

PCC PAVEMENT - GRADE AND NEW  
HSIPX-150-2(18)--3L-06

**BENTON GO.**

LETTING DATE  
12-21-2021



**Highway Division**

PLANS OF PROPOSED IMPROVEMENT ON THE

PRIMARY ROAD SYSTEM

**BENTON COUNTY**

**PCC PAVEMENT - GRADE AND NEW**

IA 150, CURVE WEST OF URBANA  
AT THE INTERSECTION OF 55TH STREET AND 31ST AVENUE

SCALES: As Noted

Refer to the Proposal Form for list of applicable specifications.

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



REFER TO SHEET A.2 FOR  
PROJECT LOCATION MAP

REVISIONS

TOTAL  
75

PROJECT IDENTIFICATION NUMBER	16-06-150-030
PROJECT NUMBER	HSIPX-150-2(18)--3L-06
R.O.W. PROJECT NUMBER	NHSN-150-2(22)--2R-06

**INDEX OF SHEETS**

No.	DESCRIPTION
<b>A Sheets</b>	<b>Title Sheets</b>
A.1	Title Sheet
A.2	Location Map Sheet
<b>B Sheets</b>	<b>Typical Cross Sections and Details</b>
B.1 - 3	Typical Cross Sections and Details
<b>D Sheets</b>	<b>Mainline Plan and Profile Sheets</b>
* D.1	Plan & Profile Legend & Symbol Information Sheet
* D.2 - 4	IA 150 EB/WB
* D.5 - 7	IA 150 NB/SB
* D.8	IA 150 RAB
<b>E Sheets</b>	<b>Side Road Plan and Profile Sheets</b>
* E.1 - 2	55TH STREET
* E.3 - 4	31ST AVENUE
<b>G Sheets</b>	<b>Survey Sheets</b>
G.1	Survey Information
G.2	Control Point Vicinity Map
G.3	Horizontal and Vertical Control Tab.
G.4 - 5	Alignment Coordinates and Curve Data
G.6	Superelevation Table
<b>J Sheets</b>	<b>Traffic Control and Staging Sheets</b>
J.1	Traffic Control Plan and Staging Notes
* J.2	Detour Route
* J.3	Traffic Control & Staging Legend & Symbol Info. Sheet
* J.4 - 8	Staging and Traffic Control Sheets
<b>T Sheets</b>	<b>Earthwork Quantity Sheets</b>
* T.1	Earthwork Legend Sheet
T.2 - 8	Earthwork Quantity Sheets
<b>V Sheets</b>	<b>Bridge and Culvert Situation Plans</b>
* V.1 - 5	Culvert Plat Plans
<b>W Sheets</b>	<b>Mainline Cross Sections</b>
W.1 - 9	IA 150 EB/WB Mainline Cross Sections
W.10 - 17	IA 150 NB/SB Mainline Cross Sections
W.18 - 19	Roundabout Cross Sections
<b>X Sheets</b>	<b>Side Road Cross Sections</b>
X.1 - 8	55TH Street EB/WB Side Road Cross Sections
X.9 - 10	31ST Avenue NB/SB Side Road Cross Sections
X.11 - 12	IA 150 Curve Side Road Cross Sections
	* Color Plan Sheets

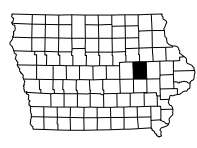
DESIGN DATA URBAN			
2018	AADT	3100	V.P.D.
2038	AADT	3900	V.P.D.
20	DHV		V.P.H.
	TRUCKS	8	%
	Total		
	Design ESALs		

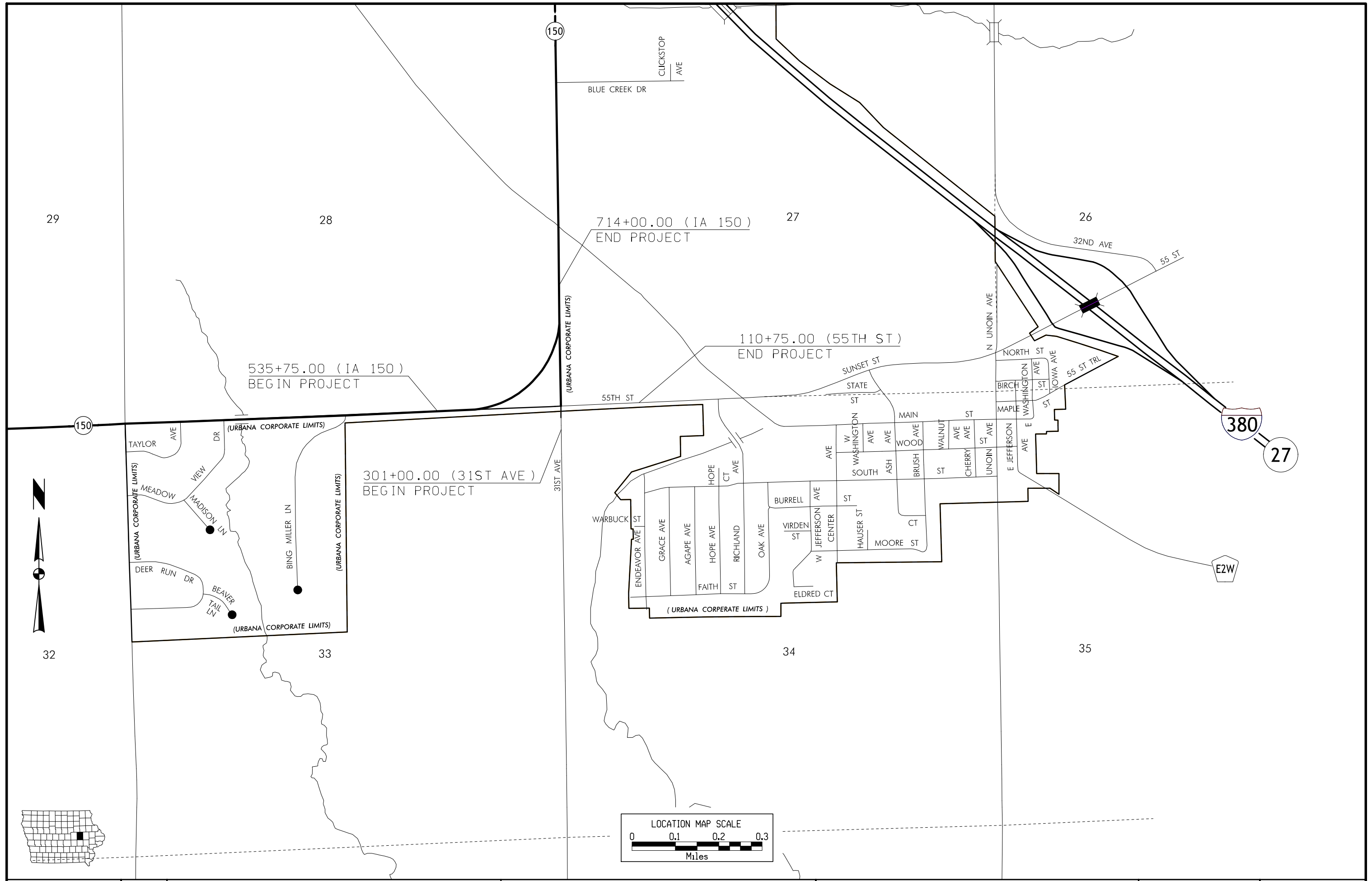
INDEX OF SEALS		
SHEET NO.	NAME	TYPE
A.1	ANDREW S. FLOY	Primary Signature Block

**PRELIMINARY PLANS**

Subject to change by final design.

**D5 PLAN - Date: Nov. 1, 2019**

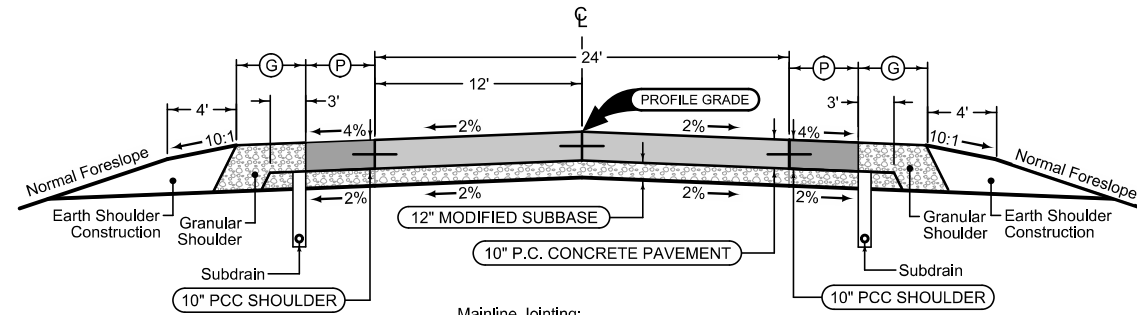




### Full Depth PCC Combination Shoulder

Shoulder Jointing:  
Longitudinal joint: L-2

STATION TO STATION		2_C_FullPCC_MODIFIED	
		(P) Feet	(G) Feet
535+75.00	542+55.53	6	4
642+55.53	644+07.69	6	4
644+07.69	645+37.69	3.5	4
804+40.17	804+95.17	3.5	4
804+95.17	806+05.01	6	4
706+05.01	714+00.00	6	4
204+51.72	205+06.72	3.5	4
205+06.72	207+07.11	6	4
107+07.11	110+75.00	6	4



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

STATION TO STATION	
535+75.00	545+37.40
704+39.96	714+00.00
104+51.86	110+75.00

### Full Depth PCC Combination Shoulder

Shoulder Jointing:  
Longitudinal joint: L-2

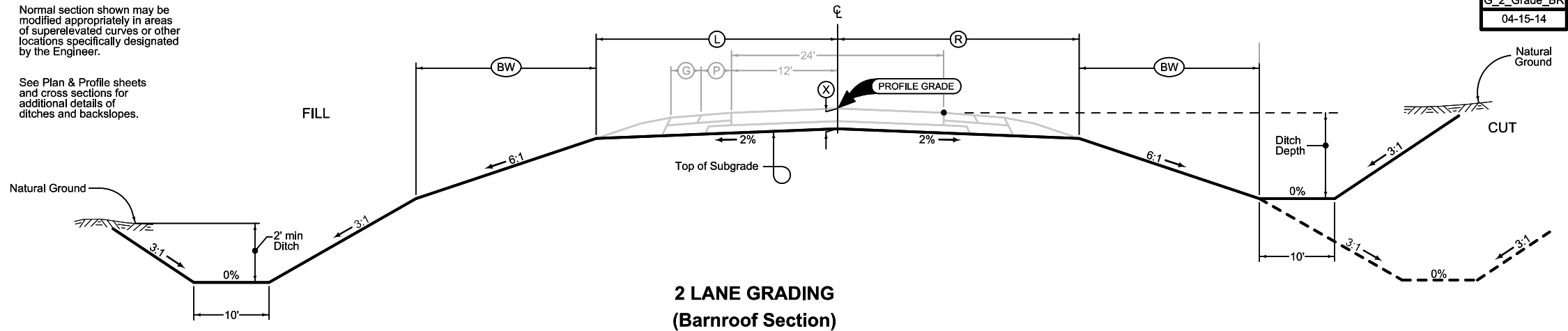
STATION TO STATION		2_C_FullPCC_MODIFIED	
		(P) Feet	(G) Feet
535+75.00	544+82.40	6	4
544+82.40	545+37.40	3.5	4
704+39.96	706+05.01	3.5	4
706+05.01	714+00.00	6	4
104+51.86	105+62.86	3.5	4
105+62.86	110+75.00	6	4

IA 150  
55TH STREET

LOCATION		DIMENSIONS				
ROAD IDENTIFICATION	STATION TO STATION	(L) Feet	(R) Feet	(X) Inches	(BW) Feet	
IA 150 EB	535+75.00	545+37.40	35	35	22	18.6
IA 150 WB	642+55.53	645+37.69	35	35	22	18.6
IA 150 NB	704+39.96	714+00.00	35	35	22	18.6
IA 150 SB	804+40.17	806+05.01	35	35	22	18.6
55TH STREET EB	104+51.86	110+75.00	35	35	22	18.6
55TH STREET WB	204+51.72	207+07.11	35	35	22	18.6

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

See Plan & Profile sheets and cross sections for additional details of ditches and backslopes.



2 LANE GRADING  
(Barnroof Section)

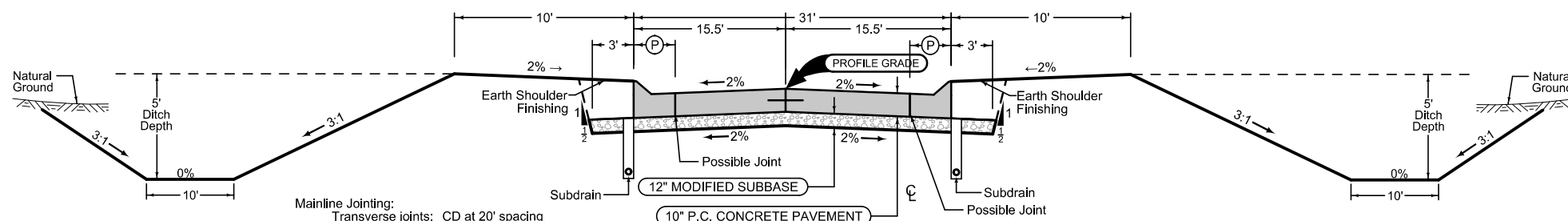
IA 150  
55TH STREET

### 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
301+00.00	302+44.72	2.5	6" Sloped
402+44.72	403+07.88	2.5	6" Sloped



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

STATION TO STATION	
301+00.00	303+07.96

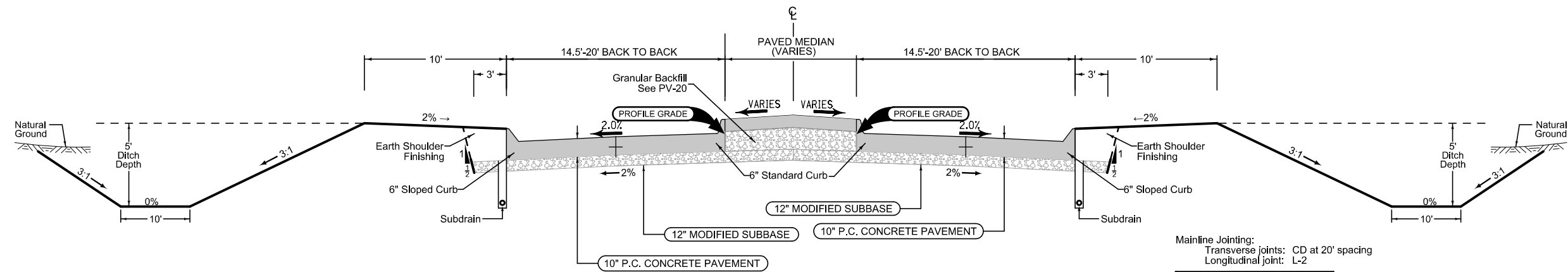
### Curbed Shoulder

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
301+00.00	303+07.96	2.5	6" Sloped

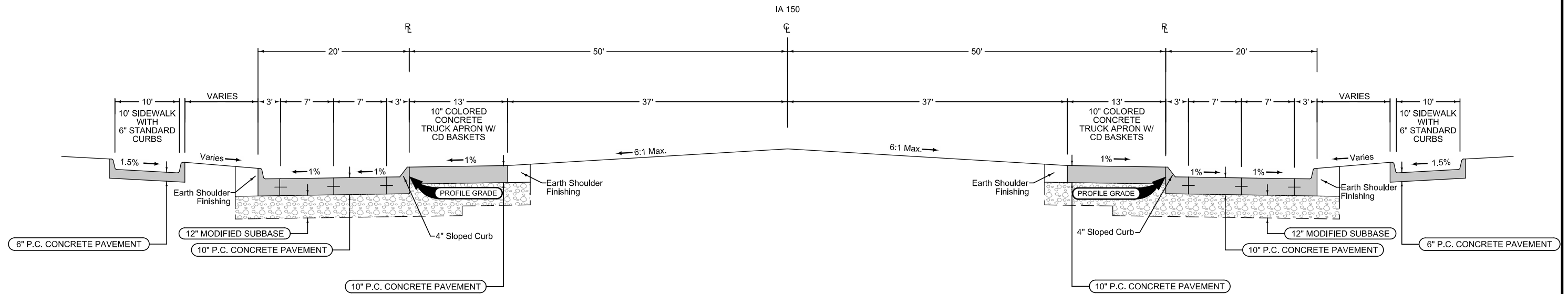
31ST AVENUE



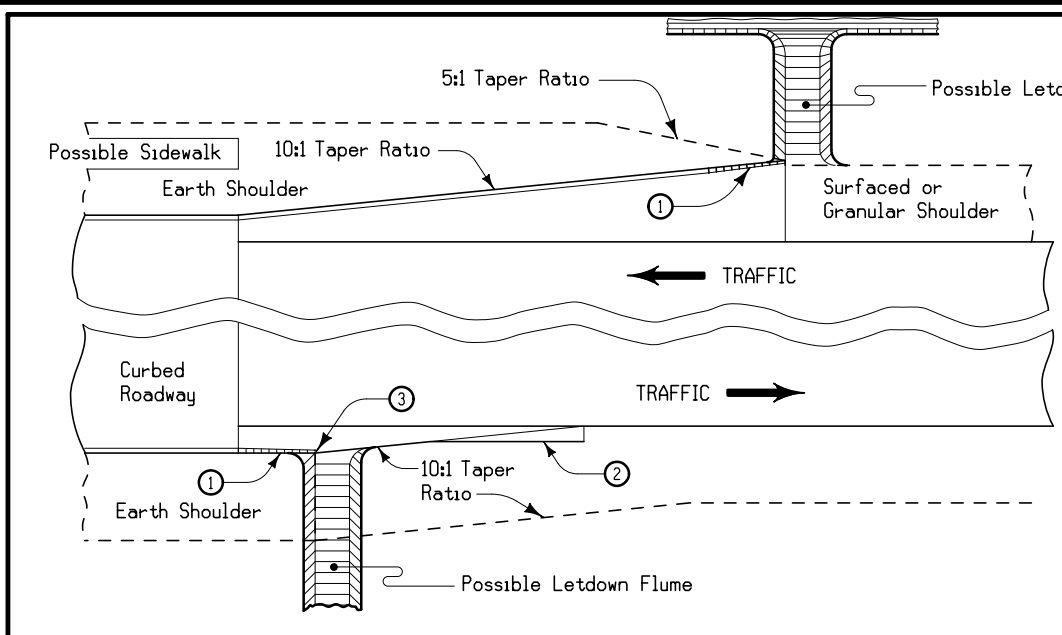
Mainline Jointing:  
 Transverse joints: CD at 20' spacing  
 Longitudinal joint: L-2

2P_	
10-19-10	
STATION TO STATION	
545+57.40	549+96.37
700+23.42	704+19.96
100+23.44	104+31.61
303+07.96	304+21.45

**IA 150  
 55TH STREET  
 31ST AVENUE**



**IA 150 ROUNDABOUT**



- ① Runout curb according to PV-102
- ② End of Taper Details see Typical Detail 7101
- ③ End earth shoulder at the end of the curb transition when no flume is needed.

**TRANSITION  
BETWEEN CURBED AND  
NON-CURBED ROADWAYS**

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

LINEWORK	Design Color No.	
Green	(2)	Existing Topographic Features and Labels
Blue	(1)	Proposed Alignment, Stationing, Tic Marks, and Alignment Annotation
Magenta	(5)	Existing Utilities
SHADING		
	Design Color No.	
Yellow	(4)	Highlight for Critical Notes or Features
Red	(3)	Delineates Restricted Areas
Lavender	(9)	Temporary Pavement Shading
Gray, Light	(48)	Proposed Pavement Shading
Gray, Med	(80)	Proposed Granular Shading
Gray, Dark	(112)	Proposed Grade and Pave Shading "In conjunction with a paving project"
Brown, Light	(236)	Grading Shading
Tan	(8)	Proposed Sidewalk Shading
Blue, Light	(230)	Proposed Sidewalk Landing Shading
Pink	(11)	Proposed Sidewalk Ramp Shading

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

LINEWORK	Design Color No.	
Green	(2)	Existing Ground Line Profile
Blue	(1)	Proposed Profile and Annotation
Magenta	(5)	Existing Utilities
Blue, Light	(230)	Proposed Ditch Grades, Left
Black	(0)	Proposed Ditch Grades, Median
Rust	(14)	Proposed Ditch Grades, Right

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

RIGHT-OF-WAY LEGEND	
	Proposed Right-of-Way
	Existing Right of Way
	Existing and Proposed Right-of-Way
	Easement and Existing Right-of-Way
	Easement (Temporary)
	Easement
	Access Control
	Property Line

**PLAN AND PROFILE  
LEGEND AND SYMBOL  
INFORMATION SHEET**

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

TERNUS FAMILY FARMS LLC

PAUL & DANIKA BUCKLEY

Begin Construction  
ML IA 150 EB Sta. 535+75.00

Curve Data  
Δ = 1° 43' 57.30" (LT)  
T = 166.33  
L = 332.63  
P = 11,000.00  
E = 1.26

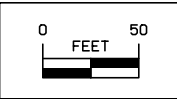
Curve Data  
Δ = 3° 45' 34.30" (RT)  
T = 111.59  
L = 223.09  
P = 3,400.00  
E = 1.83

(REMOVE)  
Sta. 537+63.83, 48' RT  
18" X 24 FT CMP  
D.A. =

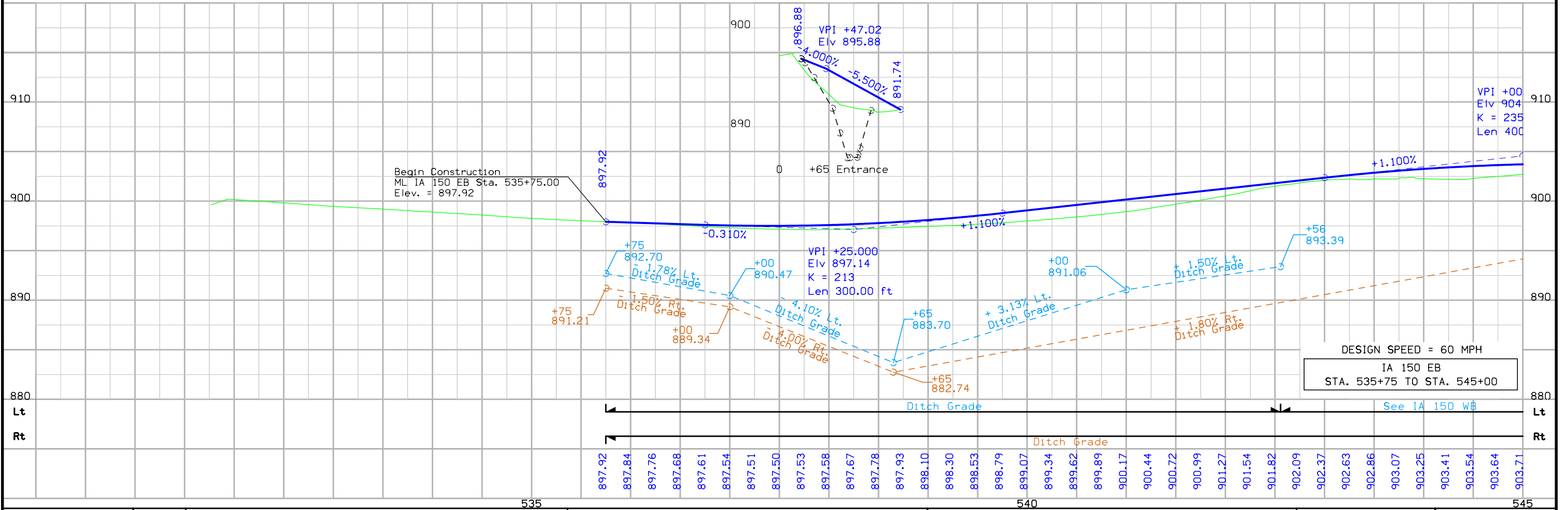
(REMOVE)  
Sta. 538+44.94  
3 FT X 3 FT X 63 FT RCB  
D.A. = 50 A-R  
STA 538+65.00  
INSTALL 48" X 132' RCP  
SKEW 0°  
LT. 883.70  
RT. 882.74

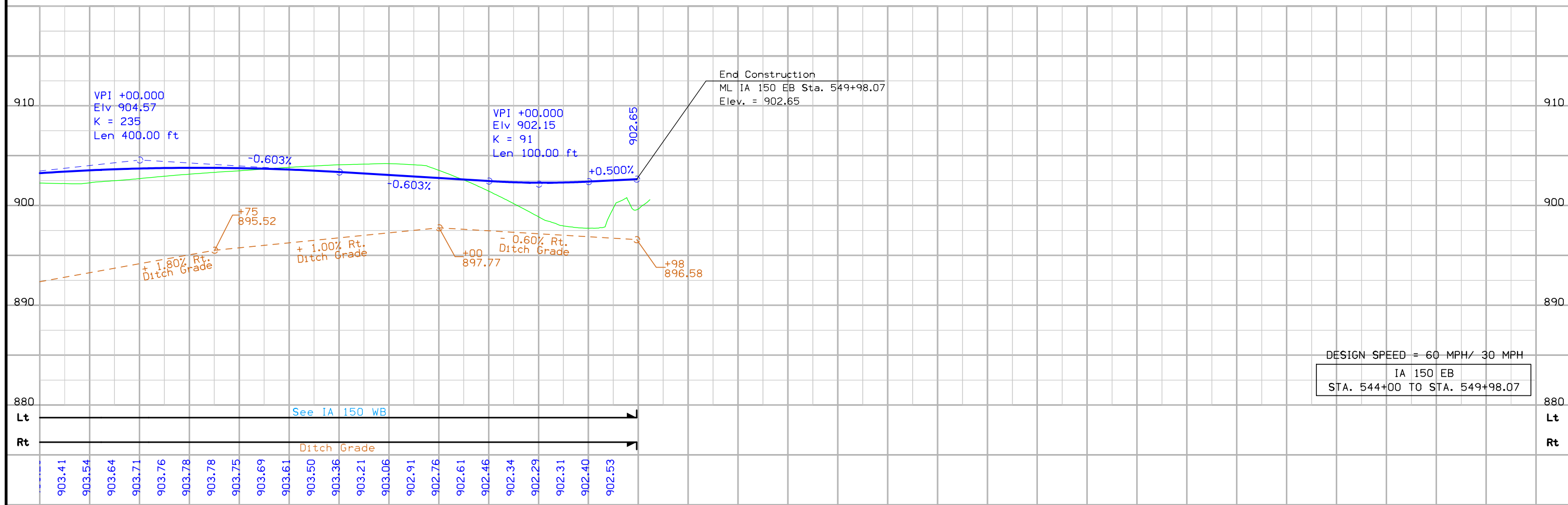
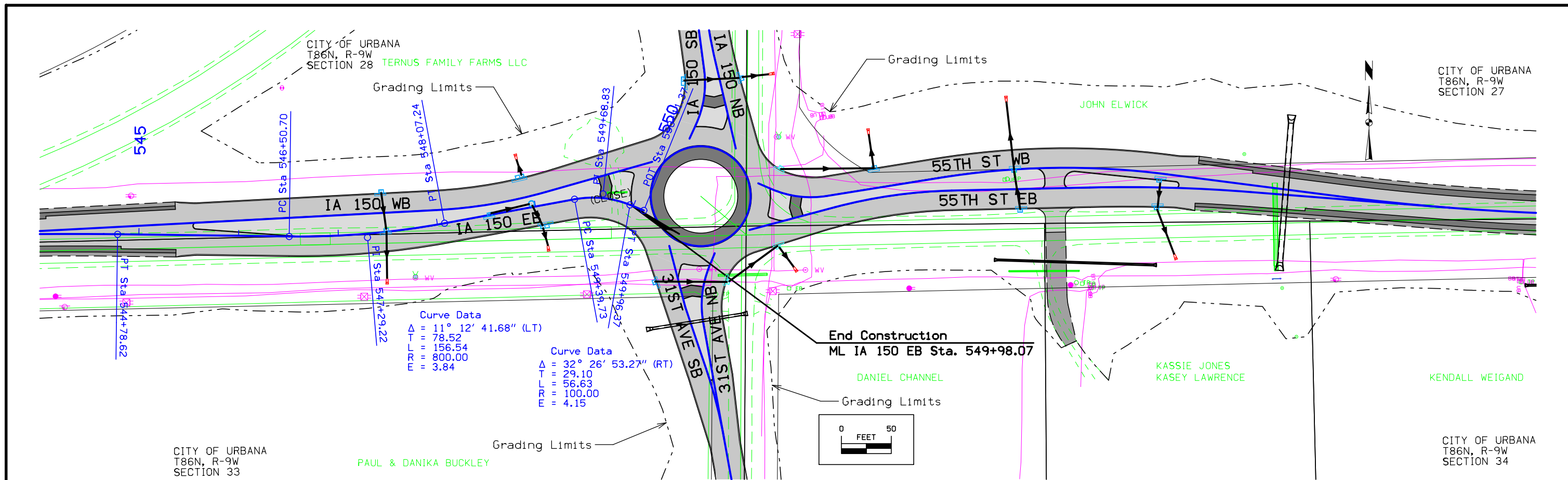
STA 537+60.51, 77.21' RT  
INSTALL 18" X 122'  
CMP W/ APRONS

+64.97 Prop.  
Type 'C' Ent



DESIGN HOMES INC



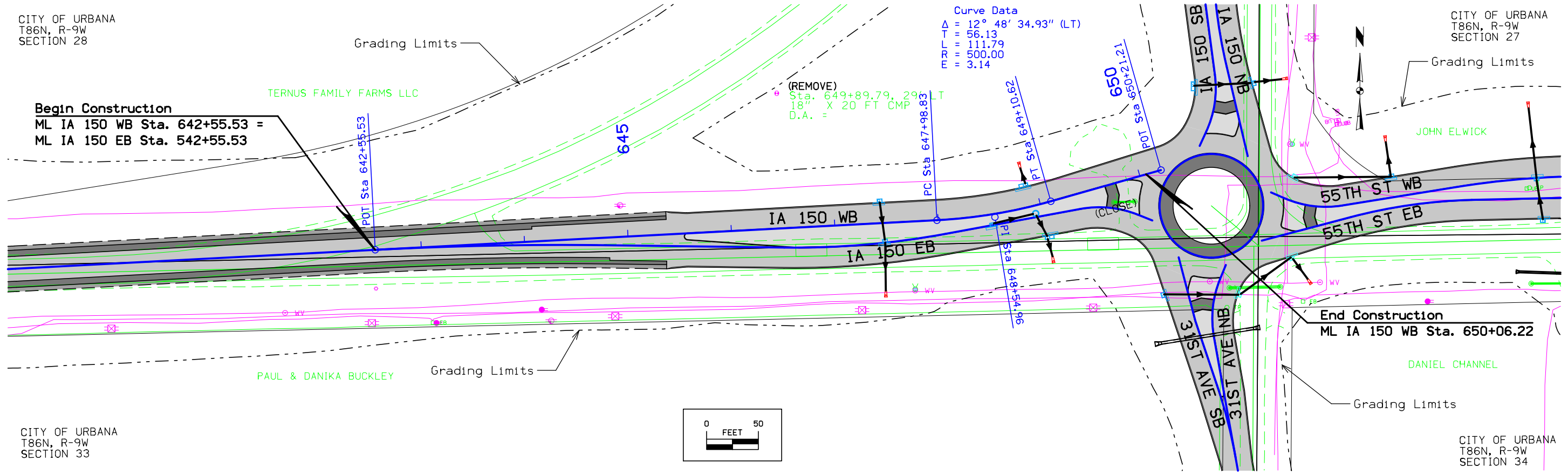




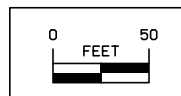
CITY OF URBANA  
T86N, R-9W  
SECTION 28

Curve Data  
 $\Delta = 12^\circ 48' 34.93''$  (LT)  
 $T = 56.13$   
 $L = 111.79$   
 $R = 500.00$   
 $E = 3.14$

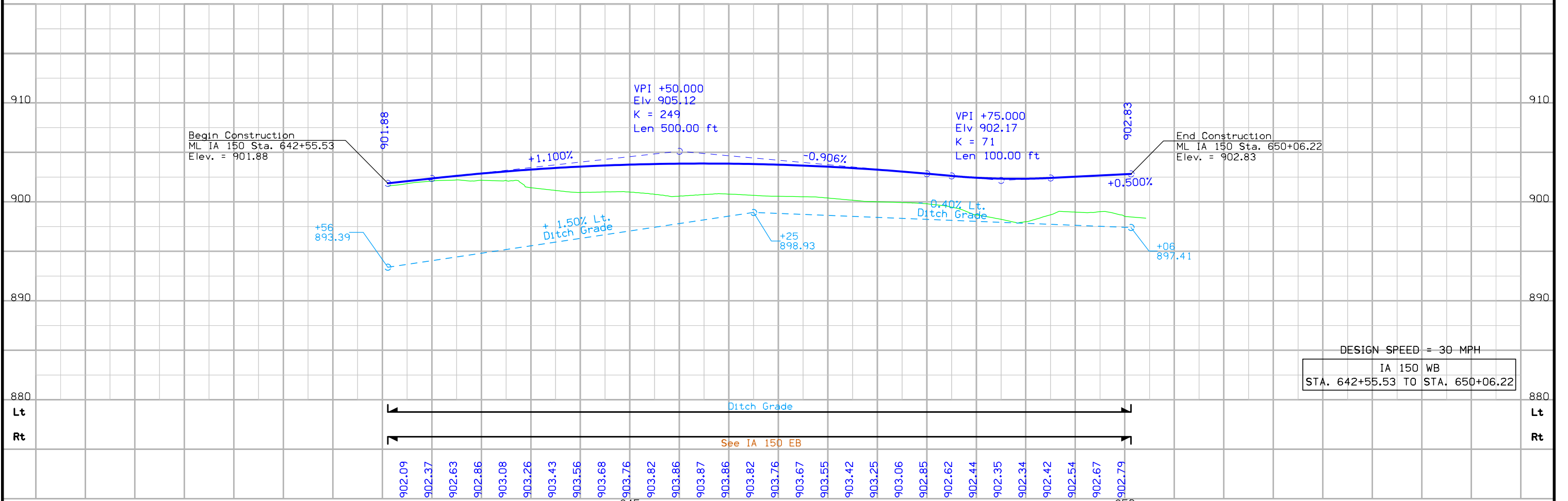
CITY OF URBANA  
T86N, R-9W  
SECTION 27



CITY OF URBANA  
T86N, R-9W  
SECTION 33



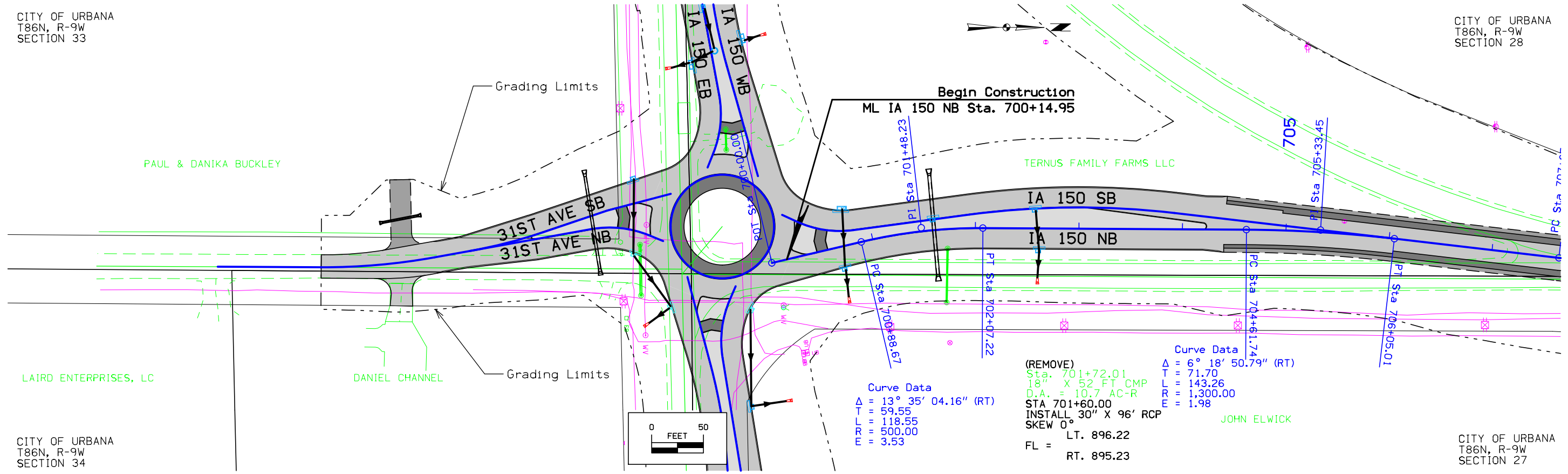
CITY OF URBANA  
T86N, R-9W  
SECTION 34



DESIGN SPEED = 30 MPH  
 IA 150 WB  
 STA. 642+55.53 TO STA. 650+06.22

CITY OF URBANA  
T86N, R-9W  
SECTION 33

CITY OF URBANA  
T86N, R-9W  
SECTION 28



CITY OF URBANA  
T86N, R-9W  
SECTION 34

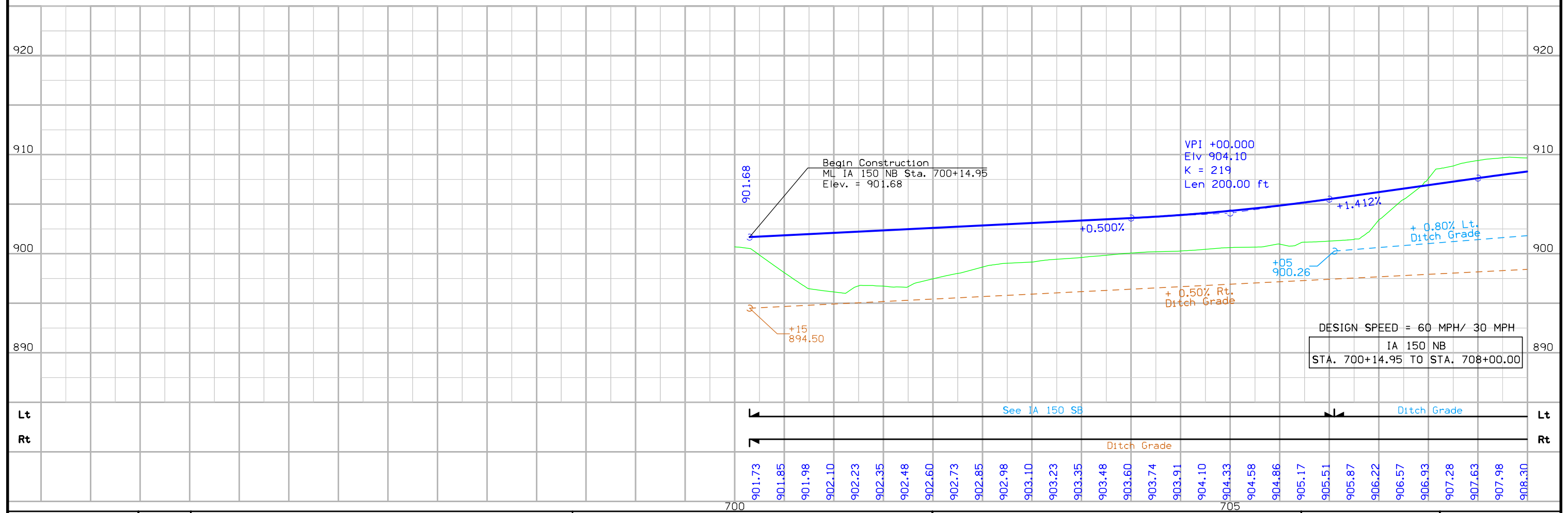
CITY OF URBANA  
T86N, R-9W  
SECTION 27

