

GRADING  
 IMN-029-6(280)132-0E-97  
 LETTING DATE  
 OCT. 16, 2018

**WOODBURY CO.**

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## Highway Division

PLANS OF PROPOSED IMPROVEMENT ON THE

# PRIMARY ROAD SYSTEM WOODBURY COUNTY GRADING

County Road K-35/Carroll Ave. over I-29  
4.2 miles North of IA 141

SCALES: As Noted

Refer to the Proposal Form for list of applicable specifications.

Value Engineering Saves. Refer to Article 1105.15 of the Specifications.



REVISIONS

TOTAL

63

PROJECT IDENTIFICATION NUMBER

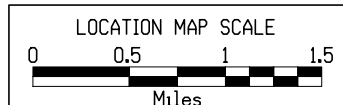
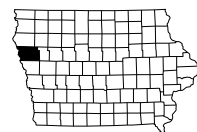
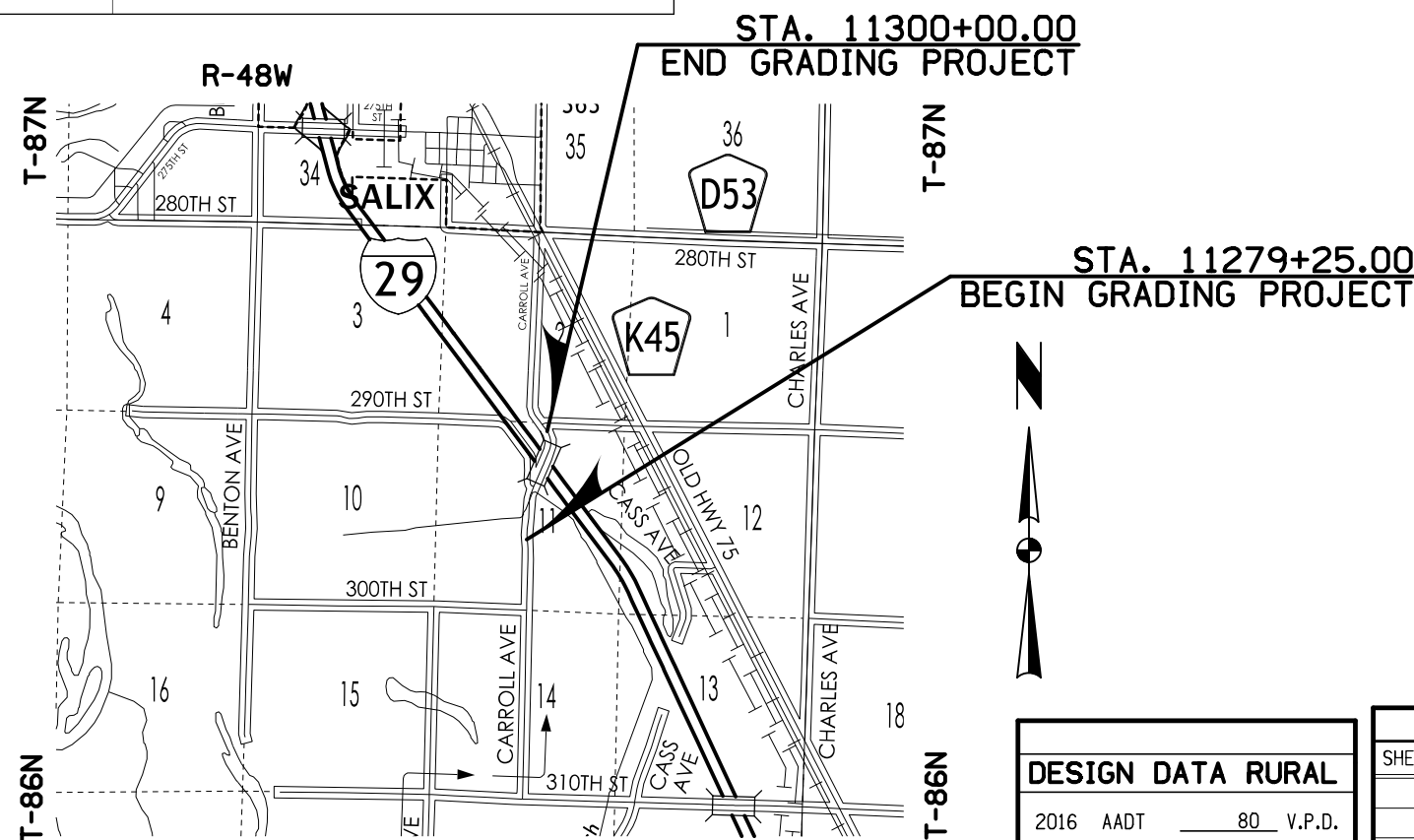
16-97-029-050

PROJECT NUMBER

IMN-029-6(280)132-0E-97

R.O.W. PROJECT NUMBER

IMN-029-6(282)132-0E-97



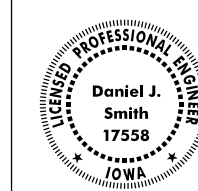
### DESIGN DATA RURAL

2016	AADT	80	V.P.D.
20--	AADT	TBD	V.P.D.
20--	DHV	TBD	V.P.H.
	TRUCKS	TBD	%
Total			
Design	ESALs	TBD	

### INDEX OF SEALS

SHEET NO.	NAME	TYPE
A.1	Daniel Smith	Primary Signature Block

### ROADWAY DESIGN



I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

Signature Daniel J. Smith, P.E. Date \_\_\_\_\_

Printed or Typed Name

My license renewal date is December 31, 2018

Pages or sheets covered by this seal: A.1-A.2, B.1, C.1, D.1-D.2, E.1-E.3, G.1-G.4, H.1-H.2, J.1-J.4, Q.1-Q.3, U.1-U.2, W.1, X.1-X.38

# PRELIMINARY PLANS

Subject to change by final design.

D5 PLAN - Date: Dec. 18, 2017

FILE NO.

ENGLISH

DESIGN TEAM Iowa DOT\CH2M

WOODBURY COUNTY

PROJECT NUMBER

IMN-029-6(280)132-0E-97

SHEET NUMBER

A.1

## Design Criteria Worksheet

<b>Roadway</b>			
<b>PIN Number</b>	16-97-029-050	<b>Submittal Date</b>	9/15/2017
<b>Project Number</b>	IMN-029-6(280)132--0E-97	<b>Revision Date</b>	
<b>District</b>	District 3		
<b>County</b>	Woodbury		
<b>Route</b>	K-35		
<b>Location</b>	County Road K-35 over I-29, 4.2 miles north of IA 141		
<b>Work Type</b>	Bridge Raising and Grading		
<b>Segment Manager</b>			
<b>Designer</b>	CH2M		
<b>Design year ADT =</b>	80		
<a href="#">Design Manual Section 1C-1</a> <a href="#">Last Updated: 05-26-17</a>	<b>Secondary Roads</b>		
<b>Design Elements</b>	<b>Project value</b>	<b><a href="#">Local Systems I.M. 3.210 value</a></b>	<b>Remarks</b>
Design speed (mph)	40	50	
Design lane width (ft.)	12 (a)	10	
Shoulder width (ft.)	3 (a)	3	
Bridge width - new (ft.)	NA	24	
Bridge width - existing (ft.)	24	20	
Maximum super elevation rate (%)	4% (b)	8%	
Minimum radius (ft.)	572 (b)	758	
Stopping sight distance (ft.)	305 (d)	425	
Vertical curve length (ft.)	120 (c)	NA	
Minimum rate of vertical curvature (K)	Crest	44 (d)	84
	Sag	64 (d)	96
Minimum gradient (%)	0.5% (c)	NA	
Maximum gradient (%)	6%	6%	
Foreslope	3:1 (e)	2:1	
Backslope	3:1 (f)	NA	
Traverse slopes	8:1 (g)	NA	
Clearzone	8-10	8-10	See I.M. 3.215
<b>Notes:</b>			
a) Based on existing roadway approach top width of 30'			
b) Based on existing roadway alignment and design speed 40 mph			
c) Per Iowa DOT Design Manual Chapter 2B-1			
d) Per Iowa DOT Design Manual Chapter 6D-1			
e) See Project Statement			
f) Per Iowa Design Manual Chapter 1C-1, Rural Two Lane, 3:1 preferred and 2.5:1 acceptable			
g) Per Iowa DOT Design Manual Chapter 3F-3			







### SURVEY SYMBOLS

- CP Control Point
- BM Bench Mark
- RET Retaining Walls
- EP Edge of Paved Roads (ML or SR)
- BRG Bridge
- BD Bridge Deck
- BCL Bridge Centerline
- CU Back of Curb
- GU Gutter In Front of Curb
- SI Sign
- GDL Guard Rail Steel
- PIP Pipe Culvert
- SH Paved Shoulder
- C Centerline BL of Road (ML or SR)
- GDC Guard Rail Cable
- GR Ground Shot
- BL Topo Breakline
- PPA Power Pole Co. 1
- TDC Tree Deciduous
- Default\_Point Default Point Feature
- FW Wire Fence
- MIS Miscellaneous
- TLNR Tree Line Right
- TEV Evergreen Tree
- TPD Telephone Pedestal
- SNP Unpaved Shoulder
- EG Edge of Gravel Road
- FWD Wood Fence
- BBB Bottom of Bridge Beam
- TOP Top of Bridge Pier
- TLNL Tree Line Left

### UTILITY LEGEND

— E1 — (Overhead) MidAmerican Energy Company  
 Contact: Pat Lee  
 Phone: 712-233-4832

### 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

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

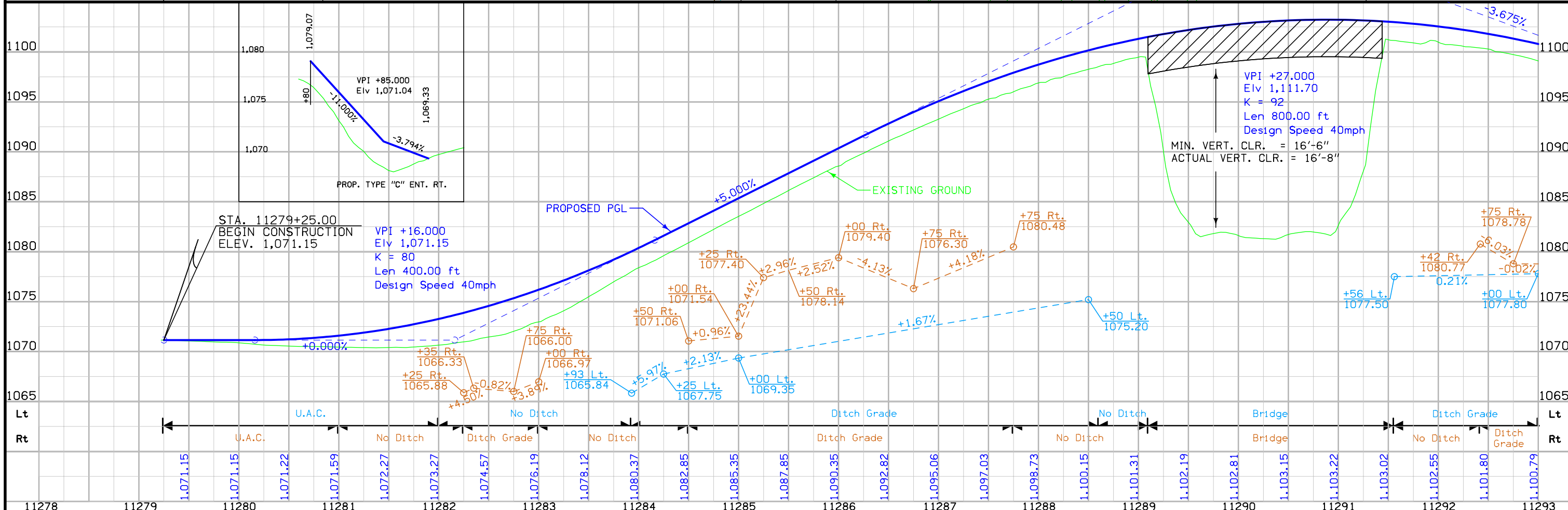
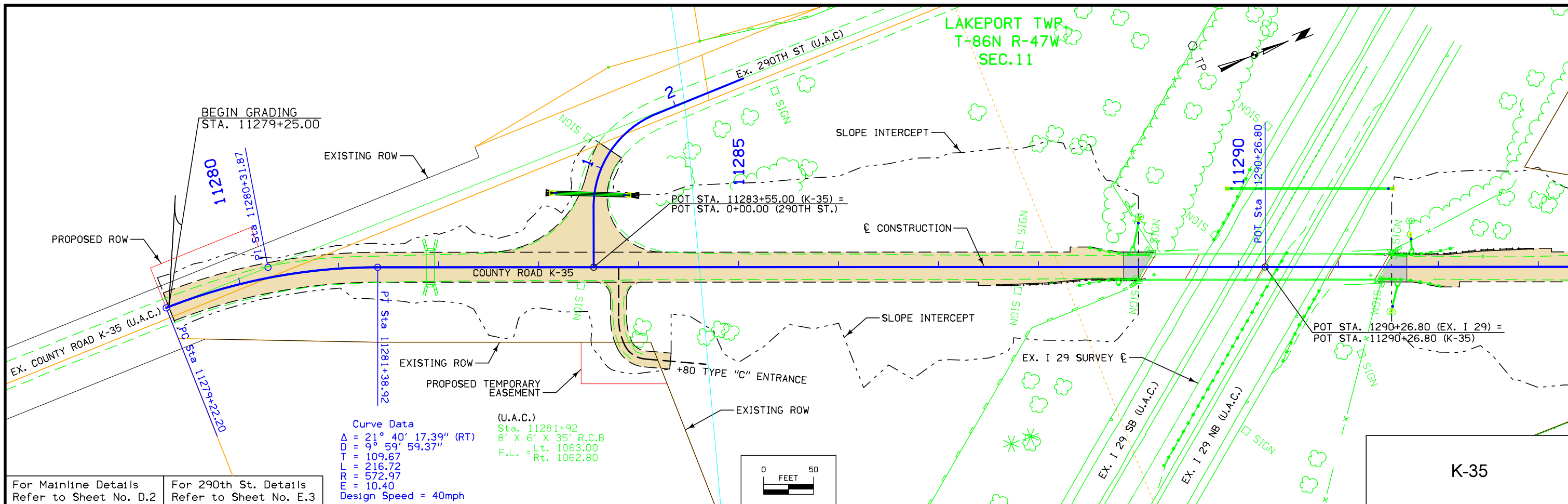
### RIGHT-OF-WAY LEGEND

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

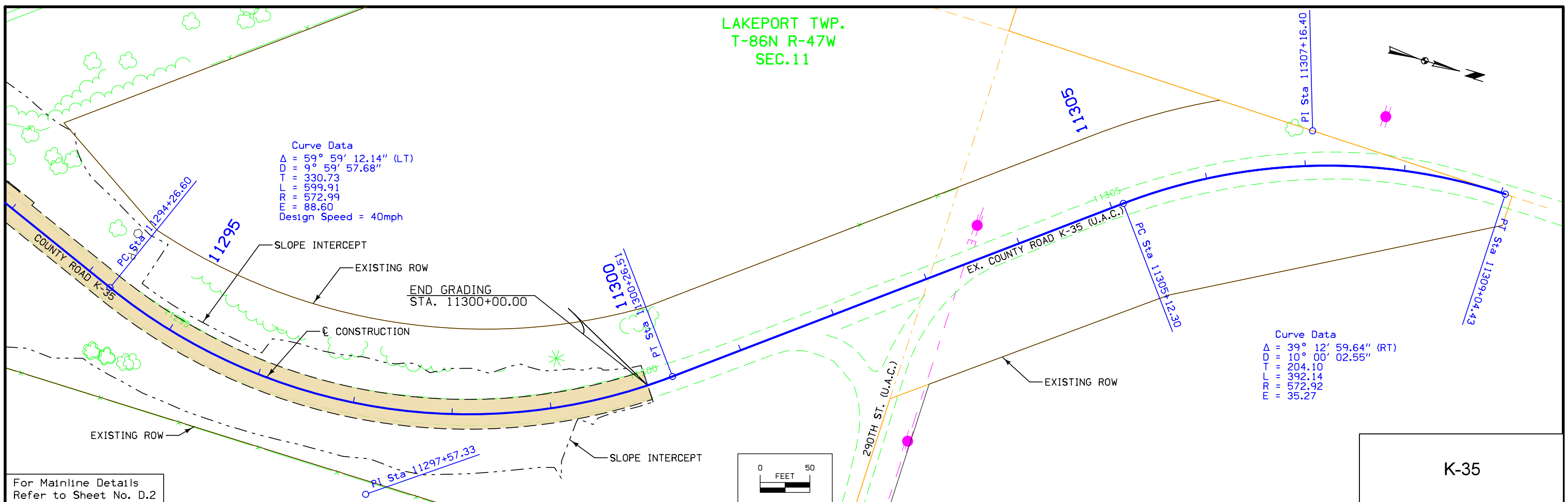
## PLAN AND PROFILE LEGEND AND SYMBOL INFORMATION SHEET

(COVERS SHEET SERIES D & E)

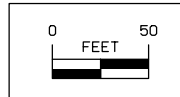




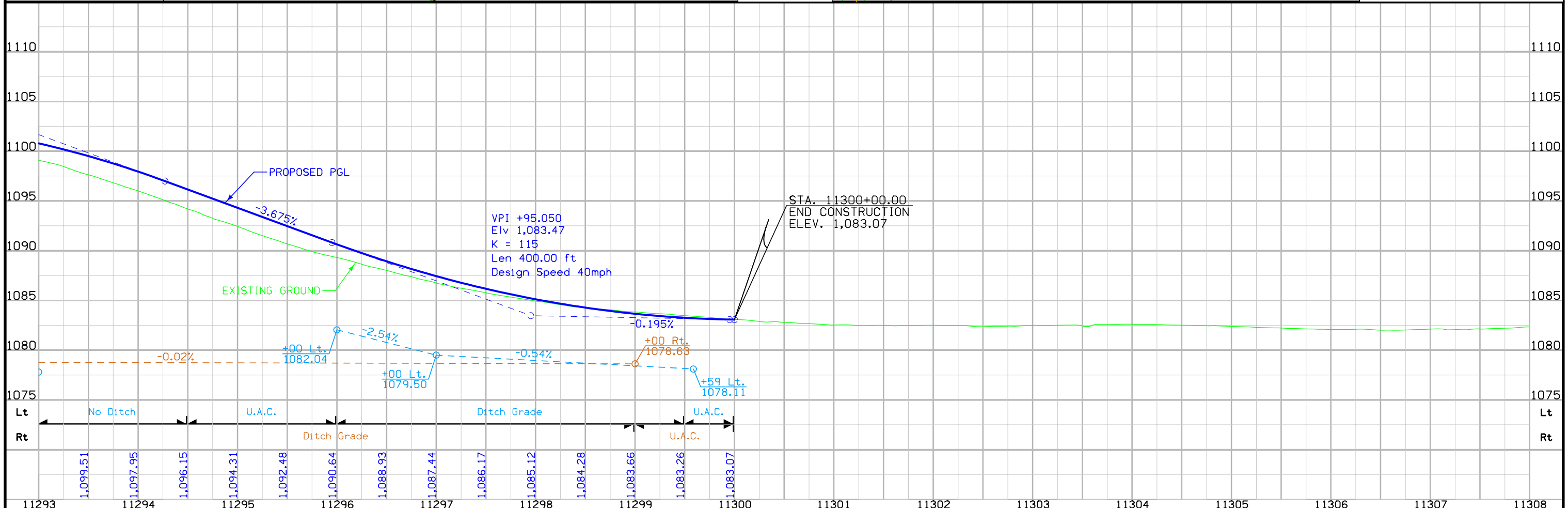
LAKEPORT TWP.  
T-86N R-47W  
SEC.11



For Mainline Details  
Refer to Sheet No. D.2



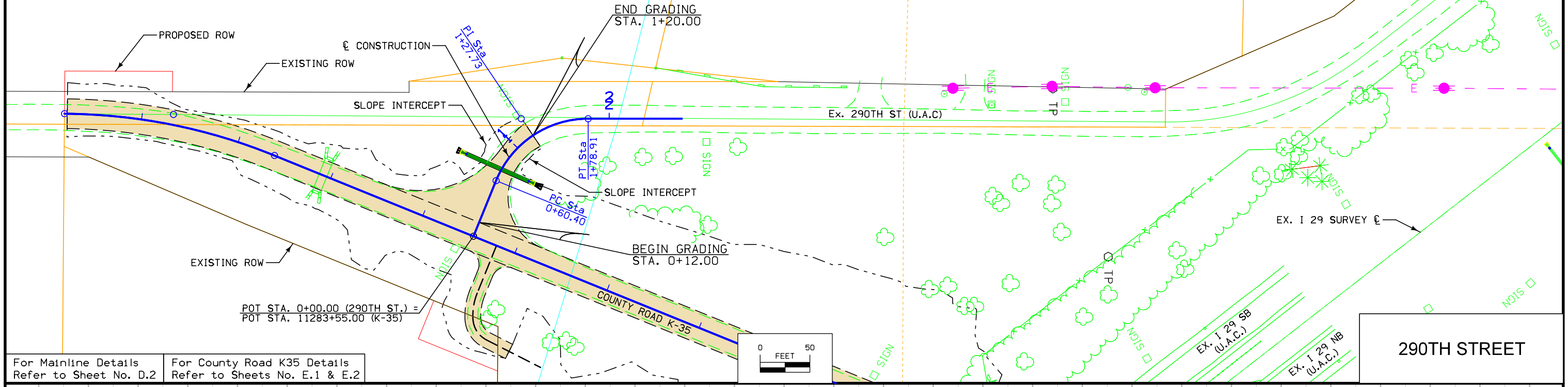
K-35



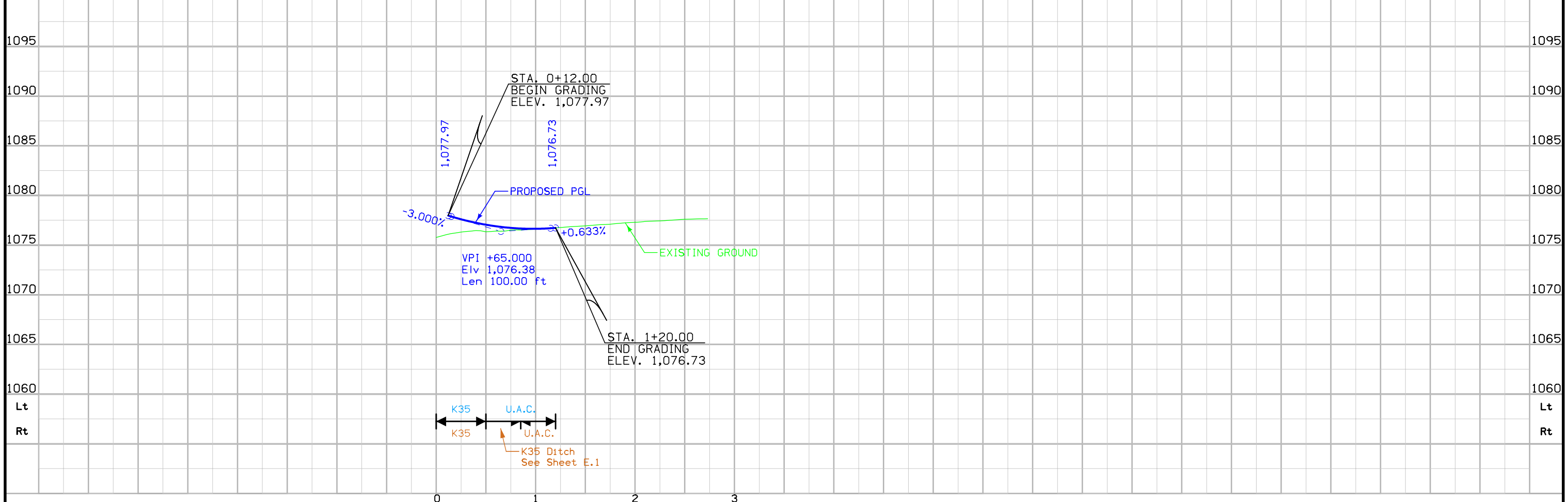
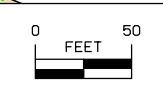
LAKEPORT TWP.  
T-86N R-47W  
SEC.11

Sta. 0+73.00  
Install  
30" x 80' Uncl.  
Skew = 5.5° Rt. Ahd.  
F.L. = Lt. 1065.14  
Rt. 1066.26

(Remove)  
Sta. 0+73.00 (SR290)  
30" C.M.P.  
F.L. = Lt. 1064.57  
Rt. 1065.53



For Mainline Details Refer to Sheet No. D.2  
For County Road K35 Details Refer to Sheets No. E.1 & E.2



# Survey Information

WOODBURY COUNTY  
IMN-029-6(280)132-0E-97  
290TH STREET AND CARROLL AVENUE K-35

## General Information

Measurement units for this survey are US survey feet. This survey is for proposed Bridge reconstruction and reconstruction of County Road Carroll Ave over I-29. Project datum and control information is provided by Shive-Hattery, Inc.

