

DES MOINES CO.
BRIDGE REHABILITATION
BRF-061-2(89)--38-29

LETTING DATE
1/21/2015

No.	DESCRIPTION
A Sheets	Title Sheets
A.1	Title Sheet
B Sheets	Typical Cross Sections and Details
B.1 - 2	Typical Cross Sections and Details
D Sheets	Mainline Plan and Profile Sheets
* D.1	Plan & Profile Legend & Symbol Information Sheet
* D.2 - 3	U.S. 61 Plan & Profiles
F Sheets	Detour or Temporary Pavement Sheets
* F.1 - 2	Detour Plan and Profile Sheets
G Sheets	Survey Sheets
G.1	Reference Ties and Bench Marks
G.2	Horizontal Control Tab. & Super for all Alignments
U Sheets	500 Series, Mod.Stds. and Detail Sheets
U.1 - 3	500 Series, Modified Standards and Detail Sheets
V Sheets	Bridge and Culvert Situation Plans
V.1	Bridge and Culvert Situation Plans
W Sheets	Mainline Cross Sections
W.1	Cross Sections Legend & Symbol Information Sheet
W.2 - 11	Mainline Cross Sections
W.12 - 20	Detour Crossover Cross Sections
* Color Plan Sheets	



Iowa Department of Transportation

Highway Division

PLANS OF PROPOSED IMPROVEMENT ON THE

PRIMARY ROAD SYSTEM

DES MOINES COUNTY

BRIDGE REHABILITATION

Over Spring Creek 3.7 miles N. Of Lee Co. Line

SCALES: As Noted

Refer to the Proposal Form for list of applicable specifications.

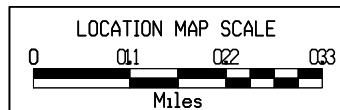
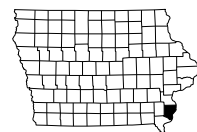
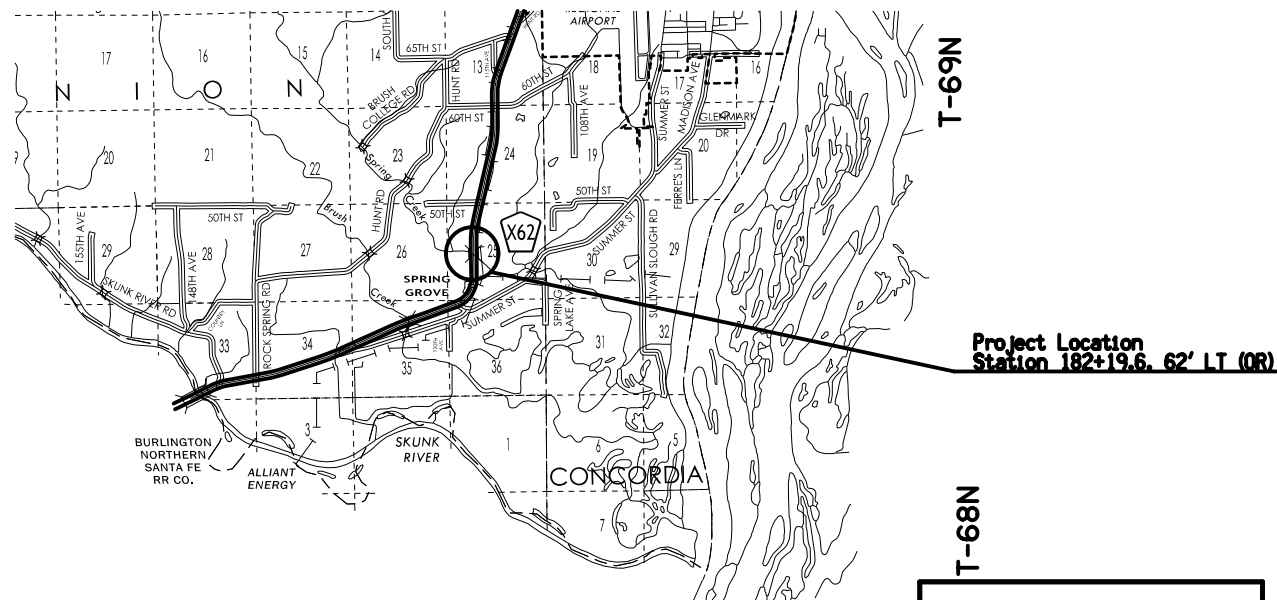
Value Engineering Saves. Refer to Article 1105.15 of the Specifications.

NO MILEAGE SUMMARY



REVISIONS

TOTAL
34
PROJECT IDENTIFICATION NUMBER
10-29-061-020
PROJECT NUMBER
BRF-061-2(89)--38-29
R.O.W. PROJECT NUMBER
NHSN-061-2(90)--2R-29



DESIGN DATA RURAL			
2015	AADT	10,603	V.P.D.
2035	AADT	14,559	V.P.D.
2035	DHV	1,504	V.P.H.
	TRUCKS	11	%
	Total		
	Design ESALs	--	

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

PRELIMINARY EARTHWORK				
	Cut (Cu Yds)	Fill (Cu Yds)	Balance (Cu Yds)	Area (Sq Yds)
ML061 SBL	0	2540	x	1350
SOUTH CROSSOVER		810		815
NORTH CROSSOVER		190		175
x 30% Shrink		1,062		
Totals	0	4,602	x	2,340

PRODUCTION DATES	
Event	Date
D2	1/30/2013
D3	01/04/2013
D5	05/03/2013
Letting	01/21/2015

PRELIMINARY PLANS

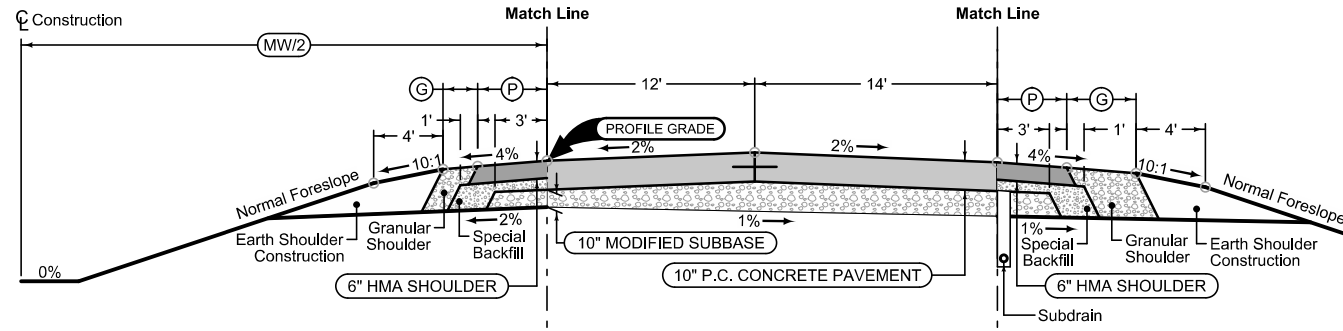
Subject to change by final design.

D5 PLAN - Date: 05/15/2013

Combination Shoulder

Shoulder Jointing:
Longitudinal joint: B

		4_C_ 10-19-10		
Direction of Travel	BEGIN STATION	END STATION	(P) Feet	(G) Feet
S	175+00		4	2
S		183+62.71	4	2



Section shown in the direction of traffic.

Mainline Jointing:
Transverse joints: CD at 20' spacing
Longitudinal joint: L-2

		4DP_ 10-19-10		
Direction of Travel	BEGIN STATION	END STATION	(MW) Feet	
S	175+00		50	
S		183+62.71	50	

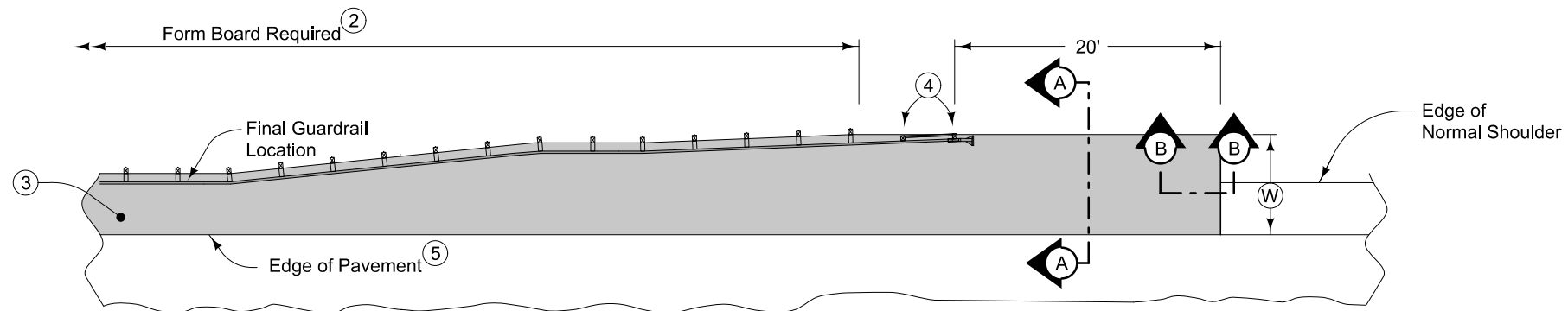
Combination Shoulder

Shoulder Jointing:
Longitudinal joint: B

		4_C_ 10-19-10		
Direction of Travel	BEGIN STATION	END STATION	(P) Feet	(G) Feet
S	175+00		4	4
S		183+62.71	4	4

See Tab 100-24 for pavement quantities.
See Tab 112-9 for shoulder quantities.

ROADWAY IDENTIFICATION

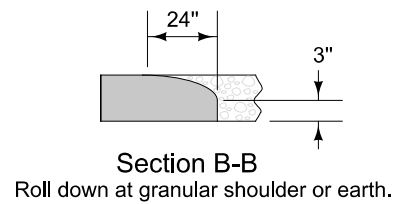
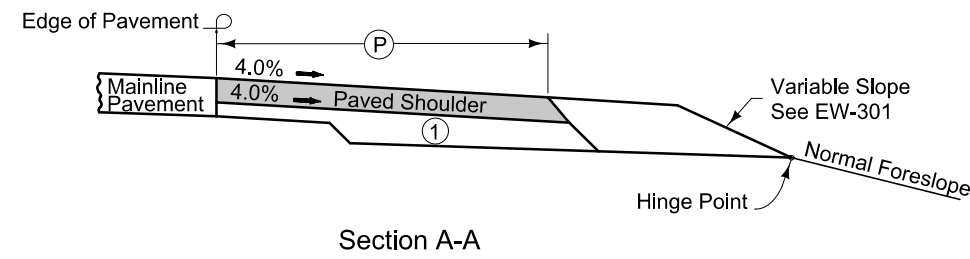
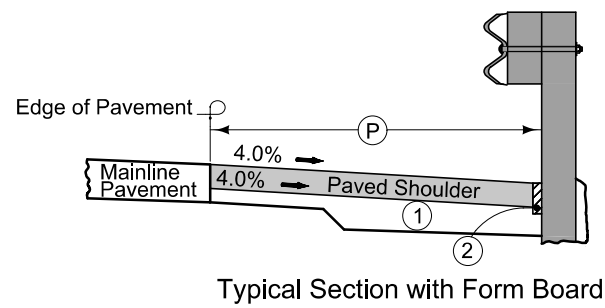


6" HMA Paved Shoulder at guardrail. 7" PCC may be substituted with the following jointing layout:

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

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

Refer to Shoulder tabulation (112-9) for quantities.



- ① 6" subgrade treatment.
- ② When guardrail posts are installed prior to construction of paved shoulder, nail 1" x 6" untreated form boards along the face of guardrail posts for the length shown. This board is to prevent shoulder material from contacting the sides of the posts and altering the function of the guardrail. Form board not required for final 2 posts.
- ③ Continue paved shoulder to existing paved shoulder or 20' beyond the end of guardrail.
- ④ Shoulder may be notched for final 2 posts or post sleeves may be installed through pavement.
- ⑤ 'KT-1' joint for PCC shoulder.
'B' joint for HMA shoulder.

PAVED SHOULDER AT GUARDRAIL

SURVEY SYMBOLS

- OUT Tile Outlet
- COR Round Bridge Pier Column
- PPA Power Pole Co. 1
- TP TPD Telephone Pedestal
- EB EB Electrical Box
- PR Electric Riser Pole
- ⊠ HT Electrical Highline Tower
- MIS Miscellaneous
- SP Stream Profile
- TW Top of Water
- LIN Miscellaneous Line
- Tile - TIL Tile Line
- GDL Guard Rail Steel
- BRG Bridge
- TOP Top of Bridge Pier
- x — FW Wire Fence
- CUL Culvert
- EP Edge of Paved Roads (ML or SR)
- SH Paved Shoulder
- GU Gutter In Front of Curb
- CU Back of Curb
- SNP Unpaved Shoulder
- ENU Edge Unpaved Entrance & Parking
- D Centerline Draw or Stream (Down)
- DU Centerline Draw or Stream (Up)
- RIP Rip-Rap
- ENT Centerline BL of Entrance
- CON Concrete or A/C Slab
- ENP Edge Paved Entrance & Park Lot
- BNK Stream Bank
- EW Edge of Water
- W WLA Underground Water Line Co. 1
- FO FOA Underground Fiber Optic Co. 1
- F02 FOB Underground Fiber Optic Co. 2
- T1 TLA Underground Telephone Line Co. 1

UTILITY LEGEND

This is a POINT 25 Project and is subject to the provisions of IAC 761-115.25.