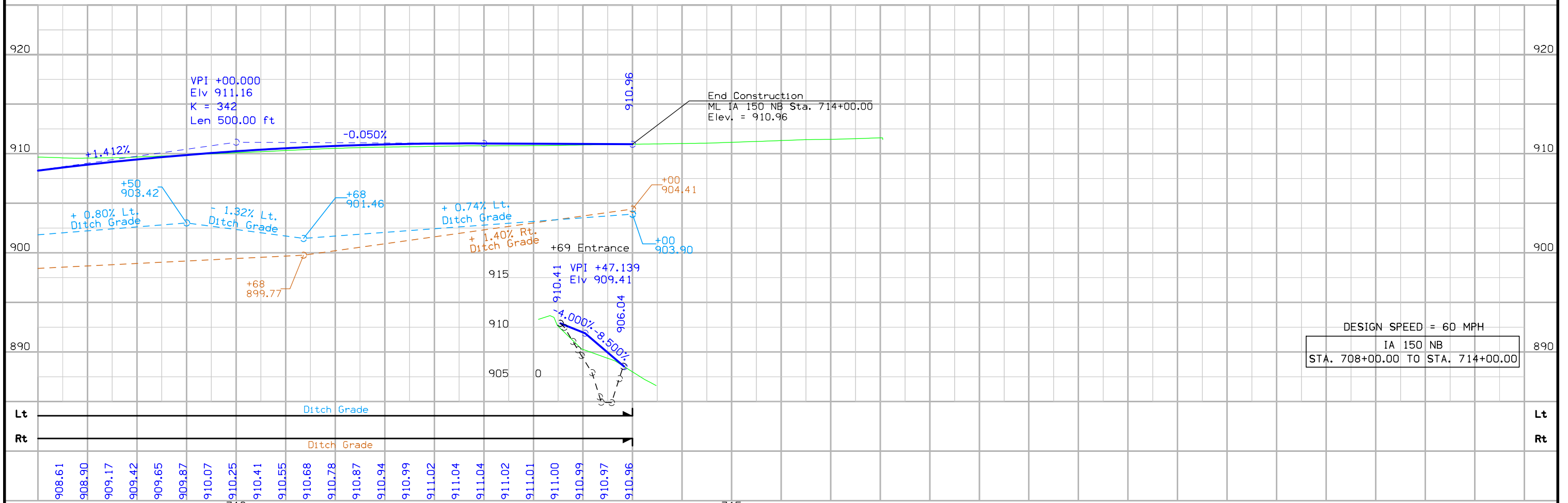
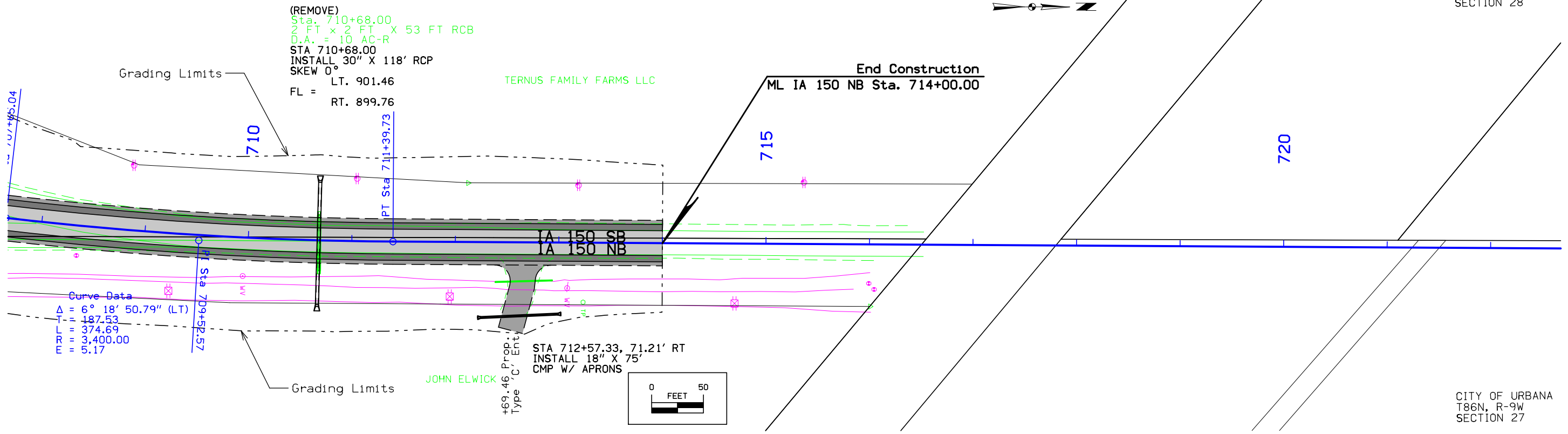
Curve Data  
 $\Delta = 13^\circ 35' 04.16''$  (RT)  
 $T = 59.55$   
 $LR = 118.55$   
 $E = 500.00$   
 $F = 3.53$

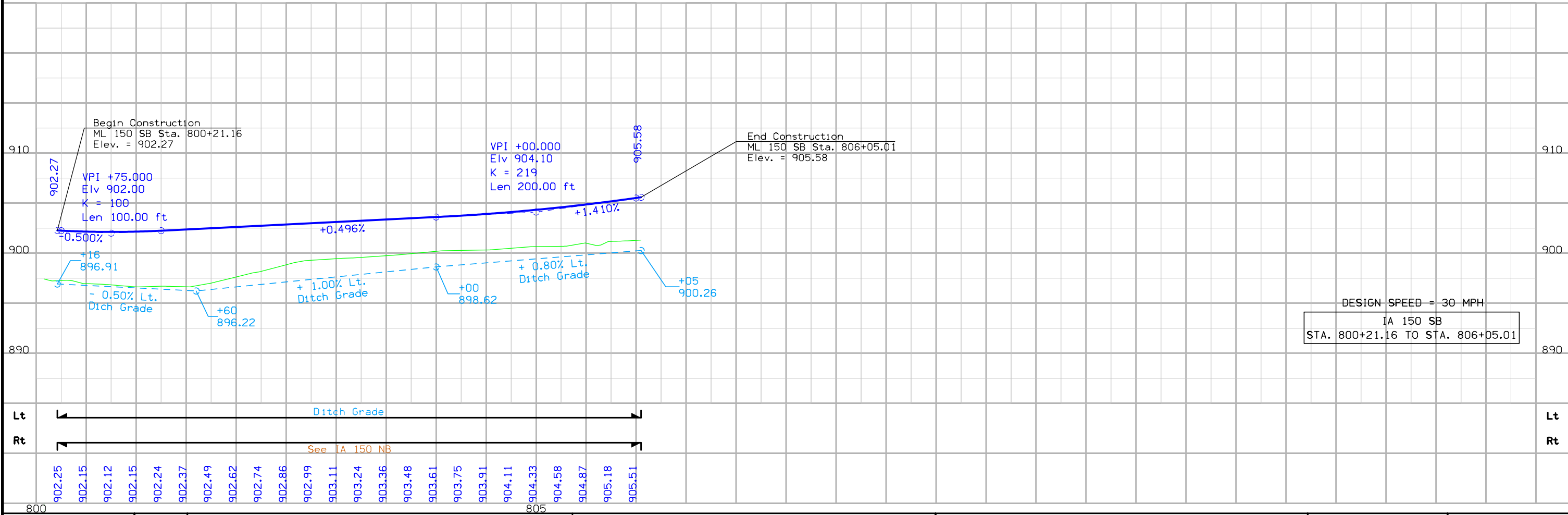
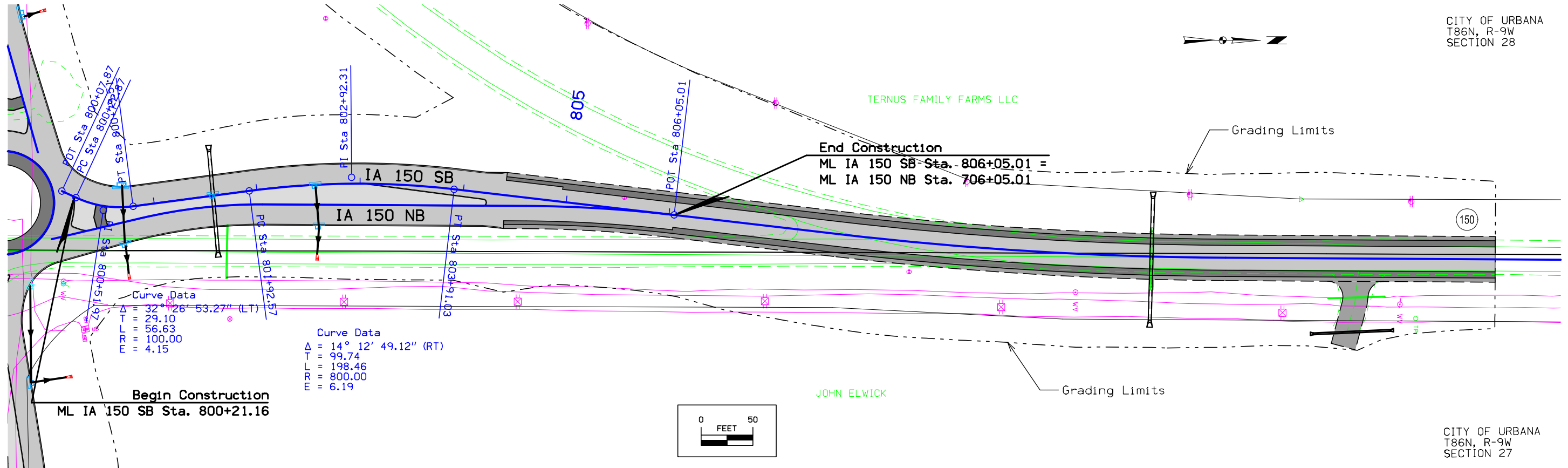
(REMOVE)  
 Sta. 701+72.01  
 18" X 52 FT CMP  
 D.A. = 10.7 AC-R  
 STA 701+60.00  
 INSTALL 30" X 96' RCP  
 SKEW 0°  
 LT. 896.22  
 RT. 895.23

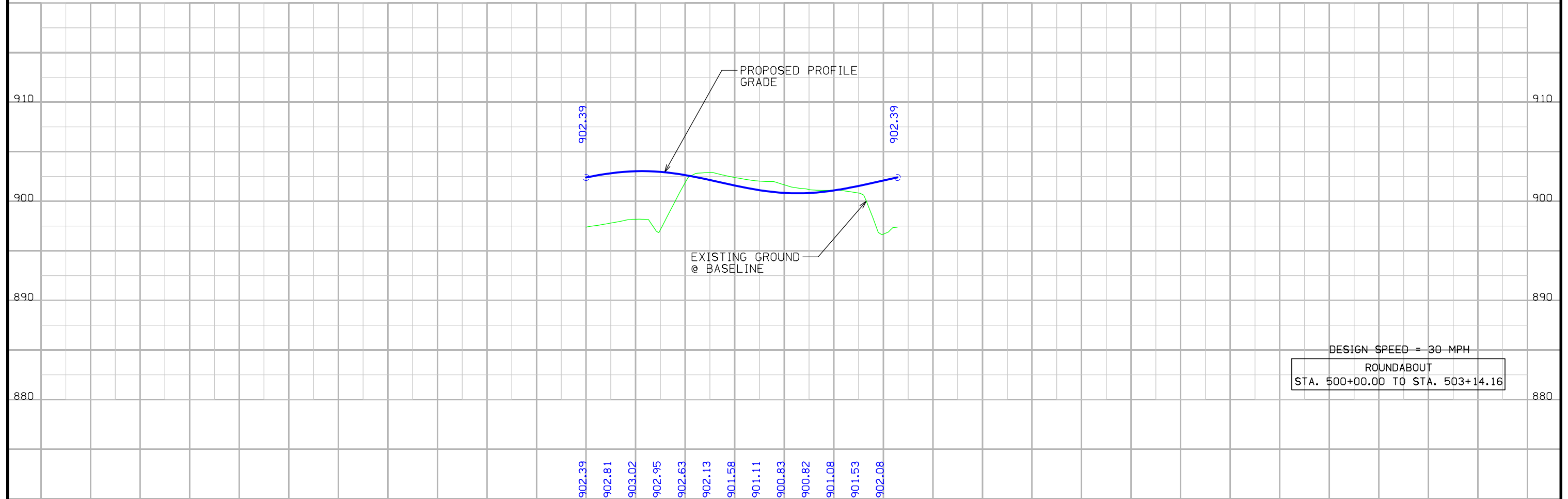
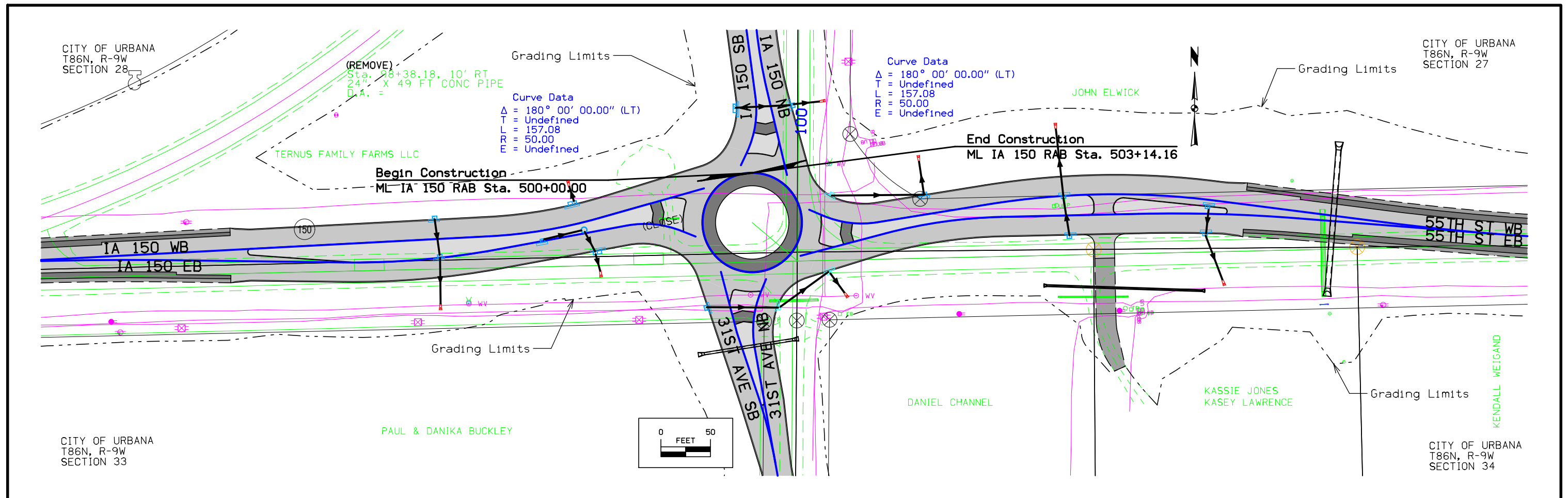
Curve Data  
 $\Delta = 6^\circ 18' 50.79''$  (RT)  
 $T = 71.70$   
 $LR = 143.26$   
 $E = 1,300.00$   
 $F = 1.98$

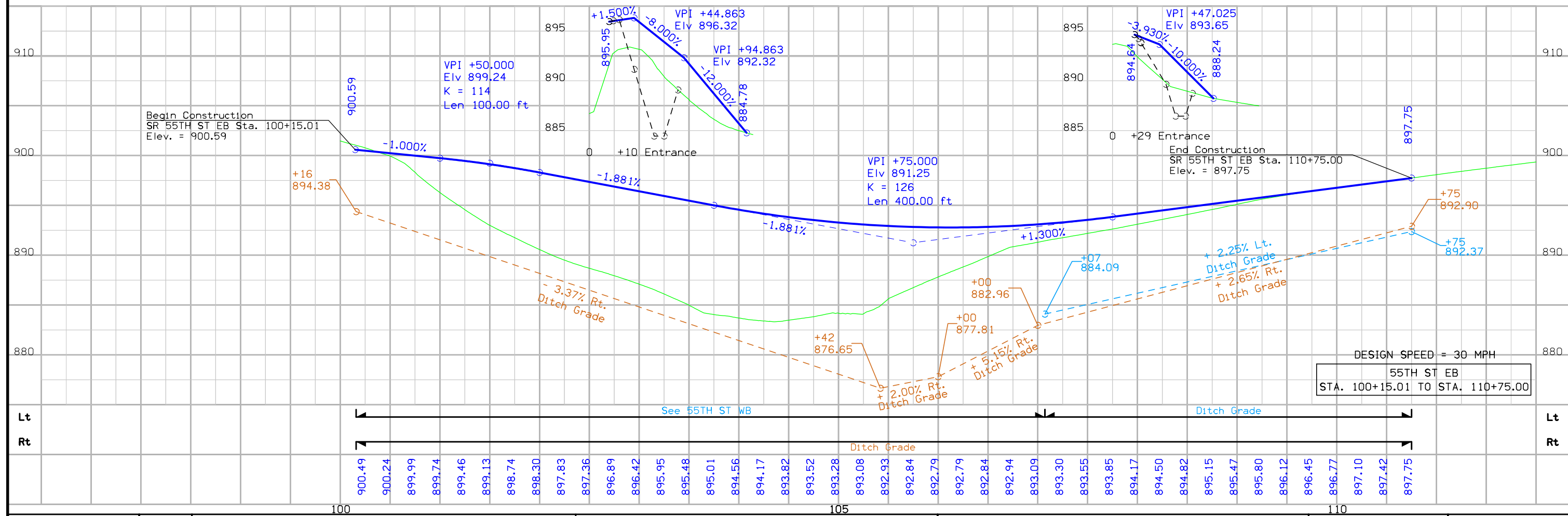
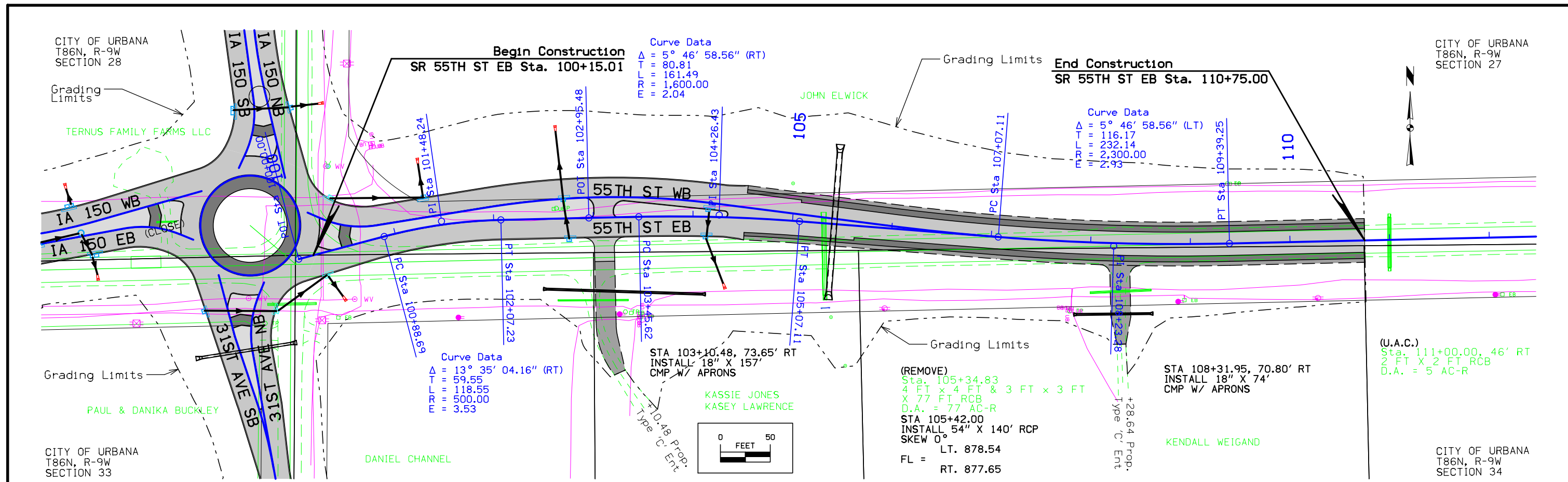
JOHN ELWICK





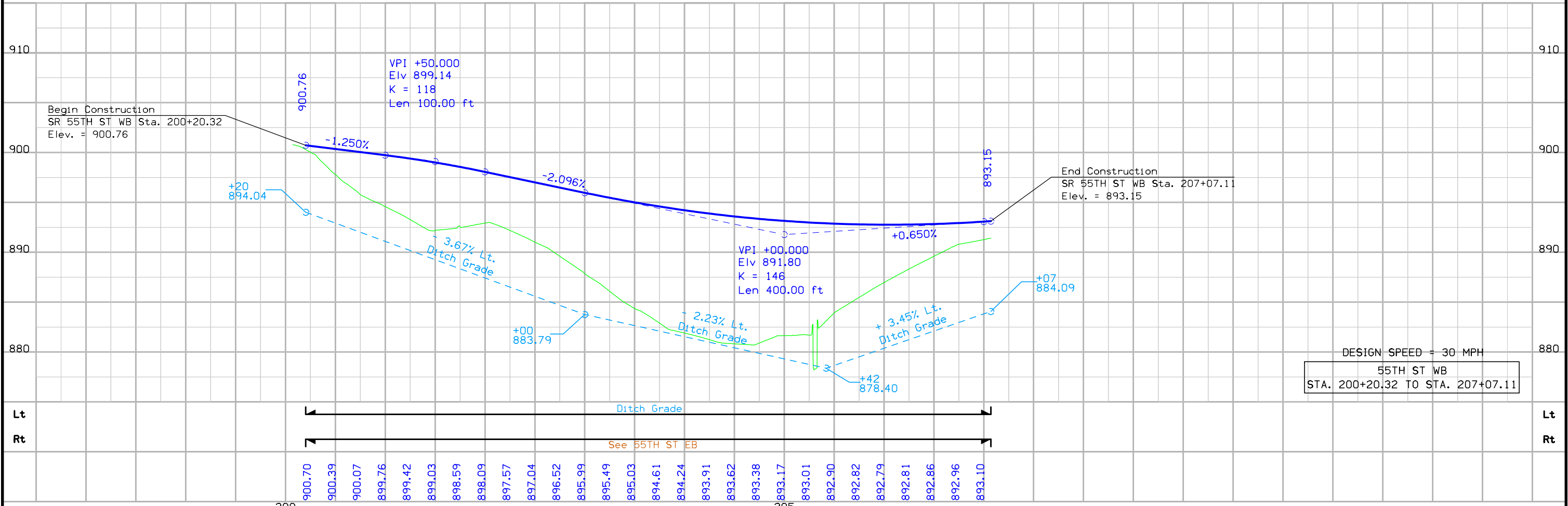
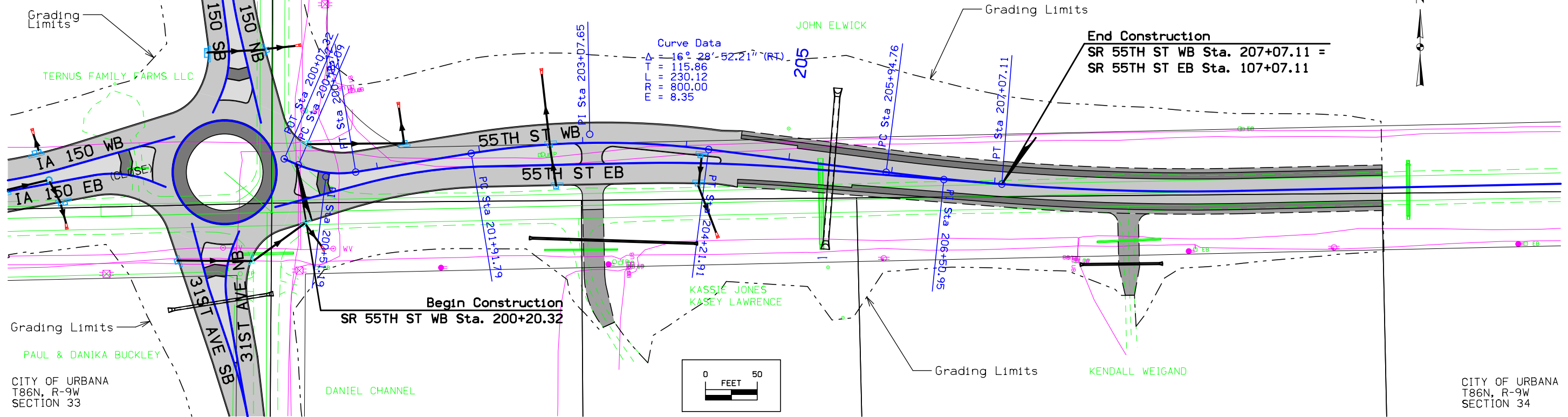






CITY OF URBANA  
T86N, R-9W  
SECTION 28

CITY OF URBANA  
T86N, R-9W  
SECTION 27



CITY OF URBANA  
T86N, R-9W  
SECTION 33

STA 301+60.66, 41.68' LT  
INSTALL 18" X 35"  
CMP W/ APRONS

(REMOVE)  
Sta. 304+15.69  
24" x 49 FT RCP  
D.A. = 1.0 AC-R  
STA 303+66.00  
INSTALL 24" X 90' RCP  
SKEW 0°  
LT. 895.89  
FL = RT. 895.38

CITY OF URBANA  
T86N, R-9W  
SECTION 28

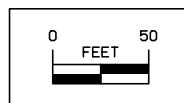
PAUL & DANIKA BUCKLEY

TERNUS FAMILY FARMS LLC

Begin Construction  
SR 31ST AVE NB Sta. 301+00.00

LAIRD ENTERPRISES, LC

Curve Data  
 $\Delta = 32^\circ 26' 53.27''$  (RT)  
T = 29.10  
L = 56.63  
R = 100.00  
E = 4.15



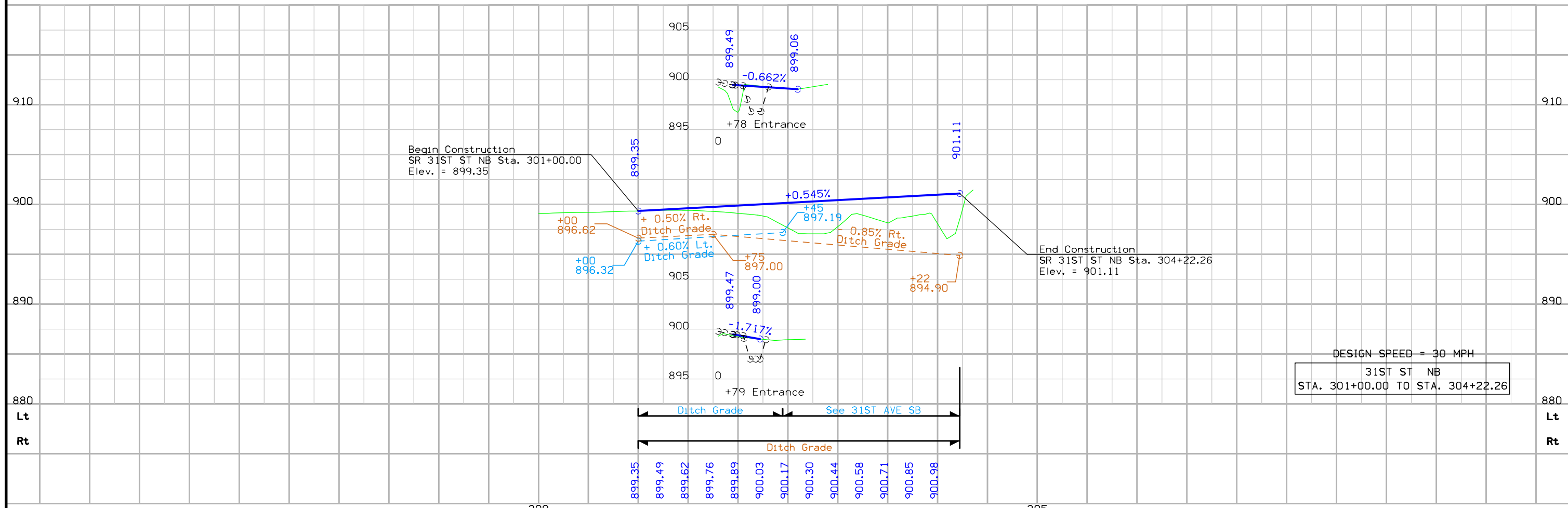
DANIEL CHANNEL

Curve Data  
 $\Delta = 10^\circ 30' 51.80''$  (LT)  
T = 55.21  
L = 110.11  
R = 600.00  
E = 2.53

JOHN ELWICK

CITY OF URBANA  
T86N, R-9W  
SECTION 34

CITY OF URBANA  
T86N, R-9W  
SECTION 27





CITY OF URBANA  
T86N, R-9W  
SECTION 33

CITY OF URBANA  
T86N, R-9W  
SECTION 28

Curve Data  
 $\Delta = 8^\circ 21' 59.81''$  (LT)  
 $T = 36.57$   
 $L = 73.01$   
 $R = 500.00$   
 $e = 1.34$

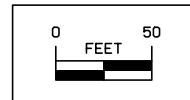
PAUL & DANIKA BUCKLEY

End Construction  
SR 31ST AVE SB Sta. 404+31.76

Begin Construction  
SR 31ST AVE SB Sta. 402+44.72 =  
SR 31ST AVE NB Sta. 302+44.72

LAIRD ENTERPRISES, LC

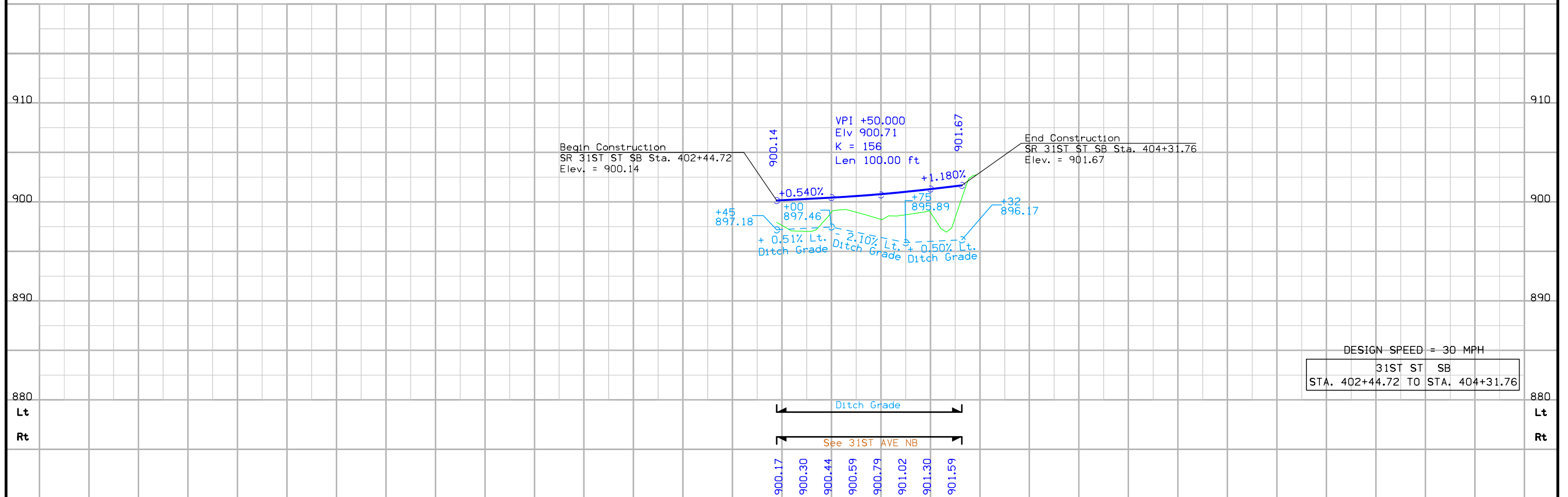
CITY OF URBANA  
T86N, R-9W  
SECTION 34



DANIEL CHANNEL

JOHN ELWICK

CITY OF URBANA  
T86N, R-9W  
SECTION 27



DESIGN SPEED = 30 MPH  
 31ST ST SB  
 STA. 402+44.72 TO STA. 404+31.76

## Survey Information

Benton County  
HSIPX-150-2(18)3L-06  
Curve W of Urbana near 31st Ave and 55th St Intersections  
Preliminary Engineering  
PIN 16-06-150-030  
Sap-0937

### Party Personnel

Jason Page- Survey Party Chief  
John Hahn- Assistant Survey Party Chief

### Date(s) of Survey

Begin Date 08/27/2018  
End Date 10/23/2018

### General Information

Measurement units for this survey are US survey feet. This survey is for proposed intersection reconstruction for Hwy 150 and Hwy 363 at the intersection of 31st Ave. Project datum and control information is provided by Design Survey Office. This project is a Full DTM.

### Vertical Control

Vertical datum for this survey is NAVD88 (Computed using Geoid12b). GRS80 Ellipsoidal Height was computed at project Pts. 21DDB1966, 2003-077, 2003-078, CP1, CP2, & CP3 by conducting two concurrent 6-hour static observations. Additional benchmarks were placed throughout the project using a GNSS Base-Rover setup relative to Pt. CP2 and Pts. CP1 & CP3. Two observations with a minimum of 4-hours between were collected and used in a weighted average.

This survey observed 1 USGS Control Monument with published NAVD88 height to compare to local ground control:

USGS 3rd. order vertical control mark designated "21 DDB 1966" has a published Elev. Of 901.28  
Survey Elev. = 901.22

This survey observed 2 local area county Control Monuments with published NAVD88 heights to compare to local ground control:

Benton County Control mark 2003-077 has a published Elev. of 872.20  
Survey Elev. = 872.09

Benton County Control mark 2003-078 has a published Elev. of 925.41  
Survey Elev. = 925.30

This survey observed 4 As-Built plan bench marks to compare to local ground control:

BM 50 Project F-263(4) Paving Plan Elev. 897.47  
BM 500 this Survey Elev. = 892.12

BM 50A Project F-263(4) Paving Plan Elev. 895.11  
BM 500A this Survey Elev. = 889.72

BM 152A Project F-901(1) Paving Plan Elev. 889.14  
BM 501 this Survey Elev. = 883.70

BM 152B Project F-901(1) Paving Plan Elev. 900.82  
BM 502 this Survey Elev. = 895.47

The average vertical difference between these four marks is -5.38' to be applied to as-built plan elevations.

This survey established an additional local bench mark:

BM 503 Survey Elev. = 906.39

### Horizontal Control

The project coordinate system for this survey is Iowa RCS Zone 10 (U.S. Survey Feet). This survey control is relative to laRTN reference stations. laRTN Reference Station coordinates are relative to the National Reference Station network datum: NAD83 (2011) for Epoch 2010.00. Coordinates were determined by conducting 2 concurrent 6-hour static observations. Additional control points were placed throughout the project using a GNSS Base-Rover setup relative to Pt. CP2 and Pts. CP1 & CP3. Two observations with a minimum of 4-hours between were collected and used in a weighted average.

### Alignment Information

The horizontal alignment information for this project was provided by the IDOT District 6 Land Survey Department.