## Vertical Control

Bench Mark IHC CAP from IOWA DOT PLANS      VERTICAL DATUM: NAVD88

## Horizontal Control

HORIZONTAL DATUM: NAD83(2011) EPOCH 2013.00  
1a. Regional Coordinate System Zone 4

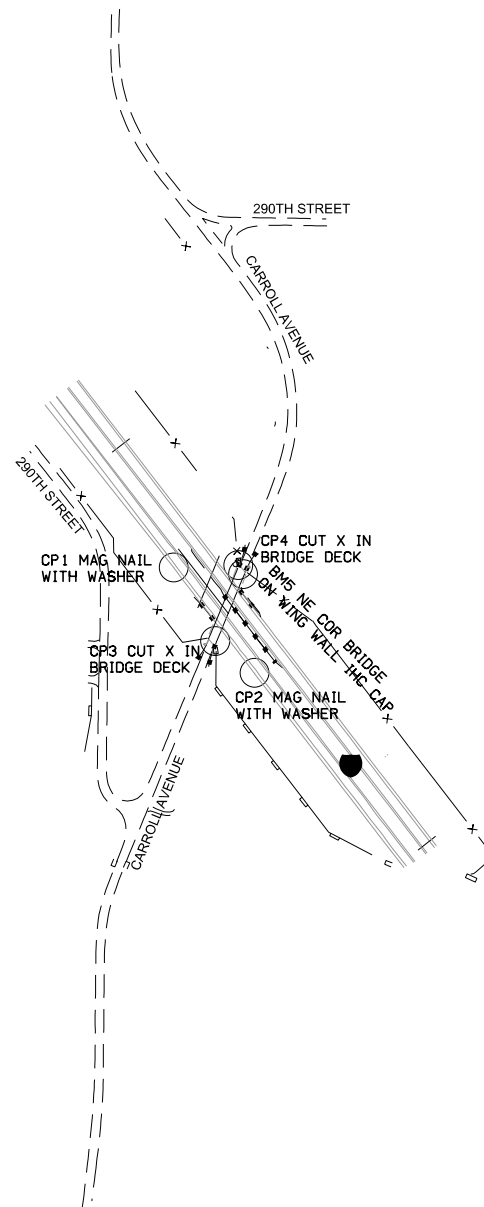
Point Name	Northing	Eastng	Elevation	Description
1	8512366.8409	14108561.4788	1082.5680	CP1 MAG NAIL WITH WASHER
2	8512051.925	414108803.1848	1081.5880	CP2 MAG NAIL WITH WASHER
3	8512146.7252	14108685.6728	1099.8140	CP3 CUT X IN BRIDGE DECK
4	8512346.9661	14108768.7950	1101.3250	CP4 CUT X IN BRIDGE DECK
5	8512373.8515	14108754.80181	101.6100	BMS NE COR BRIDGE ON WING WALL IHC CAP

## Alignment Information

No horizontal alignment was created for this project.

## CONTROL POINT VICINITY MAP

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



HORIZ. DATUM: NAD83(2011) EPOCH 2013.00

VERT. DATUM: NAVD88

1a. Regional Coordinate System Zone 4

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

# HORIZONTAL AND VERTICAL PROJECT CONTROL COORDINATE LISTING

HORIZ. DATUM: NAD83(2011) EPOCH 2013.00

VERT. DATUM: NAVD88

Ia. Regional Coordinate System Zone 4

Point Name	Northing	Easting	Elevation	Description
1	8512366.8409	14108561.4788	1082.5680	CP1 MAG NAIL WITH WASHER
2	8512051.925	414108803.1848	1081.5880	CP2 MAG NAIL WITH WASHER
3	8512146.7252	14108695.6728	1099.8140	CP3 CUT X IN BRIDGE DECK
4	8512346.9661	14108768.7950	1101.3250	CP4 CUT X IN BRIDGE DECK
5	8512373.8515	14108754.80181	101.6100	BM5 NE COR BRIDGE ON WING WALL IHC CAP

## ALIGNMENT COORDINATES

101-16  
10-20-09

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		
			Y (Northing)	X (Easting)		Y (Northing)	X (Easting)		Y (Northing)	X (Easting)		Y (Northing)	X (Easting)		Y (Northing)	X (Easting)	
SRDK35	K-35																
CUR SRK35_1						11279+22.20	8,511,220.7811	14,108,338.4351	11280+31.87	8,511,330.4410	14,108,339.9270	11281+38.92	8,511,431.7987	14,108,381.8092			
SRK354		11290+26.80	8,512,252.3871	14,108,720.8857													
CUR SRK35_6						11294+26.60	8,512,621.8831	14,108,873.5656	11297+57.33	8,512,927.5460	14,108,999.8690	11300+26.51	8,513,189.8061	14,108,798.3697			
CUR SRK35_9						11305+12.30	8,513,575.0250	14,108,502.3990	11307+16.40	8,513,736.8709	14,108,378.0498	11309+04.43	8,513,940.8831	14,108,384.0365			
SR290	290TH ST.																
SRD290		0+00.00	8,511,631.5025	14,108,464.3290													
CUR SRD2901						0+60.40	8,511,654.5702	14,108,408.5034	1+27.73	8,511,680.2802	14,108,346.2837	1+78.91	8,511,747.6012	14,108,346.6946			
SRD291		2+73.04	8,511,841.7308	14,108,347.2690													
ML029	EX. I-29																
1001		1256+62.74	8,509,584.8970	14,110,770.6090													
1000		1379+34.36	8,519,315.5370	14,103,293.4980													

## SPIRAL OR CIRCULAR CURVE DATA

101-17  
04-19-11

Name	Location	$\Delta_{SCS}$	Horizontal Alignment Data												Remarks			
			Spiral Data						Curve Data									
			$\theta_s$	Ls	Ts	Es	Xc	Yc	L.T.	S.T.	$\Delta_c$	T	L	R		E		
SRDK35	K-35																	
CUR SRK35_1																		
CUR SRK35_6																		
CUR SRK35_9																		
SR290	290TH ST.																	
CUR SRD2901																		



**SUPERELEVATION DATA**

See PV-300 Series

Road Identification	Circular Curve or Spiral Curve Name	Radius	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															
SRDK35	SRK35_1	572.97	4.0	83	62	PV-301	11279+25.00	11279+35.33	11279+97.33	11280+18.33									High side ties to existing -0.5%	
							11282+59.02	11281+97.02	11281+35.02	11281+14.02									High side ties to existing 3.0%	
SRDK35	SRK35_6	572.99	4.0	83	62	PV-301	11293+06.50	11293+68.50	11294+30.50	11294+51.50										
							11299+58.00	11300+00.00												

NO ACCESS RIGHTS ARE TO BE ACQUIRED ON THIS PROJECT.

ACCESS CONTROL PREVIOUSLY ACQUIRED



LAKEPORT TWP.  
T-86N R-47W  
SEC. 11

①  
DEREK C GODFREDSON  
REVOCABLE TRUST

Sta. 0+73.00  
Install  
30' x 80' Uncl. Ahd.  
Skew = 5.5° Rt.  
Lt. = 1065.14  
F.L. = Rt. = 1066.26

Sta. 0+73.00 (SR290)  
30' C.M.P.  
Lt. = 1064.57  
F.L. = Rt. = 1065.53

11280+00  
±40'

11279+15  
±40'

11280+30  
±34'±EX R/W

11279+00  
±22'±EX R/W

CARROLL AVENUE

290TH STREET

11283+40  
±120'

Sta. 11281+92  
8' X 6' X 35' R.C.B  
Lt. = 1063.00  
F.L. = Rt. = 1062.80

11284+30  
±121'±EX R/W

TEMPORARY EASEMENT  
TO SHAPE

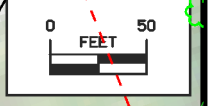
②  
IOWA CONSERVATION COMMISSION

CENTER  
SECTION

Right of Way Design Information  
**THIS SHEET INCLUDED  
FOR INFORMATION ONLY**

ROW Team: ATINKEN / LARSON  
ROW #: IMN-029-6(282)132-0E-97  
Plan Date: 6/27/2018

Color Legend:  
Property Lines  
Temporary Easement  
Permanent Acquisition





LAKEPORT TWP.  
T-86N R-47W  
SEC.11

JENKINS, DOUGLAS E.

⑤  
GODFREDSON, DEREK TRUST

BEGIN GRADING  
STA. 11279+25.00

EX. 290TH ST (U.A.C.)

11285

11290

POT STA. 11283+55.00 (K-35) =  
PC Sta. 0+60.00 POT STA. 0+00.00 (290TH ST.)

POT STA. 1290+26.80 (EX. I 29) =  
POT STA. 11290+26.80 (K-35)

PROPOSED ROW

EXISTING ROW

CONSTRUCTION

COUNTY ROAD K-35

EXISTING ROW

+80 TYPE "C" ENT.

EXISTING ROW

PROPOSED TEMPORARY EASEMENT  
FOR ENTRANCE CONSTRUCTION

EX. I 29 SB (U.A.C.)

EX. I 29 NB (U.A.C.)

EXISTING ROW

EVELETH, RICHARD FREDRICK TRUST

⑥  
IOWA CONSERVATION COMMISSION

EVELETH, RICHARD FREDRICK TRUST

**Right of Way Design Information**

ROW Team: Iowa DOT/CH2MHILL  
ROW #: IMN-029-6(282)132-OE-97  
Plan Date: 10/16/2018

**Color Legend:**

-  Property Lines
-  Temporary Easement
-  Permanent Acquisition

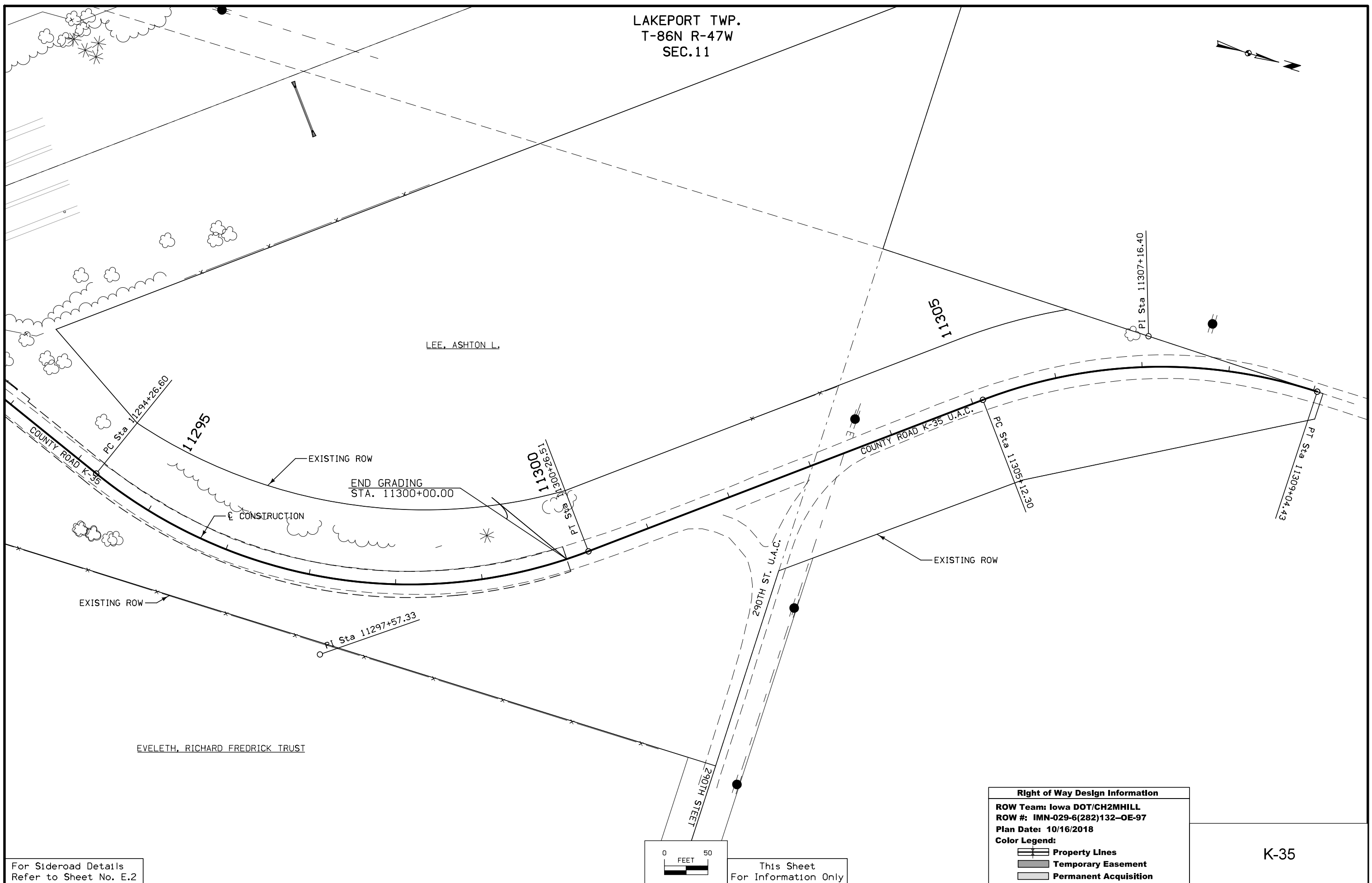
K-35

For Sideroad Details  
Refer to Sheet No. E.1

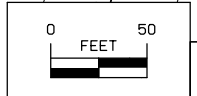


This Sheet  
For Information Only

LAKEPORT TWP.  
T-86N R-47W  
SEC.11



For Sideroad Details  
Refer to Sheet No. E.2



This Sheet  
For Information Only










Right of Way Design Information	
ROW Team: Iowa DOT/CH2MHILL	
ROW #: IMN-029-6(282)132-OE-97	
Plan Date: 10/16/2018	
Color Legend:	
	Property Lines
	Temporary Easement
	Permanent Acquisition

K-35

**CROSS SECTION VIEW COLOR LEGEND  
OF TRAFFIC CONTROL AND STAGING SHEETS**

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

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




















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

**PLAN VIEW COLOR LEGEND OF TRAFFIC CONTROL AND STAGING SHEETS**

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

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

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

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

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

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

(COVERS SHEET SERIES J)

### 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
K-35	Both	Woodbury	K-35/Carroll Ave closed 4.2 miles north of IA 141	I-29	Bridge	9731.80029						

**108-23A**  
08-01-08

#### TRAFFIC CONTROL PLAN

1. Woodbury County Road K-35/Carroll Avenue will be closed from just south of the intersection with 290th Avenue west of I-29 to just south of the intersection with 290th Street east of I-29 during construction. Woodbury County will provide an off-site detour route for County Road K-35/Carroll Avenue.
2. 290th Street will be closed at County Road K-35/Carroll Avenue west of I-29. Woodbury County will provide an off-site detour route for 290th Avenue.
3. Access to adjacent properties via an existing entrance located within the reconstruction limits of County Road K-35/Carroll Avenue shall be maintained at all times.
4. Traffic is to be maintained along I-29 northbound and southbound at all times. The inside northbound and southbound I-29 shoulder may be closed as needed to provide temporary barrier protection of the workzone within the existing I-29 median.
5. Traffic control shall be in accordance with Iowa DOT Standard Road Plans including TC-1, TC-202, TC-252, and TC-402. For additional traffic control information, refer to Part 6 of the Manual on Uniform Traffic Control Devices (MUTCD) and the current Iowa DOT Standard Specifications.

**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
IMN-029-6(279)130-0E-97	Bridge Raising

**108-26A**  
08-01-08

#### STAGING NOTES

**PROPOSED SEQUENCE OF CONSTRUCTION**

**Stage 1**

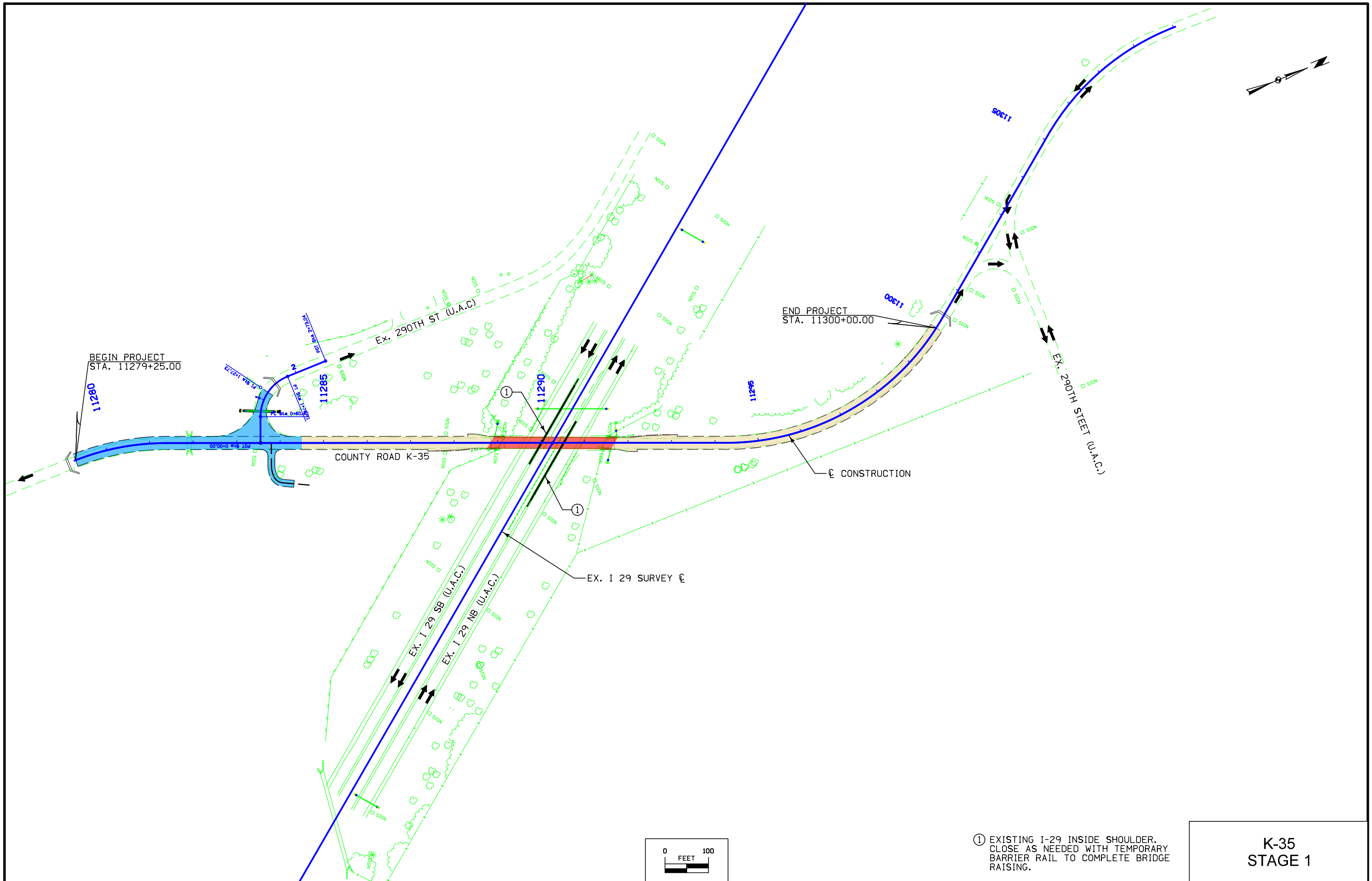
- Close County Road K-35/Carroll Avenue from just south of 290th Avenue west of I-29 to just south of 290th Avenue east of I-29. Close 290th Avenue at the intersection with County Road K-35/Carroll Avenue west of I-29.
- Remove existing I-29 overpass paved approach slabs and begin bridge repair and raising work.
- Begin grading approach roadways east and west of the I-29 crossing.
- Complete 290th Street/County Road K-35/Carroll Avenue intersection grading and County Road K-35/Carroll Avenue grading south of this intersection and apply granular surfacing. Reopen the 290th Street intersection west of I-29 upon completion. County Road K-35/Carroll Avenue remains closed to the north.

**Stage 2**

- Maintain traffic at the County Road K-35/Carroll Avenue intersection with 290th Avenue west of I-29.
- Complete approach roadway grading east and west of I-29. Construct granular surfacing and paved bridge approach slabs.
- Complete bridge repair and raising work.
- Construct guardrails.

**Stage 3**

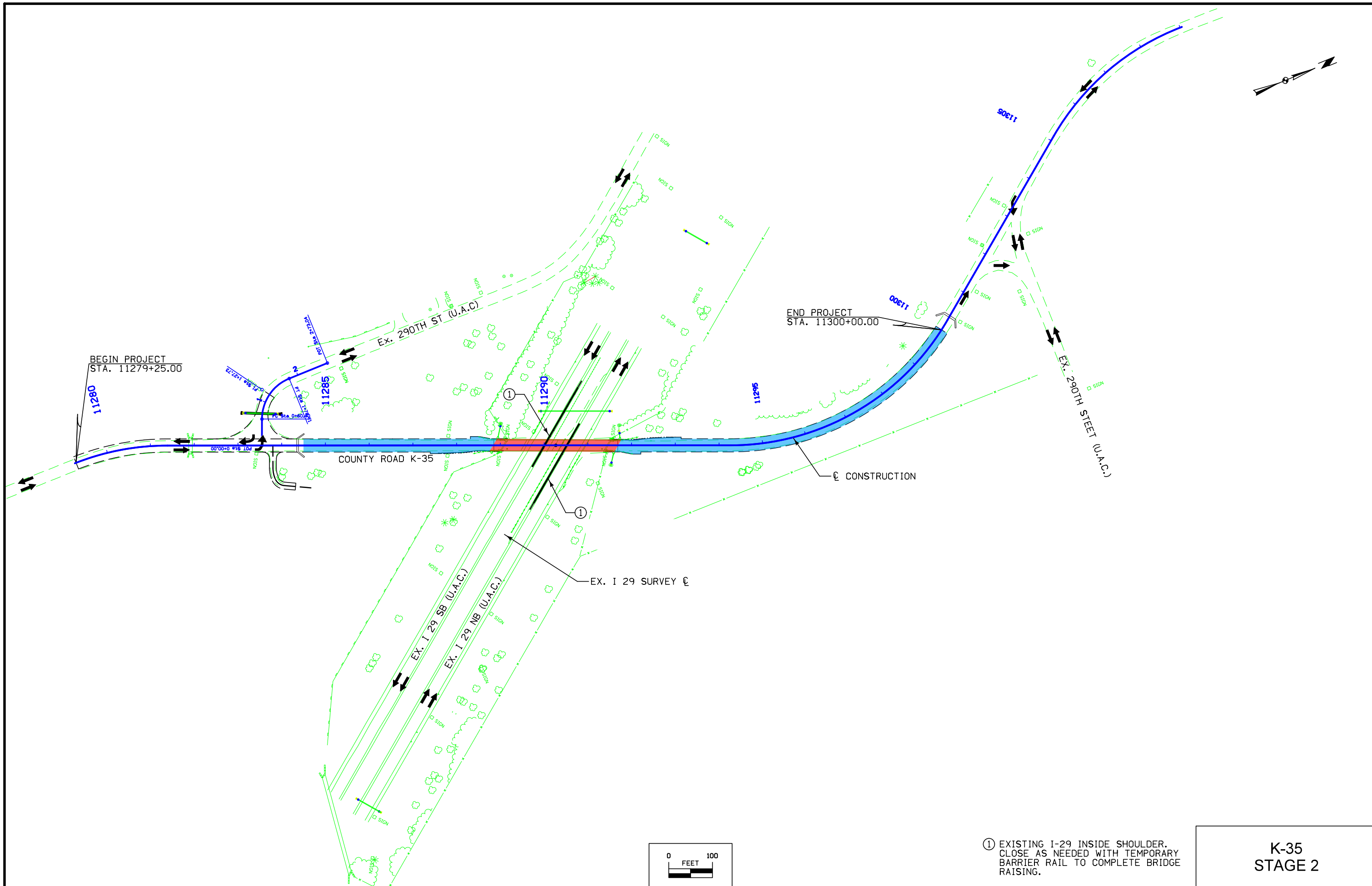
- Open County Road K-35/Carroll Avenue I-29 overpass to traffic.



① EXISTING I-29 INSIDE SHOULDER.  
CLOSE AS NEEDED WITH TEMPORARY  
BARRIER RAIL TO COMPLETE BRIDGE  
RAISING.

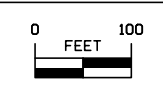
**K-35  
STAGE 1**





① EXISTING I-29 INSIDE SHOULDER. CLOSE AS NEEDED WITH TEMPORARY BARRIER RAIL TO COMPLETE BRIDGE RAISING.

