LETTING DATE Mar 18 2025

PCC PAVING - NEW

HSIPX-415-1(086)--3L-77

POLK COUNTY

INDEX OF SHEETS

IOWA DOT

REVISIONS

TOTAL
99

PROJECT IDENTIFICATION NUMBER
24-77-415-020
PROJECT NUMBER
HSIPX-415-1(086)--3L-77
R.O.W. PROJECT NUMBER
_
_
_

PLANS OF PROPOSED IMPROVEMENT ON THE

PRIMARY ROAD SYSTEM
POLK COUNTY
PCC PAVING - NEW

IA 415 AND NW BEAVER DRIVE INTERSECTION

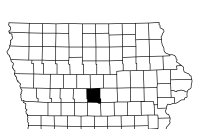
SCALES: As Noted

Refer to the Proposal Form for list of applicable specifications.

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

For Project Location Map refer to Sheet A.2.

IOWA ONE CALL
1-800-292-8989
www.iowaonecall.com
811 Know what's below. Call before you dig.



IA 415
DESIGN DATA RURAL

2025	AADT	11,900	V.P.D.
2045	AADT	16,400	V.P.D.
20 --	DHV	--	V.P.H.
TRUCKS		3	%
Total Design ESALs		--	

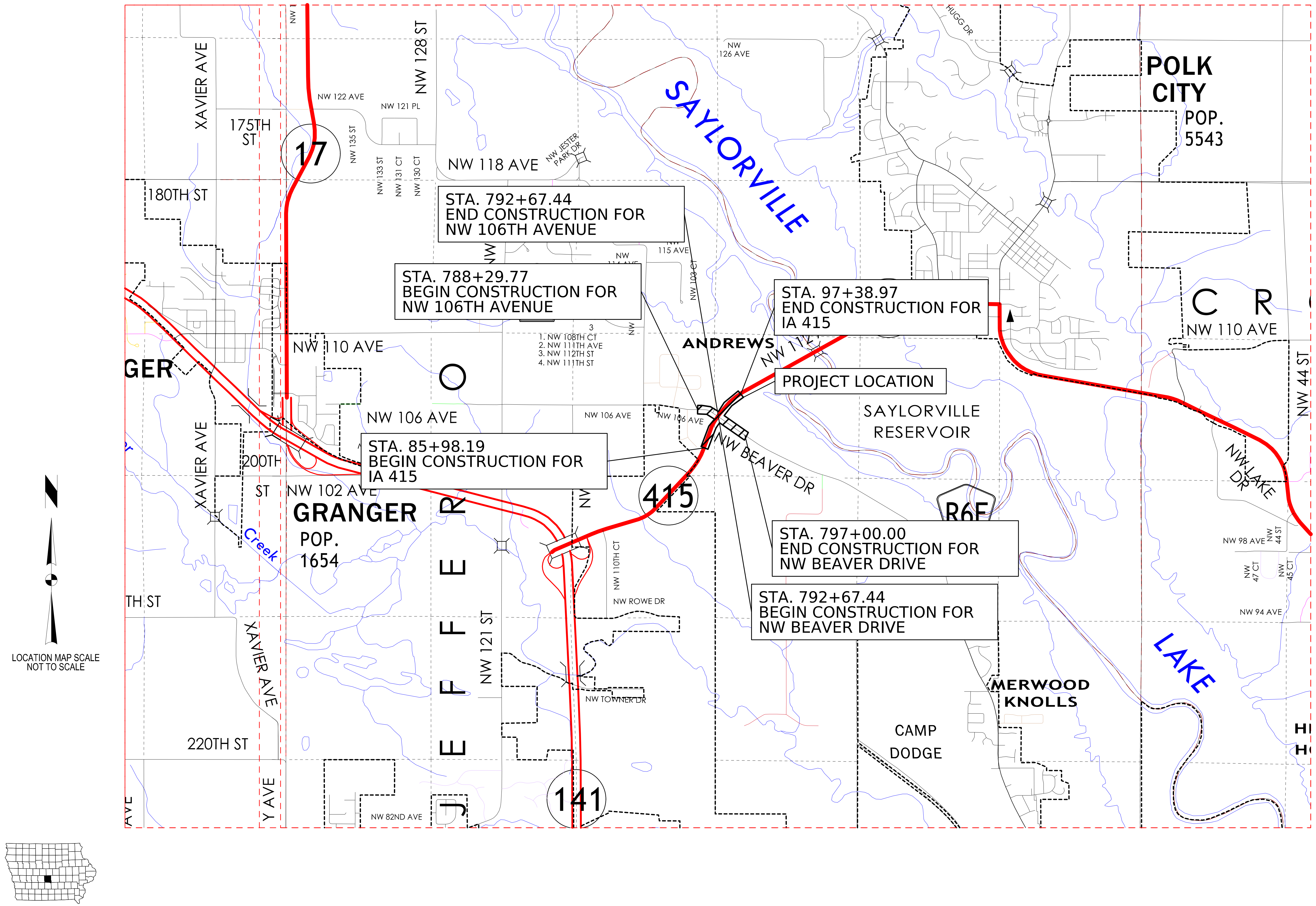
INDEX OF SEALS

SHEET NO.	NAME	TYPE	BID QUANTITY SHEETS
A.1	X	Primary Signature Block	X
X	X	X	X