## CONTROL POINT VICINITY MAP

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



HORIZ. DATUM: NAD83(2011) EPOCH 2010.00

VERT. DATUM: NAVD88

1a. Regional Coordinate System Zone 10

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

HORIZONTAL AND VERTICAL PROJECT CONTROL COORDINATE LISTING

HORIZ. DATUM: NAD83(2011) EPOCH 2010.00

VERT. DATUM: NAVD88

Ia. Regional Coordinate System Zone 10

Point Name	Northing	Easting	Elevation	Feature Code-Monument Description
21DDB1966	8153351.29	20420987.81	901.22	BM FD USGS 3RD ORDER BM TABLET STAMPED 21 DDB 1966 TOP CON MON AS DESCRIBED
2003-077	8137169.21	20439160.14	872.09	BM FD BENTON CO GPS CNTRL PT DESIGNATED 2003-077 AS DESCRIBED
2003-078	8153559.41	20438783.99	925.30	BM FD BENTON CO GPS CNTRL PT DESIGNATED 2003-078 AS DESCRIBED
CP1	8143047.54	20437138.24	898.05	FENO SET FENO MON STAMPED CP1 500' EAST OF BING MILLER LN...45' NORTH OF CENTER STATE HWY 150...7.6' NE OF T POST ROW CORNER...9.0' SE OF T POST ROW CORNER
CP2	8143112.20	20440769.82	899.30	FENO SET FENO MON STAMPED CP2 400' WEST OF RICHLAND AVE...35' NORTH OF CENTER STATE HWY 363...WEST SIDE OF GRASS FIELD ENT NEAR TOP OF FORESLOPE
CP3	8144836.49	20439224.45	909.94	FENO SET FENO MON STAMPED CP3 400' SOUTH OF INTSEC STATE HWY 150 & 54TH ST...30' WSW OF INTSEC HWY 150 & CEDAR VALLEY NAT TRAIL...SOUTH SIDE GRASS FIELD ENT NEAR TOP OF FORESLOPE
500A	8142983.66	20437980.98	889.72	BM FD IHC BRASS PLUG OULET HDWLL 3'X3' RCB DSGN NO 1947
500	8143047.28	20437979.53	892.12	BM FD CUT X INLET HDWLL 3'X3' RCB DSGN NO 1947
501	8143094.86	20439773.39	883.70	BM FD IHC BRASS PLUG INLET HDWLL 4'X4' & 3'X3' RCB DSGN NO 2447
502	8143096.20	20440340.95	895.47	BM FD IHC BRASS PLUG INLET HDWLL 2'X2' RCB DSGN NO 2547
503	8144198.73	20439225.01	906.39	BM FD IHC BRASS PLUG INLET HDWLL 2'X2' RCB DSGN NO 2047

CONTROL LINE DATA - ML150_EB											
POINT ID	BEARING	DISTANCE (FEET)	NORTHING (Y)	EASTING (X)				DELTA	R	L	T
					PC	PI	PT				
	N 88°58'08.5" E	2136.710 '	8142953.899	20434510.694		503+74.90 R1					
	N 88°43'07.9" E	763.391 '	8142997.743	20436947.010	525+11.61 R1		531+11.61 R1	0°15'00.6"	-137425.084 '	599.999 '	300.000 '
	N 86°59'10.6" E	514.225 '	8143018.530	20437876.497	535+75.00 R1		539+07.63 R1	1°43'57.3"	-11000.000 '	332.632 '	166.329 '
	S 89°15'15.1" E	283.664 '	8143051.432	20438501.444	542+55.53 R1		544+78.62 R1	3°45'34.3"	3400.000 '	223.095 '	111.587 '
	N 79°32'03.2" E	211.013 '	8143046.718	20438863.599	546+50.70 R1		548+07.24 R1	11°12'41.7"	-800.000 '	156.543 '	78.522 '
	S 68°01'03.5" E	44.098 '	8143090.333	20439099.716	549+39.73 R1		549+96.37 R1	32°26'53.3"	100.000 '	56.633 '	29.098 '
			8143073.827	20439140.608		550+11.37 R1					

CONTROL LINE DATA - ML150_WB											
POINT ID	BEARING	DISTANCE (FEET)	NORTHING (Y)	EASTING (X)				DELTA	R	L	T
					PC	PI	PT				
	N 86°59'10.6" E	543.300 '	8143045.565	20438390.011		642+55.53 R1					
	N 74°10'35.7" E	166.721 '	8143077.080	20438988.609	647+98.83 R1		649+10.62 R1	12°48'34.9"	-500.000 '	111.786 '	56.127 '
			8143122.541	20439149.013		650+21.21 R1					

CONTROL LINE DATA - ML150_SB											
POINT ID	BEARING	DISTANCE (FEET)	NORTHING (Y)	EASTING (X)				DELTA	R	L	T
					PC	PI	PT				
	N 24°53'03.5" E	15.000 '	8143145.779	20439186.299		800+07.87 R1					
	N 7°33'49.8" W	142.165 '	8143185.783	20439204.855	800+22.87 R1		800+79.51 R1	32°26'53.3"	-100.000 '	56.633 '	29.098 '
	N 6°38'59.3" E	313.720 '	8143425.585	20439173.013	801+92.57 R1		803+91.03 R1	14°12'49.1"	800.000 '	198.460 '	99.742 '
			8143737.194	20439209.341		806+05.01 R1					

CONTROL LINE DATA - ML150_NB											
POINT ID	BEARING	DISTANCE (FEET)	NORTHING (Y)	EASTING (X)				DELTA	R	L	T
					PC	PI	PT				
	N 13°14'55.6" W	88.673 '	8143135.917	20439232.748		700+00.00 R1					
	N 0°20'08.5" E	314.077 '	8143280.198	20439198.778	700+88.67 R1		702+07.22 R1	13°35'04.2"	500.000 '	118.547 '	59.553 '
	N 6°38'59.3" E	231.735 '	8143665.973	20439201.038	704+61.74 R1		706+05.01 R1	6°18'50.8"	1300.000 '	143.263 '	71.704 '
	N 0°20'08.5" E	3779.457 '	8144082.420	20439249.590	707+65.04 R1		711+39.73 R1	6°18'50.8"	-3400.000 '	374.687 '	187.533 '
			8147861.812	20439271.734		747+31.65 R1					

CONTROL LINE DATA - SR31ST_SB											
POINT ID	BEARING	DISTANCE (FEET)	NORTHING (Y)	EASTING (X)				DELTA	R	L	T
					PC	PI	PT				
	N 18°34'45.5" W	102.116 '	8142880.191	20439214.784	402+44.72 R1		403+17.73 R1	8°21'59.8"	-500.000 '	73.012 '	36.571 '
	N 14°45'54.8" W	63.436 '	8142976.984	20439182.248		403+83.28 R1					
			8143038.325	20439166.081		404+46.71 R1					

CONTROL LINE DATA - SR31ST_NB											
POINT ID	BEARING	DISTANCE (FEET)	NORTHING (Y)	EASTING (X)				DELTA	R	L	T
					PC	PI	PT				
	N 0°18'06.1" E	100.000 '	8142600.596	20439236.376		300+00.00 R1					
	N 10°12'45.7" W	209.033 '	8142755.802	20439237.194	301+00.00 R1		302+10.11 R1	10°30'51.8"	-600.000 '	110.106 '	55.208 '
	N 22°14'07.6" E	44.098 '	8142990.160	20439194.972	303+63.93 R1		304+20.56 R1	32°26'53.3"	100.000 '	56.633 '	29.098 '
			8143030.979	20439211.660		304+35.56 R1					

CONTROL LINE DATA - SR55TH_EB											
POINT ID	BEARING	DISTANCE (FEET)	NORTHING (Y)	EASTING (X)				DELTA	R	L	T
					PC	PI	PT				
	N 75°08'03.7" E	88.687 '	8143054.350	20439246.442		100+00.00 R1					
	N 88°43'07.9" E	147.802 '	8143092.381	20439389.720	100+88.69 R1		102+07.23 R1	13°35'04.2"	500.000 '	118.547 '	59.553 '
	N 88°43'07.9" E	50.137 '	8143095.686	20439537.485		102+95.48 R1					
	S 85°29'53.5" E	280.814 '	8143098.614	20439668.402	103+45.62 R1		105+07.11 R1	5°46'58.6"	1600.000 '	161.490 '	80.814 '
	N 88°43'07.9" E	628.999 '	8143067.454	20440064.161	107+07.11 R1		109+39.25 R1	5°46'58.6"	-2300.000 '	232.142 '	116.170 '
			8143081.518	20440693.003		114+52.08 R1					

CONTROL LINE DATA - SR55TH_WB											
POINT ID	BEARING	DISTANCE (FEET)	NORTHING (Y)	EASTING (X)				DELTA	R	L	T
					PC	PI	PT				
	S 66°43'57.2" E	14.772 '	8143100.972	20439255.211		200+07.32 R1					
	N 80°49'09.6" E	142.165 '	8143083.643	20439295.514	200+22.09 R1		200+78.72 R1	32°26'53.3"	-100.000 '	56.633 '	29.098 '
	S 82°41'58.2" E	288.716 '	8143124.810	20439550.234	201+91.79 R1		204+21.91 R1	16°28'52.2"	800.000 '	230.121 '	115.860 '
	S 85°29'53.5" E		8143080.983	20439892.338	205+94.76 R1		207+07.11 R1	2°47'55.3"	-2300.000 '	112.347 '	56.185 '

CONTROL LINE DATA - ML150_RAB											
POINT ID	BEARING	DISTANCE (FEET)	NORTHING (Y)	EASTING (X)				DELTA	R	L	T
					PC	PI	PT				
	S 90°00'00.0" E	157.080 '	NaN	NaN	503+14.16 R1		501+57.08 R1	180°00'00.0"	-50.000 '	157.080 '	0.000 '
	N 90°00'00.0" W		NaN	NaN	501+57.08 R1		503+14.16 R1	180°00'00.0"	-50.000 '	157.080 '	0.000 '

CURVE DATA					
NO.	RADIUS	DELTA	LENGTH	TANGENT	ALIGNMENT
C1	137425.084	0°15'00.6"	599.999	300.000	ML150_EB
C2	11000.000	1°43'57.3"	332.632	166.329	ML150_EB
C3	3400.000	3°45'34.3"	223.095	111.587	ML150_EB
C4	800.000	11°12'41.7"	156.543	78.522	ML150_EB
C5	100.000	32°26'53.3"	56.633	29.098	ML150_EB
C6	500.000	12°48'34.9"	111.786	56.127	ML150_WB
C7	100.000	32°26'53.3"	56.633	29.098	ML150_SB
C8	800.000	14°12'49.1"	198.460	99.742	ML150_SB
C9	500.000	13°35'04.2"	118.547	59.553	ML150_NB
C10	1300.000	6°18'50.8"	143.263	71.704	ML150_NB
C11	3400.000	6°18'50.8"	374.687	187.533	ML150_NB
C12	500.000	8°21'59.8"	73.012	36.571	SR31ST_SB
C13	600.000	10°30'51.8"	110.106	55.208	SR31ST_NB
C14	100.000	32°26'53.3"	56.633	29.098	SR31ST_NB
C15	500.000	13°35'04.2"	118.547	59.553	SR55TH_EB
C16	1600.000	5°46'58.6"	161.490	80.814	SR55TH_EB
C17	2300.000	5°46'58.6"	232.142	116.170	SR55TH_EB
C18	100.000	32°26'53.3"	56.633	29.098	SR55TH_WB
C19	800.000	16°28'52.2"	230.121	115.860	SR55TH_WB
C20	2300.000	2°47'55.3"	112.347	56.185	SR55TH_WB
C21	50.000	180°00'00.0"	157.080	0.000	ML150_RAB
C22	50.000	180°00'00.0"	157.080	0.000	ML150_RAB

**SUPERELEVATION DATA**

See PV-300 Series

Road Identification	Circular Curve or Spiral Curve Name	Radius	Superelevation Data			Standard Road Plan	Section A-A	Section B-B	Section C-C	Section D-D	Section E-E	Section F-F	Case A	Case B	Case C	Case S	Case T	Case U	Remarks
			e %	L FT	x FT														
ML150_EB		3400	4.2	112	53	PV-303	542+30.13 545+04.02		542+55.53 544+78.62	542+89.13 544+45.02					542+83.80 544+50.35	542+83.80 544+50.35			
ML150_EB		800	4.2	80	38	PV-303	545+56.70 549+01.24	545+94.70 548+63.24	546+50.70 548+07.24	546+74.70 547+83.24					546+70.89 547+87.05	546+70.89 547+87.05			
ML150_SB		3400	4.2	112	53	PV-303	707+39.64 711+65.13		707+65.04 711+39.73	707+98.64 711+06.13					707+93.31 711+11.46	707+93.31 711+11.46			
ML150_SB		800	4.2	80	38	PV-303	800+98.57 804+85.03	801+36.57 804+47.03	801+92.57 803+91.03	802+16.57 803+67.03					802+12.76 803+70.84	802+12.76 803+70.84			
ML150_NB		1300	3.8	73	39	PV-303	704+49.64 706+17.11		704+61.74 706+05.01	704+83.64 705+83.11									
ML150_NB		3400	4.2	112	53	PV-303	706+33.64 712+71.13	706+86.64 712+18.13	707+65.04 711+39.73	707+98.64 711+06.13					707+93.31 711+11.46	707+93.31 711+11.46			
SR55TH_EB		1600	3.4	66	39	PV-303	103+38.42 105+14.31		103+45.62 105+07.11	103+65.42 104+87.31									
SR55TH_EB		2300	4.0	96	48	PV-301	105+91.91 110+54.45	106+39.91 110+06.45	106+87.91 109+58.45	107+35.91 109+10.45		107+07.11 109+39.25			107+35.91 109+10.45	107+35.91 109+10.45			
SR55TH_WB		800	4.2	80	38	PV-303	200+97.79 205+15.91	201+35.79 204+77.91	201+91.79 204+21.91	202+15.79 203+97.91					202+11.98 204+01.72	202+11.98 204+01.72			
SR55TH_WB		2300	4.0	96	48	PV-303	105+75.61 109+58.45		105+94.81 109+39.25	106+23.61 109+10.45					106+23.61 109+10.45	106+23.61 109+10.45			



**To:** Nikki Cuva/Jeff Larson  
Office of Right of Way Design

**Initial Draft:** January 9<sup>th</sup>, 2020

**District 6:** Jim Schnoebelen

**Project Details:**  
PIN: 16-06-150-030  
Project #: HSIPX-150-2(218)—3L-06  
ROW #: NHSN-150-2(22)—2R-06

**TAS:** Jan Laaser-Webb  
Office of Traffic & Safety

**From:** Leilah Armstrong  
Office of Traffic & Safety

**BENTON COUNTY**  
**IA 150, Curve West of Urbana at the intersection of 55<sup>th</sup> St. and 31<sup>st</sup> Ave.**

**SUBJECT:** Access Review

ACCESS LOCATION DETAILS:

Location	Access	Comments
535+75	ML IA 150 EB	Begin Project
537+65 RT	Type C Entrance	Proposed
549+70 LT	Type C Entrance	<b>Close</b>
712+69 RT	Type C Entrance	Proposed
714+00	ML IA 150 NB	End Project
100+15	SR 55 <sup>th</sup> St. EB	Begin Project
103+10 RT	Type C Entrance	Proposed
108+29 RT	Type C Entrance	Proposed
110+75	SR 55 <sup>th</sup> St. EB	End Project
301+00	SR 31 <sup>st</sup> Ave. NB	Begin Project
301+78 LT	Type C Entrance	Proposed
301+79 RT	Type C Entrance	Proposed
304+22	SR 31 <sup>st</sup> Ave. NB	End Project

PROJECT LOCATION AND DESCRIPTION:

This project is the proposed roundabout on IA 150 west of Urbana at the intersection of 55<sup>th</sup> St. and 31<sup>st</sup> Ave.

ACCESS PRIORITY CLASSIFICATION:

Access locations are based off safety and need, and not actively managed.

ACCESS CONTROL LIMITS:

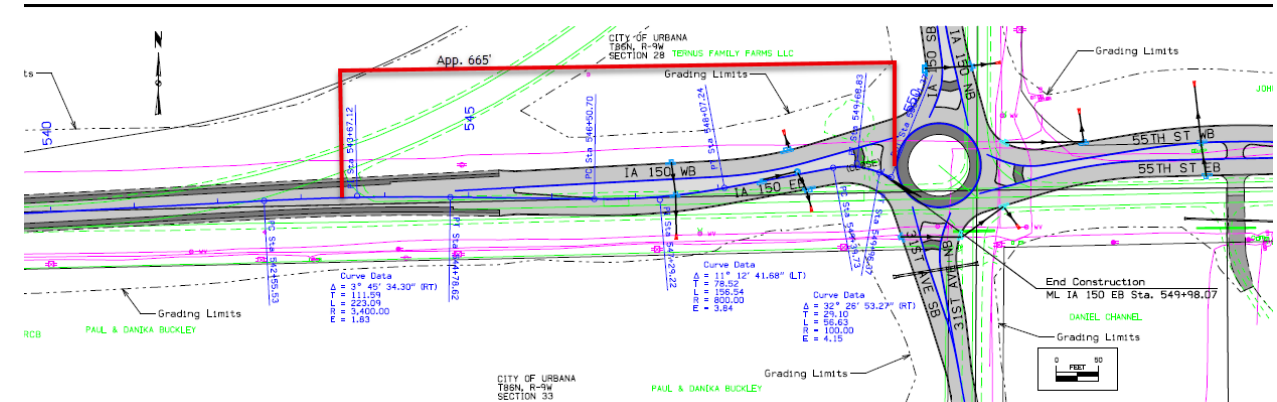
In accordance with chapter 112.11(3): Access Rights at At-Grade Intersections with City Streets and Secondary Roads, when access rights to a primary highway are acquired, the department may also acquire access rights along a city street or secondary road where and at-grade intersection with the highway exists or is proposed. If access rights are acquired, they will be acquired along the city street or secondary road for a distance of **150 feet from the near edge of the primary highway traveled way**. However, the department may acquire more or less than 150 feet of access rights after considering the severity of damage to adjacent properties and traffic volumes and other safety factors.

No access will be allowed on IA 150 from approximately Sta. 543+50 to the radius of the roundabout and from the radius of the roundabout to Sta. 706+00.

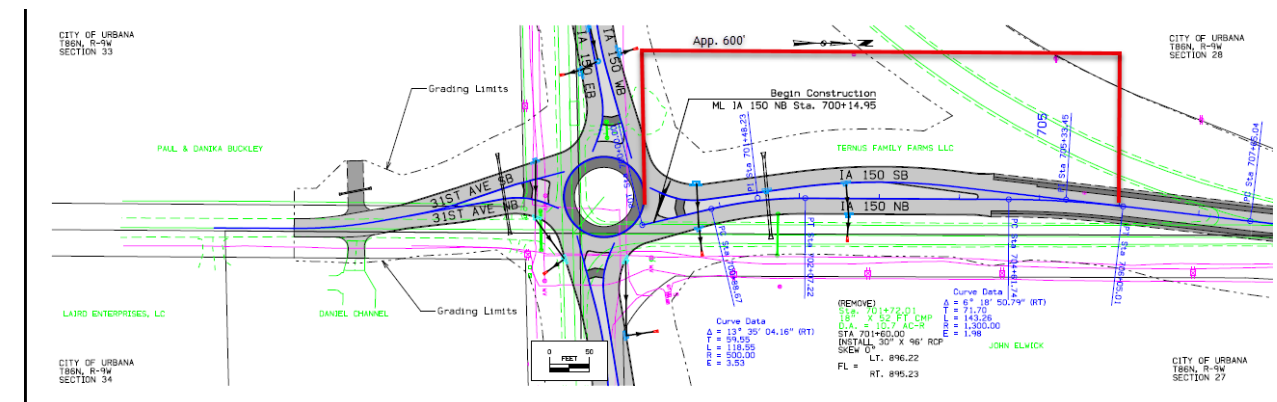
No access will be allowed on 55<sup>th</sup> St. from the radius of the roundabout to approximately Sta. 103+10.

No access will be allowed on 31<sup>st</sup> Ave. from the radius of the roundabout to approximately Sta. 301+79.

West Leg

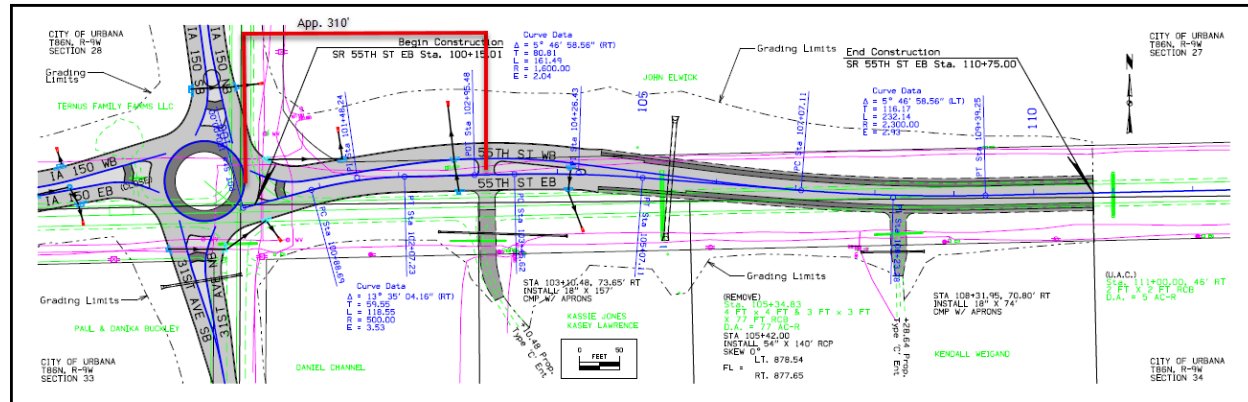


North Leg

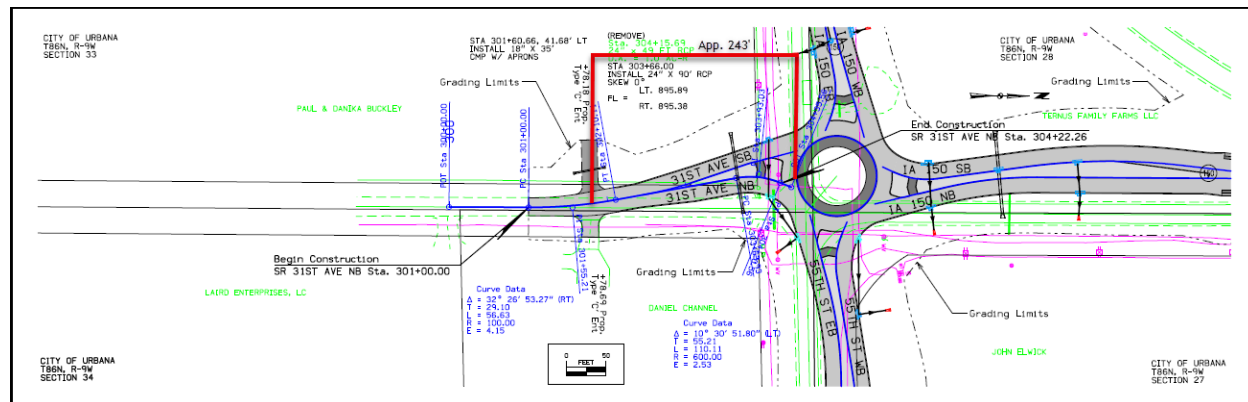


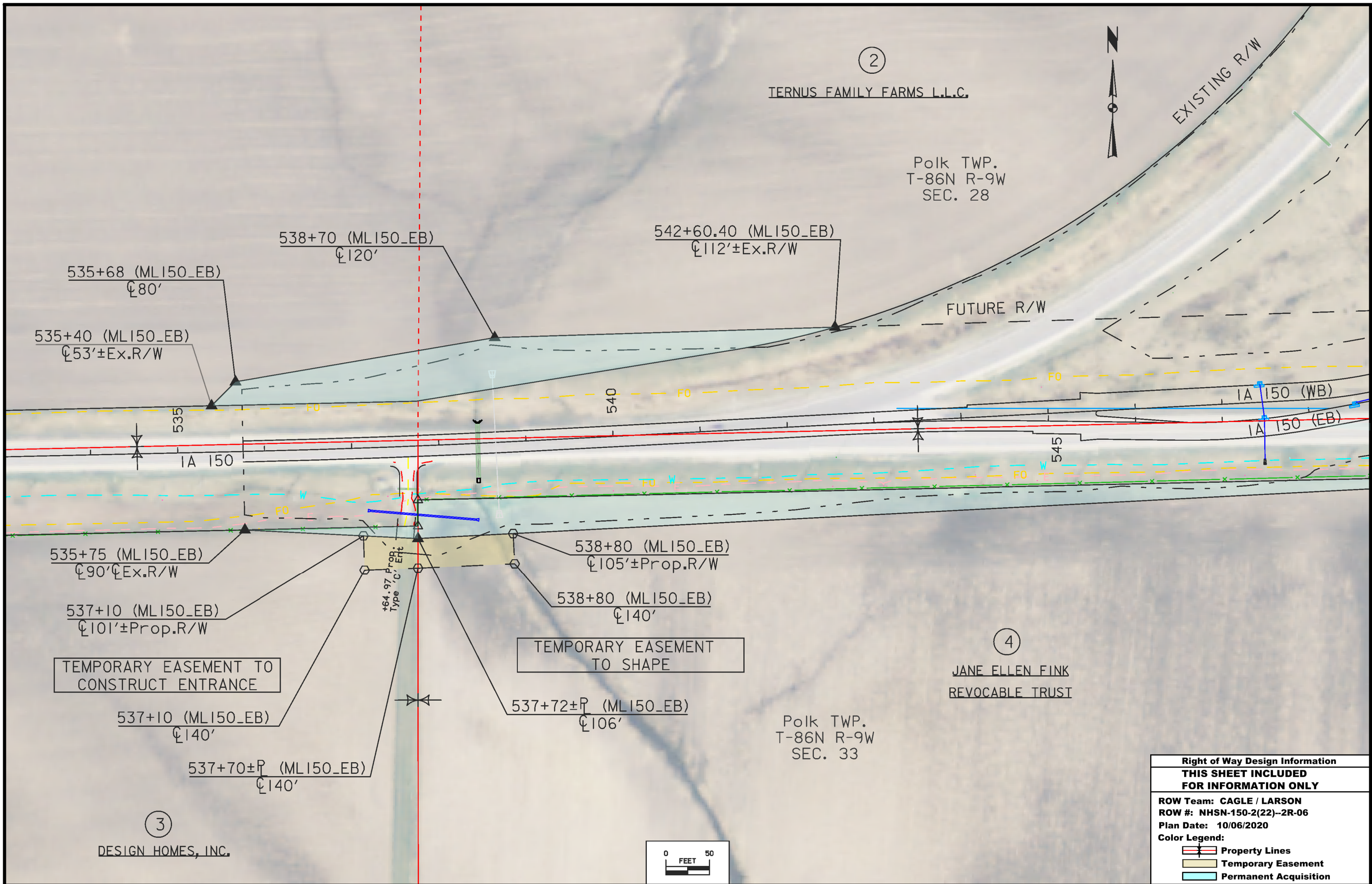


East Leg



South Leg





②

TERNUS FAMILY FARMS L.L.C.

Polk TWP.  
T-86N R-9W  
SEC. 28

EXISTING R/W

FUTURE R/W

IA 150 (WB)

IA 150 (EB)

④

JANE ELLEN FINK  
REVOCABLE TRUST

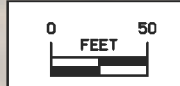
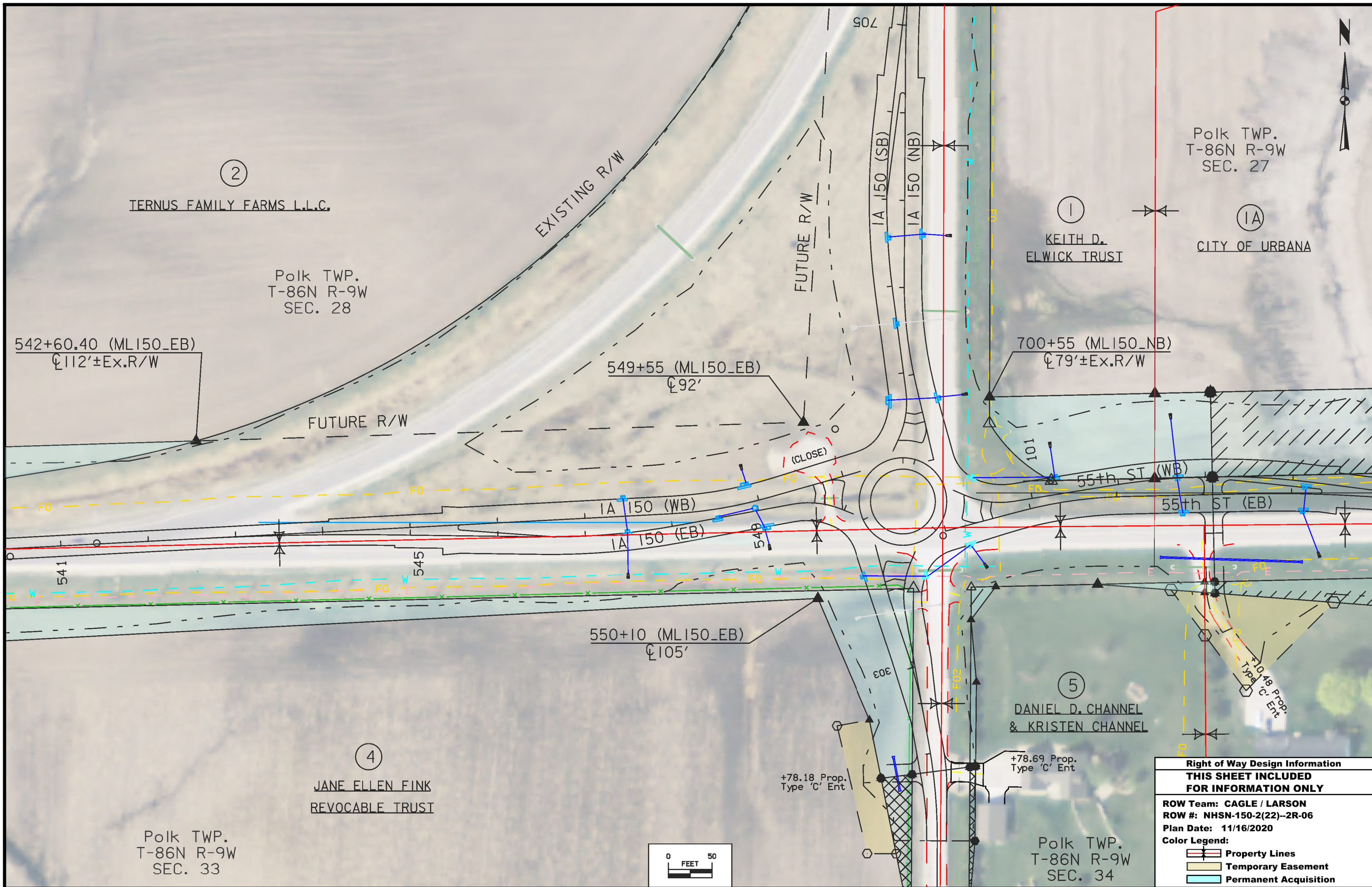
Polk TWP.  
T-86N R-9W  
SEC. 33

③

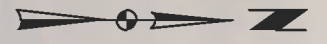
DESIGN HOMES, INC.



<b>Right of Way Design Information</b>	
<b>THIS SHEET INCLUDED FOR INFORMATION ONLY</b>	
ROW Team: CAGLE / LARSON	
ROW #: NHSN-150-2(22)--2R-06	
Plan Date: 10/06/2020	
Color Legend:	
	Property Lines
	Temporary Easement
	Permanent Acquisition



<b>Right of Way Design Information</b>	
<b>THIS SHEET INCLUDED FOR INFORMATION ONLY</b>	
ROW Team: CAGLE / LARSON	
ROW #: NHSN-150-2(22)--2R-06	
Plan Date: 11/16/2020	
Color Legend:	
	Property Lines
	Temporary Easement
	Permanent Acquisition



Polk TWP.  
T-86N R-9W  
SEC. 28

②

TERNUS FAMILY FARMS L.L.C.

707+58.89 (ML150\_NB)  
±100'±Ex.R/W

714+03 (ML150\_NB)  
±85'

715+08 (ML150\_NB)  
±58'±Ex.R/W

FUTURE R/W

IA 150 (SB)

IA 150 (NB)

705

710

715

IA 150

705+40 (ML150\_NB)  
±95'±Ex.R/W

708+80 (ML150\_NB)  
±105'

712+76 (ML150\_NB)  
±96'

715+08 (ML150\_NB)  
±60'±Ex.R/W

+69.46 Prop. Ent  
Type 'C'

①

KEITH D. ELWICK TRUST

Polk TWP.  
T-86N R-9W  
SEC. 27

IA

CITY OF URBANA



<b>Right of Way Design Information</b>	
<b>THIS SHEET INCLUDED FOR INFORMATION ONLY</b>	
ROW Team: CAGLE / LARSON	
ROW #: NHSN-150-2(22)--2R-06	
Plan Date: 11/16/2020	
Color Legend:	
	Property Lines
	Temporary Easement
	Permanent Acquisition



④

JANE ELLEN FINK  
REVOCABLE TRUST

TEMPORARY EASEMENT TO  
CONSTRUCT ENTRANCE

Polk TWP.  
T-86N R-9W  
SEC. 33

300+85 (SR31ST\_NB)  
±80'

301+79 (SR31ST\_NB)  
±59.96' (Prop.R/W)

302+50 (SR31ST\_NB)  
±100'

550+10 (ML150\_EB)  
±105'

302+50 (SR31ST\_NB)  
±62'

300+85 (SR31ST\_NB)  
±47'±Prop.R/W

+78.18 Prop.  
Type 'C' Ent.

300+00 (SR31ST\_NB)  
±29.48' (Ex.R/W)

300

301+79 (SR31ST\_NB)  
±24'±Ex.R/W

303

31st AVE

San.

F02

San.

300+14.58 (SR31ST\_NB)  
±36.47' (Ex.R/W)

301+00 (SR31ST\_NB)  
±43'

+78.69 Prop.  
Type 'C' Ent.

302+71 (SR31ST\_NB)  
±66'

303+42 (SR31ST\_NB)  
±72.58 (Ex.R/W)

ACQUIRE ACCESS CONTROL  
ON SIDE ROAD 31st AVE.  
FROM STATION 301+79 TO  
RADIUS OF ROUNDABOUT

301+79 (SR31ST\_NB)  
±42'±Ex.R/W

301+79 (SR31ST\_NB)  
±48.95'

100+39 (SR55TH\_EB)  
±75.95' (Ex.R/W)

101+68 (SR55TH\_EB)  
±98.30' (Ex.R/W)

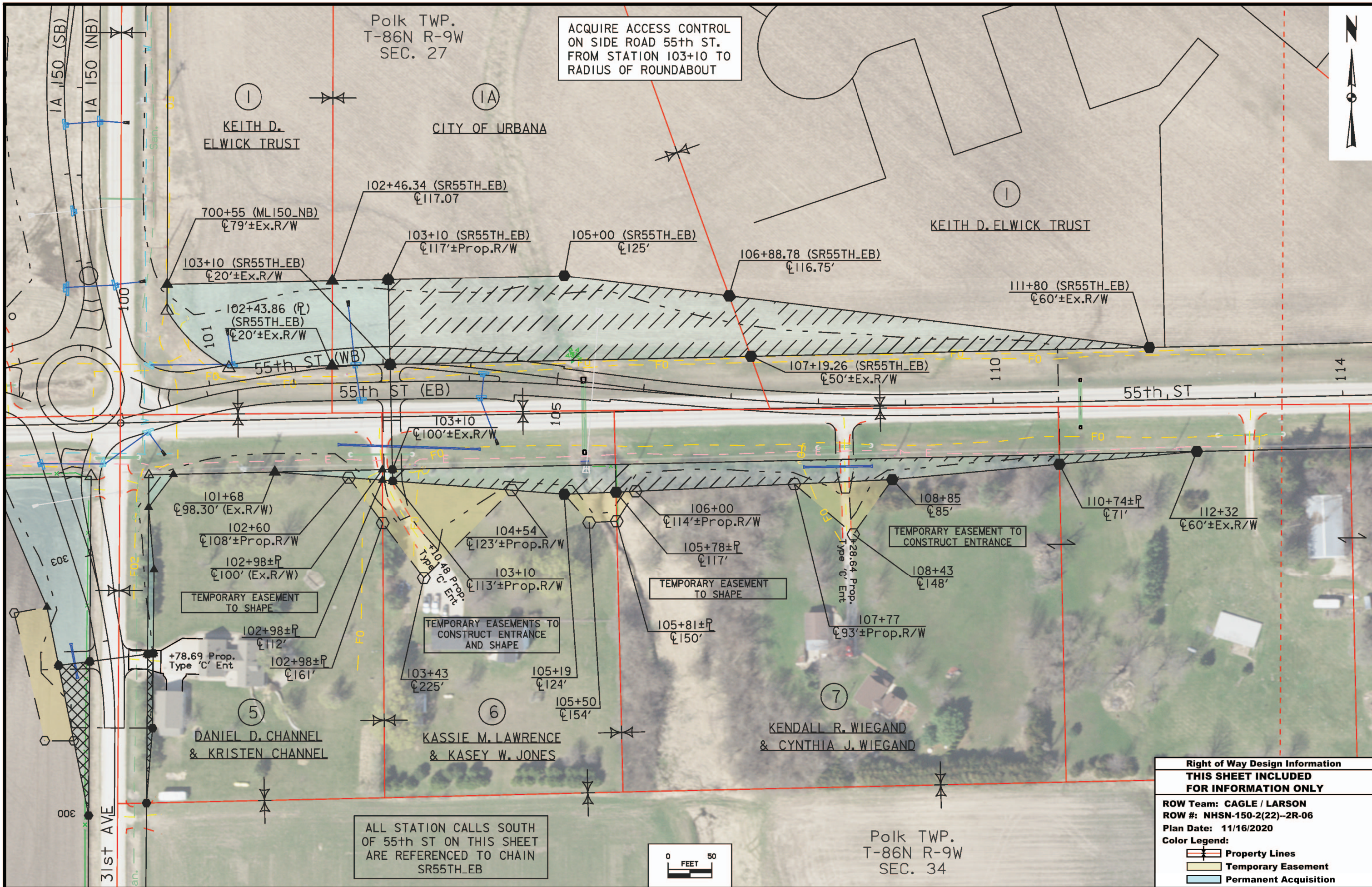
Polk TWP.  
T-86N R-9W  
SEC. 34

⑤

DANIEL D. CHANNEL  
& KRISTEN CHANNEL



<b>Right of Way Design Information</b>	
<b>THIS SHEET INCLUDED FOR INFORMATION ONLY</b>	
ROW Team: CAGLE / LARSON	
ROW #: NHSN-150-2(22)--2R-06	
Plan Date: 10/06/2020	
Color Legend:	
	Property Lines
	Temporary Easement
	Permanent Acquisition



ACQUIRE ACCESS CONTROL ON SIDE ROAD 55th ST. FROM STATION 103+10 TO RADIUS OF ROUNDABOUT

Polk TWP.  
T-86N R-9W  
SEC. 27

ALL STATION CALLS SOUTH OF 55th ST ON THIS SHEET ARE REFERENCED TO CHAIN SR55TH-EB



Right of Way Design Information	
<b>THIS SHEET INCLUDED FOR INFORMATION ONLY</b>	
ROW Team:	CAGLE / LARSON
ROW #:	NHSN-150-2(22)--2R-06
Plan Date:	11/16/2020
Color Legend:	
	Property Lines
	Temporary Easement
	Permanent Acquisition

**TRAFFIC CONTROL PLAN**

During Stage 1 of construction, IA 150 shall remain open to thru traffic but access to 55th Street and 31st Avenue shall be closed. Detour signage will be installed to route traffic to the interchange at IA 150 and I-380. Access to the property at the southeast corner of 55th Street and 31st Avenue will be maintained via 31st Avenue to the south. The property directly east of the intersection will have a temporary drive constructed and have access to the east along 55th Street.

In Stage 2, IA 150 shall be closed to thru traffic for the remainder of the project. Traffic will be detoured north on County Road V71 for approximately 6.4 miles, then east on County Road D48 for 5.1 miles to the intersection with IA 150. Out of distance travel for IA 150 traffic is approximately 0.5 miles. Refer to sheet J.2 for additional details. Access to the property at the southeast corner of 55th Street and 31st Avenue shall be maintained via 31st Avenue to the south. The property directly east of the intersection shall be directed onto new pavement and utilize the roundabout to go south on 31st Avenue. The property at the far east of the project shall have a temporary drive constructed and have access to the east along 55th Street.