**K-35  
STAGE 2**



### SURVEY SYMBOLS

- CP Control Point
- BM Bench Mark
- RET Retaining Walls
- EP Edge of Paved Roads (ML or SR)
- BRG Bridge
- BD Bridge Deck
- BCL Bridge Centerline
- CU Back of Curb
- GU Gutter In Front of Curb
- SI Sign
- GDL Guard Rail Steel
- PIP Pipe Culvert
- SH Paved Shoulder
- C Centerline BL of Road (ML or SR)
- GDC Guard Rail Cable
- GR Ground Shot
- BL Topo Breakline
- PPA Power Pole Co. 1
- TDC Tree Deciduous
- Default\_Point Default Point Feature
- FW Wire Fence
- MIS Miscellaneous
- TLNR Tree Line Right
- TEV Evergreen Tree
- TPD Telephone Pedestal
- SNP Unpaved Shoulder
- EG Edge of Gravel Road
- FWD Wood Fence
- BBB Bottom of Bridge Beam
- TOP Top of Bridge Pier
- TLNL Tree Line Left

### UTILITY LEGEND

- E1 — (Overhead) MidAmerican Energy Company  
Contact: Pat Lee  
Phone: 712-233-4832

### PLAN VIEW COLOR LEGEND OF SOILS SHEETS

LINEWORK	Design Color No.	
Green	(2)	Existing Topographic Features and Labels
Purple (Halo)	(15)	Backslope Drains
Blue	(1)	Proposed Alignment, Stationing, Tic Marks, and Alignment Annotation
SHADING		
Brown, Light	(236)	Core Out

### PROFILE VIEW COLOR LEGEND OF SOILS SHEETS

LINEWORK	Design Color No.	
Blue	(1)	Proposed Alignment, Stationing, and Alignment Annotation
Green	(2)	Existing Ground Line Profile
Green, Med	(227)	Topsoil
Green, Med	(227)	Slope Dressing Only
Orange	(6)	Loam
Brown, Dark	(238)	Class 10
Brown, Med	(237)	Sand
Red	(3)	Unsuitable A
Pink, Dark	(13)	Unsuitable B
Pink	(11)	Unsuitable C
Red	(3)	Shale
Red	(3)	Waste
Gray, Light	(48)	Broken and Weathered Rock
Gray, Med	(80)	Rock
Gray, V.Dark	(128)	Boulders

### PATTERN AND SYMBOL LEGEND OF SOILS SHEETS

		Soils Book No. _____
		Date(s) Drilled _____
	Drill	
	Dig/Core	
	Water	
	Dry	
	Sample	
	Plugged	
	Moisture	
	Shelby	
	Blow Count	
	Dens. Core	
	Treatment	
	Sand Blanket	
	Soil Remediation Area	
	Select Soil	
	Select Sand	
	Slope Dressing Only	
	Broken and Weathered Rock	
	Rock	

	Reference Point
	Station
	Survey Line
	Section Corner
	Ground Line Intercept
	Saw Cut
	Guardrail
	Clearing & Grubbing Area
	Pavement Removal

### RIGHT-OF-WAY LEGEND

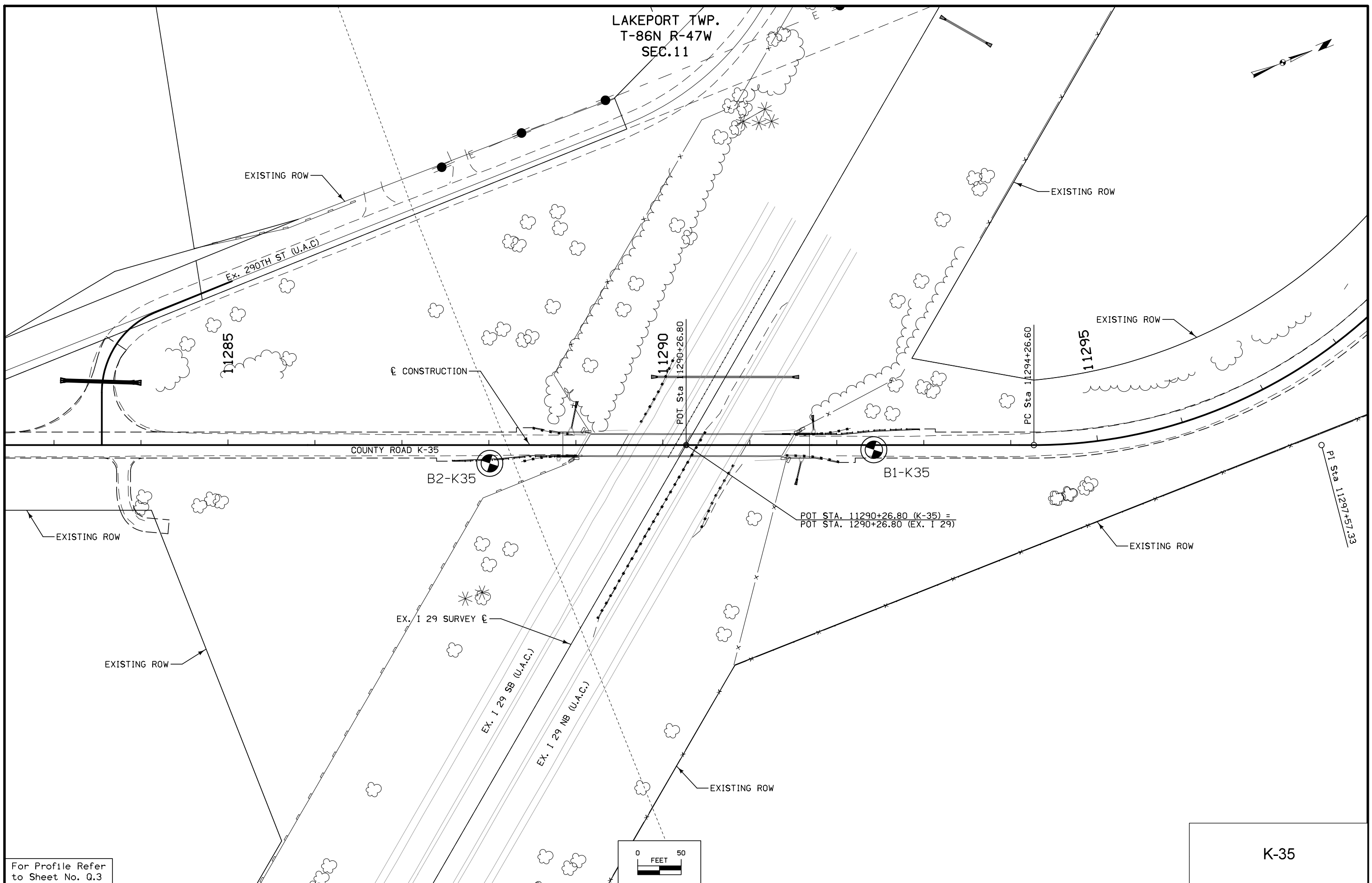
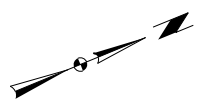
	Proposed Right-of-Way
	Existing and Proposed Right-of-Way
	Easement and Existing Right-of-Way
	Borrow
	Easement (Temporary)
	Easement
	Excess
	A/C Access Control

NOTE: Sounding and test boring data shown in the plans were accumulated for designing and estimating purposes. Their appearance on the plans does not constitute a guarantee that conditions other than those indicated will be encountered. Details and notes shown elsewhere shall be used for roadway and structure construction.

## SOILS LEGEND AND SYMBOL INFORMATION SHEET

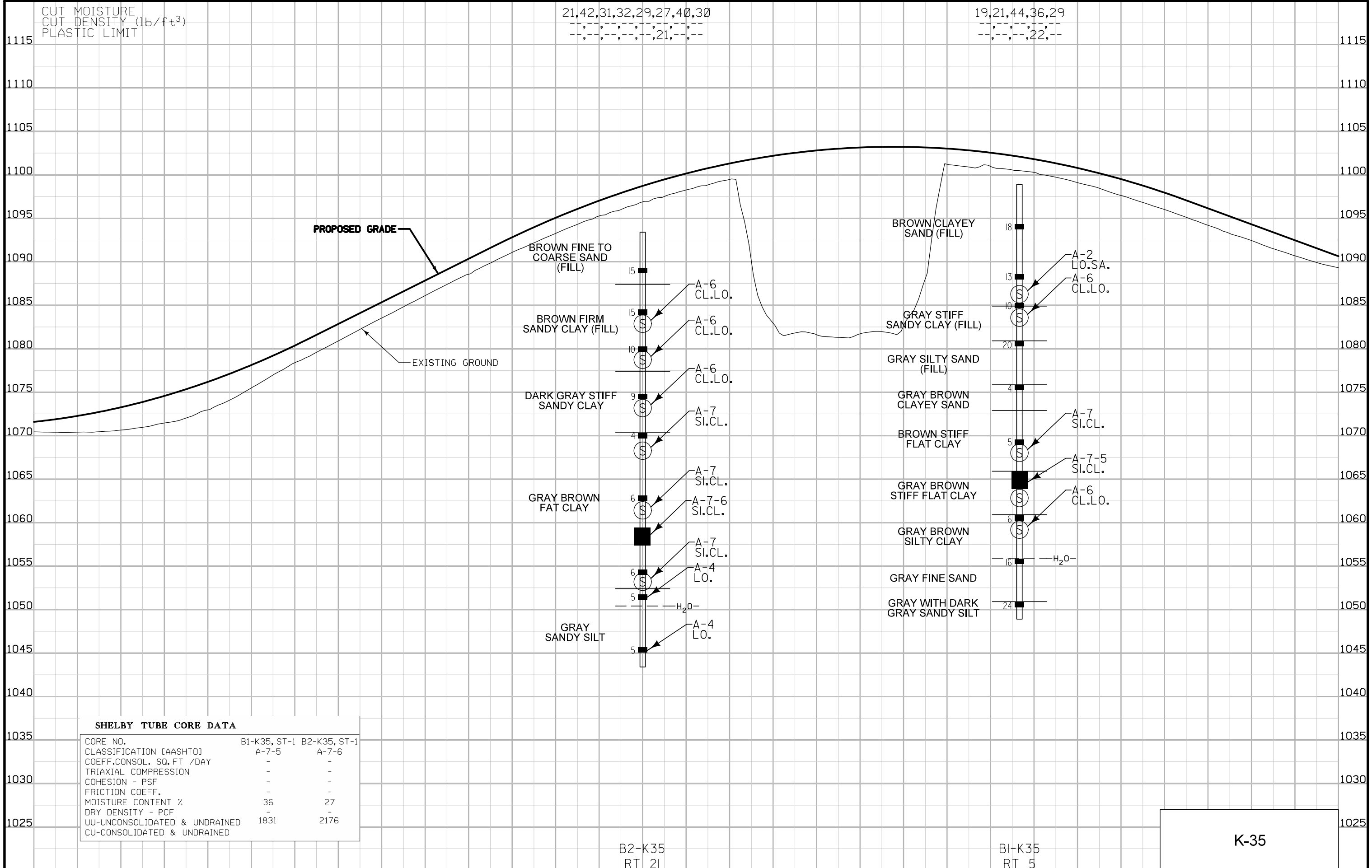
(COVERS SHEET SERIES Q & R)

LAKEPORT TWP.  
T-86N R-47W  
SEC.11



For Profile Refer  
to Sheet No. Q.3

K-35



CUT MOISTURE  
 CUT DENSITY (lb/ft<sup>3</sup>)  
 PLASTIC LIMIT

21,42,31,32,29,27,40,30  
 ---,---,---,---,---,---,---,---  
 ---,---,---,---,21,---,---

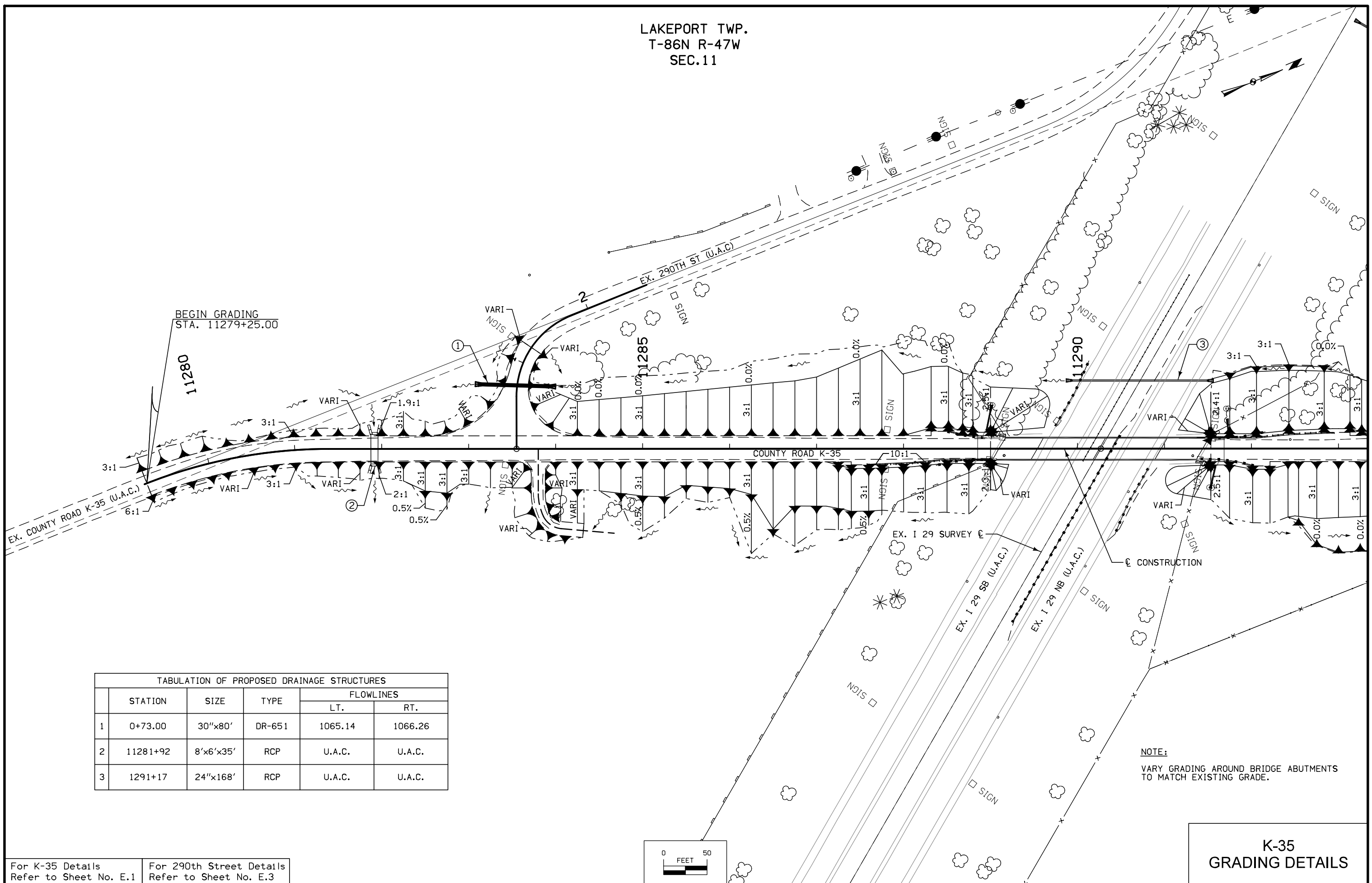
19,21,44,36,29  
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 ---,---,---,22,---

**SHELBY TUBE CORE DATA**

CORE NO.	B1-K35, ST-1	B2-K35, ST-1
CLASSIFICATION [AASHTO]	A-7-5	A-7-6
COEFF. CONSOL. SQ. FT / DAY	-	-
TRIAxIAL COMPRESSION	-	-
COHESION - PSF	-	-
FRICTION COEFF.	-	-
MOISTURE CONTENT %	36	27
DRY DENSITY - PCF	-	-
UU-UNCONSOLIDATED & UNDRAINED	1831	2176
CU-CONSOLIDATED & UNDRAINED	-	-

**K-35**

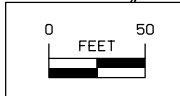
LAKEPORT TWP.  
T-86N R-47W  
SEC.11



BEGIN GRADING  
STA. 11279+25.00

TABULATION OF PROPOSED DRAINAGE STRUCTURES					
STATION	SIZE	TYPE	FLOWLINES		
			LT.	RT.	
1	0+73.00	30"x80'	DR-651	1065.14	1066.26
2	11281+92	8'x6'x35'	RCP	U.A.C.	U.A.C.
3	1291+17	24'x168'	RCP	U.A.C.	U.A.C.

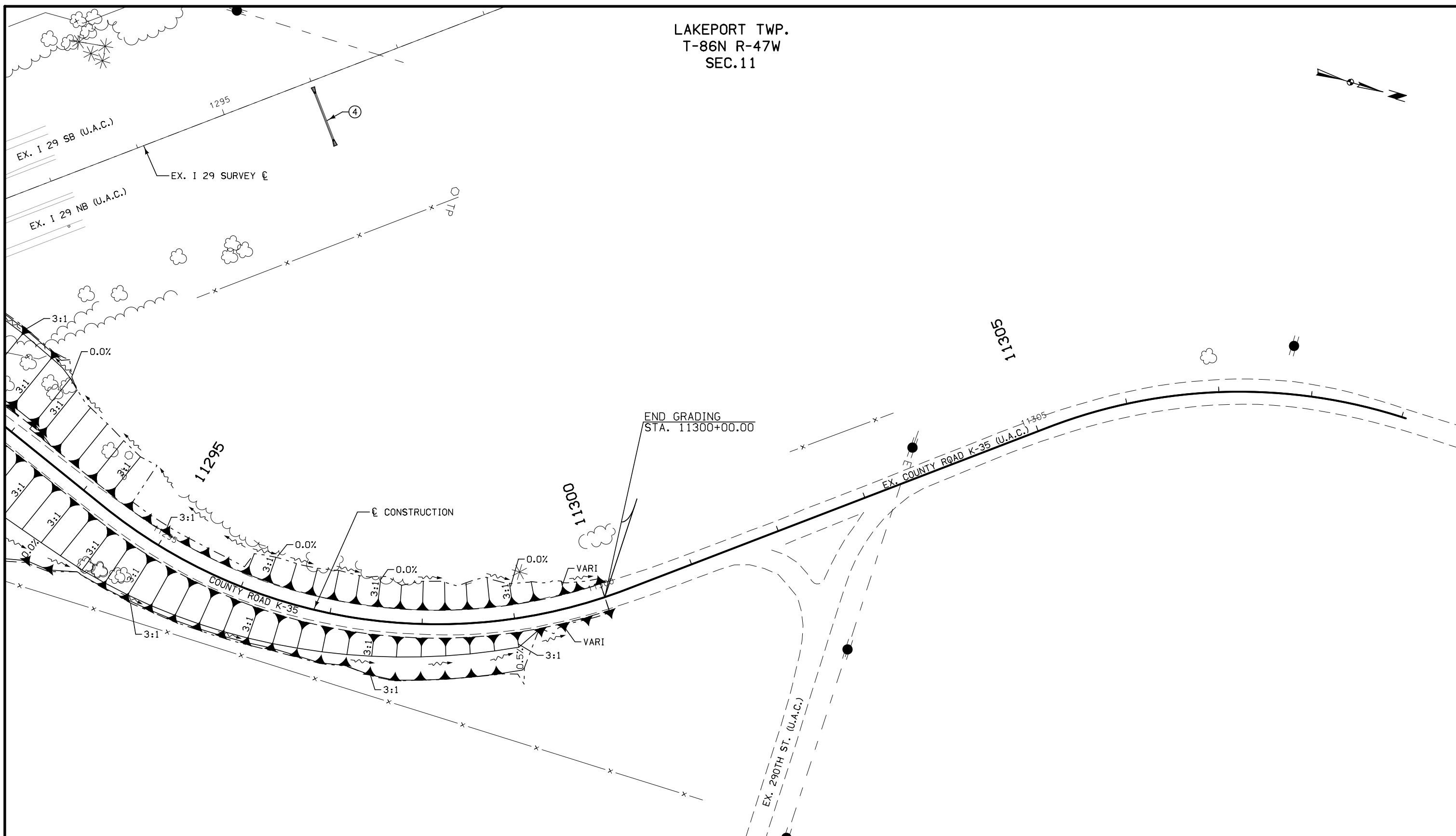
NOTE:  
VARY GRADING AROUND BRIDGE ABUTMENTS  
TO MATCH EXISTING GRADE.



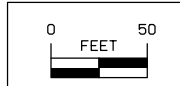
K-35  
GRADING DETAILS

For K-35 Details Refer to Sheet No. E.1  
For 290th Street Details Refer to Sheet No. E.3

LAKEPORT TWP.  
T-86N R-47W  
SEC. 11



TABULATION OF PROPOSED DRAINAGE STRUCTURES					
	STATION	SIZE	TYPE	FLOWLINES	
				LT.	RT.
4	1296+00	24"x66'	RCP	U.A.C.	U.A.C.



K-35  
GRADING DETAILS

For K-35 Details  
Refer to Sheet No. E.2

**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\RCB
- Proposed Pipe\RCB
- Proposed Dike
- All Elements Associated with Proposed Entrances

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

- TS————— Topsoil (Class 10)
- SLOPE DRESSING — 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.

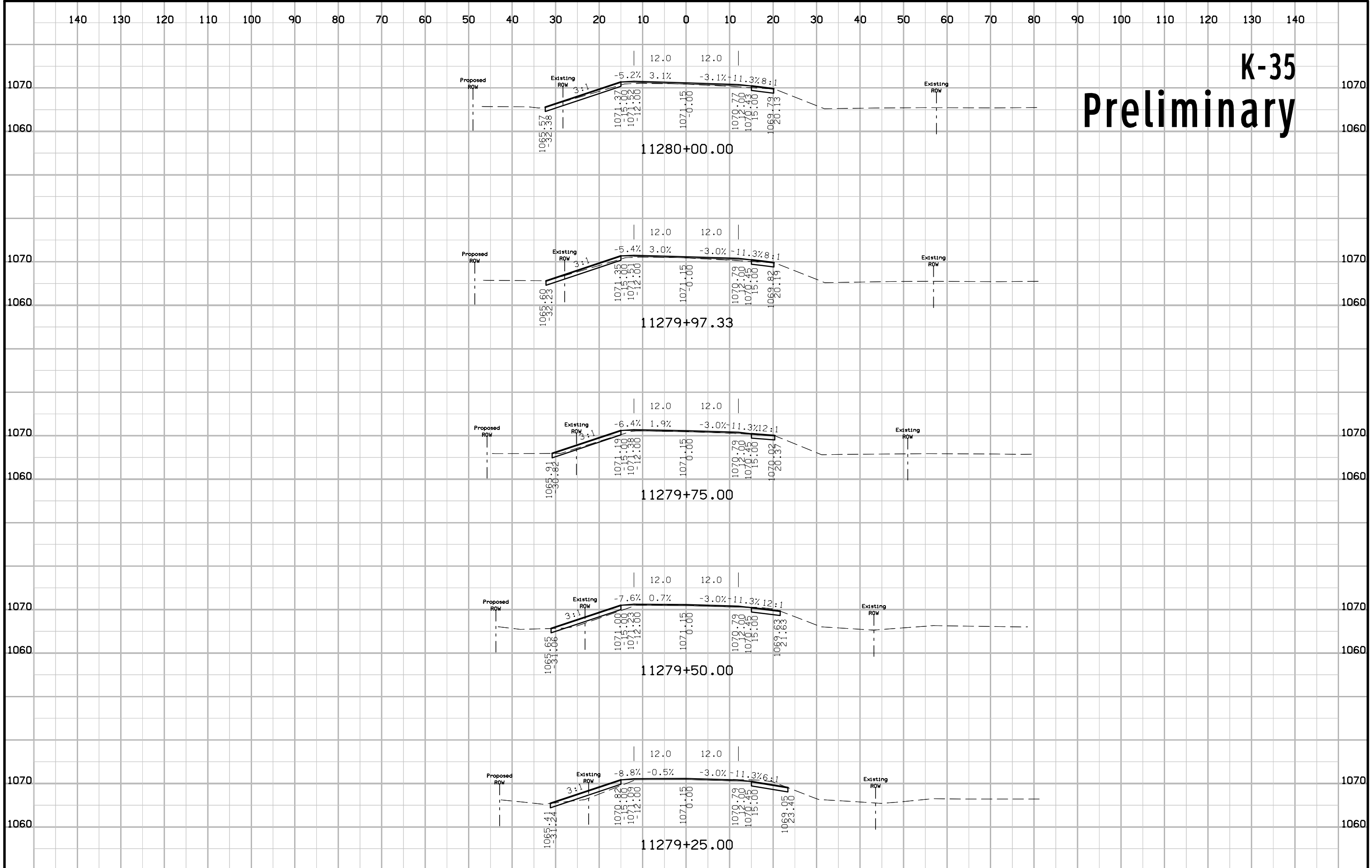
**SYMBOL LEGEND OF CROSS SECTION SHEETS**

- 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)

