

LETTING DATE
 November 20, 2018

INDEX OF SHEETS	
No.	DESCRIPTION
A Sheets	Title Sheets
A.1	Title Sheet
A.2	Location Map Sheet
A.3 - 5	Design Criteria
B Sheets	Typical Cross Sections and Details
B.1 - 5	Typical Cross Sections and Details
D Sheets	Mainline Plan and Profile Sheets
* D.1	Plan & Profile Legend & Symbol Information Sheet
* D.2 - 7	U.S. Highway 151
E Sheets	Side Road Plan and Profile Sheets
* E.1	Church Street
* E.2	Prairie Avenue
* E.3	Losey Avenue
* E.4	Stallman Drive
* E.5	Cemetery Road
* E.6	Beverly Road
* E.7	Drainage Ditch #2
G Sheets	Survey Sheets
G.1 - 4	Reference Ties and Bench Marks
G.5	Horizontal Control & Curve Data for all Alignments
G.6	Superelevation Data
J Sheets	Traffic Control and Staging Sheets
J.1	Traffic Control Plan
* J.2	Traffic Control & Staging Legend & Symbol Info. Sheet
* J.3	Detour Plan
* J.4 - 8	Staging Typical Sections
* J.9 - 19	Staging Plans
M Sheets	Storm Sewer Sheets
M.1	Storm Sewer Tabulations
M.2	Storm Sewer Legend & Symbol Information Sheet
M.3 - 7	Storm Sewer Plan and Profile Sheets U.S. Highway 151
M.8	Water Main Casing Pipe Plan and Profile Sheet
M.9	Sanitary Sewer Realignment Plan and Profile Sheet
V Sheets	Bridge and Culvert Situation Plans
* V.1 - 3	UPRR Bridge Situation Plans
* V.4 - 10	Prairie Creek Bridge Situation Plans
* V.11 - 17	Drainage Ditch #1 Situation Plans
* V.18 - 25	Drainage Ditch #2 Bridge Situation Plans
* V.26 - 27	Prairie Creek Retaining Wall Situation Plans
* V.28 - 30	MSE Retaining Wall Situation Plans
* V.31 - 33	Culvert Situation Plans
W Sheets	Mainline Cross Sections
W.1	Cross Sections Legend & Symbol Information Sheet
W.2 - 49	Mainline Cross Sections
X Sheets	Side Road Cross Sections
X.1 - 4	Church Street Cross Sections
X.5 - 11	Prairie Avenue Cross Sections
X.12 - 16	Losey Avenue Cross Sections
X.17 - 18	Stallman Drive Cross Sections
X.19 - 21	Cemetery Road Cross Sections
	* Color Plan Sheets



Highway Division

PLANS OF PROPOSED IMPROVEMENT ON THE

PRIMARY ROAD SYSTEM

LINN COUNTY

UNKNOWN PAVEMENT - GRADE AND REPLACE

FROM SOUTH OF CHURCH STREET
 IN FAIRFAX TO SOUTH OF DEAN ROAD

SCALES: As Noted

Refer to the Proposal Form for list of applicable specifications.

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



REVISIONS

TOTAL

161

PROJECT IDENTIFICATION NUMBER

08-57-151-020

PROJECT NUMBER

NHSX-151-3(158)--3H-57

R.O.W. PROJECT NUMBER

Anticipated Project Development Schedule:

D2 - Design Field Exam
November 20, 2015

D3 - Plans for Preliminary Bridge
June 24, 2016

B1 - Bridges and Structures Layout
July 22, 2016

S2 - Identification of Soils Related ROW Issues
April 13, 2016

D5 - Plans to Right of Way
August 05, 2016

Preliminary Earthwork: 15,870 CY Cut (Total)
76,210 CY Fill (Total)
60,340 CY Borrow

For Project Location Map
Refer to Sheet A.2

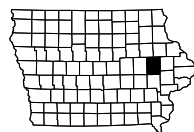
DESIGN DATA URBAN			
2013	AADT	8,100	V.P.D.
2040	AADT	12,010	V.P.D.
2040	DHV	1,255	V.P.H.
	TRUCKS	6	%
Total	Design ESALs	--	

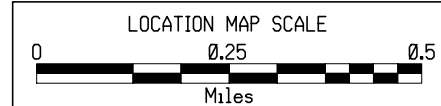
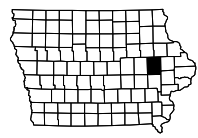
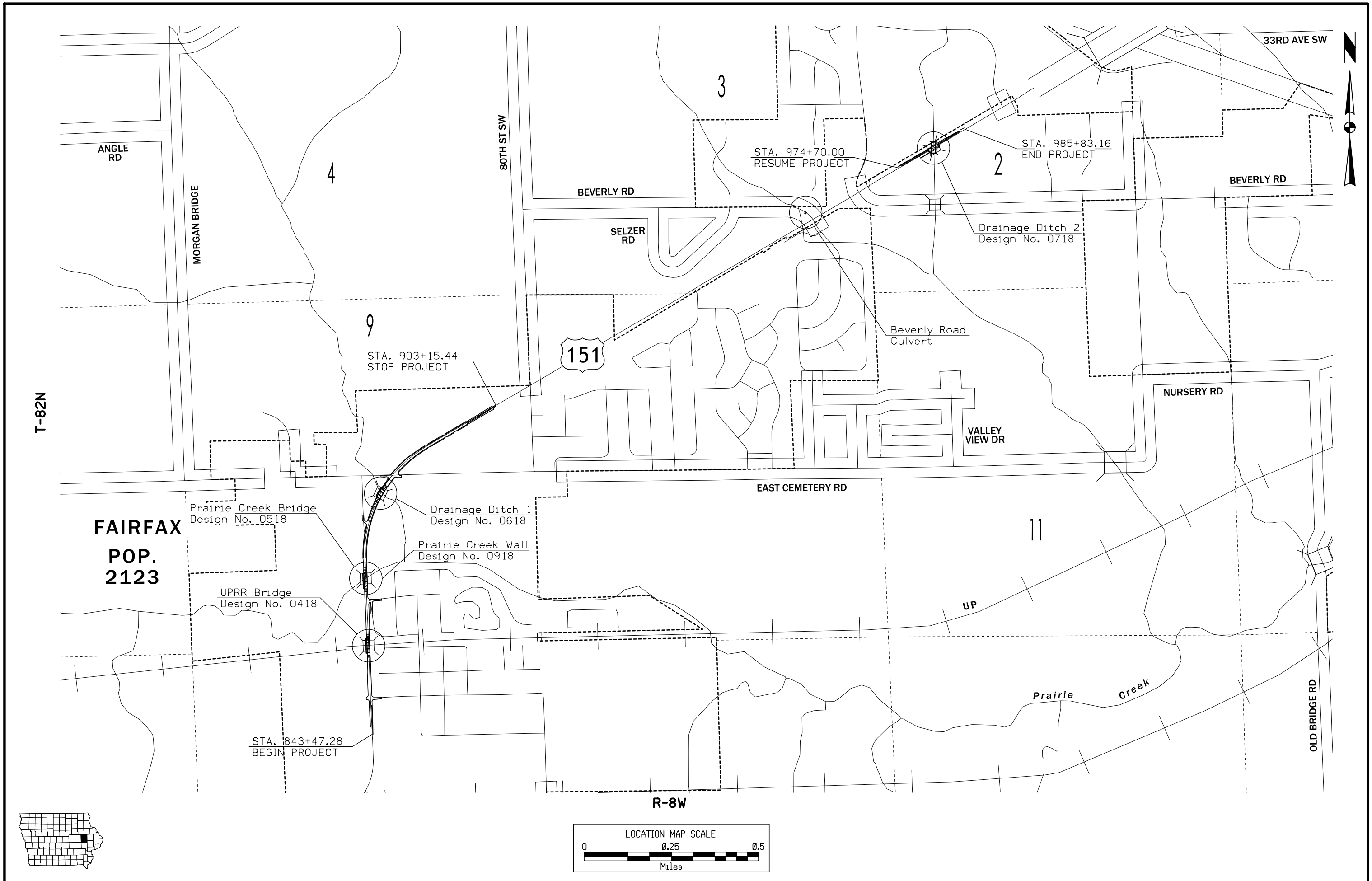
DESIGN DATA RURAL			
2013	AADT	13,500	V.P.D.
2040	AADT	19,800	V.P.D.
2040	DHV	1,830	V.P.H.
	TRUCKS	6	%
Total	Design ESALs	--	

D5 PLANS

Subject to change by final design.

D5 PLAN - Date: August 5, 2016





Roadway		U.S. Highway 151		Submittal Date		06/17/16				
PIN Number	08-57-151-020	Assistant District Engineer		Kenneth Yanna		Approval Date				
Project Number	NHSX-151-3(158)-3H-57	District 6		or						
District	Linn (57)	Office Director		Jim Schnoebelen						
County	U.S. Highway 151									
Route	From Beginning of Project to Prairie Creek									
Location	Unknown Pavement - Grade and Replace									
Work Type	Tom Storey									
Segment Manager	Snyder & Associates, Inc.									
Designer										
Design Manual Section 1C-1										
last update:	05-06-14									
Urban Multilane Roadways (Urban Arterials)										
Design Element	Preferred	Acceptable Criteria	Project Values							
Design speed (mph)	The anticipated posted speed limit	30	45							
Maximum superelevation rate (Refer to Section 2A-2)	4%	8%	4%							
Design lane width (ft)	12	11	12							
Full depth paved width (ft)	Design lane width + curb and gutter unit or 14 feet for roadways with shoulders, 12' if using full depth shoulders	Match design lane width	15							
	Design lane width + curb and gutter unit, 12' for roadways without a curb and gutter unit	Match design lane width	14							
Right turn lane or an auxiliary lane (ft)	12	10 ft + median	12							
Left turn lane (ft)	With raised or painted median	10	12							
Two-way left turn lane (ft)	With depressed median	14	N/A							
Parking lane width (ft)	10	11	14							
	2%, However, when adjacent lanes slope in the same direction, increase slope by 0.5% per lane up to 3%	7	N/A							
Pavement cross-slope (on tangent sections)	Through lanes	1.5% minimum, 3% maximum	2%							
	Auxiliary and turn lanes	3% maximum	2%							
	Crown break at centerline	4% maximum	4%							
Shoulder cross-slope (on tangent sections)	Shoulders	4%	4%							
	Curb and gutter units	Match pavement cross-slope	2%							
	Parking lanes	1% greater than pavement cross-slope	N/A							
Curb type (Refer to Section 3C-2)	Design speed \leq 45 mph	6-inch standard	any shape							
Foreslope (For fill areas greater than 40 ft, contact the Soils Design Section for assistance)	Adjacent to shoulder	10:1 for 4' then 6:1	3:1							
	Beyond standard ditch depth and design clear zone	3:5:1	3:1							
	Curbed roadways	2%	not steeper than 3:1							
Backslope (For cut areas greater than 25 feet, contact the Soils Design Section for assistance with backslope benches.)	Curbed roadways	3:1	2.5:1							
Transverse Slopes	w/ drainage structures	8:1	8:1							
	w/o drainage structures	10:1	10:1							
Ditches (Refer to Section 3G-1)	Outside ditch (depth x width) (ft)	5 x 10	14							
Median width (ft) (Refer to Section 3E-1)	See Section 3E-1	0	14							
Bridge width—new	Bridge length \leq 200 ft	design lane widths + effective shoulder widths or curb-to-curb width	64							
	Bridge length > 200 ft	design lane widths + effective shoulder widths or curb-to-curb width	70							
Bridge width—existing	design lane widths + no less than 2 ft left and right	design lane widths + 2 ft left and right of the design widths	16.5							
Vertical clearance (ft)	Over primary	16.5	16.5							
	Over non-primary	16.5 at interchange locations, 15 at all other locations	16.5							
	Over railroad	23.3	23.33							
Structural Capacity	Sign truss and pedestrian crossings	17.5	17.5							
Level of Service	Contact Office of Bridges and Structures	C	D							
Roadway Design Speed (mph) = 45										
Design Manual Section 1C-1										
last update:	05-06-14									
Design Element	Preferred	Acceptable Criteria	Project Values							
Stopping sight distance (ft) (Refer to Section 6D-1)	Design Speed, mph	Design Speed, mph	Design Speed, mph							
	25	30	35	40	45	25	30	35	40	45
	155	200	250	305	360	155	200	250	305	360
Minimum horizontal curve radius (ft) and side friction distribution	See Table 10 in Section 2A-3	See Table 10 in Section 2A-3								
Superelevation rate (Refer to Sections 2A-2 and 2A-3)	$e = 4\%$ max	144	231	340	485	643	144	231	340	485
	$e_{max} = 6\%$	--	--	--	--	--	134	214	314	444
	$e_{max} = 8\%$	75	90	105	120	135	75	90	105	120
Minimum vertical curve length (ft) (Refer to Section 2B-1)	crest vertical curves	12	19	29	44	61	12	19	29	44
	sag vertical curves	26	37	49	64	79	26	37	49	64
Minimum rate of vertical curvature (K)	roadways without fixed-source lighting	26	37	49	64	79	26	37	49	64
	roadways with fixed-source lighting	26	37	49	64	79	14	20	27	35
Minimum gradient (%) (Refer to Section 2B-1)	Urban roadways	0.5								
	Rural roadways	5								
Maximum gradient (%) (Refer to Section 2B-1)	Urban roadways	0.3% with a curb, 0.0% without a curb								
	Rural roadways	--								
Clear zone	See "Preferred Clear Zone" table in Section 8A-2	See "Acceptable Clear Zone" table in Section 8A-2								
Effective Shoulder Width and Type for Multilane Arterials										
Design Manual Section 1C-1										
last update:	05-06-14									
Design year ADT =	12,010									
Design Element	Preferred	Acceptable	Project Values							
Auxiliary lanes or turn lanes with shoulders	Urban Roadways	Auxiliary lanes or turn lanes with shoulders	Urban Roadways							
Turn lanes with curbs	6	Turn lanes with curbs	6							
	See Section 3C-2	Expressways	Expressways							
Expressways	Effective Shoulder Width	Effective Shoulder Width	Effective Shoulder Width							
	10	10	8							
Routes where bicycles are to be accommodated	10	10	8							
On roadways approaching urban areas (due to increased bike traffic)	10	10	8							
On all curves with a superelevation rate of 7.0% or greater	10	10	8							
On roadways with design year ADT > 6500 vpd	10	10	8							
On all other Expressways (Multilane Arterials)	10	10	8							
* Requires safety edge. See Section 3C-6										
Curb should be located beyond the outer edge of the effective shoulder width in rural areas										
Refer to Section 3C-2 for curb offsets in urban areas										
Notes:										

DESIGN CRITERIA - URBAN
Sta 843 + 47 to 870 + 70

Roadway		U.S. Highway 151		Submittal Date 06/17/16	
PIN Number	08-57-151-020				
Project Number	NHSX-151-3(158)-3H-57		Approval Date		
District	District 6		Assistant District Engineer Kenneth Yanna		
County	Linn (57)		OR		
Route	U.S. Highway 151		Office Director Jim Schnobeelen		
Location	North of Prairie Creek Bridge to South of 80th Street				
Work Type	Unknown Pavement - Grade and Replace				
Segment Manager	Tom Storey				
Designer	Snyder & Associates, Inc.				
Design Manual Section 1C-1 last update: 05-06-14					
	Design Element	Preferred	Acceptable	Project Values	
	Design speed (mph)	60	50	45	
	Maximum super-elevation rate (Refer to Section 2A-2)	6%	8%	6%	
	Design lane width (ft)	12	12	12	
	Full depth paved width (ft)	14	12	12	
	Right turn lane (ft)	12	10	12	
	Climbing Lane (ft)	12	12	N/A	
	Left turn lane (ft)	12	10	14 TWLTL	
	Pavement cross-slope (on tangent sections)	2%	1.5% minimum, 2% maximum	2%	
	Auxiliary and turn lanes	3%	3% maximum	2.5%	
	Crown break at centerline	4%	4% maximum	4%	
	Shoulder cross-slope (on tangent sections)	4%	Shoulder cross-slope cannot be less than the adjacent lane, 8% max for paved or granular shoulders, 8% max for earth shoulders	4%	
	Curb type (Refer to Section 3C-2)	Design speed = 50 or 55 mph Design speed ≥ 60 mph	6-inch sloped 4-inch sloped	No Curb	
	Foreslope	Adjacent to shoulder	10:1 for 4' then 6:1	10:1 for 4' the 6:1	
	(For fill areas greater than 40 ft, contact the Soils Design Section for assistance)	Beyond standard ditch depth and design clear zone	3:5:1	3:5:1	
	Backslope (For cut areas greater than 25 feet, contact the Soils Design Section for assistance with backslope benches.)	Curbed roadways	2%	N/A	
	Transverse Slopes	w/ drainage structures w/o drainage structures	8:1 10:1	8:1 10:1	
	Ditches (Refer to Section 3G-1)	Outside ditch (depth x width) (ft)	5 x 10	Var.	
	Bridge width—new	Bridge length ≤ 200 ft	design lane widths + effective shoulder widths	design lane widths	
	Bridge width—existing	Bridge length > 200 ft	design lane widths + no less than 2 ft left and right	design lane widths + 2 ft. offset left and right	
	Vertical clearance (ft) (above lanes, shoulders and 25 feet left and right of the center of railroad tracks)	Over primary Over non-primary Over railroad	16.5 14 23.3	16.5 16.5 23.3	
	Structural Capacity	Sign trusses and pedestrian bridges	17.5	17.5	
	Level of Service	Contact Office of Bridges and Structures	B	B	

Rural Two-Lane Highways (Rural Arterials)

Roadway Design Speed (mph) = 45								
Design Manual Section 1C-1 last update: 05-06-14								
Design Element		Preferred Criteria			Acceptable Criteria			Project Values
Stopping sight distance (ft) (Refer to Section 6D-1)	50	55	485	570	60	65	75	75
Minimum horizontal curve radius (ft) (Refer to Sections 2A-2 and 2A-3)	833	1060	1330	1660	1330	1660	2040	2500
Minimum vertical curve length (ft) (Refer to Section 2B-1)	150	165	180	195	180	195	210	225
Minimum rate of vertical curvature (K) (Refer to Section 2B-1)	84	114	151	193	114	151	193	247
Minimum gradient (%) (Refer to Section 2B-1)	96	115	136	157	96	115	136	181
Maximum gradient (%)	4	4	4	3	5	5	5	4
Clear zone	See "Preferred Clear Zone" table in Section 3A-2			See "Acceptable Clear Zone" table in Section 3A-2			4	4

Design Criteria for High Speed Roadways

Design year ADT = 12,010						Project Values			
Design Manual Section 1C-1 last update: 05-06-14		Preferred (values shown in feet)				Acceptable (values shown in feet)			
Turn lanes with shoulders	Rural Roadways	Urban Roadways	Turn lanes with shoulders		Rural Roadways	Urban Roadways	Turn lanes with shoulders		
	6	6	6	6	6	6	0	0	
Turn lanes with curbs	Effective Shoulder Width	Paved Width	Turn lanes with curbs		Effective Shoulder Width	Paved Width	Turn lanes with curbs		
	6	4	6	4	6	4	6	4	
Climbing Lanes	Effective Shoulder Width	Paved Width	Climbing Lanes		Effective Shoulder Width	Paved Width	Climbing Lanes		
	10	10	10	10	10	10	10	10	
Routes where bicycles are to be accommodated	Effective Shoulder Width	Paved Width	Two-Lane Highways		Effective Shoulder Width	Paved Width	Two-Lane Highways		
	10	10	10	10	10	10	10	10	
On roadways with design year ADT > 3000	10	10	10	10	10	10	10	10	
	10	4	10	6	10	6	10	6	
On non-NHS routes with design year ADT < 3000	10	4	10	4	10	4	10	4	
	8	2*	8	2*	8	2*	8	2*	

Effective Shoulder Width and Type for Two-Lane Highways

*Requires safety edge. Refer to Section 3C-5
Curbs should be located beyond the outer edge of the effective shoulder width in rural areas
Refer to Section 3C-2 for curb offsets in urban areas

DESIGN CRITERIA - RURAL
Sta 870+70 to 904+06

Curbed Shoulder

Shoulder Jointing:
Longitudinal joint not required when distance from back of curb to nearest joint is less than 15':

Single pour: L-2
Staged : KT-2
Transverse:C at 20' spacing

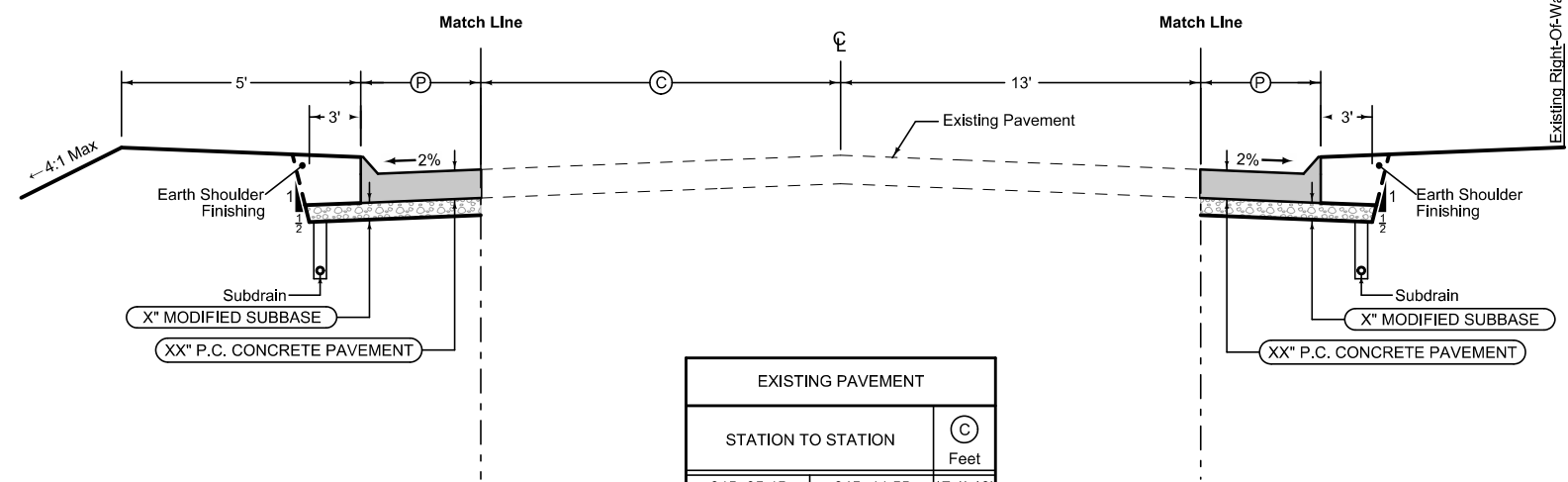
1R_Curb 04-19-11			
BEGIN STATION	END STATION	(P) Feet	Curb Type See PV-102
847+24.00	848+30.33	8'	6" Sloped

Curbed Shoulder

Shoulder Jointing:
Longitudinal joint not required when distance from back of curb to nearest joint is less than 15':

Single pour: L-2
Staged : KT-2
Transverse:C at 20' spacing

1R_Curb 04-19-11			
BEGIN STATION	END STATION	(P) Feet	Curb Type See PV-102
845+05.45	848+30.33	3'	6" Sloped



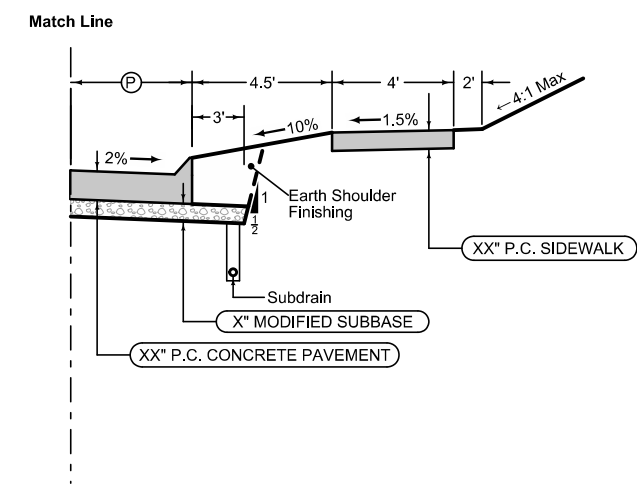
EXISTING PAVEMENT		
STATION TO STATION	(C) Feet	
845+05.45	845+44.55	17.1'-18'
845+44.55	848+30.33	18'

Curbed Shoulder

Shoulder Jointing:
Longitudinal joint not required when distance from back of curb to nearest joint is less than 15':

Single pour: L-2
Staged : KT-2
Transverse:C at 20' spacing

1R_Curb 04-19-11			
BEGIN STATION	END STATION	(P) Feet	Curb Type See PV-102
845+60.00	846+17.11	6.7'-8'	6" Sloped
846+17.11	847+24.00	8'	6" Sloped

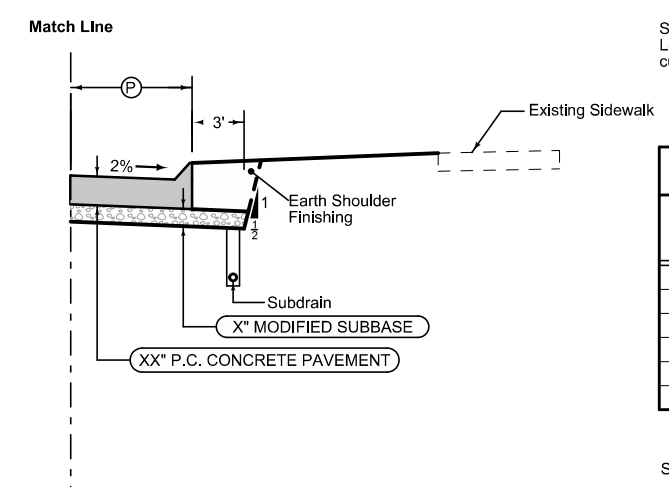


Curbed Shoulder

Shoulder Jointing:
Longitudinal joint not required when distance from back of curb to nearest joint is less than 15':

Single pour: L-2
Staged : KT-2
Transverse:C at 20' spacing

1R_Curb 04-19-11			
BEGIN STATION	END STATION	(P) Feet	Curb Type See PV-102
843+88.58	845+60.00	3'-6.7'	6" Sloped



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

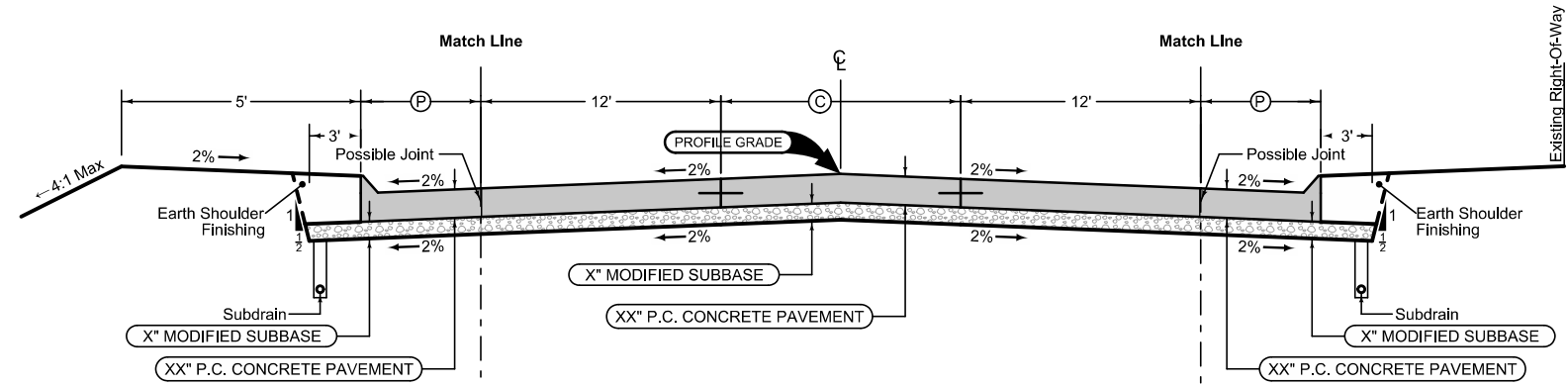
US HIGHWAY 151

Curbed Shoulder

Shoulder Jointing:
Longitudinal joint not required when distance from back of curb to nearest joint is less than 15':

Single pour: L-2
Staged : KT-2
Transverse:C at 20' spacing

1R_Curb 04-19-11			
BEGIN STATION	END STATION	(P) Feet	Curb Type See PV-102
848+30.33	848+87.11	3'	6" Sloped



Curbed Shoulder

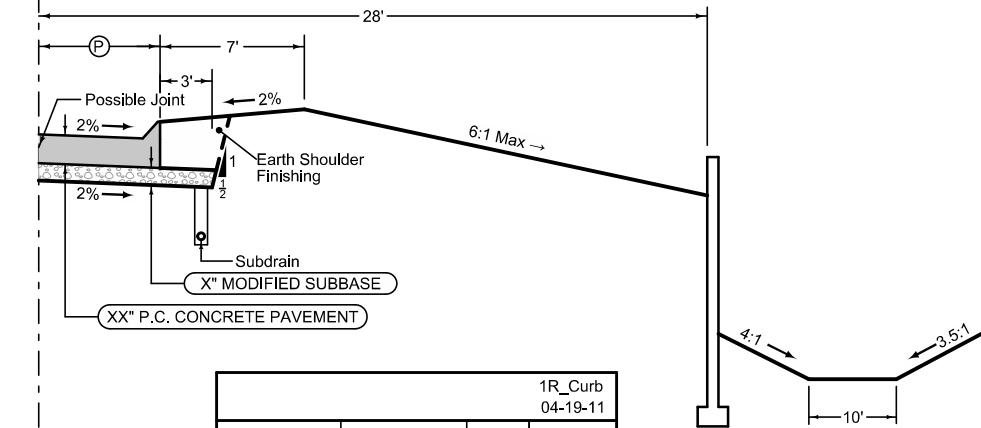
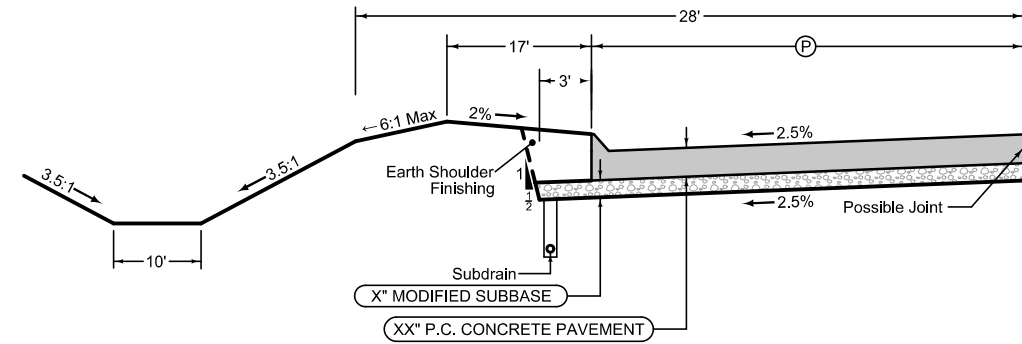
Shoulder Jointing:
Longitudinal joint not required when distance from back of curb to nearest joint is less than 15':

Single pour: L-2
Staged : KT-2
Transverse:C at 20' spacing

1R_Curb 04-19-11			
BEGIN STATION	END STATION	(P) Feet	Curb Type See PV-102
848+30.33	848+85.83	3'	6" Sloped

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

2P_TWLTL_ 10-19-10		
STATION TO STATION	(C) Feet	
848+30.33	853+34.27	12'
853+34.27	855+59.10	12'-2.1'
859+06.10	861+73.36	0'-12'
861+73.36	863+59.72	12'
863+59.72	864+57.82	12'-14'
864+57.82	865+56.60	14'
869+26.20	879+37.99	14'
882+29.22	898+00.00	14'



Curbed Shoulder

Shoulder Jointing:
Longitudinal joint not required when distance from back of curb to nearest joint is less than 15':

Single pour: L-2
Staged : KT-2
Transverse:C at 20' spacing

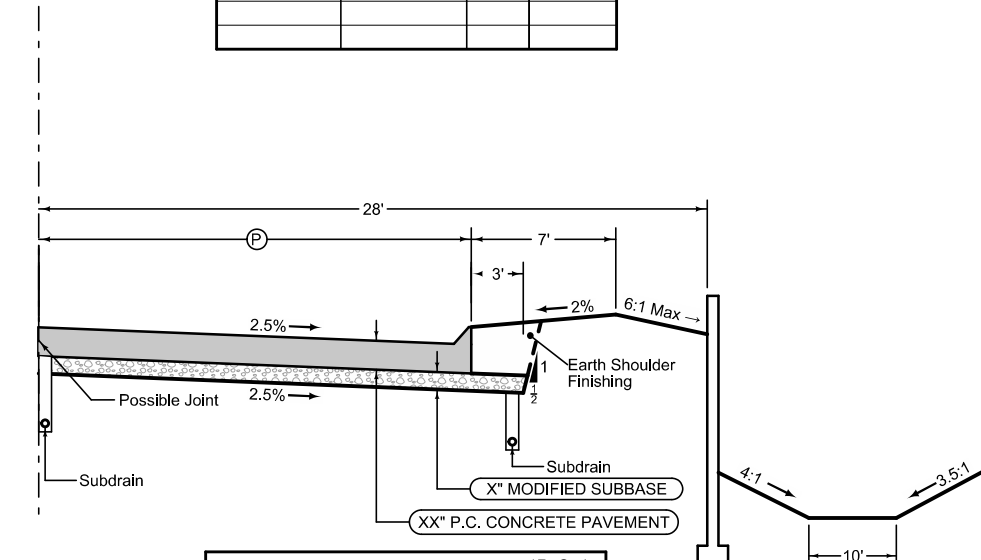
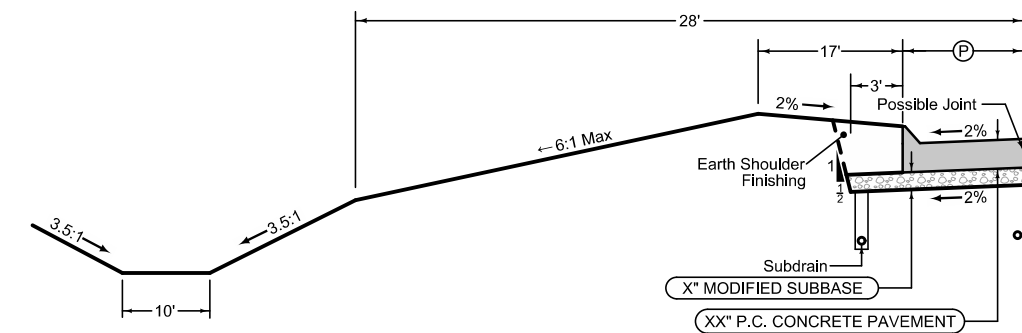
1R_Curb 04-19-11			
BEGIN STATION	END STATION	(P) Feet	Curb Type See PV-102
849+84.27	853+34.27	15'	6" Sloped
853+34.27	855+14.27	15'-3'	6" Sloped
855+19.27	855+59.13	Var.	6" Sloped

Curbed Shoulder

Shoulder Jointing:
Longitudinal joint not required when distance from back of curb to nearest joint is less than 15':

Single pour: L-2
Staged : KT-2
Transverse:C at 20' spacing

1R_Curb 04-19-11			
BEGIN STATION	END STATION	(P) Feet	Curb Type See PV-102
849+82.84	853+34.27	3'	6" Sloped
853+34.27	855+59.10	3'-8"	6" Sloped
859+06.10	859+93.36	9.0'-3"	6" Sloped
864+74.60	865+56.60	3'	6" Sloped



Curbed Shoulder

Shoulder Jointing:
Longitudinal joint not required when distance from back of curb to nearest joint is less than 15':

Single pour: L-2
Staged : KT-2
Transverse:C at 20' spacing

1R_Curb 04-19-11			
BEGIN STATION	END STATION	(P) Feet	Curb Type See PV-102
864+57.82	865+56.60	3'	6" Sloped
869+26.20	870+00.00	3'	6" Sloped
870+00.00	870+70.00	3'-10'	6" Sloped

Curbed Shoulder

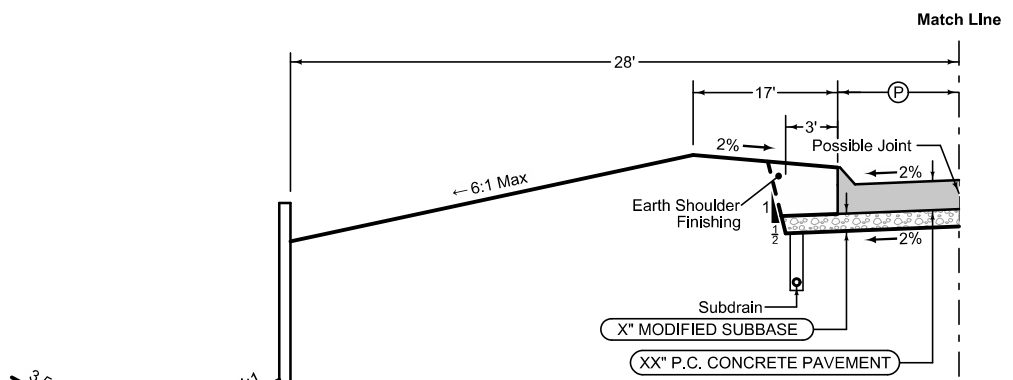
Shoulder Jointing:
Longitudinal joint not required when distance from back of curb to nearest joint is less than 15':

Single pour: L-2
Staged : KT-2
Transverse:C at 20' spacing

1R_Curb 04-19-11			
BEGIN STATION	END STATION	(P) Feet	Curb Type See PV-102
859+93.36	861+73.36	3'-15'	6" Sloped
861+73.36	863+58.36	15'	6" Sloped

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

US HIGHWAY 151

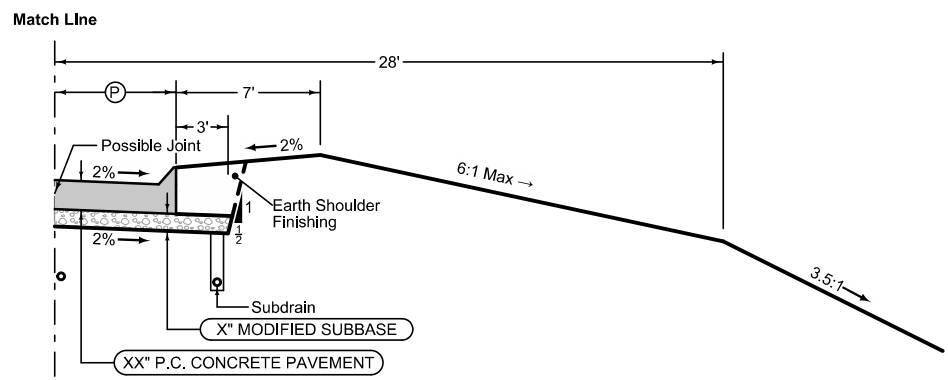


Curbed Shoulder

Shoulder Jointing:
Longitudinal joint not required when distance from back of curb to nearest joint is less than 15':

Single pour: L-2
Staged : KT-2
Transverse:C at 20' spacing

1R_Curb 04-19-11			
BEGIN STATION	END STATION	(P) Feet	Curb Type See PV-102
859+06.10	861+73.23	3'	6" Sloped
861+73.23	863+59.72	3'	6" Sloped

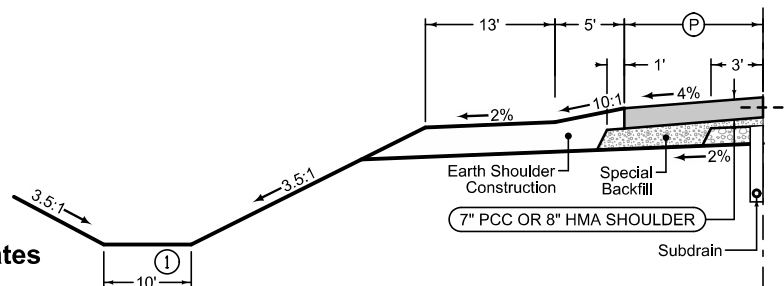


Curbed Shoulder

Shoulder Jointing:
Longitudinal joint not required when distance from back of curb to nearest joint is less than 15':

Single pour: L-2
Staged : KT-2
Transverse:C at 20' spacing

1R_Curb 04-19-11			
BEGIN STATION	END STATION	(P) Feet	Curb Type See PV-102
868+96.20	870+00.00	3'	6" Sloped
870+00.00	870+70.00	3'-10'	6" Sloped

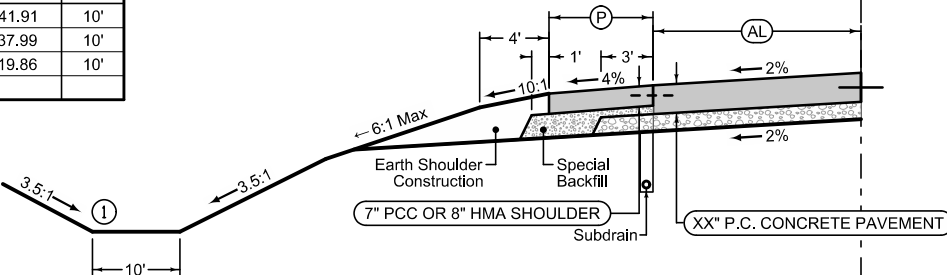


Paved Shoulder Alternates

PCC Shoulder Jointing:
Longitudinal joint: BT-1 or BT-5
Transverse joints: C at 20' spacing
HMA Shoulder Jointing:
Longitudinal joint: B

2_P_ALT_ 10-21-14		
STATION TO STATION	(P) Feet	
870+70.00	875+41.91	10'
876+49.90	879+37.99	10'
882+29.22	883+19.86	10'

NOTES:
① Ditch width varies, see cross sections

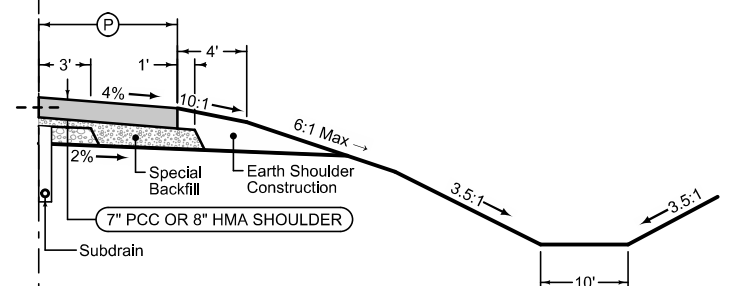


Auxiliary Lane Paved Shoulder Alternates

PCC Shoulder Jointing:
Longitudinal joint: BT-1 or BT-5
Transverse joints: C at 20' spacing
HMA Shoulder Jointing:
Longitudinal joint: B

2_AuxLane_PCC_ 10-18-16		2_AL_Shldr_ALT_ 10-21-14	
STATION TO STATION	(AL) Feet	(P) Feet	
884+25.93	887+75.30	12'	6'
887+75.30	889+55.30	12'-0"	6'
889+55.30	898+00.00	10'	6'

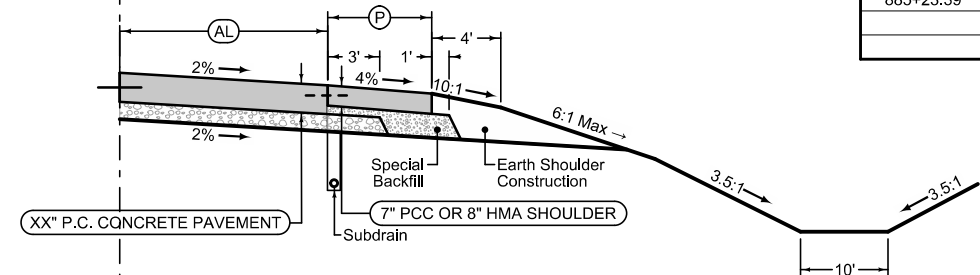
NOTES:
① Ditch width and backslope varies, see cross sections



Paved Shoulder Alternates

PCC Shoulder Jointing:
Longitudinal joint: BT-1 or BT-5
Transverse joints: C at 20' spacing
HMA Shoulder Jointing:
Longitudinal joint: B

2_P_ALT_ 10-21-14		
STATION TO STATION	(P) Feet	
870+70.00	879+37.99	10'
885+23.39	898+00.00	10'



Auxiliary Lane Paved Shoulder Alternates

PCC Shoulder Jointing:
Longitudinal joint: BT-1 or BT-5
Transverse joints: C at 20' spacing
HMA Shoulder Jointing:
Longitudinal joint: B

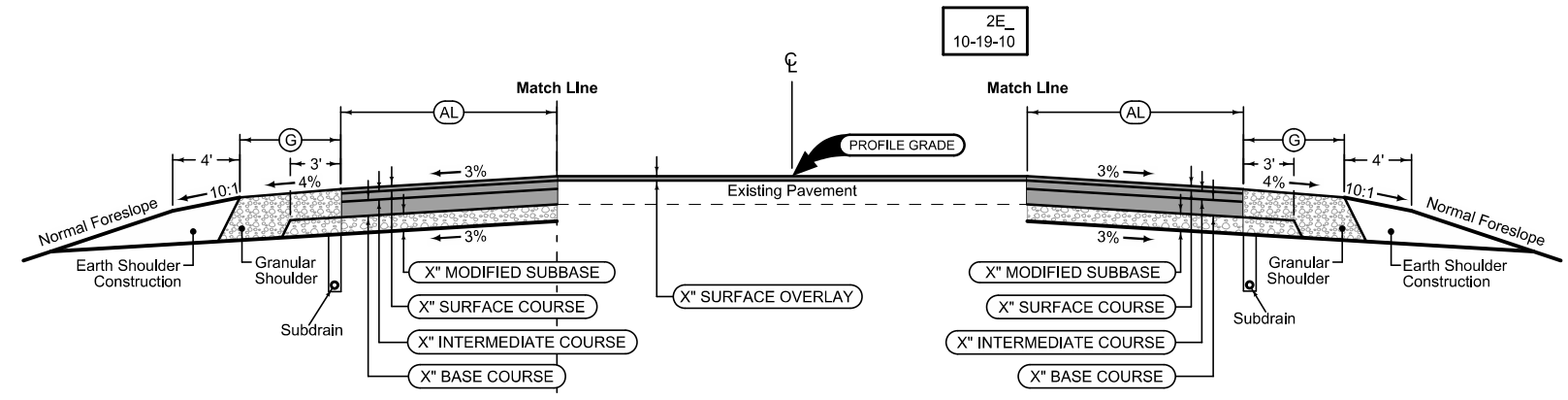
2_AuxLane_PCC_ 10-18-16		2_AL_Shldr_ALT_ 10-21-14	
STATION TO STATION	(AL) Feet	(P) Feet	
882+29.22	882+78.25	8,4'-12"	6'
882+78.25	883+95.73	12'	6'

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

US HIGHWAY 151

Auxiliary Lane Granular Shoulder
Longitudinal joint: B

2_AuxLane_HMA_10-18-16		2_AL_Shldr_G_10-19-10	
STATION TO STATION	(AL) Feet	(G) Feet	
898+00.00	899+00.00	5'-0"	6'
899+00.00	900+00.00	5'-0"	6'
900+00.00	902+58.42	0'	6'

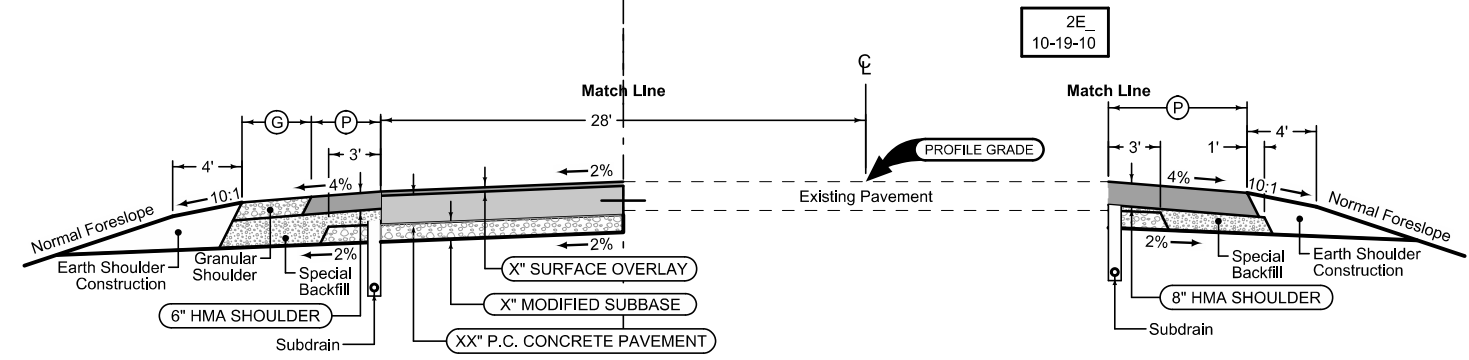


Auxiliary Lane Granular Shoulder
Longitudinal joint: B

2_AuxLane_HMA_10-18-16		2_AL_Shldr_G_10-19-10	
STATION TO STATION	(AL) Feet	(G) Feet	
898+00.00	901+14.21	8'	6'
901+14.21	902+58.42	8'-4"	6'

Combination Shoulder
Shoulder Jointing: Longitudinal joint: B

2_C_10-15-13		(P) Feet	(G) Feet
974+69.95	979+30.00	4'	6'
981+15.00	982+06.32	13.3'	0'
982+06.32	982+49.62	13.3'-15'	0'
982+49.62	982+76.24	15'	0'
982+76.24	984+83.16	4'	6'

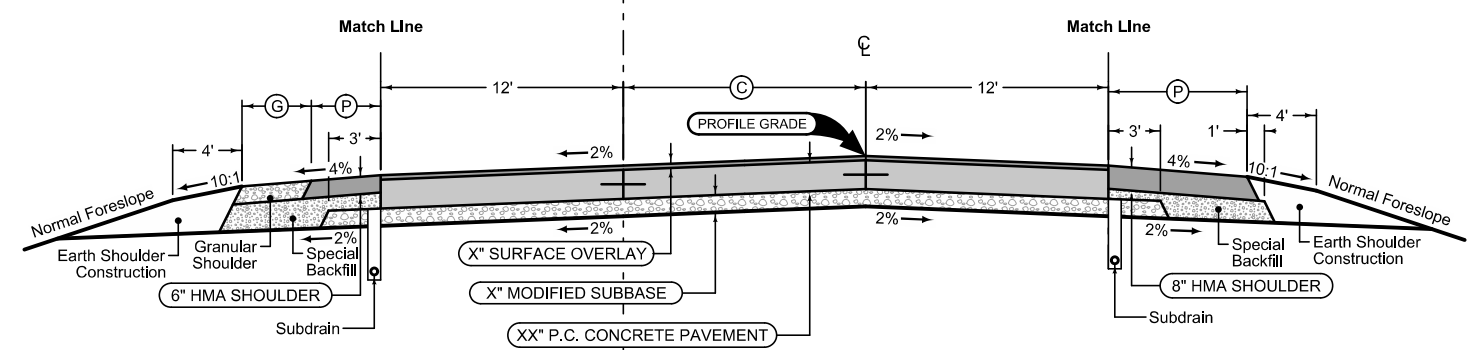


HMA Shoulder
Shoulder Jointing: Longitudinal joint: B

2_P_HMA_10-19-10		(P) Feet
977+81.50	978+01.97	6.9'-5.3'
978+01.97	978+51.41	5.3'-3.2'
978+51.41	979+30.00	3.2'

Combination Shoulder
Shoulder Jointing: Longitudinal joint: B

2_C_10-15-13		(P) Feet	(G) Feet
979+30.00	979+80.00	4'	6'
979+80.00	981+15.00	13.3'	0'



HMA Shoulder
Shoulder Jointing: Longitudinal joint: B

2_P_HMA_10-19-10		(P) Feet
979+30.00	980+65.15	13.3'
980+65.15	981+15.00	10'

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

2P_TWLT_10-19-10		(C) Feet
979+30.00	981+15.00	16'

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

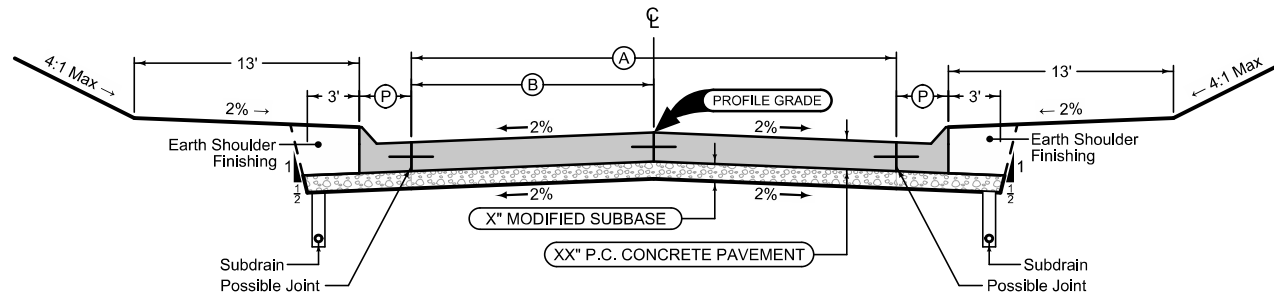
US HIGHWAY 151

Curbed Shoulder

Shoulder Jointing:
 Longitudinal joint not required when distance from back of
 curb to nearest joint is less than 15':

Single pour: L-2
 Staged : KT-2
 Transverse:C at 20' spacing

STATION TO STATION		(P) Feet	Curb Type See PV-102
1849+85.37	1849+96.58	3'	6" Std.
2864+82.50	2865+30.81	3'	6" Std.
3862+86.45	3864+59.42	3'	6" Std.



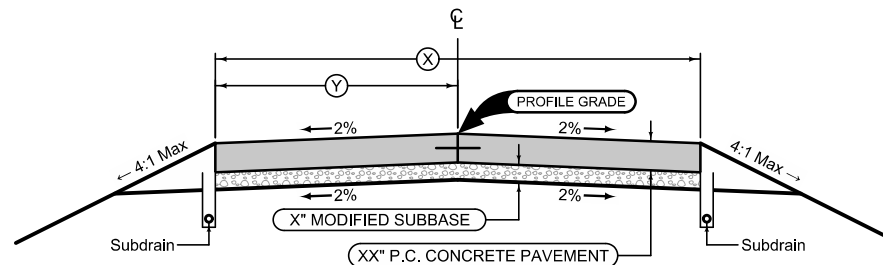
LOCATION		DIMENSIONS	
ROAD IDENTIFICATION	STATION TO STATION	(A) Feet	(B) Feet
CHURCH STREET	1849+85.37 1849+96.58	31'	15.5'
PRAIRIE AVENUE	2864+82.50 2865+30.81	23'	11.5'
LOSEY AVENUE	3862+86.45 3864+56.28	17'	8.5'

Curbed Shoulder

Shoulder Jointing:
 Longitudinal joint not required when distance from back of
 curb to nearest joint is less than 15':

Single pour: L-2
 Staged : KT-2
 Transverse:C at 20' spacing

STATION TO STATION		(P) Feet	Curb Type See PV-102
1849+86.58	1849+96.58	3'	6" Std.
2864+82.50	2865+30.81	3'	6" Std.
3862+85.37	3864+56.28	3'	6" Std.



LOCATION		DIMENSIONS	
ROAD IDENTIFICATION	STATION TO STATION	(X) Feet	(Y) Feet
CHURCH STREET	1847+83.00 1848+71.36	24'-37'	12'-15.5'
CHURCH STREET	1849+96.58 1850+86.58	37'-25'	18.5'-12.5'
CHURCH STREET	1850+86.58 1851+00.00	25'	12.5'
PRAIRIE AVENUE	2865+30.81 2866+50.00	23'	11.5'
STALLMAN DRIVE	4874+25.00 4875+43.95	25'	12.5'
CEMETERY ROAD	5882+30.00 5883+14.67	25'	12.5'

SURVEY SYMBOLS

- ▲ PPA Power Pole Co. 1
- PLG Location of General Photo
- STA Storm Sewer Line Co. 1
- SIGN IN Storm Sewer Intake
- SIGN UE Utility Elevation
- BB TPD Telephone Pedestal
- SI Sign
- WV LC Lot Corner
- WH BB Billboard
- TP GPR Guard Post (4 or More Posts)
- WH WV Water Valve
- WH WHD Water Hydrant
- WH BLD Building or Foundation
- WH FCL Chain Link and Security Fence
- SIGN TDC Tree Deciduous
- TEV Evergreen Tree
- SHR Shrub
- MM RET Retaining Walls
- PR Electric Riser Pole
- SL Speed Limit Sign
- GP GDL Guard Rail Steel
- GV MH Utility Access (Manhole)
- EB PIP Pipe Culvert
- UB BRG Bridge
- Fig MIS Miscellaneous
- MM MM Mile Marker Post
- UV Underground Utility Vault
- TLNR Tree Line Right
- BD Bridge Deck
- CUL Culvert
- TVP TLNL Tree Line Left
- FWD Wood Fence
- WEL Well
- LIN Miscellaneous Line
- LUM Luminaire
- GP Guard Post (Less Than 4 Posts)
- GV Gas Valve
- FW Wire Fence
- EB Electrical Box
- UB Utility Box
- FHD Fire Hydrants
- FLG Flag Poles
- # STP Stump
- PRO Profile Shot
- OUT Tile Outlet
- INB Storm Sewer Beehive Intake
- S Soil Sampling Site (Wetlands)
- TVP TV Pedestal
- x SAA Sanitary Sewer Line Co. 1
- CON Concrete or A/C Slab
- CU Back of Curb
- GU Gutter In Front of Curb
- D Centerline Draw or Stream (Down)
- ENU Edge Unpaved Entrance & Parking
- ENP Edge Paved Entrance & Park Lot
- ENT Centerline BL of Entrance
- EP Edge of Paved Roads (ML or SR)
- SNP Unpaved Shoulder
- DU Centerline Draw or Stream (Up)
- SH Paved Shoulder
- BNK Stream Bank
- EG Edge of Gravel Road
- EW Edge of Water
- SP Stream Profile
- RIP Rip-Rap
- SWK Sidewalk
- TRL Trail
- GLA Underground Gas Line Co. 1
- ELA Underground Electric Line Co. 1
- FOA Underground Fiber Optic Co. 1
- TLA Underground Telephone Line Co. 1
- G(T) TVA Underground TV Cable Co. 1
- GLB Underground Gas Line Co. 2
- BCL Bridge Centerline
- W BLS Bridge Low Steel
- San(T) TW Top of Water

UTILITY LEGEND

- PPA Alliant Energy
- TP TPD Telephone Pedestal
- WV WW Water Valve
- WH WHD Water Hydrant
- PR Electric Riser Pole
- GV GV Gas Valve
- EB EB Electrical Box
- UB UB Utility Box
- FHD Fire Hydrants
- TVP TPD TV Pedestal
- G — GLA MidAmerican Energy
- E2 — ELB Linn County Rural Electric Cooperative
- FO — FOA South Slope Phone Internet Television
- San.(C) — TLA South Slope Phone Internet Television
- San. — TLB Centurylink
- San.2 — TVA Underground TV Cable Co. 1
- T1 —
- T2 —
- TV —
- W —
- W2 —
- W3 —

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

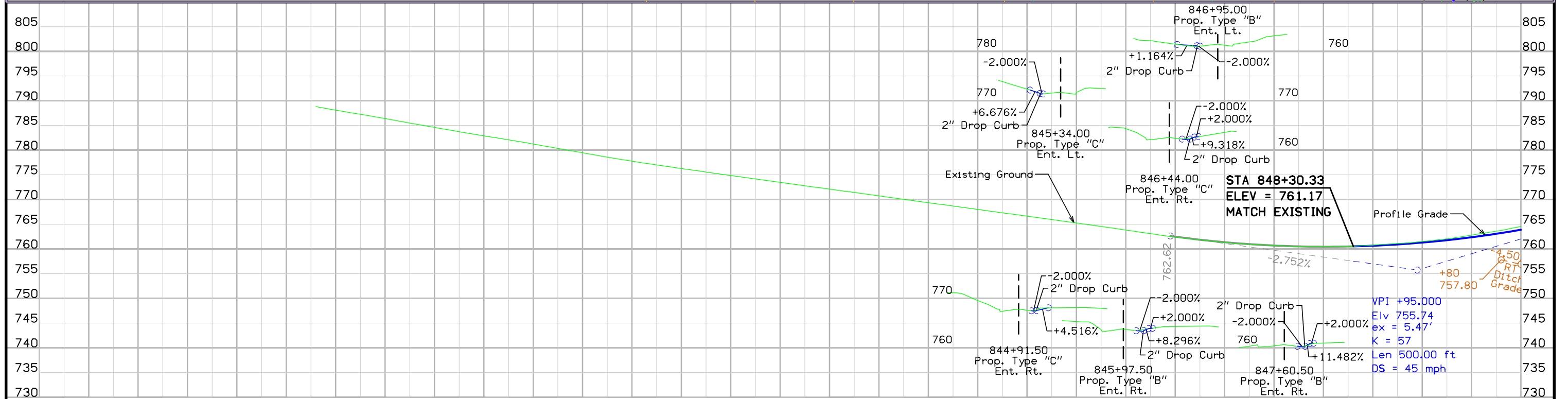
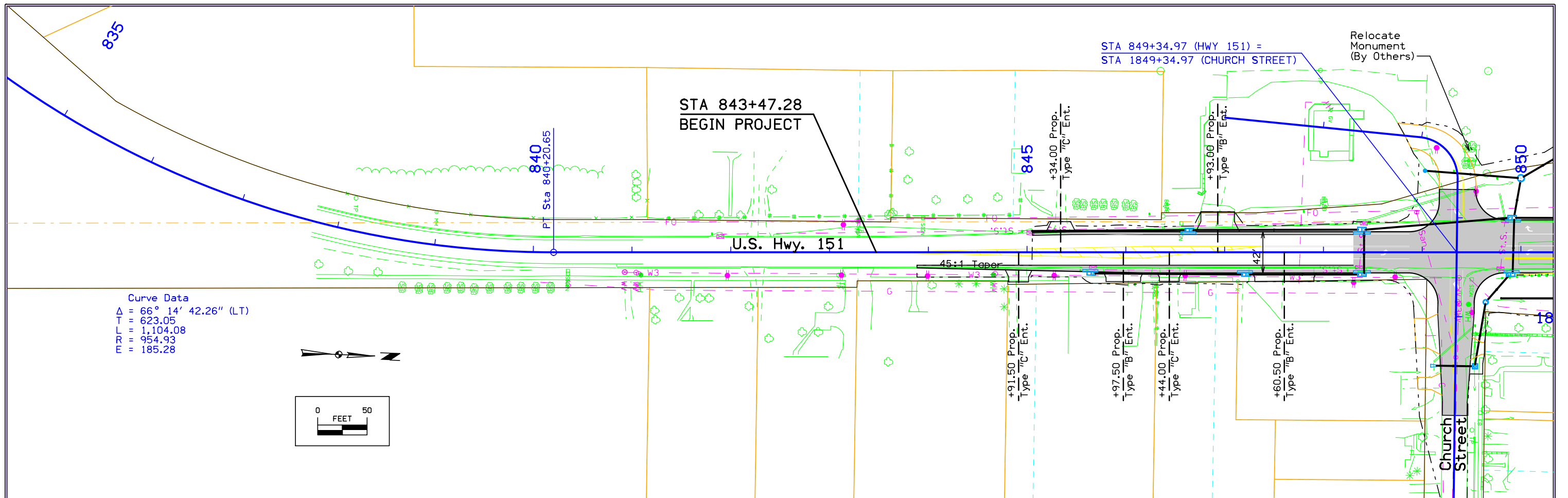
- Reference Point
- Station
- ▲ Section Corner
- Ground Line Intercept
- /// Saw Cut
- Guardrail
- Trench Drain
- HighTension Cable Guardrail
- Sheet Pile
- ▨ Pavement Removal
- ▩ Clearing & Grubbing Area

RIGHT-OF-WAY LEGEND

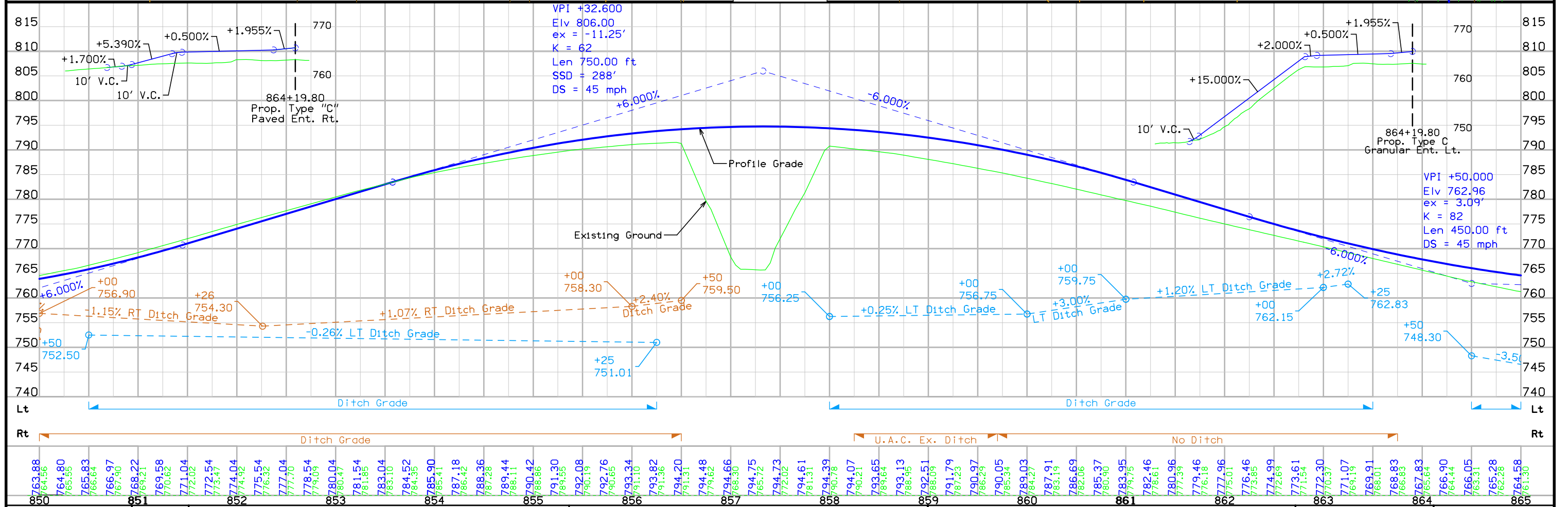
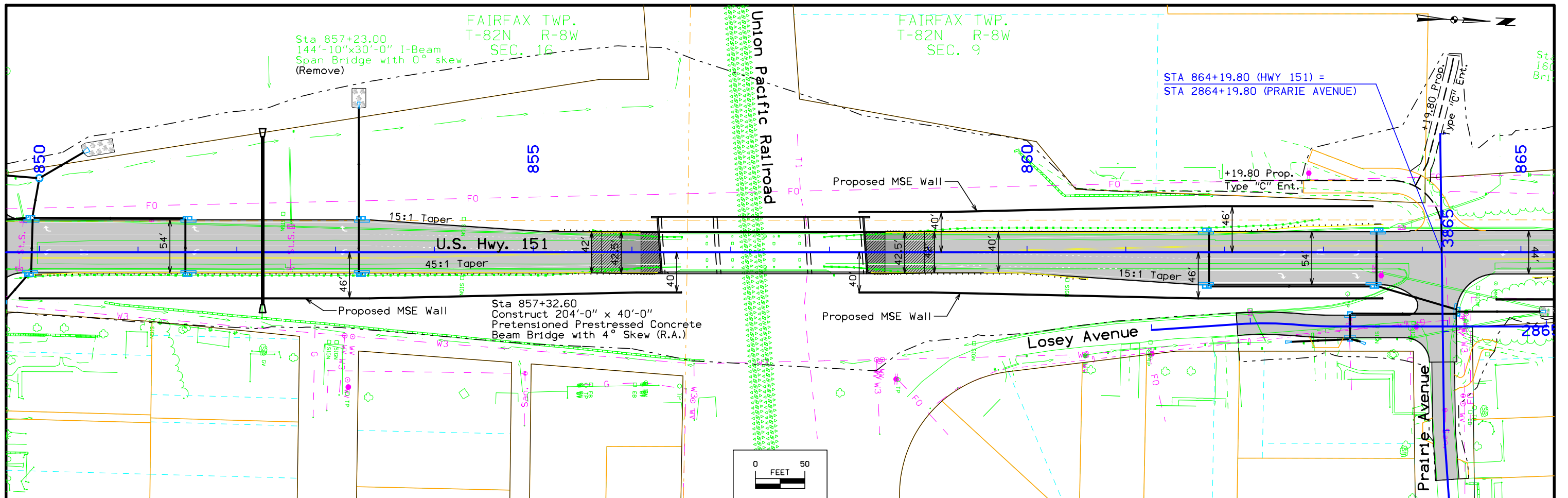
- ▲ Proposed Right-of-Way
- △ Existing Right of Way
- ▲ Existing and Proposed Right-of-Way
- ▲ Easement and Existing Right-of-Way
- Easement (Temporary)
- Easement
- C/A Access Control
- Property Line

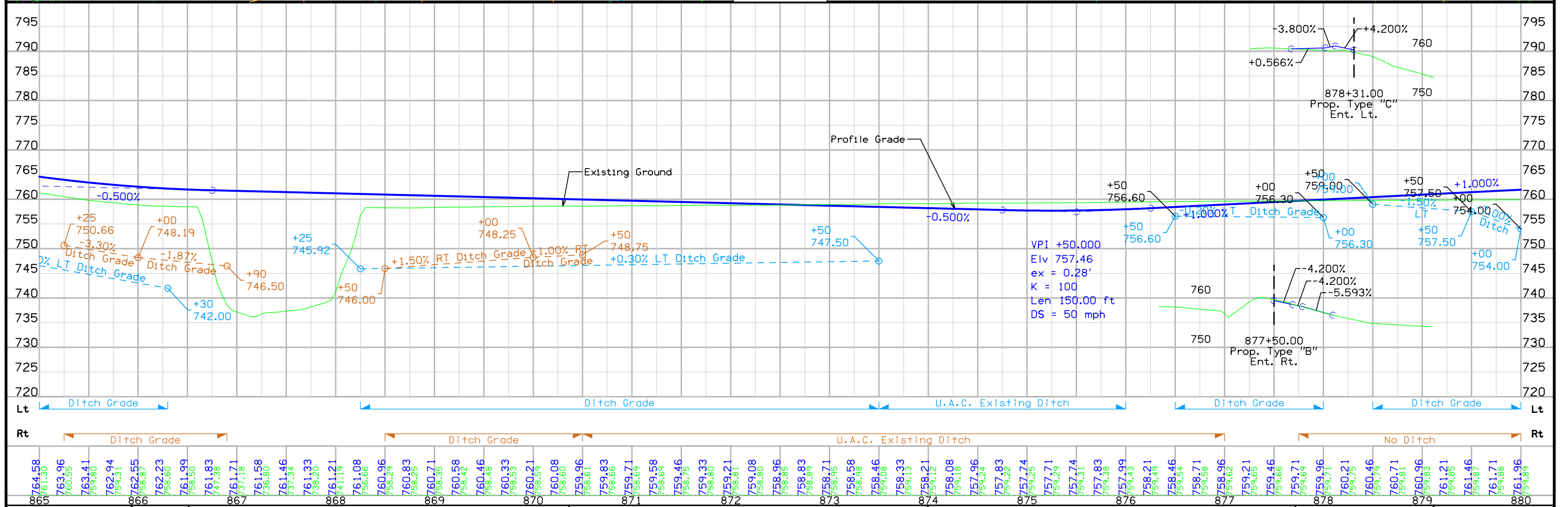
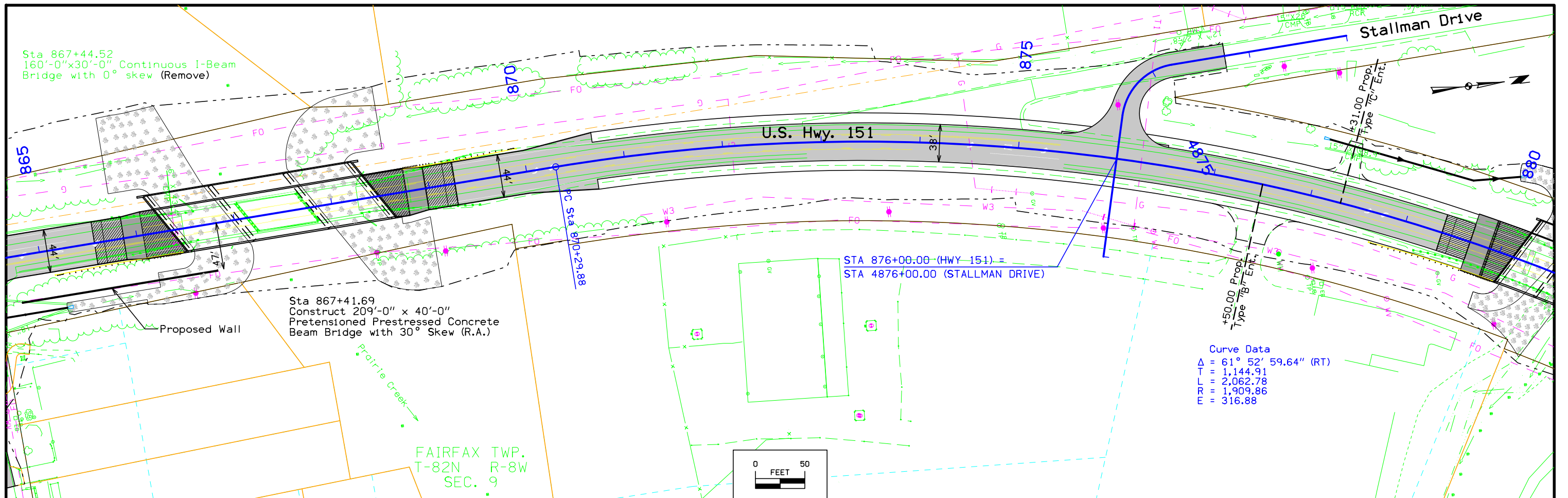
PLAN AND PROFILE LEGEND AND SYMBOL INFORMATION SHEET

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

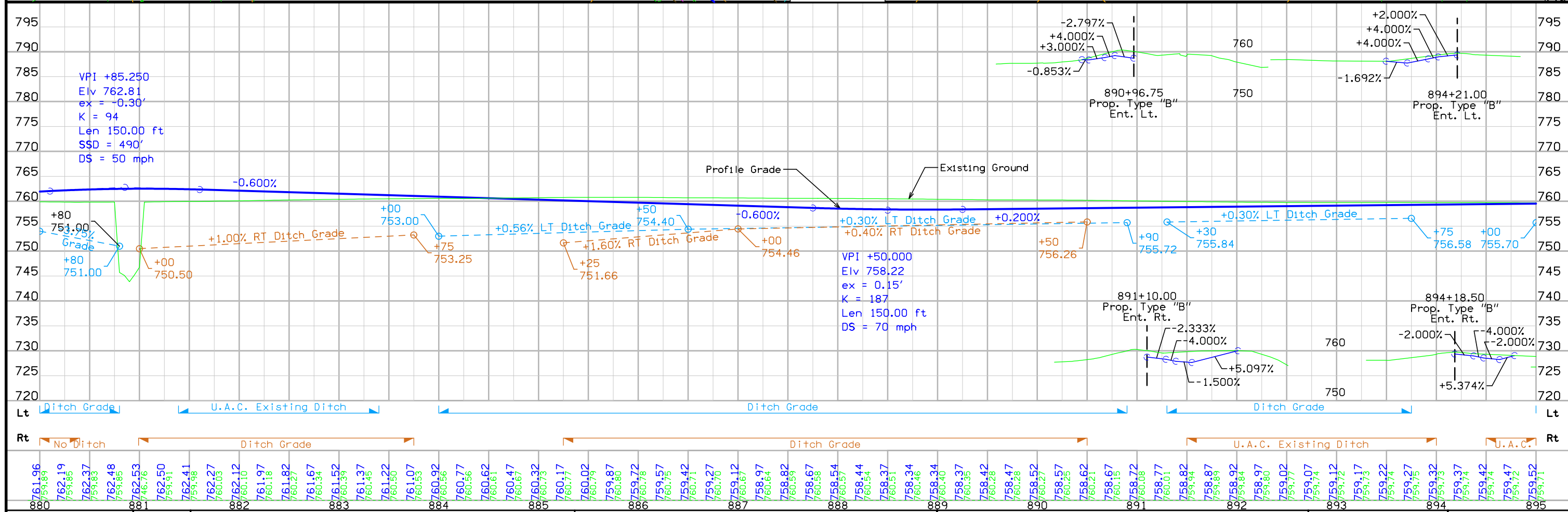
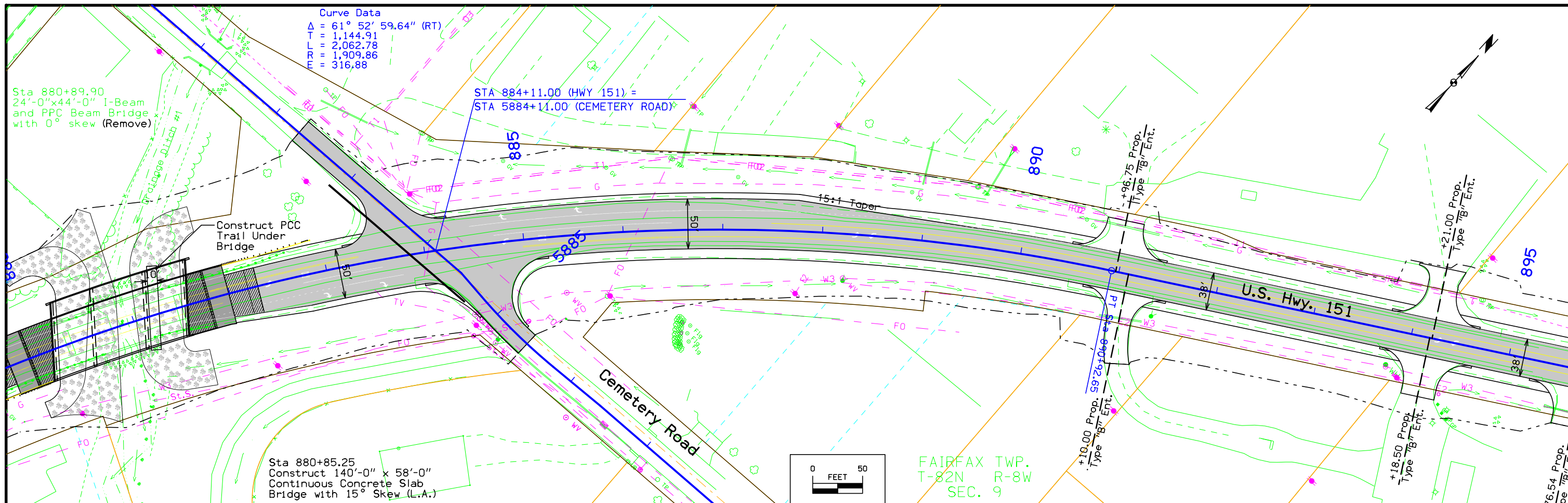


838	788.09	839	787.25	840	786.39	841	785.50	842	784.61	843	783.74	844	782.90	845	782.09	846	781.24	847	780.34	848	779.47	849	778.60	850	777.78
-----	--------	-----	--------	-----	--------	-----	--------	-----	--------	-----	--------	-----	--------	-----	--------	-----	--------	-----	--------	-----	--------	-----	--------	-----	--------

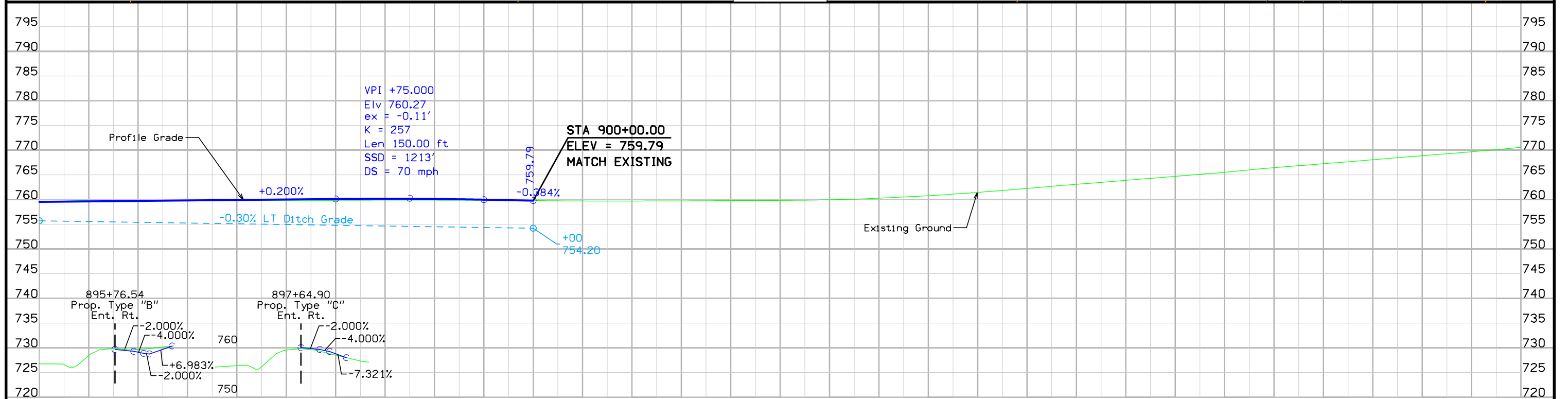
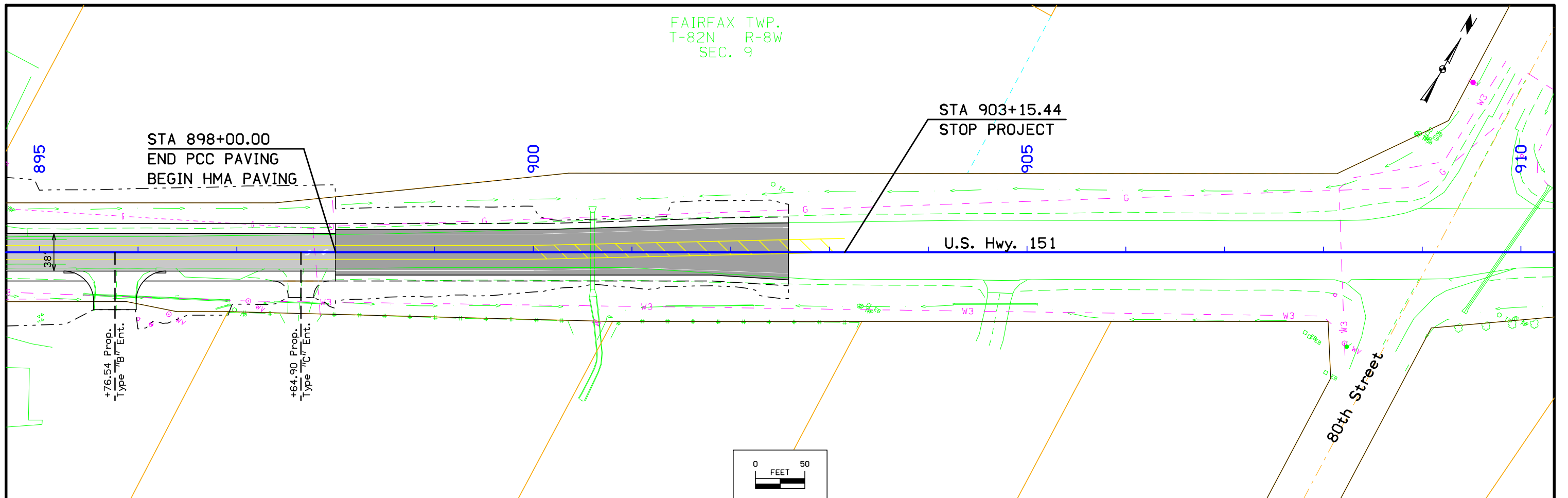




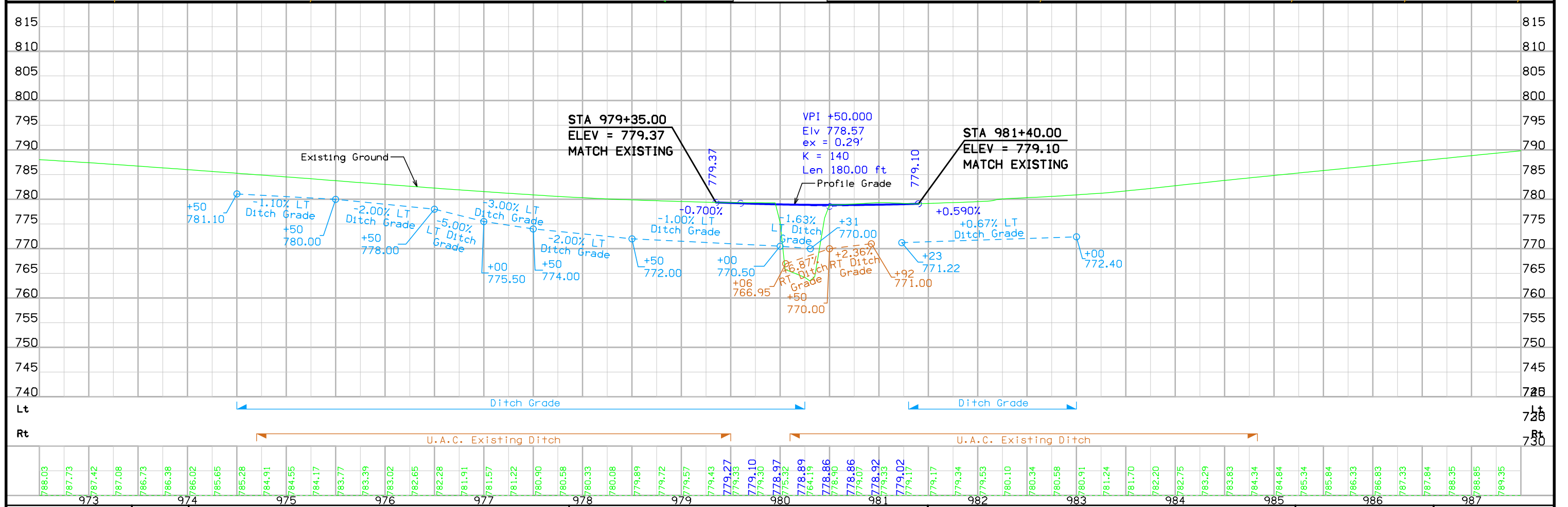
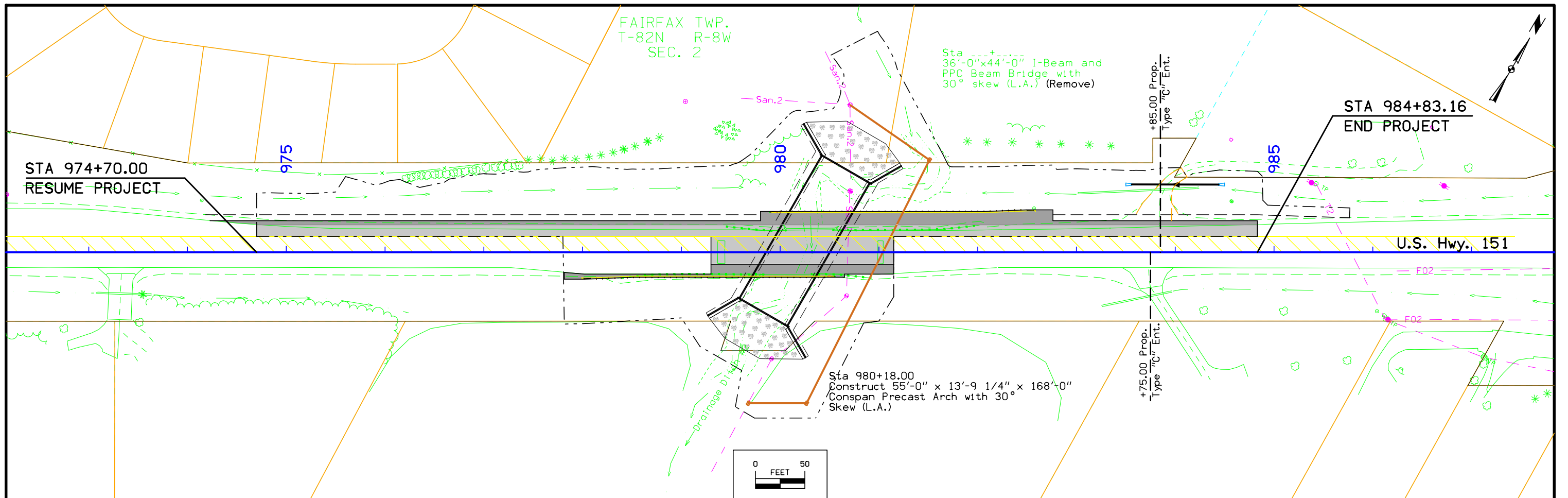
FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	D.4
----------	---------	-------------	--------------------------------------	-------------	----------------	-------------------------------	--------------	------------



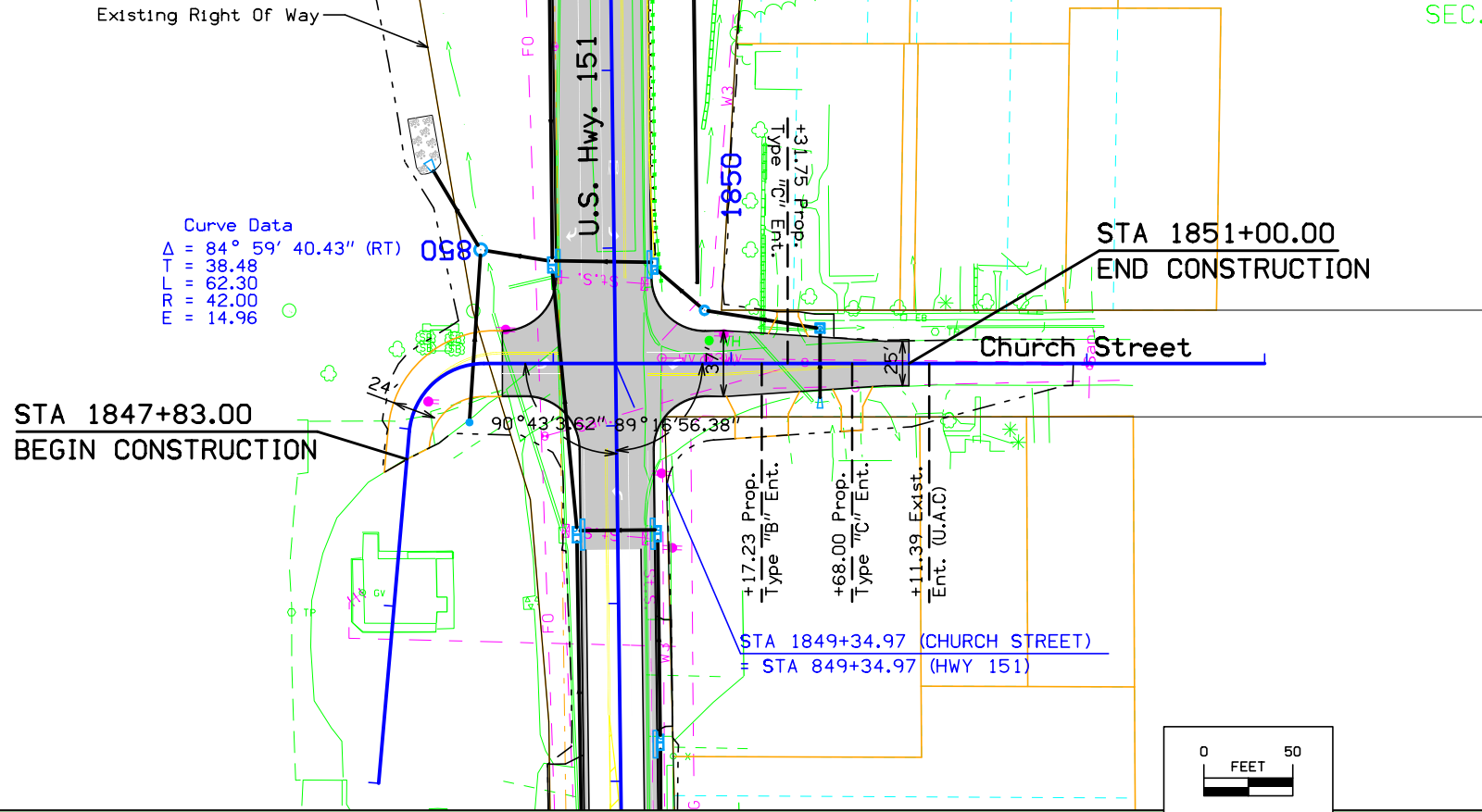
FAIRFAX TWP.
T-82N R-8W
SEC. 9



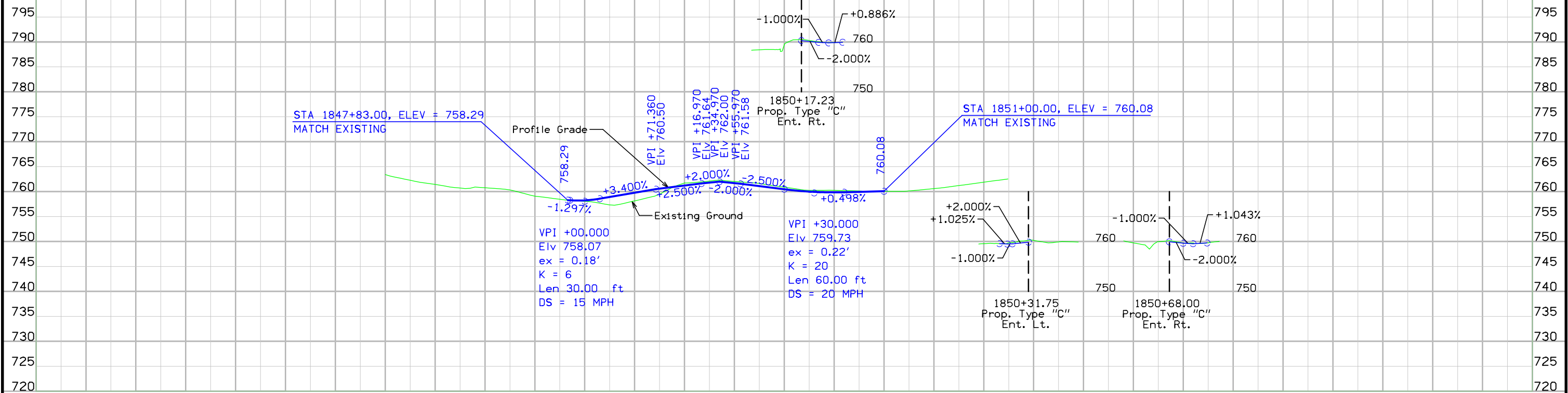
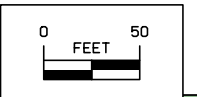
Lt										Rt																																																	
U.A.C.										U.A.C. Existing Ditch																																																	
759.52	759.57	759.62	759.67	759.72	759.77	759.82	759.87	759.92	759.97	760.02	760.07	760.12	760.16	760.17	760.16	760.13	760.07	759.98	759.89	759.79	759.75	759.72	759.70	759.72	759.73	759.76	759.80	759.81	759.83	759.87	759.96	760.07	760.29	760.53	760.78	761.10	761.46	761.85	762.25	762.68	763.09	763.47	763.89	764.30	764.71	765.11	765.51	766.00	766.45	766.86	767.25	767.65	768.07	768.48	768.88	769.27	769.67	770.10	770.57
895	896	897	898	899	900	901	902	903	904	905	906	907	908	909	910																																												



FAIRFAX TWP.
T-82N R-8W
SEC. 16

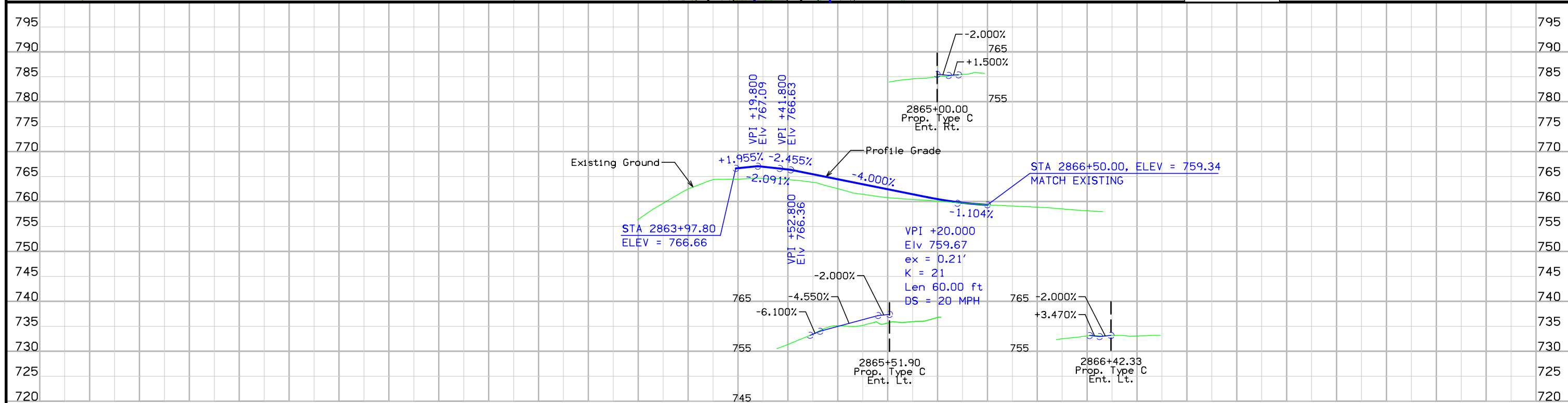
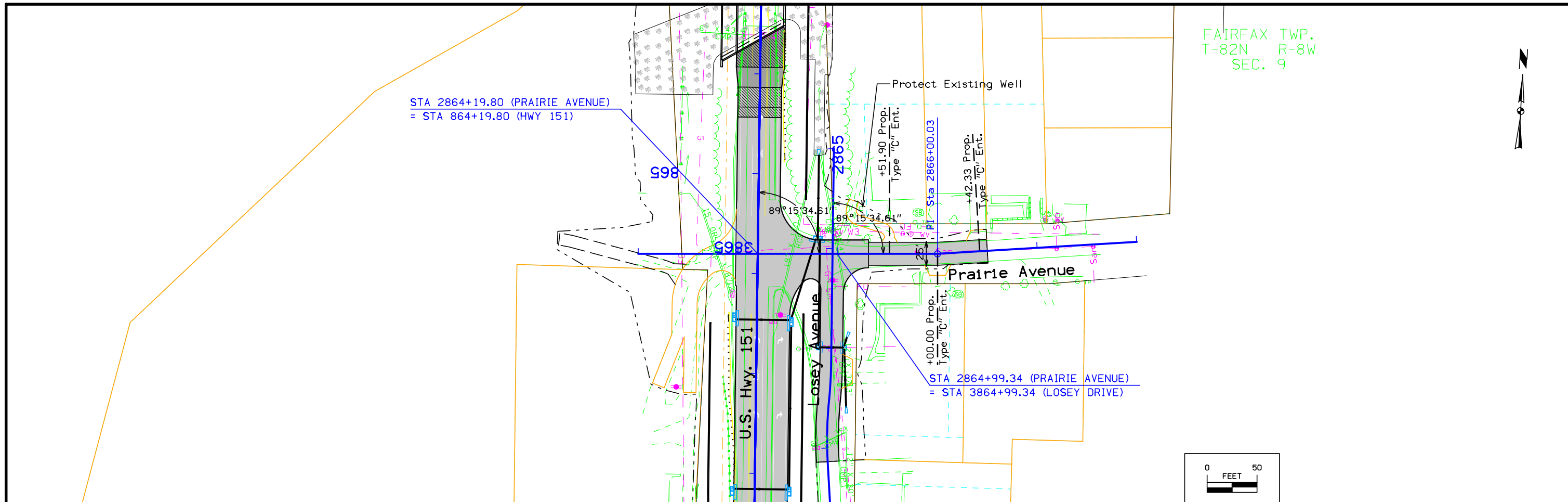


Curve Data
 $\Delta = 84^\circ 59' 40.43''$ (RT)
 T = 38.48
 L = 62.30
 R = 42.00
 E = 14.96