PLANS TO RIGHT OF WAY

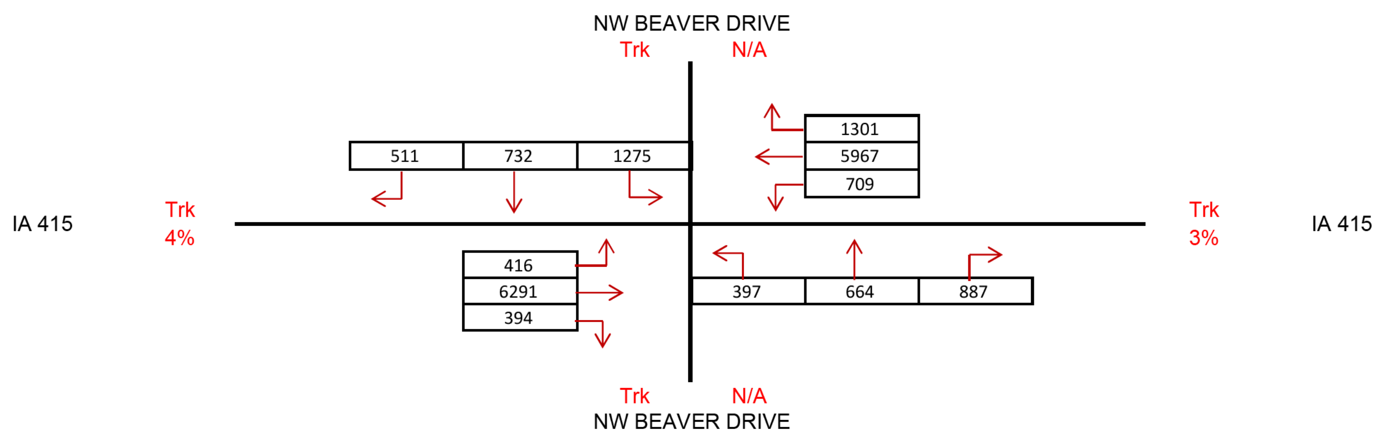
Subject to change by final design.

D5 PLAN - Date: 6/7/2024



FILE NO.	ENGLISH	DESIGN TEAM Snyder & Associates, Inc.	POLK COUNTY	PROJECT NUMBER HSIPX-415-1(086)--3L-77	SHEET NUMBER A.2

1:48:50 PM 6/6/2024 egutierrez pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\7741502024\Design\CADD_Files\Sheet_Files\SHT_77415086Z08_A1-A6.dgn



North

IA 415

Polk

ADT

2045

Please Note:

TRK Truck Percentages represent both Directions

ADT Average Daily Traffic

Roadway	Highway IA 415			
PIN Number	22-77-415-020		**Submittal Date**	06/07/25
Project Number	HSIPX-415-1(086)--3L-77			**Approval Date**
District	District 1	**Assistant District Engineer**	Jeremey Vortherms	
County	POLK		**or**	
Route	415	**Office Director**		
Location	Intersection of IA 415 and NW 106th Avenue/NW Beaver Drive			
Work Type	Intersection Improvements			
Segment Manager				
Designer	Snyder & Associates, Inc.			