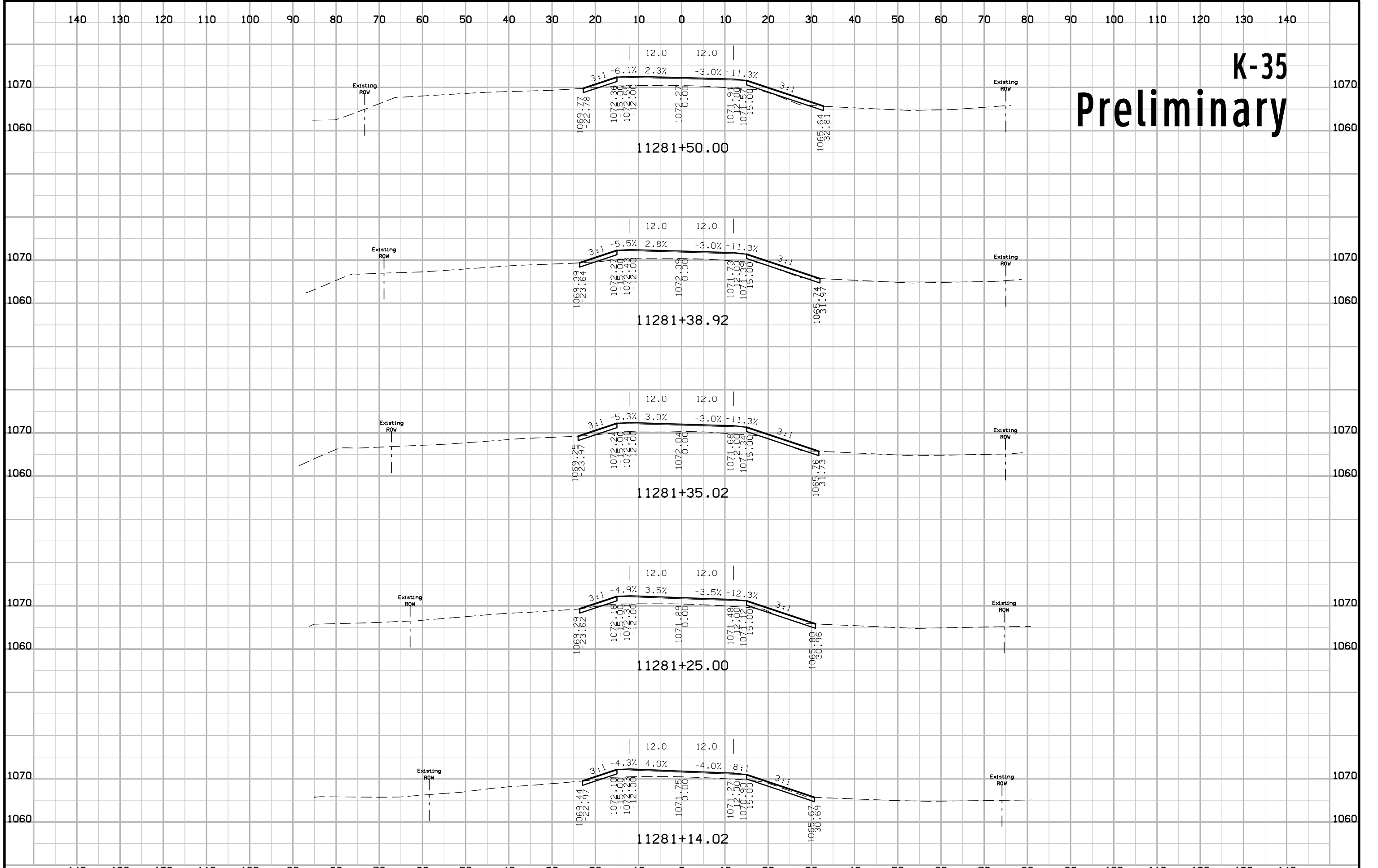
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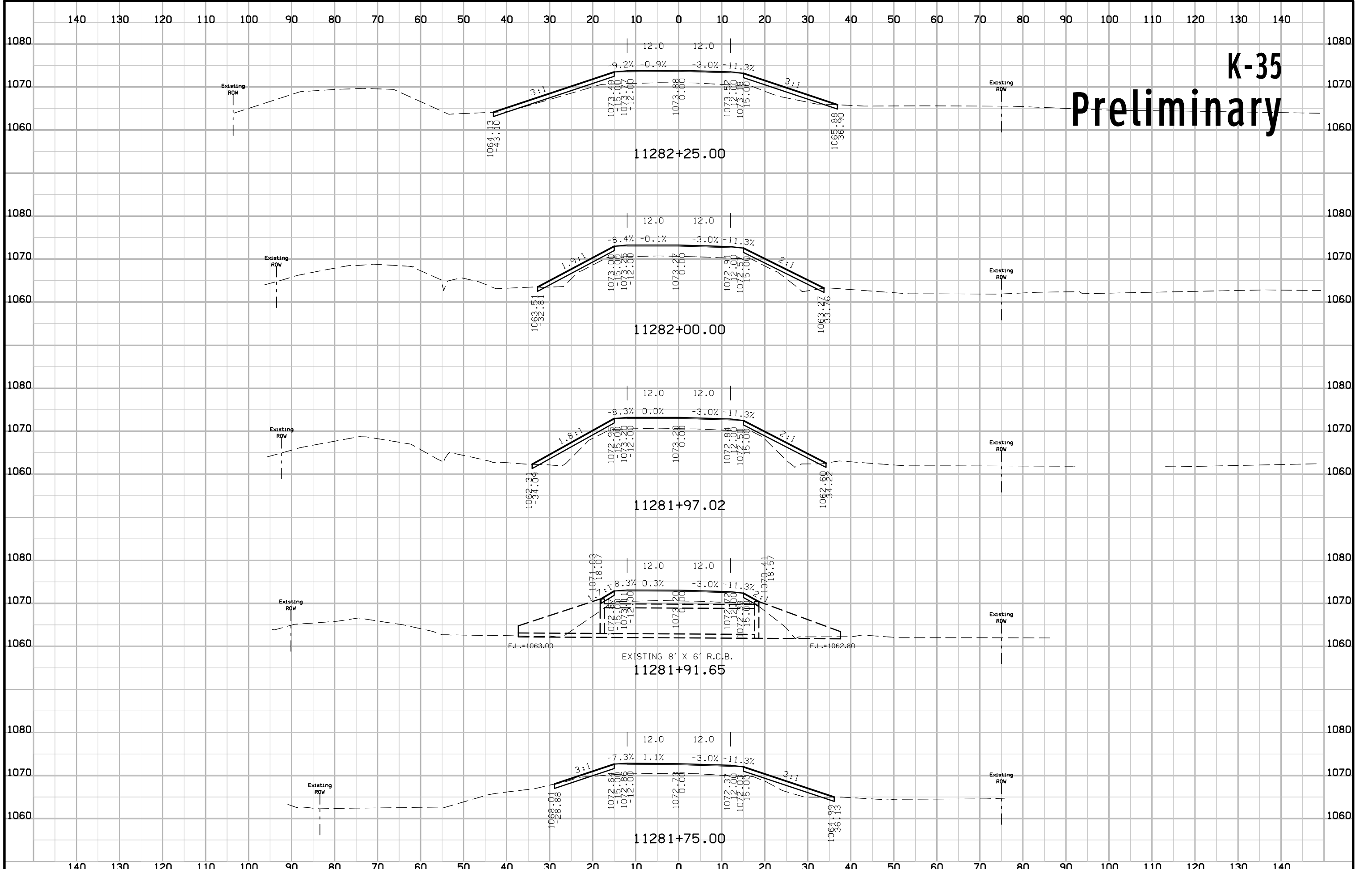


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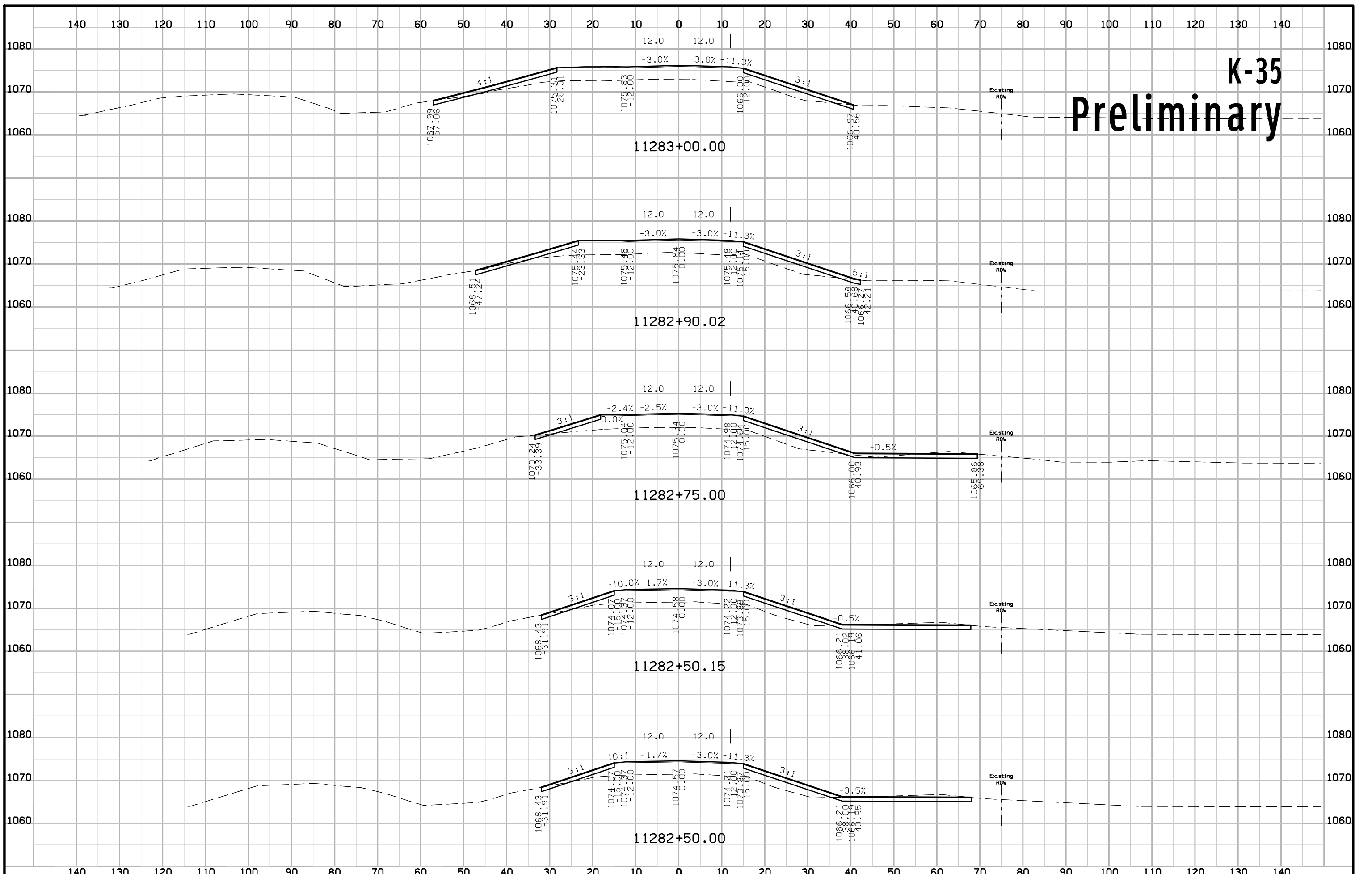


K-35

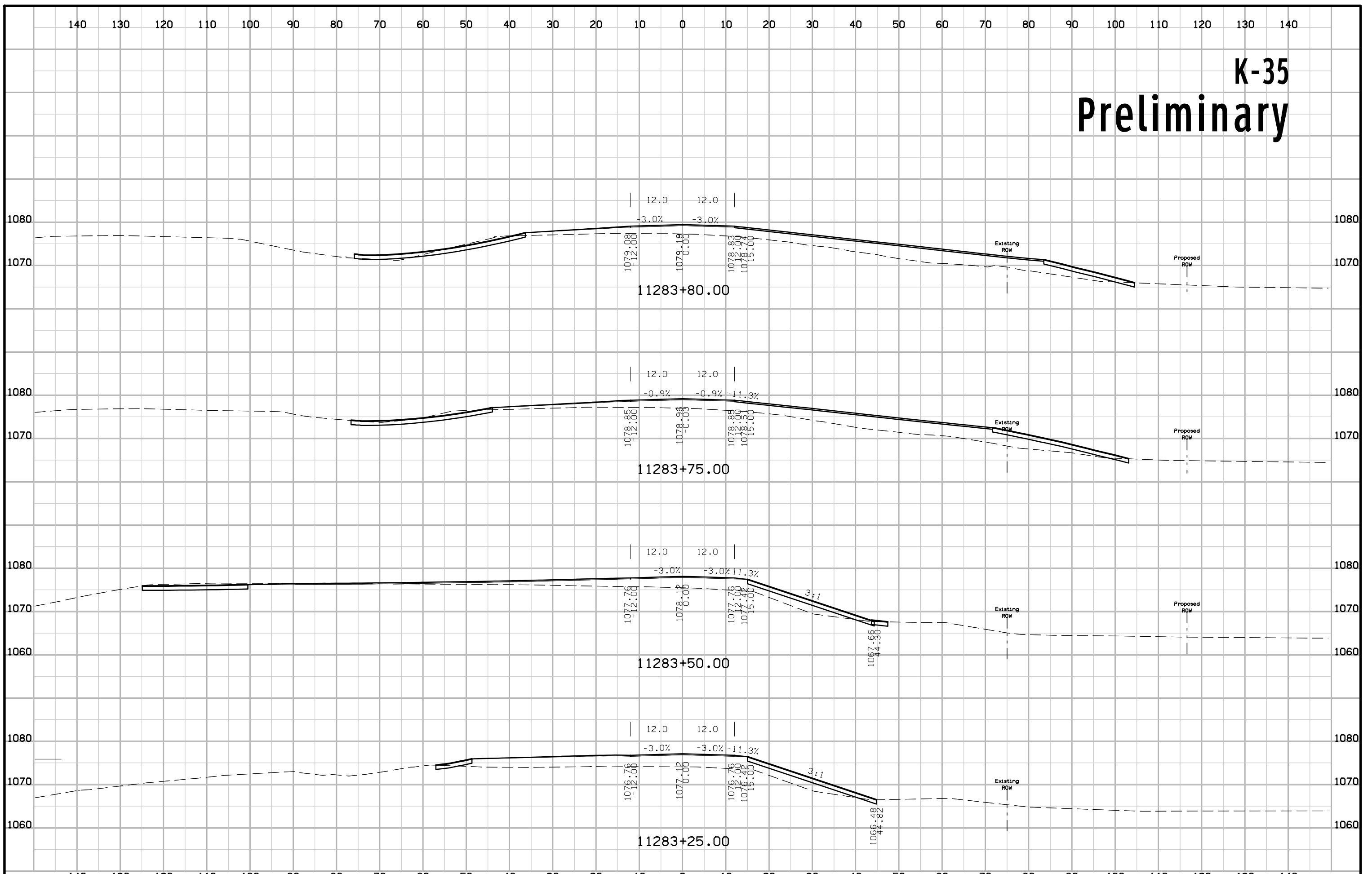
Preliminary



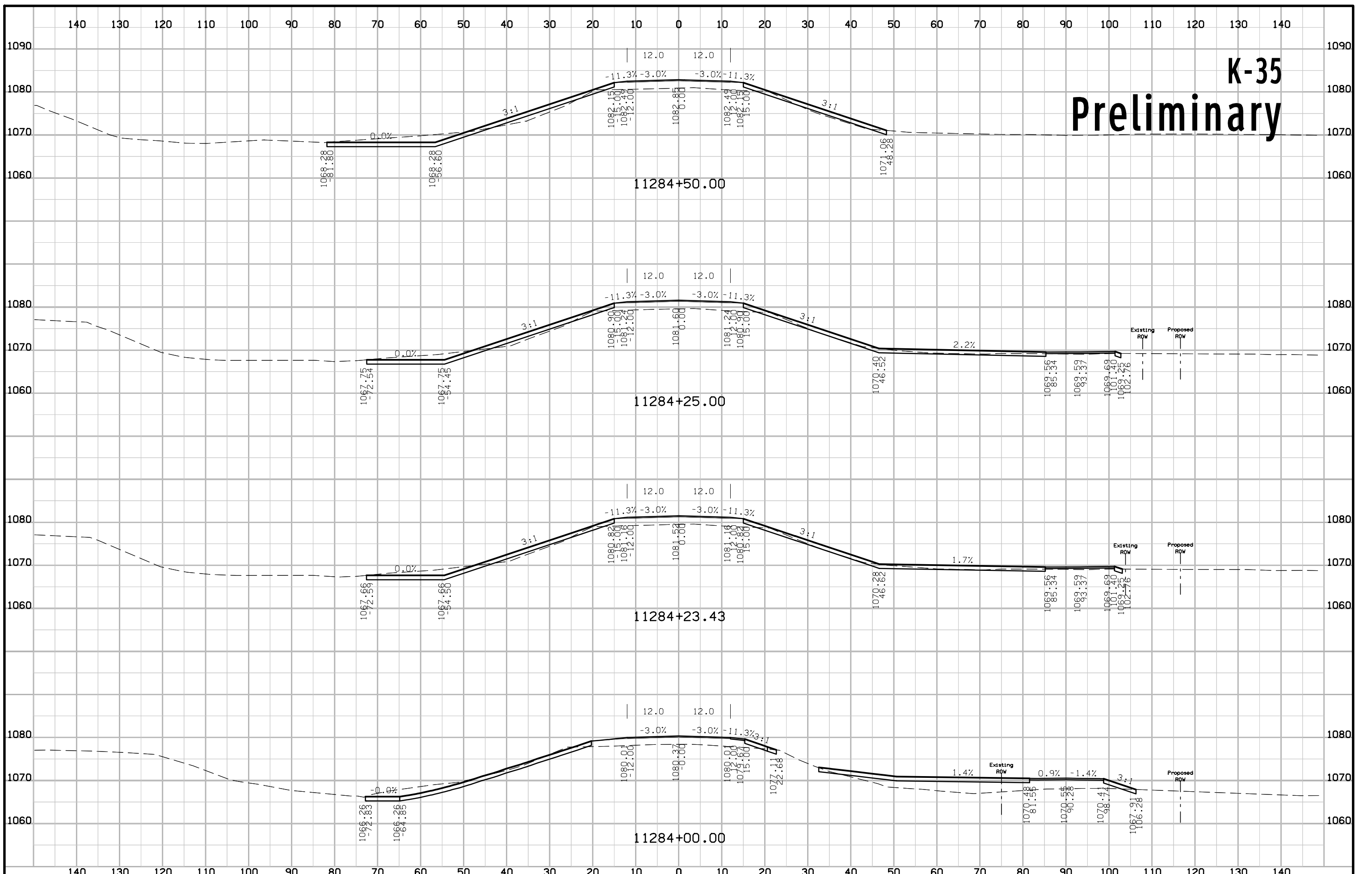
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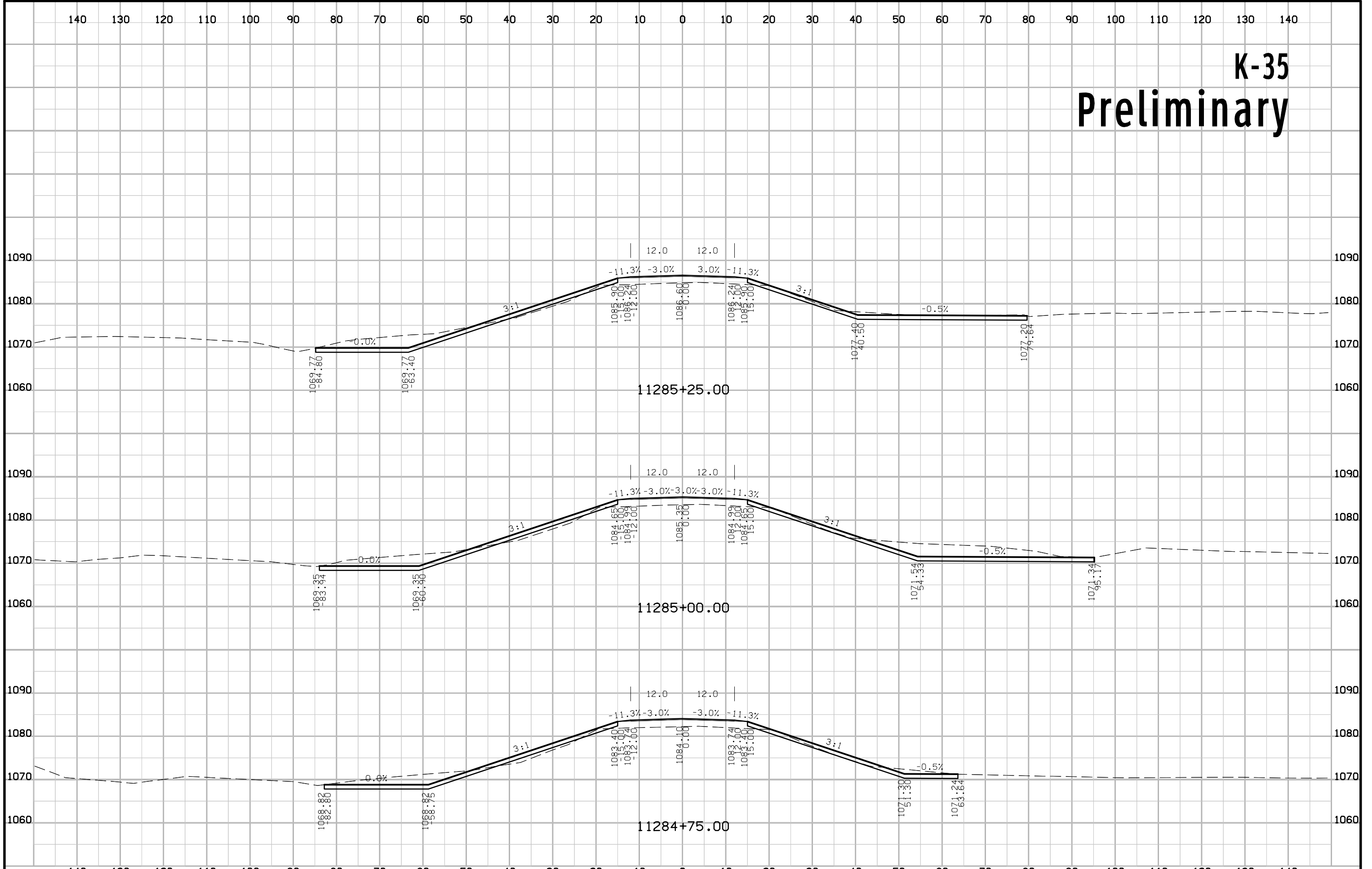
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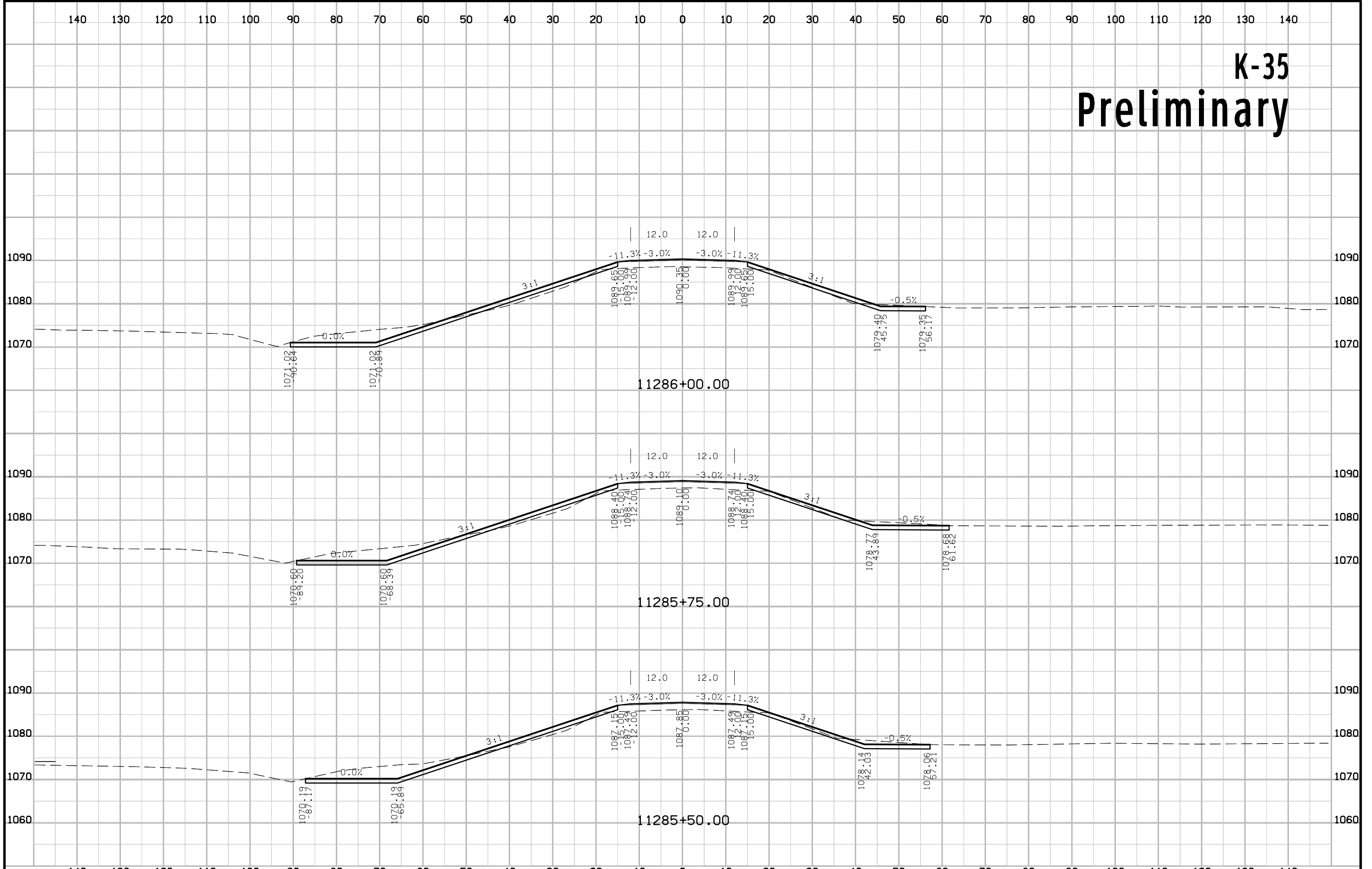
# K-35 Preliminary