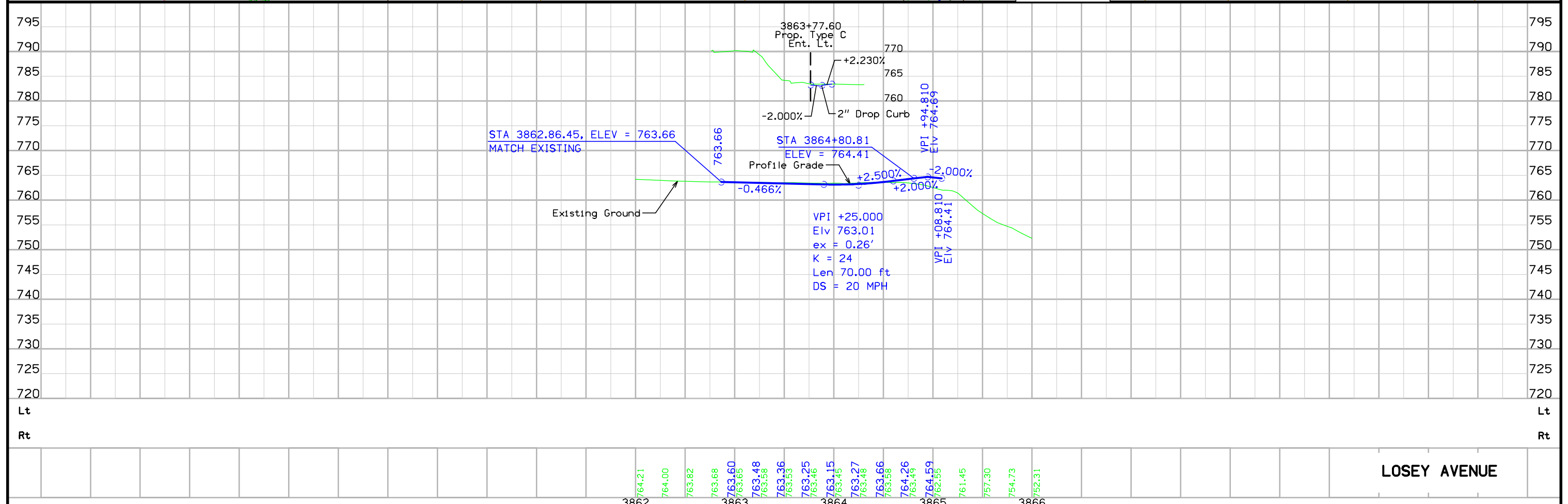
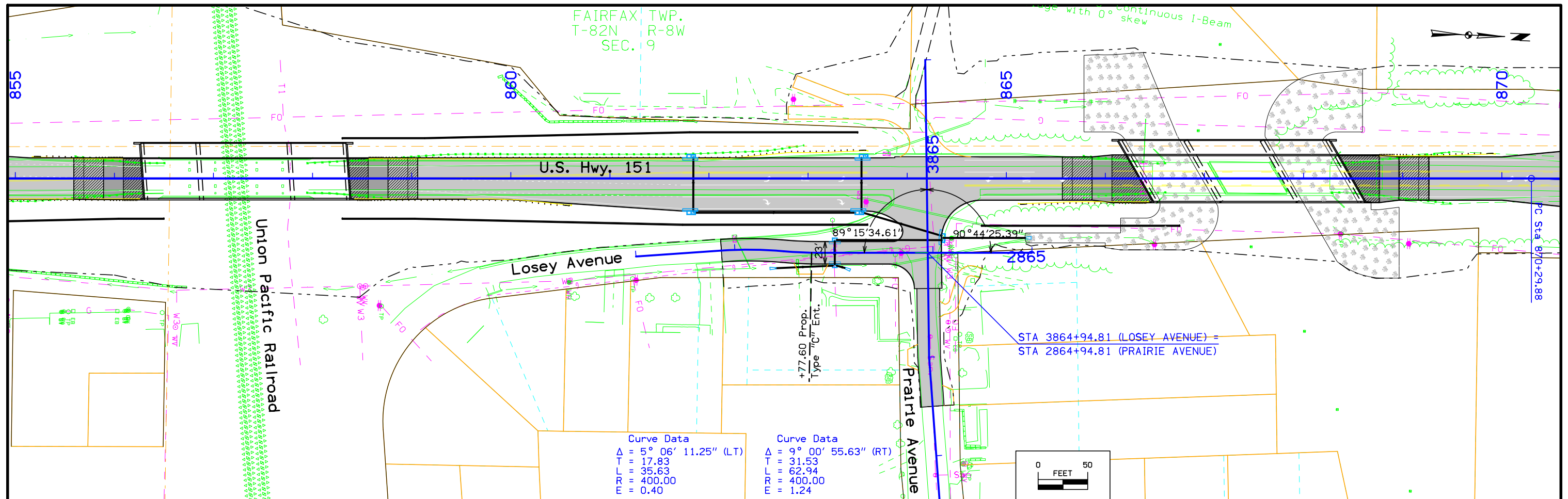
Lt	795	790	785	780	775	770	765	760	755	750	745	740	735	730	725	720	Rt															
	1846	1847	1848	1849	1850	1851	1852	1853	CHURCH STREET																							
		760.78	760.33	759.08	758.47	758.25	758.07	758.92	757.35	759.77	758.14	760.59	761.22	761.80	762.12	761.70	761.10	761.65	760.48	760.01	760.25	759.85	760.25	759.95	760.14	760.08	760.08	760.13	760.61	761.22	761.90	

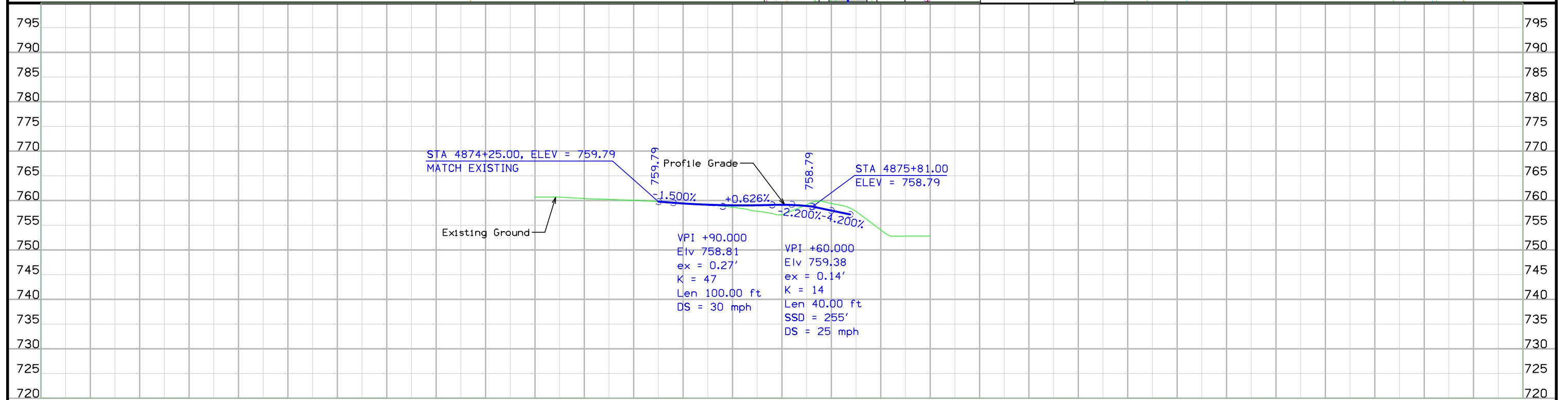
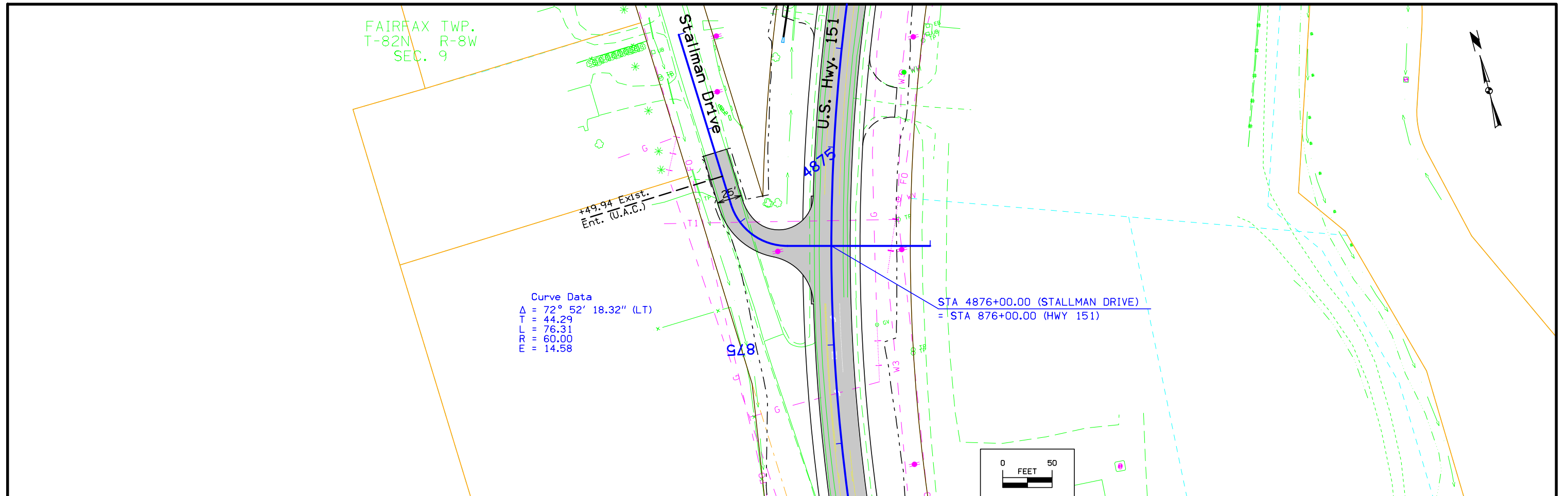
FAIRFAX TWP.
T-82N R-8W
SEC. 9



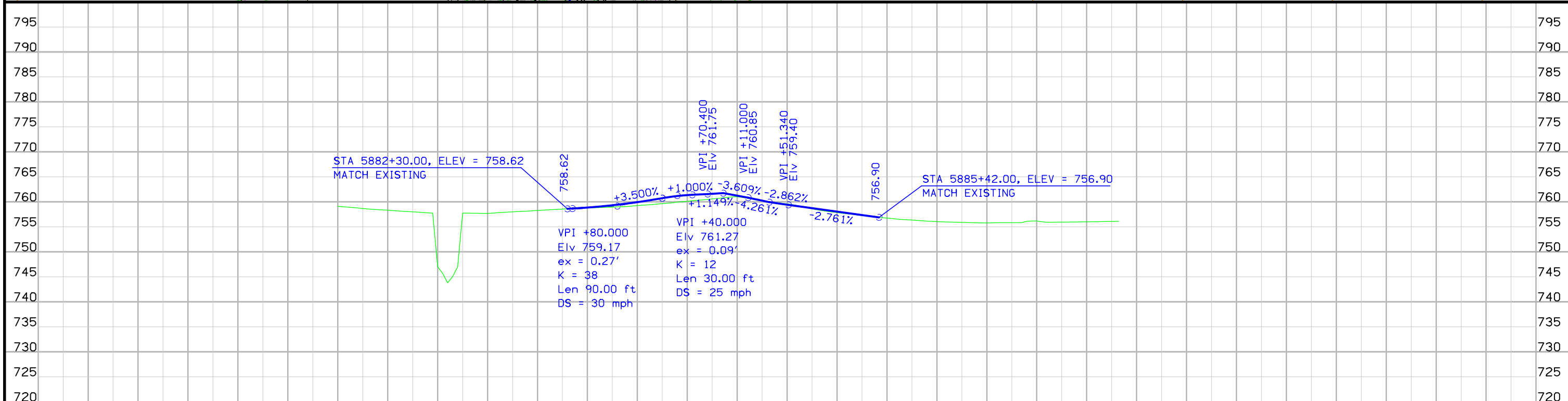
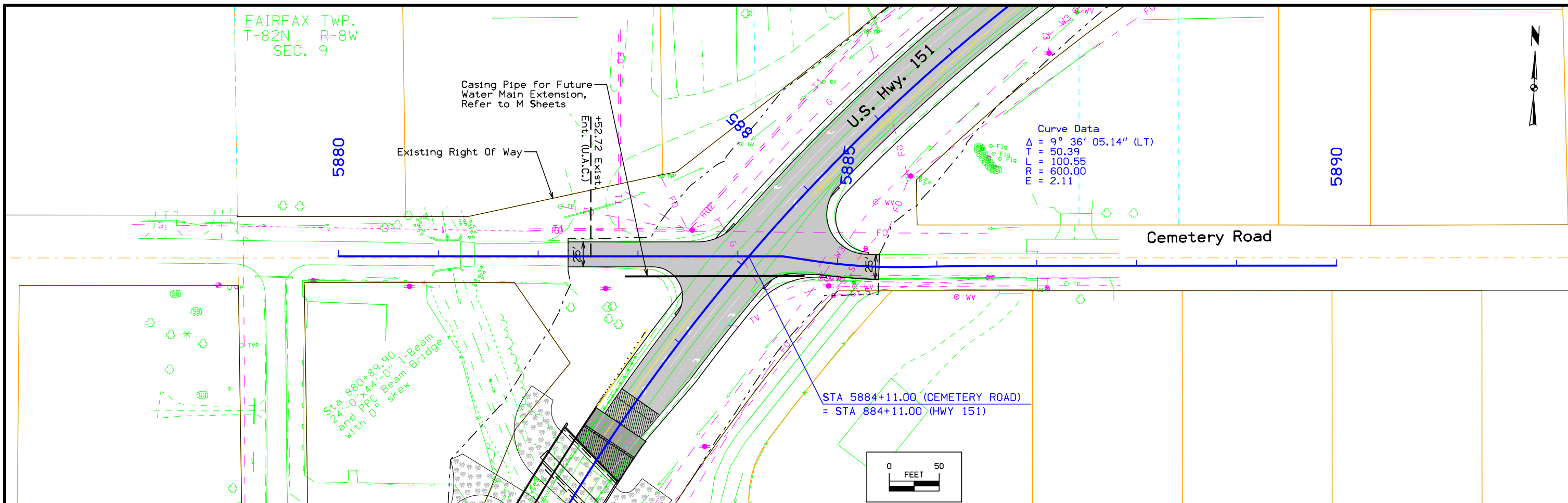
Lt Rt Lt Rt

												PRAIRIE AVENUE																																									
												756.41	759.66	762.54	764.40	766.70	764.47	766.98	764.61	766.43	764.42	765.47	763.86	764.47	762.58	763.47	761.45	762.47	762.79	761.47	760.42	760.50	760.10	759.77	759.72	759.34	759.34	759.11	758.87	758.54	758.13												





Lt	760.74	760.69	760.43	760.24	760.05	759.79	759.42	759.17	759.04	759.05	759.15	758.91	757.99	757.81	754.06	752.82	752.84	Rt
Rt	4873	4874	4875	4876	4877	4879	STALLMAN DRIVE											



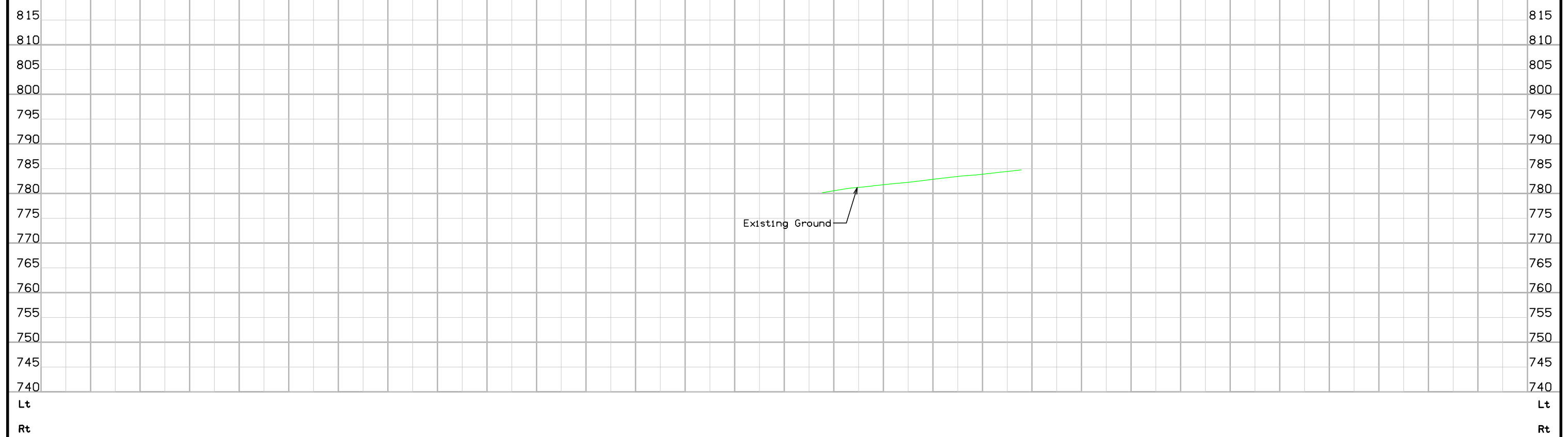
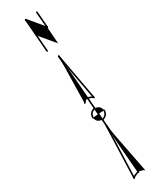
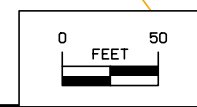
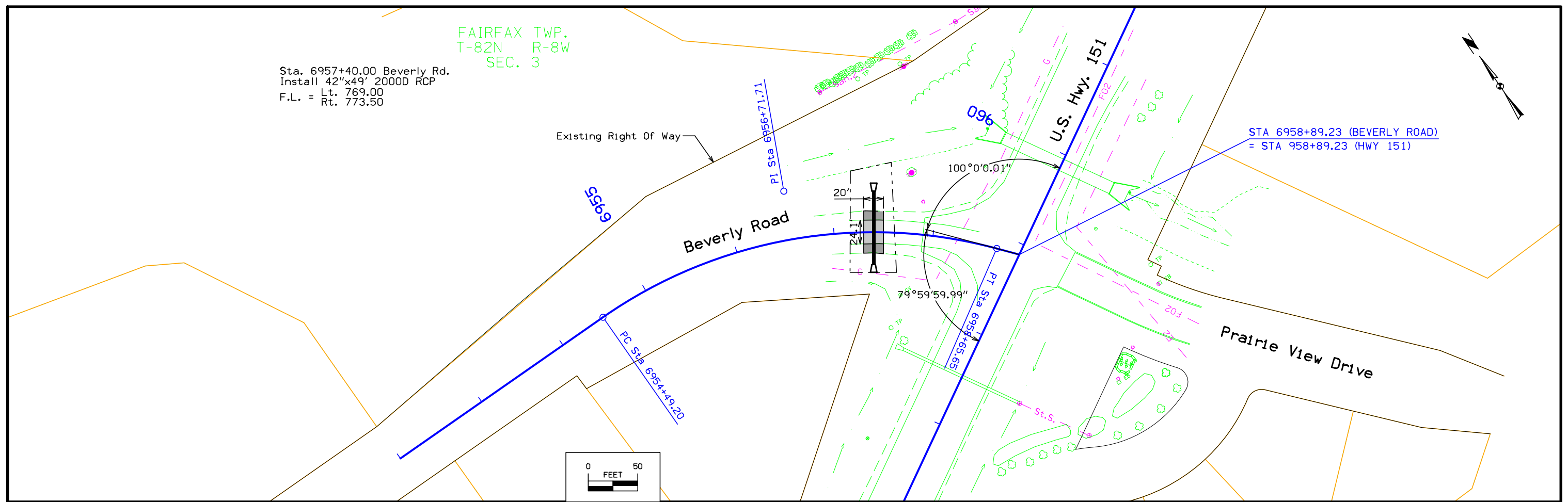
Lt Rt Lt Rt

759.12	758.69	758.33	758.00	747.04	757.76	757.70	758.01	758.27	758.56	758.87	758.78	759.32	758.96	759.95	759.25	760.74	761.36	761.13	761.62	760.58	761.25	761.04	760.25	760.25	759.44	759.61	758.75	758.59	758.06	757.86	757.37	757.26	756.75	756.36	756.05	755.89	755.79	755.83	756.16	755.95	756.01	756.09			
5880				5881								5883													5885																				

CEMETERY ROAD

FAIRFAX TWP.
T-82N R-8W
SEC. 3

Sta. 6957+40.00 Beverly Rd.
Install 42"x49' 2000D RCP
F.L. = Lt. 769.00
Rt. 773.50



BEVERLY ROAD

6951	6952	6953	6954	6955	6956	6957	6958	6959	BEVERLY ROAD			
FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.				LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57		SHEET NUMBER	E.6

Survey Information

General Information

Measurement units for this survey are US survey feet. This survey was performed for multiple projects as listed above for improvements along the Iowa 151 corridor near Fairfax in Linn County. Project datum and control information matches the coordinate system and vertical datum used for BRFN-151-3(134)--39-57 (SAP 0623). This project is a complete field survey for the digital terrain model.

Vertical Control

Vertical datum for this survey is relative to NAVD88.

A Digital level loop was run from BM #589 (established from SAP 0623) through the project benchmarks and returned to BM # 589. The loop error was allowable and the error was distributed proportionately among the project marks.

Vertical equations are as follows:

Datum Benchmark	Elevation = 791.713
BM #589 (SAP 0623)	Elevation = 791.713
= BM #589 (This Survey)	

Horizontal Control

The horizontal control matches the coordinate system used for SAP 0623.

Even though Linn County is in Iowa North Zone the major portion of this project control network is in the Iowa South Zone. As a result this bridge project is also in the Iowa South Zone modified to Ground using the parameters below.

STATE PLANE COORDINATE ZONE 1402 (IOWA SOUTH LAMBERT)

STATE PLANE COORDINATES HELD AT POINT g030

G030 N= 686745.854 E= 2084369.752 (U.S. Ft.)

AVERAGE PROJECT LATITUDE = 41 51 40.20597

RESULTING RADIUS = 6363875.949

MEAN PROJECT ELEVATION = 235.000 meters

SEA LEVEL FACTOR = 0.999963074

AVERAGE PROJECT SCALE FACTOR = 1.000015404

COMBINED FACTOR (GRID) = 0.999978478

1 / GRID = 1.000021523

HORIZONTAL DATUM = NAD 83(HARN)

Alignment Information

The horizontal alignment for this survey was created for SAP 0623 (originally from SAP 159), Project BRFN-151-3(134)--39-57.

ML1
(from SAP 159)

THE ALIGNMENT FOR THIS SURVEY IS A RETRACE OF THE EXISTING ALIGNMENT ON US # 151 FROM HOMESTEAD NORTH EAST TO NEW US # 30/218.

PI STA 101+08.45 THIS SURVEY=
PI STA 1267+96.48 PLANS PROJECT # FR-6-6(23)

PI STA 165+48.10 THIS SURVEY (DATUM STATIONING) =
PI STA 65+48.10 PLANS PROJECT # FN-149-2(13)

PI STA 242+02.93 THIS SURVEY=
PI STA 138+19.1 PLANS PROJECT # FN-194

POT STA 276+83.37 THIS SURVEY=
POT STA 120+78.52 PLANS PROJECT # FN-151-1(5)

PI STA 580+67.72 THIS SURVEY=
PI STA 426+85.76 PLANS PROJECT # NHS-151-2(3)

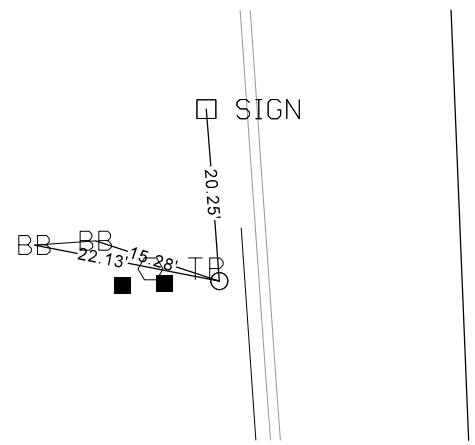
VERTICAL CONTROL

Point	North	East	Elevation	Station	Offset	Feature	Description
BM100	702680.804	2107578.854	780.530	841+08.15	23.119	BM	ARROW ON HYDRANT, EAST SIDE OF HWY 151, SOUTH END
BM1	703233.002	2107556.082	763.600	846+60.81	23.069	BM	GIN SPIKE IN POWER POLE, EAST SIDE HWY 151, ACROSS FROM "PIT STOP"
BM2	705704.166	2107504.303	750.420	871+35.96	70.098	BM	RR SPIKE IN POWER POLE, EAST SIDE HWY 151, 200' +/- NORTH OF NORTH END OF RIVER BRIDGE AT BEGINNING OF CLEARING
BM3	706904.792	2107804.979	760.370	883+94.08	-58.416	BM	RR SPIKE IN POWER POLE, NW QUADRANT OF CEMETARY ROAD AND HWY 151
BM4	708415.446	2109892.014	767.940	909+53.51	-171.787	BM	RR SPIKE IN POWER POLE, SOUTH SIDE OF 80TH ST SW, 70' +/- WEST OF STOP SIGN ON HWY 151
BM5	710868.765	2114183.819	781.810	958+96.64	-109.701	BM	GIN SPIKE IN LIGHT POLE, NW QUADRANT OF BEVERLY DRIVE WEST AND HWY 151
BM587	711354.287	2115052.646	791.920	968+91.68	-87.544	BM	RR SPIKE IN POWER POLE, NW QUADRANT HWY 151 AND STUNEY POINT, 80' +/- NW OF TRAFFIC LIGHT
BM588	711811.381	2116047.826	781.700	979+81.20	23.191	BM	CUT TRIANGLE ON BASE WALL OF REINFORCED CONCRETE BOX CULVERT
BM589	712237.496	2116803.443	791.710	988+48.54	39.136	BM	IDOT DISK IN HIGHWAY, EAST SIDE HWY 151, 50' +/- SOUTH OF TURNOUT FOR DEAN ROAD

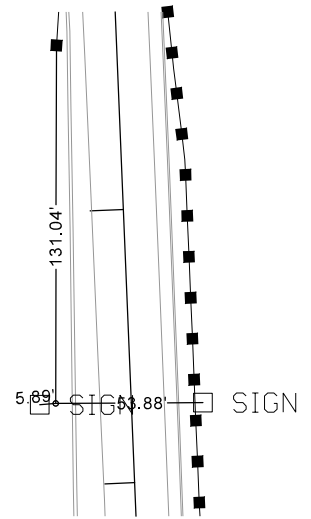
CP STA 837+45.84, 38.77 FT RT
 CP 118, SET REBAR W/ RED PLASTIC SNYDER CONTROL CAP
 N=702310.552, E=2107568.859, ELEV. 790.030

MONUMENT MAY BE LOCATED BY
 STAKING OUT COORDINATE

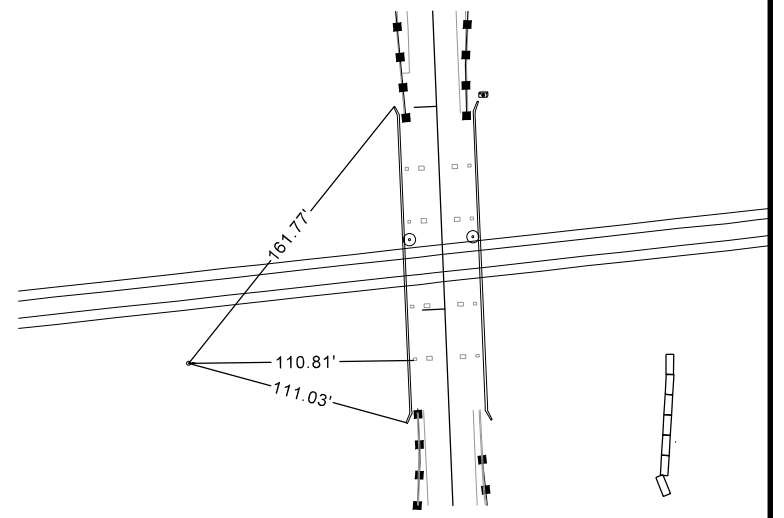
CP STA 846+36.12, 28.47 FT LT
 CP 100, SET REBAR W/ RED PLASTIC SNYDER CONTROL CAP
 N=703206.207, E=2107505.596, ELEV. 763.43



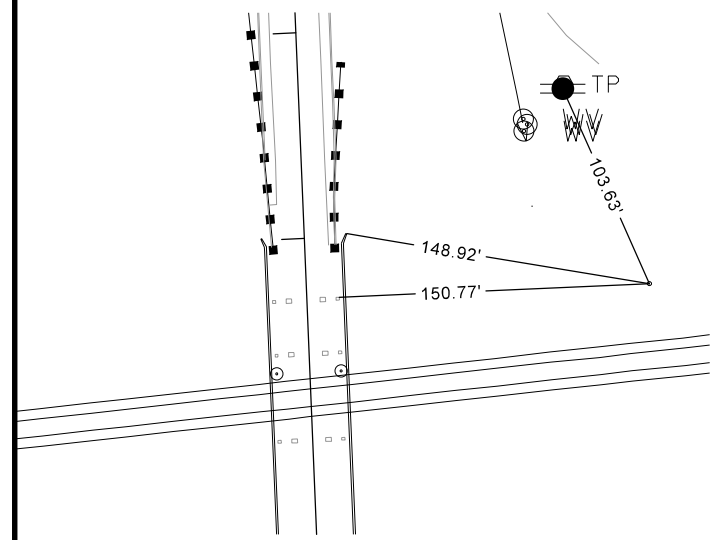
CP STA 854+30.14, 27.69 FT LT
 CP 101, SET REBAR W/ RED PLASTIC SNYDER CONTROL CAP
 N=703999.594, E=2107473.736, ELEV. 786.630



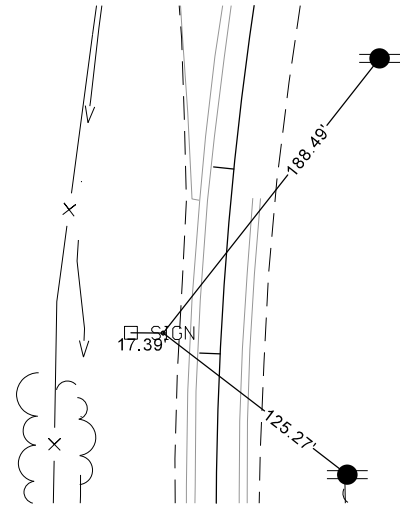
CP STA 856+78.46, 127.36 FT LT
 CP 201, SET REBAR W/ RED PLASTIC SNYDER CONTROL CAP
 N=704243.606, E=2107363.943, ELEV. 758.070



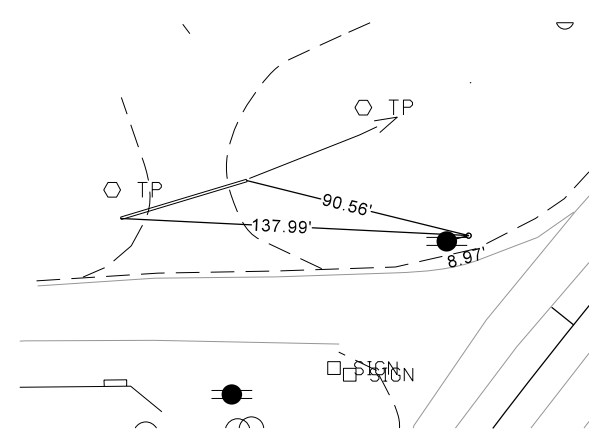
CP STA 857+71.20, 166.58 FT RT
 CP 200, SET REBAR W/ RED PLASTIC SNYDER CONTROL CAP
 N=704348.351, E=2107653.822, ELEV. 763.240



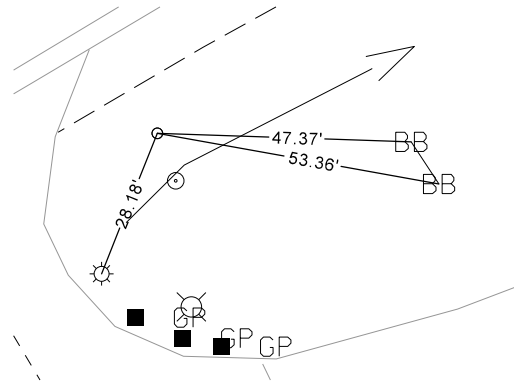
CP STA 872+09.67, 31.26 FT LT
 CP 102, SET REBAR W/ RED PLASTIC SNYDER CONTROL CAP
 N=705780.492, E=2107405.482, ELEV. 757.250



CP STA 884+01.50, 54.56 FT LT
 CP 104, SET REBAR W/ RED PLASTIC SNYDER CONTROL CAP
 N=706908.345, E=2107812.761, ELEV. 759.410



CP STA 894+61.29, 36.19 FT RT
 CP 105, SET REBAR W/ RED PLASTIC SNYDER CONTROL CAP
 N=707479.442, E=2108711.388, ELEV. 757.700



CP STA 901+36.51, 40.43 FT RT
 CP 106, SET REBAR W/ RED PLASTIC SNYDER CONTROL CAP
 N=707817.955, E=2109295.639, ELEV. 757.510

MONUMENT MAY BE LOCATED BY
 STAKING OUT COORDINATE

CP STA 908+95.75, 56.20 FT LT
 CP 107, SET REBAR W/ RED PLASTIC SNYDER CONTROL CAP
 N=708286.528, E=2109900.851, ELEV. 767.350

MONUMENT MAY BE LOCATED BY
 STAKING OUT COORDINATE

CP STA 917+25.17, 29.59 FT RT
 CP 108, SET REBAR W/ RED PLASTIC SNYDER CONTROL CAP
 N=708633.222, E=2110659.204, ELEV. 789.030

MONUMENT MAY BE LOCATED BY
 STAKING OUT COORDINATE

CP STA 926+88.32, 36.90 FT RT
 CP 109, SET REBAR W/ RED PLASTIC SNYDER CONTROL CAP
 N=709115.364, E=2111493.021, ELEV. 808.330

MONUMENT MAY BE LOCATED BY
 STAKING OUT COORDINATE

CP STA 937+41.40, 38.08 FT RT
 CP 110, SET REBAR W/ RED PLASTIC SNYDER CONTROL CAP
 N=709648.405, E=2112401.235, ELEV. 828.150

MONUMENT MAY BE LOCATED BY
 STAKING OUT COORDINATE

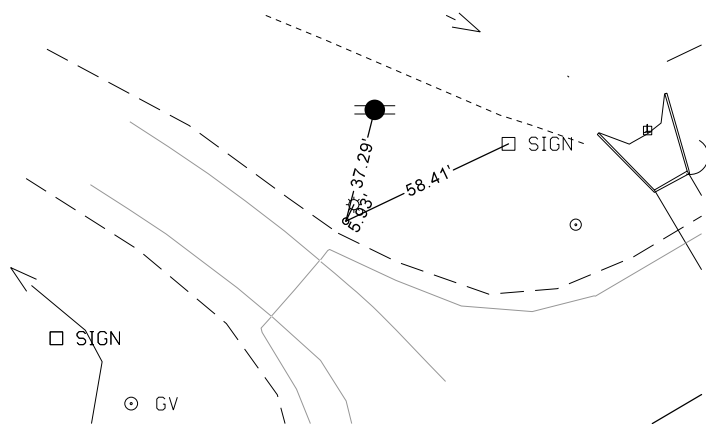
CP STA 948+82.87, 40.35 FT RT
 CP 111, SET REBAR W/ RED PLASTIC SNYDER CONTROL CAP
 N=710225.327, E=2113386.176, ELEV. 800.680

MONUMENT MAY BE LOCATED BY
 STAKING OUT COORDINATE

CP STA 953+99.85, 42.76 FT RT
 CP 112, SET REBAR W/ RED PLASTIC SNYDER CONTROL CAP
 N=710485.430, E=2113832.974, ELEV. 783.030

MONUMENT MAY BE LOCATED BY
 STAKING OUT COORDINATE

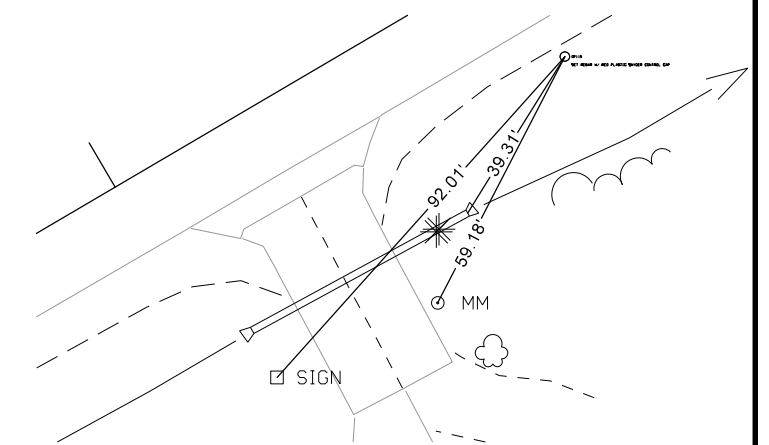
CP STA 958+91.52, 106.92 FT LT
 CP 113, SET REBAR W/ RED PLASTIC SNYDER CONTROL CAP
 N=710863.774, E=2114180.813, ELEV. 781.940



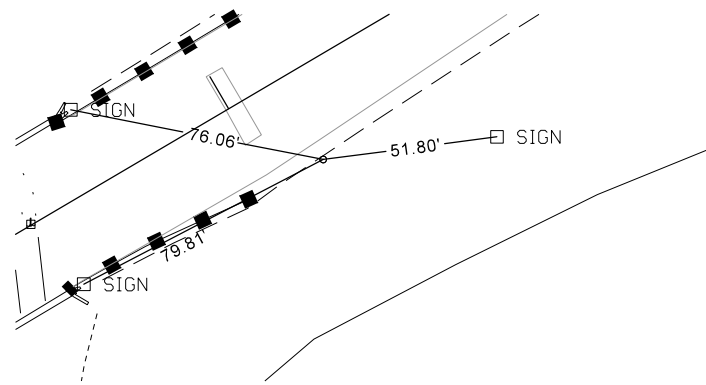
CP STA 968+92.74, 78.50 FT LT
 CP 114, SET REBAR W/ RED PLASTIC SNYDER CONTROL CAP
 N=711347.028, E=2115058.146, ELEV. 790.110

MONUMENT MAY BE LOCATED BY
 STAKING OUT COORDINATE

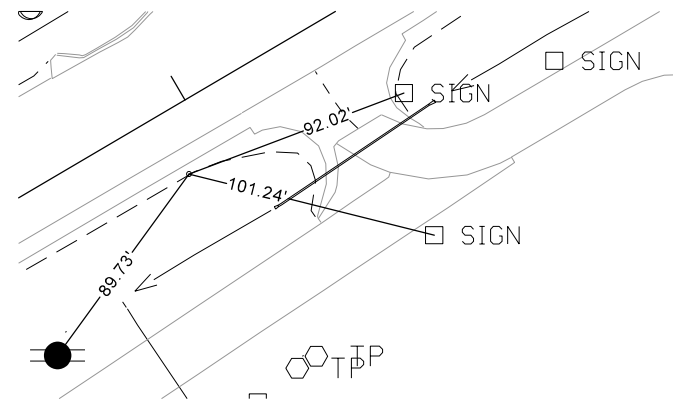
CP STA 973+96.87, 24.64 FT RT
 CP 115, SET REBAR W/ RED PLASTIC SNYDER CONTROL CAP
 N=711513.799, E=2115544.949, ELEV. 785.140



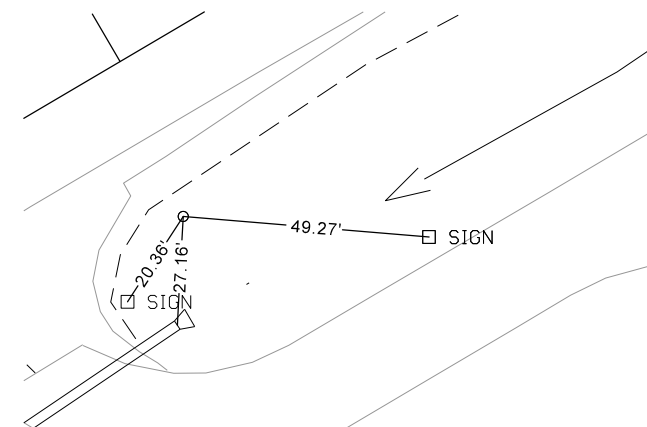
CP STA 981+16.48, 27.08 FT RT
 CP 116, SET REBAR W/ RED PLASTIC SNYDER CONTROL CAP
 N=711876.636, E=2116166.395, ELEV. 778.680



CP STA 991+86.29, 26.37 FT RT
 CP 373, SET HINGE NAIL IN ACC
 N=712419.779, E=2117088.065, ELEV. 799.640



CP STA 992+95.16, 33.05 FT RT
 CP 117, SET REBAR W/ RED PLASTIC SNYDER CONTROL CAP
 N=712469.239, E=2117185.291, ELEV. 801.310



US HIGHWAY 151

Table containing survey data for US Highway 151, including points, curves (CUR1-CUR5), and bearings/distances.

US HIGHWAY 151 (Cont.)

Table continuing survey data for US Highway 151, including points, curves (CUR6-CUR10), and bearings/distances.

CHURCH STREET

Table containing survey data for Church Street, including points, curves (SRCHURCH-1, SRLOSEY-1, SRLOSEY-2), and bearings/distances.

STALLMAN DRIVE

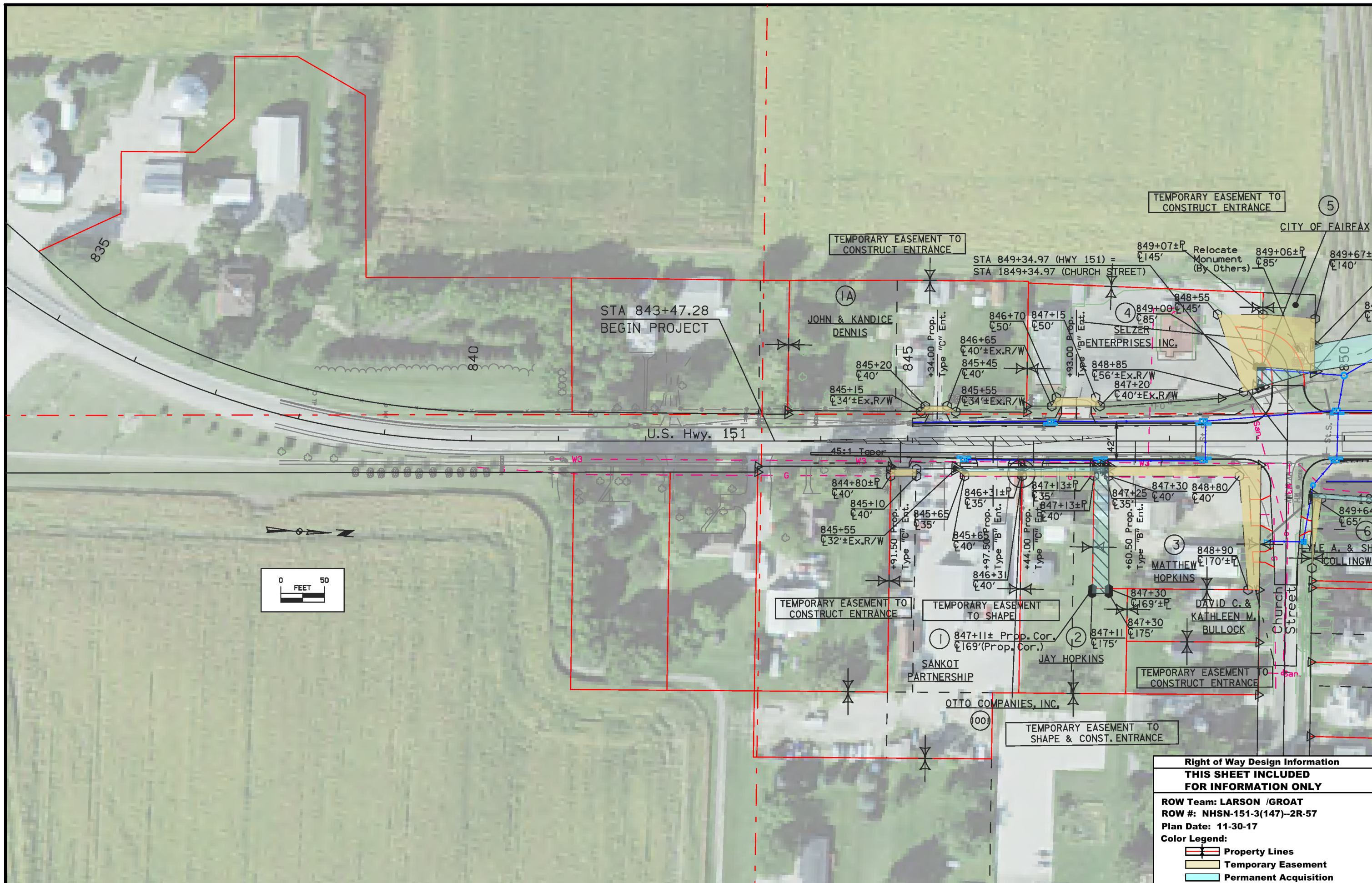
Table containing survey data for Stallman Drive, including points, curve (SRSTALLMAN-1), and bearings/distances.

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														
U.S. Hwy. 151	CUR10	1910	4.2	120	57	PV-301	868+88.88 892+33.65	869+45.88 891+76.65	870+02.88 891+19.65	870+65.88 890+56.65			870+29.88 890+92.65			870+60.17 890+62.36	870+60.17 890+62.36		
U.S. Hwy. 151	CUR10	1910	4.2	120	57		885+98.30	886+55.30	887+12.30	887+75.30									SB Rt. Turn Lane Transition

NO ACCESS RIGHTS ARE TO BE ACQUIRED ON THIS PROJECT.



TEMPORARY EASEMENT TO CONSTRUCT ENTRANCE

TEMPORARY EASEMENT TO CONSTRUCT ENTRANCE

STA 843+47.28
BEGIN PROJECT

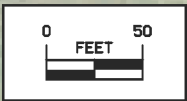
CITY OF FAIRFAX

STA 849+07±P
℄145'
Relocate Monument (By Others)
849+06±P
℄85'
849+67±P
℄140'

JOHN & KANDICE DENNIS

ENTERPRISES, INC.

U.S. Hwy. 151



TEMPORARY EASEMENT TO CONSTRUCT ENTRANCE

TEMPORARY EASEMENT TO SHAPE

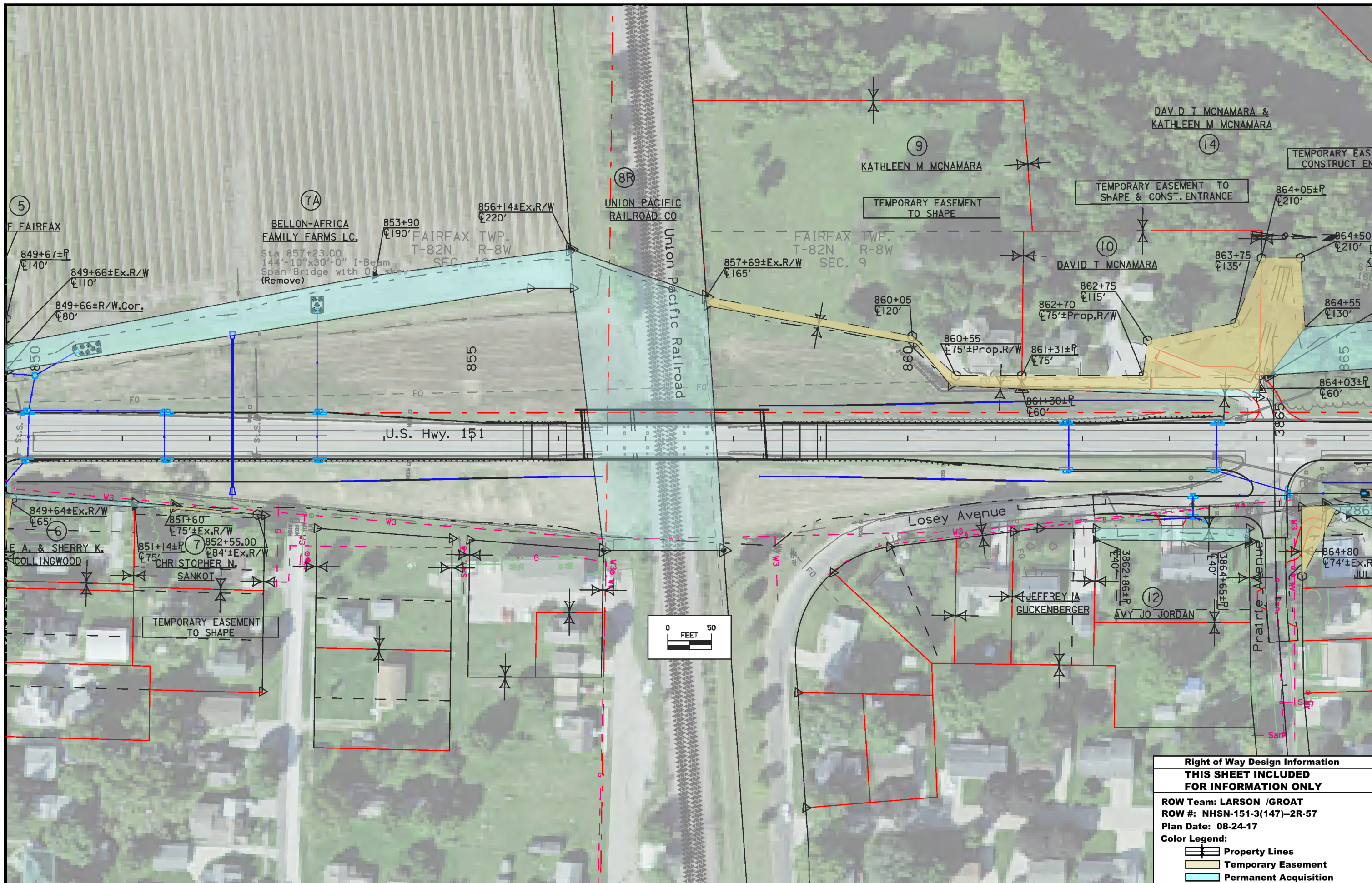
TEMPORARY EASEMENT TO CONSTRUCT ENTRANCE

TEMPORARY EASEMENT TO SHAPE & CONST. ENTRANCE

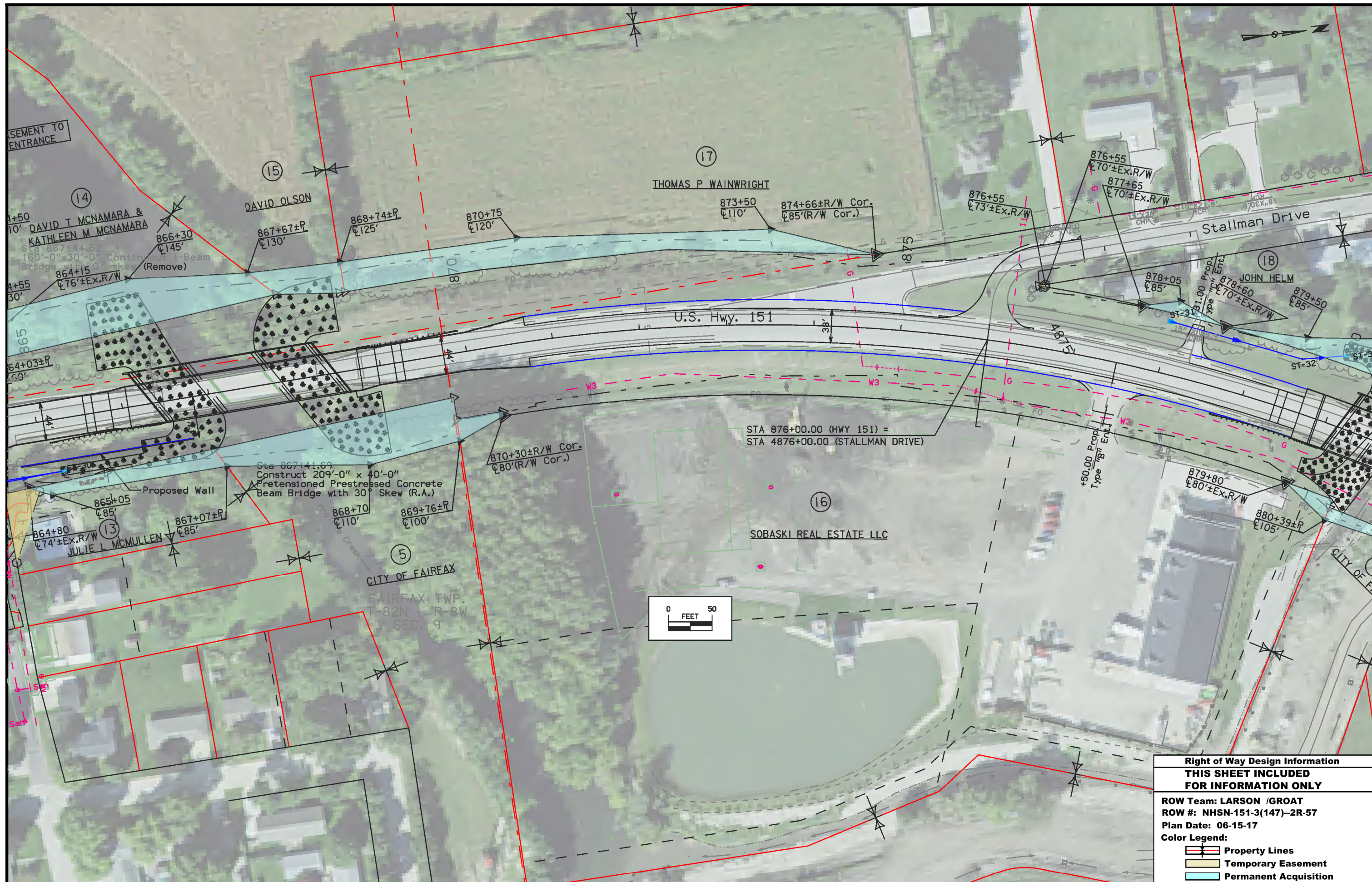
Right of Way Design Information
THIS SHEET INCLUDED FOR INFORMATION ONLY

ROW Team: LARSON /GROAT
ROW #: NHSN-151-3(147)-2R-57
Plan Date: 11-30-17

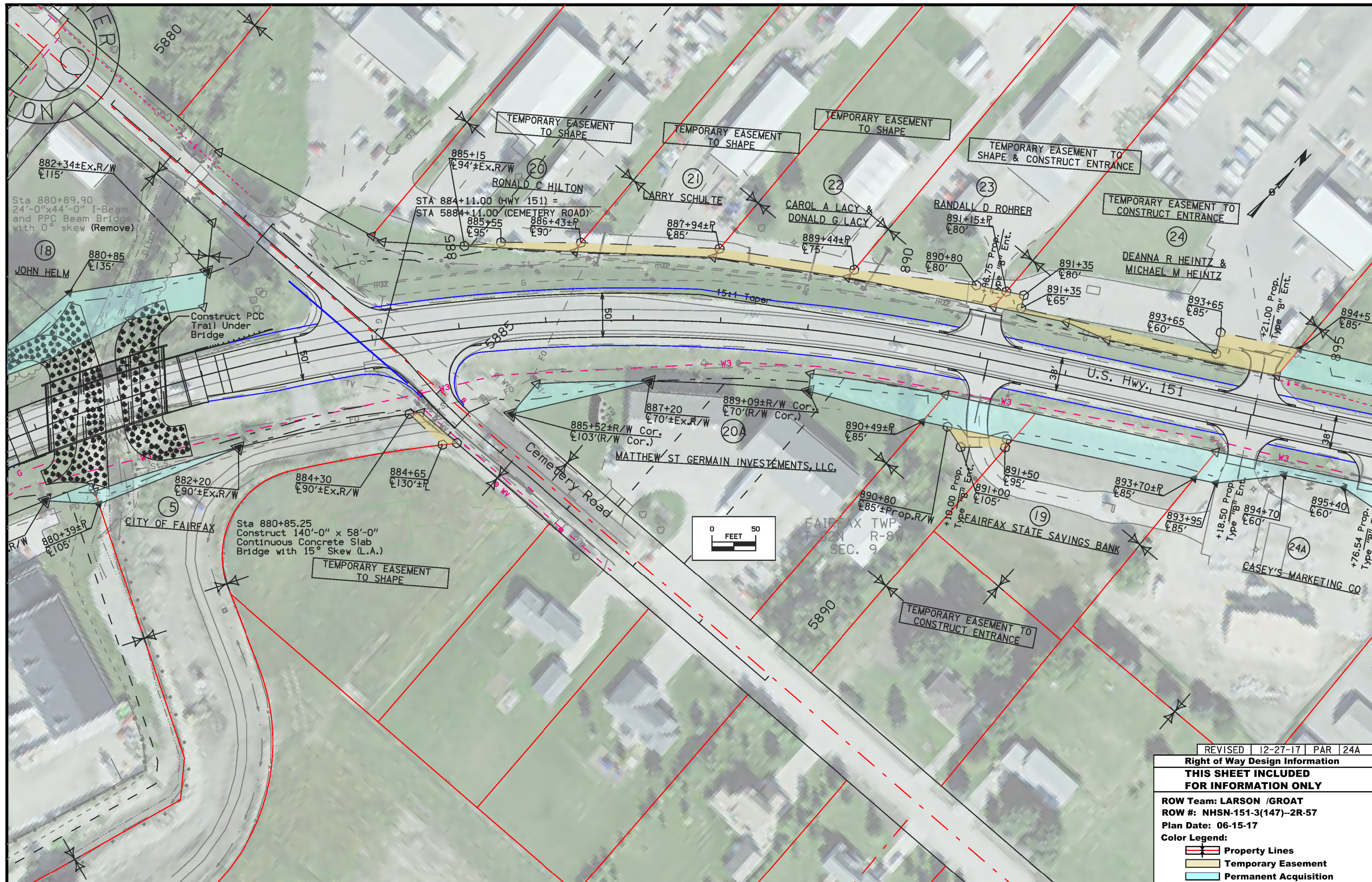
Color Legend:
 Property Lines
 Temporary Easement
 Permanent Acquisition



Right of Way Design Information	
THIS SHEET INCLUDED FOR INFORMATION ONLY	
ROW Team: LARSON /GROAT	
ROW #: NHSN-151-3(147)-2R-57	
Plan Date: 08-24-17	
Color Legend:	
	Property Lines
	Temporary Easement
	Permanent Acquisition



Right of Way Design Information	
THIS SHEET INCLUDED FOR INFORMATION ONLY	
ROW Team: LARSON /GROAT	
ROW #: NHSN-151-3(147)-2R-57	
Plan Date: 06-15-17	
Color Legend:	
	Property Lines
	Temporary Easement
	Permanent Acquisition

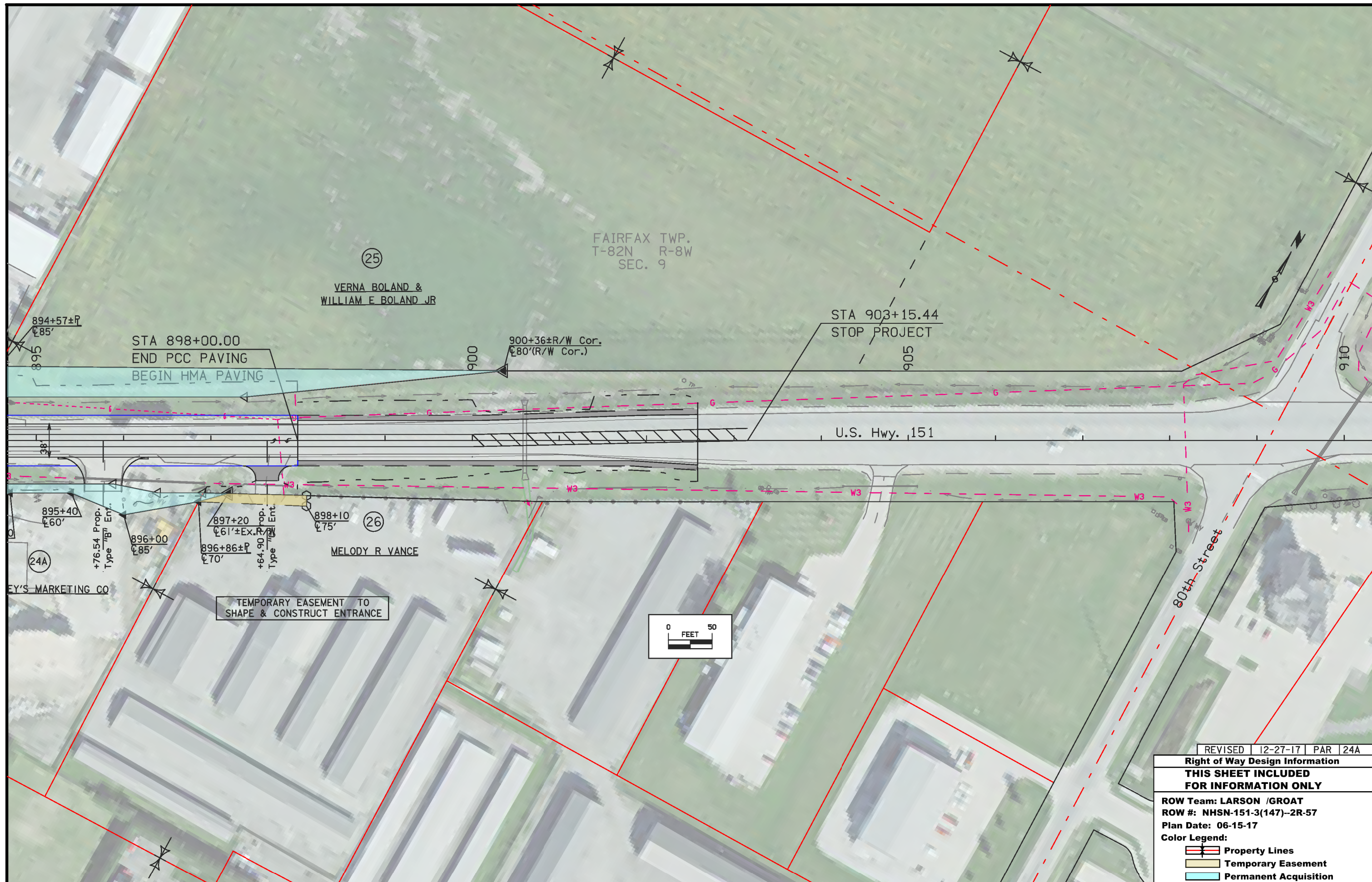


REVISED 12-27-17 PAR 24A

Right of Way Design Information
THIS SHEET INCLUDED
FOR INFORMATION ONLY

ROW Team: LARSON /GROAT
 ROW #: NHSN-151-3(147)-2R-57
 Plan Date: 06-15-17

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



FAIRFAX TWP.
T-82N R-8W
SEC. 9

(25)
VERNA BOLAND &
WILLIAM E BOLAND JR

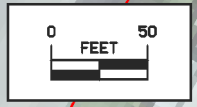
STA 903+15.44
STOP PROJECT

STA 898+00.00
END PCC PAVING
BEGIN HMA PAVING

U.S. Hwy. 151

(26)
MELODY R VANCE

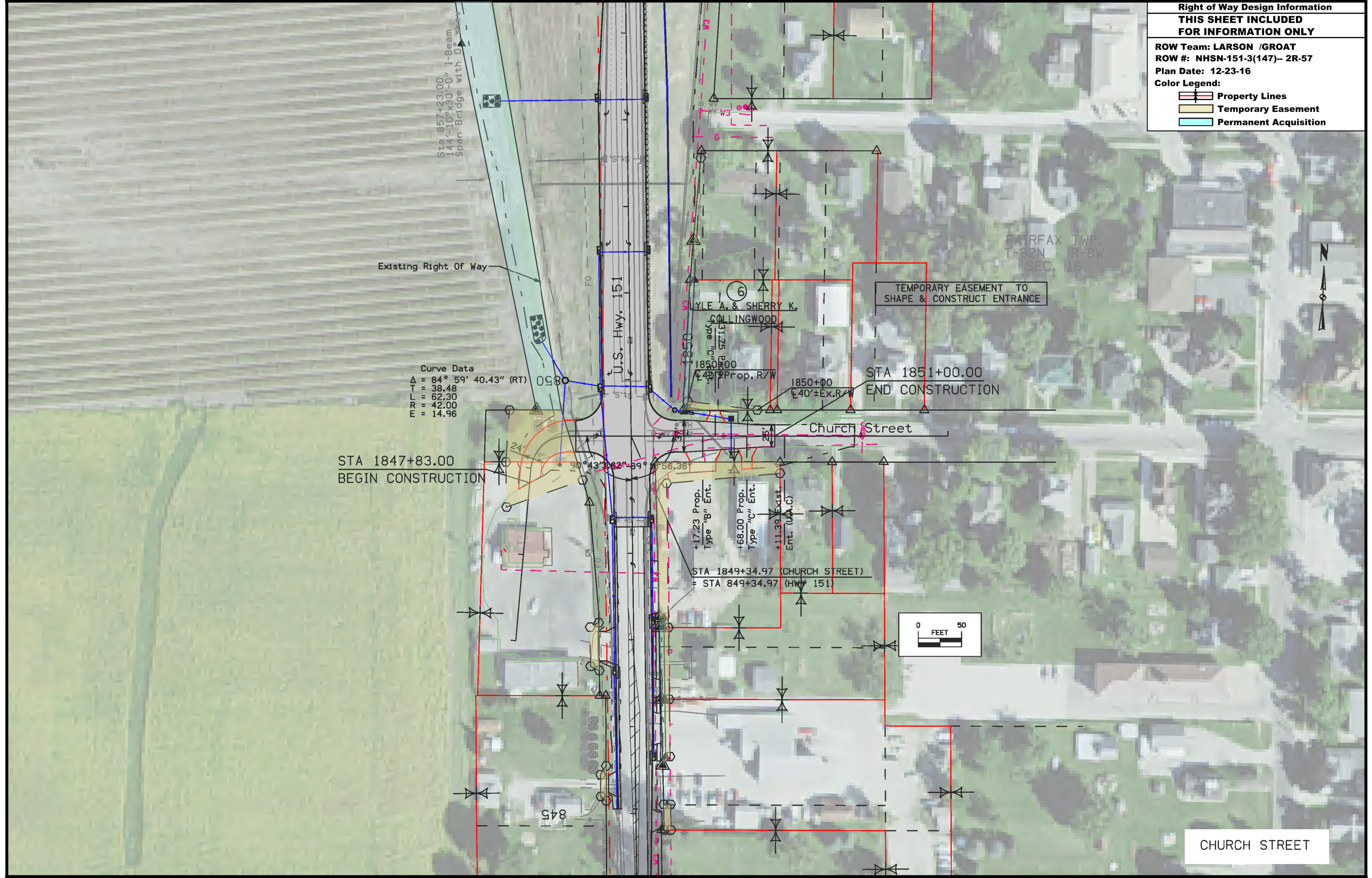
TEMPORARY EASEMENT TO
SHAPE & CONSTRUCT ENTRANCE



REVISED 12-27-17 PAR 24A




Right of Way Design Information	
THIS SHEET INCLUDED FOR INFORMATION ONLY	
ROW Team: LARSON /GROAT	
ROW #: NHSN-151-3(147)-2R-57	
Plan Date: 06-15-17	
Color Legend:	
	Property Lines
	Temporary Easement
	Permanent Acquisition

Right of Way Design Information
THIS SHEET INCLUDED FOR INFORMATION ONLY
 ROW Team: LARSON /GROAT
 ROW #: NHSN-151-3(147)-- 2R-57
 Plan Date: 12-23-16
 Color Legend:
 Property Lines
 Temporary Easement
 Permanent Acquisition



Right of Way Design Information
THIS SHEET INCLUDED
FOR INFORMATION ONLY

ROW Team: LARSON /GROAT
ROW #: NHSN-151-3(147)--2R-57
Plan Date: 12-23-16

Color Legend:
 Property Lines
 Temporary Easement
 Permanent Acquisition



TRAFFIC CONTROL PLAN

1. U.S. 151 will be closed to through traffic throughout the project area. Through traffic will use the detour route indicated on Sheet J.3. The road will remain open to local traffic throughout construction, with the exception of the UPRR Bridge, which will be closed. Refer to Staging Notes for additional information.
2. Access to Church Street and Prairie Avenue from U.S. 151 shall be maintained at all times.
3. Stallman Drive will be closed at U.S. 151 during intersection reconstruction.
4. At least one lane of Cemetery Road shall remain open in each direction throughout construction.
5. Beverly Road will be closed at U.S. 151 during culvert installation.
6. Access to properties within the project area shall be maintained at all times.
7. Provide access to emergency vehicles at all times during construction.

STAGING NOTES

U.S. Highway 151 south of Church Street

Stage 1: Traffic utilizes existing roadway. Move hydrants, clear and remove obstructions west of the existing roadway. Construct 12 foot wide temporary pavement.

Stage 2: Transition traffic to use west existing pavement and temporary pavement. Construct 19 feet of U.S. 151 improvements on east side and 7 foot wide temporary pavement. Stage construct paving at property entrances to maintain access.

Stage 3: Shift traffic to new roadway pavement and temporary pavement on east side. Remove temporary pavement on west side and construct U.S. 151 improvements.

Stage 4: Close a portion of northbound traffic lane, use portion of two way left turn lane pavement as through lane. Remove temporary pavement on east side, construct curb and gutter and sidewalk.

U.S. Highway 151, Prairie Avenue to near 80th Street

Stage 1: Traffic utilizes existing roadway. Grade and construct pavement widening between Prairie Creek and Drainage Ditch 1.

Stage 2: Refer to special details for temporary signal layout at Prairie Avenue and Cemetery Road. Temporary signals north of the Prairie Creek bridge and south of the Drainage Ditch #1 Bridge will be per TC-216. Traffic will utilize a single lane across the existing Prairie Creek and Drainage Ditch #1 bridges. Between bridges, two lanes of traffic will utilize existing pavement and widening. Construct proposed improvements west of centerline. Omit barrier on bridges between sidewalk and traffic lane.

Stage 3: Shift traffic to pavement constructed during Stage 2. Construct improvements east of centerline.

Stage 4: Traffic utilizes center of roadway. Add barrier rails between sidewalk and roadway on the west side of bridges.

Drainage Ditch #2

Stage 1: Traffic utilizes existing roadway. Traffic will utilize a single lane across the existing Drainage Ditch #2 bridge. Temporary signals east and west of Drainage Ditch #2 will be per TC216. Construct portion of Conspan Arch and U.S. 151 improvements left of centerline and temporary pavement to accommodate two way traffic in stage 2.










Stage 2: Remove temporary signals, shift traffic onto pavement built in stage 1. Construct remaining portion of Conspan Arch and U.S. 151 improvements right of centerline.

Stage 3: Shift traffic, remove temporary pavement, construct shoulder and grade foreslope left of centerline.

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

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

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





















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

PLAN VIEW COLOR LEGEND OF TRAFFIC CONTROL AND STAGING SHEETS

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

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

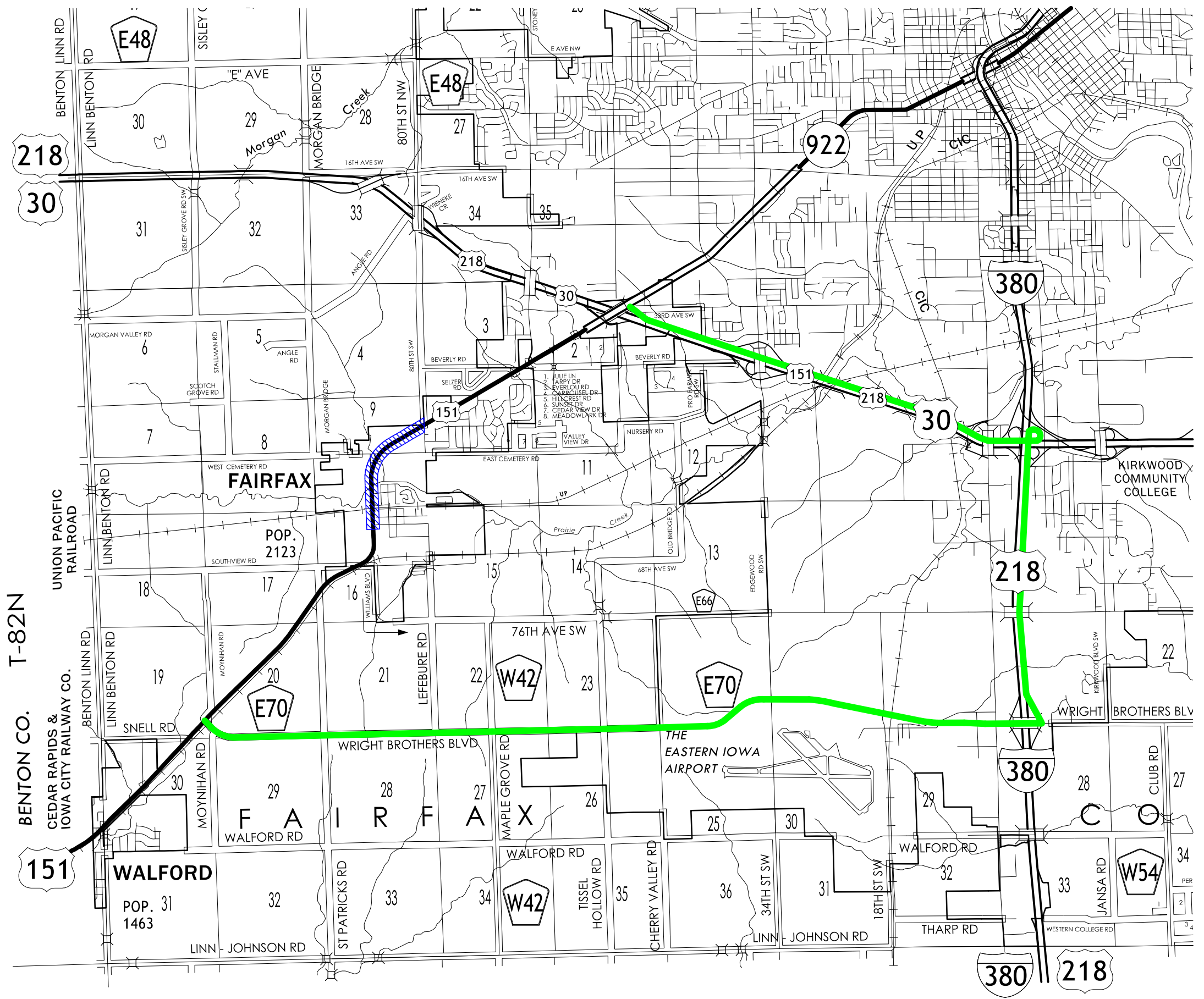
**PLAN VIEW PATTERN AND SYMBOL LEGEND
OF TRAFFIC CONTROL AND STAGING SHEETS**

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

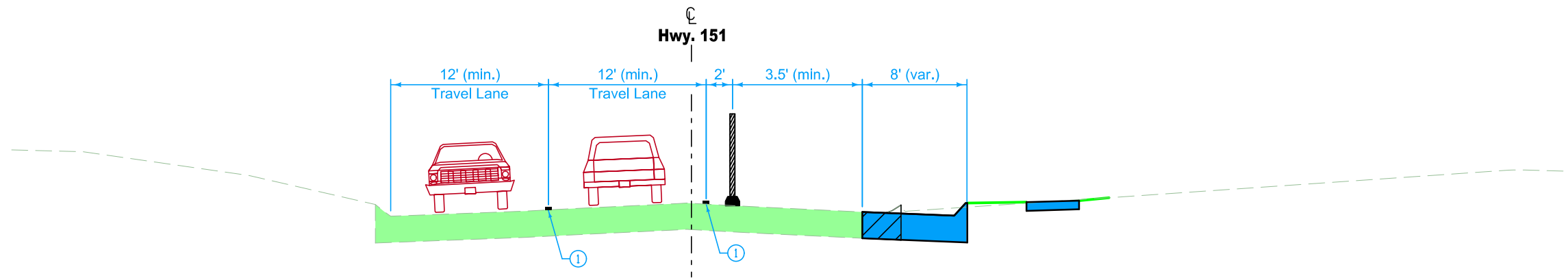
NOTE: Device spacing according to Standard Road Plans unless specifically dimensioned.

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

(COVERS SHEET SERIES J)



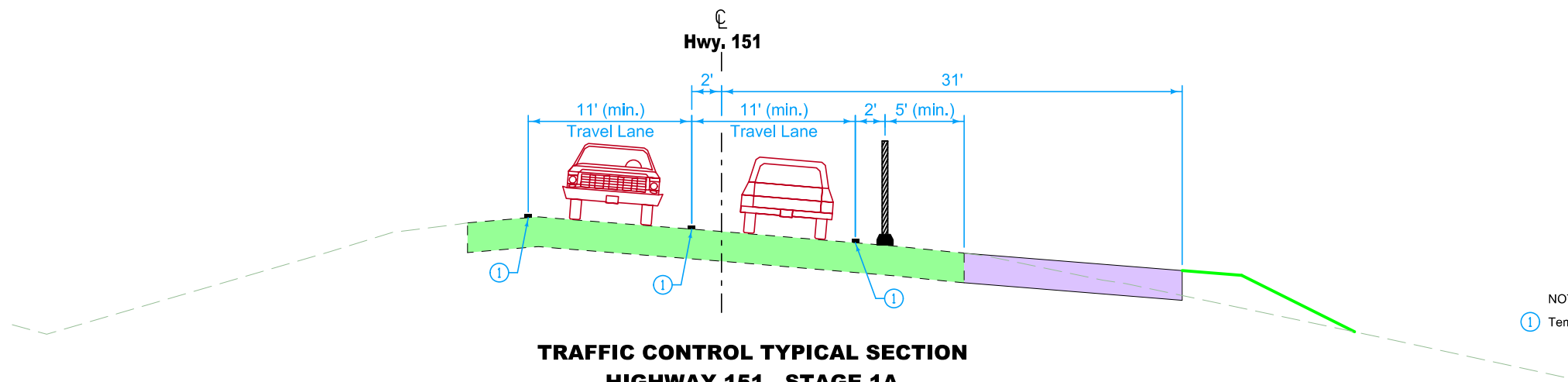
TYPICAL 1
HWY 151



**TRAFFIC CONTROL TYPICAL SECTION
HIGHWAY 151 - STAGE 1A
Sta. 843+88 to 848+31
Shown in Direction of Traffic**

NOTES:
① Temporary pavement markings

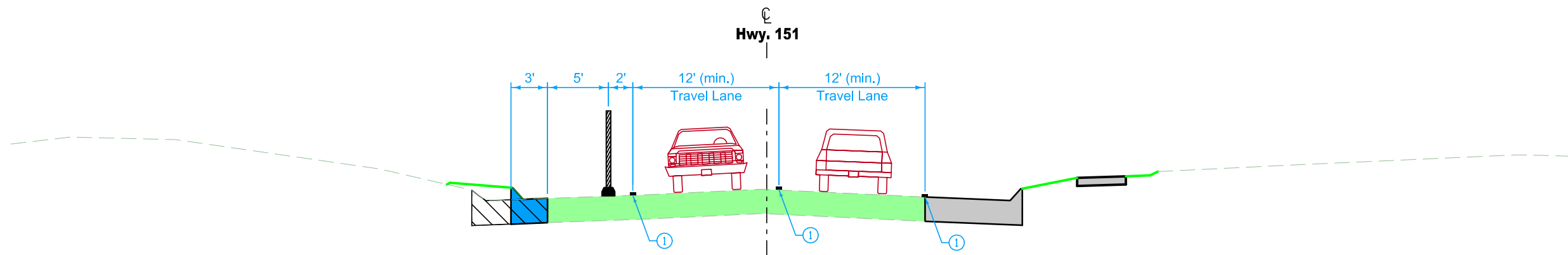
TYPICAL 2
HWY 151



**TRAFFIC CONTROL TYPICAL SECTION
HIGHWAY 151 - STAGE 1A
Sta. 868+70 to 900+50
Shown in Direction of Traffic**

NOTES:
① Temporary pavement markings

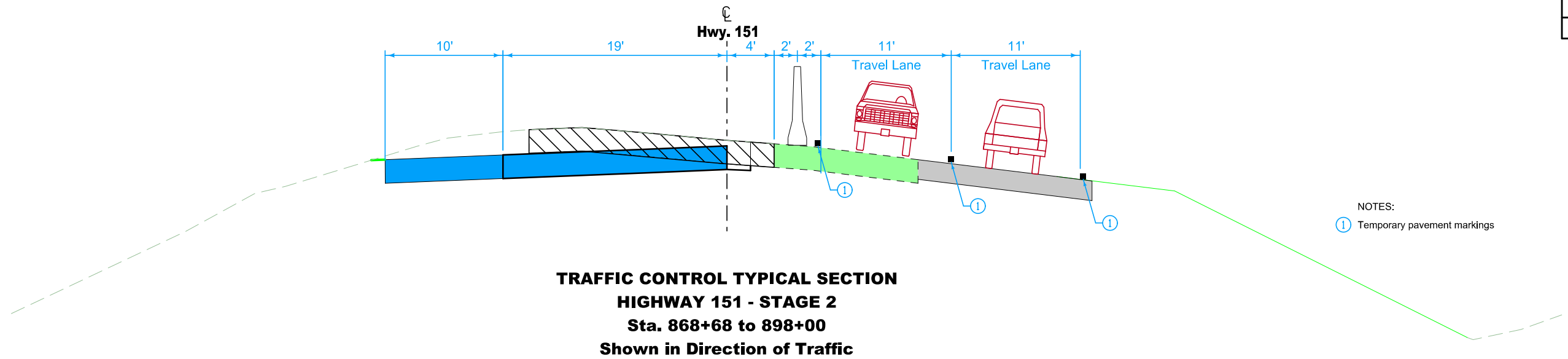
TYPICAL 3
HWY 151



**TRAFFIC CONTROL TYPICAL SECTION
HIGHWAY 151 - STAGE 1B
Sta. 845+05 to 848+30
Shown in Direction of Traffic**

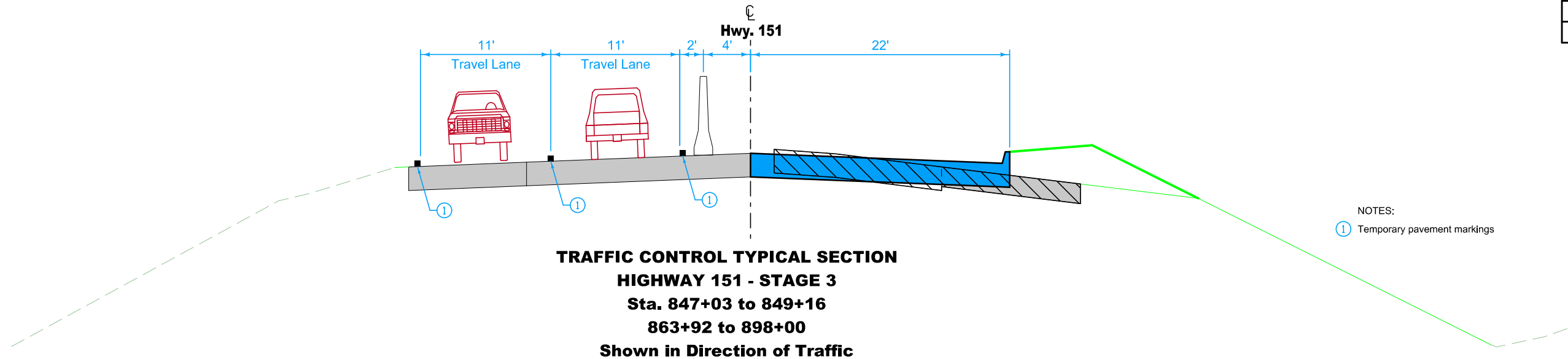
NOTES:
① Temporary pavement markings

TYPICAL 4
HWY 151



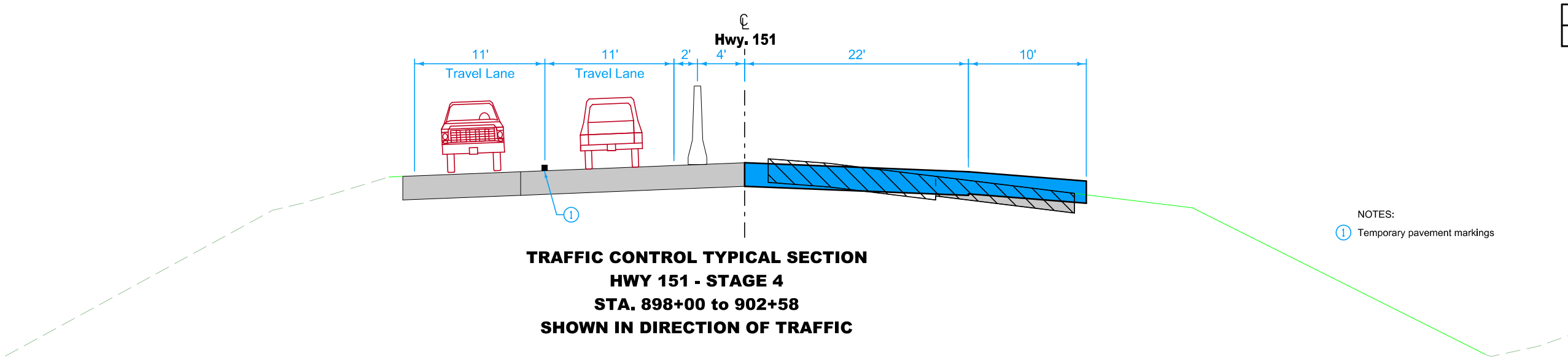
**TRAFFIC CONTROL TYPICAL SECTION
HIGHWAY 151 - STAGE 2
Sta. 868+68 to 898+00
Shown in Direction of Traffic**

TYPICAL 5
HWY 151



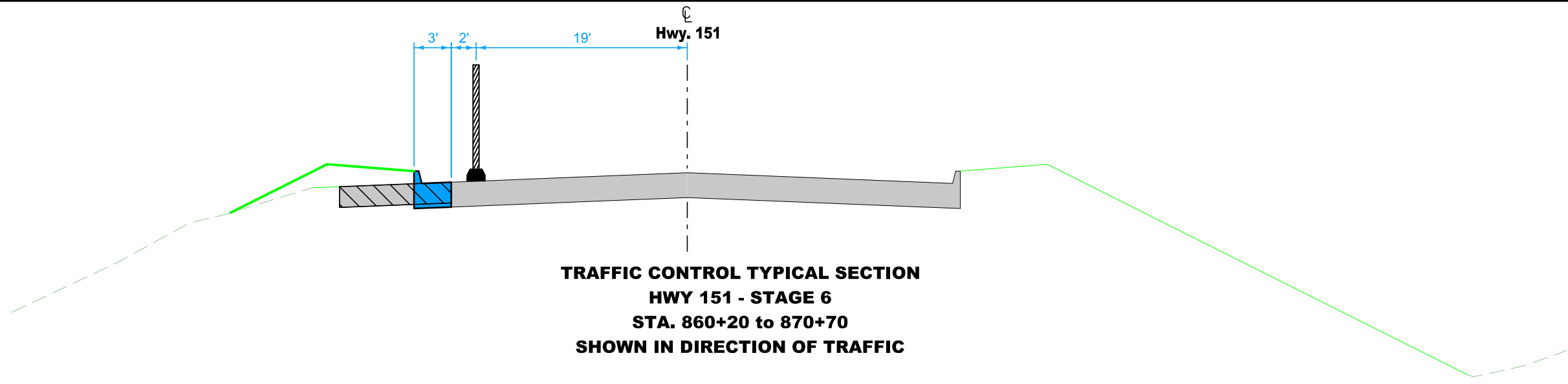
**TRAFFIC CONTROL TYPICAL SECTION
HIGHWAY 151 - STAGE 3
Sta. 847+03 to 849+16
863+92 to 898+00
Shown in Direction of Traffic**

TYPICAL 6
HWY 151



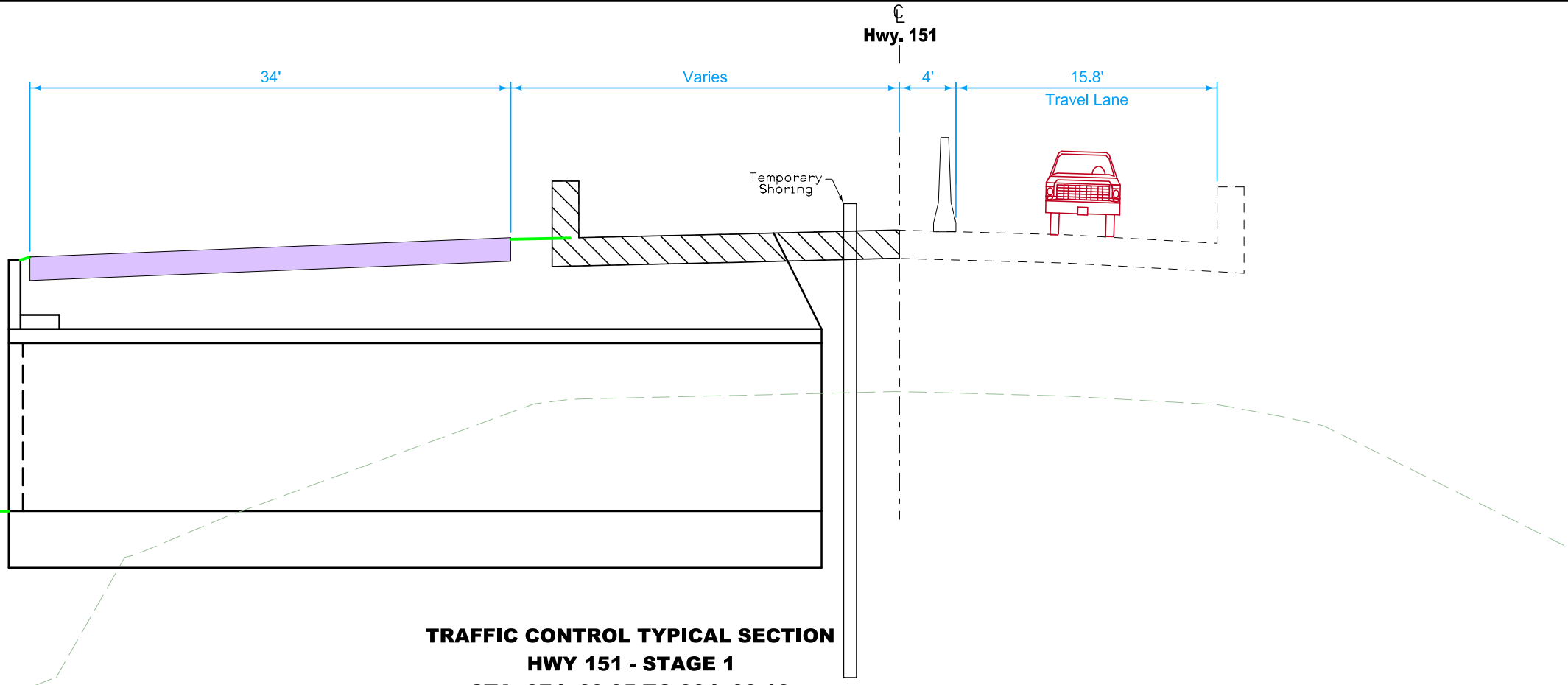
**TRAFFIC CONTROL TYPICAL SECTION
HWY 151 - STAGE 4
STA. 898+00 to 902+58
SHOWN IN DIRECTION OF TRAFFIC**

TYPICAL 7
HWY 151



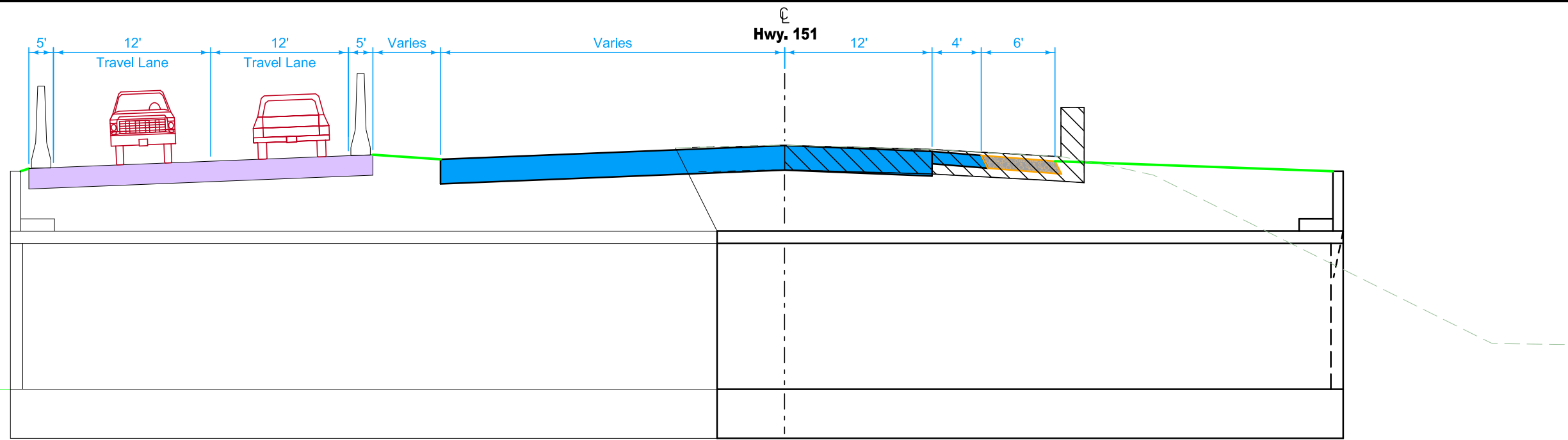
**TRAFFIC CONTROL TYPICAL SECTION
HWY 151 - STAGE 6
STA. 860+20 to 870+70
SHOWN IN DIRECTION OF TRAFFIC**

TYPICAL 9
HWY 151

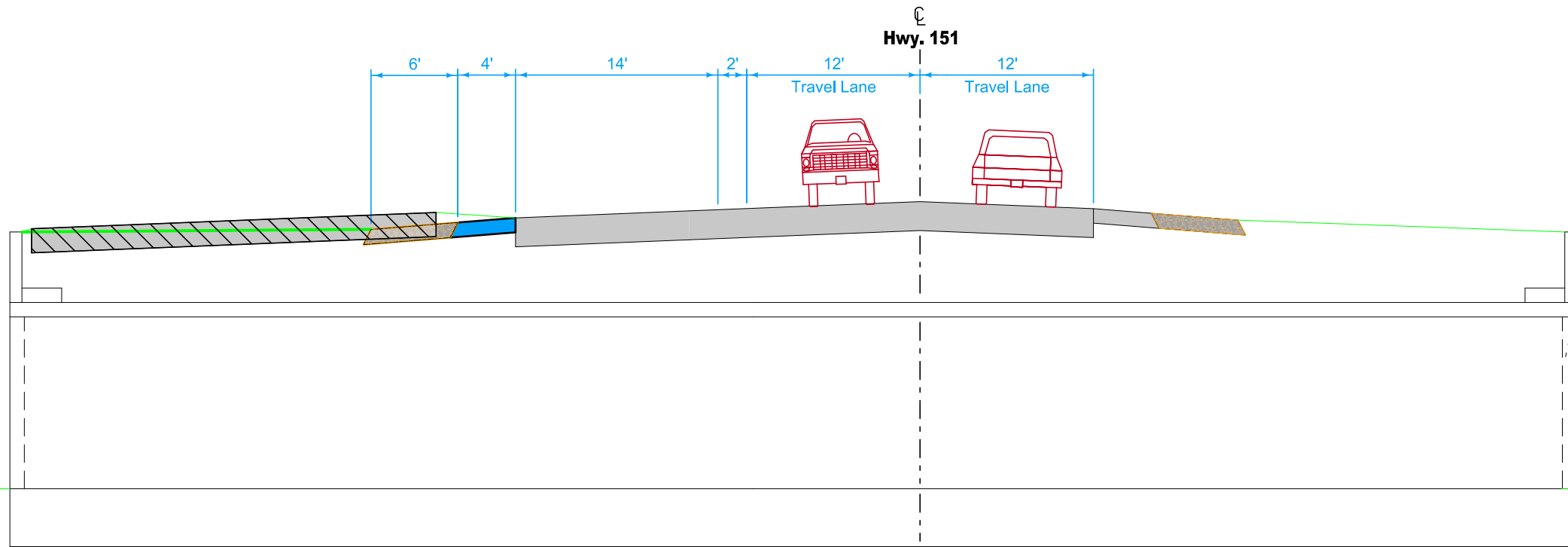


**TRAFFIC CONTROL TYPICAL SECTION
HWY 151 - STAGE 1
STA. 974+69.95 TO 984+83.16
SHOWN IN DIRECTION OF TRAFFIC**

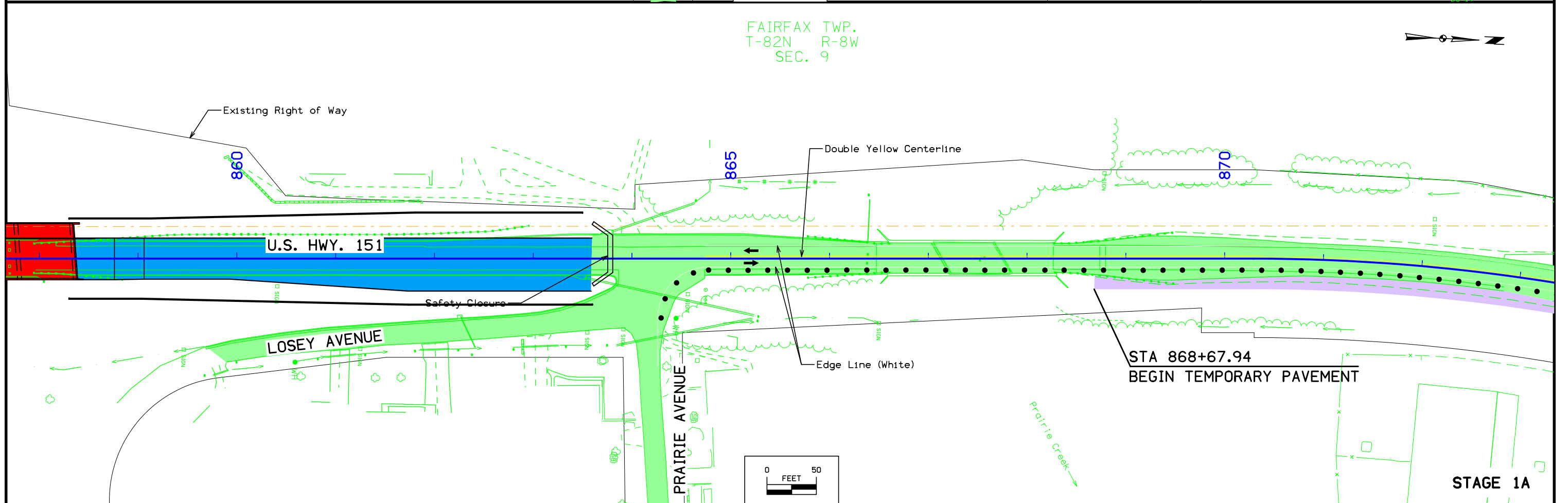
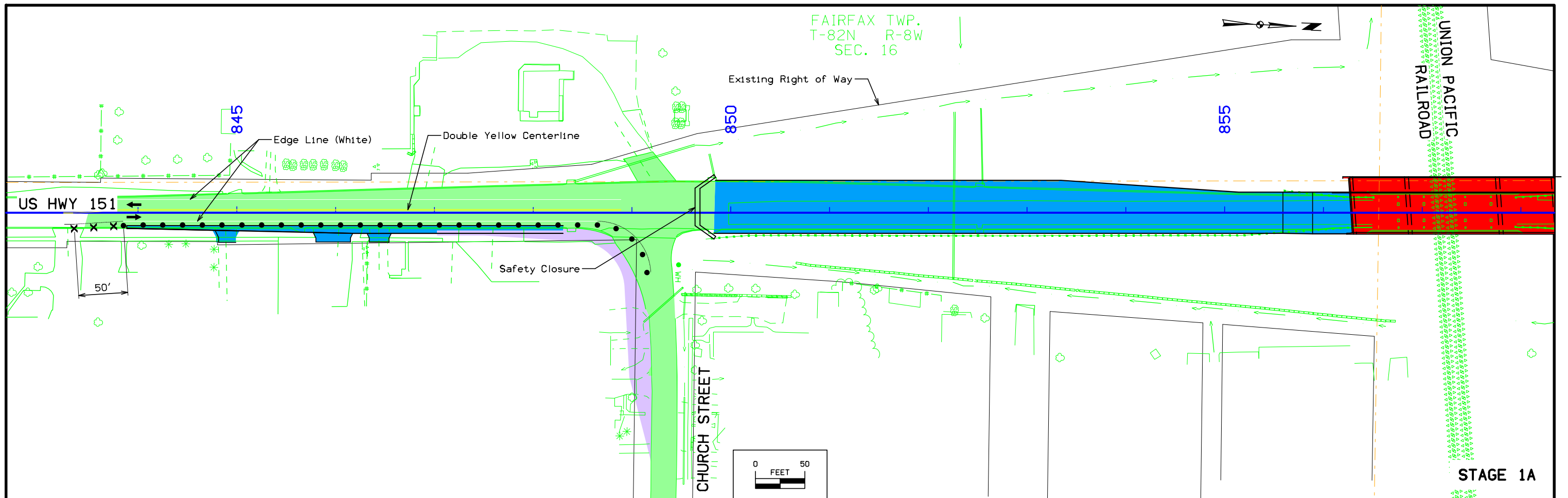
TYPICAL 10
HWY 151

