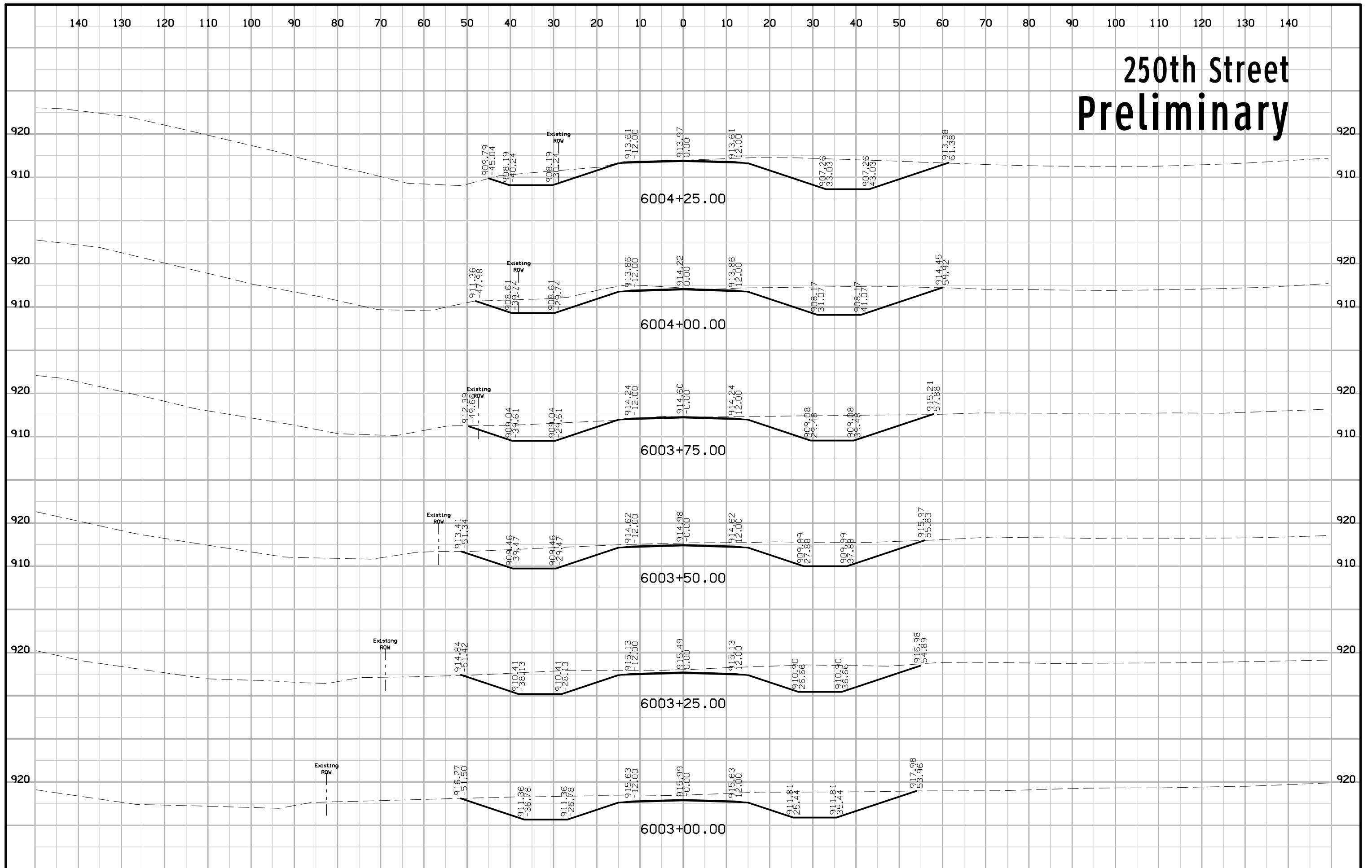


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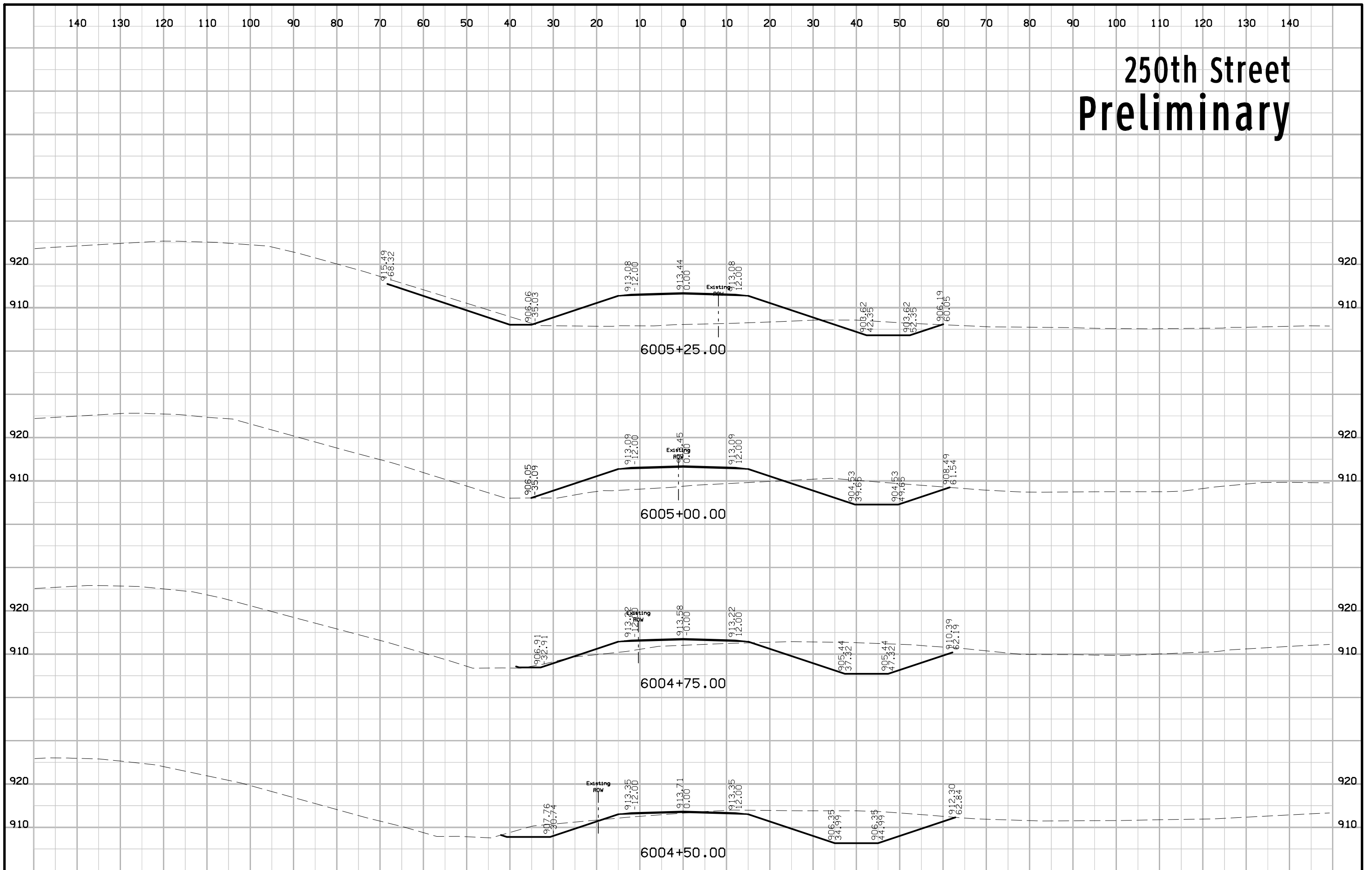




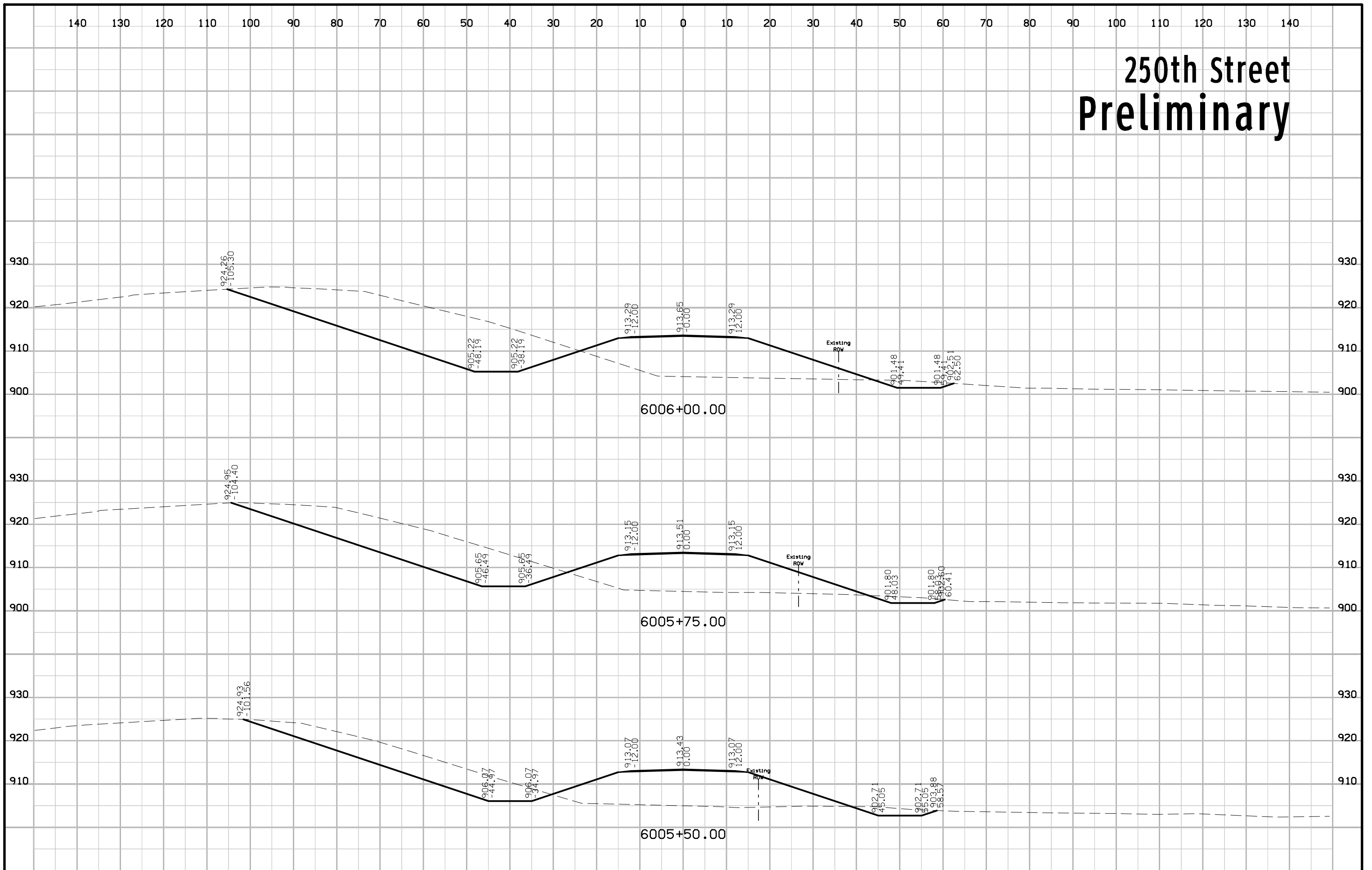
# 250th Street Preliminary



# 250th Street Preliminary

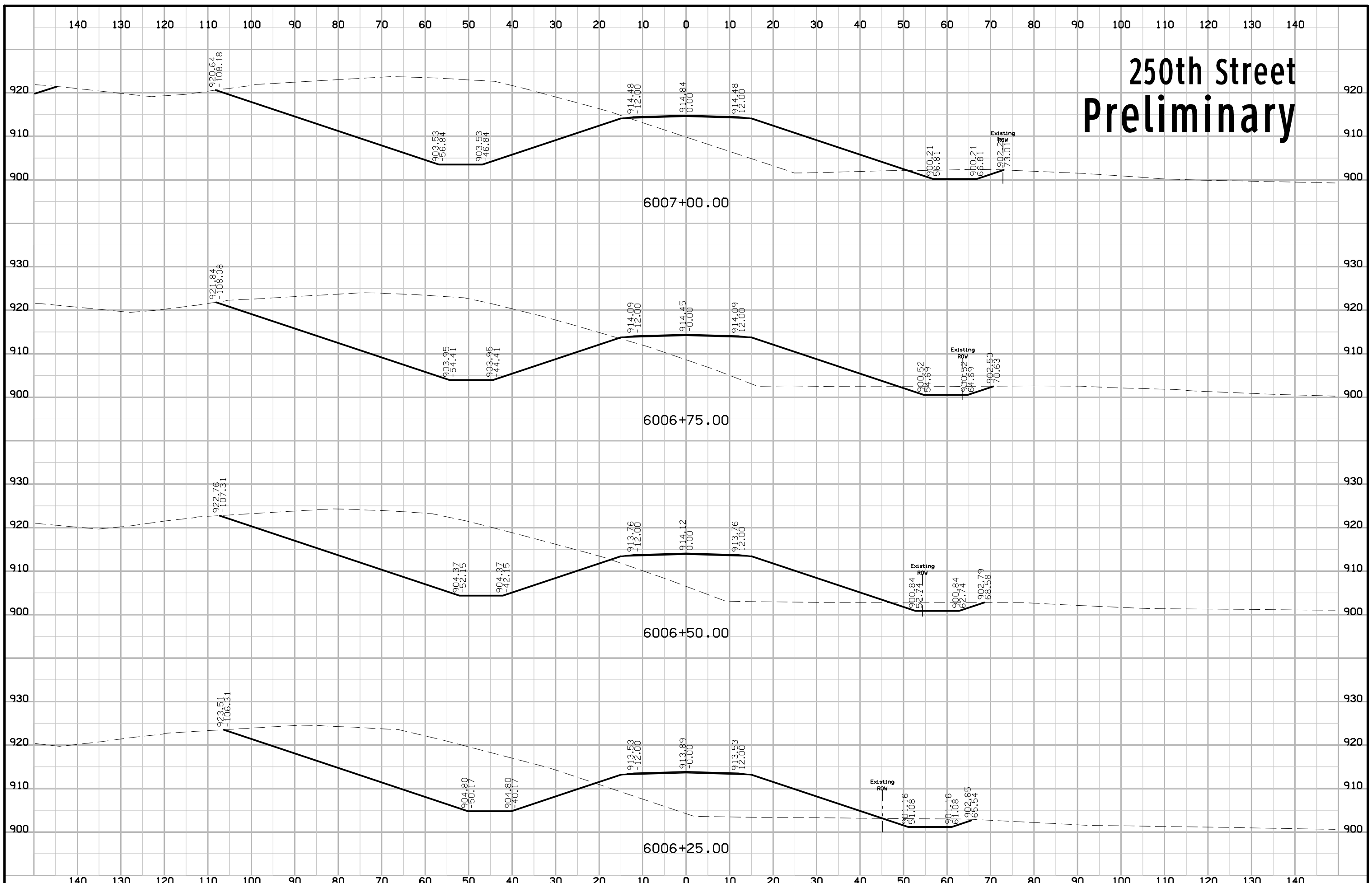


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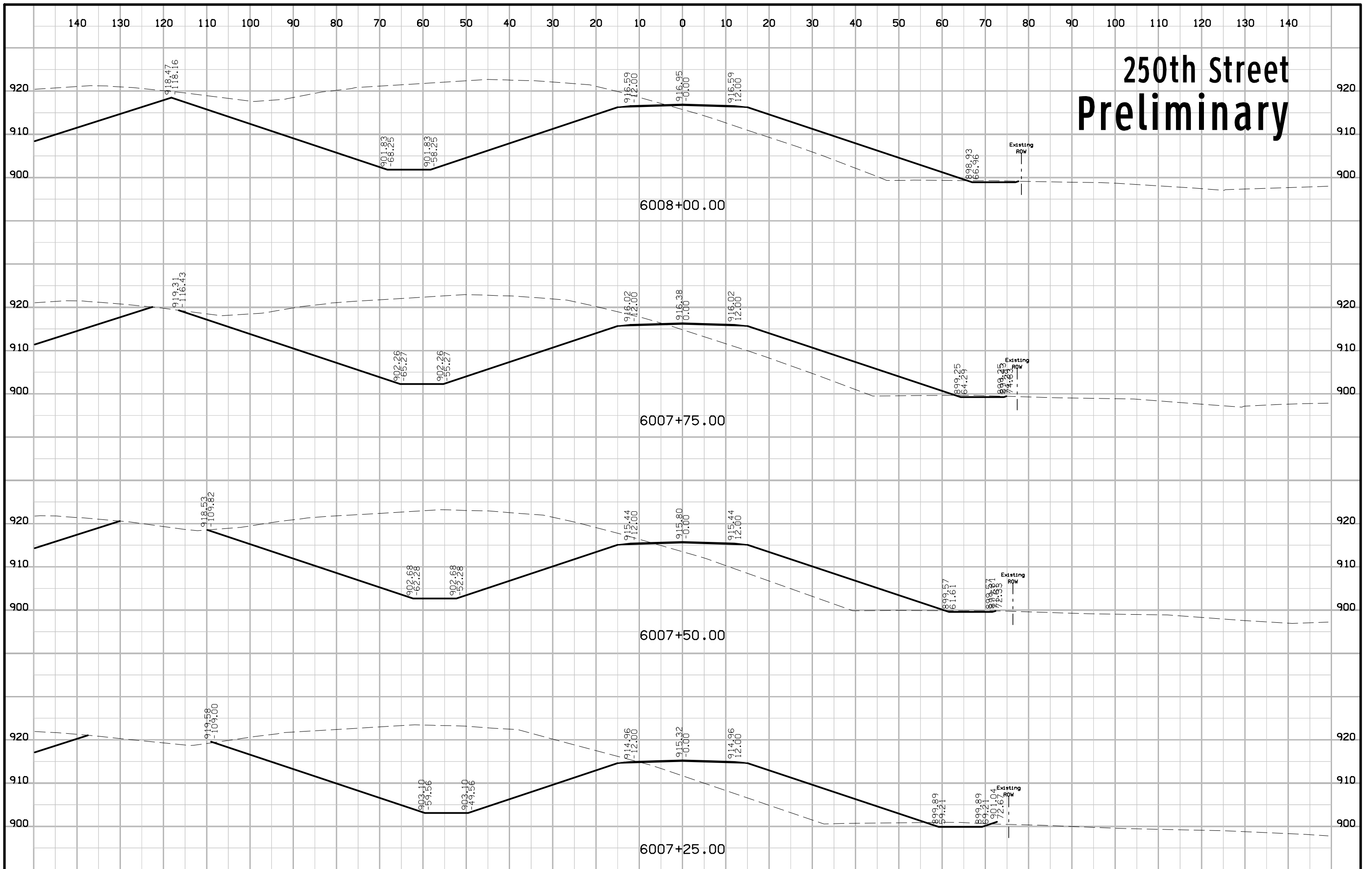




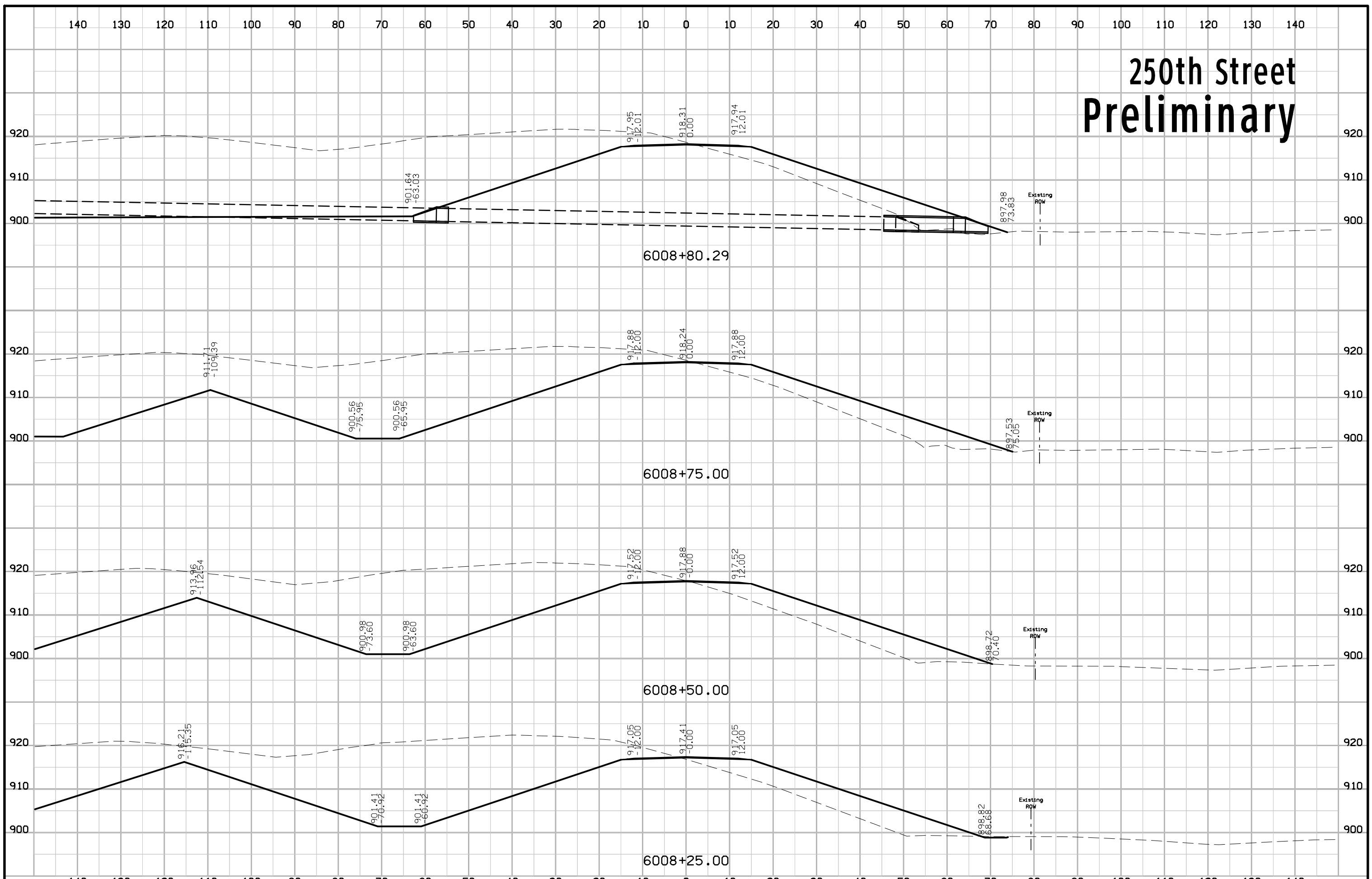
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# 250th Street Preliminary

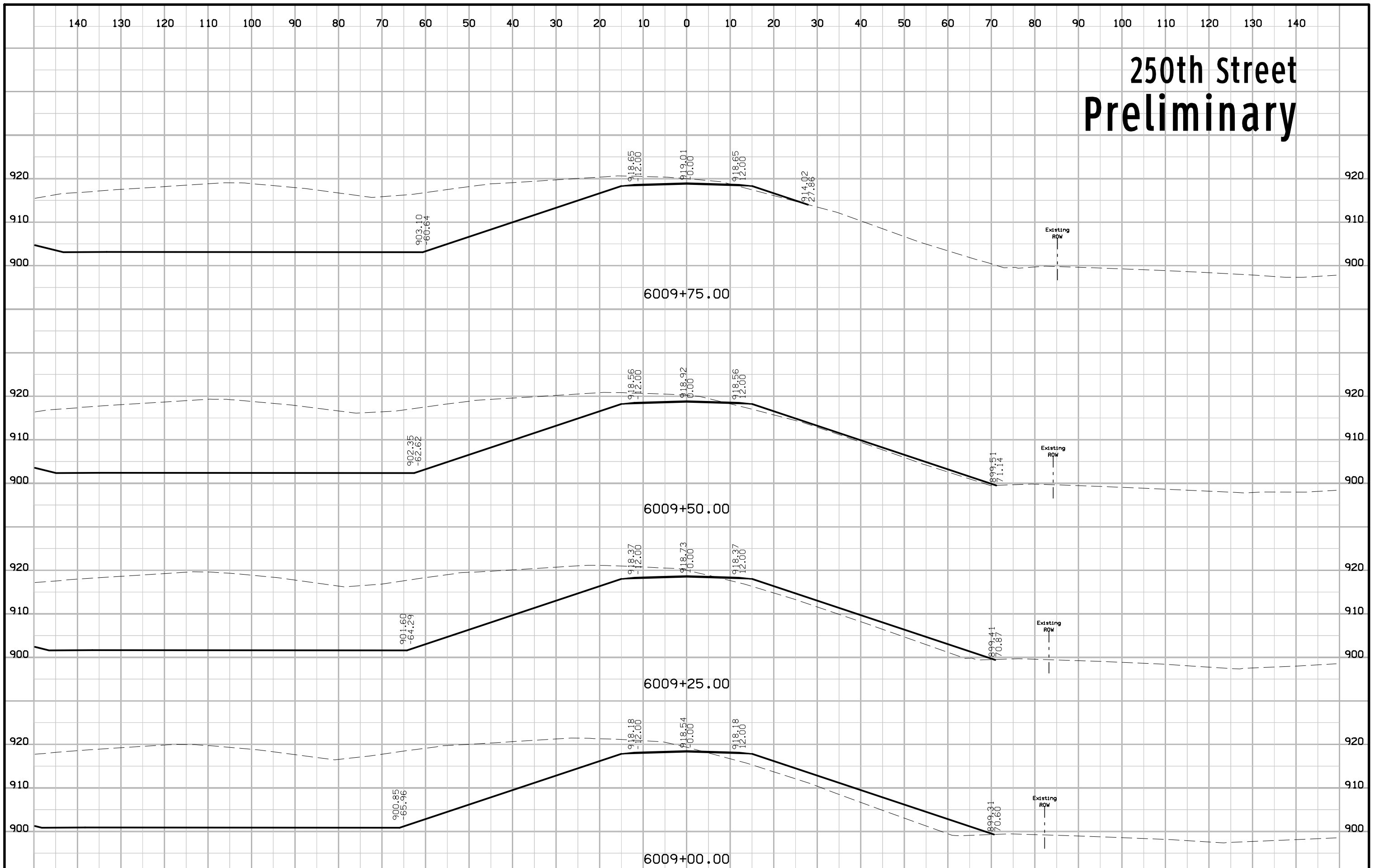


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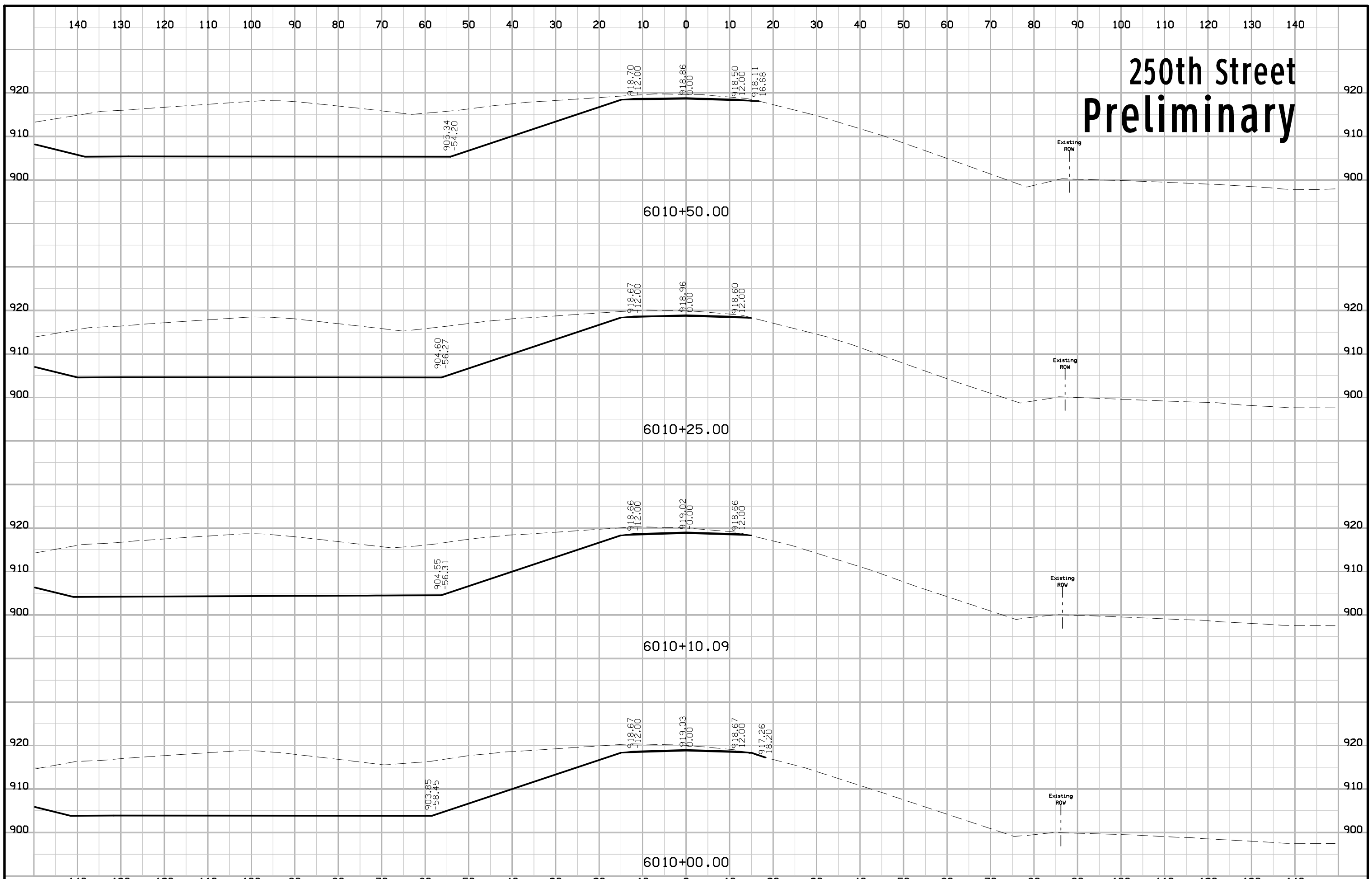




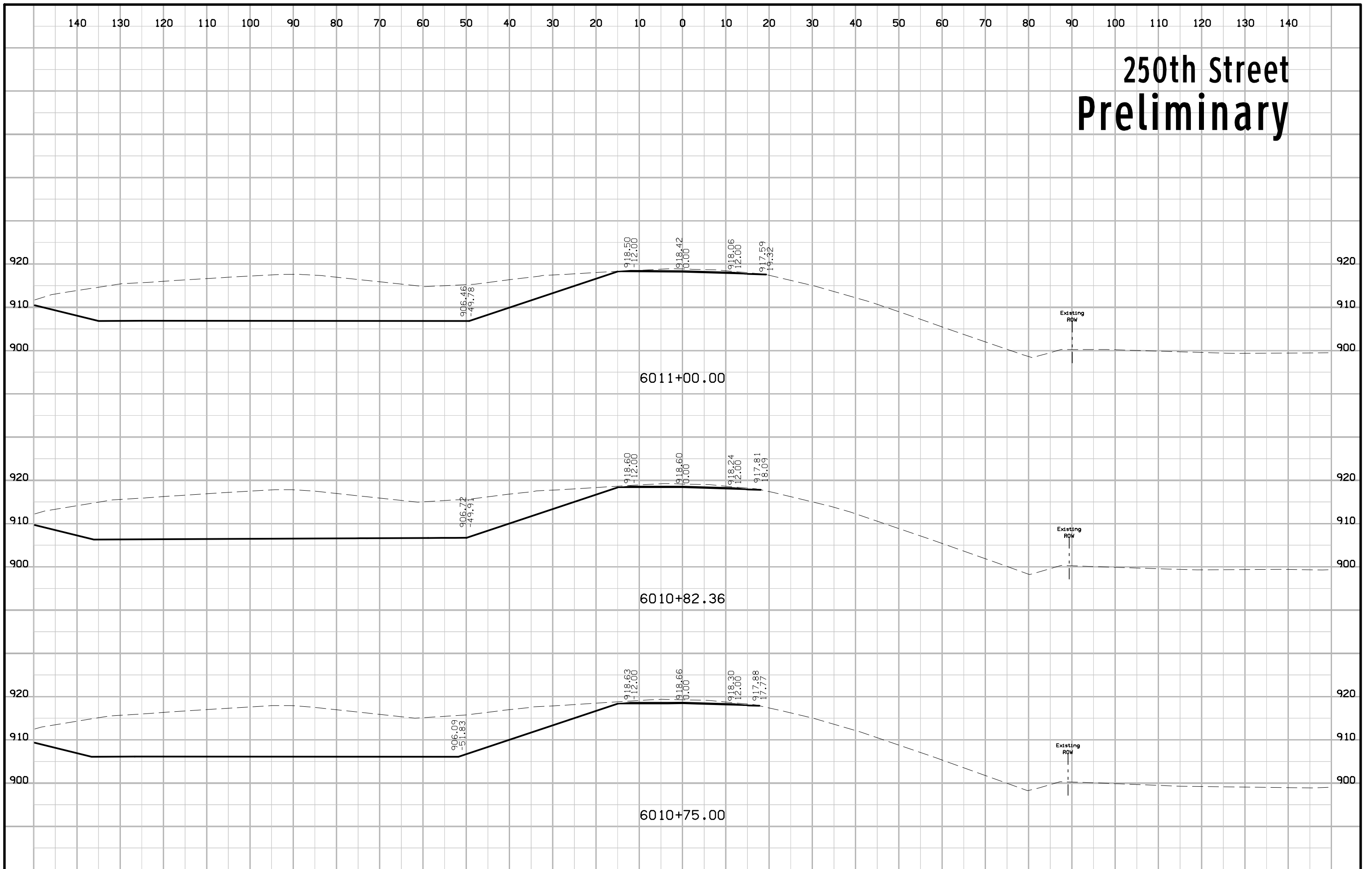
# 250th Street Preliminary



# 250th Street Preliminary

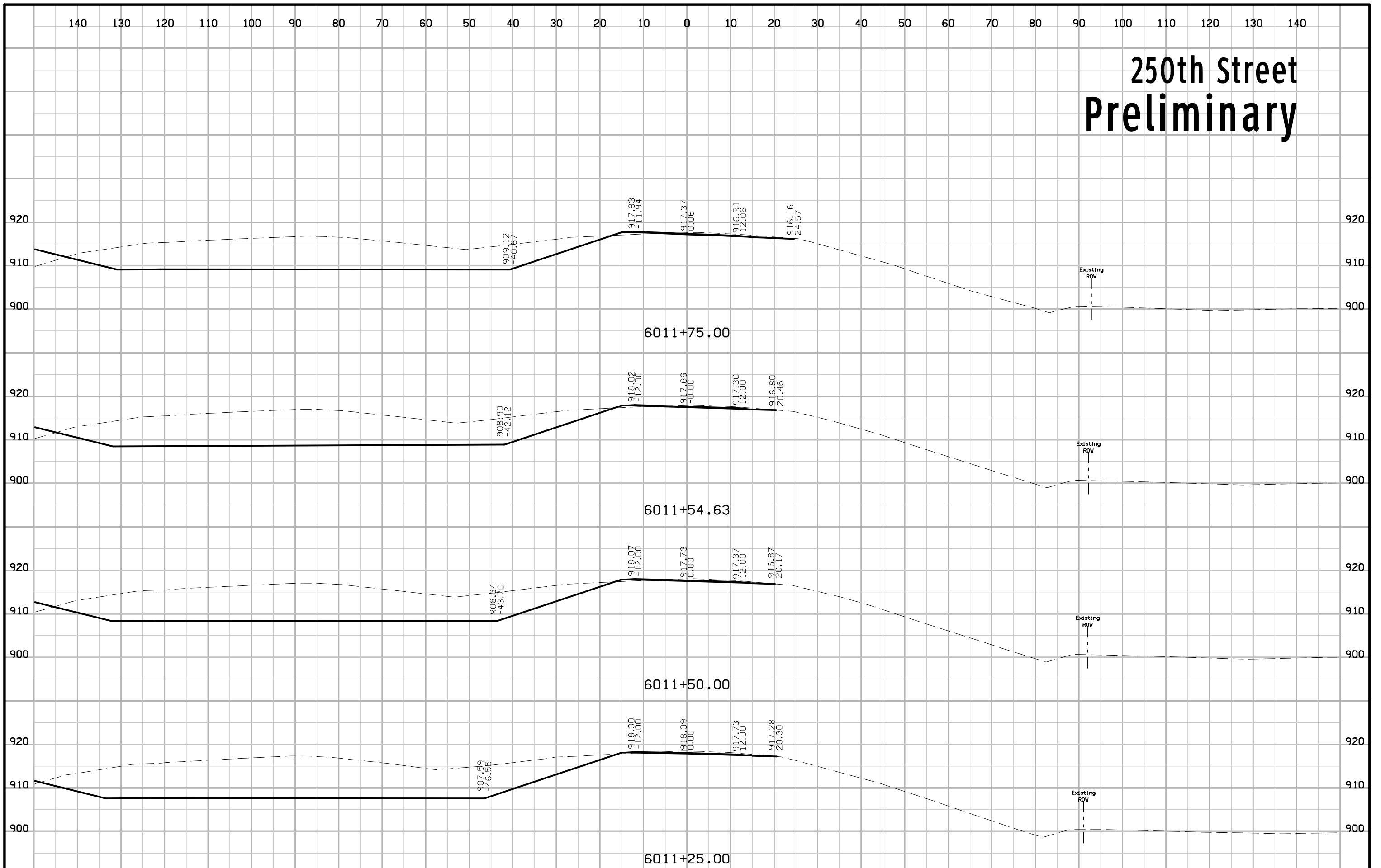


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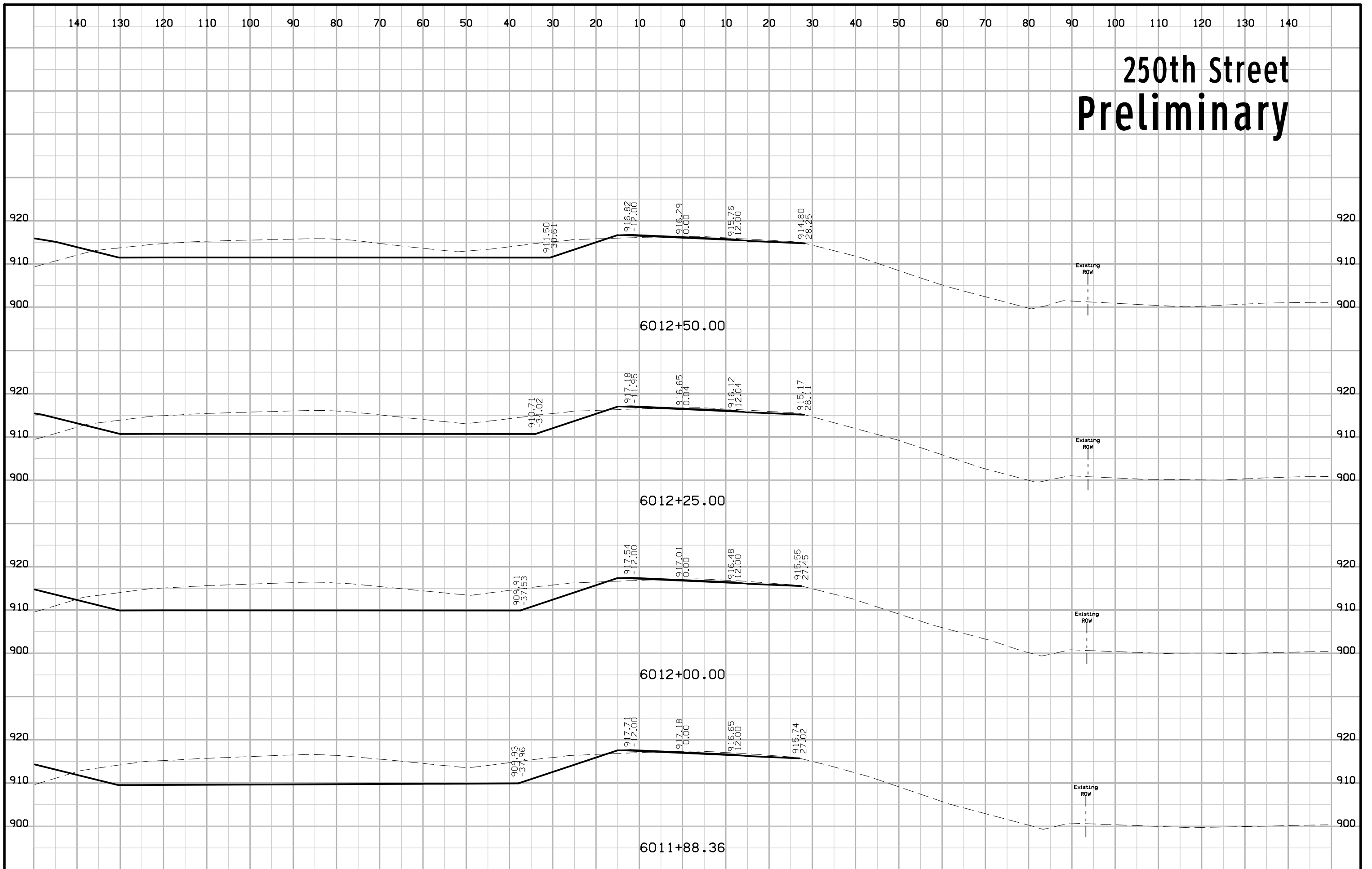