Design Manual Section 1C-1
Last Updated: 04-29-19

Rural Two-Lane Highways (Rural Arterials)

Design Element		Preferred	Acceptable	Project Values
Design speed (mph)		60	50	50
Maximum superelevation rate (Refer to Section 2A-2)		6%	8%	6%
Design lane width (ft)		12	12	12
Full depth paved width (ft)		12	12	12
Right turn lane (ft)		12	10	N/A
Climbing Lane (ft)		12	12	N/A
Left turn lane (ft)		12	10	N/A
Pavement cross-slope (on tangent sections)	Through lanes	2%	1.5% minimum, 2% maximum	2%
	Auxiliary and turn lanes	3%	3% maximum	N/A
	Crown break at centerline	4%	4% maximum	N/A
Shoulder cross-slope (on tangent sections)		4%	Shoulder cross-slope cannot be less than the adjacent lane, 6% 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	6-inch sloped	6-inch standard	6-inch standard
	Design speed ≥ 60 mph	4-inch sloped	6-inch sloped	N/A
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	10:1 for 4' then 6:1
	Beyond standard ditch depth and design clear zone	3.5:1	3:1	3:1
	Curbed roadways	2%	not steeper than 3:1	N/A
Backslope (For cut areas greater than 25 feet, contact the Soils Design Section for assistance with backslope benches.)		3:1	2.5:1	3:1
Transverse Slopes	w/ drainage structures	8:1	6:1	N/A
	w/o drainage structures	10:1	6:1	N/A
Ditches (Refer to Section 3G-1)	Outside ditch (depth x width) (ft)	5 x 10	--	UAC
Bridge width—new*	Bridge length ≤ 200 ft	design lane widths + effective shoulder widths	design lane widths + effective shoulder widths	N/A
	Bridge length > 200 ft	design lane widths + effective shoulder widths	design lane width + 4' right and left of the design lane widths	N/A
Bridge width—existing*		design lane widths + no less than 2 ft left and right	design lane widths + 2 ft. offset left and right	N/A
Vertical clearance (ft) (above lanes, shoulders and 25 feet left and right of the center of railroad tracks)	Over primary	16.5	16	N/A
	Over non-primary	16.5 at interchange locations, 15 at all other locations	14	N/A
	Over railroad	23.3	23.3	N/A
	Sign trusses and pedestrian bridges	17.5	17	N/A
Structural Capacity		Contact Office of Bridges and Structures	Contact Office of Bridges and Structures	N/A
Level of Service		B	B	N/A

*FHWA notification via email is required if acceptable criteria is not met on the NHS system (No formal design exception is required)

Design year ADT = 16,400

Design Manual Section 1C-1
Last Updated: 04-29-19

Effective Shoulder Width and Type for Two-Lane Highways

Preferred (values shown in feet)	Rural Roadways	Urban Roadways	Acceptable (values shown in feet)	Rural Roadways	Urban Roadways	Project Values
Turn lanes with shoulders	6	6	Turn lanes with shoulders	6	0	N/A
Turn lanes with curbs	6	See Section 3C-2	Turn lanes with curbs	6	0	N/A
	Effective Shoulder Width	Paved Width		Effective Shoulder Width	Paved Width	
Climbing Lanes	6	4	Climbing Lanes	4	0	N/A
Two-Lane Highways	Effective Shoulder Width	Paved Width	Two-Lane Highways	Effective Shoulder Width	Paved Width	
Routes where bicycles are to be accommodated	10	10	Design year ADT > 2000 vpd	8	0*	5' Paved with 5' Granular (South of Roundabout)
On roadways approaching urban areas (due to increased bike traffic)	10	10				
On all curves with a superelevation rate of 7.0% or greater	10	10				
On roadways with design year ADT > 5000	10	6	Design year ADT between 400 - 2000 vpd	6	0*	
On all other NHS	10	6				10' Paved (North of Roundabout)
On non-NHS routes with design year ADT > 3000	10	6	Design year ADT < 400 vpd	4	0*	
On non-NHS routes with design year ADT < 3000	8	0*				

*Requires safety edge-Refer to Section 3C-6

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

Notes:

The section of IA 415 north of the roundabout will utilize a 10' paved shoulder with low tenison cable guardrail. The section of IA 415 south of the roundabout will utilize a 5' paved shoulder and 5' granular shoulder.

