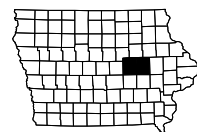


LETTING DATE  
10-19-2021

PCC PAVEMENT - GRADE AND NEW  
NHSX-030-6(240)--3H-86

TAMA CO.

INDEX OF SHEETS	
No.	DESCRIPTION
<b>A Sheets</b>	<b>Title Sheets</b>
A.1	Title Sheet
A.2	Location Map Sheet
<b>B Sheets</b>	<b>Typical Cross Sections and Details</b>
B.1 - 12	Typical Cross Sections and Details
<b>C Sheets</b>	<b>Quantities and General Information</b>
C.1	Project Description
C.1	Estimated Project Quantities
C.2	Estimate Reference Information
C.3	Standard Road Plans
C.3	Index of Tabulations
C.3	General Notes
C.4 - 17	Tabulations
<b>CD Sheets</b>	<b>Drainage Tabulations</b>
CD.1 - 3	Drainage Tabulations
<b>CS Sheets</b>	<b>Soils Tabulations</b>
CS.1 - 4	Soils Tabulations
<b>D Sheets</b>	<b>Mainline Plan and Profile Sheets</b>
* D.1	Plan & Profile Legend & Symbol Information Sheet
* D.2 - 9	US 30
<b>E Sheets</b>	<b>Side Road Plan and Profile Sheets</b>
* E.1 - 2	IA 21
* E.3	11th Avenue
<b>F Sheets</b>	<b>Detour or Temporary Pavement Sheets</b>
* F.1	Crossover One
* F.2	Crossover Two
<b>G Sheets</b>	<b>Survey Sheets</b>
G.1 - 6	Reference Ties and Bench Marks
G.7 - 11	Horizontal Control Tab. & Super for all Alignments
<b>H Sheets</b>	<b>Right-of-Way Sheets</b>
* H.1 - 4	US 30
* HE.1 - 2	IA 21
* HE.3	11th Ave
<b>J Sheets</b>	<b>Traffic Control and Staging Sheets</b>
J.1	Traffic Control Plan
J.1	Staging Notes Stage
J.1	Tabulation of Special Events
J.2	511 Travel Restrictions
* J.3	Staging Legend & Symbol Sheet
* J.4 - 6	Staging Typical
* J.7 - 10	Stage 1 Traffic Control Sheets
* J.11 - 15	Stage 2 Traffic Control Sheets
* J.16 - 17	Stage 3 Traffic Control Sheets
* J.18 - 19	Detour Route and Signing
<b>K Sheets</b>	<b>Interchange Sheets</b>
* K.1 - 2	US 30 & IA 21 Interchange Layout Sheets
* K.3	US 30 & IA 21 RAMP "A" Plan and Profile Sheets
* K.4	US 30 & IA 21 RAMP "B" Plan and Profile Sheets
* K.5	US 30 & IA 21 RAMP "C" Plan and Profile Sheets
* K.6	US 30 & IA 21 RAMP "D" Plan and Profile Sheets
K.7 - 8	Ramp "A" and "C" Terminals Geometric & Staking Details
K.9 - 10	Ramp "A" and "C" Terminals Jointing Details
K.11	Ramp "A" Edge Profile
K.12	Ramp "C" Edge Profile
K.13 - 14	Ramp "B" and "D" Terminals Geometric & Staking Details
K.15 - 16	Ramp "B" and "D" Terminals Jointing Details
K.17	Ramp "B" Edge Profile
K.18	Ramp "D" Edge Profile



Highway Division

PLANS OF PROPOSED IMPROVEMENT ON THE

PRIMARY ROAD SYSTEM

TAMA COUNTY

PCC PAVEMENT - GRADE AND NEW

W of IA 21 to 11th Ave Dr

SCALES: As Noted

Refer to the Proposal Form for list of applicable specifications.  
Value Engineering Saves. Refer to Article 1105.14 of the Specifications.



For Project Location Map  
Refer to Sheet A.2

DESIGN DATA RURAL			
2017	AADT	5400	V.P.D.
2037	AADT	8500	V.P.D.
2037	DHV	880	V.P.H.
	TRUCKS	19	%
	Total		
	Design ESALs	--	

INDEX OF SEALS		
SHEET NO.	NAME	TYPE
A.1	Kelly C. Bell	Primary Signature Block
CD.1	David R. Claman	Hydraulic Signature Block
CS.1	John A. Christiansen	Geotech Signature Block
RC.1	Seana Godbold	Landscape Design

REVISIONS

TOTAL

462

PROJECT IDENTIFICATION NUMBER

92-06-030-030-02

PROJECT NUMBER

NHSX-030-6(240)--3H-86

R.O.W. PROJECT NUMBER

NHSN-030-6(247)--2R-86

NHSN-030-6(248)--2R-06

INDEX OF SHEETS	
No.	DESCRIPTION
<b>L Sheets</b>	<b>Geometric, Staking and Jointing Sheets</b>
L.1	Geometric & Staking US 30 & 11th Ave
L.2	Edge Profiles US 30 & 11th Ave
L.3 - 4	Jointing US 30 & 11th Ave
<b>Q Sheets</b>	<b>Soils Sheets</b>
* Q.1	Soils Legend & Symbol Information Sheet
* Q.2 - 20	Soils Sheets
<b>R Sheets</b>	<b>Erosion Control</b>
* RC.1 - 9	Erosion Control Quantities Tabulations
* RR.1 - 23	Erosion Control Plan Sheets
<b>T Sheets</b>	<b>Earthwork Quantity Sheets</b>
* T.1 - 2	Earthwork Legend Sheets
T.3 - 29	Earthwork Quantity Sheets
<b>U Sheets</b>	<b>500 Series, Mod.Stds. and Detail Sheets</b>
* U.1 - 3	US 30 Crossover One Geometric and Staking Details
* U.4 - 5	US 30 Crossover Two Geometric and Staking Details
* U.6	Proposed Safety Fence
* U.7 - 10	US 30 Fencing Details
* U.11 - 12	IA 21 Fencing Details
* U.13	11th Ave Fencing Details
<b>W Sheets</b>	<b>Mainline Cross Sections</b>
W.101 - 175	US 30 Stage 1
W.201 - 270	US 30 Stage 2
<b>X Sheets</b>	<b>Side Road Cross Sections</b>
X.101 - 141	IA 21 Cross Section Sheets
X.201 - 212	11th Avenue Cross Sections
<b>Y Sheets</b>	<b>Ramp Cross Sections</b>
Y.101 - 117	US 30 & IA 21 Ramp "A" Cross Sections
Y.201 - 216	US 30 & IA 21 Ramp "B" Cross Sections
Y.301 - 314	US 30 & IA 21 Ramp "C" Cross Sections
Y.401 - 412	US 30 & IA 21 Ramp "D" Cross Sections
	* Color Plan Sheets

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.

*Kelly Bell*

08-04-2021

Signature

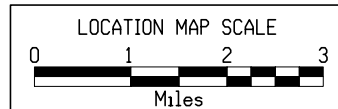
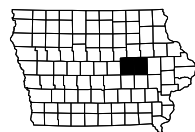
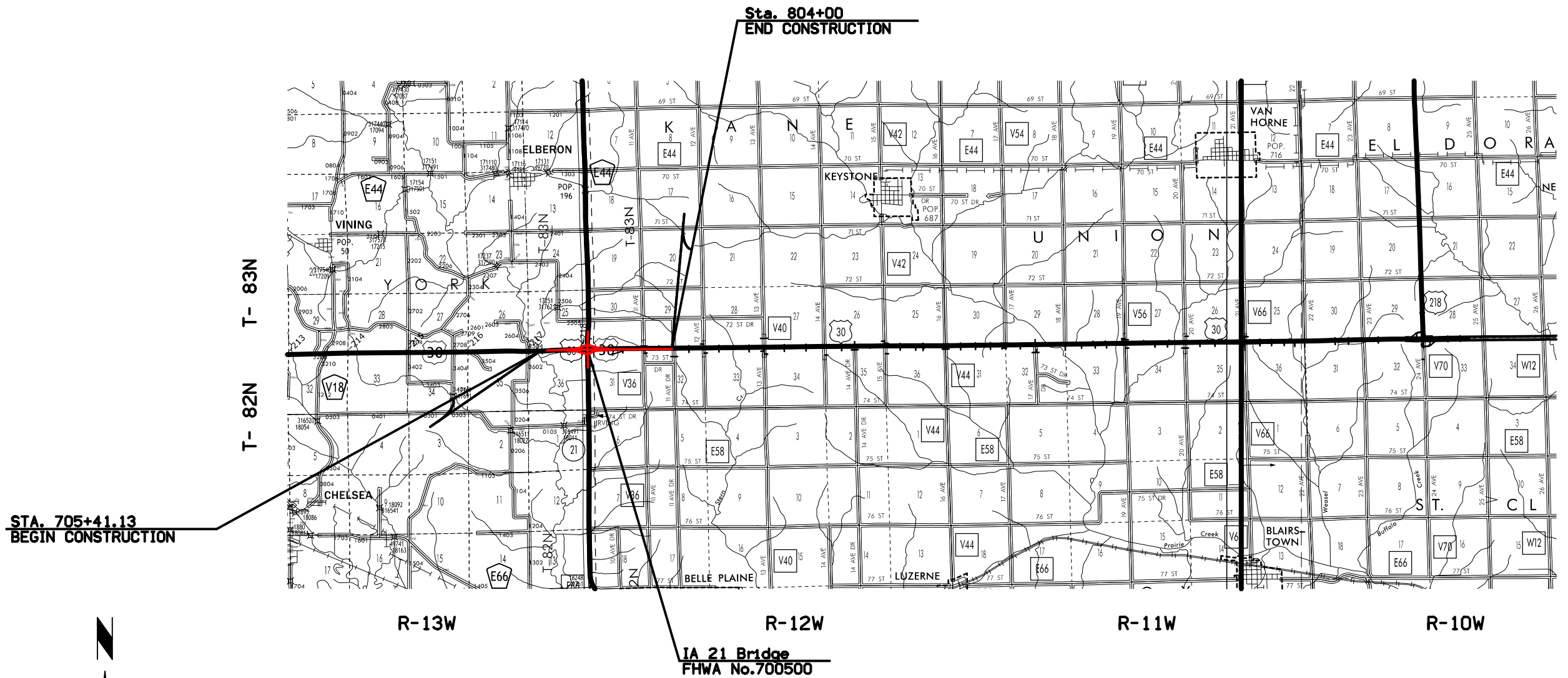
Date

Kelly C. Bell

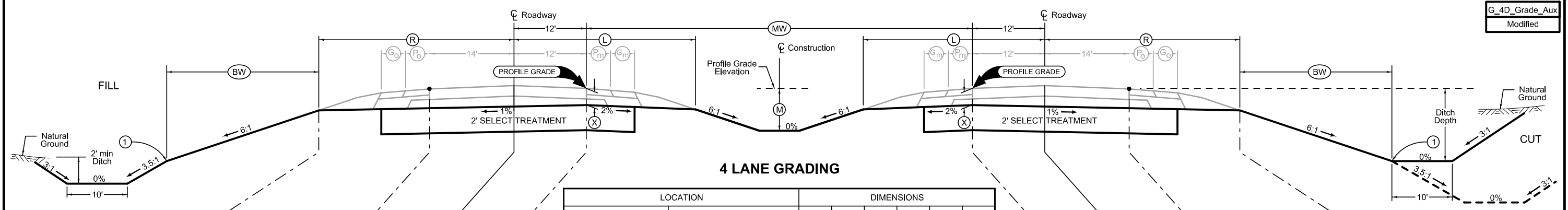
Printed or Typed Name

My license renewal date is December 31, 2021

Pages or sheets covered by this seal: A.1-A.2, B.1-B12, C.1-C17, D.1-D.9, E.1-E.3, F.1-F.2, G.1-G.11, H.1-H.4, HE.1-HE.3, J.1-J.19, K.1-K18, L.1-L.4, T.1-T.29, U.1-U.13, W.101-W.175, W.201-W.270, X.101-X.141, X.201-X.212, Y.101-Y.117, Y.201-Y.216, Y.301-Y.314, Y.401-Y.412

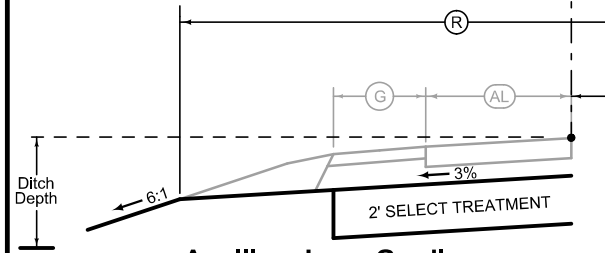






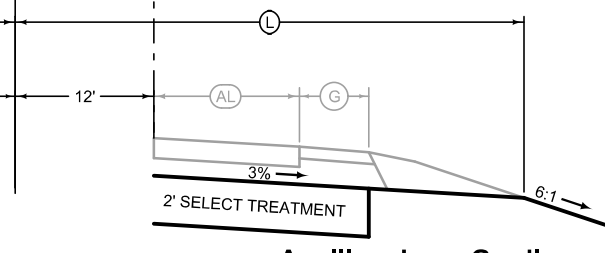
**4 LANE GRADING**

LOCATION		DIMENSIONS						
ROAD IDENTIFICATION	STATION TO STATION	(L) Feet	(R) Feet	(X) Inches	(BW) Feet	(MW) Feet	(M) Feet	
U.S. Highway 30	705+41.13 - 806+00.00	32.0	33.0	16	19.6	64	4	



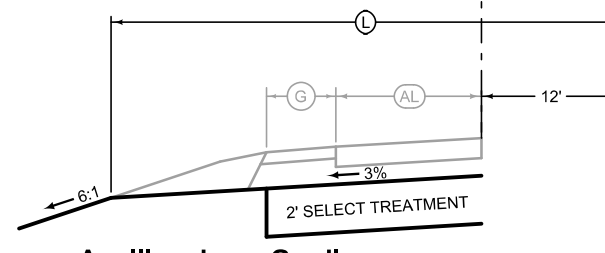
**Auxiliary Lane Grading**

LOCATION		(R) Feet
ROAD IDENTIFICATION	STATION TO STATION	
U.S. 30 WB (Ramp C Taper)	718+00.00 - 730+30.00	70.8
U.S. 30 WB (Ramp A Taper)	753+50.00 - 759+50.00	72.9



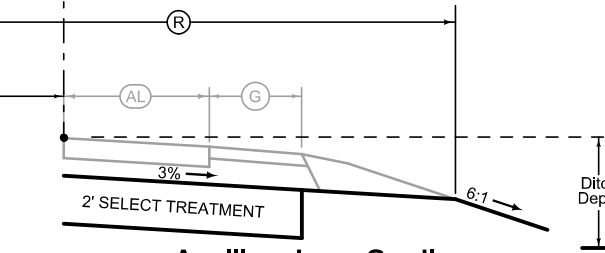
**Auxiliary Lane Grading**

LOCATION		(L) Feet
ROAD IDENTIFICATION	STATION TO STATION	
U.S. 30 WB (11th Ave)	791+30.00 - 791+30.00	41.3
U.S. 30 WB (11th Ave)	792+80.00 - 792+80.00	0.0 - 41.3



**Auxiliary Lane Grading**

LOCATION		(L) Feet
ROAD IDENTIFICATION	STATION TO STATION	
U.S. 30 EB (11th Ave)	786+80.20 - 788+00.20	0.0 - 41.3
U.S. 30 EB (11th Ave)	788+00.20 - 789+50.20	41.3



**Auxiliary Lane Grading**

LOCATION		(R) Feet
ROAD IDENTIFICATION	STATION TO STATION	
U.S. 30 EB (Ramp B Taper)	722+50.00 - 728+50.00	72.9
U.S. 30 EB (Ramp D Taper)	749+70.00 - 762+00.00	70.8

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.

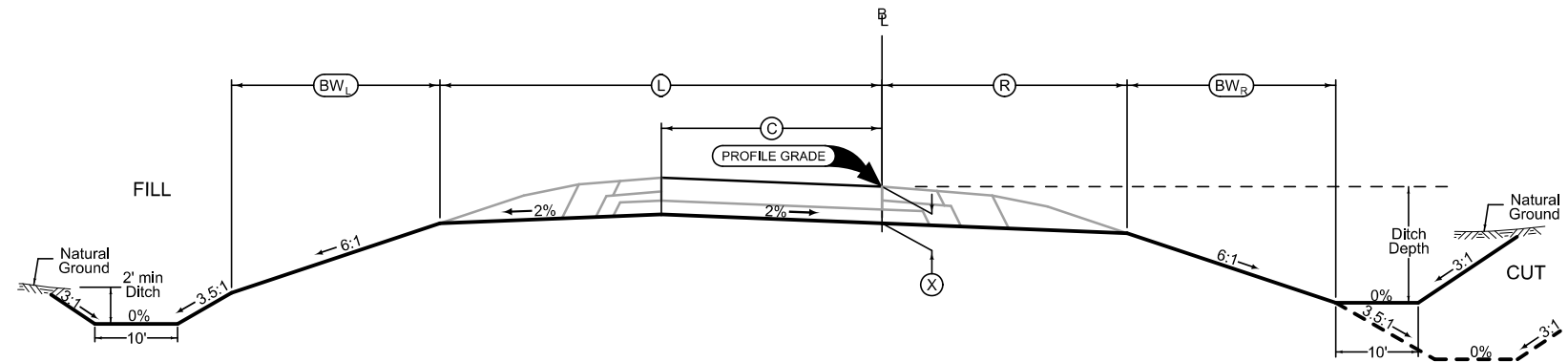
Normal section shown may be modified appropriately in areas of superelevated curves or other locations specifically designated by the Engineer.

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.

LOCATION				DIMENSIONS					
INTERCHANGE	RAMP	STATION TO STATION		(L) Feet	(R) Feet	(C) Feet	(X) Inches	(BW <sub>L</sub> ) Feet	(BW <sub>R</sub> ) Feet
Iowa 21	A	1540+80.38	1553+50.00	30.3	16.1	16.0	16.0	21.2	20.1
Iowa 21	B	2528+50.00	2541+35.84	30.3	16.1	16.0	16.0	21.2	20.1
Iowa 21	C	3530+28.66	3541+39.90	30.3	16.1	16.0	16.0	21.2	20.1
Iowa 21	D	4540+74.35	4549+71.34	30.3	16.1	16.0	16.0	21.2	20.1

G\_1R\_Grade  
04-15-14



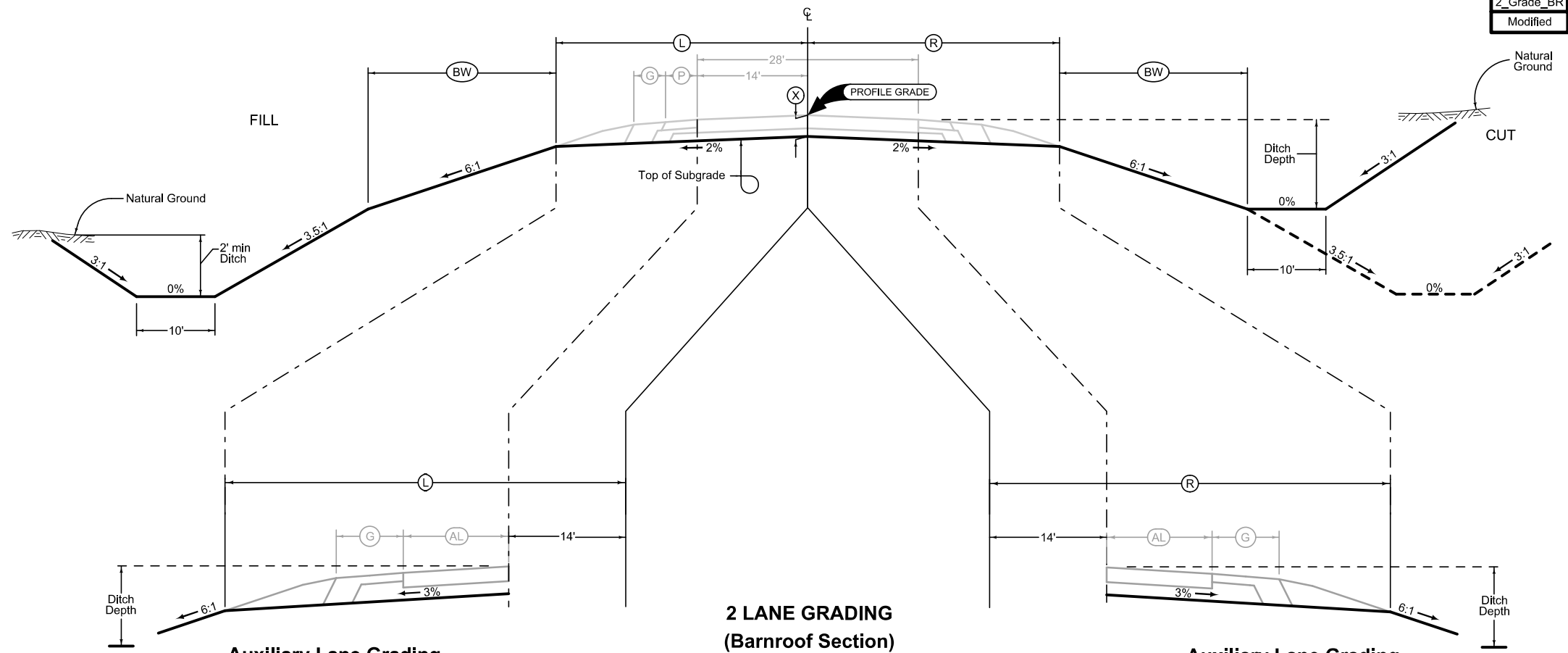
**RAMP GRADING**

Section view is in direction of traffic.  
Normal sections shown may be appropriately modified for areas specifically designated by the Engineer such as intersections or superelevated curves.

LOCATION			DIMENSIONS			
ROAD IDENTIFICATION	STATION TO STATION		(L) Feet	(R) Feet	(X) Inches	(BW) Feet
Iowa Highway 21	250+00.00	252+00.00	38.6	38.6	16.0	19.9
Iowa Highway 21	252+00.00	257+95.00	38.6 - 46.6	38.6 - 46.6	16.0	19.9
Iowa Highway 21	257+95.00	260+90.00	46.6	(1)	16.0	19.9
Iowa Highway 21	260+90.00	270+75.00	46.6	46.6	16.0	19.9
Iowa Highway 21	270+75.00	273+70.00	(1)	46.6	16.0	19.9
Iowa Highway 21	273+70.00	280+90.00	46.6 - 38.6	46.6 - 38.6	16.0	19.9
Iowa Highway 21	280+90.00	281+50.00	38.6	38.6	16.0	19.9

(1) See Auxiliary Lane Grading

2\_Grade\_BR  
Modified



**2 LANE GRADING  
(Barnroof Section)**

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.

**Auxiliary Lane Grading**

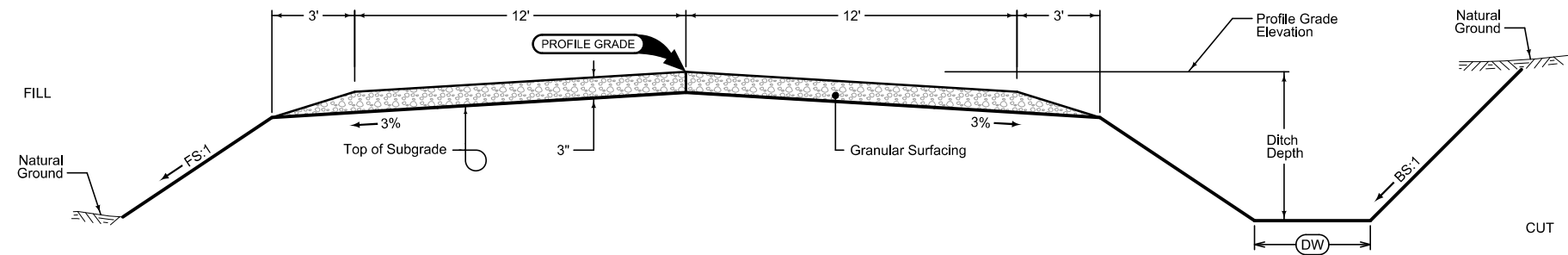
LOCATION			(L) Feet
ROAD IDENTIFICATION	STATION TO STATION		
Iowa Highway 21	270+75.00	272+50.00	53.1
Iowa Highway 21	272+50.00	273+70.00	39.8 - 53.1

**Auxiliary Lane Grading**

LOCATION			(R) Feet
ROAD IDENTIFICATION	STATION TO STATION		
Iowa Highway 21	257+95.00	259+15.00	39.8 - 53.1
Iowa Highway 21	259+15.00	260+90.00	53.1

LOCATION		DIMENSIONS				Granular Surfacing Tons
ROAD IDENTIFICATION	STATION TO STATION	FS	BS	DW Feet		
11th Avenue	11786+75.00 11789+81.93	3	3		147.3	
11th Avenue	11790+97.94 11796+50.00	3	3		265.0	
					Total: 412.3	

G\_2\_GradeGran  
10-17-17

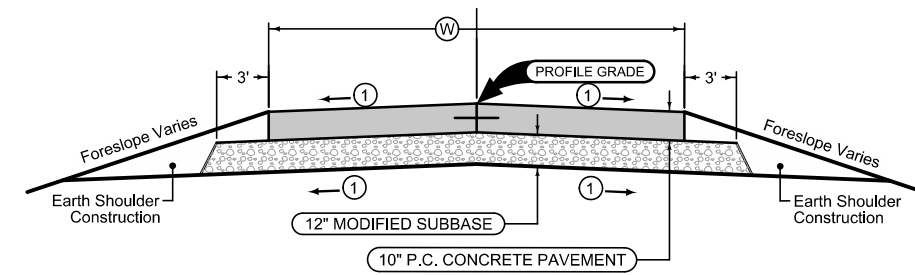
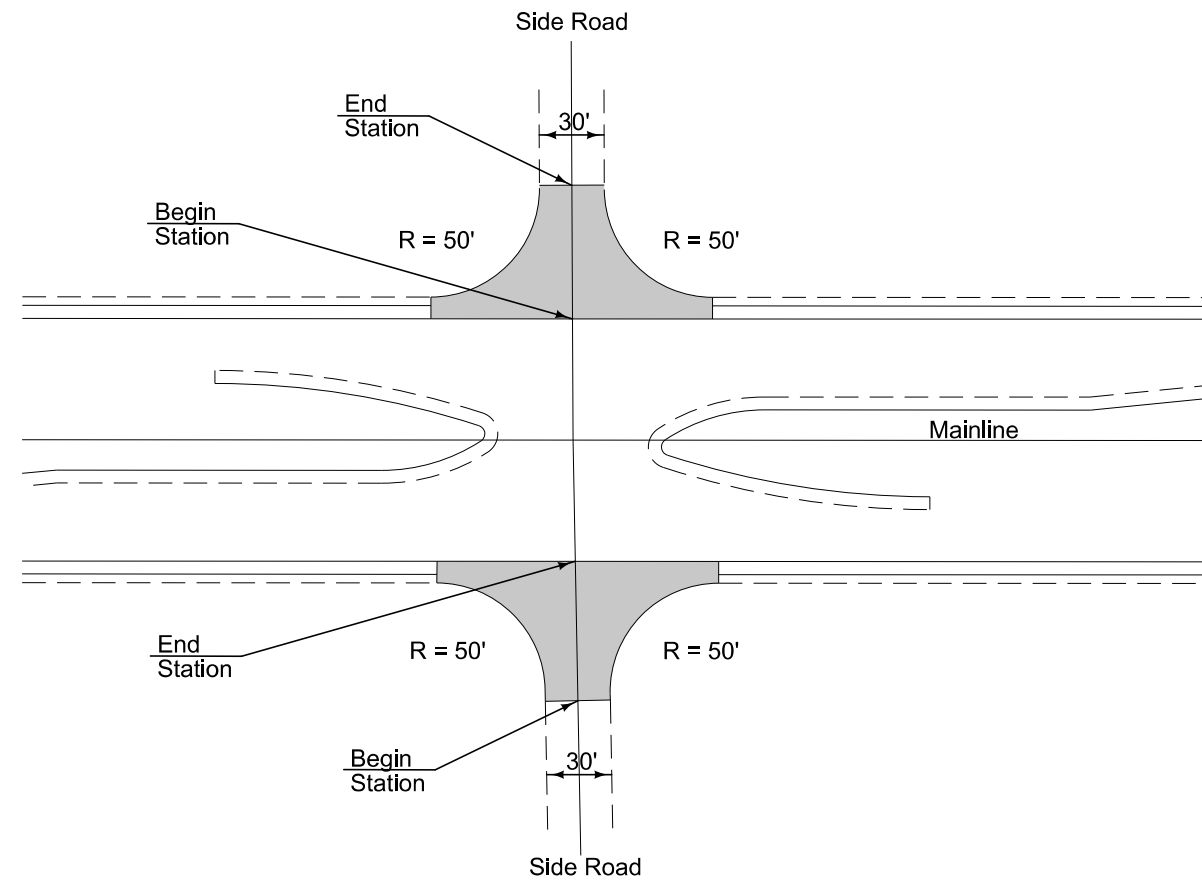


**GRADING AND GRANULAR SURFACING**

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 Subgrade parallels pavement slope.  
See L sheets for details.

ROAD IDENTIFICATION	LOCATION		DIMENSIONS
	STATION TO STATION		Feet
11th Ave	11789+20.00	11789+81.91	30
11th Ave	11790+97.94	11791+60.00	30

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

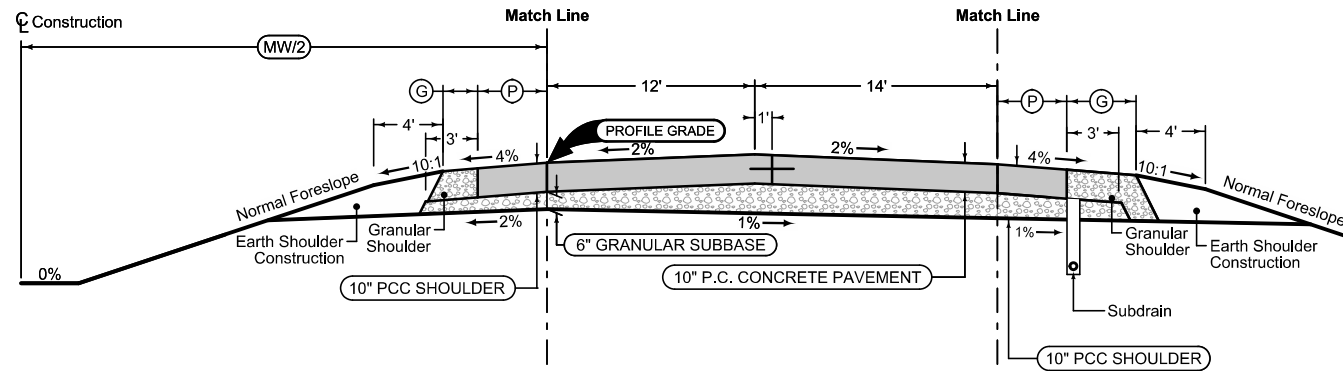
See Tab 100-24 for pavement quantities.

**PAVED RETURNS**

### Combination Shoulder

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

4_C_10-19-10				
Direction of Travel	BEGIN STATION	END STATION	(P) Feet	(G) Feet
EB	705+41.13	786+80.00	4.0	2.0
EB	792+05.00	795+00.00	4.0	2.0



Section shown in the direction of traffic.

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

4DP_10-19-10			
Direction of Travel	BEGIN STATION	END STATION	(MW) Feet
EB	705+41.13	804+00.00	64

### Combination Shoulder

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

4_C_10-19-10				
Direction of Travel	BEGIN STATION	END STATION	(P) Feet	(G) Feet
EB	705+41.13	722+50.00	4.0	4.0
EB	728+50.00	749+70.00	4.0	4.0
EB	772+48.00	789+76.79	4.0	4.0
EB	791+06.81	804+00.00	4.0	4.0

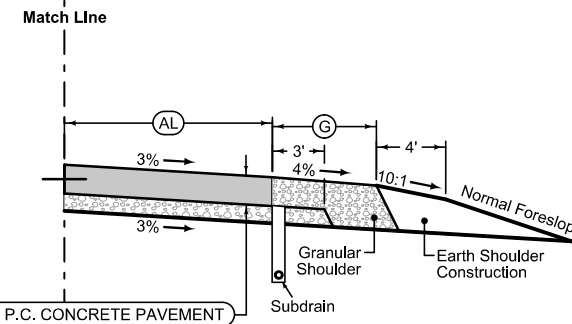
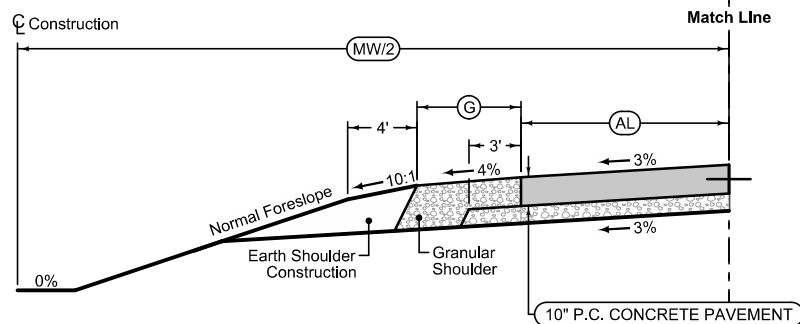
### Auxiliary Lane

Longitudinal joint: L or KT  
 Transverse joint: Match Mainline

4_AuxLane_PCC_10-19-10				
Direction of Travel	BEGIN STATION	END STATION	(AL) Feet	(G) Feet
EB	786+80.00	788+00.00	0.0 - 12.0	6.0
EB	788+00.00	789+50.00	12.0	6.0

### Auxiliary Lane Granular Shoulder

4\_AL\_Shldr\_G\_10-19-10



### Auxiliary Lane

Longitudinal joint: L or KT  
 Transverse joint: Match Mainline

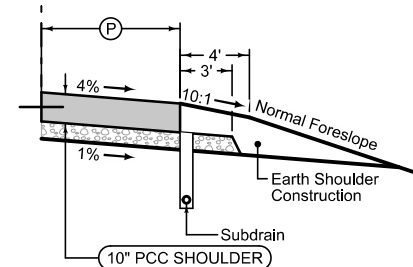
4_AuxLane_PCC_10-19-10				
Direction of Travel	BEGIN STATION	END STATION	(AL) Feet	(G) Feet
EB	722+50.00	728+50.00	0.0 - 40.0	6.0
EB	749+70.00	762+00.00	37.9 - 0.0	6.0

### Auxiliary Lane Granular Shoulder

4\_AL\_Shldr\_G\_10-19-10

### Full Depth PCC Shoulder

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



2_P_FullPCC_04-20-21		
STATION TO STATION	(P) Feet	
762+00.00	789+76.79	8.0

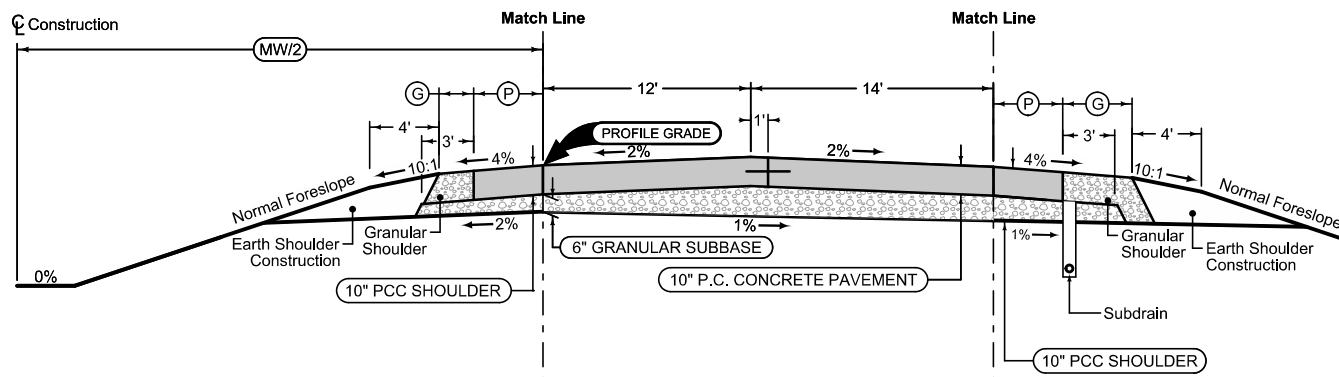
See Tab 100-24 for pavement quantities.  
 See Tab 112-9 for shoulder quantities.

## U.S. Highway 30 EB

### Combination Shoulder

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

4_C_10-19-10				
Direction of Travel	BEGIN STATION	END STATION	(P) Feet	(G) Feet
WB	705+41.13	788+75.00	4.0	2.0
WB	794+00.00	795+00.00	4.0	2.0



Section shown in the direction of traffic.

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

4DP_10-19-10			
Direction of Travel	BEGIN STATION	END STATION	(MW) Feet
WB	705+41.13	795+00.00	64

### Combination Shoulder

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

4_C_10-19-10				
Direction of Travel	BEGIN STATION	END STATION	(P) Feet	(G) Feet
WB	705+41.13	718+00.00	4.0	4.0
WB	730+00.00	753+50.00	4.0	4.0
WB	759+50.00	789+73.91	4.0	4.0
WB	791+03.91	795+00.00	4.0	4.0

### Auxiliary Lane

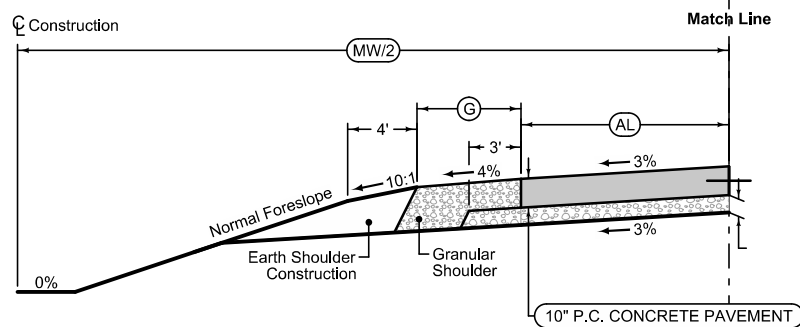
Longitudinal joint: L or KT  
 Transverse joint: Match Mainline

4_AuxLane_PCC_10-19-10				
Direction of Travel	BEGIN STATION	END STATION	(AL) Feet	(G) Feet
WB	791+30.00	792+80.00	12.0	6.0
WB	792+80.00	794+00.00	12.0-0.0	6.0

### Auxiliary Lane

Granular Shoulder

4_AL_Shldr_G_10-19-10		
Direction of Travel	BEGIN STATION	END STATION
WB	791+30.00	792+80.00
WB	792+80.00	794+00.00



### Auxiliary Lane

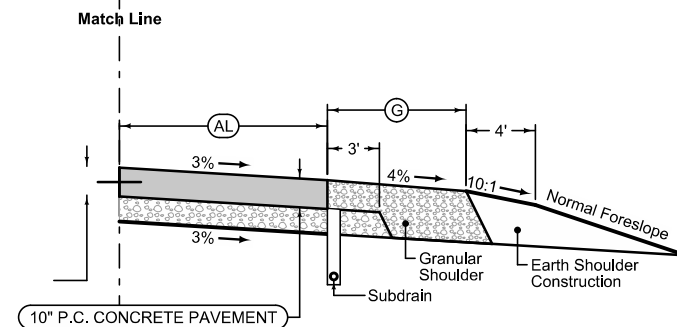
Longitudinal joint: L or KT  
 Transverse joint: Match Mainline

4_AuxLane_PCC_10-19-10				
Direction of Travel	BEGIN STATION	END STATION	(AL) Feet	(G) Feet
WB	718+00.00	730+30.00	0.0-37.9	6.0
WB	753+50.00	759+50.00	40.0-0.0	6.0

### Auxiliary Lane

Granular Shoulder

4_AL_Shldr_G_10-19-10		
Direction of Travel	BEGIN STATION	END STATION
WB	718+00.00	730+30.00
WB	753+50.00	759+50.00



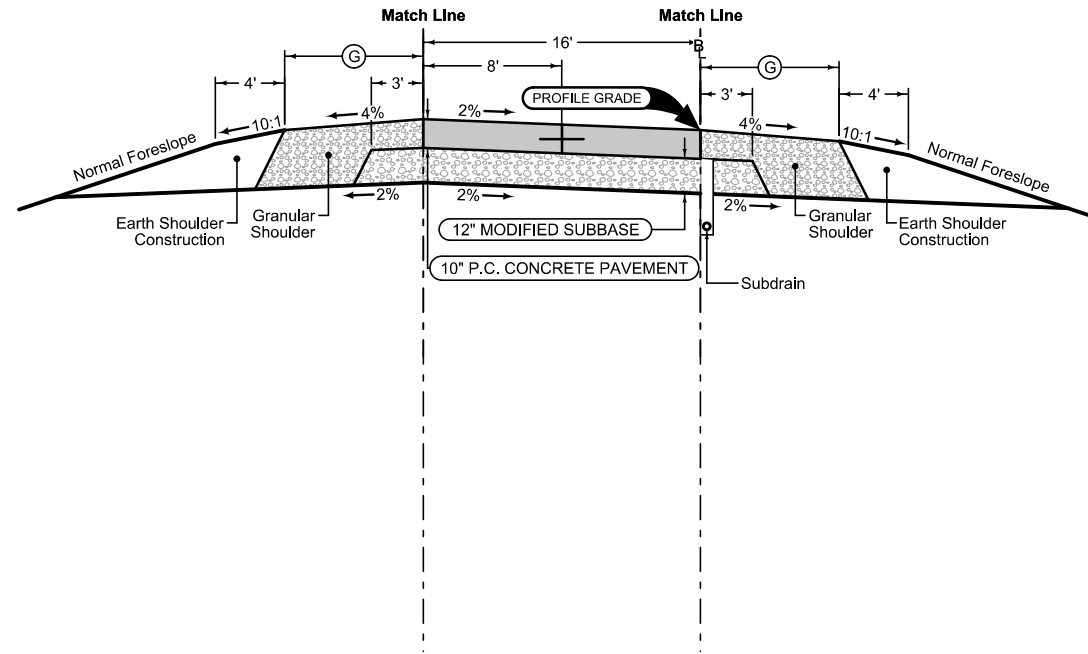
See Tab 100-24 for pavement quantities.  
 See Tab 112-9 for shoulder quantities.

## U.S. Highway 30 WB



**Granular Shoulder**

1R_G_		
10-19-10		
BEGIN STATION	END STATION	⊙ Feet
A 1540+98.75	1553+51.07	4.0
B 2528+48.93	2541+18.83	4.0
C 3530+28.66	3541+15.80	4.0
D 4541+04.27	4549+71.34	4.0



**Granular Shoulder**

1R_G_		
10-19-10		
BEGIN STATION	END STATION	⊙ Feet
A 1541+05.80	1553+51.07	6.0
B 2528+48.93	2541+26.58	6.0
C 3530+28.66	3541+40.95	6.0
D 4540+72.30	4549+71.34	6.0

Section shown in the direction of traffic.

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

1RP_		
10-17-17		
BEGIN STATION	END STATION	
A 1540+80.38	1553+51.07	
B 2528+48.93	2541+35.84	
C 3530+28.66	3541+39.90	
D 4540+74.35	4549+71.34	

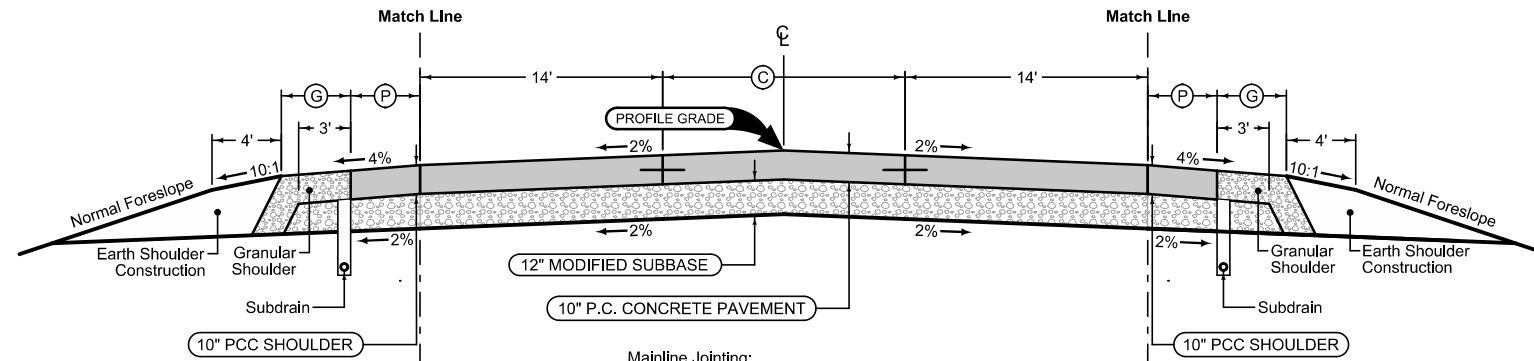
See Tab 100-24 or 100-25 for pavement quantities.  
 See Tab 112-9 for shoulder quantities.

**Iowa Highway 21 Ramps**

### Combination Shoulder

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

STATION TO STATION		(P) Feet	(G) Feet
250+00.00	270+75.00	4.0	4.0
273+70.00	281+50.00	4.0	4.0



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

STATION TO STATION		(C) Feet
250+00.00	252+50.00	0.0
252+50.00	257+95.00	0.0 - 16.0
257+95.00	273+70.00	16.0
273+70.00	280+90.00	16.0 - 0.0
280+90.00	281+50.00	0.0

### Combination Shoulder

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

STATION TO STATION		(P) Feet	(G) Feet
250+00.00	257+95.00	4.0	4.0
260+90.00	281+50.00	4.0	4.0

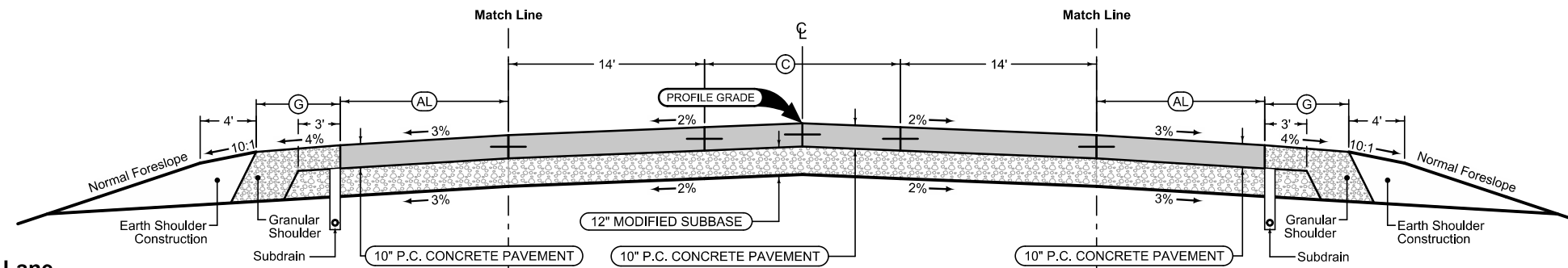
### Auxiliary Lane

Longitudinal joint: L or KT  
 Transverse joint: Match Mainline

STATION TO STATION		(AL) Feet	(G) Feet
270+75.00	272+50.00	12.0	6.0
272+50.00	273+70.00	12.0 - 0.0	6.0

### Auxiliary Lane Granular Shoulder

STATION TO STATION		(AL) Feet	(G) Feet
270+75.00	272+50.00	12.0	6.0
272+50.00	273+70.00	12.0 - 0.0	6.0



### Auxiliary Lane

Longitudinal joint: L or KT  
 Transverse joint: Match Mainline

STATION TO STATION		(AL) Feet	(G) Feet
257+95.00	259+15.00	0.0 - 12.0	6.0
259+15.00	260+90.00	12.0	6.0

### Auxiliary Lane Granular Shoulder

STATION TO STATION		(AL) Feet	(G) Feet
257+95.00	259+15.00	0.0 - 12.0	6.0
259+15.00	260+90.00	12.0	6.0

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

## Iowa Highway 21

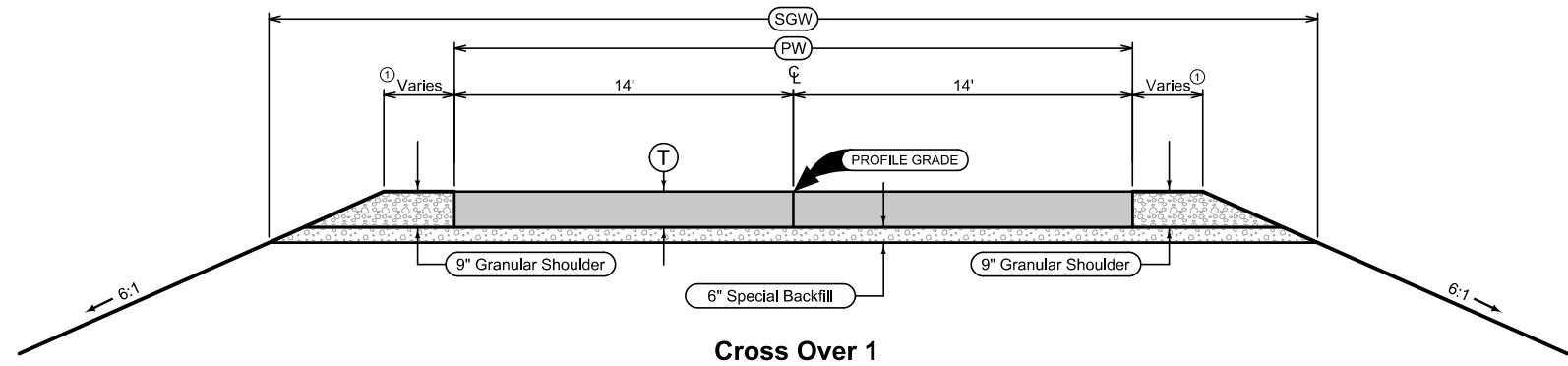
LOCATION		
ROAD IDENTIFICATION	STATION TO STATION	
DET1	100+00.00	114+38.55
DET2	205+00.00	213+60.00

Quantity calculations based on vertical pavement edges and PCC Option.

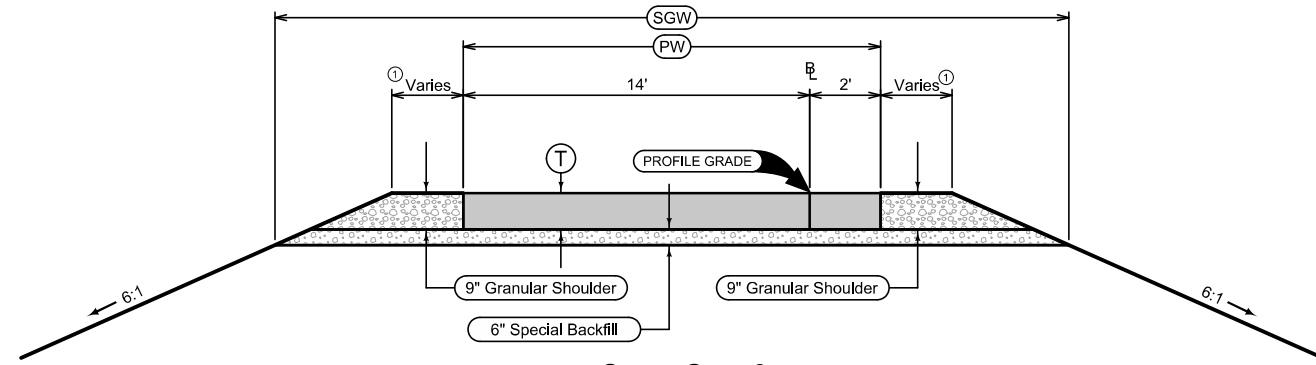
Normal section shown may be modified appropriately in areas of superelevated curves or other locations specifically designated by the Engineer.

See Tab. 100-24M and Tab. 112-9M for Quantities

- (T) Detour Pavement: 9" PCC or 12" HMA
- (1) See Tab. 112-9M for shoulder widths



Cross Over 1

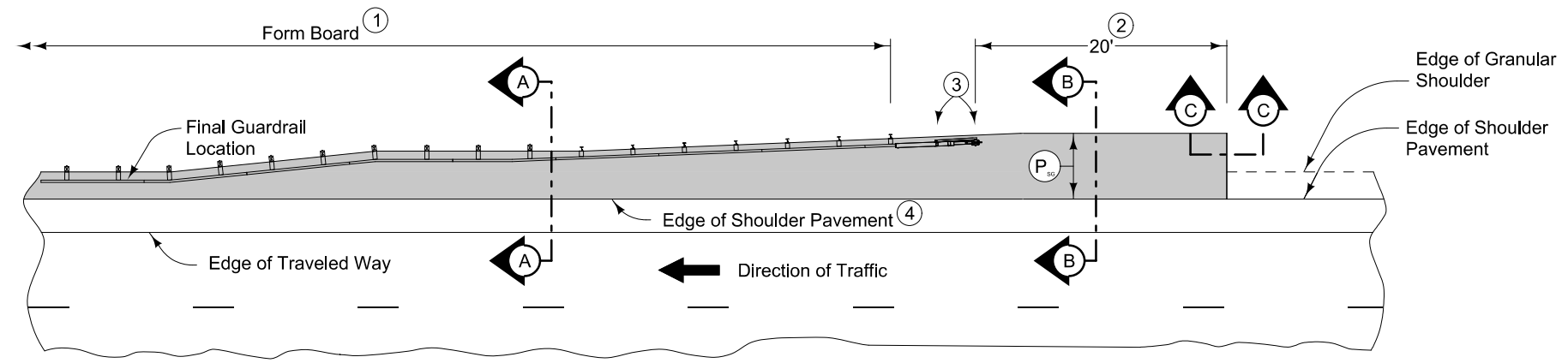


Cross Over 2

PCC Detour Pavement Jointing:  
 Longitudinal joints adjacent to mainline pavement:  
 KT-2 or L-2 if mainline pavement is new. Bend bars out.  
 BT-3 if mainline pavement is existing.  
 Longitudinal jointing of Detour Pavement (Crossover 2 Only)  
 KT-2 or L-2 spaced at one-quarter median width.  
 Transverse joints:  
 Match existing roadway joints. CD joints are required.

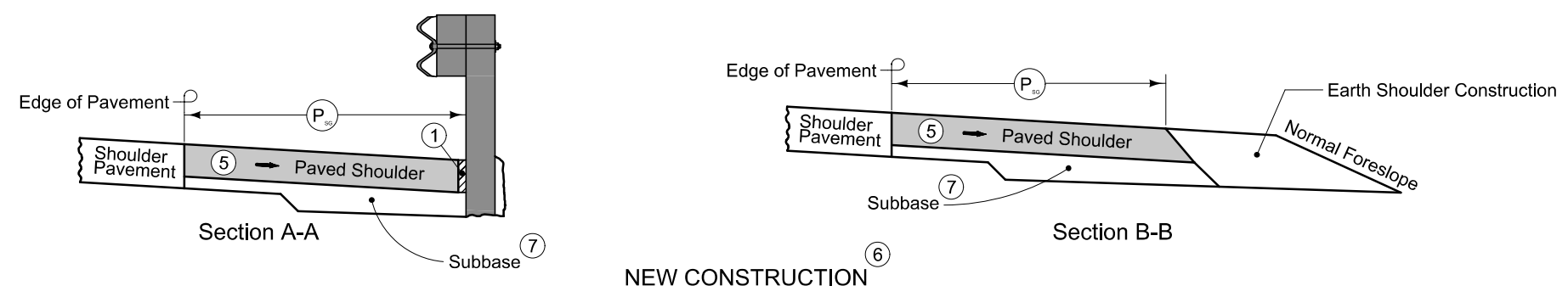
HMA Detour Pavement Jointing:  
 Longitudinal joints: B





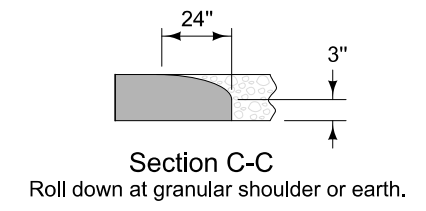
PLAN VIEW

6" PCC Paved Shoulder at guardrail. Use the following jointing layout:  
 Match mainline pavement joint spacing. When mainline pavement is 8" or greater in thickness, place additional transverse 'C' joints in shoulder at mid-panel of the mainline pavement. Place longitudinal 'C' joint at P/2 from edge of mainline pavement when P is greater than 10' wide. Terminate longitudinal joint at transverse joint less than 10' in length.  
 Refer to Tabulation 112-9 for shoulder quantities.



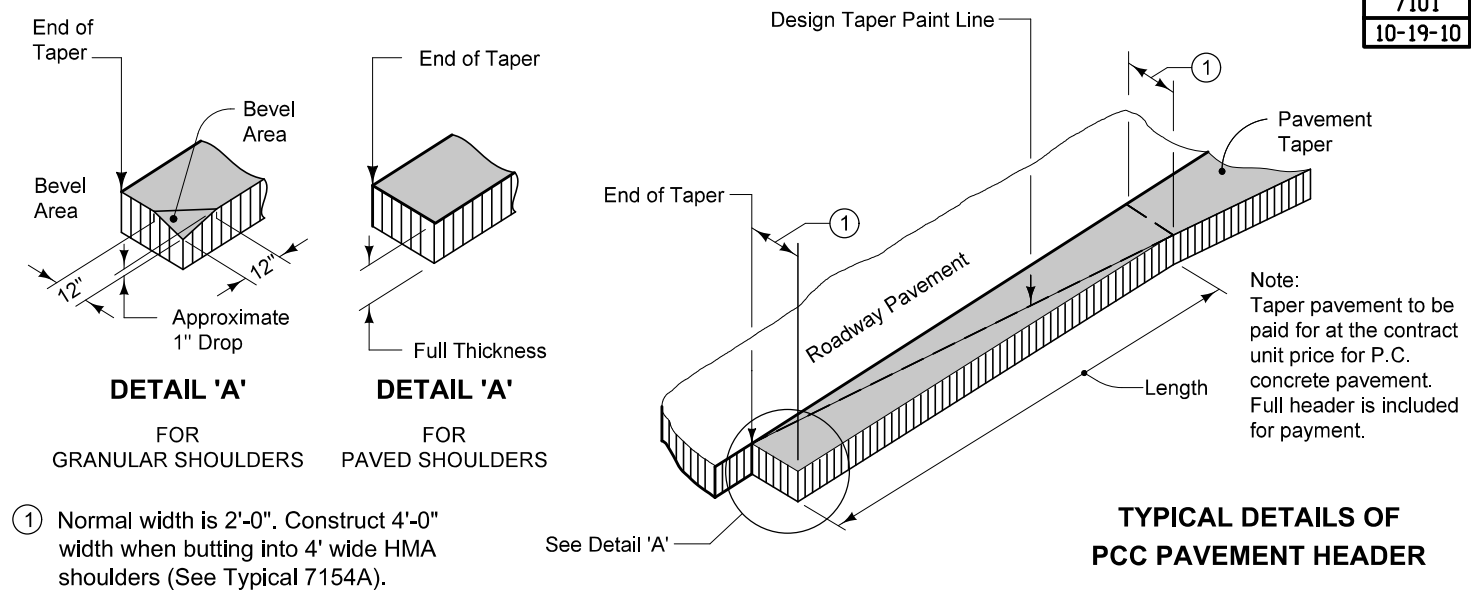
NEW CONSTRUCTION

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



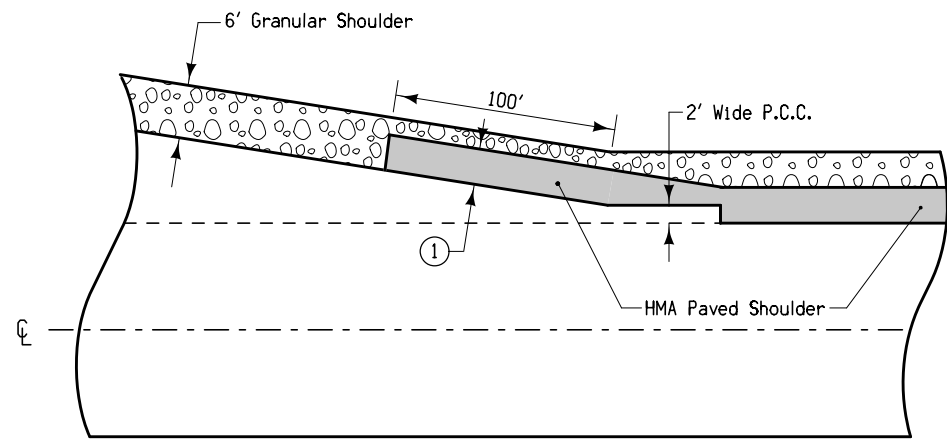
PAVED SHOULDER AT GUARDRAIL  
(ADJACENT TO PARTIAL WIDTH PAVED SHOULDER)

7101  
10-19-10



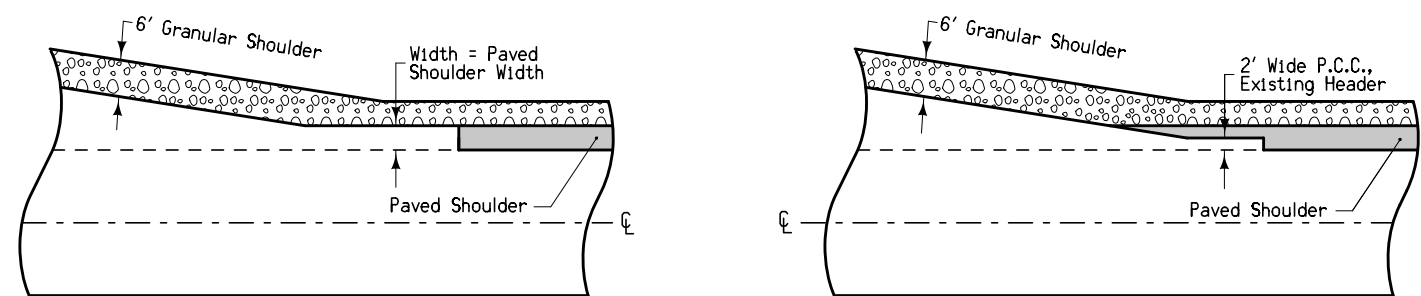
① Normal width is 2'-0". Construct 4'-0" width when butting into 4' wide HMA shoulders (See Typical 7154A).

7154  
04-20-10

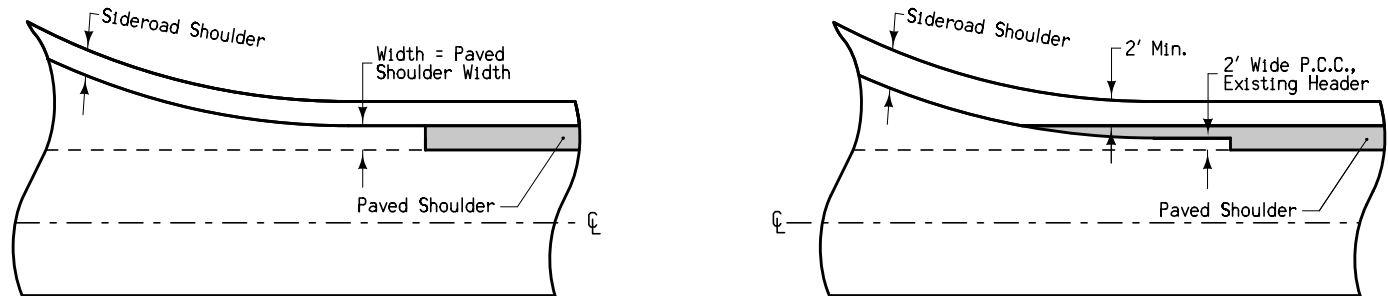


① Width of paved shoulder on taper matches width of paved shoulder on mainline.

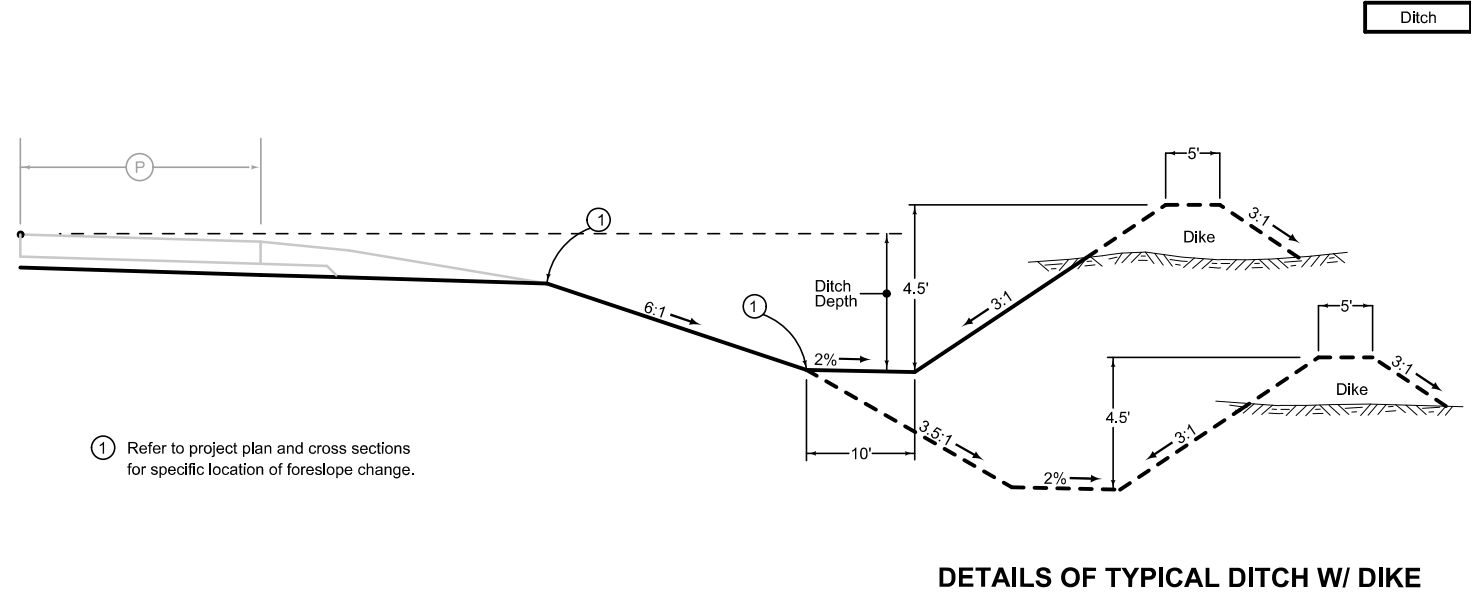
7154A  
10-20-09



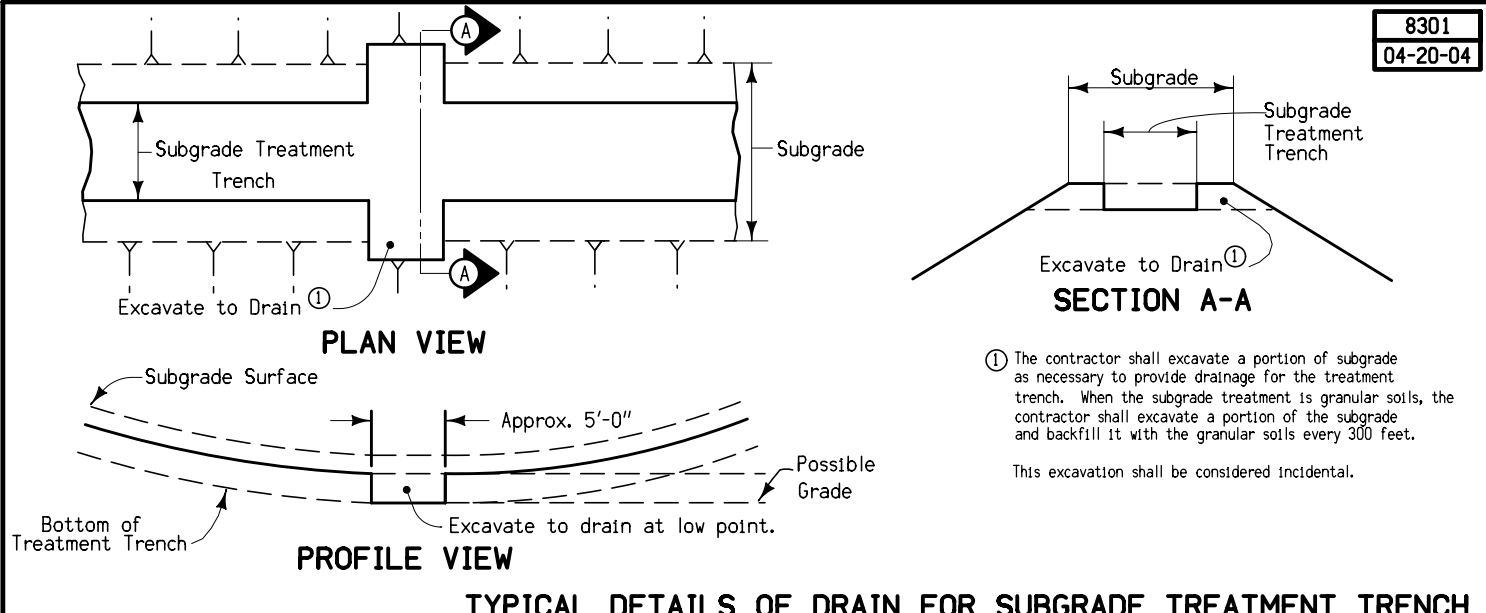
7154B  
10-20-09

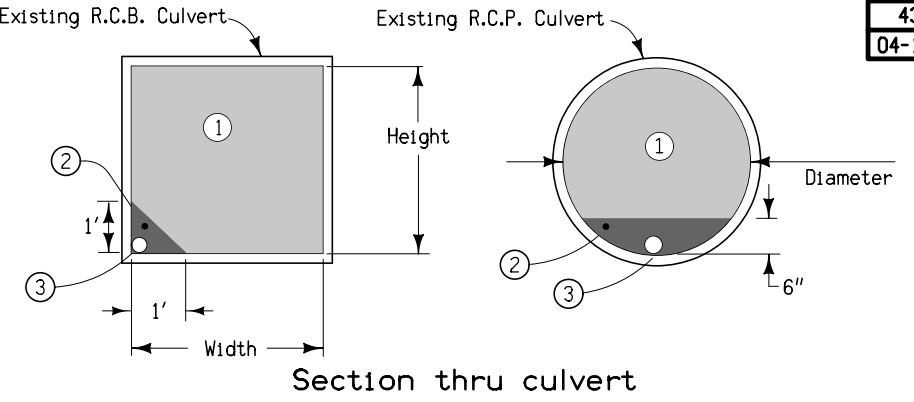
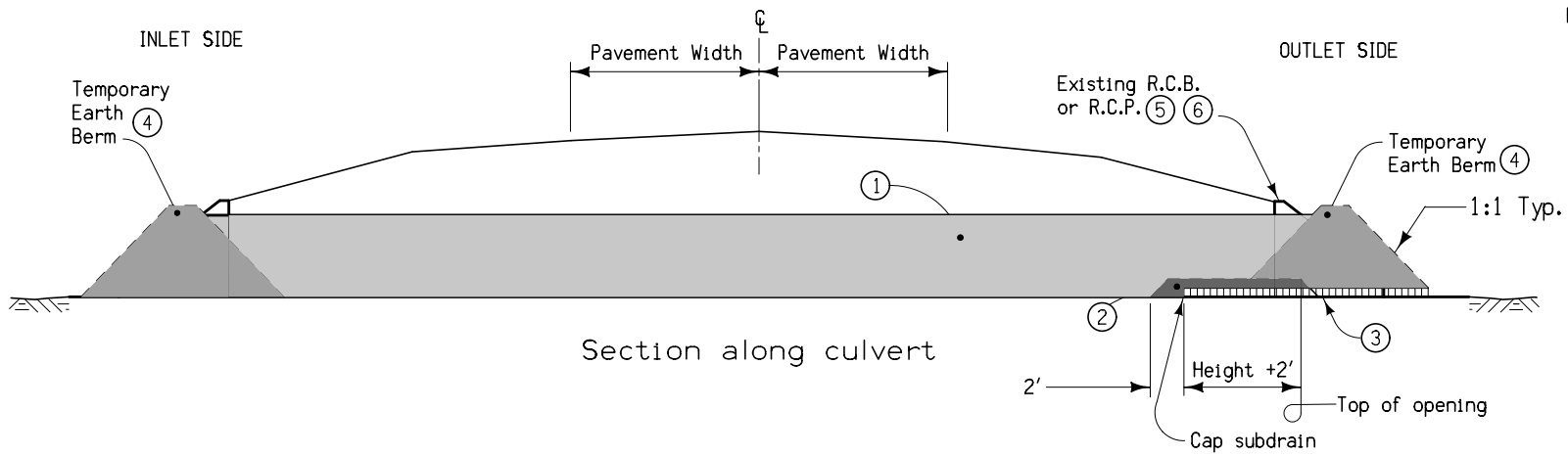
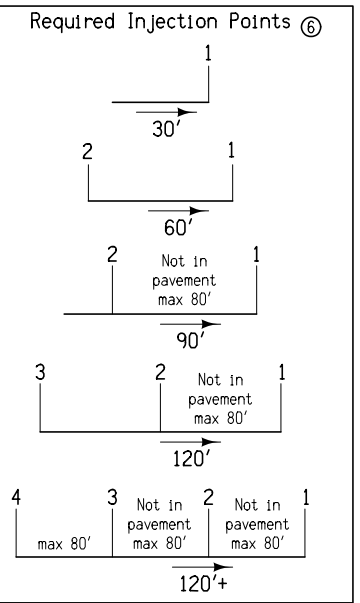


8301  
04-20-04



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





- ① Flowable Mortar.
- ② Granular Backfill.
- ③ 4" subdrain at flowline elevation of culvert shall be extended into the culvert a distance of 2' plus the height of the culvert. Granular Backfill covers subdrain and extends an additional 2'. Subdrain and granular backfill are incidental to flowable mortar.
- ④ Ends of culvert shall be plugged sufficiently to retain flowable mortar. Temporary earth berms are incidental to flowable mortar.
- ⑤ Removal of headwalls may be required.
- ⑥ Outlet shall be filled first. See injection point detail for additional information.

**DETAILS OF CULVERT ABANDONMENT WITH FLOWABLE MORTAR**  
**(Rectangular structures less than 8' in either height or width.**  
**Circular structures less than 10' Dia.)**



# ESTIMATED PROJECT QUANTITIES AND REFERENCE NOTES

Division 1: Iowa DOT  
Division 2: Benton Co.

Item no.	Item Code	Item	Unit	Quantities			Estimate Reference Notes
				Estimated			
				Division 1	Division 2	Total	
1	2101-0850001	CLEARING AND GRUBBING	ACRE	74.6		74.6	Includes all disturbed areas.
2	2102-0425070	SPECIAL BACKFILL	TON	2,672.4		2,672.4	See Tab. 100-24M and Tab. 112-9M in the C Sheets and see Typical "Detour" in the B Sheets for locations and details.
3	2102-2624980	CONTRACTOR FURNISHED SELECT TREATMENT	CY	56,783.3		56,783.3	See Typical Cross-Sections in the B Sheets and Tab. 103-11 in the C Sheets for locations and details.
4	2102-2625000	EMBANKMENT-IN-PLACE	CY	500,465		500,465	See Tab. 107-28 in the T Sheets for locations and details. Approximately 1,275,000 CY is available from the tied NHSX-030-6(256)--3H-86 project.
5	2102-2710070	EXCAVATION, CLASS 10, ROADWAY AND BORROW	CY	192,206		192,206	See Tab. 107-28 in the T Sheets for locations and details. Overhaul is incidental to roadway excavation on this project and will not be paid for separately.
6	2102-2712015	EXCAVATION, CLASS 12, BOULDERS OR ROCK FRAGMENTS	CY	100		100	See Tab. 103-7 in the CS Sheets for locations and details.
7	2102-4560000	LOCATING TILE LINES	STA	290.7		290.7	Estimated at twice the project length.
8	2104-2710020	EXCAVATION, CLASS 10, CHANNEL	CY	1,270		1,270	See Culvert Design Numbers 318, 418 & 818 available within the projects that are tied to this project. All waste must be removed from the project site.
9	2105-8425015	TOPSOIL, STRIP, SALVAGE AND SPREAD	CY	98,222		98,222	See Tab. 107-28 in the T Sheets and Tab. 103-10 in the CS Sheets for location and details.
10	2107-0425020	COMPACTING BACKFILL ADJACENT TO BRIDGES, CULVERTS OR STRUCTURES	CY	37.8		37.8	See Tab. 104-4 in the CD Sheets for locations and details.
11	2107-0875100	COMPACTION WITH MOISTURE CONTROL	CY	650,847.9		650,847.9	See Tab. 107-28 in the T Sheets and Tab. 104-4 in the CD Sheets for locations and details.
12	2107-3825025	GRANULAR MATERIAL FOR BLANKET AND SUBDRAIN	CY	350		350	See Tab. 104-5C in the CS Sheets for location and details.
13	2111-8174100	GRANULAR SUBBASE	SY	89,482.8		89,482.8	See Tab. 100-24M and Tab. 112-9M in the C Sheets for locations and details.
14	2115-0100000	MODIFIED SUBBASE	CY	9,816.1	273.7	10,089.8	
15	2121-7425010	GRANULAR SHOULDERS, TYPE A	TON	16,661.3		16,661.3	See Tab. 112-9M in the C Sheets for locations and details.
16	2122-5190006	PAVED SHOULDER, P.C. CONCRETE, 6 IN.	SY	133.2		133.2	
17	2122-5190010	PAVED SHOULDER, P.C. CONCRETE, 10 IN.	SY	16,787.8		16,787.8	
18	2123-7450000	SHOULDER CONSTRUCTION, EARTH	STA	505.3		505.3	
19	2301-1003100	STANDARD OR SLIP-FORM PORTLAND CEMENT CONCRETE PAVEMENT, QM- C, CLASS 3 DURABILITY, 10 IN.	SY	85,067.7	714	85,781.7	See Tab. 100-24M in the C Sheets for locations and details.
20	2301-6911722	PORTLAND CEMENT CONCRETE PAVEMENT SAMPLES	LS	1		1	

Item no.	Item Code	Item	Unit	Quantities			Estimate Reference Notes
				Estimated			
				Division 1	Division 2	Total	
21	2304-0100000	DETOUR PAVEMENT	SY	4,458.4		4,458.4	See Tab. 100-24M in the C Sheets for locations and details.
22	2312-8260051	GRANULAR SURFACING ON ROAD, CLASS A CRUSHED STONE	TON	412.3		412.3	See G_2_GradeGran in the B Sheets for locations and details. Calculated at the rate of 48 tons/Sta.
23	2315-8275025	SURFACING, DRIVEWAY, CLASS A CRUSHED STONE	TON	1,552		1,552	See Tab. 102-3 in the C Sheets for locations and details.
24	2401-6745650	REMOVAL OF EXISTING STRUCTURES	LS	1		1	See Tab. 110-2 in the C Sheets for locations and details.
25	2402-0425040	FLOODED BACKFILL	CY	6,975.4		6,975.4	See Tab. 104-3 and Tab. 104-4 in the CD Sheets for locations and details.
26	2402-2720100	EXCAVATION, CLASS 20, FOR ROADWAY PIPE CULVERT	CY	7,837		7,837	See Tab. 104-3 in the CD Sheets for locations and details.
27	2416-0100024	APRONS, CONCRETE, 24 IN. DIA.	EACH	25		25	
28	2416-0100030	APRONS, CONCRETE, 30 IN. DIA.	EACH	12		12	
29	2416-0100042	APRONS, CONCRETE, 42 IN. DIA.	EACH	5		5	
30	2416-0101036	REMOVE AND REINSTALL CONCRETE PIPE APRONS LESS THAN OR EQUAL TO 36 IN.	EACH	4		4	See Tab. 104-3 in the CD Sheets for locations and details.
31	2416-1180024	CULVERT, CONCRETE ROADWAY PIPE, 24 IN. DIA.	LF	1,510		1,510	See Tab. 104-3 in the CD Sheets for locations and details.
32	2416-1180030	CULVERT, CONCRETE ROADWAY PIPE, 30 IN. DIA.	LF	720		720	
33	2416-1180042	CULVERT, CONCRETE ROADWAY PIPE, 42 IN. DIA.	LF	408		408	
34	2416-1240030	CULVERT, 3000D CONCRETE ROADWAY PIPE, 30 IN. DIA.	LF	204		204	
35	2416-1262030	CULVERT, CONCRETE PIPE, 2000D, TRENCHLESS, 30 IN. DIA.	LF	96		96	
36	2417-0225024	APRONS, METAL, 24 IN. DIA.	EACH	1		1	
37	2417-0250021	APRONS, METAL, ARCH, 21 IN. X 15 IN.	EACH	2		2	See Tab. 102-3 in the C Sheets for locations and details.
38	2417-1060024	CULVERT, CORRUGATED METAL ROADWAY PIPE, 24 IN. DIA.	LF	43		43	See Tab. 104-3 in the CD Sheets for locations and details.
39	2417-1080021	CULVERT, CORRUGATED METAL ARCH ENTRANCE PIPE, 21 IN. X 15 IN .	LF	20		20	See Tab. 102-3 in the C Sheets for locations and details.
40	2422-0360018	APRONS, UNCLASSIFIED, 18 IN. DIA.	EACH	2		2	
41	2422-0360024	APRONS, UNCLASSIFIED, 24 IN. DIA.	EACH	14		14	
42	2422-0360036	APRONS, UNCLASSIFIED, 36 IN. DIA.	EACH	4		4	See Tab. 102-3 in the C Sheets and Tab. 104-3 in the CD Sheets for locations and details.
43	2422-1722018	CULVERT, UNCLASSIFIED ENTRANCE PIPE, 18 IN. DIA.	LF	28		28	See Tab. 102-3 in the C Sheets for locations and details.
44	2422-1722024	CULVERT, UNCLASSIFIED ENTRANCE PIPE, 24 IN. DIA.	LF	554		554	

Item no.	Item Code	Item	Unit	Quantities			Estimate Reference Notes
				Estimated			
				Division 1	Division 2	Total	
45	2422-1722036	CULVERT, UNCLASSIFIED ENTRANCE PIPE, 36 IN. DIA.	LF	42		42	
46	2422-1723036	CULVERT, UNCLASSIFIED ROADWAY PIPE, 36 IN. DIA.	LF	44		44	
47	2502-8212034	SUBDRAIN, LONGITUDINAL, (SHOULDER) 4 IN. DIA.	LF	37,377.8		37,377.8	See Tab. 104-9 in the CS Sheets for locations and details.
48	2502-8221306	SUBDRAIN OUTLET, DR-306	EACH	140		140	
49	2503-0500402	BRIDGE END DRAIN, DR-402	EACH	4		4	See Tab. 104-8A in the C Sheets for locations and details.
50	2505-4008300	STEEL BEAM GUARDRAIL	LF	100		100	See Tab. 108-8A Modified in the C Sheets for locations and details.
51	2505-4008410	STEEL BEAM GUARDRAIL BARRIER TRANSITION SECTION, BA-201	EACH	4		4	
52	2505-4021010	STEEL BEAM GUARDRAIL END ANCHOR, BOLTED	EACH	4		4	
53	2505-4021720	STEEL BEAM GUARDRAIL TANGENT END TERMINAL, BA-205	EACH	4		4	
54	2505-6000111	HIGH TENSION CABLE GUARDRAIL	LF	500		500	See Tab. 108-9A in the C Sheets for locations and details.
55	2505-6000121	HIGH TENSION CABLE GUARDRAIL, END ANCHOR	EACH	4		4	
56	2505-6000131	HIGH TENSION CABLE GUARDRAIL, SPARE PARTS KIT	EACH	2		2	
57	2506-4984000	FLOWABLE MORTAR	CY	22.5		22.5	See Tab. 110-9 in the C Sheets for locations and details.
58	2510-6745850	REMOVAL OF PAVEMENT	SY	43,359		43,359	See Tab. 110-1 and Tab. 102-5 in the C Sheets for locations and details.
59	2519-3280000	FENCE, FIELD	LF	21,673.1		21,673.1	See Tab. 100-7 in the C Sheets for locations and details.
60	2519-3300400	FIELD FENCE BRACE PANELS	EACH	321		321	
61	2519-3300600	FENCE, SAFETY	LF	1,465		1,465	<p>Install safety fence at specified areas in plans prior to construction. Remove fence following final construction of both project. See Sheet U.6 for locations and details.</p> <p>Method of Measurement: The Engineer shall measure the length of fence installed in linear feet.</p> <p>Basis of Payment: Payment is full compensation for furnishing all material and for construction of fence as provided herein, including removal after the work is complete.</p> <p>Fencing material shall follow Article 4188.03 of the Standard Specification</p>
62	2520-3350015	FIELD OFFICE	EACH	1		1	
63	2526-8285000	CONSTRUCTION SURVEY	LS	1		1	
64	2527-9263109	PAINTED PAVEMENT MARKING, WATERBORNE OR SOLVENT-BASED	STA	1,276.6		1,276.6	See Tab. 108-22 in the C Sheets for locations and details.
65	2527-9263180	PAVEMENT MARKINGS REMOVED	STA	676.15		676.15	
66	2528-2518000	SAFETY CLOSURE	EACH	62		62	See Tab. 108-13A in the C Sheets for locations and details.

Item no.	Item Code	Item	Unit	Quantities			Estimate Reference Notes
				Estimated			
				Division 1	Division 2	Total	
67	2528-8400157	TEMPORARY FLOODLIGHTING LUMINAIRE	EACH	4		4	See Tab. 108-27 in C Sheets for locations and details.
68	2528-8445110	TRAFFIC CONTROL	LS	1		1	See the Traffic Control Plan in the J Sheets for details.
69	2528-8445113	FLAGGERS	EACH	0		0	See Proposal.
70	2533-4980005	MOBILIZATION	LS	1		1	
71	2548-0000200	MILLED SHOULDER RUMBLE STRIPS, PCC SURFACE	STA	422.73		422.73	See Tab. 112-10 in the C Sheets for locations and details.

**STANDARD ROAD PLANS**

The following Standard Road Plans apply to construction work on this project.

Number	Date	Title
BA-200	04-20-21	Steel Beam Guardrail Components
BA-201	04-18-17	Steel Beam Guardrail Barrier Transition Section (MASH TL-3)
BA-202	10-20-15	Steel Beam Guardrail Bolted End Anchor
BA-205	10-19-21	Steel Beam Guardrail Tangent End Terminal (MASH TL-3)
BA-250	04-20-21	Steel Beam Guardrail Installation at Concrete Barrier or Bridge End Post (MASH TL-3)
BA-351	10-19-21	High Tension Cable Guardrail
DR-101	04-18-17	Pipe Culvert (Bedding and Backfill)
DR-102	04-21-15	Pipe Culvert (Cover and Camber)
DR-103	04-21-15	Pipe Culvert (Installation Details)
DR-104	04-19-16	Depth of Cover Tables for Concrete and Corrugated Pipe
DR-111	04-17-18	Box Culvert (Backfill)
DR-121	10-17-17	Connected Pipe Joints
DR-122	10-18-16	Construction of Type "C" Concrete Adaptors for Pipe Culvert Connections
DR-141	04-18-17	Pipe Bends and Half Pipe
DR-201	04-21-20	Concrete Aprons
DR-203	04-21-20	Metal Pipe Aprons and Beveled Ends
DR-205	04-21-20	Concrete Apron with End Wall
DR-303	10-17-17	Subdrains (Longitudinal)
DR-306	10-16-18	Precast Concrete Headwall for Subdrain Outlets
DR-402	10-15-19	Rock Flume for Bridge End Drain
DR-601	04-18-17	Reinforced Concrete Pipe Culvert
DR-613	04-17-18	Concrete Pipewith "D" Section
DR-621	04-18-17	Pipe Extension
DR-626	10-15-19	Pipe Extension - Adding Lanes
DR-641	04-21-20	Concrete/Corrugated Pipe Culvert Letdown Structure with Metal Apron
DR-651	04-18-17	Unclassified Pipe Culvert
EW-101	10-17-17	Embankment and Rebuilding Embankments
EW-102	10-20-15	Allowable Placement of Unsuitable Soil in Embankments
EW-103	10-20-15	Embankment Subgrade Treatment, Moisture Density Control and Special Compaction
EW-110	10-20-15	Ditch Blocks and Dikes
EW-204	10-20-20	Bridge Berm Grading with Recoverable Slope (Barnroof Section)
EW-211	10-17-17	Special Grading at Side Piers
EW-212	10-20-15	Settlement Plate
EW-301	04-20-21	Guardrail Grading
EW-302	10-20-15	Special Shaping for High Tension Cable Guardrail at Median Obstacles
EW-501	10-20-15	Rural Entrance
EW-503	10-20-15	Side Road Grading
LI-130	10-17-17	Temporary Floodlighting Luminaires
MI-101	10-20-15	Fencing Layout
MI-103	10-20-15	Deer Fence and Field Fence Construction
MI-104	10-17-17	Fence Construction at Channel Crossings, Flood Plains, and Minor Ground Depressions
PM-110	04-21-20	Line Types
PM-111	04-21-20	Symbols and Legends
PM-310	04-21-20	Entrance and Exit Ramps
PM-562	10-15-19	Divided Multi-Lane Roadway with Left Turn Lanes
PM-760	10-15-19	Divided Multi-Lane Roadway Median
PV-12	10-20-20	Milled Shoulder Rumble Strips
PV-101	04-21-20	Joints
PV-102	04-21-20	PCC Curb Details
PV-303	04-21-20	Superelevation Details Ramps
PV-410	04-21-20	Deceleration Taper for 16' Exit Ramp
PV-411	04-21-20	Acceleration Taper for 16' Entrance Ramp
SI-173	04-19-16	Object Markers
SI-211	10-18-16	Object Marker and Delineator Placement with Guardrail
SI-881	04-16-19	Special Signs for Workzones
TC-1	10-15-19	Work Not Affecting Traffic (Two-Lane or Multi-Lane)
TC-61	04-21-20	Two-Lane, Two-way Operation
TC-202	10-19-21	Work Within 15 ft of Traveled Way
TC-213	10-15-19	Lane Closure with Flaggers
TC-251	10-15-19	Temporary Road Closure
TC-252	04-21-20	Routes Closed to Traffic
TC-272	10-18-16	Unsignalized Equipment Crossing
TC-273	10-15-19	Construction Site Entrance
TC-402	10-19-21	Work Within 15 ft of Traveled Way
TC-451	04-21-15	Temporary Road Closure on Divided Highway

**PROJECT DESCRIPTION**

This project involves PCC paving and grading U.S. Highway 30 from a two-lane to a four-lane facility from east of IA 21 to west of 11th Avenue, including the new construction of the IA 21 interchange.

**INDEX OF TABULATIONS**

Tabulation	Tabulation Title	Sheet No.
C Sheets		
100-1D	PROJECT DESCRIPTION	C.5
100-7	FENCING	C.16 - C.17
100-24M	PCC PAVEMENT	C.8
100-27	PROPOSED POSTED SPEED LIMIT	C.6
102-3	ACCESS POINTS AND SAFETY RAMPS	C.11
102-5	EXISTING PAVEMENT	C.6
105-4	STANDARD ROAD PLANS	C.5
103-11	SELECT TREATMENT	C.7
107-23	GRADING FOR GUARDRAIL INSTALLATIONS	C.13
104-8A	SCOUR PROTECTION OR ROCK FLUME FOR BRIDGE END DRAIN	C.11
108-9A	HIGH TENSION CABLE GUARDRAIL	C.13
108-13A	SAFETY CLOSURES	C.6
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**EXISTING PAVEMENT**

No.	Location					Year	Type	Project Number	Surface		Base		Subbase		Removal		Coarse Aggregate			Reinforcement Type	Remarks
	County	Route	Dir. of Travel	Begin Ref. Loc. Sign	End Ref. Loc. Sign				Type	Depth	Type	Depth	Type	Depth	Type	Depth	Source	Type	Durability Class		
1	86	US 30	EB	209.81	218.08	2009	W	ESP-30-6(151)--2S-86	HMA	1.5	HMA	1.5	HMA	3	SCR	1	MONTOUR	C.LST.	3	WIDEN 3' BOTH SIDES	
						2009		ESP-30-6(151)--2S-86	HMA	1.5	HMA	1.5									
						1986		FR-30-6(44)--2G-86	AAC	1.5	BAC	1.5									
						1965		FN-553	AAC	1.5	AAC	1.5									
						1954		F-553(9)	PCC	10											
2	6	US 30	EB	218.08	221.1	2009		NHSX-030-6(143)--3H-06	HMA	2	HMA	2	CIP	4	MIL	4	HENNESSEY	C.LST.	1	DUR=0	
						1990		FN-30-6(48)--21-06	AAC	3											
						1977		FN-30-6(30)--21-06	AAC	1.5	TBB	1.5									
						1965		FN-553*<1>	AAC	1.5											
						1954		FN-553	BAC	3											
						1936		FA-553A	PC7	7											
3	6	IA 21	NB	56.51	61.49	1979		F-21-4(6)--20-06	PCC	8						GARRISON A	C.LST.	2			
4	6	IA 21	NB	61.49	69.62	2000		STP-21-4(24)--2C-06	AAC	2	AAC	2				GARRISON B	C.LST.	2			
						1980		F-21-4-(11)--20-06	PCC	8											

100-27  
04-17-18

**PROPOSED POSTED SPEED LIMIT**

Road Identification	Begin Station	End Station	Proposed Posted Speed Limit			Remarks
			35 or less	40 - 45	over 45	
US 30	705+41.13	804+00.00			X	
IA 21	250+00.00	281+50.00			X	

108-27  
10-17-17

**TEMPORARY FLOODLIGHTING LUMINAIRES**

Possible Standard: LI-130

No.	Location Station	Offset	Number Lumin.	Remarks
1	807+00.00	85 +/-	2	
2	797+00.00	70' RT	1	Crossover 1
3	803+00.00	115' LT	1	Crossover 2
<b>TOTAL:</b>			<b>4</b>	

108-13A  
08-01-08

**SAFETY CLOSURES**

Refer to Section 2518 of the Standard Specifications

Station	Closure Type		Remarks
	Road Qty.	Hazard Qty.	
<b>STAGE 1</b>			
705+41.13	1		US Hwy 30
708+50.00		2	US Hwy 30
723+50.00		2	US Hwy 30
738+50.00		2	US Hwy 30
743+25.00		2	US Hwy 30
753+50.00		2	US Hwy 30
773+50.00		2	US Hwy 30
778+25.00		2	US Hwy 30
785+18.00		2	US Hwy 30
788+00.00		2	US Hwy 30
788+95.00		2	US Hwy 30
791+25.00		2	US Hwy 30
794+84.00		2	US Hwy 30
803+00.00		2	US Hwy 30
11786+75.00	1		11th Ave
11789+00.00		2	11th Ave
11790+71.94	1		11th Ave
<b>STAGE 2</b>			
705+41.13	1		US Hwy 30
763+50.00		2	US Hwy 30
778+25.00		2	US Hwy 30
785+18.00		2	US Hwy 30
788+95.00		2	US Hwy 30
794+84.00		2	US Hwy 30
795+00.00	1		US Hwy 30
1542+10.00		2	Ramp A
2354+50.00		2	Ramp B
3534+75.00		2	Ramp C
4543+00.00		2	Ramp D
250+00.00	1		IA 21
253+40.00		2	IA 21
263+00.00	1		IA 21
277+00.00		2	IA 21
281+50.00	1		IA 21
11790+39.94	1		11th Ave
11792+00.00		2	11th Ave
11796+50.00	1		11th Ave
<b>TOTALS:</b>	<b>10</b>	<b>52</b>	
<b>GRAND TOTAL:</b>	<b>62</b>		

110-1  
04-16-13

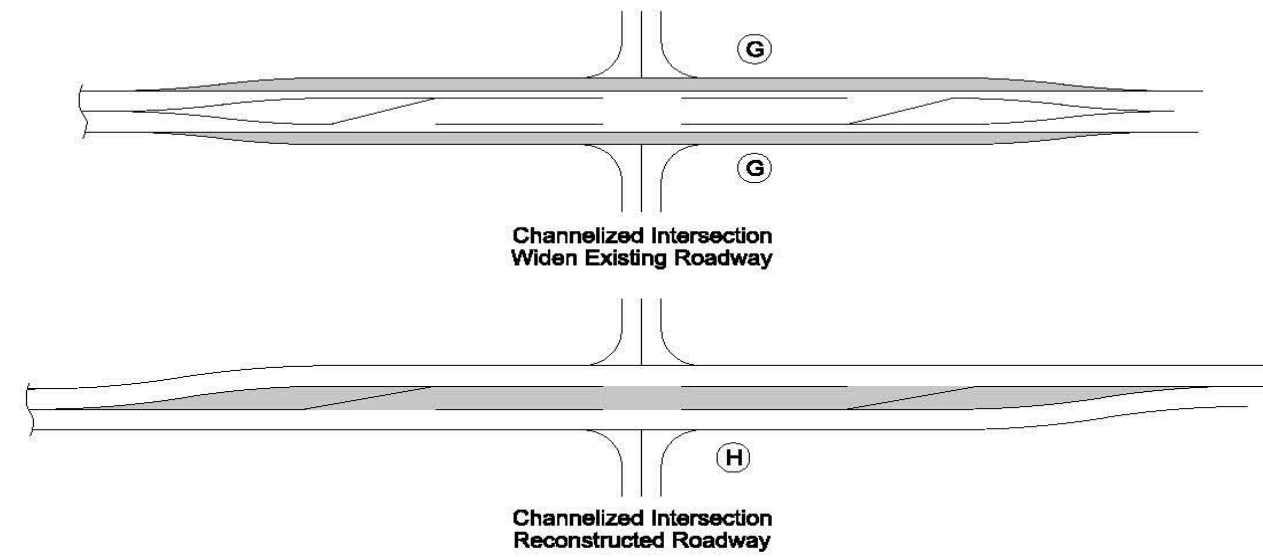
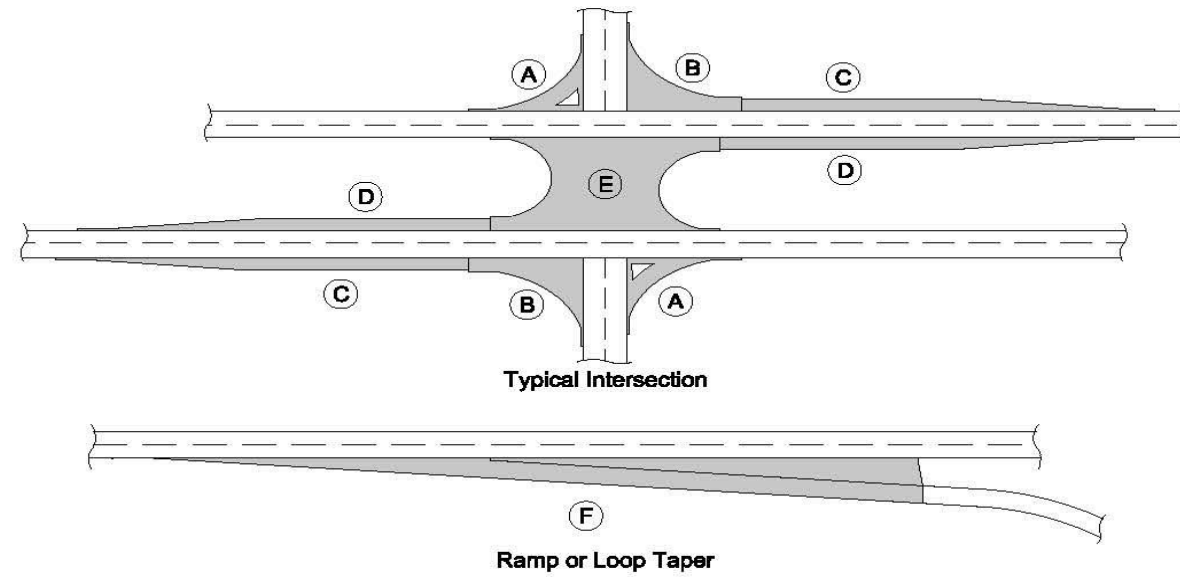
**REMOVAL OF PAVEMENT**

Refer to Tabulation 102-5

\* Not a Bid Item

Begin Station	End Station	Side	Pavement Type	Area		Saw Cut*	Remarks
				SY	LF		
US 30	705+41.13	803+03.54		34710.8		32.0	
IA 21	250+00.00	281+50.00		8400.0		24.0	
US 30	803+72.20	809+30.70		248.2		8.0	See Sheets U.01-U.03
<b>TOTALS:</b>				<b>43359.0</b>		<b>64.0</b>	

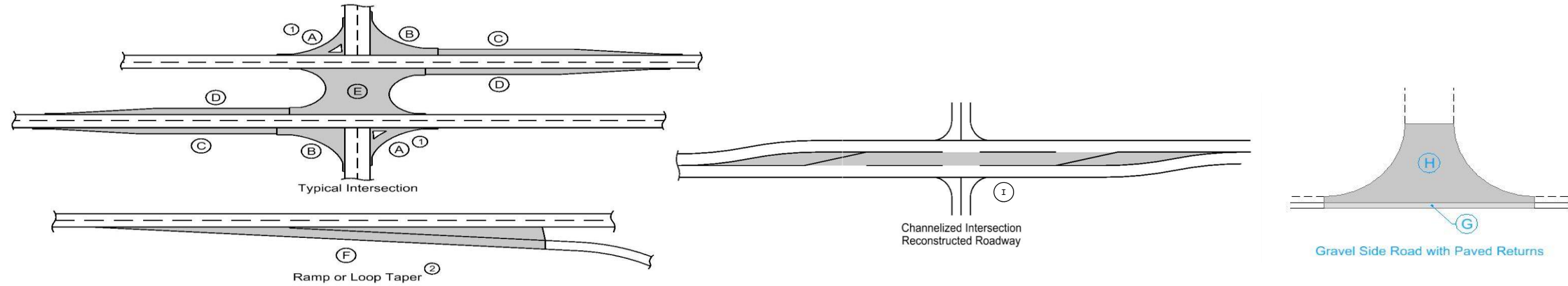
**SELECT TREATMENT**  
Possible Detail: G 4D Grade Delay 5



Moisture control is required for select soils treatment and is incidental to placement of the material.

Road Identification	Location		Length FT	Width FT	Mainline Shoulder Width				Pavement & Subgrade Thickness IN (X)	Area SF	Section Area								Total Area (Mainline + Section) SF	Select Treatment Thickness IN (Y1)	Contractor Furnished Select Treatment CY	Remarks									
	Direction of Travel	Station to Station			Median Side		Outside				A	B	C	D	E	F	G	H					Area								
					GM	PM	PO	GO																							
					FT	FT	FT	FT																							
STAGE 1 US 30	EB	705+41.13	804+00.00	9858.9	26.0	2.0	4.0	4.0	4.0	16.0	394354.8									2599.9					2599.9	396954.7	24.0	29404.1			
STAGE 2 US 30	WB	705+41.13	795+00.00	8958.9	26.0	2.0	4.0	4.0	4.0	16.0	358354.8									2600.0	8665.0				11265.1	369619.9	24.0	27379.2			
<b>TOTAL:</b>																														56783.3	

### PCC PAVEMENT



- ① Does not include raised island area or curb. Refer to tabulation 112-4 for quantities.
- ② Refer to PV-410, PV-411, PV-412, and PV-414.
- ③ Quantity includes Pavement Header.
- ④ County quantities for (H) areas.

Road Identification	Location		Mainline			Area <sup>③</sup>									Total Area By Pavement Thickness			Special Backfill TONS	Modified Subbase CY	Modified Subbase Benton Co. CY <sup>④</sup>	Granular Subbase SY	Remarks				
	Direction of Travel	Station to Station	Width FT	Length FT	Area SY	A <sup>①</sup> SY	B SY	C SY	D SY	E SY	F <sup>②</sup> SY	G SY	H SY	I SY	10 IN	10 IN <sup>④</sup> BENTON CO.	DETOUR Pavement									
															SY	SY	SY						TONS	CY	SY	
<b>STAGE 1</b>																										
US 30	EB	705+41.13	722+50.00	26.0	1708.9	4936.7									4936.7						4936.7					
US 30	EB	722+50.00	728+50.00	26.0	600.0	1733.3					1345.8				3079.1						3279.1	Ramp B Taper				
US 30	EB	728+50.00	749+70.00	26.0	2120.0	6124.4									6124.4						6124.4					
US 30	EB	749+70.00	762+00.00	26.0	1230.0	3553.3									5391.9						5802.3	Ramp D Taper				
US 30	EB	762+00.00	786+80.00	26.0	2480.0	7164.4									7164.4						7164.4					
US 30	EB	786+80.00	792+05.00	26.0	525.0	1516.7			288.9	481.4					2286.9						2441.6	Int at 11th Ave				
US 30	EB	792+05.00	804+00.00	26.0	1195.0	3452.2									3452.2						3452.2					
11th Ave	NB/SB	11789+20.00	11789+81.93		61.9							57.8	356.9		57.8	357					136.8	57.8	Paved Return			
Crossover 1		100+00.00	101+79.22	6.0	179.2	119.5											119.5	93.8					DET1 CHAIN			
Crossover 1		101+79.22	105+28.81	varies	349.6	732.4											732.4	341.8					DET1 CHAIN			
Crossover 1		105+28.21	108+80.29	28.0	352.1	1095.4											1095.4	614.9					DET1 CHAIN			
Crossover 1		108+80.29	111+85.08	varies	304.8	798.4											798.4	308.1					DET1 CHAIN			
Crossover 1		111+85.08	114+38.55	10.0	253.5	281.6											281.6	170.1					DET1 CHAIN			
<b>STAGE 2</b>																										
US 30	WB	705+41.13	718+00.00	26.0	1258.9	3636.7									3636.7								3636.7			
US 30	WB	718+00.00	730+30.00	26.0	1230.0	3553.3									5390.0								5799.6	Ramp C Taper		
US 30	WB	730+30.00	753+50.00	26.0	2320.0	6702.2									6702.2								6702.2			
US 30	WB	753+30.00	759+50.00	26.0	620.0	1791.1									3136.8								3336.8	Ramp A Taper		
US 30	WB	759+50.00	788+75.00	26.0	2925.0	8450.0									8450.0								8450.0			
US 30	WB	788+75.00	794+00.00	26.0	525.0	1516.7			288.9	481.4					2287.0								2441.9	Int at 11th Ave		
US 30	WB	794+00.00	795+00.00	26.0	100.0	288.9									288.9								288.9			
IA 21 Ramp A	WB	1540+80.38	1553+51.07	16.0	1270.7	2259.0	275.9	89.4							2624.3								1195.9			
IA 21 Ramp B	EB	2528+48.93	2541+35.84	16.0	1286.9	2287.8	361.7	83.1							2732.6								1191.6			
IA 21 Ramp C	WB	3530+28.66	3541+39.90	16.0	1111.2	1975.5	212.8	294.5							2482.9								1115.8			
IA 21 Ramp D	EB	4540+74.35	4549+71.34	16.0	897.0	1594.6	225.1	275.0							2094.7								938.8			
IA 21 Bridge and Approaches	NB/SB	250+00.00	263+92.73	28.0	1392.7	4332.9							322.2		1546.8	6202.0							2090.0			
IA 21	NB/SB	267+72.73	281+50.00	28.0	1377.3	4284.8							323.2		1880.1	6488.1							2195.6			
11th Ave	NB/SB	11790+97.94	11791+60.00									57.8	357.2		57.8	357							136.9	57.8	Paved Return	
Crossover 2		205+00.00	213+05.00	16.0	805.0	1431.1											1431.1	1066.7						DET2 CHAIN		
<b>TOTALS:</b>															<b>85067.7</b>	<b>714</b>	<b>4458.4</b>	<b>2595.5</b>	<b>8727.7</b>	<b>273.7</b>	<b>63972.5</b>					





SHOULDERS

- ① Lane(s) to which the shoulder is adjacent.
- ② See Typ. 7156, 7157, or 7158.
- ③ Bid Item.
- ④ Applies only for Paved Shoulders constructed on project with existing granular shoulders.
- ⑤ Bid Item. Typ. 7156, 7157, or 7158.
- ⑥ Does not include shrink.

Calculations assume a HMA unit weight (lbs/cf) of 140, a Special Backfill unit weight (lbs/cf) of 140, and a Granular Shoulder unit weight (lbs/cf) of 140.

Road Identification	① Direction Of Traffic	Location		Side	Quantities						Remarks															
		Station to Station			ⓐ Width	ⓑ Width	ⓒ Width	ⓓ Length	Class 13 Excavation CY ③	Hot Mix Asphalt TON TON/STA		Binder TONS	Paved Shoulder SY ③	6" Paved Shoulder at Guardrail SY ⑤	Modified Subbase CY ③	Special Backfill				Granular Subbase SY ③	Granular Shoulder		Earth Shoulder Construction Alternates			
					FT	FT ②	FT	FT		HMA Alternate TON ③ TON/STA						Detour Shoulders TON ③ TON/STA		TON ③	TON/STA		TON ③	TON/STA	STA ③	HMA CY ⑥	PCC CY ⑥	
IA 21 Ramp B	EB	2528+48.93	2540+20.00	Rt.			6.0	1171.1													707.2	60.4	11.7	491.6		
IA 21 Ramp B	EB	2540+20.00	2540+59.95	Rt.			4 to 6	40.0													19.4	48.5	0.4	17.1		
IA 21 Ramp B	EB	2540+59.95	2541+26.58	Rt.			6.0	66.6													40.2	60.4	0.7	28.0		
IA 21 Ramp C	WB	3530+28.66	3539+75.00	Lt.			6.0	946.3													571.5	60.4	9.5	397.3		
IA 21 Ramp C	WB	3539+75.00	3540+18.54	Lt.			4 to 6	43.5													21.1	48.5	0.4	18.7		
IA 21 Ramp C	WB	3540+18.54	3541+40.95	Lt.			6.0	122.4													73.9	60.4	1.2	51.4		
IA 21 Ramp C	WB	3530+28.66	3539+60.00	Rt.			4.0	931.3													341.1	36.6	9.3	407.3		
IA 21 Ramp C	WB	3539+60.00	3540+06.43	Rt.			2 to 4	46.4													11.7	25.1	0.5	20.6		
IA 21 Ramp C	WB	3540+06.43	3541+15.80	Rt.			4.0	109.4													40.1	36.6	1.1	47.8		
IA 21 Ramp D	EB	4541+04.27	4542+13.14	Lt.			4.0	108.9													39.9	36.6	1.1	47.6		
IA 21 Ramp D	EB	4542+13.14	4542+60.00	Lt.			4 to 2	46.9													11.8	25.1	0.5	20.7		
IA 21 Ramp D	EB	4542+60.00	4549+71.34	Lt.			4.0	711.3													260.5	36.6	7.1	311.1		
IA 21 Ramp D	EB	4540+72.30	4541+93.57	Rt.			6.0	121.3													73.2	60.4	1.2	50.9		
IA 21 Ramp D	EB	4541+93.57	4542+40.00	Rt.			6 to 4	46.4													22.5	48.5	0.5	19.9		
IA 21 Ramp D	EB	4542+40.00	4549+71.34	Rt.			6.0	731.3													441.7	60.4	7.3	307.0		
IA 21	NB/SB	250+00.00	259+75.00	Lt.	4.0		4.0	975.0				433.3	252.8								357.3	36.6	9.8	392.5		
IA 21	NB/SB	259+75.00	260+24.72	Lt.			4.0	49.7													18.7	37.7	0.5	21.7		
IA 21	NB/SB	260+24.72	260+45.60	Lt.			4 to 6	20.9													10.3	49.6	0.2	8.9		
IA 21	NB/SB	260+45.60	261+17.03	Lt.			6.0	71.4													43.9	61.4	0.7	30.0		
Ramp B																										
IA 21	NB/SB	262+05.00	263+86.98	Lt.	4.0		4.0	182.0			80.9	47.2									66.7	36.6	1.8	73.3		
IA 21	NB/SB	263+86.98	263+92.73	Lt.	4.0		4 to 5.5	5.8		2.6	1.5									2.6	45.2	0.1	2.3			
Bridge and Approaches																										
IA 21	NB/SB	267+72.73	267+79.67	Lt.	4.0	6.2 to 6.9		6.9		3.1	5.1	1.8				2.9	41.6						0.1	2.6		
IA 21	NB/SB	267+79.67	268+59.95	Lt.	4.0	6.9		80.3		35.7	61.5	20.8				35.5	44.3						0.8	30.4		
IA 21	NB/SB	268+59.95	268+70.75	Lt.	4.0		6.9 to 4	10.8		4.8		2.8									5.7	53.0	0.1	4.2		
IA 21	NB/SB	268+70.75	269+38.00	Lt.	4.0		4.0	67.3		29.9	17.4										24.6	36.6	0.7	27.1		
Ramp C																										
IA 21	NB/SB	270+48.50	273+30.00	Lt.			6.0	281.5													172.9	61.4	2.8	118.2		
IA 21	NB/SB	273+30.00	273+50.36	Lt.			6 to 4	20.4													10.1	49.6	0.2	8.7		
IA 21	NB/SB	273+50.36	273+70.00	Lt.			4.0	19.6													7.4	37.7	0.2	8.6		
IA 21	NB/SB	273+70.00	281+50.00	Lt.	4.0		4.0	780.0			346.7	202.2									285.8	36.6	7.8	314.0		
IA 21	NB/SB	250+00.00	257+95.00	Rt.	4.0		4.0	795.0			353.3	206.1									291.3	36.6	8.0	320.0		
IA 21	NB/SB	257+95.00	258+14.70	Rt.			4.0	19.7													7.4	37.7	0.2	8.6		
IA 21	NB/SB	258+14.70	258+35.00	Rt.			4 to 6	20.3													10.1	49.6	0.2	8.7		
IA 21	NB/SB	258+35.00	261+19.73	Rt.			6.0	284.7													174.9	61.4	2.8	119.5		
Ramp D																										
IA 21	NB/SB	262+25.00	262+94.72	Rt.	4.0		4.0	69.7		31.0	18.1										25.5	36.6	0.7	28.1		
IA 21	NB/SB	262+94.72	263+05.50	Rt.	4.0		4 to 6.9	10.8		4.8	2.8										5.7	53.0	0.1	4.2		
IA 21	NB/SB	263+05.50	263+85.77	Rt.	4.0	6.9		80.3		35.7	61.5	20.8				35.5	44.3						0.8	30.4		
IA 21	NB/SB	263+85.77	263+92.73	Rt.	4.0	6.9 to 6.2		7.0		3.1	5.1	1.8				2.9	41.6						0.1	2.7		
Bridge and Approaches																										
IA 21	NB/SB	267+72.73	267+78.48	Rt.	4.0		5.5 to 4	5.8		2.6	1.5										2.6	45.2	0.1	2.3		
IA 21	NB/SB	267+78.48	269+50.00	Rt.	4.0		4.0	171.5		76.2	44.5										62.8	36.6	1.7	69.0		
Ramp A																										
IA 21	NB/SB	270+17.45	271+21.17	Rt.			6.0	103.7													63.7	61.4	1.0	43.5		
IA 21	NB/SB	271+21.17	271+44.54	Rt.			6 to 4	23.4													11.6	49.6	0.2	10.0		
IA 21	NB/SB	271+44.54	272+00.00	Rt.			4.0	55.5													20.9	37.7	0.6	24.3		
IA 21	NB/SB	272+00.00	281+50.00	Rt.	4.0		4.0	950.0			422.2	246.3									348.1	36.6	9.5	382.4		
Crossover 2		205+00.00	213+60.00	Lt.			8.0	860.0													462.8	53.8		(2)		
Crossover 2		205+00.00	208+00.98	Rt.			16 to 3	301.0													185.7	61.7		(2)		
Crossover 2		208+00.98	210+18.35	Rt.			3.0	217.4													59.9	27.6		(2)		
Crossover 2		210+18.35	213+60.00	Rt.			3 to 10.4	341.7													140.4	41.1		(2)		
TOTALS:											16787.8	133.2	1088.4				76.9	171.8	25510.3	16661.3	3669.6	505.3		14906.7		
Notes:																										
(1)	DET1 CHAIN																									
(2)	DET2 CHAIN																									

### ACCESS POINTS AND SAFETY RAMPS

Refer to Cross-Sections

Length of unclassified pipe calculated is based on using Reinforced Concrete Pipe.

- ① Refer to MI-210
- ② Refer to EW-501.
- ③ Refer to EW-501 or EW-502.

\*Predetermined for access point not constructed with this project.

Location		Type	Length of Opening ①			Pipe Culvert ③			Aprons		Driveway Surface Area		Driveway Surfacing Material	Remarks				
Station	Side	A, B, C, Safety Ramp, or Predetermined*	Case	1 1/2" Dropped Curb	3" Dropped Curb	W	PR ① ②	SR ②	H	Size	Pipe Length	Lt.	Rt.		No.	HMA	PCC	TON
			1 or 2	LF	LF	FT	FT	FT	FT	IN	LF	LF	LF		LF	SY	SY	TON
US 30 772+00.00	Rt.	C				24.0		15.0	6.4	24.0	116.0	80.1	51.9		2			477.14
						24.0			1.4	36.0	42.0	29.1	28.9	2				
						24.0			1.0	18.0	28.0	13.5	14.5	2				
776+50.00	Lt.	C				24.0		15.0	1.9	24.0	66.0	40.4	37.8	2			701.41	
IA 21 251+50.00	Lt.	C				24.0		15.0	0.6	24.0	34.0	23.3	22.9	2			33.08	
251+50.00	Rt.	C				24.0				Dry							25.97	
275+36.00	Lt.	C				24.0		15.0	12.0	24.0	210.0	110.3	111.9	2			119.90	
275+37.55	Rt.	C				24.0		15.0	0.9	21 X 15	20.0	11.8	12.2	2			45.53	
275+36.00	Rt.	C				12.0		15.0		Dry							28.21	
11th Ave 11787+00.00	Rt.	C				24.0		15.0	1.0	24.0	28.0	20.0	20.0	2			16.18	
11793+20.00	Lt.	C				24.0		15.0	5.3	24.0	41.0	25.0	28.0	2			65.29	
11793+20.00	Rt.	C				24.0		15.0	2.9	24.0	59.0	40.0	31.0	2			39.29	
<b>TOTALS:</b>																	<b>1552.00</b>	
CULVERT, UNCLASSIFIED ENTRANCE PIPE, 18 IN. DIA.						Lin Ft	28.0											
CULVERT, UNCLASSIFIED ENTRANCE PIPE, 24 IN. DIA.						Lin Ft	554.0											
CULVERT, UNCLASSIFIED ENTRANCE PIPE, 36 IN. DIA.						Lin Ft	42.0											
CULVERT, CORRUGATED METAL ARCH ENTRANCE PIPE, 21 IN. X 15 IN.						Lin Ft	20.0											
APRONS, UNCLASSIFIED, 18 IN. DIA.						Each	2.0											
APRONS, UNCLASSIFIED, 24 IN. DIA.						Each	14.0											
APRONS, UNCLASSIFIED, 36 IN. DIA.						Each	2.0											
APRONS, METAL, ARCH, 21 IN. X 15 IN.						Each	2.0											
SURFACING, DRIVEWAY, CLASS A CRUSHED STONE						Tons	1552											

### SCOUR PROTECTION OR ROCK FLUME FOR BRIDGE END DRAIN

Refer to Standard Road Plan DR-401 and DR-402

Location		Bid Items		PCC Paved Shoulder			Scour Protection (DR-401)			Rock Flume (DR-402)			Remarks			
Bridge Station	Bridge Corner	Distance DI-1 or DI-2	PCC Paved Shoulder	Bridge End Drain	Panels Required	Polymer Grid	Modified Subbase	Special Ditch Control, Wood Excelsior Mat	Turf Reinforced Mat (TRM), Type 2	Transition Mat	Macadam Stone Base	Engineering Fabric		Erosion Stone		
		FT	SY	TYPE	A B C or D	SY	TONS	EC-101 SQ	EC-104 SQ	EC-105 SF	TONS	SY		TONS		
IA 21 265+82.73	SW	48.9		DR-402							1.219	105.8		114.300		
265+82.73	SE	48.8		DR-402							1.219	89.2	96.300			
265+82.73	NW	48.8		DR-402							1.219	98.3	94.695			
265+82.73	NE	48.9		DR-402							1.219	98.3	94.695			
<b>TOTALS:</b>													<b>DR-402: 4</b>	<b>4.875</b>	<b>391.7</b>	<b>399.990</b>

**MILLED RUMBLE STRIPS**

See PV-12 and PV-13.

\* Calculated at 18" width for Shoulder.

Road Identification	Location		Shoulder Pavement Type	Rumble Strip Type (Centerline, Rt or Lt Shoulder)	Length		Fog Seal* (Milled Rumble Strip) Shoulder GAL	Effective Shoulder Width			Remarks
	Station to Station				PCC	HMA		PCC Paved	HMA Paved	Granular\ Earth	
					STA	STA		FT	FT	FT	
STAGE 1											
US 30 EB	705+41.73	795+00.00	PCC	Left Shoulder	89.58			4.0		2.0	
US 30 EB	705+41.73	804+00.00	PCC	Right Shoulder	98.58			4.0		4.0	
STAGE 2											
US 30 WB	705+41.73	795+00.00	PCC	Left Shoulder	89.58			4.0		2.0	
US 30 WB	705+41.73	795+00.00	PCC	Right Shoulder	89.58			4.0		4.0	
IA 21	250+00.00	263+92.73	PCC	Left Shoulder	13.93			4.0		4.0	
IA 21	250+00.00	263+92.73	PCC	Right Shoulder	13.93			4.0		4.0	
Bridge and Approaches											
IA 21	267+72.73	281+50.00	PCC	Left Shoulder	13.77			4.0		4.0	
IA 21	267+72.73	281+50.00	PCC	Right Shoulder	13.77			4.0		4.0	
				PCC Shoulders	422.73						

**CULVERT ABANDONMENT**

Refer to Details 4315 and 4316

\* Not a bid item

Location Station	Description	Fill Material		4" Perforated Subdrain*	Remarks
		Flowable Mortar	Granular Backfill*		
		CY	TON		
11790+59.00	36" x 87' RCP	22.5	0.3	9.0	Includes Extensions
<b>TOTALS:</b>		22.5	0.3	9.0	

**REMOVAL OF EXISTING STRUCTURES**

Location	Description	Remarks
US 30		
749+68	8' x 6" x 83' RCB	
778+27	2' x 2' x 71' RCB	
778+97	3' x 3' x 65' RCB	
IA 21		
264+98	60" x 79' Concrete Pipe	
265+08	60" x 79' Concrete Pipe	
265+18	60" x 79' Concrete Pipe	

107-23  
10-18-11

### GRADING FOR GUARDRAIL INSTALLATIONS

① Lane(s) to which the installation is adjacent.

Refer to EW-301

Location				Dimensions (Feet)									Earthwork		Remarks	
No.	Direction of Traffic	Station	Side	Foreslope at Guardrail	X1	Y1	X2	Y2	X3	Y3	X4	Y4	Z	Excavation Class 10		Embankment In Place
														CY		CY
IA 21																
1	NB	264+51.33	Rt.	(1)	52.5	5.0	65.0	6.3	65.0	6.3	115.2	8.3	51.2	(1)	(1)	
2	SB	267+14.12	Lt.	(1)	52.5	5.0	65.0	6.3	65.0	6.3	115.2	8.3	51.2	(1)	(1)	
(1) See T sheets and cross sections																

108-8A  
Modified

### STEEL BEAM GUARDRAIL AT CONCRETE BARRIER OR BRIDGE RAIL END SECTION

Possible Standards: BA-200, BA-201, BA-202, BA-205, BA-206, BA-210, BA-211, BA-221, BA-225, BA-250, BA-260, LS-625, LS-626, LS-630, LS-635, SI-172, SI-173 and SI-211.

① Lane(s) to which the obstacle is adjacent.

② Not a bid item. Incidental to guardrail installation.

Location				Layout Lengths				Delineators and Object Markers ②				Bid Items								Remarks					
No.	Direction of Traffic	Side	Station	Offset	BA-250, BA-260, LS-630, or LS-635				Long-Span System		SI-211	Object Marker SI-173			Bolted End Anchor	Post Adapter	Steel Beam Guardrail	BA-250 or LS-630				BA-260 or LS-635			
					VT1	VF	VT2	ET				Type 1	Type 2	Type 3				End Terminal			Barrier Transition Section	End Terminal		Barrier Transition Section	End Terminal
				BA-211																					
				FT	LF	LF	LF	LF	STATION	TYPE	TYPE	White	OM2-2	OM3-L	OM3-R	BA-202	BA-210	BA-200	BA-201	BA-205	BA-206	LS-625	LS-626	BA-221	BA-225
US 30																									
1	EB	0	740+77.08	13.0	53.125	12.50	0.00	47.7							1	A	1	25.0	1	1					
2	WB	0	741+44.67	13.0	53.125	12.50	0.00	47.7						1	A	1	25.0	1	1						
IA 21																									
1	NB	0	264+51.33	9.6	53.125	12.50	0.00	47.7						1	A	1	25.0	1	1						
2	SB	0	267+14.12	9.6	53.125	12.50	0.00	47.7						1	A	1	25.0	1	1						
<b>TOTALS:</b>																<b>4</b>	<b>4</b>	<b>100.0</b>	<b>4</b>	<b>4</b>					

108-9A  
04-20-10

① Lane(s) to which the installation is adjacent.

### HIGH TENSION CABLE GUARDRAIL

Refer to BA-351.

Location				Dimensions				Bid Items		Remarks
No.	Direction of Traffic	Station	Side	Offset D <sub>0</sub>	Approach C <sub>A</sub>	Obstacle C <sub>0</sub>	Trailing C <sub>T</sub>	Protection Length (C <sub>A</sub> +C <sub>0</sub> +C <sub>T</sub> )	End Anchor	
				FT	FT	FT	FT	FT	No.	
US30										
1	EB	738+93.10	Lt.	12.0	200.0	50.0	0.0	250.0	2	
2	WB	743+28.50	Rt.	12.0	200.0	50.0	0.0	250.0	2	
<b>TOTALS:</b>									<b>4</b>	

### PAVEMENT MARKING LINE TYPES

See PM-110

\*\*\*MNY4 - Factor of 1.00 as value includes number of 4-inch passes to cover median nose area.

\*BCY4 - Place on the same side of the roadway to match existing markings near the project.

\*\*NPY4 - For estimating purposes only. No Passing Zone Lines will be located in the field.

BCY4: Broken Centerline (Yellow) @ 0.25

DCY4: Double Centerline (Yellow) @ 2.00

NPY4: No Passing Zone Line (Yellow) @ 1.25

BLW4: Broken Lane Line (White) @ 0.25

ELW4: Edge Line Right (White) @ 1.00

ELY4: Edge Line Left (Yellow) @ 1.00

CHW8: Channelizing Line (White) @ 2.00

CHY8: Channelizing Line (Yellow) @ 2.00

SLW4: Solid Lane Line (White) @ 1.00

SLW2: Stop Line (White) @ 6.00

Road ID	Station to Station		Dir. of Travel	Location	Marking Type	Side			Length by Line Type (Unfactored)															Remarks
						L	C	R	BCY4*	DCY4	NPY4**	BLW4	ELW4	ELY4	CHW8	CHY8	SLW4	SLW2						
									STA	STA	STA	STA	STA	STA	STA	STA	STA	STA	STA	STA	STA	STA	STA	
<b>STAGE 2</b>																								
US 30																								
ML030	705+41.13	809+30.64	WB		Removal of Paint			X																
ML030	705+41.13	809+30.64	WB		Removal of Paint	X	X		103.90															
ML030	705+41.13	809+30.64	WB		Removal of Paint	X																		
ML030	705+41.13	722+20.00	EB		Waterborne/Solvent Paint			X																
ML030	724+60.53	728+50.00	EB		Waterborne/Solvent Paint			X				3.89												
ML030	728+50.00	749+70.00	EB		Waterborne/Solvent Paint			X																
ML030	763+00.00	795+00.00	EB		Waterborne/Solvent Paint			X																
ML030	705+41.13	795+00.00	EB		Waterborne/Solvent Paint		X		89.59															
ML030	705+41.13	795+00.00	EB		Waterborne/Solvent Paint	X																		
<b>CROSSOVER 1</b>																								
DET1	100+00.00	114+38.55	EB		Waterborne/Solvent Paint			X					14.39											
DET1	100+00.00	114+38.55	EB		Waterborne/Solvent Paint		X																	
DET1	100+00.00	114+38.55	EB		Waterborne/Solvent Paint	X							14.39											
<b>RAMP B</b>																								
ML030	722+20.00	728+50.00	EB		Waterborne/Solvent Paint			X						6.30										
ML030	724+60.53	728+50.00	EB		Waterborne/Solvent Paint	X									3.89									
<b>RAMP D</b>																								
SR021D	4549+40.00	4549+71.34	NB		Waterborne/Solvent Paint	X									0.31									
SR021D	4549+71.34	4552+00.00	NB		Waterborne/Solvent Paint	X								2.29										
SR021D	4549+71.34	4552+00.00	NB		Waterborne/Solvent Paint	X										2.29								
SR021D	4549+71.34	4552+00.00	NB		Waterborne/Solvent Paint			X						2.29										
ML030	752+00.00	754+99.85	EB		Waterborne/Solvent Paint	X										3.00								
ML030	752+00.00	763+00.00	EB		Waterborne/Solvent Paint			X									11.00							
<b>FINAL</b>																								
US 30																								
ML030	705+41.13	795+00.00	EB		Removal of Paint		X		89.59															
ML030	742+22.35	795+00.00	EB		Removal of Paint	X								52.78										
ML030	795+00.00	809+30.64	EB		Removal of Paint	X										14.31								
ML030	705+41.13	716+99.37	WB		Waterborne/Solvent Paint			X						11.58										
ML030	725+02.05	739+99.70	WB		Waterborne/Solvent Paint			X								14.98								
ML030	739+99.70	753+50.00	WB		Waterborne/Solvent Paint			X						13.50										
ML030	753+50.00	757+39.47	WB		Waterborne/Solvent Paint			X									3.89							
ML030	759+80.00	809+30.65	WB		Waterborne/Solvent Paint			X						49.51										
ML030	705+41.13	792+80.01	WB		Waterborne/Solvent Paint		X						87.39											
ML030	705+41.13	790+05.18	WB		Waterborne/Solvent Paint	X										84.64								
ML030	790+74.83	795+00.00	WB		Waterborne/Solvent Paint	X										4.25								
<b>CROSSOVER 2</b>																								
DET2	205+00.00	213+05.00	WB		Waterborne/Solvent Paint	X										8.05								
ML030	749+70.00	754+99.84	EB		Waterborne/Solvent Paint			X								5.30								
ML030	705+41.13	771+80.00	EB		Waterborne/Solvent Paint		X					66.39												
ML030	742+22.35	777+30.01	EB		Waterborne/Solvent Paint	X								35.08										
ML030	777+30.01	786+78.94	EB		Waterborne/Solvent Paint	X																Includes hatching		
ML030	786+78.30	790+05.15	EB		Waterborne/Solvent Paint	X																3.27		
ML030	786+78.78	790+04.89	EB		Waterborne/Solvent Paint		X										10.44					Includes hatching		
ML030	790+74.81	792+49.81	EB		Waterborne/Solvent Paint	X											1.75							
ML030	791+76.66	809+30.69	BOTH		Waterborne/Solvent Paint	X																41.27		
ML030	803+03.60	809+30.69	WB		Waterborne/Solvent Paint	X											9.44					Includes hatching		
<b>IA 21</b>																								
SUR021	252+54.54	261+50.00	NB		Waterborne/Solvent Paint			X																
SUR021	262+25.52	269+48.68	NB		Waterborne/Solvent Paint			X																
SUR021	270+10.00	278+93.09	NB		Waterborne/Solvent Paint			X																
SUR021	259+15.00	260+90.00	NB		Waterborne/Solvent Paint		X																	
SUR021	267+90.03	269+40.00	NB		Waterborne/Solvent Paint		X																	
SUR021	252+49.98	261+50.00	SB		Waterborne/Solvent Paint			X																
SUR021	262+05.87	269+37.02	SB		Waterborne/Solvent Paint			X																
SUR021	270+10.00	278+73.29	SB		Waterborne/Solvent Paint			X																
SUR021	262+30.00	263+80.00	SB		Waterborne/Solvent Paint		X																	
SUR021	270+75.00	272+50.00	SB		Waterborne/Solvent Paint		X																	

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**FENCING**

\* Bid Item

Refer to MI-101, MI-102, MI-103, MI-104, 510-3, and 510-5

Location				Side	Chain Link				Deer				Field				Channel Crossing		Remarks
From		To			Fence		Gate		Fence Length*	Brace Panels*	Gate		Fence Length*	Brace Panels*	Gate		Length*	Type	
Station	Offset	Station	Offset		Length*	Type	No.*	Type			No.*	Type			No.*	Type			
					LF		EACH		LF	EACH	EACH		LF	EACH	EACH		LF		
<b>US 30 EB</b>																			
712+55.54	328.0	715+59.81	199.0	RT								330.5	5						
715+59.81	199.0	730+55.03	244.0	RT								1495.9	8						
730+55.03	244.0	737+43.89	478.9	RT								728.0	5						
Gap for IA 21																			
743+74.22	454.3	746+49.76	289.0	RT								321.0	6						
746+49.76	289.0	751+49.76	164.0	RT								515.4	6						
751+49.76	164.0	757+31.25	144.0	RT								581.6	6						
757+31.25	144.0	759+50.06	169.0	RT								220.1	6						
759+50.06	169.0	769+00.90	177.4	RT								950.9	5						
Gap for Entrance																			
772+83.46	180.8	776+49.88	184.0	RT								366.6	5						
776+49.88	184.0	780+24.88	139.0	RT								377.7	6						
780+24.88	139.0	782+70.01	194.0	RT								251.1	6						
782+70.01	194.0	787+49.95	199.0	RT								480.0	6						
787+49.95	199.0	789+78.92	187.3	RT								229.3	5						
Gap for 11th Ave																			
791+21.86	154.0	799+50.06	154.0	RT								1828.2	7						
799+50.06	154.0	780+39.88	164.0	RT								90.4	3						
<b>US 30 WB</b>																			
728+40.08	179.9	732+30.26	239.0	LT								394.6	5						
732+30.26	239.0	738+55.56	471.1	LT								669.8	6						
Gap for IA 21																			
744+09.19	409.6	746+99.78	344.0	LT								297.9	6						
746+99.78	344.0	753+24.85	164.0	LT								650.5	6						
753+24.85	164.0	760+48.30	149.0	LT								723.6	6						
760+48.30	149.9	761+22.54	149.0	LT								74.2	3						
Gap for Entrance																			
761+52.46	189.0	763+82.23	189.0	LT								229.8	5						
763+82.23	189.0	764+99.96	184.0	LT								117.8	4						
764+99.96	184.0	767+24.98	184.0	LT								225.0	6						
767+24.98	184.0	768+24.98	179.0	LT								100.1	4						
767+24.98	179.0	773+50.05	189.0	LT								525.2	6						
773+50.05	189.0	775+25.04	204.0	LT								175.6	6						
775+25.04	204.0	776+19.26	204.0	LT								94.2	3						
Gap for Entrance																			
776+89.06	204.7	777+07.30	154.0	LT								53.8	3						
777+07.30	154.0	783+75.03	154.0	LT								667.7	6						
783+75.03	154.0	788+46.16	182.8	LT								472.0	6						
788+46.16	182.8	788+45.82	204.0	LT								21.1	4						
788+45.82	204.0	789+43.84	204.0	LT								98.0	4						
Gap for 11th Ave																			
791+34.25	184.1	793+18.41	164.0	LT								185.3	6						
793+18.41	164.0	803+67.09	164.0	LT								1048.7	7						
<b>IA 21 NB</b>																			
251+80.00	77.0	253+84.03	81.2	RT								204.1	5						
253+84.03	81.2	258+60.27	129.0	RT								478.6	6						
258+60.27	129.0	261+21.86	254.3	RT								290.0	6						
Gap for US 30																			
269+88.53	305.5	273+81.03	108.9	RT								434.6	6						
273+81.03	108.9	274+87.91	85.7	RT								100.3	4						
274+87.91	85.7	275+10.42	89.2	RT								22.6	3						
Gap for Entrance																			
275+71.44	95.2	276+90.02	99.0	RT								117.4	3						
276+90.02	99.0	282+99.99	95.4	RT								607.9	5						
<b>IA 21 SB</b>																			
251+80.00	76.4	255+00.09	84.0	LT								320.2	5						
255+00.09	84.0	258+41.05	139.0	LT								345.4	6						
258+41.05	139.0	260+57.87	242.2	LT								240.1	6						
260+57.87	242.2	261+03.57	368.7	LT								341.5	6						
Gap for US 30																			
270+56.34	255.5	271+39.58	174.0	LT								117.9	4						
271+39.58	174.0	274+87.79	151.2	LT								355.1	5						
Gap for Entrance																			
275+62.50	148.1	276+99.86	144.0	LT								139.6	5						
276+99.86	144.0	278+55.52	104.0	LT								162.8	6						
278+55.52	104.0	282+99.99	99.0	LT								444.8	5						

Continued on next page



**FENCING**

\* Bid Item

Refer to MI-101, MI-102, MI-103, MI-104, 510-3, and 510-5


Location				Side	Chain Link				Deer				Field				Channel Crossing		Remarks
From		To			Fence		Gate		Fence Length*	Brace Panels*	Gate		Fence Length*	Brace Panels*	Gate		Length*	Type	
Station	Offset	Station	Offset		Length*	Type	No.*	Type			No.*	Type			No.*	Type			
					LF		EACH		LF	EACH	EACH		LF	EACH	EACH		LF		
<b>11th Ave NB</b>																			
11786+00.30	33.5	11786+70.00	55.8	RT								73.2	2						
Gap for Entrance																			
11788+30.00	59.0	11789+50.27	59.0	RT								120.3	3						
11789+50.27	59.0	11789+84.64	79.4	RT								40.0	4						
Gap for US 30																			
11792+23.18	95.9	11792+83.82	77.2	RT								63.5	3						
Gap for Entrance																			
11793+50.00	56.7	11793+74.85	49.0	RT								26.0	3						
11793+74.85	49.0	11796+49.87	49.0	RT								275.0	6						
11796+49.87	49.0	11797+24.74	28.9	RT								77.5	3						
<b>11th Ave SB</b>																			
11786+00.34	30.6	11786+80.19	59.0	LT								84.8	3						
11786+80.19	59.0	11788+53.62	64.0	LT								173.5	6						
Gap for US 30																			
11792+44.78	94.3	11792+90.00	78.5	LT								47.2	3						
Gap for Entrance																			
11793+50.00	57.6	11793+74.83	49.0	LT								26.3	3						
11793+74.83	49.0	11796+49.91	49.0	LT								275.1	6						
11796+49.91	49.0	11797+24.82	35.2	LT								76.2	3						
<b>TOTALS:</b>												<b>21673.1</b>	<b>321</b>						

ROADWAY ITEMS FOR DRAINAGE STRUCTURES INSTALLED BY CULVERT CONTRACTOR

\* Not a Bid Item  
④ Backfill according to DR-111

Location	Design Number	Size	Kind	By Road Contractor			Floodable* Backfill	Porous* Backfill	Flooded Backfill ①	Excavation		Revetment		Engineering Fabric	Remarks				
				Dike						Compacting Backfill Adjacent	Compaction w/Moisture Control	Compaction w/Moisture and Density	Type			Quantity	Type	Quantity	
				Rt. Lt.	Location Station	Top. Elev.													Type
260+50.00	318	10' x 6'	RCB				15.0	2409.0		156.0	4.0	160.0							
750+30.00	418	10' x 4'	RCB				11.4	64.0		108.1	3.0	111.1			Stage 1				
750+30.00	818	10' x 4'	RCB				11.4	64.0		108.1	3.0	111.1			Stage 2				
788+95.00	918	5' x 4'	Flume							240.0	2.0	242.0							
							37.8	2536.9				624.3							
<b>BID ITEMS:</b>																			
COMPACTING BACKFILL ADJACENT TO BRIDGES, CULVERTS OR STRUCTURES						CY	37.8												
COMPACTION WITH MOISTURE CONTROL						CY	2536.9												
FLOODED BACKFILL						CY	624.3												

**HYDRAULIC DESIGN**



**David R. Claman**  
11571  
IOWA

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.

*David R. Claman* 8/19/2021  
Signature Date

Printed or Typed Name  
**David R. Claman**

My license renewal date is December 31, 20 22

Pages or sheets covered by this seal: CD.1-CD.3

DRAINAGE STRUCTURE BY ROAD CONTRACTOR

\* Length of unclassified pipe calculated is based on using Reinforced Concrete Pipe.

(1) Not a bid item  
 (2) Diameter or equivalent diameter  
 UNCL = Unclassified Pipe CMP = Corrugated Metal Pipe RCP = Reinforced Concrete Pipe LCP = Arch or Elliptical Low Clearance Pipe SARC = Steel Arch Pipe  
 (3) Backfill according to DR-101

Drainage Area	Location	Type	Size	Pipe Class	Kind Of Pipe	Length New Const.	Bedding Class	Design Cover (H)	Camber*		Apron No.	Remove & Reinstal	Apron	Elbow*	(DR-141) Diaphragm*	(DR-501) Tee Section*	"D" Section* (DR-142) (DR-141)	Type C Connections (DR-122)	Connected Pipe Joint* (DR-121)	4" Perforated Subdrain*	Flow Line Elevations	Dimensions Lin. Ft.				Skew Ahead Degrees	Dike			Class 20	Flowable Mortar	Floodable* Backfill	Porous* Backfill	Flooded Backfill	Remarks						
									FT	FT												Total		Extensions			Rt.	Location Station	Top Elevation							Type	CY	CY	(A)	(B)	(A+B)
									IN	OUT												Lt.	Rt.	Lt.	Rt.																
STAGE 1																																									
US Highway 30																																									
MED	708+50.00, 44' Rt	DR-601	24	2000	RCP	76	B	2.0	0.08	1	1									Type 3	805.13	799.97											186.0	86.0	2.5	88.5					
MED	723+50.00, 44' Rt	DR-641	24	2000	RCP	72	B	2.6	0.08	1								1	C-3	1	Type 3	812.90	809.65	811.06			MED	723+30	815.66	M	7.0	15.0	1.0	16.0	(1)						
			24		CMP	43	B					1										809.65	801.75	802.16																	
MED	738+50.00, 44' Rt	DR-613	24	2000	RCP	96	B	4.0	0.08	1	1										Type 3	820.40	813.58	819.25			MED	738+30	823.16	M	55.0	25.0	6.0	31.0	(2)						
14.0	743+25.00	DR-601	30	2000	RCP	96	B	4.0	0.08												Type 3	818.84	816.92							384.0	152.0	6.2	158.2	(3)							
			30	2000	RCP	96	B	4.0	0.08	1												820.75	818.84																		
MED	753+50.00, 44' Rt	DR-613	24	2000	RCP	92	B	3.0	0.08	1	1										Type 3	835.36	832.76	834.45			MED	753+30	838.12	M	89.0	81.0	5.8	86.8	(4)						
MED	773+50.00, 44' Rt	DR-613	24	2000	RCP	92	B	3.9	0.08	1	1										Type 3	903.84	897.30	902.70			MED	773+30	906.60	M	1141.0	96.0	8.3	104.3	(4)						
10.0	778+25.00	DR-601	30	2000	RCP	114	B	9.0	0.17	1	1										Type 3	906.47	908.01																		
8.0	785+18.00	DR-601	24	2000	RCP	134	B	9.4	0.17	1	1										Type 3	907.91	908.00							298.0	182.0	6.5	188.5	(5)							
MED	788+00.00	DR-613	24	2000	RCP	88	B	3.5	0.08	1	1										Type 3	914.40	908.70	912.05						237.0	230.0	2.5	232.5	(6)							
38.0	788+95.00	DR-601	42	2000	RCP	138	B	7.0	0.17	1											Type 3	906.19	908.20							884.0	114.0	6.6	120.6	(7)							
MED	791+25.00, 44' Rt	DR-613	24	2000	RCP	90	B	3.0	0.08	1	1										Type 3	917.46	909.60	914.86						368.0	366.0	10.2	376.2	(8)							
33.0	794+84.00	DR-601	24	2000	RCP	112	B	4.5	0.08	1	1										Type 3	919.05	922.52			RT	794+70	924.36	M	292.0	81.0	7.0	158.0	(9)							
			2000																		Type 3																				
MED	803+00.00, 44' Rt	DR-613	24	2000	RCP	92	B	4.0	0.08	1	1										Type 3	940.58	934.30	939.46						133.0	28.0	5.9	33.9	(4)							
IA 21																																									
17.0	253+40.00	DR-601	30	2000	RCP	82	B	3.0	0.08	1	1										Type 3	815.00	815.41							187.0	63.0	5.7	68.7								
14.0	277+00.00	DR-601	30	2000	RCP	168	B	10.1	0.25	1	1										Type 3	833.94	844.80							403.0	523.0	10.5	533.5								
Ramp A																																									
15.0	1542+08.00	DR-601	30	3000	RCP	204	B	20.7	0.42	1	1										Type 3	827.19	821.91					19		387.0	970.0	2.0	972.0								
Ramp B																																									
709.0	2534+50.00	DR-601	24	2000	RCP	154	B	15.2	0.33	1	1										Type 3	810.67	809.58							220.0	597.0	6.7	603.7								
Ramp C																																									
field	3534+75.00	DR-601	24	2000	RCP	140	B	12.6	0.25	1	1										Type 3	810.03	811.46							85.0	344.0	6.6	350.6								
Ramp D																																									
15.0	4543+00.00	DR-601	30	2000	RCP	150	B	14.0	0.25	1	1										Type 3	816.75	816.20							262.0	459.0	7.3	466.3								
11th Ave																																									
44.0	11789+00.00	DR-601	42	2000	RCP	74	B	4.5	0.08	1	1										Type 3	908.50	908.70							153.0	133.0	6.6	139.6								
	11790+59.00	DR-621	36		UNCL	30	B				1			1								906.28		906.28																	
	11790+59.00	DR-621	36		UNCL	14	B																																		
STAGE 2																																									
US Highway 30																																									
MED	708+50.00	DR-621	24	2000	RCP	8	B														Type 3															(11)					
MED	763+50.00, 44' Lt	DR-613	24	2000	RCP	82	B	5.3	0.17	1	1										Type 3	864.53	869.65	867.36			MED	763+30	872.41	M	103.0	133.0	7.0	140.0	(12)						
10.0	778+25.00	DR-626	30	2000	RCP	110	B	9.0	0.17												Type 3	899.72	906.55	906.37						777.0	246.0	8.0	254.0	(13)							
8.0	785+18.00	DR-626	24	2000	RCP	98	B	9.4	0.17												Type 3	903.13	907.91							262.0	272.0	7.0	279.0	(14)							
38.0	788+95.00	DR-626	42	2000	RCP	64	B	7.0	0.17												Type 3	905.33	906.19							214.0	240.0	7.0	247.0	(15)							
33.0	794+84.00	DR-626	24	2000	RCP	84	B	6.7	0.17												Type 3	916.70	919.22							264.0	180.0	6.0	186.0	(16)							
11th Ave																																									
33.0	11792+00.00	DR-601	42	2000	RCP	132	B	11.6	0.25	1	1										Type 3	897.16	902.59							365.0	387.0	7.3	394.3	(17)							
TOTALS:																																									
(Continued on sheet CD.3)																																									

### DRAINAGE STRUCTURE BY ROAD CONTRACTOR

Length of unclassified pipe calculated is based on using Reinforced Concrete Pipe.

- ① Not a bid item
- ② Diameter or equivalent diameter
- ③ UNCL = Unclassified Pipe    CMP = Corrugated Metal Pipe    RCP = Reinforced Concrete Pipe    LCP = Arch or Elliptical Low Clearance Pipe    SARC = Steel Arch Pipe
- ④ Backfill according to DR-101

Drainage Area ACRE	Location	Type	Size ① IN	Pipe Class	Kind Of Pipe ②	Length New Const. LF	Bedding Class	Design Cover (H) FT	Camber* (DR-102) FT	Apron No.		Remove & Reinstal Apron No.	Elbow* (DR-141) No.	Diaphragm* (DR-501) No.	Tee Section* (DR-142) No.	"D" Section* (DR-141) No.	Type C Connections (DR-122)		Connected Pipe Joint* (DR-121) Type	4" Perforated Subdrain* FT	Flow Line Elevations				Dimensions Lin. Ft.		Skew Ahead Degrees		Dike			Class 20 CY	Flowable Mortar CY	Floodable* Backfill (A) CY	Porous* Backfill (B) CY	Flooded Backfill (A+B) CY	Remarks				
										IN	OUT						Type	No.			Lt.	Rt.	Other	Other	Lt.	Rt.	Lt.	Rt.	Lt.	Rt.	Lt.							Rt.	Location Station	Top Elevation	Type
										Total	Extensions						Lt.	Rt.			Lt.	Rt.	Lt.	Rt.	Lt.	Rt.	Lt.	Rt.	Lt.	Rt.	Lt.							Rt.			

(Continued from sheet CD.2)

**BID ITEMS:**

APRONS, CONCRETE, 24 IN. DIA.:	25	EACH
APRONS, CONCRETE, 30 IN. DIA.:	12	EACH
APRONS, CONCRETE, 42 IN. DIA.:	5	EACH
CULVERT, CONCRETE ROADWAY PIPE, 24 IN. DIA.:	1510	LF
CULVERT, CONCRETE ROADWAY PIPE, 30 IN. DIA.:	720	LF
CULVERT, CONCRETE ROADWAY PIPE, 42 IN. DIA.:	408	LF
CULVERT, 3000D CONCRETE ROADWAY PIPE, 30 IN. DIA.:	204	LF
CULVERT, CONCRETE PIPE, 2000D, TRENCHLESS, 30 IN. DIA.:	96	LF
APRONS, METAL, 24 IN. DIA.:	1	EACH
CULVERT, CORRUGATED METAL ROADWAY PIPE, 24 IN. DIA.:	43	LF
REMOVE AND REINSTALL CONCRETE APRON LESS THAN 36 IN.:	4	EACH
APRONS, UNCLASSIFIED, 36 IN. DIA.:	2	EACH
CULVERT, UNCLASSIFIED ROADWAY PIPE, 36 IN. DIA.:	44	LF
CLASS 20 EXCAVATION:	7837	CY
FLOODED BACKFILL:	6351.1	CY

**NOTES:**

- (1) ONE "D" SECTION ON INLET END. A=72', B=27.0', C=2.0', D=6.0', E=16.0', L=3.5'
- (2) F= 102.12' - USE ONE "D" SECTION ON INLET END
- (3) JACK 96' ON INLET END; EXTEND PER DR-626
- (4) F=98.12' USE ONE "D" SECTION ON INLET END
- (5) LAY 114' OF RCP ROADWAY PIPE UNDER EBL'S. (TO BE EXTENDED IN Stage 2)
- (6) LAY 134' OF 24" RCP ROADWAY PIPE UNDER EBL'S (TO BE EXTENDED IN Stage 2)
- (7) F= 94.12 USE ONE "D" SECTION ON THE INLET END
- (8) LAY 138' OF 42" RCP UNDER PROP. EBL'S + 1 INLET APRON. (TO BE EXTENDED IN Stage 2) UAC EXISTING 3'X3' RCB AND STUB FLUME.
- (9) F=96.12 USE ONE "D" SECTION ON INLET END
- (10) LAY 112' OF 24" RCP UNDER PROP. EBL'S + APRONS. (TO BE EXTENDED IN Stage 2) UAC EXISTING 24" RCP
- (11) REMOVE INLET APRON. EXTEND 8' AND REINSTALL APRON
- (12) F=100.12' USE ONE "D" SECTION ON INLET END
- (13) REMOVE OUTLET APRON AND EXTEND 14' THEN USE (1) RF-13 - 3 DEG. ELBOW THEN EXTEND ADDT'L 96'. REPLACE OUTLET APRON AT EL. 899.72 - 131.76' LT
- (14) REMOVE OUTLET APRON AND EXTEND 14' THEN USE (1) RF-13 - 3 DEG. ELBOW THEN EXTEND AN ADDT'L 84'. REPLACE OUTLET APRON AT EL. 903.13 - 129.91' LT
- (15) REMOVE EXISTING 3'X3' RCB AND STUB FLUME. EXTEND EXISTING 42" RCP AN ADDT'L 64' .
- (16) REMOVE EXISTING 24" RCP UNDER OLD US 30. REMOVE OUTLET APRON FROM PIPE LAID IN Stage 1.
- (17) USE DR-205 END WALL. EL. 904.33

**LIST OF SUBDRAIN WORK**

Possible Standards: DR-121, DR-201, DR-203, DR-301, DR-302, DR-303, DR-305 and DR-306. Possible Detail: 500-10.

\* Not a bid item

No.	Location		Type of Installation	Pipe		Aprons			Outlets			Connected Pipe Joints*	Trench Drain	Granular Material	Porous Backfill*	Class "A" Crushed Stone*	Remarks	
	Station to Station			Concrete, C.M.P., or Plastic	Dia.	Length	DR-201	DR-203	500-10	DR-305	DR-306							DR-121
1	747+00.00	751+00.00	DR-301, DR-302, DR-303	IN	LF	No.	No.	No.	Type	No.	No.	Type	No.	LF	350.0			12-inch thick working blanket - US 30

Note: The working blanket shown on the Q sheets and on Tab 104-5C may be deleted if determined not to be necessary at the time of construction.

**103-5**  
10-15-13

**SETTLEMENT PLATES**  
Refer to Standard Road Plan EW-212

No.	Location		Remarks
	Station	Offset	
1	264+30.00	20' LT	SP1, 93 day paving delay
2	267+30.00	20' RT	SP2, 48 day paving delay

**103-6**  
10-17-17

**EMBANKMENT WITH MOISTURE CONTROL**  
Moisture Control is required for all Class 10 fill placed in all locations and depths. Topsoil will not require Moisture Control.

**103-7**  
08-01-08

**SHRINKAGE DATA**

Material	%	Remarks
Entire Project	30%	
Topsoil	40%	
Boulder Estimate		100 CY

**103-10**  
04-18-17

**TOPSOIL STRIPPING AND PLACEMENT**


Road Identification	Dir. of Traffic	Begin Station	End Station	Topsoil Stripping Thickness		Topsoil Placement Thickness		Remarks
				IN		IN		
US 30 Eastbound	EB	700+83.66	816+00.00	9.0		8.0		
US 30 Westbound	WB	700+83.66	816+00.00	9.0		8.0		
IA 21	NB/SB	250+00.00	281+50.00	9.0		8.0		
Ramp A		1540+90.00	1553+50.00	9.0		8.0		
Ramp B		2528+50.00	2541+35.84	9.0		8.0		
Ramp C		3530+25.00	3541+30.00	9.0		8.0		
Ramp D		4540+74.35	4549+71.34	9.0		8.0		
11th Avenue	NB/SB	11786+75.00	11796+50.00	9.0		8.0		

**107-31**  
04-19-11

**PLOWING AND SHAPING**  
Refer to Standard Road Plan EW-101

Station to Station	D		Remarks
	FT		
701+00.00	712+00.00	2.5	US 30 EBL
707+75.00	723+75.00	2.5	US 30 WBL
731+75.00	758+50.00	2.5	US 30 WBL
765+75.00	780+75.00	2.5	US 30 WBL
798+00.00	802+75.00	2.5	US 30 WBL
250+00.00	255+75.00	2.5	IA 21
278+50.00	281+50.00	2.5	IA 21

**SPECIAL ATTENTION (SLIVER FILL)**  
Special attention should be given to Article 2107.03.C, of the current Standard Specification Series, on this project.



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: *John A. Christiansen* Date: 9/25/18

Printed or Typed Name: *John A. Christiansen*

My license renewal date is December 31, 20 18

Pages or sheets covered by this seal: CS.1 - CS.4, Q.1 - Q.20.

### LONGITUDINAL SUBDRAIN SHOULDER AND BACKSLOPE

Refer to Soils Sheets

\* Not a bid item. Bridge berm quantities assume a trench depth of 24 inches.

Line No.	Road or Lane Identification	Location Station to Station		Side	Longitudinal Subdrain (DR-303)								Subdrain Outlet		Porous* Backfill CY	Class "A" Crushed Stone CY	Remarks	
					Depth D	Shoulder		Backslope		Bridge Berm (EW-203 or EW-204)		DR-303, DR-305 or DR-306		Station				Standard Road Plan and Type
						Size	Length	Size	Length	Standard Road Plan and Type	Size	Length						
						IN	FT	IN	FT		IN	FT						
1	US 30 - EBL	701+55.00	705+00.00	RT	42.0	4.0	405.0						701+55.00	DR-306	37.5	0.4		
2	US 30 - EBL	705+00.00	708+75.00	RT	42.0	4.0	435.0						705+00.00	DR-306	40.3	0.4		
3	US 30 - EBL	708+75.00	713+75.00	RT	42.0	4.0	560.0						708+75.00	DR-306	51.9	0.4		
4	US 30 - EBL	713+75.00	718+75.00	RT	42.0	4.0	560.0						713+75.00	DR-306	51.9	0.4		
5	US 30 - EBL	718+75.00	723+75.00	RT	42.0	4.0	560.0						718+75.00	DR-306	51.9	0.4		
6	US 30 - EBL	723+75.00	728+50.00	RT	42.0	4.0	535.0						723+75.00	DR-306	49.5	0.4	Subdrain Type 6 begins at Station 722+50. Subdrain Type 6.	
7	US 30 - EBL	728+50.00	733+50.00	RT	42.0	4.0	560.0						728+50.00	DR-306	51.9	0.4	Install subdrain outlet prior to paving Ramp B.	
8	US 30 - EBL	733+50.00	738+00.00	RT	42.0	4.0	510.0						733+50.00	DR-306	47.2	0.4		
9	US 30 - EBL	738+00.00	743+00.00	RT	42.0	4.0	560.0						738+00.00	DR-306	51.9	0.4		
10	US 30 - EBL	743+00.00	746+50.00	RT	42.0	4.0	410.0						743+00.00	DR-306	38.0	0.4		
11	US 30 - EBL	746+50.00	750+00.00	RT	36.0	4.0	380.0						746+50.00	DR-306	29.3	0.4	Install subdrain outlet prior to paving Ramp D. Subdrain Type 6.	
12	US 30 - EBL	750+00.00	755+00.00	RT	42.0	4.0	560.0						750+00.00	DR-306	51.9	0.4		
13	US 30 - EBL	755+00.00	760+00.00	RT	42.0	4.0	560.0						755+00.00	DR-306	51.9	0.4	Subdrain Type 6.	
14	US 30 - EBL	760+00.00	765+00.00	RT	42.0	4.0	560.0						760+00.00	DR-306	51.9	0.4	Subdrain Type 6 ends at Station 762+00.	
15	US 30 - EBL	765+00.00	770+00.00	RT	42.0	4.0	560.0						765+00.00	DR-306	51.9	0.4		
16	US 30 - EBL	770+00.00	775+00.00	RT	42.0	4.0	560.0						770+00.00	DR-306	51.9	0.4		
17	US 30 - EBL	775+00.00	779+50.00	RT	42.0	4.0	510.0						775+00.00	DR-306	47.2	0.4		
18	US 30 - EBL	779+50.00	783+25.00	RT	42.0	4.0	435.0						779+50.00	DR-306	40.3	0.4		
19	US 30 - EBL	783+25.00	787+75.00	RT	42.0	4.0	510.0						783+25.00	DR-306	47.2	0.4		
20	US 30 - EBL	787+75.00	792+75.00	RT	42.0	4.0	560.0						787+75.00	DR-306	51.9	0.4		
21	US 30 - EBL	792+75.00	797+75.00	RT	42.0	4.0	560.0						792+75.00	DR-306	51.9	0.4		
22	US 30 - EBL	797+75.00	802+75.00	RT	42.0	4.0	560.0						797+75.00	DR-306	51.9	0.4		
23	US 30 - EBL	802+75.00	807+75.00	RT	42.0	4.0	560.0						802+75.00	DR-306	51.9	0.4		
24	US 30 - EBL	807+75.00	812+00.00	RT	42.0	4.0	485.0						807+75.00	DR-306	44.9	0.4		
25	US 30 - EBL	812+00.00	816+00.00	RT	42.0	4.0	460.0						812+00.00	DR-306	42.6	0.4		
26	US 30 - WBL	701+80.00	705+00.00	LT	42.0	4.0	380.0						701+80.00	DR-306	35.2	0.4		
27	US 30 - WBL	705+00.00	708+75.00	LT	42.0	4.0	435.0						705+00.00	DR-306	40.3	0.4		
28	US 30 - WBL	708+75.00	712+50.00	LT	42.0	4.0	435.0						708+75.00	DR-306	40.3	0.4		
29	US 30 - WBL	712+50.00	716+50.00	LT	42.0	4.0	460.0						712+50.00	DR-306	42.6	0.4		
30	US 30 - WBL	716+50.00	721+00.00	LT	42.0	4.0	510.0						716+50.00	DR-306	47.2	0.4	Subdrain Type 6 begins at Station 718+00. Subdrain Type 6.	
31	US 30 - WBL	721+00.00	725+50.00	LT	42.0	4.0	510.0						721+00.00	DR-306	47.2	0.4		
32	US 30 - WBL	725+50.00	730+25.00	LT	42.0	4.0	535.0						725+50.00	DR-306	49.5	0.4	Subdrain Type 6.	
33	US 30 - WBL	730+25.00	735+00.00	LT	42.0	4.0	535.0						730+25.00	DR-306	49.5	0.4	Install subdrain outlet prior to paving Ramp C.	
34	US 30 - WBL	735+00.00	739+75.00	LT	42.0	4.0	535.0						735+00.00	DR-306	49.5	0.4		
35	US 30 - WBL	739+75.00	744+75.00	LT	42.0	4.0	560.0						739+75.00	DR-306	51.9	0.4		
36	US 30 - WBL	744+75.00	749+75.00	LT	42.0	4.0	560.0						744+75.00	DR-306	51.9	0.4		
37	US 30 - WBL	749+75.00	753+50.00	LT	42.0	4.0	435.0						749+75.00	DR-306	40.3	0.4	Install subdrain outlet prior to paving Ramp A. Subdrain Type 6.	
38	US 30 - WBL	753+50.00	758+50.00	LT	42.0	4.0	560.0						753+50.00	DR-306	51.9	0.4		
39	US 30 - WBL	758+50.00	763+25.00	LT	42.0	4.0	535.0						758+50.00	DR-306	49.5	0.4	Subdrain Type 6 ends at Station 759+50.	



### LONGITUDINAL SUBDRAIN SHOULDER AND BACKSLOPE

Refer to Soils Sheets

\* Not a bid item. Bridge berm quantities assume a trench depth of 24 inches.

Line No.	Road or Lane Identification	Location Station to Station		Side	Longitudinal Subdrain (DR-303)										Subdrain Outlet		Porous* Backfill CY	Class "A"* Crushed Stone CY	Remarks
					Depth D	Shoulder		Backslope		Bridge Berm (EW-203 or EW-204)			DR-303, DR-305 or DR-306						
						Size IN	Length FT	Size IN	Length FT	Standard Road Plan and Type	Size IN	Length FT	Station	Standard Road Plan and Type					
															IN	FT			
40	US 30 - WBL	763+25.00	768+25.00	LT	42.0	4.0	560.0							763+25.00	DR-306	51.9	0.4		
41	US 30 - WBL	768+25.00	773+25.00	LT	42.0	4.0	560.0							768+25.00	DR-306	51.9	0.4		
42	US 30 - WBL	773+25.00	778+00.00	LT	42.0	4.0	535.0							773+25.00	DR-306	49.5	0.4		
43	US 30 - WBL	778+00.00	783+00.00	LT	42.0	4.0	560.0							778+00.00	DR-306	51.9	0.4		
44	US 30 - WBL	783+00.00	787+75.00	LT	42.0	4.0	535.0							783+00.00	DR-306	49.5	0.4		
45	US 30 - WBL	787+75.00	792+75.00	LT	42.0	4.0	560.0							787+75.00	DR-306	51.9	0.4		
46	US 30 - WBL	792+75.00	797+75.00	LT	42.0	4.0	560.0							792+75.00	DR-306	51.9	0.4		
47	US 30 - WBL	797+75.00	802+75.00	LT	42.0	4.0	560.0							797+75.00	DR-306	51.9	0.4		
48	US 30 - WBL	802+75.00	807+75.00	LT	42.0	4.0	560.0							802+75.00	DR-306	51.9	0.4		
49	US 30 - WBL	807+75.00	812+00.00	LT	42.0	4.0	485.0							807+75.00	DR-306	44.9	0.4		
50	US 30 - WBL	812+00.00	816+00.00	LT	42.0	4.0	460.0							812+00.00	DR-306	42.6	0.4		
51	IA 21 - NBL	250+00.00	254+25.00	RT	30.0	4.0	485.0							816+00.00	DR-306	29.9	0.4	Shallow ditch. Tie existing subdrains into the new outlet.	
52	IA 21 - NBL	254+25.00	259+25.00	RT	42.0	4.0	560.0							250+00.00	DR-306	51.9	0.4	Subdrain Type 6 begins at Station 252+50.	
53	IA 21 - NBL	259+25.00	264+00.00	RT	42.0	4.0	535.0							254+25.00	DR-306	49.5	0.4	Subdrain Type 6.	
54	IA 21 - NBL	267+70.00	271+75.00	RT	42.0	4.0	465.0							259+25.00	DR-306	43.1	0.4	Subdrain Type 6.	
55	IA 21 - NBL	271+75.00	276+50.00	RT	42.0	4.0	535.0							264+00.00	DR-306	49.5	0.4	Cap subdrain at Station 264+00.	
56	IA 21 - NBL	276+50.00	281+50.00	RT	42.0	4.0	560.0							267+70.00	DR-306	51.9	0.4	Subdrain Type 6.	
57	IA 21 - SBL	250+00.00	254+25.00	LT	42.0	4.0	485.0							271+75.00	DR-306	44.9	0.4	Subdrain Type 6.	
58	IA 21 - SBL	254+25.00	259+25.00	LT	42.0	4.0	560.0							276+50.00	DR-306	51.9	0.4	Tie existing subdrains into the new outlet.	
59	IA 21 - SBL	259+25.00	264+00.00	LT	42.0	4.0	535.0							281+50.00	DR-306	49.5	0.4	Tie existing subdrains into the new outlet.	
60	IA 21 - SBL	267+70.00	271+75.00	LT	42.0	4.0	465.0							254+25.00	DR-306	43.1	0.4	Subdrain Type 6 begins at Station 252+50.	
61	IA 21 - SBL	271+75.00	276+50.00	LT	42.0	4.0	535.0							254+25.00	DR-306	49.5	0.4	Subdrain Type 6.	
62	IA 21 - SBL	276+50.00	281+50.00	LT	42.0	4.0	560.0							259+25.00	DR-306	51.9	0.4	Subdrain Type 6.	
63	US 30 - Ramp A	1540+90.00	1545+00.00	LT	42.0	4.0	470.0							264+00.00	DR-306	43.5	0.4	Subdrain Type 6.	
64	US 30 - Ramp A	1545+00.00	1549+25.00	LT	42.0	4.0	485.0							267+70.00	DR-306	44.9	0.4	Tie existing subdrains into the new outlet.	
65	US 30 - Ramp A	1549+25.00	1553+50.00	LT	42.0	4.0	485.0							271+75.00	DR-306	44.9	0.4	Tie existing subdrains into the new outlet.	
66	US 30 - Ramp B	2528+50.00	2532+50.00	RT	42.0	4.0	460.0							276+50.00	DR-306	42.6	0.4	Subdrain Type 6 begins at Station 252+50.	
67	US 30 - Ramp B	2532+50.00	2537+00.00	RT	42.0	4.0	510.0							281+50.00	DR-306	47.2	0.4	Subdrain Type 6.	
68	US 30 - Ramp B	2537+00.00	2541+35.84	RT	42.0	4.0	495.8							259+25.00	DR-306	45.9	0.4	Subdrain Type 6.	
69	US 30 - Ramp C	3530+25.00	3533+50.00	LT	42.0	4.0	385.0							264+00.00	DR-306	35.6	0.4	Cap subdrain at Station 264+00.	
70	US 30 - Ramp C	3533+50.00	3537+50.00	LT	42.0	4.0	460.0							267+70.00	DR-306	42.6	0.4	Subdrain Type 6.	
71	US 30 - Ramp C	3537+50.00	3541+25.00	LT	42.0	4.0	435.0							271+75.00	DR-306	40.3	0.4	Subdrain Type 6.	
72	US 30 - Ramp D	4540+74.35	4544+00.00	RT	42.0	4.0	385.7							276+50.00	DR-306	35.7	0.4	Tie existing subdrains into the new outlet.	
73	US 30 - Ramp D	4544+00.00	4546+75.00	RT	42.0	4.0	335.0							281+50.00	DR-306	31.0	0.4	Subdrain Type 7A. Cap subdrain at Station 2541+35.84.	
74	US 30 - Ramp D	4546+75.00	4549+71.34	RT	42.0	4.0	356.3							3530+25.00	DR-306	33.0	0.4	Subdrain Type 7A.	
Totals						37377.8							DR-306 = 140		3441.0	56.8			

Note: All longitudinal subdrains are Type 7B with PCC unless otherwise noted in the remarks column.

### LONGITUDINAL SUBDRAIN SHOULDER AND BACKSLOPE

Refer to Soils Sheets

\* Not a bid item. Bridge berm quantities assume a trench depth of 24 inches.

Location				Longitudinal Subdrain (DR-303)							Subdrain Outlet		Porous* Backfill	Class "A"* Crushed Stone	Remarks	
Line No.	Road or Lane Identification	Station to Station	Side	Depth	Shoulder		Backslope		Bridge Berm (EW-203 or EW-204)			DR-303, DR-305 or DR-306				
				(D)	Size	Length	Size	Length	Standard Road Plan and Type	Size	Length	Station				Standard Road Plan and Type
				IN	IN	FT	IN	FT	IN	FT	CY	CY				



### SURVEY SYMBOLS

- GDL Guard Rail Steel
- D Centerline Draw or Stream (Down)
- D Centerline Draw or Stream (Down)
- TDC Tree Deciduous
- SI Sign
- BNK Stream Bank
- EW Edge of Water
- TEV Evergreen Tree
- HDG Hedge Row
- LP L.P. Tank
- DIK Centerline of Dike or Dam
- SHR Shrub
- SI Sign
- RET Retaining Walls
- FWD Wood Fence
- FCL Chain Link and Security Fence
- LUM Luminaire
- FLG Flag Poles
- WM Wind Mill
- STP Stump
- CIS Cistern
- PPB Power Pole Co. 2
- LUM Luminaire
- PPD Power Pole Co. 4
- PPC Power Pole Co. 3
- PPE Power Pole Co. 5
- RT Radio Tower
- UB Utility Box
- SI Sign
- TPD Telephone Pedestal
- TIL Tile Line
- OUT Tile Outlet
- MM Mile Marker Post
- MH Utility Access (Manhole)
- WV Water Valve
- WHD Water Hydrant
- CIS Cistern
- MIS Miscellaneous
- WEL Well
- EB Electrical Box
- STA Storm Sewer Line Co. 1
- IN Storm Sewer Intake
- INB Storm Sewer Beehive Intake
- SEP Septic Tank
- WM Wind Mill

### UTILITY LEGEND

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

- E - Alliant Energy  
Mary Montgomery  
PO Box 351  
Cedar Rapids, IA 52406-9874  
(319) 786-4768  
MaryMontgomery@alliantenergy.com
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1310 E MARY ST  
Ottumwa, IA 52501  
(636) 887-5367  
robert.sampson@lumen.com
- E - Iowa Department of Transportation  
Jason Dale  
800 Lincoln Way  
Ames, IA 50010  
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Jason.Dale@iowadot.us
- E - East-Central Iowa Rural Electric Cooperative  
Tom Schmitt  
2400 Bing Miller Lane / PO Box 248  
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- T2- Keystone Communications  
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- F0 - Van Horne Cooperative Telephone Company  
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52346, IA 52346  
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ronschnor@netins.net
- T- Windstream Communications  
Luke Niles  
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Little Rock, AR 72212  
(501) 748-5893  
luke.t.niles@windstream.com
- W- Poweshiek Water Association  
Chad Coburn  
125 Industrial Drive  
Brooklyn, IA 52211  
(641) 522-7416  
chad@poweshiekwater.com

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

LINEWORK	Design Color No.	
Green	(2)	Existing Topographic Features and Labels
Blue	(1)	Proposed Alignment, Stationing, Tic Marks, and Alignment Annotation
Magenta	(5)	Existing Utilities
SHADING	Design Color No.	
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, F, & K)

York TWP.  
T-83N R-13W  
SEC. 25

Sta. 698+19.01 44' LT  
458' X 40' PPCB Bridge  
(By Others)

STA 711+04.39. 425.82' LT  
4' X 4' X 23.8' RCB  
U.A.C.

24" X 46.2'  
C.M.P.  
Remove

723+30.00 Prop.  
Type "M" Dike  
Elev. 815.66

STA. 705+41.13  
BEGIN CONSTRUCTION

STA 698+00.00 (SUR030 - Tama)  
44' X 406' PPCB BRIDGE  
Design No. 917  
DA = 201 Sq Miles  
(U.A.C.)

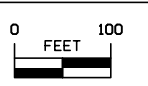
STA 705+00.00 (ML030 - Tama) BK  
= STA. 705+41.13 (ML030 - Benton) AH

Sta. 723+50.00, 44' RT  
Install 24" x 72' RCP  
F.L. = Lt. 812.90  
Other 809.65  
Install 24" x 43' CMP  
F.L. = Lt. 809.65  
Other 801.75  
Other 802.16

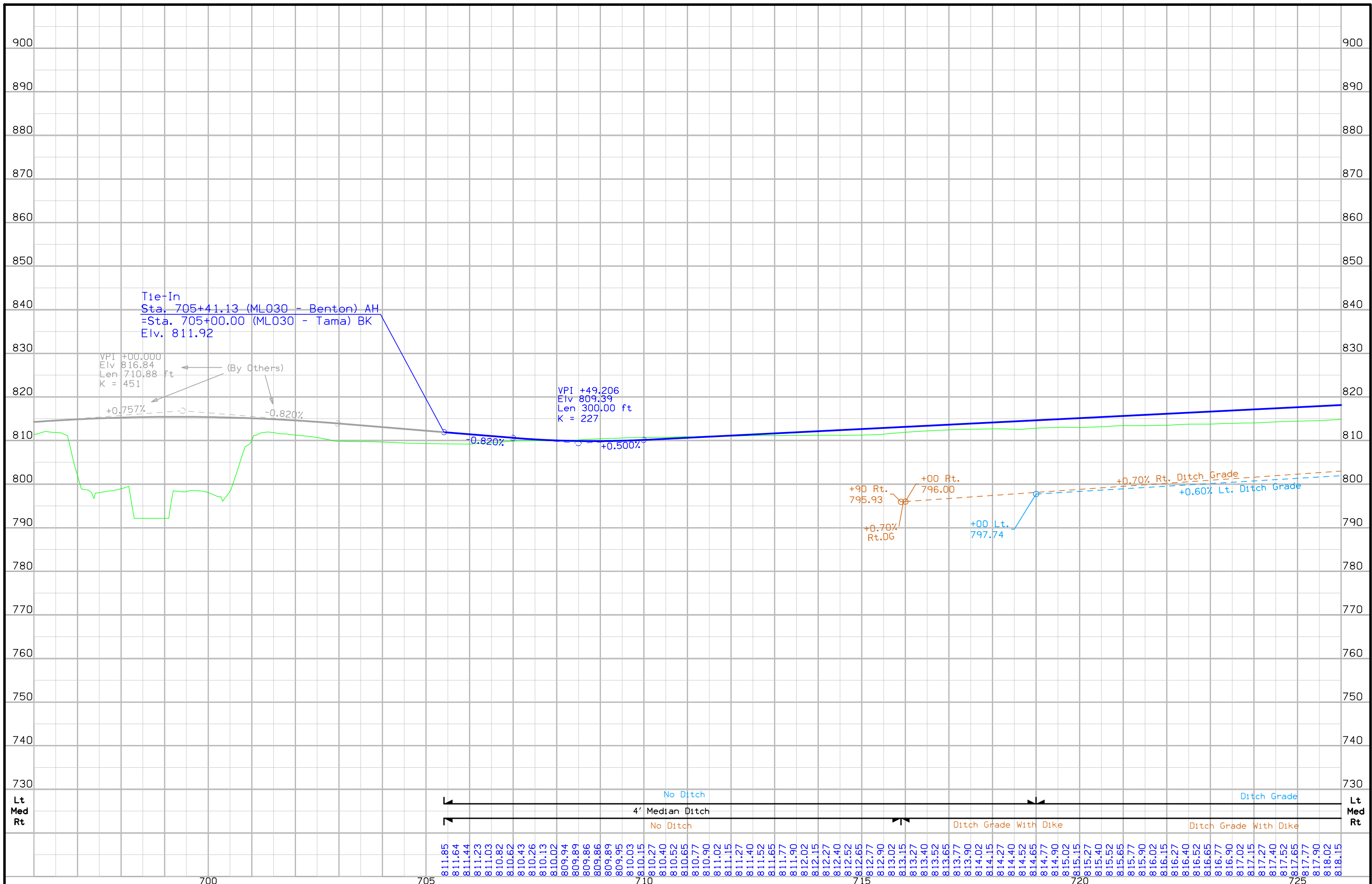
Sta. 708+50.00, 44' RT (STAGE 1)  
Install 24" x 76' RCP  
F.L. = Lt. 805.13  
Rt. 799.87

Sta. 708+50.00, 44' RT (STAGE 2)  
Remove and Reinstall apron  
Extend with 24" x 8' RCP

York TWP.  
T-83N R-13W  
SEC. 36



U.S. Highway 30





York TWP.  
T-83N R-13W  
SEC. 25

Kane TWP.  
T-83N R-12W  
SEC. 30

Sta. 743+25.00  
JACK 30" x 96' RCP  
F.L. = Lt. 820.75  
Rt. 818.84  
Install 30" x 96' RCP  
F.L. = Lt. 818.84  
Rt. 816.92

Sta. 749+68  
Skew 45° LT AHEAD  
8' X 6' X 83' RCB  
D.A. = 316 Ac - R  
Remove

Sta. 742+01  
24" X 104' Conc Pipe  
D.A. = 14 Ac - R  
Remove

Sta. 750+30.00 (STAGE 2)  
Build 10' x 4' RCB  
Skew = 30° Lt. Ahd.  
Design No. 818

738+30.00 Prop.  
Type "M" Dike  
Elev. 823.16

Sta. 738+50.00, 44' RT  
Install 24" x 96' RCP  
F.L. = Lt. 820.40  
Rt. 813.58  
Other 819.25

753+30.00 Prop.  
Type "M" Dike  
Elev. 838.12

Sta. 750+30.00 (STAGE 1)  
Build 10' x 4' RCB  
Skew = 30° Lt. Ahd.  
Design No. 418

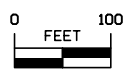
Sta. 753+50.00, 44' RT  
Install 24" x 92' RCP  
F.L. = Lt. 835.36  
Rt. 832.76  
Other 834.45

POT Sta. 741+11.03 (ML030)  
= POT Sta. 265+80.76 (SUR021)

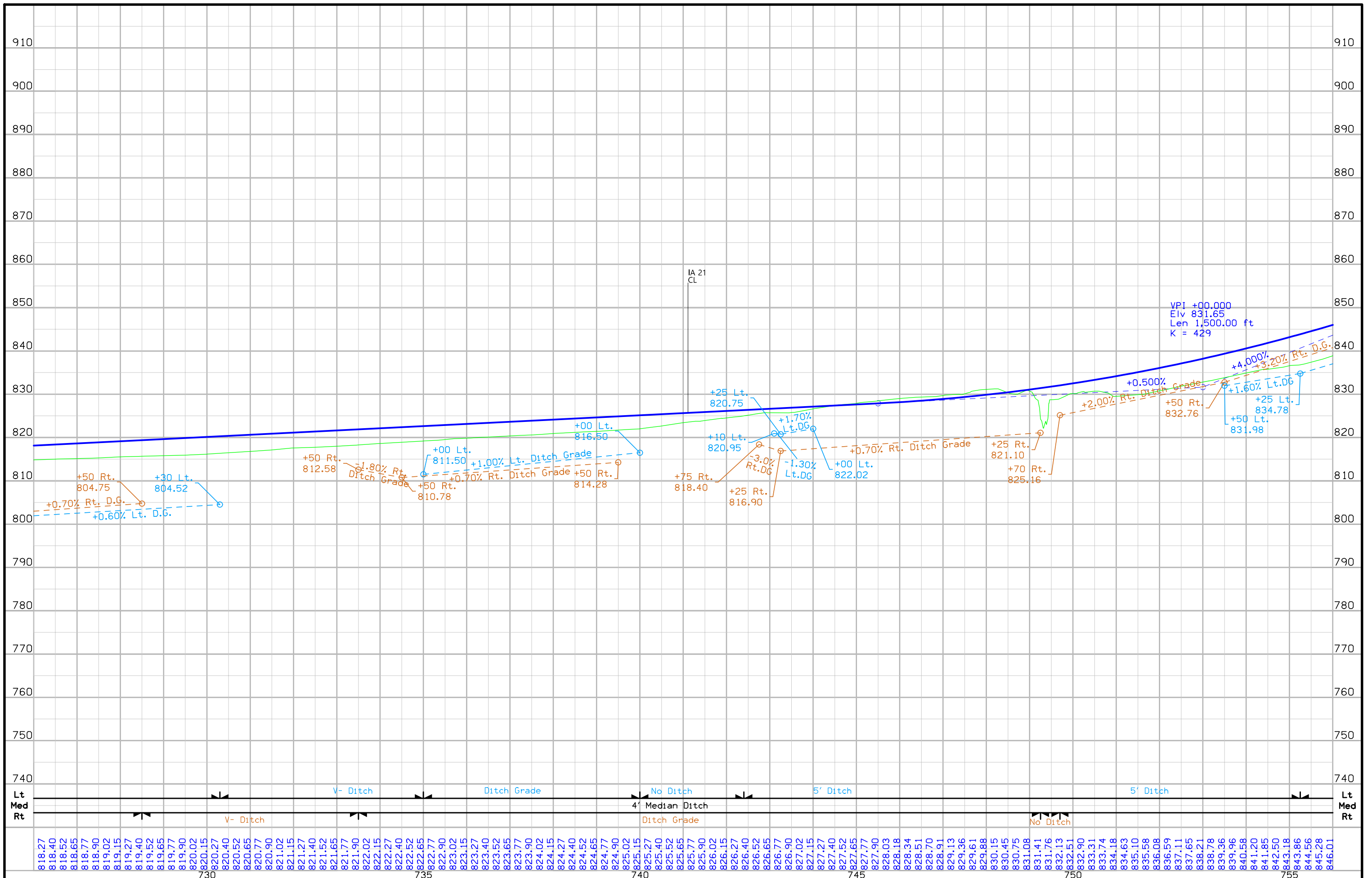
Curve Data  
 $\Delta = 0^\circ 54' 40.33''$  (RT)  
T = 111.33  
L = 222.65  
R = 14,000.00  
E = 0.44

York TWP.  
T-83N R-13W  
SEC. 36

Kane TWP.  
T-83N R-12W  
SEC. 31



U.S. Highway 30



FILE NO. <b>31043</b>	ENGLISH	DESIGN TEAM <b>Flattery \ Bell</b>	TAMA COUNTY	PROJECT NUMBER <b>NHSX-030-6(240)--3H-86</b>	SHEET NUMBER <b>D.5</b>
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Kane TWP.  
T-83N R-12W  
SEC. 30

Kane TWP.  
T-83N R-12W  
SEC. 30

Sta. 785+19  
24" X 69' Conc Pipe  
D.A. = 8 Ac - R  
Remove

Sta. 778+25.00 (STAGE 2)  
Extend with 30" x 110' RCP  
F.L. = Lt. 899.72  
Rt. 906.55  
Other 906.37

Sta. 785+18.00 (STAGE 2)  
Extend with 24" x 98' RCP  
F.L. = Lt. 903.13  
Rt. 907.91

763+30.00 Prop.  
Type "M" Dike  
Elev. 872.41

Sta. 778+27  
2' X 2' X 71' RCB  
D.A. = 10 Ac - VH  
Remove

Sta. 763+50.00, 44' LT  
Install 24" x 82' RCP  
F.L. = Lt. 864.53  
Other 867.36

24" X 51.8'  
C.M.P.  
Remove

24" X 49.6'  
C.M.P.  
Remove

760

765

770

775

780

785

30

36" X 58.3'  
C.M.P.  
Remove

+00 Prop.  
Type "C" Ent.  
36" Uncl. Pipe

773+30.00 Prop.  
Type "M" Dike  
Elev. 906.6

Sta. 778+25.00 (STAGE 1)  
Install 30" x 114' RCP  
F.L. = Lt. 906.47  
Rt. 908.01

Sta. 785+18.00 (STAGE 1)  
Install 24" x 134' RCP  
F.L. = Lt. 907.91  
Rt. 908.00

29"x18" Uncl. Pipe

36" Uncl. Pipe

Sta. 773+50.00, 44' RT  
Install 24" x 92' RCP  
F.L. = Lt. 903.84  
Rt. 897.30  
Other 902.70

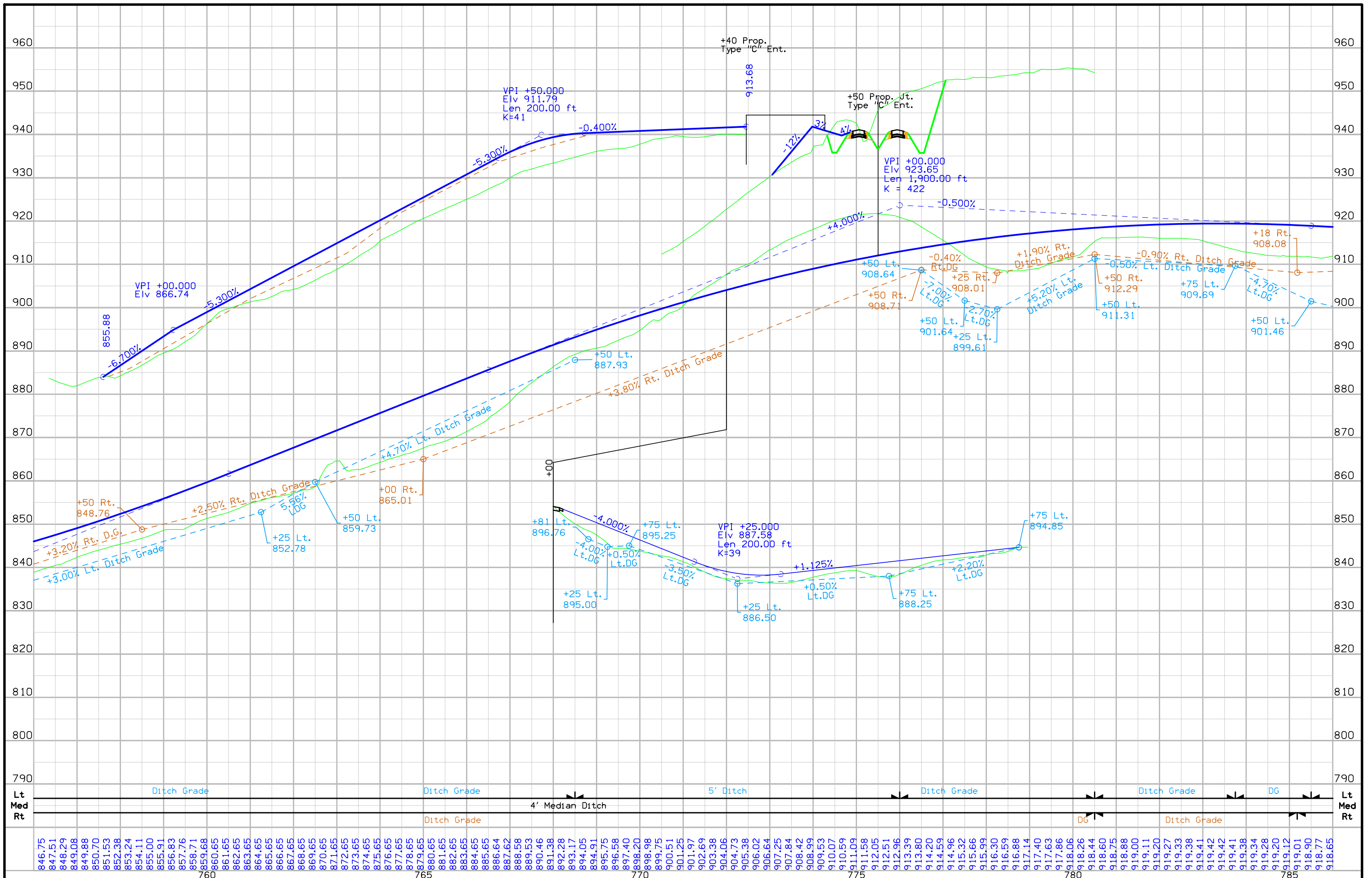
Kane TWP.  
T-83N R-12W  
SEC. 31

Kane TWP.  
T-83N R-12W  
SEC. 31



U.S. Highway 30





FILE NO. <b>31043</b>	ENGLISH	DESIGN TEAM <b>Flattery \ Bell</b>	TAMA COUNTY	PROJECT NUMBER <b>NHSX-030-6(240)--3H-86</b>	SHEET NUMBER <b>D.7</b>
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Kane TWP.  
T-83N R-12W  
SEC. 29

Sta. 788+95.00  
Build 5' x 4' 3:1 Flume & Basin  
Lt. 893.87  
F.L. = Rt. 905.33  
Design No. 918

Sta. 788+95.00 (STAGE 2)  
Extend with 42" x 64' RCP  
Lt. 905.33  
F.L. = Rt. 906.19

POT Sta. 790+39.23 (ML030)  
= POT Sta. 11790+40 (SR11THAVE)

Sta. 794+84.00 (STAGE 2)  
Extend with 24" x 84' RCP  
Lt. 916.70  
F.L. = Rt. 919.22

STA. 795+00.00  
END WB CONSTRUCTION

800

805

810

815

30

STA. 804+00.00  
END EB CONSTRUCTION

Sta. 791+25.00, 44' RT  
Install 24" x 90' RCP  
Lt. 917.46  
F.L. = Rt. 909.60  
Other 914.86

Sta. 794+87  
24" X 67' Conc Pipe  
D.A. = 13 Ac - R  
Remove

Sta. 794+84.00 (STAGE 1)  
Install 24" X 112' RCP  
Lt. 919.05  
F.L. = Rt. 922.52

794+70.00 Prop.  
Type "M" Dike  
Elev. 924.36

Sta. 803+00.00, 44' RT  
Install 24" x 92'  
F.L. = Lt. 940.58  
Rt. 934.30  
Other 939.46

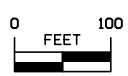
Sta. 816+56  
4' X 5' X 40' W/ EXTS RCB  
D.A. = 22 Ac - GR

Sta. 788+97  
3' X 3' X 65' RCB  
D.A. = 38 Ac - R  
Remove (STAGE 2)

Sta. 788+00.00  
Install 24" x 88' RCP  
F.L. = Lt. 914.40  
Rt. 908.70  
Other 912.05

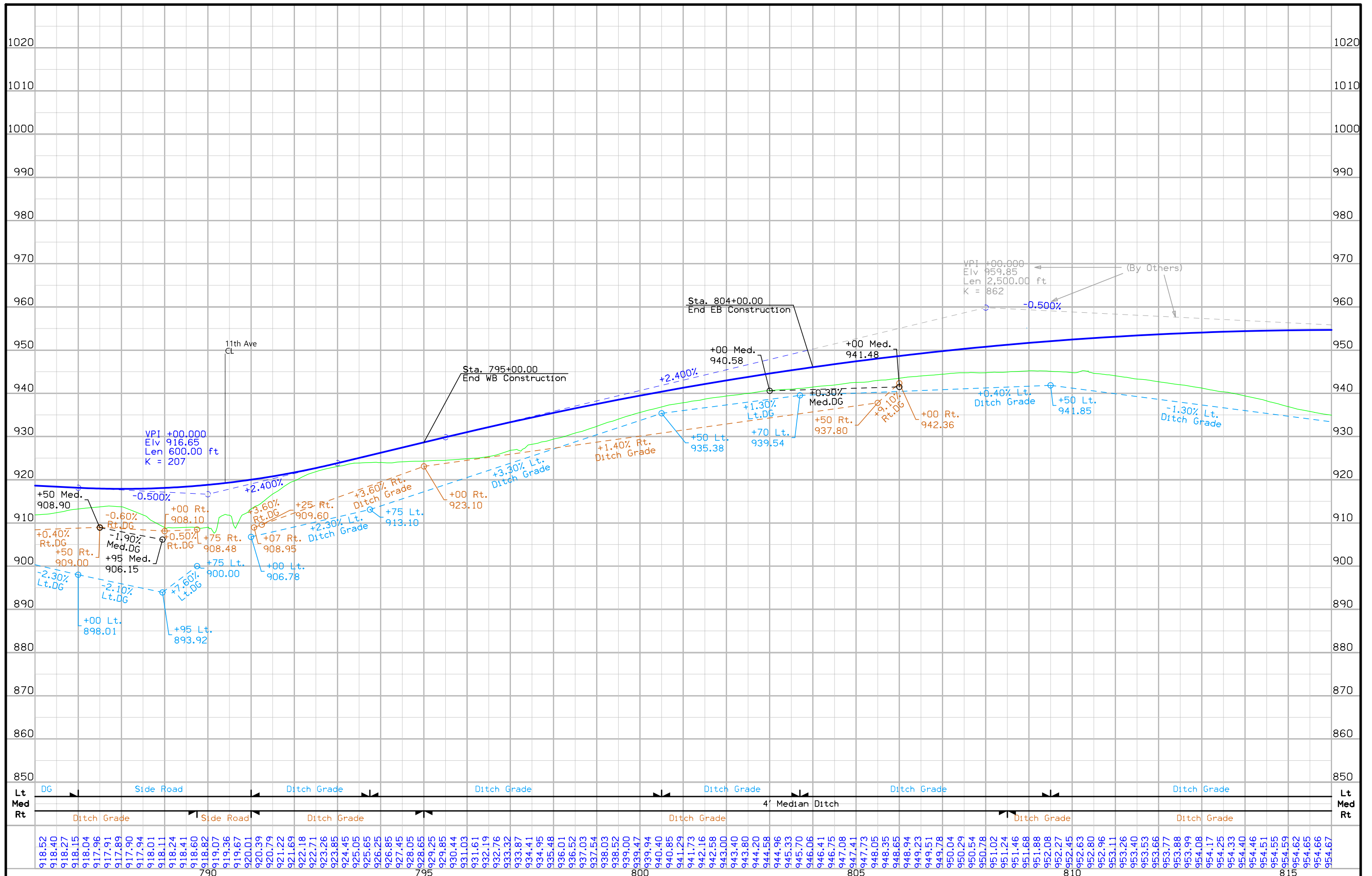
Sta. 788+95.00 (STAGE 1)  
Install 42" x 138' RCP  
F.L. = Lt. 906.19  
Rt. 908.20

Kane TWP.  
T-83N R-12W  
SEC. 32

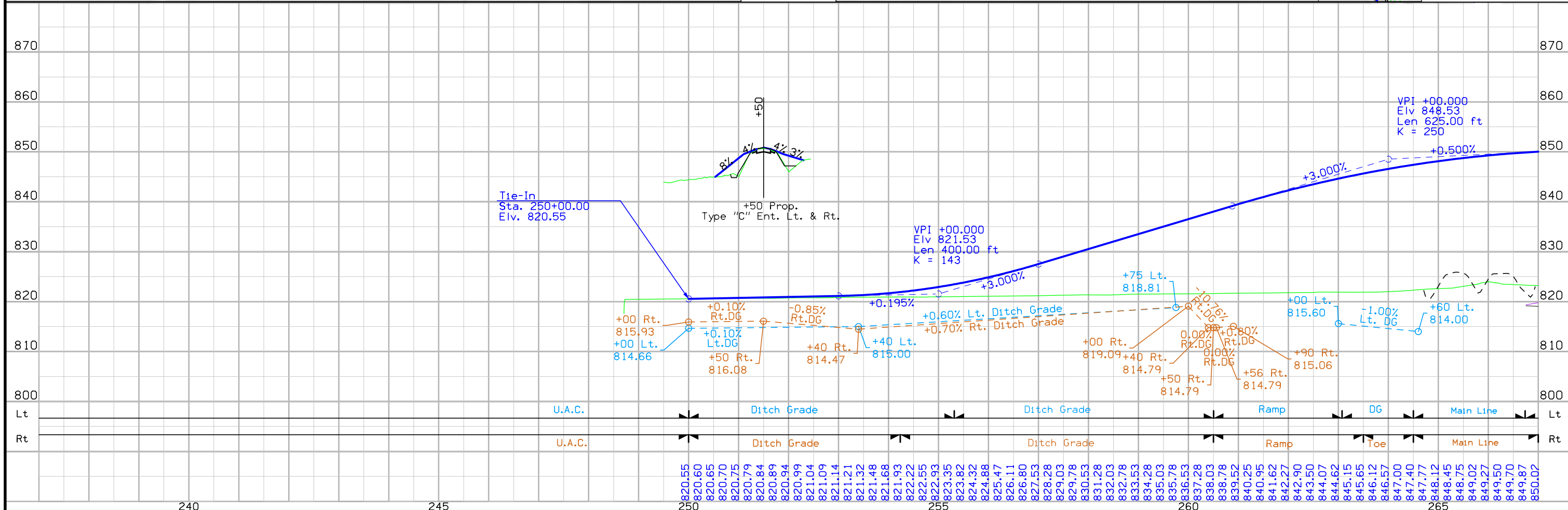
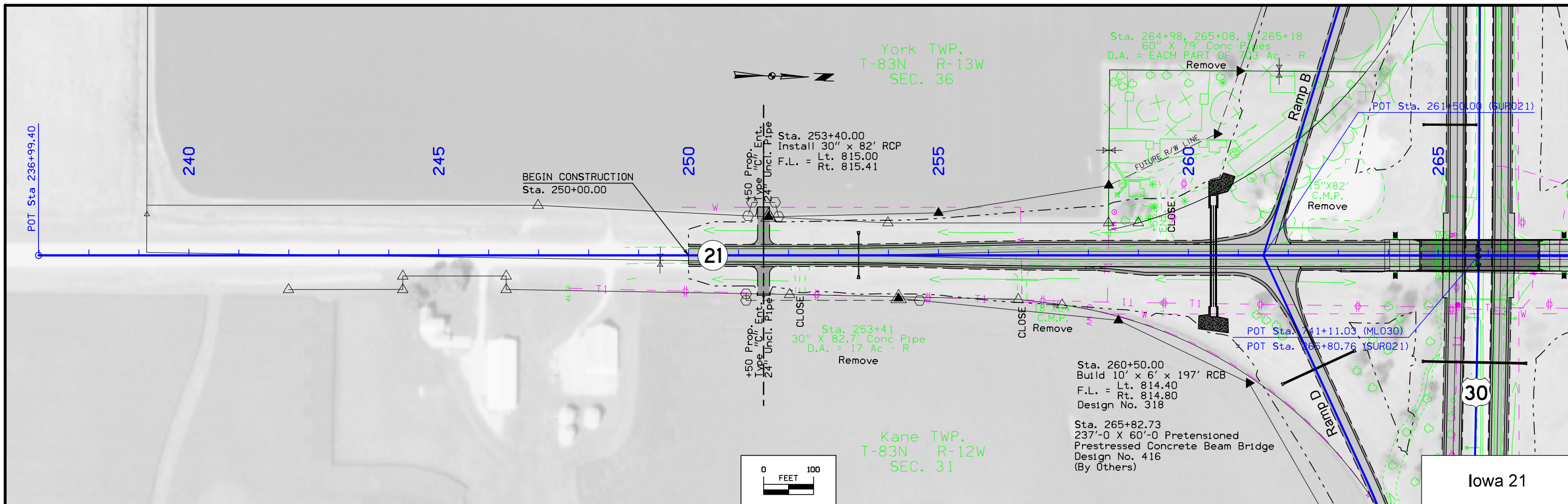


U.S. Highway 30

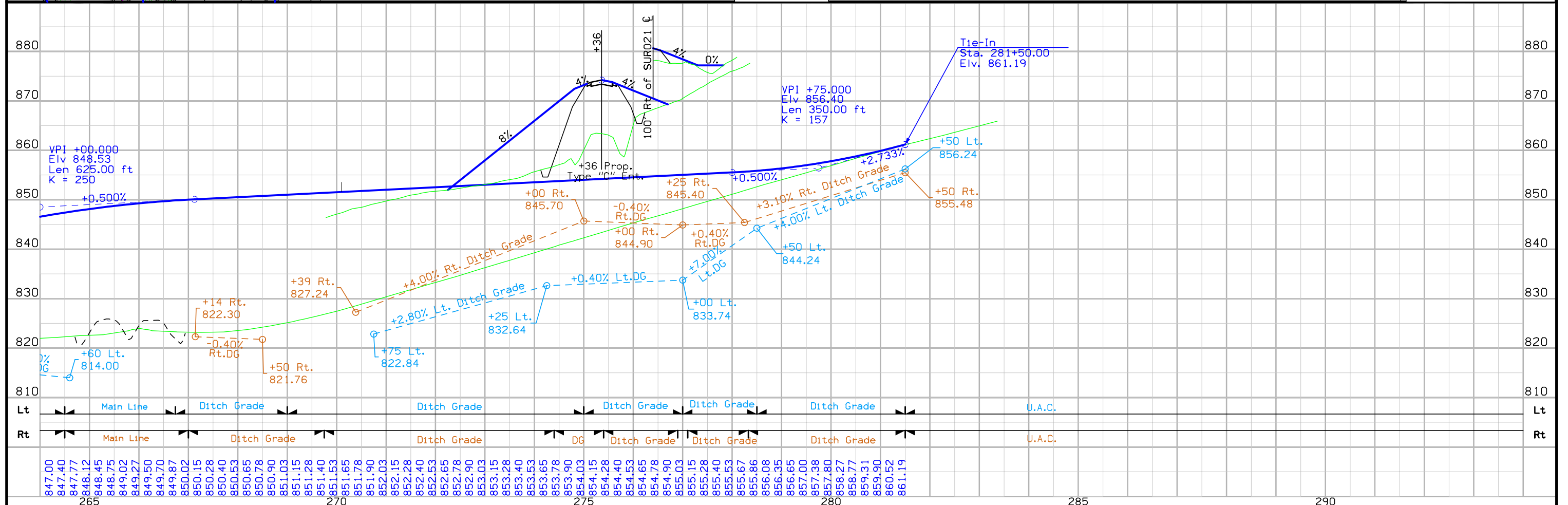
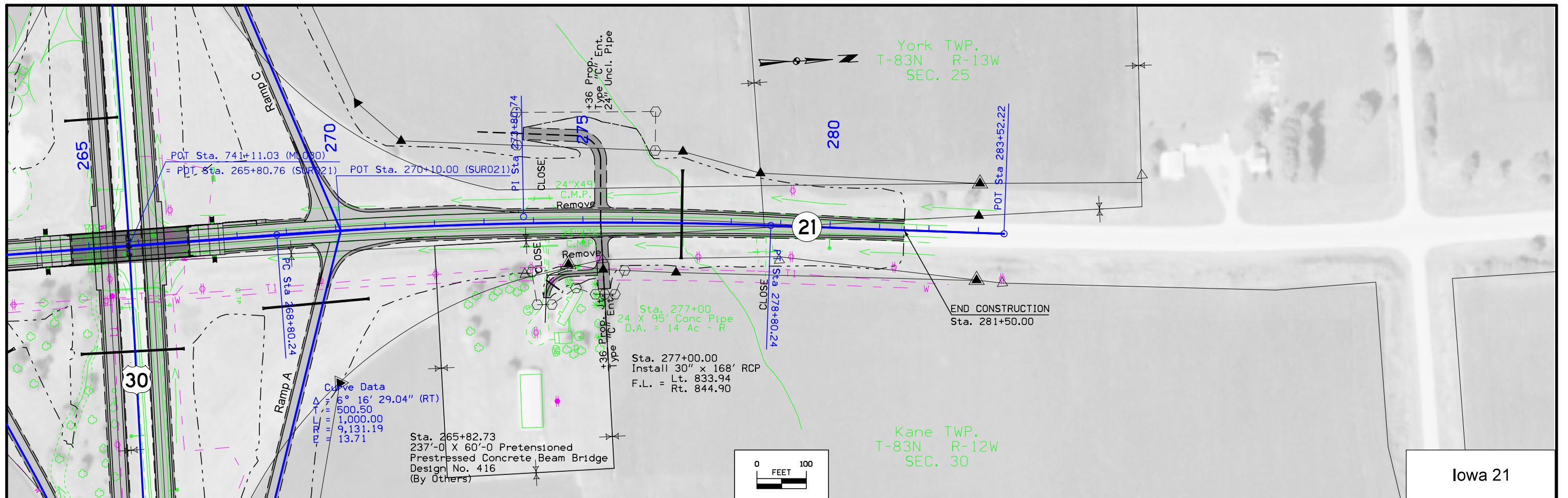




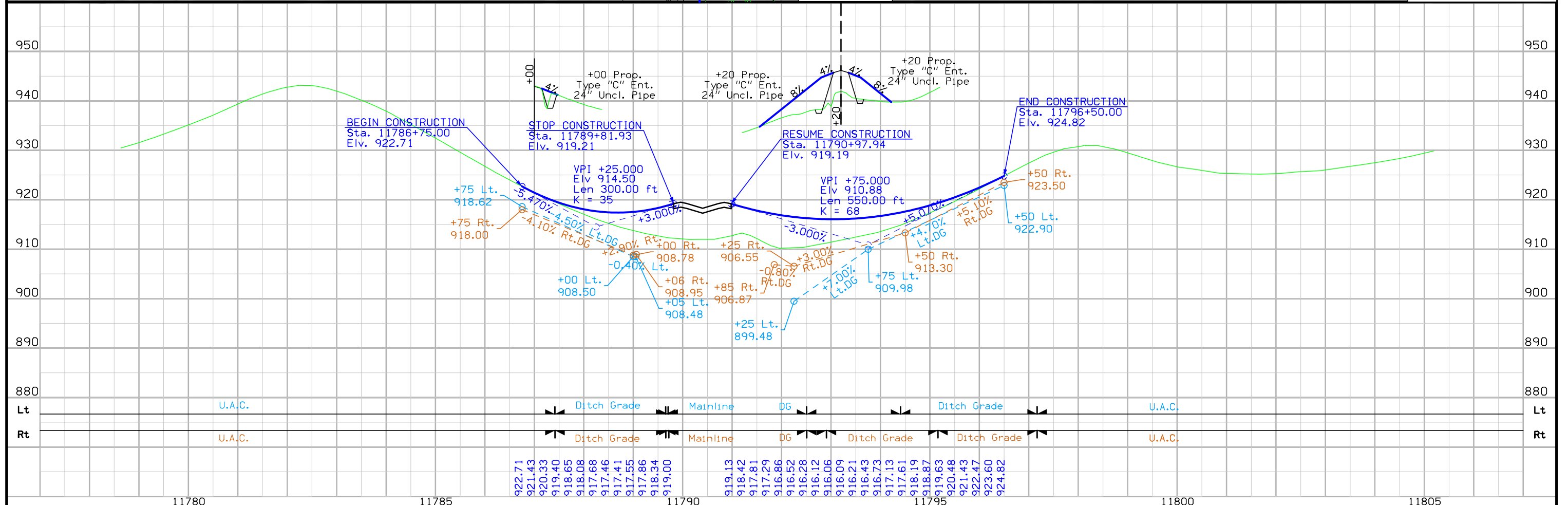
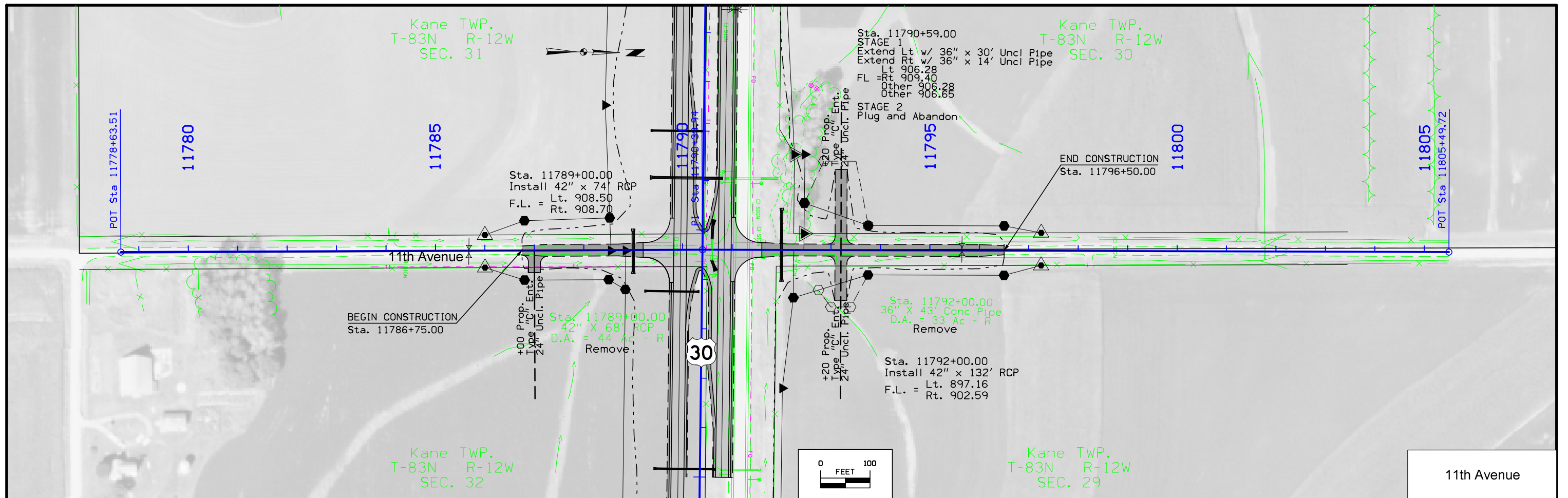
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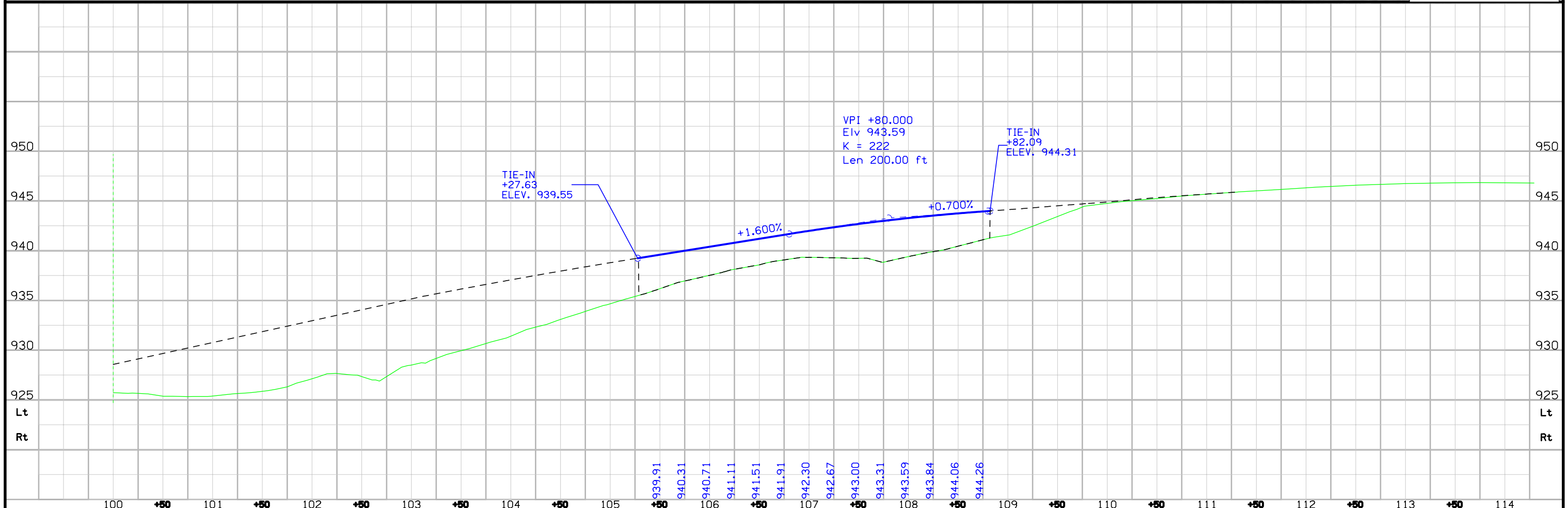
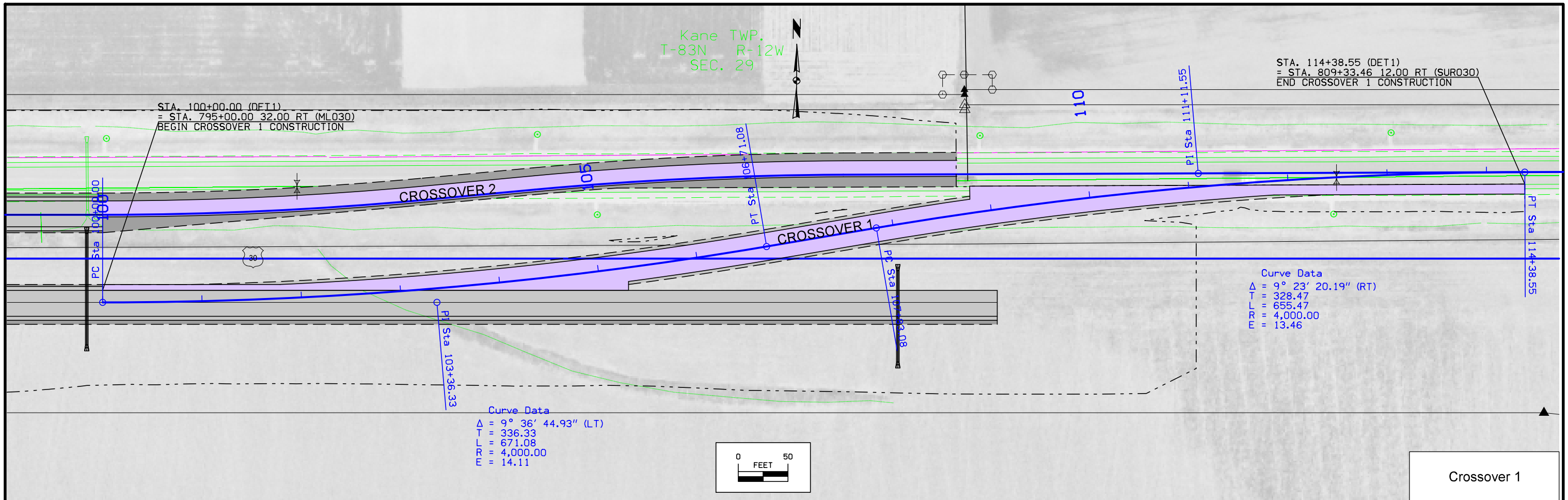
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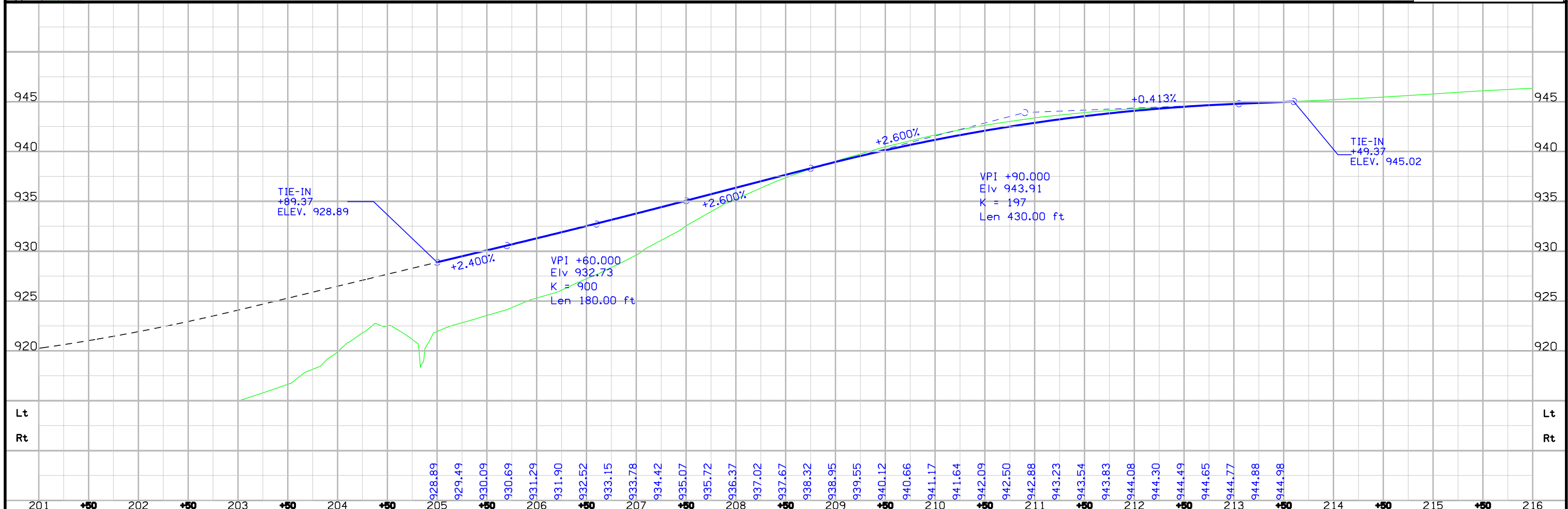
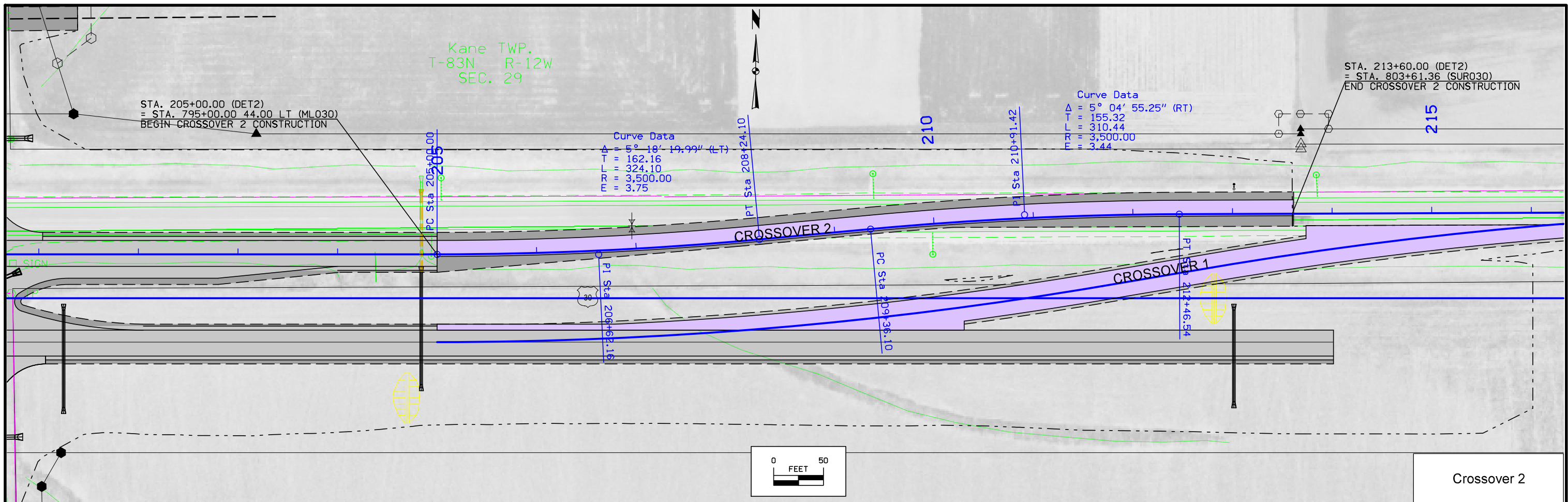






FILE NO. 31043	ENGLISH	DESIGN TEAM Flattery \ Bell	TAMA COUNTY	PROJECT NUMBER NHSX-030-6(240)--3H-86	SHEET NUMBER E.3
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Survey Information

Benton County  
NHS-030-6(87)--19-06  
Benton County HWY 30 from the  
Tama County Line  
To HWY 218  
PIN 96-06-030-030  
Sap-0150.4

Party Personnel

John Dewey- Party Chief  
John Bennett- Assistant Survey  
Party Chief  
Jeffrey Duncan- Assistant Survey  
Party Chief

Date(s) of Survey

Begin Date  
12/2010  
End Date  
09/2011

General Information

Measurement units for this survey are US survey feet. This survey is for proposed reconstruction of Highway 30. This project is a partial field survey for the digital terrain model. This survey was limited to the specific area of the survey request. Additional aerial photography survey will be added to this survey in 06030087.pho

Vertical Control

Vertical datum for this survey is relative to NAVD88.

Horizontal Control

The coordinate system is Iowa State Plane North Zone. Due to lower linear distortion on this project there was no modification from state plane grid to ground. Horizontal control was brought to the site by averaging a minimum of five GPS network observations on control throughout the project. Geodetic datum for this survey is NAD83(CORS96)(EPOCH 2002.00)

Alignment Information

The horizontal alignment for Highway 30 survey is a retrace of As-built Plans No. FN-30-6(33)21-06, F-278 (2), NHS-30-6(63)19-06, and BRF-30-6(51)38-86. Survey stationing was equated to the plan FN-30-6(33)21-06 at the POT at Sta. 741+13.08 and run back and ahead without equation throughout the survey.

Survey stationing relates to as built plans as follows:

- PI Sta. 712+36.65 This Survey  
= PI Sta. 1712+35.79 As-built Plans Project No. BRF-30-6(51)38-86
- PI Sta. 773+71.87 This Survey  
= PI Sta. 773+71.89 As-built Plans Project No. FN-30-6(33)21-06
- PI Sta. 817+03.67 This Survey  
= PI Sta. 817+04.05 As-built Plans Project No. FN-30-6(33)21-06
- PI Sta. 896+29.25 This Survey  
= PI Sta. 896+29.59 As-built Plans Project No. FN-30-6(33)21-06  
= PI Sta. 130+40.1 As-built Plans Project No. F-278 (2)
- PI Sta. 921+04.41 This Survey  
= PI Sta. 155+15.25 As-built Plans Project No. F-278 (2)
- PI Sta. 949+24.00 This Survey  
= PI Sta. 183+34.73 As-built Plans Project No. F-278 (2)
- PI Sta. 1002+56.36 This Survey  
= PI Sta. 236+66.4 As-built Plans Project No. F-278 (2)
- PI Sta. 1055+72.26 This Survey  
= PI Sta. 289+81.7 As-built Plans Project No. F-278 (2)
- PI Sta. 1081+96.62 This Survey  
= PI Sta. 316+05.65 As-built Plans Project No. F-278 (2)
- PI Sta. 1108+34.49 This Survey  
= PI Sta. 342+43.56 As-built Plans Project No. F-278 (2)
- PI Sta. 1160+95.18 This Survey  
= PI Sta. 395+05.4 As-built Plans Project No. F-278 (2)

ALIGNMENT INFORMATION CONT.