- E2 - Access Energy Cooperative
Robert Swindell
907 E Washington Street
Mount Pleasant, IA 52641-0440
319-385-1577
bswindell@accessenergycoop.com
- F0 - Century Link (formerly Qwest)
Steve Parker
2103 E. University Ave
Des Moines, IA 50317
515-265-0968
Steven.Parker4@CenturyLink.com
- G-HP - Alliant Energy
Jason A. Hogan
4902 North Biltmore
Madison, WI 53707-1007
608-458-4871
jasonhogan@alliantenergy.com
- T1 - Danville Telecom
Lennis Kelley
102 S Main Street
Danville, IA 52623
319-392-4251
danville@danvilletelco.net
- TV - MediaCom
Tim Eagen
3210 Division Street
Burlington, IA 52601-0519
319-753-6571
teagen@mediacomcc.com
- W - Rathbun Regional Water Association, Inc.
Mike Stevens
16166 Highway J29
Centerville, IA 52544-8307
641-647-2416
mstevens@rrwa.net

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

RIGHT-OF-WAY LEGEND

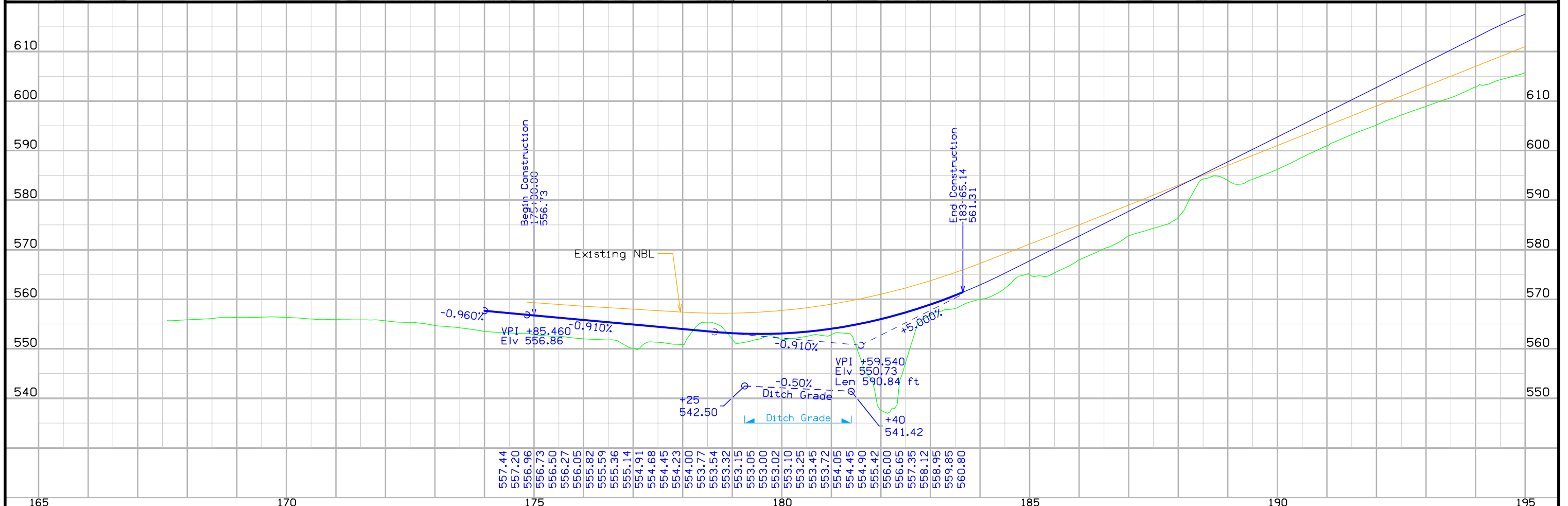
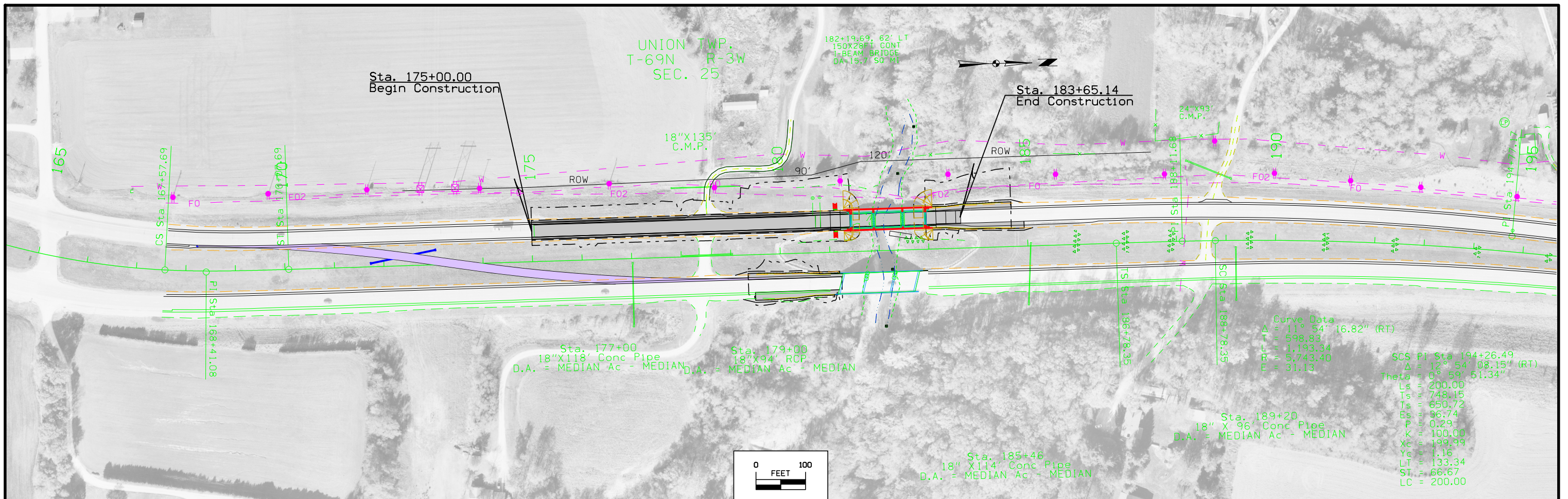
- Proposed Right-of-Way
- Existing Right of Way
- Existing and Proposed Right-of-Way
- Easement and Existing Right-of-Way
- Easement (Temporary)
- Easement
- Access Control
- Property Line

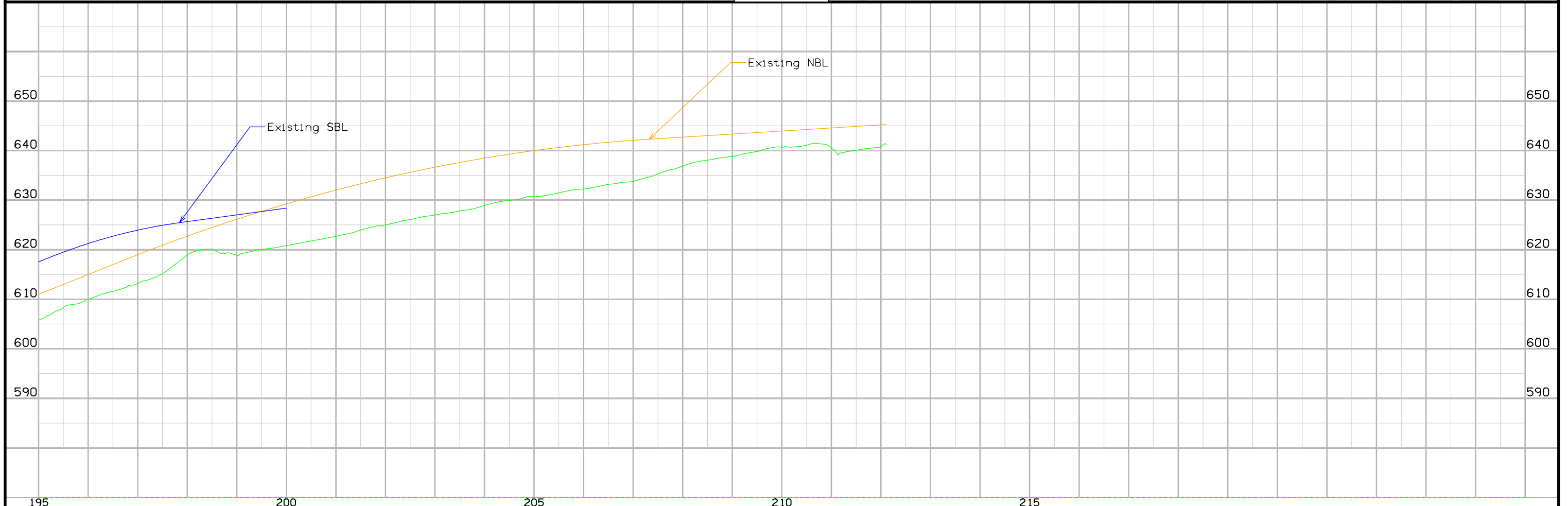
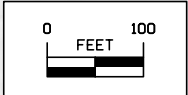
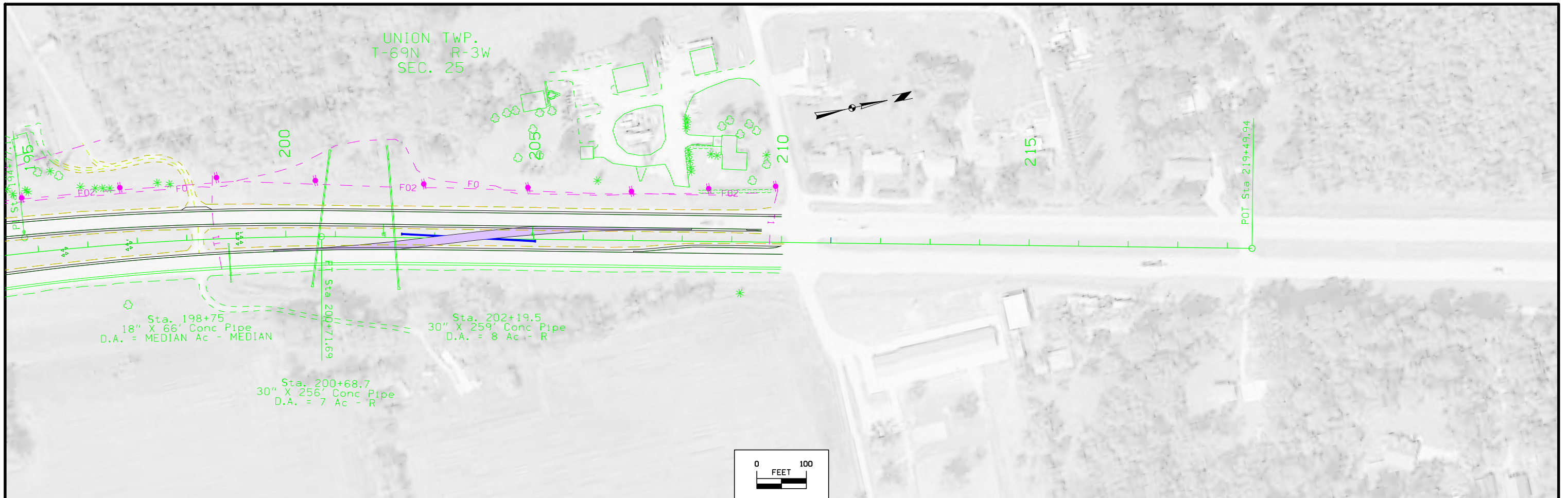
SURVEYED UTILITY OWNER SYMBOLS

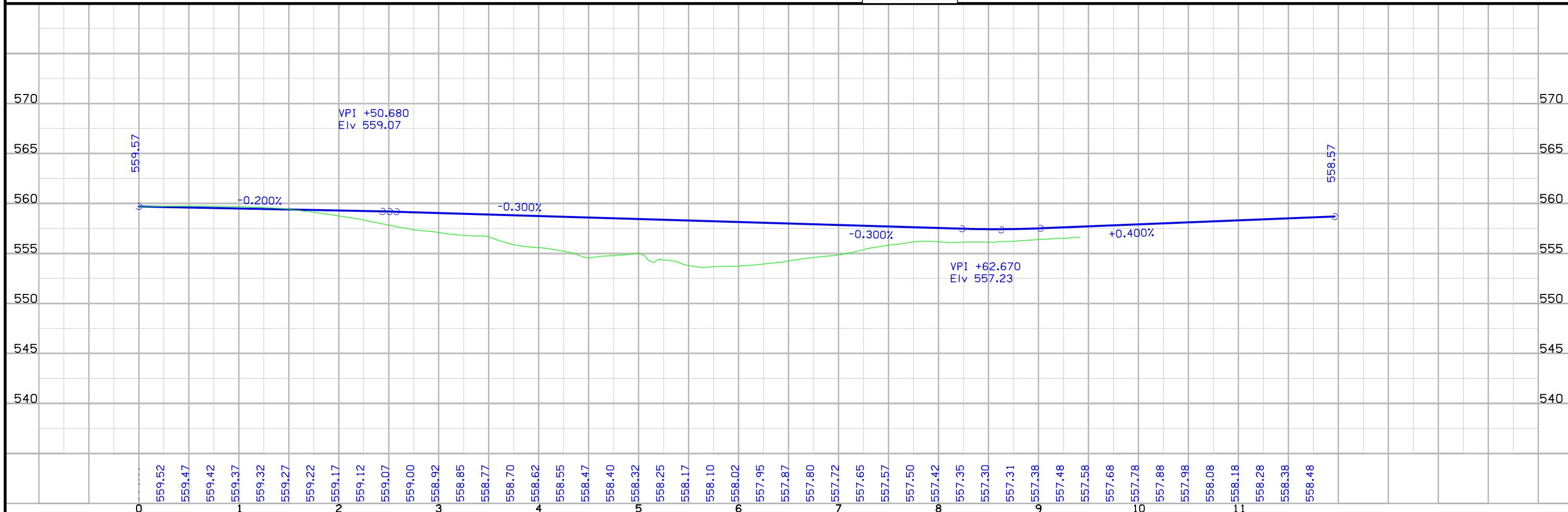
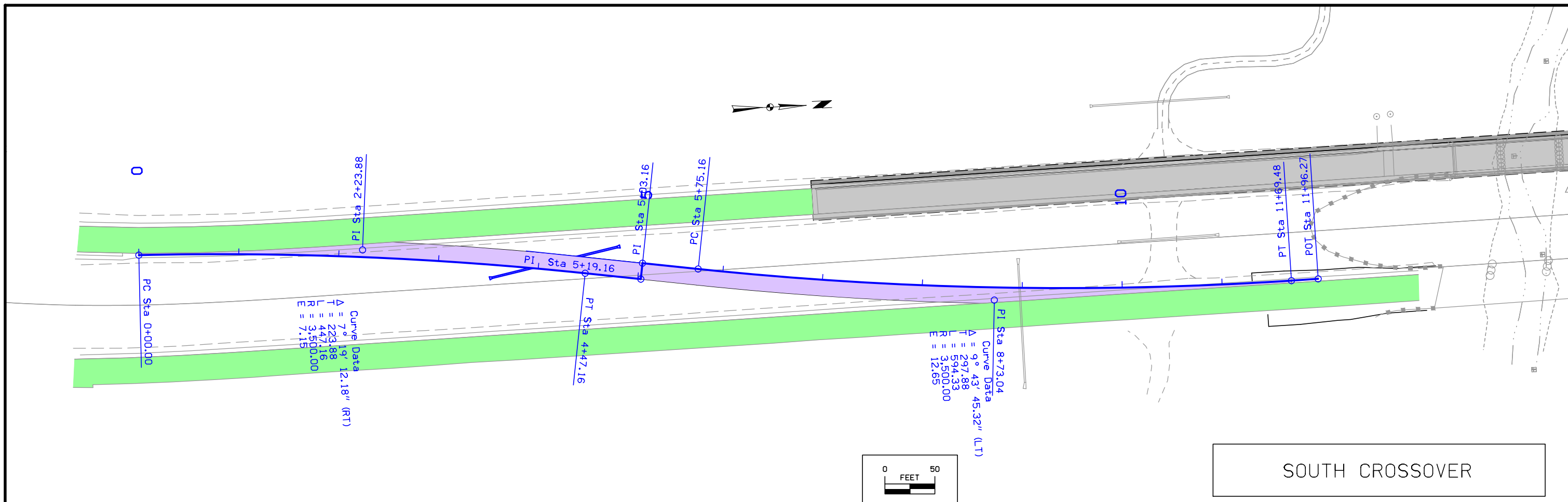
- PPA Access Energy
- W WLA Rathbun Regional Water Association (QLD)
- FO FOA Danville Mutual Telephone Company (QLD)
- F02 FOB Windstream/McLeod (QLD)
- T1 TLA CenturyLink (QLD)

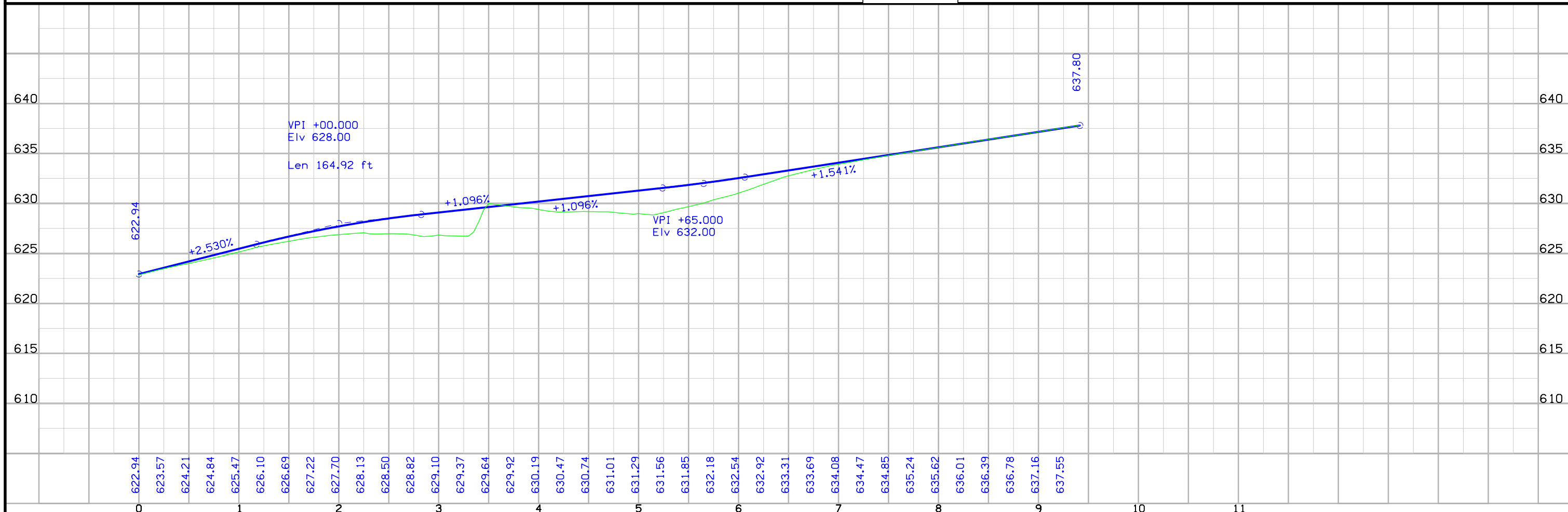
PLAN AND PROFILE LEGEND AND SYMBOL INFORMATION SHEET

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









Survey Information

General Information

Measurement units for this survey are US survey feet. This survey is for paving and a bridge deck replacement along HWY 61 south bound. This project is a partial DTM survey.