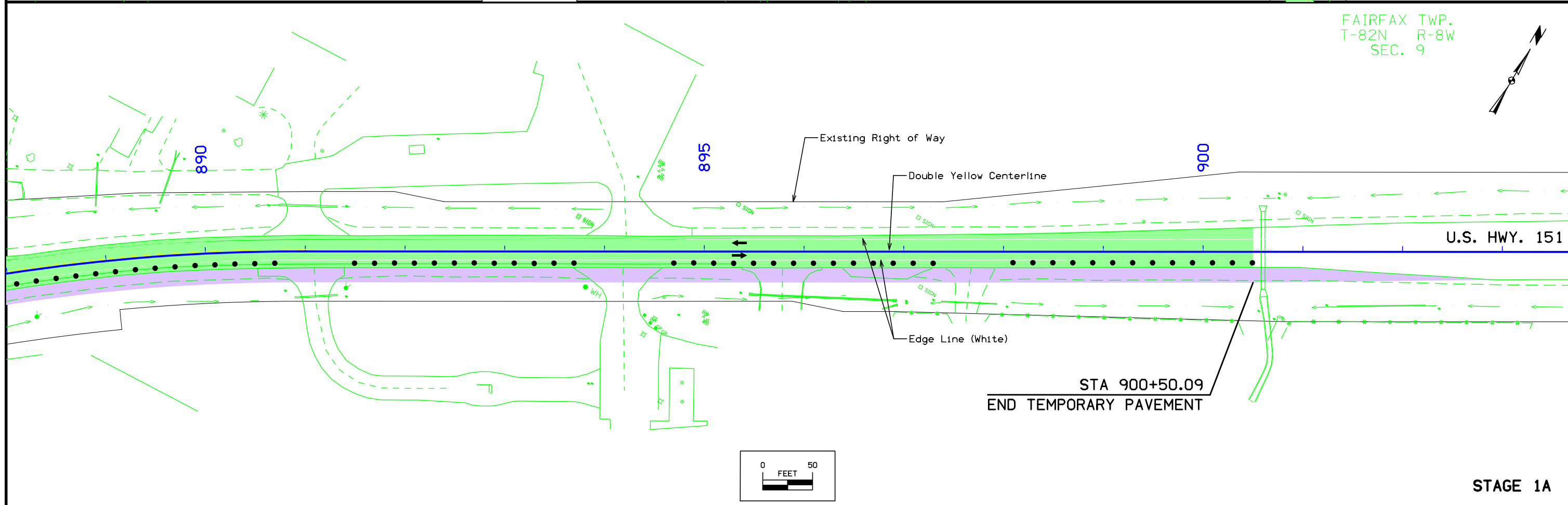
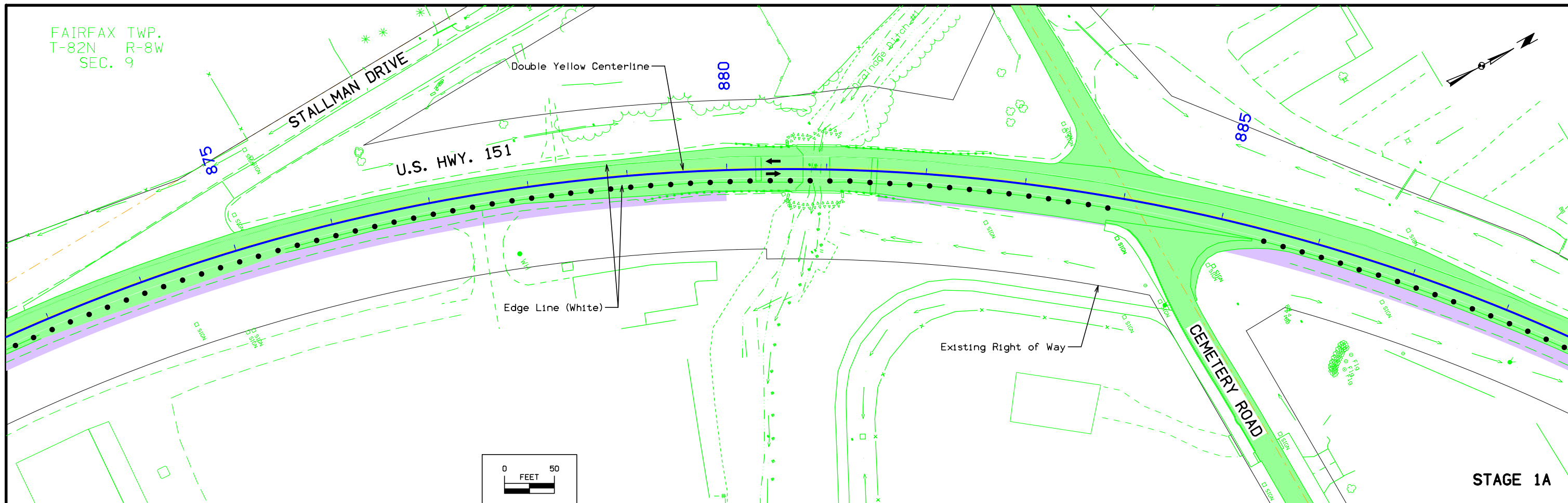


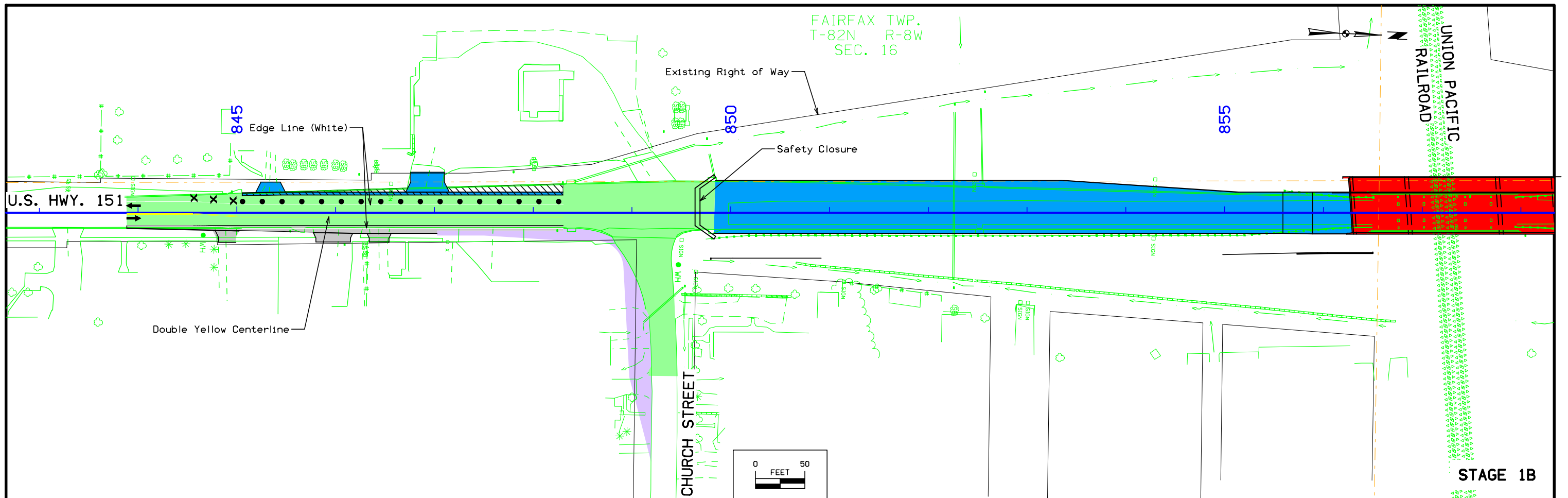
**TRAFFIC CONTROL TYPICAL SECTION
HWY 151 - STAGE 2
STA. 974+69.95 TO 984+83.16
SHOWN IN DIRECTION OF TRAFFIC**

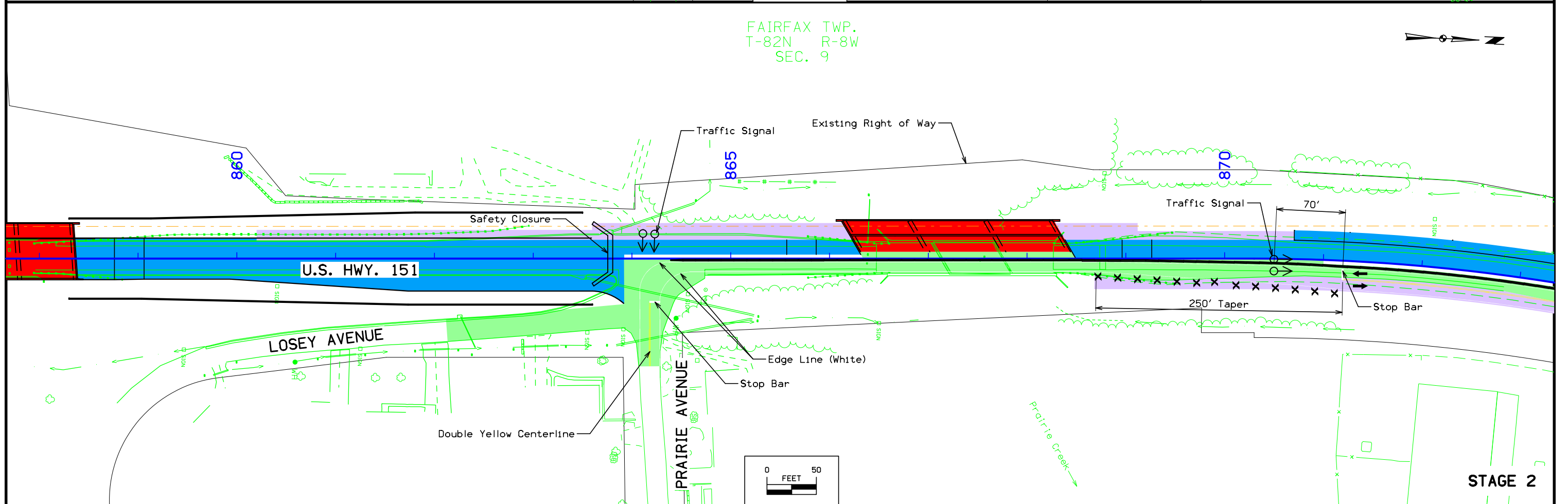
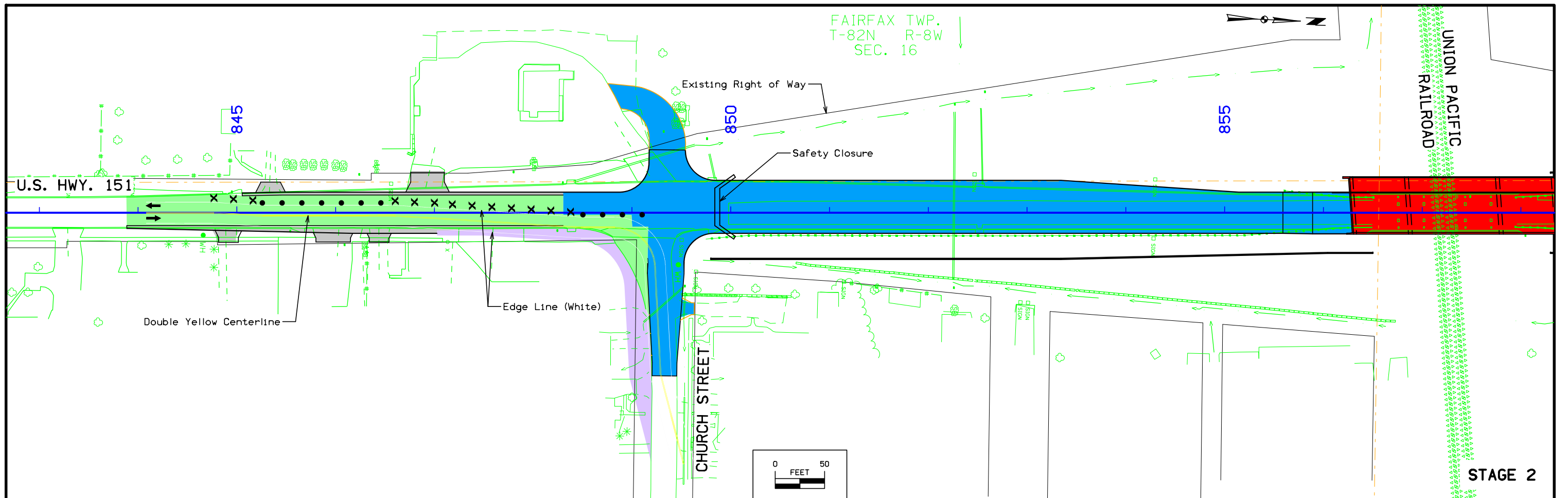


**TRAFFIC CONTROL TYPICAL SECTION
HWY 151 - STAGE 3
STA. 974+69.95 TO 984+83.16
SHOWN IN DIRECTION OF TRAFFIC**

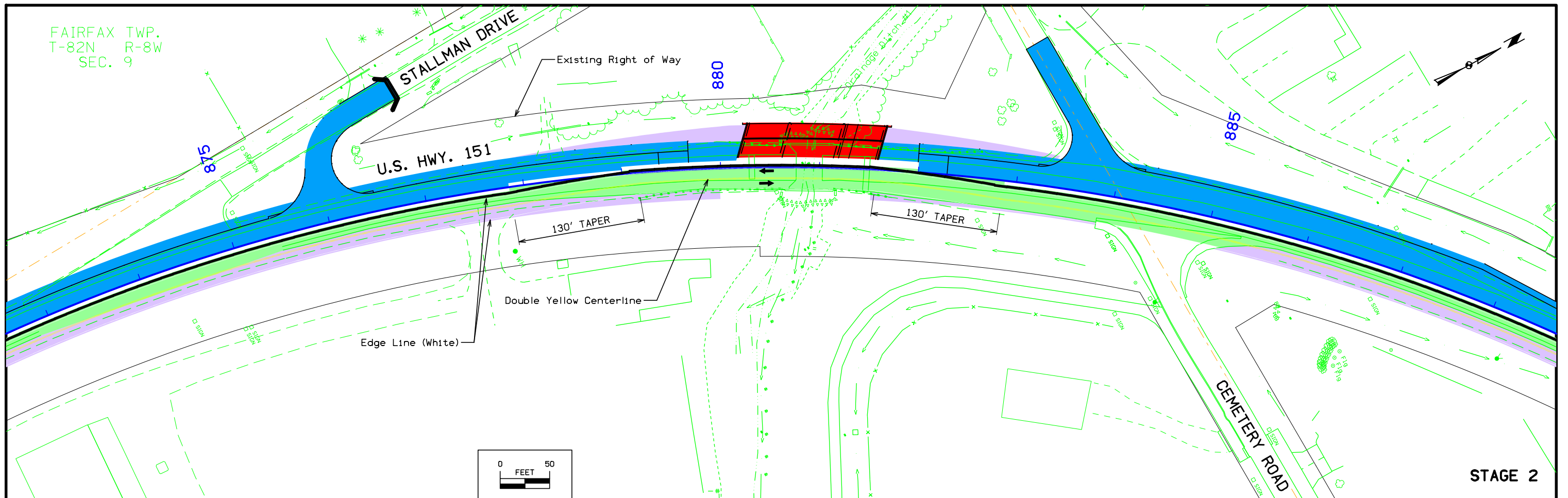




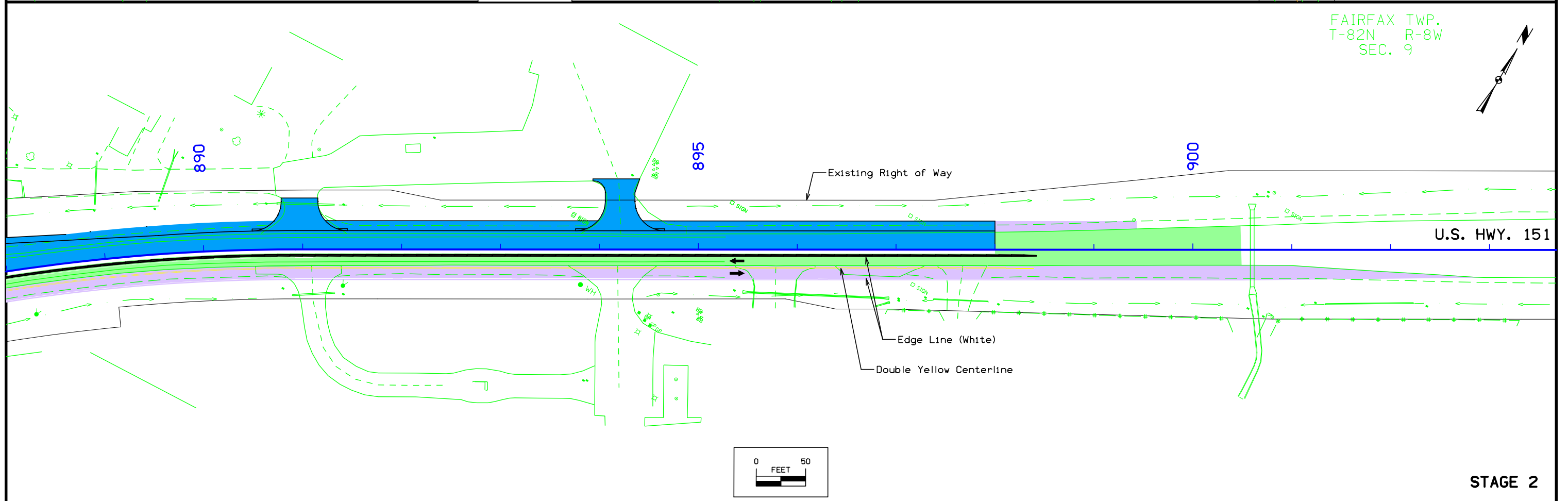


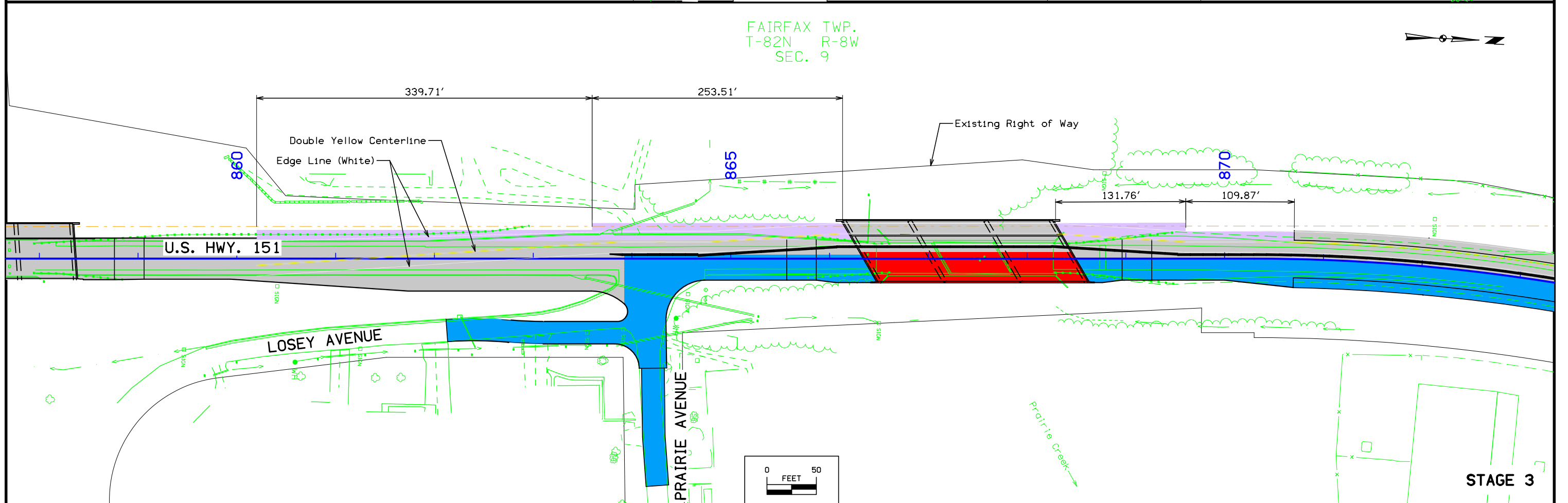
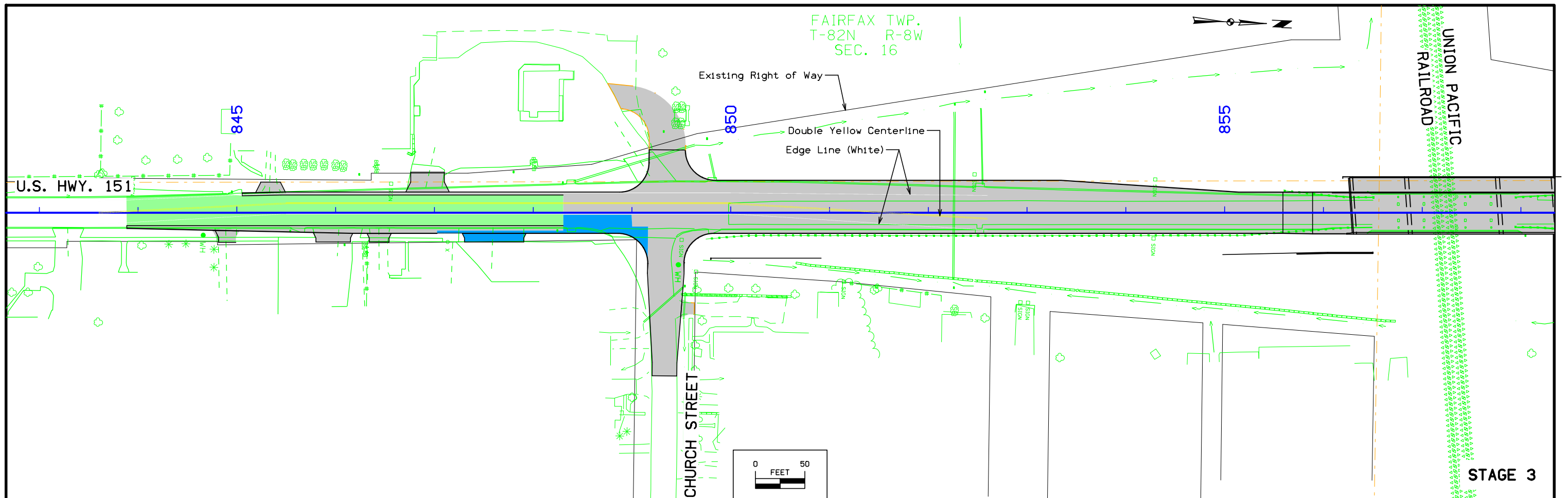


FAIRFAX TWP.
T-82N R-8W
SEC. 9

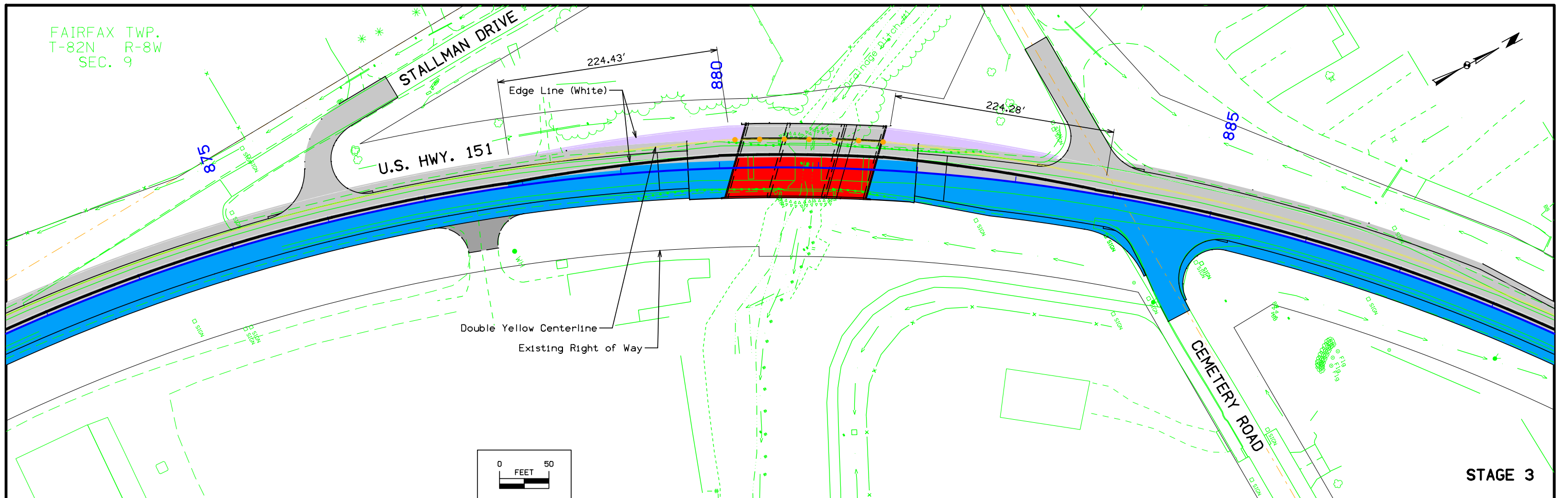


FAIRFAX TWP.
T-82N R-8W
SEC. 9



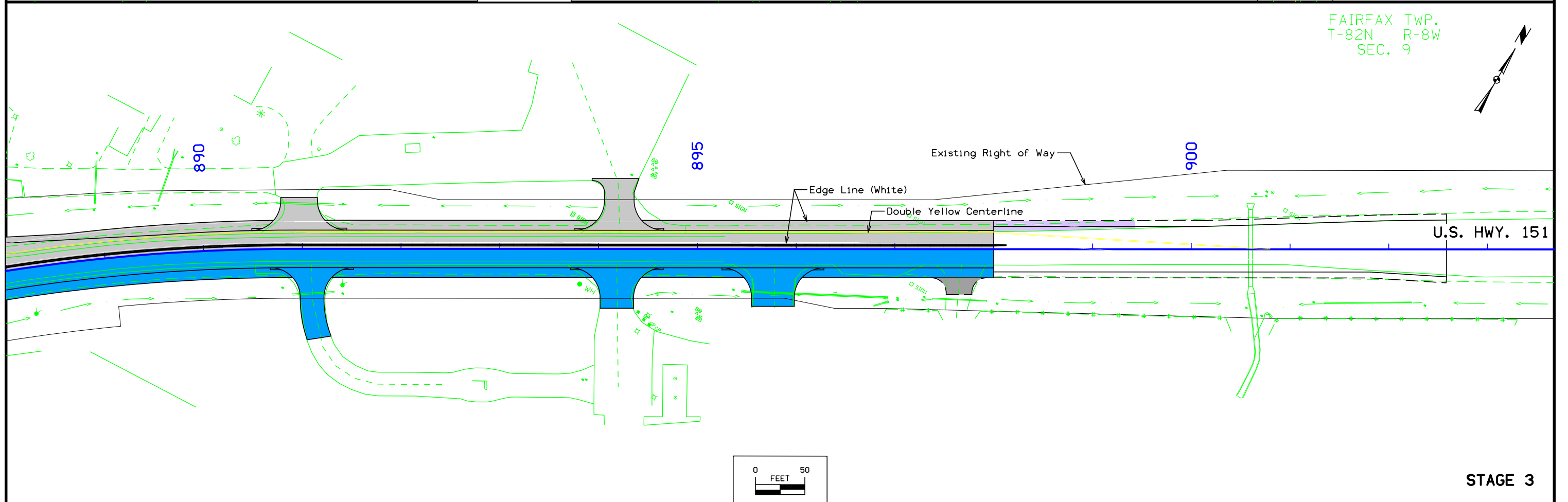


FAIRFAX TWP.
T-82N R-8W
SEC. 9

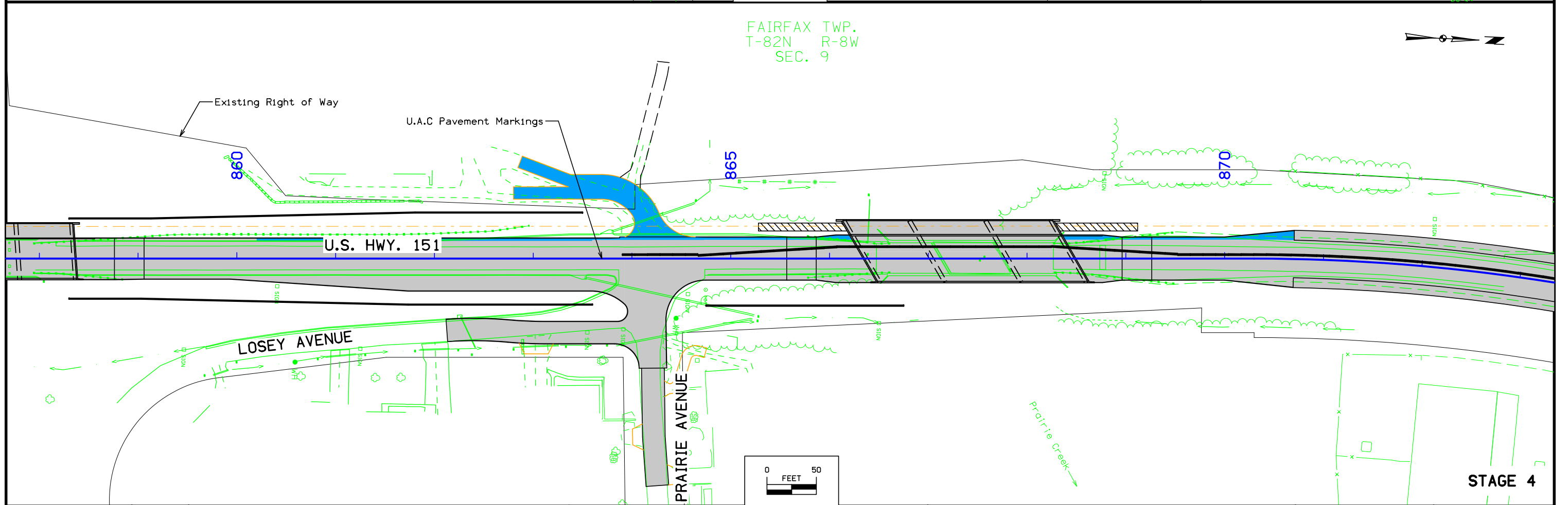
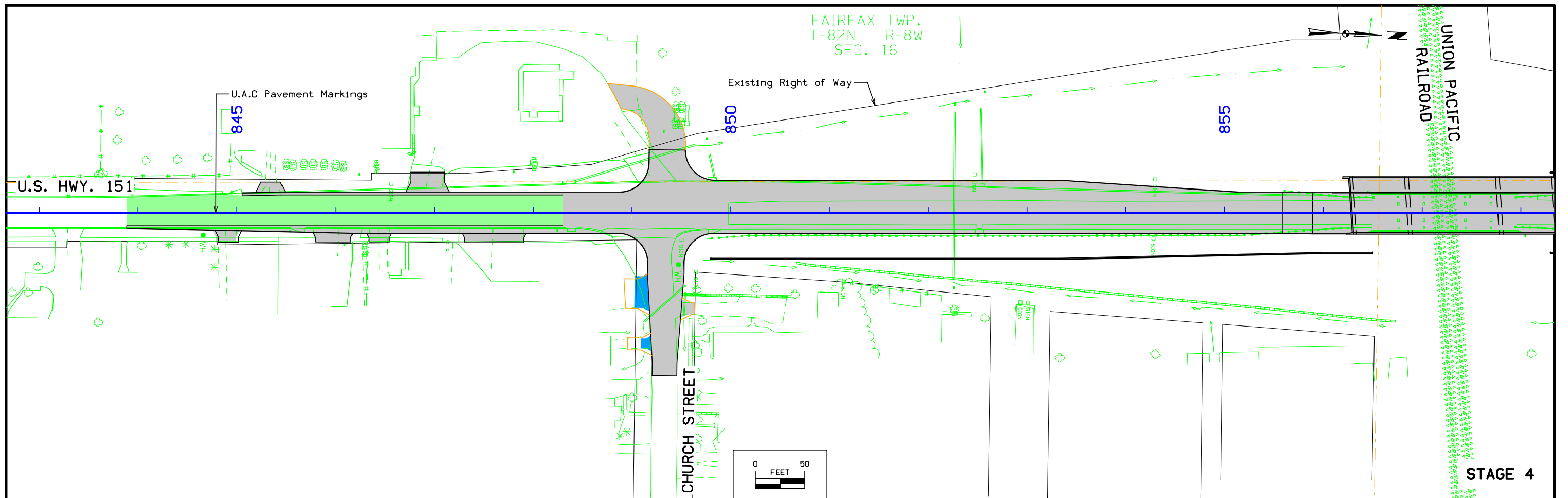


STAGE 3

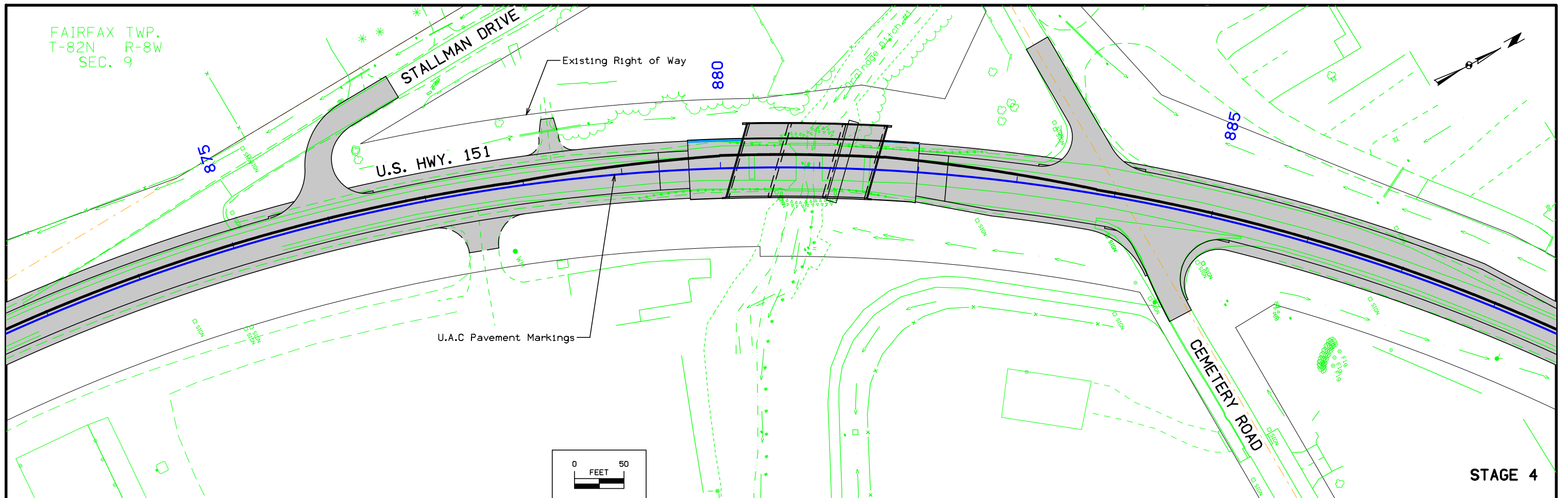
FAIRFAX TWP.
T-82N R-8W
SEC. 9



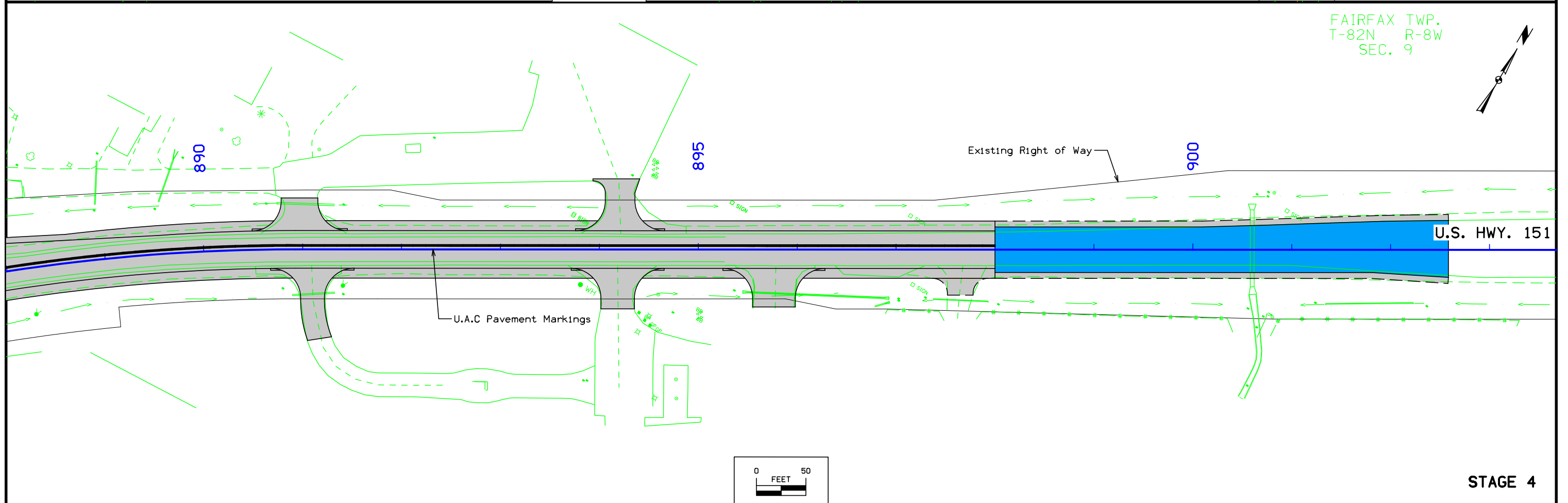
STAGE 3

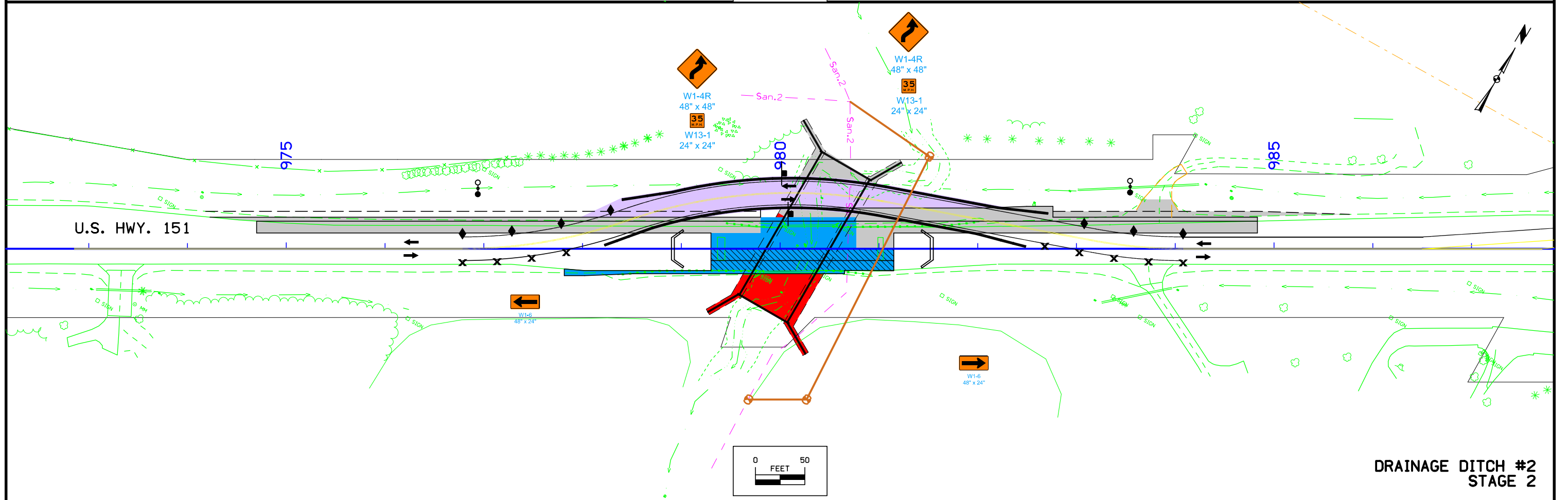
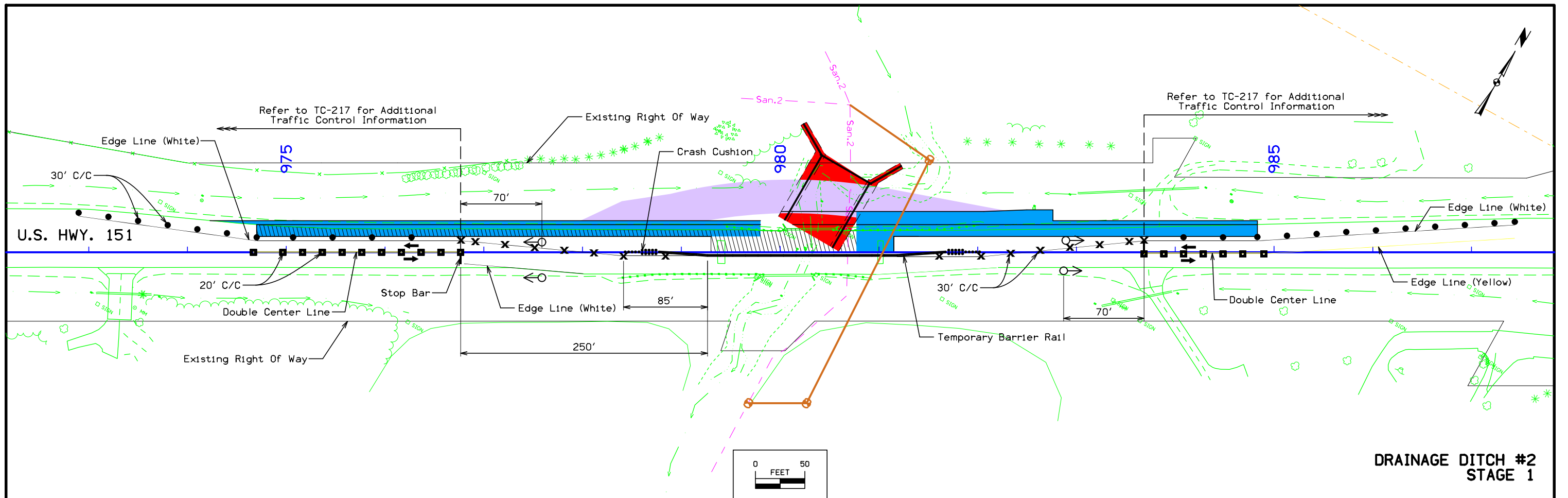


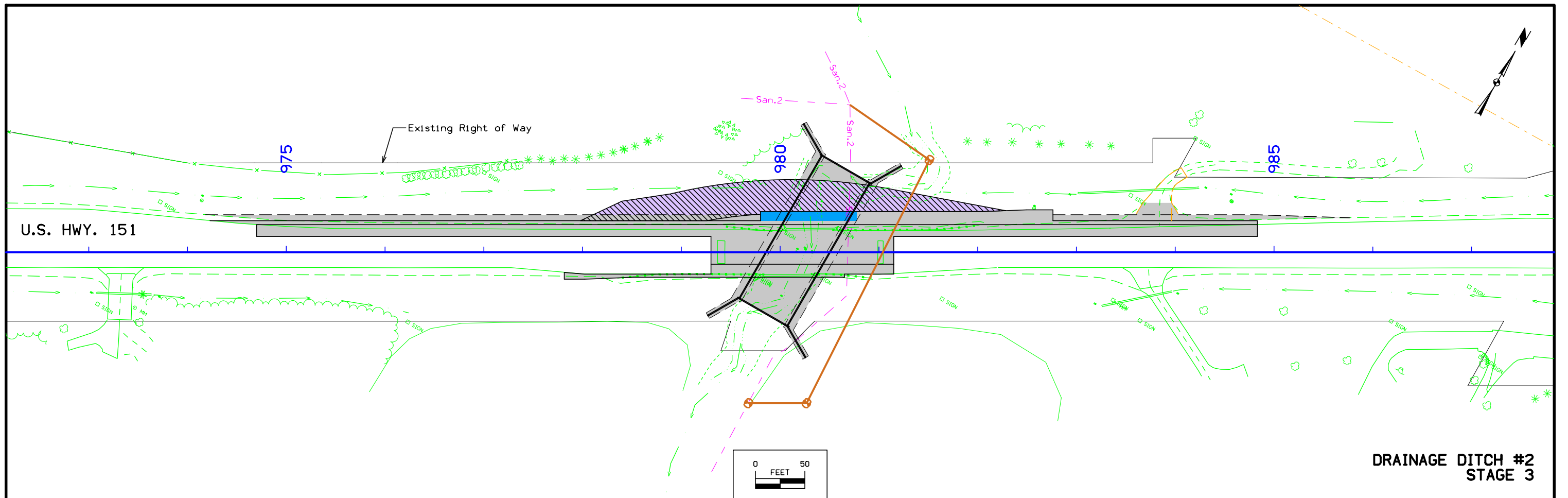
FAIRFAX TWP.
T-82N R-8W
SEC. 9



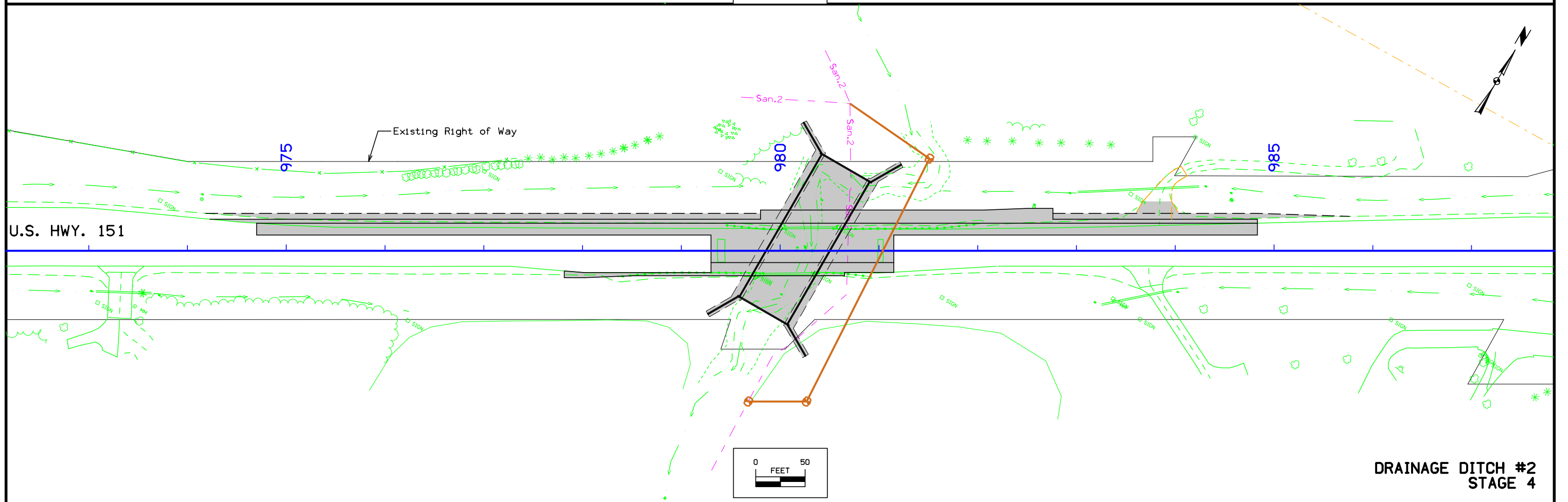
FAIRFAX TWP.
T-82N R-8W
SEC. 9







**DRAINAGE DITCH #2
STAGE 3**



**DRAINAGE DITCH #2
STAGE 4**

STORM SEWER

① Diameter or equivalent diameter

* Bid Item
** For SW-545

INTAKES AND UTILITY ACCESSES

PIPES

Design length, Slope, and Flowlines are calculated from inside wall to inside wall along CL of pipe. An additional 2 ft length is added to each side of the Design Length to account for estimated length to center of structures.

No.	Location Station and Offset	*Type or Standard Road Plan	Form Grade	Bottom Well	Extension Length**	Notes	Line Number	Intake/Utility Access No.		Class 'D'	Pipe Size	Bid* Length	Design Length	Slope %	Connected Pipe Joint (DR-121)	Flow Lines			Pipe Profile Sheet No.	Notes	
								From	To							Inlet Elevation	Outlet Elevation	Other Elevation			
																					Elev.
ST-01	841+87.00, 16.00 LT					Existing Intake	P-01	ST-01	ST-02	2000	15						771.69	762.18			Existing Pipe
ST-02	845+01.00, 20.00 LT					Existing Intake	P-02	ST-02	ST-04	2000	15	159	155.4	1.9			761.98	759.03		M.3	
ST-03	845+65.00, 19.84 RT	SW-509	764.25	760.00			P-03	ST-03	ST-05	2000	15	158	148.6	2.25			760.50	757.16		M.3	
ST-04	846+64.33, 21.00 LT	SW-509	761.61	758.40			P-04	ST-04	ST-07	2000	15	175	166.7	2.40			758.90	754.90		M.3	
ST-05	847+21.58, 21.00 RT	SW-509	760.54	755.14			P-05	ST-05	ST-06	2000	30	118	109.4	0.40			755.64	755.20		M.3	
ST-06	848+39.00, 21.00 RT	SW-509	759.85	754.60			P-06	ST-06	ST-07	2000	30	46	42.0	0.50			755.10	754.89		M.3	
ST-07	848+39.00, 21.00 LT	SW-510	760.12	754.30			P-07	ST-07	ST-14	2000	30	152	144.4	0.48			754.80	754.10		M.3	
ST-08	1850+50.00, 25.00 RT	DR-201 (18" Apron)	758.51	755.82			P-08	ST-08	ST-09	2000	18	46	42.0	1.00			755.72	755.30	755.78	M.5	Apron Inlet
ST-09	1850+50.00, 20.00 LT	SW-513	758.17	754.80			P-09	ST-09	ST-10	2000	24	67	62.8	0.48			755.20	754.90		M.5	
ST-10	1849+85.00, 30.00 LT	SW-401 (48")	757.82	745.24			P-10	ST-10	ST-11	2000	24	37	33.0	0.91			754.80	754.50		M.5	
ST-11	849+89.51, 21.00 LT	SW-509	763.11	753.92			P-11	ST-11	ST-14	2000	24	58	54.0	0.74			754.40	754.00		M.5	
ST-12	851+50.00, 21.00 RT	SW-509	770.62	766.10			P-12	ST-12	ST-13	2000	15	57	54.0	1.50			766.10	765.29		M.4	
ST-13	851+50.00, 33.00 LT	SW-509	770.31	764.69			P-13	ST-13	ST-14	2000	15	159	151.1	6.51			765.19	755.35		M.4	
ST-14	849+90.94, 33.00 LT	SW-510	762.84	753.50			P-14	ST-14	ST-16	3000	30	41	35.6	0.98			753.50	753.15		M.5	
ST-15	1848+30.00, 30.00 RT	SW-512 (30")	758.25	754.26			P-15	ST-15	ST-16	2000	15	98	93.1	1.20			754.76	753.64		M.4	
ST-16	850+00.00, 75.00 LT	SW-401 (72")	758.25	752.49			P-16	ST-16	ST-17	3000	30	52	48.7	1.00			753.05	752.56	752.50	M.5	Apron Outlet
ST-17	850+50.00, 104.06 RT	DR-201 (30")	752.50				P-18	ST-18	ST-19	2000	15	57	54.0	1.50			776.95	776.14		M.4	
ST-18	853+25.60, 21.00 RT	SW-509	781.16	776.95			P-19	ST-19	ST-20	2000	15	114	109.9	Var.			762.84	751.85	751.79	M.4	Let Down Pipe
ST-19	853+25.60, 33.00 LT	SW-509	780.85	762.84			P-21	ST-21	ST-22	2000	15	57	54.0	1.50			774.11	773.30		M.6	
ST-20	853+23.50, 152 LT	DR-201 (15")	751.79	751.85			P-22	ST-22	ST-24	2000	15	170	161.7	5.66			773.20	764.05		M.6	
ST-21	861+82.03, 21.00 LT	SW-509	778.61	773.61			P-23	ST-23	ST-24	2000	15	57	54.0	1.50			764.85	764.04		M.6	
ST-22	861+82.03, 33.00 RT	SW-509	778.30	772.70			P-24	ST-24	ST-29	2000	15	88	82.2	4.38			759.60	756.00		M.6	
ST-23	863+56.02, 21.00 LT	SW-509	769.22	764.35			P-25	ST-25	ST-27	2000	15	66	61.5	1.71			759.65	758.60	759.75	M.6	Apron Inlet
ST-24	863+51.70, 33.00 RT	SW-509	769.10	758.60			P-26	ST-26	ST-27	2000	15	17	12.4	10.00			759.83	758.60	760.44	M.6	Apron Inlet
ST-25	3863+35.00, 18.50 RT	DR-201 (15")	759.65	759.65			P-27	ST-27	ST-28	2000	15	26	23.0	1.00			758.50	758.27		M.6	
ST-26	3864+18.00, 17.50 RT	DR-201 (15")	759.84	759.84			P-28	ST-28	ST-29	2000	15	109	103.6	2.09			758.17	756.00		M.6	
ST-27	3864+01.00, 11.50 RT	SW-509	762.92	758.00			P-29	ST-29	ST-30	2000	18	86	81.4	2.00			752.29	750.66		M.6	
ST-28	3864+01.00, 11.50 LT	SW-509	762.92	757.67			P-30	ST-30	ST-32	2000	15	150.7	150.7	0.68			756.3	754.58		M.7	
ST-29	2864+80.00, 14.00 LT	SW-509	750.66				P-31	ST-31	ST-33	2000	15	47.6	47.6	6.98			754.58	754.07		M.7	
ST-30	865+25.00, 60.00 LT	DR-201 (18")	751.20	750.66																	
ST-31	878+00.00, 60.00 LT	DR-201 (15")	756.3	756.3																	
ST-32	879+52.00, 60.00 LT	DR-141	754.58	754.58																	
ST-33	879+99.50, 81.36 LT	DR-201 (15")	754.04	754.04																	

SURVEY SYMBOLS

▲	BM Bench Mark
●	PPA Power Pole Co. 1
•	PLG Location of General Photo
☒	IN Storm Sewer Intake
□ SIGN	SI Sign
—	LC Lot Corner
BB	BB Billboard
○ WV	WV Water Valve
● WH	WHD Water Hydrant
○ TP	TPD Telephone Pedestal
○	TDC Tree Deciduous
✱	TEV Evergreen Tree
☪	SHR Shrub
●	PR Electric Riser Pole
□ SIGN	SL Speed Limit Sign
⊙	MH Utility Access (Manhole)
⊙	MIS Miscellaneous
⊙ MM	MM Mile Marker Post
❏	WEL Well
○	LUM Luminaire
■ GP	GP Guard Post (Less Than 4 Posts)
⊙ GV	GV Gas Valve
□ EB	EB Electrical Box
□ UB	UB Utility Box
⊙ FLG	FLG Flag Poles
⦿	FHD Fire Hydrants
⌱	STP Stump
○	OUT Tile Outlet
⊙	INB Storm Sewer Beehive Intake
⊖	S Soil Sampling Site (Wetlands)
○ TVP	TVP TV Pedestal
■	SP Stream Profile
■	TW Top of Water
—	BLD Building or Foundation
—	LIN Miscellaneous Line
·	ST Spiral Point
—	RET Retaining Walls
—	BRG Bridge
—	TLNR Tree Line Right
—	TLNL Tree Line Left
—	CON Concrete or A/C Slab
—	CUL Culvert
— # — #	FCL Chain Link and Security Fence
— + — +	GDL Guard Rail Steel
- - - - -	BL Topo Breakline
—	FWD Wood Fence
— > —	D Centerline Draw or Stream (Down)
— < —	DU Centerline Draw or Stream (Up)
— x —	FW Wire Fence
—	PIP Pipe Culvert
—	RRR Railroad Rail
—	CU Back of Curb
- - - - -	ENU Edge Unpaved Entrance & Parking
—	ENP Edge Paved Entrance & Park Lot
—	EP Edge of Paved Roads (ML or SR)
—	GU Gutter In Front of Curb
—	SNP Unpaved Shoulder
—	BNK Stream Bank
—	EG Edge of Gravel Road
—	EW Edge of Water
- - - - -	ENT Centerline BL of Entrance
—	SH Paved Shoulder
⦿	RIP Rip-Rap
—	TRL Trail
—	SWK Sidewalk
⊙	TV Satellite TV Dish
●	TR Telephone Riser Pole
□ TSB	TSB Telephone Switch Box
—	UV Underground Utility Vault
+	VS Channel Cross Section
·	BLS Bridge Low Steel
— G(C)	GL1C Gas Line Co. 1 - Quality C
— G	GL1D Gas Line Co. 1 - Quality D
—	Default_Chain Default Chain Feature
— W3	WL3D Water Line Co. 3 - Quality D
— San.	SA1D Sanitary Sewer Co. 1 - Quality D
— T(C)	TL1C Telephone Line Co. 1 - Quality C

— T(C)	TL1C Telephone Line Co. 1 - Quality C
— St.S.(C)	ST1C Storm Sewer Co. 1 - Quality C
·	ST Spiral Point
— San.(C)	SA1C Sanitary Sewer Co. 1 - Quality C
— San.2	SA2D Sanitary Sewer Co. 2 - Quality D

UTILITY LEGEND

●	PPA Alliant Energy
○ TP	TPD Telephone Pedestal
○ WV	WV Water Valve
● WH	WHD Water Hydrant
●	PR Electric Riser Pole
⊙ GV	GV Gas Valve
□ EB	EB Electrical Box
□ UB	UB Utility Box
⦿	FHD Fire Hydrants
○ TVP	TVP TV Pedestal
— G	GLA MidAmerican Energy
— E2	ELB Linn County Rural Electric Cooperative
— FO	FOA South Slope Phone Internet Television
— San.(C)	SA1C City of Fairfax
— San.	SA1D City of Fairfax
— San.2	SA2D City of Cedar Rapids
— T1	TLA South Slope Phone Internet Television
— T2	TLB Centurylink
— TV	TVA Underground TV Cable Co. 1
— W	Water Line City of Cedar
— W2	Water Line City of Cedar Rapids
— W3	Water Line City of Fairfax

PLAN VIEW COLOR LEGEND OF STORM SEWER SHEETS

LINEWORK	Design Color No.	
Gray, Dark (112)	■	Existing Topographic Features, Utilities, and Labels
Black (17)	■	Proposed Storm Sewer Details, Alignment, Stationing, Tic Marks, and Alignment Annotation
SHADING	Design Color No.	
Gray, Light (48)	■	Proposed Pavement Shading

PROFILE VIEW COLOR LEGEND OF STORM SEWER SHEETS

LINEWORK	Design Color No.	
Gray, Dark (112)	■	Existing Ground Line Profile and Existing Utilities Information
Black (17)	■	Proposed Pipes and Intakes

PLAN VIEW LINE STYLE LEGEND OF STORM SEWER SHEETS

▶—▶—▶—▶—▶—▶—▶—▶—▶—▶	Plug and Abandon Existing Pipe or Structure
- - - - -	Removal of Existing Pipe or Structure
—	Previously Constructed Pipe or Structure
—▶—	Direction of Pipe Flow

PROFILE VIEW LINE STYLE LEGEND OF STORM SEWER SHEETS

- - - - -	Existing Ground
—	Proposed Ground
—	Previously Constructed Pipe or Structure
—	Proposed Pipe or Structure

Reference Point

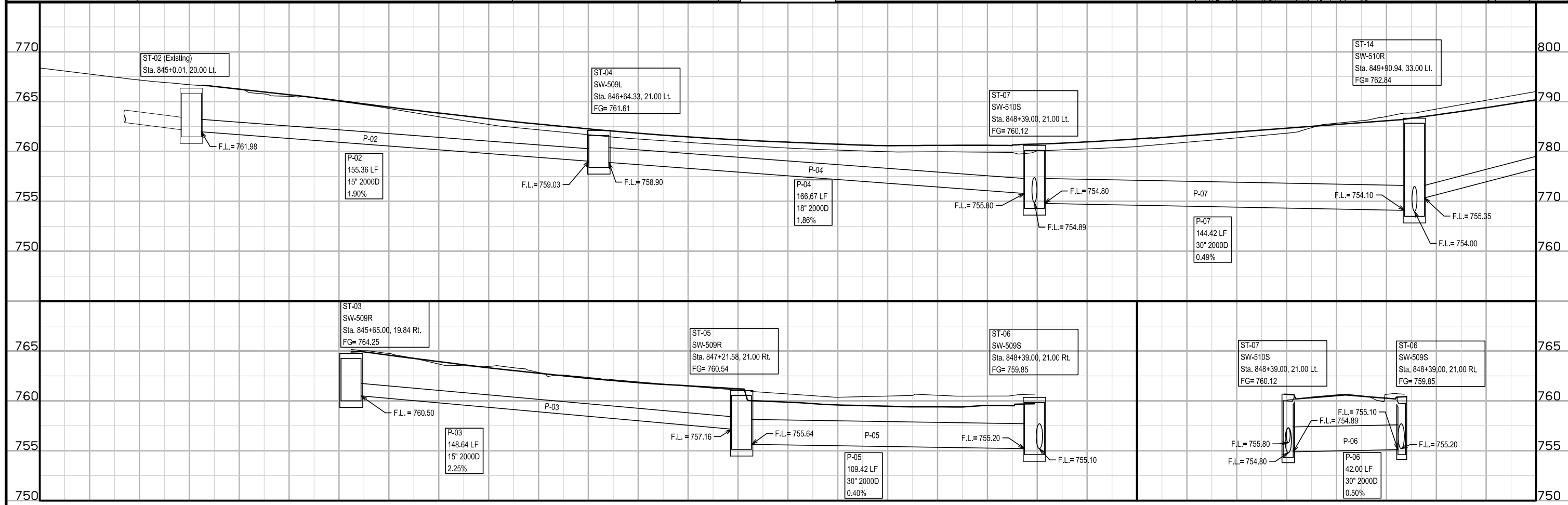
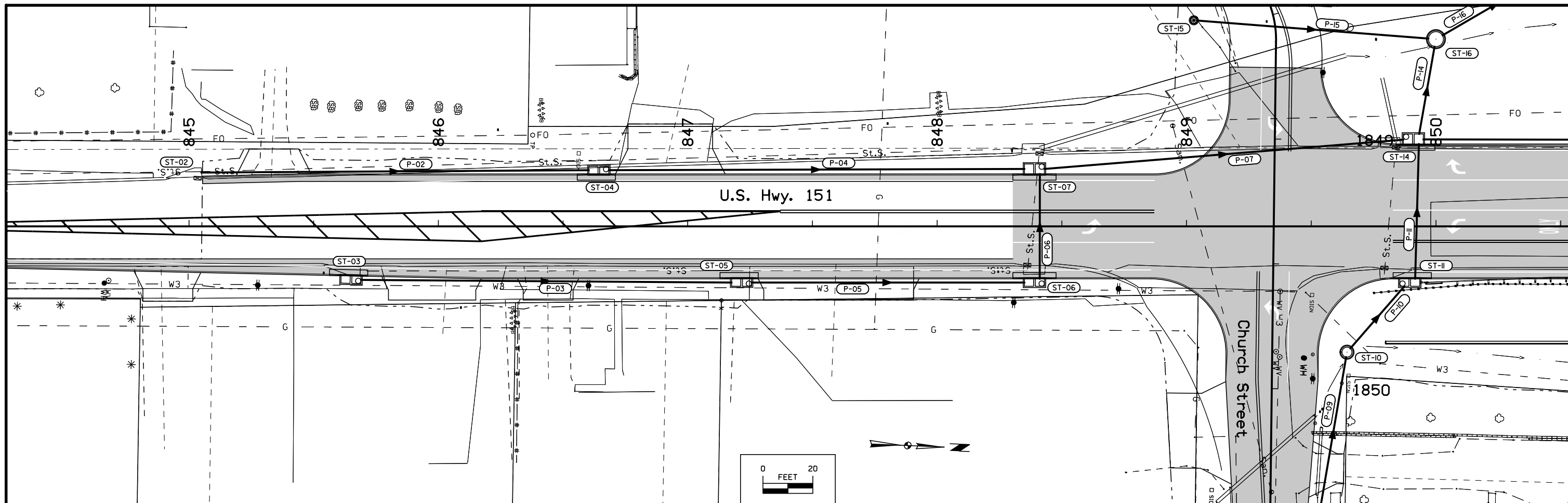
Station	○ Survey Line
▲	Section Corner
- - - - -	Ground Line Intercept
///////	Saw Cut
—	Guardrail
▨	Clearing & Grubbing Area
▧	Pavement Removal
□	
□	

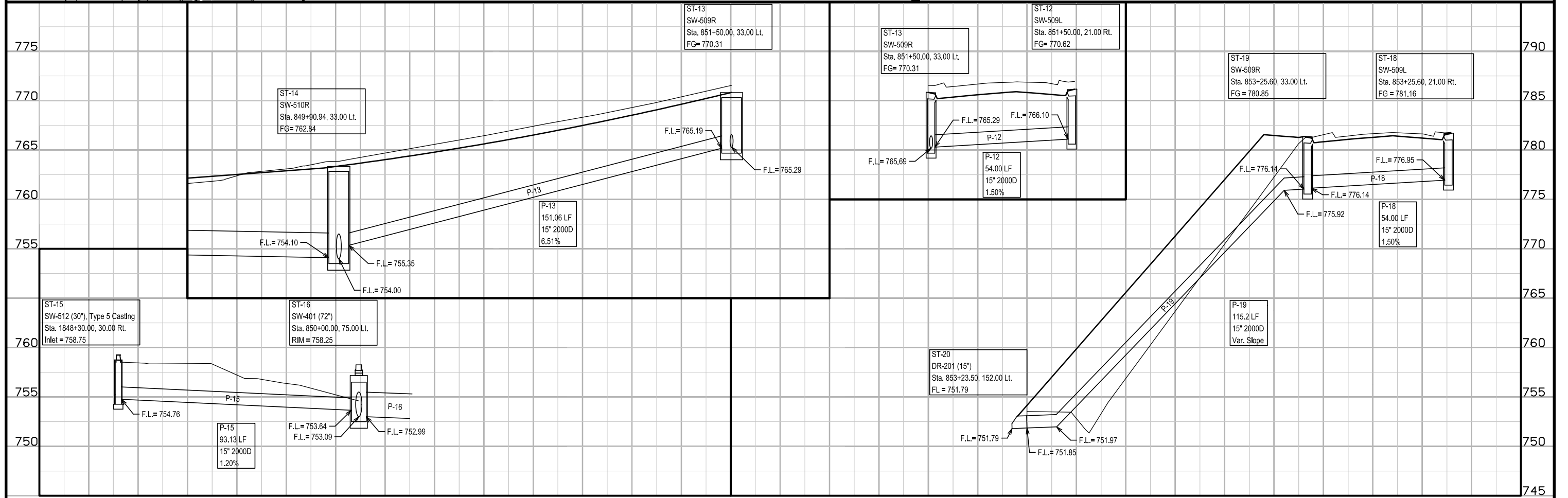
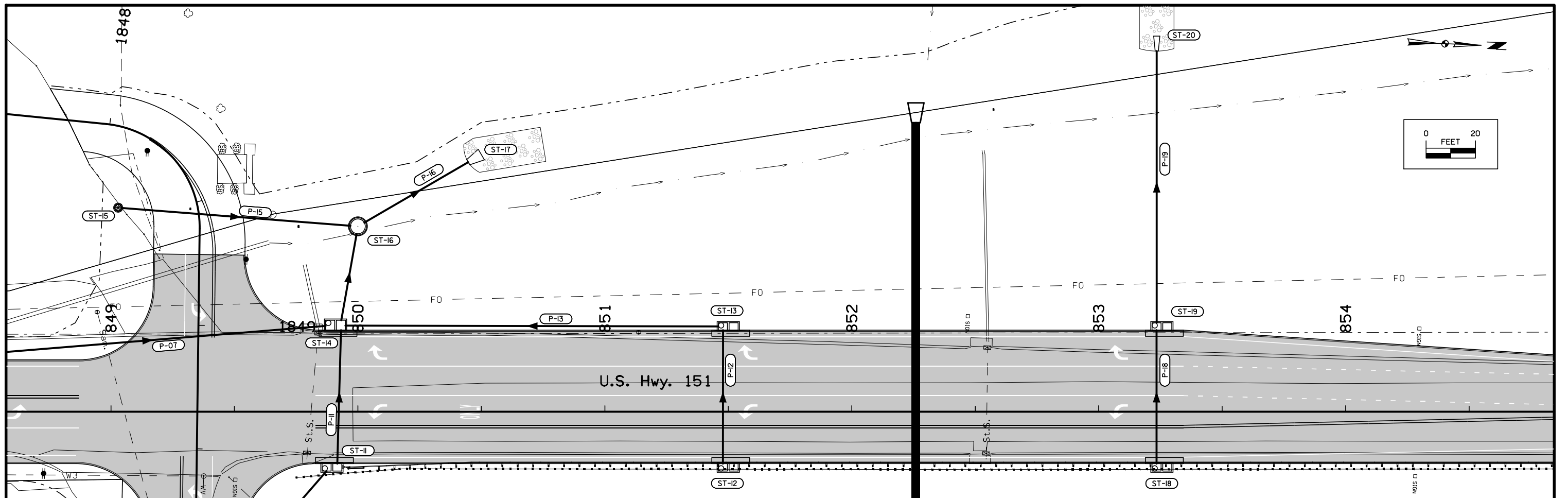
RIGHT-OF-WAY LEGEND

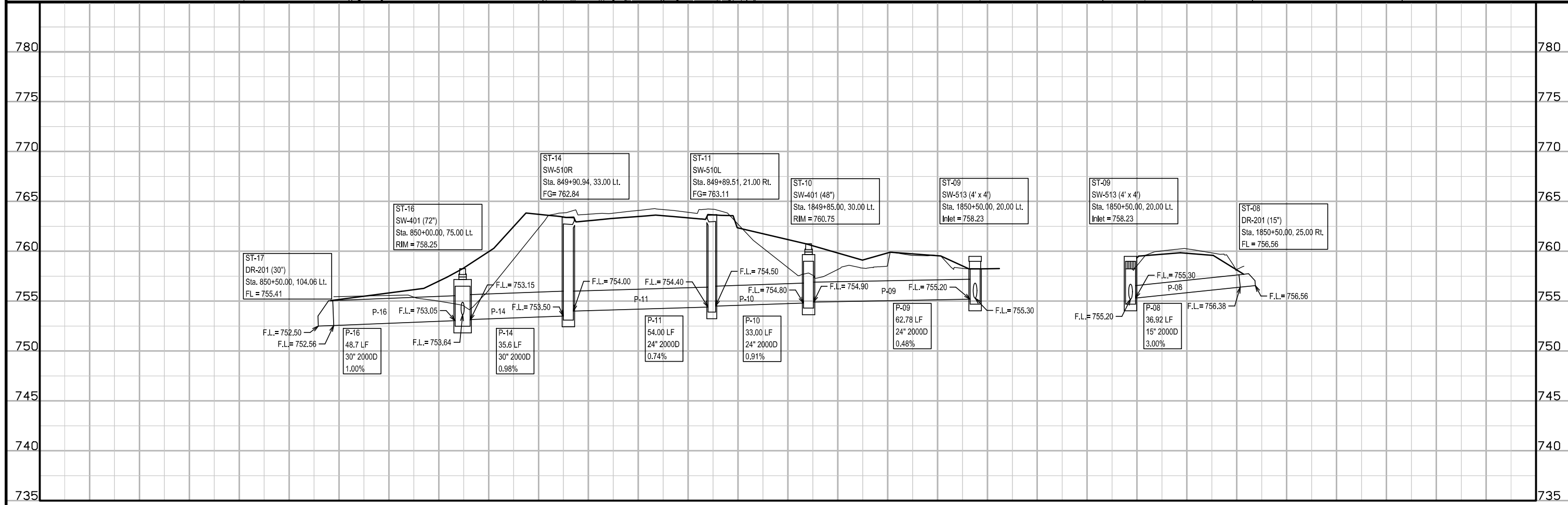
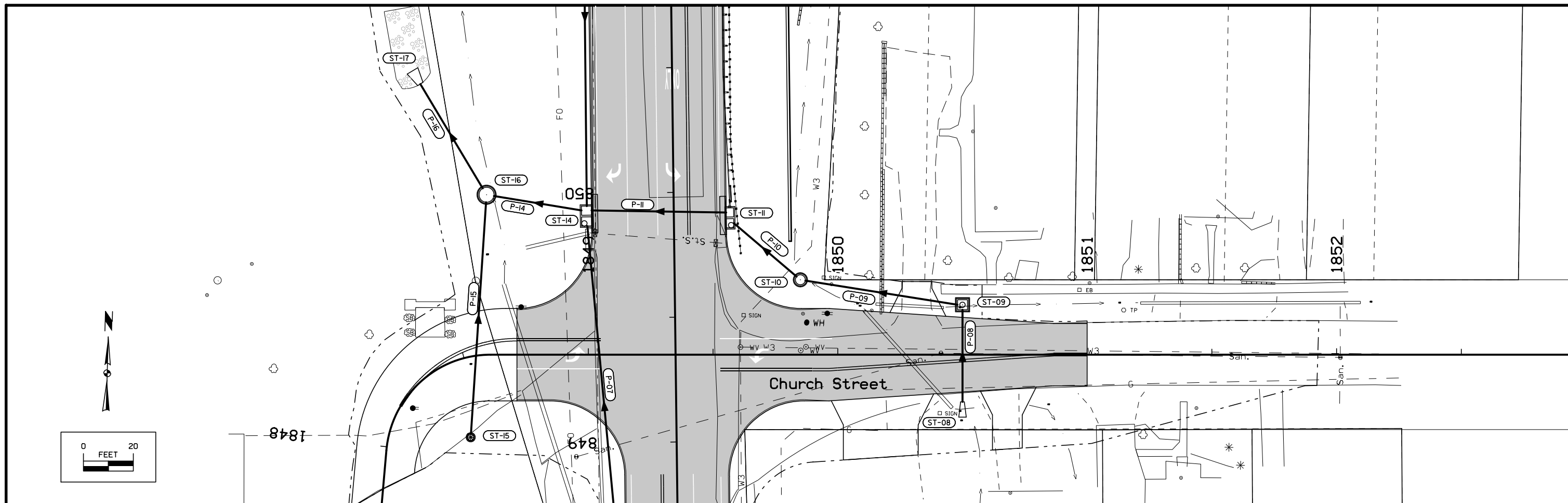
▲	Proposed Right-of-Way
▲	Existing and Proposed Right-of-Way
▲	Easement and Existing Right-of-Way
■	Borrow
○	Easement (Temporary)
⊙	Easement
X	Excess
A/C	Access Control

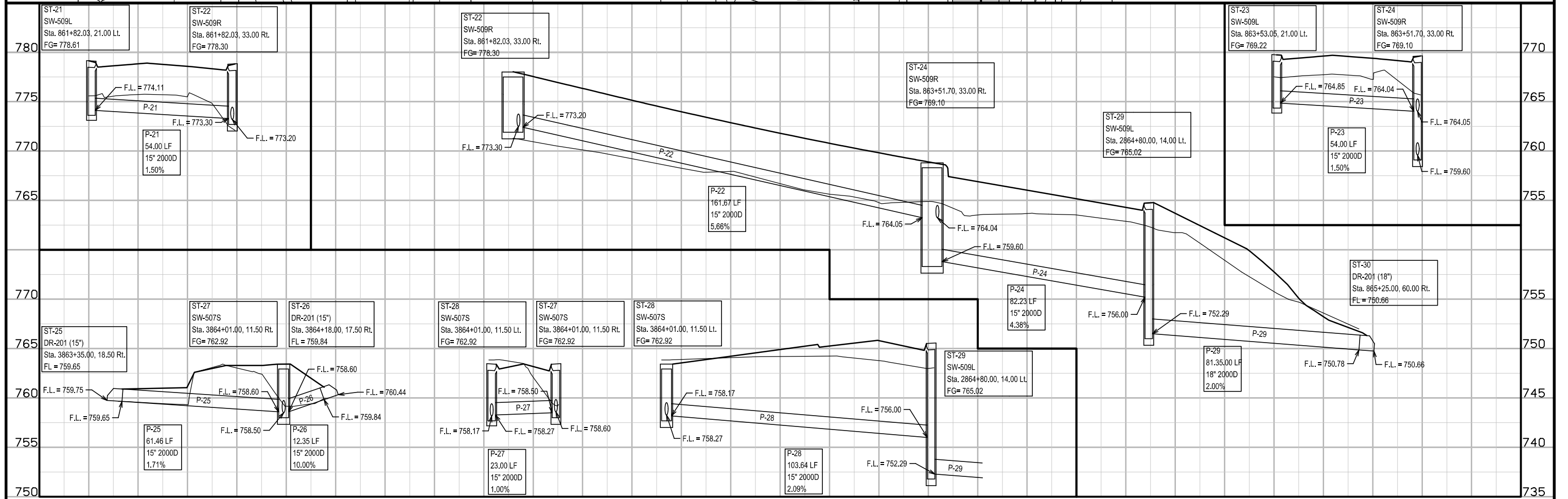
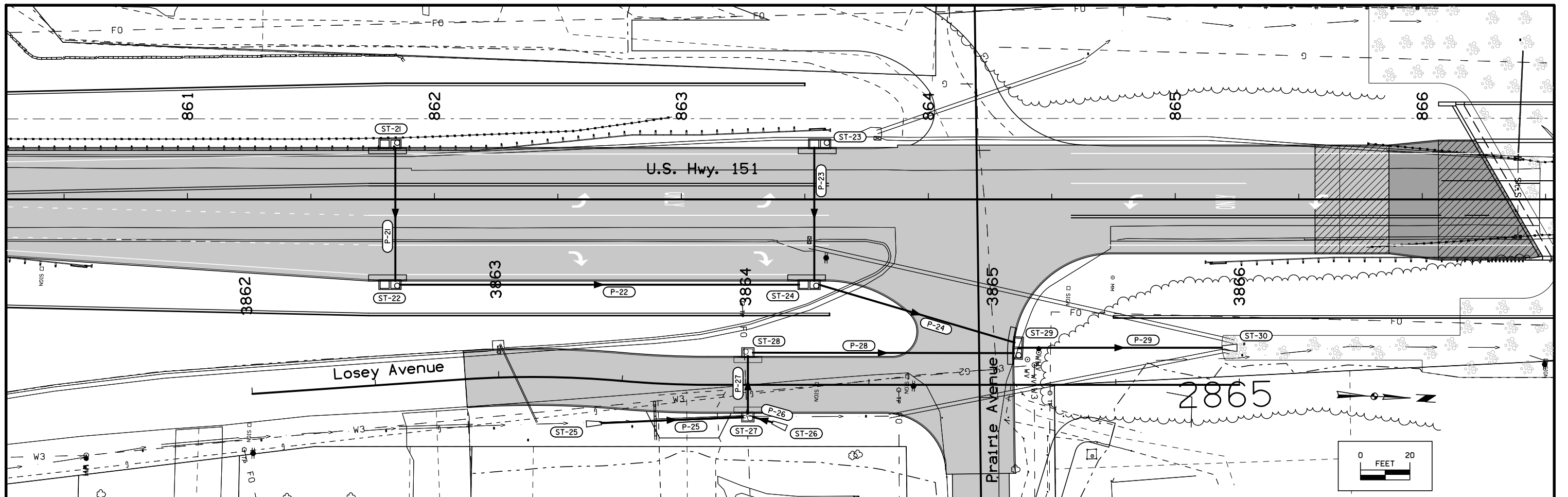
STORM SEWER LEGEND AND SYMBOL INFORMATION SHEET

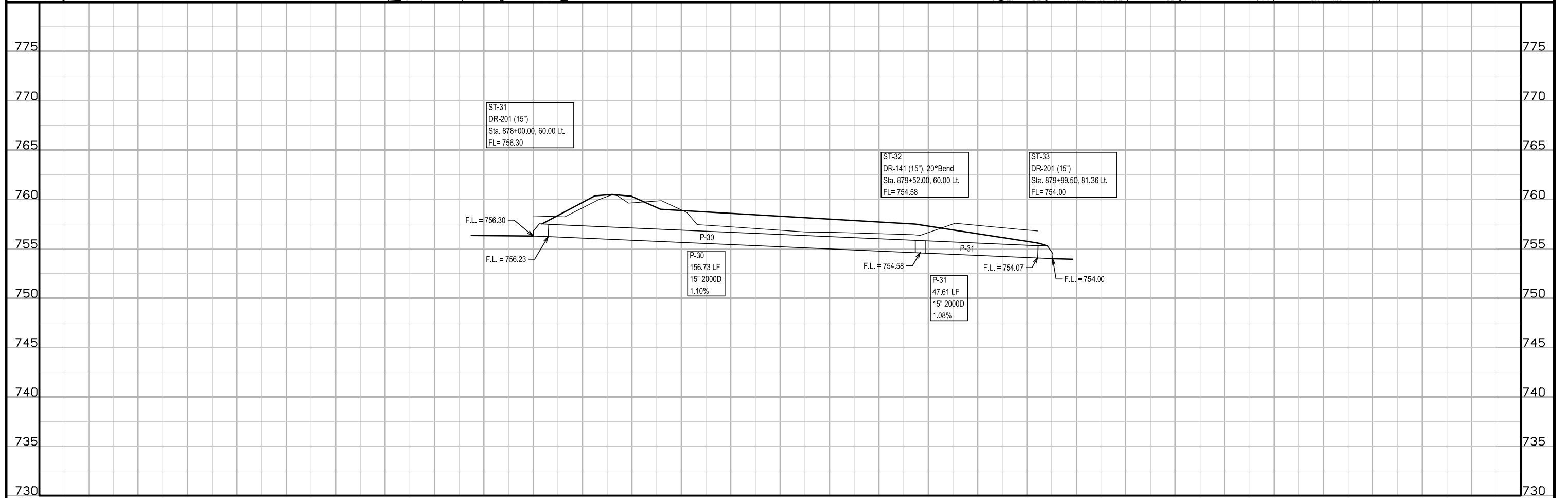
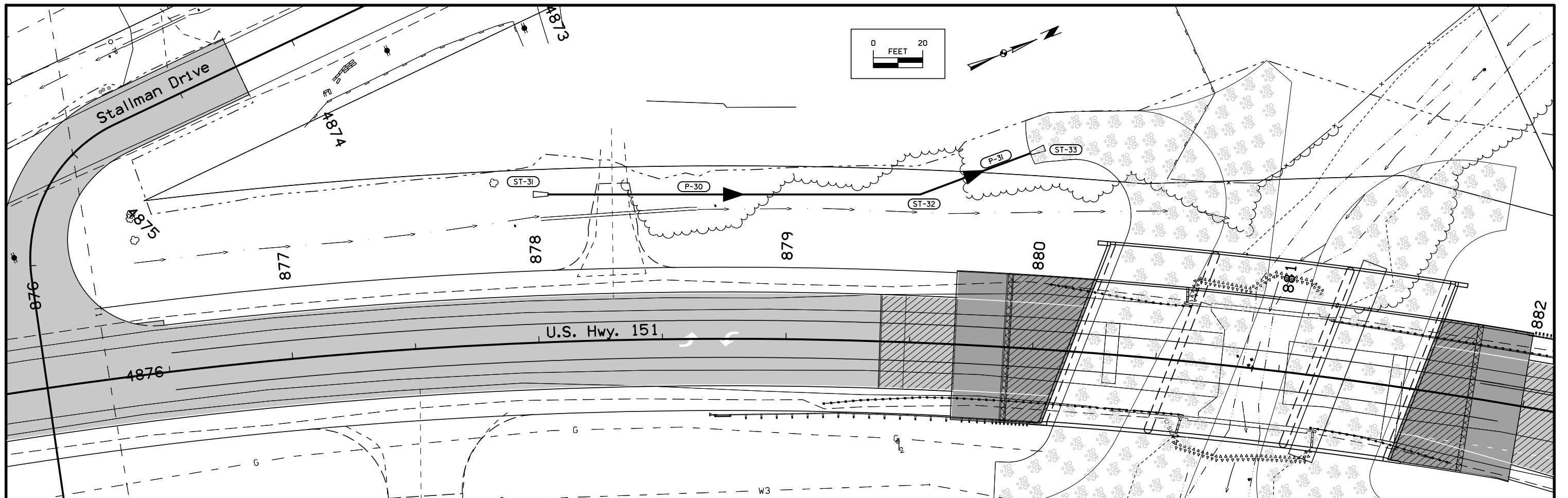
(COVERS SHEET SERIES M)

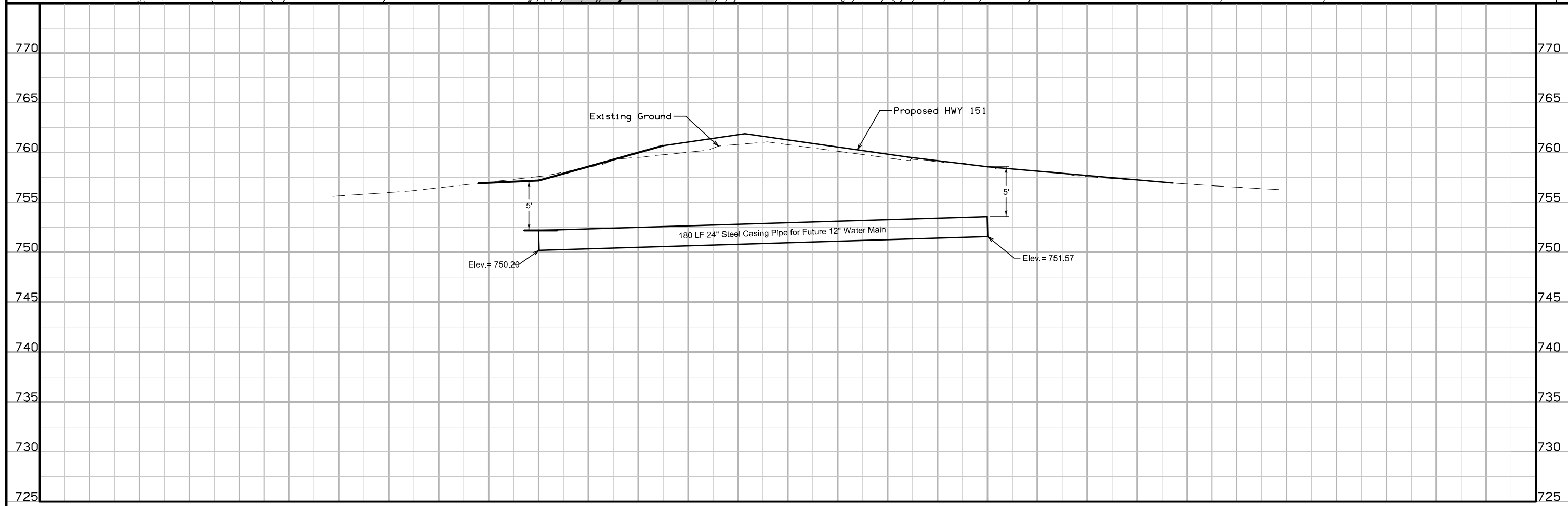
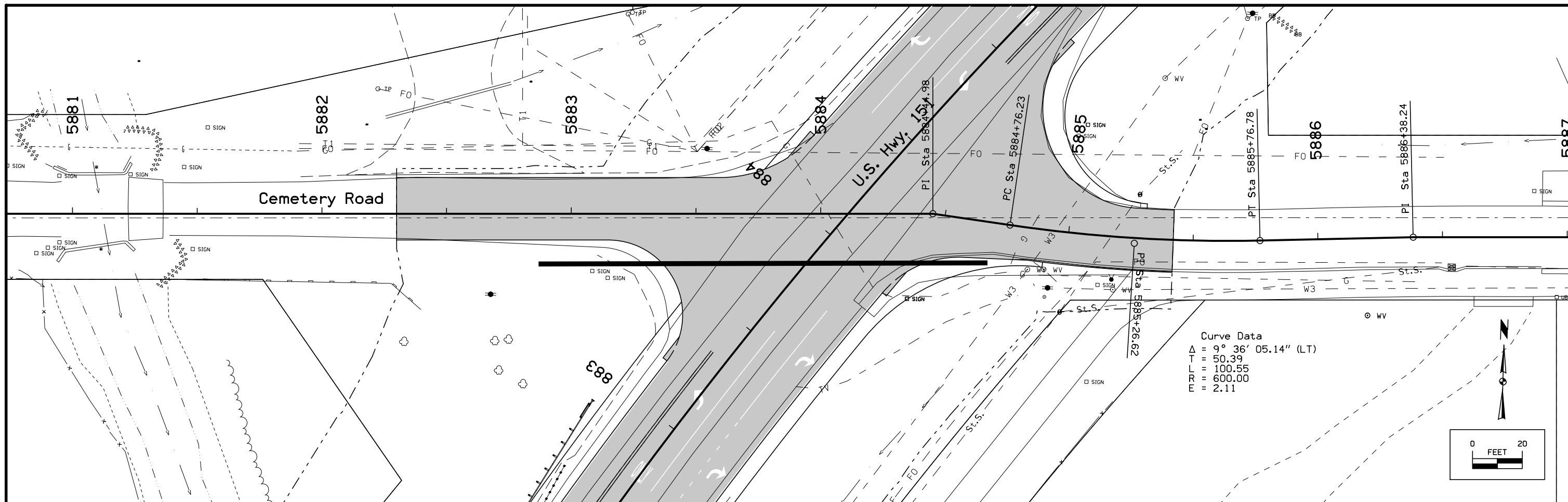


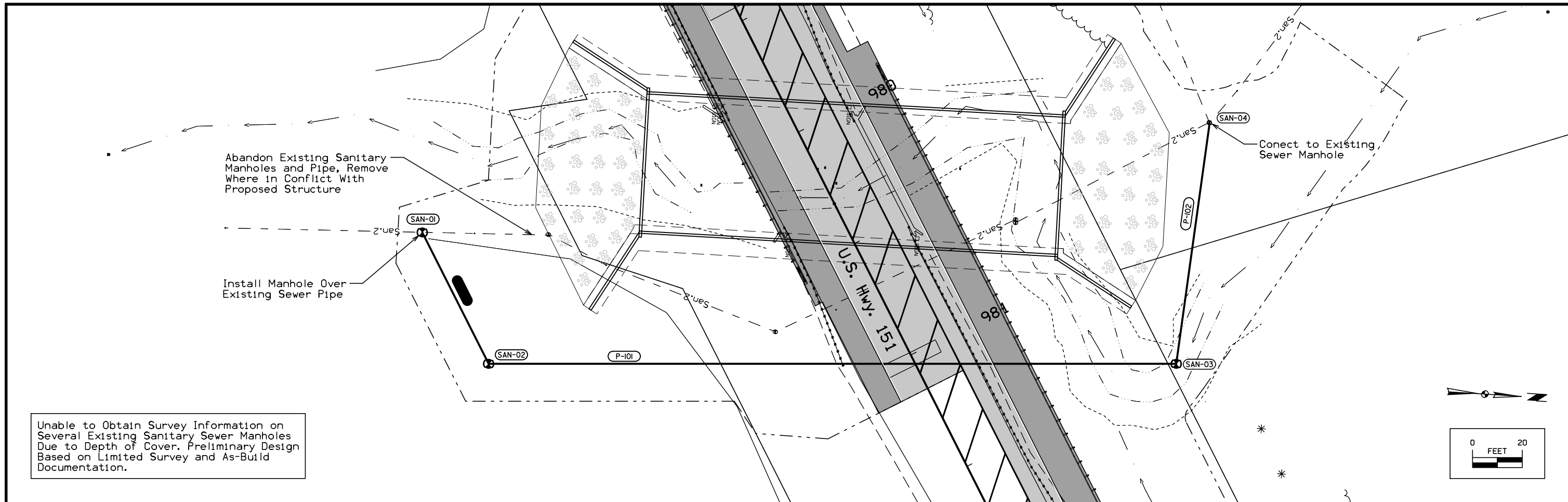




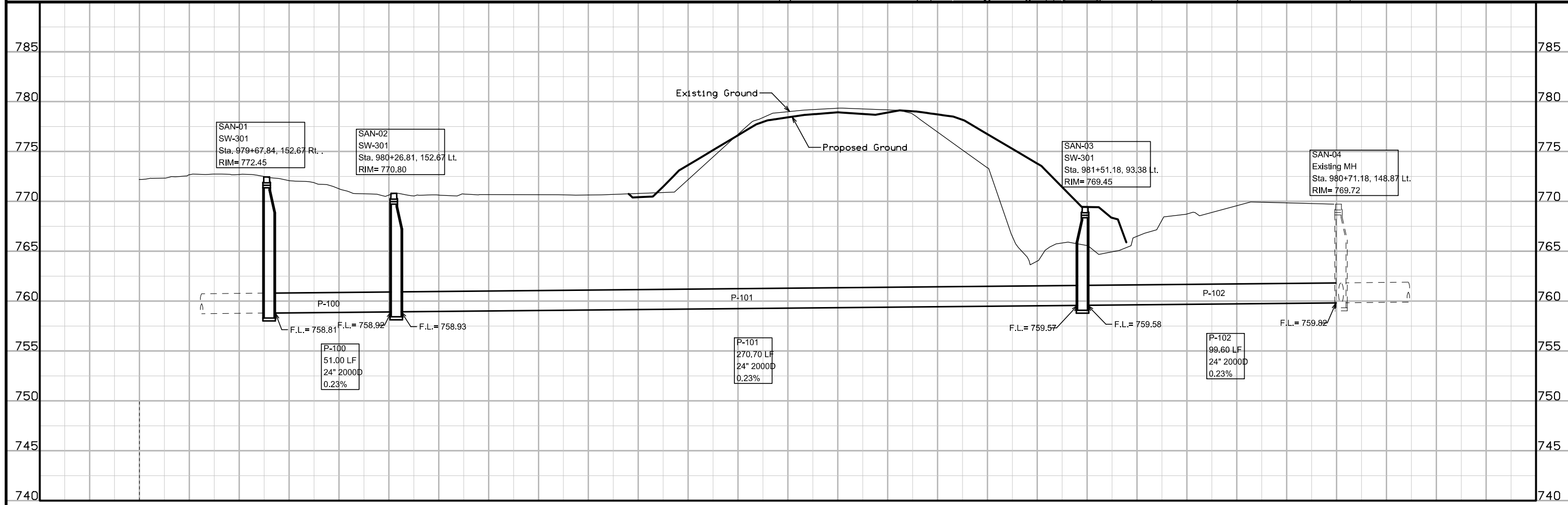




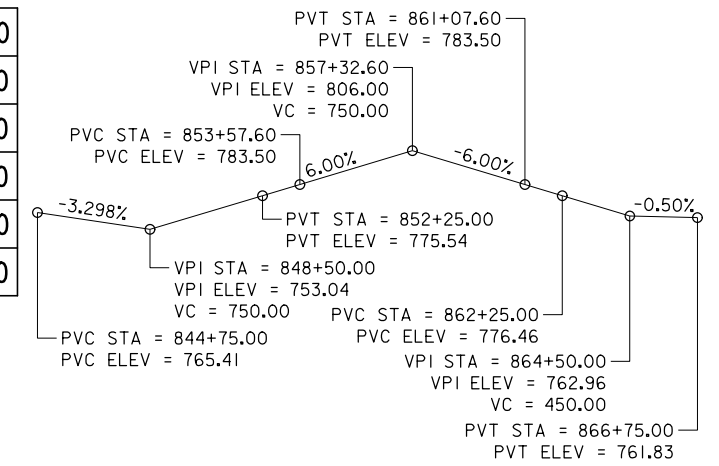
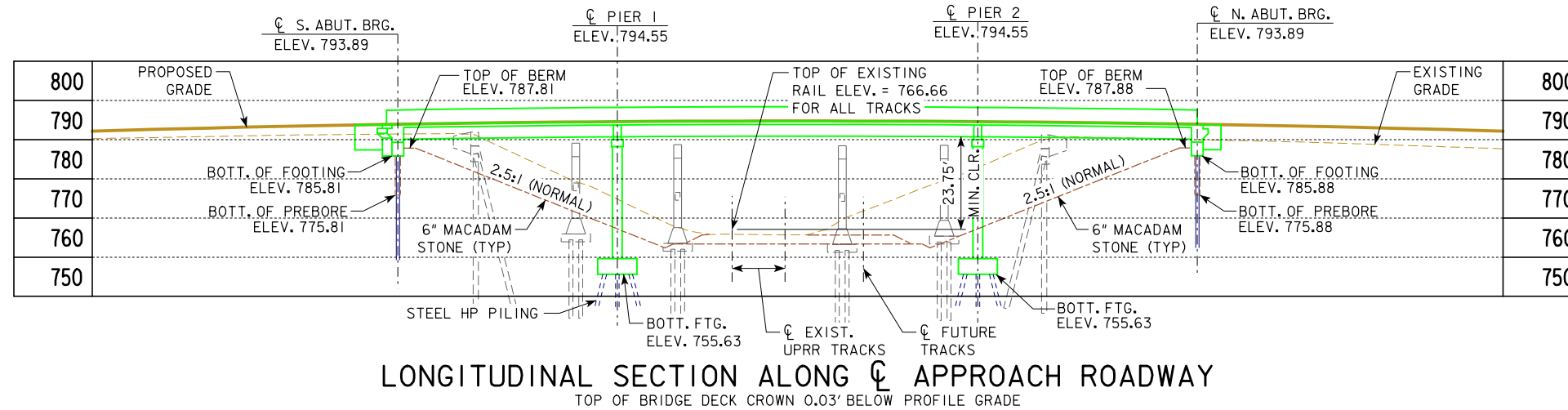




Unable to Obtain Survey Information on Several Existing Sanitary Sewer Manholes Due to Depth of Cover. Preliminary Design Based on Limited Survey and As-Build Documentation.

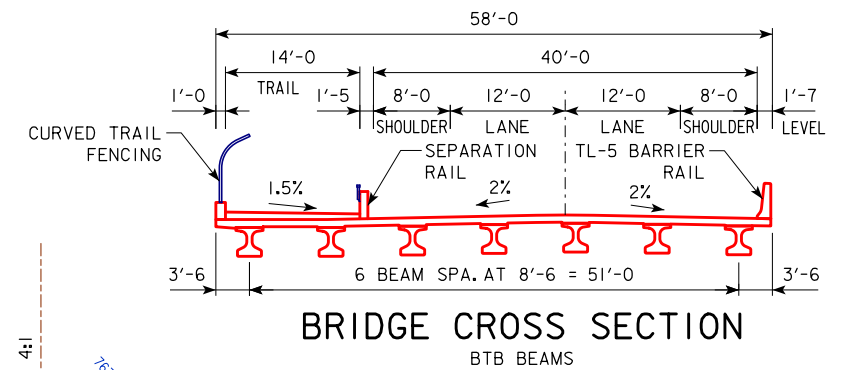


BENCH MARK NO. BMI STA. 846+60.81, 23.069 RT, GIN SPIKE IN POWER POLE,
EAST SIDE HWY 151, ACROSS FROM "PIT STOP"
ELEV. 763.600, N = 703233.002 E = 2107556.082



MINIMUM VERTICAL CLEARANCE
OVERHEAD STATION = 857+75.65, OFFSET 18.08' RT
OVERHEAD ELEVATION = 794.24
DEPTH OF SUPERSTRUCTURE = 3.83'
UNDERPASS STATION = 7857+44.09, OFFSET 51.86' LT
UNDERPASS ELEVATION = 766.66
MINIMUM VERTICAL CLEARANCE = 23.75'

RAILROAD MILEPOST DATA
DOT CROSSING INVENTORY NUMBER: 190539X
UNION PACIFIC RAILROAD COMPANY MILEPOST: 0090.130
MILEPOST INCREASING TOWARD WEST

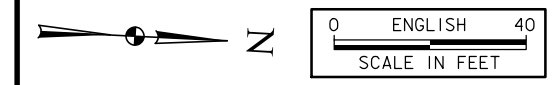
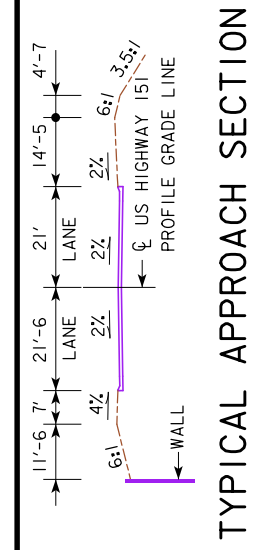
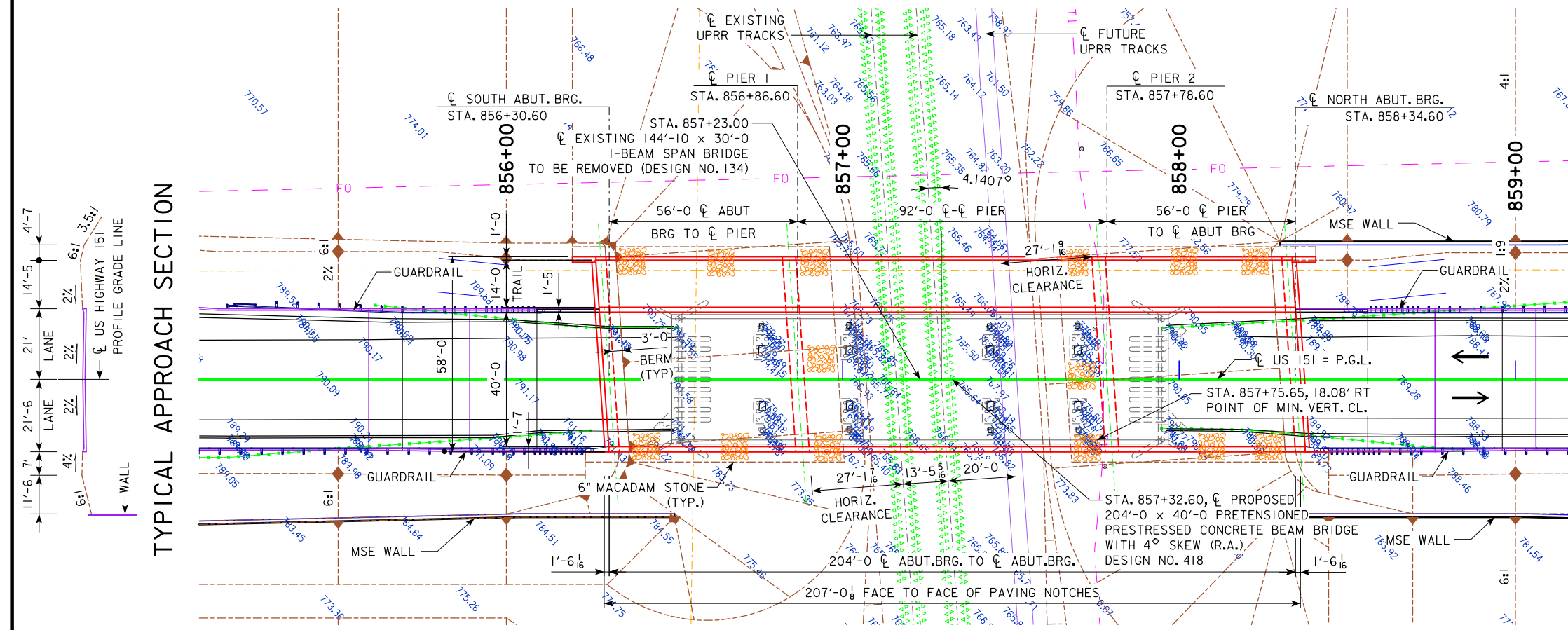


UTILITIES LEGEND:
FO - FIBER OPTIC - SOUTH SLOPE
G - GAS - MIDAMERICAN ENERGY
TI - TELEPHONE - SOUTH SLOPE
W3 - WATER - FAIRFAX

NOTES:
PIERS ARE FRAME PIERS ON PILE CAP FOOTINGS.
BEAM TYPE BTB, DEPTH = 3'-0\"/>

LOCATION	TRAFFIC ESTIMATE
US HIGHWAY 151 OVER UNION PACIFIC RAILROAD	2013 AADT 8100 V.P.D.
FRA 190539X	2040 AADT 12,010 V.P.D.
T-82N R-8W	2040 DHV V.P.H.
SECTIONS 9 & 16 FAIRFAX TOWNSHIP	TRUCKS 6 %
LINN COUNTY	TOTAL
FHWA NO. 33771	DESIGN ESALS
BRIDGE MAINT. NO. 5721.8S151	
LATITUDE 41.920383°	
LONGITUDE -91.783747°	PRELIMINARY

DESIGN FOR 4° SKEW (R.A.)
204'-0" x 40'-0" PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE WITH 14'-0" TRAIL (BTB BEAMS)
SPANS (56'-0", 92'-0", 56'-0")
SITUATION PLAN
STATION 857+32.60 LINN COUNTY AUGUST 2016
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
DESIGN SHEET NO. OF FILE NO. 31286 DESIGN NO. 418



SITUATION PLAN
ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE NOTED

BENCH MARK NO. BMI STA. 846+60.81, 23.069 RT, GIN SPIKE IN POWER POLE,
 EAST SIDE HWY 151, ACROSS FROM "PIT STOP"
 ELEV. 763.600, N = 703233.002 E = 2107556.082

BERM SLOPE LOCATION TABLE

	SOUTH ABUTMENT			NORTH ABUTMENT		
	STATION	OFFSET	ELEV	STATION	OFFSET	ELEV
A1	856+96.03	39.42	762.36	857+63.65	39.42	762.38
A2	857+00.50	24.58	762.36	857+68.13	24.58	762.38
B1	856+32.36	39.42	787.31	858+27.33	39.42	787.38
B2	856+36.83	24.58	787.31	858+31.81	24.58	787.38
W1	856+19.66	39.42	793.09	858+40.67	39.42	793.18
W2	856+23.50	24.58	793.28	858+44.50	24.58	793.24

BERM SLOPE ELEVATIONS REFLECT THE GRADING SURFACE

ESTIMATED QUANTITIES

DESCRIPTION	LOCATION	QUANTITY
MACADAM STONE SLOPE PROTECTION	SOUTH ABUT.	488 SQ. YDS.
MACADAM STONE SLOPE PROTECTION	NORTH ABUT.	488 SQ. YDS.
TOTAL		976 SQ. YDS.