- PI Sta. 1213+52.34 This Survey  
= PI Sta. 447+63.2 As-built Plans Project No. F-278 (2)
- PI Sta. 1266+19.55 This Survey  
= PI Sta. 500+32.2 As-built Plans Project No. F-278 (2)
- PI Sta. 1300+58.26 This Survey  
= PI Sta. 534+72.9 As-built Plans Project No. F-278 (2)
- PI Sta. 1318+83.00 This Survey  
= PI Sta. 552+98.55 As-built Plans Project No. F-278 (2)
- PI Sta. 1345+08.44 This Survey  
= PI Sta. 579+25.1 As-built Plans Project No. F-278 (2)
- PI Sta. 1371+29.08 This Survey  
= PI Sta. 605+46.9 As-built Plans Project No. F-278 (2)
- PI Sta. 1383+16.83 This Survey  
= PI Sta. 617+35.0 As-built Plans Project No. F-278 (2)
- PI Sta. 1396+23.81 This Survey  
= PI Sta. 630+42.5 As-built Plans Project No. F-278 (2)
- PI Sta. 1422+83.03 This Survey  
= PI Sta. 657+03.2 As-built Plans Project No. F-278 (2)
- PI Sta. 1455+00.70 This Survey  
= PI Sta. 689+22.86 As-built Plans Project No. NHS-30-6(63)19-06
- PI Sta. 1466+79.53 This Survey  
= PI Sta. 701+02.41 As-built Plans Project No. NHS-30-6(63)19-06
- PI Sta. 1475+58.31 This Survey  
= PI Sta. 709+80.83 As-built Plans Project No. NHS-30-6(63)19-06
- PI Sta. 1501+99.70 This Survey  
= PI Sta. 736+22.21 As-built Plans Project No. NHS-30-6(63)19-06
- PI Sta. 1528+62.66 This Survey  
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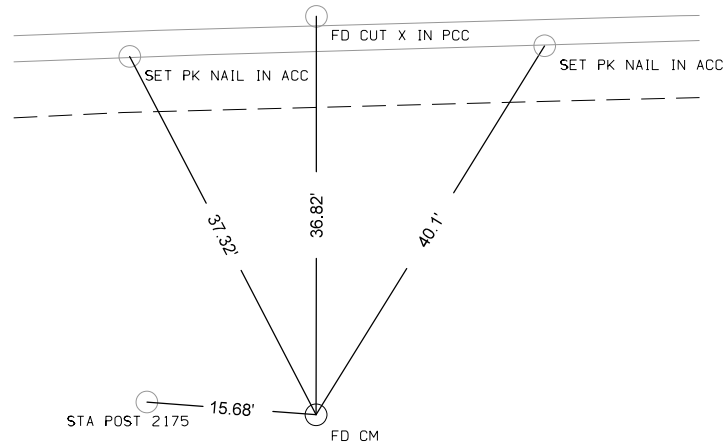
FOR ADDITIONAL SURVEY INFORMATION SEE SURVEY INDEX

## VERTICAL CONTROL

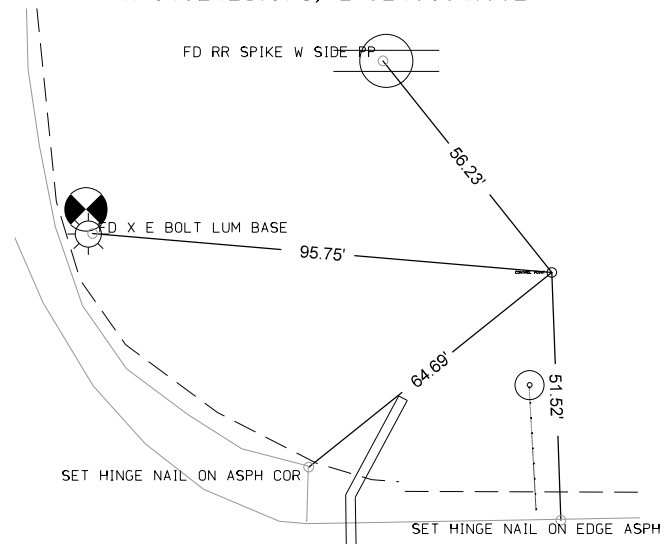
Point	North	East	Elevation	Station	Offset	Feature	Description
571	3452388.867	5249107.981	831.446	749+96.36	-28.231	BM	FND IHC BM N. HDWL 8'X6' RCB
603	3452396.088	5253009.836	910.728	788+97.95	28.038	BM	BUTTON ON HDWL
606	3452384.629	5255882.182	935.222	817+70.02	65.218	BM	CM
608	3452415.538	5258481.886	925.434	843+69.90	59.781	CP	CP/BM FD CM
609	3452515.328	5259881.424	918.753	857+70.35	-26.293	BM	FND IHC BM N HDWL
610	3452471.161	5261092.660	893.613	869+81.10	29.739	BM	FND IHC BM S HDWL
613	3452428.726	5263785.828	937.363	896+73.32	99.251	BM	FND CUT SQUARE IN TOP OF 24" RCP
614	3452491.442	5264152.691	932.885	900+40.89	42.331	BM	FND CUT X INLET HDWL
615	3452526.591	5265450.419	943.449	913+39.03	29.014	BM	FND IHC BM ON INLET HDWL
618	3452617.654	5268415.187	938.062	943+04.79	-25.345	BM	FND IHC BM ON INLET HDWL
619	3452658.553	5269000.009	945.997	948+90.02	-59.907	BM	FND CONC MON
622	3452597.326	5271999.562	937.034	978+88.80	27.444	BM	FND IHC BM ON INLET HDWL
624	3452565.569	5274414.003	928.709	1003+03.04	79.812	BM	FND CM
625	3452623.082	5274950.147	933.220	1008+39.59	25.227	BM	FND IHC BM ON INLET HDWL
628	3452635.631	5277433.426	932.447	1033+22.90	25.354	BM	FND IHC BM ON INLET HDWL
630	3452694.607	5279099.715	923.109	1049+89.47	-25.116	BM	FND CUT X ON INLET HDWL
631	3452584.670	5279767.154	923.309	1056+55.90	89.182	BM	FND CM
632	3452652.205	5280091.417	919.408	1059+80.75	25.529	BM	IHC BM ON INLET HDWL
634	3452665.029	5281484.166	920.798	1073+73.55	30.660	BM	FND CUT X ON OUTLET HDWL
636	3452685.351	5283184.282	889.098	1090+73.76	32.996	BM	FND CUT X ON INLET HDWL
637	3452705.697	5284202.737	912.177	1100+92.40	26.641	BM	FND IHC BM ON INLET HDWL
638	3452799.972	5285001.824	904.935	1108+92.58	-56.775	BM	FND CONC MON
639	3452723.644	5285587.302	894.729	1114+77.14	26.316	BM	FND IHC BM ON INLET HDWL
640	3452738.144	5286677.374	894.998	1125+67.31	24.418	BM	FND IHC BM ON INLET HDWL
641	3451671.559	5287594.067	875.806	1134+71.61	1101.528	BM	CUT X IN HDWL
642	3452768.906	5288509.610	863.863	1143+99.78	14.838	BM	FND CUT X ON SW HANDRAIL OF BRIDGE
647	3452898.213	5294690.692	874.024	1205+82.06	-27.856	BM	FND IHC ON NE HANDRAIL OF BRIDGE
648	3452958.492	5295408.323	890.460	1213+00.51	-77.409	BM	◇ CONTROL POINT
649	3452923.486	5296554.911	898.809	1224+46.45	-25.187	BM	FND IHC ON NE HANDRAIL OF BRIDGE
650	3452931.138	5297070.286	894.703	1229+61.88	-25.096	BM	FND IHC BM ON INLET HDWL
657	3453041.305	5303314.193	906.294	1292+06.44	-57.164	BM	◇ CONTROL POINT
659	3452973.885	5304655.597	919.496	1305+47.03	25.354	BM	FND IHC BM ON INLET HDWL
660	3452934.892	5305956.039	902.142	1318+46.73	84.184	BM	FND CM
661	3453053.781	5306689.582	901.779	1325+81.99	-23.826	BM	FND IHC BM ON INLET HDWL
662	3453076.202	5308106.918	911.220	1339+99.50	-25.275	BM	FND IHC BM ON INLET HDWL
664	3453098.968	5310235.027	874.695	1361+27.62	-24.018	BM	FND IHC BM ON INLET HDWL
665	3453144.030	5311277.289	888.165	1371+70.39	-58.163	BM	◇ CONTROL POINT
667	3453144.072	5312921.061	875.129	1388+14.76	-26.940	BM	FND IHC BM ON INLET HDWL
64	3453142.516	5316335.395	884.289	1422+27.97	58.435	CP	FND REBAR IN CONC MON◇ CONTROL POINT
672	3453230.571	5316649.820	886.498	1425+44.16	-23.460	BM	FND IHC BM ON INLET HDWL
674	3453289.523	5319380.345	906.622	1452+75.17	-30.264	BM	FND IHC BM ON INLET HDWL
675	3453302.342	5320342.423	908.596	1462+36.49	-50.359	BM	FND IHC BM ON INLET HDWL
22882	3458665.009	5321373.879	891.321	1473+58.98	-5410.401	CP	FND CM
22879	3455926.698	5321531.534	925.754	1474+69.18	-2669.870	CP	FND CM
676	3450211.215	5321827.497	887.594	1476+76.43	3049.526	BM	CUT X IN HDWL
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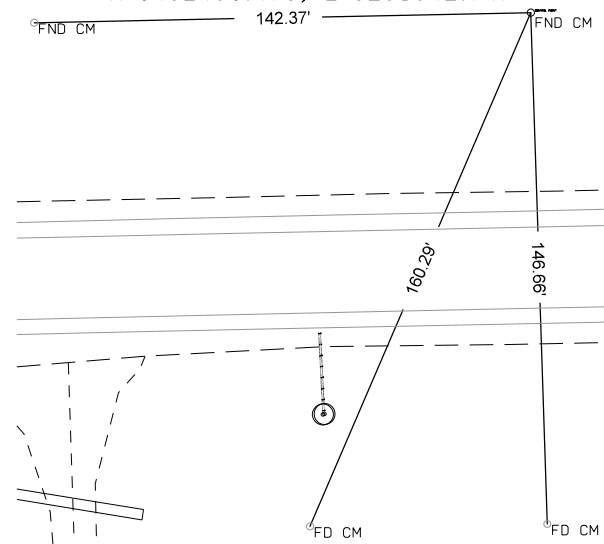
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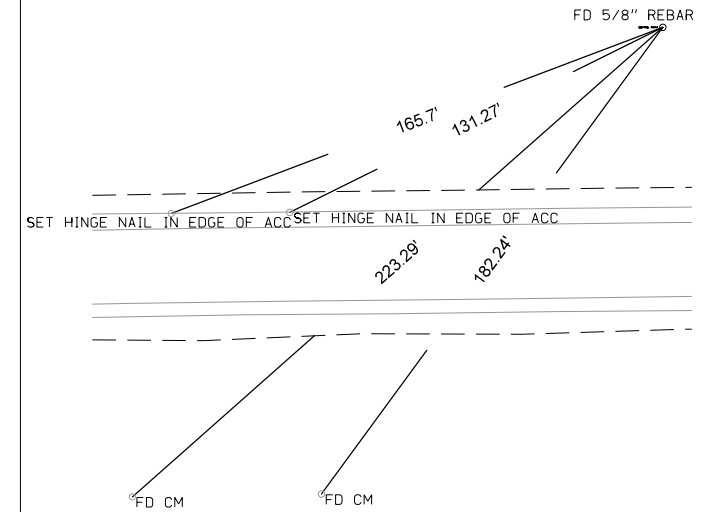
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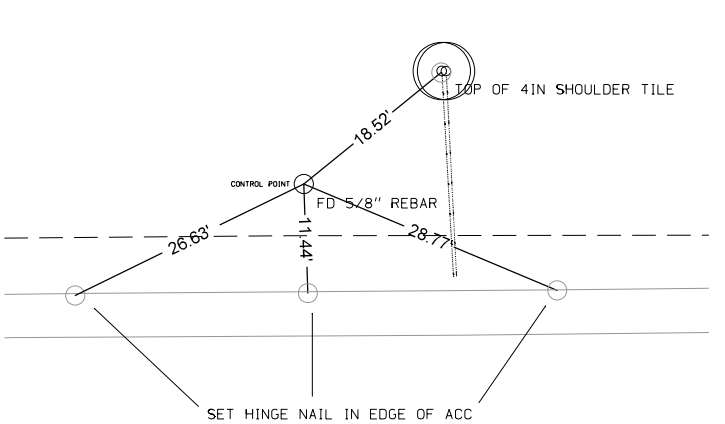
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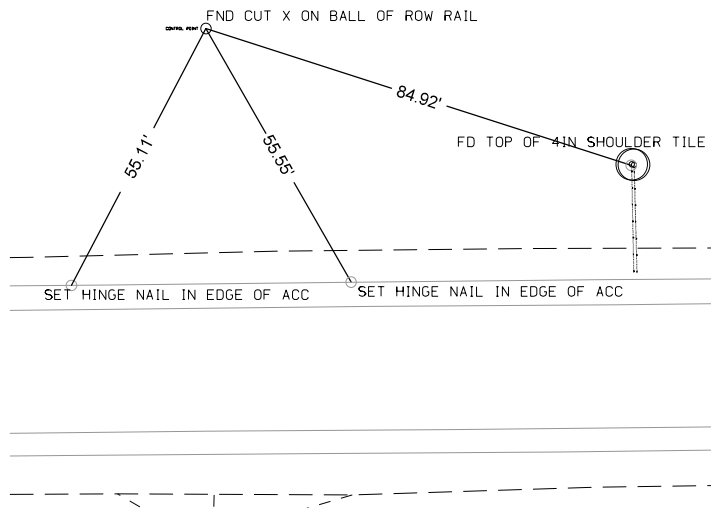
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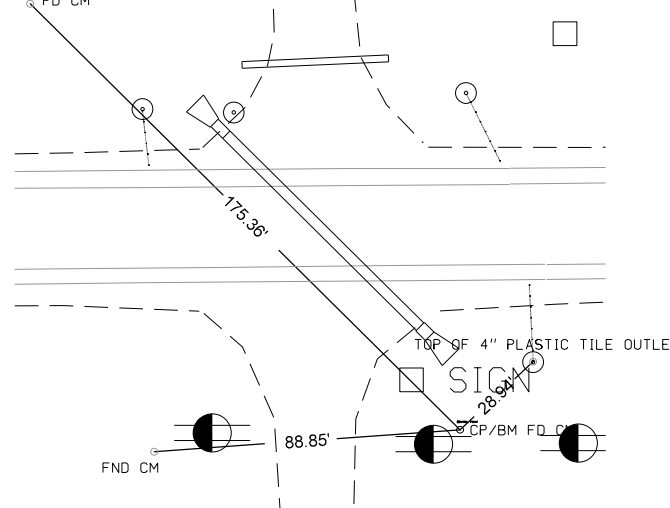
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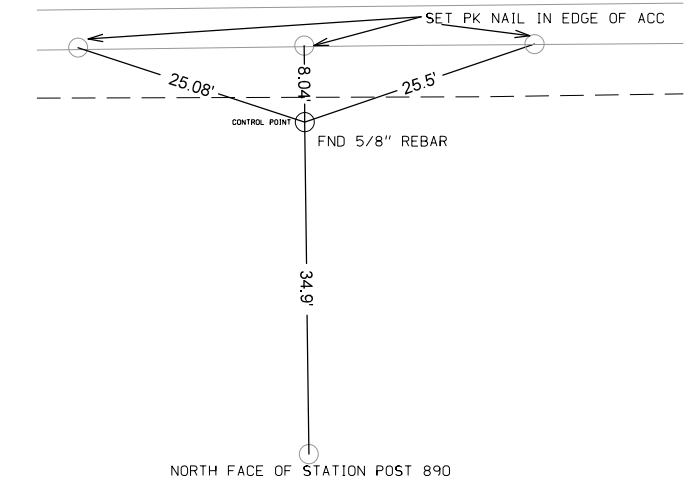
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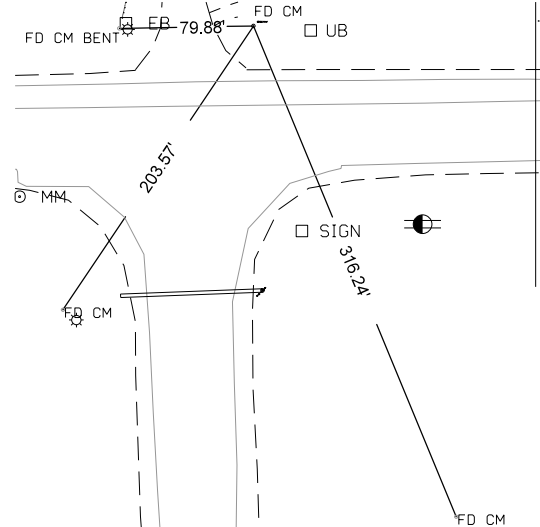
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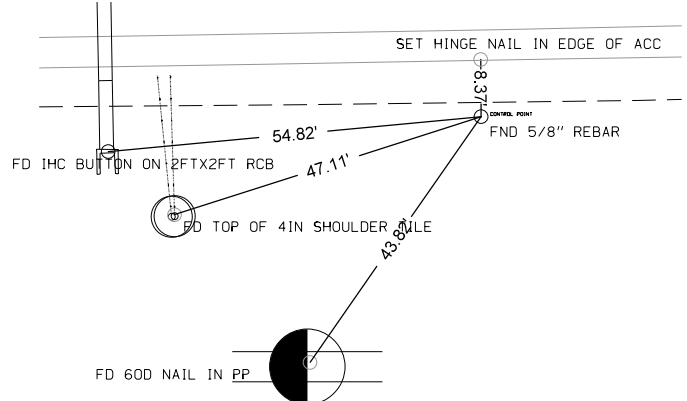
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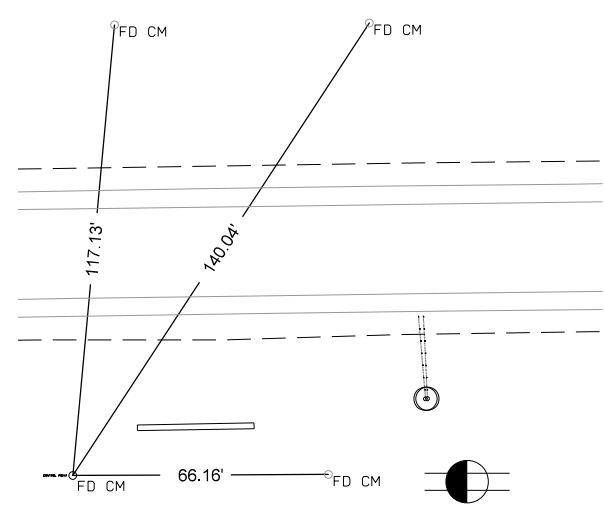
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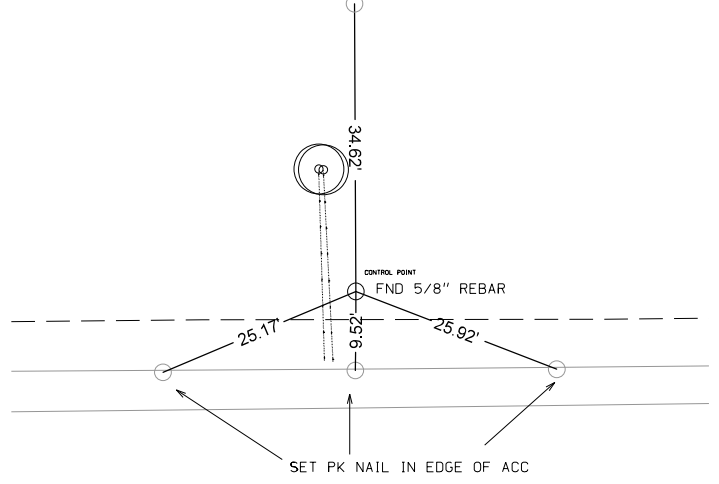
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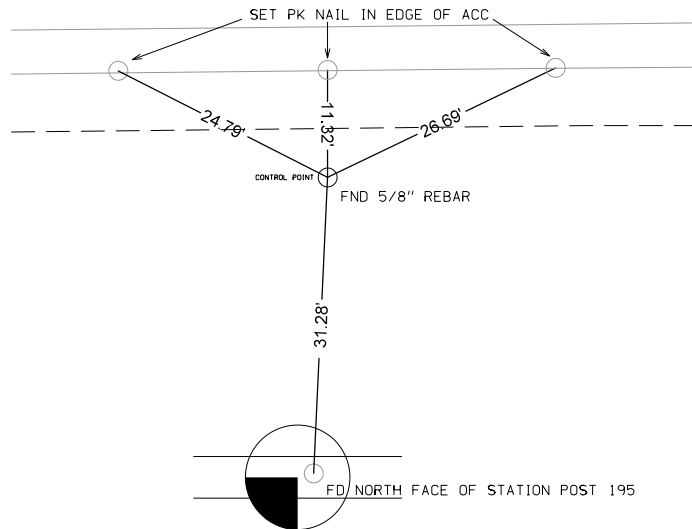
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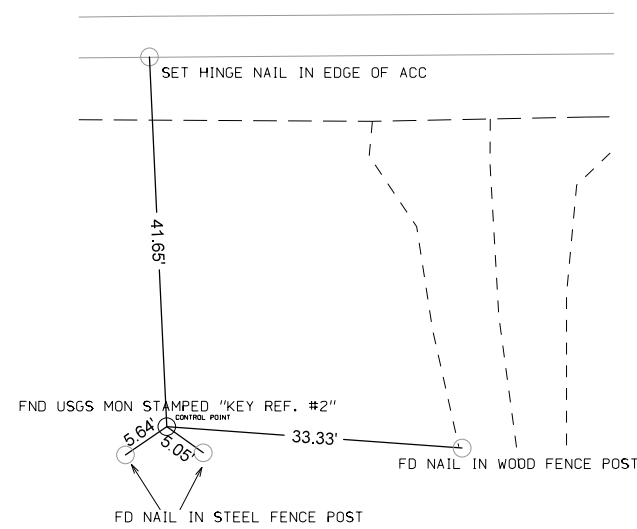
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 FD IRON PIN WITH ALUMN DOT CAP WITH ROW POST



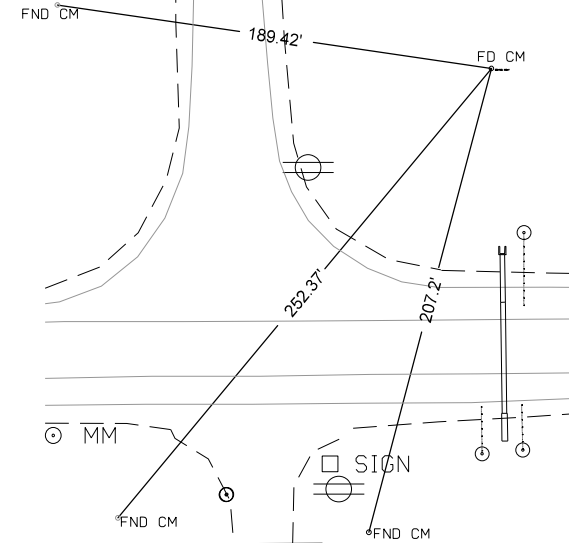
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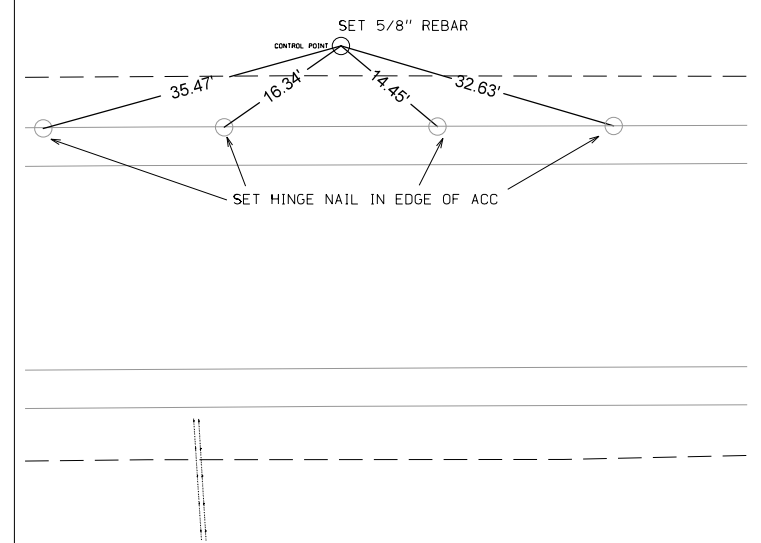
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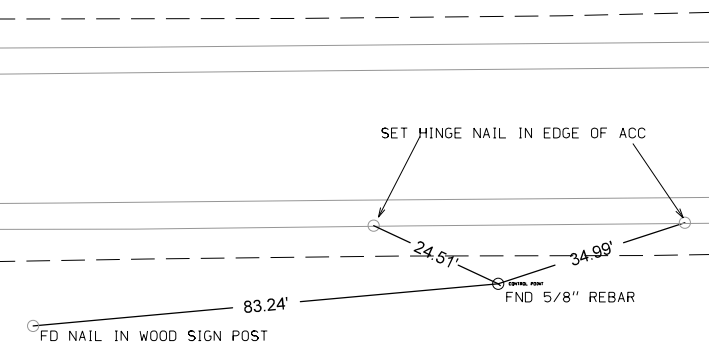
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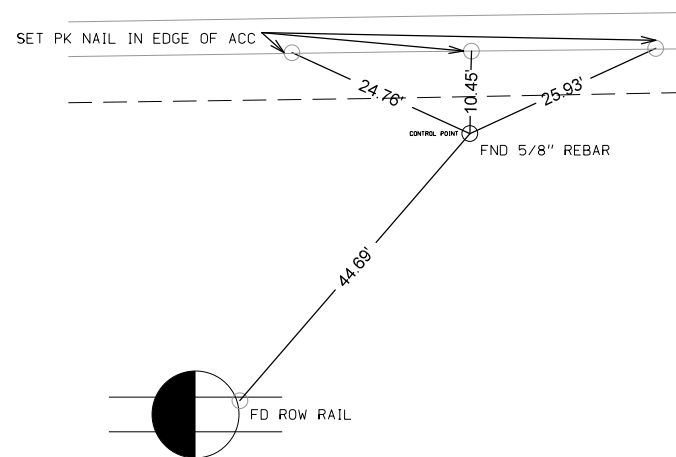
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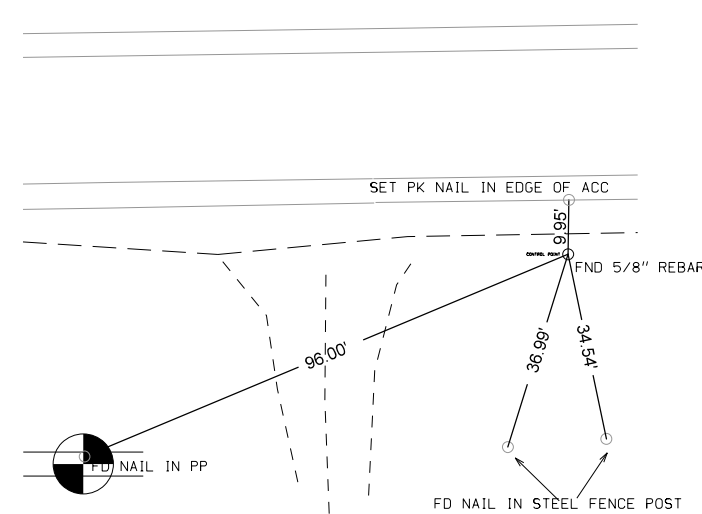
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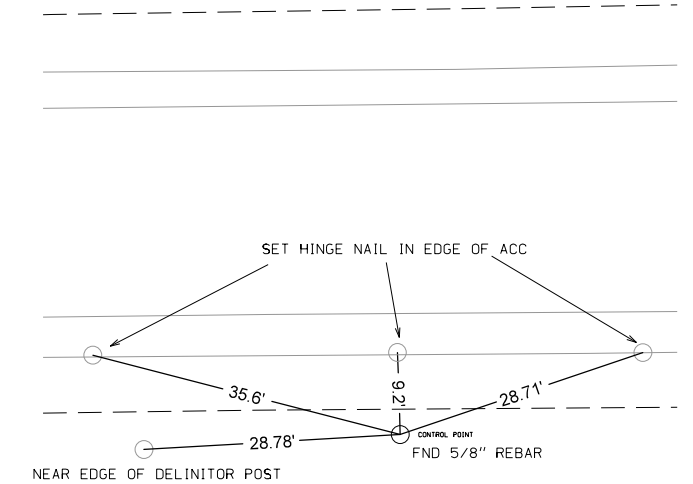
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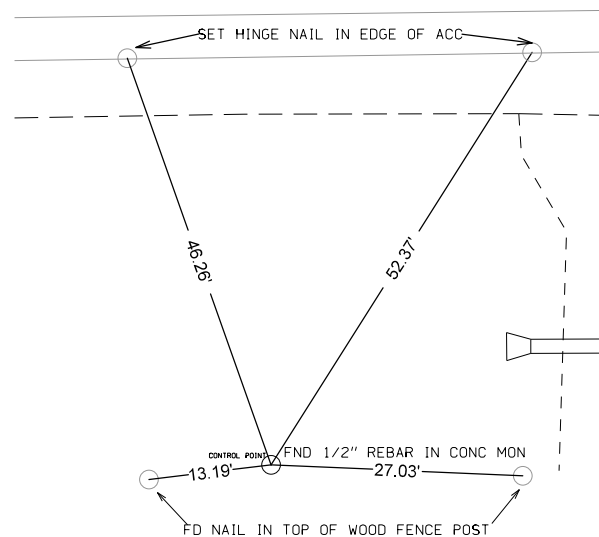
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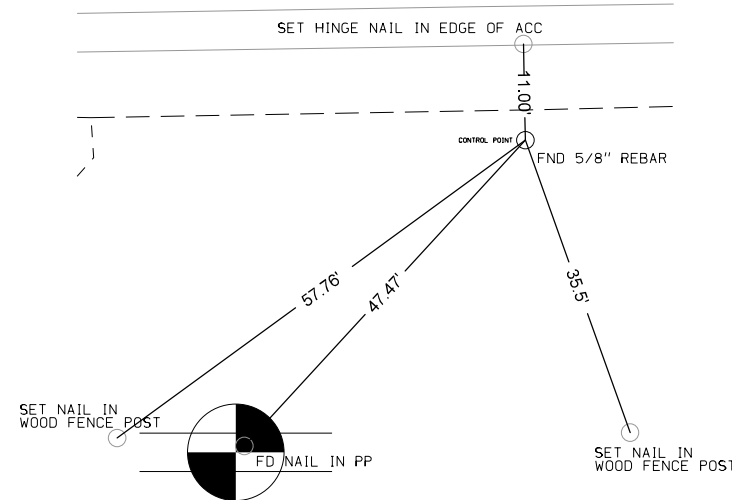
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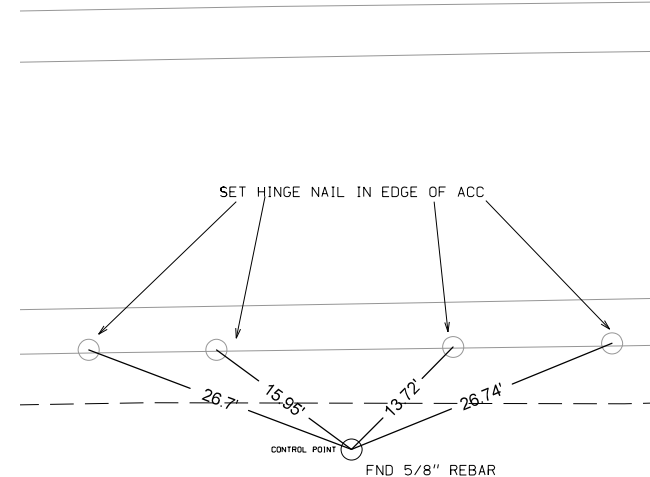
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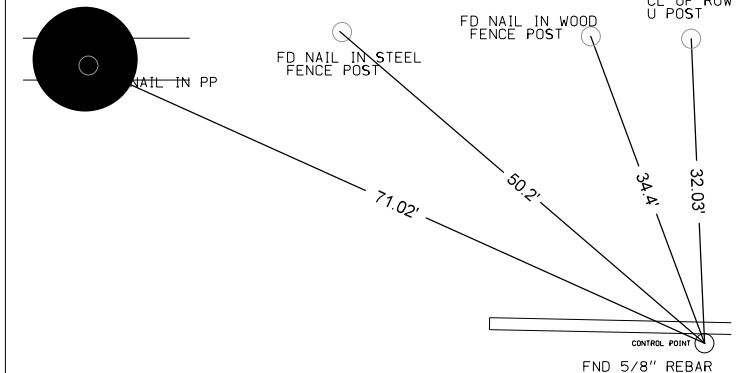
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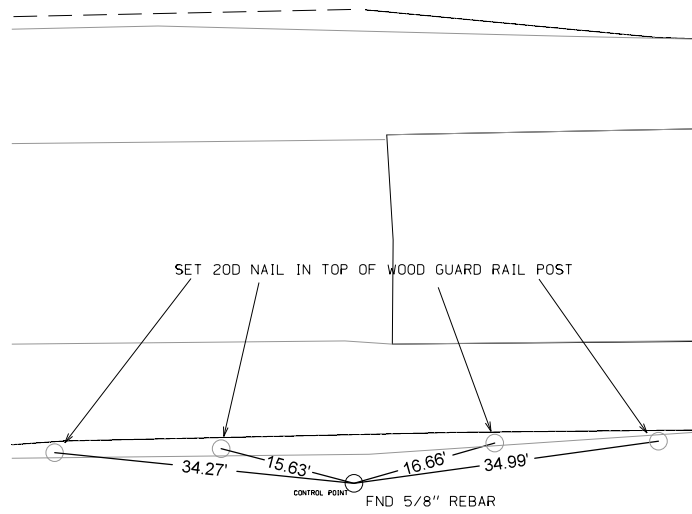
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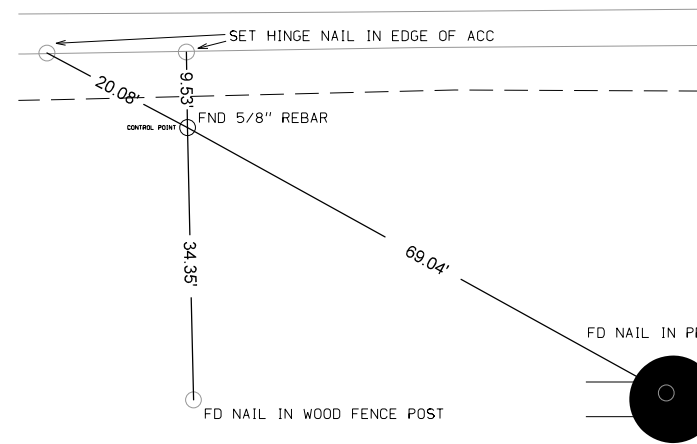
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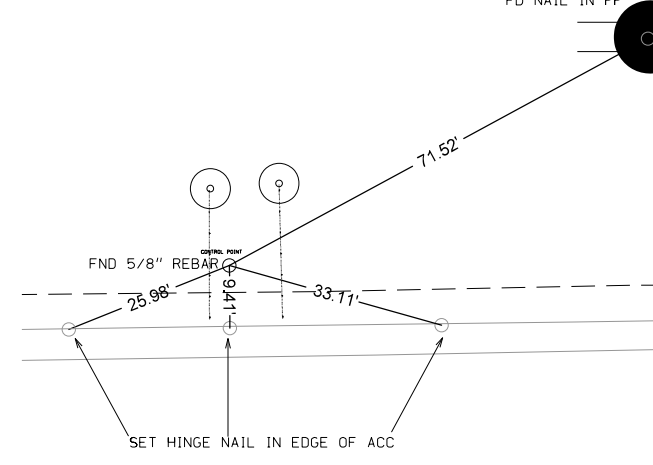
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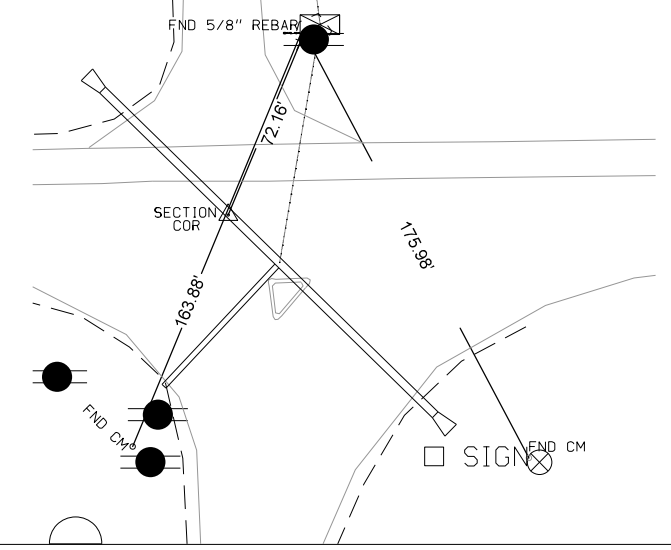
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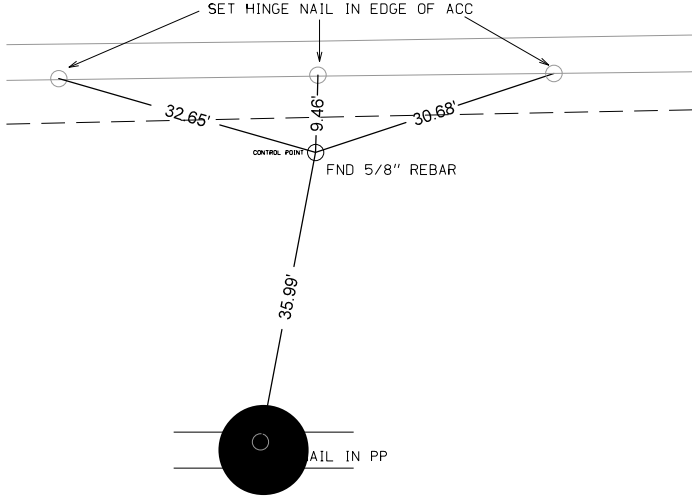
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 CP 59, FD 5/8" Rebar  
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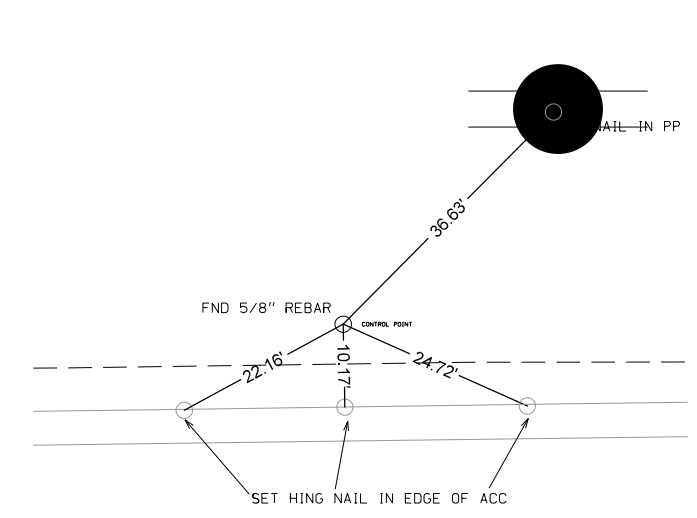
CP STA 1319+11, 66' LT  
 CP 200015, FD 5/8" Rebar  
 N=3453086.28, E=5306018.793



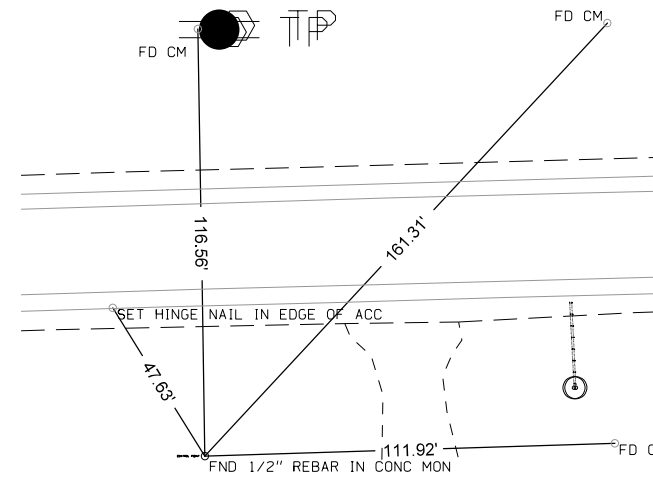
CP STA 1343+60, 25' RT  
 CP 61, FD 5/8" Rebar  
 N=3453030.746, E=5308468.565



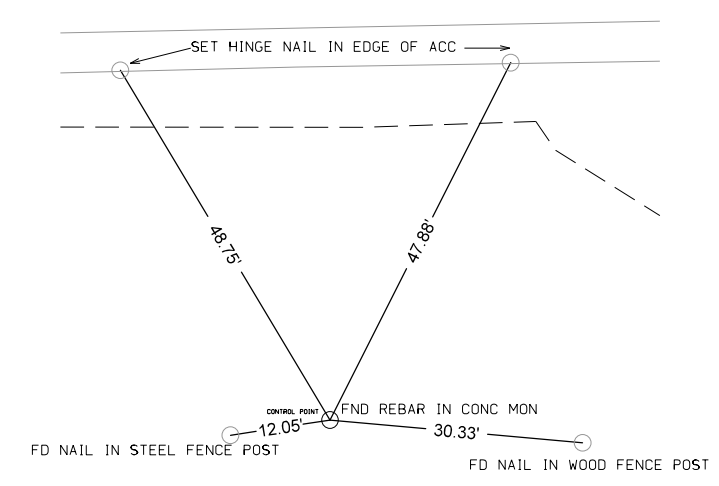
CP STA 1377+43, 25' RT  
 CP 62, FD 5/8" Rebar  
 N=3453119.625, E=5311851.158



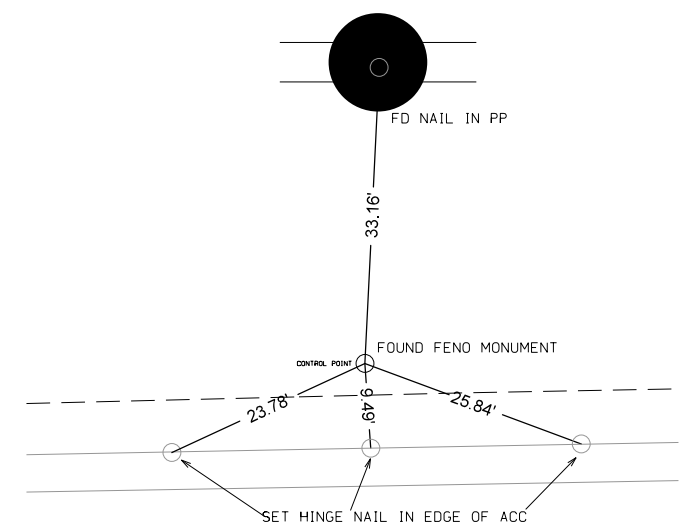
CP STA 1395+66, 57' RT  
 CP 63, FD Concrete Monument  
 N=3453085.514, E=5313675.183



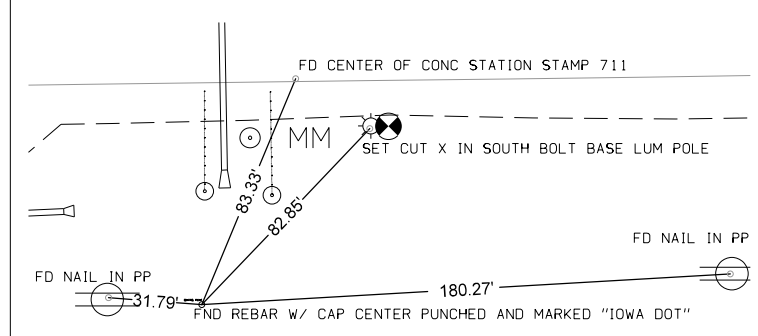
CP STA 1422+27, 58' RT  
 CP 64, FD Concrete Monument  
 N=3453142.516, E=5316335.395



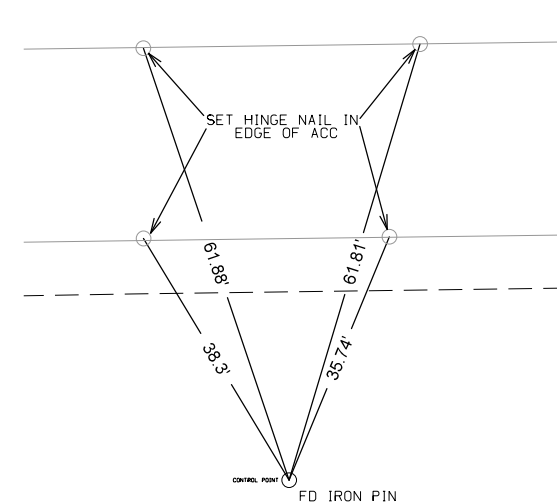
CP STA 1445+79, 25' LT  
 CP 65, FD Feno Monument  
 N=3453271.786, E=5318684.952



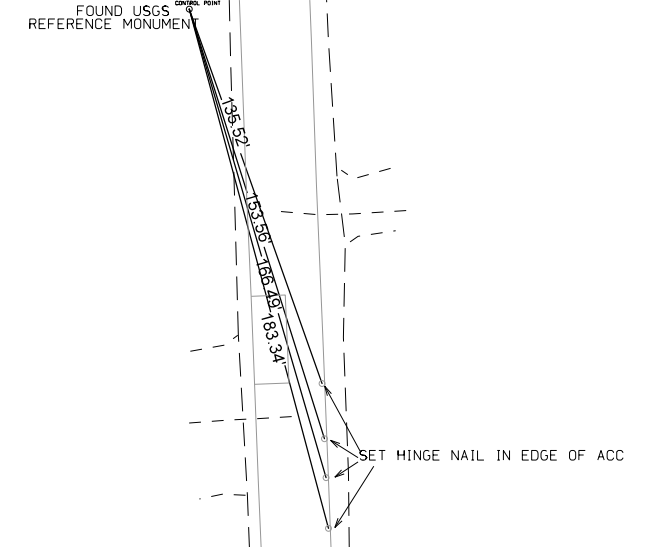
CP STA 1476+43, 165' RT  
 CP 67, FD Rebar Cap CTR Punched, Marked "IOWA DOT"  
 N=3453094.791, E=5321751.741



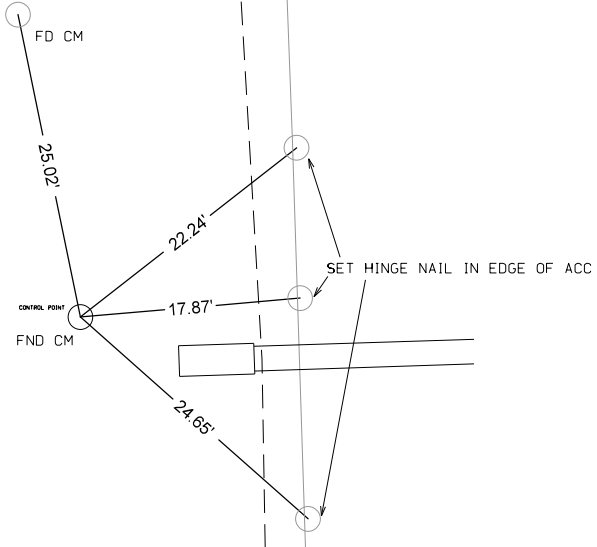
CP STA 1501+99, 1' RT  
 CP 40910, FD Iron Pin  
 N=3453293.933, E=5324304.848



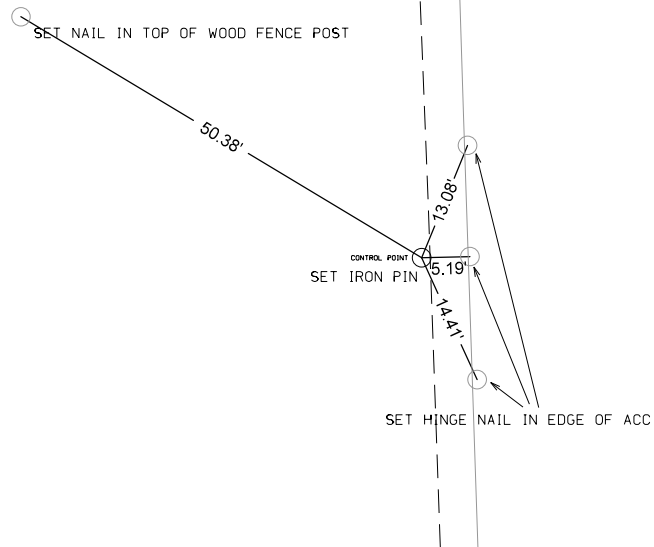
CP STA 1474+89, 1772' LT  
 CP 6777, FD USGS Monument  
 N=3455029.393, E=5321566.362



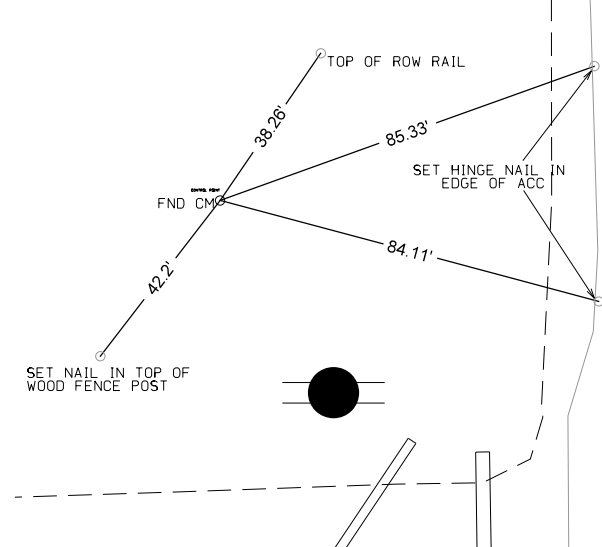
CP STA 1474+69, 2669' LT  
 CP 22879, FD Concrete Monument  
 N=3455926.698, E=5321531.534



CP STA 1474+53, 4182' LT  
 CP 300, Set Iron Pin  
 N=3457438.982, E=5321491.499



CP STA 1473+58, 5410' LT  
 CP 300, FD Concrete Monument  
 N=3458665.009, E=5321373.879





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		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)
SR021D - Proposed IA 21 Ramp D BL																			
84000		4540+50.14	3,451,889.92	5,248,236.44															
84001								4545+40.73	3,452,105.62	5,248,677.06	4547+41.88	3,452,194.06	5,248,857.73	4549+40.00	3,452,225.11	5,249,056.46			
84002								4549+40.00	3,452,225.11	5,249,056.46	4550+70.18	3,452,245.22	5,249,185.09	4552+00.00	3,452,248.47	5,249,315.23			
SR11THAVE - Proposed 11th Avenue CL																			
50000		11778+63.51	3,451,169.63	5,253,179.62															
50005		11790+39.94	3,452,345.80	5,253,154.72															
50010		11805+49.72	3,453,855.44	5,253,133.82															
REVO21A - Proposed IA 21 Width Transition																			
40600		0+00.00	3,450,990.53	5,248,272.49															
40605								0+04.54	3,450,995.07	5,248,272.38	1+39.69	3,451,130.17	5,248,269.07	2+74.81	3,451,265.32	5,248,269.76			
40606								2+74.81	3,451,265.32	5,248,269.76	4+09.95	3,451,400.46	5,248,270.44	5+45.08	3,451,535.56	5,248,267.13			
40610		5+45.08	3,451,535.56	5,248,267.13															
REVO21B - Proposed IA 21 Width Transition																			
40611		0+00.00	3,453,109.00	5,248,241.66															
40615								0+00.43	3,453,109.43	5,248,241.68	2+61.24	3,453,370.13	5,248,249.27	5+21.98	3,453,630.33	5,248,267.08			
40619		7+18.91	3,453,826.79	5,248,280.53															
REVO21C - Proposed IA 21 Width Transition																			
40620		0+00.00	3,450,989.84	5,248,244.50															
40625								0+00.00	3,450,989.84	5,248,244.50	1+35.14	3,451,124.95	5,248,241.19	2+70.27	3,451,259.89	5,248,233.88			
40626								2+70.27	3,451,259.89	5,248,233.88	4+05.41	3,451,394.84	5,248,226.57	5+40.54	3,451,529.94	5,248,223.26			
40630		5+45.08	3,451,534.48	5,248,223.14															
REVO21D - Proposed IA 21 Width Transition																			
40640		0+00.00	3,453,110.28	5,248,197.68															
40645								0+00.28	3,453,110.56	5,248,197.69	2+52.48	3,453,362.65	5,248,205.03	5+04.46	3,453,613.55	5,248,230.63			
40649		7+21.20	3,453,829.17	5,248,252.63															
SR021A_RET_1 - IA 21 Ramp A Return 1																			
34011								10+00.00	3,452,716.04	5,248,329.03	10+23.56	3,452,722.78	5,248,306.45	10+46.76	3,452,735.92	5,248,286.90			
34012								10+46.76	3,452,735.92	5,248,286.90	10+79.43	3,452,754.14	5,248,259.78	11+08.79	3,452,786.13	5,248,253.17			
34013								11+08.79	3,452,786.13	5,248,253.17	11+86.25	3,452,861.99	5,248,237.49	12+63.12	3,452,939.44	5,248,238.30			
SR021A_RET_1 - IA 21 Ramp A Return 4																			
81040		40+00.00	3,452,690.05	5,248,239.10															
81041								40+00.00	3,452,690.05	5,248,239.10	40+27.61	3,452,711.75	5,248,256.16	40+50.45	3,452,708.87	5,248,283.61			
81042								40+50.45	3,452,708.87	5,248,283.61	40+71.36	3,452,706.69	5,248,304.41	40+92.15	3,452,700.71	5,248,324.46			
81043		40+92.15	3,452,700.71	5,248,324.46															
SR021B_RET_2 - IA 21 Ramp B Return 2																			
35021								20+00.00	3,451,937.21	5,248,126.25	20+20.70	3,451,931.65	5,248,146.19	20+41.30	3,451,929.46	5,248,166.77			
35022								20+41.30	3,451,929.46	5,248,166.77	20+67.92	3,451,926.63	5,248,193.24	20+91.41	3,451,944.36	5,248,213.10			
SR021B_RET_3 - IA 21 Ramp B Return 3																			
35030		30+00.00	3,451,927.16	5,248,102.69															
35031								30+00.00	3,451,927.16	5,248,102.69	30+26.72	3,451,919.99	5,248,128.43	30+53.36	3,451,909.46	5,248,152.99			
35032								30+53.36	3,451,909.46	5,248,152.99	30+92.60	3,451,894.00	5,248,189.05	31+26.32	3,451,856.02	5,248,198.91			
35033								31+26.32	3,451,856.02	5,248,198.91	31+98.28	3,451,786.37	5,248,216.97	32+69.61	3,451,714.43	5,248,218.73			
35034		32+69.61	3,451,714.43	5,248,218.73															
SR021C_RET_1 - IA 21 Ramp C Return 2																			
83023								20+00.00	3,452,814.57	5,248,181.85	20+27.61	3,452,786.96	5,248,181.93	20+53.88	3,452,763.21	5,248,167.84			
83022								20+53.88	3,452,763.21	5,248,167.84	20+70.15	3,452,749.22	5,248,159.54	20+85.92	3,452,739.93	5,248,146.18			
83021								20+85.92	3,452,739.93	5,248,146.18	21+46.46	3,452,705.35	5,248,096.49	22+06.35	3,452,684.34	5,248,039.72			
SR021C_RET_3 - IA 21 Ramp C Return 3																			
36031								30+00.00	3,452,664.13	5,248,031.20	30+58.40	3,452,684.40	5,248,085.97	31+16.34	3,452,692.48	5,248,143.80			
36032								31+16.34	3,452,692.48	5,248,143.80	31+45.83	3,452,696.57	5,248,173.00	31+71.71	3,452,677.28	5,248,195.31			
SR021D_RET_1 - IA 21 Ramp D Return 1																			
84010		10+00.00	3,451,965.43	5,248,256.59															
84011								10+00.00	3,451,965.43	5,248,256.59	10+33.62	3,451,950.77	5,248,286.84	10+64.34	3,451,959.52	5,248,319.30			
84012								10+64.34	3,451,959.52	5,248,319.30	11+17.25	3,451,973.30	5,248,370.38	11+69.83	3,451,996.56	5,248,417.89			
84013		11+69.83	3,451,996.56	5,248,417.89															

**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		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)
SR021D.RET.4 - IA 21 Ramp D Return 4		40+00.00	3,451,830.77	5,248,271.90															
84040																			
84041							40+00.00	3,451,830.77	5,248,271.90	40+31.00	3,451,861.76	5,248,271.14	40+60.28	3,451,888.19	5,248,287.33				
84042							40+60.28	3,451,888.19	5,248,287.33	40+74.11	3,451,899.98	5,248,294.55	40+87.67	3,451,908.66	5,248,305.32				
84043							40+87.67	3,451,908.66	5,248,305.32	41+48.30	3,451,946.74	5,248,352.51	42+08.43	3,451,973.39	5,248,406.96				
84044		42+08.43	3,451,973.39	5,248,406.96															
SR11THAVE.RET.3 - Proposed Median Return @ 11th Avenue																			
50032							30+00.00	3,452,325.35	5,253,064.89	30+27.13	3,452,325.49	5,253,092.02	30+52.71	3,452,340.60	5,253,114.56				
50034							30+52.71	3,452,340.60	5,253,114.56	30+73.51	3,452,352.18	5,253,131.83	30+75.16	3,452,358.44	5,253,112.00				
50036							30+75.16	3,452,358.44	5,253,112.00	31+37.80	3,452,377.29	5,253,052.26	31+99.43	3,452,376.97	5,252,989.63				
SR11THAVE.RET.4 - Proposed Median Return @ 11th Avenue																			
50042							40+00.00	3,452,366.26	5,253,244.69	40+27.13	3,452,366.12	5,253,217.55	40+52.71	3,452,351.01	5,253,195.02				
50044							40+52.71	3,452,351.01	5,253,195.02	40+73.51	3,452,339.42	5,253,177.74	40+75.16	3,452,333.17	5,253,197.58				
50046							40+75.16	3,452,333.17	5,253,197.58	41+37.80	3,452,314.32	5,253,257.31	41+99.43	3,452,314.63	5,253,319.95				
SR021CH																			
SRCH3		99+25.00	3,452,017.57	5,248,412.83															
SRCH1		100+00.00	3,452,091.72	5,248,424.09															
SRCH2		101+09.83	3,452,200.30	5,248,440.59															
DET1																			
6005							100+00.00	3,452,304.12	5,253,615.00	103+36.33	3,452,305.81	5,253,951.33	106+71.08	3,452,363.64	5,254,282.65				
6010							107+83.08	3,452,382.90	5,254,392.98	111+11.55	3,452,439.38	5,254,716.56	114+38.55	3,452,442.31	5,255,045.01				
DET2																			
6100		200+00.00	3,452,389.60	5,253,114.57															
6105							205+00.00	3,452,392.12	5,253,614.56	206+62.16	3,452,392.93	5,253,776.72	208+24.10	3,452,408.74	5,253,938.12				
6110							209+36.10	3,452,419.66	5,254,049.58	210+91.42	3,452,434.80	5,254,204.17	212+46.54	3,452,436.19	5,254,359.48				
6115		219+98.64	3,452,442.91	5,255,111.55															

**SPIRAL OR CIRCULAR CURVE DATA**

101-17  
04-19-11

Name	Location	Δ <sub>scs</sub>	Horizontal Alignment Data													Remarks		
			Spiral Data					Curve Data										
			θs	Ls	Ts	Es	Xc	Yc	L.T.	S.T.	Δ <sub>c</sub>	T	L	R	E			
SUR030 - Existing US 30 CL																		
C16																		
C1																		
C2																		
C3																		
C4																		
C5																		
C6																		
C7																		
C7A																		
C8																		
C9																		
C10																		
C11																		
C12																		
C13																		
C14																		
C15																		
ML030 - Proposed US 30 CL																		
20110																		
20297																		
20299																		
SUR021 - Existing/Proposed IA 21 CL																		
CUR21																		
SR021A - Proposed IA 21 Ramp A BL																		
81001																		
SR021B - Proposed IA 21 Ramp B BL																		
82001																		

**SPIRAL OR CIRCULAR CURVE DATA**

101-17  
04-19-11

Name	Location	Δ <sub>scs</sub>	Horizontal Alignment Data												Remarks			
			Spiral Data						Curve Data									
			θs	Ls	Ts	Es	Xc	Yc	L.T.	S.T.	Δ <sub>c</sub>	T	L	R		E		
SR021C - Proposed IA 21 Ramp C BL 83001													17° 57' 38.31" LT	316.06'	626.94'	2,000.00'	24.82'	
SR021D - Proposed IA 21 Ramp D BL 84001 84002													17° 12' 01.45" RT 7° 26' 54.43" RT	201.15' 130.18'	399.27' 260.00'	1,330.00' 2,000.00'	15.12' 4.23'	
REVO21A - Proposed IA 21 Width Transition 40605 40606													1° 41' 45.91" RT 1° 41' 45.91" LT	135.14' 135.14'	270.27' 270.27'	9,130.00' 9,130.00'	1.00' 1.00'	
REVO21B - Proposed IA 21 Width Transition 40615													2° 14' 48.59" RT	260.81'	521.55'	13,300.00'	2.56'	
REVO21C - Proposed IA 21 Width Transition 40625 40626													1° 41' 45.91" LT 1° 41' 45.91" RT	135.14' 135.14'	270.27' 270.27'	9,130.00' 9,130.00'	1.00' 1.00'	
REVO21D - Proposed IA 21 Width Transition 40645													4° 09' 23.15" RT	252.20'	504.18'	6,950.00'	4.57'	
SR021A.RET.1 - IA 21 Ramp A Return 1 34011 34012 34013													17° 17' 04.21" RT 44° 25' 36.42" RT 12° 16' 51.91" RT	23.56' 32.67' 77.46'	46.76' 62.03' 154.33'	155.00' 80.00' 720.00'	1.78' 6.41' 4.15'	
SR021A.RET.4 - IA 21 Ramp A Return 4 81041 81042													57° 48' 25.06" RT 10° 37' 15.59" RT	27.61' 20.91'	50.45' 41.71'	50.00' 225.00'	7.11' 0.97'	
SR021B.RET.2 - IA 21 Ramp B Return 2 35021 35022													9° 27' 57.67" LT 47° 51' 05.86" LT	20.70' 26.62'	41.30' 50.11'	250.00' 60.00'	0.86' 5.64'	
SR021B.RET.3 - IA 21 Ramp B Return 3 35031 35032 35033													7° 38' 34.96" RT 52° 15' 30.00" RT 13° 08' 06.90" RT	26.72' 39.24' 71.96'	53.36' 72.97' 143.28'	400.00' 80.00' 625.00'	0.89' 9.11' 4.13'	
SR021C.RET.2 - IA 21 Ramp C Return 2 83023 83022 83021													30° 52' 07.74" RT 24° 28' 52.57" RT 14° 31' 34.39" RT	27.61' 16.27' 60.54'	53.88' 32.05' 120.43'	100.00' 75.00' 475.00'	3.74' 1.74' 3.84'	
SR021C.RET.3 - IA 21 Ramp C Return 3 36031 36032													12° 20' 38.18" RT 48° 48' 16.30" RT	58.40' 29.49'	116.34' 55.37'	540.00' 65.00'	3.15' 6.38'	
SR021D.RET.1 - IA 21 Ramp D Return 1 84011 84012													40° 57' 46.45" LT 10° 59' 18.43" LT	33.62' 52.90'	64.34' 105.48'	90.00' 550.00'	6.07' 2.54'	
SR021D.RET.4 - IA 21 Ramp D Return 4 84041 84042 84043													32° 53' 44.81" RT 19° 36' 45.48" RT 12° 48' 46.30" RT	31.00' 13.83' 60.63'	60.28' 27.38' 120.76'	105.00' 80.00' 540.00'	4.48' 1.19' 3.39'	
SR11THAVE.RET.3 - Proposed Median Return @ 11th Avenue 50032 50034 50036													33° 33' 16.79" LT 128° 38' 44.64" LT 17° 47' 58.57" LT	27.13' 20.80' 62.64'	52.71' 22.45' 124.26'	90.00' 10.00' 400.00'	4.00' 13.08' 4.87'	
SR11THAVE.RET.4 - Proposed Median Return @ 11th Avenue 50042 50044 50046													33° 33' 16.79" LT 128° 38' 44.64" LT 17° 47' 58.57" LT	27.13' 20.80' 62.64'	52.71' 22.45' 124.26'	90.00' 10.00' 400.00'	4.00' 13.08' 4.87'	
DET1 6005 6010 DET2 6105 6110													9° 36' 44.93" LT 9° 23' 20.19" RT 5° 18' 19.99" LT 5° 04' 55.25" RT	336.33' 328.47' 162.16' 155.32'	671.08' 655.47' 324.10' 310.44'	4,000.00' 4,000.00' 3,500.00' 3,500.00'	14.11' 13.46' 3.75' 3.44'	

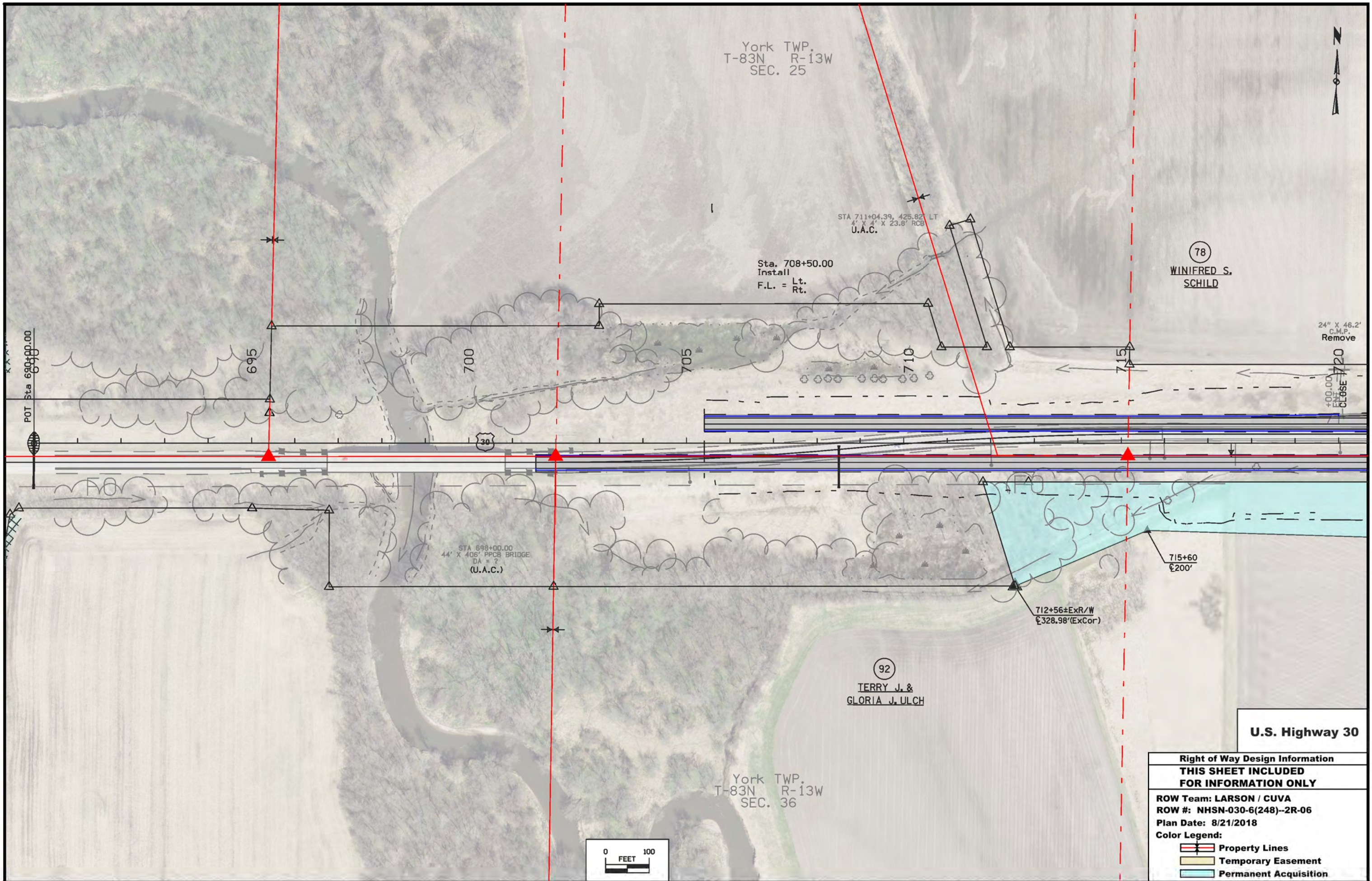


**SUPERELEVATION DATA**

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	x														
			FT	FT	FT														
IA 21 Ramp A	81001	1330	6.0	186	62	PV-303	1549+28.08		1549+96.28 1553+00.00	1550+52.08 1552+44.20					1549+90.08 1553+06.20	1549+90.08 1553+06.20			
IA 21 Ramp B	82001	1330	6.0	186	62	PV-303	2532+68.68		2529+00.00 2532+00.48	2529+55.80 2531+44.68					2528+93.80 2532+06.68	2528+93.80 2532+06.68			
IA 21 Ramp C	83001	2000	5.4	168	62	PV-303	3534+82.54		3528+00.00 3534+26.94	3528+50.40 3533+76.54					3528+06.84 3534+20.10	3528+06.84 3534+20.10			
IA 21 Ramp D	84001	1330	5.4	151	56	PV-303	4544+91.03		4545+40.73	4545+86.03 4549+40.00					4545+46.88 4549+79.15	4545+46.88 4549+79.15			
IA 21 Ramp D	84002	2000	5.4	168	62	PV-303	4552+55.60		4552+00.00	4551+49.60					4548+96.44 4551+93.16	4548+96.44 4551+93.16			





York TWP.  
T-83N R-13W  
SEC. 25

(78)  
WINIFRED S.  
SCHILD

STA 711+04.39, 425.82' LT  
4' X 4' X 23.8' RCB  
U.A.C.

Sta. 708+50.00  
Install  
F.L. = Lt.  
Rt.

24" X 46.2'  
C.M.P.  
Remove

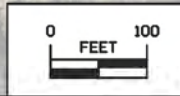
STA 698+00.00  
44' X 406' PPCB BRIDGE  
DA = 7'  
(U.A.C.)

(92)  
TERRY J. &  
GLORIA J. ULCH

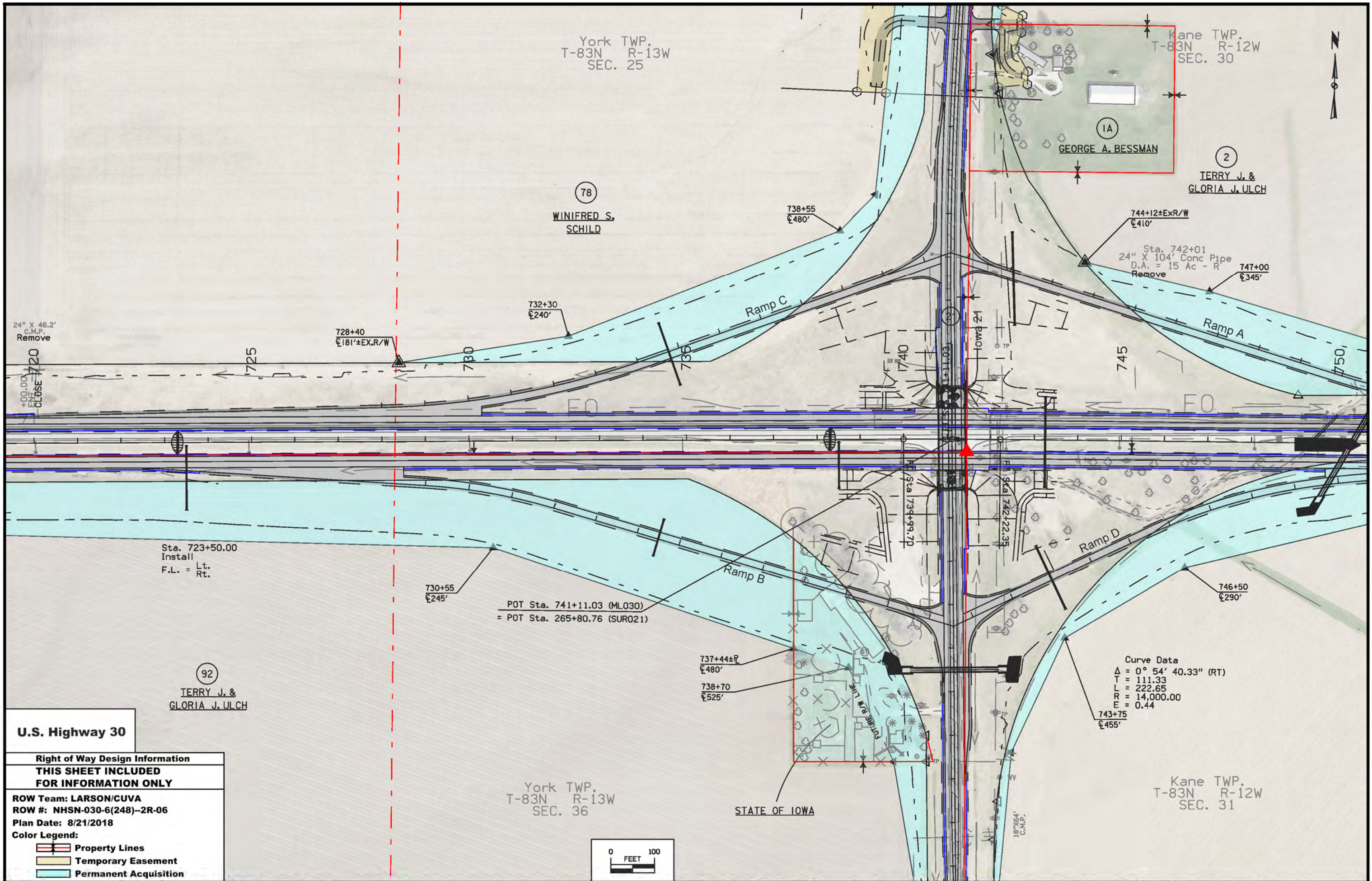
York TWP.  
T-83N R-13W  
SEC. 36

**U.S. Highway 30**

<b>Right of Way Design Information</b>	
<b>THIS SHEET INCLUDED FOR INFORMATION ONLY</b>	
ROW Team: LARSON / CUVA	
ROW #: NHSN-030-6(248)--2R-06	
Plan Date: 8/21/2018	
Color Legend:	
	Property Lines
	Temporary Easement
	Permanent Acquisition







York TWP.  
T-83N R-13W  
SEC. 25

Kane TWP.  
T-83N R-12W  
SEC. 30

(78)  
WINIFRED S.  
SCHILD

(1A)  
GEORGE A. BESSMAN

(2)  
TERRY J. &  
GLORIA J. ULCH

24" X 46.2'  
C.M.P.  
Remove

728+40  
±181'±EX.R/W

732+30  
±240'

738+55  
±480'

744+12±EXR/W  
±410'

Sta. 742+01  
24" X 104' Conc Pipe  
D.A. = 15 Ac - R  
Remove

747+00  
±345'

Sta. 723+50.00  
Install  
F.L. = Lt.  
Rt.

730+55  
±245'

POT Sta. 741+11.03 (ML030)  
= POT Sta. 265+80.76 (SUR021)

737+44±P  
±480'

738+70  
±525'

Curve Data  
Δ = 0° 54' 40.33" (RT)  
T = 111.33  
L = 222.65  
R = 14,000.00  
E = 0.44

743+75  
±455'

Kane TWP.  
T-83N R-12W  
SEC. 31

York TWP.  
T-83N R-13W  
SEC. 36

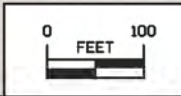
STATE OF IOWA

**U.S. Highway 30**

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

ROW Team: LARSON/CUVA  
ROW #: NHSN-030-6(248)--2R-06  
Plan Date: 8/21/2018

**Color Legend:**  
 Property Lines  
 Temporary Easement  
 Permanent Acquisition





Sta. 749+68  
Skew 45° LT. AHEAD  
8' X 6' X 83' RCB  
D.A. = 316 Ac - R  
Remove

Sta. 848+25.00  
Build X' x X' RCB  
Skew = 60° Lt. Ahd.  
F.L. = Lt. 824.00  
Rt. 820.70  
Design No.

Kane TWP.  
T-83N R-12W  
SEC. 30

(2)  
TERRY J. &  
GLORIA J. ULCH

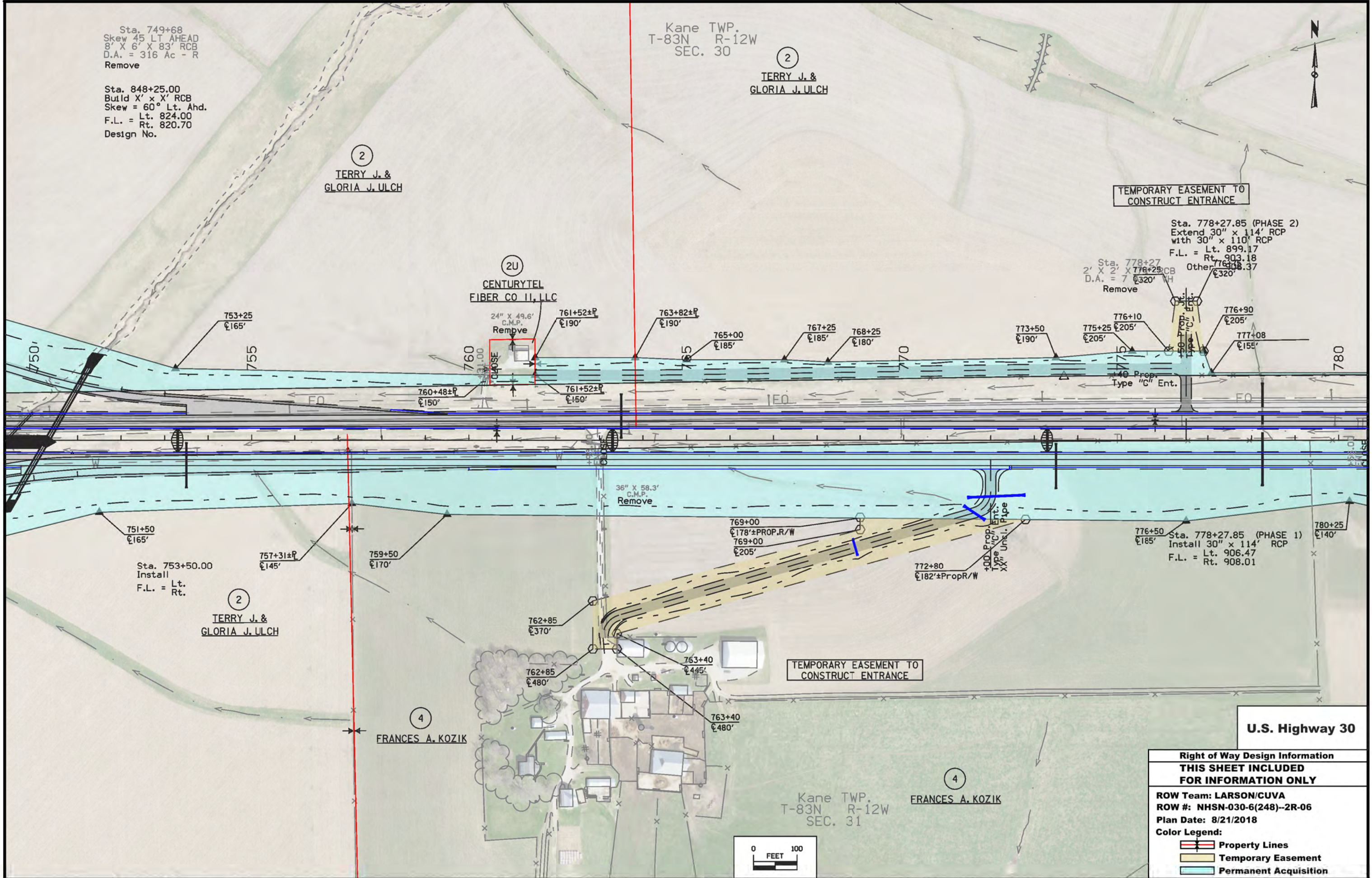
(2)  
TERRY J. &  
GLORIA J. ULCH

(2U)  
CENTURYTEL  
FIBER CO II, LLC

TEMPORARY EASEMENT TO  
CONSTRUCT ENTRANCE

Sta. 778+27.85 (PHASE 2)  
Extend 30" x 114' RCP  
with 30" x 110' RCP  
F.L. = Lt. 899.17  
Rt. 903.18  
Other: 908.37

Sta. 778+27  
2' x 2' x 7' RCB  
D.A. = 7' x 320' WH  
Remove



Sta. 753+50.00  
Install  
F.L. = Lt.  
Rt.

(2)  
TERRY J. &  
GLORIA J. ULCH

(4)  
FRANCES A. KOZIK

Kane TWP.  
T-83N R-12W  
SEC. 31

(4)  
FRANCES A. KOZIK

TEMPORARY EASEMENT TO  
CONSTRUCT ENTRANCE

Sta. 778+27.85 (PHASE 1)  
Install 30" x 114' RCP  
F.L. = Lt. 906.47  
Rt. 908.01

U.S. Highway 30



<b>Right of Way Design Information</b>	
<b>THIS SHEET INCLUDED FOR INFORMATION ONLY</b>	
ROW Team: LARSON/CUVA	
ROW #: NHSN-030-6(248)--2R-06	
Plan Date: 8/21/2018	
Color Legend:	
	Property Lines
	Temporary Easement
	Permanent Acquisition



Kane TWP.  
T-83N R-12W  
SEC. 30

Kane TWP.  
T-83N R-12W  
SEC. 29

Sta. 785+19  
24" X 69' Conc Pipe  
D.A. = 8 Ac - R  
Remove

②  
TERRY J. &  
GLORIA J. ULCH

Sta. 785+19.80 (PHASE 2)  
Extend 24" x 134' RCP  
with 24" x 98' RCP  
F.L. = Lt. 903.13  
Rt. 907.91  
Other 907.91

Sta. 788+00.00  
Install  
F.L. = Rt.

Sta. 788+97.75  
Build 5' x 4' 3:1 Flume & Basin  
F.L. = Lt. 893.87  
Rt. 905.33  
Design No.

④  
FRANCES A. KOZIK

Sta. 794+80.00 (PHASE 2)  
Extend 24" x 112' RCP  
with 24" x 84' RCP  
F.L. = Lt. 916.70  
Rt. 919.22

TEMPORARY EASEMENT TO  
SHAPE & CONSTRUCT ENTRANCE

⑤  
TERRY W. SHEDENHELM  
JUDY SHEDENHELM HARRIS  
RODNEY M. SHEDENHELM

TEMPORARY EASEMENT TO  
SHAPE & CONSTRUCT ENTRANCE

788+45±EX.R/W  
±205'

790+05±EX.R/W  
±205'

788+45±EX.R/W  
±183.75'

24" X 51.8'  
C.M.P.  
Remove

783+75  
±155'

785

791+35  
±185'

793+18±PROP.R/W  
±165'

795

800

803+67±P  
±170'

803+69±P  
±185'

803+45  
±185'

803+67±P  
±165'

803+45  
±165'

Prop. Ent.  
Type M  
Uncl. Pipe

803+95  
±185'

803+95  
±170'

810

780

780+25  
±140'

782+70  
±195'

POT Sta. 790+39.23 (ML030)  
= POT Sta. 11790+40 (SR11THAVE)

787+50  
±200'

Sta. 788+97  
3' X 3' X 65' RCB  
D.A. = 38 Ac - R  
Sta. 788+97.75 (PHASE 1)  
Extend 42" x 64' RCP  
F.L. = Lt. 905.33  
Rt. 906.19

④  
FRANCES A. KOZIK

Kane TWP.  
T-83N R-12W  
SEC. 31

790+44±P  
±155'

Sta. 790+63, 60' RT  
36" X 43' Conc Pipe  
D.A. = 33 Ac - R  
Remove

Sta. 794+87  
24" X 67' Conc Pipe  
D.A. = 13 Ac - R  
Remove

Sta. 794+80.00 (PHASE 1)  
Install 24" X 112' RCP  
F.L. = Lt. 919.05  
Rt. 922.52

+70.00 Prop.  
Type M Dike  
Elev. = 924.36

⑨  
NATHAN J. & SHARON K.  
GRIEDER

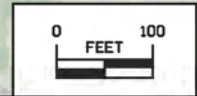
809+50  
±155'

810+40±P  
±165'

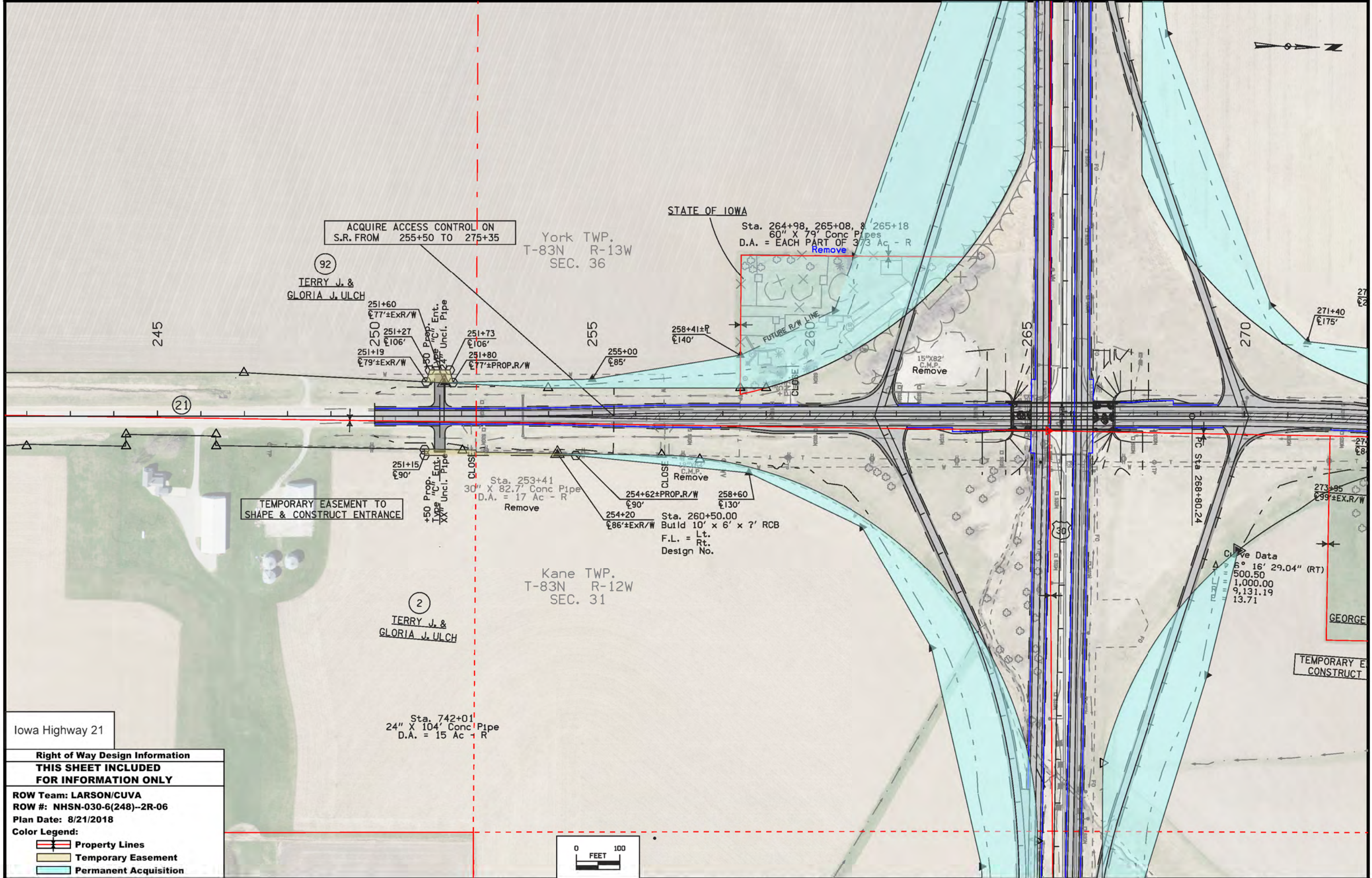
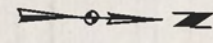
⑨  
NATHAN J. & SHARON K.  
GRIEDER

U.S. Highway 30

Right of Way Design Information	
THIS SHEET INCLUDED FOR INFORMATION ONLY	
ROW Team: LARSON/CUVA	
ROW #: NHSN-030-6(248)--2R-06	
Plan Date: 8/21/2018	
Color Legend:	
	Property Lines
	Temporary Easement
	Permanent Acquisition





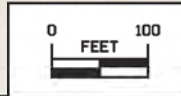


Iowa Highway 21

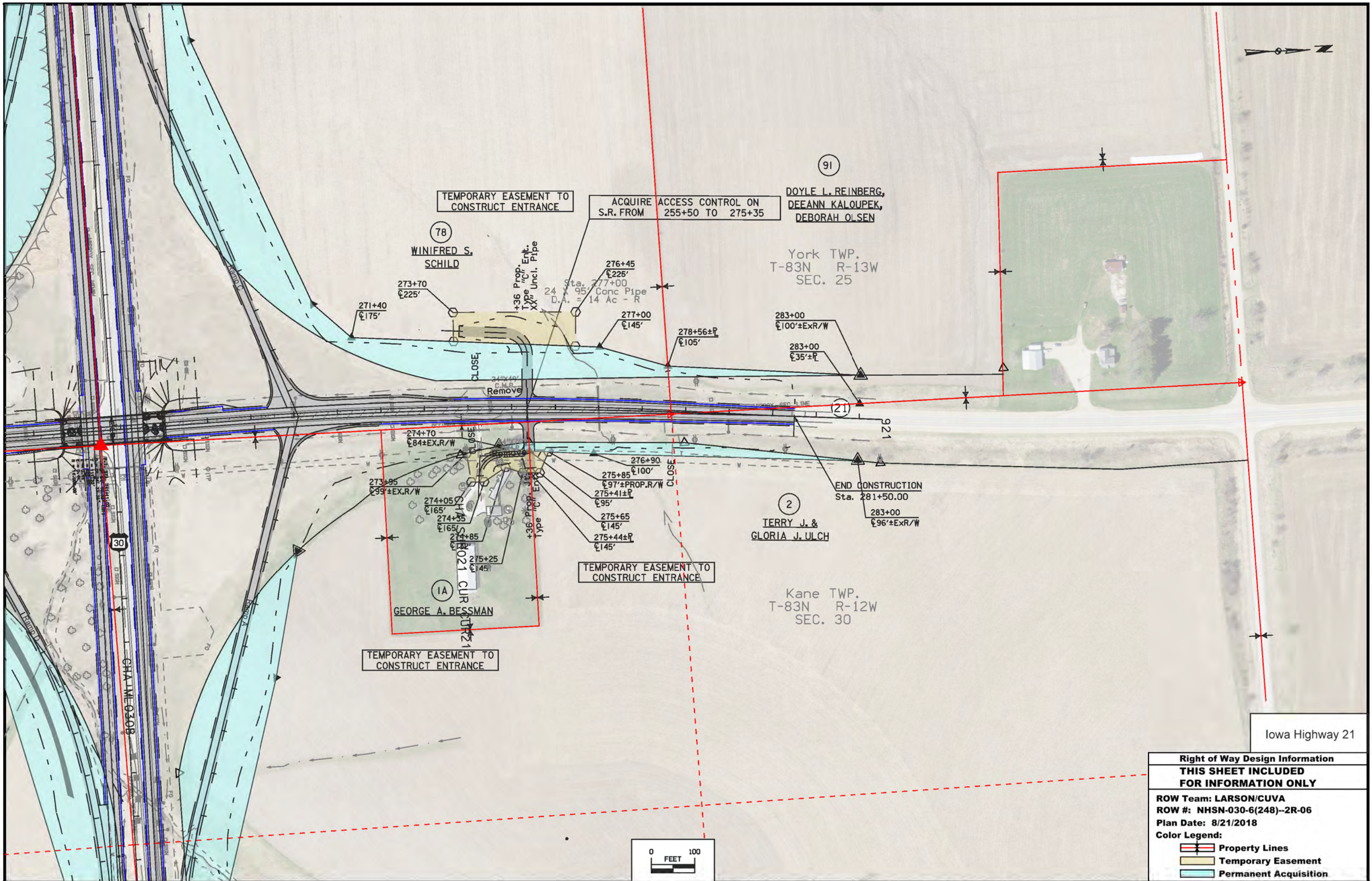
**Right of Way Design Information**  
**THIS SHEET INCLUDED**  
**FOR INFORMATION ONLY**

ROW Team: LARSON/CUVA  
ROW #: NHSN-030-6(248)--2R-06  
Plan Date: 8/21/2018

Color Legend:  
Property Lines  
Temporary Easement  
Permanent Acquisition







TEMPORARY EASEMENT TO CONSTRUCT ENTRANCE

ACQUIRE ACCESS CONTROL ON S.R. FROM 255+50 TO 275+35

DOYLE L. REINBERG,  
DEEANN KALOUEK,  
DEBORAH OLSEN

(78)  
WINIFRED S.  
SCHILD

York TWP.  
T-83N R-13W  
SEC. 25

(2)  
TERRY J. &  
GLORIA J. ULCH

Kane TWP.  
T-83N R-12W  
SEC. 30

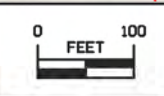
TEMPORARY EASEMENT TO CONSTRUCT ENTRANCE

TEMPORARY EASEMENT TO CONSTRUCT ENTRANCE

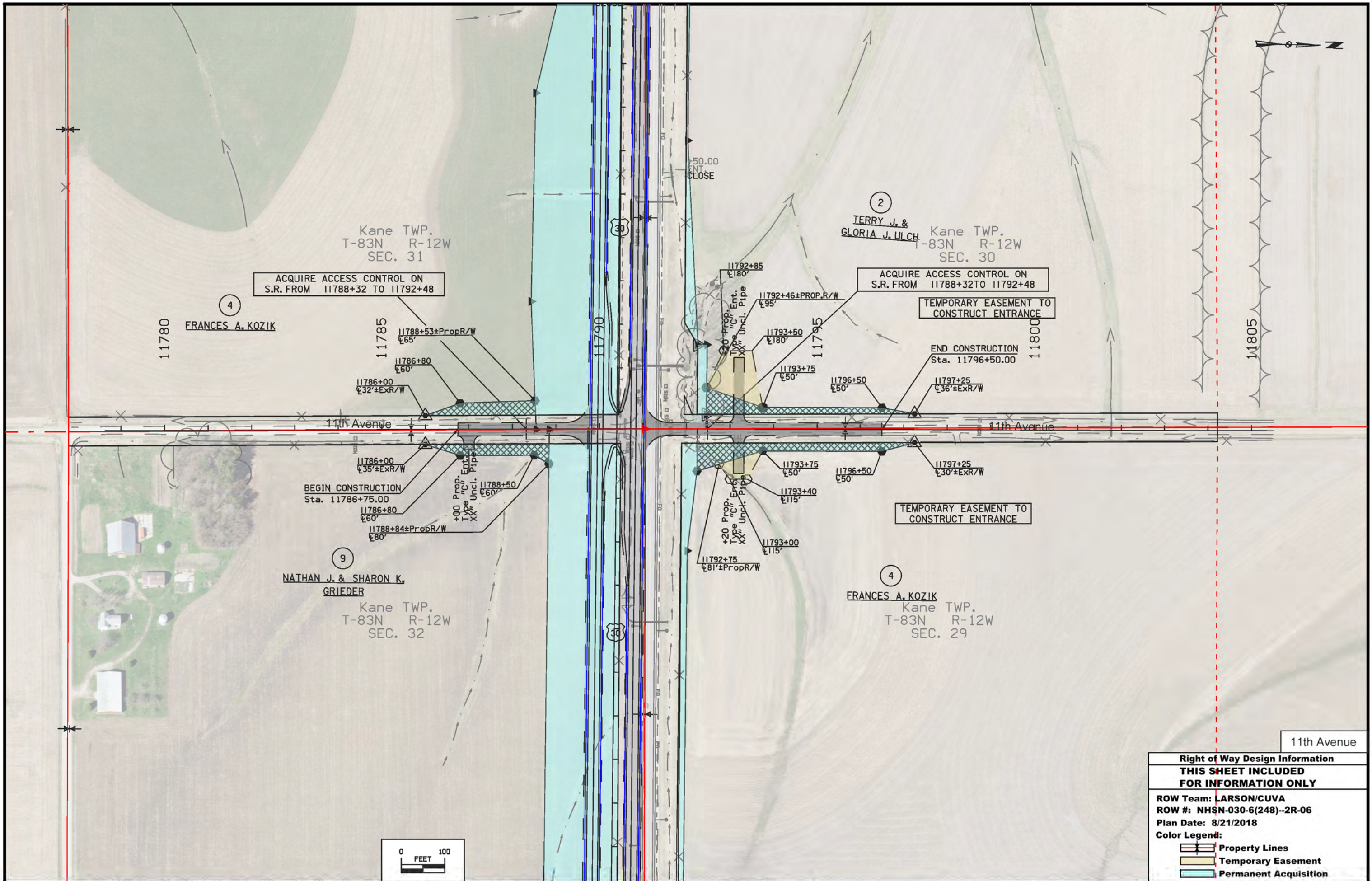
END CONSTRUCTION  
Sta. 281+50.00

Iowa Highway 21

<b>Right of Way Design Information</b>	
<b>THIS SHEET INCLUDED FOR INFORMATION ONLY</b>	
ROW Team: LARSON/CUVA	
ROW #: NHSN-030-6(248)--2R-06	
Plan Date: 8/21/2018	
Color Legend:	
	Property Lines
	Temporary Easement
	Permanent Acquisition







ACQUIRE ACCESS CONTROL ON  
S.R. FROM 11788+32 TO 11792+48

ACQUIRE ACCESS CONTROL ON  
S.R. FROM 11788+32 TO 11792+48

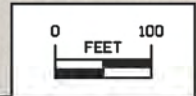
TEMPORARY EASEMENT TO  
CONSTRUCT ENTRANCE

END CONSTRUCTION  
Sta. 11796+50.00

TEMPORARY EASEMENT TO  
CONSTRUCT ENTRANCE

BEGIN CONSTRUCTION  
Sta. 11786+75.00

<b>Right of Way Design Information</b>	
<b>THIS SHEET INCLUDED FOR INFORMATION ONLY</b>	
ROW Team: LARSON/CUVA	
ROW #: NHSN-030-6(248)--2R-06	
Plan Date: 8/21/2018	
Color Legend:	
	Property Lines
	Temporary Easement
	Permanent Acquisition





**TRAFFIC CONTROL PLAN**

1. Traffic on U.S. Highway 30 shall be maintained at all times except as noted in Note 3
2. Traffic on IA 21 shall be maintained at all times via off-site detour
3. Temporary nighttime road closures (TC-251/TC-451) will only be allowed for setting beams
4. Detour and detour signing shall be furnished, maintained, and removed by the Contractor

**STAGING NOTES**

**STAGE 1:**

*Traffic:*

US 30 on existing lanes  
IA 21 on detour  
11th Avenue open to the north, closed to the south

*Construction:*

- A) Grade and pave new US 30 EB lanes from Sta. 705+41.13 to Sta. 804+00
- B) Grade IA 21 from Sta. 250+00 to Sta. 263+92.73 and Sta. 267+72.73 to Sta. 281+50
- C) Grade IA 21 Ramp A from Sta. 1540+80.38 to Sta. 1553+51.07
- D) Grade and pave IA 21 Ramp B from Sta. 2528+48.93 to Sta. 2541+35.84
- E) Grade IA 21 Ramp C from Sta. 3530+28.66 to Sta. 3541+39.90
- F) Grade and pave IA 21 Ramp D from Sta. 4540+74.35 to Sta. 4549+71.34
- G) Grade and surface 11th Avenue south of US 30
- H) Grade and pave proposed crossover 1 (new EB lanes to existing US 30)

**STAGE 2:**

*Traffic:*

US 30 on new EB lanes from Sta. 705+41.13 to Sta. 795+00  
IA 21 on detour  
11th Avenue open to the south, closed to the north

*Construction:*

- I) Grade and pave new US 30 WB lanes from Sta. 705+41.13 to Sta. 795+00
- J) Pave IA 21 from Sta. 250+00 to Sta. 263+92.73 and Sta. 267+72.73 to Sta. 281+50
- K) Grade and pave IA 21 Ramp A from Sta. 1540+80.38 to Sta. 1553+51.07
- L) Grade and pave IA 21 Ramp C from Sta. 3530+28.66 to Sta. 3541+39.90
- M) Grade and surface 11th Avenue north of US 30
- N) Grade and pave proposed crossover 2 (new WB lanes to existing US 30)

**STAGE 3:**

*Traffic:*

All traffic in normal lanes

*Construction:*

Complete

**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
NHSX-030-6(181)--3H-06	PCC Pavement-Grade and New










### 511 TRAVEL RESTRICTIONS

Route	Direction	County	Location Description	Feature Crossed	Object Type	Maint. Bridge No., Structure ID, or FHWA No.	Type of Restriction	Existing Measurement	Construction Measurement	Construction Measurement as Signed	Projected As Built Measurement	Remarks
			No Travel Restrictions Expected									

**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
Blue, Light (230,112)		Proposed Grading and Pavement Shading
Lavender	(9)	Temporary Pavement Shading
Brown, Light	(236)	Proposed Grading Limits 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**

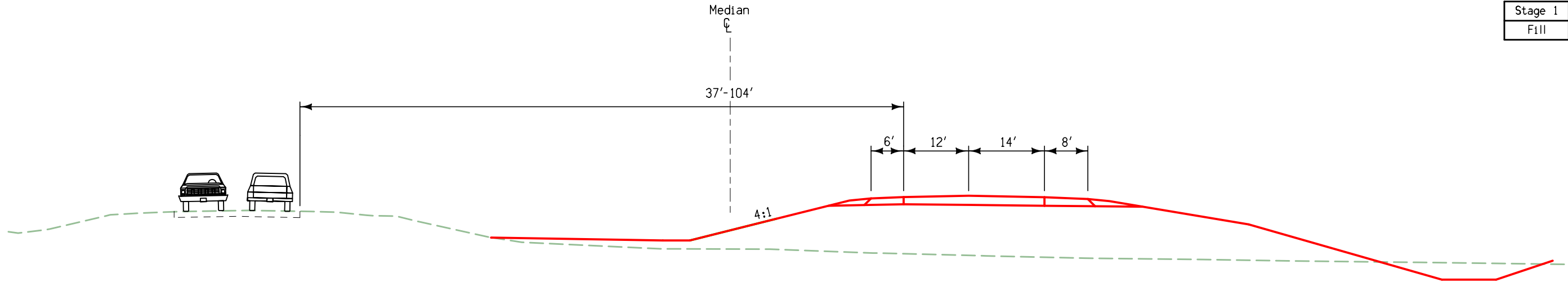
	Channelizing Device		Crash Cushion (Temp or Perm)
	Drum		Traffic Signal
	Temporary Lane Separator		Flagger
	Tubular Marker		Temporary Floodlighting
	Channelizer Marker		Traffic Sign
	Concrete Barrier Marker		Type III Barricade
	Delineator		Type A Warning Light
	Temporary Barrier Rail		Direction of Traffic
	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 1  
Fill

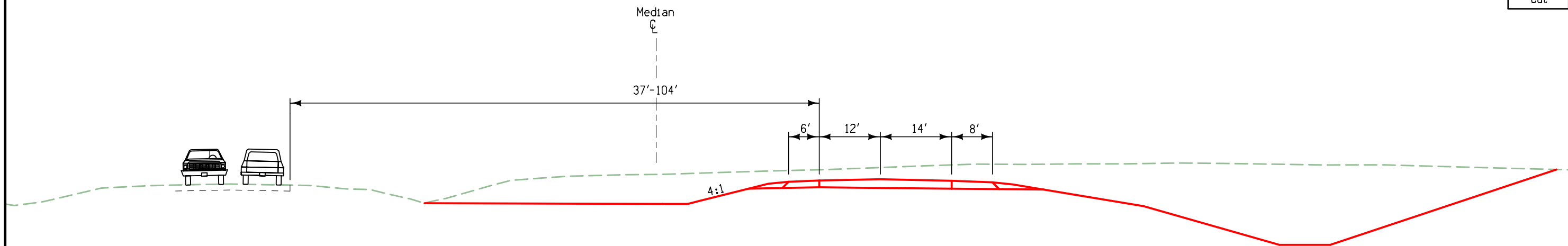


**STAGE 1 (FILL)**

LEGEND

- STAGE 1 CONSTRUCTION
- - - EXISTING GROUND
- - - EXISTING PAVEMENT

Stage 1  
Cut

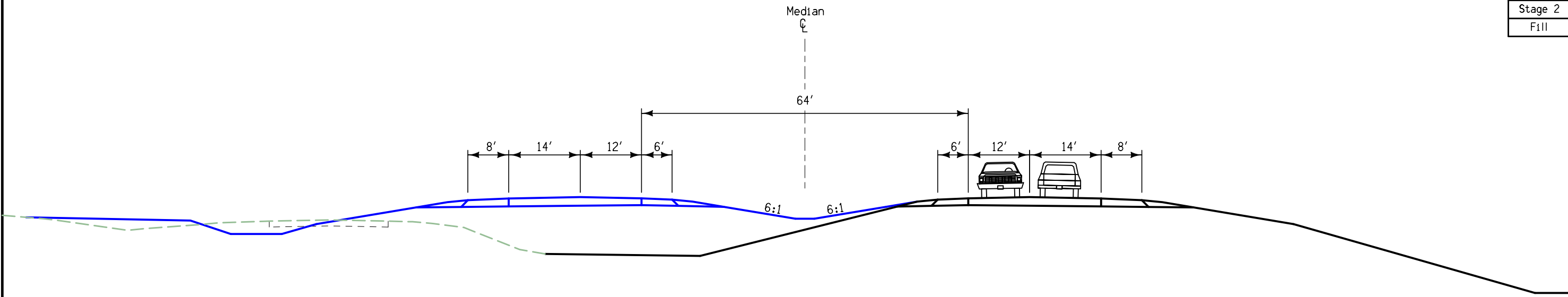


**STAGE 1 (CUT)**

LEGEND

- STAGE 1 CONSTRUCTION
- - - EXISTING GROUND
- - - EXISTING PAVEMENT

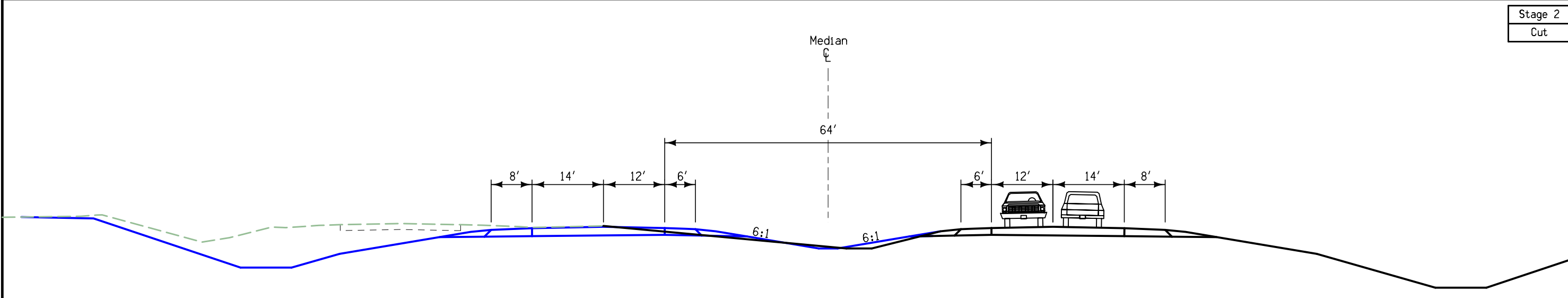
Stage 2  
Fill



**STAGE 2 (FILL)**

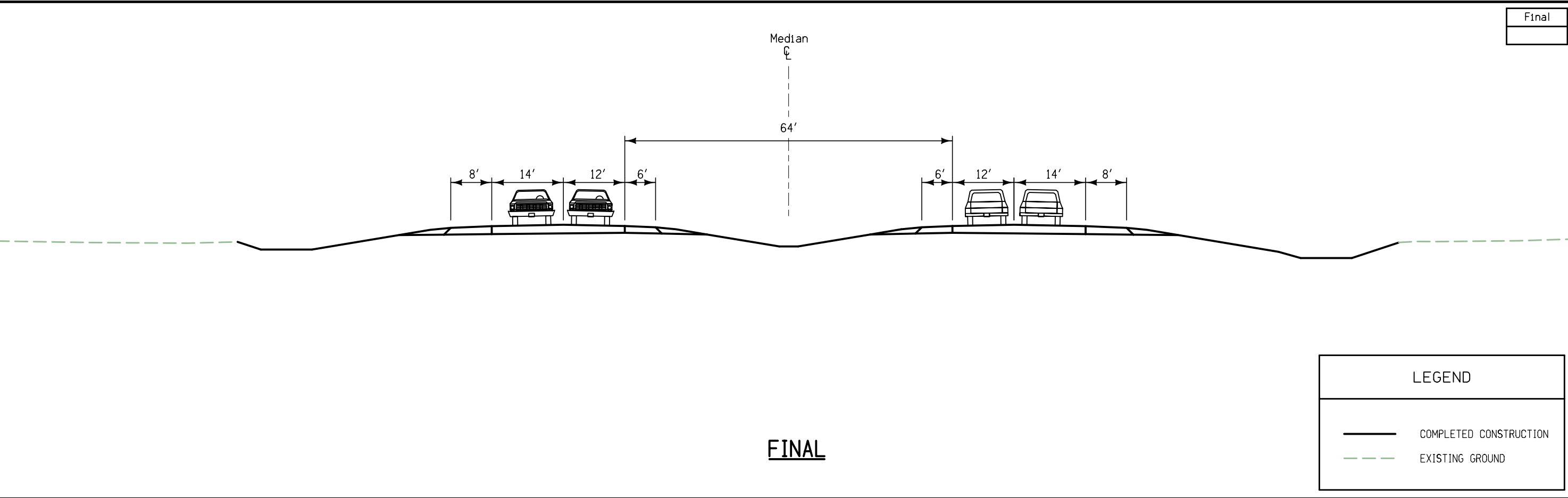
LEGEND	
	STAGE 2 CONSTRUCTION
	COMPLETED CONSTRUCTION
	EXISTING GROUND
	EXISTING PAVEMENT

Stage 2  
Cut



**STAGE 2 (CUT)**

LEGEND	
	STAGE 2 CONSTRUCTION
	COMPLETED CONSTRUCTION
	EXISTING GROUND
	EXISTING PAVEMENT



York TWP.  
T-83N R-13W  
SEC. 25



710

715

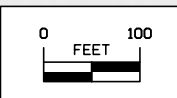
720

725

3530

730

30

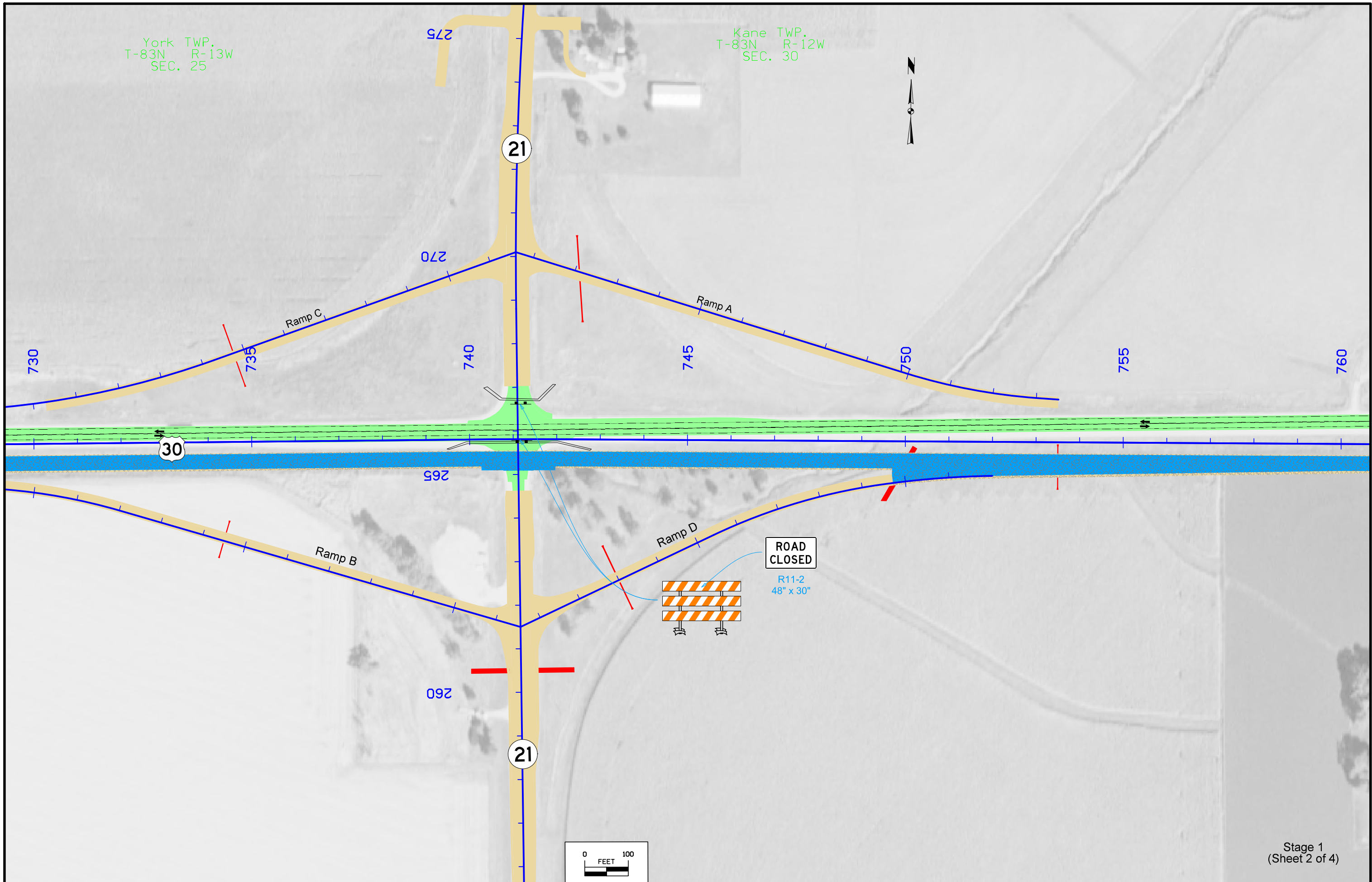


Stage 1  
(Sheet 1 of 4)



York TWP.  
T-83N R-13W  
SEC. 25

Kane TWP.  
T-83N R-12W  
SEC. 30



Stage 1  
(Sheet 2 of 4)

Kane TWP.  
T-83N R-12W  
SEC. 30

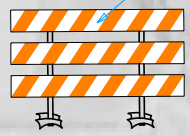


00811

11795

ROAD  
CLOSED

R11-2  
48" x 30"



760

765

770

775

780

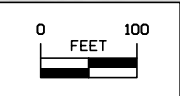
785

790

30

11790

11785



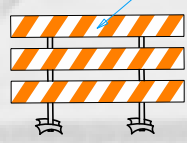
Stage 1  
(Sheet 3 of 4)

Kane TWP.  
T-83N R-12W  
SEC. 29



ROAD  
CLOSED

R11-2  
48" x 30"



790

795

800

805

810

11825

11820

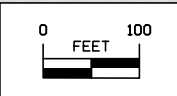
815

820

30

11815

11810



Stage 1  
(Sheet 4 of 4)

York TWP.  
T-83N R-13W  
SEC. 25



710

715

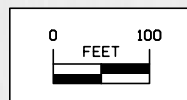
720

725

3530

730

30

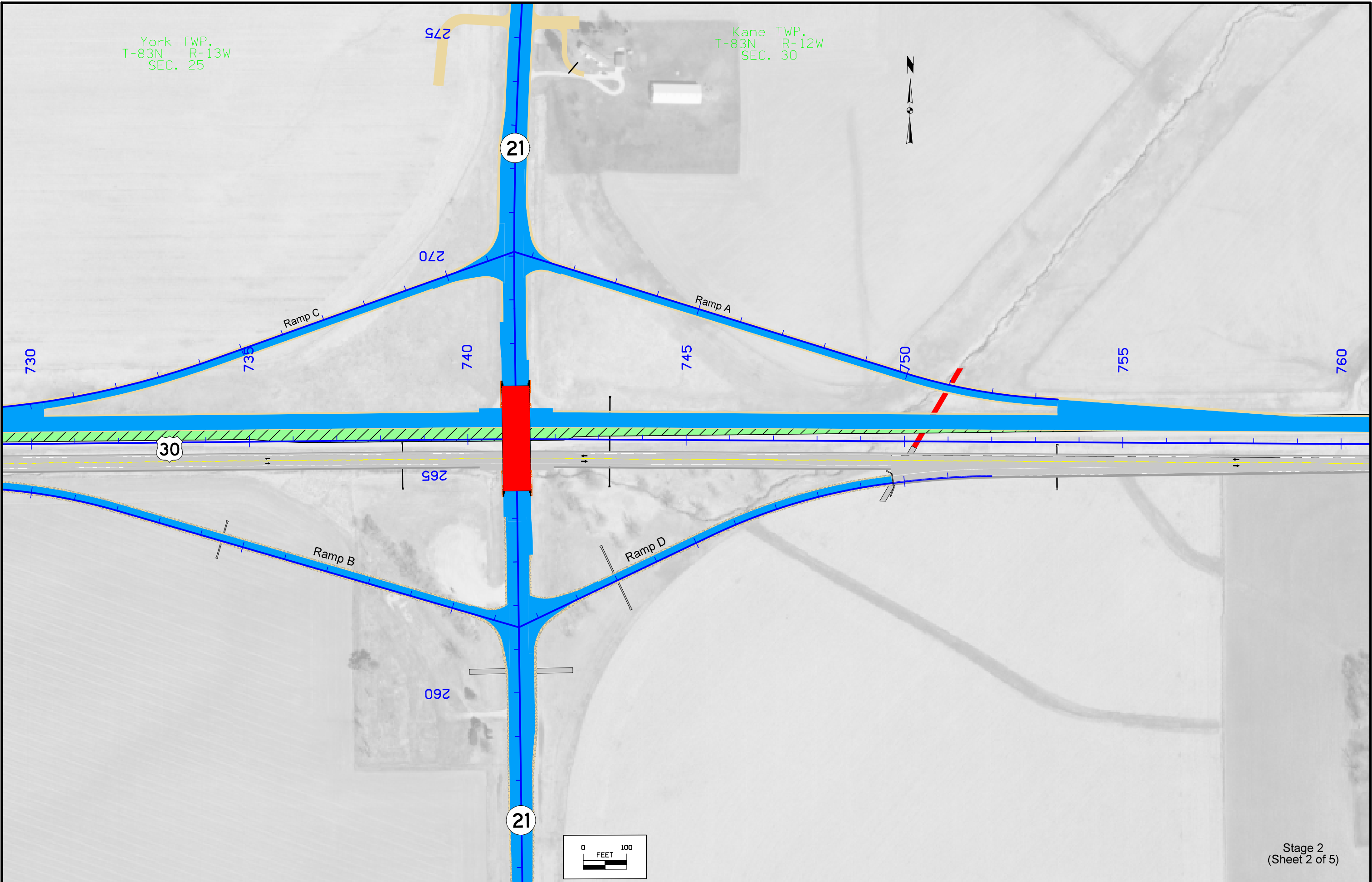


Stage 2  
(Sheet 1 of 5)

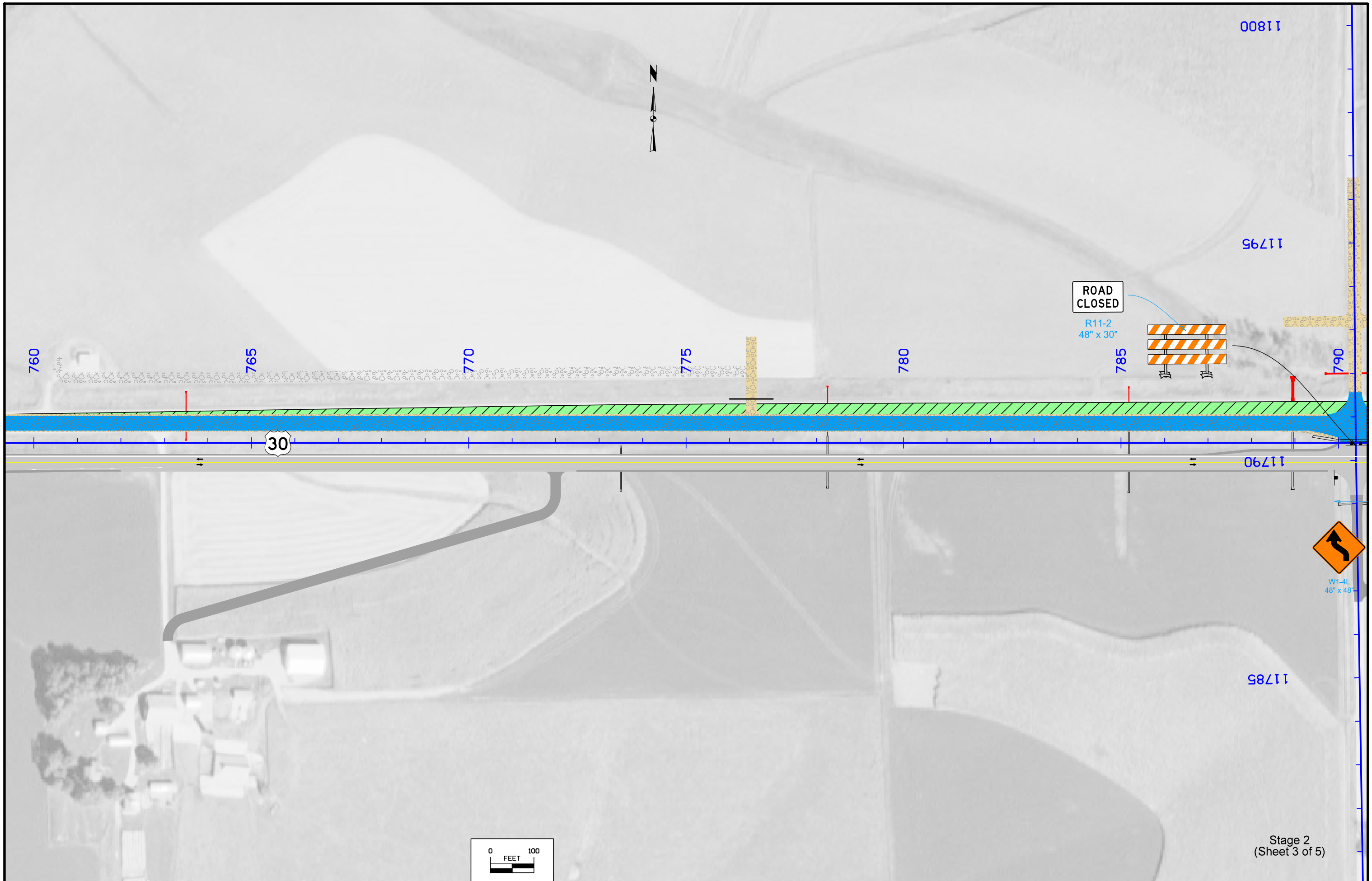


York TWP.  
T-83N R-13W  
SEC. 25

Kane TWP.  
T-83N R-12W  
SEC. 30



Stage 2  
(Sheet 2 of 5)



Stage 2  
(Sheet 3 of 5)

Kane TWP.  
T-83N R-12W  
SEC. 29



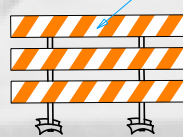
11825



W1-6  
48" x 24"

ROAD  
CLOSED

R11-2  
48" x 30"



W1-4L  
48" x 48"

DO  
NOT  
PASS

R4-1  
36" x 48"

805

40' C/C

810

500'

815

500'

820

800

795

790

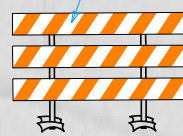
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Road Closure SI-181

40' C/C



W1-6  
48" x 24"

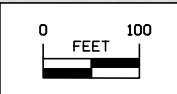


11815



W1-4L  
48" x 48"

11810



Stage 2  
(Sheet 4 of 5)



Kane TWP.  
T-83N R-12W  
SEC. 29



DO NOT PASS



R4-1  
36" x 48"  
820

500'

W20-1  
48" x 48"  
825

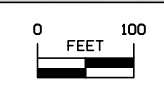
830

30

835

840

845



Stage 2  
(Sheet 5 of 5)

Kane TWP.  
T-83N R-12W  
SEC. 30

Kane TWP.  
T-83N R-12W  
SEC. 30

00811

11795

11790

11785

11th Ave.

760

765

770

775

780

785

790

30



W9-2  
48" x 48"



W4-2  
48" x 48"

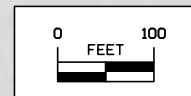


W6-2  
48" x 48"



R5-1A  
42" x 30"

Page 3  
of 4



Stage 3  
(Sheet 1 of 2)

Kane TWP.  
T-83N R-12W  
SEC. 29



11825

11820

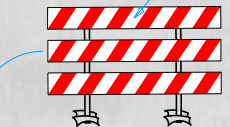
820



W6-9  
48" x 48"



R4-7B  
36" x 48"



805



R5-1  
30" x 30"

800

795

790

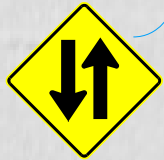
11th Ave.

810

750'

815

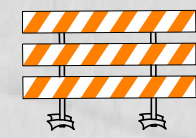
Road Closure SI-181



W6-3  
48" x 48"

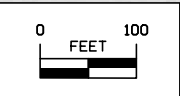


R5-1  
30" x 30"



11815

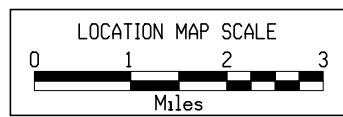
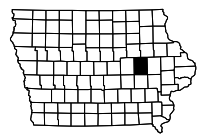
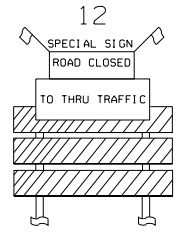
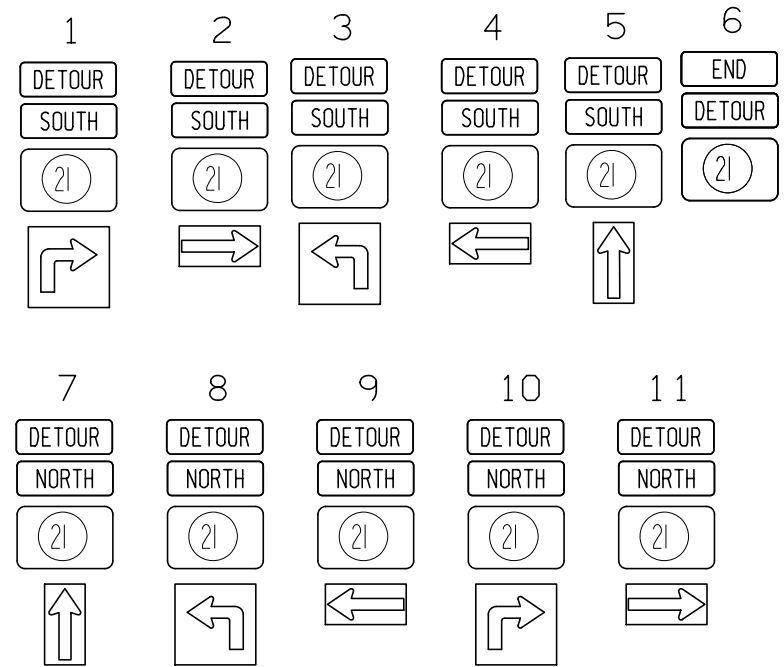
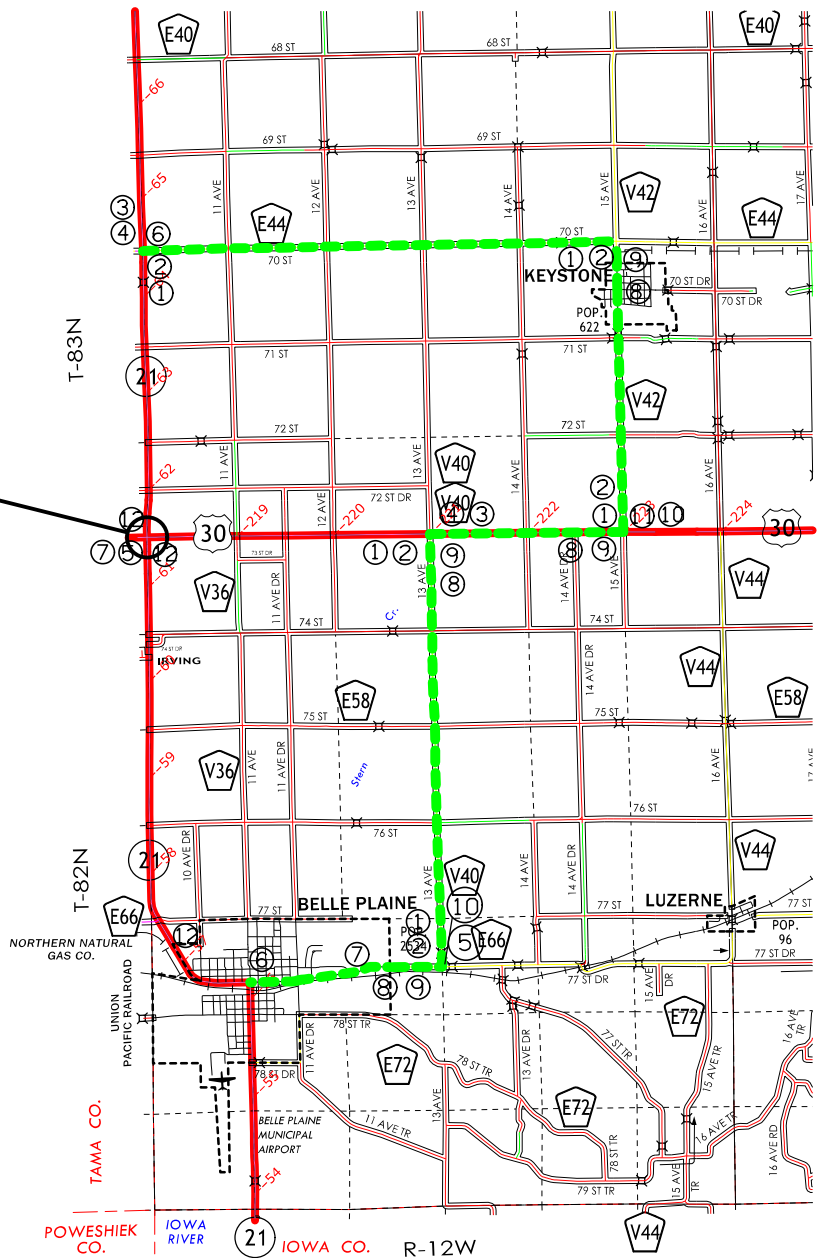
11810



Stage 3  
(Sheet 2 of 2)



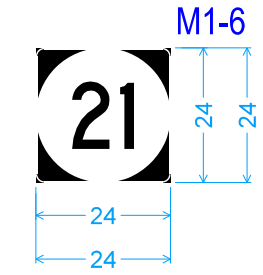
Project Location



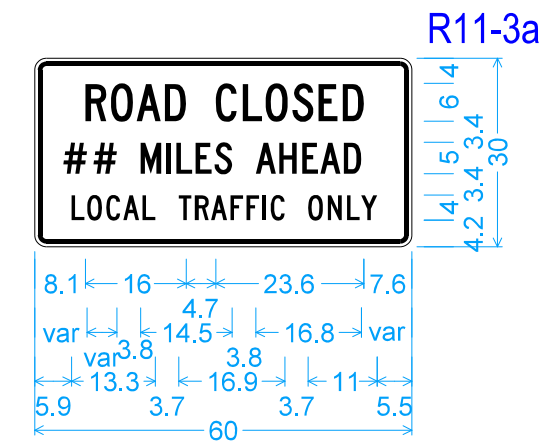
..... Detour Route



M4-8\_24x12;  
 1.5" Radius, 0.6" Border, 0.4" Indent, Black on Orange;  
 [DETOUR] B 2K specified length;



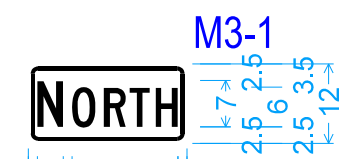
M1-6\_24x24;  
 1.5" Radius, 0.3" Border, White on Black;  
 State Highway 21 M1-5;



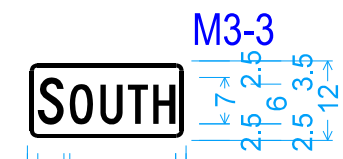
R11-3a\_TTC\_60x30;  
 1.9" Radius, 0.8" Border, 0.5" Indent, Black on White;  
 [ROAD CLOSED] C 2K specified length;  
 [## MILES AHEAD] C 2K specified length;  
 [LOCAL TRAFFIC ONLY] C 2K specified length;



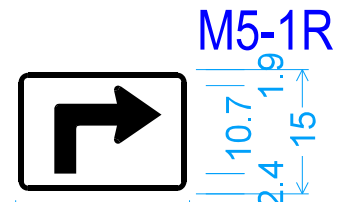
M4-6\_24x12;  
 1.5" Radius, 0.6" Border, 0.4" Indent, Black on White;  
 [END] D 2K specified length;



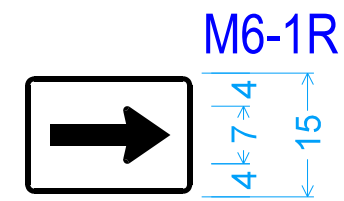
M3-1\_24x12;  
 1.5" Radius, 0.6" Border, 0.4" Indent, Black on White;  
 [NORTH] C 2K specified length;



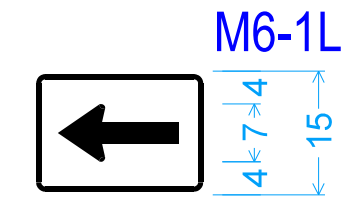
M3-3\_24x12;  
 1.5" Radius, 0.6" Border, 0.4" Indent, Black on White;  
 [SOUTH] C 2K specified length;



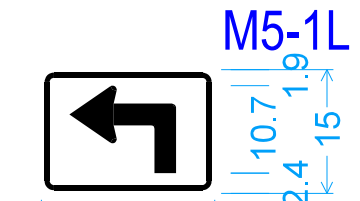
M5-1R\_21x15;  
 1.5" Radius, 0.6" Border, 0.4" Indent, Black on White;  
 90 Deg Advance Turn Arrow Custom 12.9" X 10.6";



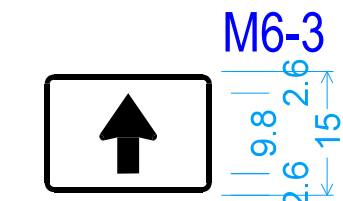
M6-1R\_21x15;  
 1.5" Radius, 0.6" Border, 0.4" Indent, Black on White;  
 Standard Arrow Custom 14.6" X 7.0" 0°;



M6-1L\_21x15;  
 1.5" Radius, 0.6" Border, 0.4" Indent, Black on White;  
 Standard Arrow Custom 14.6" X 7.0" 180°;



M5-1L\_21x15;  
 1.5" Radius, 0.6" Border, 0.4" Indent, Black on White;  
 90 Deg Advance Turn Arrow Custom 12.9" X 10.6";



M6-3\_21x15;  
 1.5" Radius, 0.6" Border, 0.4" Indent, Black on White;  
 Standard Arrow Custom 9.8" X 7.0" 90°;

York TWP.  
T-83N R-13W  
SEC. 25

POT Sta 270+10.00 (SU021) =  
PI Sta 1540+57.34 (SR021A) =  
PI Sta 3541+63.27 (SR021C)

Curve Data (83001)  
 $\Delta = 17^\circ 57' 38.31''$  (LT)  
T = 316.06  
L = 626.94  
R = 2,000.00  
E = 24.82

POT Sta 728+72.59  
PC Sta 3528+00.00 (SR021C) =  
POT Sta 728+00.00, 78.00' LT (ML030)  
Point "G" Standard Road Plan PV-411

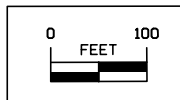
POT Sta 726+80.62  
1000' Taper 50:1 Ratio

PC Sta 2528+50.00 (SR021B) =  
POT Sta 728+50.00, 98.00' RT (ML030)  
Point "M" Standard Road Plan PV-410

Curve Data (82001)  
 $\Delta = 12^\circ 56' 40.58''$  (RT)  
T = 150.88  
L = 300.48  
R = 1,330.00  
E = 8.53

POT Sta 261+50.00 (SU021) =  
PI Sta 2541+58.84 (SR021B) =  
PI Sta 4540+50.14 (SR021D)

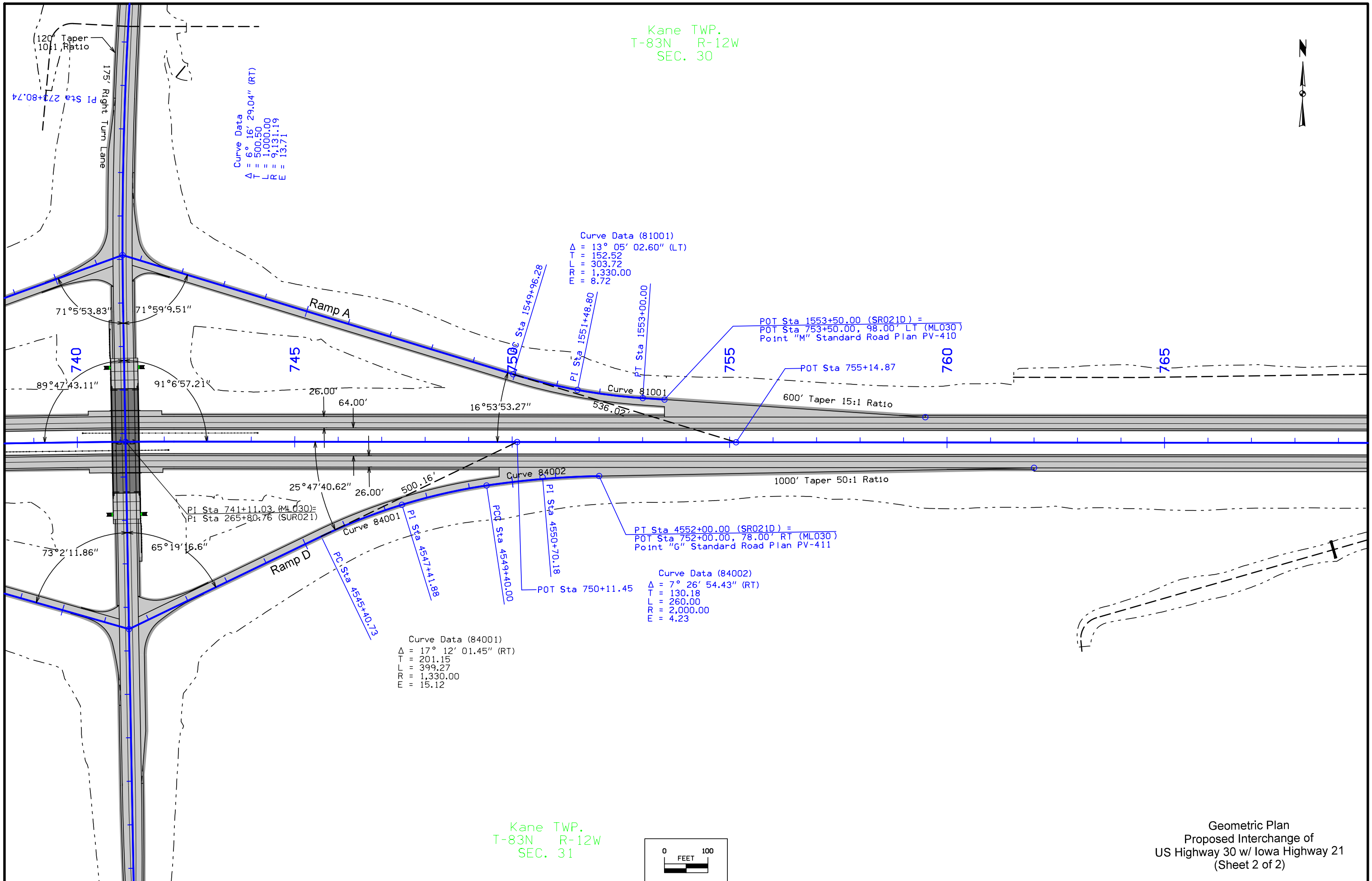
York TWP.  
T-83N R-13W  
SEC. 36



Geometric Plan  
Proposed Interchange of  
US Highway 30 w/ Iowa Highway 21  
(Sheet 1 of 2)



Kane TWP.  
T-83N R-12W  
SEC. 30



Curve Data (84001)  
Δ = 17° 12' 01.45" (RT)  
T = 201.15  
L = 399.27  
R = 1,330.00  
E = 15.12

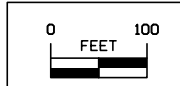
Curve Data (81001)  
Δ = 13° 05' 02.60" (LT)  
T = 152.52  
L = 303.72  
R = 1,330.00  
E = 8.72

Curve Data (84002)  
Δ = 7° 26' 54.43" (RT)  
T = 130.18  
L = 260.00  
R = 2,000.00  
E = 4.23

POT Sta 1553+50.00 (SR021D) =  
POT Sta 753+50.00, 98.00' LT (ML030)  
Point "M" Standard Road Plan PV-410

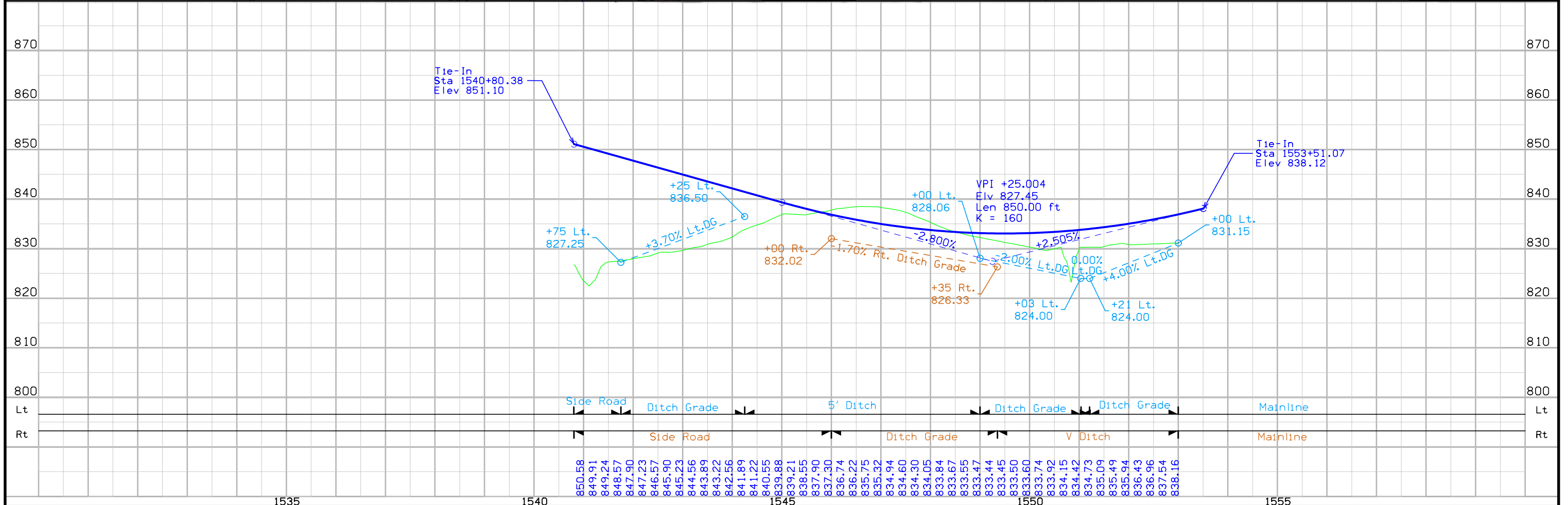
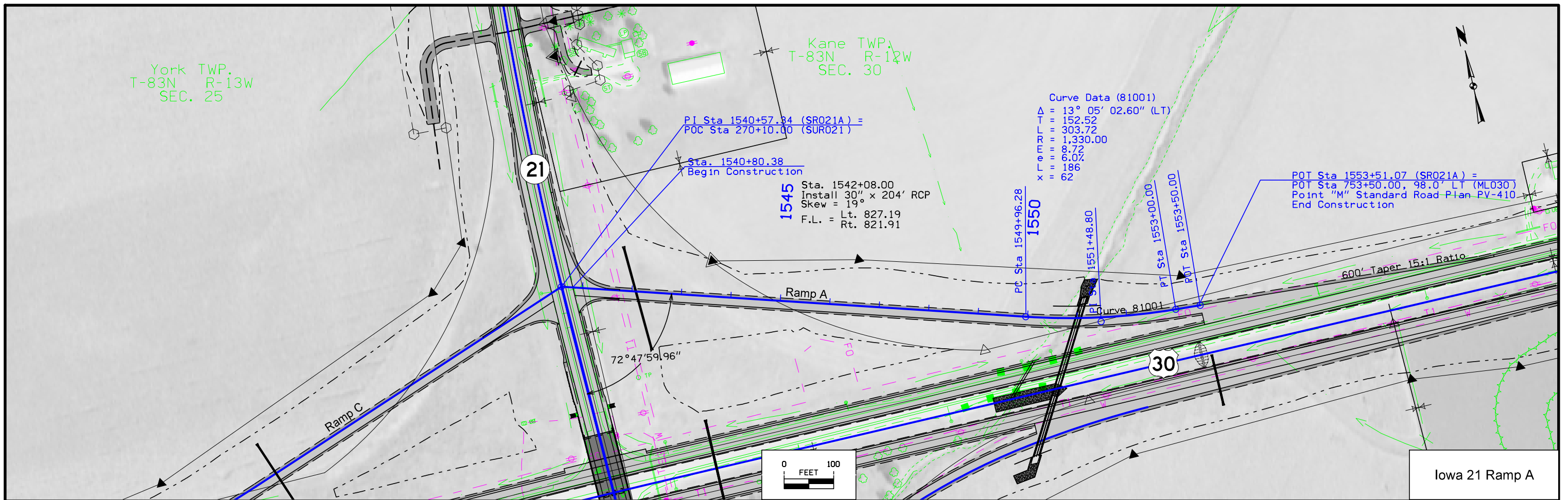
PT Sta 4552+00.00 (SR021D) =  
POT Sta 752+00.00, 78.00' RT (ML030)  
Point "G" Standard Road Plan PV-411

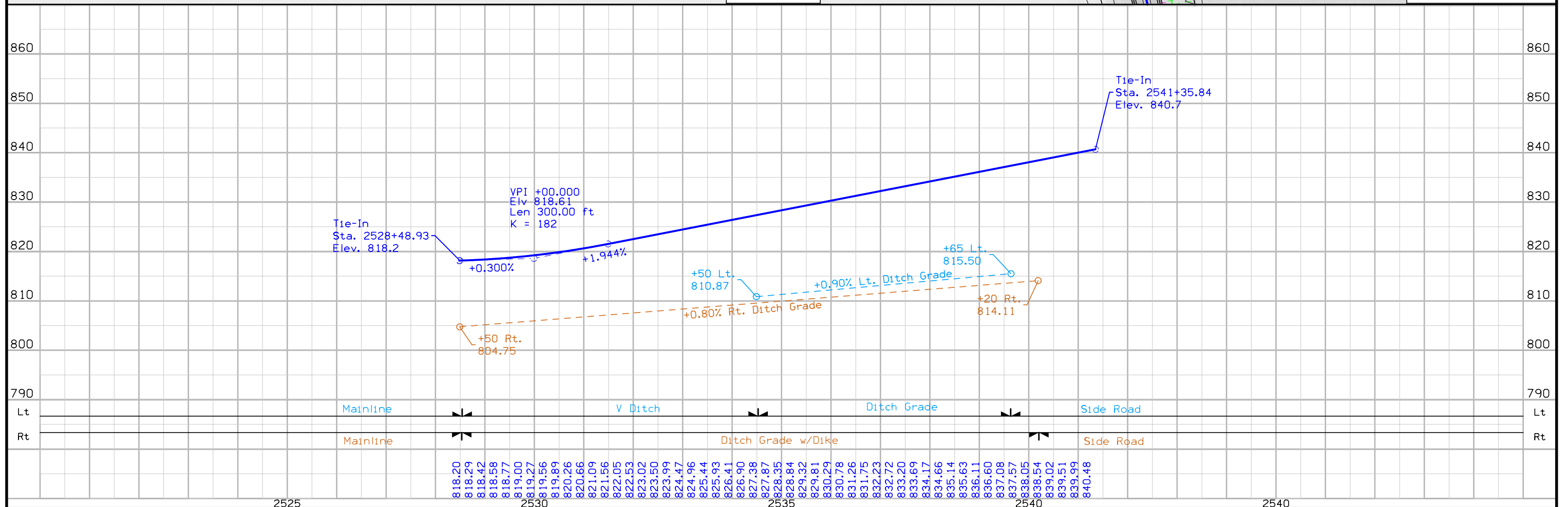
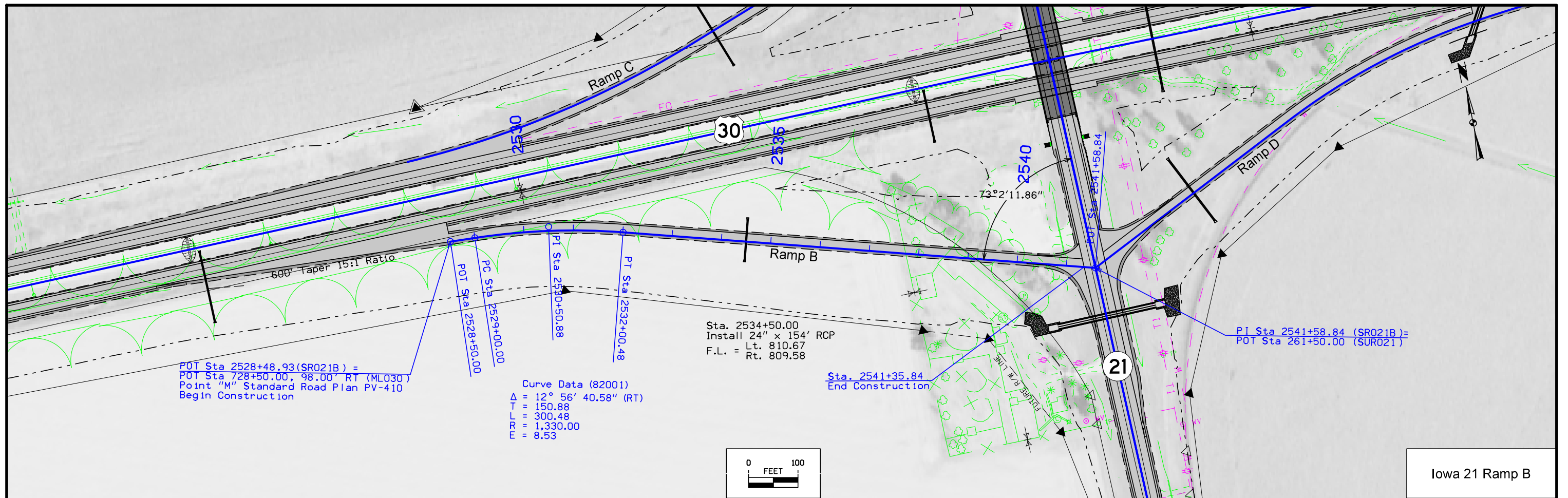
Kane TWP.  
T-83N R-12W  
SEC. 31



Geometric Plan  
Proposed Interchange of  
US Highway 30 w/ Iowa Highway 21  
(Sheet 2 of 2)









York TWP.  
T-83N R-13W  
SEC. 25

Curve Data (83001)  
 $\Delta = 17^\circ 57' 38.31''$  (LT)  
 T = 316.06  
 L = 626.94  
 R = 2,000.00  
 E = 24.82  
 F = 5.4%  
 L = 168  
 x = 62

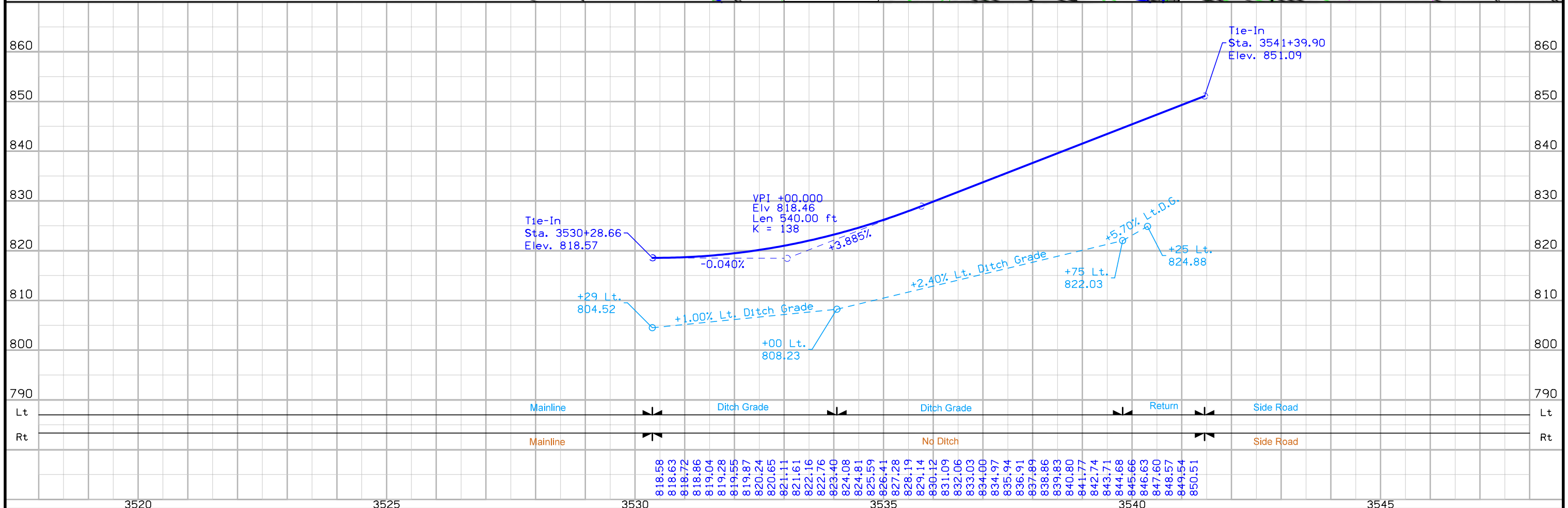
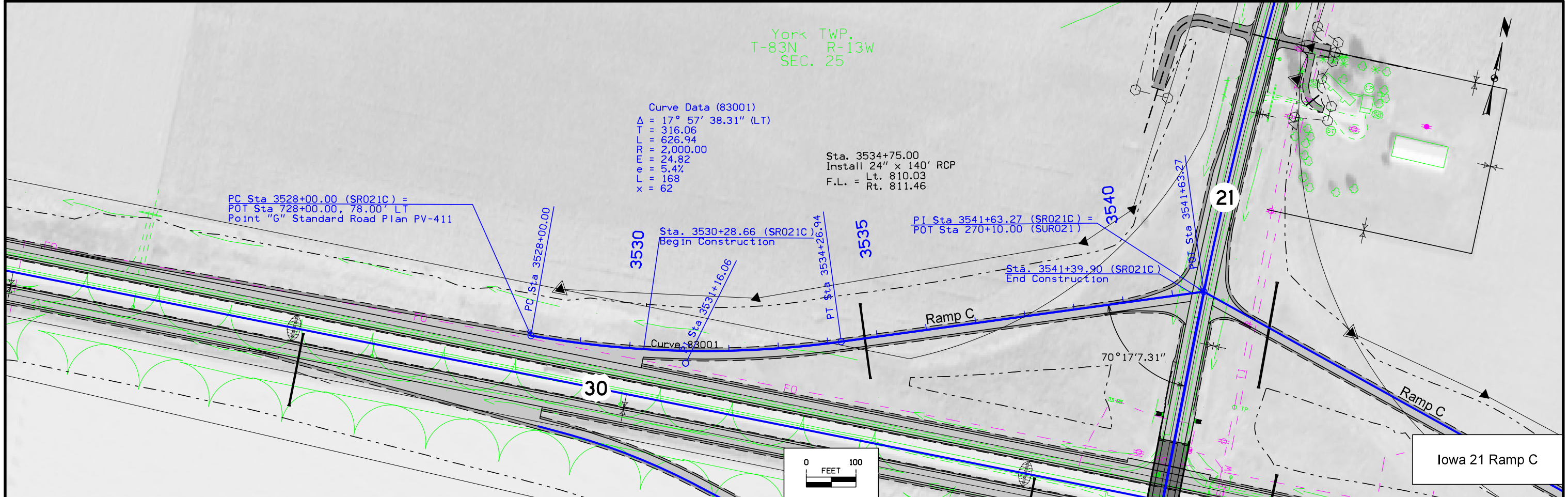
Sta. 3534+75.00  
 Install 24" x 140' RCP  
 F.L. = Lt. 810.03  
 Rt. 811.46

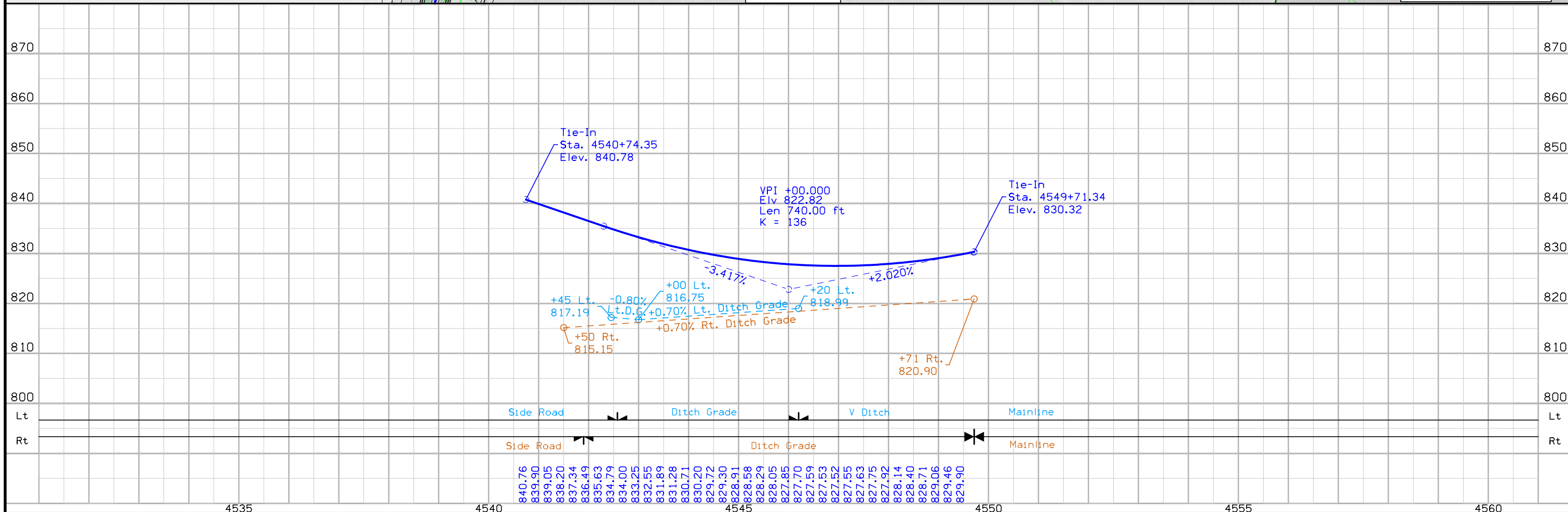
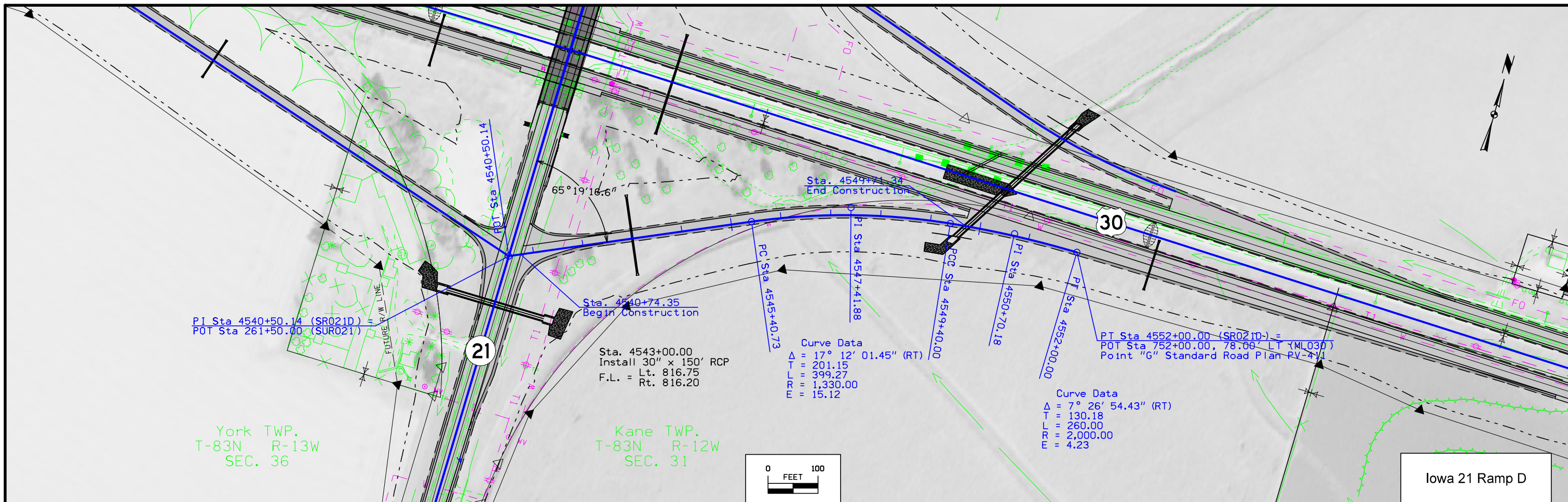
PC Sta 3528+00.00 (SR021C) =  
 POT Sta 728+00.00, 78.00' LT  
 Point "G" Standard Road Plan PV-411

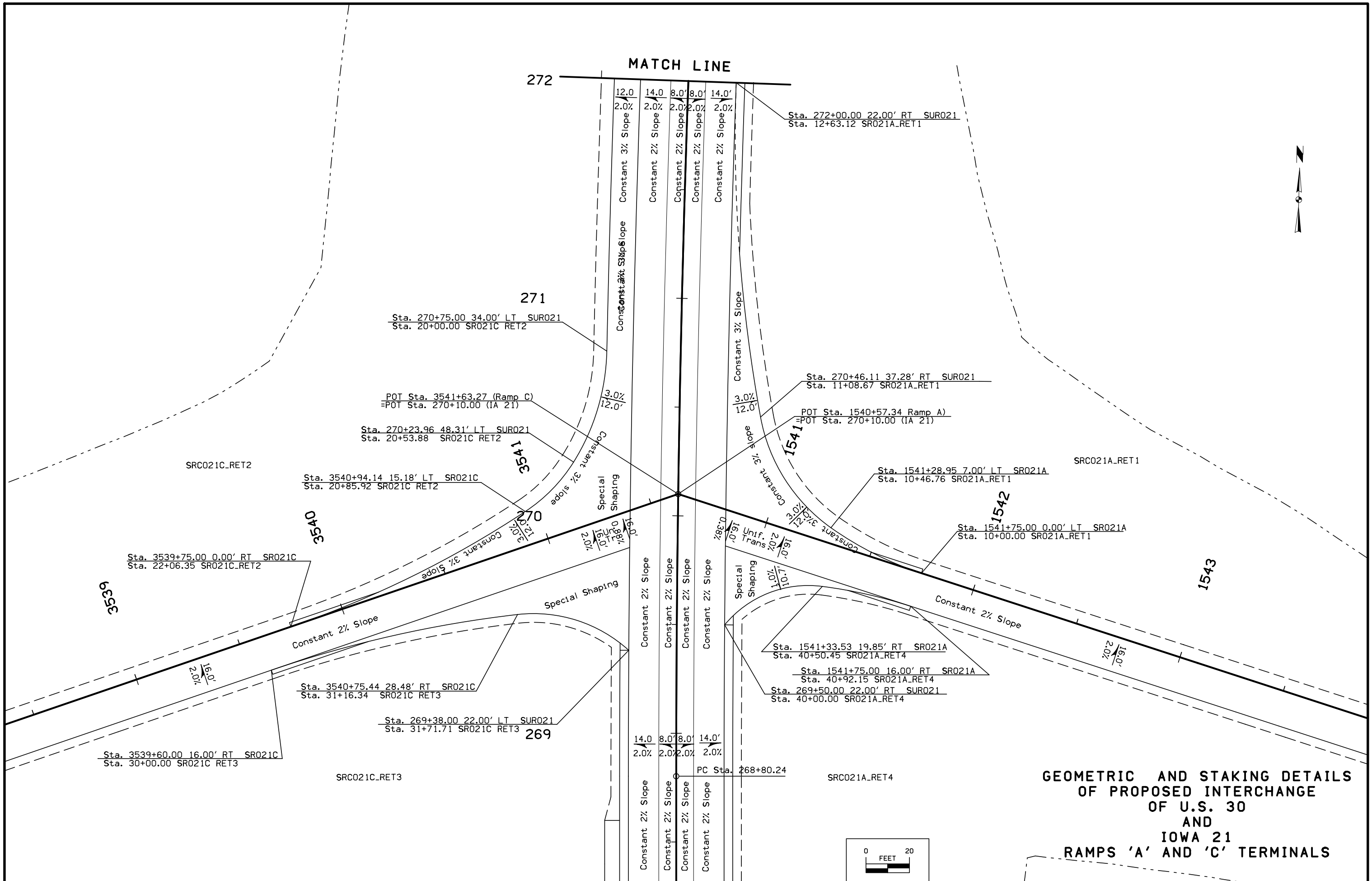
Sta. 3530+28.66 (SR021C)  
 Begin Construction

PI Sta 3541+63.27 (SR021C) =  
 POT Sta 270+10.00 (SUR021)

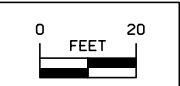
Sta. 3541+39.90 (SR021C)  
 End Construction

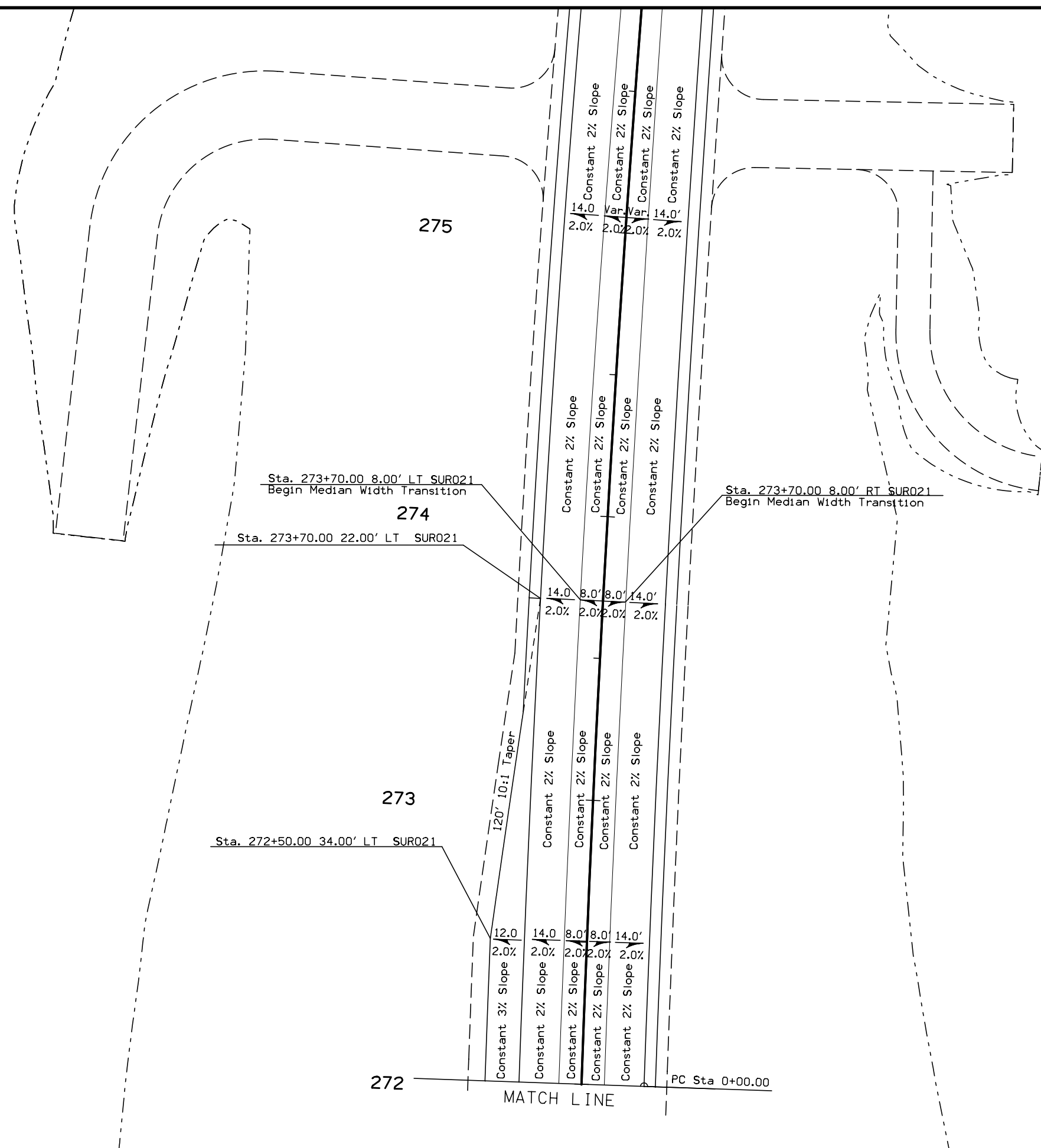




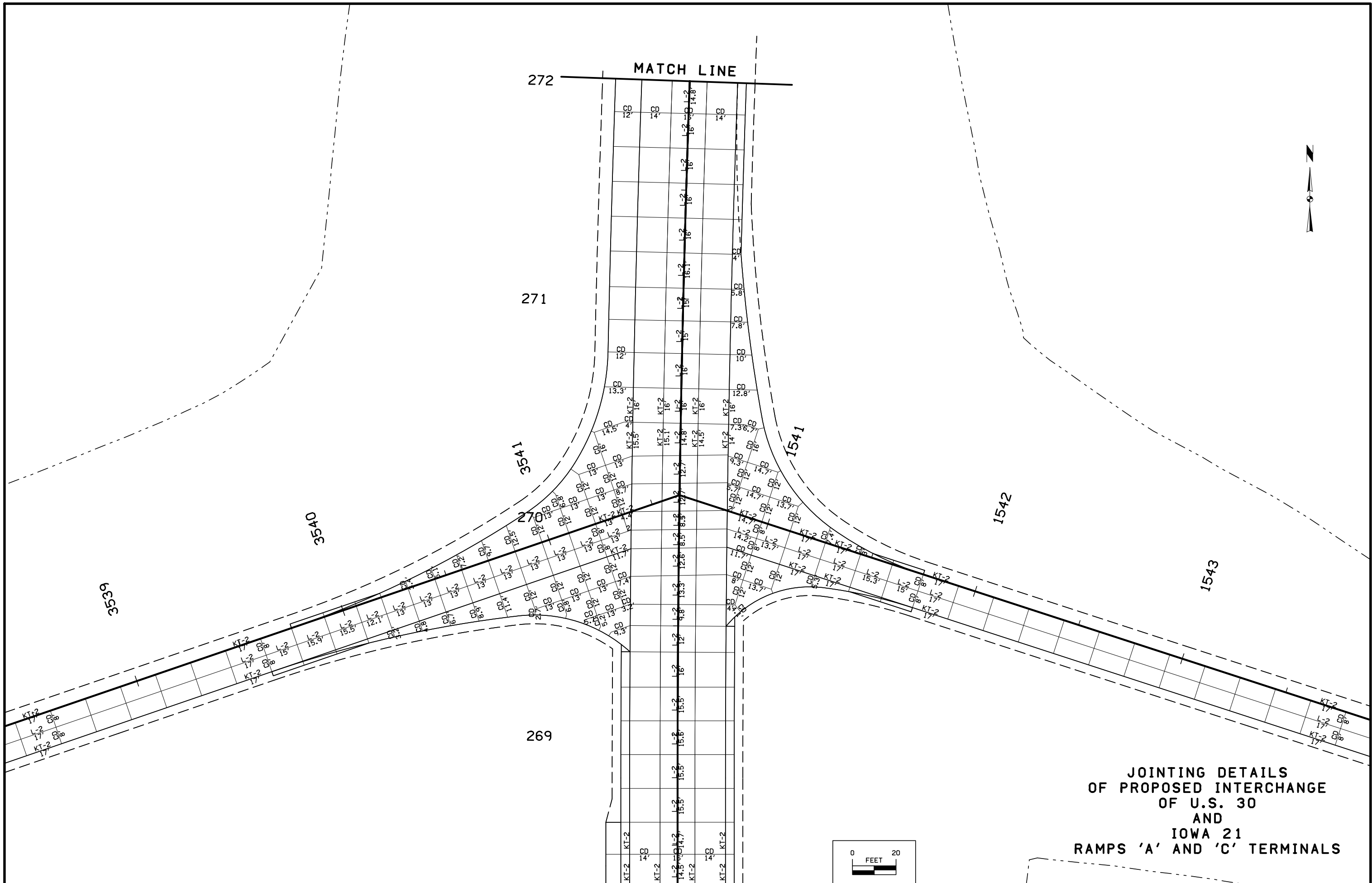


**GEOMETRIC AND STAKING DETAILS  
 OF PROPOSED INTERCHANGE  
 OF U.S. 30  
 AND  
 IOWA 21  
 RAMPS 'A' AND 'C' TERMINALS**

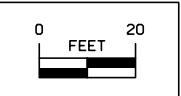




**GEOMETRIC AND STAKING DETAILS**  
**PROPOSED INTERCHANGE**  
**OF U.S. 30**  
**AND**  
**IOWA 21**  
**RAMPS 'A' AND 'C' TERMINALS**



**JOINTING DETAILS  
 OF PROPOSED INTERCHANGE  
 OF U.S. 30  
 AND  
 IOWA 21  
 RAMPS 'A' AND 'C' TERMINALS**





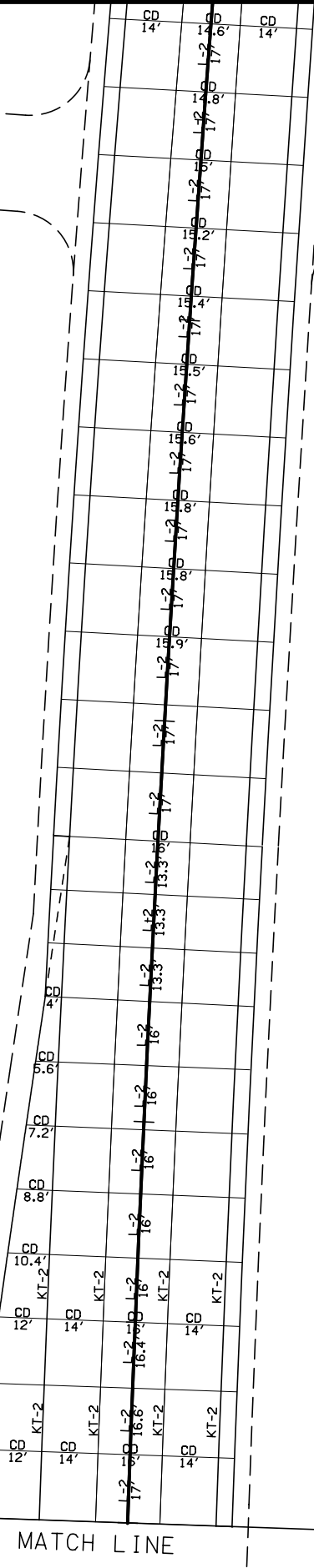


275

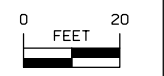
274

273

272



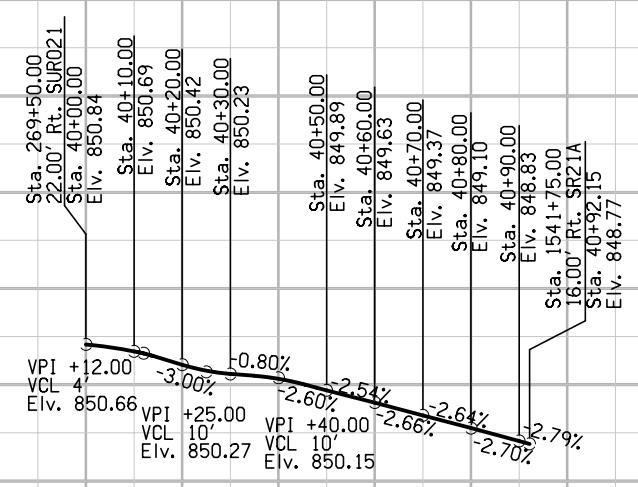
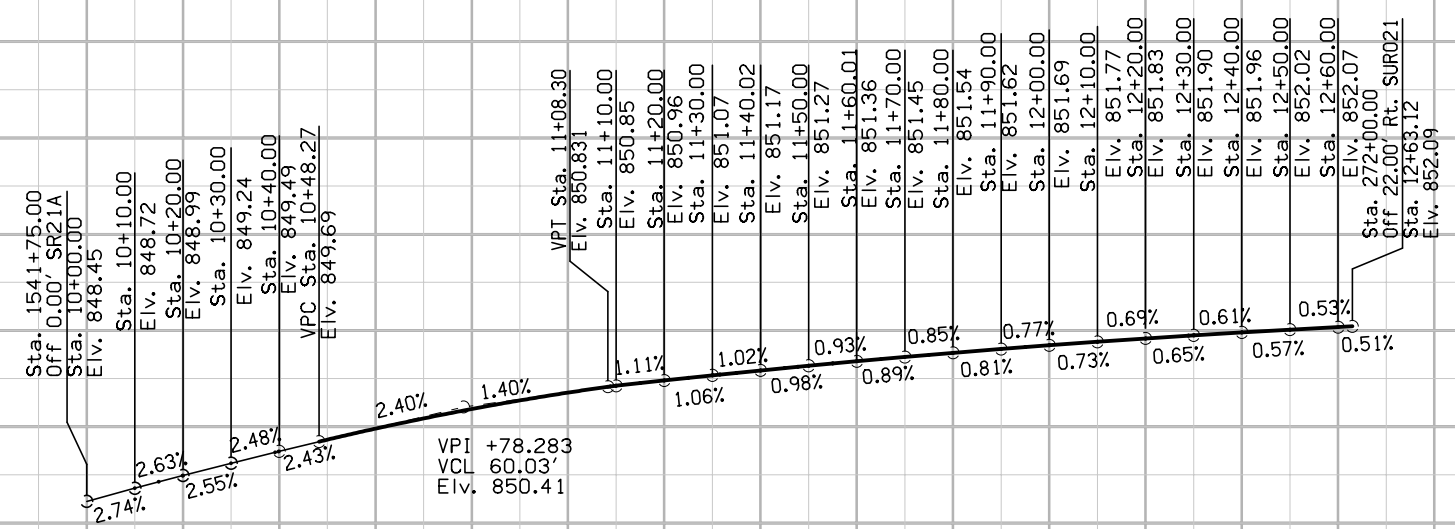
MATCH LINE



JOINTING DETAILS  
 PROPOSED INTERCHANGE  
 OF U.S. 30  
 AND  
 IOWA 21  
 RAMPS 'A' AND 'C' TERMINALS

SR021A RET1

SR021A RET4



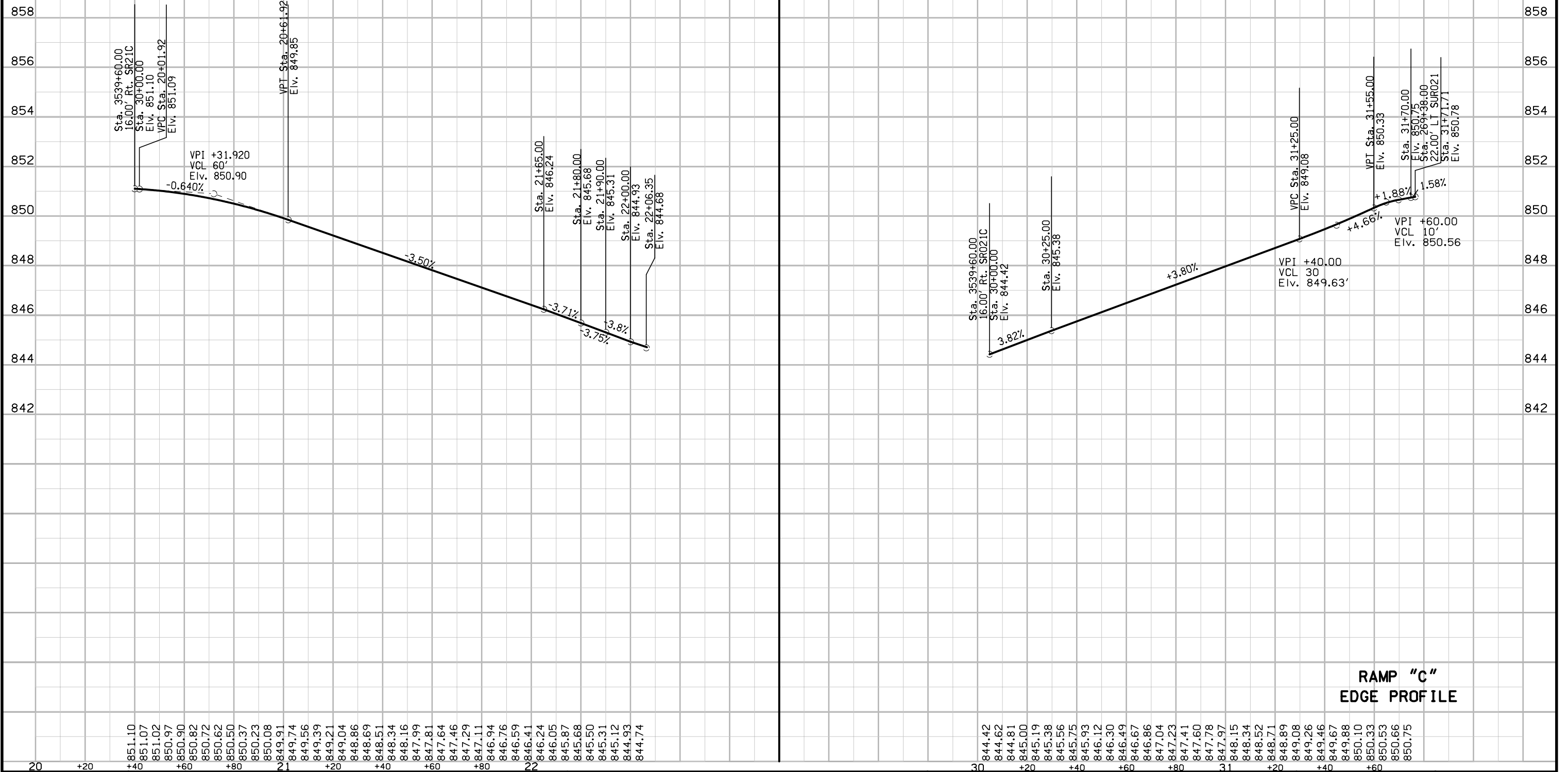
RAMP "A"  
EDGE PROFILE

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848.59  
848.72  
848.86  
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849.12  
849.24  
849.37  
849.49  
849.61  
849.73  
849.85  
849.96  
850.07  
850.17  
850.27  
850.37  
850.46  
850.55  
850.63  
850.71  
850.78  
850.85  
850.91  
850.96  
851.02  
851.07  
851.12  
851.17  
851.22  
851.27  
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851.36  
851.41  
851.45  
851.49  
851.54  
851.58  
851.62  
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851.69  
851.73  
851.77  
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852.02  
852.05  
852.07

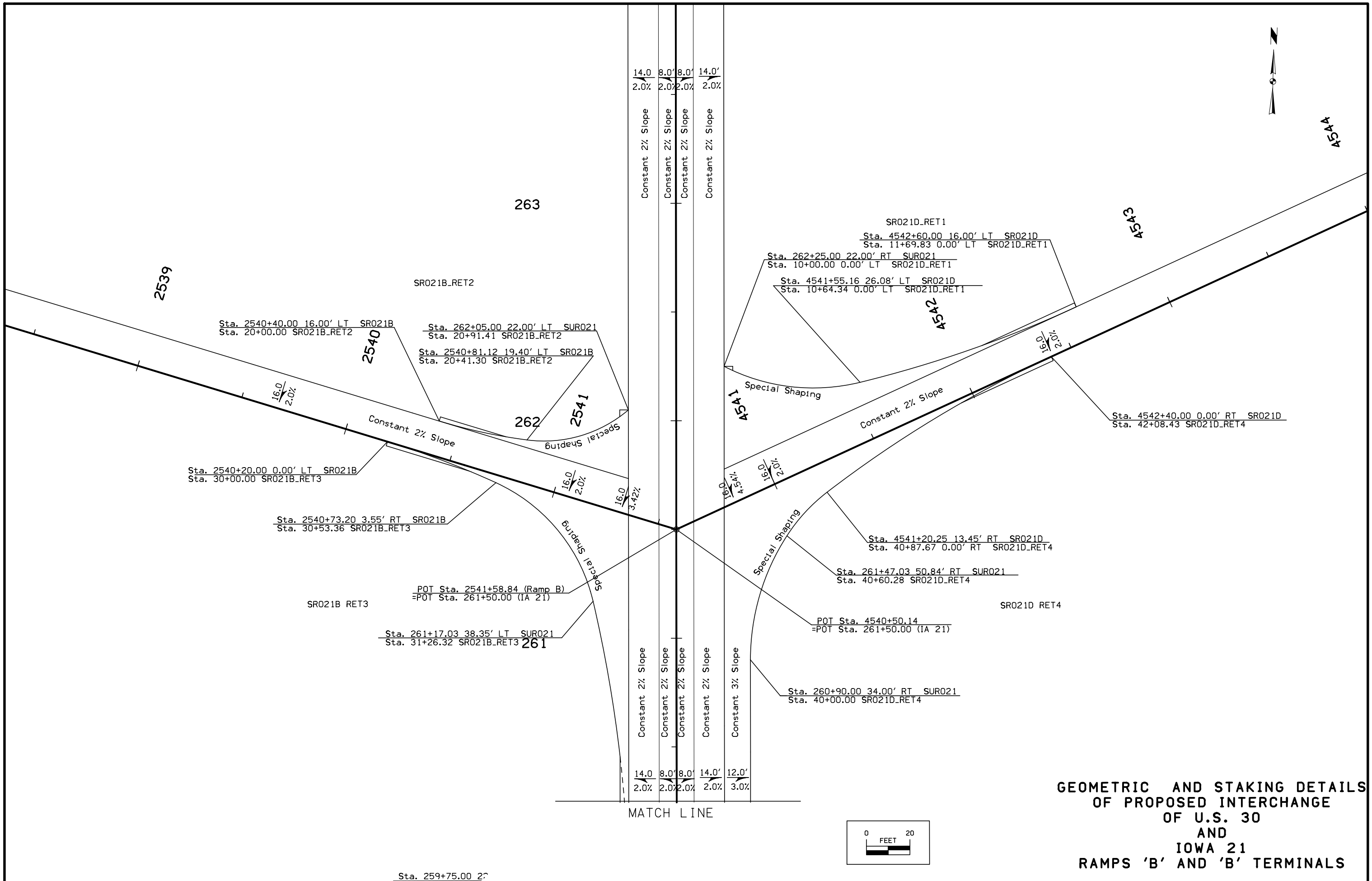
850.84  
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849.89  
849.76  
849.63  
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848.83

SR021C\_RET2

SR021C\_RET3



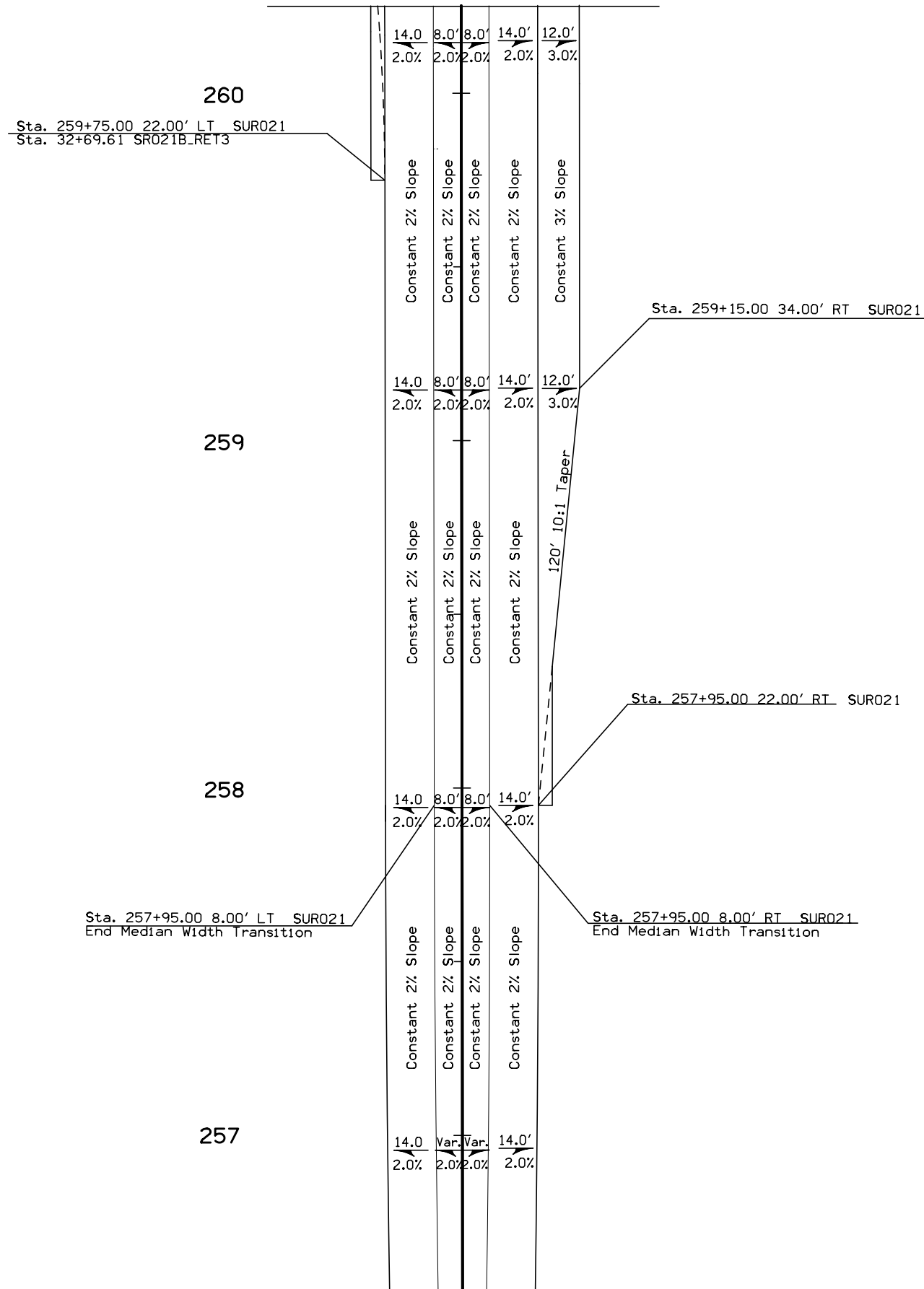
RAMP "C"  
EDGE PROFILE



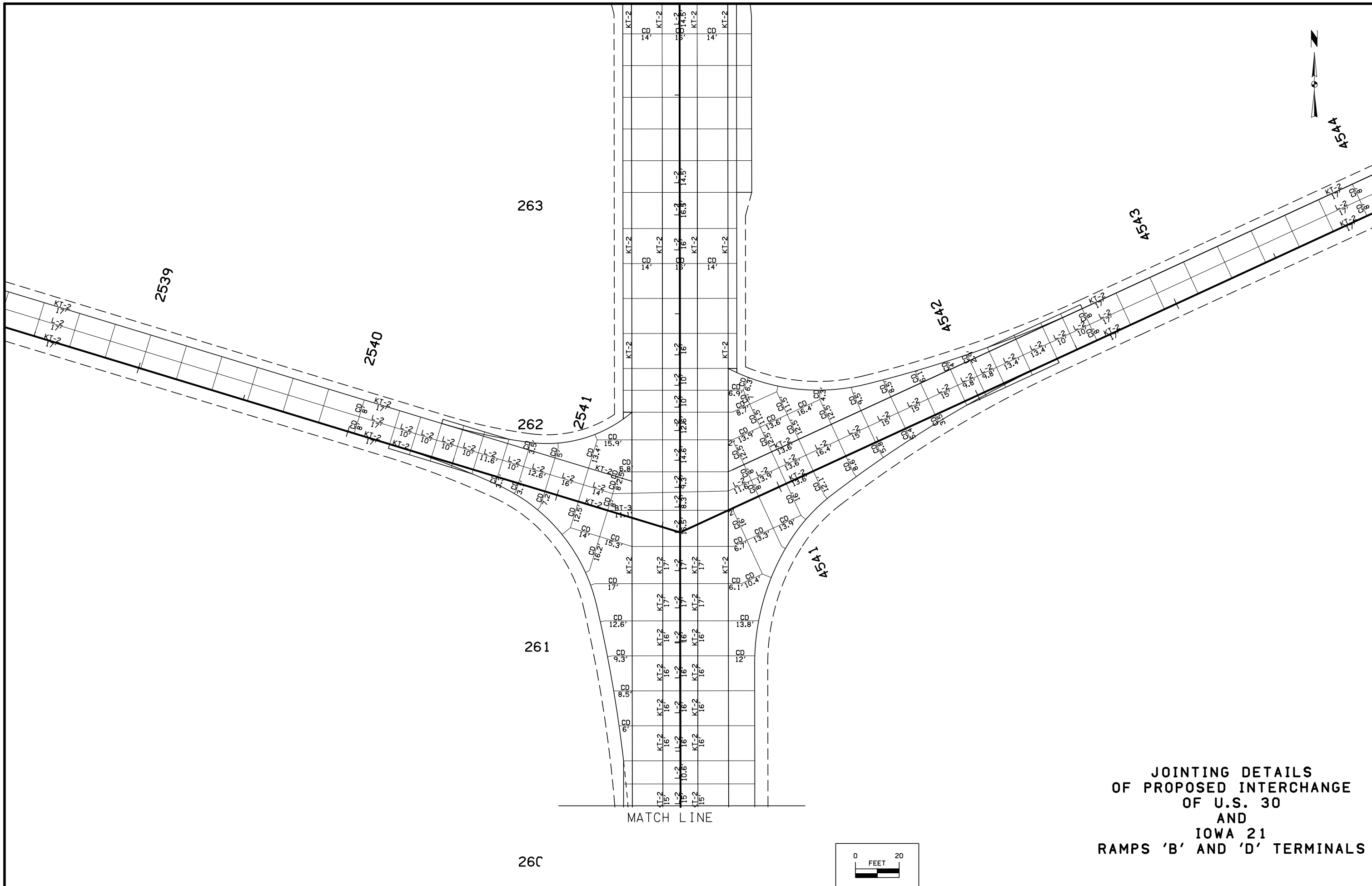
**GEOMETRIC AND STAKING DETAILS  
OF PROPOSED INTERCHANGE  
OF U.S. 30  
AND  
IOWA 21  
RAMPS 'B' AND 'B' TERMINALS**

1:25:08 PM 8/17/2021 akiebel pw:\ntPwInt1.dot.int.lan:PWMain\Documents\Projects\0603003092\Design\.(240).PCC Pavement - Grade and New\06030240\_K13.dgn

MATCH LINE



GEOMETRIC AND STAKING DETAILS  
 OF PROPOSED INTERCHANGE  
 OF U.S. 30  
 AND  
 IOWA 21  
 RAMPS 'B' AND 'B' TERMINALS



JOINTING DETAILS  
 OF PROPOSED INTERCHANGE  
 OF U.S. 30  
 AND  
 IOWA 21  
 RAMPS 'B' AND 'D' TERMINALS

1:25:10 PM 8/17/2021 akiebel pw:\ntPwInt1.dot.int.lan:PWMain\Documents\Projects\0603003092\Design\.(240).PCC Pavement - Grade and New\06030240\_K13.dgn

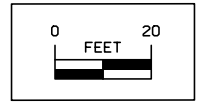
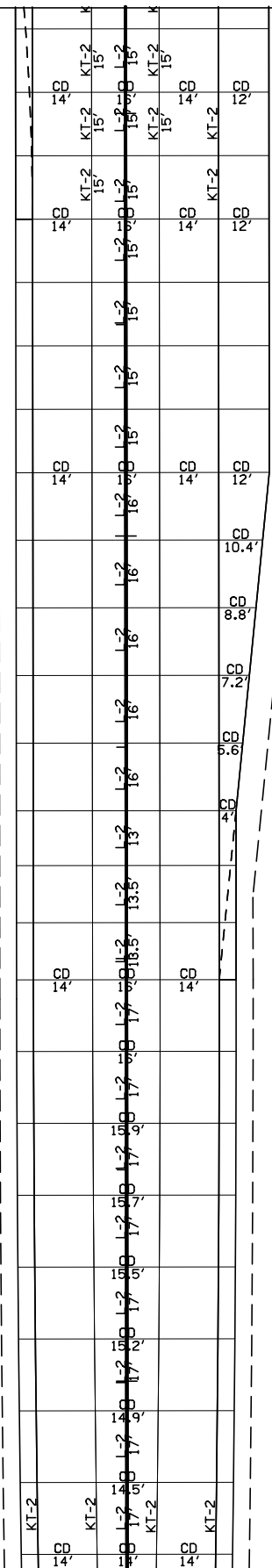
MATCH LINE

260

259

258

257

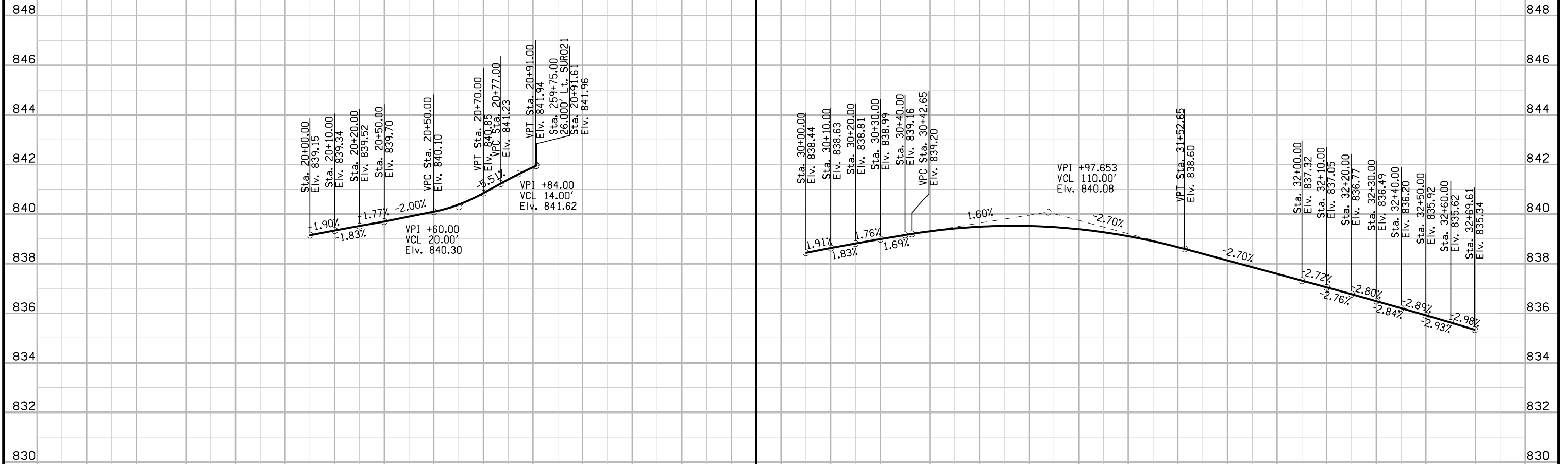


JOINTING DETAILS  
 PROPOSED INTERCHANGE  
 OF U.S. 30  
 AND  
 IOWA 21  
 RAMPS 'B' AND 'D' TERMINALS



SR021B\_RET2

SR021B\_RET3



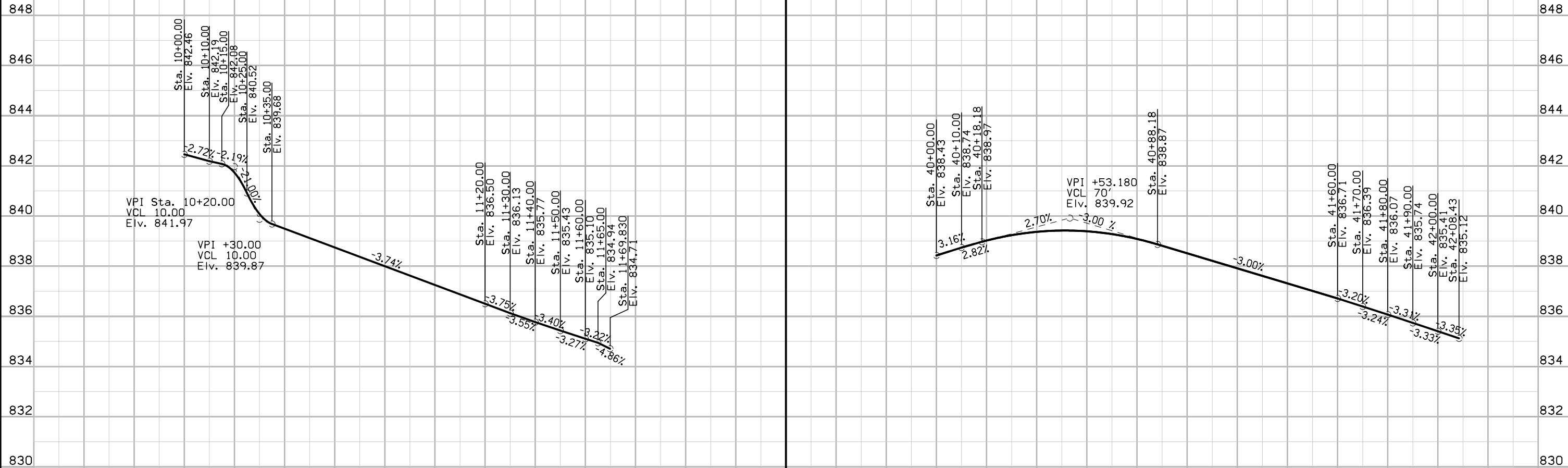
RAMP "B"  
EDGE PROFILE

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839.34  
839.43  
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839.61  
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839.80  
839.90  
840.00  
840.10  
840.22  
840.39  
840.60  
840.85  
841.12  
841.40  
841.65  
841.90

838.44  
838.53  
838.63  
838.72  
838.81  
838.90  
838.99  
839.07  
839.16  
839.24  
839.31  
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839.42  
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839.50  
839.48  
839.44  
839.39  
839.34  
839.27  
839.19  
839.11  
839.01  
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838.79  
838.67  
838.53  
838.40  
838.26  
838.13  
837.86  
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837.05  
836.91  
836.77  
836.63  
836.49  
836.35  
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835.62  
835.47

SR021D RET1

SR021D RET4



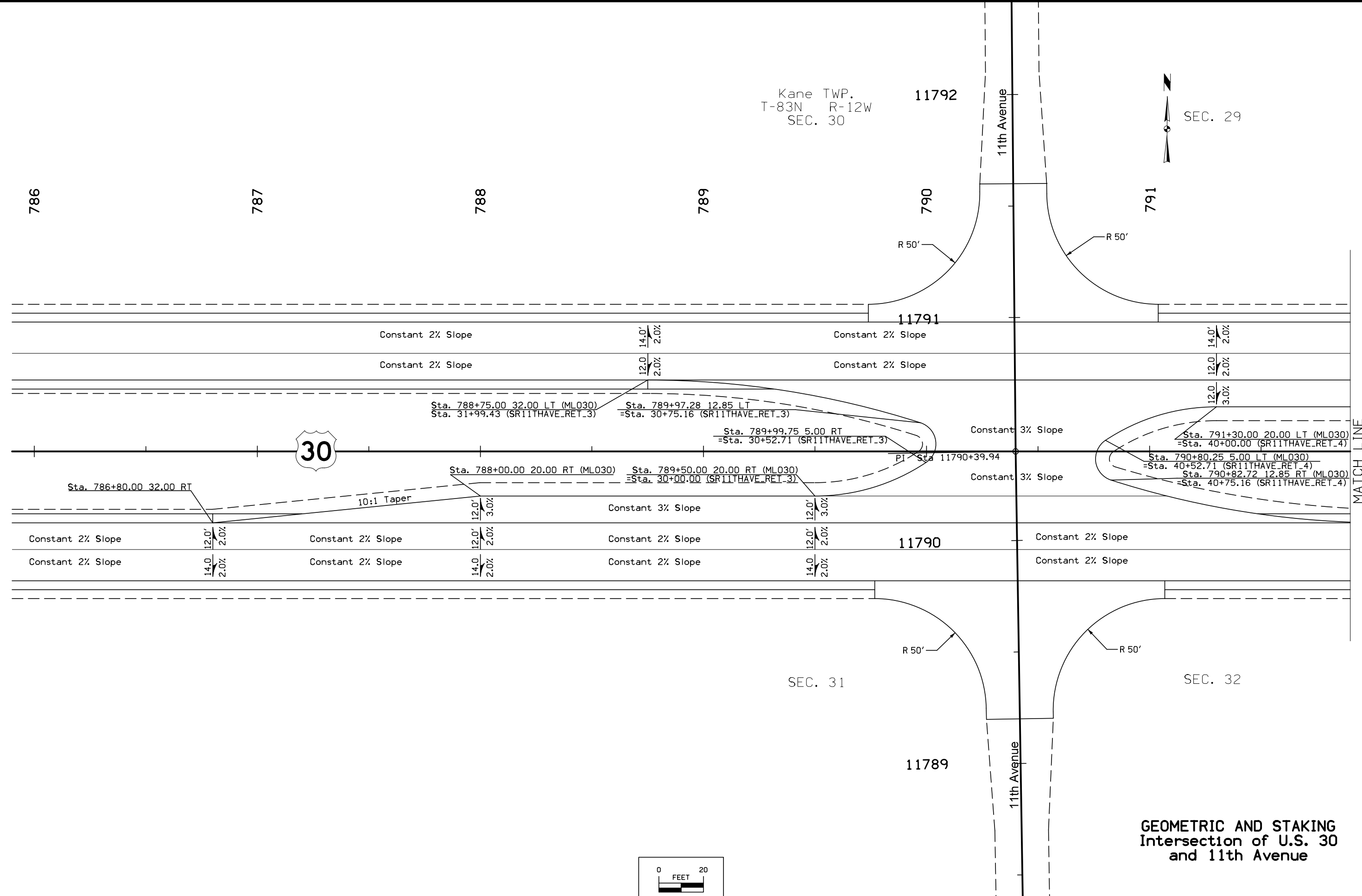
RAMP "D"  
EDGE PROFILE

842.46	10	838.43	40
842.32		838.59	
842.19		838.74	
842.08		838.89	
841.73	+20	839.02	+20
840.92		839.14	
840.08		839.24	
839.68	+40	839.31	+40
839.49		839.37	
839.31		839.41	
839.12		839.42	
838.93		839.42	
838.75	+60	839.39	+60
838.56		839.35	
838.37		839.28	
838.19		839.19	
838.00	+80	839.09	+80
837.81		838.96	
837.62		838.81	
837.44		838.66	
837.25	11	838.51	41
837.06		838.36	+20
836.88		838.21	+40
836.69		838.06	+60
836.50	+20	837.91	+80
836.31		837.76	
836.13		837.61	
835.95		837.46	
835.77	+40	837.31	+40
835.60		837.16	
835.43		837.01	
835.27		836.86	
835.10	+60	836.71	+60
834.94		836.55	
		836.39	
		836.23	
		836.07	+80
		835.91	
		835.74	
		835.57	
		835.41	42
		835.24	

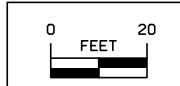
Kane TWP.  
T-83N R-12W  
SEC. 30

SEC. 29

786 787 788 789 790 791



MATCH LINE



**GEOMETRIC AND STAKING**  
Intersection of U.S. 30  
and 11th Avenue

Kane TWP.  
T-83N R-12W  
SEC. 29



792

793

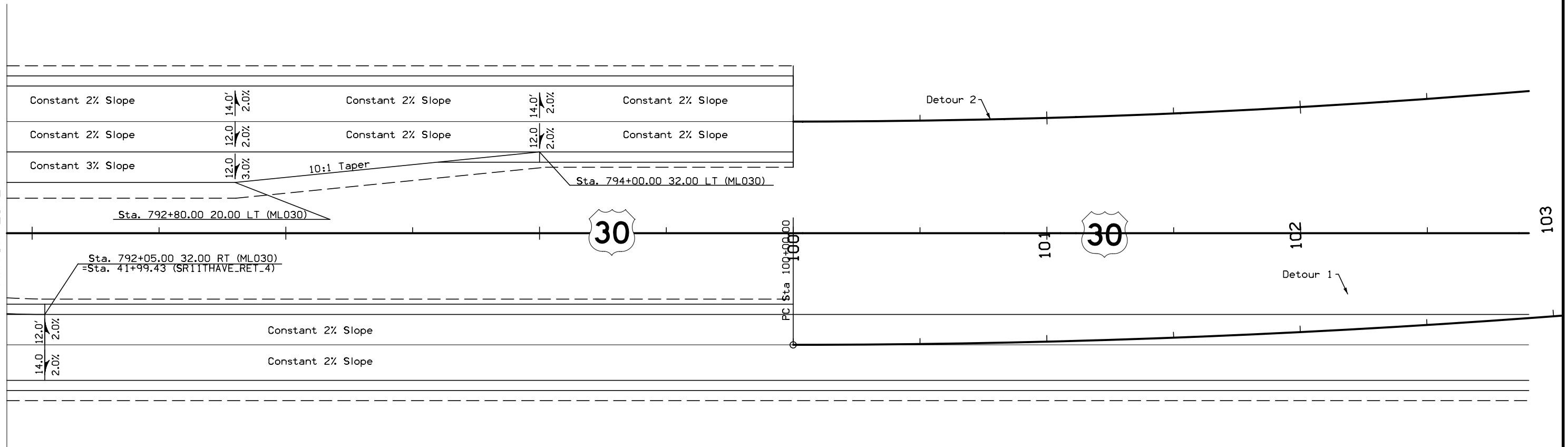
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795

796

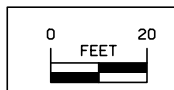
797

MATCH LINE



SEC. 32

GEOMETRIC AND STAKING  
Intersection of U.S. 30  
and 11th Avenue







Kane TWP.  
T-83N R-12W  
SEC. 30

786

787

788

789

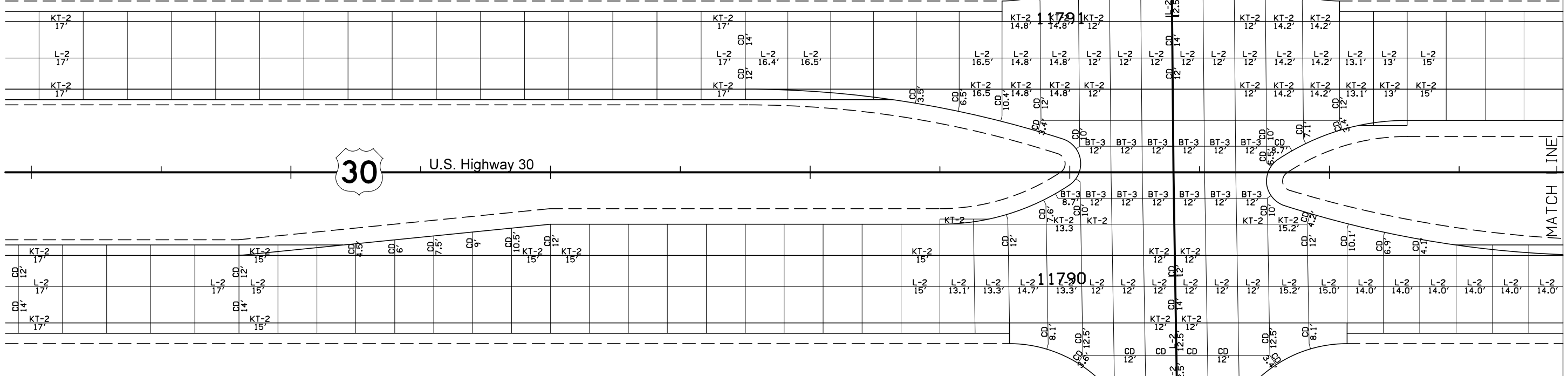
11792

790

Sect. No. 29

791

11th Avenue



U.S. Highway 30

MATCH LINE

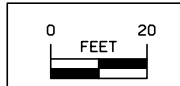
Sect. No. 31

Sect. No. 32

11789

11th Avenue

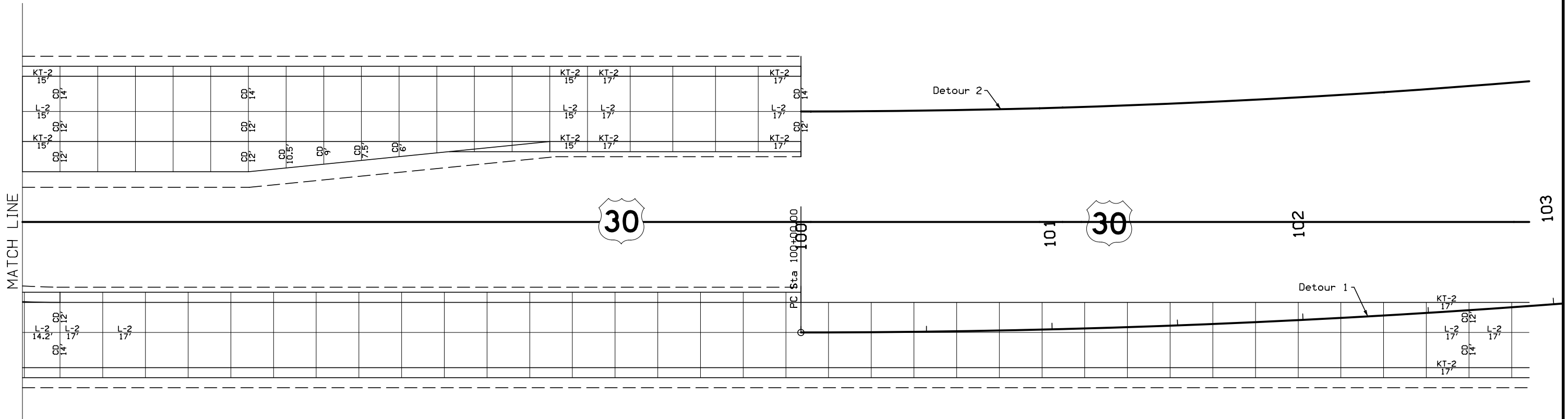
**JOINTING LAYOUT**  
Intersection of U.S. 30  
and 11th Avenue



Kane TWP.  
T-83N R-12W  
SEC. 29

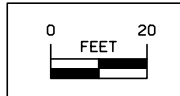


792 793 794 795 796 797



Sect. No. 32

**JOINTING LAYOUT**  
**Intersection of U.S. 30**  
**and 11th Avenue**



# SURVEY SYMBOLS

	D Centerline Draw or Stream (Down)		TLNR Tree Line Right
	SI Sign		FLG Flag Poles
	EW Edge of Water		WV Water Valve
	TDC Tree Deciduous		FWD Wood Fence
	BNK Stream Bank		TLNL Tree Line Left
	EG Edge of Gravel Road		SAA Sanitary Sewer Line Co. 1
	FWD Wood Fence		D Centerline Draw or Stream (Down)
	TEV Evergreen Tree		DU Centerline Draw or Stream (Up)
	LUM Luminaire		BNK Stream Bank
	SI Sign		EW Edge of Water
	RET Retaining Walls		DIK Centerline of Dike or Dam
	GDL Guard Rail Steel		TLA Underground Telephone Line Co. 1
	SHR Shrub		TVA Underground TV Cable Co. 1
	EB Electrical Box		GLA Underground Gas Line Co. 1
	PPA Power Pole Co. 1		
	MH Utility Access (Manhole)		
	HDG Hedge Row		
	LP L.P. Tank		
	STP Stump		
	RR Centerline of Railroad Tracks		
	FCL Chain Link and Security Fence		
	FHD Fire Hydrants		
	SWP Swamp or Marsh		
	RIP Rip-Rap		
	INB Storm Sewer Beehive Intake		
	GP Guard Post (Less Than 4 Posts)		
	FLG Flag Poles		
	TSG Traffic Signal		
	OUT Tile Outlet		
	SI Sign		
	GDL Guard Rail Steel		
	LUM Luminaire		
	MH Utility Access (Manhole)		
	TDC Tree Deciduous		
	FCL Chain Link and Security Fence		
	EB Electrical Box		
	PPA Power Pole Co. 1		
	TPD Telephone Pedestal		
	FW Wire Fence		
	BB Billboard		
	MM Mile Marker Post		
	SL Speed Limit Sign		
	IN Storm Sewer Intake		
	INB Storm Sewer Beehive Intake		
	PR Electric Riser Pole		
	St.S. STA Storm Sewer Line Co. 1		
	FHD Fire Hydrants		

# 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	Design	Color No.	
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

	Drill		Cone Penetration Test (CPT)		Dig/Core	Soils Book No. _____	
	Water		Settlement Plate		Treatment	Date(s) Drilled 11/2013 to 12/2015	
	Dry		Sand Blanket		Soil Remediation Area		Sandstone
	Sample		Select Soil		Select Sand		Unsuitable A
	Plugged		Slope Dressing Only		Broken and Weathered Rock		Unsuitable B
	Moisture		Rock		Boulders		Unsuitable C
	Shelby		Boring Truncated				Sandy Soil
	Blow Count						Shale
	Dens. Core						

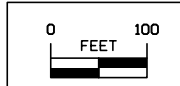
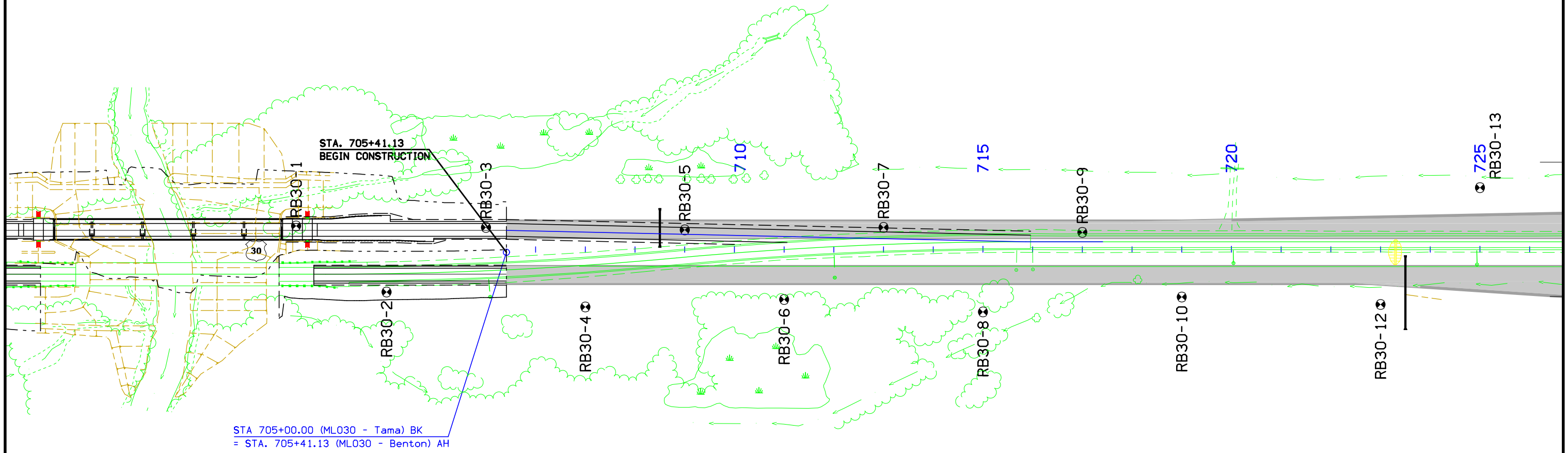
Symbol	Description
	Reference Point
	Station
	Survey Line
	Section Corner
	Ground Line Intercept

Symbol	Description
	Proposed Right-of-Way
	Existing and Proposed Right-of-Way
	Easement and Existing Right-of-Way
	Borrow
	Easement (Temporary)
	Easement
	Excess
	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.

# LEGEND AND SYMBOL INFORMATION SHEET

SPECIAL ATTENTION (SLIVER FILL)  
 SPECIAL ATTENTION SHOULD BE GIVEN TO ARTICLE  
 2107.03.C, OF THE CURRENT STANDARD  
 SPECIFICATION SERIES, ON THIS PROJECT.