Vertical Control

Vertical datum for this survey is NAVD88 (Computed using Geoid 09). GRS80 Ellipsoidal Height was computed at project Pt. 29001 by averaging five observations with appropriate time spans between from nearby Iowa RTN reference stations. The vertical uncertainty of these observations was less than 0.04 ft. at 95% confidence level (2 sigma). Additional benchmarks were placed throughout the project using a GNSS Base-Rover setup relative to Pt. 29001. A minimum of three observations with appropriate time spans between were collected. The vertical uncertainty of these observations was less than 0.03 ft. at 95% confidence level (2 sigma).

This survey observed 1NGS Control Monument with published NAVD88 heights to compare published elevation with survey elevation. Survey elevation was determined to be within observation error of being the same as published.

NGS vertical order 2nd class mark designated ZZ-125 has a published Elev. Of 689.61
Survey Elev. = 689.58

Observation data may be viewed in a spreadsheet file named 0751CTL.pdf in the CONTROL folder of the survey project directory.

Horizontal Control

The project coordinate system for this survey is modified Iowa State Plane South Zone (U.S. Survey Feet). This initial survey control (Pt. 29001) is relative to IaRTN reference stations. IaRTN Reference Station coordinates are relative to the National Reference Station network datum: NAD83 (1996CORS) for Epoch 2002.00. Coordinates were determined by averaging a minimum of five IaRTN observations with appropriate time spans between. The horizontal uncertainty of these observations was less than 0.02 ft. at 95% confidence level (2 sigma). Additional control points were placed throughout the project using a GNSS Base-Rover setup relative to Pt. 29001 with a 1/combined scale factor of 1.000041509802. A minimum of three observations with appropriate time spans between were averaged. The horizontal uncertainty of these observations was less than 0.02 ft. at 95% confidence level (2 sigma).

1/Combined Scale Factor of project= 1.000041509802. This purpose of applying this scale to the state plane grid is to reduce the distortion of 42 parts per million in ground measurements to less than 10 parts per million.

Alignment Information

The horizontal alignment for this survey is a retrace of Des Moines County Project NHS-61-2(32)—19-29 Grading Plan. Survey stationing was equated to the plan at S.T. Sta. 170+07.69 Ahead (Pt. # 199- found ½" re-rod). Stationing was run ahead without equation to Sta. 219+50 (Pt.# 210- fd. ½" re-rod).

Survey stationing is related to the plan stationing as listed below:

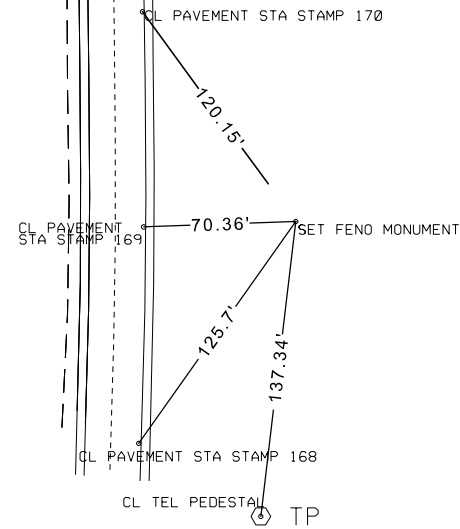
S.T. Sta. 170+07.69 this survey (Pt. # 199 fd. ½" re-rod)
= S.T. Sta. 170+07.69 (Ahead) Des Moines County Project NHS-61-2(32)—19-29 Grading Plan

P.O.T. Sta. 219+49.94 this survey (Pt. # 210 fd. ½" re-rod)
= P.O.T. Sta. 219+50.00 Des Moines County Project NHS-61-2(32)—19-29 Grading Plan

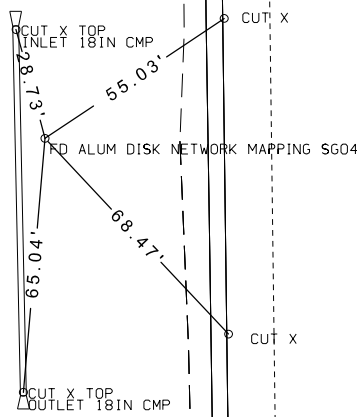
VERTICAL CONTROL

Point	North	East	Elevation	Station	Offset	Feature	Description
29001	278996.746	2289817.410	564.430	168+50.17	147.152	CP	SET FENO MONUMENT
500	280270.273	2289698.000	562.934	181+20.42	43.047	BM	FD DOT BUTTON SW WING
501	280443.100	2289574.036	558.138	182+94.89	-78.589	BM	FD X WHEELGUARD NW CORNER BRG
29002	283213.048	2290080.427	641.379	211+16.24	71.379	CP	SET FENO MONUMENT

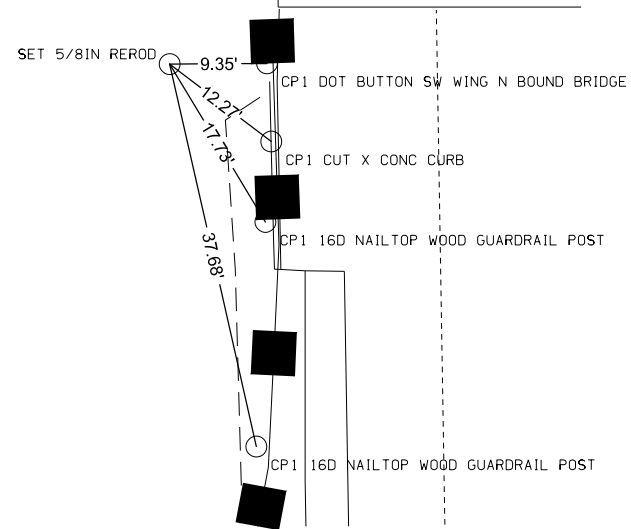
STA 168+50.17, 147.152' RT
 CP 29001, SET FENO MONUMENT
 N=278996.746, E=2289817.410



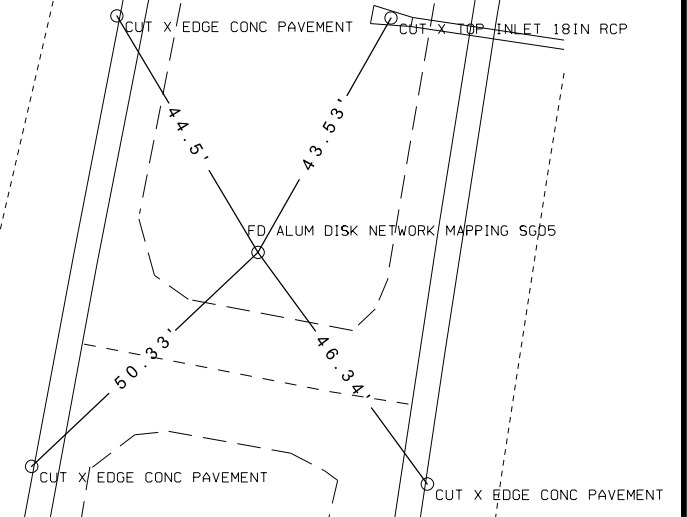
STA 178+71.26, 4.58' RT
 CP SG04, FOUND ALUM DISK "NETWORK MAPPING SG04"
 N=280020.624, E=2289662.880



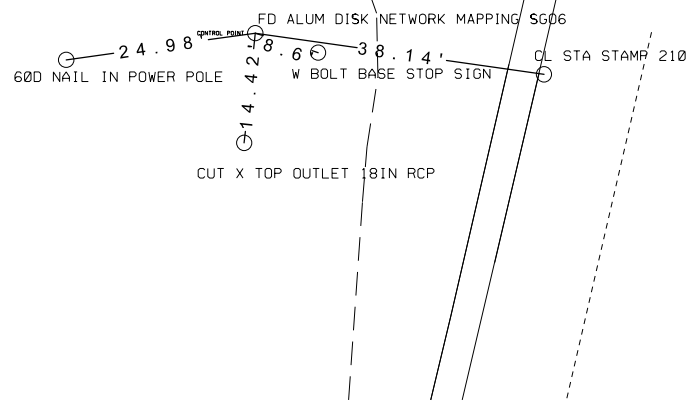
STA 181+20.50, 33.7' RT
 CP 1, SET 5/8" RE-ROD
 N=280270.229, E=2289688.651



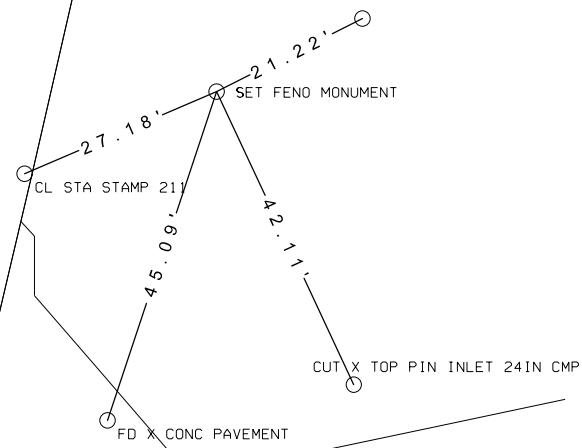
STA 198+43.27, 0.84' LT
 CP SG05, FOUND ALUM DISK "NETWORK MAPPING SG05"
 N=281987.773, E=2289729.834



STA 209+96.88, 89.08' LT
 CP SG06, FOUND ALUM DISK "NETWORK MAPPING SG06"
 N=283133.152, E=2289897.099

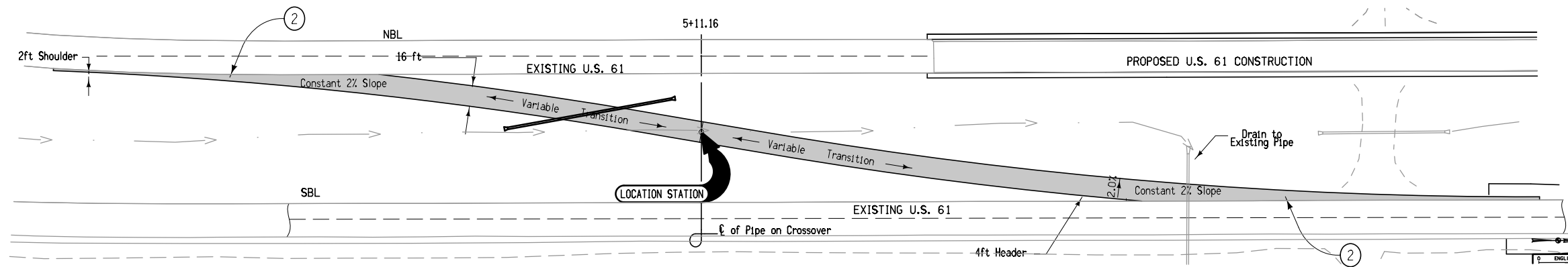


STA 211+16.24, 71.38RT
 CP 29002, SET FENO MONUMENT
 N=283133.152, E=2289897.099
 CUT X TOP OUTLET 18IN RCP

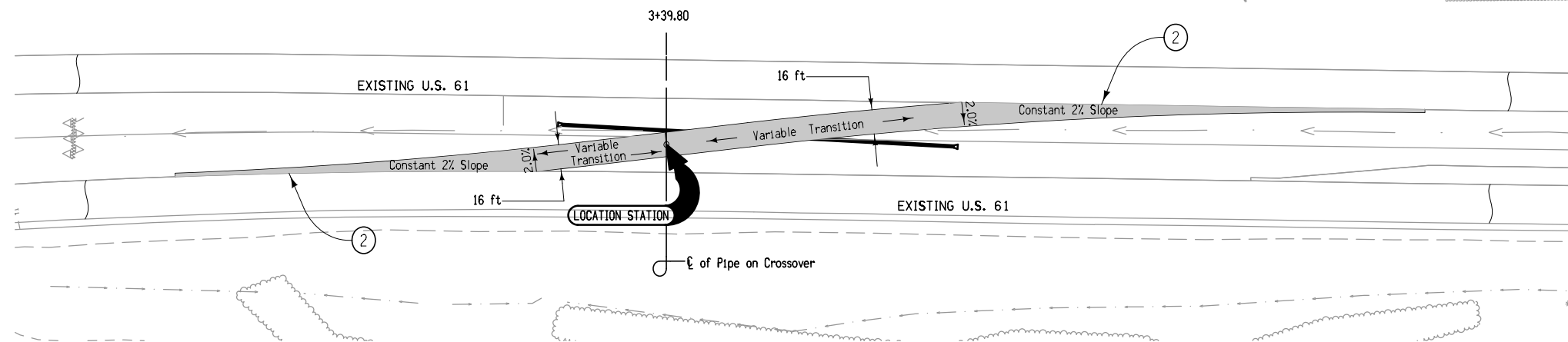


SDvZSdV
 ZXC
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SOUTH CROSSOVER STATION 5+11.16
Median pipe for crossover. See Detail Sheet U.02.

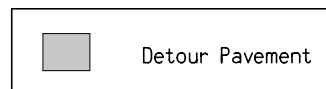


NORTH CROSSOVER STATION 3+39.80
Median pipe for crossover. See Detail Sheet U.03.