Construction shall be staged to minimize local traffic disruption. Construction of the roundabout and approaches shall occur first in the project to allow use of the IA 150 curve for local traffic. The IA 150 curve will then be closed to all traffic while the connections to IA 150 are constructed.

Contractor shall maintain access to residences located on south side of 55th Street at all times for the duration of the project.

The DOT will install and maintain all detour signage. Contractor shall install and maintain all road closures. Coordinate traffic control with District 6 office.

**STAGING NOTES**

It is not the intent to confine the Contractor's activities to the areas of suggested stages alone. It is understood that some of the various steps may occur simultaneously. The Contractor may conduct several operations concurrently, provided that traffic is maintained and that these operations do not conflict with the staging indicated herein.

It is recognized that as the various activities related to the construction progress, certain situations may arise which will preclude adhering to the original construction sequence or which would readily lend themselves to more efficient staging operations. Should the Contractor desire to deviate from the original plan, a written alternative plan shall be submitted to the Project Engineer, for approval a minimum of one (1) week prior to the proposed changes.

Coordinate with all public and private projects in the area at all times.

**STAGE 1**

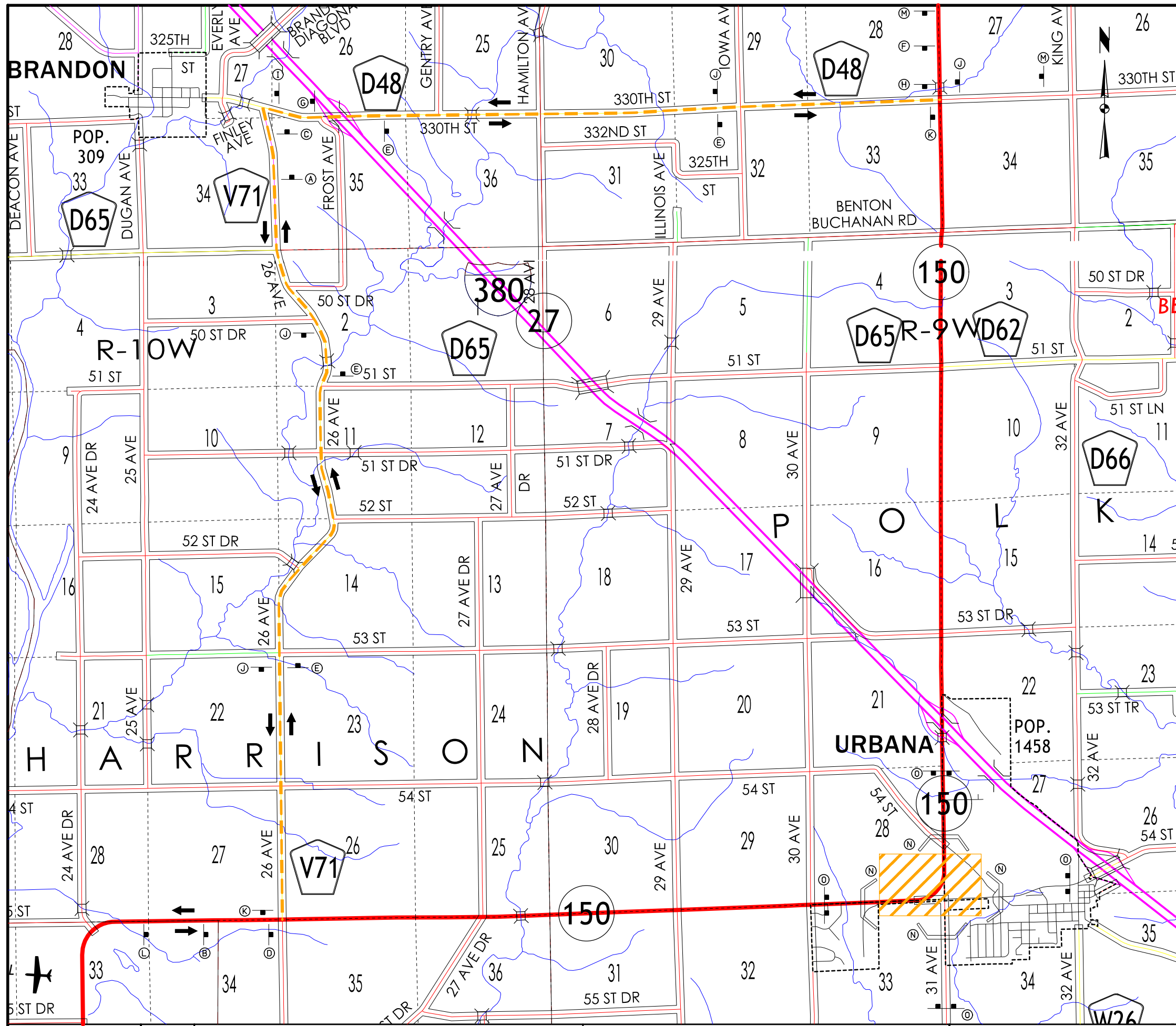
Set up detour for access to 55th Street and 31st Avenue. Close 55th Street and 31st Avenue to all traffic. Maintain access to residents at all times. Construct portions of IA 150, 55th Street and 31st Avenue as shown, including roundabout.

**STAGE 2**

See sheet J.2 for details. Set up detour for IA 150 traffic. Close IA 150 to thru traffic. Maintain access to residents at all times. Construct portions of IA 150, 55th Street and 31st Avenue as shown. Construct 55th Street half at a time to maintain access as needed. Remove existing IA 150 roadbed.

**511 TRAVEL RESTRICTIONS**

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



**PROPOSED DETOUR**

NOTE: DETOUR SIGNING WILL BE INSTALLED AND MAINTAINED BY THE CONTRACTOR. COORDINATE TRAFFIC CONTROL ITEMS WITH THE DISTRICT 6 OFFICE.

**TRAFFIC CONTROL LEGEND**

- TRAFFIC SIGN
- TYPE III BARRICADE
- DETOUR ROUTE
- WORK AREA
- SAFETY FENCE










<p><b>A</b></p> <p>M4-9 30" x 24"</p>	<p><b>B</b></p> <p>M4-9 30" x 24"</p>	<p><b>C</b></p> <p>M4-9 30" x 24"</p>	<p><b>D</b></p> <p>M4-9 30" x 24"</p>
<p><b>E</b></p> <p>M4-9 30" x 24"</p>	<p><b>F</b></p> <p>M4-9 30" x 24"</p>	<p><b>G</b></p> <p>M4-9 30" x 24"</p>	<p><b>H</b></p> <p>M4-9 30" x 24"</p>
<p><b>I</b></p> <p>M4-9 30" x 24"</p>	<p><b>J</b></p> <p>M4-9 30" x 24"</p>	<p><b>K</b></p> <p>M4-8a 24" x 18"</p>	
<p><b>L</b></p>		<p><b>M</b></p>	
<p><b>N</b></p> <p>OR</p>		<p><b>O</b></p> <p>R11-4 60" x 30"</p>	



### 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

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
✕	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

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

## TRAFFIC CONTROL AND STAGING LEGEND AND SYMBOL INFORMATION SHEET

(COVERS SHEET SERIES J)

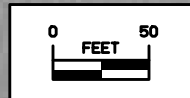


**ROAD  
CLOSED**

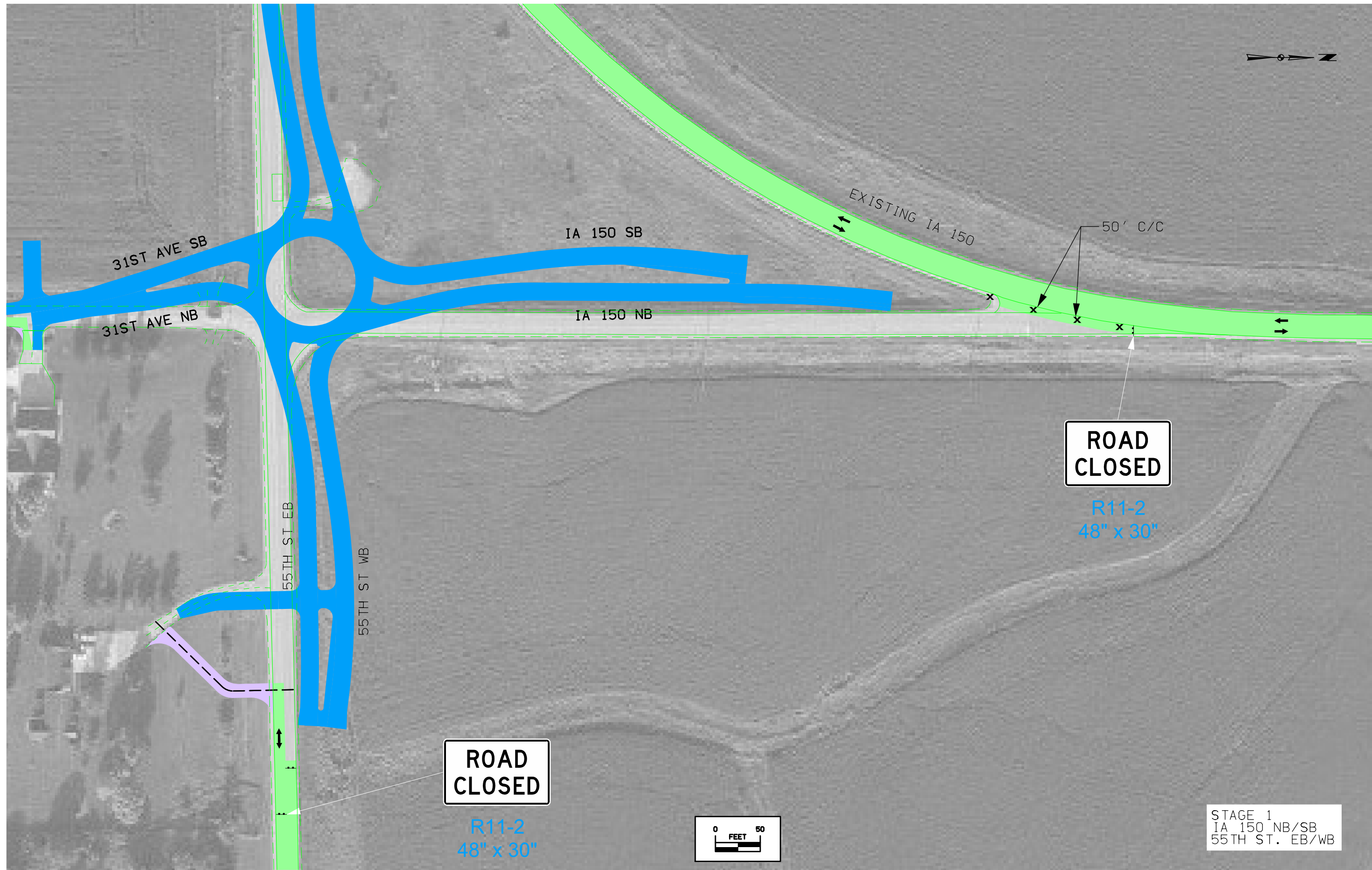
R11-2  
48" x 30"

**ROAD  
CLOSED**

R11-2  
48" x 30"

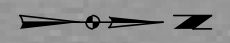


STAGE 1  
IA 150 EB/WB  
31ST AVE NB/SB



STAGE 1  
 IA 150 NB/SB  
 55TH ST. EB/WB





EXISTING IA 150

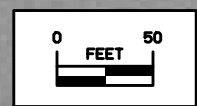
IA 150 SB

IA 150 NB

**ROAD  
CLOSED**

R11-2  
48" x 30"

STAGE 2  
IA 150 NB/SB  
EXISTING IA 150





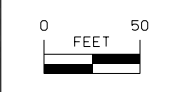
**ROAD  
CLOSED**

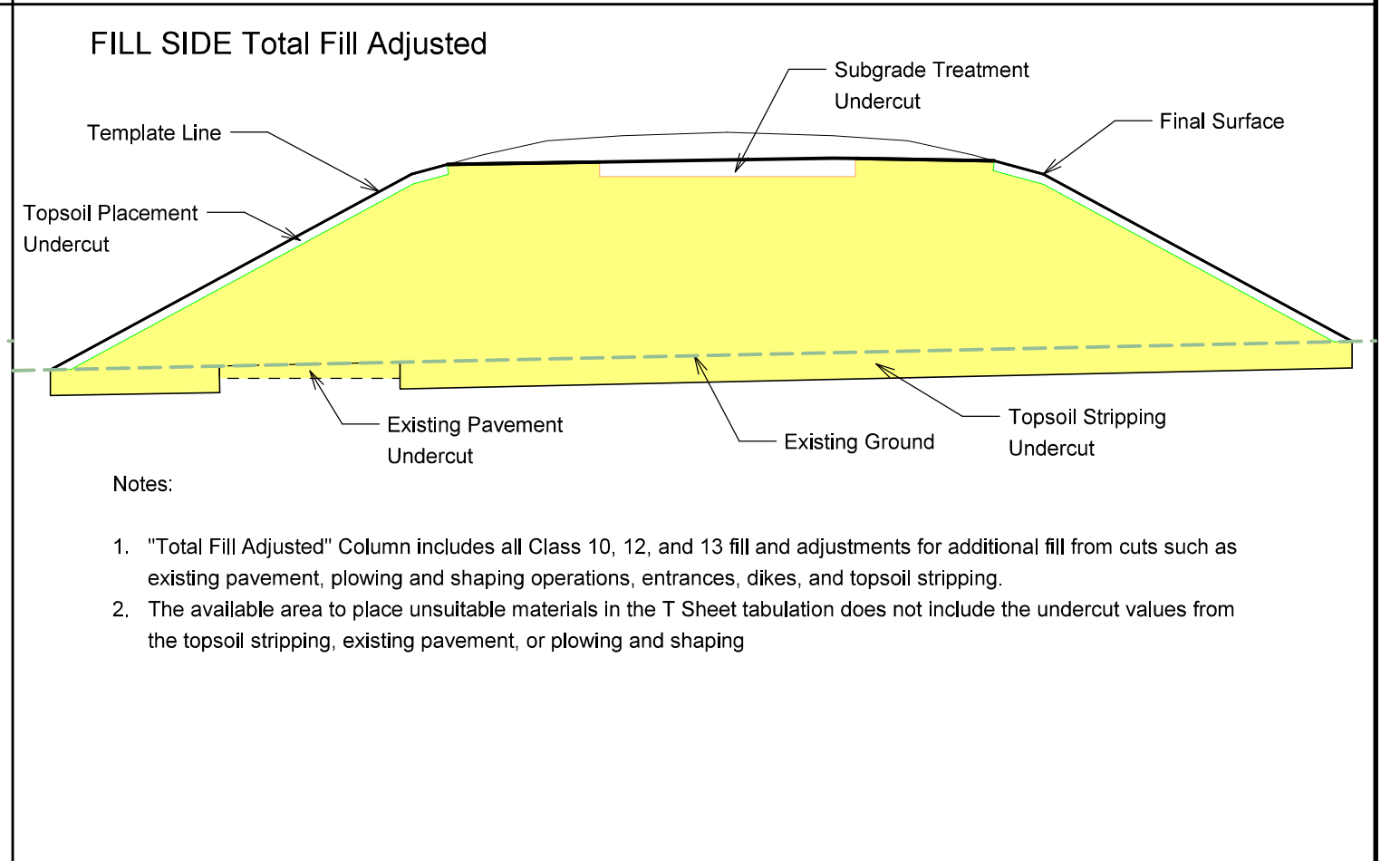
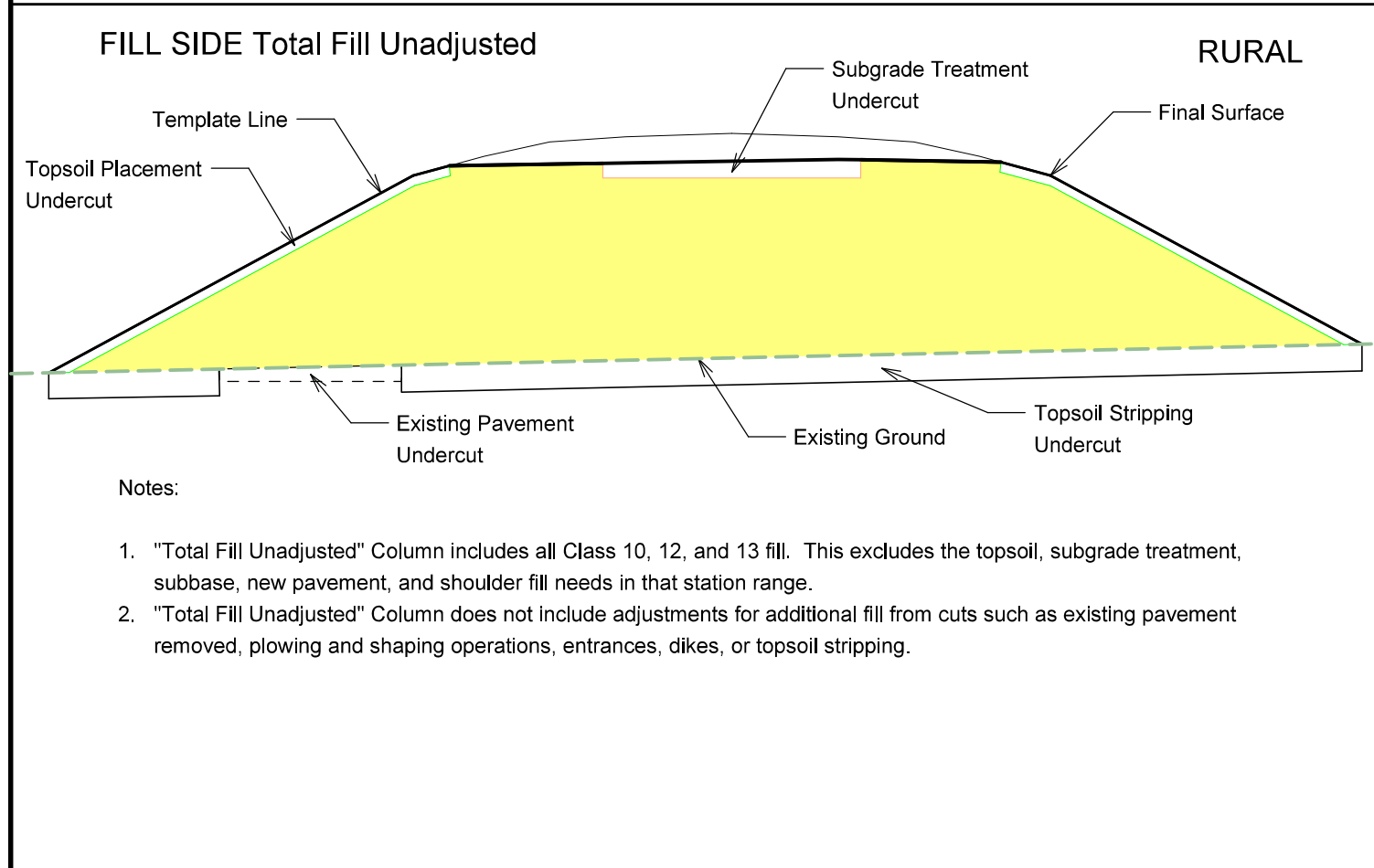
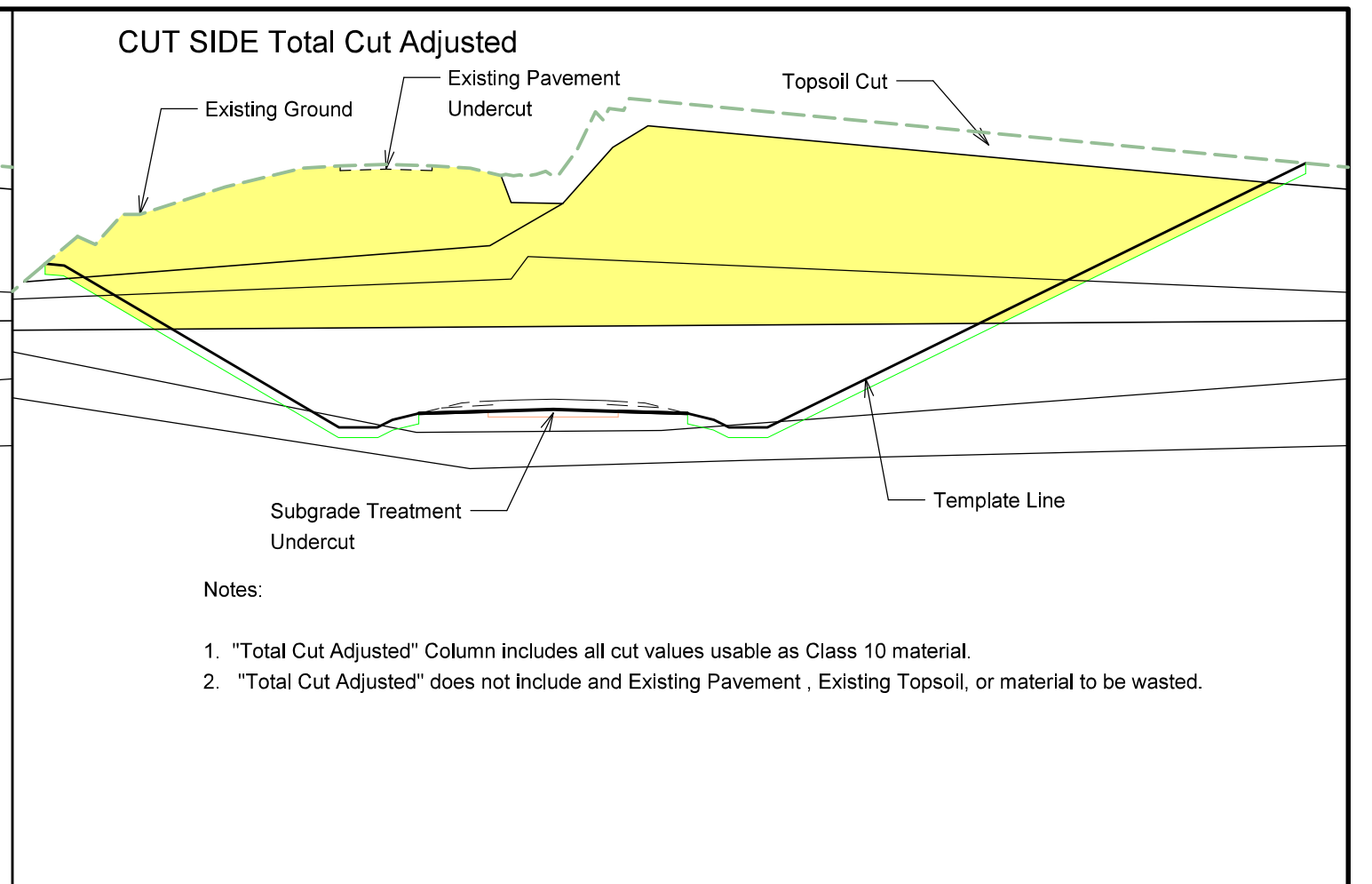
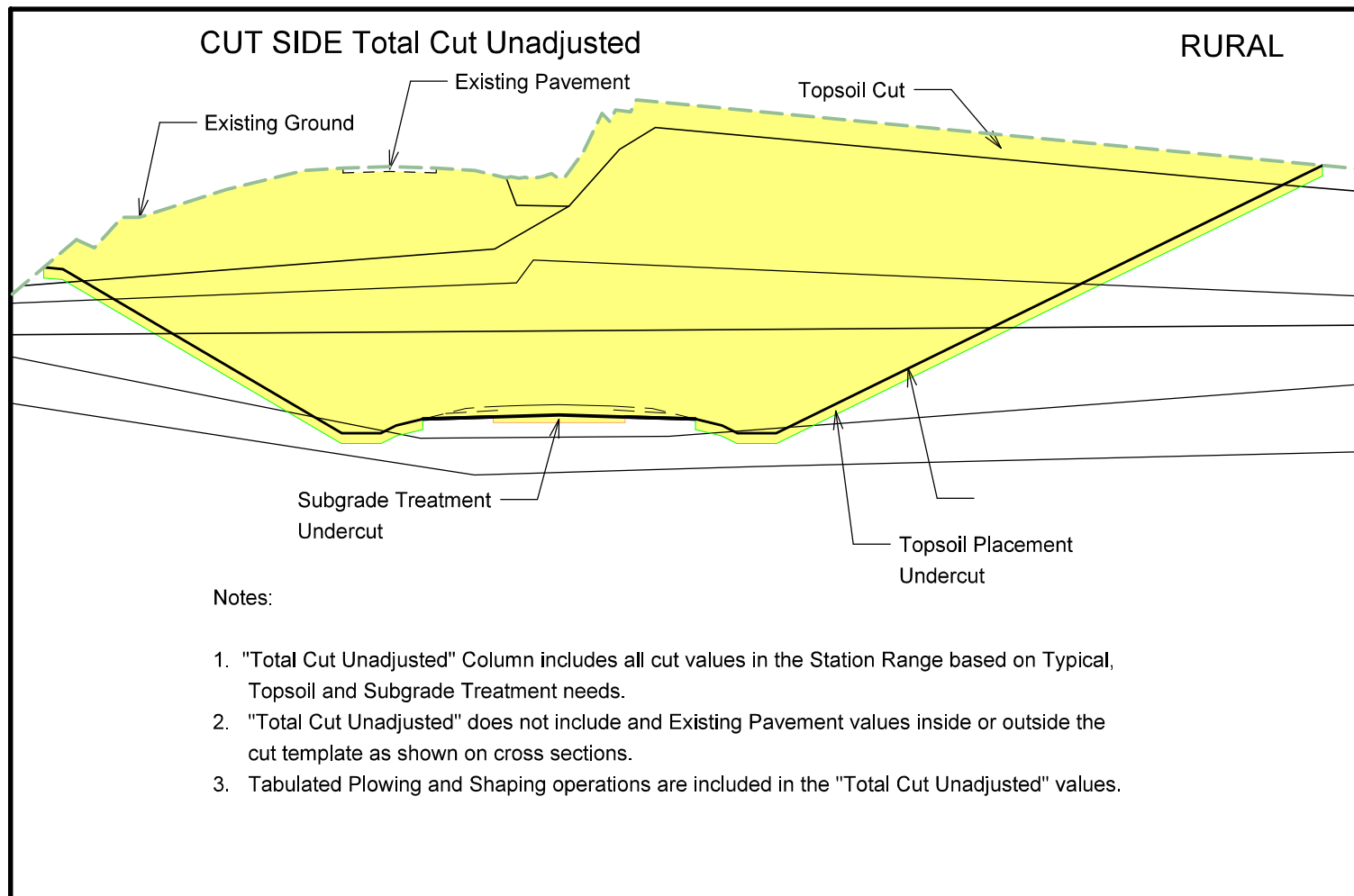
R11-2  
48" x 30"

**ROAD  
CLOSED**

R11-2  
48" x 30"

STAGE 2  
55TH ST. EB/WB  
31ST AVE. NB





**TABULATION OF TEMPLATE QUANTITIES AND ADJUSTMENTS**

Station	Cut					Fill				Checks (EW-102)		Topsoil				[16]	[17]	[18]	[19]	[20]	[21]	[22]
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]							
	Total Cut Unadjusted Volume	Total Class 10 Unadjusted Volume	Topsoil Cut Volume	Template Pavement Removal Volume	Total Cut Adjusted	Total Fill Unadjusted Volume	Total Fill Adjusted	Total Fill Adjusted w/ Weighted Average 1.3 Shrink Factor	Total Cut Adjusted Minus Fill w/ Shrink	Approx. Fill Vol. Below 5' & Above 20' w/ Shrink	Approx. Fill Volume Below 3' w/ Shrink	Topsoil Stripping Undercut Volume	Topsoil Placement Undercut Volume	Topsoil Placement With 1.4 Shrink Factor	Topsoil Stripping Minus Topsoil Placement w/Shrink							
ML150 EB-WB																						
536+00.00	370	225	146	29	225	279	279	363	-138	0	0	146	99	139	8							
536+50.00	374	224	151	29	224	295	295	384	-160	0	0	151	102	143	8							
537+00.00	404	223	181	31	223	467	467	607	-384	0	0	181	109	153	28							
537+50.00	472	253	219	31	253	678	678	881	-628	0	0	219	138	193	26							
538+00.00	553	337	216	31	337	753	753	979	-642	0	0	216	153	214	2							
538+50.00	629	424	205	32	424	678	678	881	-457	0	0	205	145	203	2							
539+00.00	640	437	203	32	437	525	525	683	-246	0	0	203	143	200	3							
539+50.00	637	439	198	33	439	446	446	580	-141	0	0	198	140	196	2							
540+00.00	673	478	194	34	478	392	392	510	-32	0	0	194	138	193	1							
540+50.00	642	456	187	38	456	353	353	459	-3	0	0	187	136	190	-4							
541+00.00	585	408	177	45	408	298	298	387	21	0	0	177	135	189	-12							
541+50.00	528	365	163	54	365	218	218	283	82	0	0	163	132	185	-22							
542+00.00	453	314	139	65	314	130	130	169	145	0	0	139	122	171	-32							
542+50.00	435	323	112	80	323	58	58	75	248	0	0	112	112	157	-45							
543+00.00	494	404	90	98	404	32	32	42	362	0	0	90	108	151	-61							
543+50.00	598	499	99	85	499	84	84	109	390	0	0	99	108	151	-52							
544+00.00	629	498	131	60	498	201	201	261	237	0	0	131	111	155	-24							
544+50.00	500	342	157	44	342	297	297	386	-44	0	0	157	113	158	-1							
545+00.00	327	170	157	31	170	358	358	465	-295	0	0	157	97	136	21							
545+50.00	254	113	141	30	113	391	391	508	-395	0	0	141	79	111	30							
546+00.00	259	121	138	29	121	394	394	512	-391	0	0	138	75	105	33							
546+50.00	274	137	138	30	137	392	392	510	-373	0	0	138	73	102	36							
547+00.00	276	142	134	30	142	349	349	454	-312	0	0	134	69	97	37							
547+50.00	305	179	126	30	179	290	290	377	-198	0	0	126	66	92	34							
548+00.00	422	299	123	30	299	215	215	280	20	0	0	123	67	94	29							
548+50.00	529	403	125	30	403	190	190	247	156	0	0	125	70	98	27							
549+00.00	532	409	123	30	409	279	279	363	46	0	0	123	74	104	19							
549+50.00																						
ML150 EB-WB Totals:	12,794	8,622	4,173	1,121	8,622	9,042	9,042	11,755	-3,133	0	0	4,173	2,914	4,080	94							



### TABULATION OF TEMPLATE QUANTITIES AND ADJUSTMENTS

Station	Cut				Fill				Checks (EW-102)		Topsoil				[16]	[17]	[18]	[19]	[20]	[21]	[22]	
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]							
	Total Cut Unadjusted Volume	Total Class 10 Unadjusted Volume	Topsoil Cut Volume	Template Pavement Removal Volume	Total Cut Adjusted	Total Fill Unadjusted Volume	Total Fill Adjusted	Total Fill Adjusted w/ Weighted Average 1.3 Shrink Factor	Total Cut Adjusted Minus Fill w/ Shrink	Approx. Fill Vol. Below 5' & Above 20' w/ Shrink	Approx. Fill Volume Below 3' w/ Shrink	Topsoil Stripping Undercut Volume	Topsoil Placement Undercut Volume	Topsoil Placement With 1.4 Shrink Factor	Topsoil Stripping Minus Topsoil Placement w/Shrink							
ML150 NB-SB																						
700+50.00	272	146	126	30	146	534	534	694	-548	0	0	126	59	83	43							
701+00.00	344	211	134	30	211	651	651	846	-635	0	0	134	74	104	30							
701+50.00	399	257	142	29	257	700	700	910	-653	0	0	142	78	109	33							
702+00.00	455	303	153	29	303	635	635	826	-523	0	0	153	82	115	38							
702+50.00	498	340	158	29	340	550	550	715	-375	0	0	158	83	116	42							
703+00.00	522	364	159	29	364	498	498	647	-283	0	0	159	83	116	43							
704+00.00	531	377	154	30	377	446	446	580	-203	0	0	154	83	116	38							
704+50.00	661	495	166	32	495	349	349	454	41	0	0	166	102	143	23							
705+00.00	835	671	164	40	671	260	260	338	333	0	0	164	114	160	5							
705+50.00	959	827	132	54	827	203	203	264	563	0	0	132	105	147	-15							
706+00.00	1,027	913	113	63	913	153	153	199	714	0	0	113	101	141	-28							
706+50.00	961	854	107	63	854	86	86	112	742	0	0	107	97	136	-29							
707+00.00	842	733	109	63	733	23	23	30	703	0	0	109	99	139	-30							
707+50.00	715	604	111	63	604	28	28	36	568	0	0	111	103	144	-33							
708+00.00	597	478	119	63	478	76	76	99	379	0	0	119	105	147	-28							
708+50.00	496	371	124	56	371	166	166	216	155	0	0	124	98	137	-13							
709+00.00	410	286	124	46	286	271	271	352	-66	0	0	124	91	127	-4							
709+50.00	387	244	143	39	244	343	343	446	-202	0	0	143	101	141	2							
710+00.00	430	267	163	34	267	374	374	486	-219	0	0	163	113	158	5							
710+50.00	430	262	168	32	262	427	427	555	-293	0	0	168	115	161	7							
711+00.00	395	228	166	32	228	478	478	621	-393	0	0	166	114	160	7							
711+50.00	388	223	165	32	223	466	466	606	-383	0	0	165	113	158	7							
712+00.00	424	259	165	32	259	424	424	551	-292	0	0	165	113	158	7							
712+50.00	404	265	139	31	265	303	303	394	-129	0	0	139	98	137	2							
713+00.00	349	221	128	30	221	283	283	368	-147	0	0	128	90	126	2							
713+50.00	340	198	142	29	198	334	334	434	-236	0	0	142	97	136	6							
ML150 NB-SB Totals:	14,071	10,397	3,674	1,040	10,397	9,061	9,061	11,780	-1,383	0	0	3,674	2,511	3,516	160							

**TABULATION OF TEMPLATE QUANTITIES AND ADJUSTMENTS**

Station	Cut				Fill				Checks (EW-102)		Topsoil				[16]	[17]	[18]	[19]	[20]	[21]	[22]	
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]							
	Total Cut Unadjusted Volume	Total Class 10 Unadjusted Volume	Topsoil Cut Volume	Template Pavement Removal Volume	Total Cut Adjusted	Total Fill Unadjusted Volume	Total Fill Adjusted	Total Fill Adjusted w/ Weighted Average 1.3 Shrink Factor	Total Cut Adjusted Minus Fill w/ Shrink	Approx. Fill Vol. Below 5' & Above 20' w/ Shrink	Approx. Fill Volume Below 3' w/ Shrink	Topsoil Stripping Undercut Volume	Topsoil Placement Undercut Volume	Topsoil Placement With 1.4 Shrink Factor	Topsoil Stripping Minus Topsoil Placement w/Shrink							
SR55TH EB-WB																						
100+50.00	419	287	132	33	287	318	318	413	-126	0	0	132	72	101	31							
101+00.00	597	428	169	30	428	512	512	666	-238	0	0	169	101	141	28							
101+50.00	648	467	181	30	467	686	686	892	-425	0	0	181	109	153	28							
102+00.00	644	452	192	29	452	938	938	1,219	-767	0	0	192	113	158	34							
102+50.00	344	233	111	15	233	1,375	1,375	1,788	-1,555	0	0	111	139	195	-84							
103+00.00	163	31	132	15	31	1,900	1,900	2,470	-2,439	0	0	132	155	217	-85							
103+50.00	329	107	222	29	107	1,980	1,980	2,574	-2,467	0	0	222	135	189	33							
104+00.00	437	237	200	30	237	1,753	1,753	2,279	-2,042	0	0	200	120	168	32							
104+50.00	429	229	200	30	229	1,570	1,570	2,041	-1,812	0	0	200	126	176	24							
105+00.00	392	181	211	30	181	1,406	1,406	1,828	-1,647	0	0	211	106	148	63							
105+50.00	374	165	208	30	165	1,147	1,147	1,491	-1,326	0	0	208	105	147	61							
106+00.00	323	132	191	30	132	850	850	1,105	-973	0	0	191	127	178	13							
106+50.00	276	103	173	30	103	685	685	891	-788	0	0	173	115	161	12							
107+00.00	270	106	164	29	106	585	585	761	-655	0	0	164	110	154	10							
107+50.00	268	107	160	30	107	568	568	738	-631	0	0	160	82	115	45							
108+00.00	274	115	160	30	115	536	536	697	-582	0	0	160	54	76	84							
108+50.00	284	131	153	30	131	428	428	556	-425	0	0	153	76	106	47							
109+00.00	266	125	141	30	125	367	367	477	-352	0	0	141	94	132	10							
109+50.00	263	129	135	30	129	337	337	438	-309	0	0	135	89	125	10							
110+00.00	253	130	123	30	130	268	268	348	-218	0	0	123	80	112	11							
110+50.00																						
SR55TH EB-WB Totals:	7,253	3,895	3,358	570	3,895	18,209	18,209	23,672	-19,777	0	0	3,358	2,108	2,952	407							

**TABULATION OF TEMPLATE QUANTITIES AND ADJUSTMENTS**

Station	Cut					Fill				Checks (EW-102)		Topsoil				[16]	[17]	[18]	[19]	[20]	[21]	[22]
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]							
	Total Cut Unadjusted Volume	Total Class 10 Unadjusted Volume	Topsoil Cut Volume	Template Pavement Removal Volume	Total Cut Adjusted	Total Fill Unadjusted Volume	Total Fill Adjusted	Total Fill Adjusted w/ Weighted Average 1.3 Shrink Factor	Total Cut Adjusted Minus Fill w/ Shrink	Approx. Fill Vol. Below 5' & Above 20' w/ Shrink	Approx. Fill Volume Below 3' w/ Shrink	Topsoil Stripping Undercut Volume	Topsoil Placement Undercut Volume	Topsoil Placement With 1.4 Shrink Factor	Topsoil Stripping Minus Topsoil Placement w/Shrink							
SR315T_NB-SB																						
301+00.00	276	182	94	0	182	95	95	124	59	0	0	94	56	78	16							
301+50.00	287	170	118	0	170	95	95	124	47	0	0	118	63	88	30							
302+00.00	239	126	113	0	126	91	91	118	8	0	0	113	64	90	23							
302+50.00	204	97	106	0	97	105	105	137	-40	0	0	106	59	83	23							
303+00.00	277	148	129	0	148	172	172	224	-76	0	0	129	66	92	37							
303+50.00	340	205	135	0	205	316	316	411	-206	0	0	135	59	83	52							
304+00.00																						
SR315T_NB-SB Totals:	1,623	928	695	0	928	874	874	1,137	-209	0	0	695	367	514	182							