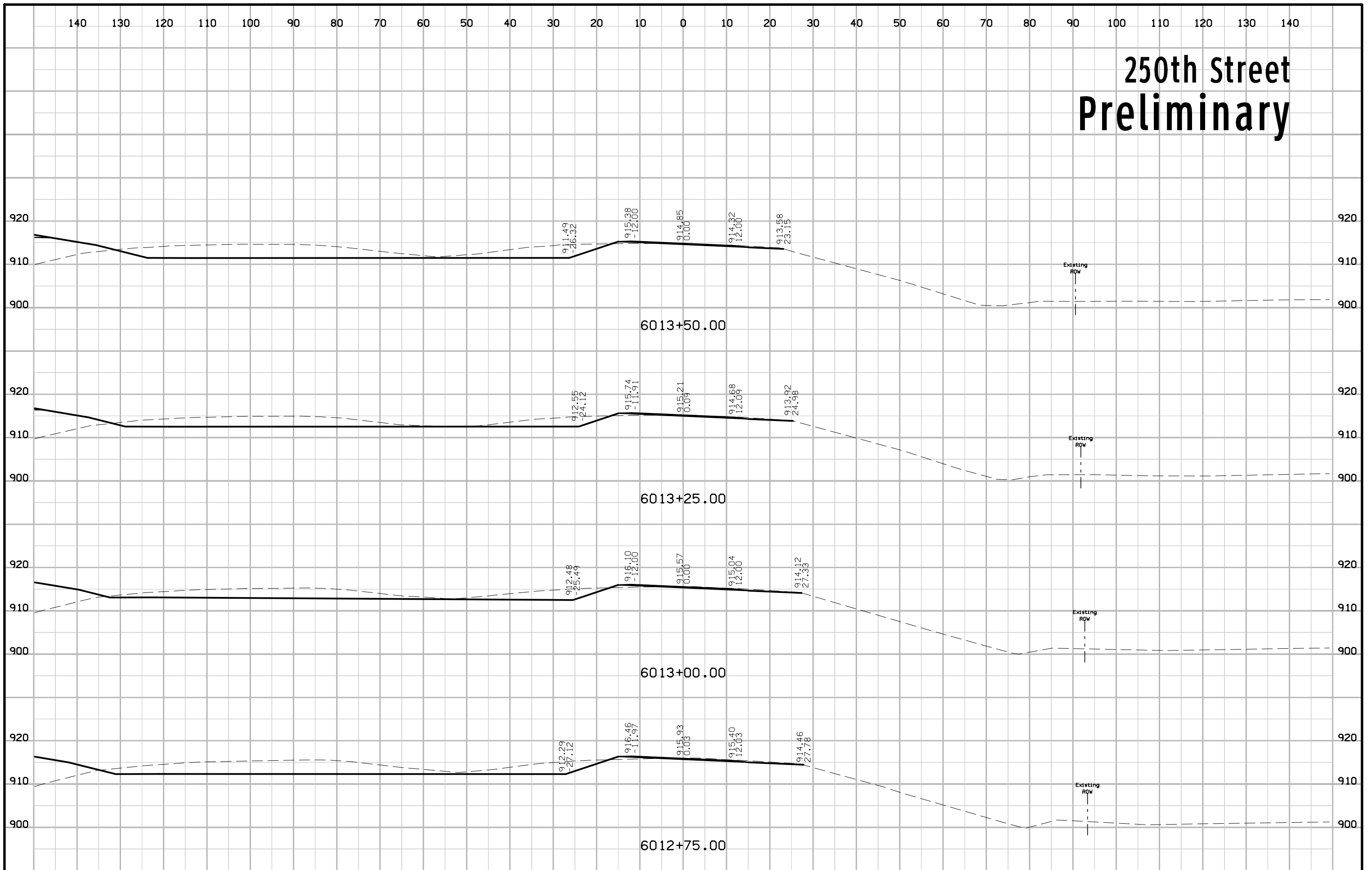
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# 250th Street Preliminary

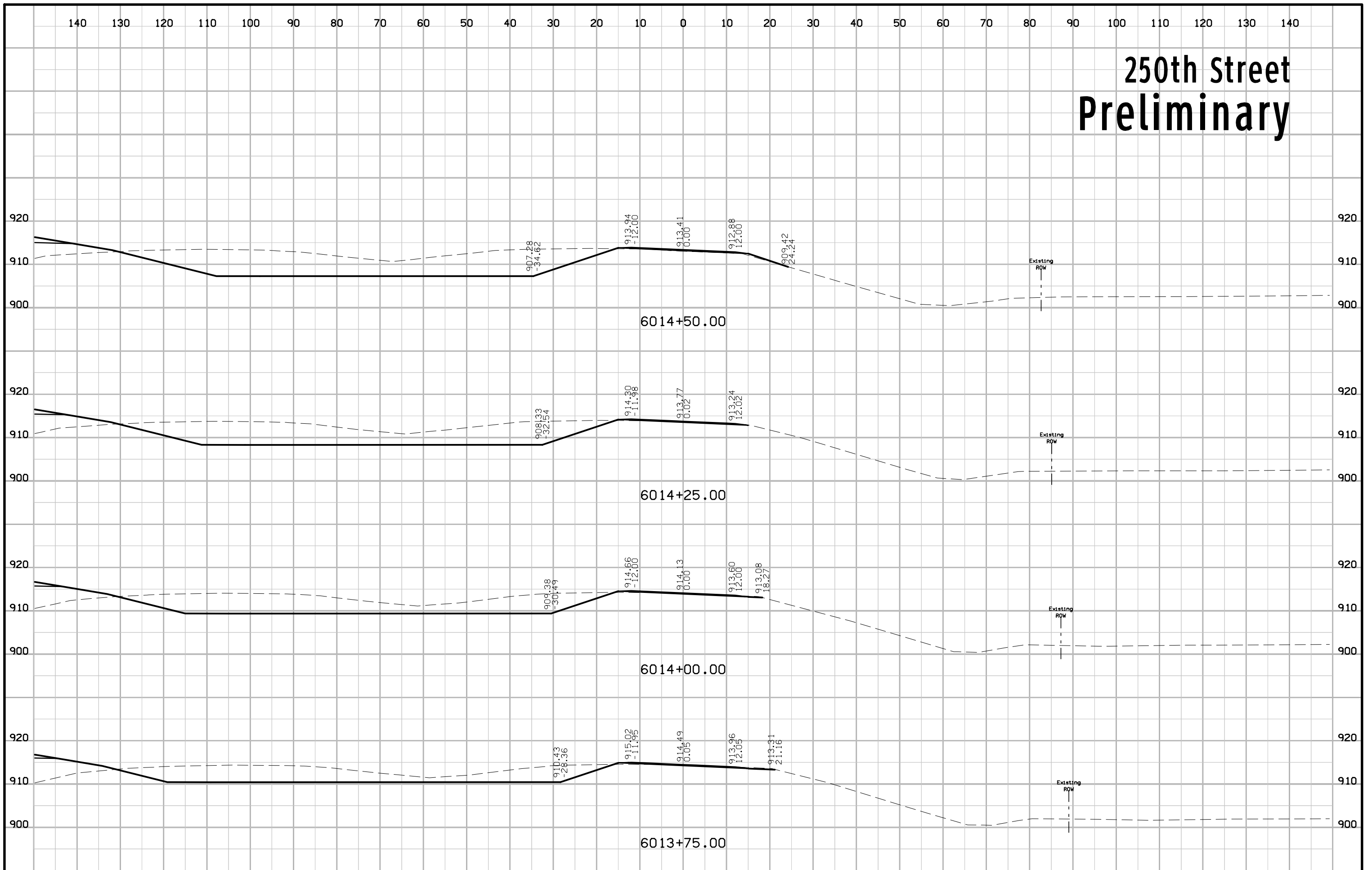


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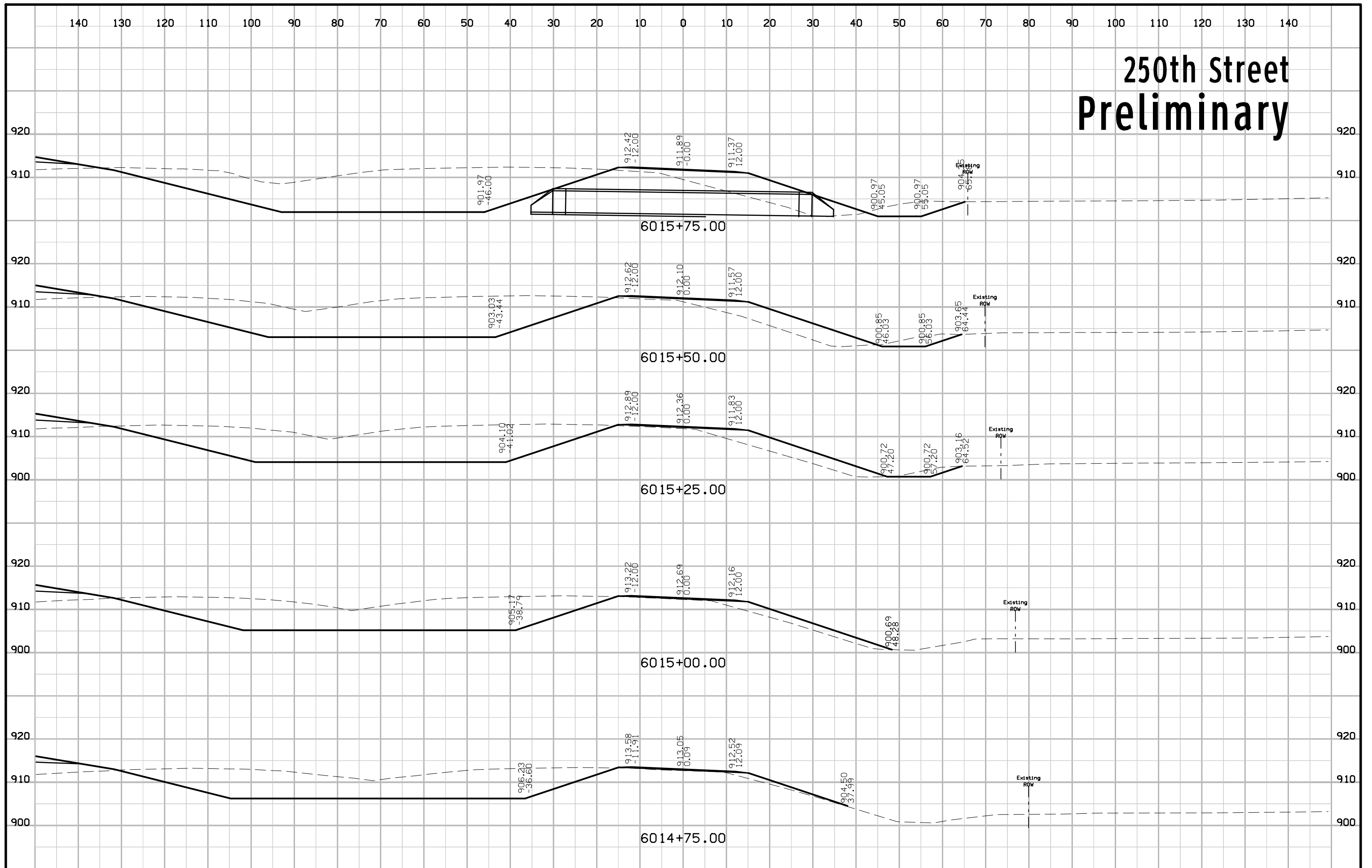




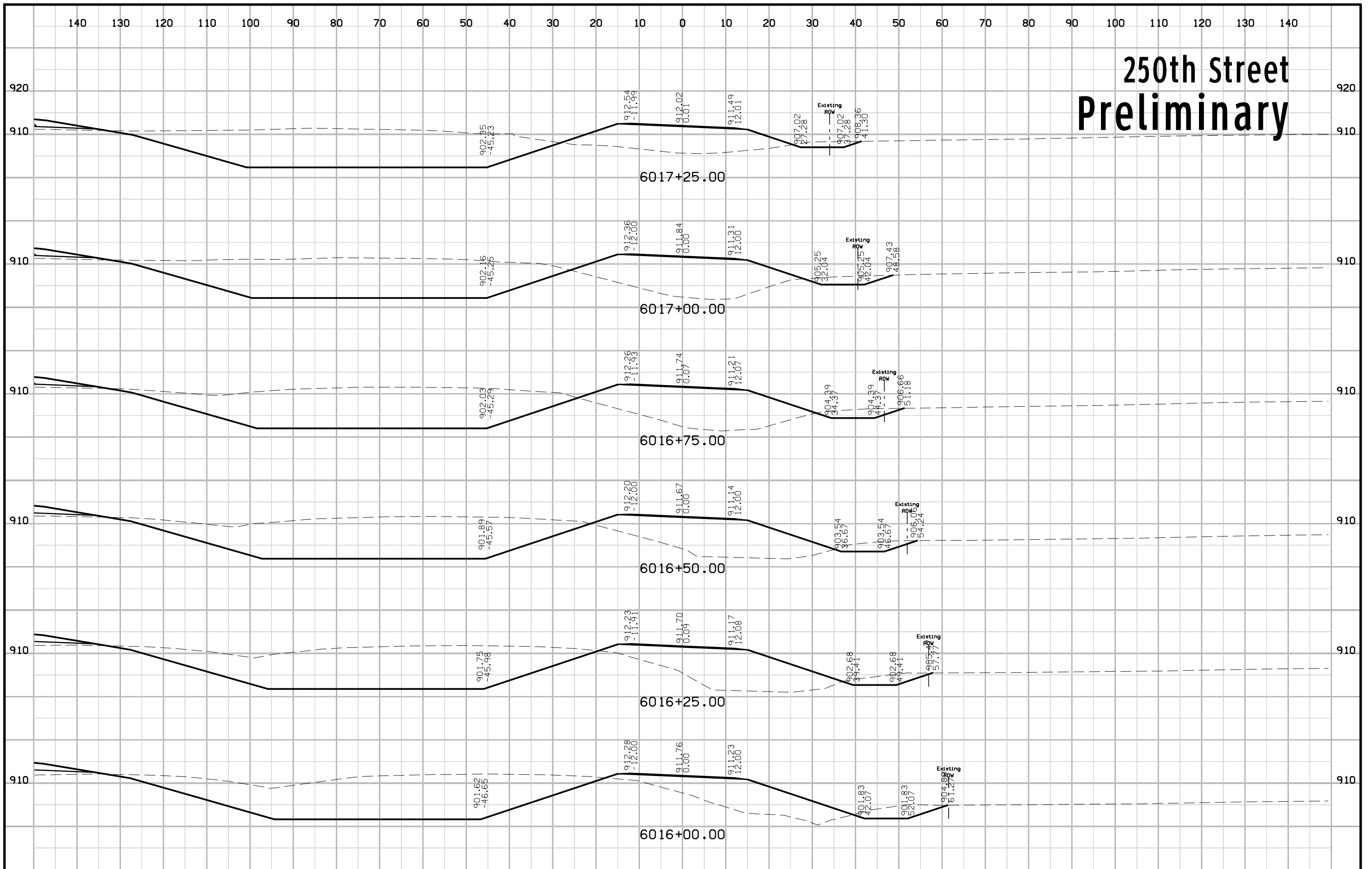
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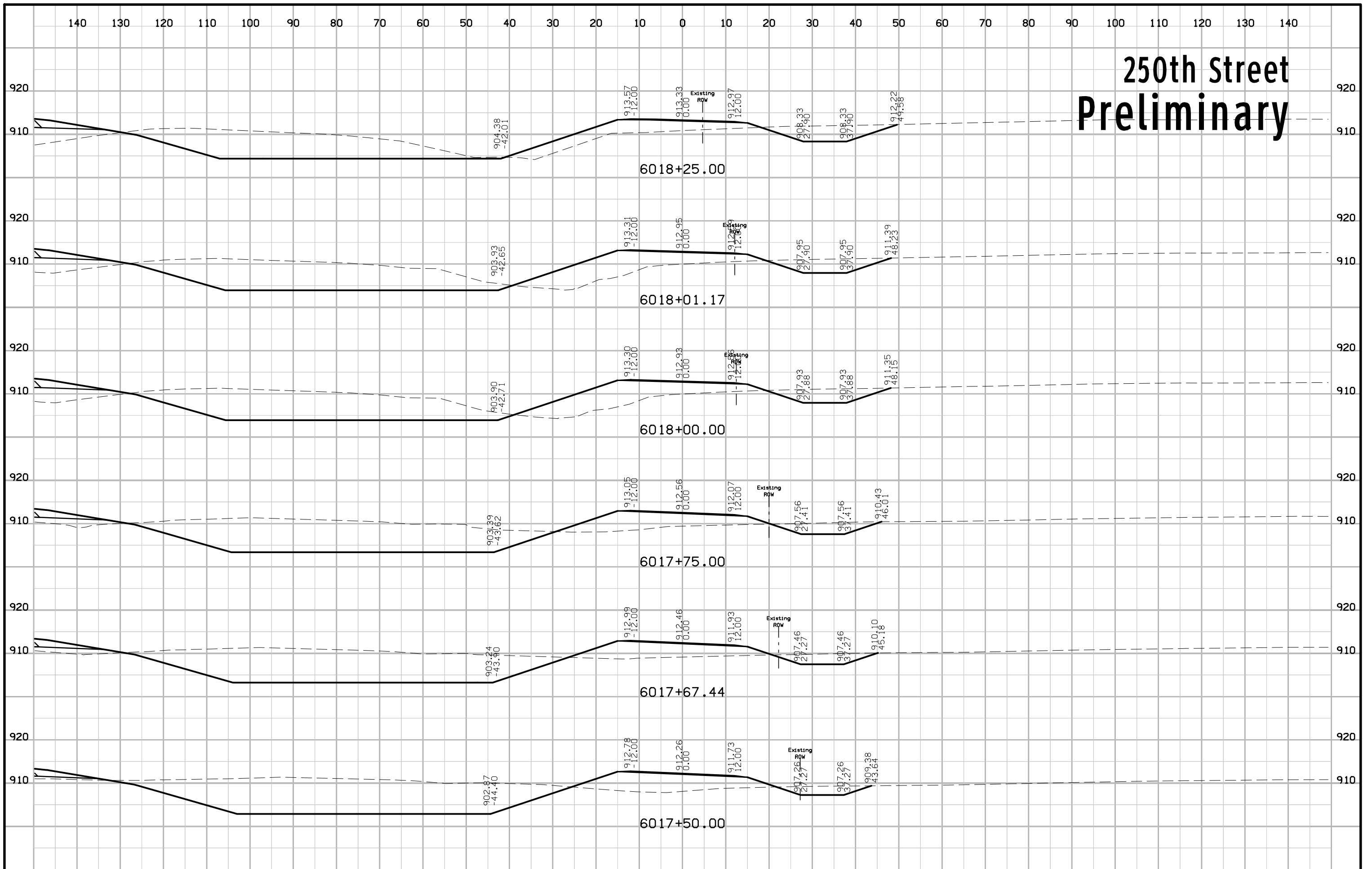


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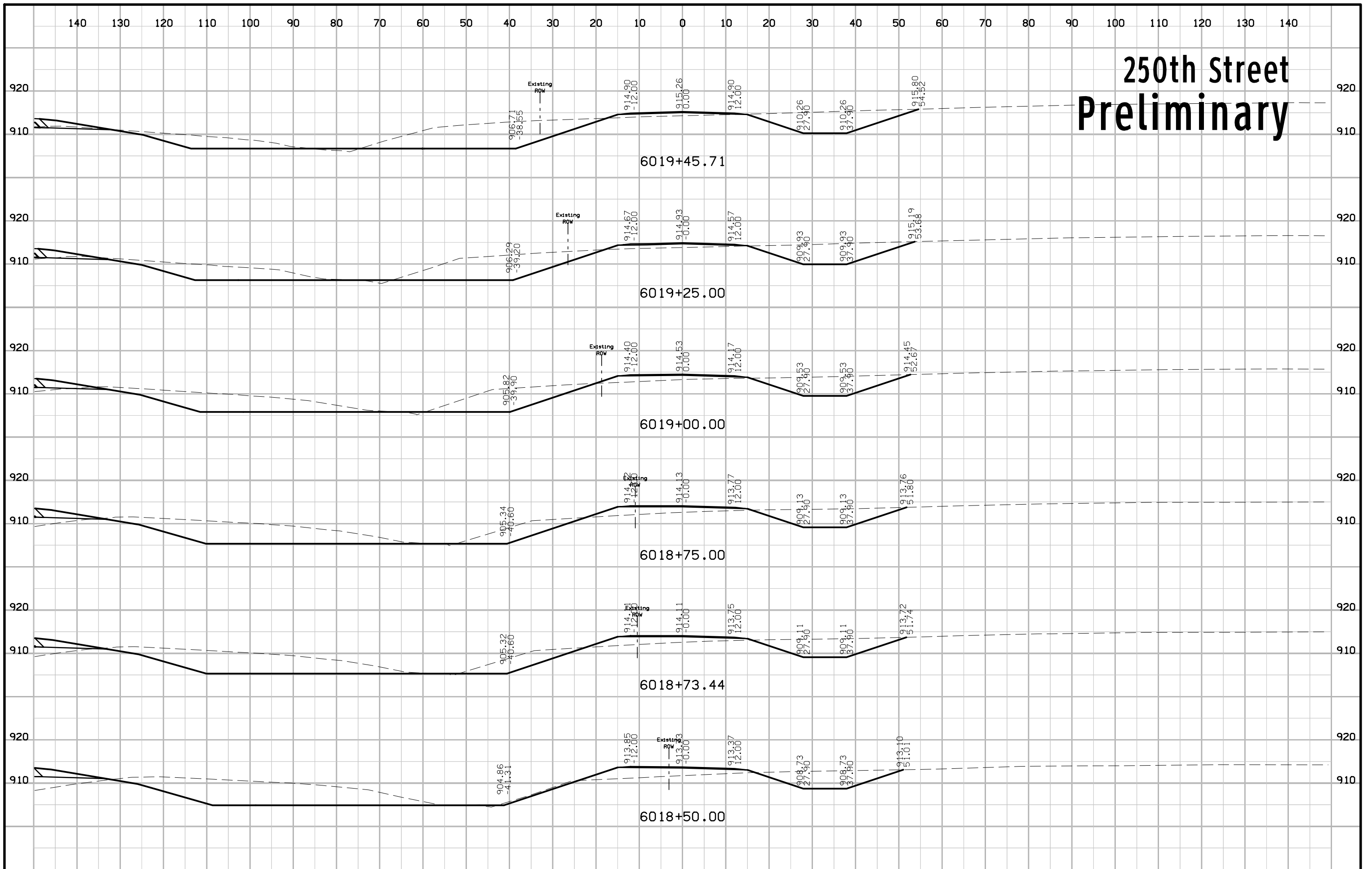




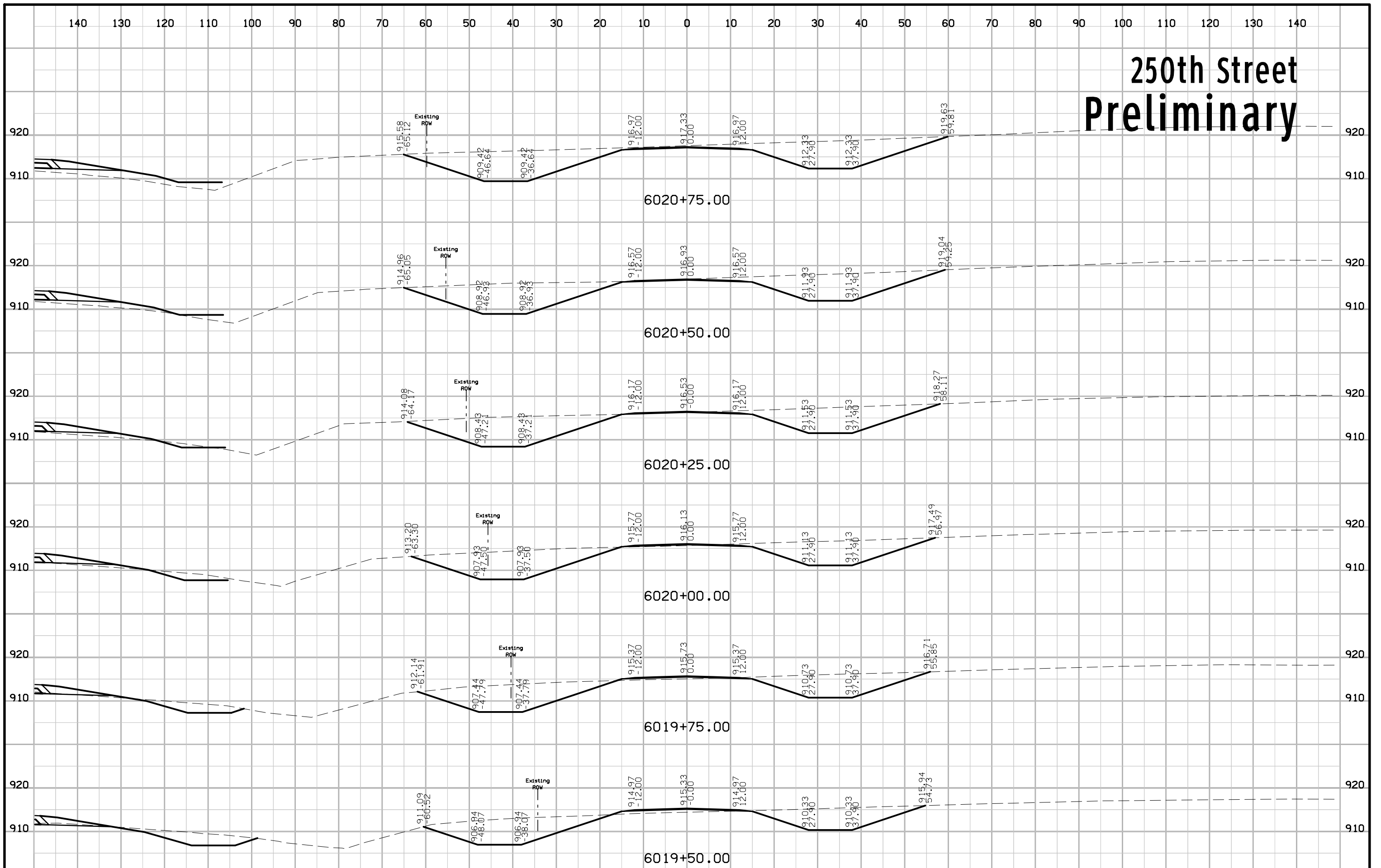
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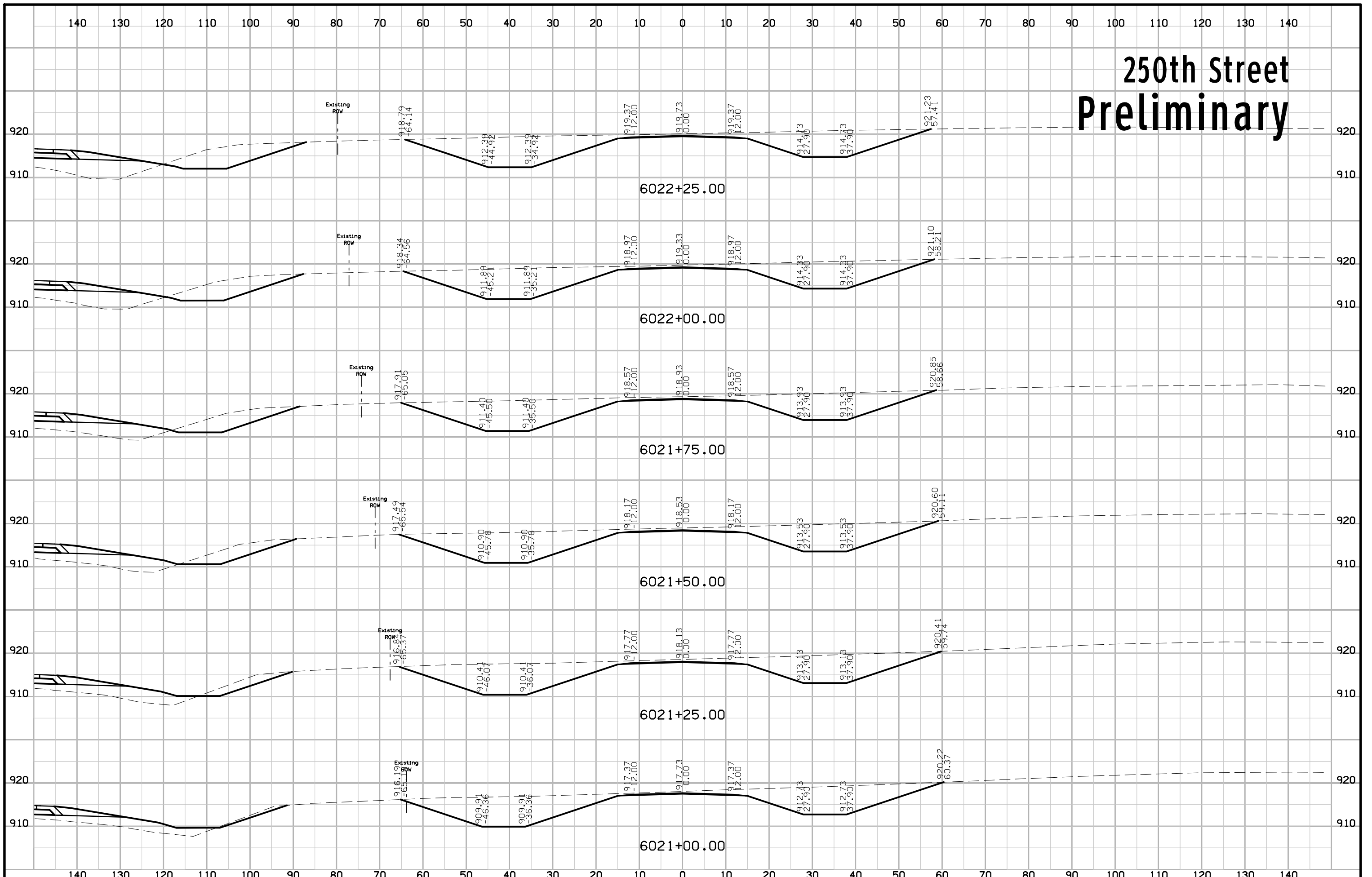


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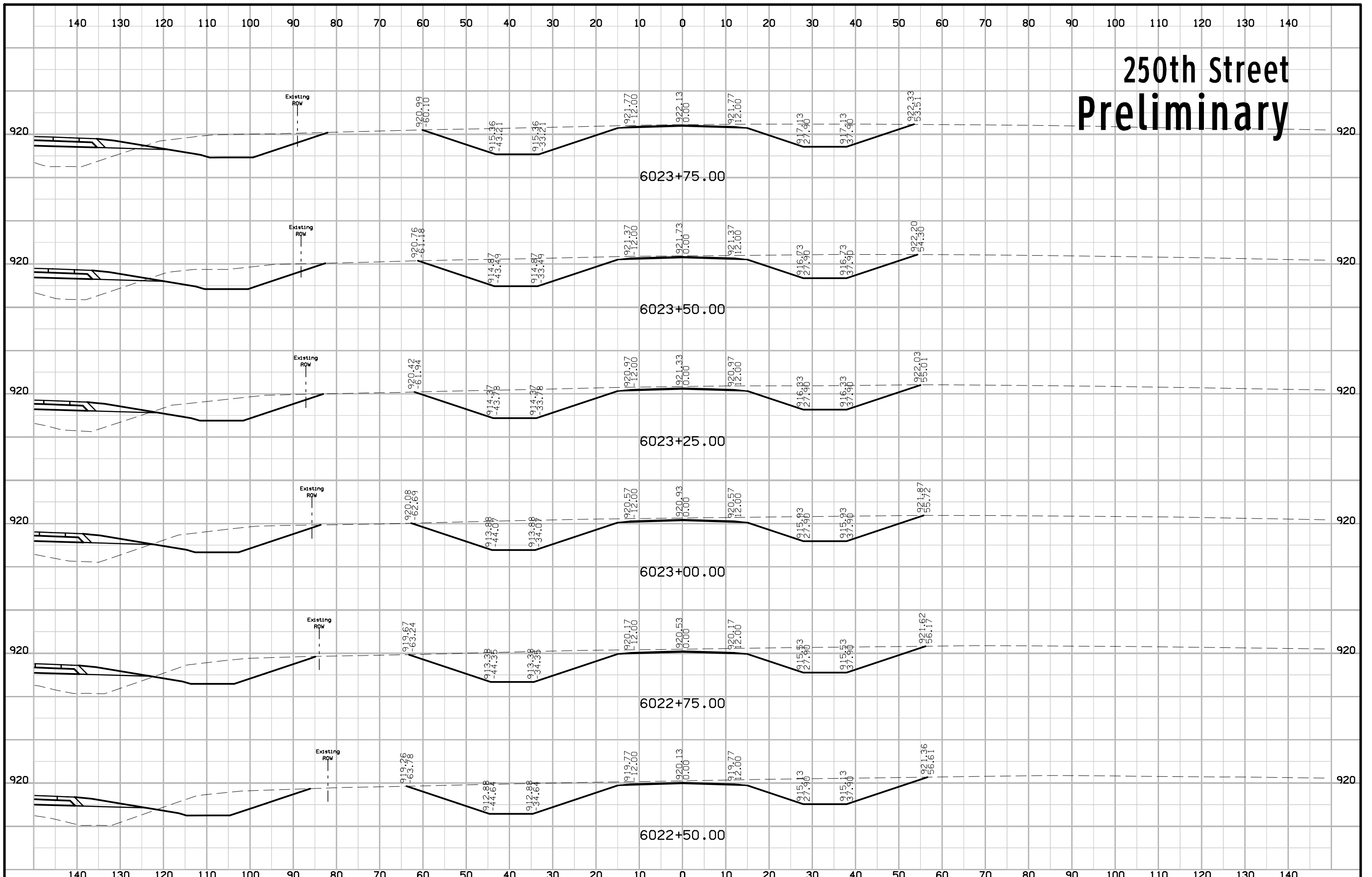




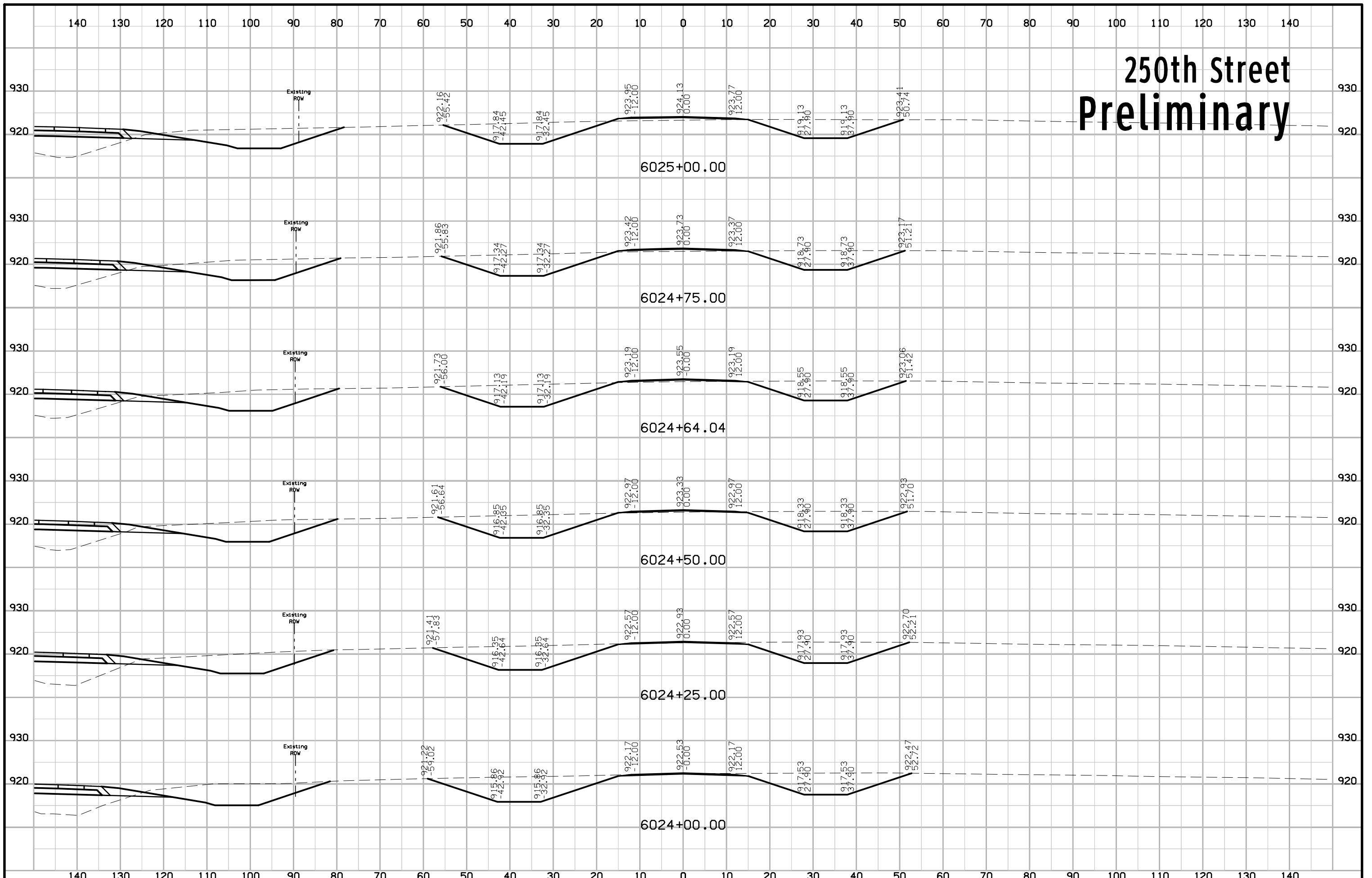
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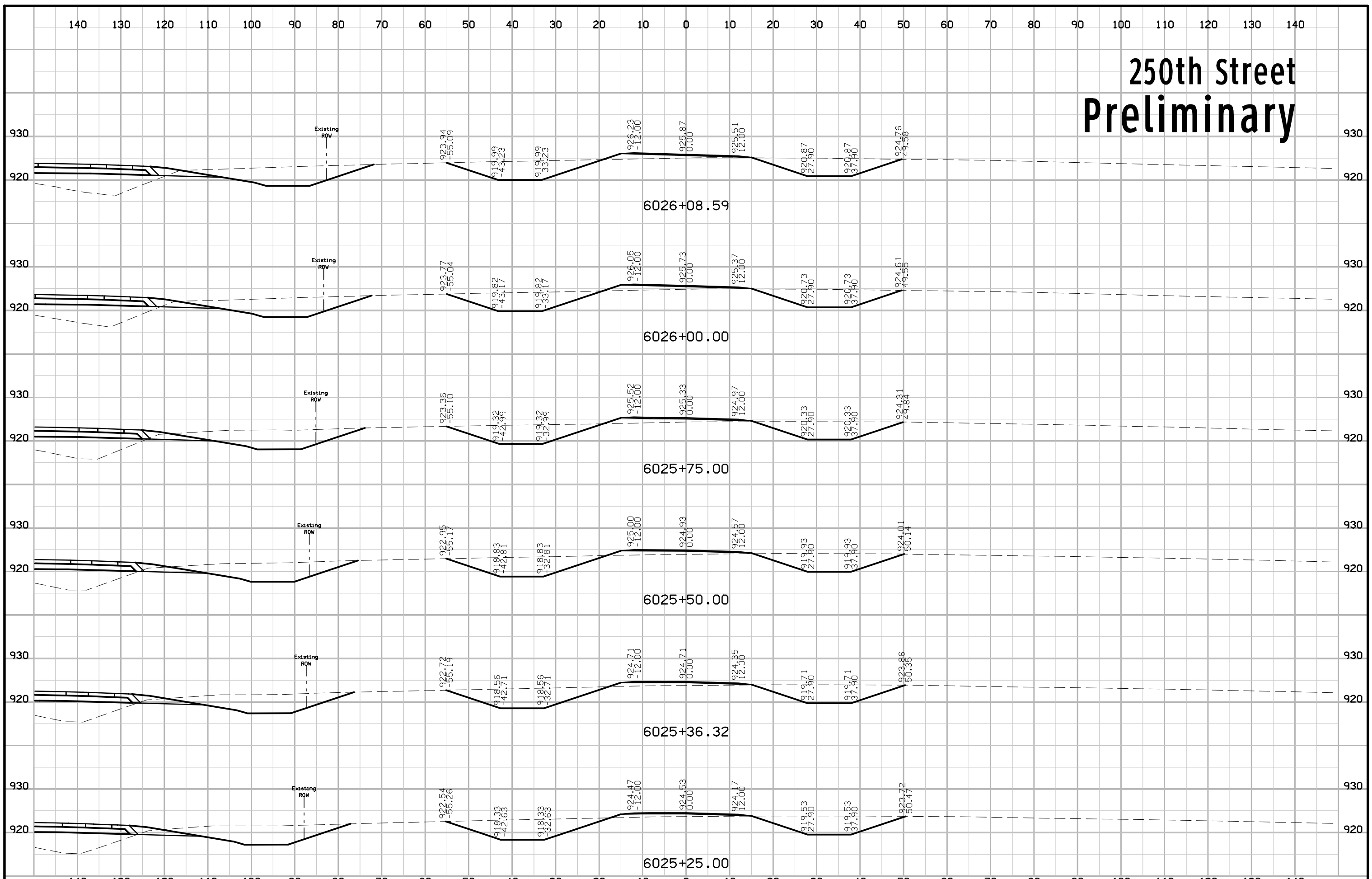