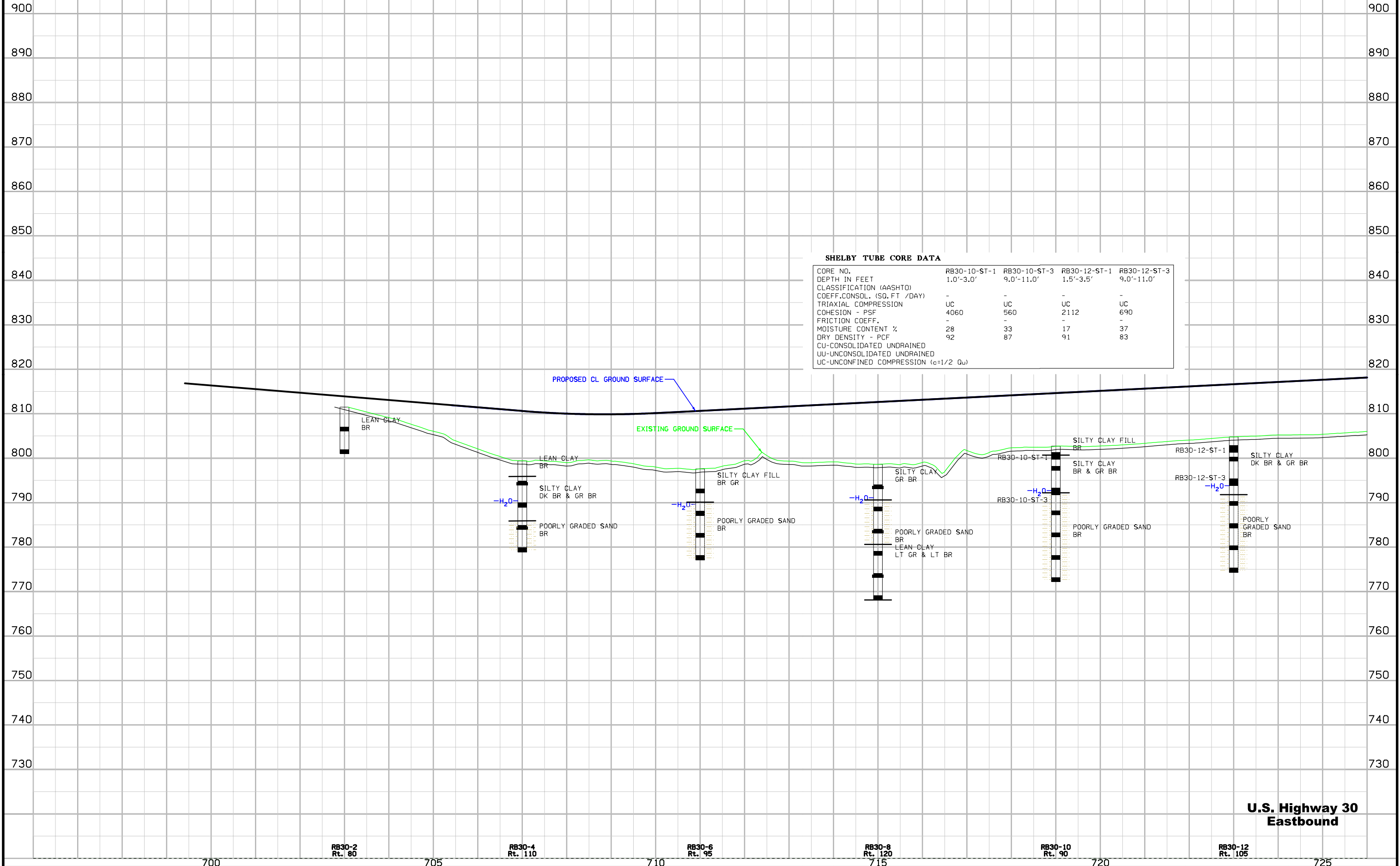
**U.S. Highway 30**



CUT MOISTURE  
CUT DENSITY (pcf)  
PLASTIC LIMIT

20,21  
:  
:

28,18,13  
:  
:



**SHELBY TUBE CORE DATA**

CORE NO.	RB30-10-ST-1	RB30-10-ST-3	RB30-12-ST-1	RB30-12-ST-3
DEPTH IN FEET	1.0'-3.0'	9.0'-11.0'	1.5'-3.5'	9.0'-11.0'
CLASSIFICATION (AASHTO)				
COEFF. CONSOL. (SQ. FT / DAY)	-	-	-	-
TRIAxIAL COMPRESSION	UC	UC	UC	UC
COHESION - PSF	4060	560	2112	690
FRICTION COEFF.	-	-	-	-
MOISTURE CONTENT %	28	33	17	37
DRY DENSITY - PCF	92	87	91	83
CU-CONSOLIDATED UNDRAINED				
UU-UNCONSOLIDATED UNDRAINED				
UC-UNCONFINED COMPRESSION (c=1/2 Qu)				

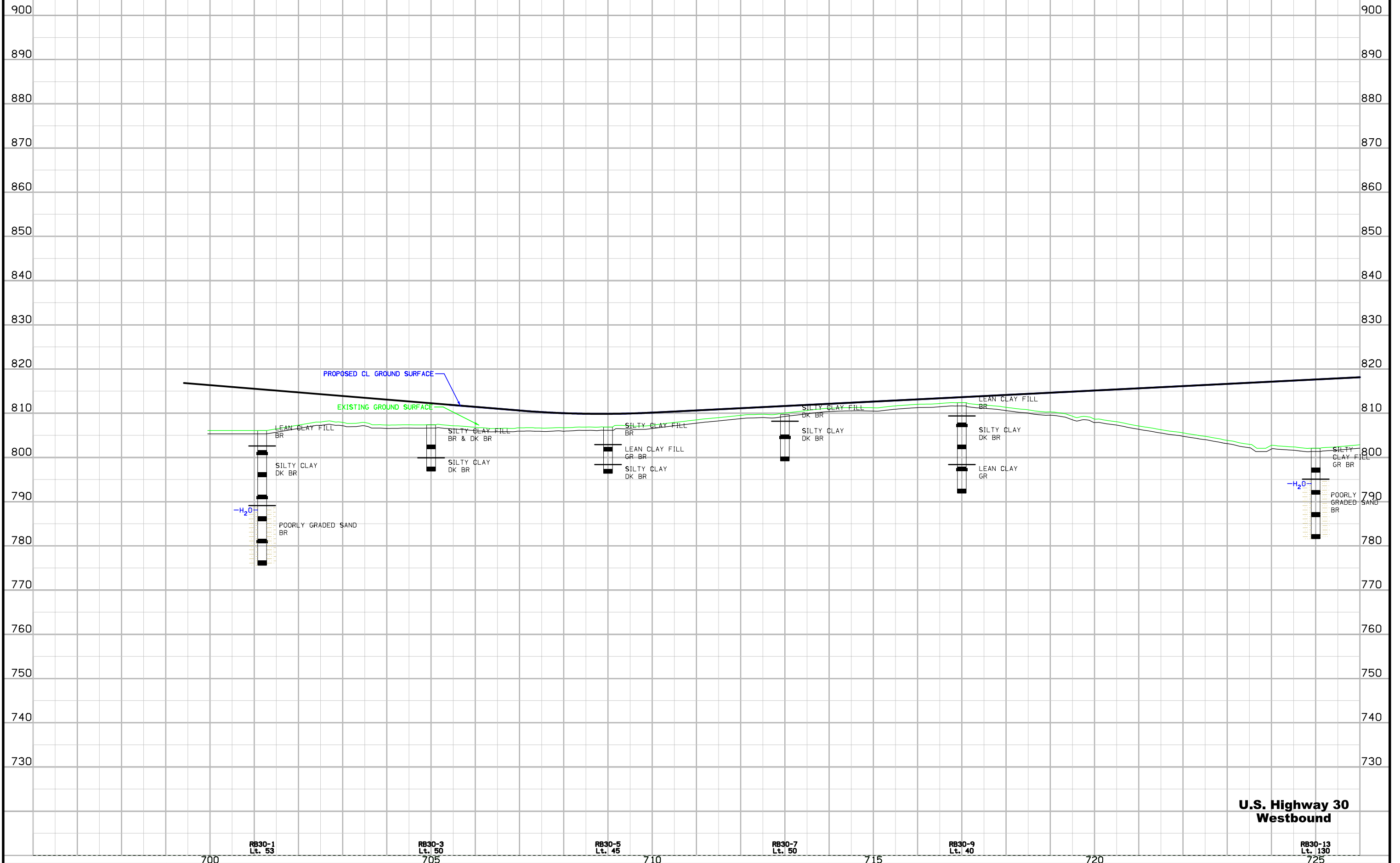
**U.S. Highway 30  
Eastbound**

CUT MOISTURE  
CUT DENSITY (pcf)  
PLASTIC LIMIT

16,19,27  
:  
:

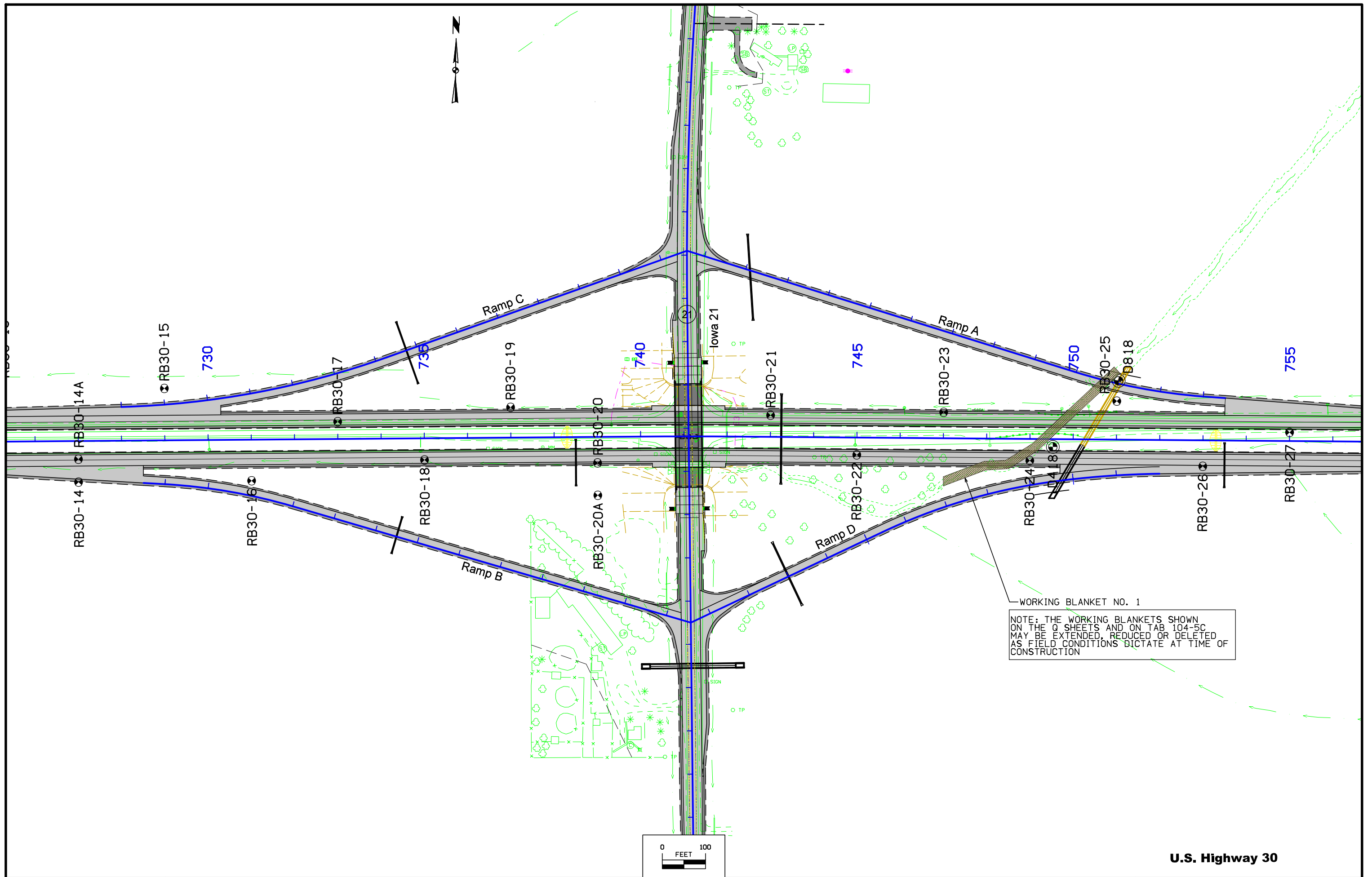
26

35,33  
:  
:

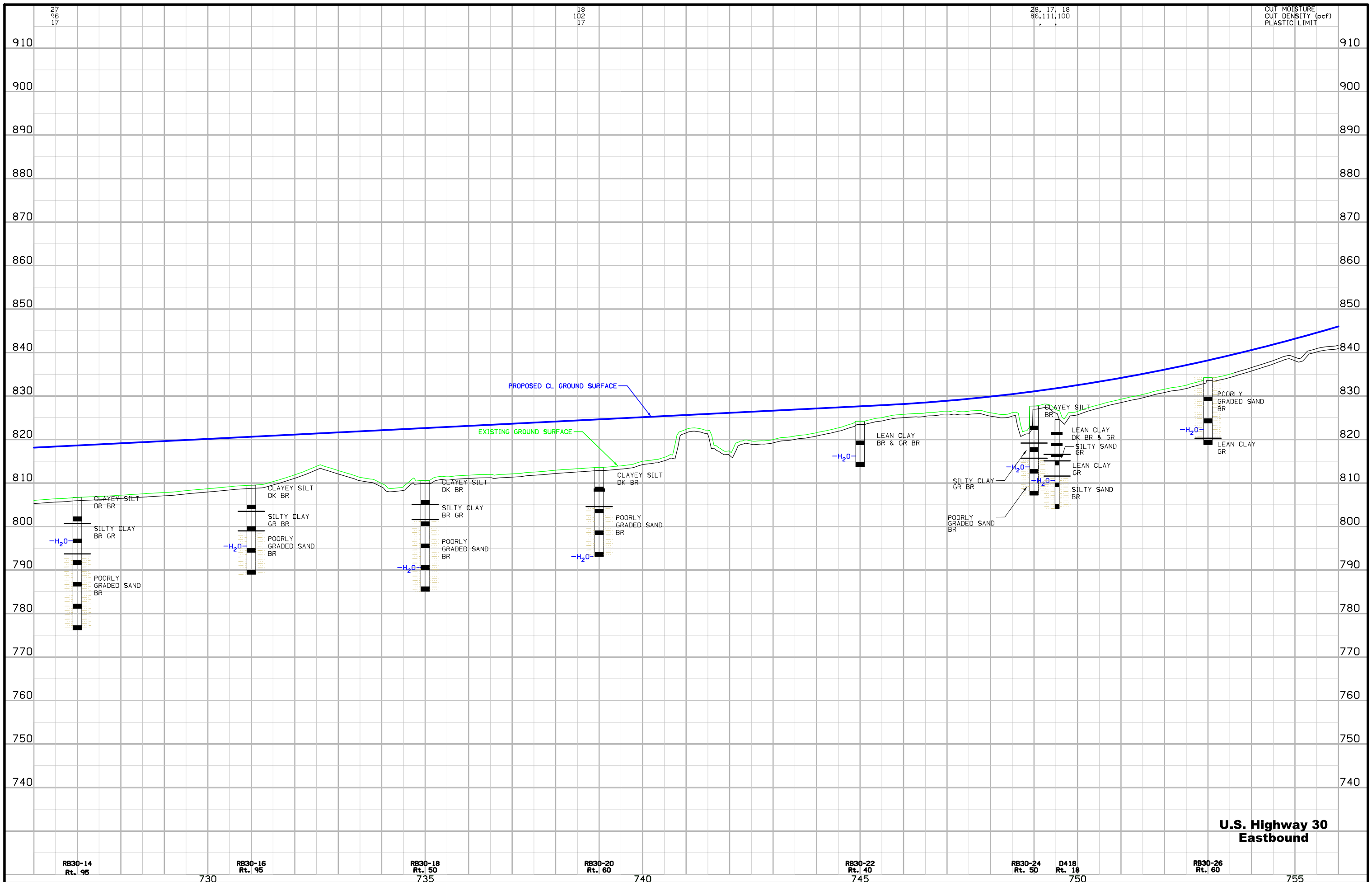


**U.S. Highway 30  
Westbound**

FILE NO.	ENGLISH	DESIGN TEAM	HDR	BENTON COUNTY	PROJECT NUMBER	NHSX-030-6(240)--3H-86	SHEET NUMBER	Q.4
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**U.S. Highway 30**



**U.S. Highway 30  
Eastbound**

RB30-14 Rt. 95	RB30-16 Rt. 95	RB30-18 Rt. 50	RB30-20 Rt. 60	RB30-22 Rt. 40	RB30-24 Rt. 50	D418 Rt. 18	RB30-26 Rt. 60
730	735	740	745	750	755		



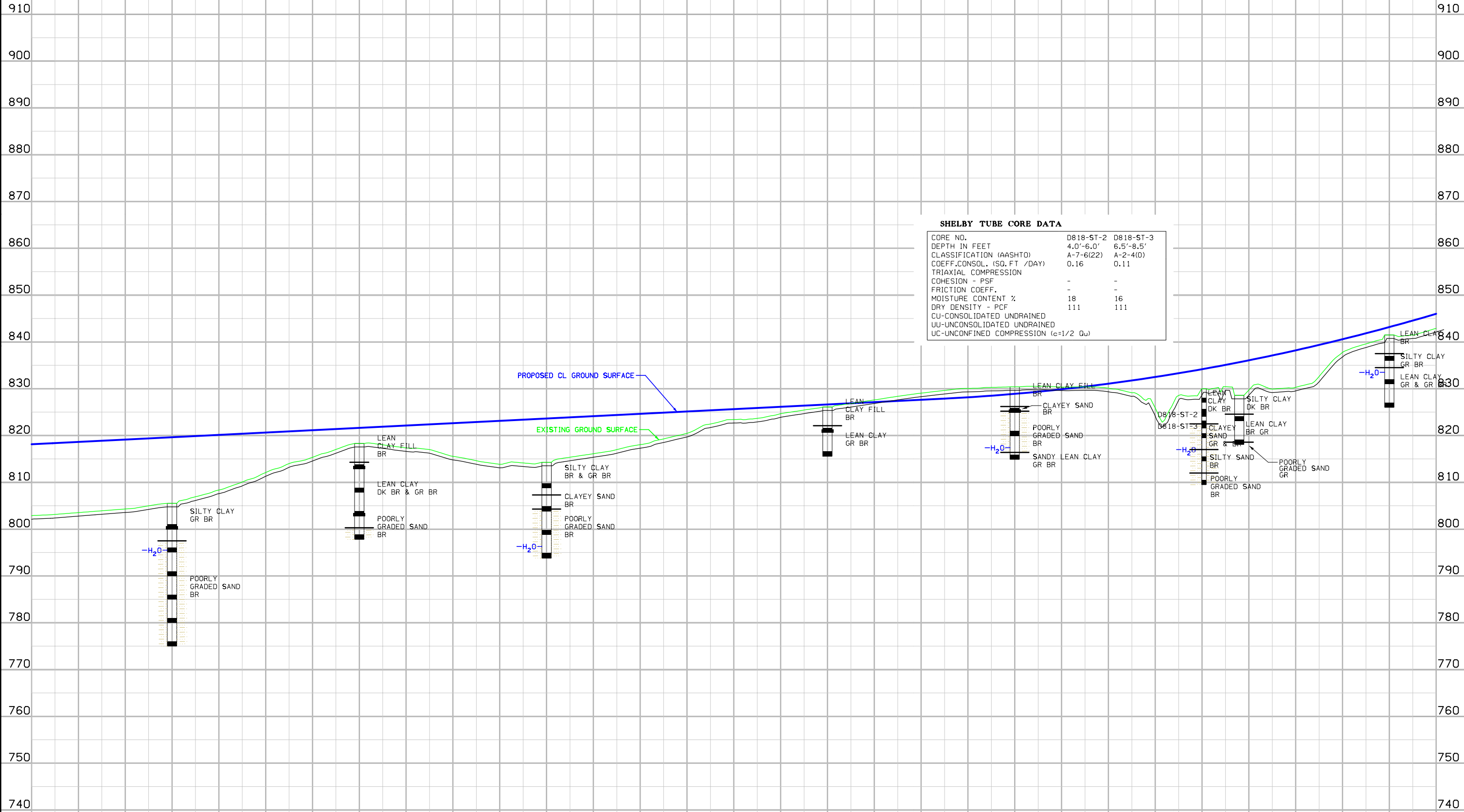
CUT MOISTURE  
CUT DENSITY (pcf)  
PLASTIC LIMIT

31

29,18

28

14



**U.S. Highway 30  
Westbound**

RB30-15  
Lt. 120

RB30-17  
Lt. 40

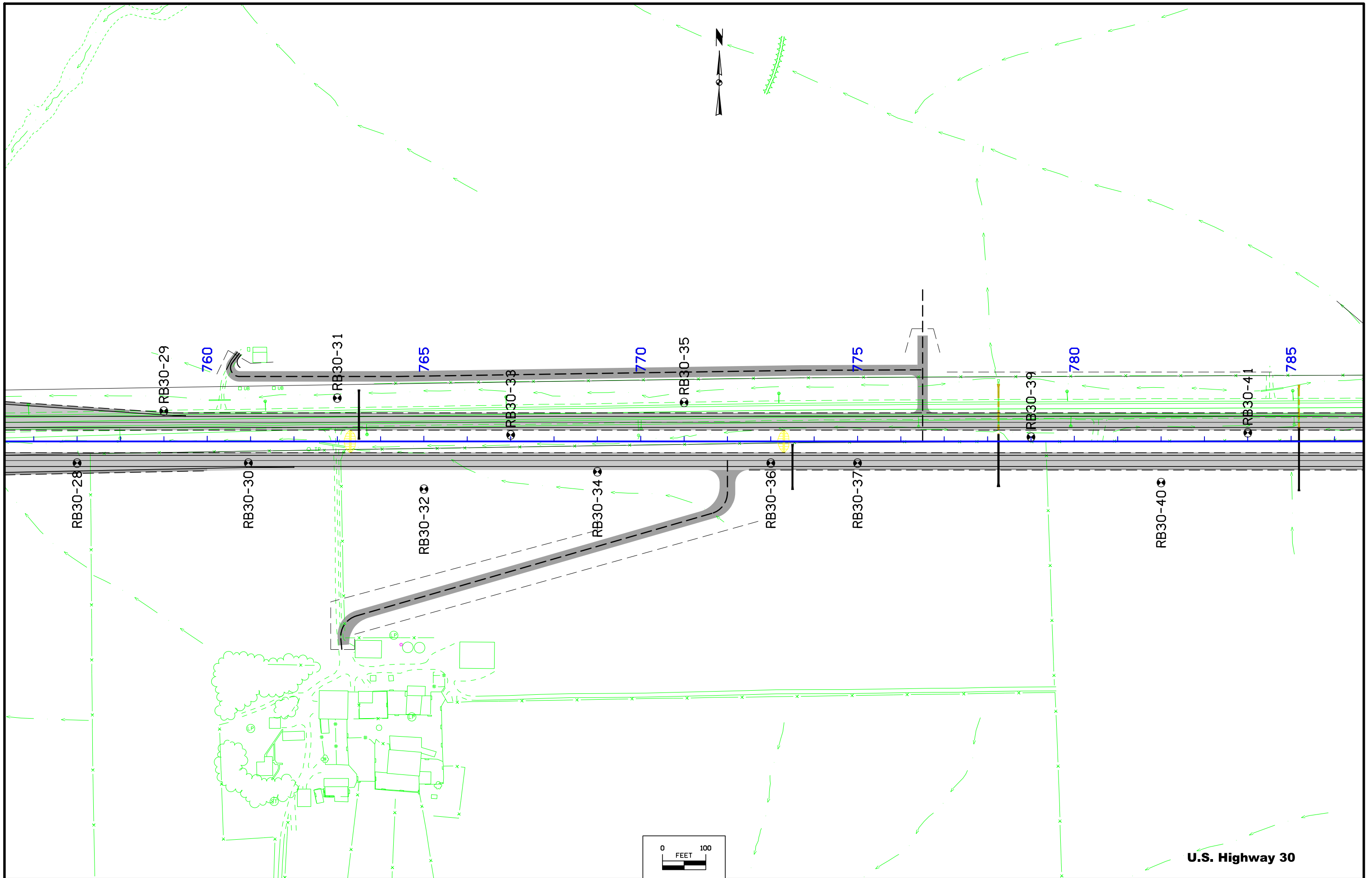
RB30-19  
Lt. 70

RB30-21  
Lt. 50

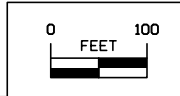
RB30-23  
Lt. 60

D818 RB30-25  
Lt. 136 Lt. 89

RB30-27  
Lt. 20



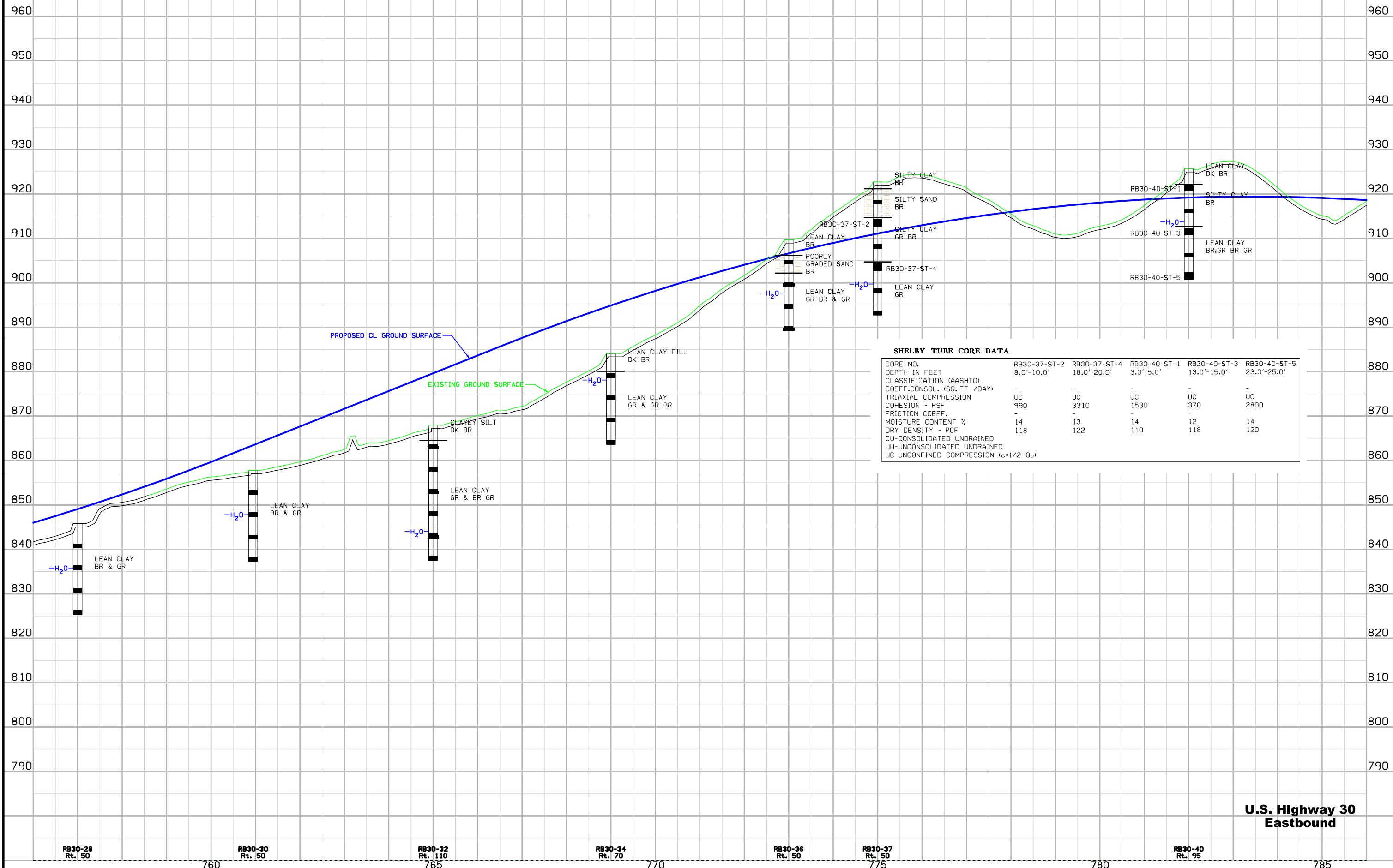
U.S. Highway 30



CUT MOISTURE  
CUT DENSITY (pcf)  
PLASTIC LIMIT

21,11.17  
:  
:

17,13  
:  
:



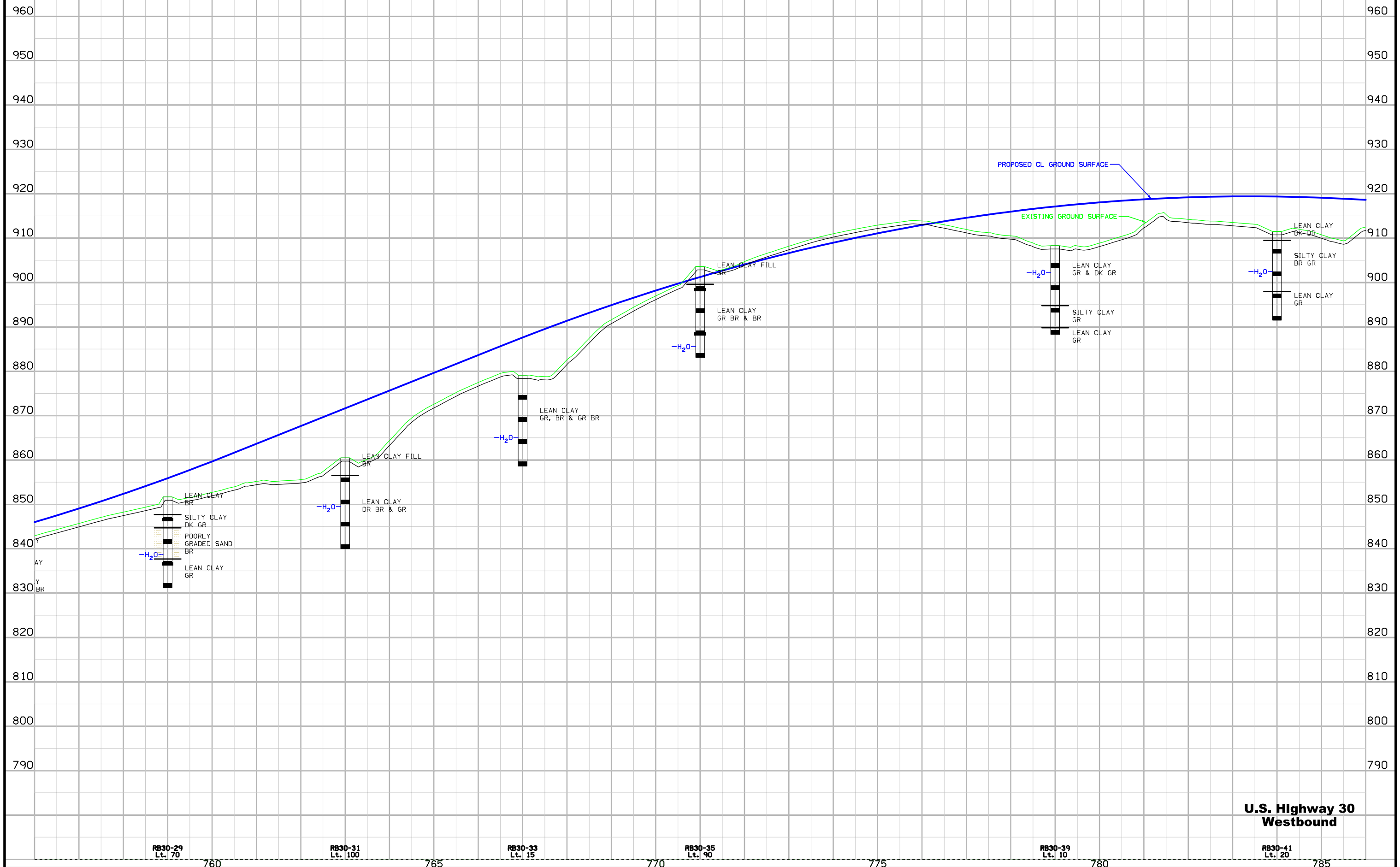
**SHELBY TUBE CORE DATA**

CORE NO.	RB30-37-ST-2	RB30-37-ST-4	RB30-40-ST-1	RB30-40-ST-3	RB30-40-ST-5
DEPTH IN FEET	8.0'-10.0'	18.0'-20.0'	3.0'-5.0'	13.0'-15.0'	23.0'-25.0'
CLASSIFICATION (AASHTO)	-	-	-	-	-
COEFF. CONSOL. (SQ. FT / DAY)	-	-	-	-	-
TRIAxIAL COMPRESSION	UC	UC	UC	UC	UC
COHESION - PSF	990	3310	1530	370	2800
FRICTION COEFF.	-	-	-	-	-
MOISTURE CONTENT %	14	13	14	12	14
DRY DENSITY - PCF	118	122	110	118	120
CU-CONSOLIDATED UNDRAINED					
UU-UNCONSOLIDATED UNDRAINED					
UC-UNCONFINED COMPRESSION (c=1/2 Qu)					

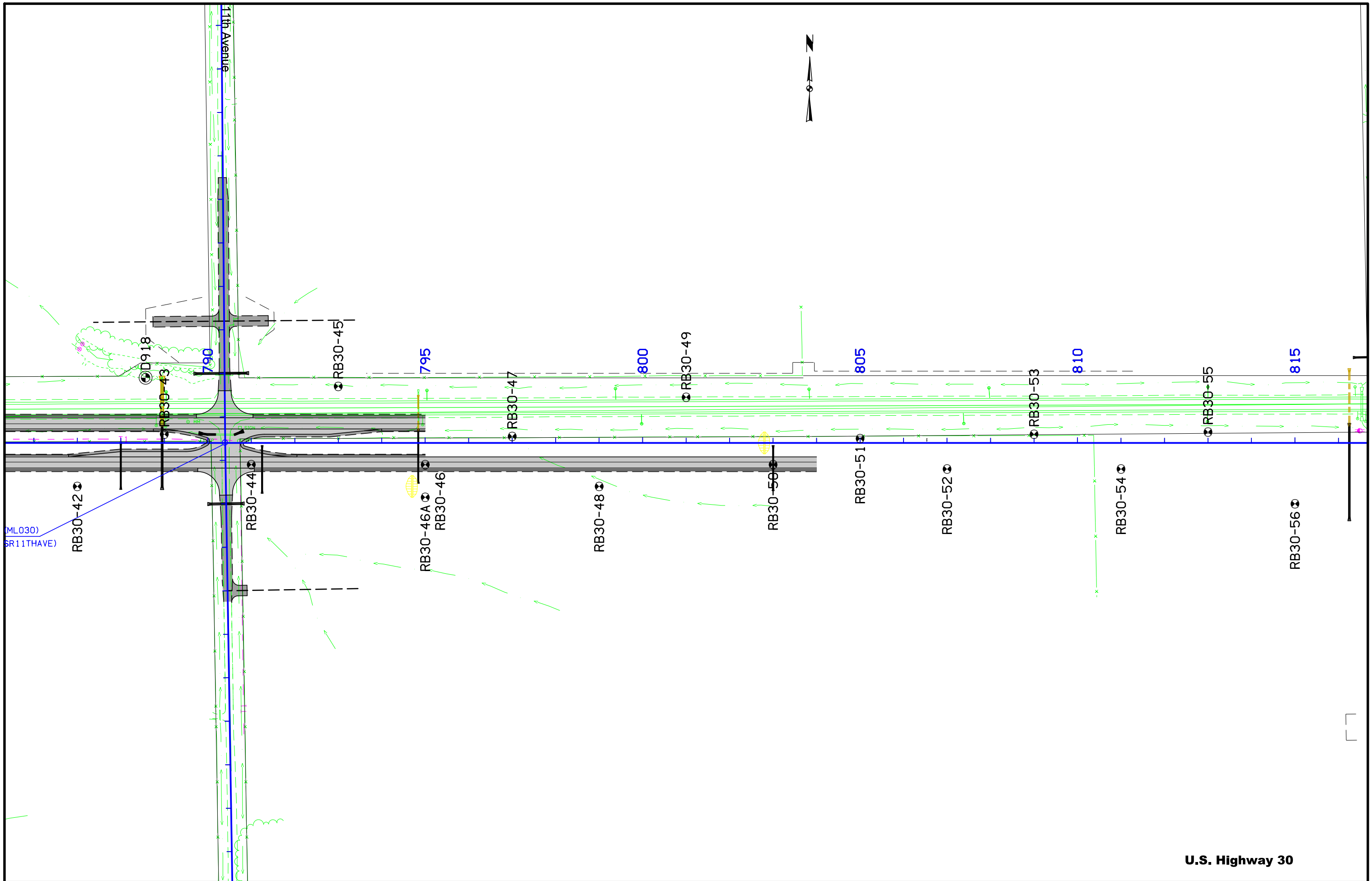
**U.S. Highway 30  
Eastbound**

CUT MOISTURE 33.19  
CUT DENSITY (pcf) ;  
PLASTIC LIMIT ;

18.11  
;



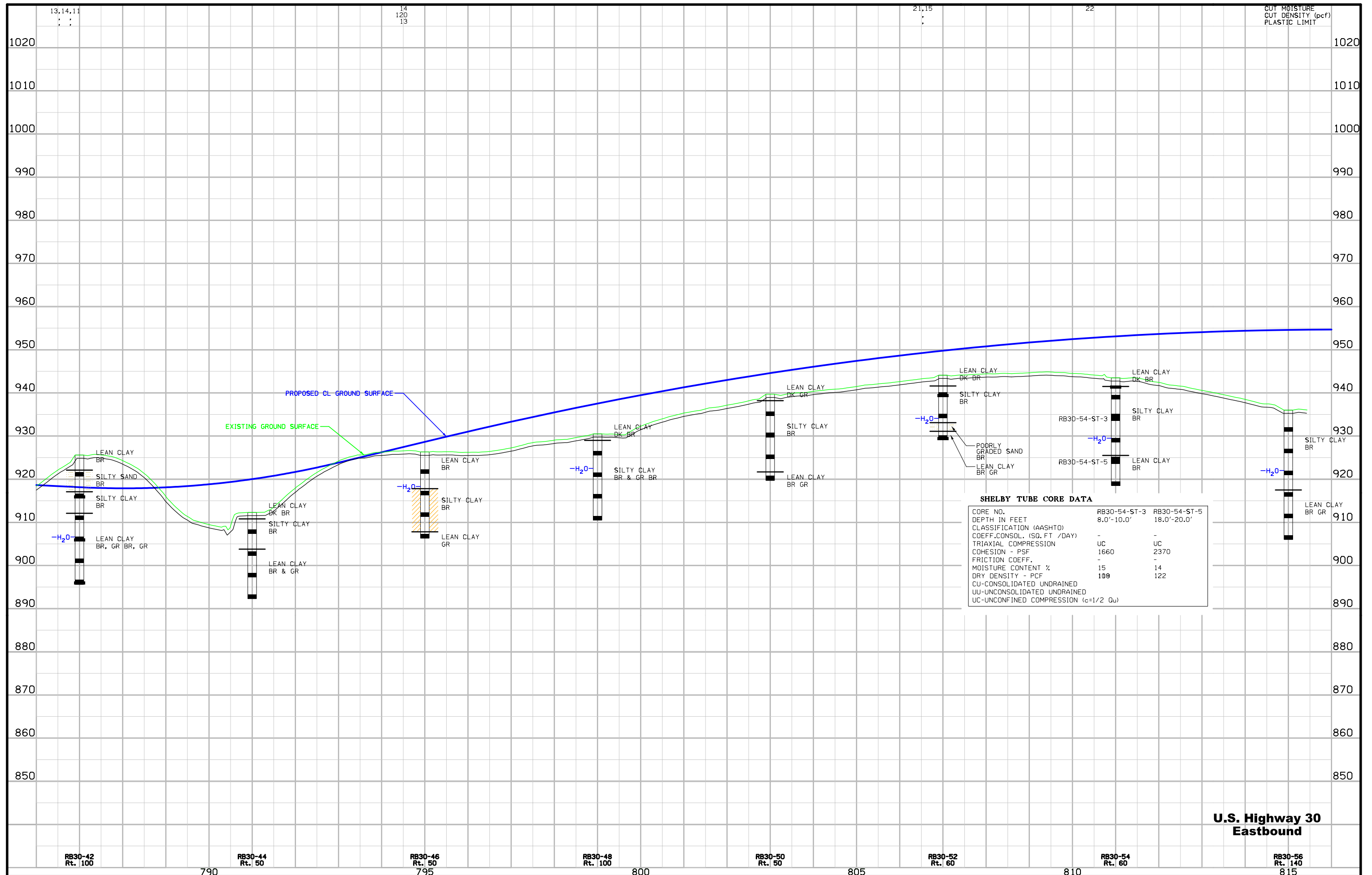
**U.S. Highway 30  
Westbound**



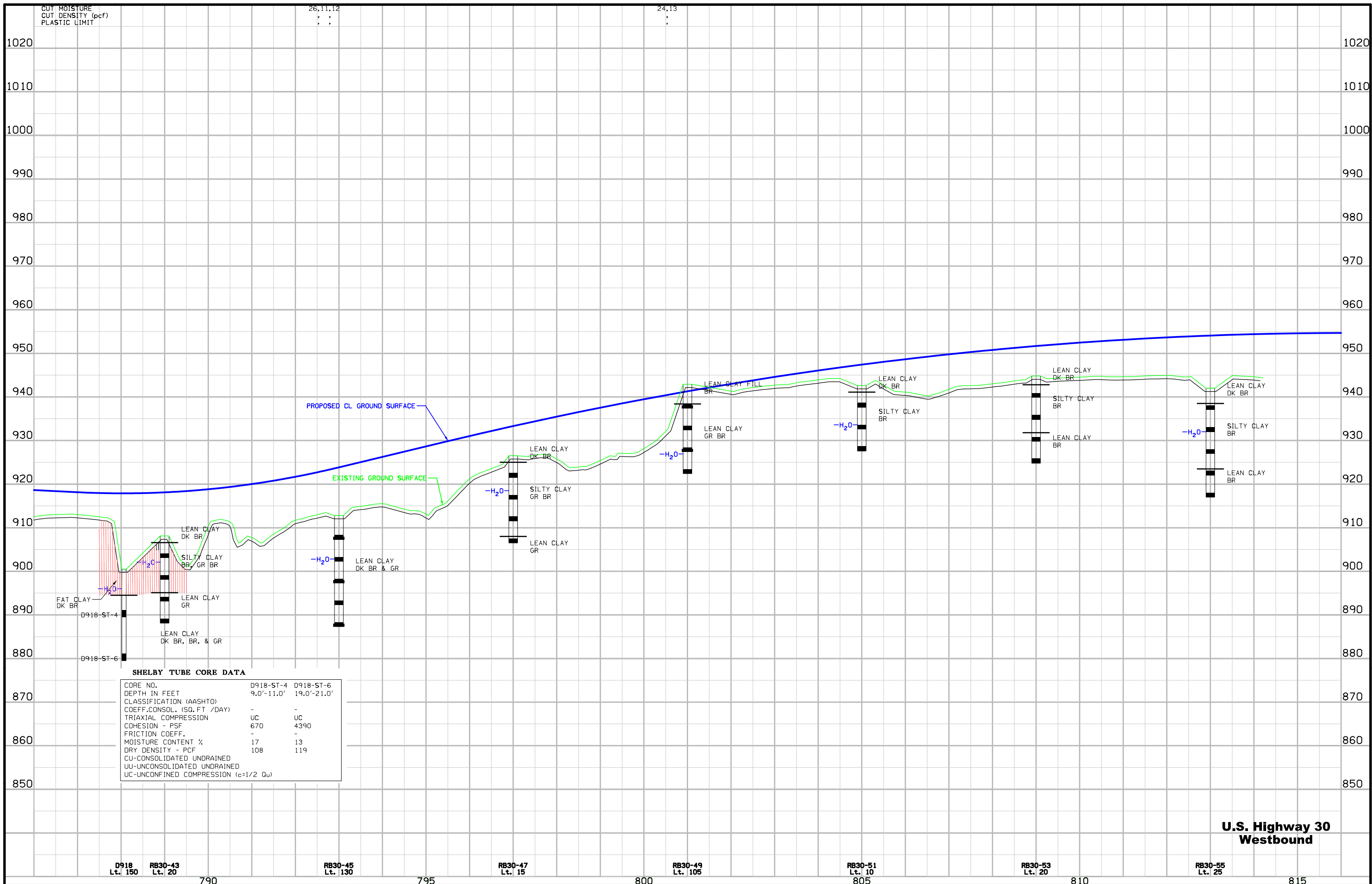
U.S. Highway 30

FILE NO.	ENGLISH	DESIGN TEAM HDR	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(240)--3H-86	SHEET NUMBER Q.11
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**U.S. Highway 30  
Eastbound**

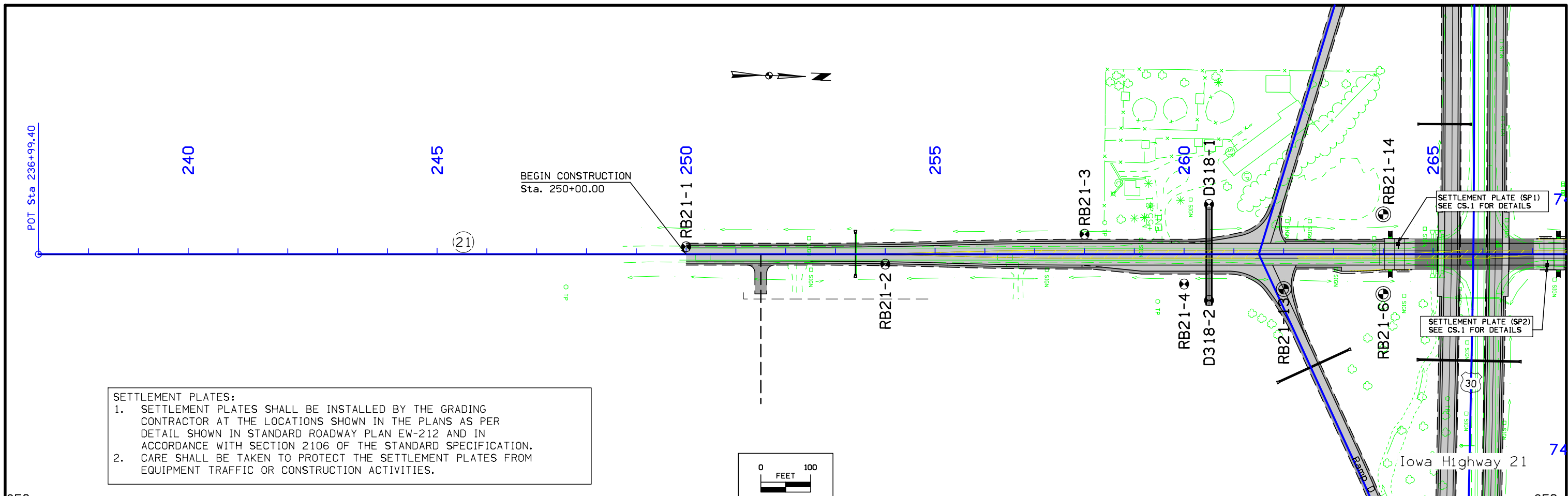


**SHELBY TUBE CORE DATA**

CORE NO.	D918-ST-4	D918-ST-6
DEPTH IN FEET	9.0'-11.0'	19.0'-21.0'
CLASSIFICATION (AASHTO)	-	-
COEFF. CONSOL. (SQ. FT / DAY)	-	-
TRIAxIAL COMPRESSION	UC	UC
COHESION - PSF	670	4390
FRICTION COEFF.	-	-
MOISTURE CONTENT %	17	13
DRY DENSITY - PCF	108	119
CU-CONSOLIDATED UNDRAINED		
UU-UNCONSOLIDATED UNDRAINED		
UC-UNCONFINED COMPRESSION (c=1/2 Qu)		

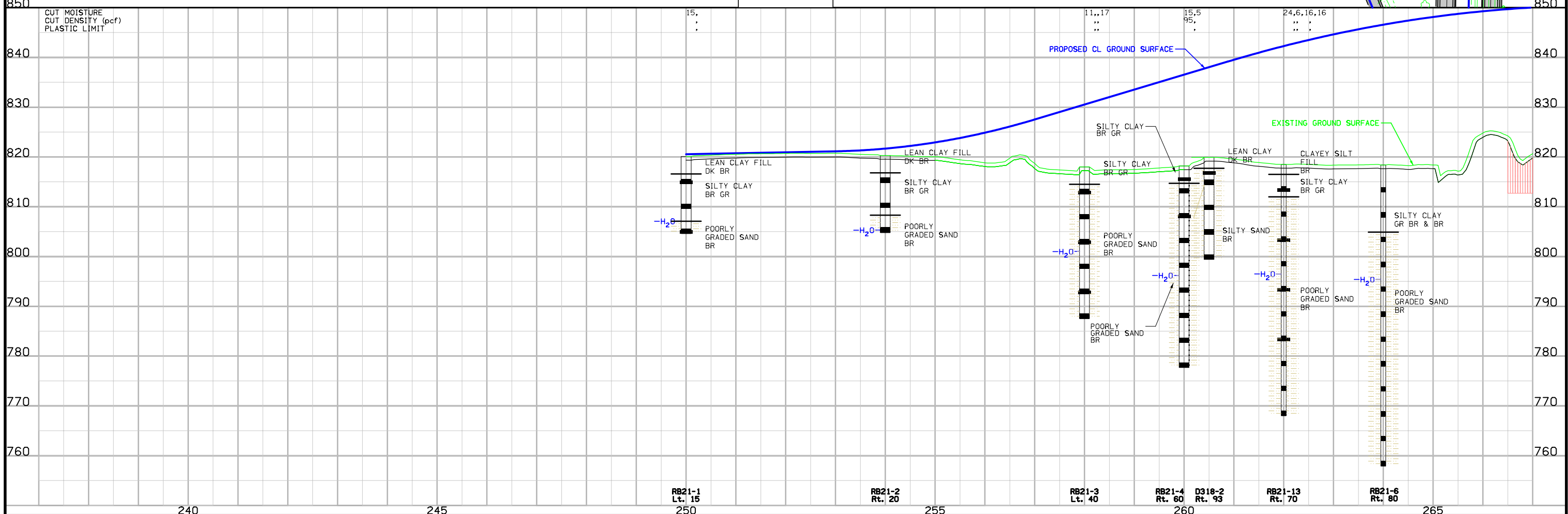
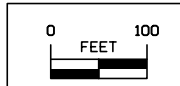
**U.S. Highway 30  
Westbound**

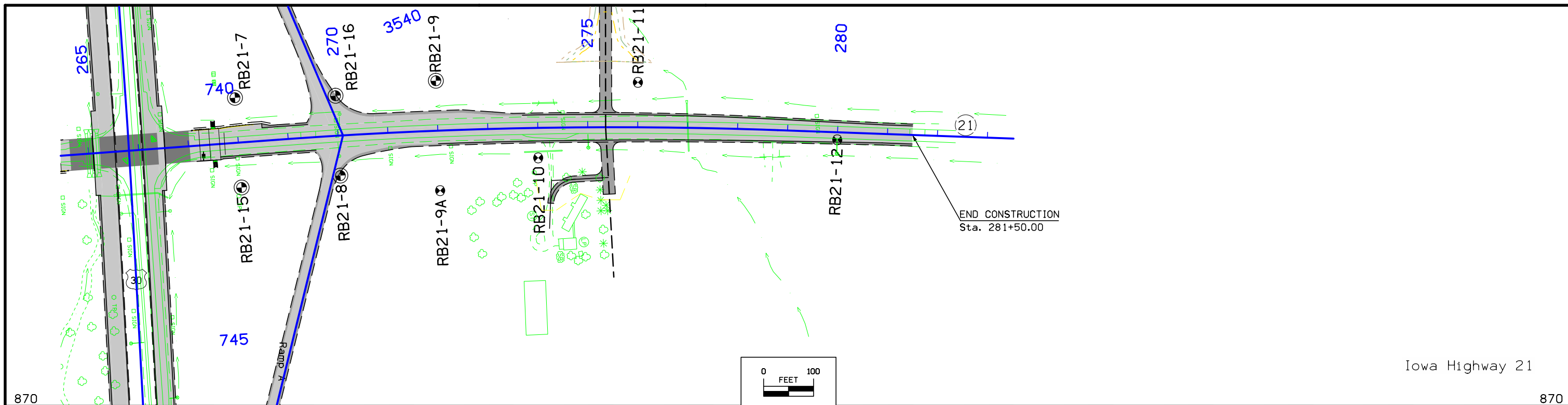
D918 Lt. 150    RB30-43 Lt. 20    790    RB30-45 Lt. 130    795    RB30-47 Lt. 15    800    RB30-49 Lt. 105    805    RB30-51 Lt. 10    810    RB30-53 Lt. 20    815    RB30-55 Lt. 25



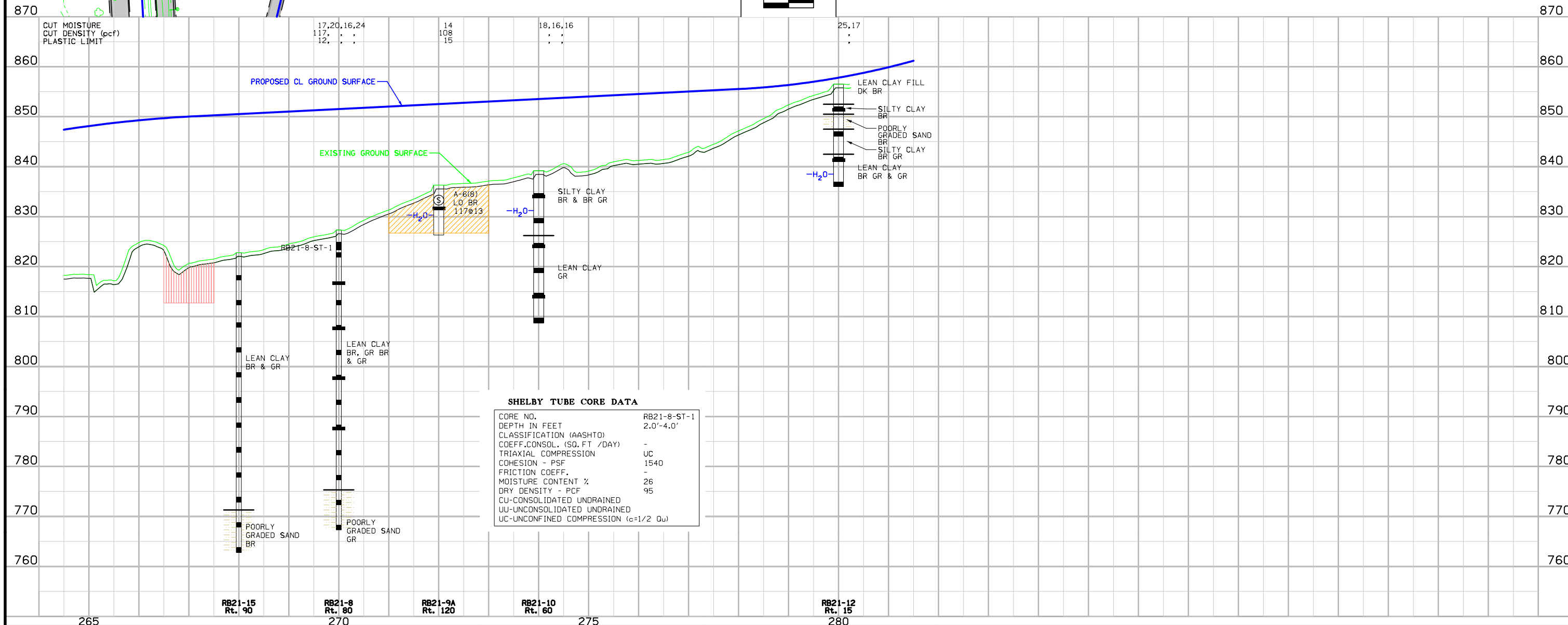
**SETTLEMENT PLATES:**

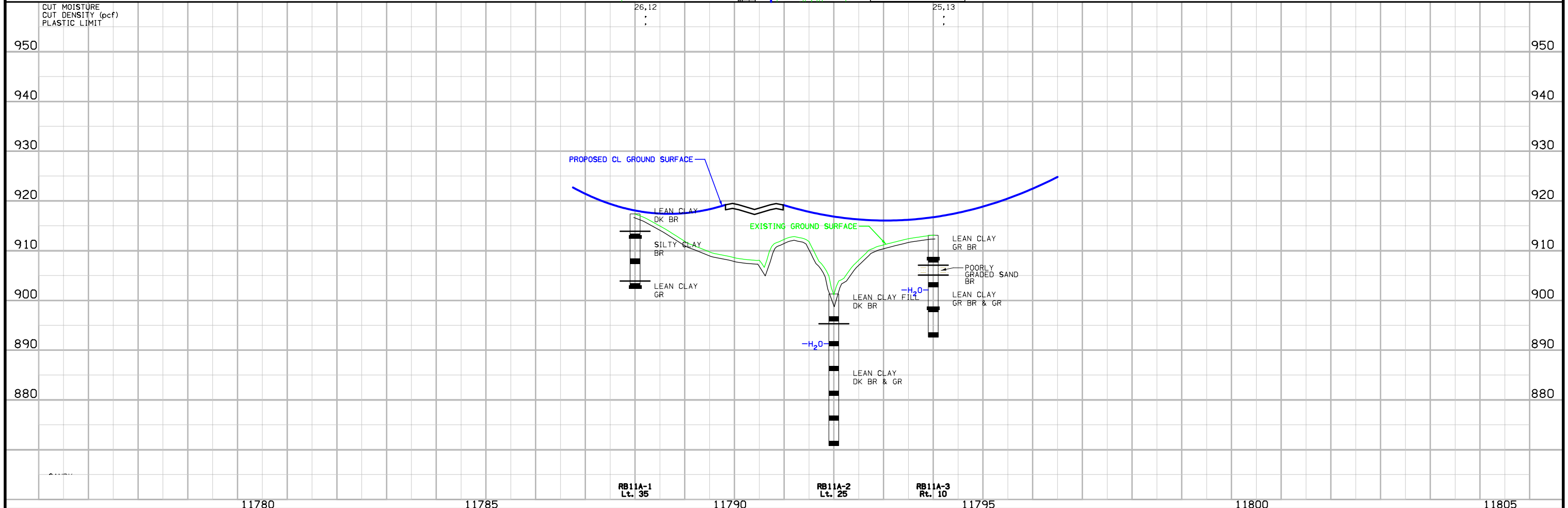
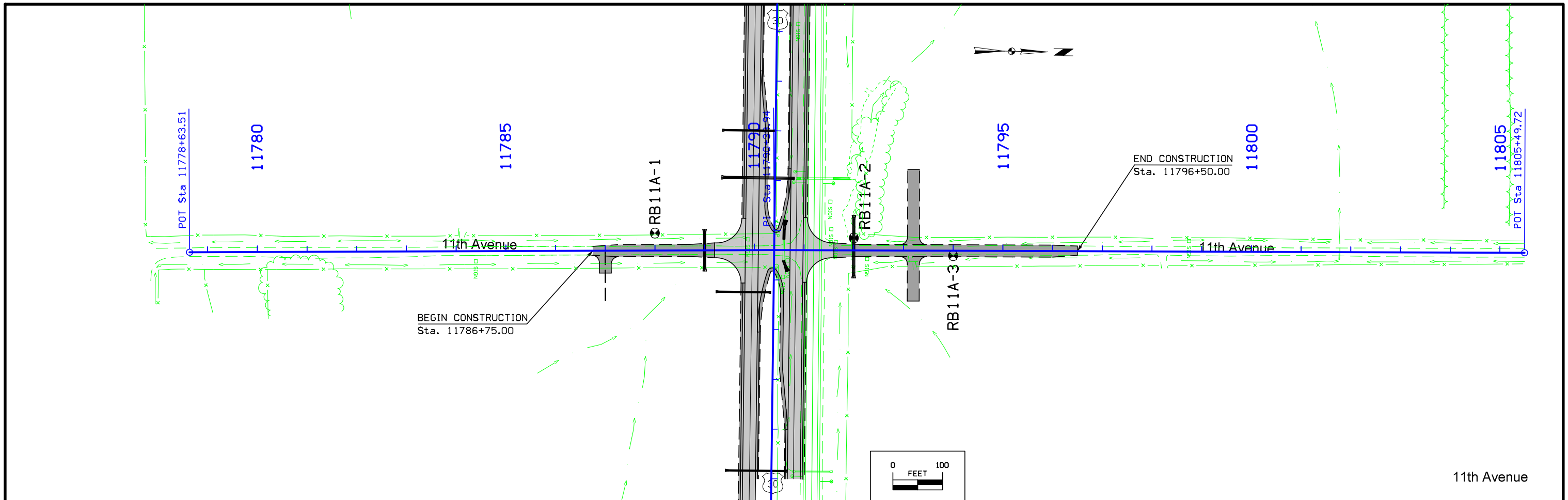
1. SETTLEMENT PLATES SHALL BE INSTALLED BY THE GRADING CONTRACTOR AT THE LOCATIONS SHOWN IN THE PLANS AS PER DETAIL SHOWN IN STANDARD ROADWAY PLAN EW-212 AND IN ACCORDANCE WITH SECTION 2106 OF THE STANDARD SPECIFICATION.
2. CARE SHALL BE TAKEN TO PROTECT THE SETTLEMENT PLATES FROM EQUIPMENT TRAFFIC OR CONSTRUCTION ACTIVITIES.



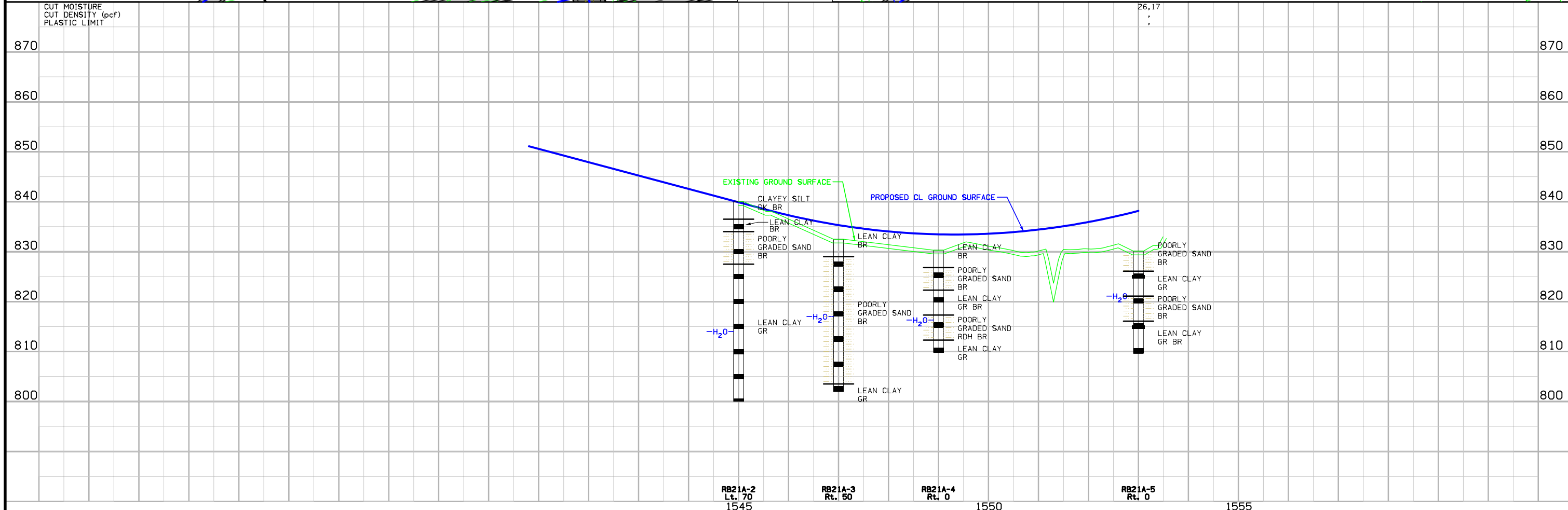
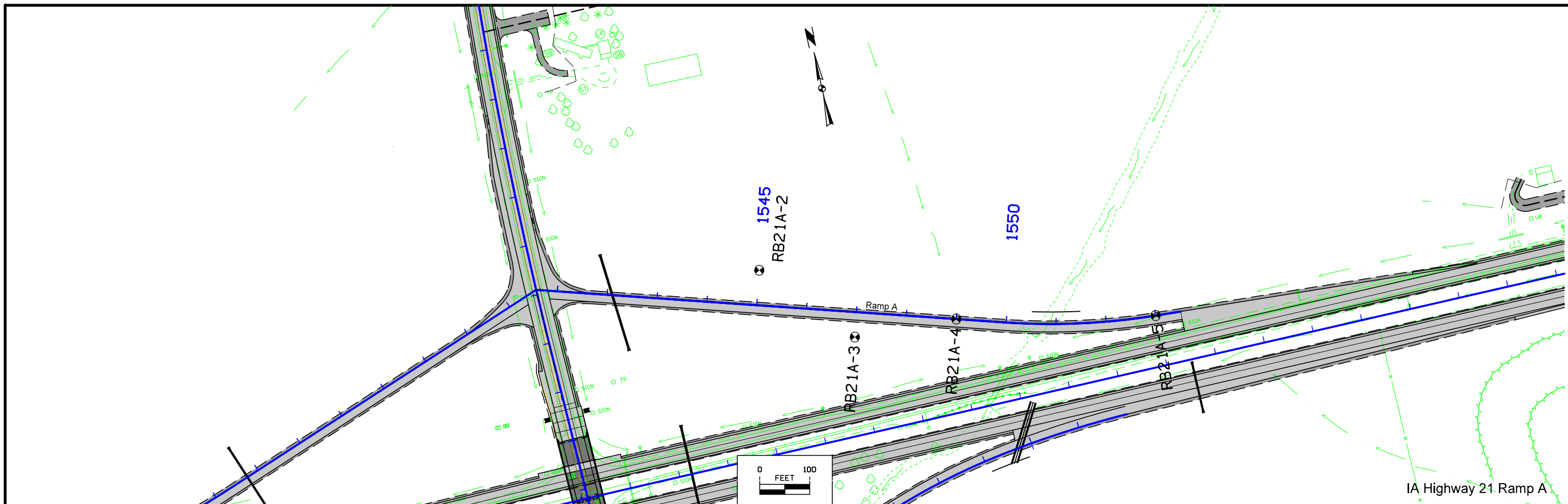


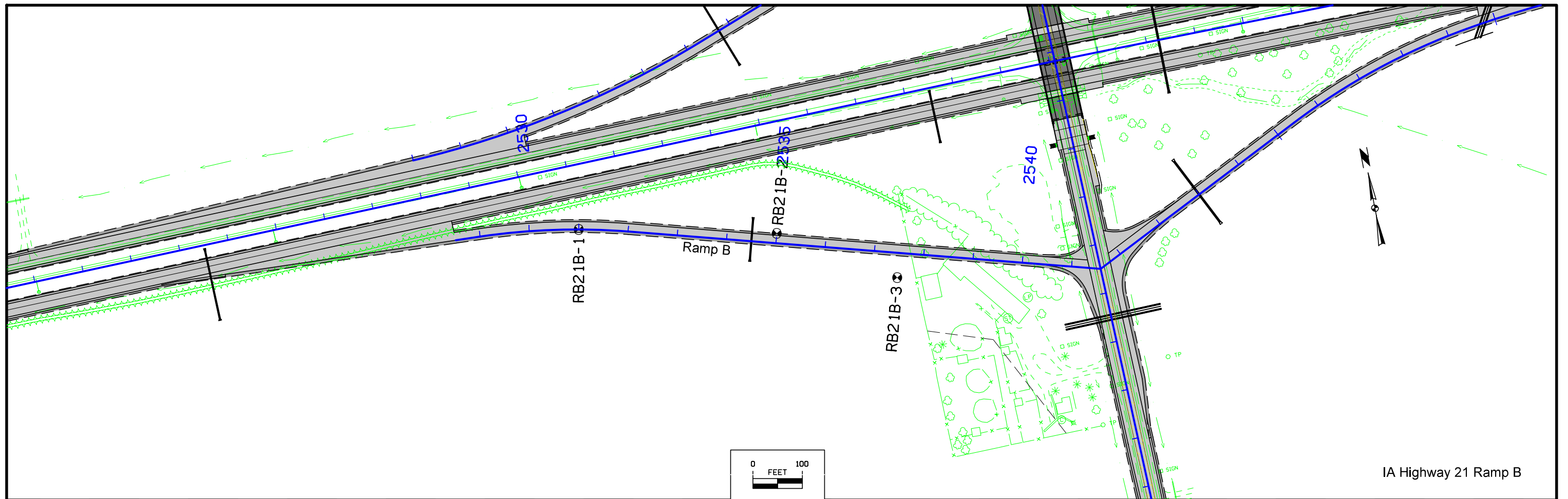
Iowa Highway 21



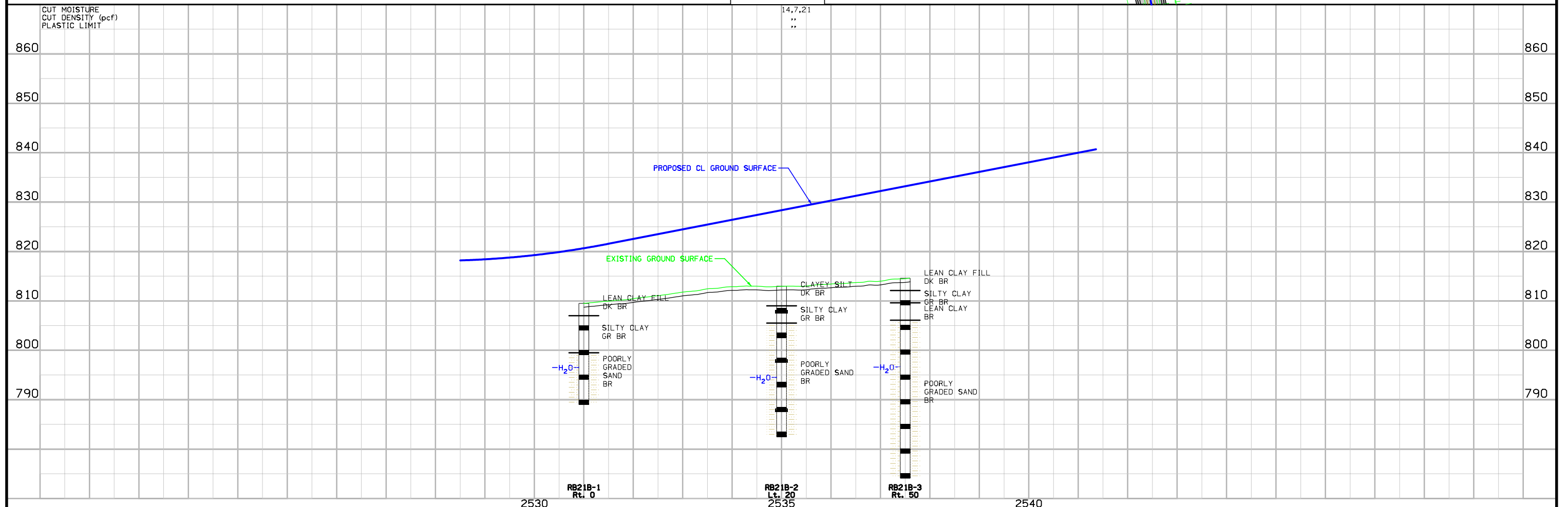






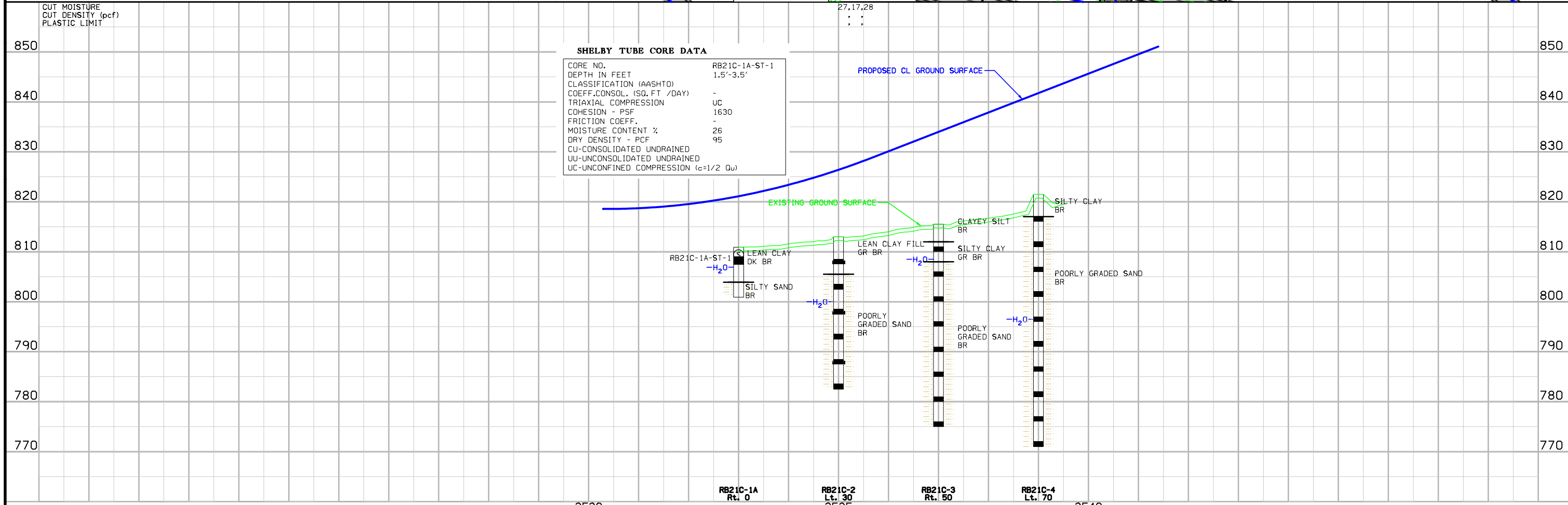
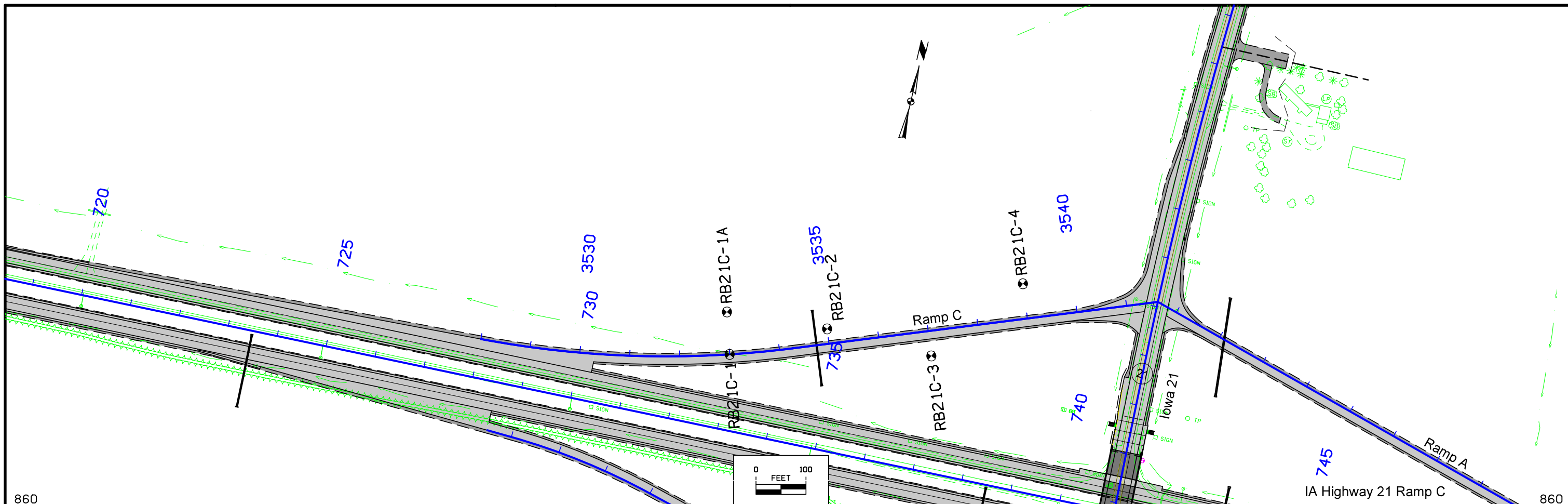


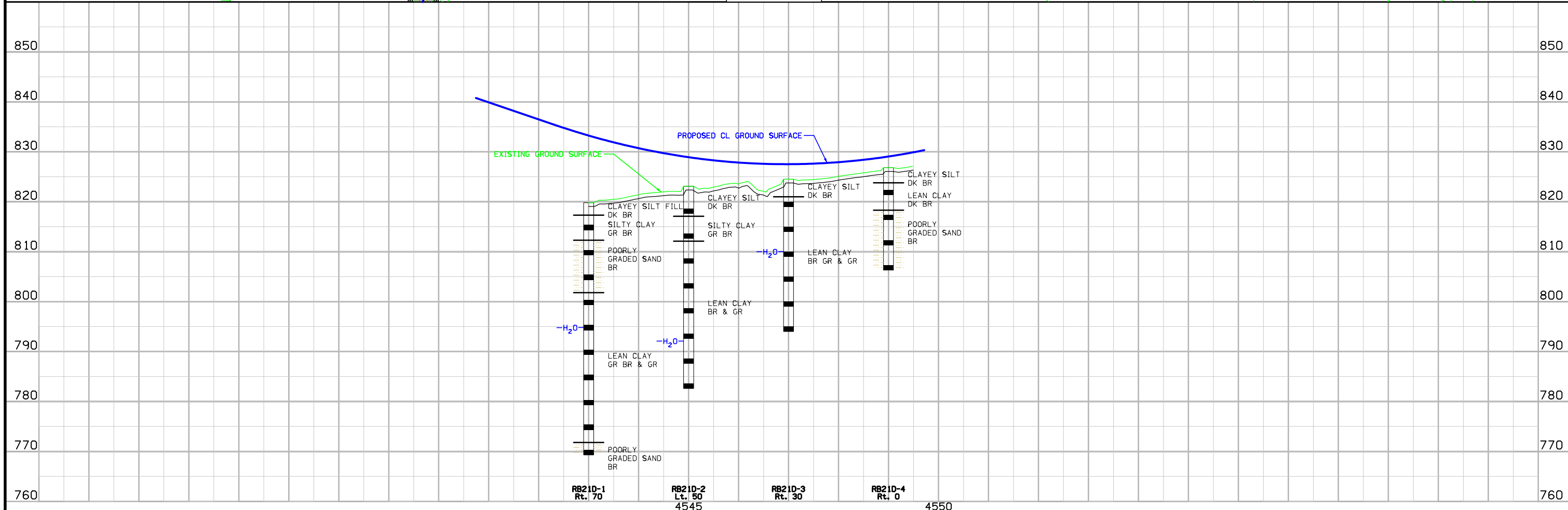
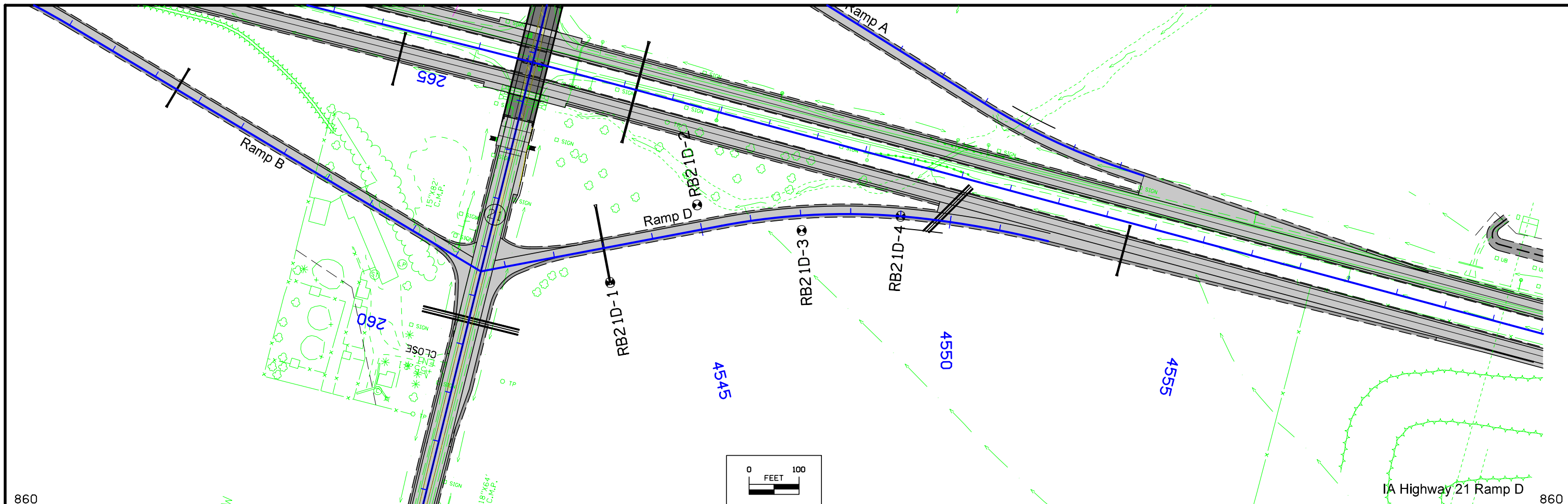
IA Highway 21 Ramp B



CUT MOISTURE  
CUT DENSITY (pcf)  
PLASTIC LIMIT

14.7,21  
..  
..





**ESTIMATED PROJECT QUANTITIES  
(1 DIVISION PROJECT)**

Item No.	Item Code	Item	Unit	Total	As Built Qty.
1	2507-3250005	ENGINEERING FABRIC	SY	676.5	
2	2507-8029000	EROSION STONE	TON	730.2	
3	2601-2634100	MULCHING	ACRE	89.4	
4	2601-2636043	SEEDING AND FERTILIZING (RURAL)	ACRE	18.3	
5	2601-2642100	STABILIZING CROP - SEEDING AND FERTILIZING	ACRE	71.1	
6	2602-0000020	SILT FENCE	LF	16,121.3	
7	2602-0000030	SILT FENCE FOR DITCH CHECKS	LF	15,328.8	
8	2602-0000071	REMOVAL OF SILT FENCE OR SILT FENCE FOR DITCH CHECKS	LF	31,450.1	
9	2602-0000101	MAINTENANCE OF SILT FENCE OR SILT FENCE FOR DITCH CHECK	LF	3,145.0	
10	2602-0000150	STABILIZED CONSTRUCTION ENTRANCE, EC-303	LF	700.0	
11	2602-0000312	PERIMETER AND SLOPE SEDIMENT CONTROL DEVICE, 12 IN. DIA.	LF	1,820.0	
12	2602-0000351	REMOVAL OF PERIMETER AND SLOPE OR DITCH CHECK SEDIMENT CONTROL DEVICE	LF	1,820.0	
13	2602-0010010	MOBILIZATIONS, EROSION CONTROL	EACH	1	
14	2602-0010020	MOBILIZATIONS, EMERGENCY EROSION CONTROL	EACH	1	

**ESTIMATE REFERENCE INFORMATION**

Item No.	Item Code	Description
1	2507-3250005	ENGINEERING FABRIC Refer to Tab. 100-23.  Use material specified for embankment erosion control according to Article 4196.01, B, 3. Material will be measured in sq. yds. of actual area covered. Refer to details. ----- The tabulation includes estimated locations for placement of "Engineering Fabric" to address erosion to be encountered during construction. Verify the specific locations with the Engineer prior to beginning placement. Bid item includes 30% additional quantity for other locations of erosion.
2	2507-8029000	EROSION STONE Refer to Tab. 100-23. ----- The tabulation includes estimated locations for placement of "Erosion Stone" to address erosion to be encountered during construction. Verify the specific locations with the Engineer prior to beginning placement. Bid item includes 30% additional quantity for other locations of erosion.
3	2601-2634100	MULCHING Perform mulching according to Article 2601.03, E, 2, of the Standard Specifications. Anchor mulch into the soil using mulch anchoring equipment with a minimum of two passes.  Item is included for areas requiring reshaping and seedbed preparation. Use mulch that is Certified Noxious Weed Seed Free Mulch as certified by the Iowa Crop Improvement Association or adjacent states Crop Improvement Associations.  Mulch Rate: 1 1/2 tons of dry cereal straw or native grass straw per acre.
4	2601-2636043	SEEDING AND FERTILIZING (RURAL) Seed and fertilize all areas 8 foot adjacent to the shoulder mainline, medians, and side according to Article 2601.03, C, 3, of the Standard Specifications. Use ground driven equipment.
5	2601-2642100	STABILIZING CROP - SEEDING AND FERTILIZING Item is included for disturbed areas.  Seed and fertilize all disturbed areas according to Article 2601.03, C, 1, of the Standard Specifications.
6	2602-0000020	SILT FENCE Refer to Tab. 100-17. The tabulation includes estimated locations for placement of "Silt Fence" to address erosion to be encountered during construction. Verify the specific locations with the Engineer prior to beginning placement. Bid item includes 25% additional quantity for field adjustments and replacements.
7	2602-0000030	SILT FENCE FOR DITCH CHECKS Refer to Tab 100-18. The tabulation includes estimated locations for placement of "Silt Fence for Ditch Checks" to address erosion to be encountered during construction. Verify the specific locations with the Engineer prior to beginning placement. Bid item includes 50% additional quantity for field adjustments and replacements.
8	2602-0000071	REMOVAL OF SILT FENCE OR SILT FENCE FOR DITCH CHECKS This item is included for silt fence and silt fence for ditch check removal required for

**ESTIMATE REFERENCE INFORMATION**

Item No.	Item Code	Description
-	-	staging reasons, removal to allow for replacement (replacement to be paid separately), or for areas that have achieved 70% permanent growth.
9	2602-0000101	MAINTENANCE OF SILT FENCE OR SILT FENCE FOR DITCH CHECK This item is included for clean-out and repair of the silt fence and silt fence for ditch checks during the project.
10	2602-0000150	STABILIZED CONSTRUCTION ENTRANCE, EC-303
11	2602-0000312	PERIMETER AND SLOPE SEDIMENT CONTROL DEVICE, 12 IN. DIA.
12	2602-0000351	REMOVAL OF PERIMETER AND SLOPE OR DITCH CHECK SEDIMENT CONTR OL DEVICE
13	2602-0010010	MOBILIZATIONS, EROSION CONTROL
14	2602-0010020	MOBILIZATIONS, EMERGENCY EROSION CONTROL

**INDEX OF TABULATIONS**

Tabulation	Tabulation Title	Sheet No.
C Sheets		
100-1A	ESTIMATED PROJECT QUANTITIES (1 DIVISION PROJECT)	RC.1
100-4A	ESTIMATE REFERENCE INFORMATION	RC.1
100-17	TABULATION OF SILT FENCES	RC.7
100-18	SILT FENCES FOR DITCH CHECKS	RC.3 - RC.6
100-19	PERIMETER, SLOPE AND DITCH CHECK SEDIMENT CONTROL DEVICES	RC.7
100-23	ROCK EROSION CONTROL	RC.2
100-34	STORMWATER DRAINAGE BASIN AND STORAGE	RC.2
105-4	STANDARD ROAD PLANS	RC.1
110-12	POLLUTION PREVENTION PLAN	RC.8 - RC.9
111-25	INDEX OF TABULATIONS	RC.1


**STANDARD ROAD PLANS**

The following Standard Road Plans apply to construction work on this project.

Number	Date	Title
EC-201	04-20-21	Silt Fence
EC-204	04-20-21	Perimeter, Slope and Ditch Check Sediment Control Devices
EC-301	10-18-16	Rock Erosion Control (REC)
EC-303	10-20-20	Stabilized Construction Entrance
EC-502	04-21-15	Seeding in Rural Areas

**LANDSCAPE DESIGN**

I hereby certify that the portion of this technical submission described below was prepared by me or under my direct supervision and responsible charge. I am a duly licensed professional landscape architect under the laws of the state of Iowa.

 Signature: *Seana K. Godbold* Date: 6/27/2021

Printed or Typed Name: **Seana K. Godbold**  
My license renewal date is June 30, 2021

Pages or sheets covered by this seal: RC.01 - 09 ; RR.01 - 23



**ROCK EROSION CONTROL**

Refer to EC-301 and Detail 570-8

Location				Rock Erosion Control (REC)					Material Bid Quantities			Remarks		
Road Identification	Begin Station	End Station	Side Lt./Rt.	L FT	W FT	Type 1	Type 2	Type 3	Type 4	Type 5	Eng. Fabric		Class E Revetment	Erosion Stone
						Rock Ditch Check	Rock Ditch	Rock Flume	Rock Splash Basin	Rock Slope Protection	SY		TON	TON
US 30	708+47.00	708+53.00	Lt	6	6				X		4.0			4.3
US 30	723+47.00	723+53.00	Rt	6	6				X		4.0		4.3	
Ramp B	2534+47.00	2534+53.00	Rt	6	6				X		4.0		4.3	
Ramp C	3534+72.00	3534+78.00	Lt	6	6				X		4.0		4.3	
US 30	738+47.00	738+53.00	Rt	6	6				X		4.0		4.3	
Ramp A	1542+47.00	1542+53.00	Lt	6	6				X		4.0		4.3	
US 30	743+22.00	743+28.00	Rt	6	6				X		4.0		4.3	
Ramp D	4542+97.00	4543+03.00	Rt	6	6				X		4.0		4.3	
IA 21	253+38.00	253+44.00	Lt	6	6				X		4.0		4.3	
IA 21	276+97.00	277+03.00	Lt	6	6				X		4.0		4.3	
US 30	753+47.00	753+53.00	Rt	6	6				X		4.0		4.3	
US 30	763+47.00	763+53.00	Lt	6	6				X		4.0		4.3	
US 30	771+08.00	771+46.00	Rt	30	30				X		100.0		108.0	
US 30	773+47.00	773+53.00	Rt	6	6				X		4.0		4.3	
US 30	778+15.00	778+35.00	Rt	20	20				X		44.4		48.0	
US 30	785+22.00	785+28.00	Lt	6	6				X		4.0		4.3	
US 30	787+97.00	788+03.00	Rt	6	6				X		4.0		4.3	
US 30	788+80.00	789+70.00	Lt	90	30				X		300.0		324.0	
11th Ave.	17788+97.00	17779+03.00	Lt	6	6				X		4.0		4.3	
US 30	791+22.00	792+28.00	Rt	6	6				X		4.0		4.3	
US 30	794+72.00	794+78.00	Lt	6	6				X		4.0		4.3	
US 30	802+97.00	803+03.00	Rt	6	6				X		4.0		4.3	
<b>Rock Erosion Control Tab Totals:</b>											<b>520.4</b>		<b>561.7</b>	
<b>Engineering Fabric Bid Totals:</b>											<b>676.5</b>			
<b>Erosion Stone Bid Totals:</b>													<b>730.2</b>	
													<b>130% of Tab Total</b>	
													<b>130% of Tab Total</b>	

**RESTRICTED STREAM ACCESS**

A low water crossing for the Contractor's convenience is not allowed on this project. Stream bank disturbance and access to Salt Creek is not allowed unless specifically designated in the plans. No other access will be allowed.

**STORM WATER  
BEST MANAGEMENT PRACTICES**

When the following best management practices are used, they are intended to account for disturbed areas where storage volume cannot be provided: Silt Fence, Silt Fence for Ditch Protection PSSCD, Rock Erosion Control and Seeding

**SECTION 404 PERMIT AND CONDITIONS**

Construct this project according to the requirements of U.S. Army Corps of Engineers Nationwide permit #14, Permit No. 2019-1142. A copy of this permit is available from the Iowa DOT website (<http://www.envpermits.iowadot.gov/>). The U.S. Army Corps of Engineers reserves the right to visit the site without prior notice.

**STORMWATER DRAINAGE BASIN AND STORAGE**

Refer to EC Standards and 570s Details.  
Summary of Stormwater Storage

Basin No.	Station to Station		Side	Discharge Point		Total Disturbed Area Acres	Disturbed Area with Storage Provided Acres	Disturbed Area without Storage Provided Acres	Best Management Practice	Total Storage Volume Provided CF	Total Storage Volume Required CF	Storage Volume Met? Yes/No	Remarks
	Station	Station		Station	Side								
	1	705+00.00		756+75.00	North								
2	705+00.00	804+00.00	Med	708+50.00	North	20.5	20.5	0.0	Silt Fence for Ditch Check (EC-201)	39675.0	73800.0	No	
3	705+00.00	776+50.00	South	705+00.00	West	30.4	30.4	0.0	Silt Fence for Ditch Check (EC-201)	83467.5	109440.0	No	
4	250+00.00	261+50.00	West	250+00.00	South	2.2	2.2	0.0	Silt Fence for Ditch Check (EC-201)	10465.8	7920.0	Yes	
5	268+87.00	281+50.00	East	269+65.00	South	3.3	3.3	0.0	Silt Fence for Ditch Check (EC-201)	13805.5	11880.0	Yes	
6	250+00.00	251+50.00	East	250+00.00	South	0.2	0.2	0.0	Silt Fence for Ditch Check (EC-201)	3038.5	720.0	Yes	
7	1544+23.00	776+50.00	North	1551+00.00	South	7.7	7.7	0.0	Silt Fence for Ditch Check (EC-201)	34689.7	27720.0	Yes	
8	776+50.00	780+53.00	North	778+27.00	South	1.1	1.1	0.0	Silt Fence for Ditch Check (EC-201)	4524.7	3960.0	Yes	
9	776+50.00	780+53.00	South	778+60.00	South	0.9	0.9	0.0	Silt Fence for Ditch Check (EC-201)	6787.1	3240.0	Yes	
10	780+53.00	803+59.00	North	788+21.00	North	6.4	6.4	0.0	Silt Fence for Ditch Check (EC-201)	30746.4	23040.0	Yes	
11	780+53.00	787+53.00	South	785+16.00	North	1.9	1.9	0.0	Silt Fence for Ditch Check (EC-201)	8349.2	6840.0	Yes	
12	787+53.00	804+00.00	South	788+97.00	North	4.0	4.0	0.0	Silt Fence for Ditch Check (EC-201)	20617.0	14400.0	Yes	

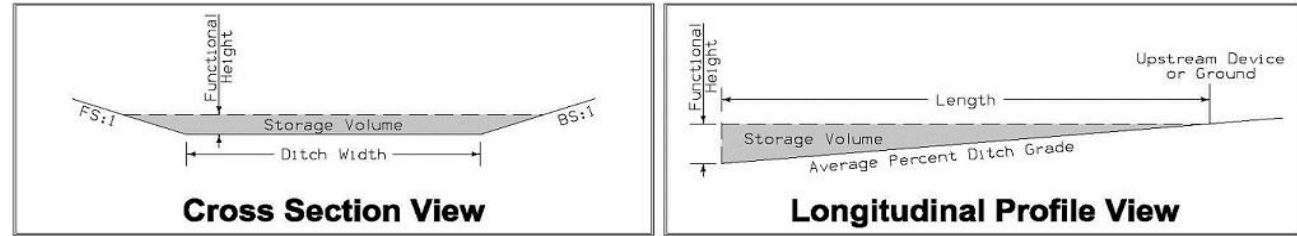






### SILT FENCES FOR DITCH CHECKS

Possible Standard: EC-201

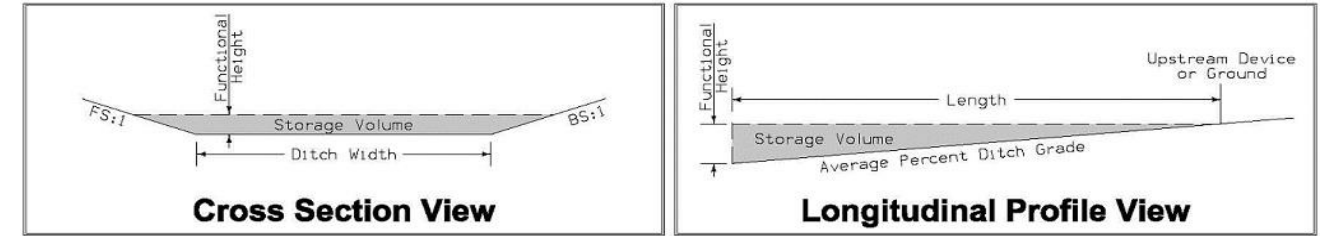


\* The functional height used in the volume equation is 85% of effective height. Effective height is 1.58 feet as shown on EC-201.  
\* Volume equation:  $[0.5 * Spacing * (0.5 * H^2 * FS + DW * H + 0.5 * H^2 * BS)]$

Basin No.	Type	Location			Bid Items			Stormwater Storage Volume Summary					Remarks
		Station	Side		Installation LF	Maintenance LF	Removal LF	Foreslope FS:1	Backslope BS:1	Ditch Width FT	Avg.% Slope Ditch Grade	Volume* CF	
10	1	795+98.00	Lt		28.0	2.8	28.0	6.0	3.0	10.0	4.0%	430.9	
10	1	796+38.00	Lt		28.0	2.8	28.0	6.0	3.0	10.0	4.0%	430.9	
10	1	796+78.00	Lt		28.0	2.8	28.0	6.0	3.0	10.0	4.0%	430.9	
10	1	797+18.00	Lt		28.0	2.8	28.0	6.0	3.0	10.0	4.0%	430.9	
10	1	797+58.00	Lt		28.0	2.8	28.0	6.0	3.0	10.0	4.0%	430.9	
10	1	797+98.00	Lt		28.0	2.8	28.0	6.0	3.0	10.0	4.0%	430.9	
10	1	798+38.00	Lt		28.0	2.8	28.0	6.0	3.0	10.0	4.0%	430.9	
10	1	798+78.00	Lt		28.0	2.8	28.0	6.0	3.0	10.0	4.0%	430.9	
10	1	799+18.00	Lt		28.0	2.8	28.0	6.0	3.0	10.0	4.0%	430.9	
10	1	799+58.00	Lt		28.0	2.8	28.0	6.0	3.0	10.0	4.0%	430.9	
10	1	799+98.00	Lt		28.0	2.8	28.0	6.0	3.0	10.0	4.0%	430.9	
10	1	800+38.00	Lt		28.0	2.8	28.0	6.0	3.0	10.0	4.0%	430.9	
10	1	800+78.00	Lt		28.0	2.8	28.0	6.0	3.0	10.0	4.0%	430.9	
10	1	801+18.00	Lt		28.0	2.8	28.0	6.0	3.0	10.0	4.0%	430.9	
10	1	801+58.00	Lt		28.0	2.8	28.0	6.0	3.0	10.0	4.0%	430.9	
10	1	801+98.00	Lt		28.0	2.8	28.0	6.0	3.0	10.0	4.0%	430.9	
10	1	802+38.00	Lt		28.0	2.8	28.0	6.0	3.0	10.0	4.0%	430.9	
10	1	802+78.00	Lt		28.0	2.8	28.0	6.0	3.0	10.0	4.0%	430.9	
10	1	803+18.00	Lt		28.0	2.8	28.0	6.0	3.0	10.0	4.0%	430.9	
10	1	803+58.00	Lt		28.0	2.8	28.0	6.0	3.0	10.0	4.0%	430.9	
11	1	781+13.00	Rt		28.0	2.8	28.0	6.0	3.0	10.0	1.0%	1669.8	
11	1	782+68.00	Rt		28.0	2.8	28.0	6.0	3.0	10.0	1.0%	1669.8	
11	1	784+23.00	Rt		28.0	2.8	28.0	6.0	3.0	10.0	1.0%	1669.8	
11	1	785+78.00	Rt		28.0	2.8	28.0	6.0	3.0	10.0	1.0%	1669.8	
11	1	787+33.00	Rt		28.0	2.8	28.0	6.0	3.0	10.0	1.0%	1669.8	
12	1	788+84.00	Rt		28.0	2.8	28.0	6.0	3.0	10.0	1.0%	1669.8	
12	1	11786+77.00	Lt		23.0	2.3	23.0	3.5	3.0	10.0	4.5%	337.6	
12	1	11787+12.00	Lt		23.0	2.3	23.0	3.5	3.0	10.0	4.5%	337.6	
12	1	11787+47.00	Lt		23.0	2.3	23.0	3.5	3.0	10.0	4.5%	337.6	
12	1	11787+82.00	Lt		23.0	2.3	23.0	3.5	3.0	10.0	4.5%	337.6	
12	1	11788+17.00	Lt		23.0	2.3	23.0	3.5	3.0	10.0	4.5%	337.6	
12	1	11788+52.00	Lt		23.0	2.3	23.0	3.5	3.0	10.0	4.5%	337.6	
12	1	11788+87.00	Lt		23.0	2.3	23.0	3.5	3.0	10.0	4.5%	337.6	
12	1	11786+77.00	Rt		23.0	2.3	23.0	3.5	3.0	10.0	4.1%	337.6	
12	1	11787+12.00	Rt		23.0	2.3	23.0	3.5	3.0	10.0	4.1%	337.6	
12	1	11787+47.00	Rt		23.0	2.3	23.0	3.5	3.0	10.0	4.1%	337.6	
12	1	11787+82.00	Rt		23.0	2.3	23.0	3.5	3.0	10.0	4.1%	337.6	
12	1	11788+17.00	Rt		23.0	2.3	23.0	3.5	3.0	10.0	4.1%	337.6	
12	1	11788+52.00	Rt		23.0	2.3	23.0	3.5	3.0	10.0	4.1%	337.6	
12	1	11788+87.00	Rt		23.0	2.3	23.0	3.5	3.0	10.0	4.1%	337.6	
12	1	791+40.00	Rt		28.0	2.8	28.0	6.0	3.0	10.0	4.0%	430.9	
12	1	791+80.00	Rt		28.0	2.8	28.0	6.0	3.0	10.0	4.0%	430.9	
12	1	792+20.00	Rt		28.0	2.8	28.0	6.0	3.0	10.0	4.0%	430.9	
12	1	792+60.00	Rt		28.0	2.8	28.0	6.0	3.0	10.0	4.0%	430.9	

### SILT FENCES FOR DITCH CHECKS

Possible Standard: EC-201



\* The functional height used in the volume equation is 85% of effective height. Effective height is 1.58 feet as shown on EC-201.  
\* Volume equation:  $[0.5 * Spacing * (0.5 * H^2 * FS + DW * H + 0.5 * H^2 * BS)]$

Basin No.	Type	Location			Bid Items			Stormwater Storage Volume Summary					Remarks	
		Station	Side		Installation LF	Maintenance LF	Removal LF	Foreslope FS:1	Backslope BS:1	Ditch Width FT	Avg.% Slope Ditch Grade	Volume* CF		
12	1	793+00.00	Rt		28.0	2.8	28.0	6.0	3.0	10.0	4.0%	430.9		
12	1	793+40.00	Rt		28.0	2.8	28.0	6.0	3.0	10.0	4.0%	430.9		
12	1	793+80.00	Rt		28.0	2.8	28.0	6.0	3.0	10.0	4.0%	430.9		
12	1	794+20.00	Rt		28.0	2.8	28.0	6.0	3.0	10.0	4.0%	430.9		
12	1	795+20.00	Rt		28.0	2.8	28.0	6.0	3.0	10.0	1.5%	1077.3		
12	1	796+20.00	Rt		28.0	2.8	28.0	6.0	3.0	10.0	1.5%	1077.3		
12	1	797+20.00	Rt		28.0	2.8	28.0	6.0	3.0	10.0	1.5%	1077.3		
12	1	798+20.00	Rt		28.0	2.8	28.0	6.0	3.0	10.0	1.5%	1077.3		
12	1	799+20.00	Rt		28.0	2.8	28.0	6.0	3.0	10.0	1.5%	1077.3		
12	1	800+20.00	Rt		28.0	2.8	28.0	6.0	3.0	10.0	1.5%	1077.3		
12	1	801+20.00	Rt		28.0	2.8	28.0	6.0	3.0	10.0	1.5%	1077.3		
12	1	802+20.00	Rt		28.0	2.8	28.0	6.0	3.0	10.0	1.5%	1077.3		
12	1	803+20.00	Rt		28.0	2.8	28.0	6.0	3.0	10.0	1.5%	1077.3		
12	1	804+20.00	Rt		28.0	2.8	28.0	6.0	3.0	10.0	1.5%	1077.3		
<b>SFDC Tab Totals:</b>					<b>12263.0</b>	<b>1226.3</b>	<b>12263.0</b>							
<b>SFDC Bid Totals:</b>					<b>15328.8</b>							<b>125% of Tab Total</b>		
<b>SFDC Maintenance Totals:</b>						<b>1532.9</b>						<b>125% of Bid Total</b>		
<b>SFDC Removal Totals:</b>							<b>15328.8</b>					<b>100% of Bid Total</b>		





**POLLUTION PREVENTION PLAN**

This project is regulated by the requirements of the Iowa Department of Natural Resources (DNR) National Pollutant Discharge Elimination System (NPDES) General Permit No. 2 OR an Iowa Department of Natural Resources (DNR) National Pollutant Discharge Elimination System (NPDES) individual storm water permit. The Contractor shall carry out the terms and conditions of this permit and the Pollution Prevention Plan (PPP).

This Base PPP includes information on Roles and Responsibilities, Project Site Description, Controls, Maintenance Procedures, Inspection Requirements, Non-Storm Water Controls, Potential Sources of Off Right-of-Way Pollution, and Definitions. This plan references other documents rather than repeating the information contained in the documents. A copy of this Base Pollution Prevention Plan, amended as needed during construction, will be readily available for review.

All contractors shall conduct their operations in a manner that controls pollutants, minimizes erosion, and prevents sediments from entering waters of the state and leaving the highway right-of-way. The Contractor shall be responsible for compliance and implementation of the PPP for their entire contract. This responsibility shall be further shared with subcontractors whose work is a source of potential pollution as defined in this PPP.

**I. ROLES AND RESPONSIBILITIES**

- A. Designer:
  1. Prepares Base PPP included in the project plan.
  2. Prepares Notice of Intent (NOI) submitted to Iowa DNR.
  3. Is signature authority on the Base PPP. If consultant designed, signature from Contracting Authority is also required.
- B. Contractor:
  1. Signs a co-permittee certification statement adhering to the requirements of the NPDES permit and this PPP. All co-permittees are legally required under the Clean Water Act and the Iowa Administrative Code to ensure compliance with the terms and conditions of this PPP.
  2. Designates a Water Pollution Control Manager (WPCM), who has the duties and responsibilities as defined in Section 2602 of the Standard Specifications.
  3. Submits an Erosion Control Implementation Plan (ECIP) and ECIP updates according to Section 2602 of the Standard Specifications.
  4. Installs and maintains appropriate controls. This work may be subcontracted as documented through Subcontractor Request Forms (Form 830231).
  5. Supervises and implements good housekeeping practices according to Paragraph III, C, 2.
  6. Conducts joint required inspections of the site with inspection staff. When Contractor is not mobilized on site, Contractor may delegate this responsibility to a trained or certified subcontractor. Contracting Authority also may waive joint inspection requirement during winter shutdown. In both circumstances, WPCM (or trained or certified delegate from the Contractor) is still responsible to review and sign inspection reports.
  7. Complies with training and certification requirements of Section 2602 of the Standard Specifications.
  8. Submits amended PPP site map according to Section 2602 of the Standard Specifications.
- C. Subcontractors:
  1. Sign a co-permittee certification statement adhering to the requirements of the NPDES permit and this PPP if: responsible for sediment or erosion controls; involved in land disturbing activities; or performing work that is a source of potential pollution as defined in this PPP. Subcontracted work items are identified in Subcontractor Request Forms (Form 830231). All co-permittees are legally required under the Clean Water Act and the Iowa Administrative Code to ensure compliance with the terms and conditions of this PPP.
  2. Implement good housekeeping practices according to Paragraph III, C, 2.
- D. RCE/Project Engineer:
  1. Is Project Storm Water Manager.
  2. On projects where DOT is the Contracting Authority, is current with erosion control training or certification.
  3. Takes actions necessary to ensure compliance with storm water requirements including, where appropriate, issuing stop work orders, and directing additional inspections at construction project sites that are experiencing problems with achieving permit compliance.
  4. Orders the taking of measures to cease, correct, prevent, or minimize the consequences of non-compliance with the storm water requirements of the Applicable Permit.
  5. Supervises all work necessary to meet storm water requirements at the Project, including work performed by contractors and subcontractors.
  6. Requires employees, contractors, and subcontractors to take appropriate responsive action to comply with storm water requirements, including requiring any such person to cease or correct a violation of storm water requirements, and to order or recommend such other actions as necessary to meet storm water requirements.
  7. Is familiar with the Project PPP and storm water site map.
  8. On projects where DOT is Contracting Authority, is responsible for periodically monitoring inspection reports to determine whether deficiencies identified in inspection reports were adequately and timely addressed, and if not, has the authority and responsibility to direct immediate actions to correct the deficiencies.
  9. Is the point of contact for the Project for regulatory officials, Inspector, contractors, and subcontractors regarding storm water requirements.
  10. Is signature authority on Notice of Discontinuation.
  11. Maintains an up-to-date record of contractors, subcontractors, and subcontracted work items through Subcontractor Request Forms (Form 830231).
  12. Makes information to determine permit compliance available to the DNR upon their request.
- E. Inspector:
  1. Updates PPP through fieldbook entries and storm water site inspection reports if there is a change in design, construction, operation, or maintenance which has a significant effect on the discharge of pollutants from the project.
  2. Makes information to determine permit compliance available to the DNR upon their request.
  3. Conducts joint required inspections of the site with the contractor/subcontractor.
  4. Completes an inspection report after each inspection.
  5. Is signature authority on storm water inspection reports.

**II. PROJECT SITE DESCRIPTION**

- A. This Pollution Prevention Plan (PPP) is for the construction of a PCC Pavement - Grade and New in Tama County.
- B. This PPP covers approximately 117.34 acres with an estimated 98.55 acres being disturbed. The portion of the PPP covered by this contract has 98.55 acres disturbed.
- C. The PPP is located in an area of Kenyon-Clyde-Floyd soil association and Colo-Chaguest-Titus. The estimated weighted average runoff coefficient number for this PPP after completion will be 0.41.
- D. Storm Water Site Map is located in the R sheets. Proposed slopes are shown in cross sections, details, or standard road plans. Supplemental information is located in the Tabulations in the C or CE sheets.
- E. The base storm water site map is amended by contract modifications and progress payments (fieldbook entries) of completed erosion control work. Also, due to project phasing, erosion and sediment controls shown on project plans may not be installed until needed, based on site conditions. For example, silt fence ditch checks will typically not be installed until the ditch has been

**POLLUTION PREVENTION PLAN**

installed. Installed locations may also be modified from tabulation locations by field staff. Installed locations will be documented by fieldbook entries and amended PPP site map.

F. Runoff from this work will flow into Salt Creek.

**III. CONTROLS**

- A. The Contractor's ECIP specified in Article 2602.03 of the Standard Specifications for accomplishment of storm water controls should clearly describe the intended sequence of major activities, and for each activity define the control measure and the timing during the construction process that the measure will be implemented.
  - B. Preserve vegetation in areas not needed for construction.
  - C. Sections 2601 and 2602 of the Standard Specifications define requirements to implement erosion and sediment control measures. Actual quantities used and installed locations may vary from the Base PPP and amendment of the plan will be documented via fieldbook entries, amended PPP site map, or by contract modification. Additional erosion and sediment control items may be required as determined by the inspector and/or contractor during storm water site inspections. If the work involved is not applicable to any contract items, the work will be paid for according to Article 1109.03 paragraph B of the Standard Specifications.
- 1. EROSION AND SEDIMENT CONTROLS**
- a. Stabilization Practices
    - 1) Site plans will ensure that existing vegetation or natural buffers are preserved where attainable and disturbed portions of the site will be stabilized.
    - 2) Initialize stabilization of disturbed areas immediately after clearing, grading, excavating, or other earth disturbing activities have:
      - a) Permanently ceased on any portion of the site, or
      - b) Temporarily ceased on any portion of the site and will not resume for a period exceeding 14 calendar days.
    - 3) Staged permanent and/or temporary stabilizing seeding and mulching shall be completed as the disturbed areas are completed. Incomplete areas shall be stabilized according to paragraph III, C, 1, a, 2, b above.
    - 4) Permanent and Temporary Stabilization practices to be used for this project are located in the storm water site map, Estimated Project Quantities (100-0A, 100-1A, or 100-1C), and Estimate Reference Information (100-4A) located in the C or R sheets. Typical drawings detailing construction of the practices to be used on this project are referenced in the Standard Road Plans Tabulation (105-4) in the C or R sheets.
    - 5) Preservation of existing vegetation within right-of-way or easements will act as vegetative buffer strips.
    - 6) Preservation of topsoil: Bid items to be used for this project are located in the Estimated Project Quantities (100-0A, 100-1A, or 100-1C) and Estimate Reference Information (100-4A) located in the C or R sheets. Additional information may be found in the Tabulations in the C or T Tabulation sheets, or is referenced in Section 2105 of the Standard Specifications.
  - b. Structural Practices
    - 1) Structural practices will be implemented to divert flows from exposed soils and detain or otherwise limit runoff and the discharge of pollutants from exposed areas of the site. Additionally, structural practices may include: silt basins that provide 3600 cubic feet of storage per acre drained or equivalent sediment controls, outlet structures that withdraw water from surface when discharging basins, and controls to direct storm water to vegetated areas.
    - 2) Structural practices to be used for this project are located in the storm water site map, Estimated Project Quantities (100-0A, 100-1A, or 100-1C), and Estimate Reference Information (100-4A) located in the C or R sheets, as well as all other item specific Tabulations. Typical drawings detailing construction of the devices to be used on this project can be found on the B or R sheets or are referenced in the Standard Road Plans Tabulation (105-4) located in the C or R sheets.
  - c. Storm Water Management
 Measures shall be installed during the construction process to control pollutants in storm water discharges that will occur after construction operations have been completed. This may include velocity dissipation devices at discharge locations and along length of outfall channel as necessary to provide a non-erosion velocity flow from structure to water course. If included with this project, these items are located in the storm water site map and Estimated Project Quantities (100-0A, 100-1A, or 100-1C) and Estimate Reference Information (100-4A) located in the C or R sheets, as well as all other item specific Tabulations. Typical drawings detailing construction of the practices to be used on this project are referenced in the Standard Road Plans Tabulation. The installation of these devices may be subject to Section 404 of the Clean Water Act.
- 2. OTHER CONTROLS**
- Contractor disposal of unused construction materials and construction material wastes shall comply with applicable state and local waste disposal, sanitary sewer, or septic system regulations. In the event of a conflict with other governmental laws, rules and regulations, the more restrictive laws, rules or regulations shall apply.
- a. Vehicle Entrances and Exits - Construct and maintain entrances and exits to prevent tracking of sediments onto roadways.
  - b. Material Delivery, Storage and Use - Implement practices to prevent discharge of construction materials during delivery, storage, and use.
  - c. Stockpile Management - Install controls to reduce or eliminate pollution of storm water from stockpiles of soil and paving.
  - d. Waste Disposal - Do not discharge any materials, including building materials, into waters of the state, except as authorized by a Section 404 permit.
  - e. Spill Prevention and Control - Implement chemical spill and leak prevention and response procedures to contain and clean up spills and prevent material discharges to the storm drain system and waters of the state.
  - f. Concrete Residuals and Washout Wastes - Waste shall not be discharged to a surface water and is not allowed to adversely affect a water of the state. Designate temporary concrete washout facilities for rinsing out concrete trucks. Provide directions to truck drivers where designated washout facilities are located. Designated washout areas should be located at least 50 feet away from storm drains, streams or other water bodies. Care should be taken to ensure these facilities do not overflow during storm events.
  - g. Concrete Grooving/Grinding Slurry - Do not discharge slurry to a waterbody or storm drain. Slurry may be applied on foreslopes or removed from the project.
  - h. Vehicle and Equipment Storage and Maintenance Areas - Perform on site fueling and maintenance in accordance with all environment laws such as proper storage of onsite fuels and proper disposal of used engine oil or other fluids on site. Employ washing practices that prevent contamination of surface and ground water from wash water. Wash waters must be treated in a sediment basin or alternative control that provides equivalent or better treatment prior to discharge.
  - i. Litter Management - Ensure employees properly dispose of litter. Minimize exposure of trash if exposure to precipitation or storm water would result in a discharge of pollutants.
  - j. Dewatering - Properly treat water to remove suspended sediment before it re-enters a waterbody or discharges off-site. Measures are also to be taken to prevent scour erosion at dewatering discharge point.
- 3. APPROVED STATE OR LOCAL PLANS**
- During the course of this construction, it is possible that situations will arise where unknown materials will be encountered. When such situations are encountered, they will be handled according to all federal, state, and local regulations in effect at the time.

### POLLUTION PREVENTION PLAN

#### IV. MAINTENANCE PROCEDURES

The Contractor is required to maintain all temporary erosion and sediment control measures in proper working order, including cleaning, repairing, or replacing them throughout the contract period. This shall begin when the features have lost 50% of their capacity.

#### V. INSPECTION REQUIREMENTS

- A. Inspections shall be made jointly by the Contractor and the Contracting Authority's inspector at least once every seven calendar days. Storm water site inspections will include:
  1. Date of the inspection.
  2. Summary of the scope of the inspection.
  3. Name and qualifications of the personnel making the inspection.
  5. Review of erosion and sediment control measures within disturbed areas for the effectiveness in preventing impacts to receiving waters.
  6. Major observations related to the implementation of the PPP.
  7. Identification of corrective actions required to maintain or modify erosion and sediment control measures.
- B. Include storm water site inspection reports in the Amended PPP. Incorporate any additional erosion and sediment control measures determined as a result of the inspection. Immediately begin corrective actions on all deficiencies found within 3 calendar days of the inspection and complete within 7 calendar days following the inspection. If it is determined that making the corrections less than 72 hours after the inspection is impracticable, it should be documented why it is impracticable and indicate an estimated date by which the corrections will be made.

#### VI. NON-STORM WATER DISCHARGES

This includes subsurface drains (i.e. longitudinal and standard subdrains) and slope drains. The velocity of the discharge from these features may be controlled by the use of headwalls or blocks, Class A stone, erosion stone or other appropriate materials. This also includes uncontaminated groundwater from dewatering operations, which will be controlled as discussed in Section III of the PPP.

#### VII. POTENTIAL SOURCES OF OFF RIGHT-OF-WAY (ROW) POLLUTION

Silts, sediment, and other forms of pollution may be transported onto highway right-of-way (ROW) as a result of a storm event. Potential sources of pollution located outside highway ROW are beyond the control of this PPP. Pollution within highway ROW will be conveyed and controlled per this PPP.

#### VIII. DEFINITIONS

- A. Base PPP - Initial Pollution Prevention Plan.
- B. Amended PPP - Base PPP amended during construction. May include Plan Revisions or Contract Modifications for new items, storm water site inspection reports, fieldbook entries made by the inspector, amended PPP site map by the Contractor, ECIP, NOI, co-permittee certifications, and Subcontractor Request Forms. Items amending the PPP are stored electronically and are readily available upon request.
- C. Fieldbook Entries - This contains the inspector's daily diary and bid item postings.
- D. Controls - Methods, practices, or measures to minimize or prevent erosion, control sedimentation, control storm water, or minimize contaminants from other types of waste or materials. Also called Best Management Practices (BMPs).
- E. Signature Authority - Representative authorized to sign various storm water documents.

#### CERTIFICATION STATEMENT





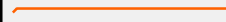
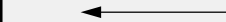

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature








Seana K. Godbold

Print Name






### LINE STYLE LEGEND OF EROSION CONTROL SHEETS



-  Silt Fence
-  Perimeter and Slope Sediment Control Device (9")
-  Perimeter and Slope Sediment Control Device (12")
-  Perimeter and Slope Sediment Control Device (20")
-  Open-Throat Curb Intake Sediment Filter
-  Concentrated Flow
-  Sheet Flow

### CELL LEGEND OF EROSION CONTROL SHEETS

















-  Temporary Sediment Control basin
-  Erosion Control for Circular Intake or Manhole Well
-  Erosion Control for Rectangular Intake or Manhole Well
-  Grate Intake Sediment Filter Bag
-  Silt Basin
-  Silt Fence Tail
-  Stormwater Drainage Basin Discharge Point

### PLAN VIEW COLOR LEGEND OF EROSION CONTROL 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
Black	(0)	 Permanent Erosion Control Features
Blaze Orange	(222)	 Temporary Erosion Control Features

SHADING	Design Color No.		Transparency
Citron	(234)	 Mulching, All Types	50%
Light Brown	(238)	 Special Ditch Control, Wood Excelsior Mat	0%

### PATTERN LEGEND OF EROSION CONTROL SHEETS

- |   |                                 |   |                                      |
|---|---------------------------------|---|--------------------------------------|
|    | Seeding and Fertilizing         |    | Turf Reinforcement Mat Type 1        |
|    | Seeding and Fertilizing (Rural) |    | Turf Reinforcement Mat Type 2        |
|    | Seeding and Fertilizing (Urban) |    | Turf Reinforcement Mat Type 3        |
|    | Native Grass Seeding            |    | Turf Reinforcement Mat Type 4        |
|   | Salt Tolerant Seeding           |   | Slope Protection, Wood Excelsior Mat |
|  | Wetland Grass Seeding           |  | Transition Mat                       |
|  | Wildflower Seeding              |  | Rock Features, Permanent             |
|  | Sodding                         |  | Rock Features, Temporary             |

## EROSION CONTROL LEGEND AND SYMBOL INFORMATION SHEET

(COVERS SHEET SERIES R)



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BEGIN CONSTRUCTION

705  
705

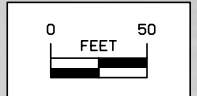
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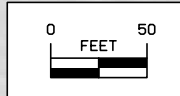
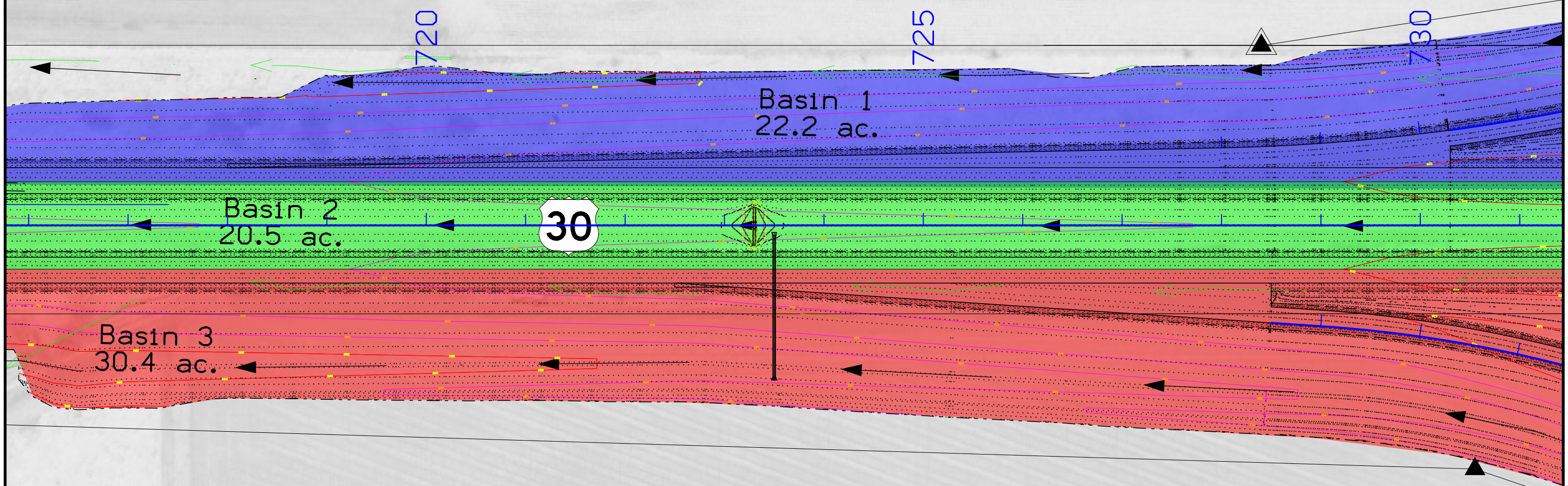
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Basin 2  
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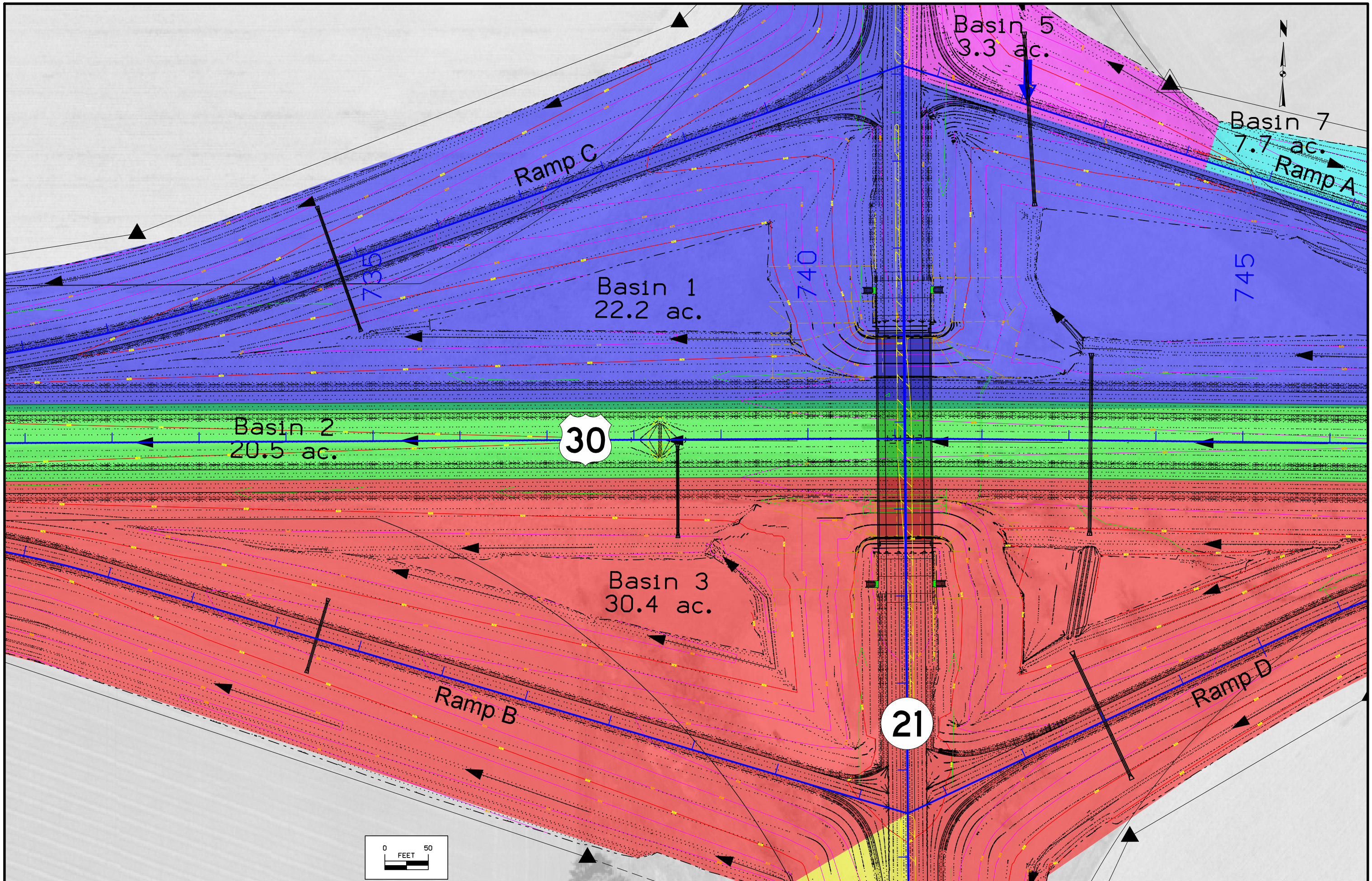
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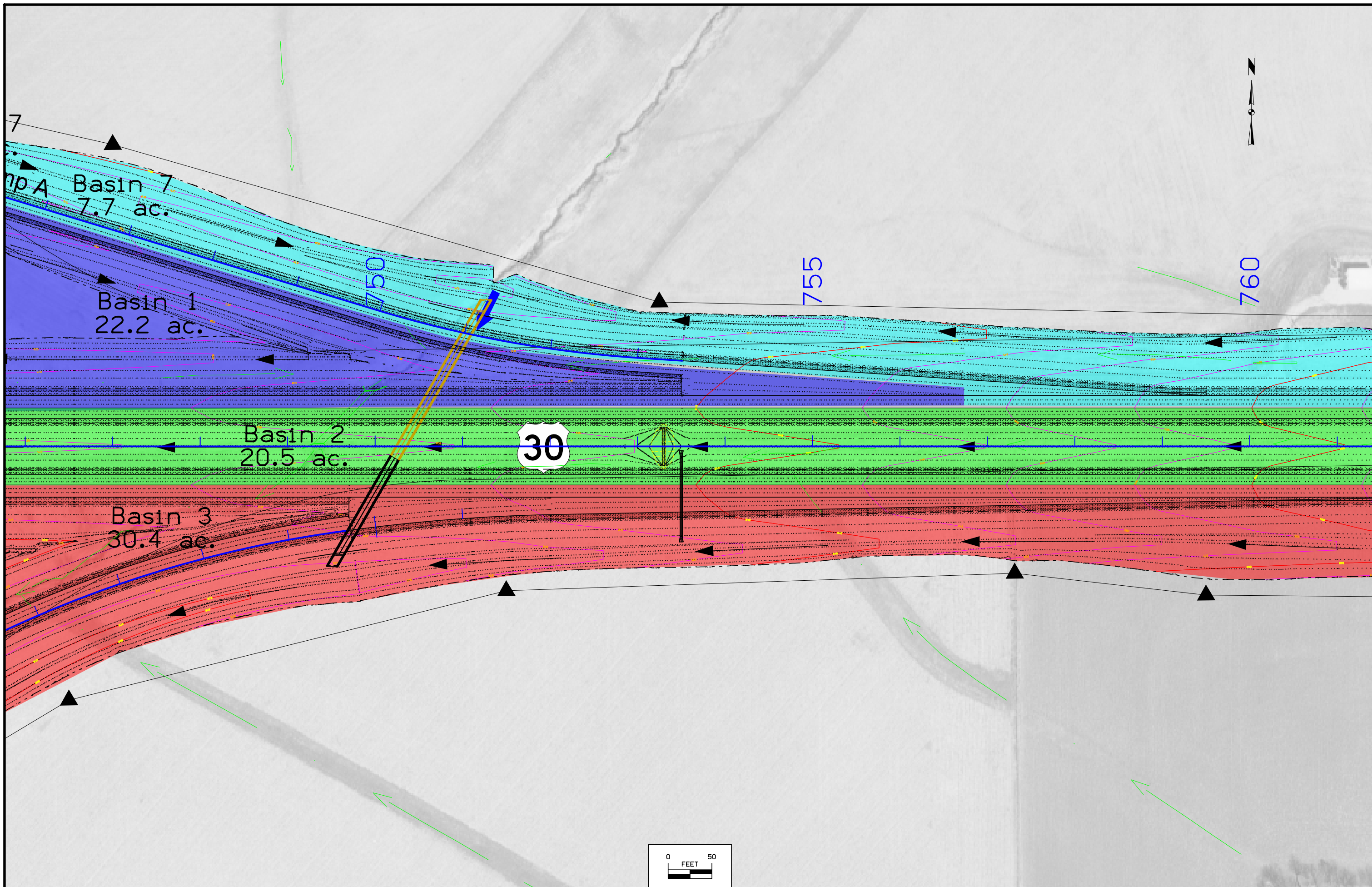




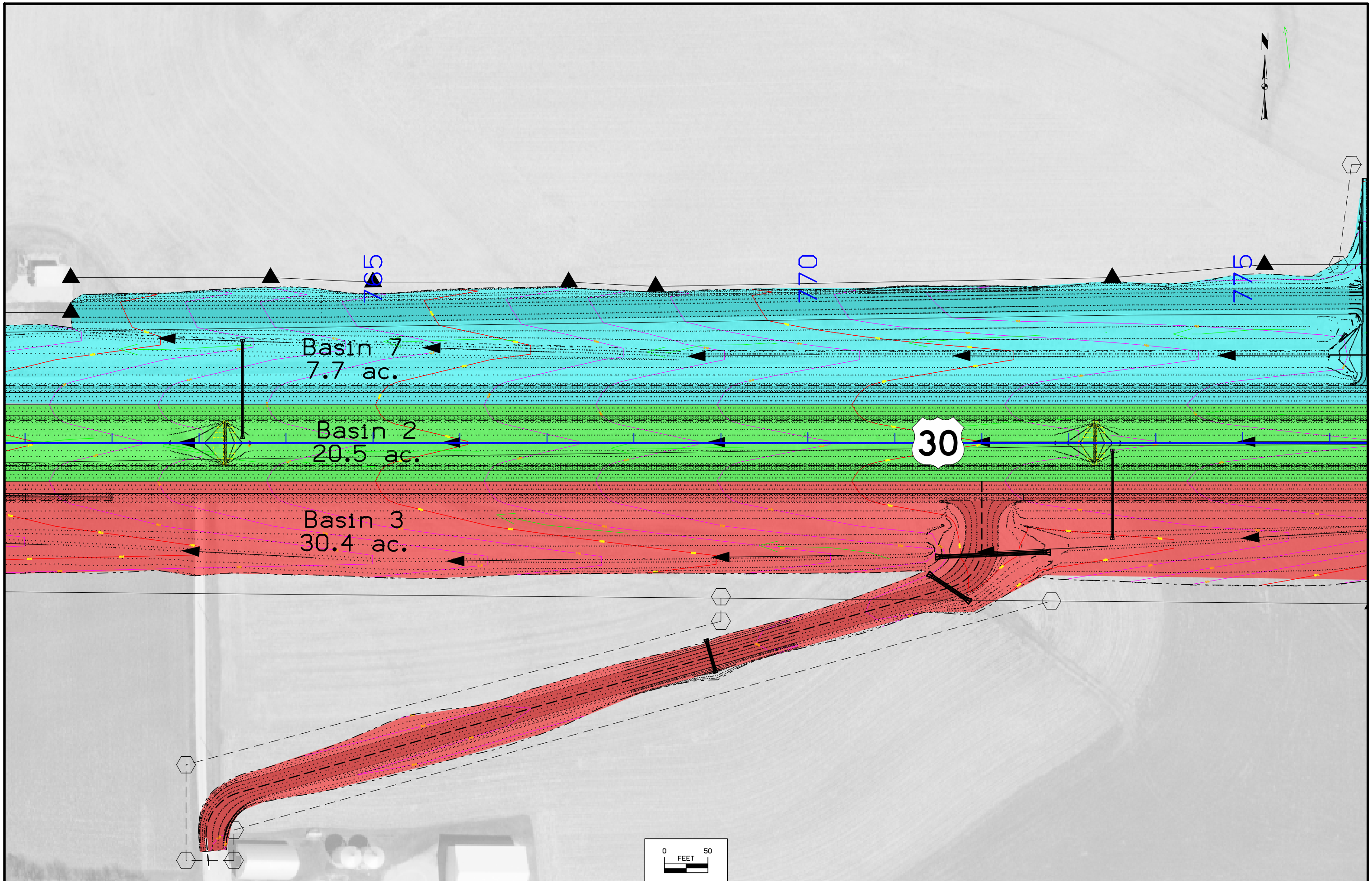




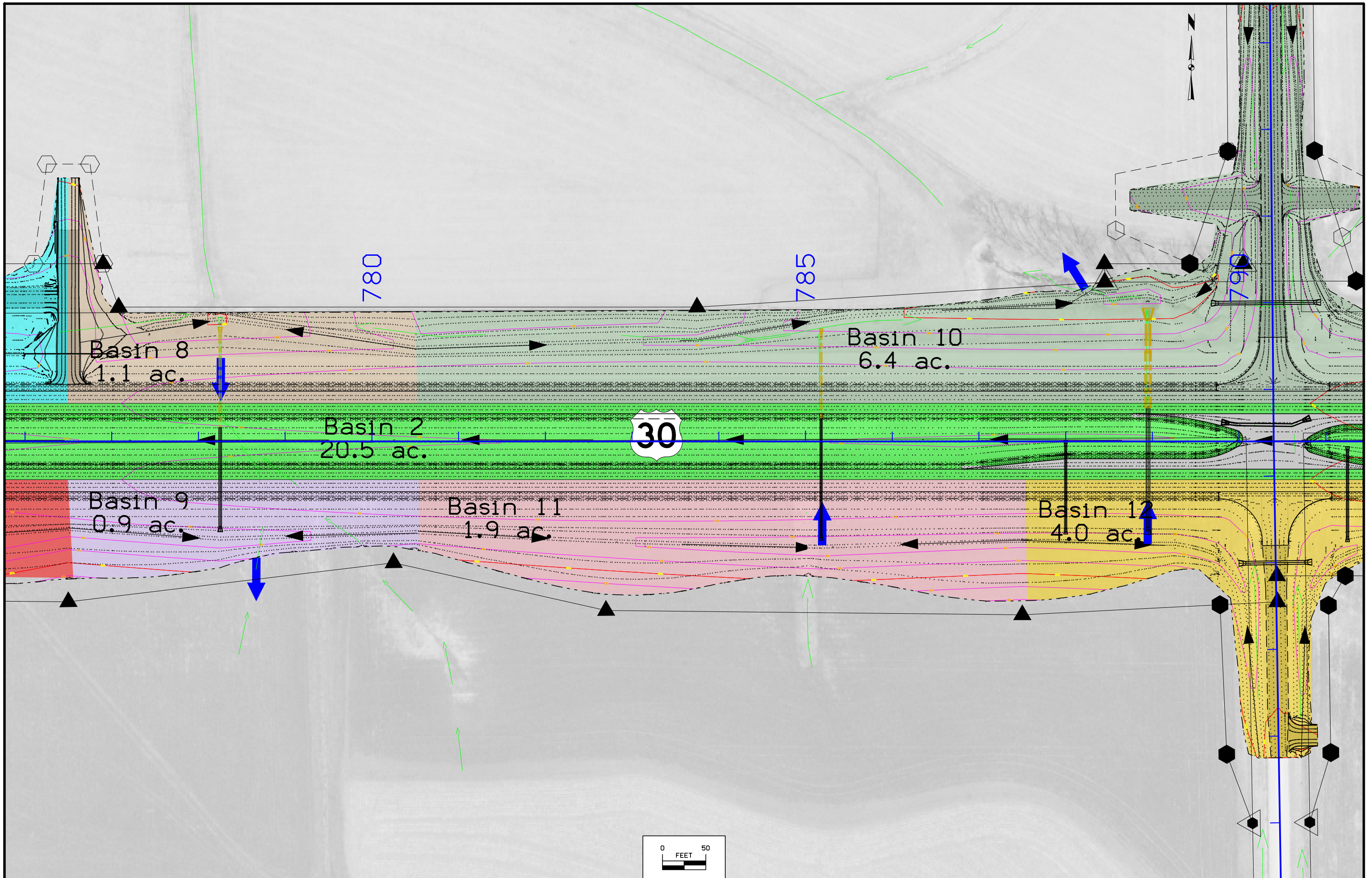




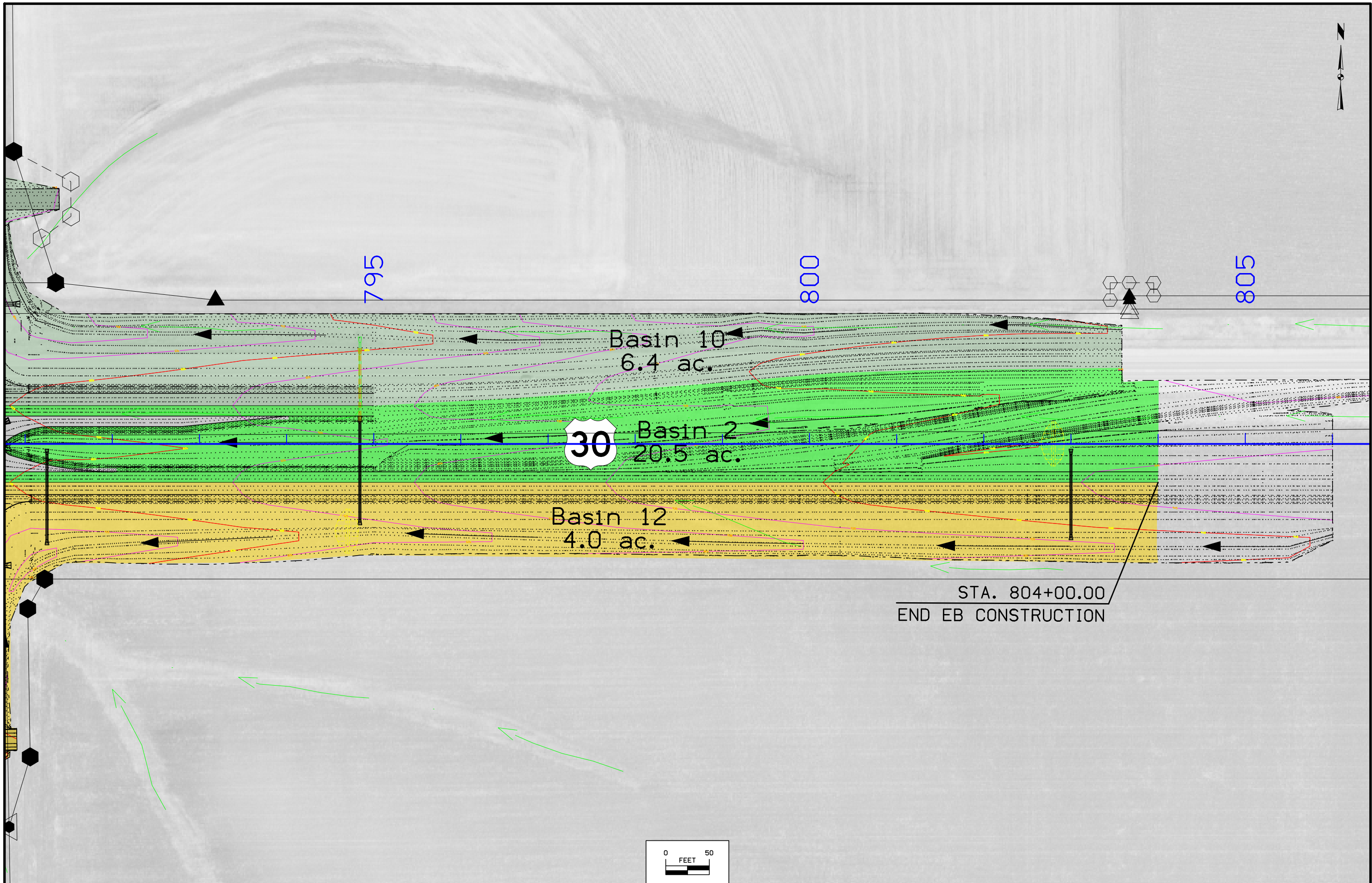










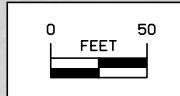


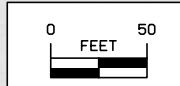
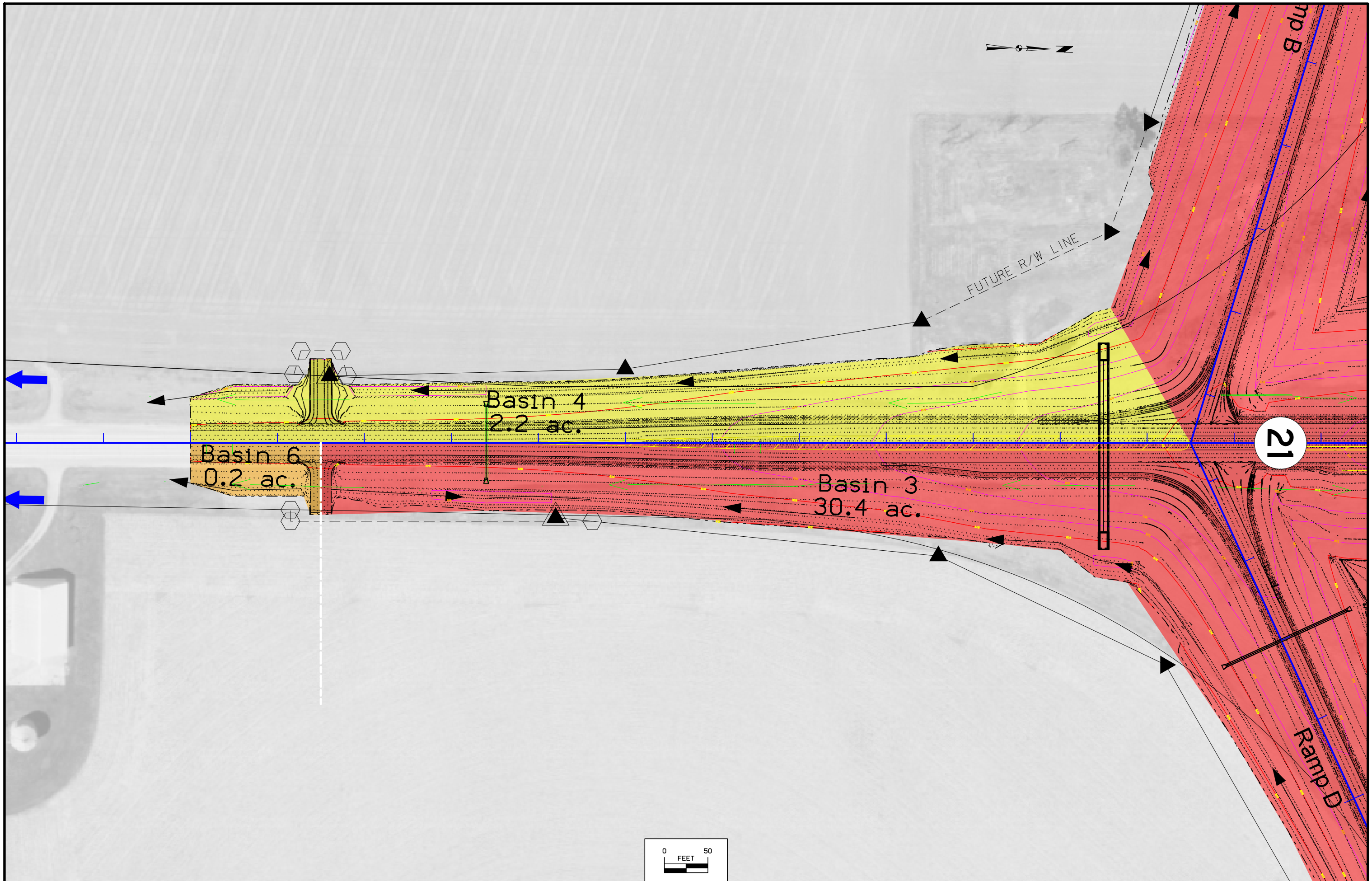
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Basin 2  
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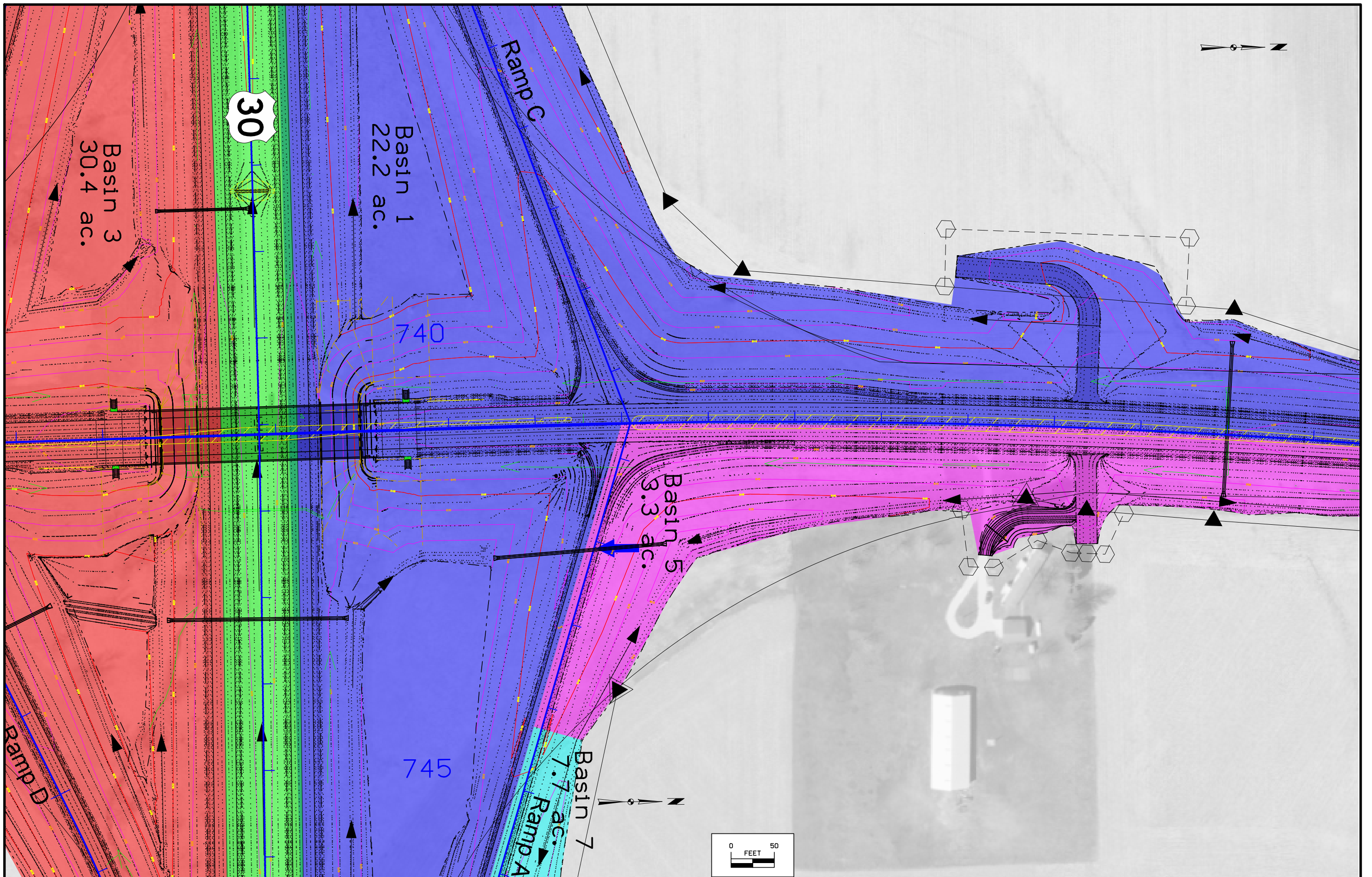
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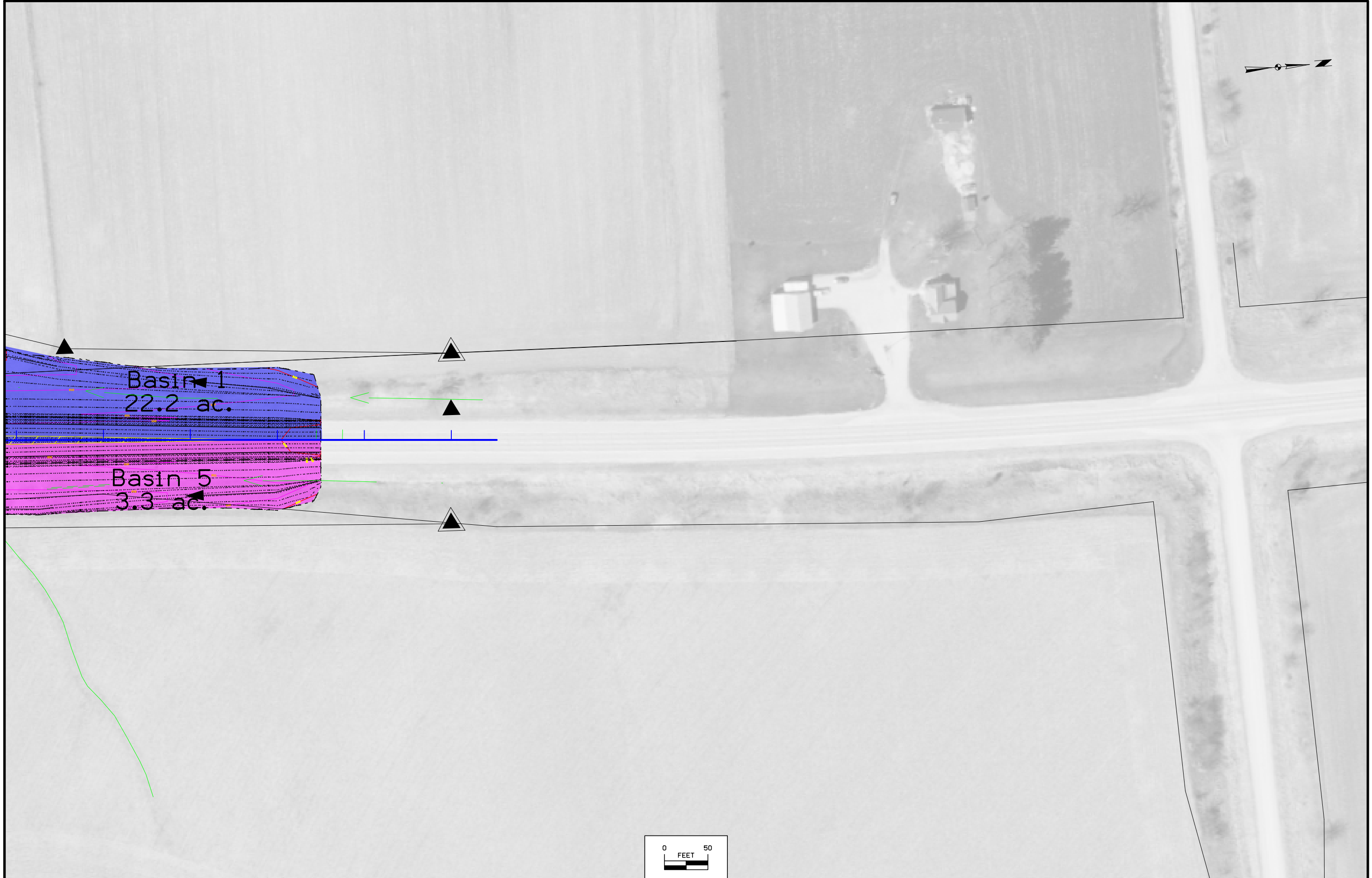






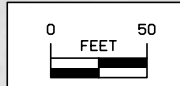




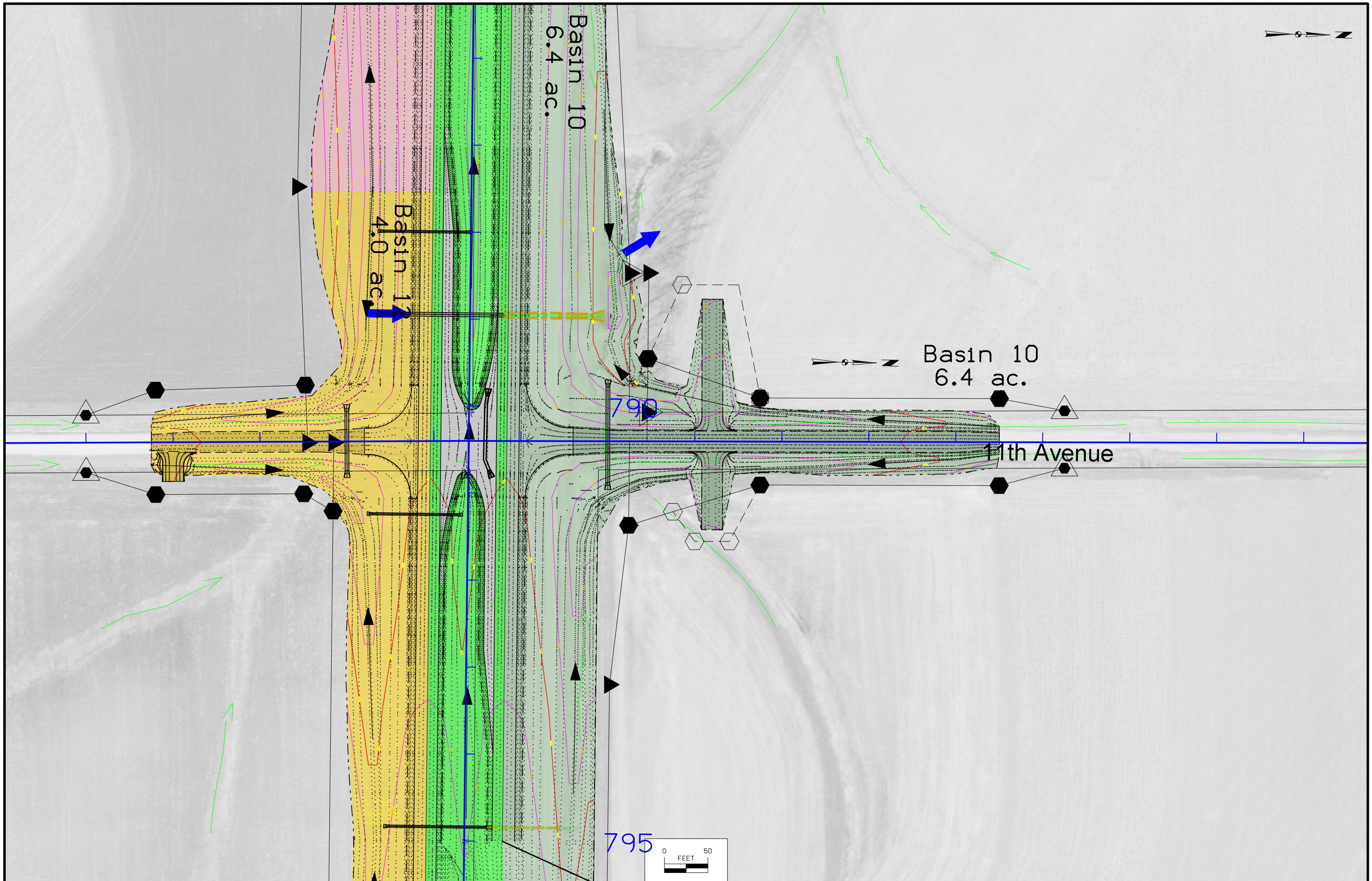


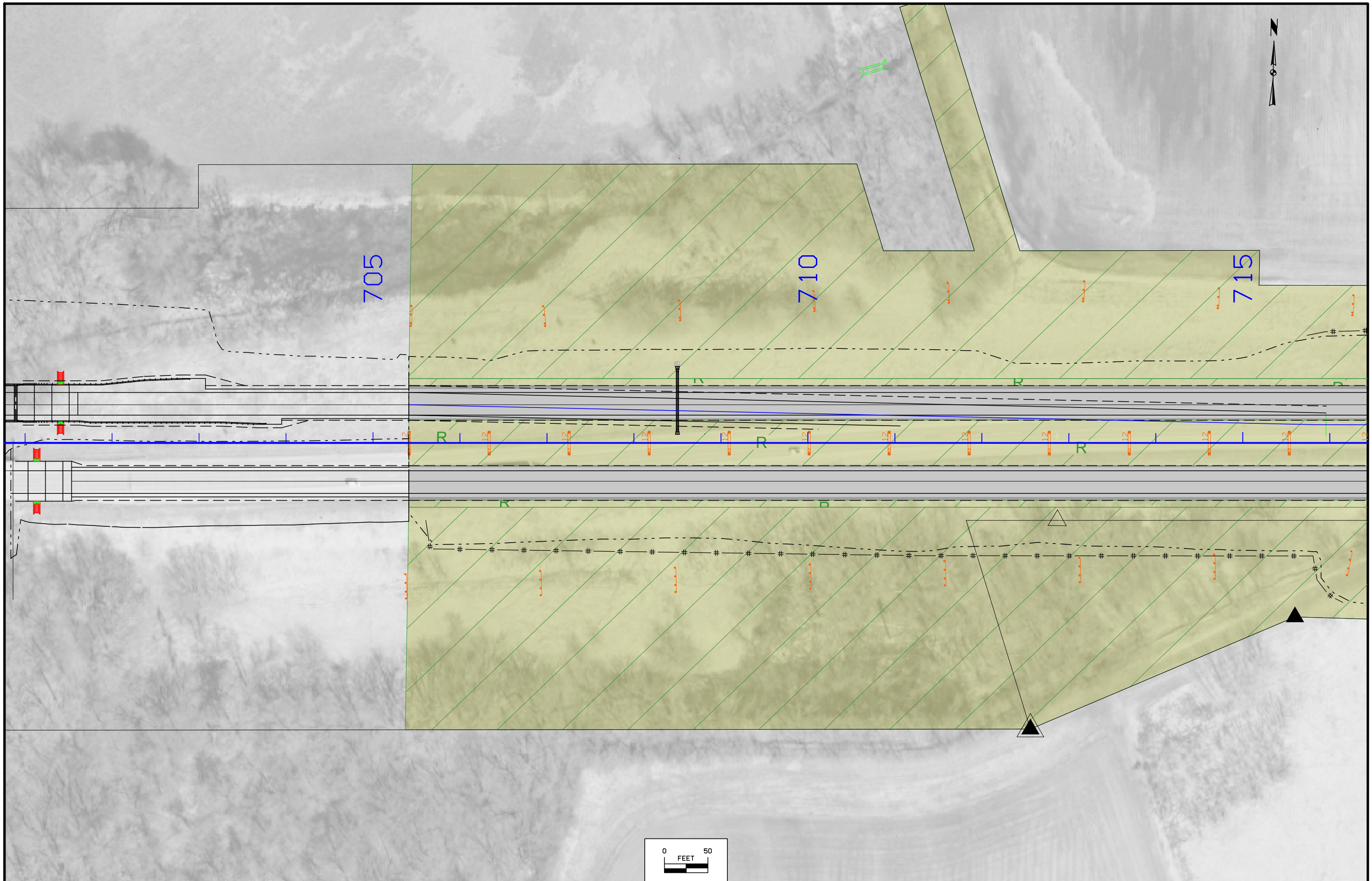
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Basin 5  
3.3 ac.

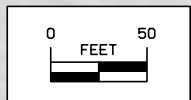
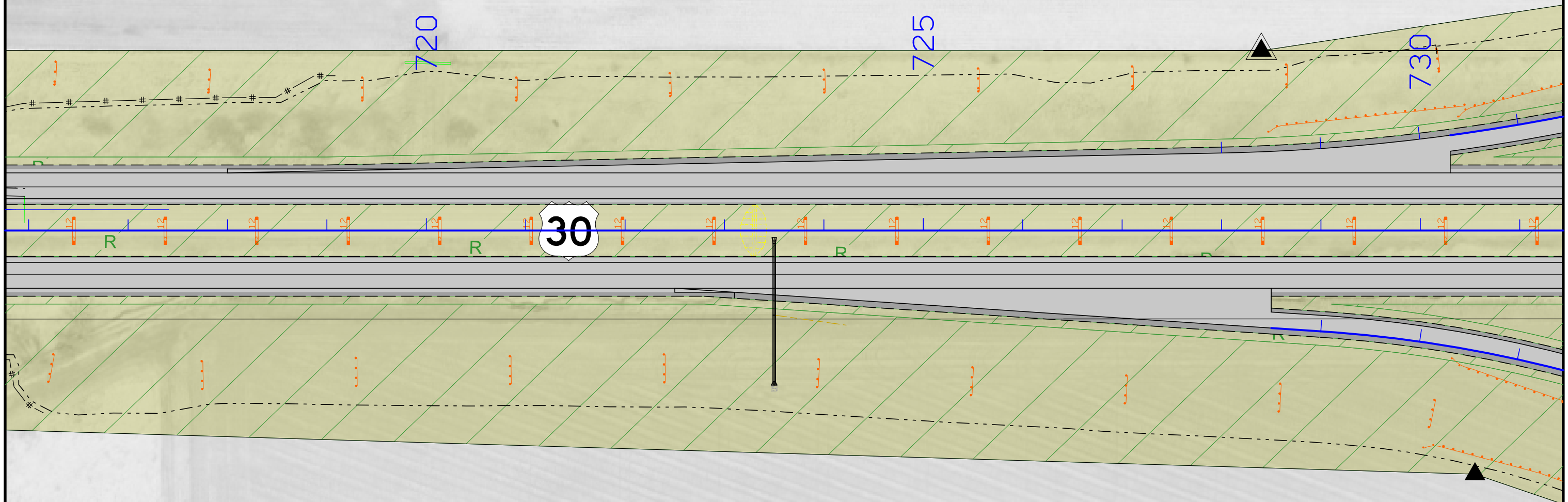


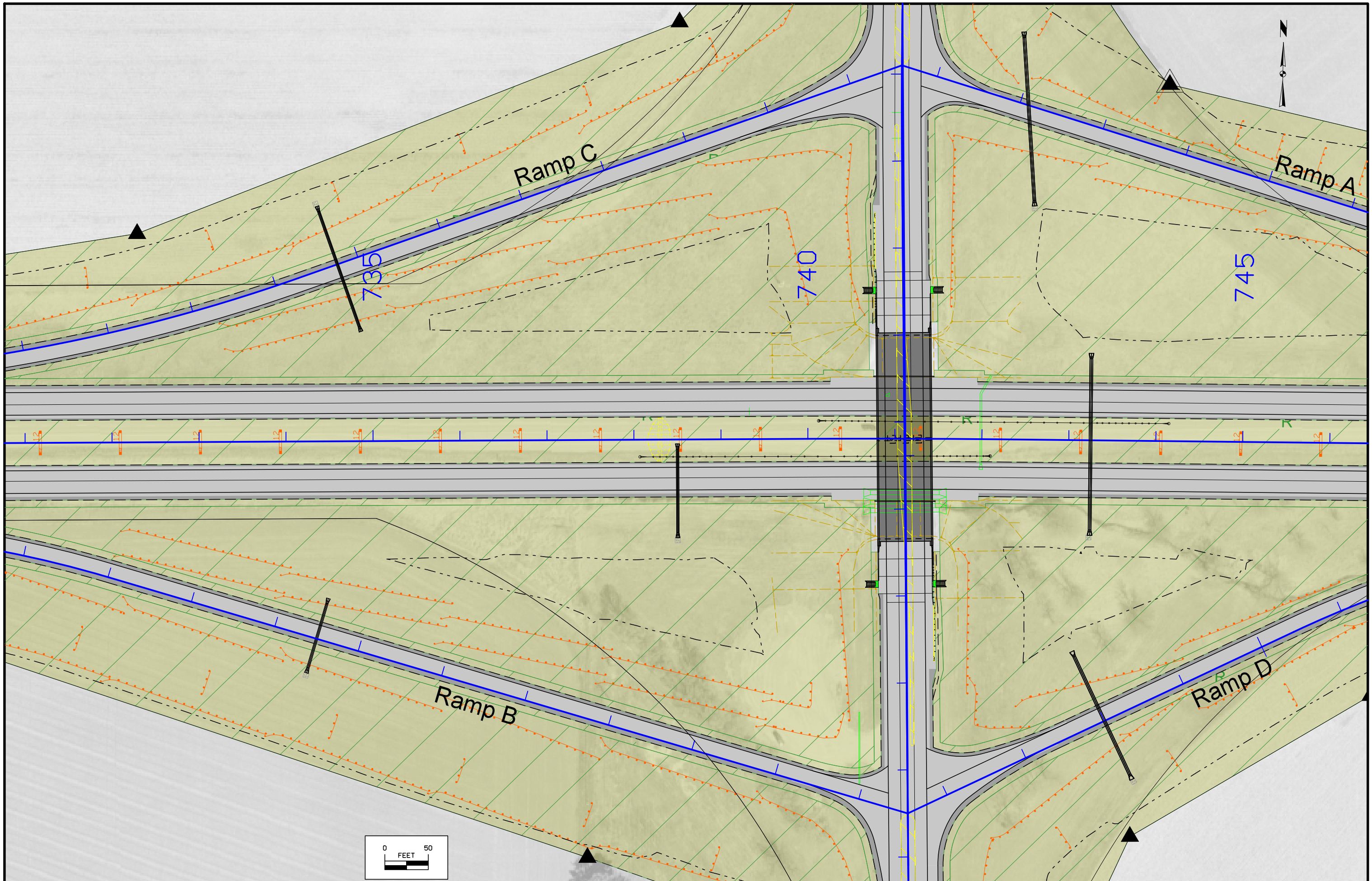




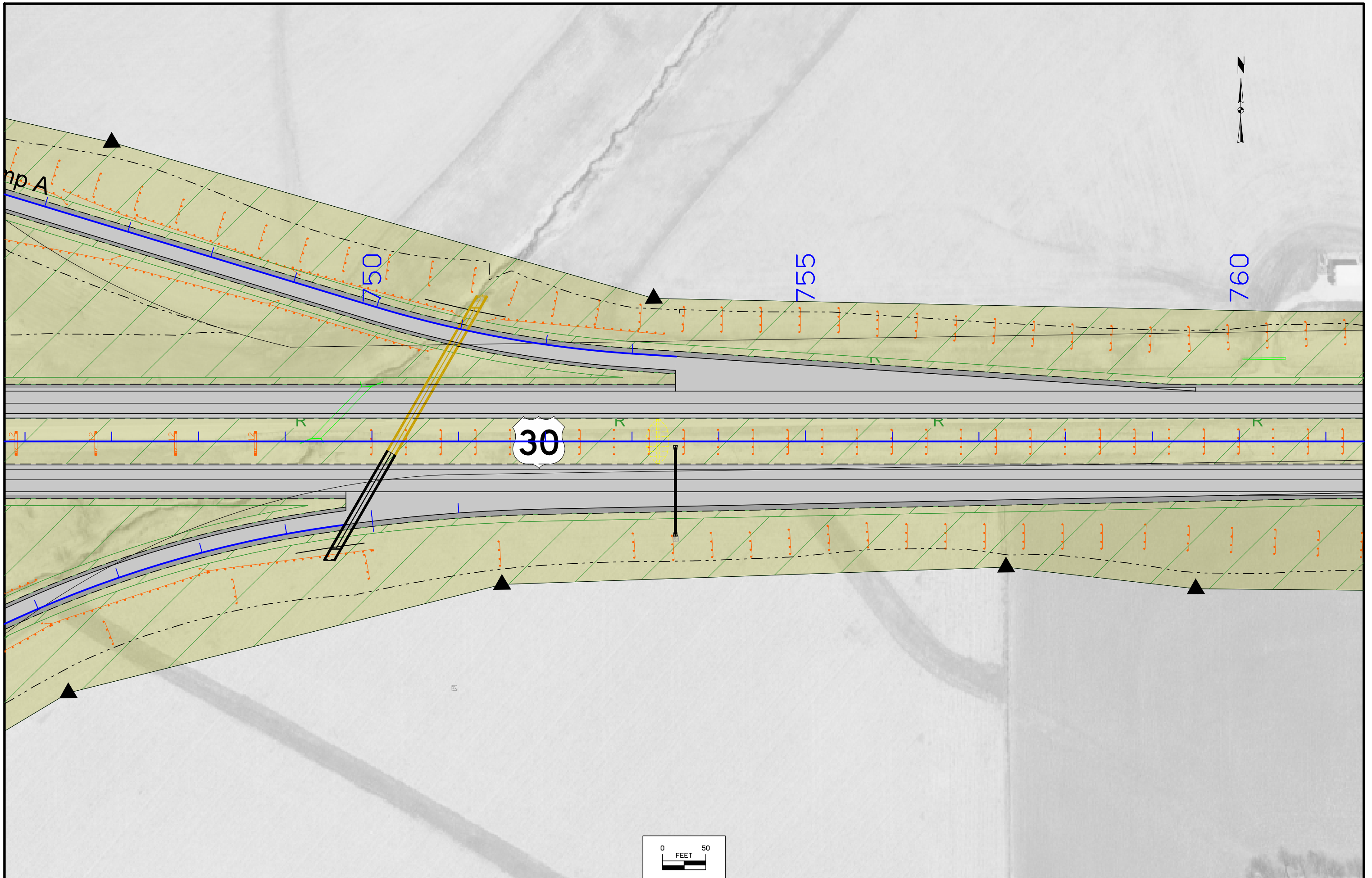


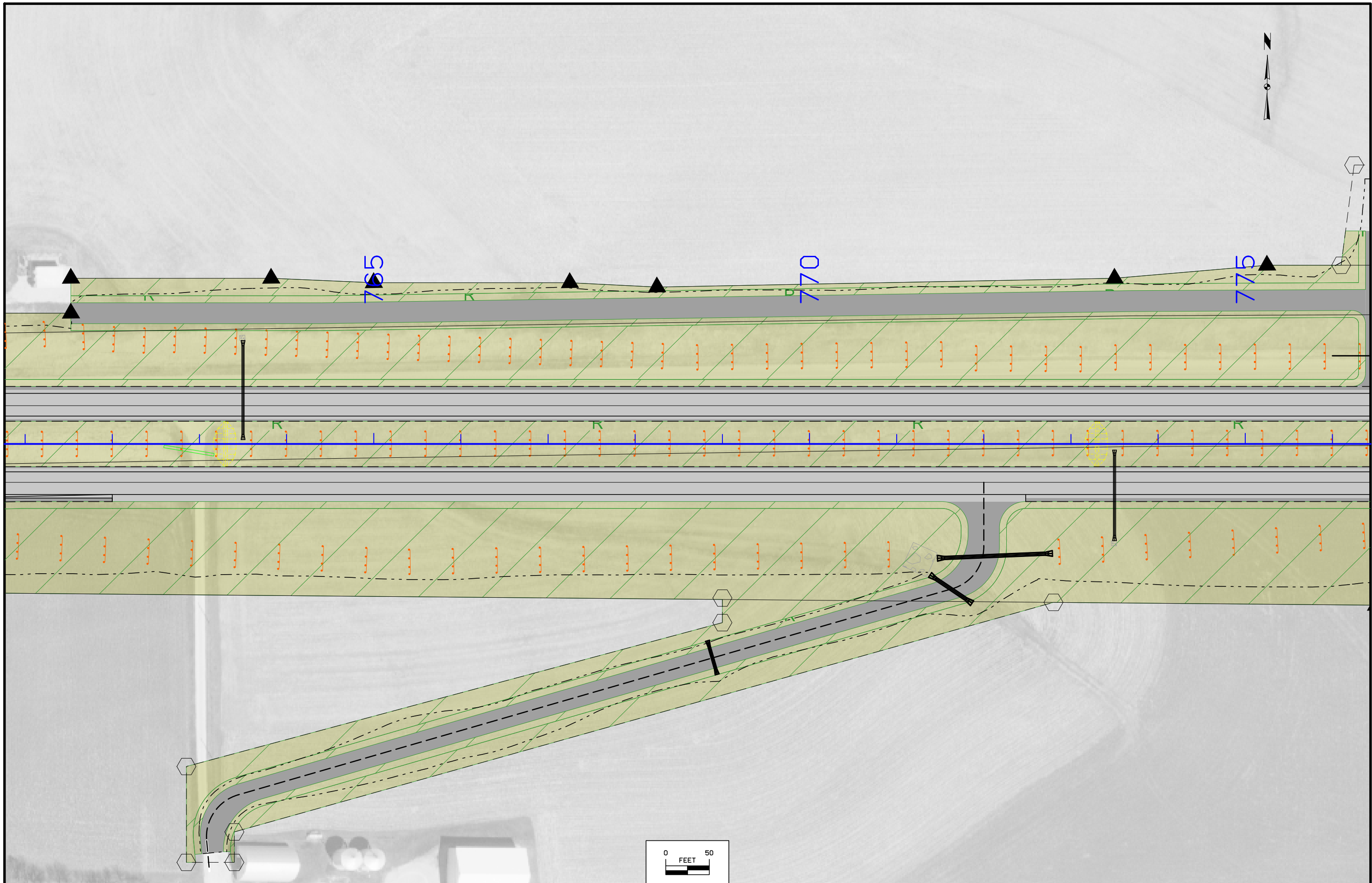


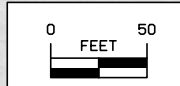
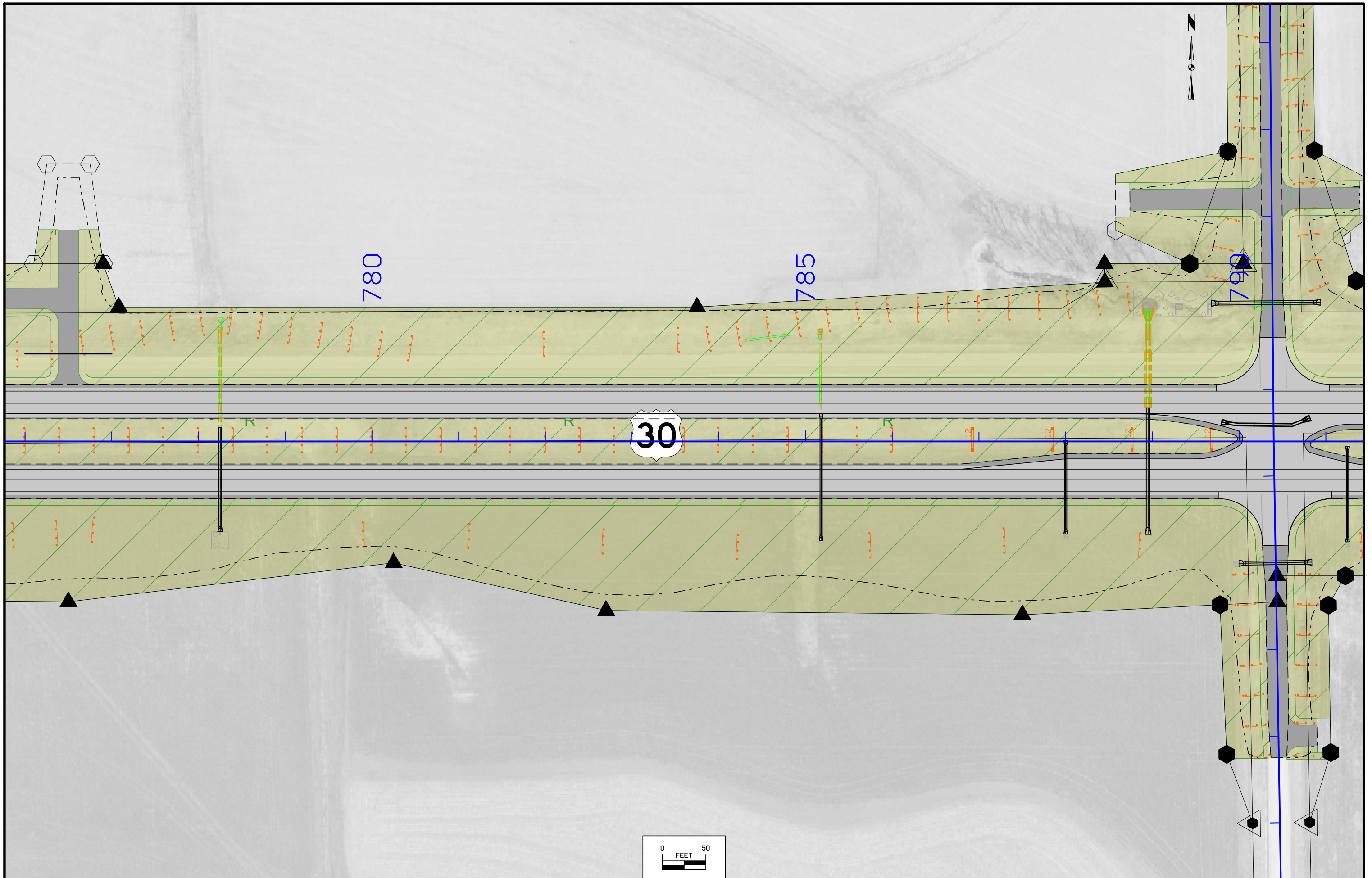




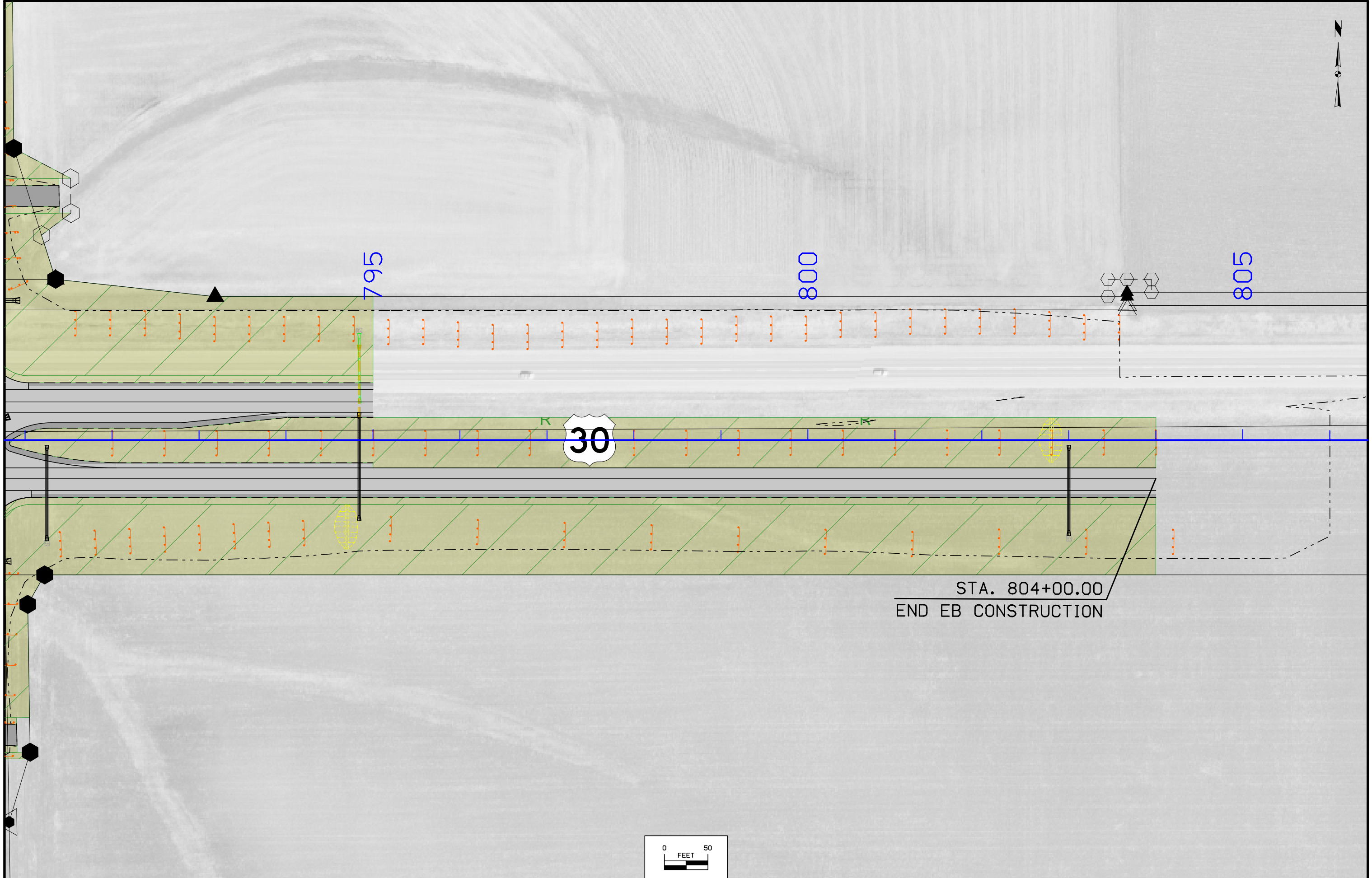




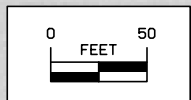




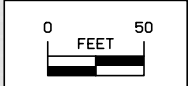
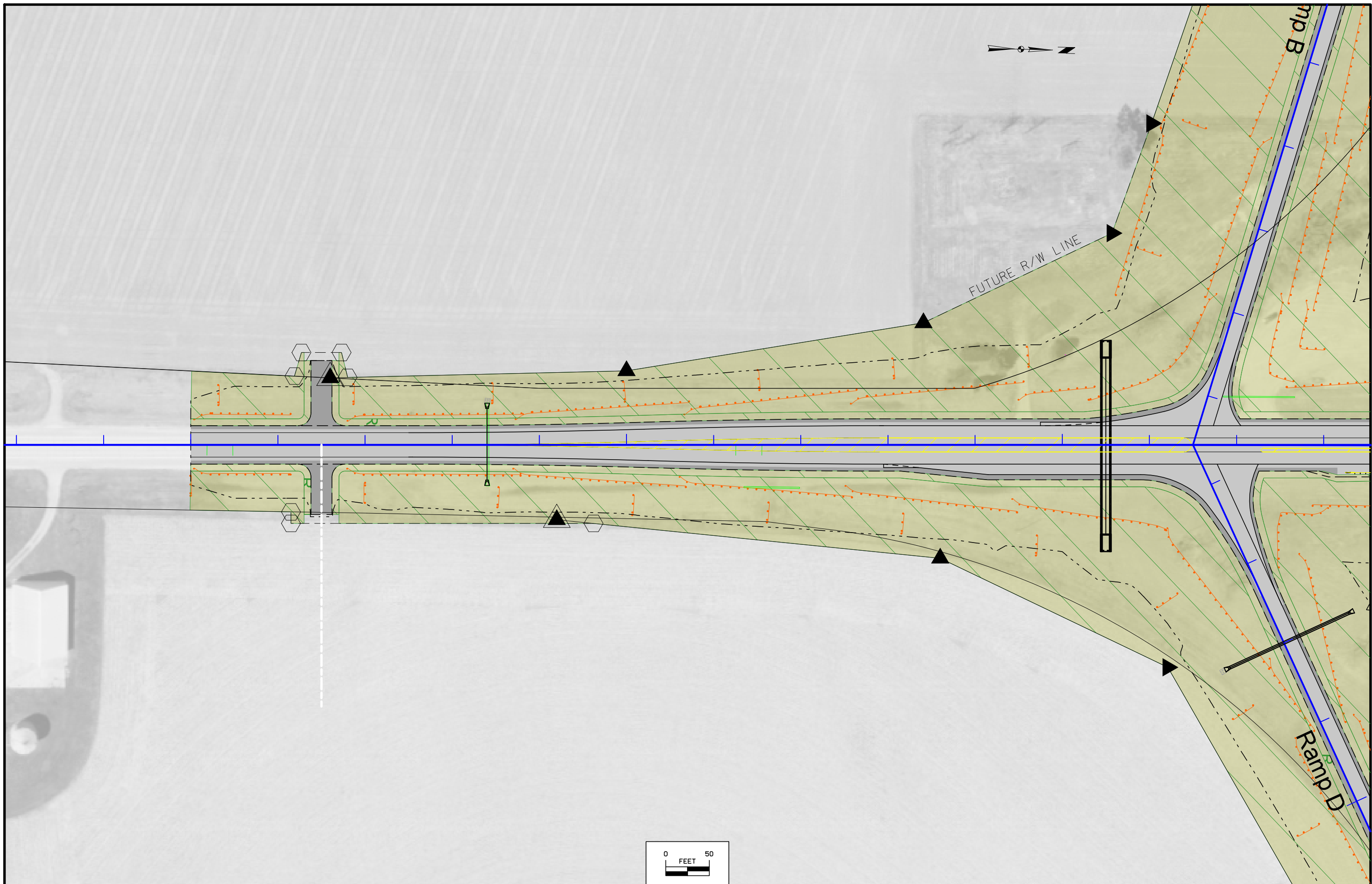


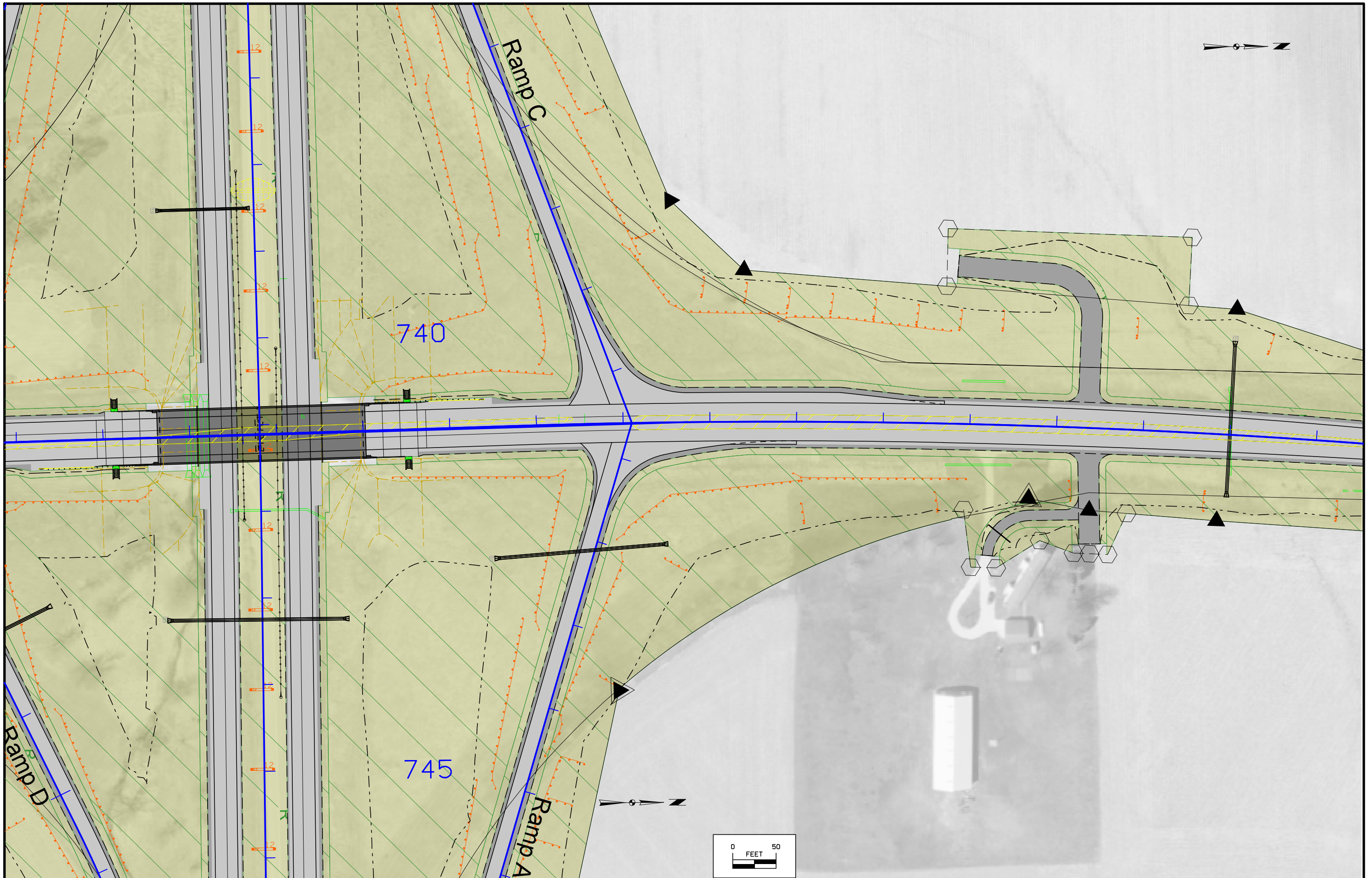


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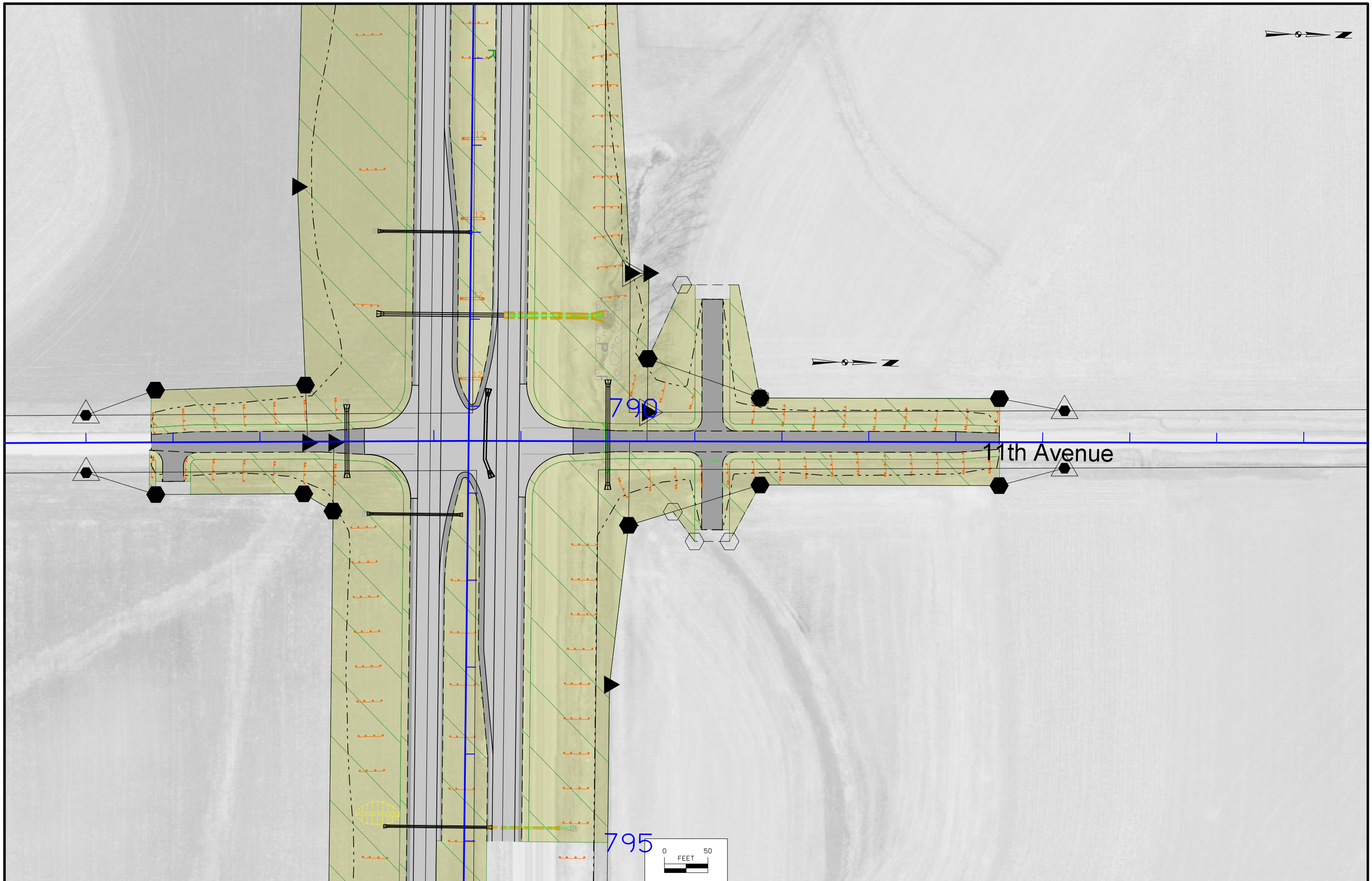
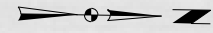
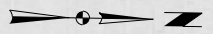












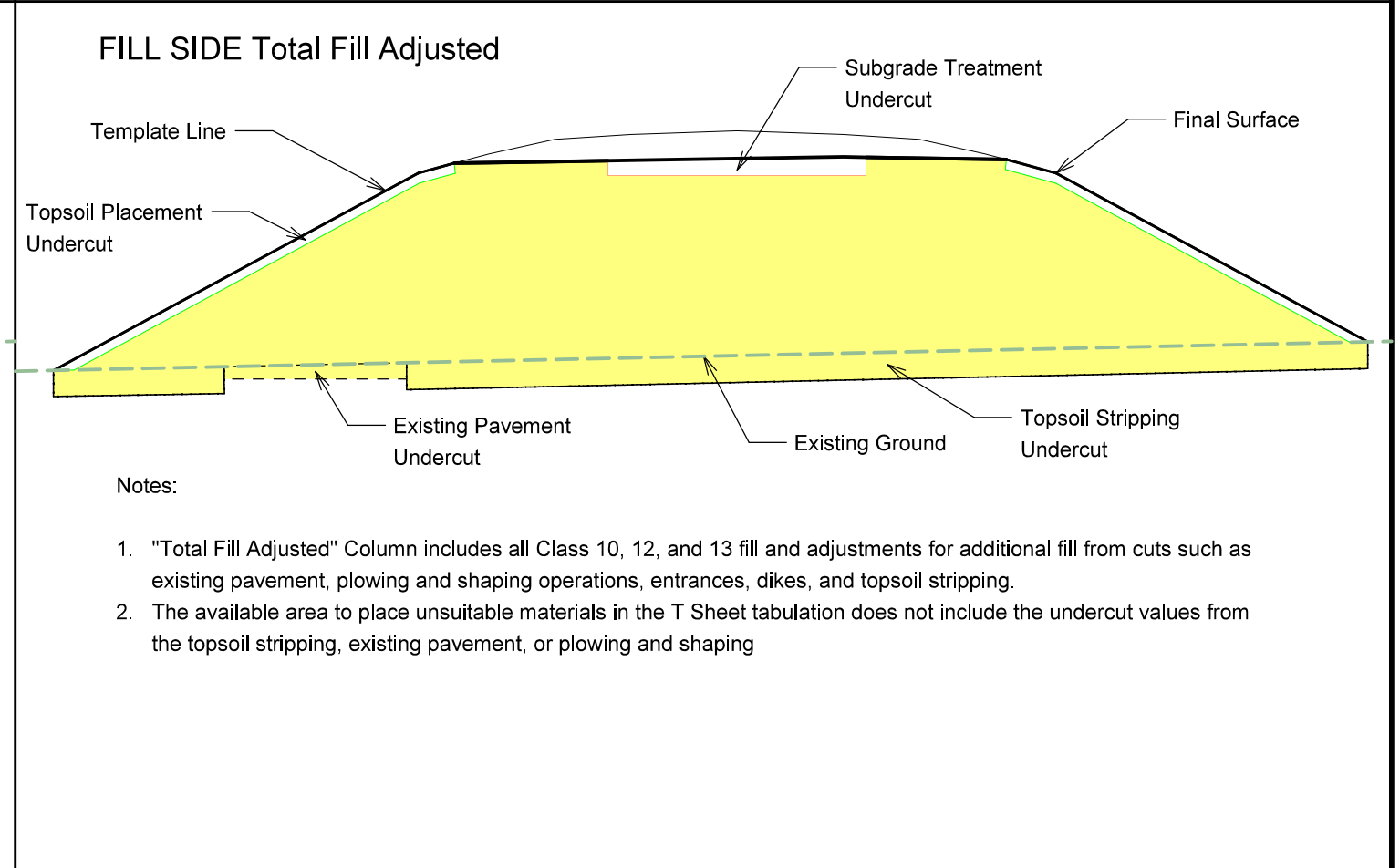
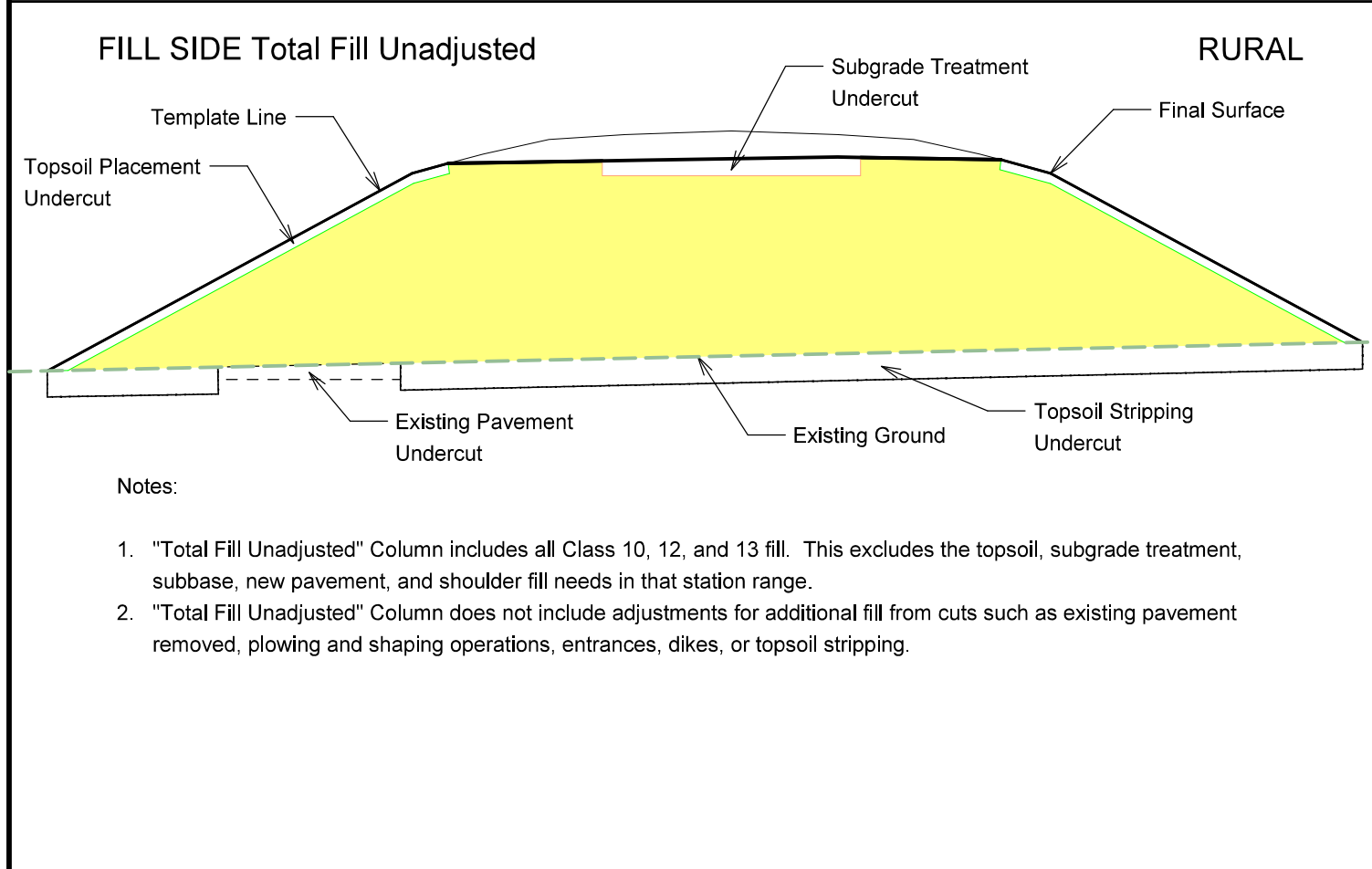
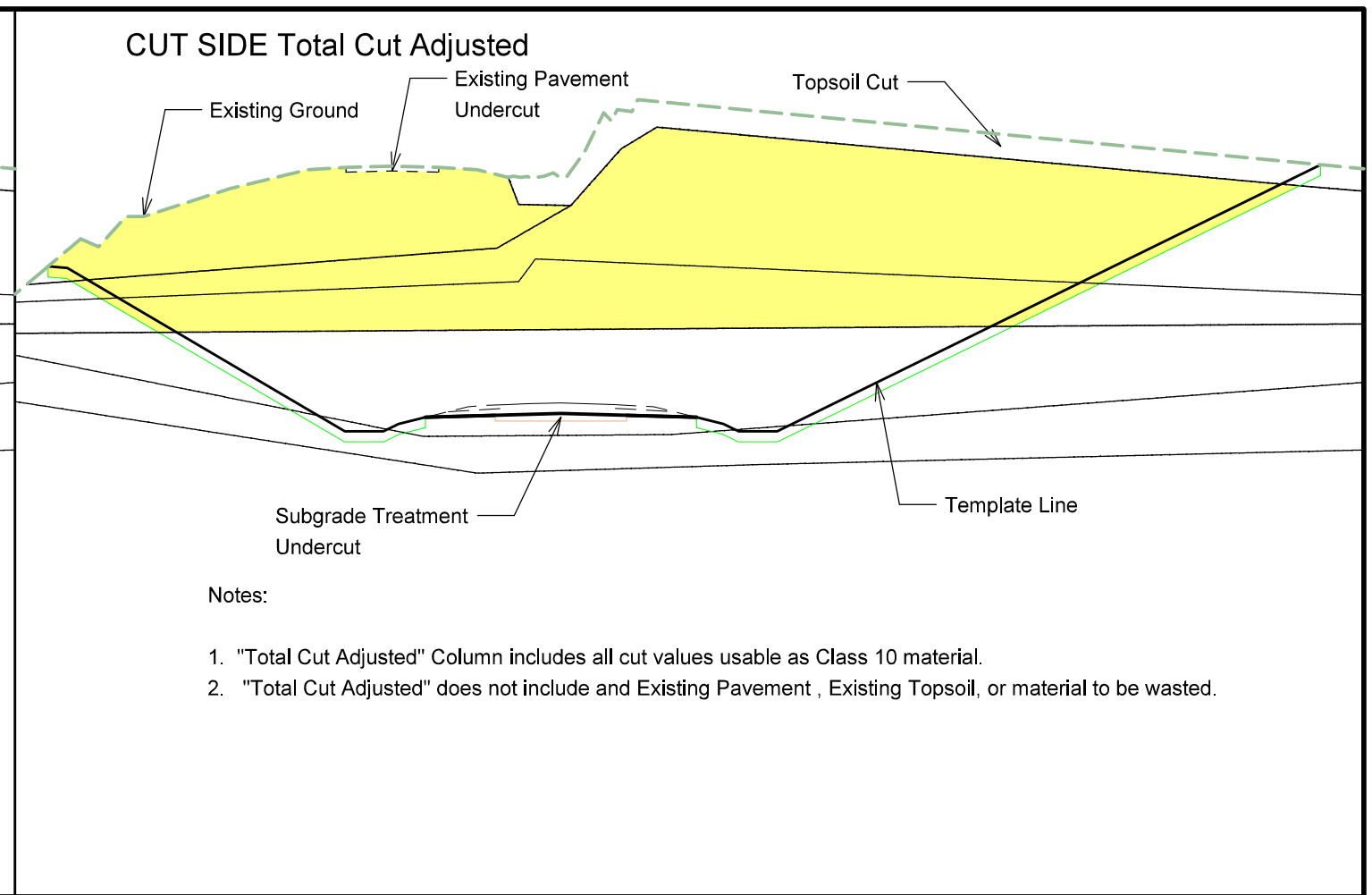
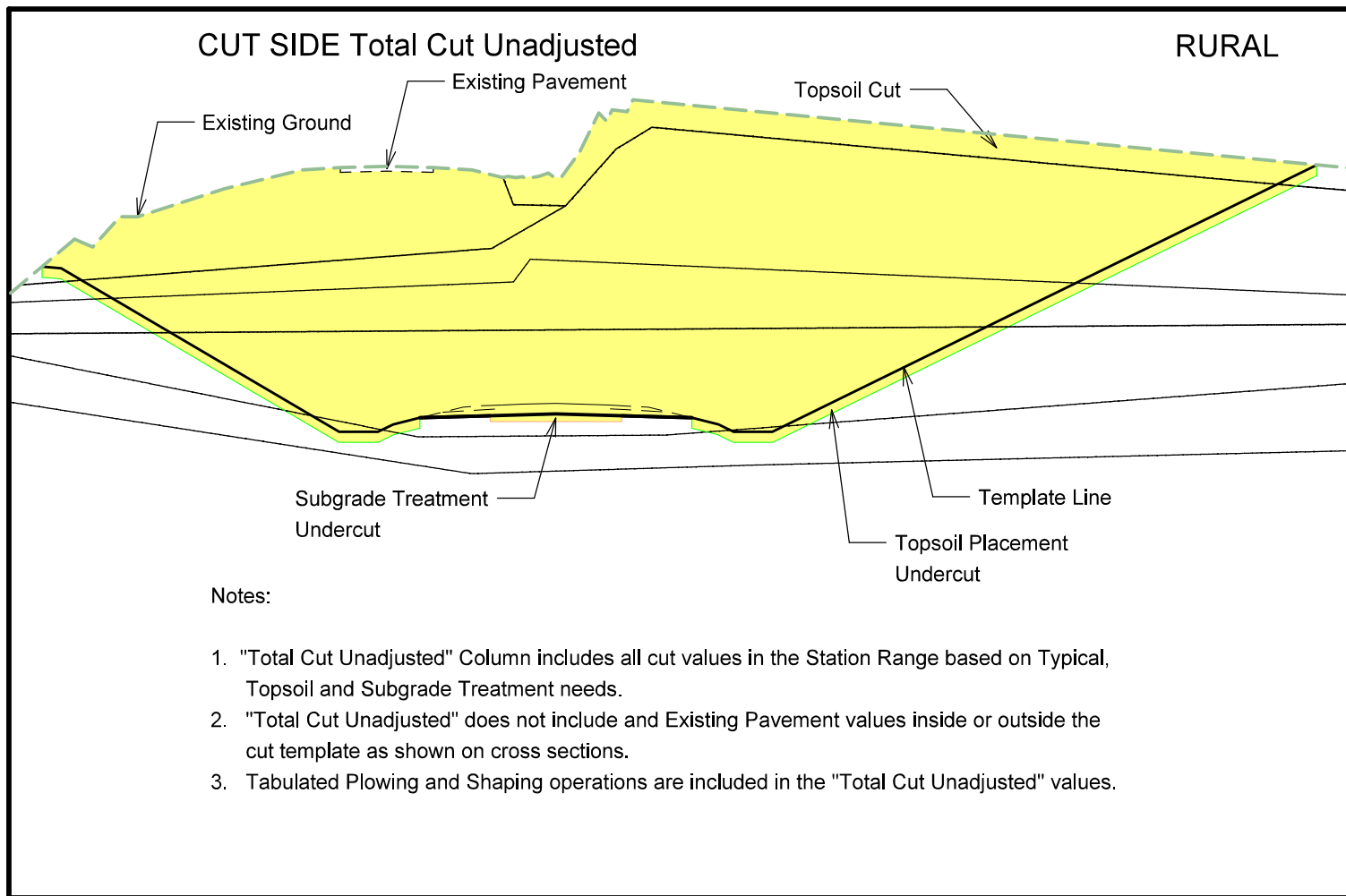
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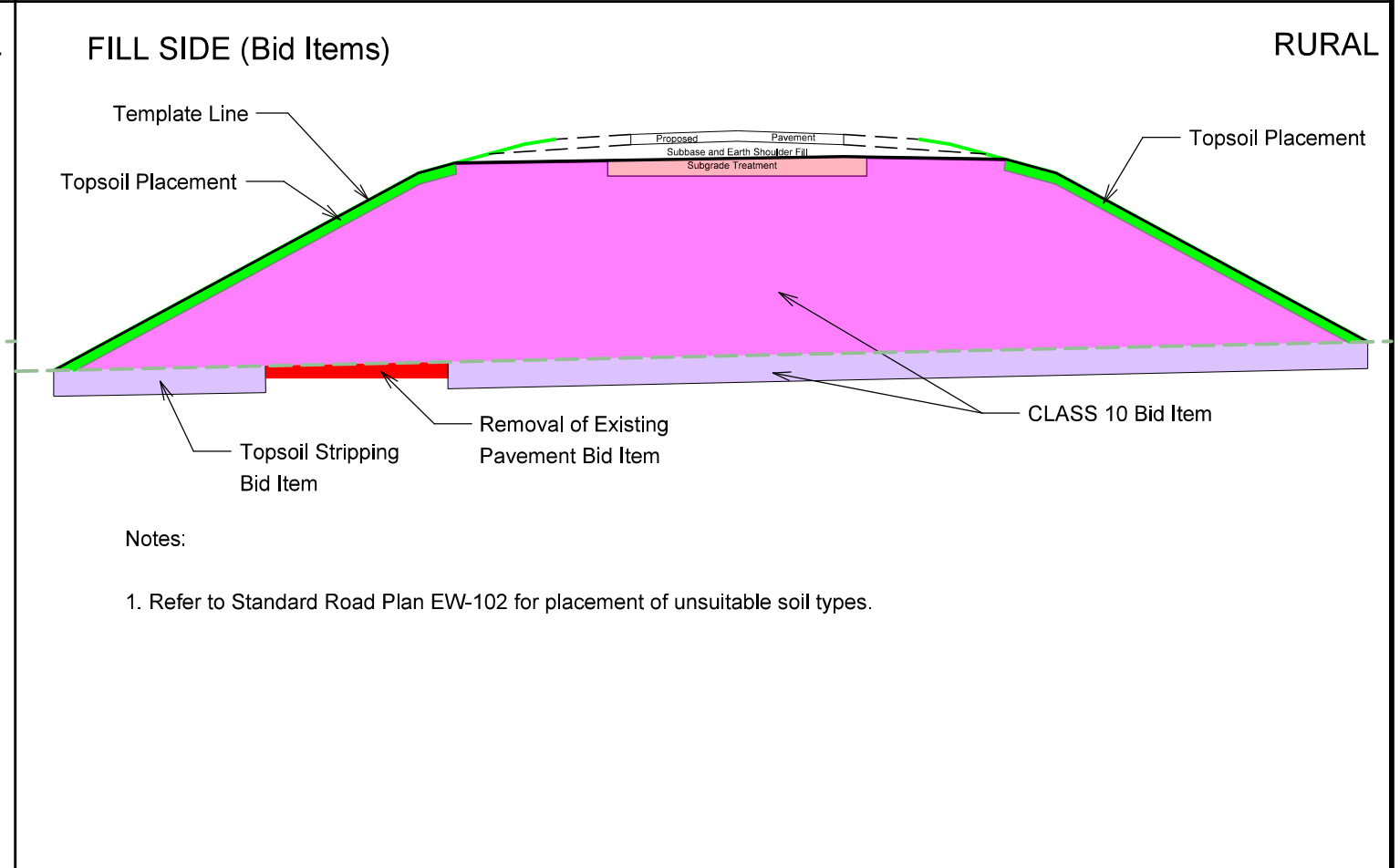
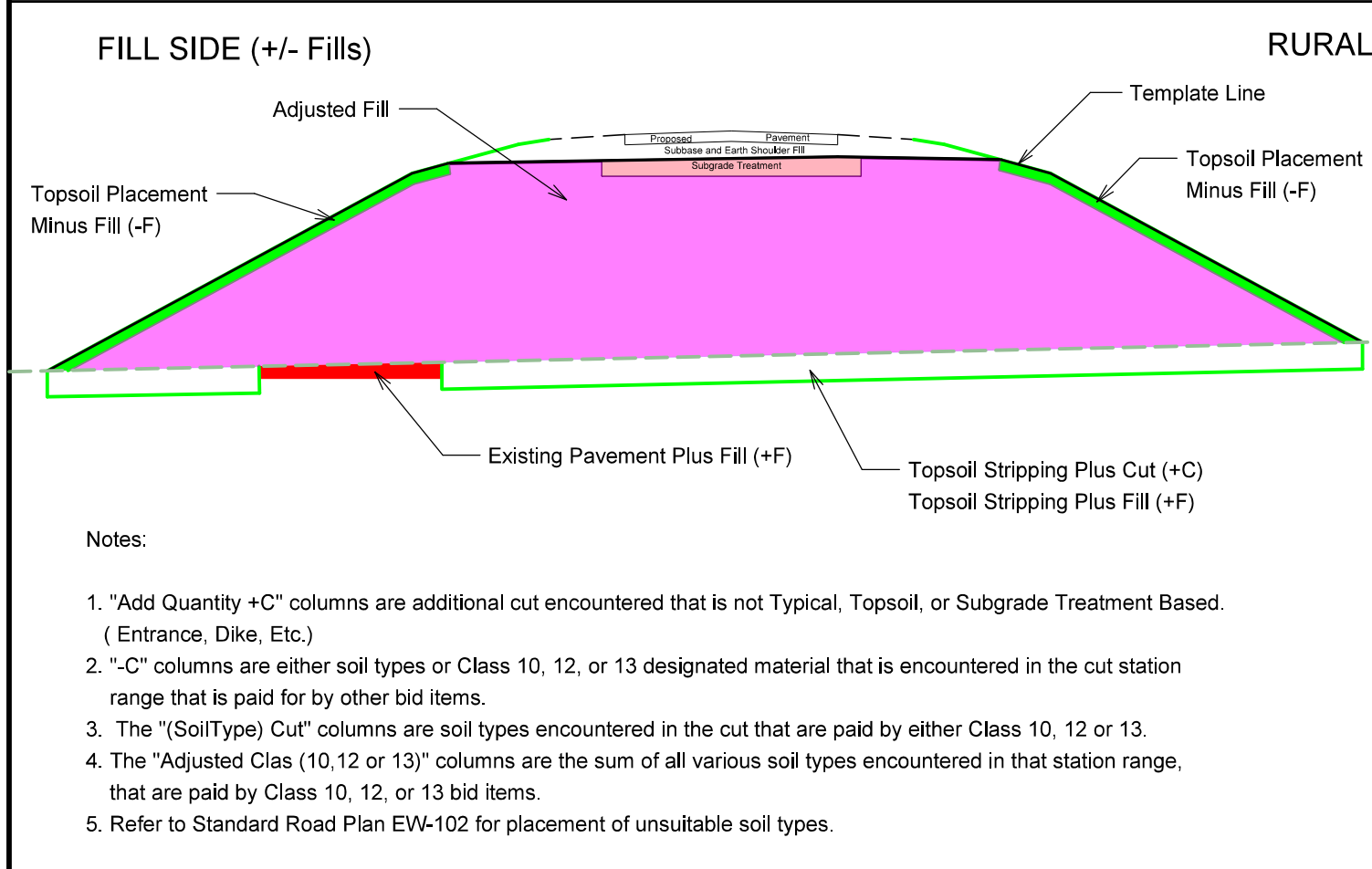
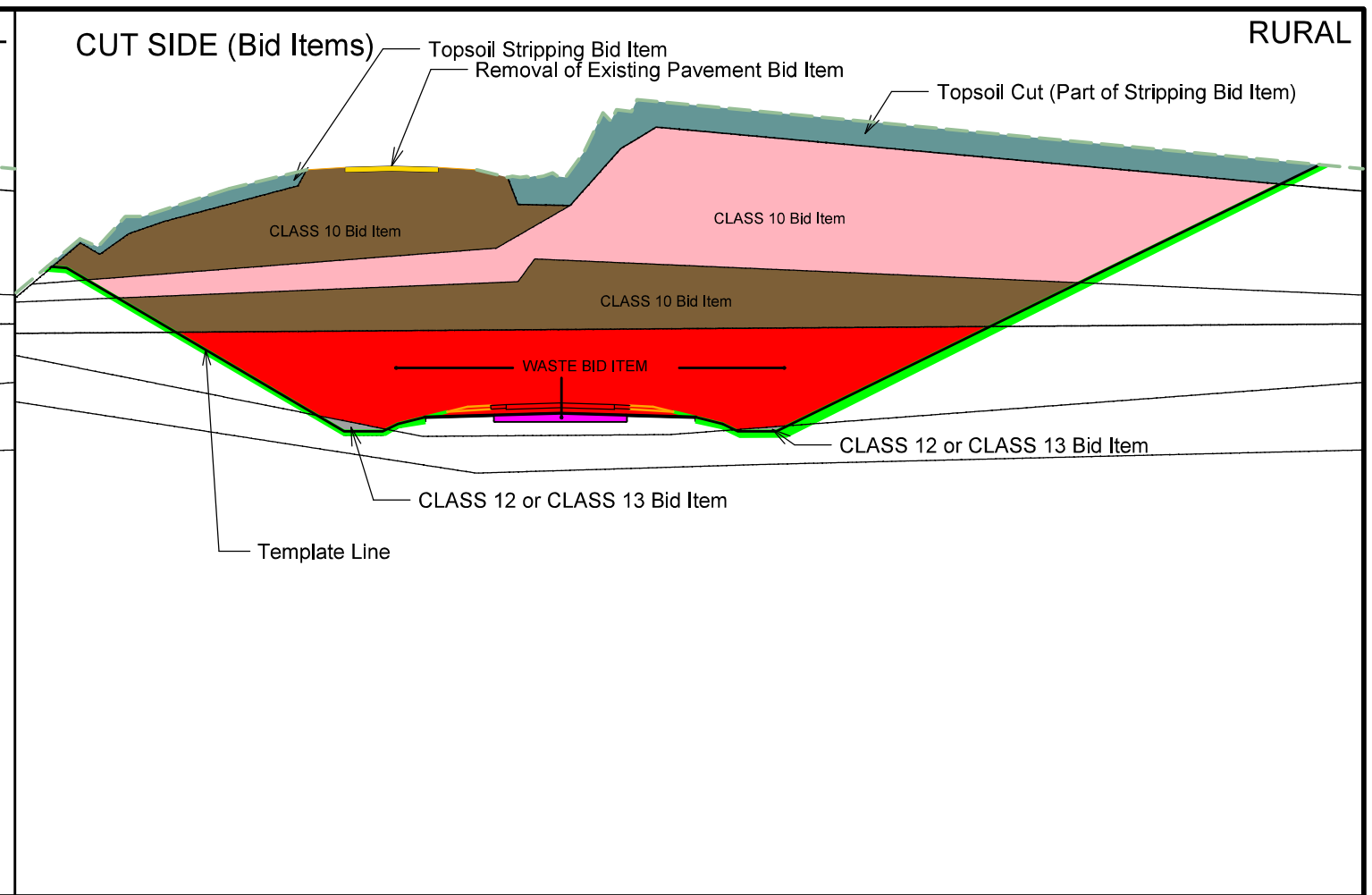
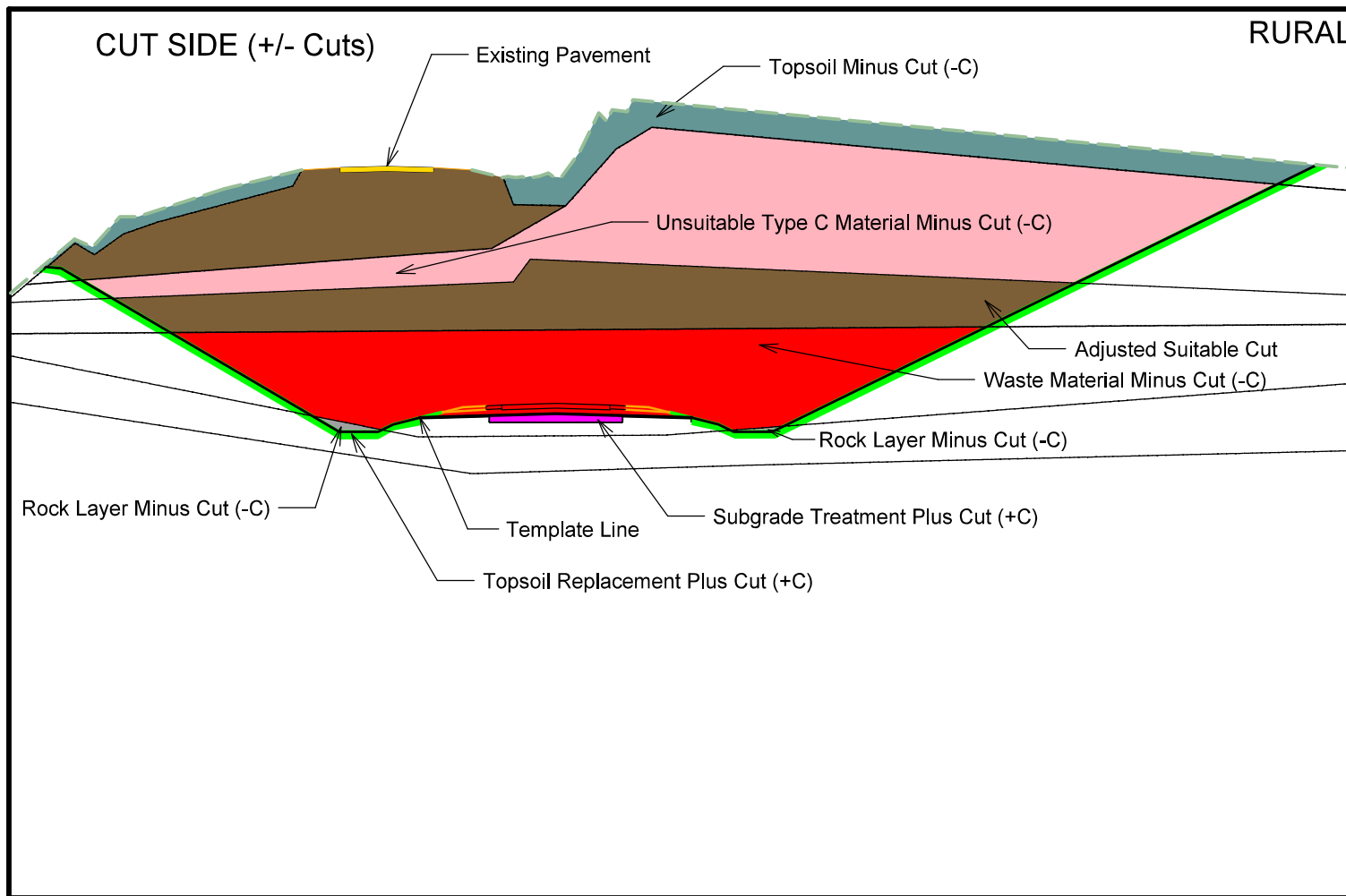
11th Avenue

795















TABULATION OF TEMPLATE QUANTITIES AND ADJUSTMENTS

Table with columns for Station, Cut, Fill, Checks (EW-102), and Topsoil. Rows include station numbers from 738+25.00 to 755+00.00 and a Subtotals row. Columns include various volume and adjustment categories.