# K-35 Preliminary

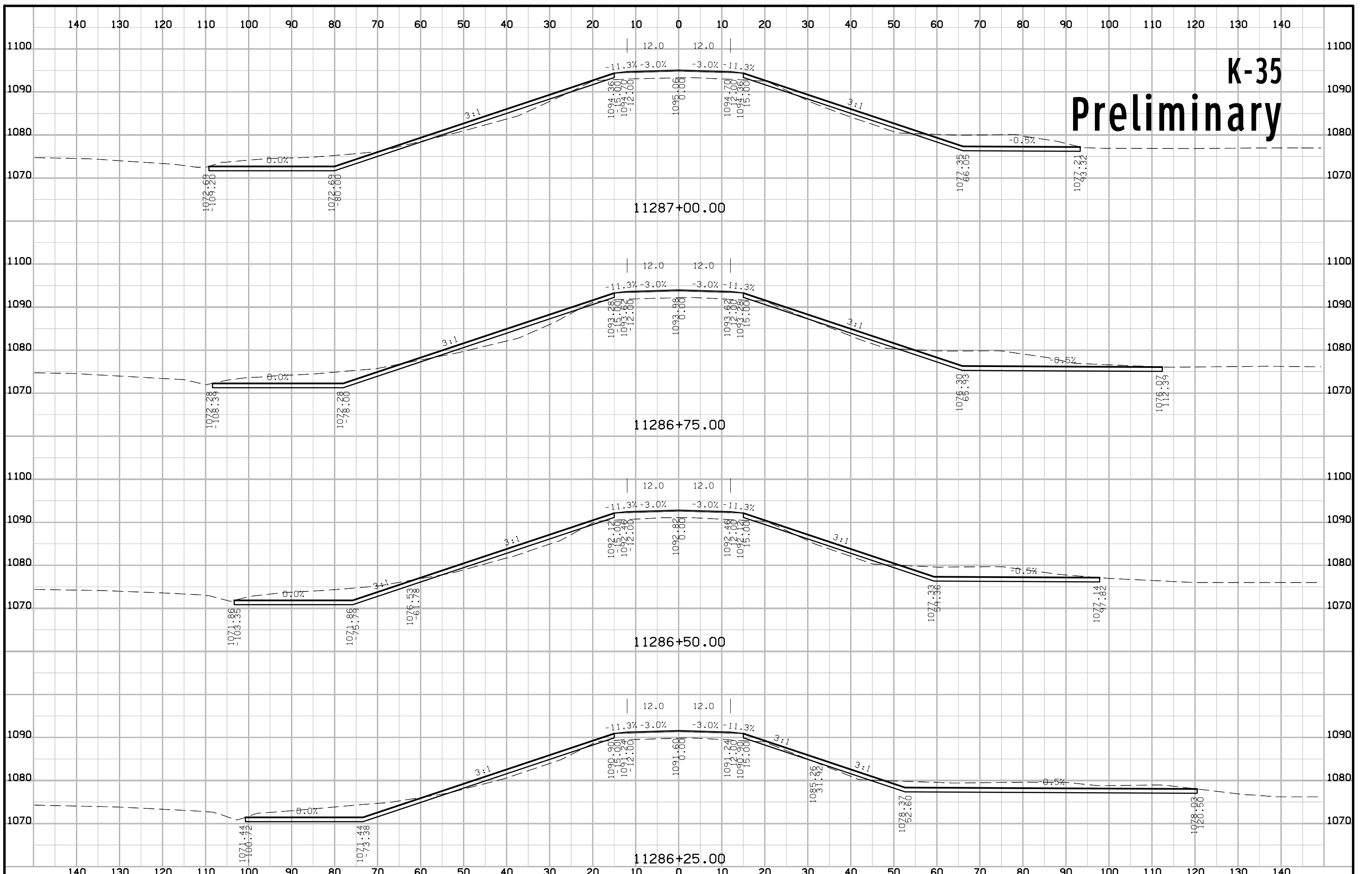


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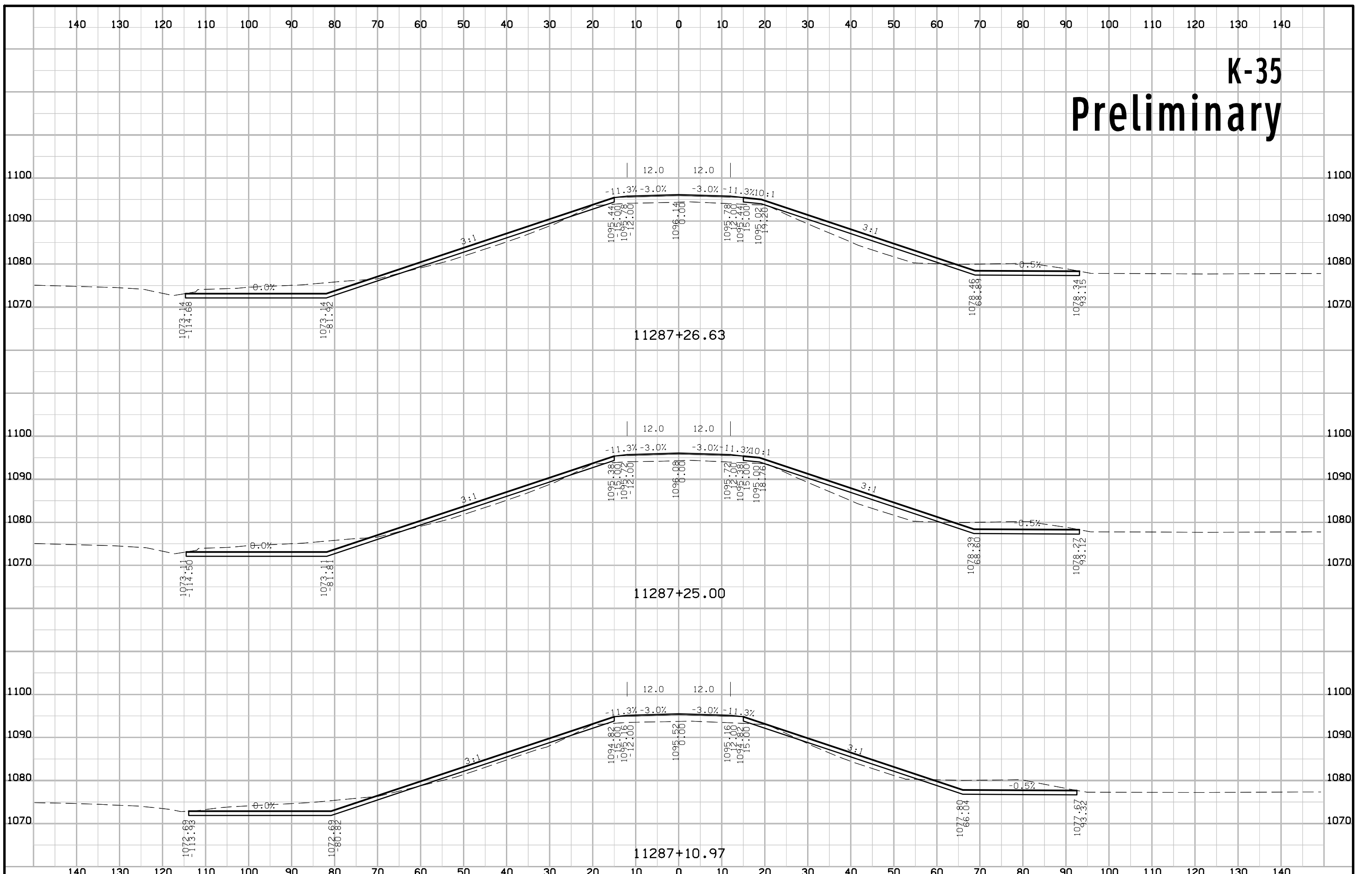




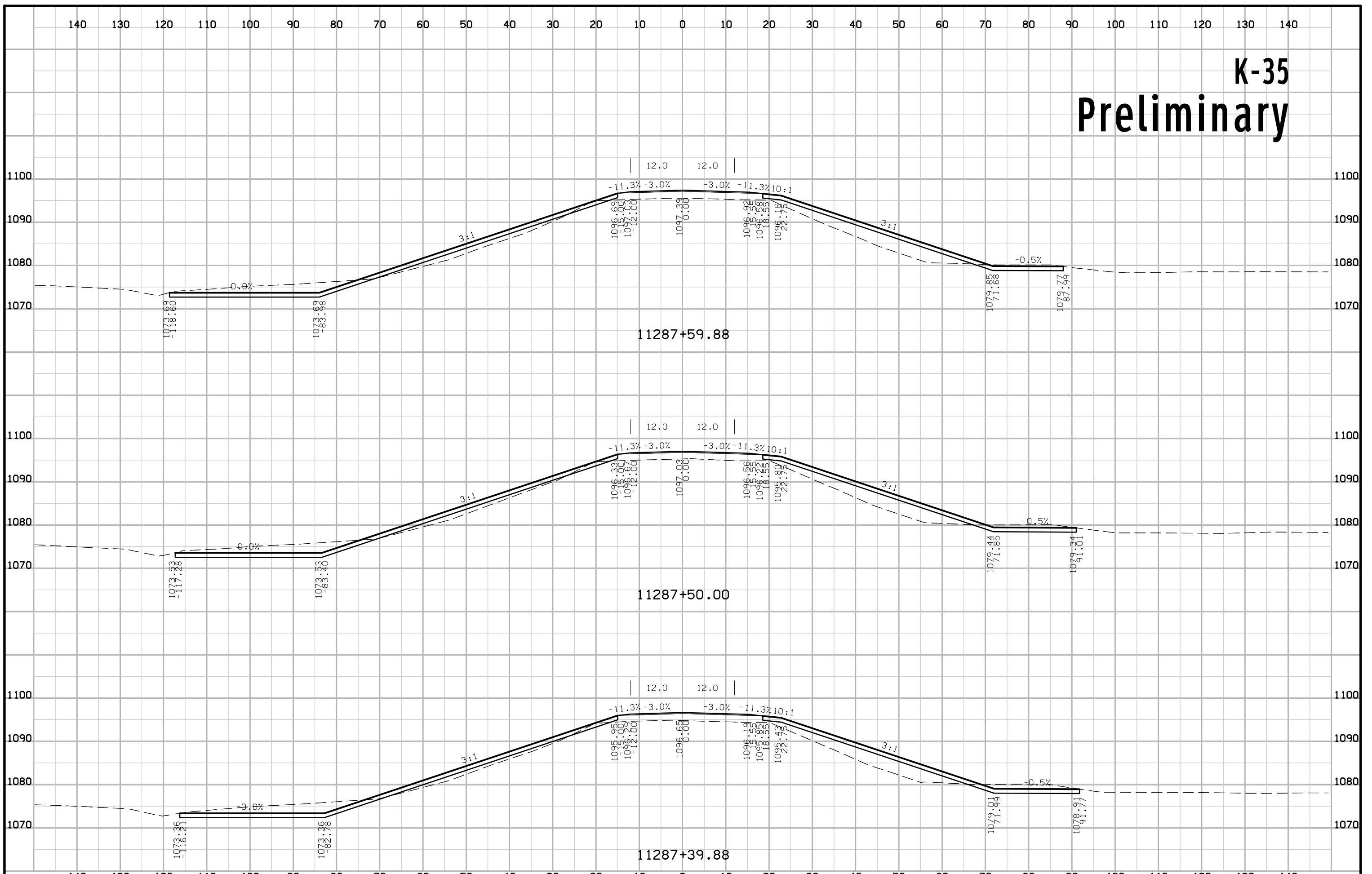
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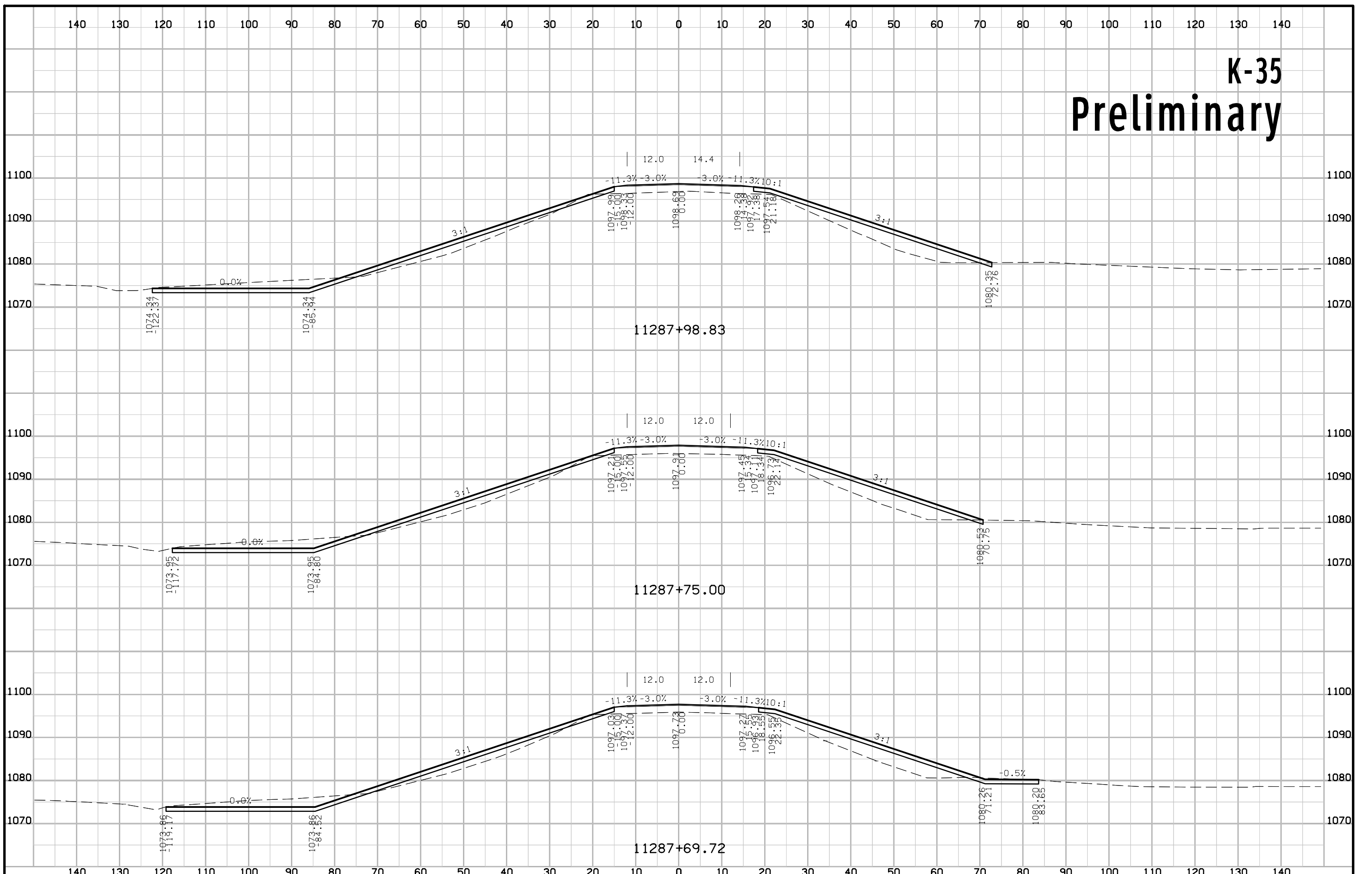
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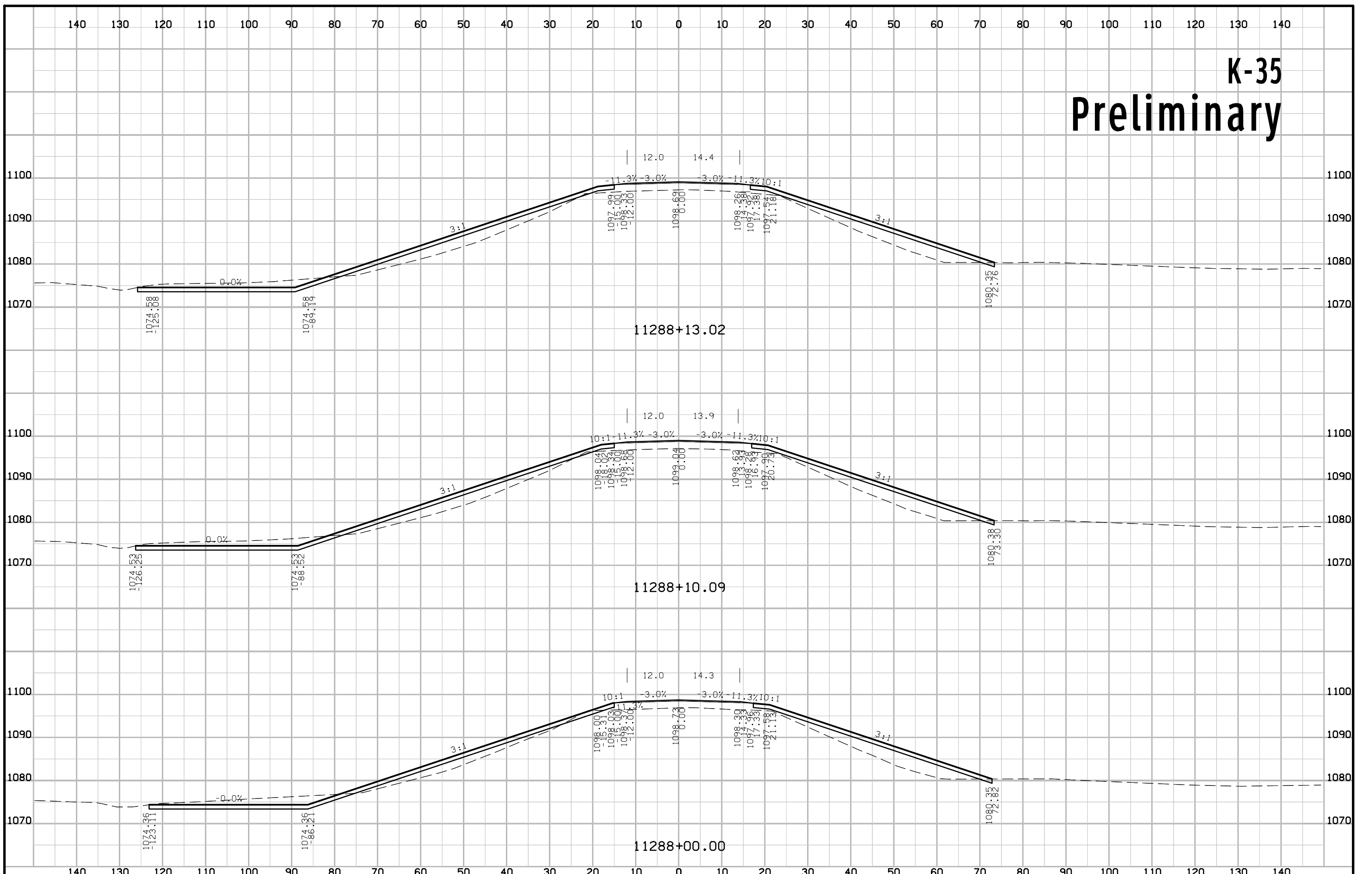
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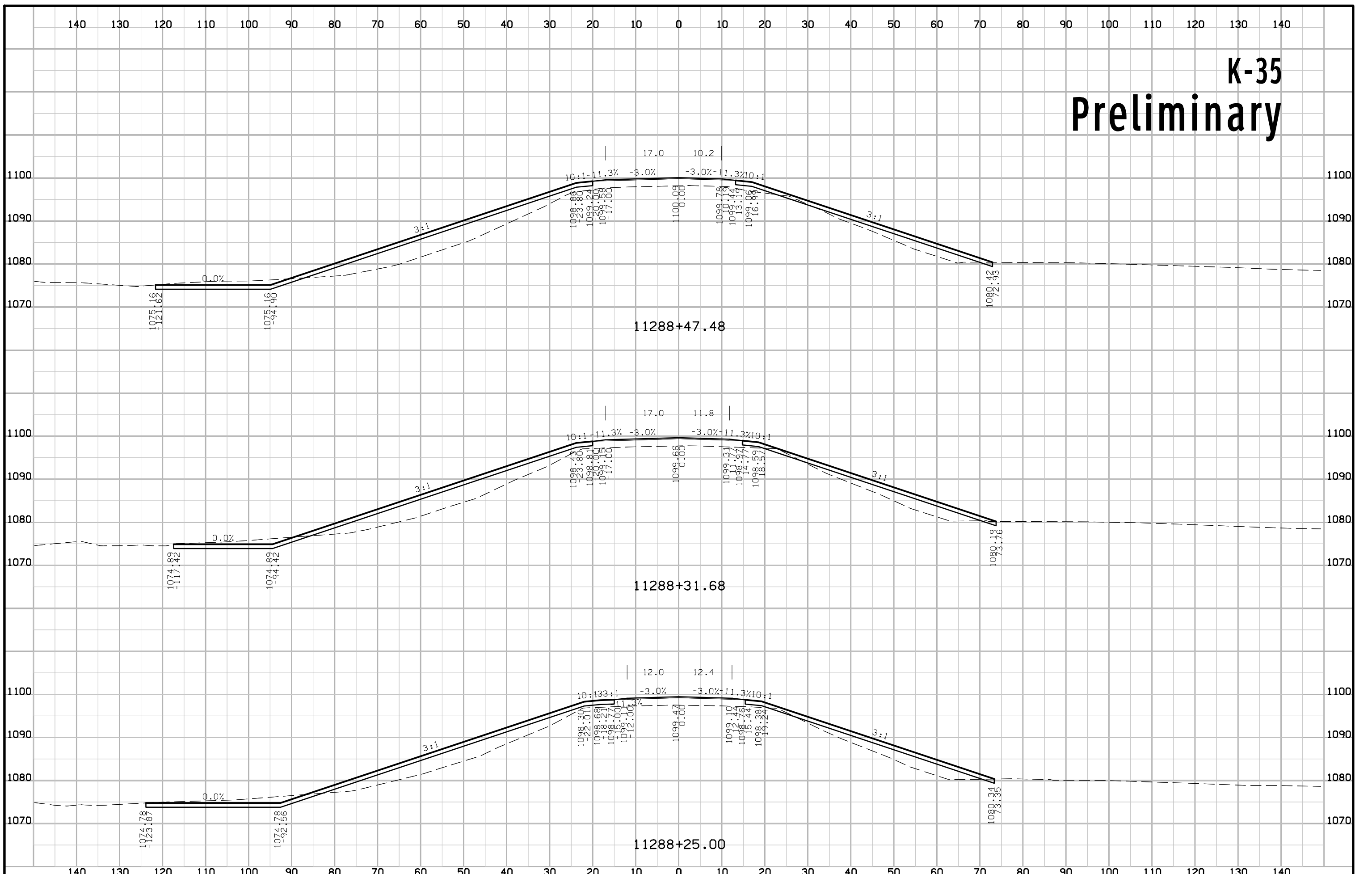
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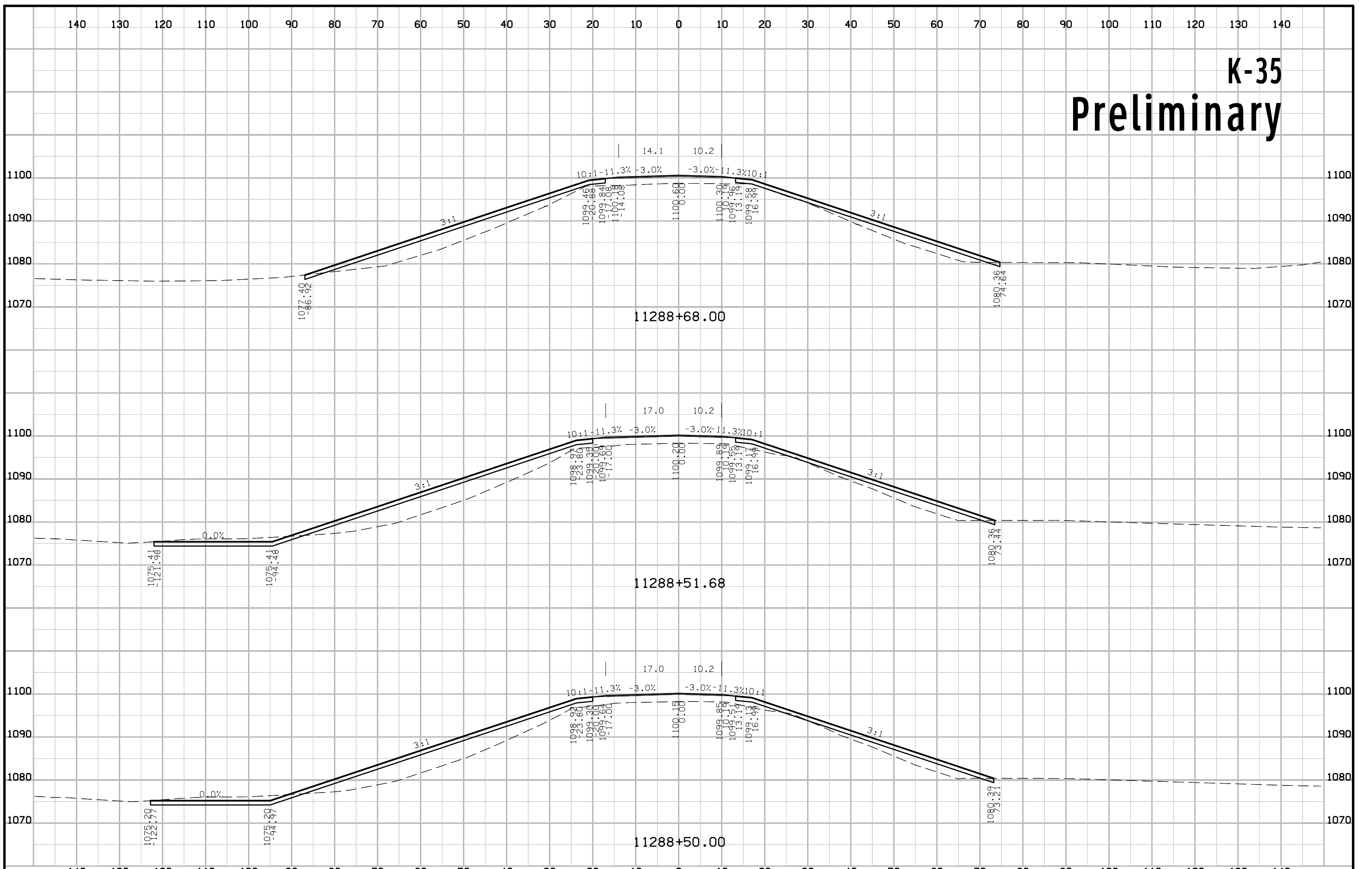
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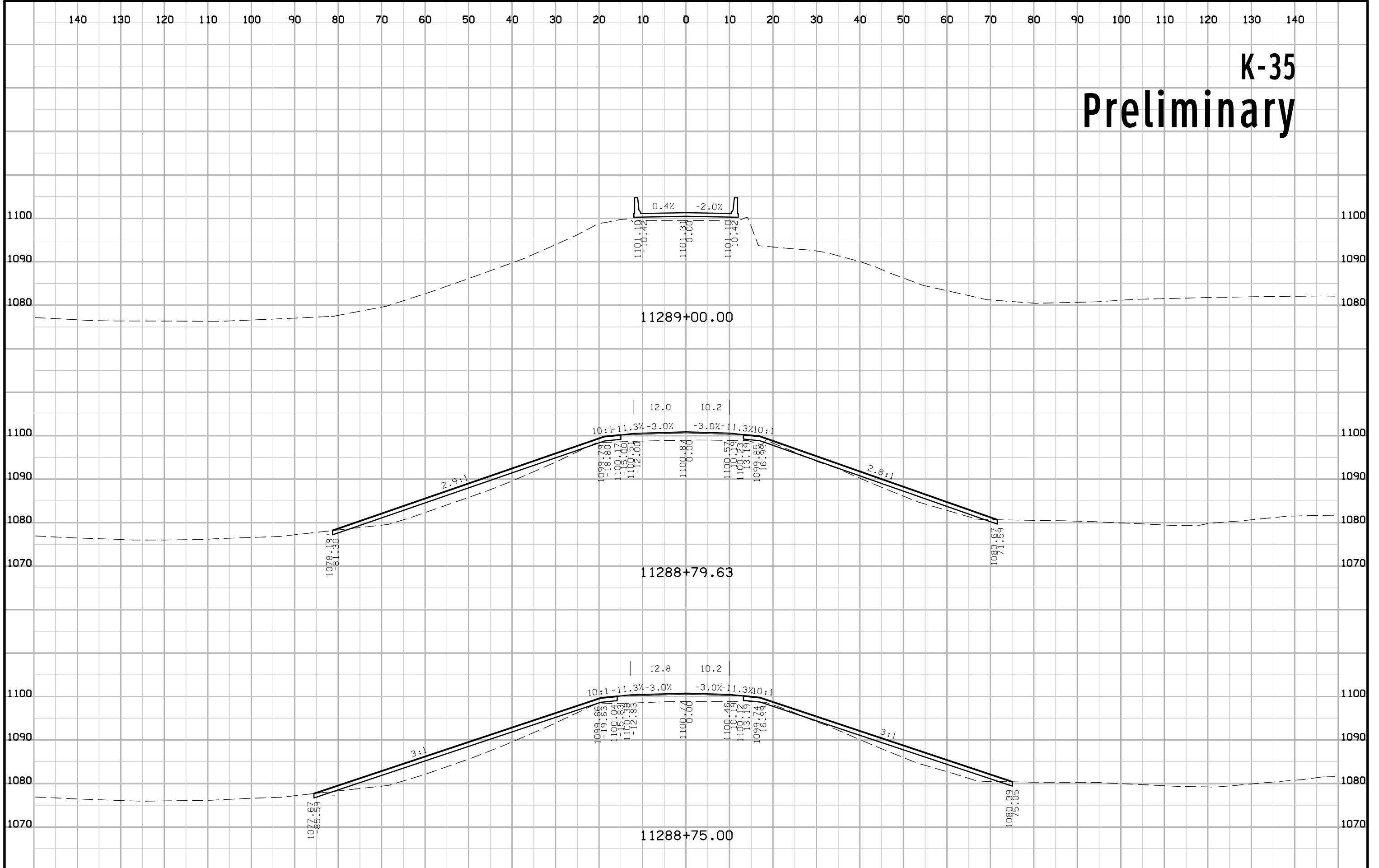
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# K-35 Preliminary