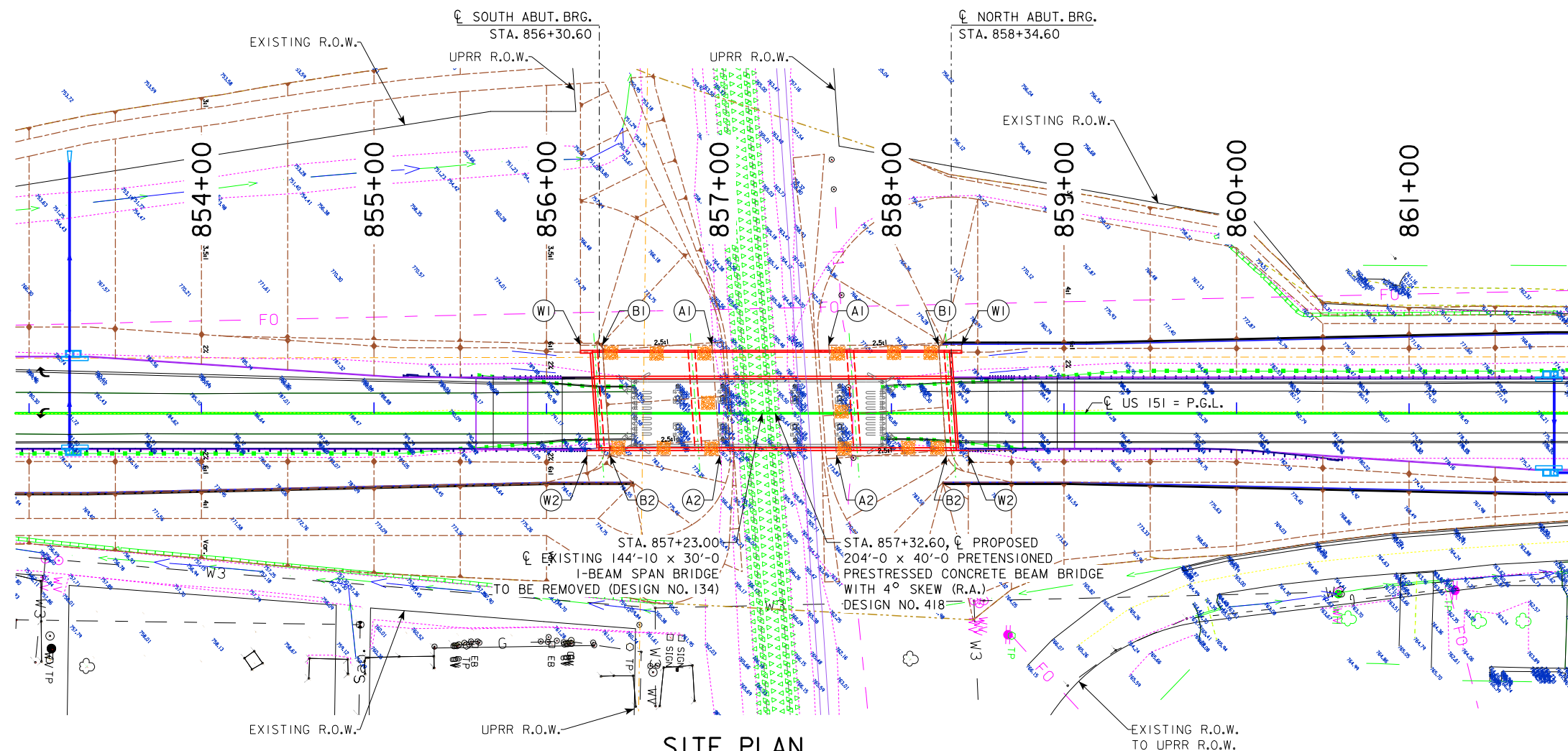
FOR DETAILS, SEE STANDARD SHEET 1006E.

ITEMS TO BE INCLUDED IN "MACADAM STONE SLOPE PROTECTION":

- EXCAVATING, SHAPING AND COMPACTING
- ENGINEERING FABRIC
- MACADAM STONE
- 4" x 6" TREATED TIMBER EDGING
- 1/2" ϕ STEEL PINS (OR REBARS)
- POROUS BACKFILL OR GRANULAR SUBBASE BACKFILL AT FRONT FACE ABUTMENT FOOTING

UTILITIES LEGEND:

- FO - FIBER OPTIC - SOUTH SLOPE
- G - GAS - MIDAMERICAN ENERGY
- T1 - TELEPHONE - SOUTH SLOPE
- W3 - WATER - FAIRFAX



SITE PLAN

ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE NOTED



PRELIMINARY

DESIGN FOR 4° SKEW (R.A.)

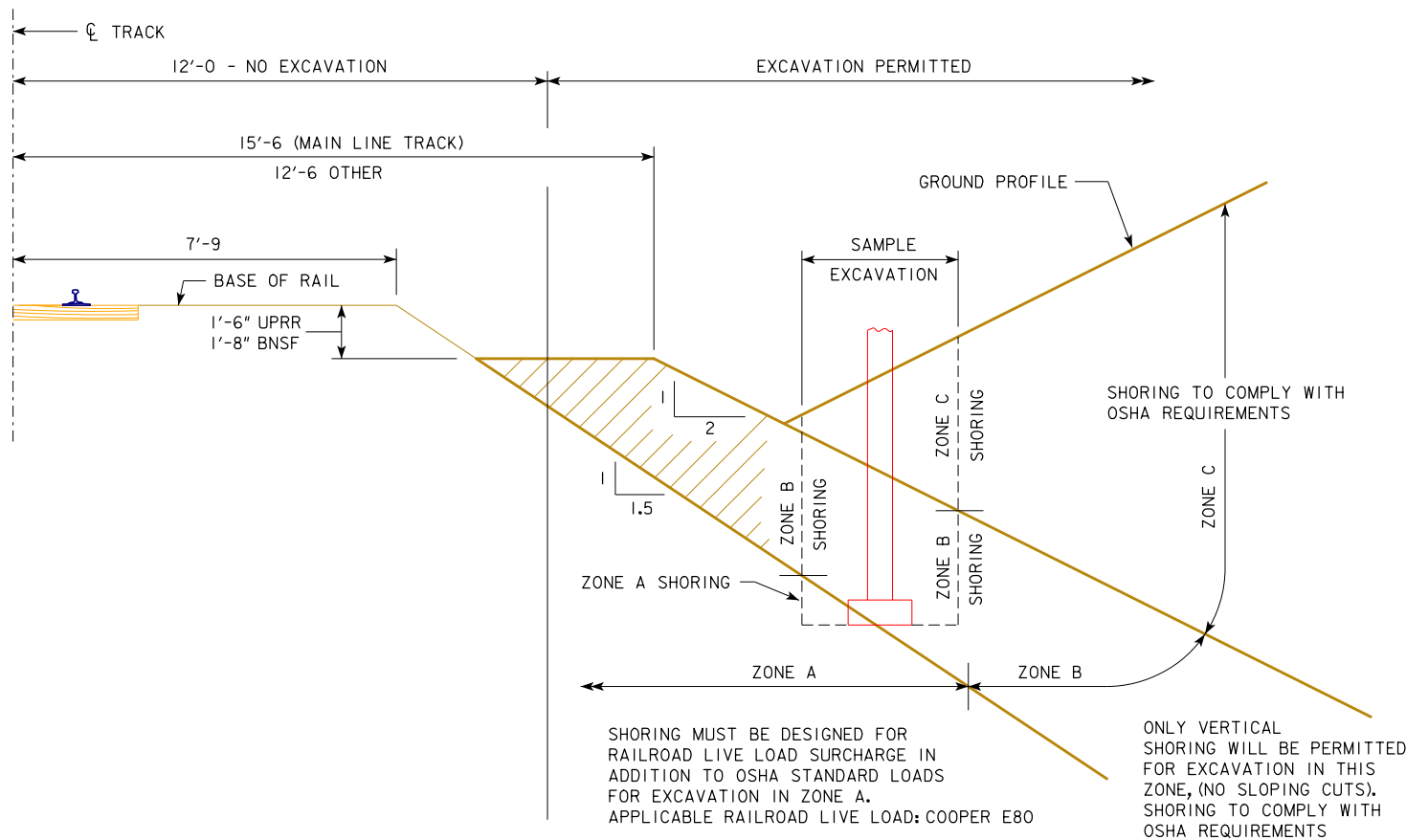
204'-0 x 40'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE WITH 14'-0 TRAIL (BTB BEAMS)

SPANS (56'-0, 92'-0, 56'-0)

**SITE PLAN
LINN COUNTY**

STATION 857+32.60 AUGUST 2016

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
 DESIGN SHEET NO. ___ OF ___ FILE NO. 31286 DESIGN NO. 418



TOP OF RAIL ELEVATIONS

(STATIONS INCREASE FROM WEST TO EAST)

NORTH TRACK			
ALIGNMENT: NORTH RAIL		ALIGNMENT: SOUTH RAIL	
STATION	ELEVATION	STATION	ELEVATION
② 7847+00	764.16	② 7847+00	764.15
7848+00	764.29	7848+00	764.28
7849+00	764.49	7849+00	764.46
7850+00	764.71	7850+00	764.67
7851+00	764.92	7851+00	764.88
7852+00	765.08	7852+00	765.03
7853+00	765.16	7853+00	765.14
7854+00	765.33	7854+00	765.33
7855+00	765.64	7855+00	765.62
7856+00	766.00	7856+00	765.97
① 7857+22.42	766.40	① 7857+22.42	766.36
7858+00	766.68	7858+00	766.65
7859+00	767.00	7859+00	767.00
7860+00	767.45	7860+00	767.43
7861+00	767.84	7861+00	767.80
7862+00	768.17	7862+00	768.06
7863+00	768.42	7863+00	768.21
7864+00	768.59	7864+00	768.32
7865+00	768.63	7865+00	768.37
7866+00	768.54	7866+00	768.29
③ 7867+00	768.28	7867+00	768.05

SOUTH TRACK			
ALIGNMENT: NORTH RAIL		ALIGNMENT: SOUTH RAIL	
STATION	ELEVATION	STATION	ELEVATION
② 7847+00	764.48	② 7847+00	764.49
7848+00	764.62	7848+00	764.65
7849+00	764.77	7849+00	764.77
7850+00	764.93	7850+00	764.95
7851+00	765.10	7851+00	765.11
7852+00	765.33	7852+00	765.34
7853+00	765.56	7853+00	765.57
7854+00	765.70	7854+00	765.72
7855+00	765.88	7855+00	765.91
7856+00	766.19	7856+00	766.23
① 7857+22.42	766.59	① 7857+22.42	766.59
7858+00	766.87	7858+00	766.88
7859+00	767.10	7859+00	767.11
7860+00	767.39	7860+00	767.41
7861+00	767.72	7861+00	767.72
7862+00	768.05	7862+00	767.96
7863+00	768.30	7863+00	768.13
7864+00	768.38	7864+00	768.21
7865+00	768.34	7865+00	768.18
7866+00	768.04	7866+00	767.89
③ 7867+00	767.75	③ 7867+00	767.58

RAILROAD GENERAL NOTES:

- RAILROAD REVIEW AND APPROVAL OF SHORING, ERECTION, DEMOLITION, AND FALSEWORK IS REQUIRED. ALLOW A MINIMUM OF FOUR WEEKS FOR THE REVIEW AND APPROVAL OF EACH SUBMITTAL.
- THE PROPOSED GRADE SEPARATION PROJECT SHALL NOT INCREASE THE QUANTITY AND/OR CHARACTERISTICS OF THE FLOW IN THE RAILROAD'S DITCHES AND/OR DRAINAGE STRUCTURES.
- THE ELEVATION OF THE EXISTING TOP-OF-RAIL PROFILE SHALL BE VERIFIED BEFORE BEGINNING CONSTRUCTION. ALL DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE RAILROAD PRIOR TO CONSTRUCTION.
- THE CONTRACTOR MUST SUBMIT A PROPOSED METHOD OF EROSION AND SEDIMENT CONTROL AND HAVE THE METHOD APPROVED BY THE RAILROAD.
- ALL SHORING SYSTEMS THAT IMPACT THE RAILROAD'S OPERATIONS AND/OR SUPPORTS THE RAILROAD'S EMBANKMENT SHALL BE DESIGNED AND CONSTRUCTED PER CURRENT RAILROAD GUIDELINES FOR TEMPORARY SHORING.
- ALL DEMOLITIONS WITHIN THE RAILROAD'S RIGHT-OF-WAY AND/OR DEMOLITION THAT MAY IMPACT THE RAILROAD'S TRACKS OR OPERATIONS SHALL BE IN COMPLIANCE WITH THE RAILROAD'S DEMOLITION GUIDELINES.
- ERECTION OVER THE RAILROAD'S RIGHT-OF-WAY SHALL BE DESIGNED TO CAUSE NO INTERRUPTION TO THE RAILROAD'S OPERATION, ENABLING THE TRACK(S) TO REMAIN OPEN TO TRAFFIC PER THE RAILROAD'S REQUIREMENTS.
- ALL CONSTRUCTION PHASING THAT MAY IMPACT THE RAILROAD OPERATIONS SHALL BE DESIGNED TO CAUSE NO INTERRUPTION TO THE RAILROAD'S OPERATION, ENABLING THE TRACK(S) TO REMAIN OPEN TO TRAFFIC PER THE RAILROAD'S REQUIREMENTS.
- FALSE-WORK CLEARANCES SHALL COMPLY WITH MINIMUM CONSTRUCTION CLEARANCES.
- ALL PERMANENT CLEARANCES SHALL BE VERIFIED BEFORE PROJECT CLOSING.
- FOR RAILROAD COORDINATION PLEASE REFER TO THE RAILROAD COORDINATION REQUIREMENTS AS PART OF SPECIAL PROVISIONS.

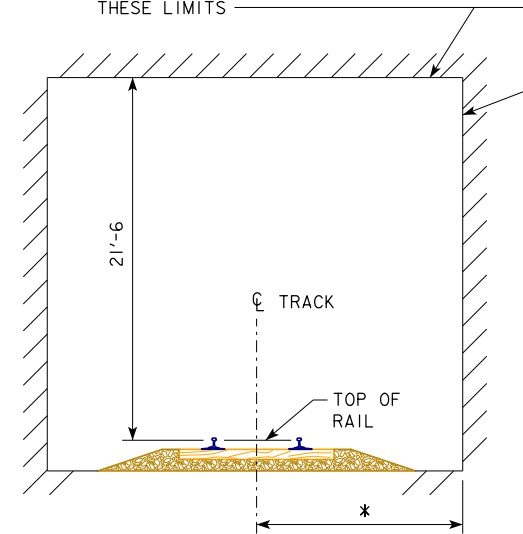
GENERAL EXCAVATION ZONES

GENERAL SHORING NOTES:

- ALL DIMENSIONS ARE MEASURED PERPENDICULAR TO TRACK.
- PRIOR TO COMMENCING ANY WORK, THE CONTRACTOR SHALL SUBMIT FOR APPROVAL BY THE RAILROAD DETAILED PLANS INDICATING THE NATURE AND EXTENT OF THE TRACK PROTECTION SHORING PROPOSED. THE CONTRACTOR SHALL INSTALL THE TEMPORARY SHORING SYSTEM PER THE APPROVED PLANS. DESIGN OF THE TEMPORARY SHORING SYSTEM TO COMPLY WITH GUIDELINES FOR TEMPORARY SHORING.
- FOR EXCAVATIONS WHICH ENCR OACH INTO ZONE A OR B, SHORING PLANS SHALL BE ACCOMPANIED BY DESIGN CALCULATIONS. PLANS AND CALCULATIONS MUST BE SIGNED AND STAMPED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF IOWA.

NOTE:
BNSF = BURLINGTON NORTHERN SANTA FE RAILROAD
UPRR = UNION PACIFIC RAILROAD

NO CONSTRUCTION ACTIVITIES OR OTHER OBSTRUCTION SHALL BE PLACED WITHIN THESE LIMITS



MINIMUM CONSTRUCTION CLEARANCE ENVELOPE

(NORMAL TO RAILROAD)
* 15'-0" FOR BNSF AND 12'-0" FOR UPRR

- CL OF ROADWAY ALONG TRACK STATIONING IS 857+22.42
CL OF TRACKS ALONG ROADWAY STATIONING IS 7857+22.42
- 1,022.42 FEET WEST OF ROADWAY CL ALONG TRACKS
- 977.58 FEET EAST OF ROADWAY CL ALONG TRACKS

PRELIMINARY

DESIGN FOR 4° SKEW (R.A.)

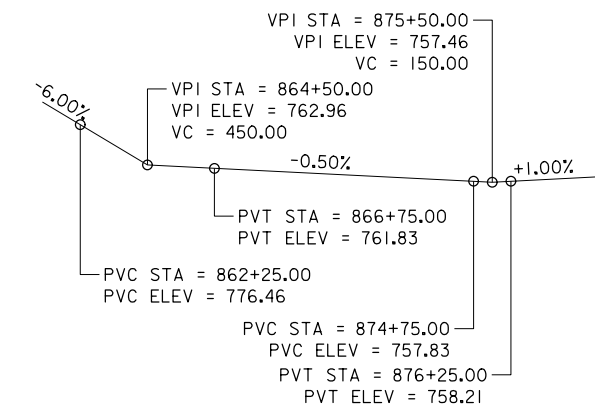
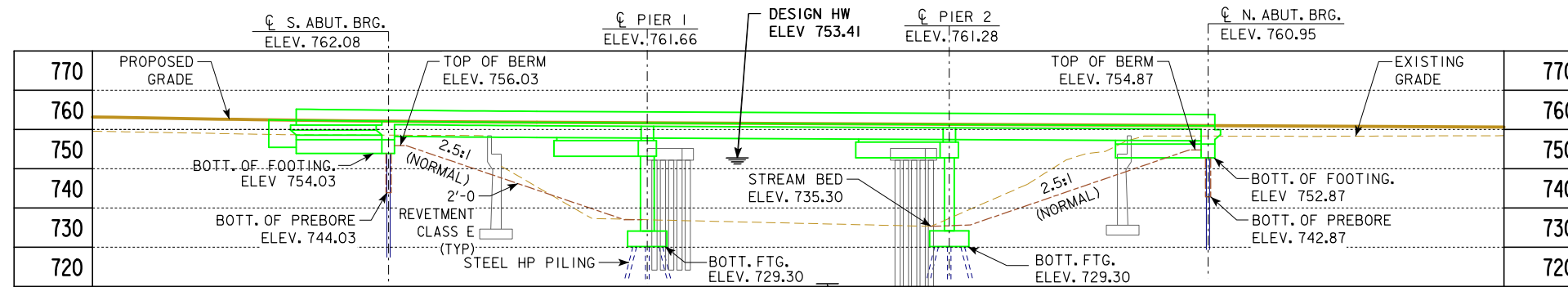
204'-0 x 40'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE WITH 14'-0 TRAIL (BTB BEAMS)

SPANS (56'-0, 92'-0, 56'-0)

STANDARD RAILROAD INFORMATION
STATION 857+32.60 LINN COUNTY AUGUST 2016

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
DESIGN SHEET NO. ___ OF ___ FILE NO. 31286 DESIGN NO. 418

BENCH MARK NO. BM2 STA. 871+35.96, 70.098 RT, RR SPIKE IN POWER POLE, EAST SIDE HWY 151, 200' ± NORTH OF NORTH END OF RIVER BRIDGE AT BEGINNING OF CLEARING. ELEV. 750.420, N = 705704.166 E = 2107504.303



PROPOSED PROFILE GRADE

HYDRAULIC DATA

DRAINAGE AREA = 178.0 SQ. MI.
 STREAM SLOPE = 6.11 FT./MI.
 AVG. LOW WATER STAGE = 736.6
 Q₅₀ = 13,480 CFS
 STAGE = 752.66
 BACKWATER = 0.41 FT.
 Q₁₀₀ = 16,060 CFS
 STAGE = 753.41
 BACKWATER = 0.48 FT.
 AVG. BRIDGE VELOCITY = 6.19 FPS
 Q₂₀₀ = 18,991 CFS
 STAGE = 753.99
 CALCULATED DESIGN SCOUR = 721.7
 Q₅₀₀ = 22,750 CFS
 STAGE = 754.91
 CALCULATED CHECK SCOUR = 717.56
 ALL ELEVATIONS NAVD88
 50, 100 & 500 YR. STAGES AND
 DISCHARGES FROM LINN COUNTY F.I.S.,
 APRIL 5, 2010

UTILITIES LEGEND:

FO - FIBER OPTIC - SOUTH SLOPE
 G - GAS - MIDAMERICAN ENERGY

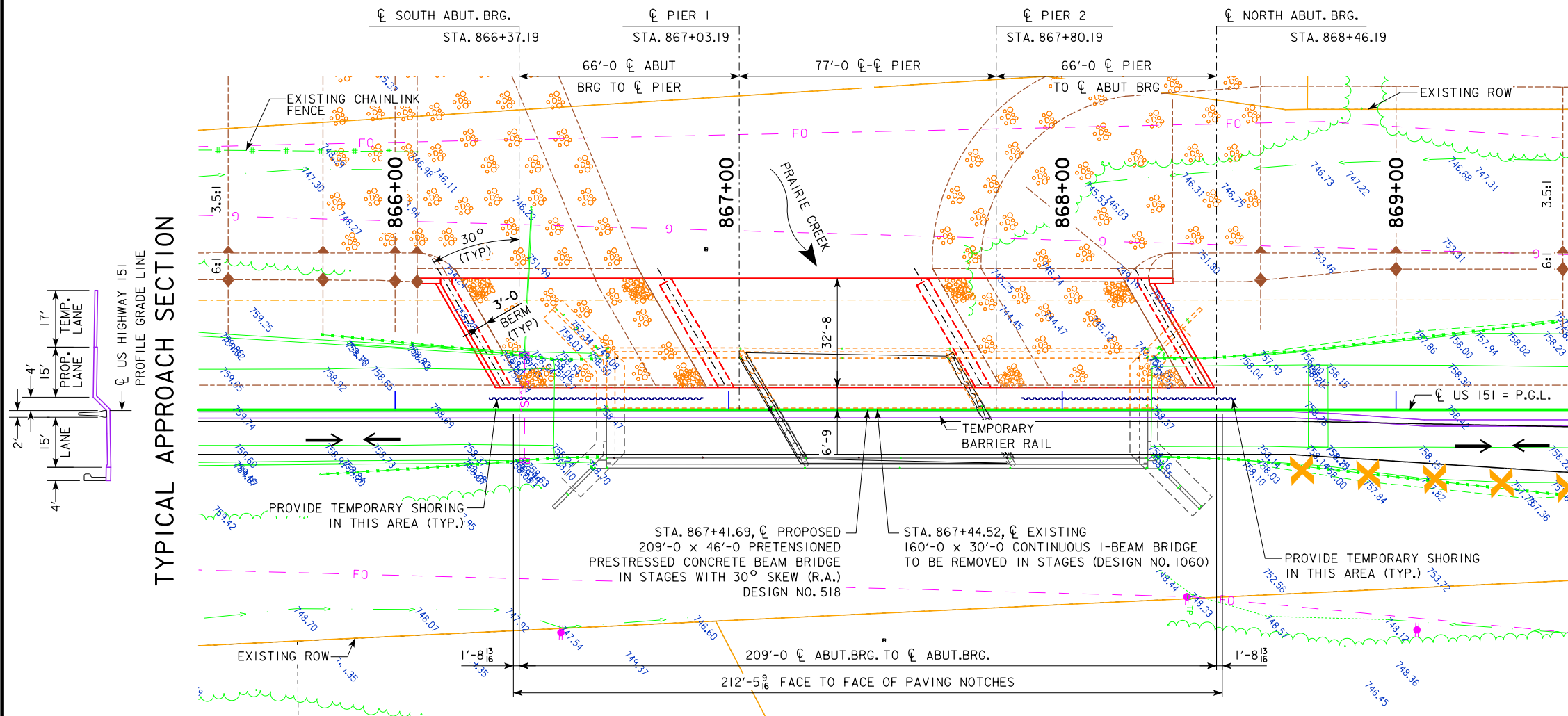
LOCATION

US HIGHWAY 151
 OVER PRAIRIE CREEK
 T-82N R-8W
 SECTION 9
 FAIRFAX TOWNSHIP
 LINN COUNTY
 FHWA NO. 33781
 BRIDGE MAINT. NO. 5722.0S151
 LATITUDE 41.923186°
 LONGITUDE -91.783847°

TRAFFIC ESTIMATE

2013 AADT	8100	V.P.D.
2040 AADT	12,010	V.P.D.
2040 DHV		V.P.H.
TRUCKS	6	%
TOTAL DESIGN ESALS		

TYPICAL APPROACH SECTION



NOTE:
 PIERS ARE WALL PIERS (SOLID STEM) ON PILE CAP FOOTINGS.
 BEAM TYPE BTB, DEPTH = 3'-0".
 TL-4 SEPARATION RAILING AND BARRIER RAIL IS PROPOSED.
 BRIDGE AESTHETICS TO BE INCORPORATED DURING FINAL DESIGN.

SITUATION PLAN STAGE I

ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE NOTED

HYDRAULIC DESIGN

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



Signature: Adam R. Bullerman Date: ---2016
 Printed or Typed Name: Adam R. Bullerman

My license renewal date is December 31, 2016

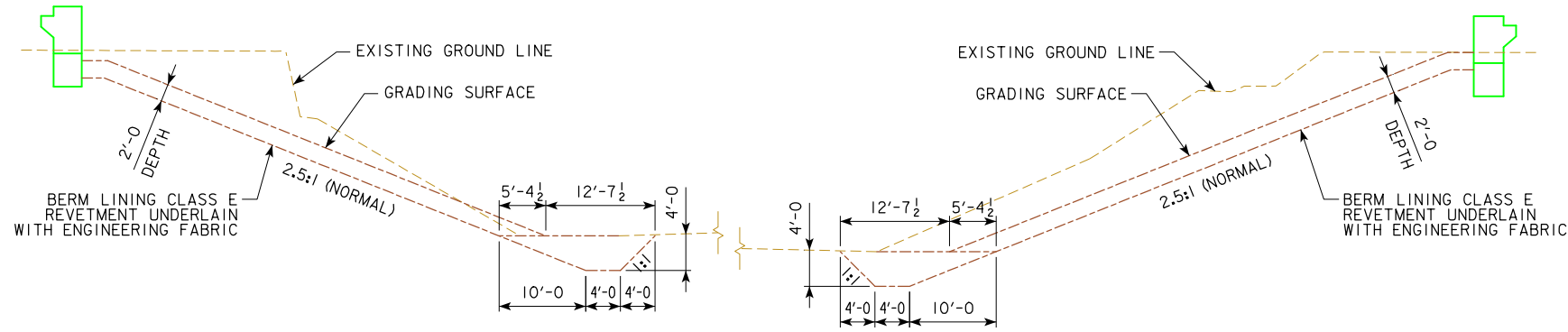
Pages or sheets covered by this seal: SHEETS V.4,V.6&V.8 - HYDRAULIC DATA

PRELIMINARY
 DESIGN FOR 30° SKEW (R.A.)
209'-0" x 32'-8" PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE (BTB BEAMS)

SPANS (66'-0", 77'-0", 66'-0")
SITUATION PLAN - STAGE I
 STATION 867+41.69 LINN COUNTY AUGUST 2016

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
 DESIGN SHEET NO. ___ OF ___ FILE NO. 31286 DESIGN NO. 518

BENCH MARK NO. BM2 STA. 871+35.96, 70.098 RT, RR SPIKE IN POWER POLE, EAST SIDE HWY 151, 200' ± NORTH OF NORTH END OF RIVER BRIDGE AT BEGINNING OF CLEARING. ELEV. 750.420, N = 705704.166 E = 2107504.303



SECTION THRU EMBEDDED REVETMENT BERM

BERM SLOPE LOCATION TABLE

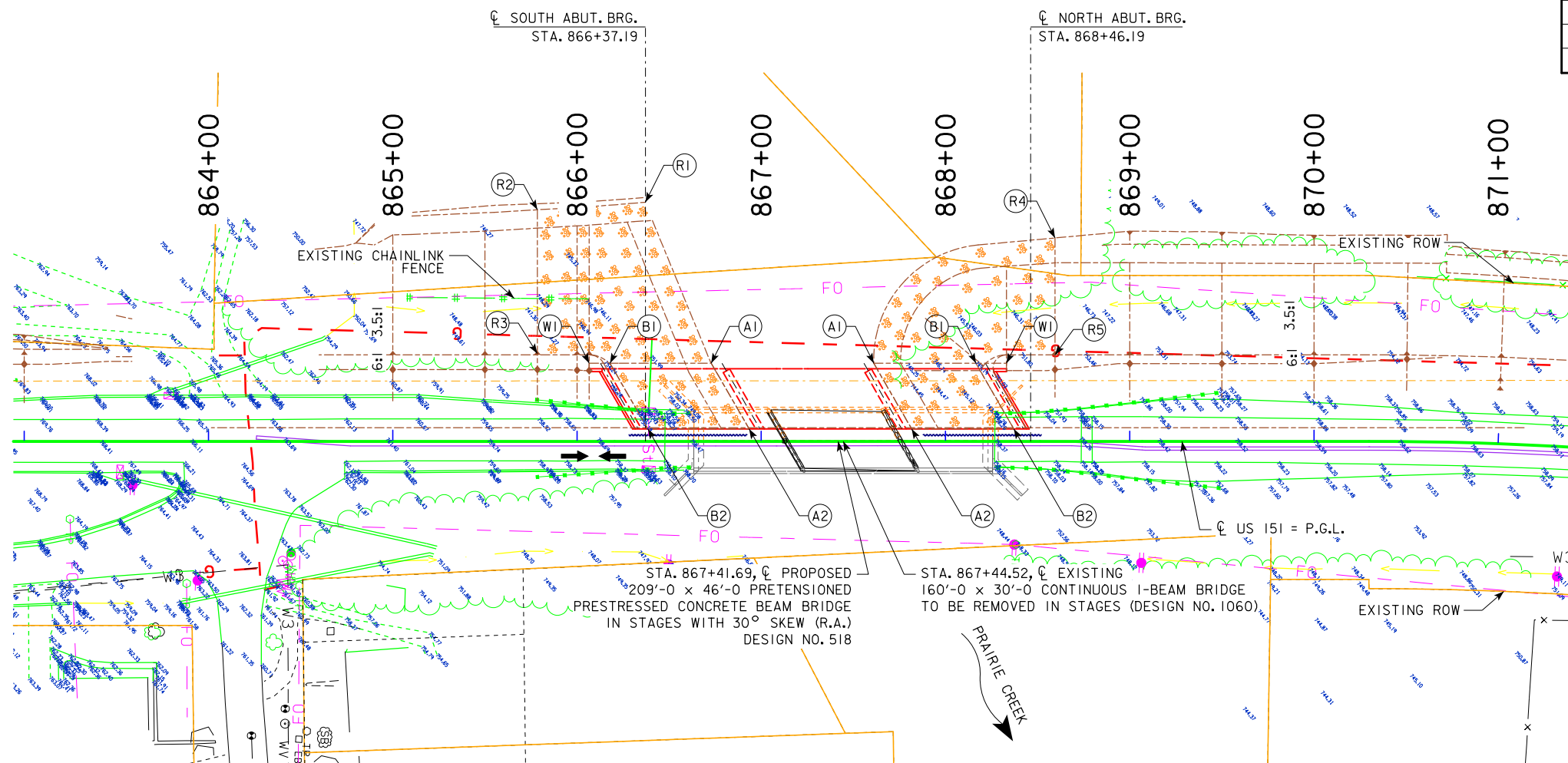
	SOUTH ABUTMENT			NORTH ABUTMENT		
	STATION	OFFSET	ELEV	STATION	OFFSET	ELEV
A1	866+72.83	42.42 LT	737.00	867+61.05	42.42 LT	735.66
A2	866+93.42	6.75 LT	737.00	867+81.64	6.75 LT	735.66
B1	866+17.90	42.42 LT	756.03	868+16.50	42.42 LT	754.87
B2	866+38.49	6.75 LT	756.03	868+37.10	6.75 LT	754.87
W1	866+06.61	42.42 LT	761.64	868+33.08	42.42 LT	760.23

BERM SLOPE ELEVATIONS REFLECT THE GRADING SURFACE

ESTIMATED BERM ARMORING QUANTITIES

LOCATION	REVETMENT CL. E (TON)	EROSION STONE (TON)	ENGINEERING FABRIC (SY)	CLASS 10 CHANNEL EXCAVATION (CY)
BERM LINING - SOUTH ABUTMENT	1120	-	1050	700
BERM LINING - NORTH ABUTMENT	930	-	880	580
STONE TOE - SOUTH ABUTMENT	360	-	350	220
STONE TOE - NORTH ABUTMENT	460	-	450	280
TOTALS	2870	-	2730	1780

EXCAVATION QUANTITY CALCULATED FROM GRADING SURFACE.



REVETMENT LAYOUT:

- (R1) 866+36.85, 129.82 LT, END STONE TOE
- (R2) 865+78.43, 125.73 LT, END BERM LINING
- (R3) 865+78.43, 47.00 LT, END BERM LINING
- (R4) 868+59.43, 110.43 LT, END STONE TOE
- (R5) 868+59.43, 47.00 LT, END BERM LINING

UTILITIES LEGEND:

FO - FIBER OPTIC - SOUTH SLOPE
G - GAS - MIDAMERICAN ENERGY

SITE PLAN STAGE I

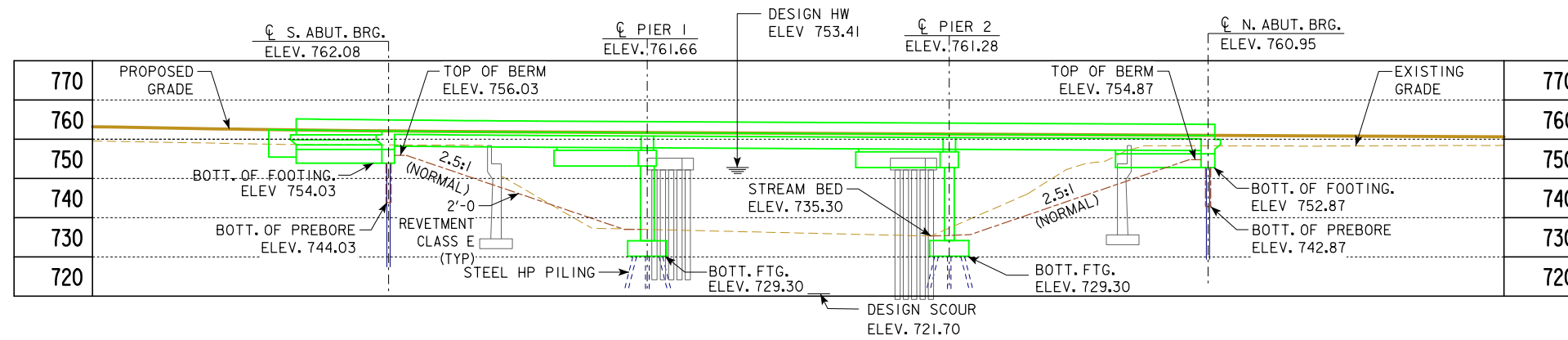
ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE NOTED



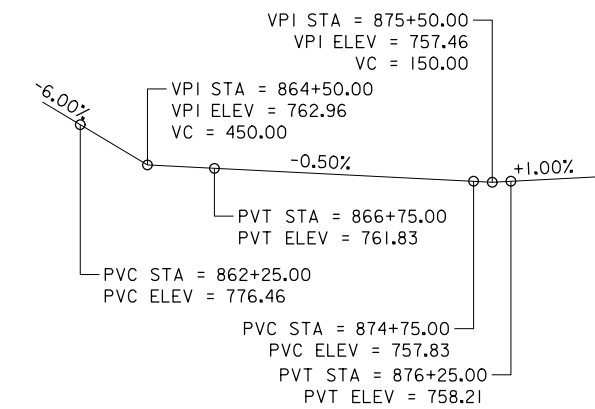
PRELIMINARY

DESIGN FOR 30° SKEW (R.A.)
209'-0" x 32'-8" PRESTRESSED PRESTRESSED CONCRETE BEAM BRIDGE (BTB BEAMS)
SPANS (66'-0", 77'-0", 66'-0")
SITE PLAN - STAGE I
STATION 867+41.69 LINN COUNTY AUGUST 2016
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
DESIGN SHEET NO. ___ OF ___ FILE NO. 31286 DESIGN NO. 518

BENCH MARK NO. BM2 STA. 871+35.96, 70.098 RT, RR SPIKE IN POWER POLE, EAST SIDE HWY 151, 200' ± NORTH OF NORTH END OF RIVER BRIDGE AT BEGINNING OF CLEARING. ELEV. 750.420, N = 705704.166 E = 2107504.303



LONGITUDINAL SECTION ALONG CL APPROACH ROADWAY
TOP OF BRIDGE DECK CROWN 0.03' BELOW PROFILE GRADE



PROPOSED PROFILE GRADE

HYDRAULIC DATA

DRAINAGE AREA = 178.0 SQ. MI.
STREAM SLOPE = 6.11 FT./MI.
AVG. LOW WATER STAGE = 736.6
Q₅₀ = 13,480 CFS
STAGE = 752.66
BACKWATER = 0.41 FT.
Q₁₀₀ = 16,060 CFS
STAGE = 753.41
BACKWATER = 0.48 FT.
AVG. BRIDGE VELOCITY = 6.19 FPS
Q₂₀₀ = 18,991 CFS
STAGE = 753.99
CALCULATED DESIGN SCOUR = 721.7
Q₅₀₀ = 22,750 CFS
STAGE = 754.91
CALCULATED CHECK SCOUR = 717.56
ALL ELEVATIONS NAVD88
50, 100 & 500 YR. STAGES AND
DISCHARGES FROM LINN COUNTY F.I.S.,
APRIL 5, 2010

UTILITIES LEGEND:

FO - FIBER OPTIC - SOUTH SLOPE
G - GAS - MIDAMERICAN ENERGY

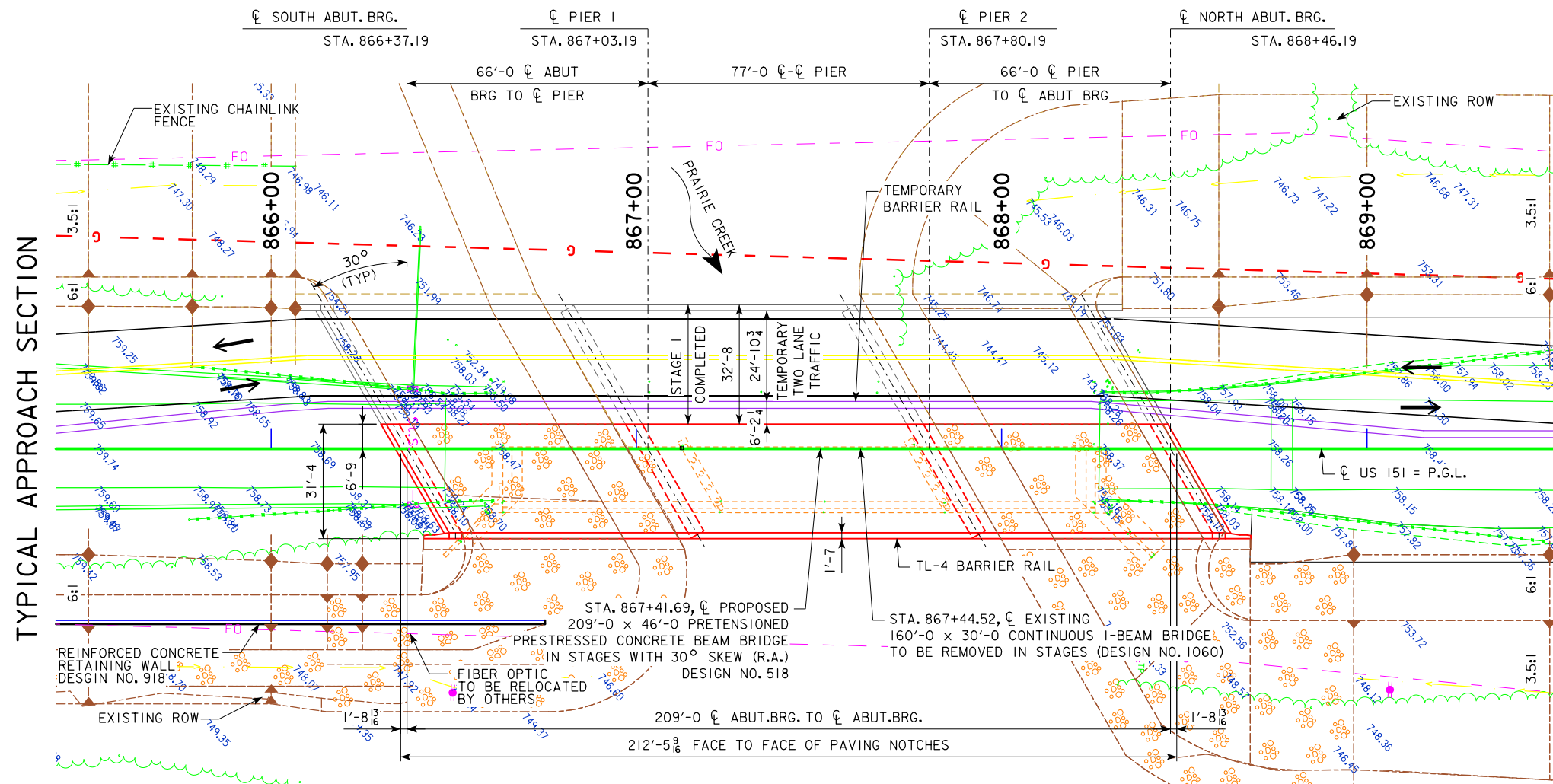
LOCATION

US HIGHWAY 151
OVER PRAIRIE CREEK
T-82N R-8W
SECTION 9
FAIRFAX TOWNSHIP
LINN COUNTY
FHWA NO. 33781
BRIDGE MAINT. NO. 5722.0S151
LATITUDE 41.923186°
LONGITUDE -91.783847°

TRAFFIC ESTIMATE

2013 AADT	8100	V.P.D.
2040 AADT	12,010	V.P.D.
2040 DHV		V.P.H.
TRUCKS	6	%
TOTAL DESIGN ESALS		

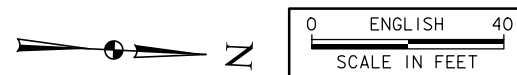
PRELIMINARY



NOTE:
PIERS ARE WALL PIERS (SOLID STEM) ON PILE CAP FOOTINGS.
BEAM TYPE BTB, DEPTH = 3'-0".
TL-4 SEPARATION RAILING AND BARRIER RAIL IS PROPOSED.
BRIDGE AESTHETICS TO BE INCORPORATED DURING FINAL DESIGN.

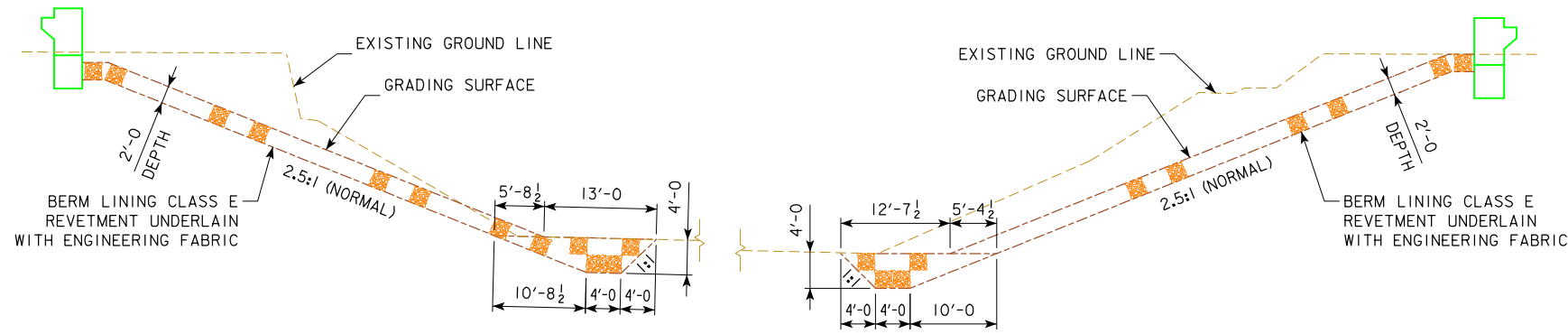
SITUATION PLAN STAGE 2

ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE NOTED



DESIGN FOR 30° SKEW (R.A.)
209'-0 x 32'-8 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE
WIDEN TO 64'-0 (BTB BEAMS)
SPANS (66'-0, 77'-0, 66'-0)
SITUATION PLAN - STAGE 2
STATION 867+41.69 LINN COUNTY AUGUST 2016
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
DESIGN SHEET NO. ___ OF ___ FILE NO. 31286 DESIGN NO. 518

BENCH MARK NO. BM2 STA. 871+35.96, 70.098 RT, RR SPIKE IN POWER POLE,
 EAST SIDE HWY 151, 200' ± NORTH OF NORTH END OF
 RIVER BRIDGE AT BEGGINING OF CLEARING.
 ELEV. 750.420, N = 705704.166 E = 2107504.303



SECTION THRU EMBEDDED REVETMENT BERM

BERM SLOPE LOCATION TABLE

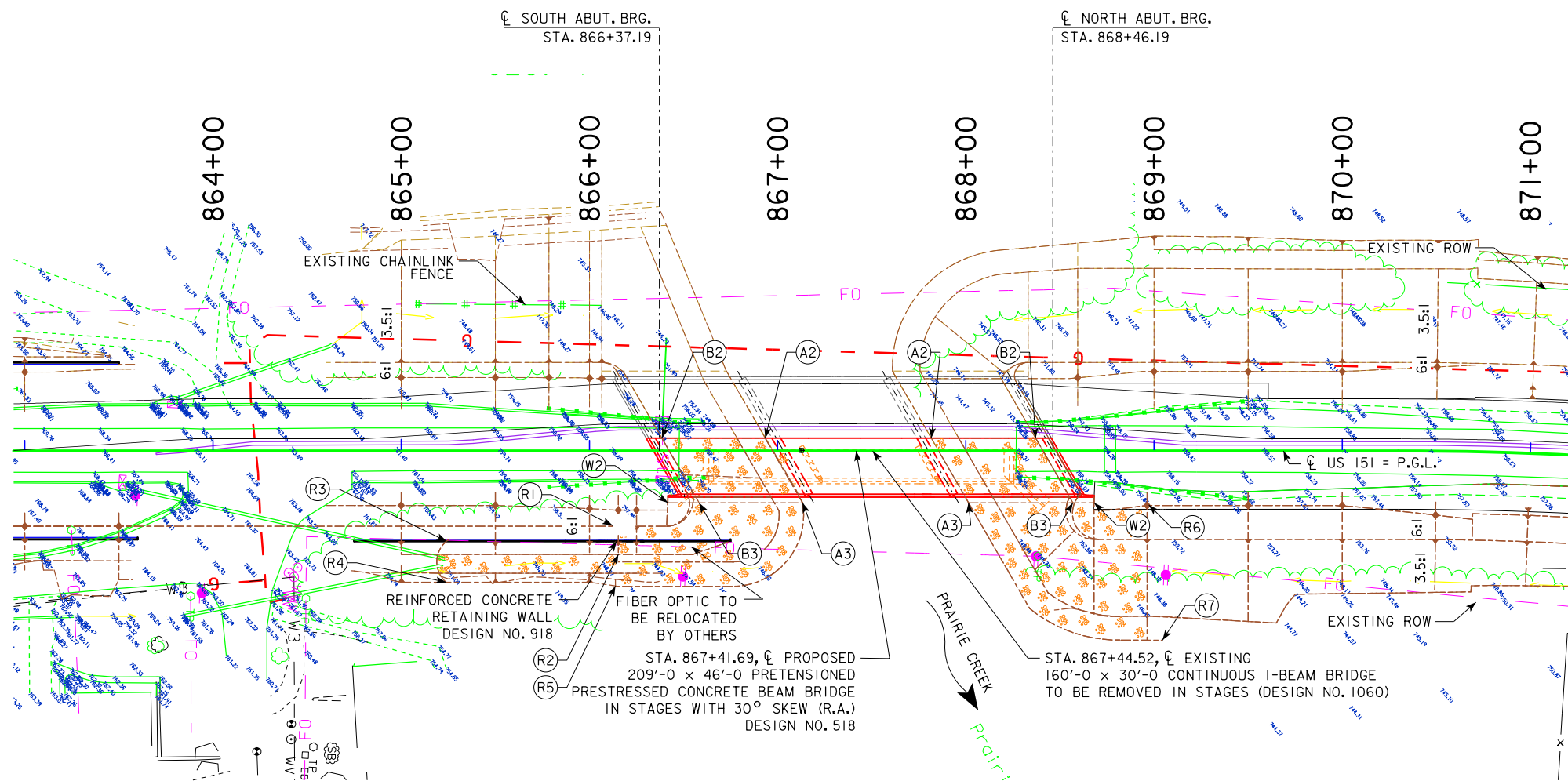
	SOUTH ABUTMENT			NORTH ABUTMENT		
	STATION	OFFSET	ELEV	STATION	OFFSET	ELEV
A2	866+93.42	6.75 LT	737.00	867+81.64	6.75 LT	735.66
A3	867+13.25	27.58 RT	737.00	868+01.46	27.58 RT	735.66
B2	866+38.49	6.75 LT	756.03	868+37.10	6.75 LT	754.87
B3	866+58.31	27.58 RT	756.03	868+56.92	27.58 RT	754.87
W2	866+41.74	27.58 RT	761.49	868+68.20	27.58 RT	760.29

BERM SLOPE ELEVATIONS REFLECT THE GRADING SURFACE

ESTIMATED BERM ARMORING QUANTITIES

LOCATION	REVETMENT CL. E (TON)	EROSION STONE (TON)	ENGINEERING FABRIC (SY)	CLASS 10 CHANNEL EXCAVATION (CY)
BERM LINING - SOUTH ABUTMENT	1100	-	1030	690
BERM LINING - NORTH ABUTMENT	940	-	880	590
STONE TOE - SOUTH ABUTMENT	330	-	320	200
STONE TOE - NORTH ABUTMENT	460	-	450	290
TOTALS	2820	-	2680	1770

EXCAVATION QUANTITY CALCULATED FROM GRADING SURFACE.



SITE PLAN STAGE 2

ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE NOTED

REVETMENT LAYOUT:

- (R1) 866+15.38, 40.00 RT, END BERM LINING
- (R2) 866+15.38, 55.00 RT, END BERM LINING
- (R3) 865+19.46, 55.00 RT, END BERM LINING
- (R4) 865+20.22, 65.00 RT, END BERM LINING
- (R5) 866+15.38, 72.01 RT, END STONE TOE
- (R6) 868+96.20, 29.00 RT, END BERM LINING
- (R7) 868+96.38, 100.57 RT, END STONE TOE

UTILITIES LEGEND:

FO - FIBER OPTIC - SOUTH SLOPE
 G - GAS - MIDAMERICAN ENERGY

PRELIMINARY

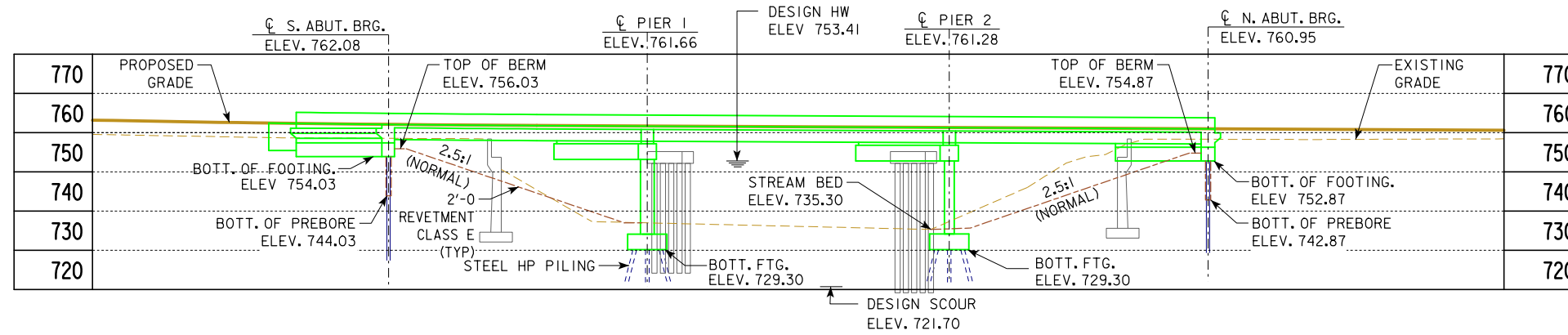
DESIGN FOR 30° SKEW (R.A.)

209'-0" x 32'-8" PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE
 WIDEN TO 64'-0" (BTB BEAMS)
 SPANS (66'-0", 77'-0", 66'-0")

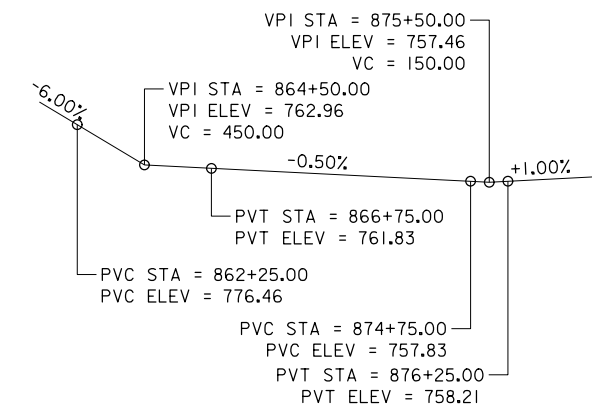
SITE PLAN - STAGE 2
 STATION 867+41.69 LINN COUNTY AUGUST 2016

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
 DESIGN SHEET NO. ___ OF ___ FILE NO. 31286 DESIGN NO. 518

BENCH MARK NO. BM2 STA. 871+35.96, 70.098 RT, RR SPIKE IN POWER POLE, EAST SIDE HWY 151, 200' ± NORTH OF NORTH END OF RIVER BRIDGE AT BEGINNING OF CLEARING. ELEV. 750.420, N = 705704.166 E = 2107504.303



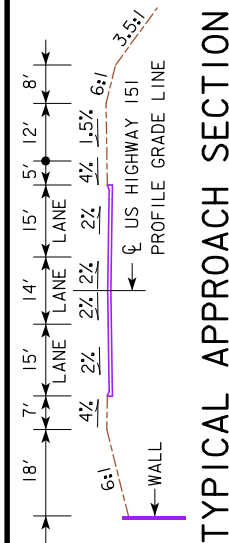
LONGITUDINAL SECTION ALONG CL APPROACH ROADWAY
TOP OF BRIDGE DECK CROWN 0.03' BELOW PROFILE GRADE



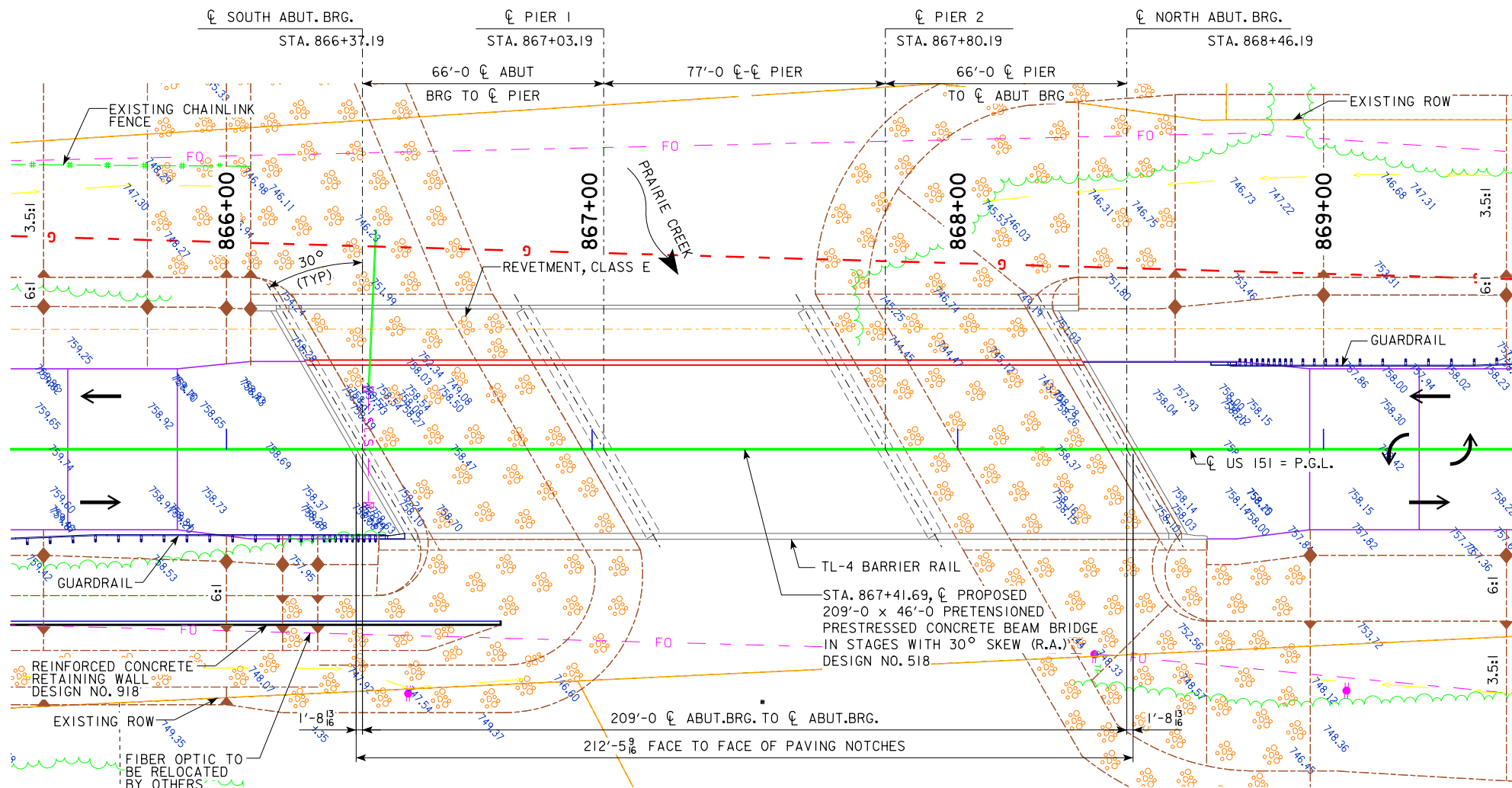
PROPOSED PROFILE GRADE

HYDRAULIC DATA

DRAINAGE AREA = 178.0 SQ. MI.
 STREAM SLOPE = 6.11 FT./MI.
 AVG. LOW WATER STAGE = 736.6
 Q₅₀ = 13,480 CFS
 STAGE = 752.66
 BACKWATER = 0.41 FT.
 Q₁₀₀ = 16,060 CFS
 STAGE = 753.41
 BACKWATER = 0.48 FT.
 AVG. BRIDGE VELOCITY = 6.19 FPS
 Q₂₀₀ = 18,991 CFS
 STAGE = 753.99
 CALCULATED DESIGN SCOUR = 721.7
 Q₅₀₀ = 22,750 CFS
 STAGE = 754.91
 CALCULATED CHECK SCOUR = 717.56
 ALL ELEVATIONS NAVD88
 50, 100 & 500 YR. STAGES AND
 DISCHARGES FROM LINN COUNTY F.I.S.,
 APRIL 5, 2010



TYPICAL APPROACH SECTION



SITUATION PLAN
FINAL

ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE NOTED

NOTE:
 PIERS ARE WALL PIERS (SOLID STEM) ON PILE
 CAP FOOTINGS.
 BEAM TYPE BTB, DEPTH = 3'-0".
 TL-4 SEPARATION RAILING AND BARRIER RAIL
 IS PROPOSED.
 BRIDGE AESTHETICS TO BE INCORPORATED
 DURING FINAL DESIGN.

UTILITIES LEGEND:

FO - FIBER OPTIC - SOUTH SLOPE
 G - GAS - MIDAMERICAN ENERGY

LOCATION

US HIGHWAY 151
 OVER PRAIRIE CREEK
 T-82N R-8W
 SECTION 9
 FAIRFAX TOWNSHIP
 LINN COUNTY
 FHWA NO. 33781
 BRIDGE MAINT. NO. 5722.0S151
 LATITUDE 41.923186°
 LONGITUDE -91.783847°

TRAFFIC ESTIMATE

Year	ADT	Estimate	V.P.D.
2013	AADT	8100	V.P.D.
2040	AADT	12,010	V.P.D.
2040	DHV	-	V.P.H.
	TRUCKS	6	%
	TOTAL DESIGN ESALS	-	

PRELIMINARY

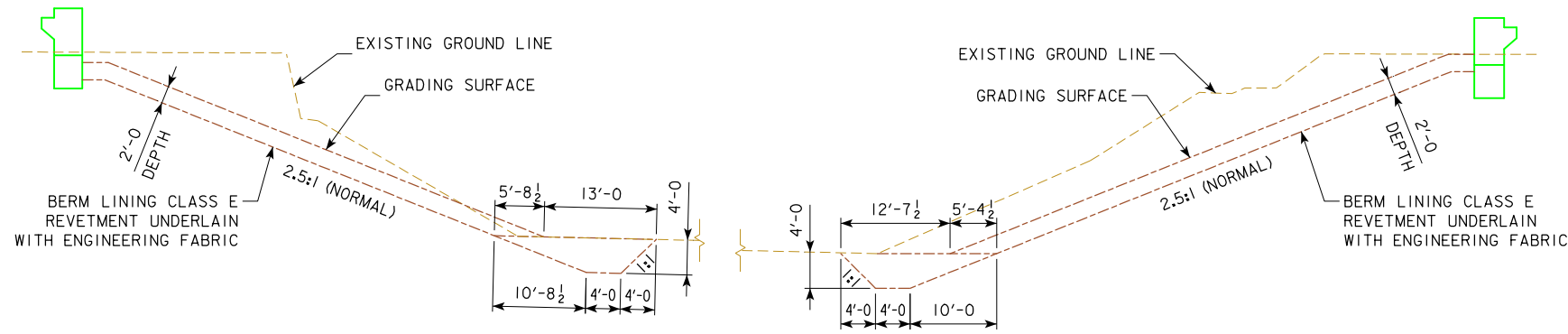
DESIGN FOR 30° SKEW (R.A.)
**209'-0 x 46'-0 PRETENSIONED PRESTRESSED
 CONCRETE BEAM BRIDGE WITH 14'-0 TRAIL
 (BTB BEAMS)**

SPANS (66'-0, 77'-0, 66'-0)

SITUATION PLAN - FINAL
 STATION 867+41.69 LINN COUNTY AUGUST 2016

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
 DESIGN SHEET NO. ___ OF ___ FILE NO. 31286 DESIGN NO. 518

BENCH MARK NO. BM2 STA. 871+35.96, 70.098 RT, RR SPIKE IN POWER POLE, EAST SIDE HWY 151, 200' ± NORTH OF NORTH END OF RIVER BRIDGE AT BEGGINNING OF CLEARING. ELEV. 750.420, N = 705704.166 E = 2107504.303



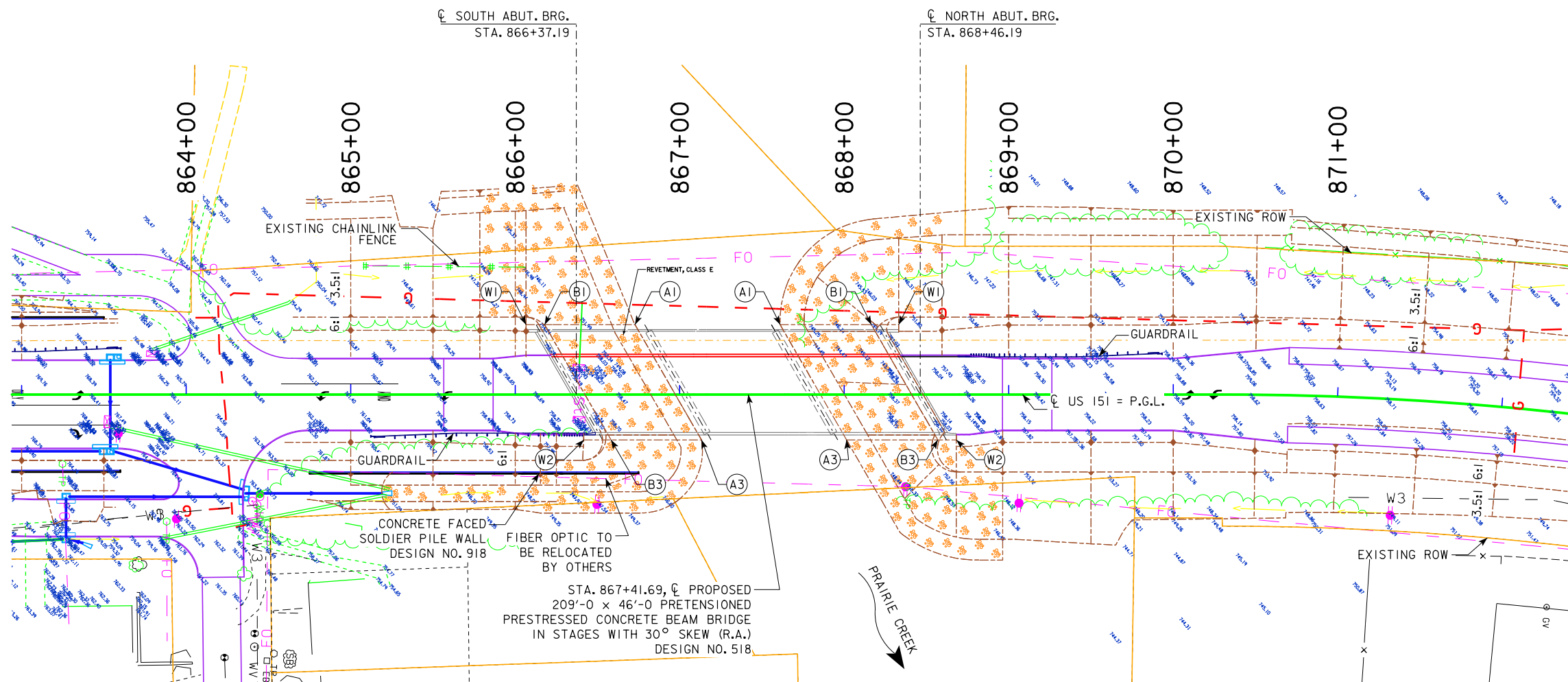
SECTION THRU EMBEDDED REVETMENT BERM

BERM SLOPE LOCATION TABLE

	SOUTH ABUTMENT			NORTH ABUTMENT		
	STATION	OFFSET	ELEV	STATION	OFFSET	ELEV
A1	866+72.83	42.42 LT	737.00	867+61.05	42.42 LT	735.66
A3	867+13.25	27.58 RT	737.00	868+01.46	27.58 RT	735.66
B1	866+17.90	42.42 LT	756.03	868+16.50	42.42 LT	754.87
B3	866+58.31	27.58 RT	756.03	868+56.92	27.58 RT	754.87
W1	866+06.61	42.42 LT	761.64	868+33.08	42.42 LT	760.23
W2	866+41.74	27.58 RT	761.49	868+68.20	27.58 RT	760.29

BERM SLOPE ELEVATIONS REFLECT THE GRADING SURFACE

NOTE:
SEE SHEETS V.5 AND V.7 FOR BERM ARMORING QUANTITIES.



SITE PLAN FINAL

ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE NOTED

UTILITIES LEGEND:

FO - FIBER OPTIC - SOUTH SLOPE
G - GAS - MIDAMERICAN ENERGY

PRELIMINARY

DESIGN FOR 30° SKEW (R.A.)

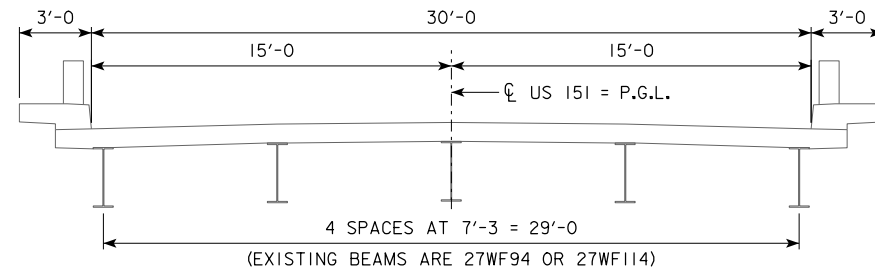
209'-0 x 46'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE WITH 14'-0 TRAIL (BTB BEAMS)

SPANS (66'-0, 77'-0, 66'-0)

SITE PLAN - FINAL

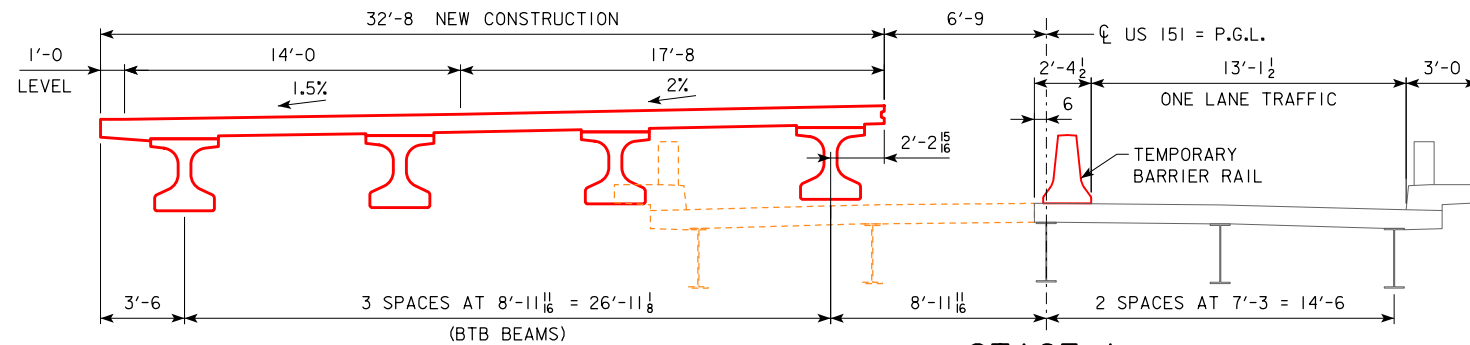
STATION 867+41.69 LINN COUNTY AUGUST 2016

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
DESIGN SHEET NO. ___ OF ___ FILE NO. 31286 DESIGN NO. 518



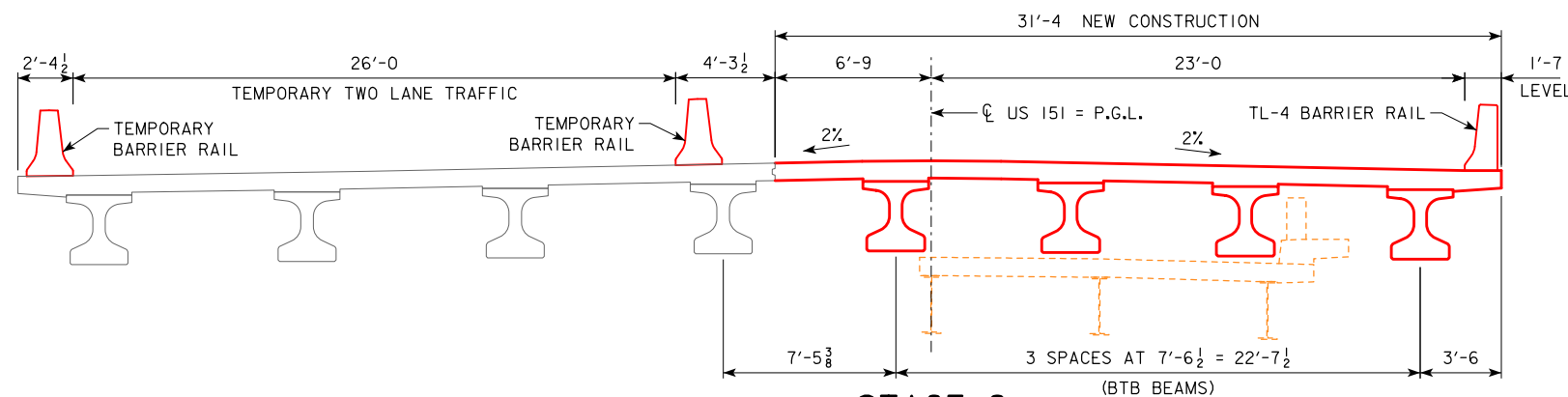
EXISTING

(LOOKING UP STATION - NORTH)



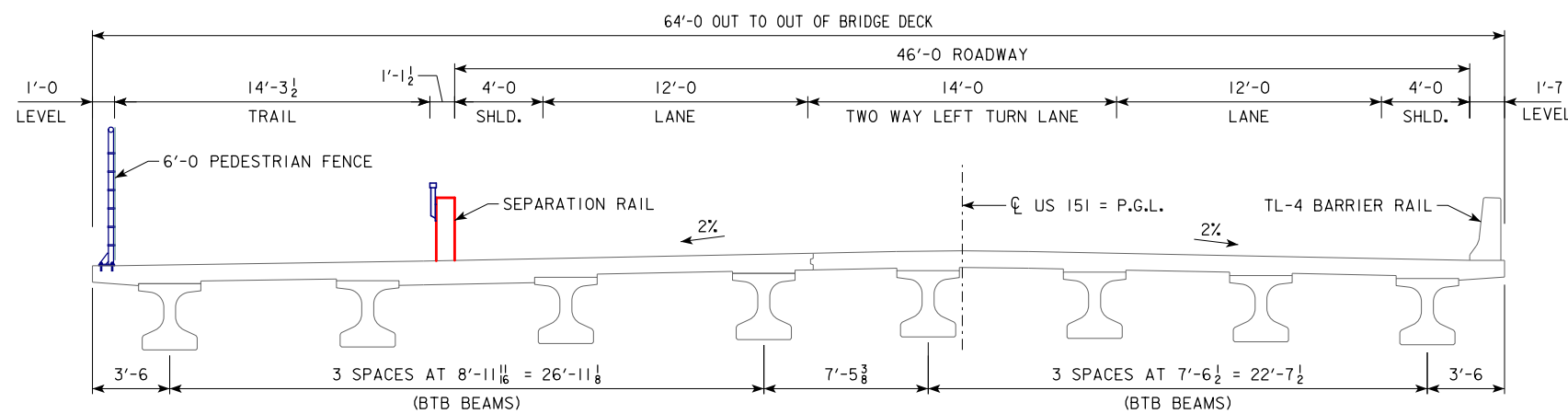
STAGE I

STAGE I
SHIFT TRAFFIC TO ONE LANE TRAFFIC ON THE EAST SIDE OF EXISTING BRIDGE.
REMOVE WEST HALF OF EXISTING BRIDGE AND CONSTRUCT WEST PORTION OF BRIDGE.



STAGE 2

STAGE 2
SHIFT TRAFFIC TO TWO LANE TRAFFIC ON THE NEWLY CONSTRUCTED WEST PORTION OF BRIDGE.
REMOVE REMAINING HALF OF EXISTING BRIDGE AND CONSTRUCT EAST PORTION OF BRIDGE.



FINAL

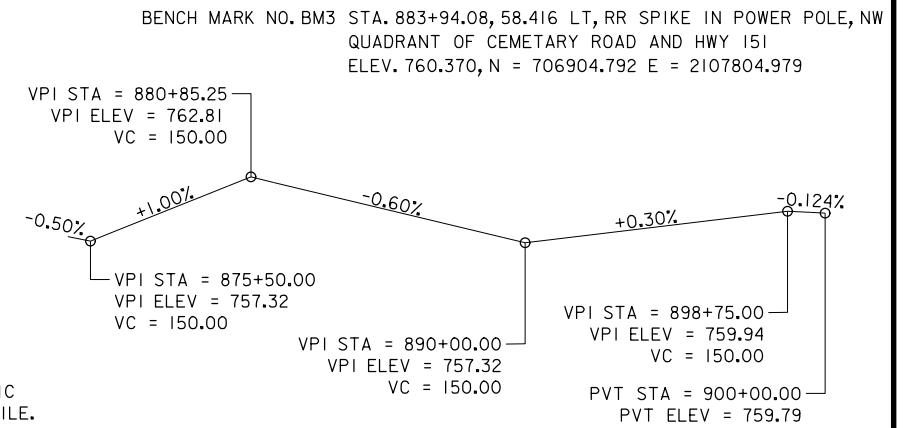
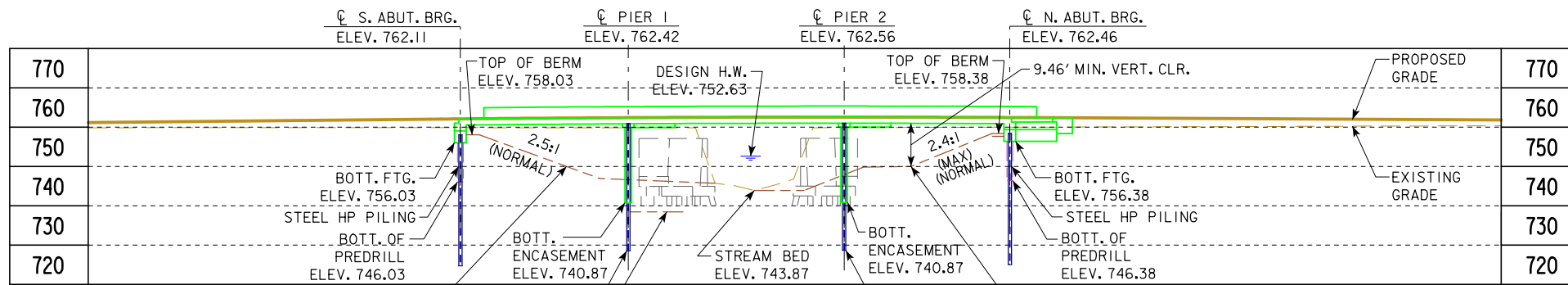
FINAL STAGE
SHIFT TRAFFIC TO EAST PORTION OF BRIDGE.
PLACE PERMANENT BARRIER RAIL AND PEDESTRIAN FENCE.
REMOVE TEMPORARY BARRIER RAIL.

NOTE:

CLOSURE POUR NOT REQUIRED PER BDM 5.2.4.1.2.

PRELIMINARY
DESIGN FOR 30° SKEW (R.A.)
**209'-0 x 46'-0 PRETENSIONED PRESTRESSED
CONCRETE BEAM BRIDGE WITH 14'-0 TRAIL
(BTB BEAMS)**
SPANS (66'-0, 77'-0, 66'-0)

STAGING
STATION 867+41.69 **LINN COUNTY** AUGUST 2016
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
DESIGN SHEET NO. ___ OF ___ FILE NO. 31286 DESIGN NO. 518



CURVE DATA

PI STA. 881+74.79
 $\Delta = 61^\circ 52' 59.64''$ (RT)
 T = 1,144.91'
 L = 2,062.78'
 E = 316.88'
 R = 1,909.86'
 PC STA. 870+29.88
 PT STA. 890+92.65

LONGITUDINAL SECTION ALONG C APPROACH ROADWAY

NOTE: BERM IS NOT LEVEL IT SLOPES WITH THE ROADWAY SUPERELEVATION.

NOTES:
 PIER TYPE - PIOL WITH MONOLITHIC PIER CAP & INDIVIDUALLY ENCASED PILE.
 H = 19.56 FT.
 TL-4 BARRIER RAILING PROPOSED.
 BRIDGE AESTHETICS TO BE INCORPORATED DURING FINAL DESIGN.

MINIMUM VERTICAL CLEARANCE

OVERHEAD STATION = 881+24.90, OFFSET 30.58'
 OVERHEAD ELEVATION = 761.33
 DEPTH OF SUPERSTRUCTURE = 1.875'
 UNDERPASS STATION = N/A, OFFSET N/A
 UNDERPASS ELEVATION = 750.00
 MINIMUM VERTICAL CLEARANCE = 9.46'

PROPOSED PROFILE GRADE

HYDRAULIC DATA

DRAINAGE AREA = 3.0 SQ. MI.
 STREAM SLOPE = 32.65 FT./MI.
 AVG. LOW WATER STAGE = 752.63

Q₅₀ = 2120 CFS
 STAGE = 752.63
 BACKWATER = 0.19 FT.
 AVE. BRIDGE VELOCITY = 4.5 FPS

Q₁₀₀ = 2530 CFS
 STAGE = 753.07
 BACKWATER = 0.22 FT.

Q₂₀₀ = 3310 CFS
 STAGE = 753.84
 CALCULATED DESIGN SCOUR = 738.45

Q₅₀₀ = 3680 CFS
 STAGE = 754.22
 CALCULATED CHECK SCOUR = 738.33

ROADWAY OVERTOP 757.60
 STA. 875+25

ALL ELEVATIONS NAVD88

UTILITIES LEGEND:

TV - CABLE TELEVISION - UNDERGROUND TV CABLE CO. I
 FO - FIBER OPTIC - SOUTH SLOPE
 T2 - TELEPHONE - CENTURYLINK

LOCATION

US HIGHWAY 151
 OVER DRAINAGE DITCH #1
 T-82N R-8W
 SECTION 9
 FAIRFAX TOWNSHIP
 LINN COUNTY
 FHWA NO. 33791
 BRIDGE MAINT. NO. 5722.3S151
 LATITUDE 41.926747°
 LONGITUDE -91.782900°

TRAFFIC ESTIMATE

2013 AADT	8100	V.P.D.
2040 AADT	12,010	V.P.D.
2040 DHV		V.P.H.
TRUCKS	6	%
TOTAL DESIGN ESALS		

PRELIMINARY

DESIGN FOR 15° SKEW (L.A.)

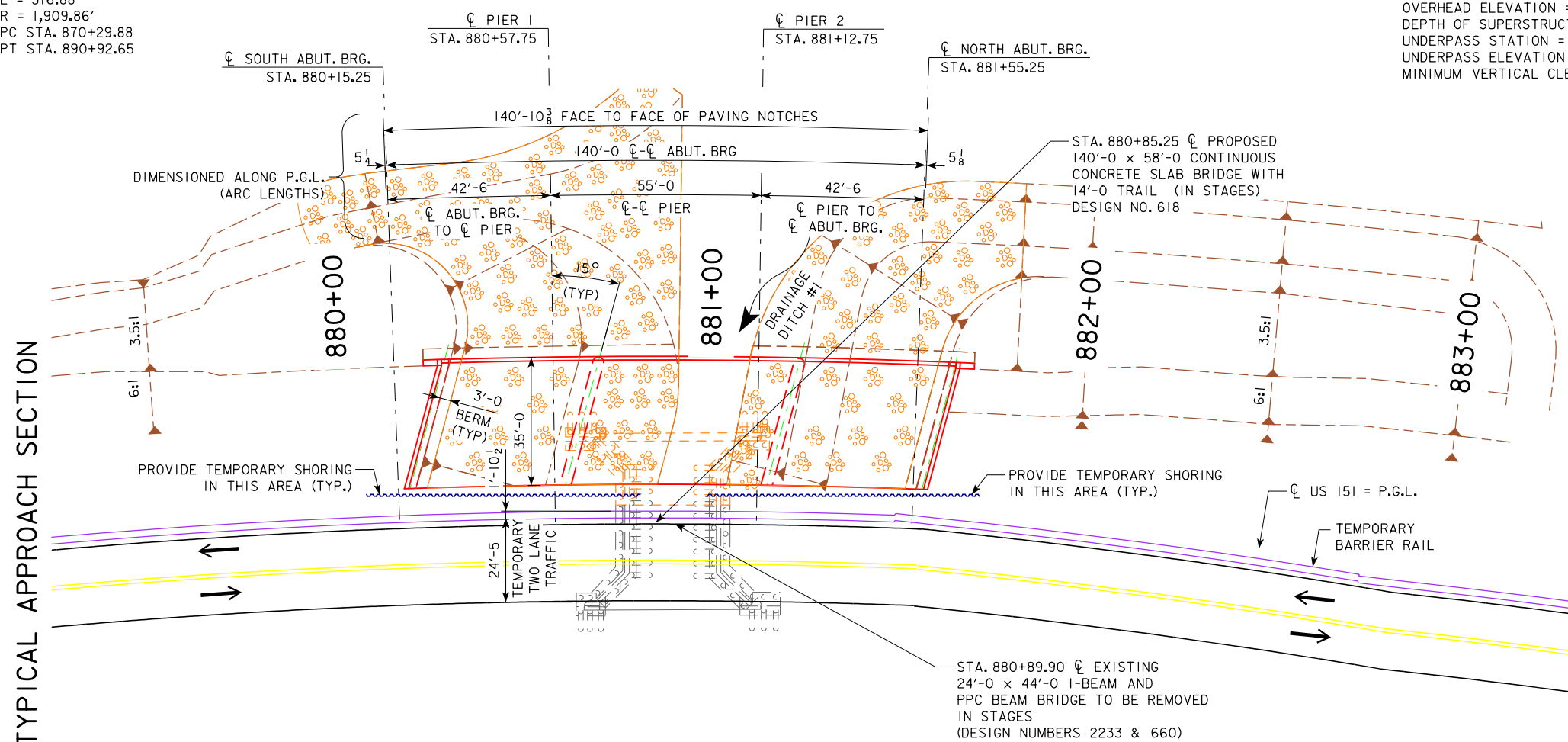
140'-0" x 35'-0" CONTINUOUS CONCRETE SLAB BRIDGE

SPANS (42'-6", 55'-0", 42'-6") C RADIUS = 1,909.86 FT.

SITUATION PLAN - STAGE I

STATION 880+85.25 LINN COUNTY AUGUST 2016

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
 DESIGN SHEET NO. ___ OF ___ FILE NO. 31286 DESIGN NO. 618



TYPICAL APPROACH SECTION

SITUATION PLAN STAGE I

ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE NOTED

HYDRAULIC DESIGN

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

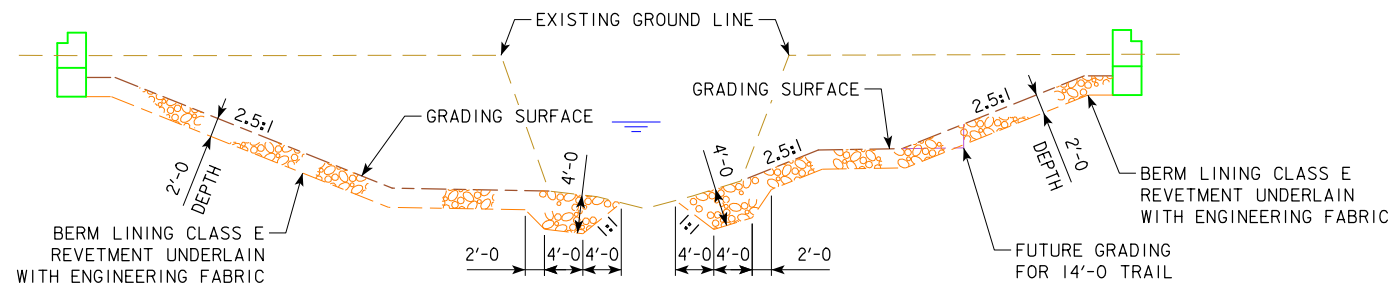
Signature: Adam R. Bullerman Date: ---2016

Printed or Typed Name: Adam R. Bullerman

My license renewal date is December 31, 2016

Pages or sheets covered by this seal: SHEET V.11,V.13,V.15 - HYDRAULIC DATA





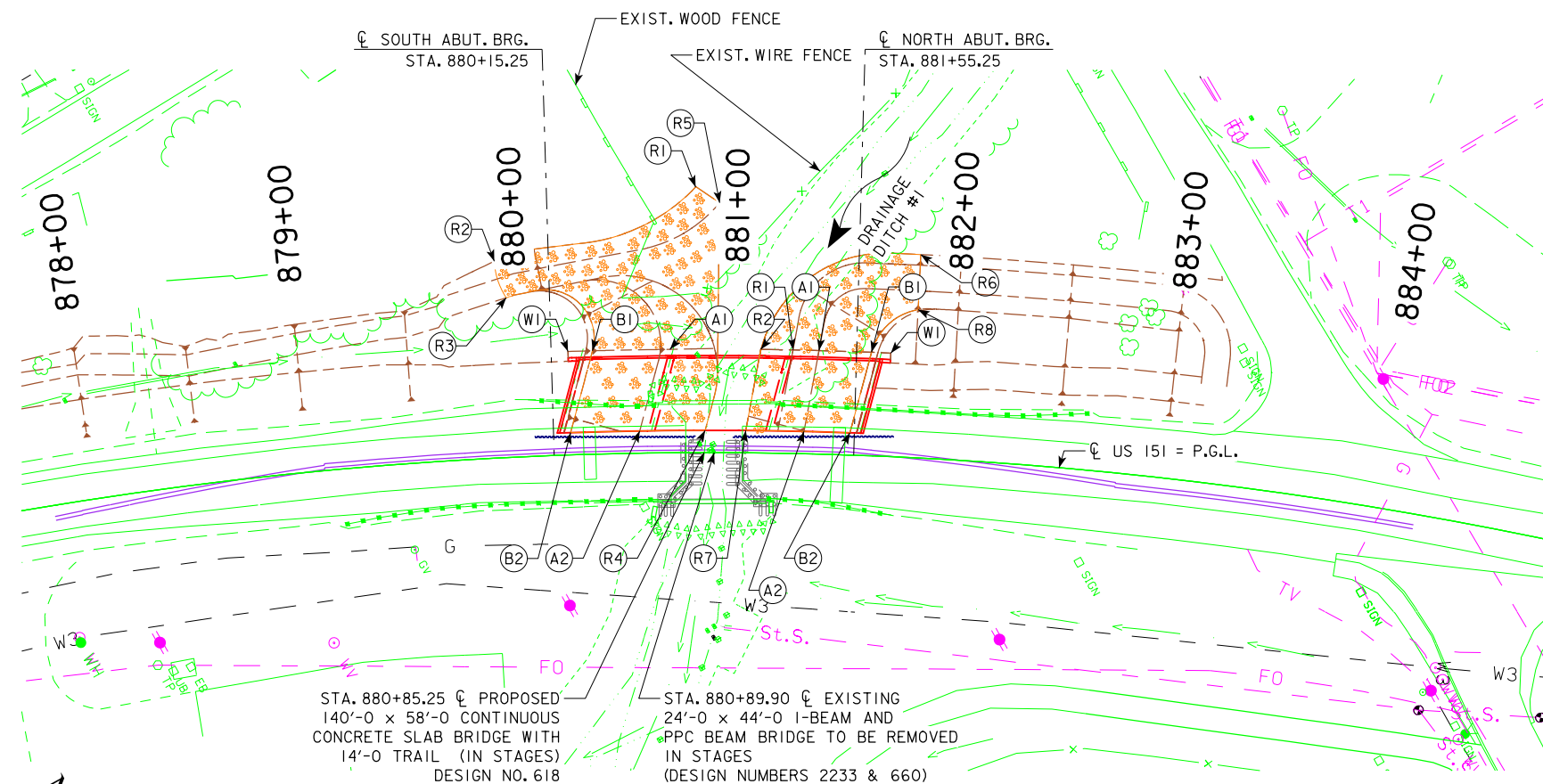
SECTION THRU EMBEDDED REVETMENT BERM

BERM SLOPE LOCATION TABLE						
	SOUTH ABUTMENT			NORTH ABUTMENT		
	STATION	OFFSET	ELEV	STATION	OFFSET	ELEV
A1	880+69.64	48.42 LT	746.75	881+37.62	48.42 LT	750.00
A2	880+54.80	10.42 LT	746.75	881+31.64	10.42 LT	750.00
B1	880+34.34	48.42 LT	760.22	881+61.56	48.42 LT	760.38
B2	880+23.11	10.42 LT	758.53	881+53.03	10.42 LT	758.82
R1	-----	-----	-----	881+25.77	48.42 LT	749.82
R3	-----	-----	-----	881+19.55	10.42 LT	749.82
W1	880+22.98	48.42 LT	763.52	881+70.46	48.42 LT	763.72

BERM SLOPE ELEVATIONS REFLECT THE GRADING SURFACE

ESTIMATED BERM ARMORING QUANTITIES				
LOCATION	REVTMENT CL. E (TON)	EROSION STONE (TON)	ENGINEERING FABRIC (SY)	CLASS 10 CHANNEL EXCAVATION (CY)
BERM LINING - SOUTH ABUTMENT	900	-	840	560
BERM LINING - NORTH ABUTMENT	540	-	510	340
STONE TOE - SOUTH ABUTMENT	320	-	310	200
STONE TOE - NORTH ABUTMENT	350	-	340	220
TOTALS	2110	-	2000	1320

EXCAVATION QUANTITY CALCULATED FROM GRADING SURFACE.



SITE PLAN STAGE I
 ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE NOTED

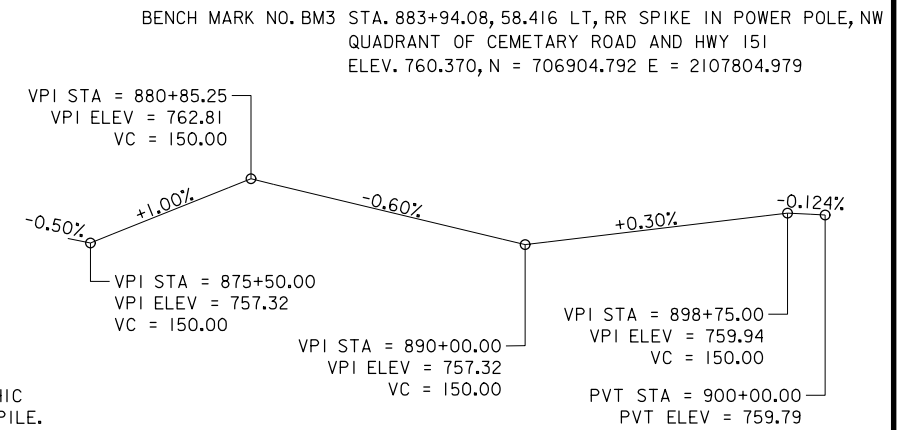
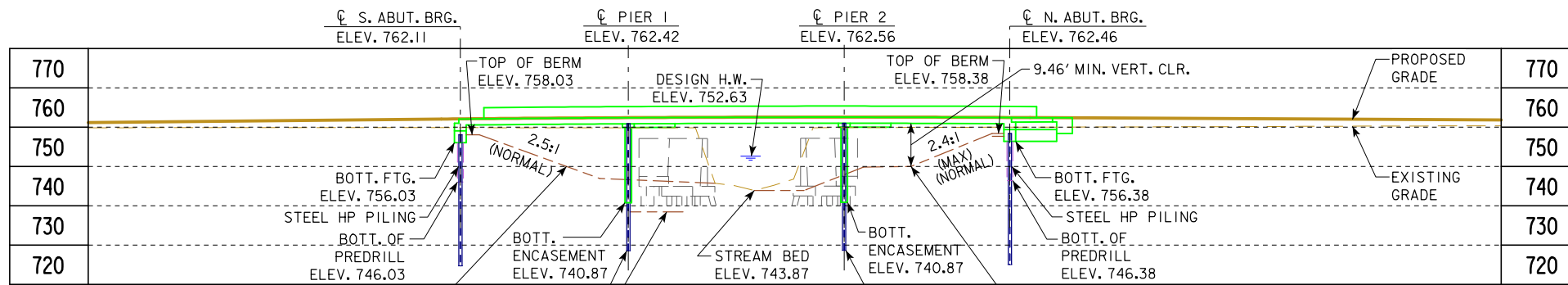
REVTMENT LAYOUT:

- (R1) 880+81.71, 124.45 LT, END STONE TOE
- (R2) 879+91.64, 92.01 LT, END BERM LINING
- (R3) 879+96.19, 74.70 LT, END BERM LINING
- (R4) 880+85.70, 10.42 LT, END STONE TOE
- (R5) 880+92.09, 116.84 LT, END STONE TOE
- (R6) 881+81.83, 95.12 LT, END STONE TOE
- (R7) 881+04.54, 10.42 LT, END STONE TOE
- (R8) 881+81.82, 69.32 LT, END BERM LINING

UTILITIES LEGEND:

- TV - CABLE TELEVISION - UNDERGROUND TV CABLE CO. I
- FO - FIBER OPTIC - SOUTH SLOPE
- T2 - TELEPHONE - CENTURYLINK

PRELIMINARY
 DESIGN FOR 15° SKEW (L.A.)
140'-0" x 35'-0" CONTINUOUS CONCRETE SLAB BRIDGE
 SPANS (42'-6", 55'-0", 42'-6") RADIUS = 1,909.86 FT.
SITE PLAN - STAGE I
 STATION 880+85.25 LINN COUNTY AUGUST 2016
 IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
 DESIGN SHEET NO. ____ OF ____ FILE NO. 31286 DESIGN NO. 618



CURVE DATA

PI STA. 881+74.79
 $\Delta = 61^\circ 52' 59.64''$ (RT)
 $T = 1,144.91'$
 $L = 2,062.78'$
 $E = 316.88'$
 $R = 1,909.86'$
 PC STA. 870+29.88
 PT STA. 890+92.65

LONGITUDINAL SECTION ALONG CL APPROACH ROADWAY

NOTES:
 PIER TYPE - PIOL WITH MONOLITHIC PIER CAP & INDIVIDUALLY ENCASED PILE.
 $H = 19.56$ FT.
 TL-4 BARRIER RAILING PROPOSED.
 BRIDGE AESTHETICS TO BE INCORPORATED DURING FINAL DESIGN.

PROPOSED PROFILE GRADE

MINIMUM VERTICAL CLEARANCE

OVERHEAD STATION = 881+24.90, OFFSET 30.58'
 OVERHEAD ELEVATION = 761.33
 DEPTH OF SUPERSTRUCTURE = 1.875'
 UNDERPASS STATION = N/A, OFFSET N/A
 UNDERPASS ELEVATION = 750.00
 MINIMUM VERTICAL CLEARANCE = 9.46'

HYDRAULIC DATA

DRAINAGE AREA = 3.0 SQ. MI.
 STREAM SLOPE = 32.65 FT./MI.
 AVG. LOW WATER STAGE = 752.63

$Q_{50} = 2120$ CFS
 STAGE = 752.63
 BACKWATER = 0.19 FT.
 AVE. BRIDGE VELOCITY = 4.5 FPS

$Q_{100} = 2530$ CFS
 STAGE = 753.07
 BACKWATER = 0.22 FT.