Roadway Design Speed (mph) = 50

Design Manual Section 1C-1
Last Updated: 04-29-19

Design Criteria for High Speed Roadways

Design Element			Preferred Criteria: Design Speed, mph 50	55	60	65	70	75	Acceptable Criteria: Design Speed, mph 50	55	60	65	70	75	Project Values
Stopping sight distance (ft) (Refer to Section 6D-1)			425	495	570	645	730	820	425	495	570	645	730	820	425
Minimum horizontal curve radius (ft) (Refer to Sections 2A-2 and 2A-3)	Method 5 superelevation and side friction distribution	e_{max} = 6%	833	1060	1330	1660	2040	2500	833	1060	1330	1660	2040	2500	833
		e_{max} = 8%	--	--	--	--	--	--	758	960	1200	1480	1810	2210	N/A
Minimum vertical curve length (ft) (Refer to Section 2B-1)			150	165	180	195	210	225	150	165	180	195	210	225	150
Minimum rate of vertical curvature (K) (Refer to Section 2B-1)	crest vertical curves		84	114	151	193	247	312	84	114	151	193	247	312	84
	sag vertical curves	roadways without fixed-source lighting	96	115	136	157	181	206	96	115	136	157	181	206	96
		roadways with fixed-source lighting	96	115	136	157	181	206	54	66	78	91	106	121	54
Minimum gradient (%)	(Refer to Section 2B-1)		0.5						0.3% with a curb, 0.0% without a curb						0.60
Maximum gradient (%)	(Refer to Section 2B-1)	Urban roadways	4		3				7	6	6	–	–	–	2%
		Rural roadways							5	5	4	4	4	4	
		Interstates							5	5	4	4	4	4	
Clear zone			See "Preferred Clear Zone" table in Section 8A-2						See "Acceptable Clear Zone" table in Section 8A-2						20

Roadway	NW 106th Avenue		
PIN Number	22-77-415-020	Submittal Date	06/07/25
Project Number	HSIPX-415-1(086)--3L-77		Approval Date
District	District 1	Assistant District Engineer: Jeremey Vortherms	
County	POLK	or	
Route	415	Office Director:	
Location	Intersection of IA 415 and NW 106th Avenue/NW Beaver Drive		
Work Type	Intersection Improvements		
Segment Manager			
Designer	Snyder & Associates, Inc.		

Design Manual Section 1C-1
Last Updated: 04-29-19

Rural Two-Lane Highways (Rural Arterials)

Design Element		Preferred	Acceptable	Project Values
Design speed (mph)		60	50	45
Maximum superelevation rate (Refer to Section 2A-2)		6%	8%	8%
Design lane width (ft)		12	12	12
Full depth paved width (ft)		12	12	12
Right turn lane (ft)		12	10	N/A
Climbing Lane (ft)		12	12	N/A
Left turn lane (ft)		12	10	N/A
Pavement cross-slope (on tangent sections)	Through lanes	2%	1.5% minimum, 2% maximum	2%
	Auxiliary and turn lanes	3%	3% maximum	N/A
	Crown break at centerline	4%	4% maximum	N/A
Shoulder cross-slope (on tangent sections)		4%	Shoulder cross-slope cannot be less than the adjacent lane, 6% max for paved or granular shoulders, 8% max for earth shoulders	N/A
Curb type (Refer to Section 3C-2)	Design speed = 50 or 55 mph	6-inch sloped	6-inch standard	6-inch standard
	Design speed ≥ 60 mph	4-inch sloped	6-inch sloped	N/A
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	N/A
	Beyond standard ditch depth and design clear zone	3.5:1	3:1	N/A
	Curbed roadways	2%	not steeper than 3:1	4%
Backslope (For cut areas greater than 25 feet, contact the Soils Design Section for assistance with backslope benches.)		3:1	2.5:1	3:1
Transverse Slopes	w/ drainage structures	8:1	6:1	N/A
	w/o drainage structures	10:1	6:1	N/A
Ditches (Refer to Section 3G-1)	Outside ditch (depth x width) (ft)	5 x 10	--	N/A
Bridge width—new*	Bridge length ≤ 200 ft	design lane widths + effective shoulder widths	design lane widths + effective shoulder widths	N/A
	Bridge length > 200 ft	design lane widths + effective shoulder widths	design lane width + 4' right and left of the design lane widths	N/A
Bridge width—existing*		design lane widths + no less than 2 ft left and right	design lane widths + 2 ft. offset left and right	N/A
Vertical clearance (ft) (above lanes, shoulders and 25 feet left and right of the center of railroad tracks)	Over primary	16.5	16	N/A
	Over non-primary	16.5 at interchange locations, 15 at all other locations	14	N/A
	Over railroad	23.3	23.3	N/A
	Sign trusses and pedestrian bridges	17.5	17	N/A
Structural Capacity		Contact Office of Bridges and Structures	Contact Office of Bridges and Structures	N/A
Level of Service		B	B	N/A