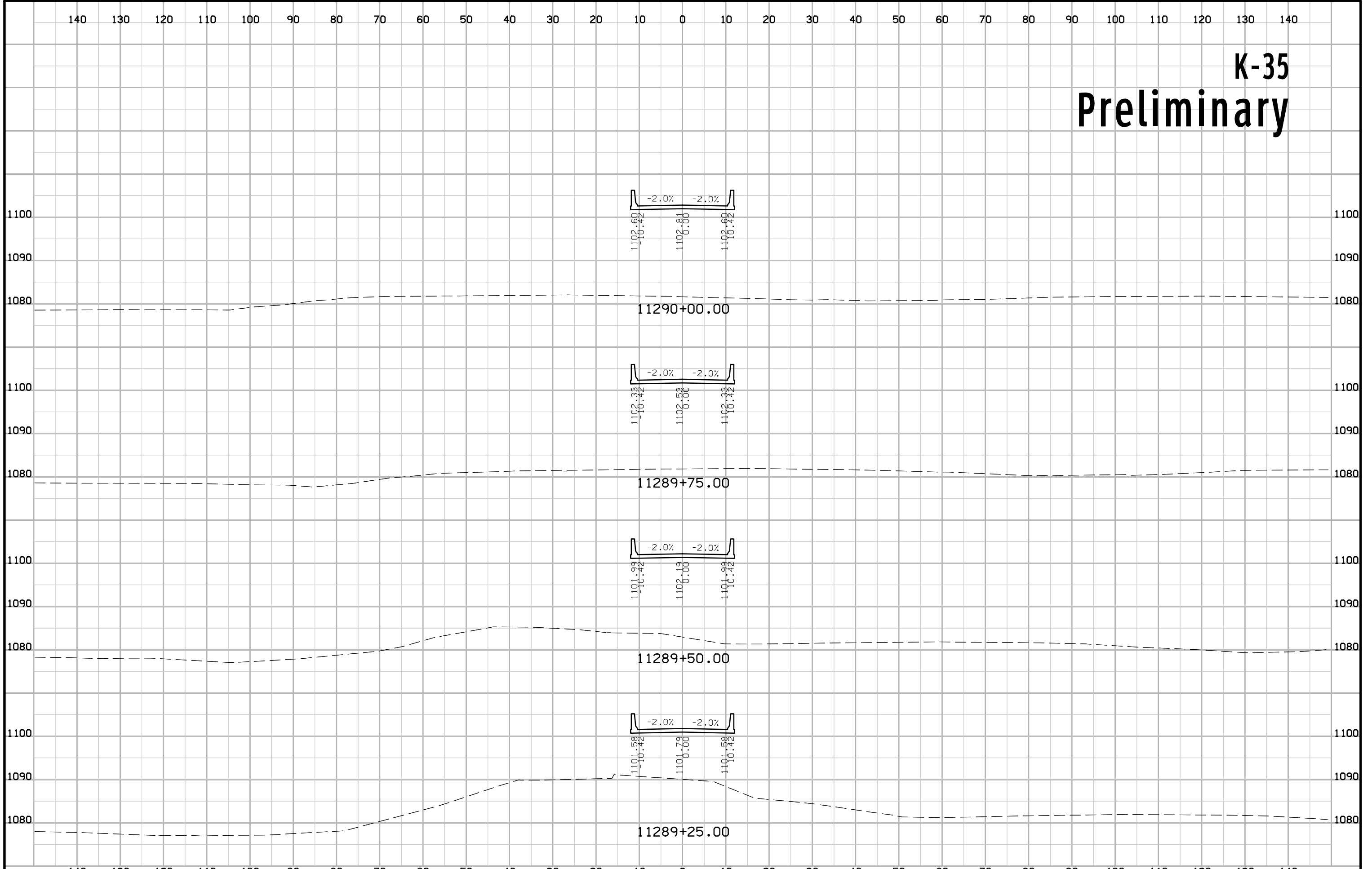


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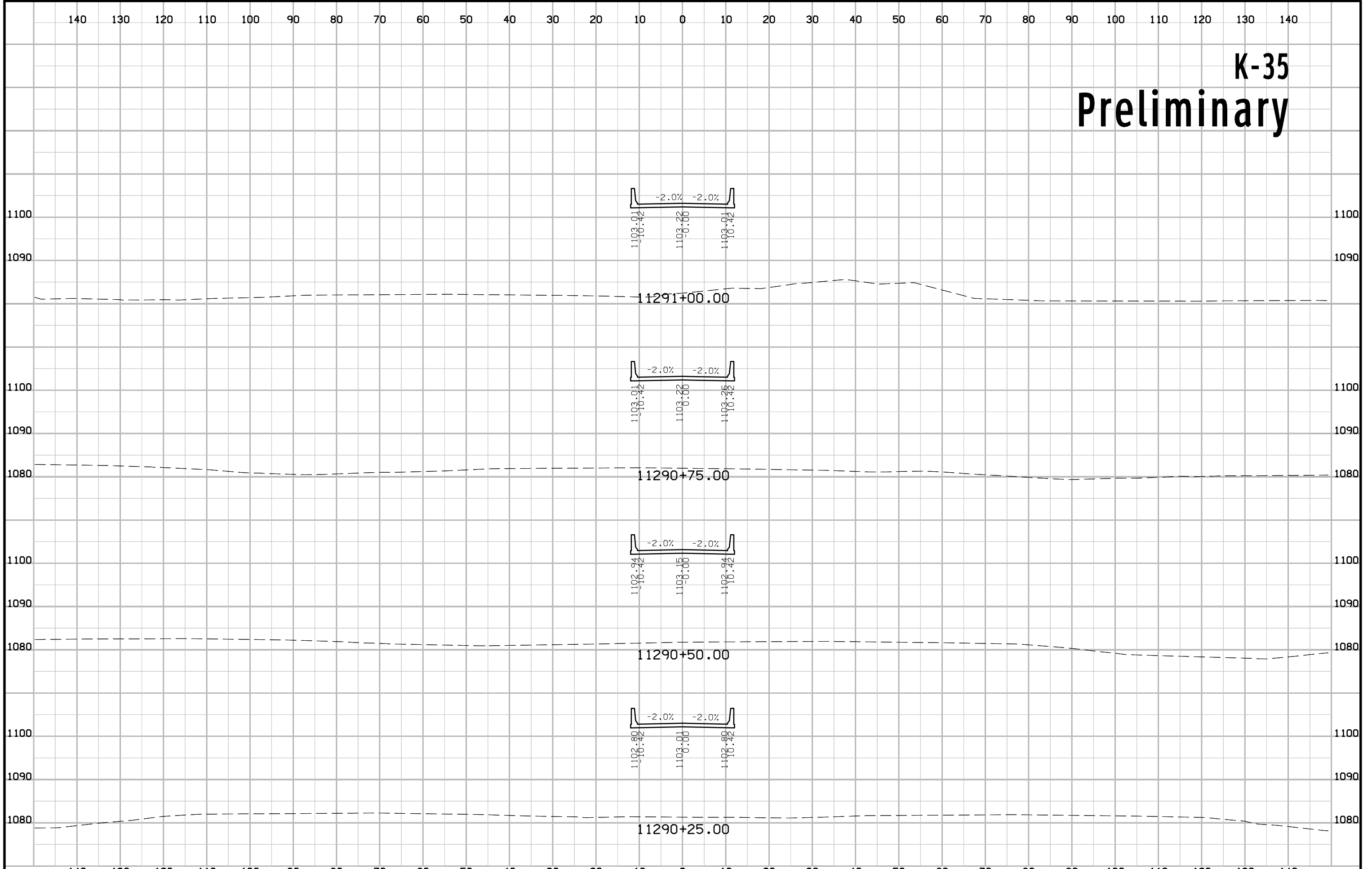




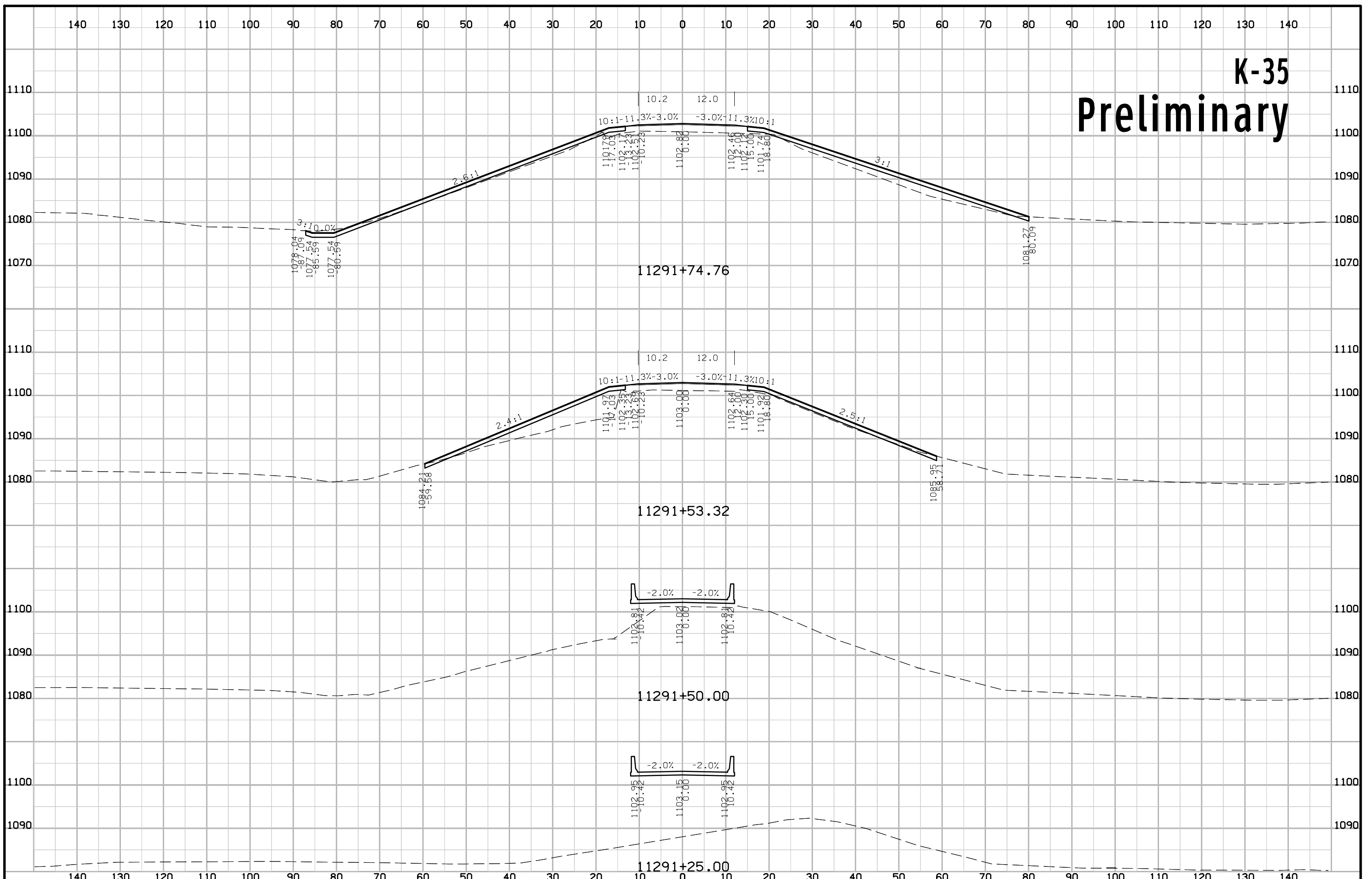
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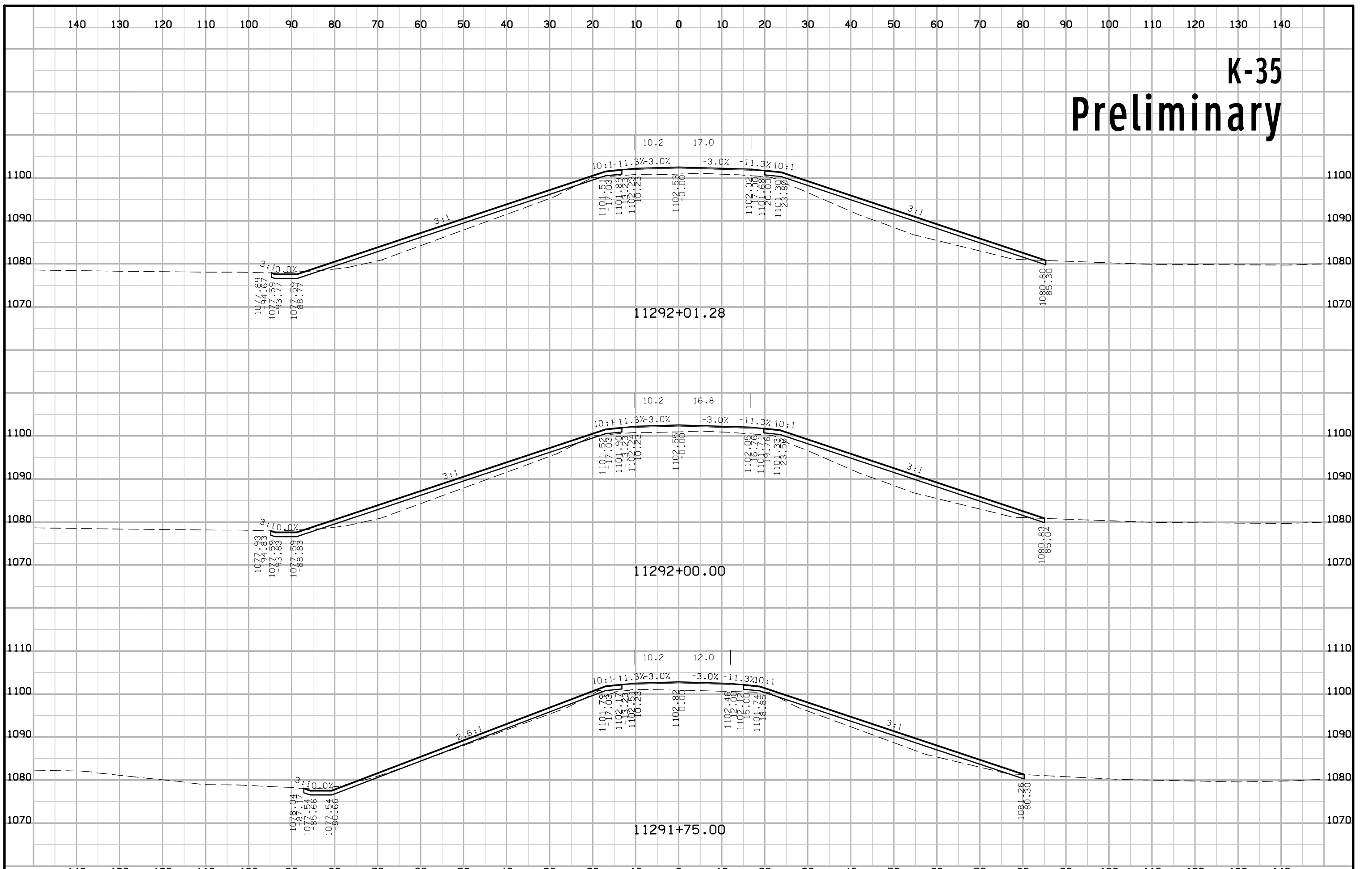
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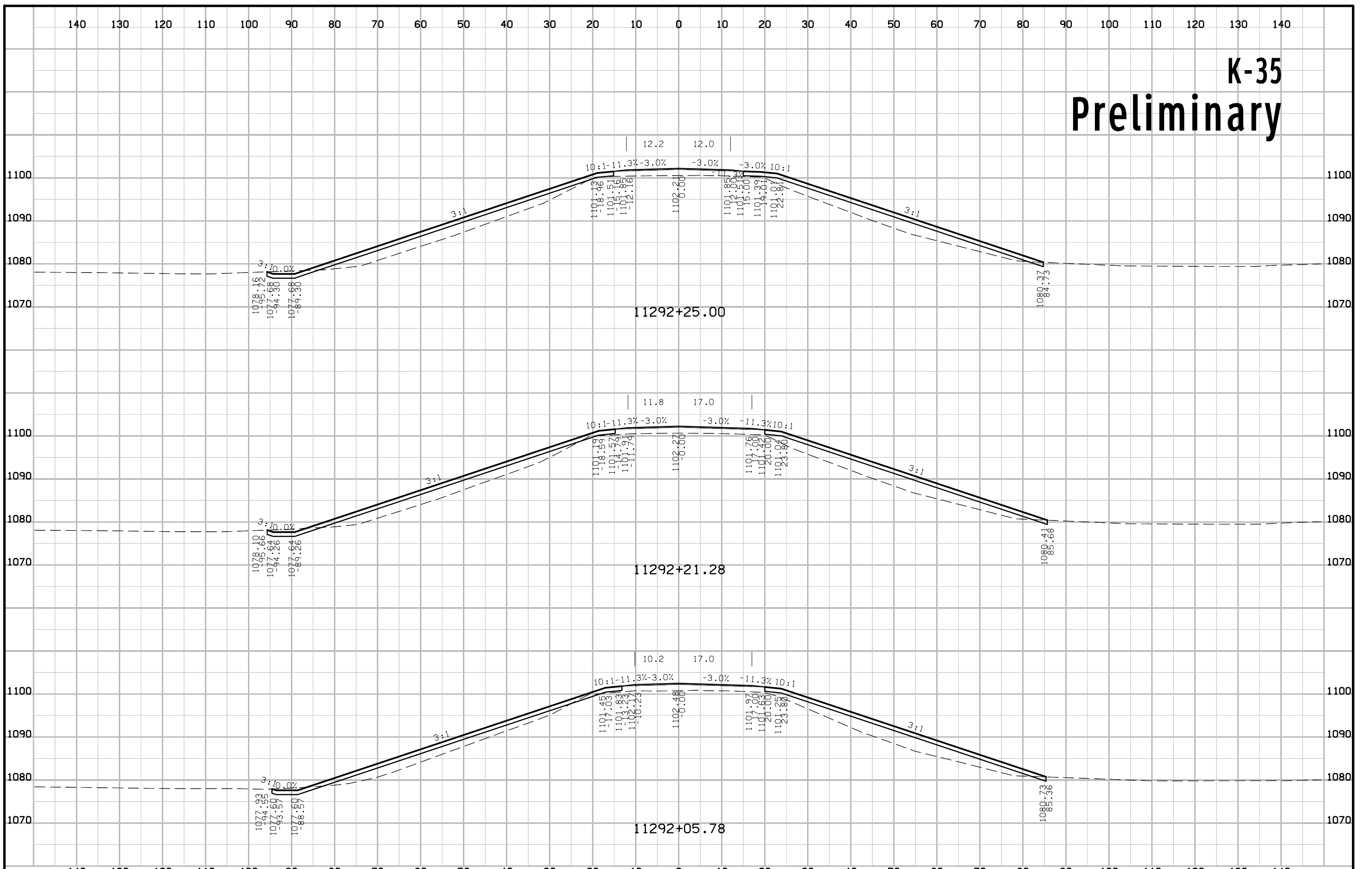
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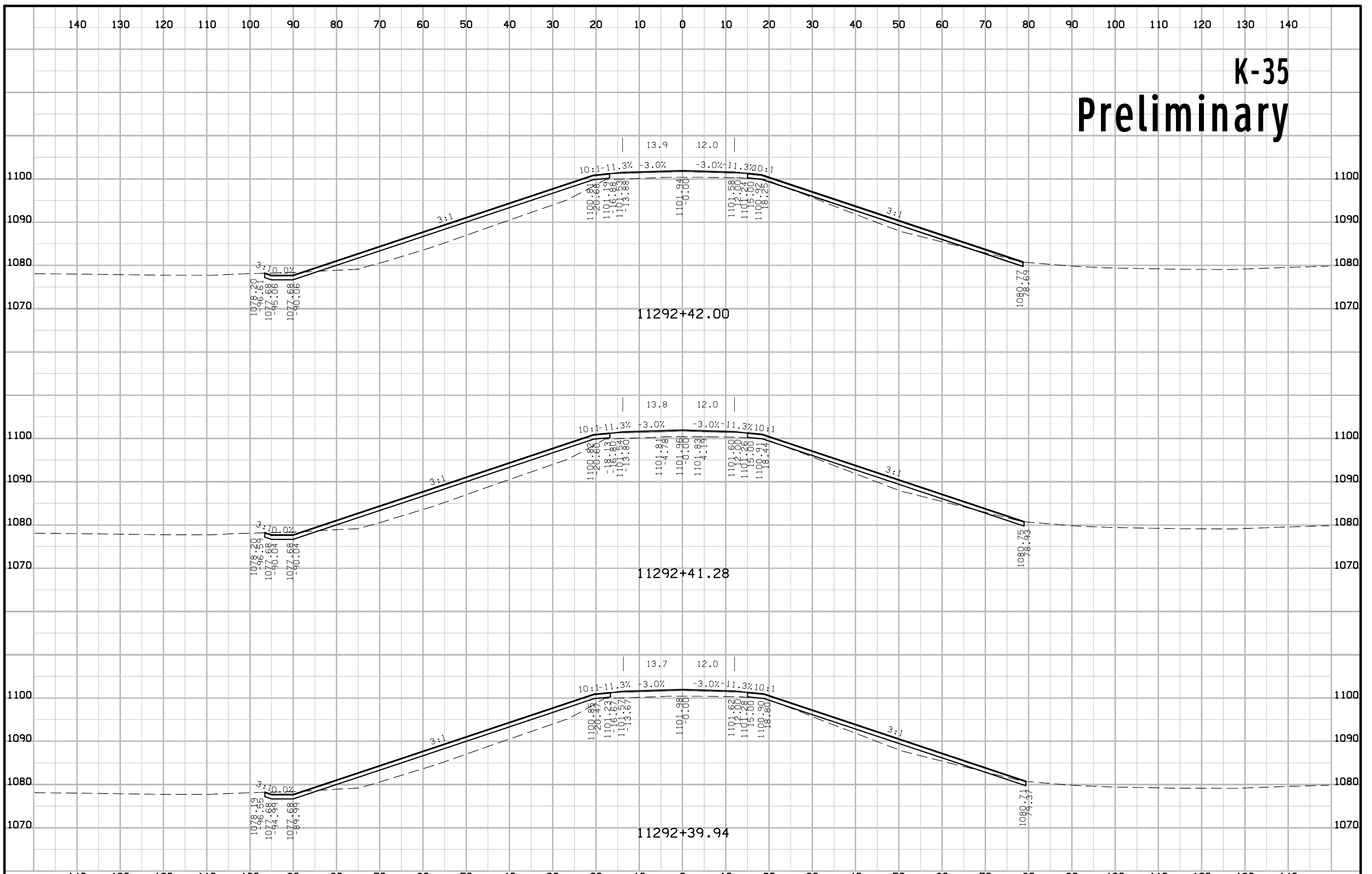
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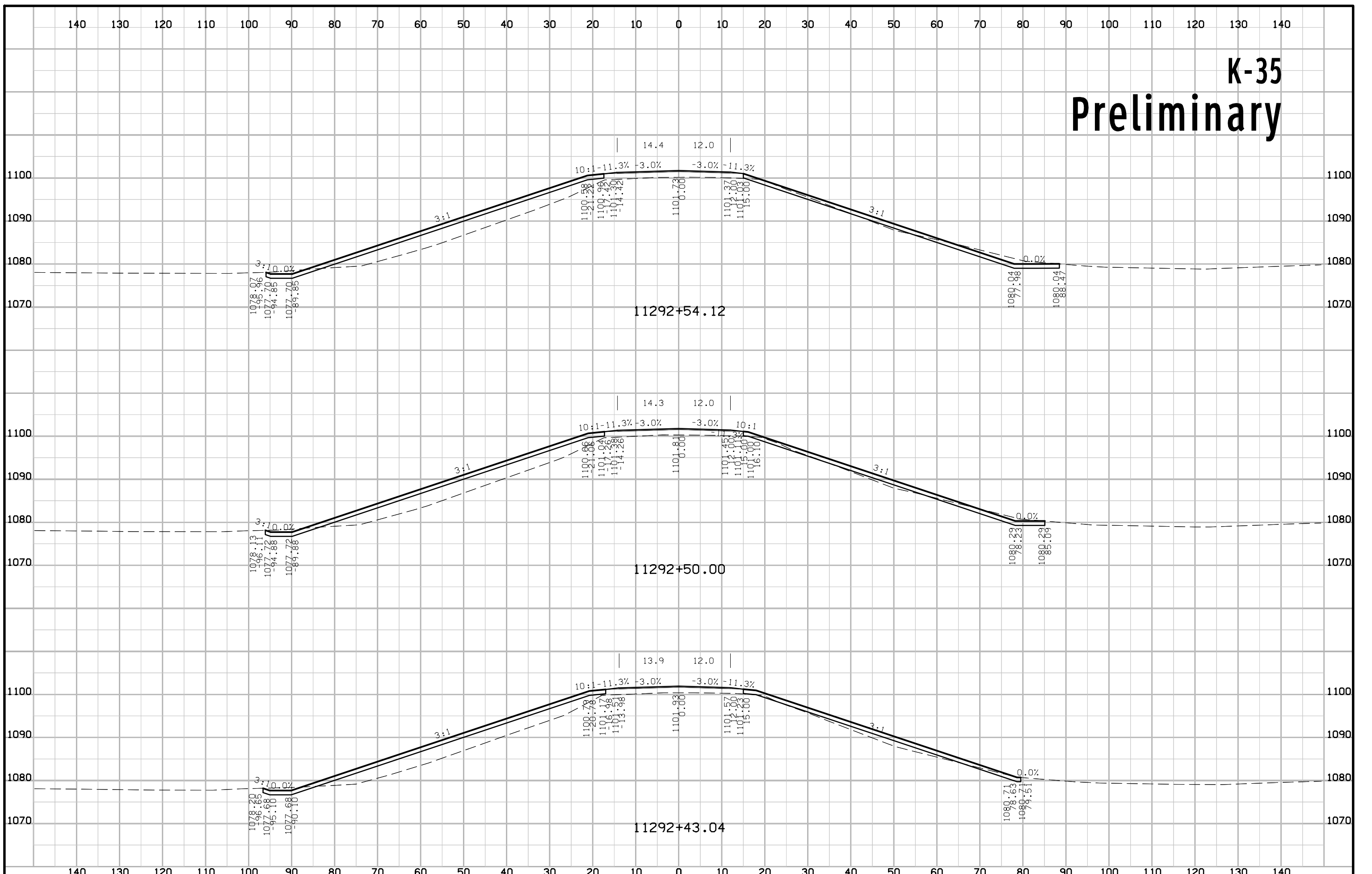
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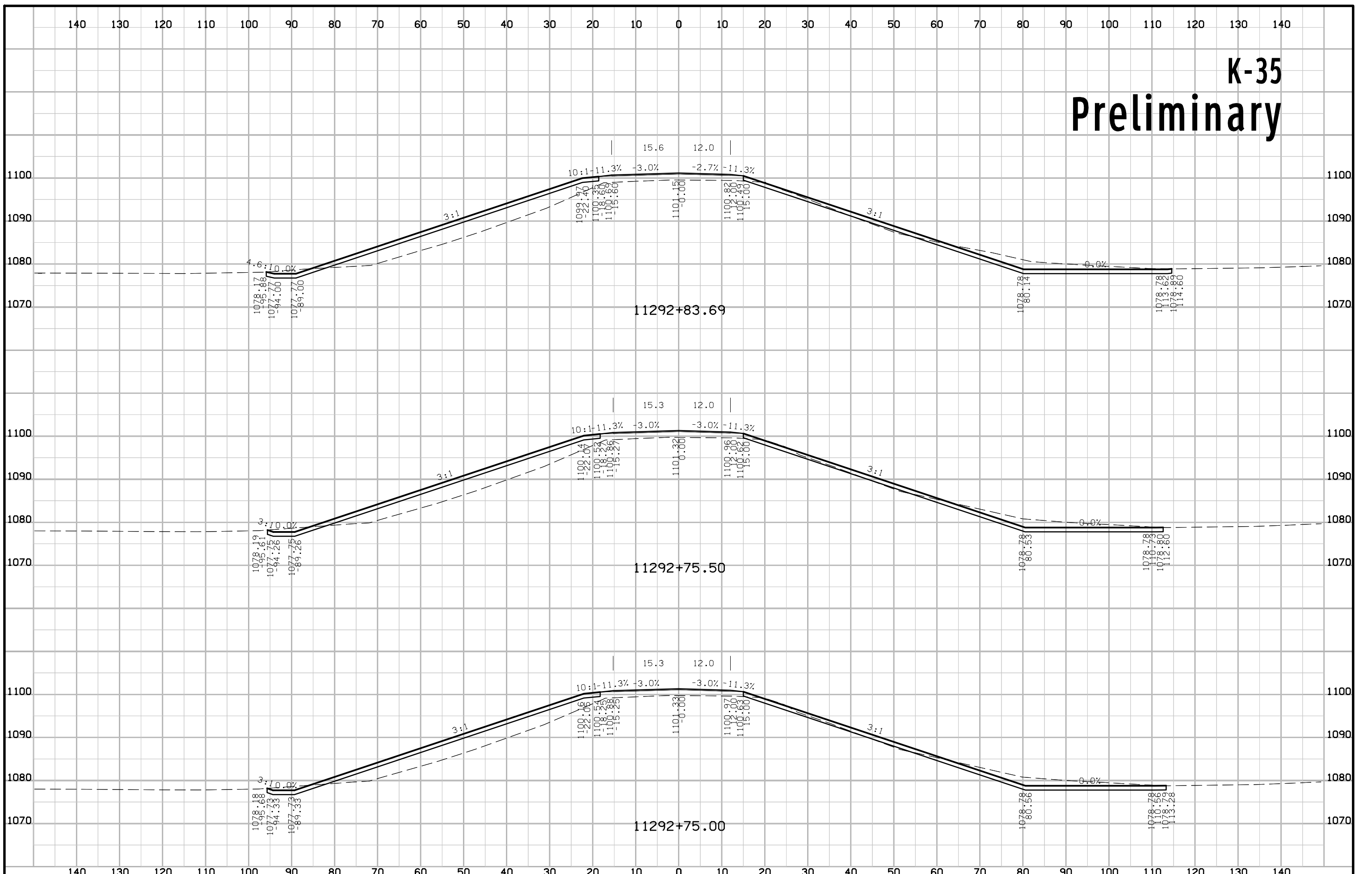
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# K-35 Preliminary