$Q_{200} = 3310$ CFS
 STAGE = 753.84
 CALCULATED DESIGN SCOUR = 738.45

$Q_{500} = 3680$ CFS
 STAGE = 754.22
 CALCULATED CHECK SCOUR = 738.33

ROADWAY OVERTOP 757.60
 STA. 875+25
 ALL ELEVATIONS NAVD88

UTILITIES LEGEND:

TV - CABLE TELEVISION - UNDERGROUND TV CABLE CO. I
 FO - FIBER OPTIC - SOUTH SLOPE
 T2 - TELEPHONE - CENTURYLINK

LOCATION

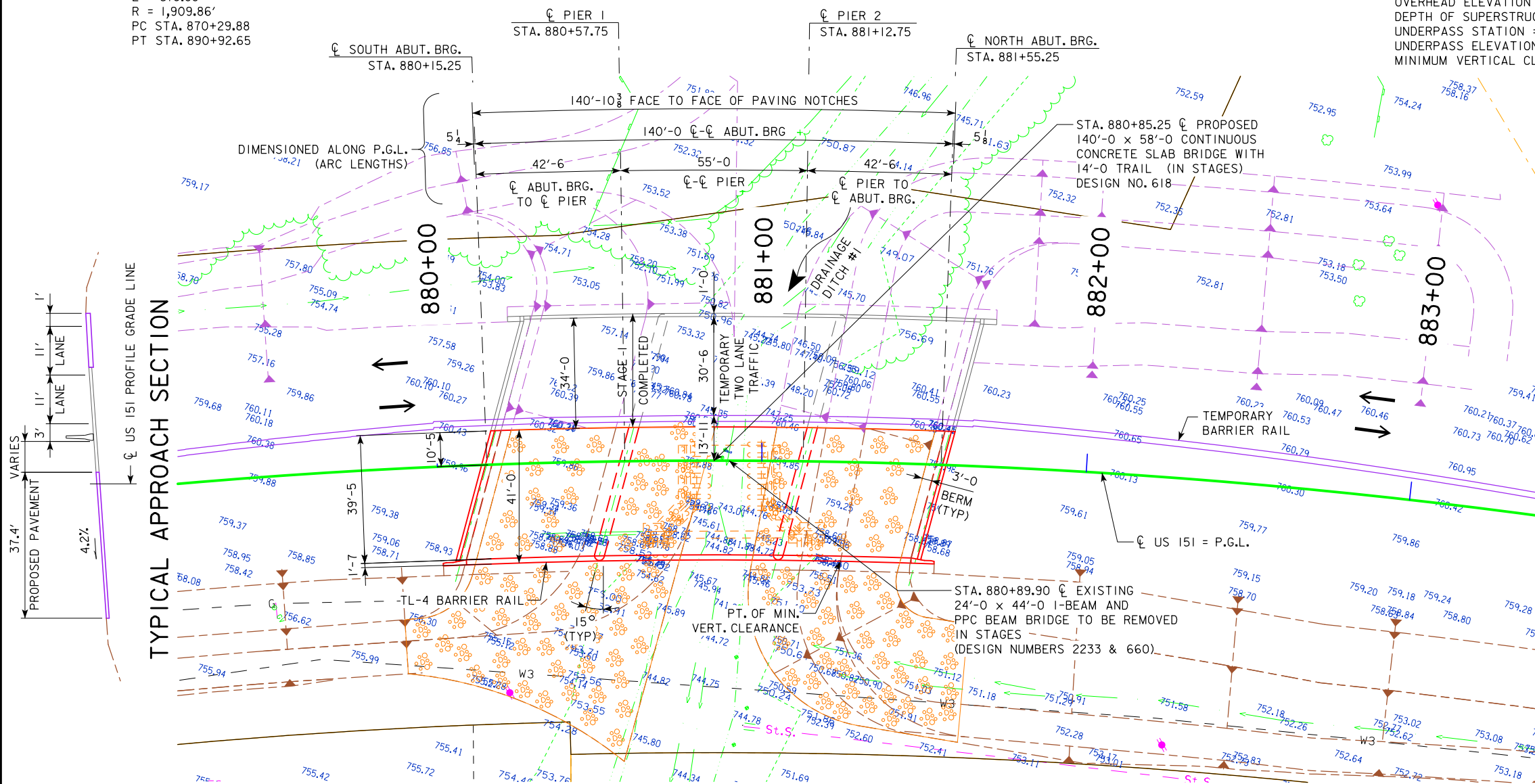
US HIGHWAY 151
 OVER DRAINAGE DITCH #1
 SECTION 9
 FAIRFAX TOWNSHIP
 LINN COUNTY
 FHWA NO. 33790
 BRIDGE MAINT. NO. 5722.3S151
 LATITUDE 41.926747°
 LONGITUDE -91.782900°

TRAFFIC ESTIMATE

2013 AADT	8100	V.P.D.
2040 AADT	12,010	V.P.D.
2040 DHV		V.P.H.
TRUCKS	6	%
TOTAL DESIGN ESALS		

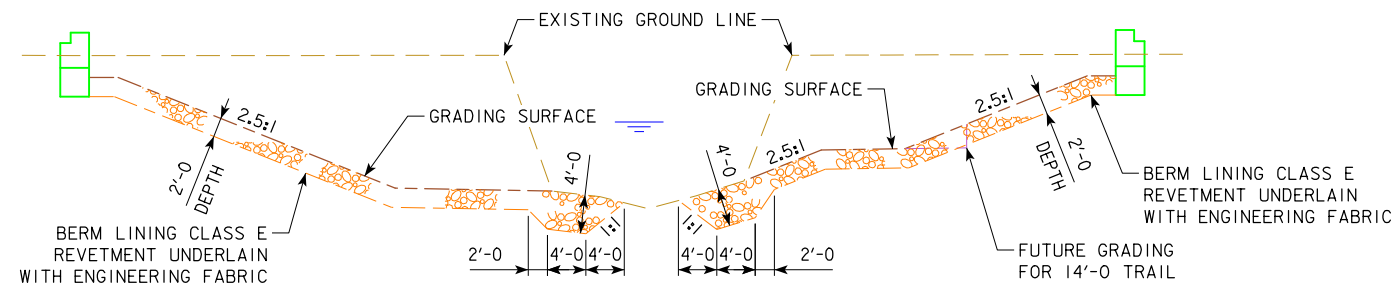
PRELIMINARY

DESIGN FOR 15° SKEW (L.A.)
140'-0" x 35'-0" CONTINUOUS CONCRETE SLAB BRIDGE
 WIDENED TO 140'-0" x 76'-0"
 SPANS (42'-6", 55'-0", 42'-6") CL RADIUS = 1,909.86 FT.
SITUATION PLAN - STAGE 2
 STATION 880+85.25 LINN COUNTY AUGUST 2016
 IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
 DESIGN SHEET NO. _____ OF _____ FILE NO. 31286 DESIGN NO. 618



SITUATION PLAN STAGE 2

ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE NOTED



SECTION THRU EMBEDDED REVETMENT BERM

BERM SLOPE LOCATION TABLE

	SOUTH ABUTMENT			NORTH ABUTMENT		
	STATION	OFFSET	ELEV	STATION	OFFSET	ELEV
A2	880+54.80	10.42 LT	746.75	881+31.64	10.42 LT	750.00
A3	880+36.80	33.58 RT	746.75	881+24.40	33.58 RT	750.00
B2	880+23.11	10.42 LT	758.53	881+53.03	10.42 LT	758.82
B3	880+09.52	33.58 RT	756.56	881+42.71	33.58 RT	757.01
R3	-----	-----	-----	881+19.55	10.42 LT	749.82
R5	-----	-----	-----	881+12.02	33.58 RT	749.82
W2	880+00.52	33.58 RT	760.59	881+54.13	33.58 RT	761.10

BERM SLOPE ELEVATIONS REFLECT THE GRADING SURFACE

ESTIMATED BERM ARMORING QUANTITIES

LOCATION	REVTMENT CL. E (TON)	EROSION STONE (TON)	ENGINEERING FABRIC (SY)	CLASS 10 CHANNEL EXCAVATION (CY)
BERM LINING - SOUTH ABUTMENT	740	-	690	460
BERM LINING - NORTH ABUTMENT	590	-	560	370
STONE TOE - SOUTH ABUTMENT	270	-	270	170
STONE TOE - NORTH ABUTMENT	370	-	360	230
TOTALS	1970	-	1880	1230

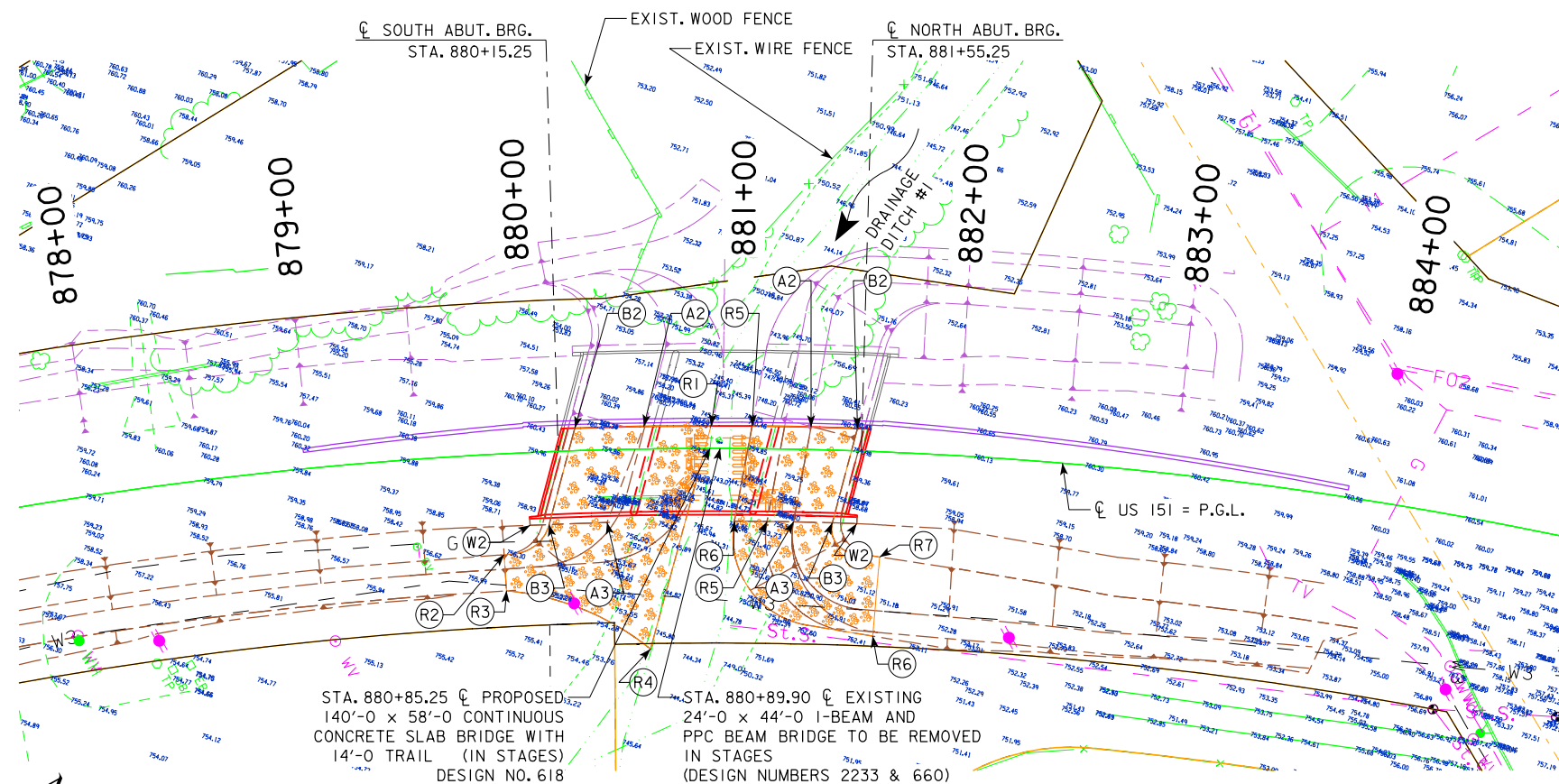
EXCAVATION QUANTITY CALCULATED FROM GRADING SURFACE.

REVTMENT LAYOUT:

- Ⓡ1 880+85.70, 10.42 LT, END STONE TOE
- Ⓡ2 879+87.60, 46.55 RT, END BERM LINING
- Ⓡ3 879+87.60, 46.55 RT, END BERM LINING
- Ⓡ4 880+56.25, 65.00 RT, END STONE TOE
- Ⓡ5 881+04.54, 10.42 LT, END STONE TOE
- Ⓡ6 881+63.78, 85.20 RT, END STONE TOE
- Ⓡ7 881+65.57, 100.57 RT, END BERM LINING

UTILITIES LEGEND:

- TV - CABLE TELEVISION - UNDERGROUND TV CABLE CO. I
- F0 - FIBER OPTIC - SOUTH SLOPE
- T2 - TELEPHONE - CENTURYLINK

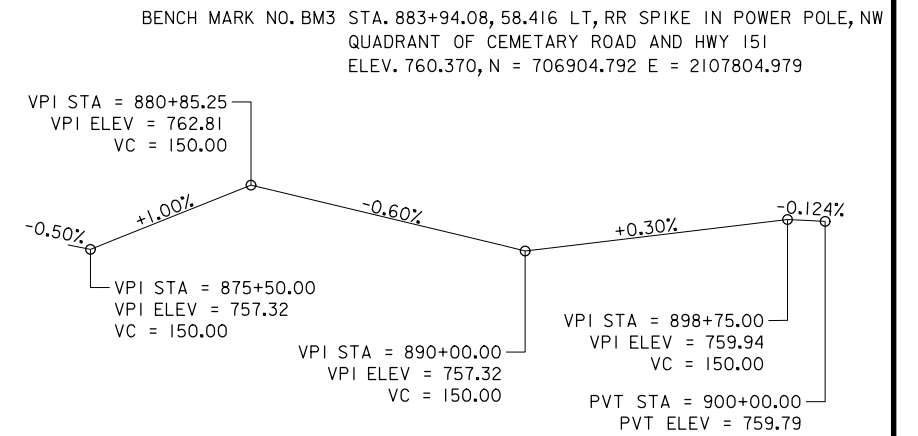
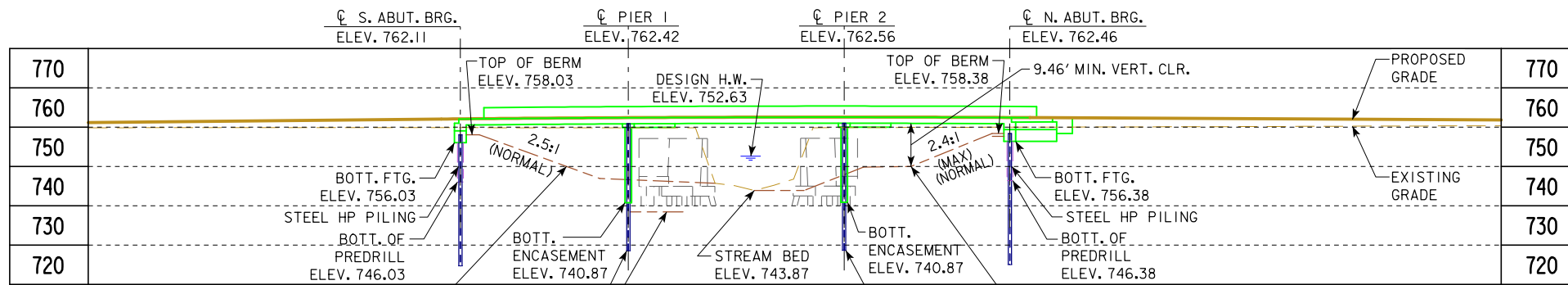


SITE PLAN STAGE 2

ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE NOTED

PRELIMINARY

DESIGN FOR 15° SKEW (L.A.)
140'-0" x 35'-0" CONTINUOUS CONCRETE SLAB BRIDGE
WIDENED TO 140'-0" x 76'-0"
 SPANS (42'-6", 55'-0", 42'-6") Ⓡ RADIUS = 1,909.86 FT.
SITE PLAN - STAGE 2
 STATION 880+85.25 LINN COUNTY AUGUST 2016
 IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
 DESIGN SHEET NO. ____ OF ____ FILE NO. 31286 DESIGN NO. 618



CURVE DATA

PI STA. 881+74.79
 $\Delta = 61^\circ 52' 59.64''$ (RT)
 $T = 1,144.91'$
 $L = 2,062.78'$
 $E = 316.88'$
 $R = 1,909.86'$
 PC STA. 870+29.88
 PT STA. 890+92.65

LONGITUDINAL SECTION ALONG CL APPROACH ROADWAY

NOTES:
 PIER TYPE - PIOL WITH MONOLITHIC PIER CAP & INDIVIDUALLY ENCASED PILE.
 $H = 19.56$ FT.
 TL-4 BARRIER RAILING PROPOSED.
 BRIDGE AESTHETICS TO BE INCORPORATED DURING FINAL DESIGN.

PROPOSED PROFILE GRADE

MINIMUM VERTICAL CLEARANCE

OVERHEAD STATION = 881+24.90, OFFSET 30.58'
 OVERHEAD ELEVATION = 761.33
 DEPTH OF SUPERSTRUCTURE = 1.875'
 UNDERPASS STATION = N/A, OFFSET N/A
 UNDERPASS ELEVATION = 750.00
 MINIMUM VERTICAL CLEARANCE = 9.46'

HYDRAULIC DATA

DRAINAGE AREA = 3.0 SQ. MI.
 STREAM SLOPE = 32.65 FT./MI.
 AVG. LOW WATER STAGE = 752.63

$Q_{50} = 2120$ CFS
 STAGE = 752.63
 BACKWATER = 0.19 FT.
 AVE. BRIDGE VELOCITY = 4.5 FPS

$Q_{100} = 2530$ CFS
 STAGE = 753.07
 BACKWATER = 0.22 FT.

$Q_{200} = 3310$ CFS
 STAGE = 753.84
 CALCULATED DESIGN SCOUR = 738.45

$Q_{500} = 3680$ CFS
 STAGE = 754.22
 CALCULATED CHECK SCOUR = 738.33

ROADWAY OVERTOP 757.60
 STA. 875+25
 ALL ELEVATIONS NAVD88

UTILITIES LEGEND:

TV - CABLE TELEVISION - UNDERGROUND TV CABLE CO. I
 FO - FIBER OPTIC - SOUTH SLOPE
 T2 - TELEPHONE - CENTURYLINK

LOCATION

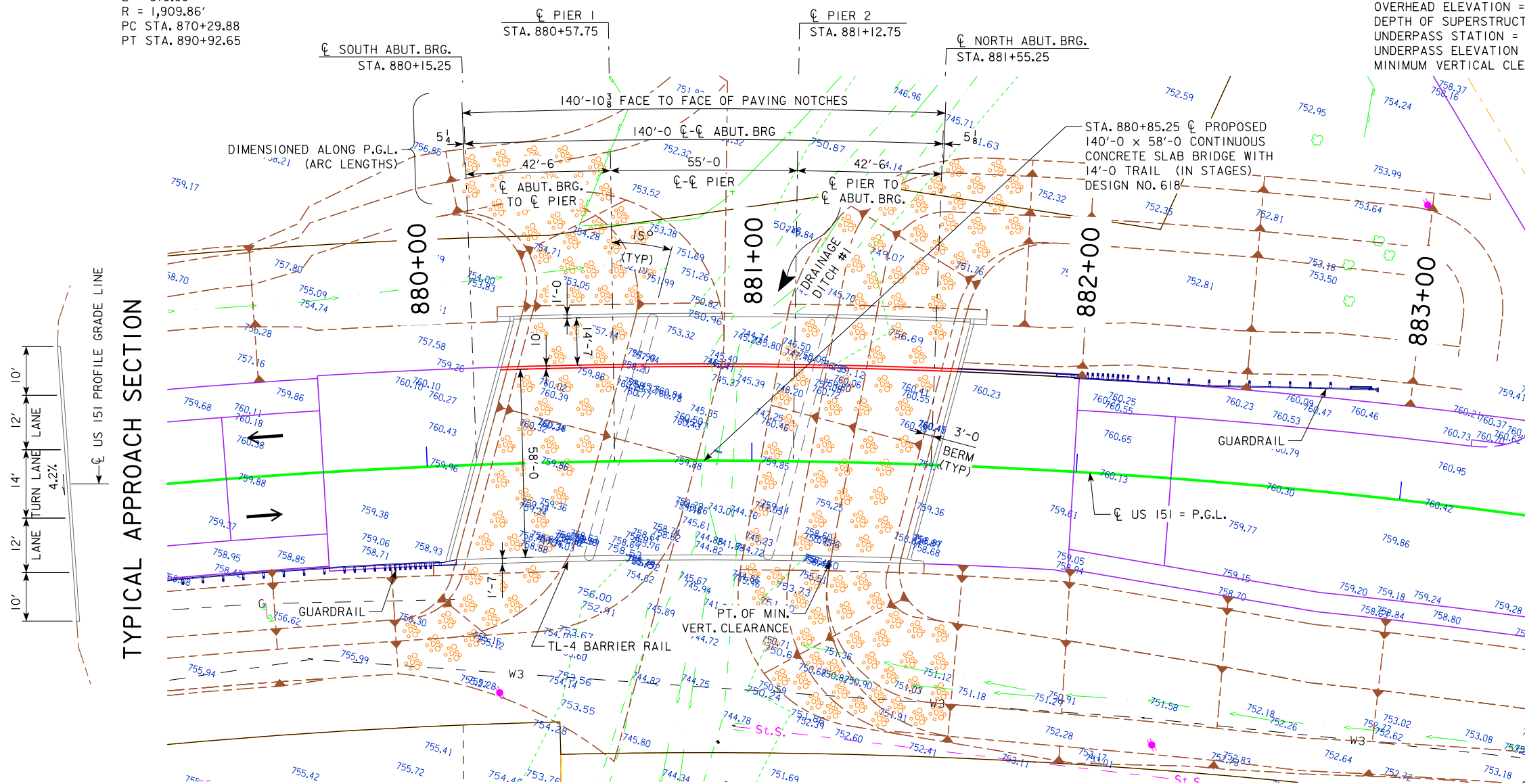
US HIGHWAY 151
 OVER DRAINAGE DITCH #1
 SECTION 9
 FAIRFAX TOWNSHIP
 LINN COUNTY
 FHWA NO. 33790
 BRIDGE MAINT. NO. 5722.3S151
 LATITUDE 41.926747°
 LONGITUDE -91.782900°

TRAFFIC ESTIMATE

2013 AADT	8100	V.P.D.
2040 AADT	12,010	V.P.D.
2040 DHV	-	V.P.H.
TRUCKS	6	%
TOTAL DESIGN ESALS	-	-

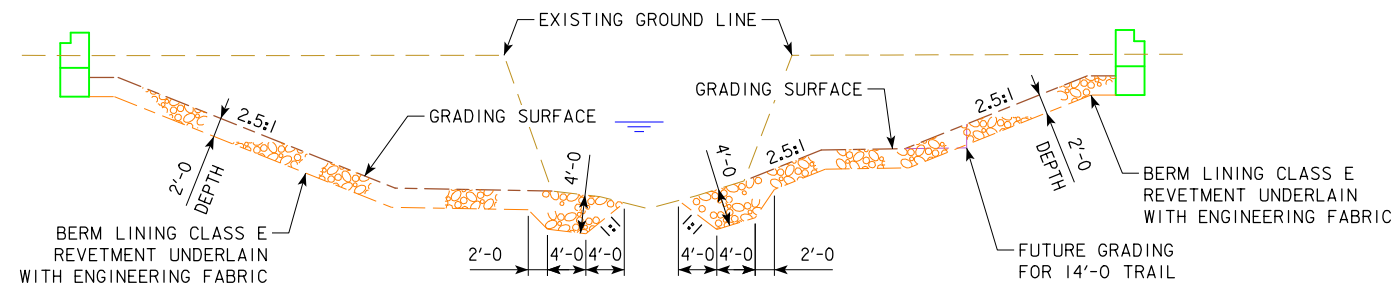
PRELIMINARY

DESIGN FOR 15° SKEW (L.A.)
140'-0" x 58'-0" CONTINUOUS CONCRETE SLAB BRIDGE WITH 14'-0" TRAIL
 SPANS (42'-6", 55'-0", 42'-6") CL RADIUS = 1,909.86 FT.
SITUATION PLAN - FINAL STAGE
 STATION 880+85.25 LINN COUNTY AUGUST 2016
 IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
 DESIGN SHEET NO. _____ OF _____ FILE NO. 31286 DESIGN NO. 618



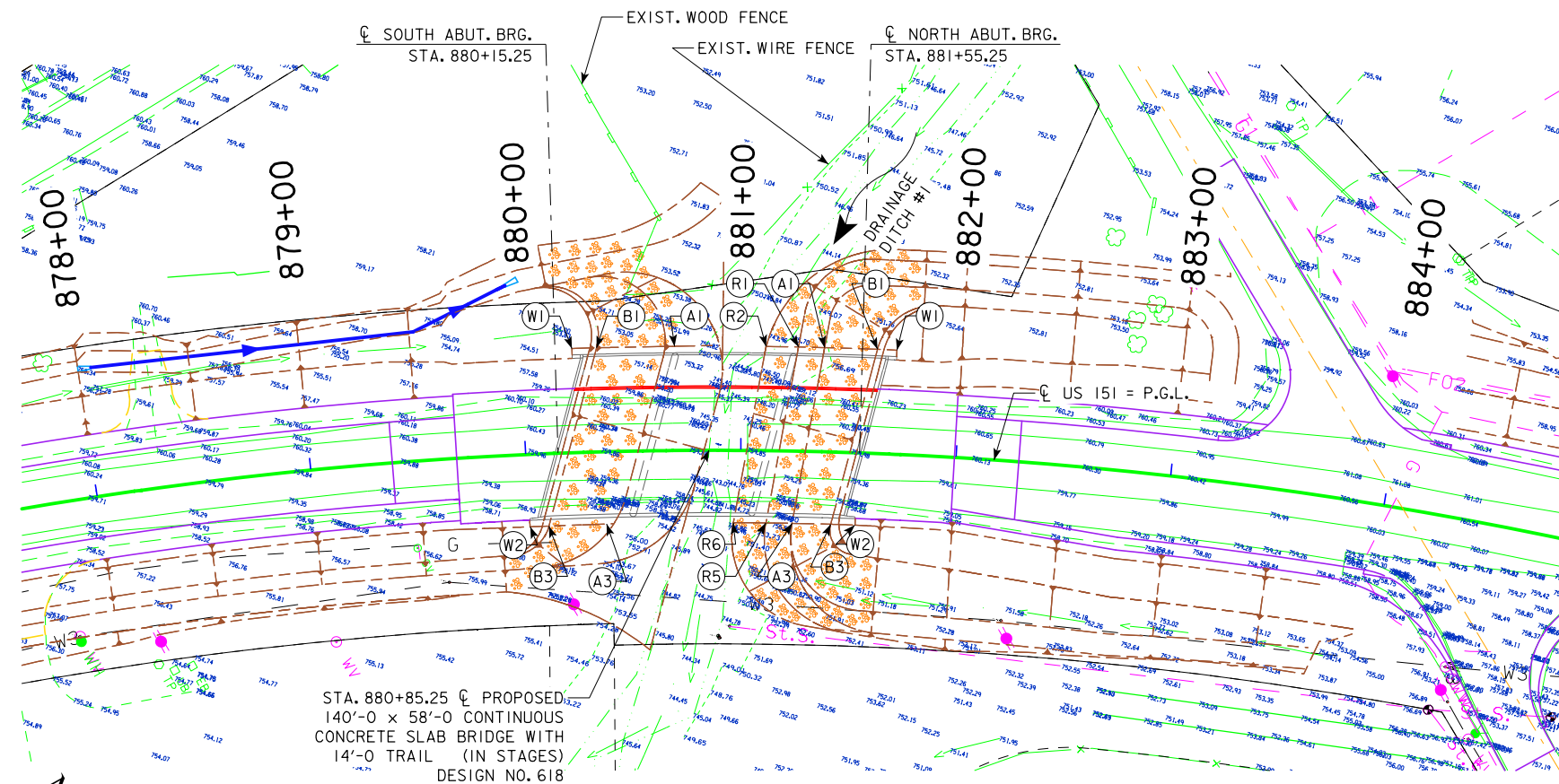
SITUATION PLAN FINAL STAGE

ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE NOTED



SECTION THRU EMBEDDED REVETMENT BERM

- NOTES:
1. SEE SHEETS V.12 AND V.14 FOR BERM SLOPE LOCATION TABLES.
 2. SEE SHEETS V.12 AND V.14 FOR ESTIMATED BERM ARMORING QUANTITIES.

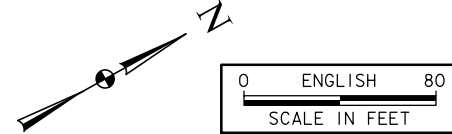


UTILITIES LEGEND:

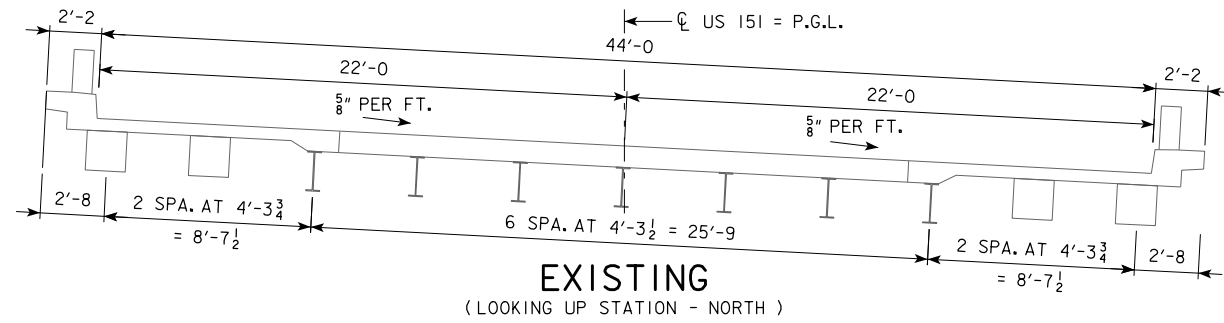
- TV - CABLE TELEVISION - UNDERGROUND TV CABLE CO. I
- FO - FIBER OPTIC - SOUTH SLOPE
- T2 - TELEPHONE - CENTURYLINK

PRELIMINARY

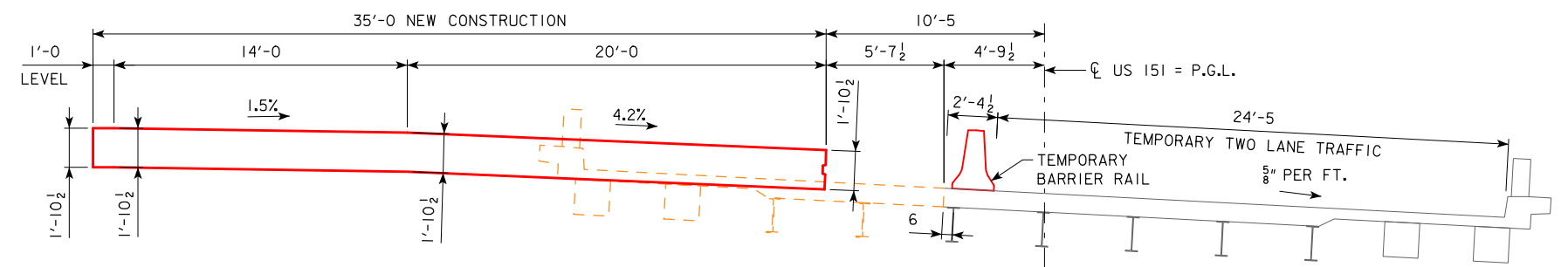
DESIGN FOR 15° SKEW (L.A.)
140'-0" x 58'-0" CONTINUOUS CONCRETE SLAB BRIDGE WITH 14'-0" TRAIL
 SPANS (42'-6", 55'-0", 42'-6") RADIUS = 1,909.86 FT.
SITE PLAN - FINAL STAGE
 STATION 880+85.25 LINN COUNTY AUGUST 2016
 IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
 DESIGN SHEET NO. ____ OF ____ FILE NO. 31286 DESIGN NO. 618



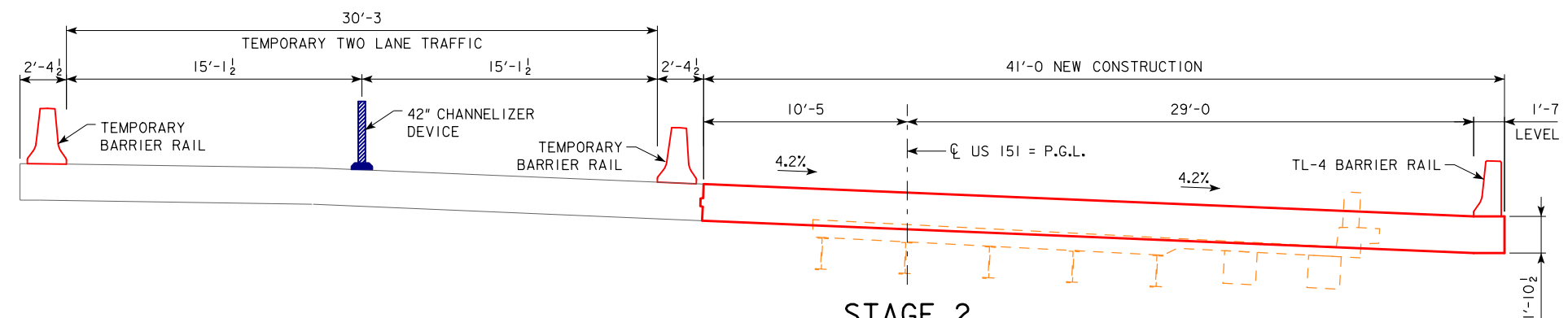
SITE PLAN FINAL STAGE
 ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE NOTED



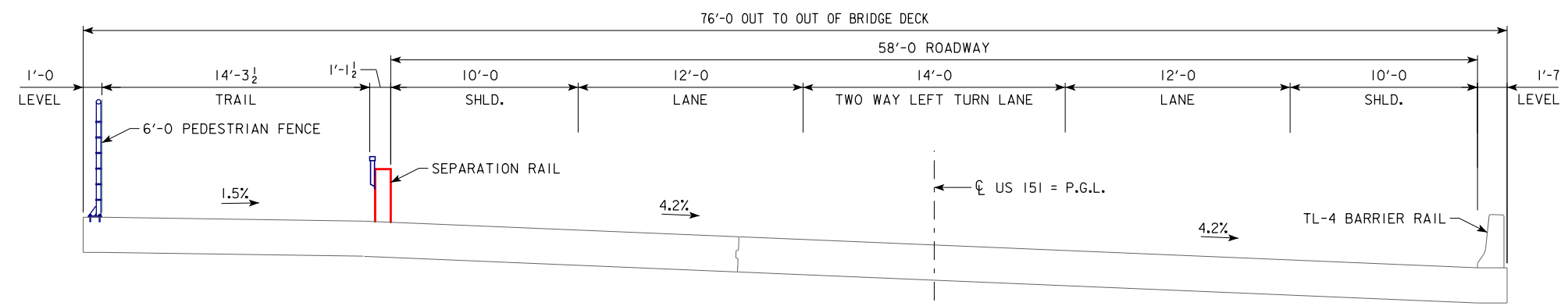
EXISTING
(LOOKING UP STATION - NORTH)



STAGE I
SHIFT TRAFFIC TO TWO LANE TRAFFIC ON THE EAST SIDE OF EXISTING BRIDGE.
REMOVE WEST HALF OF EXISTING BRIDGE AND CONSTRUCT WEST PORTION OF BRIDGE.



STAGE 2

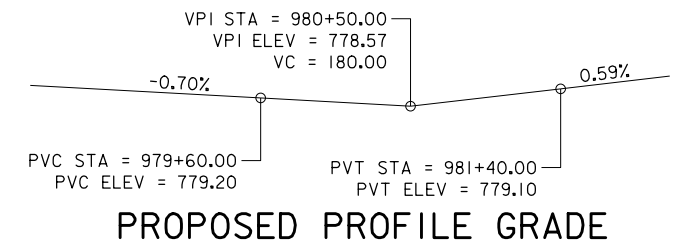
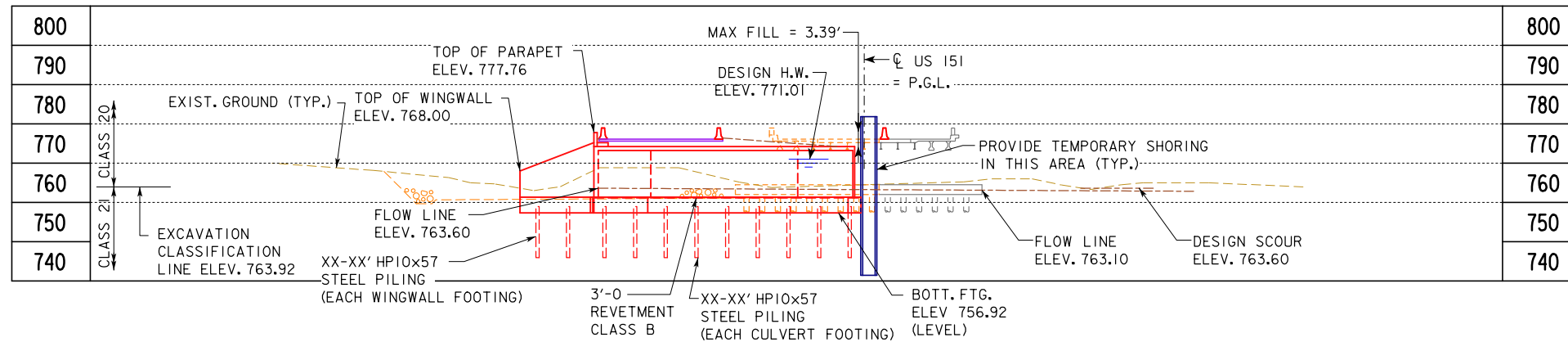


FINAL STAGE
SHIFT TRAFFIC TO EAST PORTION OF BRIDGE.
PLACE PERMANENT SEPARATION RAIL AND PEDESTRIAN FENCE.
REMOVE TEMPORARY BARRIER RAIL.

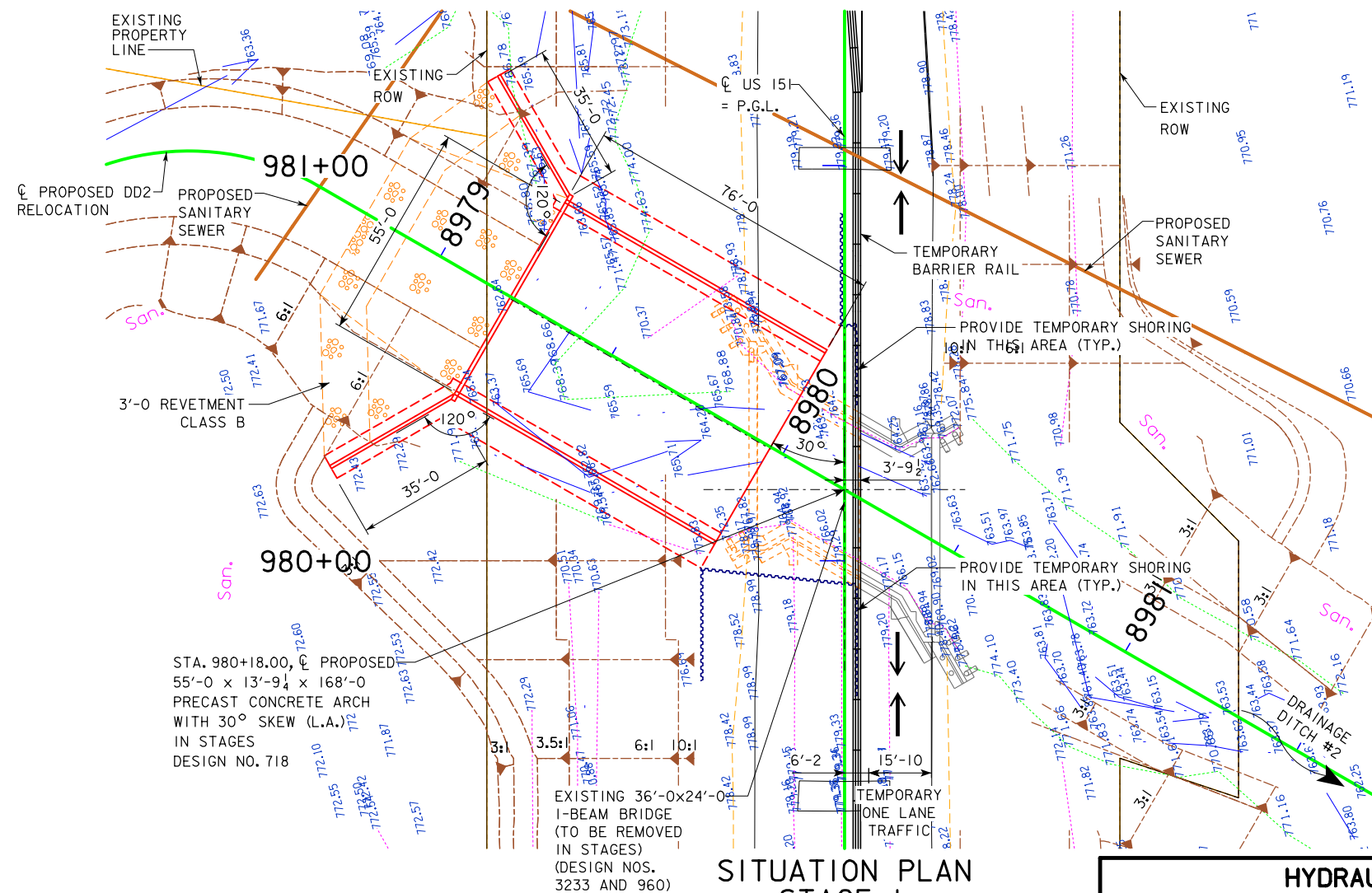
NOTE: BRIDGE IS BUILT ON A HORIZONTAL CURVE.
THE P.G.L. (CL ROADWAY) IS IN A HORIZONTAL CURVE.

NOTE:
CLOSURE POUR NOT REQUIRED PER BDM 5.2.4.1.2.

PRELIMINARY
DESIGN FOR 15° SKEW (L.A.)
**140'-0 x 58'-0 CONTINUOUS
CONCRETE SLAB BRIDGE
WITH 14'-0 TRAIL**
SPANS (42'-6, 55'-0, 42'-6) CL RADIUS = 1,909.86 FT.
STAGING
LINN COUNTY
STATION 880+85.25 AUGUST 2016
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
DESIGN SHEET NO. ___ OF ___ FILE NO. 31286 DESIGN NO. 618



LONGITUDINAL SECTION ALONG CL CULVERT



HYDRAULIC DATA

DRAINAGE AREA = 1.98 SQ. MI.
 STREAM SLOPE = 21.4 FT./MI.
 AVG. LOW WATER STAGE = 764.20

Q₅₀ = 1,171 CFS
 STAGE = 771.01
 BACKWATER = 0.12 FT.
 AVG. BRIDGE VELOCITY = 3.4 FPS

Q₁₀₀ = 1,449 CFS
 STAGE = 771.37
 BACKWATER = 0.15 FT.

Q₂₀₀ = 1,449 CFS
 STAGE = 771.68
 CALCULATED DESIGN SCOUR = 763.6

Q₅₀₀ = 2,190 CFS
 STAGE = 772.16
 CALCULATED CHECK SCOUR = 763.6

ROADWAY OVERTOP 778.86
 STA. 980+57.67

UTILITIES LEGEND:
 San. - SANITARY SEWER - LINN COUNTY

LOCATION	TRAFFIC ESTIMATE
US HIGHWAY 151	2013 AADT <u>10,800</u> V.P.D.
OVER DRAINAGE DITCH #2	2040 AADT <u>19,800</u> V.P.D.
T-82N R-8W	2040 DHV _____ V.P.H.
SECTION 2	TRUCKS <u>6</u> %
FAIRFAX TOWNSHIP	TOTAL _____
LINN COUNTY	DESIGN ESALS _____
FHWA NO. 33801	
BRIDGE MAINT. NO. 5724.3S151	
LATITUDE 41.940647°	
LONGITUDE -91.751689°	

HYDRAULIC DESIGN

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

Signature: Adam R. Bullerman Date: --- --2016

Printed or Typed Name: Adam R. Bullerman

My license renewal date is December 31, 2016

Pages or sheets covered by this seal: SHEET V.18,V.20,V.22 - HYDRAULIC DATA

PRELIMINARY

DESIGN FOR 30° SKEW (L.A.)

55'-0 x 13'-9 1/4 x 76'-0

PRECAST CONCRETE ARCH

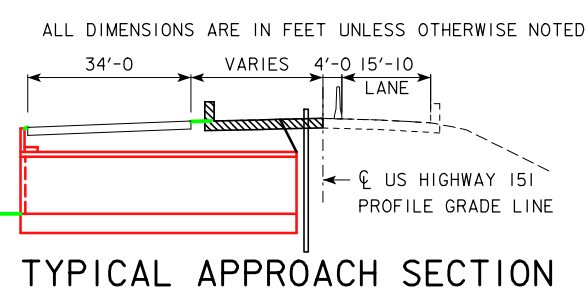
SITUATION PLAN - STAGE I

STATION 980+18.00

LINN COUNTY AUGUST 2016

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

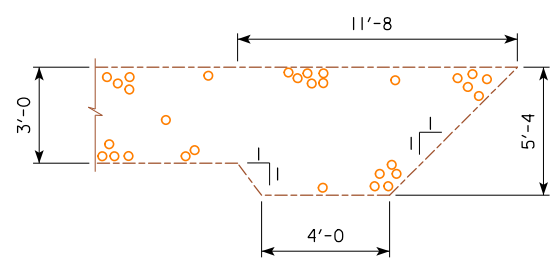
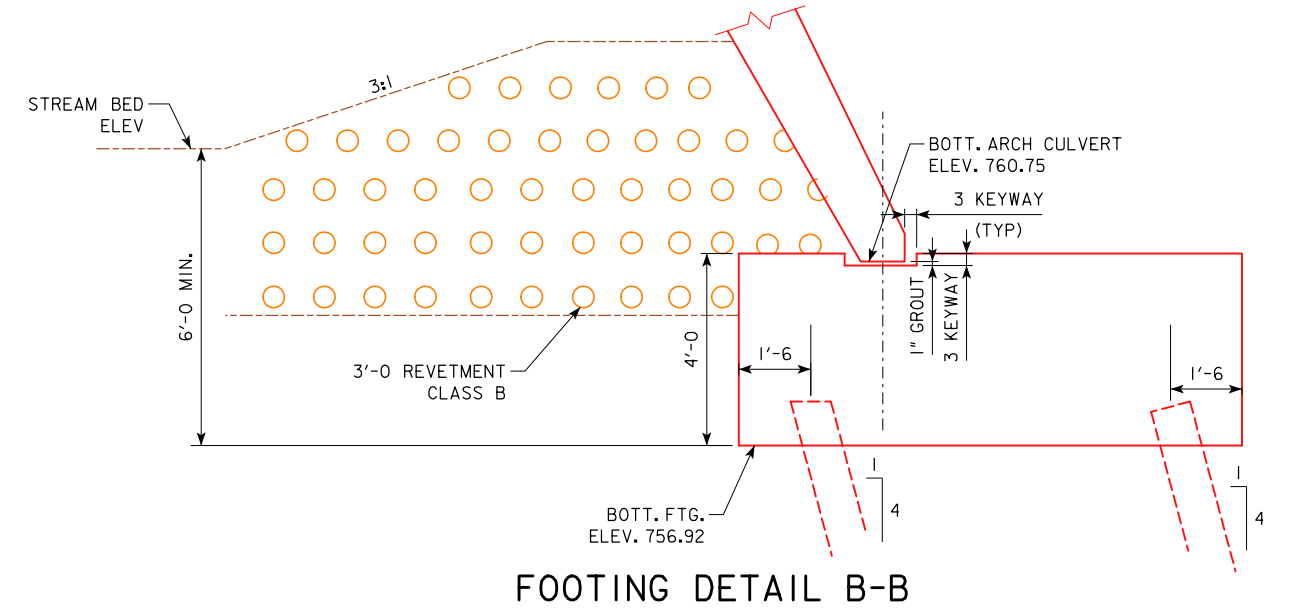
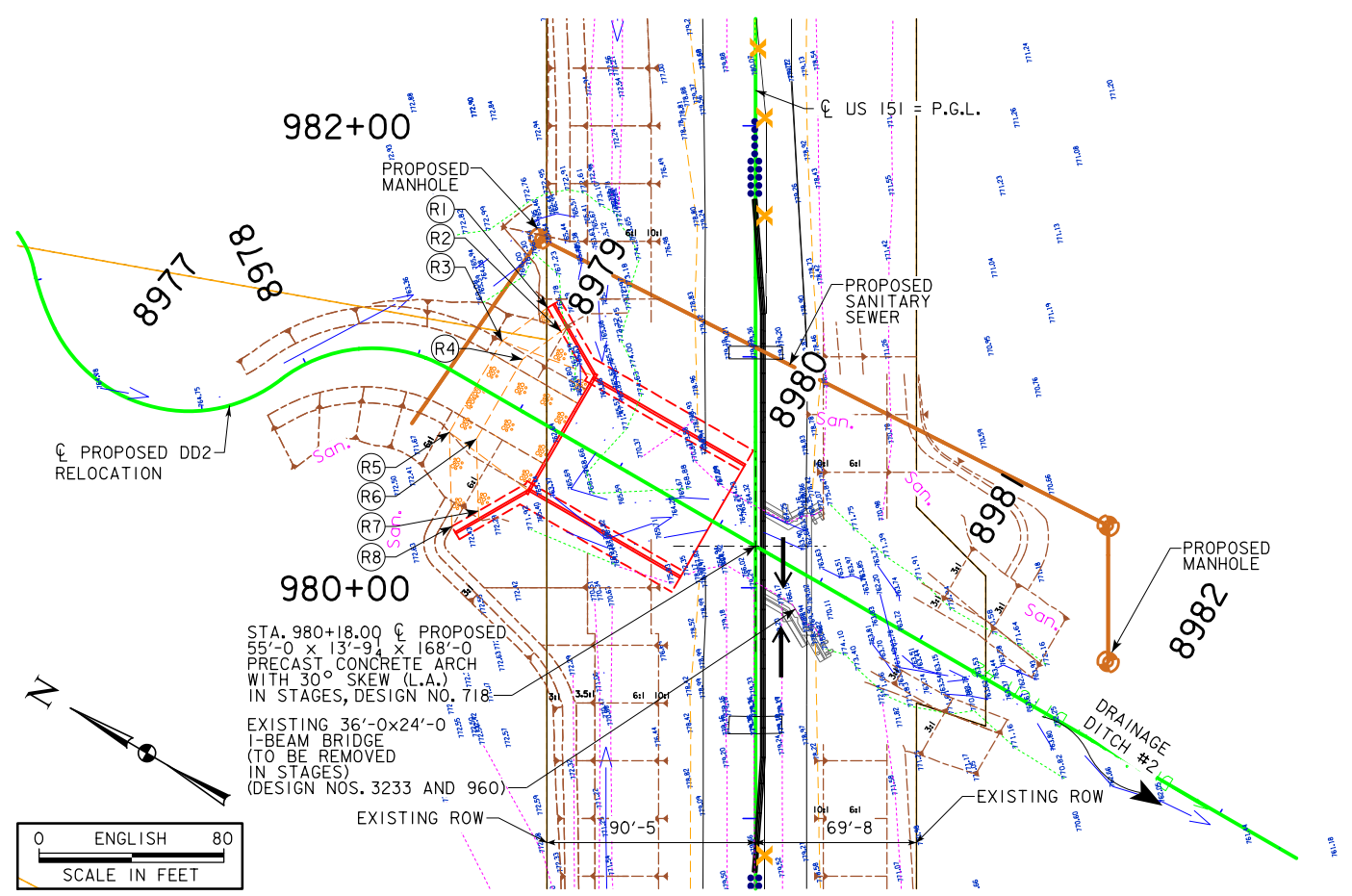
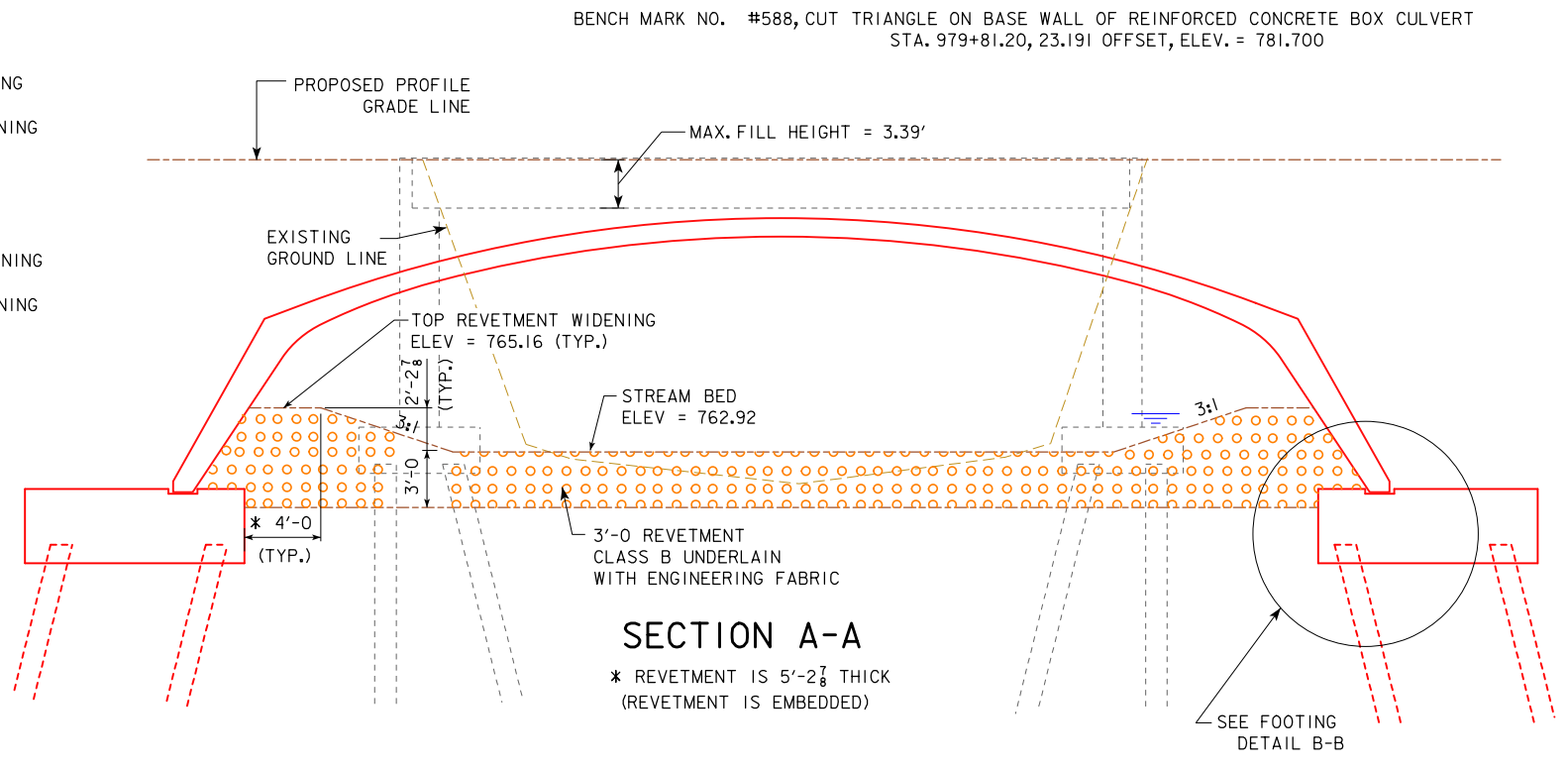
DESIGN SHEET NO. _____ OF _____ FILE NO. 31286 DESIGN NO. 718



ESTIMATED CHANNEL ARMORING QUANTITIES				
LOCATION	REVETMENT CL. B (TON)	EROSION STONE (TON)	ENGINEERING FABRIC (SY)	EXCAVATION CLASS 10 CHANNEL (CY)
CHANNEL LINING - SOUTH APRON	--	--	--	--
CHANNEL LINING - NORTH APRON	378	--	236	236
CHANNEL LINING - ARCH	892	--	464	464
STONE TOE - SOUTH APRON	--	--	--	--
STONE TOE - NORTH APRON	286	--	176	179
TOTALS	1556	--	876	879

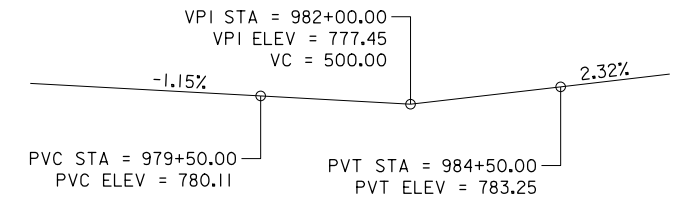
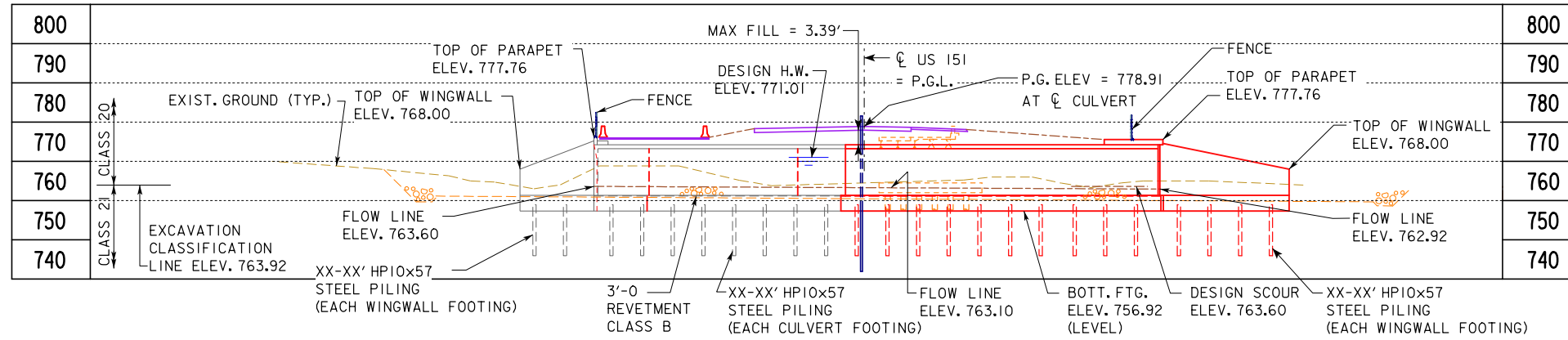
EXCAVATION QUANTITY CALCULATED FROM GRADING SURFACE.

- REVETMENT LAYOUT:
- (R1) 981+21.18, 90.20' LT., END STONE TOE
 - (R2) 981+11.02, 84.33 LT., END CHANNEL LINING
 - (R3) 981+06.83, 109.85 LT., END CHANNEL LINING
 - (R4) 980+98.86, 100.98 LT., END STONE TOE
 - (R5) 980+67.35, 132.64 LT., END STONE TOE
 - (R6) 980+64.36, 120.90 LT., END CHANNEL LINING
 - (R7) 980+33.18, 120.08 LT., END CHANNEL LINING
 - (R8) 980+26.54, 131.58 LT., END STONE TOE



PRELIMINARY
 DESIGN FOR 30° SKEW (L.A.)
55'-0 x 13'-9 1/4 x 76'-0
PRECAST CONCRETE ARCH
 SITE PLAN - STAGE I
 STATION 980+18.00
 LINN COUNTY
 IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
 DESIGN SHEET NO. ___ OF ___ FILE NO. 31286 DESIGN NO. 718

BENCH MARK: #588, CUT TRIANGLE ON BASE WALL OF REINFORCED CONCRETE BOX CULVERT STA. 979+81.20, 23.191' OFFSET, ELEV. = 781.700



PROPOSED PROFILE GRADE

HYDRAULIC DATA

DRAINAGE AREA = 1.98 SQ. MI.
 STREAM SLOPE = 21.4 FT./MI.
 AVG. LOW WATER STAGE = 764.20

Q₅₀ = 1,171 CFS
 STAGE = 771.01
 BACKWATER = 0.12 FT.
 AVG. BRIDGE VELOCITY = 3.4 FPS

Q₁₀₀ = 1,449 CFS
 STAGE = 771.37
 BACKWATER = 0.15 FT.

Q₂₀₀ = 1,449 CFS
 STAGE = 771.68
 CALCULATED DESIGN SCOUR = 763.6

Q₅₀₀ = 2,190 CFS
 STAGE = 772.16
 CALCULATED CHECK SCOUR = 763.6

ROADWAY OVERTOP 778.86
 STA. 980+57.67

UTILITIES LEGEND:

San. - SANITARY SEWER - LINN COUNTY

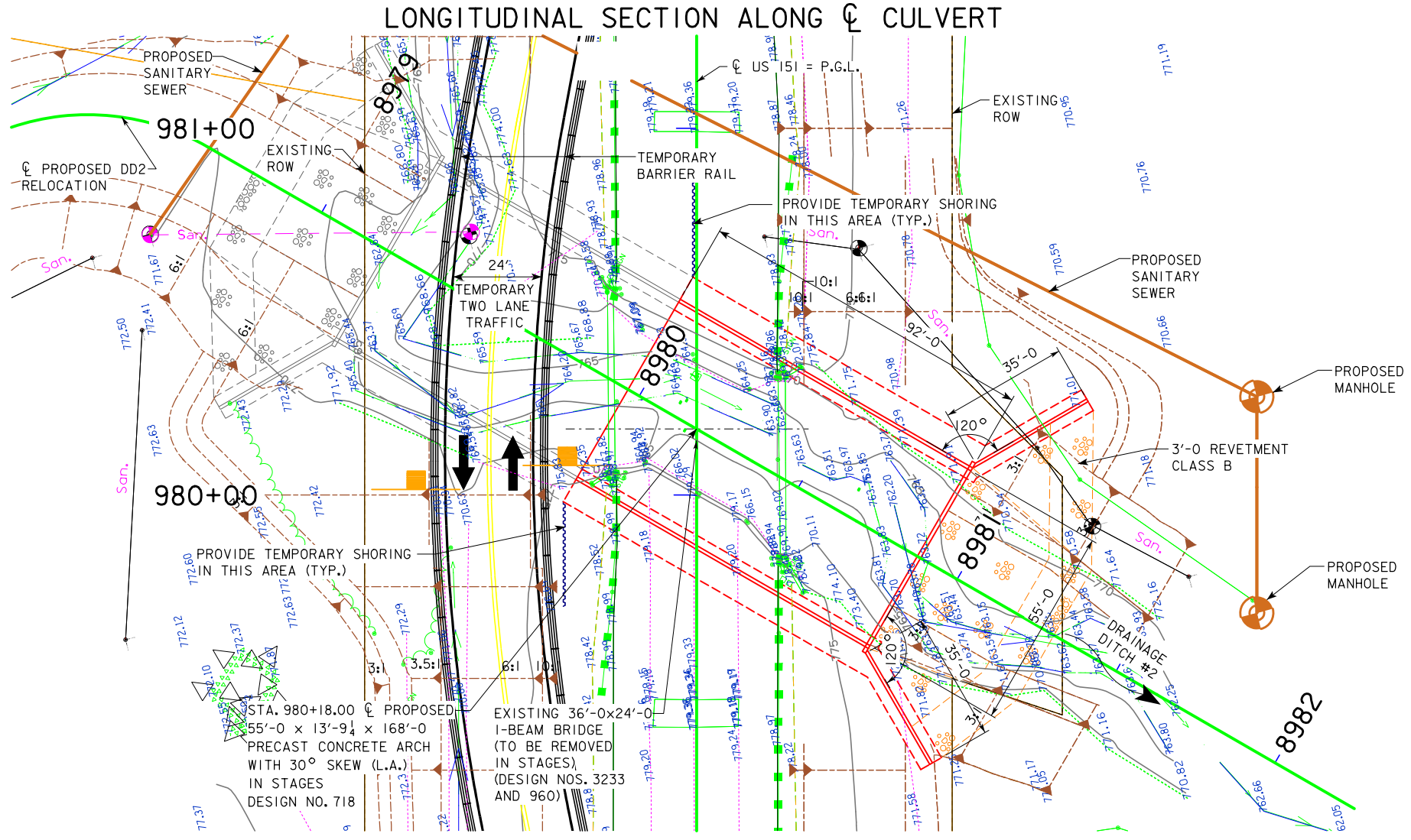
LOCATION

US HIGHWAY 151
 OVER DRAINAGE DITCH #2
 SECTION 2
 FAIRFAX TOWNSHIP
 LINN COUNTY
 FHWA NO. 33801
 BRIDGE MAINT. NO. 5724.3S151
 LATITUDE 41.940647°
 LONGITUDE -91.751689°

TRAFFIC ESTIMATE

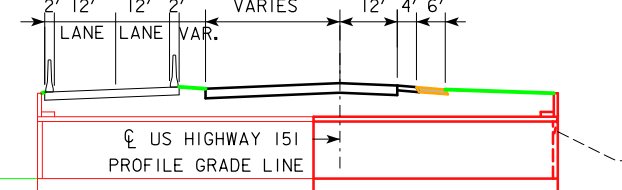
Year	Mode	Estimate	Unit
2013	AADT	10,800	V.P.D.
2040	AADT	19,800	V.P.D.
2040	DHV	-	V.P.H.
	TRUCKS	6	%
	TOTAL DESIGN ESALs	-	

PRELIMINARY



SITUATION PLAN
 STAGE 2

ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE NOTED



TYPICAL APPROACH SECTION



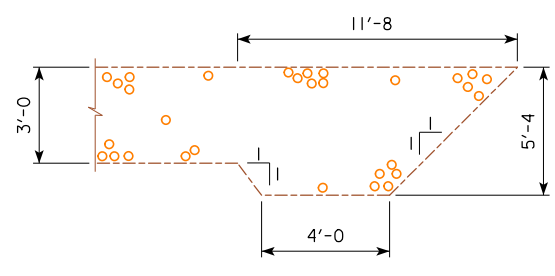
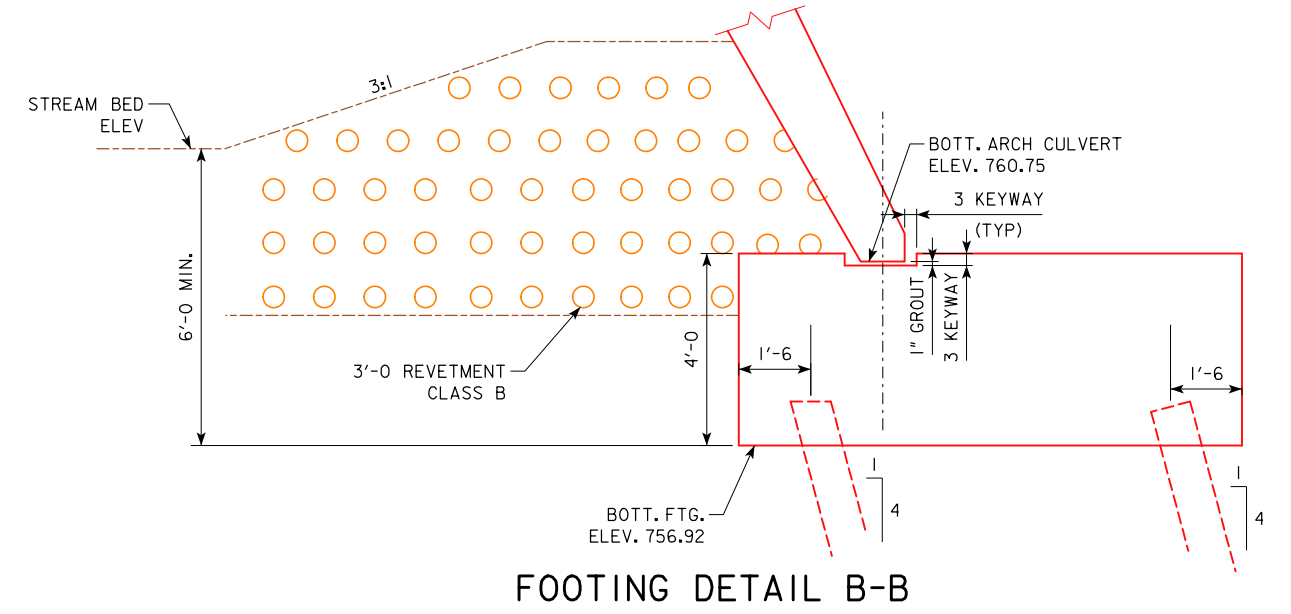
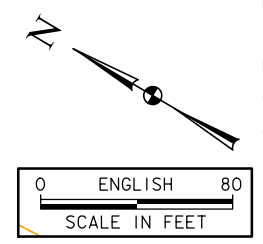
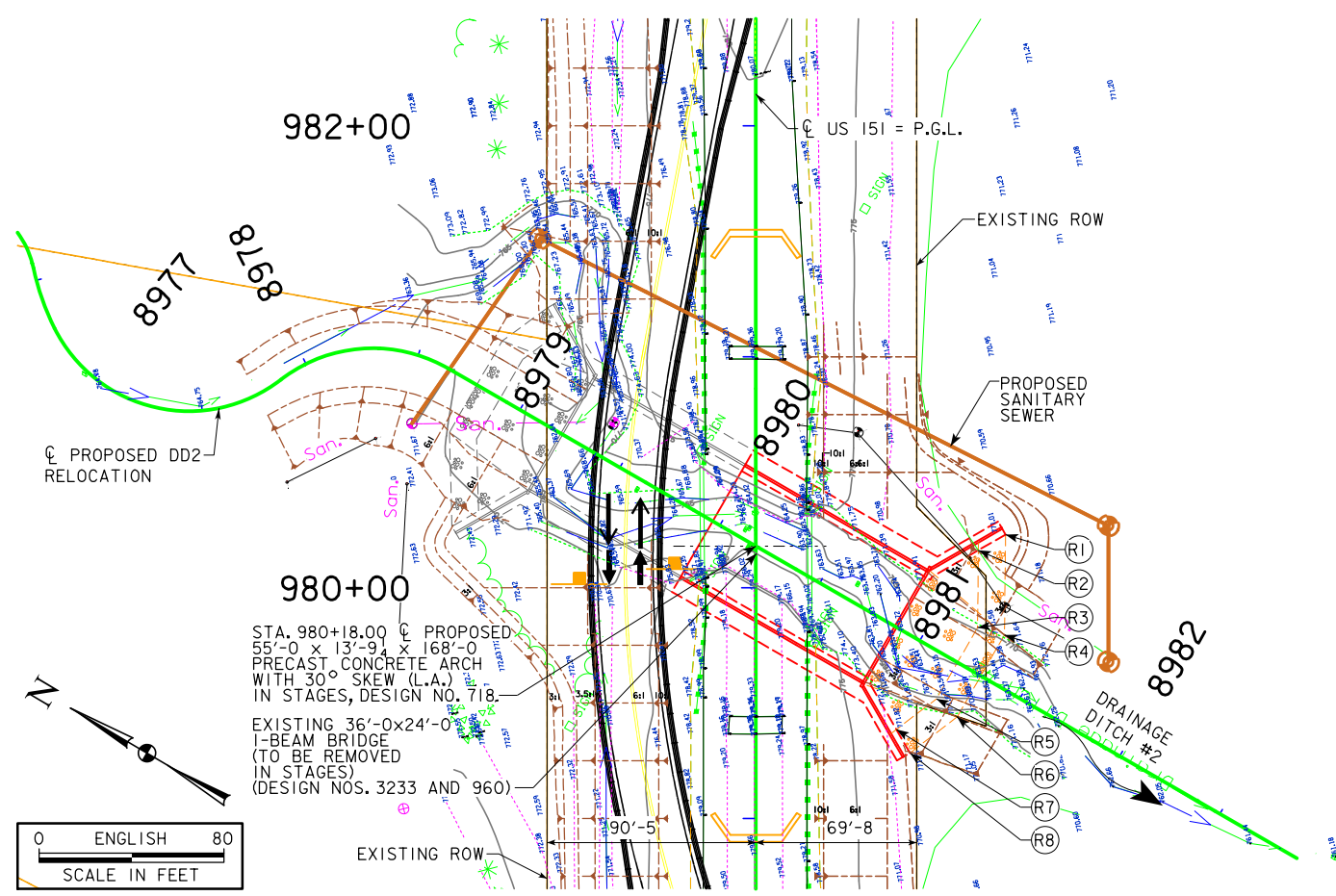
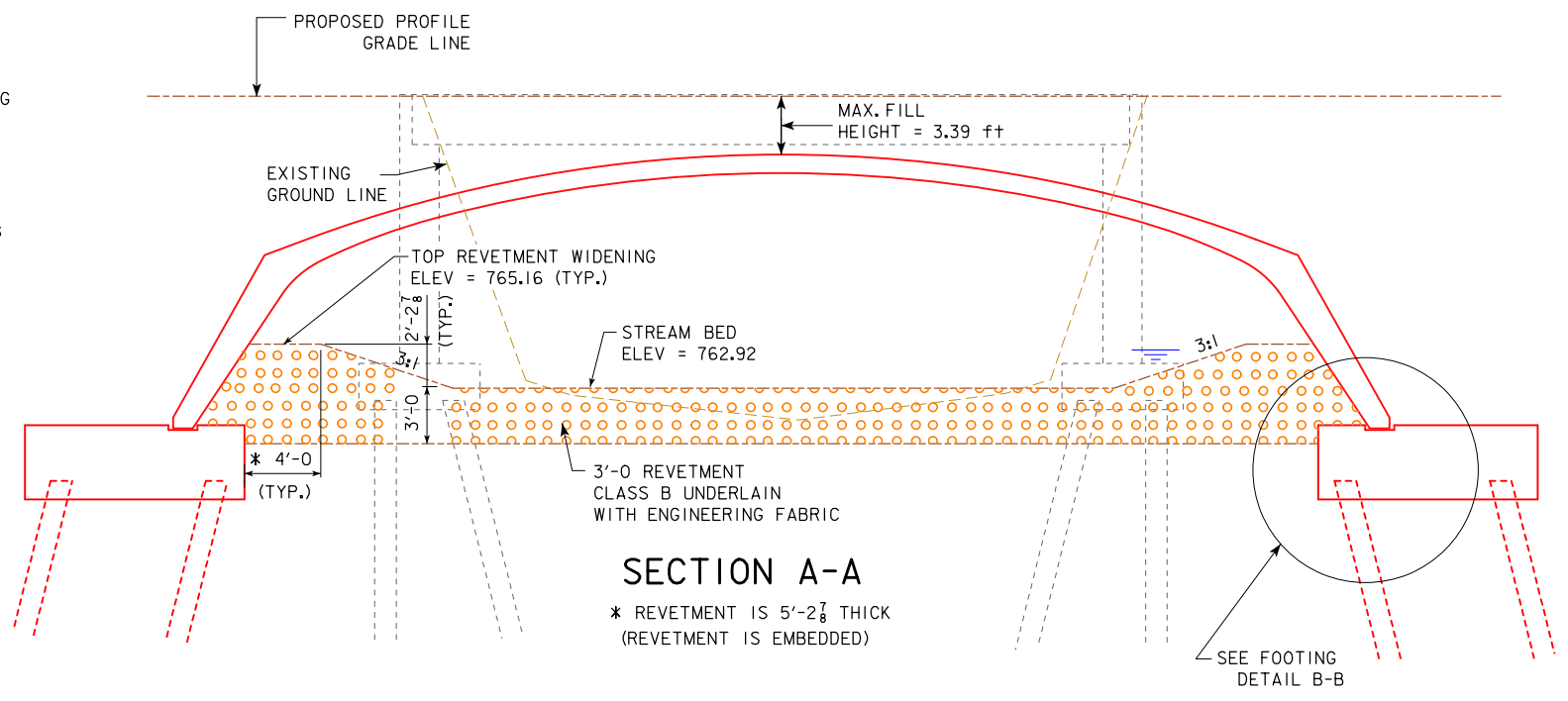
DESIGN FOR 30° SKEW (L.A.)
55'-0" x 13'-9 1/4" x 76'-0"
PRECAST CONCRETE ARCH
EXTENDED TO 55'-0" X 168'-0"
SITUATION PLAN - STAGE 2
 STATION 980+18.00
LINN COUNTY
 AUGUST 2016
 IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
 DESIGN SHEET NO. _____ OF _____ FILE NO. 31286 DESIGN NO. 718

ESTIMATED CHANNEL ARMORING QUANTITIES				
LOCATION	REVETMENT CL. B (TON)	EROSION STONE (TON)	ENGINEERING FABRIC (SY)	EXCAVATION CLASS 10 CHANNEL (CY)
CHANNEL LINING - SOUTH APRON	373	--	233	233
CHANNEL LINING - NORTH APRON	--	--	--	--
CHANNEL LINING - ARCH	1078	--	562	562
STONE TOE - SOUTH APRON	286	--	176	179
STONE TOE - NORTH APRON	--	--	--	--
TOTALS	1737	--	971	974

EXCAVATION QUANTITY CALCULATED FROM GRADING SURFACE.

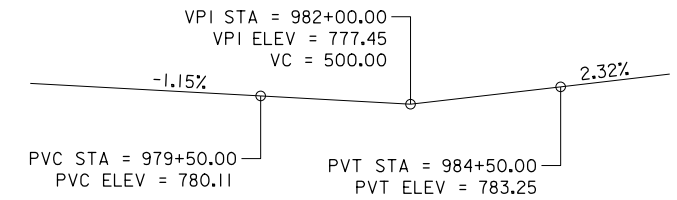
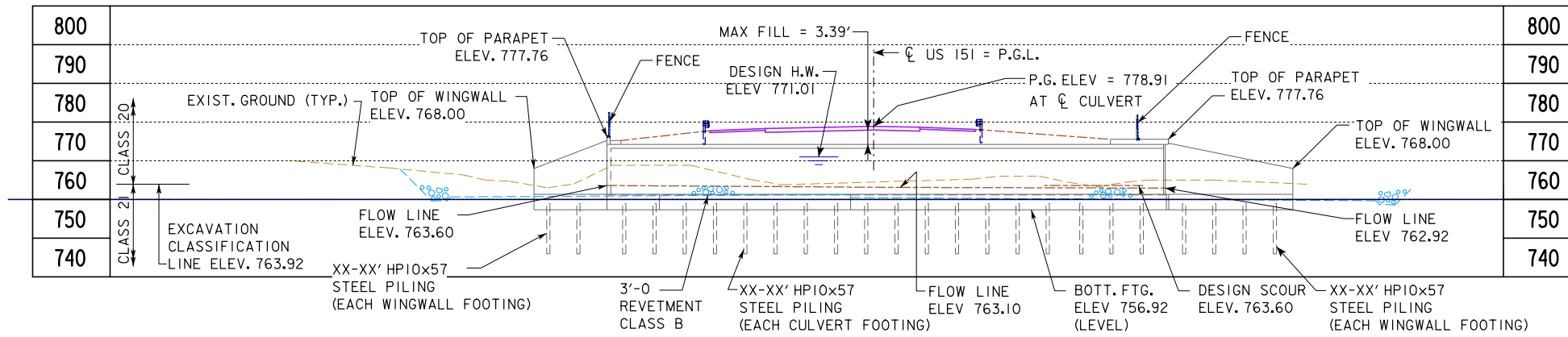
- REVETMENT LAYOUT:
- (R1) 980+23.00, 108.13 RT., END STONE TOE
 - (R2) 980+16.22, 96.39 RT., END CHANNEL LINING
 - (R3) 979+82.71, 96.02 RT., END STONE TOE
 - (R4) 979+79.53, 107.66 RT., END CHANNEL LINING
 - (R5) 979+51.85, 78.21 RT., END CHANNEL LINING
 - (R6) 979+44.00, 87.15 RT., END STONE TOE
 - (R7) 979+38.58, 60.86 RT., END CHANNEL LINING
 - (R8) 979+28.39, 66.74 RT., END STONE TOE

BENCH MARK NO. #588, CUT TRIANGLE ON BASE WALL OF REINFORCED CONCRETE BOX CULVERT
STA. 979+81.20, 23.191 OFFSET, ELEV. = 781.700



PRELIMINARY
DESIGN FOR 30° SKEW (L.A.)
55'-0" x 13'-9 1/4" x 76'-0"
PRECAST CONCRETE ARCH
EXTENDED TO 55'-0" X 168'-0"
SITE PLAN - STAGE 2
STATION 980+18.00
LINN COUNTY AUGUST 2016
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
DESIGN SHEET NO. ___ OF ___ FILE NO. 31286 DESIGN NO. 718

BENCH MARK: #588, CUT TRIANGLE ON BASE WALL OF REINFORCED CONCRETE BOX CULVERT
 STA. 979+81.20, 23.191' OFFSET, ELEV. = 781.700



PROPOSED PROFILE GRADE

HYDRAULIC DATA

DRAINAGE AREA = 1.98 SQ. MI.
 STREAM SLOPE = 21.4 FT./MI.
 AVG. LOW WATER STAGE = 764.20

Q₅₀ = 1,171 CFS
 STAGE = 771.01
 BACKWATER = 0.12 FT.
 AVG. BRIDGE VELOCITY = 3.4 FPS

Q₁₀₀ = 1,449 CFS
 STAGE = 771.37
 BACKWATER = 0.15 FT.

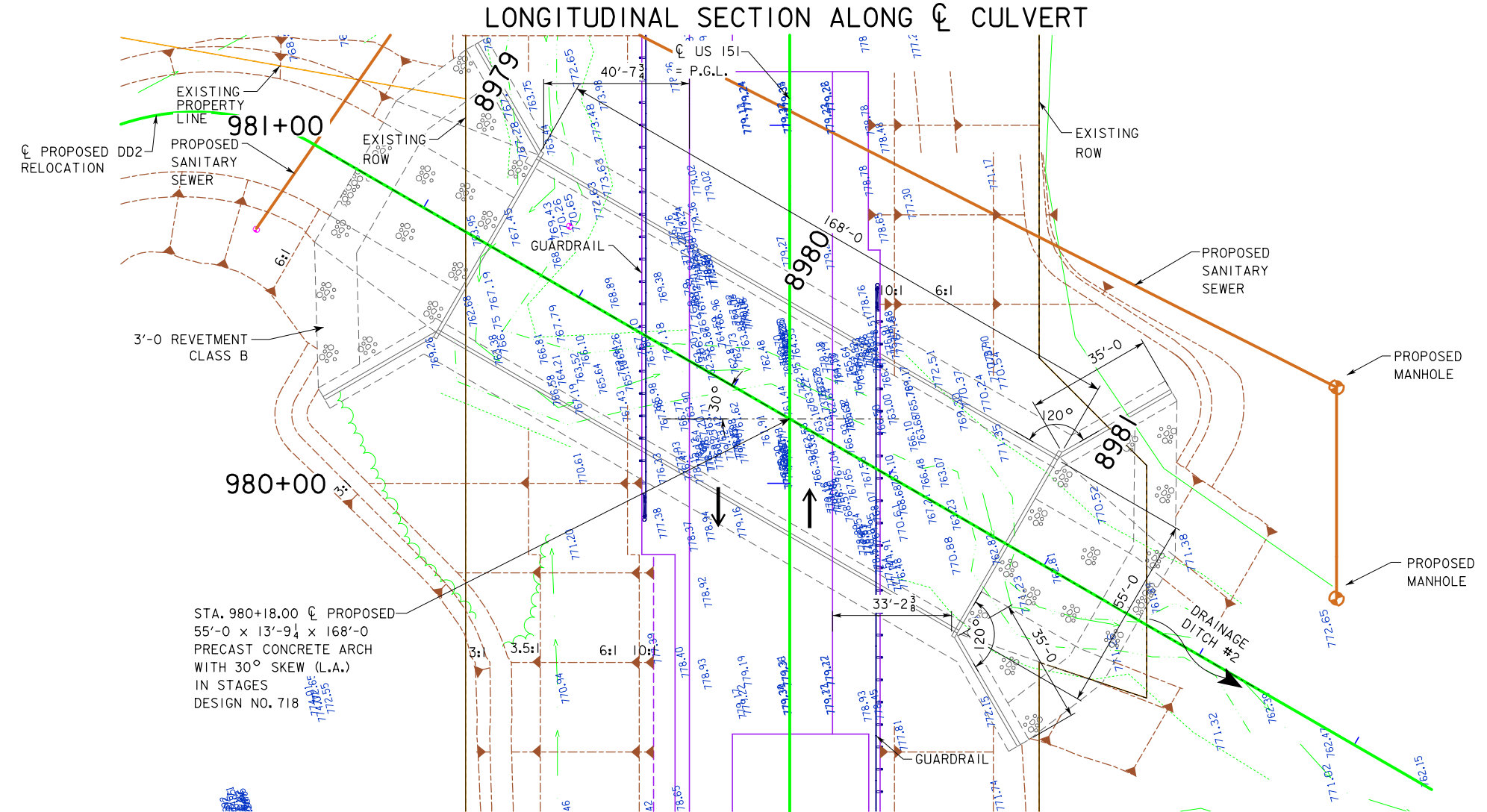
Q₂₀₀ = 1,449 CFS
 STAGE = 771.68
 CALCULATED DESIGN SCOUR = 763.6

Q₅₀₀ = 2,190 CFS
 STAGE = 772.16
 CALCULATED CHECK SCOUR = 763.6

ROADWAY OVERTOP 778.86
 STA. 980+57.67

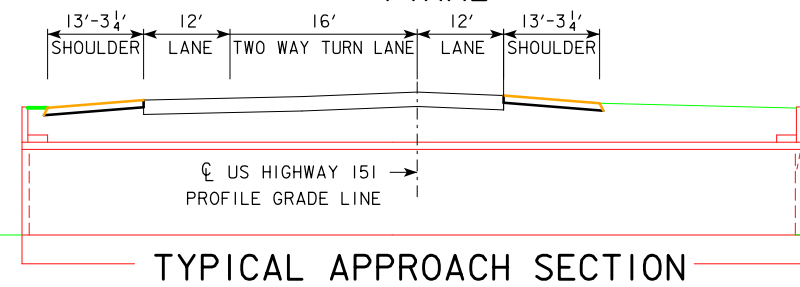
UTILITIES LEGEND:
 San. - SANITARY SEWER - LINN COUNTY

LOCATION	TRAFFIC ESTIMATE
US HIGHWAY 151	2013 AADT 10,800 V.P.D.
OVER DRAINAGE DITCH #2	2040 AADT 19,800 V.P.D.
T-82N R-8W	2040 DHV V.P.H.
SECTION 2	6 %
FAIRFAX TOWNSHIP	TRUCKS
LINN COUNTY	TOTAL
FHWA NO. 33801	DESIGN ESALS
BRIDGE MAINT. NO. 5724.3S151	
LATITUDE 41.940647°	
LONGITUDE -91.751689°	



STA. 980+18.00 CULVERT
 55'-0" x 13'-9 1/4" x 168'-0"
 PRECAST CONCRETE ARCH
 WITH 30° SKEW (L.A.)
 IN STAGES
 DESIGN NO. 718

SITUATION PLAN FINAL



TYPICAL APPROACH SECTION

ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE NOTED

PRELIMINARY

DESIGN FOR 30° SKEW (L.A.)

55'-0" x 13'-9 1/4" x 168'-0"

PRECAST CONCRETE ARCH

SITUATION PLAN - FINAL

STATION 980+18.00 LINN COUNTY AUGUST 2016

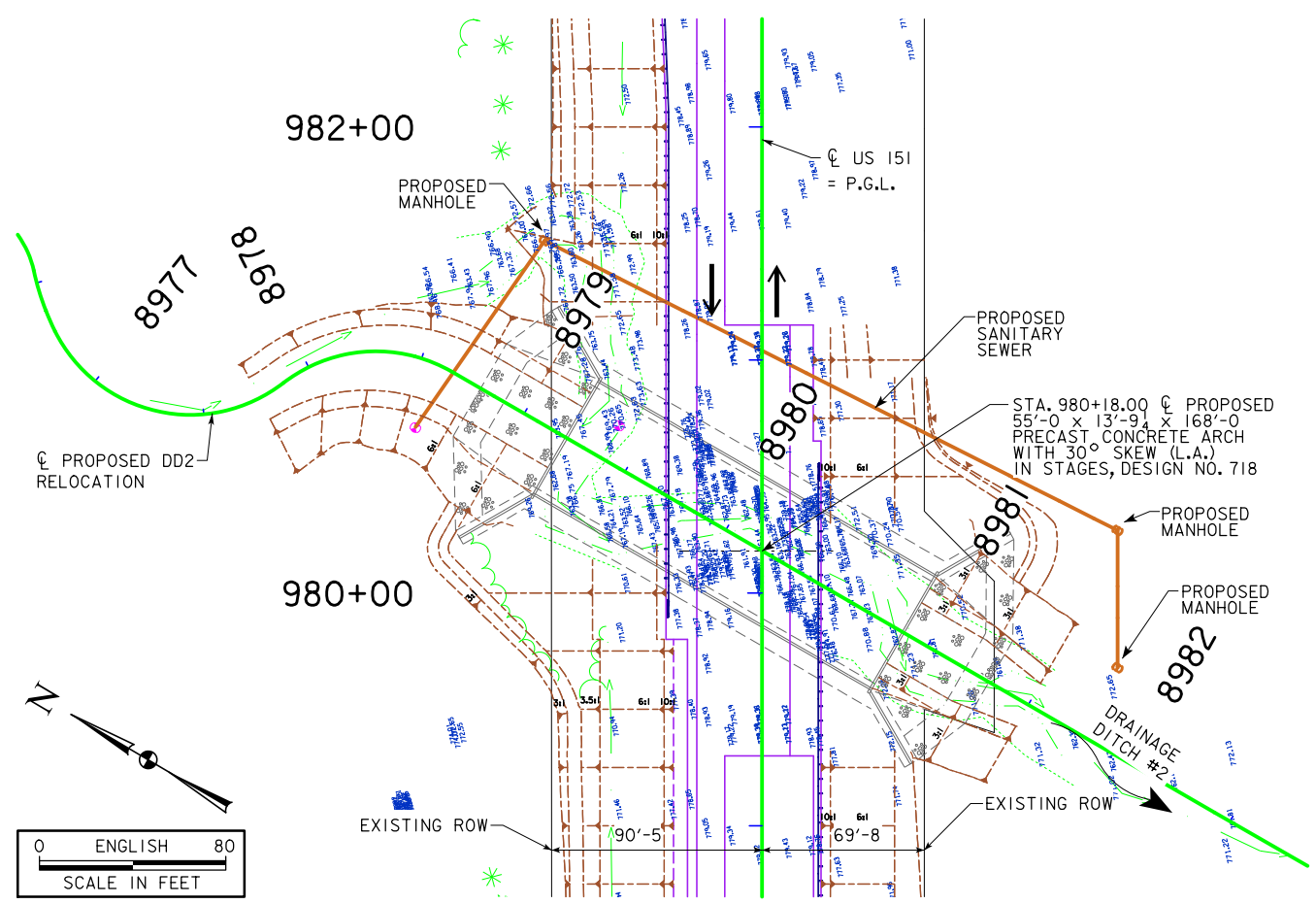
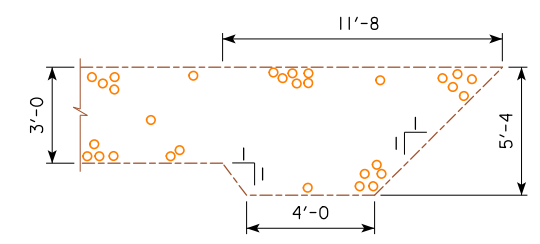
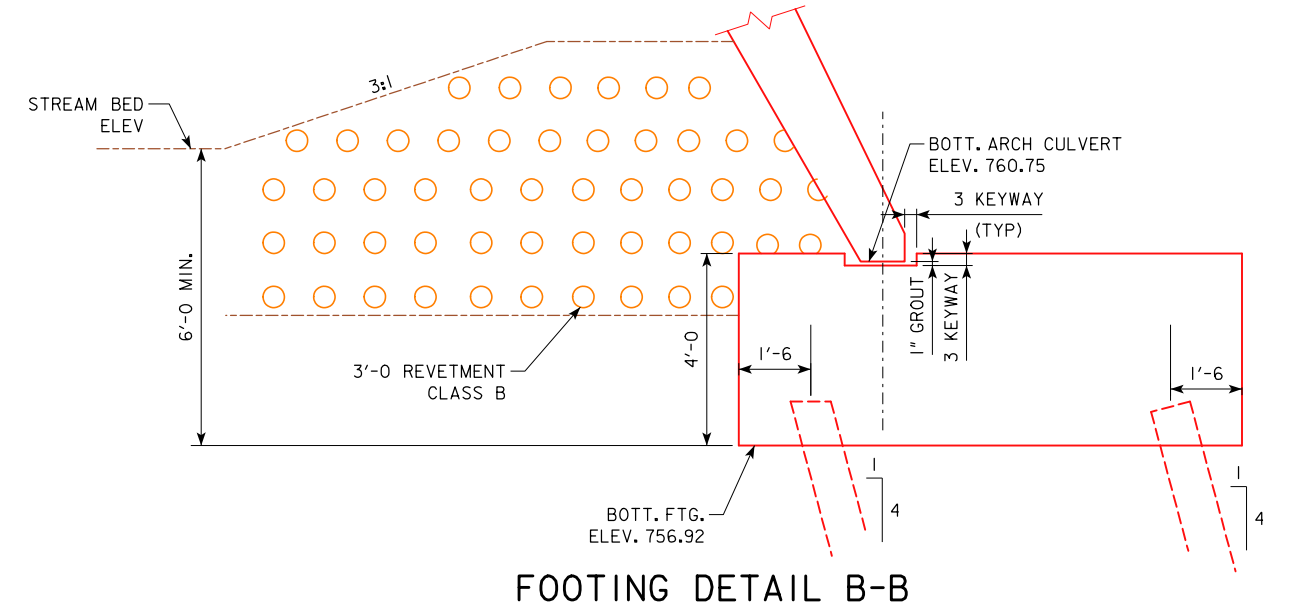
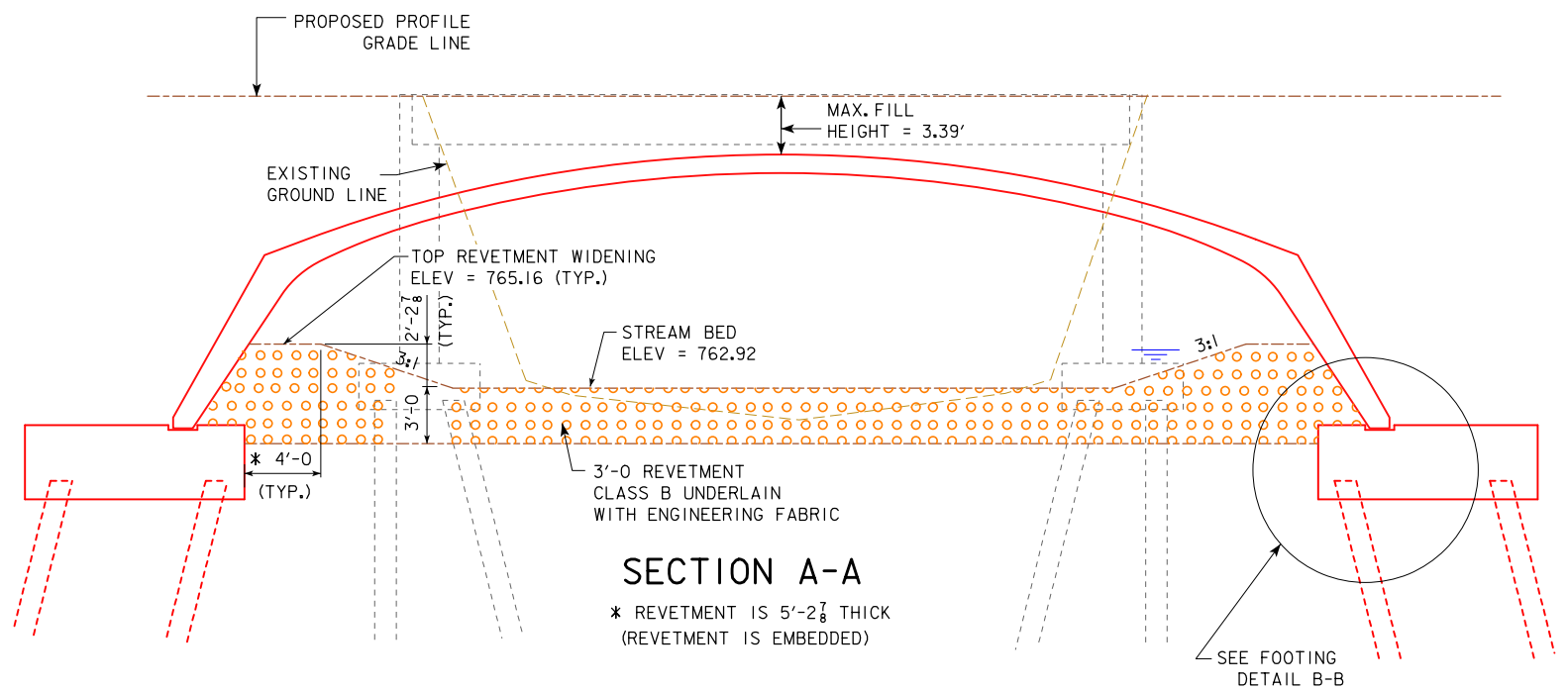
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 718 OF 718 FILE NO. 31286 DESIGN NO. 718



BENCH MARK NO. #588, CUT TRIANGLE ON BASE WALL OF REINFORCED CONCRETE BOX CULVERT
 STA. 979+81.20, 23.191 OFFSET, ELEV. = 781.700

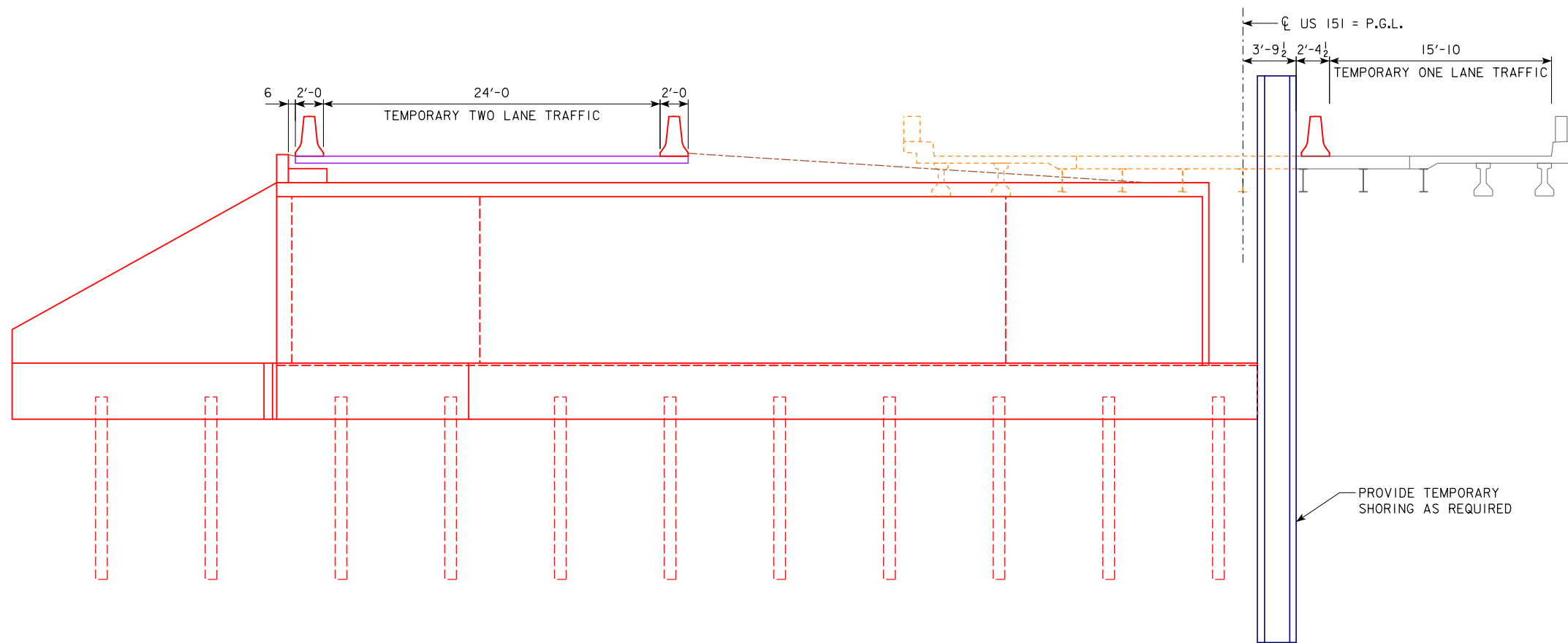
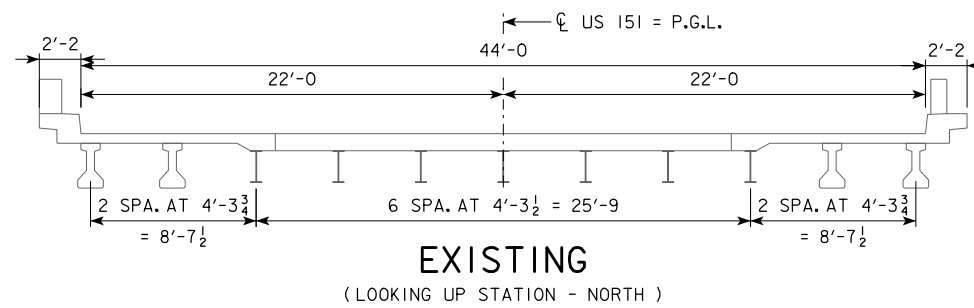
- NOTES:
1. SEE SHEETS V.19 AND V.21 FOR REVETMENT LAYOUT INFORMATION.
 2. SEE SHEETS V.19 AND V.21 FOR CHANNEL ARMORING QUANTITIES.