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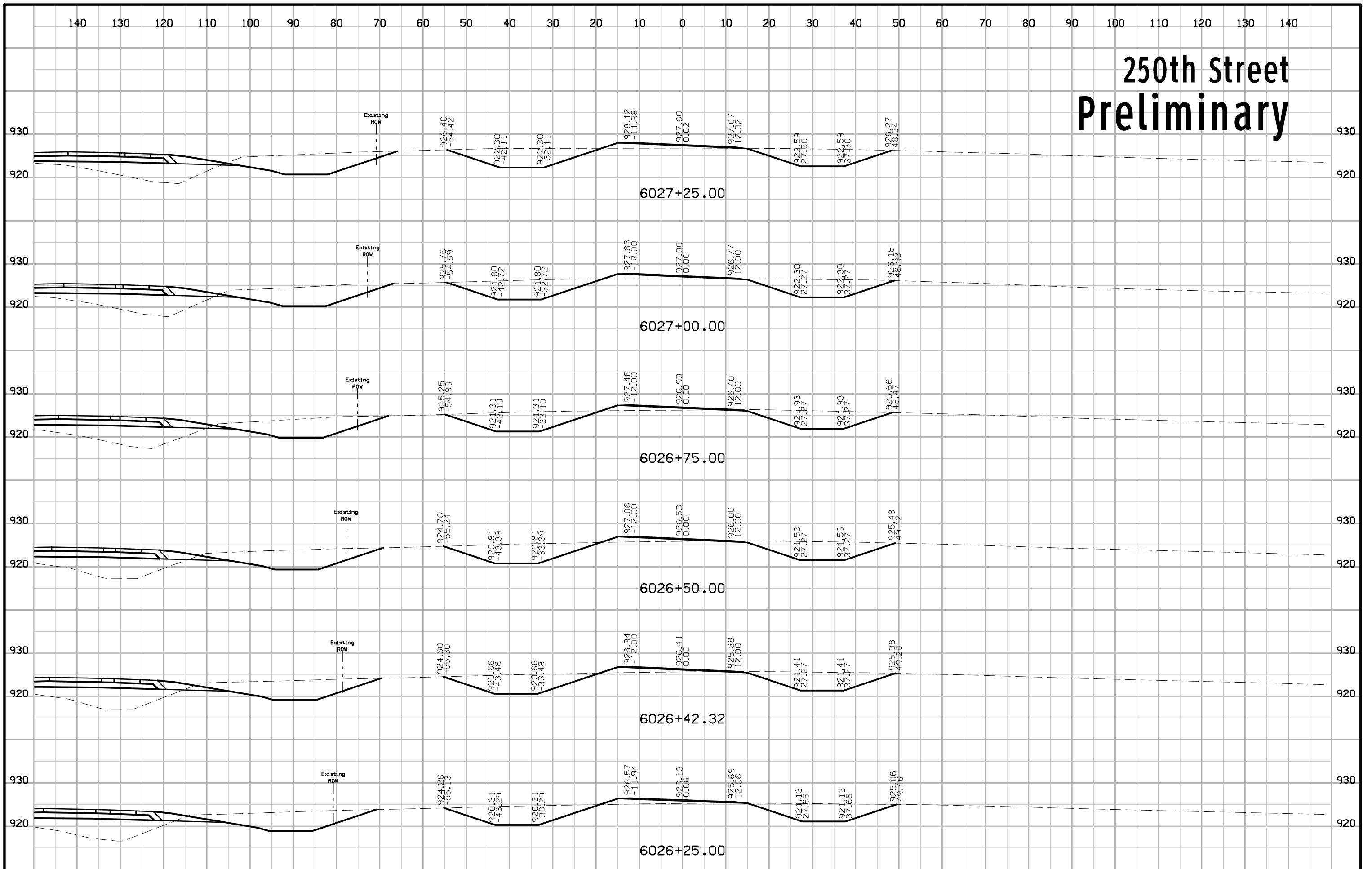




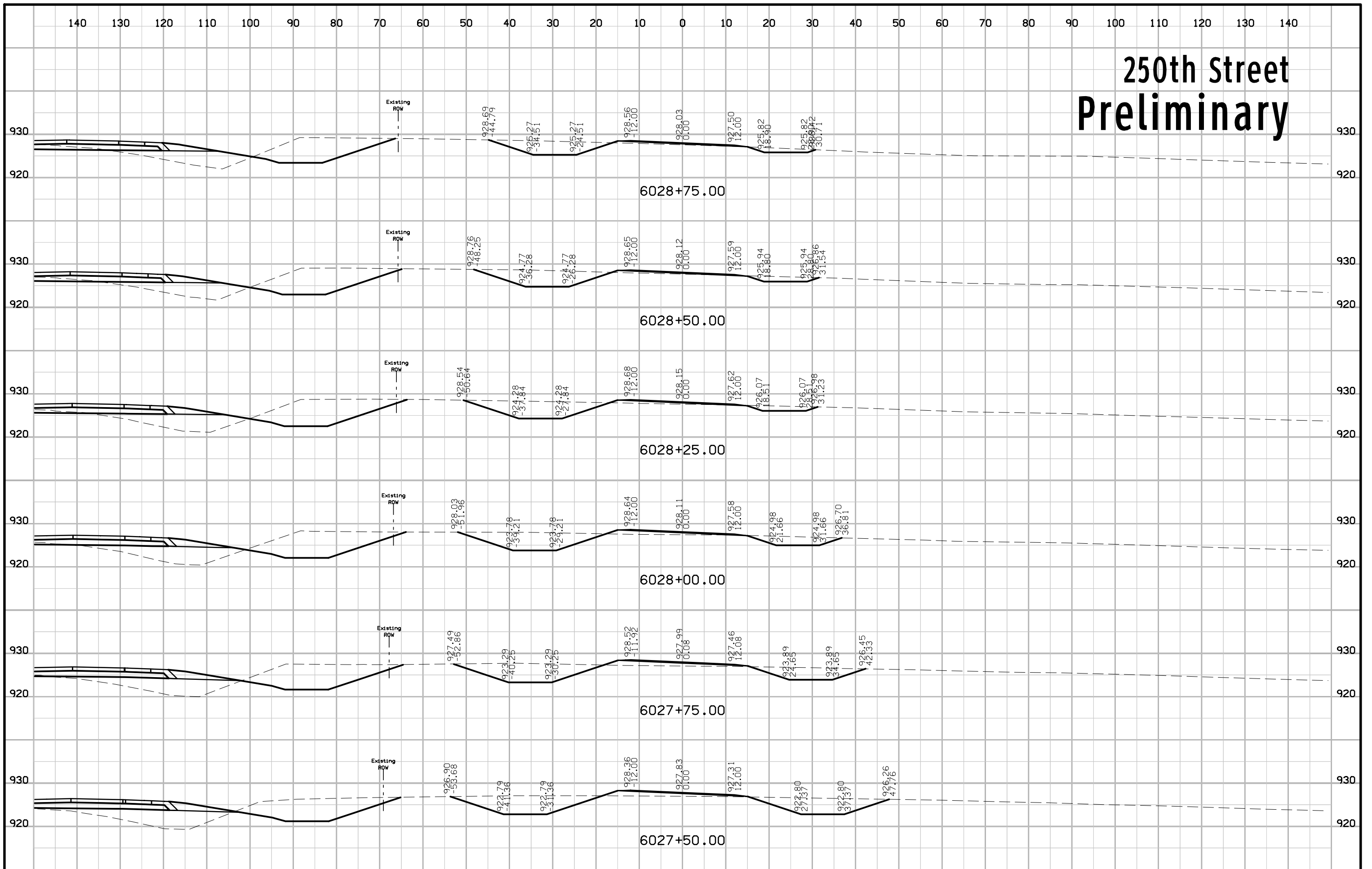
# 250th Street Preliminary



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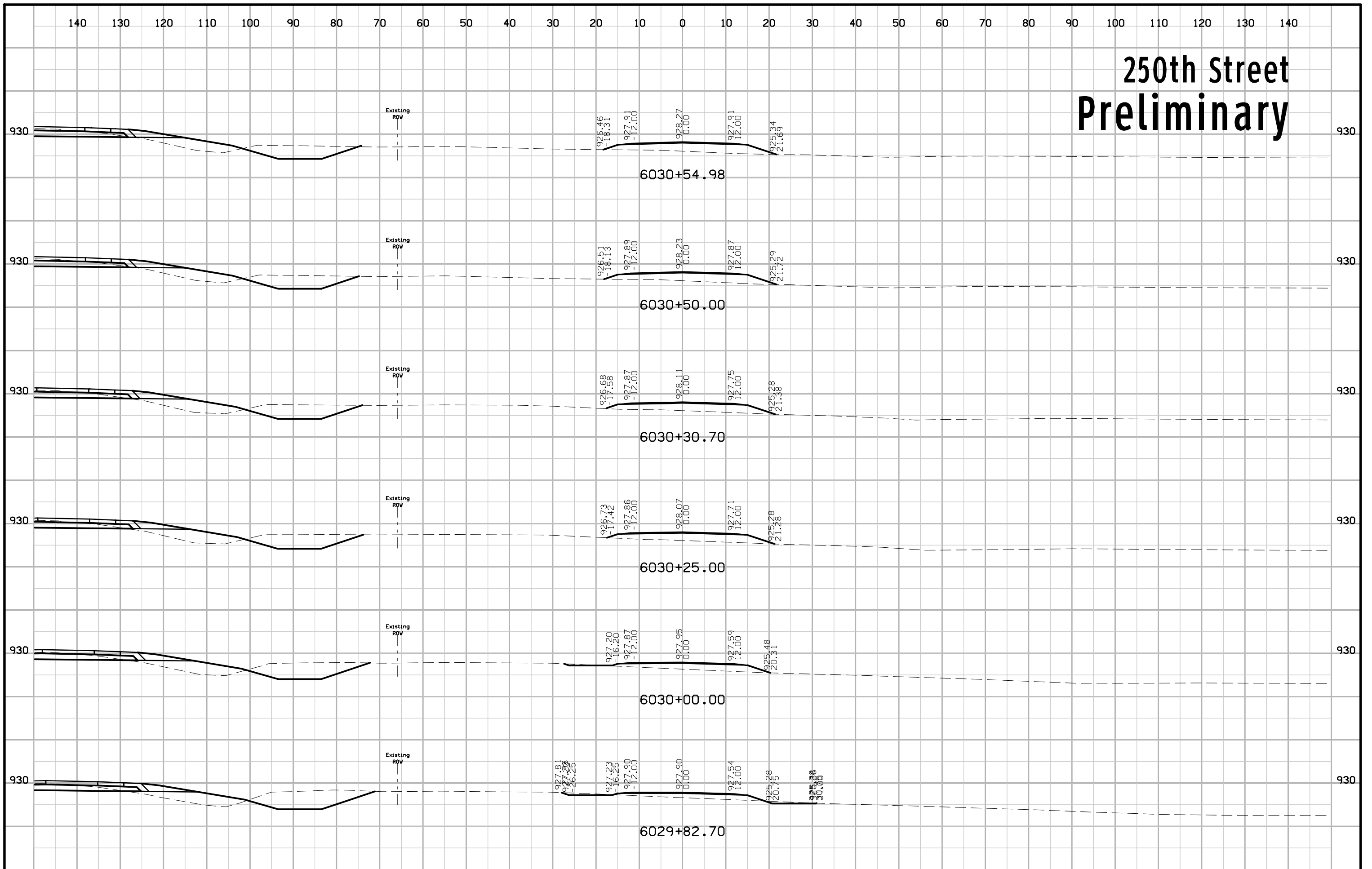
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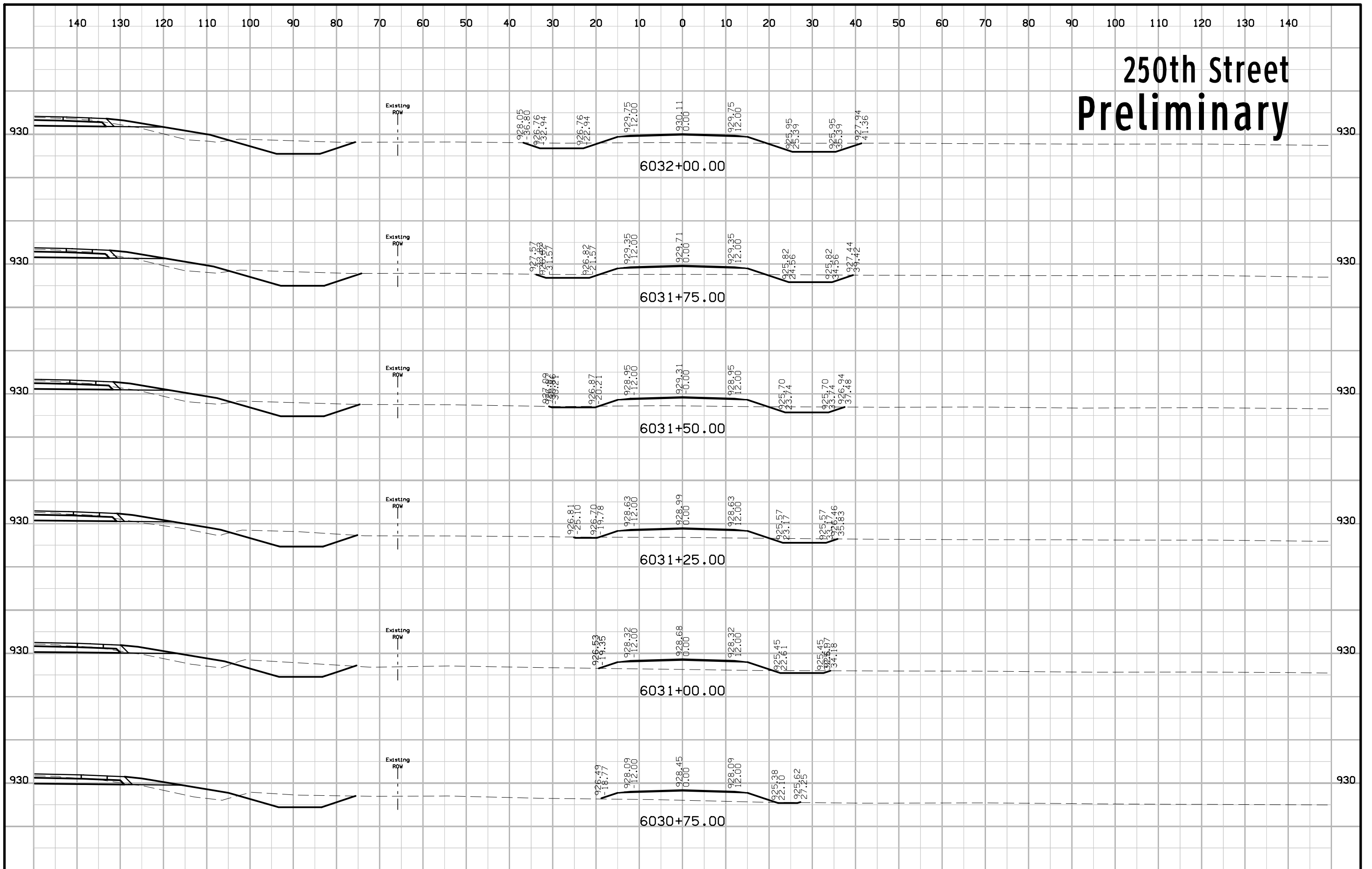




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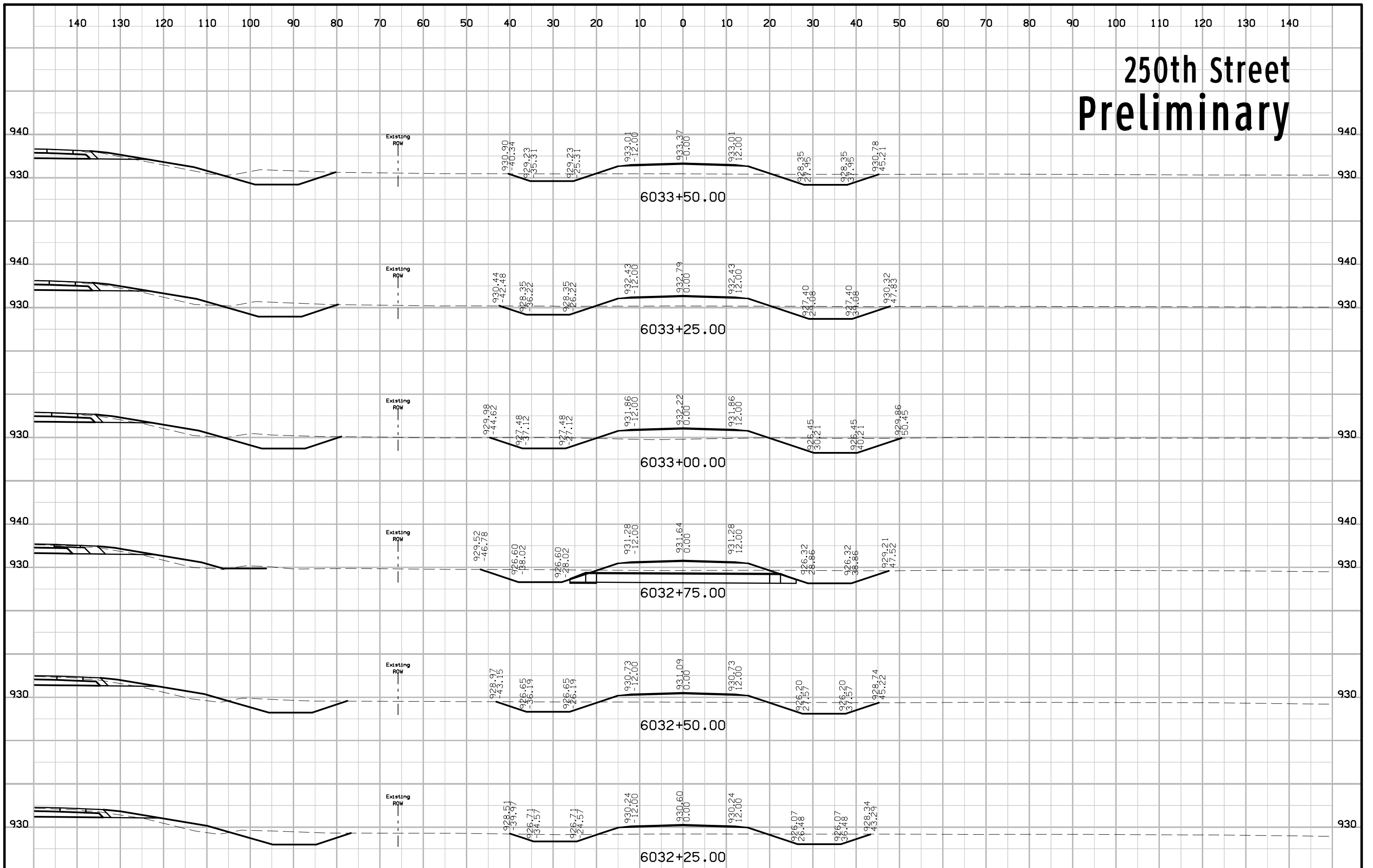


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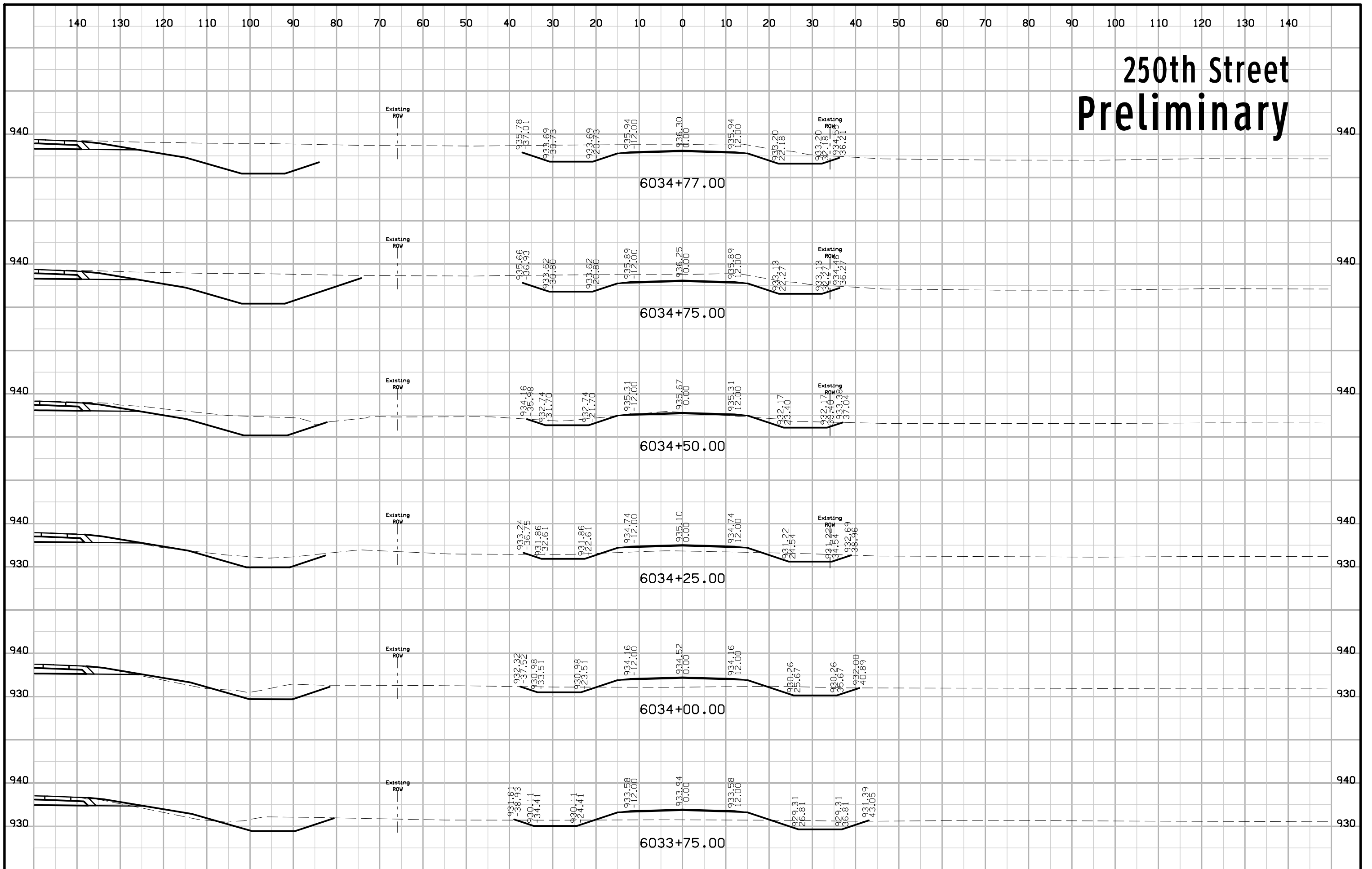




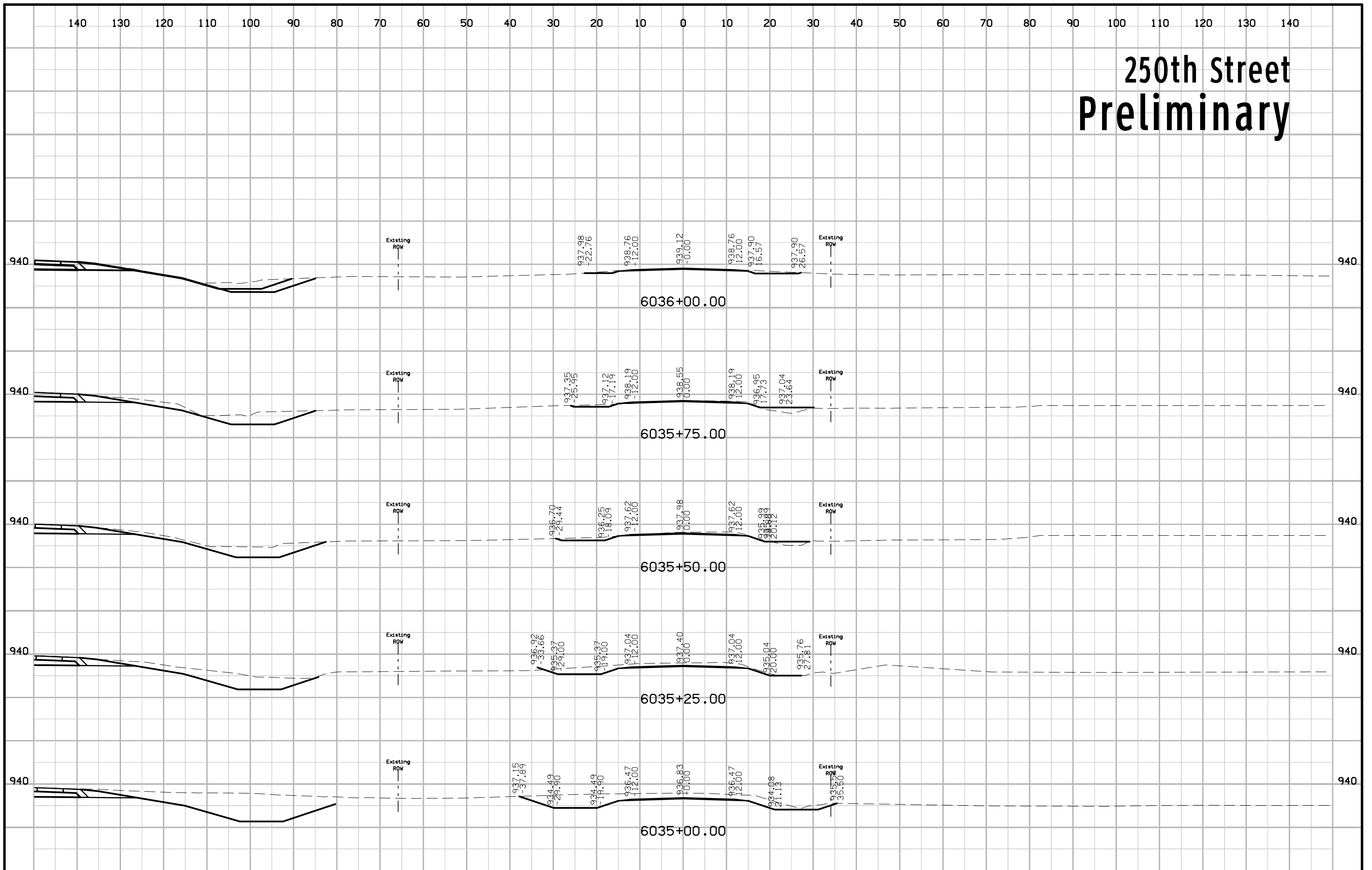
# 250th Street Preliminary



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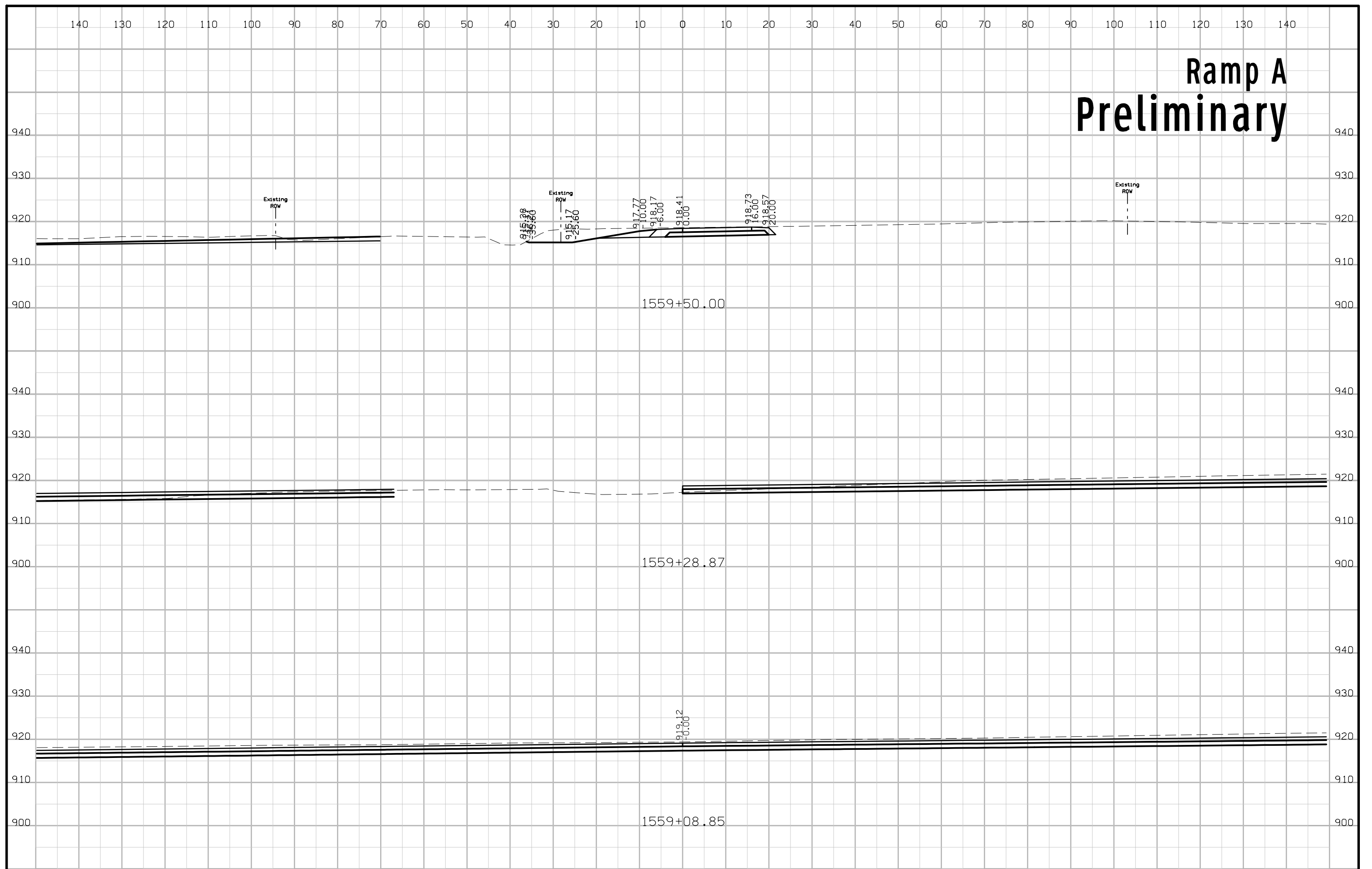


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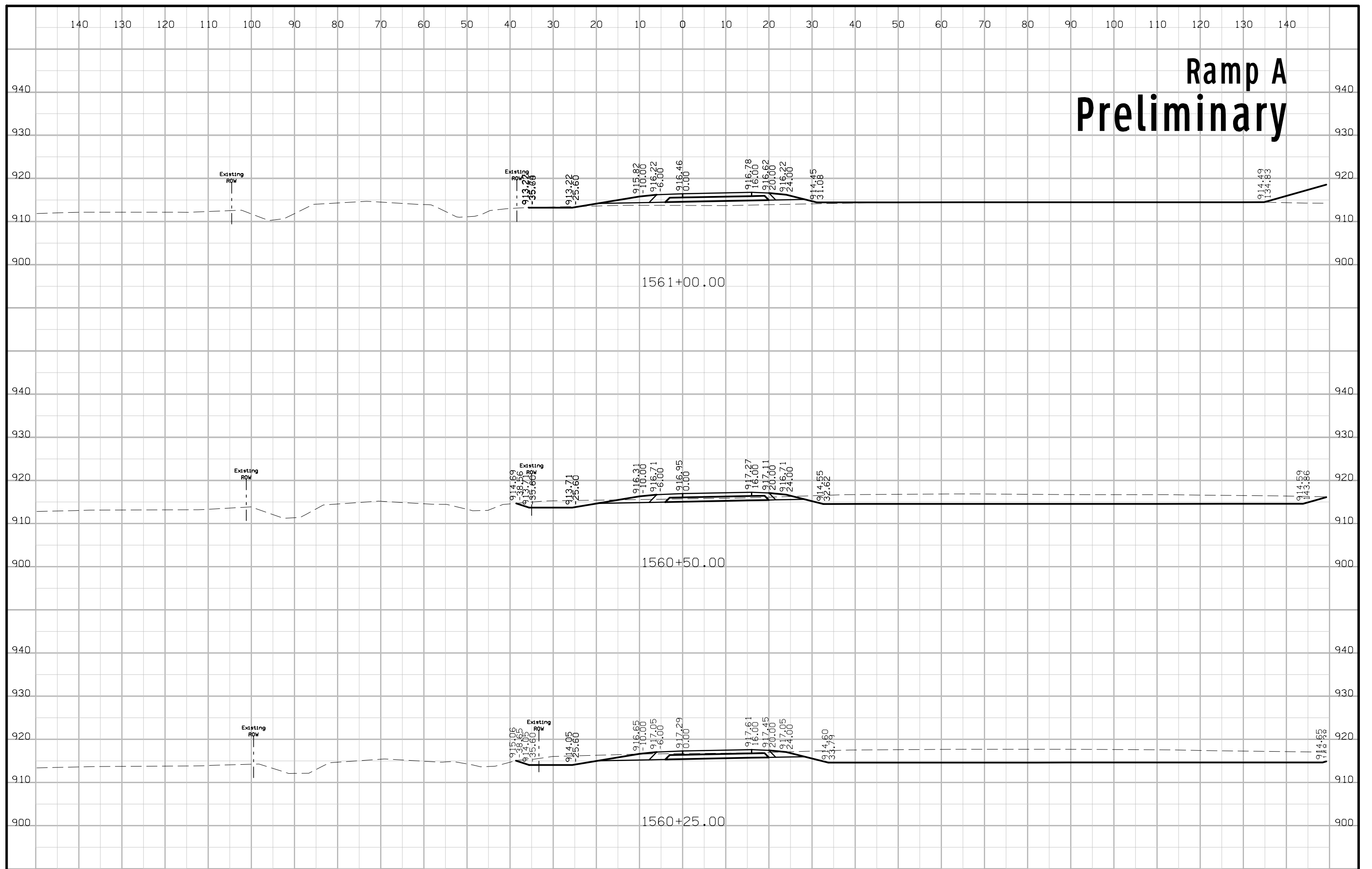