### TABULATION OF TEMPLATE QUANTITIES AND ADJUSTMENTS

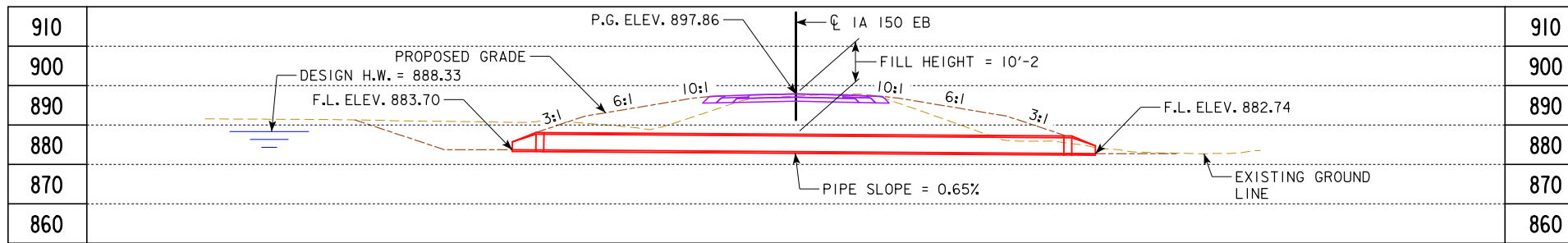
Station	Cut				Fill				Checks (EW-102)		Topsoil				[16]	[17]	[18]	[19]	[20]	[21]	[22]	
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]							
	Total Cut Unadjusted Volume	Total Class 10 Unadjusted Volume	Topsoil Cut Volume	Template Pavement Removal Volume	Total Cut Adjusted	Total Fill Unadjusted Volume	Total Fill Adjusted	Total Fill Adjusted w/ Weighted Average 1.3 Shrink Factor	Total Cut Adjusted Minus Fill w/ Shrink	Approx. Fill Vol. Below 5' & Above 20' w/ Shrink	Approx. Fill Volume Below 3' w/ Shrink	Topsoil Stripping Undercut Volume	Topsoil Placement Undercut Volume	Topsoil Placement With 1.4 Shrink Factor	Topsoil Stripping Minus Topsoil Placement w/Shrink							
ML150_RAB																						
500+50.00	92	25	68	0	25	474	474	616	-591	0	0	68	27	38	30							
501+00.00	109	65	44	15	65	217	217	282	-217	0	0	44	27	38	6							
501+50.00	105	81	24	39	81	131	131	170	-89	0	0	24	23	32	-8							
502+00.00	92	69	23	42	69	181	181	235	-166	0	0	23	23	32	-9							
502+50.00	81	28	53	18	28	450	450	585	-557	0	0	53	23	32	21							
503+00.00	22	0	22	0	0	184	184	239	-239	0	0	22	7	10	12							
ML150_RAB																						
Totals:	501	268	234	114	268	1,637	1,637	2,129	-1,861	0	0	234	130	182	52							

**TABULATION OF TEMPLATE QUANTITIES AND ADJUSTMENTS**

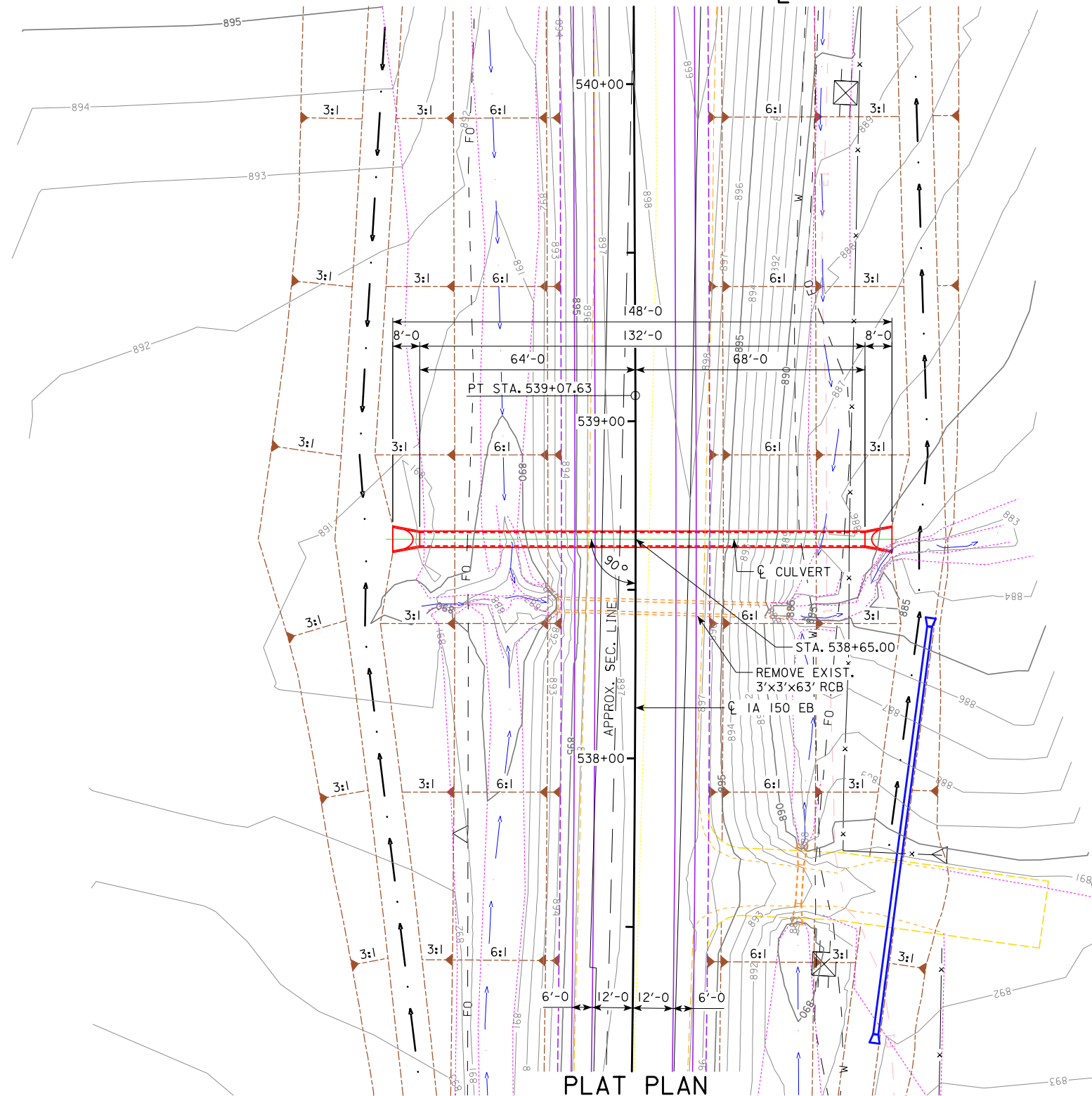
Station	Cut				Fill				Checks (EW-102)		Topsoil				[16]	[17]	[18]	[19]	[20]	[21]	[22]	
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]							
	Total Cut Unadjusted Volume	Total Class 10 Unadjusted Volume	Topsoil Cut Volume	Template Pavement Removal Volume	Total Cut Adjusted	Total Fill Unadjusted Volume	Total Fill Adjusted	Total Fill Adjusted w/ Weighted Average 1.3 Shrink Factor	Total Cut Adjusted Minus Fill w/ Shrink	Approx. Fill Vol. Below 5' & Above 20' w/ Shrink	Approx. Fill Volume Below 3' w/ Shrink	Topsoil Stripping Undercut Volume	Topsoil Placement Undercut Volume	Topsoil Placement With 1.4 Shrink Factor	Topsoil Stripping Minus Topsoil Placement w/Shrink							
ML150_CURVE																						
31+00.00	393	279	114	32	279	334	334	434	-155	0	0	114	117	164	-50							
31+50.00	410	293	118	32	293	338	338	439	-146	0	0	118	119	167	-49							
32+00.00	421	306	115	31	306	315	315	410	-104	0	0	115	117	164	-49							
32+50.00	462	342	120	31	342	265	265	345	-3	0	0	120	121	169	-49							
33+00.00	543	419	124	32	419	164	164	213	206	0	0	124	123	172	-48							
33+50.00	601	475	125	31	475	104	104	135	340	0	0	125	124	174	-49							
34+00.00	626	502	123	31	502	112	112	146	356	0	0	123	123	172	-49							
34+50.00	617	495	122	31	495	141	141	183	312	0	0	122	122	171	-49							
35+00.00	592	470	122	32	470	195	195	254	217	0	0	122	122	171	-49							
35+50.00																						
ML150_CURVE Totals:	4,665	3,581	1,083	283	3,581	1,968	1,968	2,559	1,023	0	0	1,083	1,088	1,524	-441							

### TABULATION OF TEMPLATE QUANTITIES AND ADJUSTMENTS

Station	Cut				Fill				Checks (EW-102)		Topsoil				[16]	[17]	[18]	[19]	[20]	[21]	[22]	
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]							
	Total Cut Unadjusted Volume	Total Class 10 Unadjusted Volume	Topsoil Cut Volume	Template Pavement Removal Volume	Total Cut Adjusted	Total Fill Unadjusted Volume	Total Fill Adjusted	Total Fill Adjusted w/ Weighted Average 1.3 Shrink Factor	Total Cut Adjusted Minus Fill w/ Shrink	Approx. Fill Vol. Below 5' & Above 20' w/ Shrink	Approx. Fill Volume Below 3' w/ Shrink	Topsoil Stripping Undercut Volume	Topsoil Placement Undercut Volume	Topsoil Placement With 1.4 Shrink Factor	Topsoil Stripping Minus Topsoil Placement w/Shrink							
Summary:																						
ML150_EB-WB	12,794	8,622	4,173	1,121	8,622	9,042	9,042	11,755	-3,133	0	0	4,173	2,914	4,080	94							
ML150_NB-SB	14,071	10,397	3,674	1,040	10,397	9,061	9,061	11,780	-1,383	0	0	3,674	2,511	3,516	160							
SR55TH_EB-WB	7,253	3,895	3,358	570	3,895	18,209	18,209	23,672	-19,777	0	0	3,358	2,108	2,952	407							
SR31ST_NB-SB	1,623	928	695	0	928	874	874	1,137	-209	0	0	695	367	514	182							
ML150_RAB	501	268	234	114	268	1,637	1,637	2,129	-1,861	0	0	234	130	182	52							
ML150_CURVE	4,665	3,581	1,083	283	3,581	1,968	1,968	2,559	1,023	0	0	1,083	1,088	1,524	-441							
Project Totals:	40,907	27,691	13,217	3,128	27,691	40,791	40,791	53,032	-25,340	0	0	13,217	9,118	12,768	454							
Bid Item Quantities: Embankment-In-Place, Contractor Furnished: 25,340 CY = [9] Excavation, Class 10, Roadway and Borrow: 27,691 CY = [5] Topsoil, Strip, Salvage and Spread: 12,768 CY = [14] Topsoil, Strip and Stockpile: 454 CY = [15] Compaction with Moisture and Density Control: 40,791 CY = [7]																						



LONGITUDINAL SECTION ALONG  $\phi$  CULVERT



PLAT PLAN

BENCH MARK NO. 500 - FD. CUT X INLET HDWL.,  
8143047.28 N, 20437979.53 E - ELEV. 892.12

HYDRAULIC DATA

DRAINAGE AREA = 50 ACRES  
Q<sub>50</sub> = 88 CFS  
HW ELEV. = 888.33

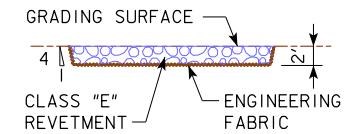
LOCATION

IA 150 EB  
T-86N R-9W  
SECTION 28  
POLK TOWNSHIP  
BENTON COUNTY

ESTIMATED REVETMENT QUANTITIES INCLUDED WITH ROAD PLANS

LOCATION	REVETMENT CL. "E" (TON)	ENGINEERING FABRIC (SY)	EXCAVATION (CY)
OUTLET	27	43	57
TOTALS	27	43	57

EXCAVATION QUANTITY CALCULATED FROM GRADING SURFACE. QUANTITIES SHOWN FOR INFORMATION ONLY. SEE ROAD SHEETS.



NOTE:  
PIPE DIMENSIONS SHOWN IN PLAN VIEW ARE BASED ON LAYING LENGTH.

CURVE DATA

PI STA. 537+41.33  
 $\Delta = 1^{\circ}43'57.30''$  (LT)  
D =  $0^{\circ}31'15.24''$   
T = 166.33'  
L = 332.63'  
E = 1.26'  
R = 11,000'  
PC STA. 535+75.00  
PT STA. 539+07.63



PRELIMINARY

DESIGN FOR 0° SKEW

48"  $\phi$  X 132'  
REINFORCED CONCRETE PIPE

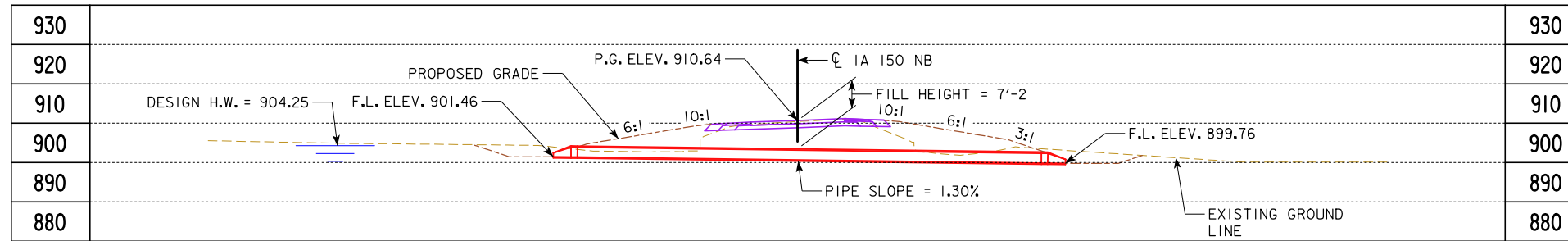
PLAT PLAN

STATION: 538+65.00 (IA 150 EB) NOVEMBER, 2019

BENTON COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. \_\_\_\_\_ OF \_\_\_\_\_ FILE NO. 31830 DESIGN NO. \_\_\_\_\_



### HYDRAULIC DATA

DRAINAGE AREA = 10 ACRES  
Q<sub>50</sub> = 26 CFS  
HW ELEV. = 904.25

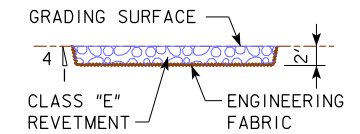
### LOCATION

IA 150 NB  
T-86N R-9W  
SECTIONS 27 & 28  
POLK TOWNSHIP  
BENTON COUNTY

### ESTIMATED REVETMENT QUANTITIES INCLUDED WITH ROAD PLANS

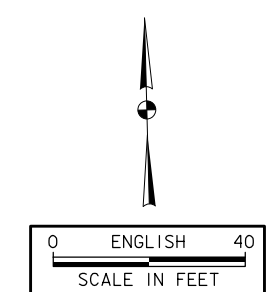
LOCATION	REVETMENT CL. "E" (TON)	ENGINEERING FABRIC (SY)	EXCAVATION (CY)
OUTLET	13	23	26
TOTALS	13	23	26

EXCAVATION QUANTITY CALCULATED FROM GRADING SURFACE. QUANTITIES SHOWN FOR INFORMATION ONLY. SEE ROAD SHEETS.



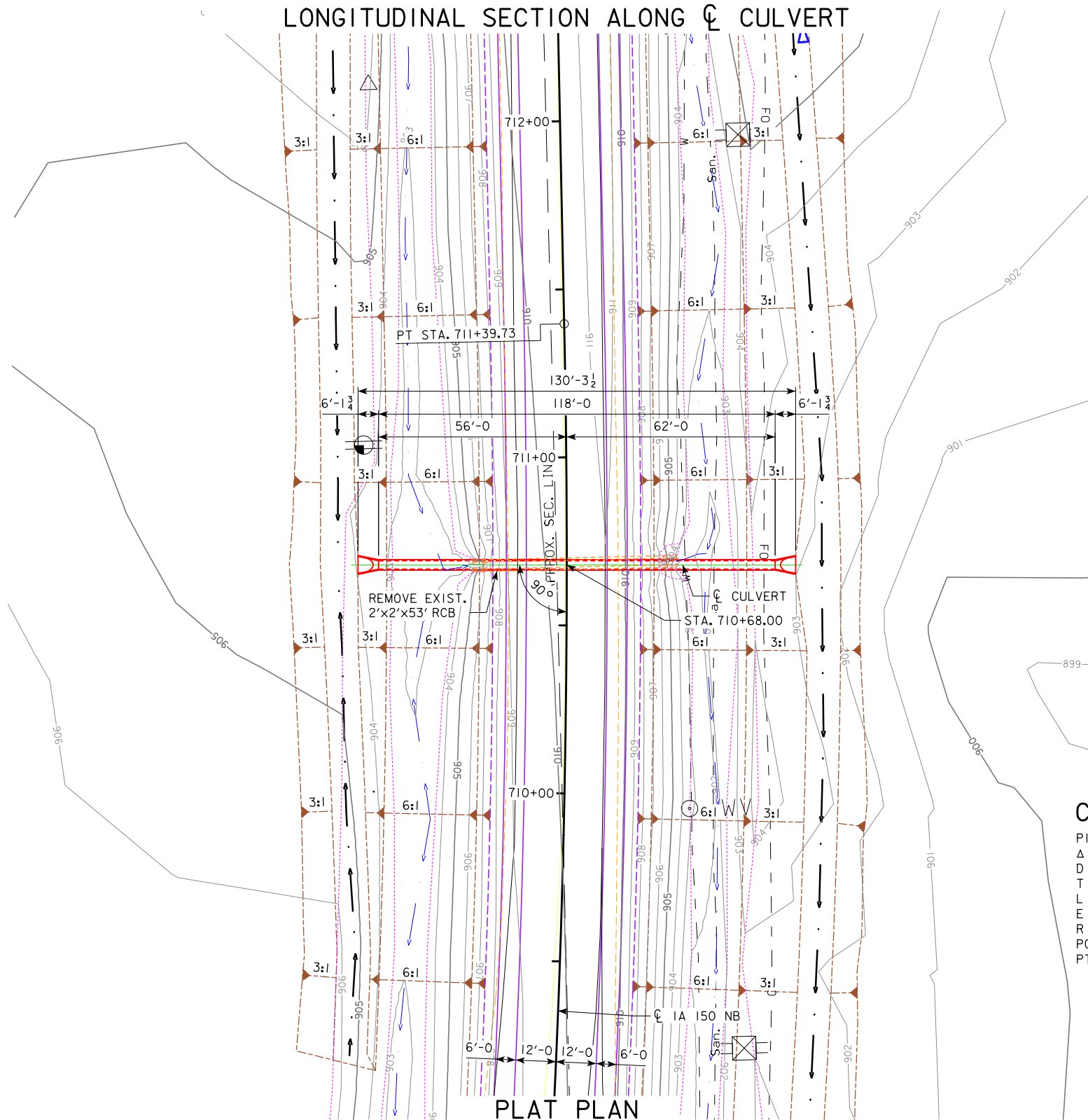
NOTE:  
PIPE DIMENSIONS SHOWN IN PLAN VIEW ARE BASED ON LAYING LENGTH.

N



### CURVE DATA

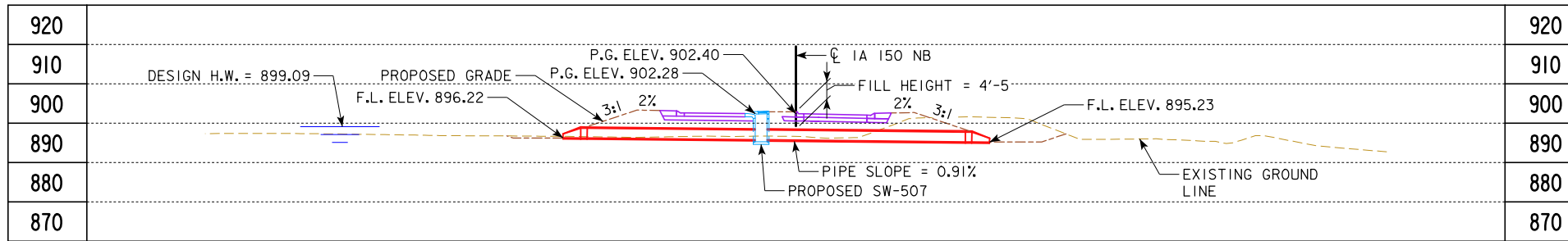
PI STA. 709+52.57  
Δ = 6°18'50.79" (LT)  
D = 1°41'06.72"  
T = 187.53'  
L = 374.69'  
E = 5.17'  
R = 3400.00  
PC STA. 707+65.04  
PT STA. 711+39.73



PRELIMINARY  
DESIGN FOR 0° SKEW  
**30"φ X 118'**  
**REINFORCED CONCRETE PIPE**

**PLAT PLAN**  
STATION: 710+68.00 (IA 150 NB) NOVEMBER, 2019  
**BENTON COUNTY**  
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION  
DESIGN SHEET NO. \_\_\_\_\_ OF \_\_\_\_\_ FILE NO. 31830 DESIGN NO. \_\_\_\_\_





### HYDRAULIC DATA

DRAINAGE AREA = 10.70 ACRES  
Q<sub>50</sub> = 27 CFS  
HW ELEV. = 899.09

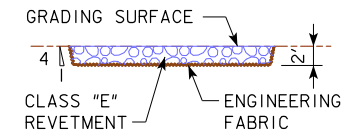
### LOCATION

IA 150 NB  
T-86N R-9W  
SECTIONS 27 & 28  
POLK TOWNSHIP  
BENTON COUNTY

### ESTIMATED REVETMENT QUANTITIES INCLUDED WITH ROAD PLANS

LOCATION	REVETMENT CL. "E" (TON)	ENGINEERING FABRIC (SY)	EXCAVATION (CY)
OUTLET	13	23	26
TOTALS	13	23	26

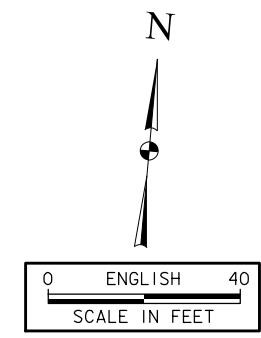
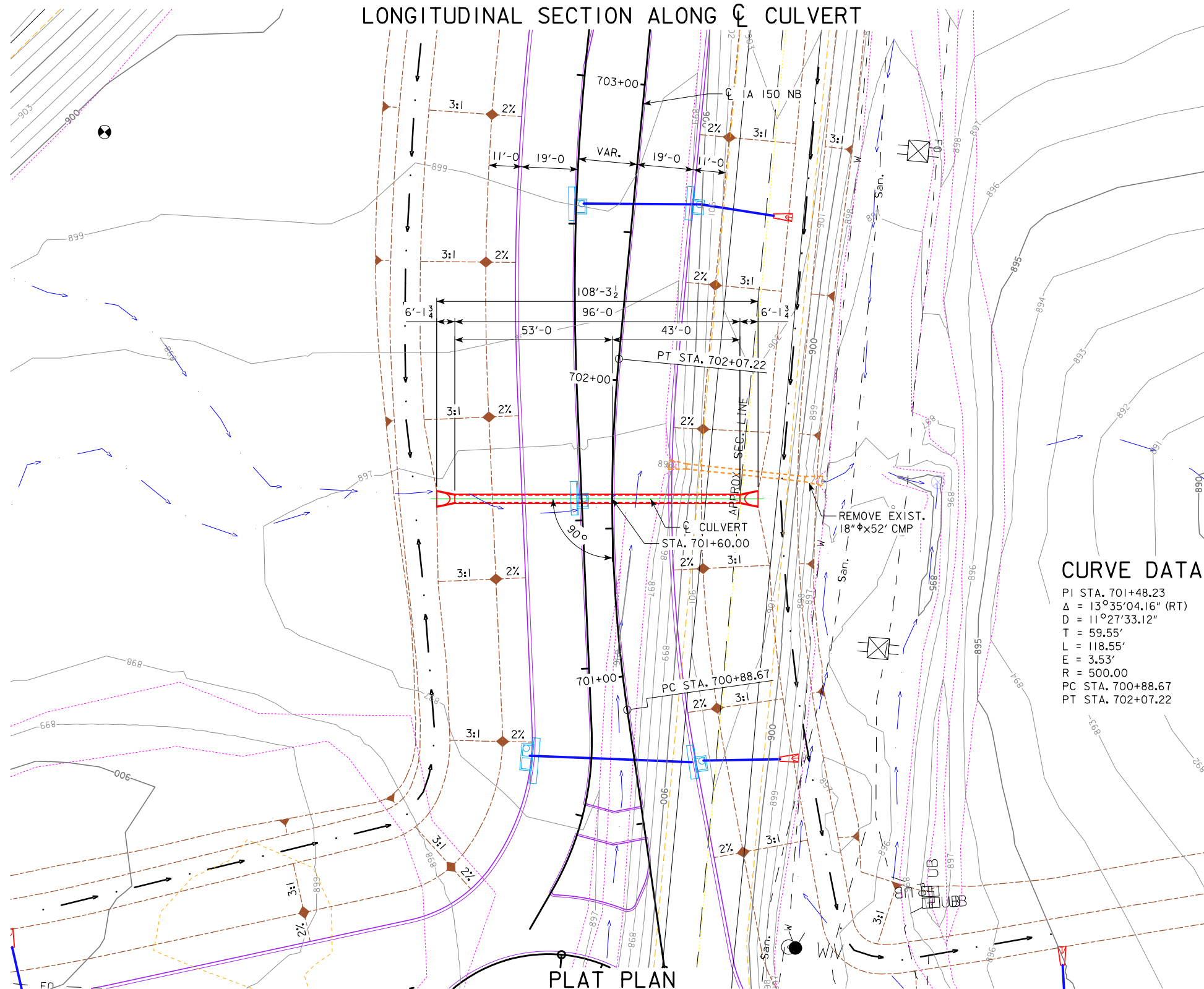
EXCAVATION QUANTITY CALCULATED FROM GRADING SURFACE. QUANTITIES SHOWN FOR INFORMATION ONLY. SEE ROAD SHEETS.



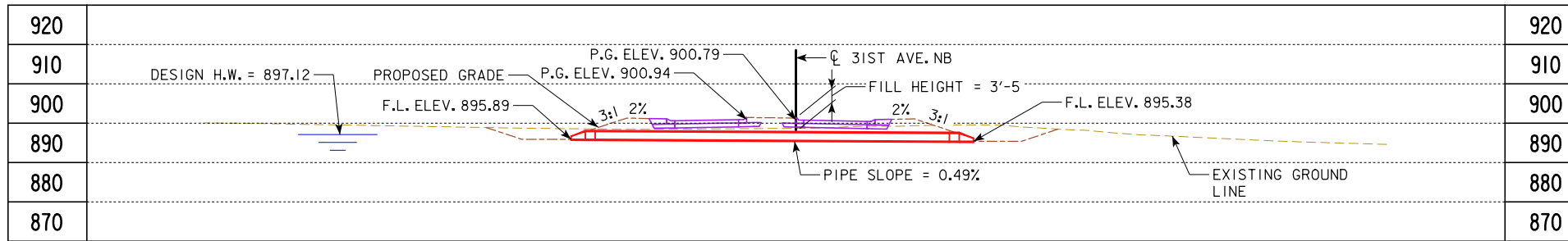
NOTE:  
PIPE DIMENSIONS SHOWN IN PLAN VIEW ARE BASED ON LAYING LENGTH.

### CURVE DATA

PI STA. 701+48.23  
Δ = 13°35'04.16" (RT)  
D = 11°27'33.12"  
T = 59.55'  
L = 118.55'  
E = 3.53'  
R = 500.00  
PC STA. 700+88.67  
PT STA. 702+07.22



PRELIMINARY  
DESIGN FOR 0° SKEW  
**30"φ X 96'**  
**REINFORCED CONCRETE PIPE**  
**PLAT PLAN**  
STATION: 701+60.00 (IA 150 NB) NOVEMBER, 2019  
**BENTON COUNTY**  
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION  
DESIGN SHEET NO. \_\_\_\_\_ OF \_\_\_\_\_ FILE NO. 31830 DESIGN NO. \_\_\_\_\_



### HYDRAULIC DATA

DRAINAGE AREA = 1.7 ACRES  
Q<sub>50</sub> = 6 CFS  
HW ELEV. = 897.12

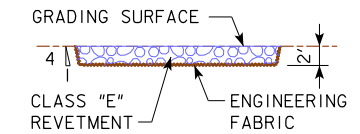
### LOCATION

31ST AVE. NB  
T-86N R-9W  
SECTIONS 33 & 34  
POLK TOWNSHIP  
BENTON COUNTY

### ESTIMATED REVETMENT QUANTITIES INCLUDED WITH ROAD PLANS

LOCATION	REVETMENT CL. "E" (TON)	ENGINEERING FABRIC (SY)	EXCAVATION (CY)
OUTLET	5	12	11
TOTALS	5	12	11

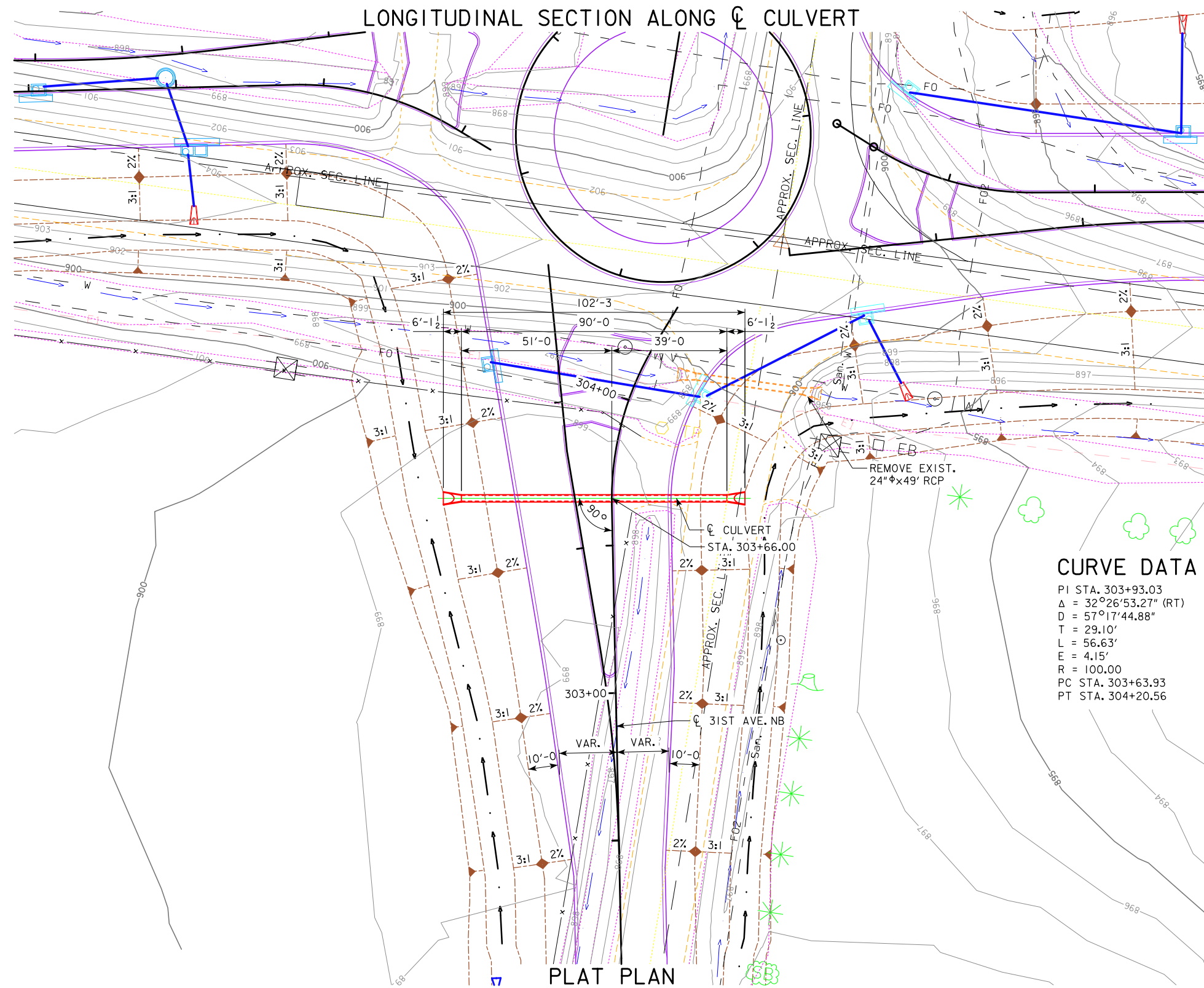
EXCAVATION QUANTITY CALCULATED FROM GRADING SURFACE. QUANTITIES SHOWN FOR INFORMATION ONLY. SEE ROAD SHEETS.



NOTE:  
PIPE DIMENSIONS SHOWN IN PLAN VIEW ARE BASED ON LAYING LENGTH.

### CURVE DATA

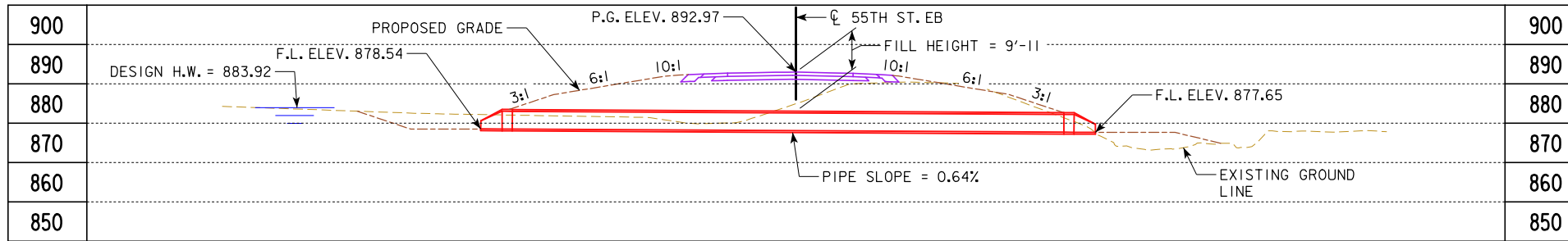
PI STA. 303+93.03  
Δ = 32°26'53.27" (RT)  
D = 57°17'44.88"  
T = 29.10'  
L = 56.63'  
E = 4.15'  
R = 100.00  
PC STA. 303+63.93  
PT STA. 304+20.56



PRELIMINARY  
DESIGN FOR 0° SKEW  
**24" φ X 90'**  
**REINFORCED CONCRETE PIPE**

**PLAT PLAN**  
STATION: 303+66.00 (31ST AVE. NB) NOVEMBER, 2019  
**BENTON COUNTY**  
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION  
DESIGN SHEET NO. \_\_\_ OF \_\_\_ FILE NO. 31830 DESIGN NO. \_\_\_

BENCH MARK NO. 501 - FD. IHC BRASS PLUG INLET HDWL.,  
8143094.86 N, 20439773.39 E - ELEV. 883.70



### HYDRAULIC DATA

DRAINAGE AREA = 77.41 ACRES  
Q<sub>50</sub> = 123 CFS  
HW ELEV. = 883.92

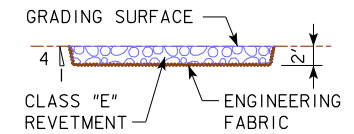
### LOCATION

55TH ST. EB  
T-86N R-9W  
SECTION 27  
POLK TOWNSHIP  
BENTON COUNTY

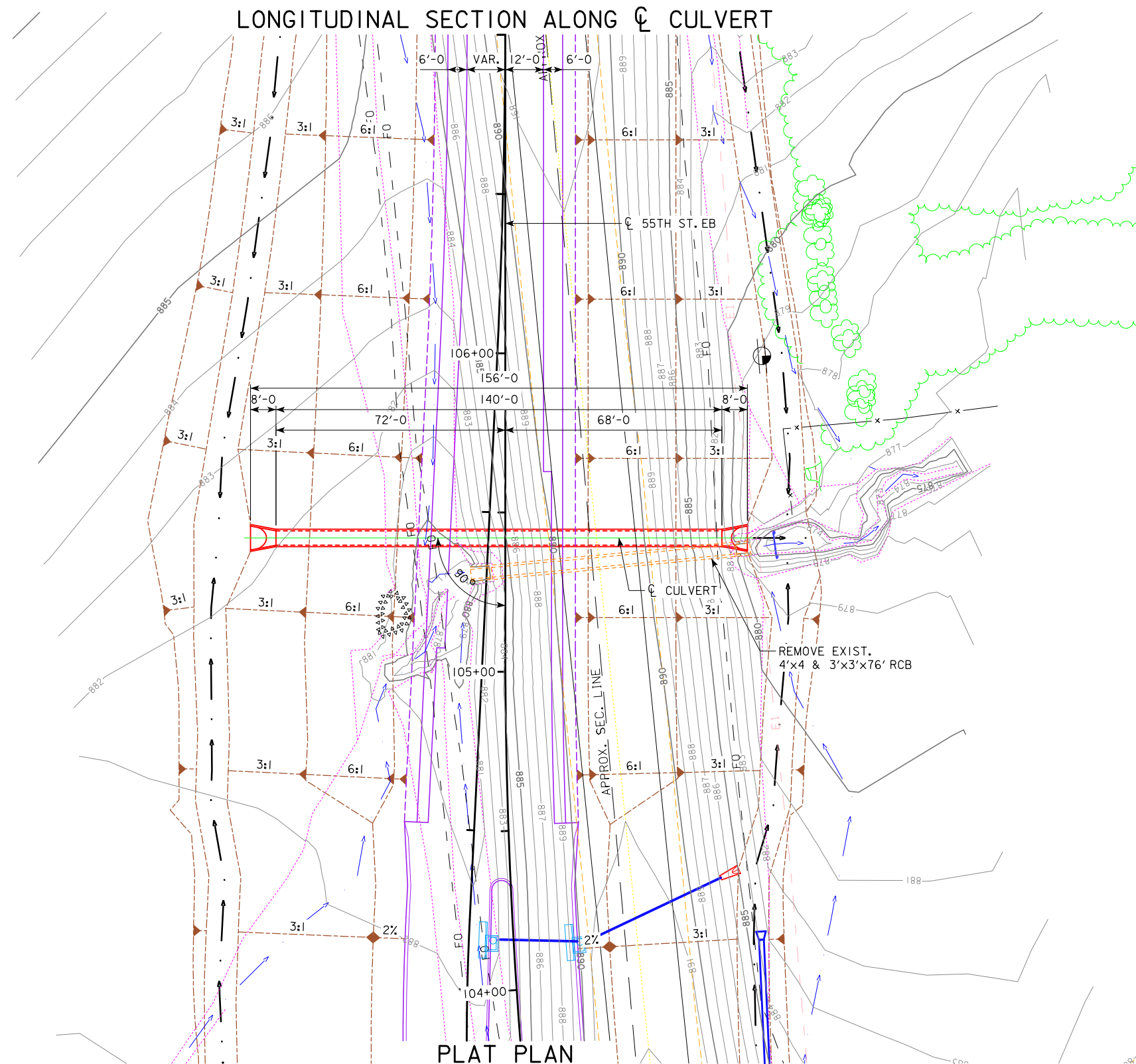
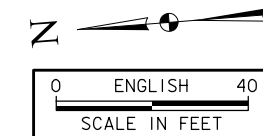
### ESTIMATED REVETMENT QUANTITIES INCLUDED WITH ROAD PLANS

LOCATION	REVETMENT CL. "E" (TON)	ENGINEERING FABRIC (SY)	EXCAVATION (CY)
OUTLET	67	77	112
<b>TOTALS</b>	<b>67</b>	<b>77</b>	<b>112</b>

EXCAVATION QUANTITY CALCULATED FROM GRADING SURFACE. QUANTITIES SHOWN FOR INFORMATION ONLY. SEE ROAD SHEETS.