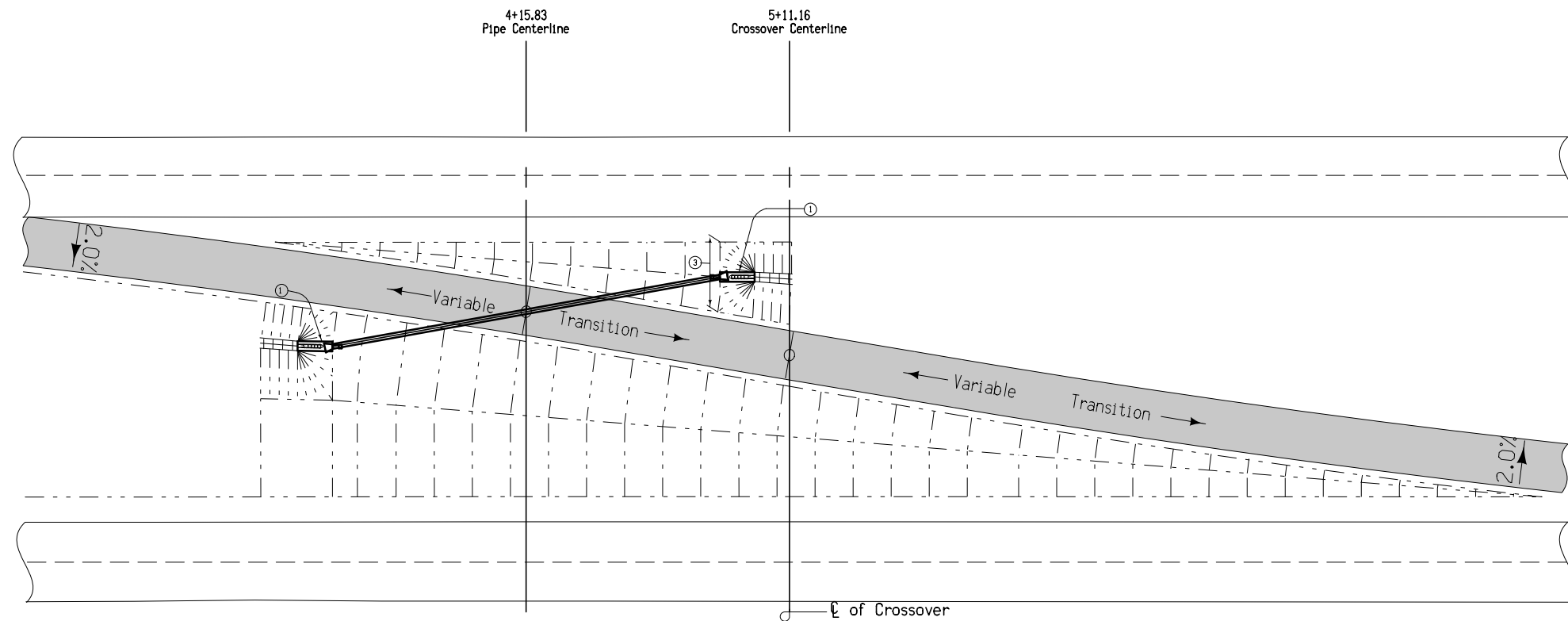
All dimensions given in millimeters unless noted.

- ① Match existing roadway joints. 'CD' joints are required. See Standard Road Plan RH-50.
- ② KT-2 Joint, bend bars out for new pavement only.
- ③ Median crossover is not symmetrical about centerline.



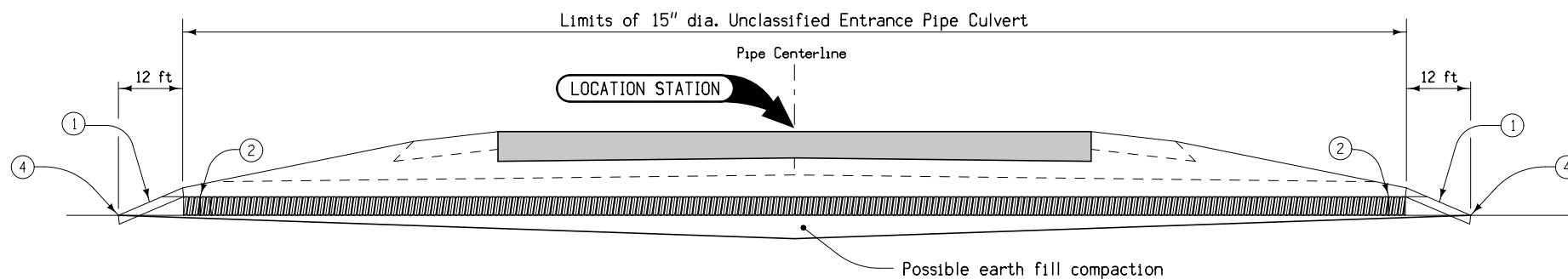
PLAN
(Not to scale)

DETAILS OF MEDIAN CROSSOVERS



Contract Items:
 Culvert, Unclassified Entrance Pipe, 15" Dia.
 Beveled Pipe and Guard.

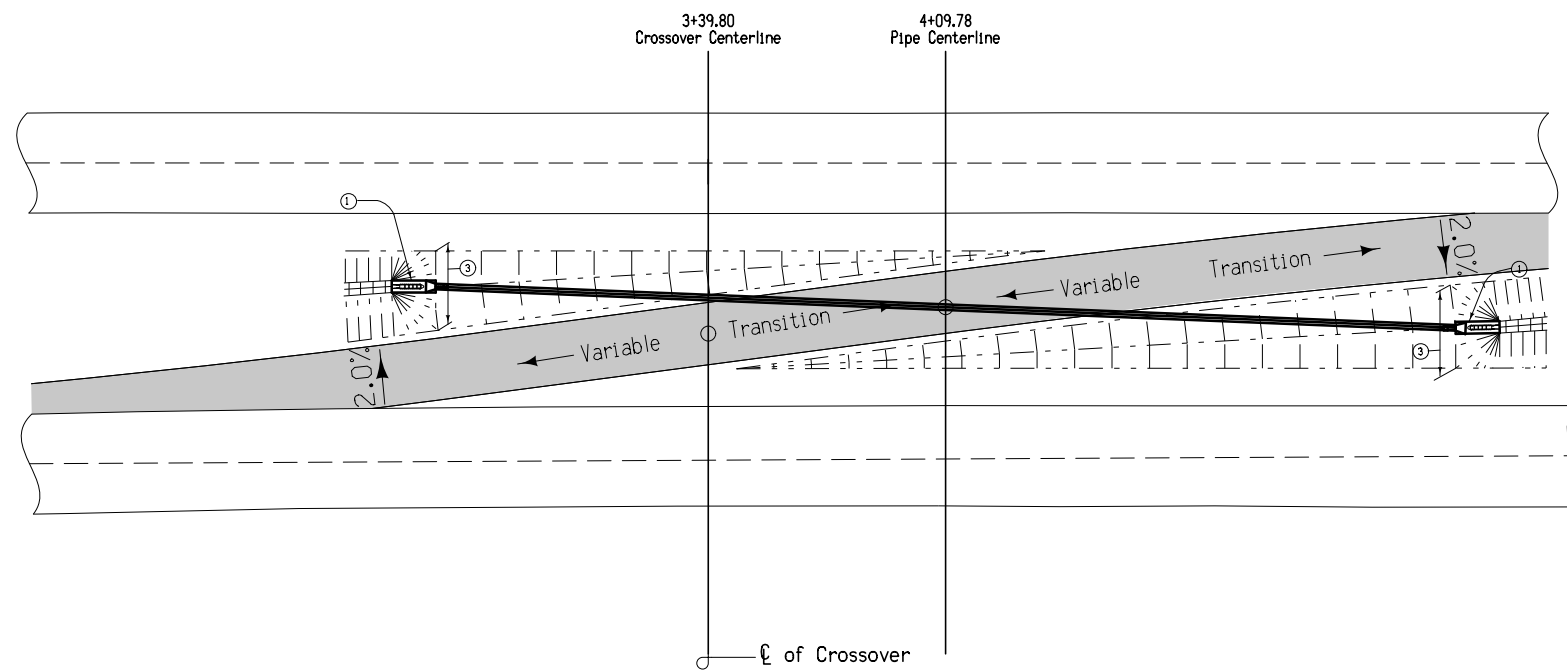
- ① Beveled pipe and guard. See Detail Sheet 500-19.
- ② Requires approximately 15 degree elbow.
- ③ Place the top edge of beveled pipe and guard at a point where the distance between the edges of the shoulders are approximately 22 ft apart.
- ④ Median ditch flow line.



LONGITUDINAL SECTION AT PIPE CENTERLINE

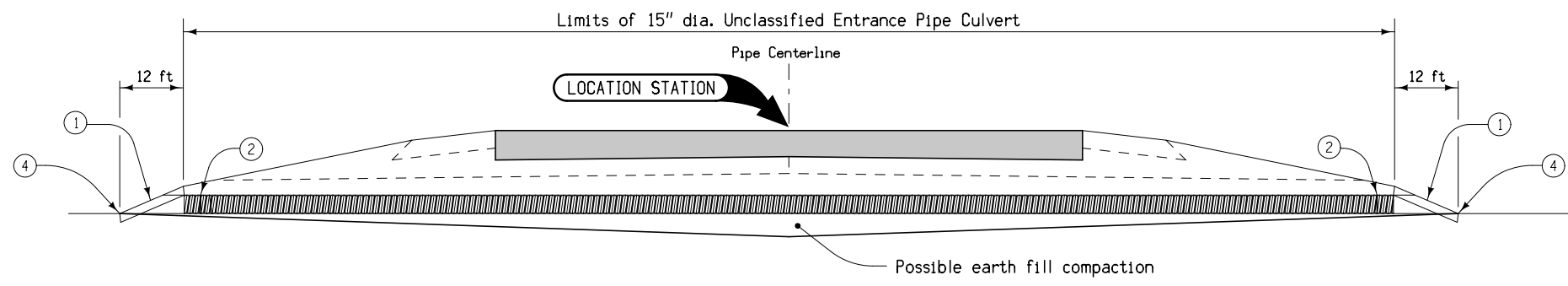
TABLE OF QUANTITIES	
Median Width	92 ft
Crossover Pavement Width	16 ft
Unit of measurement	feet
Bid Item	
15 in dia. Unclassified Entrance Pipe Culvert	130

DETAILS OF DIAGONAL PLACED DRAIN
 FOR MEDIAN CROSSOVER
 AT SOUTH CROSSOVER STA. 5+03.16



Contract Items:
 Culvert, Unclassified Entrance Pipe, 15" Dia.
 Beveled Pipe and Guard.

- ① Beveled pipe and guard. See Detail Sheet 500-19.
- ② Requires approximately 15 degree elbow.
- ③ Place the top edge of beveled pipe and guard at a point where the distance between the edges of the shoulders are approximately 22 ft apart.
- ④ Median ditch flow line.



LONGITUDINAL SECTION AT PIPE CENTERLINE

TABLE OF QUANTITIES	
Median Width	42 ft
Crossover Pavement Width	16 ft
Unit of measurement	feet
Bid Item	
15 in dia. Unclassified Entrance Pipe Culvert	265 ft

DETAILS OF DIAGONAL PLACED DRAIN
 FOR MEDIAN CROSSOVER
 AT NORTH CROSSOVER STA. 3+39.80

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)
- TS A——— Topsoil (Type A Disposal)
- TS B——— Topsoil (Type B Disposal)
- TS C——— Topsoil (Type C Disposal)
- 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.