# Ramp A Preliminary



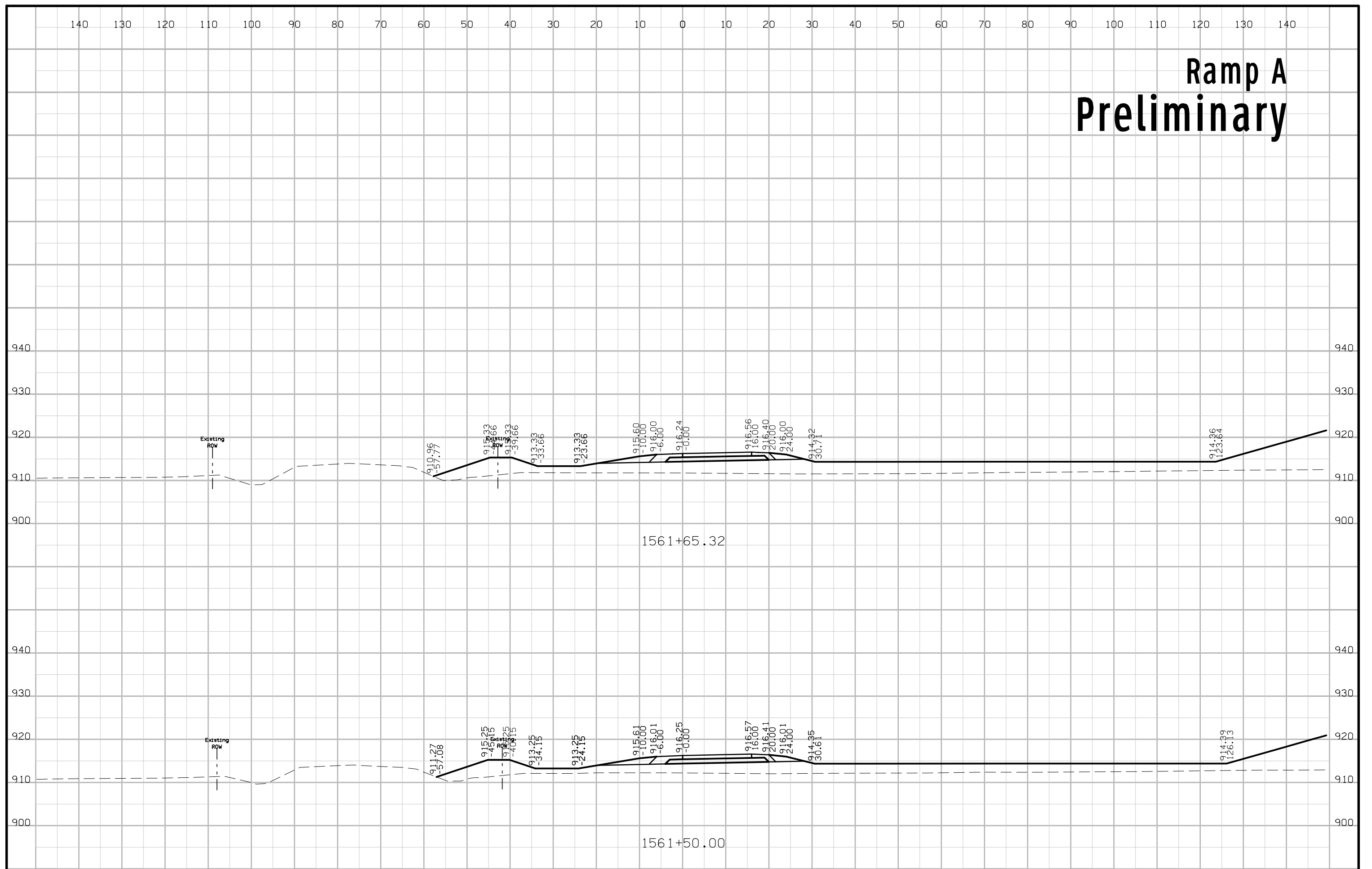


# Ramp A Preliminary

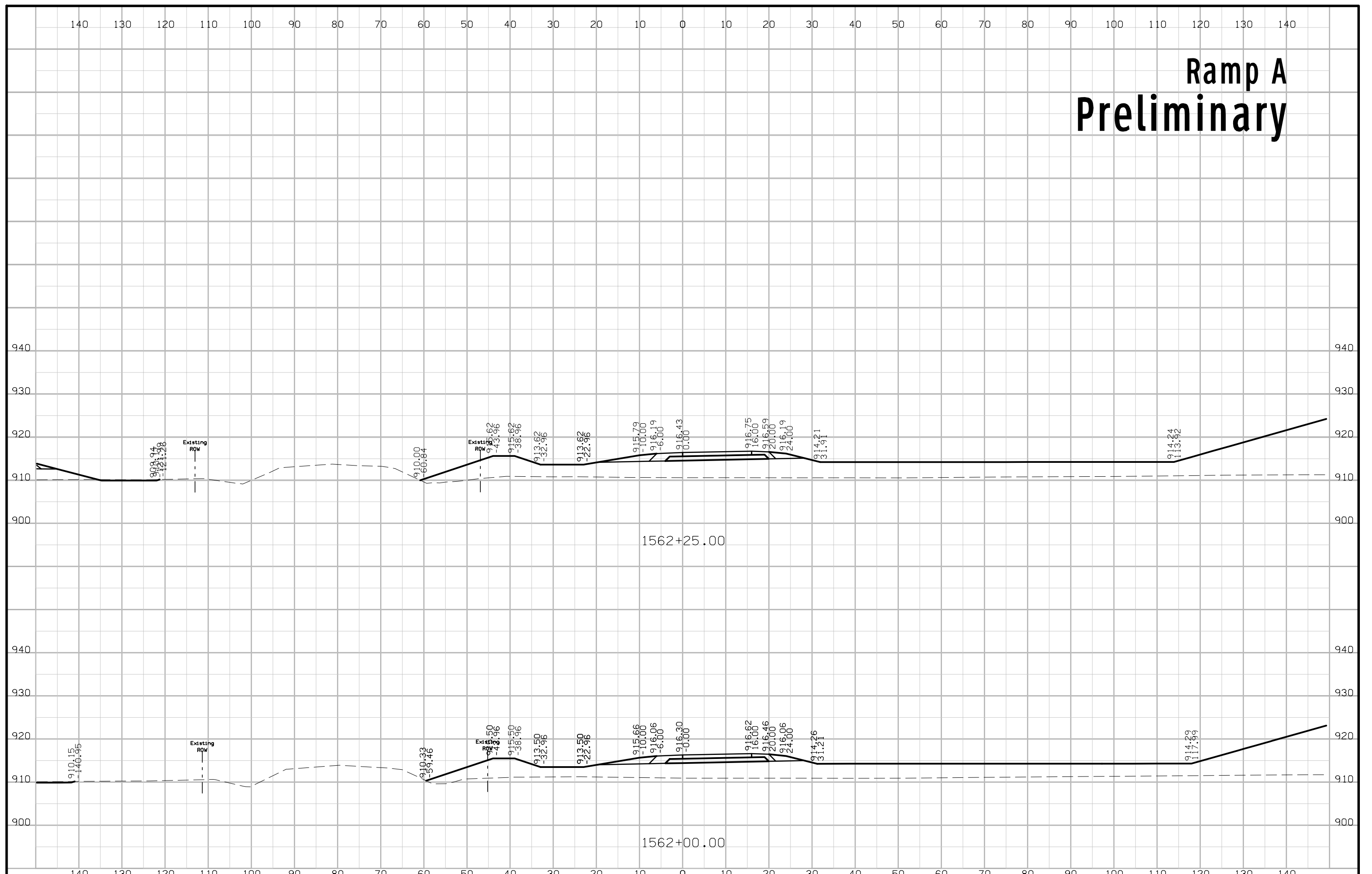




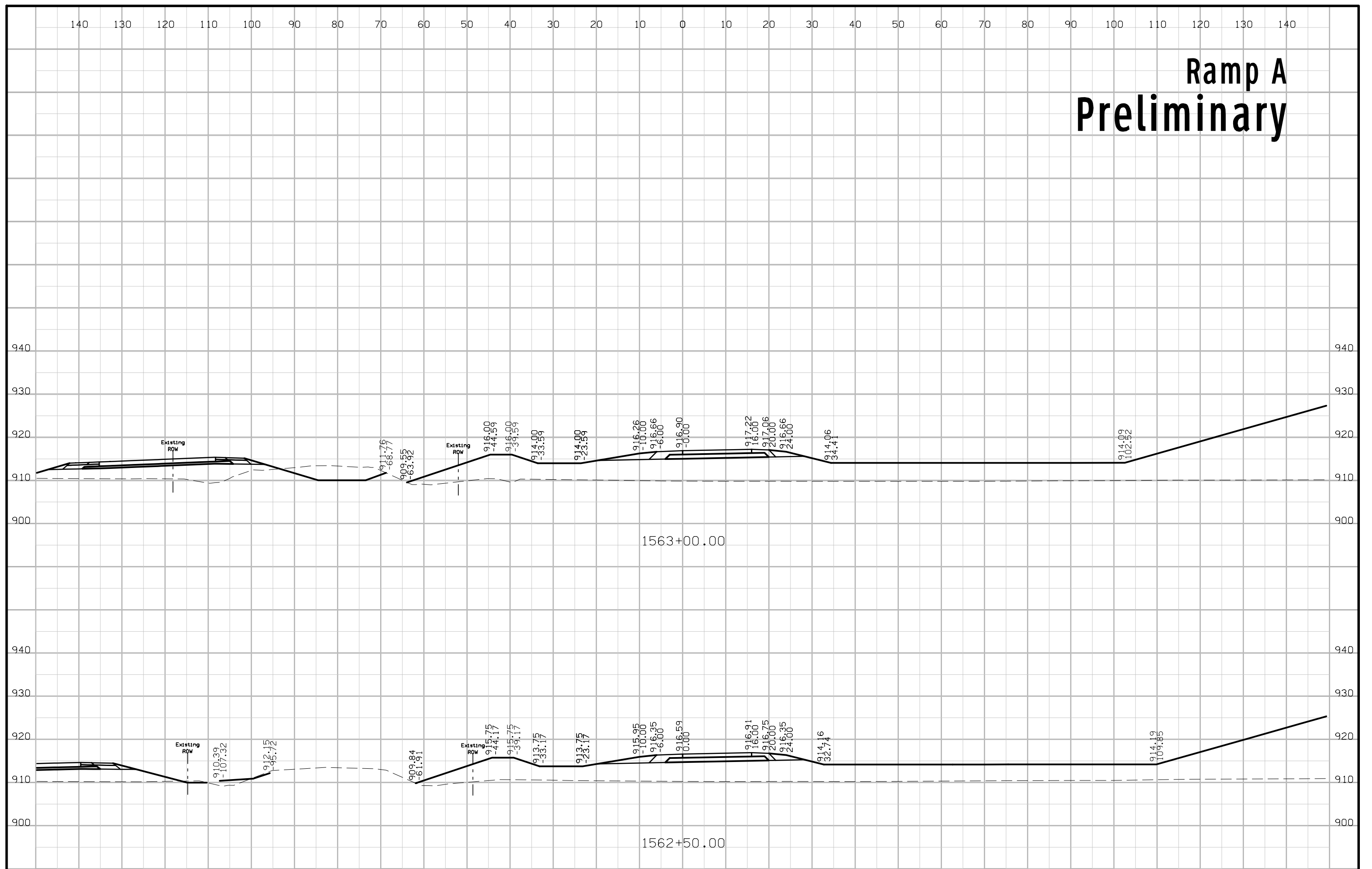
# Ramp A Preliminary



# Ramp A Preliminary

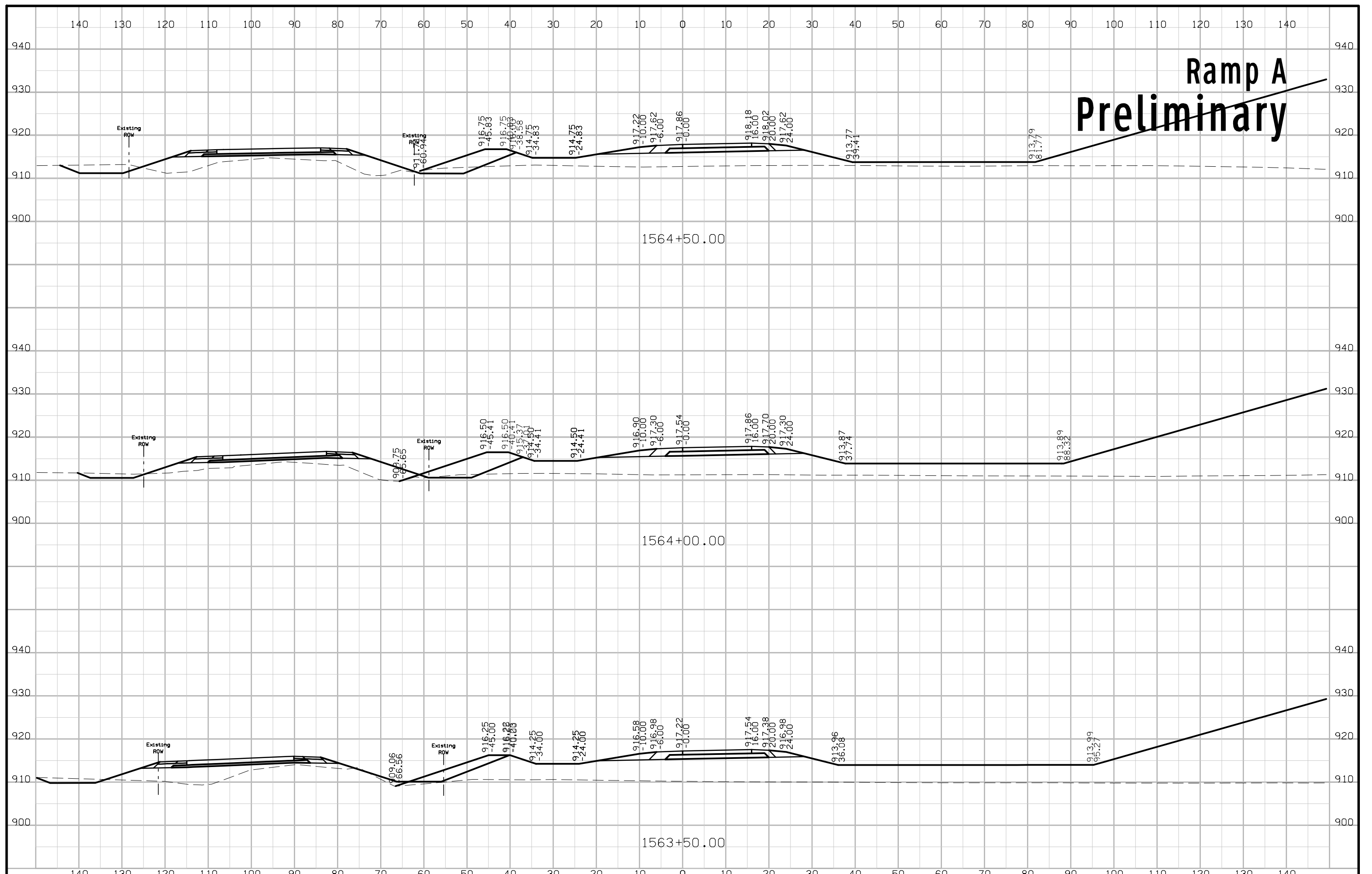


# Ramp A Preliminary

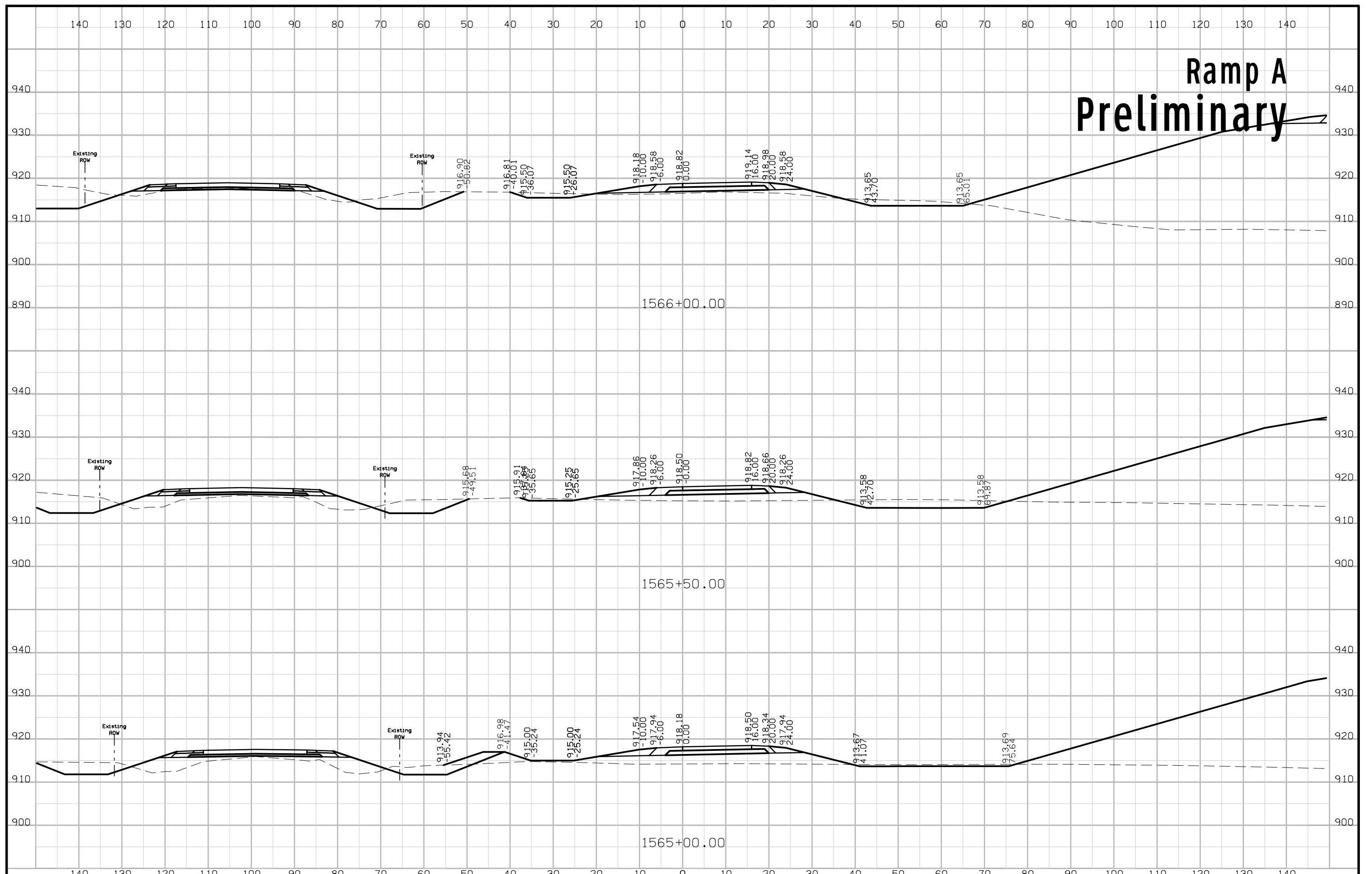




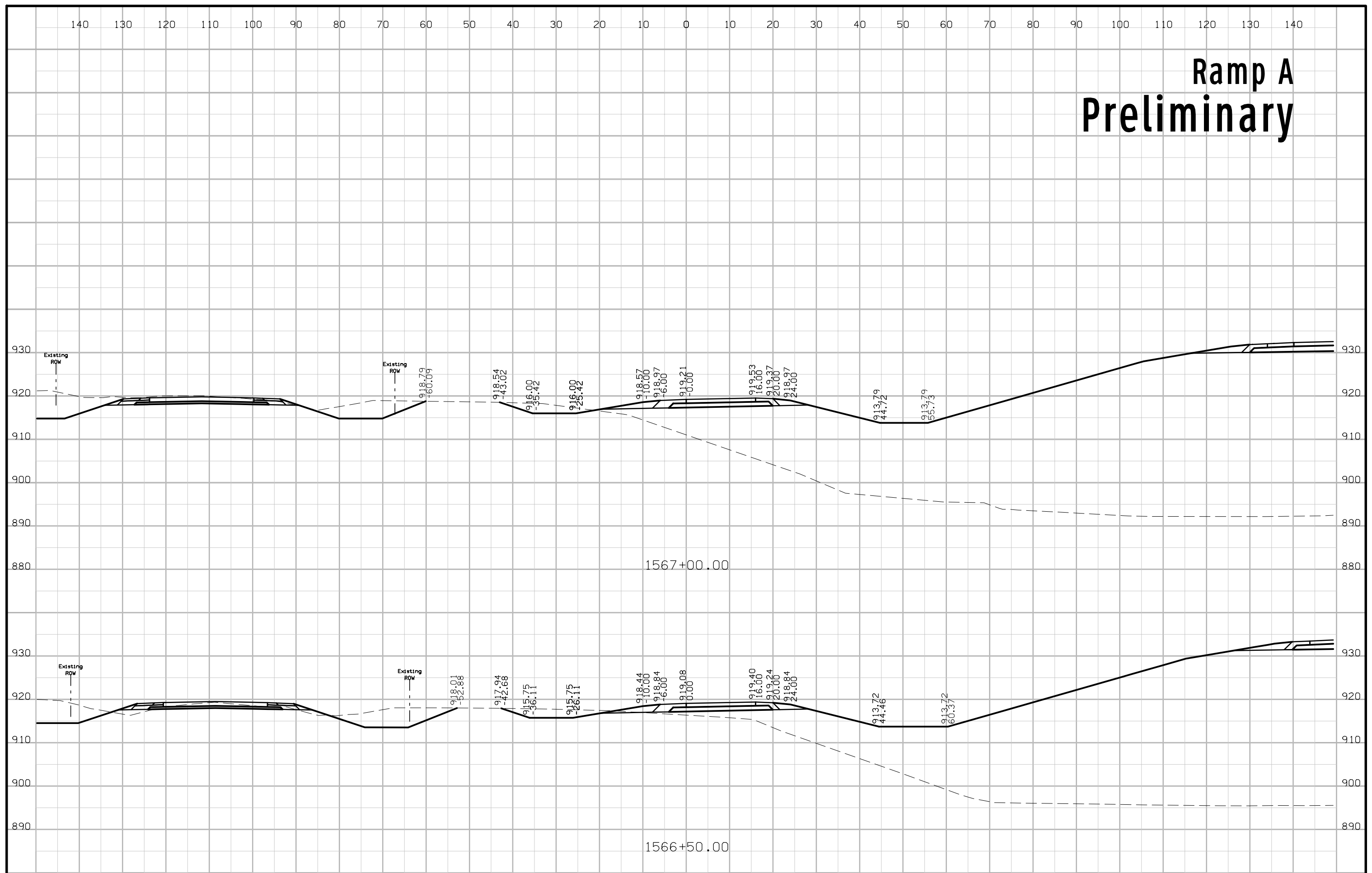
# Ramp A Preliminary



# Ramp A Preliminary

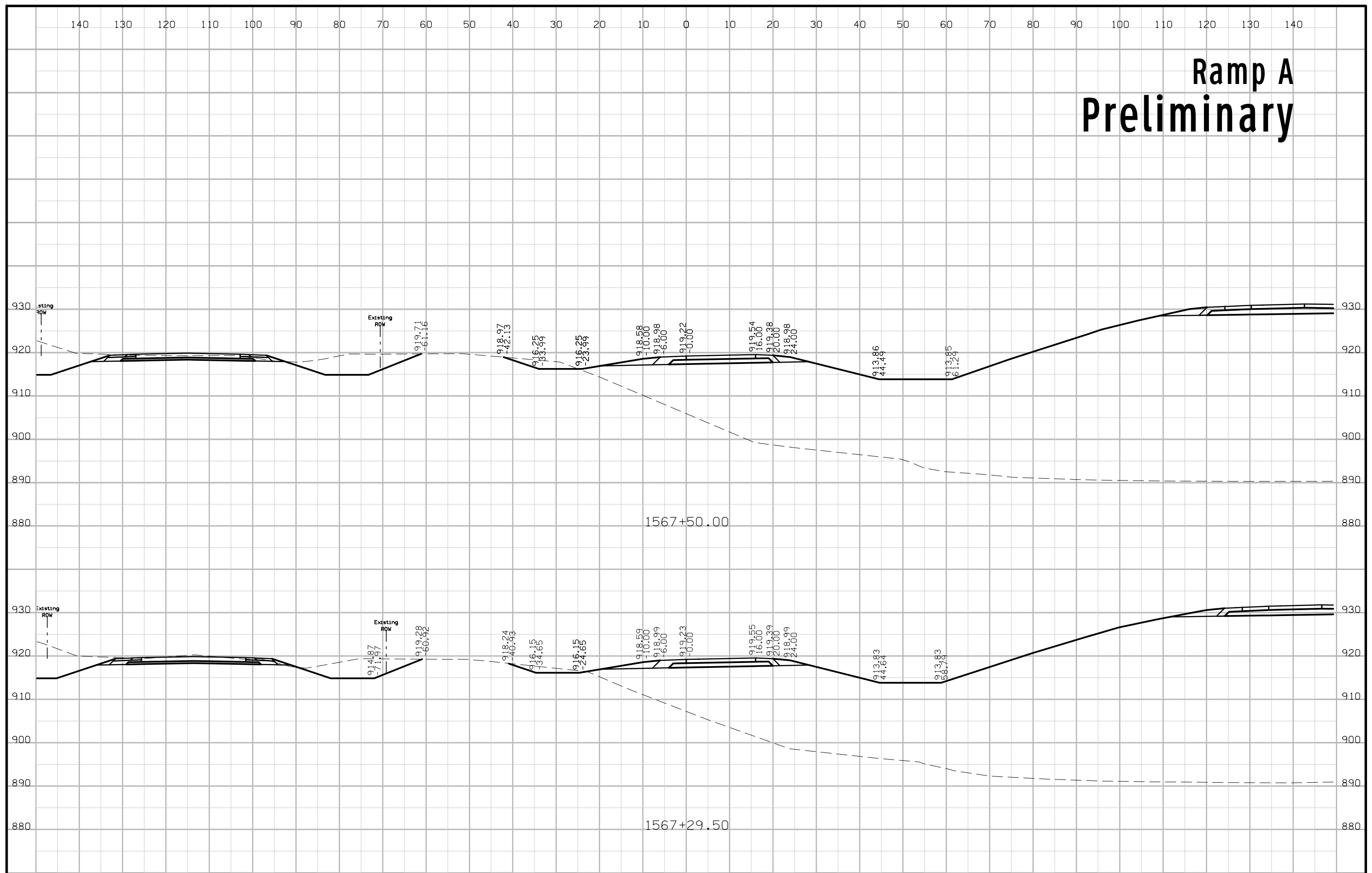


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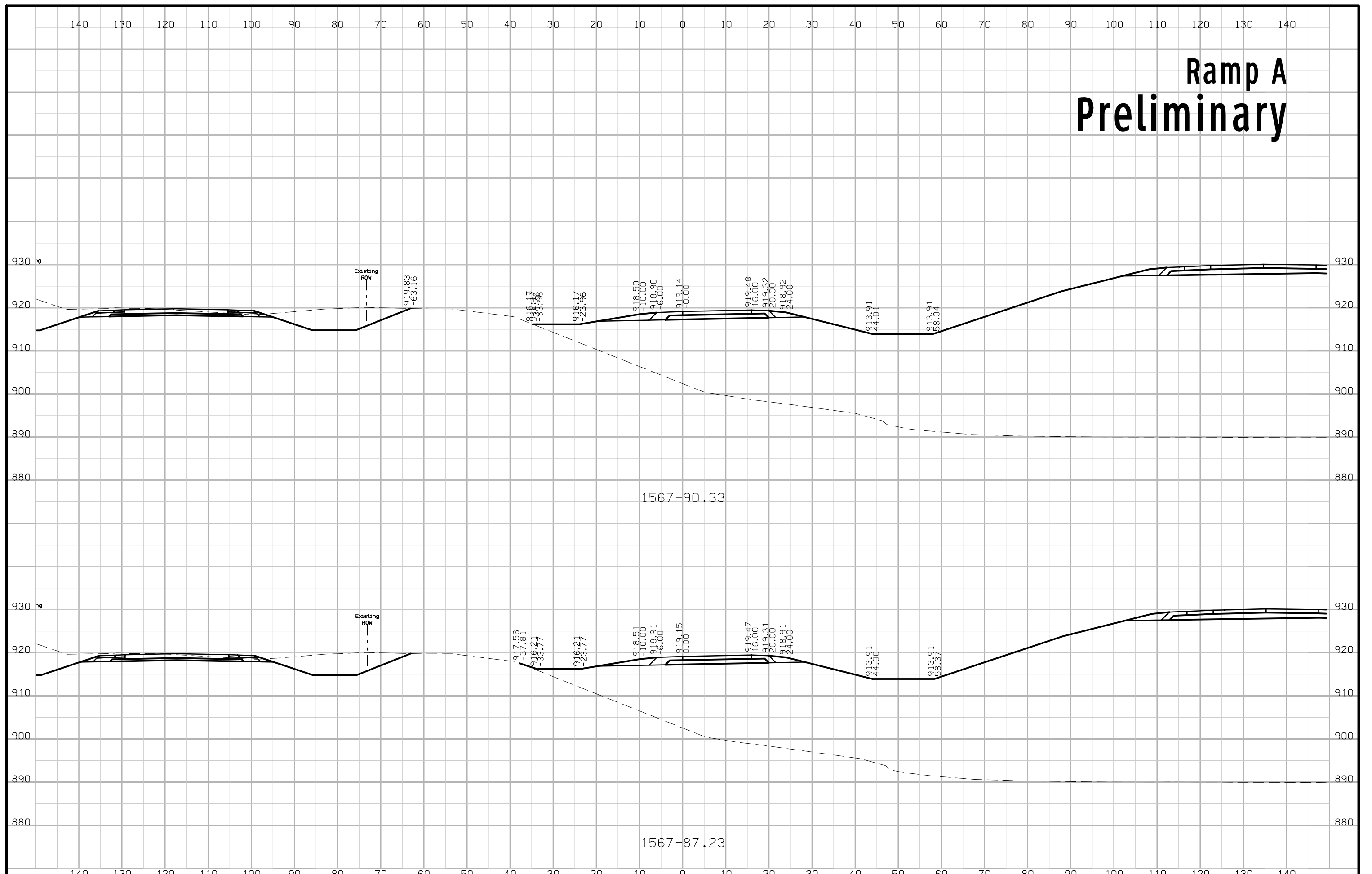




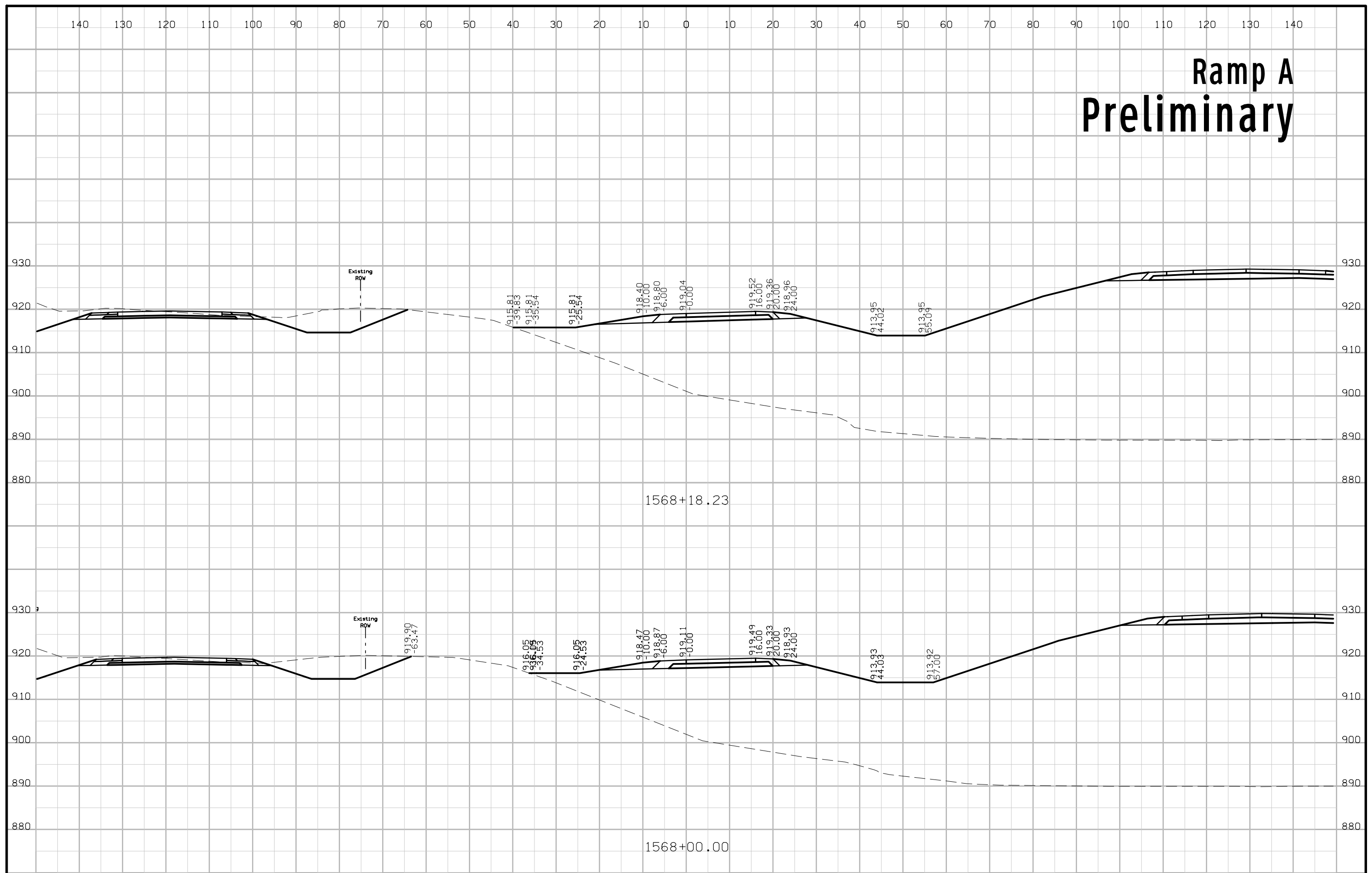
# Ramp A Preliminary



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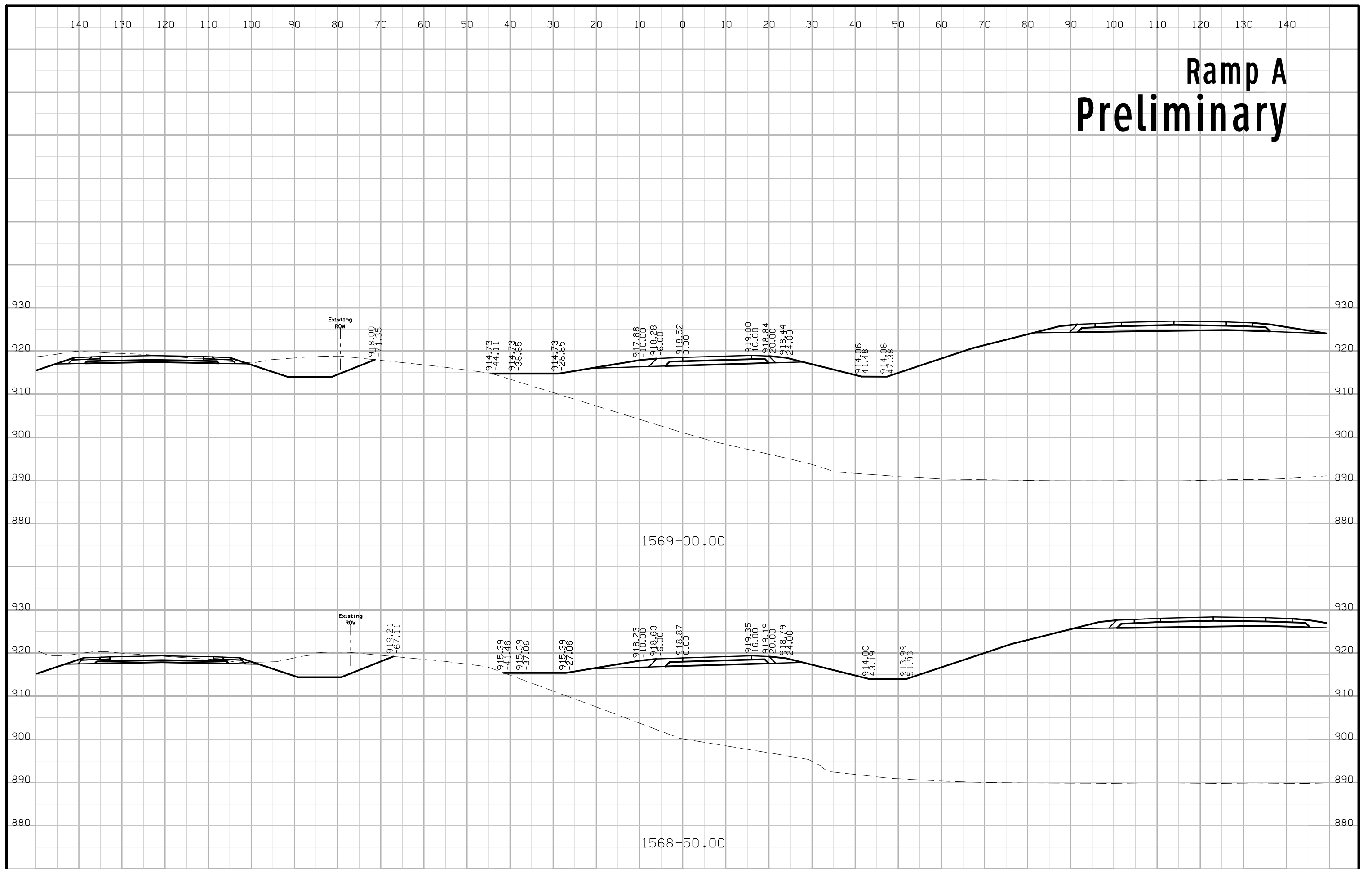


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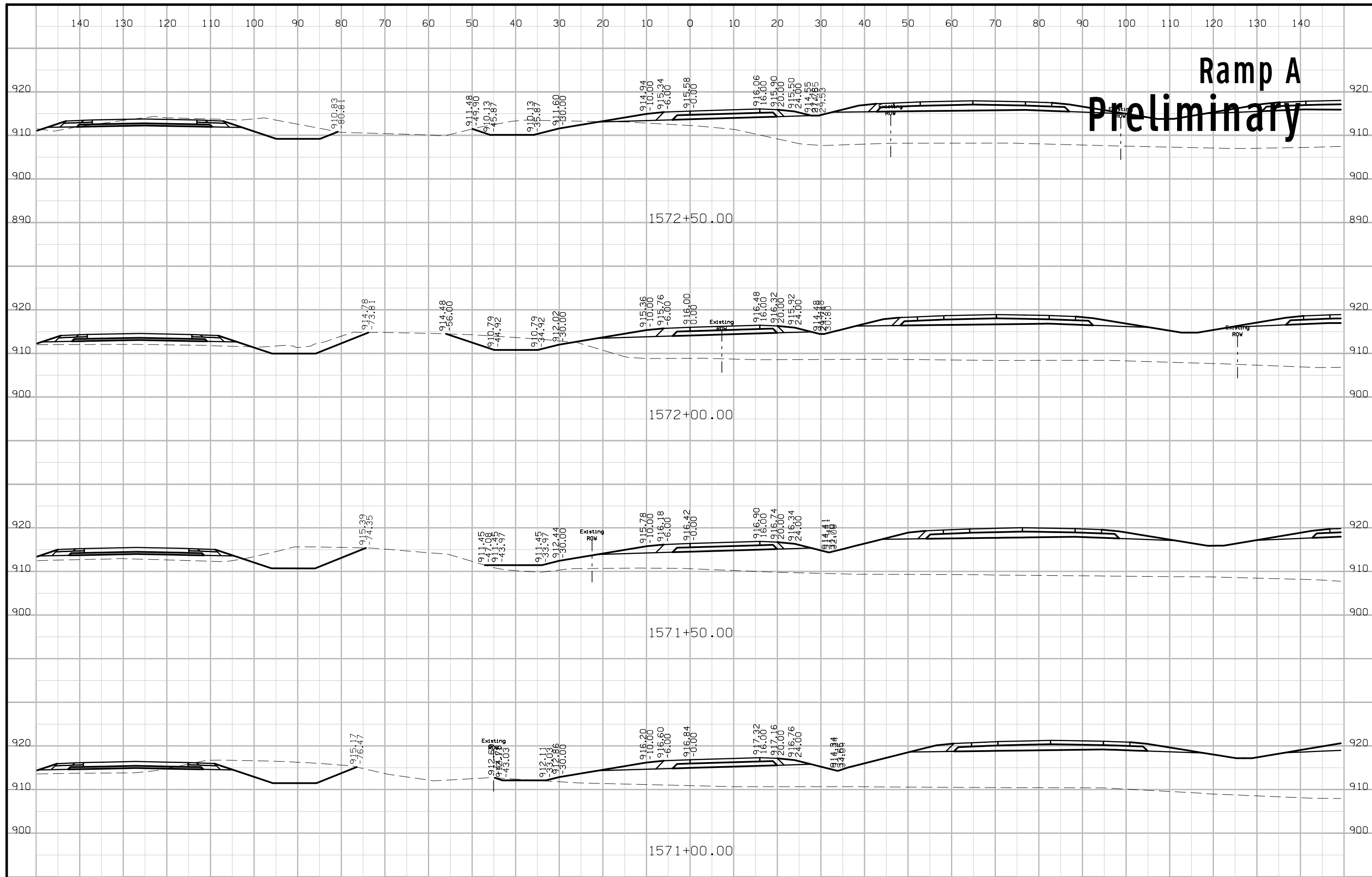