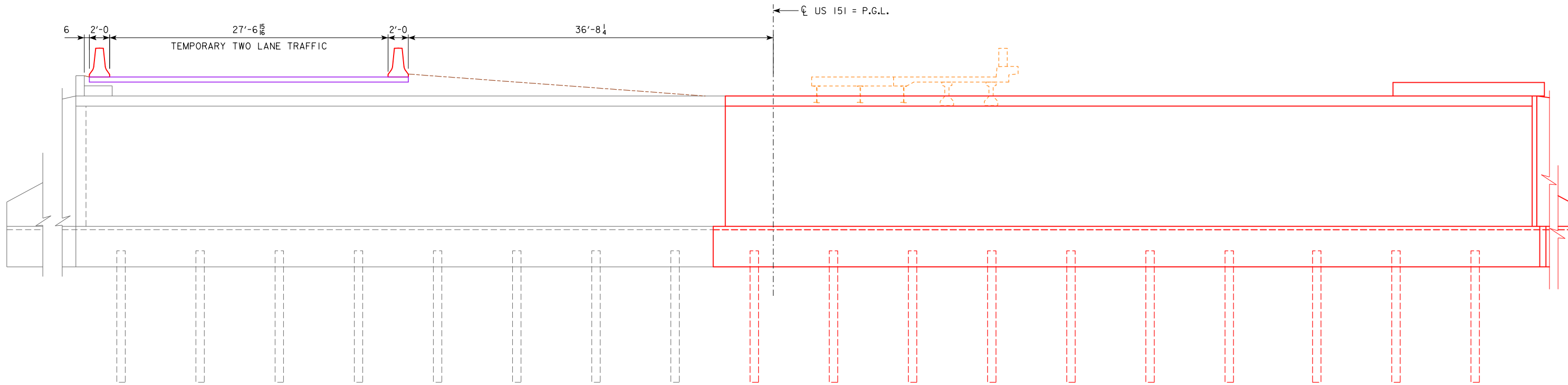
SITE PLAN

ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE NOTED

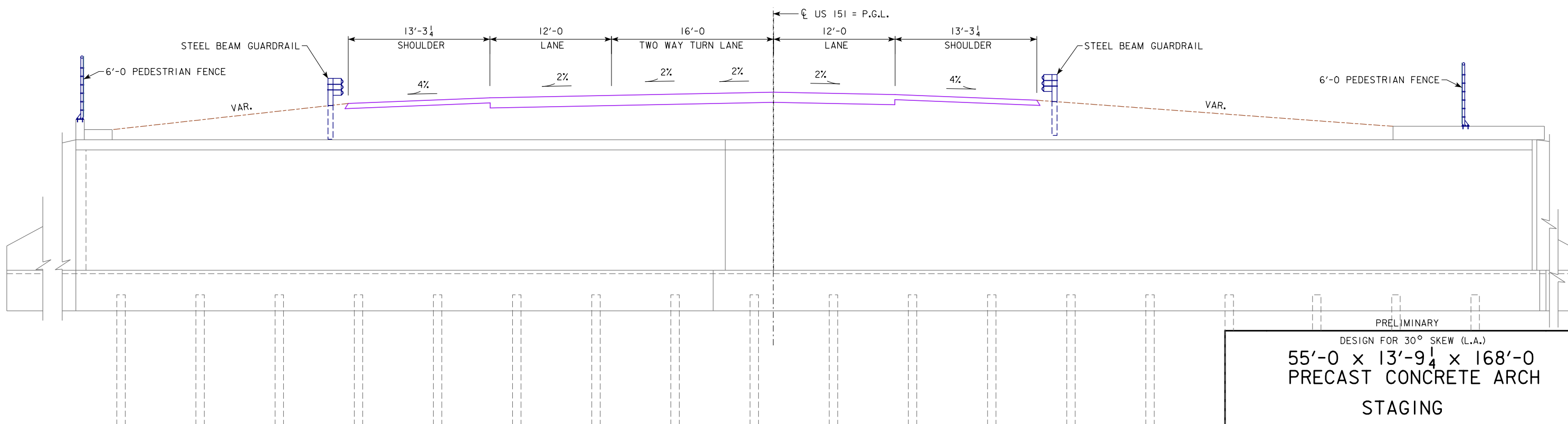
PRELIMINARY
 DESIGN FOR 30° SKEW (L.A.)
55'-0 x 13'-9 1/4 x 168'-0
PRECAST CONCRETE ARCH
SITE PLAN - FINAL
 STATION 980+18.00
LINN COUNTY AUGUST 2016
 IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
 DESIGN SHEET NO. ___ OF ___ FILE NO. 31286 DESIGN NO. 718



PRELIMINARY
 DESIGN FOR 30° SKEW (L.A.)
55'-0 x 13'-9 1/4 x 168'-0
PRECAST CONCRETE ARCH
STAGING
 STATION 980+18.00 **LINN COUNTY** AUGUST 2016
 IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
 DESIGN SHEET NO. ____ OF ____ FILE NO. 31286 DESIGN NO. 718

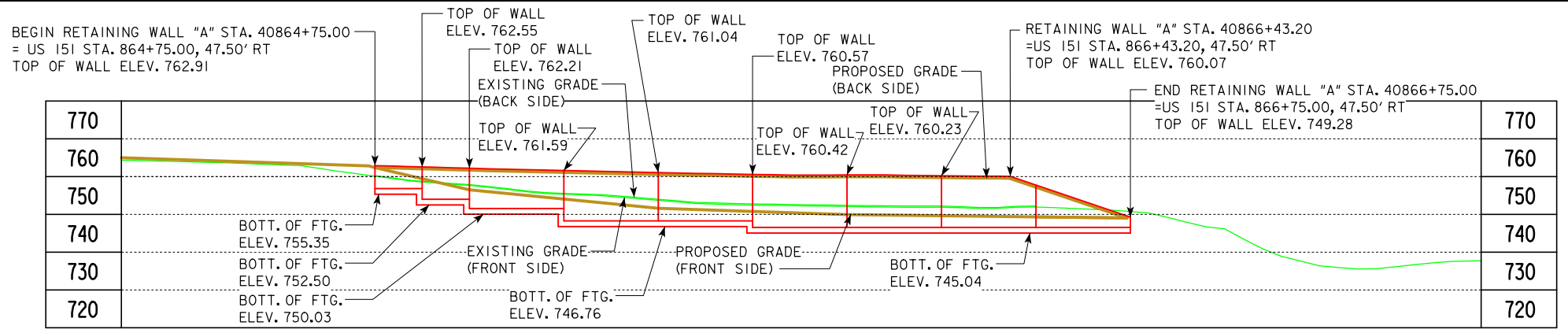


STAGE 2

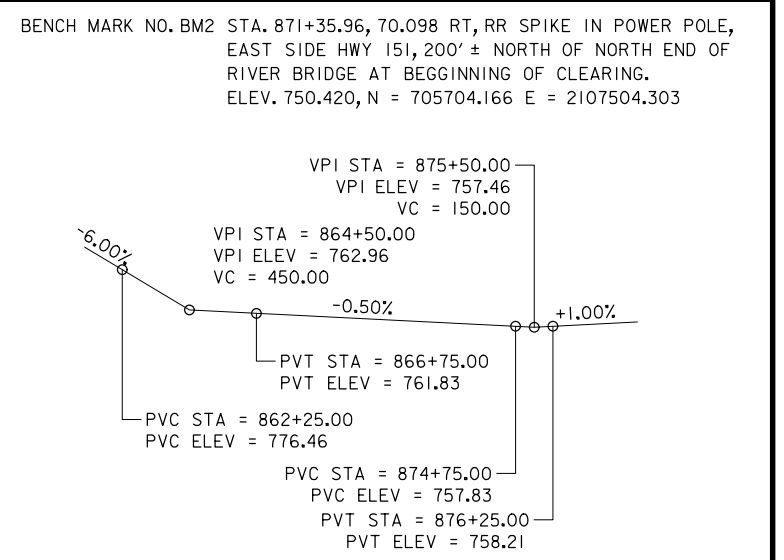


FINAL

PRELIMINARY
 DESIGN FOR 30° SKEW (L.A.)
55'-0 x 13'-9 1/4 x 168'-0
PRECAST CONCRETE ARCH
STAGING
 STATION 980+18.00 **LINN COUNTY** AUGUST 2016
 IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
 DESIGN SHEET NO. ____ OF ____ FILE NO. 31286 DESIGN NO. 718

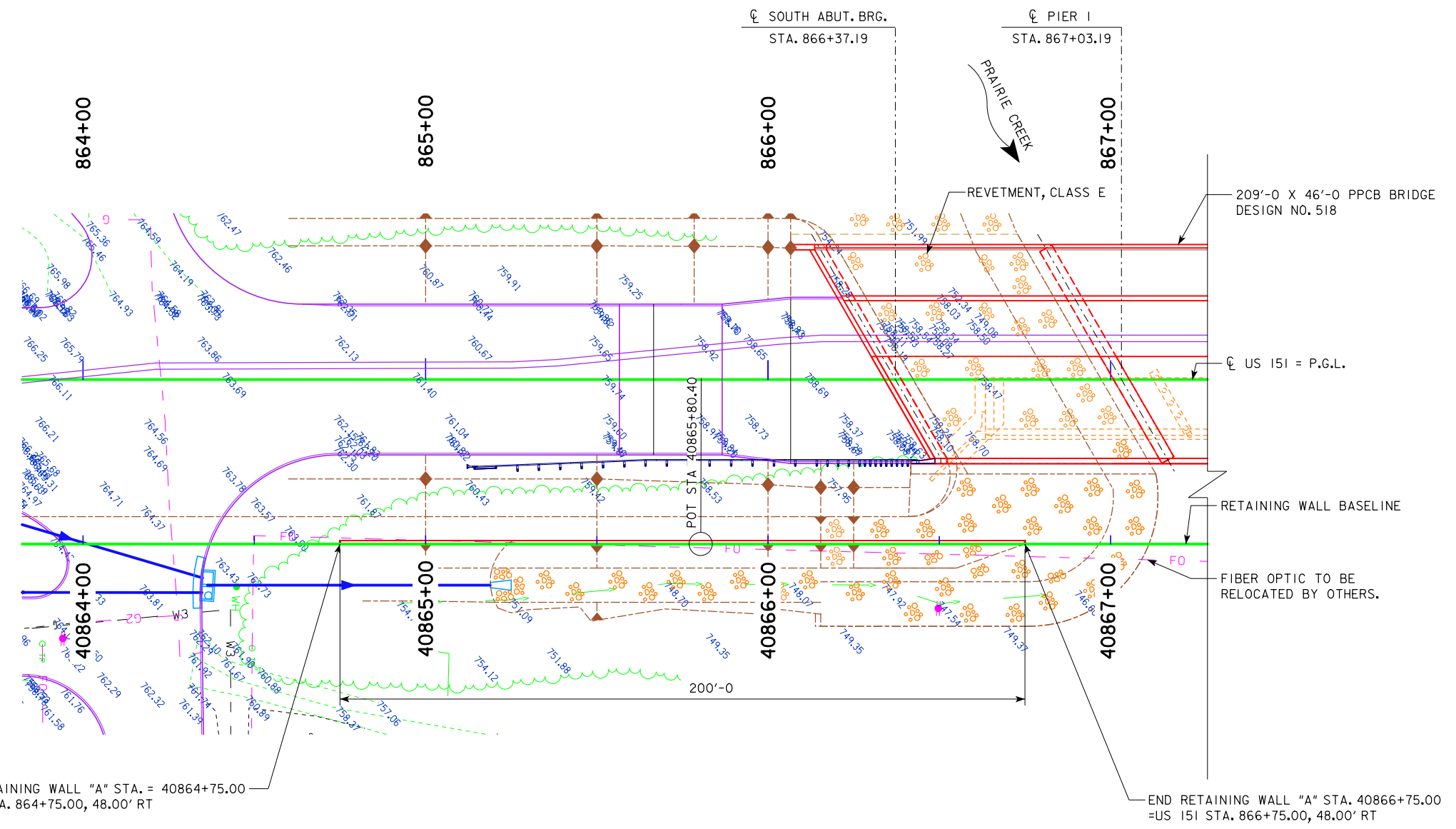


RETAINING WALL "A" ELEVATION



PROPOSED PROFILE GRADE (US 151)

NOTES: AESTHETICS TO BE INCORPORATED DURING FINAL DESIGN. SEE DESIGN NO. 518 FOR LIMITS OF REVETMENT, CLASS E.



UTILITIES LEGEND:

- FO - FIBER OPTIC - SOUTH SLOPE
- G - GAS - MIDAMERICAN ENERGY
- T1 - TELEPHONE - SOUTH SLOPE
- W3 - WATER - FAIRFAX

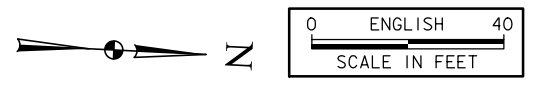
TRAFFIC ESTIMATE

RETAINING WALL AT US HIGHWAY 151 OVER PRAIRIE CREEK T-82N R-8W SECTION 9 FAIRFAX TOWNSHIP LINN COUNTY LATITUDE 41.922715° LONGITUDE -91.783648°

2013 AADT	8100	V.P.D.
2040 AADT	12,010	V.P.D.
2040 DHV		V.P.H.
TRUCKS	6	%
TOTAL DESIGN ESALS		

PRELIMINARY

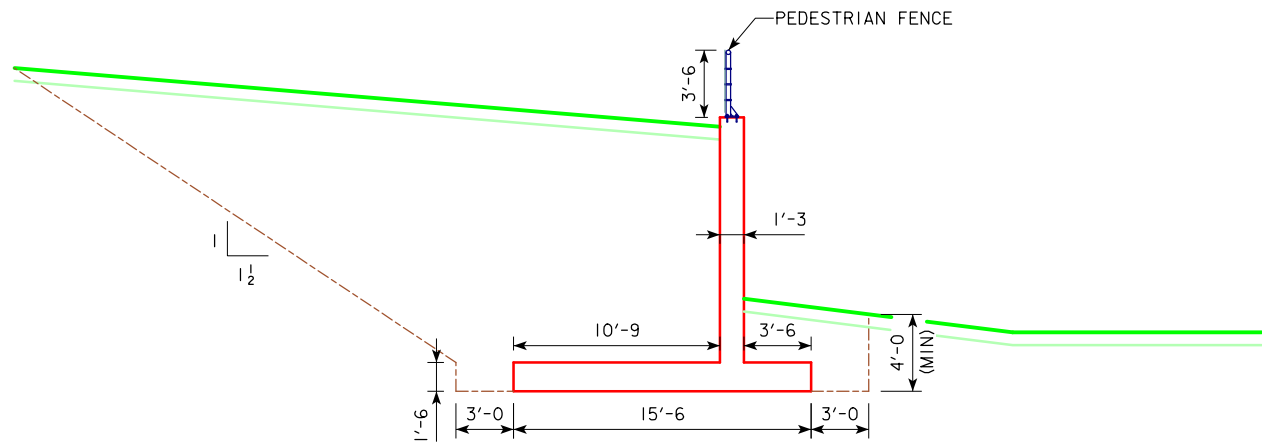
DESIGN FOR
200' - 0 x VARIABLE HEIGHT REINFORCED CONC. RETAINING WALL
 BEGIN STATION 40864+75.00
 END STATION 40866+75.00
 AUGUST 2016
SITUATION PLAN
LINN COUNTY
 IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
 DESIGN SHEET NO. 2 OF 2 FILE NO. 30839 DESIGN NO. 918



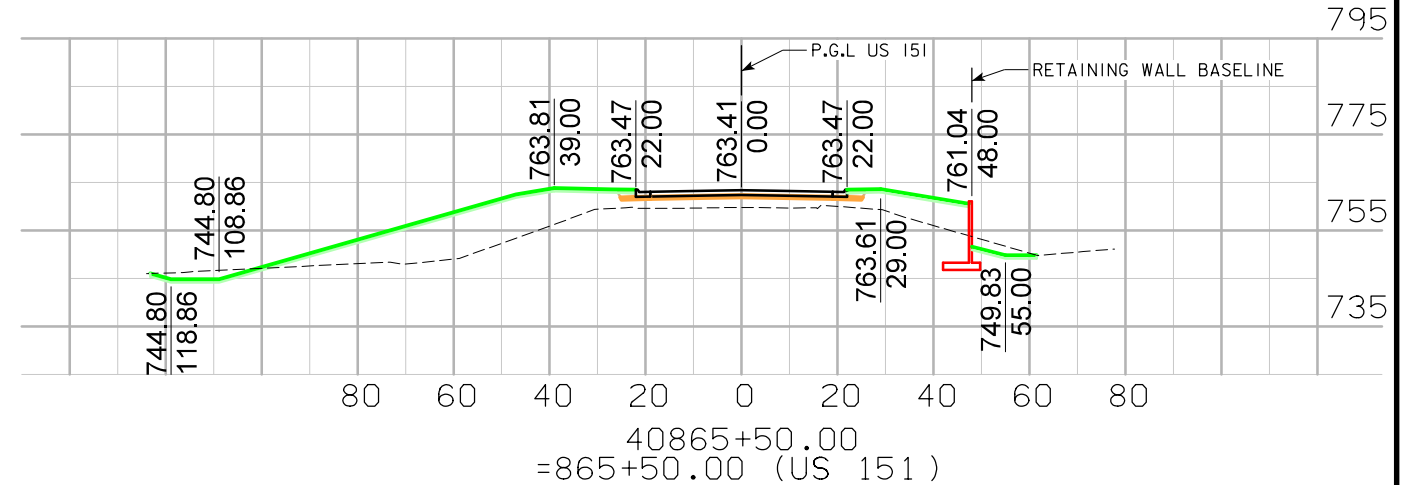
SITUATION PLAN

ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE NOTED.

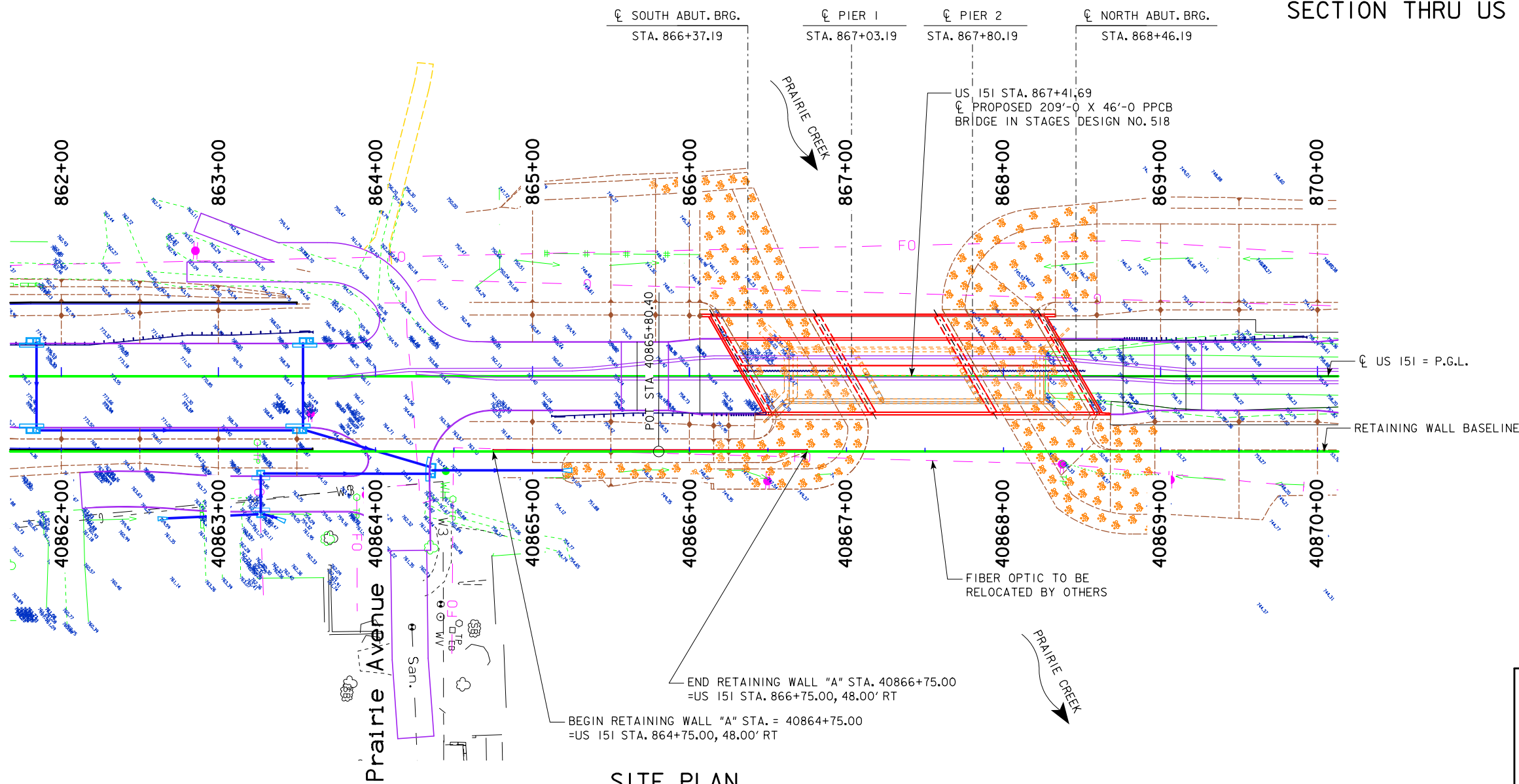
BENCH MARK NO. BM2 STA. 871+35.96, 70.098 RT, RR SPIKE IN POWER POLE,
 EAST SIDE HWY 151, 200' ± NORTH OF NORTH END OF
 RIVER BRIDGE AT BEGGINING OF CLEARING.
 ELEV. 750.420, N = 705704.166 E = 2107504.303



TYPICAL SECTION



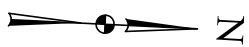
SECTION THRU US 151 WITH WALL SECTION



UTILITIES LEGEND:
 FO - FIBER OPTIC - SOUTH SLOPE
 G - GAS - MIDAMERICAN ENERGY

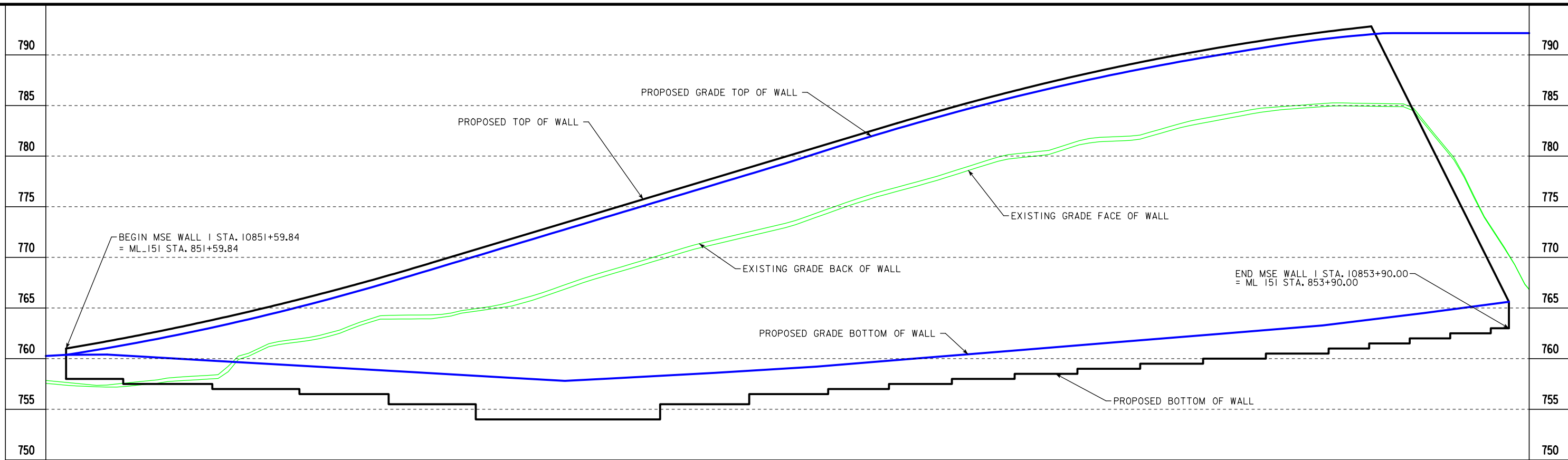
SITE PLAN

ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE NOTED.



PRELIMINARY

DESIGN FOR
**200' - 0 x VARIABLE HEIGHT
 REINFORCED CONC. RETAINING WALL**
 BEGIN STATION 40864+75.00
 END STATION 40866+75.00
 AUGUST 2016
SITE PLAN
LINN COUNTY
 IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
 DESIGN SHEET NO. OF 2 FILE NO. 30839 DESIGN NO. 918

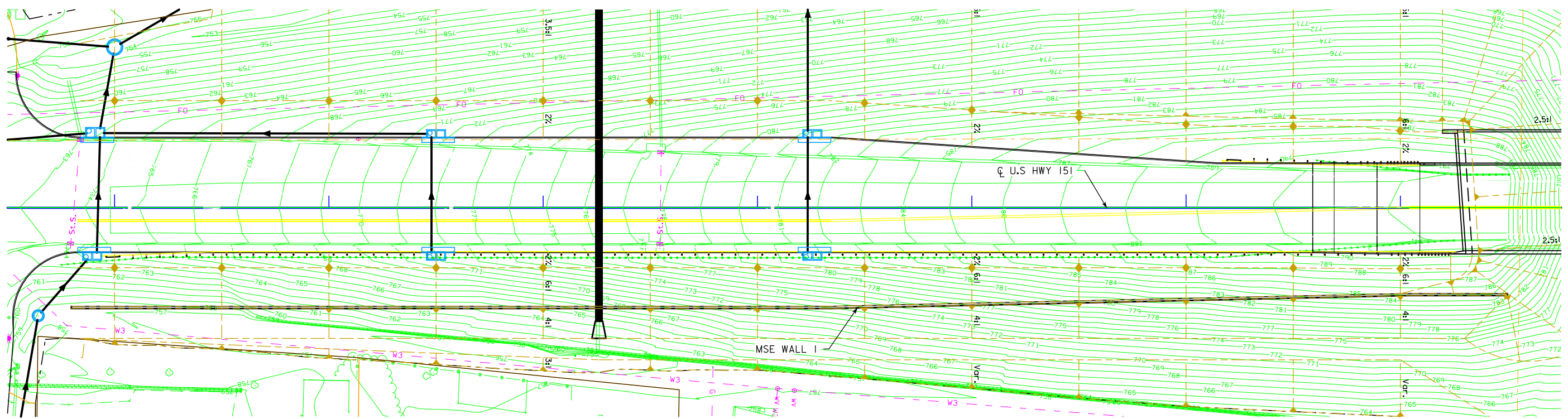
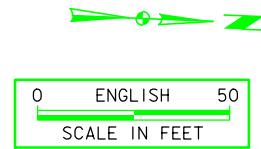


BENCH MARK: BMI
 DESCRIPTION: GIN SPIKE IN POWER POLE, EAST
 SIDE HWY 151, ACROSS FROM "PIT STOP"
 STA. 846+60.91, 23.069' RT.
 ELEV. = 763.60

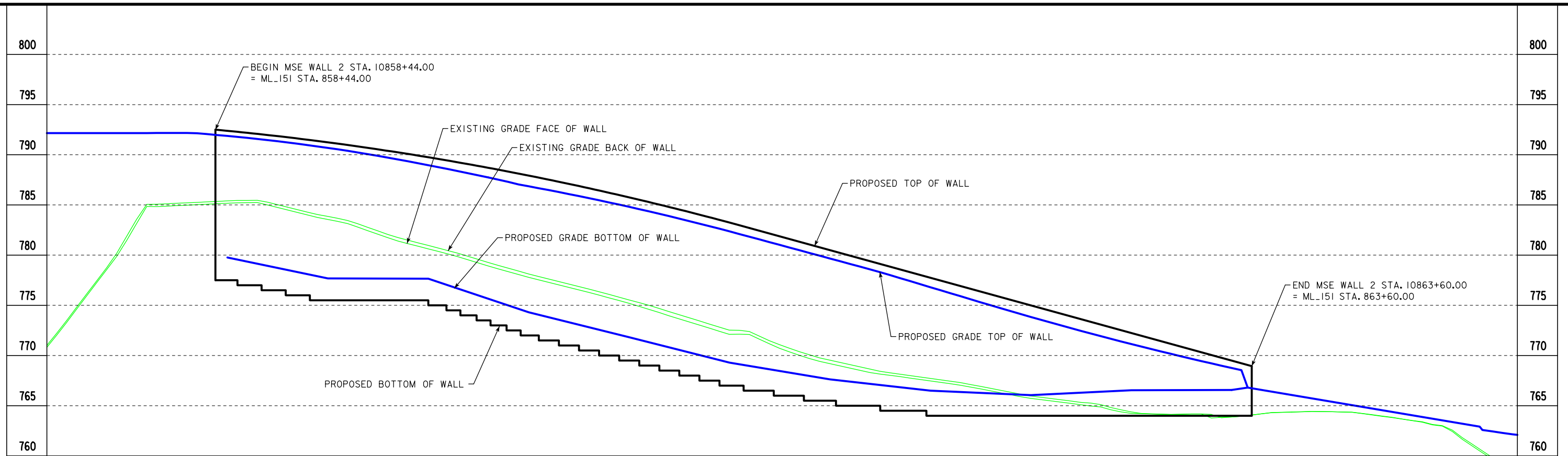
UTILITIES LEGEND:
 REFER TO SHEET D.1

LOCATION

U.S. 151
 T-82N R-8W
 SECTION 16
 FAIRFAX TOWNSHIP
 LINN COUNTY



SITUAION PLAN

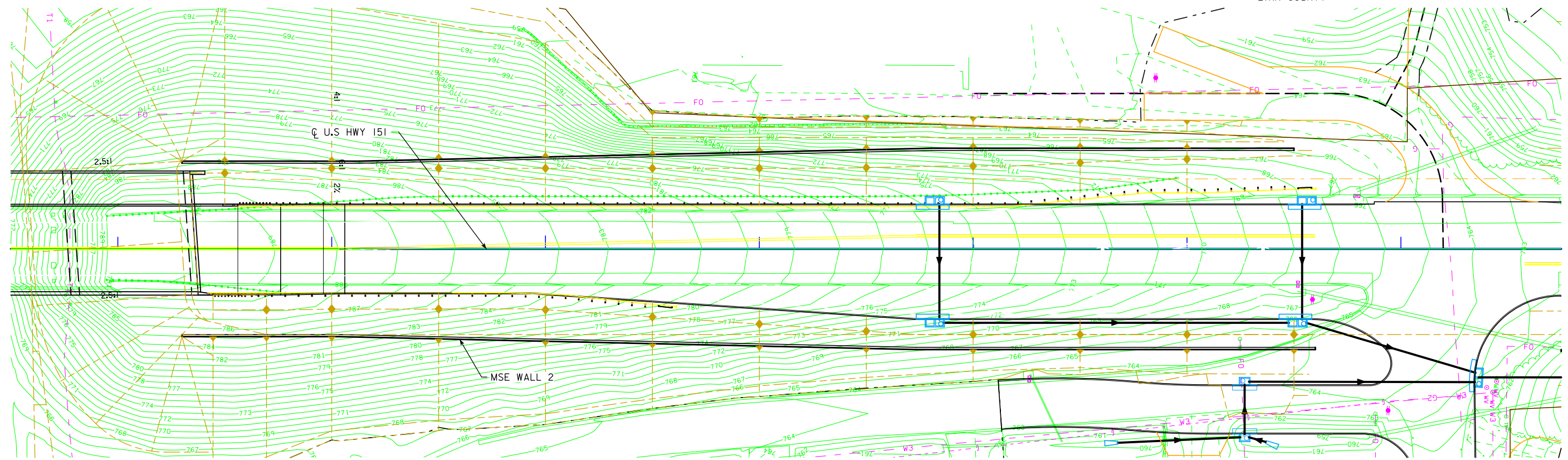
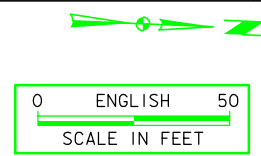


BENCH MARK: BMI
 DESCRIPTION: GIN SPIKE IN POWER POLE, EAST
 SIDE HWY 151, ACROSS FROM "PIT STOP"
 STA. 846+60.91, 23.069' RT.
 ELEV. = 763.60'

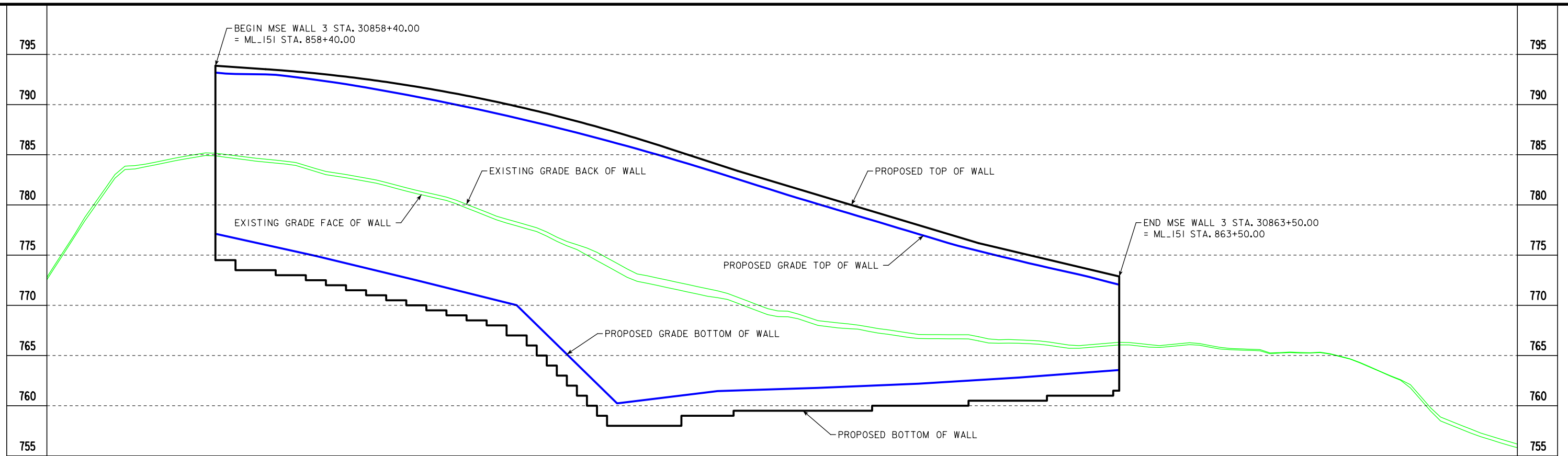
UTILITIES LEGEND:
 REFER TO SHEET D.1

LOCATION

U.S. 151
 T-82N R-8W
 SECTION 16
 FAIRFAX TOWNSHIP
 LINN COUNTY



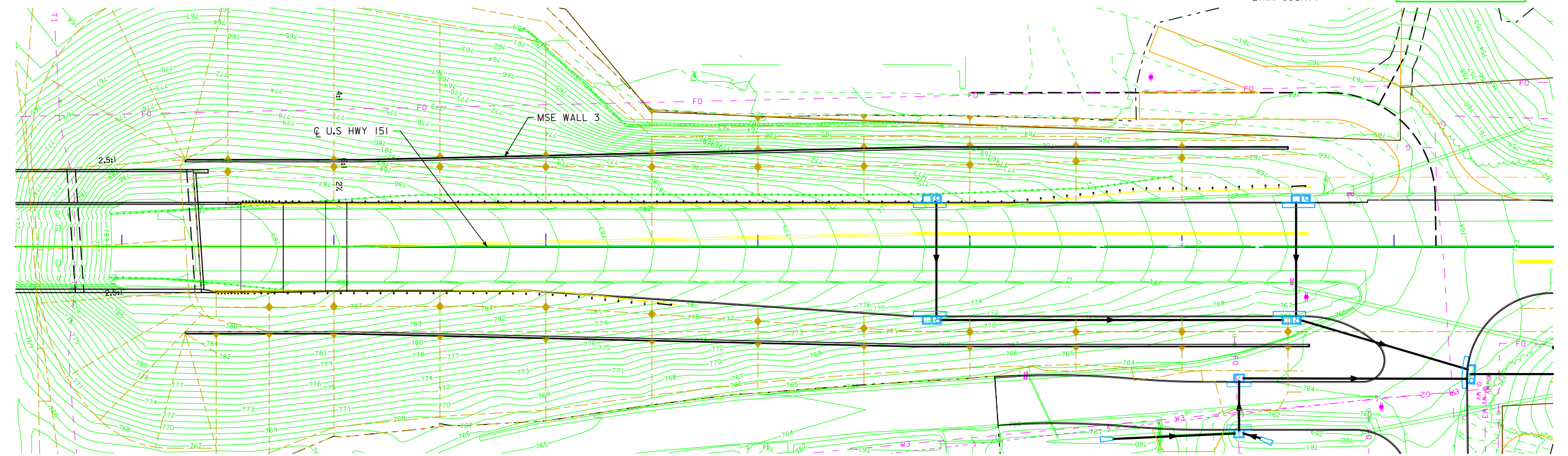
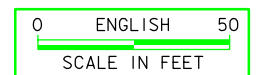
SITUAION PLAN



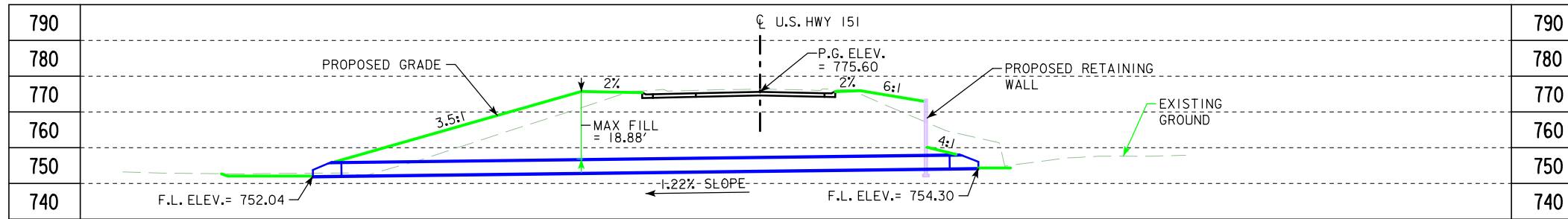
BENCH MARK: BMI
 DESCRIPTION: GIN SPIKE IN POWER POLE, EAST
 SIDE HWY 151, ACROSS FROM "PIT STOP"
 STA. 846+60.91, 23.069' RT.
 ELEV. = 763.60

UTILITIES LEGEND:
 REFER TO SHEET D.1

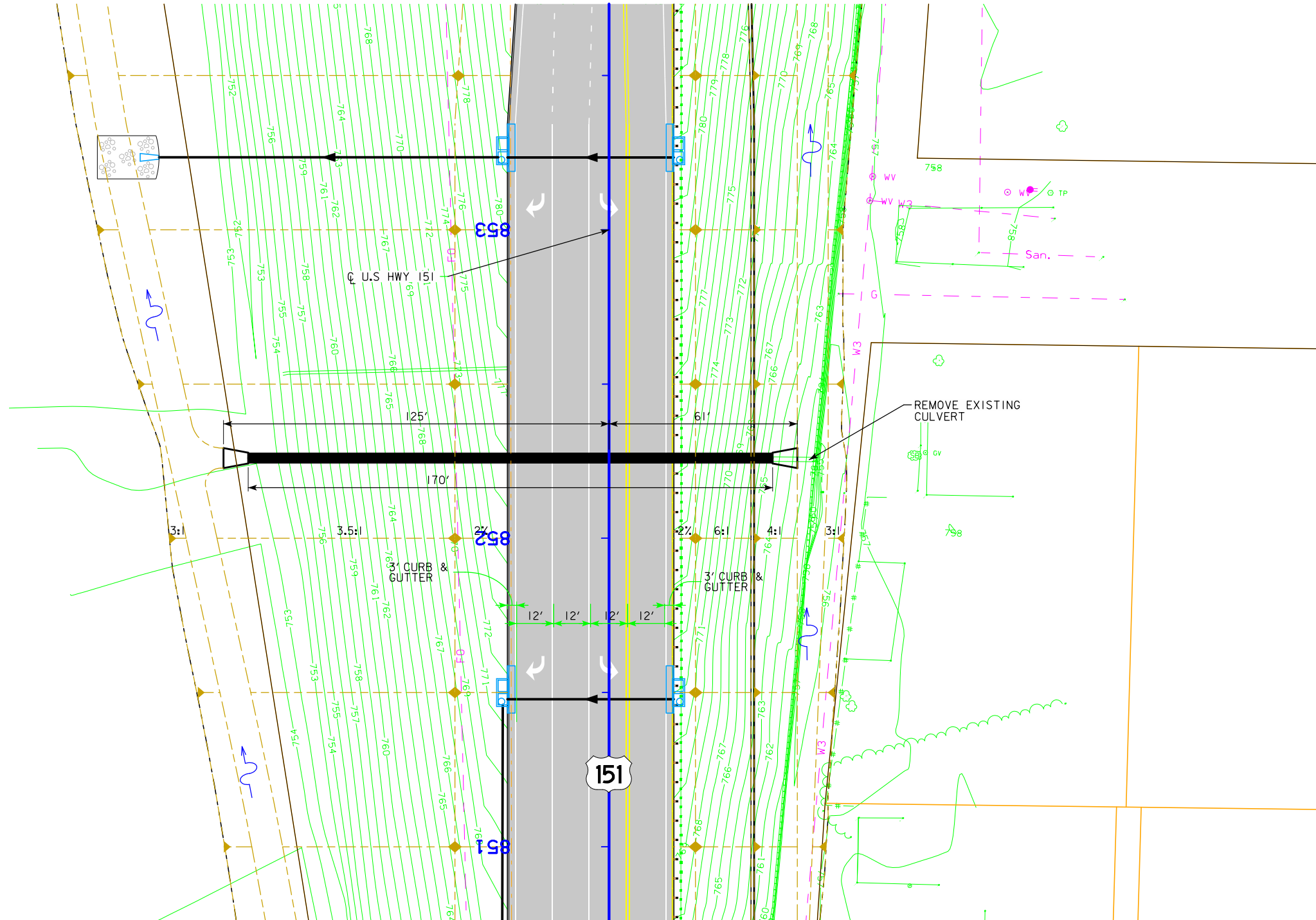
LOCATION
 U.S. 151
 T-82N R-8W
 SECTION 16
 FAIRFAX TOWNSHIP
 LINN COUNTY



SITUAION PLAN



LONGITUDINAL SECTION ALONG \bar{C} CULVERT



PLAT PLAN

BENCH MARK: BMI
 DESCRIPTION: GIN SPIKE IN POWER POLE, EAST
 SIDE HWY 151, ACROSS FROM "PIT STOP"
 STA. 846+60.91, 23.069' RT.
 ELEV. = 763.60'

HYDRAULIC DATA

DRAINAGE AREA = 11.97 ACRES ROLLING
 DESIGN DISCHARGE, Q_{50} = 35.79 CFS

UTILITIES LEGEND:

REFER TO SHEET D.1

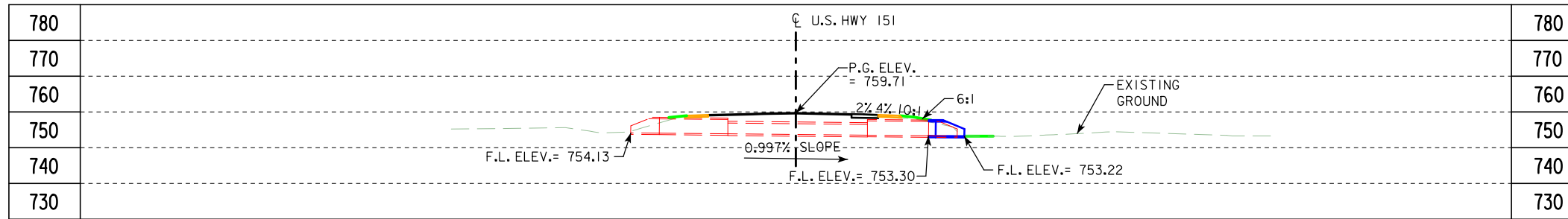
LOCATION

U.S. 151
 T-82N R-8W
 SECTION 16
 FAIRFAX TOWNSHIP
 LINN COUNTY

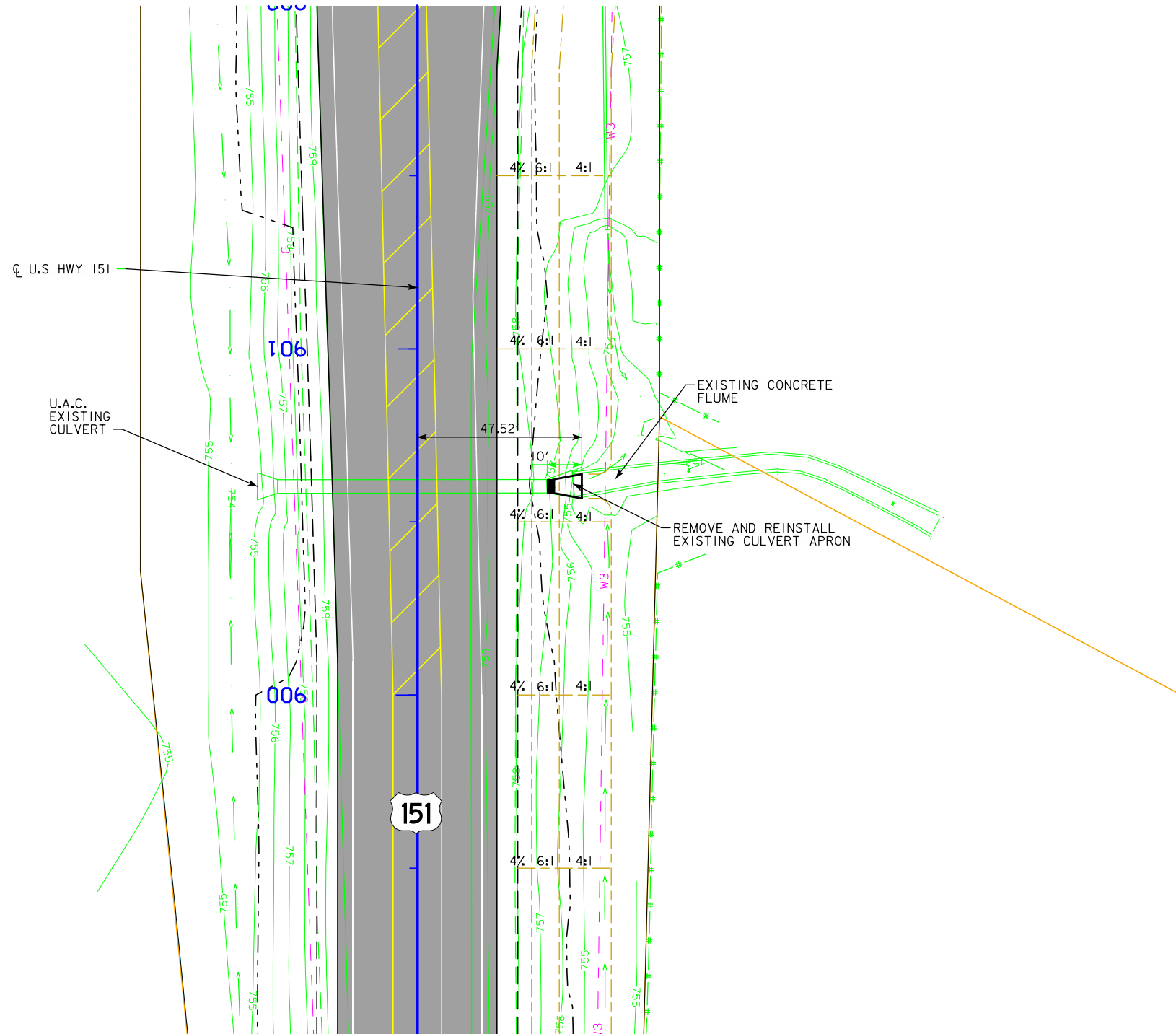
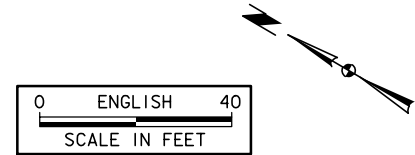
STAGING NOTES

REMOVE EXISTING 3' x 2' BOX CULVERT EXTENDED
 WITH 36" RCP AND INSTALL NEW 36" PIPE AND
 APRONS.

DESIGN FOR 0° SKEW R.A.
42" X 170'
REINFORCED CONCRETE PIPE
 PLAT PLAN
 STA. 852+26.00 \bar{C} U.S. HWY. 151 NOVEMBER 2018
 LINN COUNTY
 IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
 DESIGN SHEET NO. ___ OF ___ FILE NO. ___ DESIGN NO. ___



LONGITUDINAL SECTION ALONG ϕ CULVERT



PLAT PLAN

BENCH MARK: #4
 DESCRIPTION: RR SPIKE IN POWER
 POLE, SOUTH SIDE OF 80TH ST SW,
 70' +/- WEST OF STOP SIGN ON
 HWY 151.
 STA. 909+53.51, 171.787' LT.
 ELEV. = 767.94'

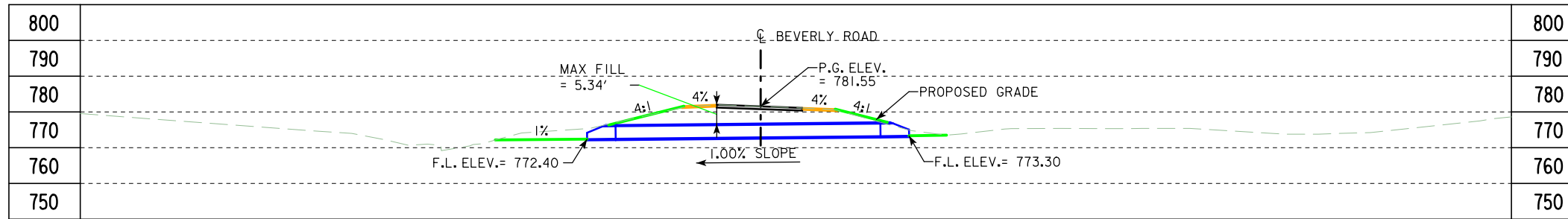
HYDRAULIC DATA
 DRAINAGE AREA = 67 ACRES ROLLING
 DESIGN DISCHARGE, Q = 35.07 CFS

UTILITIES LEGEND:
 REFER TO SHEET D.1

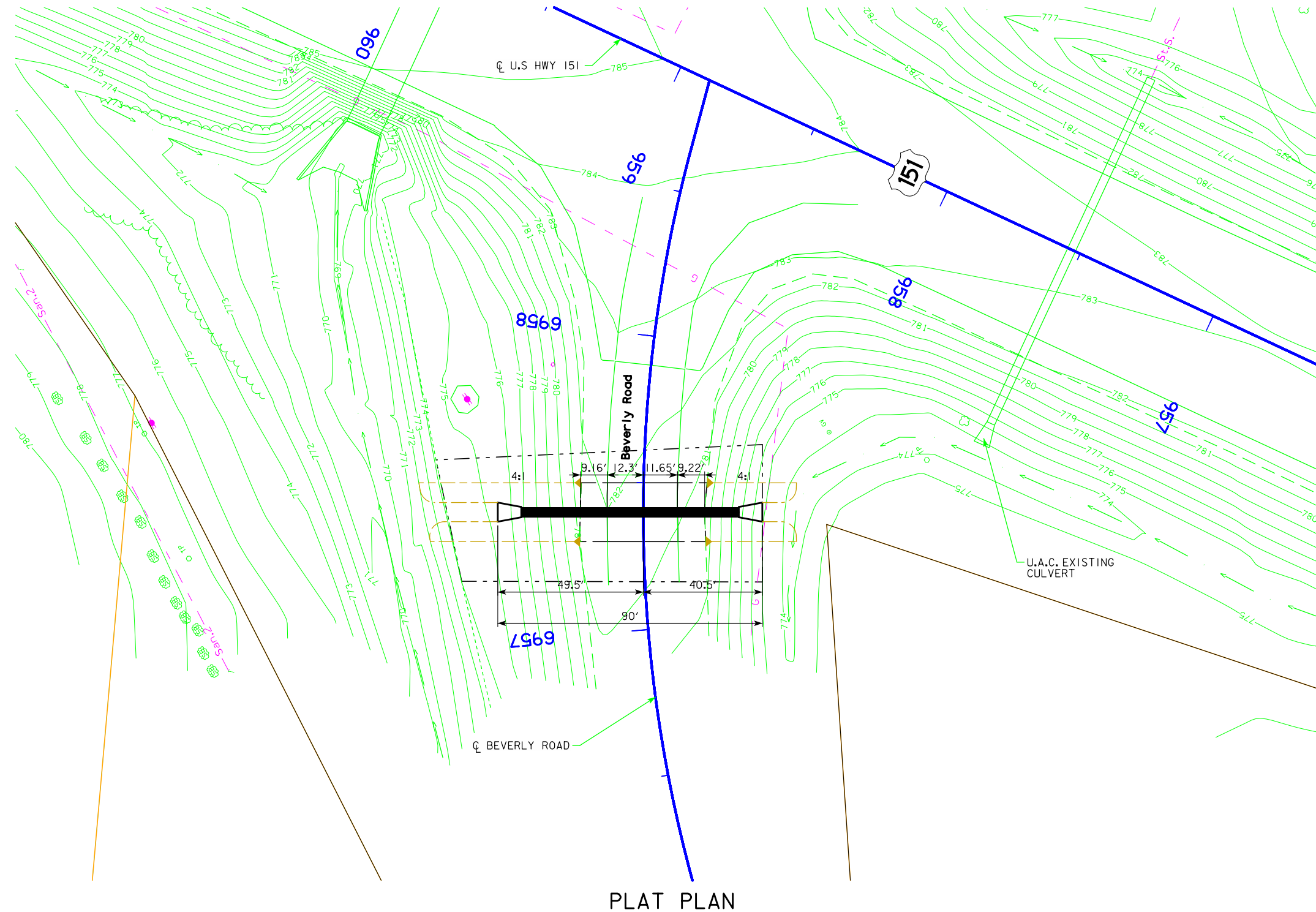
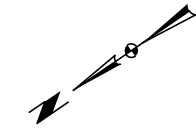
LOCATION
 U.S. 151
 T-82N R-8W
 SECTION 9
 FAIRFAX TOWNSHIP
 LINN COUNTY

STAGING NOTES
 REMOVE EXISTING 48" RCP APRON. INSTALL 2'
 SECTION OF 48" RCP WITH APRON.

DESIGN FOR 0° SKEW R.A.
48" X 78'
REINFORCED CONCRETE PIPE
 PLAT PLAN
 STA. 900+59.26 ϕ U.S. HWY. 151 NOVEMBER 2018
LINN COUNTY
 IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
 DESIGN SHEET NO. ___ OF ___ FILE NO. ___ DESIGN NO. ___



LONGITUDINAL SECTION ALONG ϕ CULVERT



BENCH MARK: #5
 DESCRIPTION: GIN SPIKE IN LIGHT
 POLE, NW QUAD OF BEVERLY DRIVE
 WEST AND HWY 151
 STA. 958+96.64, 109.70 LT.
 ELEV. = 781.81

HYDRAULIC DATA
 DRAINAGE AREA = 40.3 ACRES ROLLING
 DESIGN DISCHARGE, Q_{50} = 67.56 CFS

UTILITIES LEGEND:
 REFER TO SHEET D.I

LOCATION
 U.S. 151
 T-82N R-8W
 SECTION 3
 FAIRFAX TOWNSHIP
 LINN COUNTY

STAGING NOTES
 INSTALL 49' LF 48" RCP WITH APRONS.

DESIGN FOR 0° SKEW R.A.
42" X 78'
REINFORCED CONCRETE PIPE
 PLAT PLAN
 STA. 6957+40.00 ϕ BEVERLY ROAD NOVEMBER 2018
LINN COUNTY
 IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
 DESIGN SHEET NO. ___ OF ___ FILE NO. ___ DESIGN NO. ___

LINE STYLE LEGEND OF CROSS SECTION SHEETS (ROAD)

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

LINE STYLE LEGEND OF CROSS SECTION SHEETS (SOILS)

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

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

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

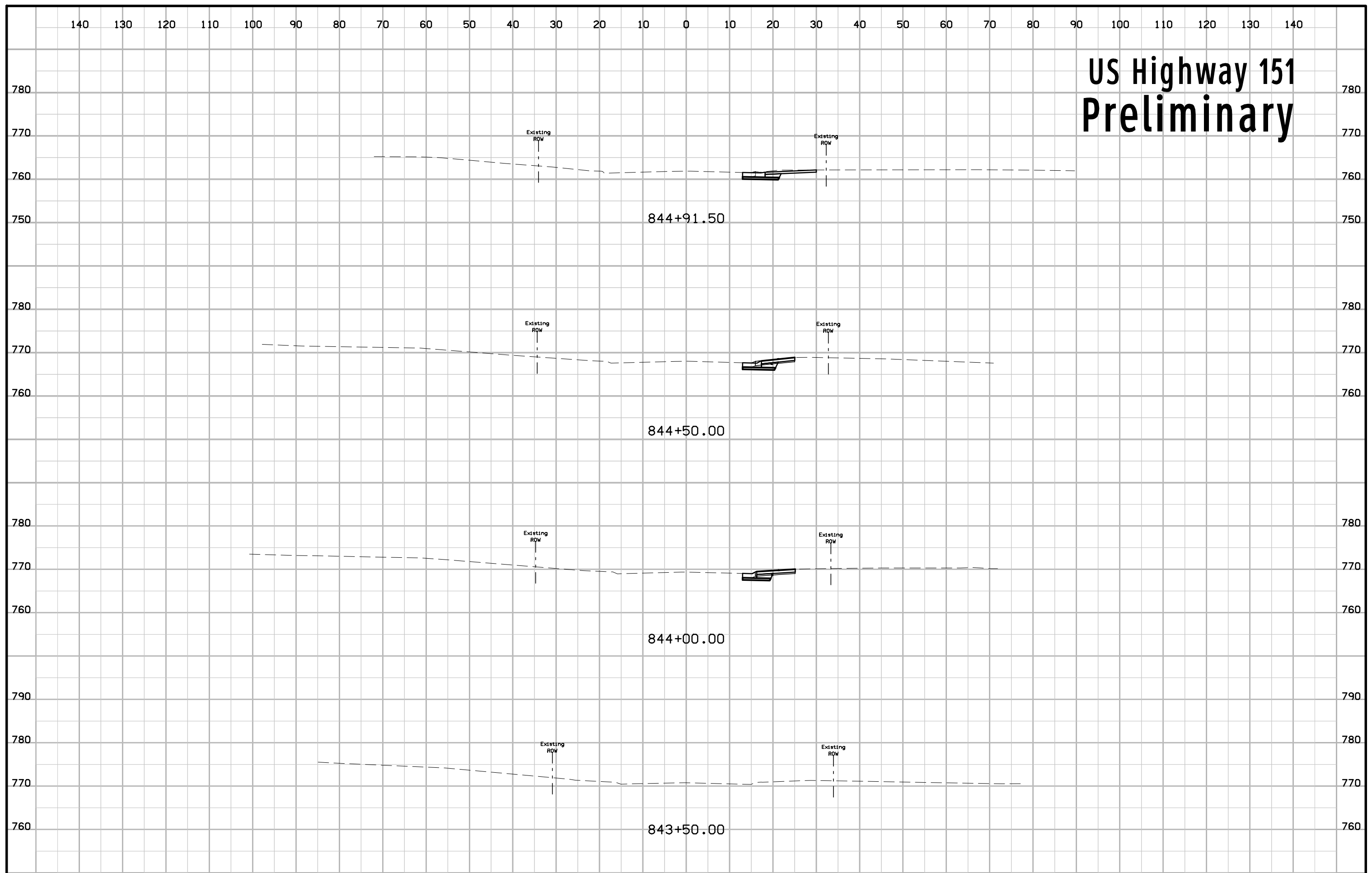
SYMBOL LEGEND OF CROSS SECTION SHEETS

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

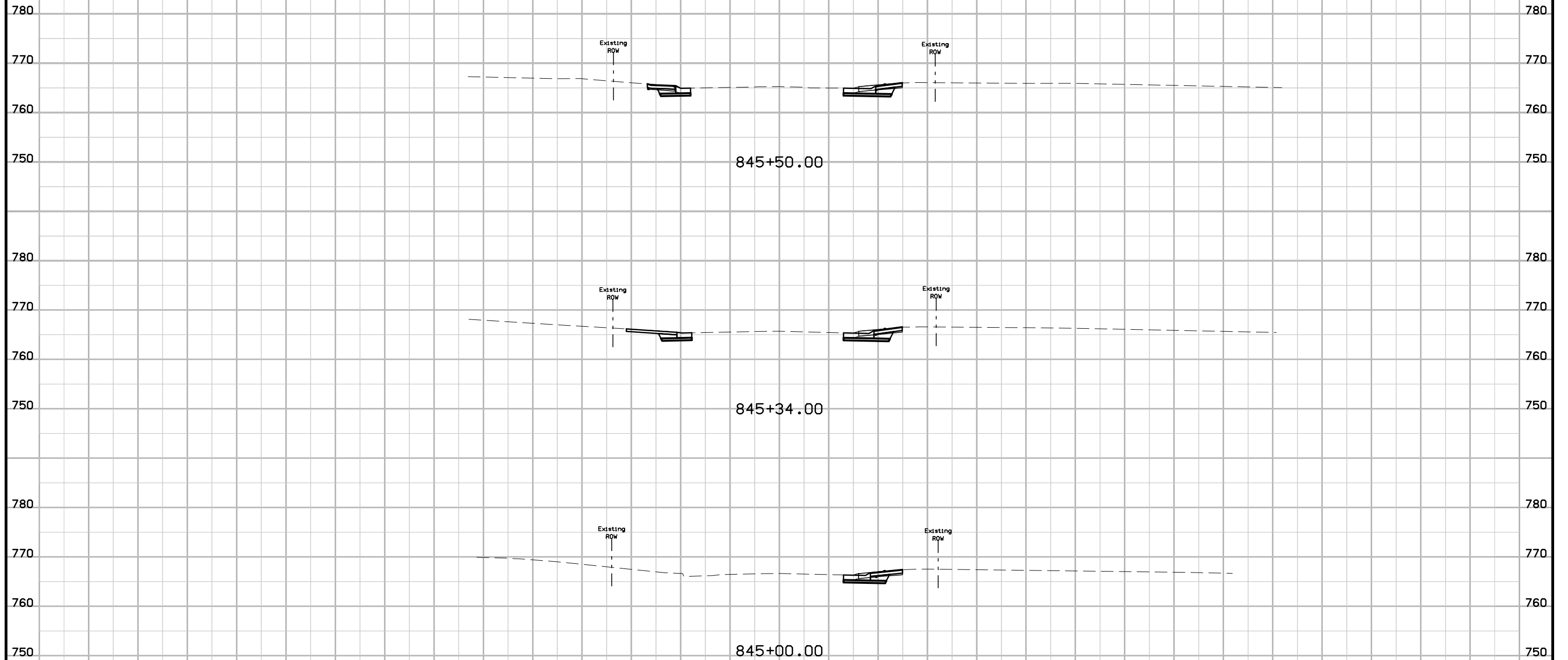
**CROSS SECTION
LEGEND AND SYMBOL
INFORMATION SHEET**