# TABULATION OF TEMPLATE QUANTITIES AND ADJUSTMENTS

Station	Cut								Fill							Checks (EW-102)		Topsoil				
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]
	Total Cut Unadjusted Volume	Total Class 10 Unadjusted Volume	Topsoil Cut Volume	Template Unusable Type B Volume	Template Pavement Removal Volume	Template Select Loam Volume	Manually Calculated Cut Adjustments (+/- Cut)	Total Cut Adjusted	Total Fill Unadjusted Volume	Plowing & Shaping Undercut (+ Fill)	Existing Topsoil Stripping Undercut (+ Fill)	Existing Pavement Undercut (+Fill)	Manually Calculated Fill Adjustments (+/- Fill)	Total Fill Adjusted	Total Fill Adjusted w/ Weighted Average 1.3 Shrink Factor	Total Cut Adjusted Minus Fill w/ Shrink	Approx. Fill Vol. Below 5' & Above 20' w/ Shrink	Approx. Fill Volume Below 3' w/ Shrink	Topsoil Stripping Undercut Volume	Topsoil Placement Undercut Volume	Topsoil Placement With 1.4 Shrink Factor	Topsoil Stripping Minus Topsoil Placement w/Shrink
755+00.00	193	107	86	0	0	0	107	54	0	86	0	140	182	-75	0	47	86	26	36	50		
755+25.00	175	91	84	0	0	0	91	55	0	84	0	139	181	-90	0	46	84	24	34	50		
755+50.00	167	84	83	0	0	0	84	62	0	83	0	145	189	-105	0	52	83	23	32	51		
755+75.00	161	78	83	0	0	0	78	69	0	83	0	152	198	-120	0	61	83	23	32	51		
756+00.00	156	74	82	0	0	0	74	72	0	82	0	154	200	-126	0	65	82	23	32	50		
756+25.00	161	79	82	0	0	0	79	71	0	82	0	153	199	-120	0	64	82	23	32	50		
756+50.00	176	94	82	0	0	0	94	60	0	82	0	142	185	-91	0	49	82	24	34	48		
757+00.00	191	110	81	0	0	0	110	44	0	81	0	125	163	-53	0	27	81	25	35	46		
757+25.00	235	155	80	0	0	0	155	25	0	80	0	105	137	19	0	1	80	25	35	45		
757+50.00	338	257	81	0	0	0	257	13	0	81	0	94	122	135	0	0	81	27	38	43		
757+75.00	393	310	83	0	0	0	310	12	0	83	0	95	124	187	0	0	83	29	41	42		
758+00.00	384	299	85	0	0	0	299	15	0	85	0	100	130	169	0	0	85	30	42	43		
758+25.00	403	316	87	0	0	0	316	17	0	87	0	104	135	181	0	0	87	31	43	44		
758+50.00	435	346	89	0	0	0	346	17	0	89	0	106	138	208	0	3	89	33	46	43		
758+75.00	472	381	91	0	0	0	381	18	0	91	0	109	142	239	0	5	91	36	50	41		
759+00.00	512	418	94	0	0	0	418	19	0	94	0	113	147	271	0	10	94	38	53	41		
759+25.00	540	442	98	0	0	0	442	24	0	98	0	122	159	283	0	23	98	41	57	41		
759+50.00	553	451	102	0	0	0	451	30	0	102	0	132	172	279	0	36	102	43	60	42		
759+75.00	555	451	104	0	0	0	451	34	0	104	0	138	179	272	0	44	104	45	63	41		
760+00.00	538	434	104	0	0	0	434	43	0	104	0	147	191	243	0	56	104	45	63	41		
760+25.00	509	405	104	0	0	0	405	62	0	104	0	166	216	189	0	81	104	46	64	40		
760+50.00	472	367	105	0	0	0	367	92	0	105	0	197	256	111	0	120	105	46	64	41		
760+75.00	431	327	104	0	0	0	327	129	0	104	0	233	303	24	0	168	104	45	63	41		
761+00.00	406	302	104	0	0	0	302	166	0	104	0	270	351	-49	7	216	104	45	63	41		
761+25.00	382	278	104	0	0	0	278	208	0	104	0	312	406	-128	61	270	104	45	63	41		
761+50.00	359	254	105	0	0	0	254	260	0	105	0	365	475	-221	130	339	105	45	63	42		
761+75.00	344	238	106	0	0	0	238	311	0	106	0	417	542	-304	198	407	106	45	63	43		
762+00.00	327	218	109	0	0	0	218	362	0	109	0	471	612	-394	268	477	109	46	64	45		
762+25.00	304	193	111	0	0	0	193	411	0	111	0	522	679	-486	334	543	111	46	64	47		
762+50.00	284	172	112	0	0	0	172	451	0	112	0	563	732	-560	387	597	112	45	63	49		
762+75.00	293	179	114	0	0	0	179	465	0	114	0	579	753	-574	410	618	114	45	63	51		
763+00.00	377	192	185	0	0	0	192	288	0	185	0	473	615	-423	364	573	185	37	52	133		
763+25.00	178	178	0	0	0	0	178	328	0	178	0	328	426	-248	0	0	0	38	53	-53		
763+50.00	262	148	114	0	0	0	148	589	0	114	0	703	914	-766	569	779	114	47	66	48		
763+75.00	243	130	113	0	0	0	130	647	0	113	0	760	988	-858	642	852	113	47	66	47		
764+00.00	238	125	113	0	0	0	125	703	0	113	0	816	1,061	-936	716	926	113	47	66	47		
764+25.00	233	121	112	0	0	0	121	750	0	112	0	862	1,121	-1,000	776	985	112	48	67	45		
764+50.00	226	116	110	0	0	0	116	797	0	110	0	907	1,179	-1,063	835	1,044	110	48	67	43		
764+75.00	223	112	111	0	0	0	112	842	0	111	0	953	1,239	-1,127	894	1,102	111	49	69	42		
765+00.00	224	112	112	0	0	0	112	878	0	112	0	990	1,287	-1,175	943	1,152	112	49	69	43		
765+25.00	225	112	113	0	0	0	112	909	0	113	0	1,022	1,329	-1,217	984	1,193	113	50	70	43		
765+50.00	224	110	114	0	0	0	110	934	0	114	0	1,048	1,362	-1,252	1,018	1,227	114	50	70	44		
765+75.00	222	108	114	0	0	0	108	946	0	114	0	1,060	1,378	-1,270	1,034	1,243	114	50	70	44		
766+00.00	217	103	114	0	0	0	103	946	0	114	0	1,060	1,378	-1,275	1,034	1,243	114	50	70	44		
766+25.00	207	94	113	0	0	0	94	944	0	113	0	1,057	1,374	-1,280	1,030	1,239	113	50	70	43		
766+50.00	193	81	112	0	0	0	81	936	0	112	0	1,048	1,362	-1,281	1,018	1,227	112	49	69	43		
766+75.00	178	70	108	0	0	0	70	903	0	108	0	1,011	1,314	-1,244	970	1,179	108	48	67	41		
767+00.00	174	66	108	0	0	0	66	858	0	108	0	966	1,256	-1,190	911	1,121	108	47	66	42		
767+25.00	179	69	110	0	0	0	69	815	0	110	0	925	1,203	-1,134	858	1,067	110	47	66	44		
767+50.00	179	70	109	0	0	0	70	768	0	109	0	877	1,140	-1,070	796	1,005	109	47	66	43		
767+75.00	181	72	109	0	0	0	72	725	0	109	0	834	1,084	-1,012	740	949	109	47	66	43		
768+00.00	182	73	109	0	0	0	73	695	0	109	0	804	1,045	-972	701	910	109	47	66	43		
768+25.00	181	72	109	0	0	0	72	666	0	109	0	775	1,008	-936	663	872	109	47	66	43		
768+50.00	179	69	110	0	0	0	69	636	0	110	0	746	970	-901	625	835	110	47	66	44		
768+75.00	179	69	110	0	0	0	69	617	0	110	0	727	945	-876	601	810	110	47	66	44		
769+00.00	184	73	111	0	0	0	73	600	0	111	0	711	924	-851	580	789	111	47	66	45		
769+25.00	186	75	111	0	0	0	75	565	0	111	0	676	879	-804	534	744	111	47	66	45		
769+50.00	187	76	111	0	0	0	76	521	0	111	0	632	822	-746	477	686	111	47	66	45		
769+75.00	187	76	111	0	0	0	76	481	0	111	0	592	770	-694	425	634	111	47	66	45		
770+00.00	187	77	110	0	0	0	77	434	0	110	0	544	707	-630	363	572	110	47	66	44		
770+25.00	194	85	109	0	0	0	85	379	0	109	0	488	634	-549	290	499	109	47	66	43		
770+50.00	208	99	109	0	0	0	99	313	0	109	0	422	549	-450	203	412	109	47	66	43		
770+75.00	232	123	109	0	0	0	123	228	0	109	0	337	438	-315	92	302	109	47	66	43		
771+00.00	277	167	110	0	0	0	167	142	0	110	0	252	328	-161	0	192	110	46	64	46		
771+25.00	349	238	111	0	0	0	238	79	0	111	0	190	247	-9	0	111	111	45	63	48		
771+50.00	447	334	113	0	0	0	334	41	0	113	0	154	200	134	0	64	113	45	63	50		
771+75.00	556	440	116	0	0	0	440	22	0	116	0	138	179	261	0	43	116	46	64	52		
772+00.00	678	560	118	0	0	0	560	8	0	118	0	126	164	396	0	29	118	47	66	52		
Subtotals:	19,825	12,805	7,020	0	0	0	12,805	25,604	0	7,020	0	0	32,624	42,411	-29,606	23,478	33,034	7,020	2,851	3,991	3,029	



TABULATION OF TEMPLATE QUANTITIES AND ADJUSTMENTS

Table with 22 columns: Station, Cut (8 sub-columns), Fill (8 sub-columns), Checks (EW-102) (2 sub-columns), Topsoil (4 sub-columns). Rows include station data from 788+75.00 to 805+25.00 and a Subtotals row.



### TABULATION OF TEMPLATE QUANTITIES AND ADJUSTMENTS

Station	Cut								Fill								Checks (EW-102)		Topsoil			
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]
	Total Cut Unadjusted Volume	Total Class 10 Unadjusted Volume	Topsoil Cut Volume	Template Unsuuitable Type B Volume	Template Pavement Removal Volume	Template Select Loam Volume	Manually Calculated Cut Adjustments (+/- Cut)	$[2] + [4] + [6] + [7]$ Total Cut Adjusted	Total Fill Unadjusted Volume	Plowing & Shaping Undercut (+ Fill)	Existing Topsoil Stripping Undercut (+ Fill)	Existing Pavement Undercut (+Fill)	Manually Calculated Fill Adjustments (+/- Fill)	$[10] + [11] + [12] + [13]$ Total Fill Adjusted	Total Fill Adjusted w/ Weighted Average 1.3 Shrink Factor	$[8] - [15]$ Total Cut Adjusted Minus Fill w/ Shrink	Approx. Fill Vol. Below 5' & Above 20' w/ Shrink	Approx. Fill Volume Below 3' w/ Shrink	Topsoil Stripping Undercut Volume	Topsoil Placement Undercut Volume	Topsoil Placement With 1.4 Shrink Factor	$[19] - [21]$ Topsoil Stripping Minus Topsoil Placement w/Shrink
805+25.00	278	158	120	0	0	0	0	158	188	0	120	0	0	308	400	-242	56	265	120	77	108	12
805+50.00	248	133	115	0	0	0	0	133	189	0	115	0	0	304	395	-262	51	260	115	73	102	13
805+75.00	193	88	105	0	0	0	0	88	190	0	105	0	0	295	384	-296	0	0	105	64	90	15
806+00.00																						
US_30_STG1																						
Totals:	147,888	109,934	37,931	0	677	23	0	109,957	108,306	0	37,931	271	0	146,508	190,460	-80,503	81,948	136,154	37,931	15,756	22,058	15,873

### TABULATION OF TEMPLATE QUANTITIES AND ADJUSTMENTS

Station	Cut								Fill							Checks (EW-102)		Topsoil					
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	
								[2] + [4] + [6] + [7]						[10] + [11] + [12] + [13]	[14] x 1.3	[8] - [15]					[20] x 1.4	[19] - [21]	
	Total Cut Unadjusted Volume	Total Class 10 Unadjusted Volume	Topsoil Cut Volume	Template Unsuitable Type B Volume	Template Pavement Removal Volume	Template Select Loam Volume	Manually Calculated Cut Adjustments (+/- Cut)	Total Cut Adjusted	Total Fill Unadjusted Volume	Plowing & Shaping Undercut (+ Fill)	Existing Topsoil Stripping Undercut (+ Fill)	Existing Pavement Undercut (+Fill)	Manually Calculated Fill Adjustments (+/- Fill)	Total Fill Adjusted	Total Fill Adjusted w/ Weighted Average 1.3 Shrink Factor	Total Cut Adjusted Minus Fill w/ Shrink	Approx. Fill Vol. Below 5' & Above 20' w/ Shrink	Approx. Fill Volume Below 3' w/ Shrink	Topsoil Stripping Undercut Volume	Topsoil Placement Undercut Volume	Topsoil Placement With 1.4 Shrink Factor	Topsoil Stripping Minus Topsoil Placement w/Shrink	
IA 21 RampA																							
1540+80.38	125	0	125	0	0	0	0	2,873	0	123			2,996	3,895	-3,895	2,230	3,712	125	66	92	33		
1541+00.00	240	61	179	0	0	0	61	3,230	0	153			3,383	4,398	-4,337	2,841	4,164	179	110	154	25		
1541+25.00	316	144	172	0	0	0	144	2,426	0	124			2,550	3,315	-3,171	2,857	3,081	172	111	155	17		
1541+50.00	309	157	153	0	0	0	157	2,084	0	109			2,193	2,851	-2,694	2,392	2,617	153	100	140	13		
1541+75.00	254	111	142	0	0	0	111	2,036	0	111			2,147	2,791	-2,680	2,331	2,556	142	96	134	8		
1542+00.00	210	66	144	0	0	0	66	1,967	0	121			2,088	2,714	-2,648	2,254	2,479	144	98	137	7		
1542+25.00	205	56	149	0	0	0	56	1,810	0	124			1,934	2,514	-2,458	2,055	2,280	149	102	143	6		
1542+50.00	191	48	143	0	0	0	48	1,624	0	119			1,743	2,266	-2,218	1,807	2,032	143	98	137	6		
1542+75.00	168	35	133	0	0	0	35	1,447	0	113			1,560	2,028	-1,993	1,569	1,794	133	88	123	10		
1543+00.00	159	33	126	0	0	0	33	1,269	0	107			1,376	1,789	-1,756	1,330	1,555	126	82	115	11		
1543+25.00	153	34	119	0	0	0	34	1,094	0	100			1,194	1,552	-1,518	1,093	1,318	119	76	106	13		
1543+50.00	144	32	111	0	0	0	32	924	0	93			1,017	1,322	-1,290	865	1,089	111	69	97	14		
1543+75.00	129	27	102	0	0	0	27	752	0	86			838	1,089	-1,062	631	855	102	61	85	17		
1544+00.00	108	16	92	0	0	0	16	580	0	78			658	855	-839	397	621	92	52	73	19		
1544+25.00	104	17	87	0	0	0	17	427	0	71			498	647	-630	189	413	87	47	66	21		
1544+50.00	120	34	85	0	0	0	34	297	0	64			361	469	-435	10	235	85	46	64	21		
1544+75.00	139	56	83	0	0	0	56	180	0	57			237	308	-252	0	75	83	44	62	21		
1545+00.00	166	85	81	0	0	0	85	85	0	48			133	173	-88	0	0	81	42	59	22		
1545+25.00	203	123	80	0	0	0	123	24	0	31			55	72	52	0	0	80	41	57	23		
1545+50.00	283	199	84	0	0	0	199	1	0	10			11	14	185	0	0	84	45	63	21		
1545+75.00	411	320	91	0	0	0	320	0	0	0			0	0	320	0	0	91	51	71	20		
1546+00.00	545	450	95	0	0	0	450	0	0	0			0	0	450	0	0	95	55	77	18		
1546+25.00	664	566	99	0	0	0	566	0	0	0			0	0	566	0	0	99	58	81	18		
1546+50.00	753	652	102	0	0	0	652	0	0	0			0	0	652	0	0	102	61	85	17		
1546+75.00	807	703	104	0	0	0	703	0	0	0			0	0	703	0	0	104	62	87	17		
1547+00.00	824	720	105	0	0	0	720	0	0	0			0	0	720	0	0	105	63	88	17		
1547+25.00	799	695	105	0	0	0	695	0	0	0			0	0	695	0	0	105	63	88	17		
1547+50.00	735	631	104	0	0	0	631	0	0	0			0	0	631	0	0	104	63	88	16		
1547+75.00	651	548	103	0	0	0	548	0	0	0			0	0	548	0	0	103	61	85	18		
1548+00.00	561	460	101	0	0	0	460	0	0	0			0	0	460	0	0	101	60	84	17		
1548+25.00	476	376	99	0	0	0	376	0	0	0			0	0	376	0	0	99	58	81	18		
1548+50.00	411	314	97	0	0	0	314	0	0	0			0	0	314	0	0	97	56	78	19		
1548+75.00	364	269	94	0	0	0	269	0	0	3			3	4	265	0	0	94	54	76	18		
1549+00.00	329	237	92	0	0	0	237	0	0	11			11	14	223	0	0	92	52	73	19		
1549+25.00	291	201	91	0	0	0	201	5	0	23			28	36	165	0	0	91	51	71	20		
1549+50.00	240	153	88	0	0	0	153	22	0	34			56	73	80	0	0	88	48	67	21		
1549+75.00	210	123	87	0	0	0	123	44	0	41			85	111	13	0	0	87	46	64	23		
1550+00.00	200	112	88	0	0	0	112	71	0	47			118	153	-41	0	0	88	46	64	24		
1550+25.00	204	117	87	0	0	0	117	160	0	52			212	276	-159	0	42	87	45	63	24		
1550+50.00	224	138	87	0	0	0	138	248	0	51			299	389	-251	0	156	87	44	62	25		
1550+75.00	242	155	88	0	0	0	155	247	0	54			301	391	-236	0	157	88	44	62	26		
1551+00.00	199	117	82	0	0	0	117	191	0	54			245	319	-202	0	85	82	38	53	29		
1551+25.00	187	108	80	0	0	0	108	161	0	48			209	272	-164	0	38	80	33	46	34		
1551+50.00	207	126	80	0	0	0	126	169	0	47			216	281	-155	0	48	80	32	45	35		
1551+75.00	170	95	75	0	0	0	95	170	0	45			215	280	-185	0	46	75	29	41	34		
1552+00.00	138	69	70	0	0	0	69	162	0	43			205	267	-198	0	33	70	26	36	34		
1552+25.00	116	51	65	0	0	0	51	153	0	42			195	254	-203	0	20	65	24	34	31		
1552+50.00	98	37	61	0	0	0	37	148	0	41			189	246	-209	0	12	61	22	31	30		
1552+75.00	82	25	57	0	0	0	25	147	0	39			186	242	-217	0	8	57	21	29	28		
1553+00.00	75	20	55	0	0	0	20	147	0	38			185	241	-221	0	8	55	21	29	26		
1553+25.00	74	20	54	0	0	0	20	148	0	38			186	242	-222	0	8	54	22	31	23		
1553+50.00	3	1	2	0	0	0	1	6	0	1			7	9	-8	0	0	2	1	1	1		
1553+51.06																							
IA 21 RampA Totals:	15,016	9,943	5,078	0	0	0	0	9,943	27,529	0	2,594	0	0	30,123	39,160	-29,217	24,850	31,536	5,078	2,884	4,038	1,041	

**TABULATION OF TEMPLATE QUANTITIES AND ADJUSTMENTS**

Station	Cut							Fill									Checks (EW-102)		Topsoil			
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]
	Total Cut Unadjusted Volume	Total Class 10 Unadjusted Volume	Topsoil Cut Volume	Template Unsuitable Type B Volume	Template Pavement Removal Volume	Template Select Loam Volume	Manually Calculated Cut Adjustments (+/- Cut)	[2] + [4] + [6] + [7] Total Cut Adjusted	Total Fill Unadjusted Volume	Plowing & Shaping Undercut (+ Fill)	Existing Topsoil Stripping Undercut (+ Fill)	Existing Pavement Undercut (+Fill)	Manually Calculated Fill Adjustments (+/- Fill)	[10] + [11] + [12] + [13] Total Fill Adjusted	Total Fill Adjusted w/ Weighted Average 1.3 Shrink Factor	Total Cut Adjusted Minus Fill w/ Shrink	Approx. Fill Vol. Below 5' & Above 20' w/ Shrink	Approx. Fill Volume Below 3' w/ Shrink	Topsoil Stripping Undercut Volume	Topsoil Placement Undercut Volume	Topsoil Placement With 1.4 Shrink Factor	Topsoil Stripping Minus Topsoil Placement w/Shrink
IA 21 RampB																						
2528+48.93	6	2	4	0	0	0	2	21	0	3			24	31	-29	10	21	4	2	3	1	
2528+50.00	138	44	94	0	0	0	44	504	0	73			577	750	-706	291	516	94	58	81	13	
2528+75.00	138	41	96	0	0	0	41	531	0	76			607	789	-748	330	555	96	57	80	16	
2529+00.00	137	40	97	0	0	0	40	541	0	77			618	803	-763	345	569	97	56	78	19	
2529+25.00	138	40	98	0	0	0	40	549	0	78			627	815	-775	356	581	98	56	78	20	
2529+50.00	137	38	99	0	0	0	38	566	0	79			645	839	-801	380	605	99	55	77	22	
2530+00.00	138	38	100	0	0	0	38	590	0	80			670	871	-833	413	637	100	56	78	22	
2530+25.00	141	39	102	0	0	0	39	616	0	82			698	907	-868	449	673	102	57	80	22	
2530+50.00	143	39	104	0	0	0	39	646	0	84			730	949	-910	491	715	104	59	83	21	
2530+75.00	146	39	107	0	0	0	39	685	0	87			772	1,004	-965	546	771	107	62	87	20	
2531+00.00	148	39	109	0	0	0	39	730	0	89			819	1,065	-1,026	606	831	109	64	90	19	
2531+25.00	153	41	112	0	0	0	41	778	0	92			870	1,131	-1,090	672	897	112	67	94	18	
2531+50.00	158	42	116	0	0	0	42	828	0	96			924	1,201	-1,159	742	967	116	70	98	18	
2531+75.00	161	42	119	0	0	0	42	874	0	98			972	1,264	-1,222	805	1,030	119	74	104	15	
2532+00.00	166	44	123	0	0	0	44	917	0	102			1,019	1,325	-1,281	866	1,091	123	79	111	12	
2532+25.00	171	45	126	0	0	0	45	945	0	105			1,050	1,365	-1,320	906	1,131	126	82	115	11	
2532+50.00	173	45	128	0	0	0	45	963	0	107			1,070	1,391	-1,346	933	1,158	128	85	119	9	
2532+75.00	176	45	131	0	0	0	45	985	0	110			1,095	1,424	-1,379	966	1,191	131	89	125	7	
2533+00.00	179	45	134	0	0	0	45	1,008	0	113			1,121	1,457	-1,412	1,000	1,223	134	92	129	5	
2533+25.00	183	45	137	0	0	0	45	1,033	0	116			1,149	1,494	-1,449	1,035	1,260	137	95	133	4	
2533+50.00	186	46	140	0	0	0	46	1,057	0	118			1,175	1,528	-1,482	1,069	1,294	140	97	136	4	
2533+75.00	192	48	144	0	0	0	48	1,084	0	120			1,204	1,565	-1,517	1,106	1,331	144	101	141	3	
2534+00.00	202	54	148	0	0	0	54	1,120	0	121			1,241	1,613	-1,559	1,154	1,379	148	106	148	-1	
2534+25.00	213	61	153	0	0	0	61	1,166	0	122			1,288	1,674	-1,613	1,216	1,440	153	110	154	-1	
2534+50.00	228	70	158	0	0	0	70	1,227	0	125			1,352	1,758	-1,688	1,300	1,524	158	115	161	-3	
2534+75.00	237	75	162	0	0	0	75	1,300	0	127			1,427	1,855	-1,780	1,396	1,621	162	119	167	-5	
2535+00.00	239	73	166	0	0	0	73	1,365	0	130			1,495	1,944	-1,871	1,485	1,710	166	123	172	-6	
2535+25.00	236	67	169	0	0	0	67	1,425	0	133			1,558	2,025	-1,958	1,568	1,793	169	126	176	-8	
2535+50.00	232	62	170	0	0	0	62	1,488	0	135			1,623	2,110	-2,048	1,651	1,876	170	127	178	-8	
2535+75.00	231	58	172	0	0	0	58	1,541	0	138			1,679	2,183	-2,125	1,724	1,949	172	128	179	-7	
2536+00.00	228	56	173	0	0	0	56	1,583	0	139			1,722	2,239	-2,183	1,781	2,005	173	130	182	-9	
2536+25.00	229	55	174	0	0	0	55	1,624	0	140			1,764	2,293	-2,238	1,834	2,059	174	131	183	-10	
2536+50.00	233	57	176	0	0	0	57	1,658	0	142			1,800	2,340	-2,283	1,881	2,106	176	132	185	-9	
2536+75.00	238	61	177	0	0	0	61	1,682	0	141			1,823	2,370	-2,309	1,911	2,136	177	133	186	-9	
2537+00.00	245	67	178	0	0	0	67	1,712	0	142			1,854	2,410	-2,343	1,951	2,176	178	134	188	-10	
2537+25.00	247	71	177	0	0	0	71	1,748	0	141			1,889	2,456	-2,385	1,998	2,223	177	134	188	-11	
2537+50.00	237	62	174	0	0	0	62	1,790	0	142			1,932	2,512	-2,450	2,053	2,278	174	130	182	-8	
2537+75.00	230	55	175	0	0	0	55	1,837	0	144			1,981	2,575	-2,520	2,116	2,341	175	131	183	-9	
2538+00.00	241	62	179	0	0	0	62	1,839	0	145			1,984	2,579	-2,517	2,120	2,345	179	136	190	-11	
2538+25.00	321	140	180	0	0	0	140	1,797	0	140			1,937	2,518	-2,378	2,059	2,284	180	136	190	-10	
2538+50.00	416	235	180	0	0	0	235	1,768	0	133			1,901	2,471	-2,236	2,012	2,237	180	136	190	-10	
2538+75.00	389	208	181	0	0	0	208	1,775	0	133			1,908	2,480	-2,272	2,022	2,246	181	137	192	-11	
2539+00.00	334	157	177	0	0	0	157	1,804	0	130			1,934	2,514	-2,357	2,055	2,280	177	135	189	-12	
2539+25.00	344	168	175	0	0	0	168	1,826	0	125			1,951	2,536	-2,368	2,077	2,302	175	133	186	-11	
2539+50.00	365	188	177	0	0	0	188	1,856	0	125			1,981	2,575	-2,387	2,118	2,343	177	135	189	-12	
2539+75.00	343	171	172	0	0	0	171	1,926	0	126			2,052	2,668	-2,497	2,209	2,434	172	130	182	-10	
2540+00.00	293	132	161	0	0	0	132	1,993	0	126			2,119	2,755	-2,623	2,296	2,521	161	119	167	-6	
2540+25.00	261	111	150	0	0	0	111	1,931	0	121			2,052	2,668	-2,557	2,209	2,434	150	107	150	0	
2540+50.00	270	122	148	0	0	0	122	1,794	0	115			1,909	2,482	-2,360	2,023	2,248	148	101	141	7	
2540+75.00	276	123	153	0	0	0	123	1,885	0	117			2,002	2,603	-2,480	2,144	2,369	153	102	143	10	
2541+00.00	259	97	162	0	0	0	97	2,285	0	145			2,430	3,159	-3,062	2,700	2,925	162	102	143	19	
2541+25.00	206	43	163	0	0	0	43	2,868	0	163			3,031	3,940	-3,897	2,841	3,706	163	90	126	37	
2541+35.84	63	0	63	0	0	0	0	1,290	0	63			1,353	1,759	-1,759	0	0	63	30	42	21	
IA 21 RampB Totals:	11,394	3,848	7,543	0	0	0	0	3,848	69,354	0	6,054	0	0	75,408	98,031	-94,183	72,221	84,335	7,543	5,251	7,352	192

**TABULATION OF TEMPLATE QUANTITIES AND ADJUSTMENTS**

Station	Cut								Fill								Checks (EW-102)		Topsoil			
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]
	Total Cut Unadjusted Volume	Total Class 10 Unadjusted Volume	Topsoil Cut Volume	Template Unsuitable Type B Volume	Template Pavement Removal Volume	Template Select Loam Volume	Manually Calculated Cut Adjustments (+/- Cut)	$[2] + [4] + [6] + [7]$ Total Cut Adjusted	Total Fill Unadjusted Volume	Plowing & Shaping Undercut (+ Fill)	Existing Topsoil Stripping Undercut (+ Fill)	Existing Pavement Undercut (+ Fill)	Manually Calculated Fill Adjustments (+/- Fill)	$[10] + [11] + [12] + [13]$ Total Fill Adjusted	Total Fill Adjusted w/ Weighted Average 1.3 Shrink Factor	Total Cut Adjusted Minus Fill w/ Shrink	Approx. Fill Vol. Below 5' & Above 20' w/ Shrink	Approx. Fill Volume Below 3' w/ Shrink	Topsoil Stripping Undercut Volume	Topsoil Placement Undercut Volume	Topsoil Placement With 1.4 Shrink Factor	Topsoil Stripping Minus Topsoil Placement w/Shrink
IA 21 RampC																						
3530+28.66	103	38	66	0	0	0	38	441	0	50			491	638	-600	246	438	66	36	50	16	
3530+50.00	127	49	79	0	0	0	49	545	0	60			605	787	-738	329	553	79	42	59	20	
3530+75.00	136	56	80	0	0	0	56	573	0	61			634	824	-768	365	590	80	41	57	23	
3531+00.00	144	63	81	0	0	0	63	599	0	61			660	858	-795	399	624	81	41	57	24	
3531+25.00	153	71	82	0	0	0	71	621	0	60			681	885	-814	428	651	82	41	57	25	
3531+50.00	164	80	84	0	0	0	80	650	0	61			711	924	-844	467	692	84	42	59	25	
3531+75.00	171	85	86	0	0	0	85	685	0	62			747	971	-886	512	737	86	44	62	24	
3532+00.00	173	84	89	0	0	0	84	715	0	64			779	1,013	-929	554	777	89	46	64	25	
3532+25.00	171	80	91	0	0	0	80	749	0	66			815	1,060	-980	601	826	91	48	67	24	
3532+50.00	172	78	94	0	0	0	78	786	0	69			855	1,112	-1,034	653	878	94	51	71	23	
3532+75.00	172	75	97	0	0	0	75	827	0	72			899	1,169	-1,094	710	935	97	54	76	21	
3533+00.00	171	70	101	0	0	0	70	879	0	77			956	1,243	-1,173	784	1,009	101	57	80	21	
3533+25.00	169	65	104	0	0	0	65	925	0	81			1,006	1,308	-1,243	850	1,075	104	60	84	20	
3533+50.00	170	62	108	0	0	0	62	970	0	85			1,055	1,372	-1,310	913	1,138	108	63	88	20	
3533+75.00	176	63	112	0	0	0	63	1,021	0	89			1,110	1,443	-1,380	984	1,209	112	67	94	18	
3534+00.00	178	62	116	0	0	0	62	1,065	0	93			1,158	1,505	-1,443	1,048	1,271	116	71	99	17	
3534+25.00	175	56	119	0	0	0	56	1,100	0	97			1,197	1,556	-1,500	1,099	1,323	119	75	105	14	
3534+50.00	171	49	122	0	0	0	49	1,123	0	101			1,224	1,591	-1,542	1,132	1,357	122	78	109	13	
3534+75.00	166	42	124	0	0	0	42	1,143	0	103			1,246	1,620	-1,578	1,161	1,386	124	80	112	12	
3535+00.00	165	35	129	0	0	0	35	1,190	0	107			1,297	1,686	-1,651	1,227	1,452	129	85	119	10	
3535+25.00	165	30	135	0	0	0	30	1,258	0	109			1,367	1,777	-1,747	1,318	1,543	135	90	126	9	
3535+50.00	157	23	134	0	0	0	23	1,332	0	112			1,444	1,877	-1,854	1,418	1,643	134	89	125	10	
3535+75.00	147	17	130	0	0	0	17	1,414	0	115			1,529	1,988	-1,971	1,529	1,754	130	85	119	11	
3536+00.00	146	14	132	0	0	0	14	1,504	0	118			1,622	2,109	-2,095	1,650	1,875	132	87	122	10	
3536+25.00	145	11	134	0	0	0	11	1,599	0	121			1,720	2,236	-2,225	1,777	2,002	134	89	125	10	
3536+50.00	145	9	136	0	0	0	9	1,698	0	124			1,822	2,369	-2,360	1,910	2,135	136	91	127	9	
3536+75.00	145	8	138	0	0	0	8	1,802	0	126			1,928	2,506	-2,498	2,048	2,271	138	93	130	8	
3537+00.00	147	8	140	0	0	0	8	1,901	0	128			2,029	2,638	-2,630	2,179	2,404	140	95	133	7	
3537+25.00	148	6	142	0	0	0	6	1,992	0	131			2,123	2,760	-2,754	2,301	2,526	142	96	134	8	
3537+50.00	148	5	143	0	0	0	5	2,073	0	132			2,205	2,867	-2,862	2,408	2,633	143	98	137	6	
3537+75.00	152	6	146	0	0	0	6	2,160	0	135			2,295	2,984	-2,978	2,525	2,750	146	100	140	6	
3538+00.00	155	7	148	0	0	0	7	2,258	0	137			2,395	3,114	-3,107	2,655	2,880	148	102	143	5	
3538+25.00	157	8	150	0	0	0	8	2,349	0	138			2,487	3,233	-3,225	2,774	2,999	150	104	146	5	
3538+50.00	160	7	153	0	0	0	7	2,432	0	142			2,574	3,346	-3,339	2,887	3,112	153	106	148	5	
3538+75.00	159	5	154	0	0	0	5	2,512	0	143			2,655	3,452	-3,447	2,993	3,218	154	107	150	4	
3539+00.00	160	4	156	0	0	0	4	2,590	0	145			2,735	3,556	-3,552	2,841	3,322	156	109	153	4	
3539+25.00	163	5	158	0	0	0	5	2,669	0	147			2,816	3,661	-3,656	2,841	3,427	158	110	154	4	
3539+50.00	165	8	157	0	0	0	8	2,748	0	145			2,893	3,761	-3,753	2,841	3,527	157	108	151	6	
3539+75.00	168	16	152	0	0	0	16	2,830	0	139			2,969	3,860	-3,844	2,841	3,626	152	102	143	9	
3540+00.00	168	20	148	0	0	0	20	2,887	0	135			3,022	3,929	-3,909	2,841	3,695	148	98	137	11	
3540+25.00	147	9	138	0	0	0	9	2,927	0	131			3,058	3,975	-3,966	2,841	3,740	138	85	119	19	
3540+50.00	121	0	121	0	0	0	0	2,901	0	120			3,021	3,927	-3,927	2,841	3,693	121	65	91	30	
3540+75.00	108	0	108	0	0	0	0	2,948	0	108			3,056	3,973	-3,973	2,841	3,739	108	44	62	46	
3541+00.00	95	0	95	0	0	0	0	2,881	0	95			2,976	3,869	-3,869	2,841	3,635	95	25	35	60	
3541+25.00	42	0	42	0	0	0	0	1,302	0	42			1,344	1,747	-1,747	0	0	42	4	6	36	
3541+39.90																						
IA 21 RampC																						
Totals:	6,840	1,489	5,354	0	0	0	0	1,489	71,574	0	4,637	0	0	76,211	99,075	-97,586	72,395	87,065	5,354	3,304	4,626	730



### TABULATION OF TEMPLATE QUANTITIES AND ADJUSTMENTS

Station	Cut								Fill								Checks (EW-102)		Topsoil			
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]
	Total Cut Unadjusted Volume	Total Class 10 Unadjusted Volume	Topsoil Cut Volume	Template Unsuitable Type B Volume	Template Pavement Removal Volume	Template Select Loam Volume	Manually Calculated Cut Adjustments (+/- Cut)	Total Cut Adjusted	Total Fill Unadjusted Volume	Plowing & Shaping Undercut (+ Fill)	Existing Topsoil Stripping Undercut (+ Fill)	Existing Pavement Undercut (+Fill)	Manually Calculated Fill Adjustments (+/- Fill)	Total Fill Adjusted	Total Fill Adjusted w/ Weighted Average 1.3 Shrink Factor	Total Cut Adjusted Minus Fill w/ Shrink	Approx. Fill Vol. Below 5' & Above 20' w/ Shrink	Approx. Fill Volume Below 3' w/ Shrink	Topsoil Stripping Undercut Volume	Topsoil Placement Undercut Volume	Topsoil Placement With 1.4 Shrink Factor	Topsoil Stripping Minus Topsoil Placement w/Shrink
IA 21 RampD																						
4540+74.35	1	0	1	0	0	0	0	34	0	1			35	46	-46	33	38	1	0	0	1	
4540+75.00	78	0	78	0	0	0	0	1,859	0	78			1,937	2,518	-2,518	2,059	2,284	78	14	20	58	
4541+00.00	105	0	105	0	0	0	0	2,350	0	105			2,455	3,192	-3,192	2,733	2,958	105	36	50	55	
4541+25.00	137	22	114	0	0	0	22	2,074	0	107			2,181	2,835	-2,813	2,376	2,601	114	54	76	38	
4541+50.00	213	86	127	0	0	0	86	1,792	0	104			1,896	2,465	-2,379	2,006	2,231	127	72	101	26	
4541+75.00	255	119	136	0	0	0	119	1,639	0	105			1,744	2,267	-2,148	1,808	2,033	136	85	119	17	
4542+00.00	241	105	137	0	0	0	105	1,483	0	108			1,591	2,068	-1,963	1,609	1,834	137	88	123	14	
4542+25.00	240	99	141	0	0	0	99	1,328	0	109			1,437	1,868	-1,769	1,409	1,634	141	94	132	10	
4542+50.00	169	74	95	0	0	0	74	759	0	68			827	1,075	-1,001	1,171	1,396	95	64	90	6	
4543+00.00	307	156	151	0	0	0	156	1,074	0	102			1,176	1,529	-1,373	1,070	1,295	151	104	146	6	
4543+25.00	335	186	149	0	0	0	186	958	0	99			1,057	1,374	-1,188	915	1,140	149	102	143	6	
4543+50.00	350	205	146	0	0	0	205	831	0	94			925	1,203	-998	744	969	146	99	139	8	
4543+75.00	368	226	142	0	0	0	226	713	0	86			799	1,039	-813	580	805	142	96	134	8	
4544+00.00	381	241	139	0	0	0	241	604	0	80			684	889	-648	430	655	139	93	130	9	
4544+25.00	379	243	136	0	0	0	243	509	0	75			584	759	-516	300	525	136	91	127	9	
4544+50.00	376	242	133	0	0	0	242	432	0	72			504	655	-413	196	421	133	88	123	10	
4544+75.00	376	246	130	0	0	0	246	365	0	68			433	563	-317	104	328	130	86	120	10	
4545+00.00	366	239	127	0	0	0	239	315	0	68			383	498	-259	39	263	127	83	116	11	
4545+25.00	322	197	125	0	0	0	197	263	0	71			334	434	-237	0	200	125	80	112	13	
4545+50.00	311	190	121	0	0	0	190	230	0	68			298	387	-197	0	155	121	76	106	15	
4545+75.00	339	223	116	0	0	0	223	217	0	63			280	364	-141	0	130	116	71	99	17	
4546+00.00	345	232	112	0	0	0	232	215	0	58			273	355	-123	0	121	112	67	94	18	
4546+25.00	305	199	105	0	0	0	199	207	0	56			263	342	-143	0	108	105	60	84	21	
4546+50.00	257	159	98	0	0	0	159	159	0	53			212	276	-117	0	42	98	54	76	22	
4546+75.00	246	151	95	0	0	0	151	116	0	51			167	217	-66	0	0	95	52	73	22	
4547+00.00	235	142	92	0	0	0	142	84	0	52			136	177	-35	0	0	92	49	69	23	
4547+25.00	227	138	89	0	0	0	138	53	0	47			100	130	8	0	0	89	46	64	25	
4547+50.00	235	149	86	0	0	0	149	32	0	39			71	92	57	0	0	86	43	60	26	
4547+75.00	240	157	82	0	0	0	157	25	0	35			60	78	79	0	0	82	40	56	26	
4548+00.00	240	160	80	0	0	0	160	21	0	33			54	70	90	0	0	80	38	53	27	
4548+25.00	241	163	78	0	0	0	163	16	0	31			47	61	102	0	0	78	36	50	28	
4548+50.00	243	167	76	0	0	0	167	14	0	30			44	57	110	0	0	76	36	50	26	
4548+75.00	249	175	74	0	0	0	175	15	0	29			44	57	118	0	0	74	38	53	21	
4549+00.00	256	183	73	0	0	0	183	15	0	28			43	56	127	0	0	73	38	53	20	
4549+25.00	263	190	73	0	0	0	190	18	0	27			45	59	132	0	0	73	39	55	18	
4549+50.00	272	199	73	0	0	0	199	22	0	29			51	66	133	0	0	73	41	57	16	
4549+71.34	238	178	60	0	0	0	178	17	0	22			39	51	127	0	0	60	36	50	10	
IA 21 RampD																						
Totals:	9,741	5,841	3,895	0	0	0	0	5,841	20,858	0	2,351	0	0	23,209	30,172	-24,331	19,584	24,165	3,895	2,289	3,205	691



## TABULATION OF TEMPLATE QUANTITIES AND ADJUSTMENTS

Station	Cut							Fill									Checks (EW-102)		Topsoil			
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]
	Total Cut Unadjusted Volume	Total Class 10 Unadjusted Volume	Topsoil Cut Volume	Template Unsuitable Type B Volume	Template Pavement Removal Volume	Template Select Loam Volume	Manually Calculated Cut Adjustments (+/- Cut)	$[2] + [4] + [6] + [7]$ Total Cut Adjusted	Total Fill Unadjusted Volume	Plowing & Shaping Undercut (+/- Fill)	Existing Topsoil Stripping Undercut (+/- Fill)	Existing Pavement Undercut (+/- Fill)	Manually Calculated Fill Adjustments (+/- Fill)	$[10] + [11] + [12] + [13]$ Total Fill Adjusted	Total Fill Adjusted w/ Weighted Average 1.3 Shrink Factor	Total Cut Adjusted Minus Fill w/ Shrink	Approx. Fill Vol. Below 5' & Above 20' w/ Shrink	Approx. Fill Volume Below 3' w/ Shrink	Topsoil Stripping Undercut Volume	Topsoil Placement Undercut Volume	Topsoil Placement With 1.4 Shrink Factor	Topsoil Stripping Minus Topsoil Placement w/Shrink
IA 21 North																						
266+50.00	6	0	6	0	0	0	0	42	0	6			48	62	-62	0	27	6	8	11	-5	
266+52.50	115	0	114	0	0	0	0	1,554	0	113	62		1,729	2,248	-2,248	1,581	1,854	114	149	209	-95	
266+75.00	188	7	180	1	0	0	8	3,374	0	170	49		4,671	4,663	-4,663	3,435	4,261	180	198	277	-97	
267+00.00	196	8	187	1	0	0	9	4,233	0	173	39		4,445	5,779	-5,770	3,435	5,381	187	174	244	-57	
267+25.00	181	3	178	0	0	0	3	4,505	0	167	28		4,700	6,110	-6,107	3,435	5,727	178	138	193	-15	
267+50.00	186	7	179	0	0	0	7	4,620	0	167	22		4,809	6,252	-6,245	3,435	5,875	179	135	189	-10	
268+00.00	197	15	182	0	0	0	15	4,672	0	168	22		4,862	6,321	-6,306	3,435	5,945	182	135	189	-7	
268+25.00	209	27	183	0	0	0	27	4,623	0	166	22		4,811	6,254	-6,227	3,435	5,879	183	136	190	-8	
268+50.00	187	17	169	0	0	0	17	4,545	0	160	22		4,727	6,145	-6,128	3,435	5,769	169	122	171	-2	
268+75.00	137	0	137	0	0	0	0	4,328	0	137	22		4,487	5,833	-5,833	3,435	5,456	137	96	134	3	
269+00.00	105	0	105	0	0	0	0	3,891	0	105	22		4,018	5,223	-5,223	3,435	4,846	105	68	95	10	
269+25.00	73	0	73	0	0	0	0	3,249	0	73	22		3,344	4,347	-4,347	3,435	3,972	73	39	55	18	
269+50.00	31	0	31	0	0	0	0	2,027	0	31	22		2,080	2,704	-2,704	2,024	2,327	31	12	17	14	
269+75.00	85	0	85	0	0	0	0	1,051	0	85	22		1,158	1,505	-1,505	826	1,128	85	0	0	85	
270+00.00	0	0	0	0	0	0	0	914	0	0	22		936	1,217	-1,217	0	0	0	0	0	0	
270+25.00	0	0	0	0	0	0	0	892	0	0	22		914	1,188	-1,188	0	0	0	0	0	0	
270+50.00	0	0	0	0	0	0	0	868	0	0	22		890	1,157	-1,157	0	0	0	0	0	0	
270+75.00	3	3	0	0	0	0	3	1,648	0	0	22		1,670	2,171	-2,168	0	0	0	35	49	-49	
271+00.00	120	19	100	0	0	0	19	2,404	0	86	22		2,512	3,266	-3,247	2,586	2,890	100	70	98	2	
271+25.00	142	41	100	0	0	0	41	2,328	0	84	22		2,434	3,164	-3,123	2,484	2,789	100	69	97	4	
271+50.00	152	53	98	0	0	0	53	2,238	0	78	22		2,338	3,039	-2,986	2,361	2,664	98	68	95	3	
271+75.00	154	58	97	0	0	0	58	2,135	0	74	22		2,231	2,900	-2,842	2,222	2,526	97	67	94	3	
272+00.00	209	59	132	0	0	18	77	2,495	0	100	22		2,617	3,402	-3,325	2,722	3,026	132	91	127	5	
272+25.00	252	57	165	0	0	30	87	2,840	0	125	22		2,987	3,883	-3,796	3,203	3,507	165	114	160	6	
272+50.00	233	56	160	0	0	18	74	2,704	0	123	22		2,849	3,704	-3,630	3,024	3,328	160	109	153	8	
272+75.00	219	56	154	0	0	8	64	2,553	0	121	22		2,696	3,505	-3,441	2,825	3,129	154	105	147	7	
273+00.00	208	56	149	0	0	3	59	2,386	0	117	22		2,525	3,283	-3,224	2,603	2,907	149	102	143	6	
273+25.00	205	58	145	0	0	1	59	2,221	0	115	22		2,358	3,065	-3,006	2,386	2,690	145	100	140	5	
273+50.00	196	56	140	0	0	0	56	2,074	0	112	22		2,208	2,870	-2,814	2,192	2,496	140	97	136	4	
273+75.00	180	48	133	0	0	0	48	1,930	0	108	22		2,060	2,678	-2,630	1,998	2,302	133	92	129	4	
274+00.00	174	45	129	0	0	0	45	1,752	0	103	22		1,877	2,440	-2,395	1,760	2,064	129	92	125	5	
274+25.00	145	43	102	0	0	0	43	1,585	0	78	22		1,685	2,191	-2,148	1,512	1,816	102	85	119	-17	
274+50.00	140	43	98	0	0	0	43	1,538	0	75	22		1,635	2,126	-2,083	1,446	1,749	98	81	113	-15	
274+75.00	168	49	119	0	0	0	49	1,529	0	93	22		1,644	2,137	-2,088	1,457	1,762	119	80	112	7	
275+00.00	170	53	117	0	0	0	53	1,465	0	92	22		1,579	2,053	-2,000	1,373	1,677	117	78	109	8	
275+25.00	174	57	117	0	0	0	57	1,382	0	91	22		1,495	1,944	-1,887	1,264	1,568	117	78	109	8	
275+50.00	184	65	119	0	0	0	65	1,298	0	87	22	6,056	7,463	9,702	-9,570	1,149	1,453	119	80	112	7	
275+75.00	189	68	120	0	0	0	68	1,233	0	86	22		1,341	1,743	-1,675	1,063	1,368	120	81	113	7	
276+00.00	181	61	120	0	0	0	61	1,177	0	87	22		1,286	1,672	-1,611	992	1,296	120	81	113	7	
276+25.00	171	52	119	0	0	0	52	1,120	0	88	22		1,230	1,599	-1,547	920	1,223	119	81	113	6	
276+50.00	164	45	118	0	0	0	45	1,060	0	89	22		1,171	1,522	-1,477	841	1,145	118	80	112	6	
276+75.00	165	47	118	0	0	0	47	992	0	89	22		1,103	1,434	-1,387	753	1,057	118	81	113	5	
277+00.00	180	60	119	0	0	0	60	926	0	88	22		1,036	1,347	-1,287	667	971	119	82	115	4	
277+25.00	176	57	118	0	0	0	57	866	0	89	22		977	1,270	-1,213	590	894	118	82	115	3	
277+50.00	148	36	112	0	0	0	36	782	0	87	22		891	1,158	-1,122	478	783	112	77	108	4	
277+75.00	126	21	105	0	0	0	21	675	0	82	22		779	1,013	-992	333	637	105	71	99	6	
278+00.00	112	12	100	0	0	0	12	571	0	79	22		672	874	-862	194	497	100	67	94	6	
278+25.00	108	13	95	0	0	0	13	459	0	72	22		553	719	-706	39	343	95	64	90	6	
278+50.00	116	25	91	0	0	0	25	334	0	64	22		420	546	-521	0	172	91	60	84	7	
278+75.00	139	70	69	0	0	0	70	225	12	45	22		304	395	-325	0	20	69	59	83	-14	
279+00.00	172	104	67	0	0	0	104	157	27	40	22		246	320	-216	0	0	67	58	81	-14	
279+25.00	194	109	85	0	0	0	109	123	42	50	22		237	308	-199	0	0	85	56	78	7	
279+50.00	204	121	83	0	0	0	121	102	53	50	18		223	290	-169	0	0	83	54	76	8	
279+75.00	223	143	80	0	0	11	143	77	60	45	11		193	251	-108	0	0	80	53	74	6	
280+00.00	254	175	79	0	0	18	175	54	65	40	4		163	212	-37	0	0	79	52	73	6	
280+25.00	288	210	78	0	0	22	210	37	68	34			139	181	29	0	0	78	52	73	5	
280+50.00	317	238	79	0	0	22	238	24	67	32			123	160	78	0	0	79	53	74	5	
280+75.00	336	257	79	0	0	22	257	14	65	28			107	139	118	0	0	79	54	76	4	
281+00.00	357	276	81	0	0	22	276	7	64	26			97	126	150	0	0	81	56	78	3	
281+25.00	332	253	79	0	0	22	253	2	64	21			87	113	140	0	0	79	55	77	2	
281+50.00	229	172	57	0	0	22	172	0	64	11			75	98	75	0	0	57	38	53	4	
IA 21 North Totals:	10,205	3,684	6,434	2	165	78	67	3,831	100,910	651	5,005	1,245	6,056	113,867	148,028	-144,197	86,213	115,195	6,434	4,647	6,506	-72

**TABULATION OF TEMPLATE QUANTITIES AND ADJUSTMENTS**

Station	Cut								Fill								Checks (EW-102)		Topsoil				
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	
	Total Cut Unadjusted Volume	Total Class 10 Unadjusted Volume	Topsoil Cut Volume	Template Unsuuitable Type B Volume	Template Pavement Removal Volume	Template Select Loam Volume	Manually Calculated Cut Adjustments (+/- Cut)	$[2] + [4] + [6] + [7]$	Total Fill Unadjusted Volume	Plowing & Shaping Undercut (+ Fill)	Existing Topsoil Stripping Undercut (+ Fill)	Existing Pavement Undercut (+Fill)	Manually Calculated Fill Adjustments (+/- Fill)	$[10] + [11] + [12] + [13]$	Total Fill Adjusted w/ Weighted Average 1.3 Shrink Factor	$[14] \times 1.3$	$[8] - [15]$	Approx. Fill Vol. Below 5' & Above 20' w/ Shrink	Approx. Fill Volume Below 3' w/ Shrink	Topsoil Stripping Undercut Volume	Topsoil Placement Undercut Volume	Topsoil Placement With 1.4 Shrink Factor	$[20] \times 1.4$
11th Ave South																							
11786+75.00	48	19	29	0	0	0	19	3	0	12			15	20	-1	0	0	29	23	32	-3		
11787+00.00	81	37	44	0	0	0	37	10	0	20			93	121	-84	0	0	44	31	43	1		
11787+25.00	83	39	44	0	0	0	39	16	0	22		63	38	49	-10	0	0	44	32	45	-1		
11787+50.00	83	39	44	0	0	0	39	24	0	24			48	62	-23	0	0	44	32	45	-1		
11787+75.00	92	47	45	0	0	0	47	39	0	24			63	82	-35	0	0	45	33	46	-1		
11788+00.00	106	59	48	0	0	0	59	61	0	24			85	111	-52	0	0	48	35	49	-1		
11788+25.00	116	65	51	0	0	0	65	87	0	26			113	147	-82	0	16	51	38	53	-2		
11788+50.00	137	78	60	0	0	0	78	127	0	29			156	203	-125	0	73	60	46	64	-5		
11788+75.00	179	106	73	0	0	0	106	196	0	37			233	303	-197	0	173	73	56	78	-6		
11789+00.00	141	62	79	0	0	0	62	294	0	56			350	455	-393	0	324	79	55	77	2		
11789+25.00	78	1	76	0	0	0	1	471	0	72			543	706	-705	0	0	76	42	59	17		
11789+50.00																							
11th Ave South Totals:	1,144	552	593	0	0	0	0	552	1,328	0	346	0	63	1,737	2,259	-1,707	0	585	593	423	593	1	



### TABULATION OF TEMPLATE QUANTITIES AND ADJUSTMENTS

Station	Cut							Fill							Checks (EW-102)		Topsoil					
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]
								[2] + [4] + [6] + [7]						[10] + [11] + [12] + [13]	[14] x 1.3	[8] - [15]					[20] x 1.4	[19] - [21]
	Total Cut Unadjusted Volume	Total Class 10 Unadjusted Volume	Topsoil Cut Volume	Template Unsuitable Type B Volume	Template Pavement Removal Volume	Template Select Loam Volume	Manually Calculated Cut Adjustments (+/- Cut)	Total Cut Adjusted	Total Fill Unadjusted Volume	Plowing & Shaping Undercut (+ Fill)	Existing Topsoil Stripping Undercut (+ Fill)	Existing Pavement Undercut (+ Fill)	Manually Calculated Fill Adjustments (+/- Fill)	Total Fill Adjusted	Total Fill Adjusted w/ Weighted Average 1.3 Shrink Factor	Total Cut Adjusted Minus Fill w/ Shrink	Approx. Fill Vol. Below 5' & Above 20' w/ Shrink	Approx. Fill Volume Below 3' w/ Shrink	Topsoil Stripping Undercut Volume	Topsoil Placement Undercut Volume	Topsoil Placement With 1.4 Shrink Factor	Topsoil Stripping Minus Topsoil Placement w/Shrink
Detour 1																						
100+00.00	24	0	24	0	0	0	0	37	0	23			60	78	-78	0	0	24	6	8	16	
100+25.00	27	0	27	0	0	0	0	57	0	27			84	109	-109	0	0	27	7	10	17	
100+50.00	29	0	29	0	0	0	0	76	0	29			105	137	-137	0	0	29	8	11	18	
100+75.00	32	0	32	0	0	0	0	94	0	31			125	163	-163	0	0	32	9	13	19	
101+00.00	34	0	34	0	0	0	0	111	0	33			144	187	-187	0	0	34	10	14	20	
101+25.00	36	0	36	0	0	0	0	126	0	36			162	211	-211	0	0	36	11	15	21	
101+50.00	37	0	37	0	0	0	0	135	0	37			172	224	-224	0	0	37	12	17	20	
101+75.00	36	0	36	0	0	0	0	133	0	36			169	220	-220	0	0	36	11	15	21	
102+00.00	35	0	35	0	0	0	0	134	0	35			169	220	-220	0	0	35	10	14	21	
102+25.00	35	0	35	0	0	0	0	144	0	35			179	233	-233	0	0	35	10	14	21	
102+50.00	36	0	36	0	0	0	0	144	0	35			179	233	-233	0	0	36	10	14	22	
102+75.00	36	0	36	0	0	0	0	143	0	36			179	233	-233	0	0	36	9	13	23	
103+00.00	36	0	36	0	0	0	0	147	0	36			183	238	-238	0	0	36	9	13	23	
103+25.00	36	0	36	0	0	0	0	146	0	36			182	237	-237	0	0	36	8	11	25	
103+50.00	36	0	36	0	0	0	0	143	0	36			179	233	-233	0	0	36	7	10	26	
103+75.00	36	0	36	0	0	0	0	138	0	36			174	226	-226	0	0	36	6	8	28	
104+00.00	36	0	36	0	0	0	0	129	0	36			165	215	-215	0	0	36	6	8	28	
104+25.00	36	0	36	0	0	0	0	120	0	36			156	203	-203	0	0	36	5	7	29	
104+50.00	37	0	37	0	0	0	0	111	0	37			148	192	-192	0	0	37	4	6	31	
104+75.00	38	0	38	0	0	0	0	102	0	37			139	181	-181	0	0	38	4	6	32	
105+00.00	37	0	37	0	0	0	0	95	0	37			132	172	-172	0	0	37	3	4	33	
105+25.00	34	0	34	0	0	0	0	93	0	34			127	165	-165	0	0	34	1	1	33	
105+50.00	36	0	36	0	0	0	0	95	0	36			131	170	-170	0	0	36	1	1	35	
105+75.00	39	0	39	0	0	0	0	97	0	39			136	177	-177	0	0	39	2	3	36	
106+00.00	43	0	43	0	0	0	0	104	0	43			147	191	-191	0	0	43	2	3	40	
106+25.00	40	0	40	0	0	0	0	90	0	40			130	169	-169	0	0	40	3	4	36	
106+50.00	35	0	35	0	0	0	0	73	0	35			108	140	-140	0	0	35	3	4	31	
106+75.00	35	0	35	0	0	0	0	75	0	35			110	143	-143	0	0	35	3	4	31	
107+00.00	35	0	35	0	0	0	0	77	0	35			112	146	-146	0	0	35	3	4	31	
107+25.00	35	0	35	0	0	0	0	78	0	35			113	147	-147	0	0	35	3	4	31	
107+50.00	34	0	34	0	0	0	0	77	0	33			110	143	-143	0	0	34	3	4	30	
107+75.00	32	0	32	0	0	0	0	77	0	31			108	140	-140	0	0	32	2	3	29	
108+00.00	16	2	14	0	0	0	2	31	0	13			44	57	-55	0	0	14	1	1	13	
108+10.00	27	6	21	0	0	0	6	45	0	18			63	82	-76	0	0	21	1	1	20	
108+25.00	45	10	34	0	0	0	10	68	0	29			97	126	-116	0	0	34	2	3	31	
108+50.00	43	10	32	0	0	0	10	59	0	27			86	112	-102	0	0	32	2	3	29	
108+75.00	40	11	29	0	0	0	11	51	0	24			75	98	-87	0	0	29	2	3	26	
109+00.00	38	11	27	0	0	0	11	45	0	22			67	87	-76	0	0	27	2	3	24	
109+25.00	37	11	25	0	0	0	11	39	0	21			60	78	-67	0	0	25	2	3	22	
109+50.00	35	12	23	0	0	0	12	34	0	19			53	69	-57	0	0	23	2	3	20	
109+75.00	33	12	21	0	0	0	12	30	0	17			47	61	-49	0	0	21	2	3	18	
110+00.00	32	12	20	0	0	0	12	24	0	16			40	52	-40	0	0	20	2	3	17	
110+25.00	29	11	18	0	0	0	11	19	0	14			33	43	-32	0	0	18	3	4	14	
110+50.00	26	11	16	0	0	0	11	13	0	11			24	31	-20	0	0	16	3	4	12	
110+75.00	25	10	15	0	0	0	10	9	0	10			19	25	-15	0	0	15	2	3	12	
111+00.00	23	10	13	0	0	0	10	5	0	8			13	17	-7	0	0	13	2	3	10	
111+25.00	21	11	10	0	0	0	11	1	0	5			6	8	3	0	0	10	1	1	9	
111+50.00	22	11	10	0	0	0	11	0	0	5			5	7	5	0	0	10	1	1	9	
111+75.00	22	11	11	0	0	0	11	0	0	5			5	7	5	0	0	11	2	3	8	
112+00.00	23	11	11	0	0	0	11	0	0	6			6	8	3	0	0	11	2	3	8	
112+25.00	22	11	11	0	0	0	11	0	0	6			6	8	3	0	0	11	2	3	8	
112+50.00	22	11	11	0	0	0	11	0	0	6			6	8	3	0	0	11	2	3	8	
112+75.00	22	11	11	0	0	0	11	0	0	6			6	8	3	0	0	11	2	3	8	
113+00.00	22	11	11	0	0	0	11	0	0	6			6	8	3	0	0	11	2	3	8	
113+25.00	22	11	11	0	0	0	11	0	0	6			6	8	3	0	0	11	2	3	8	
113+50.00	22	11	11	0	0	0	11	0	0	6			6	8	3	0	0	11	2	3	8	
113+75.00	23	11	12	0	0	0	11	0	0	7			7	9	2	0	0	12	2	3	9	
114+00.00	22	10	12	0	0	0	10	0	0	7			7	9	1	0	0	12	3	4	8	
114+25.00	23	11	12	0	0	0	11	0	0	7			7	9	2	0	0	12	3	4	8	
114+38.50	13	7	6	0	0	0	7	0	0	3			3	4	3	0	0	6	1	1	5	
Detour 1 Totals:	1,851	277	1,570	0	0	0	0	277	3,874	0	1,440	0	0	5,314	6,909	-6,632	0	0	1,570	244	342	1,229

### TABULATION OF TEMPLATE QUANTITIES AND ADJUSTMENTS

Station	Cut								Fill								Checks (EW-102)		Topsoil			
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]
	Total Cut Unadjusted Volume	Total Class 10 Unadjusted Volume	Topsoil Cut Volume	Template Unsuitable Type B Volume	Template Pavement Removal Volume	Template Select Loam Volume	Manually Calculated Cut Adjustments (+/- Cut)	$[2] + [4] + [6] + [7]$	Total Fill Unadjusted Volume	Plowing & Shaping Undercut (+ Fill)	Existing Topsoil Stripping Undercut (+ Fill)	Existing Pavement Undercut (+Fill)	Manually Calculated Fill Adjustments (+/- Fill)	$[10] + [11] + [12] + [13]$	$[14] \times 1.3$	$[8] - [15]$	Approx. Fill Vol. Below 5' & Above 20' w/ Shrink	Approx. Fill Volume Below 3' w/ Shrink	Topsoil Stripping Undercut Volume	Topsoil Placement Undercut Volume	Topsoil Placement With 1.4 Shrink Factor	$[19] - [21]$
IA_21_RampD_Channel																						
99+65.00	2	1	2	0	0	0	1	0	0				0	0	1	0	0	2	1	1	1	
99+75.00	38	17	21	0	0	0	17	0	0				0	0	17	0	0	21	18	25	-4	
100+00.00	90	47	43	0	0	0	47	0	0	1			1	1	46	0	0	43	38	53	-10	
100+25.00	119	63	57	0	0	0	63	0	0	10			10	13	50	0	0	57	50	70	-13	
100+50.00	128	61	67	0	0	0	61	5	0	23			28	36	25	0	0	67	59	83	-16	
100+75.00	126	65	60	0	0	0	65	5	0	15			20	26	39	0	0	60	54	76	-16	
101+00.00	25	16	9	0	0	0	16	0	0				0	0	16	0	0	9	8	11	-2	
101+09.00																						
IA_21_RampD_Channel Totals:	528	270	259	0	0	0	270	10	0	49	0	0	59	77	194	0	0	259	228	320	-61	

### TABULATION OF TEMPLATE QUANTITIES AND ADJUSTMENTS

Station	Cut								Fill								Checks (EW-102)		Topsoil			
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]
	Total Cut Unadjusted Volume	Total Class 10 Unadjusted Volume	Topsoil Cut Volume	Template Unsuitable Type B Volume	Template Pavement Removal Volume	Template Select Loam Volume	Manually Calculated Cut Adjustments (+/- Cut)	$[2] + [4] + [6] + [7]$ Total Cut Adjusted	Total Fill Unadjusted Volume	Plowing & Shaping Undercut (+ Fill)	Existing Topsoil Stripping Undercut (+ Fill)	Existing Pavement Undercut (+Fill)	Manually Calculated Fill Adjustments (+/- Fill)	$[10] + [11] + [12] + [13]$ Total Fill Adjusted	Total Fill Adjusted w/ Weighted Average 1.3 Shrink Factor	$[8] - [15]$ Total Cut Adjusted Minus Fill w/ Shrink	Approx. Fill Vol. Below 5' & Above 20' w/ Shrink	Approx. Fill Volume Below 3' w/ Shrink	Topsoil Stripping Undercut Volume	Topsoil Placement Undercut Volume	Topsoil Placement With 1.4 Shrink Factor	$[19] - [21]$ Topsoil Stripping Minus Topsoil Placement w/Shrink
ENTR0722																						
+25.00	1	1	0	0	0	0	1	92	0				92	120	-119	0	0	0	0	0	0	0
+50.00	0	0	0	0	0	0	0	519	0				519	675	-675	0	0	0	0	0	0	0
+75.00	21	22	0	0	0	0	22	618	0				618	803	-781	0	0	0	0	10	14	-14
1+00.00	59	29	30	0	0	0	29	315	0	15			330	429	-400	0	0	30	18	25	5	5
1+25.00	45	10	36	0	0	0	10	182	0	27			209	272	-262	0	0	36	21	29	7	7
1+50.00	36	2	33	0	0	0	2	97	0	29			126	164	-162	0	0	33	19	27	6	6
1+75.00	31	1	30	0	0	0	1	67	0	27			94	122	-121	0	0	30	11	15	15	15
2+00.00	31	2	29	0	0	0	2	51	0	24			75	98	-96	0	0	29	10	14	15	15
2+25.00	34	5	29	0	0	0	5	36	0	22			58	75	-70	0	0	29	10	14	15	15
2+50.00	35	7	29	0	0	0	7	24	0	21			45	59	-52	0	0	29	10	14	15	15
2+75.00	33	6	27	0	0	0	6	17	0	20			37	48	-42	0	0	27	9	13	14	14
3+00.00	30	4	26	0	0	0	4	18	0	20			38	49	-45	0	0	26	8	11	15	15
3+25.00	29	3	26	0	0	0	3	22	0	21			43	56	-53	0	0	26	7	10	16	16
3+50.00	27	2	26	0	0	0	2	29	0	21			50	65	-63	0	0	26	7	10	16	16
3+75.00	30	3	27	0	0	0	3	32	0	21			53	69	-66	0	0	27	8	11	16	16
4+00.00	39	9	30	0	0	0	9	28	0	21			49	64	-55	0	0	30	11	15	15	15
4+25.00	40	10	30	0	0	0	10	24	0	21			45	59	-49	0	0	30	11	15	15	15
4+50.00	30	3	27	0	0	0	3	27	0	21			48	62	-59	0	0	27	8	11	16	16
4+75.00	28	1	27	0	0	0	1	34	0	22			56	73	-72	0	0	27	8	11	16	16
5+00.00	28	1	27	0	0	0	1	41	0	23			64	83	-82	0	0	27	8	11	16	16
5+25.00	29	1	28	0	0	0	1	45	0	23			68	88	-87	0	0	28	9	13	15	15
5+50.00	34	4	30	0	0	0	4	43	0	23			66	86	-82	0	0	30	11	15	15	15
5+75.00	44	11	33	0	0	0	11	35	0	23			58	75	-64	0	0	33	13	18	15	15
6+00.00	55	20	35	0	0	0	20	27	0	22			49	64	-44	0	0	35	15	21	14	14
6+25.00	62	27	36	0	0	0	27	22	0	20			42	55	-28	0	0	36	16	22	14	14
6+50.00	70	34	36	0	0	0	34	18	0	19			37	48	-14	0	0	36	16	22	14	14
6+75.00	72	36	37	0	0	0	36	20	0	19			39	51	-15	0	0	37	17	24	13	13
7+00.00	67	29	38	0	0	0	29	35	0	23			58	75	-46	0	0	38	18	25	13	13
7+25.00	60	20	40	0	0	0	20	64	0	27			91	118	-98	0	0	40	20	28	12	12
7+50.00	57	15	42	0	0	0	15	90	0	30			120	156	-141	0	0	42	22	31	11	11
7+75.00	58	15	43	0	0	0	15	93	0	31			124	161	-146	0	0	43	22	31	12	12
8+00.00	58	17	41	0	0	0	17	72	0	29			101	131	-114	0	0	41	20	28	13	13
8+25.00	57	19	38	0	0	0	19	47	0	26			73	95	-76	0	0	38	18	25	13	13
8+50.00	53	17	35	0	0	0	17	29	0	23			52	68	-51	0	0	35	15	21	14	14
8+75.00	48	15	33	0	0	0	15	20	0	21			41	53	-38	0	0	33	13	18	15	15
9+00.00	41	10	30	0	0	0	10	17	0	20			37	48	-38	0	0	30	11	15	15	15
9+25.00	34	5	28	0	0	0	5	17	0	21			38	49	-44	0	0	28	9	13	15	15
9+50.00	29	2	26	0	0	0	2	18	0	21			39	51	-49	0	0	26	7	10	16	16
9+75.00	27	1	26	0	0	0	1	17	0	21			38	49	-48	0	0	26	5	7	19	19
10+00.00	27	1	26	0	0	0	1	12	0	20			32	42	-41	0	0	26	4	6	20	20
10+25.00	20	1	19	0	0	0	1	7	0	14			21	27	-26	0	0	19	3	4	15	15
ENTR0722																						
Totals:	1,609	421	1,189	0	0	0	0	421	3,021	0	852	0	0	3,873	5,035	-4,614	0	0	1,189	478	670	520

**TABULATION OF TEMPLATE QUANTITIES AND ADJUSTMENTS**

Station	Cut								Fill								Checks (EW-102)		Topsoil				
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	
	Total Cut Unadjusted Volume	Total Class 10 Unadjusted Volume	Topsoil Cut Volume	Template Unsuitable Type B Volume	Template Pavement Removal Volume	Template Select Loam Volume	Manually Calculated Cut Adjustments (+/- Cut)	[2] + [4] + [6] + [7]	Total Fill Unadjusted Volume	Plowing & Shaping Undercut (+ Fill)	Existing Topsoil Stripping Undercut (+ Fill)	Existing Pavement Undercut (+Fill)	Manually Calculated Fill Adjustments (+/- Fill)	[10] + [11] + [12] + [13]	[14] x 1.3	[8] - [15]	Approx. Fill Vol. Below 5' & Above 20' w/ Shrink	Approx. Fill Volume Below 3' w/ Shrink	Topsoil Stripping Undercut Volume	Topsoil Placement Undercut Volume	Topsoil Placement With 1.4 Shrink Factor	Topsoil Stripping Minus Topsoil Placement w/Shrink	
Stage 2																							
US_30_STG2																							
705+41.13	59	57	1	0	6	0	57	0	0	1			1	1	56	0	0	1	14	20	-19		
705+50.00	164	161	3	0	18	0	161	0	0	2			2	3	158	0	0	3	40	56	-53		
705+75.00	163	160	3	0	18	0	160	0	0	2			2	3	157	0	0	3	40	56	-53		
706+00.00	162	158	3	0	18	0	158	0	0	2			2	3	155	0	0	3	39	55	-52		
706+25.00	161	157	3	0	18	0	157	0	0	2			2	3	154	0	0	3	38	53	-50		
706+50.00	165	158	8	0	18	0	158	0	0	2			2	3	155	0	0	3	41	57	-49		
706+75.00	174	161	13	0	18	0	161	0	0	2			2	3	158	0	0	13	45	63	-50		
707+00.00	181	167	14	0	18	0	167	0	0	2			2	3	164	0	0	14	45	63	-49		
707+25.00	194	179	15	0	18	0	179	2	0	2			4	5	174	0	0	15	45	63	-48		
707+50.00	226	211	15	0	18	0	211	6	16	1			23	30	181	0	0	15	45	63	-48		
707+75.00	243	228	16	0	18	0	228	11	15	1			27	35	193	0	0	16	46	64	-48		
708+00.00	256	239	17	0	18	0	239	13	14	2			29	38	201	0	0	17	46	64	-47		
708+25.00	263	245	17	0	18	0	245	13	13	2			28	36	209	0	0	17	46	64	-47		
708+50.00	270	253	17	0	18	0	253	13	12	1			26	34	219	0	0	17	46	64	-47		
708+75.00	280	262	18	0	18	0	262	13	12	1			26	34	228	0	0	18	46	64	-46		
709+00.00	285	266	18	0	19	0	266	13	11	1			25	33	234	0	0	18	46	64	-46		
709+25.00	285	266	19	0	22	0	266	13	10	2			25	33	234	0	0	19	46	64	-45		
709+50.00	281	262	19	0	24	0	262	13	9	2			24	31	231	0	0	19	46	64	-45		
709+75.00	280	260	20	0	27	0	260	14	9	2			25	33	228	0	0	20	46	64	-44		
710+00.00	276	256	21	0	29	0	256	15	9	2			26	34	222	0	0	21	47	66	-45		
710+25.00	271	249	22	0	32	0	249	16	9	4			29	38	211	0	0	22	46	64	-42		
710+50.00	263	241	22	0	34	0	241	17	10	4			31	40	201	0	0	22	46	64	-42		
710+75.00	254	232	22	0	37	0	232	19	10	5			34	44	188	0	0	22	46	64	-42		
711+00.00	245	222	23	0	38	0	222	20	10	6			36	47	175	0	0	23	46	64	-41		
711+25.00	232	209	23	0	39	0	209	22	10	7			39	51	158	0	0	23	46	64	-41		
711+50.00	221	198	24	0	40	0	198	24	10	8			42	55	143	0	0	24	45	63	-39		
711+75.00	204	186	18	0	41	0	186	25	10	9			44	57	129	0	0	18	40	56	-38		
712+00.00	189	175	14	0	41	0	175	26	10	12			48	62	113	0	0	14	35	49	-35		
712+25.00	182	167	16	0	42	0	167	28	10	14			52	68	99	0	0	16	36	50	-34		
712+50.00	173	159	15	0	42	0	159	29	10	13			52	68	91	0	0	15	35	49	-34		
712+75.00	169	154	15	0	42	0	154	31	10	13			54	70	84	0	0	15	35	49	-34		
713+00.00	166	151	15	0	41	0	151	34	10	13			57	74	77	0	0	15	36	50	-35		
713+25.00	164	148	16	0	40	0	148	35	10	14			59	77	71	0	0	16	36	50	-34		
713+50.00	161	143	18	0	39	0	143	37	10	16			63	82	61	0	0	18	37	52	-34		
713+75.00	154	136	18	0	38	0	136	38	10	16			64	83	53	0	0	18	37	52	-34		
714+00.00	148	129	19	0	36	0	129	41	10	17		2	70	91	38	0	0	19	37	52	-33		
714+25.00	141	121	20	0	35	0	121	44	10	19		2	75	98	24	0	0	20	37	52	-32		
714+50.00	133	113	21	0	33	0	113	46	10	19		3	78	101	12	0	0	21	38	53	-32		
714+75.00	128	104	25	0	32	0	104	48	9	22		3	82	107	-3	0	0	25	39	55	-30		
715+00.00	126	99	27	0	30	0	99	55	9	25		5	94	122	-23	0	0	27	40	56	-29		
715+25.00	128	99	30	0	29	0	99	66	10	26		5	107	139	-40	0	0	30	45	63	-33		
715+50.00	133	98	35	0	29	0	98	81	10	31		5	127	165	-67	0	0	35	52	73	-38		
715+75.00	137	101	36	0	27	0	101	102	10	34		4	150	195	-94	0	0	36	54	76	-40		
716+00.00	144	99	45	0	24	0	99	122	9	39		5	175	228	-129	0	30	45	55	77	-32		
716+25.00	147	94	54	0	24	0	94	141	9	44		5	199	259	-165	0	62	54	56	78	-24		
716+50.00	146	90	56	0	25	0	90	160	8	47		4	219	285	-195	0	88	56	56	78	-22		
716+75.00	144	88	56	0	25	0	88	170	8	47		4	229	298	-210	0	103	56	57	80	-24		
717+00.00	143	86	57	0	25	0	86	174	8	48		4	234	304	-218	0	108	57	57	80	-23		
717+25.00	141	84	57	0	25	0	84	172	8	48		4	232	302	-218	0	105	57	57	80	-23		
717+50.00	140	82	58	0	24	0	82	168	8	48		5	229	298	-216	0	100	58	58	81	-23		
717+75.00	140	81	59	0	24	0	81	166	9	48		5	228	296	-215	0	99	59	58	81	-22		
718+00.00	136	77	59	0	23	0	77	168	8	49		6	231	300	-223	0	101	59	58	81	-22		
718+25.00	132	72	59	0	22	0	72	177	7	50		7	241	313	-241	0	114	59	57	80	-21		
718+50.00	128	69	59	0	22	0	69	183	7	50		7	247	321	-252	0	122	59	57	80	-21		
718+75.00	148	81	67	0	21	0	81	186	7	51		8	252	328	-247	0	127	67	64	90	-23		
719+00.00	161	87	75	0	21	0	87	191	7	51		8	257	334	-247	0	133	75	70	98	-23		
719+25.00	157	79	78	0	20	0	79	195	7	53		9	264	343	-264	0	142	78	70	98	-20		
719+50.00	164	83	81	0	19	0	83	204	7	53		10	274	356	-273	0	152	81	71	99	-18		
719+75.00	213	128	85	0	18	0	128	173	6	49		11	239	311	-183	0	105	85	74	104	-19		
720+00.00	218	132	86	0	18	0	132	171	7	48		11	237	308	-176	0	103	86	74	104	-18		
720+25.00	171	88	84	0	17	0	88	208	7	52		12	279	363	-275	0	156	84	72	101	-17		
720+50.00	158	75	82	0	16	0	75	215	7	55		13	290	377	-302	0	169	82	70	98	-16		
720+75.00	140	59	81	0	16	0	59	225	6	58		13	302	393	-334	0	185	81	69	97	-16		
721+00.00	130	49	81	0	15	0	49	237	6	59		14	316	411	-362	0	203	81	69	97	-16		
721+25.00	129	47	82	0	14	0	47	251	6	60		15	332	432	-385	0	222	82	70	98	-16		
721+50.00																							
Subtotals:	11,820	9,570	2,255	0	1,674	0	0	9,570	5,080	519	1,488	209	0	7,296	9,485	85	0	2,730	2,255	3,196	4,474	-2,219	





TABULATION OF TEMPLATE QUANTITIES AND ADJUSTMENTS

Table with 22 columns: Station, Cut (8 sub-columns), Fill (8 sub-columns), Checks (EW-102) (2 sub-columns), Topsoil (4 sub-columns). Rows include station numbers (e.g., 738+25.00) and a final Subtotals row.



TABULATION OF TEMPLATE QUANTITIES AND ADJUSTMENTS

Table with columns: Station, Cut (Total Cut Unadjusted Volume, Total Class 10 Unadjusted Volume, Topsoil Cut Volume, Template Unsuitable Type B Volume, Template Pavement Removal Volume, Template Select Loam Volume, Manually Calculated Cut Adjustments, Total Cut Adjusted), Fill (Total Fill Unadjusted Volume, Plowing & Shaping Undercut, Existing Topsoil Stripping Undercut, Existing Pavement Undercut, Manually Calculated Fill Adjustments, Total Fill Adjusted, Total Fill Adjusted w/ Weighted Average 1.3 Shrink Factor, Total Cut Adjusted Minus Fill w/ Shrink), Checks (EW-102) (Approx. Fill Vol. Below 5' & Above 20' w/ Shrink, Approx. Fill Volume Below 3' w/ Shrink), Topsoil (Topsoil Stripping Undercut Volume, Topsoil Placement Undercut Volume, Topsoil Placement With 1.4 Shrink Factor, Topsoil Stripping Minus Topsoil Placement w/Shrink).



**TABULATION OF TEMPLATE QUANTITIES AND ADJUSTMENTS**

Station	Cut								Fill								Checks (EW-102)		Topsoil			
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]
	Total Cut Unadjusted Volume	Total Class 10 Unadjusted Volume	Topsoil Cut Volume	Template Unsuitable Type B Volume	Template Pavement Removal Volume	Template Select Loam Volume	Manually Calculated Cut Adjustments (+/- Cut)	$[2] + [4] + [6] + [7]$ Total Cut Adjusted	Total Fill Unadjusted Volume	Plowing & Shaping Undercut (+ Fill)	Existing Topsoil Stripping Undercut (+ Fill)	Existing Pavement Undercut (+Fill)	Manually Calculated Fill Adjustments (+/- Fill)	$[10] + [11] + [12] + [13]$ Total Fill Adjusted	Total Fill Adjusted w/ Weighted Average 1.3 Shrink Factor	$[8] - [15]$ Total Cut Adjusted Minus Fill w/ Shrink	Approx. Fill Vol. Below 5' & Above 20' w/ Shrink	Approx. Fill Volume Below 3' w/ Shrink	Topsoil Stripping Undercut Volume	Topsoil Placement Undercut Volume	Topsoil Placement With 1.4 Shrink Factor	$[20] \times 1.4$ Topsoil Stripping Minus Topsoil Placement w/Shrink
789+00.00	198	5	94	100	0	0	0	105	453	0	48	29	530	689	-584	208	460	94	90	126	-32	
789+25.00	201	0	91	109	0	0	0	109	462	0	48	29	539	701	-592	220	472	91	86	120	-29	
789+50.00	108	0	57	50	0	0	0	50	403	0	41	29	473	615	-565	135	387	57	47	66	-9	
789+75.00	19	0	19	0	0	0	0	0	262	0	19	29	310	403	-403	0	174	19	4	6	13	
790+00.00	21	10	11	0	0	0	0	10	178	0	11	29	218	283	-273	0	56	11	0	0	11	
790+25.00	36	21	15	0	0	0	0	21	151	0	15	29	195	254	-233	0	26	15	0	0	15	
790+50.00	21	21	0	0	0	0	0	21	162	0	0	29	191	248	-227	0	0	0	0	0	0	
790+75.00	34	11	23	0	0	0	0	11	229	0	23	29	281	365	-354	0	137	23	3	4	19	
791+00.00	147	33	114	0	0	0	0	33	598	0	81	58	737	958	-925	0	502	114	71	99	15	
791+50.00	104	34	70	0	0	0	0	34	300	0	39	29	368	478	-444	0	250	70	63	88	-18	
791+75.00	100	40	60	0	0	0	0	40	274	0	32	29	335	436	-396	0	207	60	63	88	-28	
792+00.00	108	49	59	0	0	0	0	49	260	0	32	29	321	417	-368	0	189	59	63	88	-29	
792+25.00	120	60	59	0	0	0	0	60	252	0	32	29	313	407	-347	0	179	59	63	88	-29	
792+50.00	132	73	59	0	0	0	0	73	247	0	30	29	306	398	-325	0	169	59	63	88	-29	
792+75.00	137	79	59	0	0	0	0	79	242	0	28	29	299	389	-310	0	160	59	64	90	-31	
793+00.00	142	82	60	0	0	0	0	82	237	0	28	29	294	382	-300	0	153	60	66	92	-32	
793+25.00	148	88	60	0	0	0	0	88	233	0	29	29	291	378	-290	0	150	60	67	94	-34	
793+50.00	154	93	61	0	1	0	0	93	217	0	32	28	277	360	-267	0	134	61	69	97	-36	
793+75.00	166	76	62	0	2	28	0	104	185	0	35	27	247	321	-217	0	96	62	70	98	-36	
794+00.00	175	42	59	0	4	73	0	115	133	0	32	25	190	247	-132	0	25	59	71	99	-40	
794+25.00	179	34	60	0	6	85	0	119	104	0	34	23	161	209	-90	0	0	60	71	99	-39	
794+50.00	183	45	66	0	9	72	0	117	133	0	42	20	195	254	-137	0	36	66	71	99	-33	
794+75.00	156	49	57	0	9	50	0	99	128	0	39	14	181	235	-136	0	0	57	57	80	-23	
795+00.00																						
US_30_STG2																						
Totals:	63,861	44,699	17,959	895	6,205	308	0	45,902	66,366	1,457	11,286	4,959	1,364	85,432	111,062	-65,160	12,831	53,693	17,959	19,071	26,699	-8,740

**TABULATION OF TEMPLATE QUANTITIES AND ADJUSTMENTS**

Station	Cut								Fill								Checks (EW-102)		Topsoil			
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]
	Total Cut Unadjusted Volume	Total Class 10 Unadjusted Volume	Topsoil Cut Volume	Template Unsuitable Type B Volume	Template Pavement Removal Volume	Template Select Loam Volume	Manually Calculated Cut Adjustments (+/- Cut)	$[2] + [4] + [6] + [7]$ Total Cut Adjusted	Total Fill Unadjusted Volume	Plowing & Shaping Undercut (+ Fill)	Existing Topsoil Stripping Undercut (+ Fill)	Existing Pavement Undercut (+Fill)	Manually Calculated Fill Adjustments (+/- Fill)	$[10] + [11] + [12] + [13]$ Total Fill Adjusted	Total Fill Adjusted w/ Weighted Average 1.3 Shrink Factor	$[8] - [15]$ Total Cut Adjusted Minus Fill w/ Shrink	Approx. Fill Vol. Below 5' & Above 20' w/ Shrink	Approx. Fill Volume Below 3' w/ Shrink	Topsoil Stripping Undercut Volume	Topsoil Placement Undercut Volume	Topsoil Placement With 1.4 Shrink Factor	$[19] - [21]$ Topsoil Stripping Minus Topsoil Placement w/Shrink
11th Ave North																						
11791+25.00	0	0	0	0	0	0	0	368	0				368	478	-478	0	0	0	40	56		-56
11791+50.00	0	0	0	0	0	0	0	506	0				506	658	-658	0	0	0	54	76		-76
11791+75.00	83	16	67	0	0	0	16	644	0	62			706	918	-902	0	803	67	53	74		-7
11791+97.00	20	10	10	0	0	0	10	93	0	9			102	133	-123	0	117	10	8	11		-1
11792+00.00	217	127	90	0	0	0	127	582	0	71			653	849	-722	0	719	90	73	102		-12
11792+25.00	165	88	77	0	0	0	88	371	0	45			416	541	-453	0	410	77	62	87		-10
11792+50.00	119	52	67	0	0	0	52	308	0	41			349	454	-402	0	322	67	54	76		-9
11792+75.00	103	41	61	0	0	0	41	251	0	37			288	374	-333	0	244	61	48	67		-6
11793+00.00	84	30	54	0	0	0	30	197	0	33			230	299	-269	0	169	54	42	59		-5
11793+25.00	64	16	48	0	0	0	16	158	0	30		982	1,170	1,521	-1,505	0	114	48	36	50		-2
11793+50.00	51	9	42	0	0	0	9	135	0	27			162	211	-202	0	81	42	30	42		0
11793+75.00	51	12	39	0	0	0	12	117	0	24			141	183	-171	0	53	39	27	38		1
11794+00.00	61	23	38	0	0	0	23	101	0	20			121	157	-134	0	27	38	27	38		0
11794+25.00	77	38	39	0	0	0	38	85	0	19			104	135	-97	0	4	39	27	38		1
11794+50.00	88	50	39	0	0	0	50	68	0	17			85	111	-61	0	0	39	28	39		0
11794+75.00	96	56	39	0	0	0	56	53	0	16			69	90	-34	0	0	39	28	39		0
11795+00.00	101	62	39	0	0	0	62	41	0	14			55	72	-10	0	0	39	28	39		0
11795+25.00	104	65	39	0	0	0	65	29	0	13			42	55	10	0	0	39	28	39		0
11795+50.00	103	66	37	0	0	0	66	18	0	10			28	36	30	0	0	37	27	38		-1
11795+75.00	104	67	37	0	0	0	67	8	0	9			17	22	45	0	0	37	27	38		-1
11796+00.00	89	54	35	0	0	0	54	2	0	8			10	13	41	0	0	35	25	35		0
11796+25.00	43	23	20	0	0	0	23	1	0	5			6	8	15	0	0	20	15	21		-1
11796+50.00																						
11th Ave North Totals:	1,823	905	917	0	0	0	0	905	4,136	0	510	0	982	5,628	7,317	-6,412	0	3,065	917	787	1,102	-186

**TABULATION OF TEMPLATE QUANTITIES AND ADJUSTMENTS**

Station	Cut								Fill								Checks (EW-102)		Topsoil			
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]
	Total Cut Unadjusted Volume	Total Class 10 Unadjusted Volume	Topsoil Cut Volume	Template Unsuitable Type B Volume	Template Pavement Removal Volume	Template Select Loam Volume	Manually Calculated Cut Adjustments (+/- Cut)	$[2] + [4] + [6] + [7]$ Total Cut Adjusted	Total Fill Unadjusted Volume	Plowing & Shaping Undercut (+ Fill)	Existing Topsoil Stripping Undercut (+ Fill)	Existing Pavement Undercut (+Fill)	Manually Calculated Fill Adjustments (+/- Fill)	$[10] + [11] + [12] + [13]$ Total Fill Adjusted	Total Fill Adjusted w/ Weighted Average 1.3 Shrink Factor	$[8] - [15]$ Total Cut Adjusted Minus Fill w/ Shrink	Approx. Fill Vol. Below 5' & Above 20' w/ Shrink	Approx. Fill Volume Below 3' w/ Shrink	Topsoil Stripping Undercut Volume	Topsoil Placement Undercut Volume	Topsoil Placement With 1.4 Shrink Factor	$[19] - [21]$ Topsoil Stripping Minus Topsoil Placement w/Shrink
Detour 2																						
205+00.00	178	60	71	0	10	47	107	222	0	51	15		288	374	-267	0	0	71	34	48	23	
205+25.00	178	76	68	0	12	35	111	209	0	49	13		271	352	-241	0	0	68	36	50	18	
205+50.00	178	92	66	0	13	21	113	201	0	48	12		261	339	-226	0	0	66	37	52	14	
205+75.00	178	107	63	0	15	8	115	196	0	46	10		252	328	-213	0	0	63	38	53	10	
206+00.00	177	116	61	0	17	1	117	193	0	44	8		245	319	-202	0	0	61	39	55	6	
206+25.00	177	118	59	0	19	0	118	189	0	42	6		237	308	-190	0	0	59	40	56	3	
206+50.00	178	120	58	0	22	0	120	182	0	42	3		227	295	-175	0	0	58	40	56	2	
206+75.00	180	121	59	0	23	0	121	167	0	43	2		212	276	-155	0	0	59	41	57	2	
207+00.00	182	122	60	0	25	0	122	147	0	44			191	248	-126	0	0	60	41	57	3	
207+25.00	187	127	60	0	25	0	127	132	0	42			174	226	-99	0	0	60	41	57	3	
207+50.00	191	132	59	0	25	0	132	117	0	40			157	204	-72	0	0	59	41	57	2	
207+75.00	189	130	60	0	25	0	130	98	0	40			138	179	-49	0	0	60	41	57	3	
208+00.00	186	126	60	0	25	0	126	77	0	39			116	151	-25	0	0	60	41	57	3	
208+25.00	182	122	60	0	26	0	122	55	0	38			93	121	1	0	0	60	41	57	3	
208+50.00	175	115	60	0	26	0	115	35	0	37			72	94	21	0	0	60	40	56	4	
208+75.00	166	106	60	0	26	0	106	19	0	34			53	69	37	0	0	60	40	56	4	
209+00.00	159	99	60	0	26	0	99	8	0	26			34	44	55	0	0	60	40	56	4	
209+25.00	159	100	59	0	26	0	100	2	0	15			17	22	78	0	0	59	39	55	4	
209+50.00	163	106	58	0	26	0	106	2	0	12			14	18	88	0	0	58	39	55	3	
209+75.00	171	113	58	0	26	0	113	2	0	16			18	23	90	0	0	58	39	55	3	
210+00.00	175	116	59	0	26	0	116	2	0	14			16	21	95	0	0	59	40	56	3	
210+25.00	173	114	59	0	26	0	114	1	0	10			11	14	100	0	0	59	39	55	4	
210+50.00	167	110	58	0	26	0	110	1	0	10			11	14	96	0	0	58	38	53	5	
210+75.00	162	106	56	0	26	0	106	1	0	12			13	17	89	0	0	56	36	50	6	
211+00.00	155	103	52	0	26	0	103	1	0	12			13	17	86	0	0	52	33	46	6	
211+25.00	148	99	49	0	26	0	99	0	0	12			12	16	83	0	0	49	31	43	6	
211+50.00	142	95	47	0	26	0	95	0	0	12			12	16	79	0	0	47	28	39	8	
211+75.00	138	94	44	0	25	0	94	0	0	11			11	14	80	0	0	44	28	39	5	
212+00.00	129	89	40	0	25	0	89	1	0	11			12	16	73	0	0	40	29	41	-1	
212+25.00	113	77	37	0	25	0	77	2	0	11			13	17	60	0	0	37	26	36	1	
212+50.00	100	65	34	0	25	0	65	2	0	12			14	18	47	0	0	34	23	32	2	
212+75.00	85	53	31	0	25	0	53	0	0	12			12	16	37	0	0	31	19	27	4	
213+00.00	76	50	26	0	25	0	50	0	0	12	1		13	17	33	0	0	26	15	21	5	
213+25.00	72	51	21	0	26	0	51	0	0	10			10	13	38	0	0	21	10	14	7	
213+50.00	28	20	8	0	10	0	20	0	0	3			3	4	16	0	0	8	3	4	4	
213+60.00																						
Detour 2 Totals:	5,397	3,450	1,840	0	806	112	0	3,562	2,264	0	912	70	0	3,246	4,220	-658	0	0	1,840	1,186	1,661	180

Refer to Standard Road Plans EW-101 and EW-102.

### TABULATION OF TEMPLATE QUANTITIES AND ADJUSTMENTS

107-28  
04-21-15

Station	Cut								Fill								Checks (EW-102)		Topsoil				
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	
								[2] + [4] + [6] + [7]						[10] + [11] + [12] + [13]	[14] x 1.3	[8] - [15]					[20] x 1.4	[19] - [21]	
	Total Cut Unadjusted Volume	Total Class 10 Unadjusted Volume	Topsoil Cut Volume	Template Unsuitable Type B Volume	Template Pavement Removal Volume	Template Select Loam Volume	Manually Calculated Cut Adjustments (+/- Cut)	Total Cut Adjusted	Total Fill Unadjusted Volume	Plowing & Shaping Undercut (+ Fill)	Existing Topsoil Stripping Undercut (+ Fill)	Existing Pavement Undercut (+ Fill)	Manually Calculated Fill Adjustments (+/- Fill)	Total Fill Adjusted	Total Fill Adjusted w/ Weighted Average 1.3 Shrink Factor	Total Cut Adjusted Minus Fill w/ Shrink	Approx. Fill Vol. Below 5' & Above 20' w/ Shrink	Approx. Fill Volume Below 3' w/ Shrink	Topsoil Stripping Undercut Volume	Topsoil Placement Undercut Volume	Topsoil Placement With 1.4 Shrink Factor	Topsoil Stripping Minus Topsoil Placement w/Shrink	
ENTL0776																							
2+00.00	115	43	72	0	0	0		43	97	0	55			152	198	-155	0	0	72	37	52	20	
2+25.00	151	91	60	0	0	0		91	87	0	33			120	156	-65	0	0	60	37	52	8	
2+50.00	154	93	61	0	0	0		93	92	0	34			126	164	-71	0	0	61	37	52	9	
2+75.00	151	90	61	0	0	0		90	101	0	35			136	177	-87	0	0	61	38	53	8	
3+00.00	152	91	61	0	0	0		91	100	0	36			136	177	-86	0	0	61	38	53	8	
3+25.00	155	96	59	0	0	0		96	79	0	33			112	146	-50	0	0	59	36	50	9	
3+50.00	158	102	56	0	0	0		102	46	0	28			74	96	6	0	0	56	33	46	10	
3+75.00	156	102	53	0	0	0		102	19	0	25			44	57	45	0	0	53	30	42	11	
4+00.00	146	94	52	0	0	0		94	4	0	18			22	29	65	0	0	52	30	42	10	
4+25.00	137	83	54	0	0	0		83	5	0	16			21	27	56	0	0	54	31	43	11	
4+50.00	129	74	55	0	0	0		74	15	0	23			38	49	25	0	0	55	32	45	10	
4+75.00	121	67	54	0	0	0		67	30	0	29			59	77	-10	0	0	54	31	43	11	
5+00.00	115	63	53	0	0	0		63	47	0	32			79	103	-40	0	0	53	30	42	11	
5+25.00	110	59	51	0	0	0		59	64	0	33			97	126	-67	0	0	51	28	39	12	
5+50.00	106	55	51	0	0	0		55	81	0	35			116	151	-96	0	0	51	28	39	12	
5+75.00	103	51	52	0	0	0		51	99	0	36			135	176	-125	0	0	52	29	41	11	
6+00.00	103	52	52	0	0	0		52	113	0	36			149	194	-142	0	0	52	29	41	11	
6+25.00	105	53	52	0	0	0		53	118	0	36			154	200	-147	0	0	52	29	41	11	
6+50.00	103	51	52	0	0	0		51	116	0	36			152	198	-147	0	0	52	29	41	11	
6+75.00	98	46	52	0	0	0		46	106	0	35			141	183	-137	0	0	52	29	41	11	
7+00.00	96	46	51	0	0	0		46	93	0	33			126	164	-118	0	0	51	29	41	10	
7+25.00	96	46	50	0	0	0		46	84	0	33			117	152	-106	0	0	50	28	39	11	
7+50.00	93	44	49	0	0	0		44	81	0	33			114	148	-104	0	0	49	27	38	11	
7+75.00	89	40	49	0	0	0		40	79	0	32			111	144	-104	0	0	49	27	38	11	
8+00.00	84	35	49	0	0	0		35	74	0	32			106	138	-103	0	0	49	27	38	11	
8+25.00	76	27	49	0	0	0		27	70	0	33			103	134	-107	0	0	49	27	38	11	
8+50.00	68	20	49	0	0	0		20	64	0	33			97	126	-106	0	0	49	27	38	11	
8+75.00	66	16	49	0	0	0		16	59	0	34			93	121	-105	0	0	49	27	38	11	
9+00.00	61	12	49	0	0	0		12	57	0	35			92	120	-108	0	0	49	27	38	11	
9+25.00	55	7	48	0	0	0		7	59	0	37			96	125	-118	0	0	48	26	36	12	
9+50.00	49	2	47	0	0	0		2	65	0	40			105	137	-135	0	0	47	24	34	13	
9+75.00	46	0	46	0	0	0		0	74	0	41			115	150	-150	0	0	46	24	34	12	
10+00.00	47	0	46	0	0	0		0	87	0	43			130	169	-169	0	0	46	24	34	12	
10+25.00	46	0	46	0	0	0		0	105	0	44			149	194	-194	0	0	46	24	34	12	
10+50.00	46	0	46	0	0	0		0	130	0	45			175	228	-228	0	0	46	24	34	12	
10+75.00	48	0	47	0	0	0		0	153	0	45			198	257	-257	0	0	47	25	35	12	
11+00.00	47	1	47	0	0	0		1	171	0	44			215	280	-279	0	0	47	25	35	12	
11+25.00	46	0	46	0	0	0		0	182	0	43			225	293	-293	0	0	46	24	34	12	
11+50.00	46	1	45	0	0	0		1	186	0	42			228	296	-295	0	0	45	23	32	13	
11+75.00	46	1	45	0	0	0		1	183	0	41			224	291	-290	0	0	45	23	32	13	
12+00.00	45	1	44	0	0	0		1	173	0	40			213	277	-276	0	0	44	22	31	13	
12+25.00	44	1	43	0	0	0		1	157	0	39			196	255	-254	0	0	43	21	29	14	
12+50.00	42	1	41	0	0	0		1	136	0	38			174	226	-225	0	0	41	19	27	14	
12+75.00	39	0	39	0	0	0		0	122	0	37			159	207	-207	0	0	39	18	25	14	
13+00.00	38	0	38	0	0	0		0	107	0	37			144	187	-187	0	0	38	17	24	14	
13+25.00	39	1	38	0	0	0		1	75	0	35			110	143	-142	0	0	38	17	24	14	
13+50.00	46	6	40	0	0	0		6	38	0	33			71	92	-86	0	0	40	18	25	15	
13+75.00	55	15	41	0	0	0		15	15	0	27			42	55	-40	0	0	41	20	28	13	
14+00.00	61	19	42	0	0	0		19	6	0	25			31	40	-21	0	0	42	20	28	14	
14+25.00	57	16	41	0	0	0		16	19	0	24			43	56	-40	0	0	41	19	27	14	
14+50.00	51	10	40	0	0	0		10	46	0	26			72	94	-84	0	0	40	19	27	13	
14+75.00	44	5	39	0	0	0		5	68	0	28			96	125	-120	0	0	39	18	25	14	
15+00.00	39	2	37	0	0	0		2	74	0	30			104	135	-133	0	0	37	16	22	15	
15+25.00	36	1	35	0	0	0		1	65	0	30			95	124	-123	0	0	35	14	20	15	
15+50.00	35	1	34	0	0	0		1	49	0	30			79	103	-102	0	0	34	13	18	16	
15+75.00	34	1	33	0	0	0		1	38	0	28			66	86	-85	0	0	33	12	17	16	
16+00.00	33	1	32	0	0	0		1	28	0	25			53	69	-68	0	0	32	11	15	17	
16+25.00	31	2	30	0	0	0		2	11	0	23			34	44	-42	0	0	30	7	10	20	
16+50.00	14	1	13	0	0	0		1	0	0	10			10	13	-12	0	0	13	2	3	10	
16+62.00																							
Totals:	4,602	1,838	2,766	0	0	0	0	1,838	4,702	0	1,972	0	0	6,674	8,677	-6,839	0	0	2,766	1,456	2,039	728	

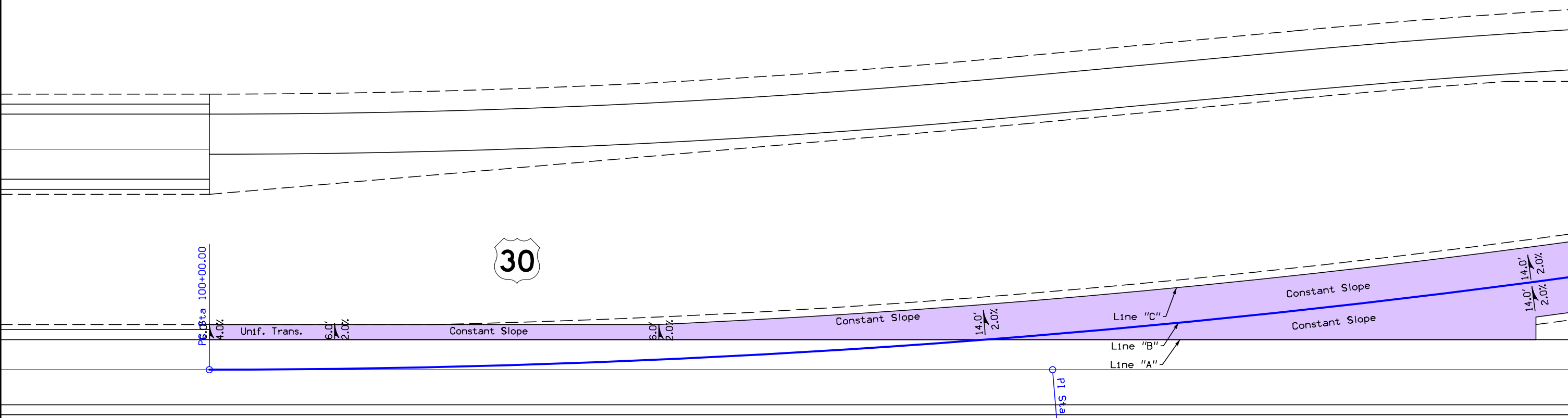


### TABULATION OF TEMPLATE QUANTITIES AND ADJUSTMENTS

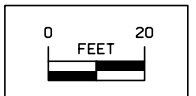
Station	Cut								Fill								Checks (EW-102)		Topsoil				
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	
								[2] + [4] + [6] + [7]						[10] + [11] + [12] + [13]	[14] x 1.3	[8] - [15]					[20] x 1.4	[19] - [21]	
	Total Cut Unadjusted Volume	Total Class 10 Unadjusted Volume	Topsoil Cut Volume	Template Unsuitable Type B Volume	Template Pavement Removal Volume	Template Select Loam Volume	Manually Calculated Cut Adjustments (+/- Cut)	Total Cut Adjusted	Total Fill Unadjusted Volume	Plowing & Shaping Undercut (-+ Fill)	Existing Topsoil Stripping Undercut (-+ Fill)	Existing Pavement Undercut (-+ Fill)	Manually Calculated Fill Adjustments (+/- Fill)	Total Fill Adjusted	Total Fill Adjusted w/ Weighted Average 1.3 Shrink Factor	Total Cut Adjusted Minus Fill w/ Shrink	Approx. Fill Vol. Below 5' & Above 20' w/ Shrink	Approx. Fill Volume Below 3' w/ Shrink	Topsoil Stripping Undercut Volume	Topsoil Placement Undercut Volume	Topsoil Placement With 1.4 Shrink Factor	Topsoil Stripping Minus Topsoil Placement w/Shrink	
<b>Summary:</b>																							
<b>Stage 1</b>																							
US_30_STG1	147,888	109,934	37,931	0	677	23	0	109,957	108,306	0	37,931	271	0	146,508	190,460	-80,503	81,948	136,154	37,931	15,756	22,058	15,873	
IA_21_RampA	15,016	9,943	5,078	0	0	0	0	9,943	27,529	0	2,594	0	0	30,123	39,160	-29,217	24,850	31,536	5,078	2,884	4,038	1,041	
IA_21_RampB	11,394	3,848	7,543	0	0	0	0	3,848	69,354	0	6,054	0	0	75,408	98,031	-94,183	72,221	84,335	7,543	5,251	7,352	192	
IA_21_RampC	6,840	1,489	5,354	0	0	0	0	1,489	71,574	0	4,637	0	0	76,211	99,075	-97,586	72,395	87,065	5,354	3,304	4,626	730	
IA_21_RampD	9,741	5,841	3,895	0	0	0	0	5,841	20,858	0	2,351	0	0	23,209	30,172	-24,331	19,584	24,165	3,895	2,289	3,205	691	
IA_21_South	8,463	3,570	4,894	0	282	0	0	3,570	66,758	0	3,339	637	288	71,022	92,329	-88,759	53,232	72,399	4,894	3,652	5,113	-219	
IA_21_North	10,205	3,684	6,434	2	165	78	67	3,831	100,910	651	5,005	1,245	6,056	113,867	148,028	-144,197	86,213	115,195	6,434	4,647	6,506	-72	
11th_Ave_South	1,144	552	593	0	0	0	0	552	1,328	0	346	0	63	1,737	2,259	-1,707	0	585	593	423	593	1	
Detour_1	1,851	277	1,570	0	0	0	0	277	3,874	0	1,440	0	0	5,314	6,909	-6,632	0	0	1,570	244	342	1,229	
IA_21_RampD_Channel	528	270	259	0	0	0	0	270	10	0	49	0	0	59	77	194	0	0	259	228	320	-61	
ENTR0722	1,609	421	1,189	0	0	0	0	421	3,021	0	852	0	0	3,873	5,035	-4,614	0	0	1,189	478	670	520	
<b>Stage 1 Subtotals:</b>	214,679	139,829	74,740	2	1,124	101	67	139,999	473,522	651	64,598	2,153	6,407	547,331	711,535	-571,535	410,443	551,434	74,740	39,156	54,823	19,925	
<b>Stage 2</b>																							
US_30_STG2	63,861	44,699	17,959	895	6,205	308	0	45,902	66,366	1,457	11,286	4,959	1,364	85,432	111,062	-65,160	12,831	53,693	17,959	19,071	26,699	-8,740	
11th_Ave_North	1,823	905	917	0	0	0	0	905	4,136	0	510	0	982	5,628	7,317	-6,412	0	3,065	917	787	1,102	-186	
Detour_2	5,397	3,450	1,840	0	806	112	0	3,562	2,264	0	912	70	0	3,246	4,220	-658	0	0	1,840	1,186	1,661	180	
ENTL0776	4,602	1,838	2,766	0	0	0	0	1,838	4,702	0	1,972	0	0	6,674	8,677	-6,839	0	0	2,766	1,456	2,039	728	
<b>Stage 2 Subtotals:</b>	75,683	50,892	23,482	895	7,011	420	0	52,207	77,468	1,457	14,680	5,029	2,346	100,980	131,276	-79,069	12,831	56,758	23,482	22,500	31,501	-8,018	
<b>Project Totals:</b>	290,362	190,721	98,222	897	8,135	521	67	192,206	550,990	2,108	79,278	7,182	8,753	648,311	842,811	-650,604	423,274	608,192	98,222	61,656	86,325	11,906	
<b>BID ITEMS:</b>																							
<u>EMBANKMENT-IN-PLACE:</u>																							
								650,604 ÷ 1.3 = [16] ÷ 1.3															
								500,465															
<u>EXCAVATION, CLASS 10, ROADWAY AND BORROW:</u>																							
								192,206 [8]															
<u>TOPSOIL, STRIP, SALVAGE AND SPREAD:</u>																							
								98,222 [19]															
<u>COMPACTION WITH MOISTURE CONTROL:</u>																							
								648,311 [14]															

	795+00	795+25	795+50	795+75	796+00	796+25	796+50	796+75	797+00	797+25	797+50	797+75	798+00	798+25	798+34.37	798+50	798+75	799+00	799+25	799+50	799+75	800+00	800+25	800+29.12
Elevation Line "A"	928.41	929.01	929.61	930.20	930.79	931.37	931.95	932.52	933.08	933.63	934.17	934.71	935.24	935.77	935.96	936.28	937.79	937.23	937.79	938.28	938.76	939.23	939.70	939.77
Line "A" to Line "B" Offset															2.00	3.34	5.62	8.05	10.64	13.39	16.30	19.37	22.60	23.15
Line "B" Slope															2.0%	Constant 2%								2.0%
Elevation Line "B"															935.92	936.21	936.78	937.07	937.58	938.01	938.43	938.84	939.25	939.31
Line "B" to Line "C" Offset															14.00	Constant 14' Width								14.00
Line "C" Slope															2.0%	Constant 2%								2.0%
Line "A" to Line "C" Offset	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	7.02	8.36	9.85	11.50	13.31	15.27	16.00	17.40	19.68	22.12	24.72	27.48	30.40	33.48	36.73	37.27
Line "C" Slope	2%	Constant 2%											Constant 2%								2%			
Elevation Line "C"	928.29	928.89	928.49	930.08	930.67	931.25	931.83	932.40	932.94	933.46	933.97	934.48	934.97	935.46	935.64	935.93	936.40	936.79	937.30	937.73	938.15	938.56	938.97	939.02

Kane TWP.  
T-83N R-12W  
SEC. 29



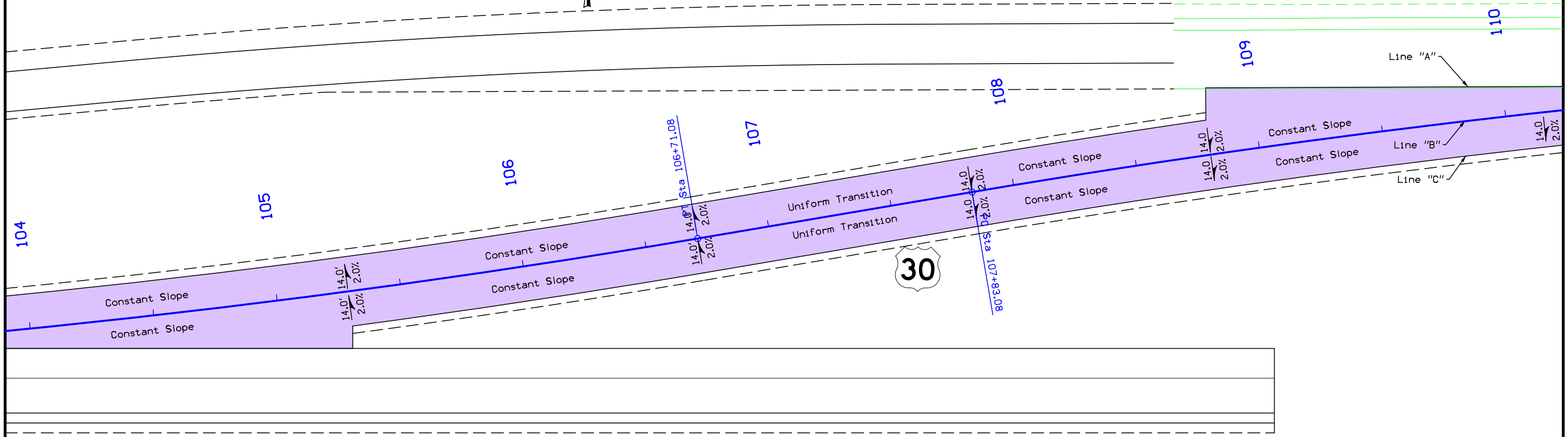
Curve Data  
 $\Delta = 9^\circ 36' 44.93''$  (LT)  
 T = 336.33  
 L = 671.08  
 R = 4,000.00  
 E = 14.11



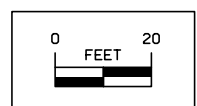
Geometric and Staking Details  
 US 30 Crossover 1  
 (Sheet 1 of 3)



Kane TWP.  
T-83N R-12W  
SEC. 29

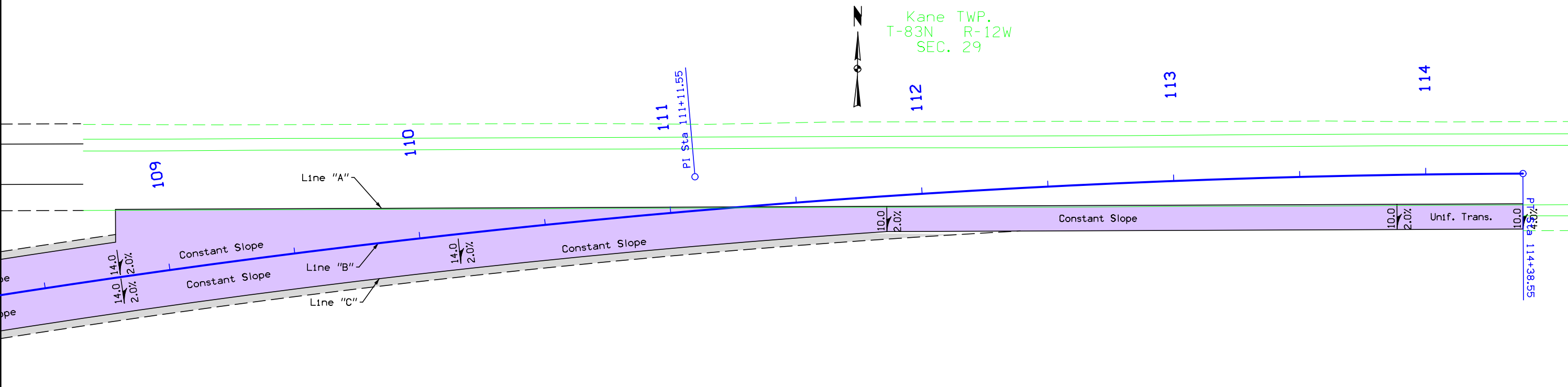


4.93" (LT)

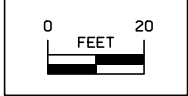


Geometric and Staking Details  
US 30 Crossover 1  
(Sheet 2 of 3)

	803+72.40	803+75	804+00	804+25	804+50	804+75	805+00	805+25	805+50	805+75	805+96.38	806+00	806+25	806+50	806+75	807+00	807+25	807+50	807+75	808+00	808+25	808+50	808+75	809+00	809+25	809+30.78	
Elevation Line "A"	945.66	945.70	946.06	946.41	946.75	947.08	947.41	947.73	948.05	948.35	948.61	948.65	948.94	949.23	949.51	949.78	950.04	950.29	950.54	950.78	951.02	951.24	951.46	951.68	951.88	951.93	
Line "A" to Offset	27.18	26.81	23.38	20.11	17.00	14.05	11.26	8.63	6.16	3.85	2.00																
Line "B" Slope	2.%	Constant 2%											2.%														
Elevation Line "B"	945.12	945.16	945.59	946.01	946.41	946.80	945.48	947.56	947.93	948.27	948.57																
Line "B" to Offset	14.00	Constant 14' Width											14.00														
Line "C" Slope	2.%	Constant 2%											2.%														
Line "A" to Offset	41.32	40.95	37.51	34.23	31.11	28.15	25.35	22.71	20.23	17.91	16.00	15.75	13.75	11.90	10.20	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	
Line "C" Slope	2.%	Constant 2%											2.%	Constant 2%											2%		
Elevation Line "C"	944.83	944.88	945.31	945.73	946.13	946.52	947.22	947.28	947.65	947.99	948.29	948.34	948.67	948.99	949.31	949.58	949.84	950.09	950.34	950.58	950.82	951.04	951.26	951.48	951.68	951.73	

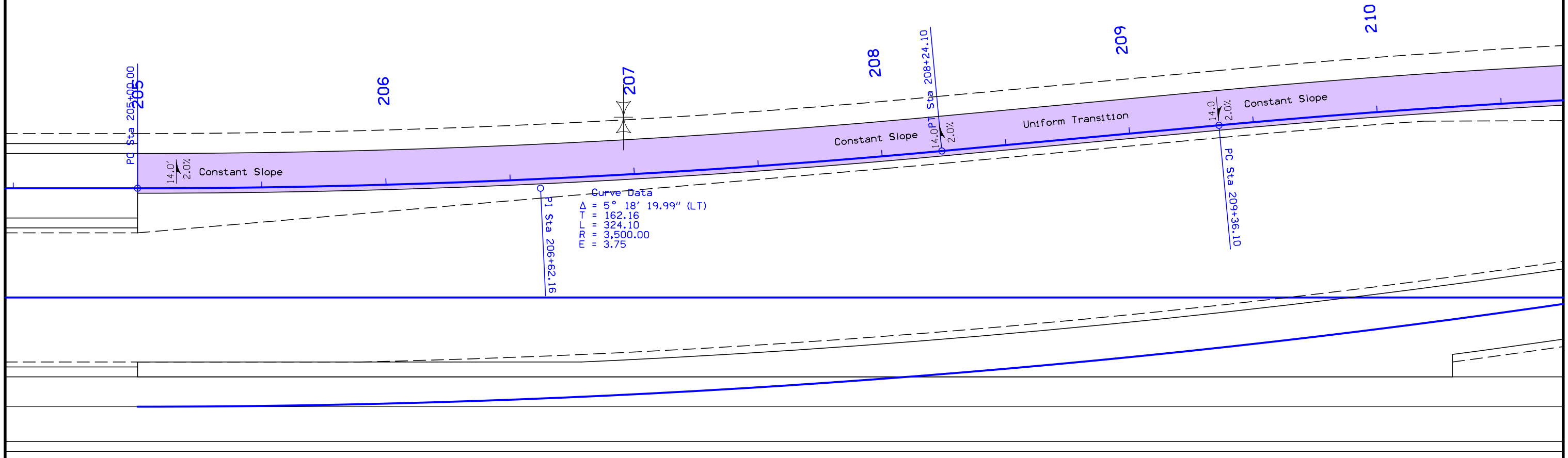


Curve Data  
 $\Delta = 9^\circ 23' 20.19''$  (RT)  
T = 328.47  
L = 655.47  
R = 4,000.00  
E = 13.46



Geometric and Staking Details  
US 30 Crossover 1  
(Sheet 3 of 3)

Kane TWP.  
T-83N R-12W  
SEC. 29



Curve Data  
 $\Delta = 5^\circ 18' 19.99''$  (LT)  
T = 162.16  
L = 324.10  
R = 3,500.00  
E = 3.75

Geometric and Staking Details  
US 30 Crossover 2  
(Sheet 1 of 2)



Kane TWP.  
T-83N R-12W  
SEC. 29



PI Sta 210+91.42  
211

212

213

214

215

216

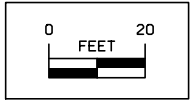
Constant Slope

14.0  
2.0%

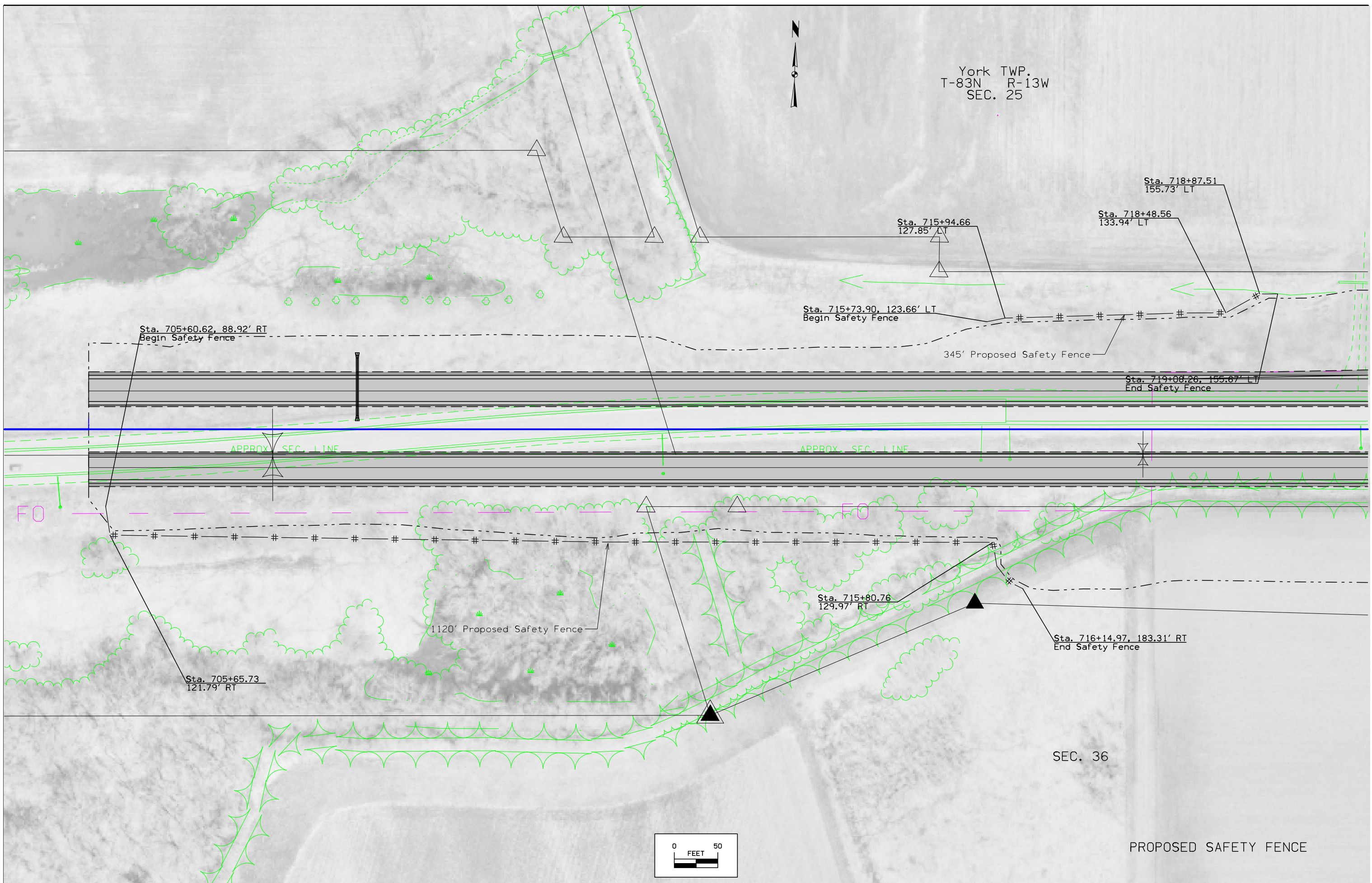
Curve Data  
 $\Delta = 5^{\circ} 04' 55.25''$  (RT)  
T = 155.32  
L = 310.44  
R = 3,500.00  
E = 3.44

PI Sta 212+46.54

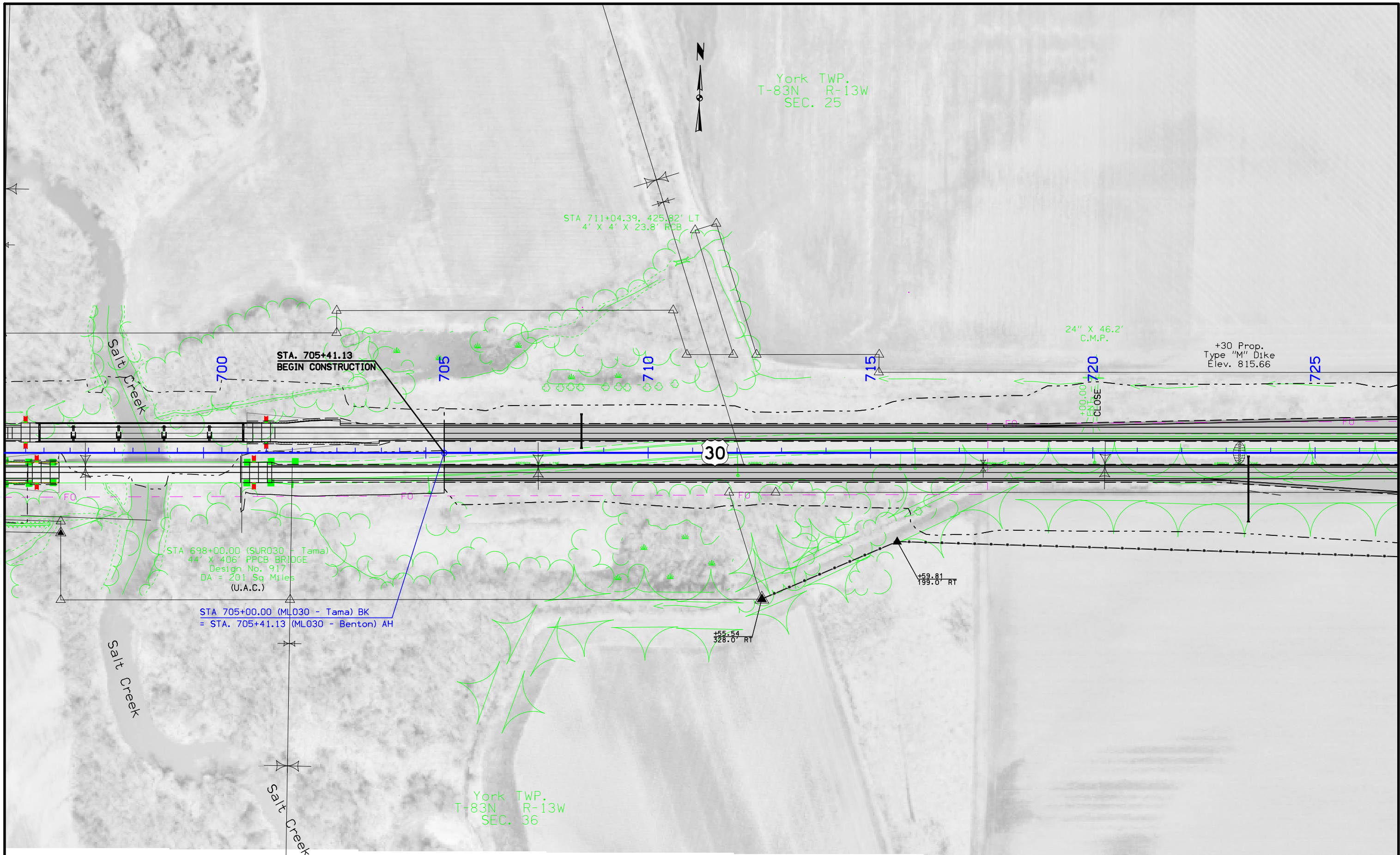
Geometric and Staking Details  
US 30 Crossover 2  
(Sheet 1 of 2)



York TWP.  
T-83N R-13W  
SEC. 25

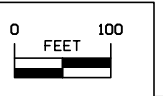


PROPOSED SAFETY FENCE



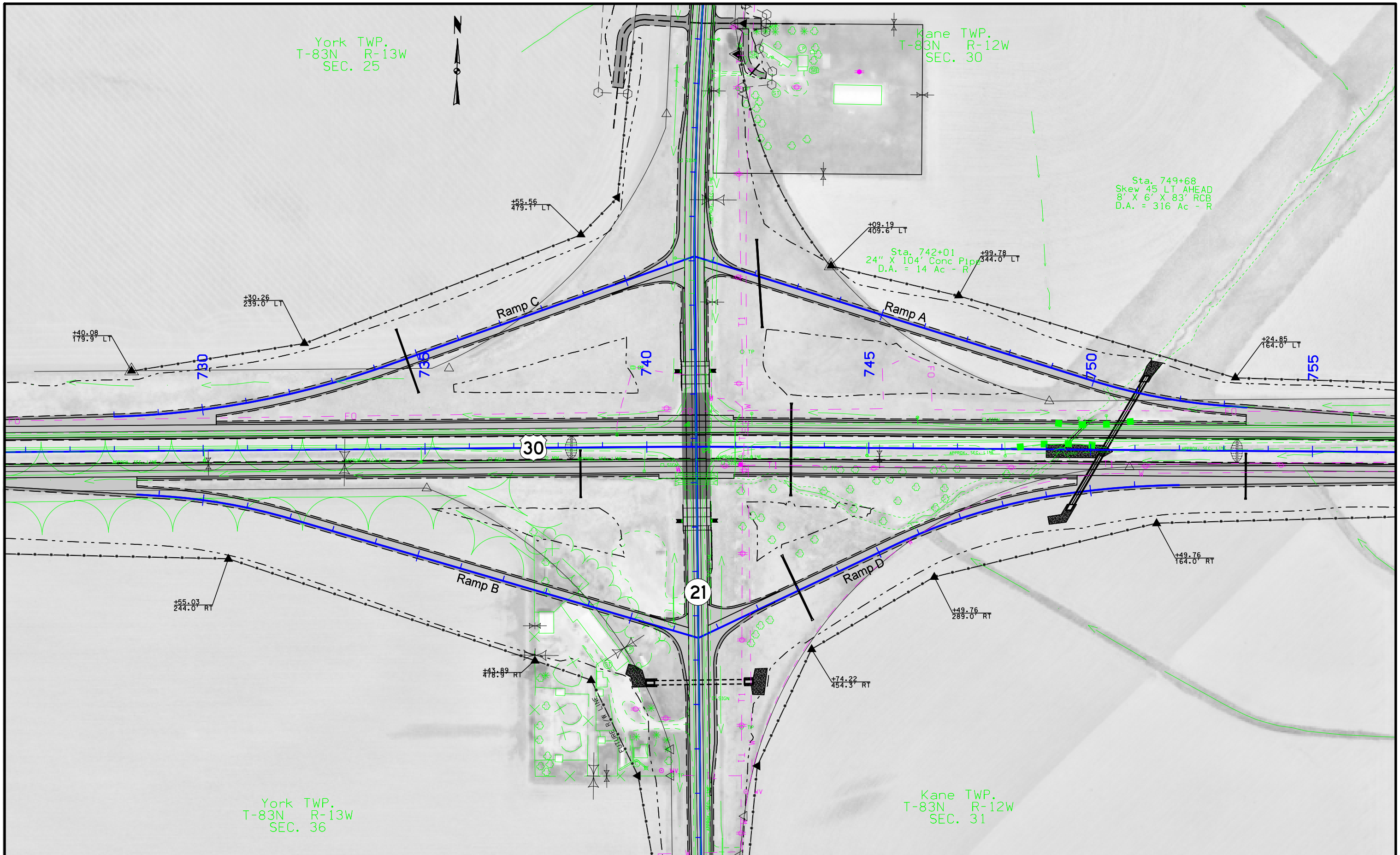
York TWP.  
T-83N R-13W  
SEC. 25

York TWP.  
T-83N R-13W  
SEC. 36



U.S. Highway 30  
Fencing Details





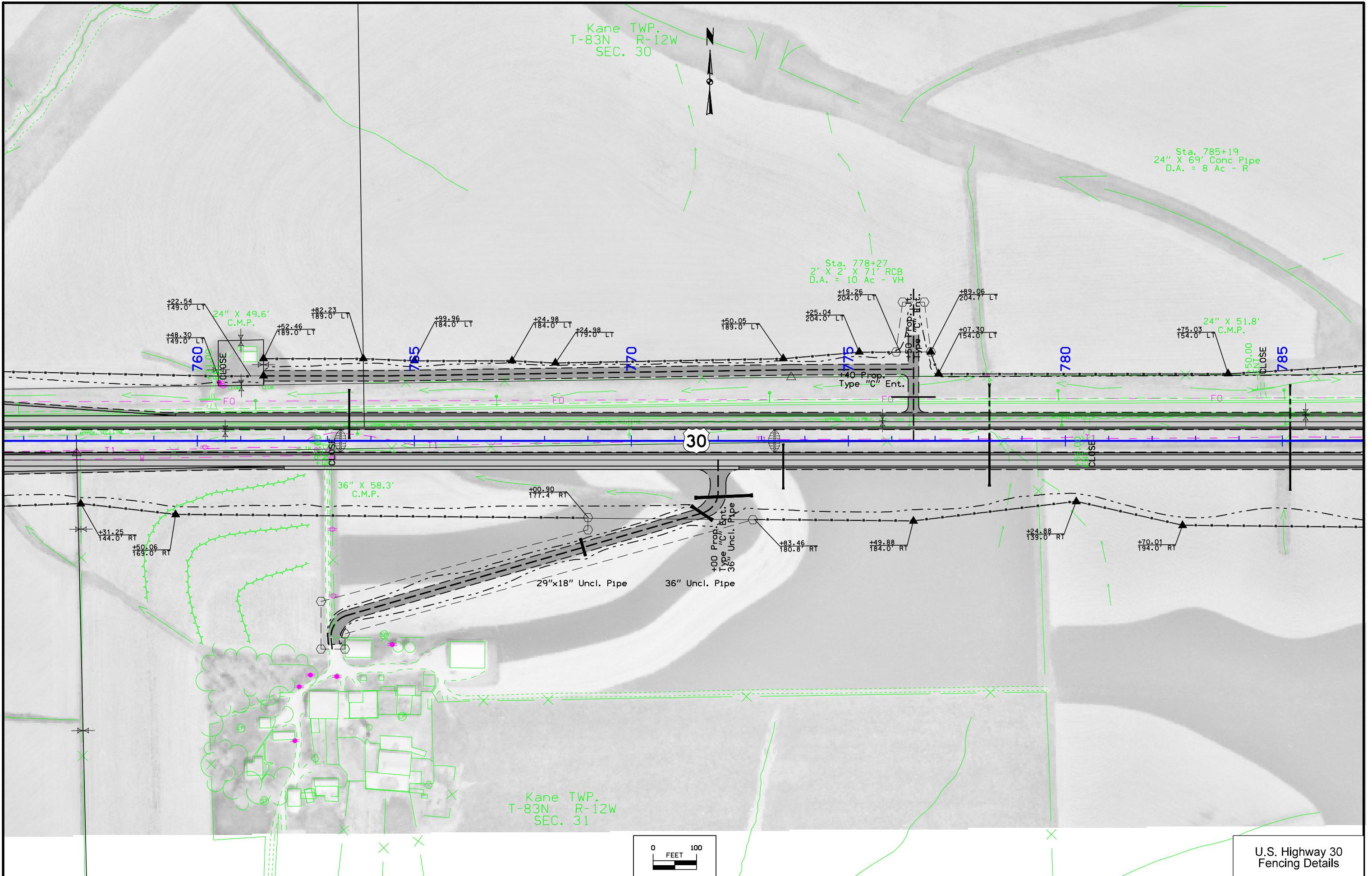
U.S. Highway 30  
Fencing Details

Kane TWP.  
T-83N R-12W  
SEC. 30

Sta. 785+19  
24" X 69' Conc Pipe  
D.A. = 8 Ac - R

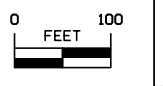
Sta. 778+27  
2' X 2' X 71' RCB  
D.A. = 10 Ac - VH

24" X 51.8'  
C.M.P.



30

Kane TWP.  
T-83N R-12W  
SEC. 31



U.S. Highway 30  
Fencing Details



Kane TWP.  
T-83N R-12W  
SEC. 29

Fifth Avenue

POT Sta. 790+39.23 (ML030)  
= POT Sta. 11790+40 (SR11THAVE)

+15.82  
204.0' LT

+16.16  
182.8' LT

+18.41  
164.0' LT

+43.84  
204.0' LT

+34.25  
184.1' LT

+67.09  
164.0' LT

STA. 795+00.00  
END WB CONSTRUCTION

800

805

810

815

30

+78.92  
187.3' RT

+21.86  
154.0' RT

STA. 804+00.00  
END EB CONSTRUCTION

+50.06  
154.0' RT

+39.88  
164.0' RT

Sta. 794+87  
24" X 67' Conc Pipe  
D.A. = 13 Ac - R

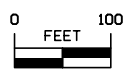
Sta. 816+56  
4' X 5' X 40' W/ EXTS RCB  
D.A. = 22 Ac - GR

+49.95  
199.0' RT

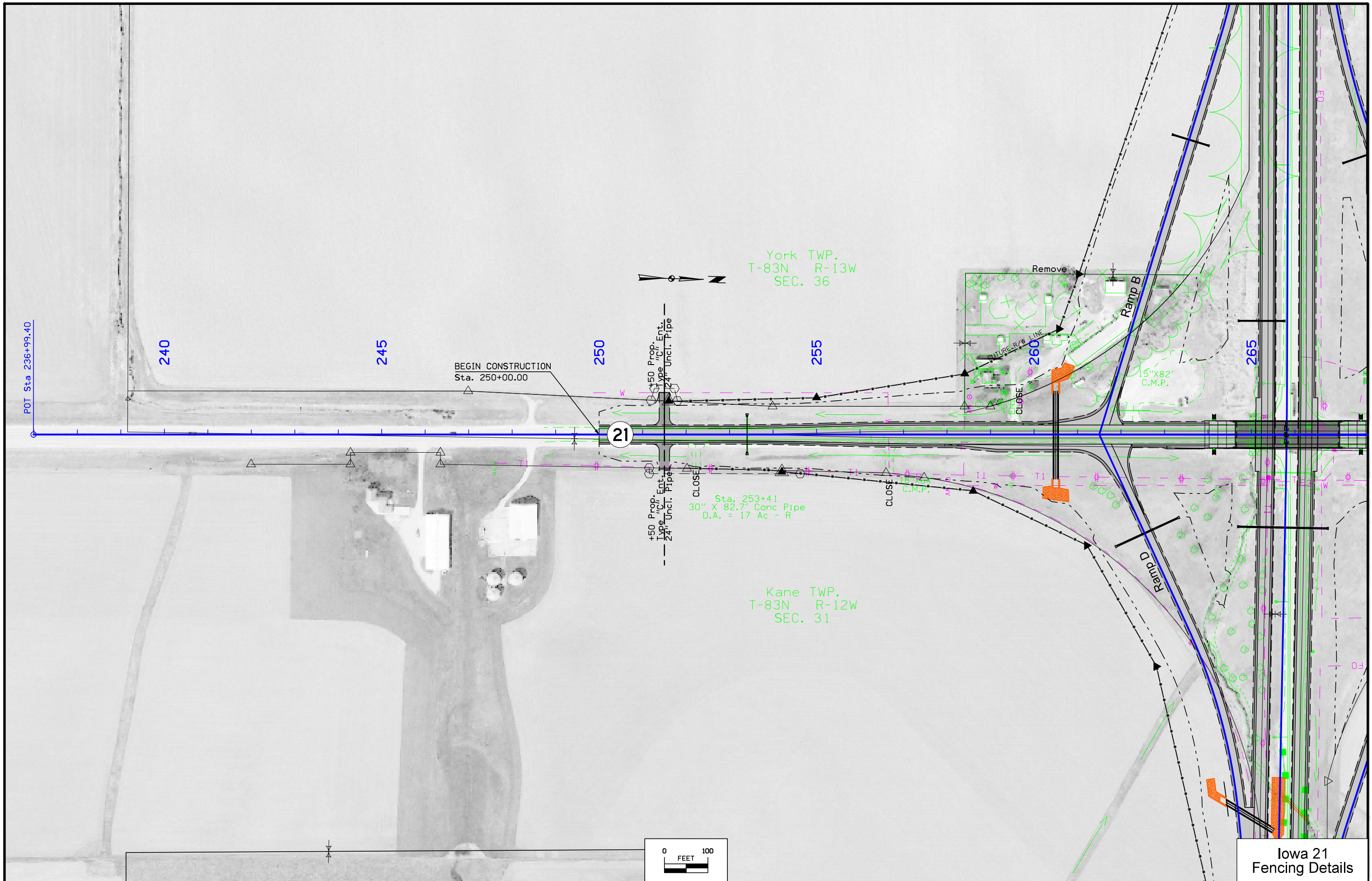
Sta. 788+97  
3' X 3' X 65' RCB  
D.A. = 38 Ac - R

+70 Prop.  
Type "M" Dike  
Elev. 924.36

Kane TWP.  
T-83N R-12W  
SEC. 32

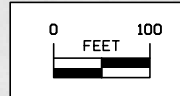


U.S. Highway 30  
Fencing Details

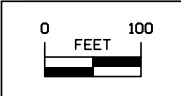
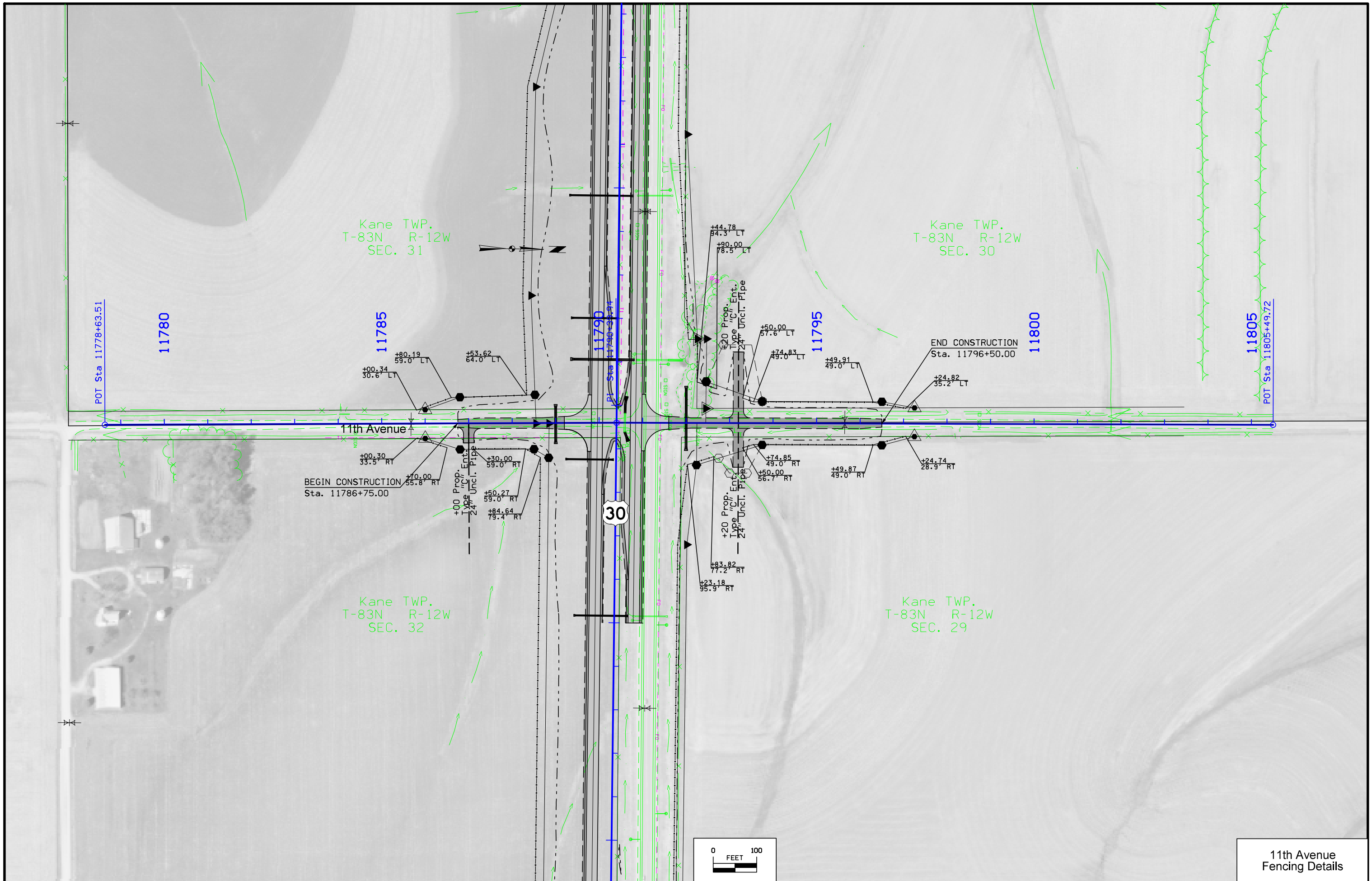


Iowa 21  
Fencing Details



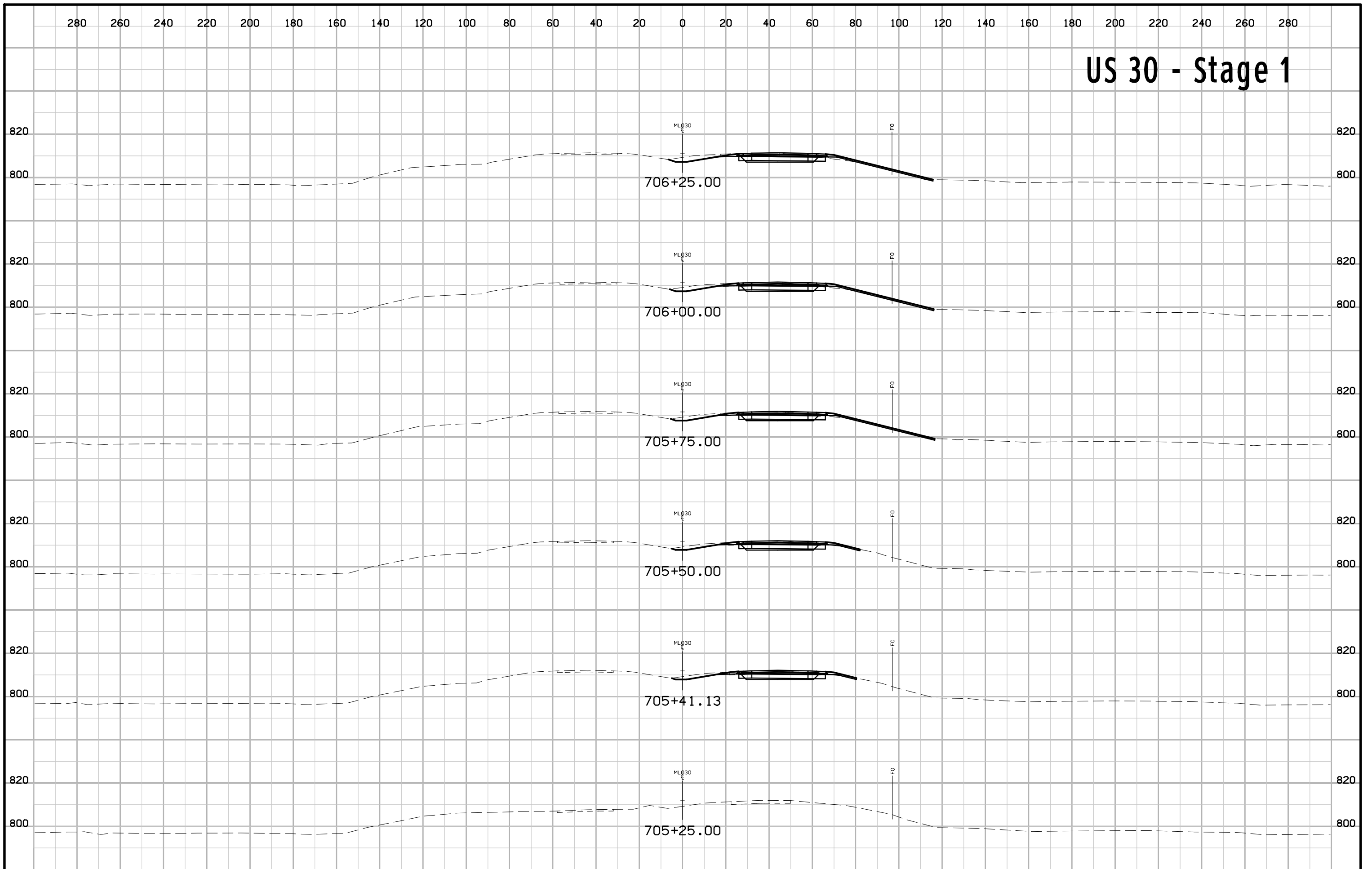


Iowa 21  
Fencing Details



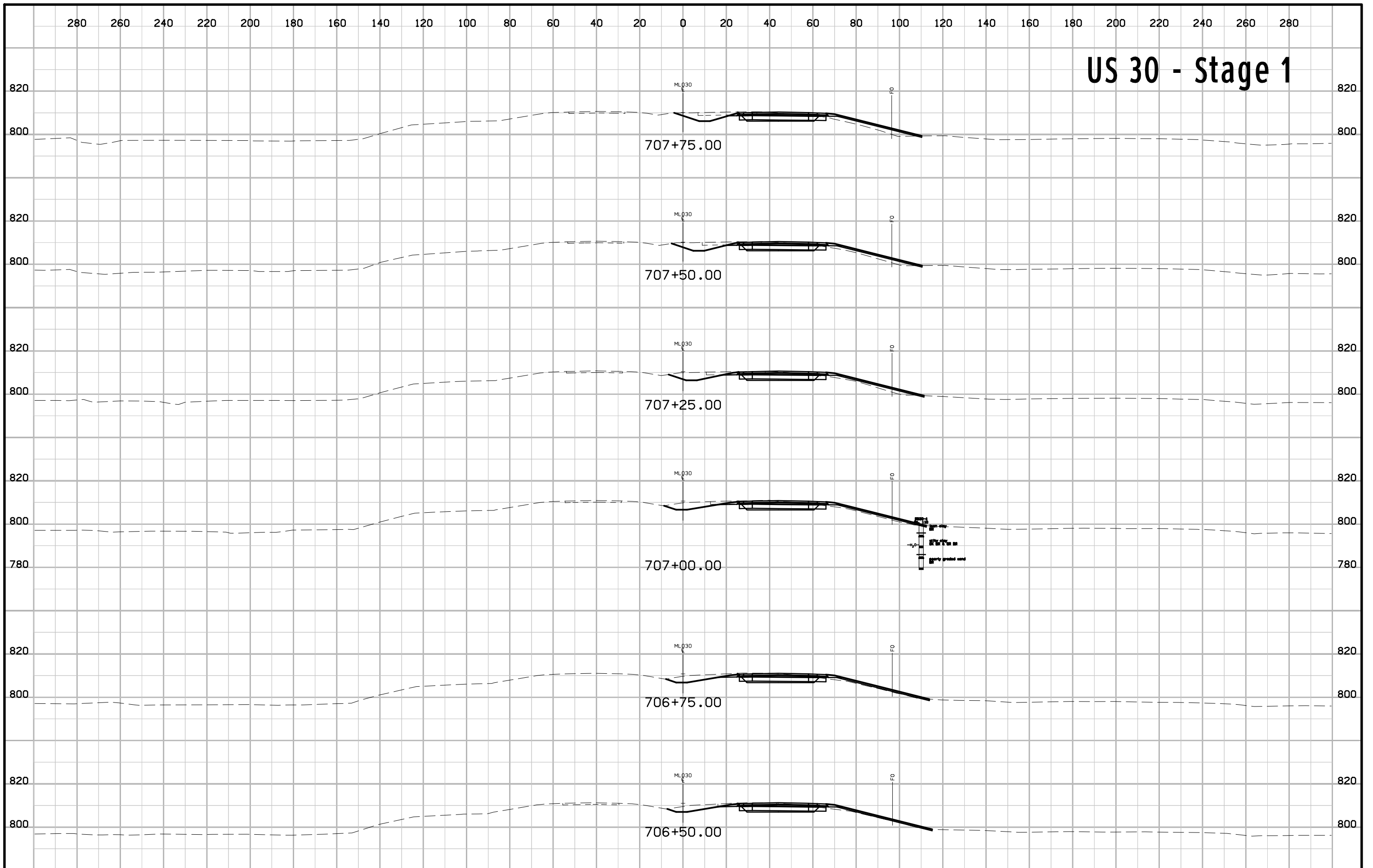
11th Avenue  
Fencing Details

# US 30 - Stage 1

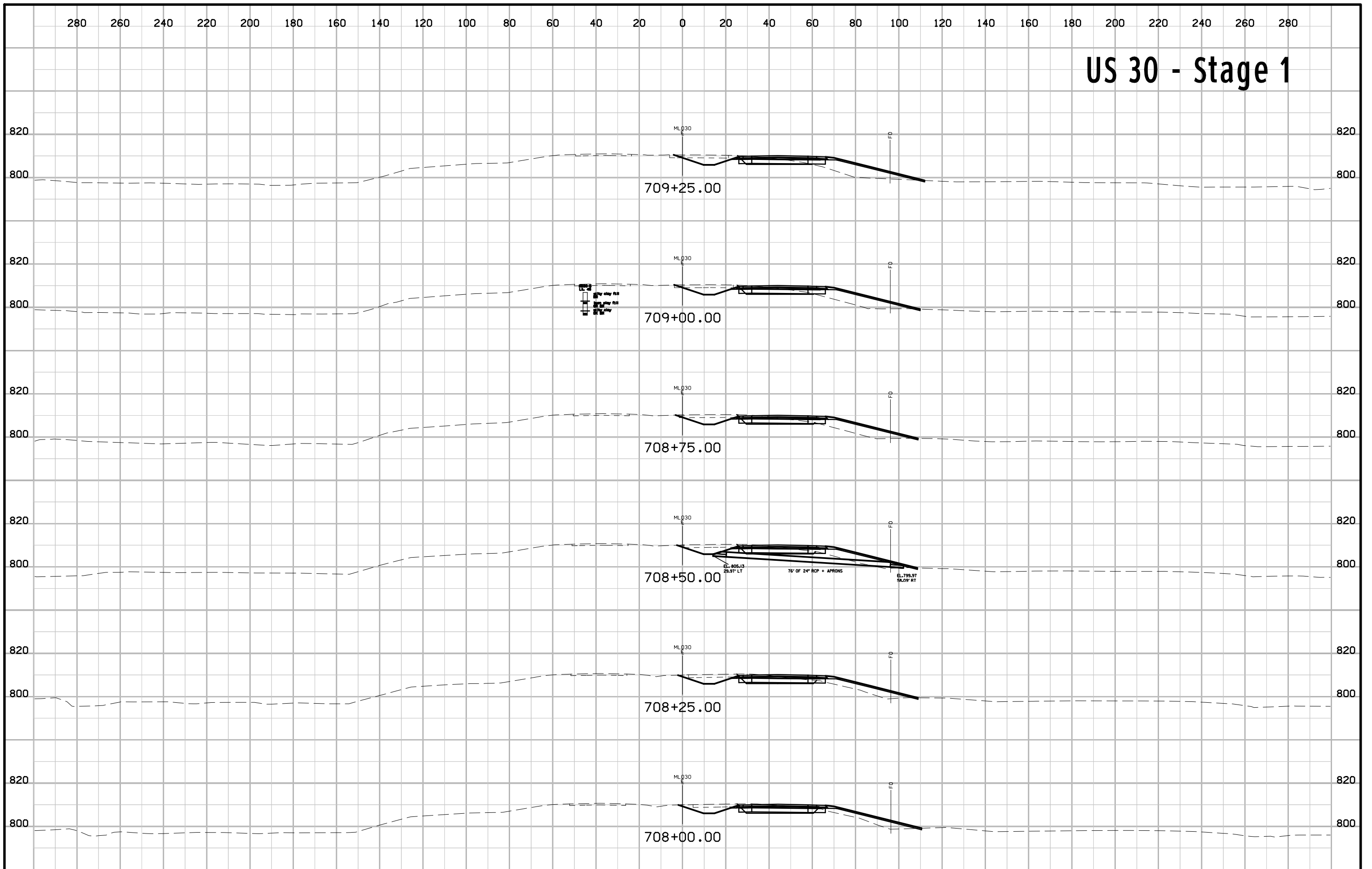




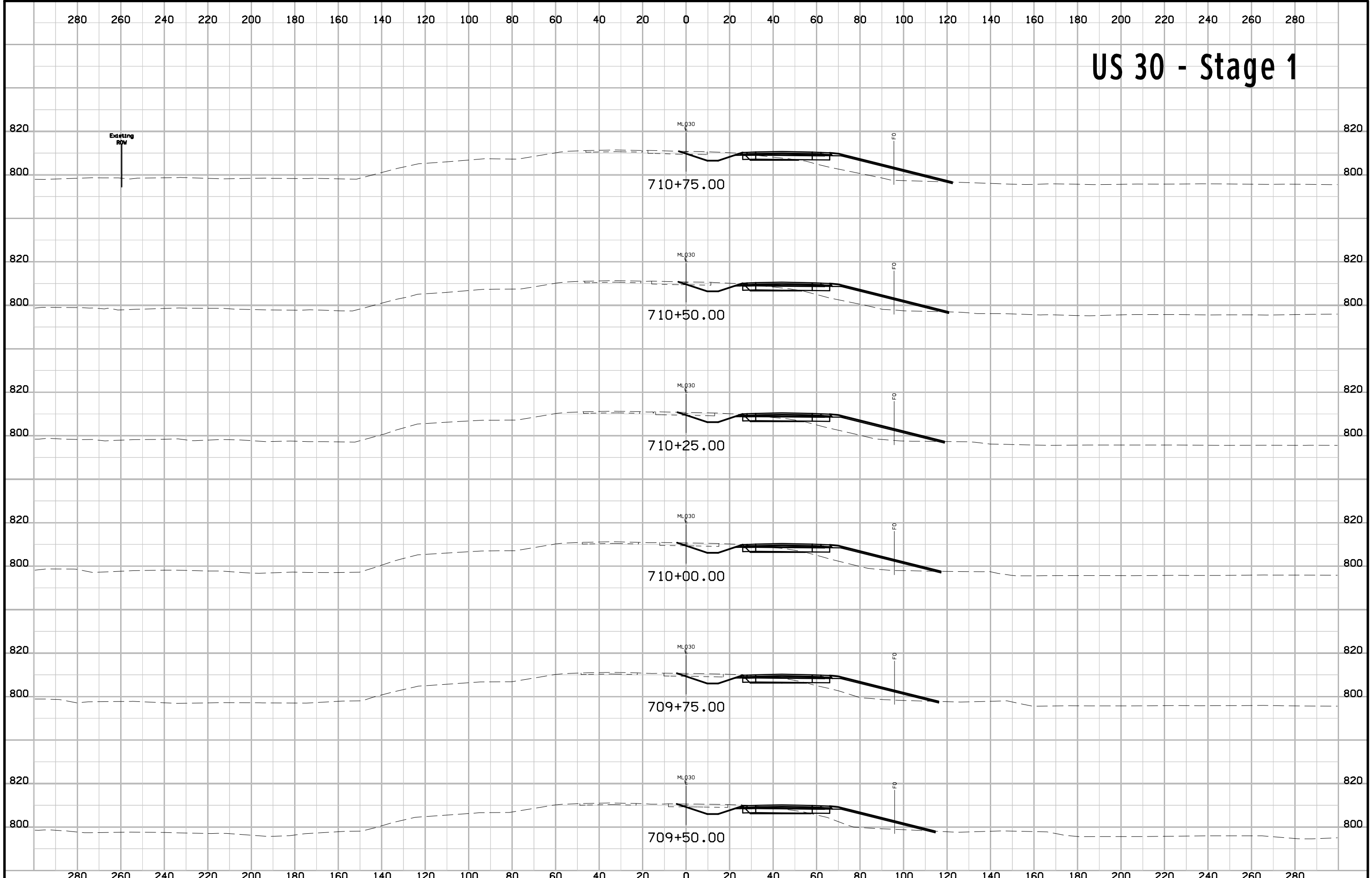
# US 30 - Stage 1



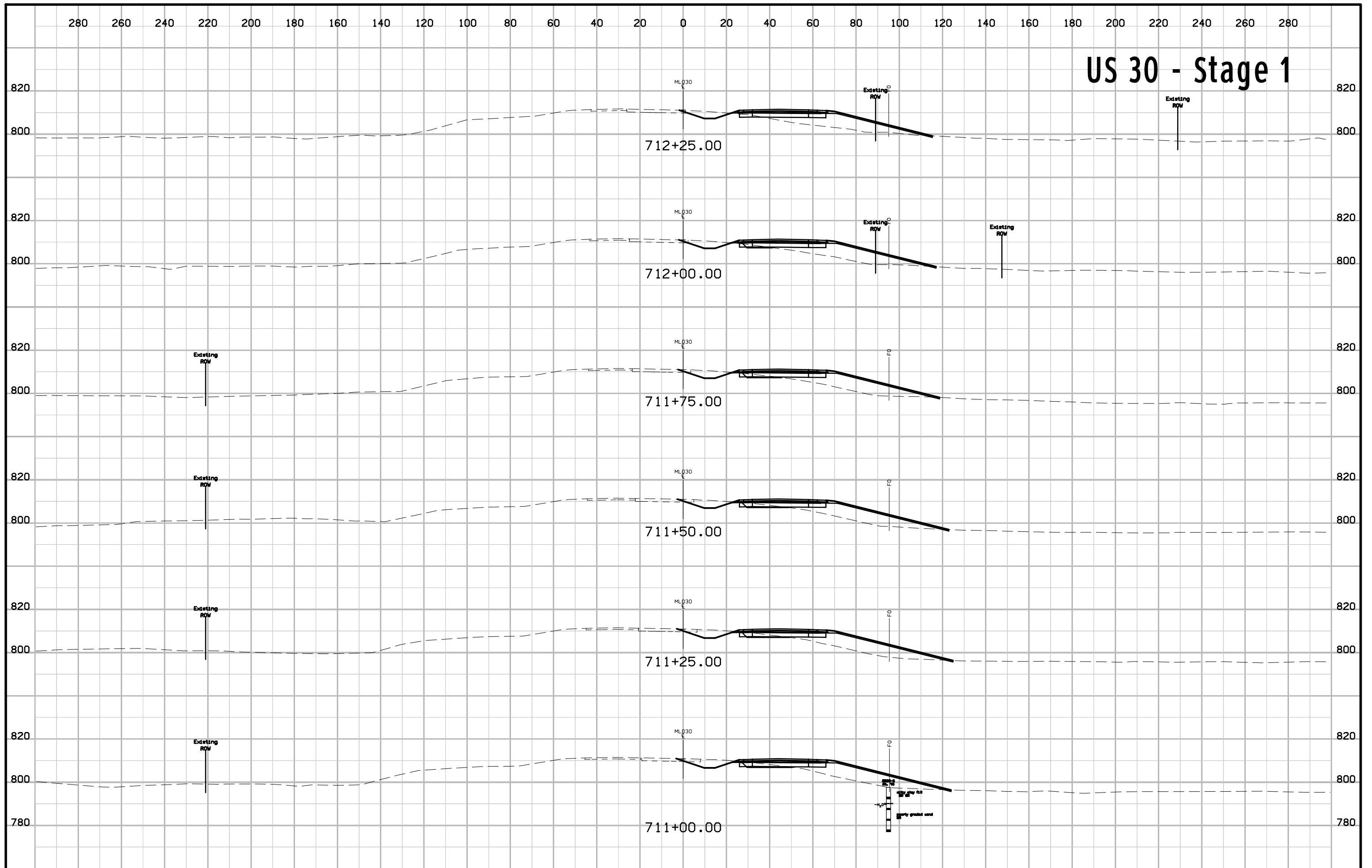
# US 30 - Stage 1



# US 30 - Stage 1

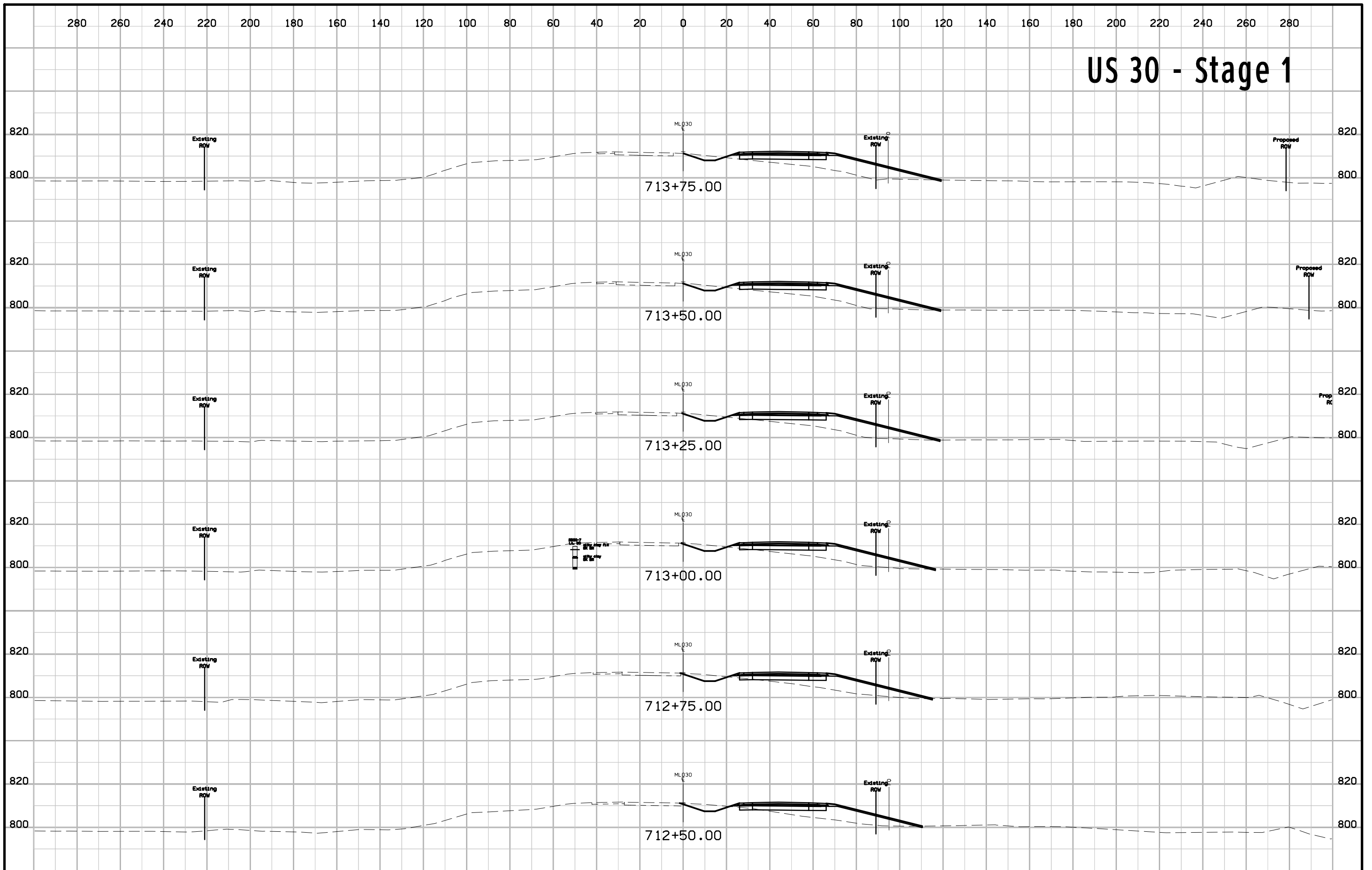


# US 30 - Stage 1

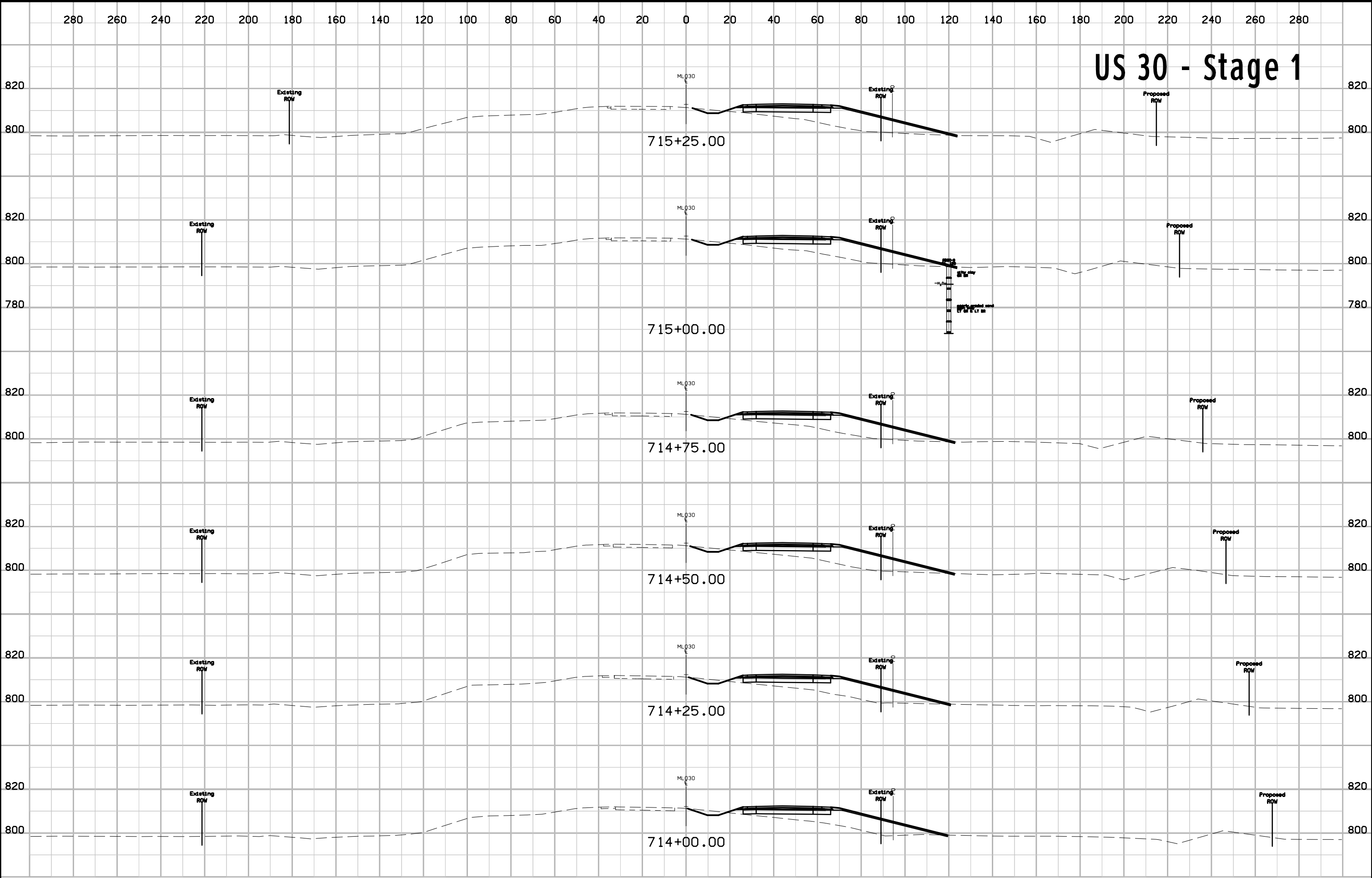




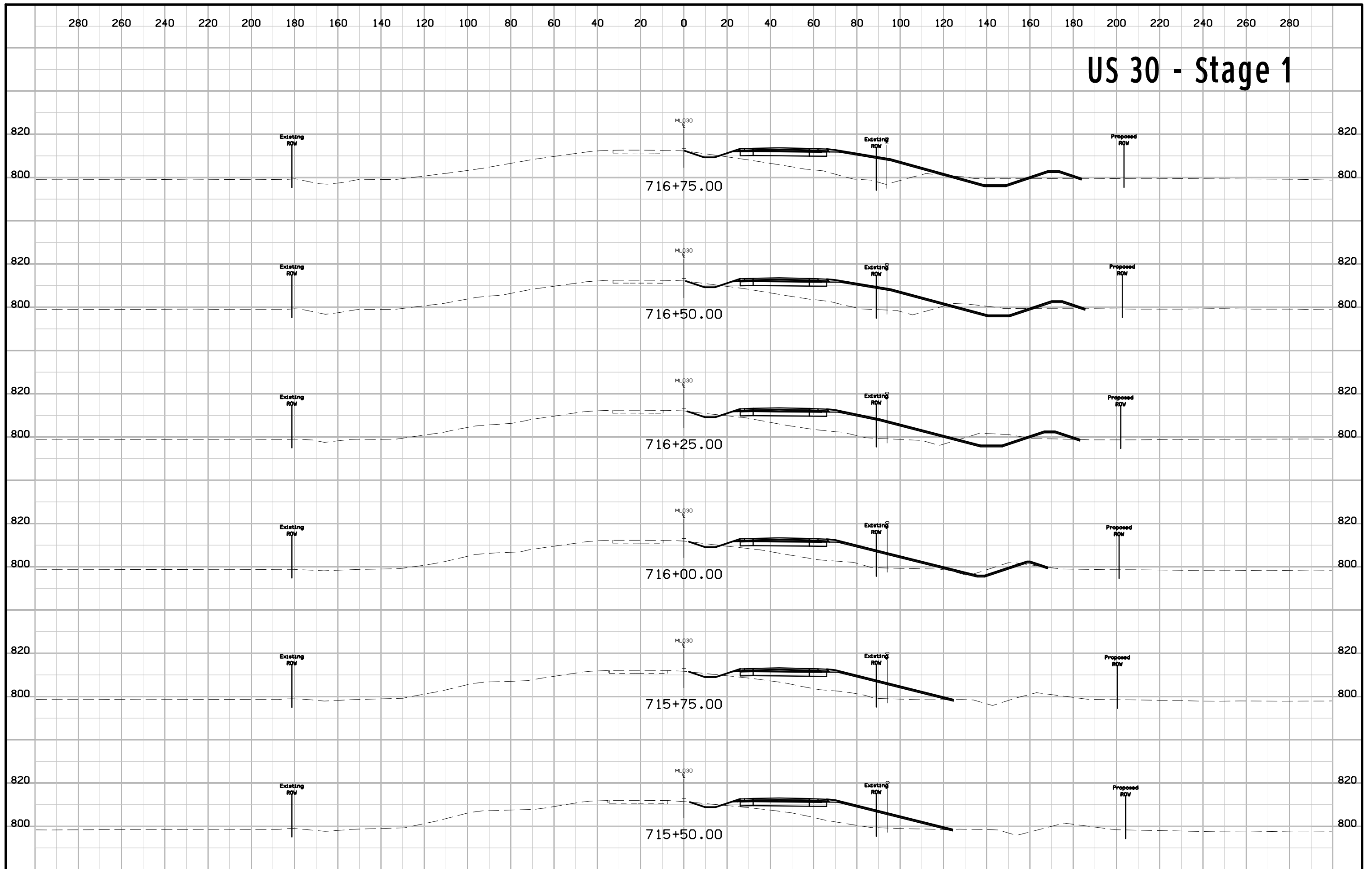
# US 30 - Stage 1



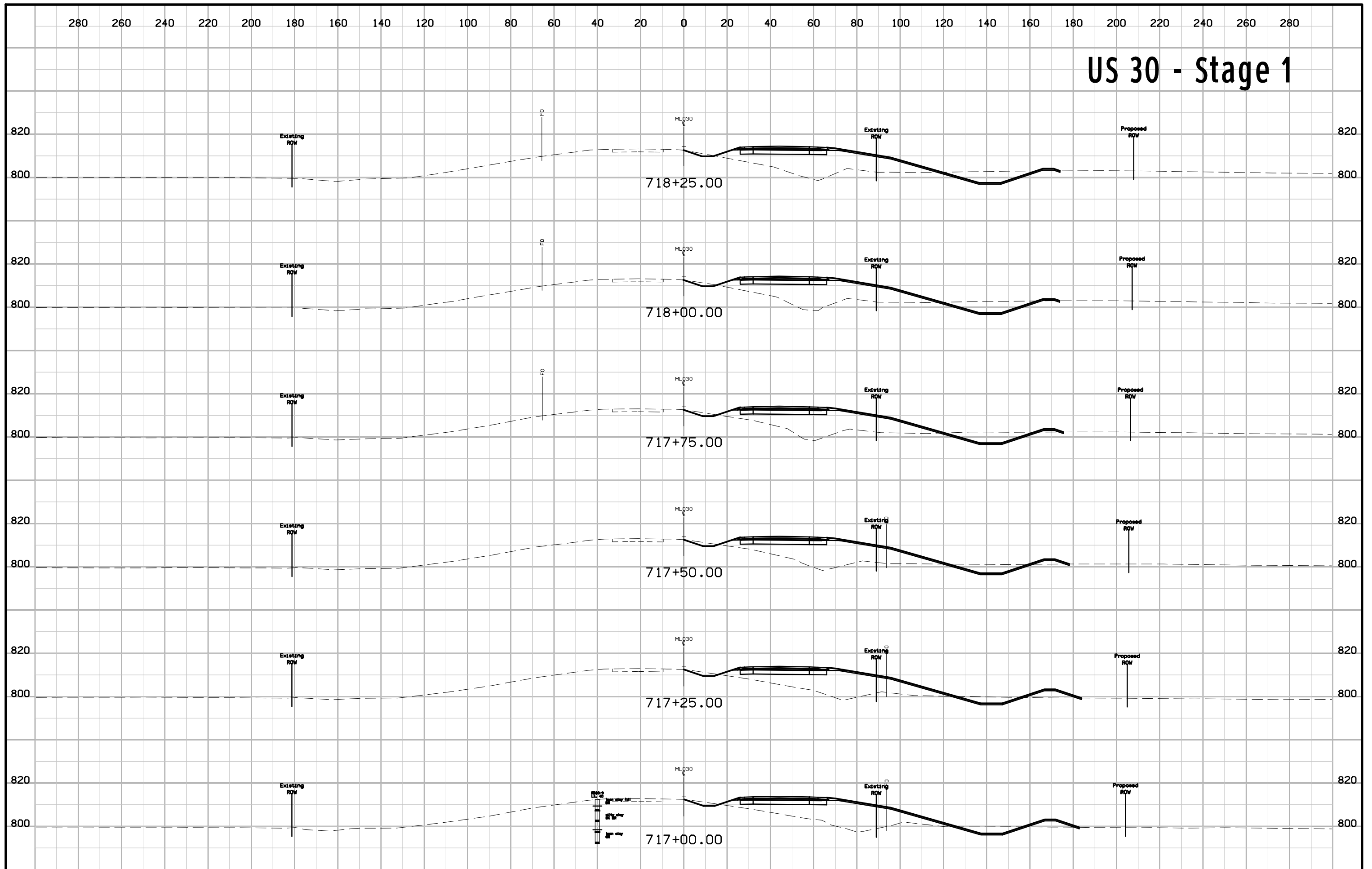
# US 30 - Stage 1



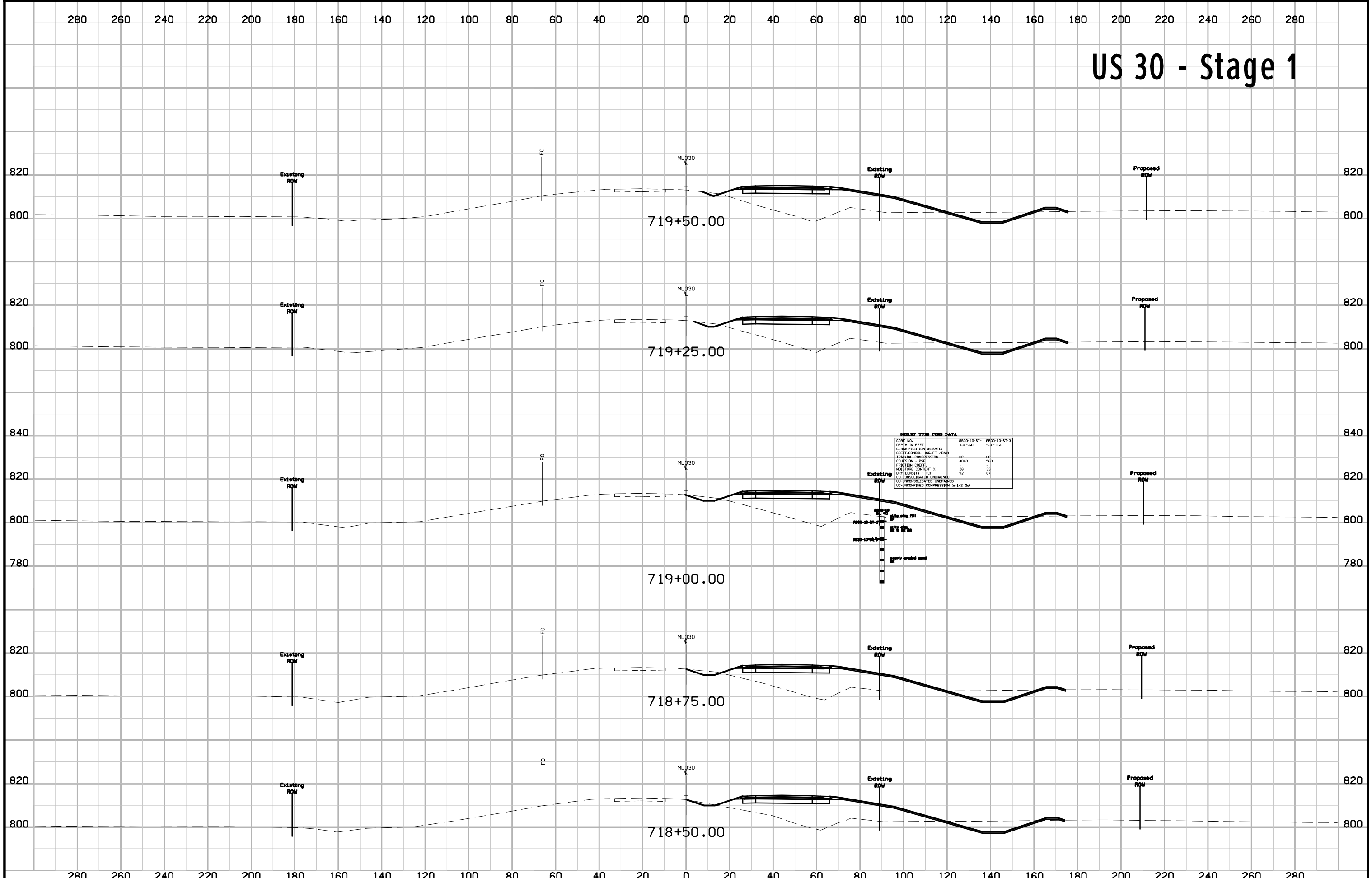
# US 30 - Stage 1



# US 30 - Stage 1

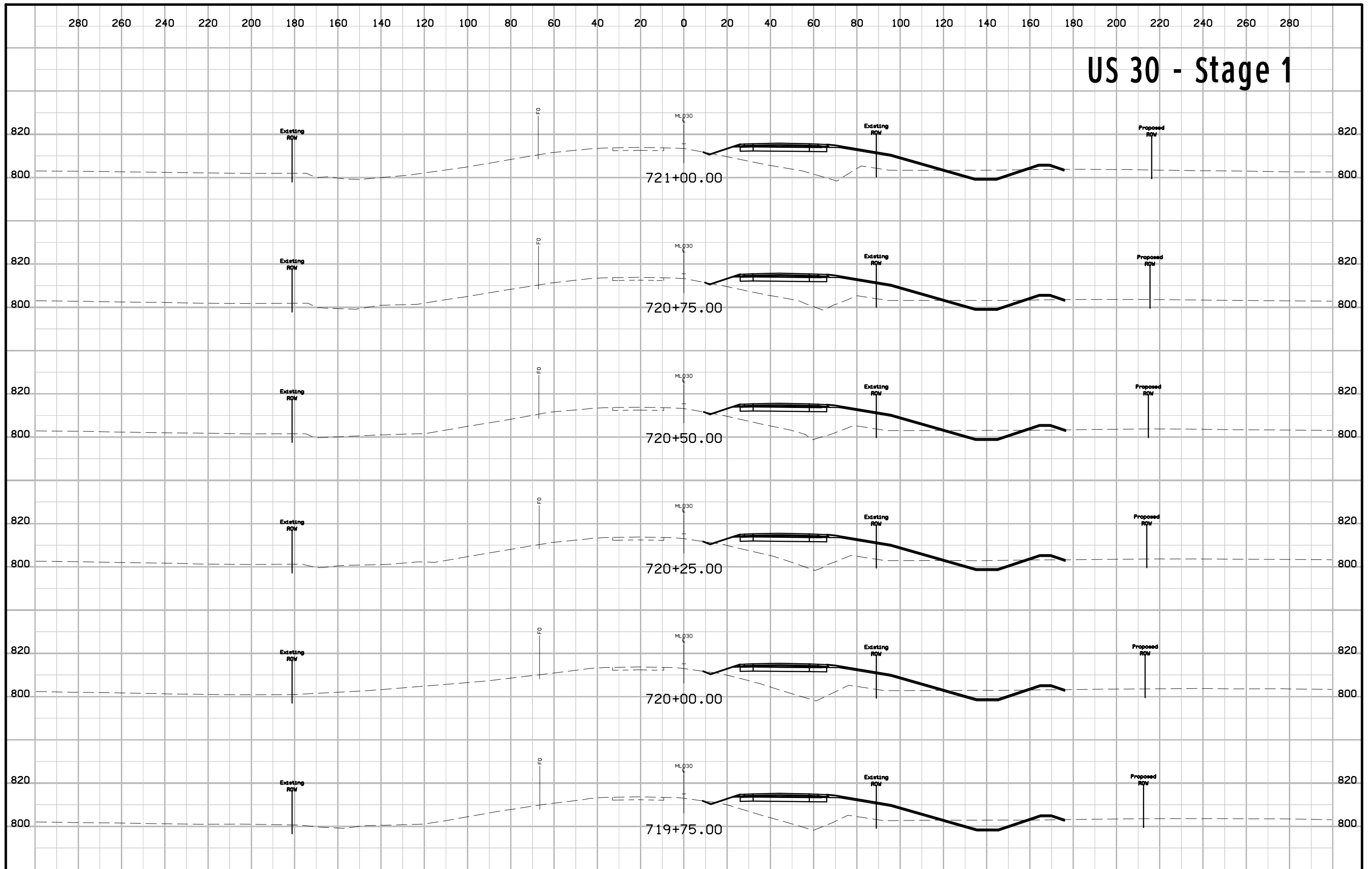


# US 30 - Stage 1

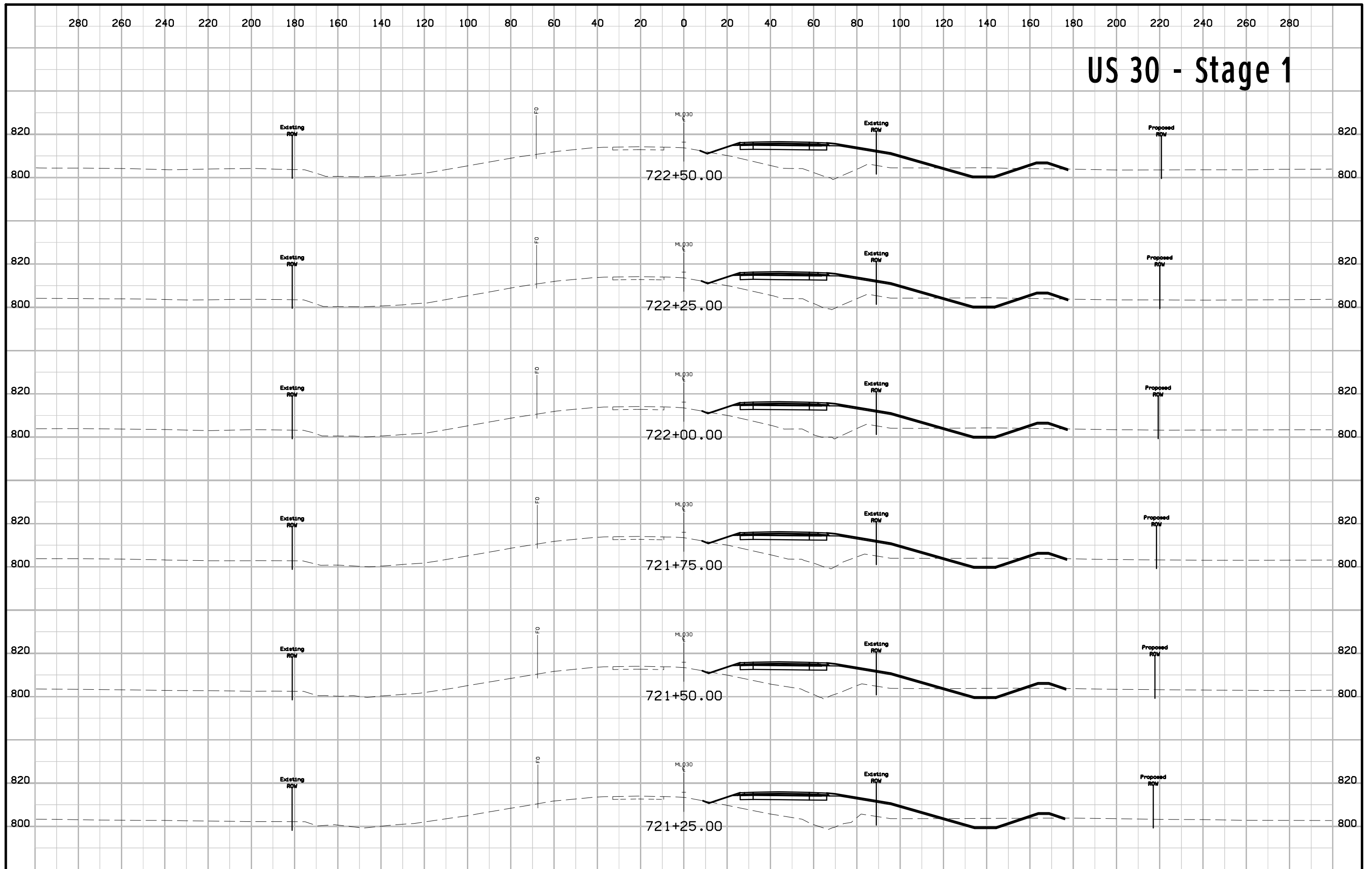




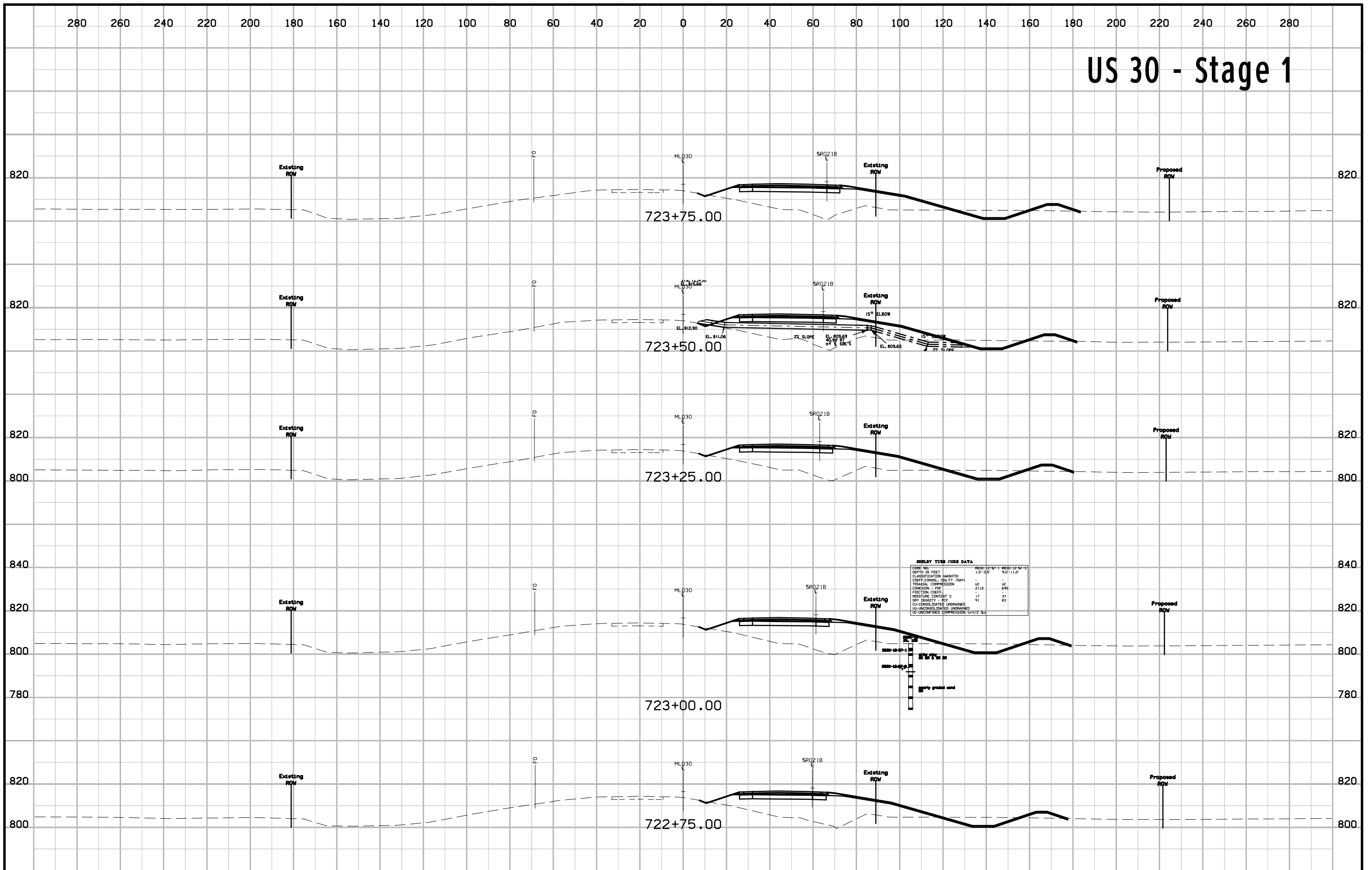
# US 30 - Stage 1



# US 30 - Stage 1



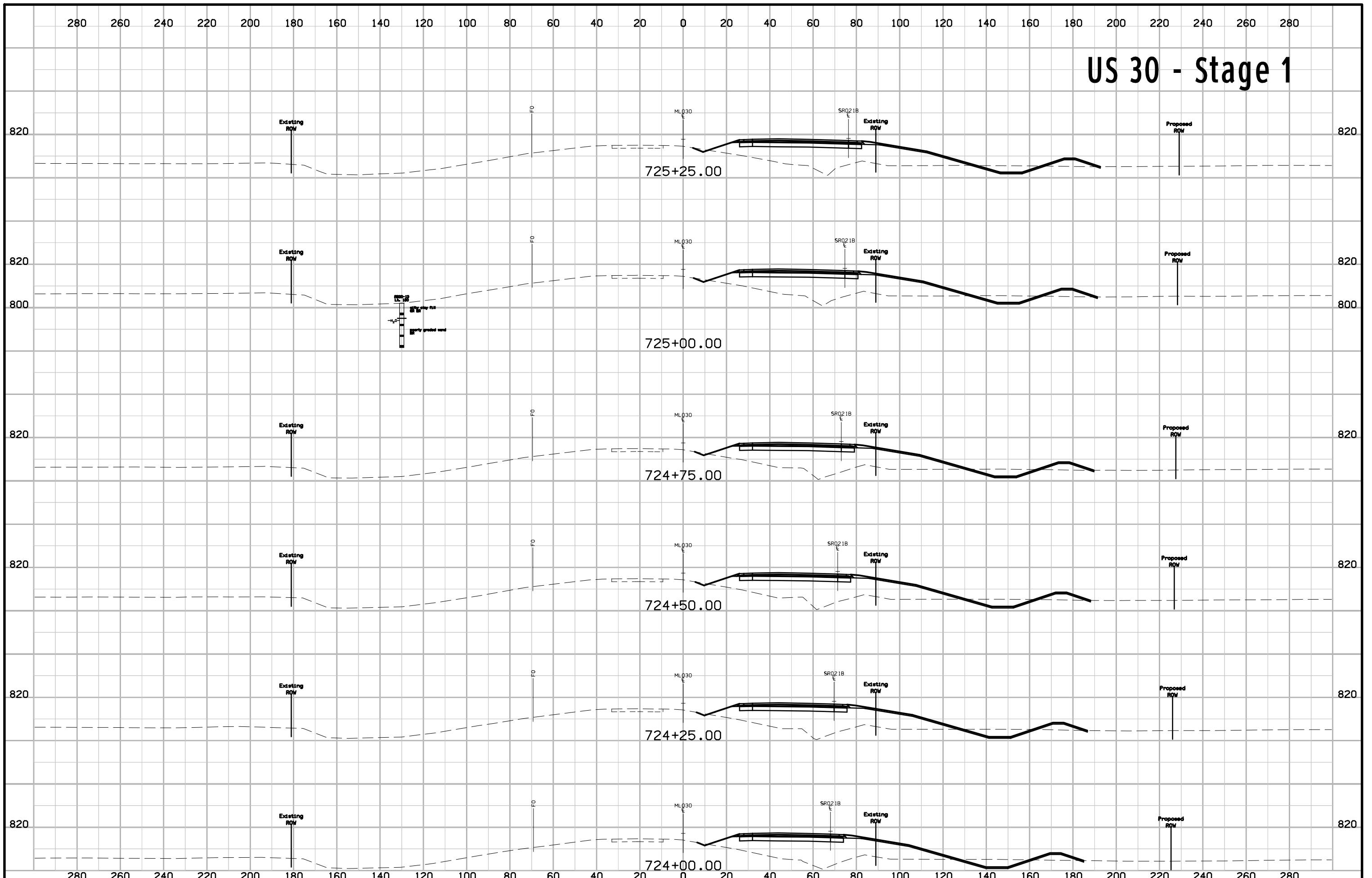
# US 30 - Stage 1



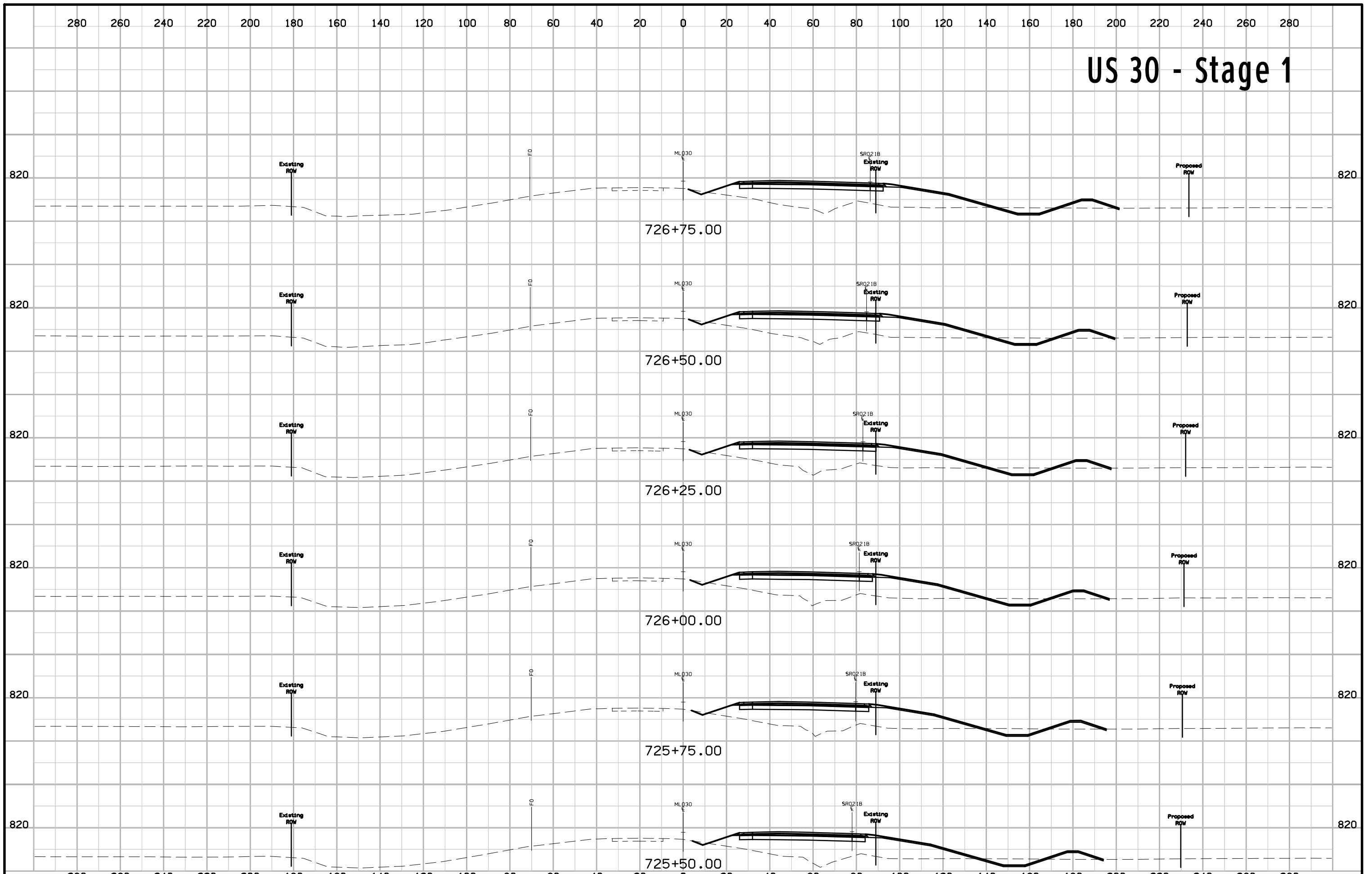
**SHIELT TUBE CORE DATA**

CORE NO.	R300-12-91-1	R300-12-91-3
DEPTH IN FEET	1.5'-3.0'	4.0'-11.0'
CLASSIFICATION (ASHSTO)	-	-
COEFF. CONSOL. (100 FT / DAY)	UC	UC
TRIAL COMPRESS	2112	690
COHESION - PSF	17	37
FRICTION COEFF.	91	83
MOISTURE CONTENT %	-	-
DRY DENSITY - PCF	-	-
U-UNCONSOLIDATED UNDRAINED	-	-
UC-UNCONSOLIDATED UNDRAINED	-	-
UC-UNCONSOLIDATED UNDRAINED	-	-