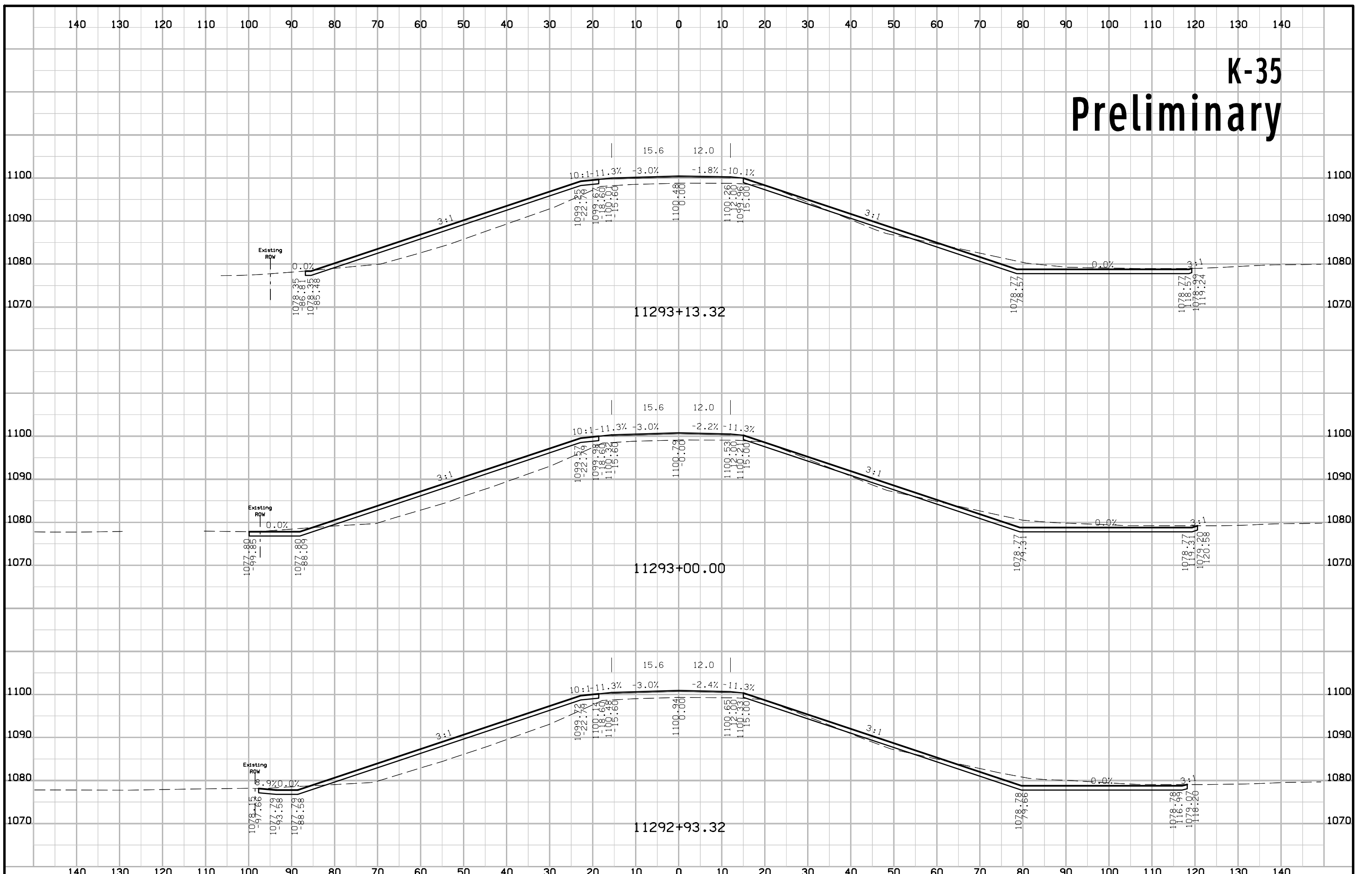


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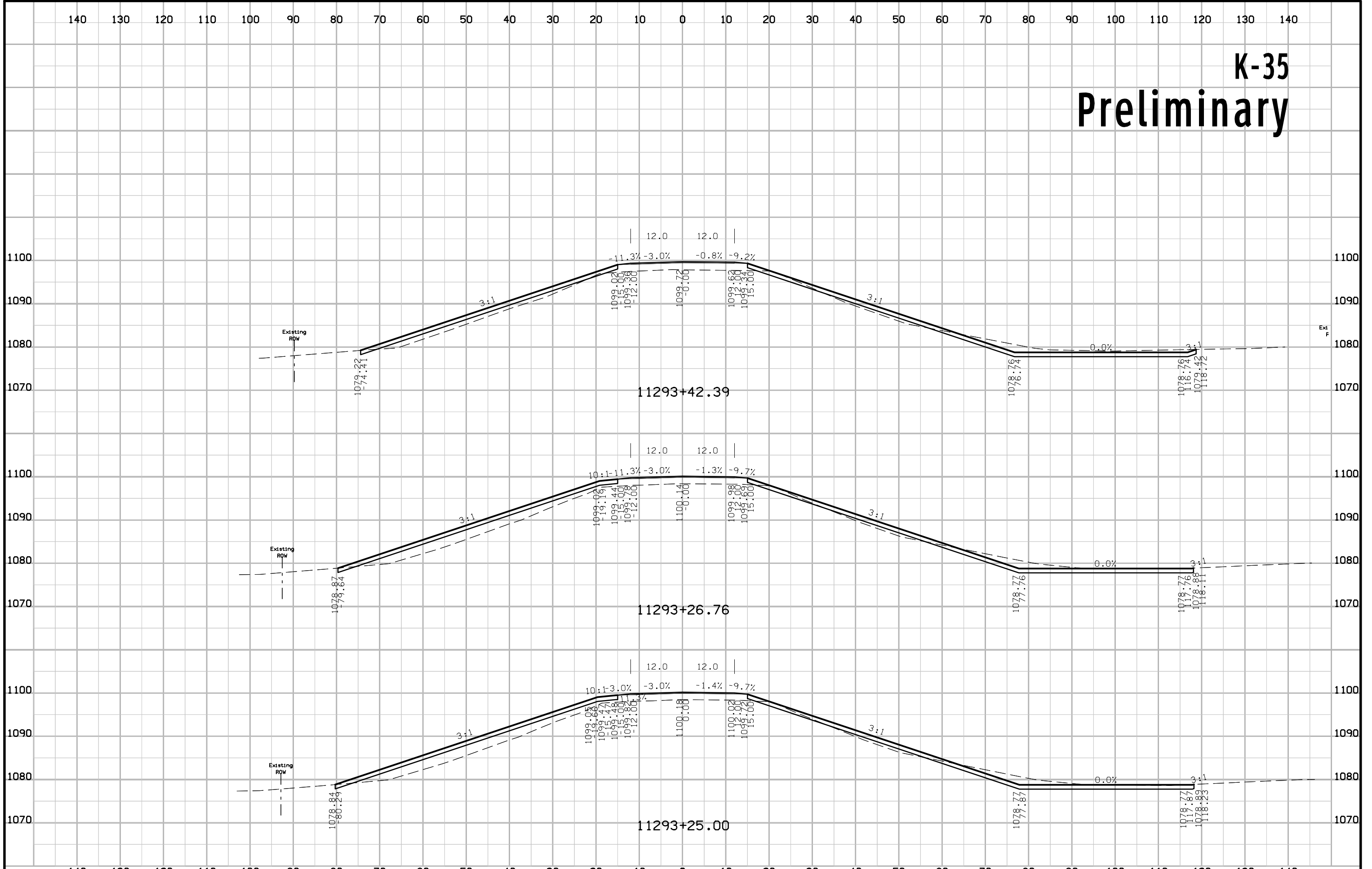




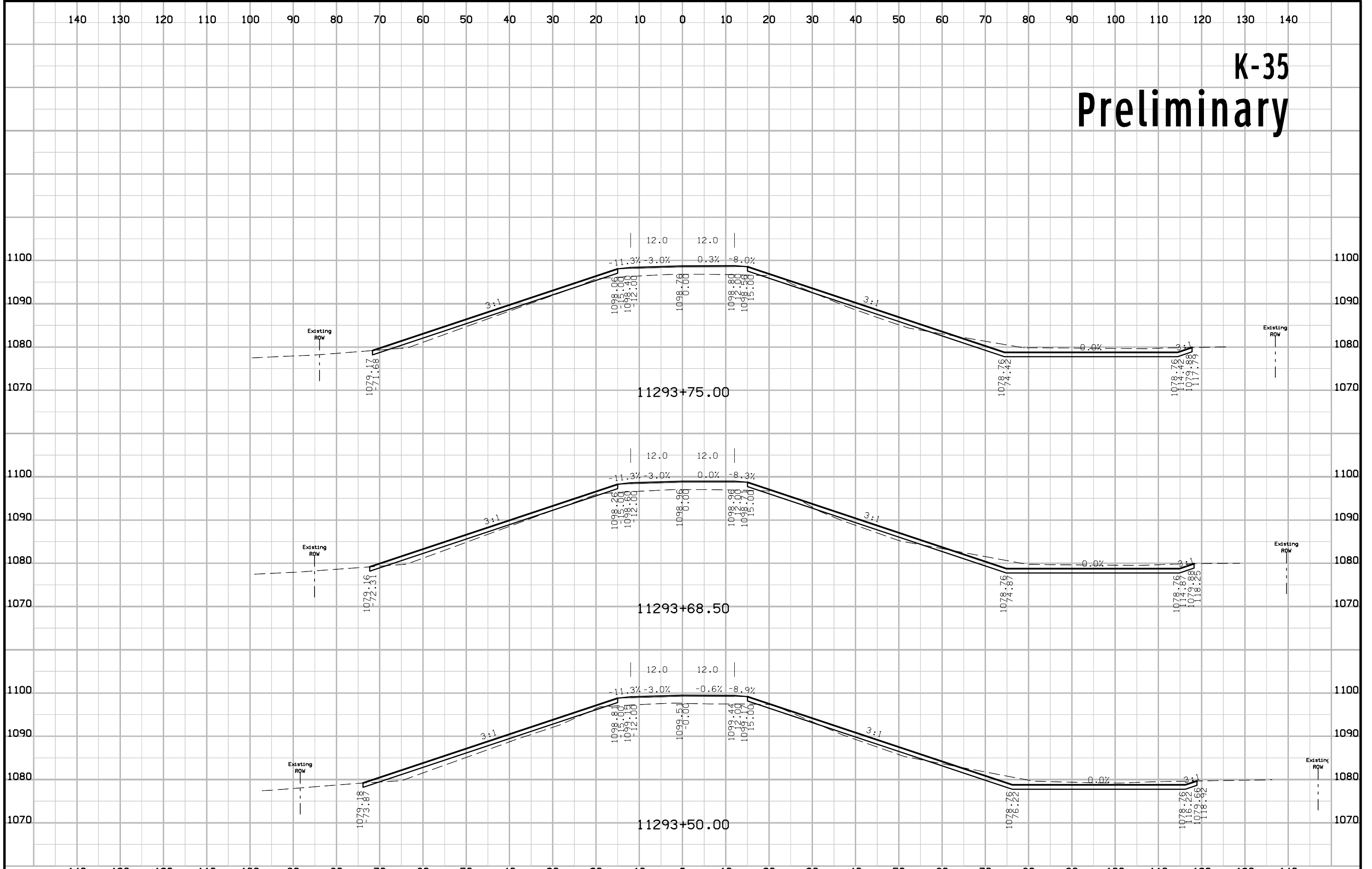
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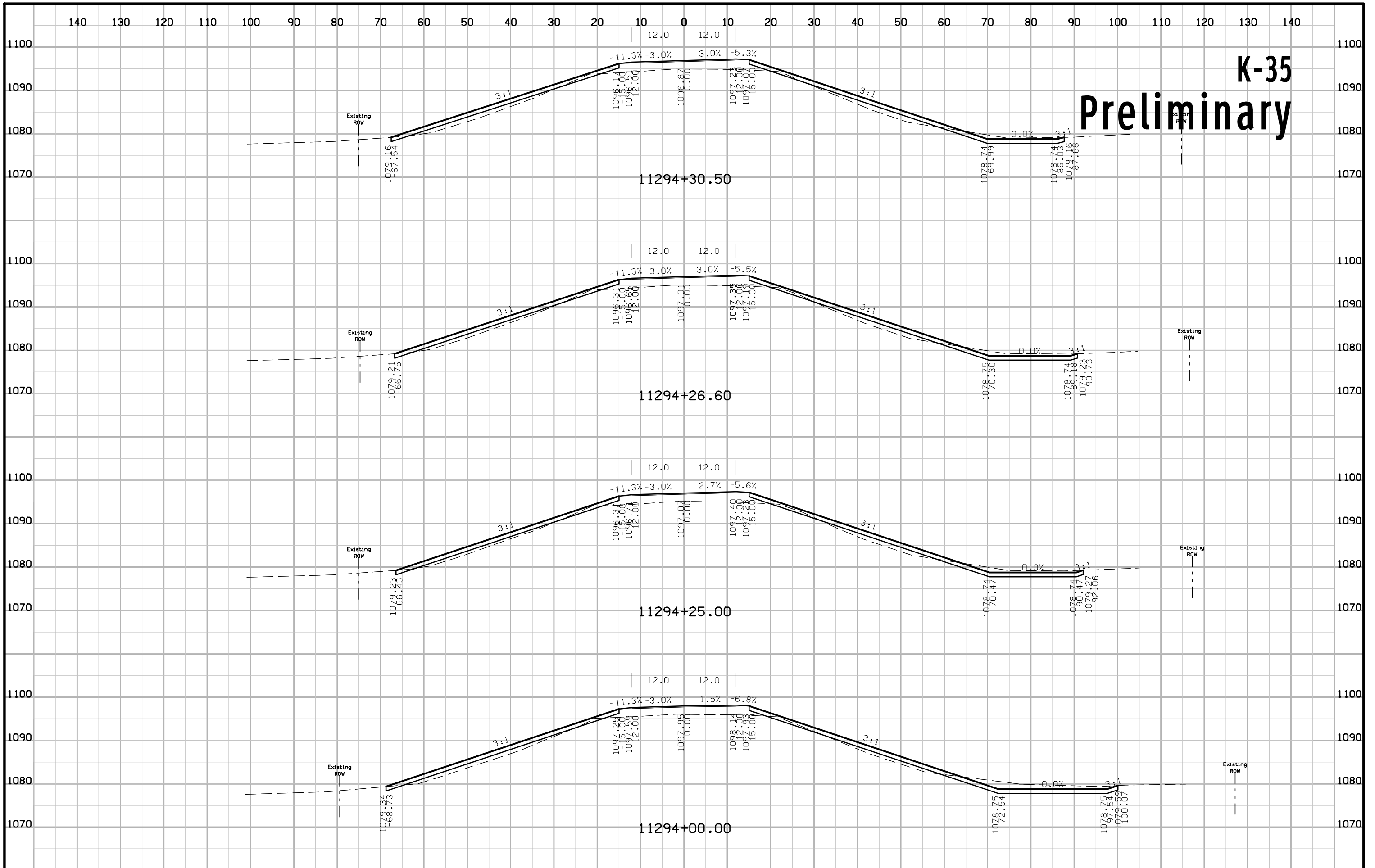
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# K-35 Preliminary