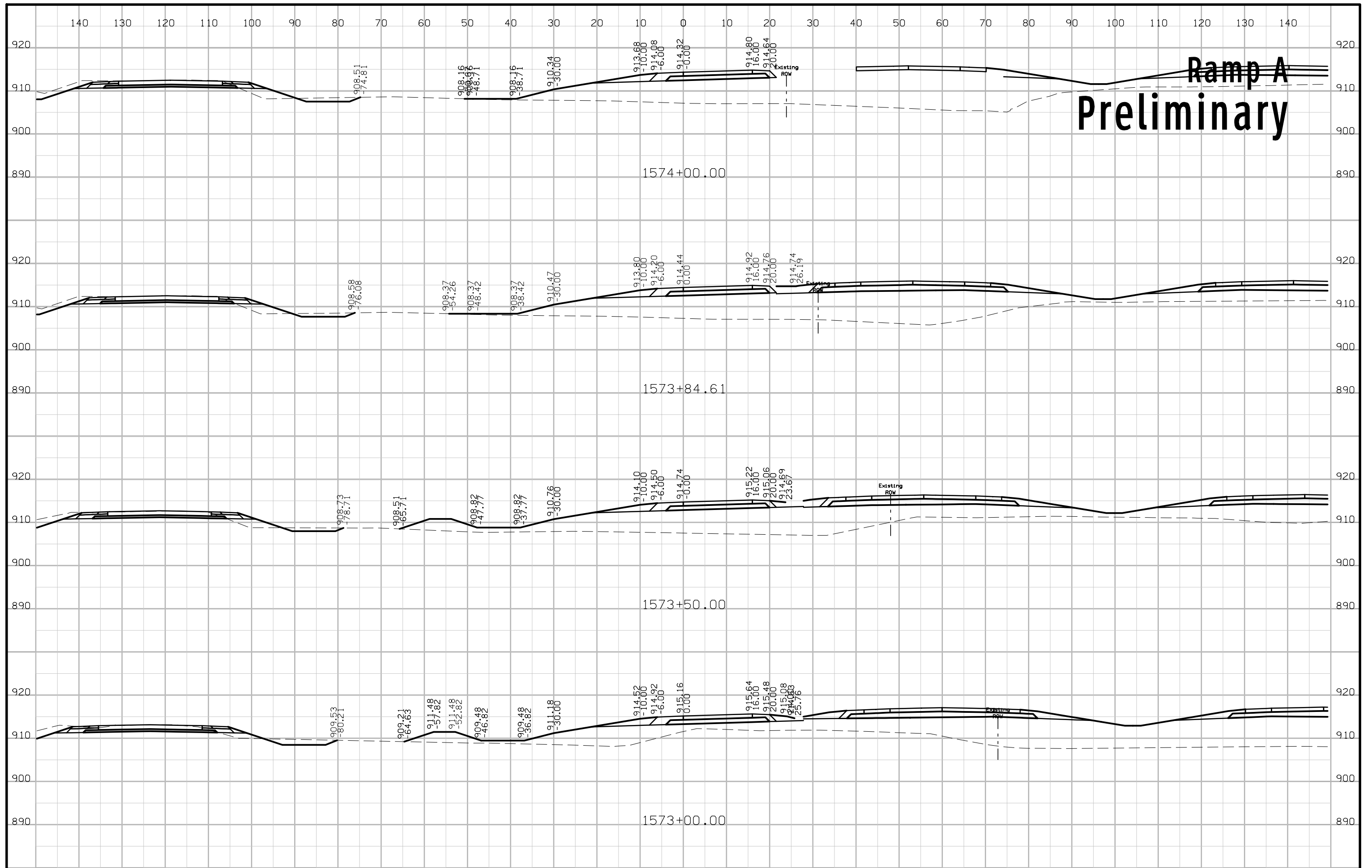
# Ramp A Preliminary



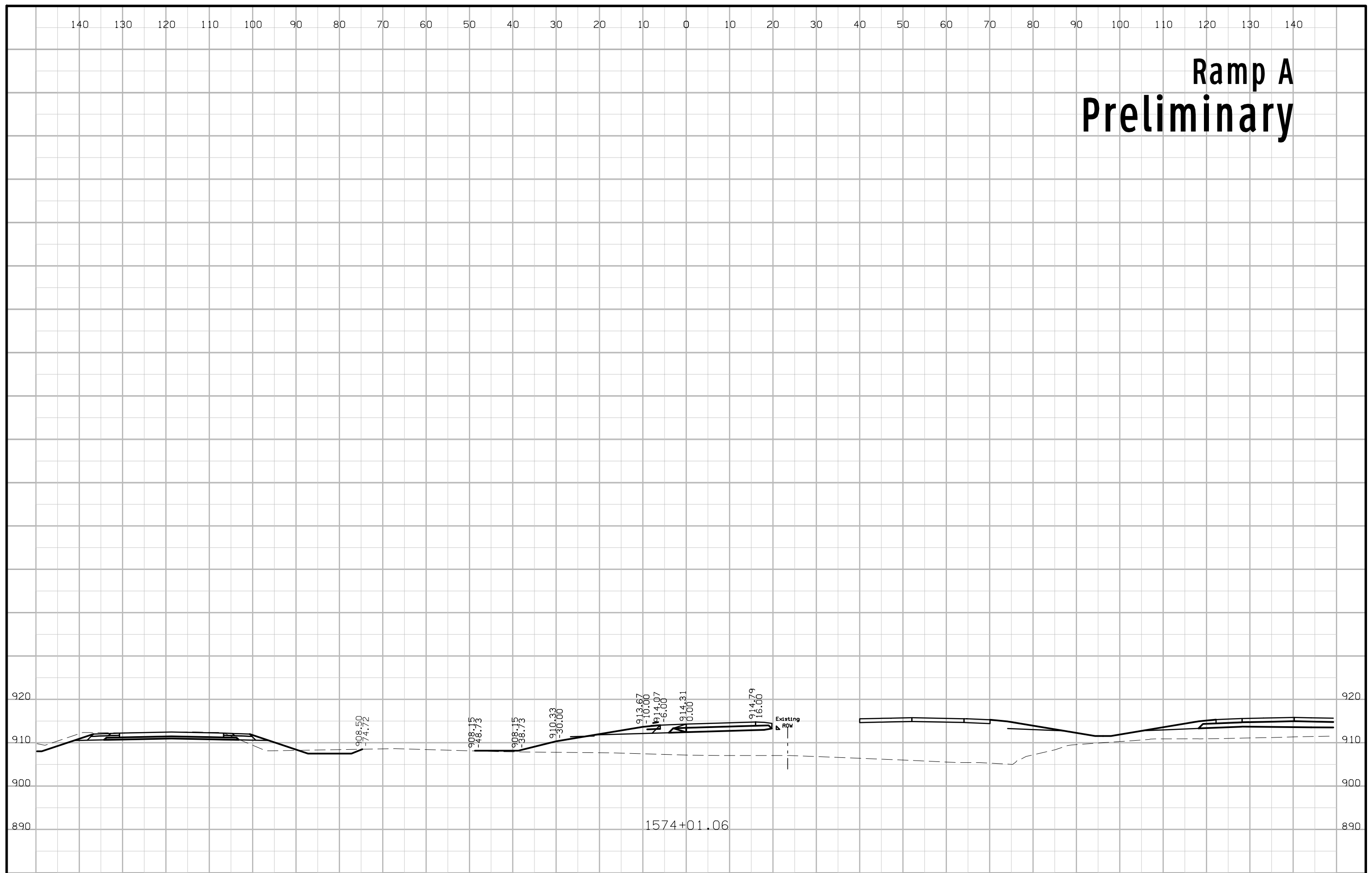




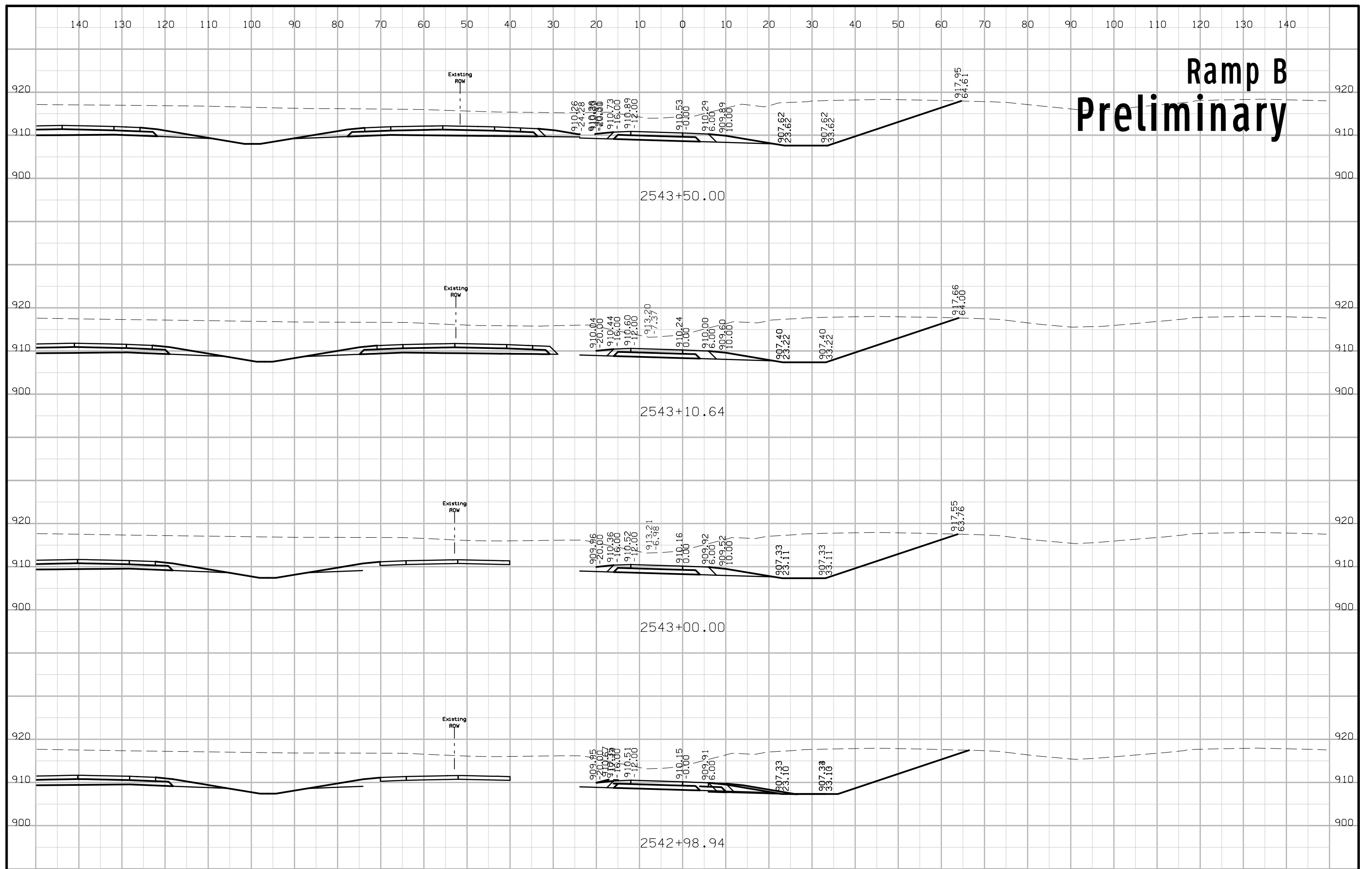




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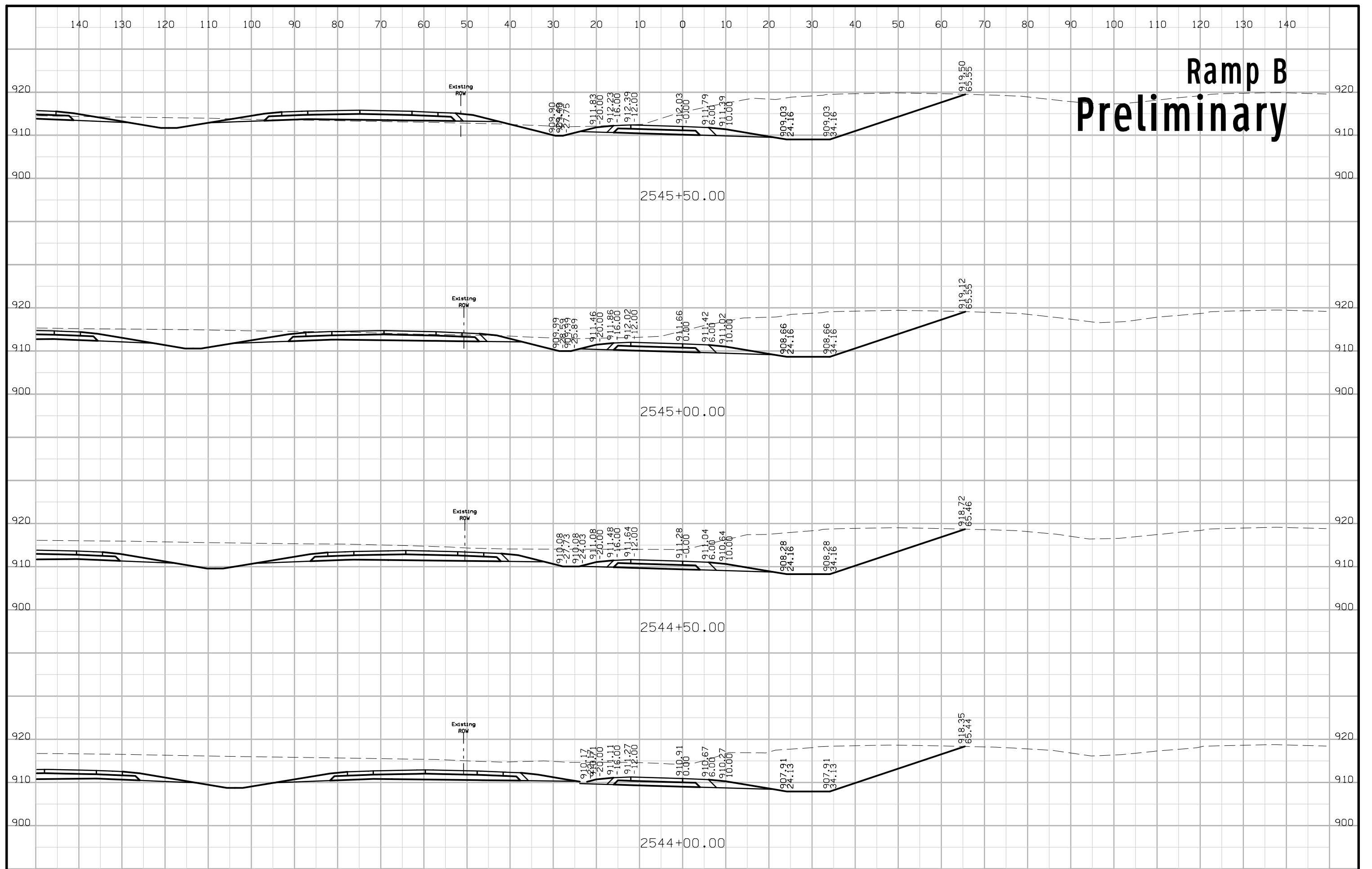


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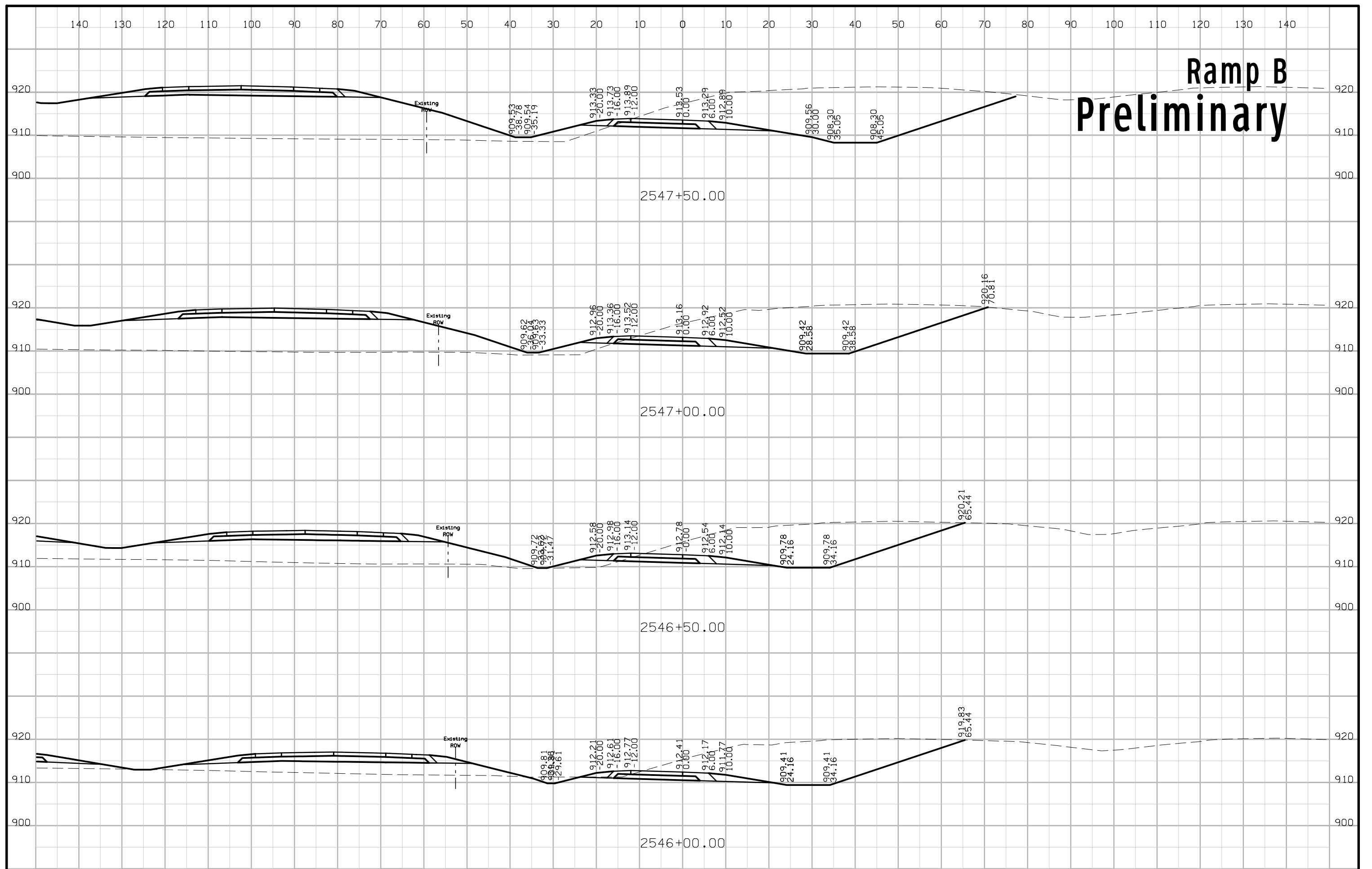




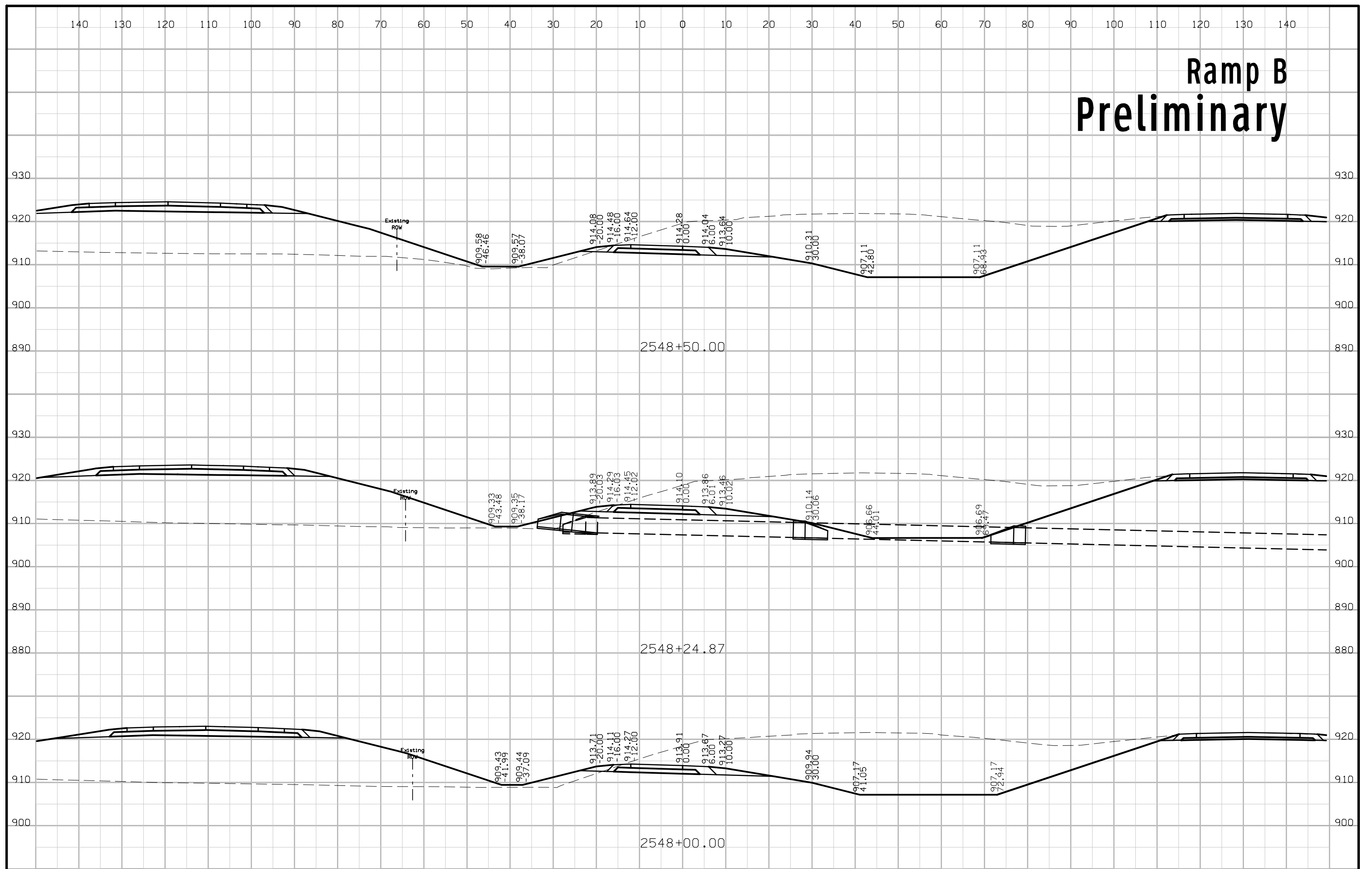
# Ramp B Preliminary



# Ramp B Preliminary

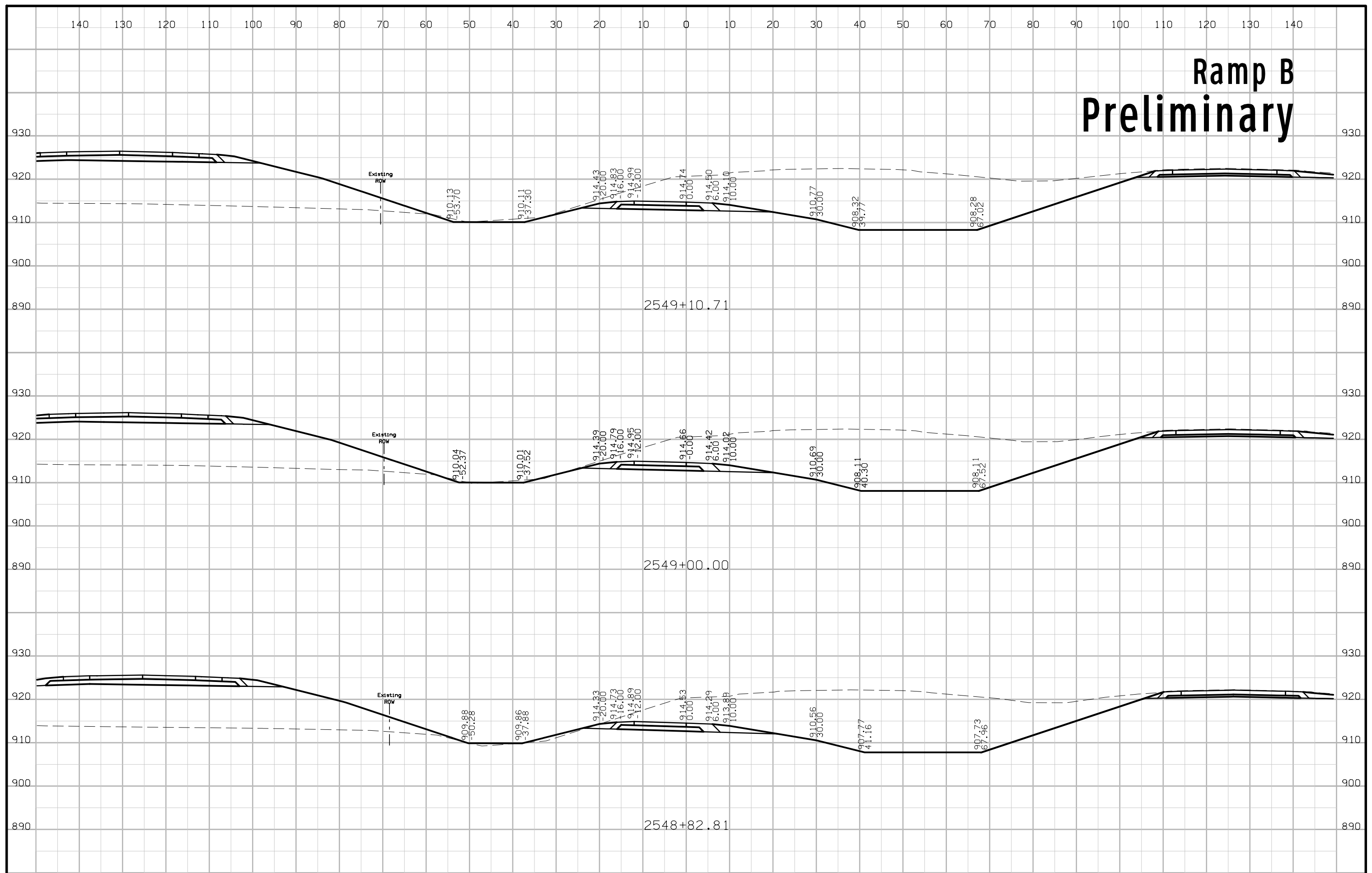


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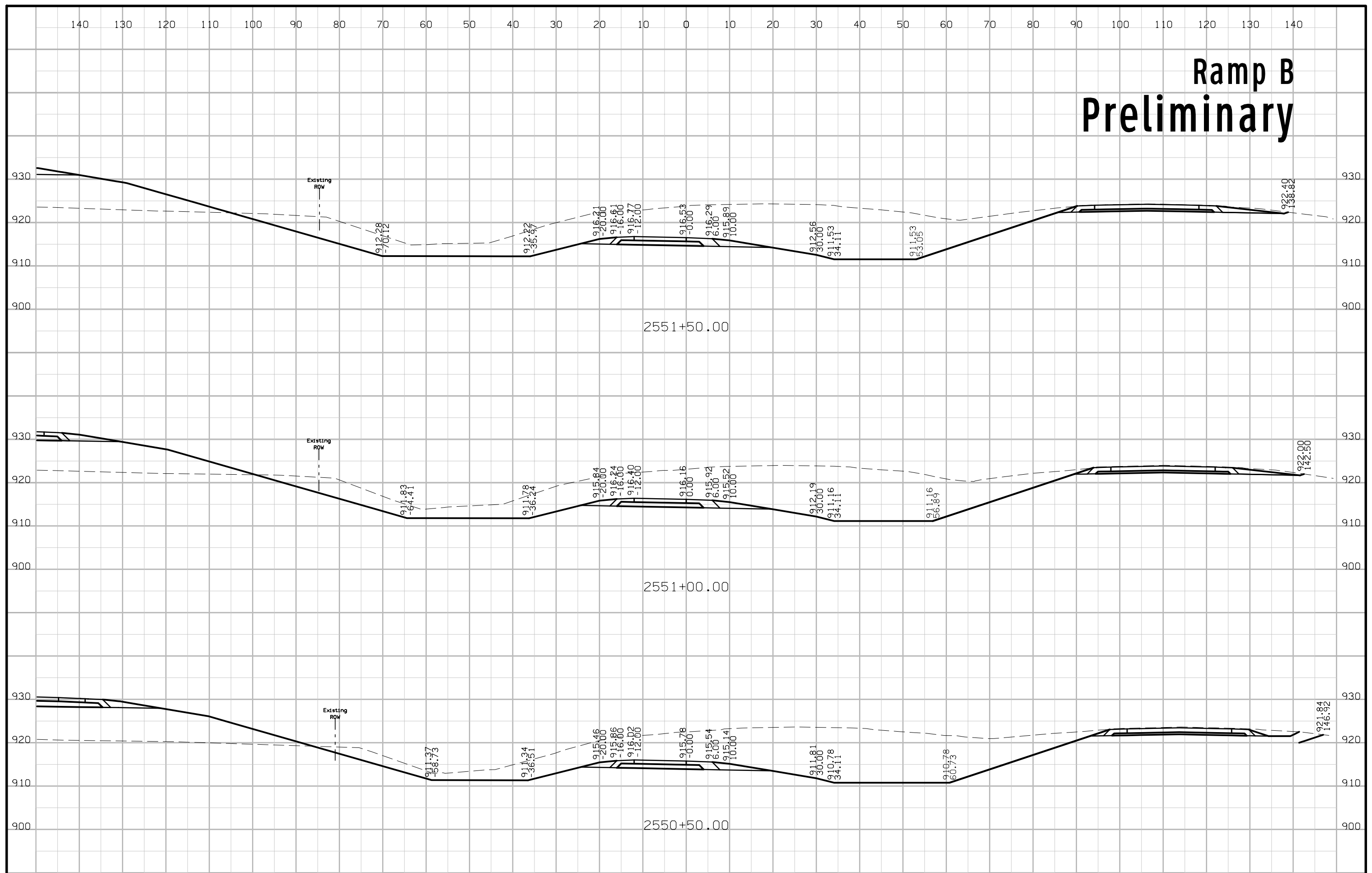


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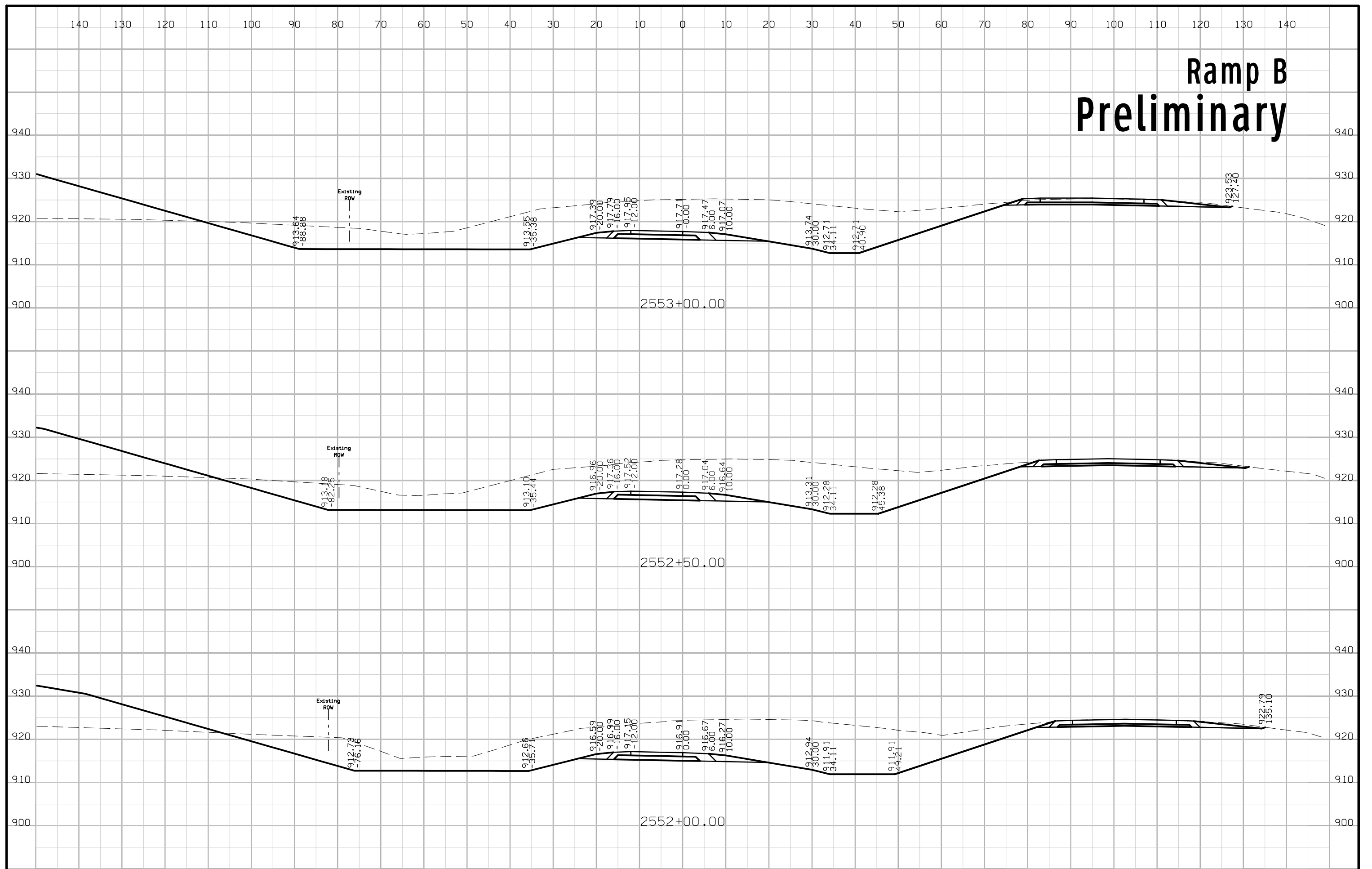


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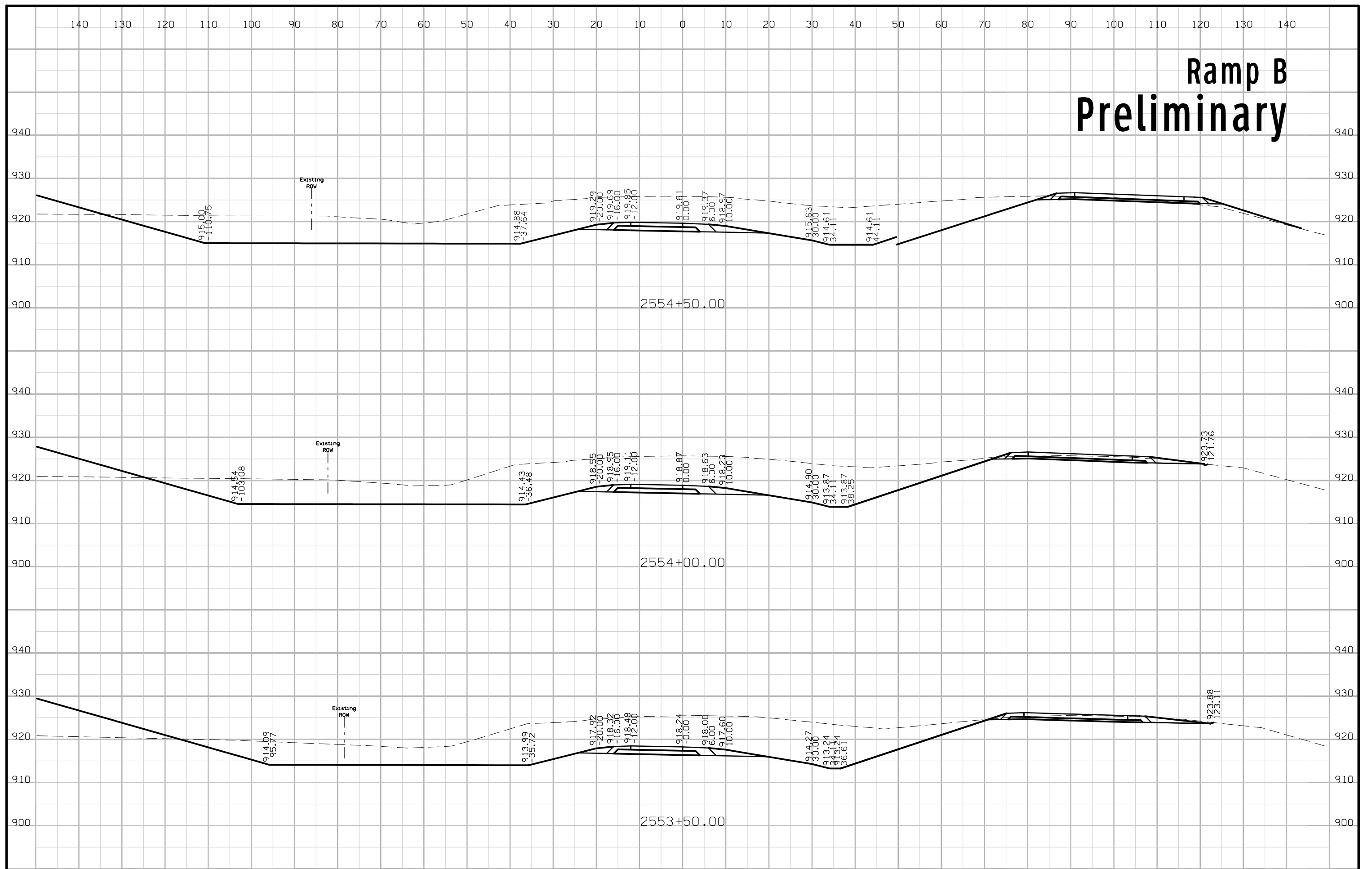




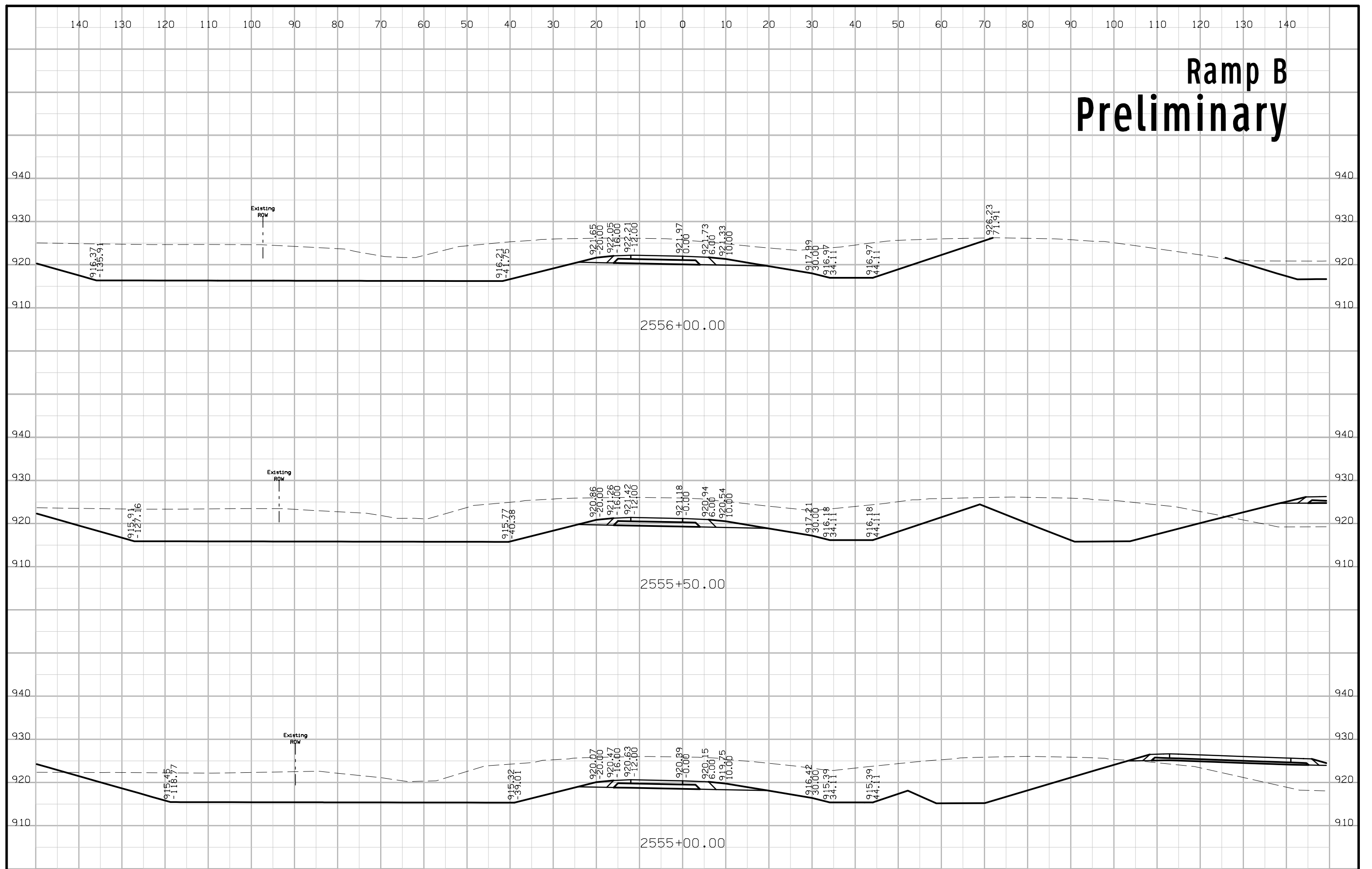
# Ramp B Preliminary



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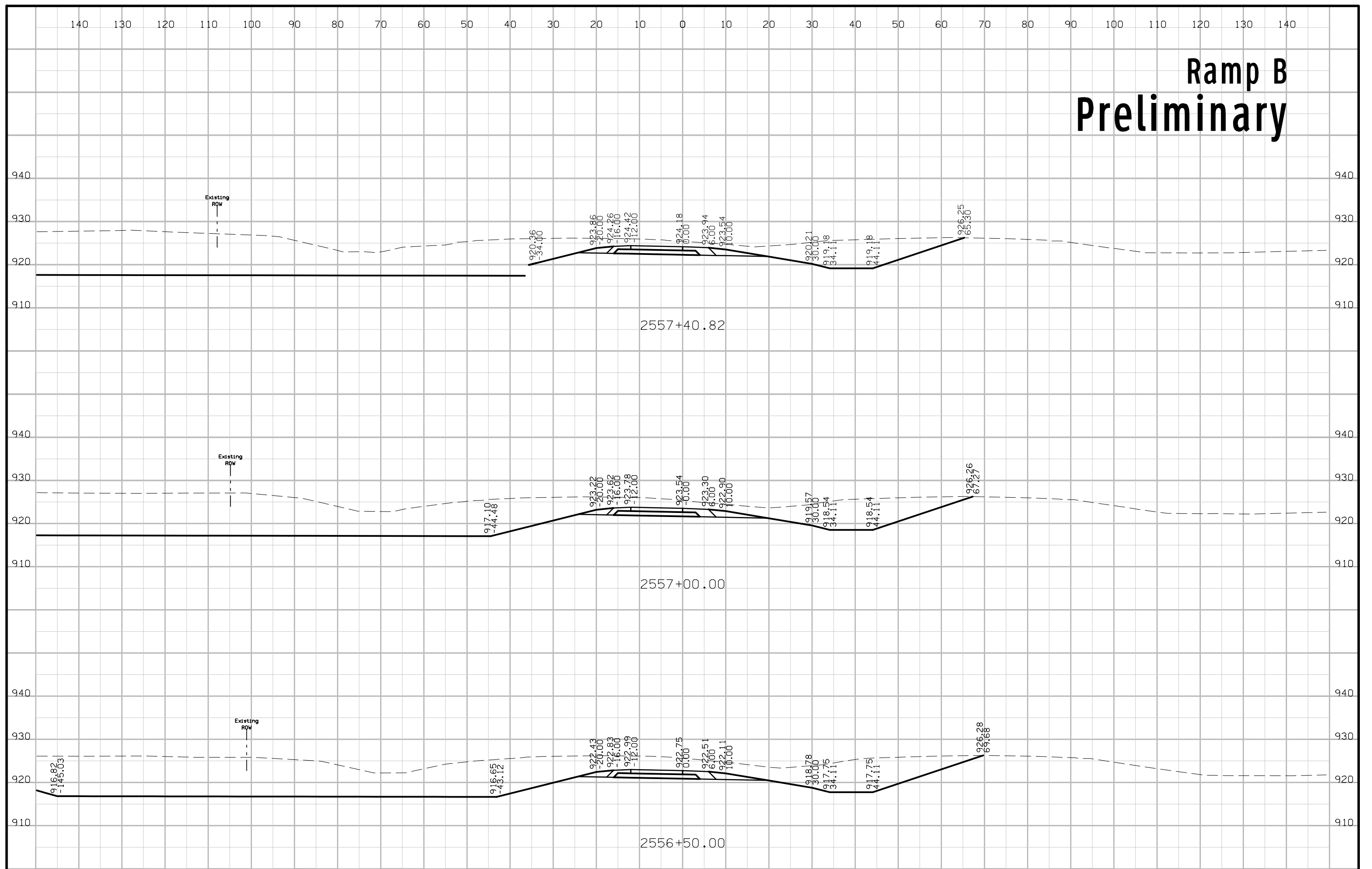