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

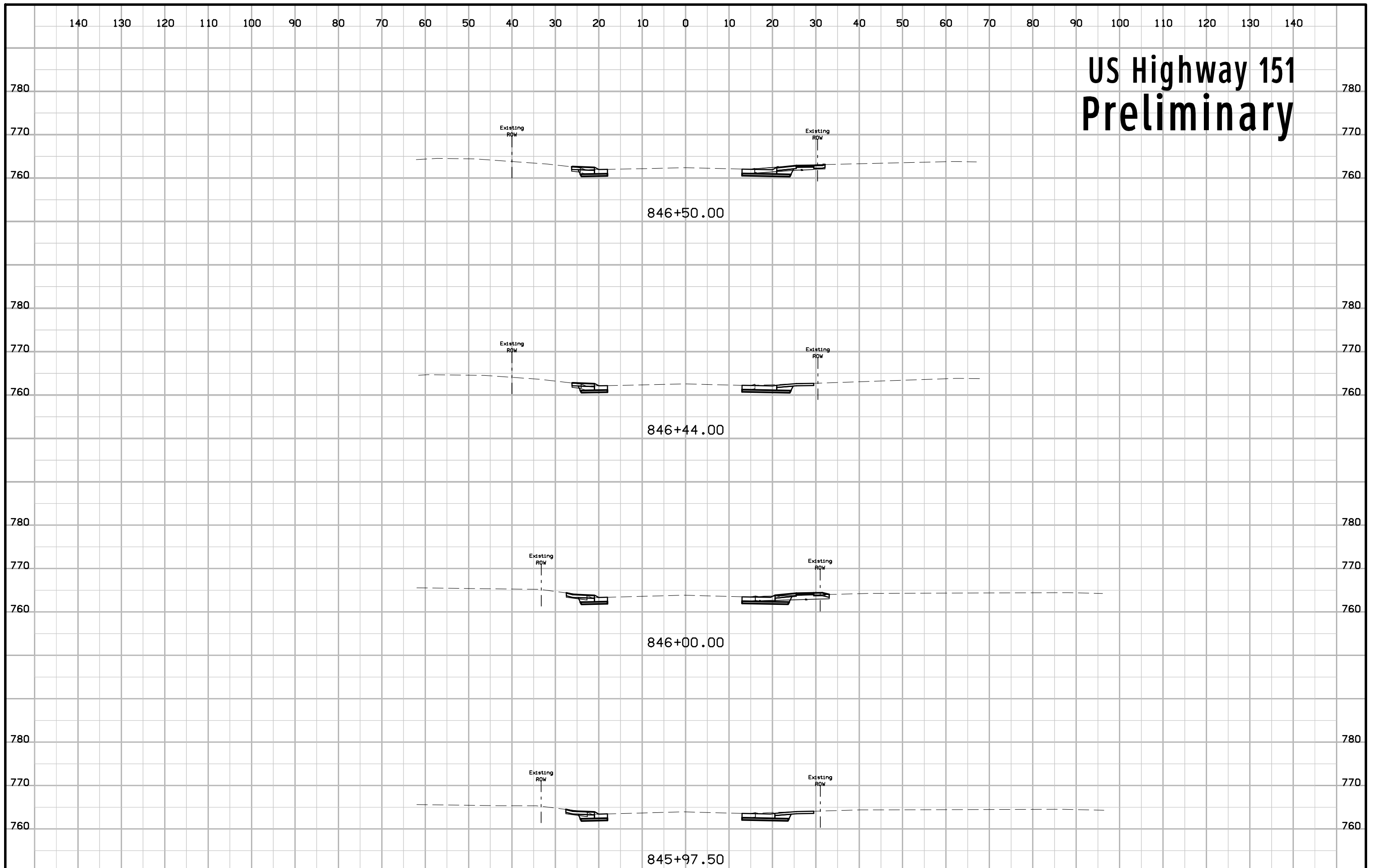
US Highway 151 Preliminary



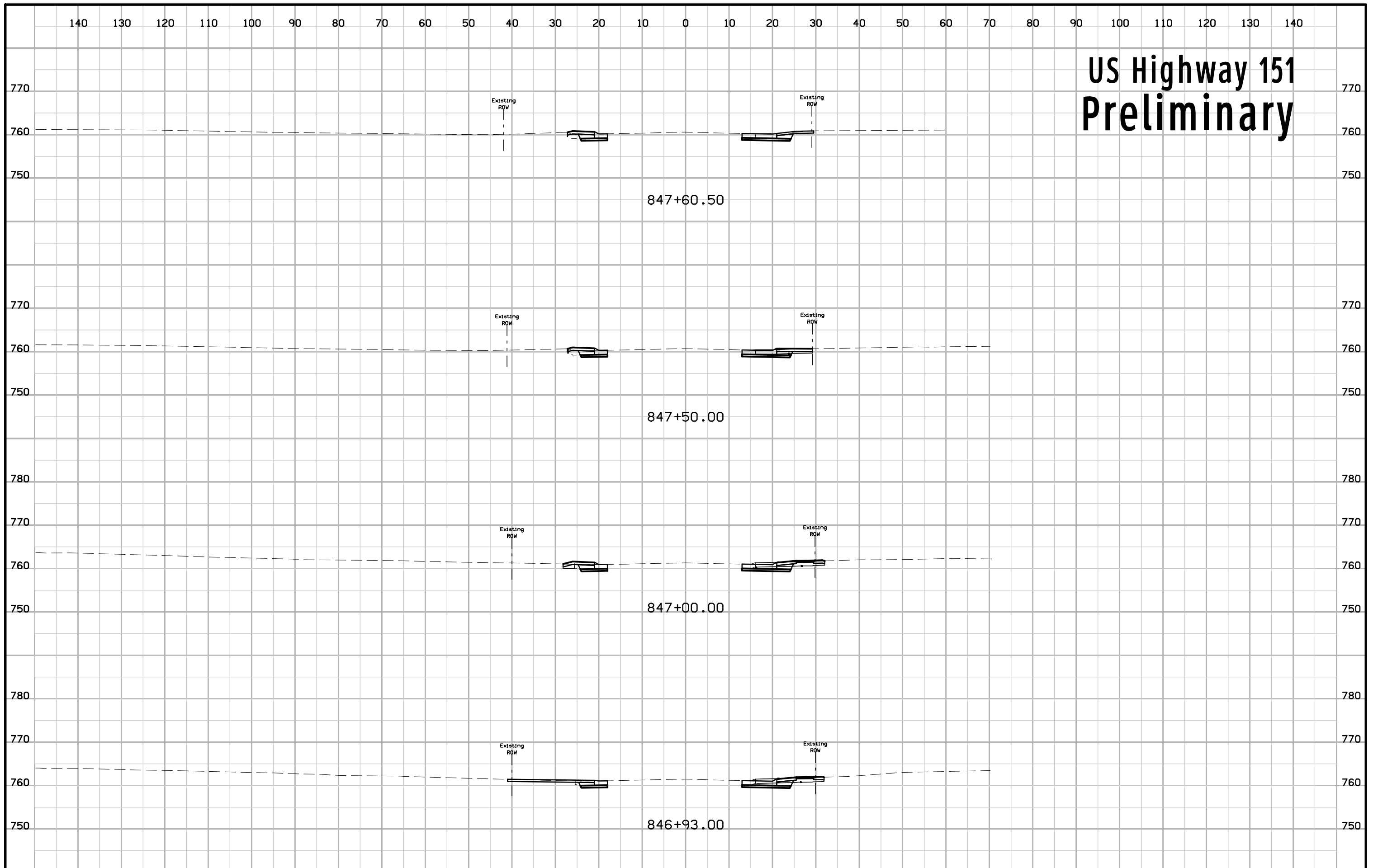
US Highway 151 Preliminary



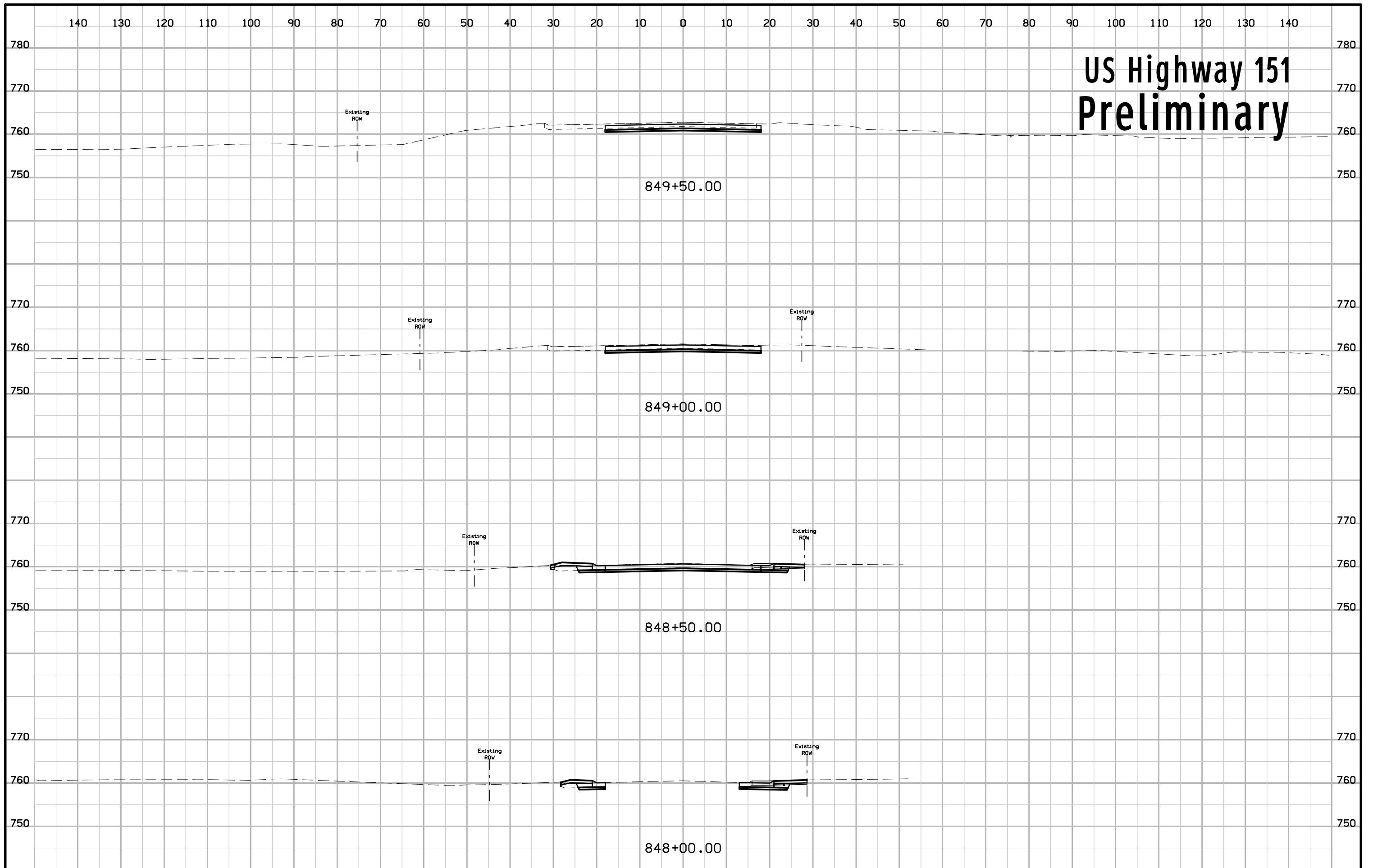
US Highway 151 Preliminary



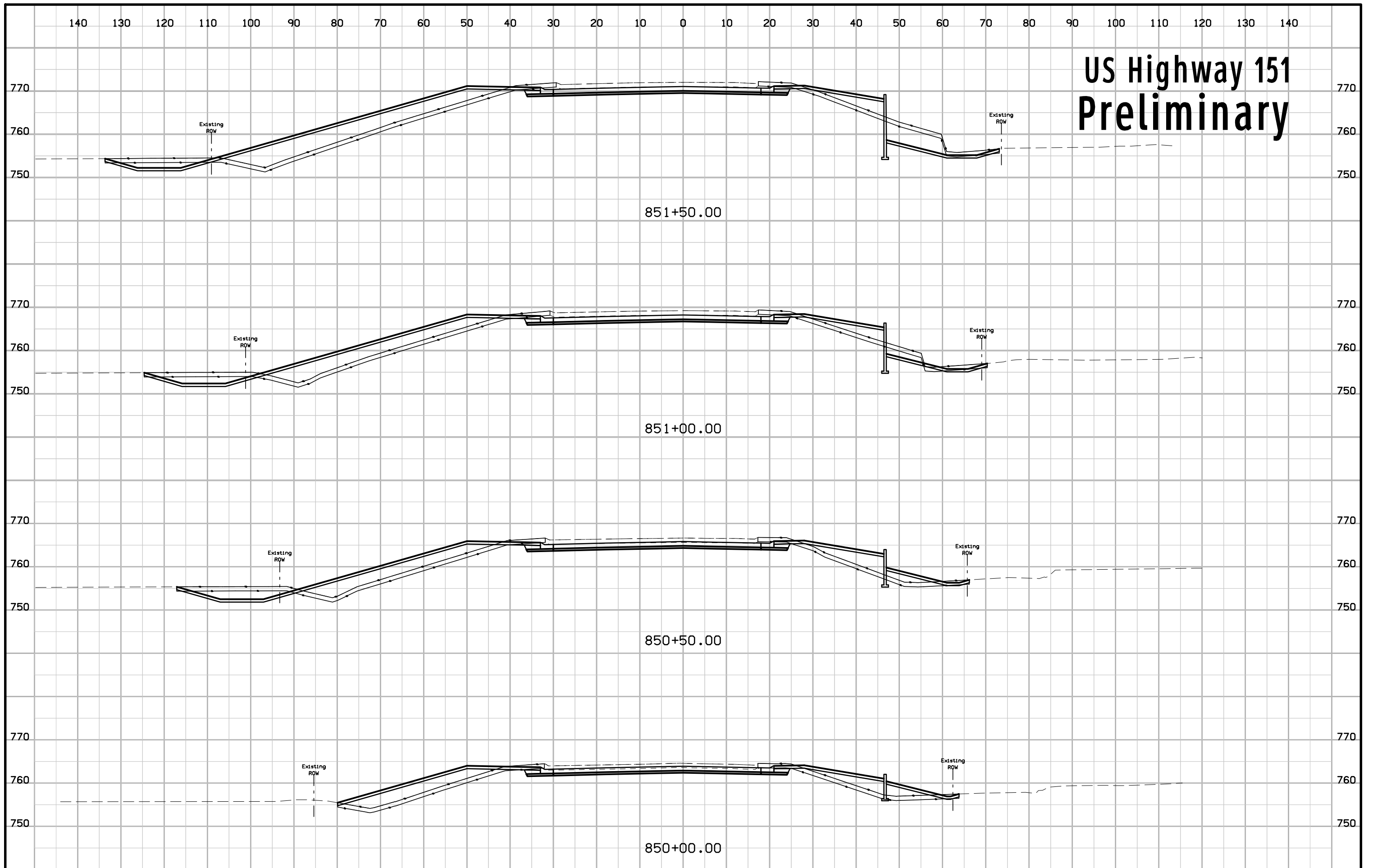
US Highway 151 Preliminary



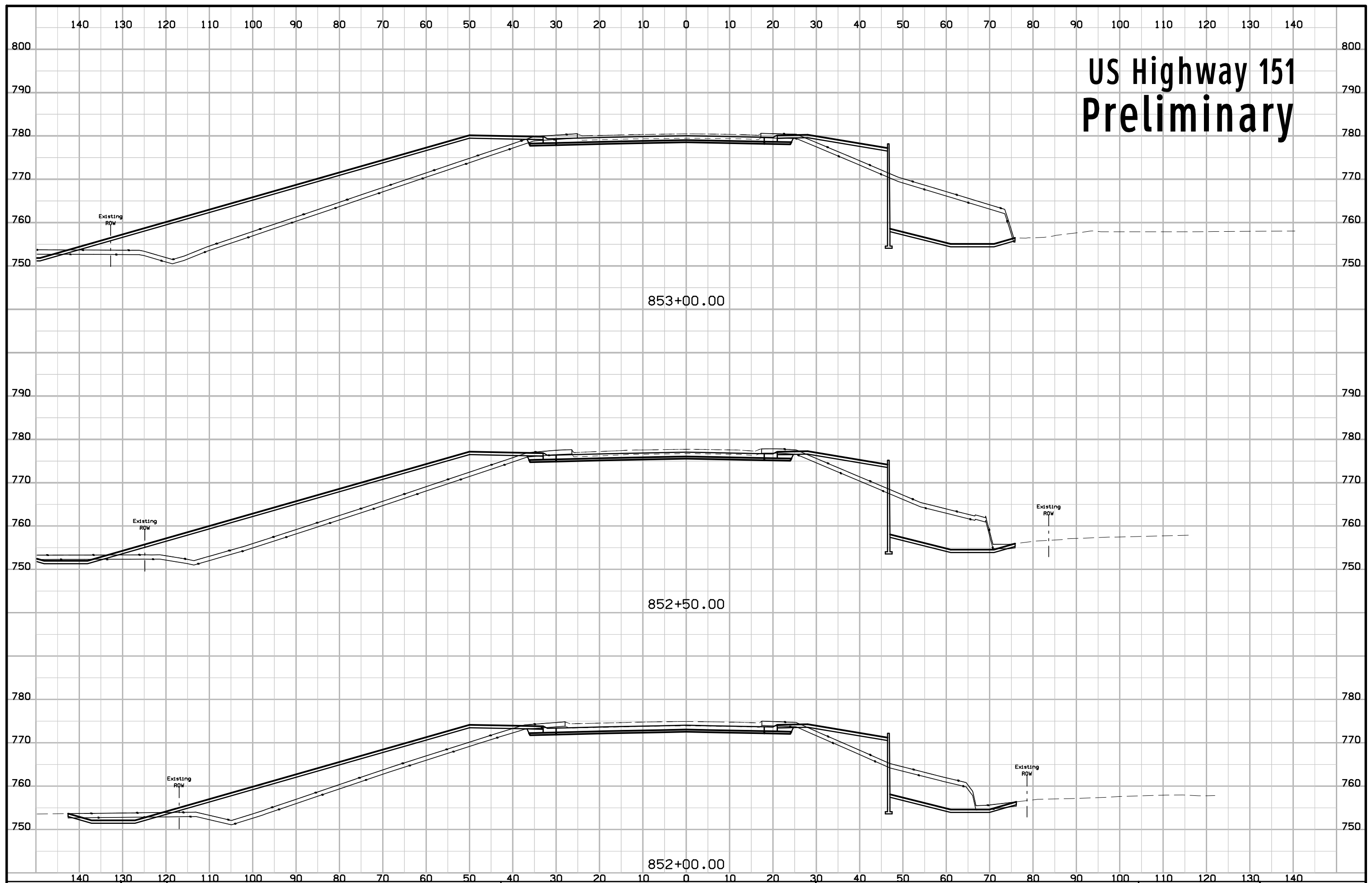
US Highway 151 Preliminary



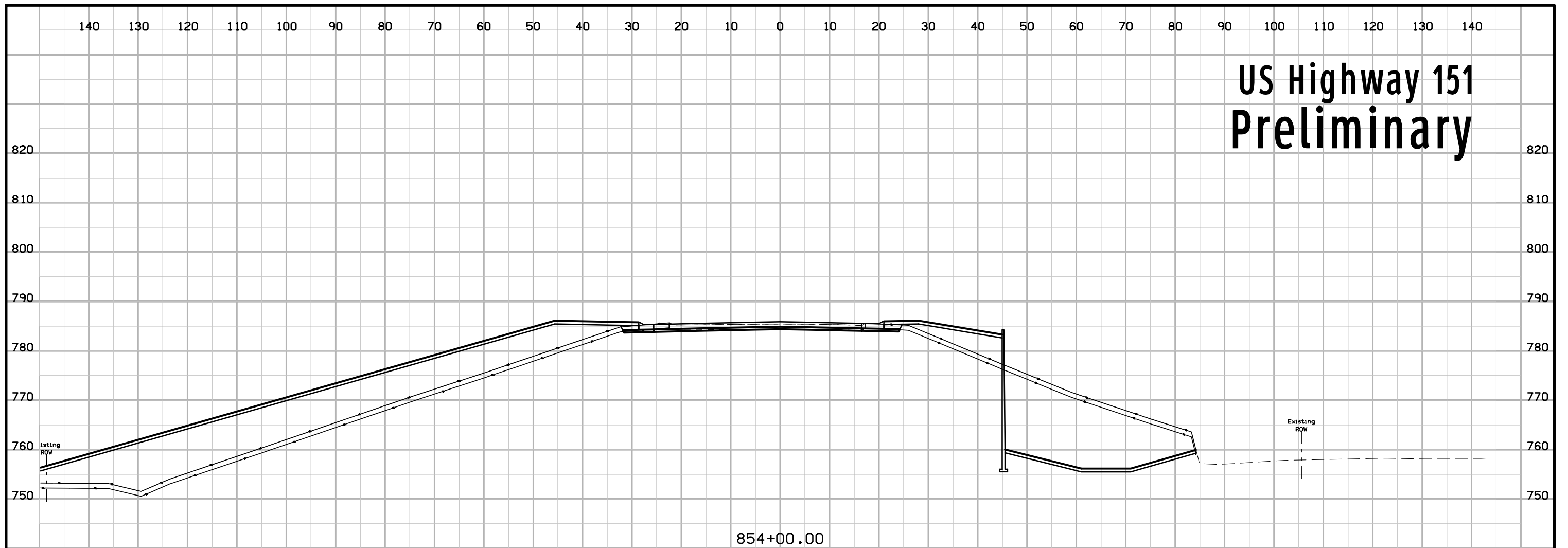
US Highway 151 Preliminary



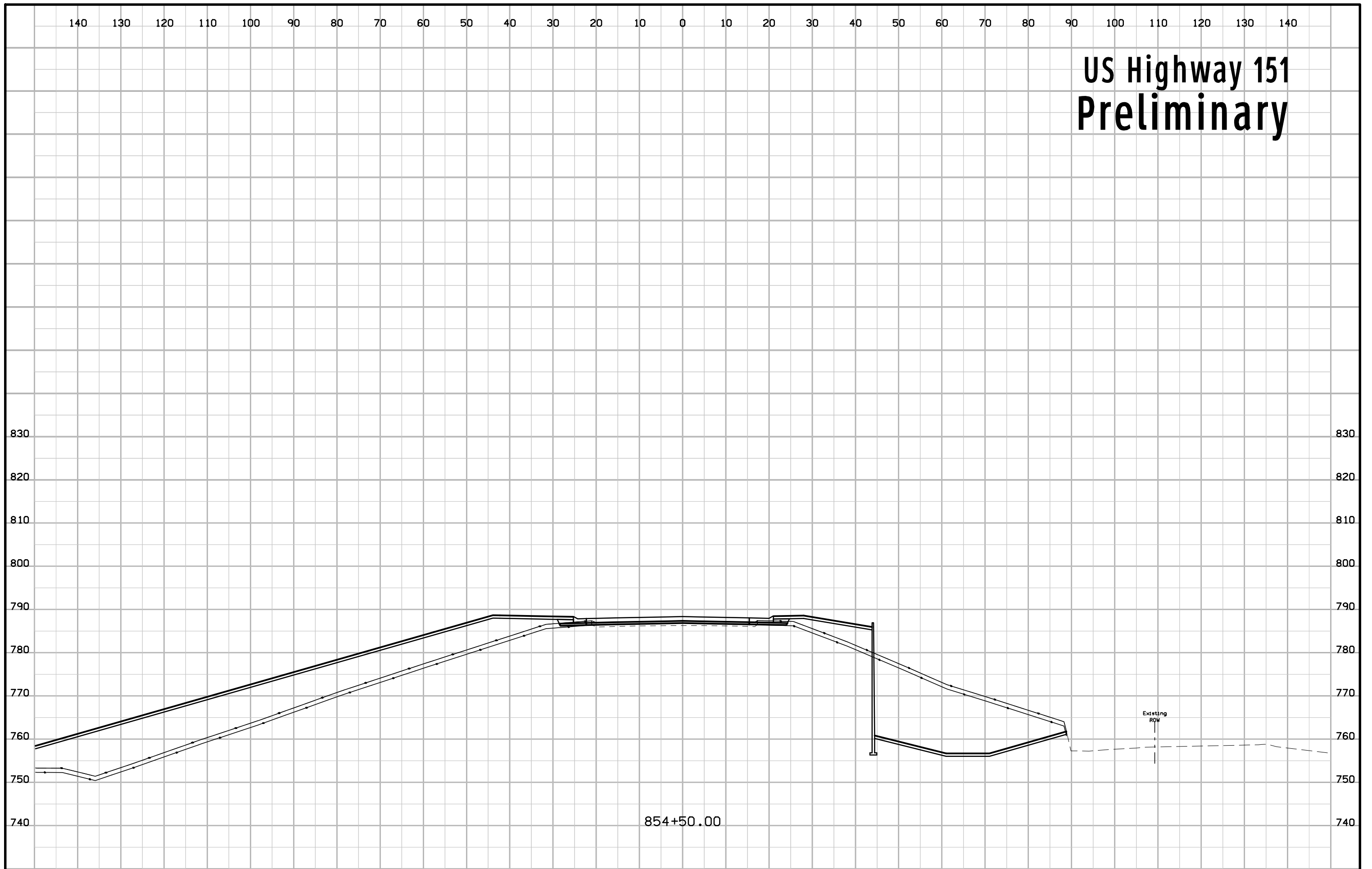
US Highway 151 Preliminary



US Highway 151 Preliminary



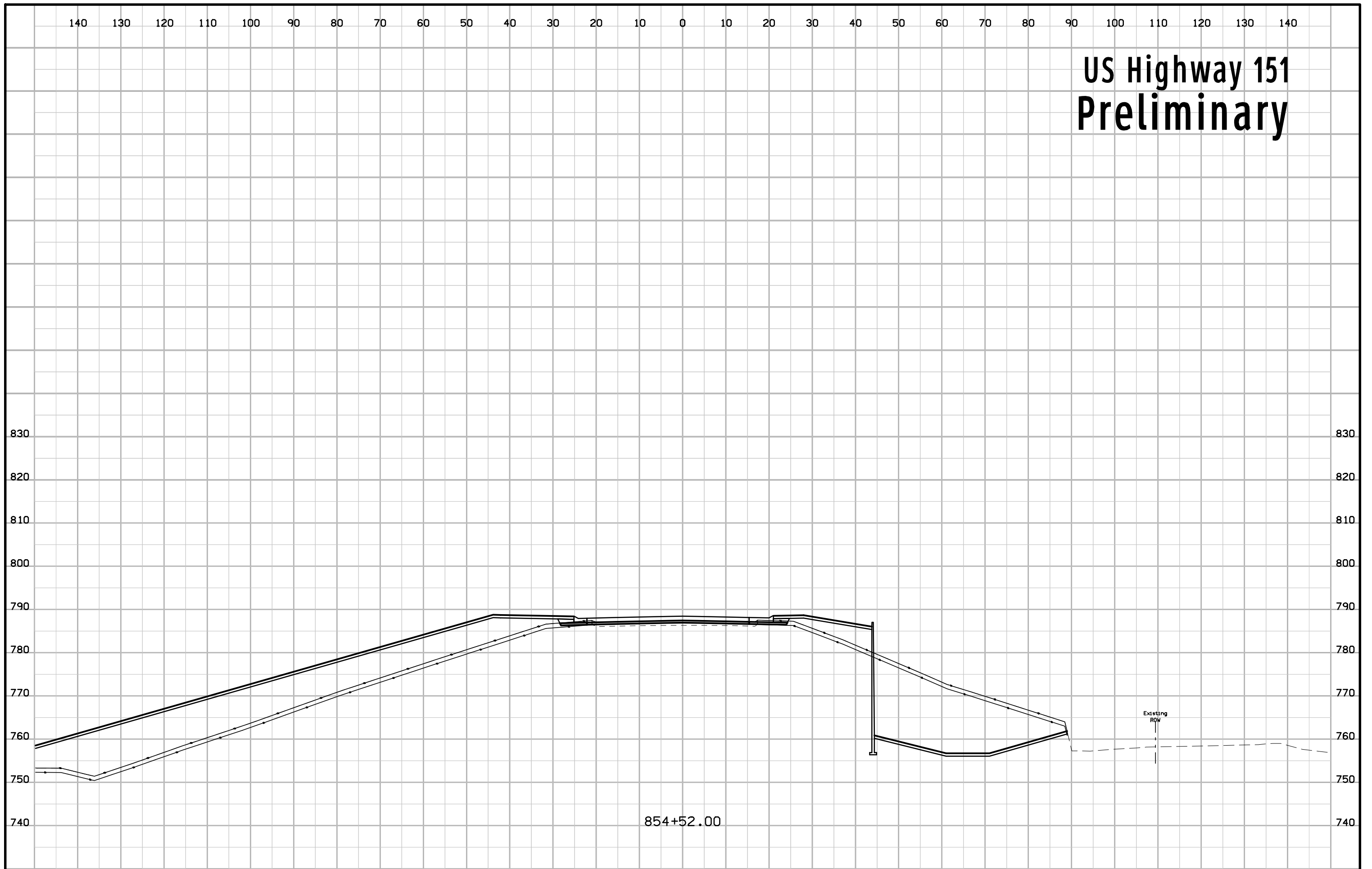
US Highway 151 Preliminary



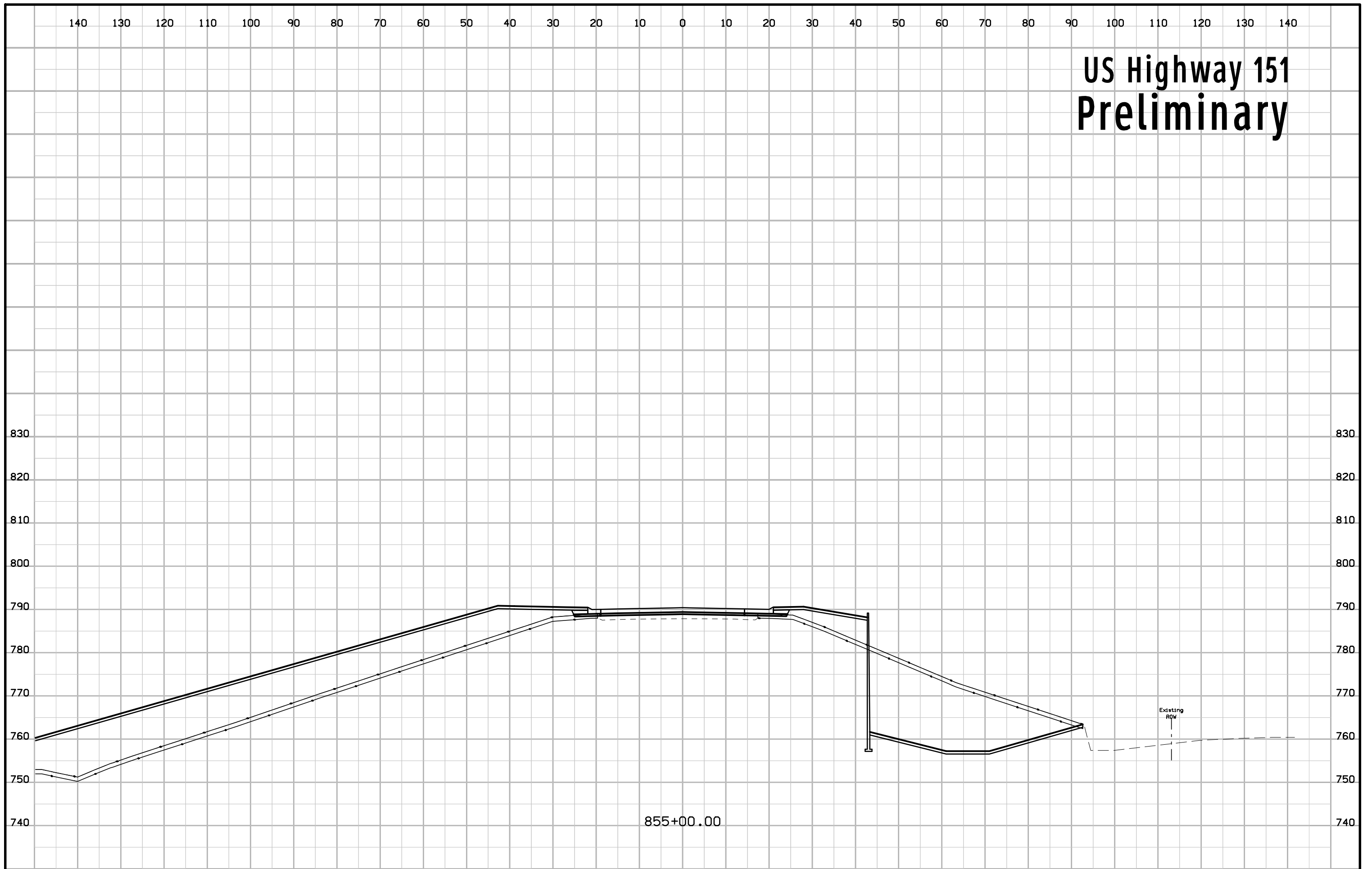
854+50.00

Existing
ROW

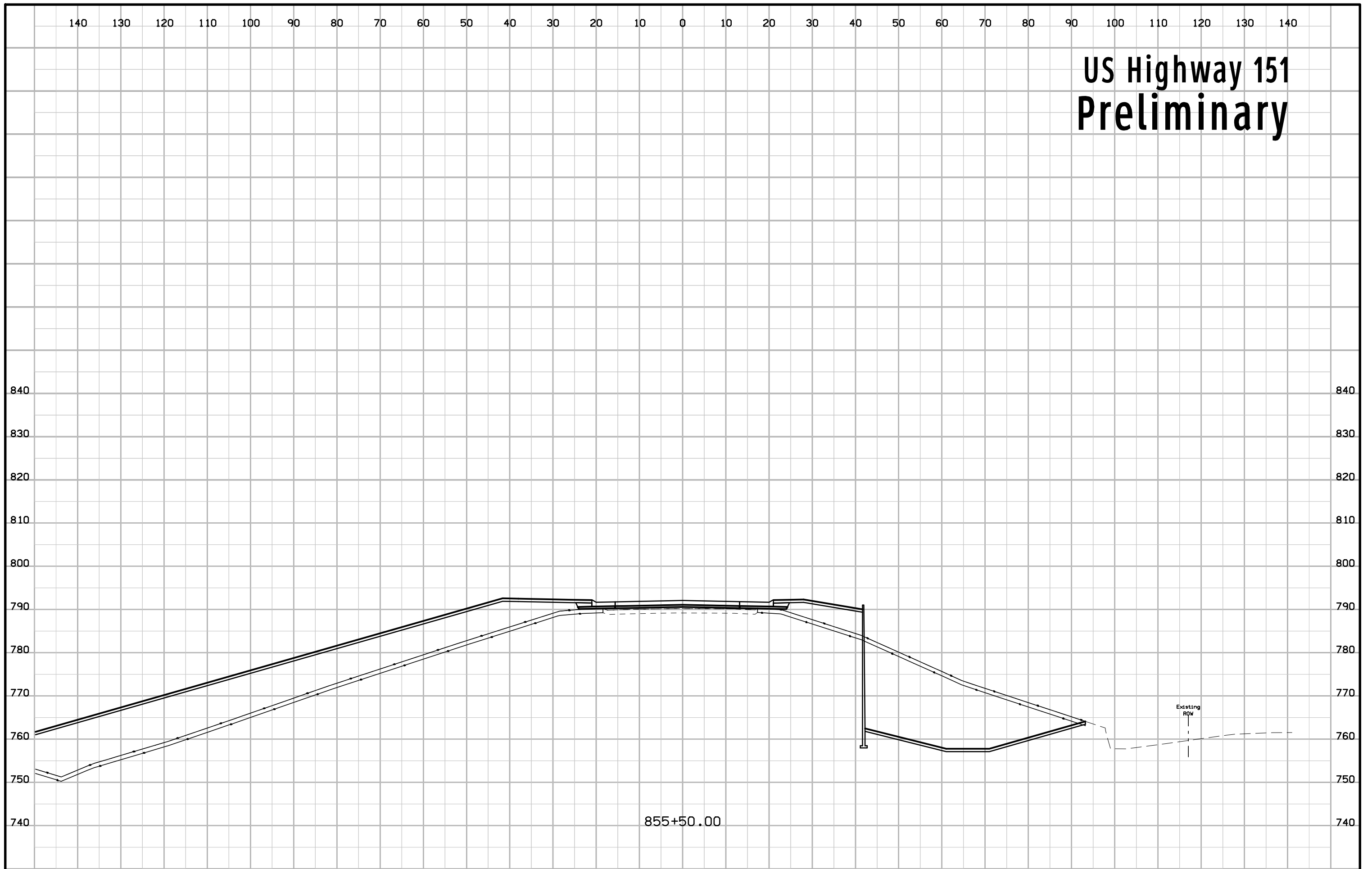
US Highway 151 Preliminary



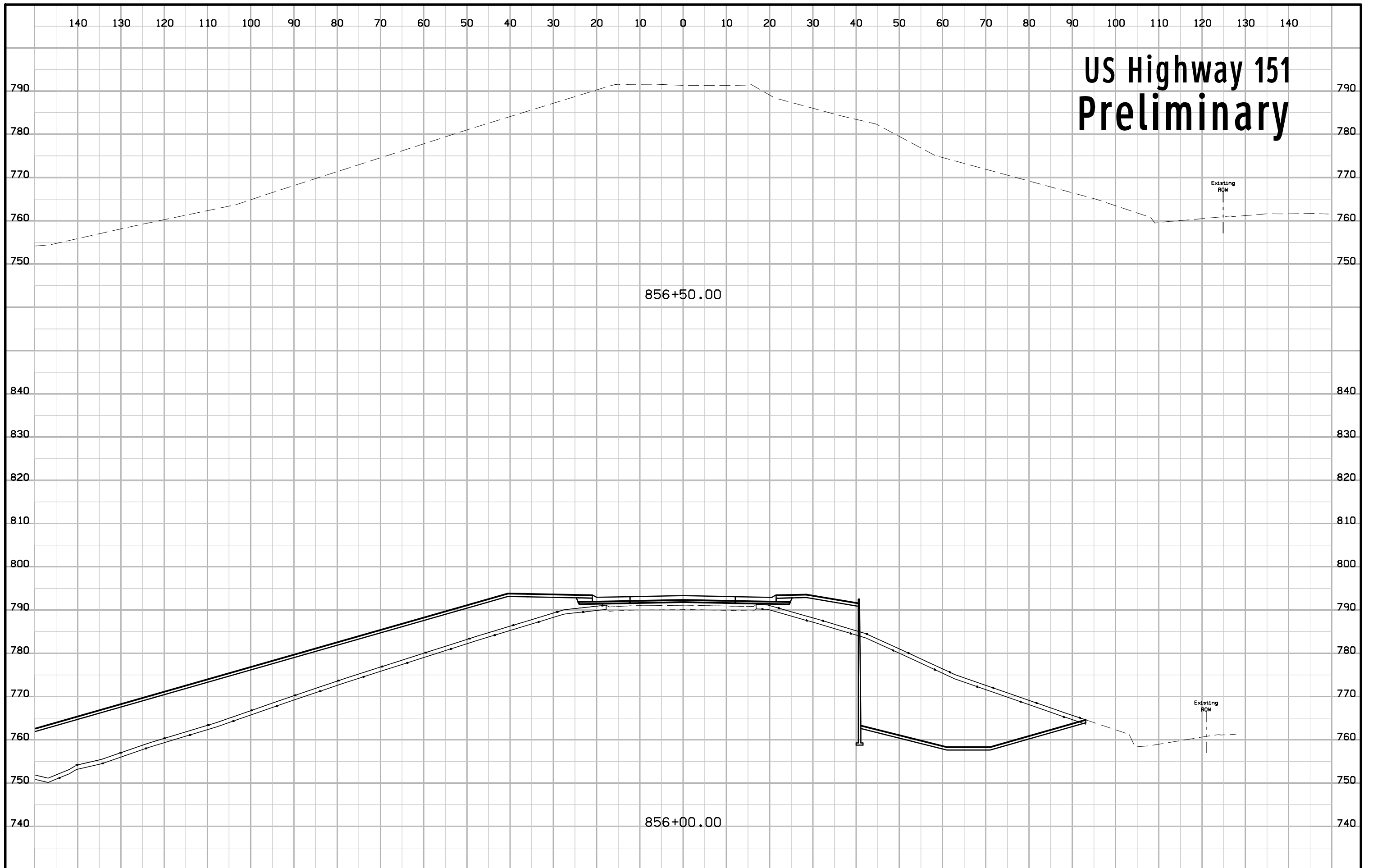
US Highway 151 Preliminary



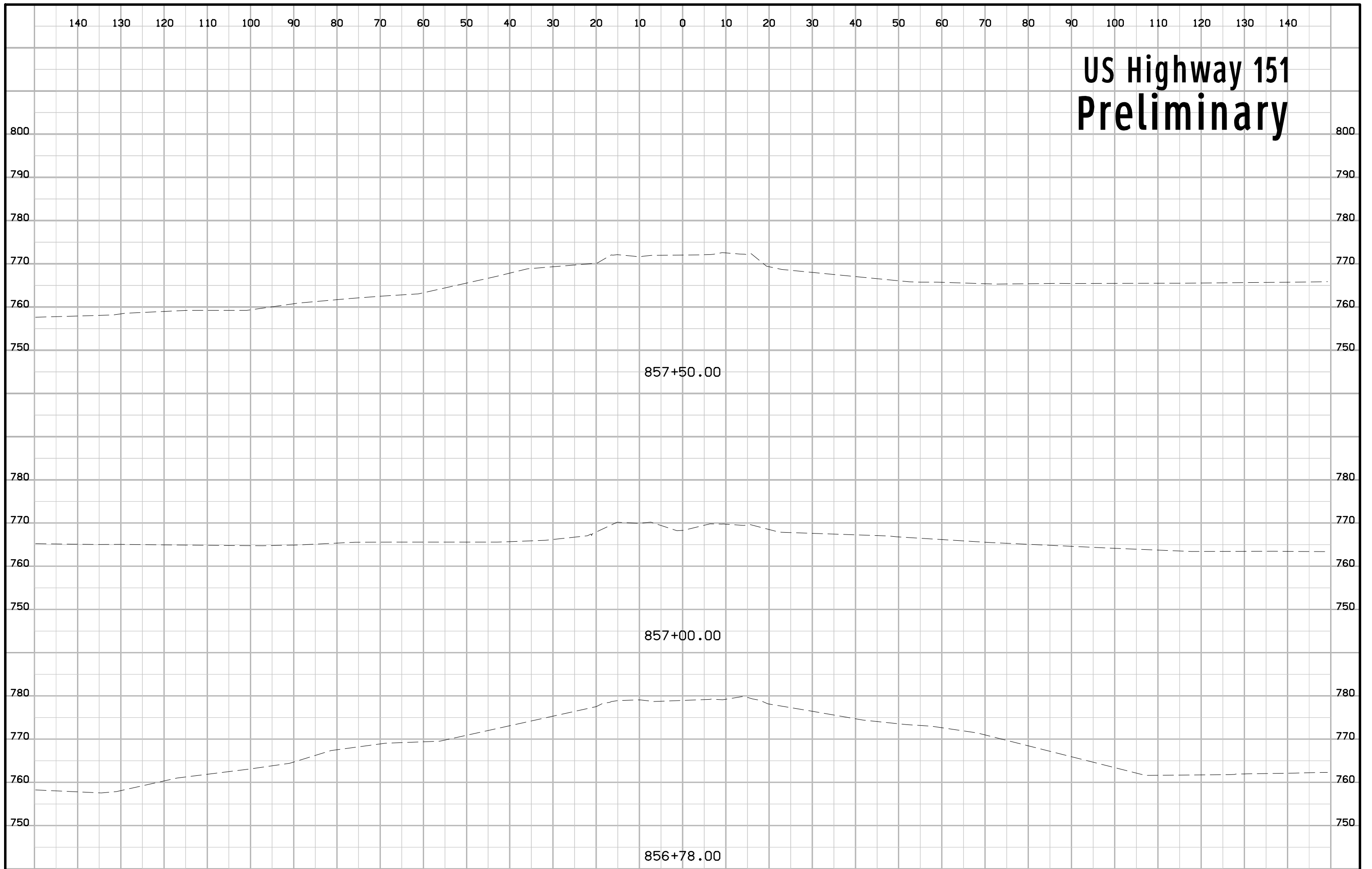
US Highway 151 Preliminary



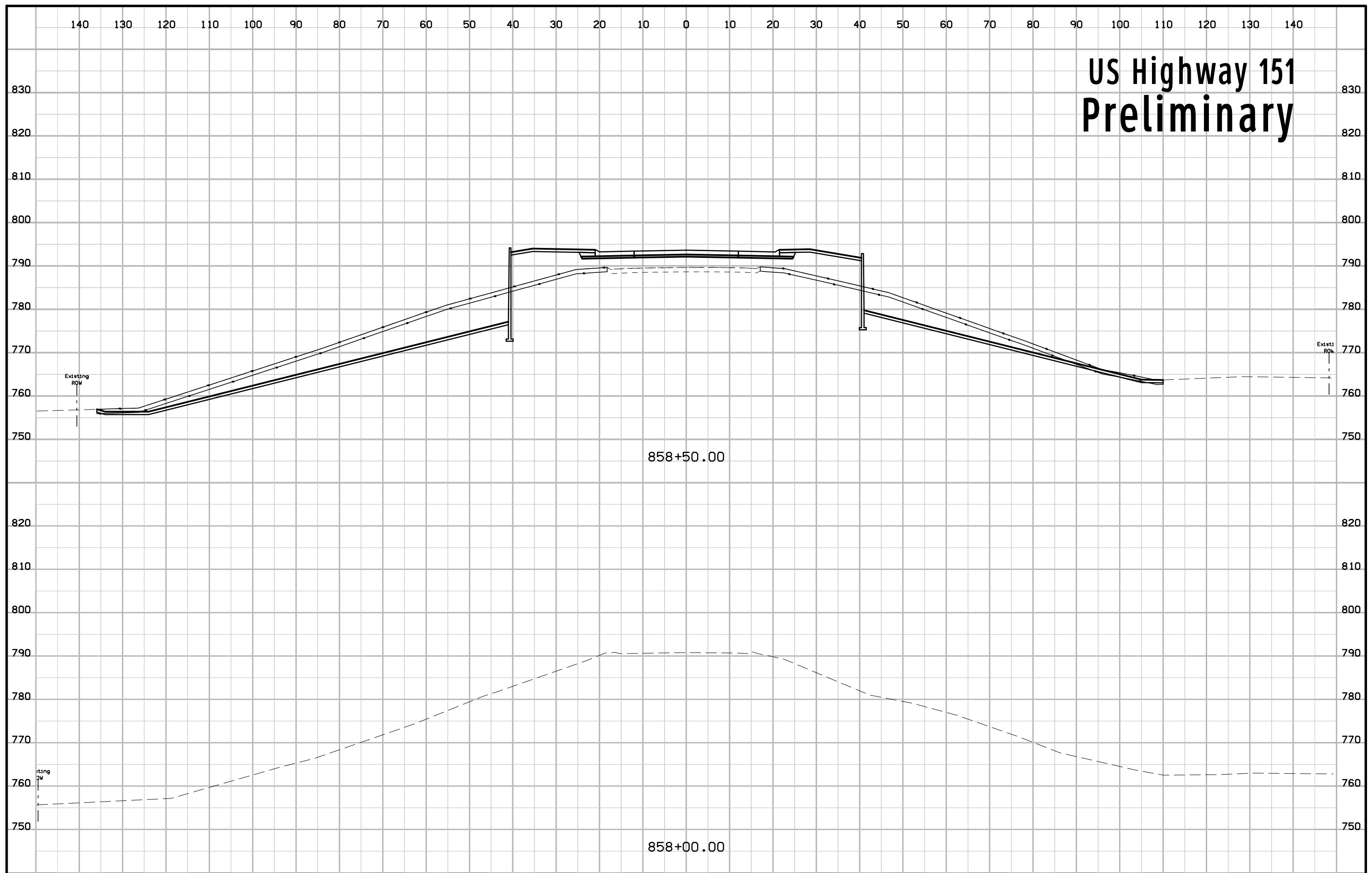
US Highway 151 Preliminary



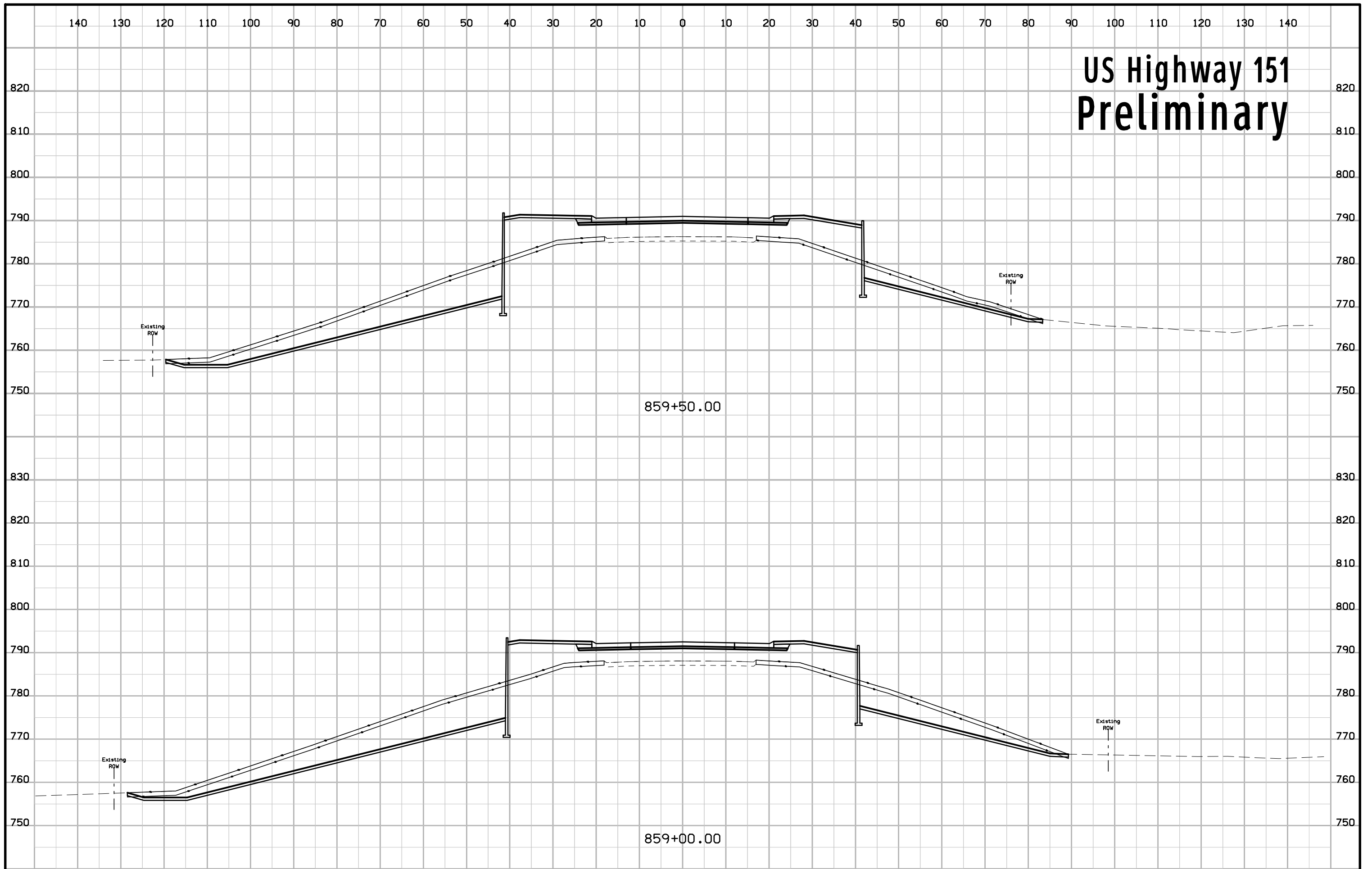
US Highway 151 Preliminary



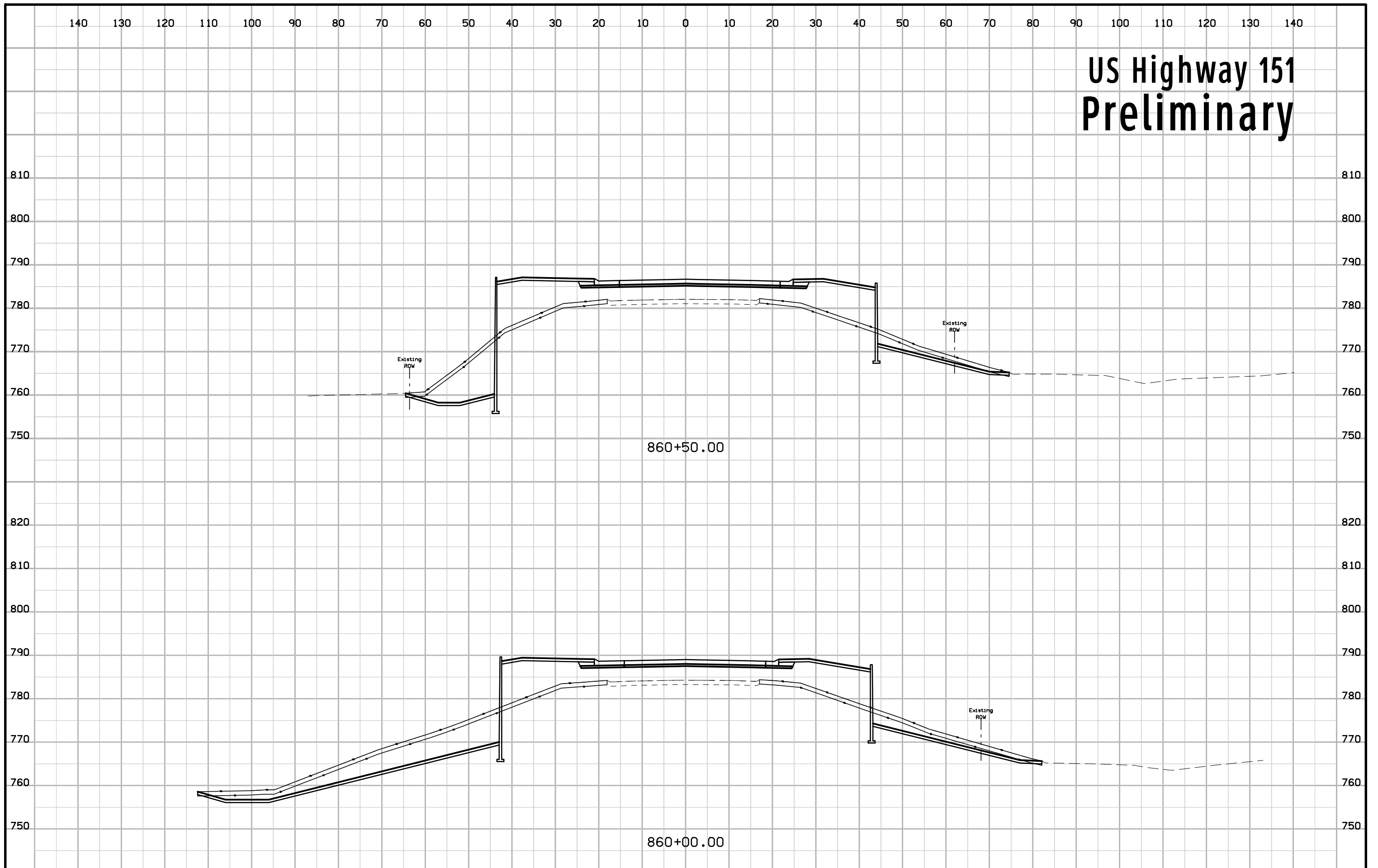
US Highway 151 Preliminary



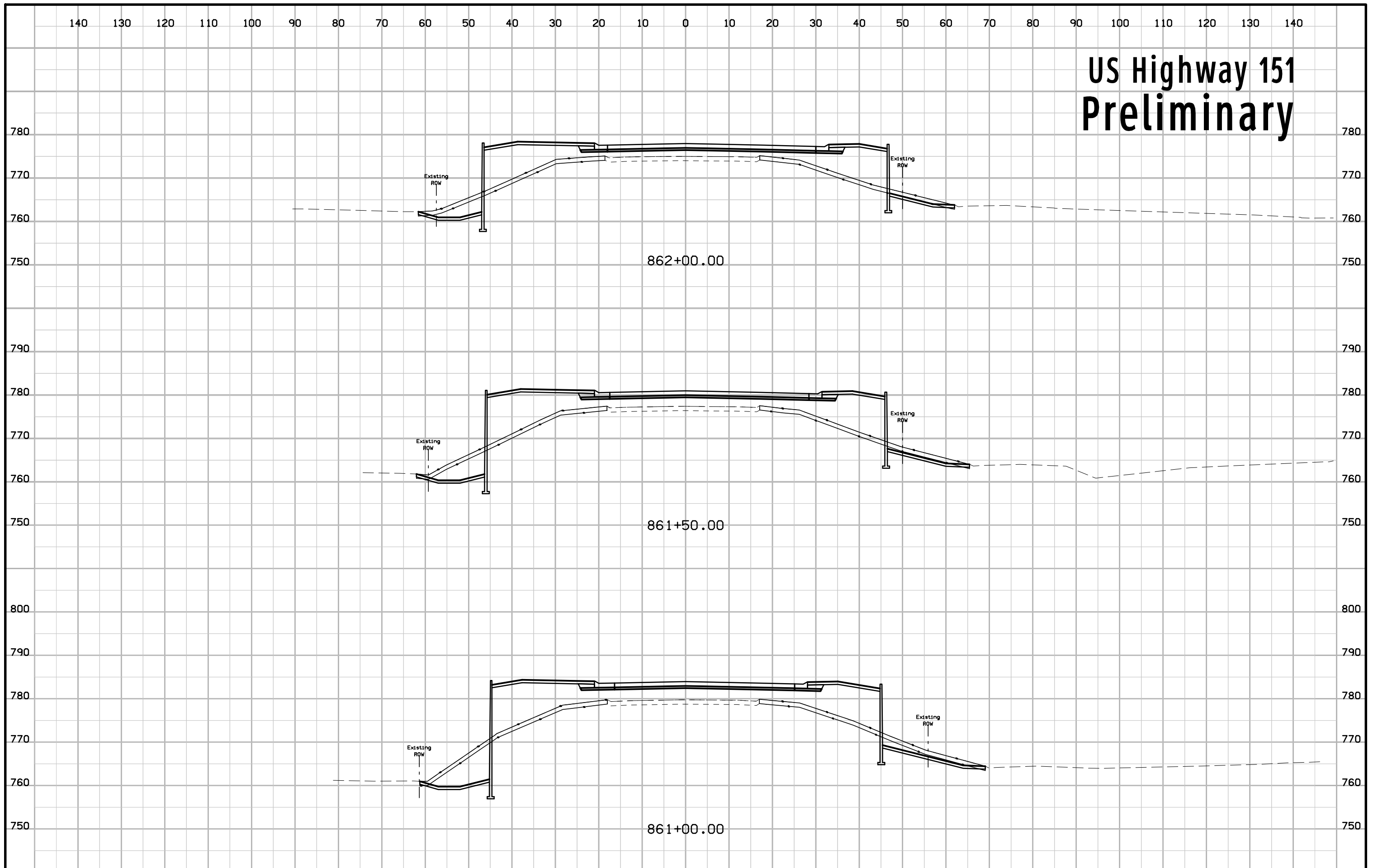
US Highway 151 Preliminary



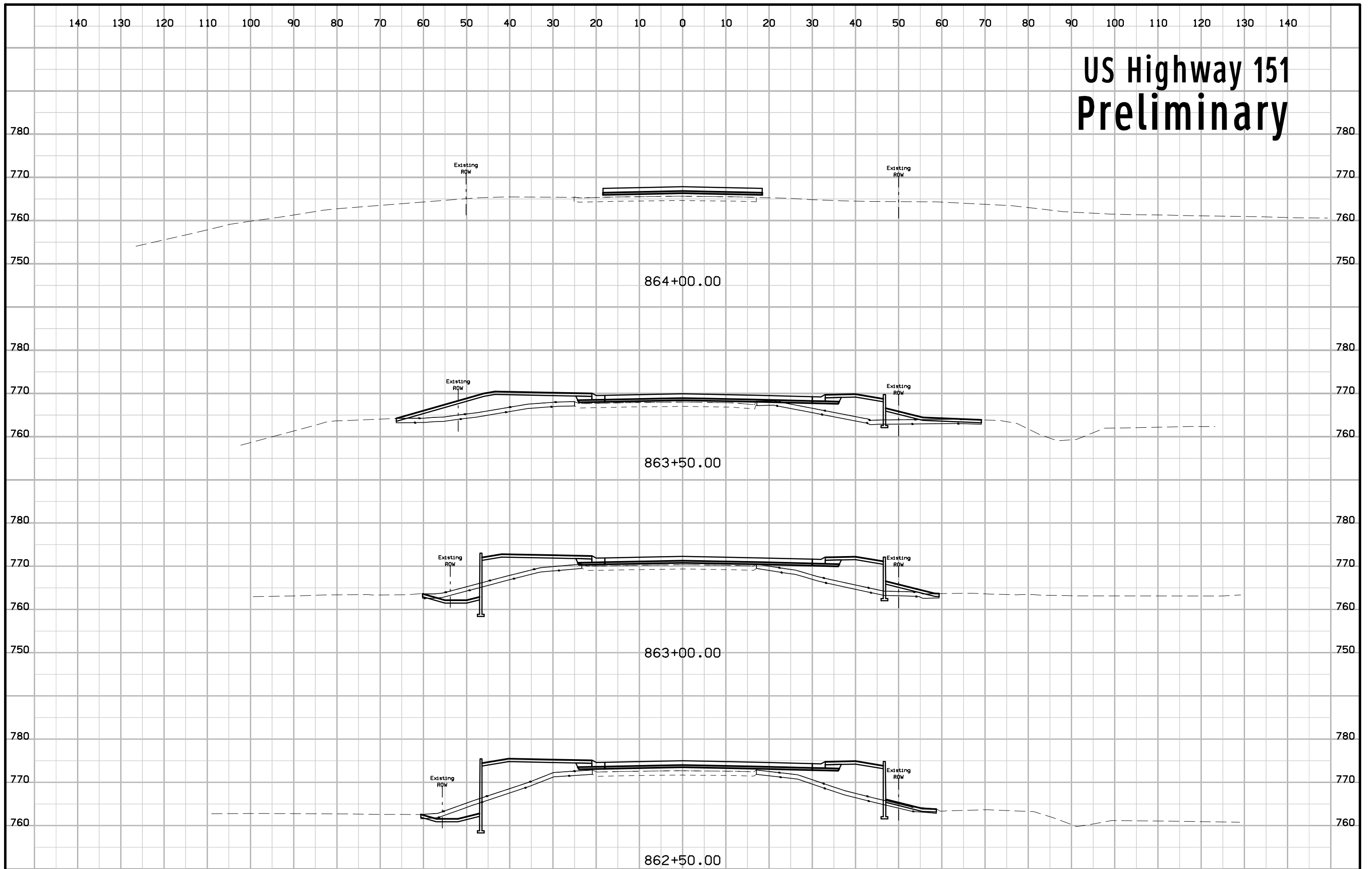
US Highway 151 Preliminary



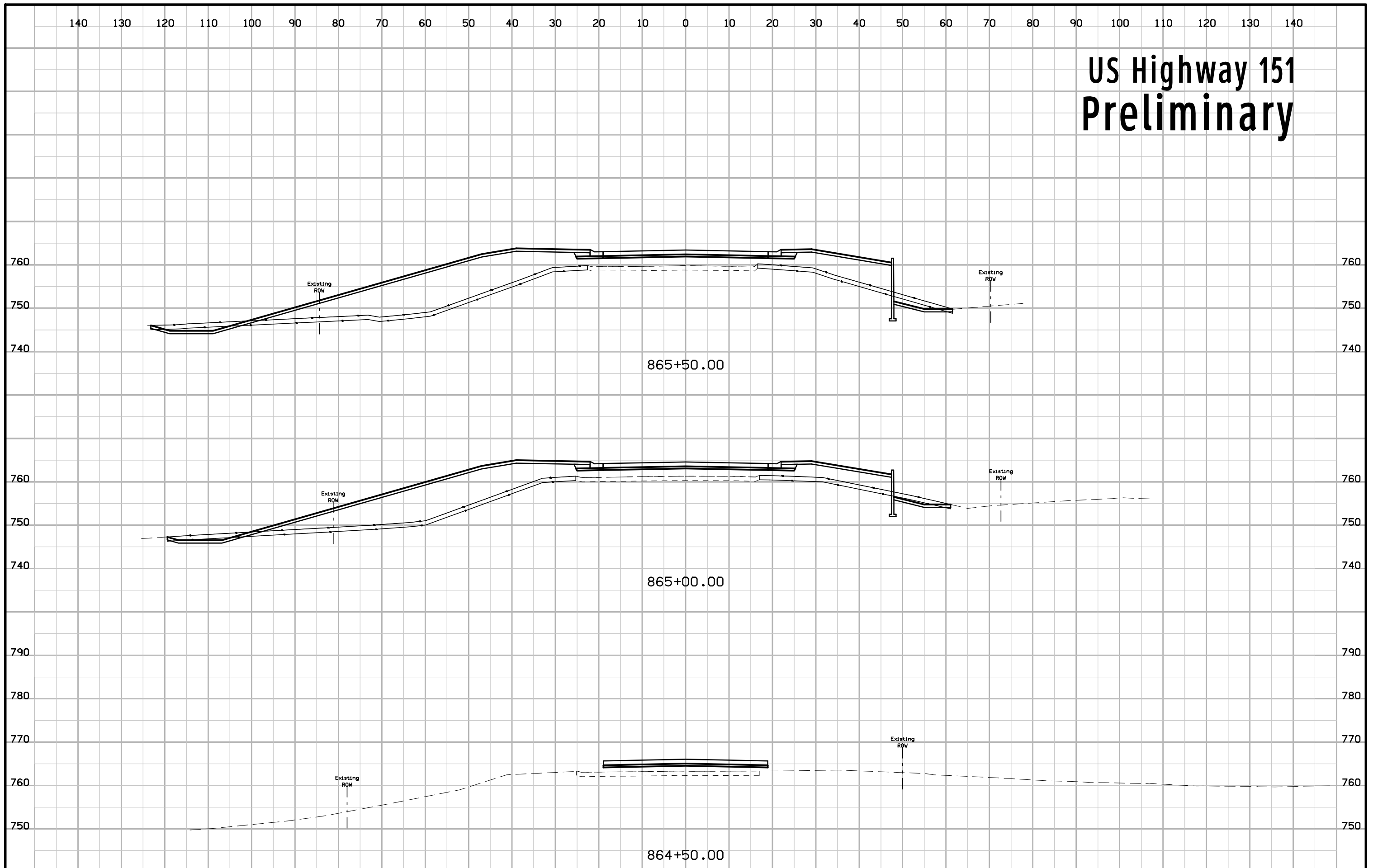
US Highway 151 Preliminary



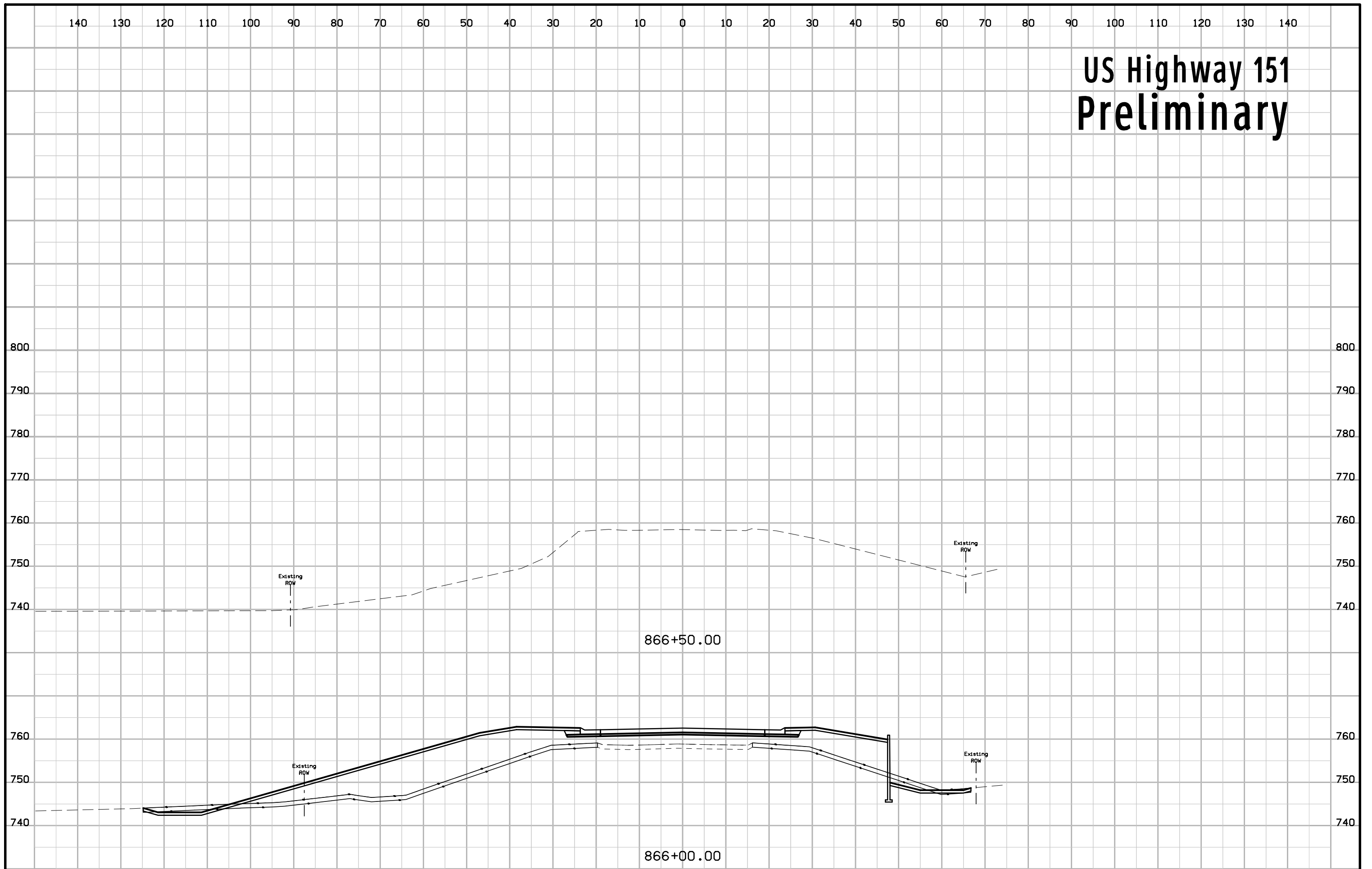
US Highway 151 Preliminary



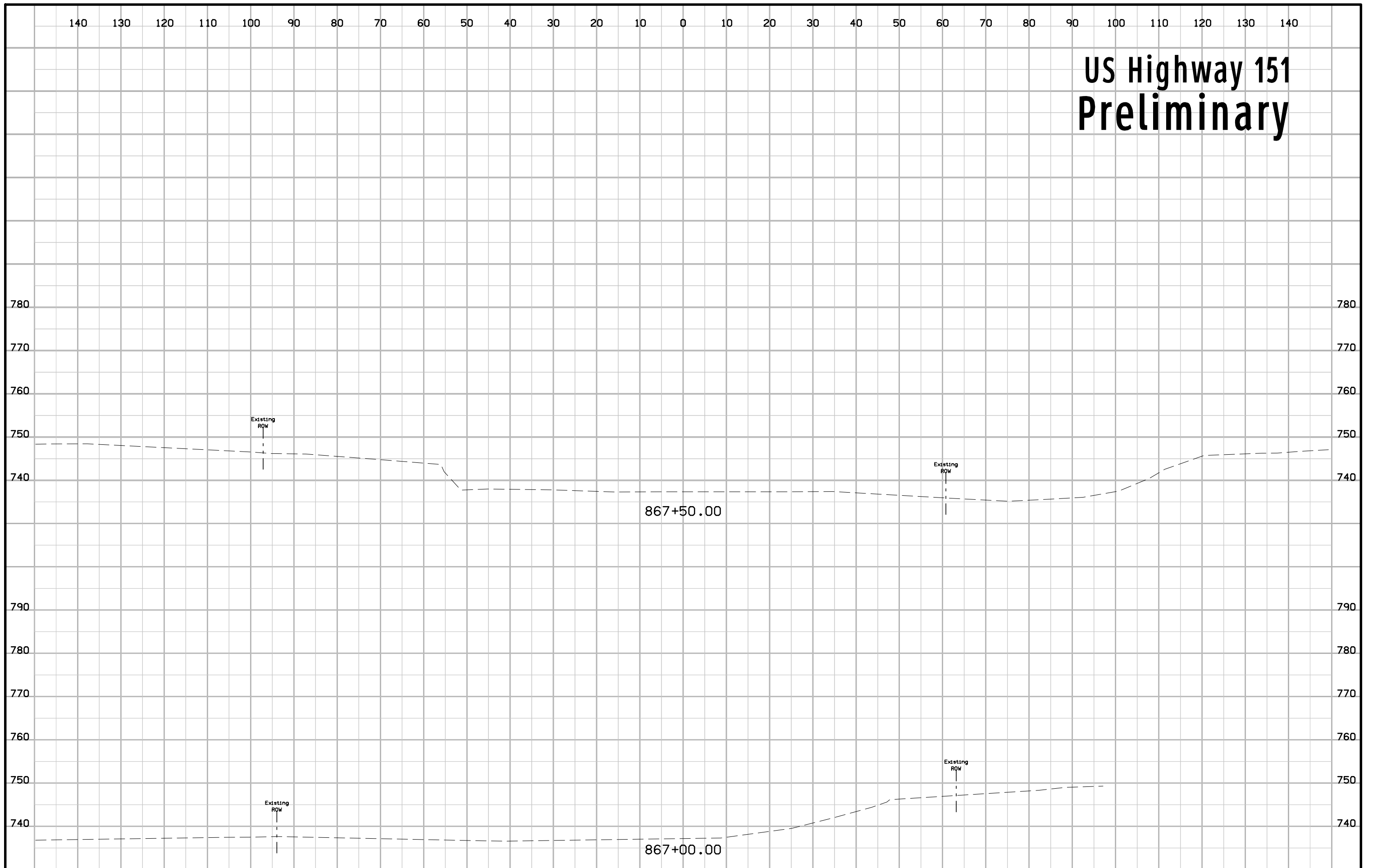
US Highway 151 Preliminary



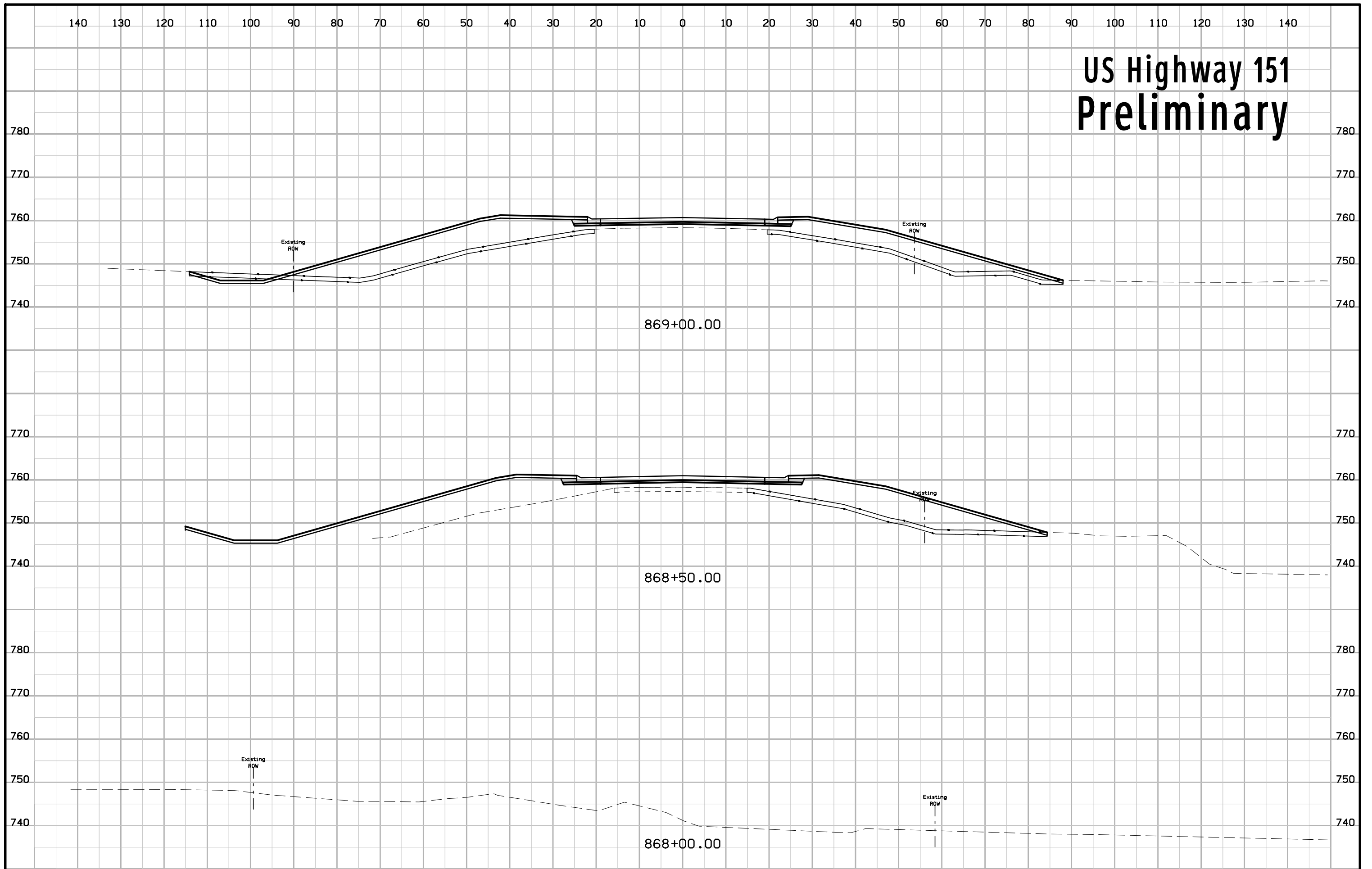
US Highway 151 Preliminary



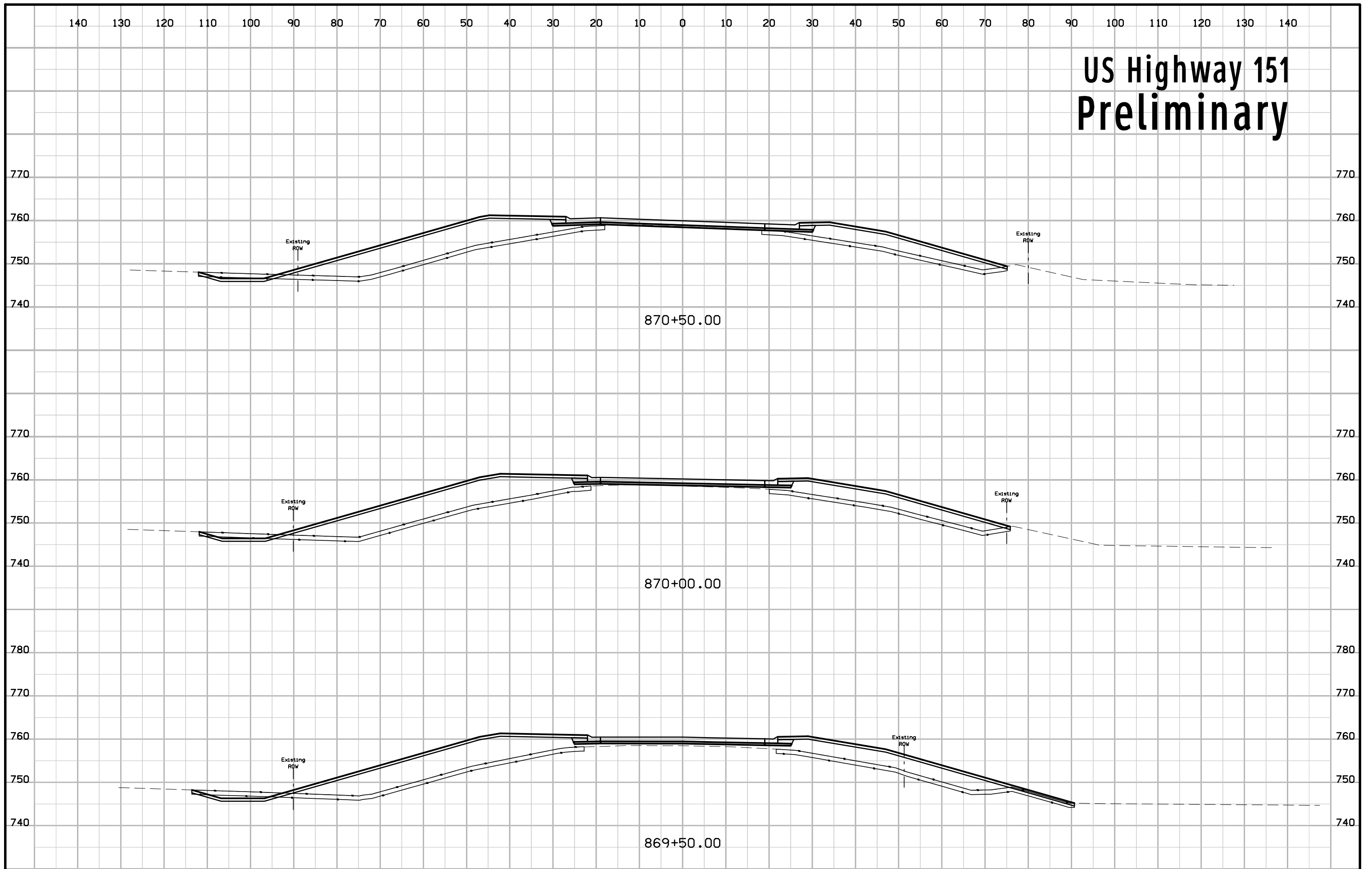
US Highway 151 Preliminary



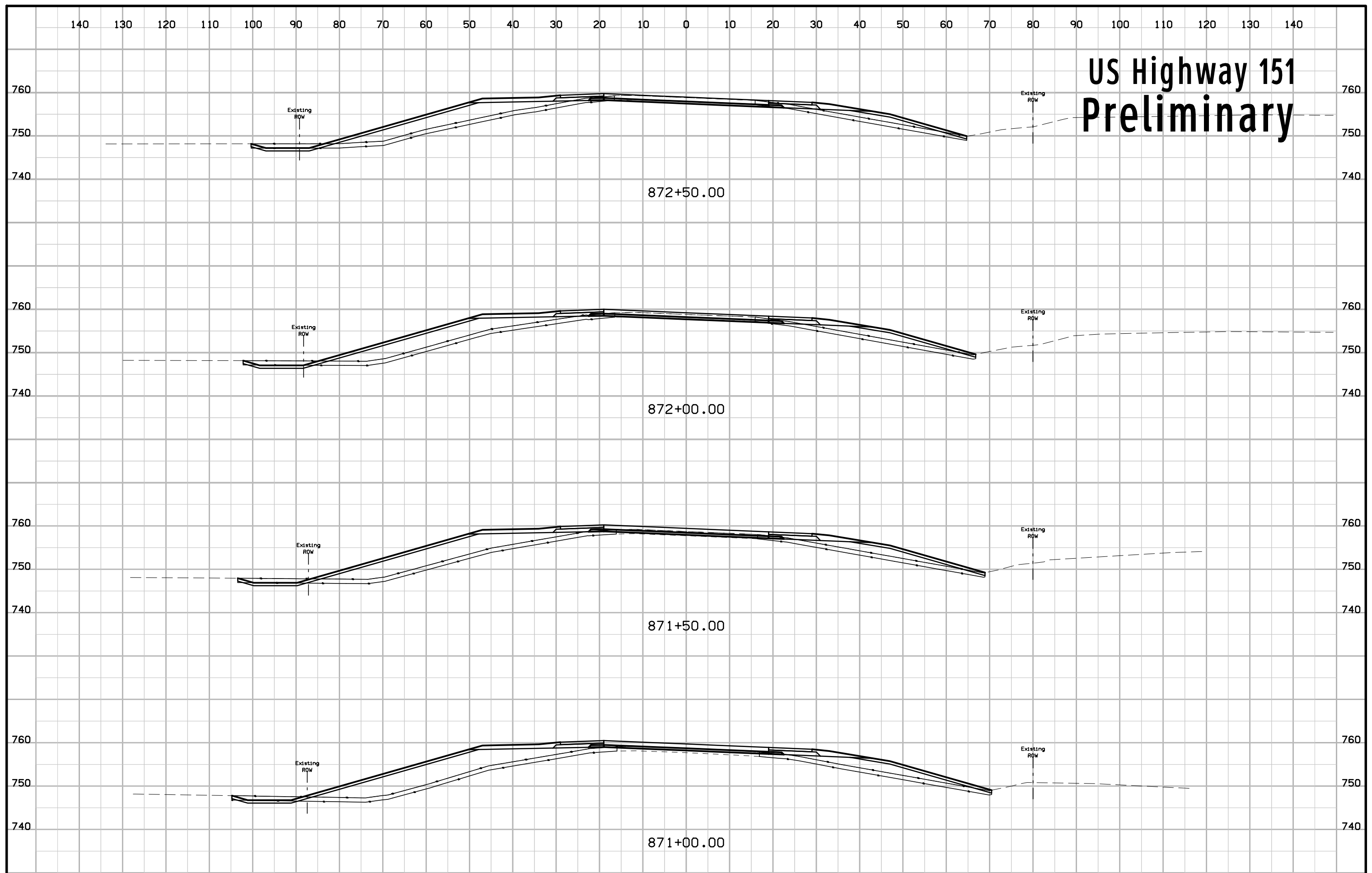
US Highway 151 Preliminary



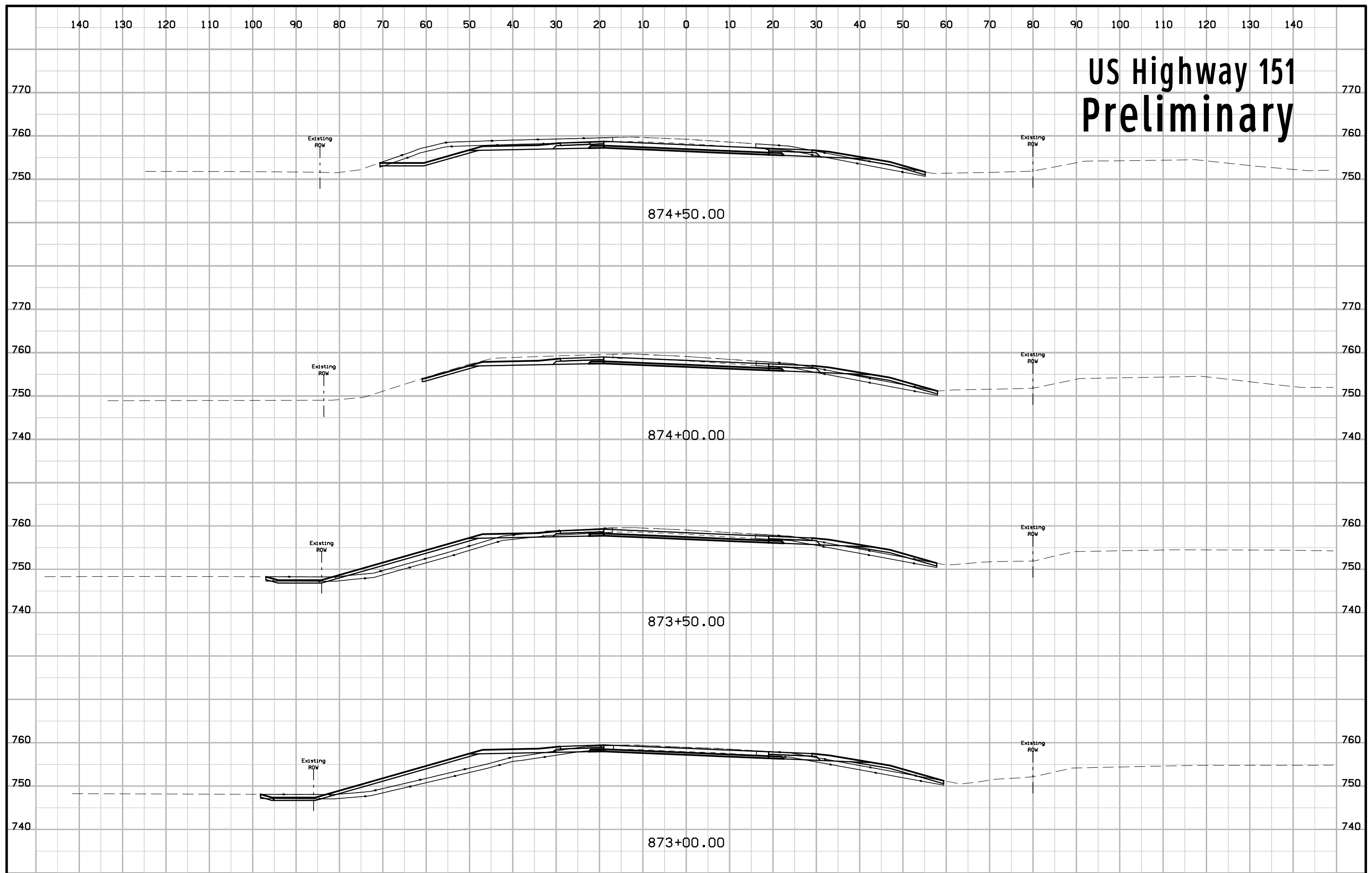
US Highway 151 Preliminary



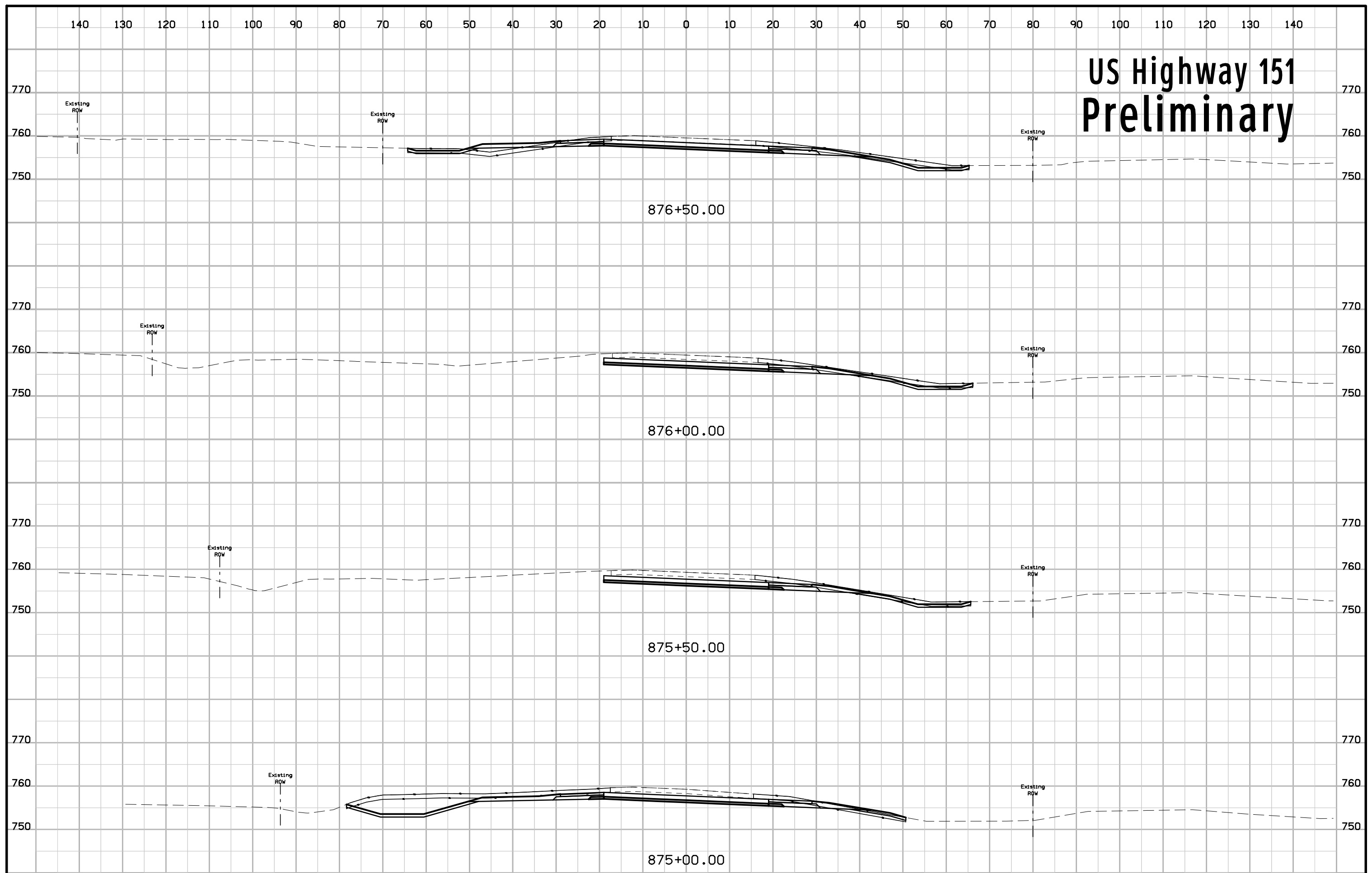
US Highway 151 Preliminary



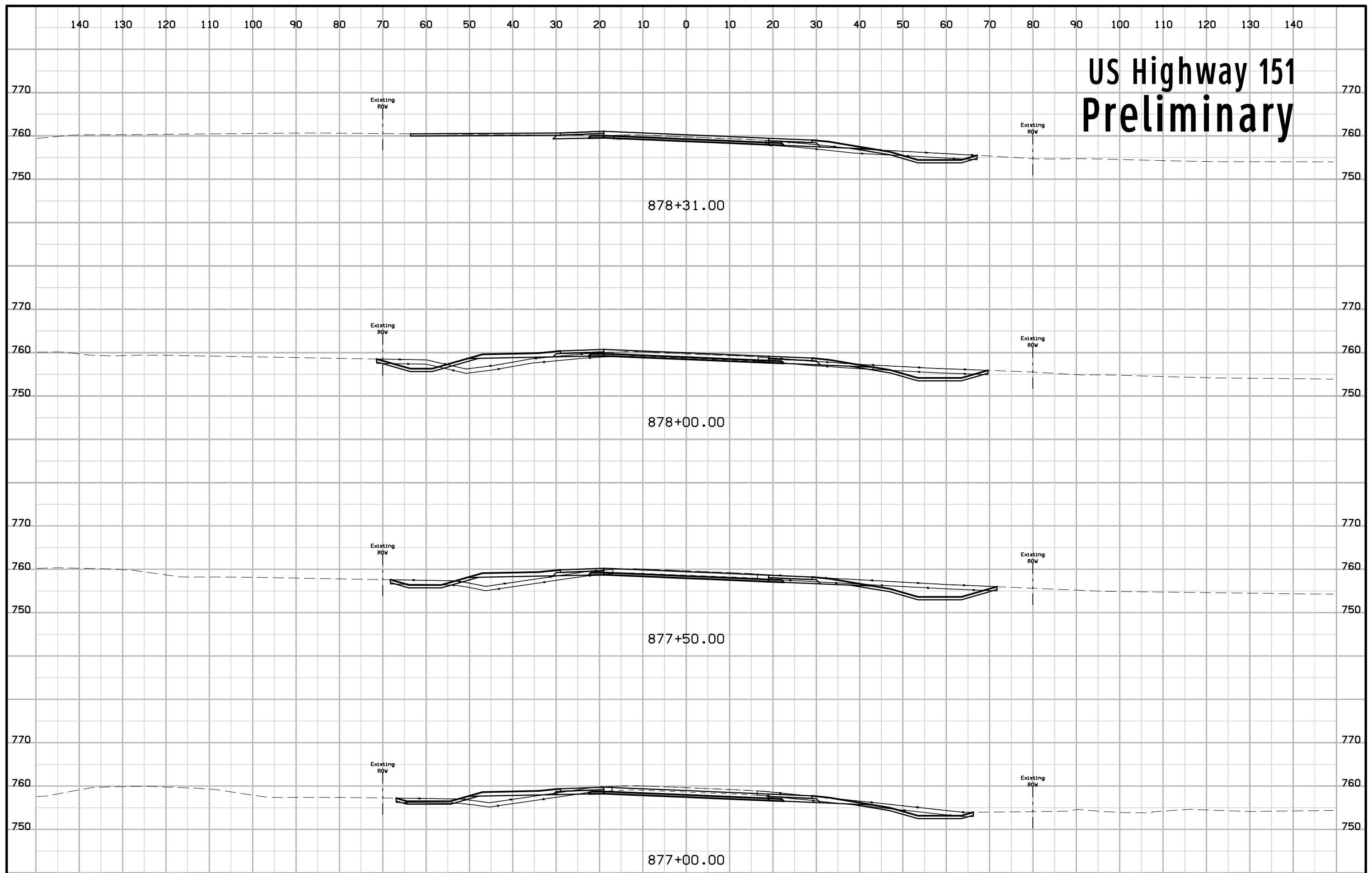
US Highway 151 Preliminary



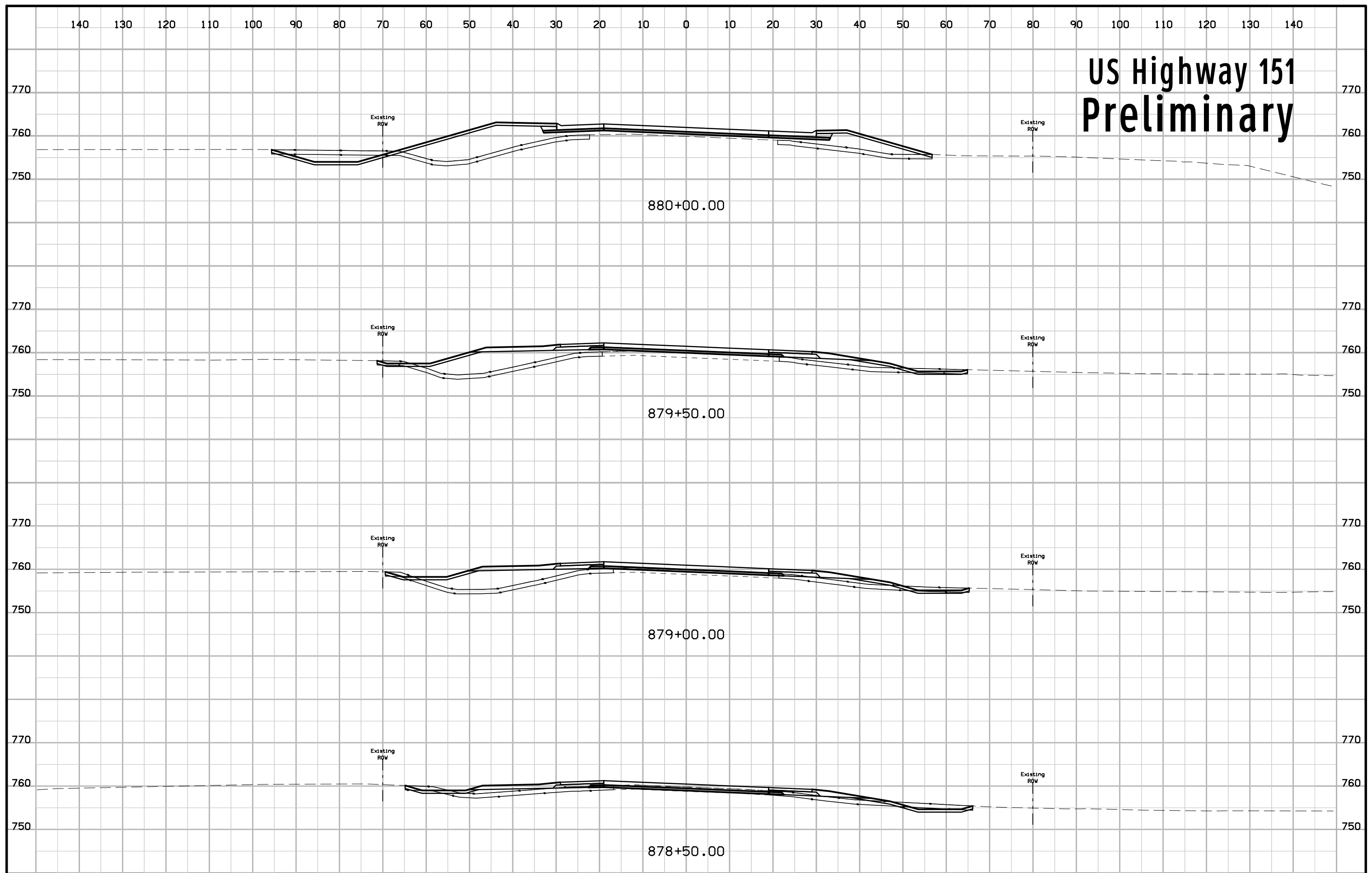
US Highway 151 Preliminary



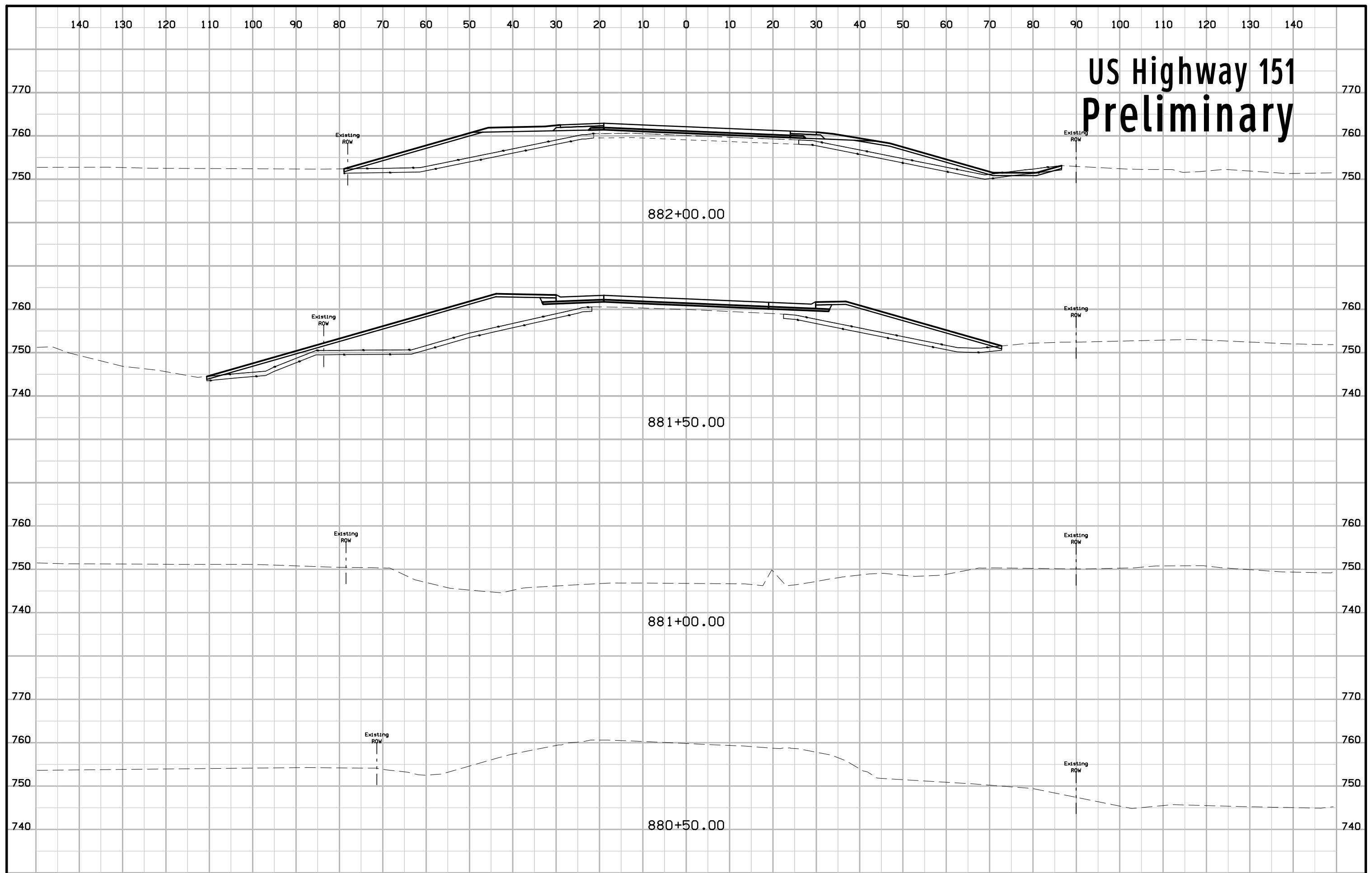
US Highway 151 Preliminary



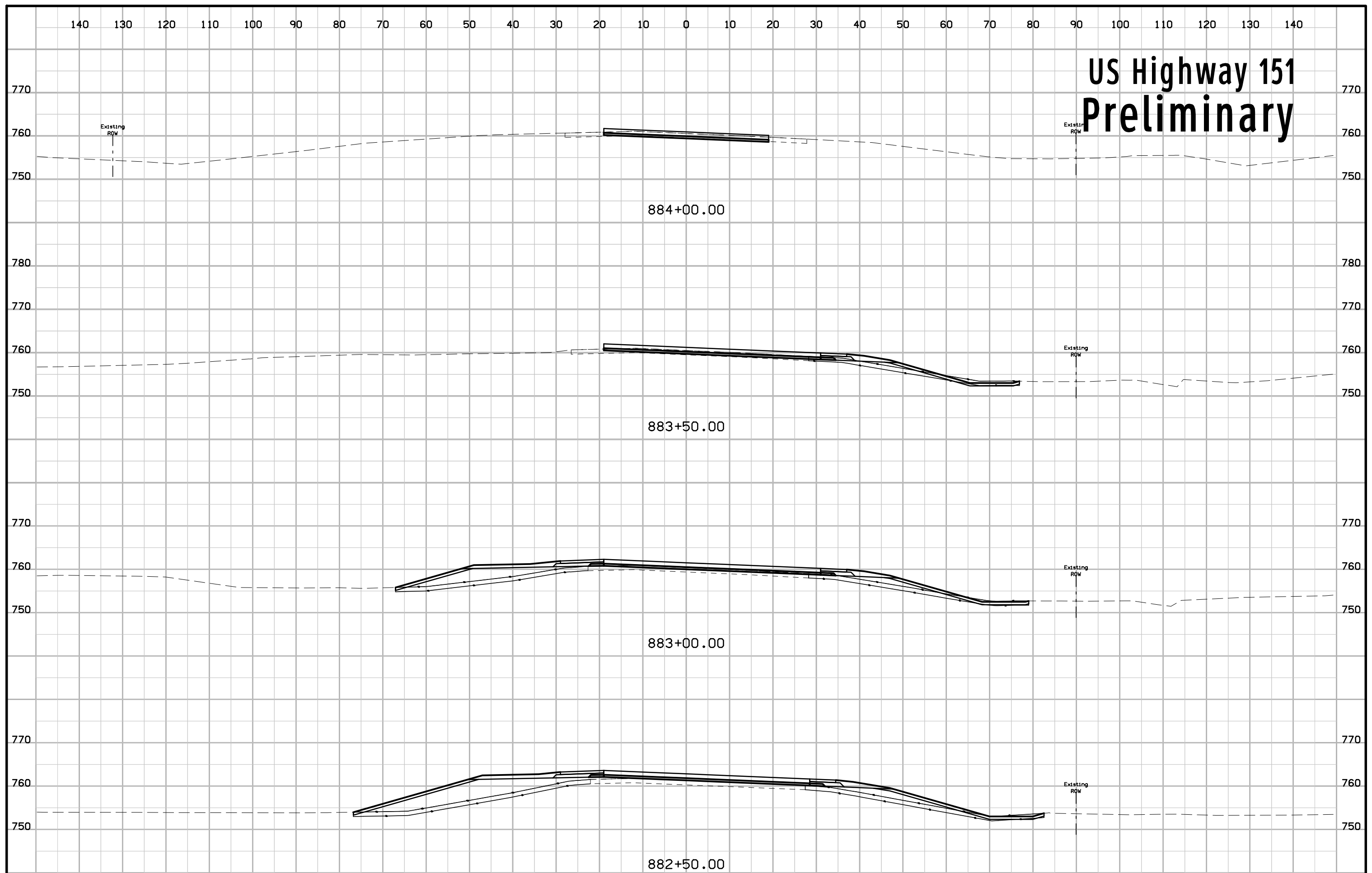
US Highway 151 Preliminary



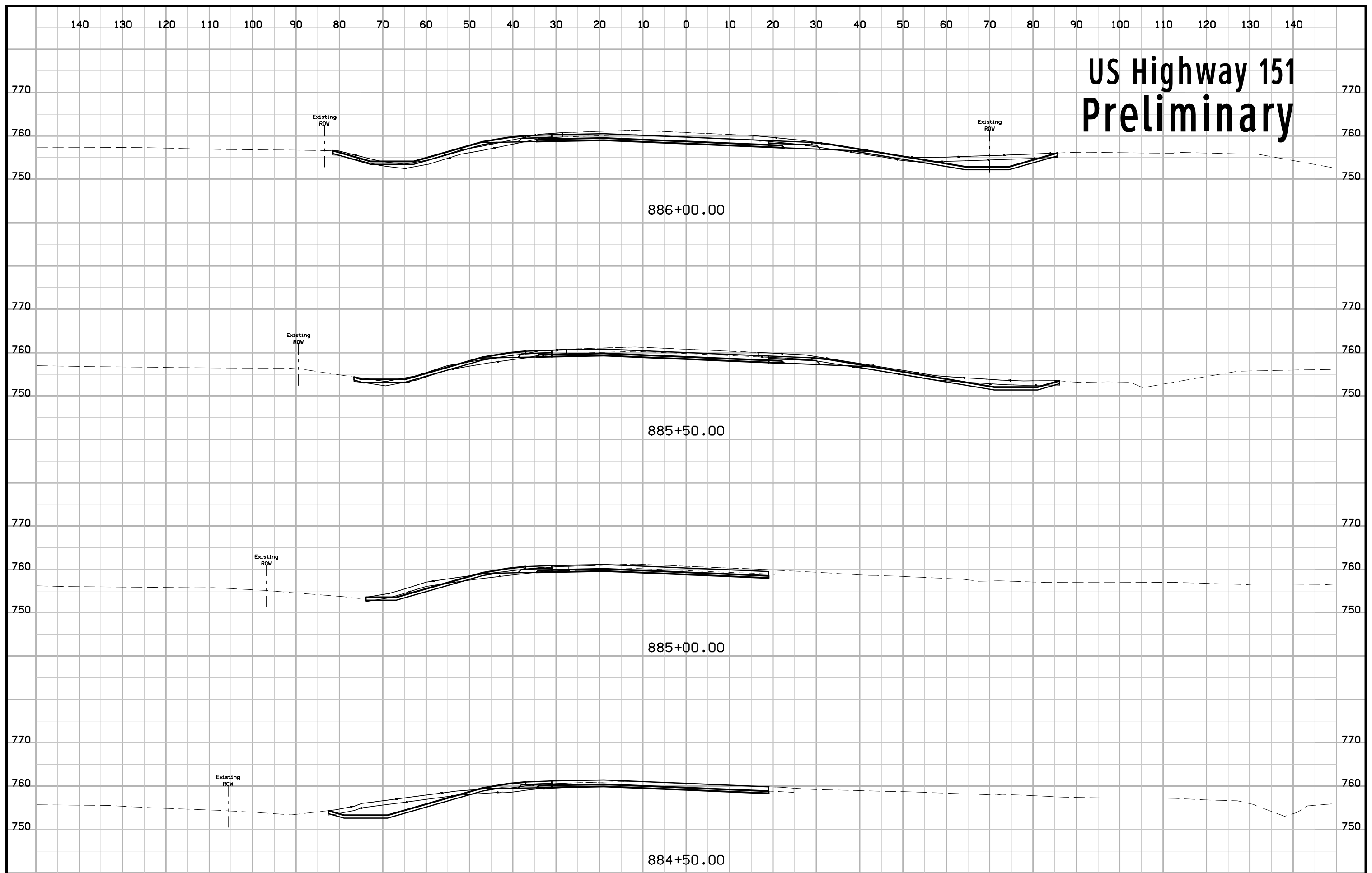
US Highway 151 Preliminary



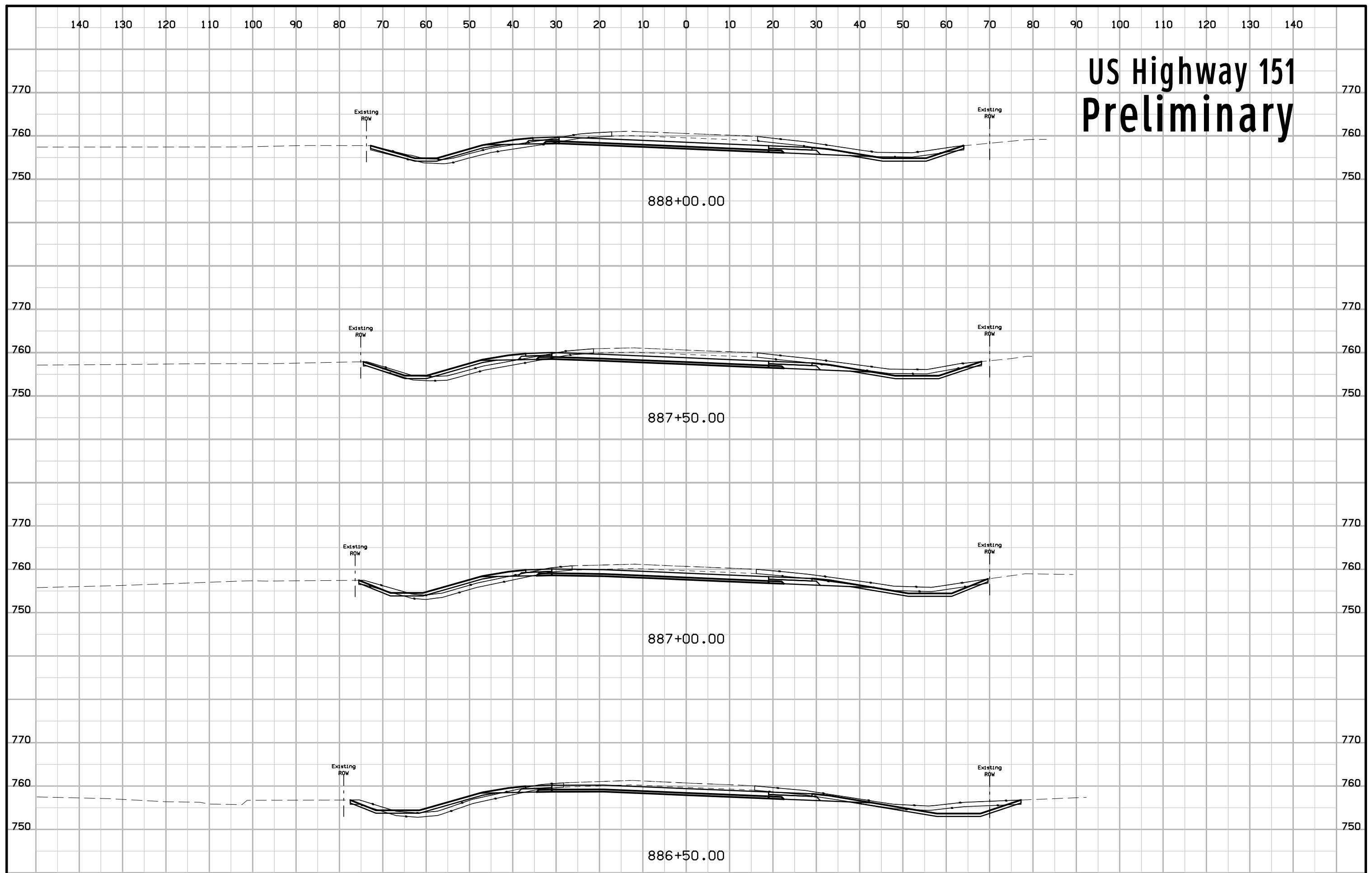
US Highway 151 Preliminary



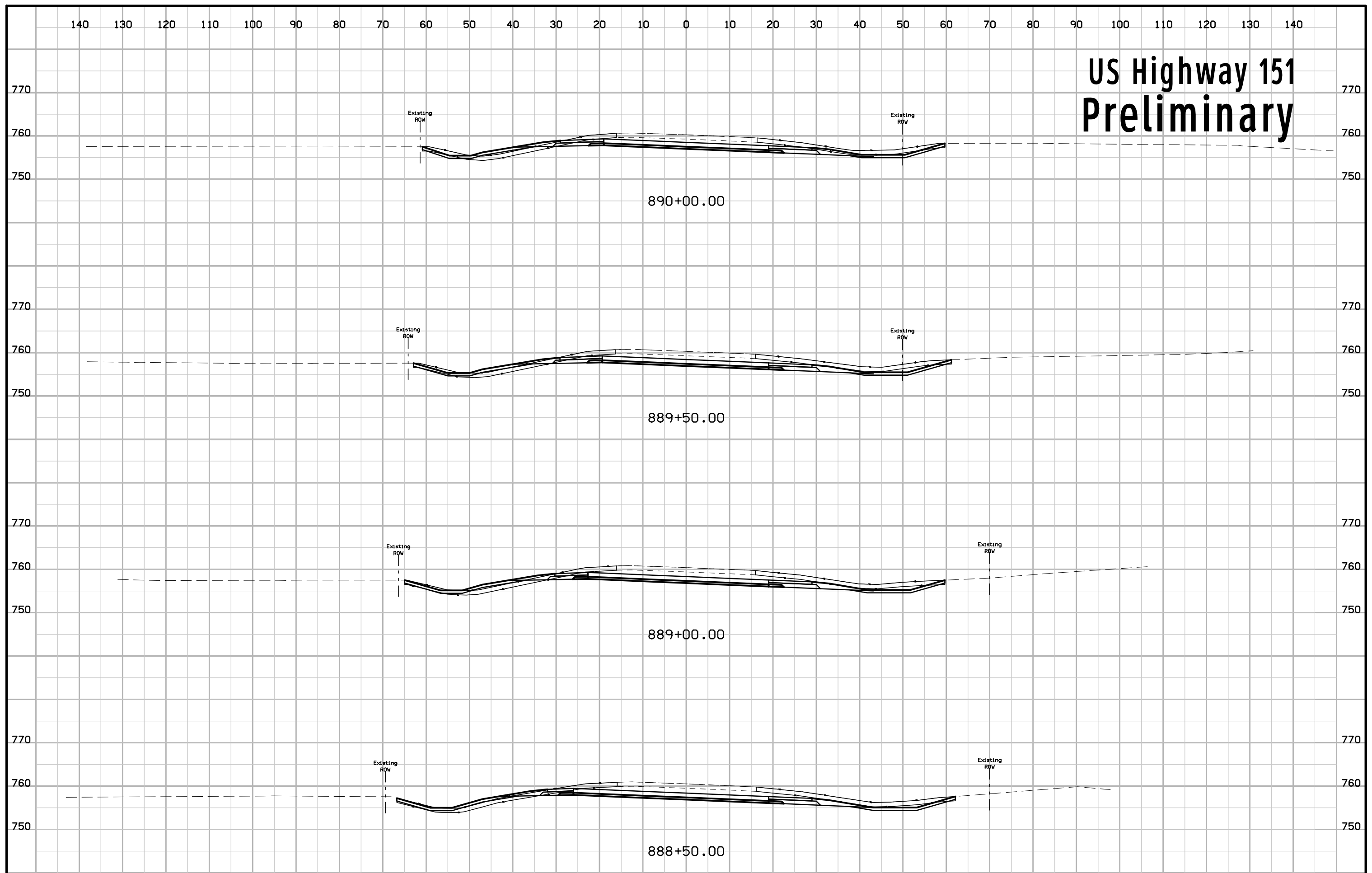
US Highway 151 Preliminary



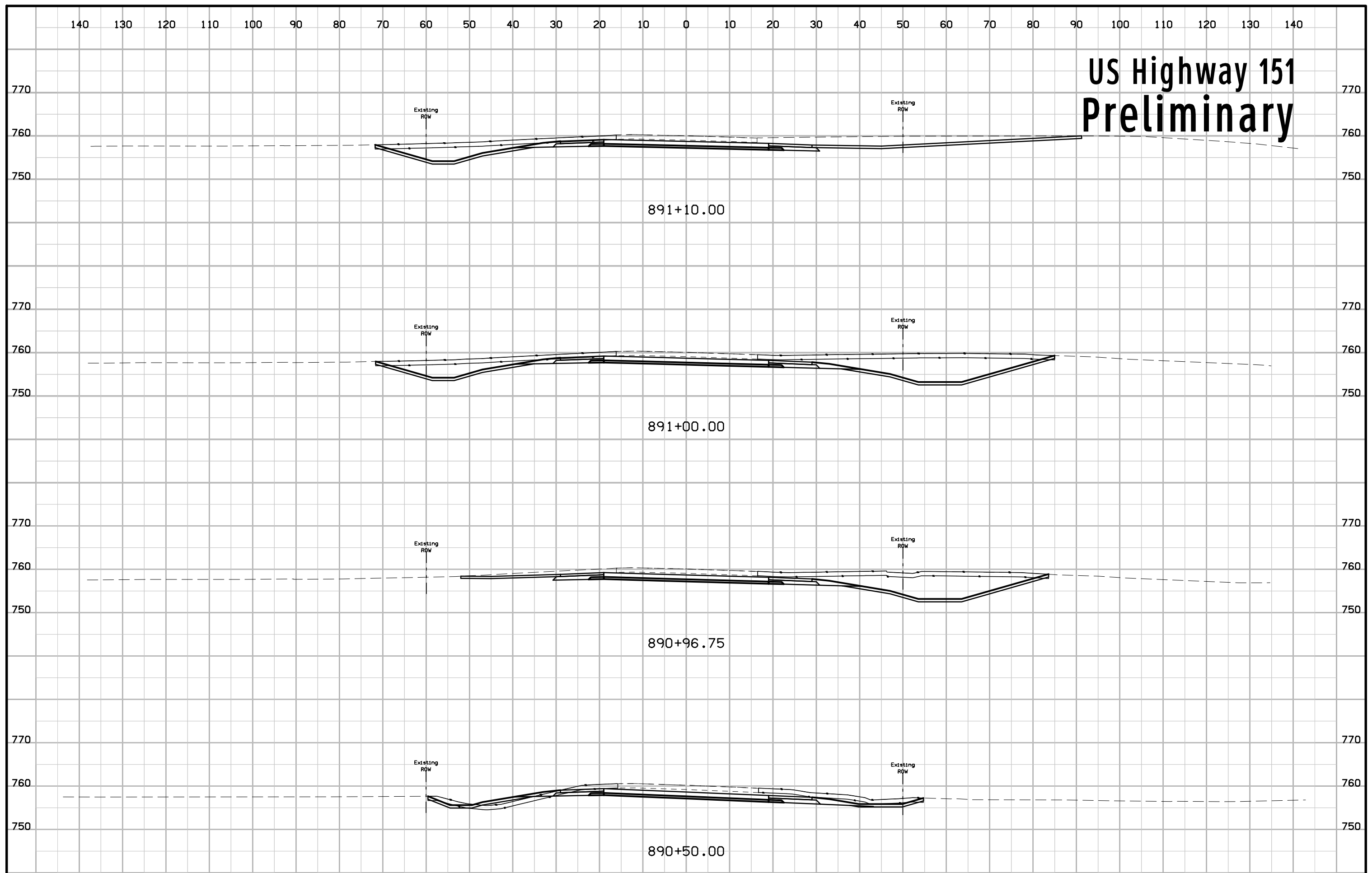
US Highway 151 Preliminary



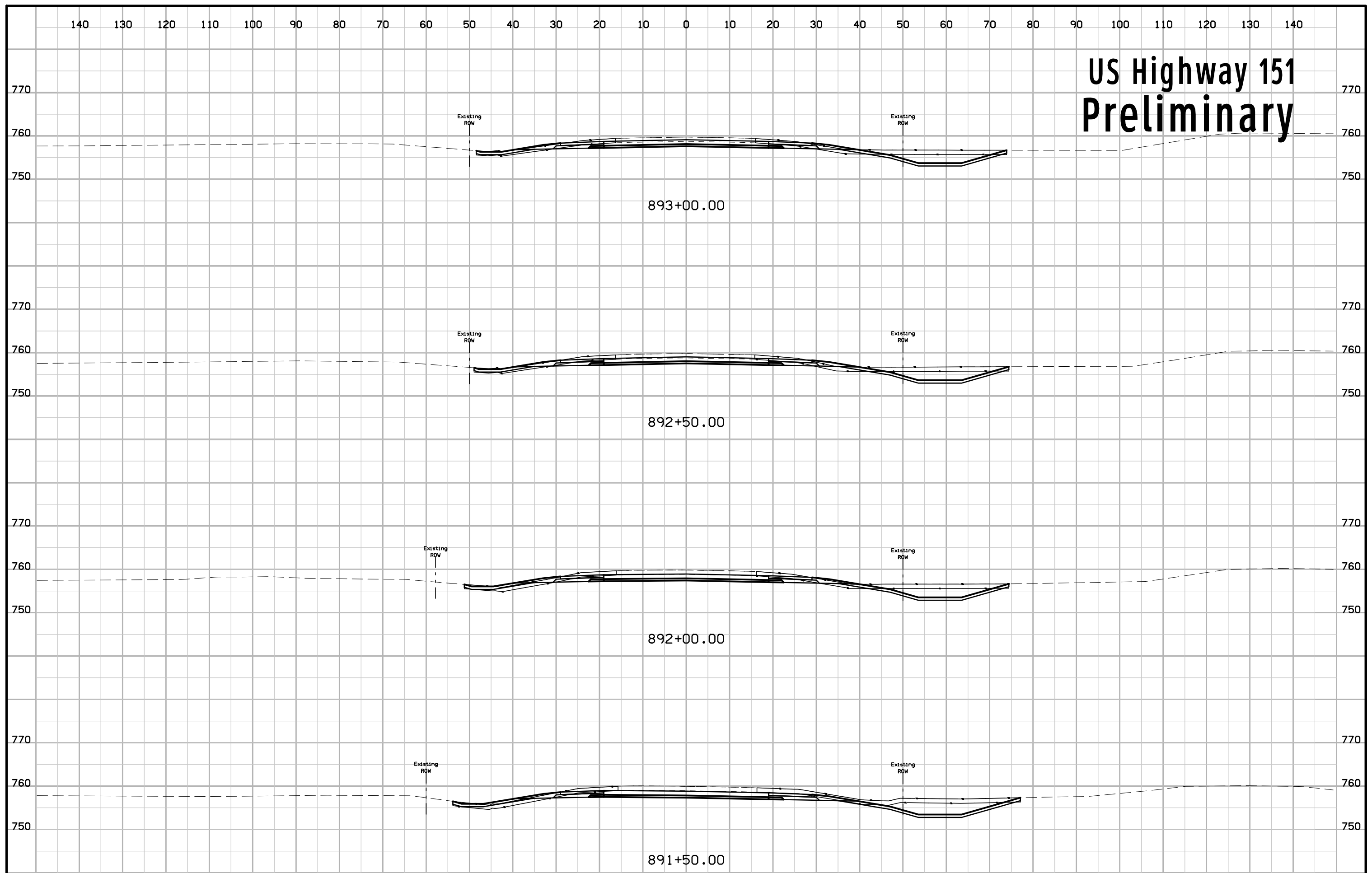
US Highway 151 Preliminary