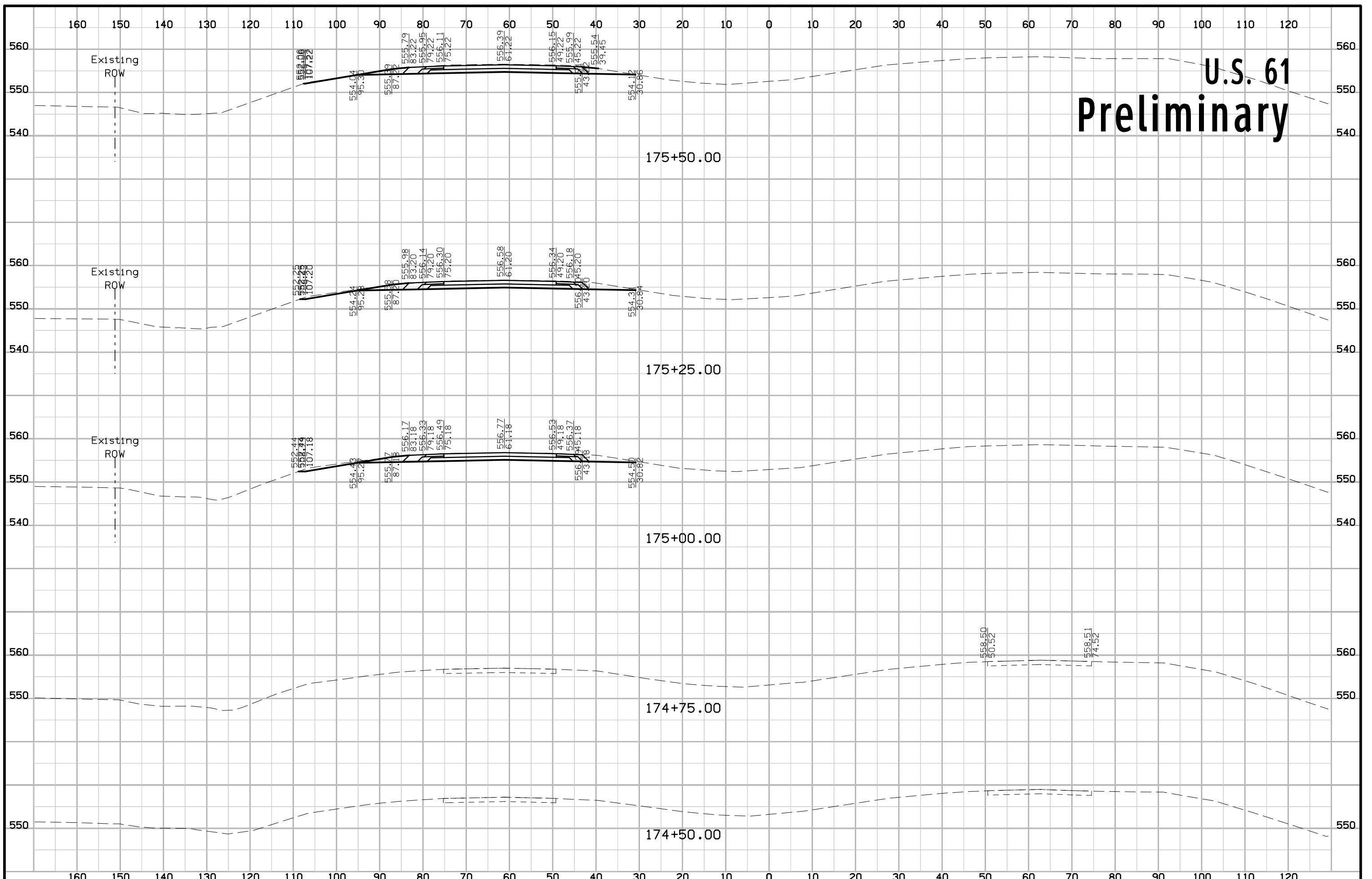
SYMBOL LEGEND OF CROSS SECTION SHEETS

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

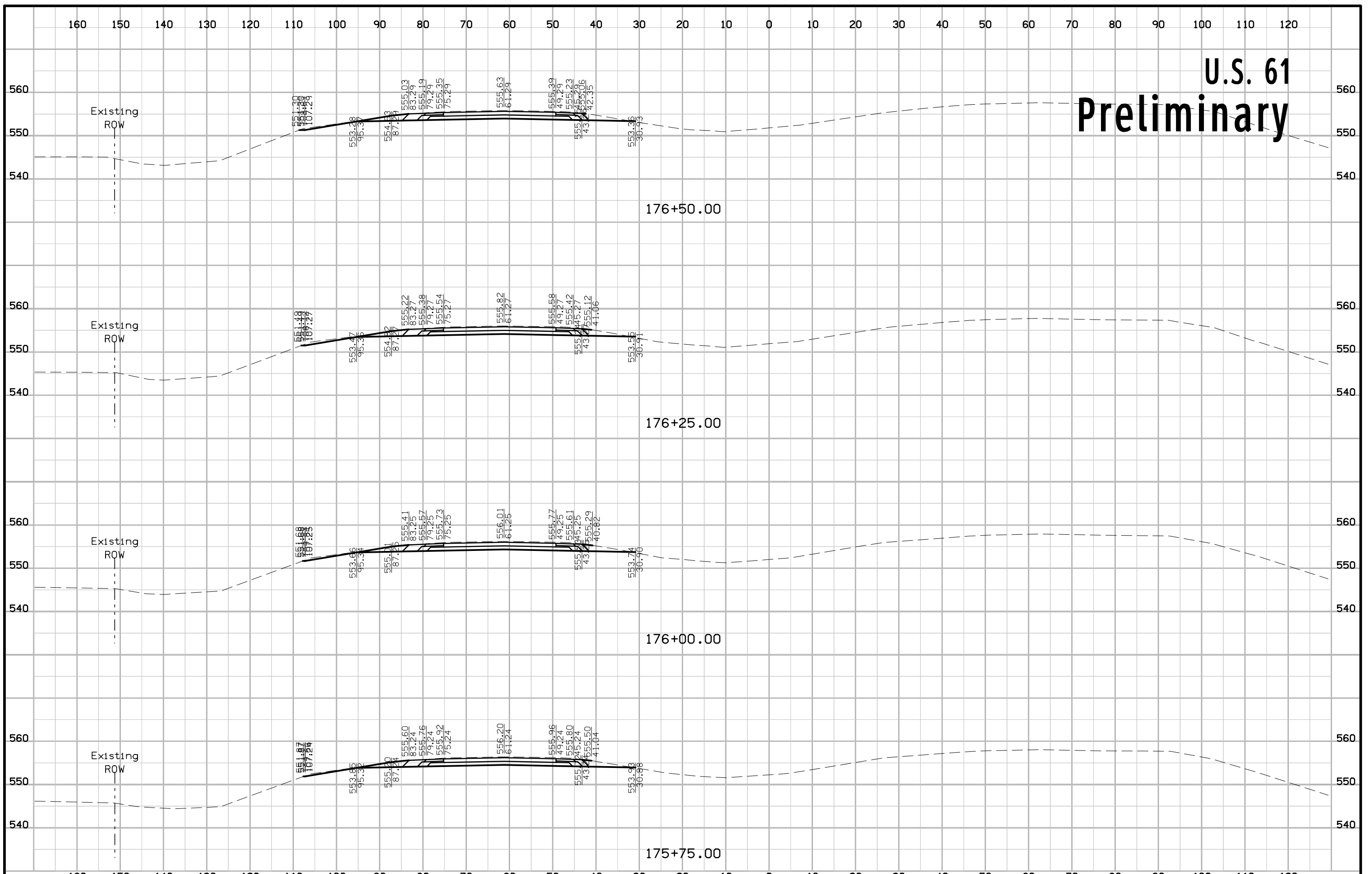
**CROSS SECTION
LEGEND AND SYMBOL
INFORMATION SHEET**