NOTE:  
PIPE DIMENSIONS SHOWN IN PLAN VIEW ARE BASED ON LAYING LENGTH.

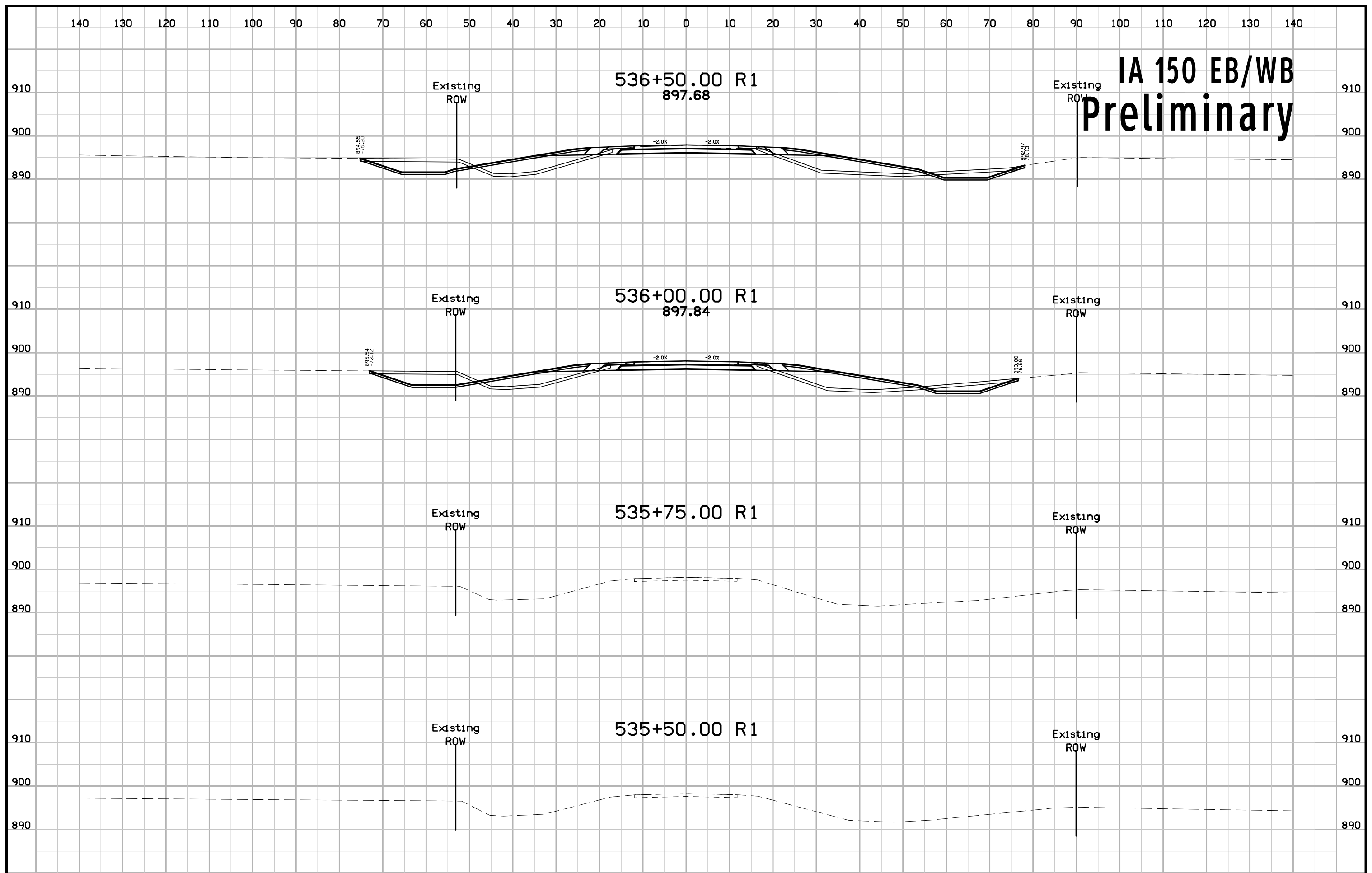


### PLAT PLAN

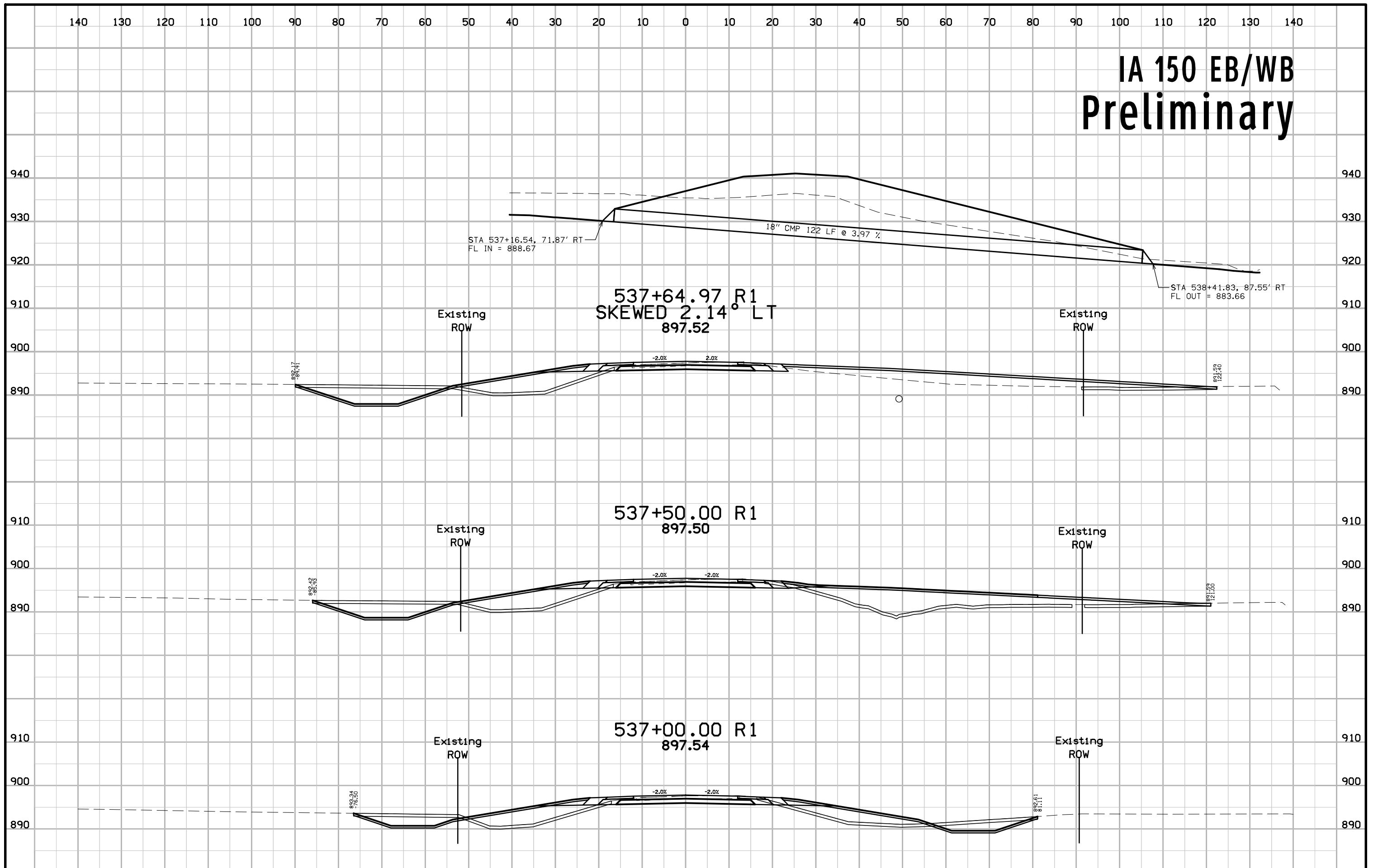
PRELIMINARY  
DESIGN FOR 0° SKEW  
**54"φ X 140'**  
**REINFORCED CONCRETE PIPE**

PLAT PLAN  
STATION: 105+42.00 (C 55TH ST. EB) NOVEMBER, 2019  
**BENTON COUNTY**  
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION  
DESIGN SHEET NO. \_\_\_\_\_ OF \_\_\_\_\_ FILE NO. 31830 DESIGN NO. \_\_\_\_\_