# US 30 - Stage 1

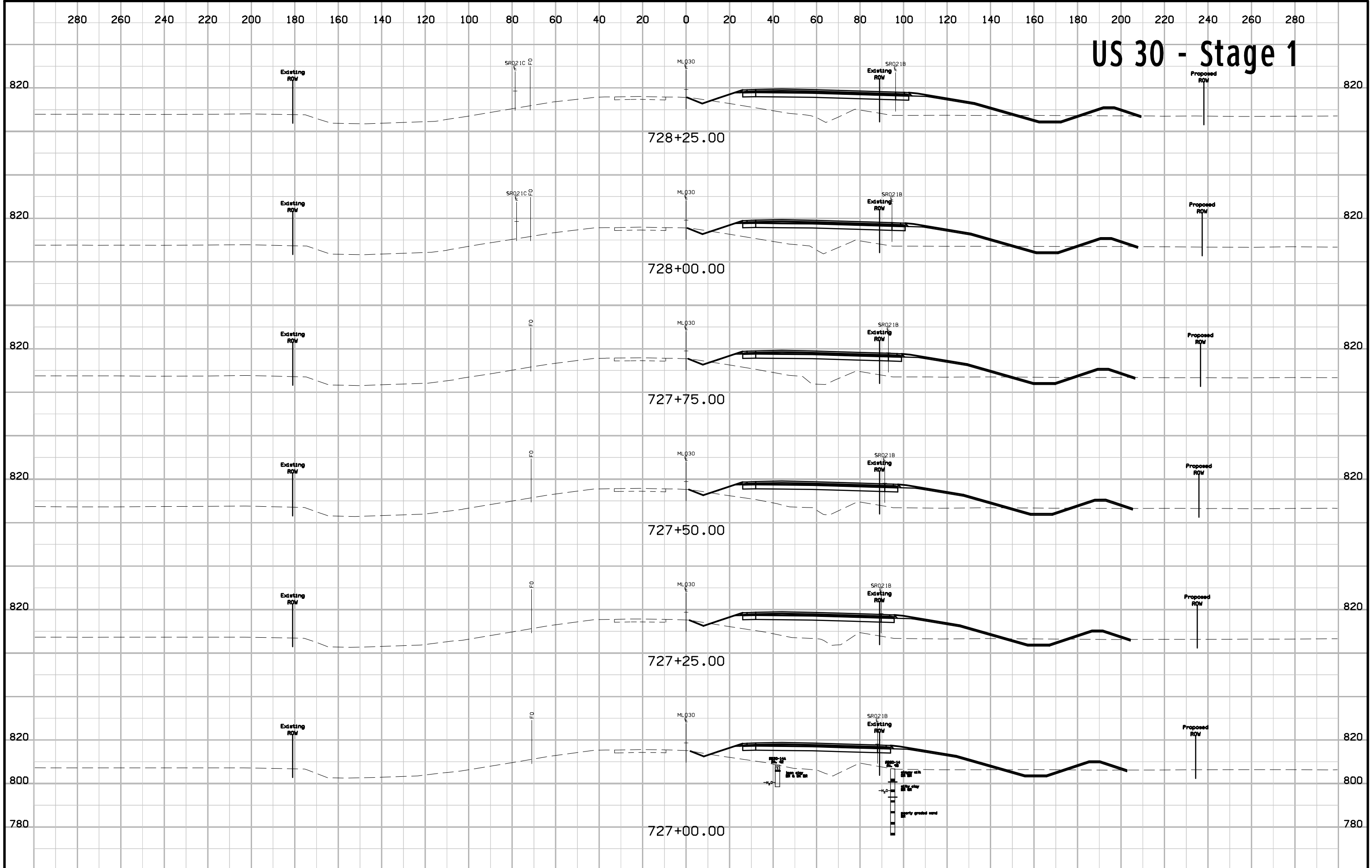


# US 30 - Stage 1

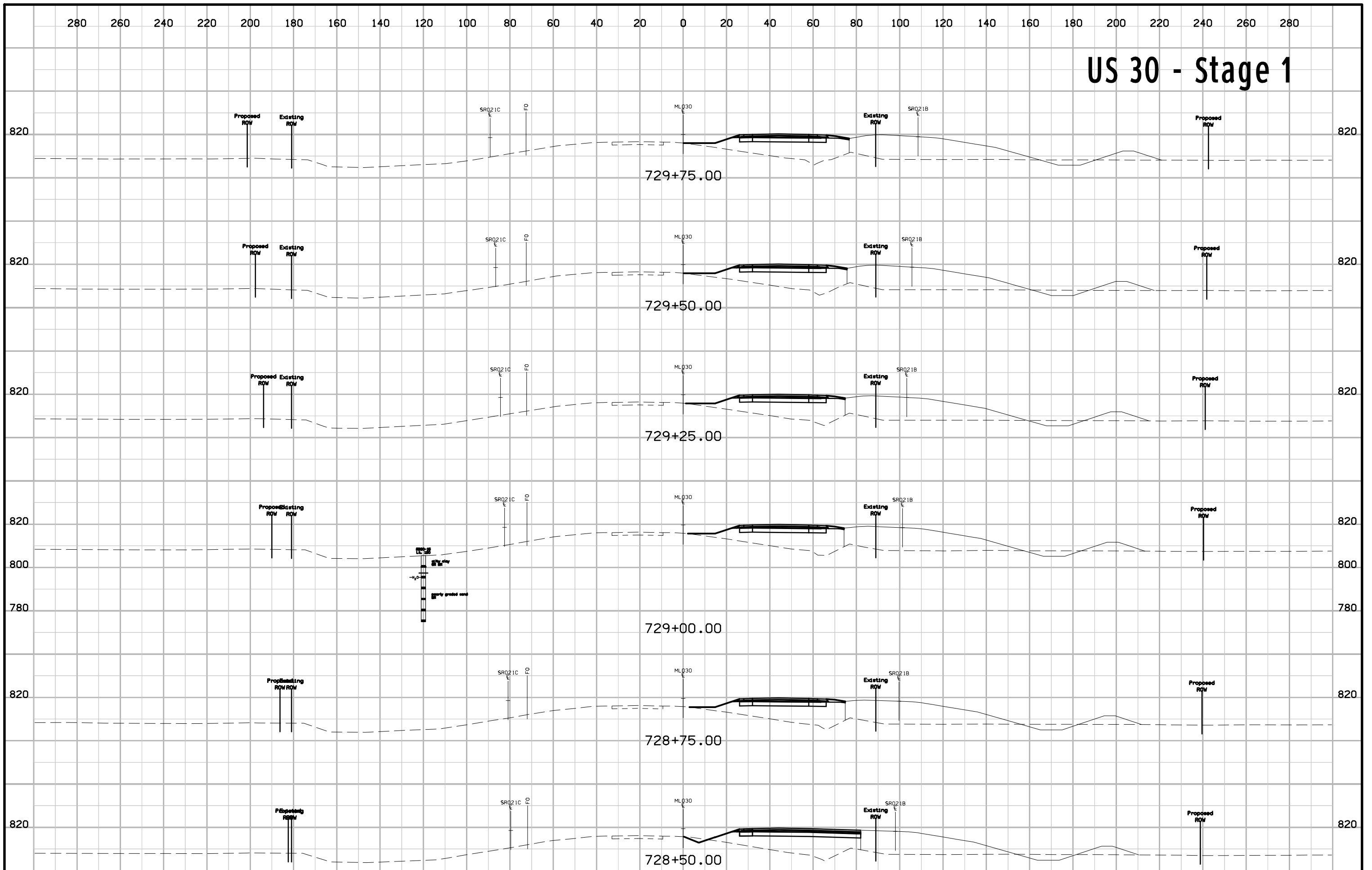




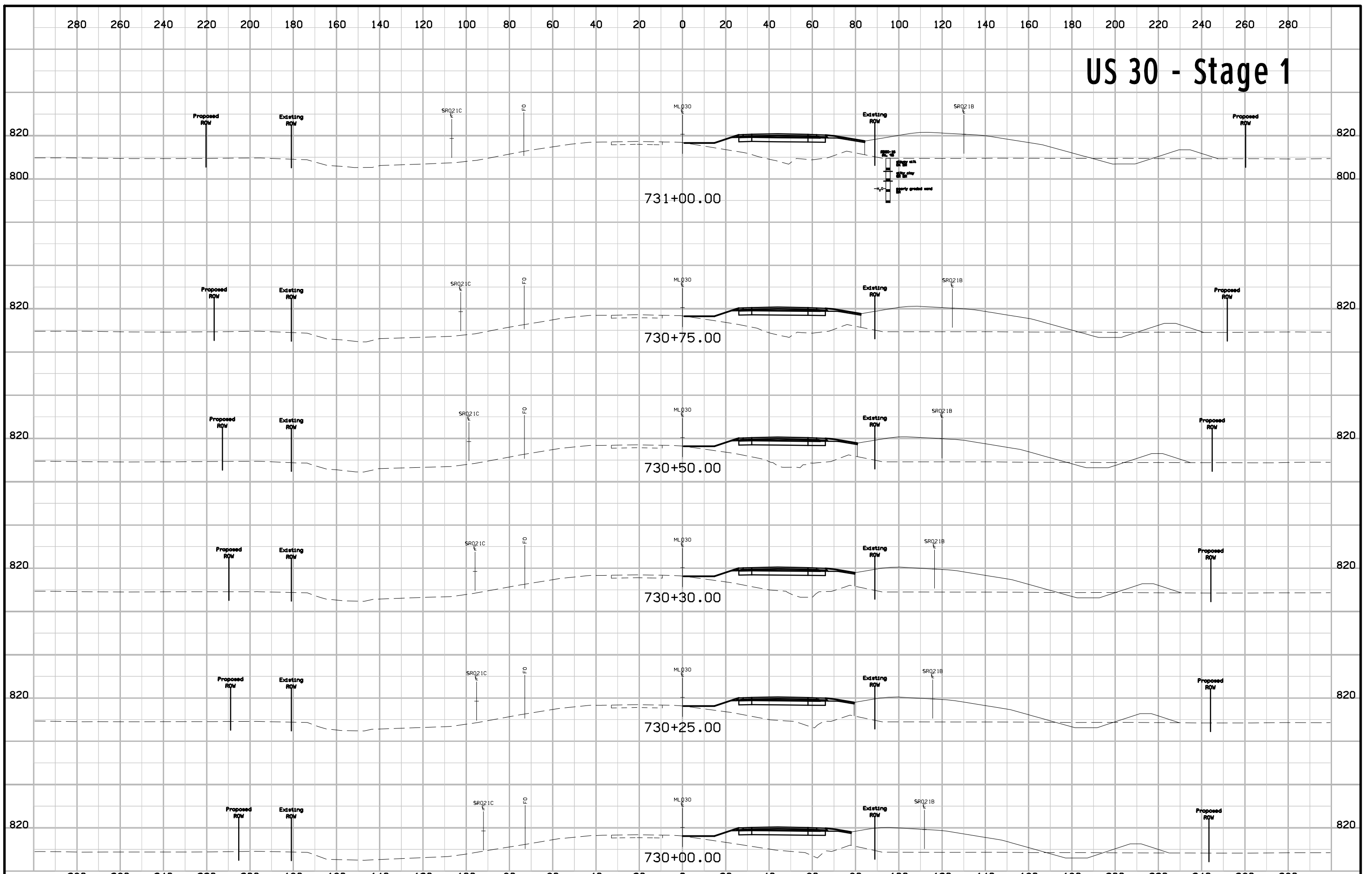
# US 30 - Stage 1



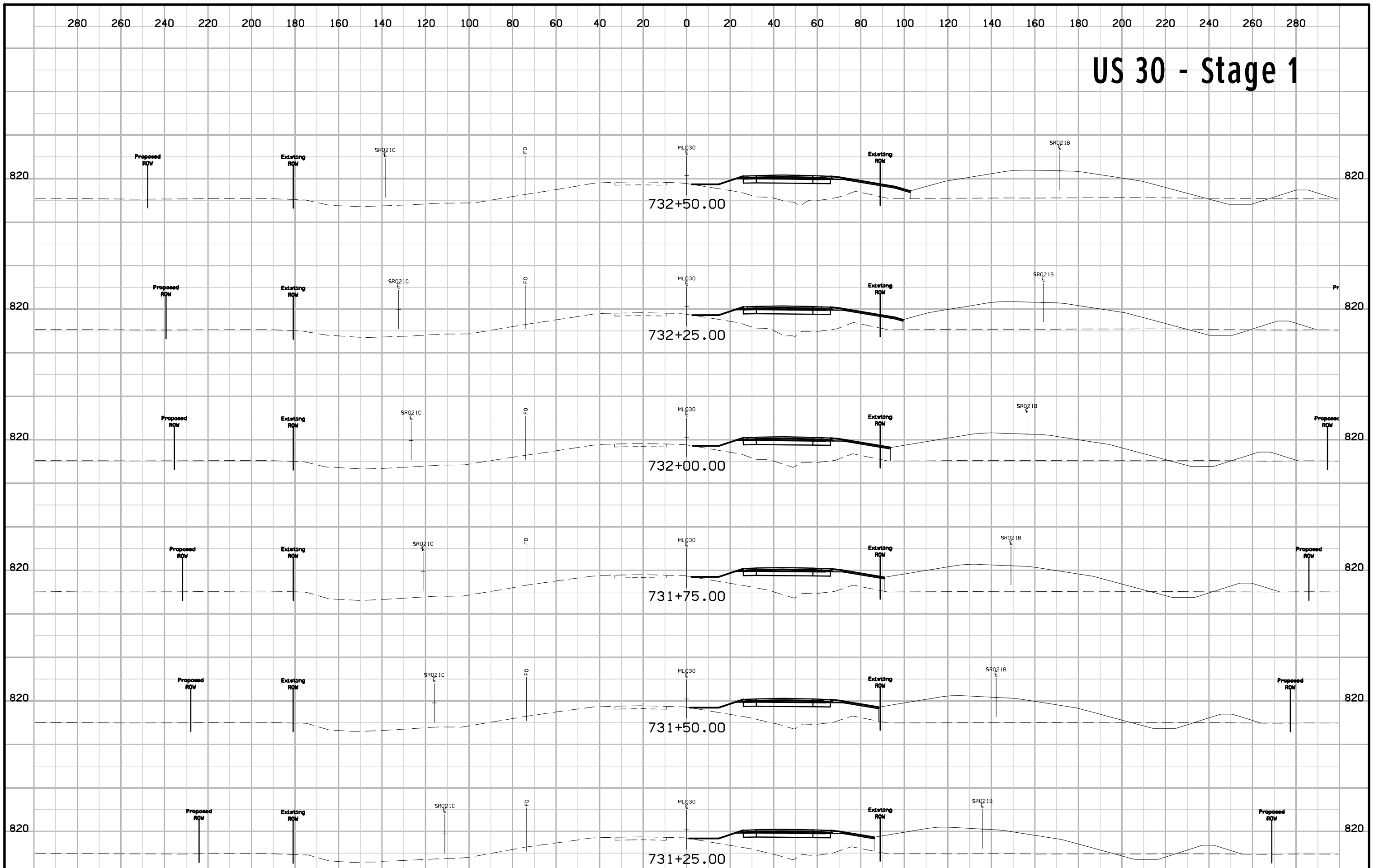
# US 30 - Stage 1



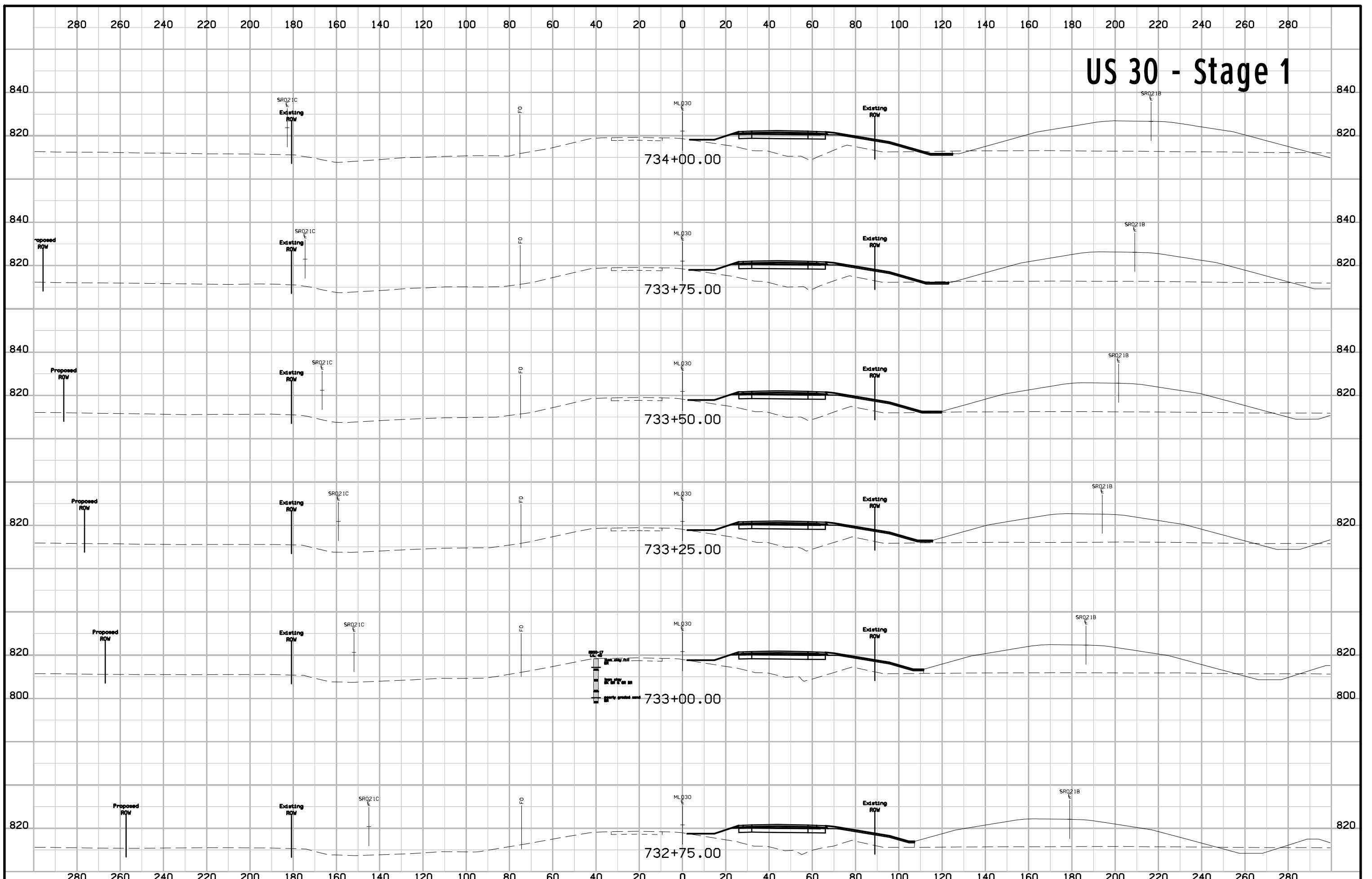
# US 30 - Stage 1



# US 30 - Stage 1

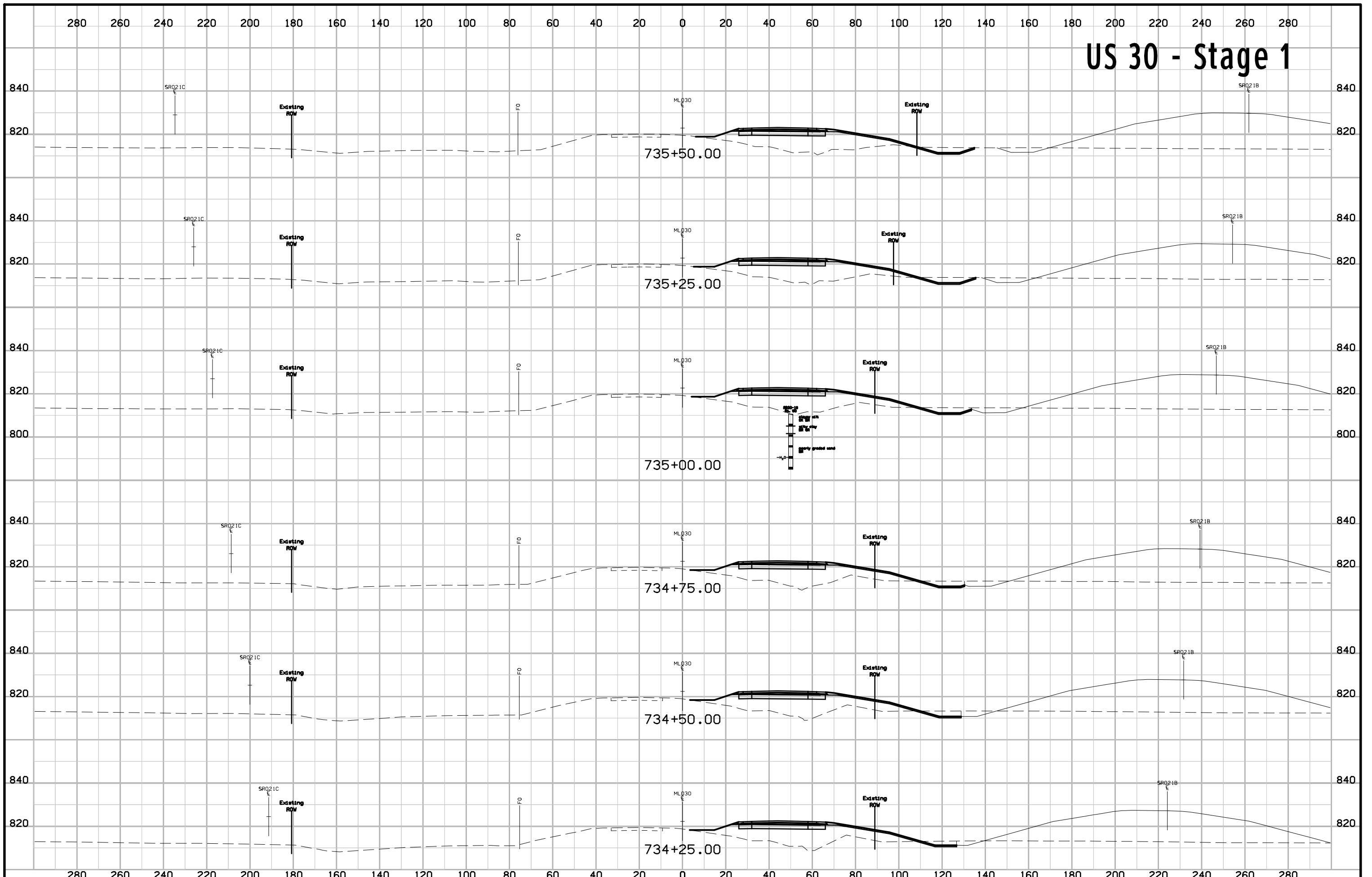


# US 30 - Stage 1

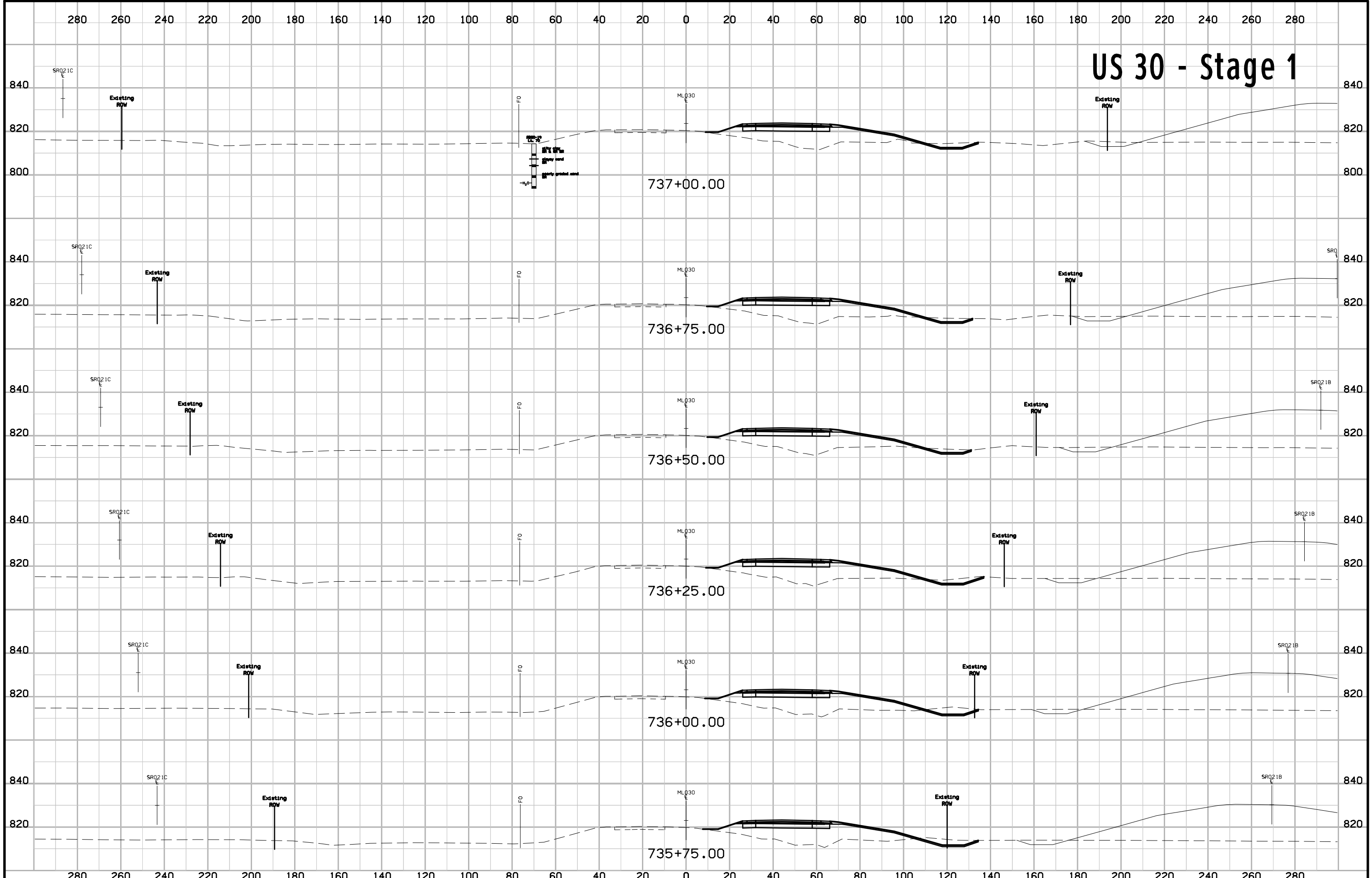




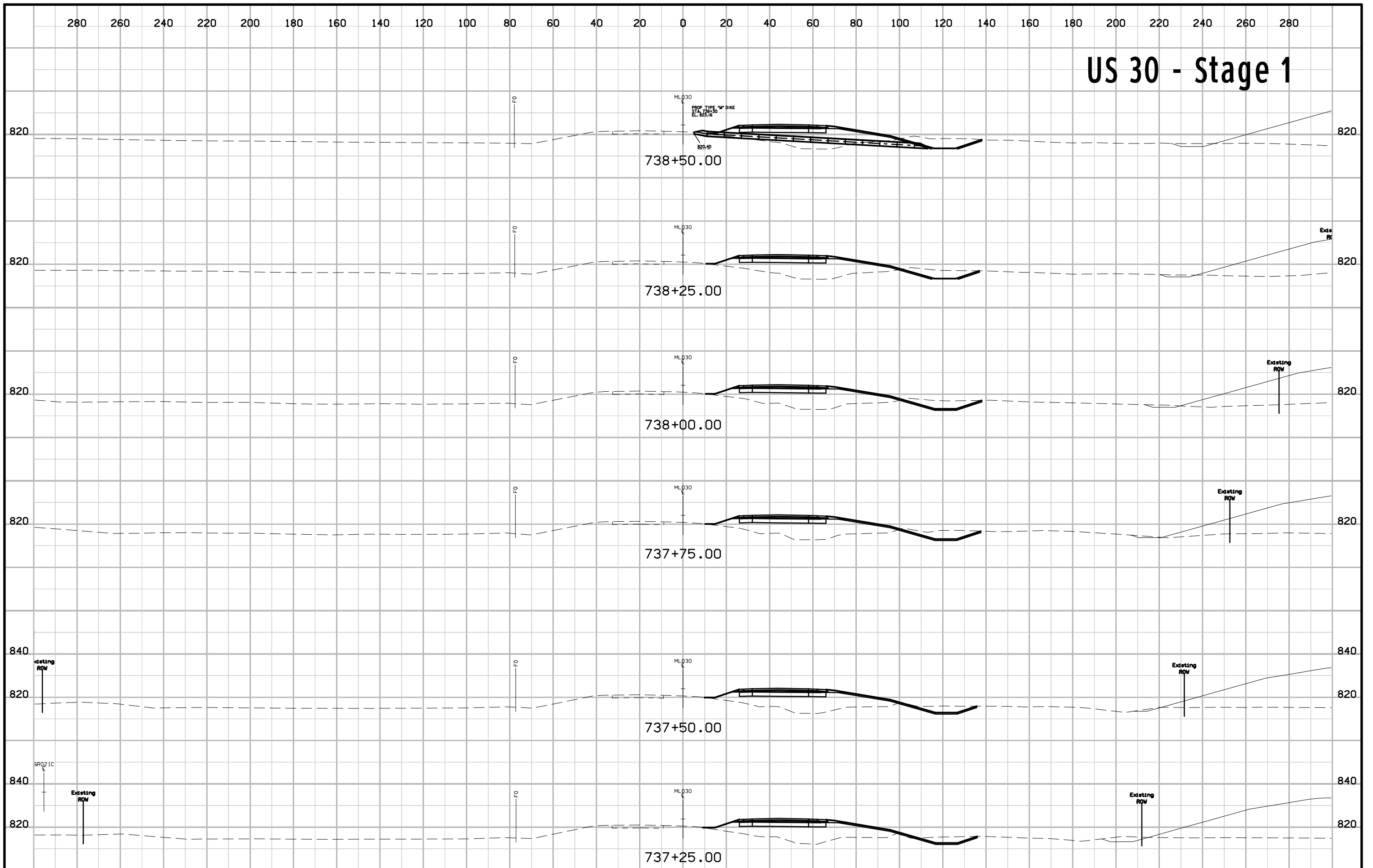
# US 30 - Stage 1



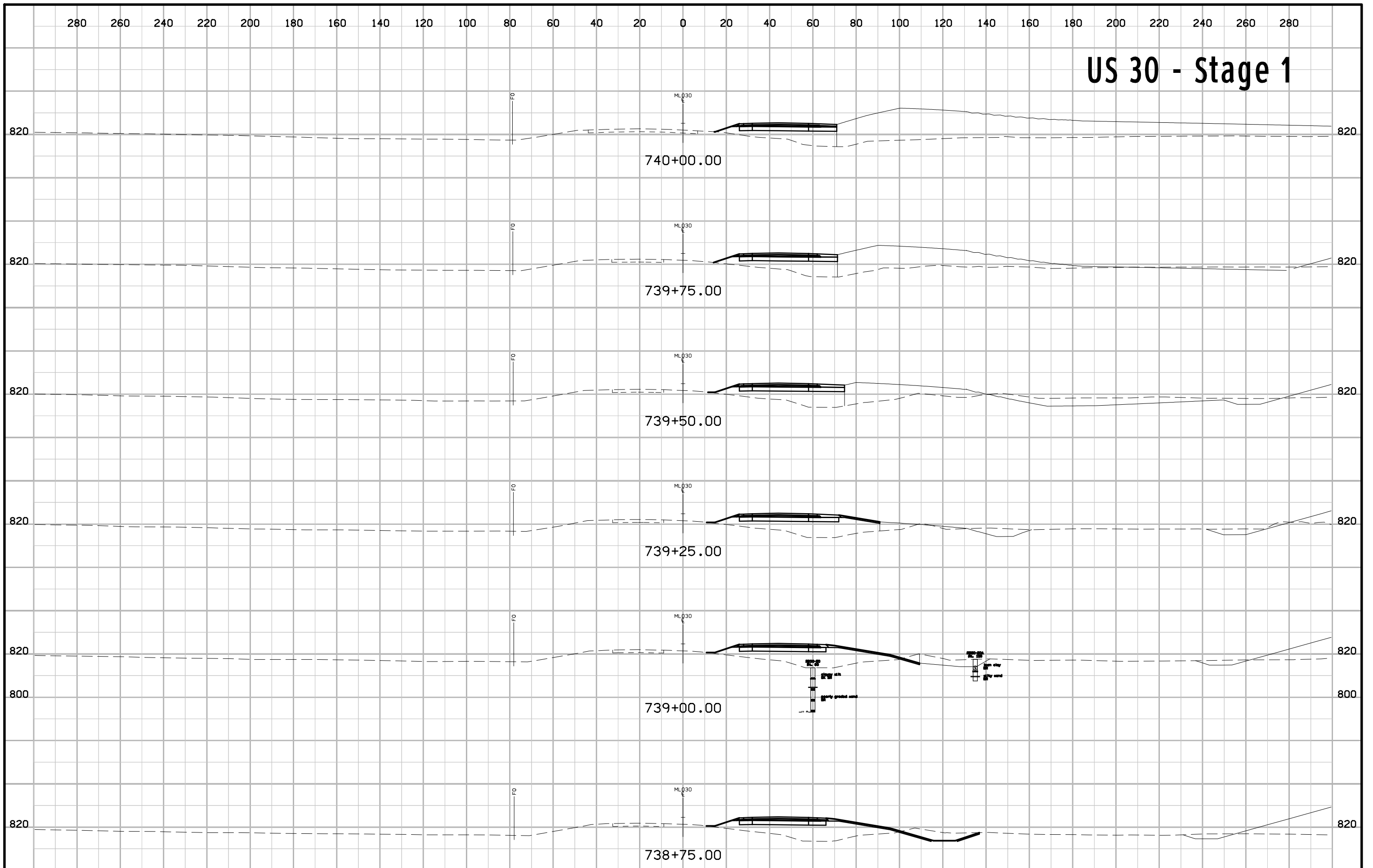
# US 30 - Stage 1



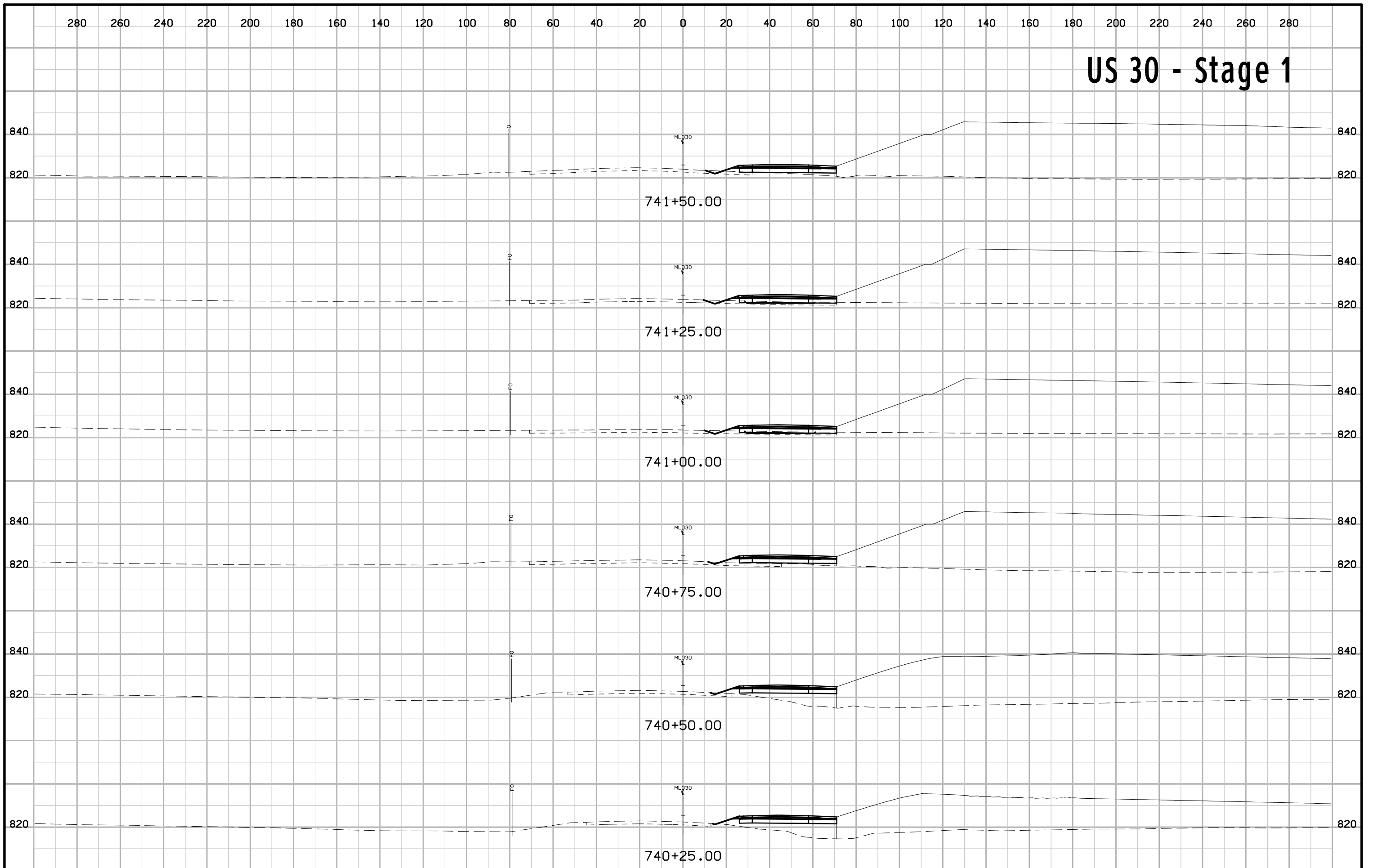
# US 30 - Stage 1



# US 30 - Stage 1

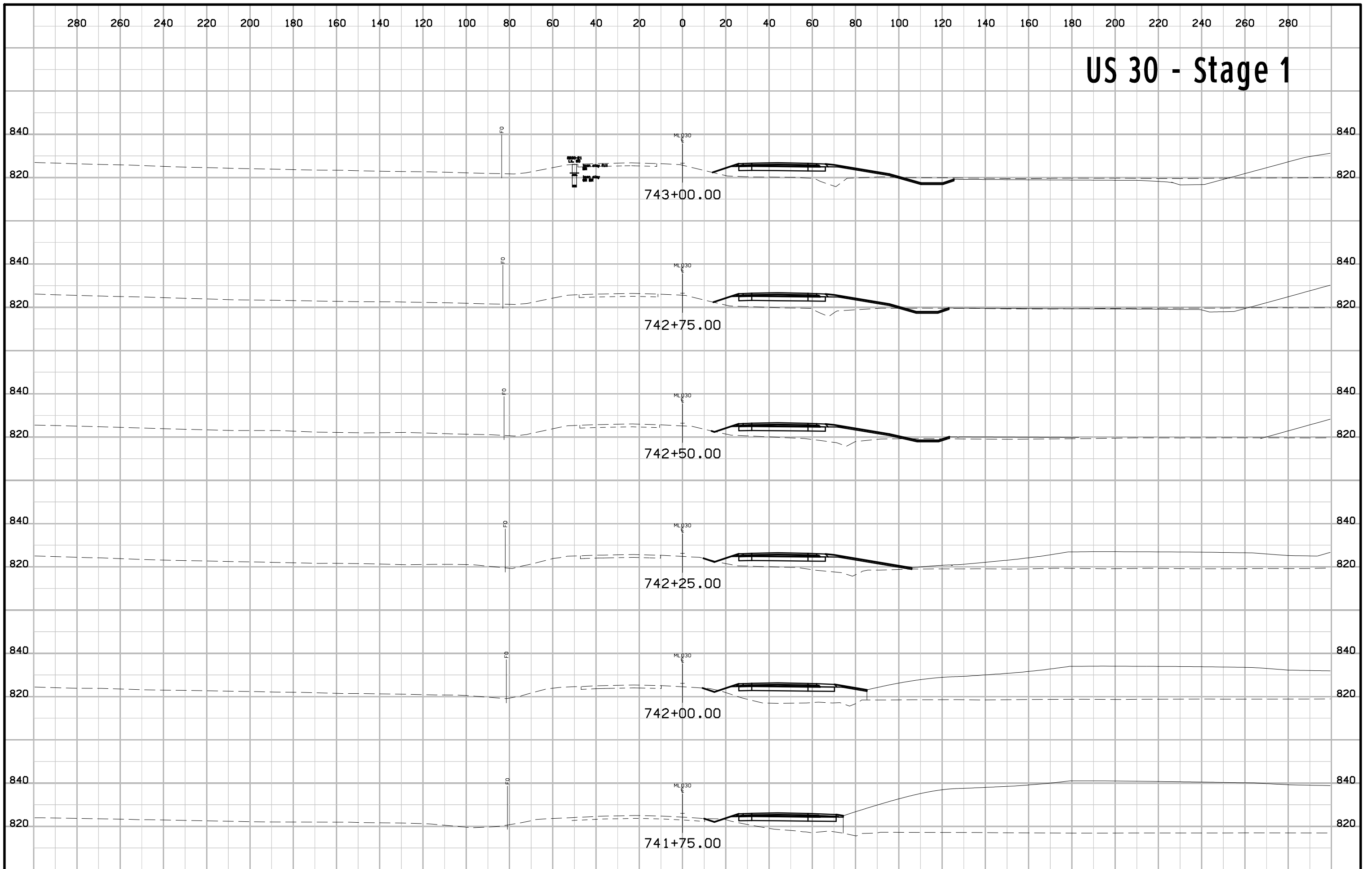


# US 30 - Stage 1

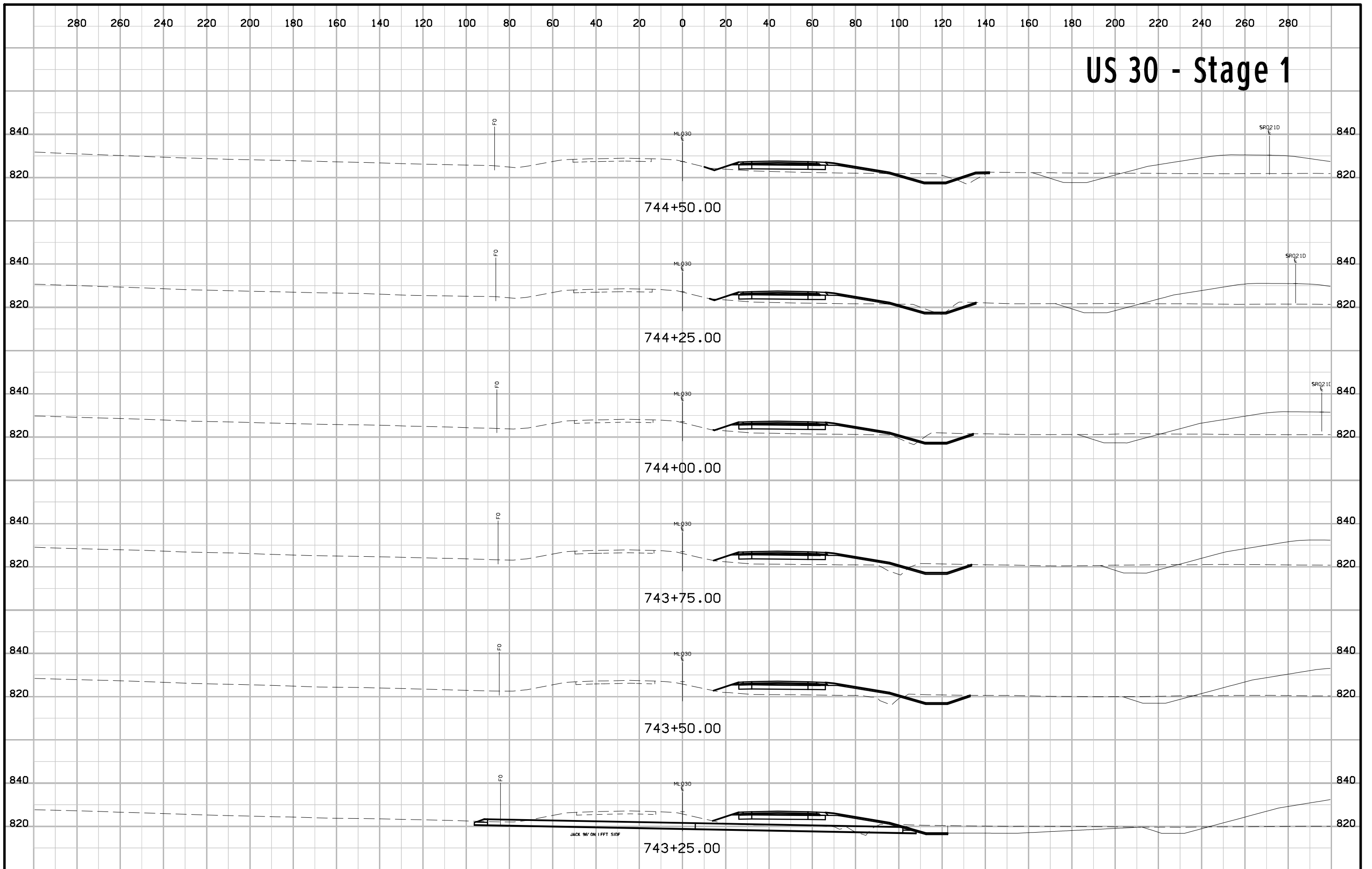




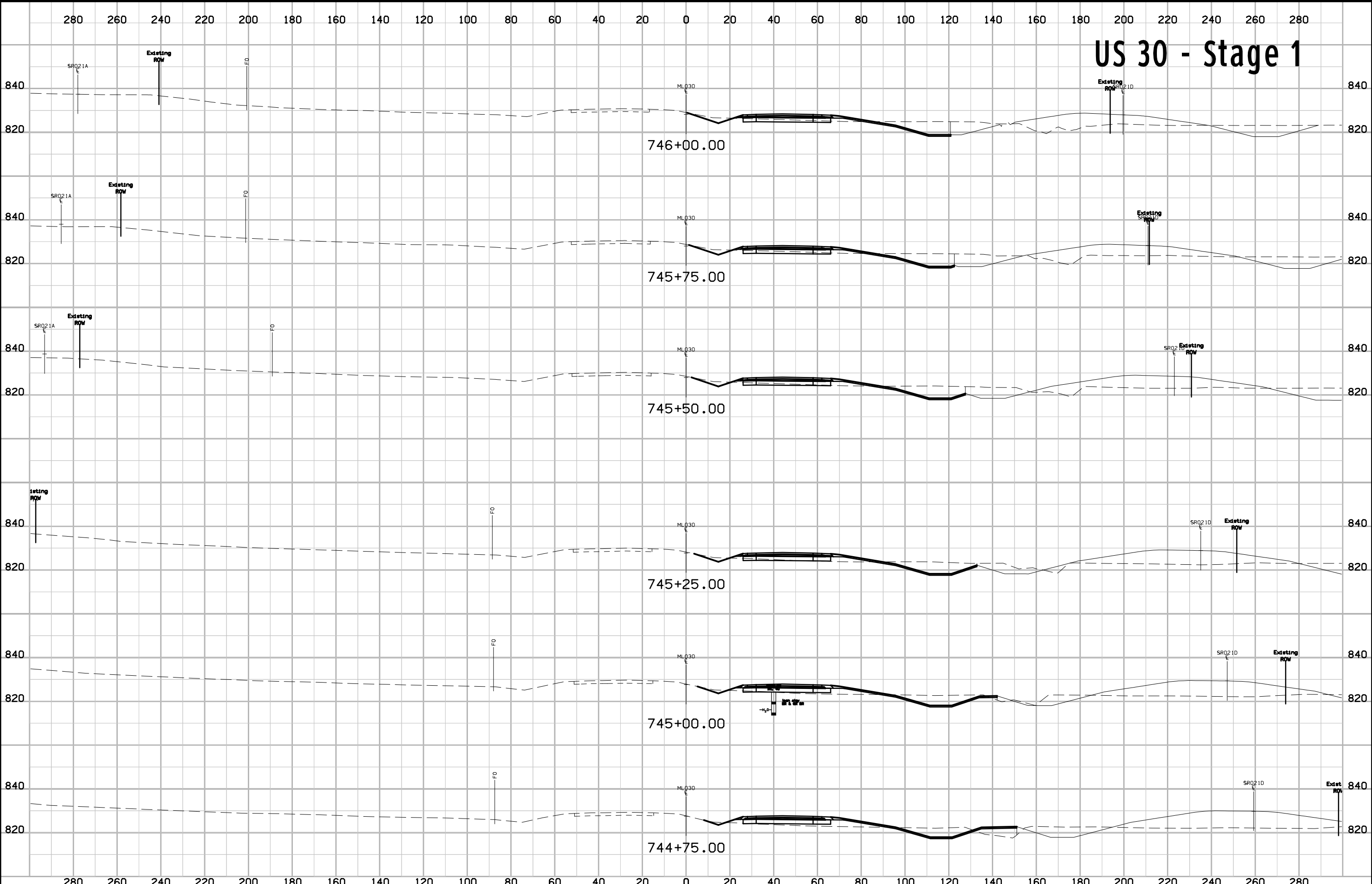
# US 30 - Stage 1



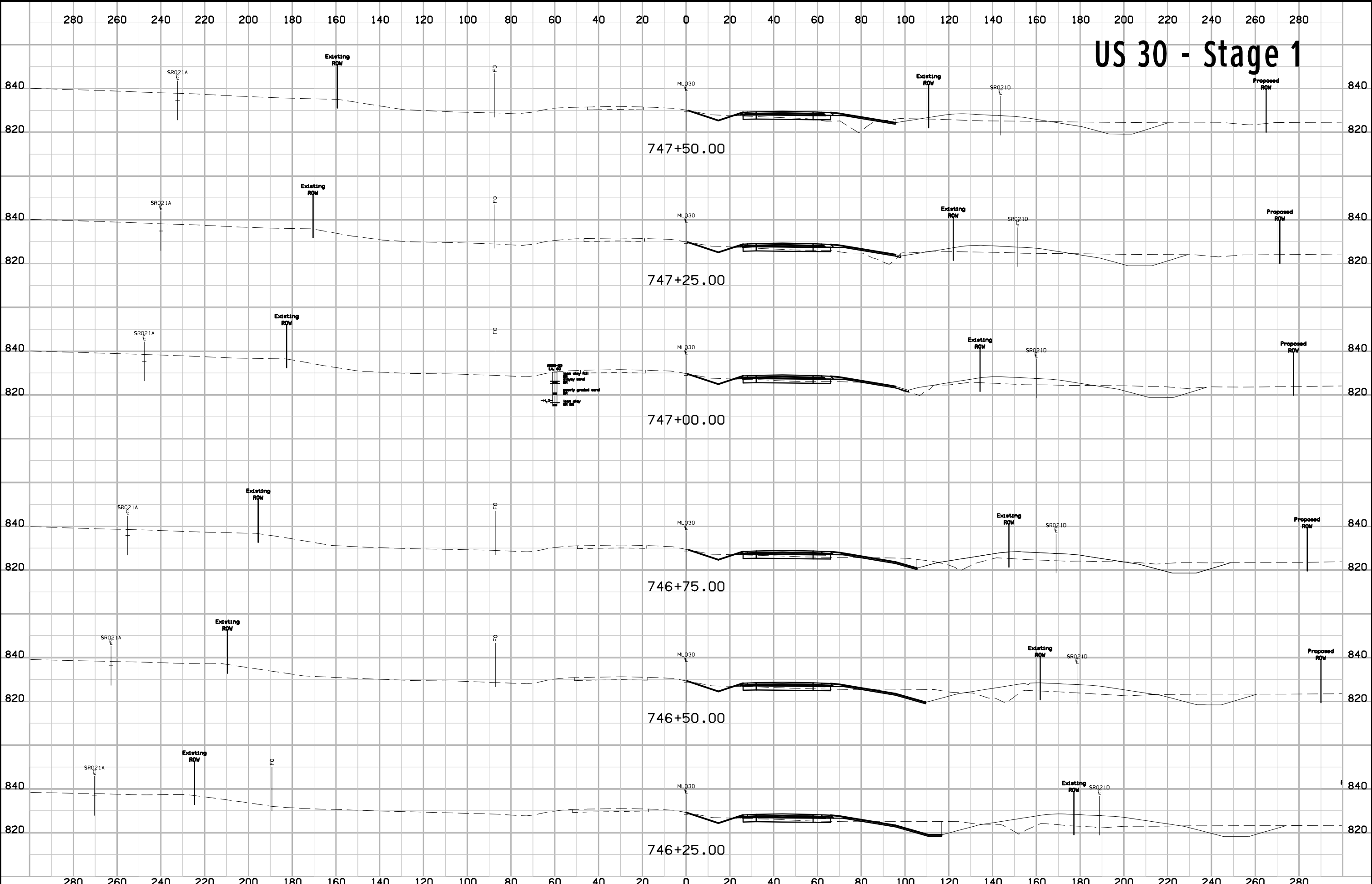
# US 30 - Stage 1



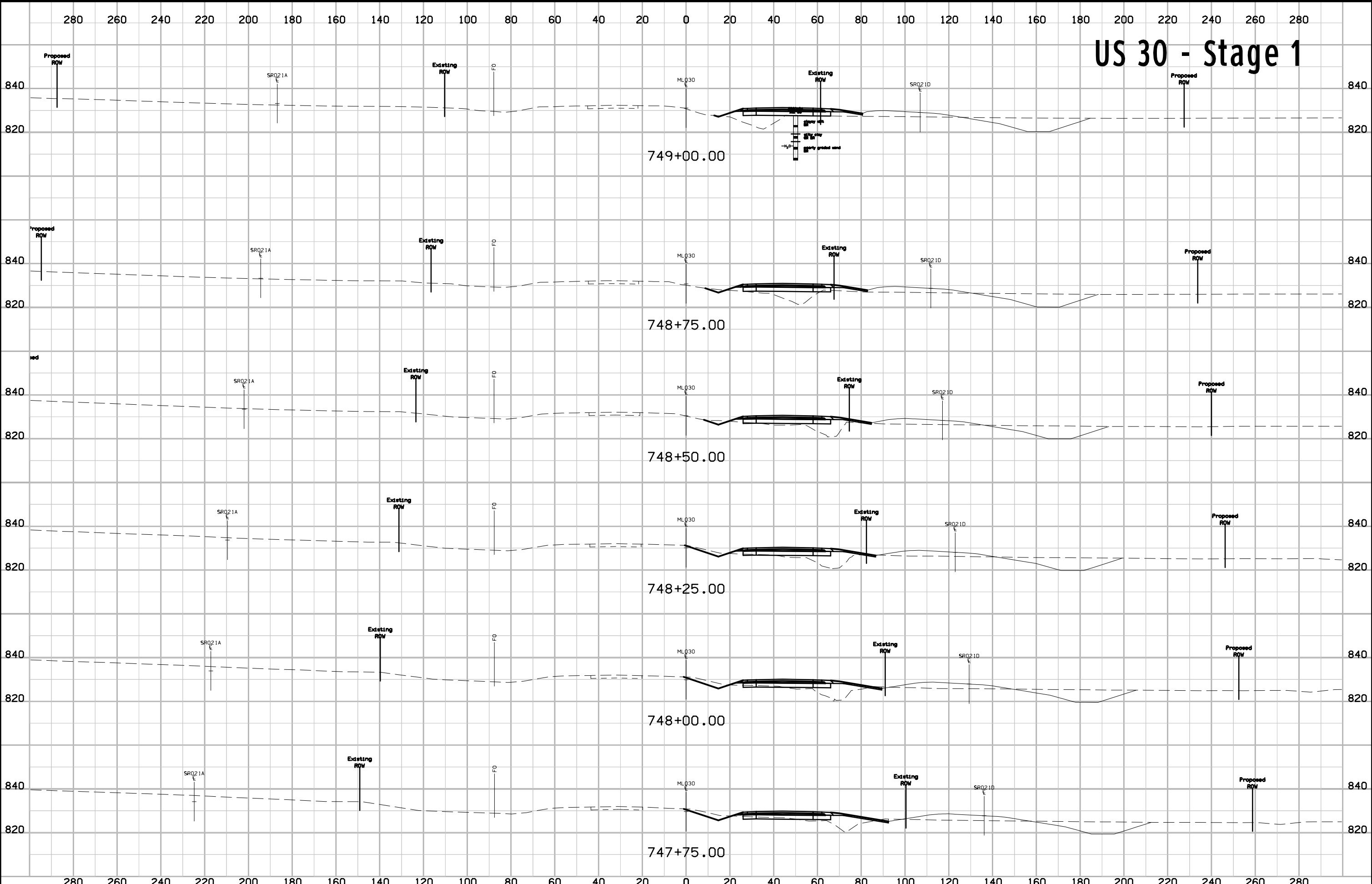
# US 30 - Stage 1



# US 30 - Stage 1

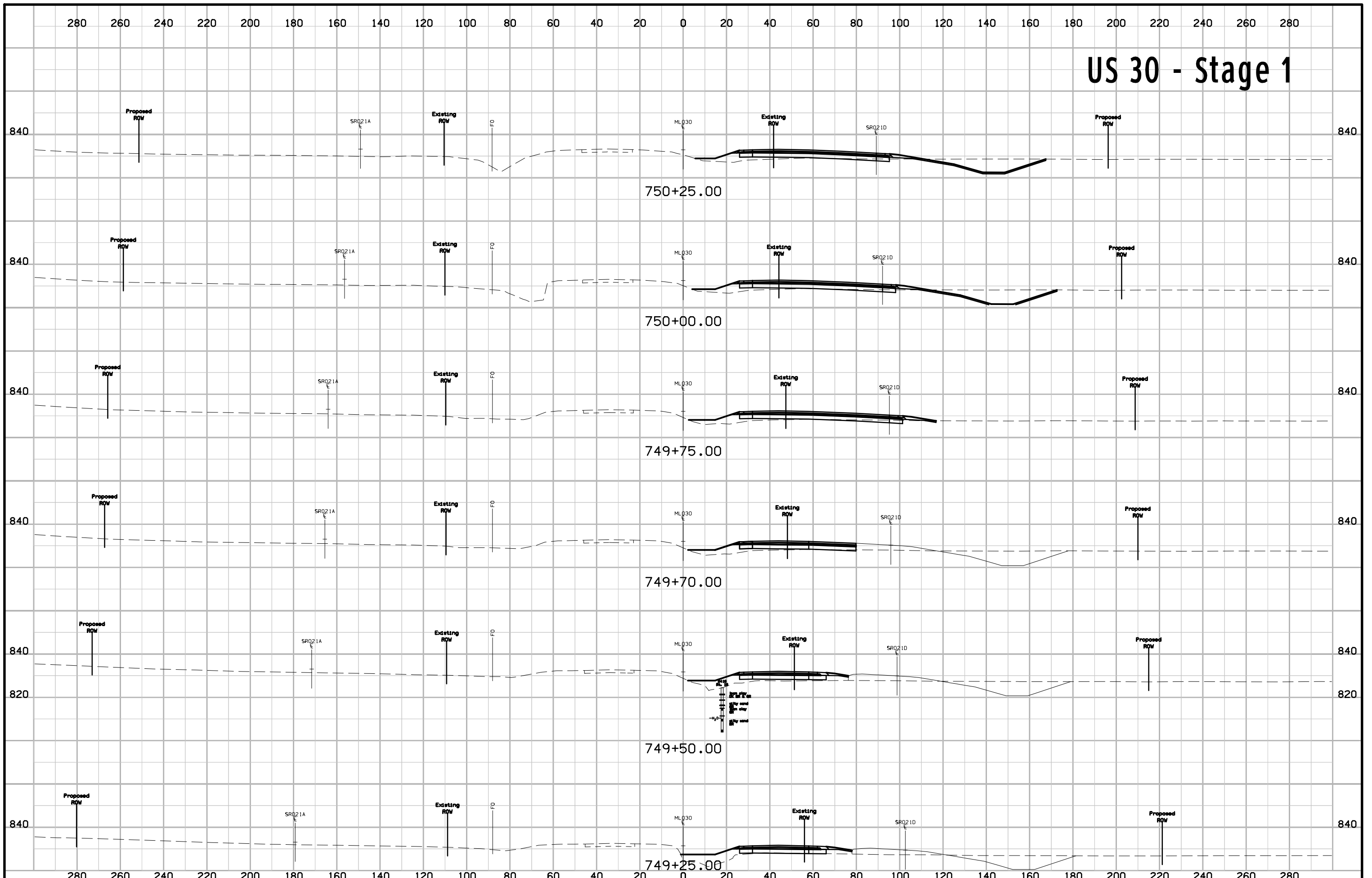


# US 30 - Stage 1

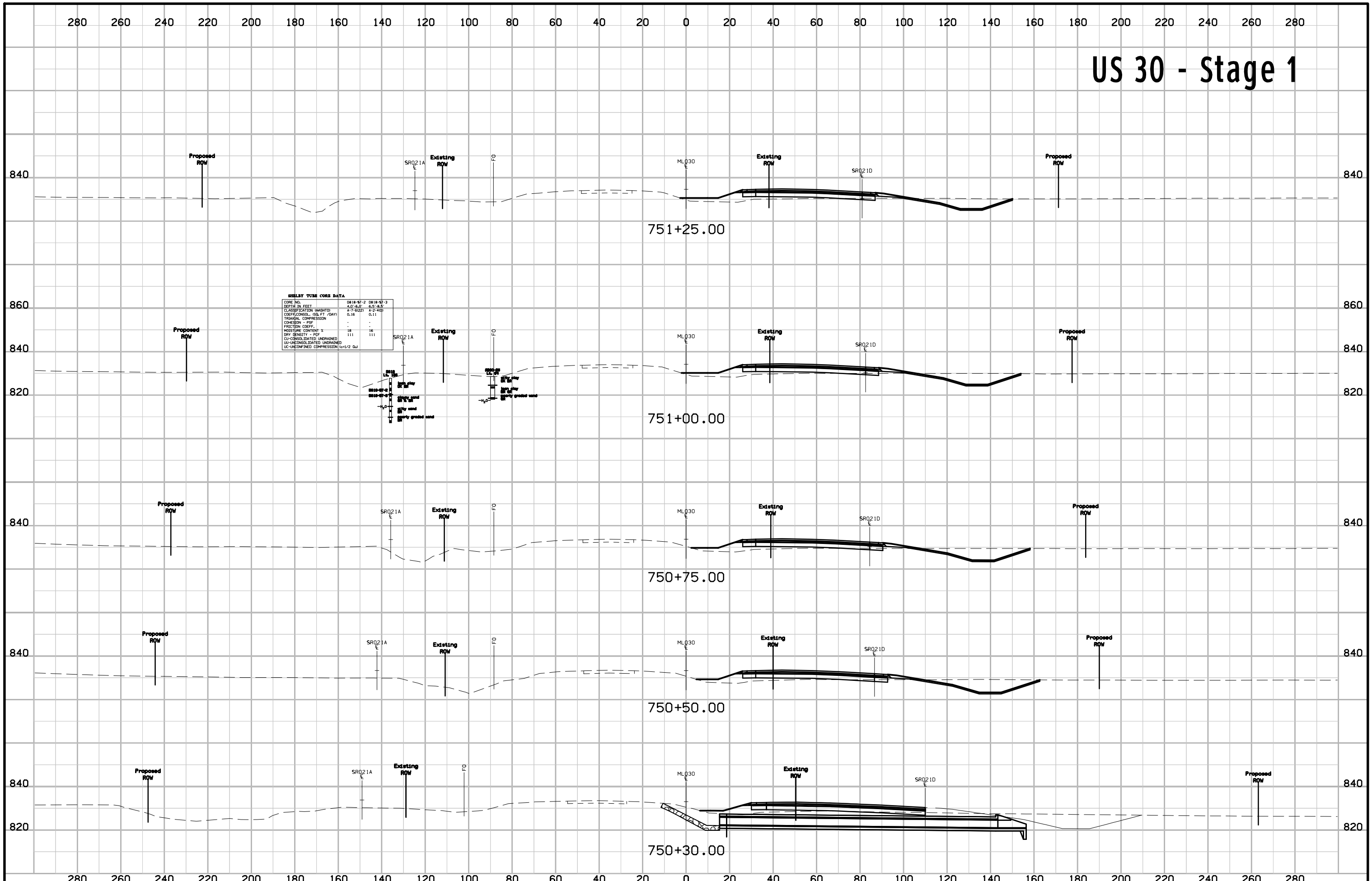




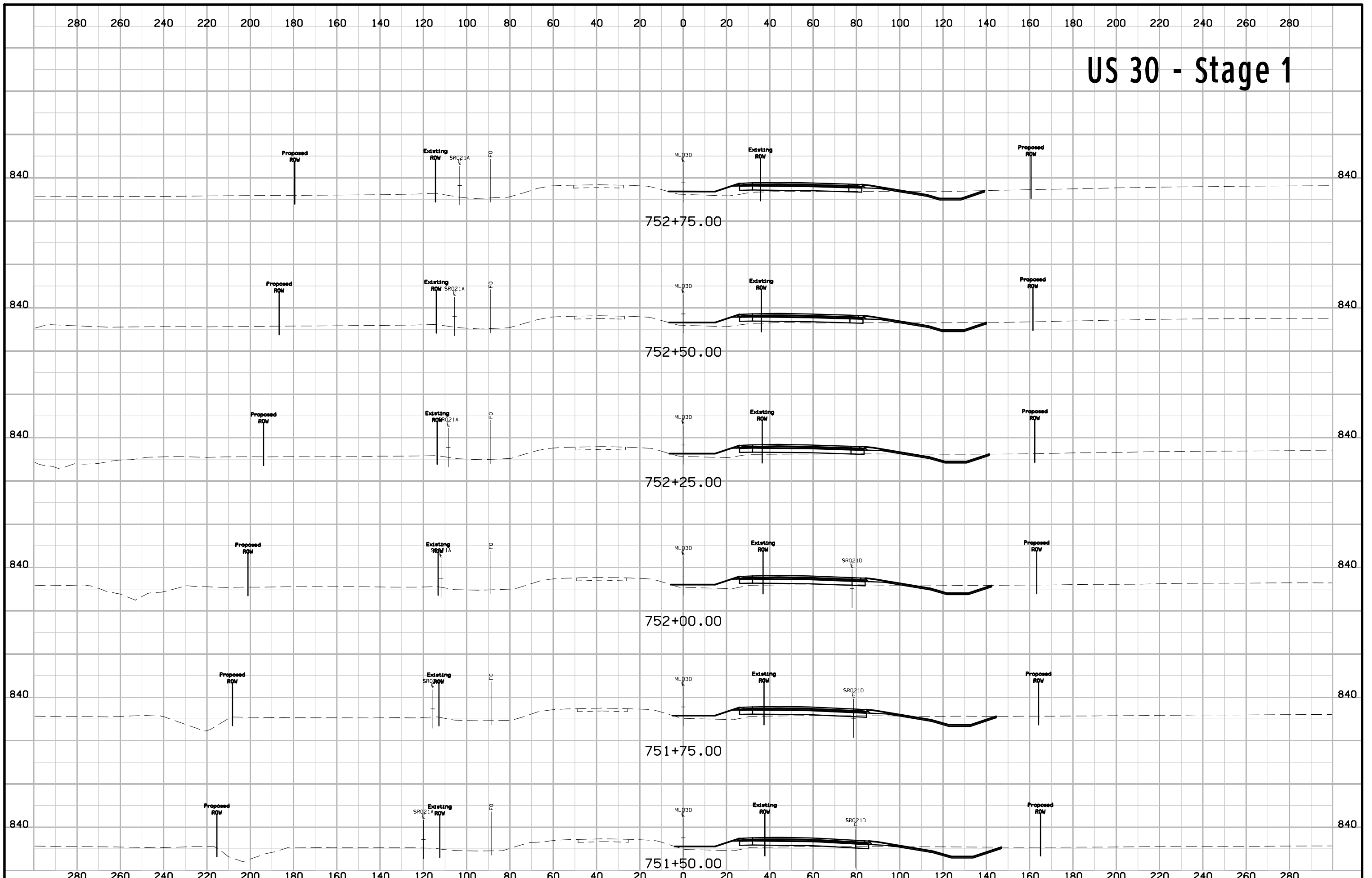
# US 30 - Stage 1



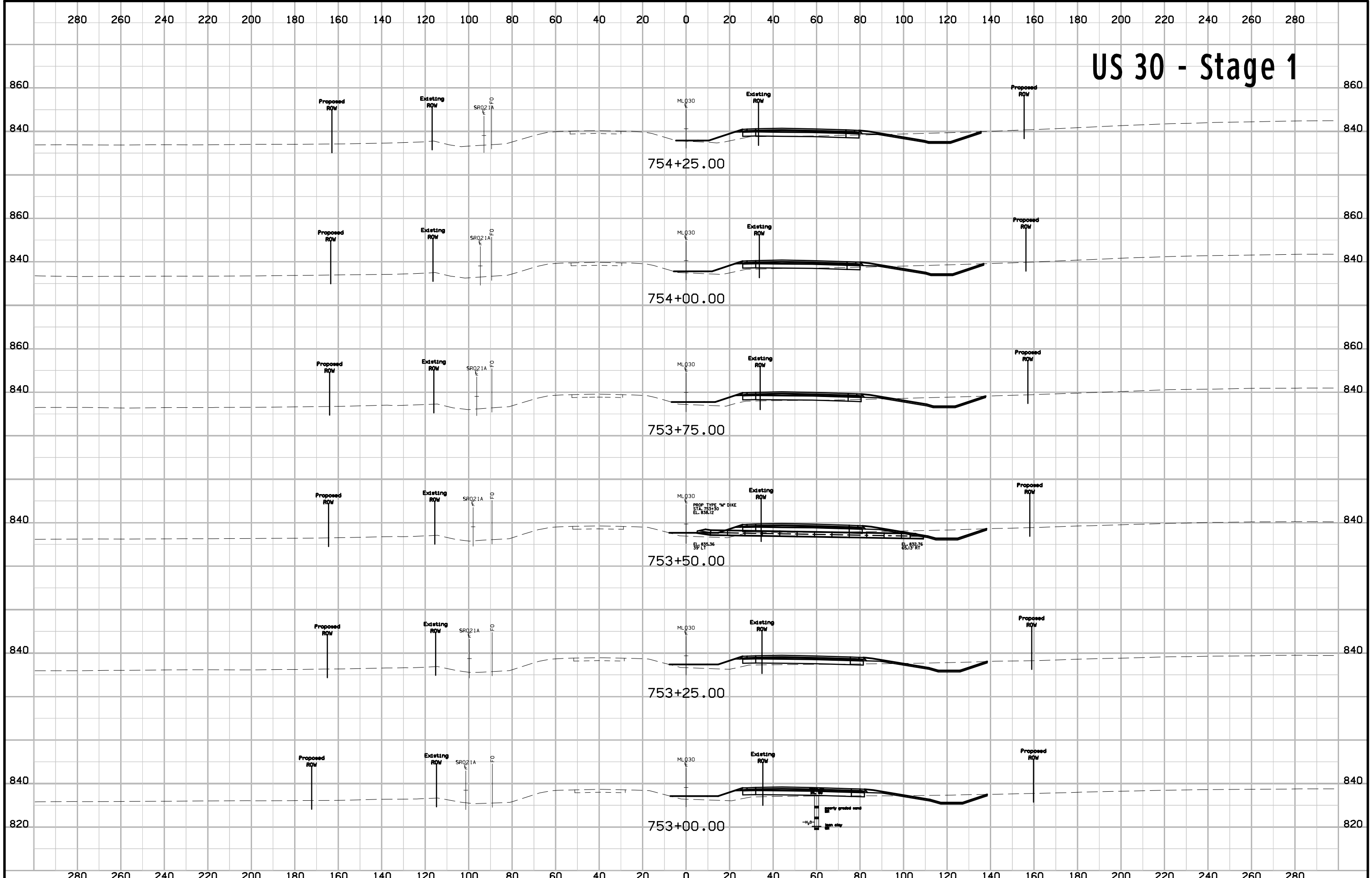
# US 30 - Stage 1



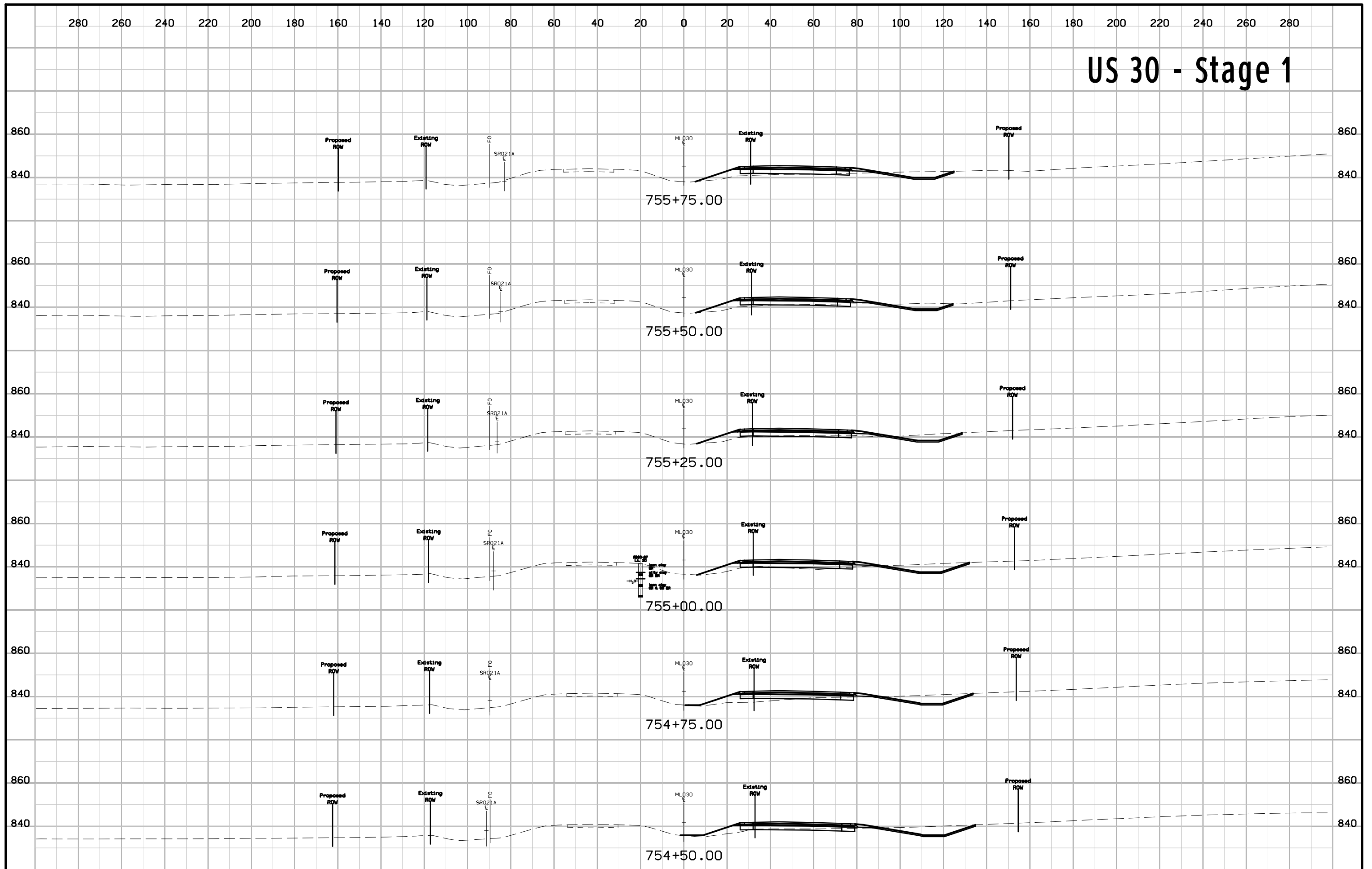
# US 30 - Stage 1



# US 30 - Stage 1

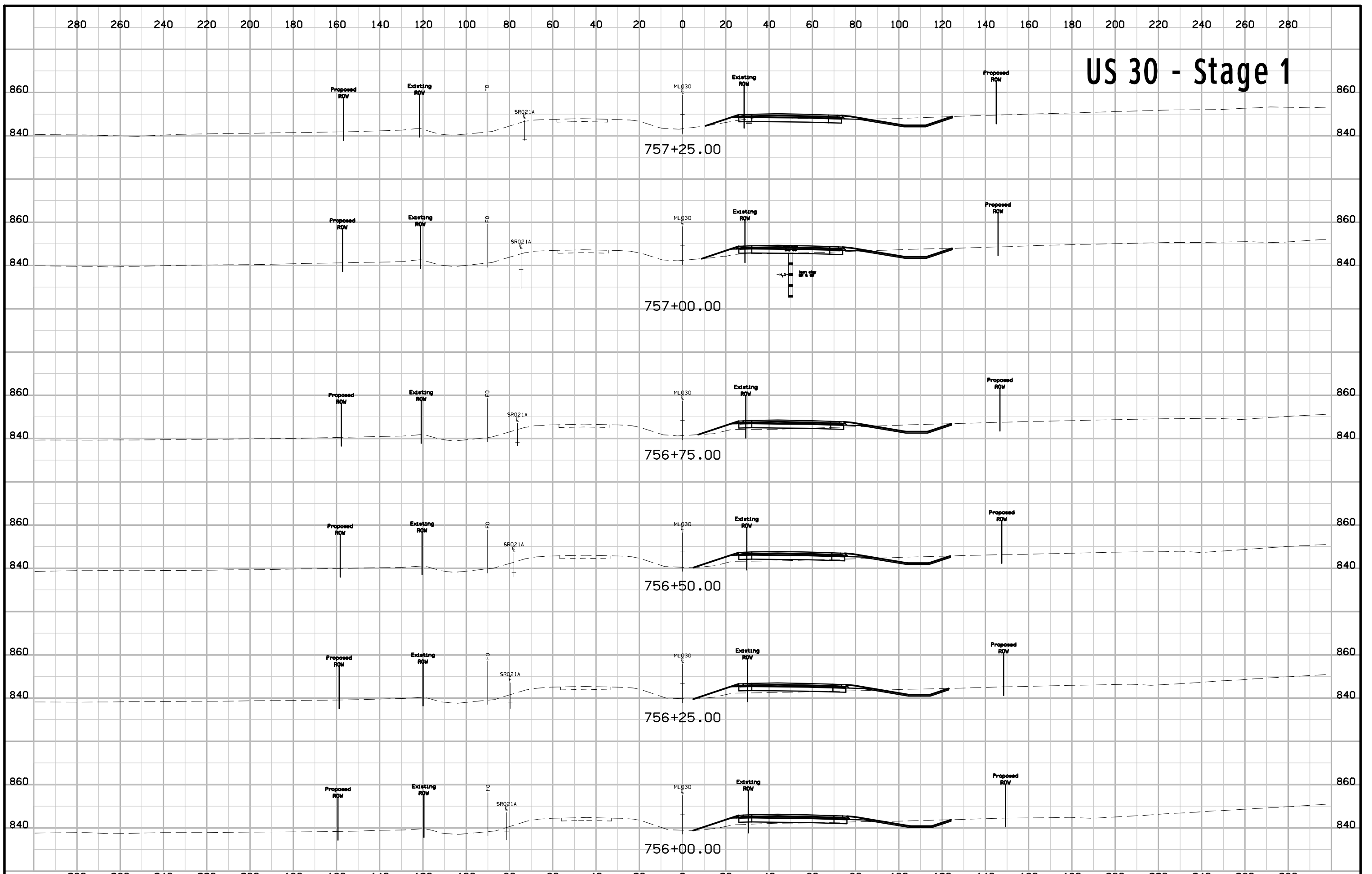


# US 30 - Stage 1

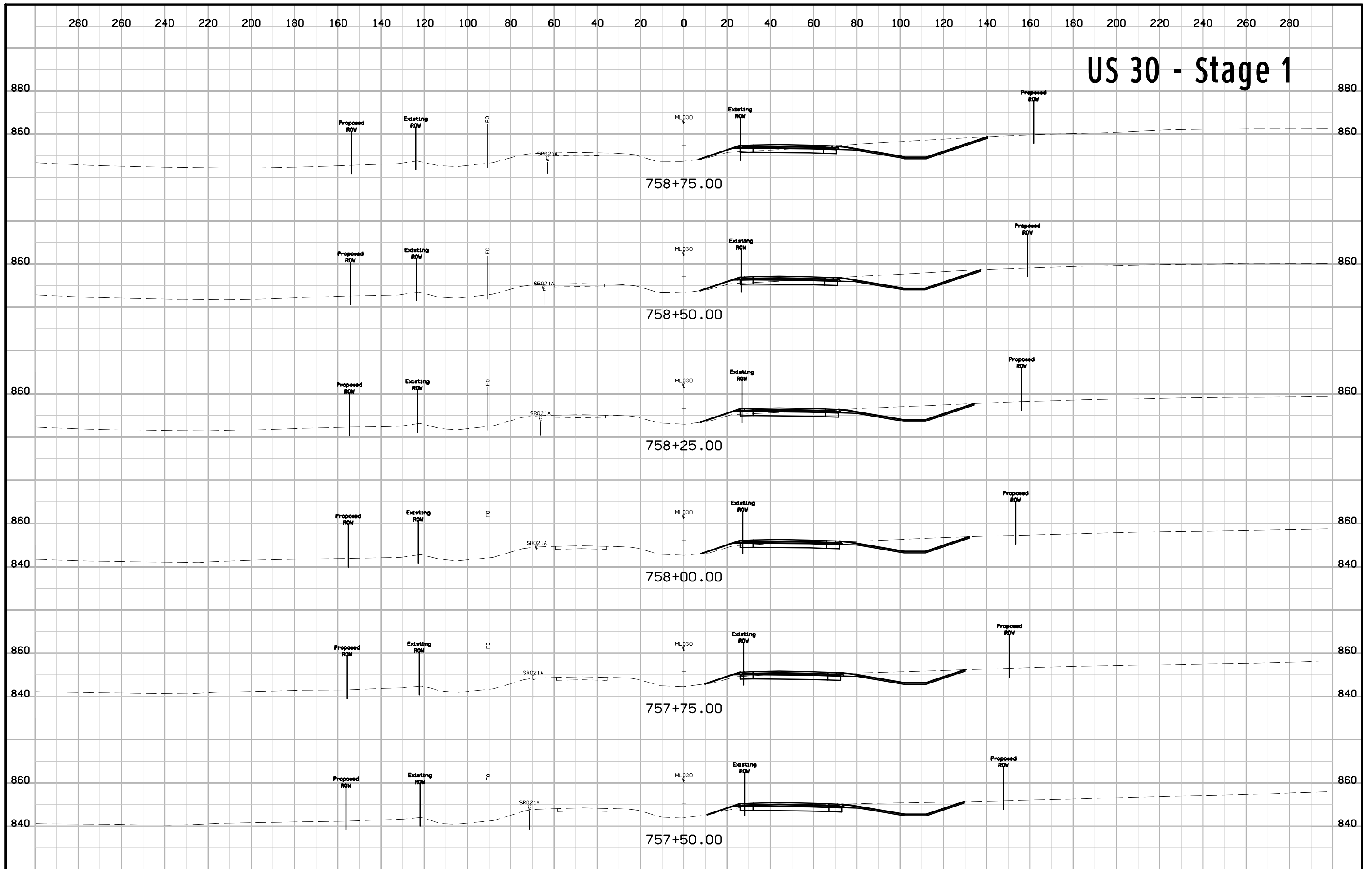




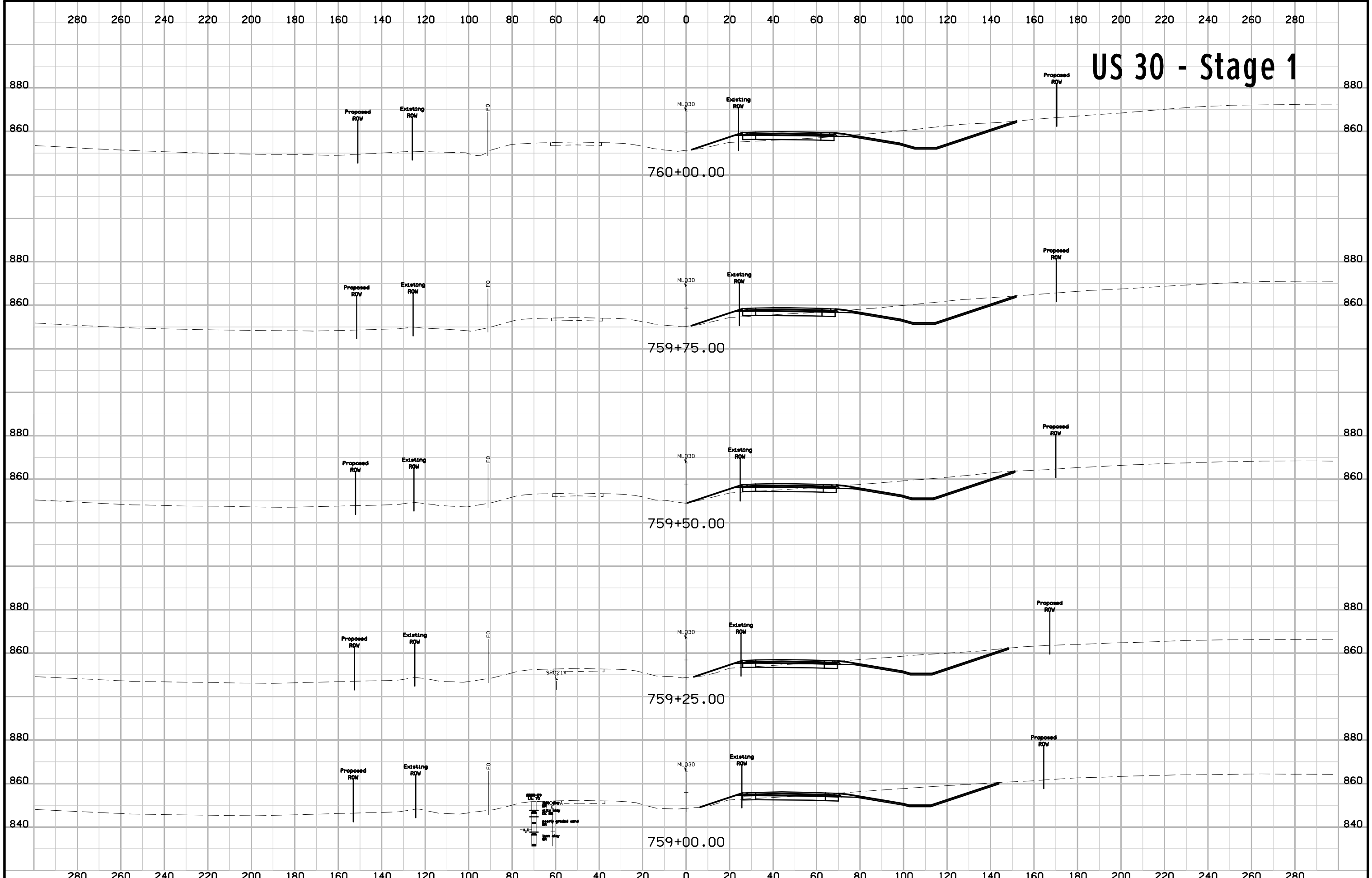
# US 30 - Stage 1



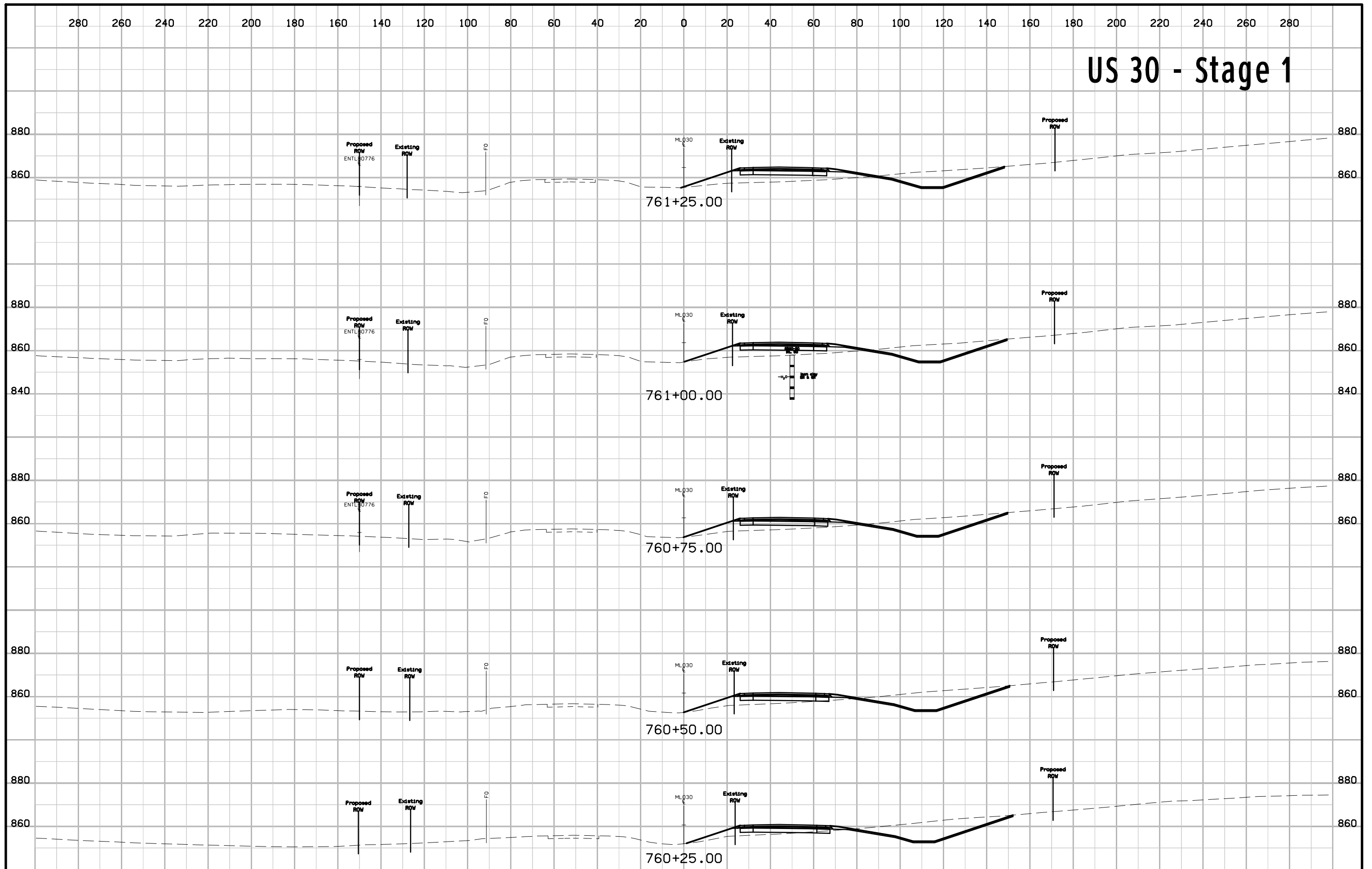
# US 30 - Stage 1



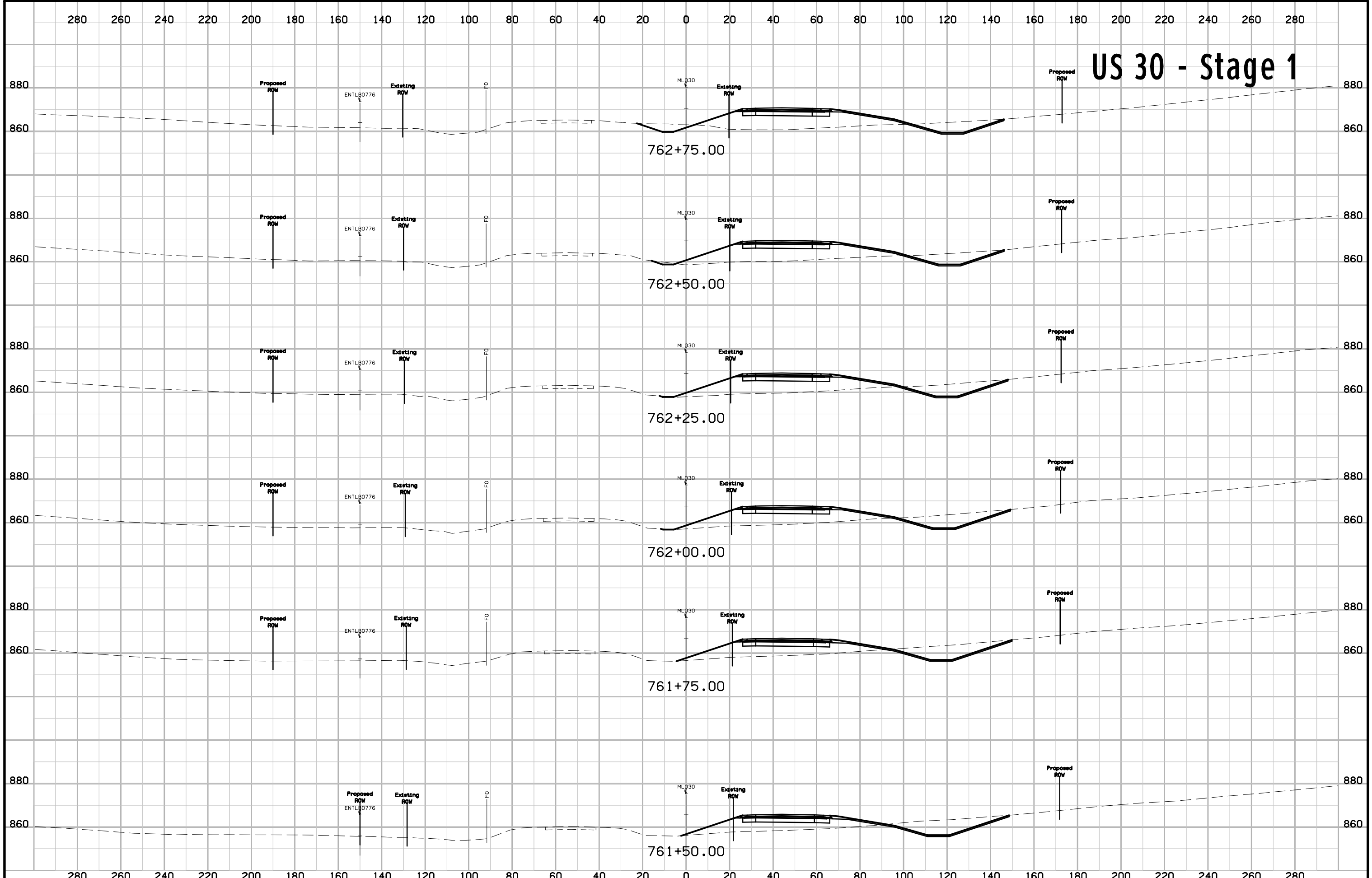
# US 30 - Stage 1



# US 30 - Stage 1

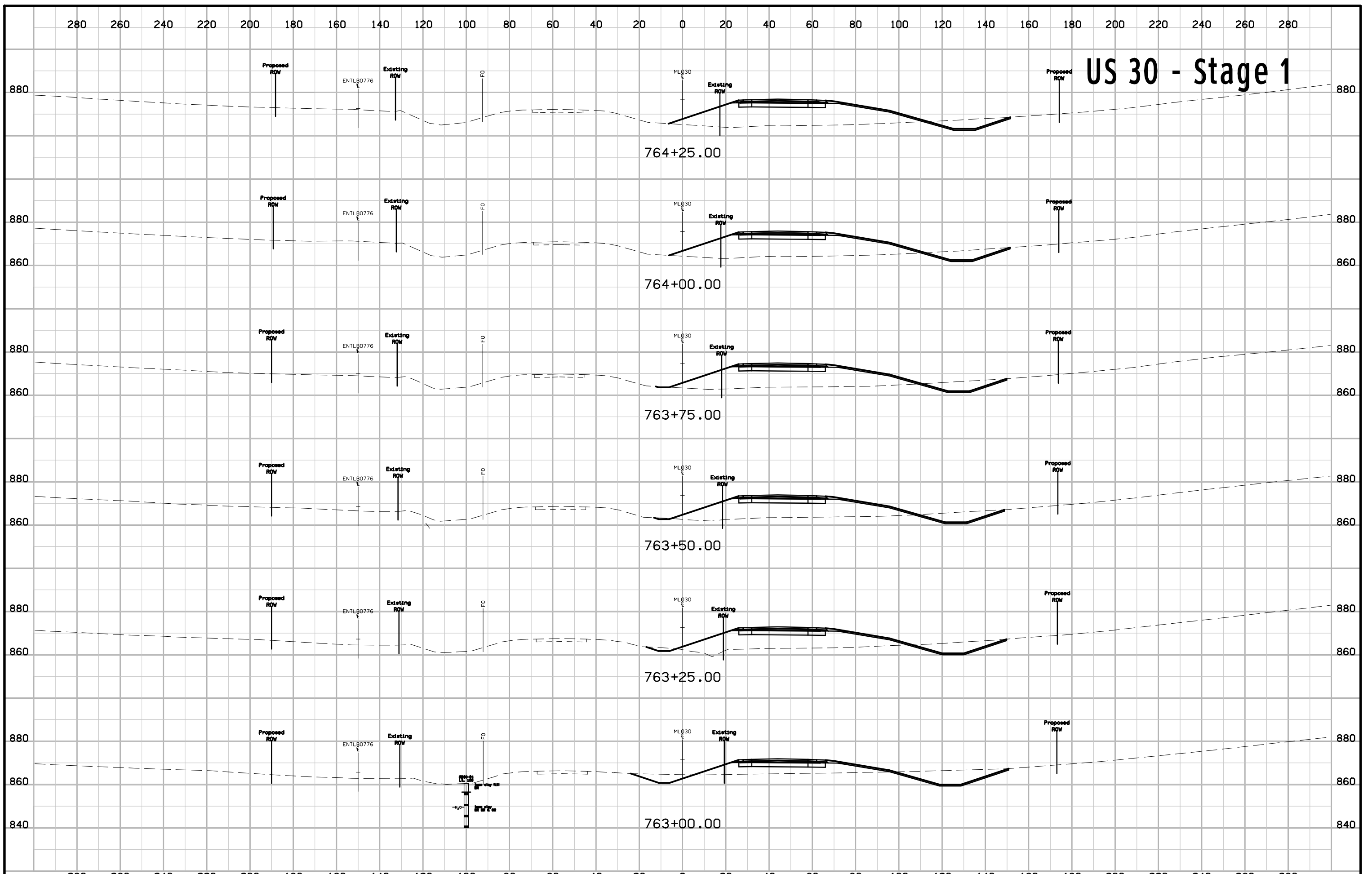


# US 30 - Stage 1

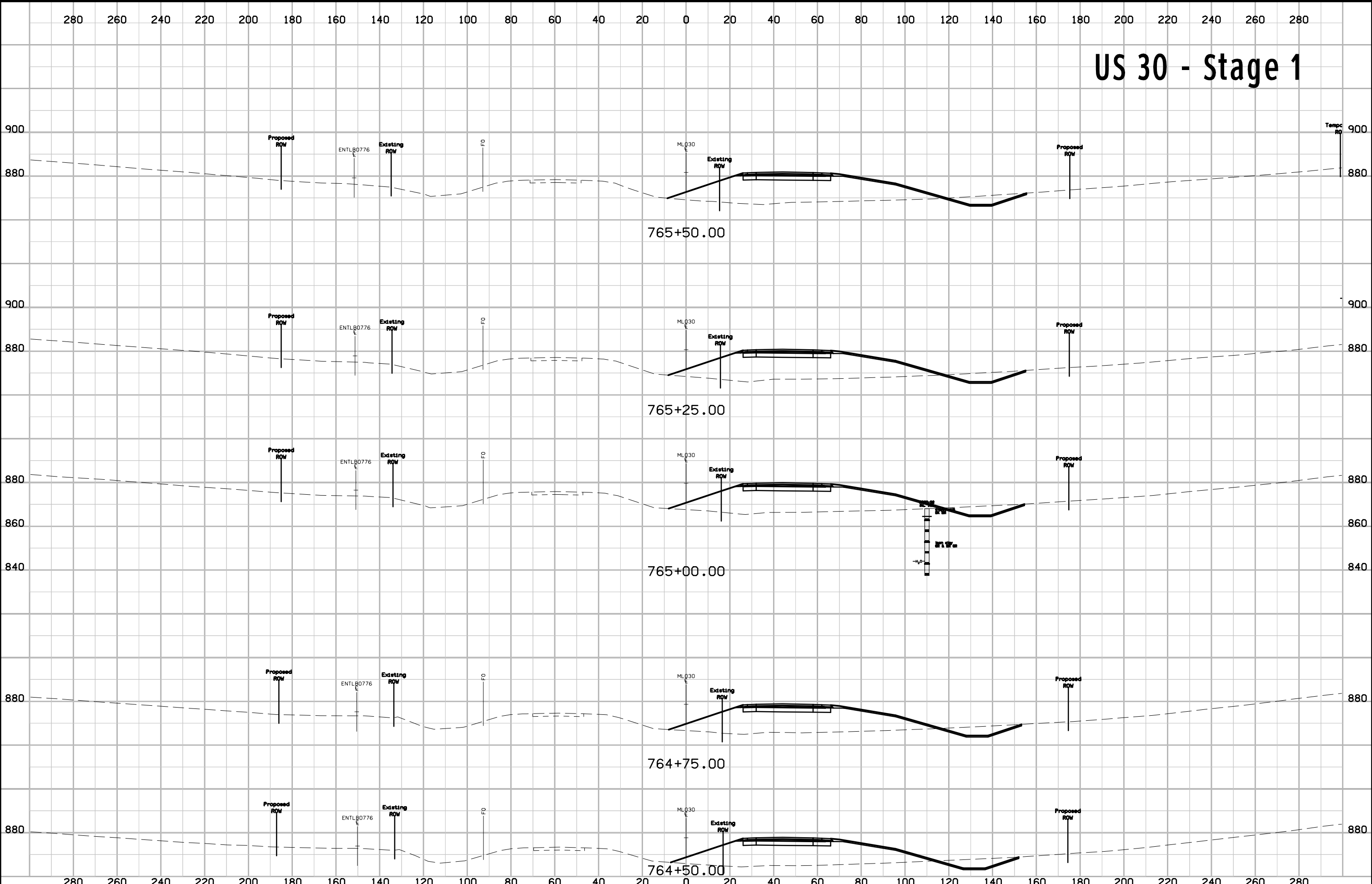




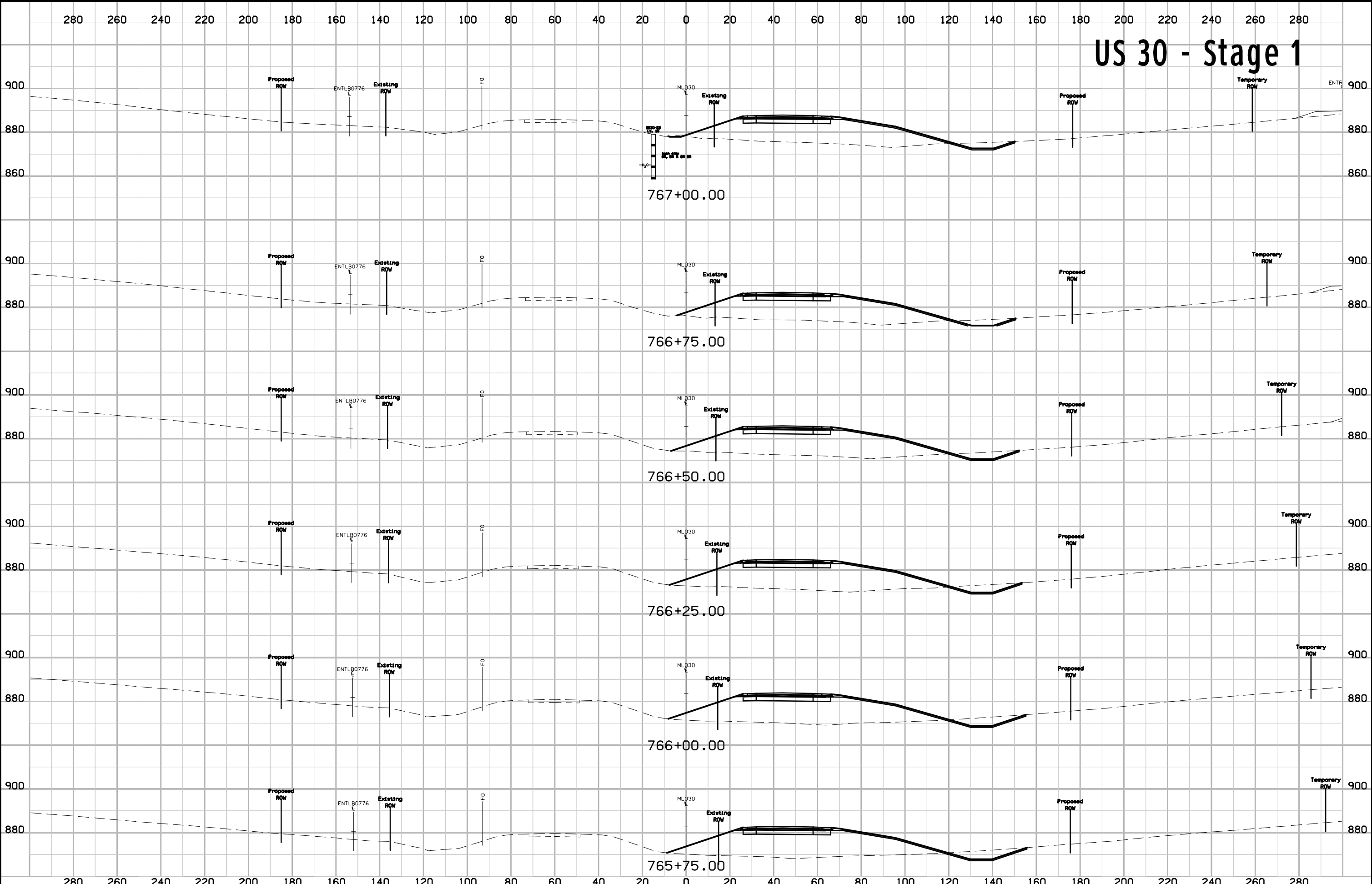
# US 30 - Stage 1



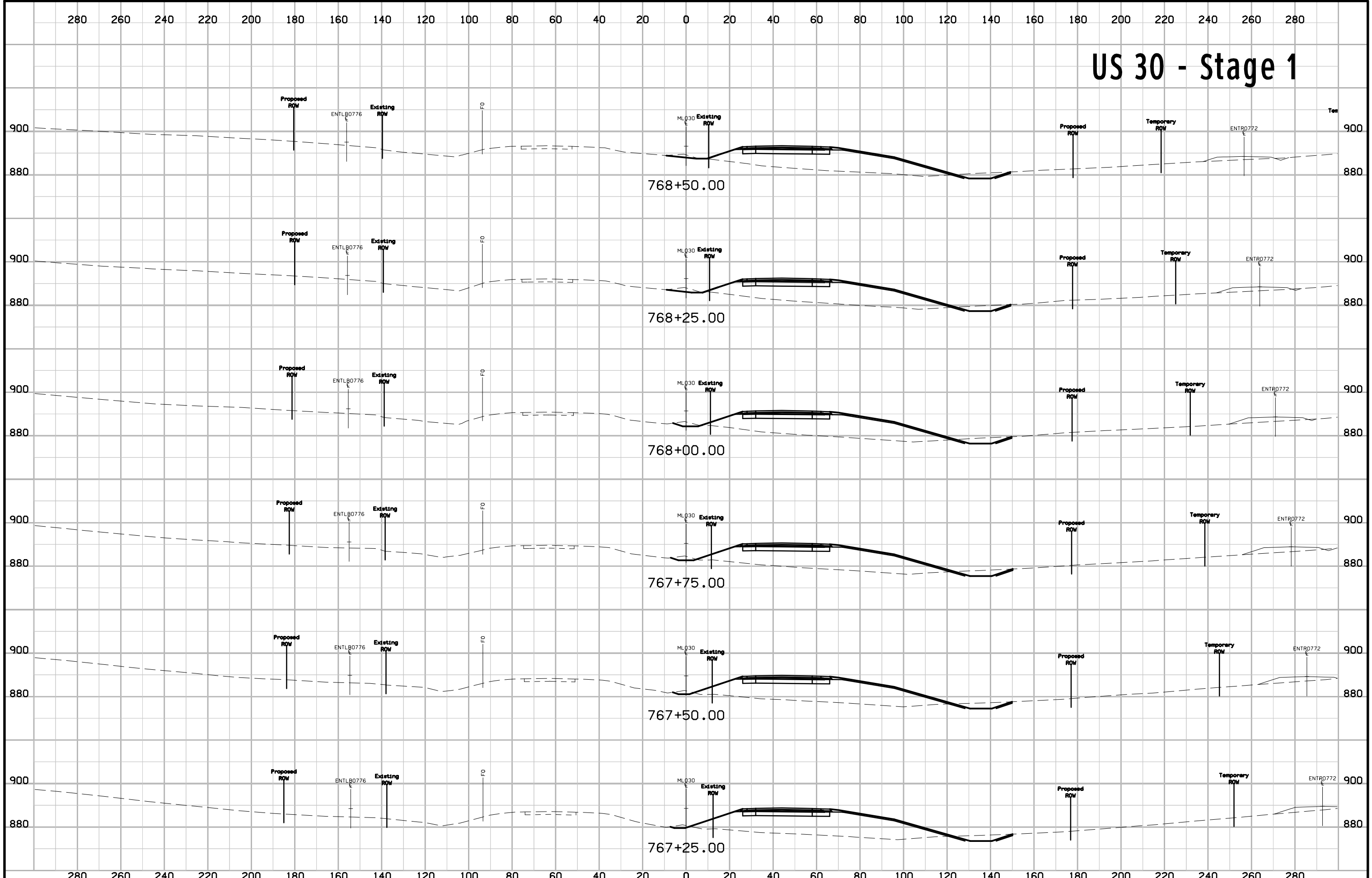
# US 30 - Stage 1



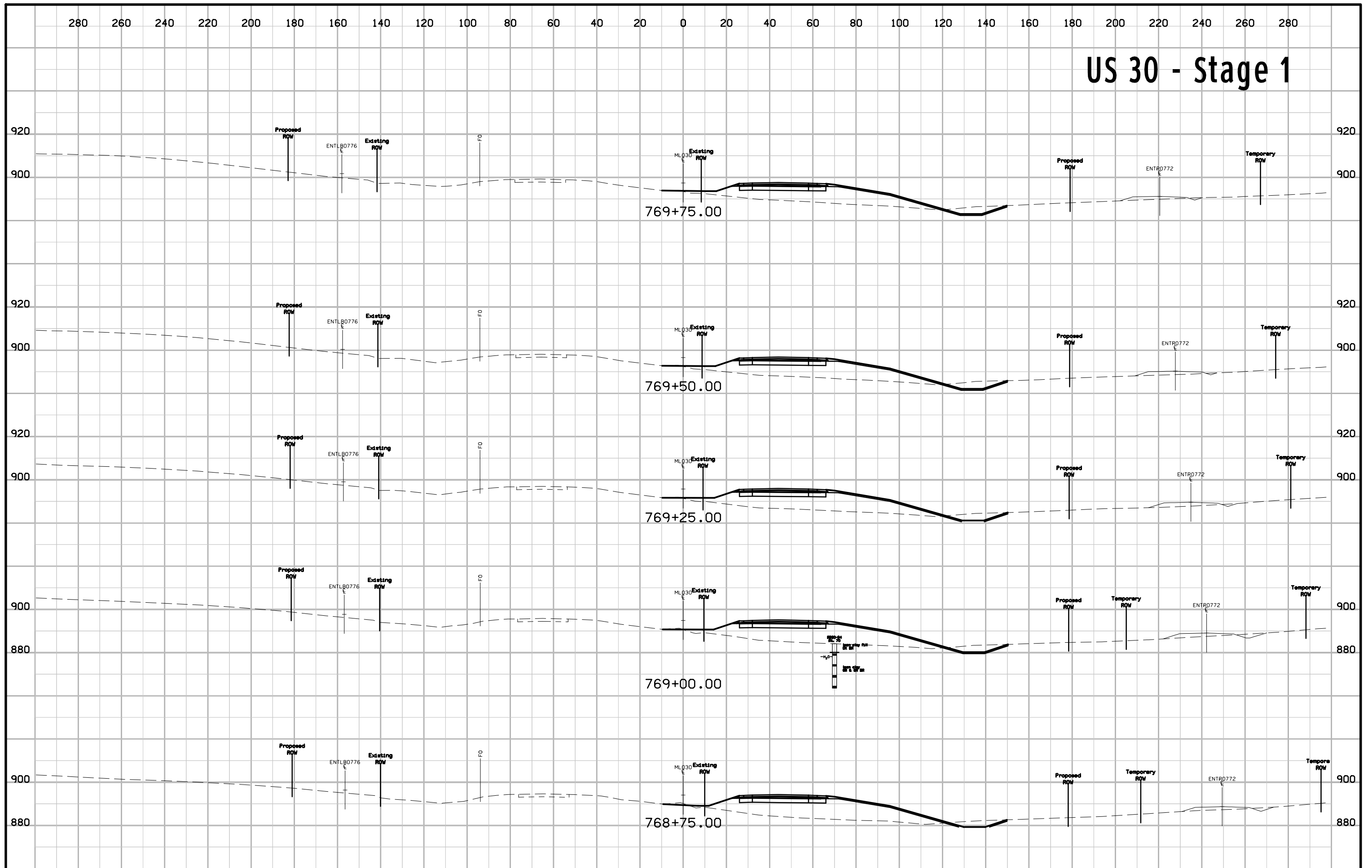
# US 30 - Stage 1



# US 30 - Stage 1

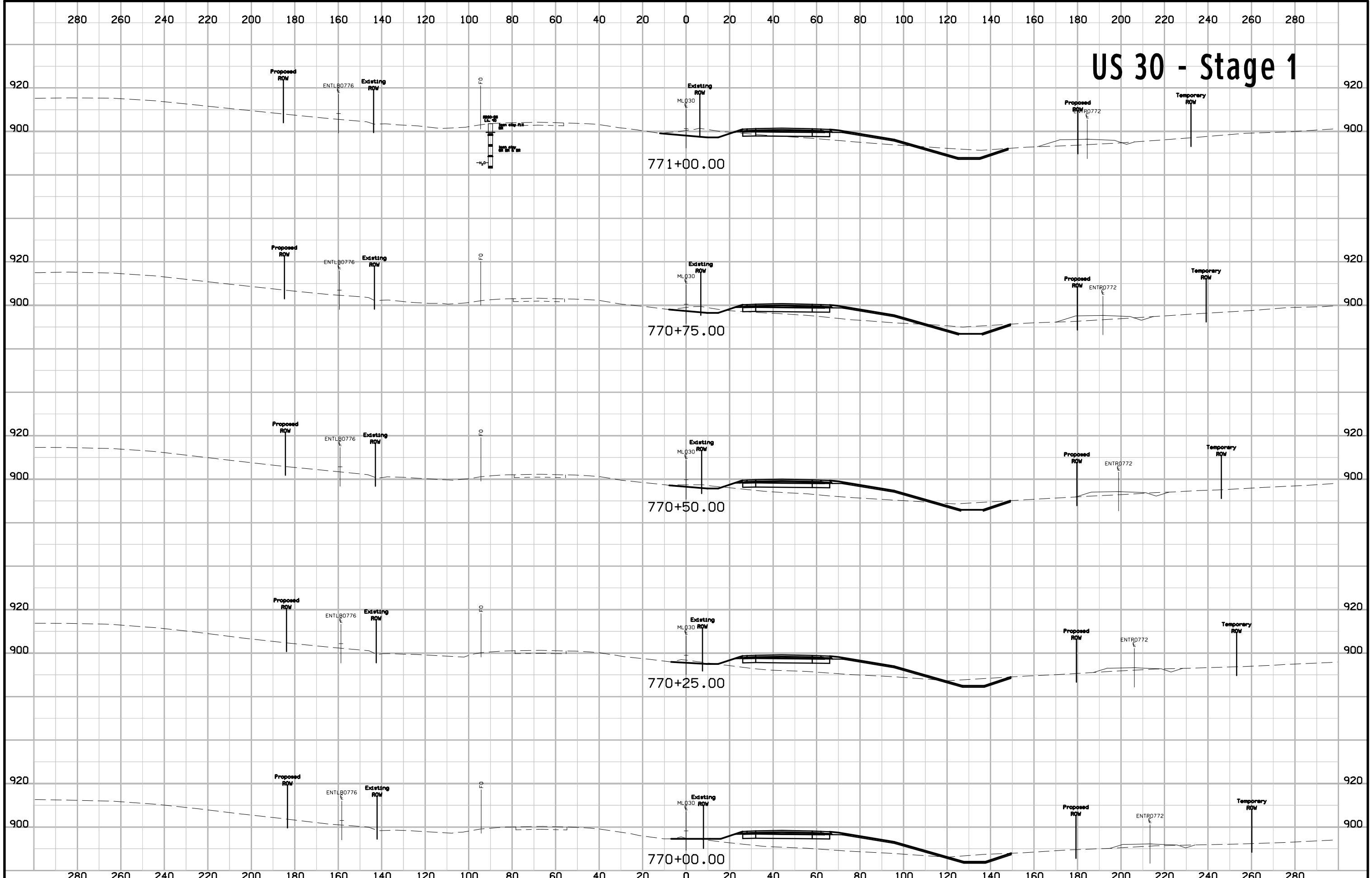


# US 30 - Stage 1

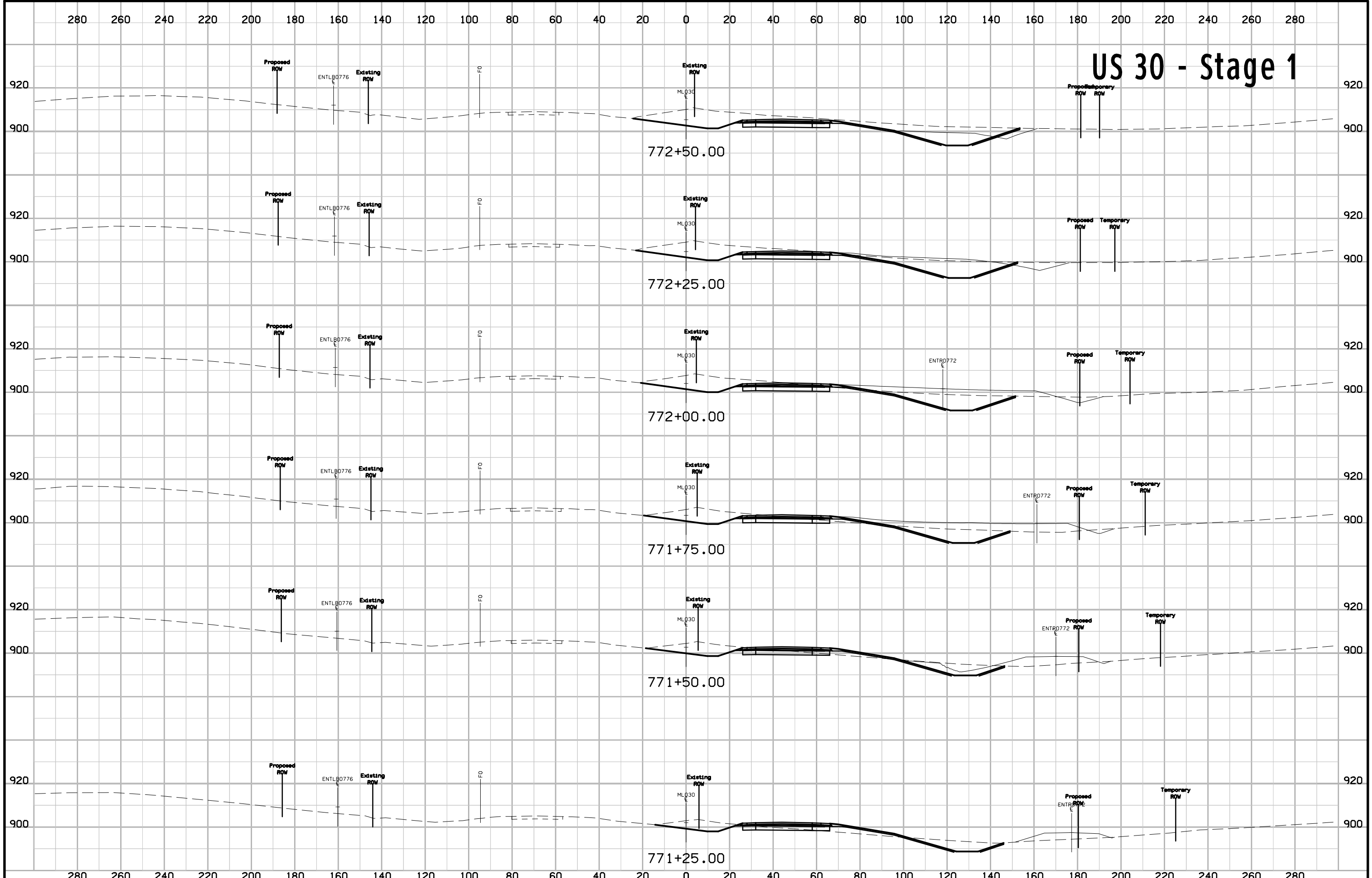




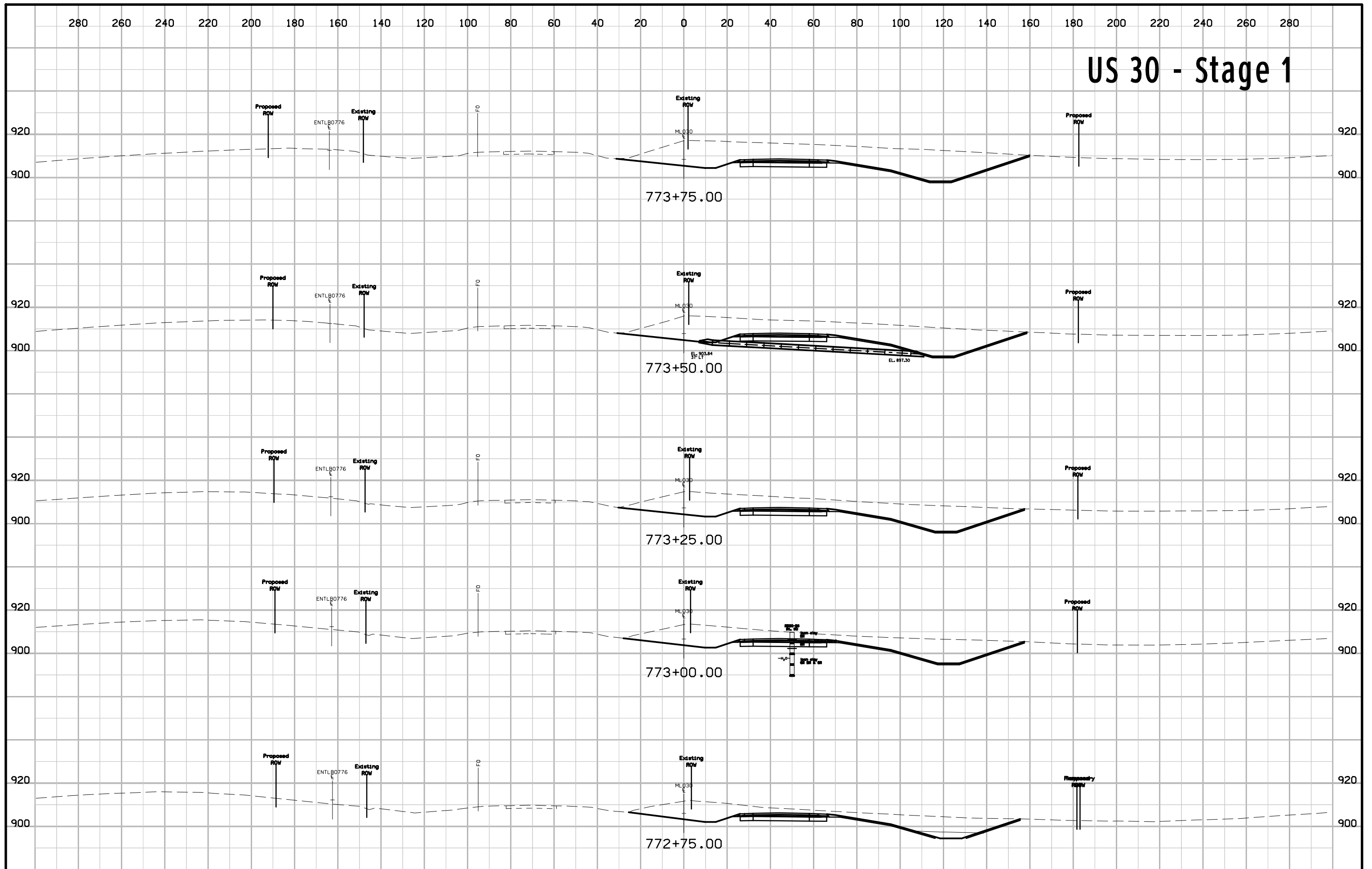
# US 30 - Stage 1



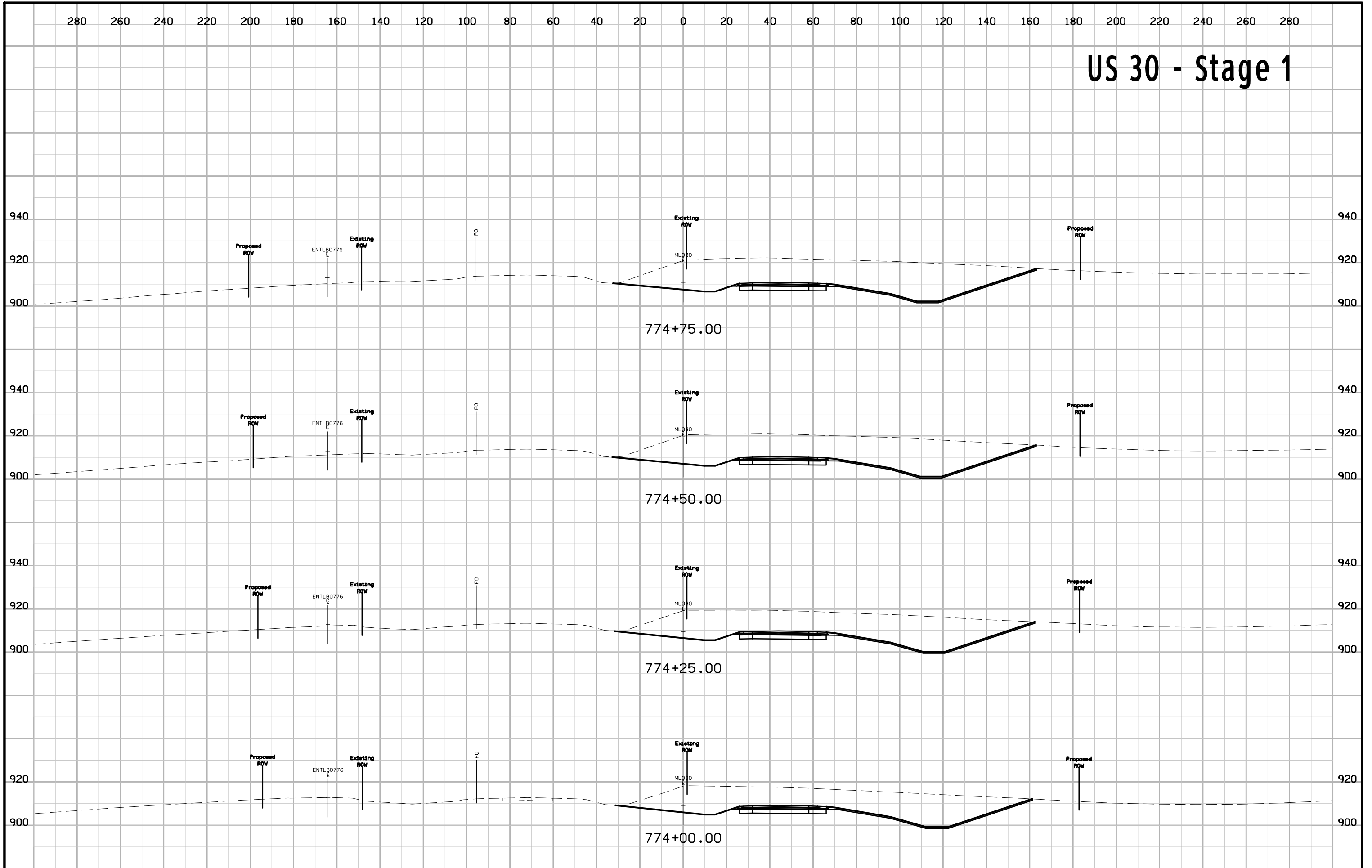
# US 30 - Stage 1



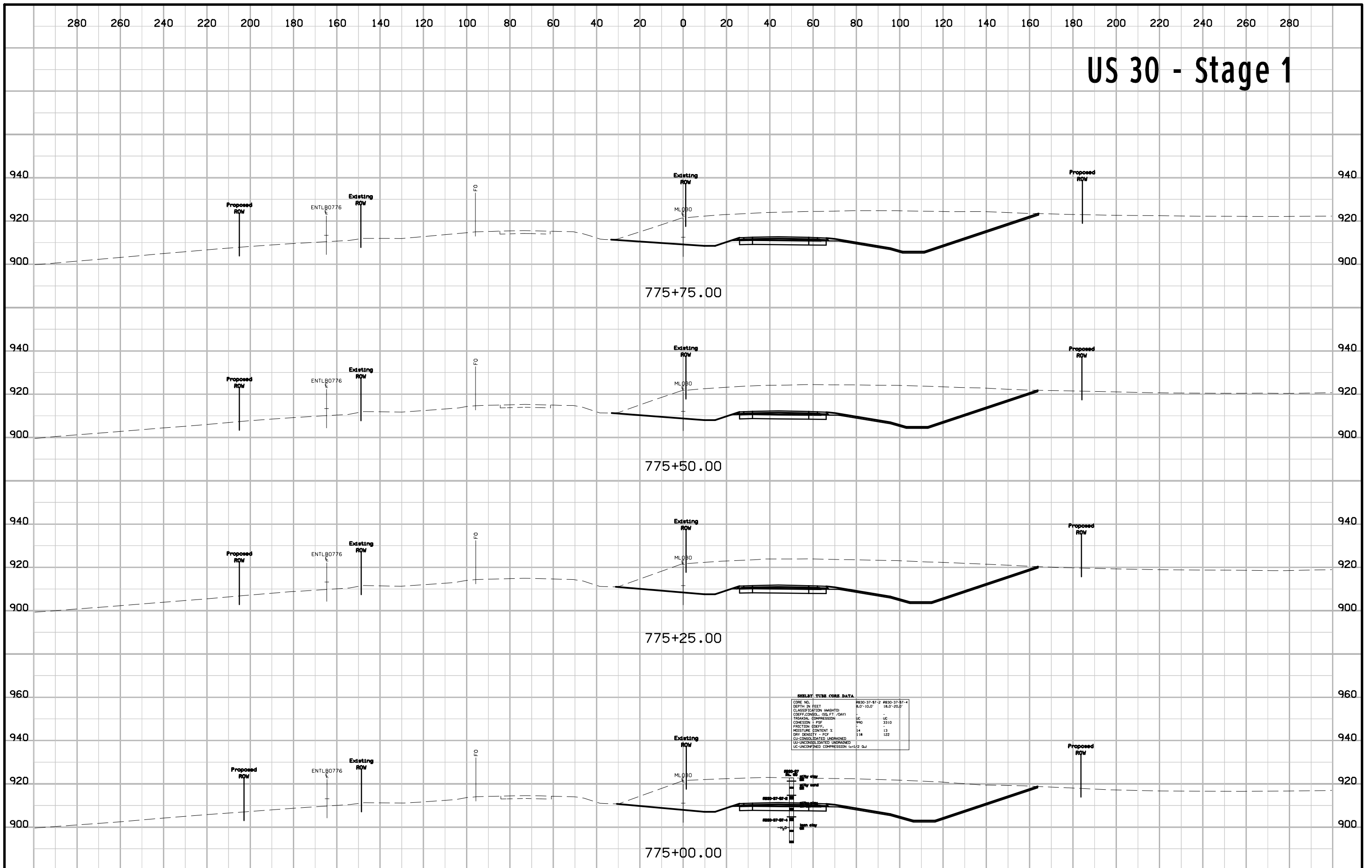
# US 30 - Stage 1



# US 30 - Stage 1



# US 30 - Stage 1

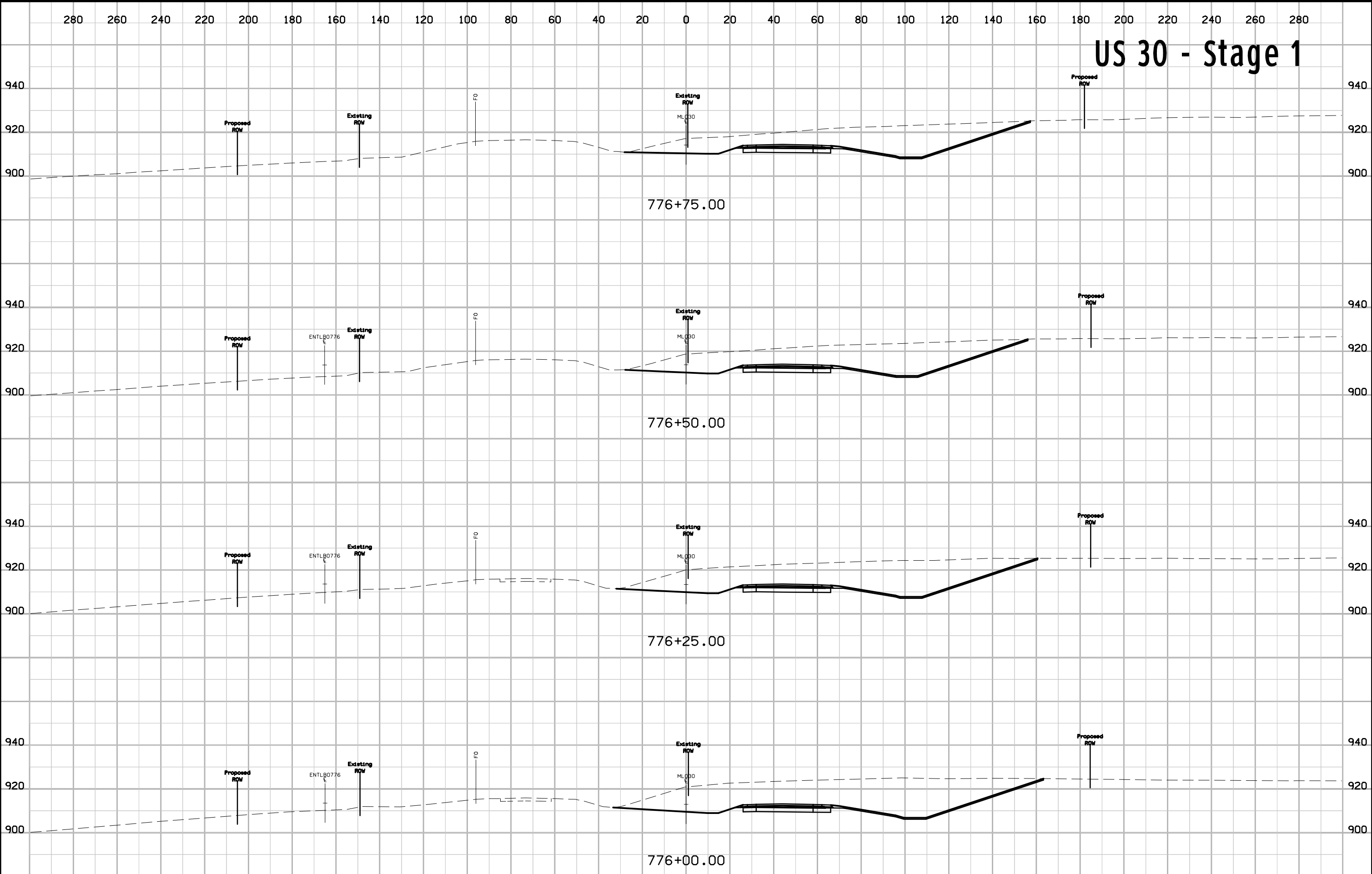


**SHELBY TUBE CORE DATA**

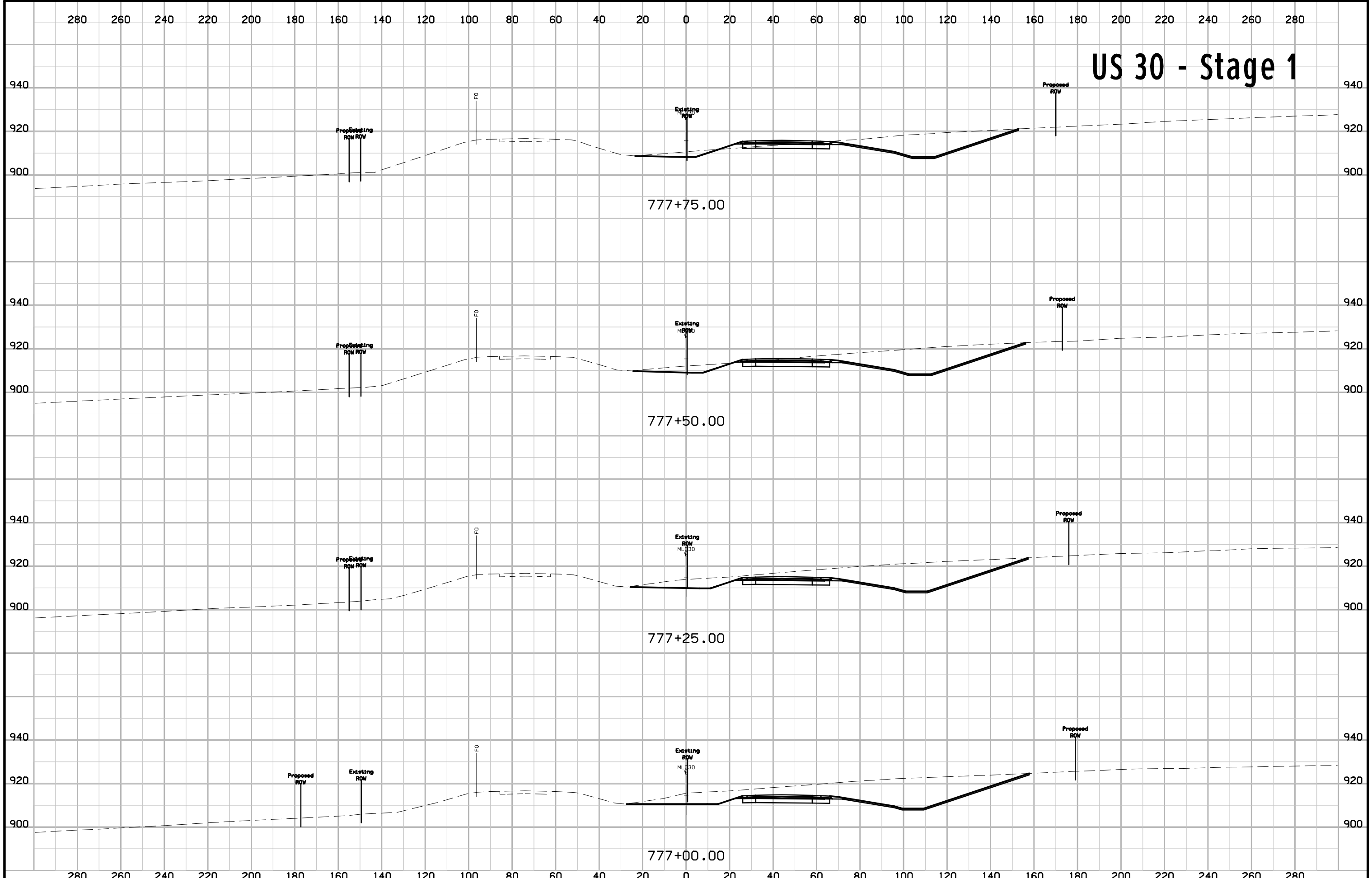
CORE NO.	#30-37-51-2	#30-37-51-4
DEPTH IN FEET	8.0'-10.0'	18.0'-20.0'
CLASSIFICATION (ASTM)	-	-
COEFF. CONSOL. - USL FT / DAY	-	-
TRIAxIAL COMPRESS.	1C	1C
COHESION - PSF	990	3310
FRICTION COEFF.	-	-
MOISTURE CONTENT %	14	13
DRY DENSITY - PCF	118	122
CU-CONSOLIDATED UNDRAINED	-	-
CU-UNCONSOLIDATED UNDRAINED	-	-
CU-UNCONSOLIDATED COMPRESS. (s=1/2 Q <sub>u</sub> )	-	-