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

U.S. 61 Preliminary

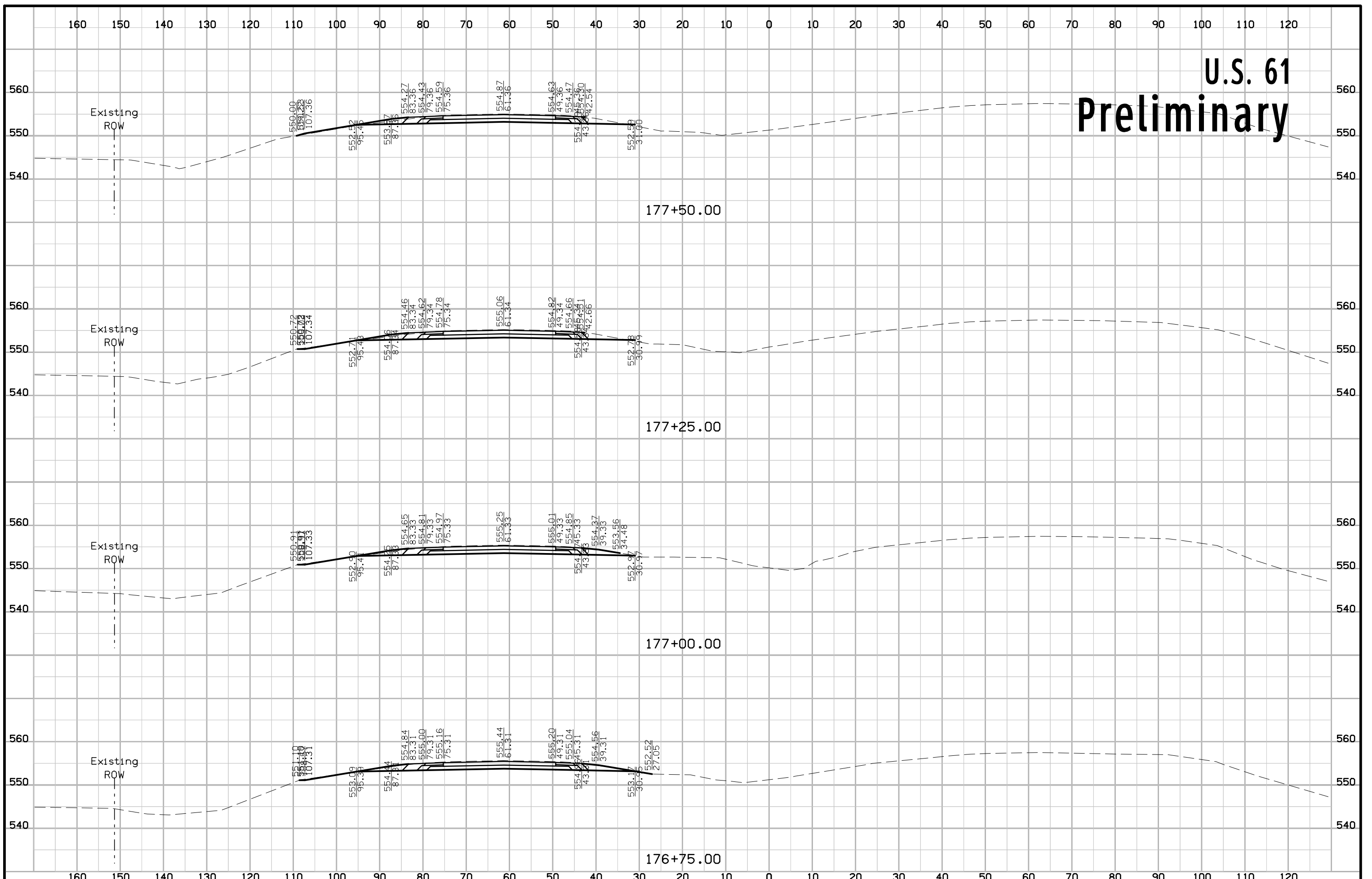


U.S. 61 Preliminary

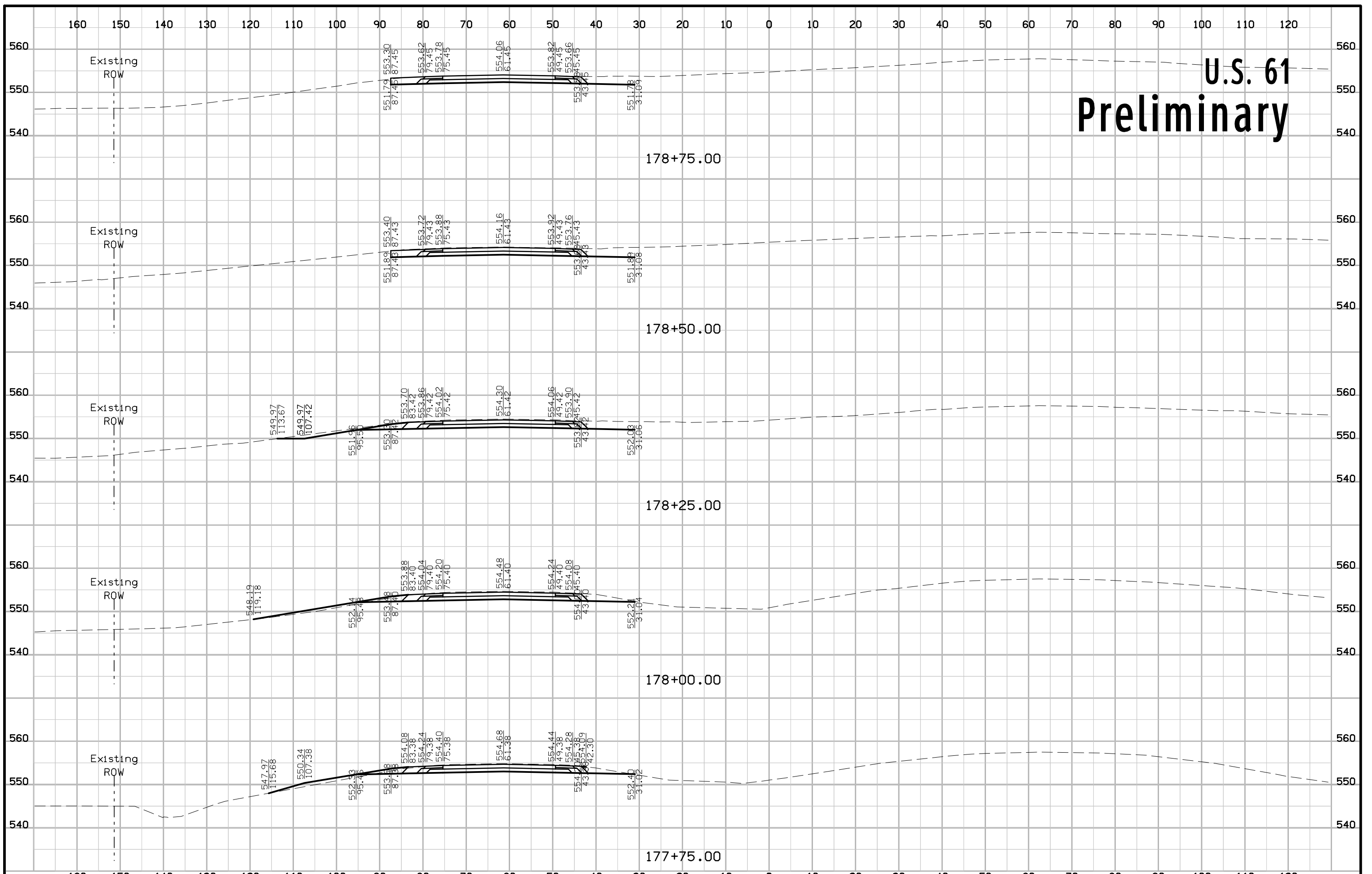


U.S. 61

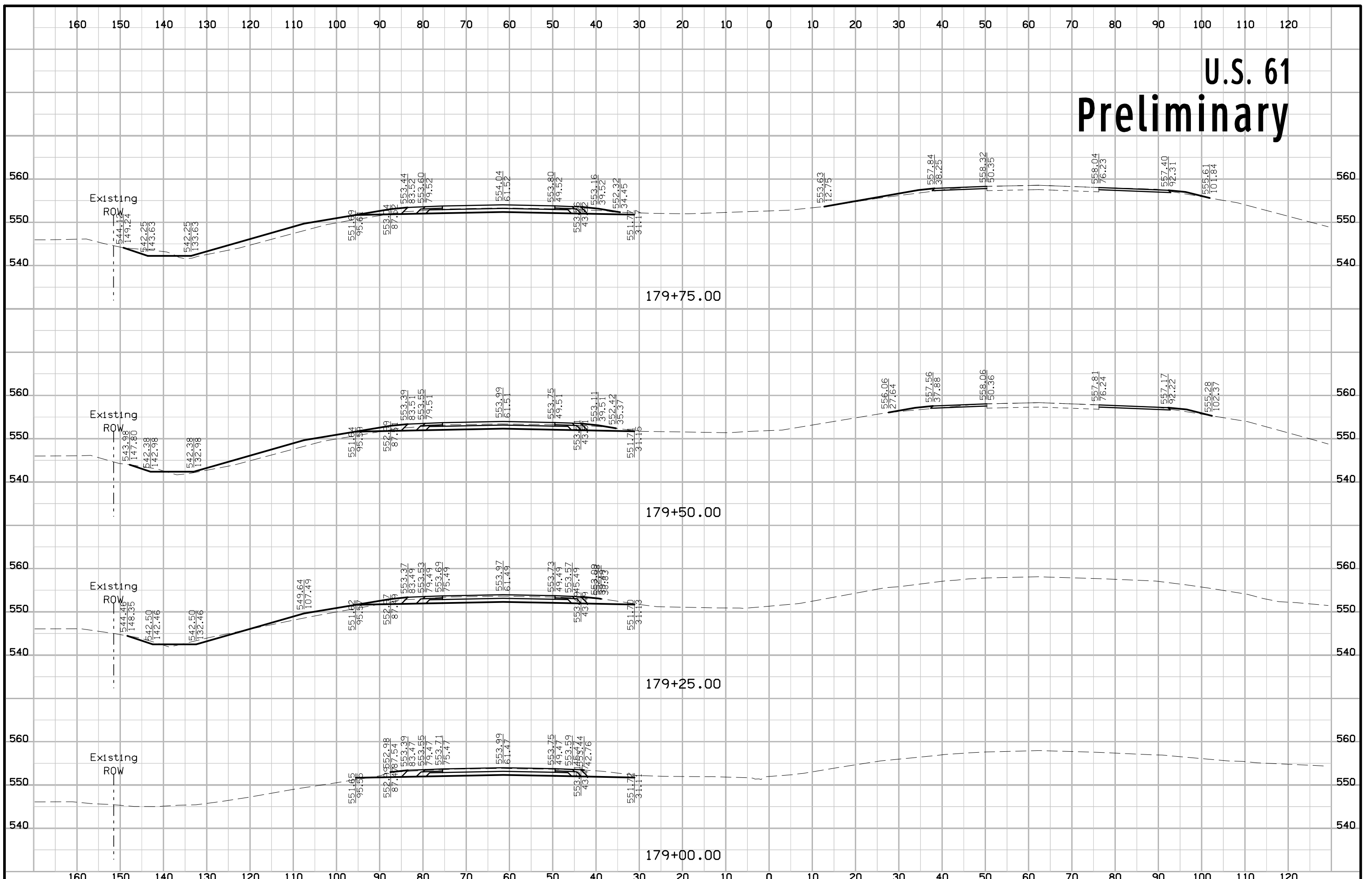
Preliminary



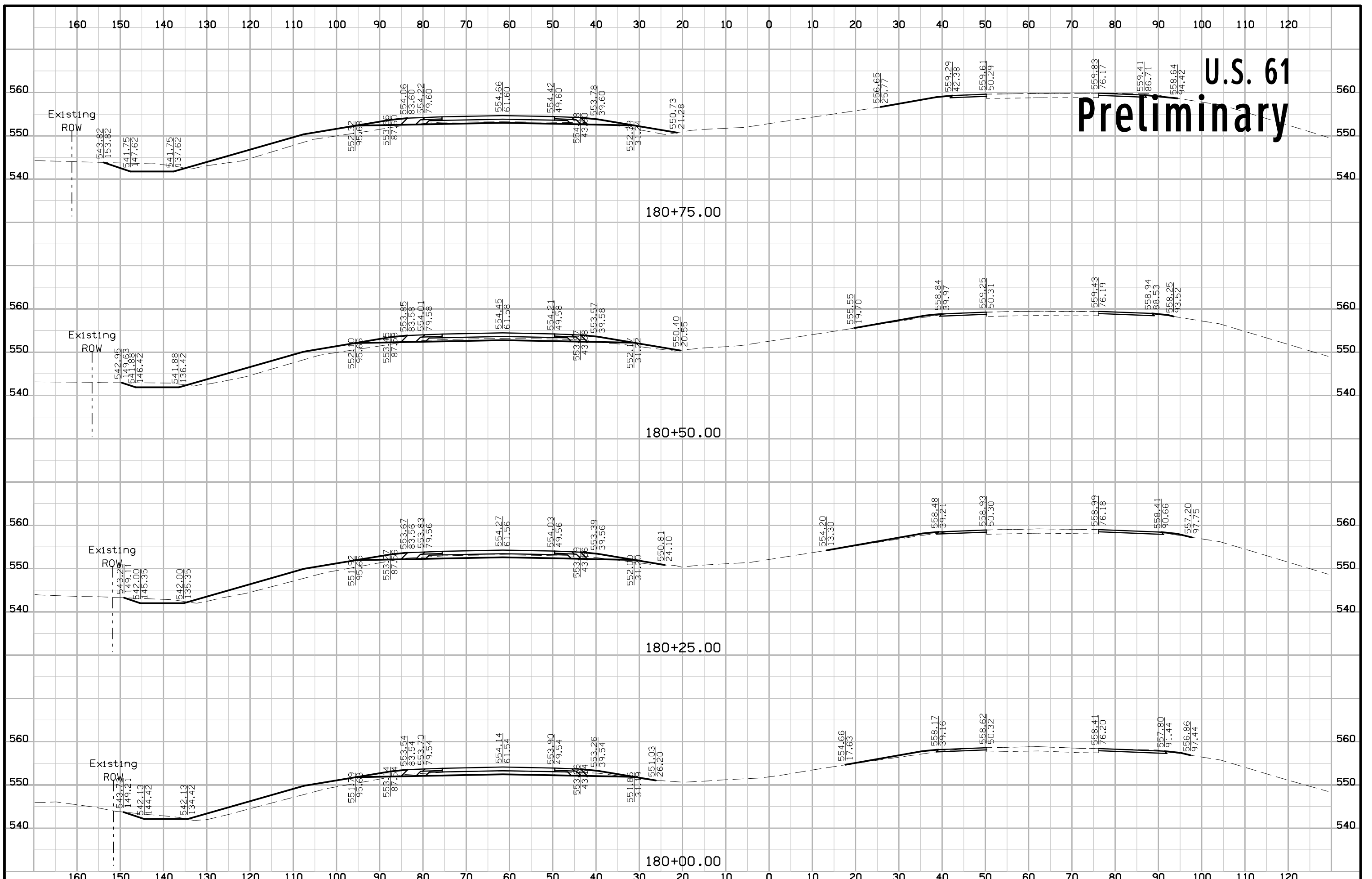
U.S. 61 Preliminary



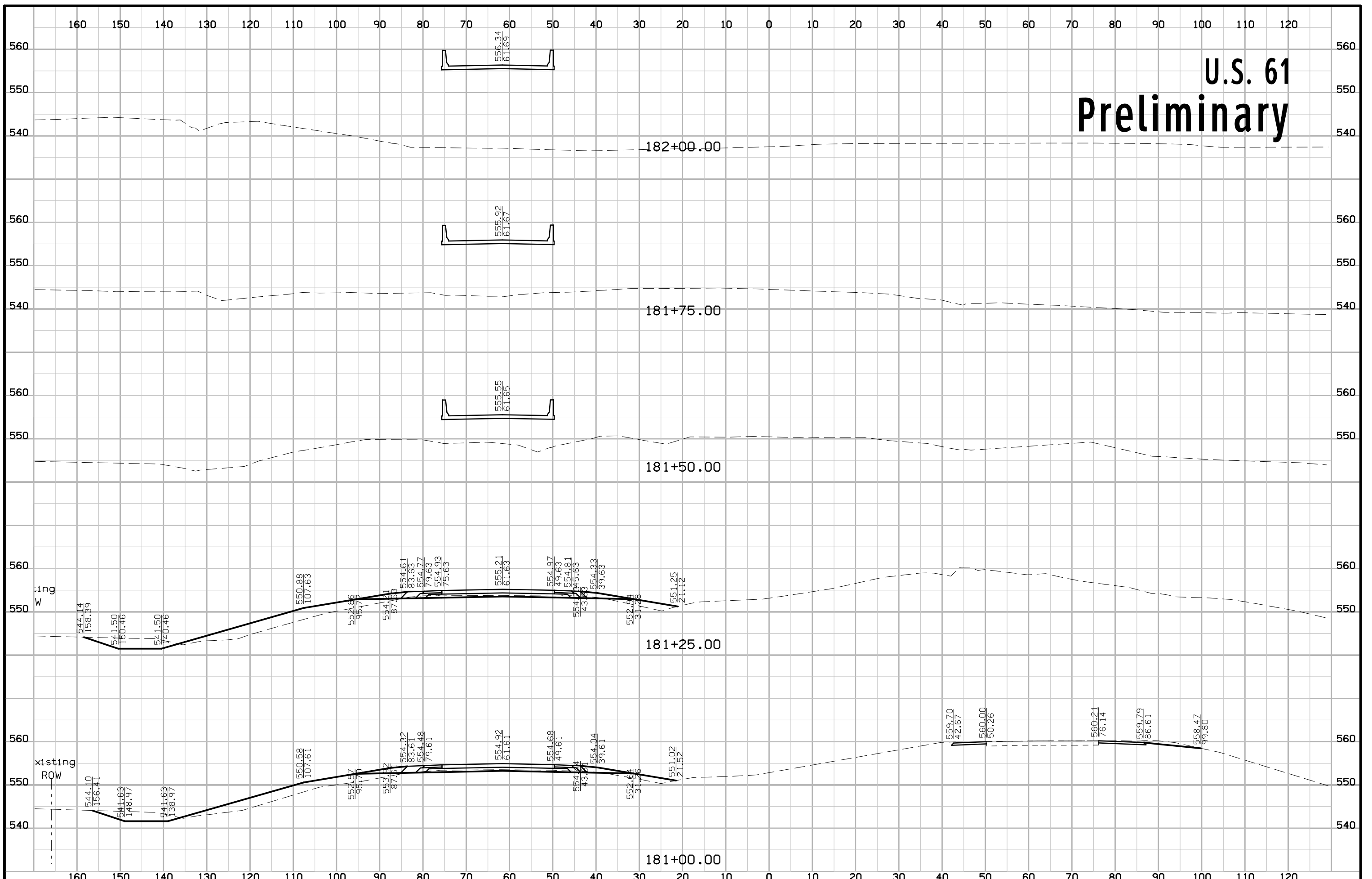
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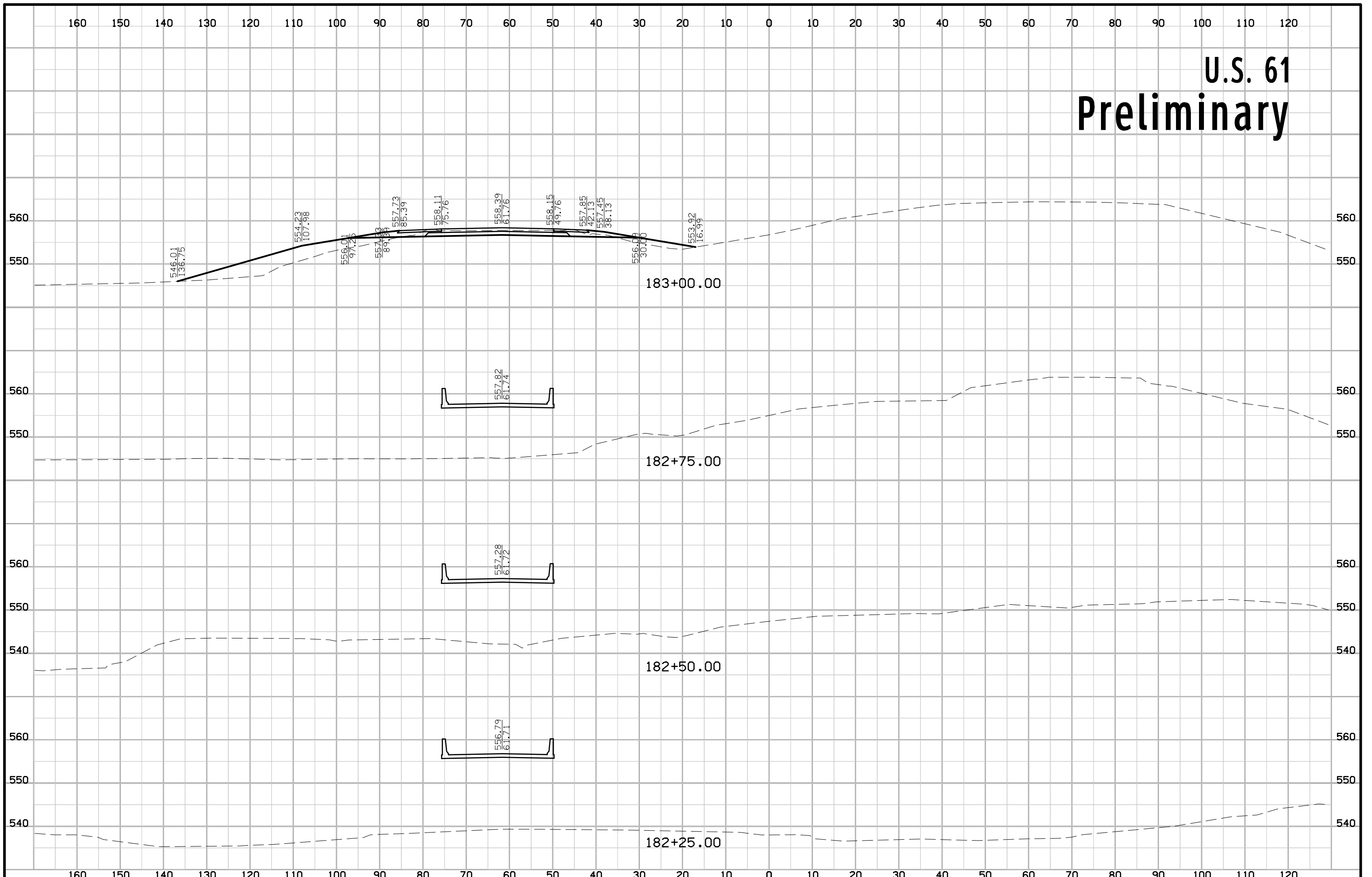
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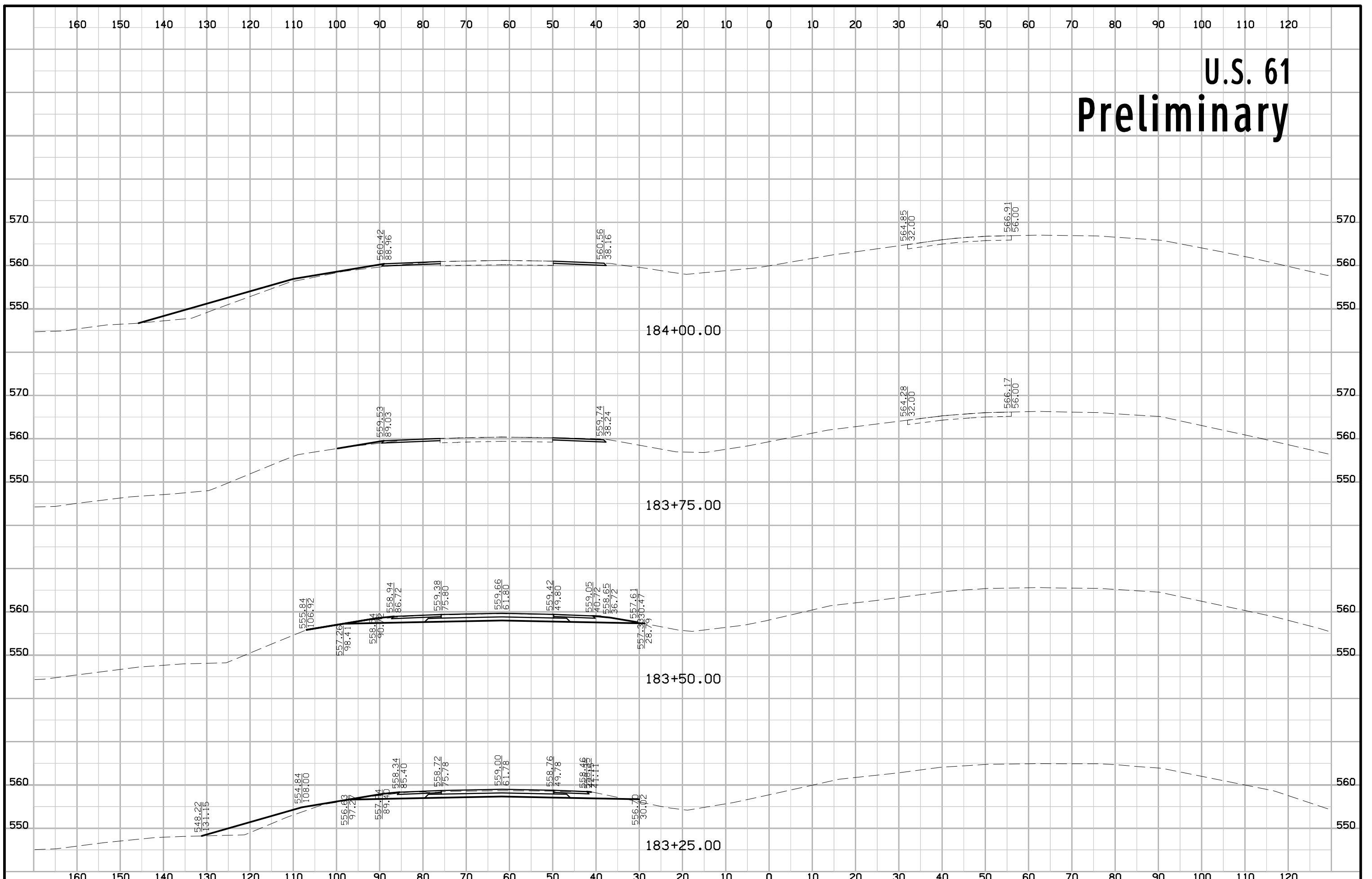
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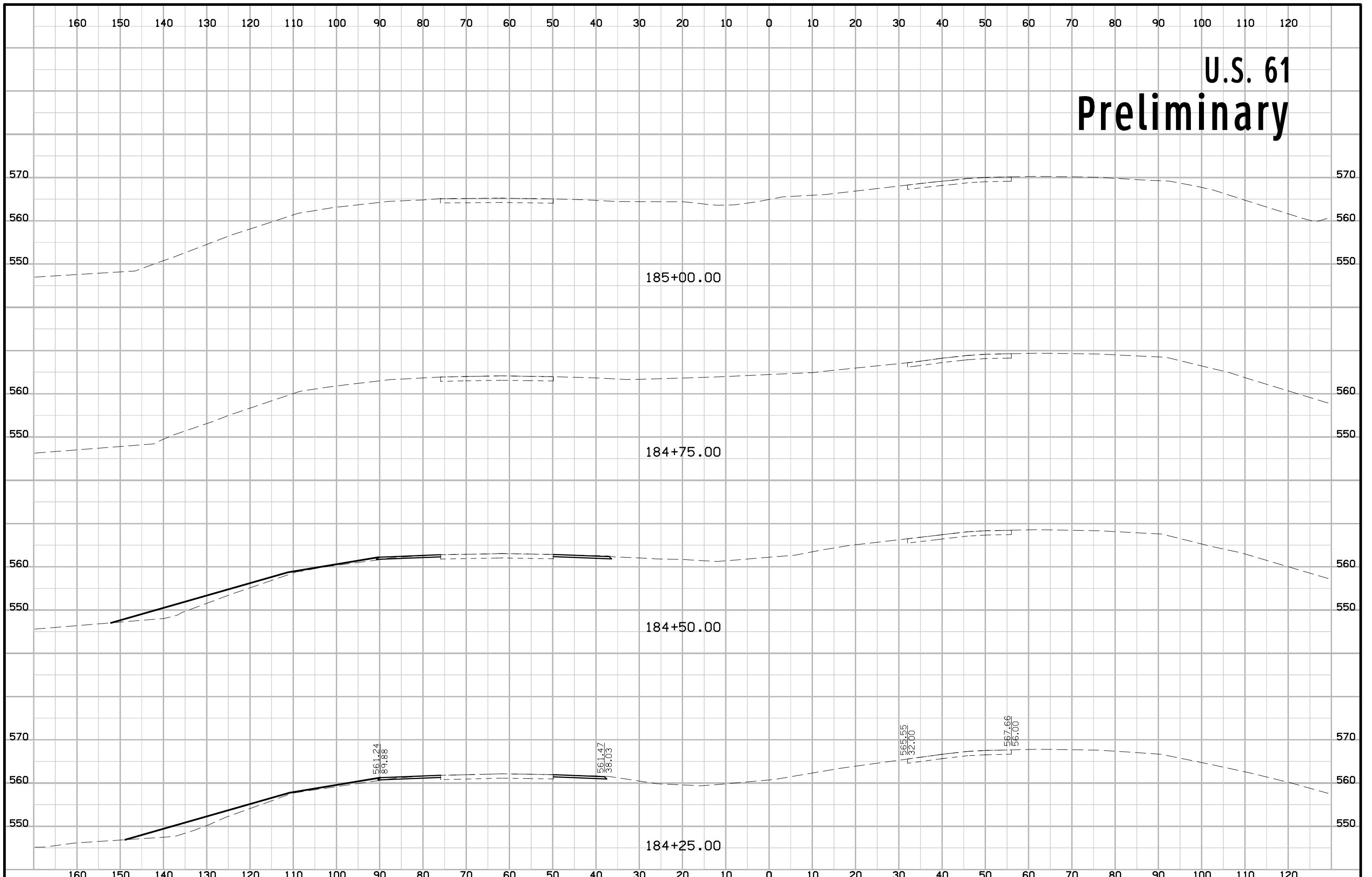
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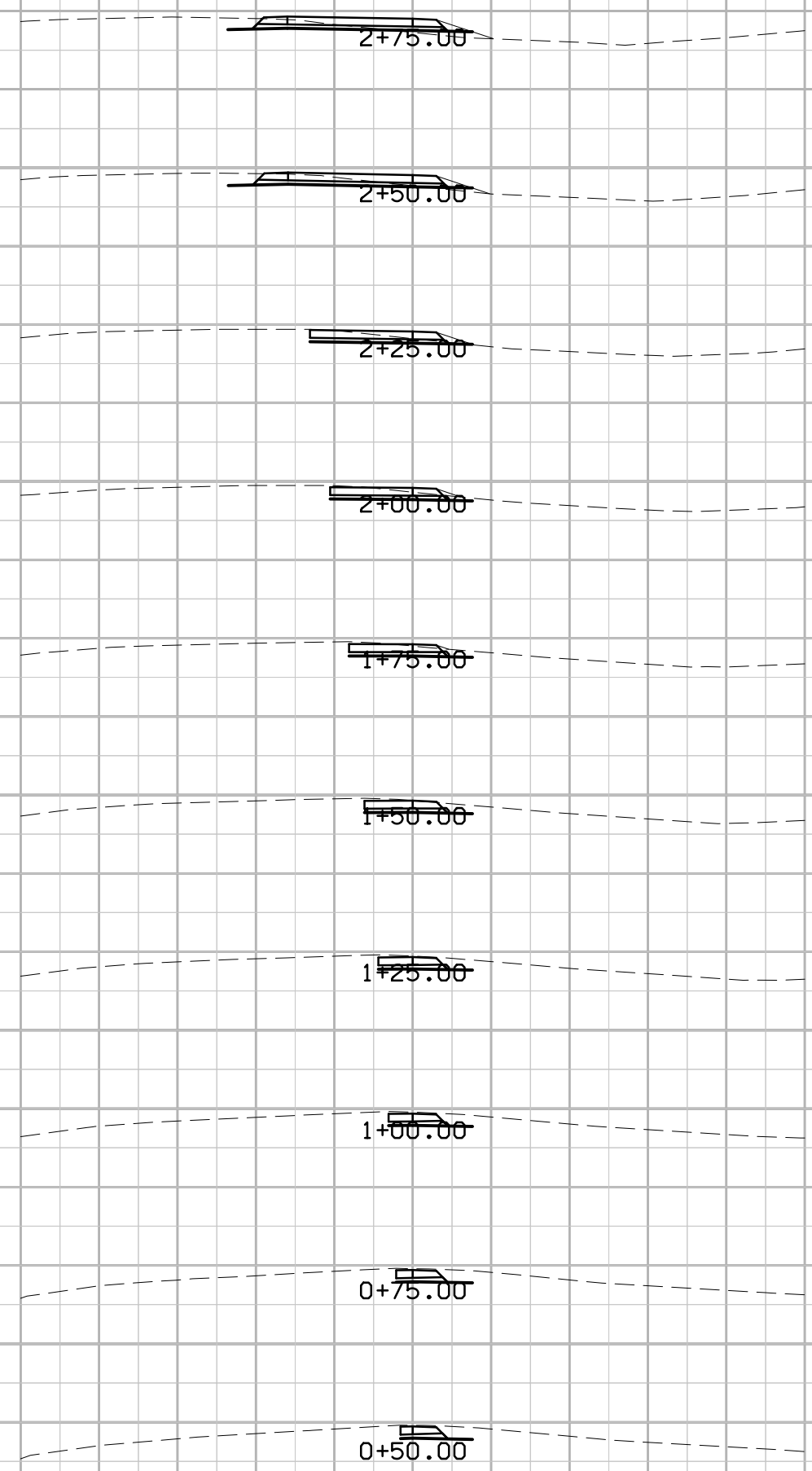