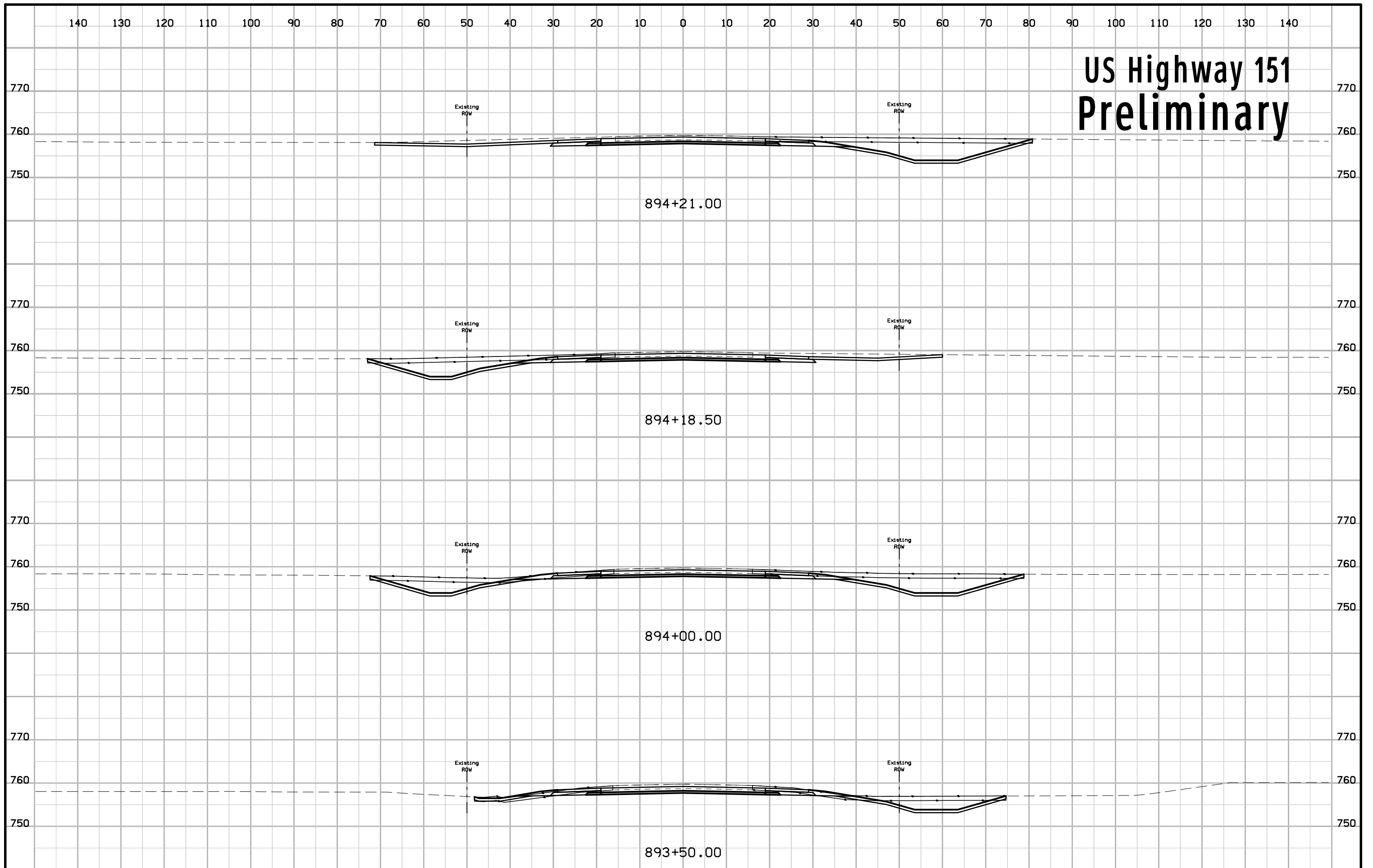
US Highway 151 Preliminary



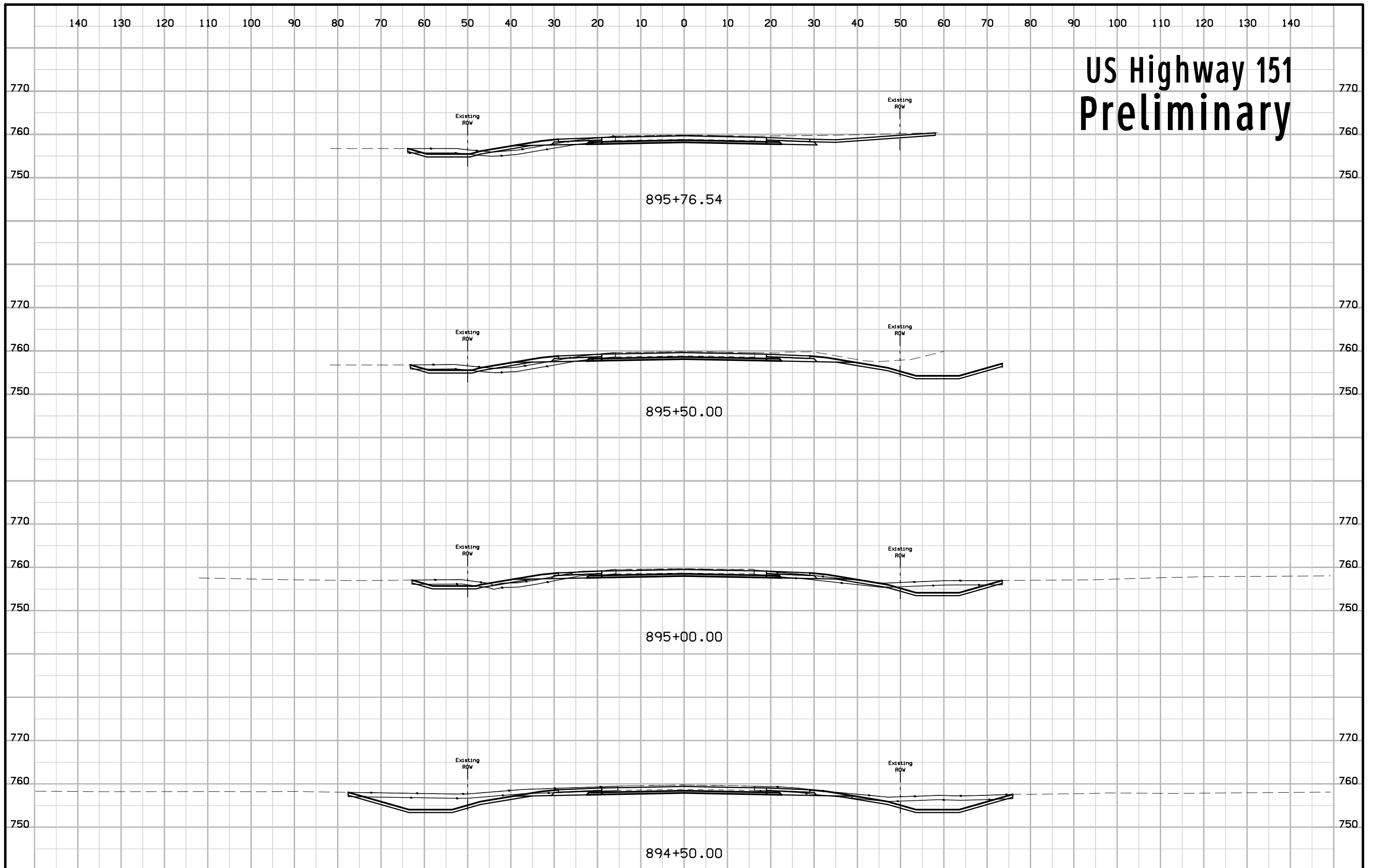
US Highway 151 Preliminary



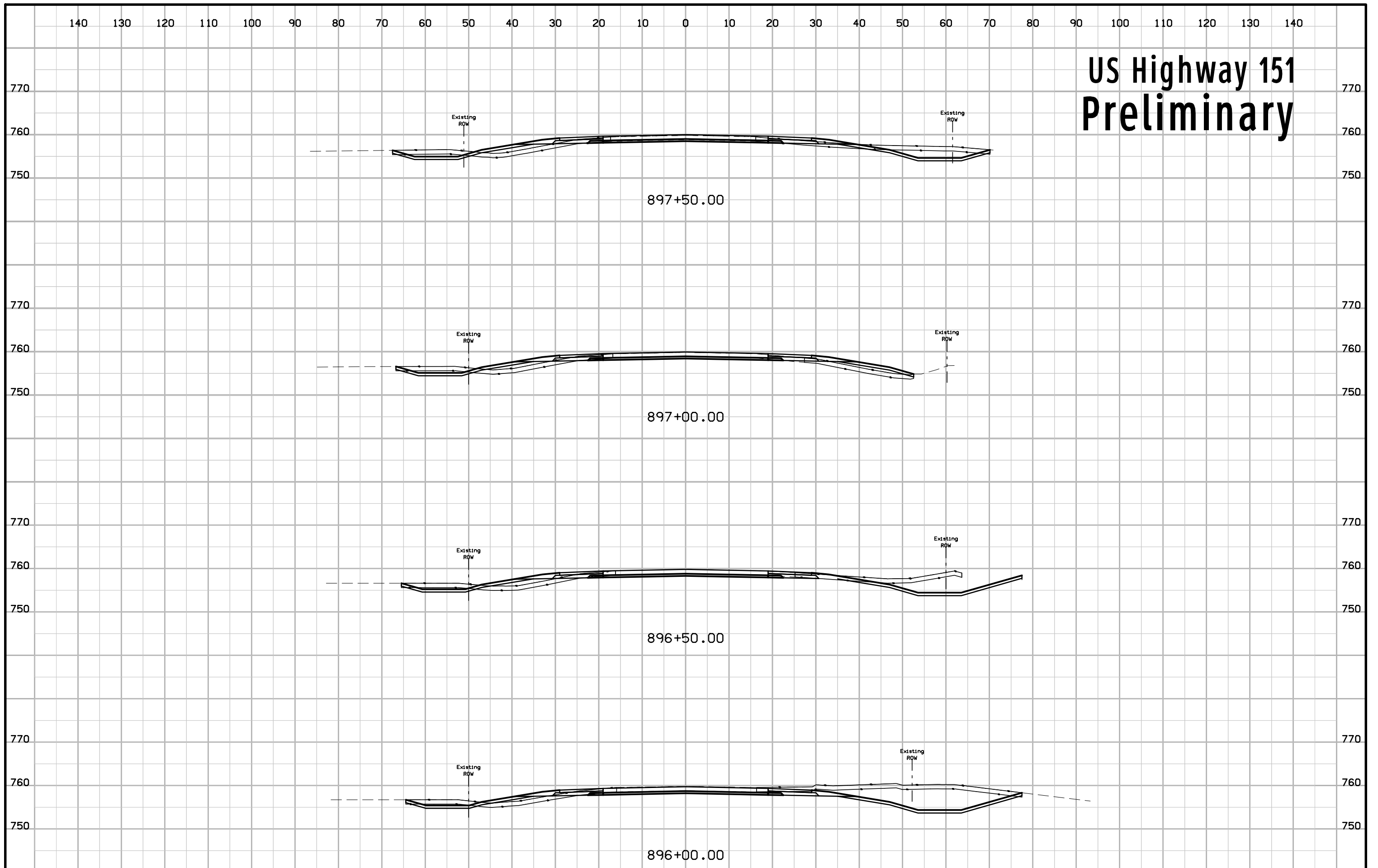
US Highway 151 Preliminary



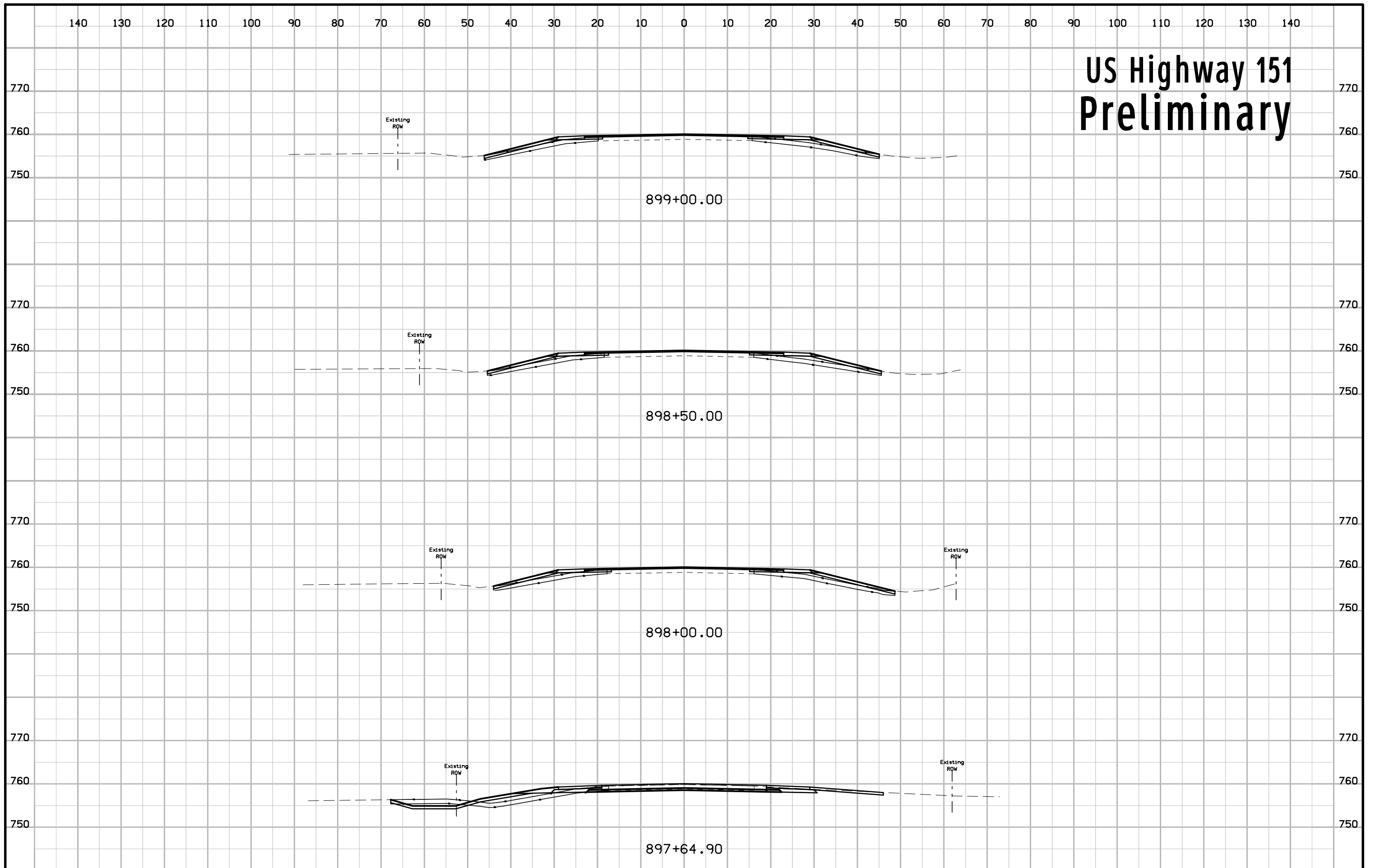
US Highway 151 Preliminary



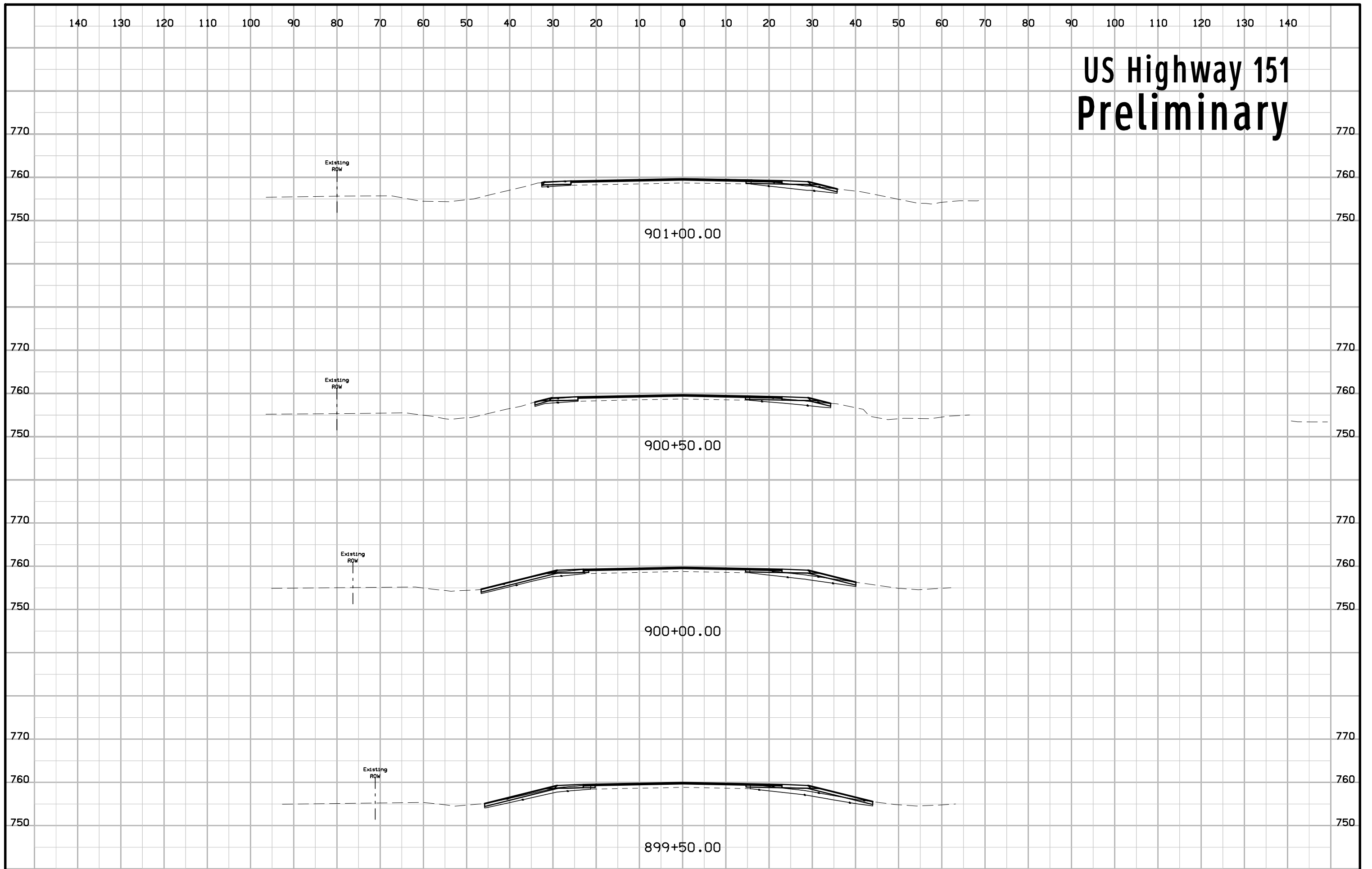
US Highway 151 Preliminary



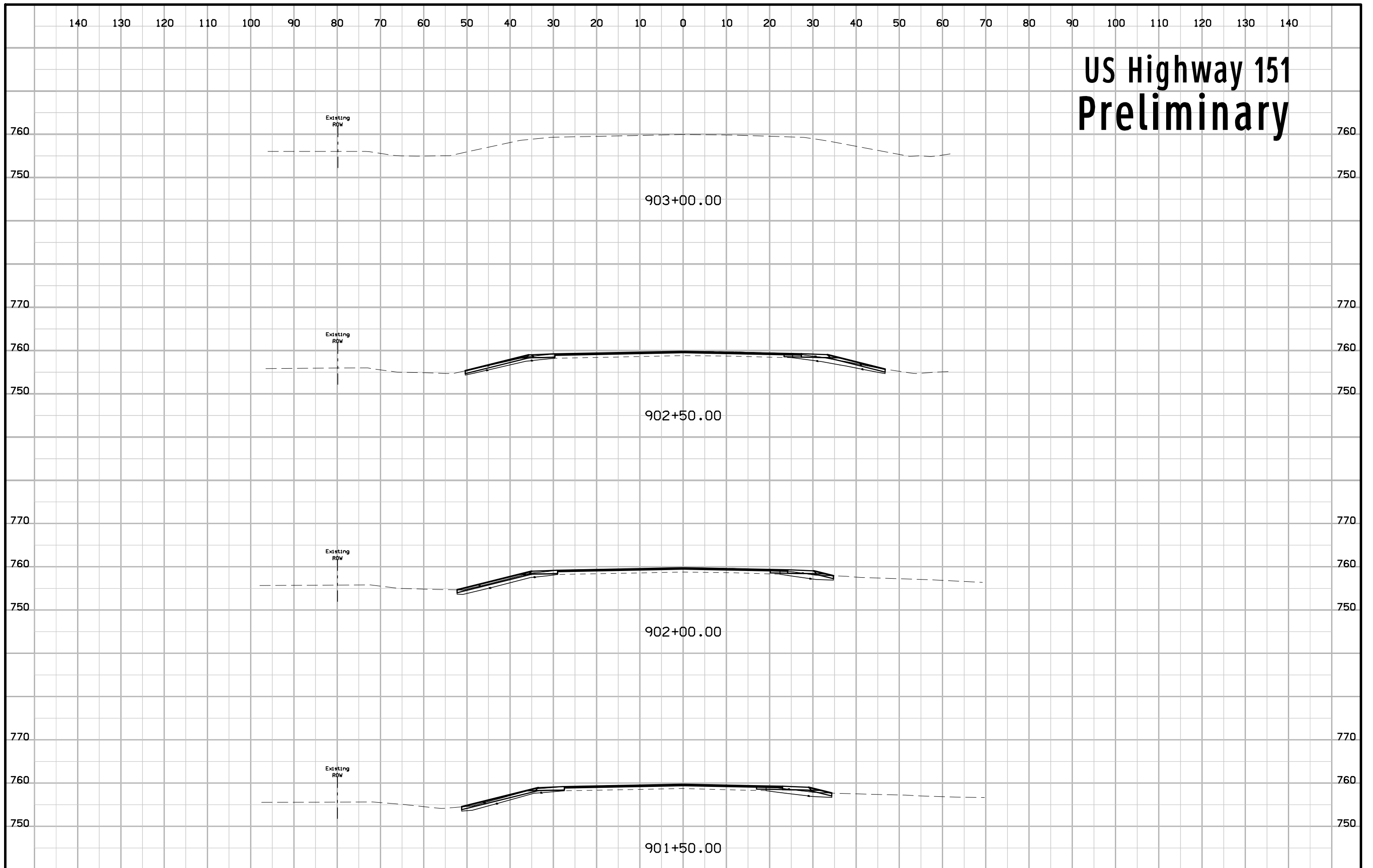
US Highway 151 Preliminary



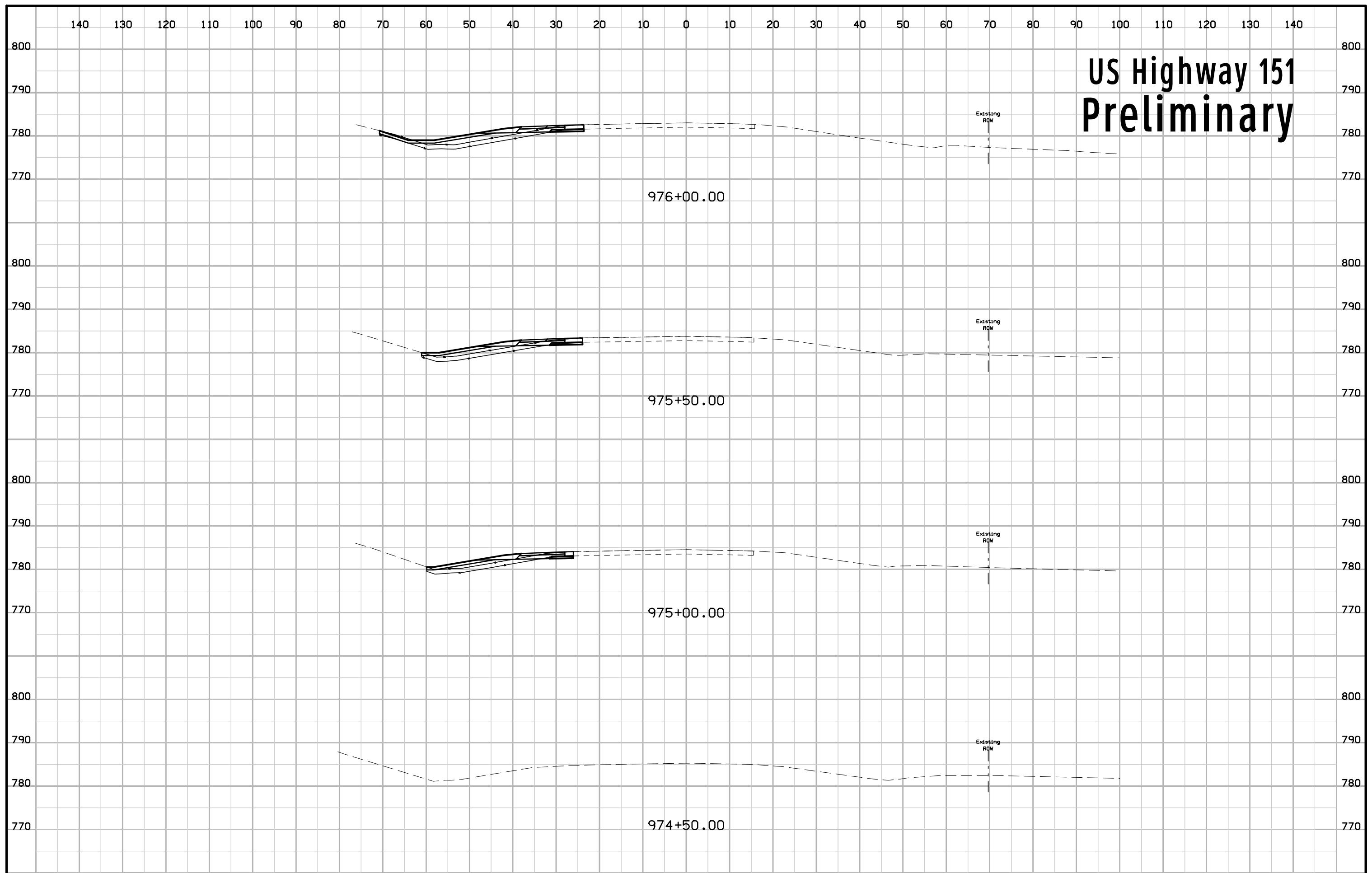
US Highway 151 Preliminary



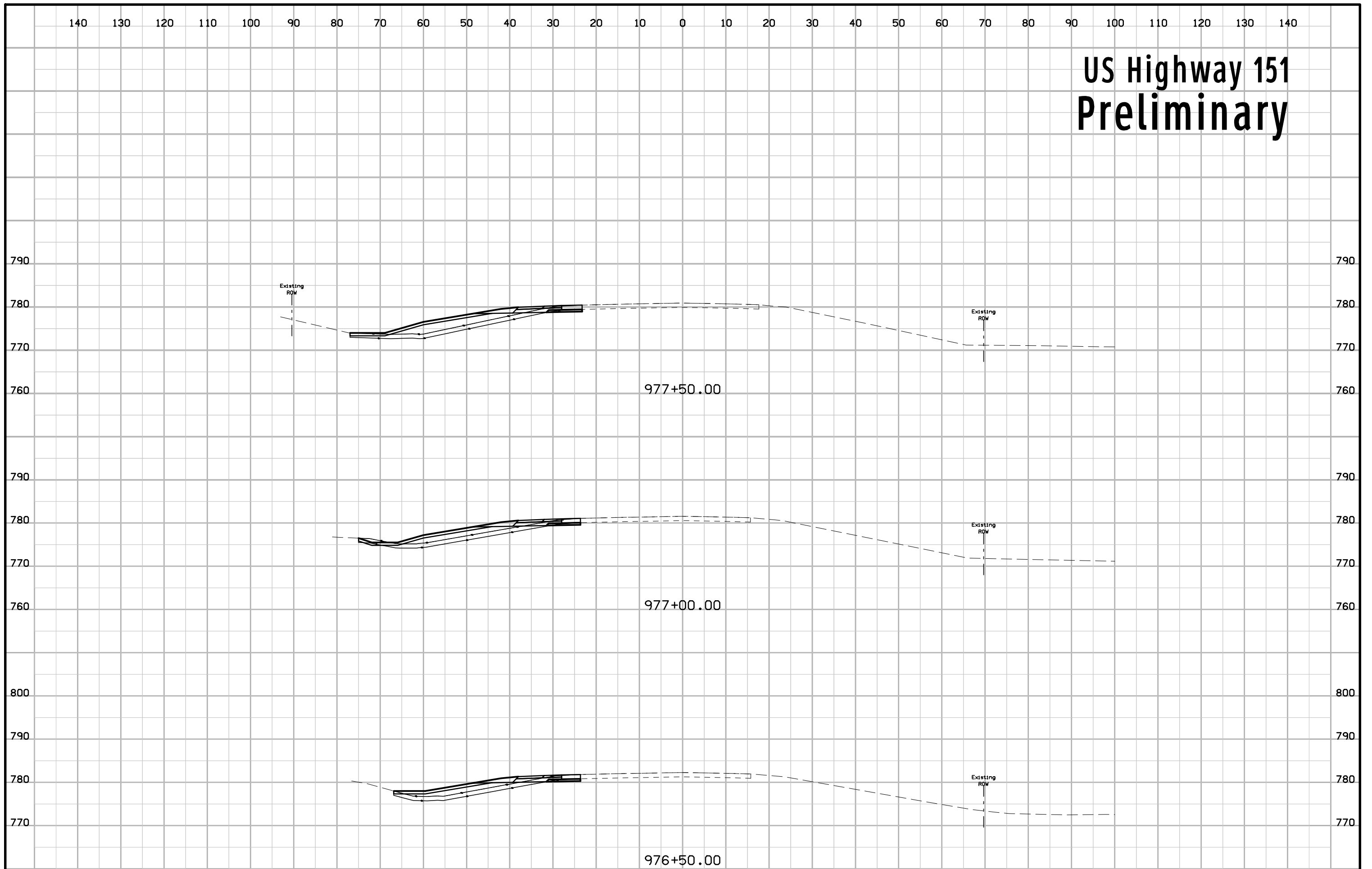
US Highway 151 Preliminary



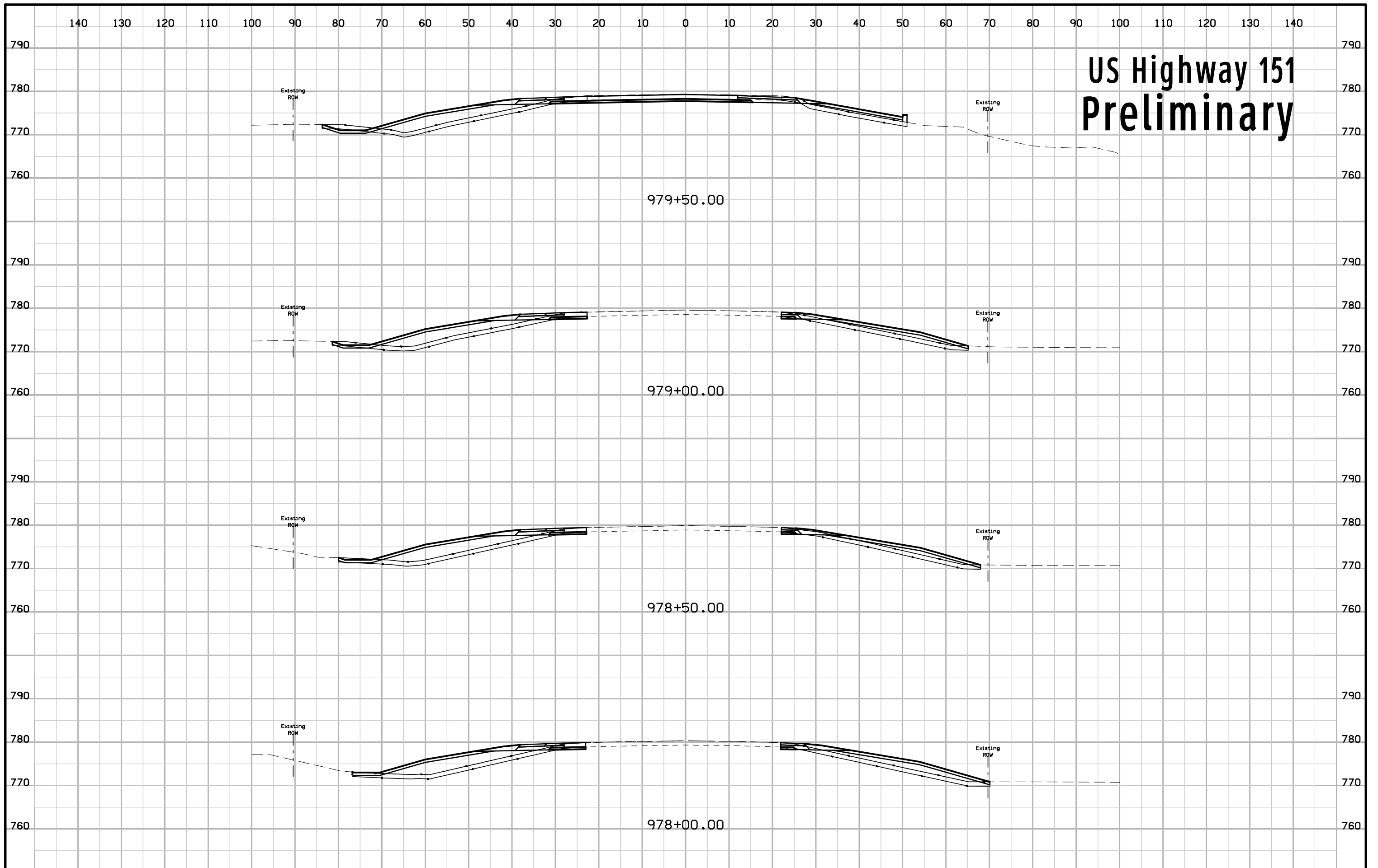
US Highway 151 Preliminary



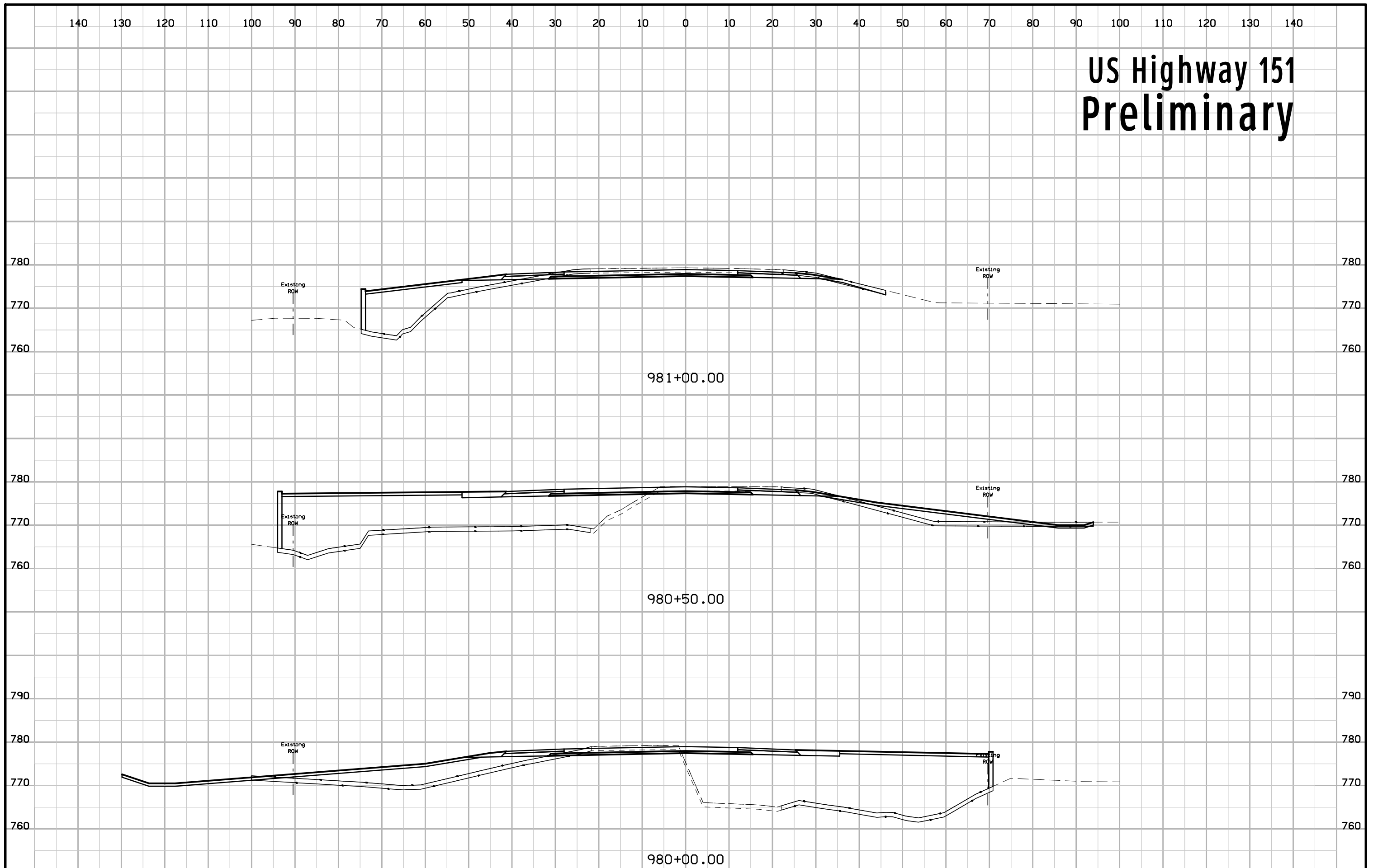
US Highway 151 Preliminary



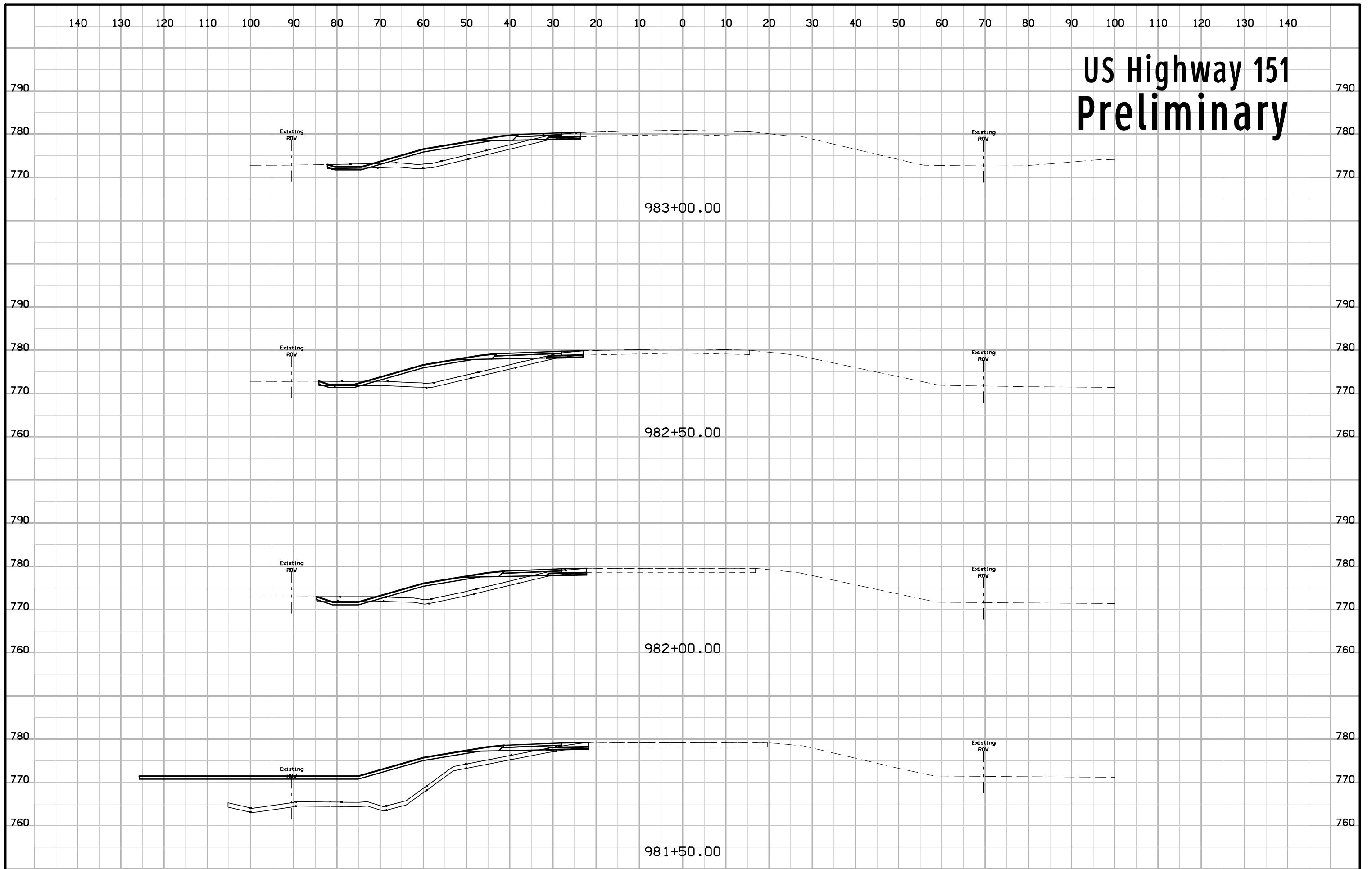
US Highway 151 Preliminary



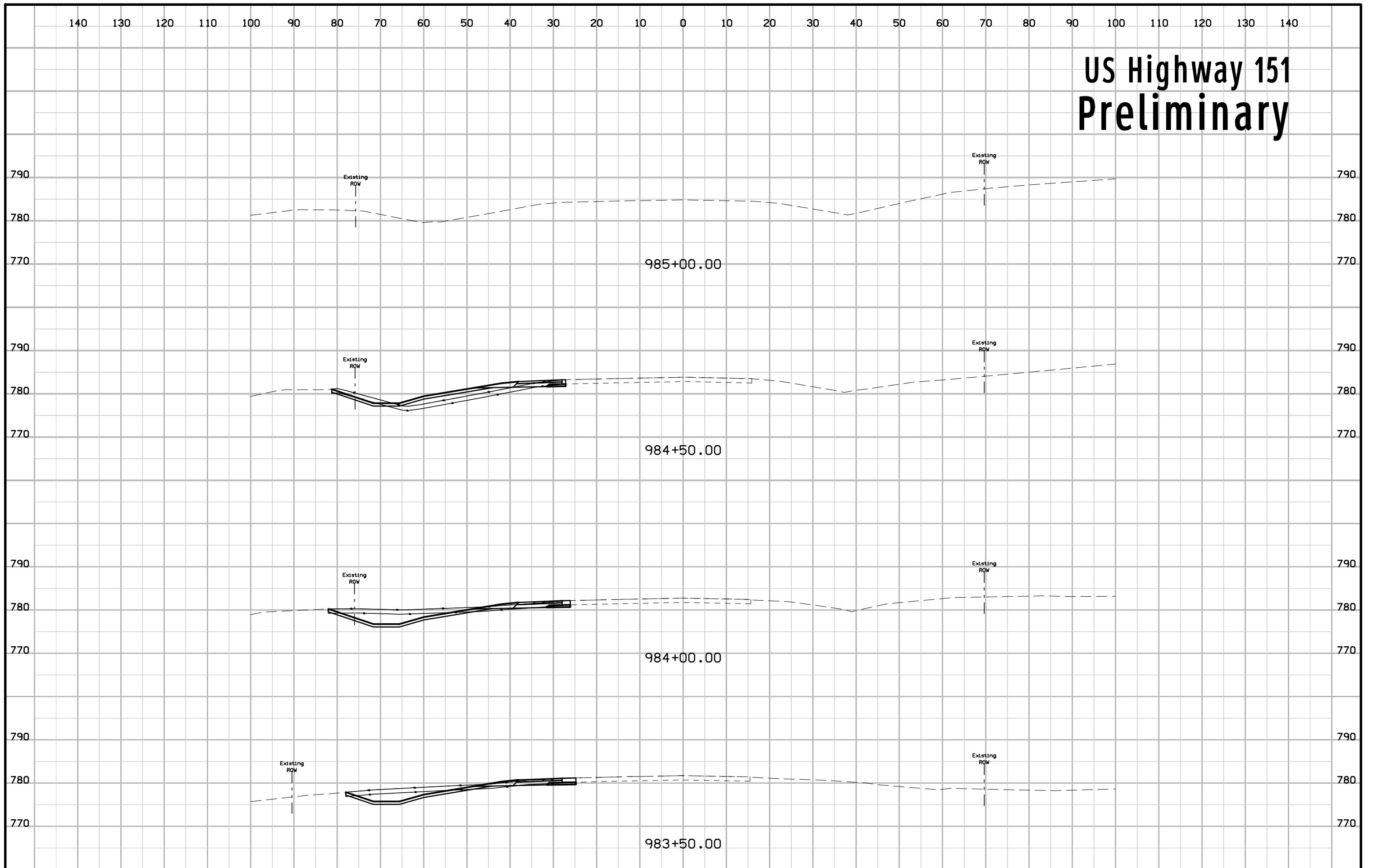
US Highway 151 Preliminary



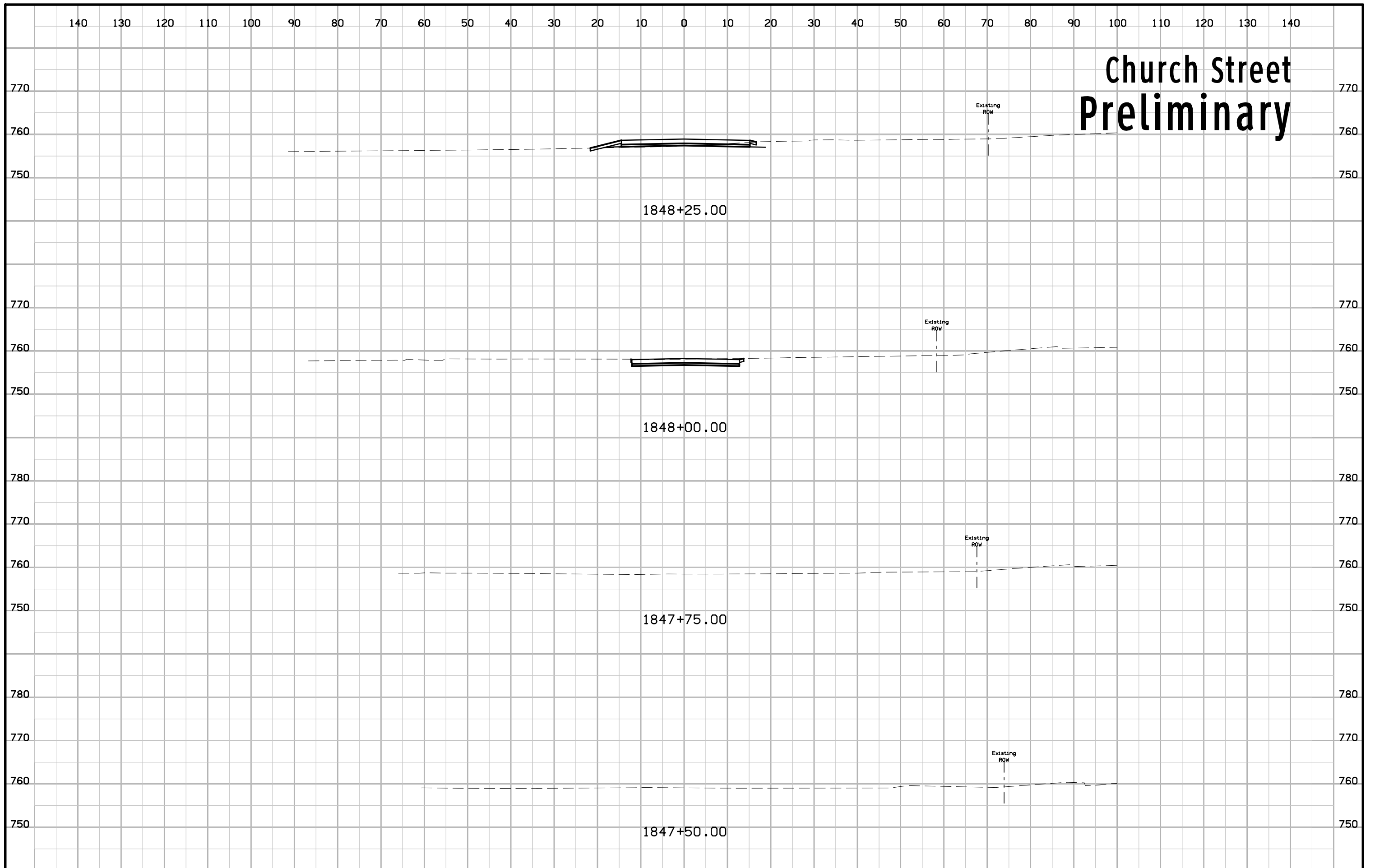
US Highway 151 Preliminary



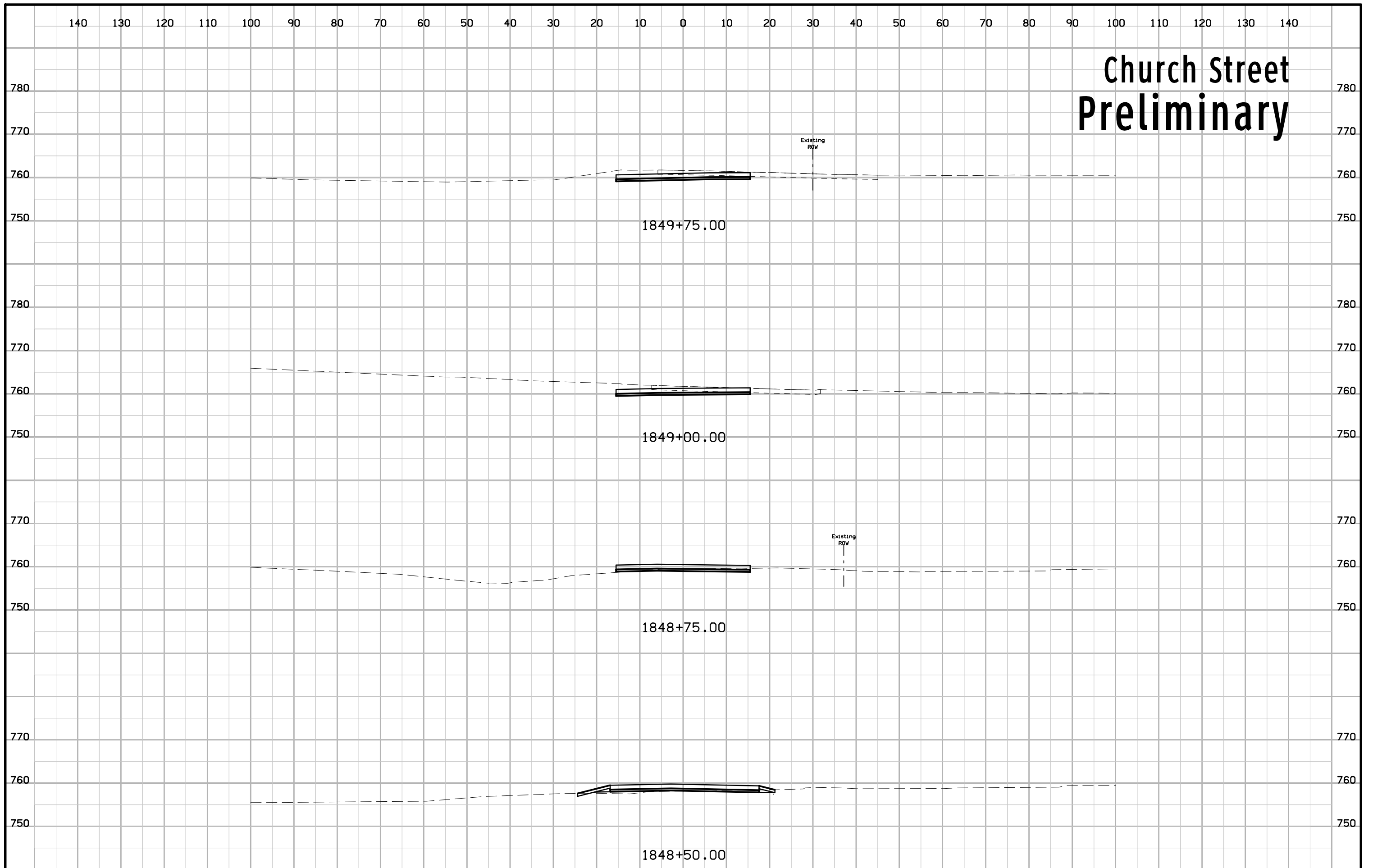
US Highway 151 Preliminary



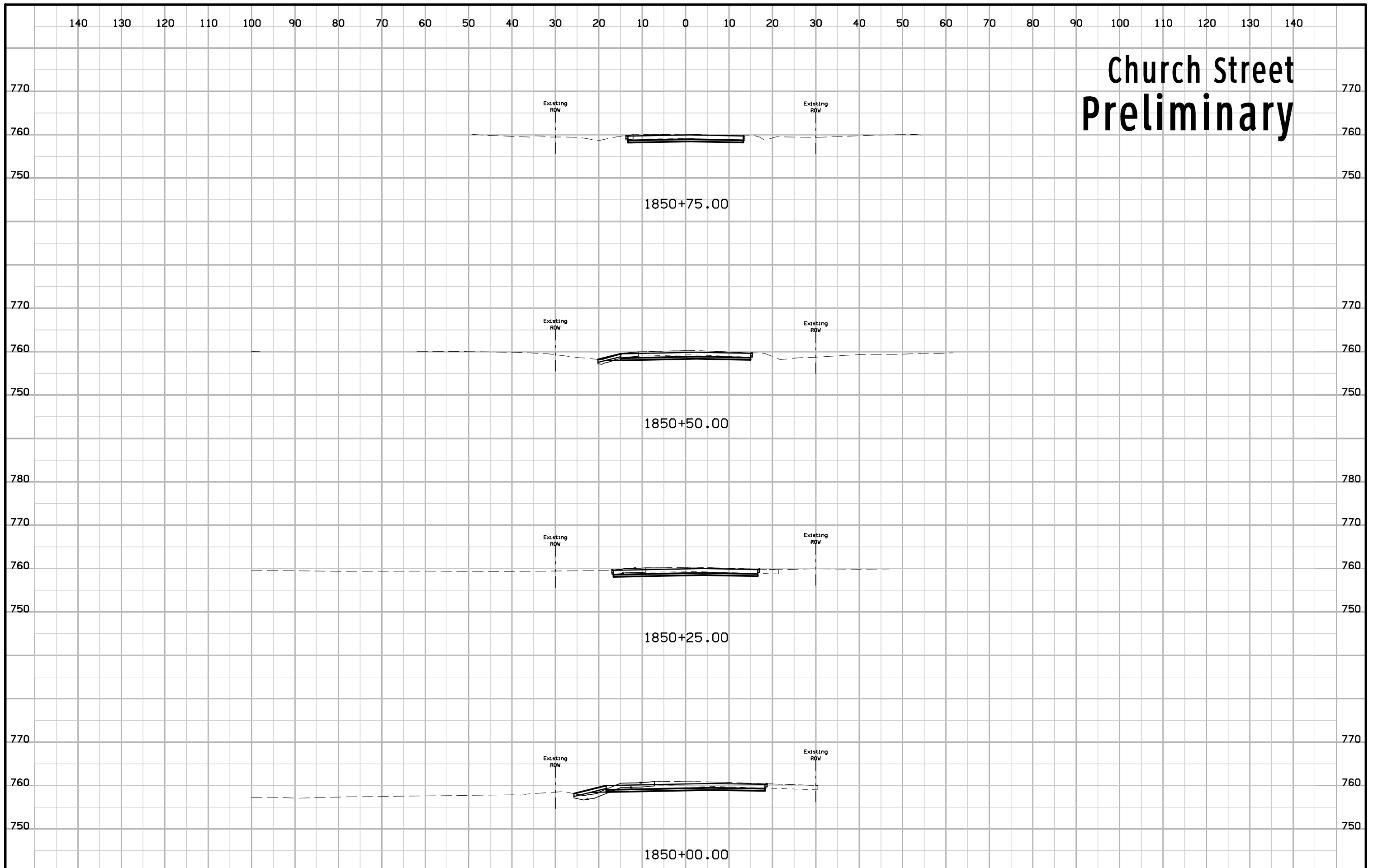
Church Street Preliminary



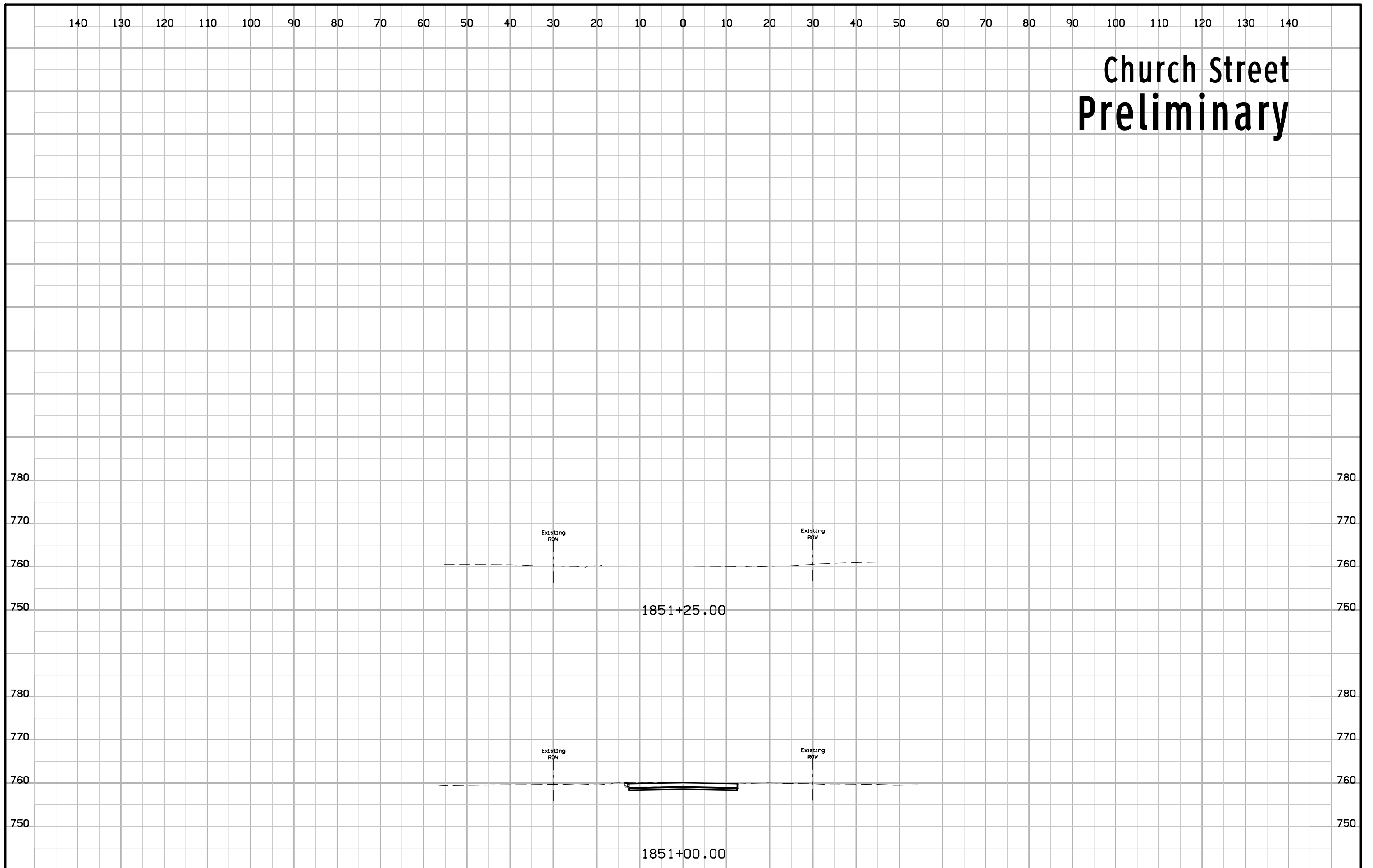
Church Street Preliminary



Church Street Preliminary



Church Street Preliminary



Prairie Avenue Preliminary

VOID

2862+50.00

Existing ROW

VOID

2862+25.00

Existing ROW

800

790

780

770

760

750

800

790

780

770

760

750

800

790

780

770

760

750

800

790

780

770

760

750

Prairie Avenue Preliminary

VOID

2863+00.00

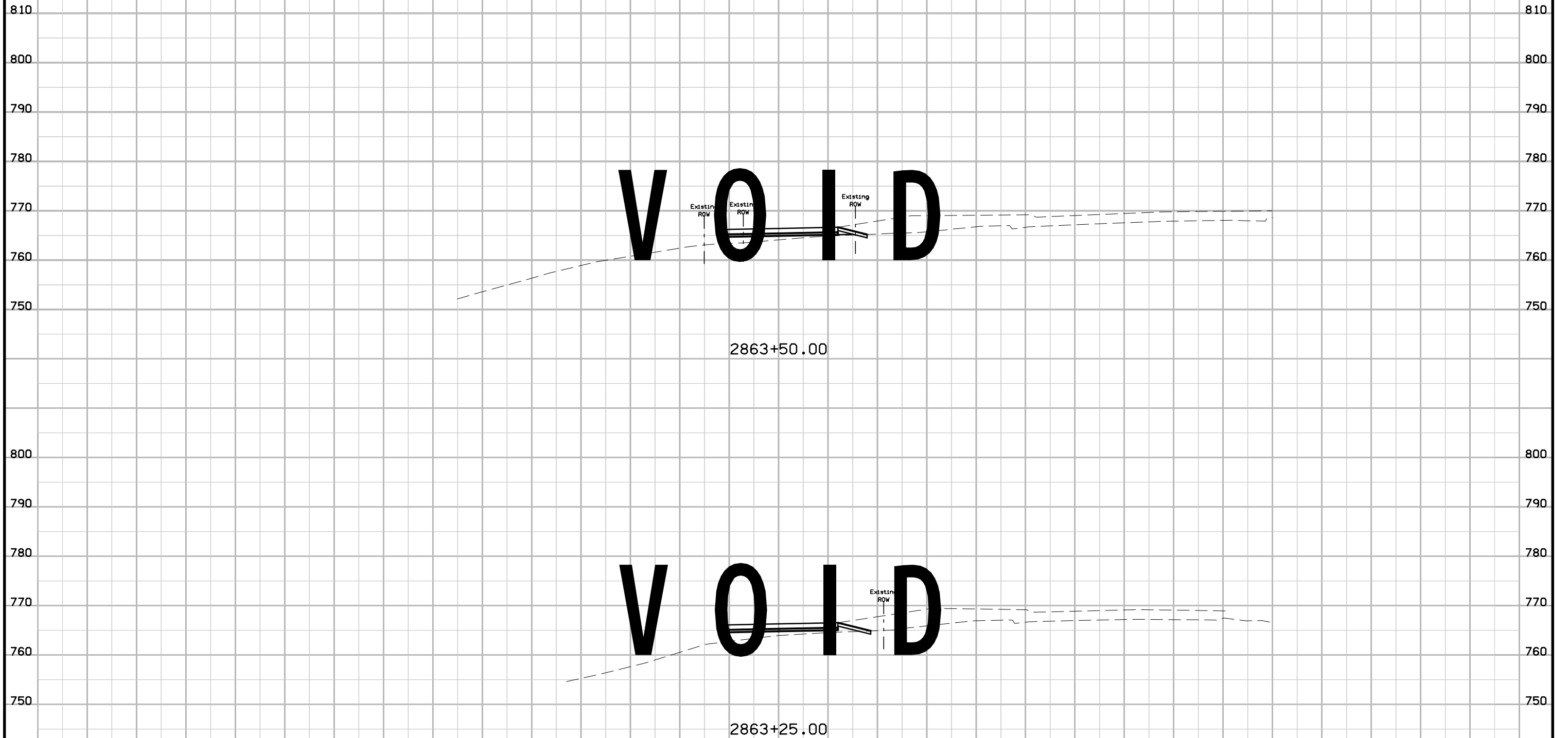
Existing
ROW

VOID

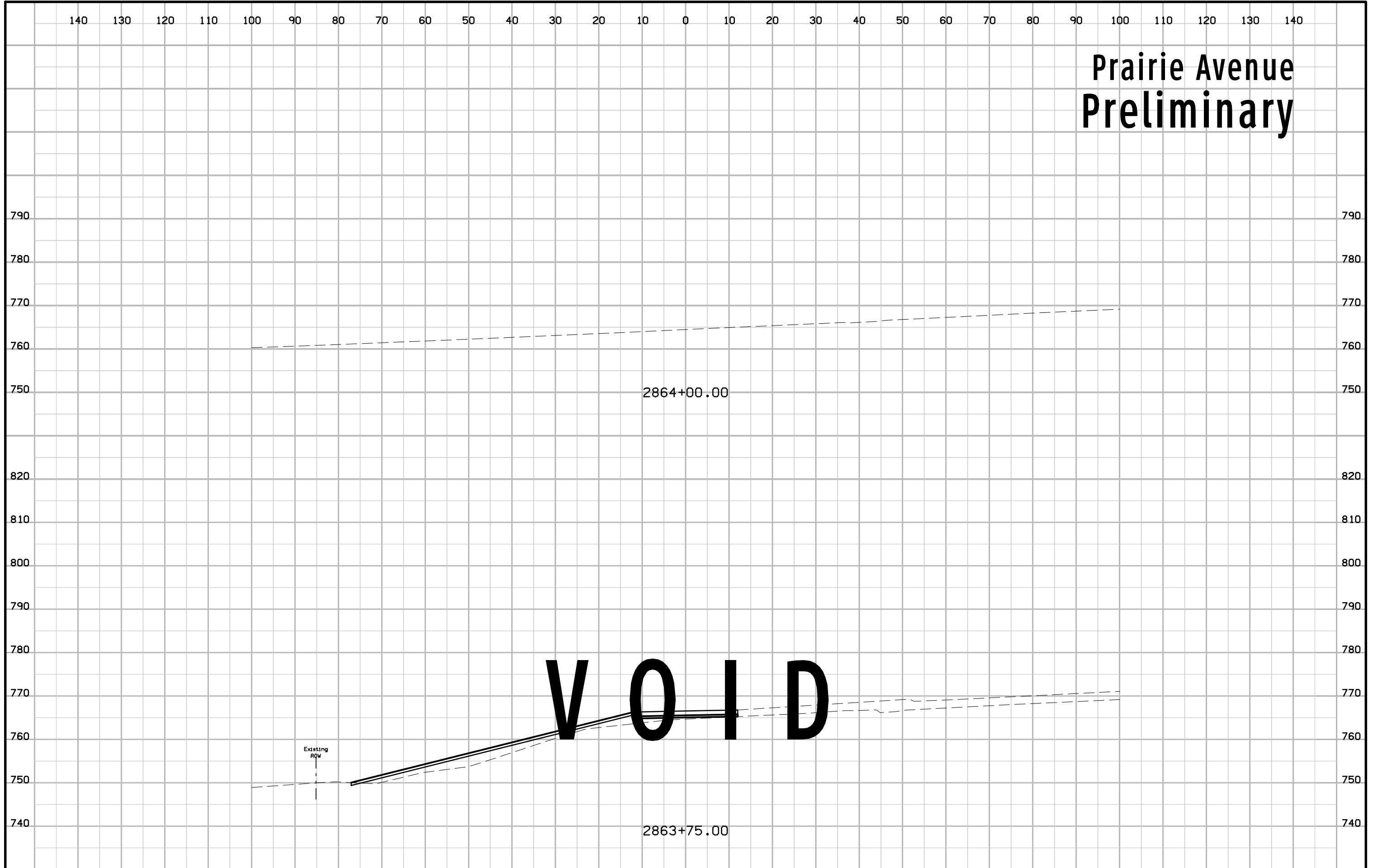
2862+75.00

Existing
ROW

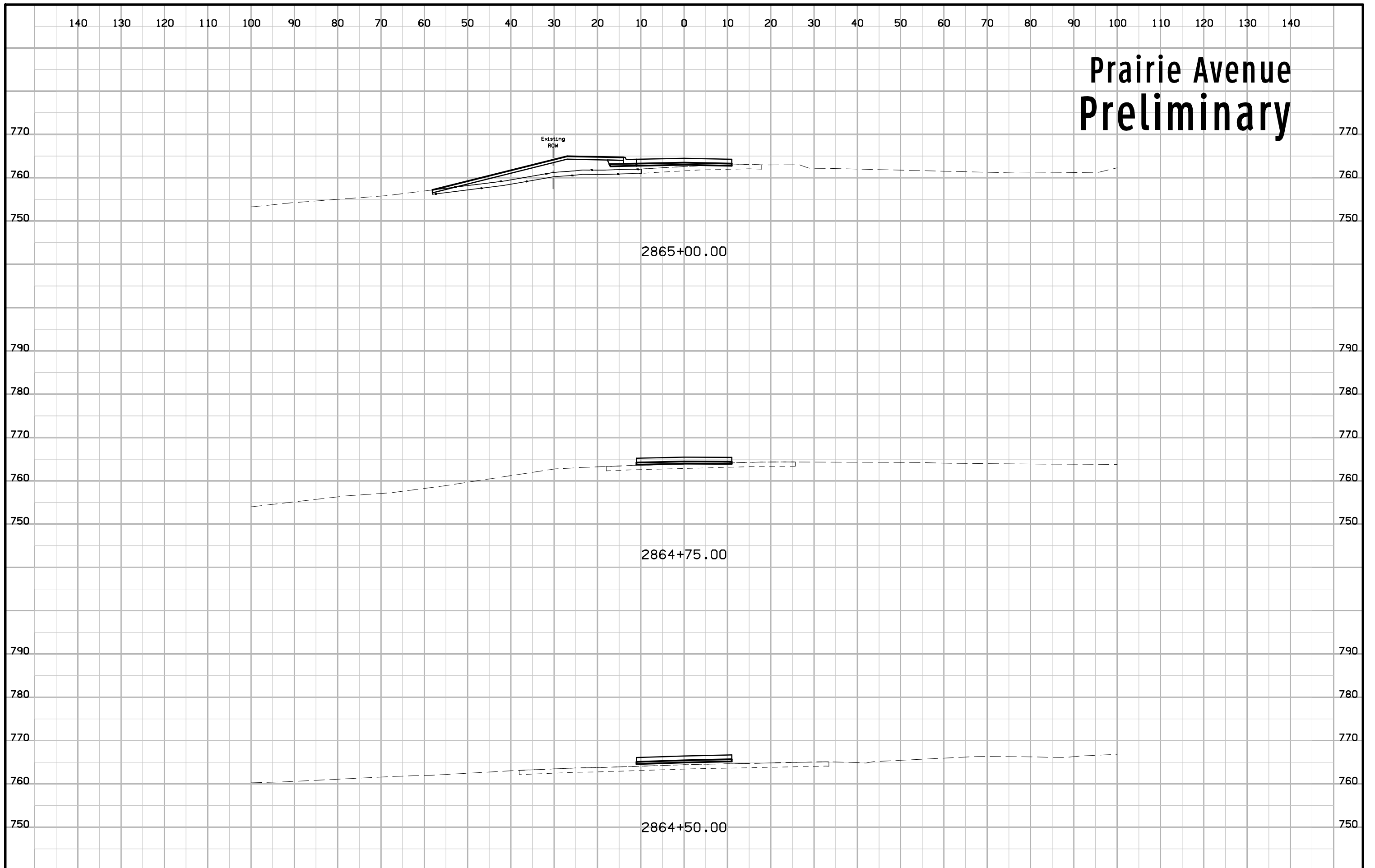
Prairie Avenue Preliminary



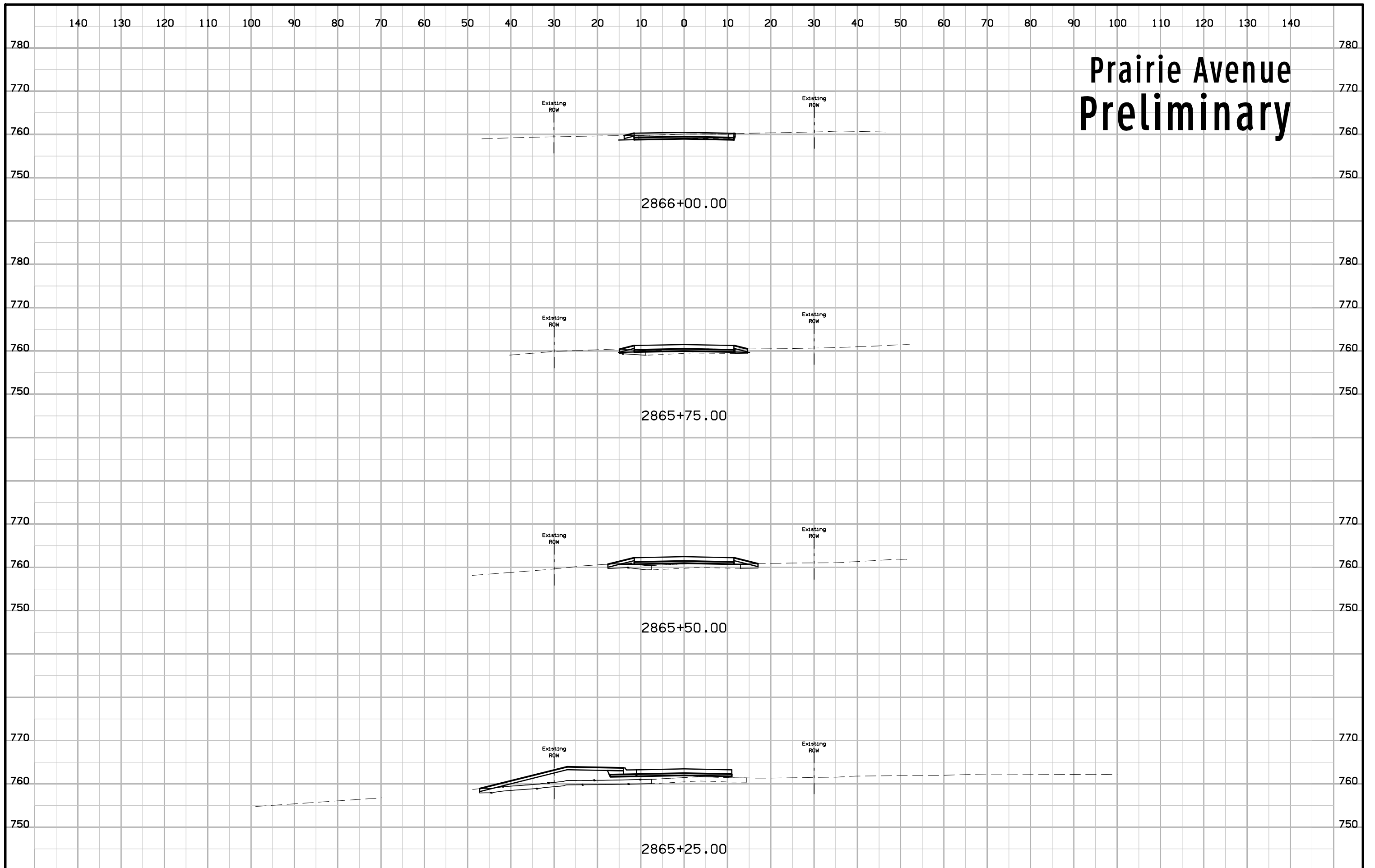
Prairie Avenue Preliminary



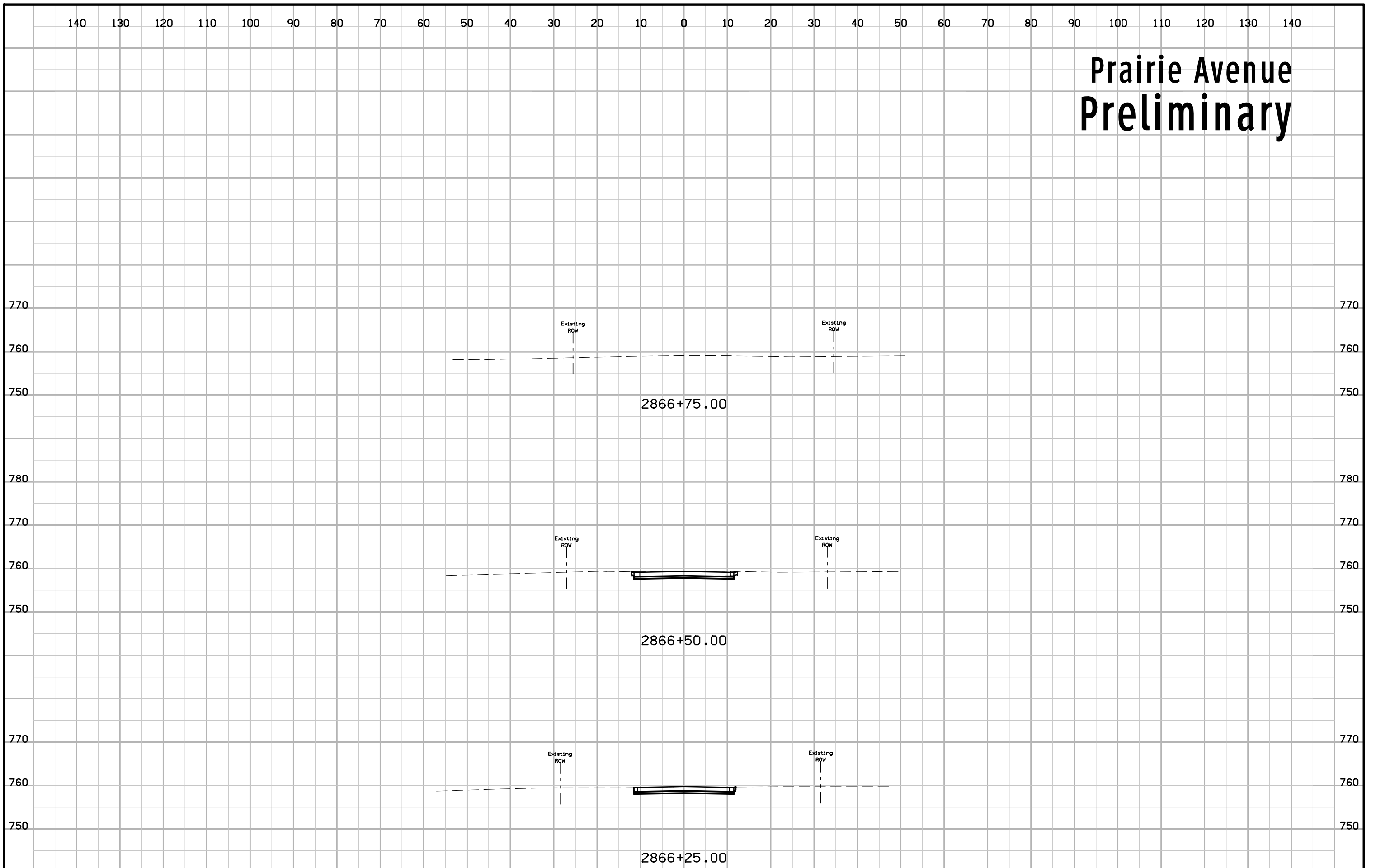
Prairie Avenue Preliminary



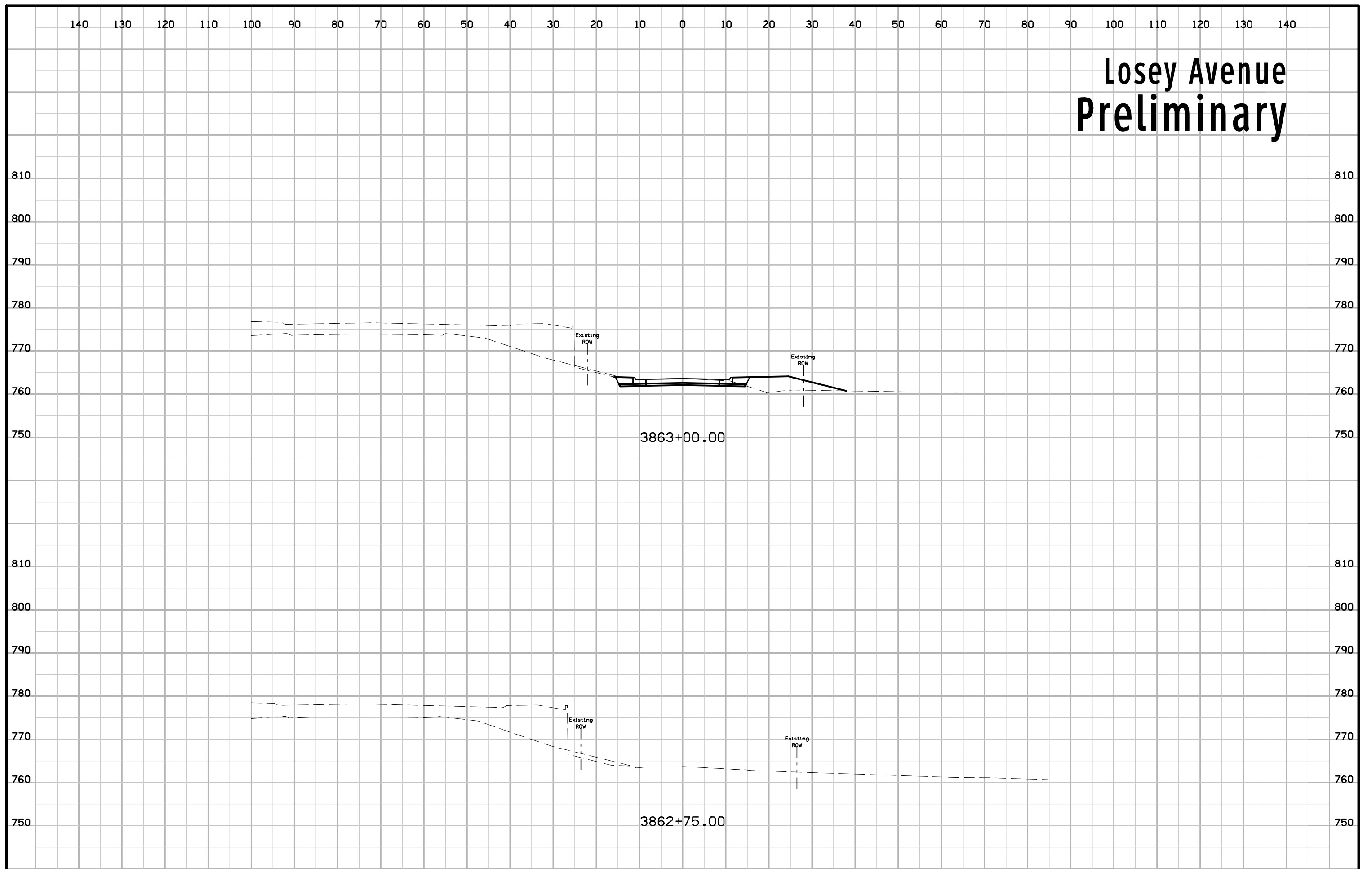
Prairie Avenue Preliminary



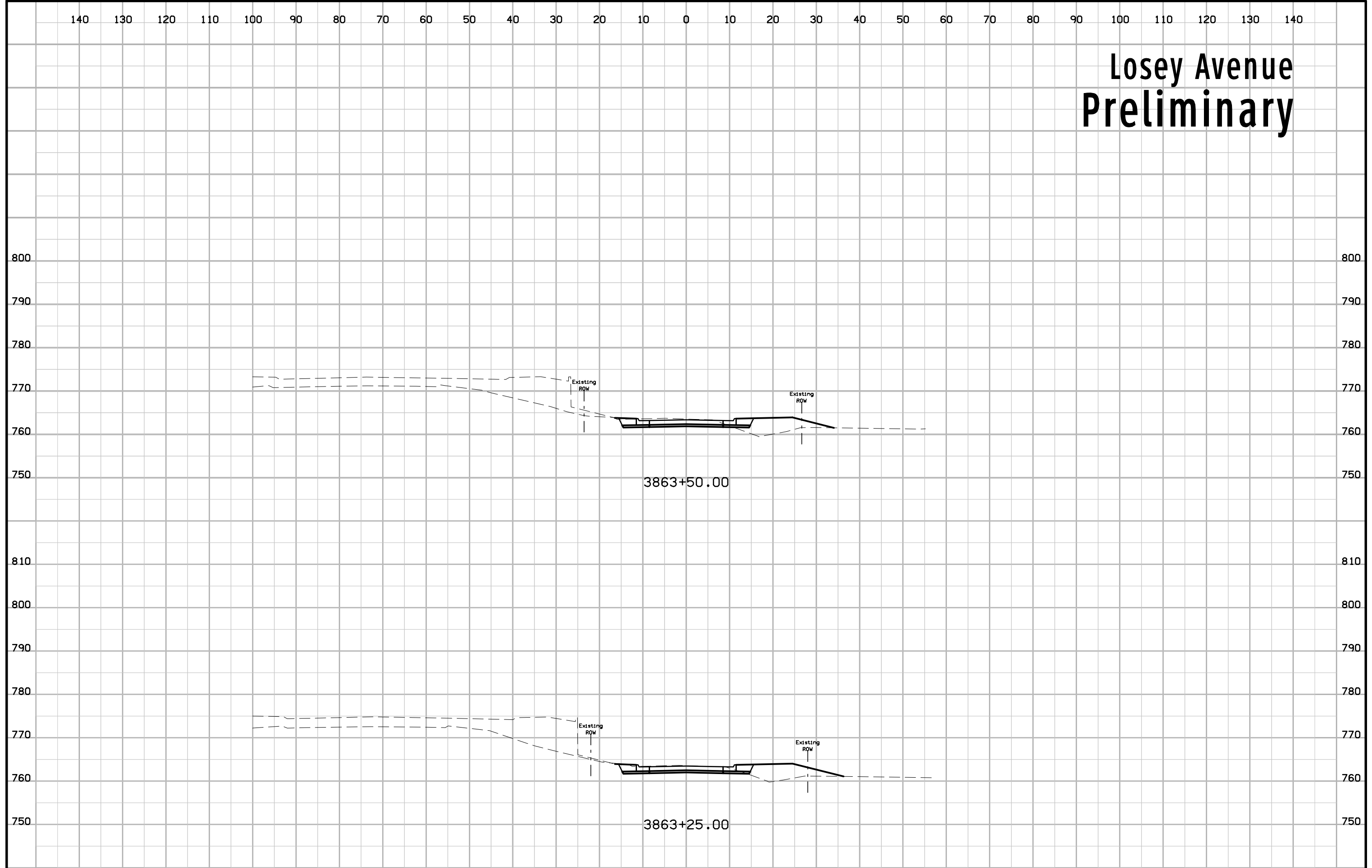
Prairie Avenue Preliminary



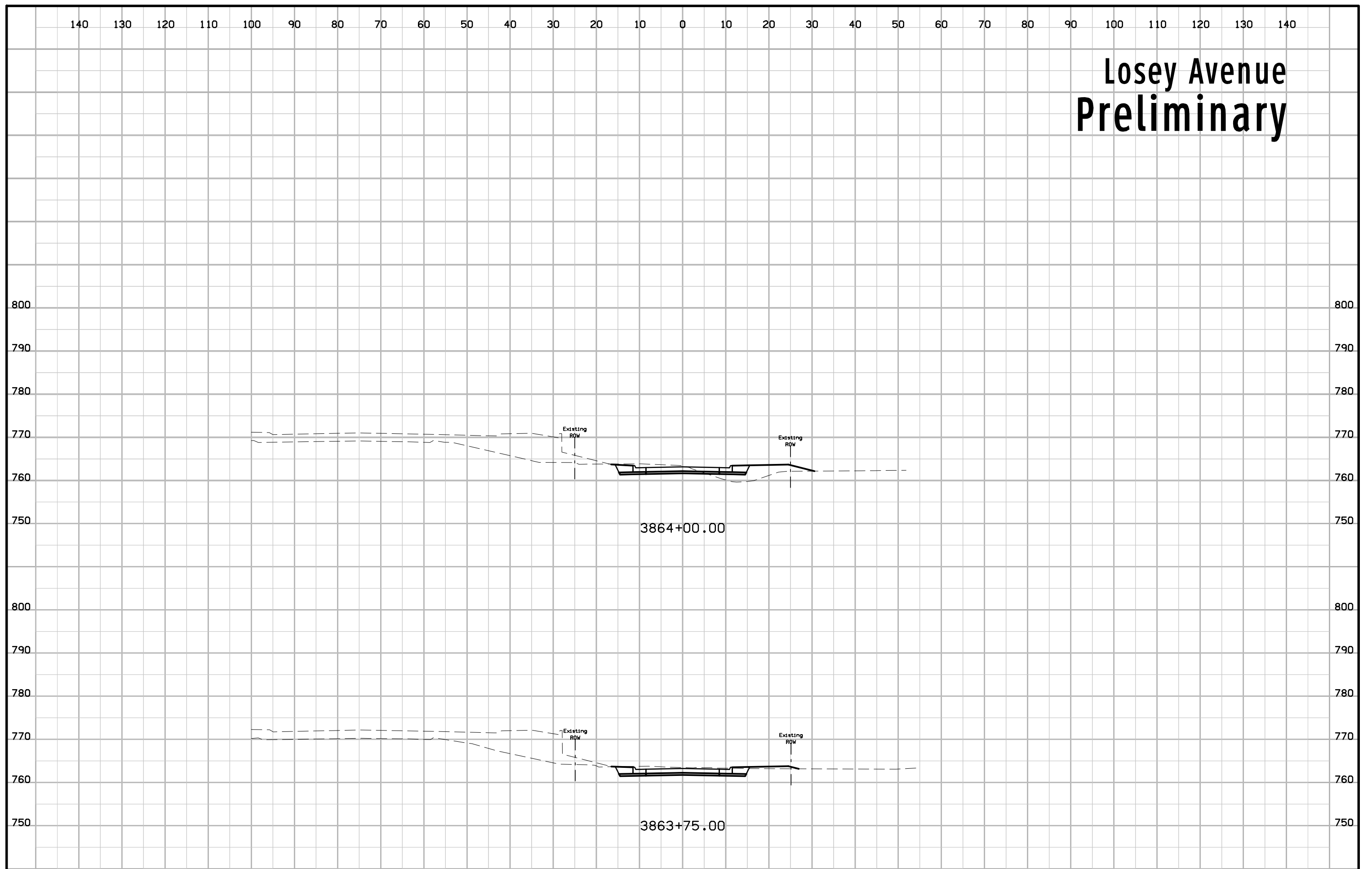
Losey Avenue Preliminary



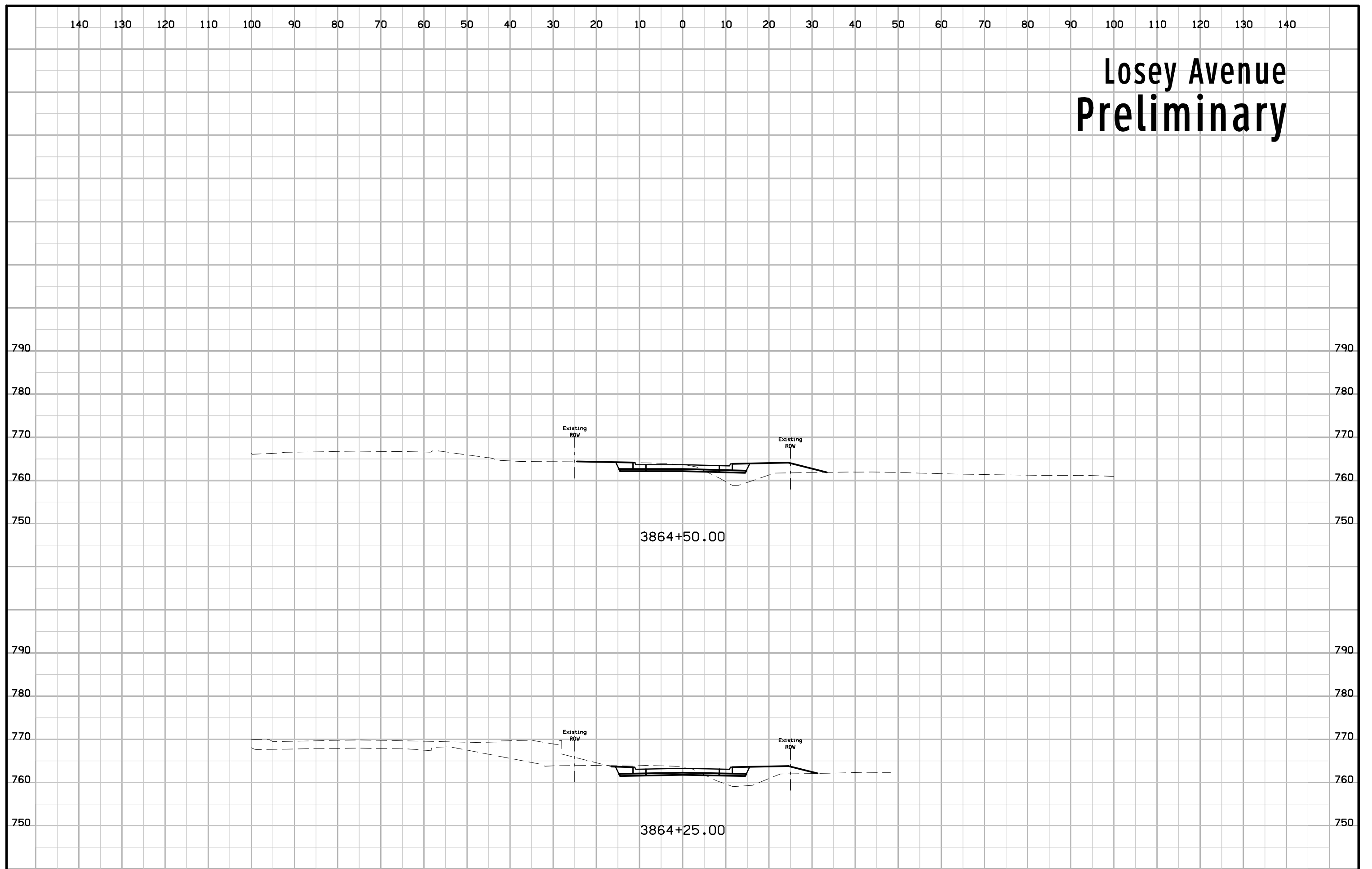
Losey Avenue Preliminary



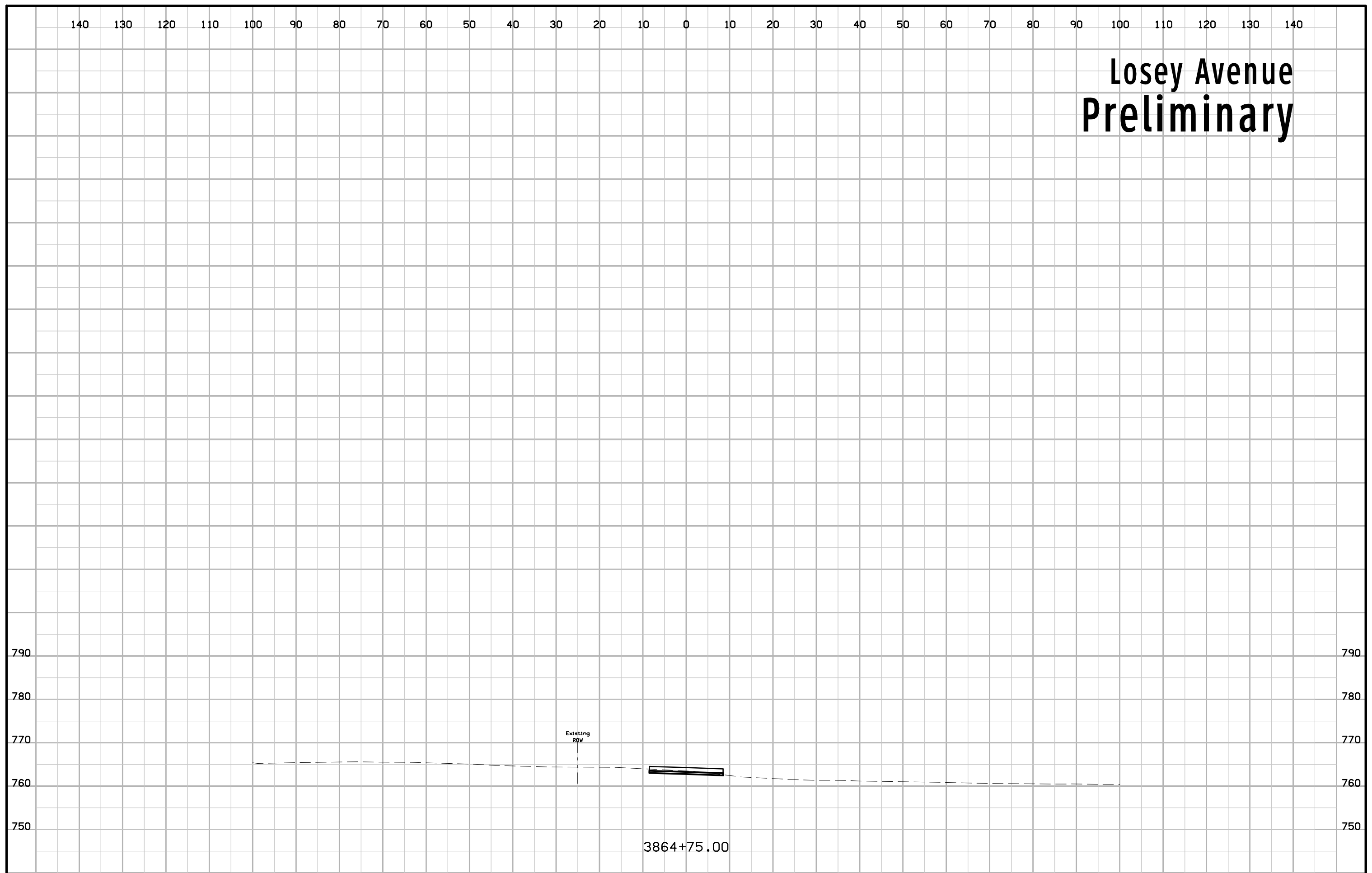
Losey Avenue Preliminary



Losey Avenue Preliminary

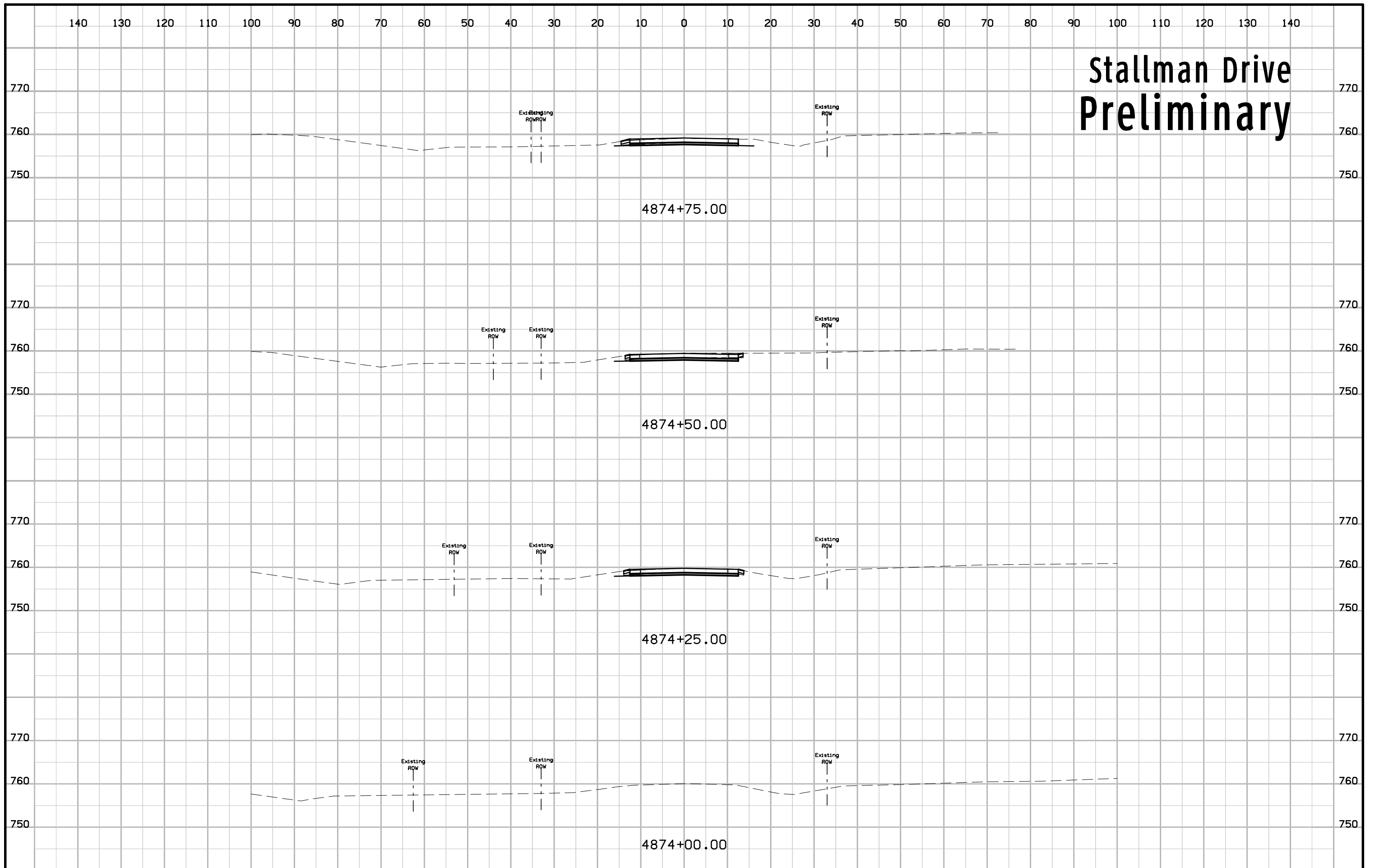


Losey Avenue Preliminary

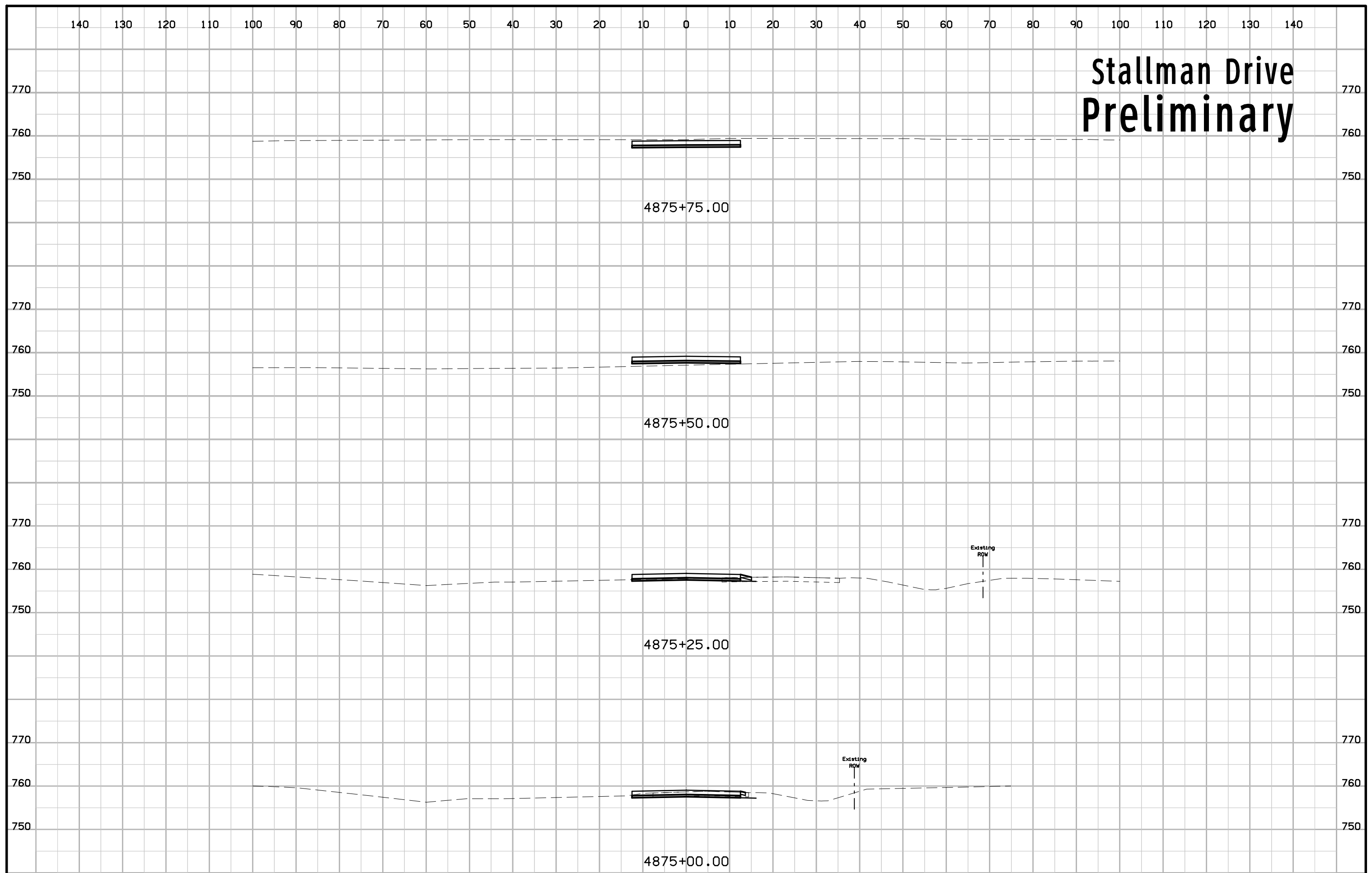


3864+75.00

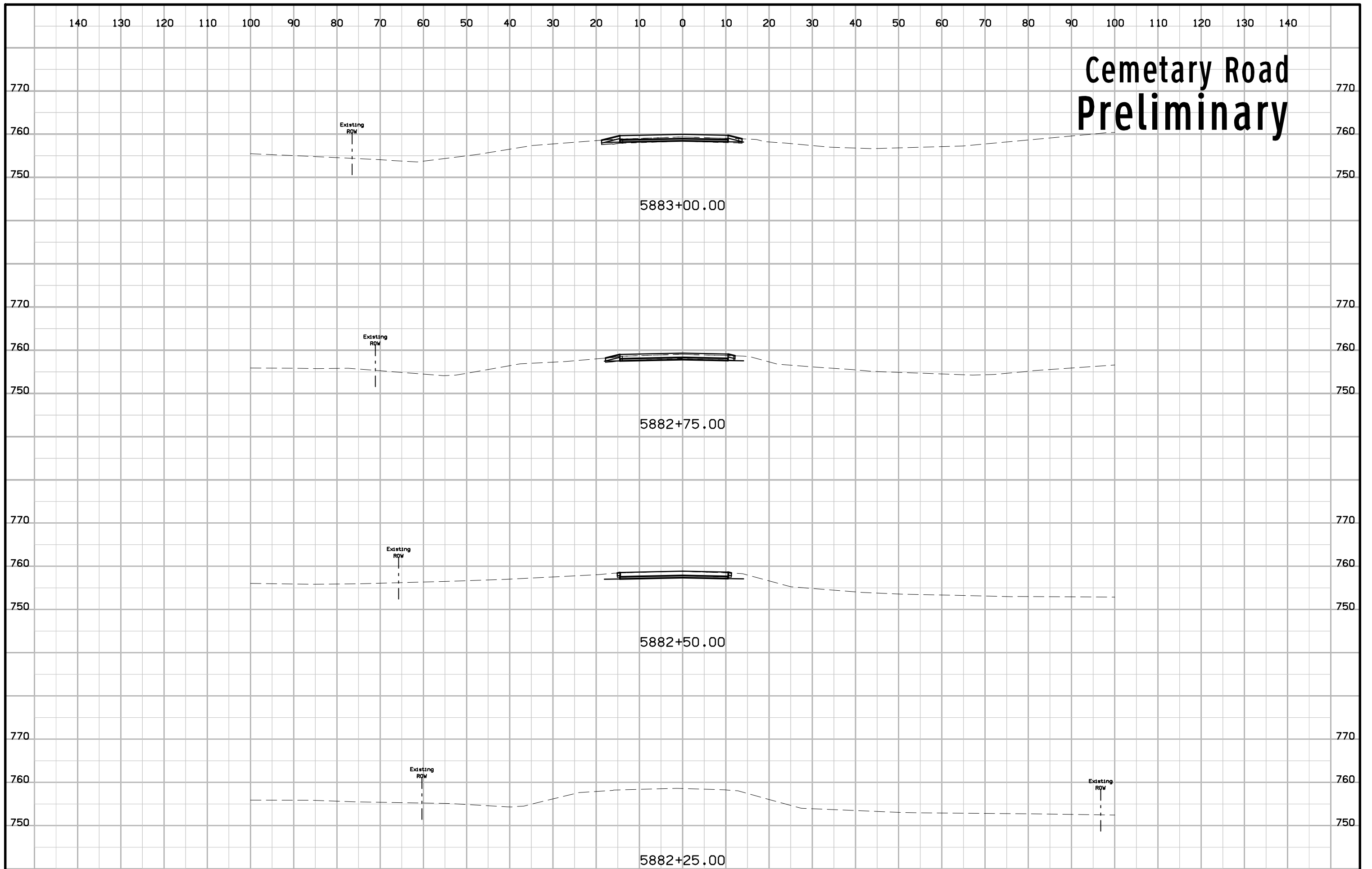
Stallman Drive Preliminary



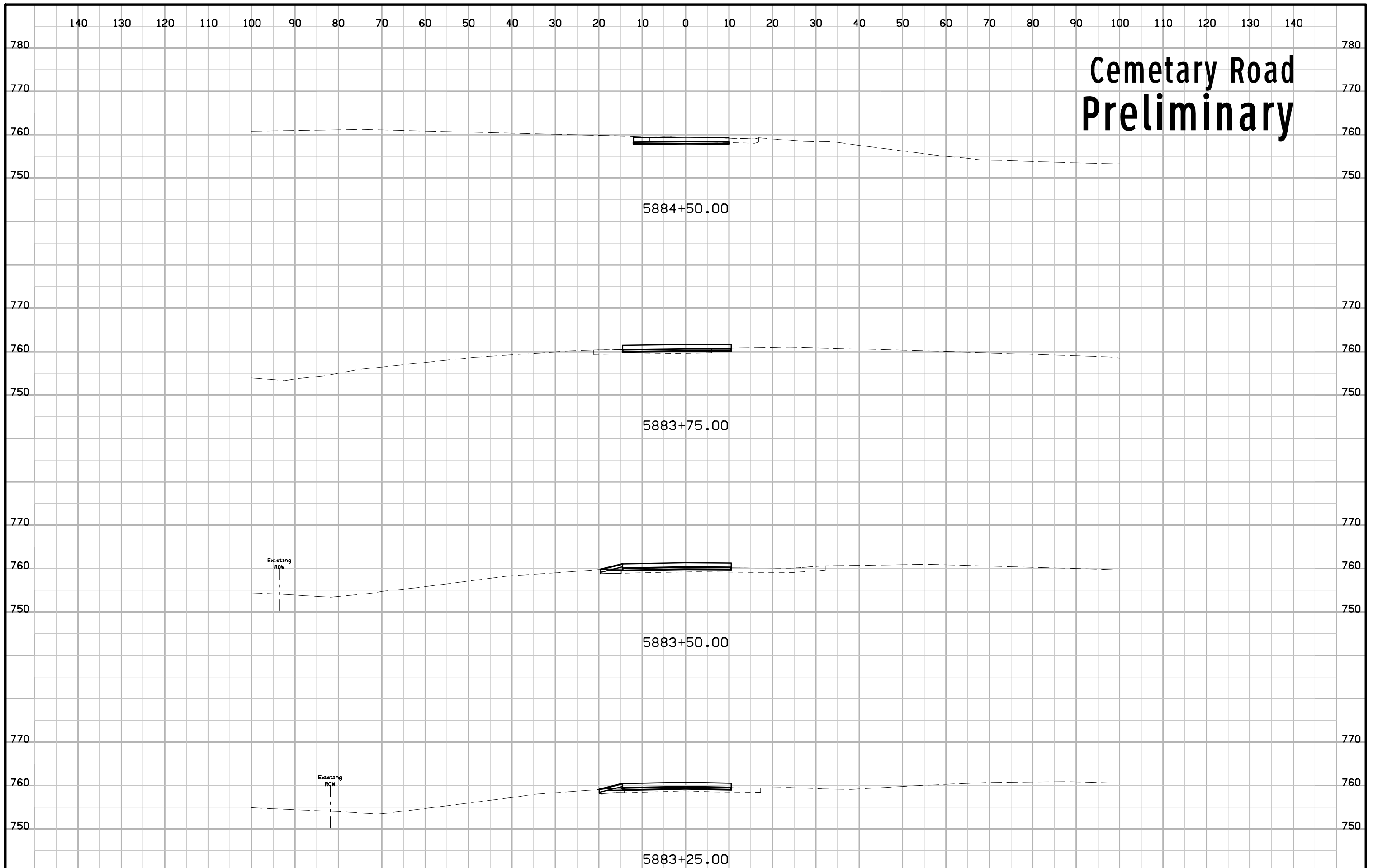
Stallman Drive Preliminary



Cemetery Road Preliminary



Cemetery Road Preliminary



Cemetery Road Preliminary