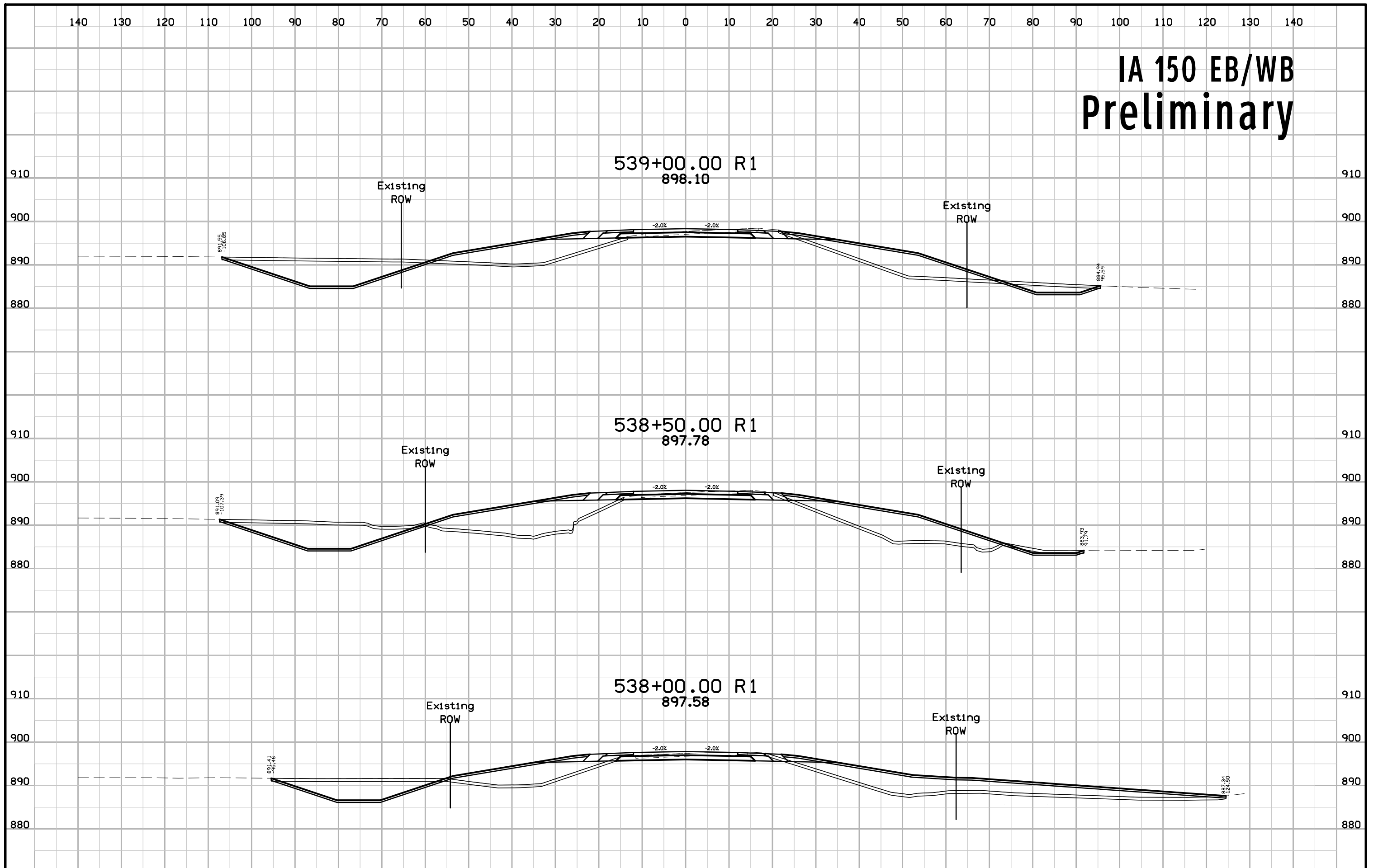
# IA 150 EB/WB Preliminary



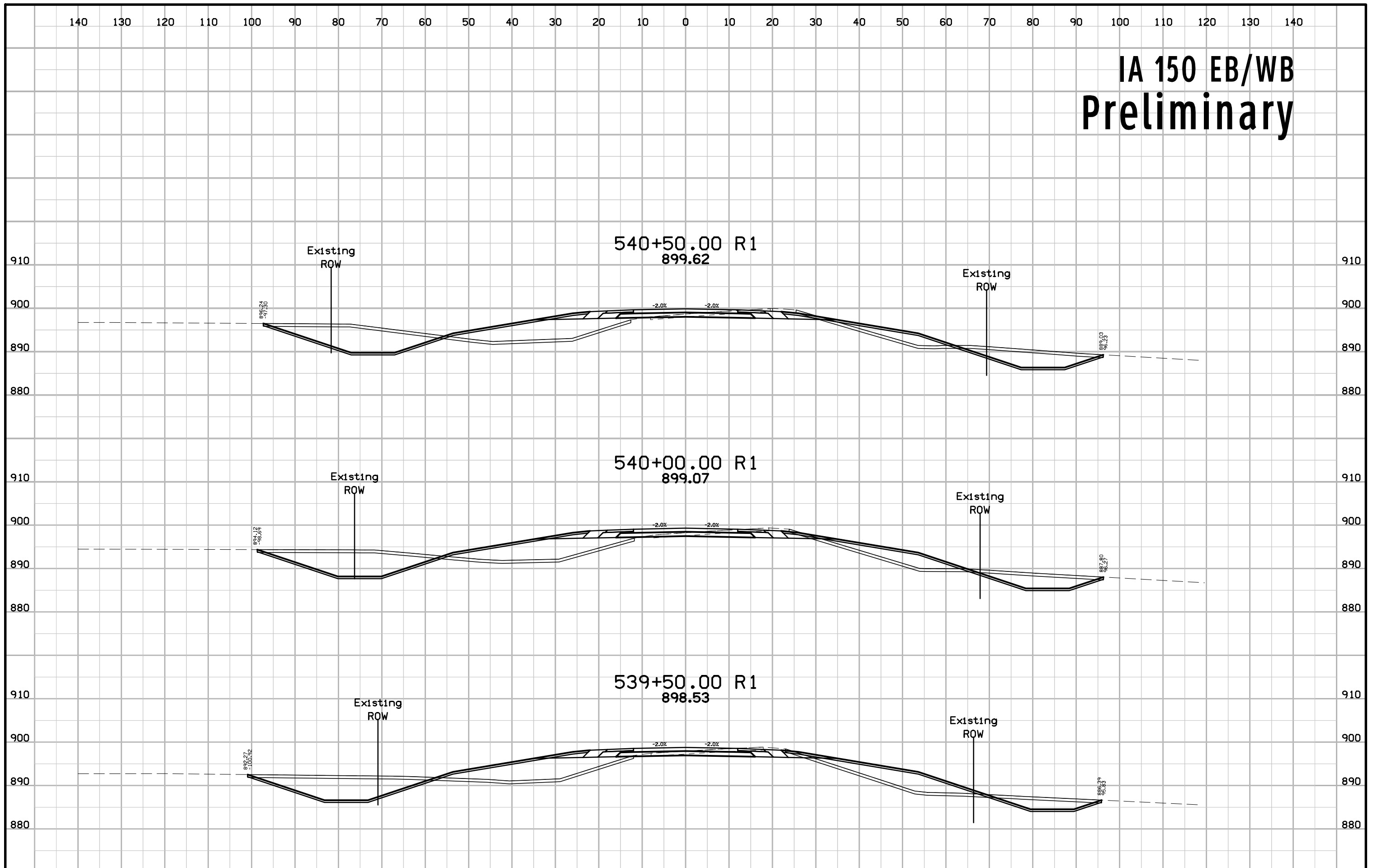
# IA 150 EB/WB Preliminary



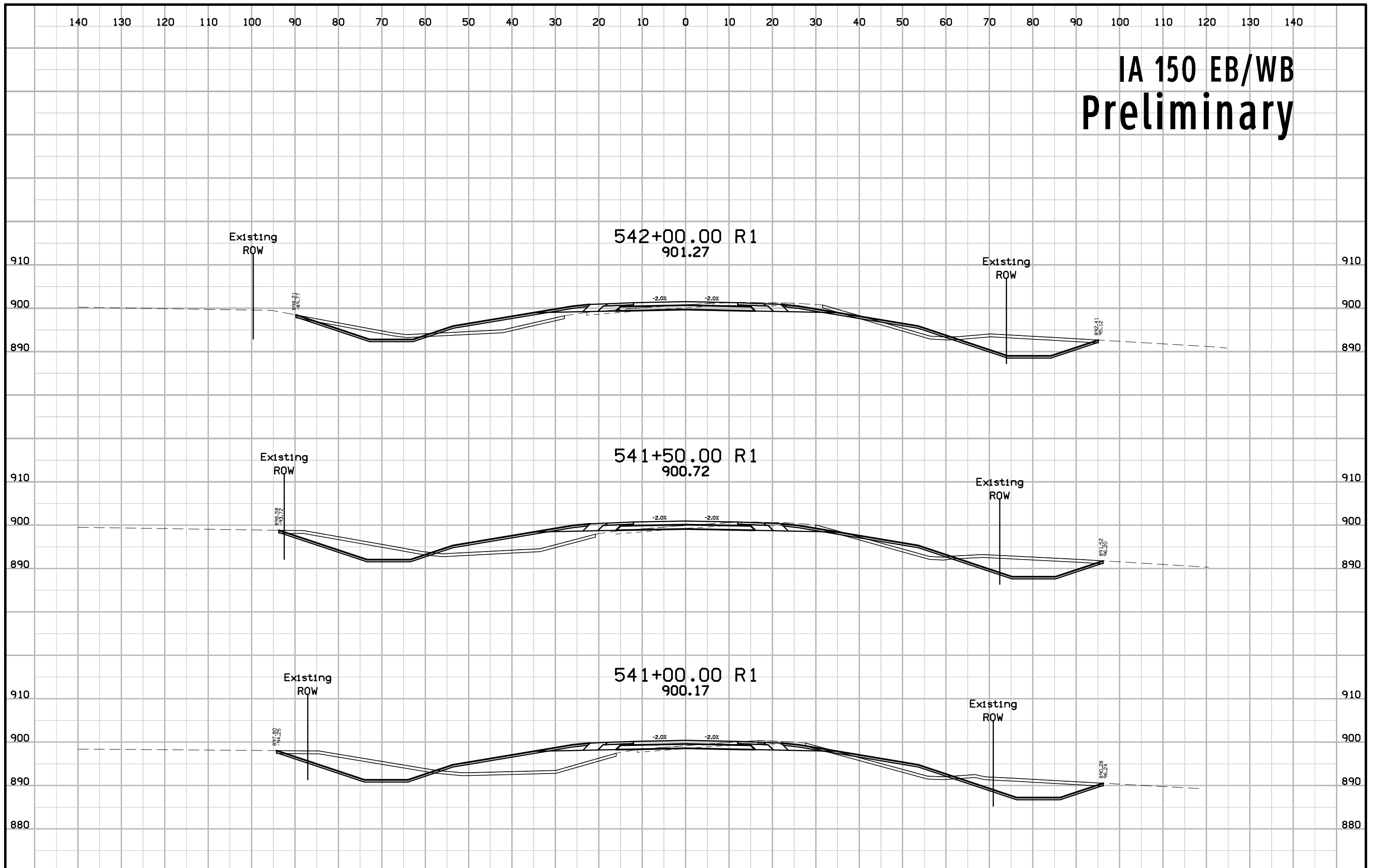
# IA 150 EB/WB Preliminary



# IA 150 EB/WB Preliminary

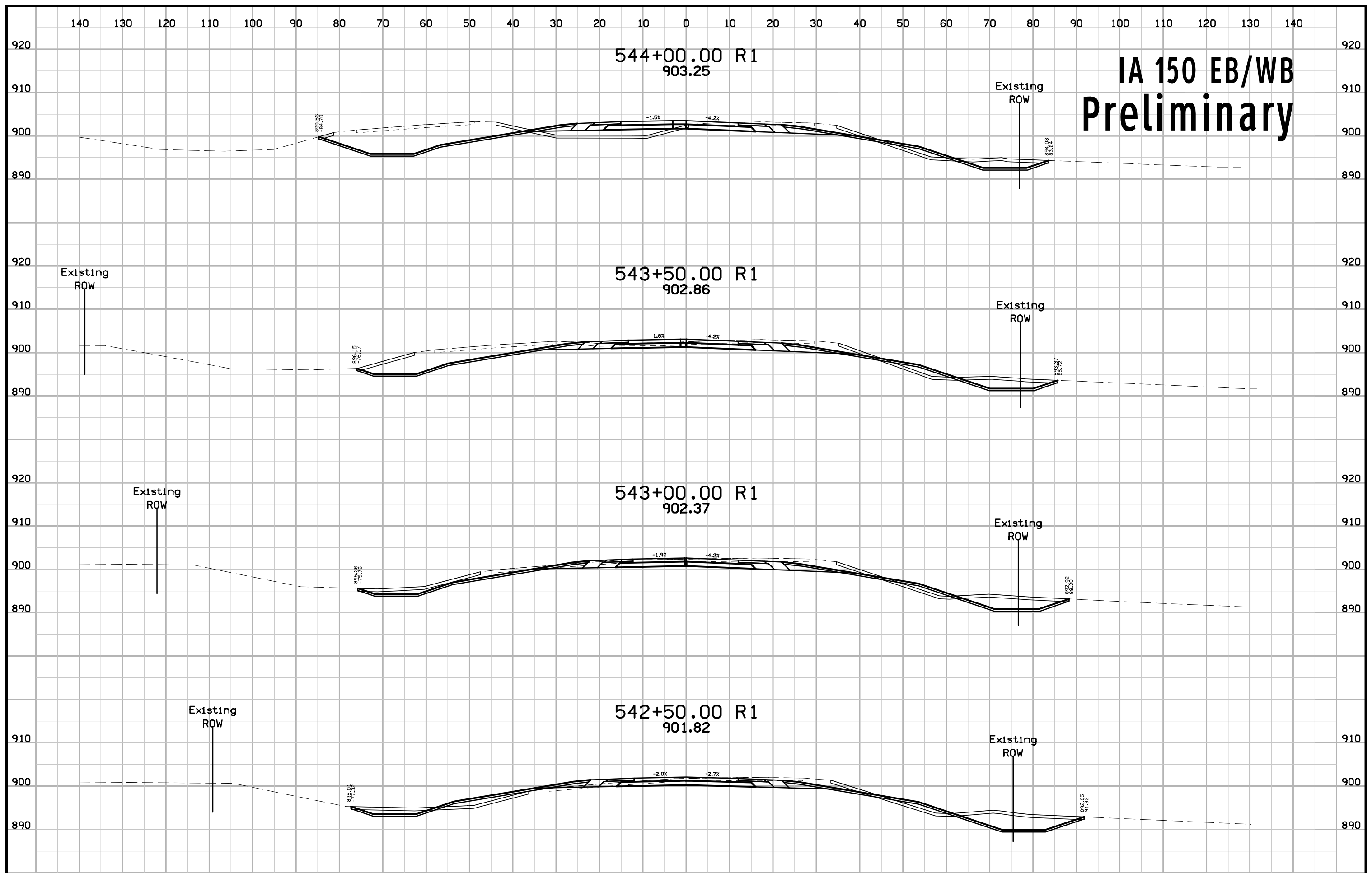


# IA 150 EB/WB Preliminary

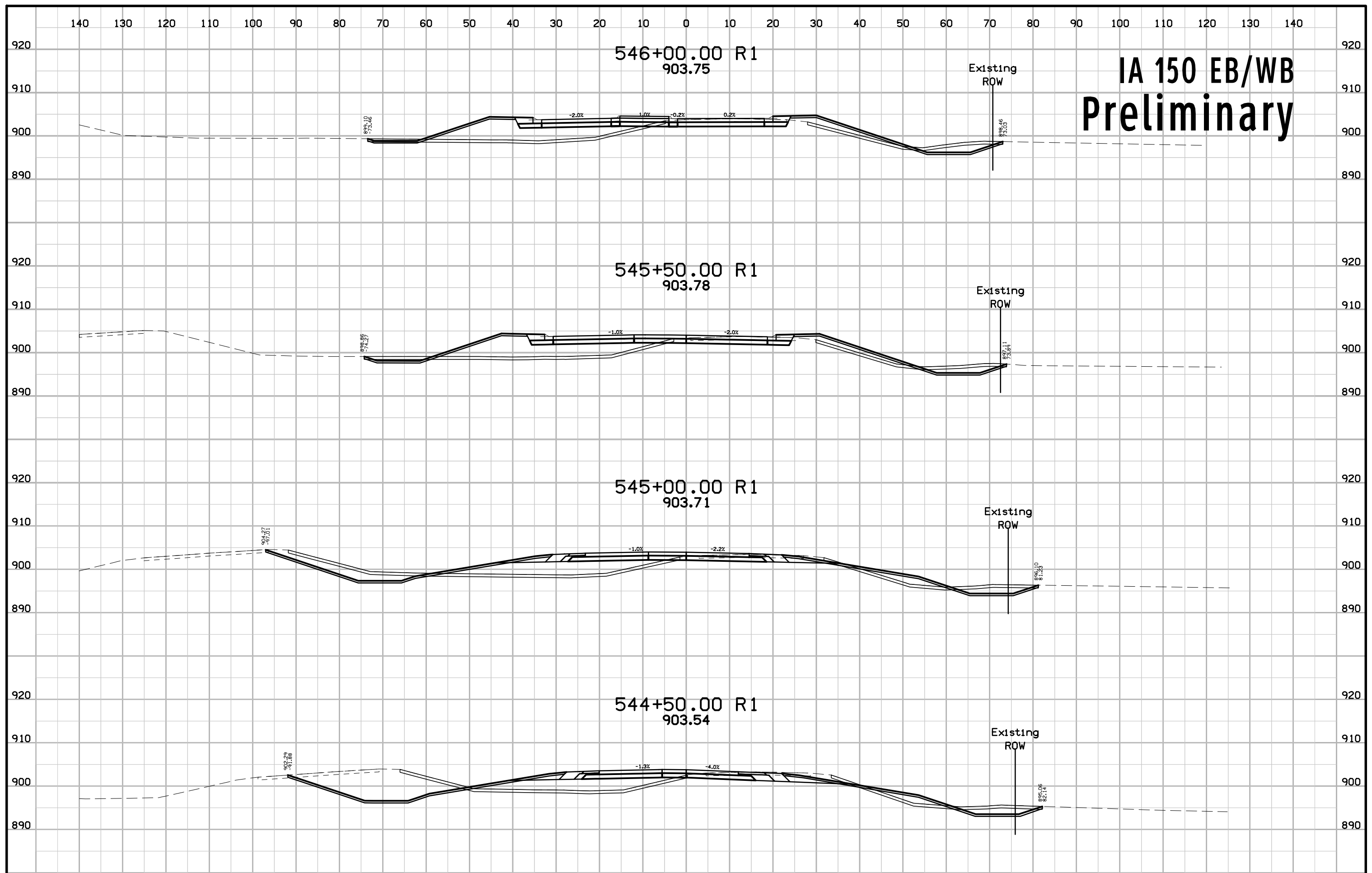




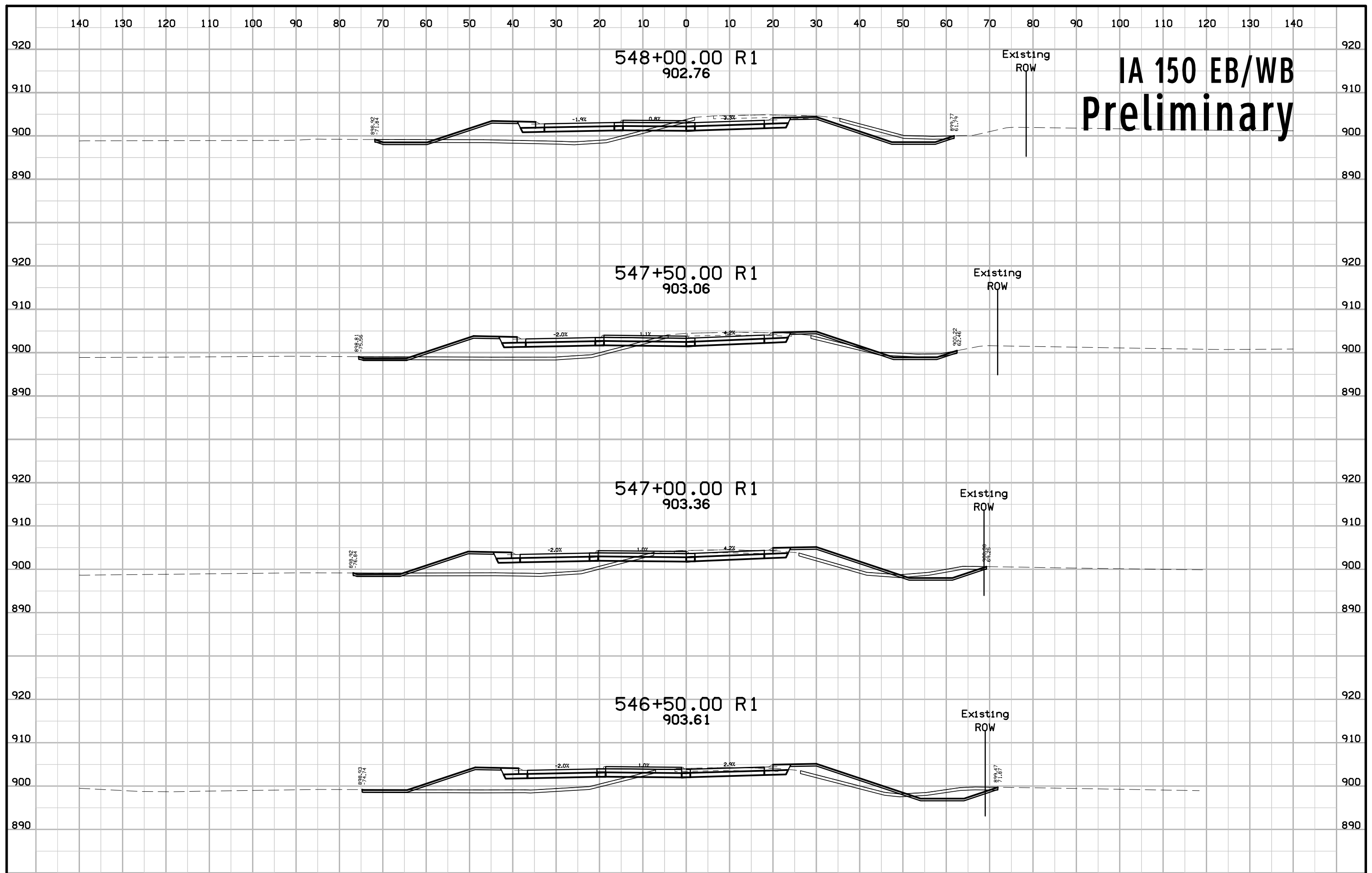
# IA 150 EB/WB Preliminary



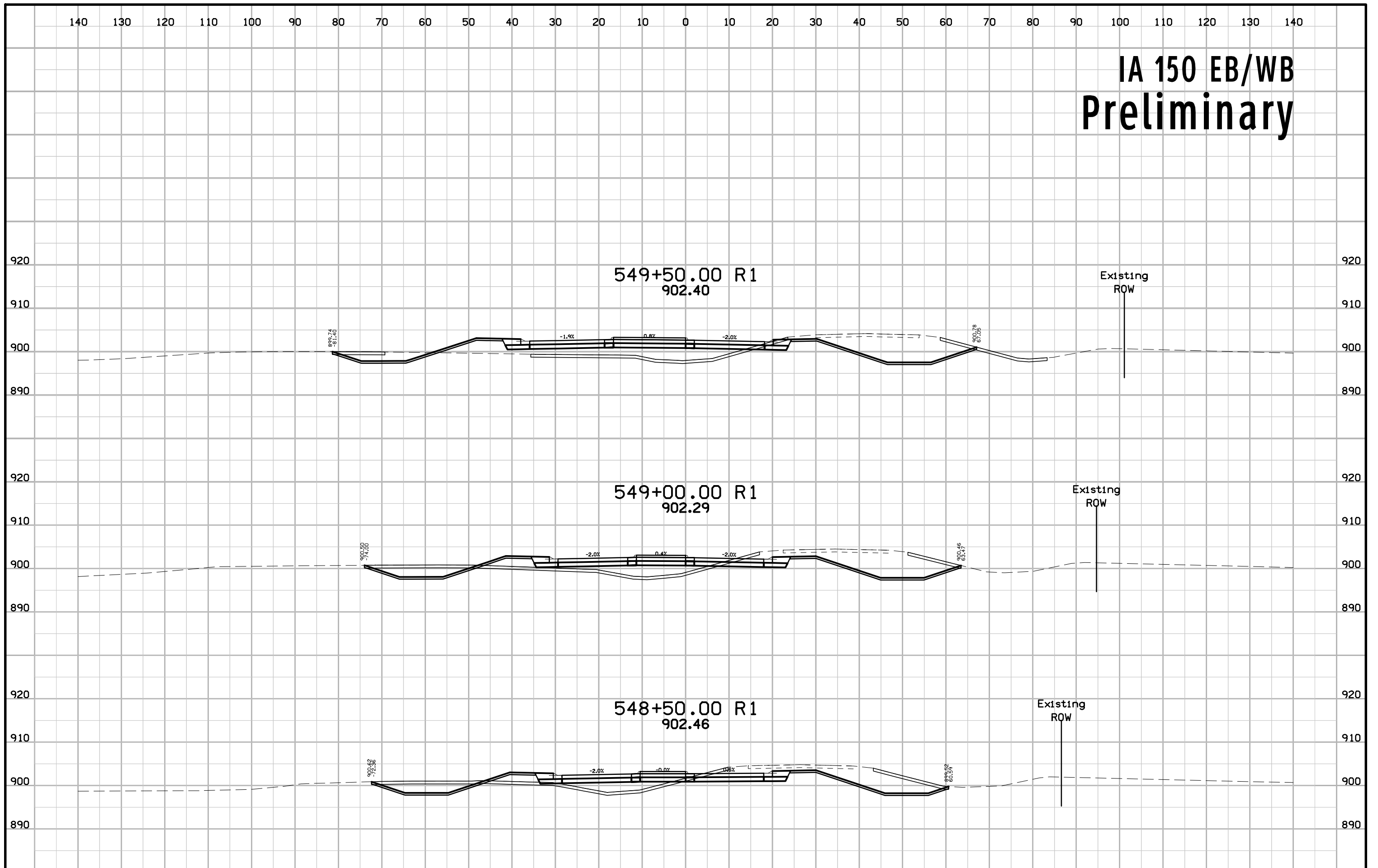
# IA 150 EB/WB Preliminary

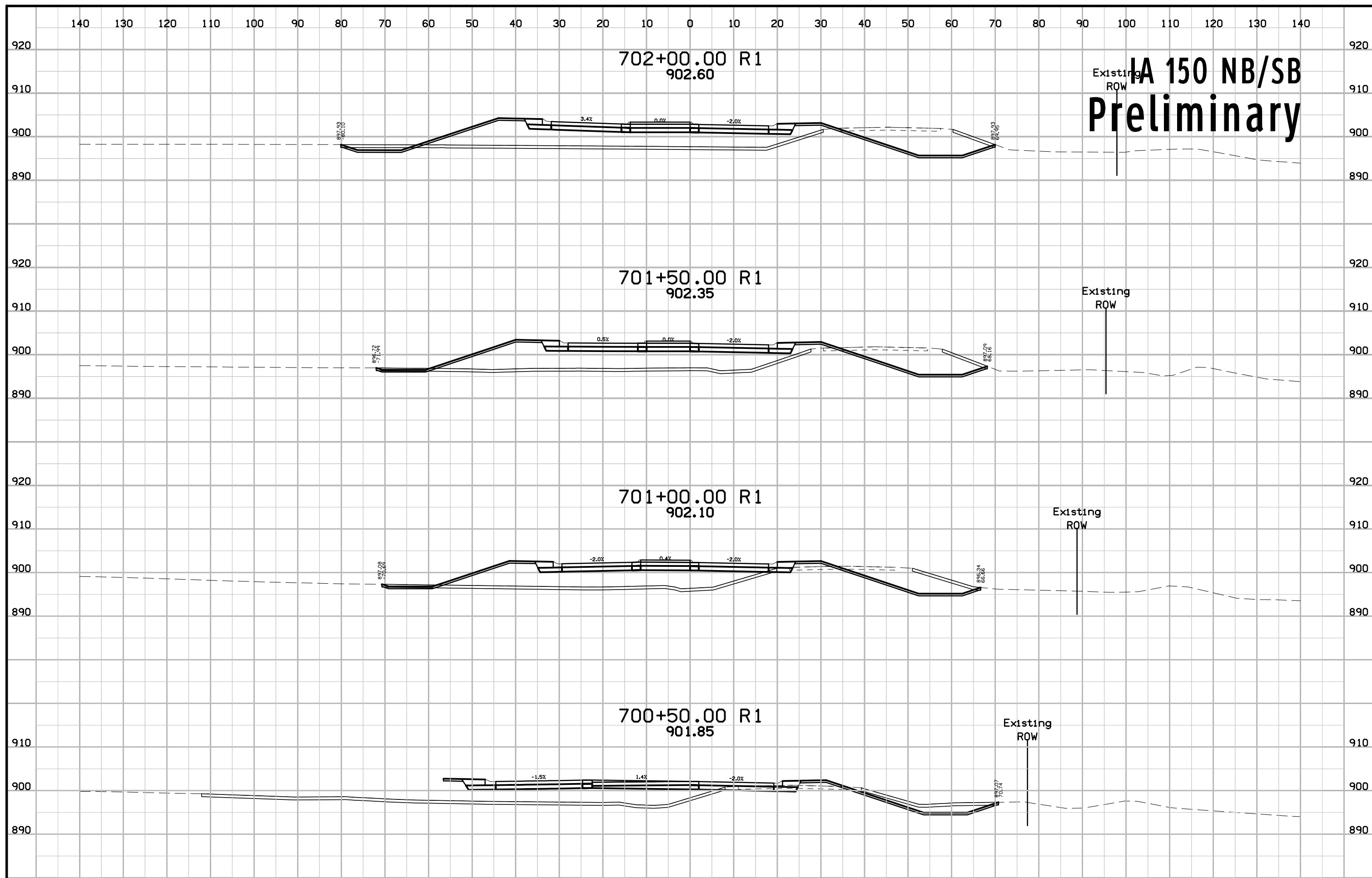


# IA 150 EB/WB Preliminary

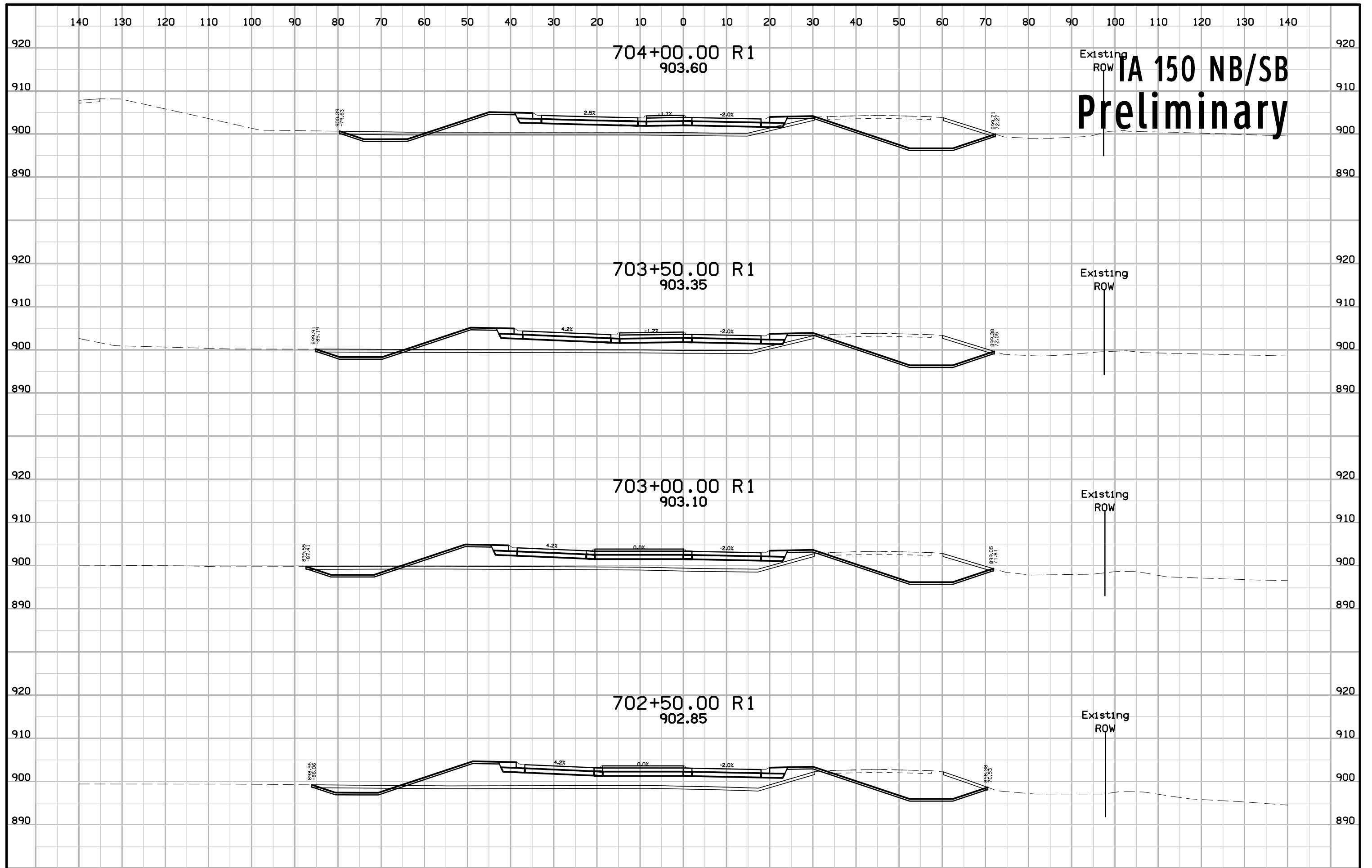


# IA 150 EB/WB Preliminary

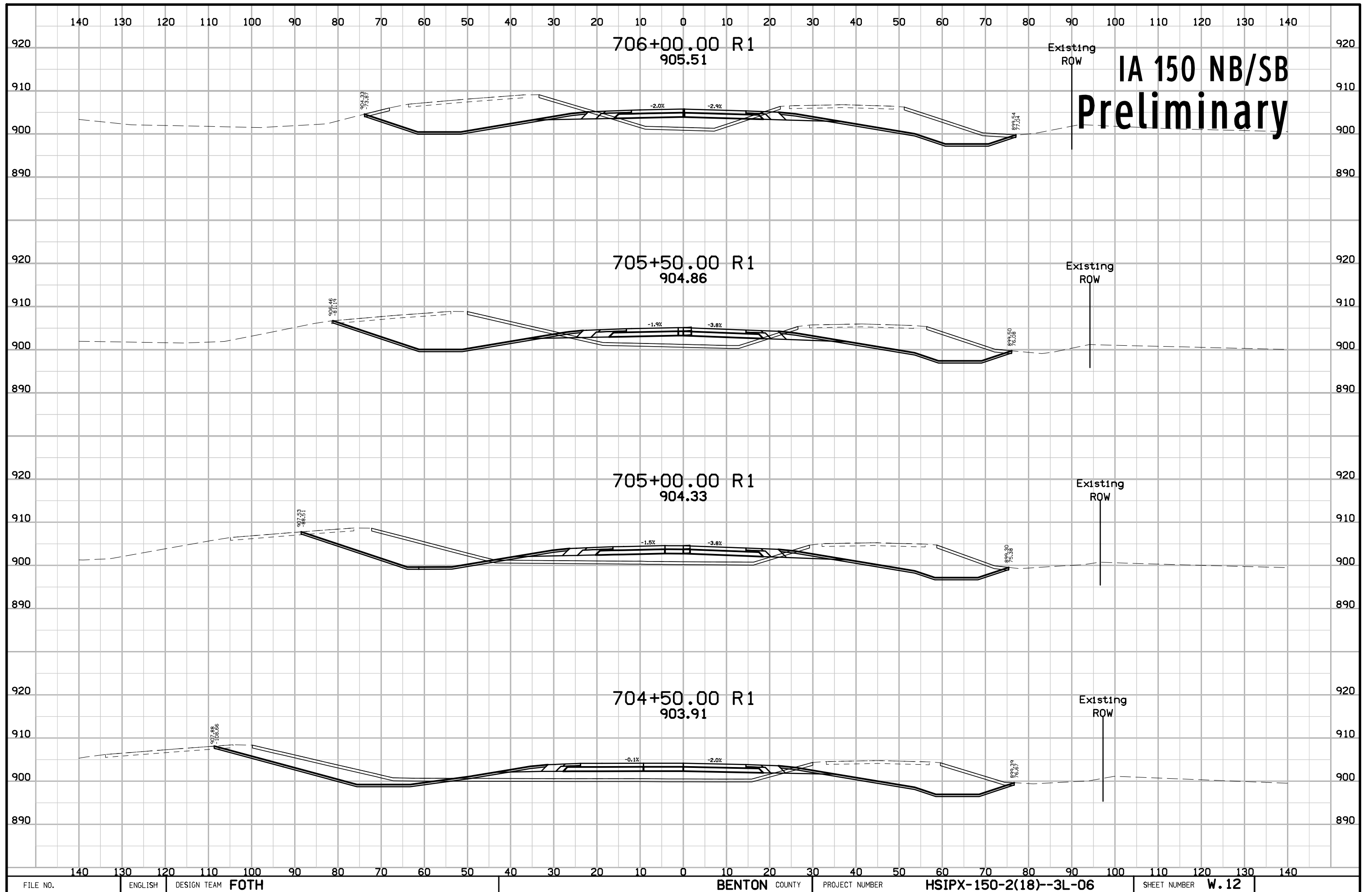




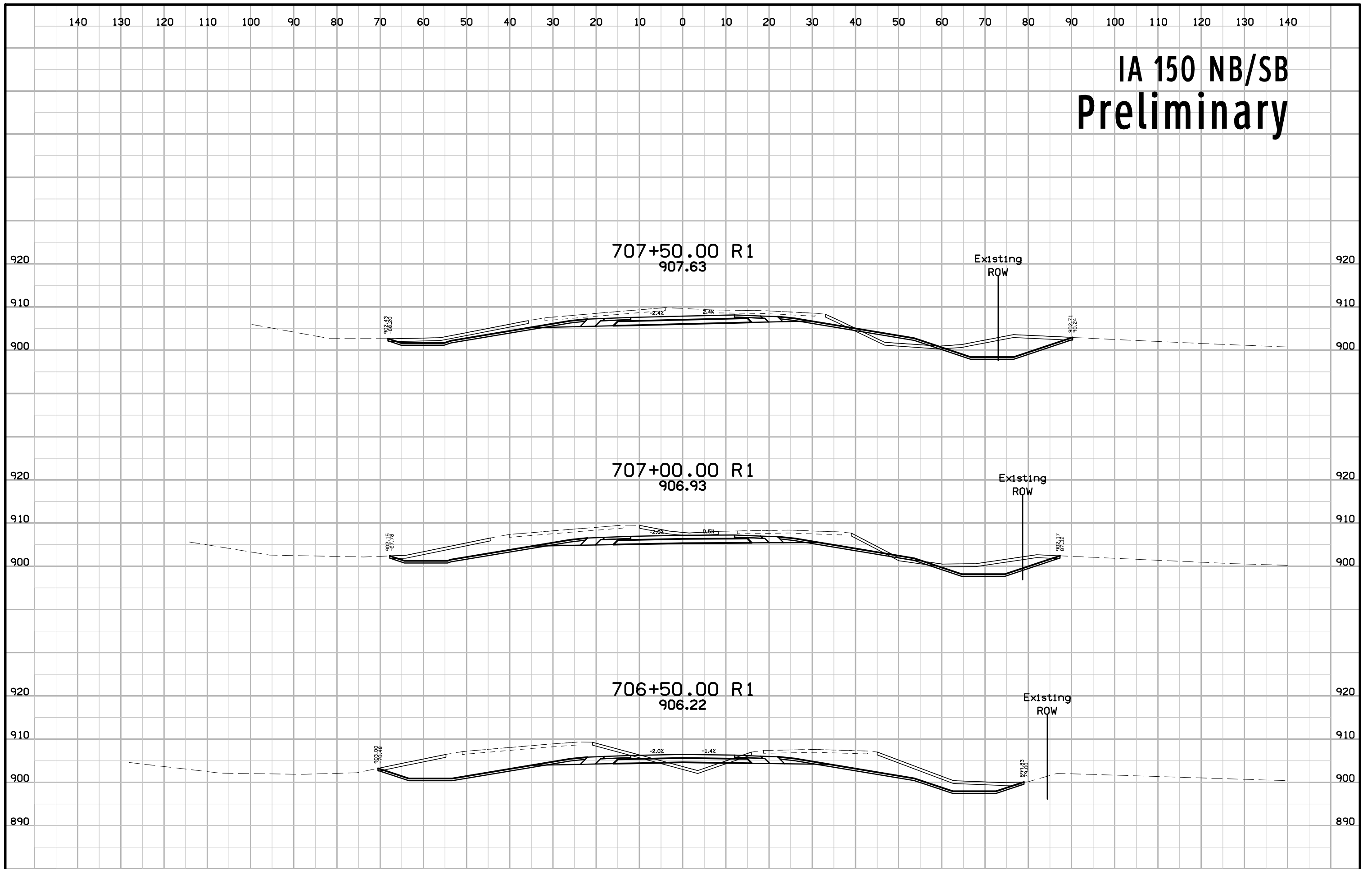
**IA 150 NB/SB**  
**Preliminary**



**IA 150 NB/SB  
Preliminary**

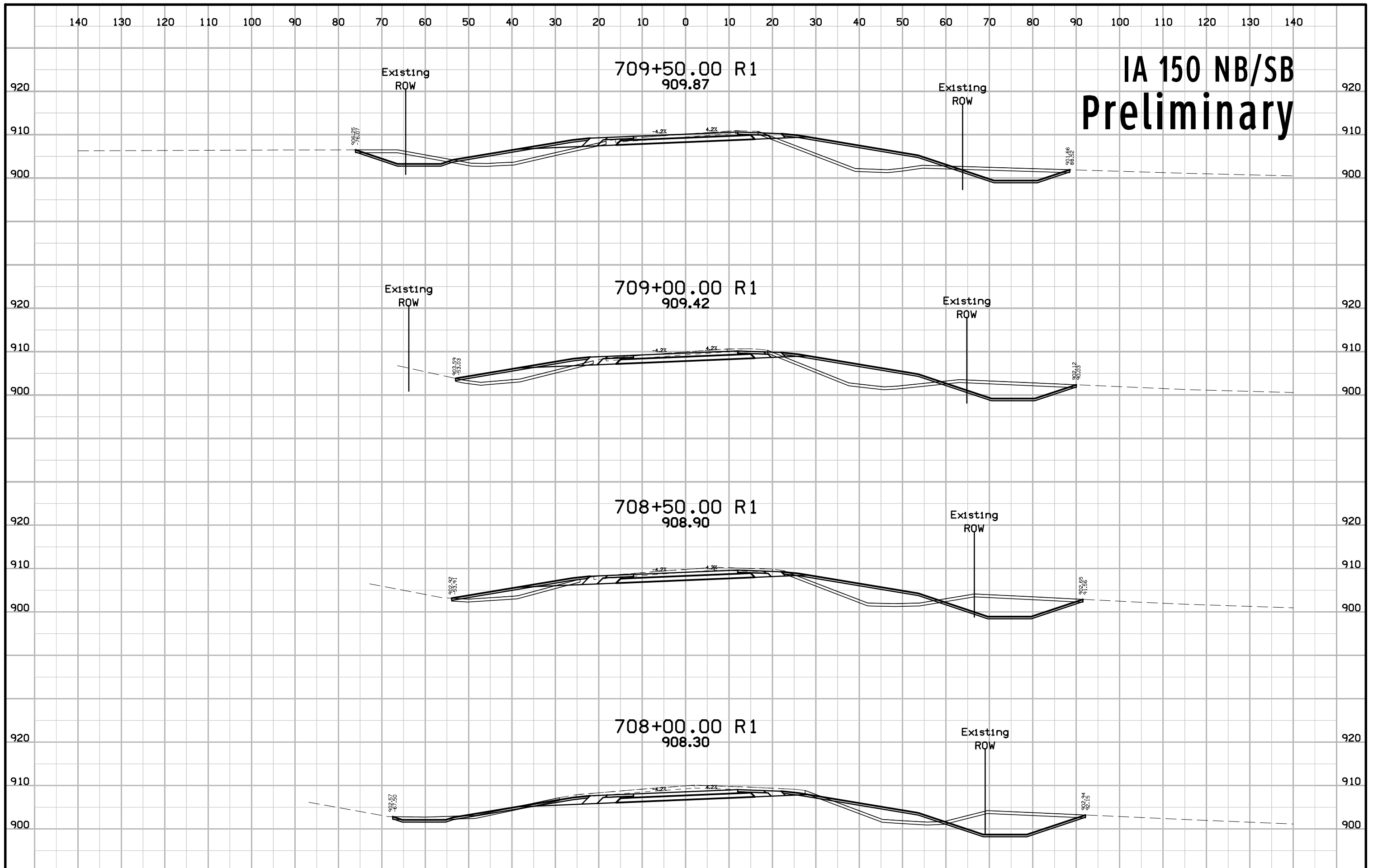


# IA 150 NB/SB Preliminary

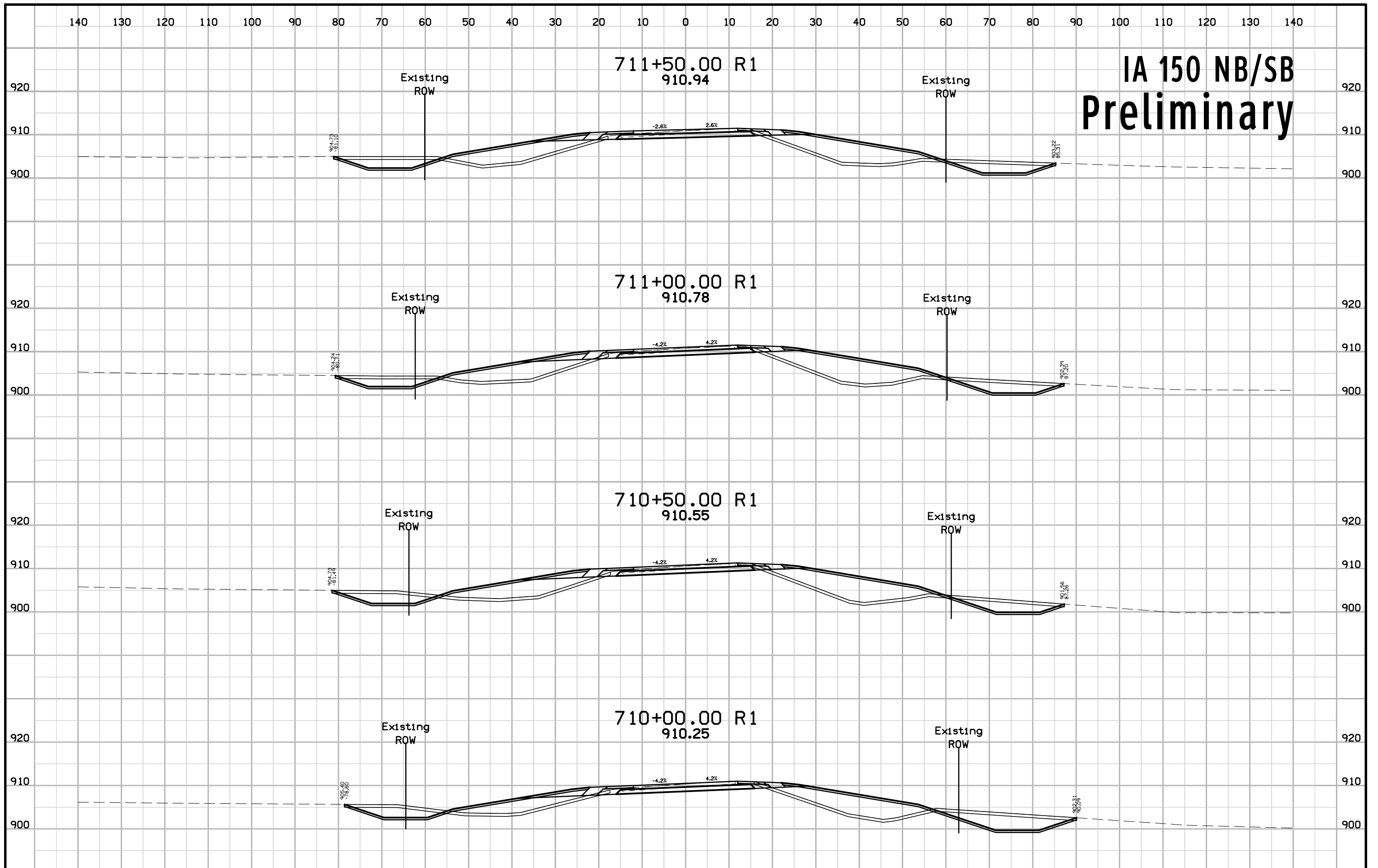




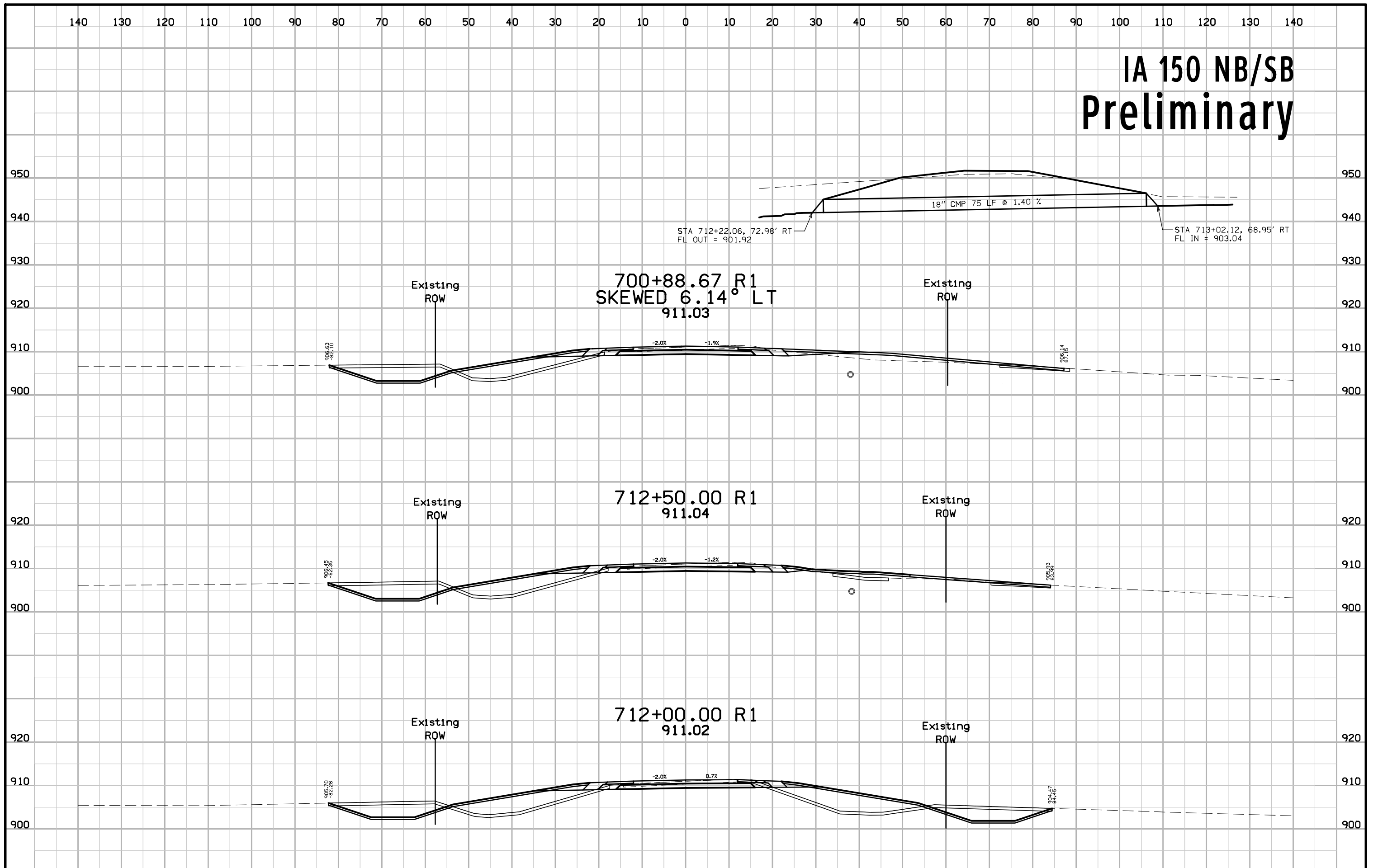
# IA 150 NB/SB Preliminary



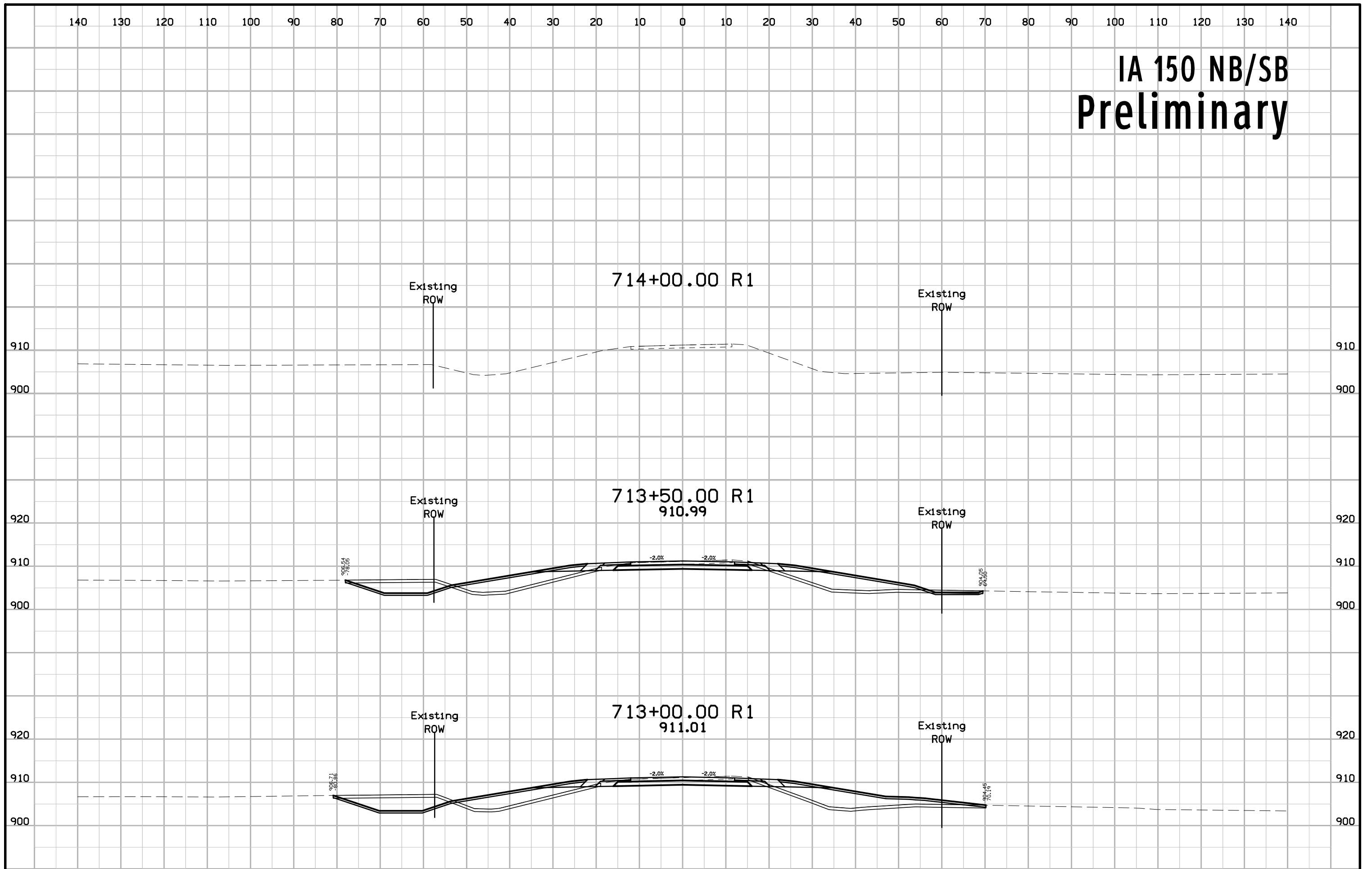
# IA 150 NB/SB Preliminary



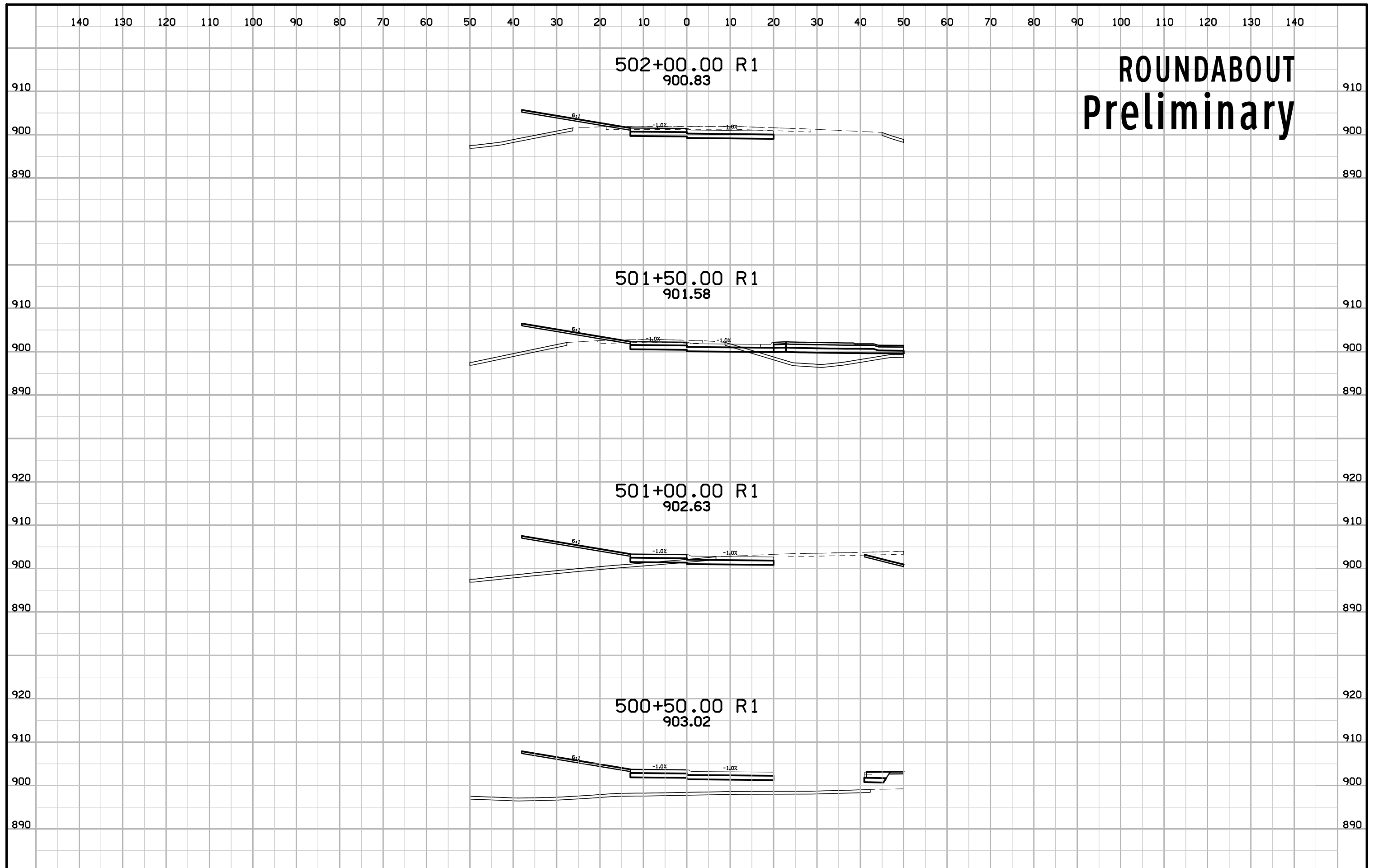