U.S. 61 Preliminary



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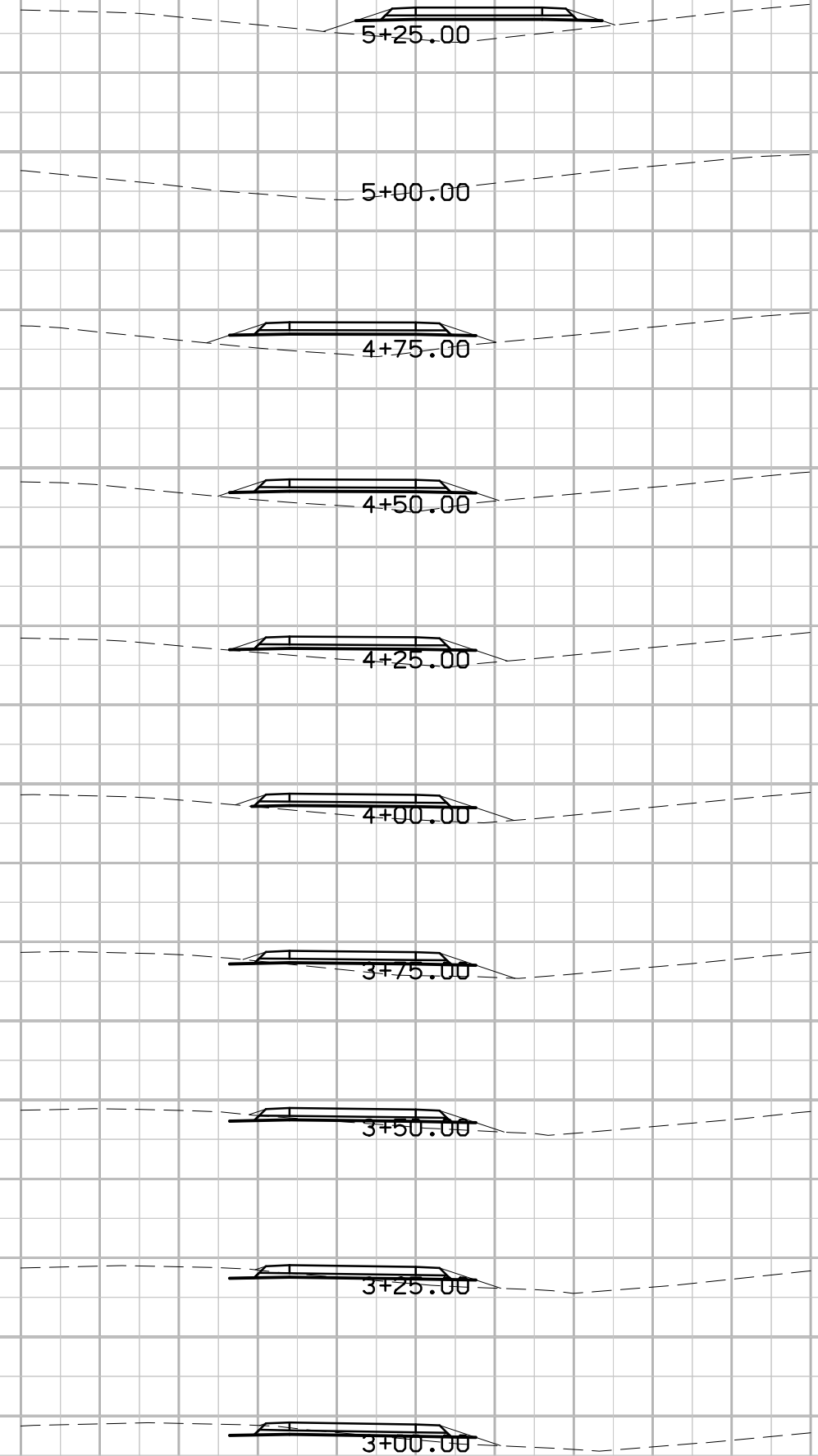
South Crossover Preliminary