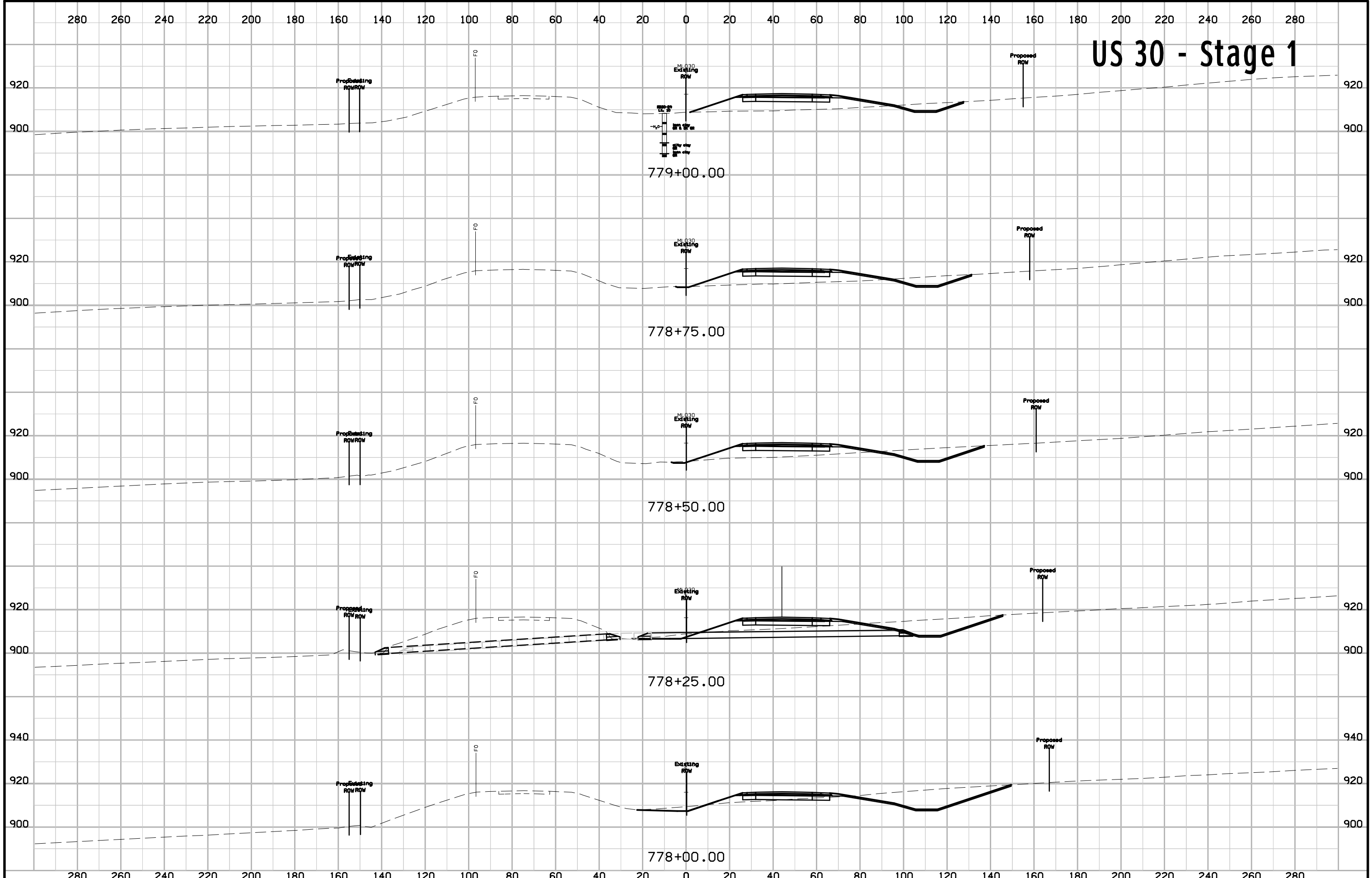
# US 30 - Stage 1



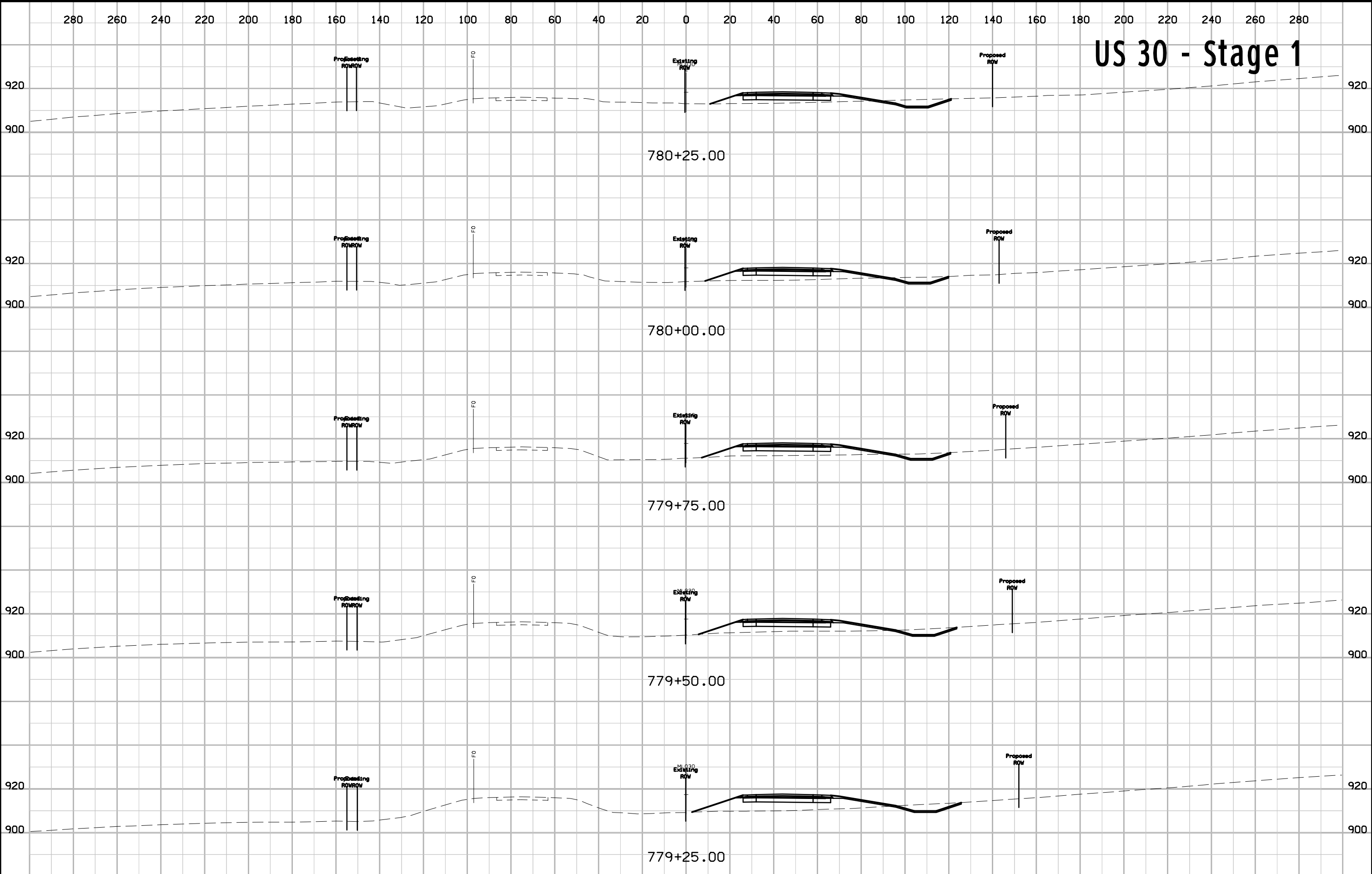
# US 30 - Stage 1



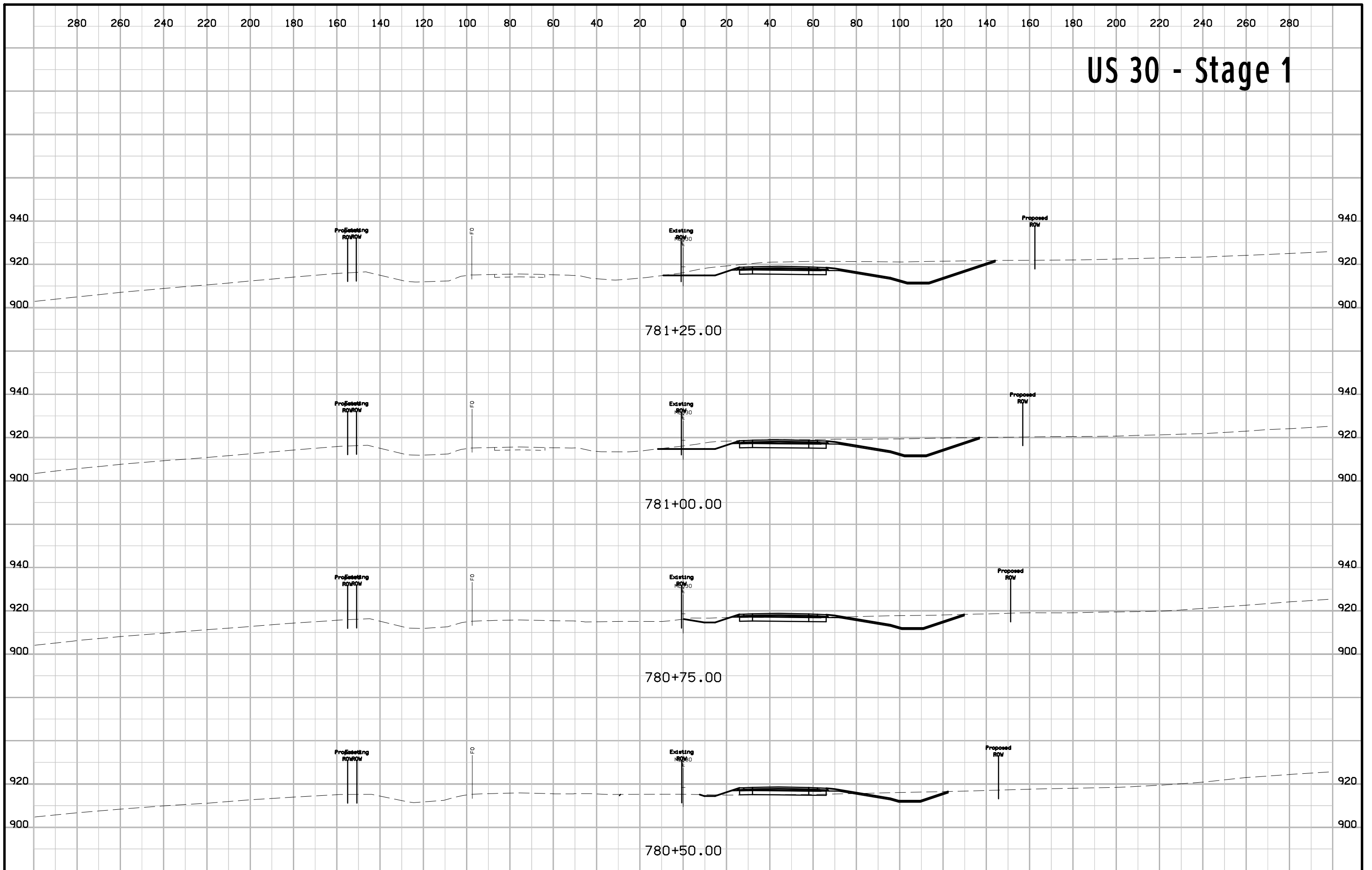
# US 30 - Stage 1



# US 30 - Stage 1

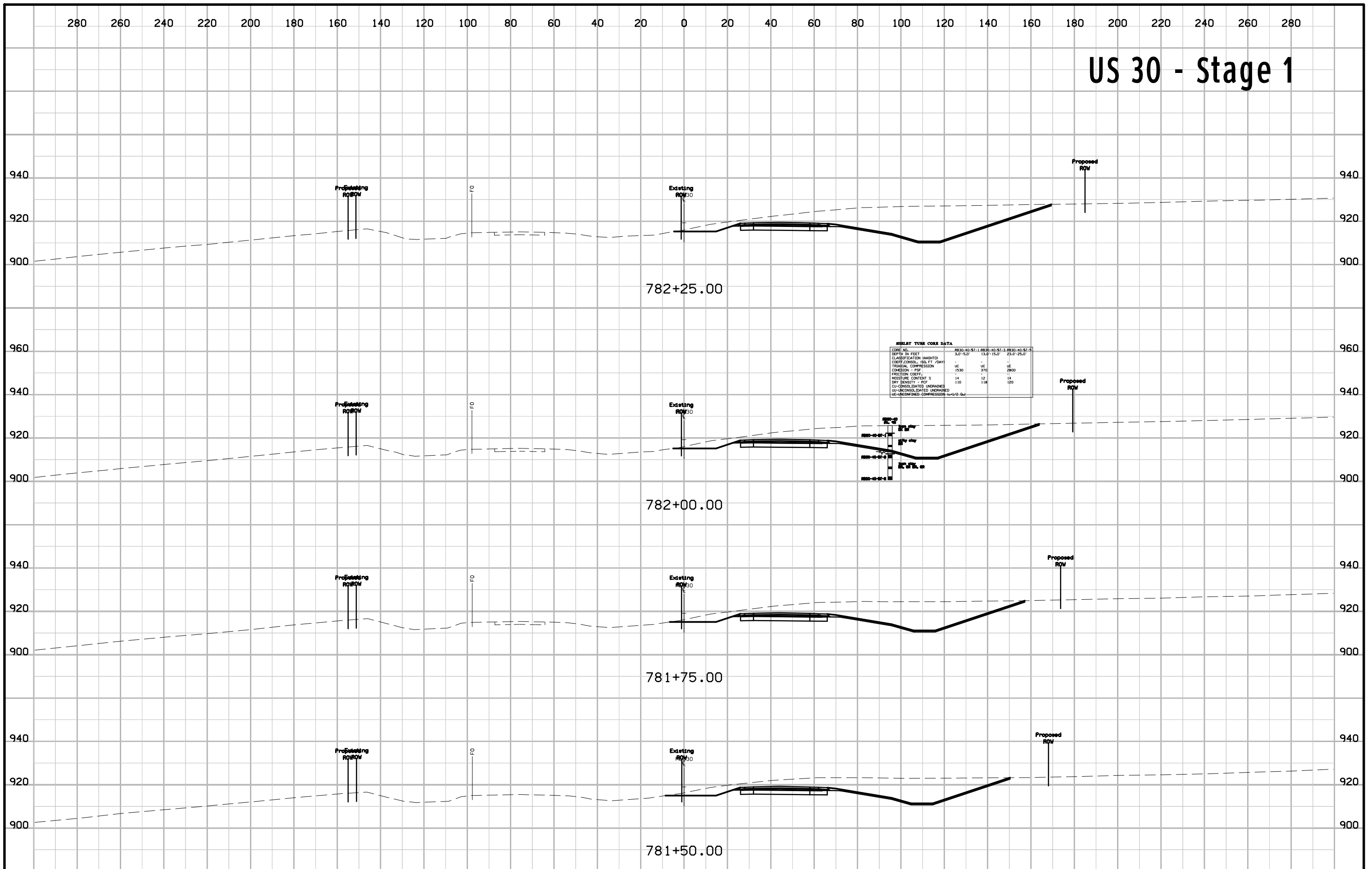


# US 30 - Stage 1

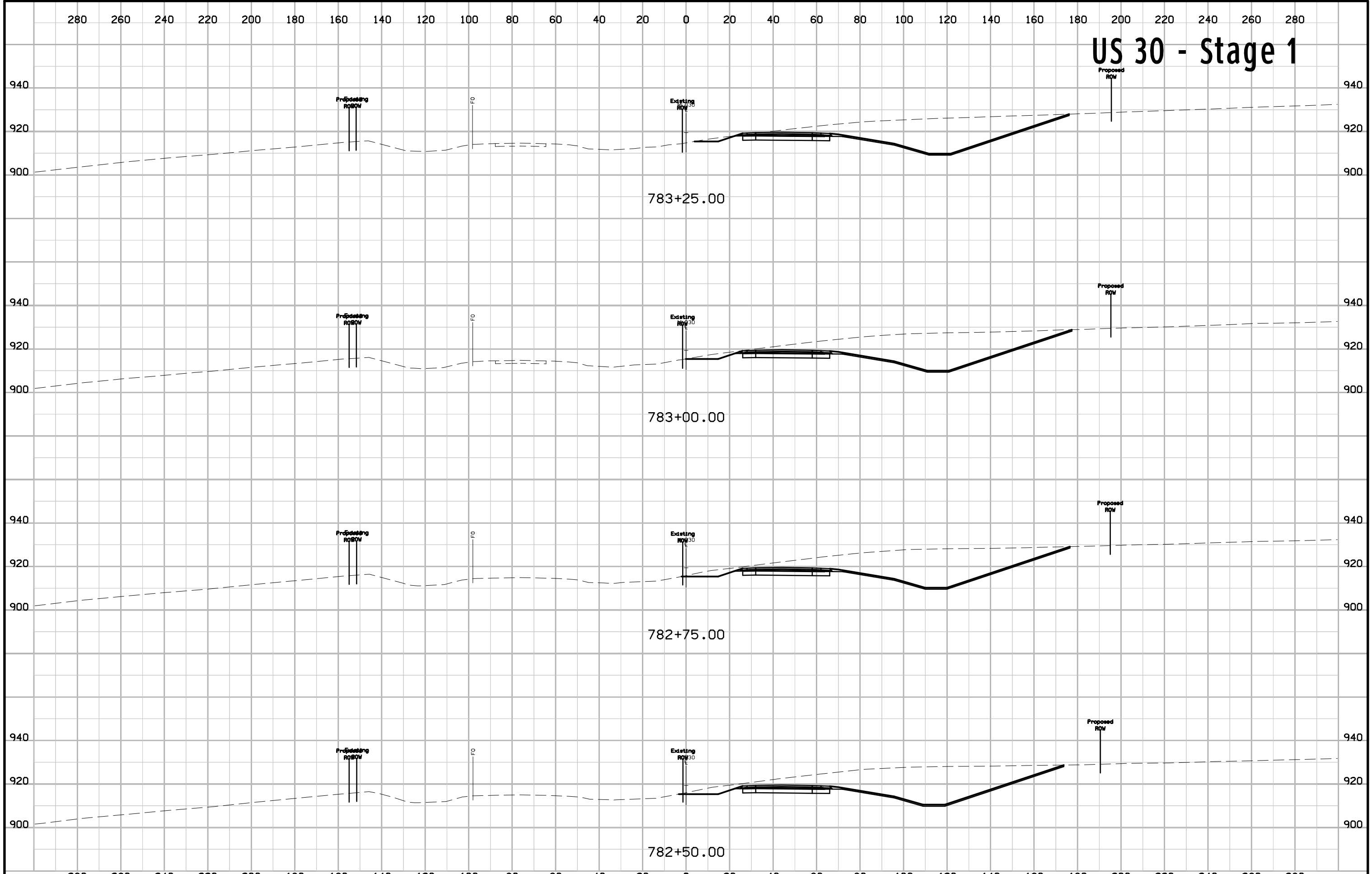




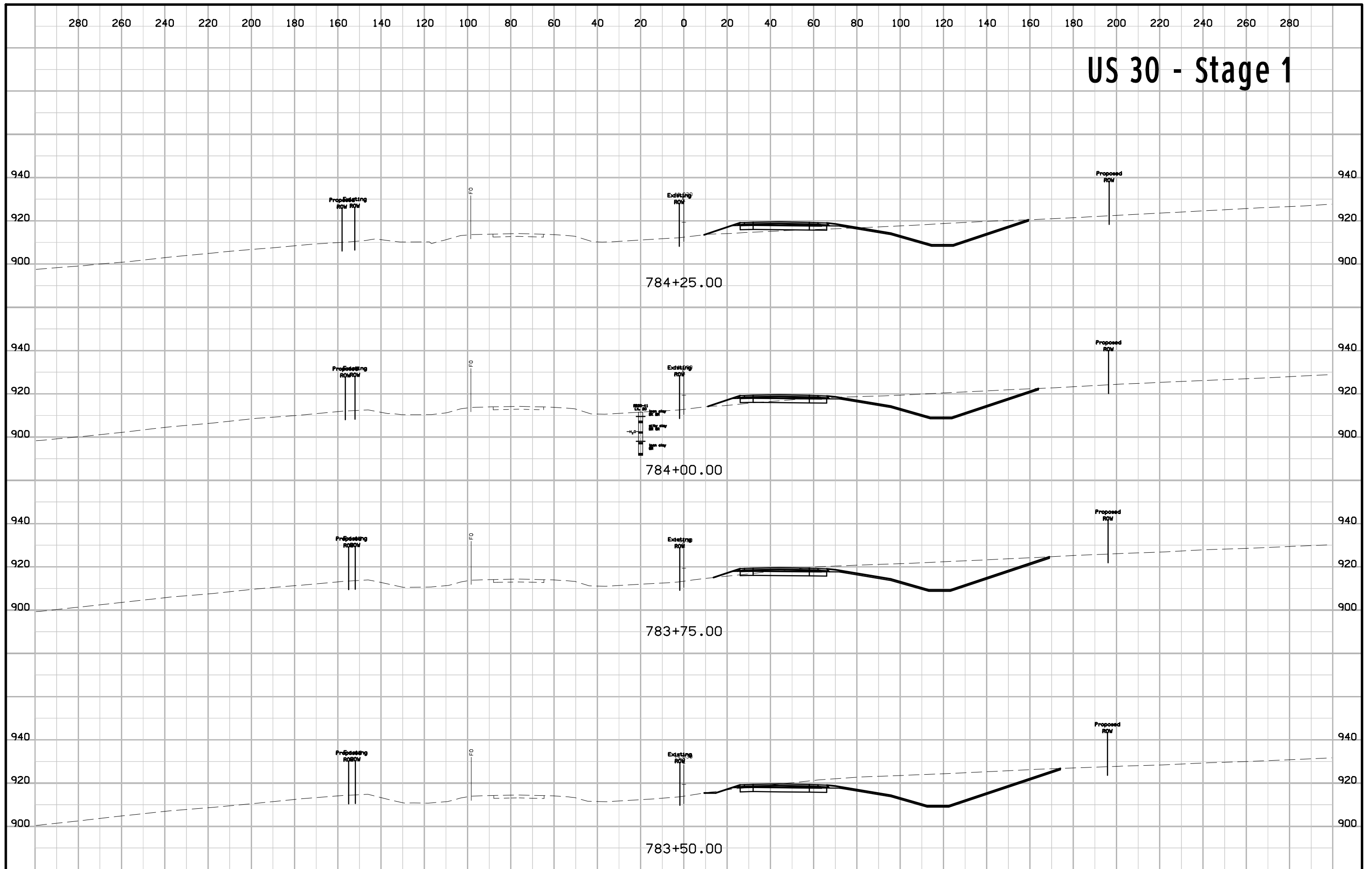
# US 30 - Stage 1



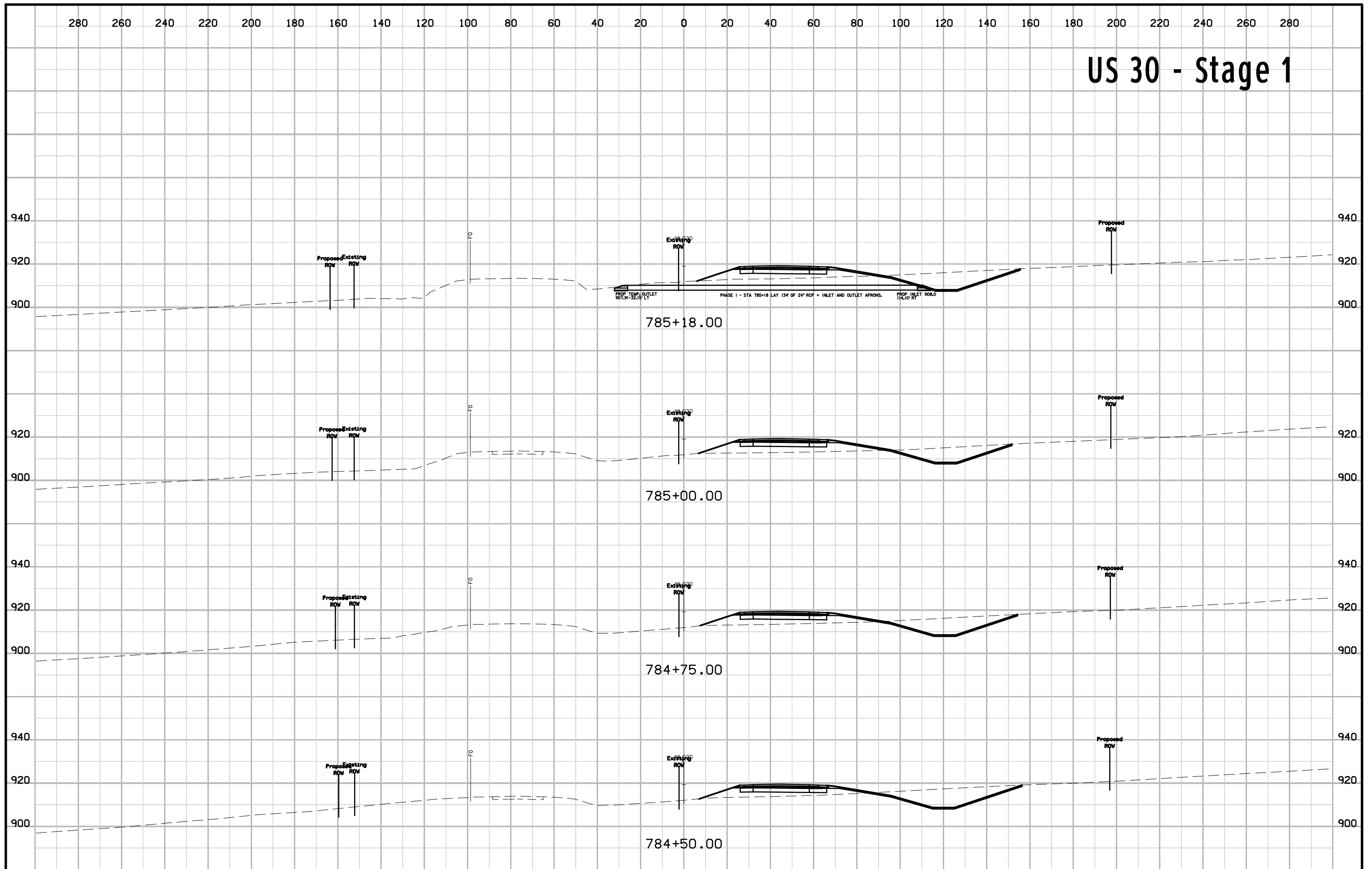
# US 30 - Stage 1



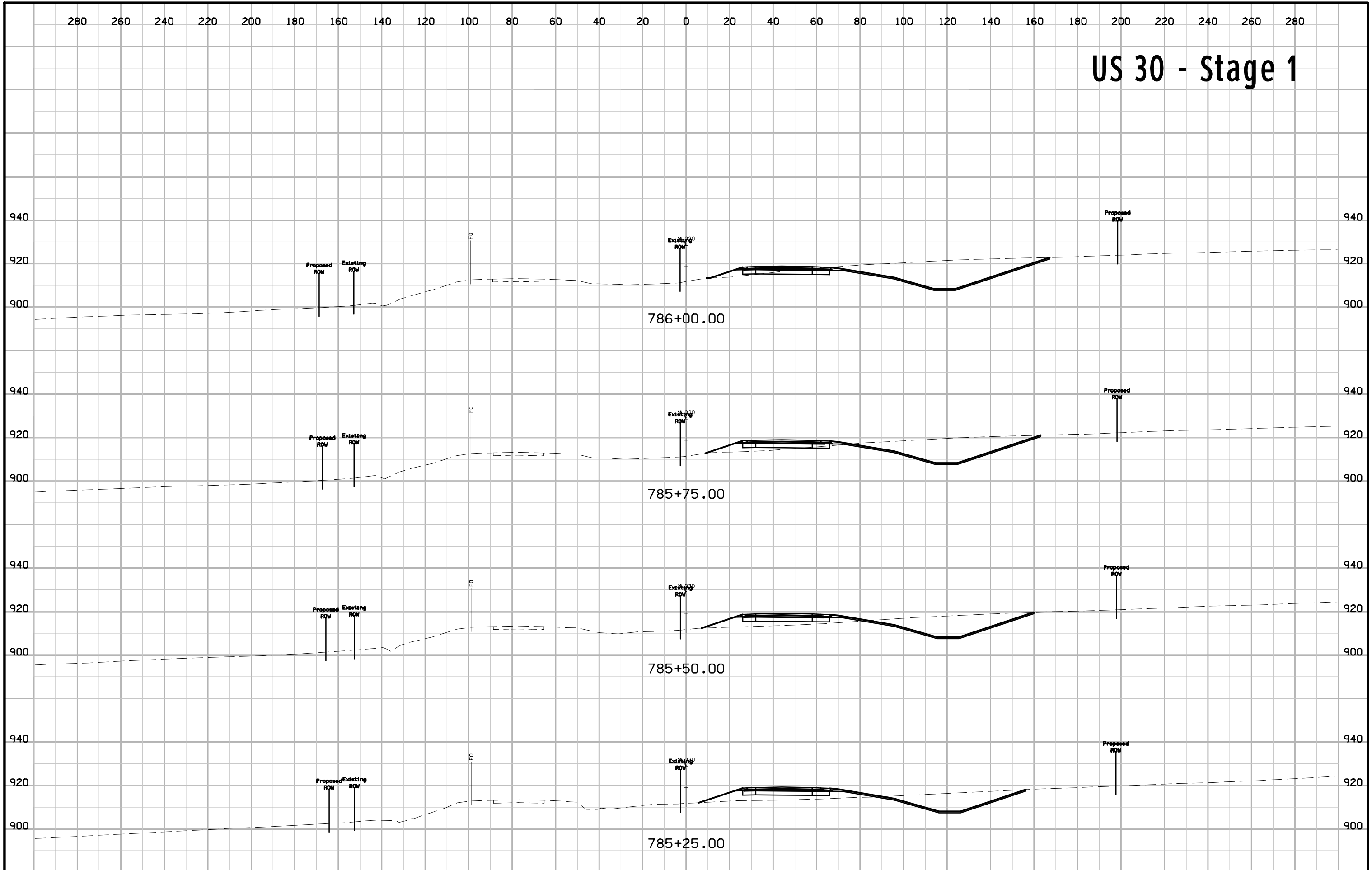
# US 30 - Stage 1



# US 30 - Stage 1

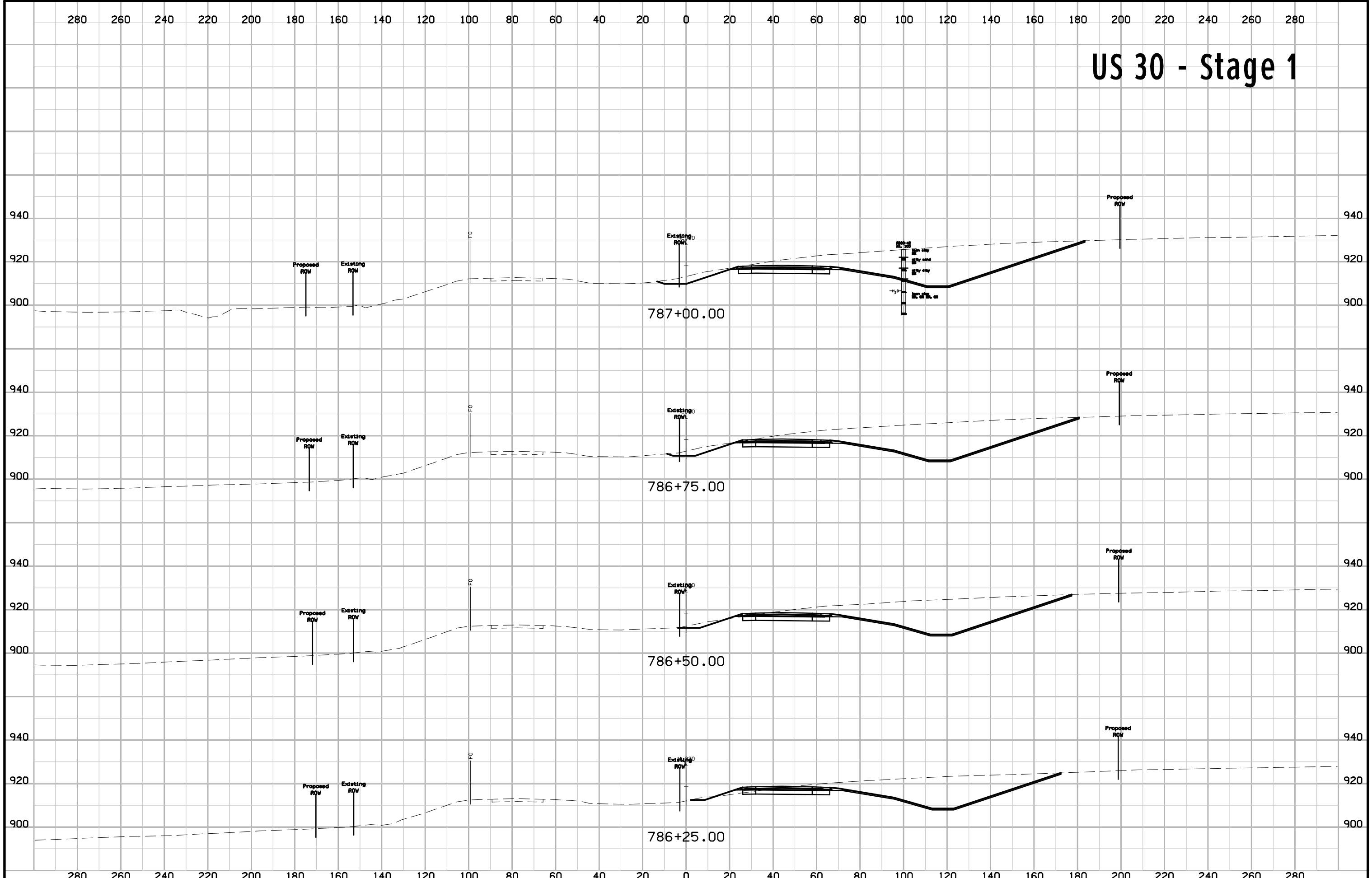


# US 30 - Stage 1

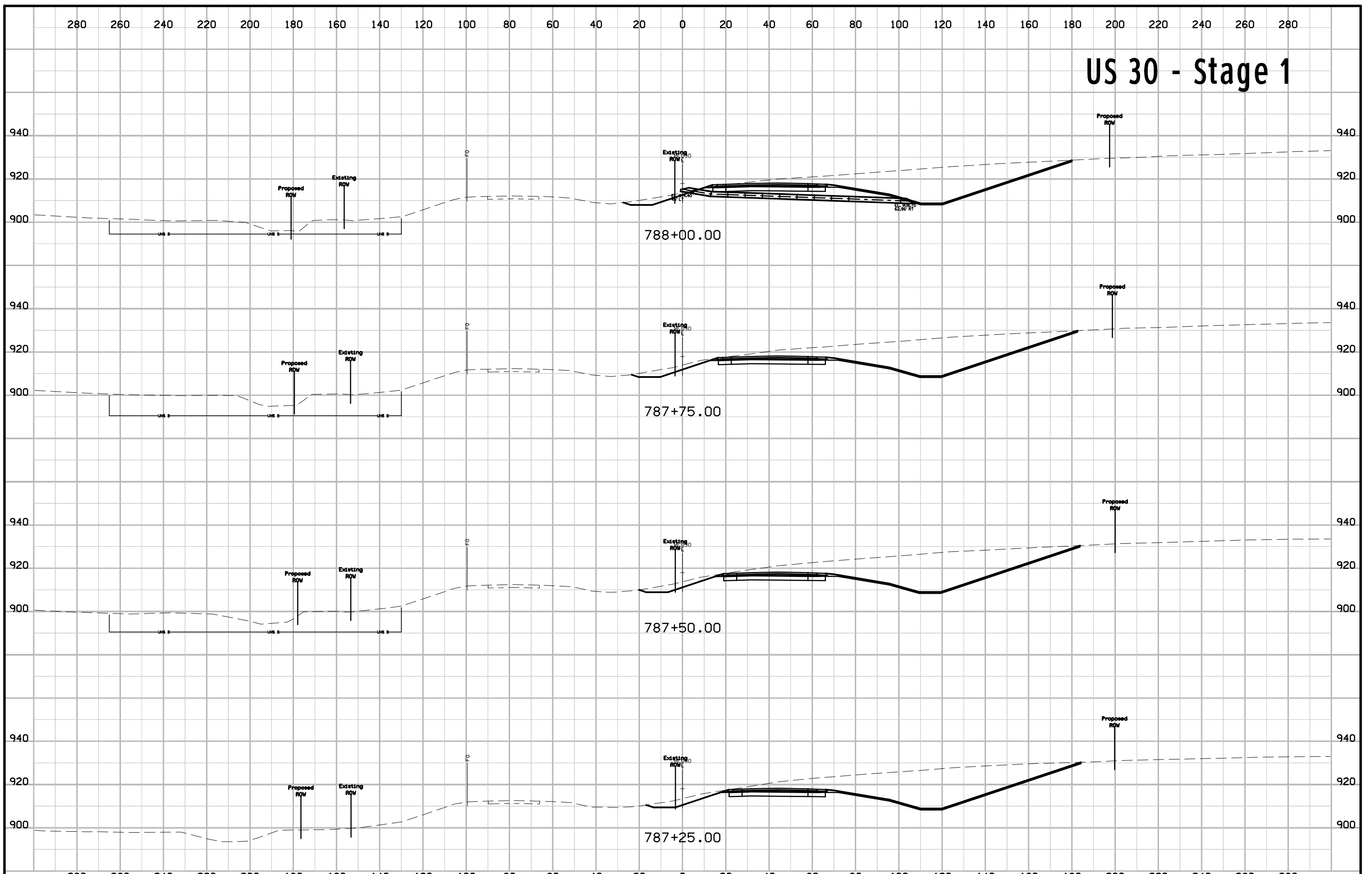




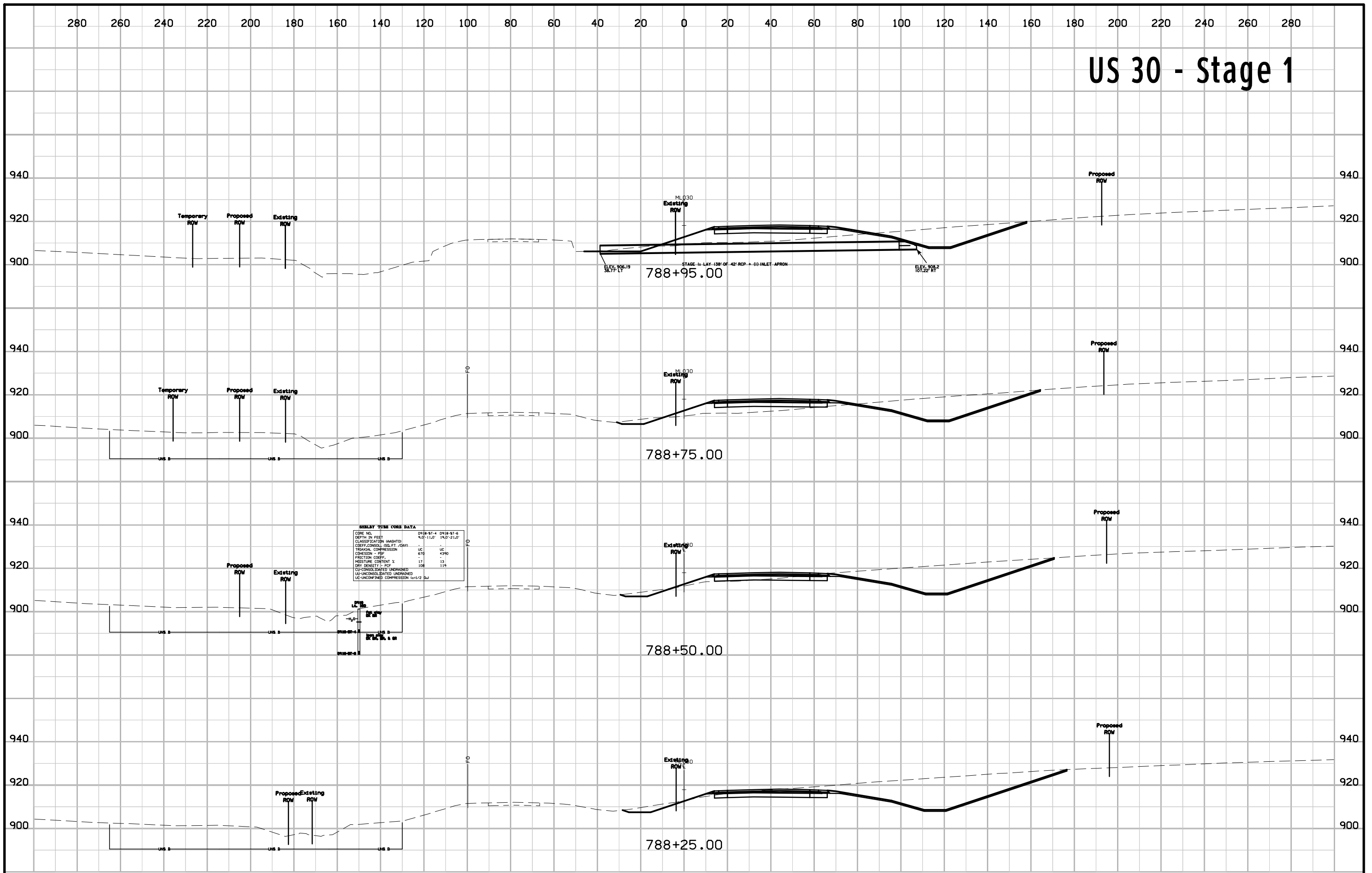
# US 30 - Stage 1



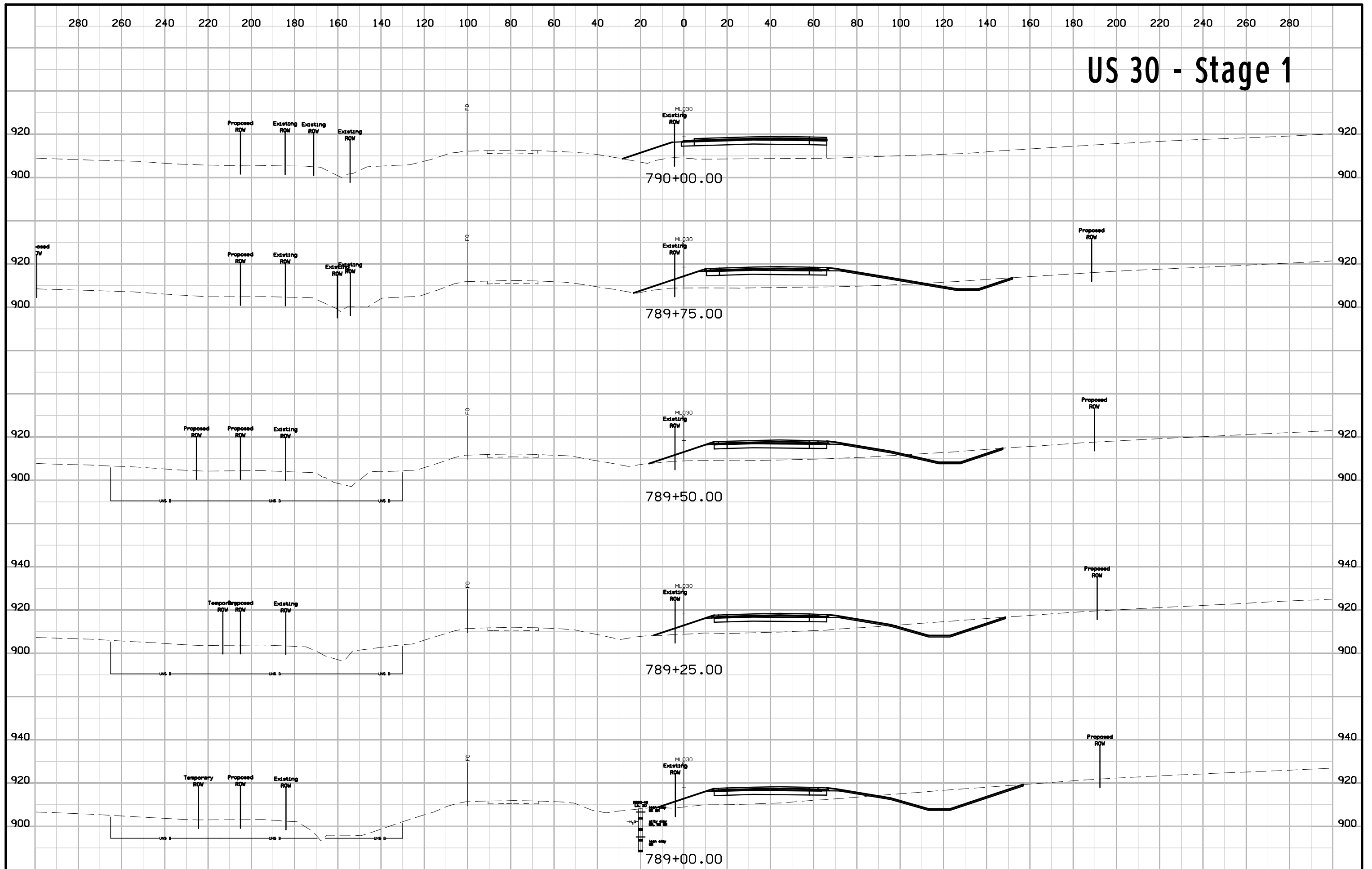
# US 30 - Stage 1



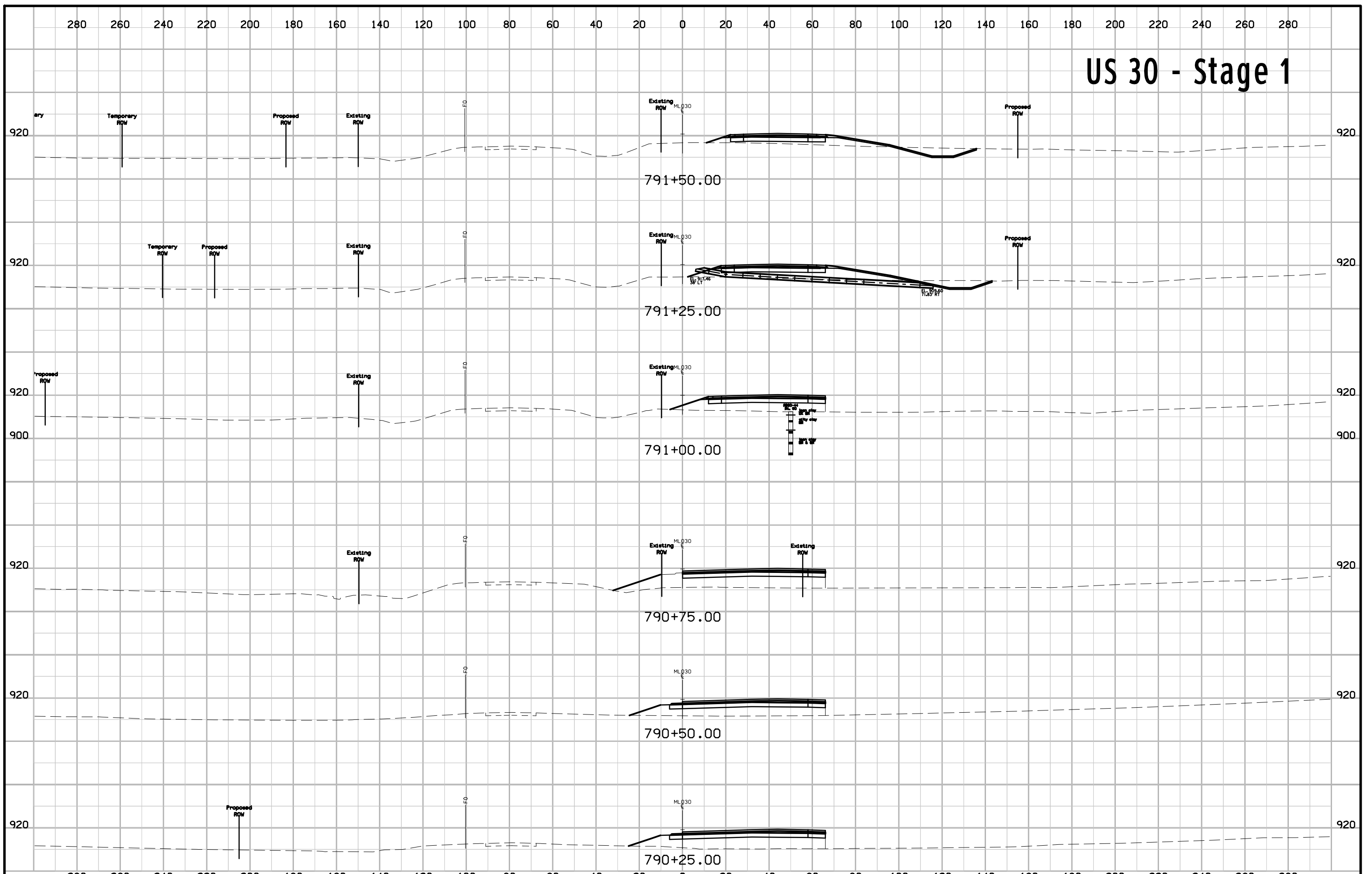
# US 30 - Stage 1



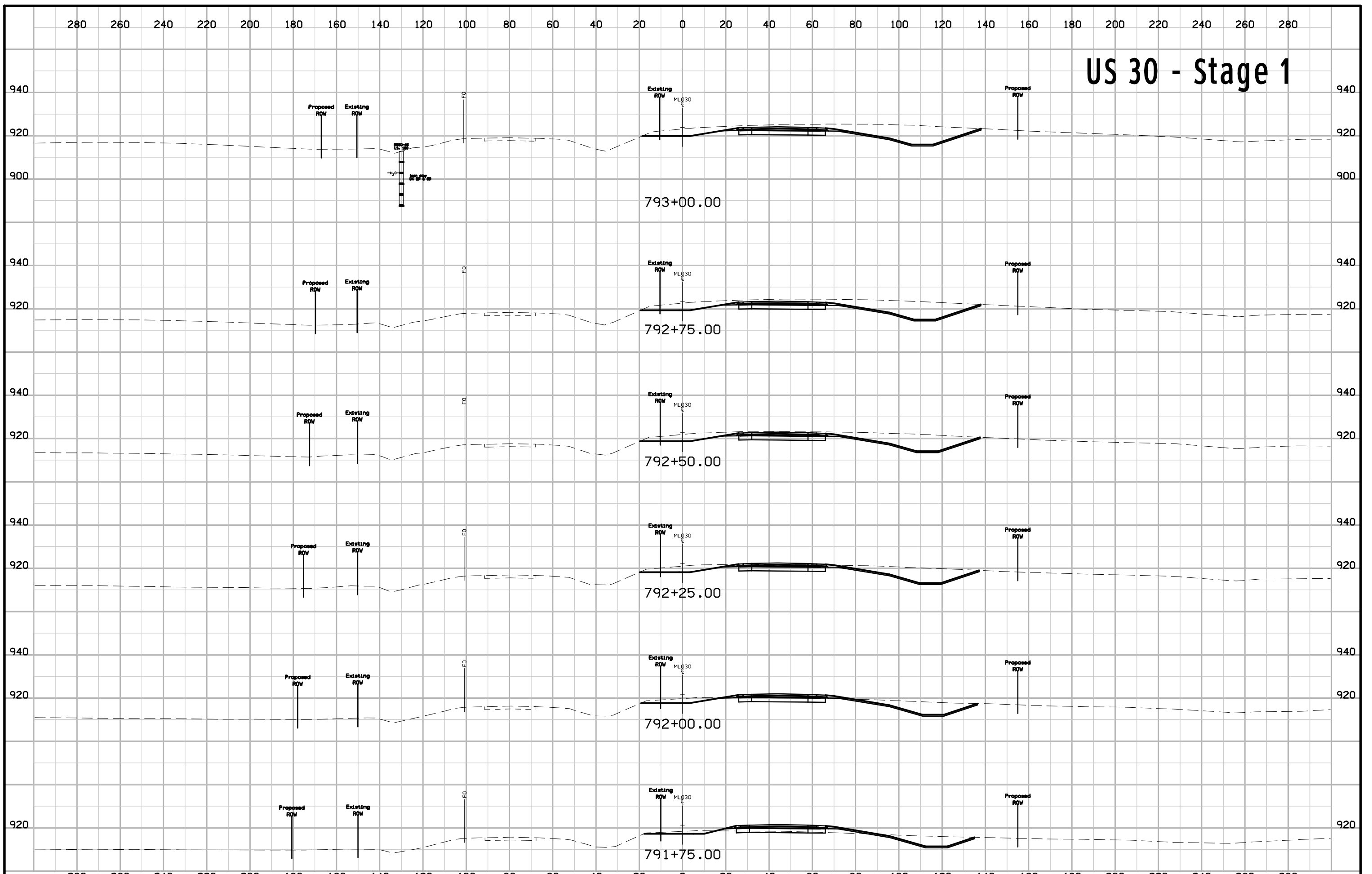
# US 30 - Stage 1



# US 30 - Stage 1

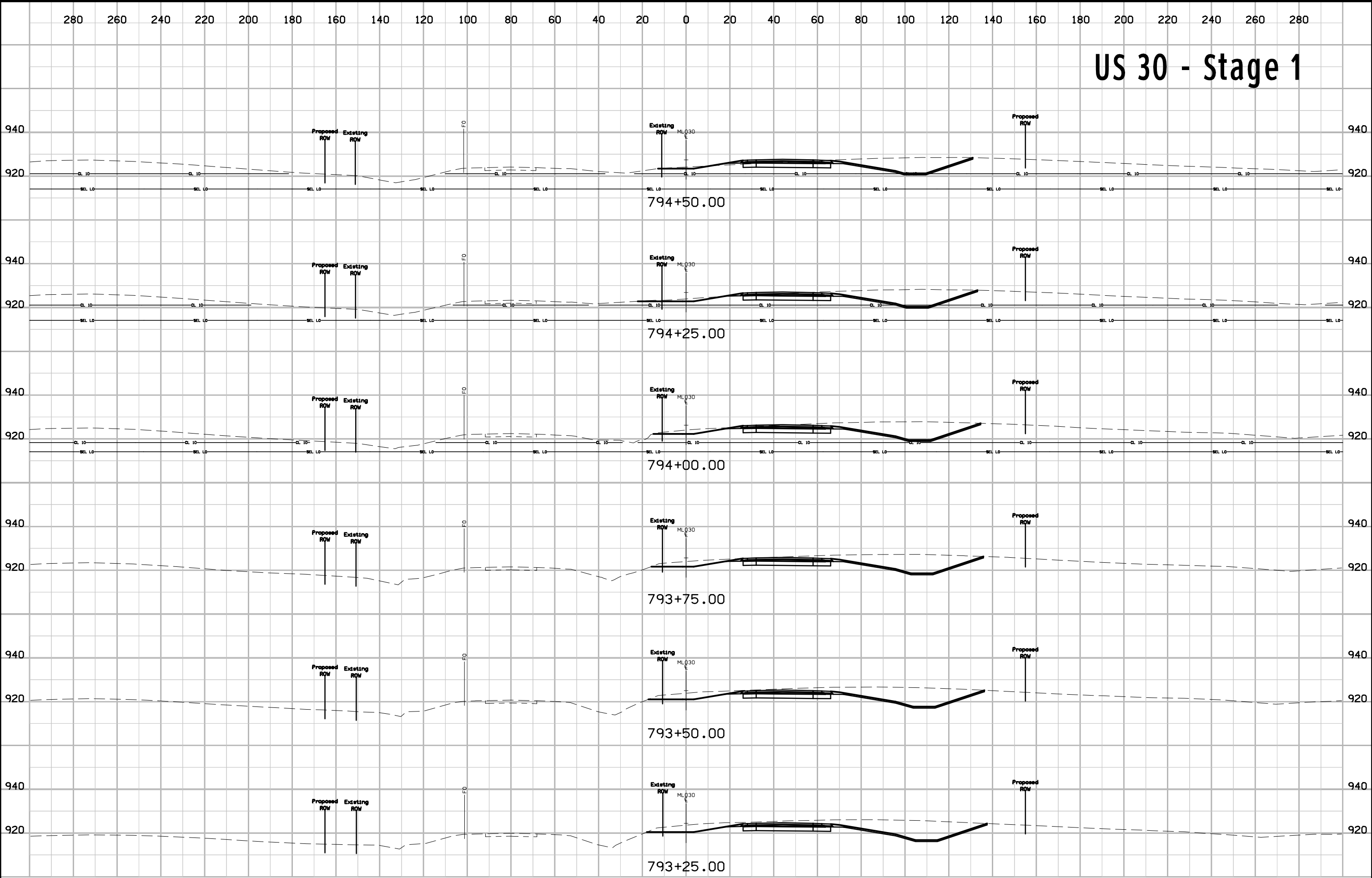


# US 30 - Stage 1

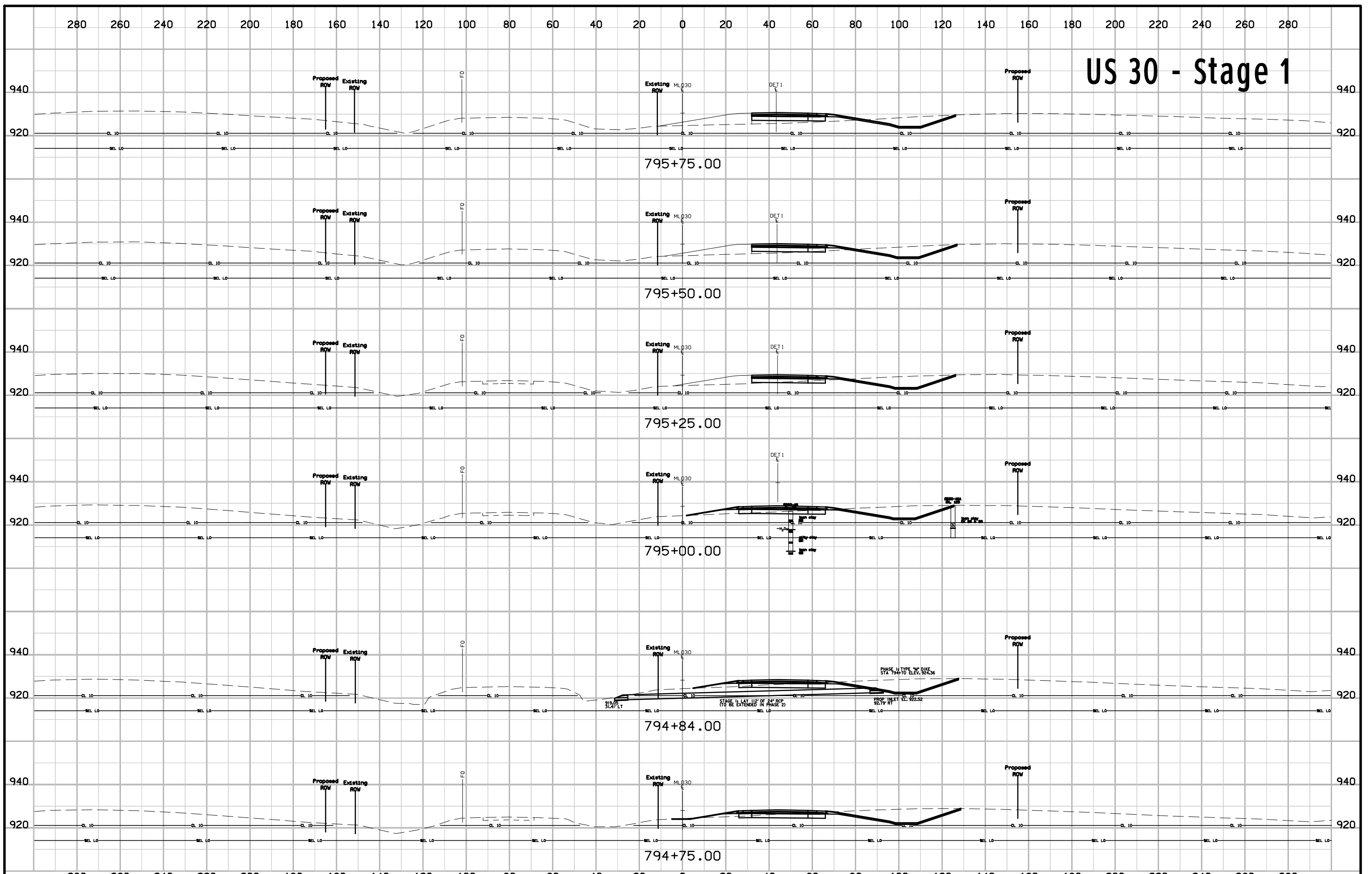




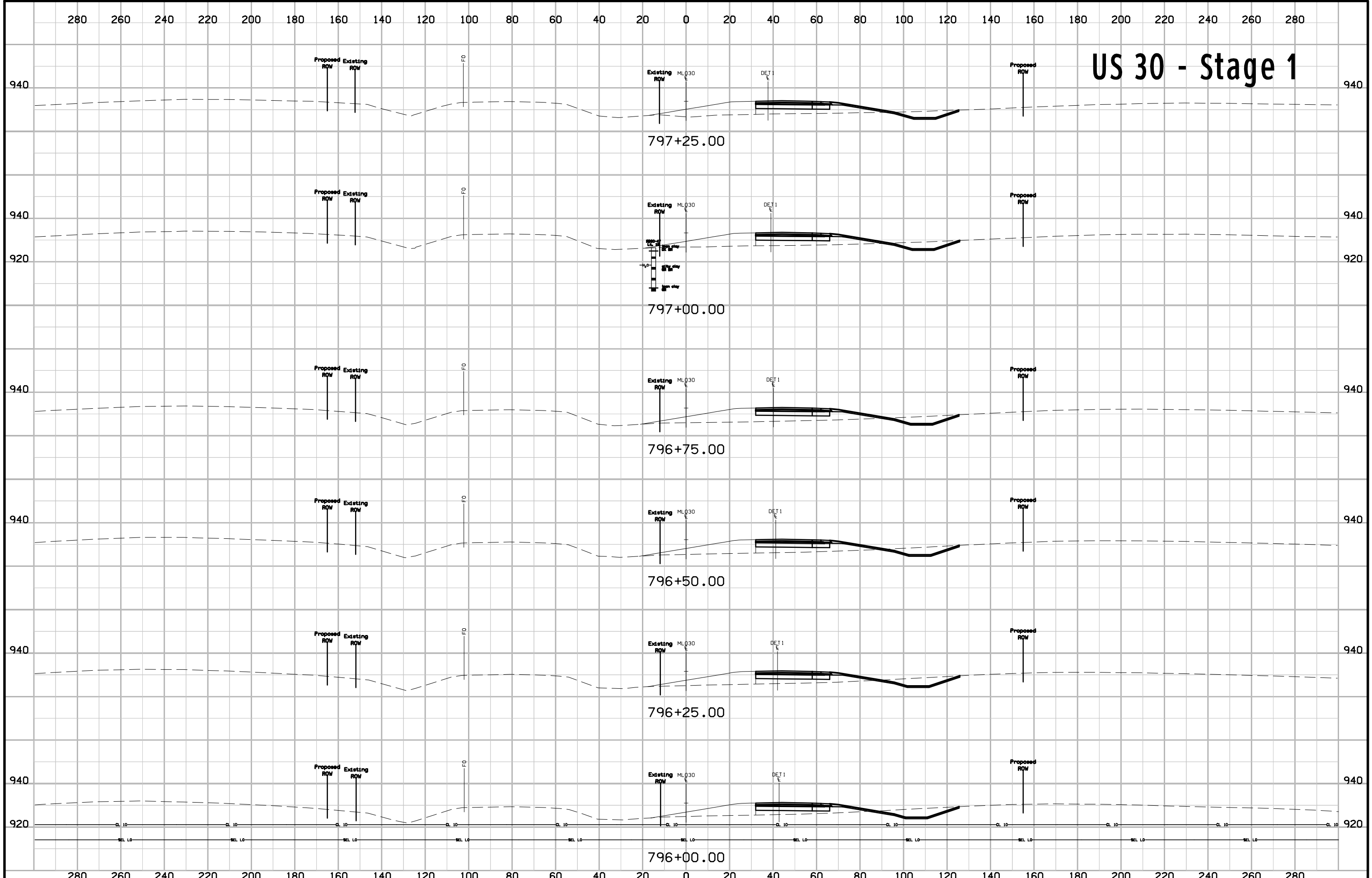
# US 30 - Stage 1



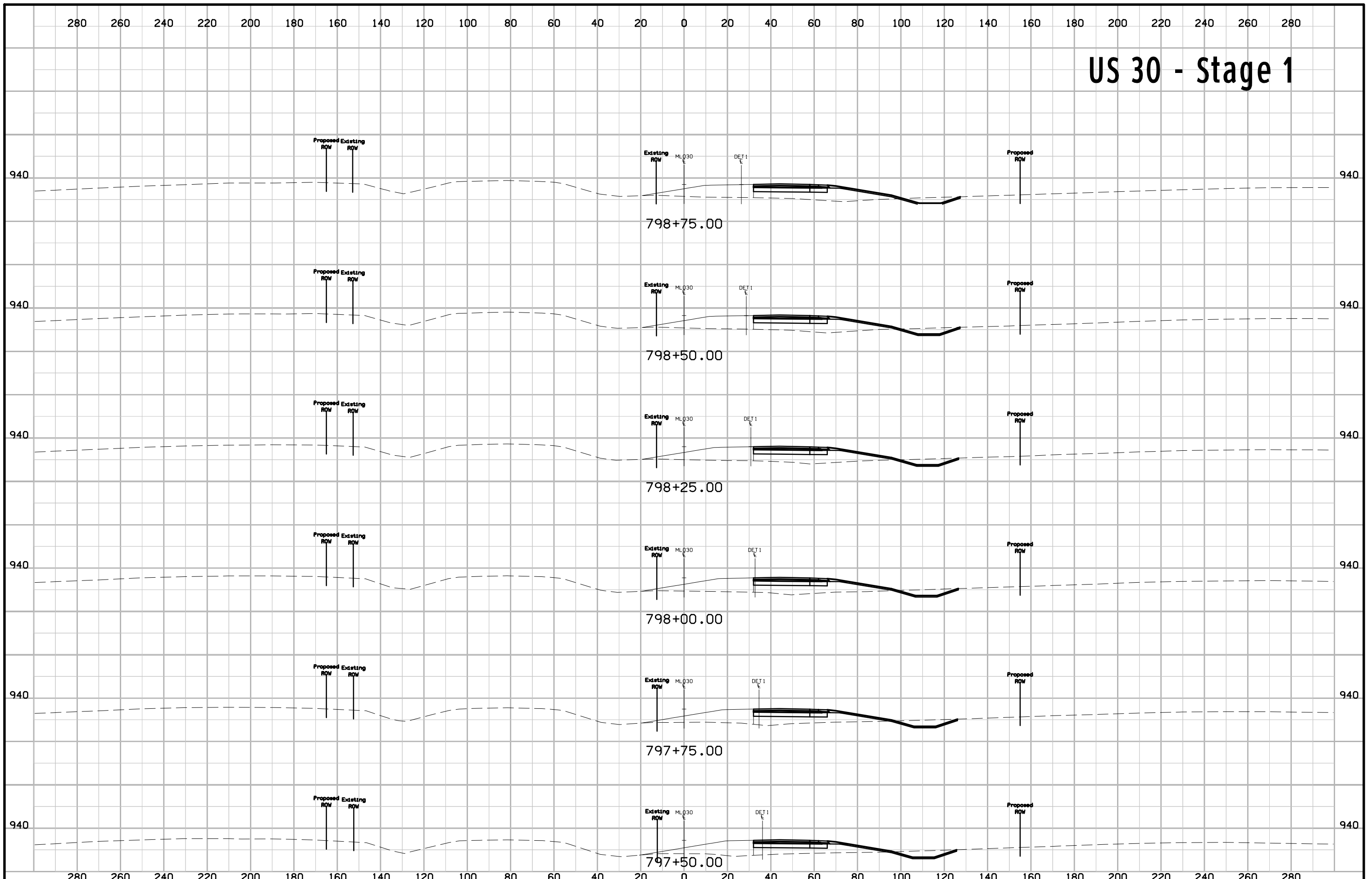
# US 30 - Stage 1



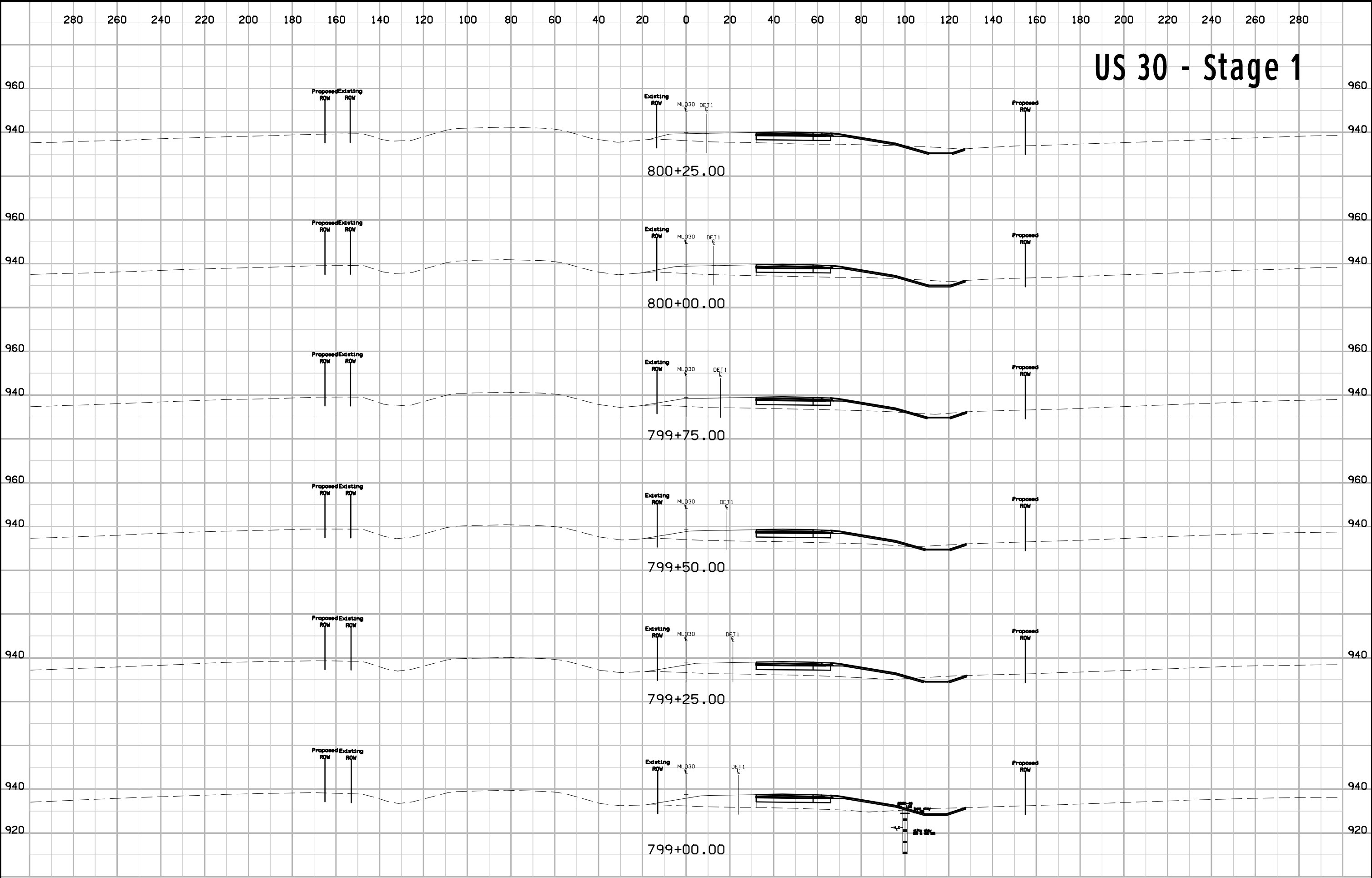
# US 30 - Stage 1



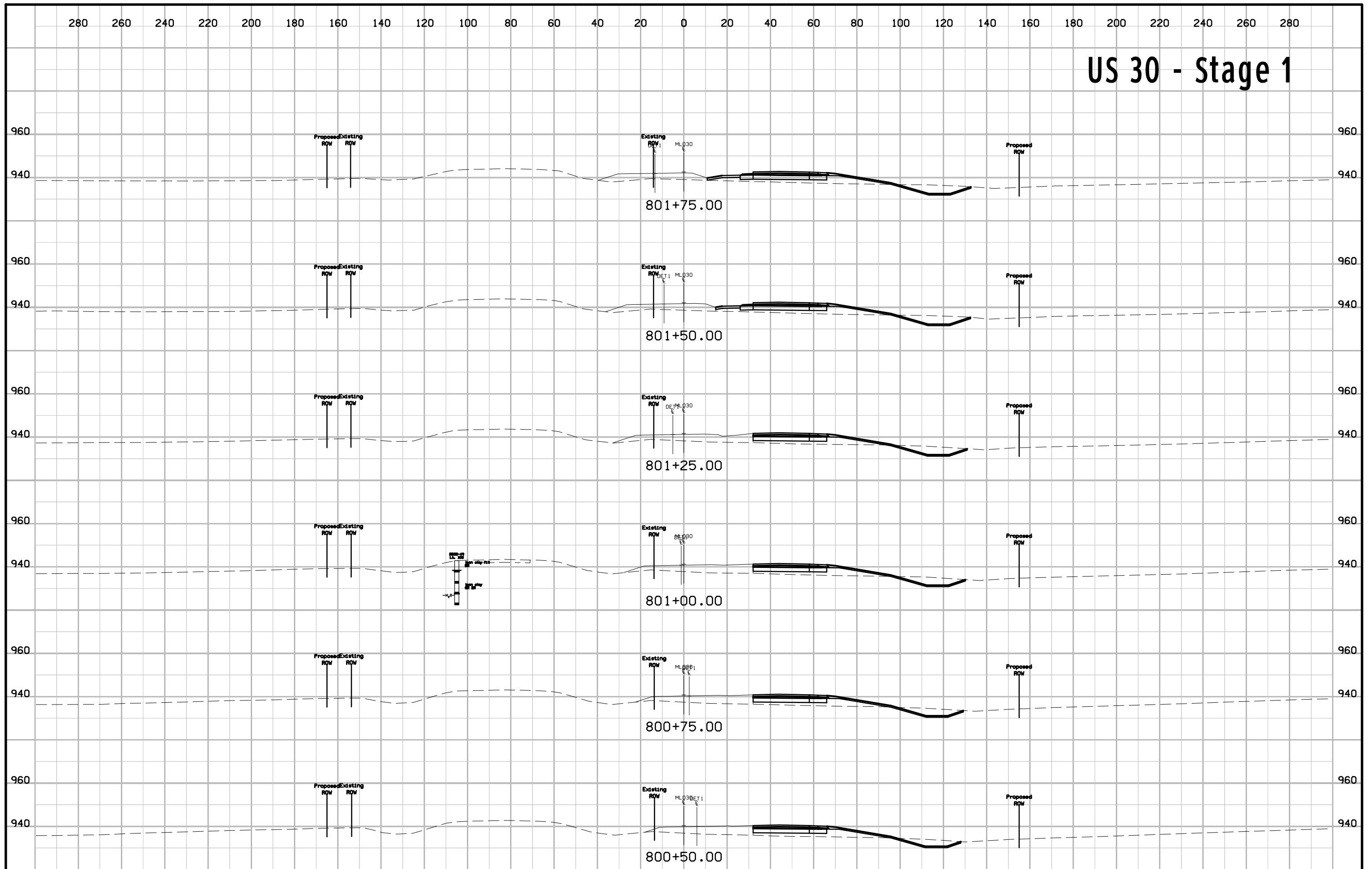
# US 30 - Stage 1



# US 30 - Stage 1

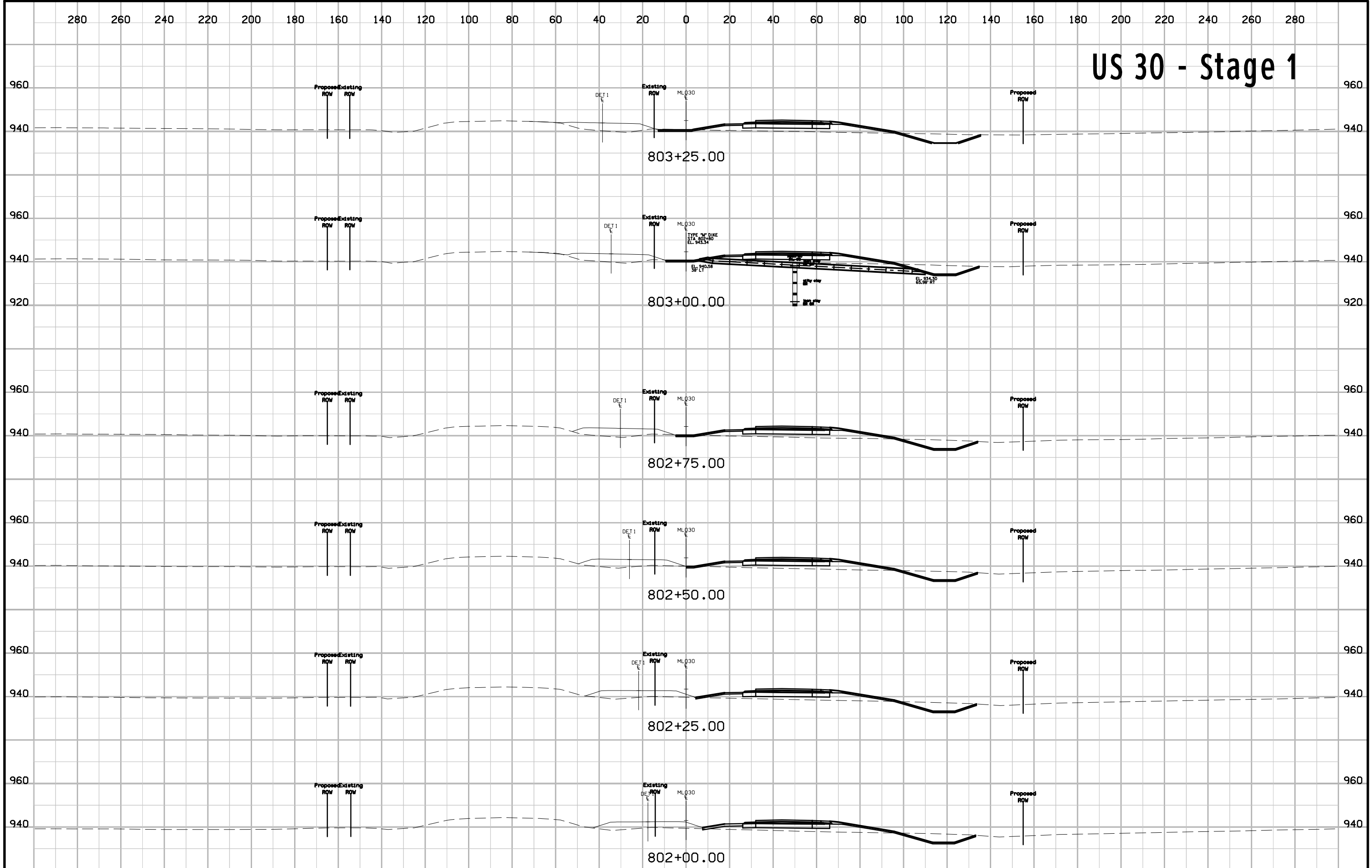


# US 30 - Stage 1

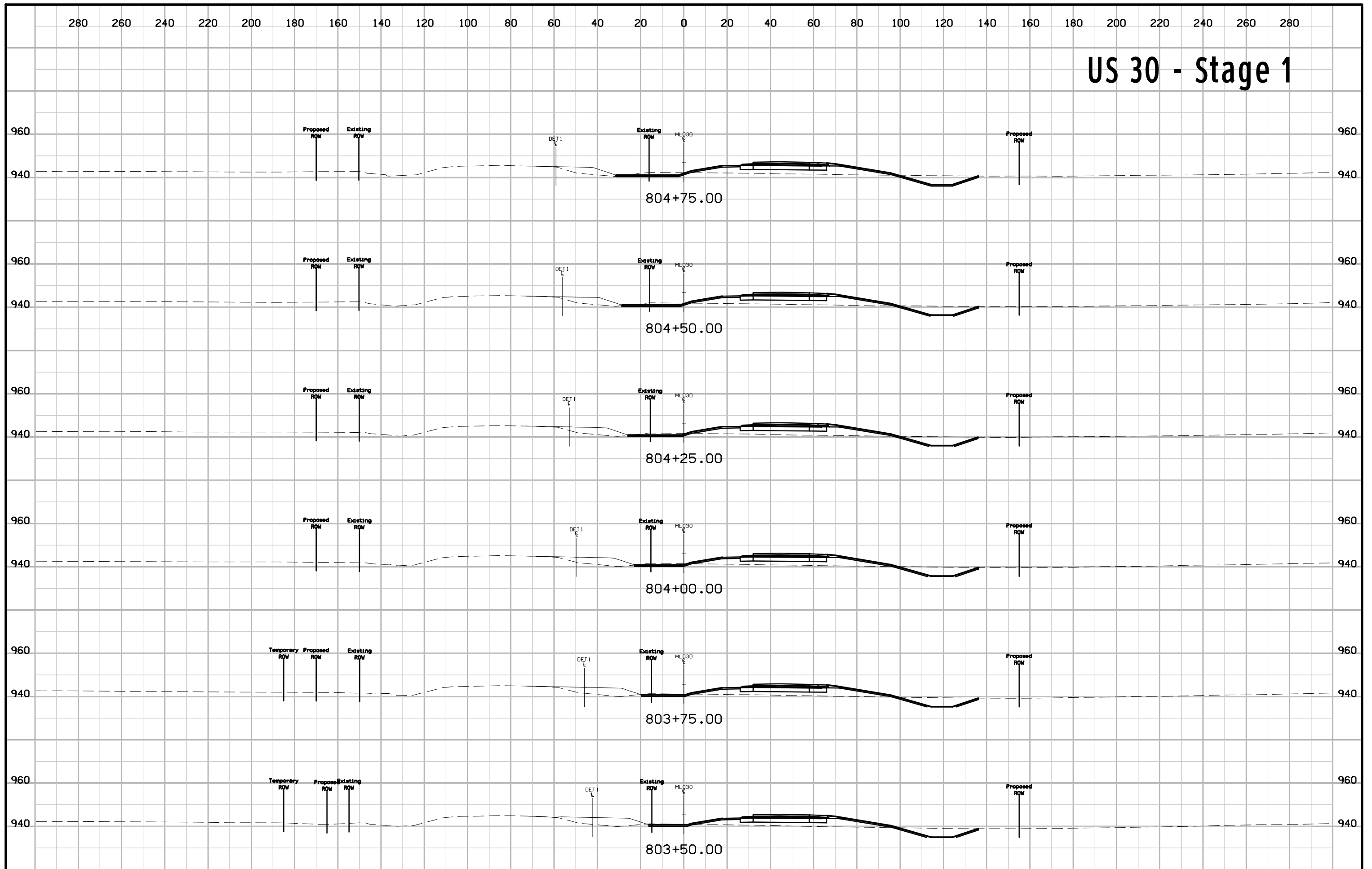




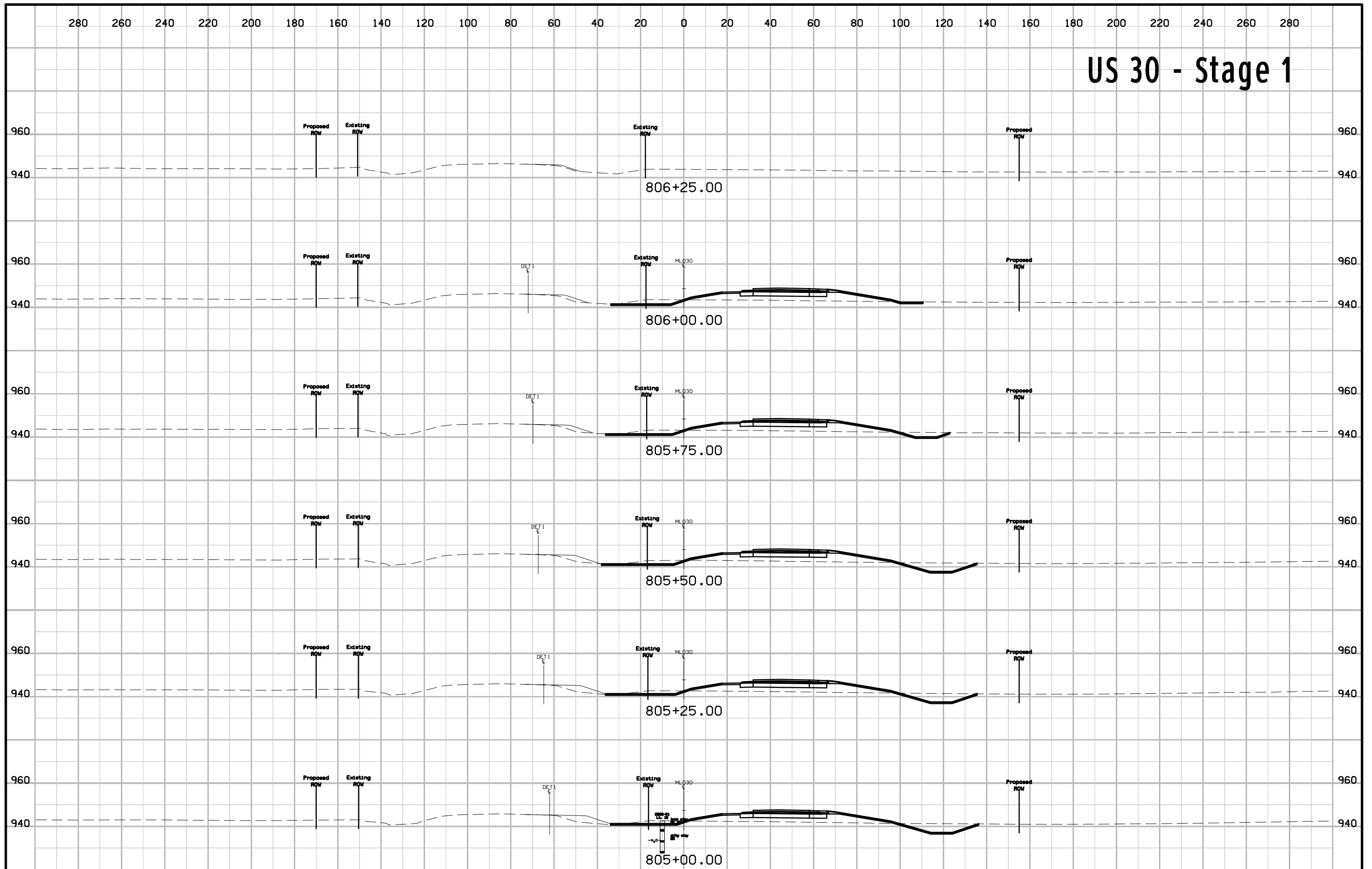
# US 30 - Stage 1



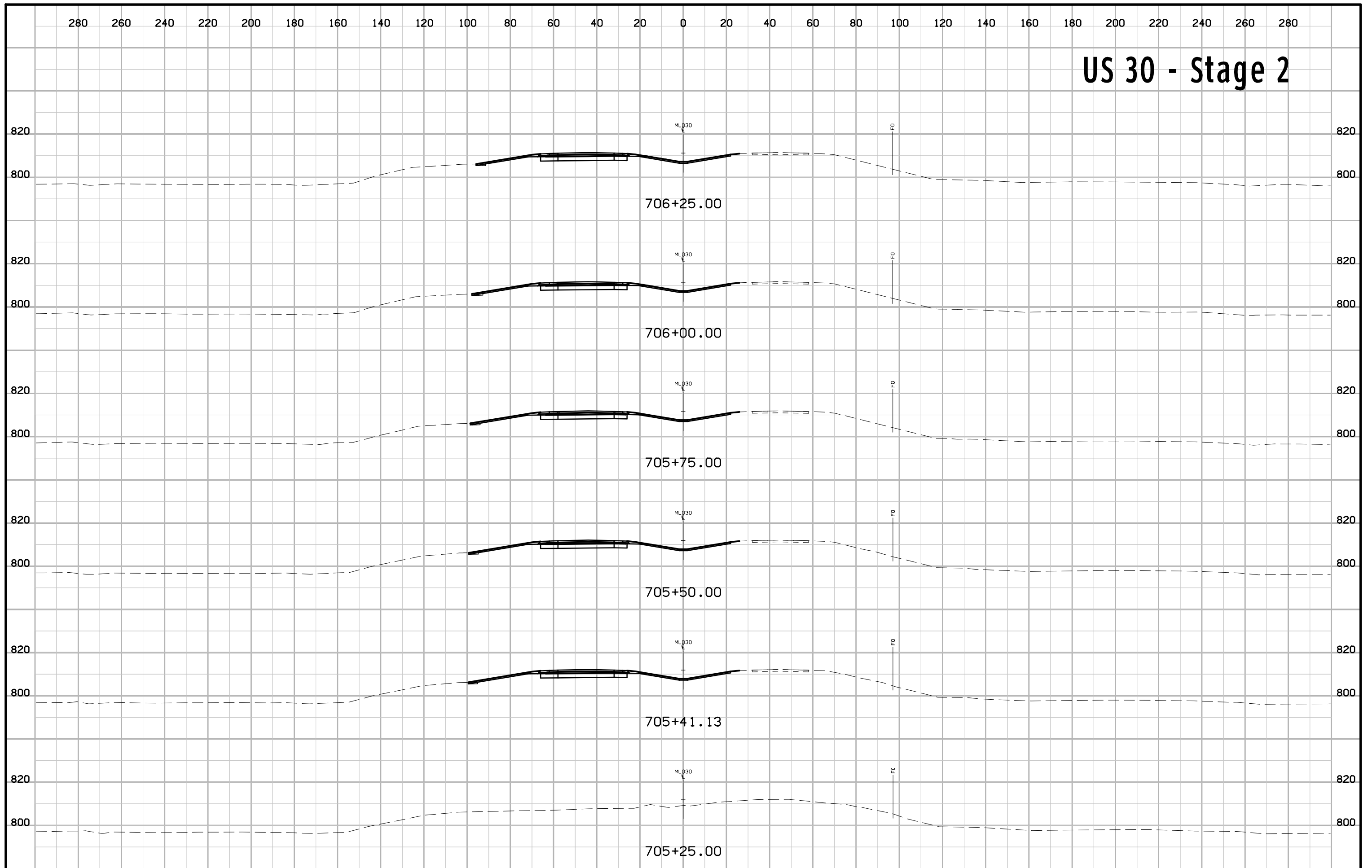
# US 30 - Stage 1



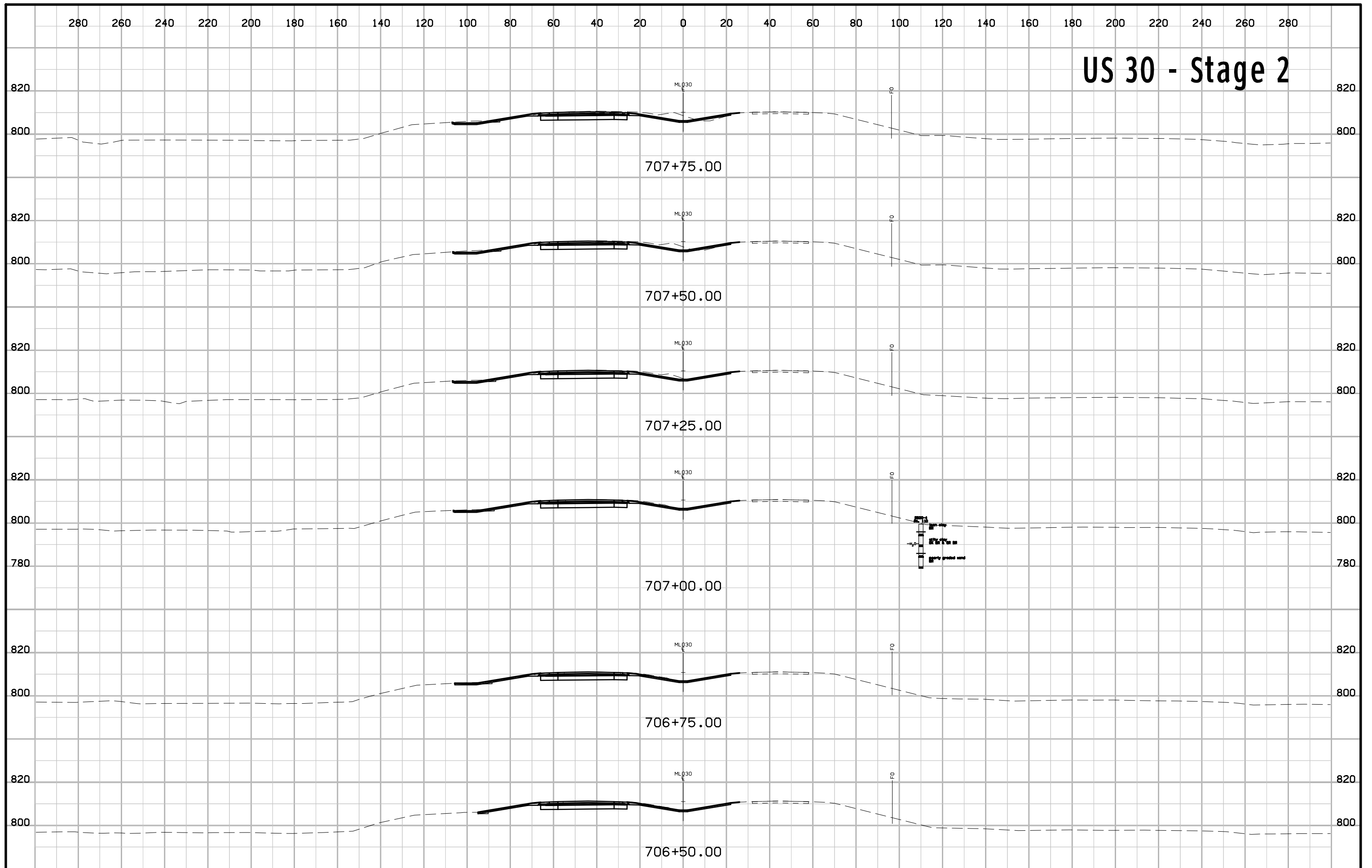
# US 30 - Stage 1



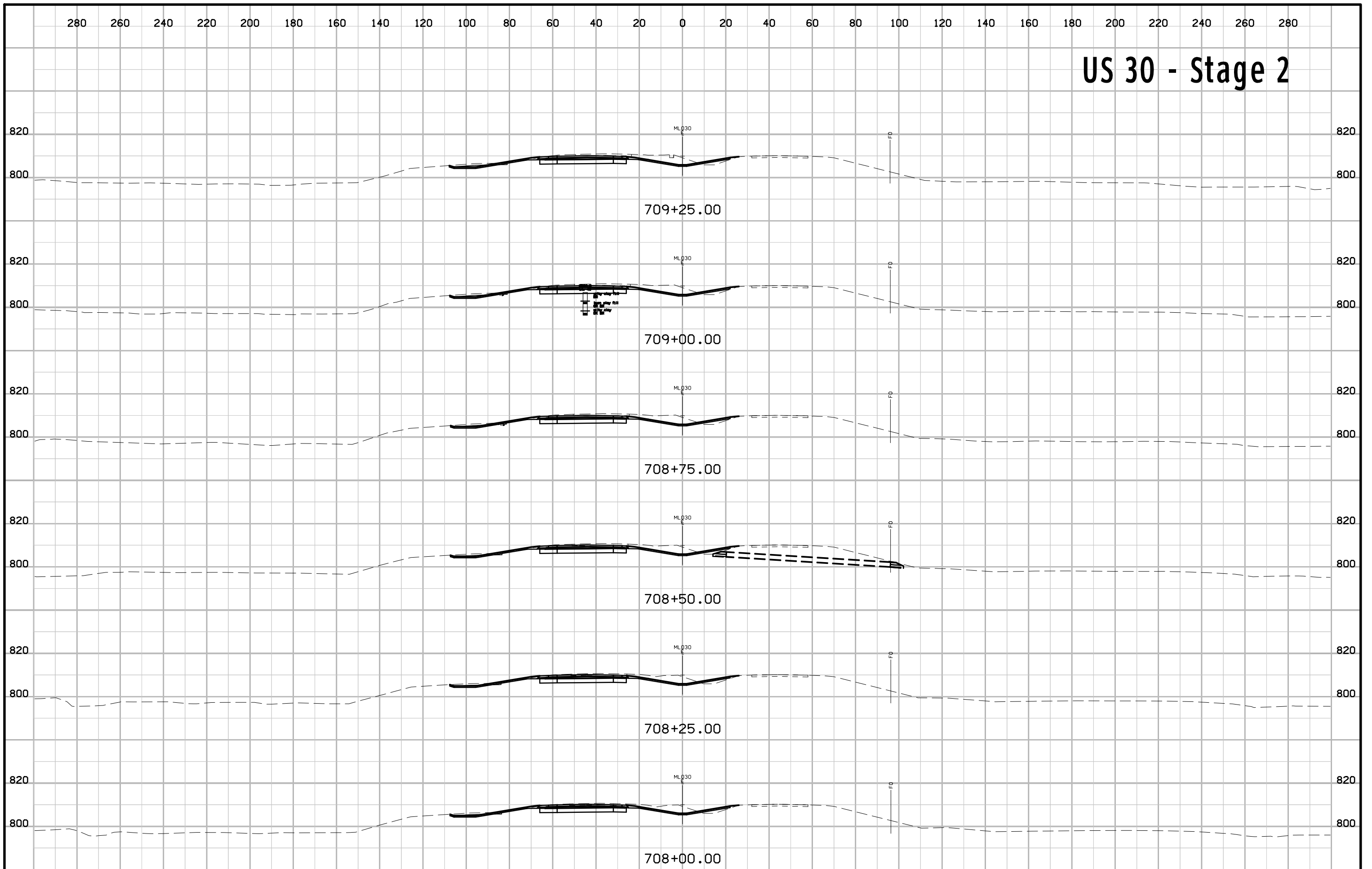
# US 30 - Stage 2



# US 30 - Stage 2

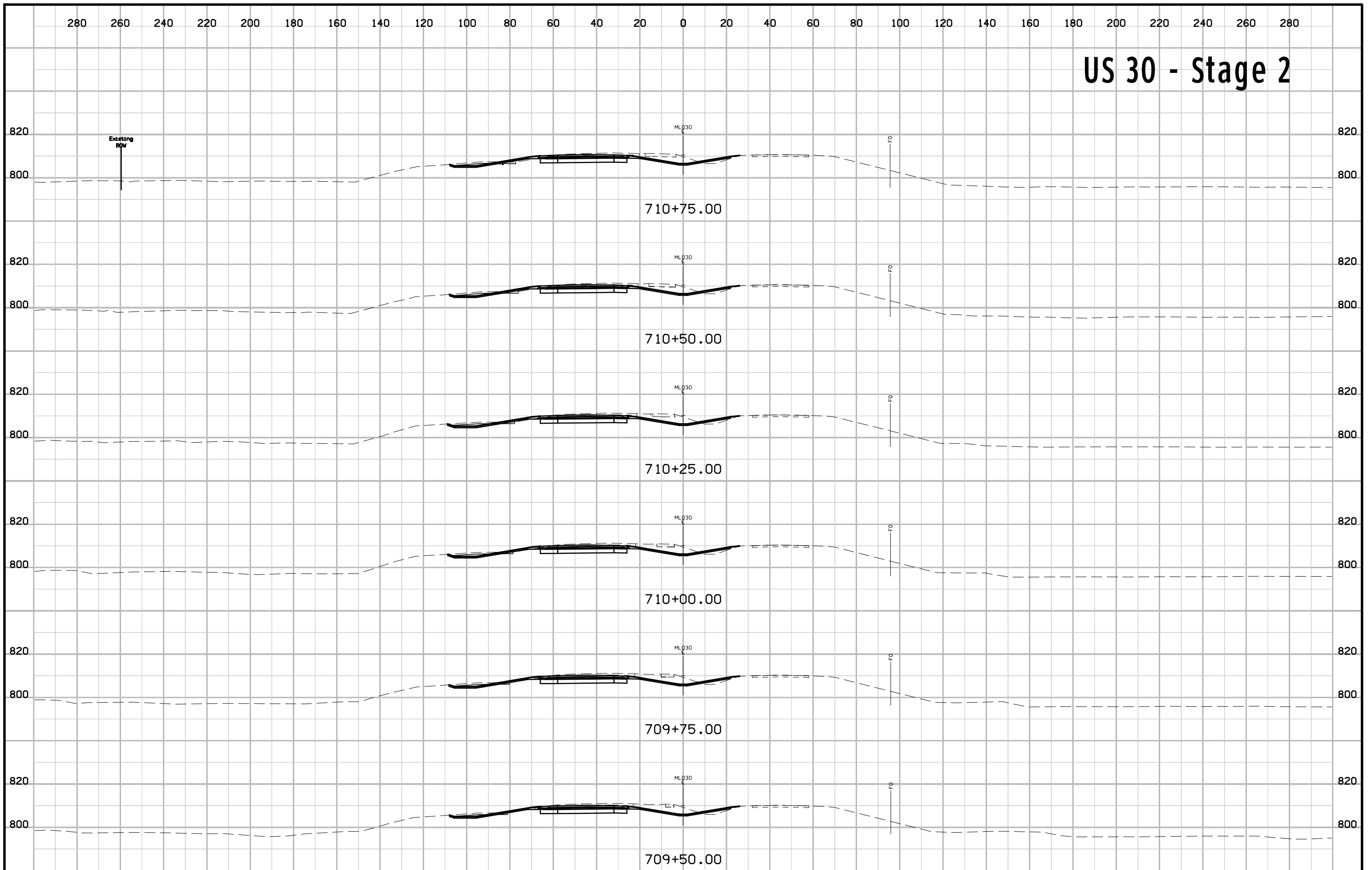


# US 30 - Stage 2

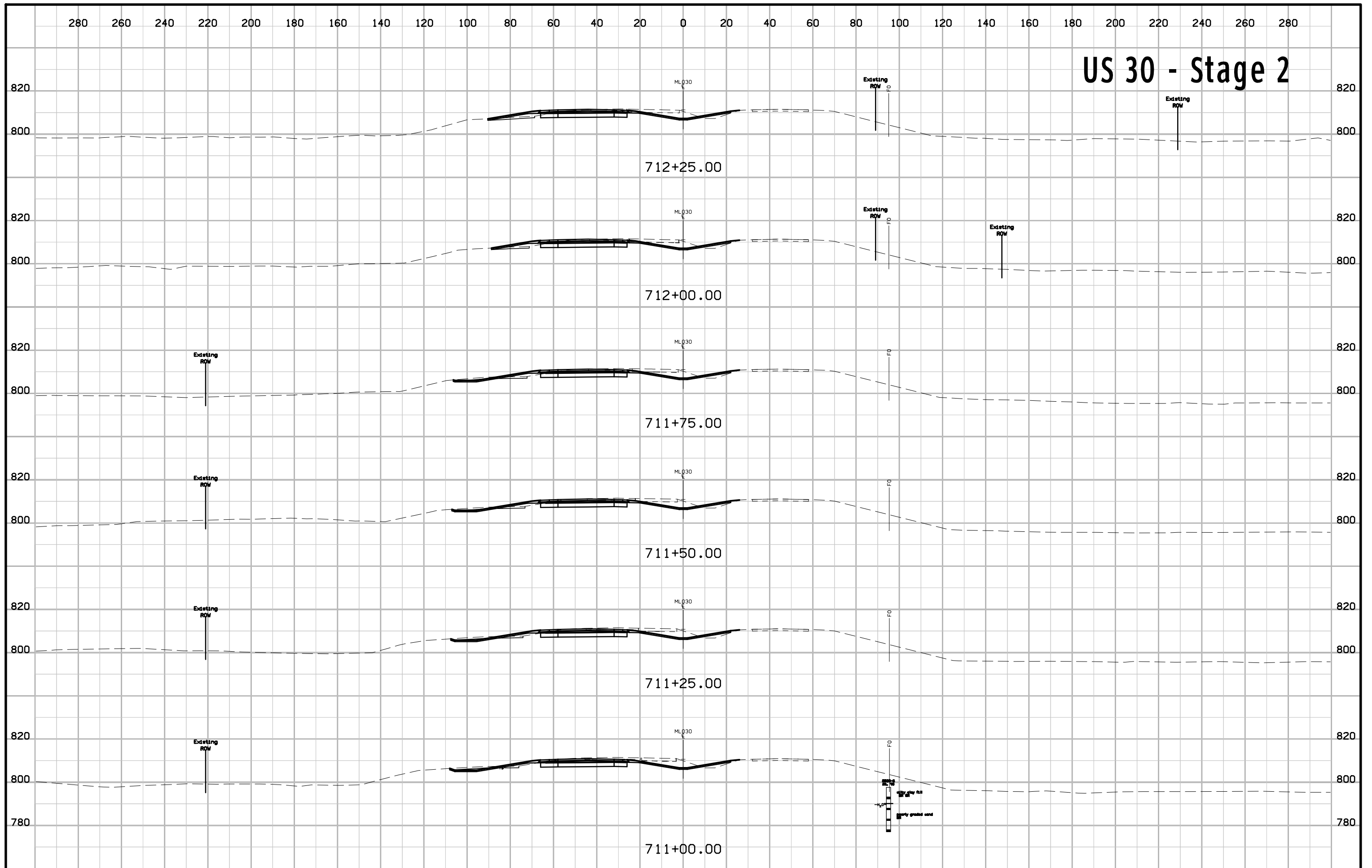




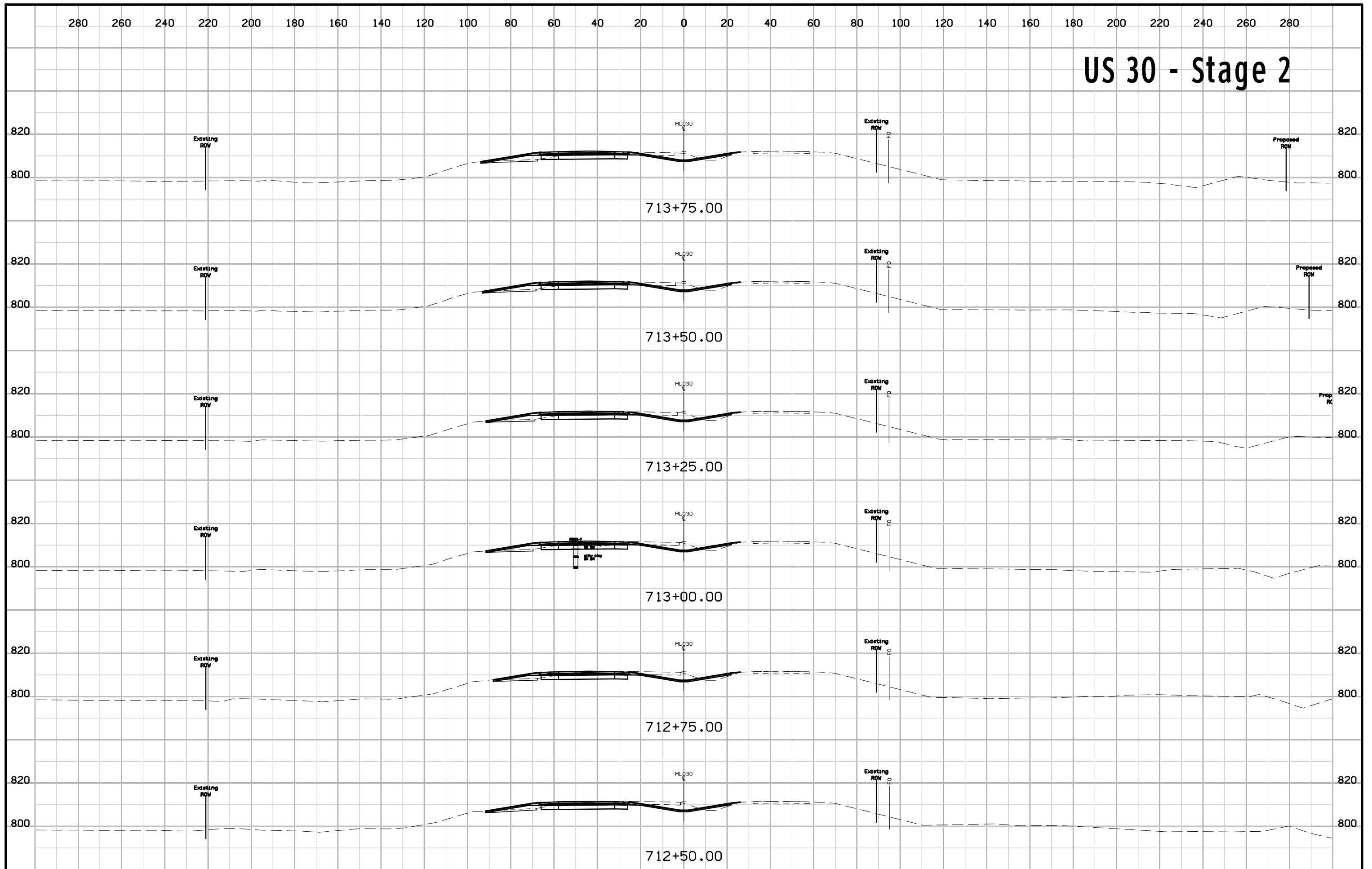
# US 30 - Stage 2



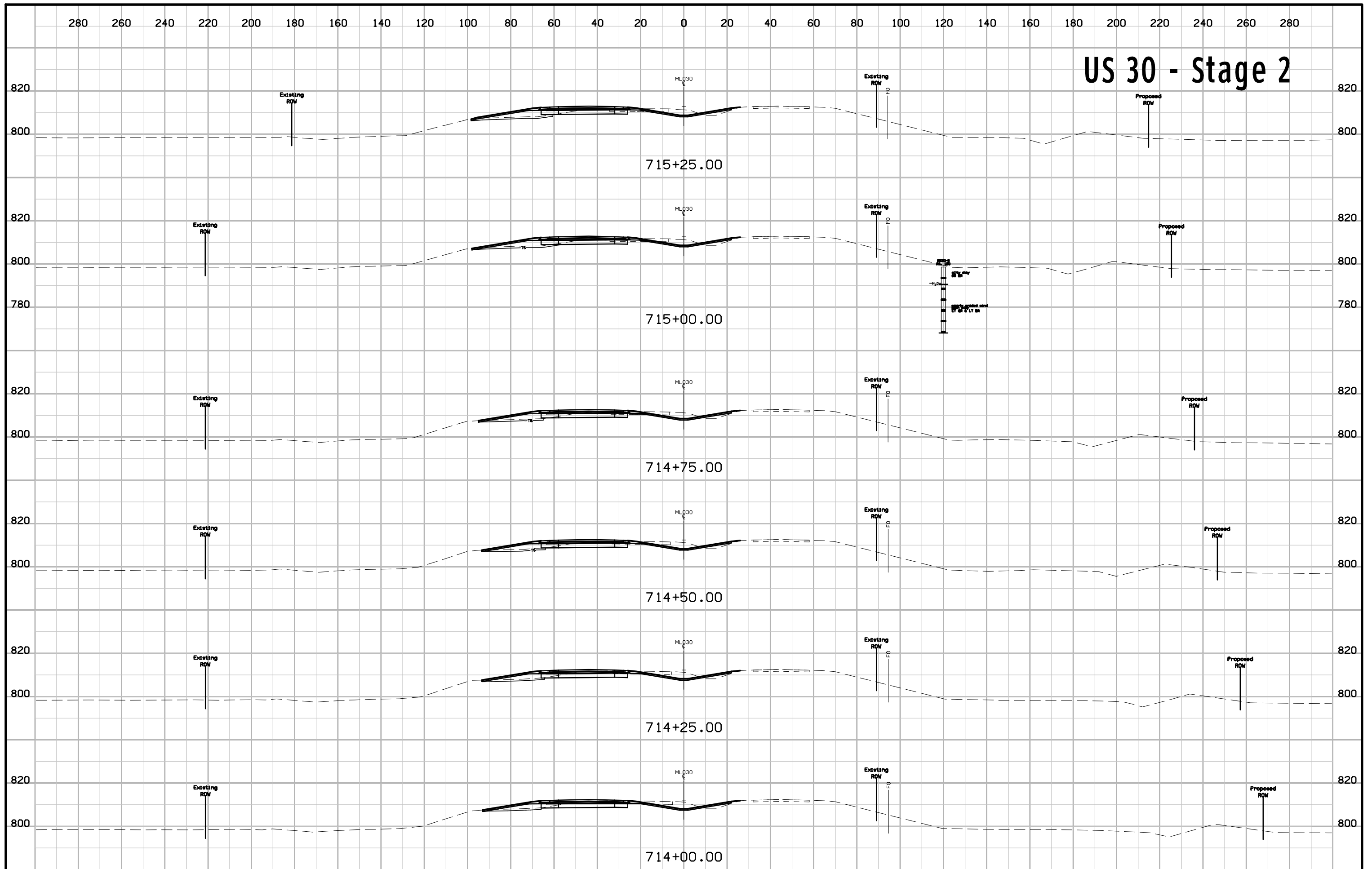
# US 30 - Stage 2



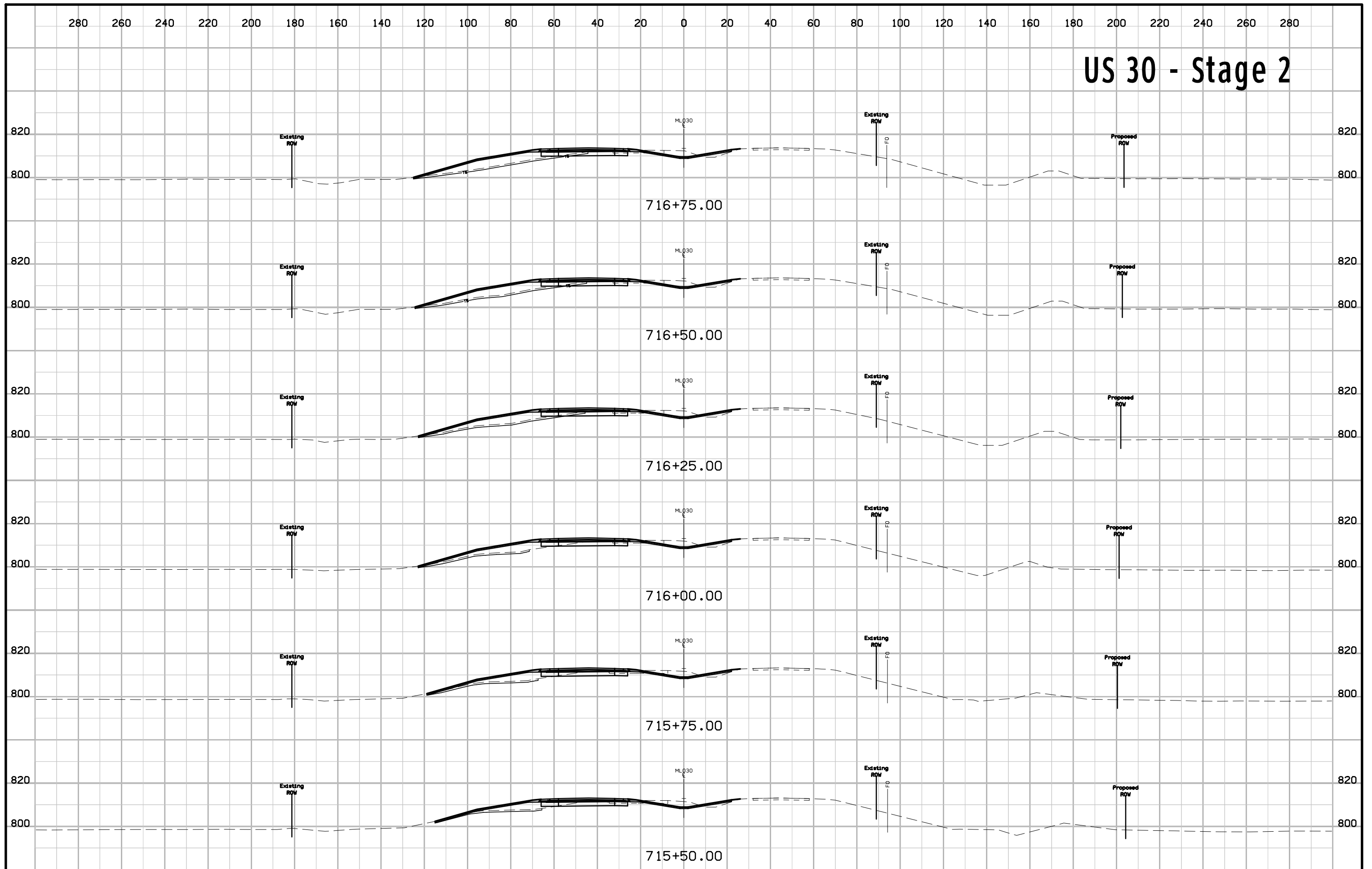
# US 30 - Stage 2



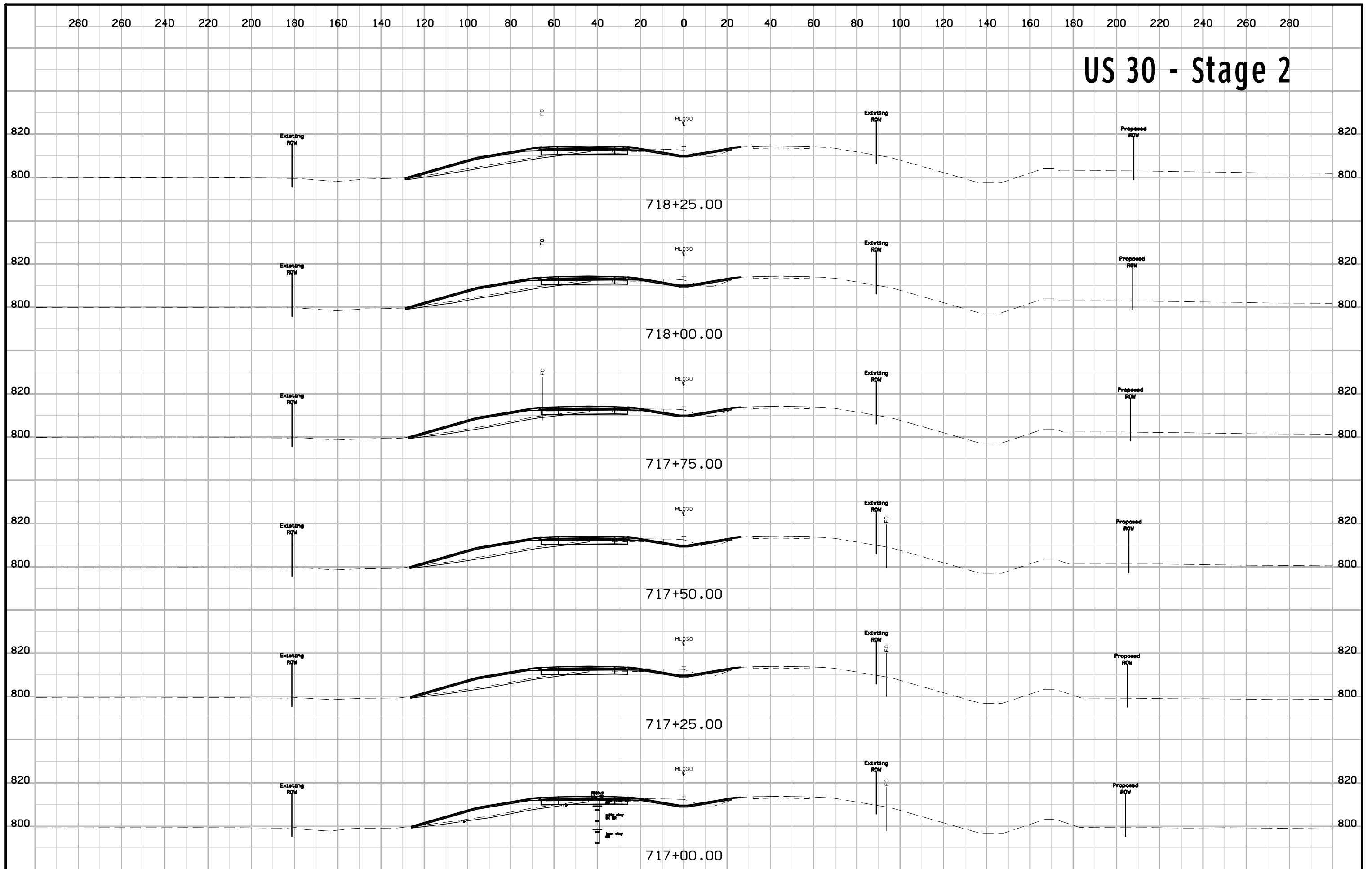
# US 30 - Stage 2



# US 30 - Stage 2

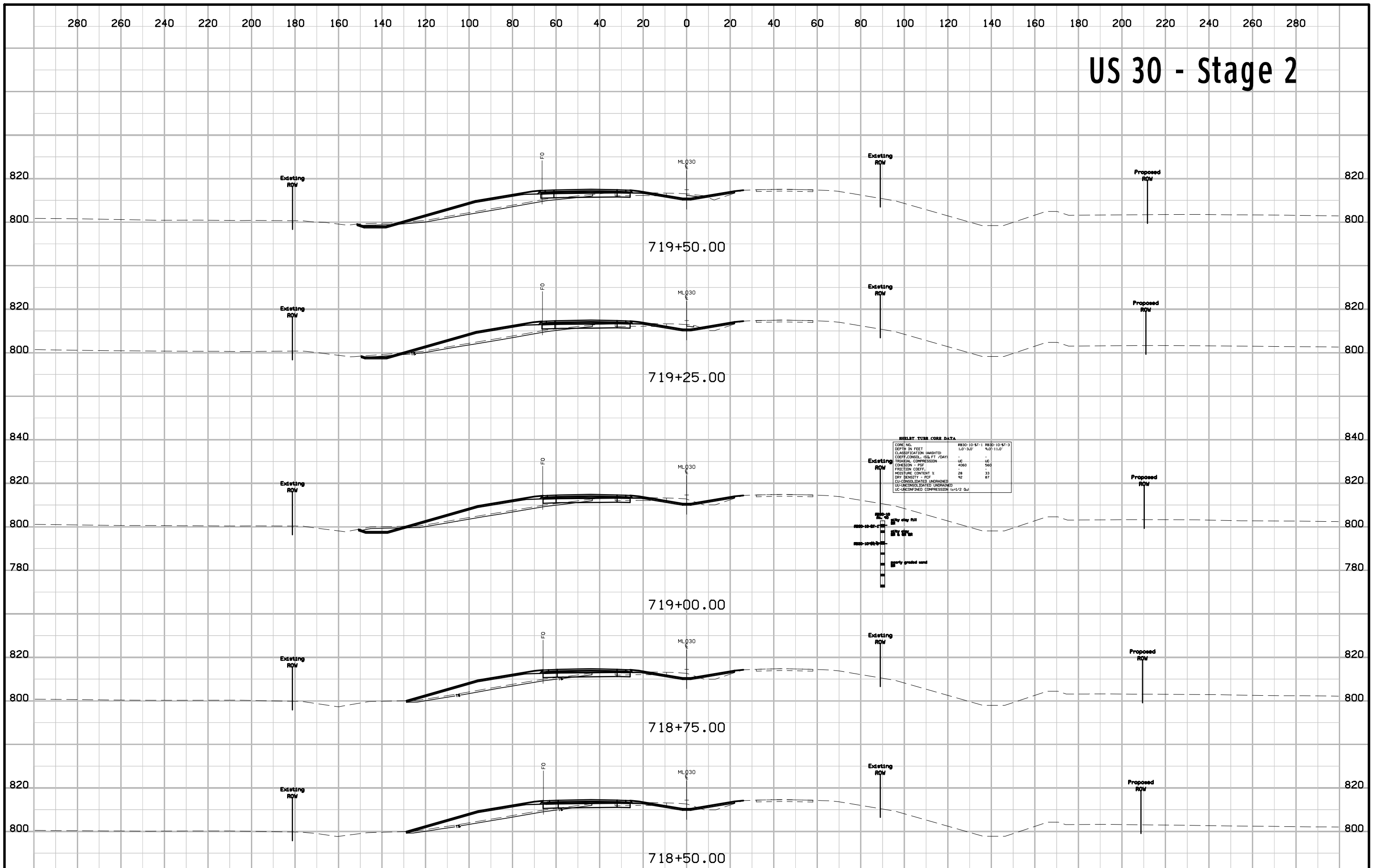


# US 30 - Stage 2

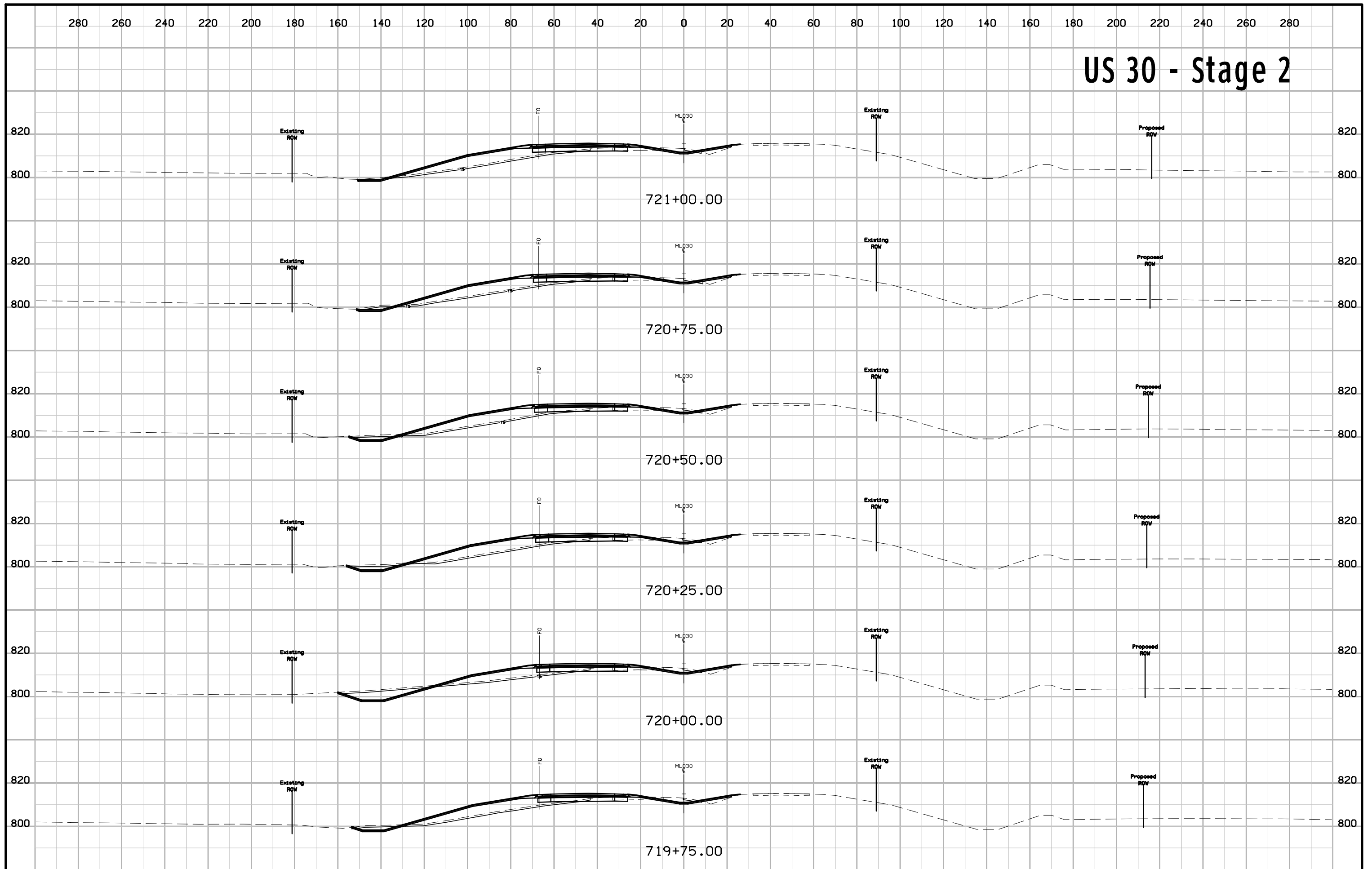




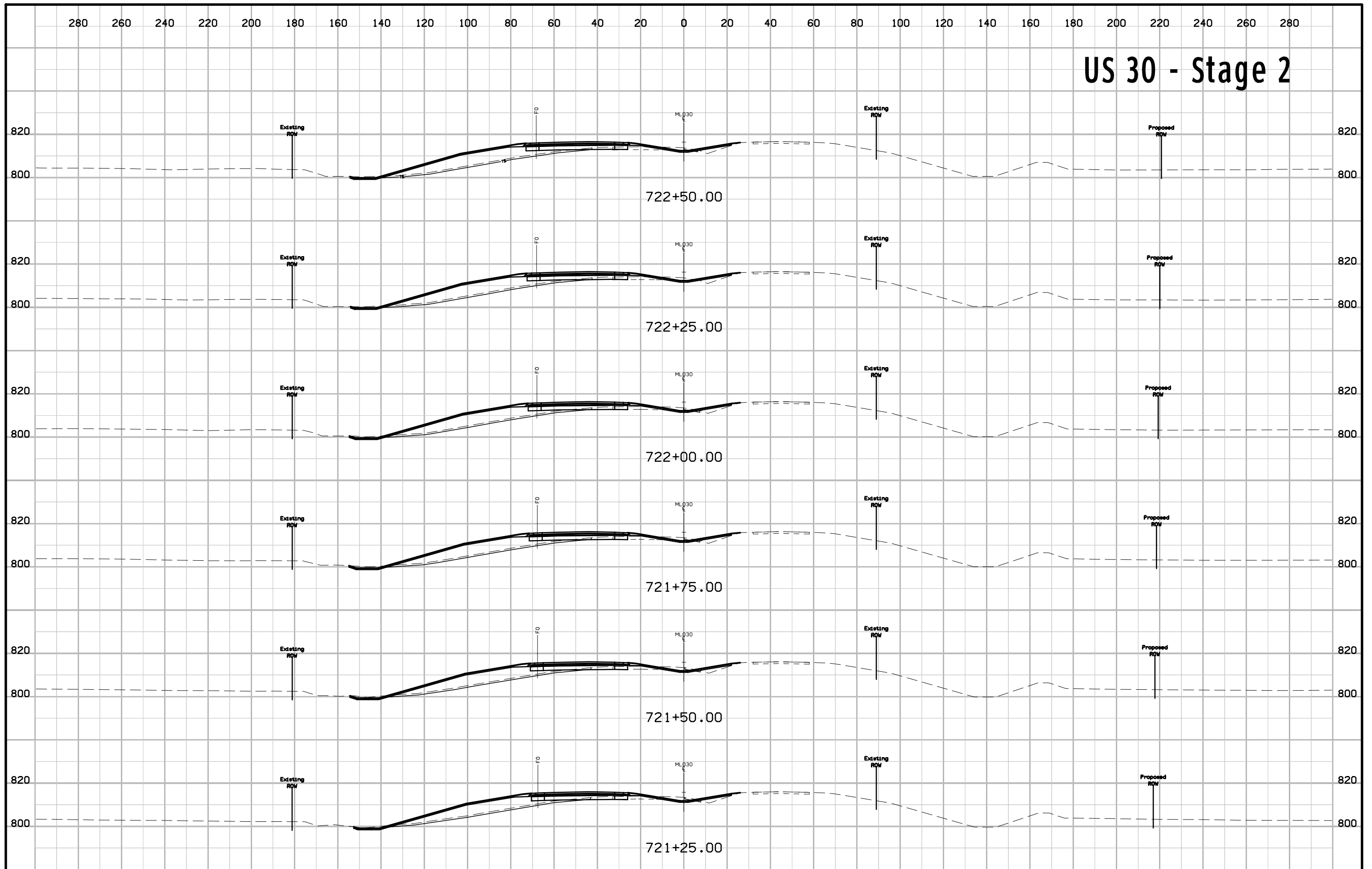
# US 30 - Stage 2



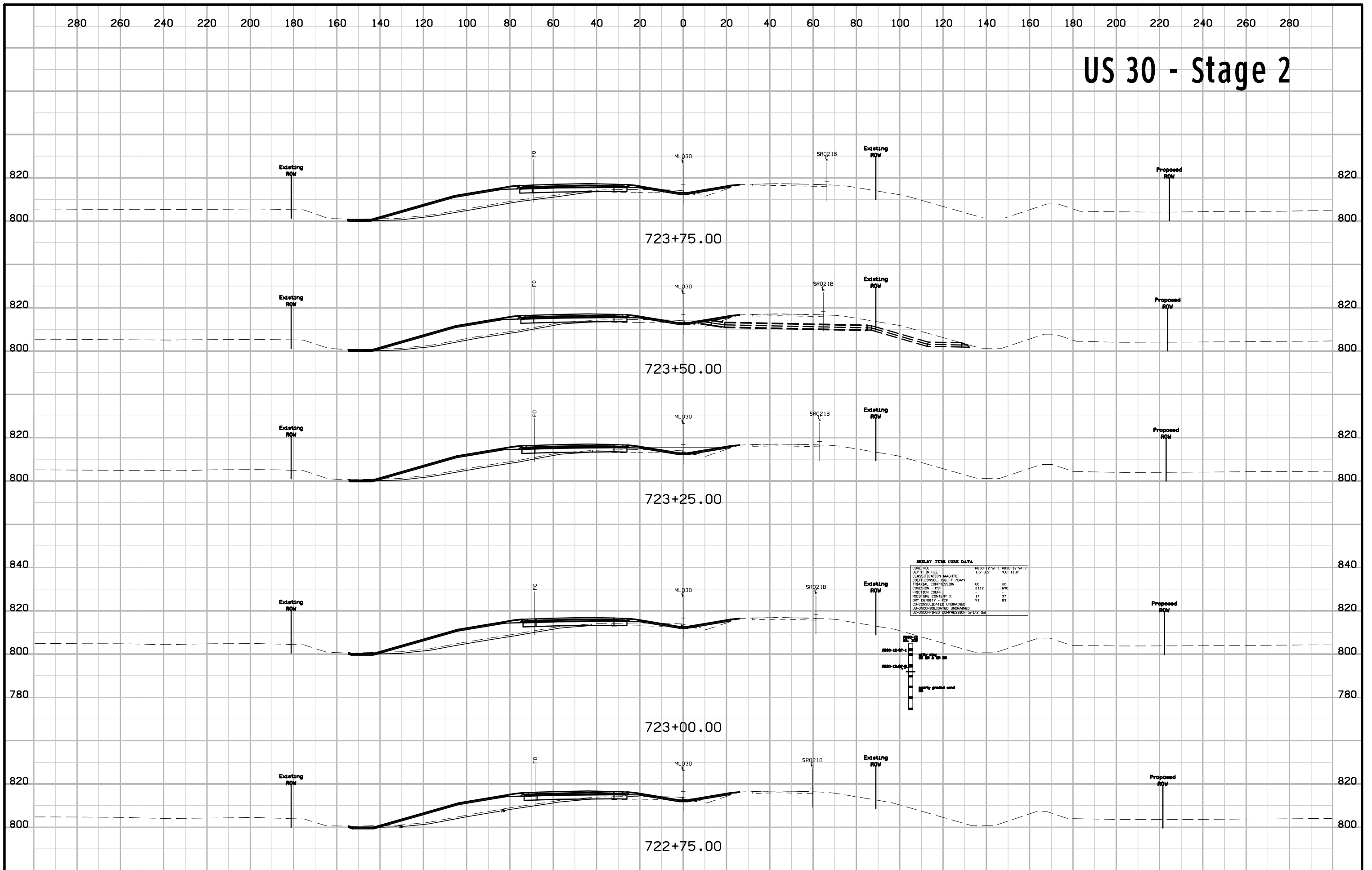
# US 30 - Stage 2



# US 30 - Stage 2

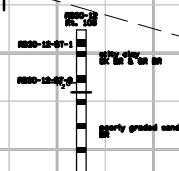


# US 30 - Stage 2

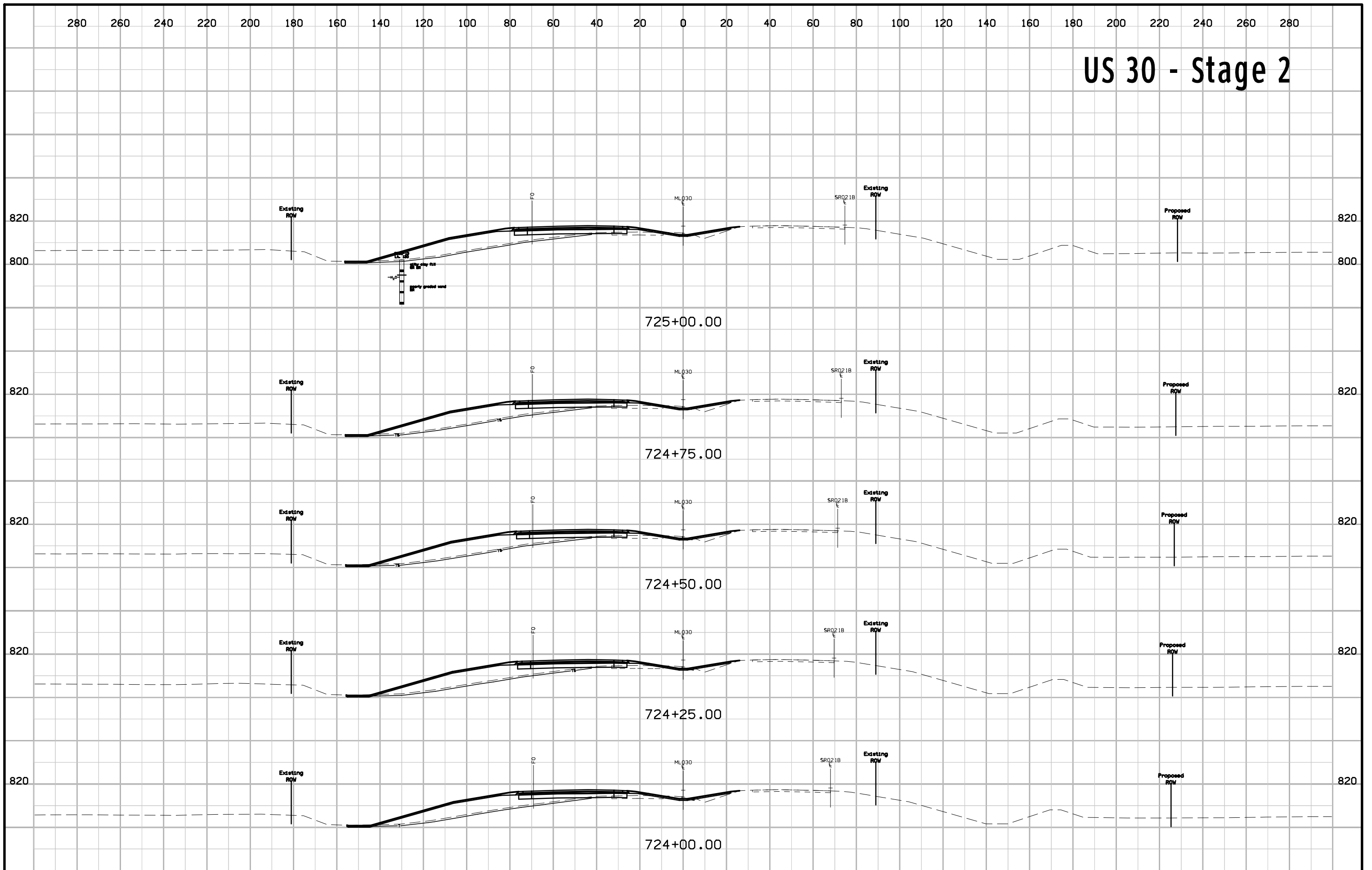


**SHIELY TUBE CORE DATA**

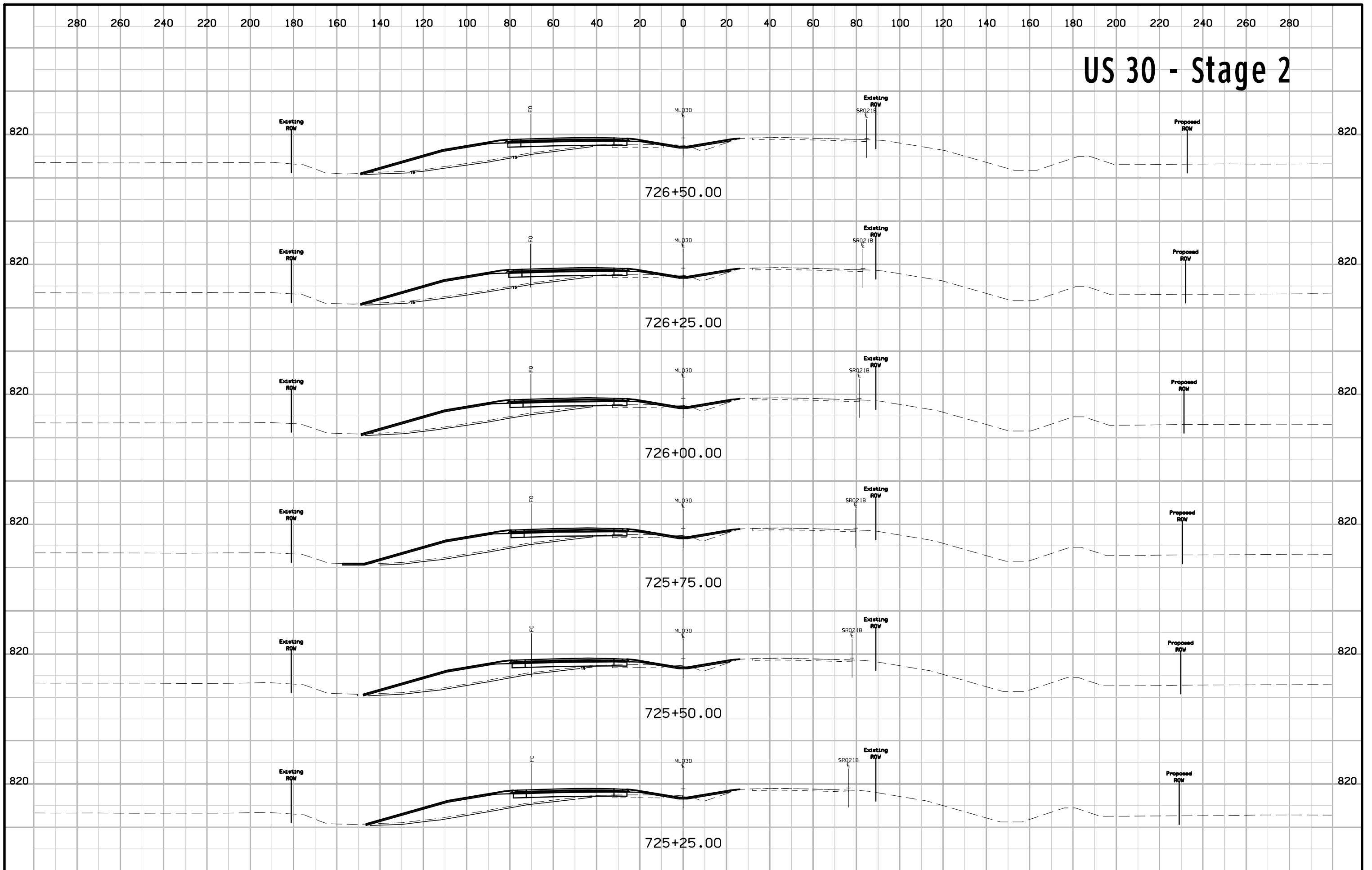
CORE NO.	RS30	12-91-1	RS30-12-91-3
DEPTH IN FEET	1.5'-3.0'	4.0'-11.0'	
CLASSIFICATION (ASHST)			
COEFF. CONSOL. (80, FT / DAY)	-	-	
TRIAL. COMPRESSION	UC	UC	
COHESION - PSF	2112	690	
FRICTION COEFF.	17	37	
MOISTURE CONTENT %	91	83	
DRY DENSITY - PCF			
CU-CONSOLIDATED UNDRAINED			
UC-UNCONSOLIDATED COMPRESSION (1/1/2 DIA)			



# US 30 - Stage 2

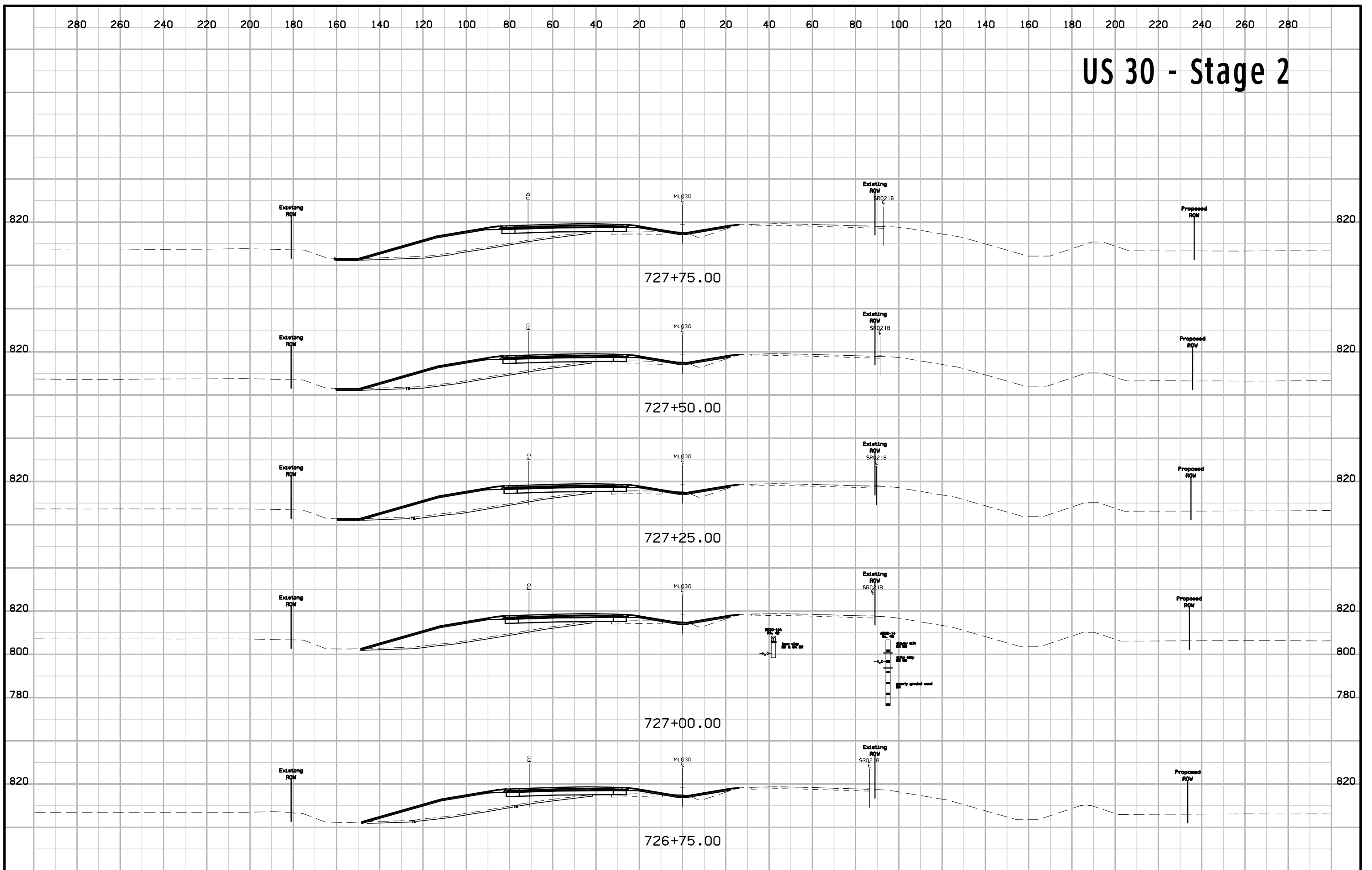


# US 30 - Stage 2

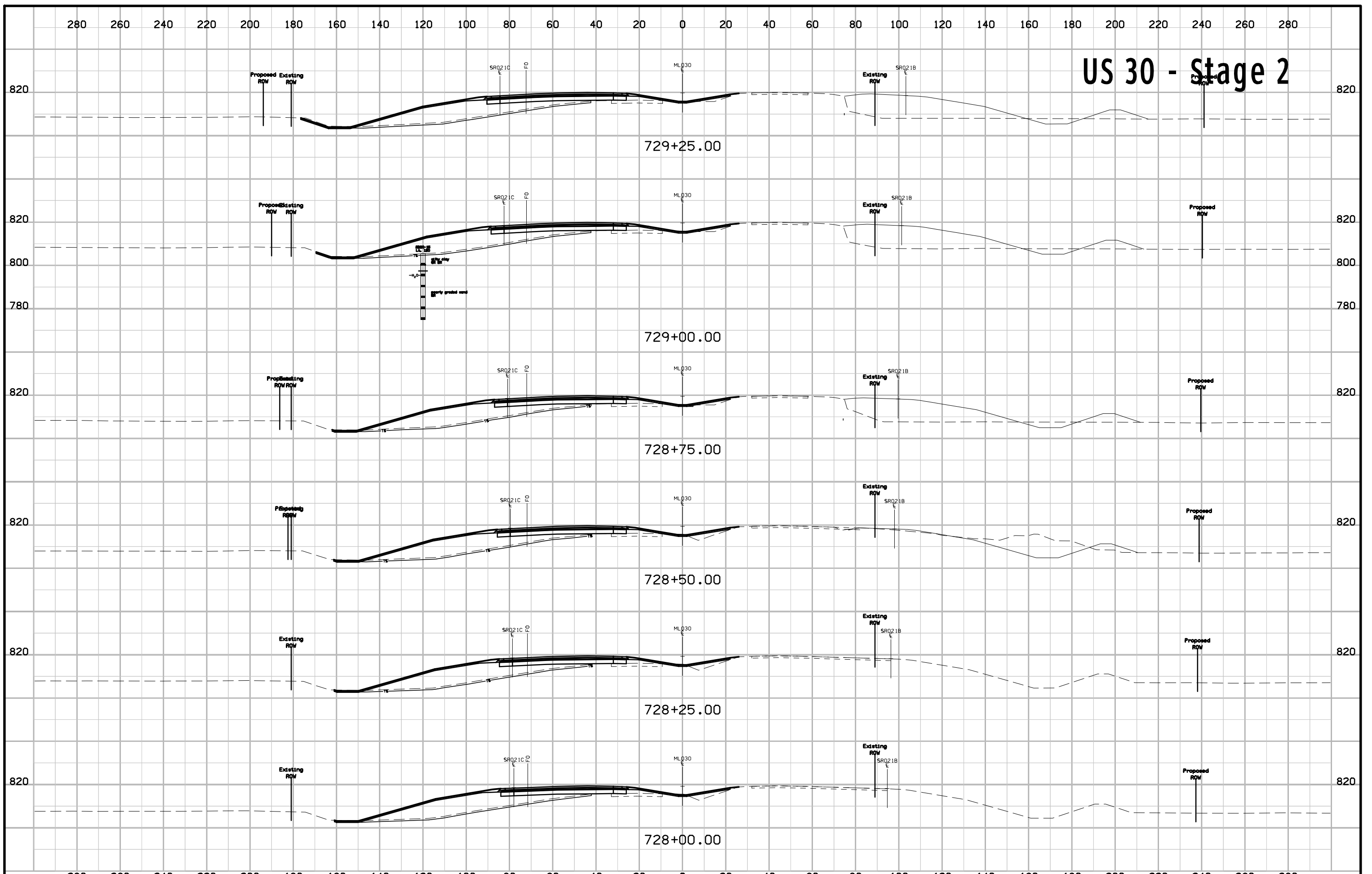




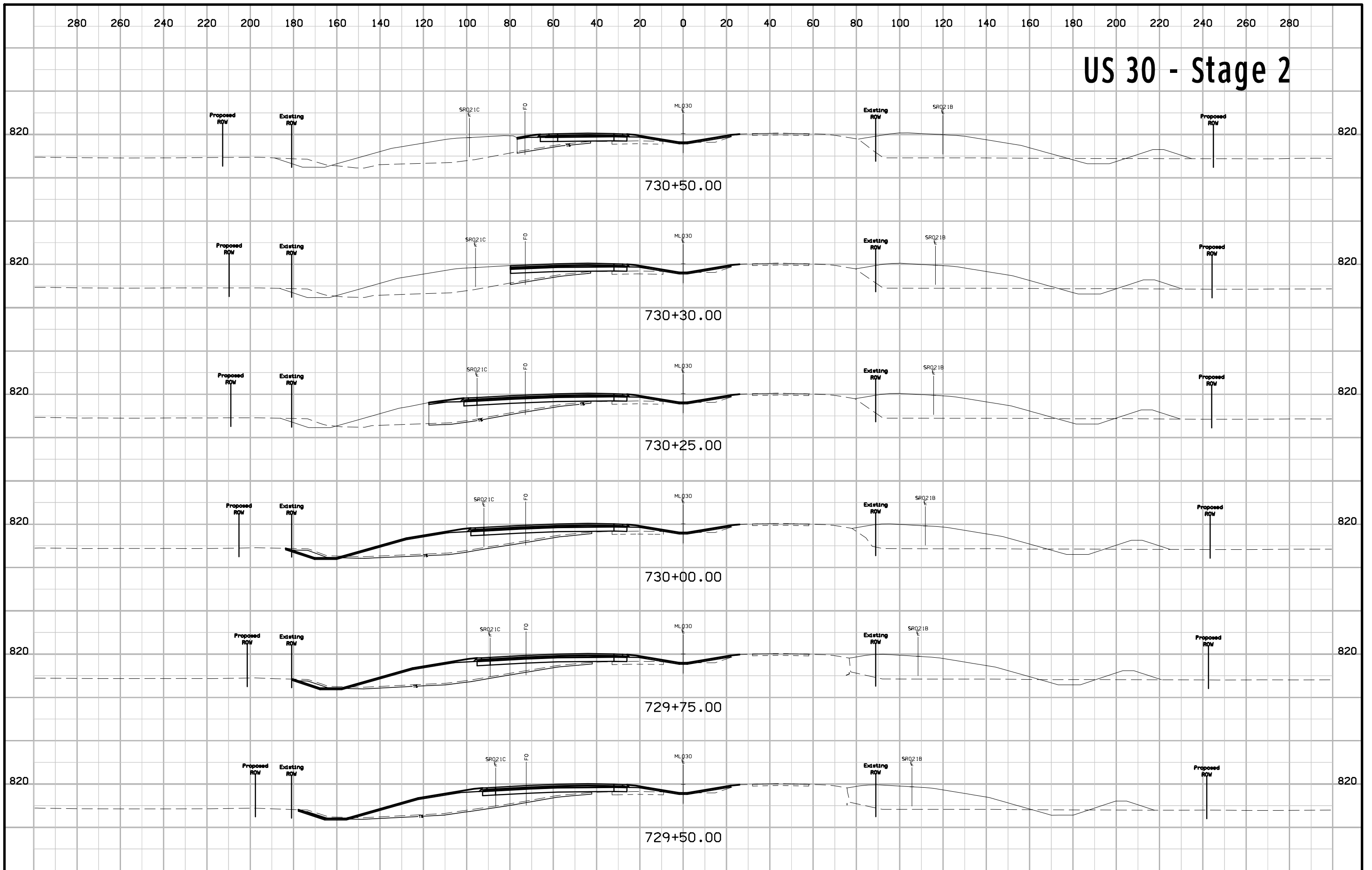
# US 30 - Stage 2



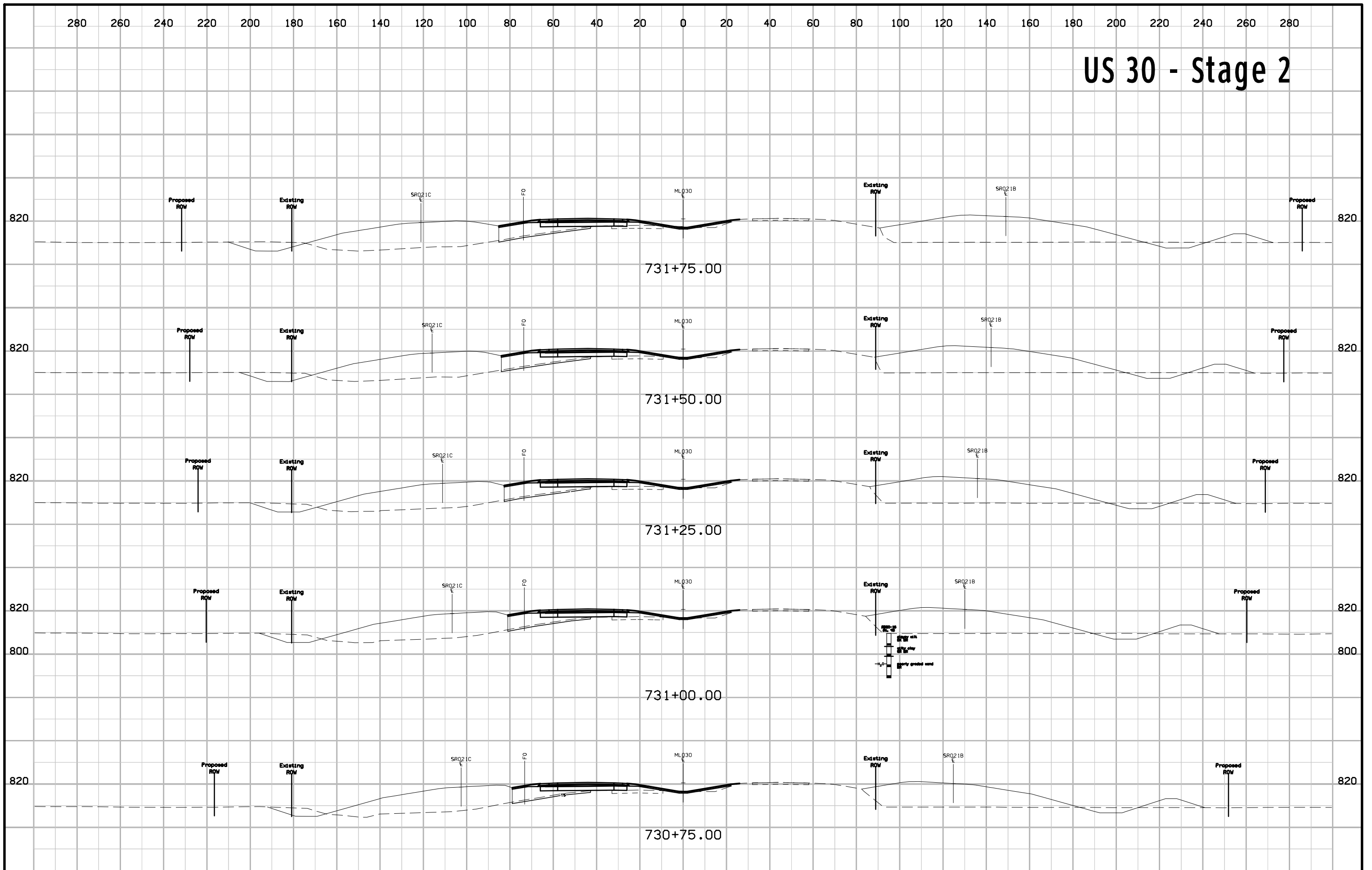
# US 30 - Stage 2



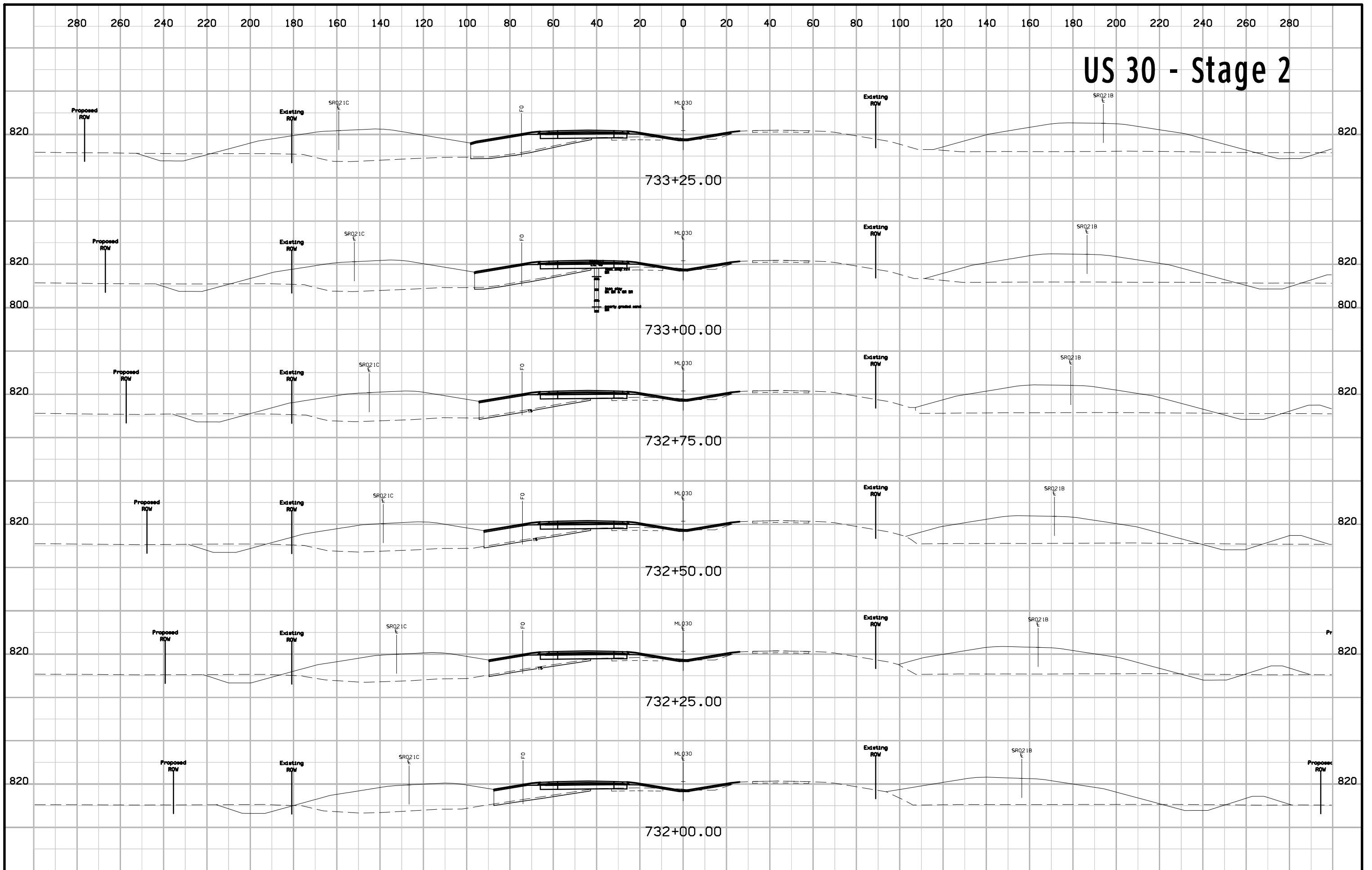
# US 30 - Stage 2



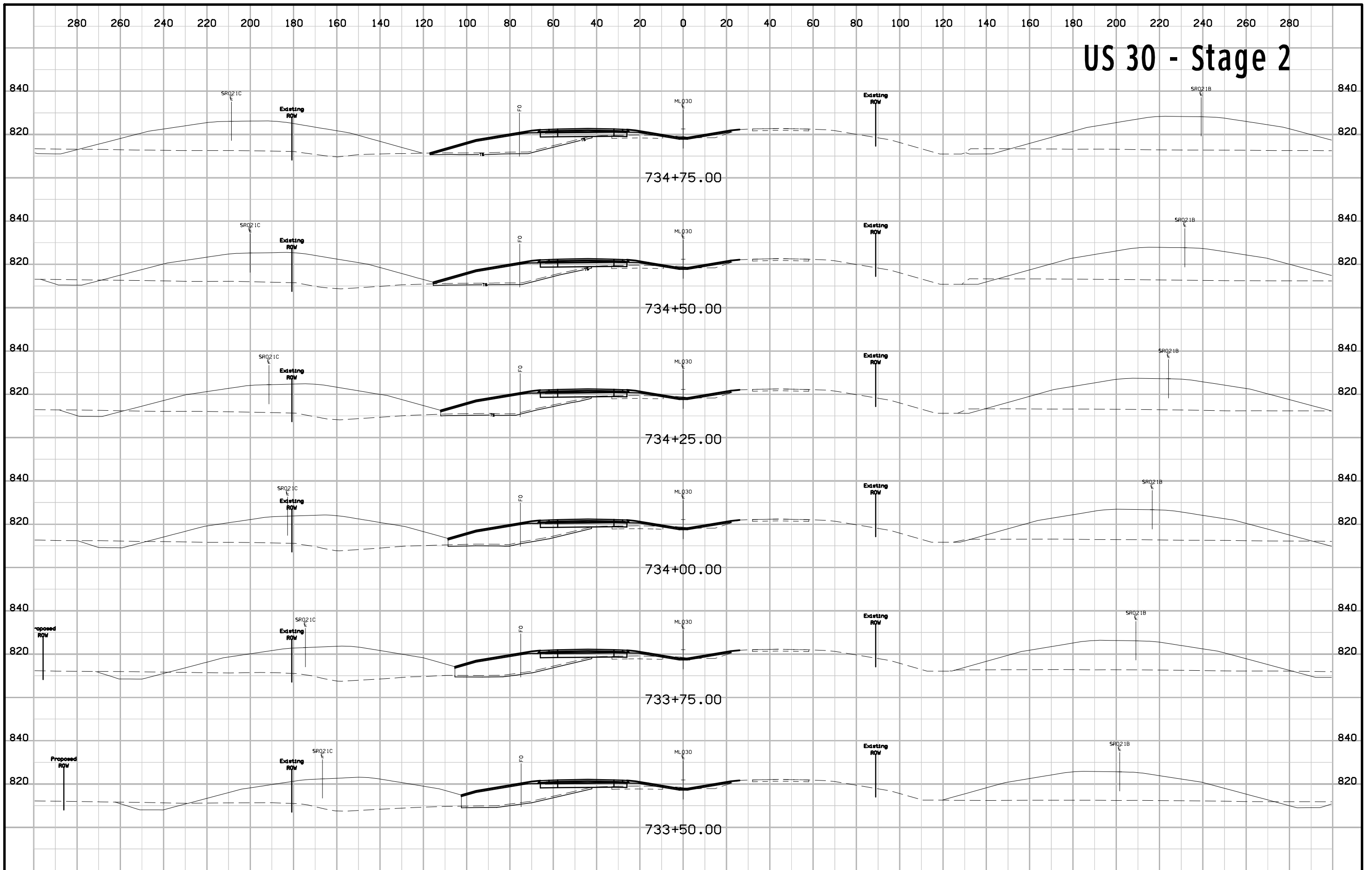
# US 30 - Stage 2



# US 30 - Stage 2

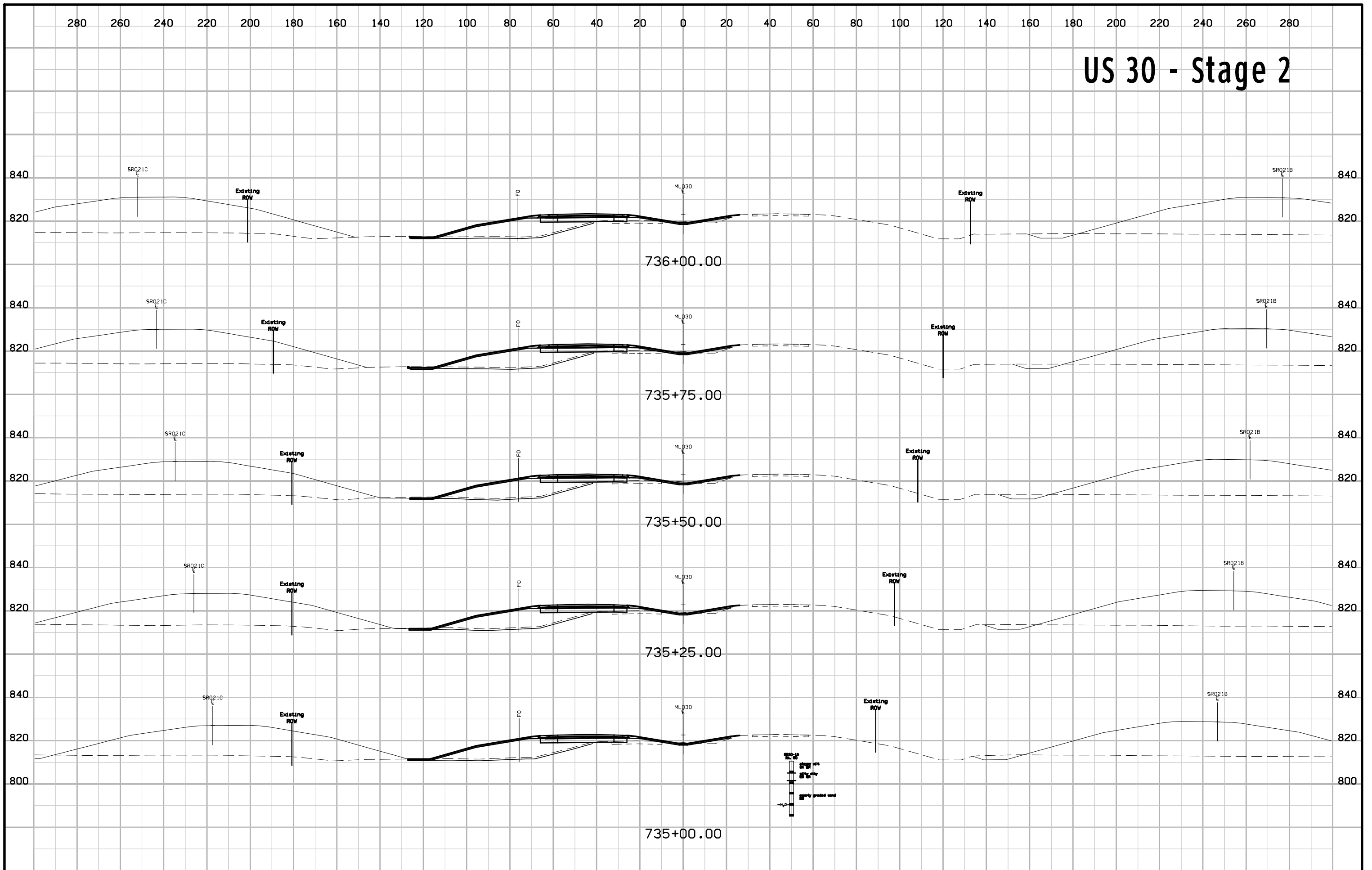


# US 30 - Stage 2

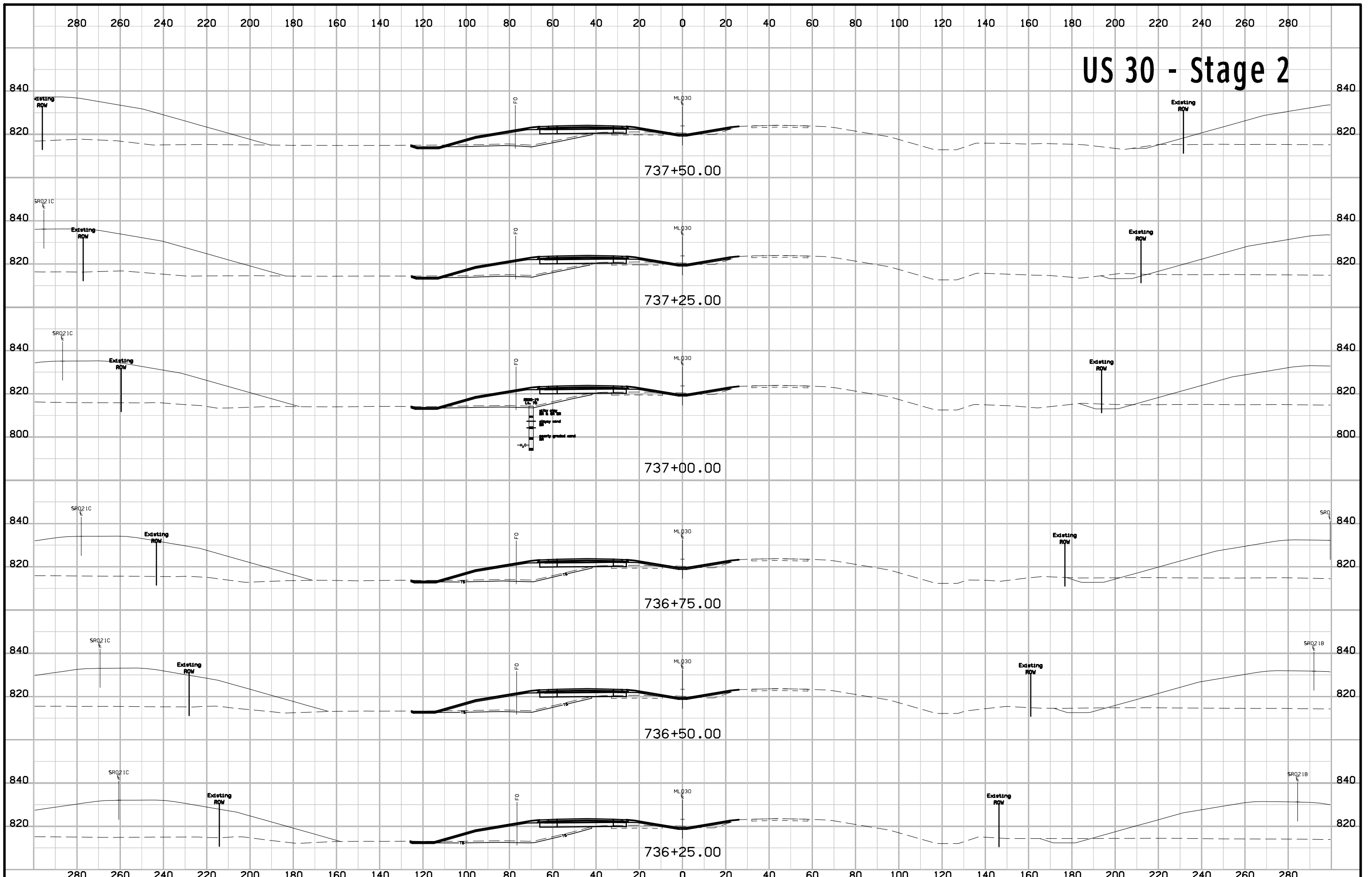




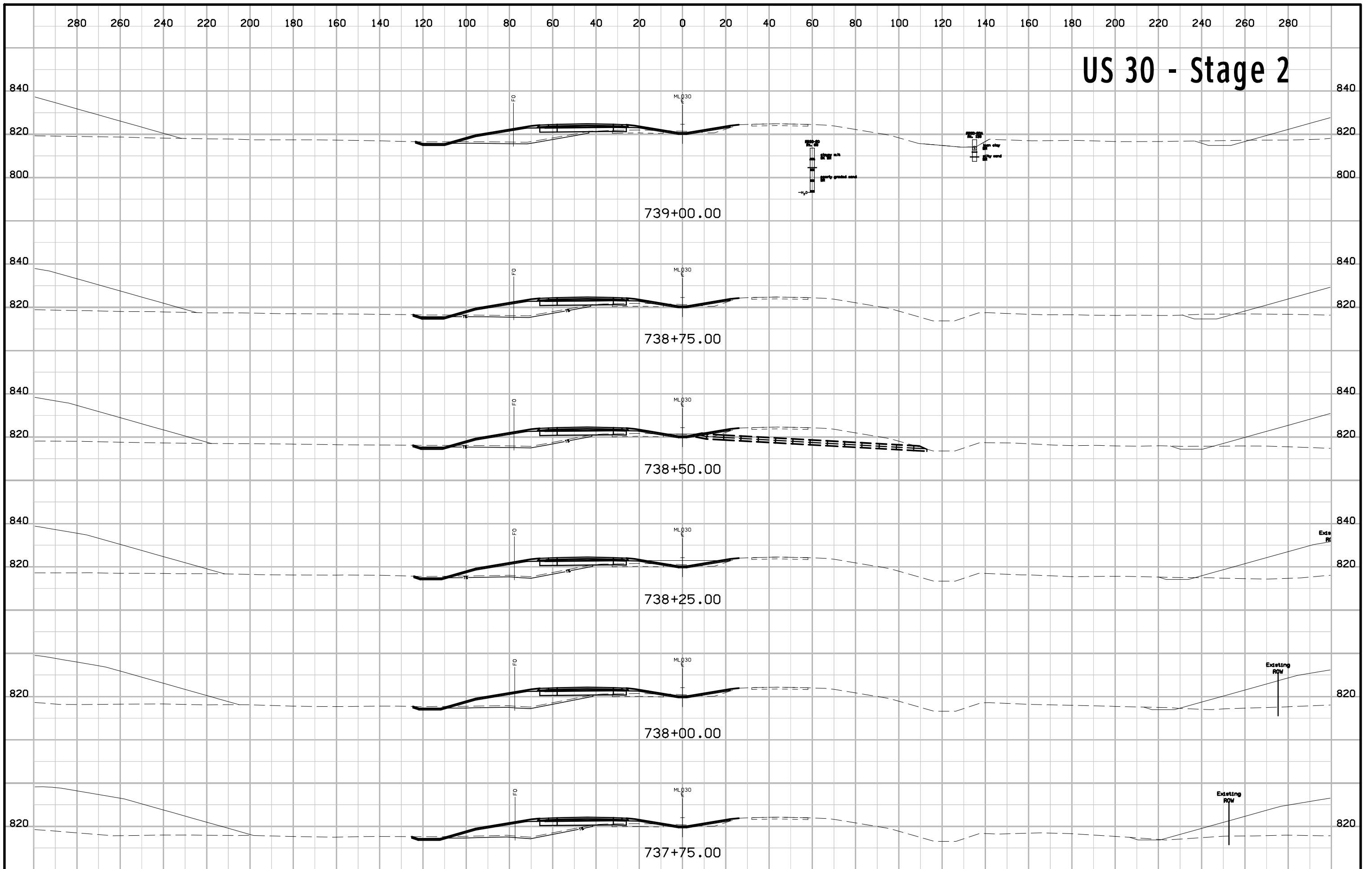
# US 30 - Stage 2



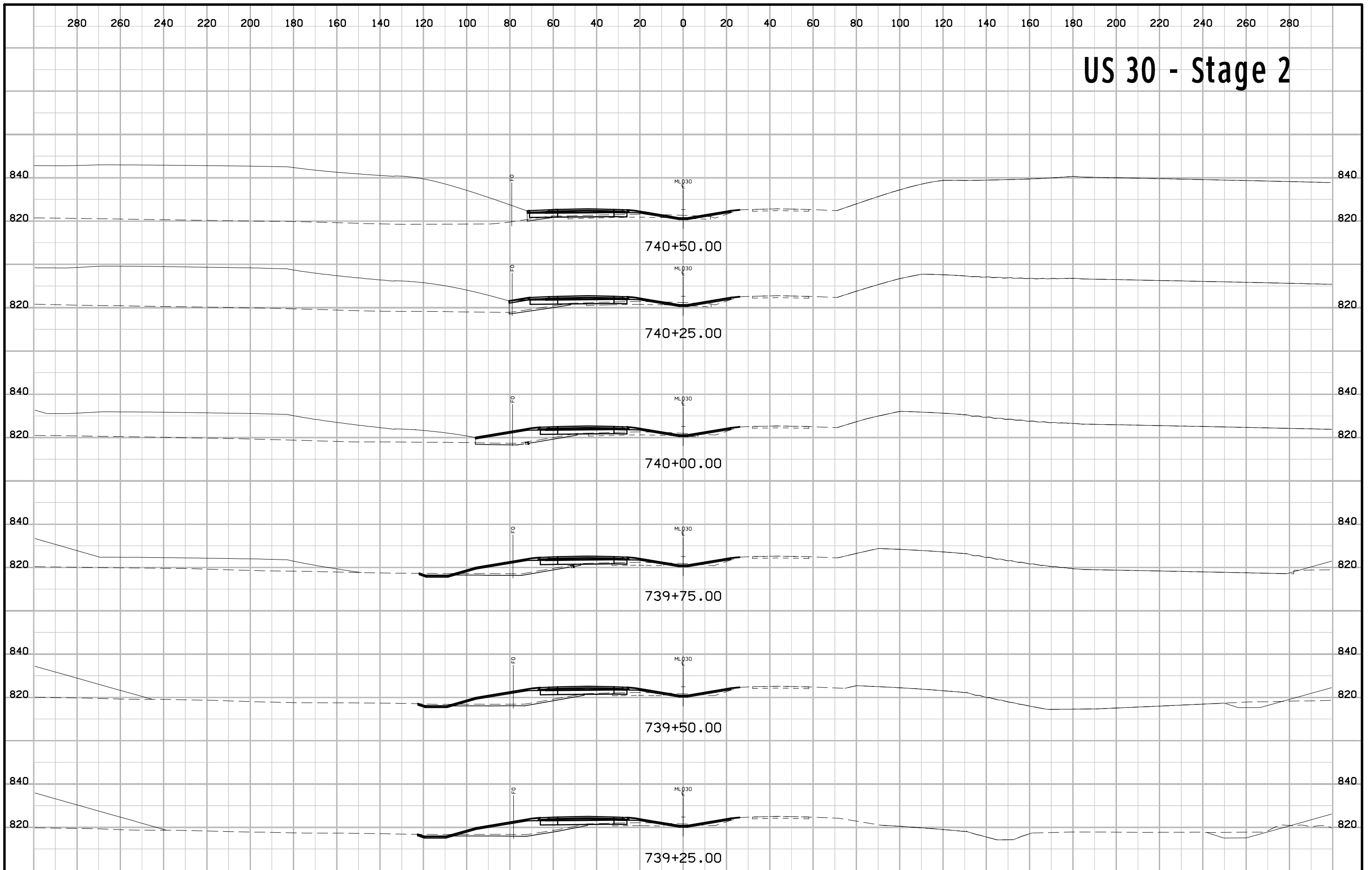
# US 30 - Stage 2



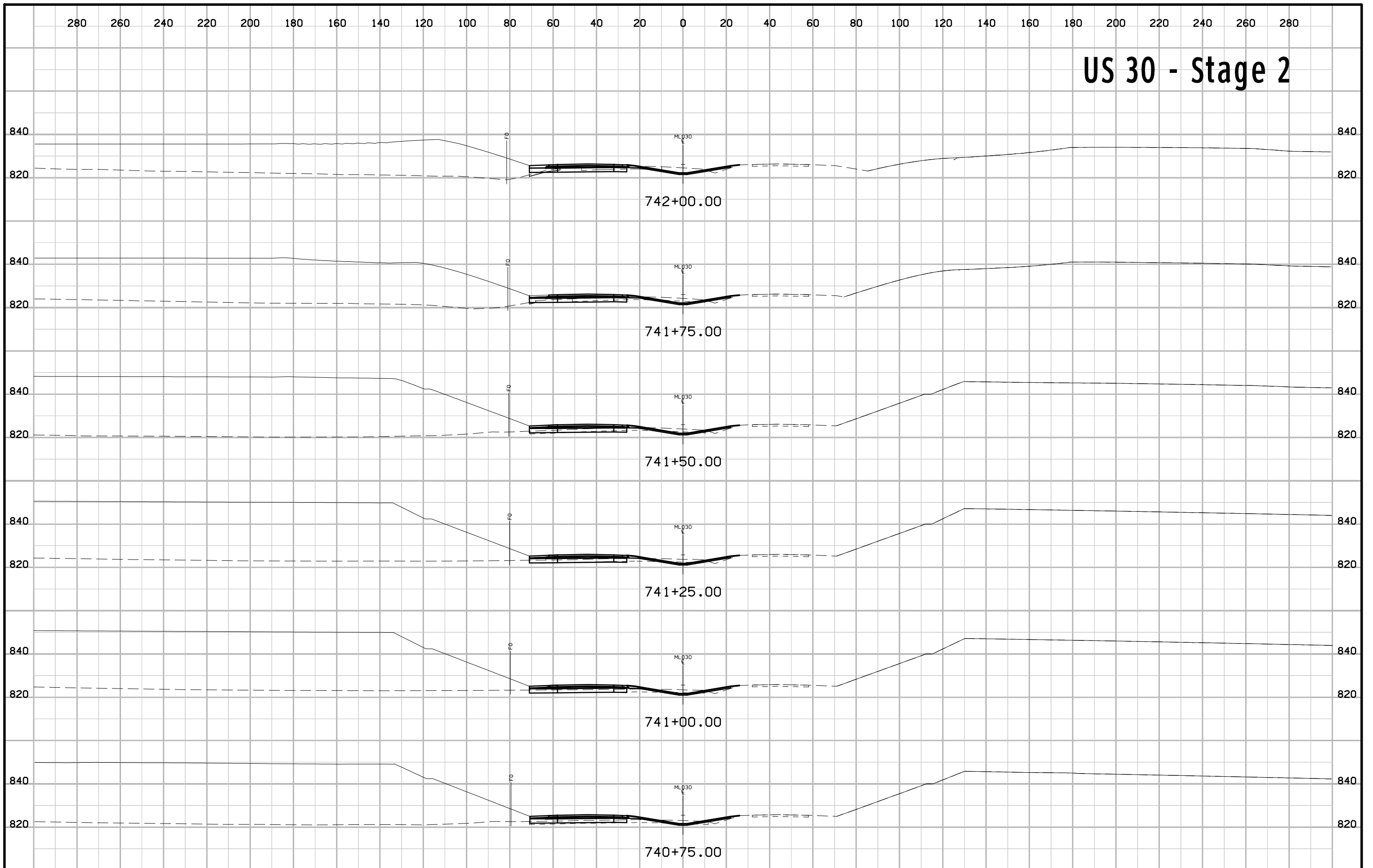
# US 30 - Stage 2



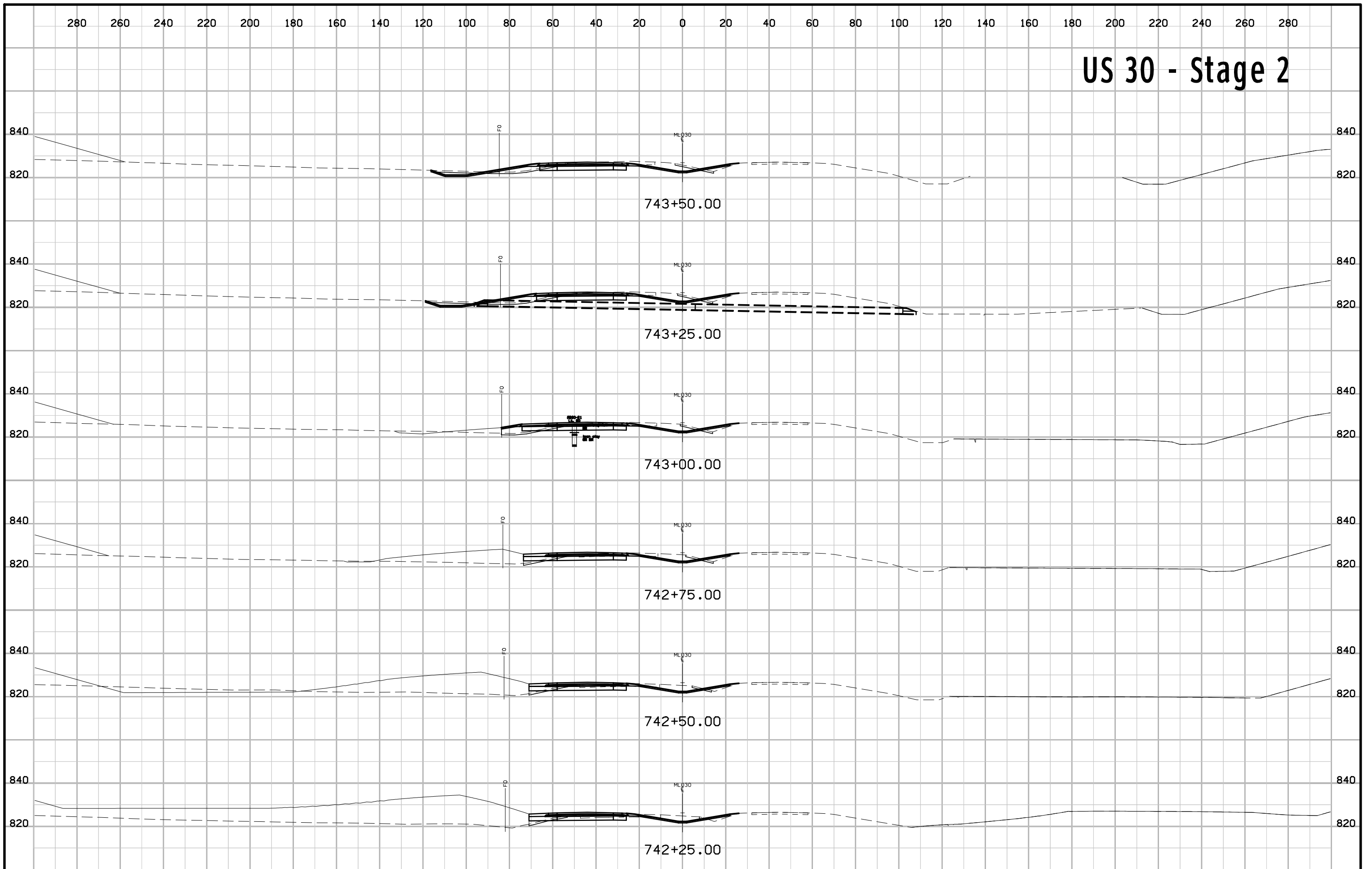
# US 30 - Stage 2



# US 30 - Stage 2

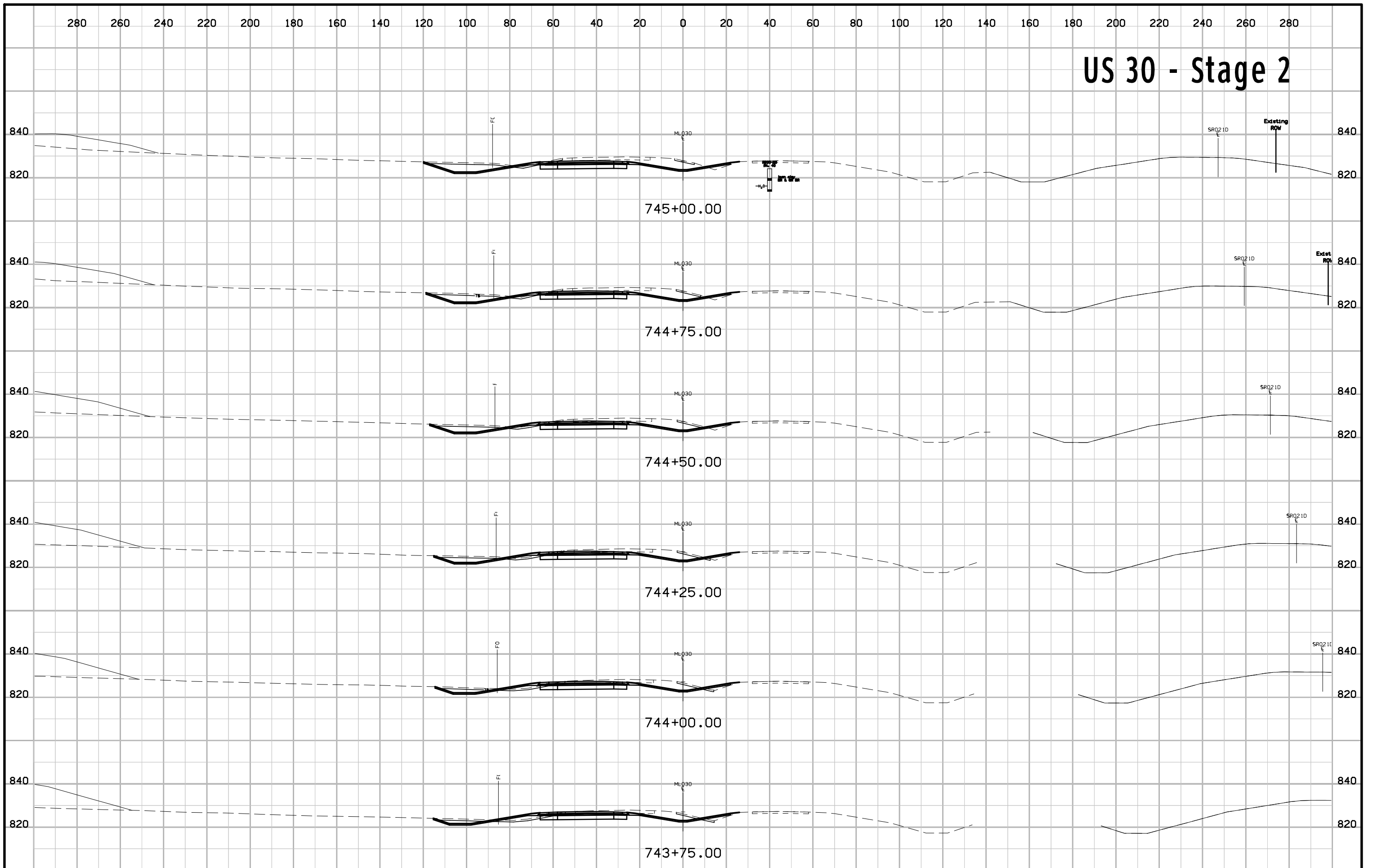


# US 30 - Stage 2

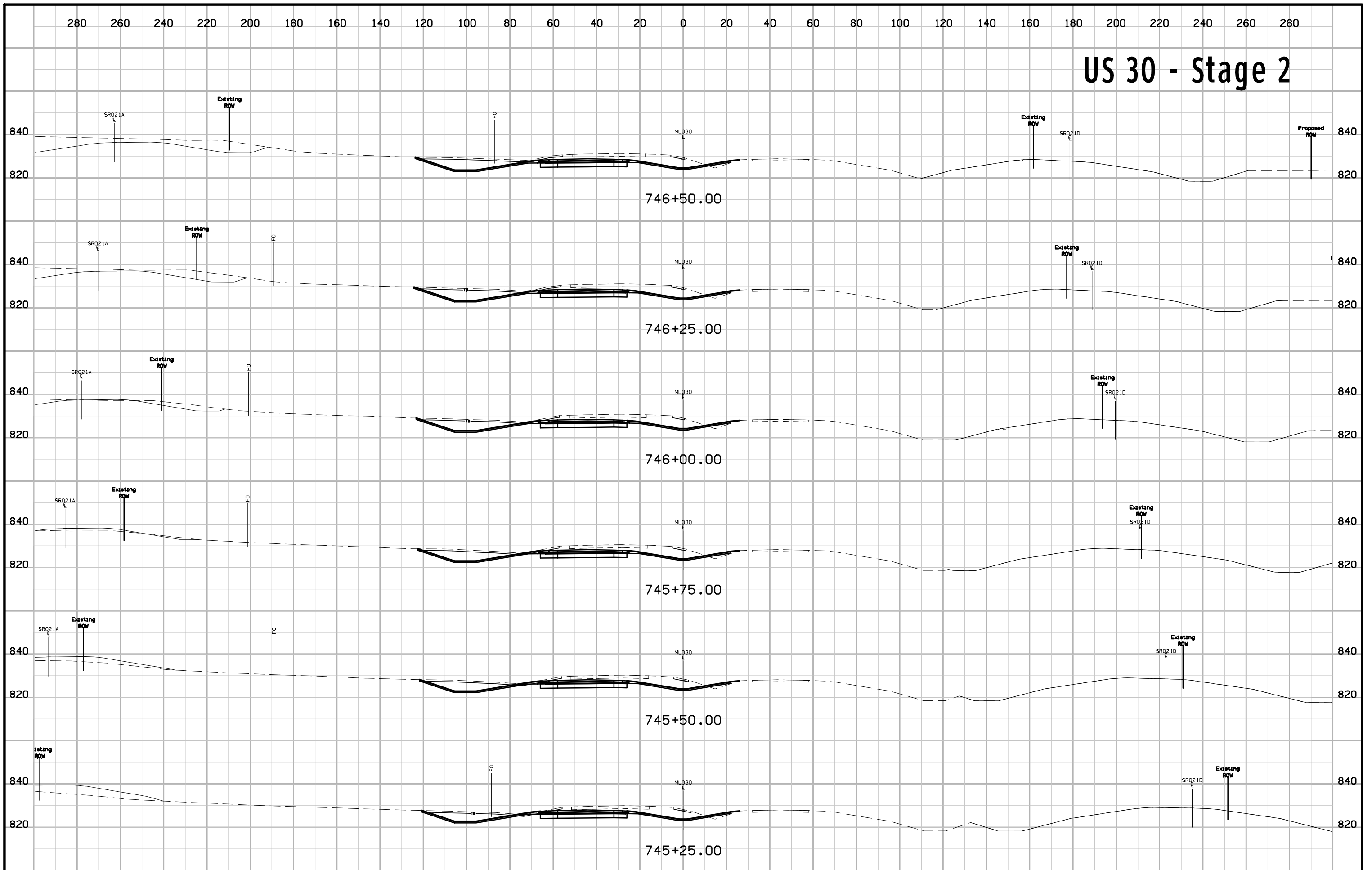




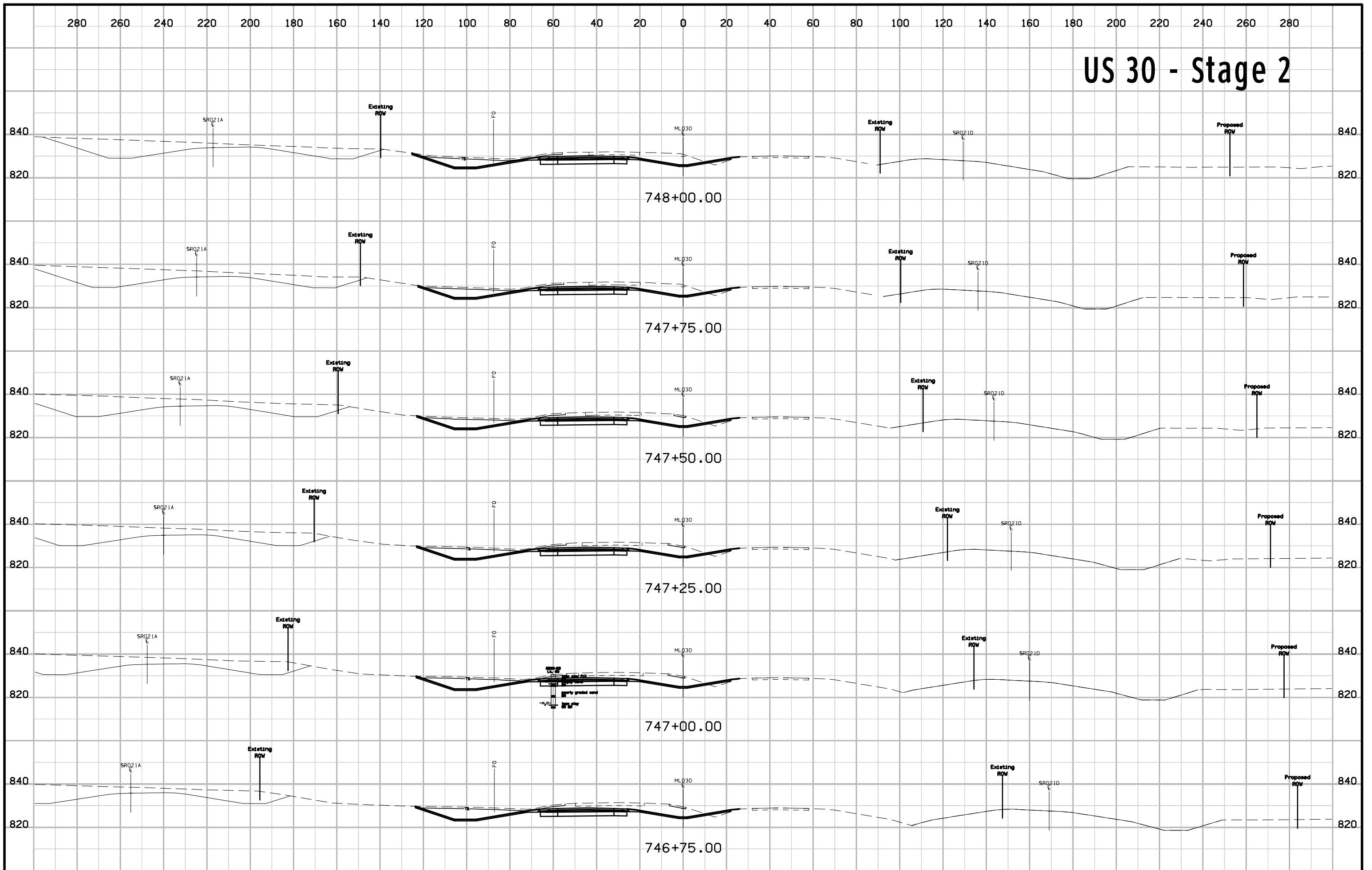
# US 30 - Stage 2



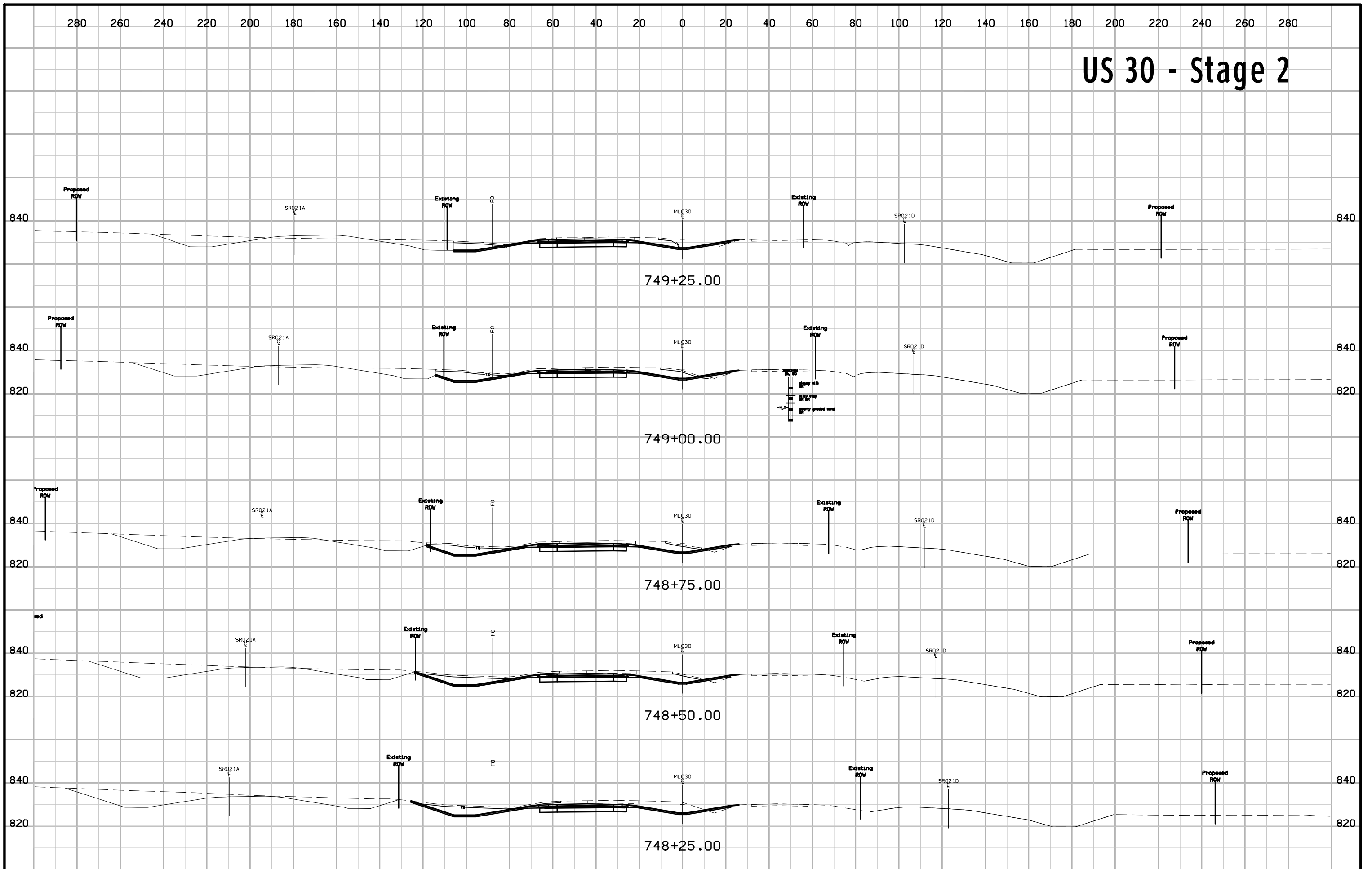
# US 30 - Stage 2



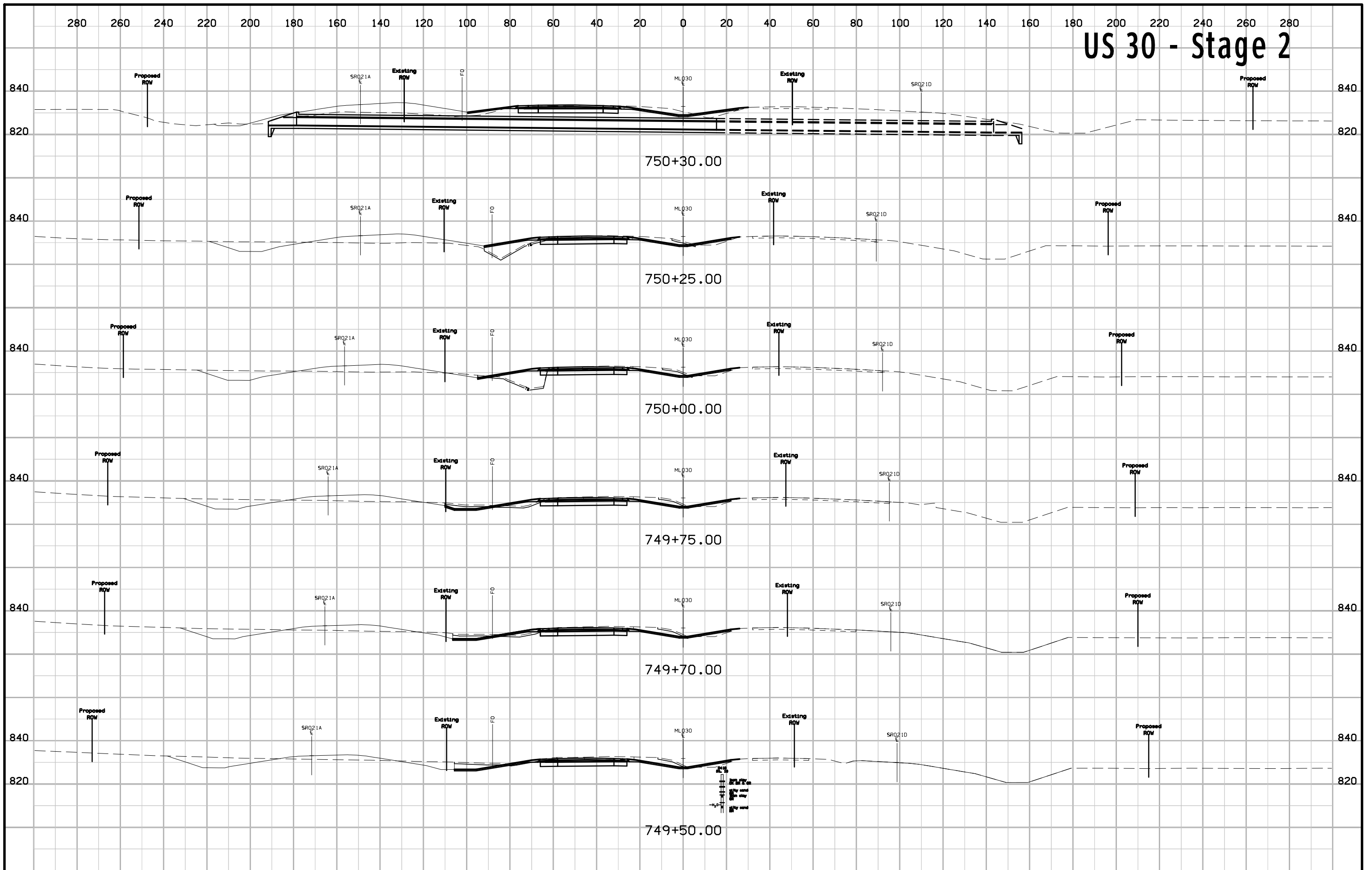
# US 30 - Stage 2



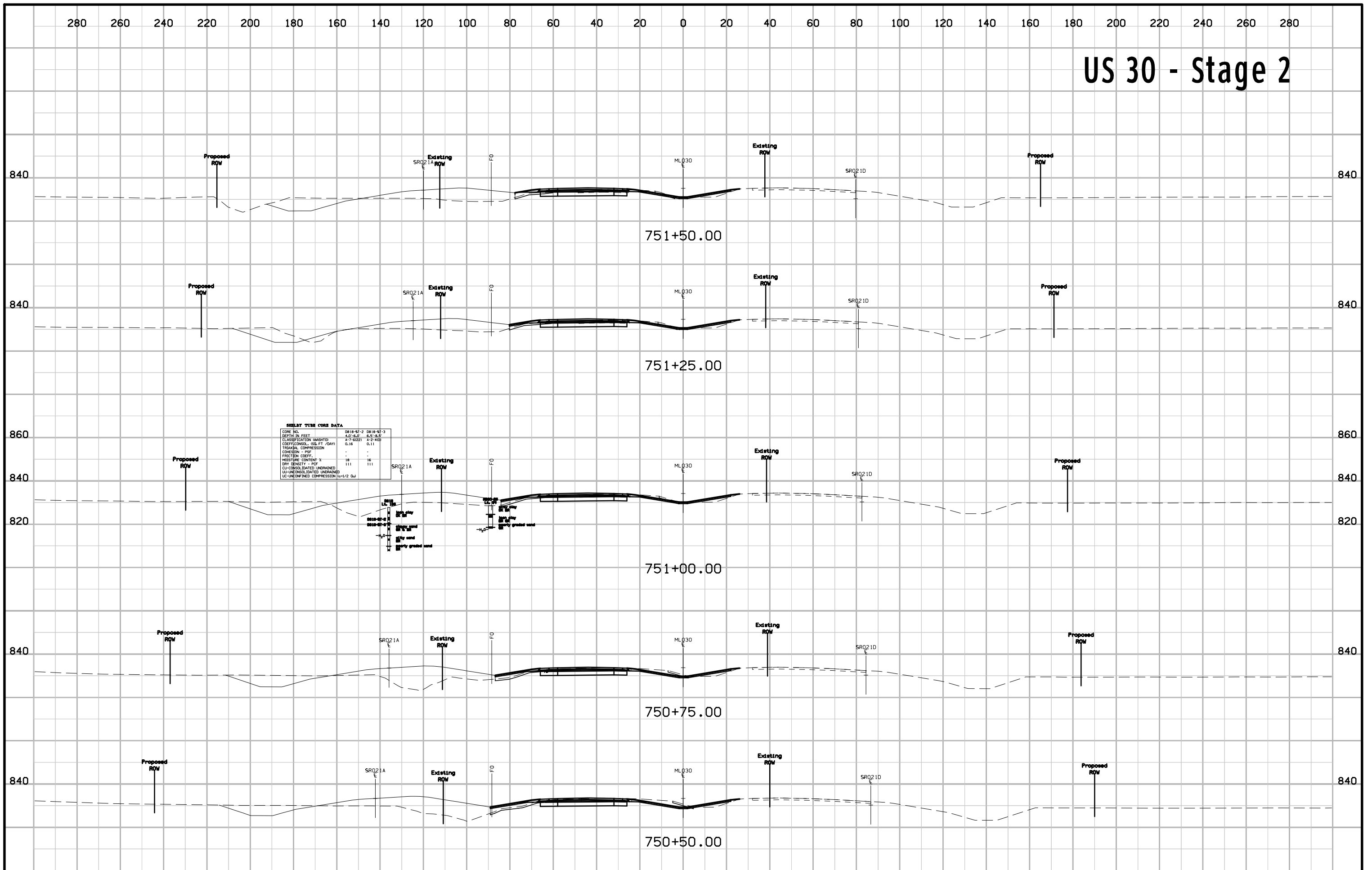
# US 30 - Stage 2



# US 30 - Stage 2

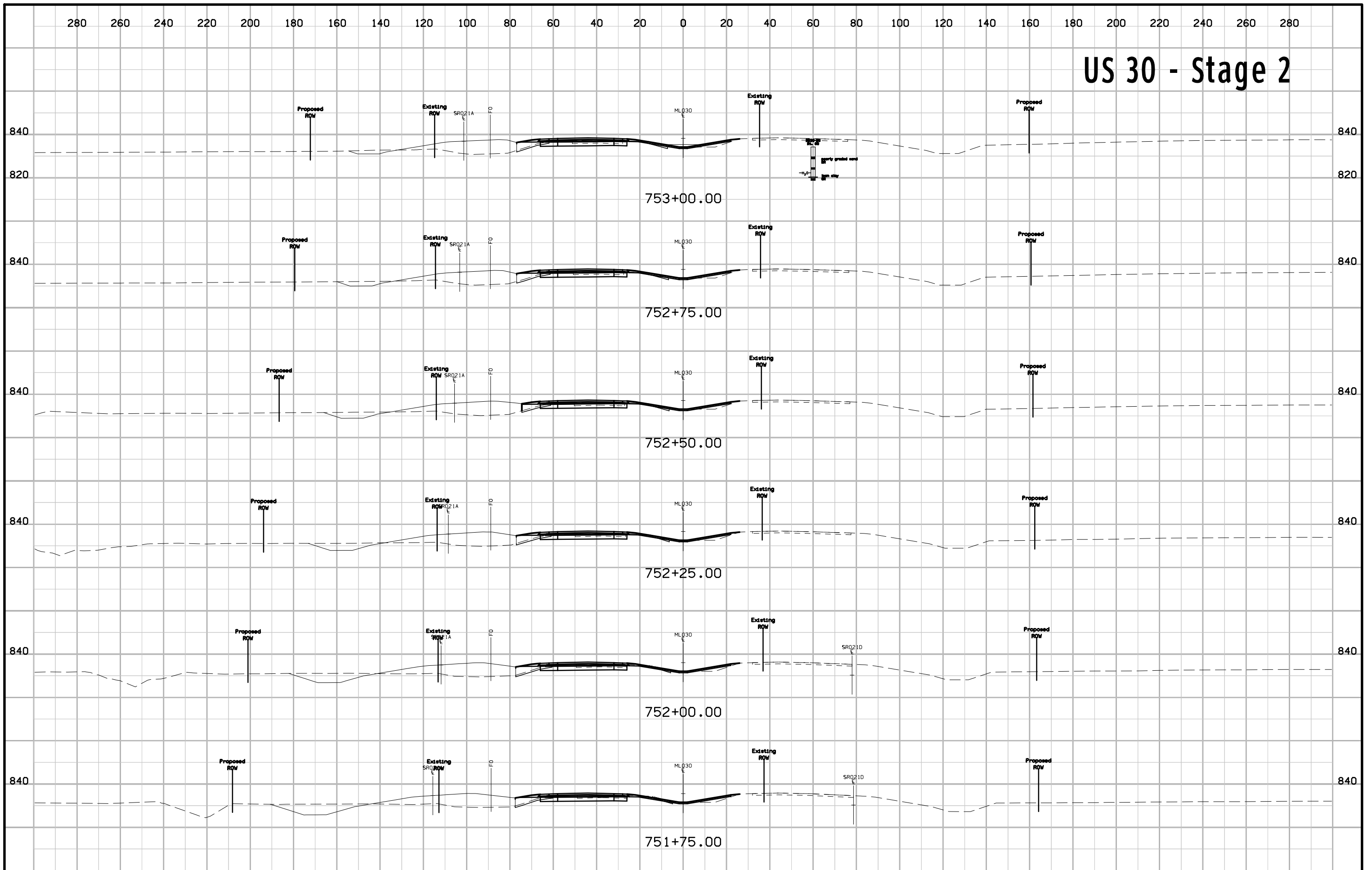


# US 30 - Stage 2

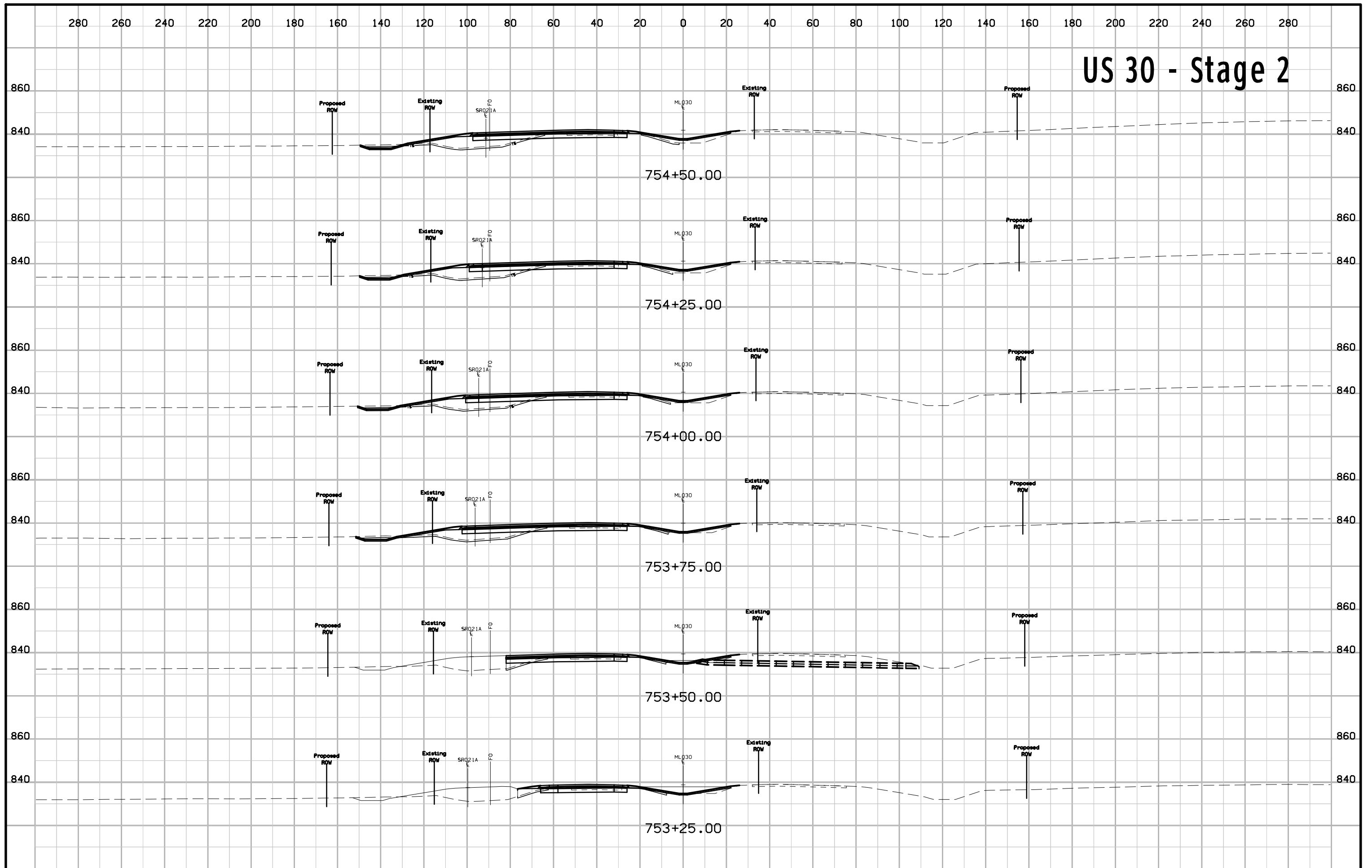




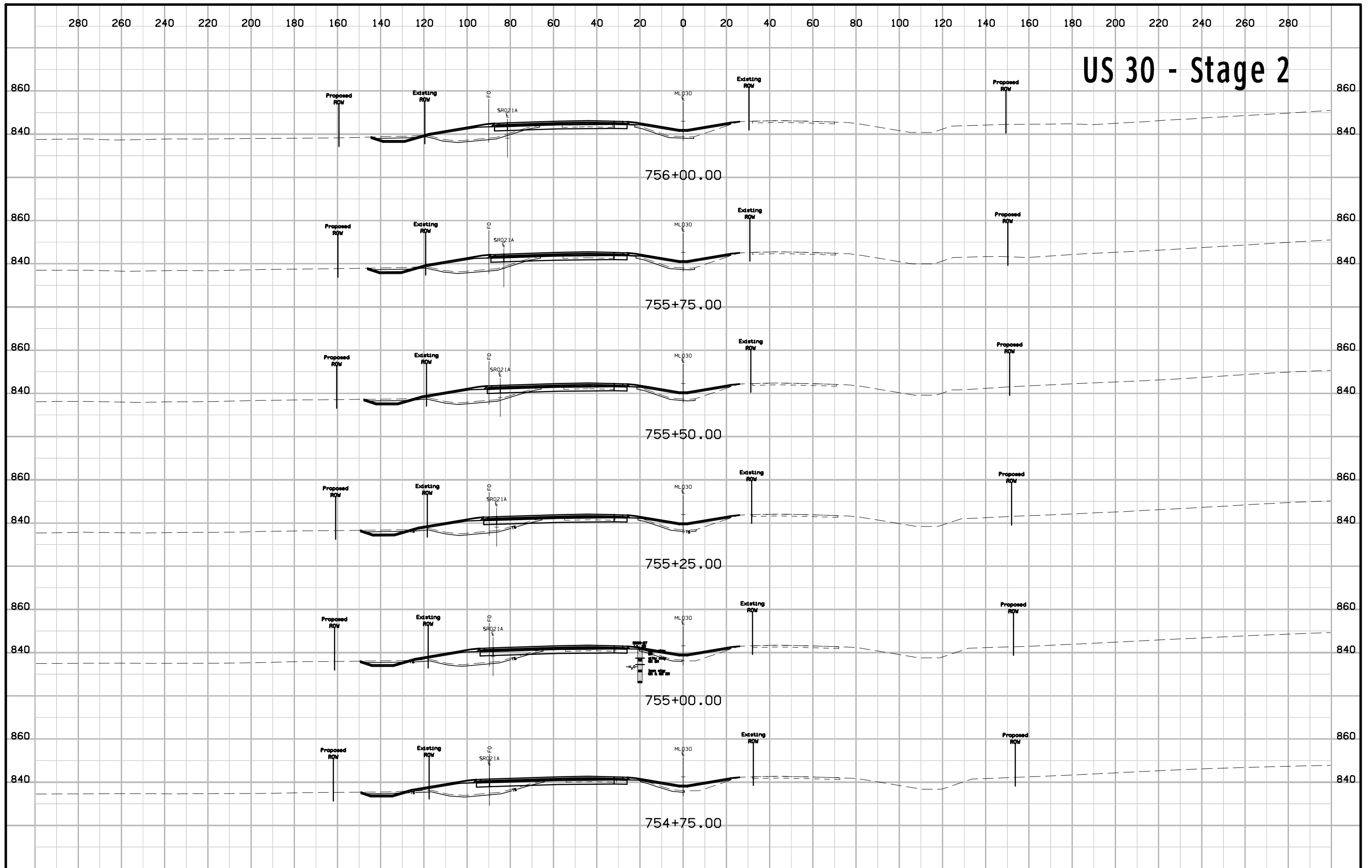
# US 30 - Stage 2



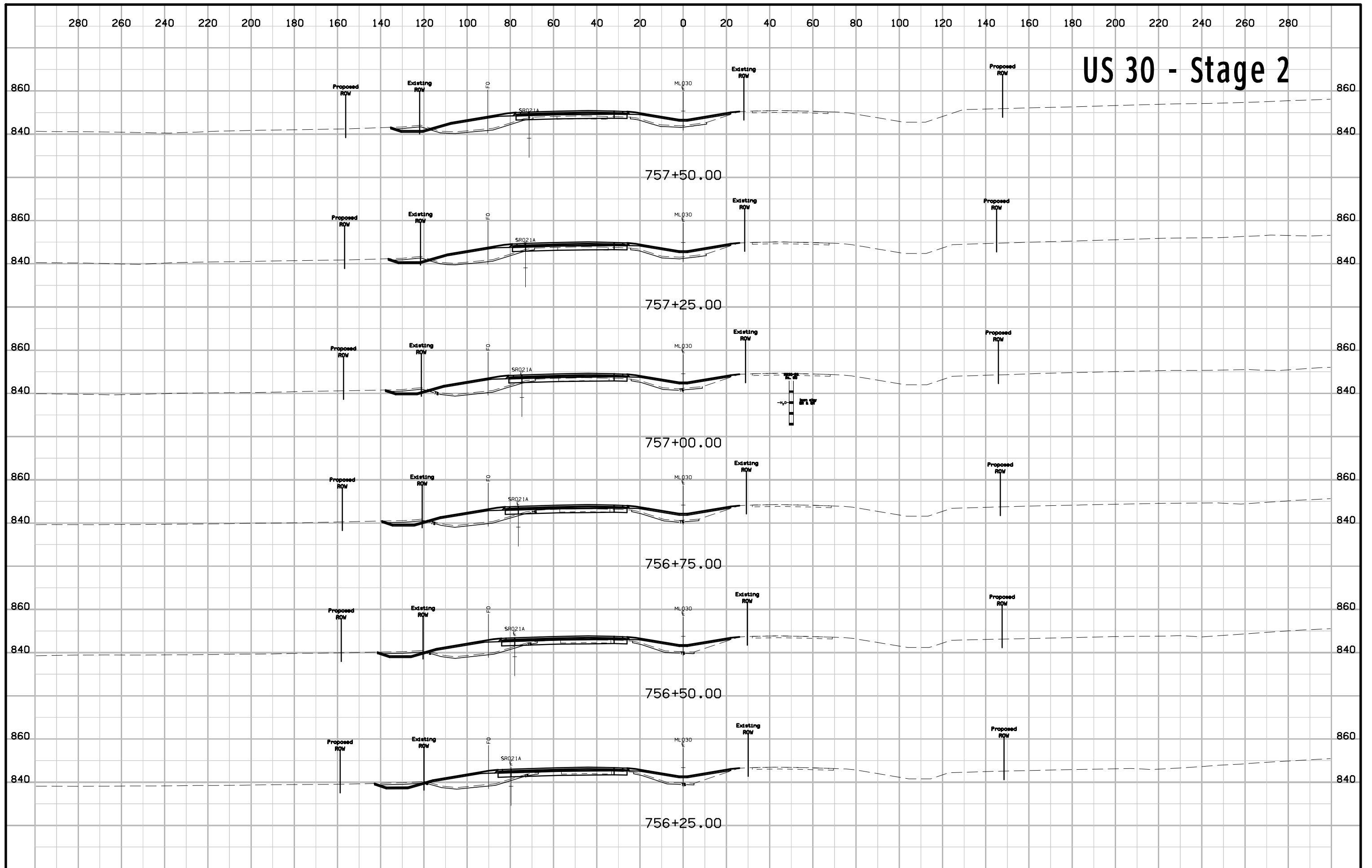
# US 30 - Stage 2



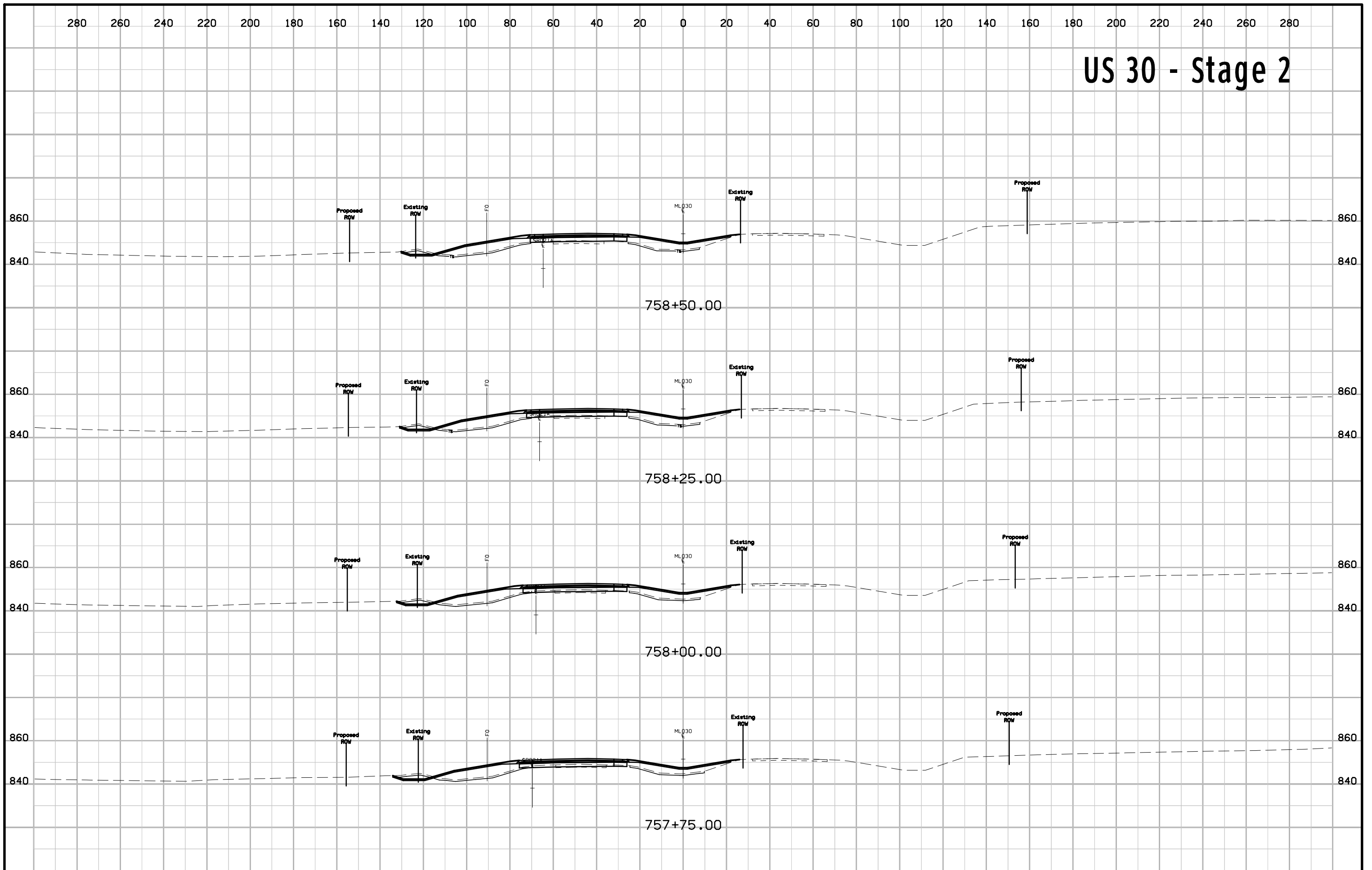
# US 30 - Stage 2



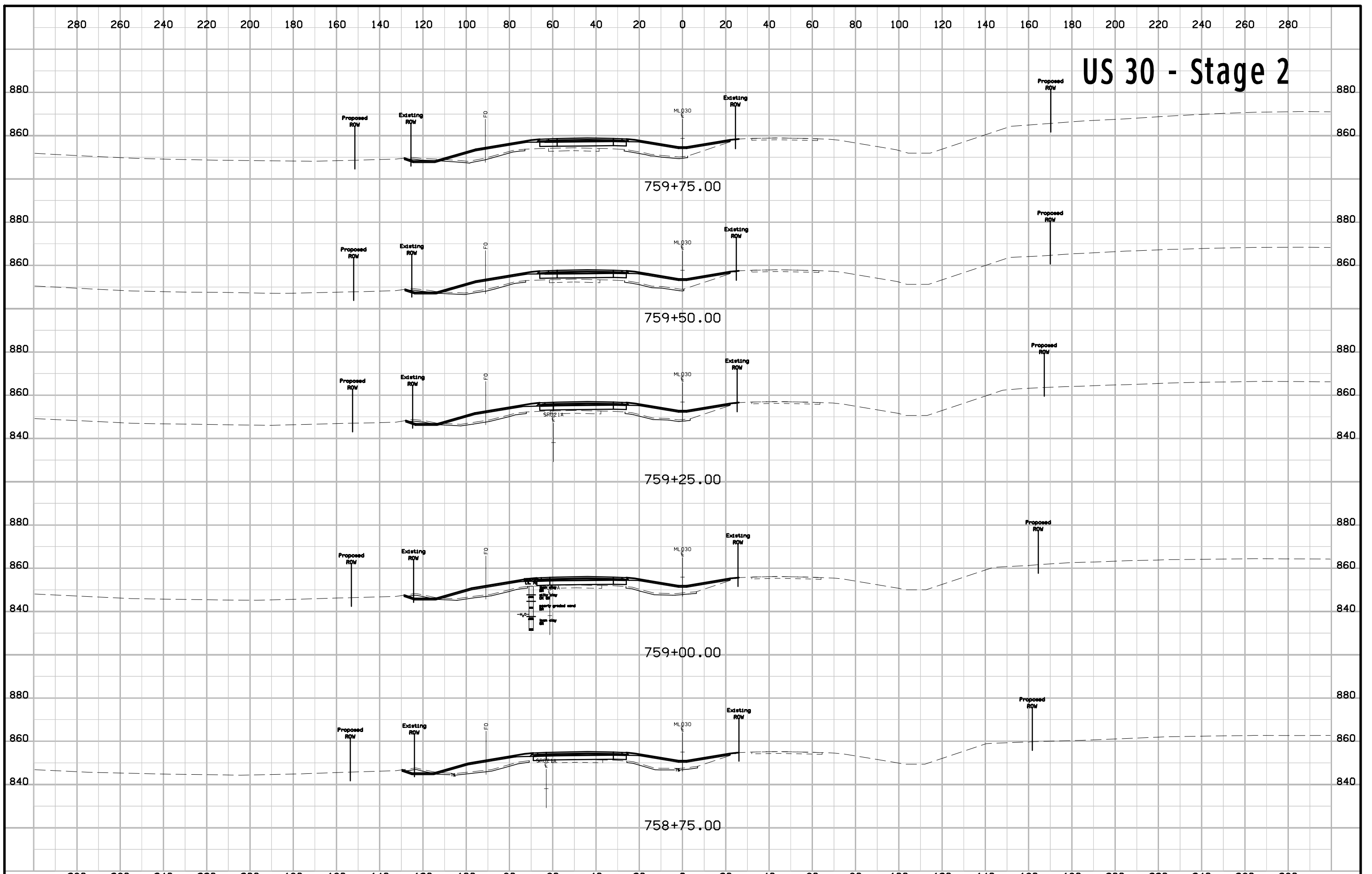
# US 30 - Stage 2



# US 30 - Stage 2

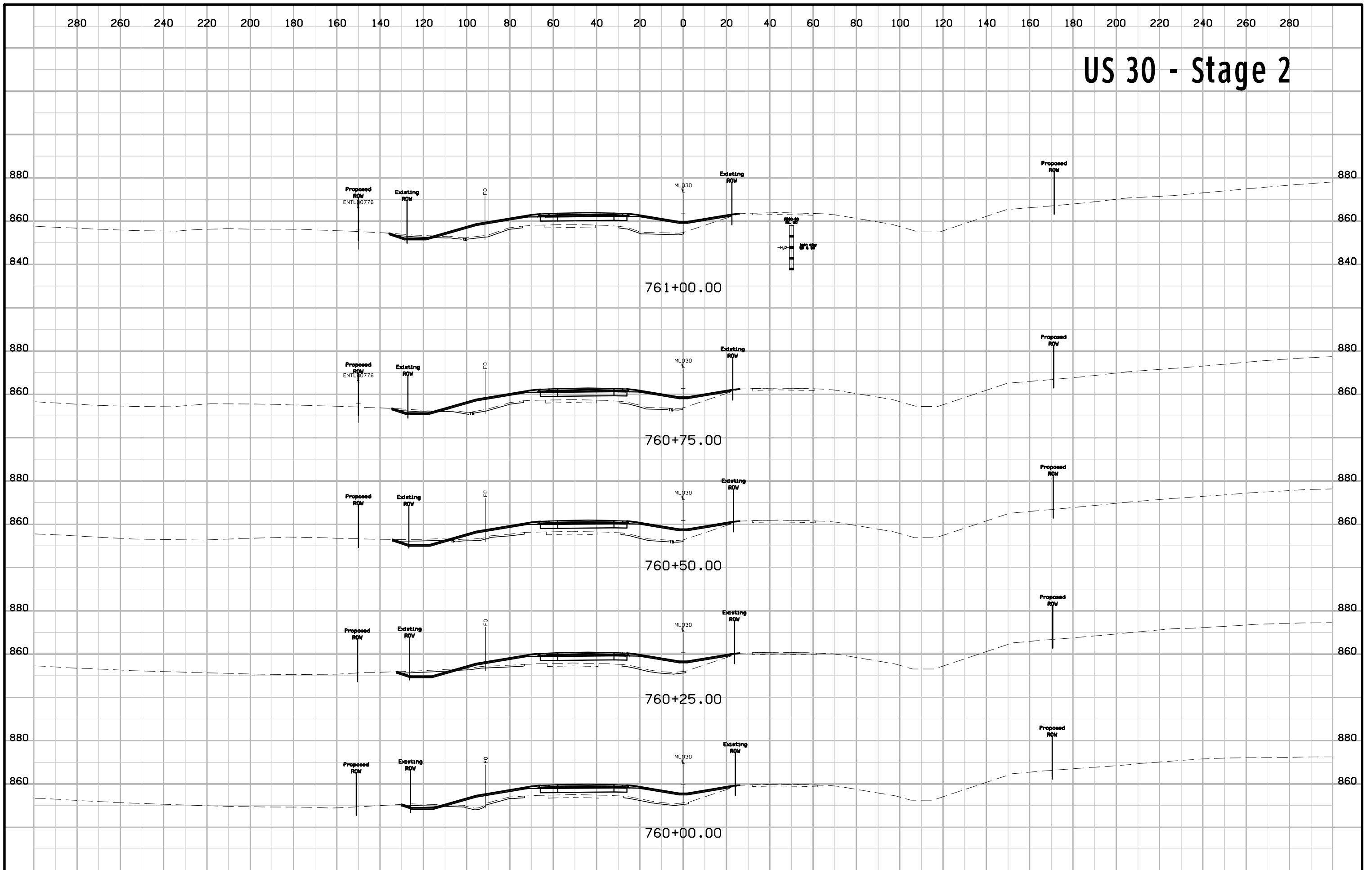


# US 30 - Stage 2

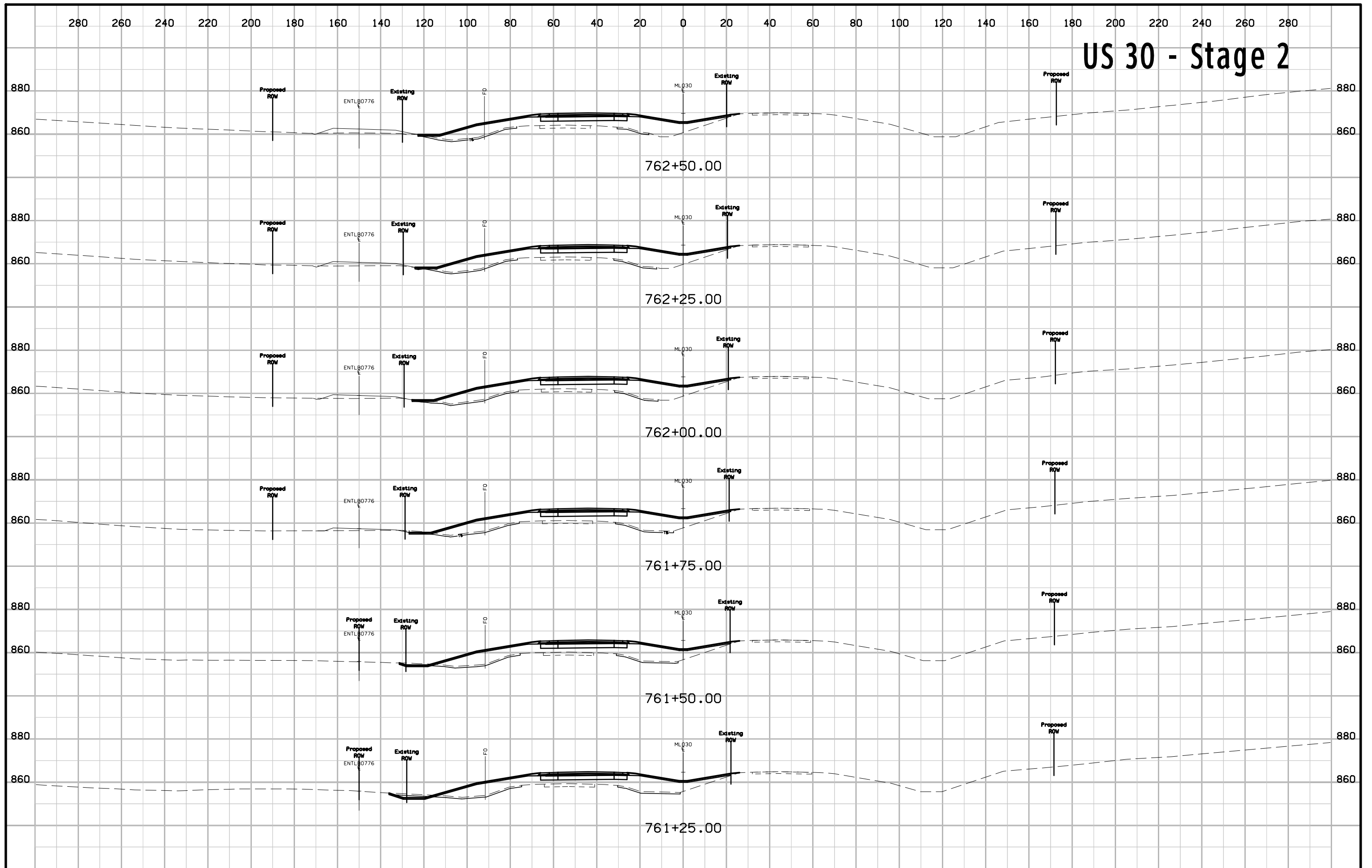




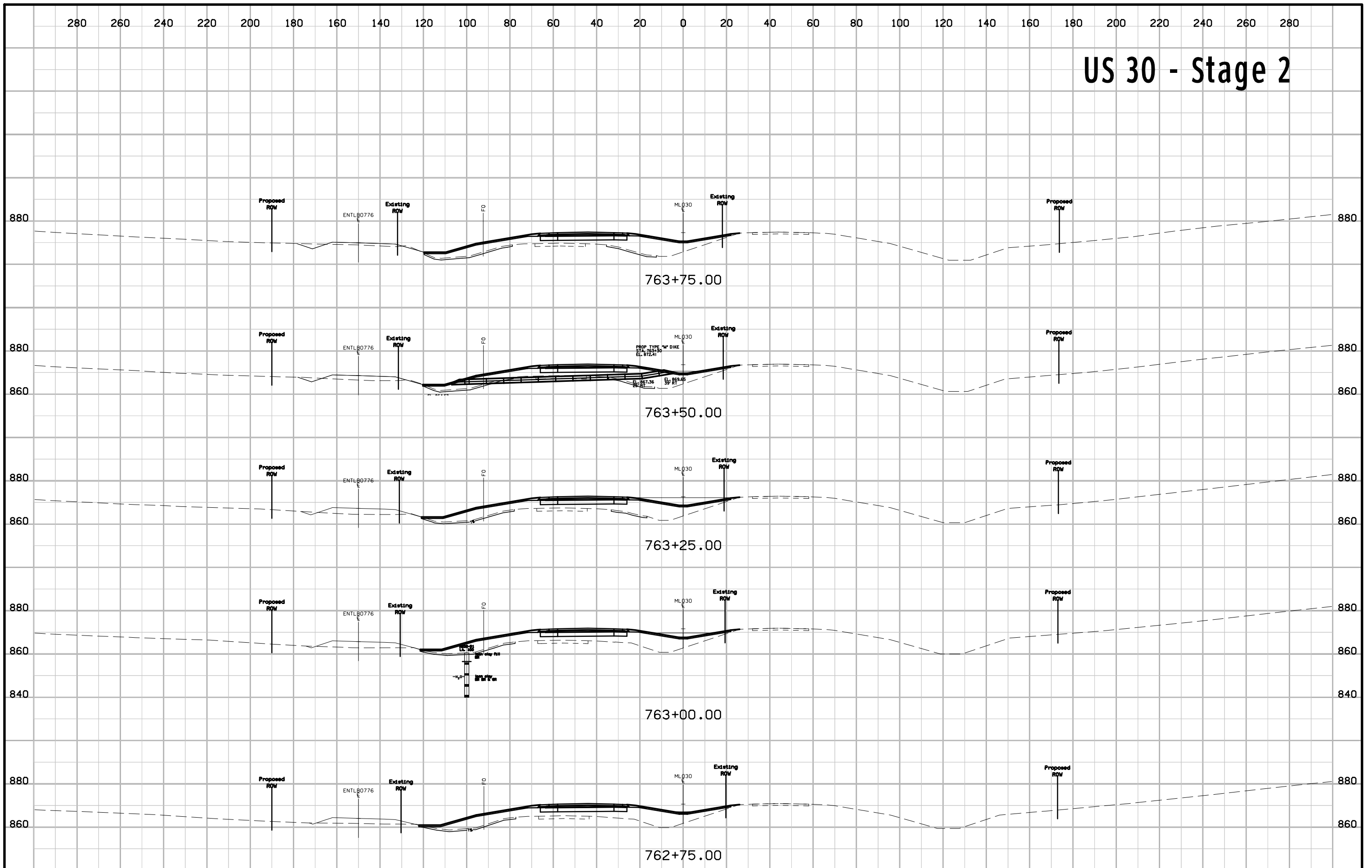
# US 30 - Stage 2



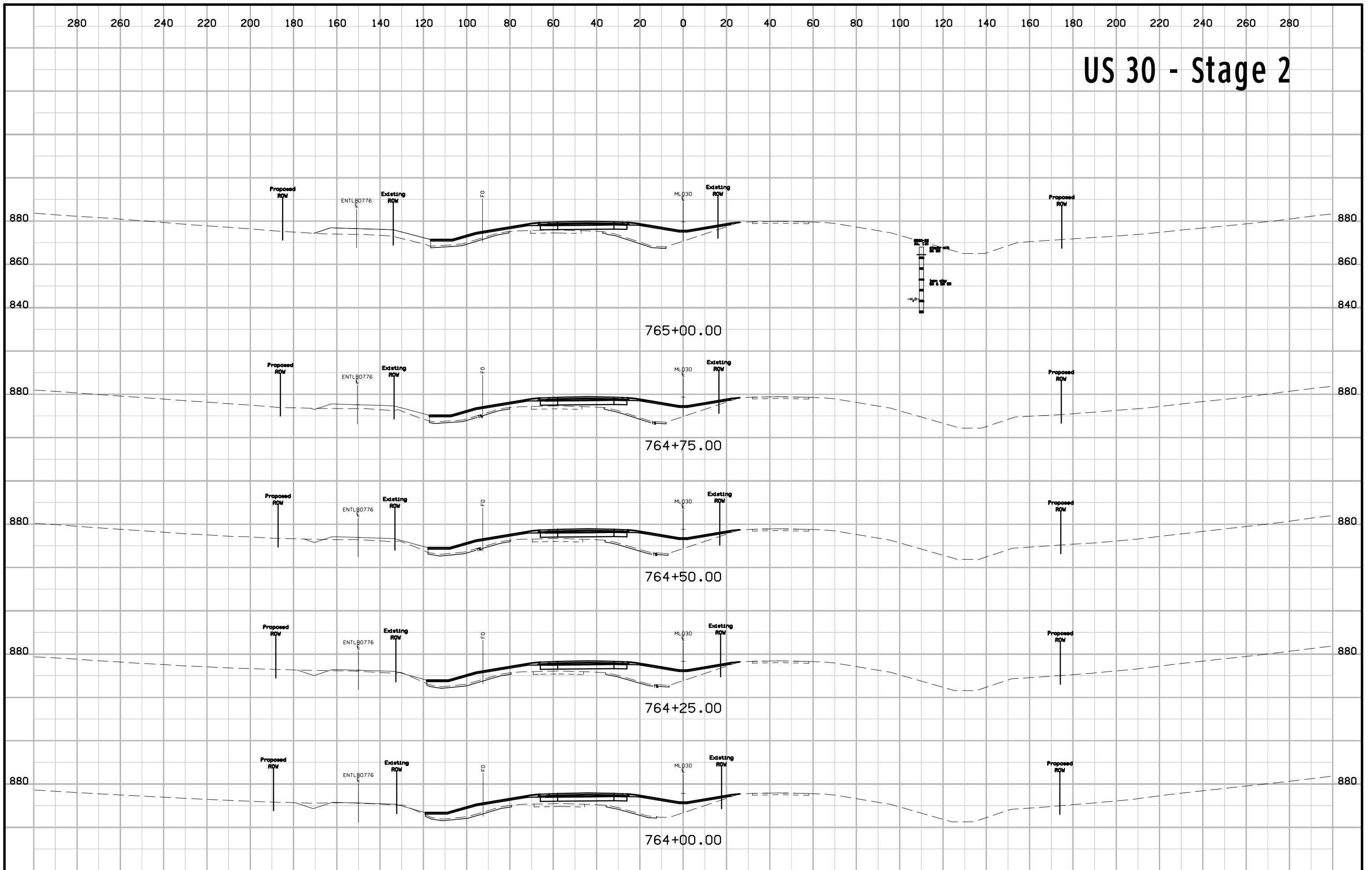
# US 30 - Stage 2



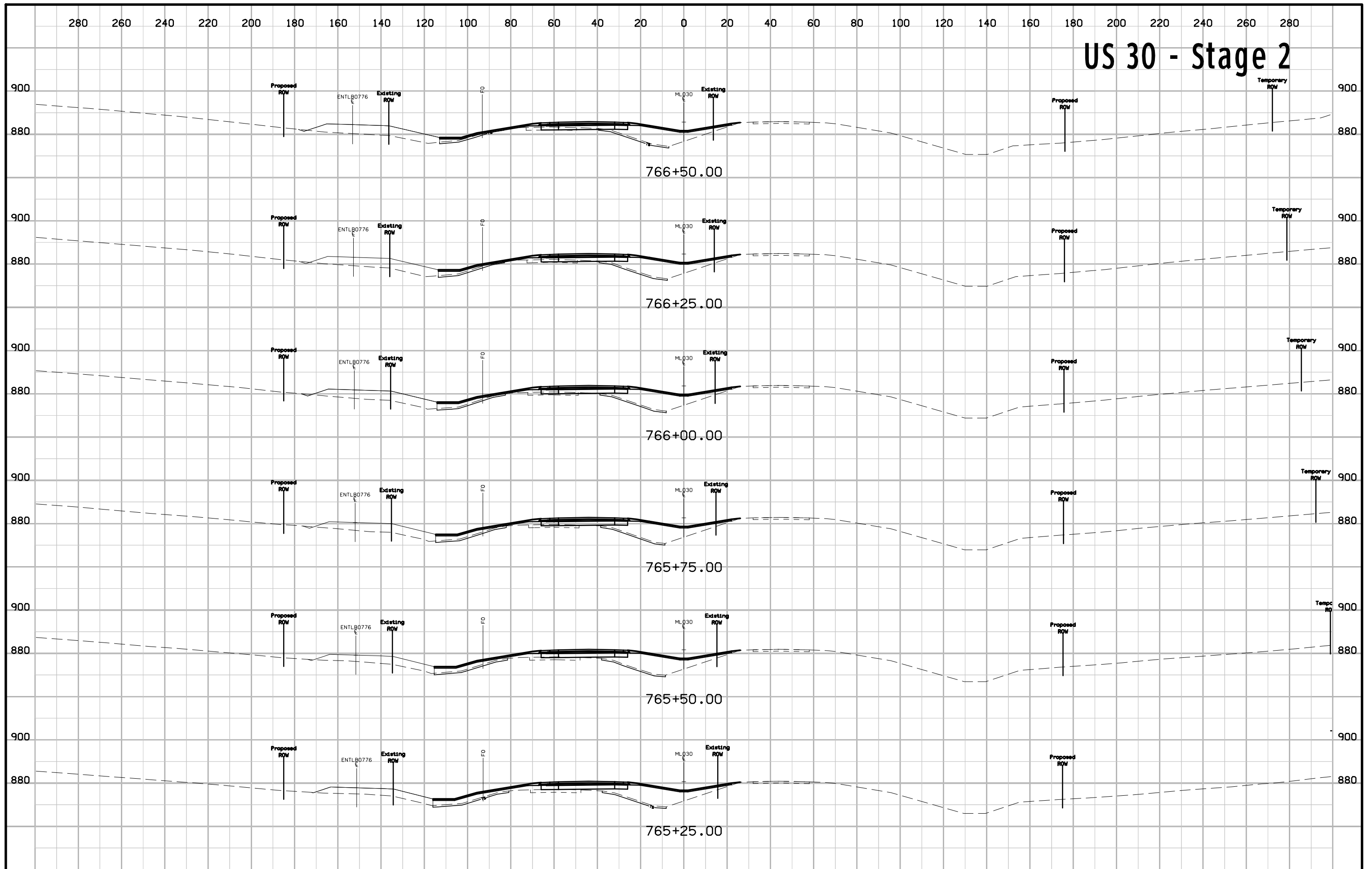
# US 30 - Stage 2



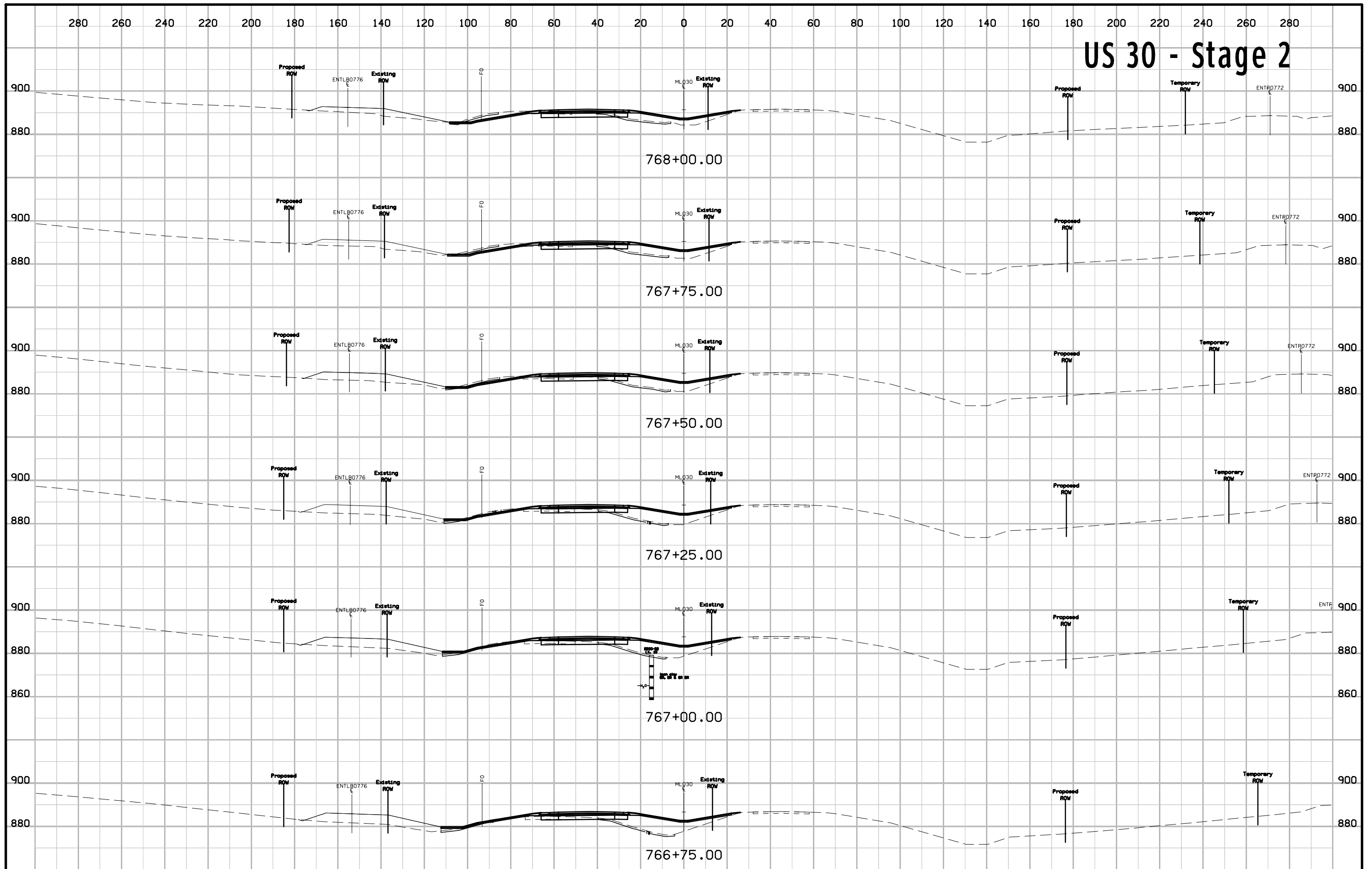
# US 30 - Stage 2



# US 30 - Stage 2

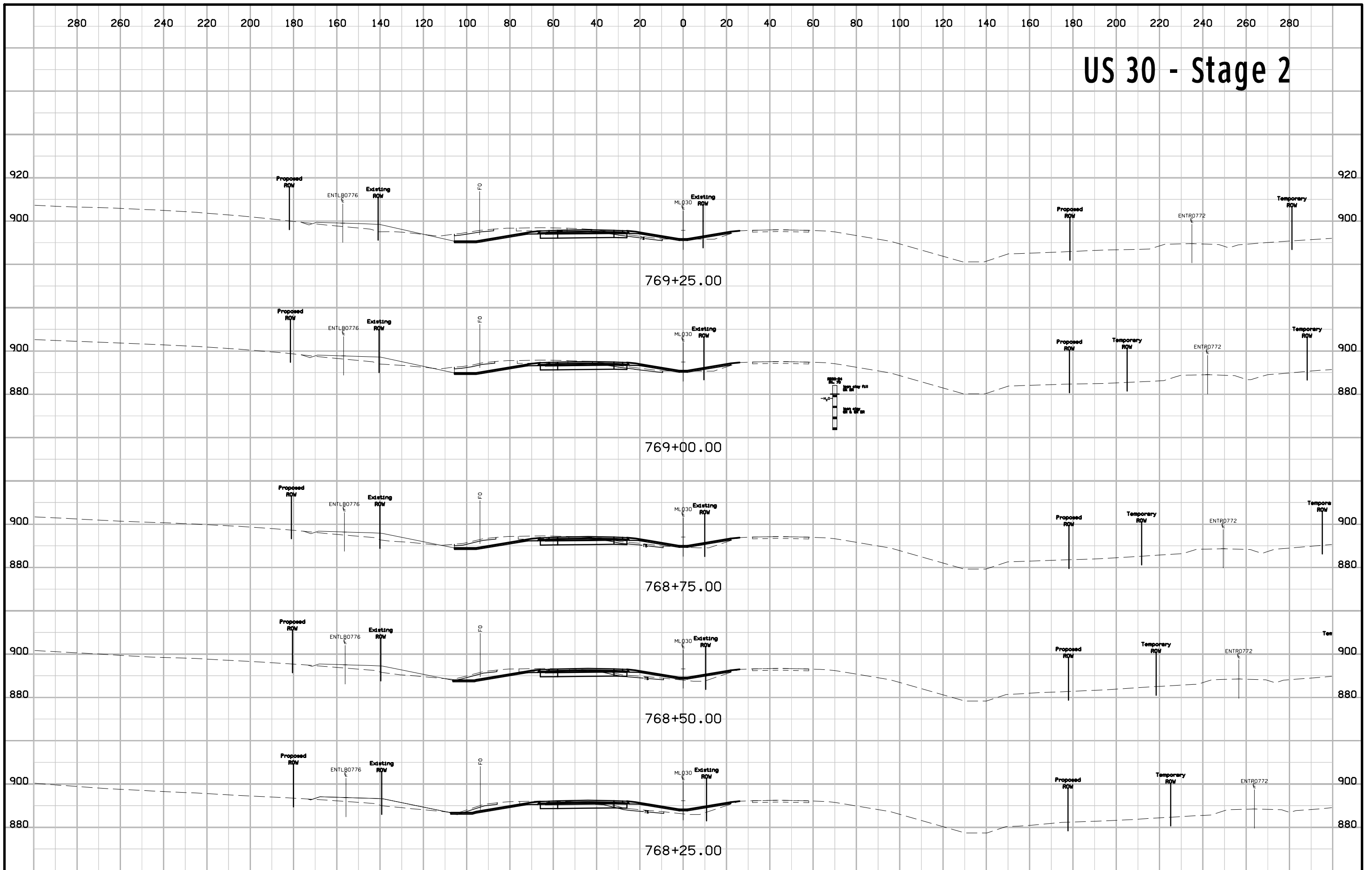


# US 30 - Stage 2

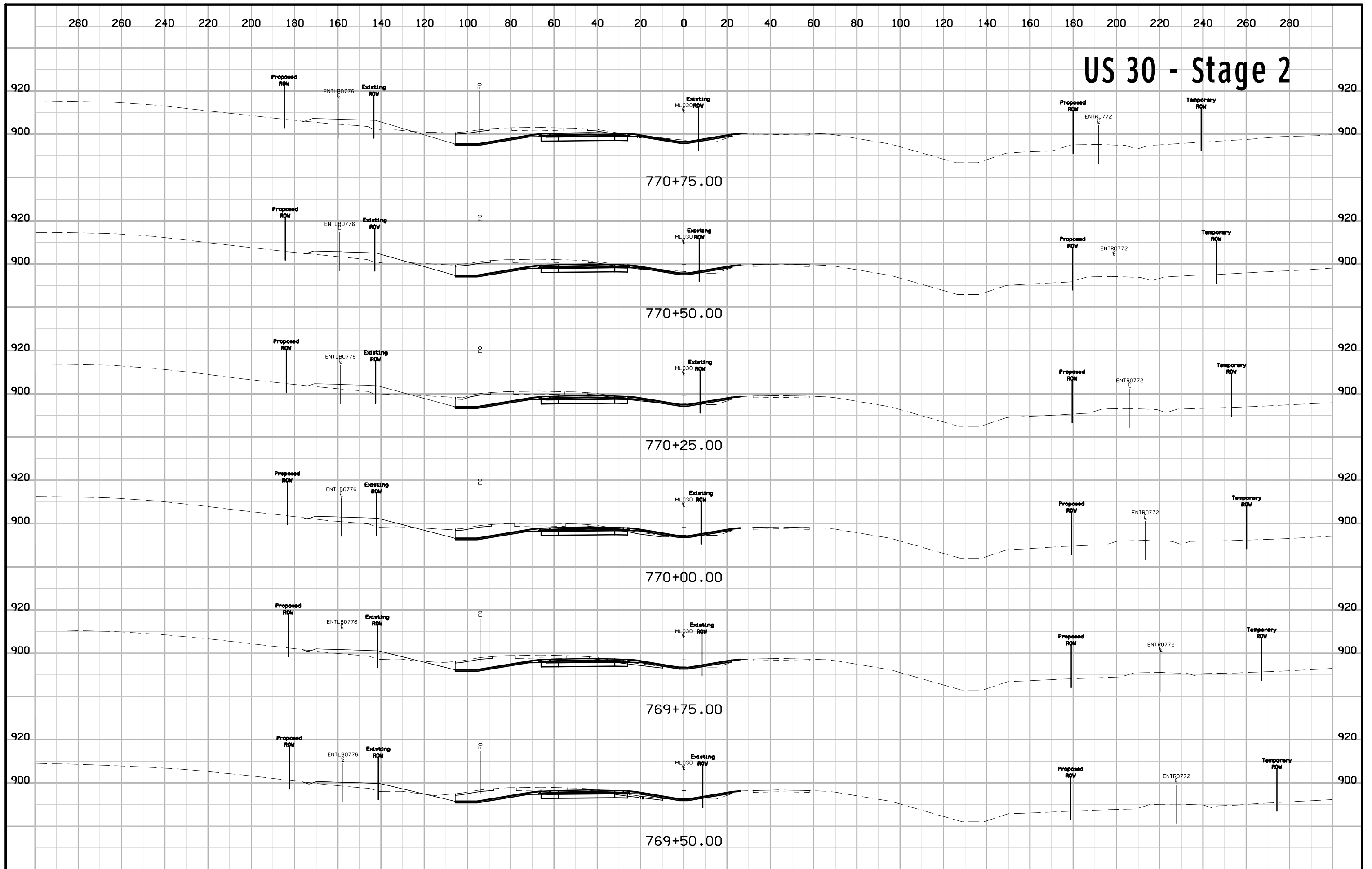




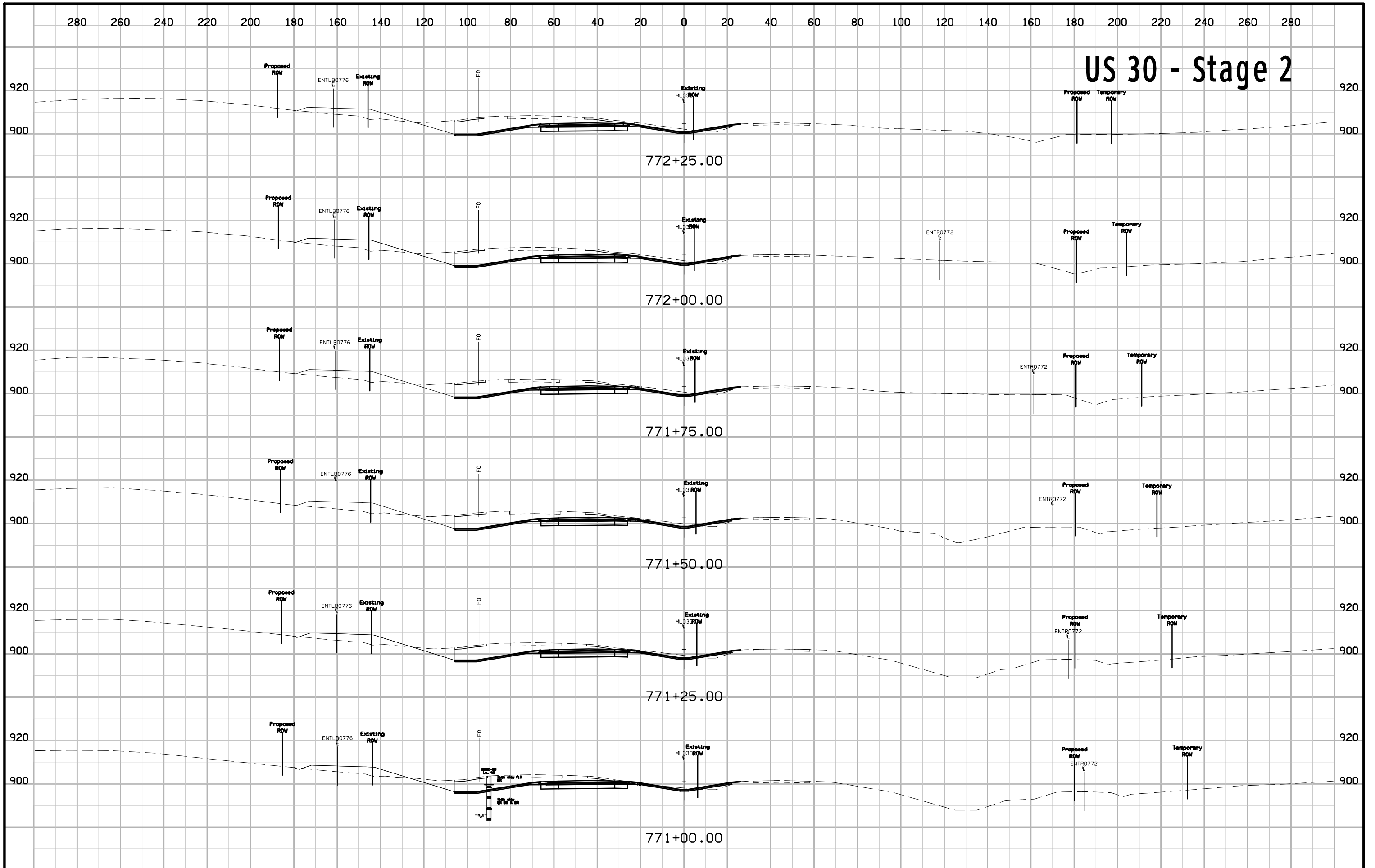
# US 30 - Stage 2



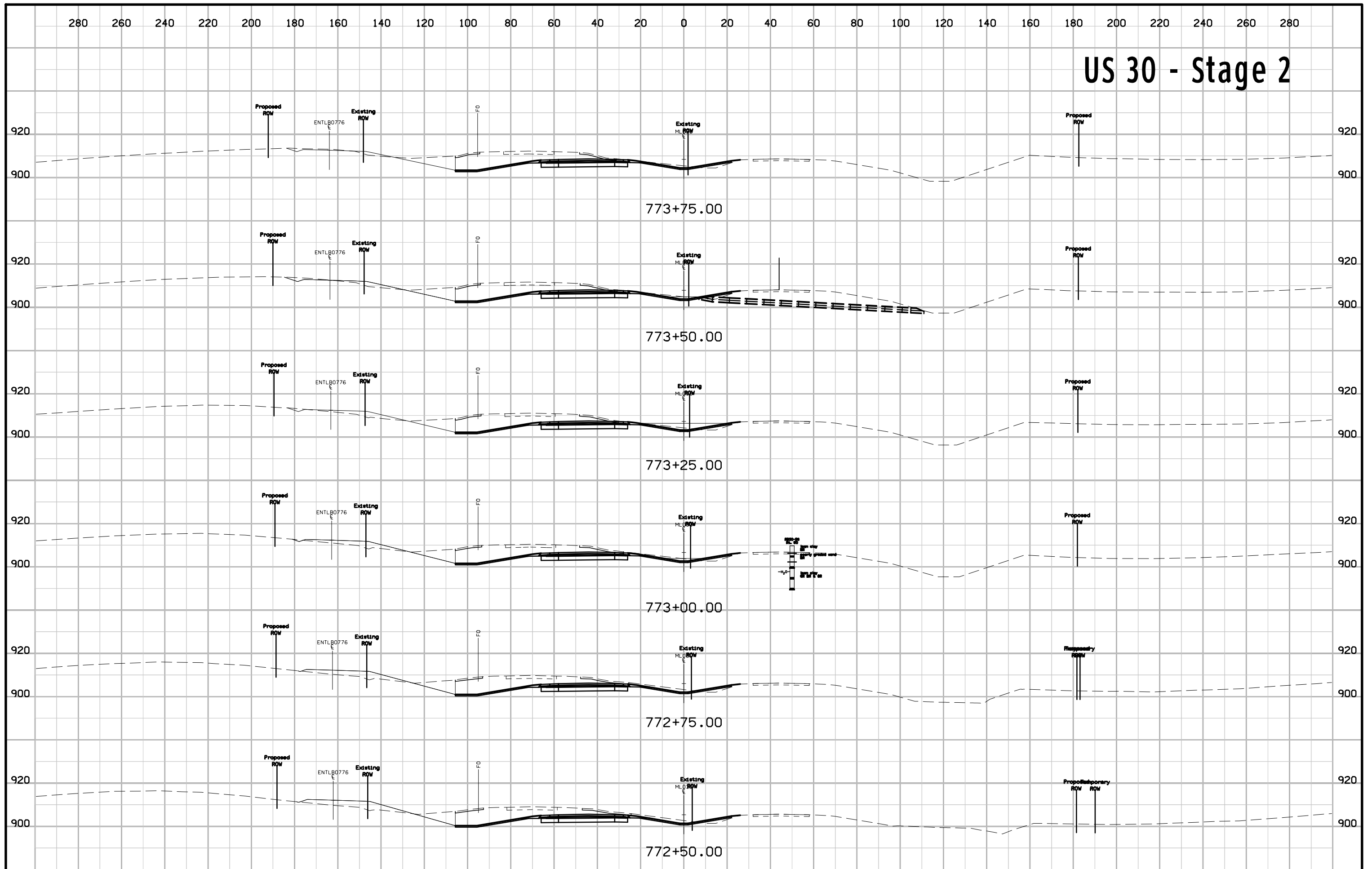
# US 30 - Stage 2



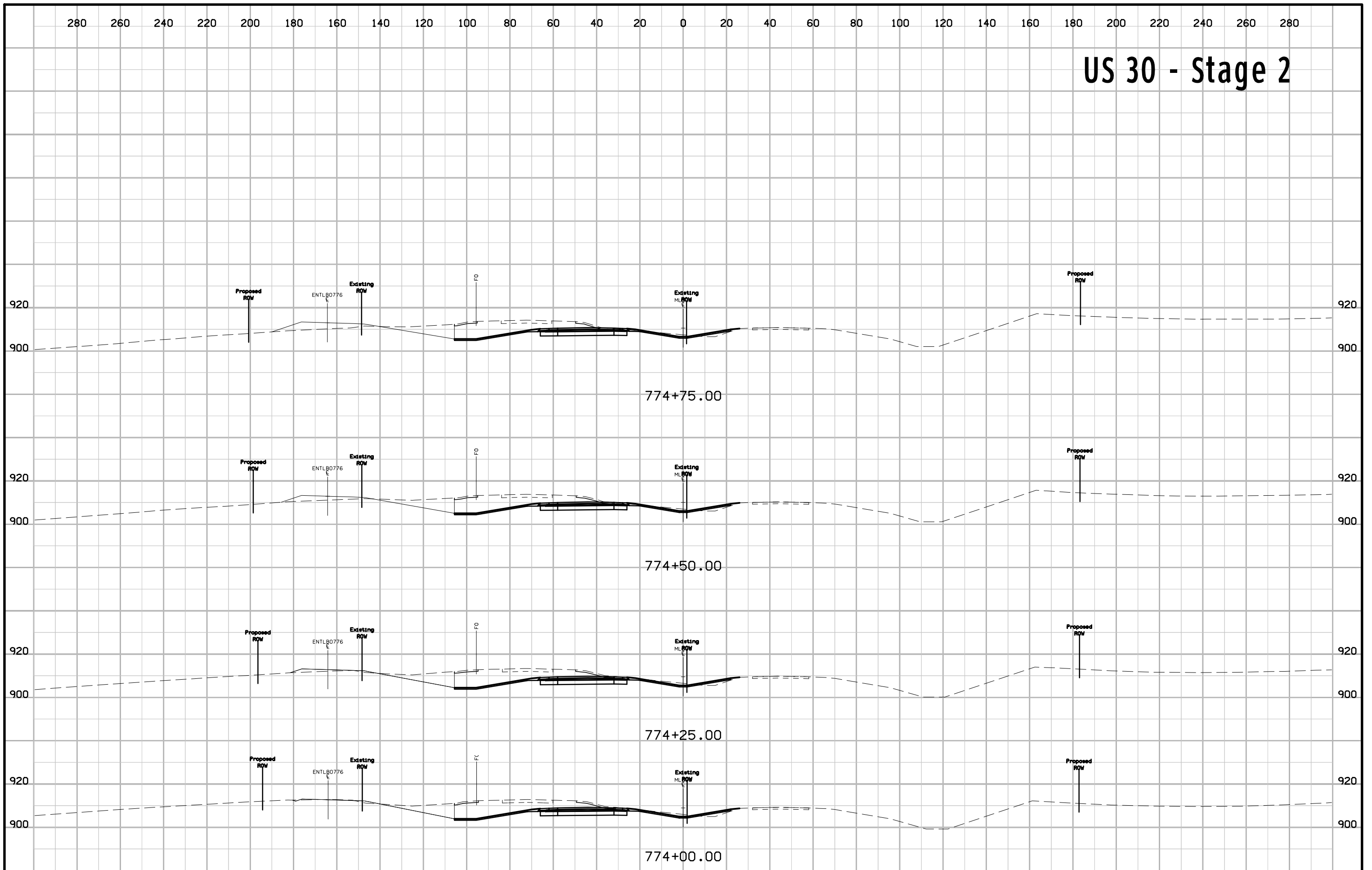
# US 30 - Stage 2



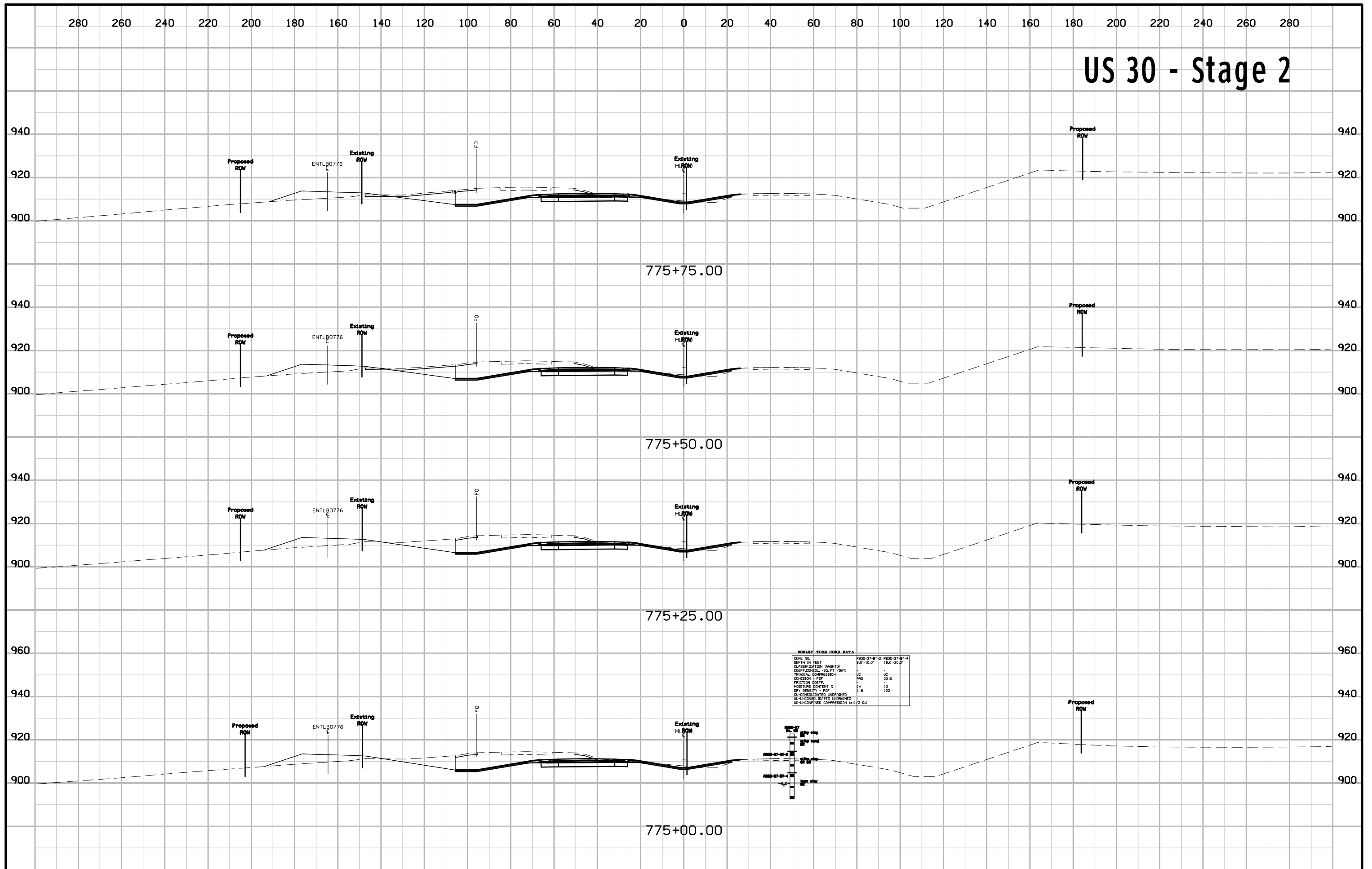
# US 30 - Stage 2



# US 30 - Stage 2

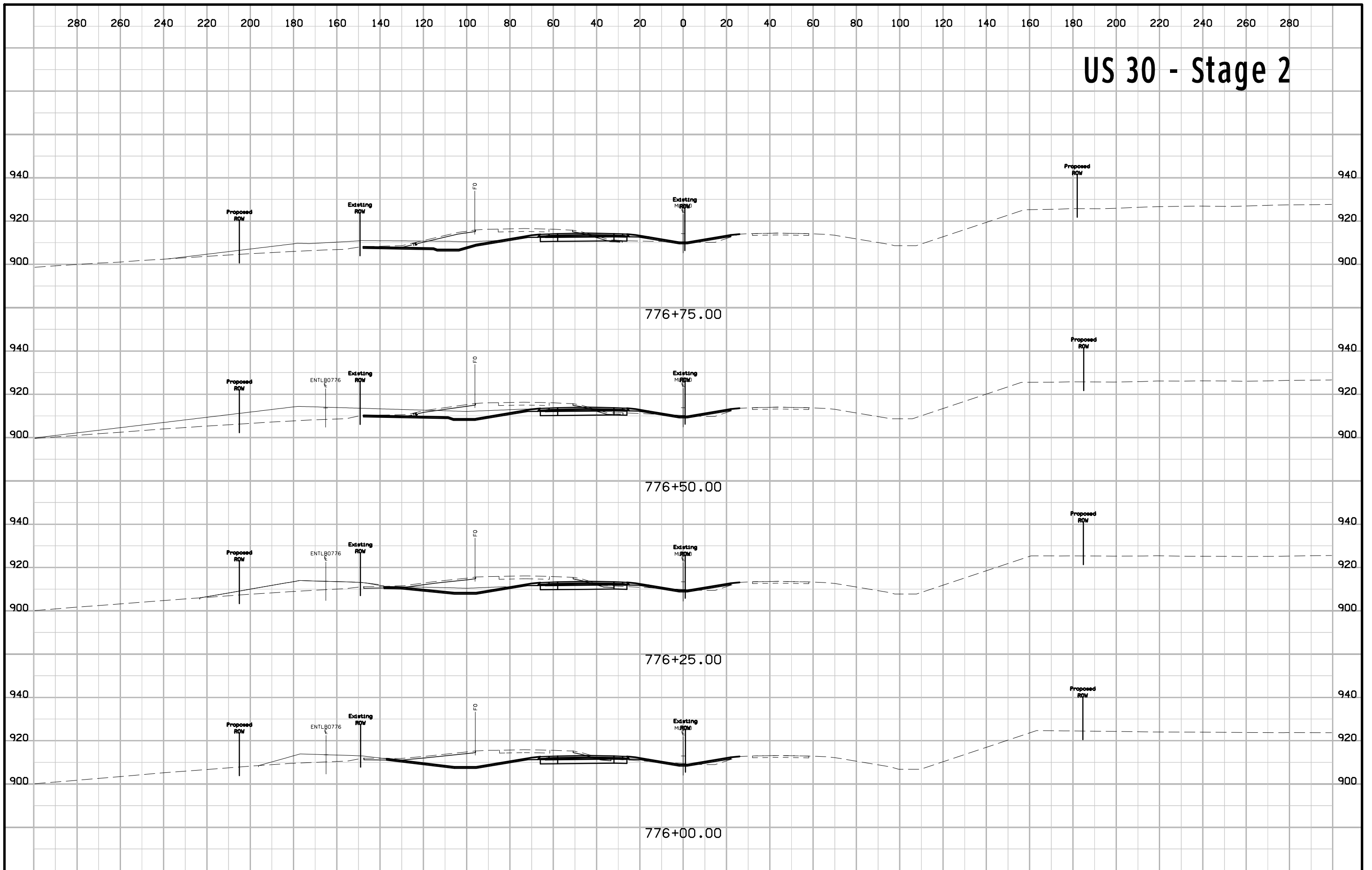


# US 30 - Stage 2

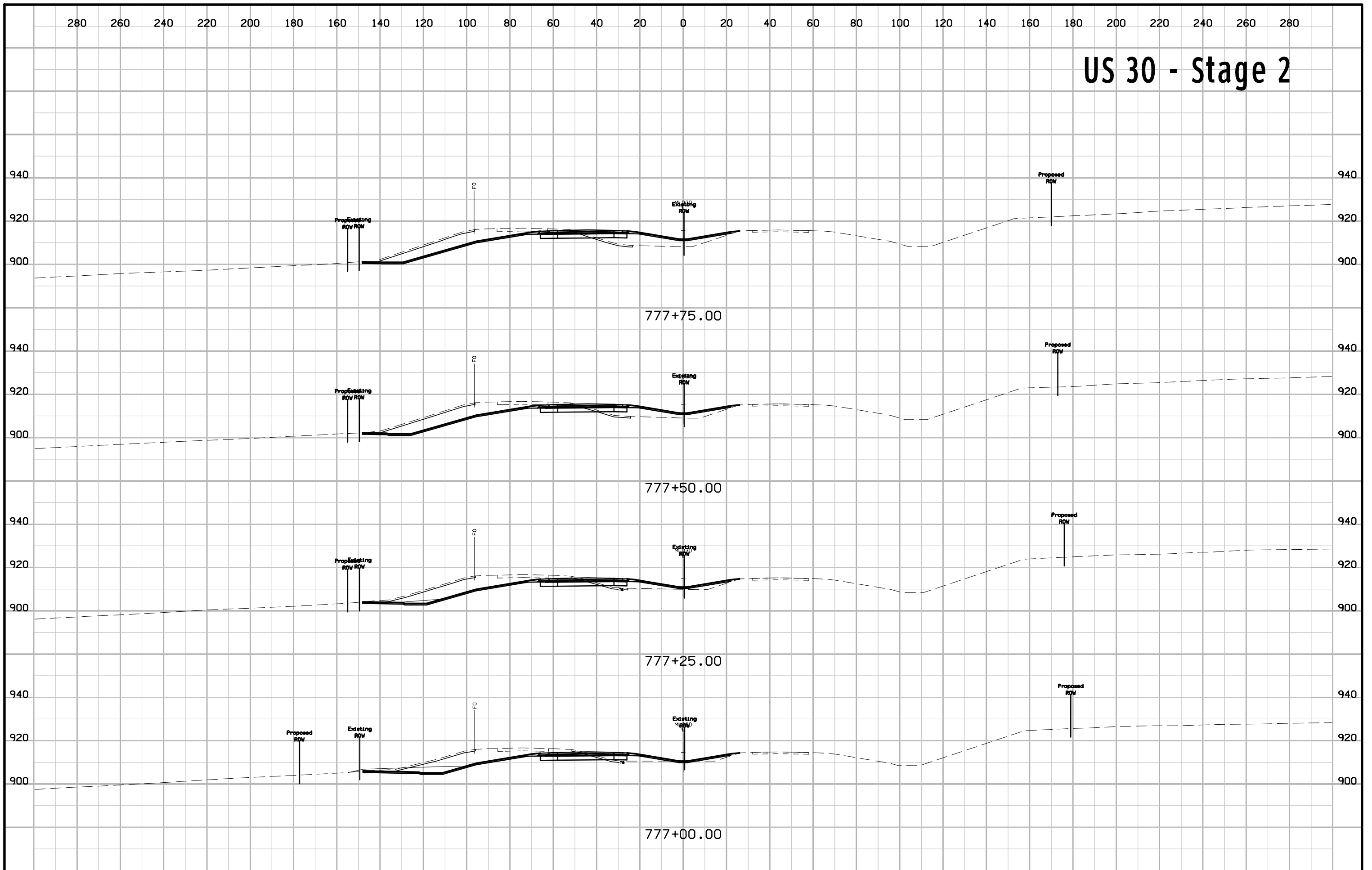




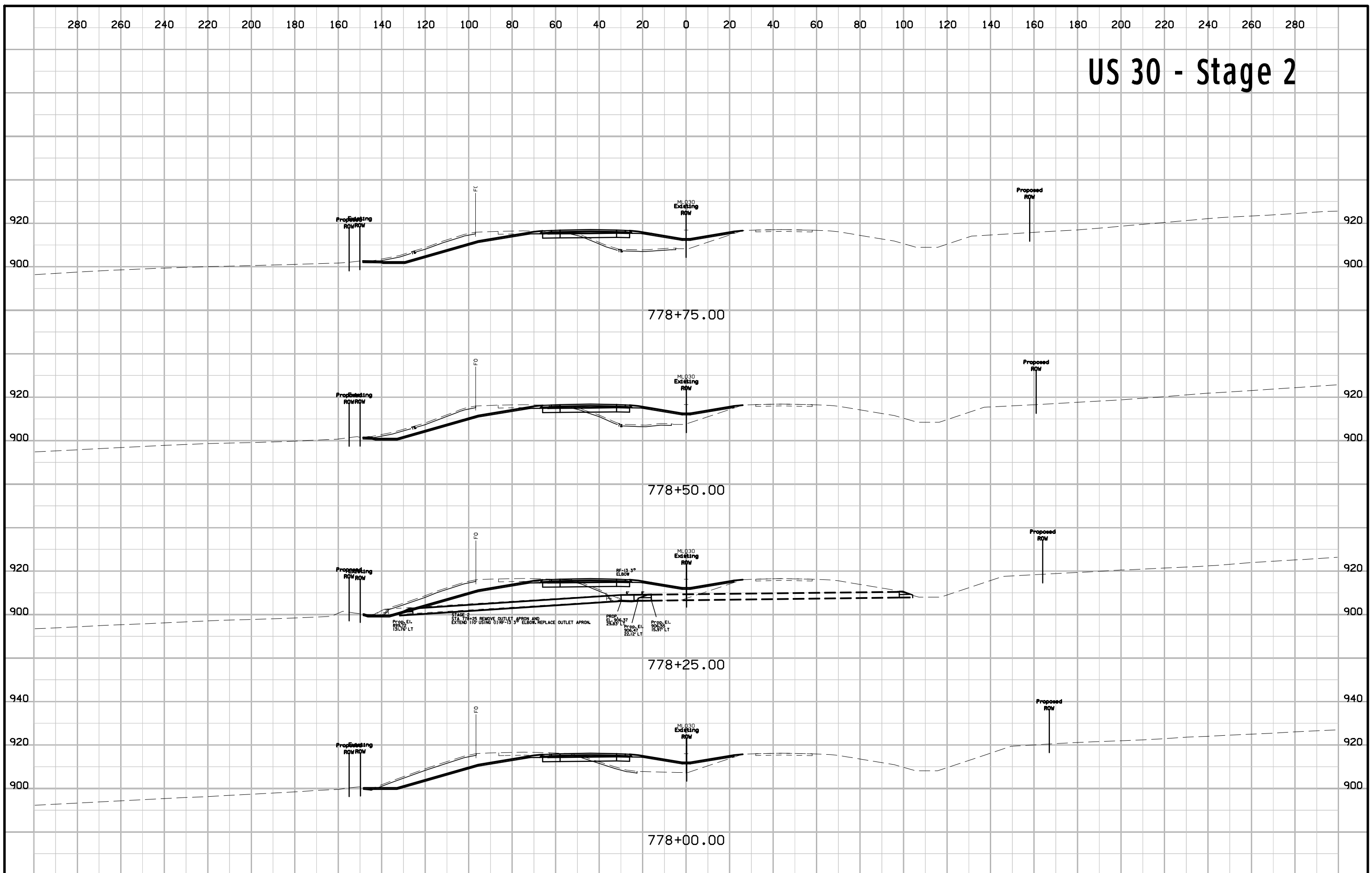
# US 30 - Stage 2



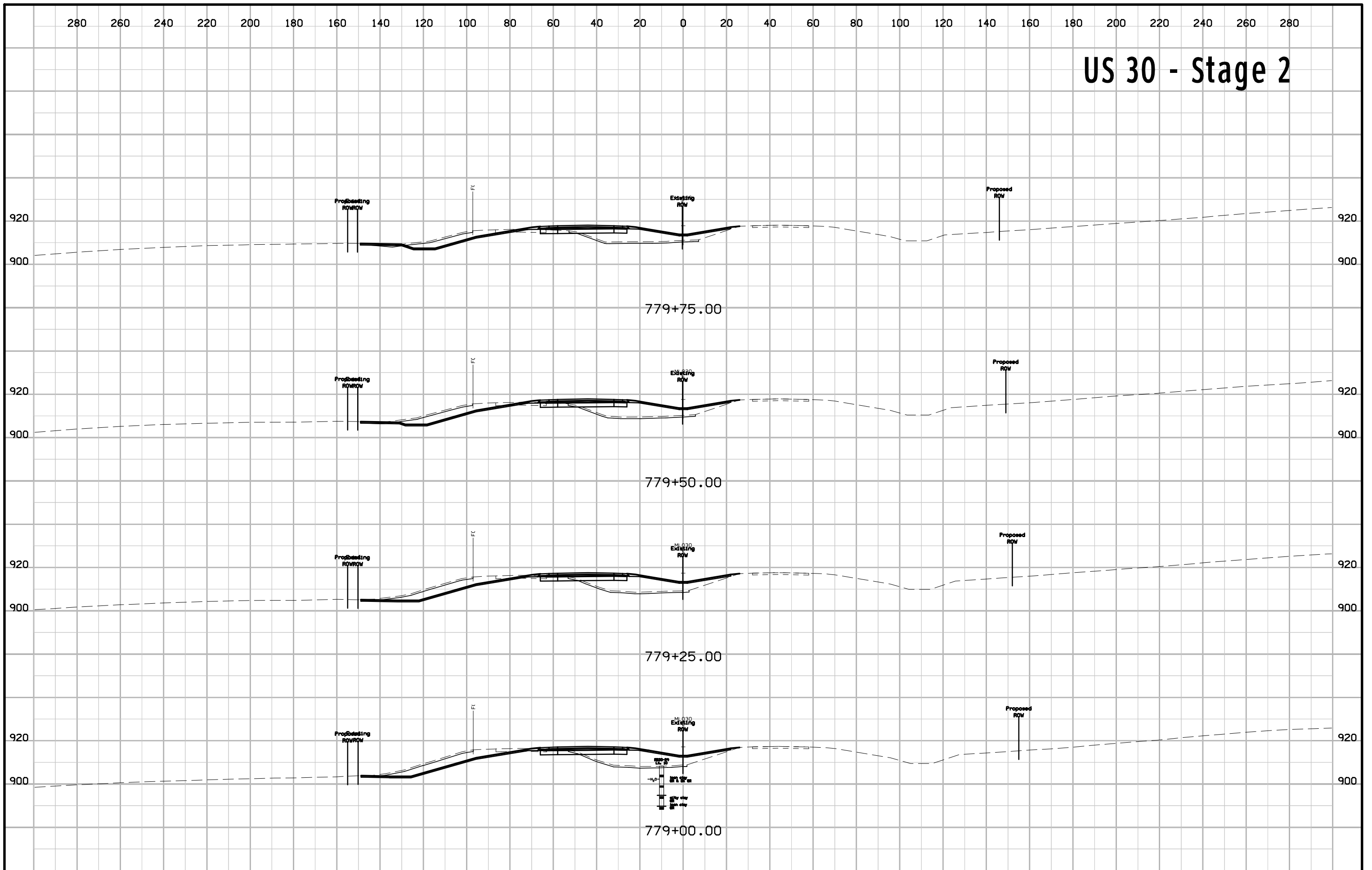
# US 30 - Stage 2



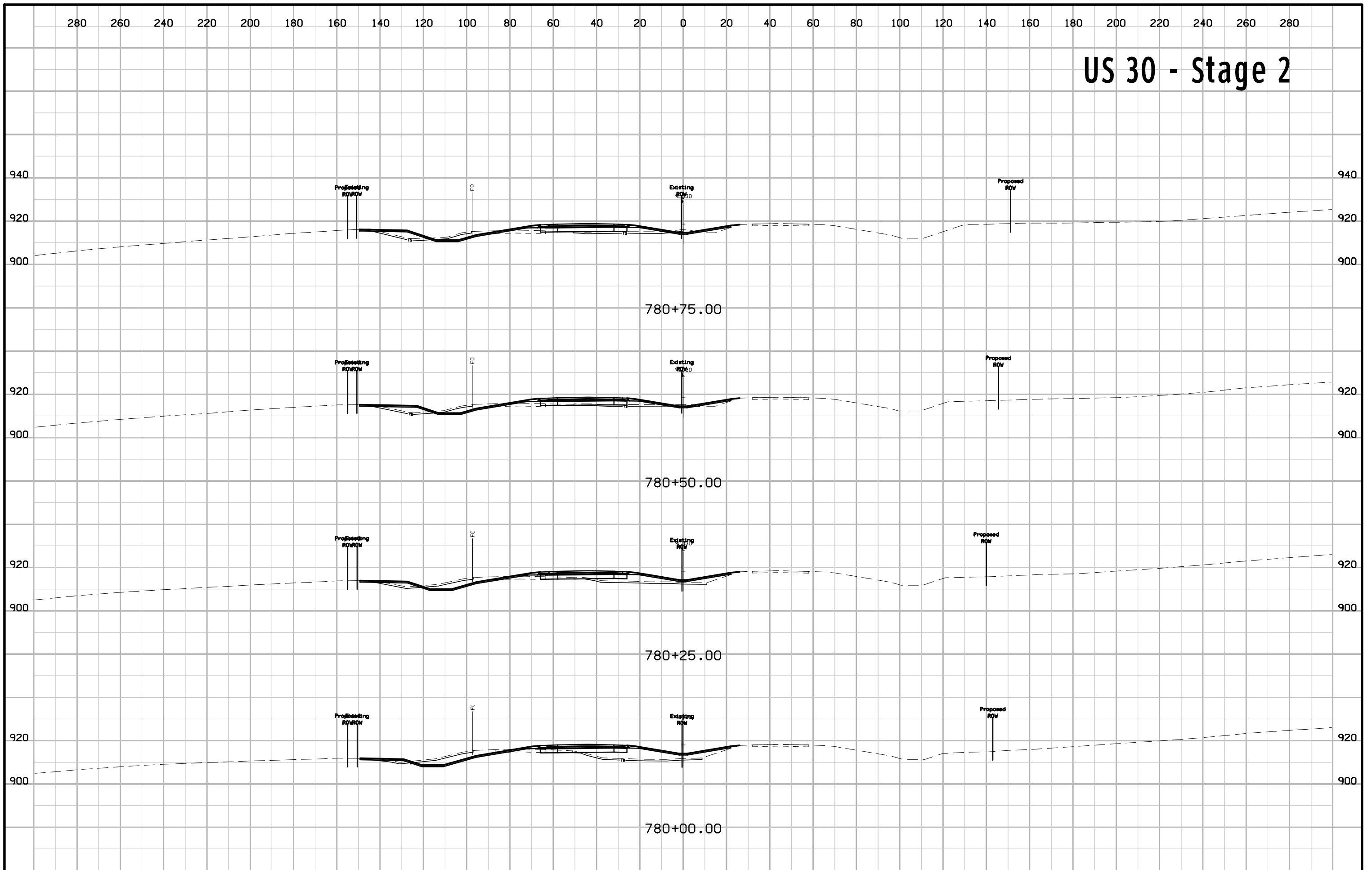
# US 30 - Stage 2



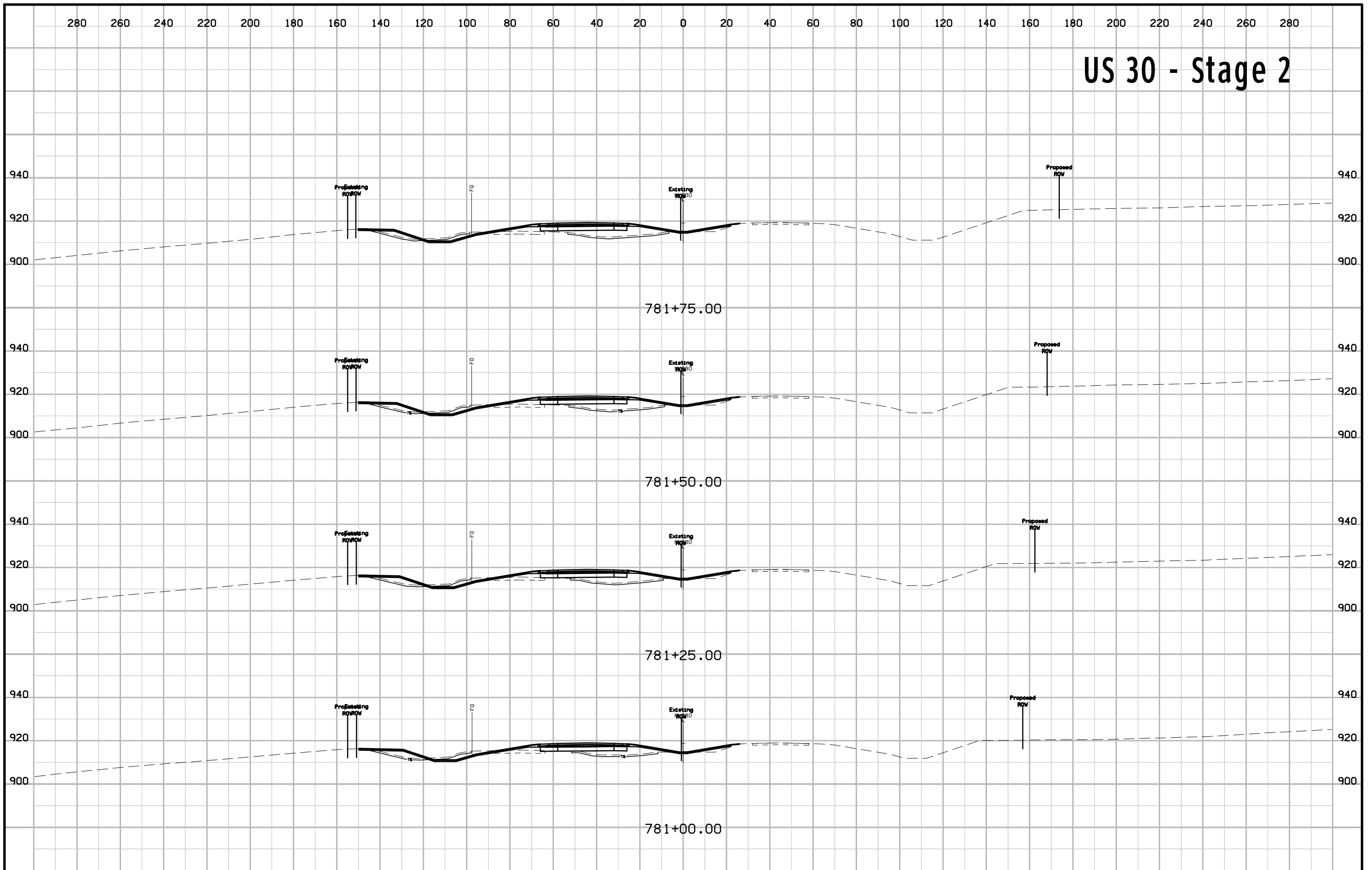
# US 30 - Stage 2



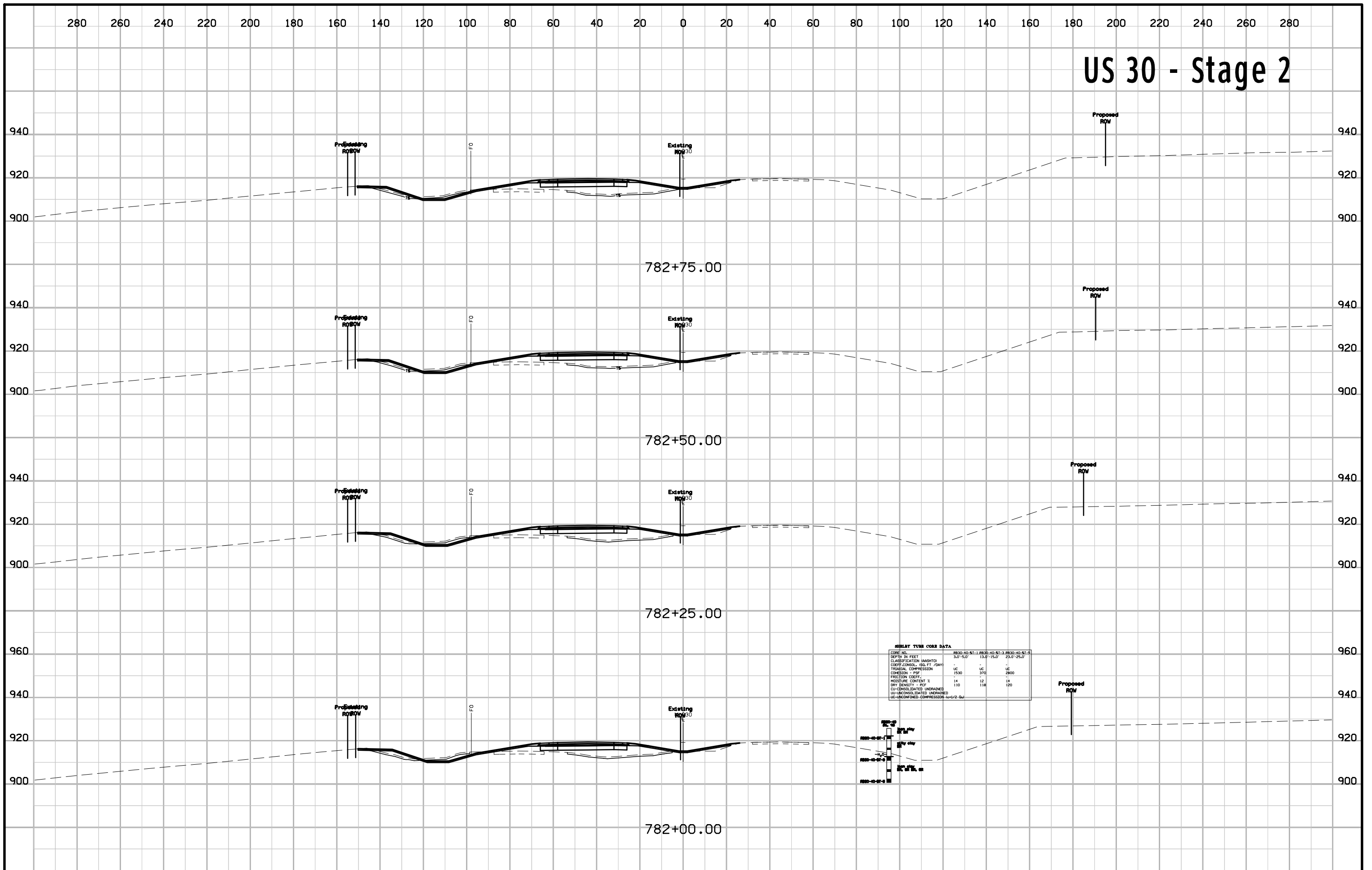
# US 30 - Stage 2



# US 30 - Stage 2

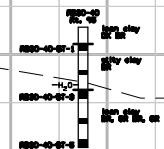


# US 30 - Stage 2



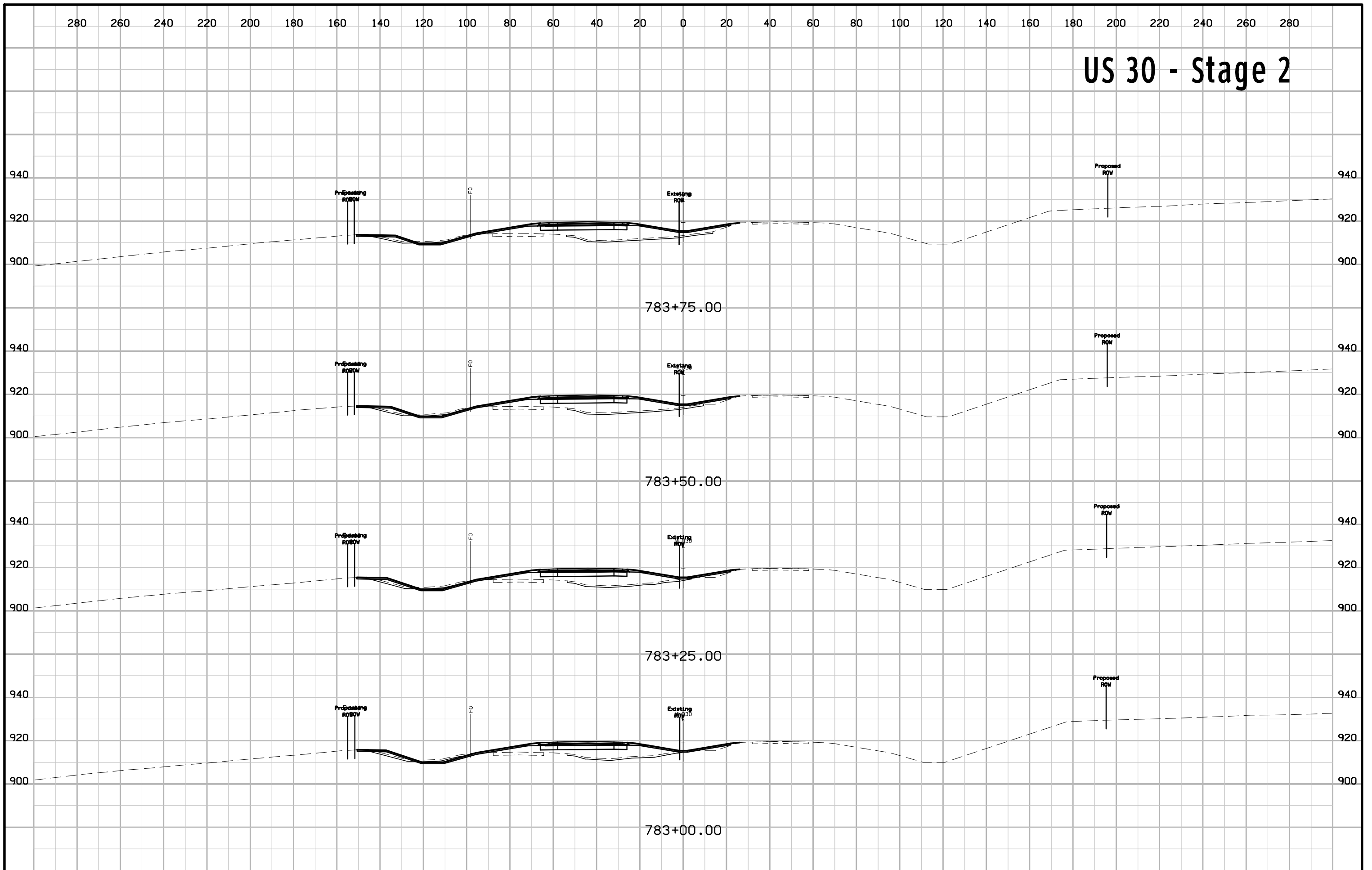
**REBAY TUBE CORE DATA**

CORE NO.	8830-40-51-1	8830-40-51-3	8830-40-51-5
DEPTH IN FEET	3.07-5.07	13.47-15.07	23.07-25.07
CLASSIFICATION (ASHSTO)	-	-	-
COEFF. CONSOLID. (SO. FT. / DAY)	UC	UC	UC
TRIALIAL COMPRESSION	1530	370	2800
COMBESION - P.F.	-	-	-
FRICTION COEFF.	14	12	14
MOISTURE CONTENT %	110	118	120
DRY DENSITY - PCF	-	-	-
CU-CONSOLIDATED UNDRAINED	-	-	-
CU-UNCONSOLIDATED UNDRAINED	-	-	-
UC-UNCONSOLIDATED COMPRESSION	44-1/2	Q <sub>u</sub>	-