# IA 150 NB/SB Preliminary



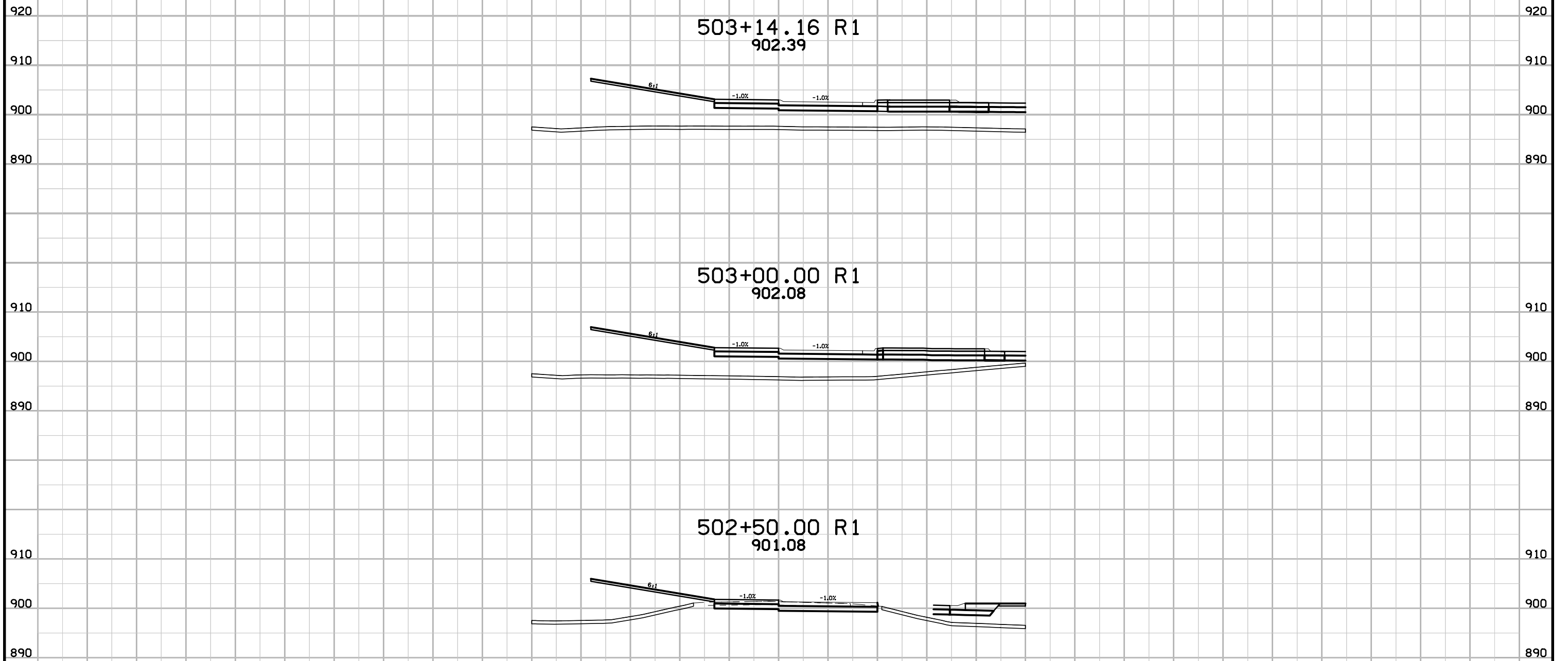
# IA 150 NB/SB Preliminary



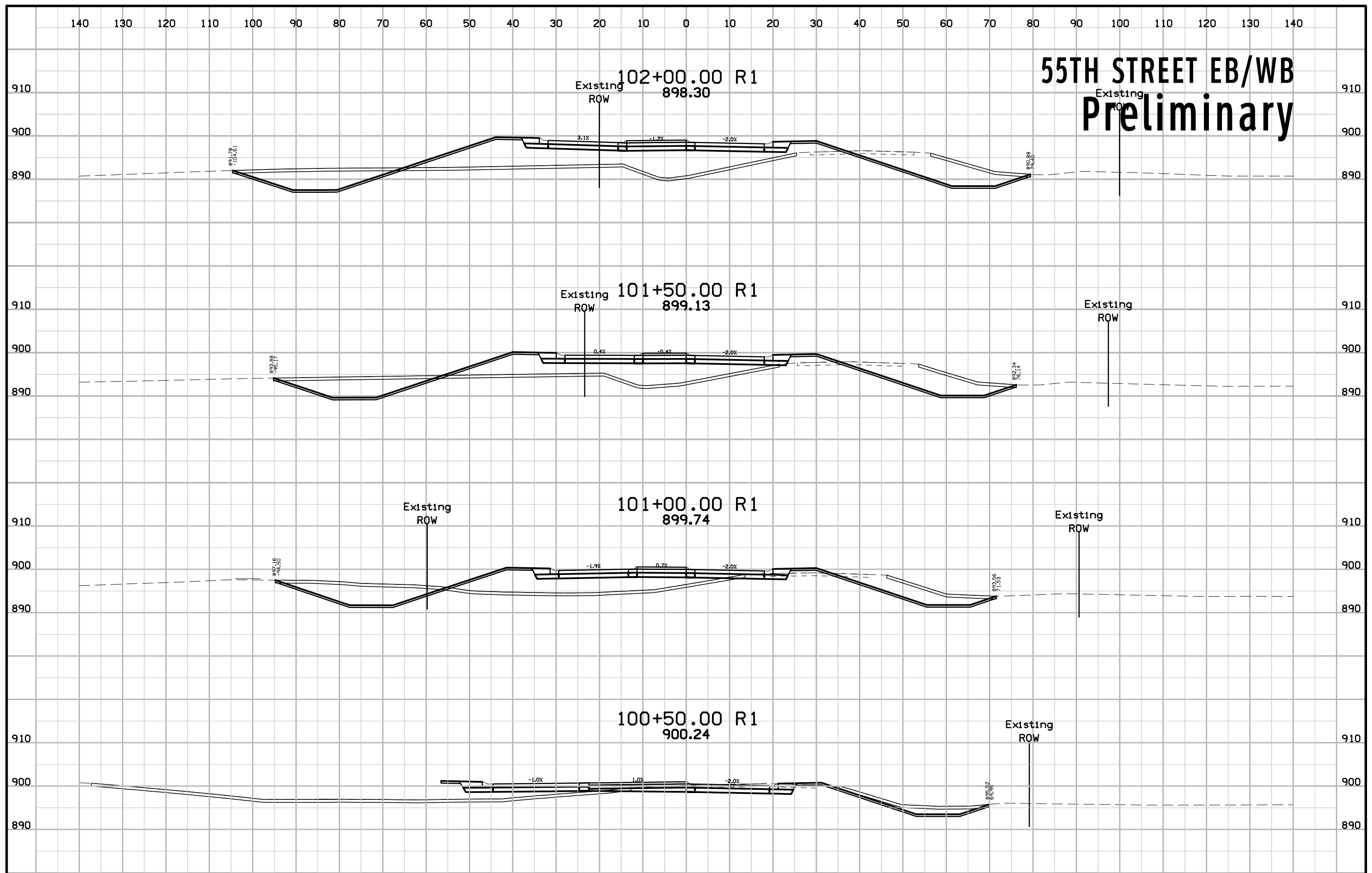
# ROUNDABOUT Preliminary



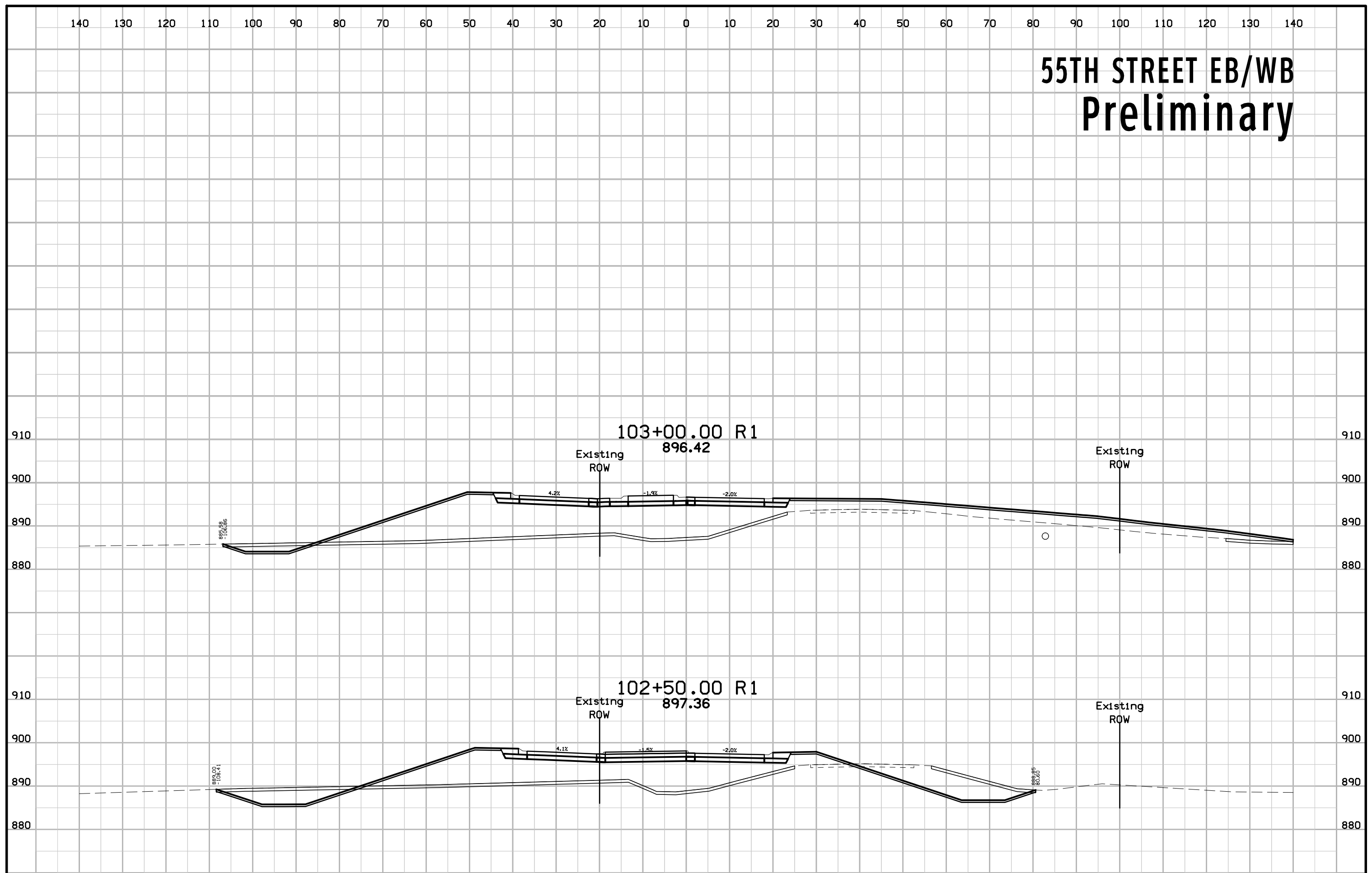
# ROUNDABOUT Preliminary



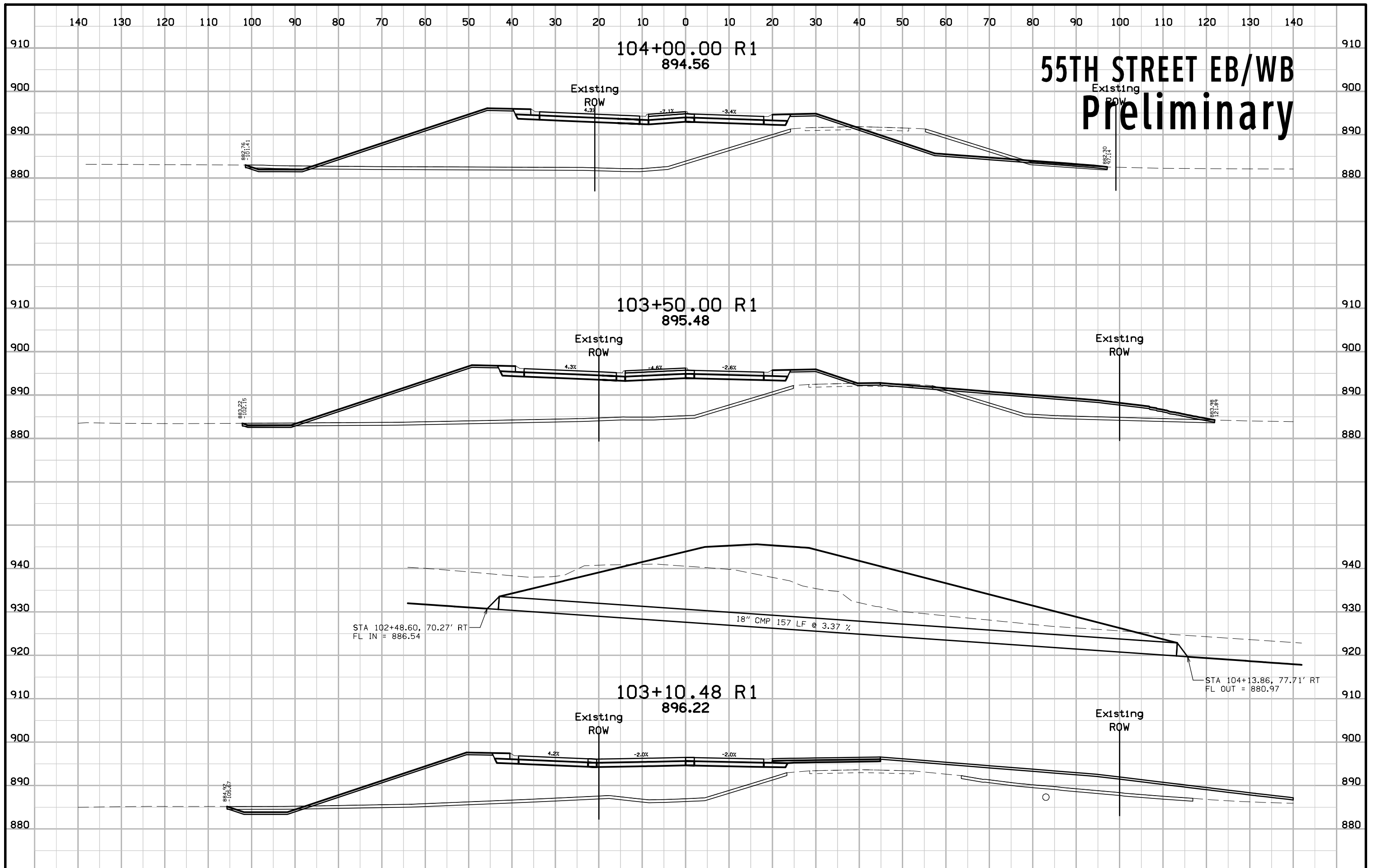
# 55TH STREET EB/WB Preliminary



# 55TH STREET EB/WB Preliminary







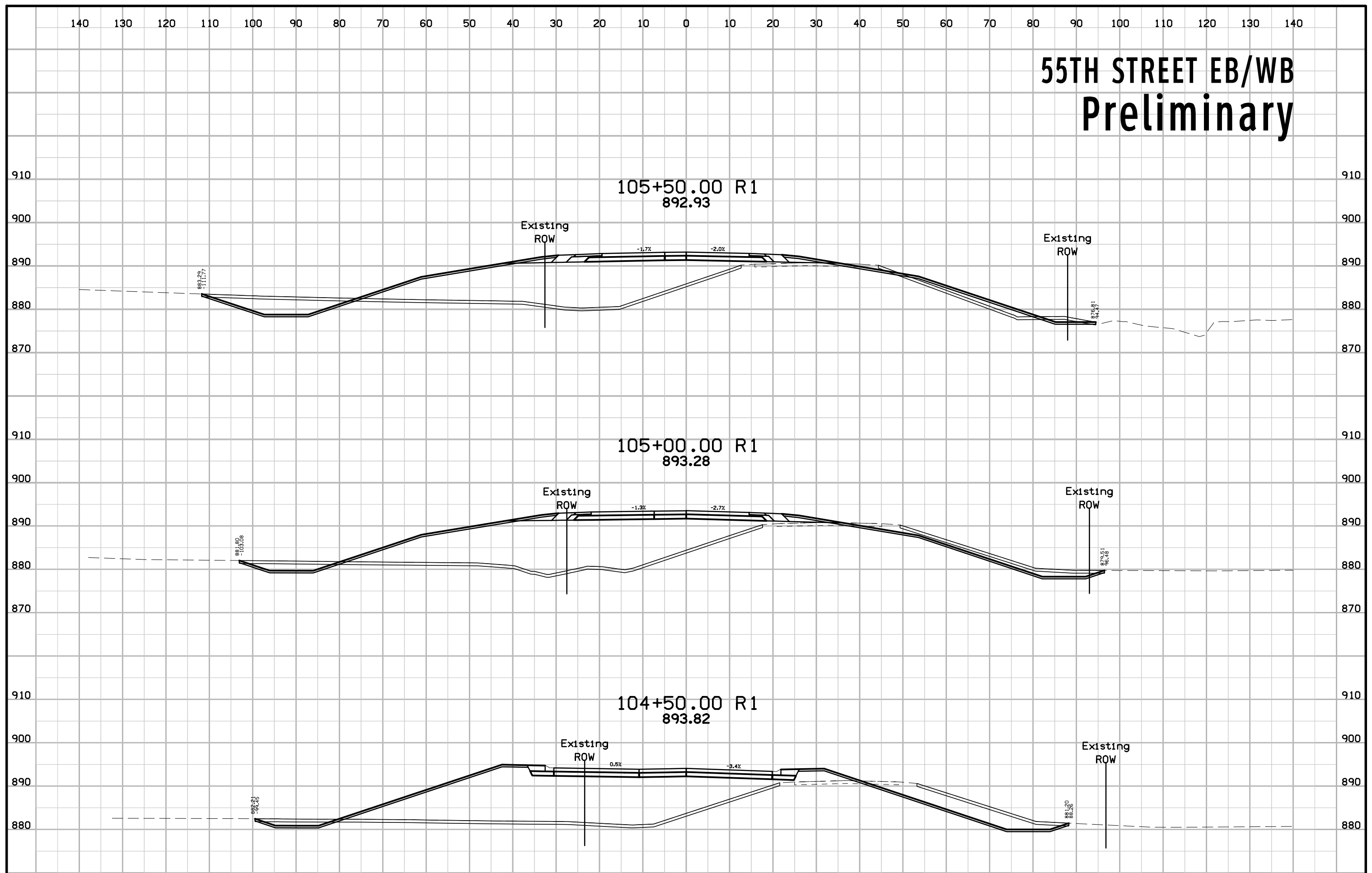
# 55TH STREET EB/WB Preliminary

104+00.00 R1  
894.56

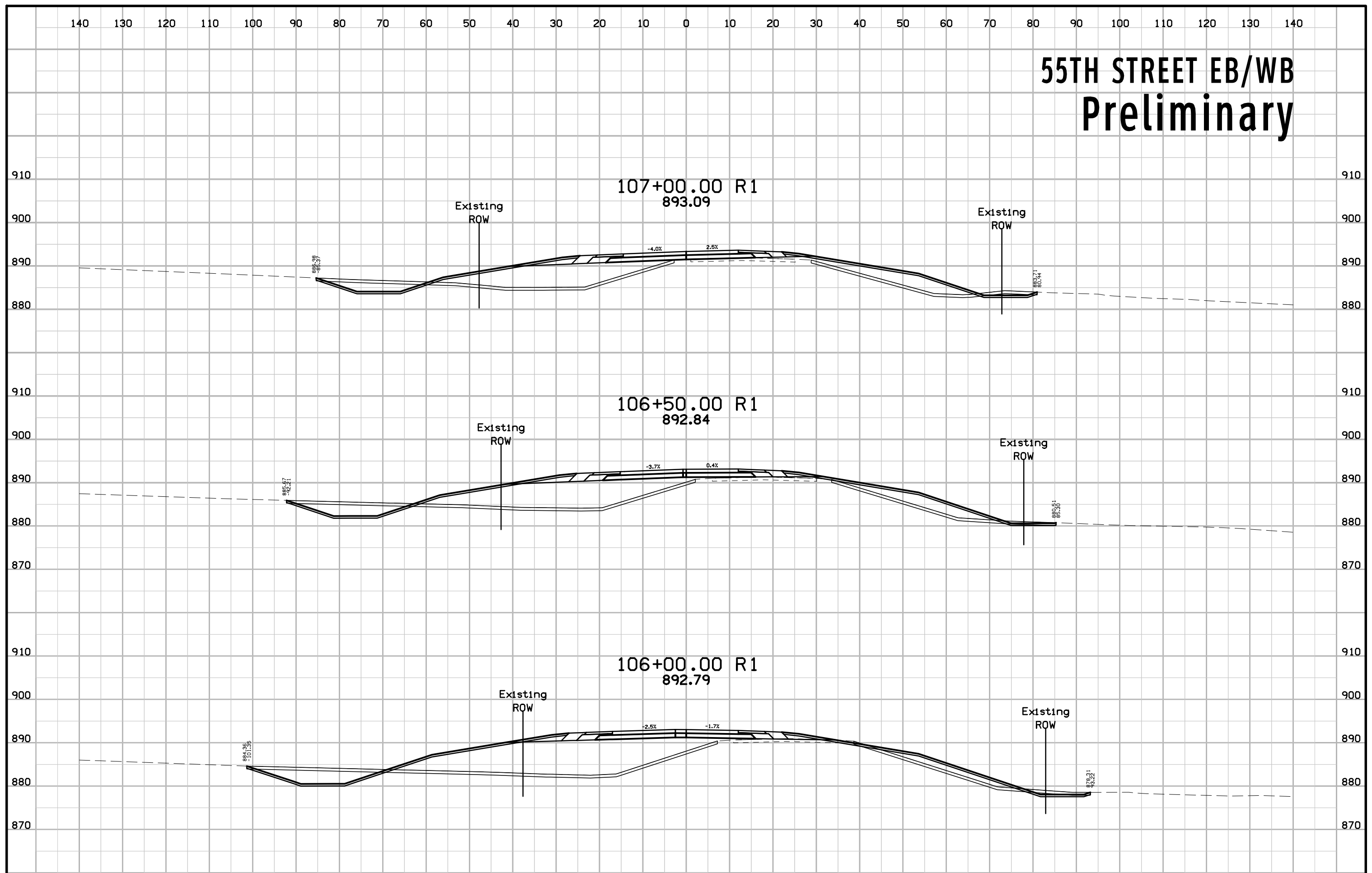
103+50.00 R1  
895.48

103+10.48 R1  
896.22

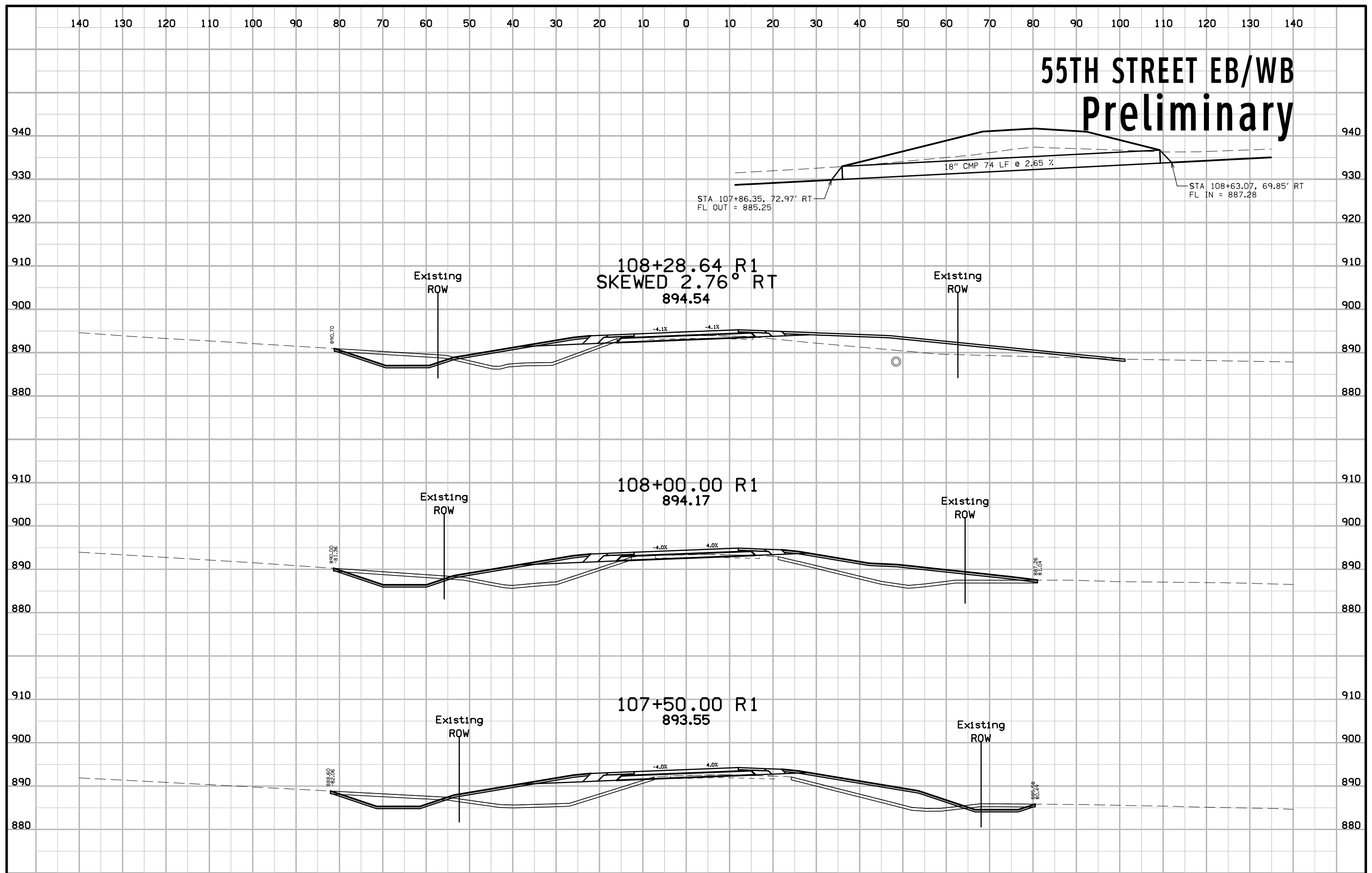
# 55TH STREET EB/WB Preliminary



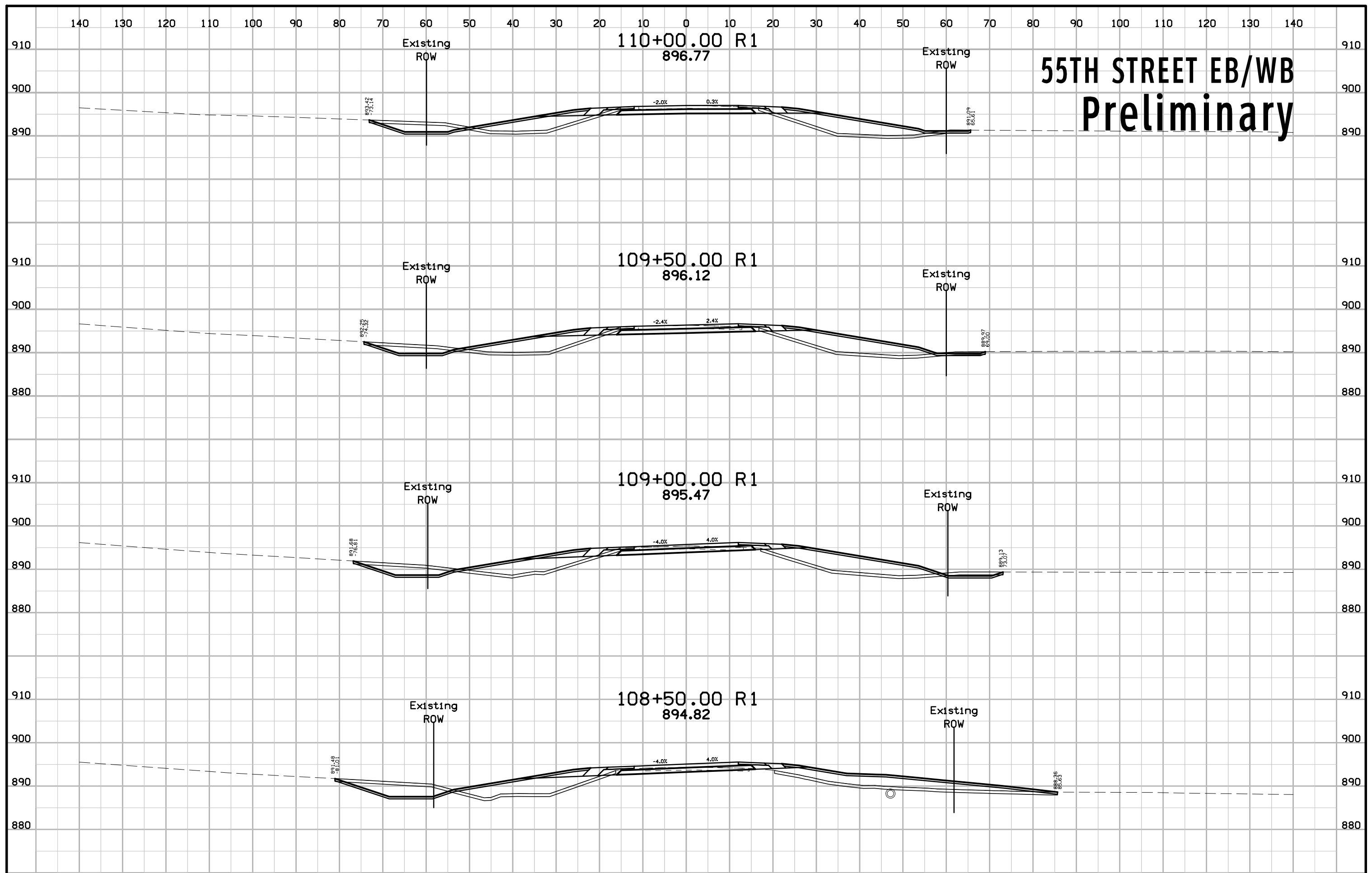
# 55TH STREET EB/WB Preliminary



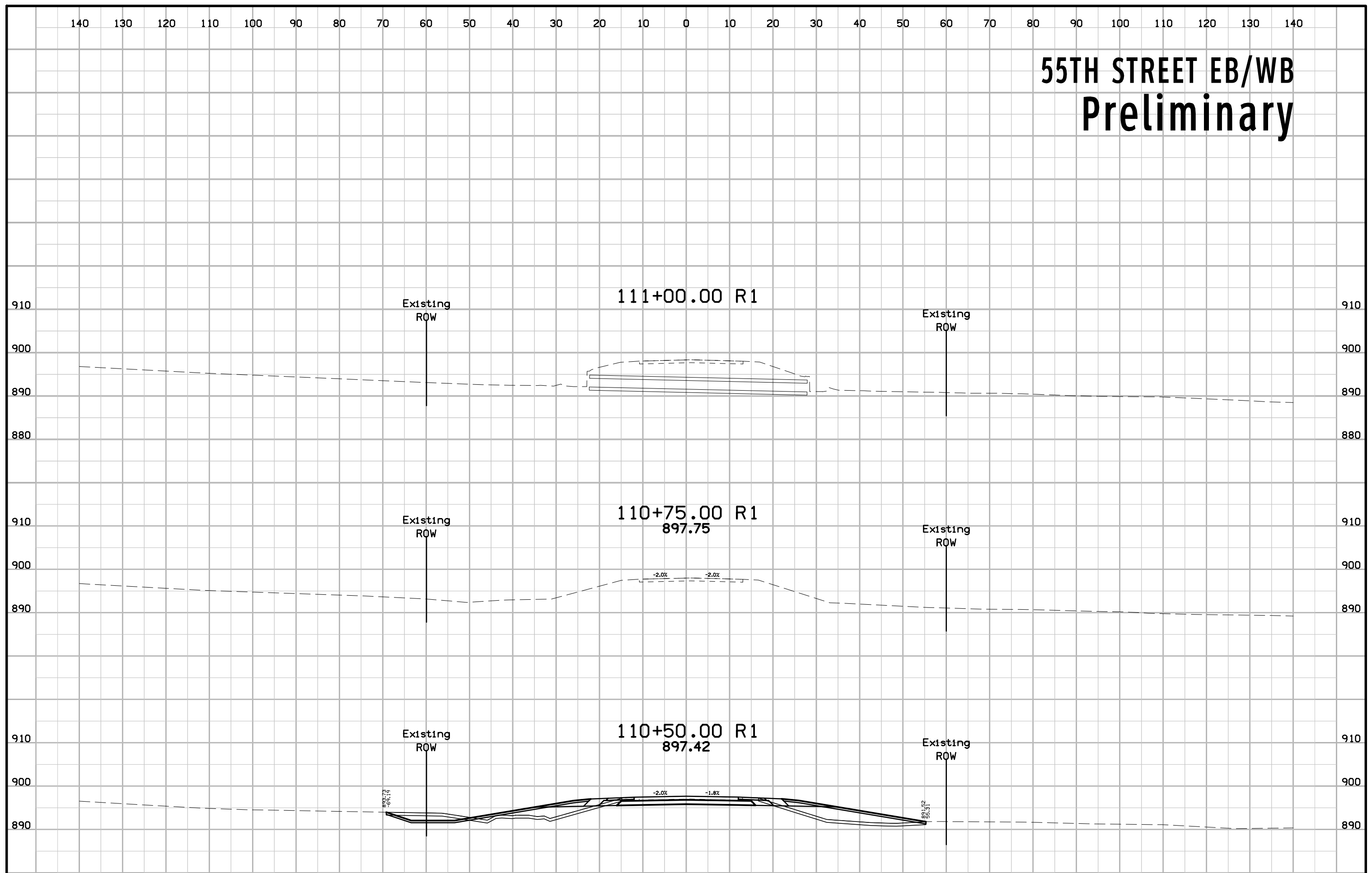
# 55TH STREET EB/WB Preliminary



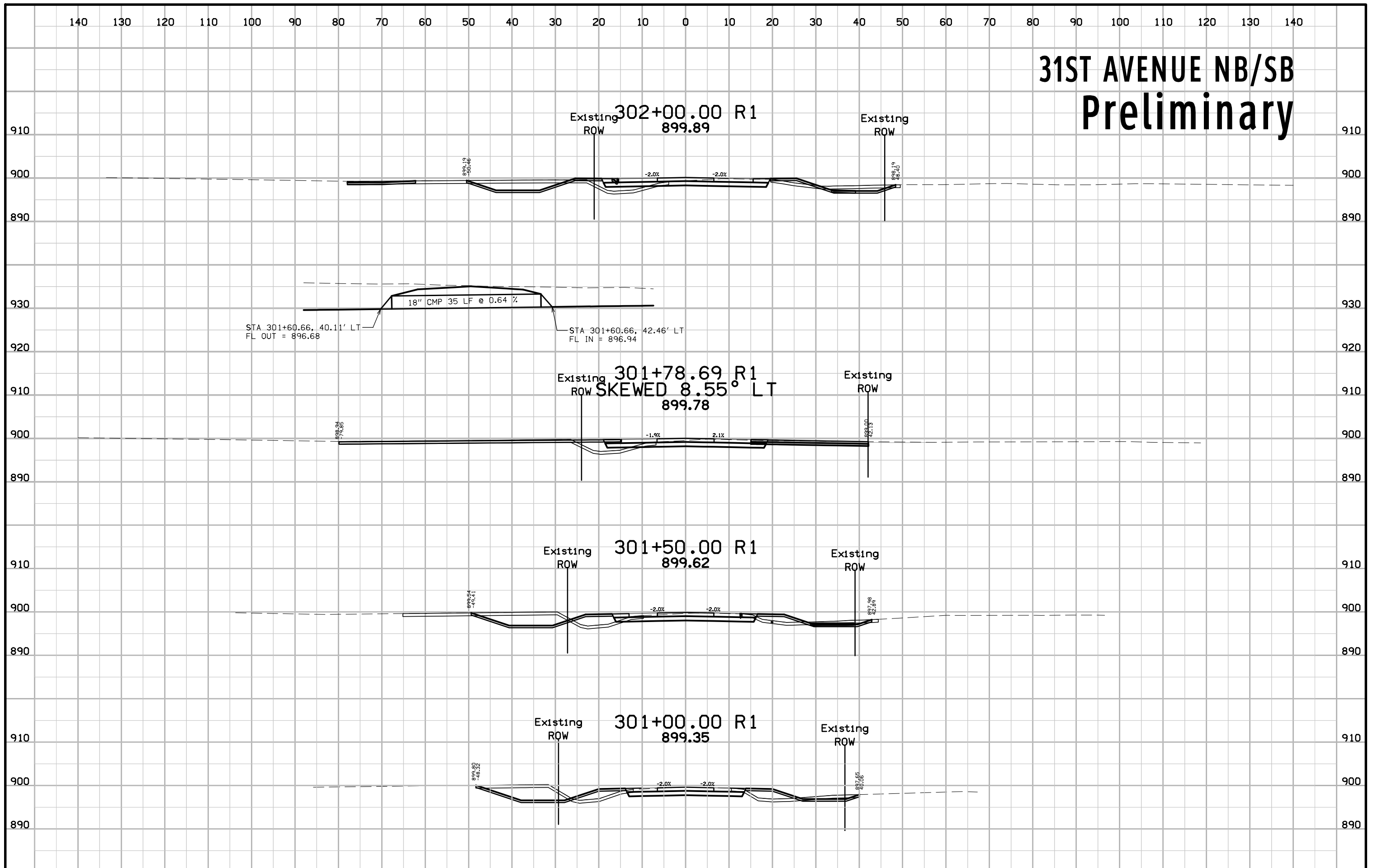
# 55TH STREET EB/WB Preliminary

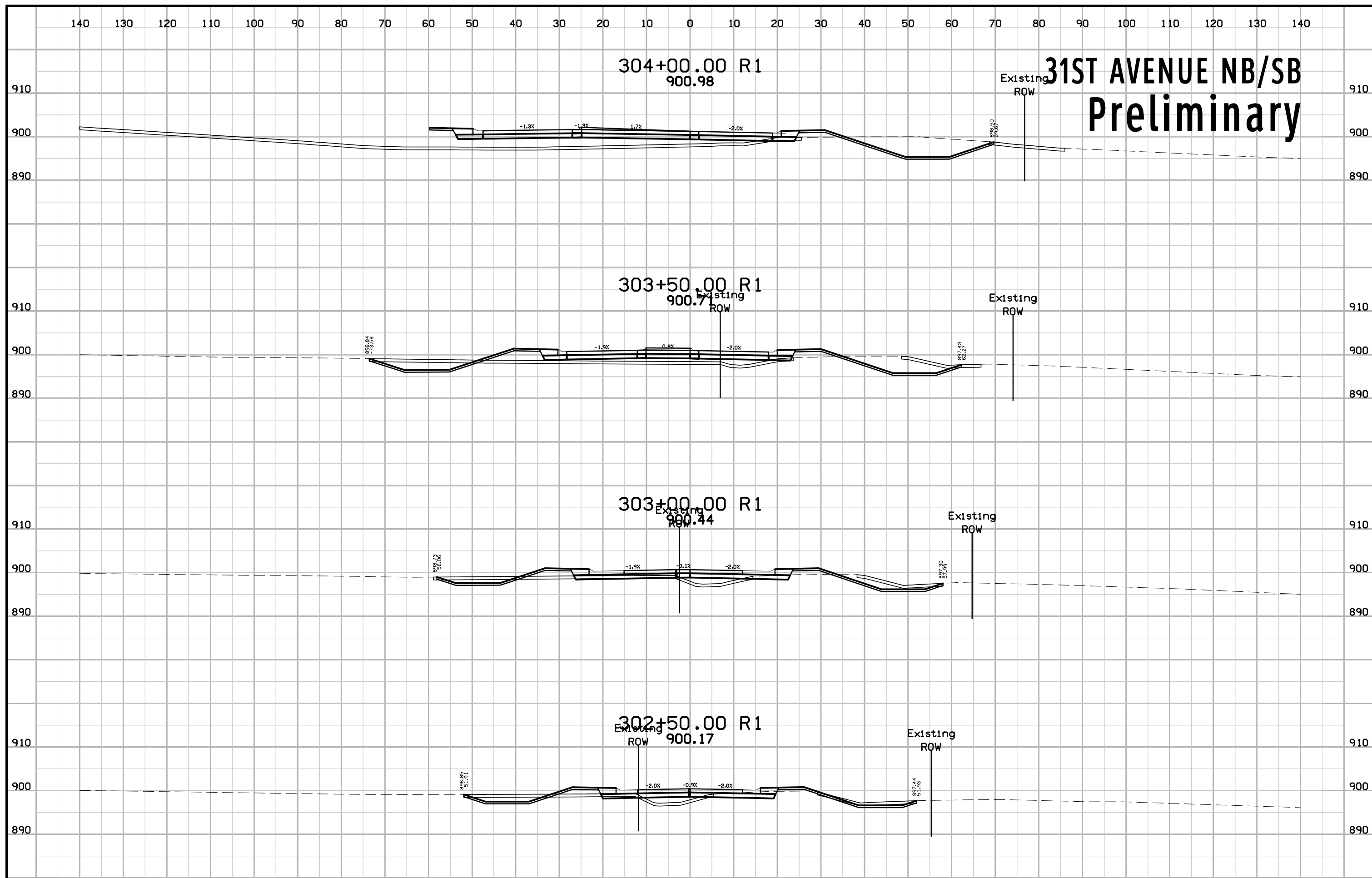


# 55TH STREET EB/WB Preliminary

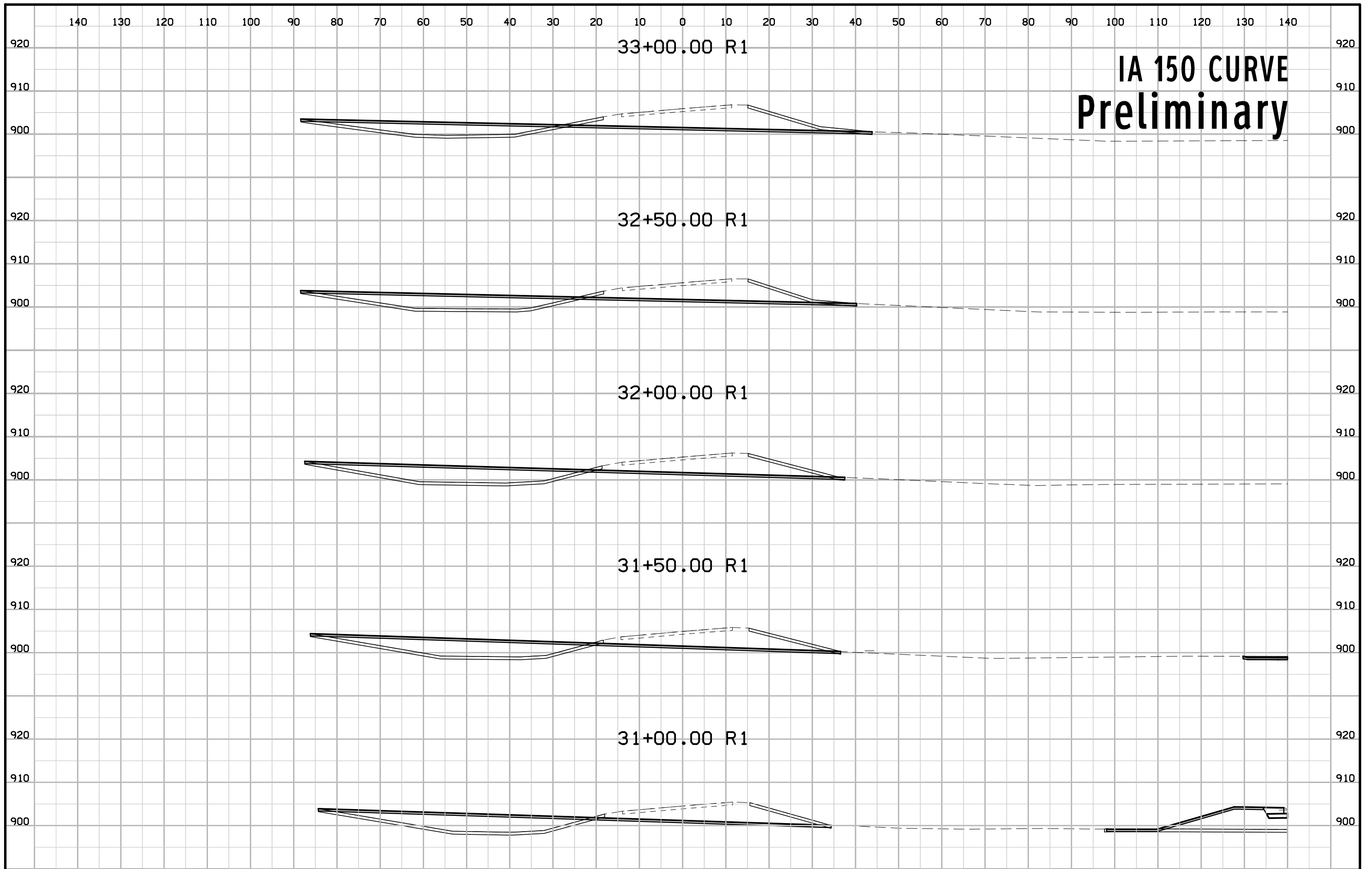


# 31ST AVENUE NB/SB Preliminary









# IA 150 CURVE Preliminary