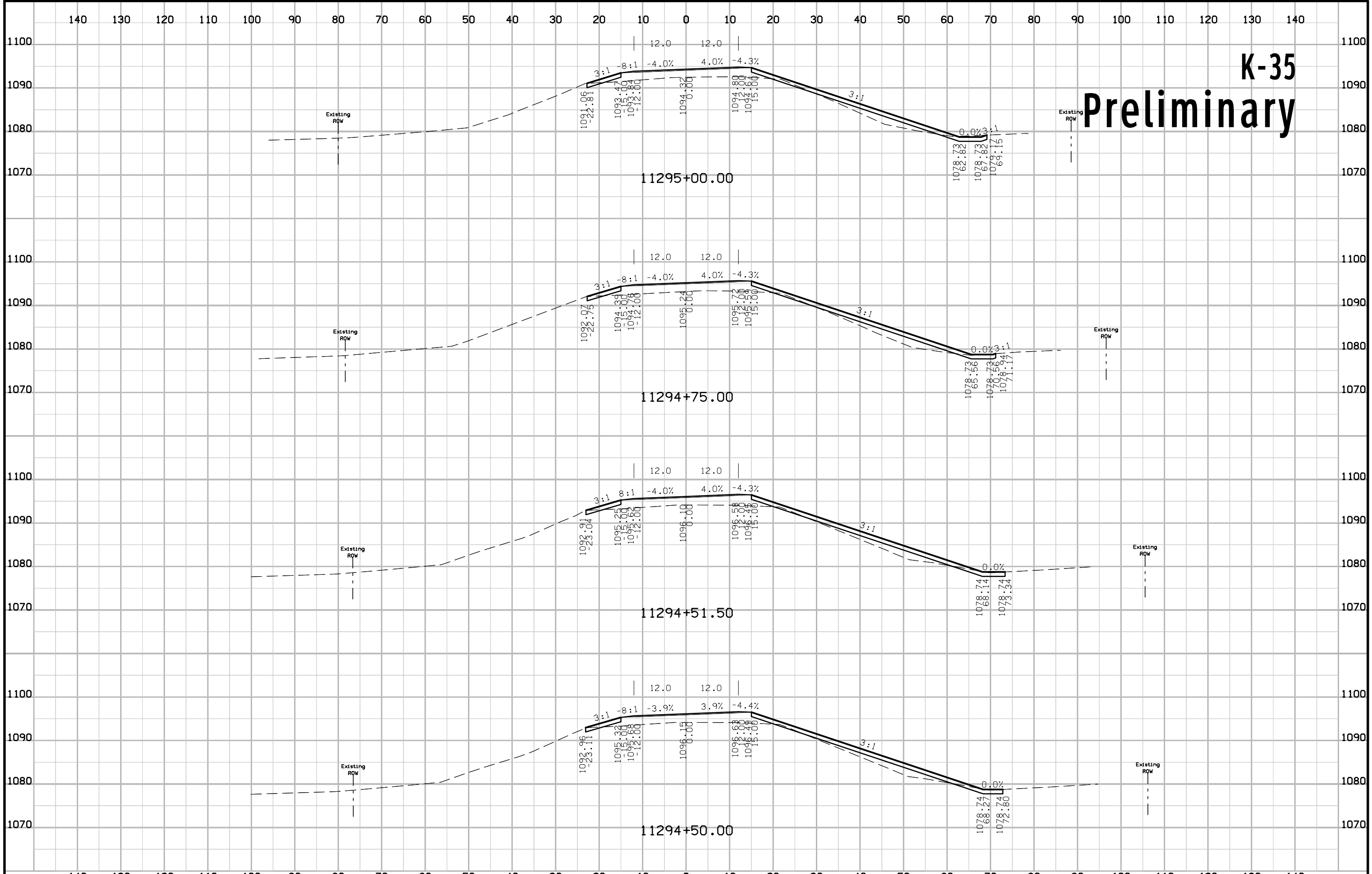


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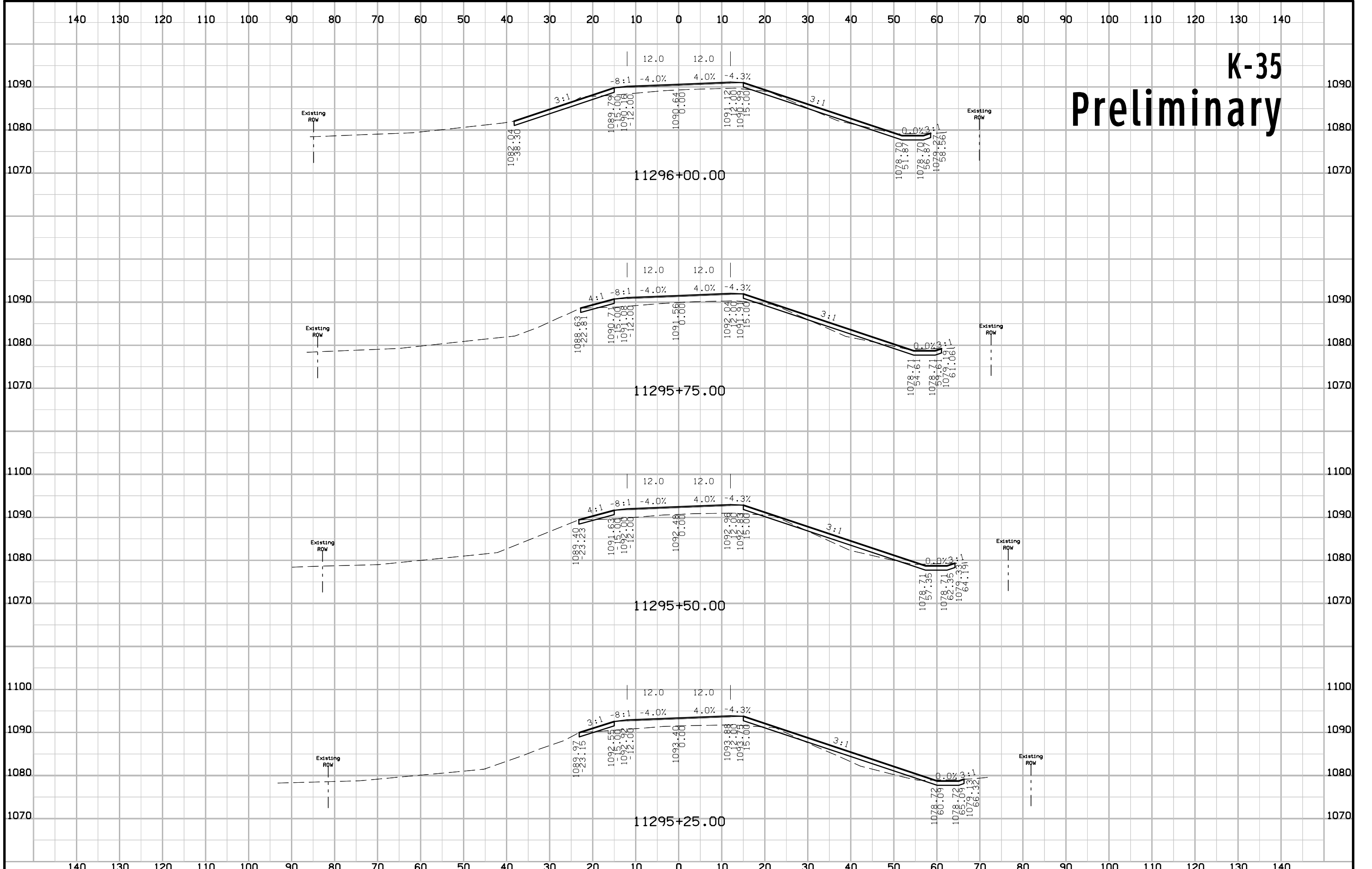


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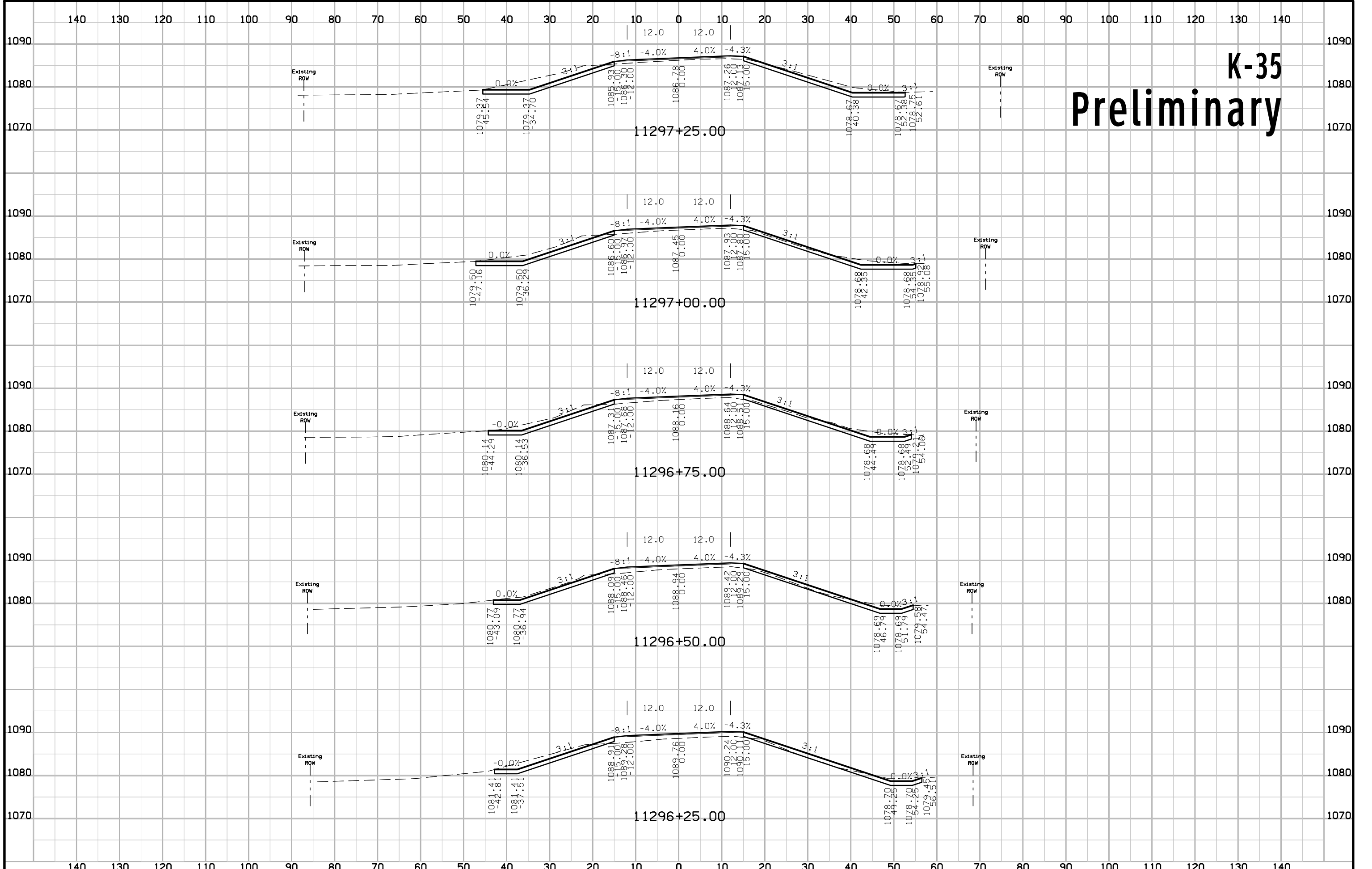
Preliminary



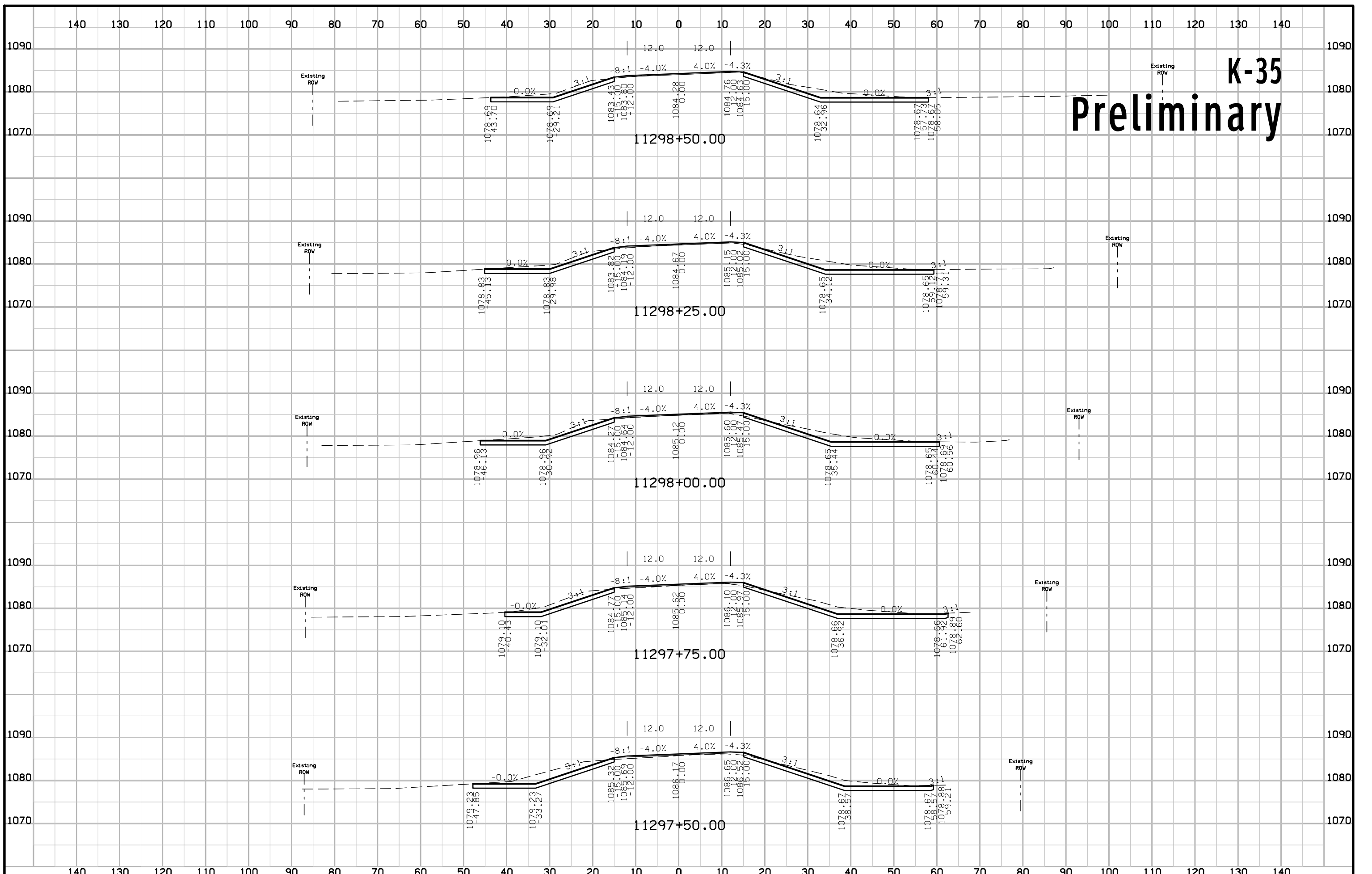
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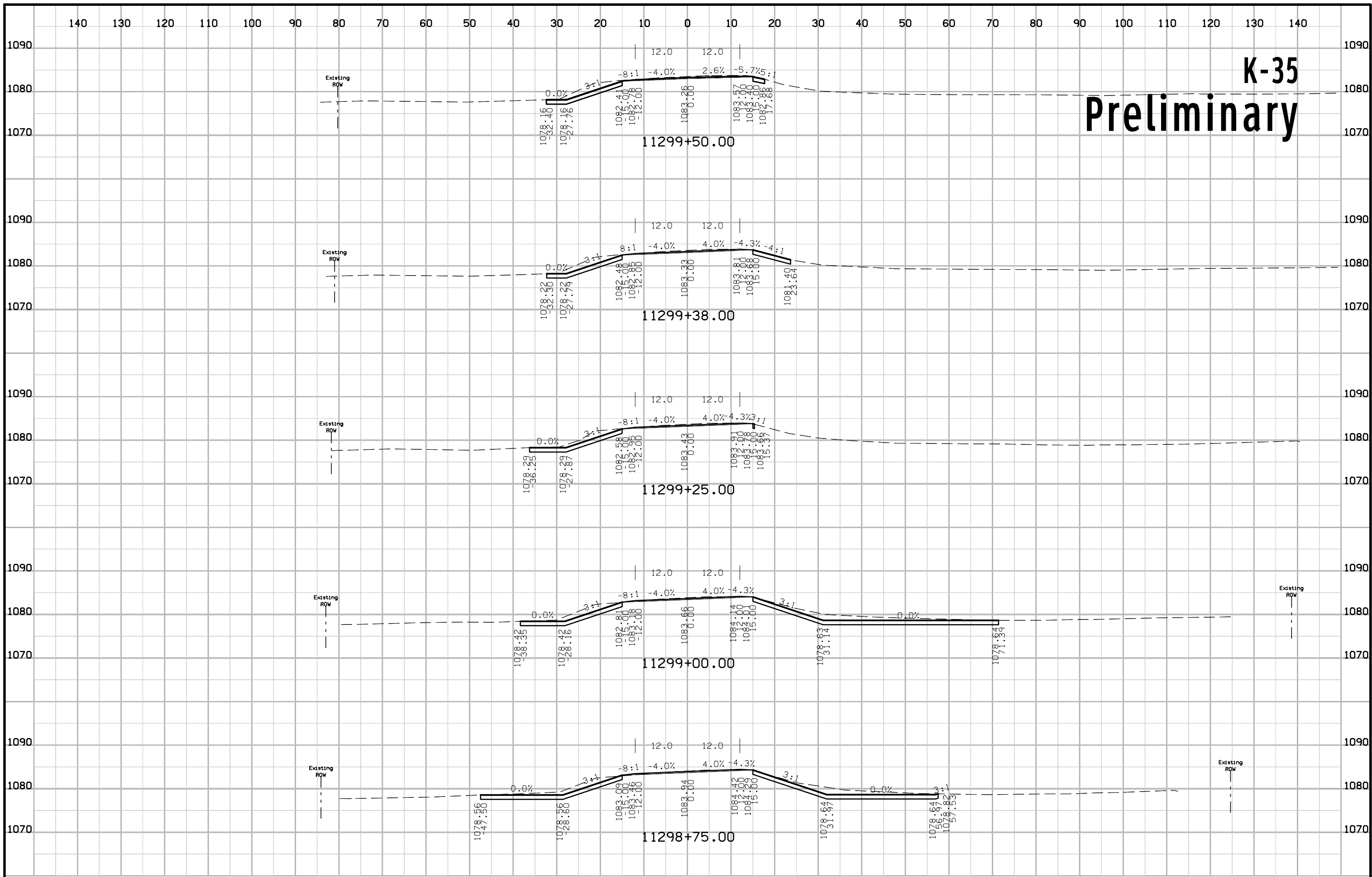
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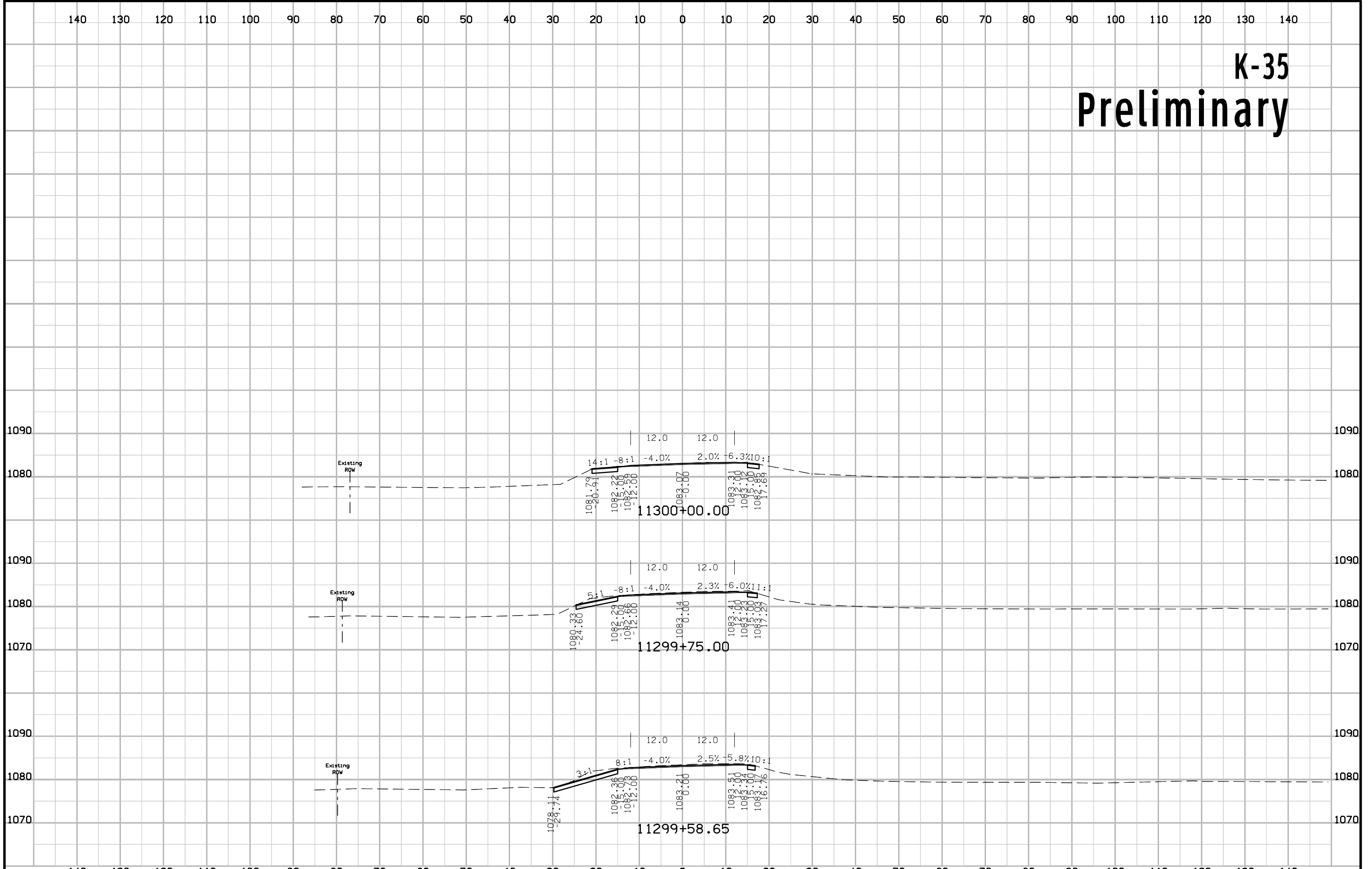
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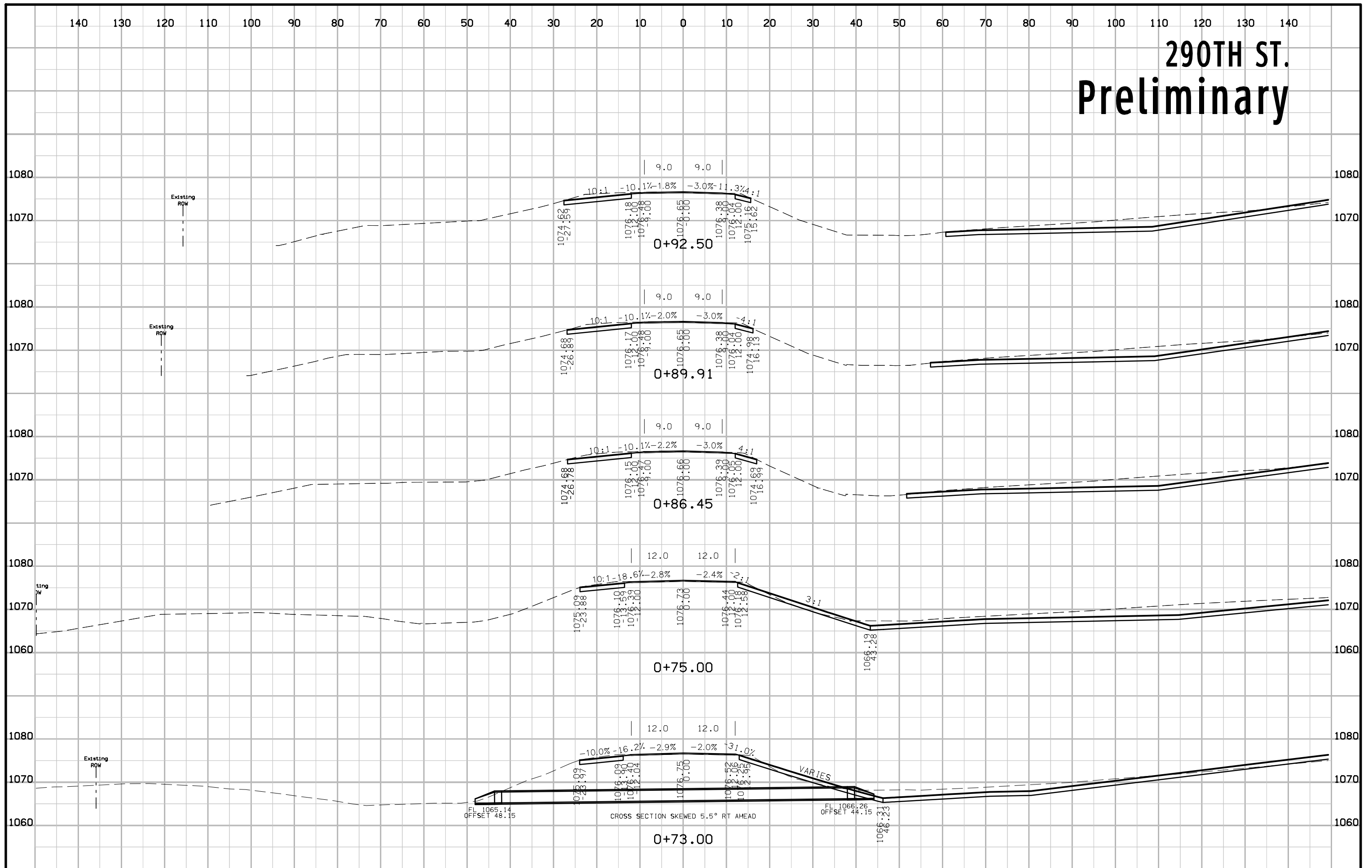


# K-35 Preliminary





# 290TH ST. Preliminary



# 290TH ST. Preliminary