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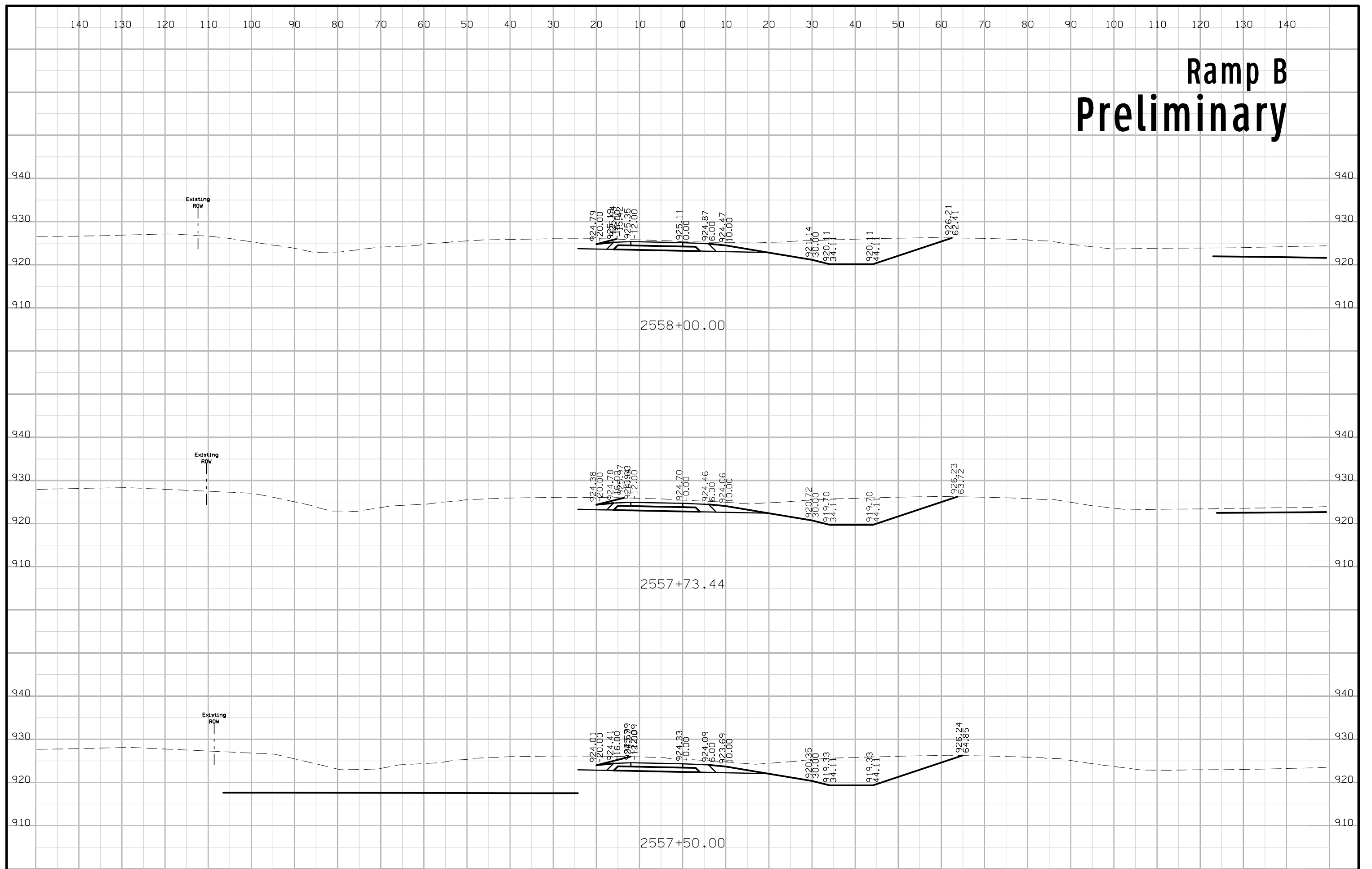




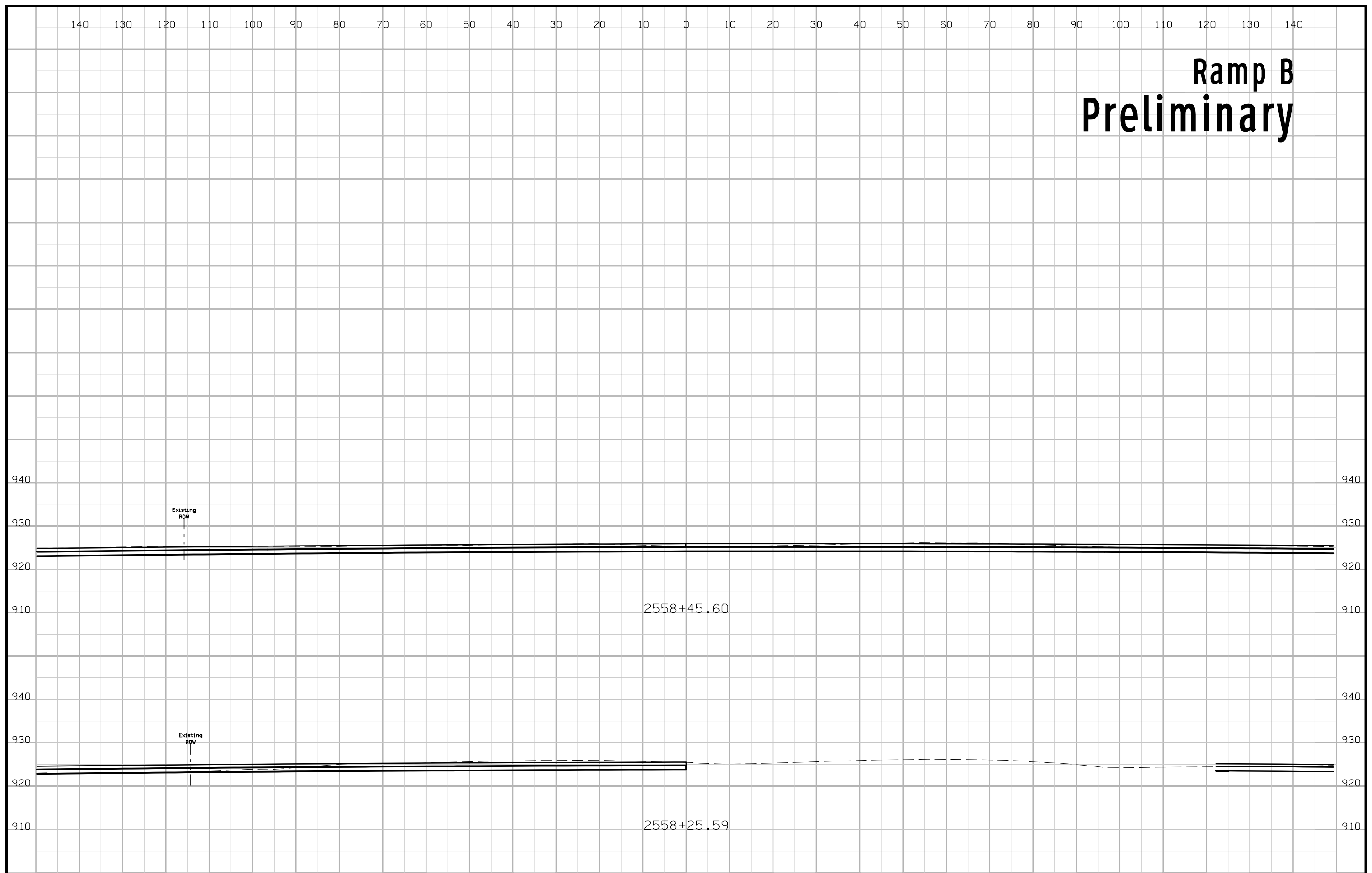
# Ramp B Preliminary



# Ramp B Preliminary

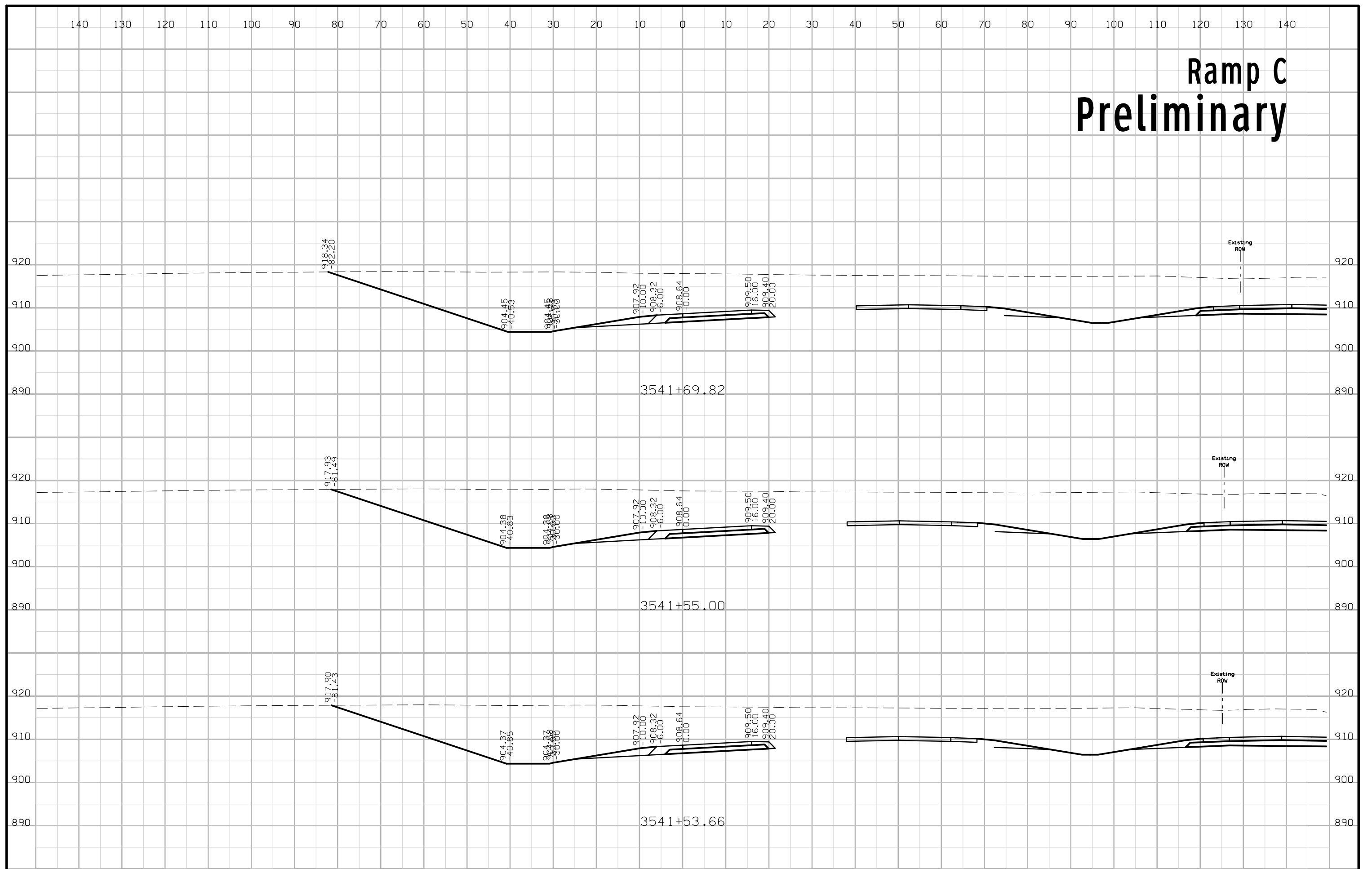


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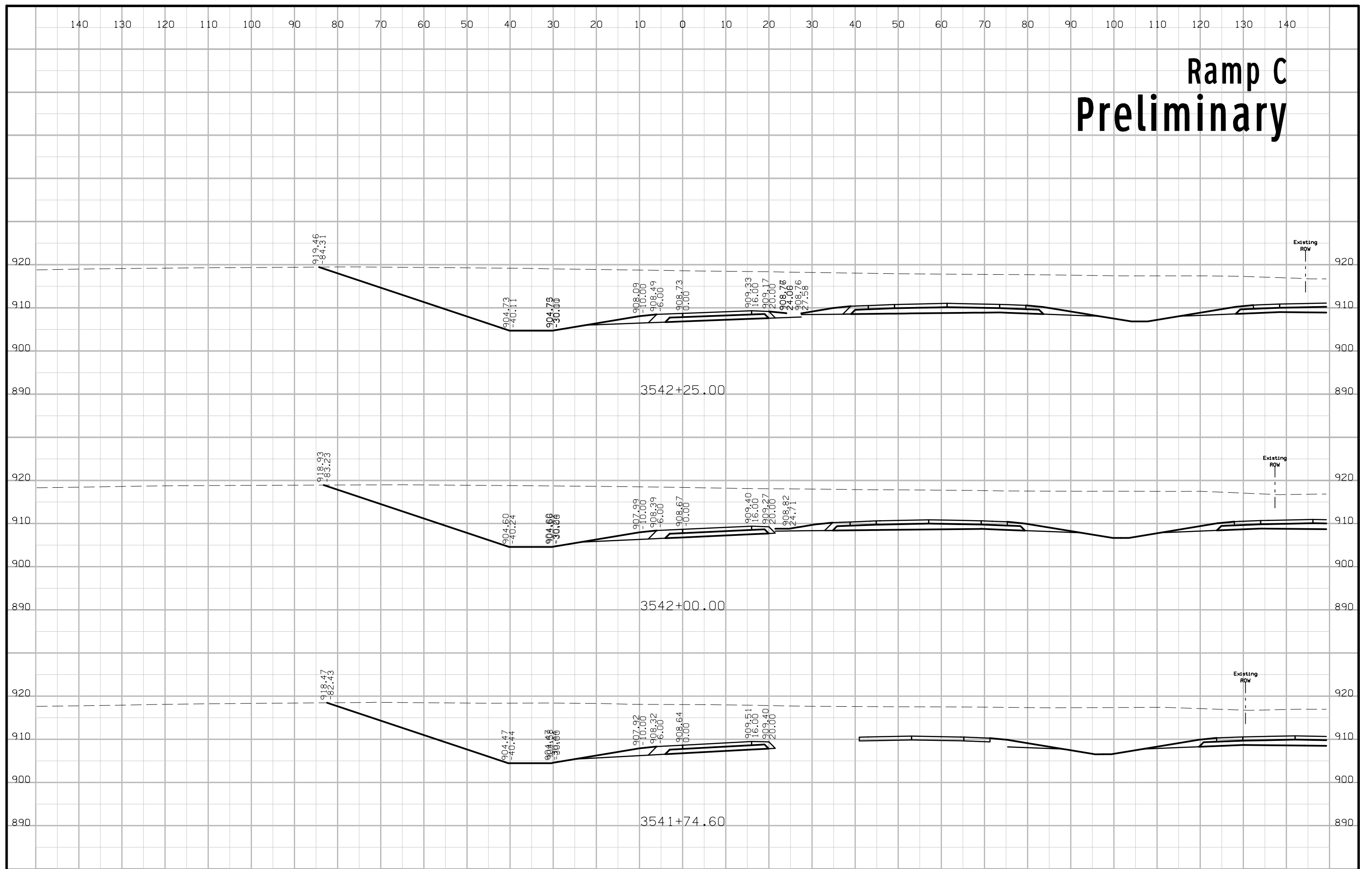




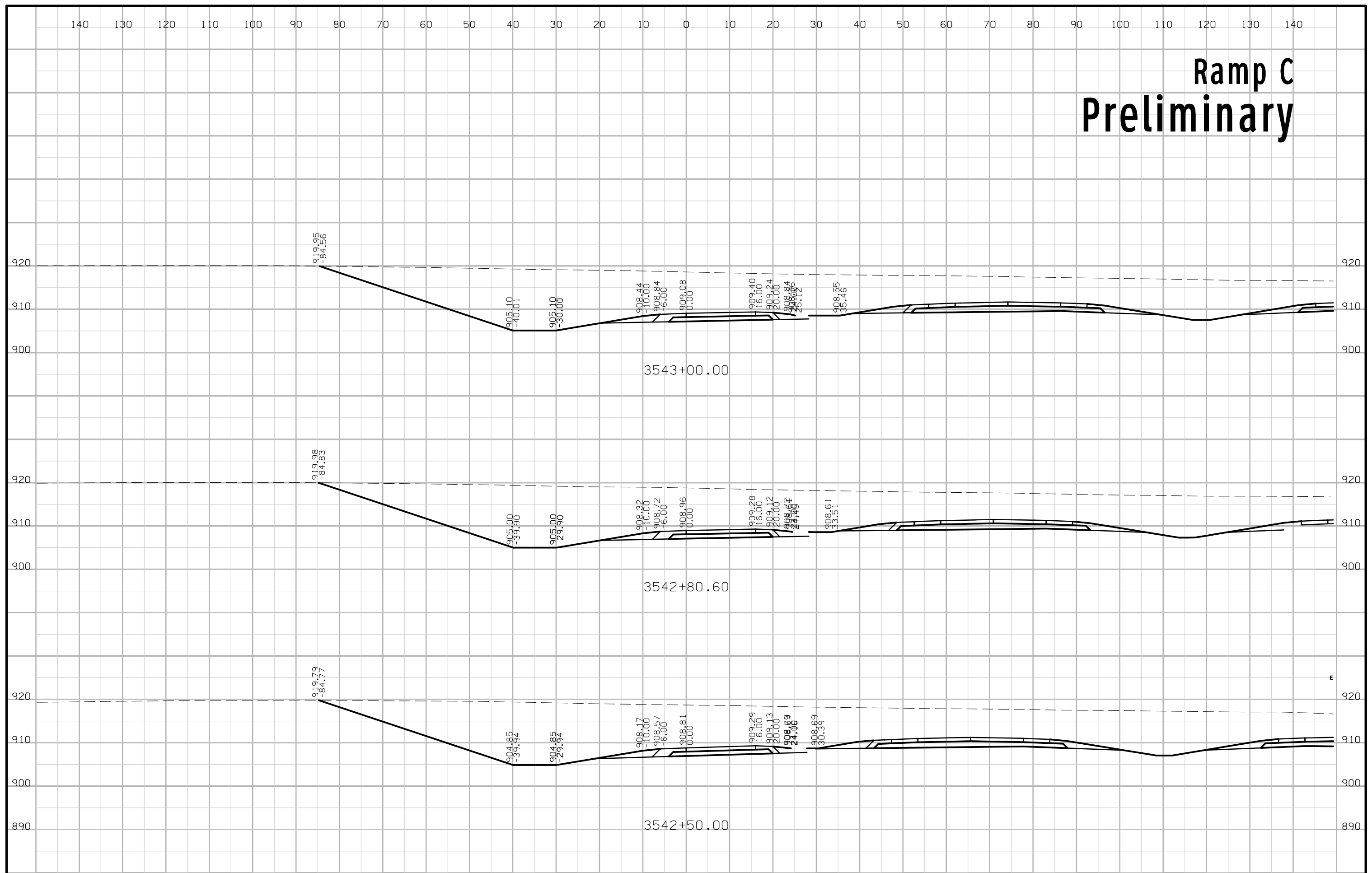
# Ramp C Preliminary



# Ramp C Preliminary

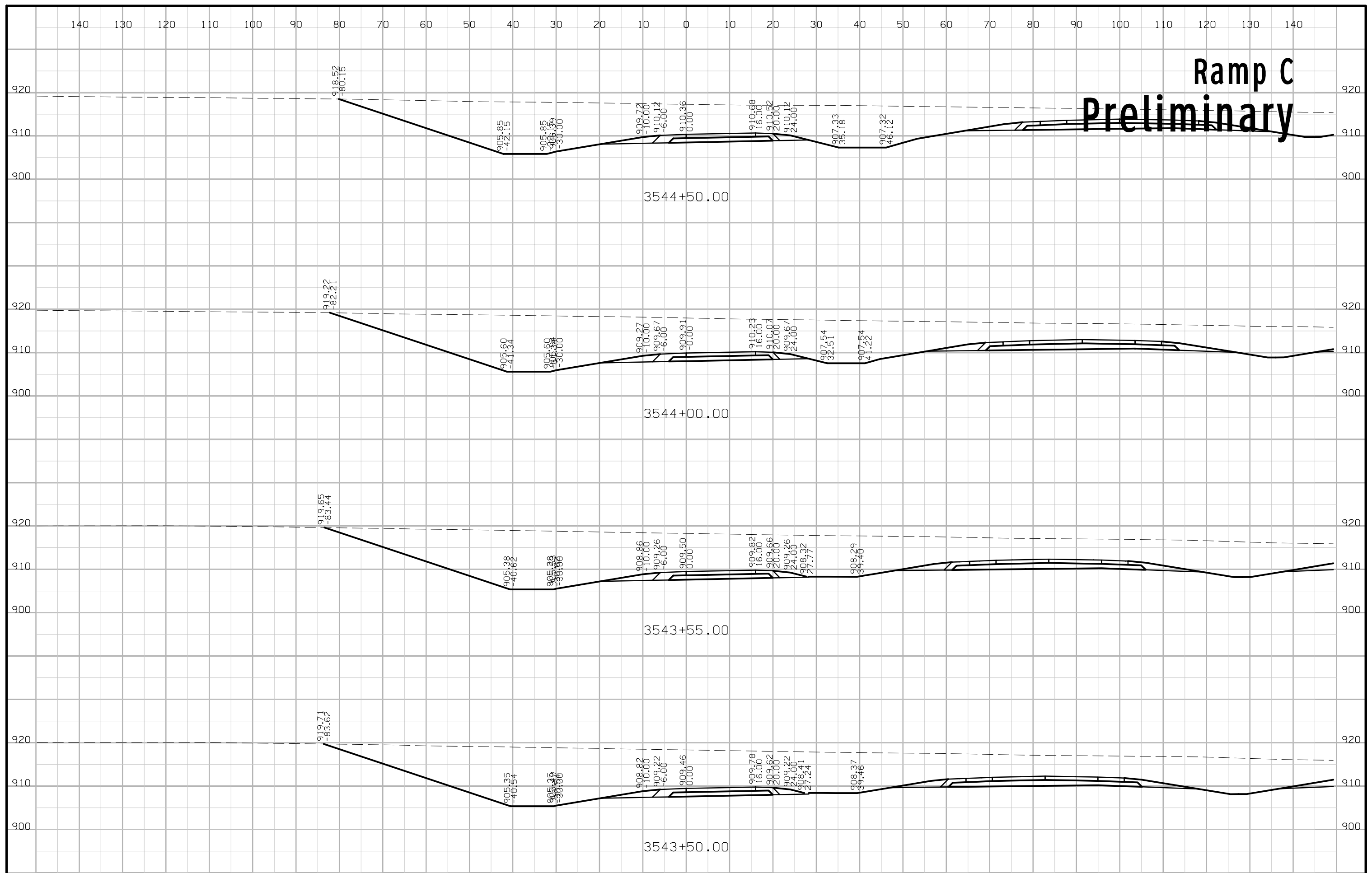


# Ramp C Preliminary

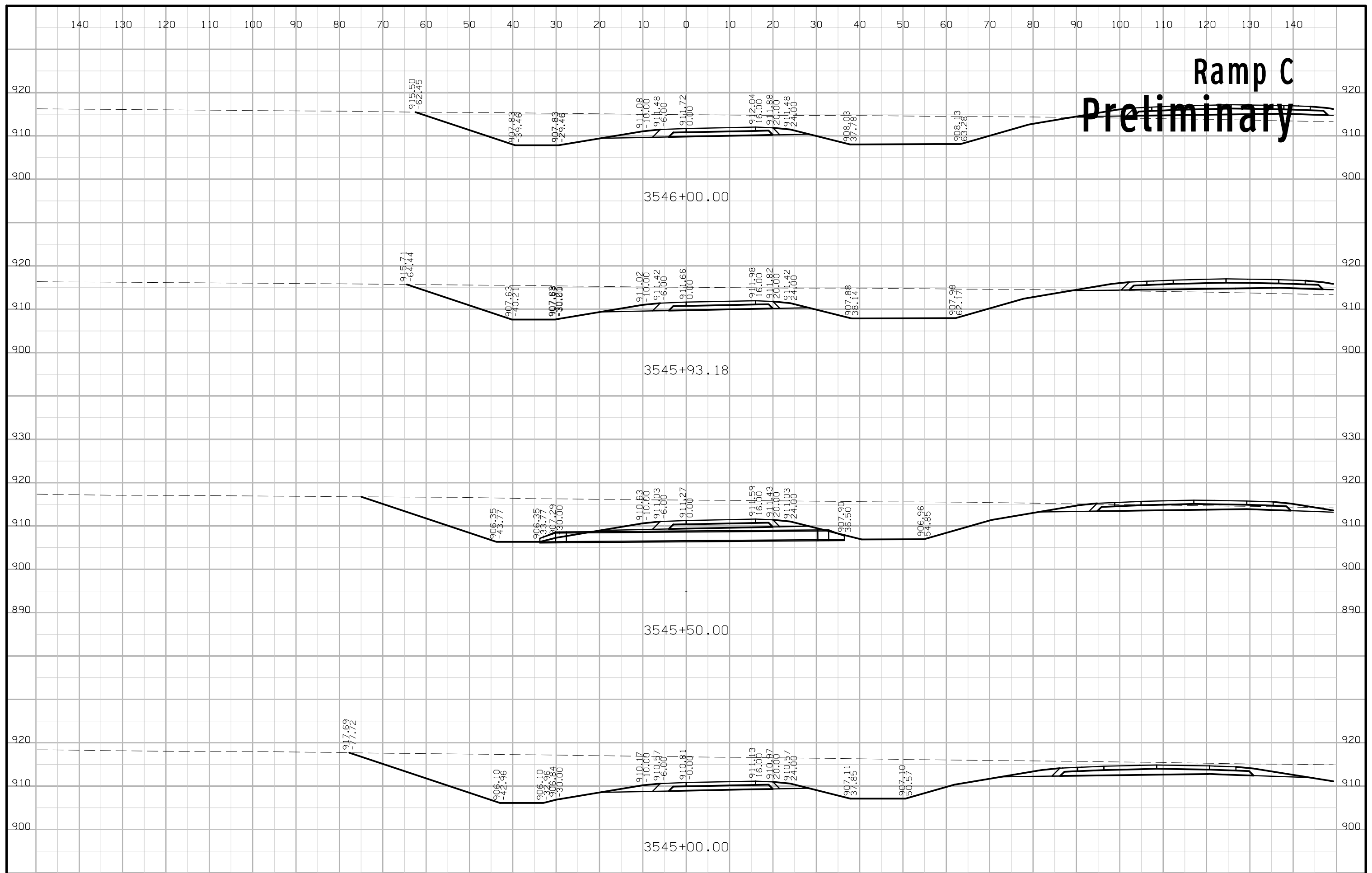




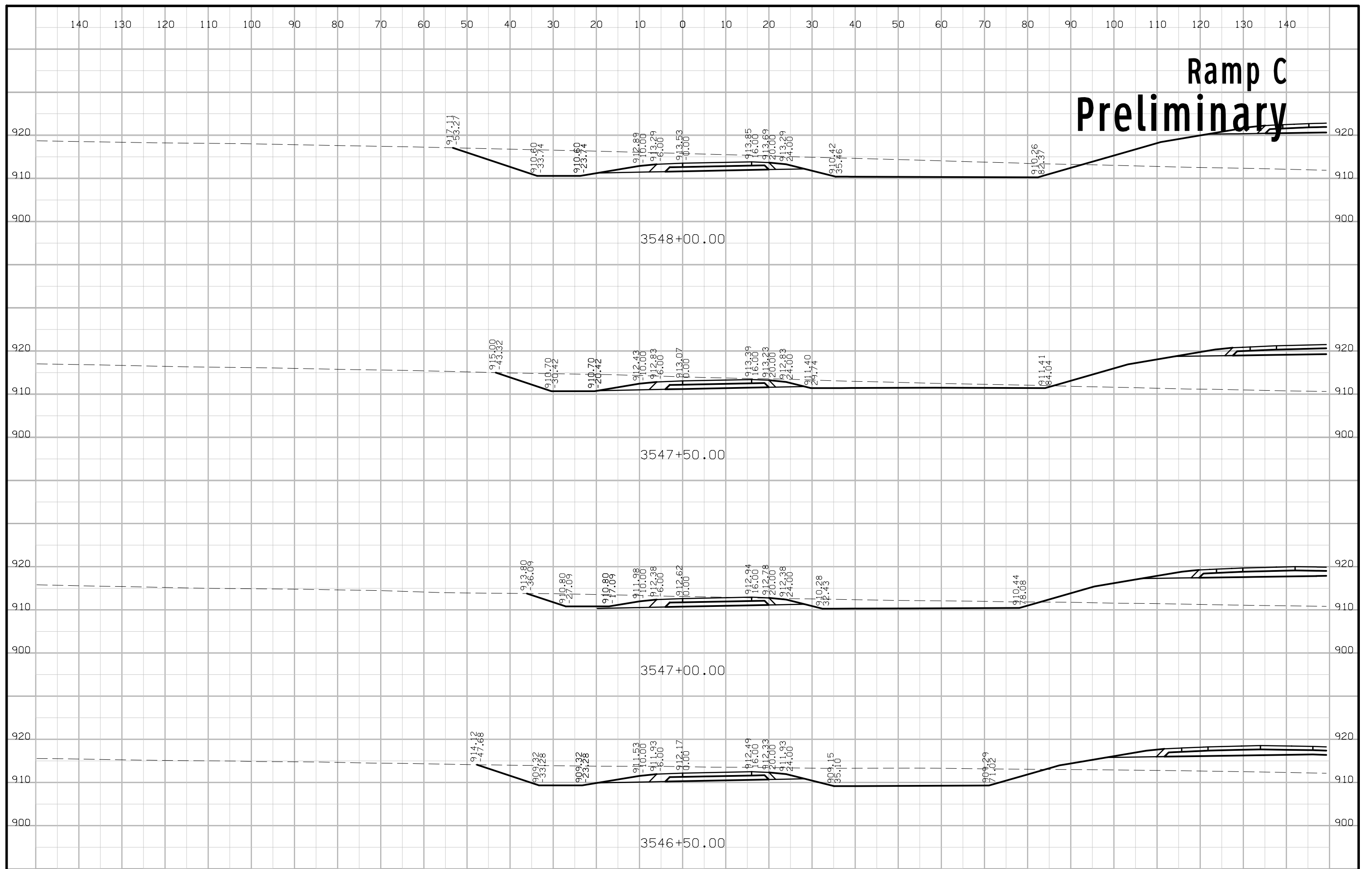
# Ramp C Preliminary



# Ramp C Preliminary

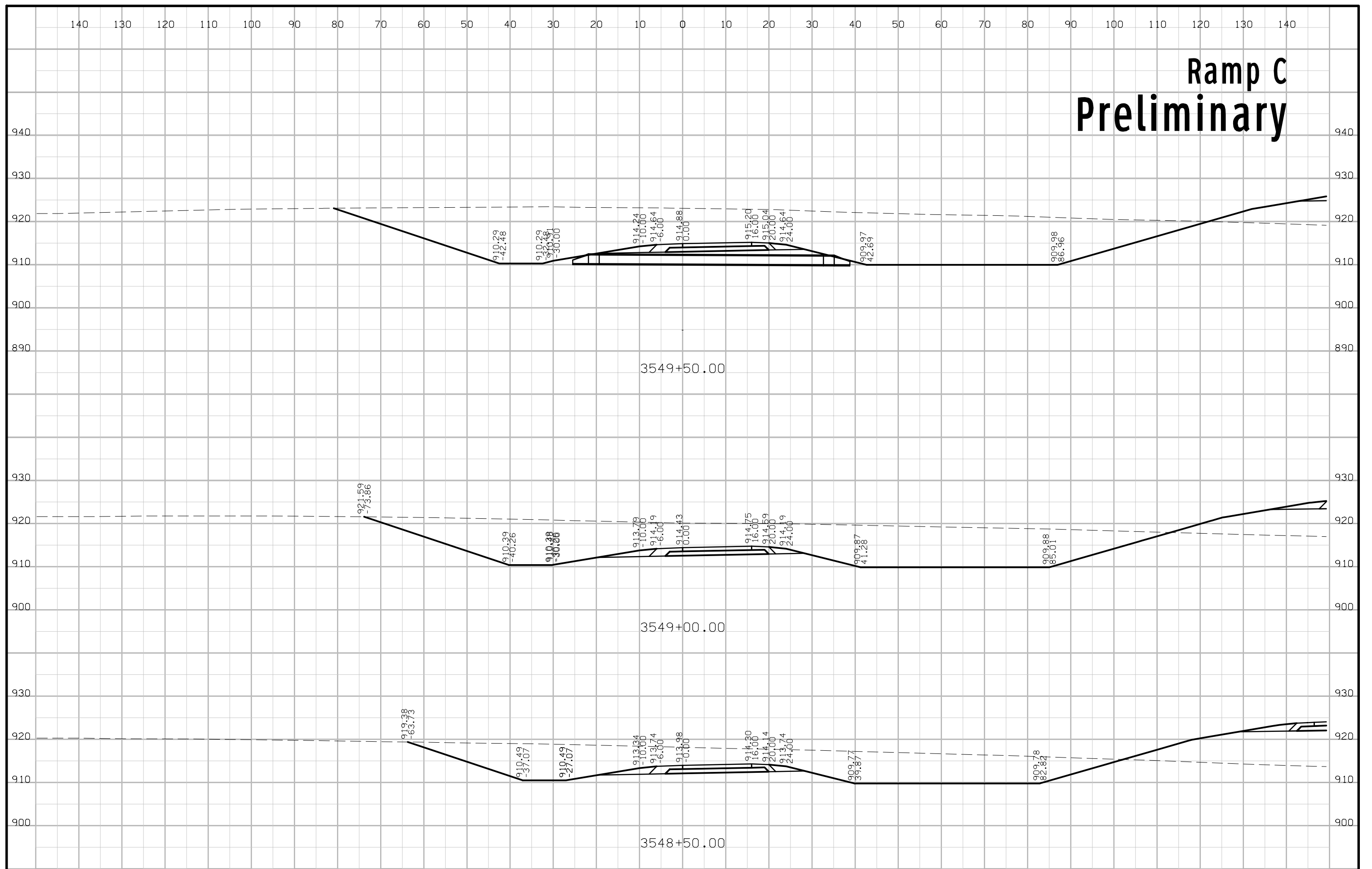


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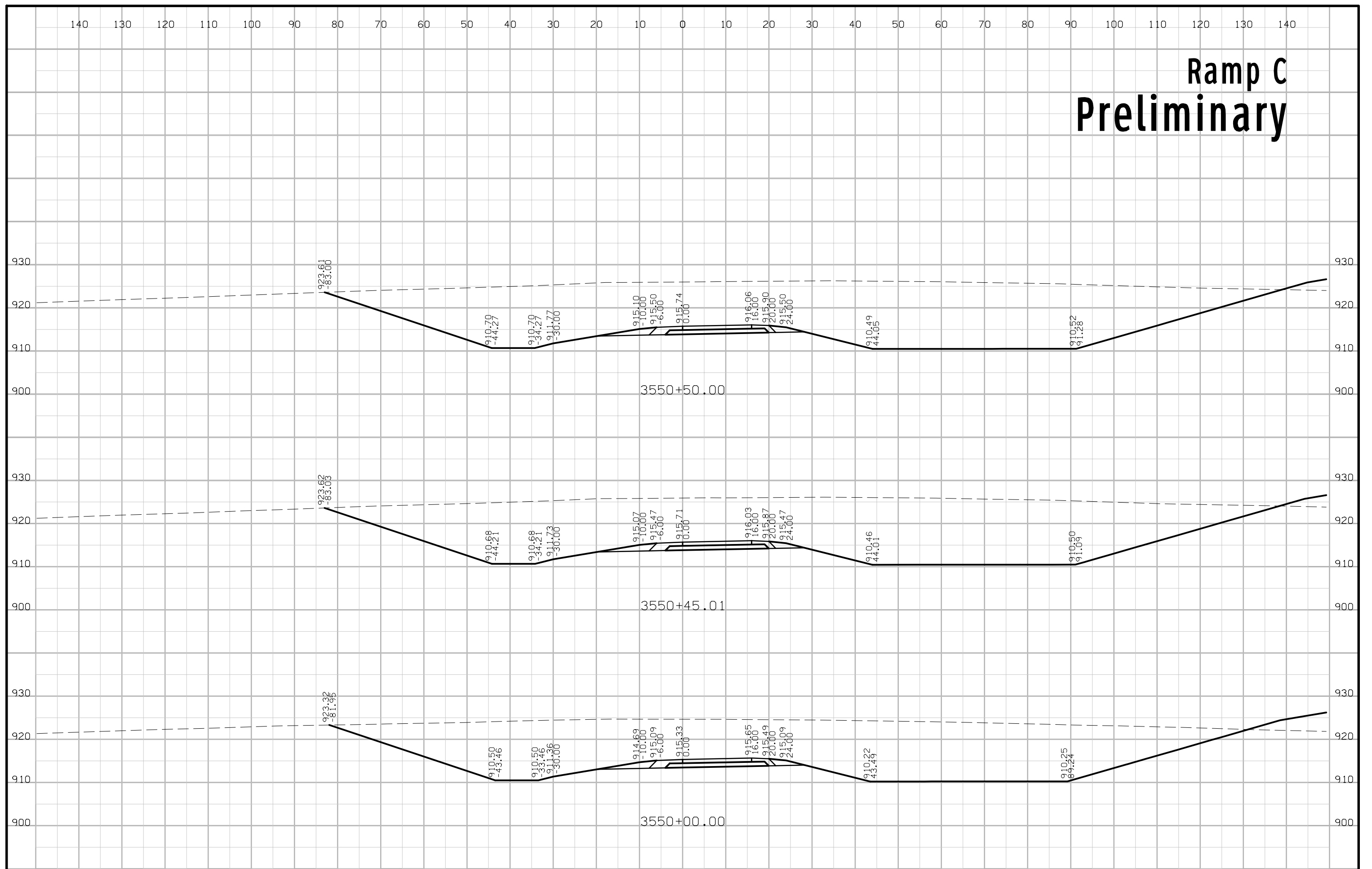