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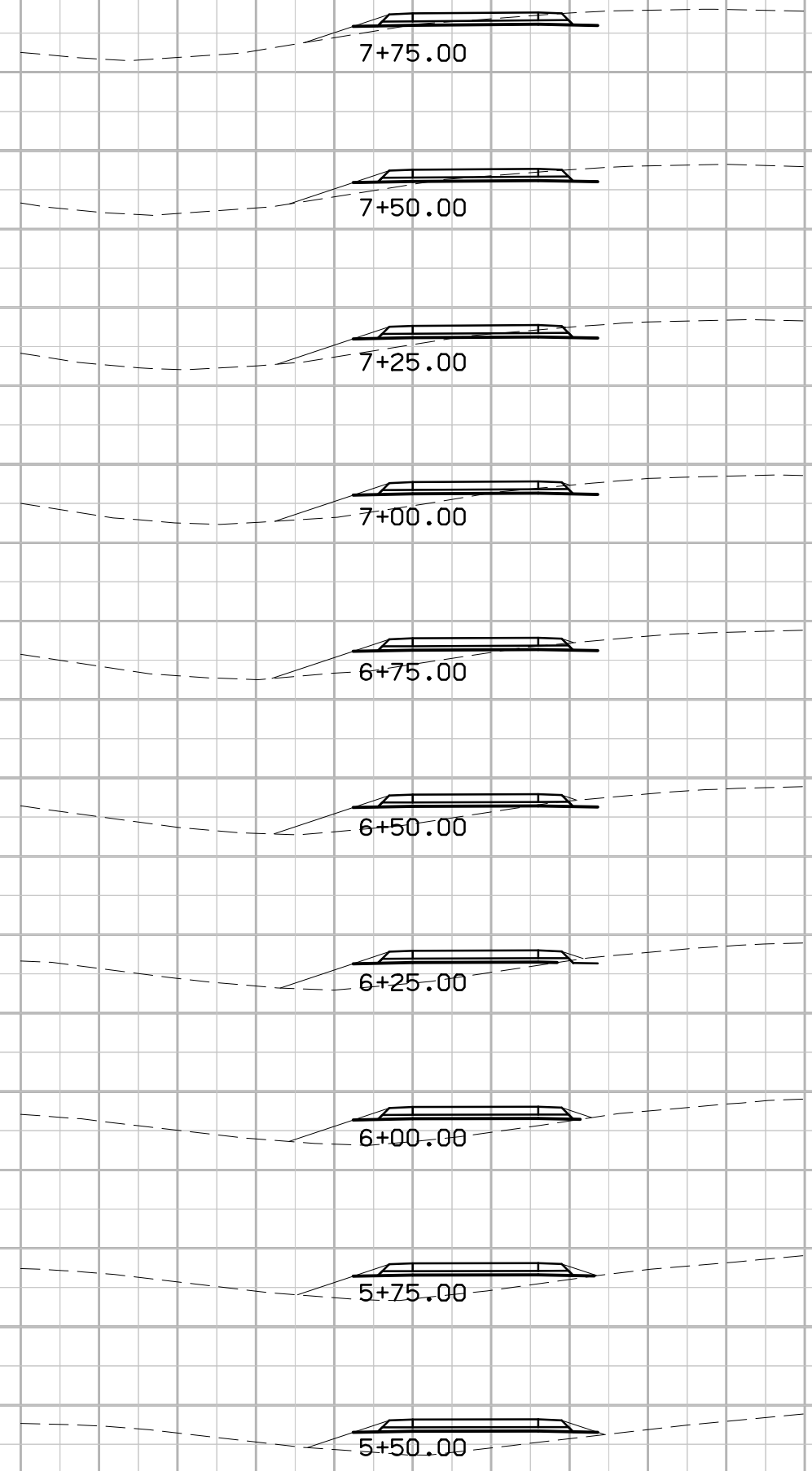
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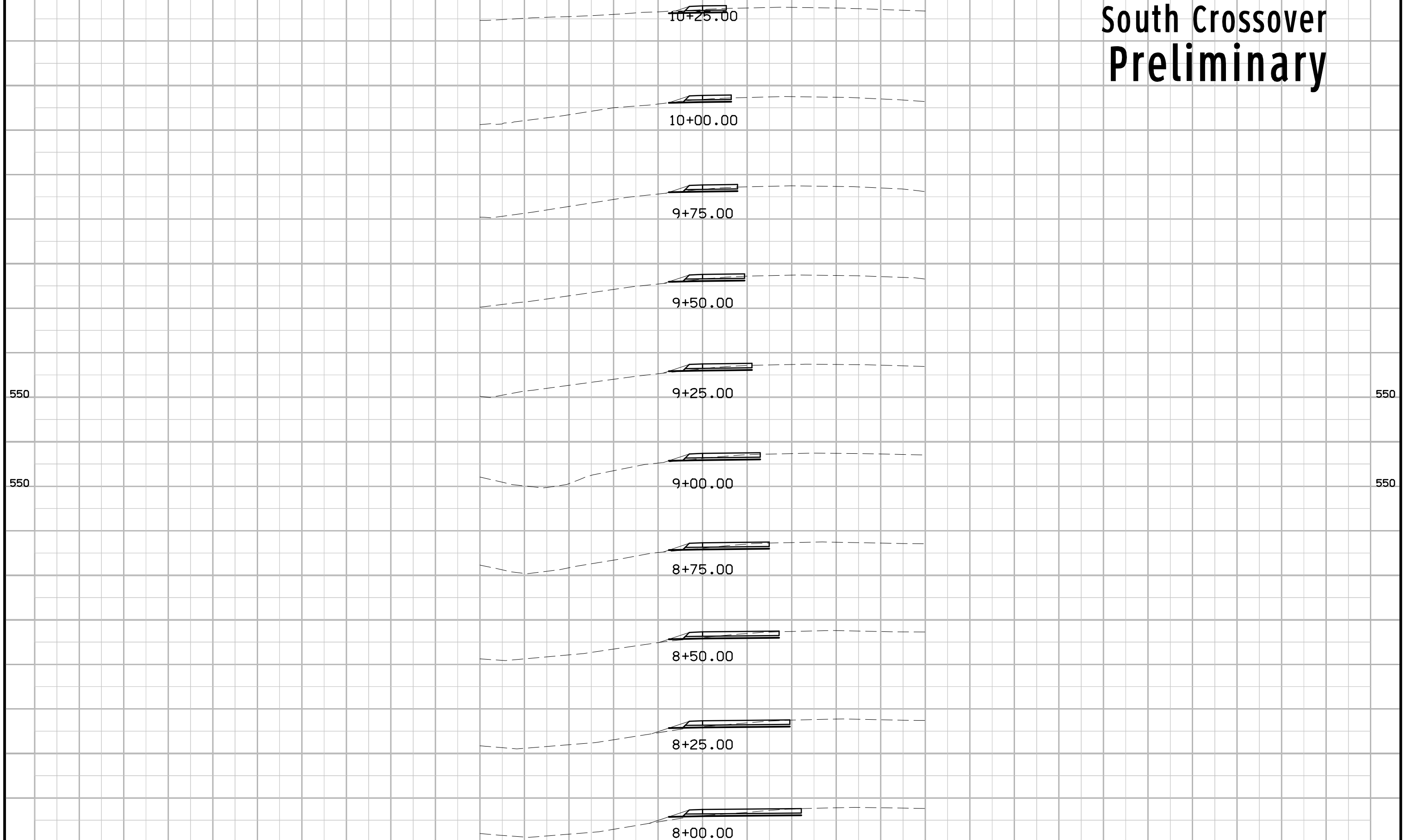
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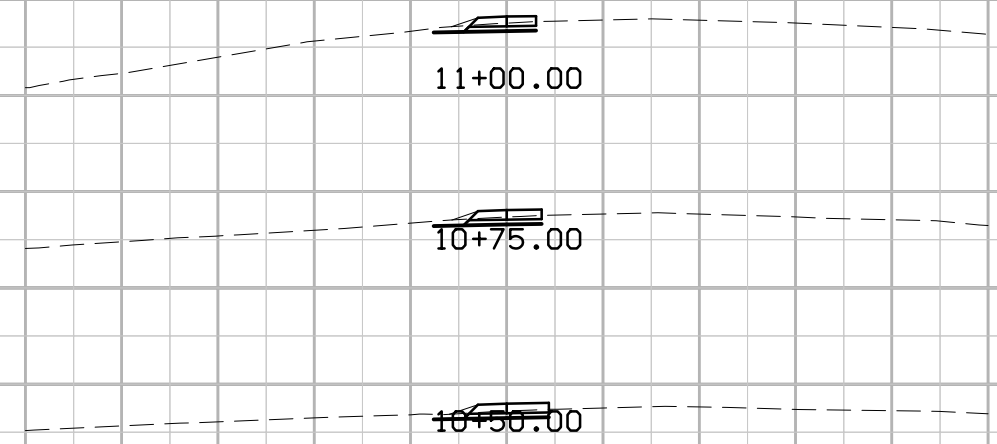
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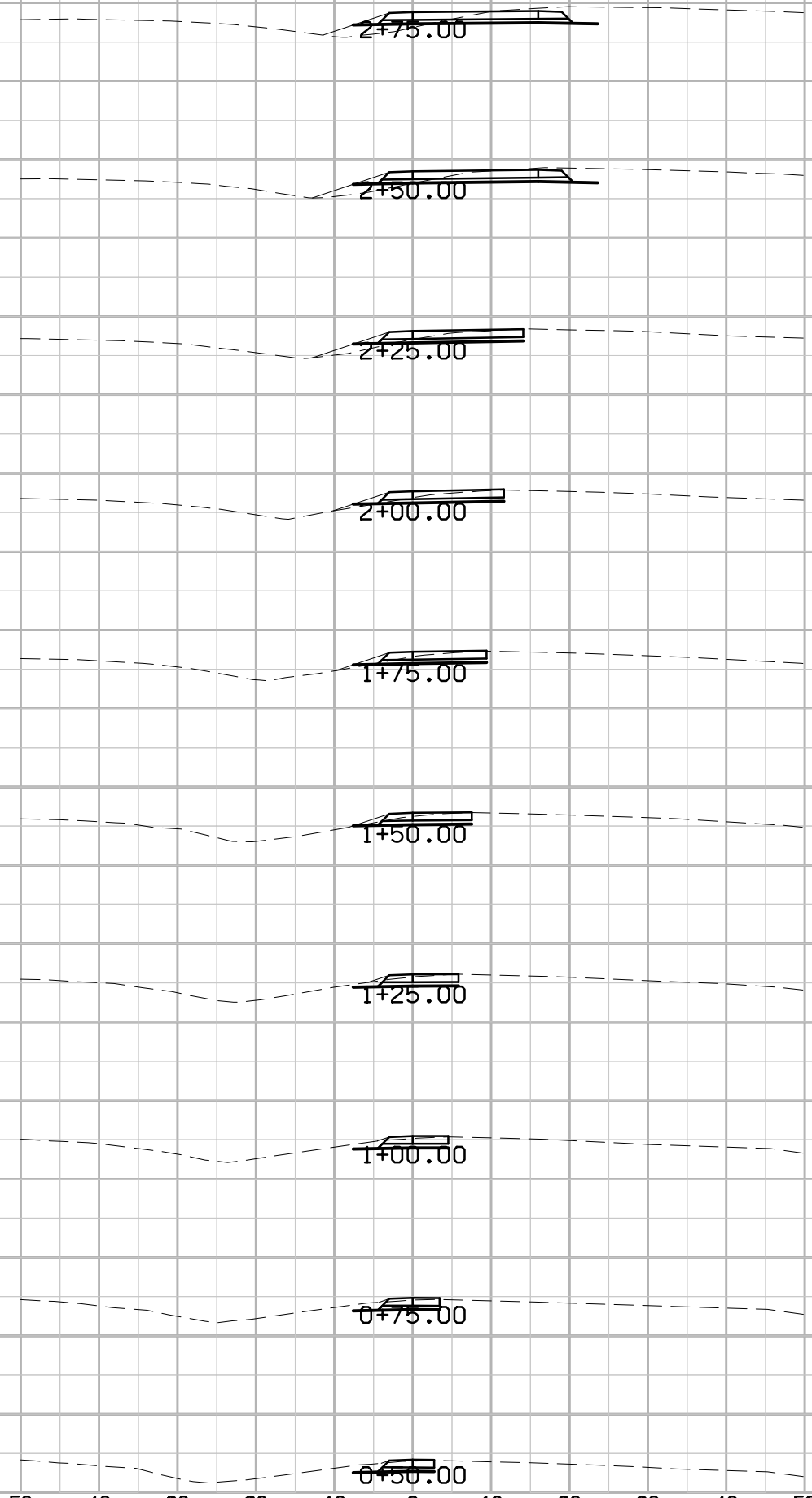
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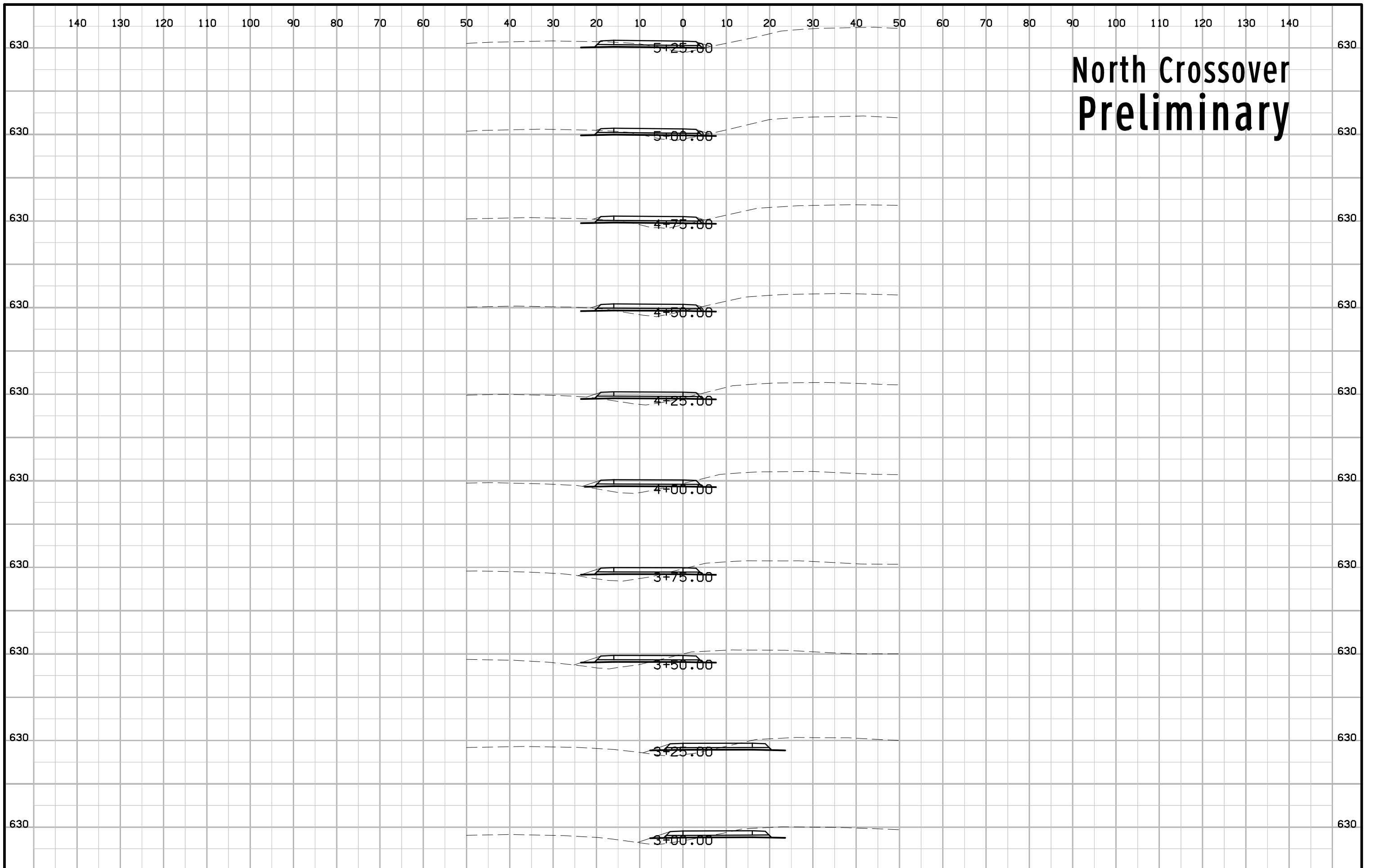
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North Crossover Preliminary



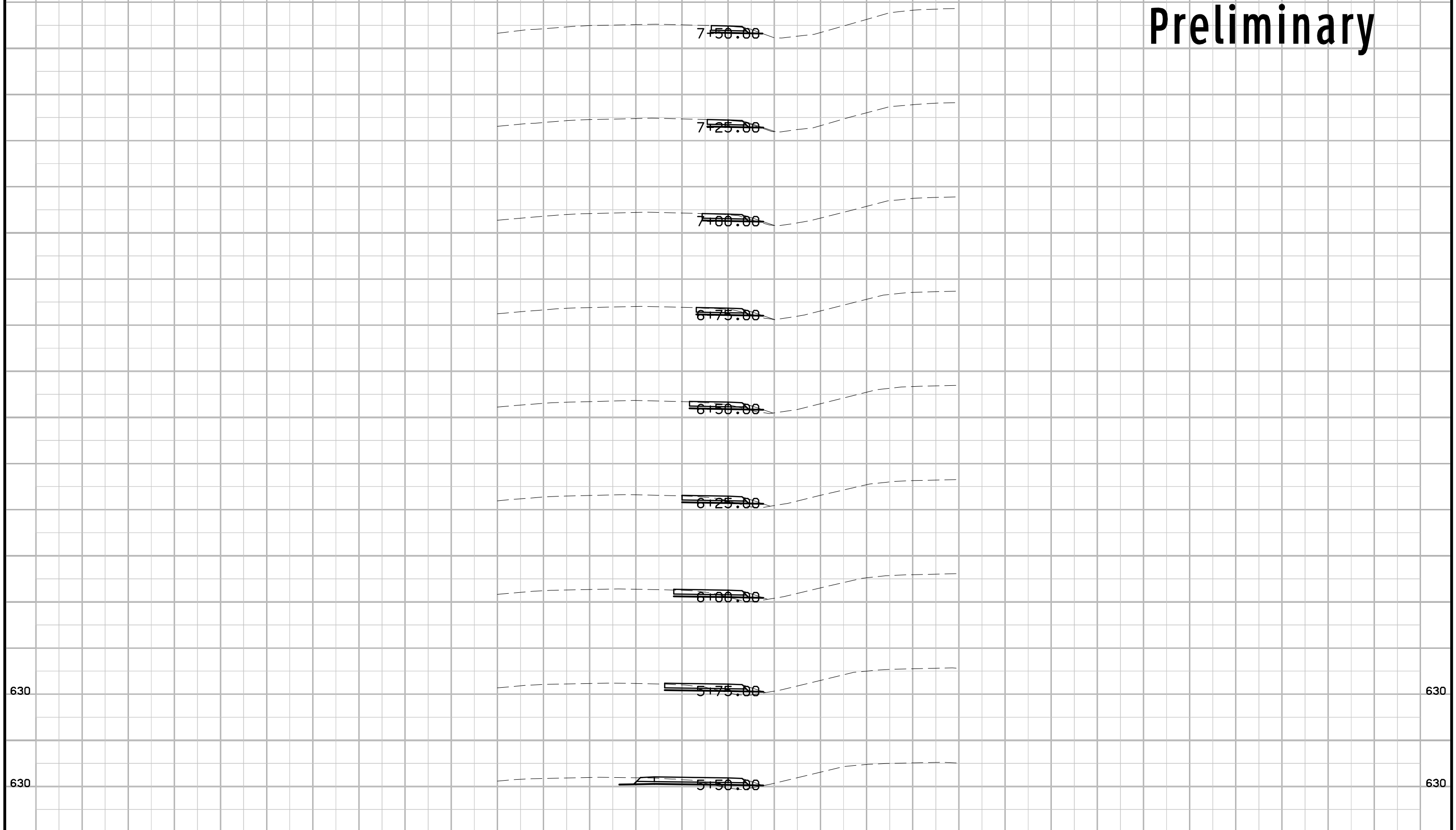
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North Crossover Preliminary



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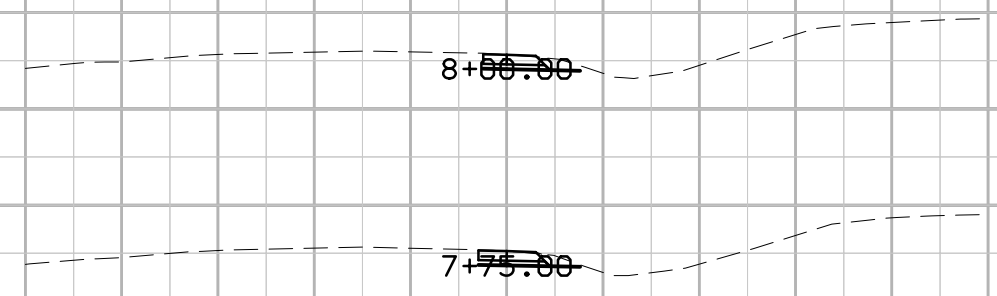
North Crossover Preliminary



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North Crossover Preliminary



140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140