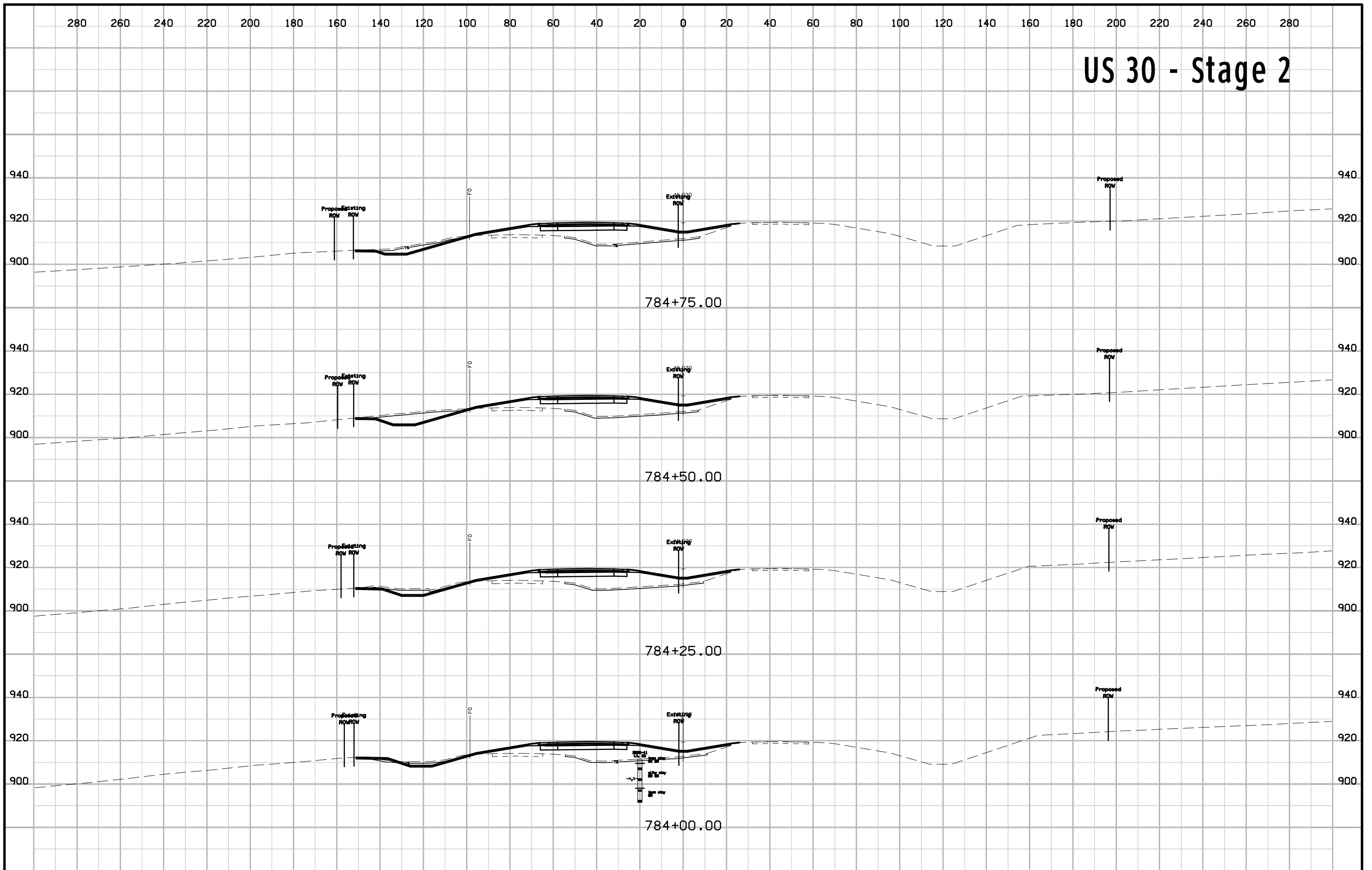




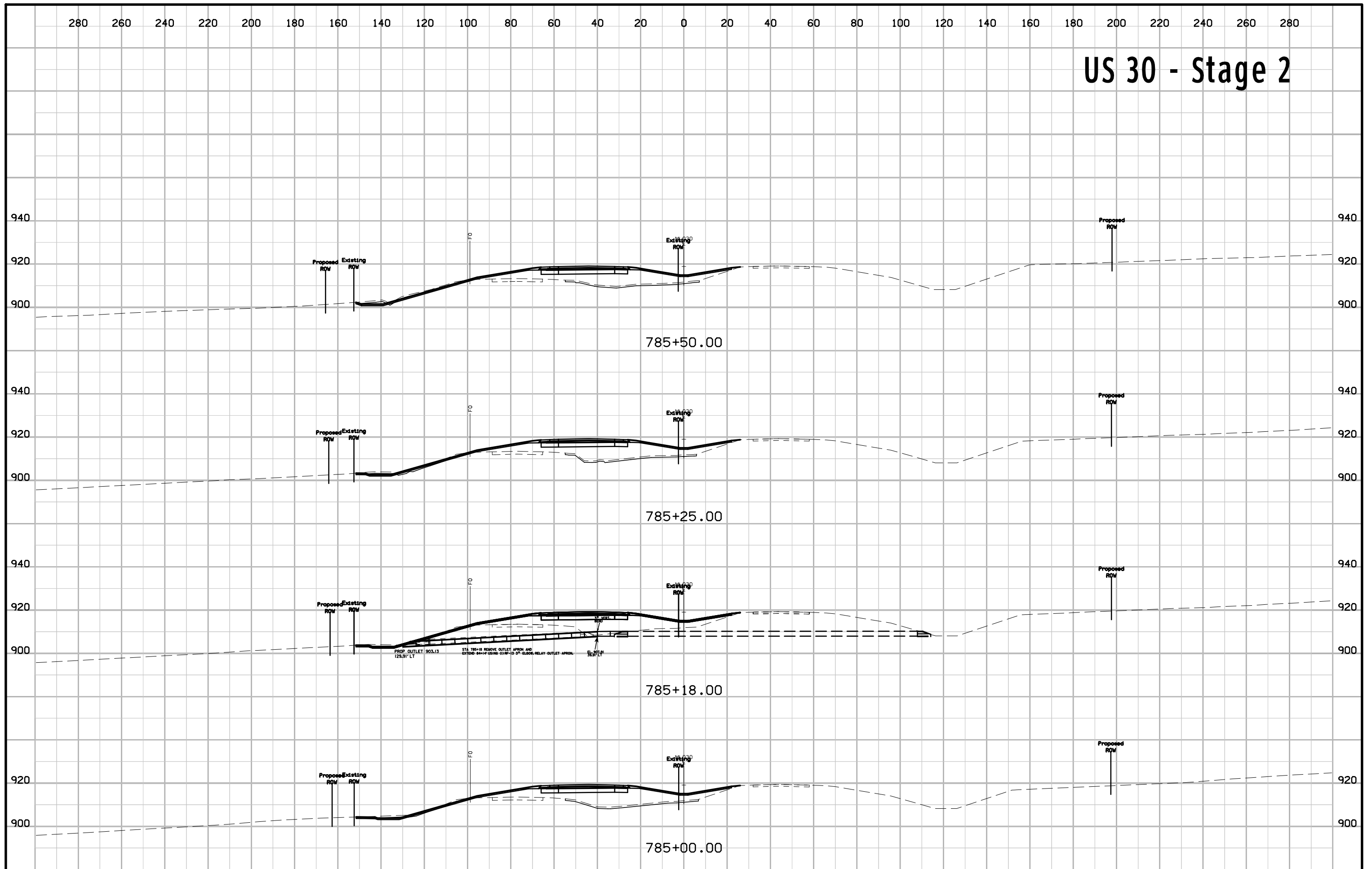
# US 30 - Stage 2



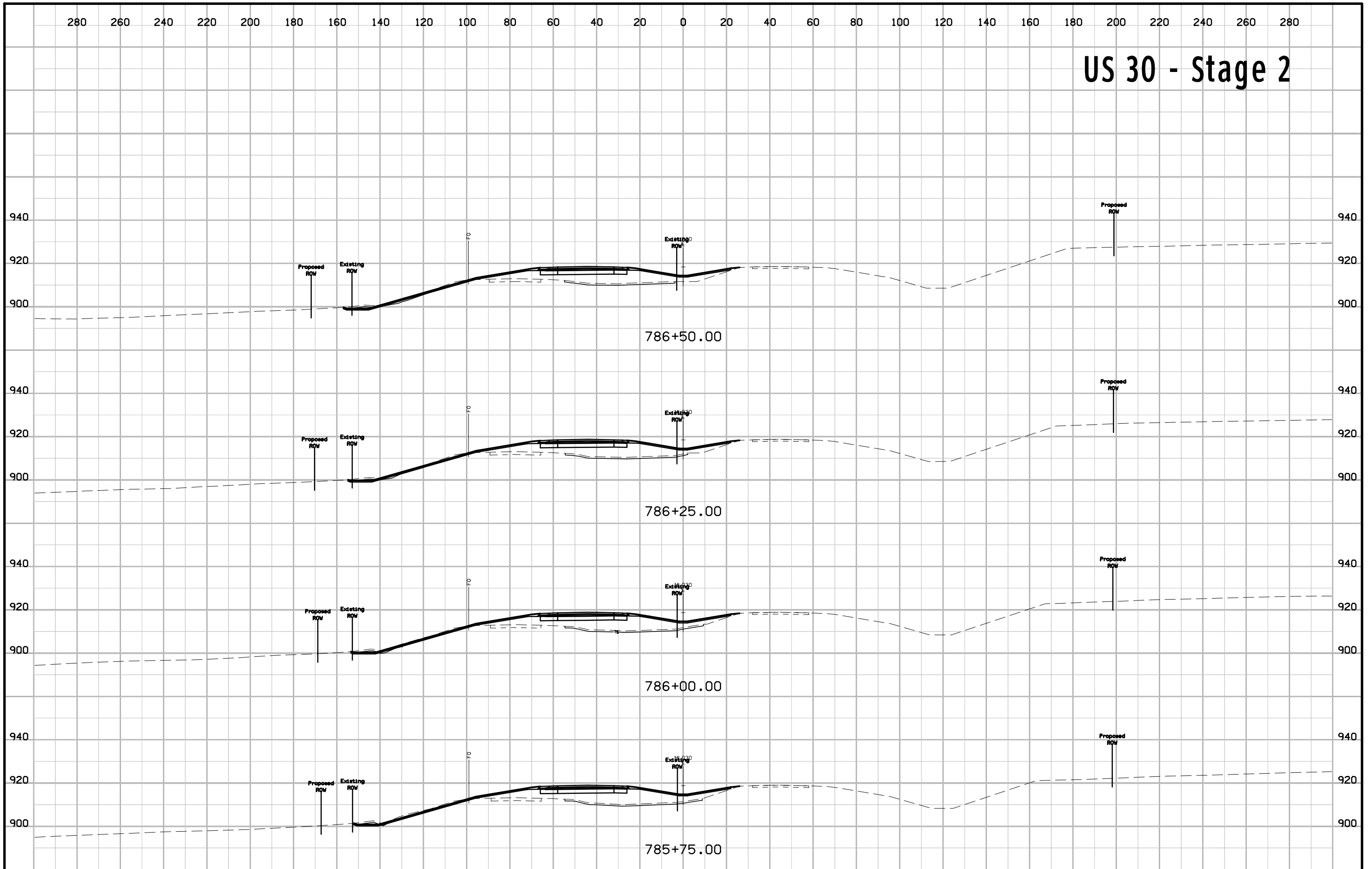
# US 30 - Stage 2



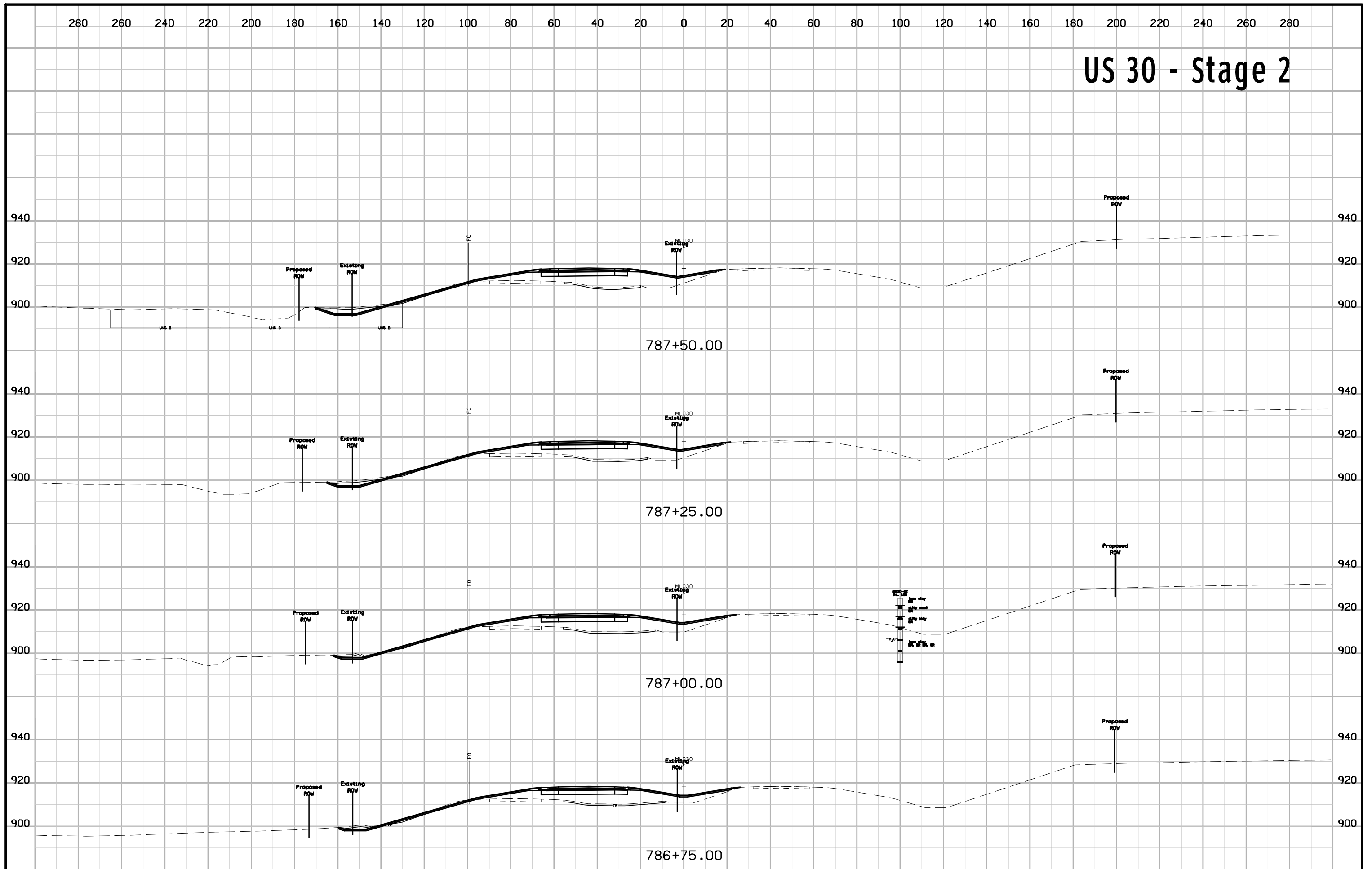
# US 30 - Stage 2



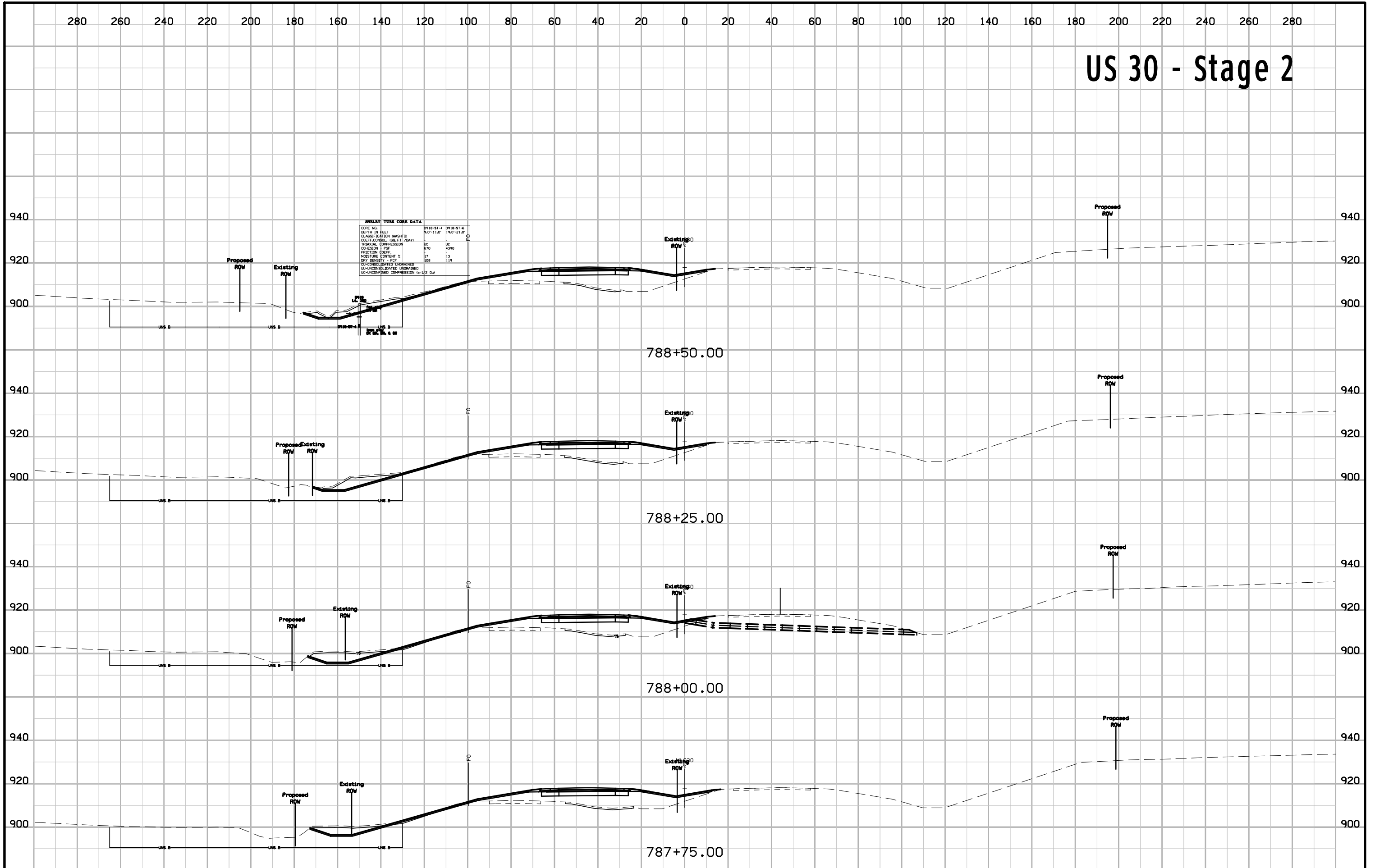
# US 30 - Stage 2



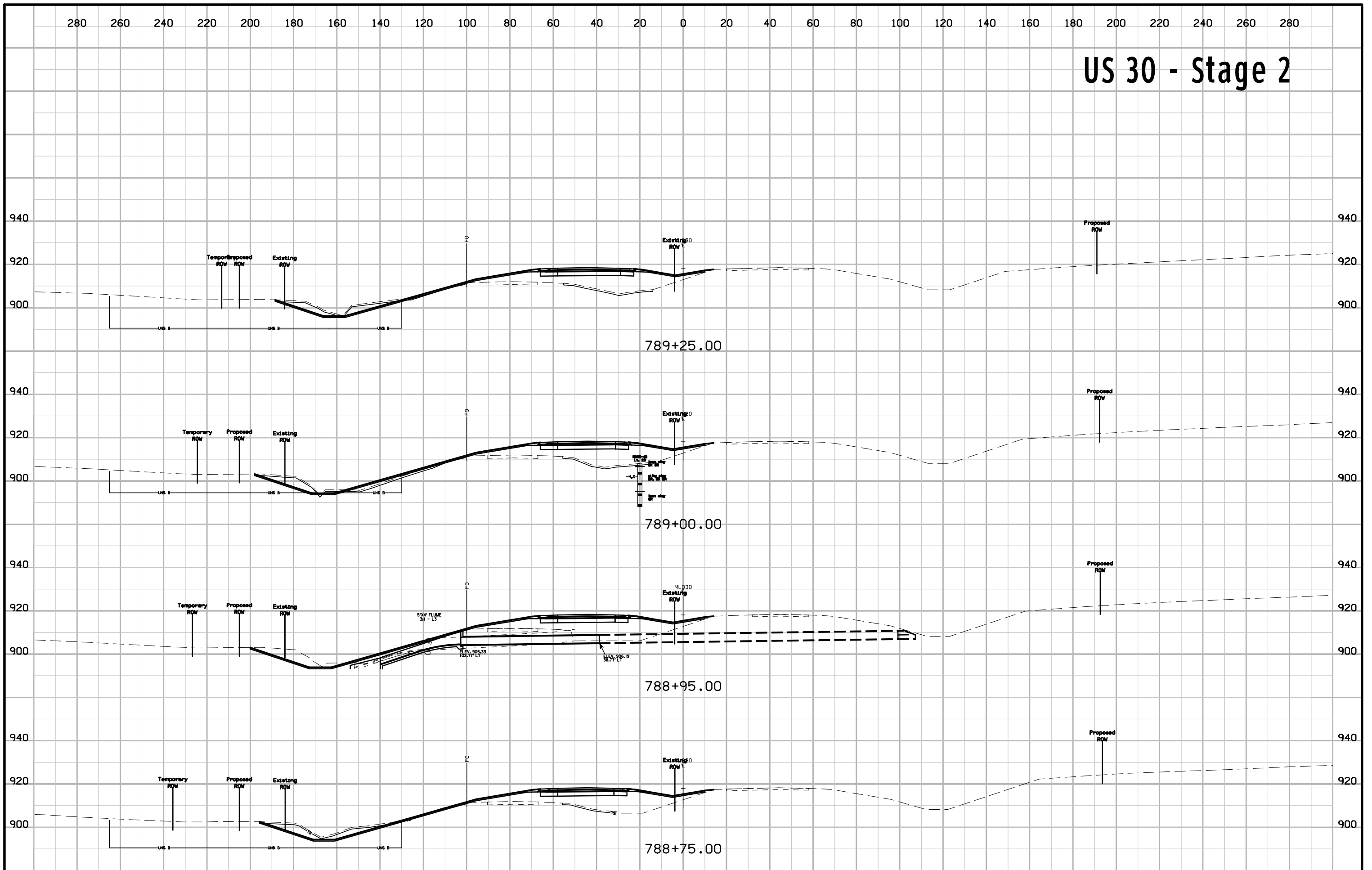
# US 30 - Stage 2



# US 30 - Stage 2

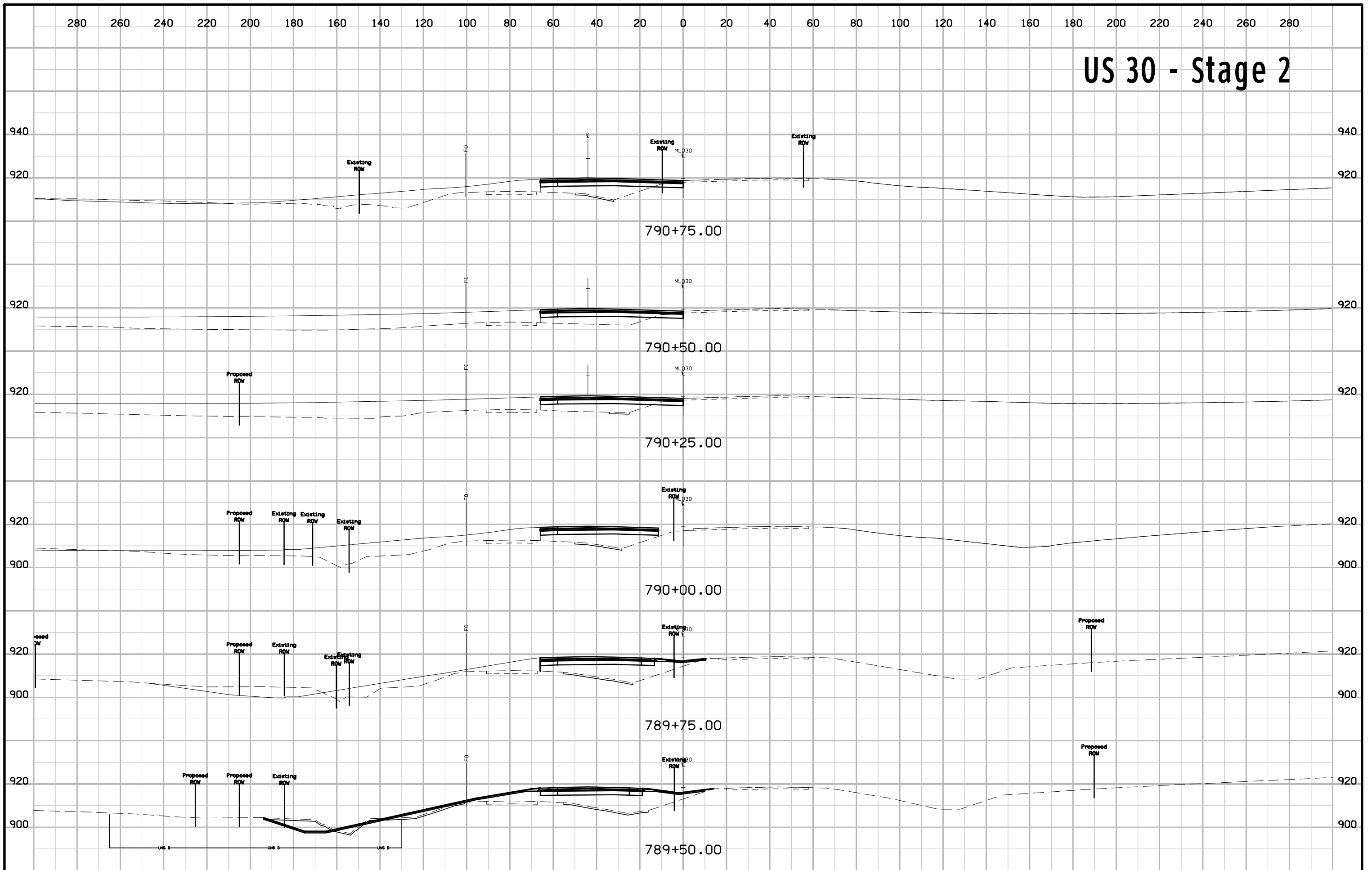


# US 30 - Stage 2

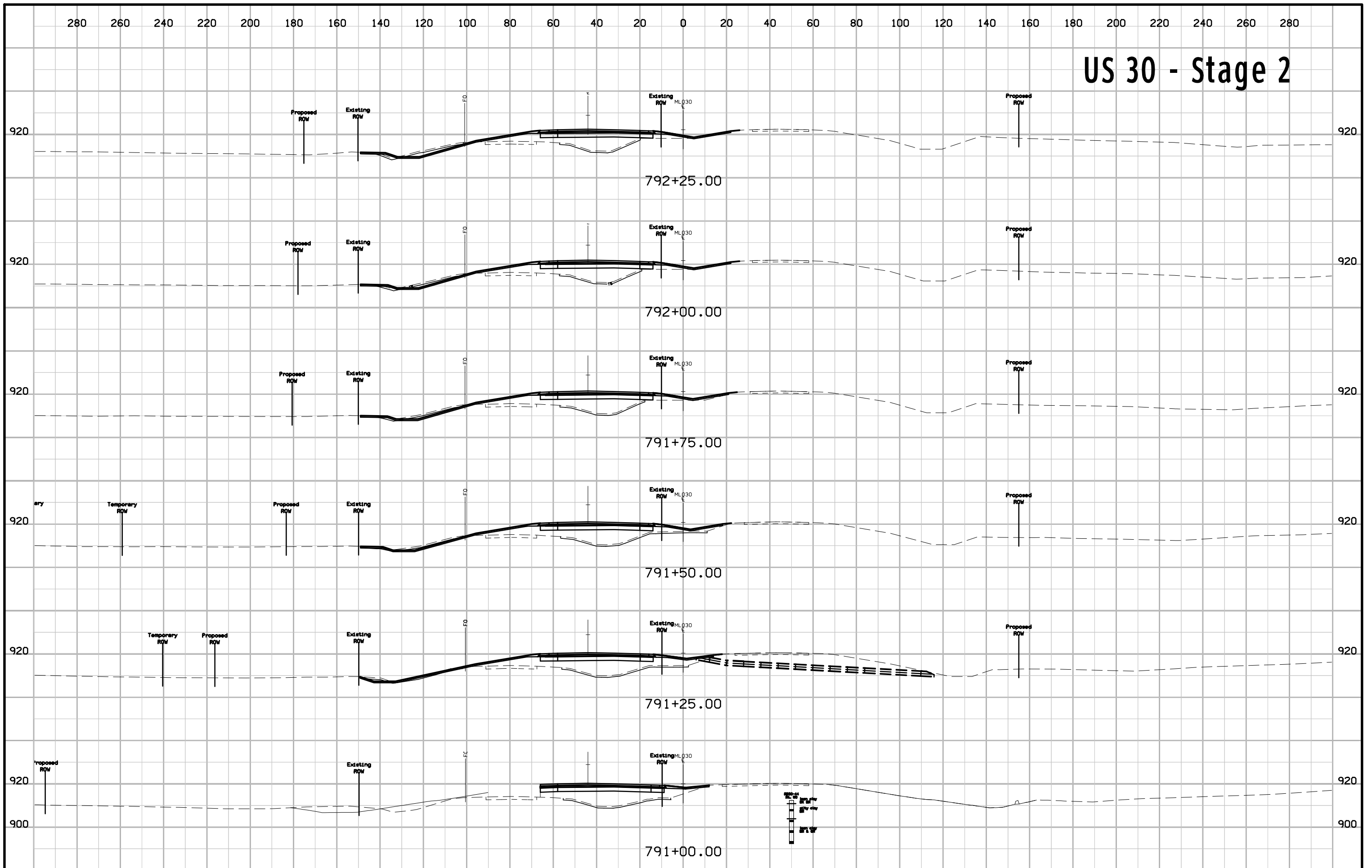




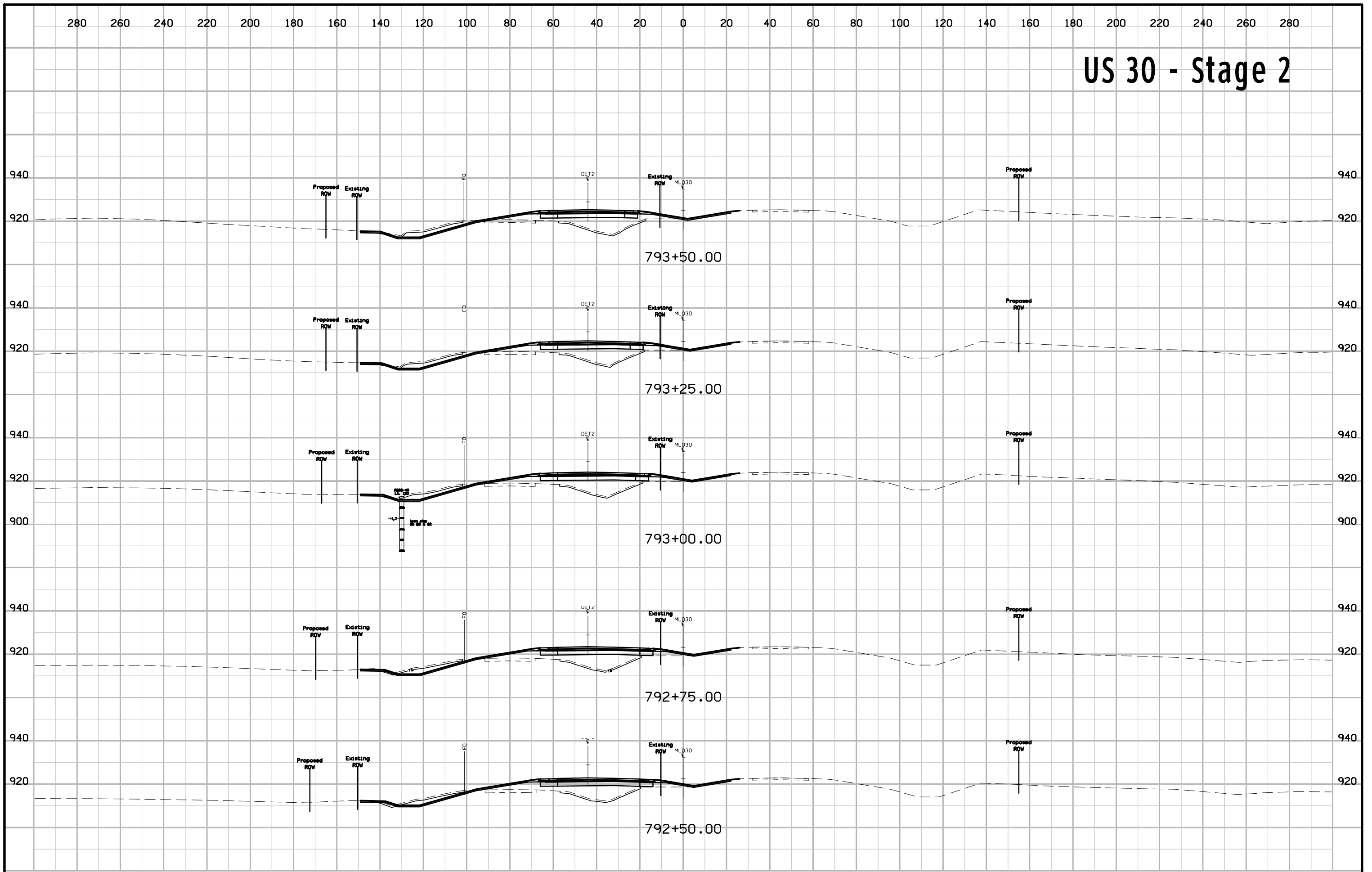
# US 30 - Stage 2



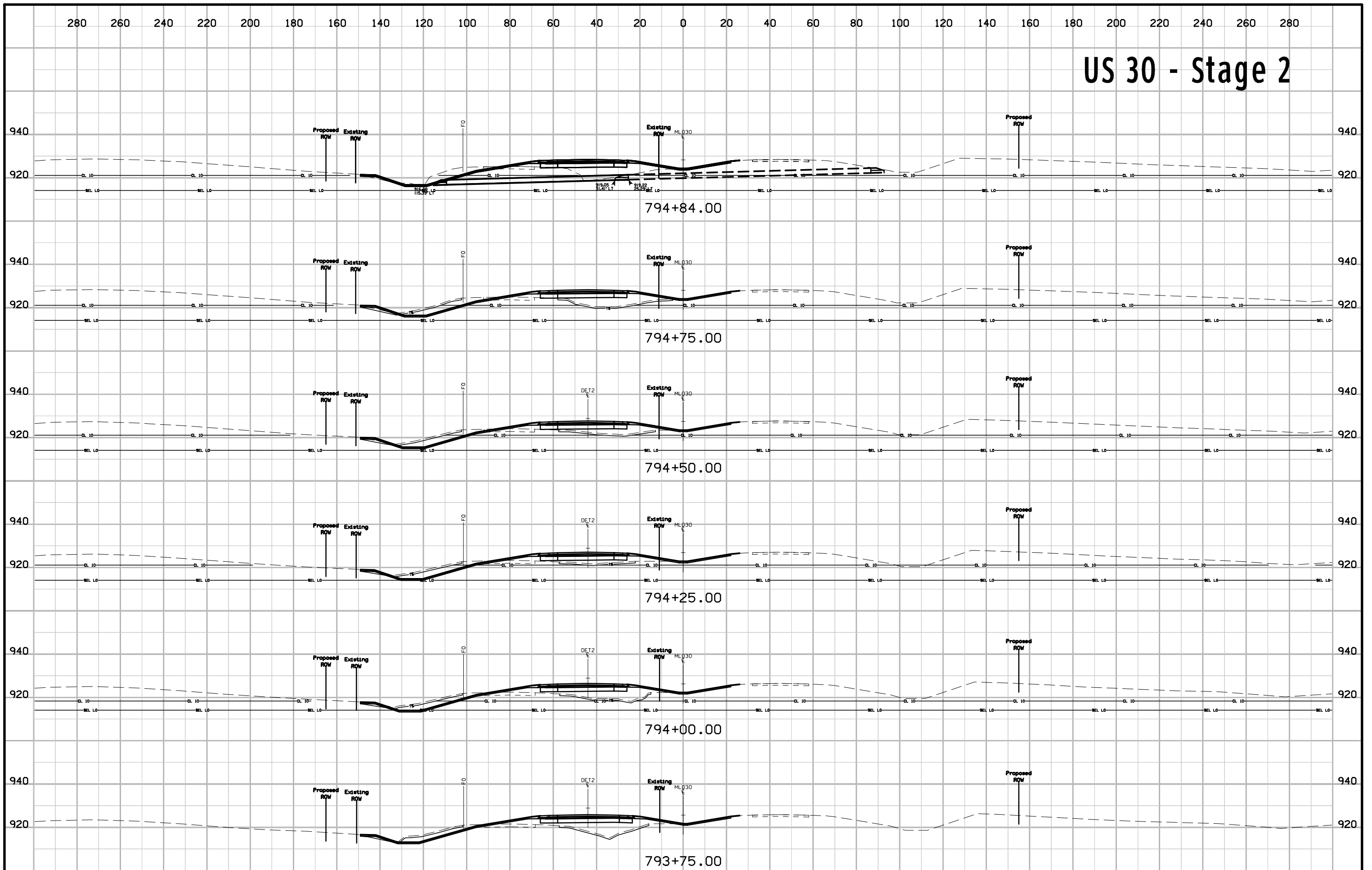
# US 30 - Stage 2



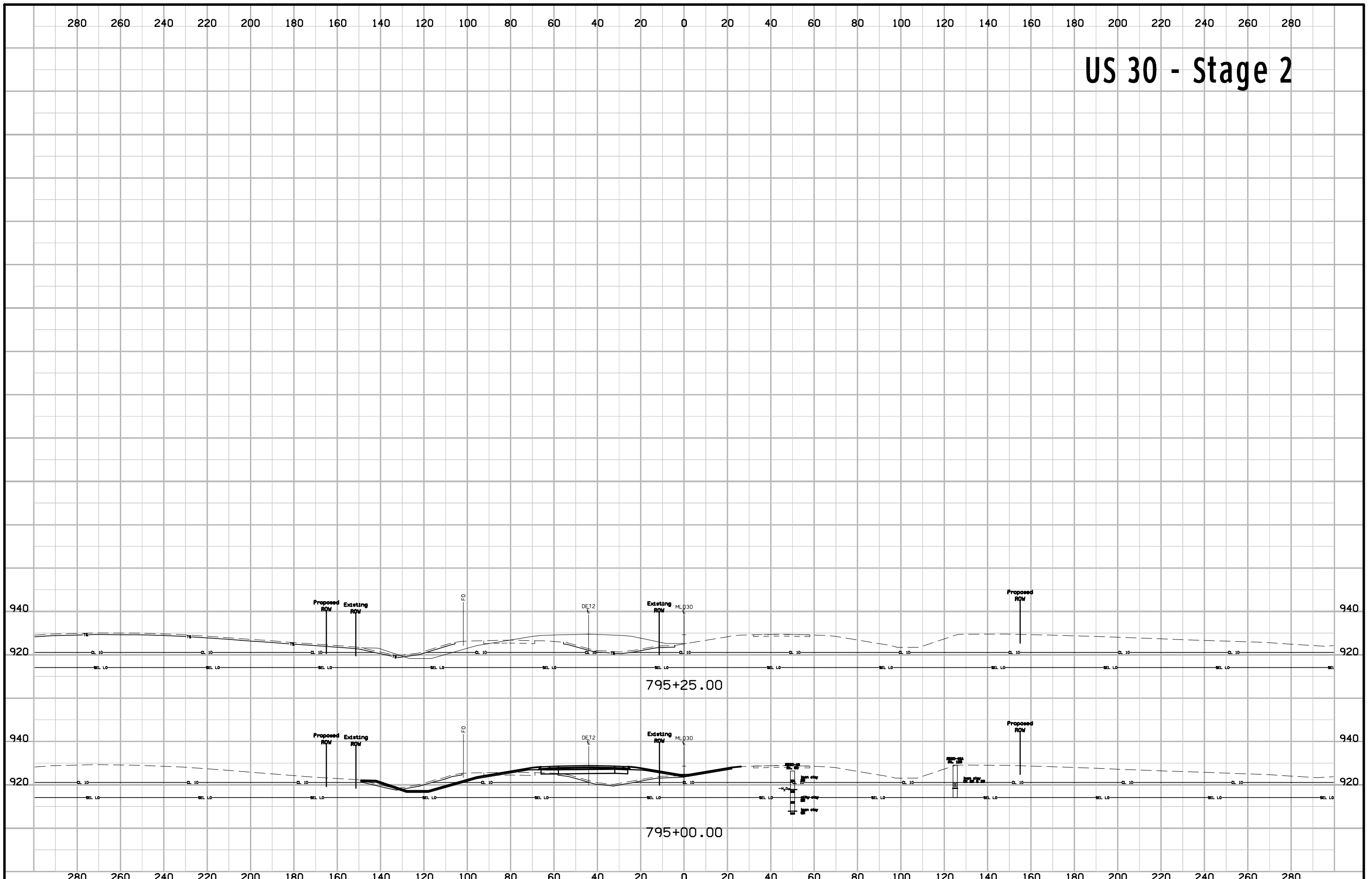
# US 30 - Stage 2



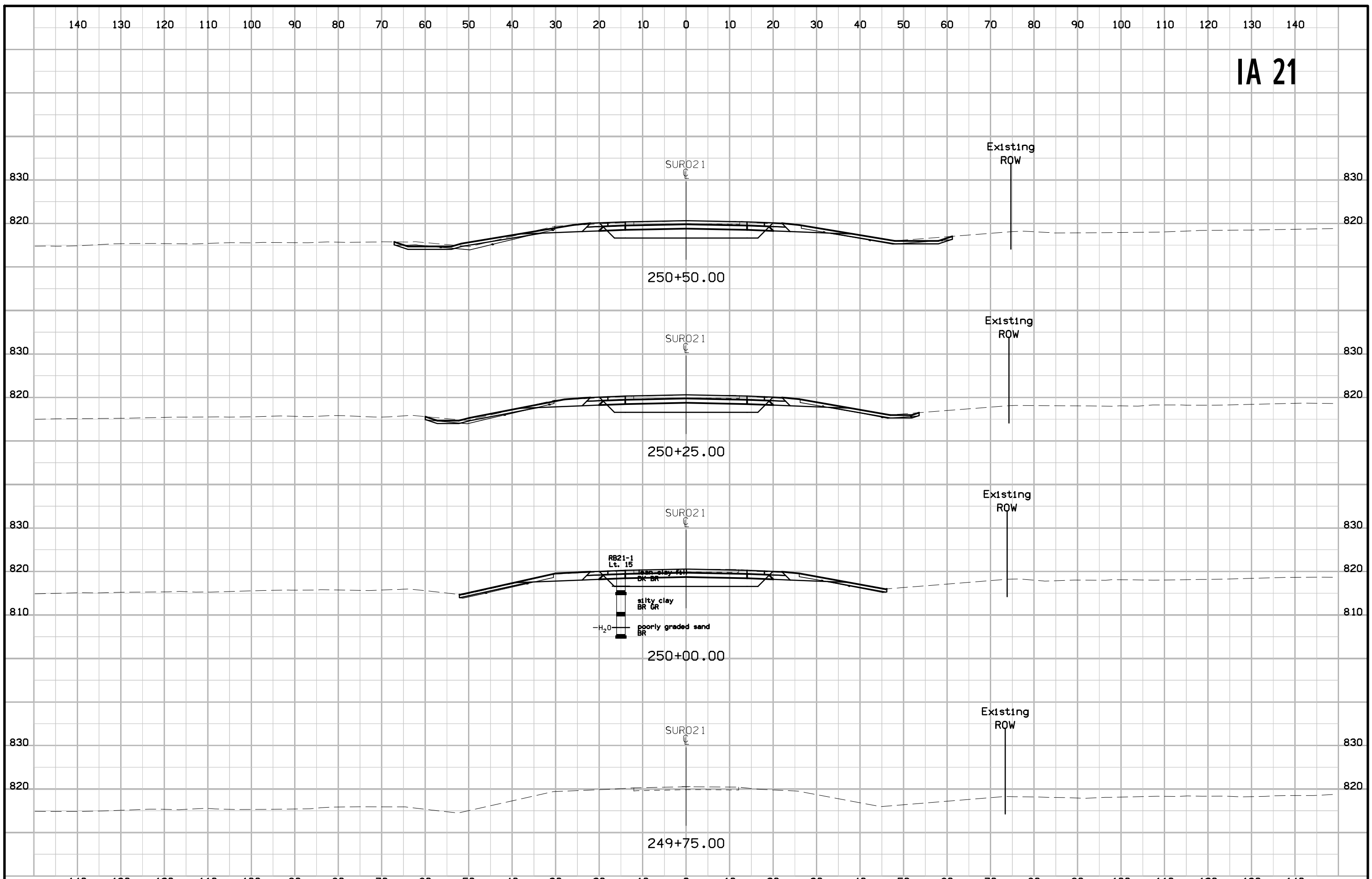
# US 30 - Stage 2



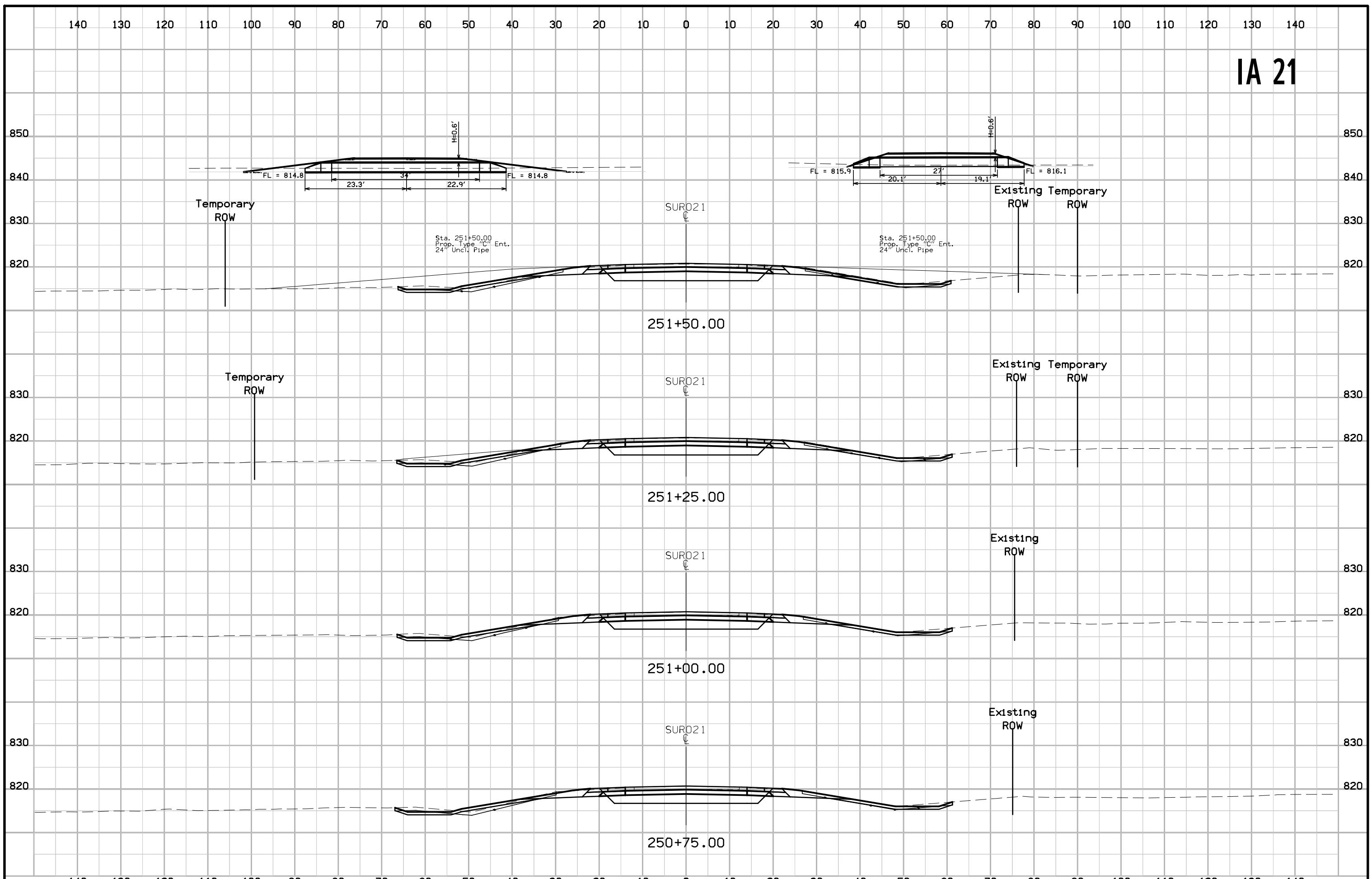
# US 30 - Stage 2



# IA 21

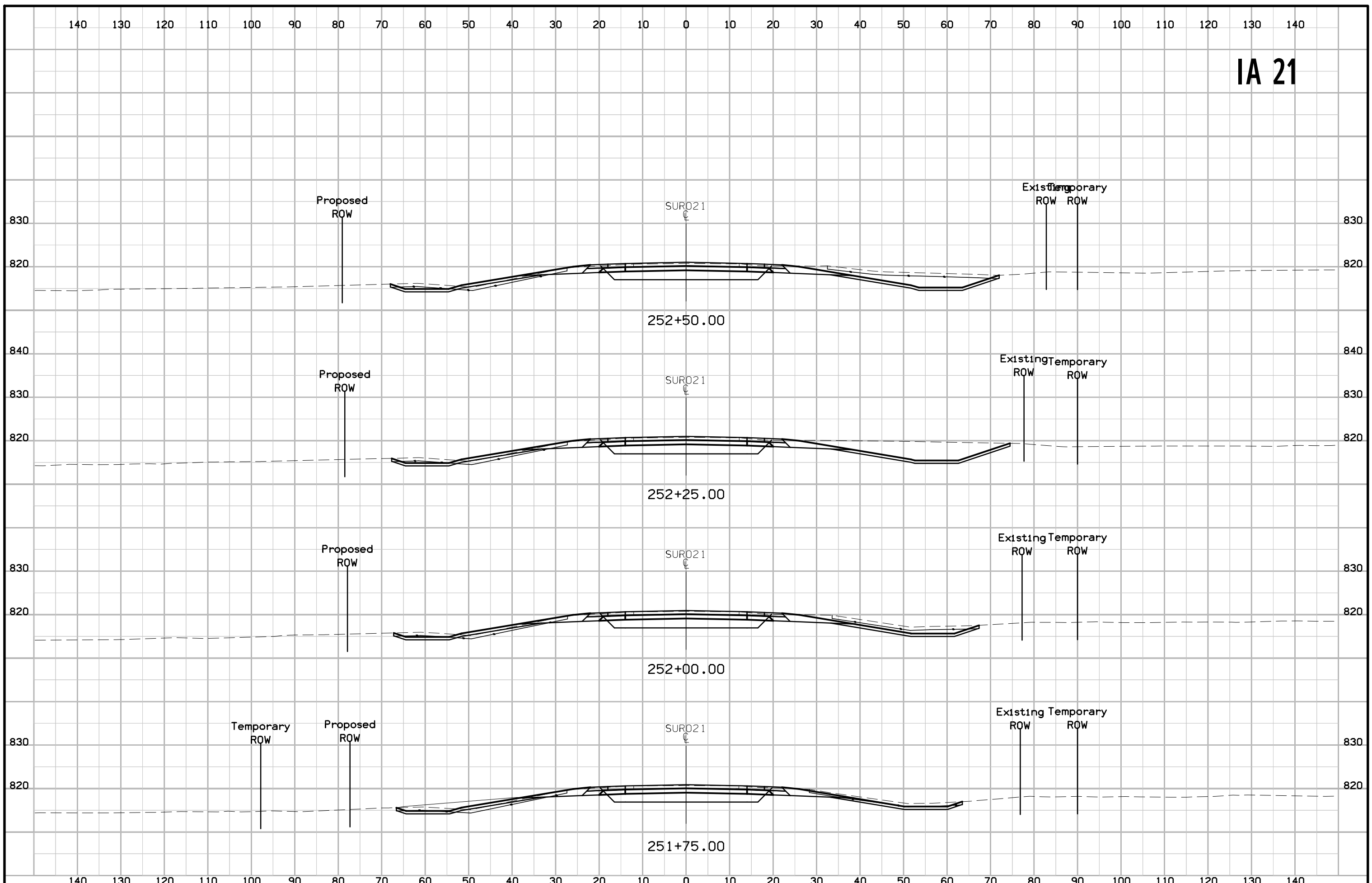


# IA 21

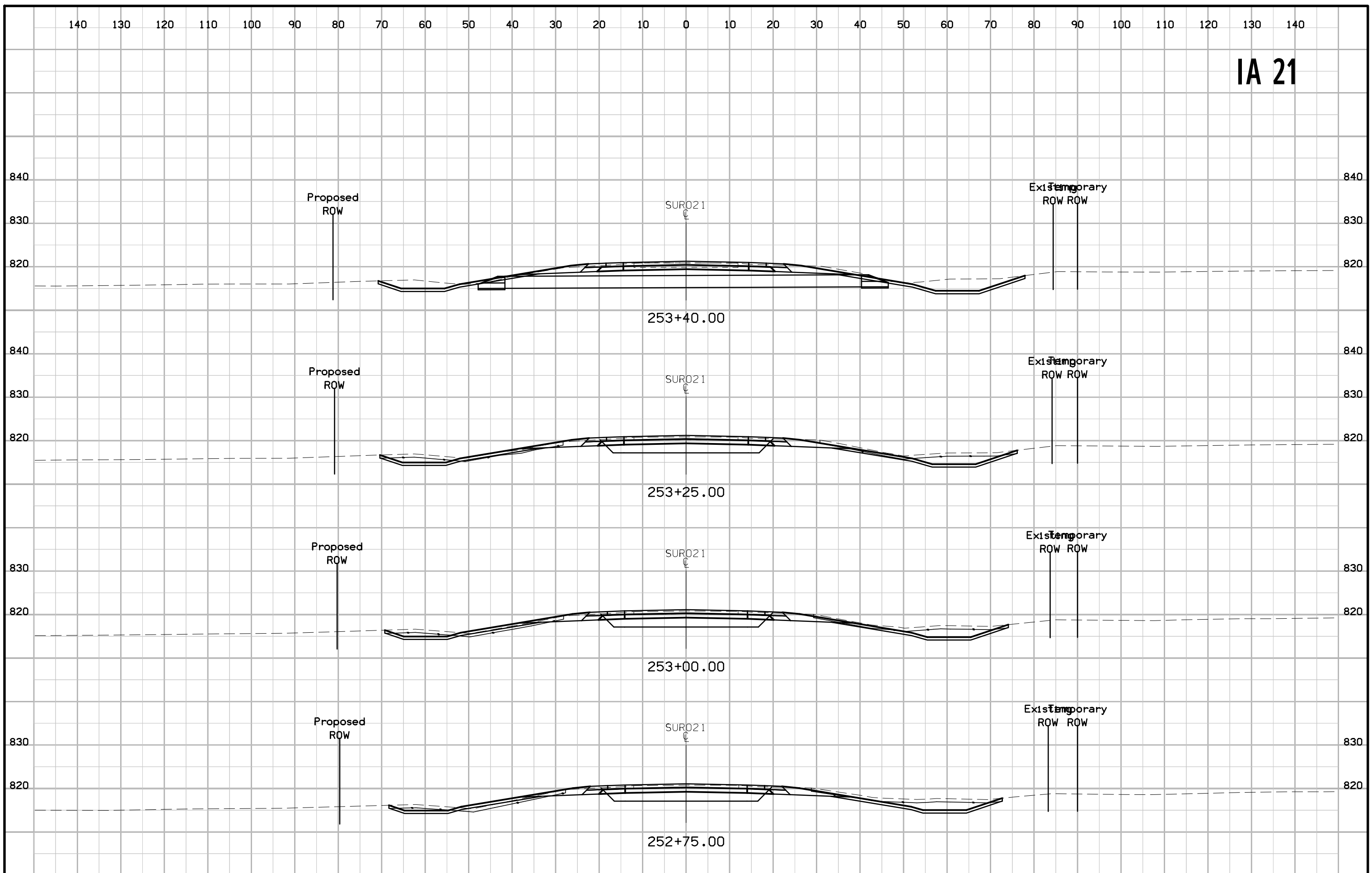




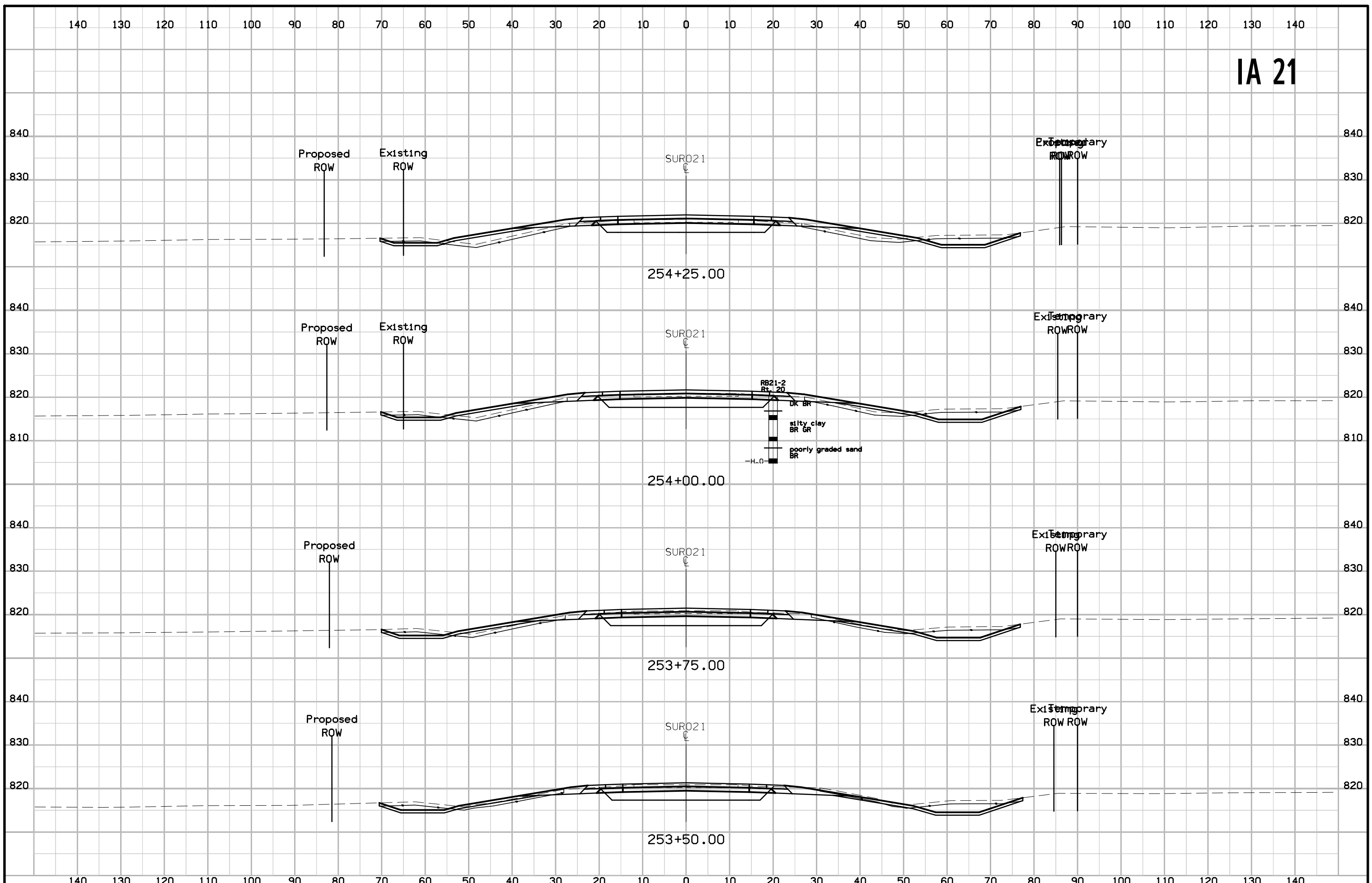
# IA 21



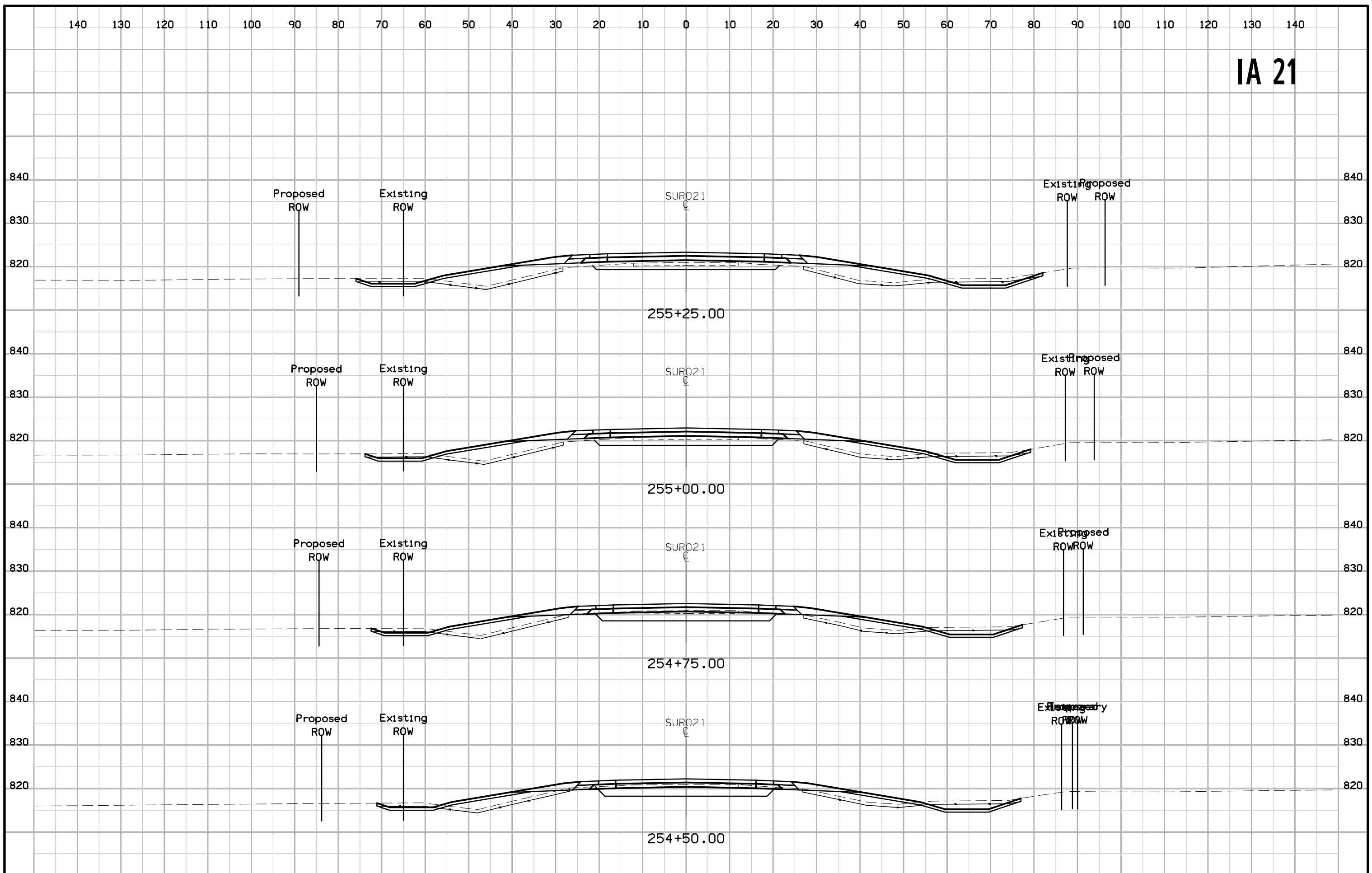
# IA 21



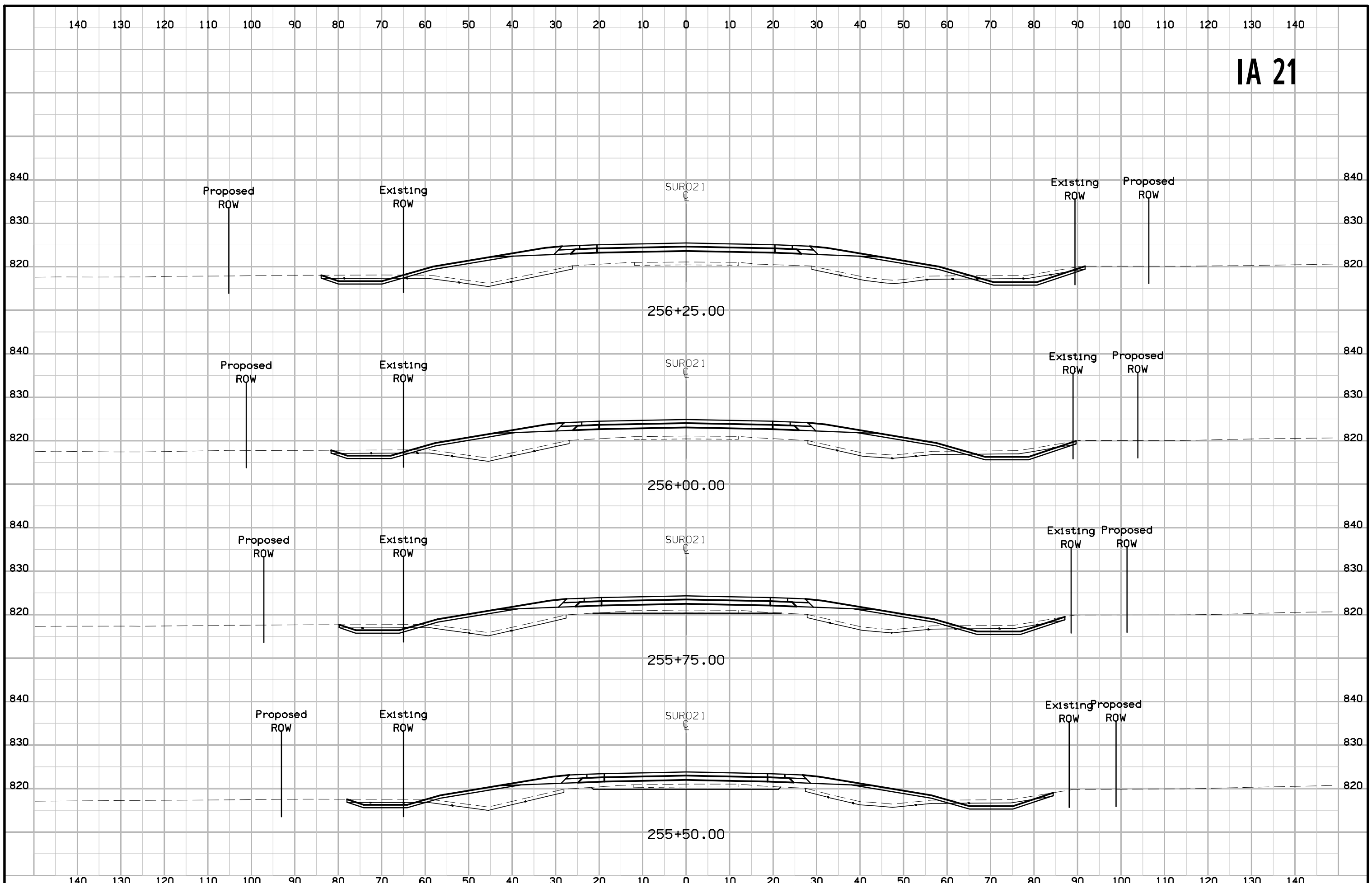
# IA 21



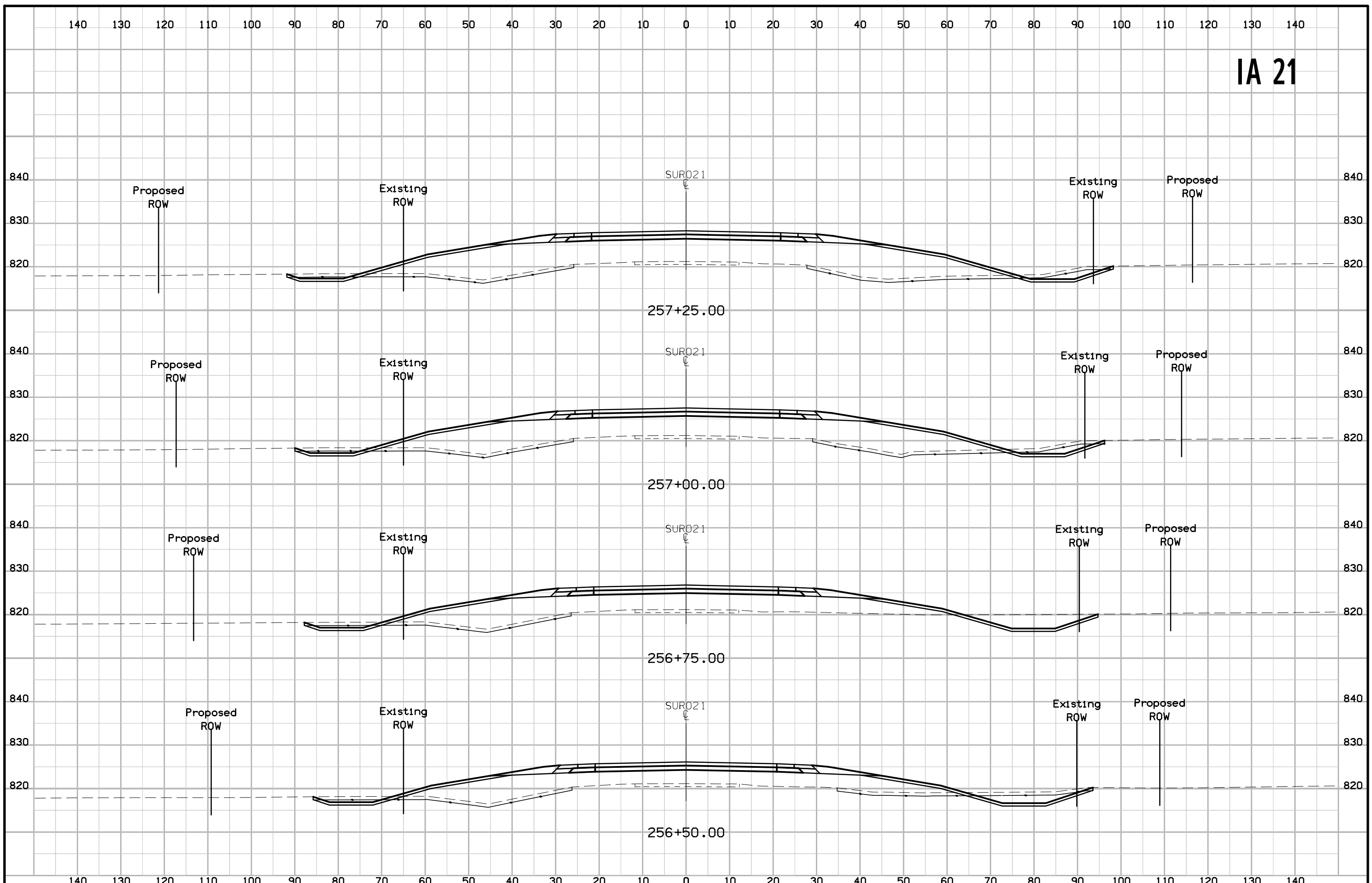
# IA 21



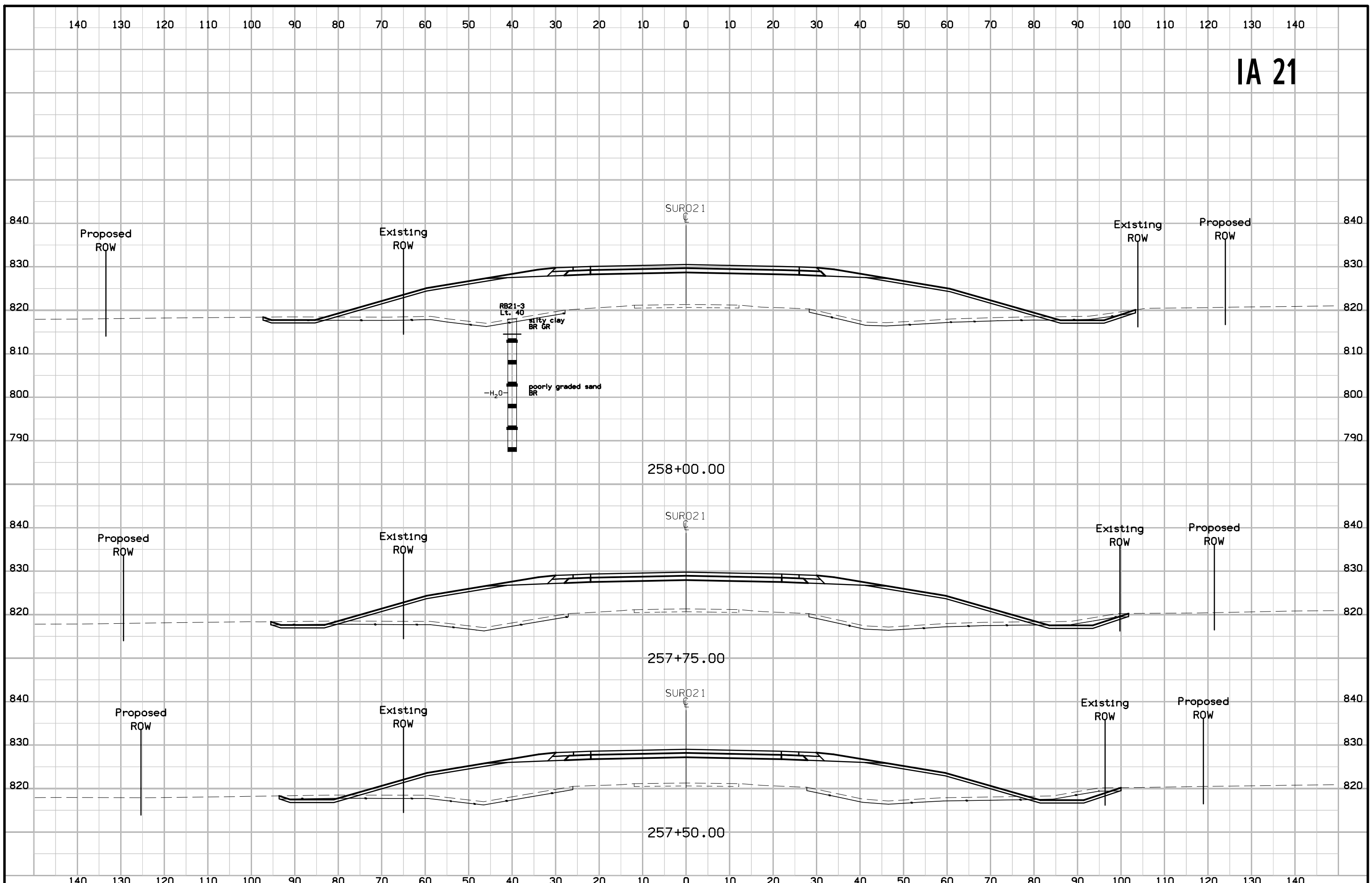
# IA 21



# IA 21

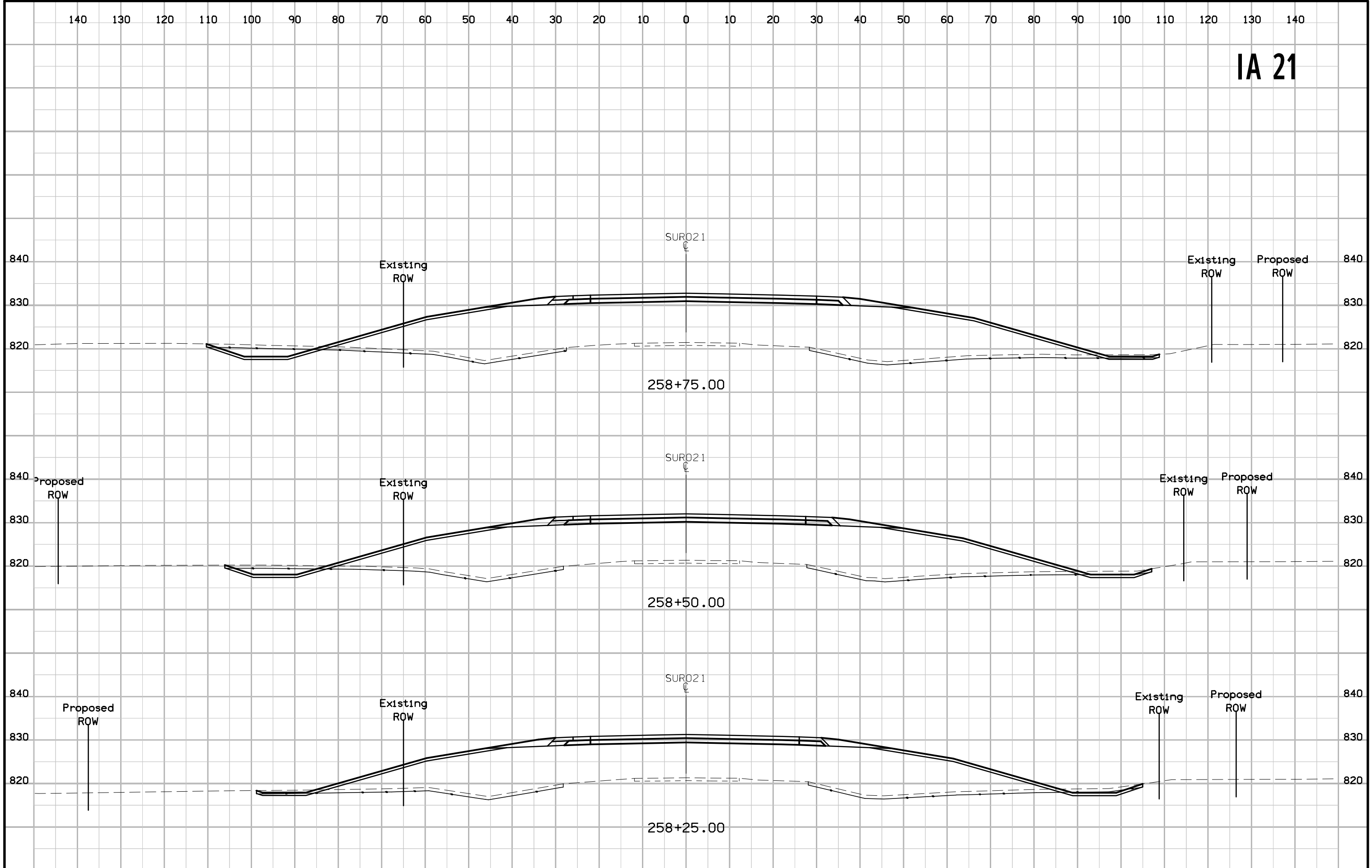


# IA 21

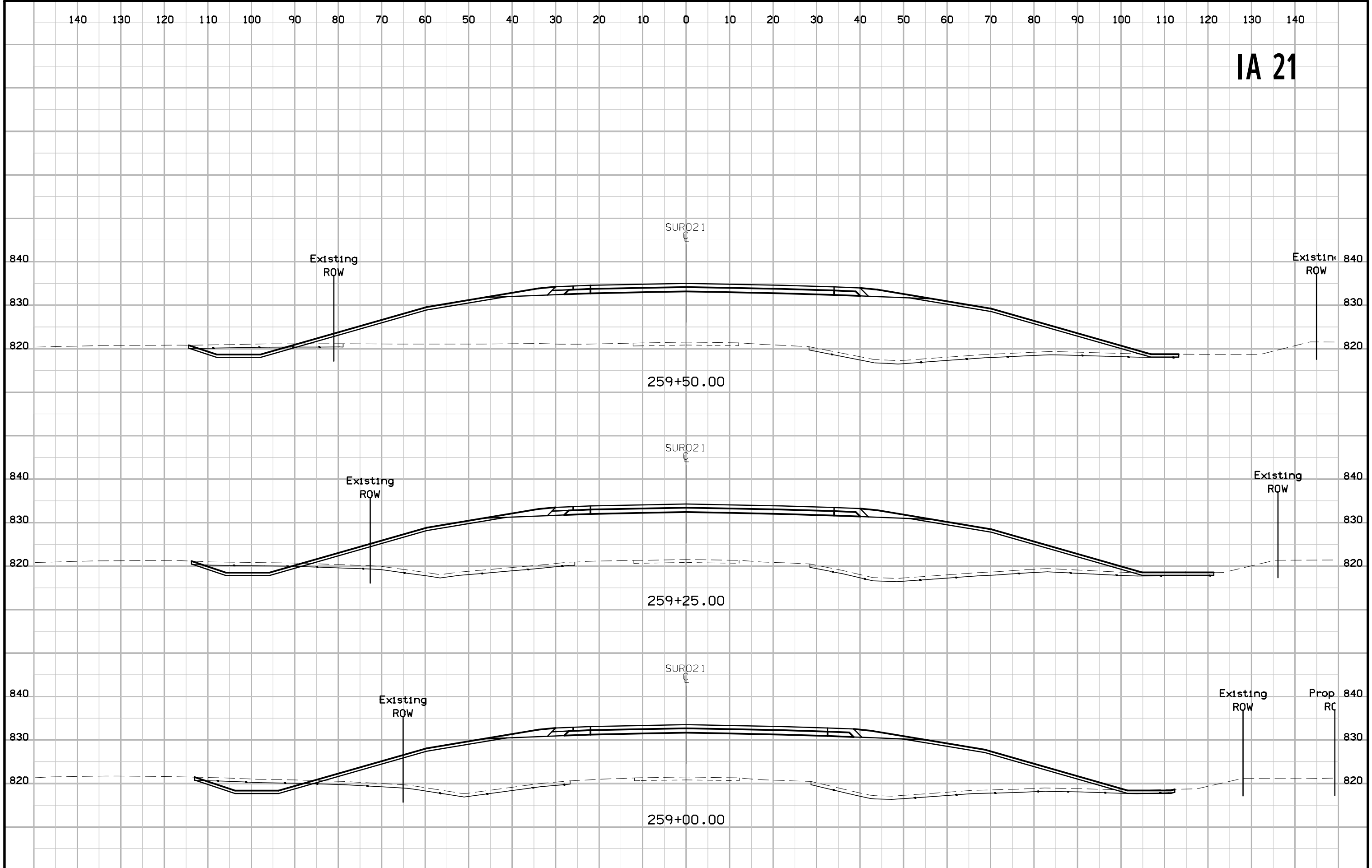




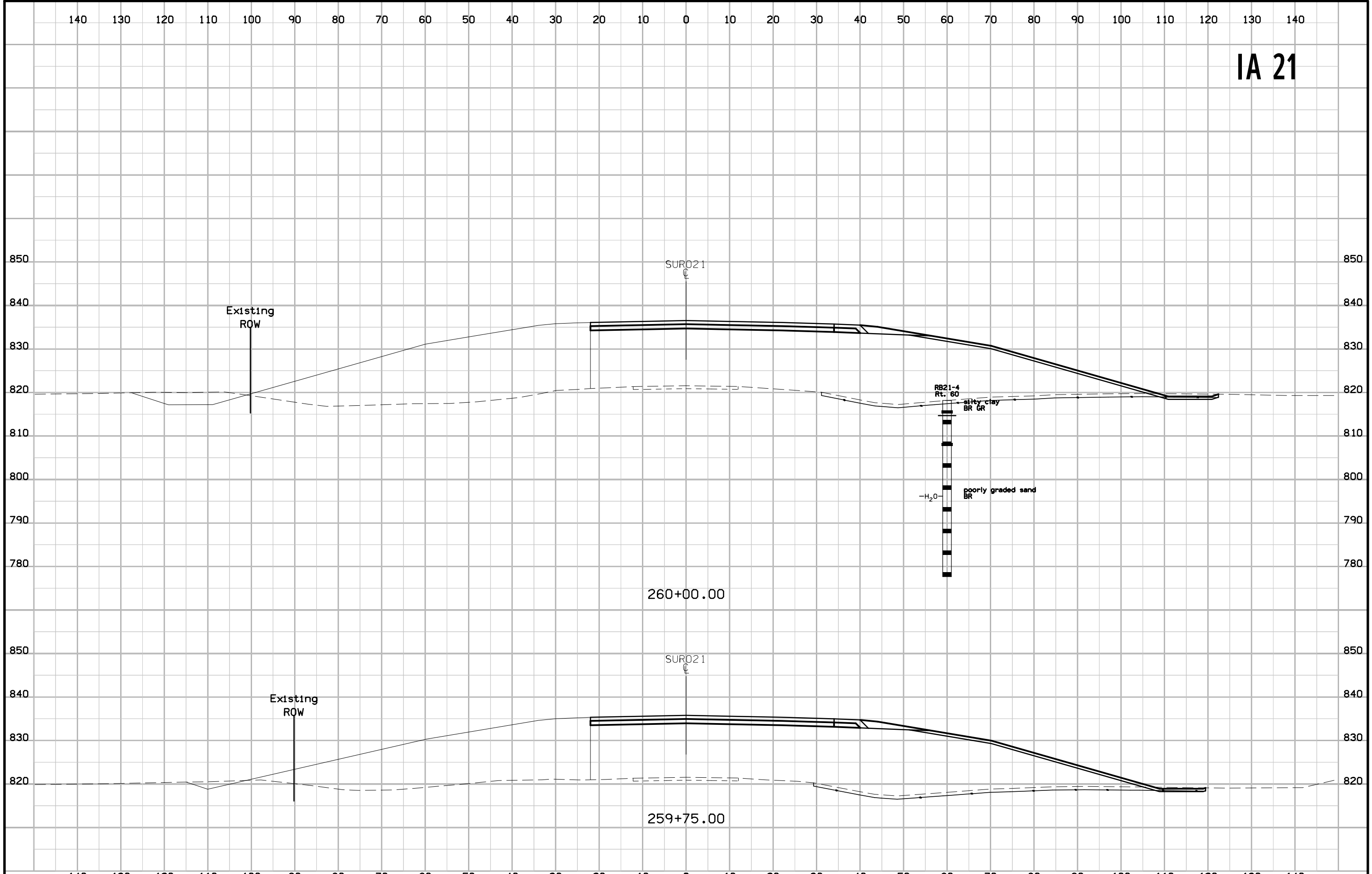
# IA 21



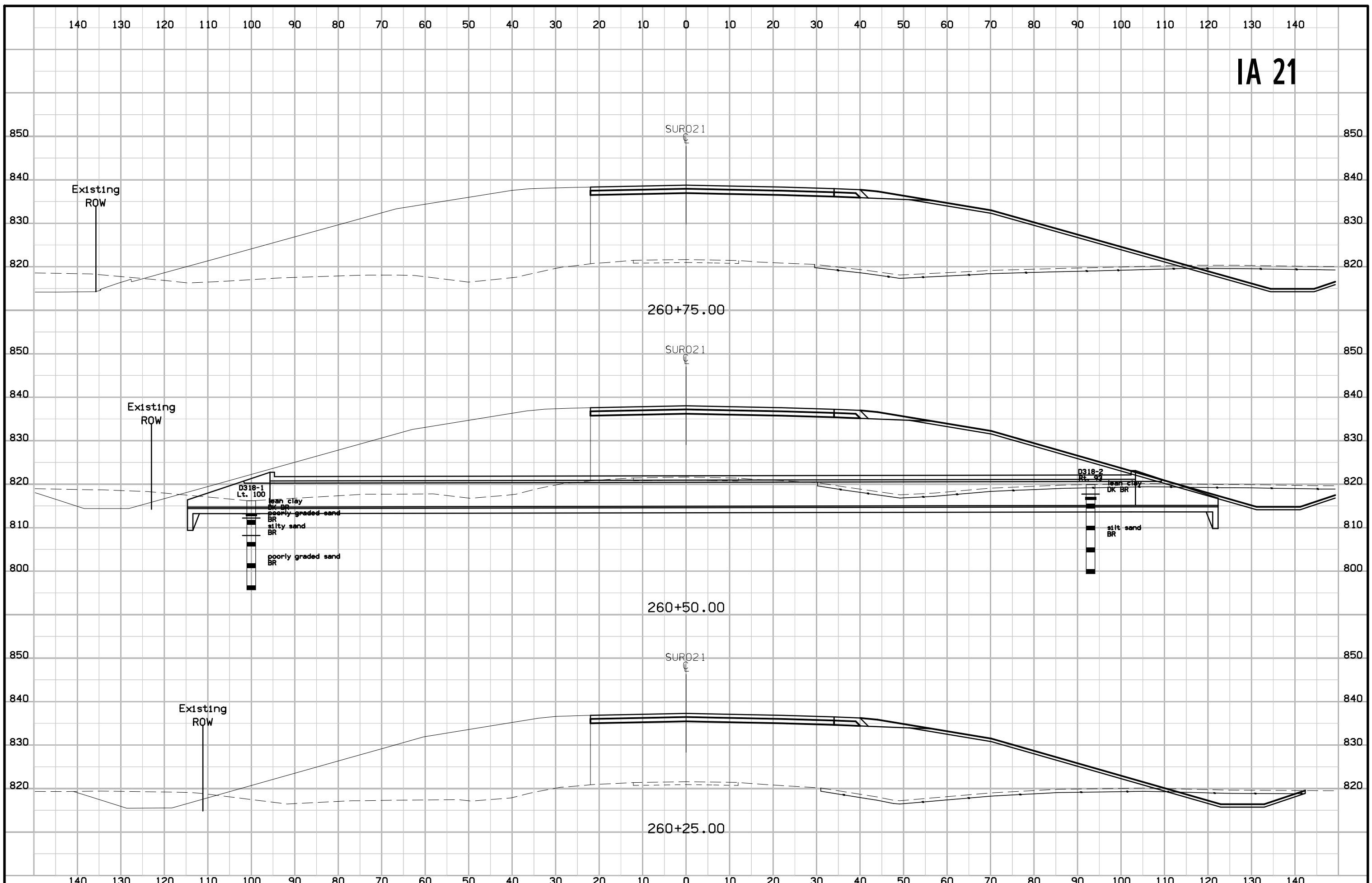
IA 21



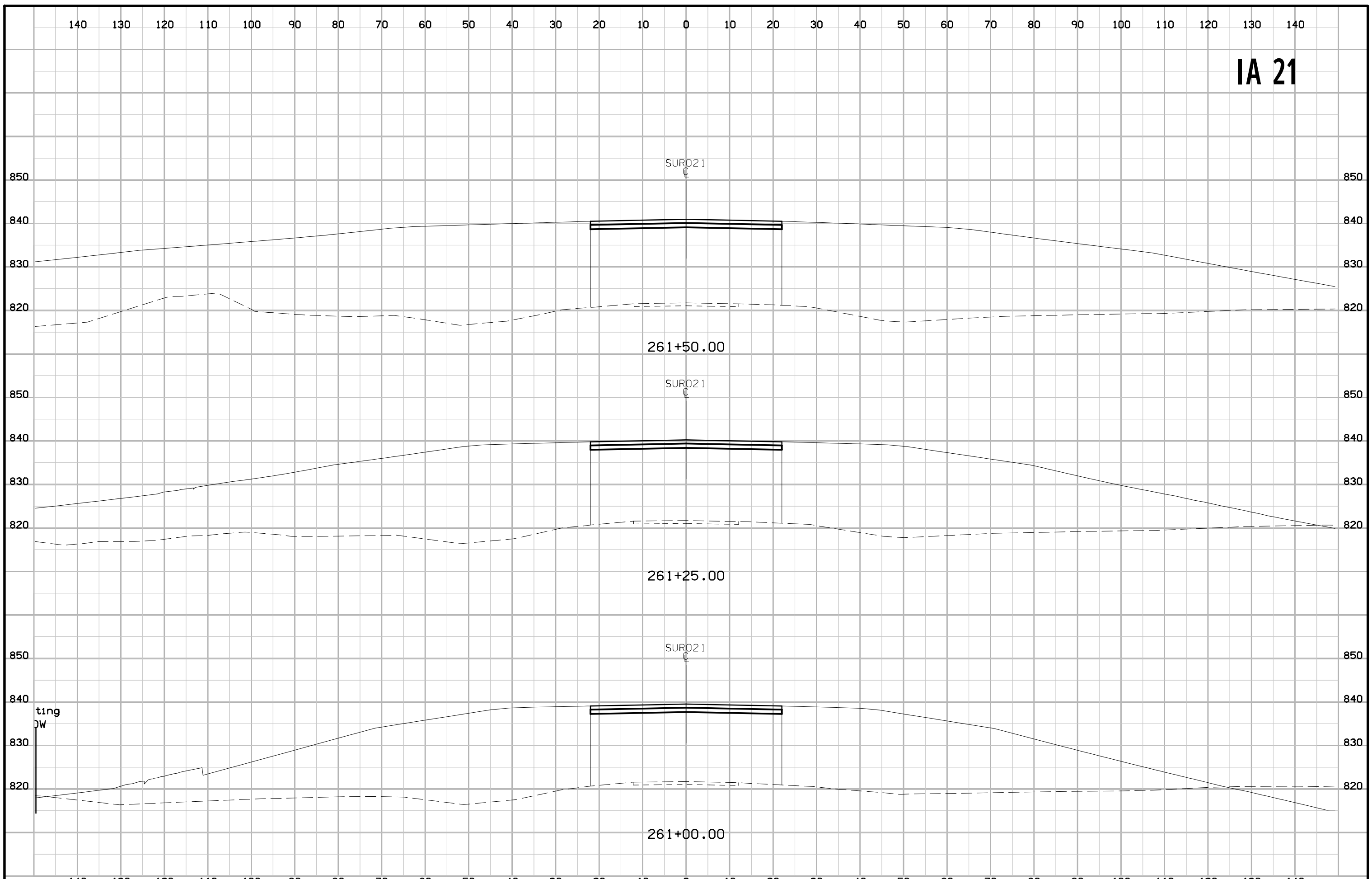
IA 21



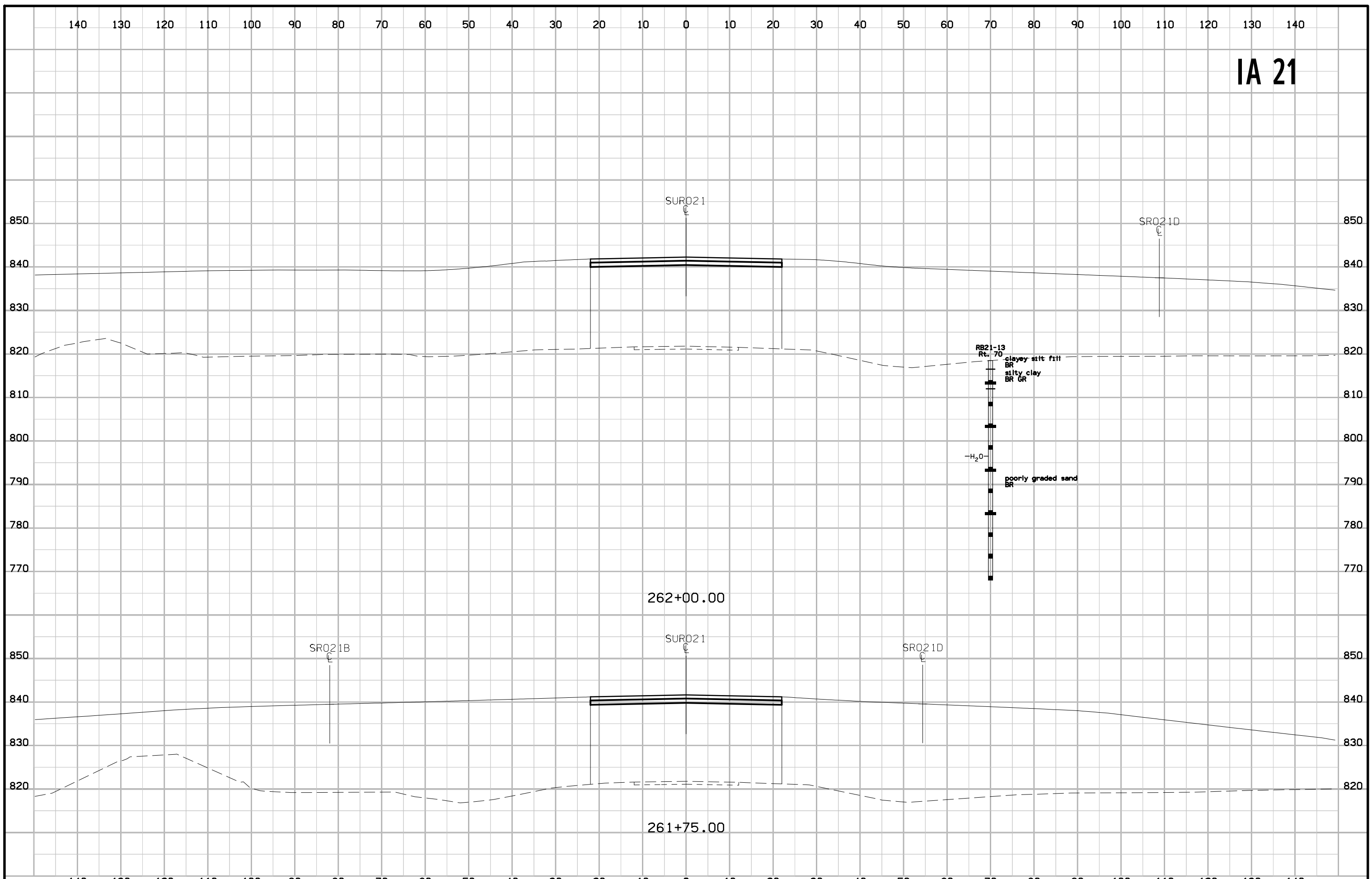
# IA 21



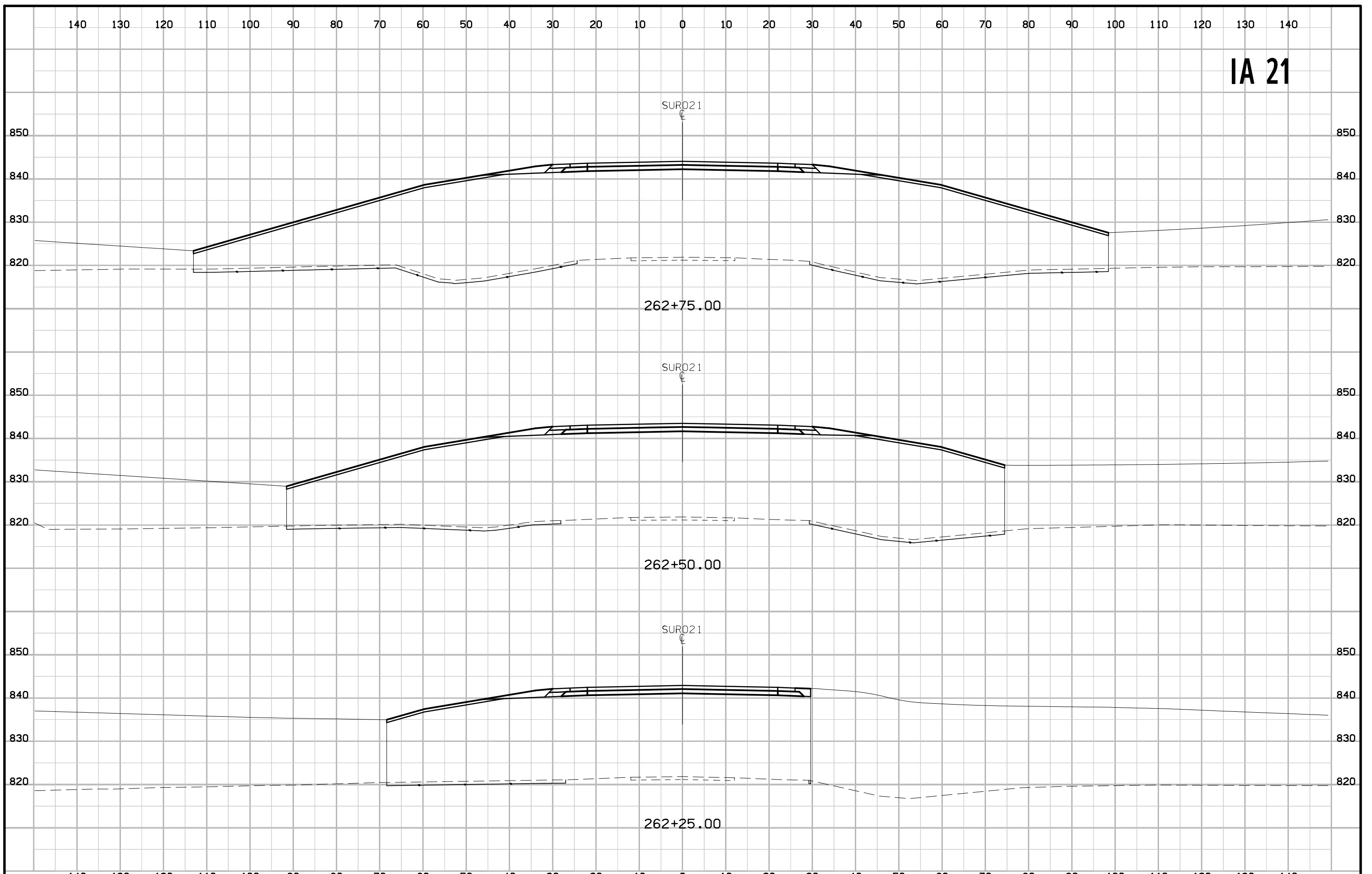
# IA 21



# IA 21

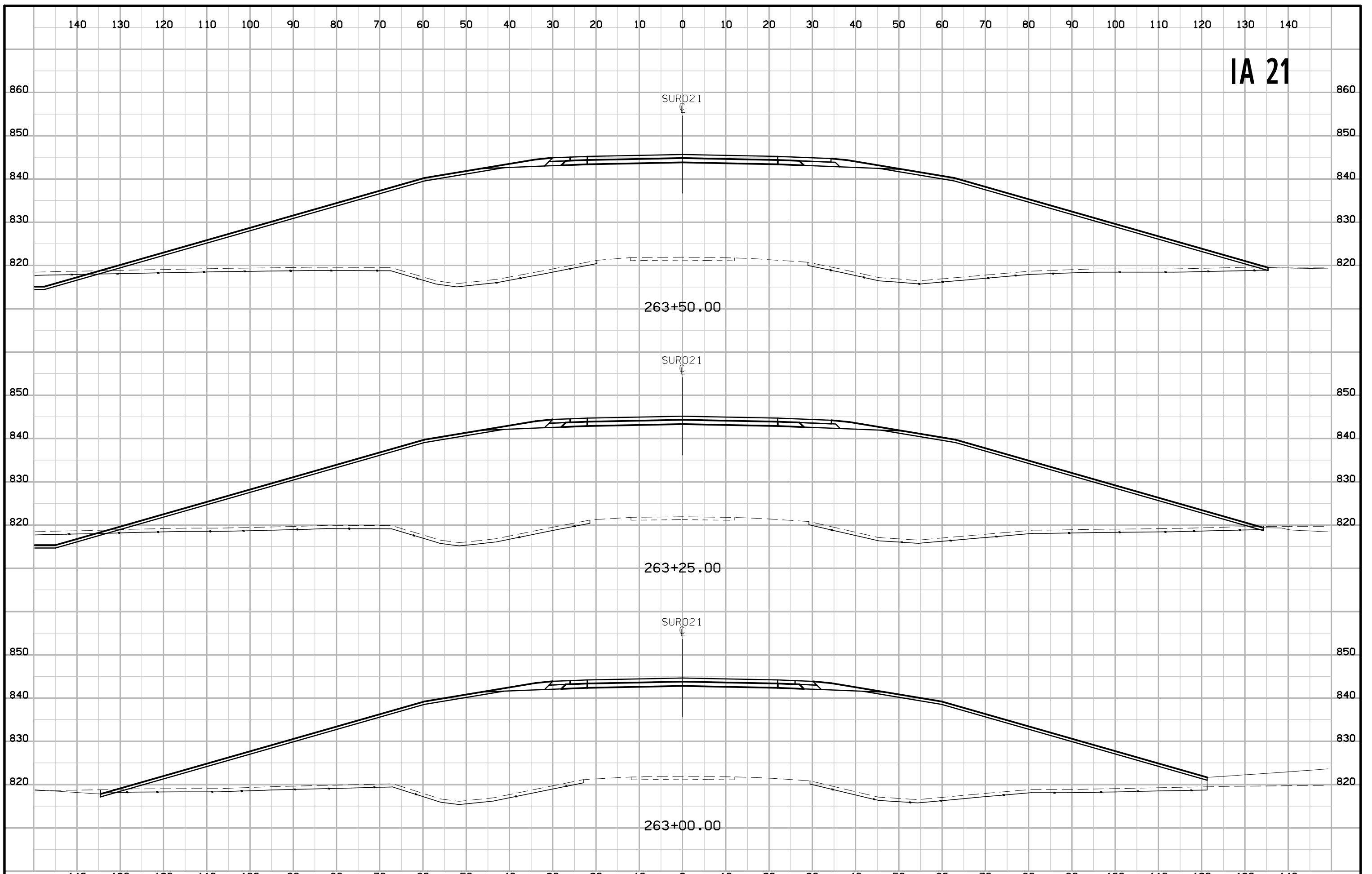


IA 21

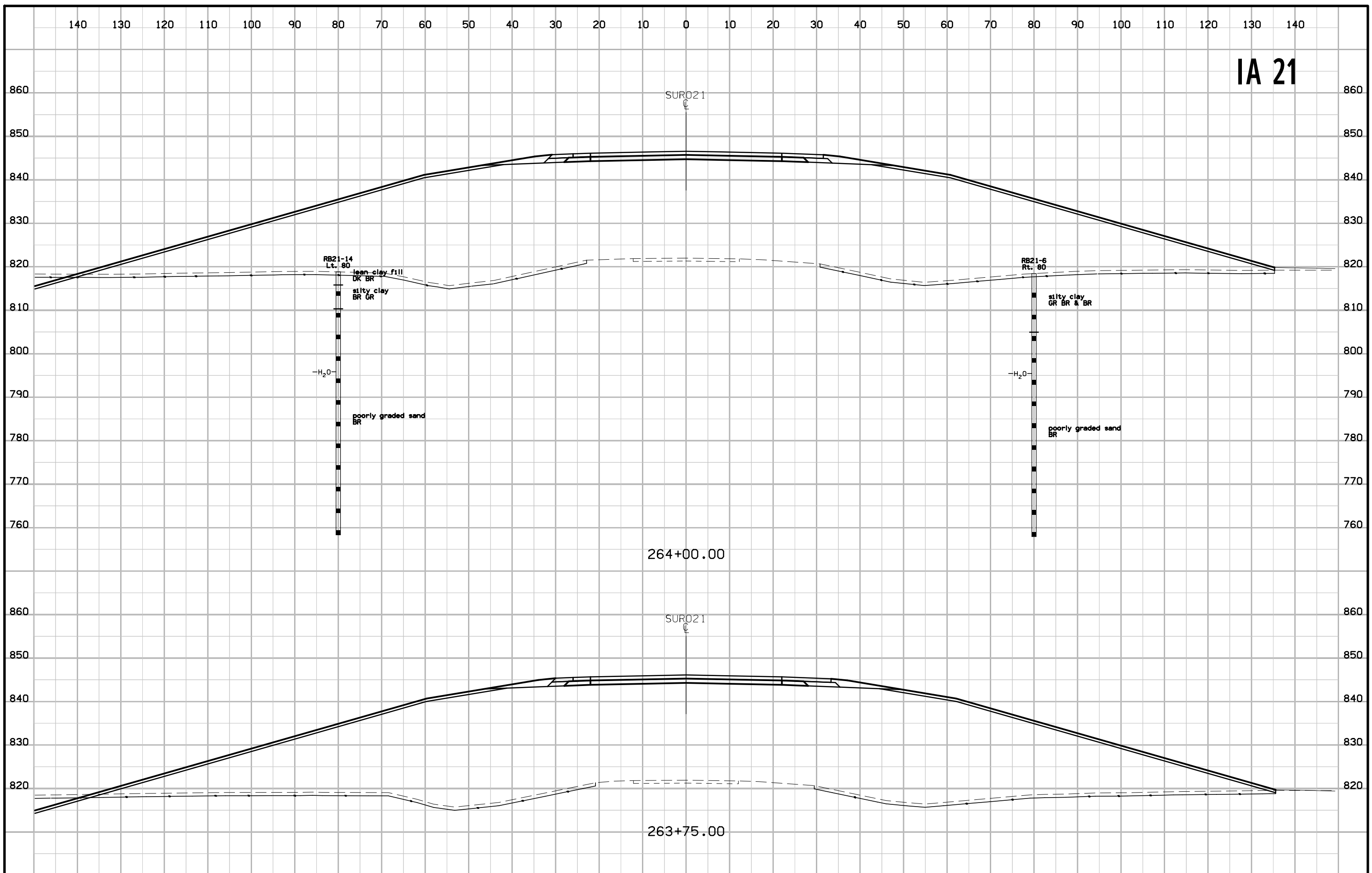




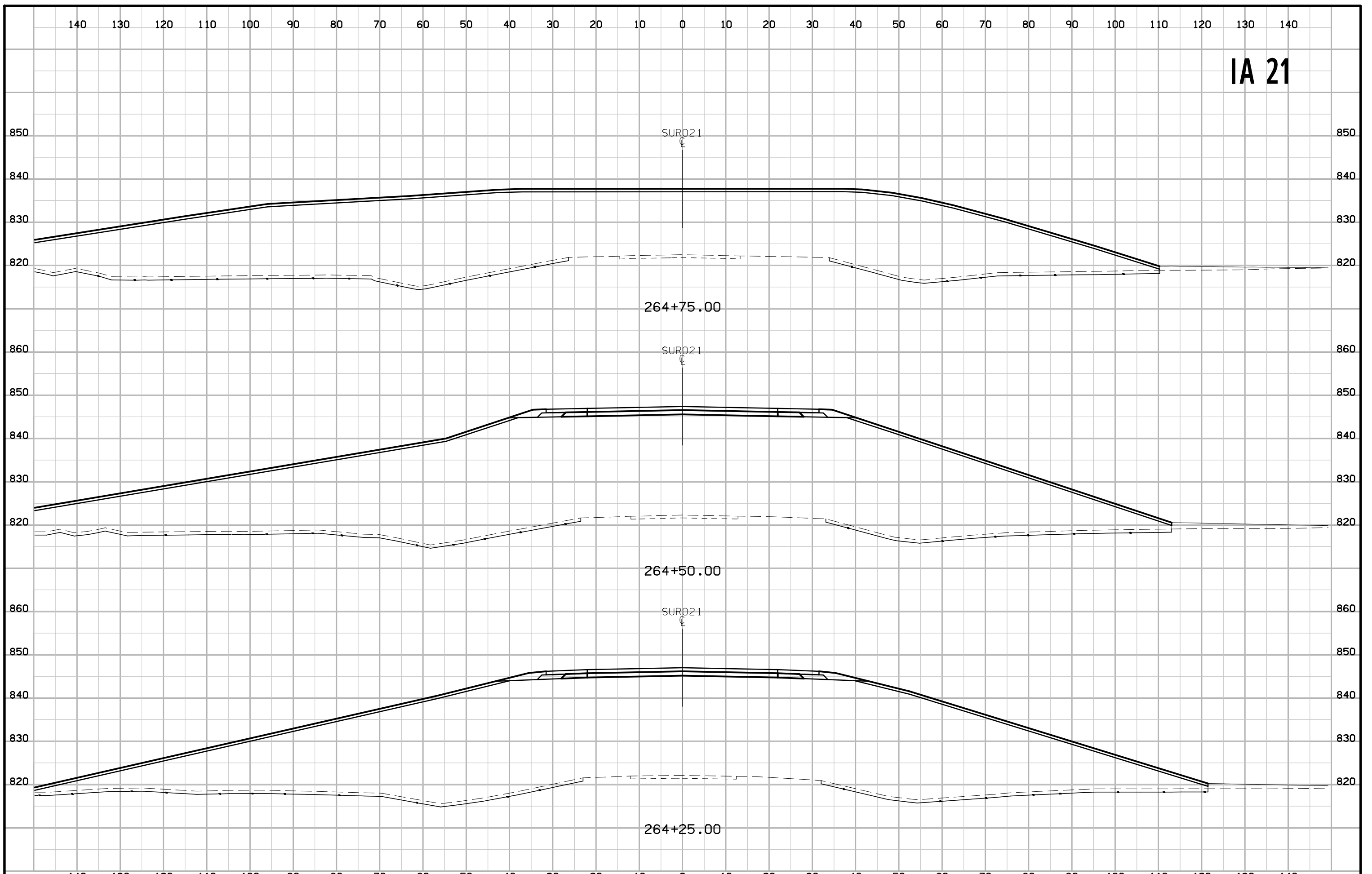
IA 21



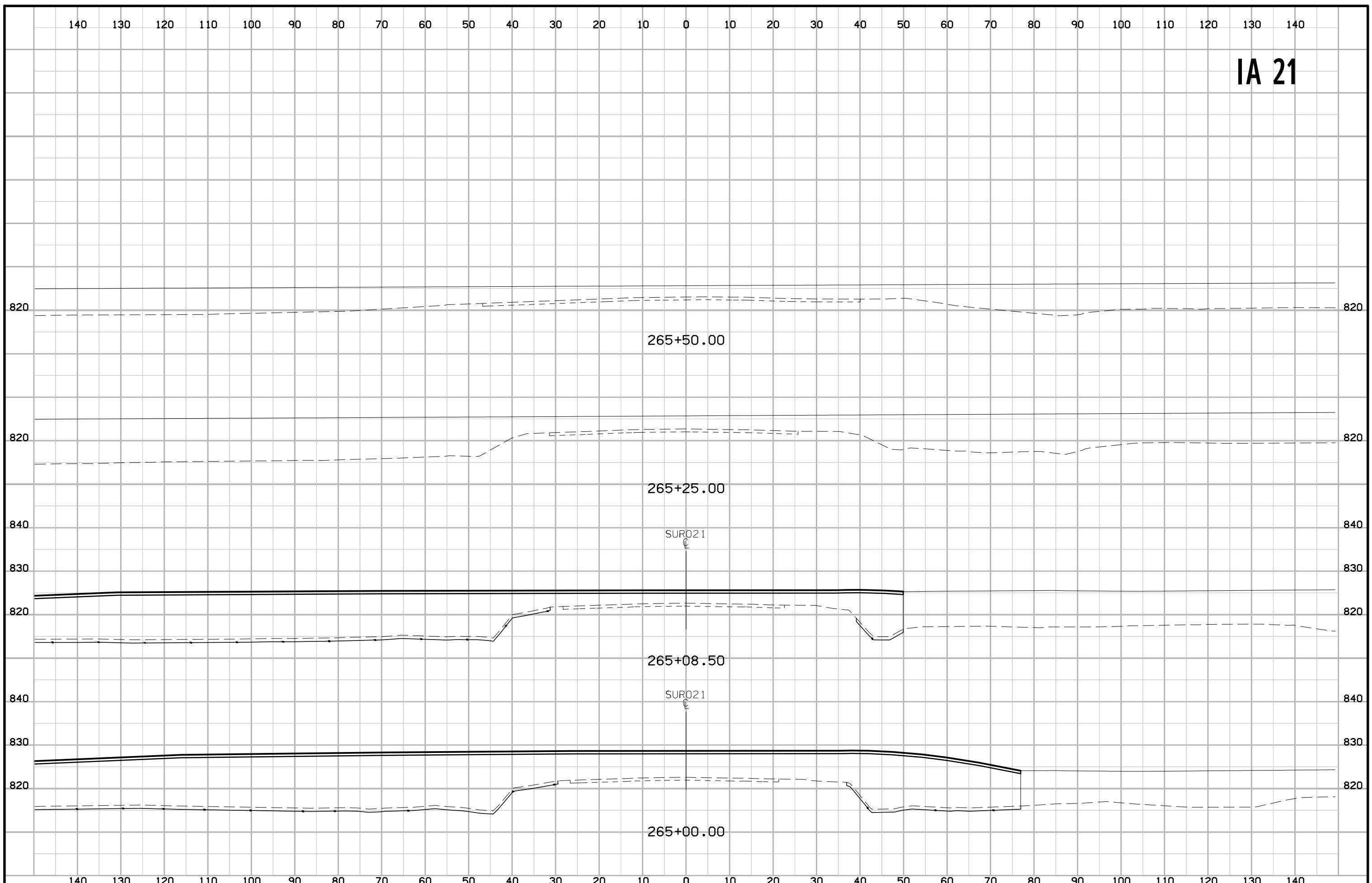
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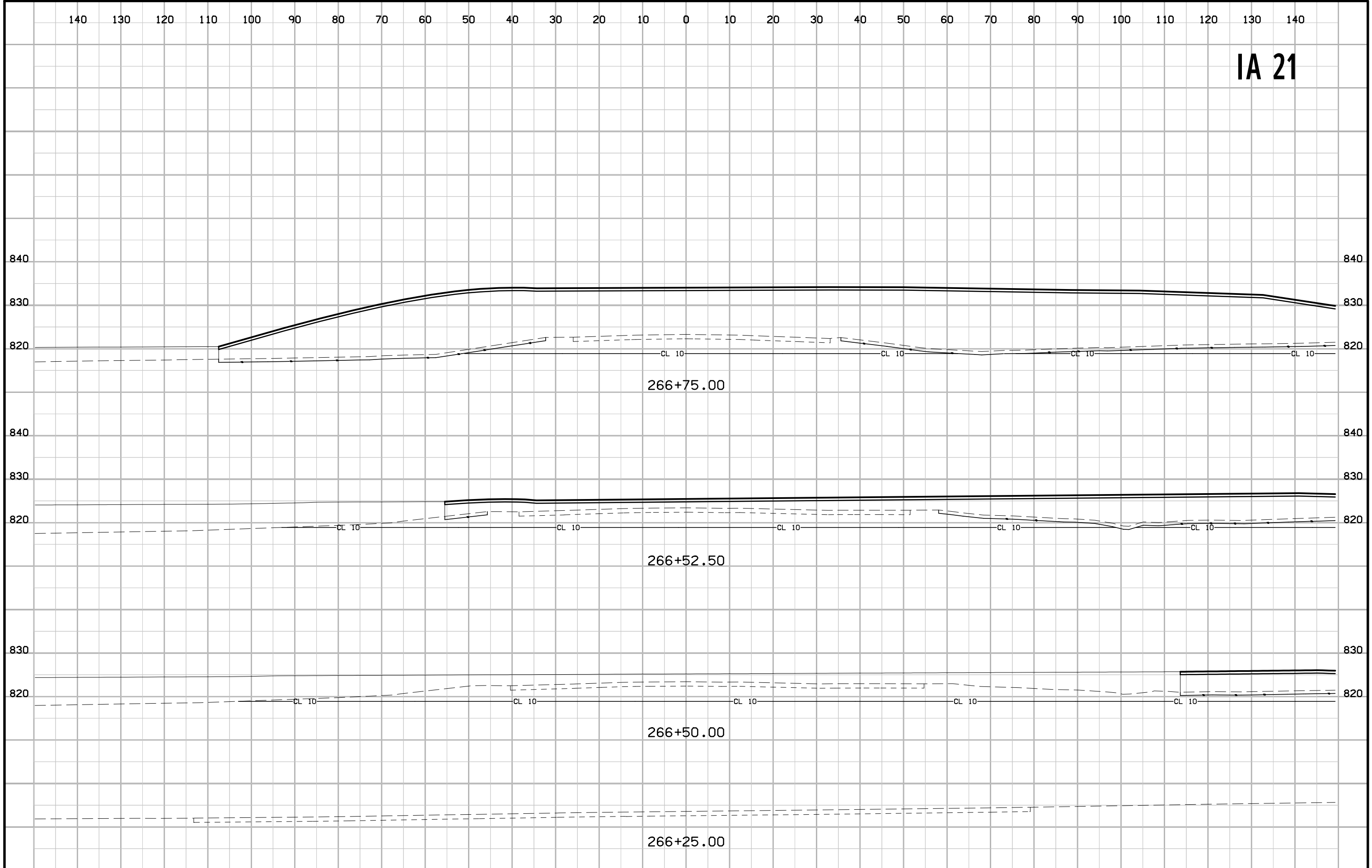
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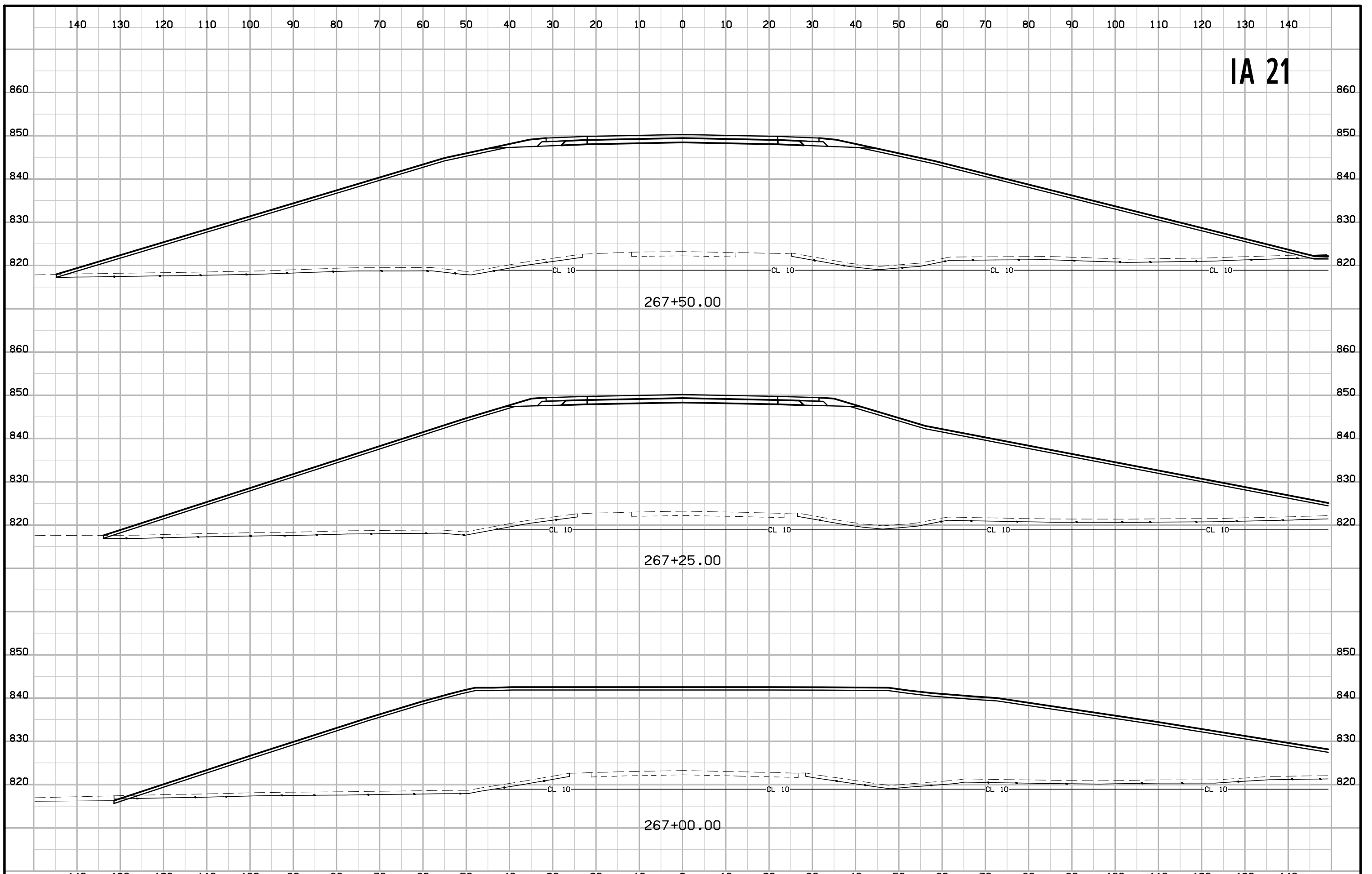
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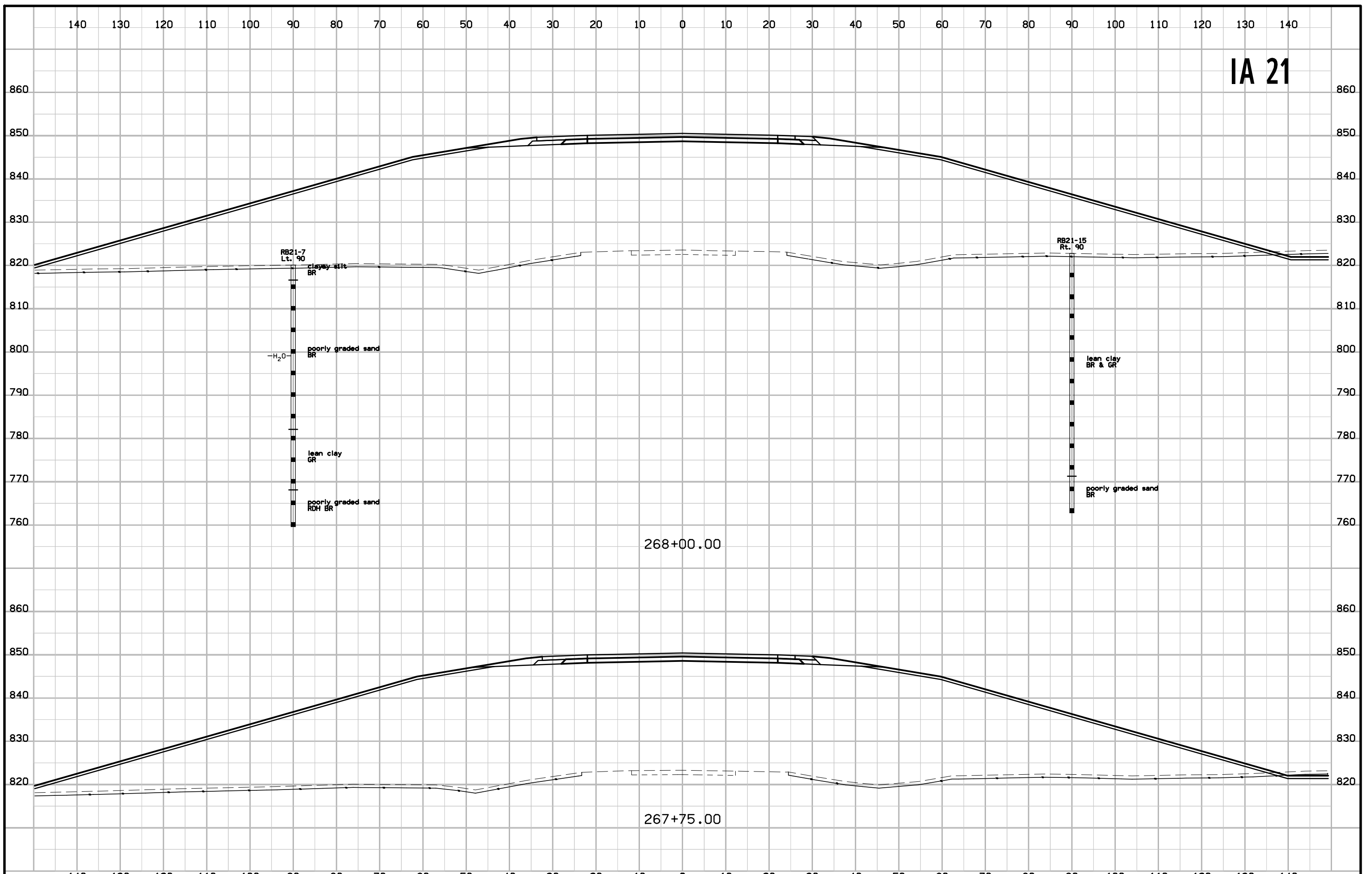
# IA 21



IA 21



IA 21

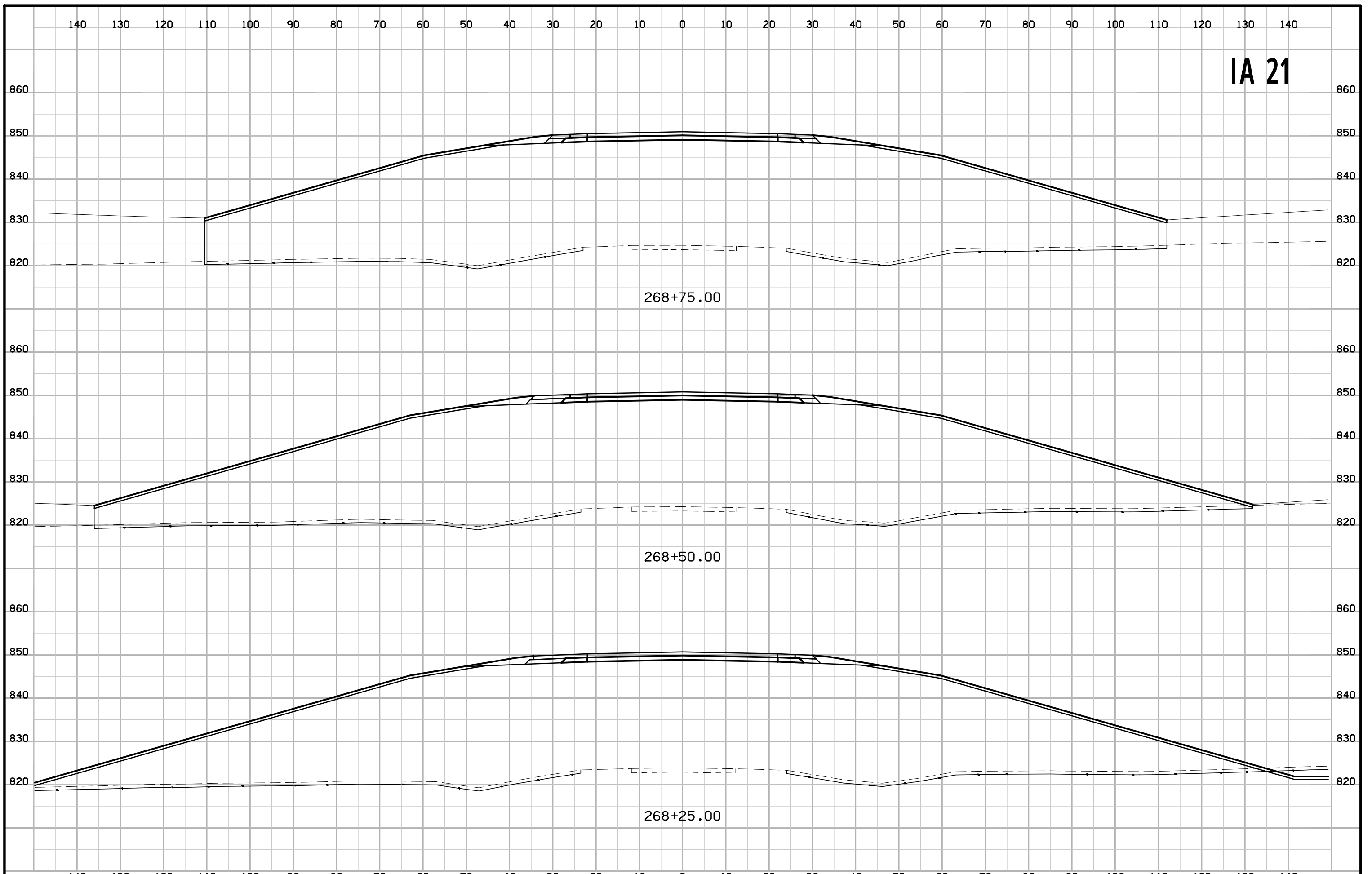


268+00.00

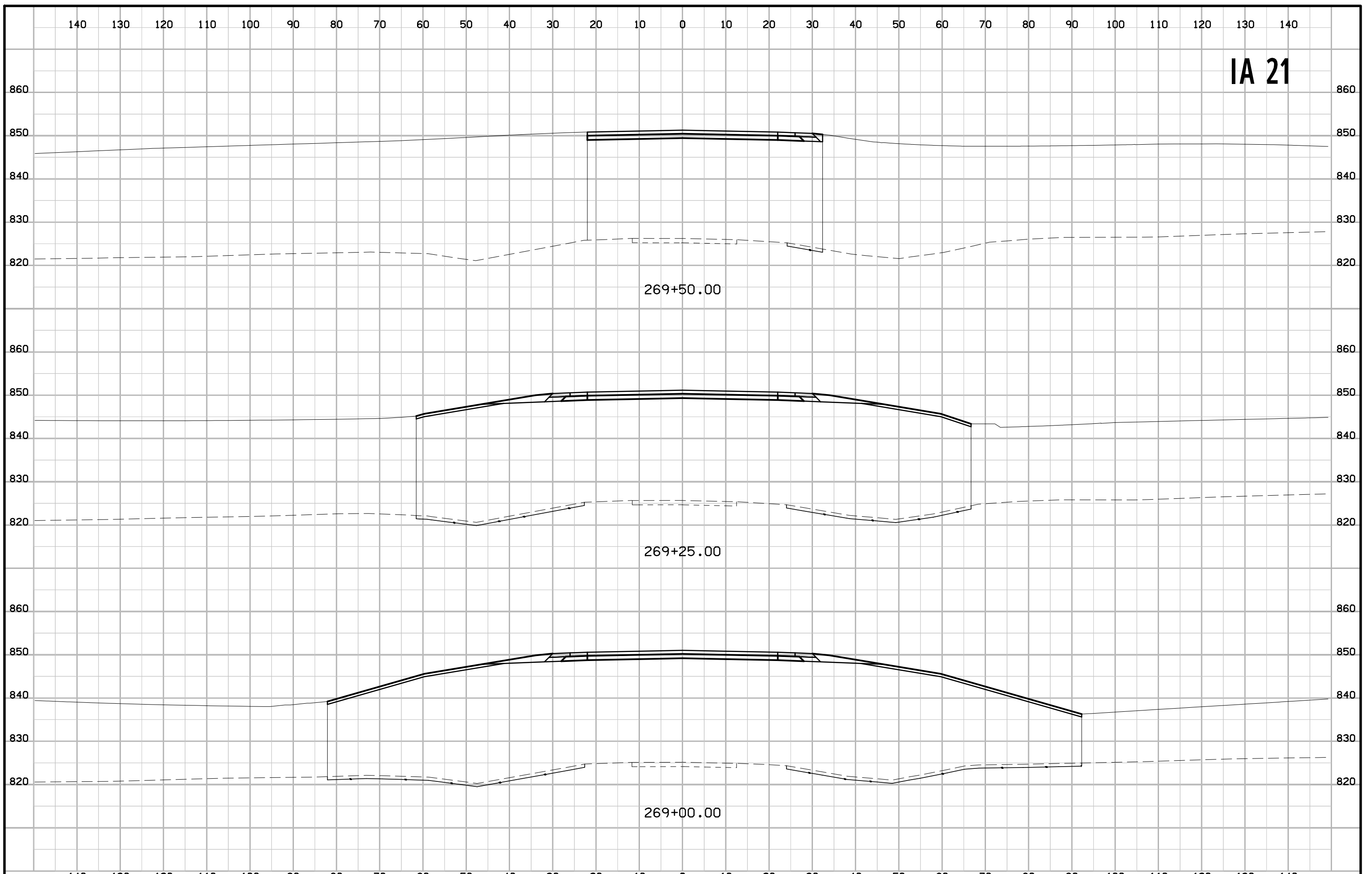
267+75.00



IA 21



IA 21



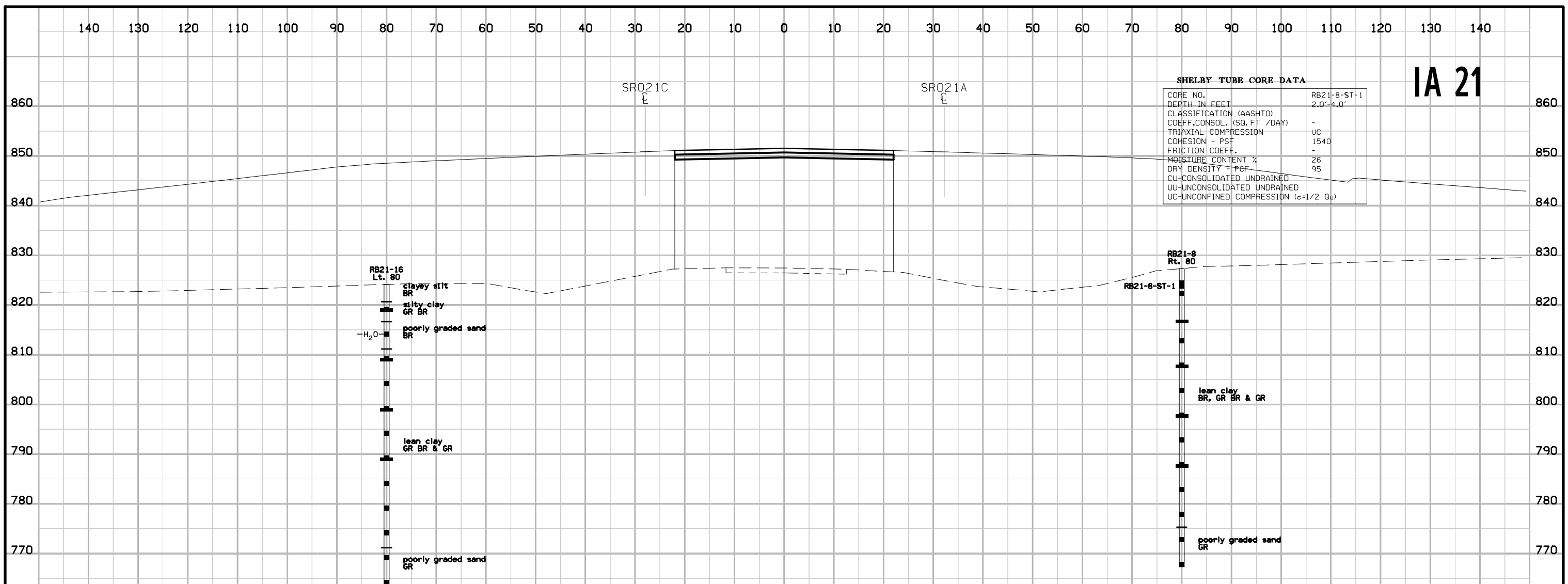
269+50.00

269+25.00

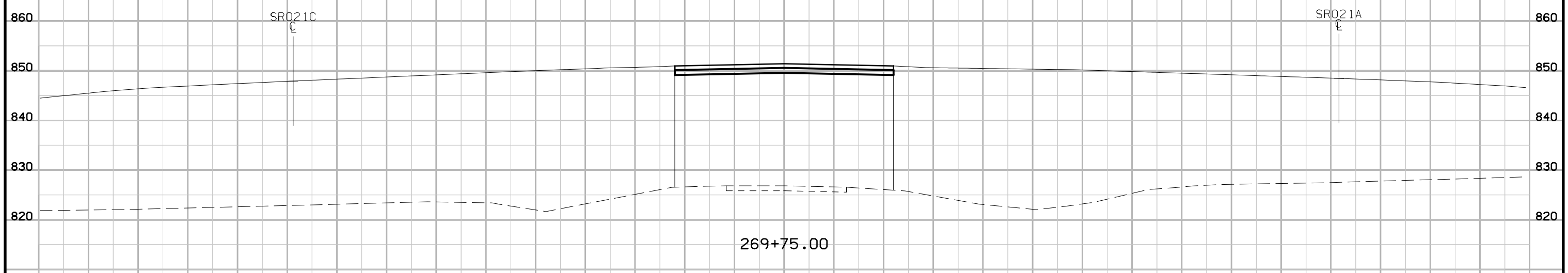
269+00.00

# IA 21

SHELBY TUBE CORE DATA	
CORE NO.	RB21-8-ST-1
DEPTH IN FEET	2.0'-4.0'
CLASSIFICATION (AASHTO)	
COEFF. CONSOL. (SQ. FT / DAY)	-
TRIAxIAL COMPRESSION	UC
COHESION - PSF	1540
FRICTION COEFF.	-
MOISTURE CONTENT %	26
DRY DENSITY - PCF	95
CU-CONSOLIDATED UNDRAINED	
UU-UNCONSOLIDATED UNDRAINED	
UC-UNCONFINED COMPRESSION ( $c=1/2 \sigma_u$ )	

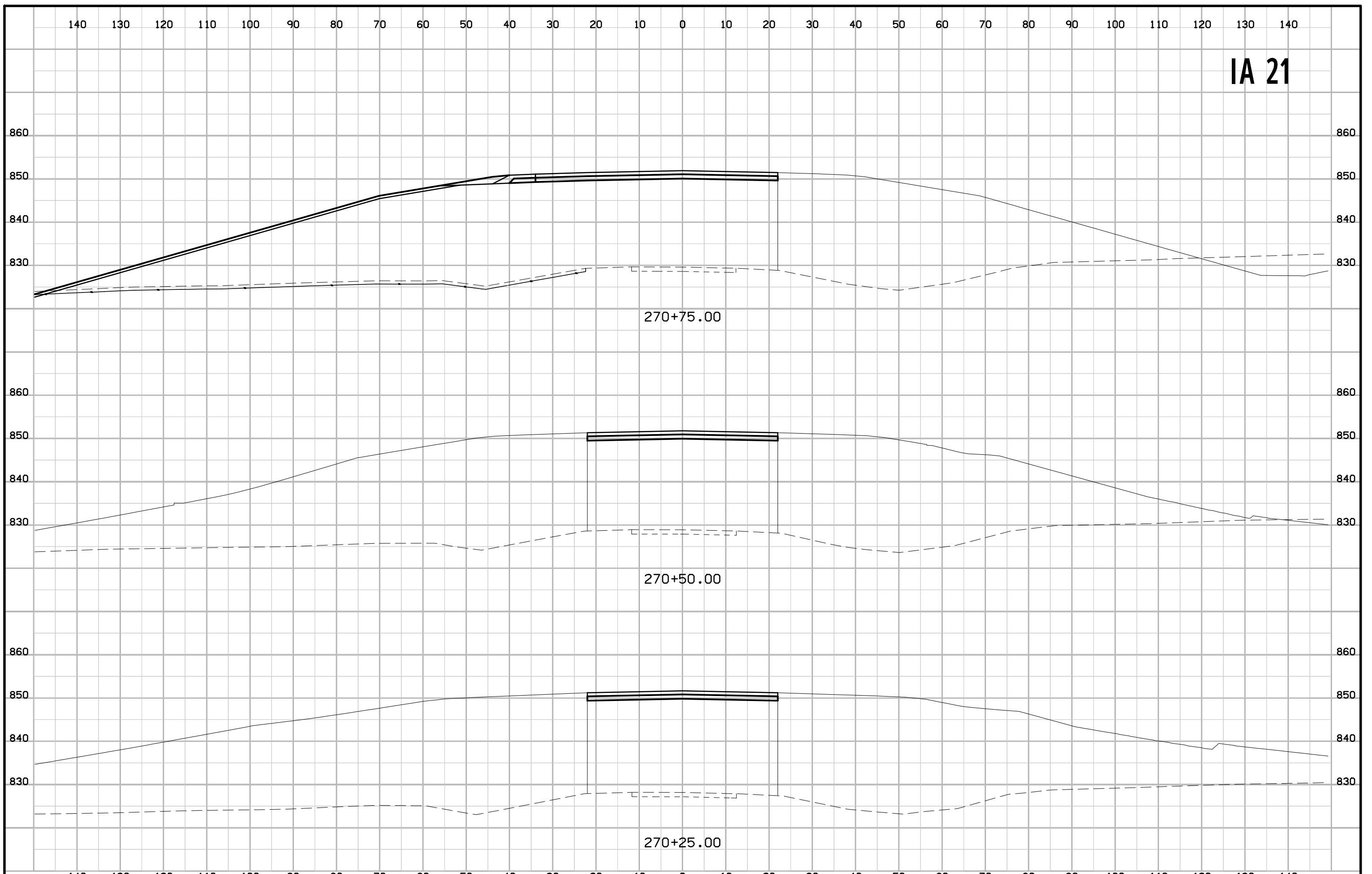


270+00.00

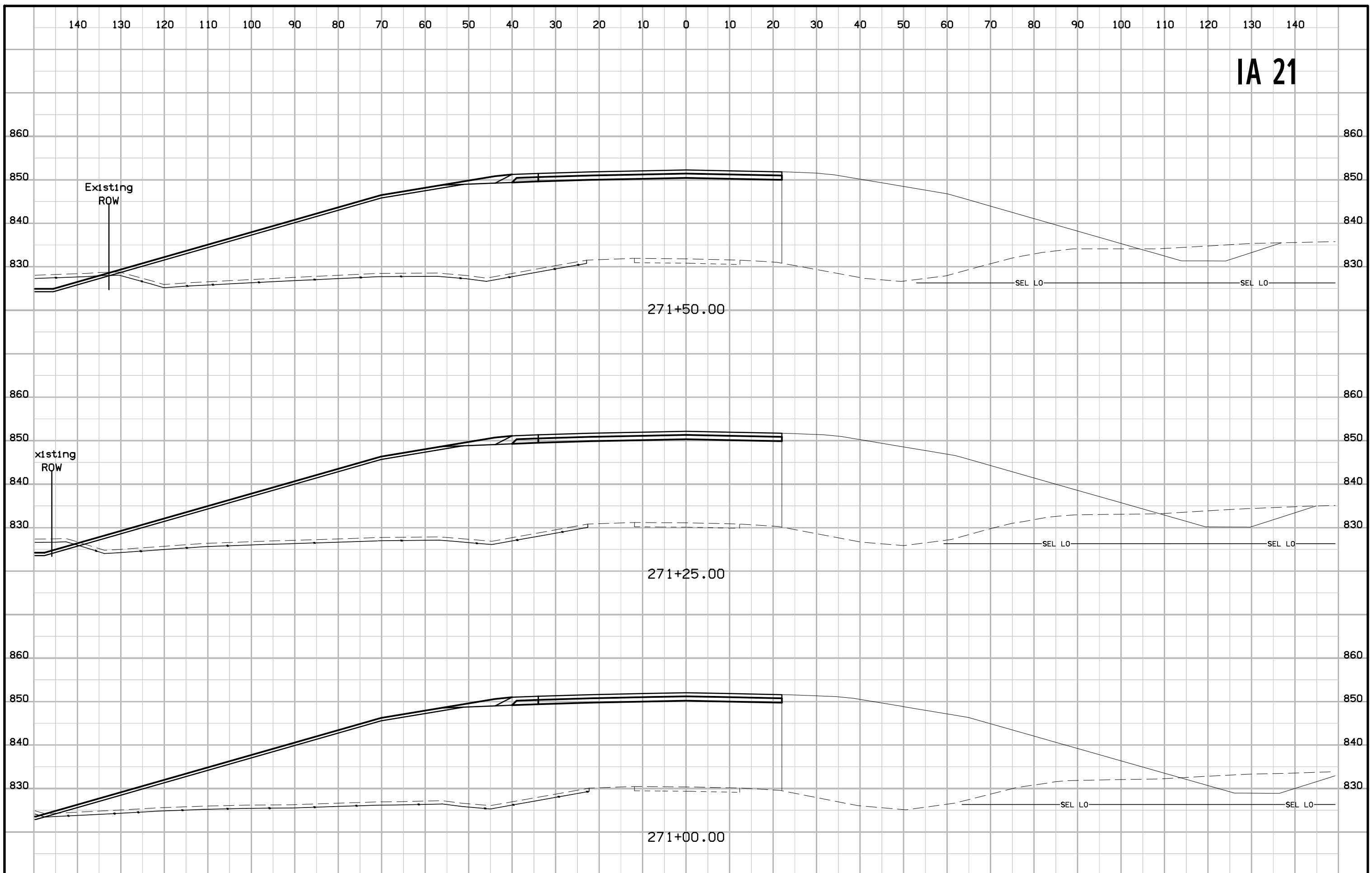


269+75.00

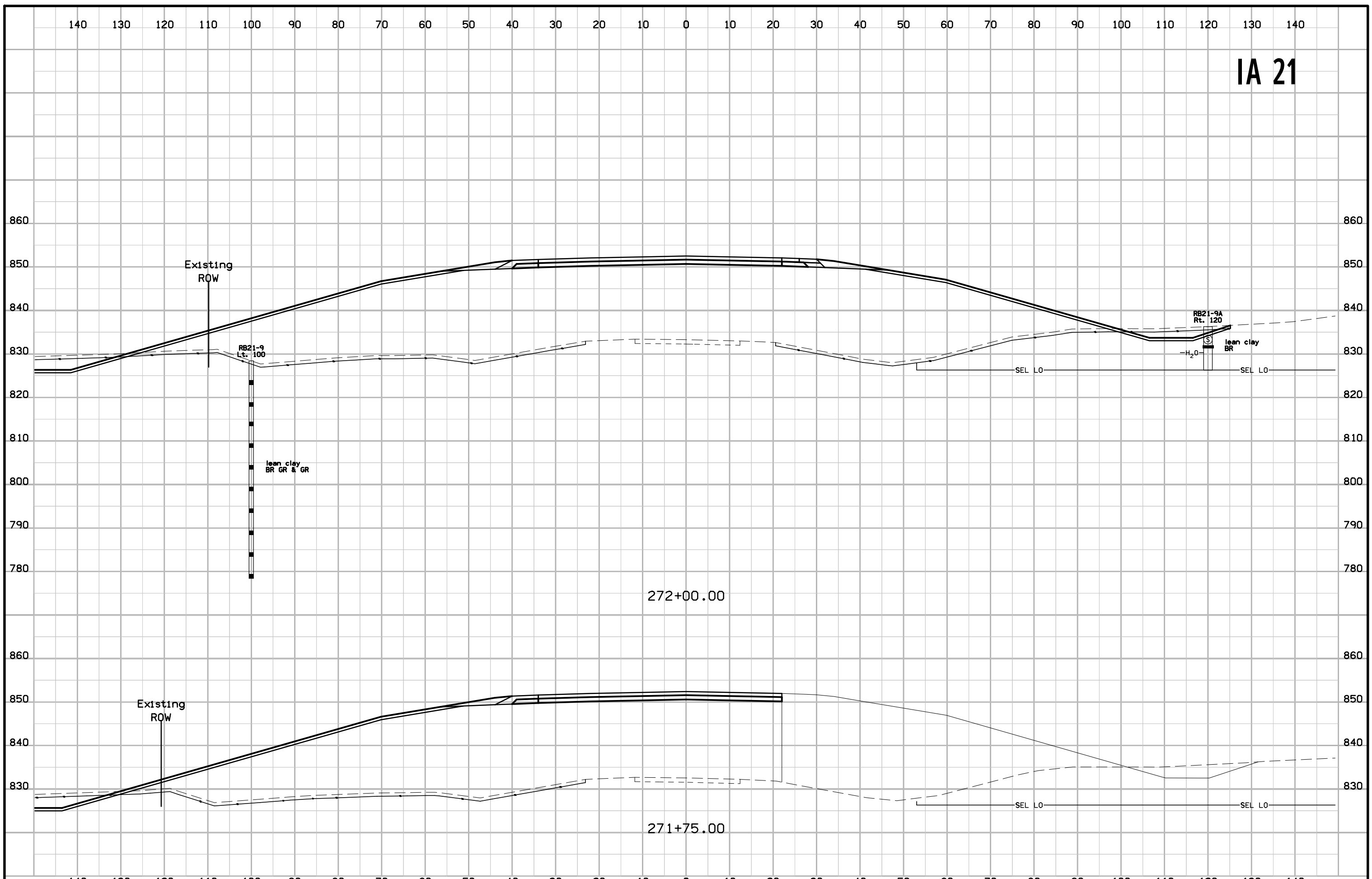
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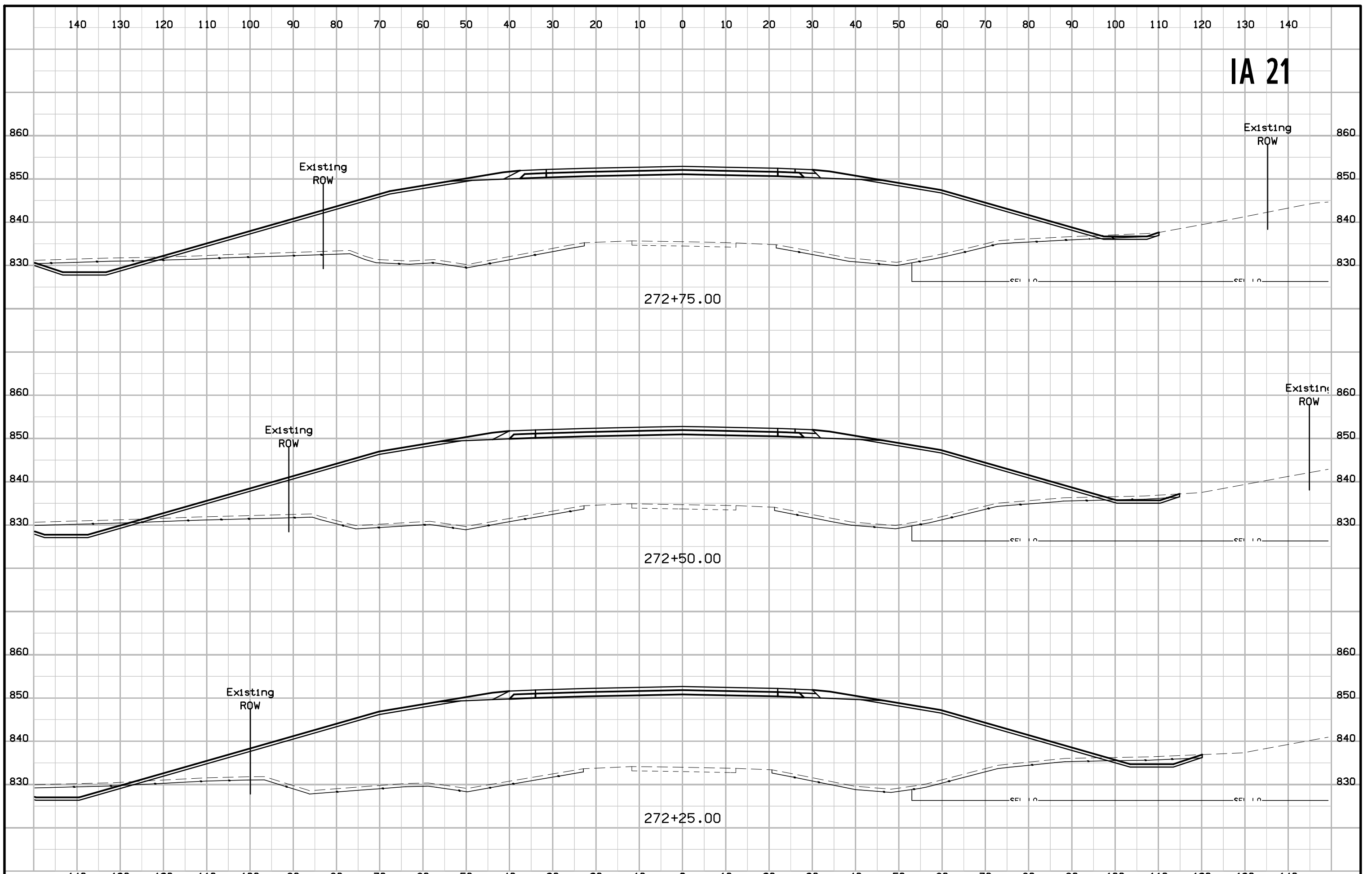
# IA 21



# IA 21



# IA 21



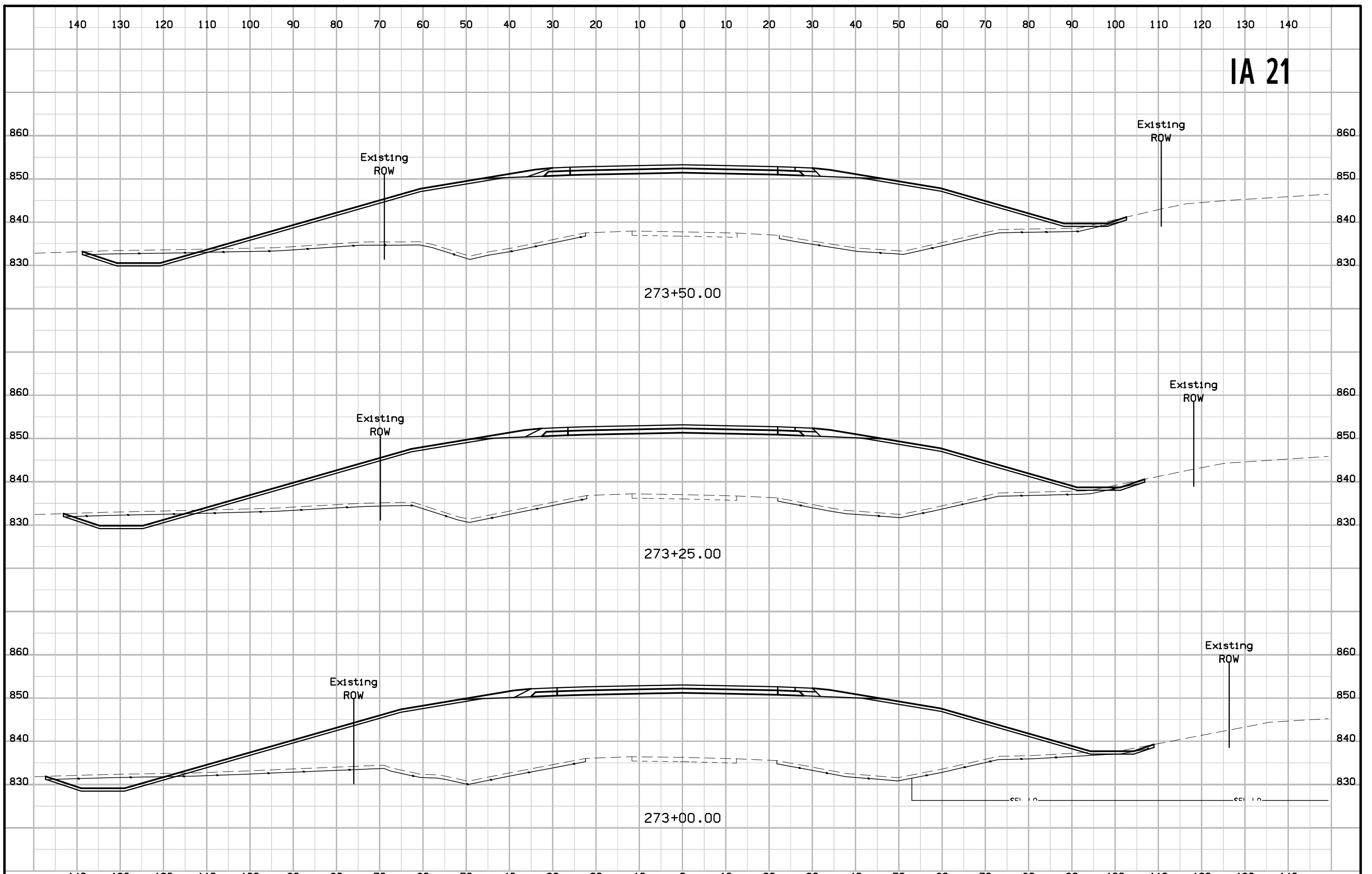
272+75.00

272+50.00

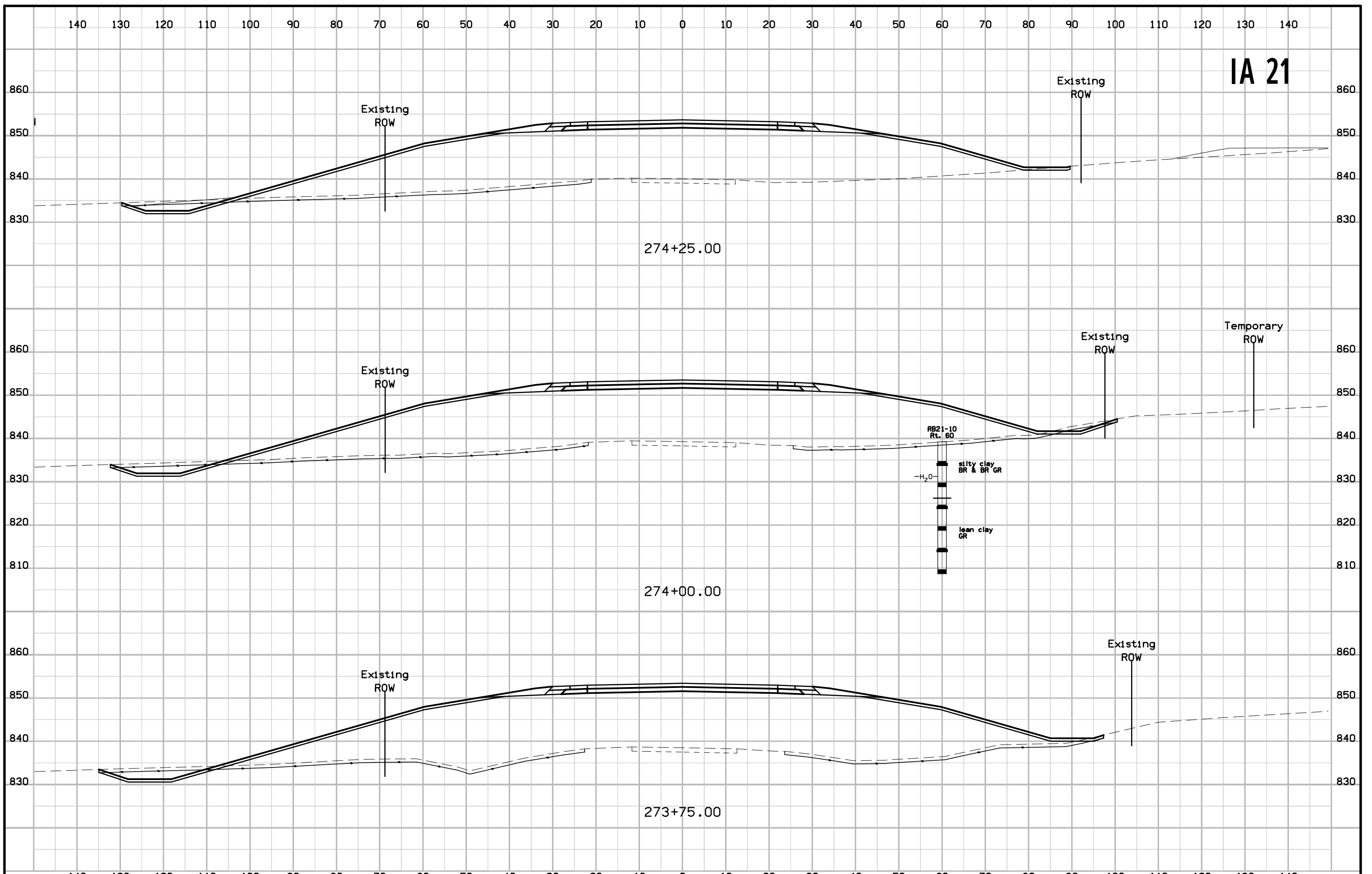
272+25.00



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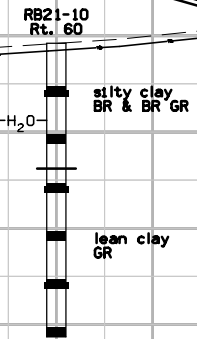
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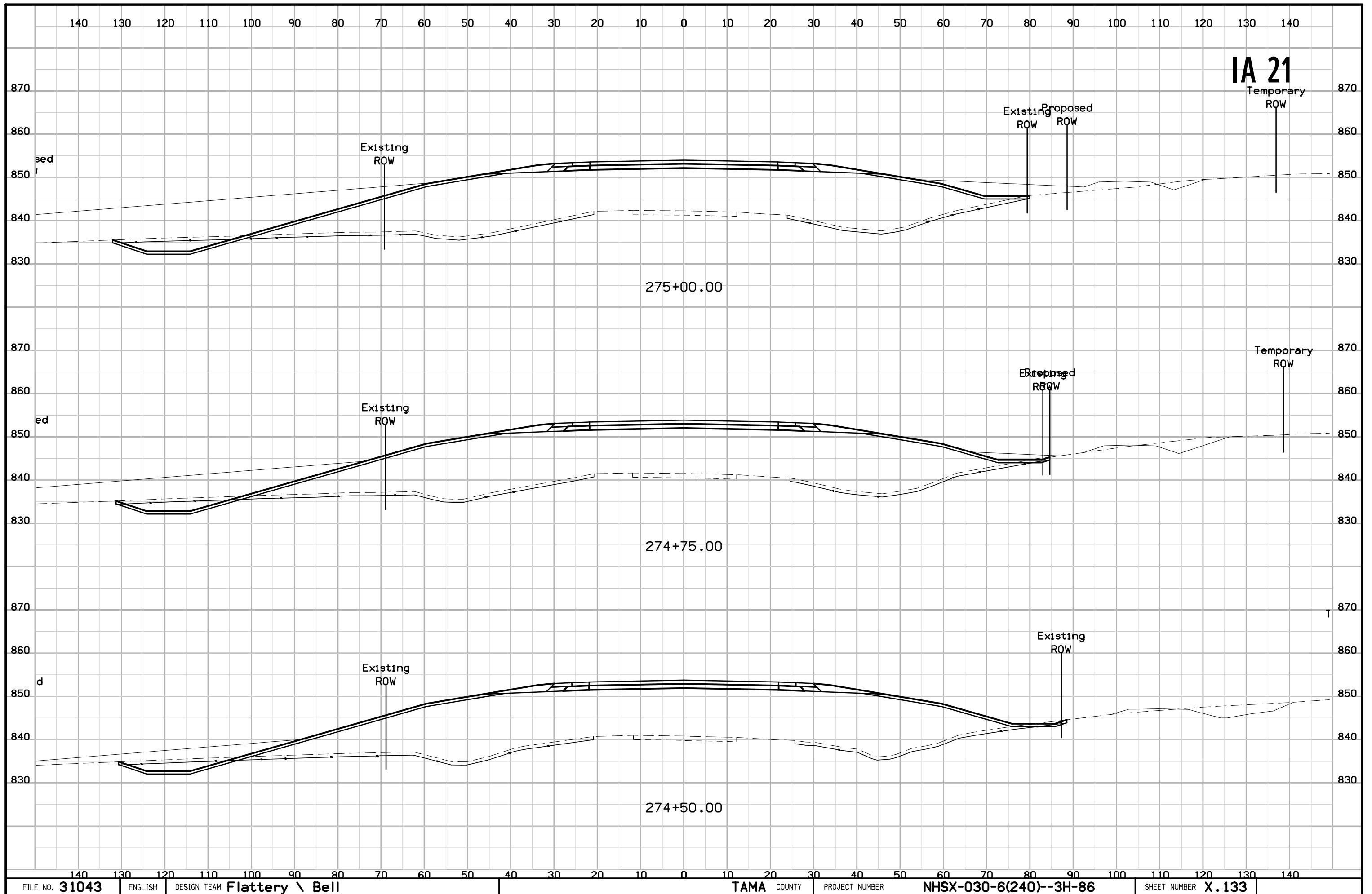


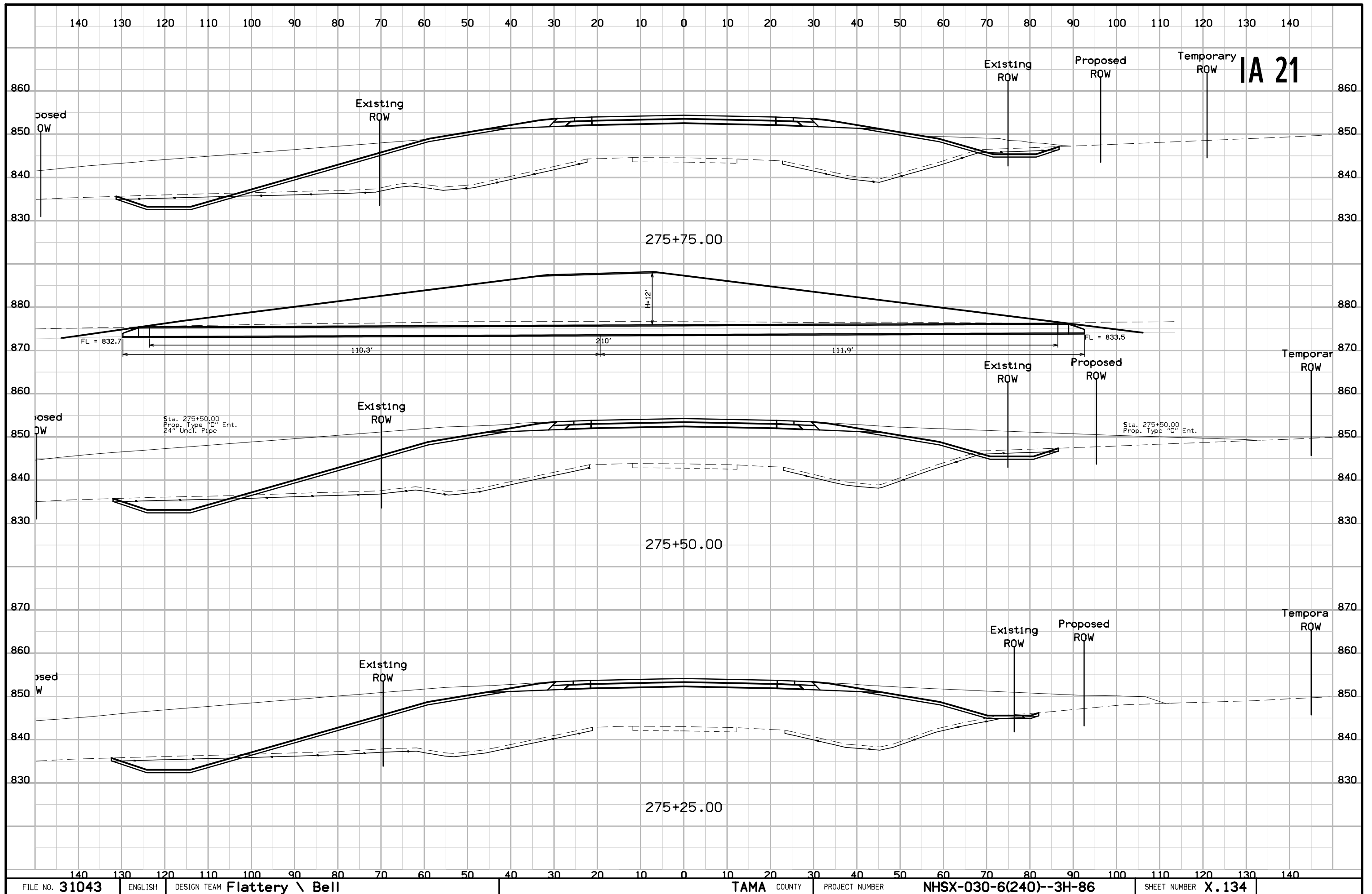
274+25.00

274+00.00

273+75.00

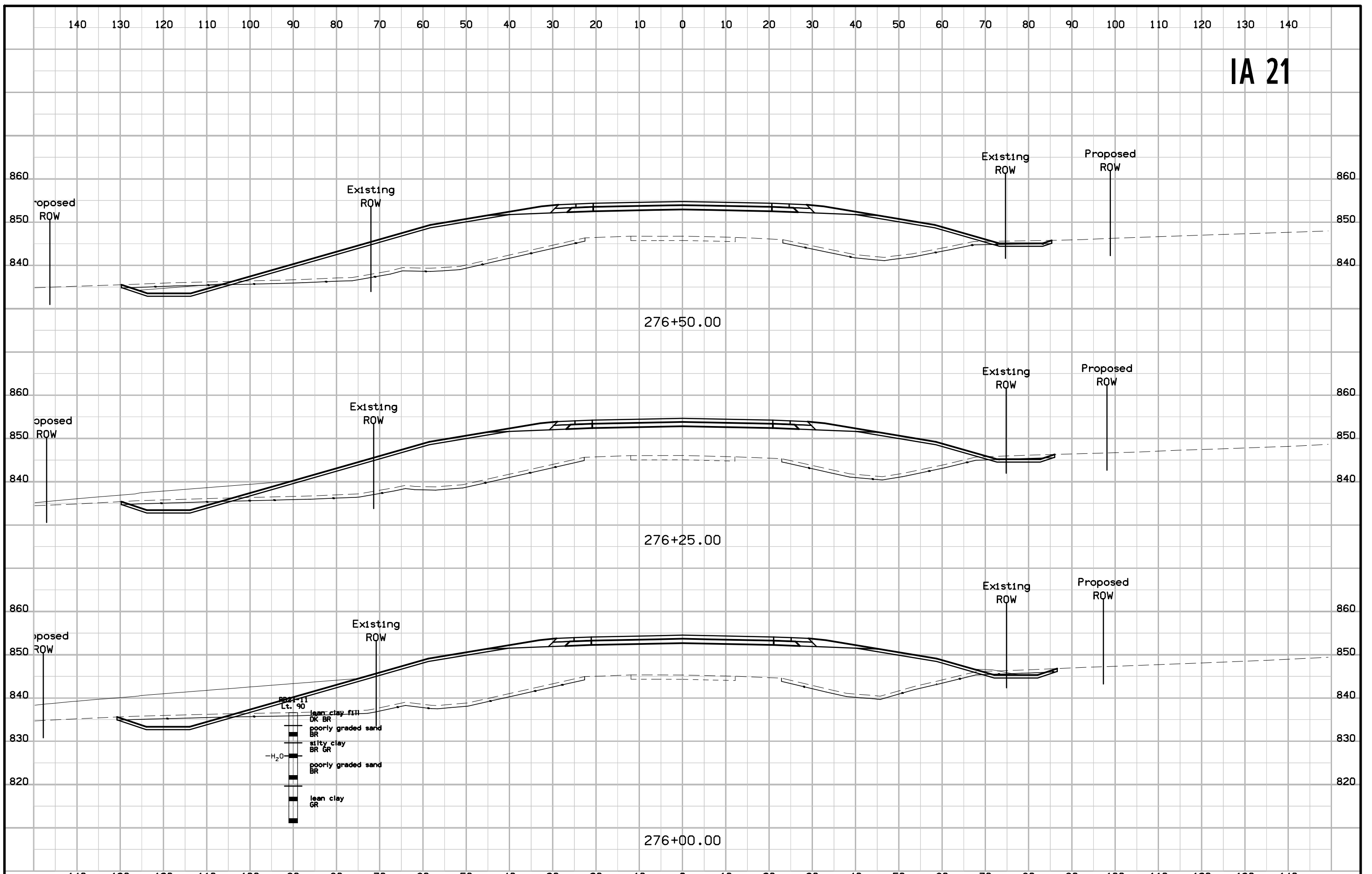




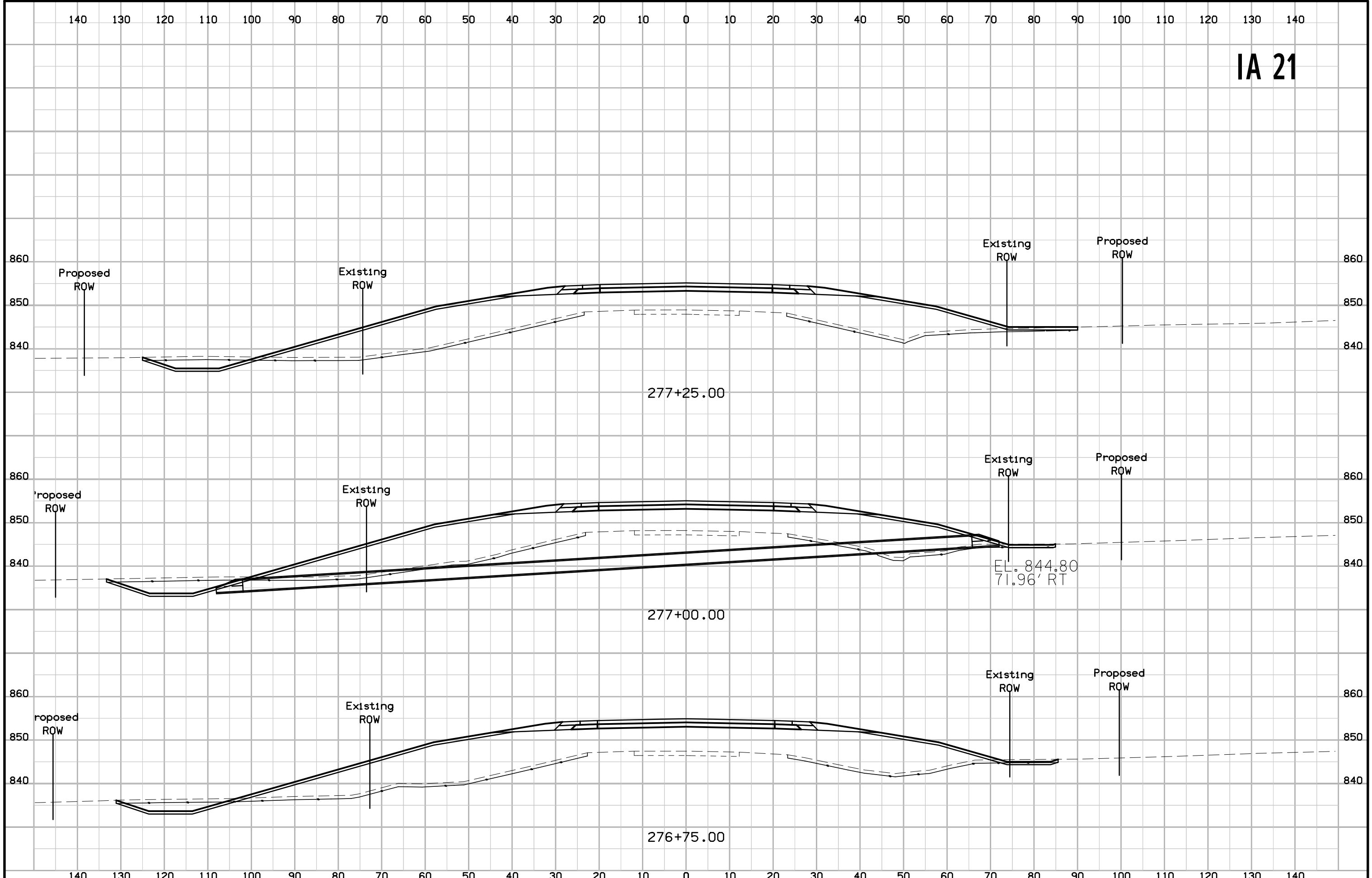


**IA 21**

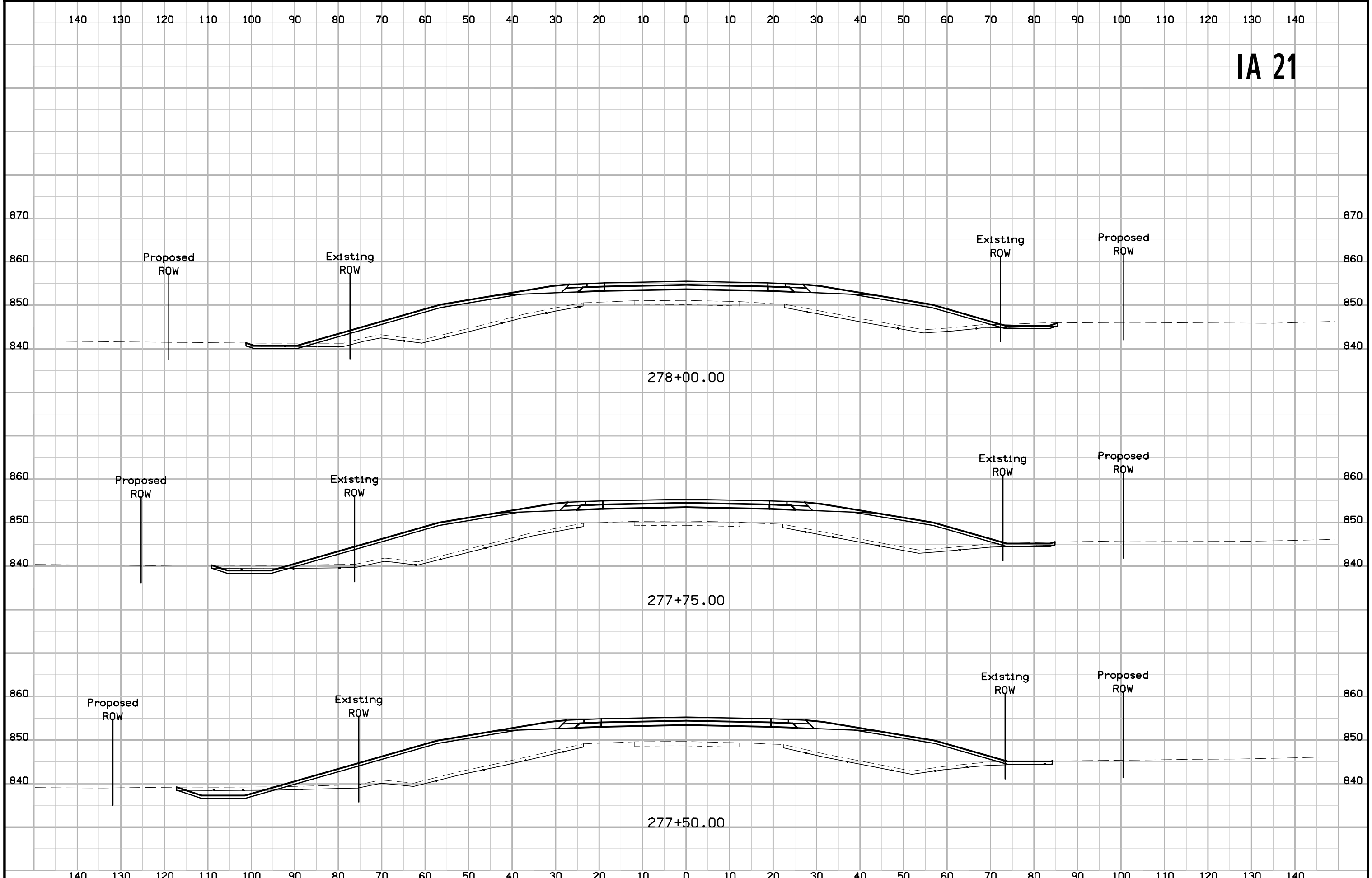
# IA 21



# IA 21

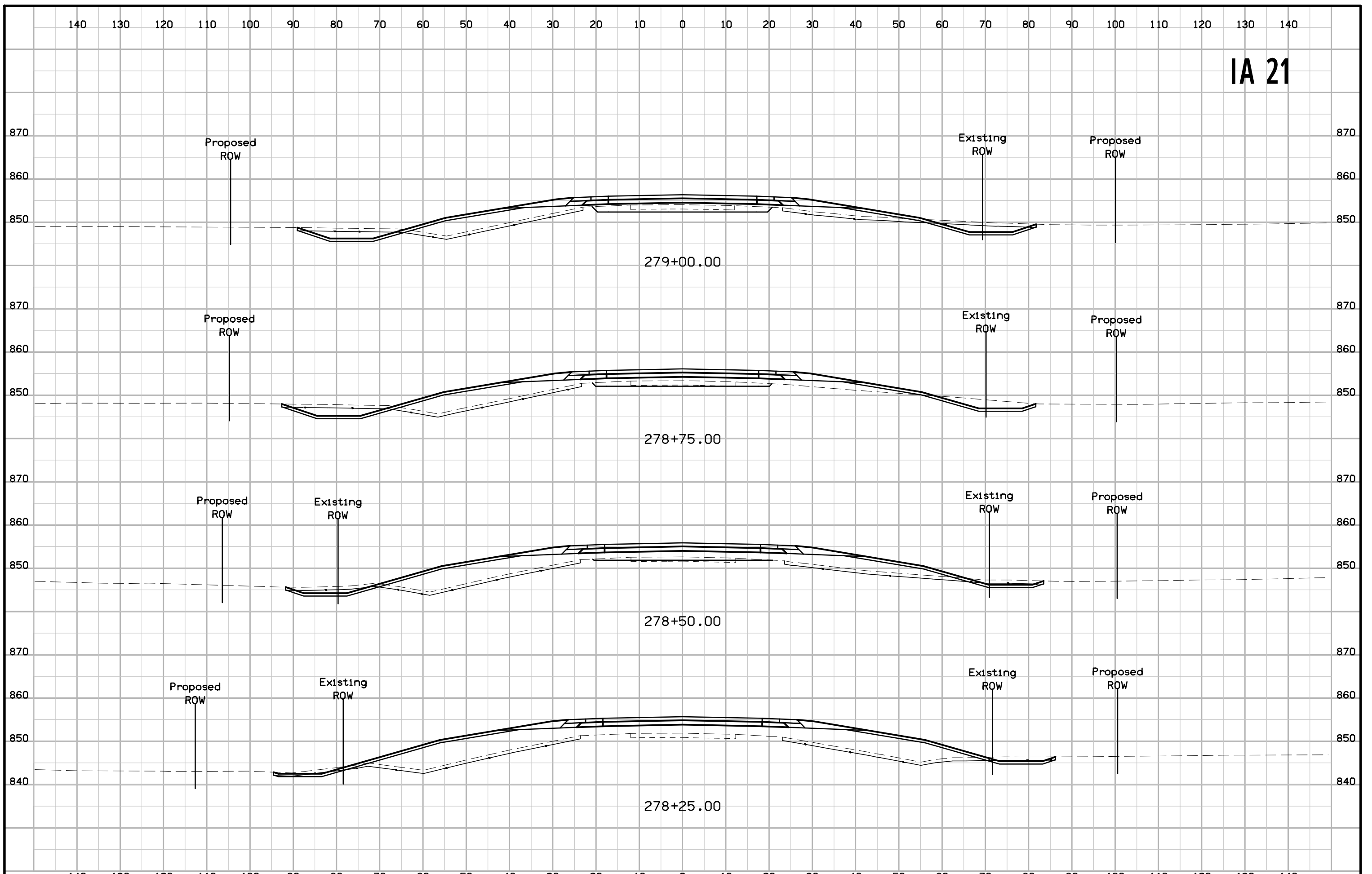


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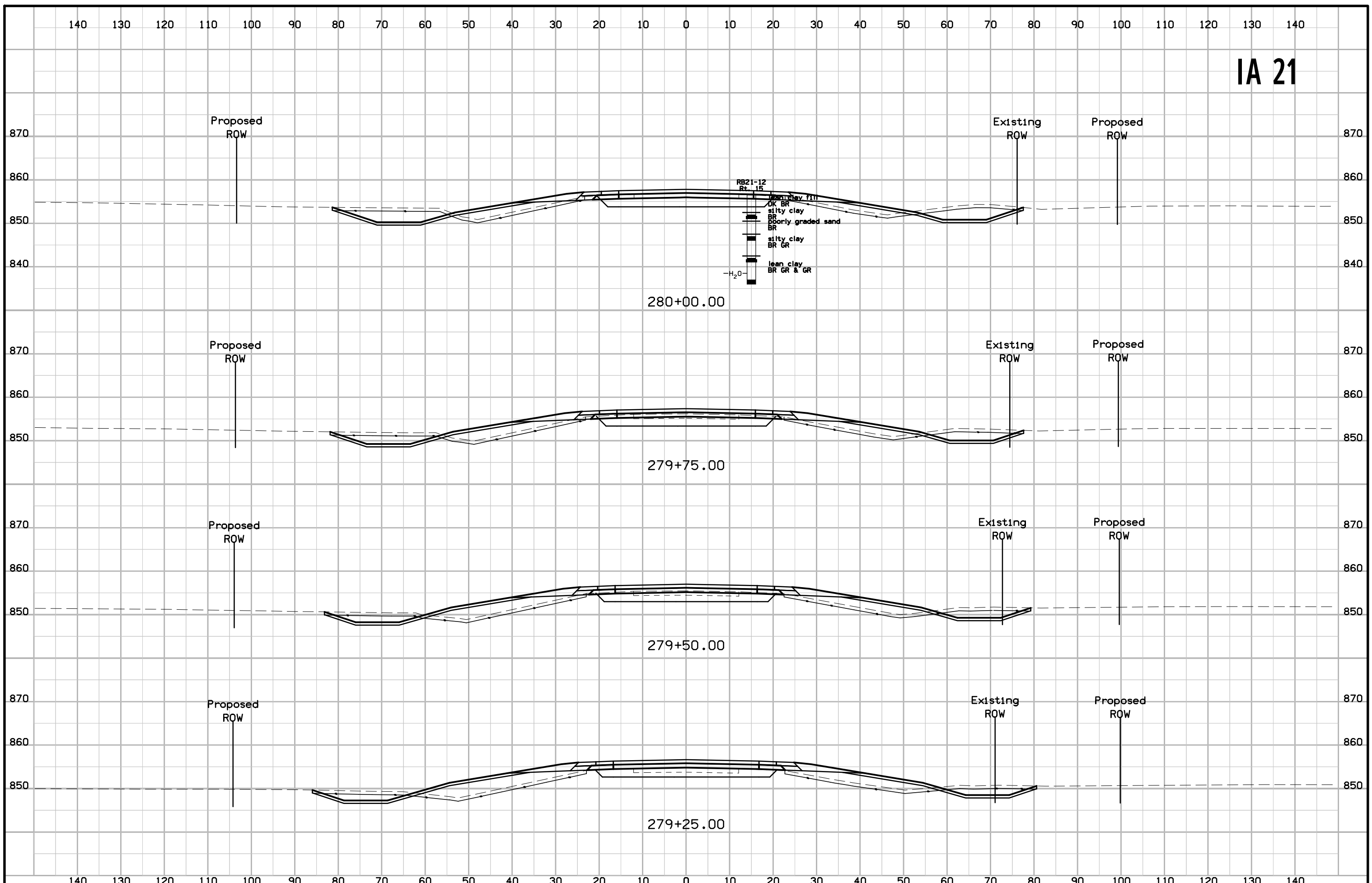




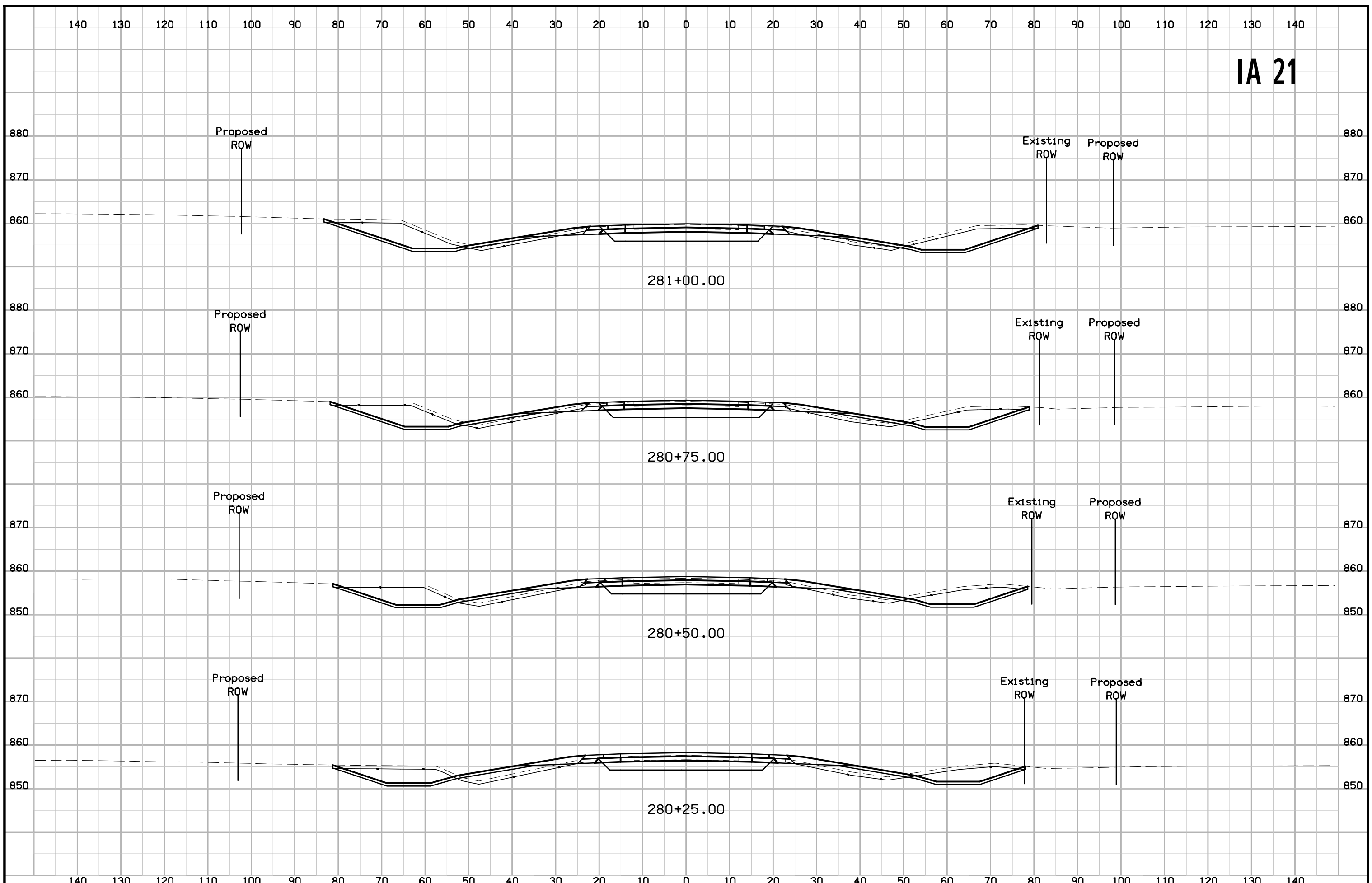
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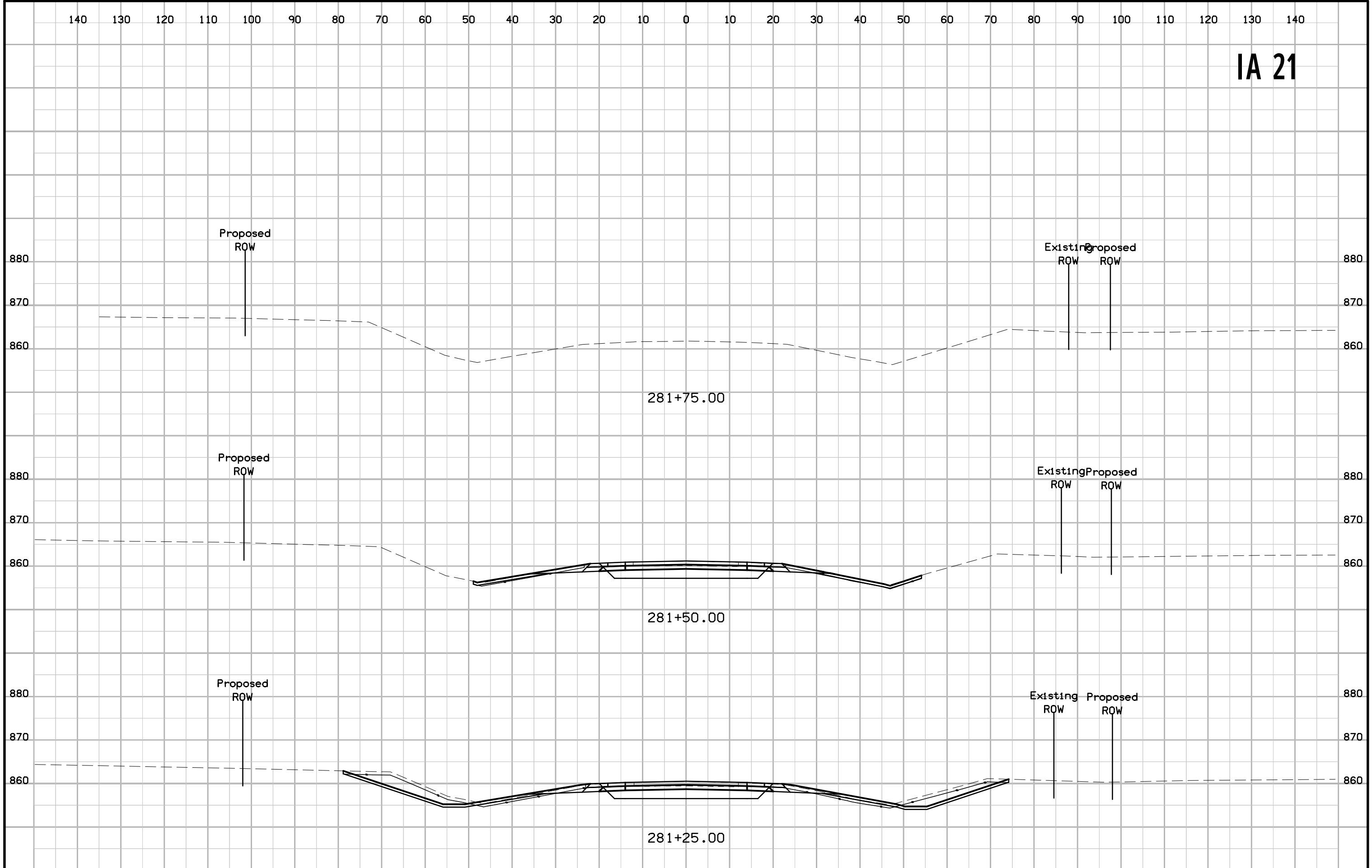
IA 21



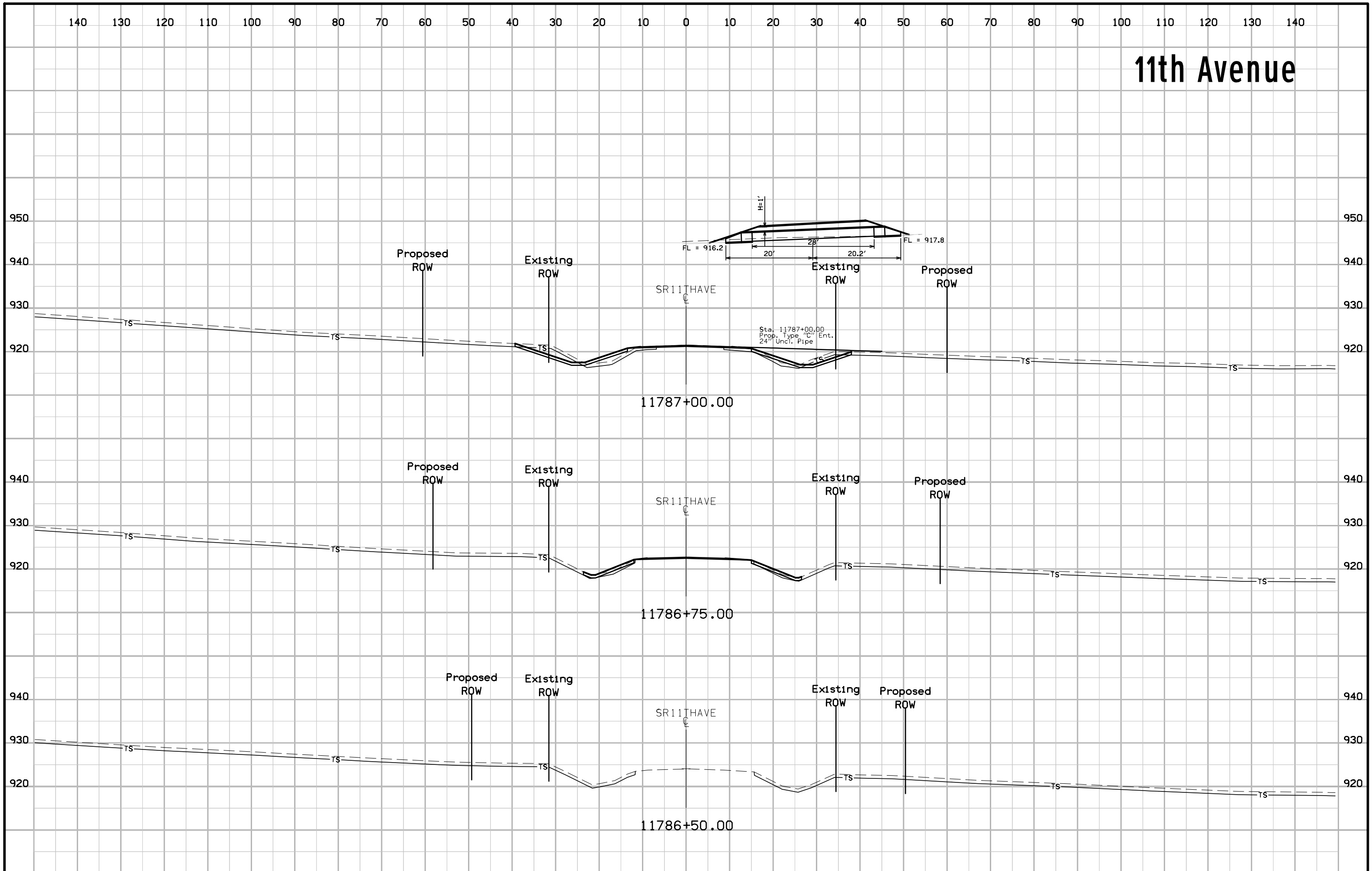
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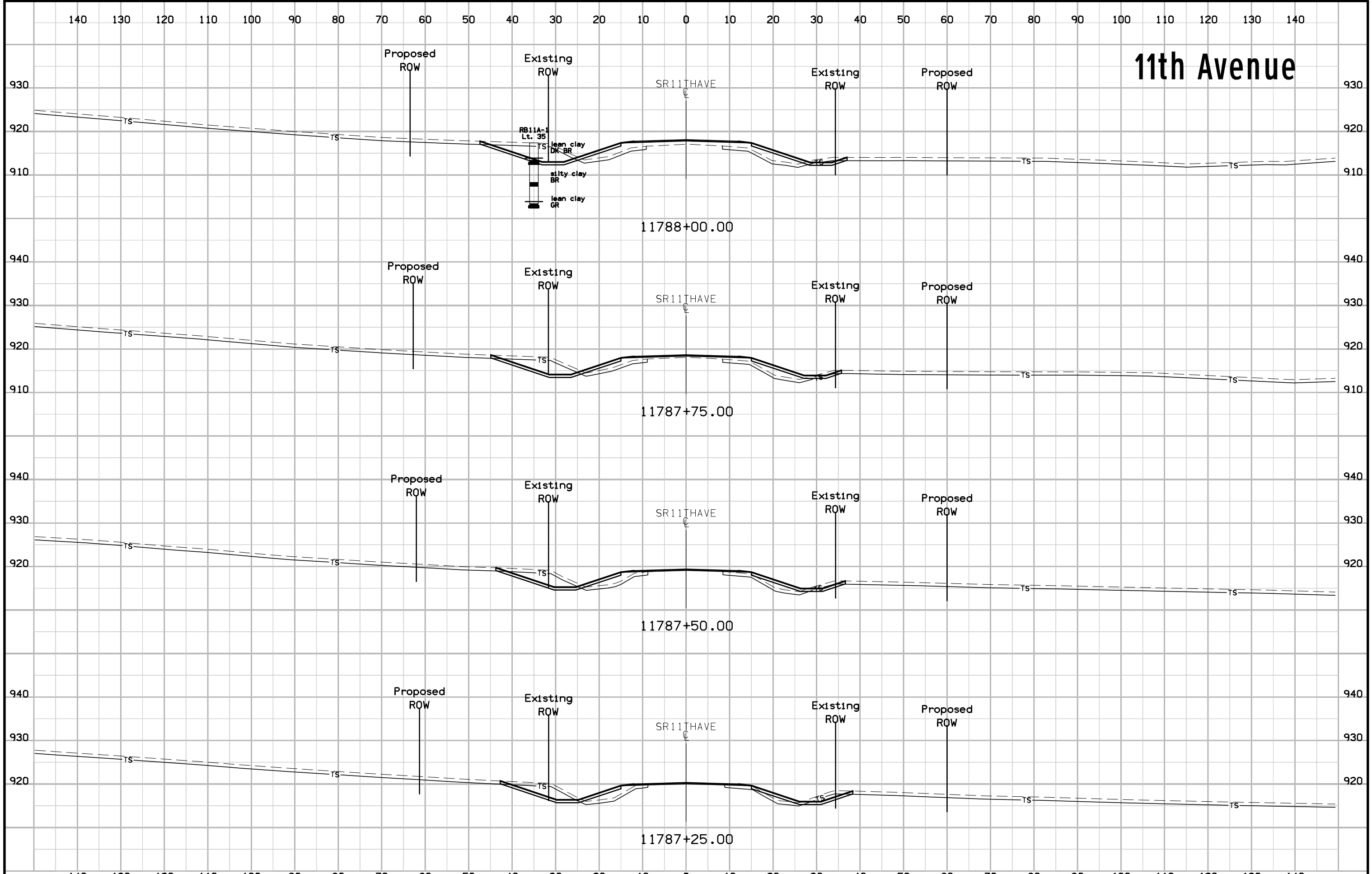
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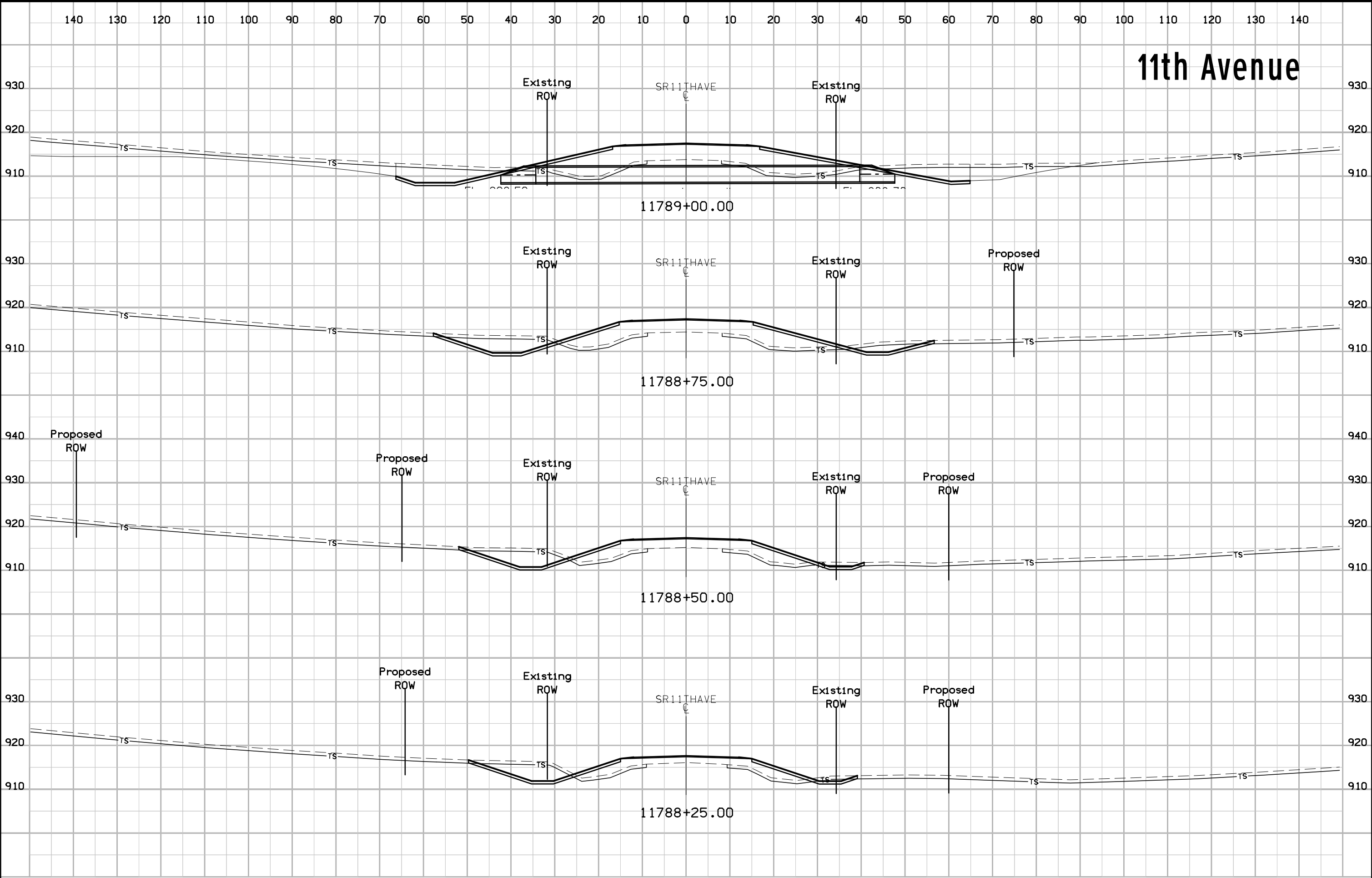
# 11th Avenue



# 11th Avenue

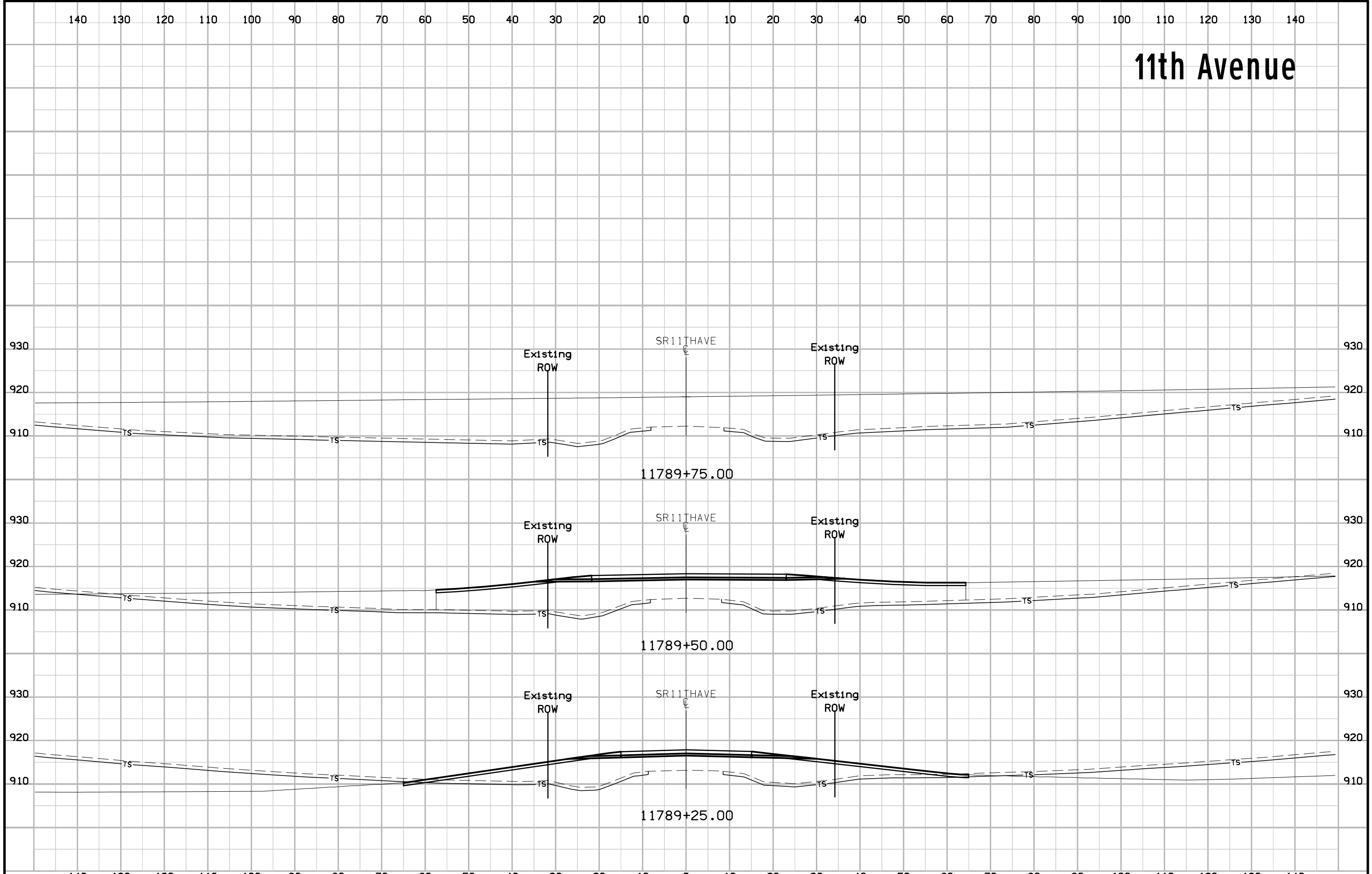


# 11th Avenue

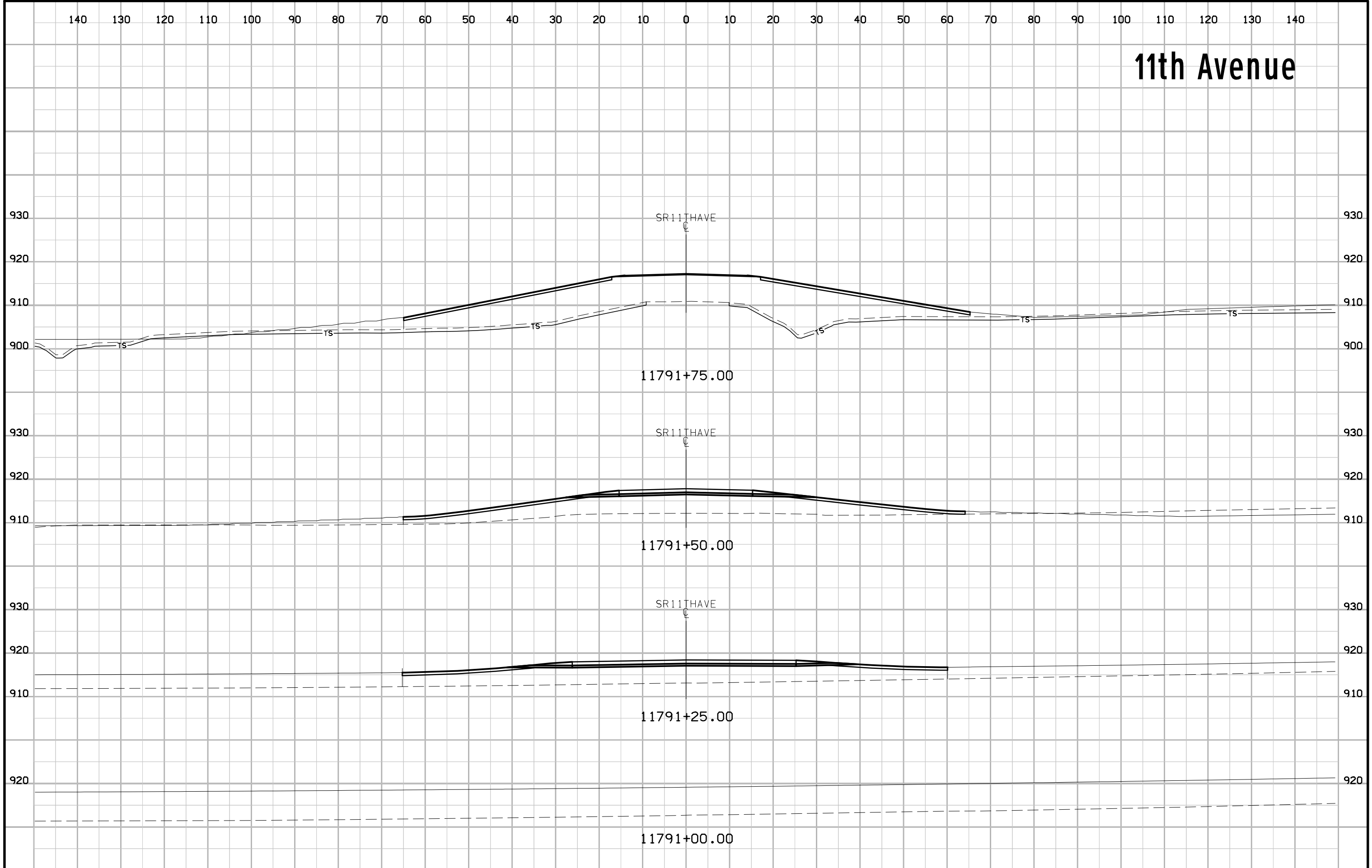




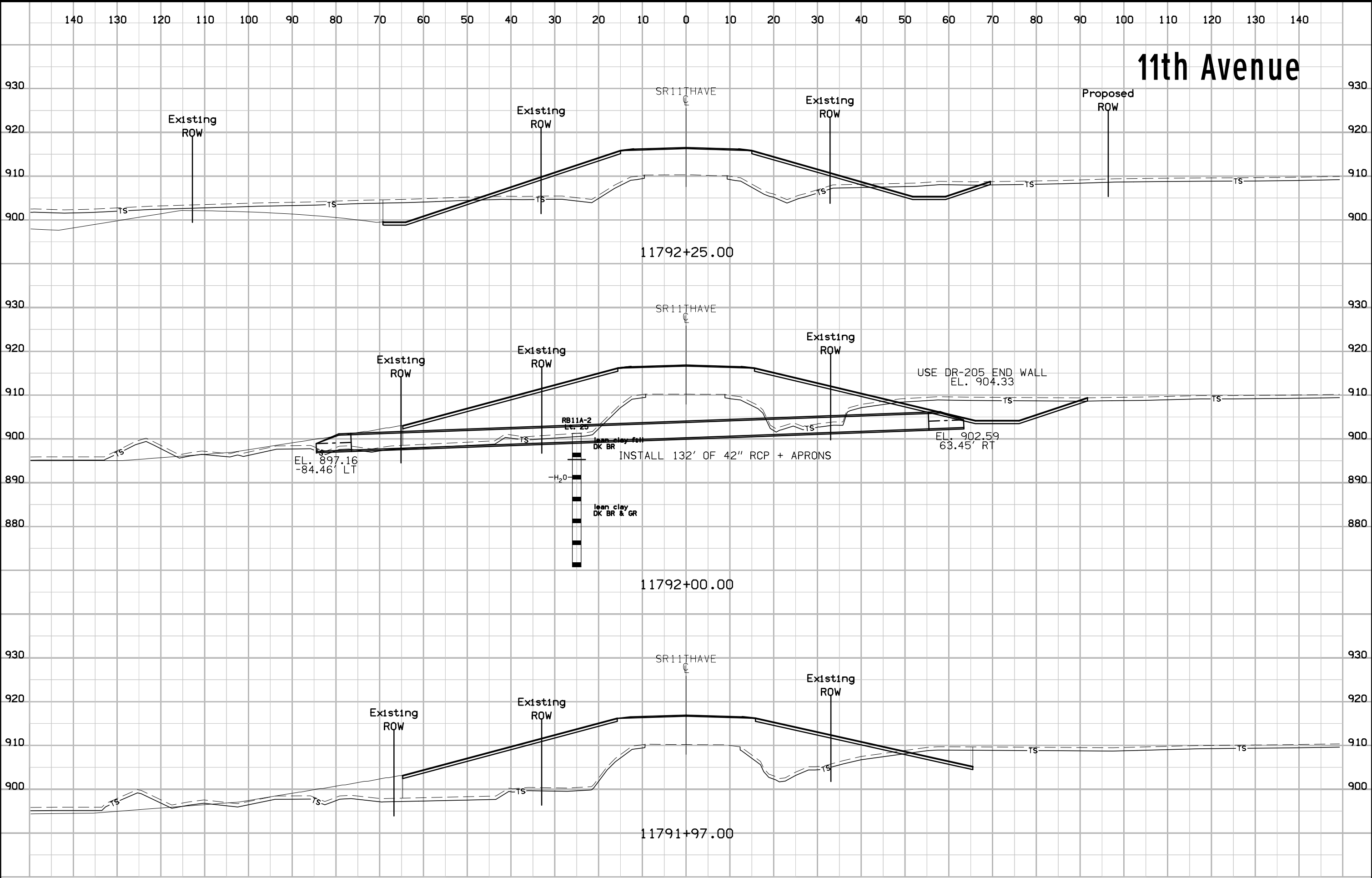
# 11th Avenue



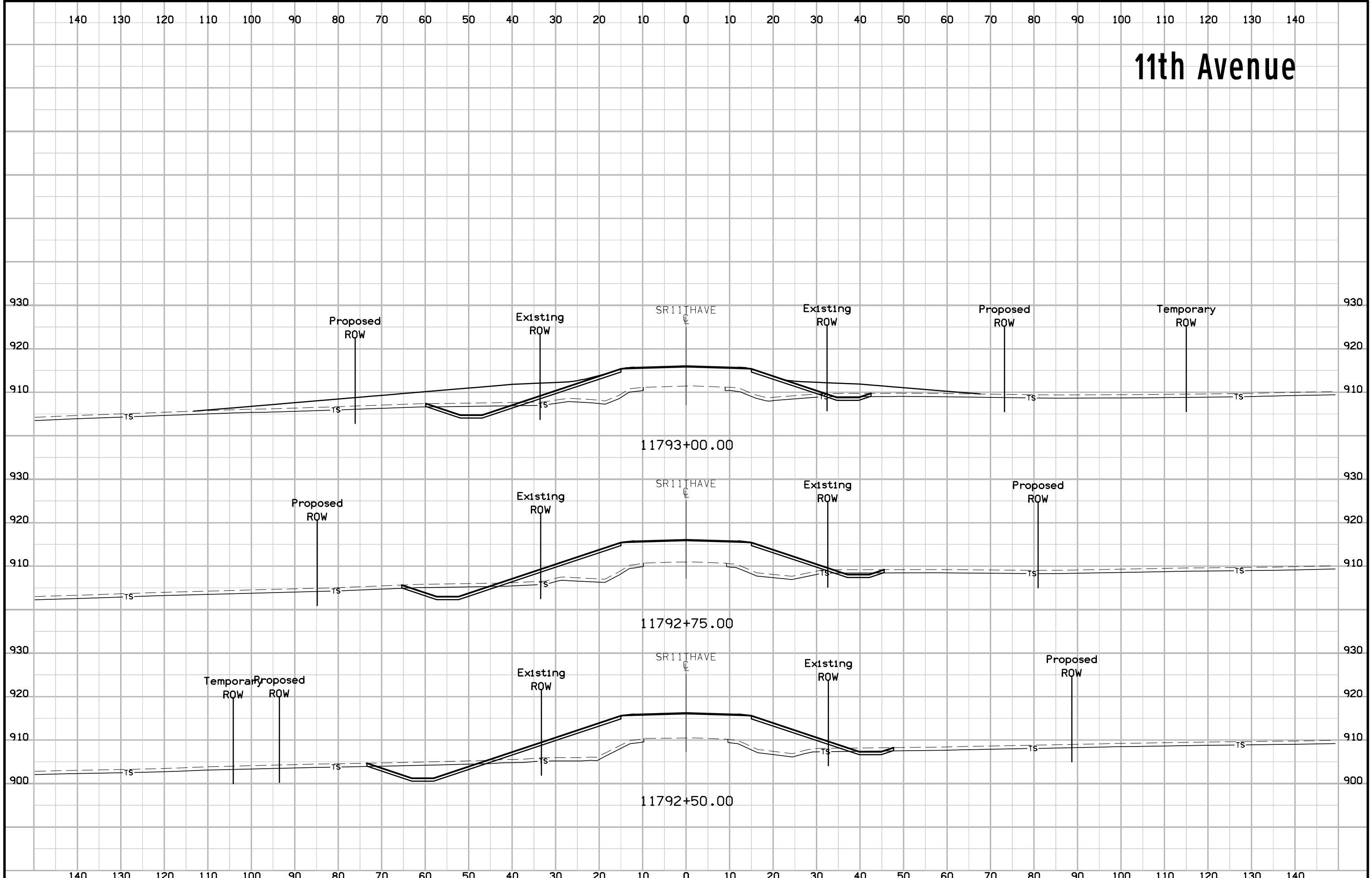
# 11th Avenue



# 11th Avenue

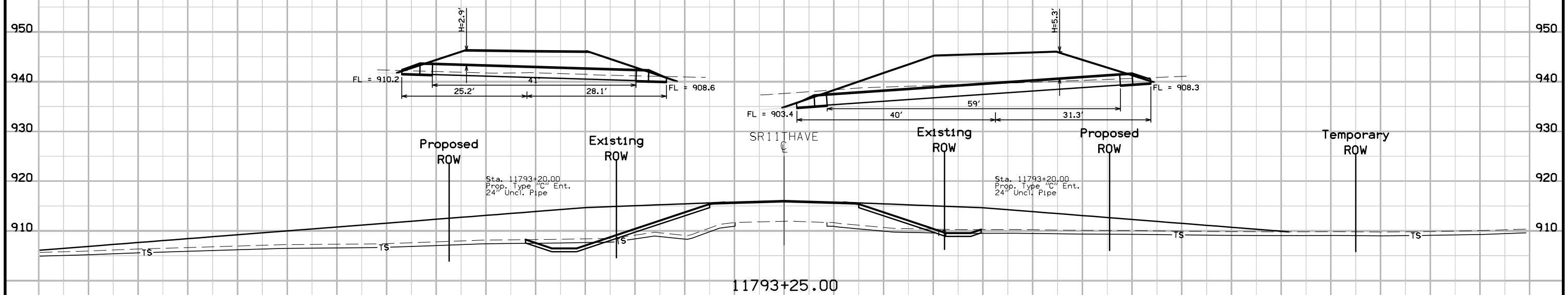
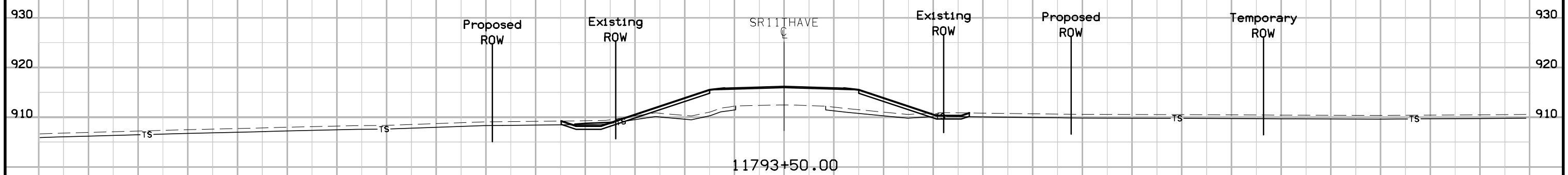
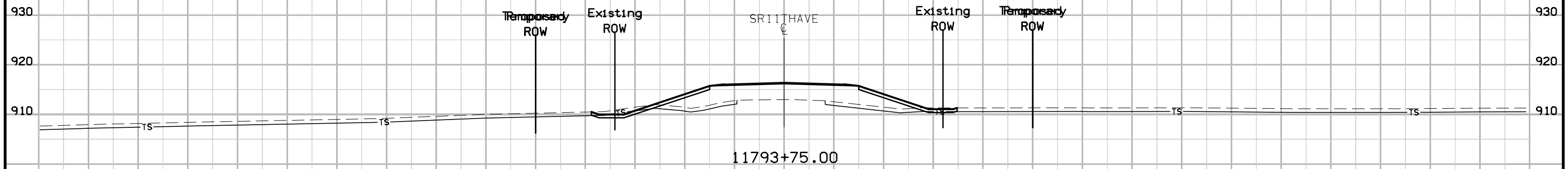


# 11th Avenue

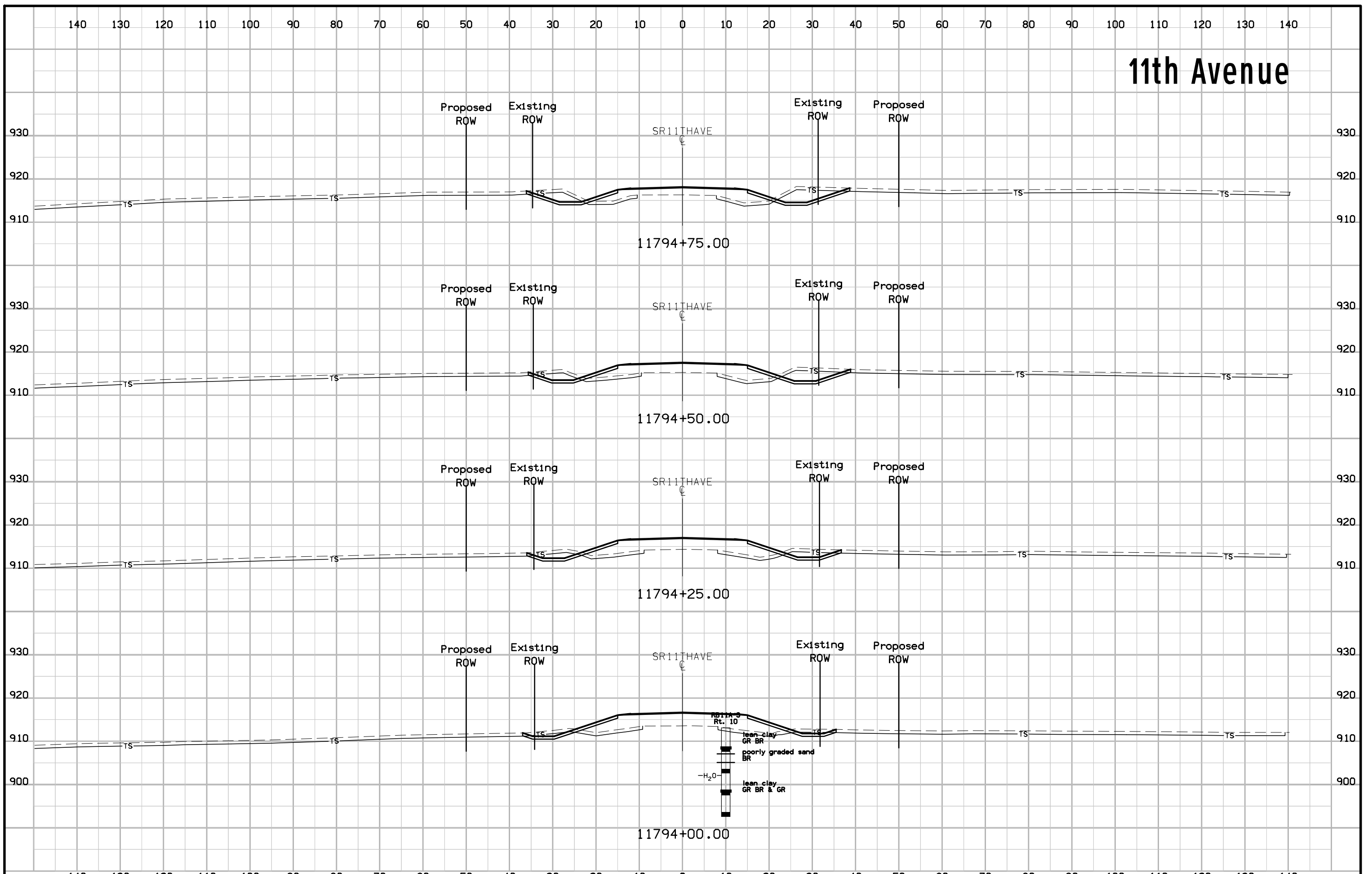


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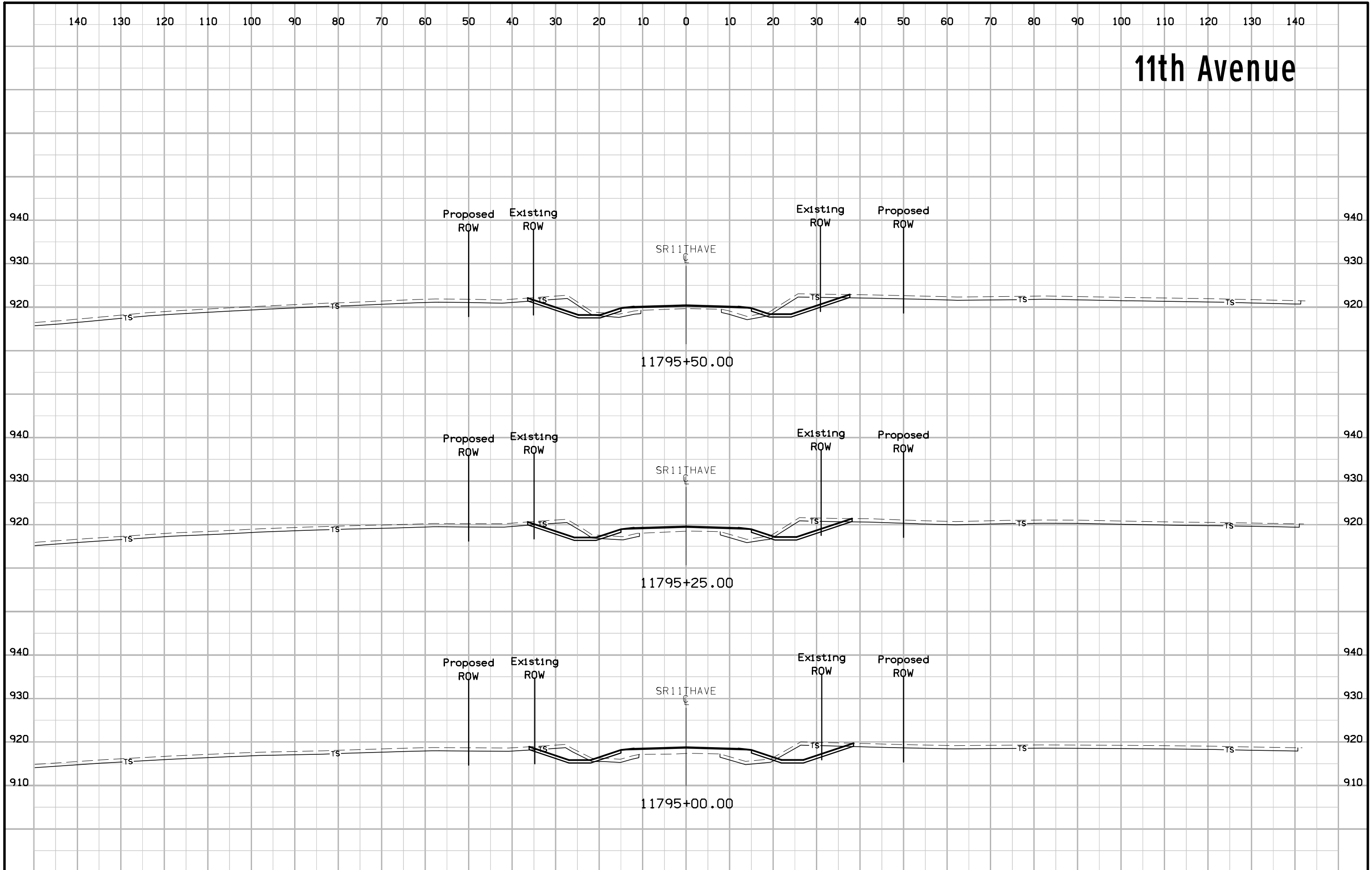
# 11th Avenue