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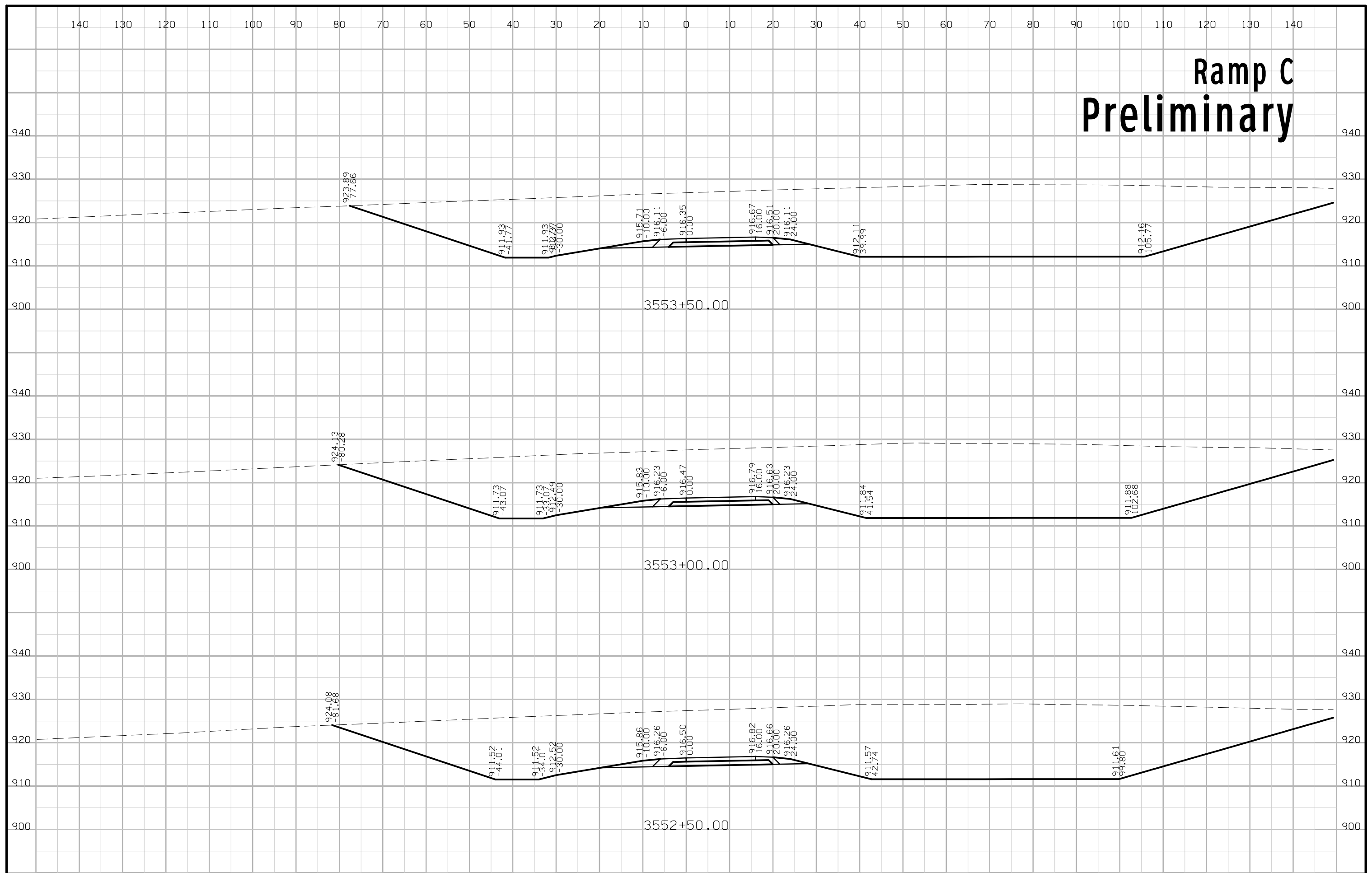
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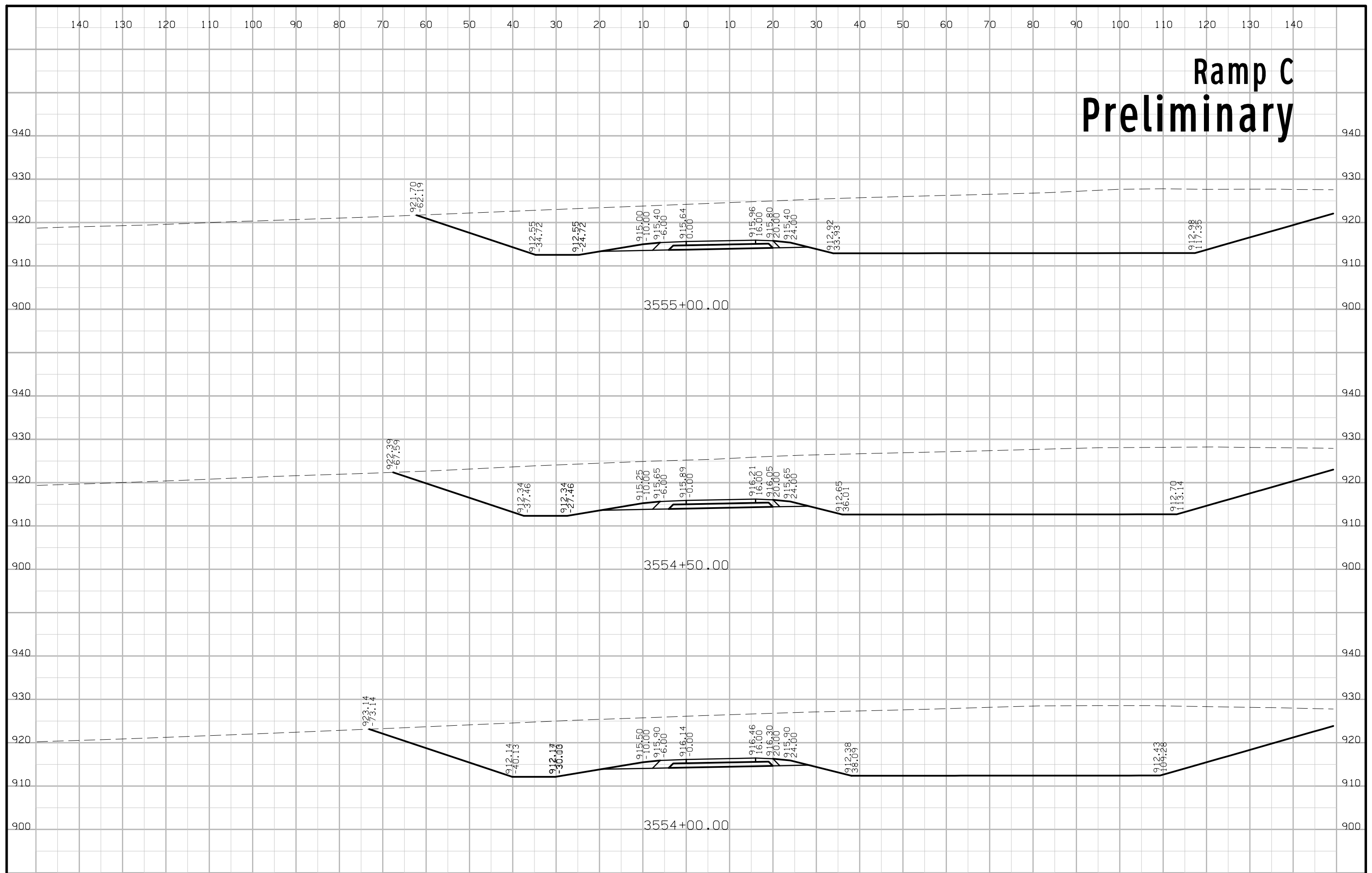




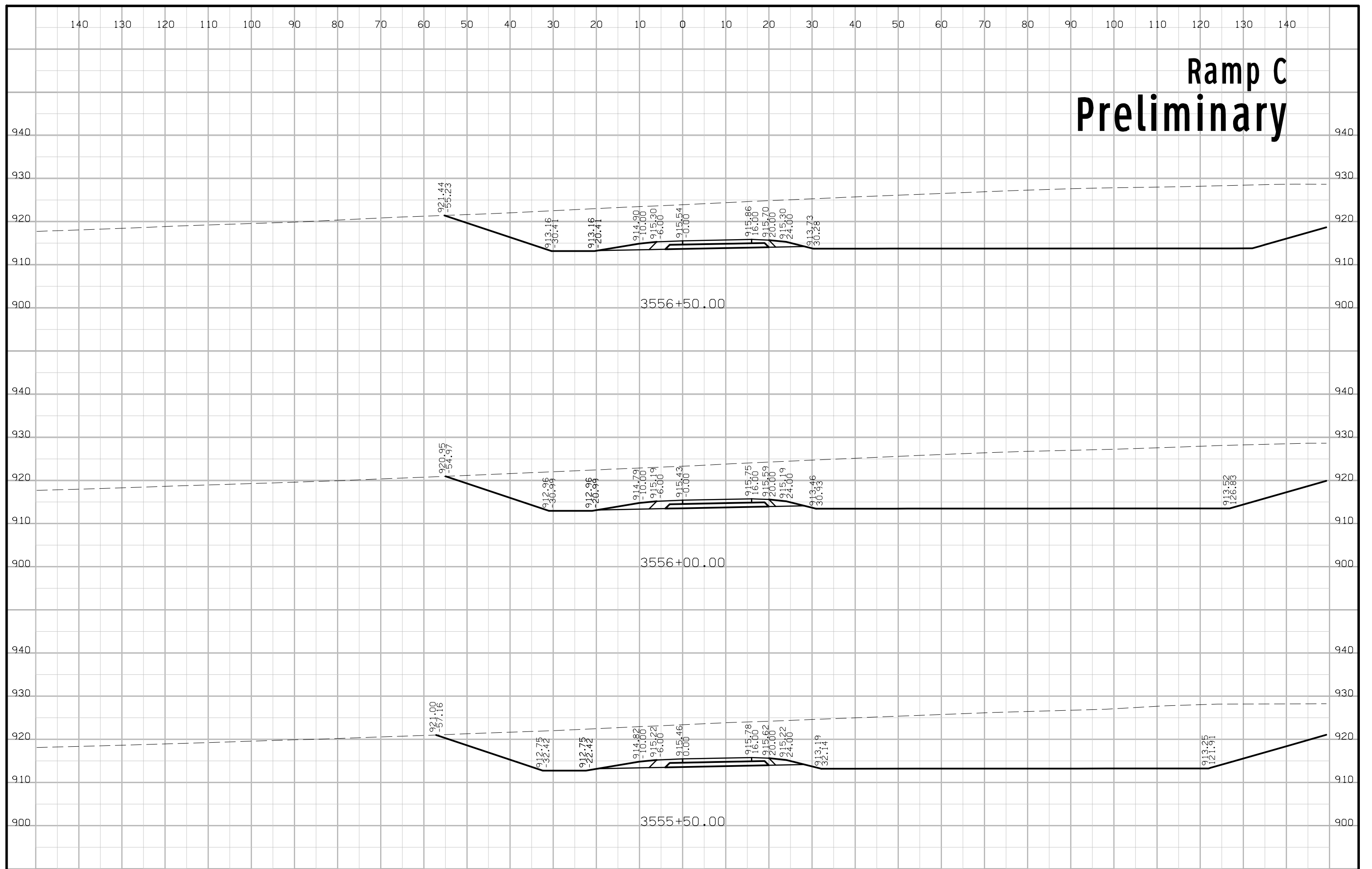
# Ramp C Preliminary



# Ramp C Preliminary

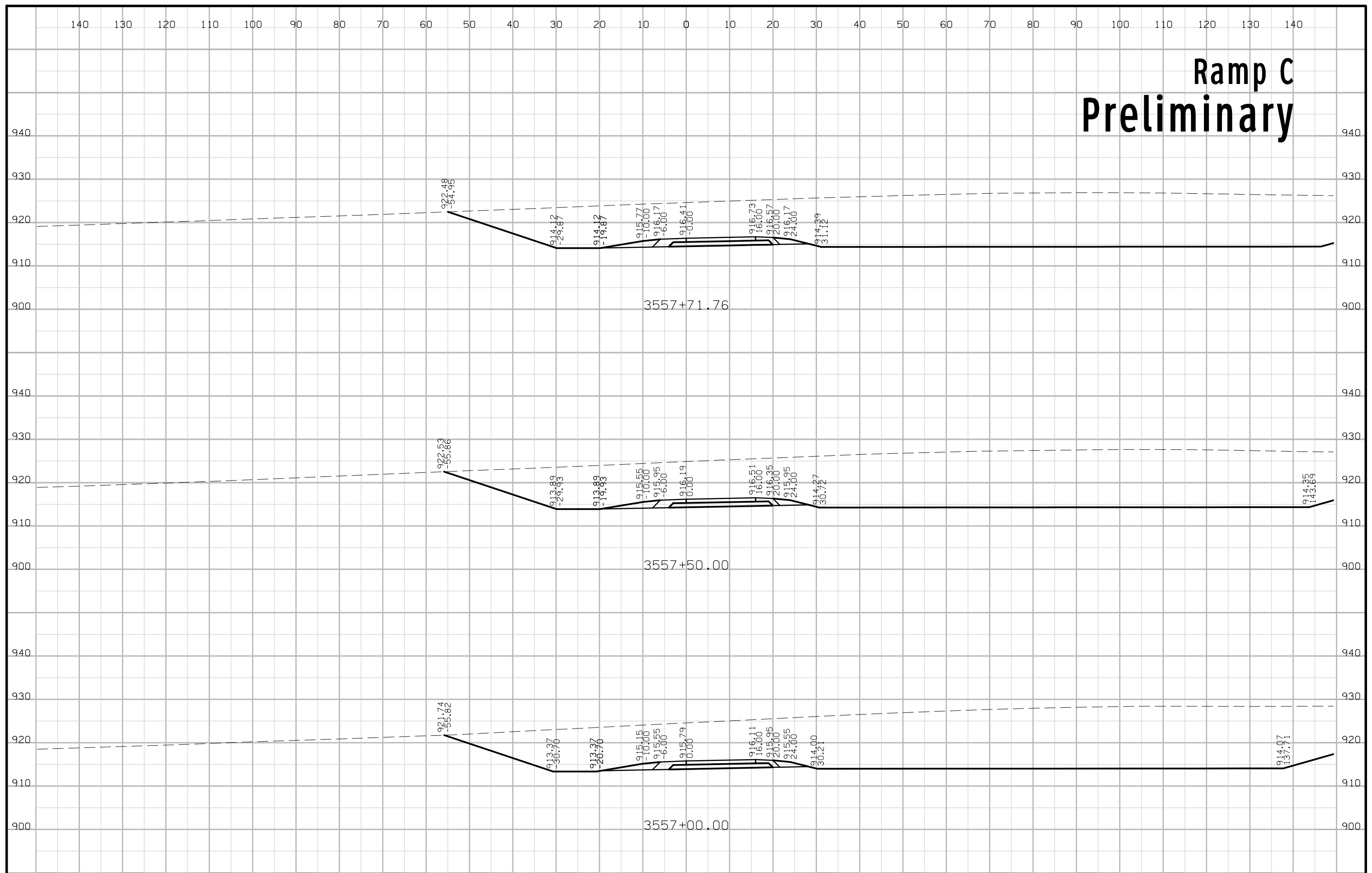


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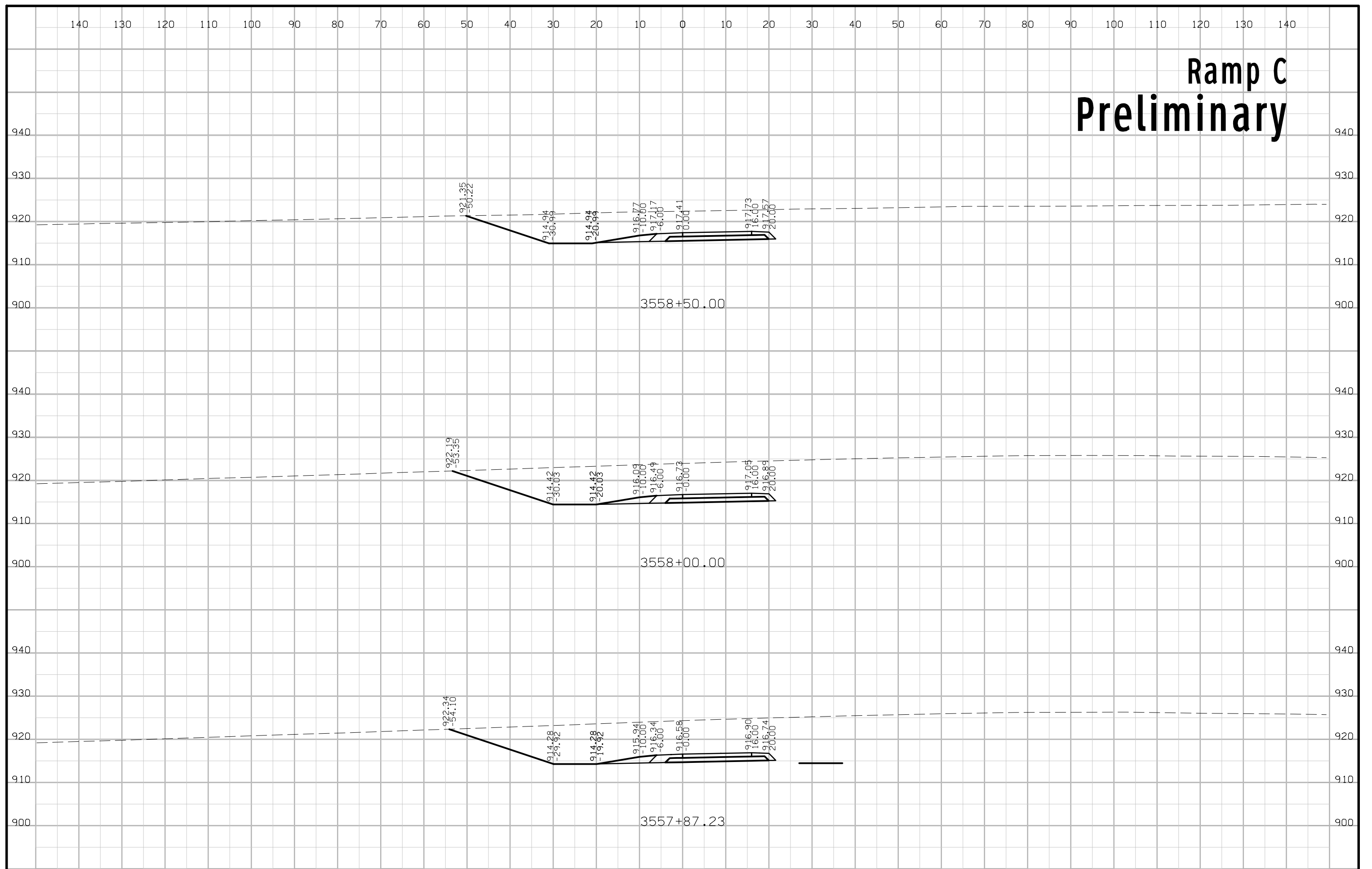




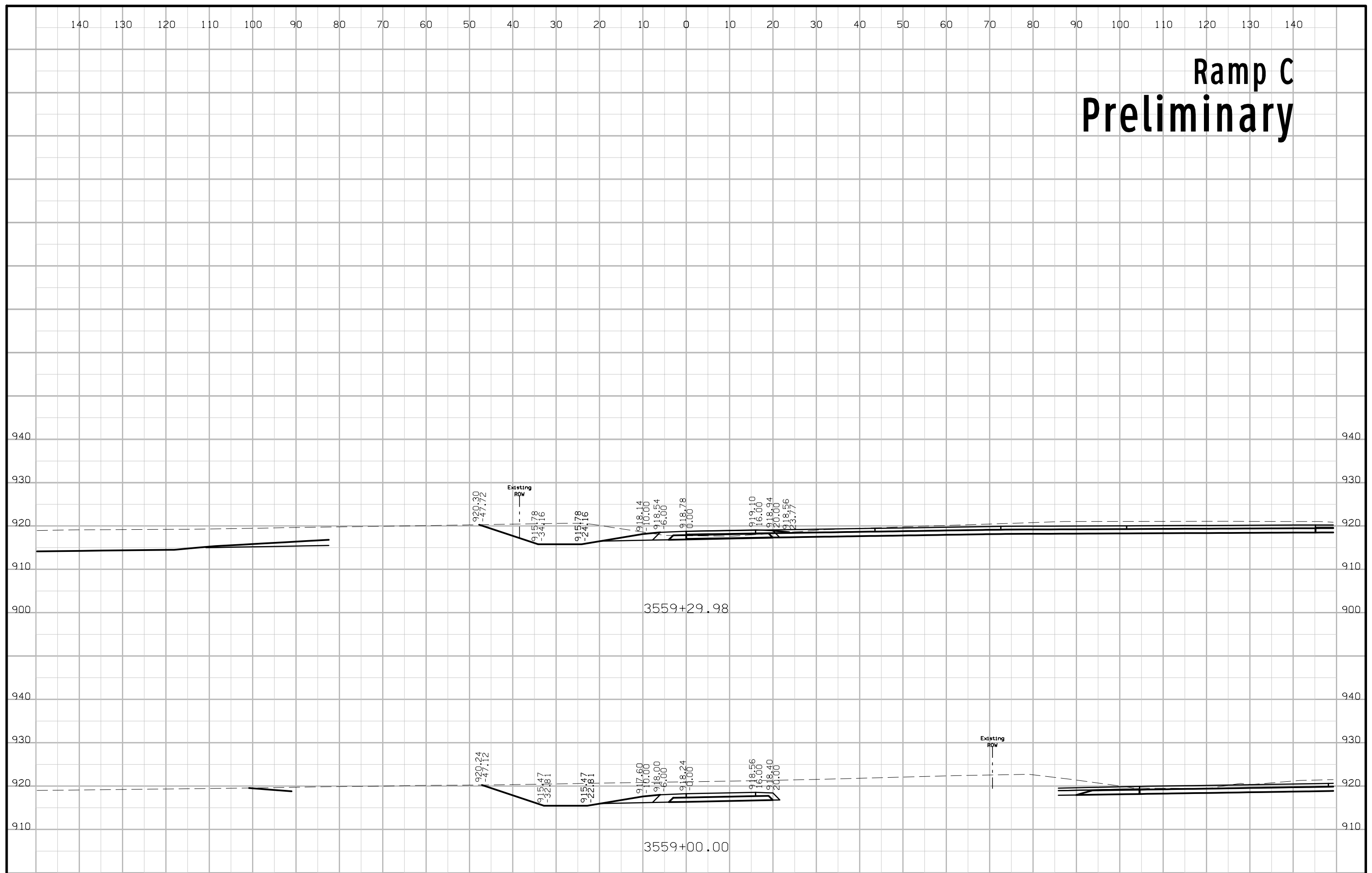
# Ramp C Preliminary



# Ramp C Preliminary

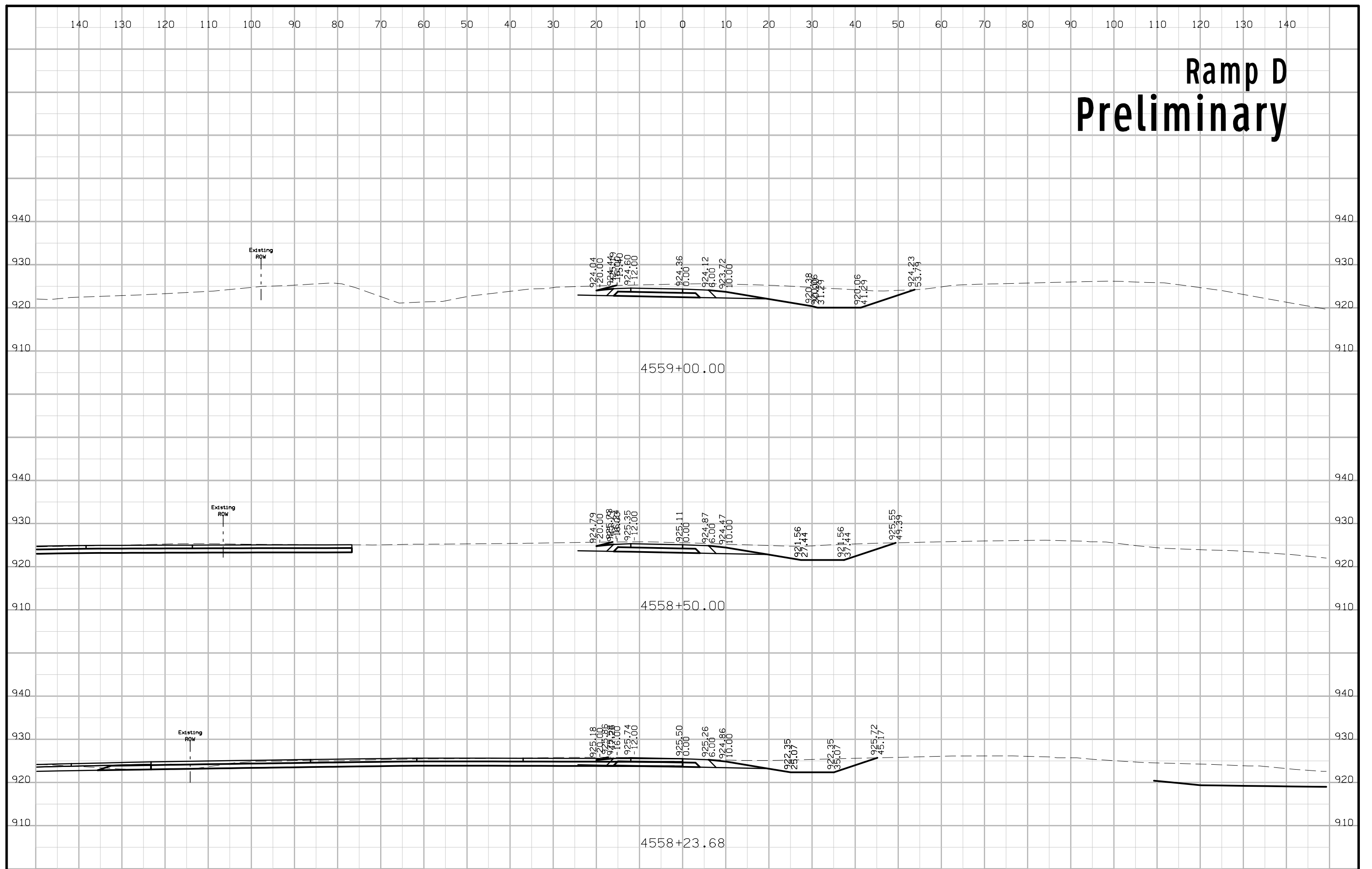


# Ramp C Preliminary

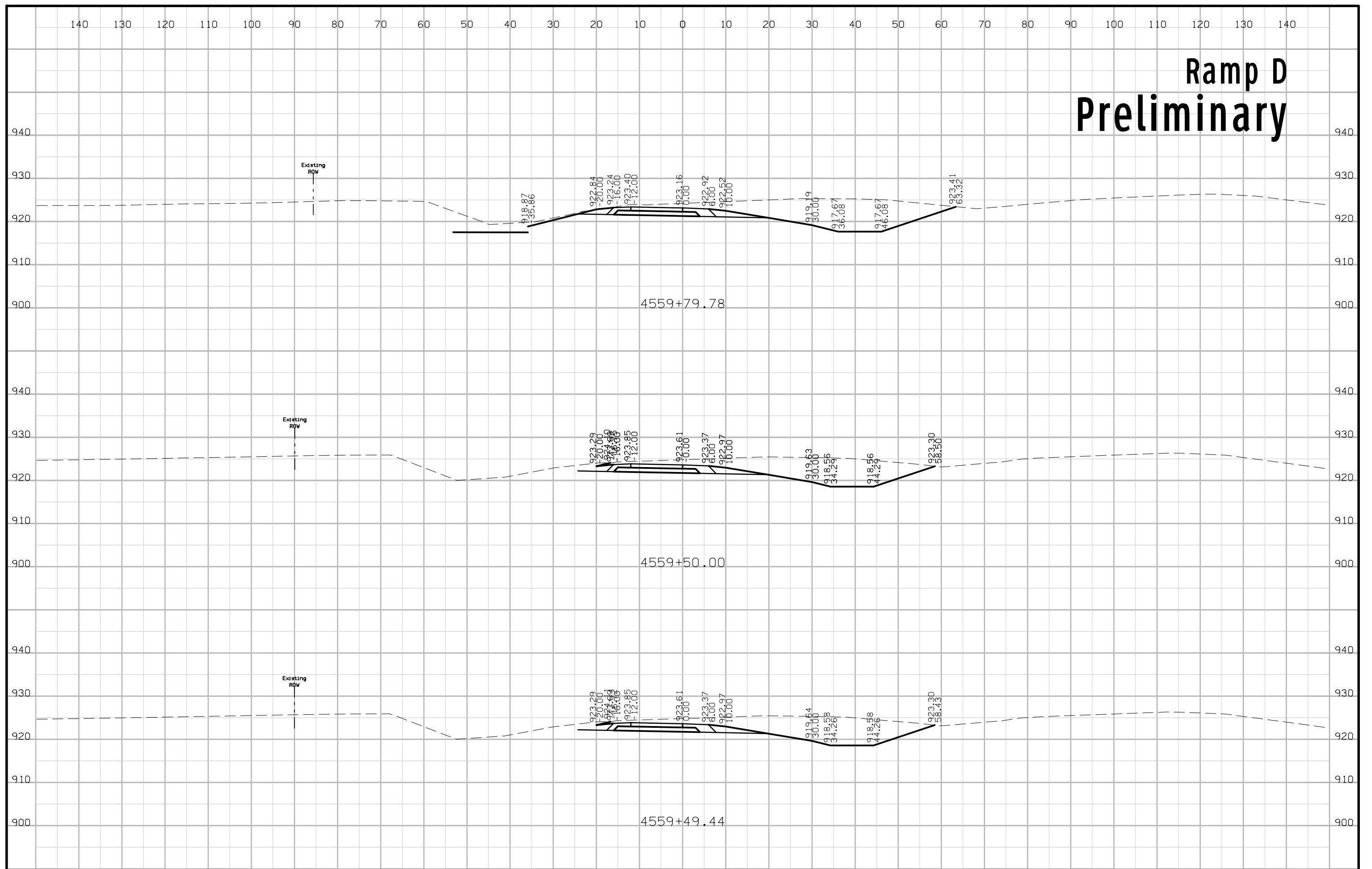




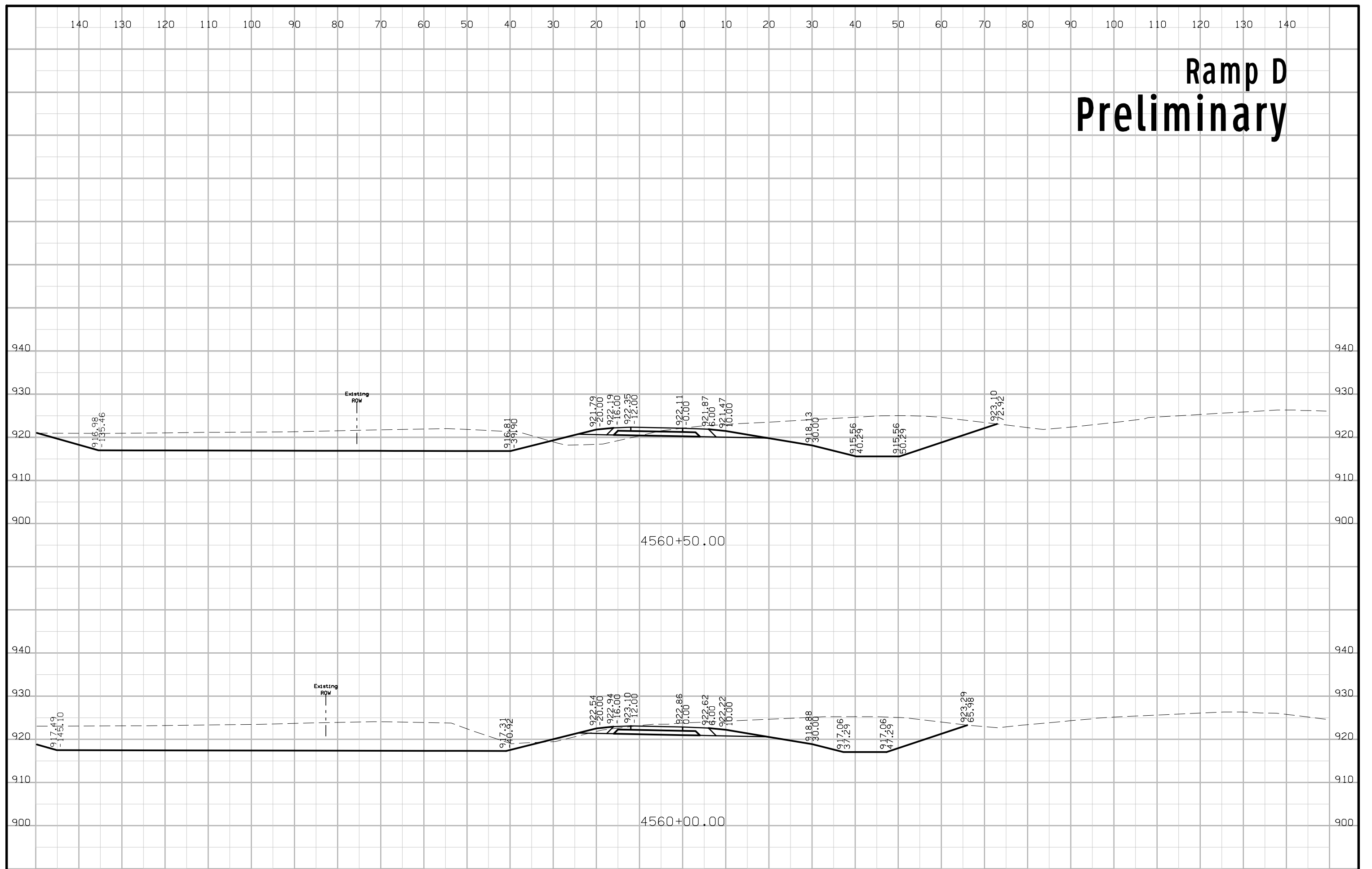
# Ramp D Preliminary



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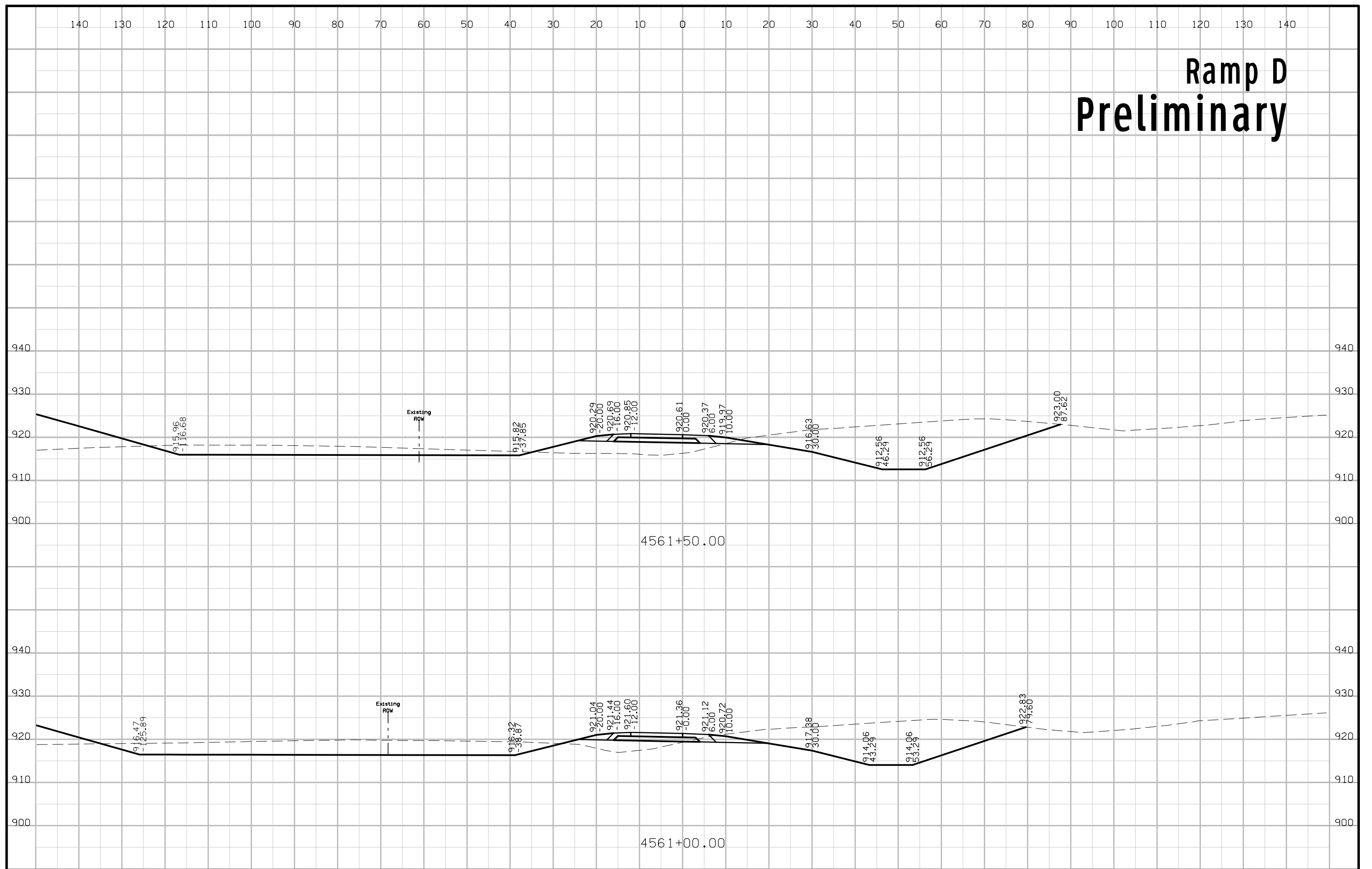


# Ramp D Preliminary

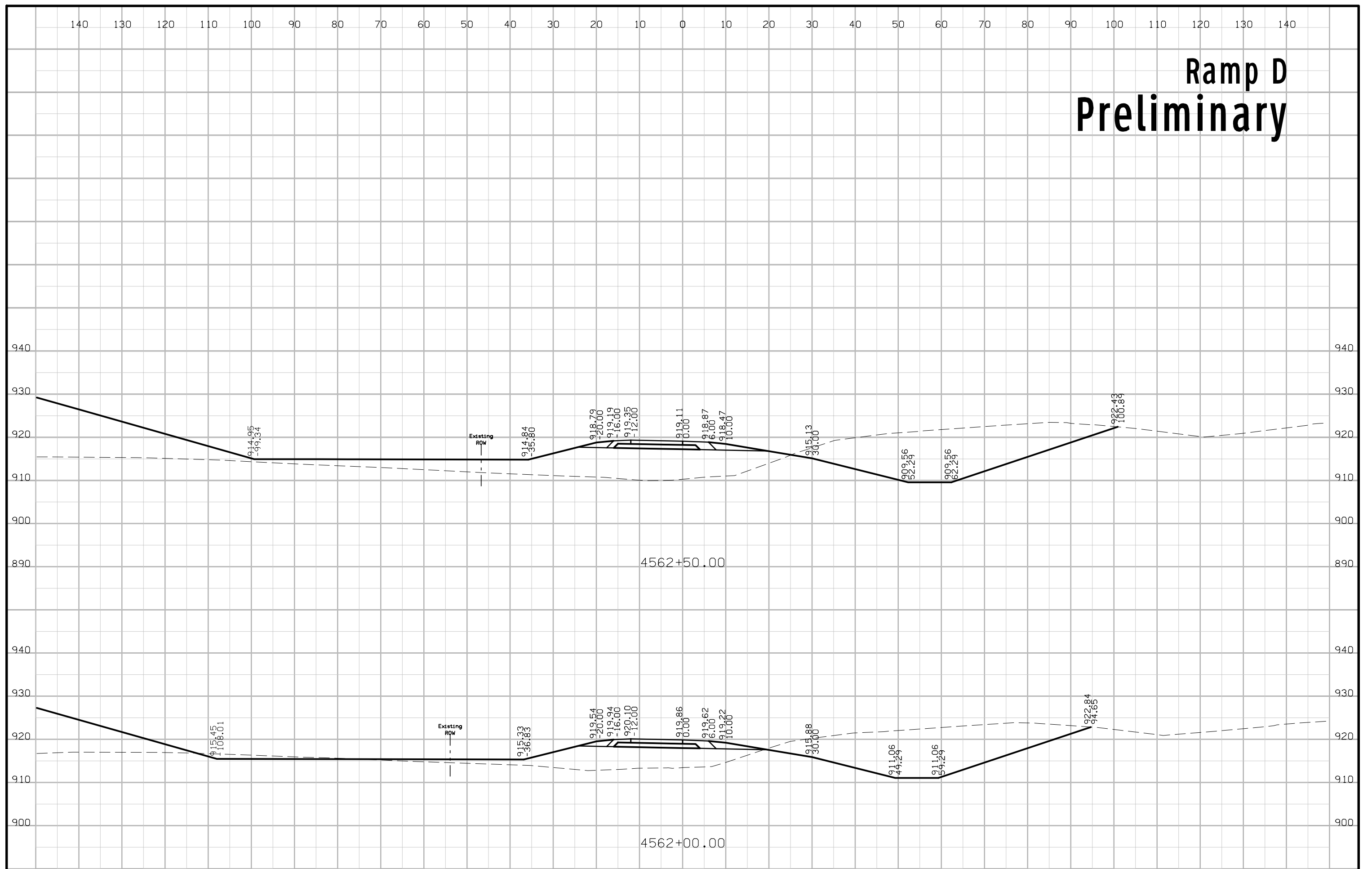




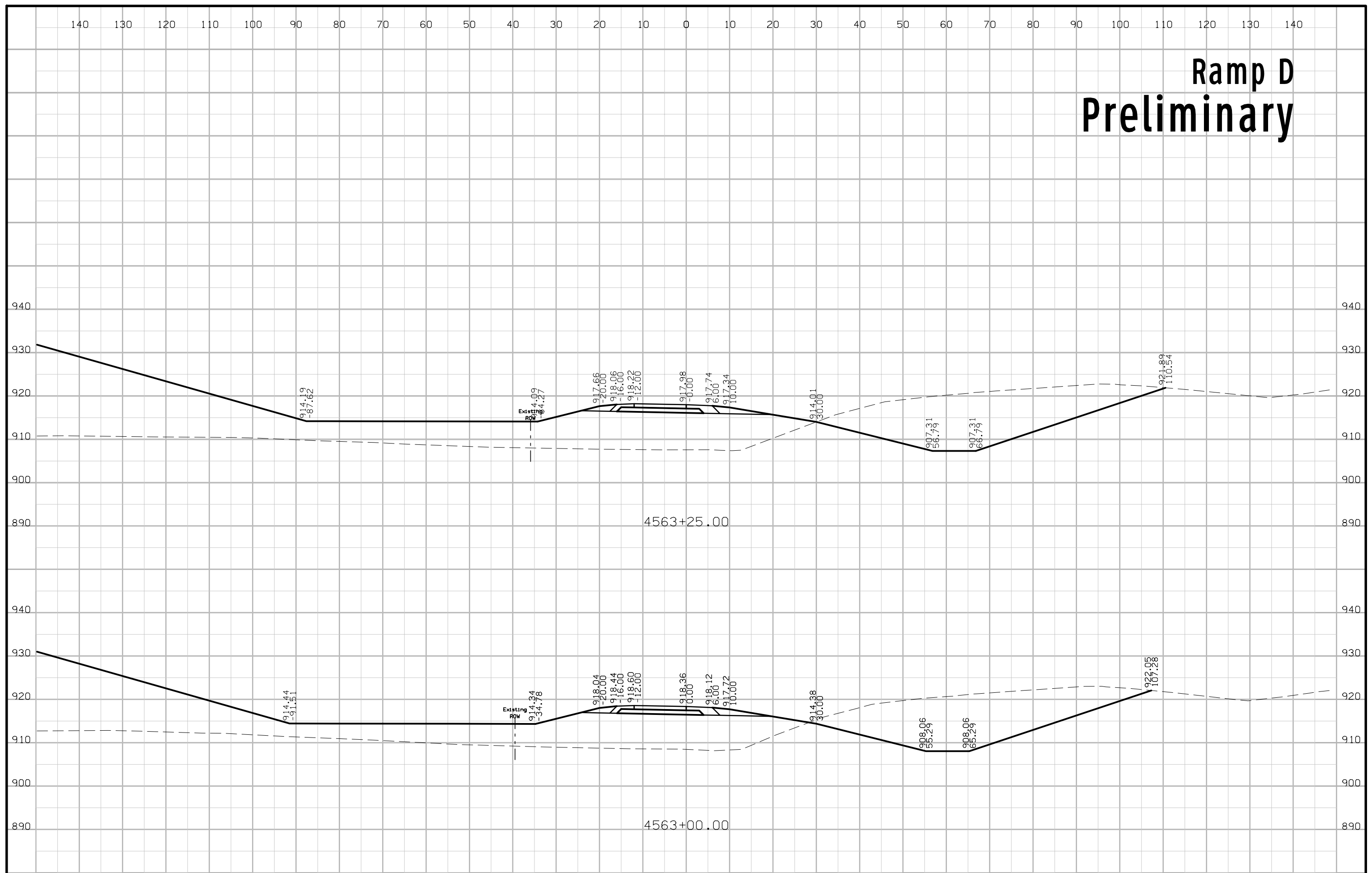
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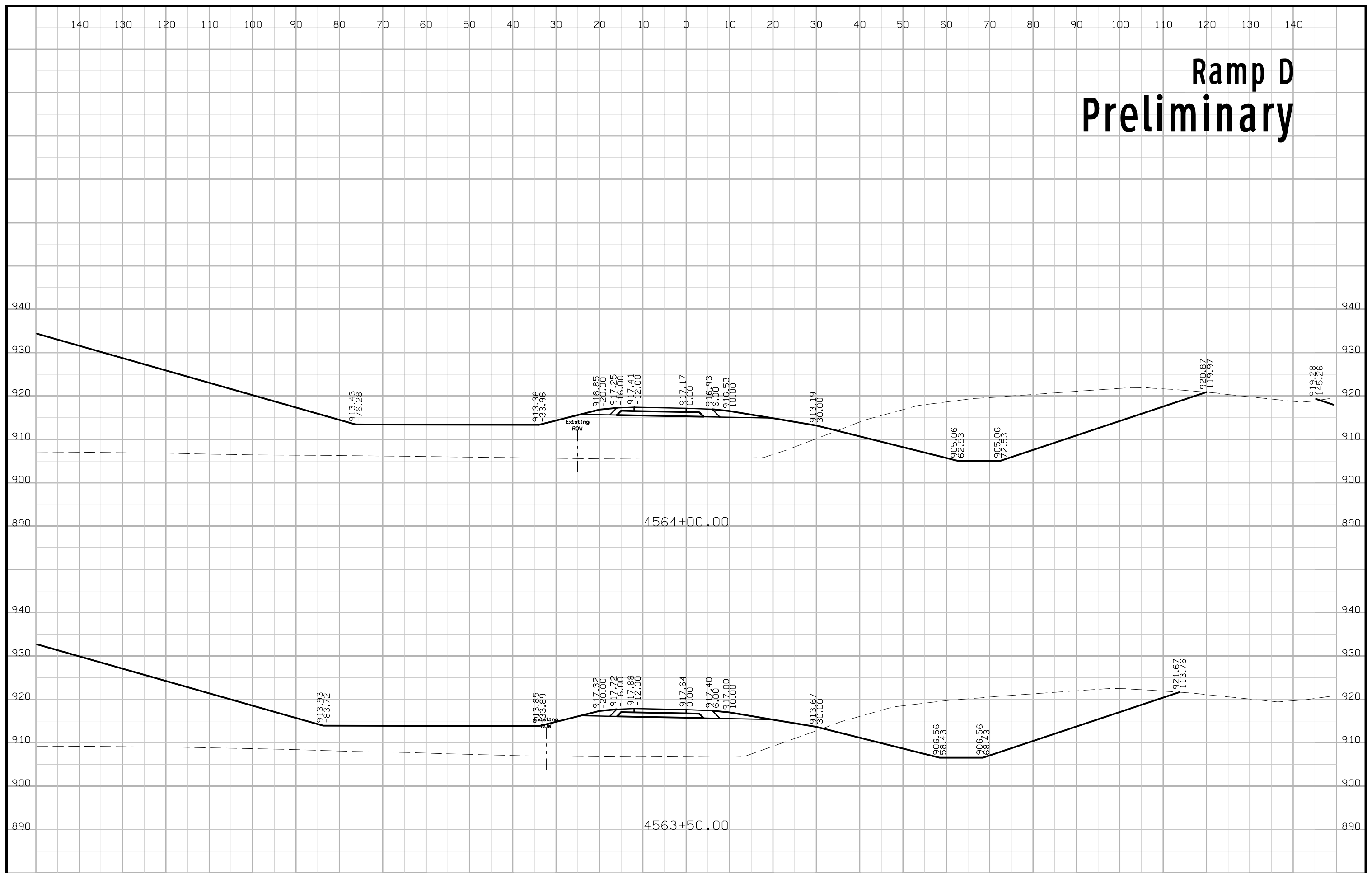


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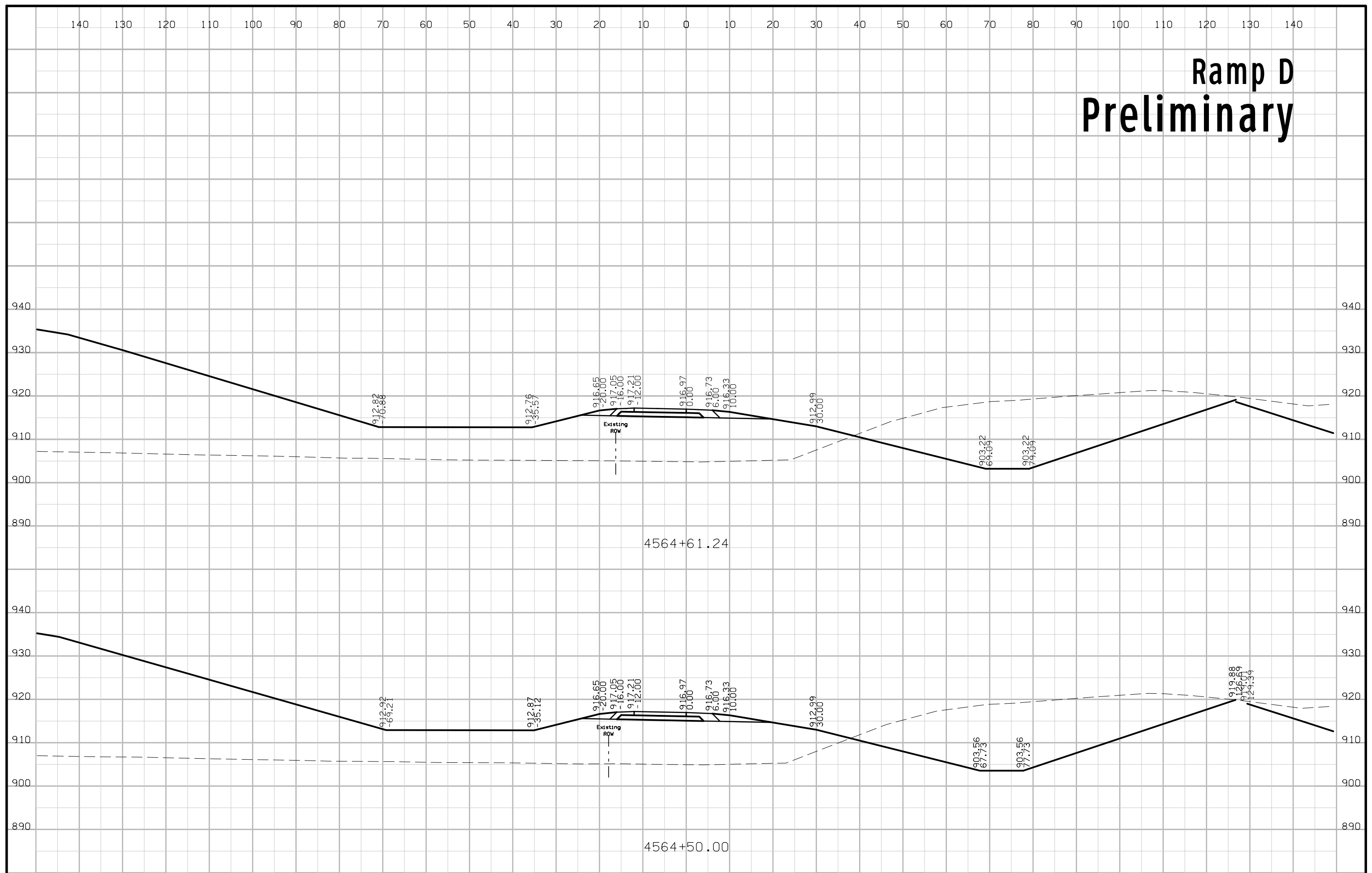




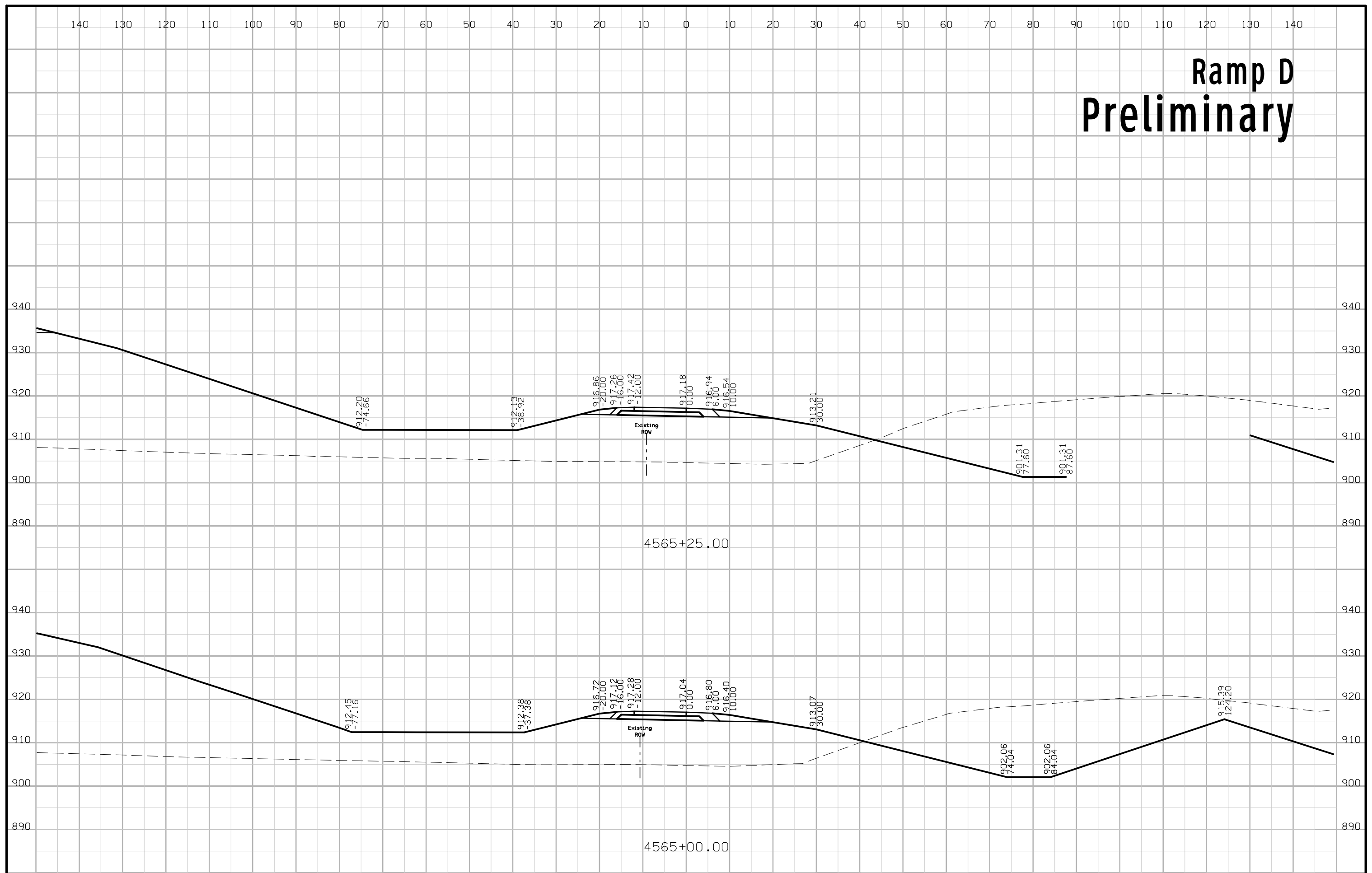
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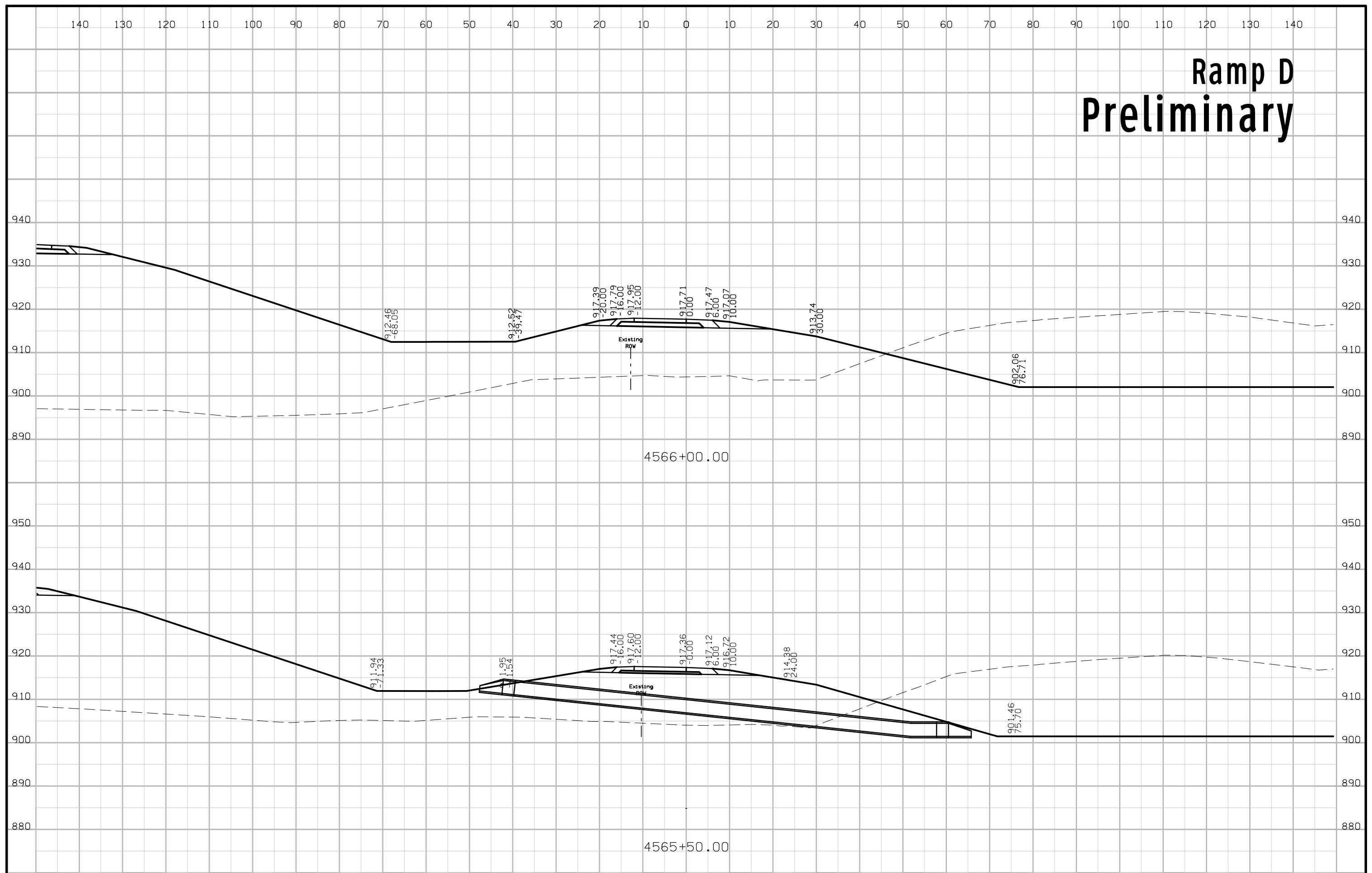


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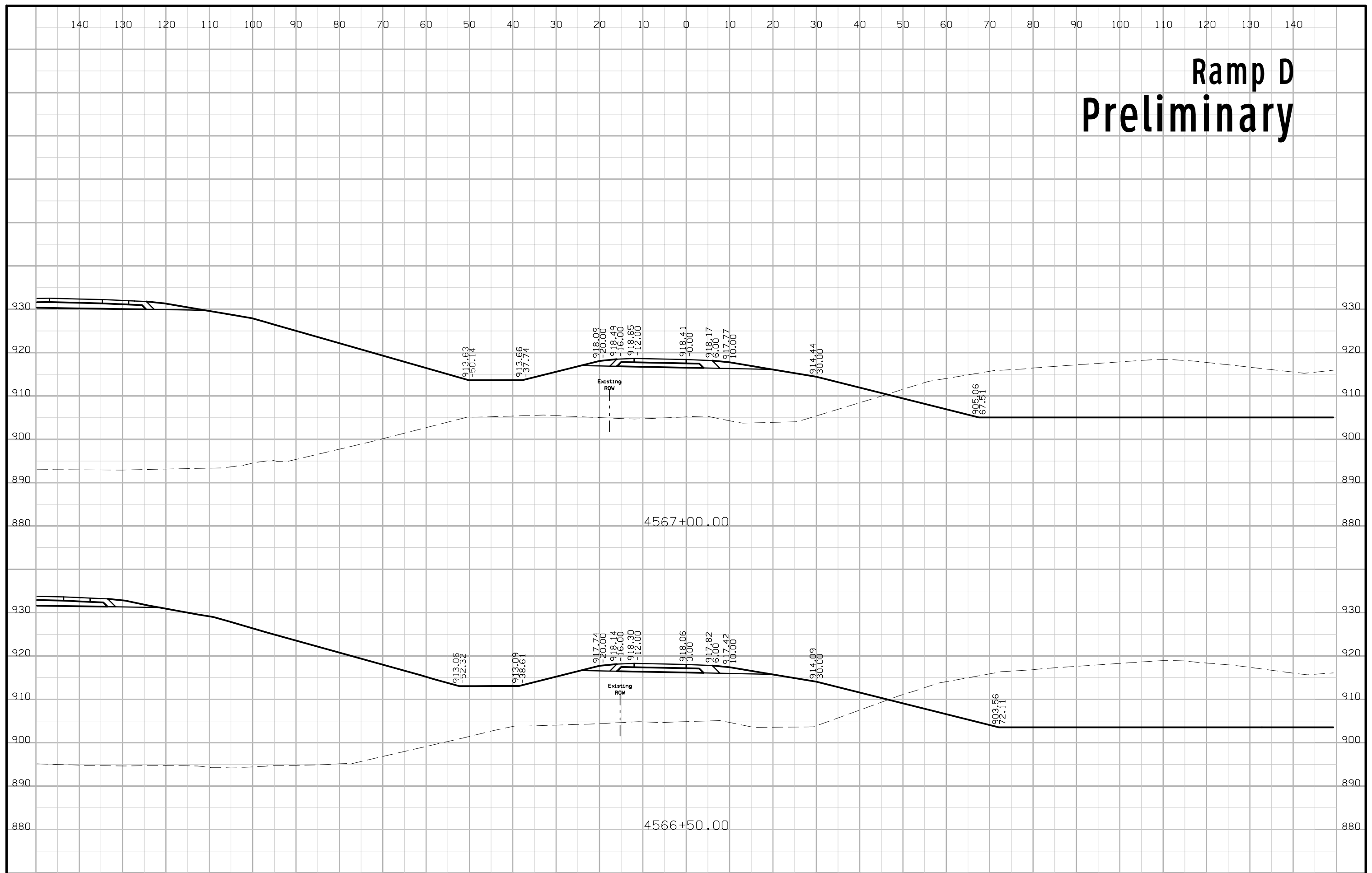




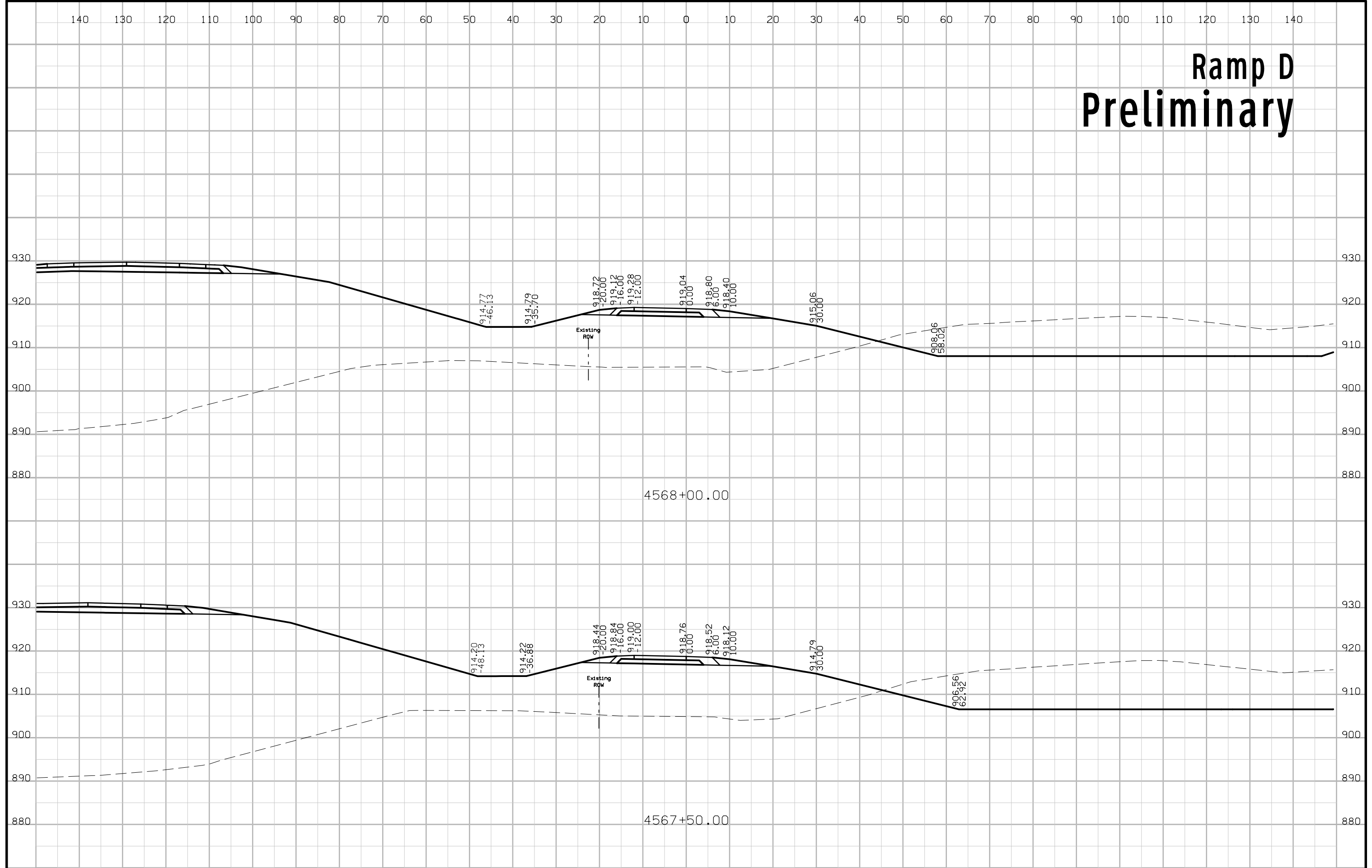
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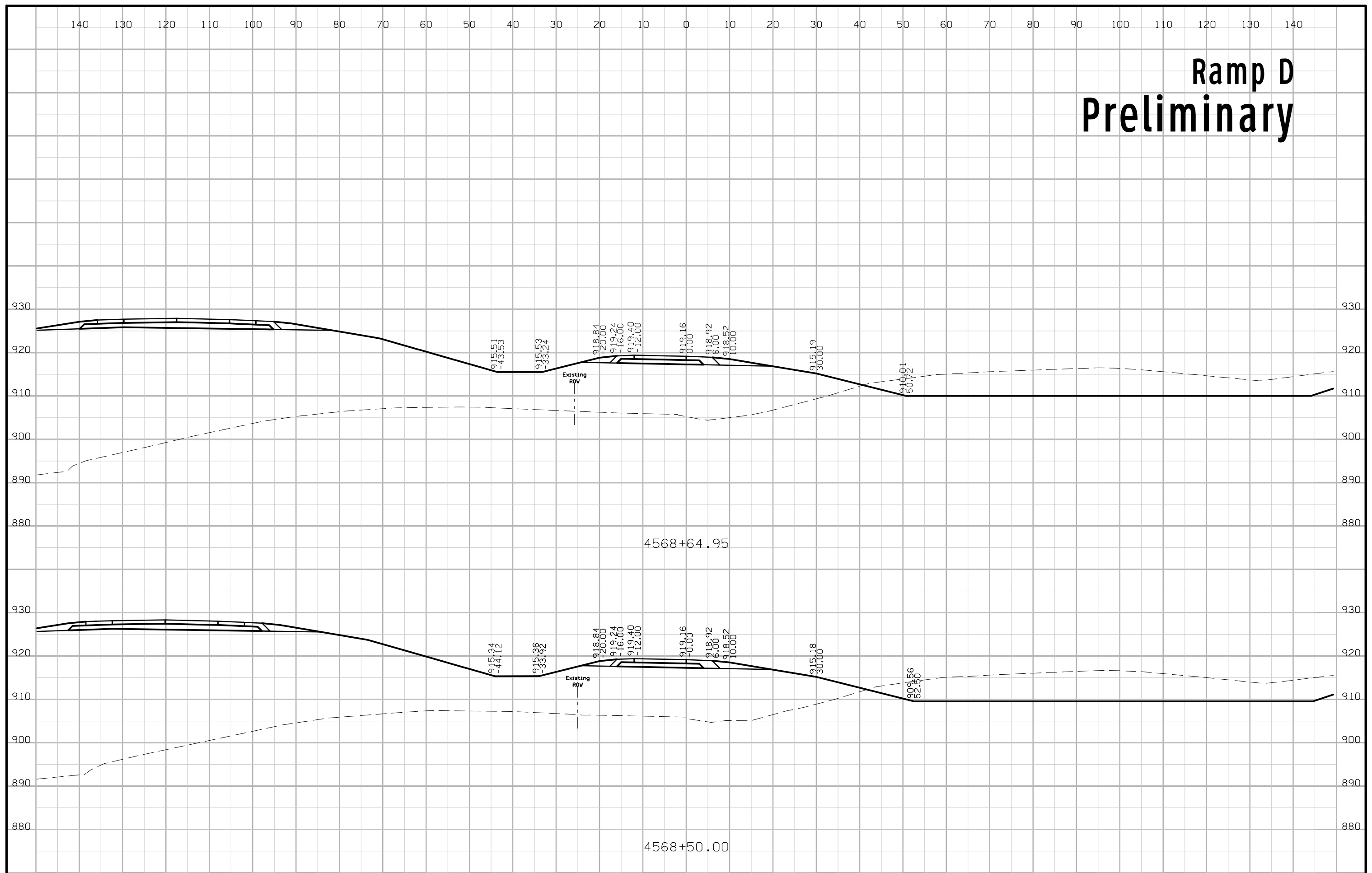


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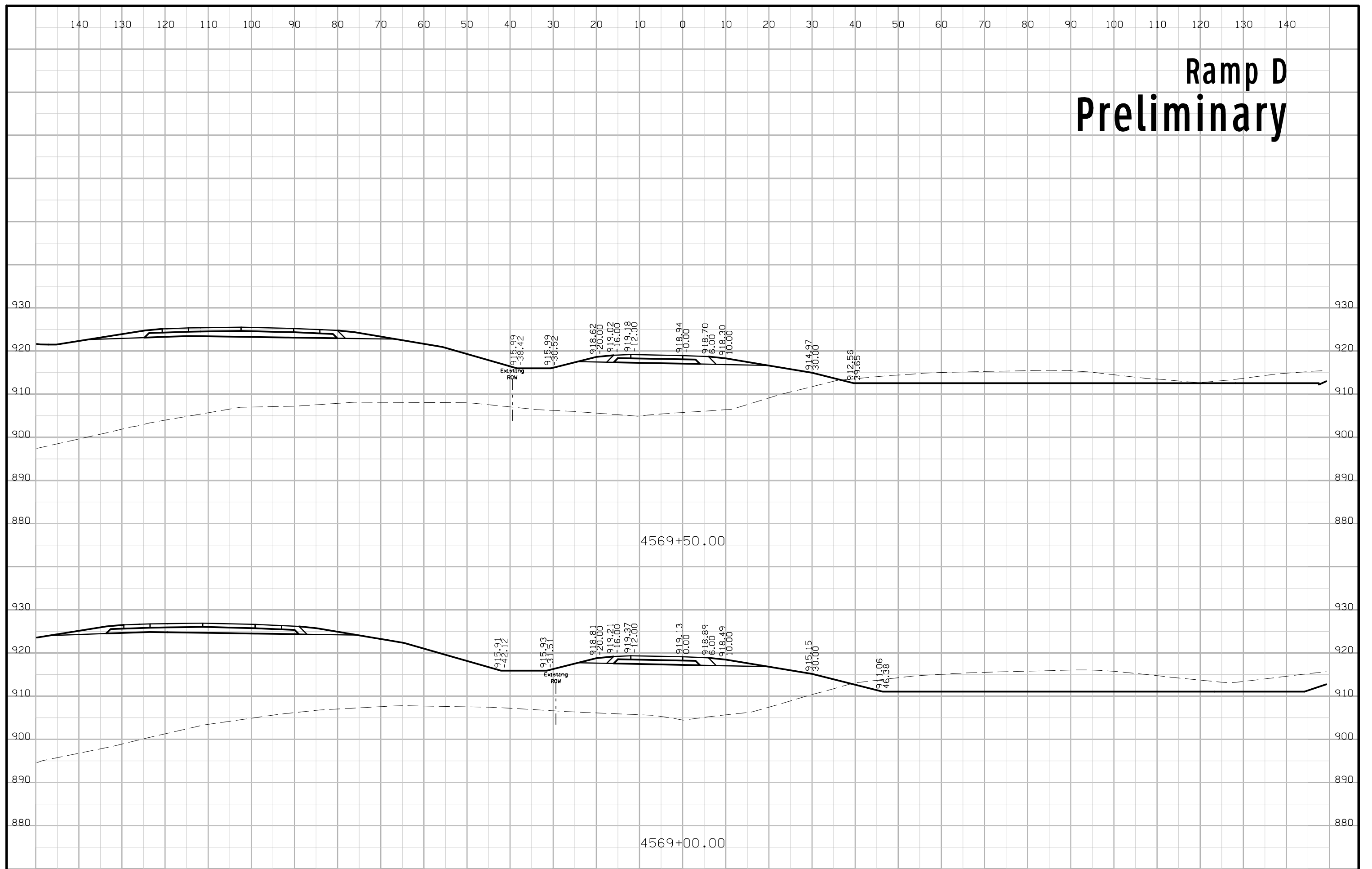




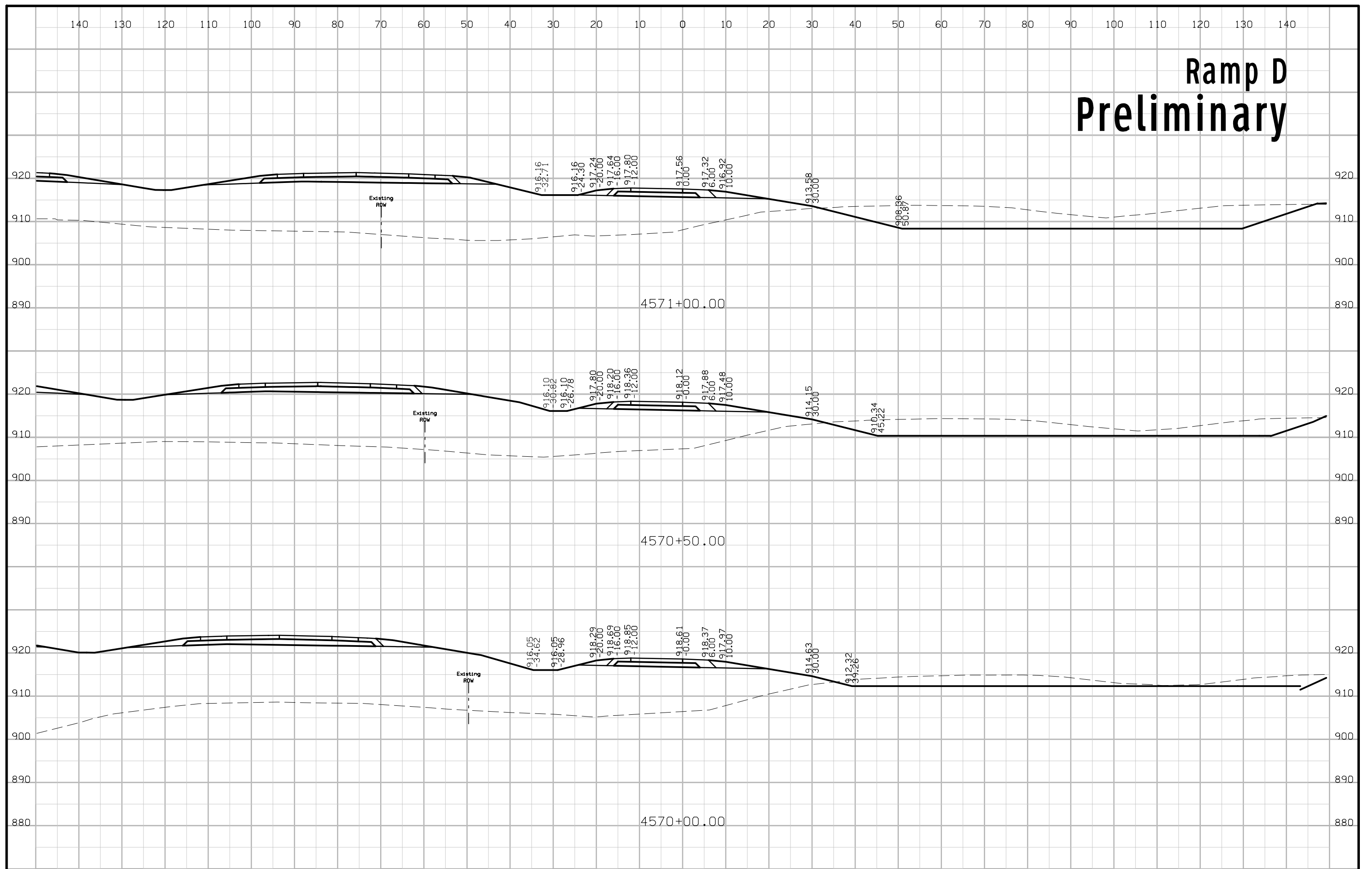
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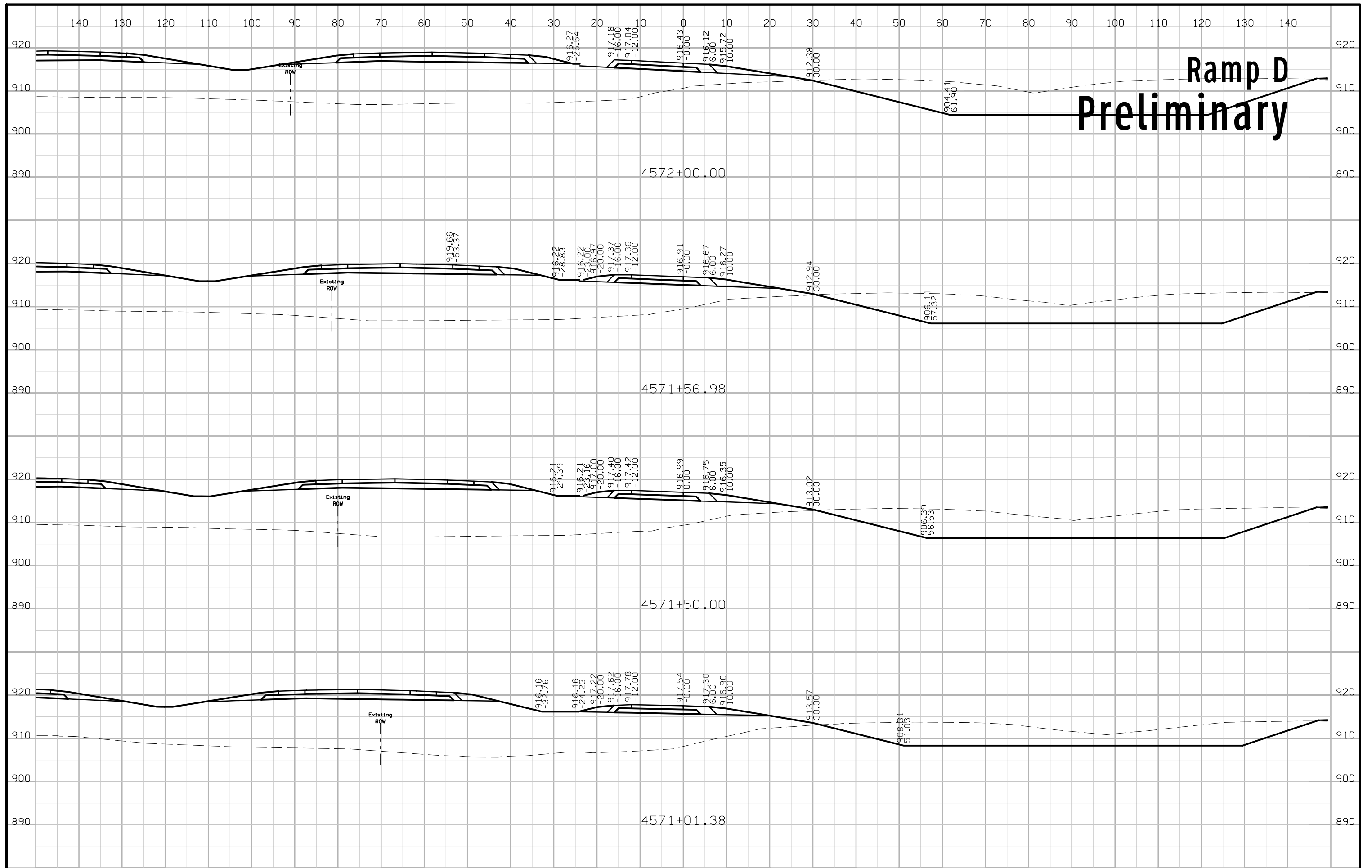
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