# 11th Avenue



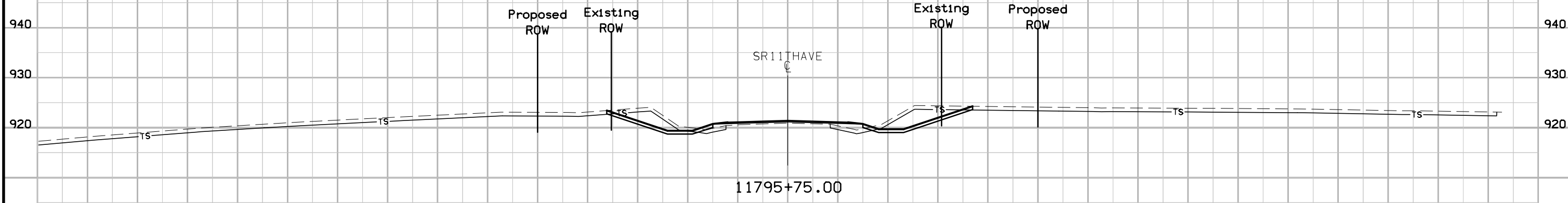
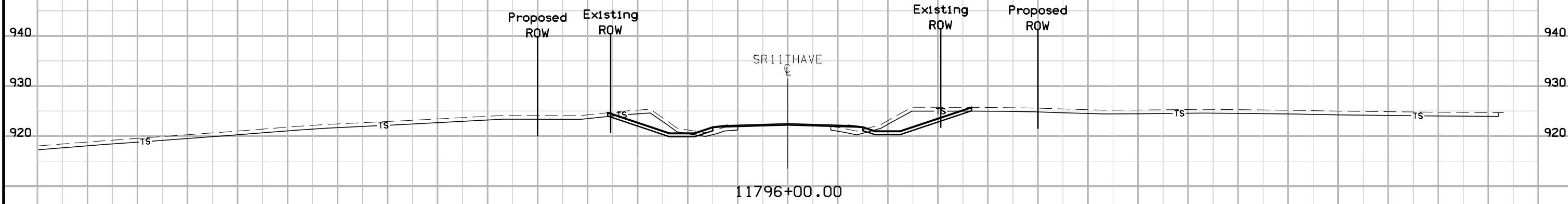
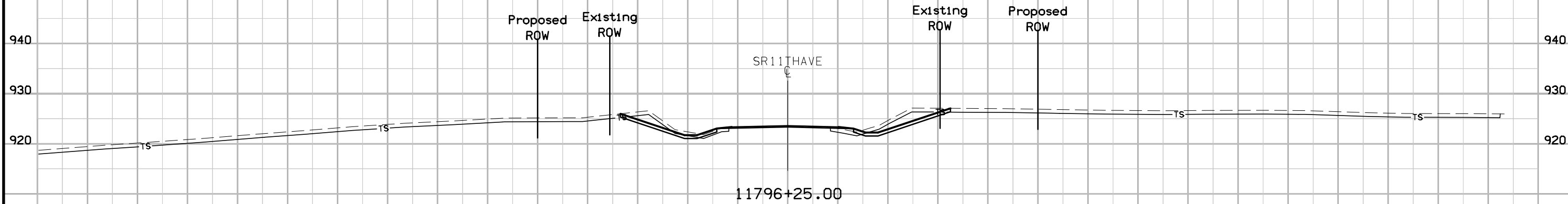
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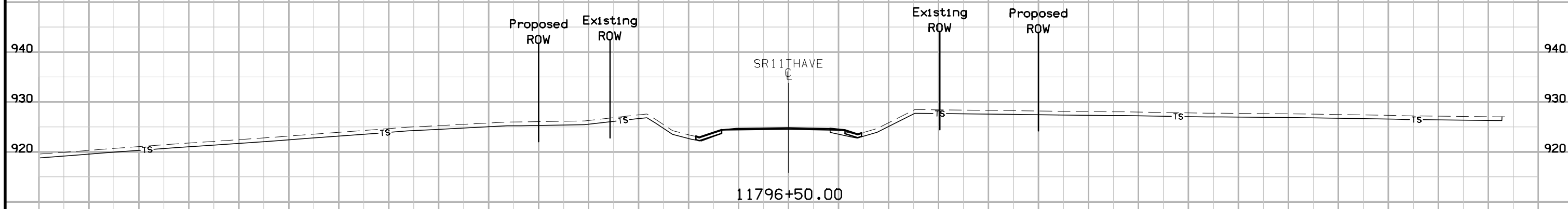
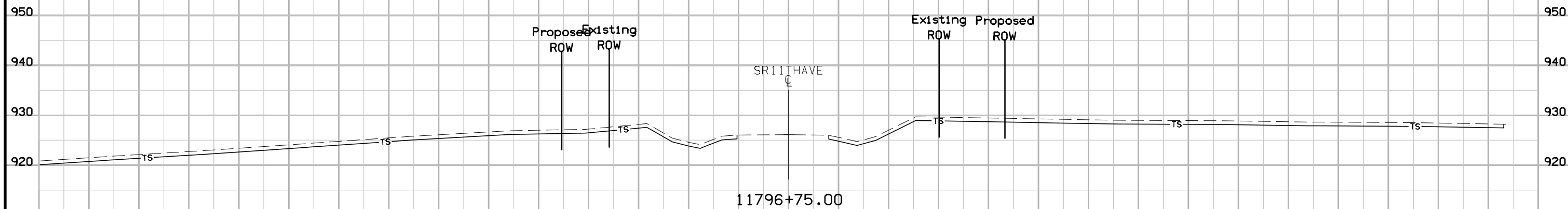
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# 11th Avenue

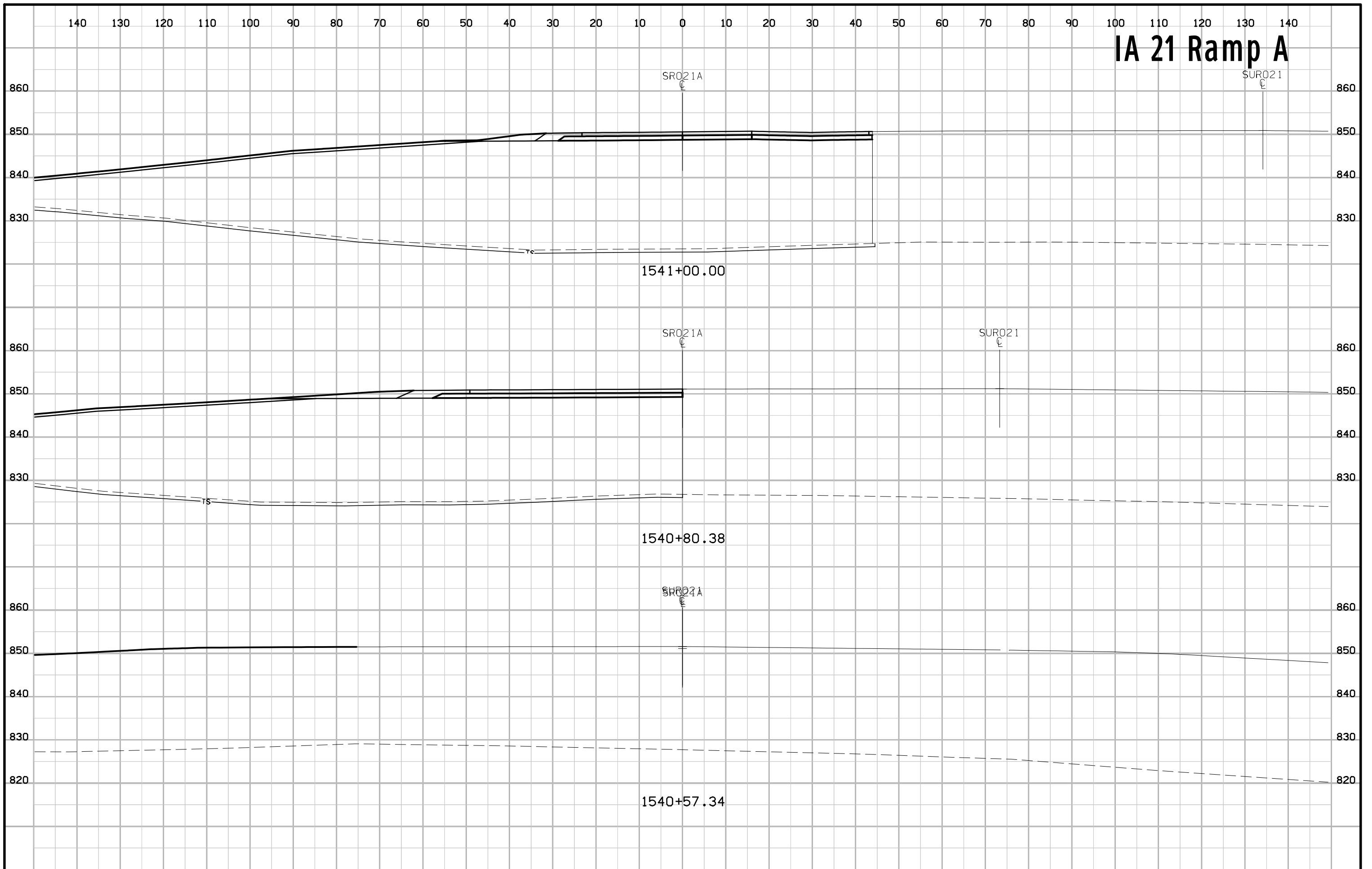


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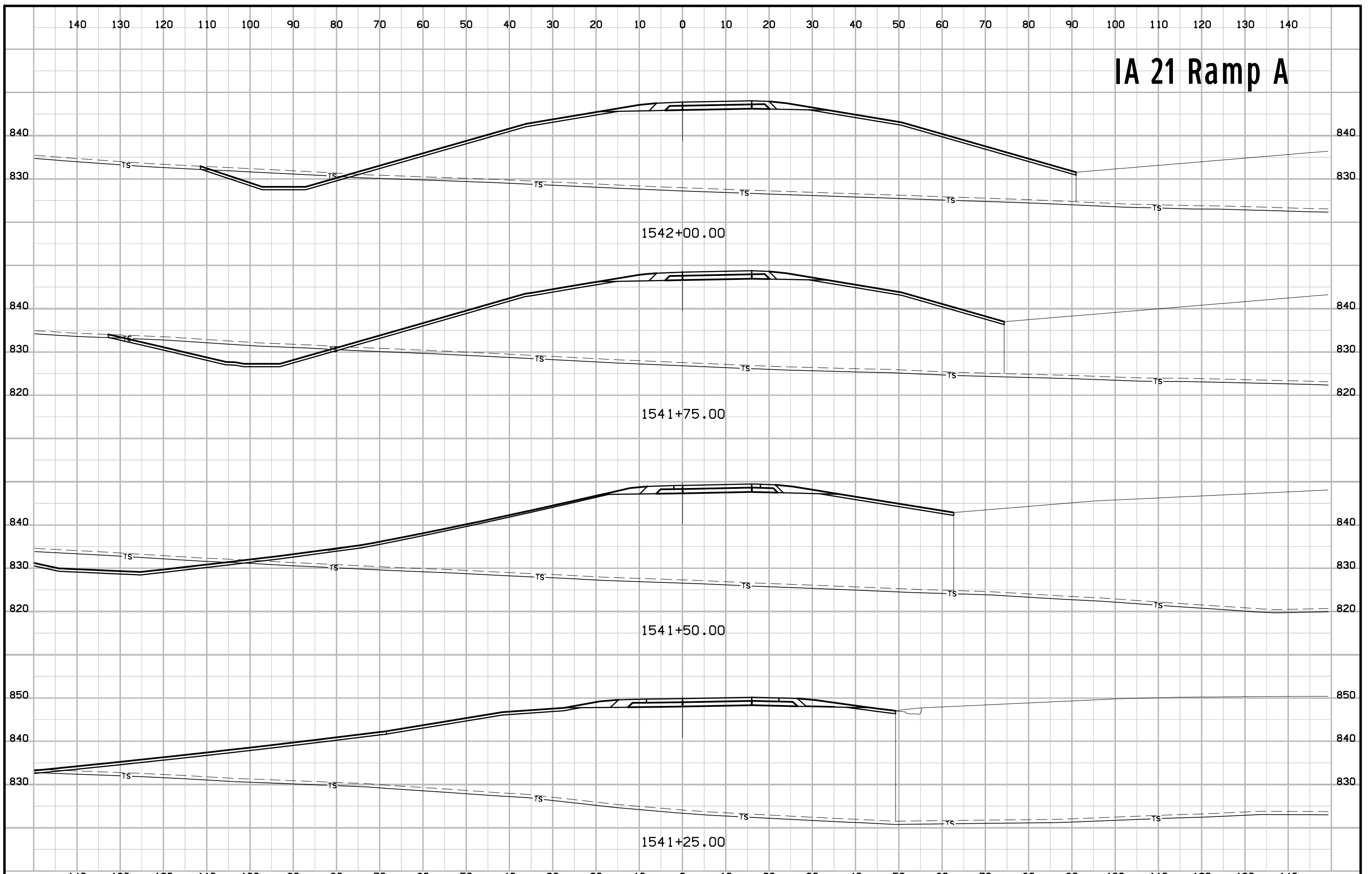
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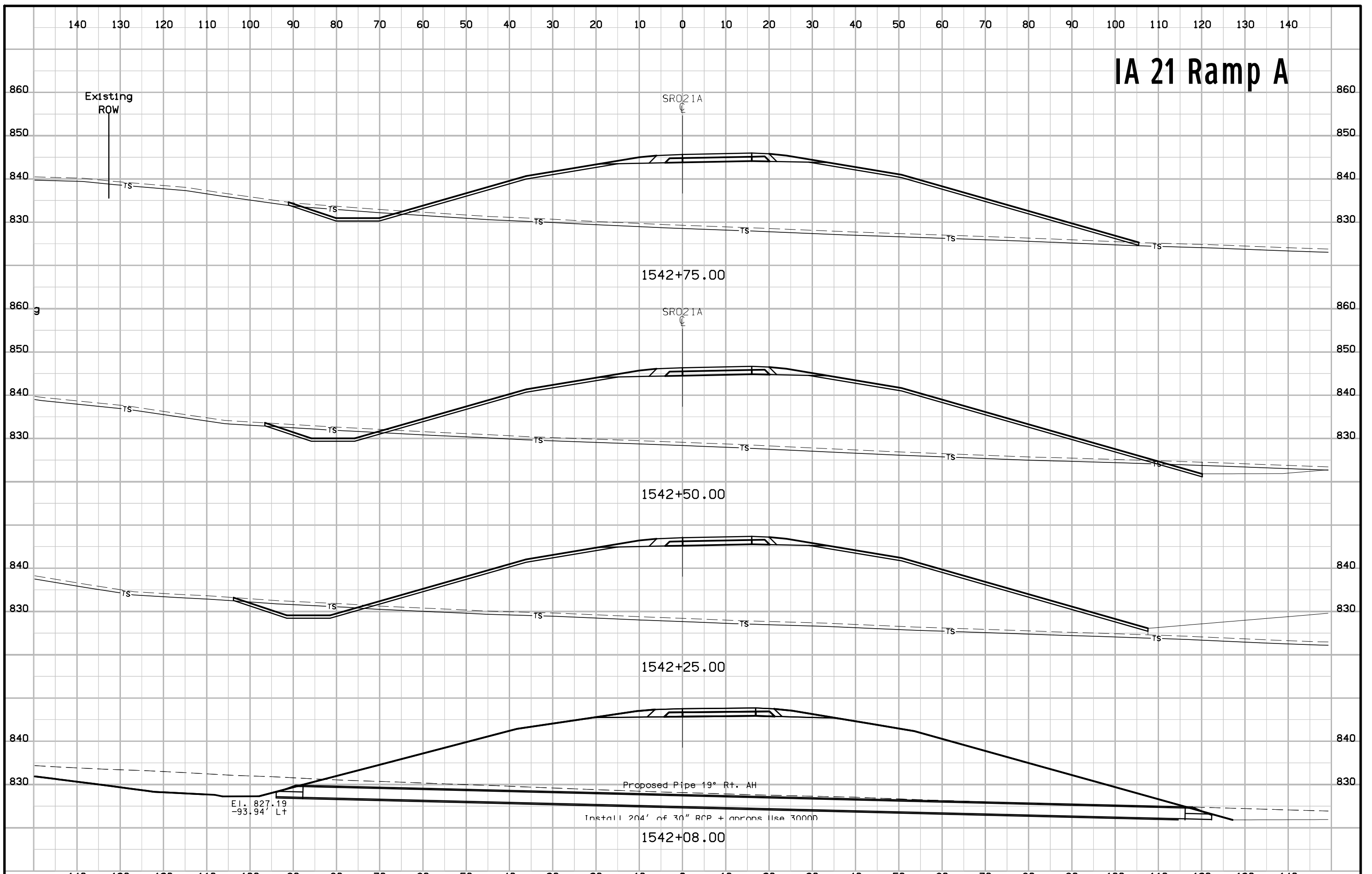
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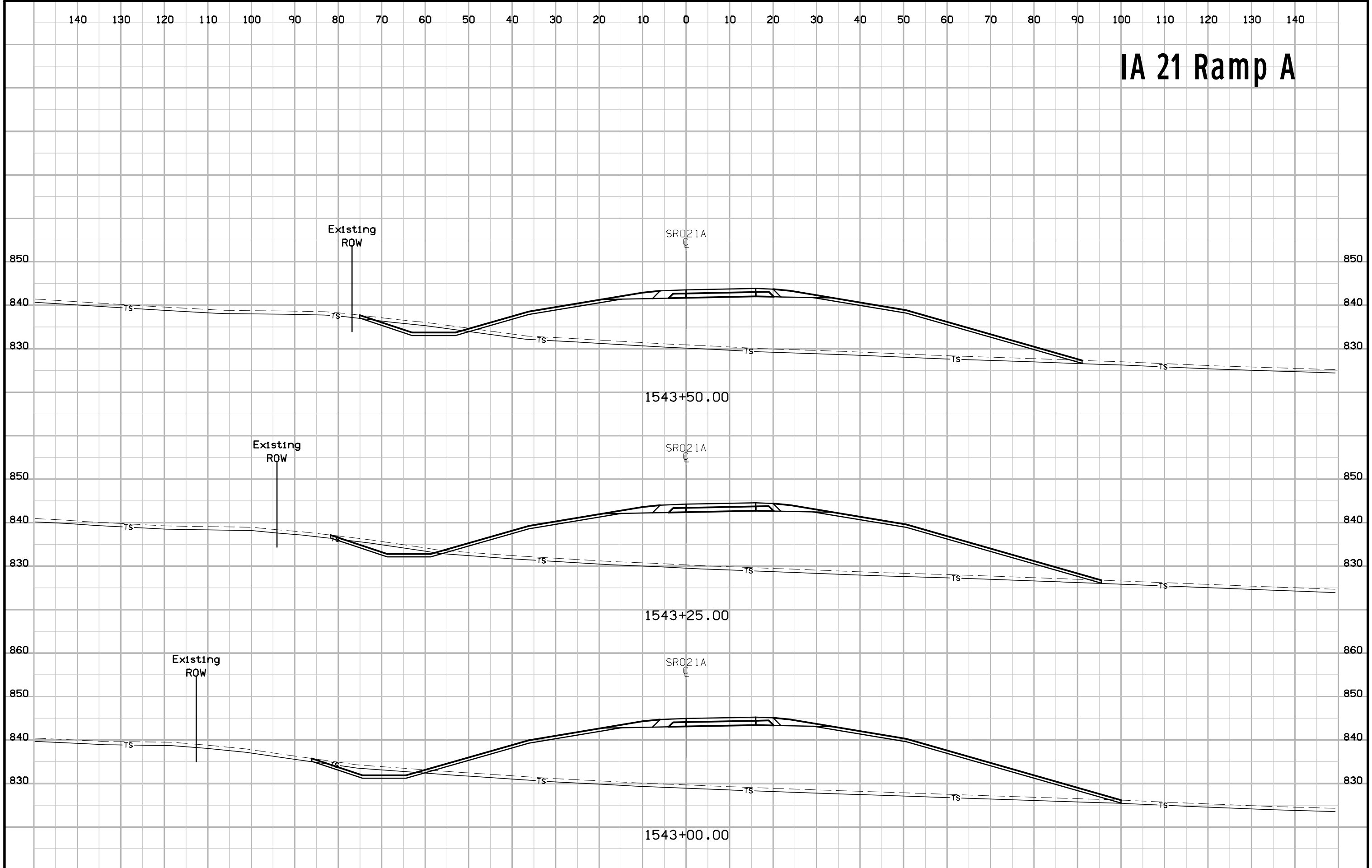
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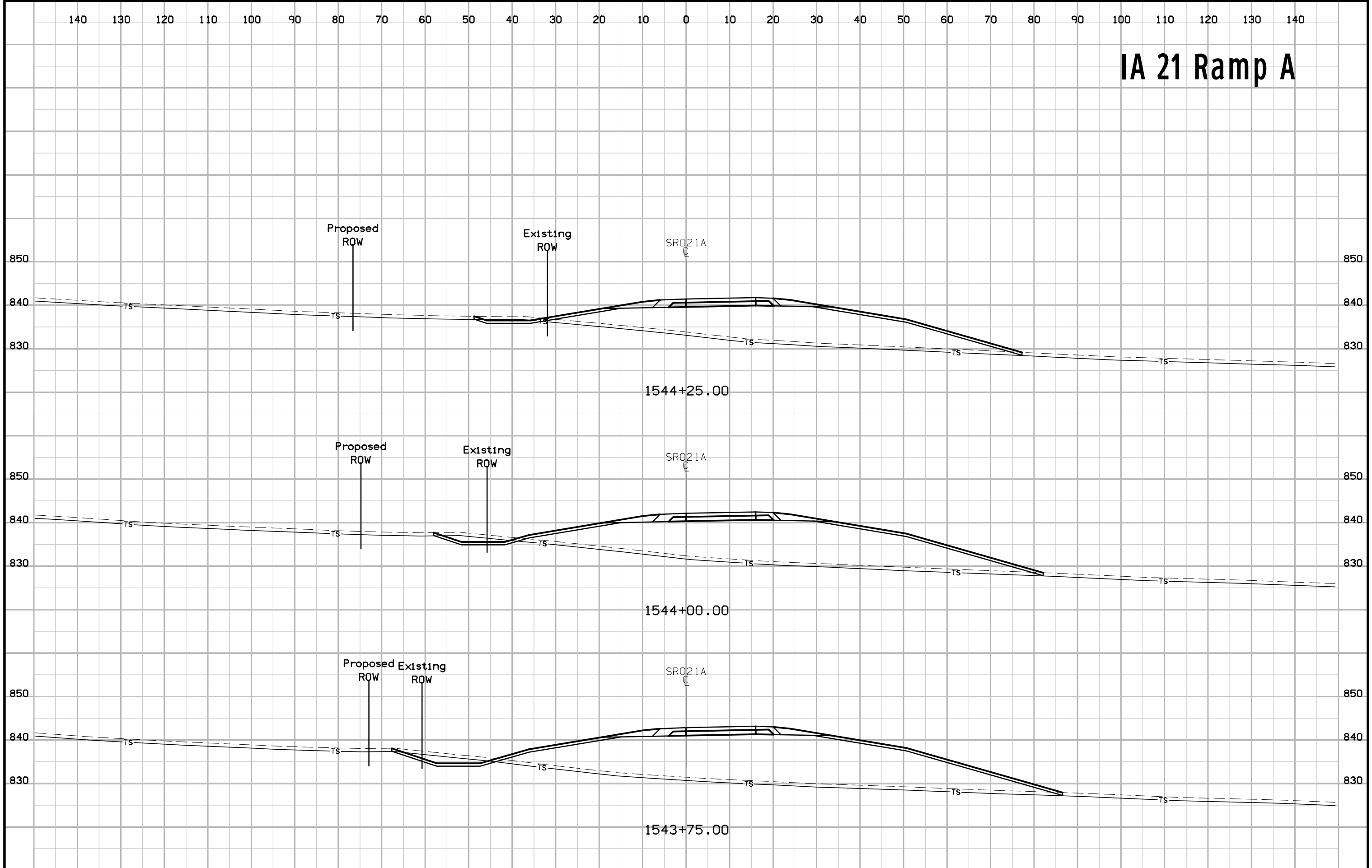
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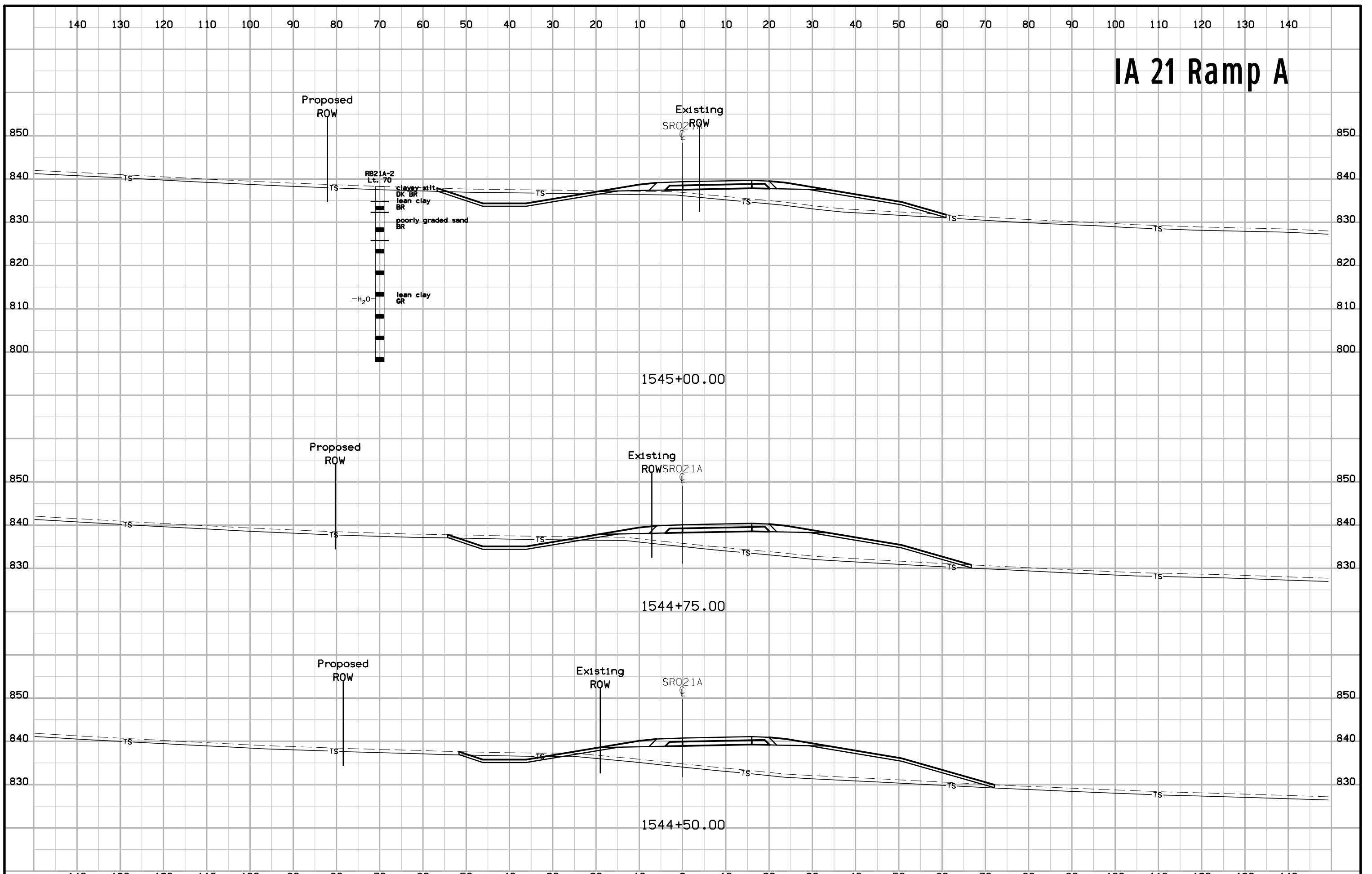
# IA 21 Ramp A



# IA 21 Ramp A

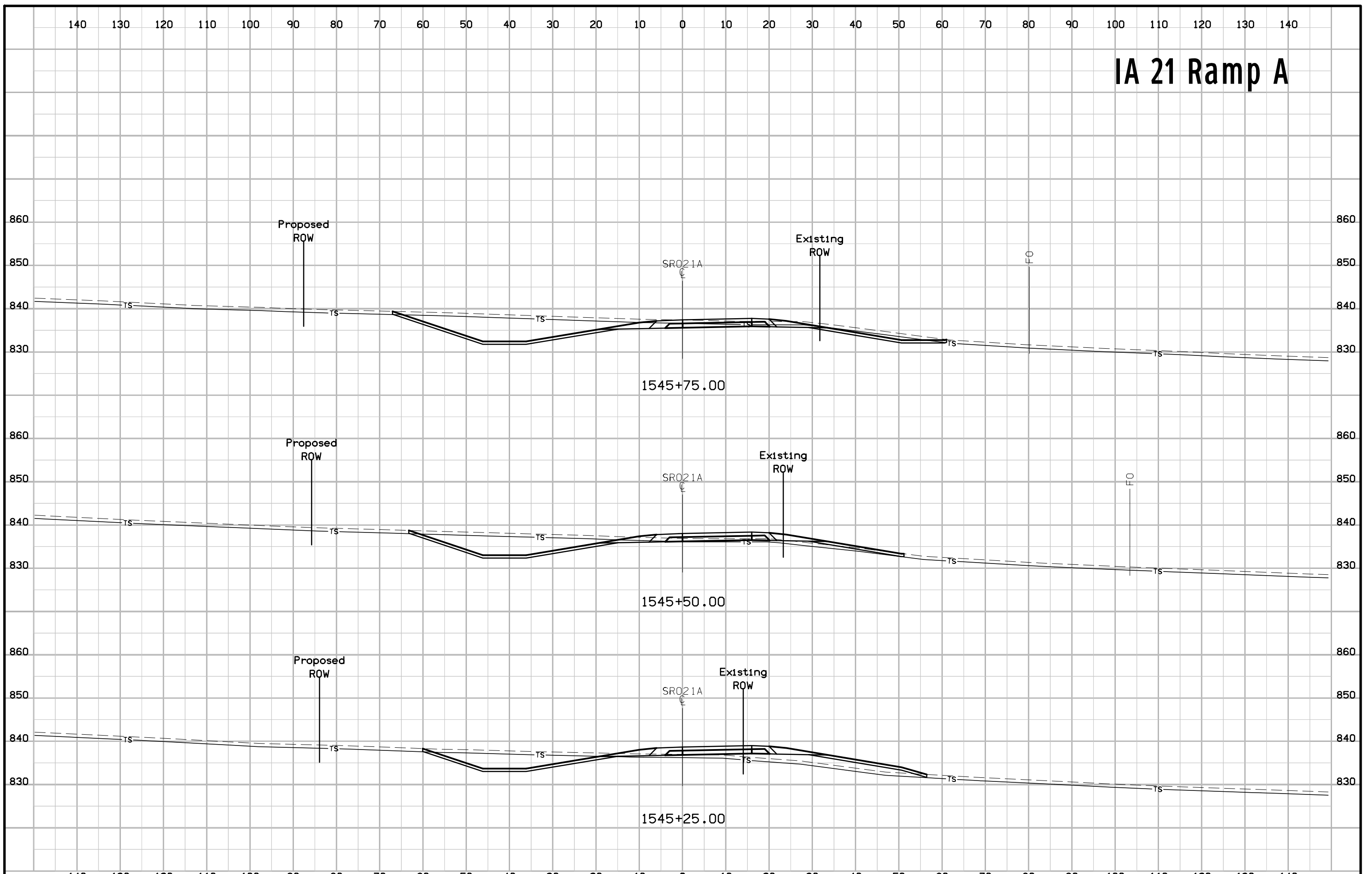


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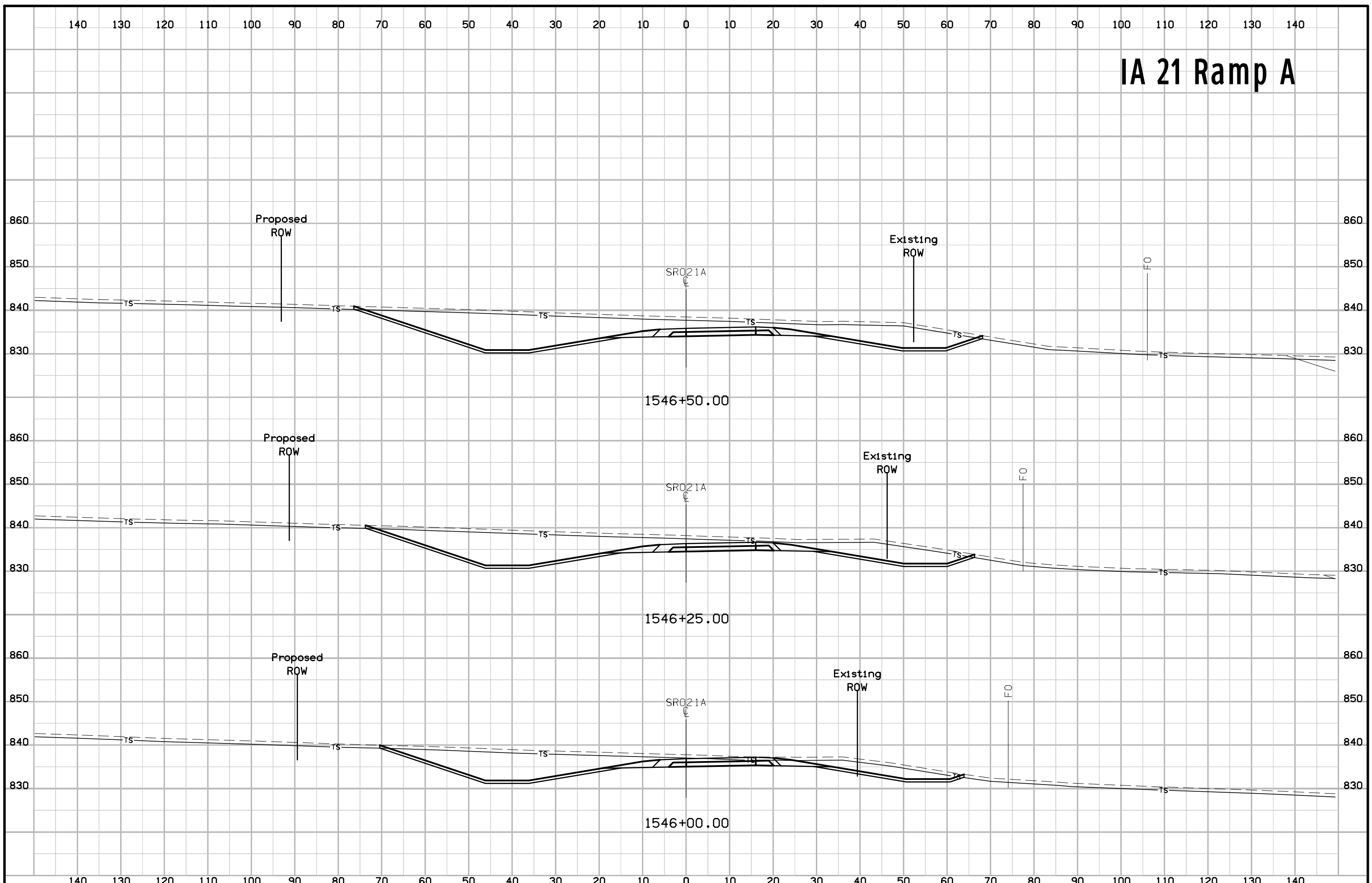




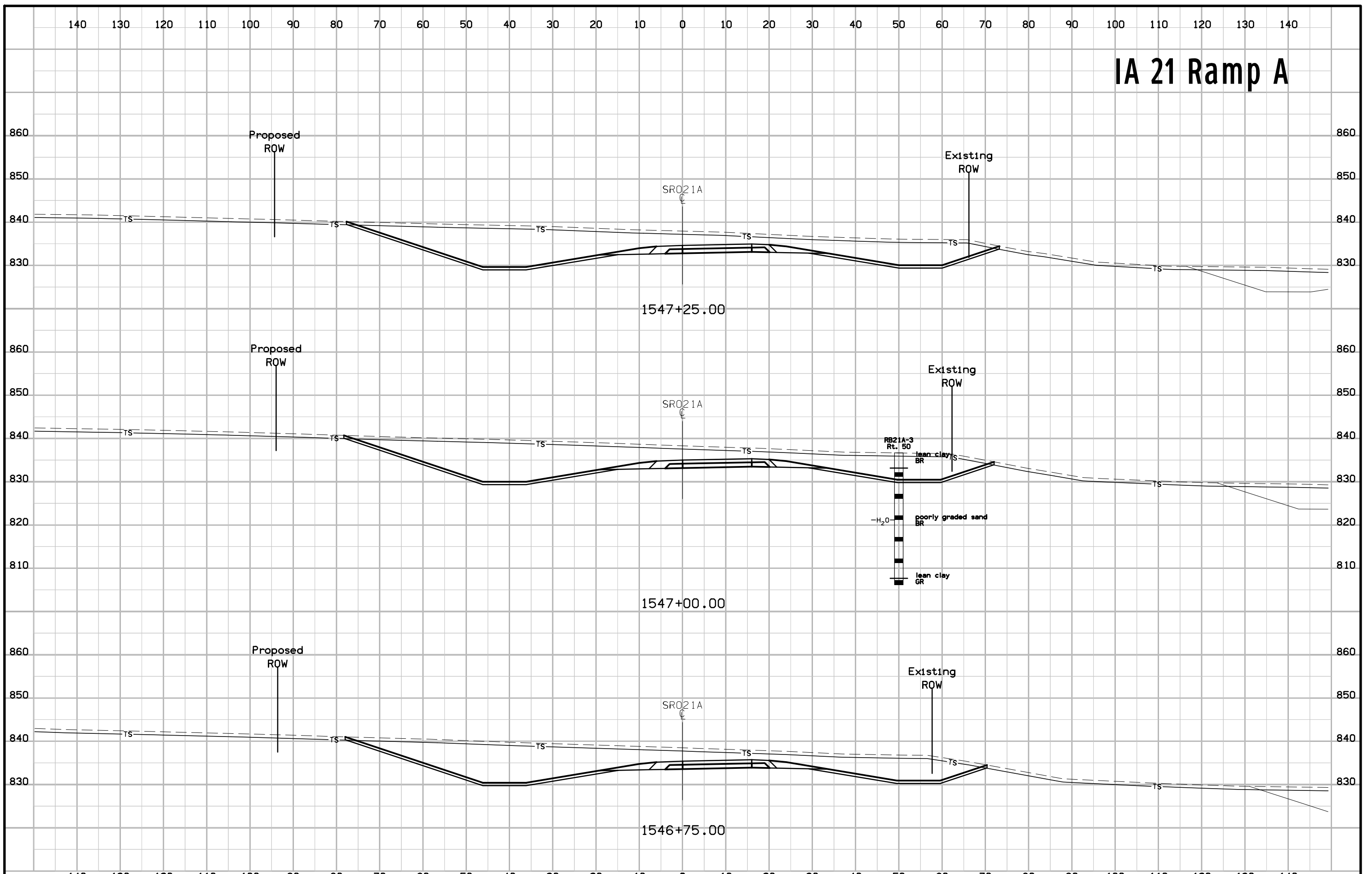
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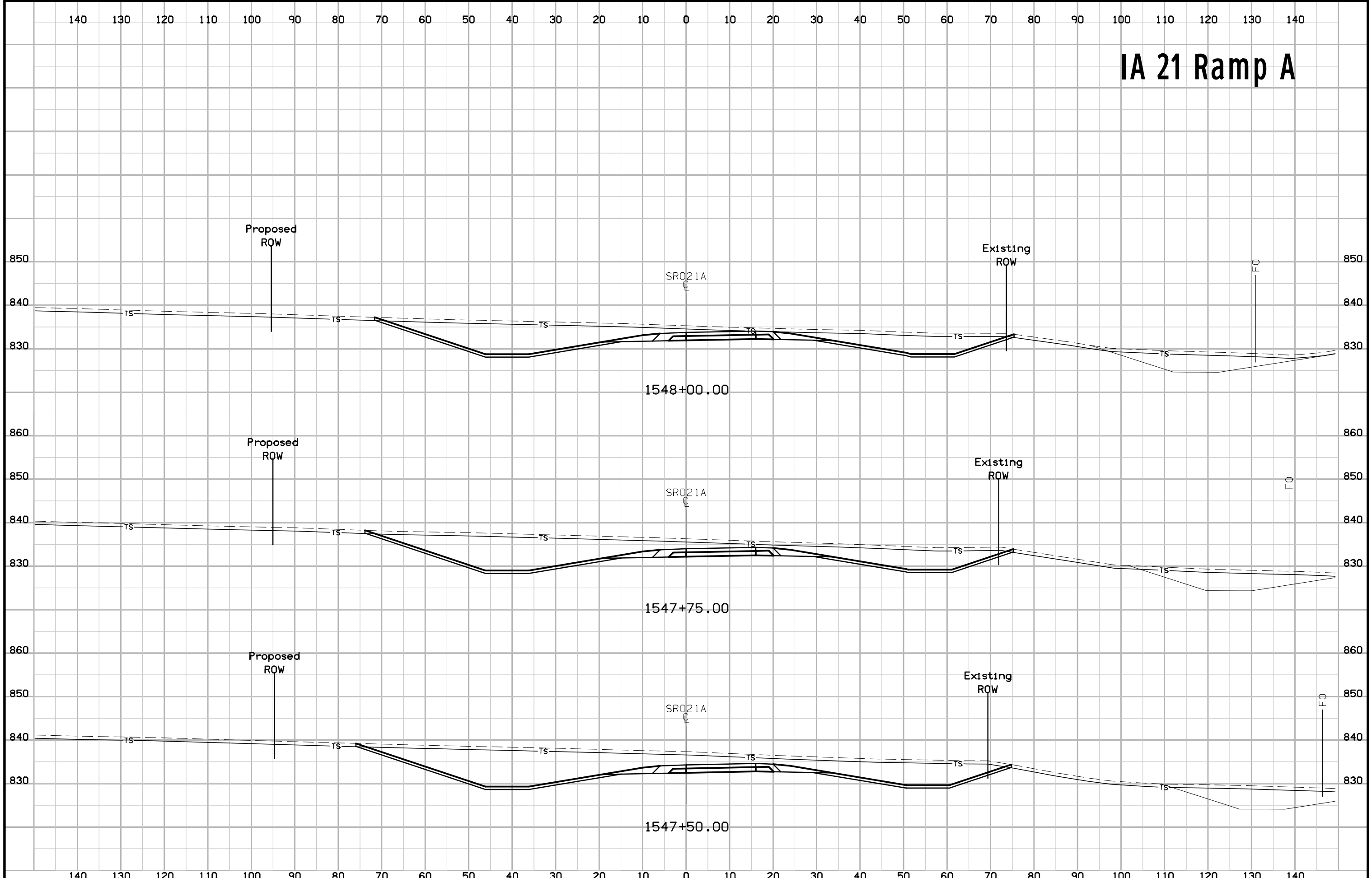
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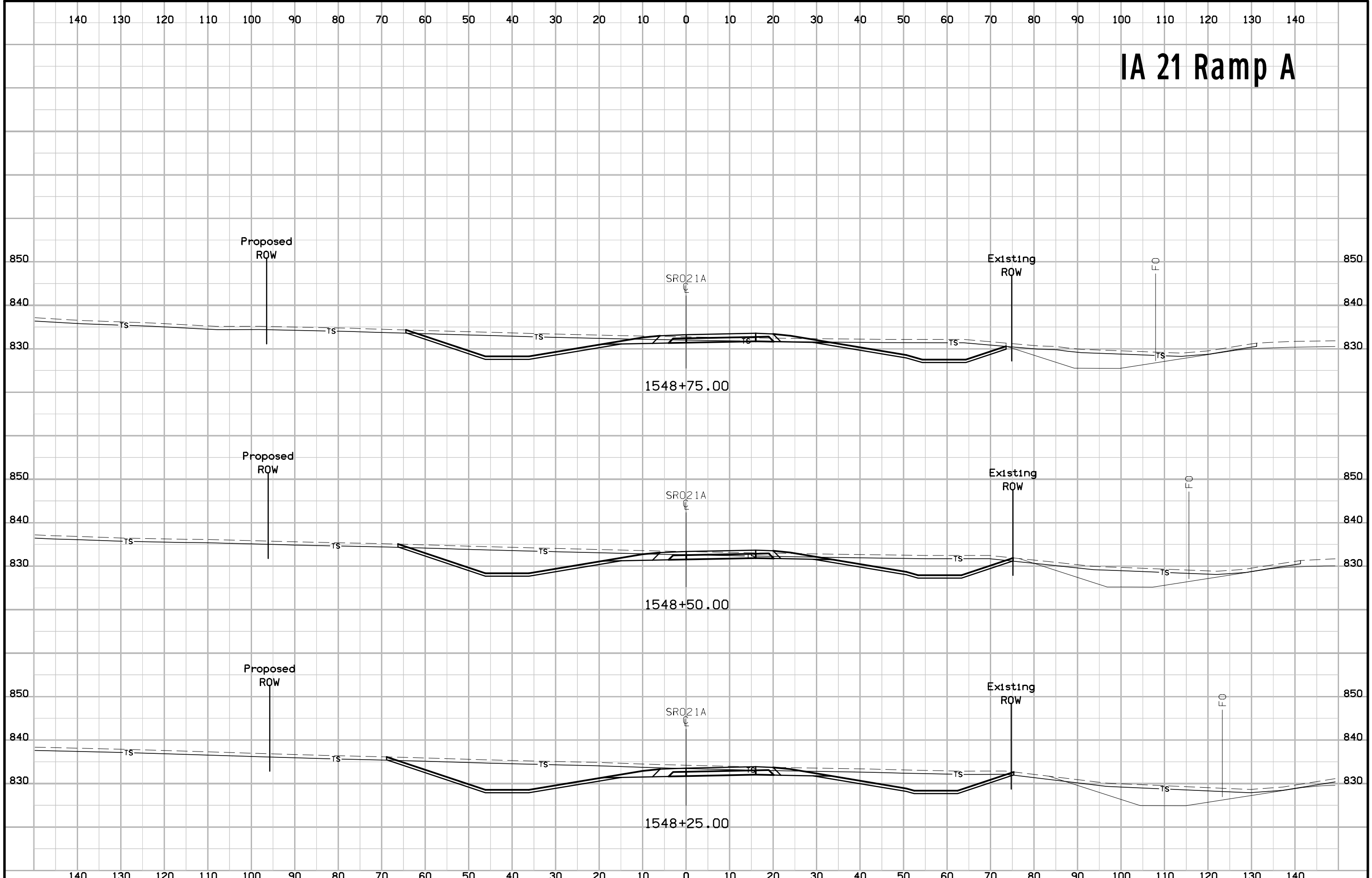
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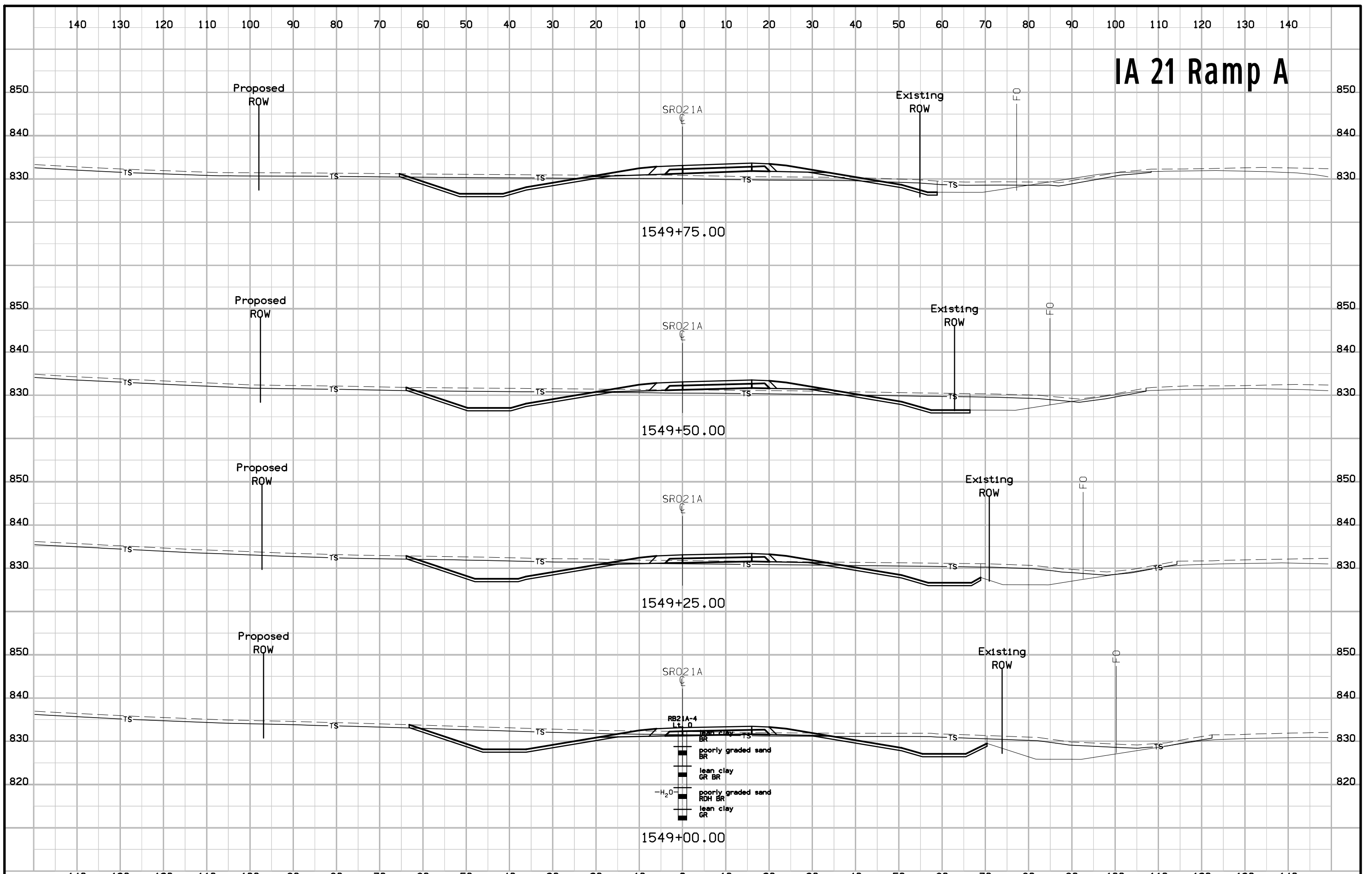
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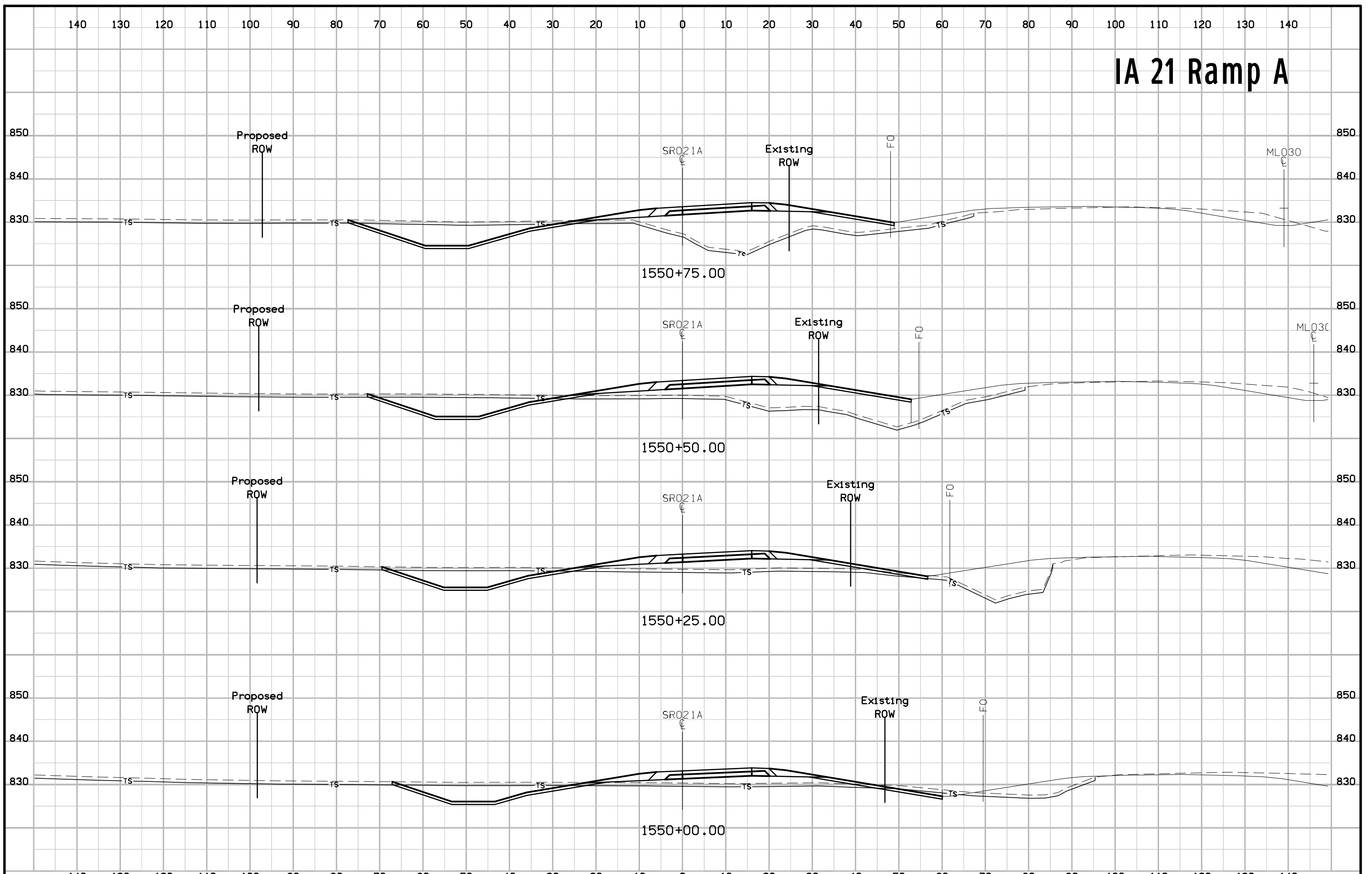
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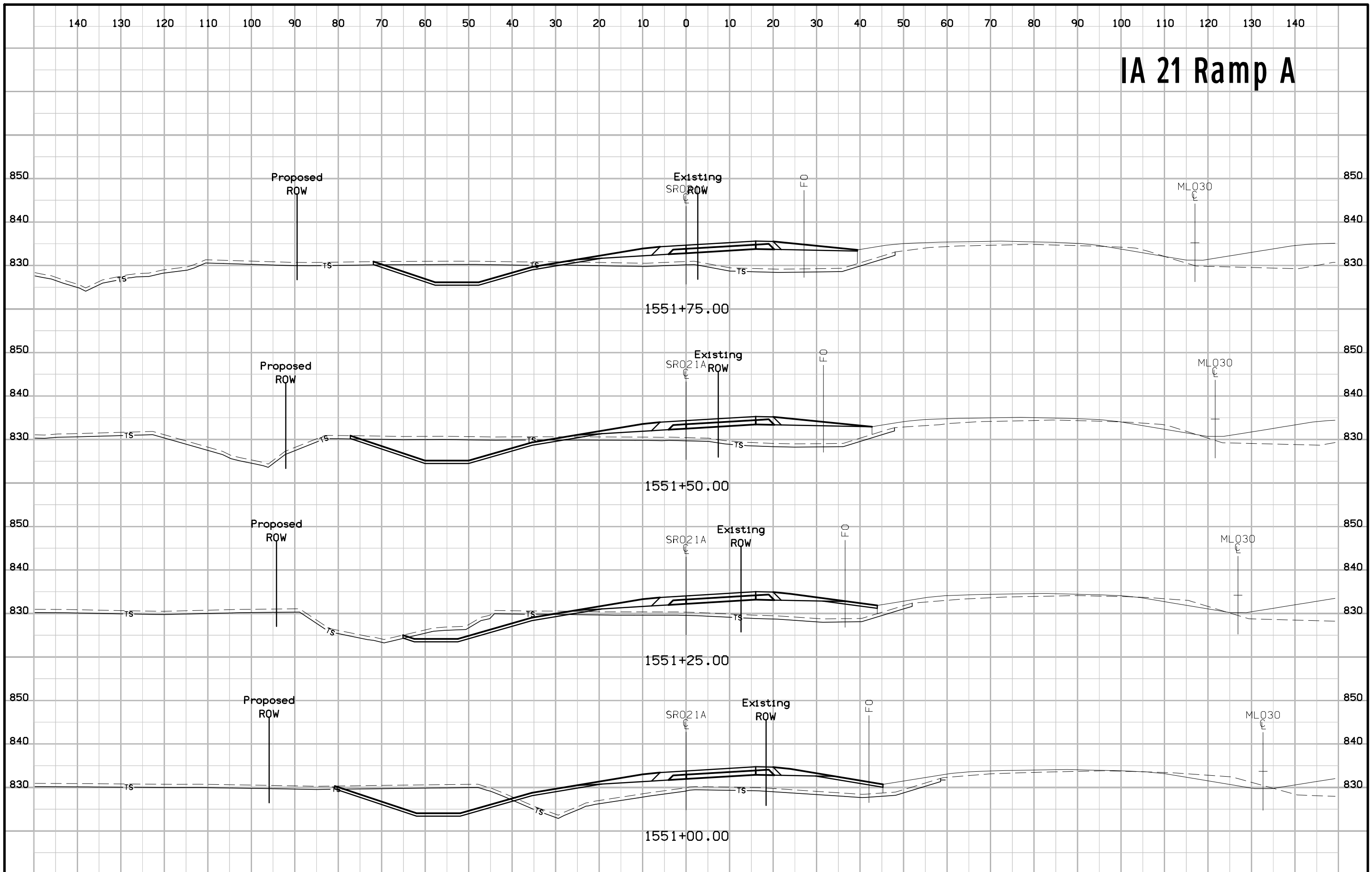
# IA 21 Ramp A



# IA 21 Ramp A

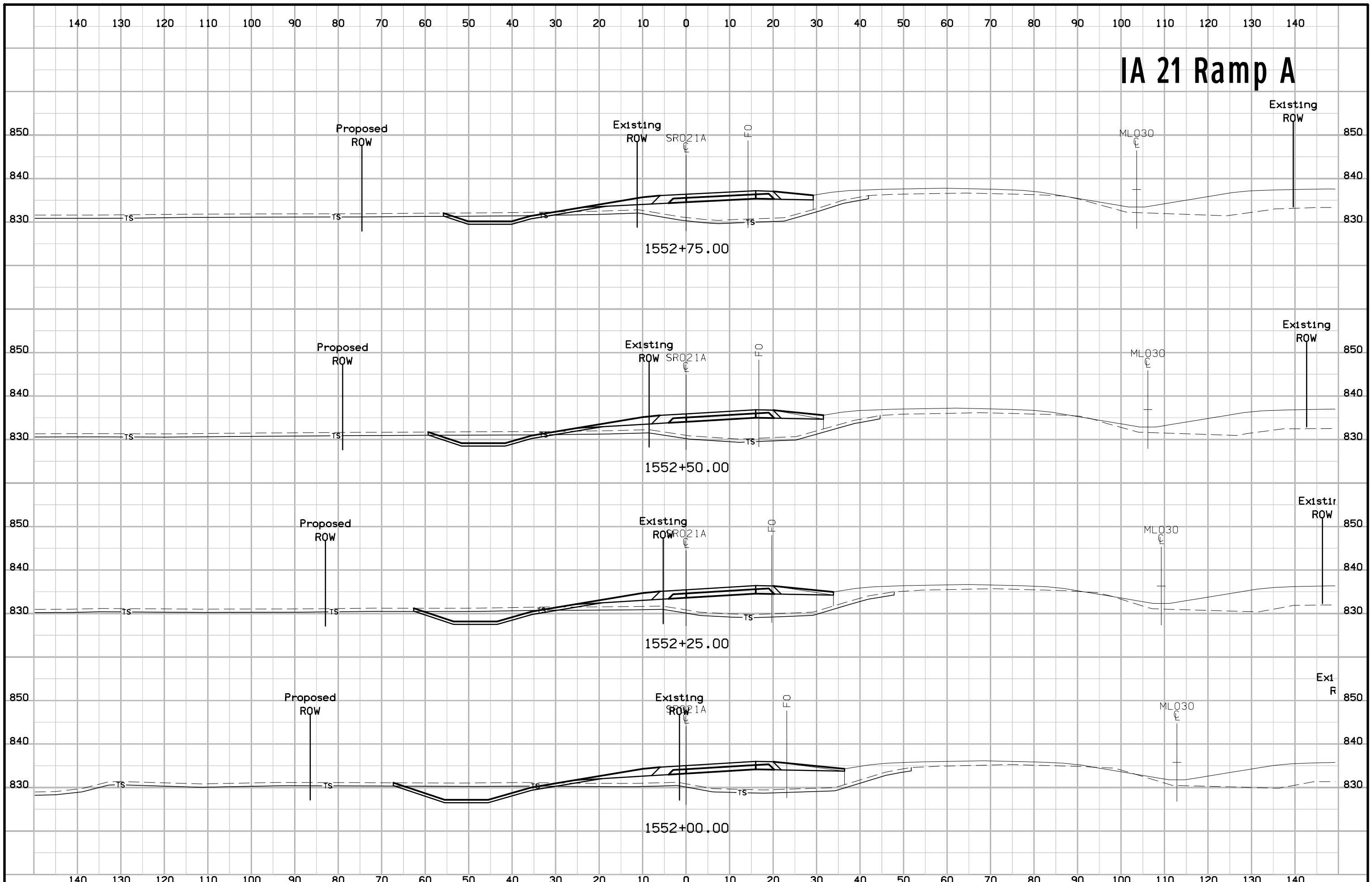


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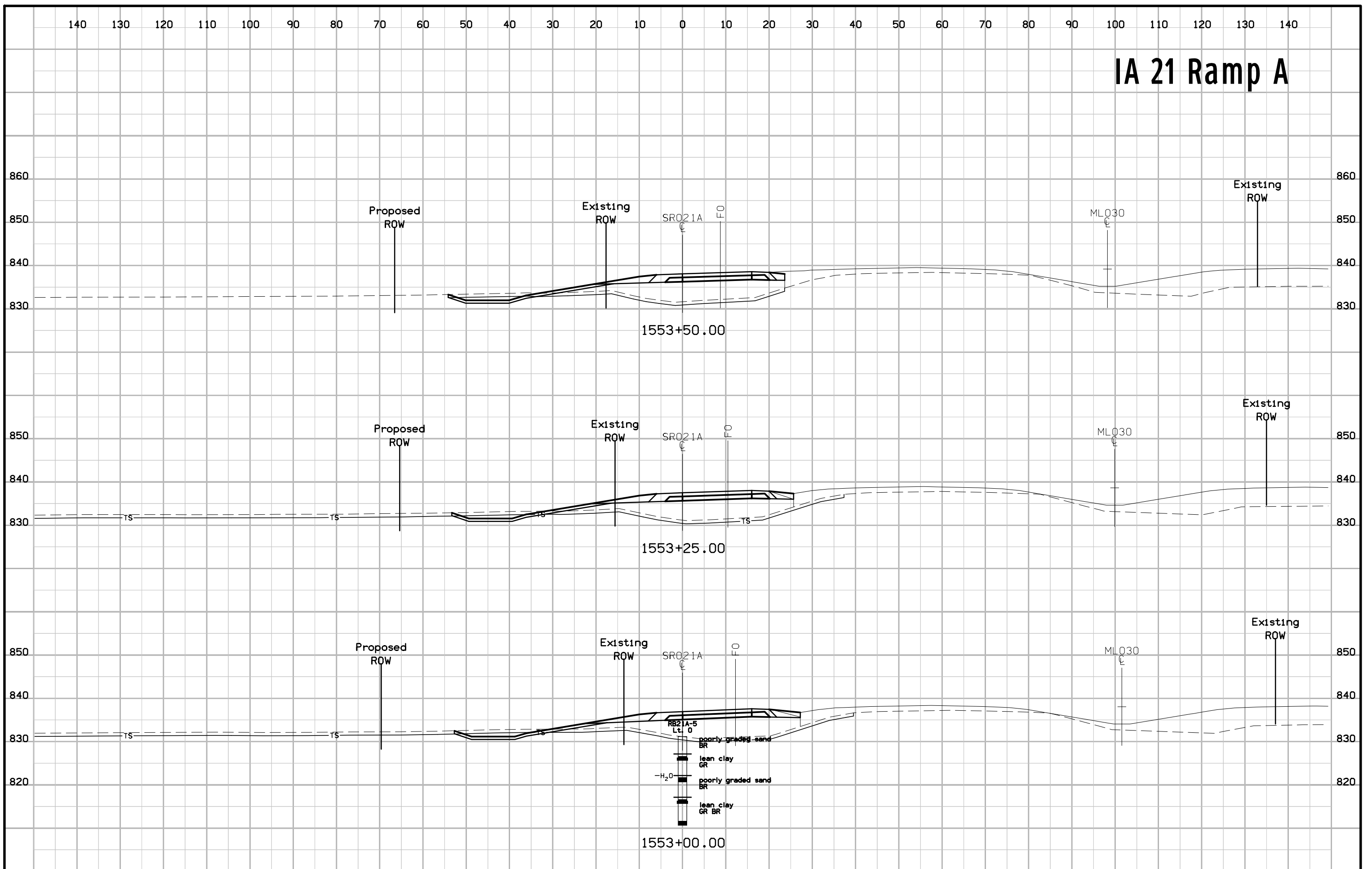




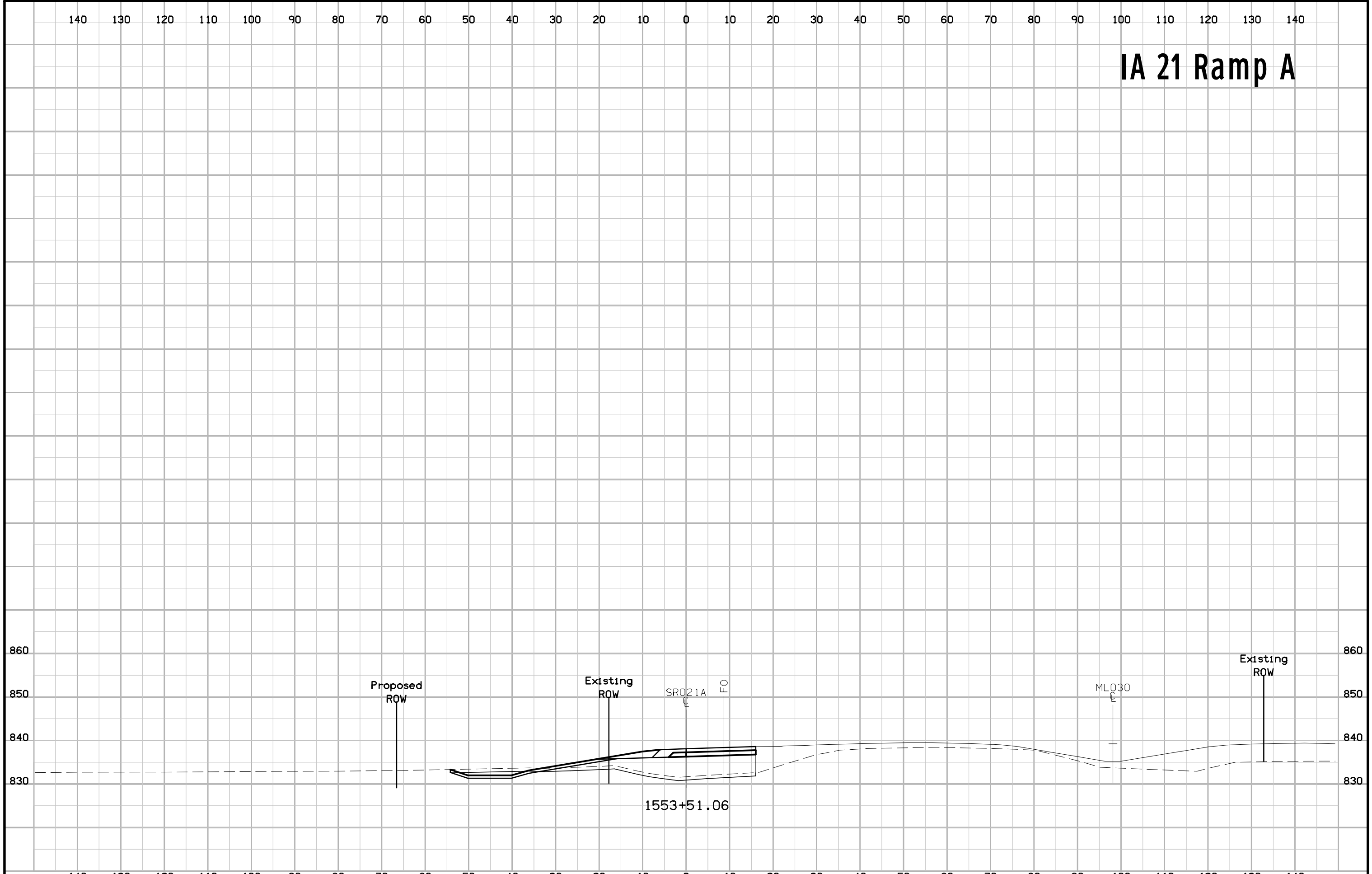
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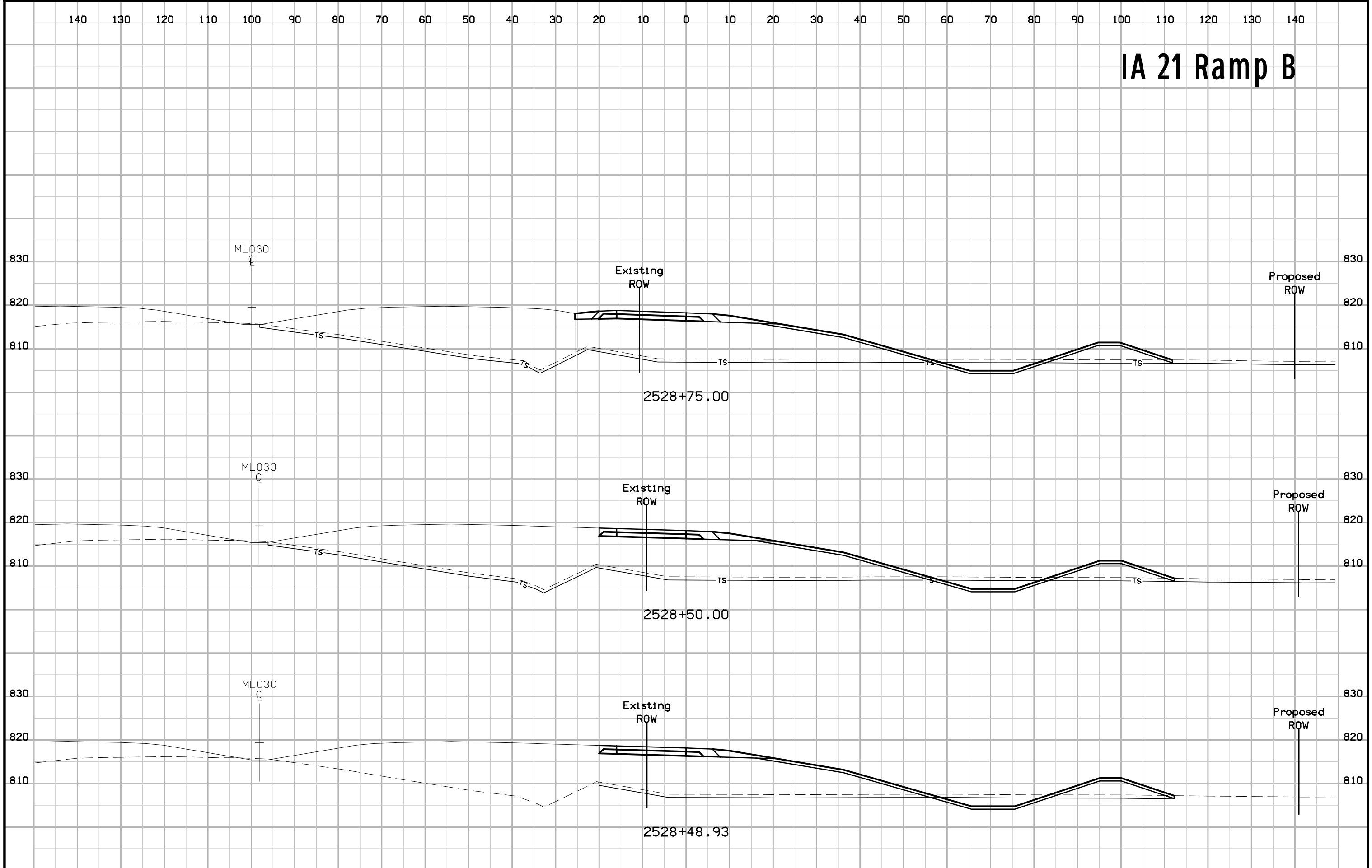
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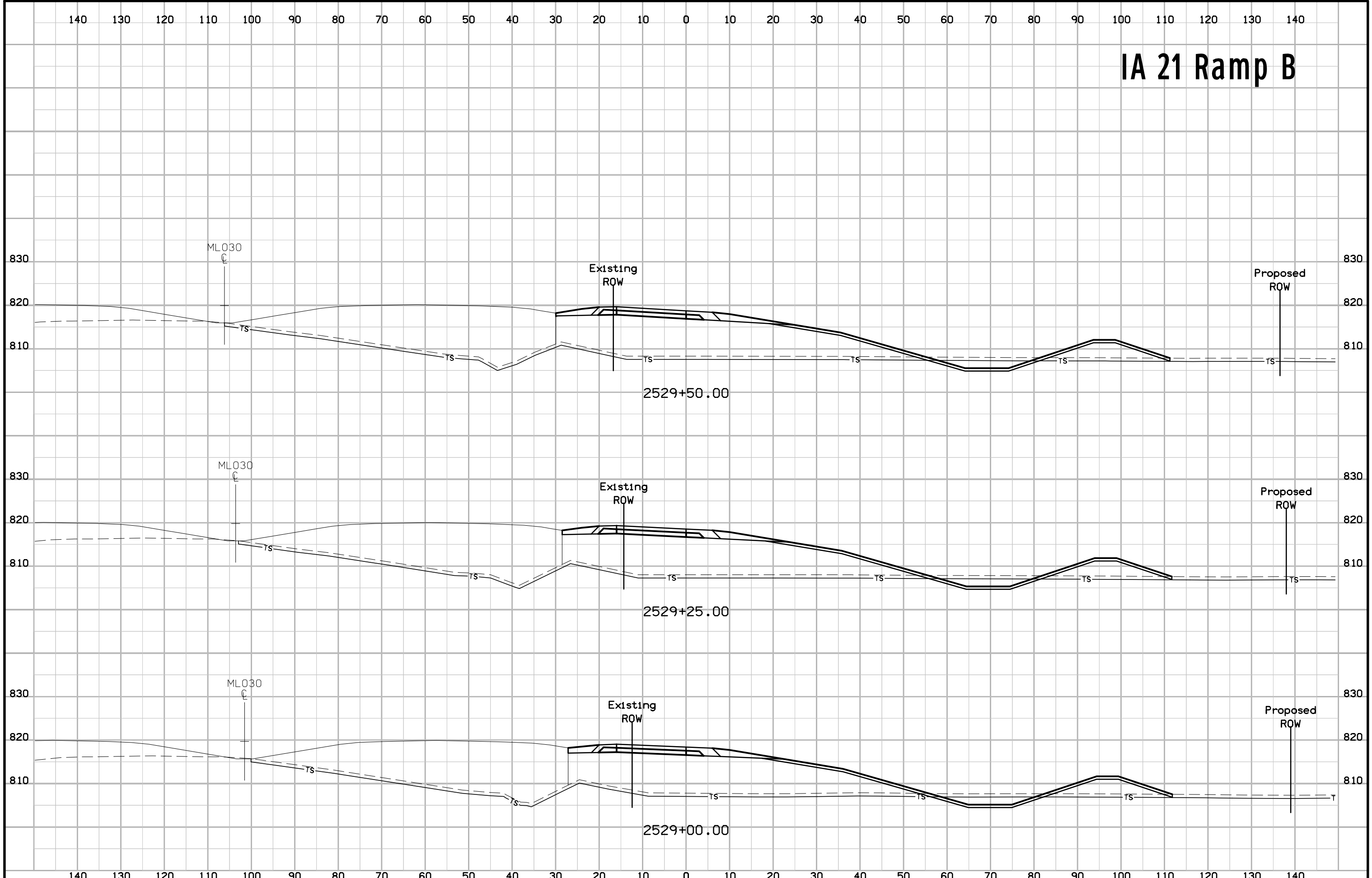
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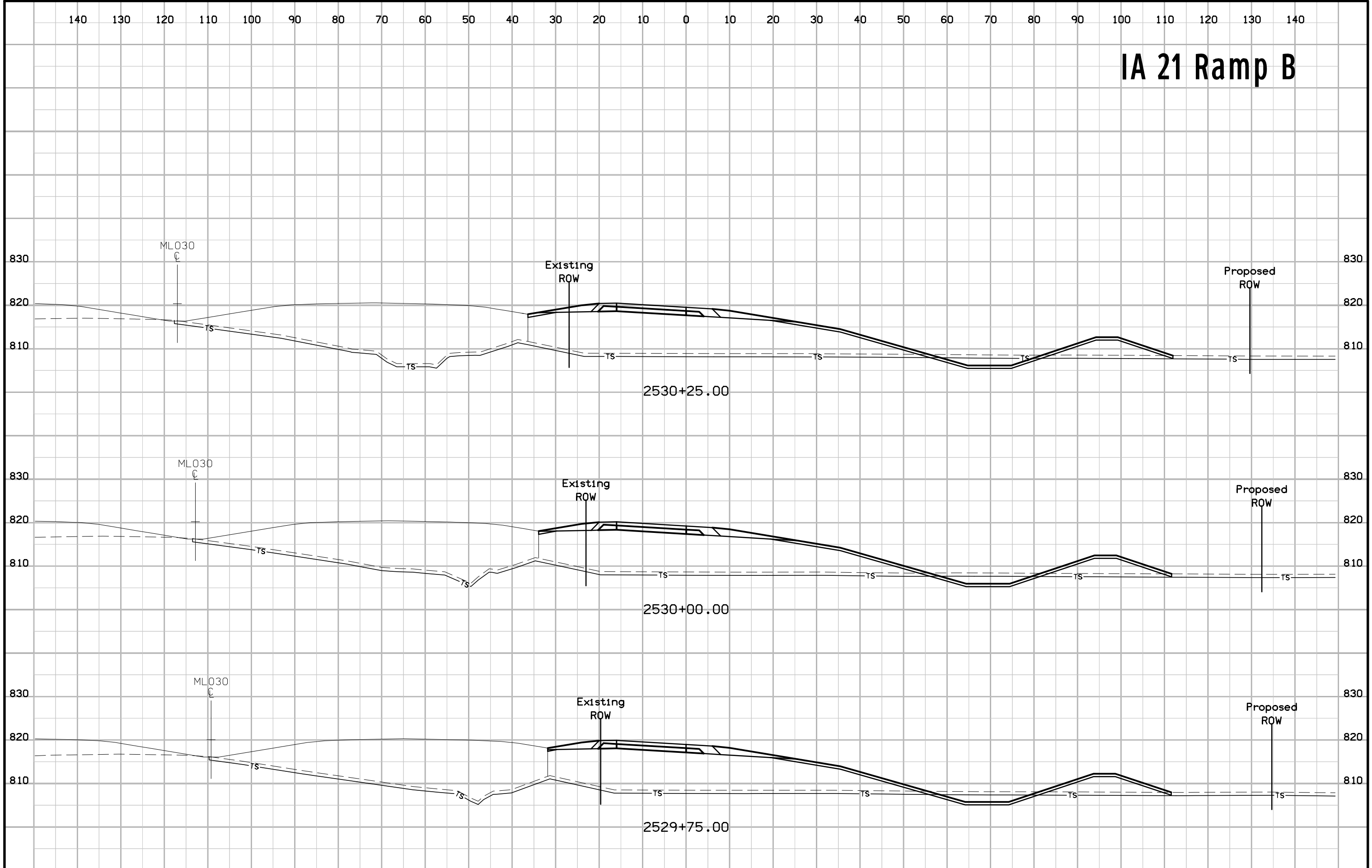
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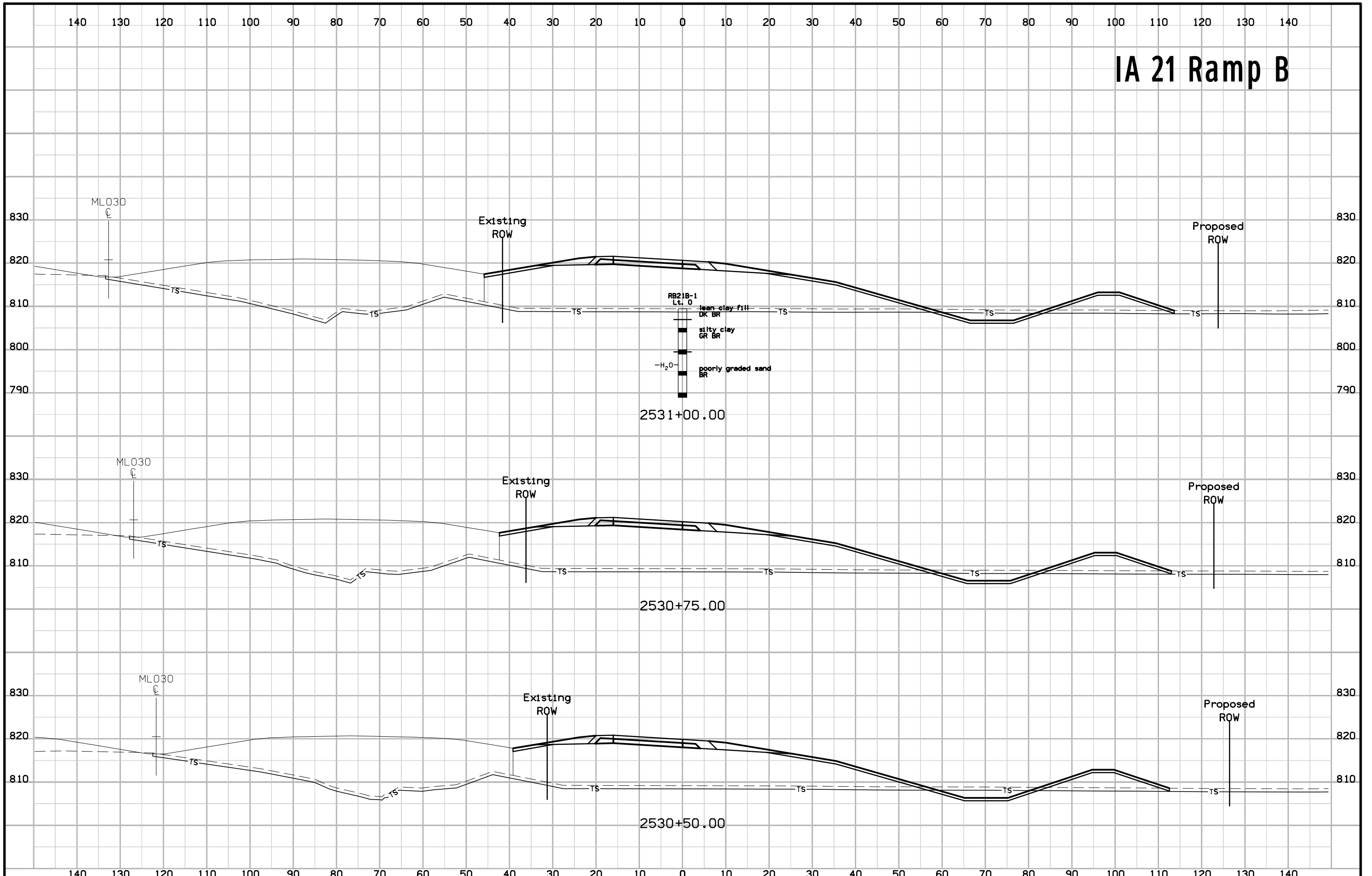
# IA 21 Ramp B



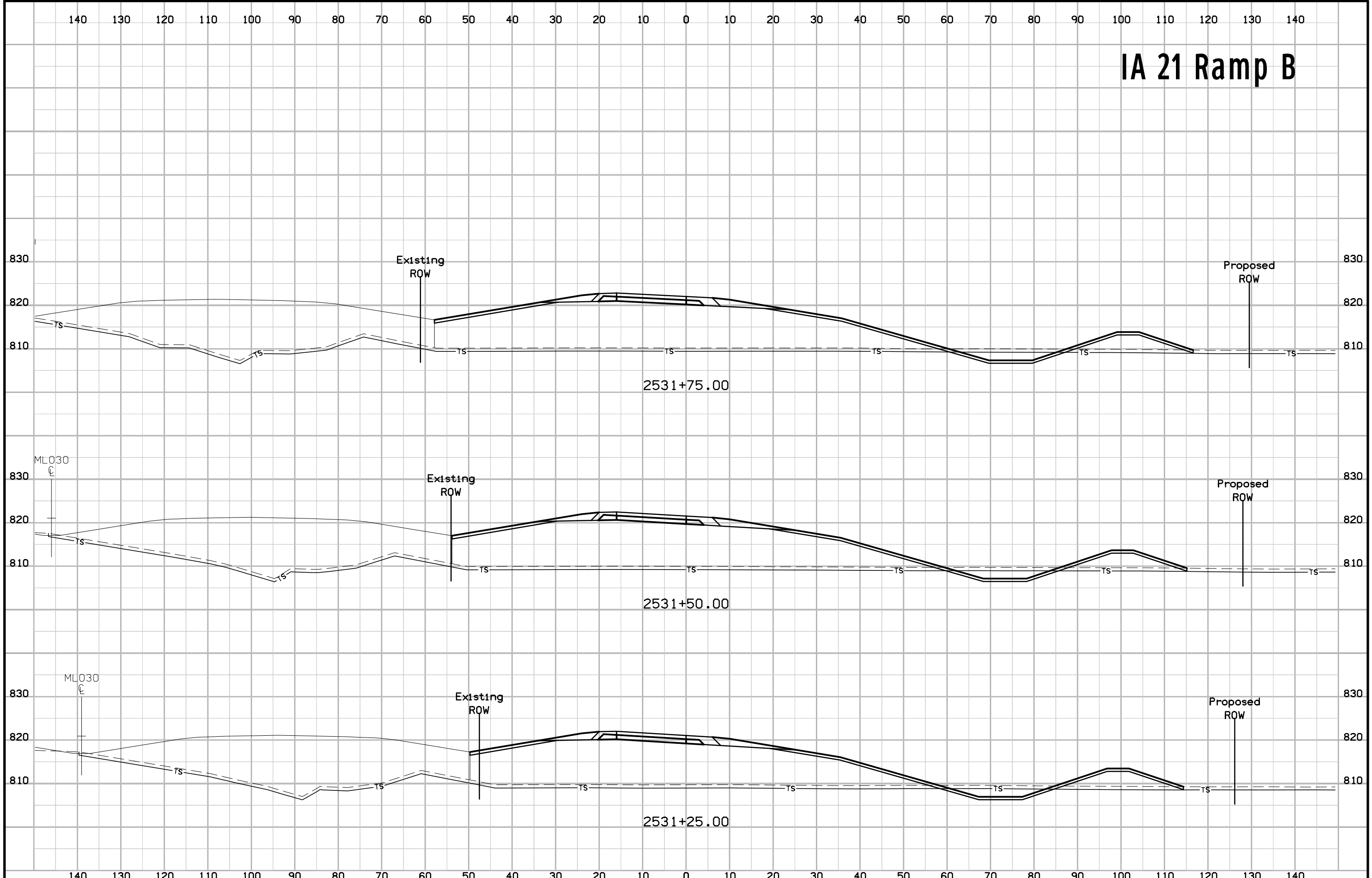
# IA 21 Ramp B



# IA 21 Ramp B

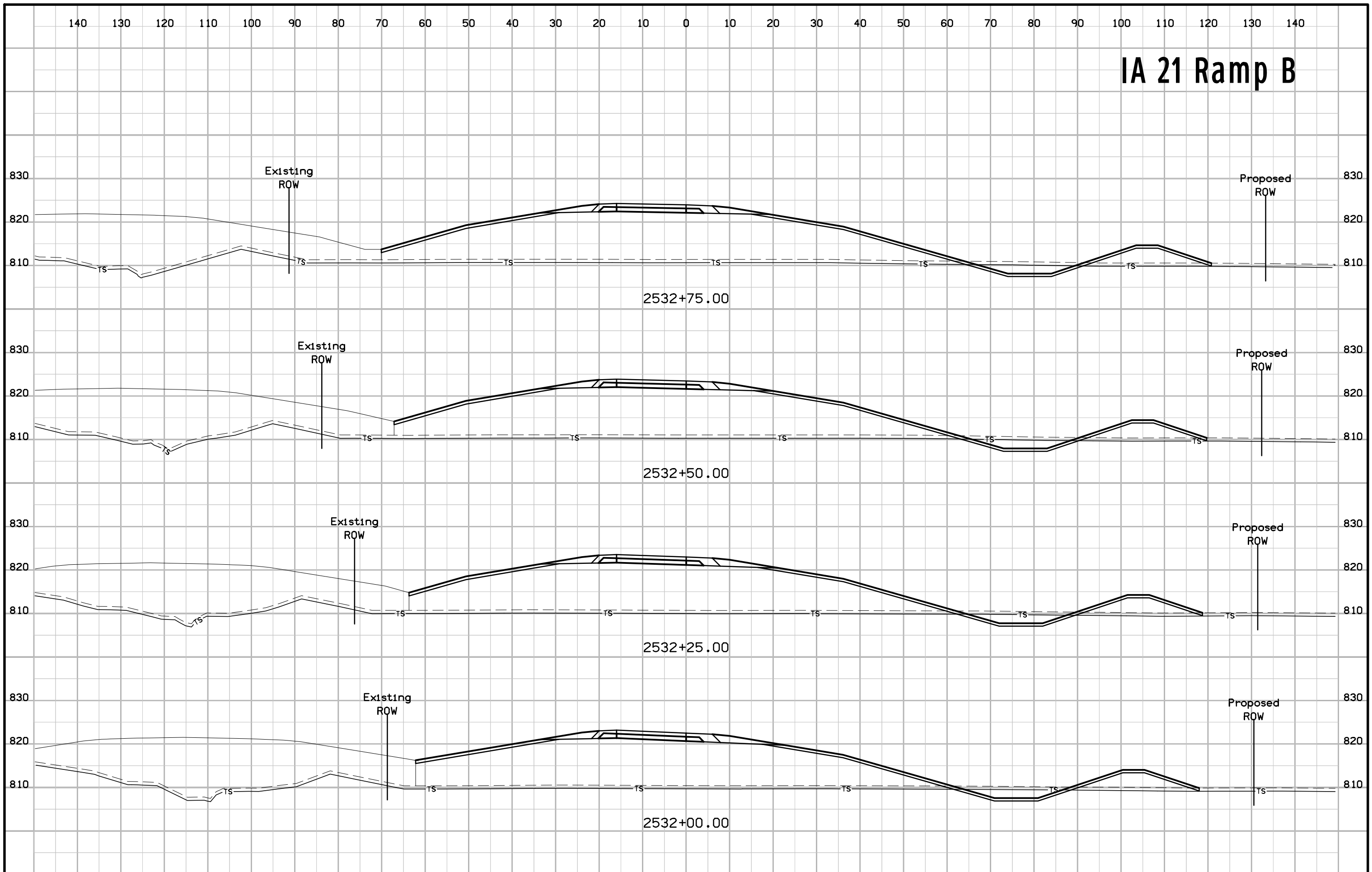


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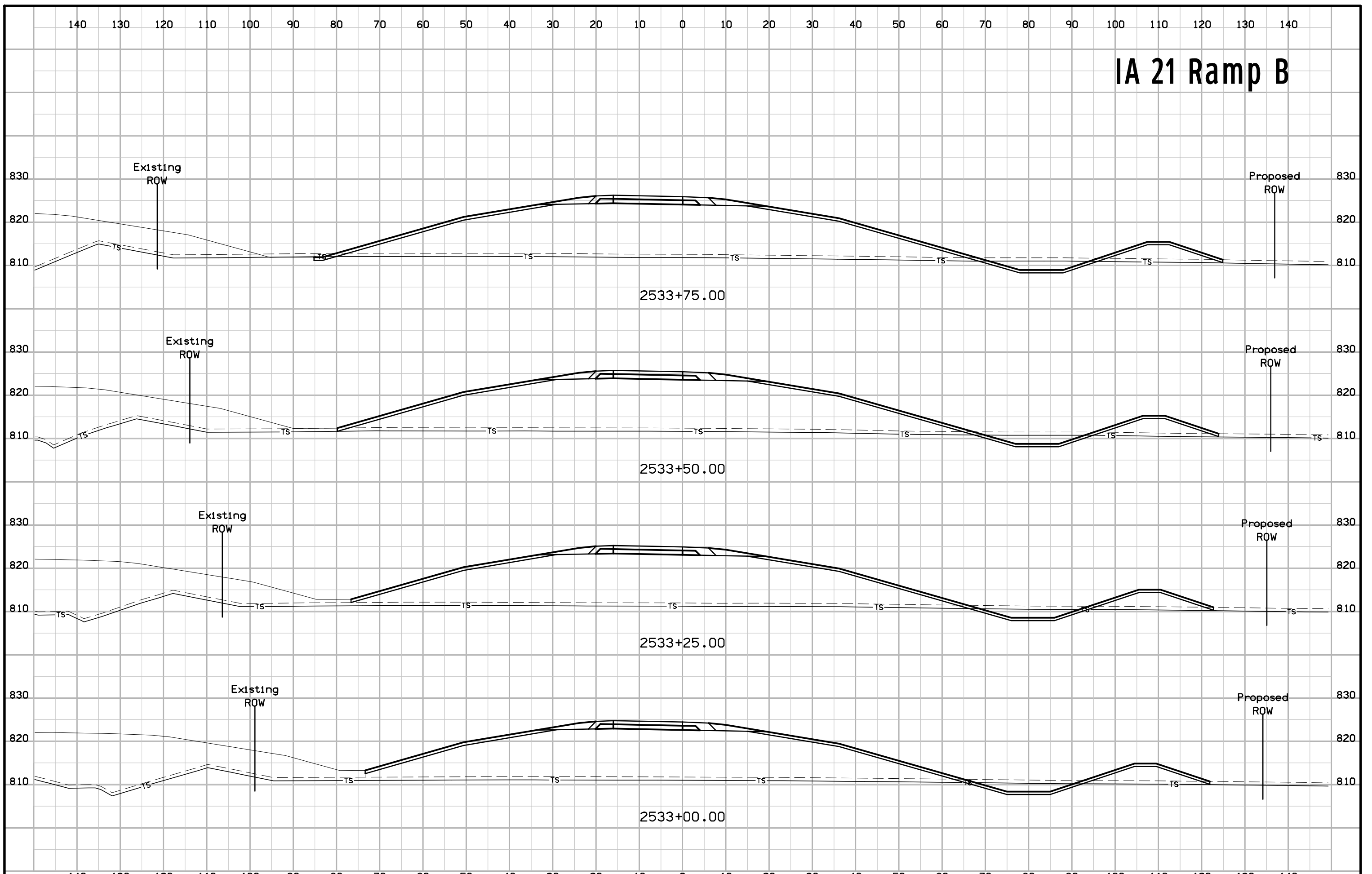




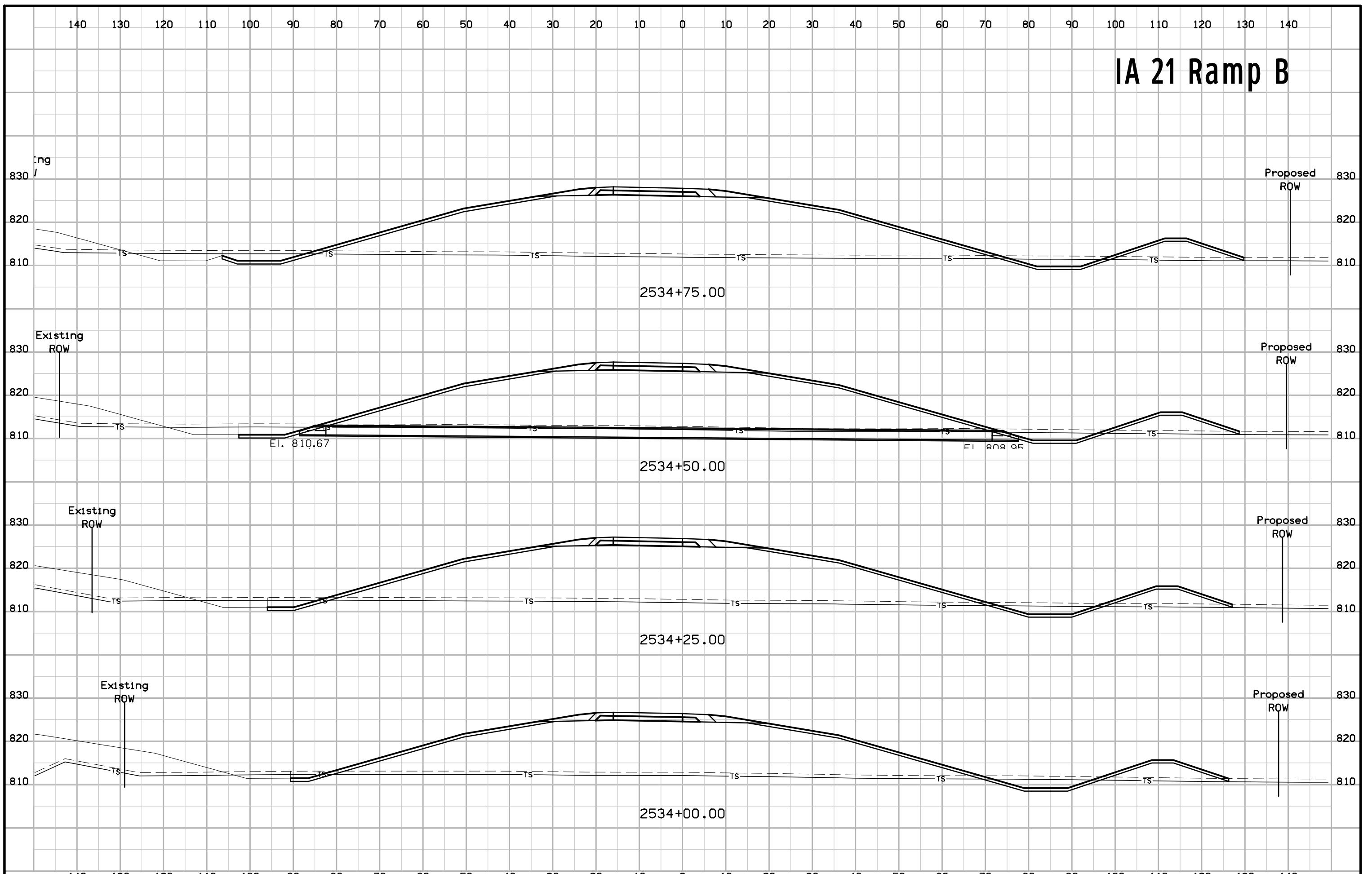
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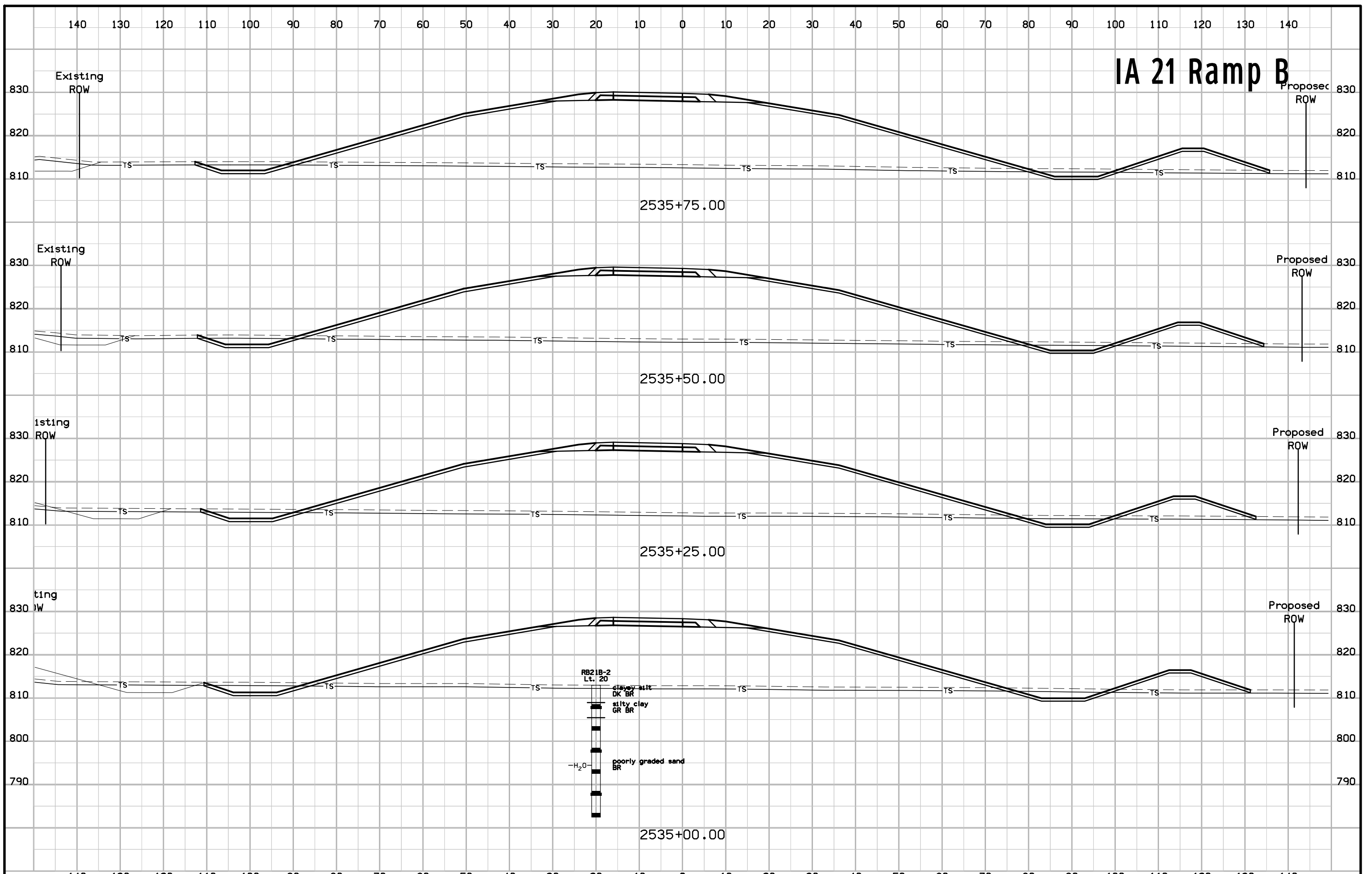
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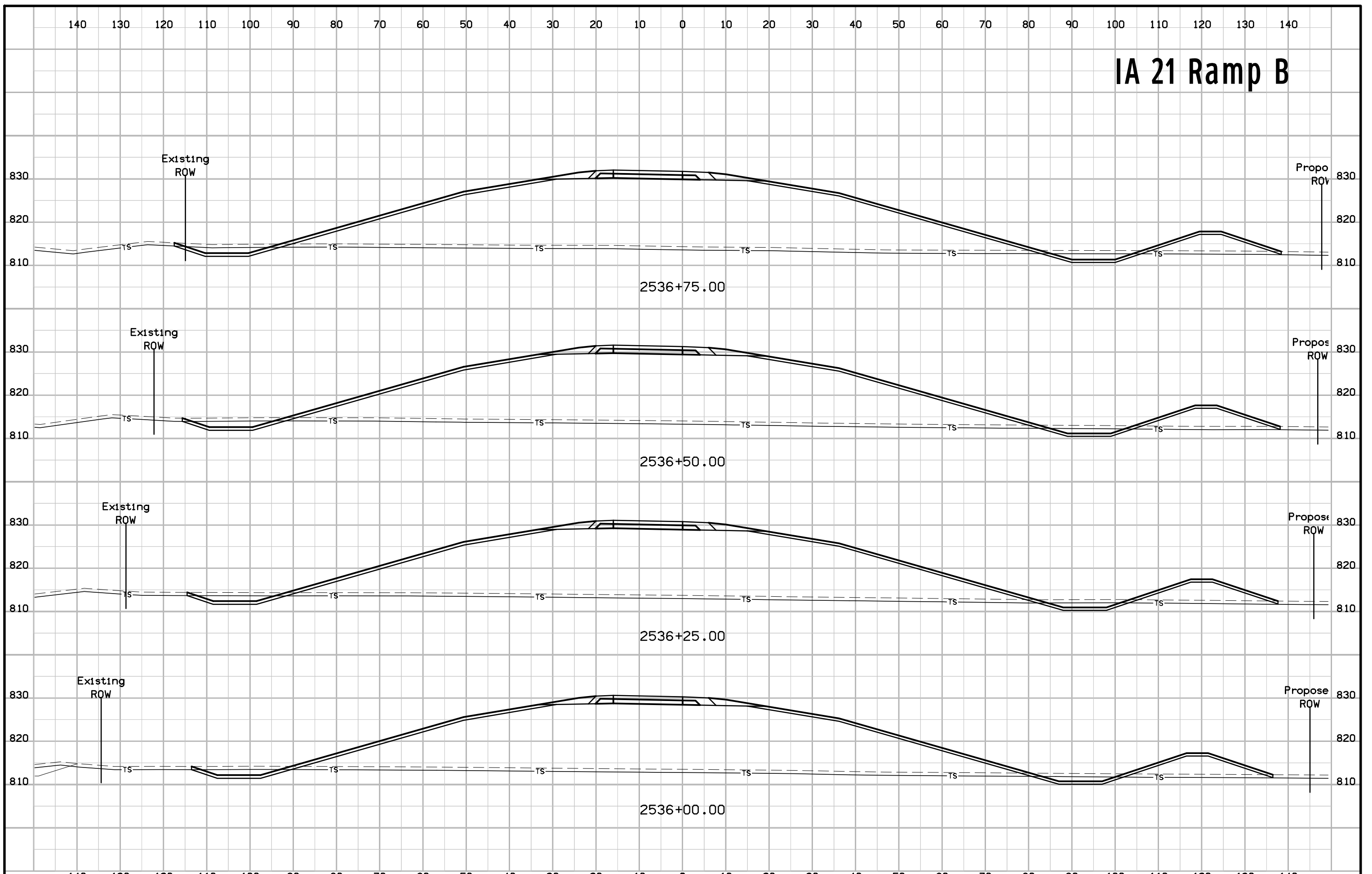
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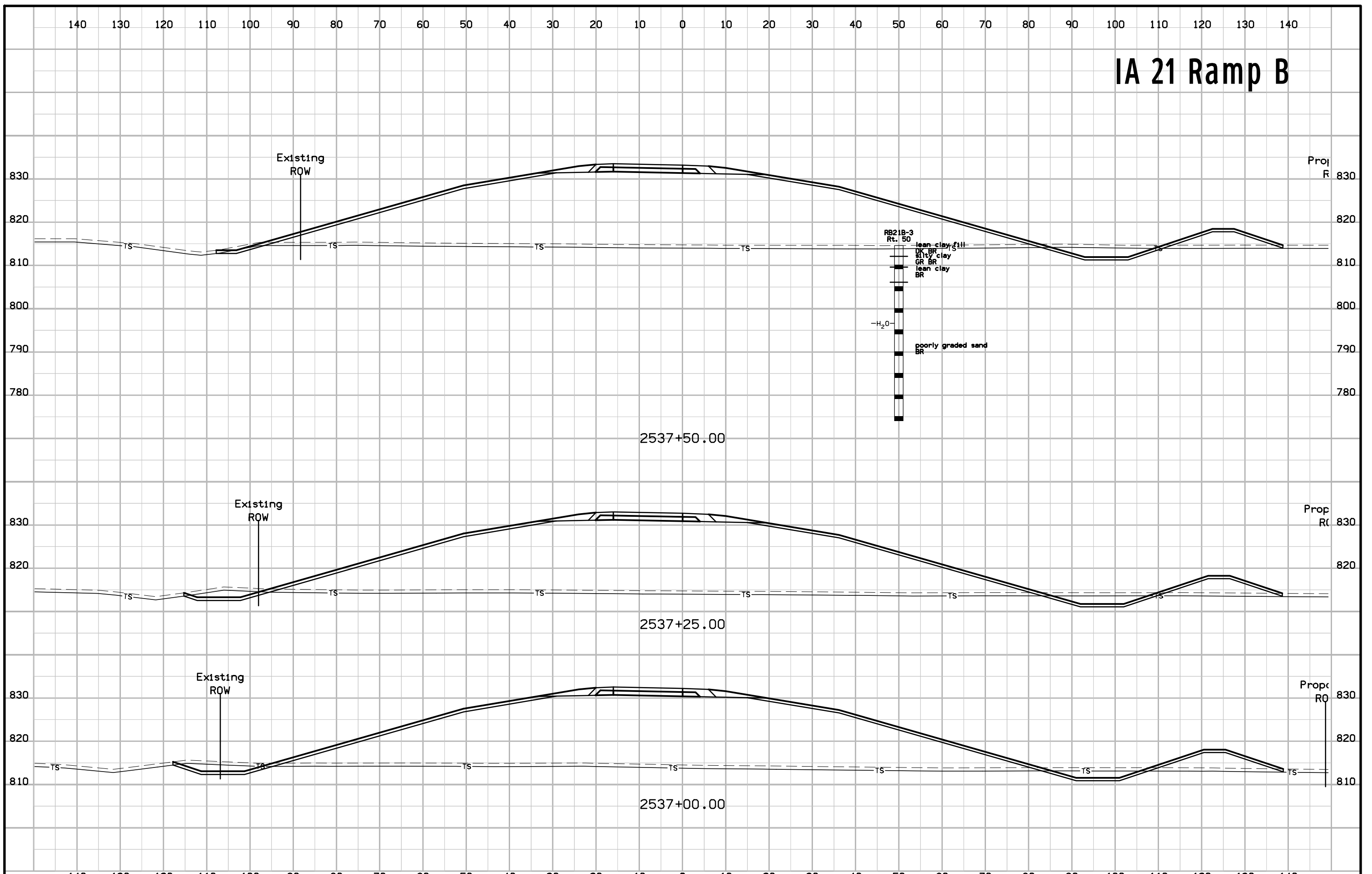
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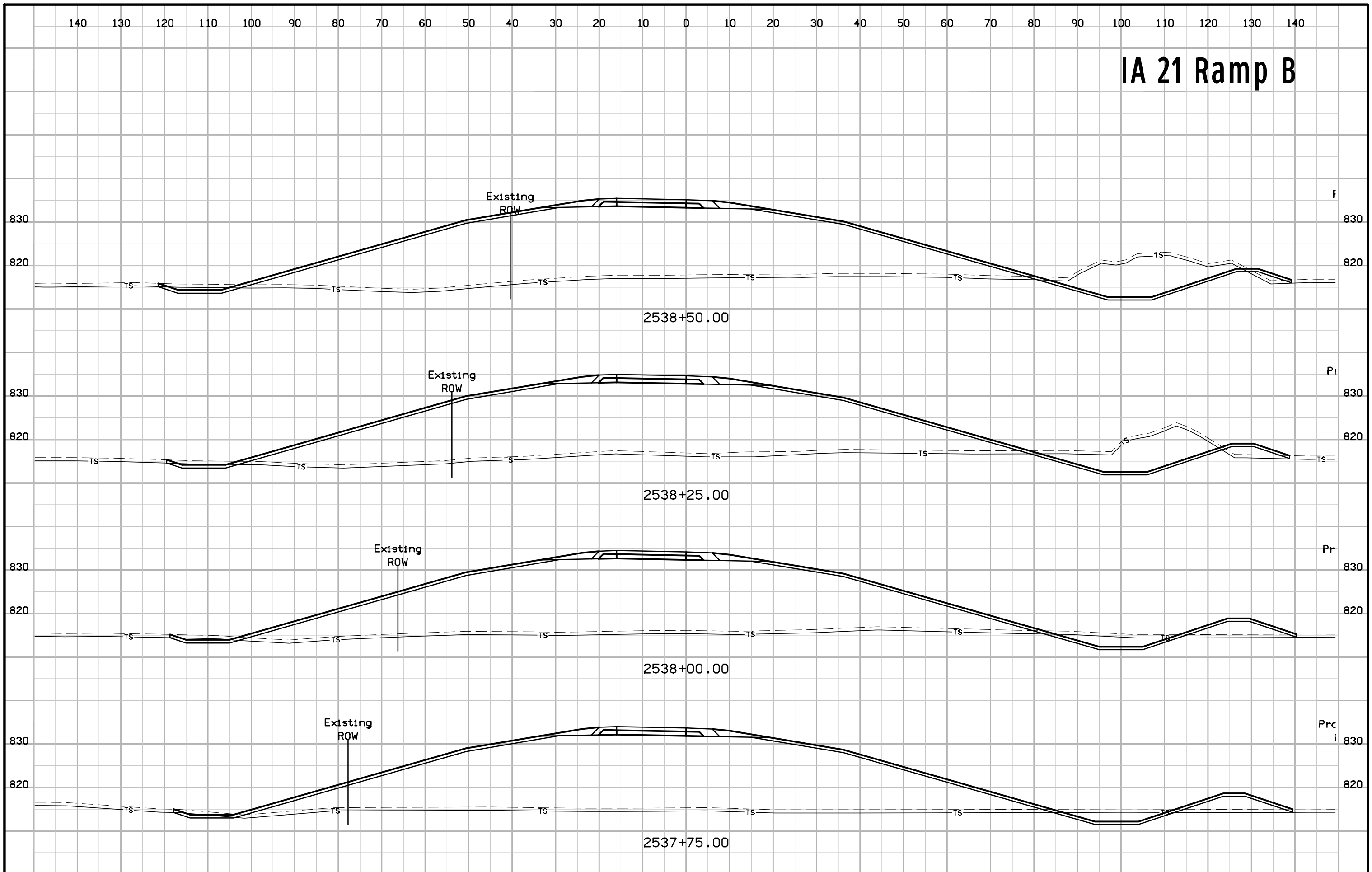
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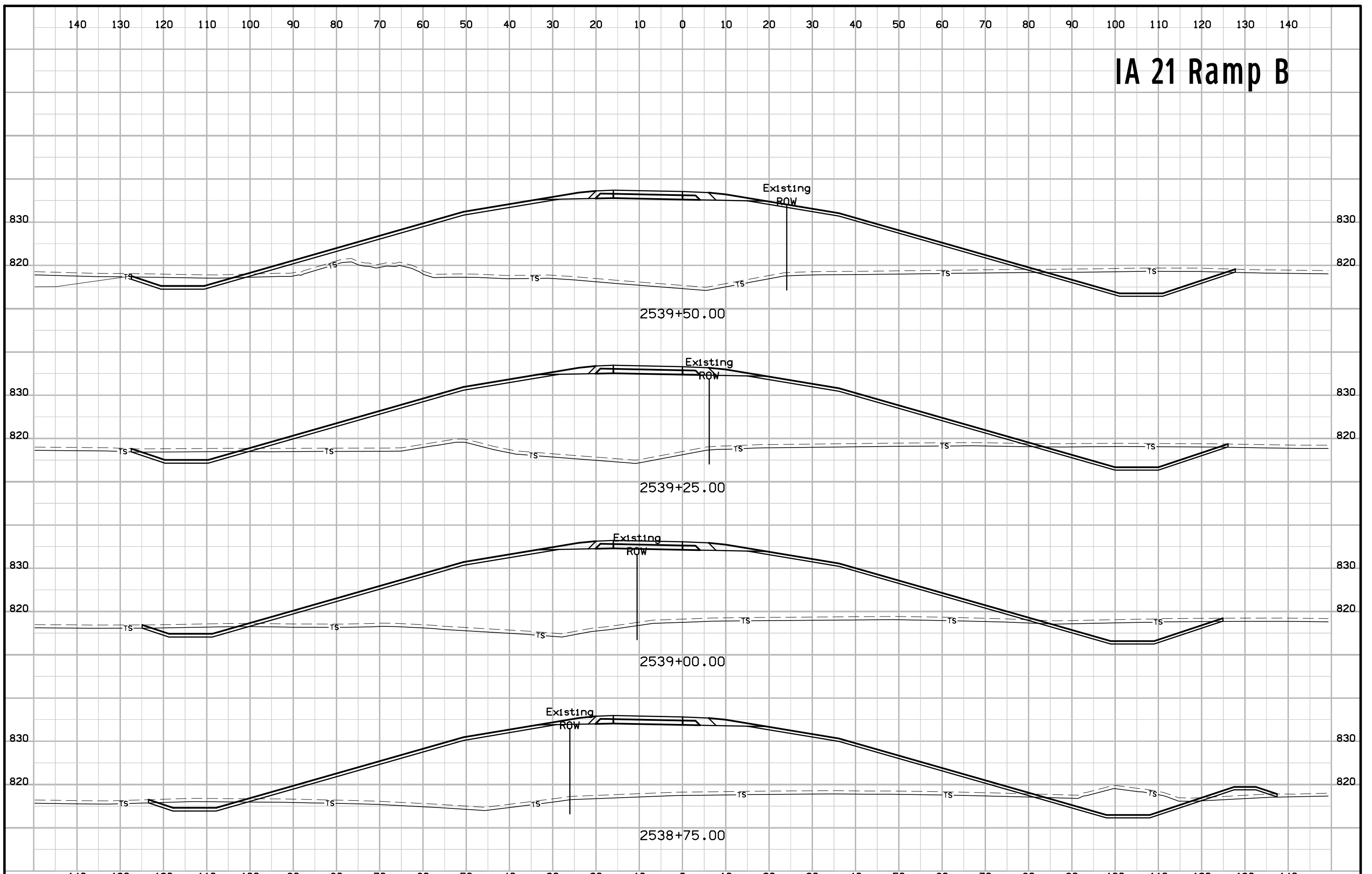
# IA 21 Ramp B



# IA 21 Ramp B

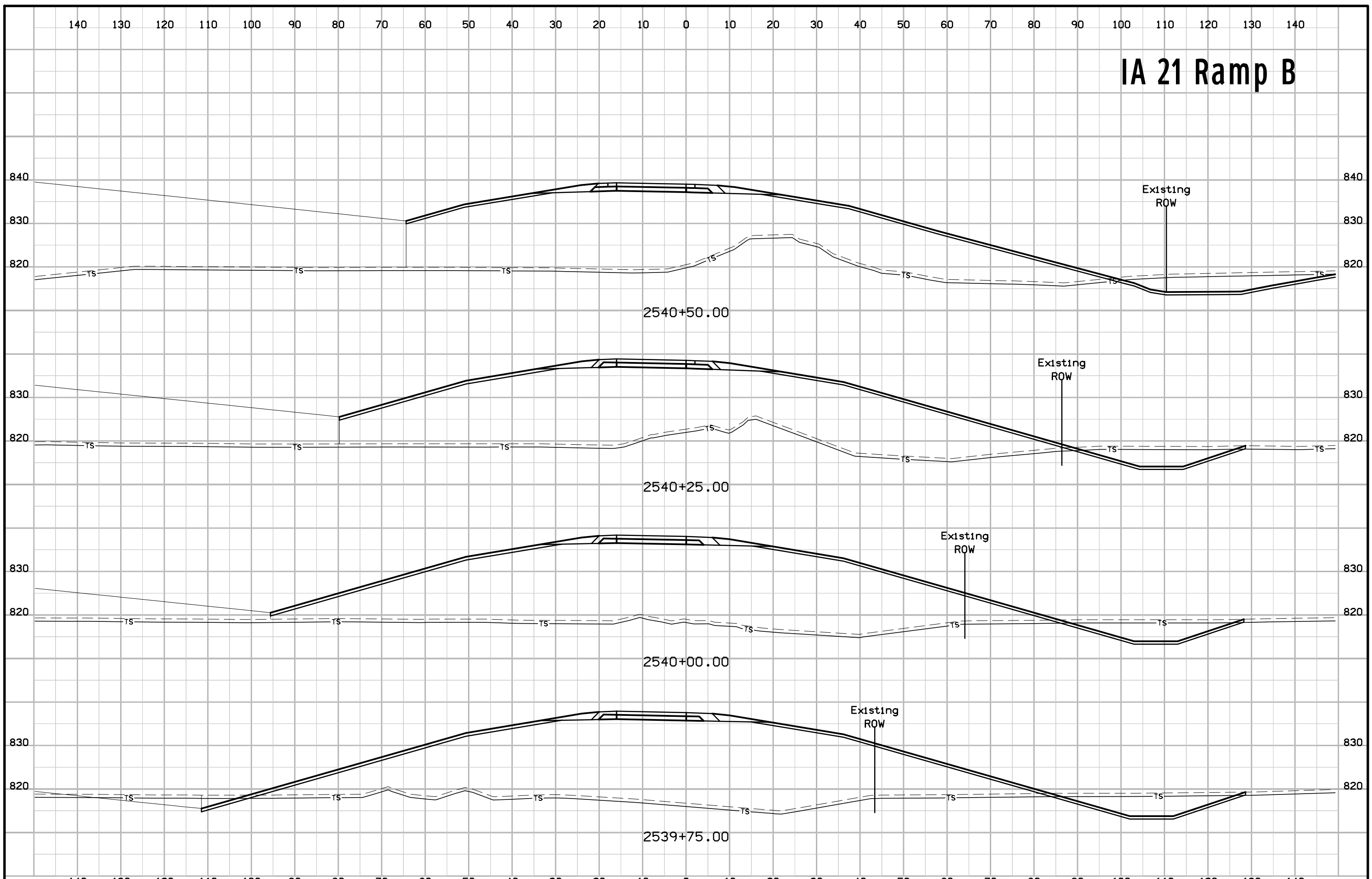


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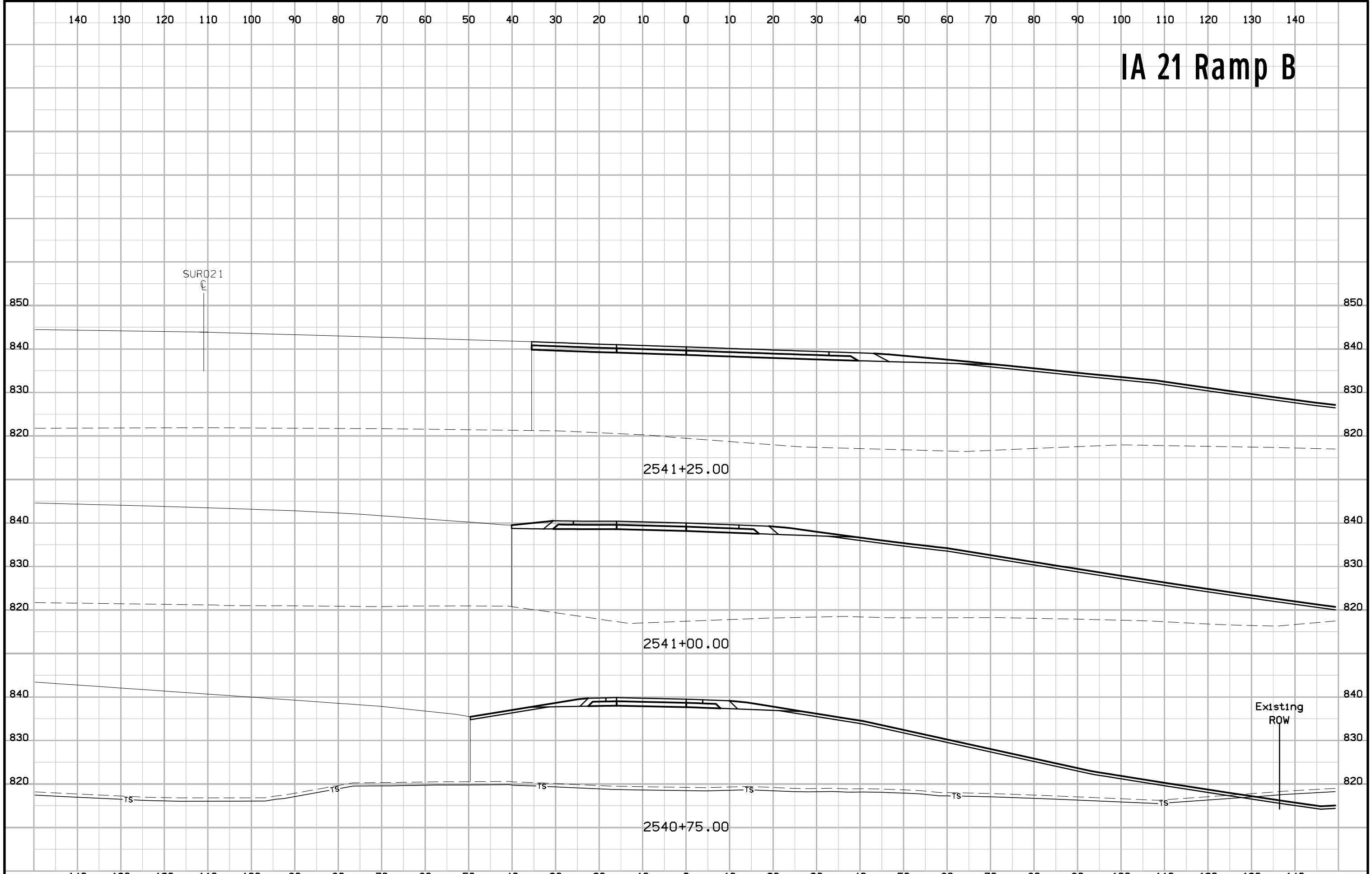




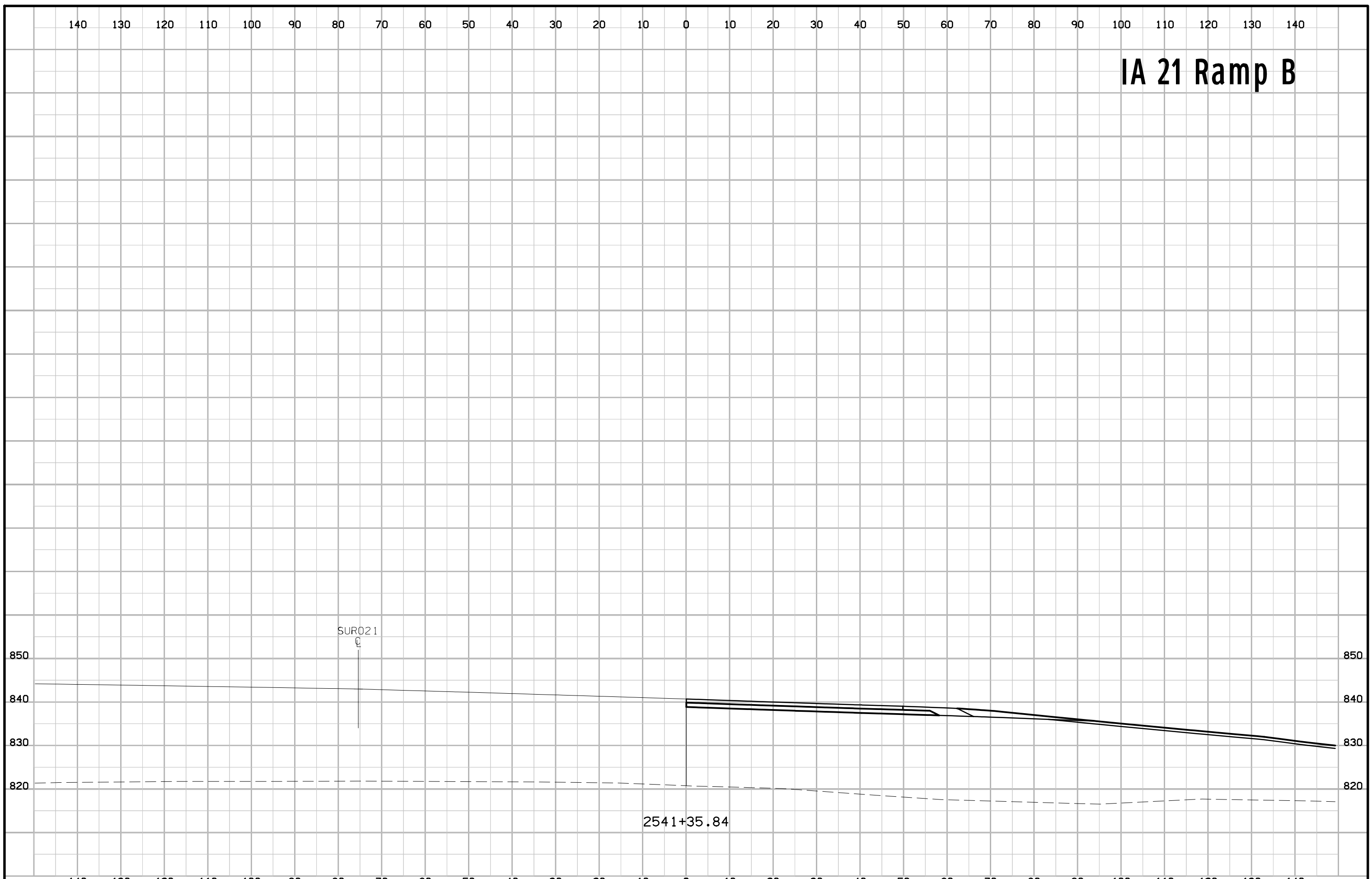
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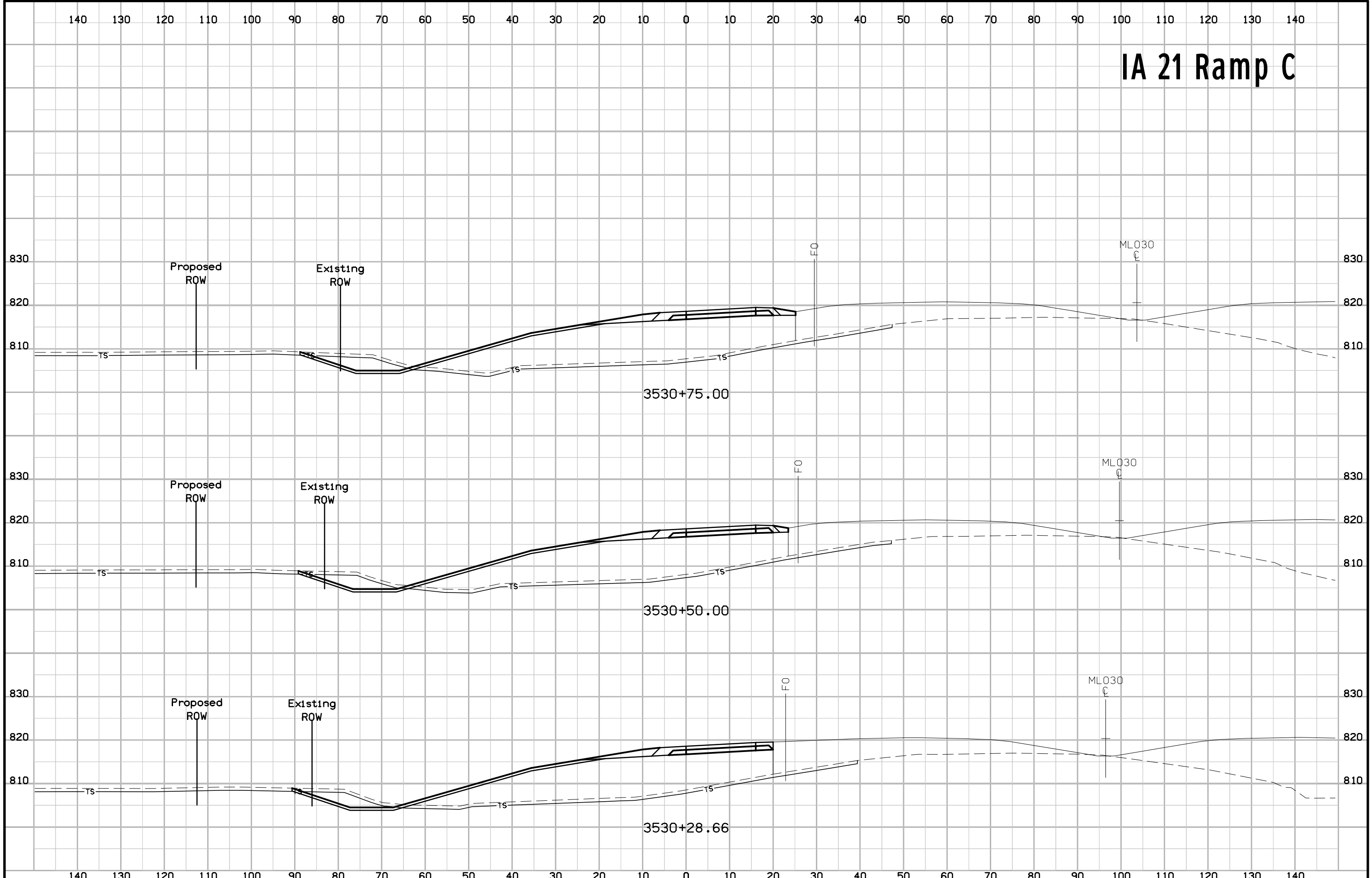
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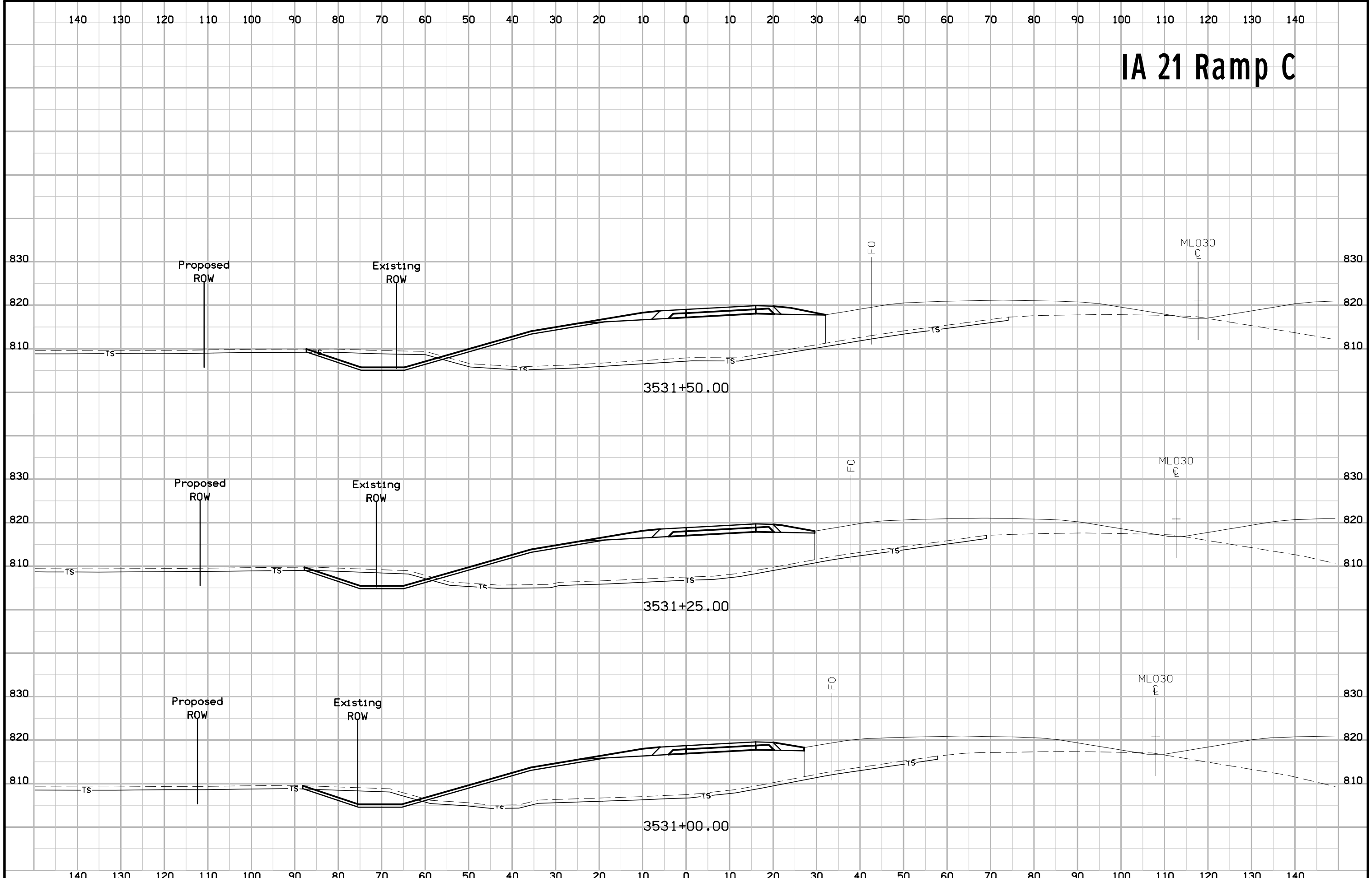
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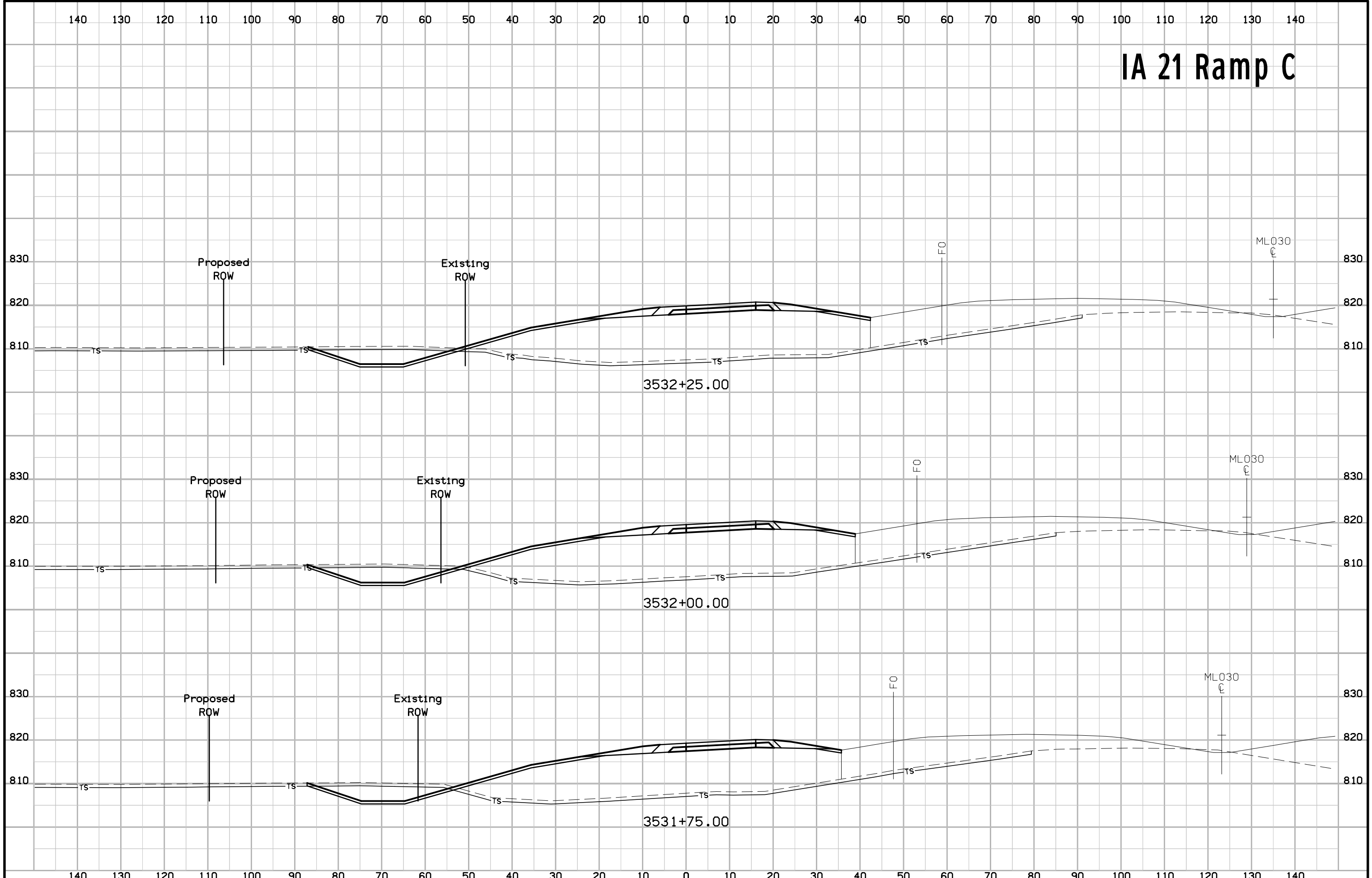
# IA 21 Ramp C



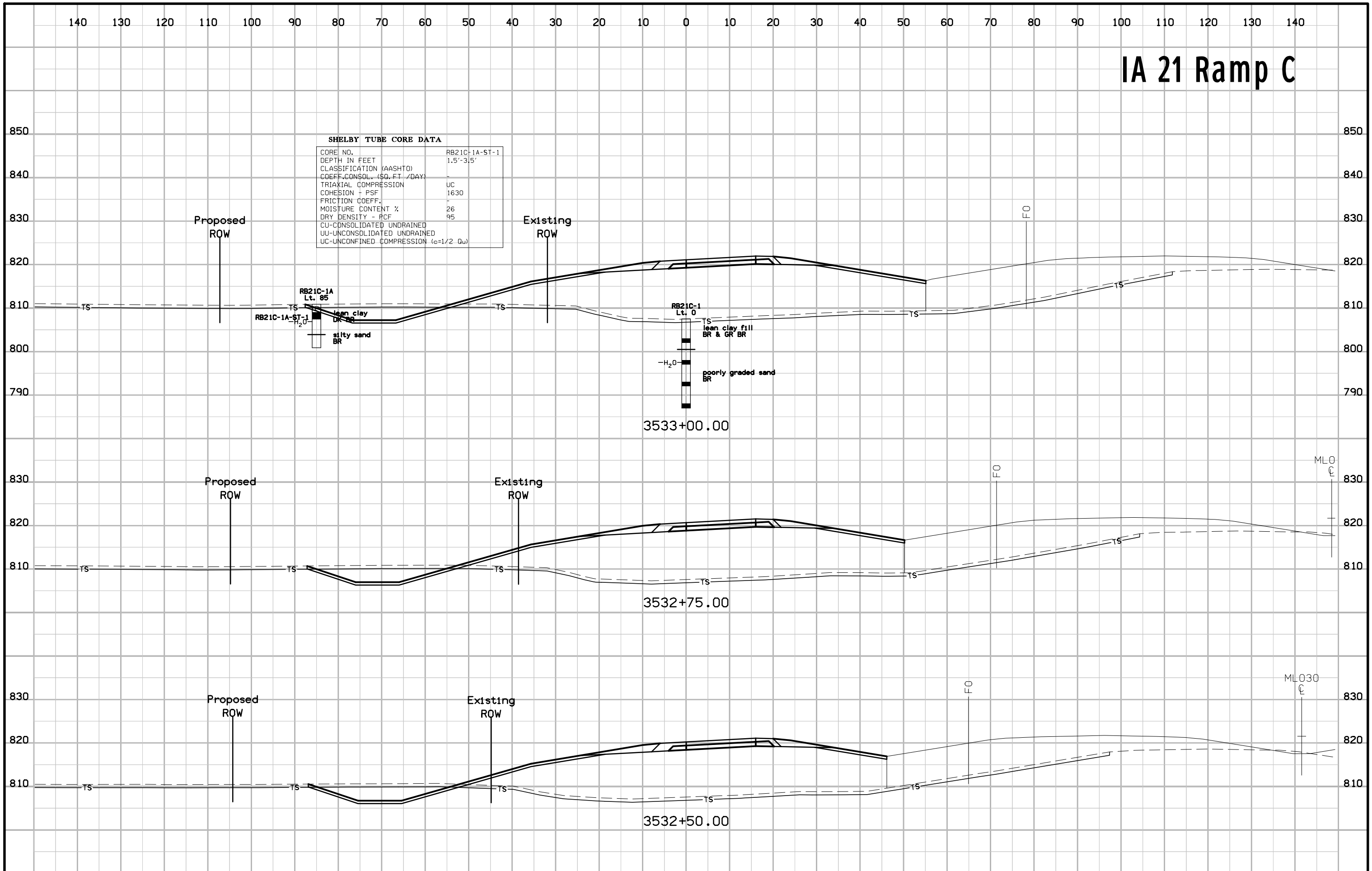
# IA 21 Ramp C



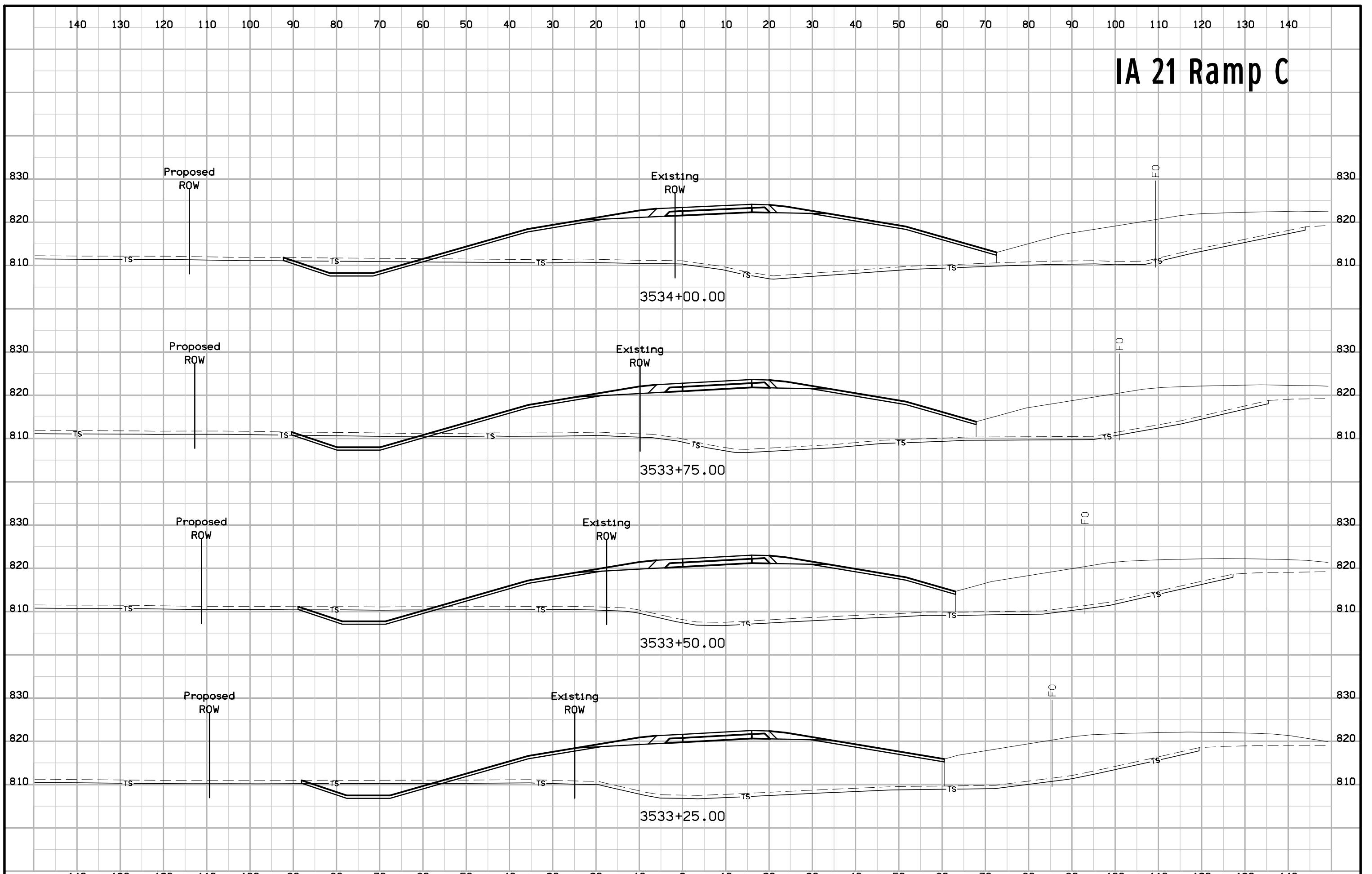
# IA 21 Ramp C



# IA 21 Ramp C

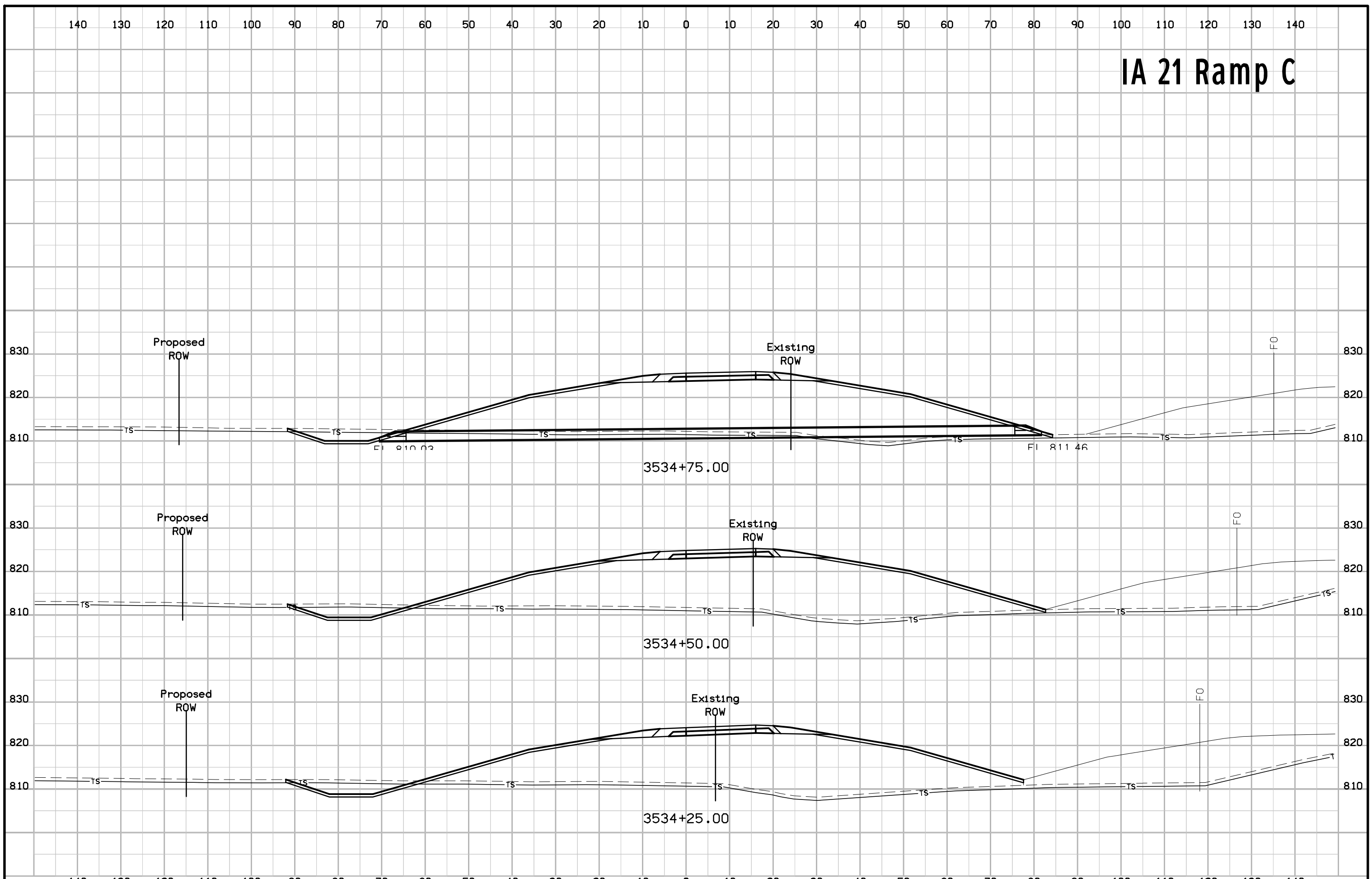


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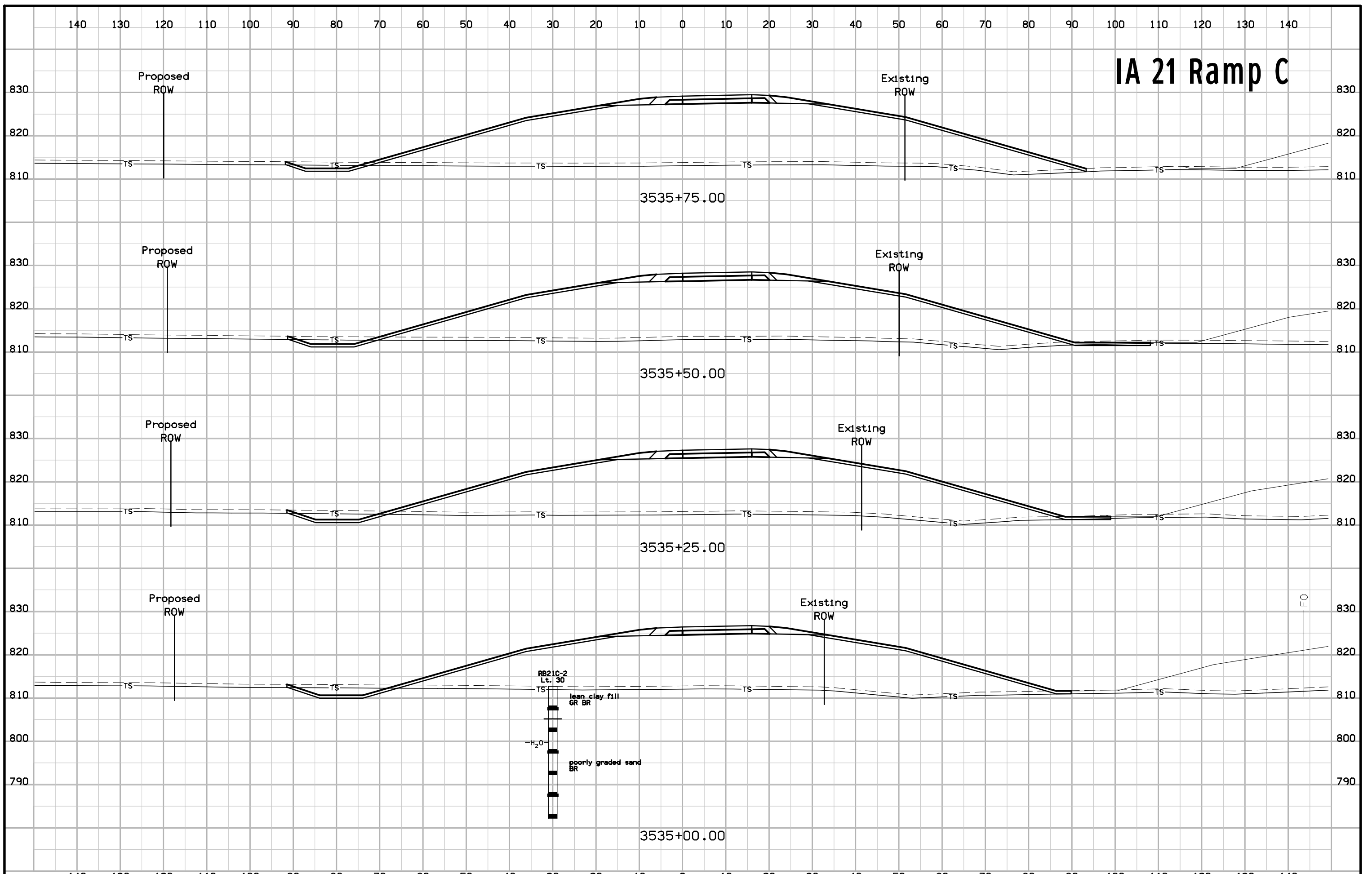




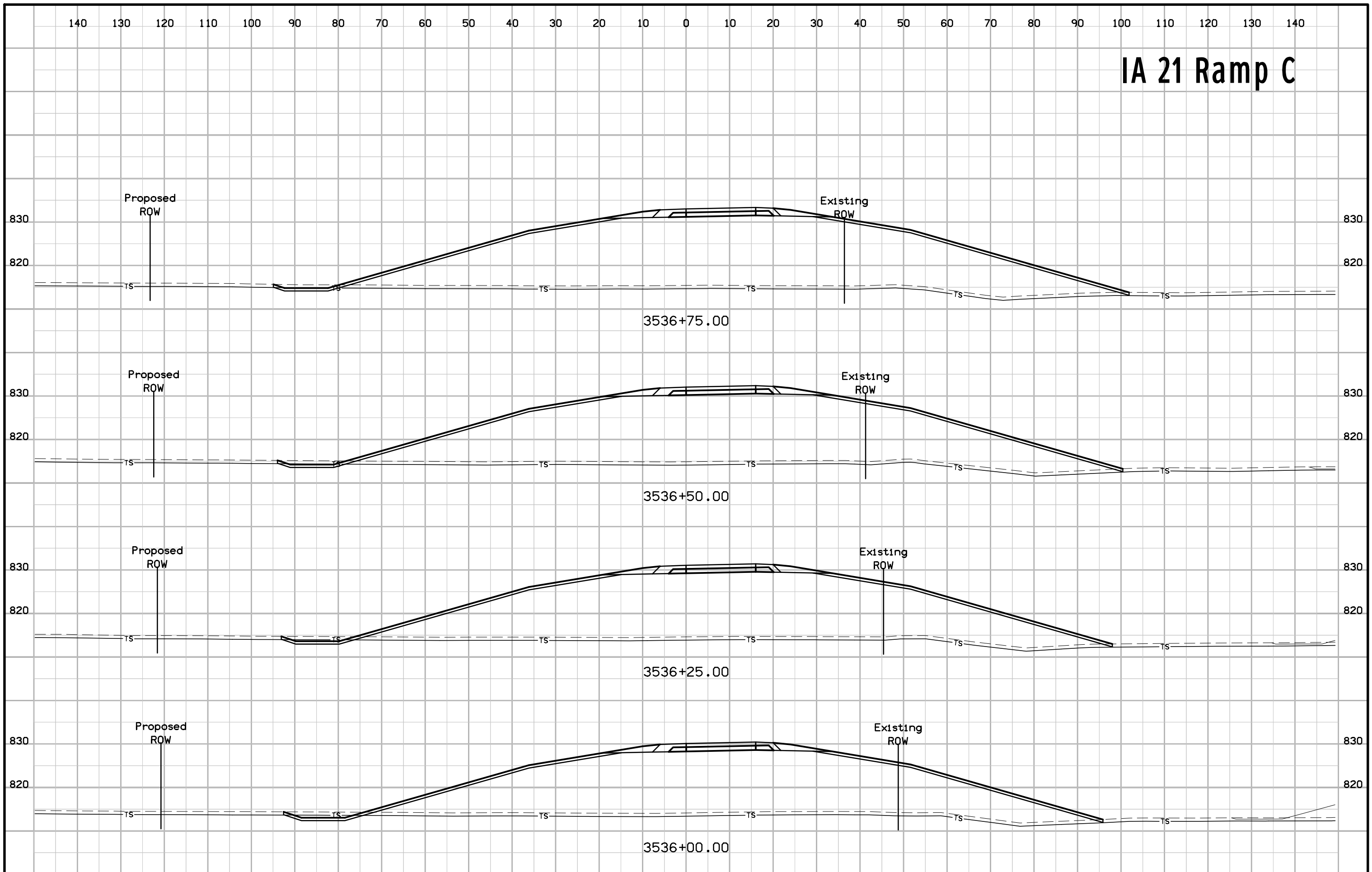
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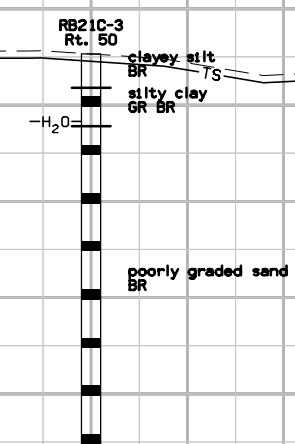
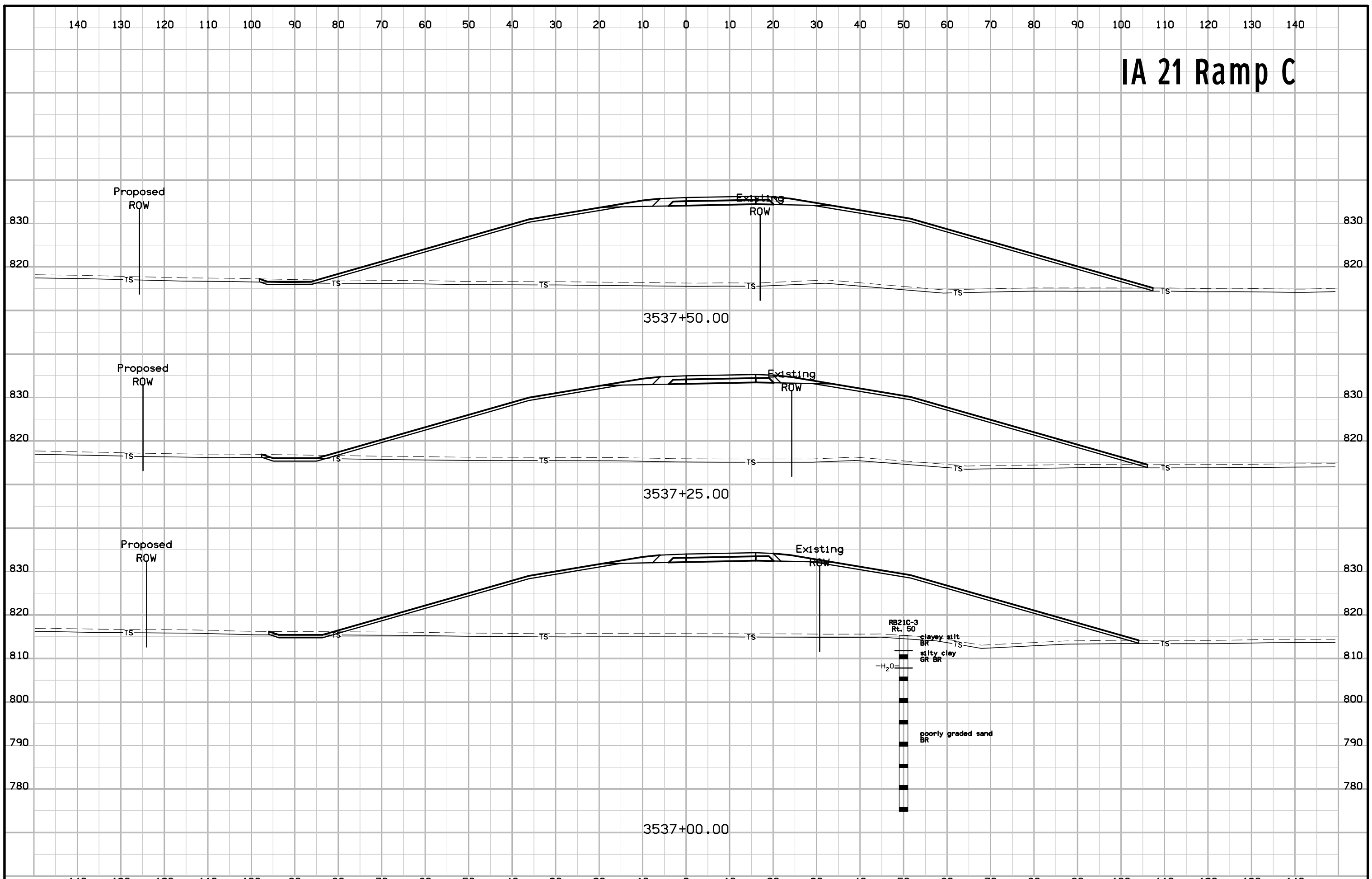
# IA 21 Ramp C



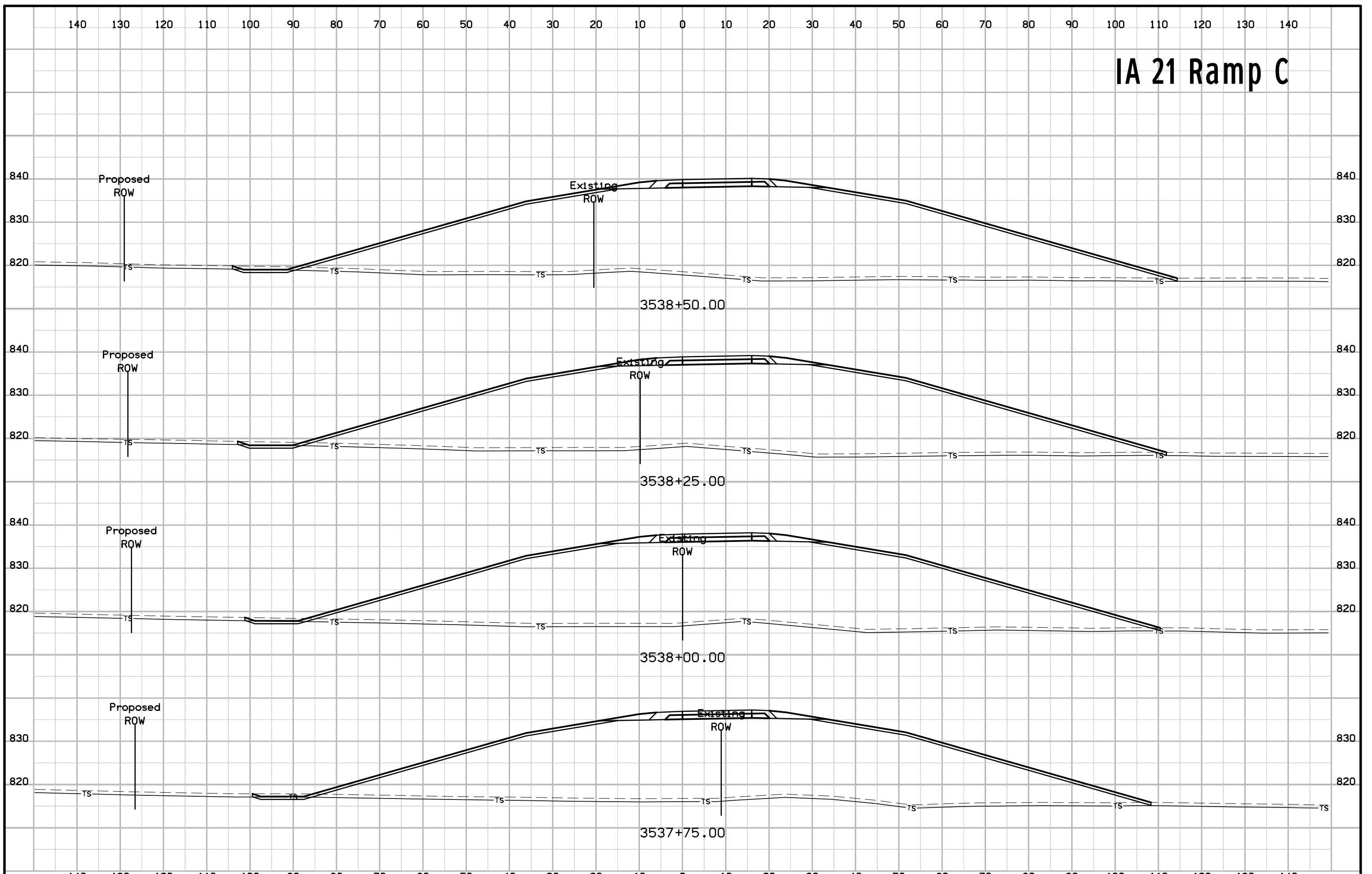
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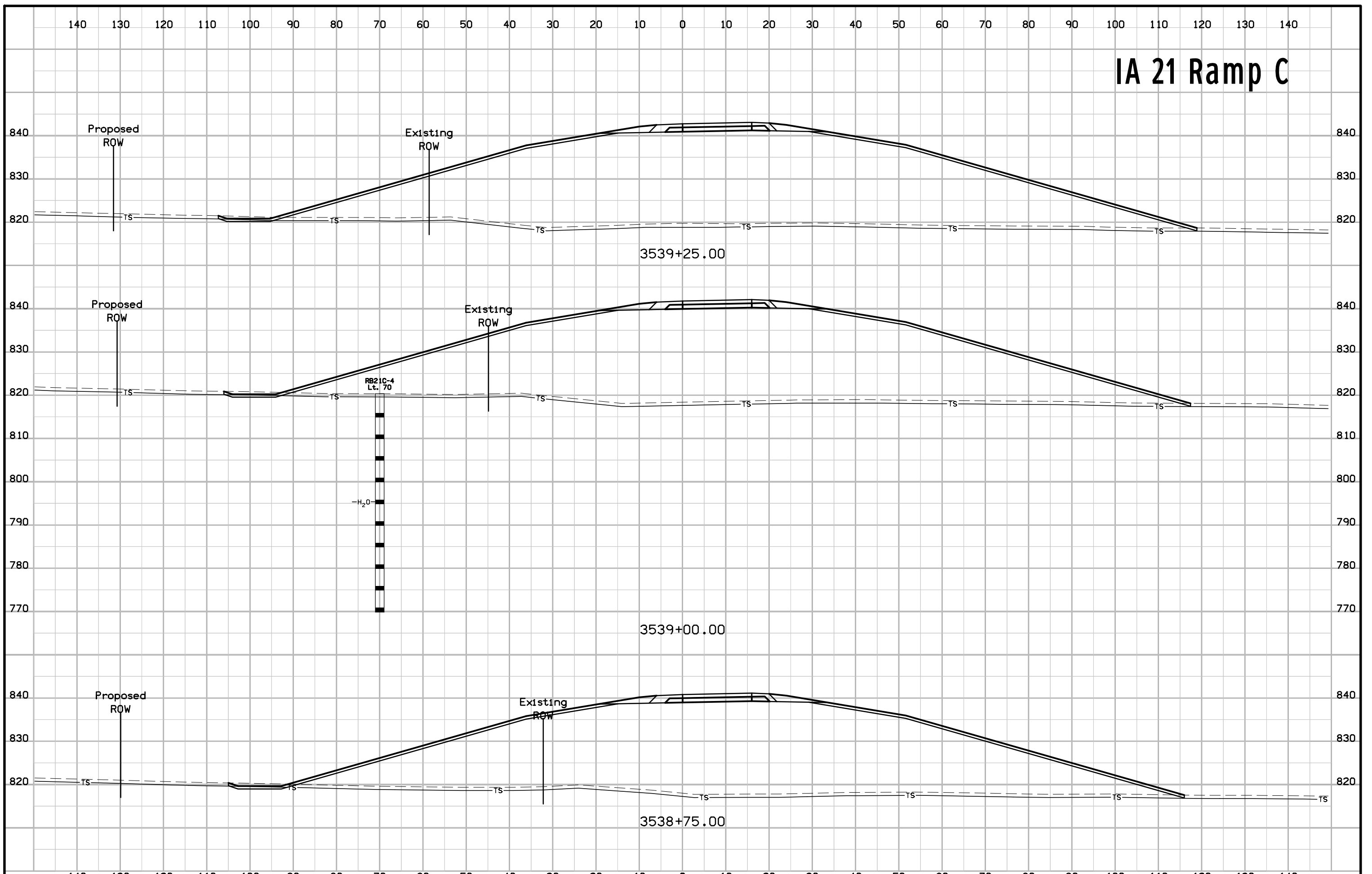
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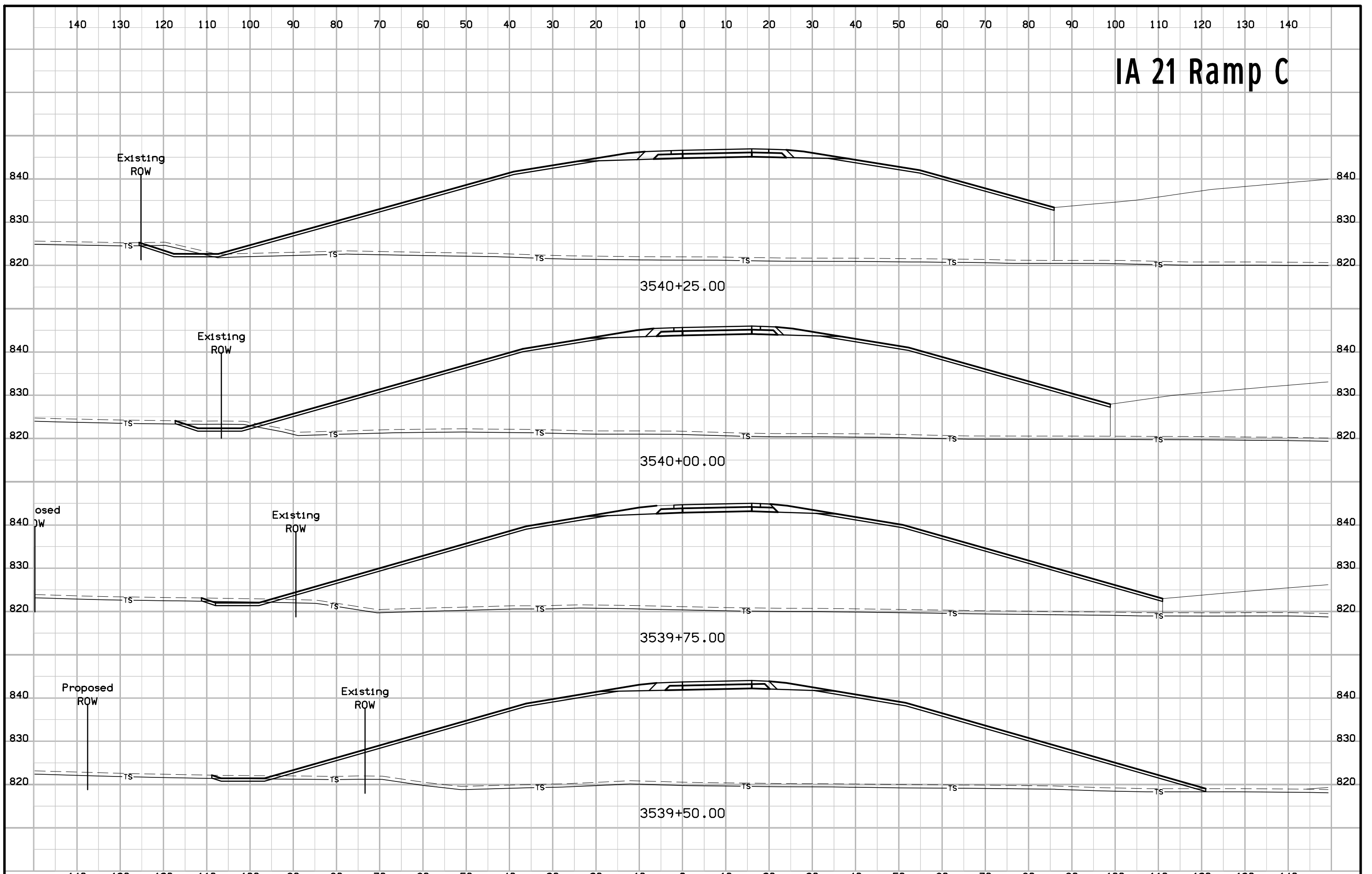
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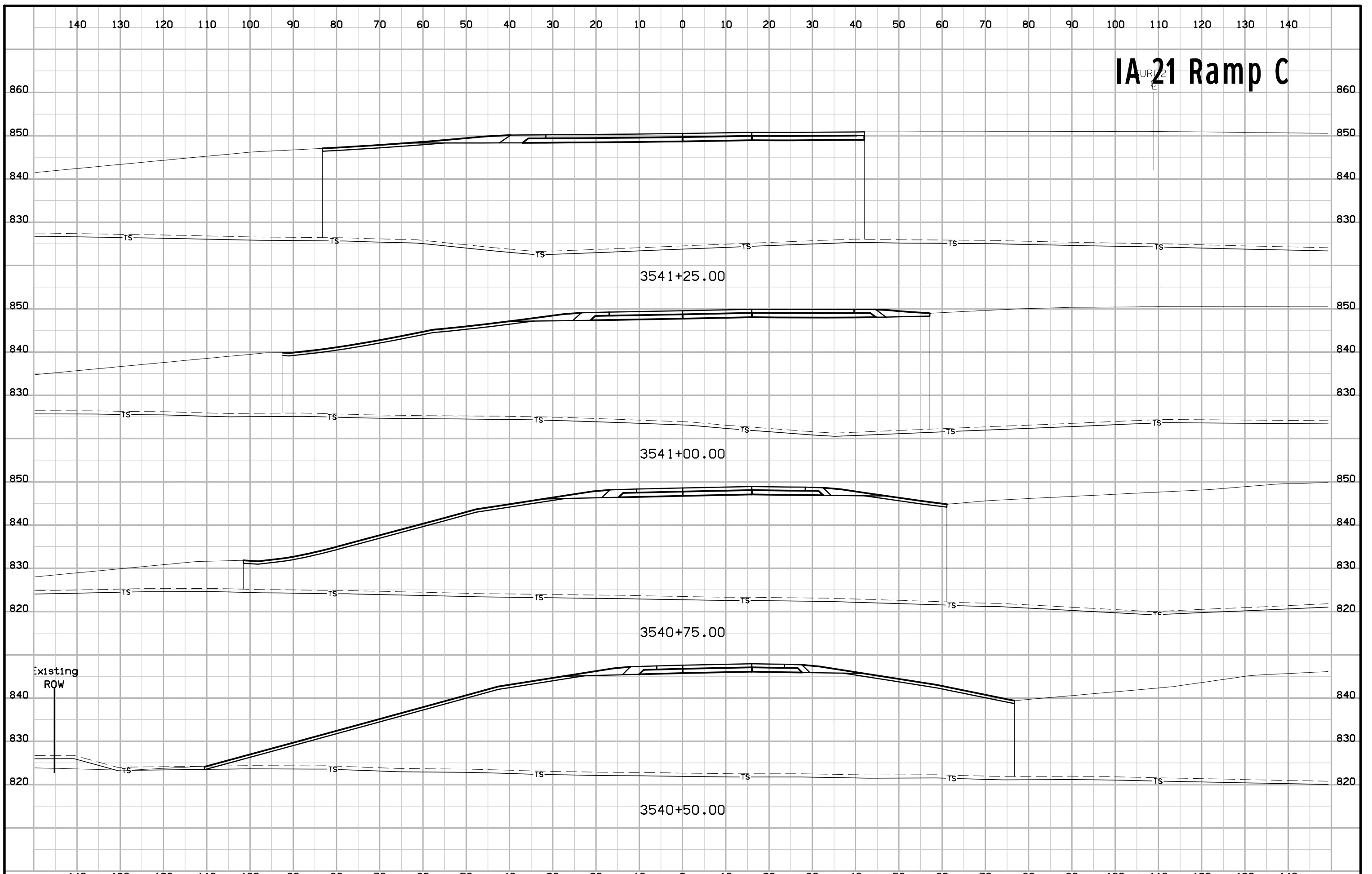
# IA 21 Ramp C



# IA 21 Ramp C

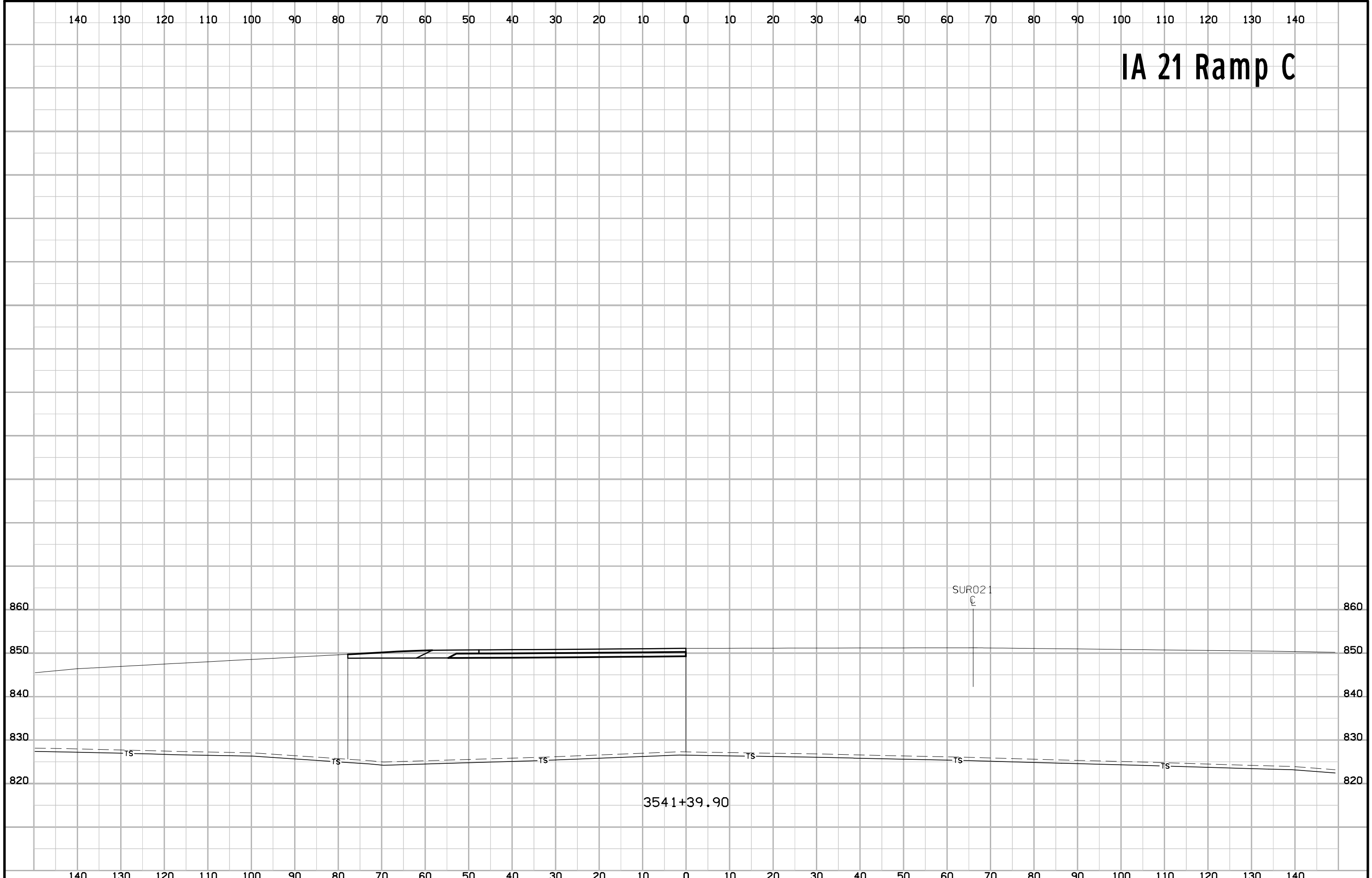


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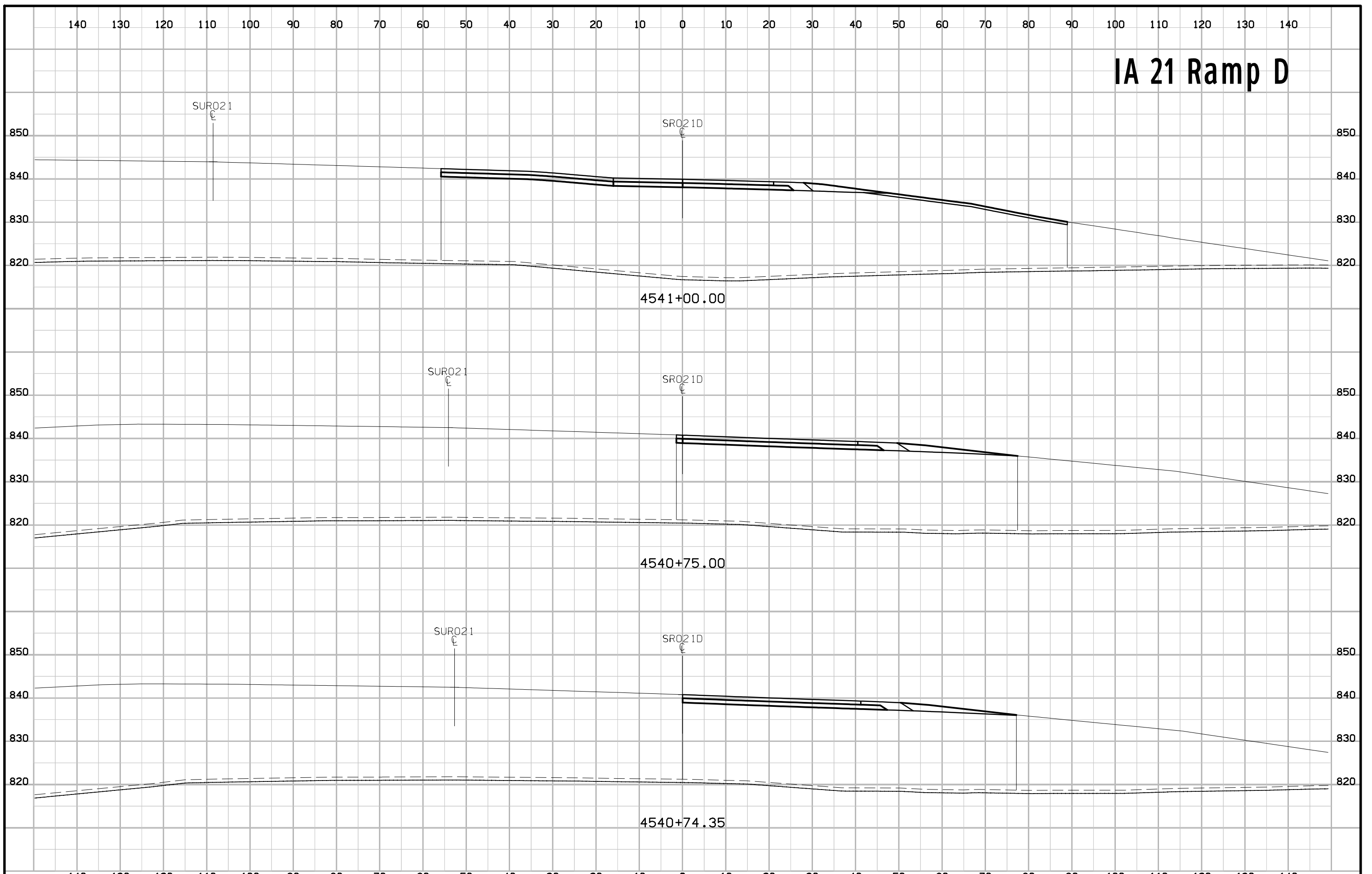




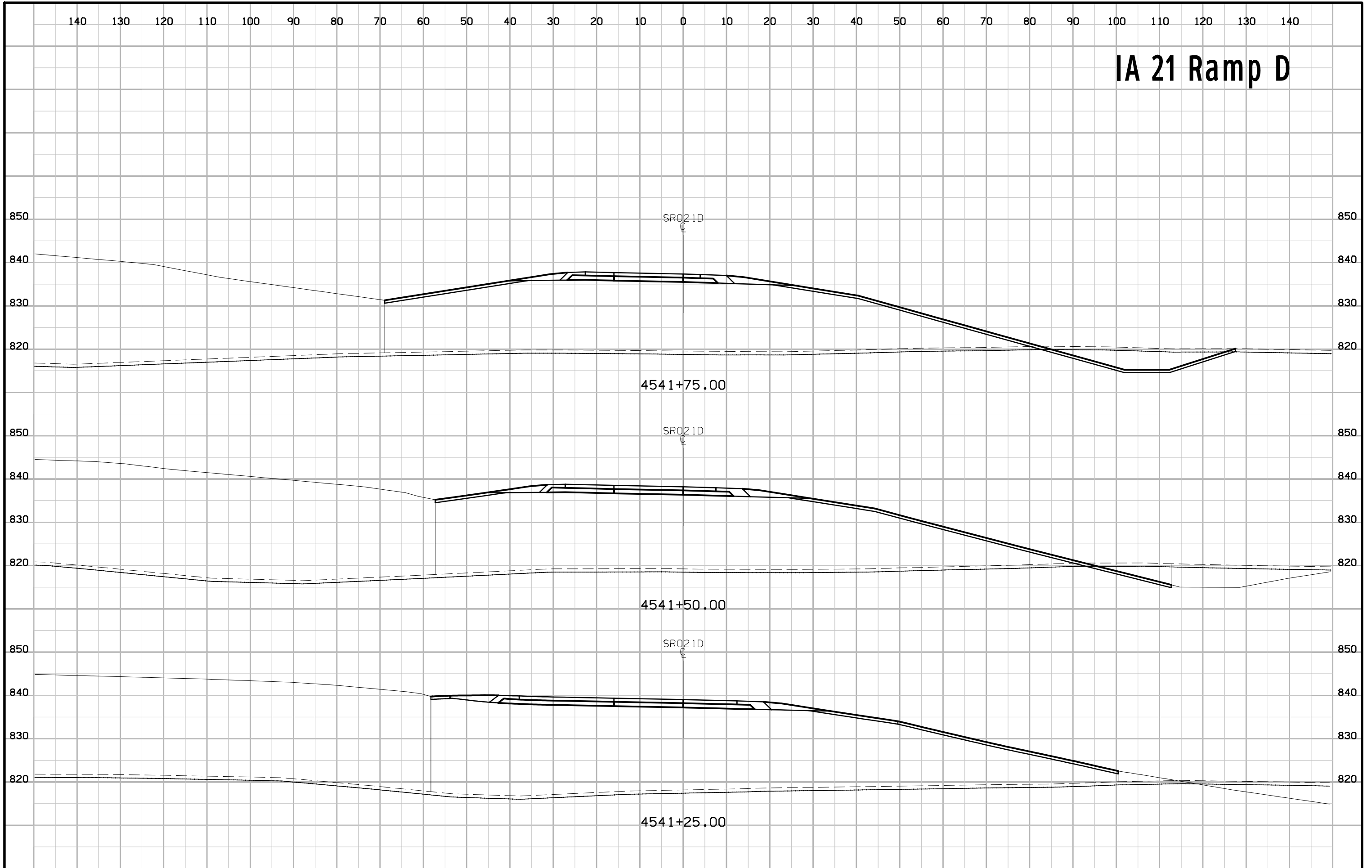
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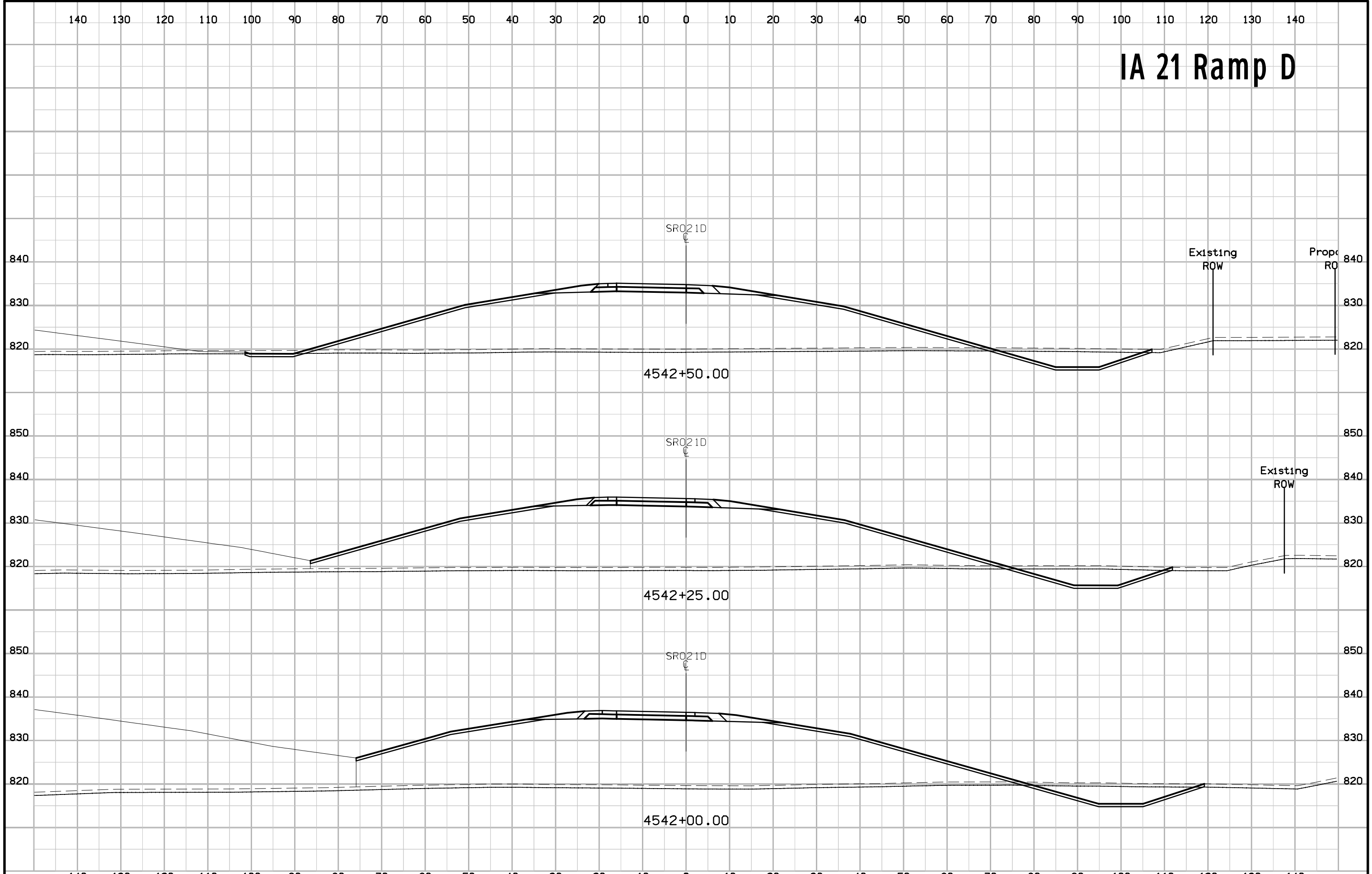
# IA 21 Ramp D



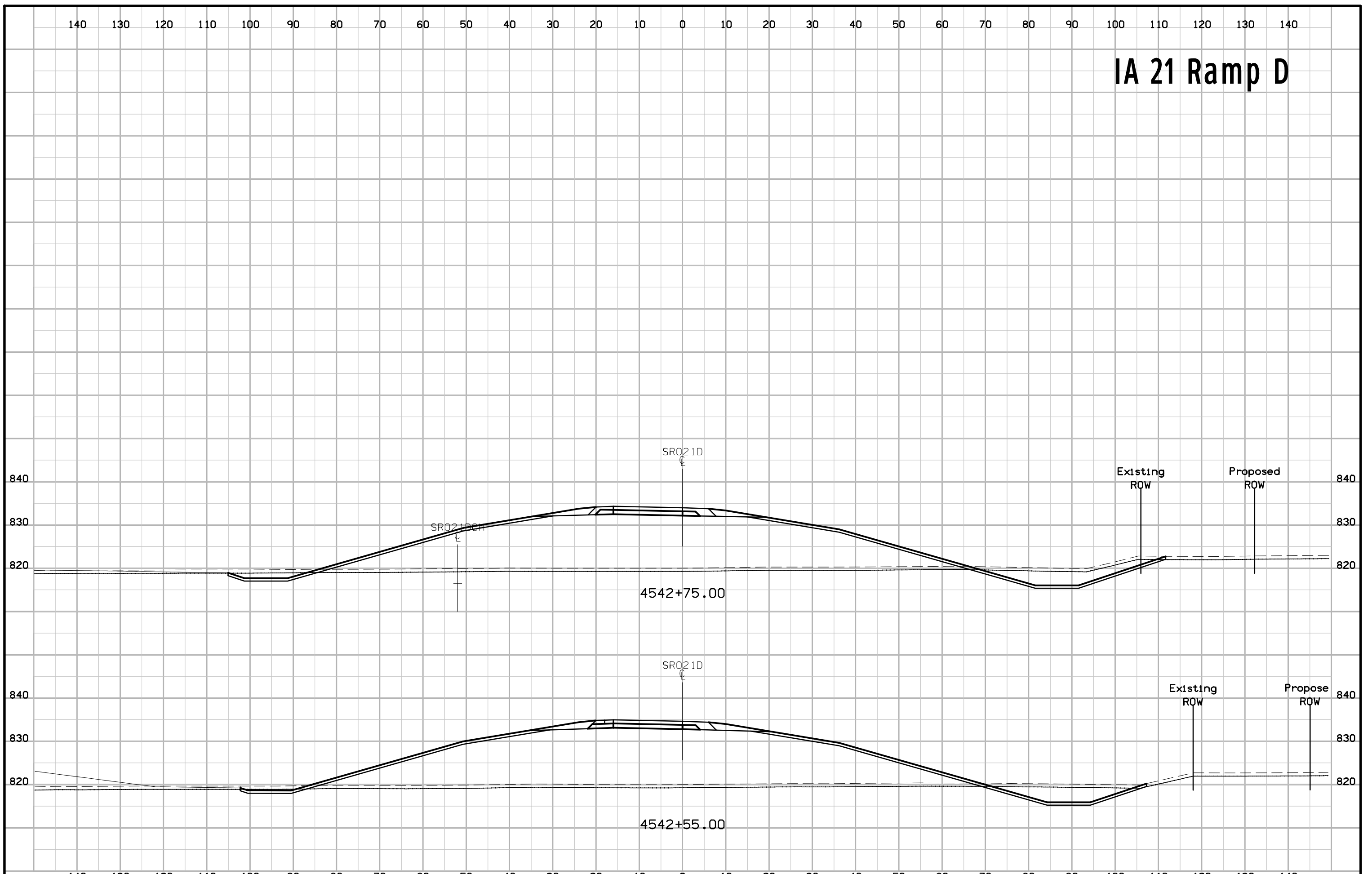
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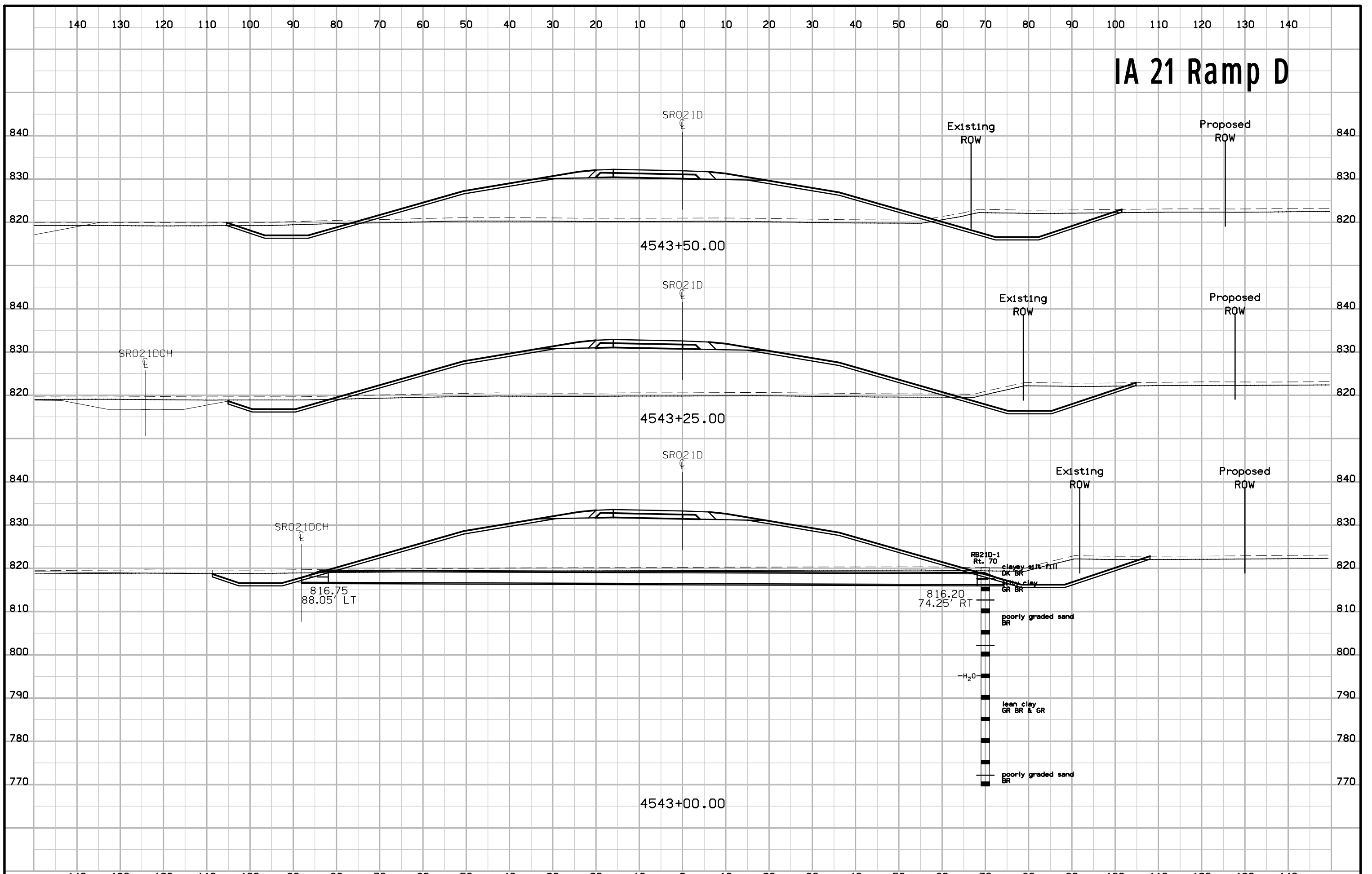
# IA 21 Ramp D



# IA 21 Ramp D



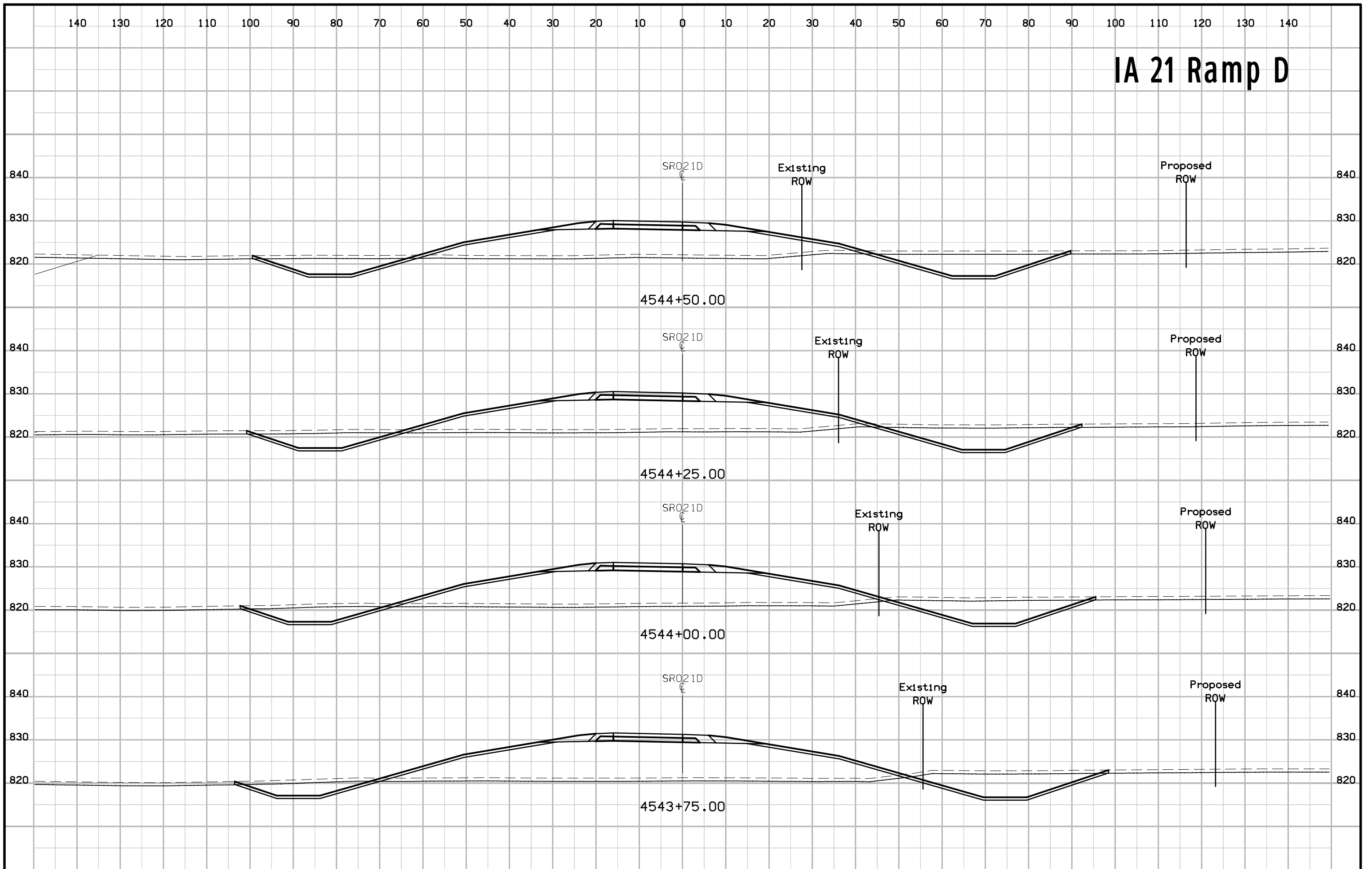
# IA 21 Ramp D



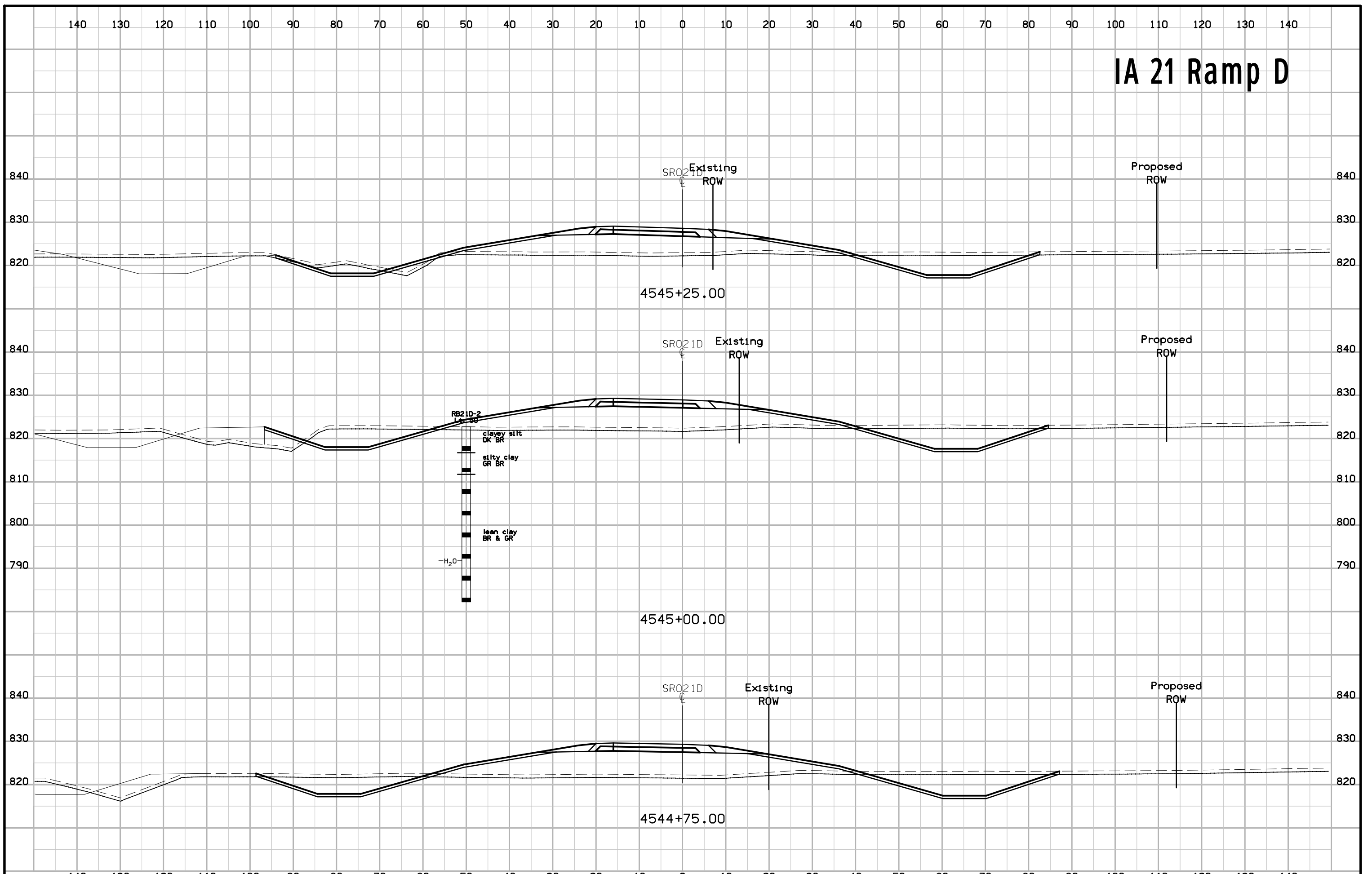
SR021DCH  
 816.75  
 88.05' LT

RB21D-1  
 Rt. 70  
 clayey silty fill  
 DK BR  
 silty clay  
 GR BR  
 816.20  
 74.25' RT  
 poorly graded sand  
 BR  
 -H<sub>2</sub>O  
 lean clay  
 GR BR & GR  
 poorly graded sand  
 BR

# IA 21 Ramp D

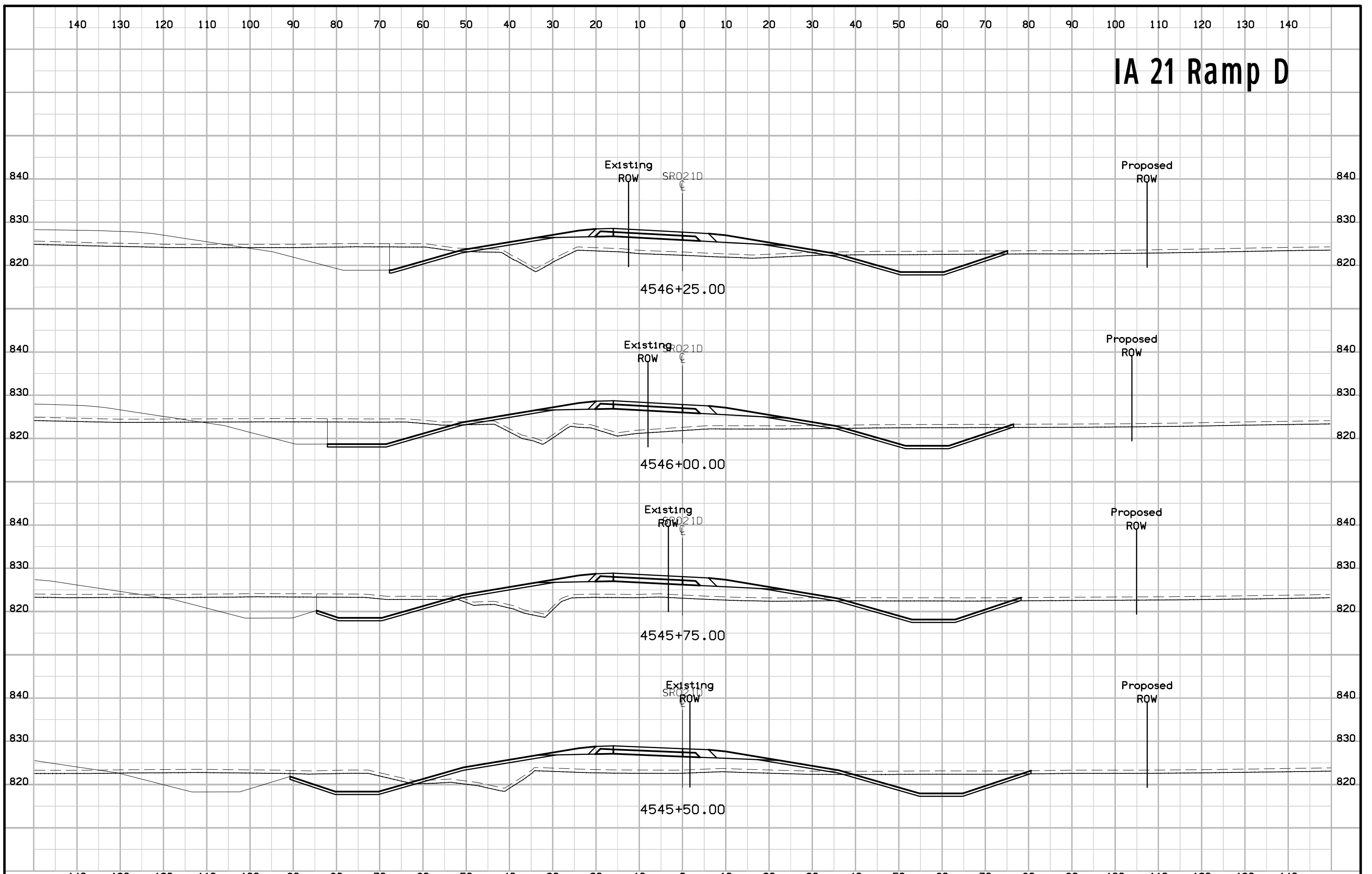


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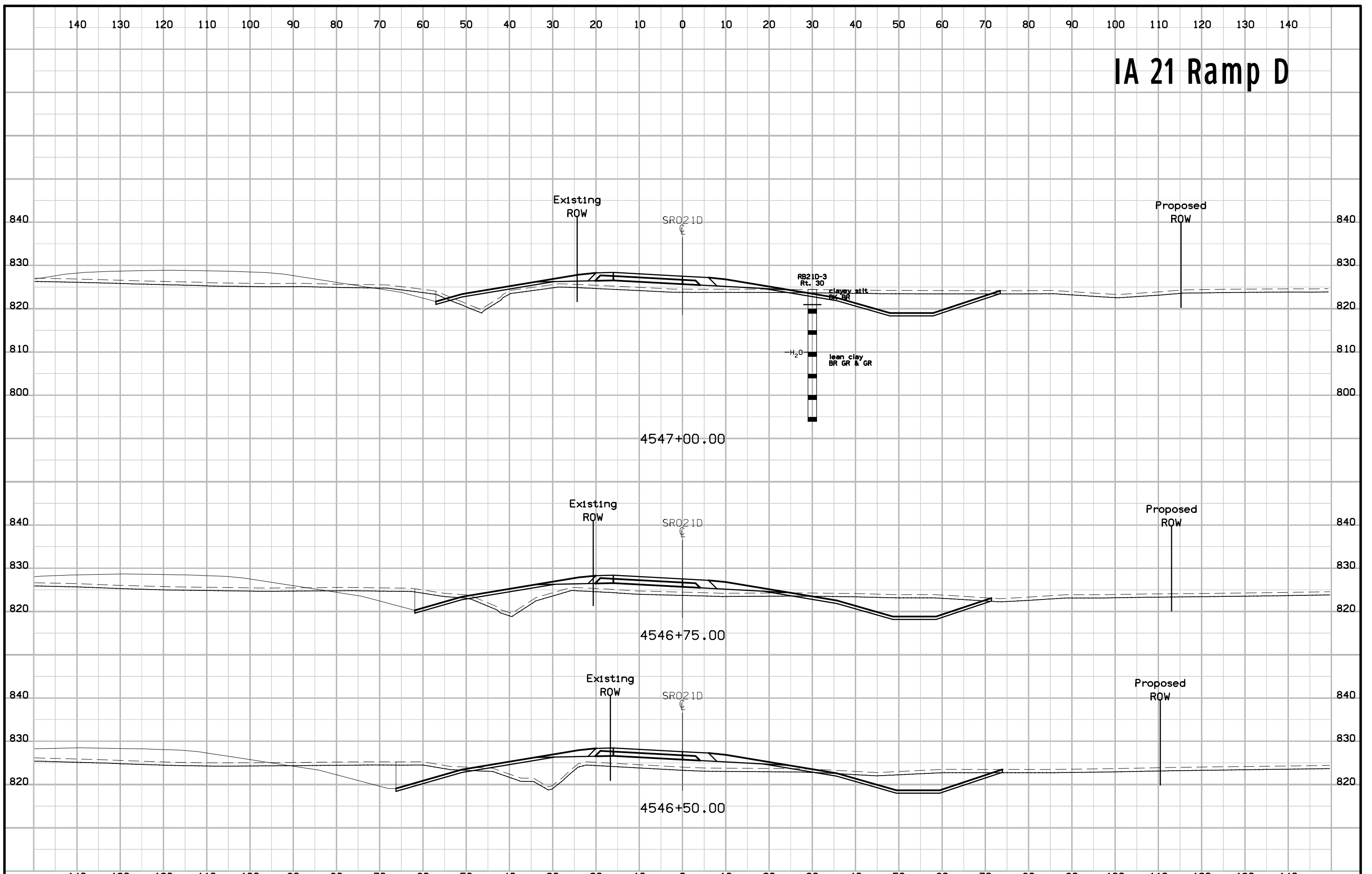




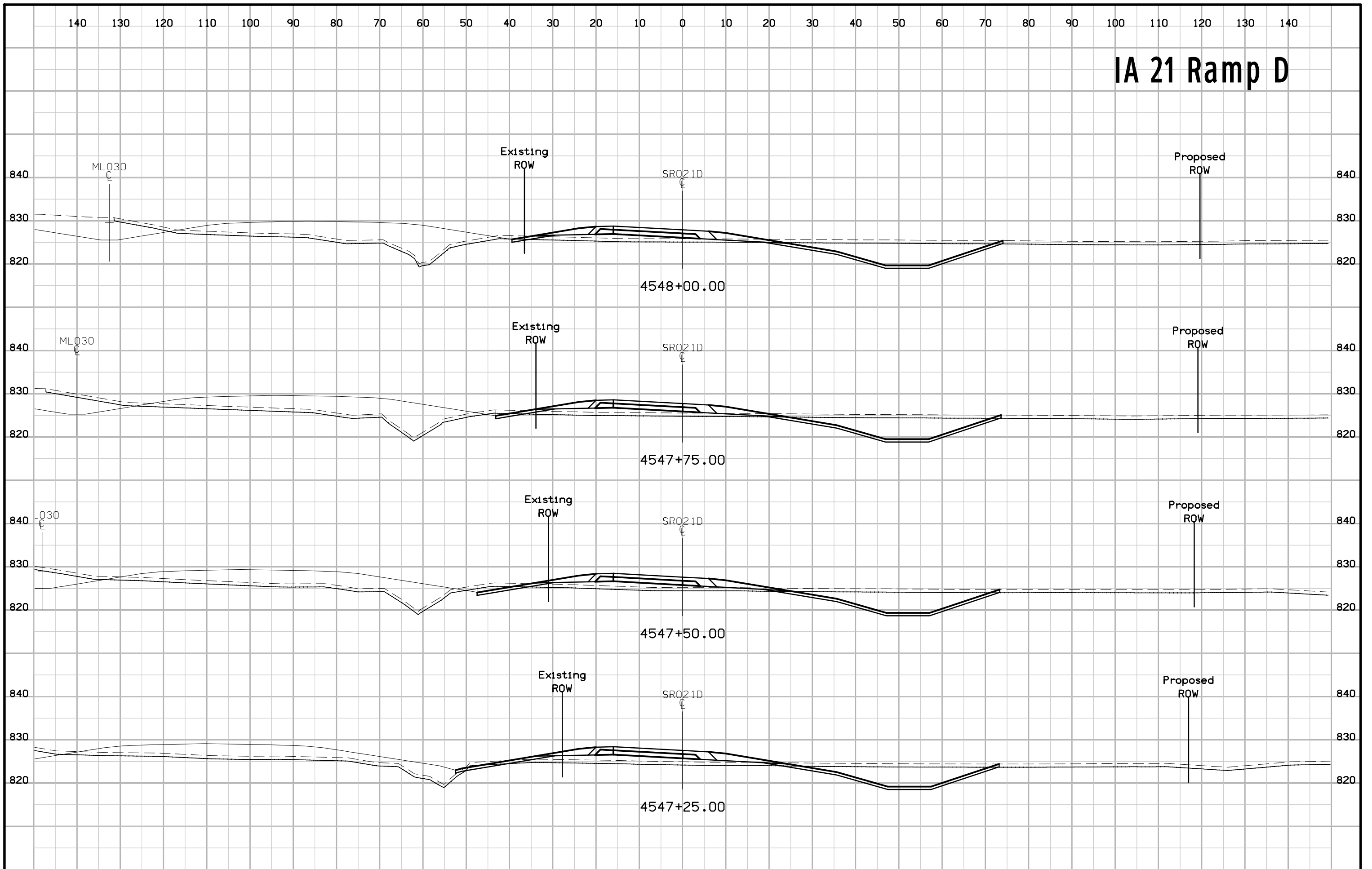
# IA 21 Ramp D



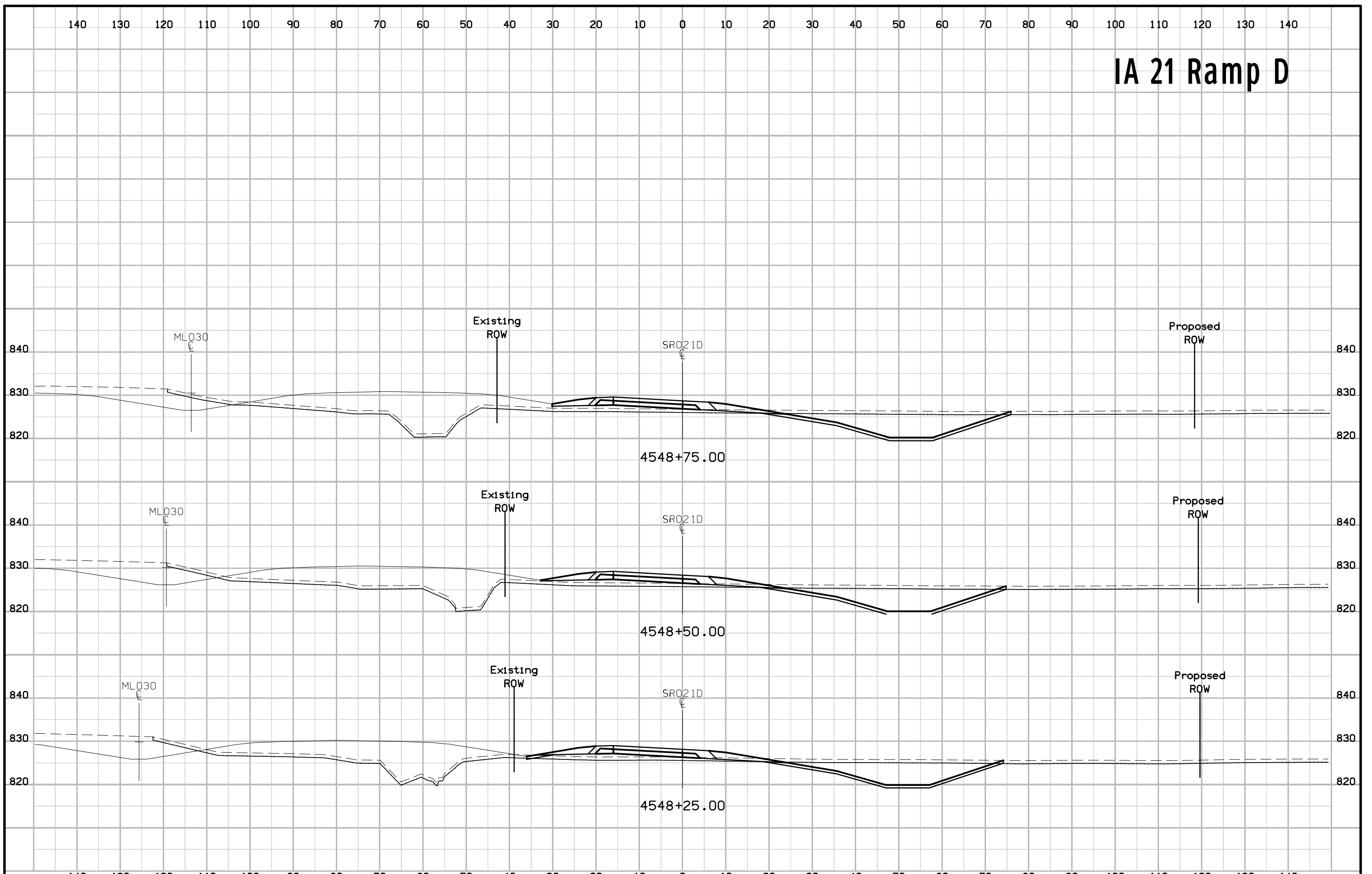
# IA 21 Ramp D



# IA 21 Ramp D



# IA 21 Ramp D



# IA 21 Ramp D