*FHWA notification via email is required if acceptable critera is not met on the NHS system (No formal design exeption is required)

Design year ADT =

Design Manual Section 1C-1
Last Updated: 04-29-19

Effective Shoulder Width and Type for Two-Lane Highways

Preferred (values shown in feet)			Acceptable (values shown in feet)			Project Values
	Rural Roadways	Urban Roadways		Rural Roadways	Urban Roadways	
Turn lanes with shoulders	6	6	Turn lanes with shoulders	6	0	0
Turn lanes with curbs	6	See Section 3C-2	Turn lanes with curbs	6	0	0
	Effective Shoulder Width	Paved Width		Effective Shoulder Width	Paved Width	
Climbing Lanes	6	4	Climbing Lanes	4	0	0
Two-Lane Highways	Effective Shoulder Width	Paved Width	Two-Lane Highways	Effective Shoulder Width	Paved Width	
Routes where bicycles are to be accommodated	10	10	Design year ADT > 2000 vpd	8	0*	0
On roadways approaching urban areas (due to increased bike traffic)	10	10				
On all curves with a superelevation rate of 7.0% or greater	10	10				
On roadways with design year ADT > 5000	10	6	Design year ADT between 400 - 2000 vpd	6	0*	
On all other NHS	10	6				
On non-NHS routes with design year ADT > 3000	10	6	Design year ADT < 400 vpd	4	0*	
On non-NHS routes with design year ADT < 3000	8	0*				

*Requires safety edge-Refer to Section 3C-6

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

Notes:

Roadway will have a 6.5' curb and gutter section along side the 12' drive lanes to match the existing (37') pavement section of NW 106th Avenue.

Reconstructed roadway used an urban section to limit ROW grading impacts and help with maintaining positive drainage.

Roadway	NW Beaver Drive		
PIN Number	22-77-415-020	**Submittal Date**	06/07/25
Project Number	HSIPX-415-1(086)--3L-77		**Approval Date**
District	District 1	**Assistant District Engineer**	Jeremey Vortherms
County	POLK		**or**
Route	Highway 415	**Office Director**	
Location	Intersection of IA 415 & NW Beaver Drive/NW 106th Avenue		
Work Type	Intersection Improvements		
Segment Manager			
Designer	Snyder & Associates, Inc.		

Design Manual Section 1C-1
Last Updated: 04-29-19

Rural Two-Lane Highways (Rural Arterials)

Design Element		Preferred	Acceptable	Project Values
Design speed (mph)		60	50	50
Maximum superelevation rate (Refer to Section 2A-2)		6%	8%	6%
Design lane width (ft)		12	12	12
Full depth paved width (ft)		12	12	12
Right turn lane (ft)		12	10	N/A
Climbing Lane (ft)		12	12	N/A
Left turn lane (ft)		12	10	N/A
Pavement cross-slope (on tangent sections)	Through lanes	2%	1.5% minimum, 2% maximum	2%
	Auxiliary and turn lanes	3%	3% maximum	N/A
	Crown break at centerline	4%	4% maximum	N/A
Shoulder cross-slope (on tangent sections)		4%	Shoulder cross-slope cannot be less than the adjacent lane, 6% 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	6-inch sloped	6-inch standard	6-inch standard
	Design speed ≥ 60 mph	4-inch sloped	6-inch sloped	N/A
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	N/A
	Beyond standard ditch depth and design clear zone	3.5:1	3:1	4:1
	Curbed roadways	2%	not steeper than 3:1	N/A
Backslope (For cut areas greater than 25 feet, contact the Soils Design Section for assistance with backslope benches.)		3:1	2.5:1	3:1
Transverse Slopes	w/ drainage structures	8:1	6:1	N/A
	w/o drainage structures	10:1	6:1	N/A
Ditches (Refer to Section 3G-1)	Outside ditch (depth x width) (ft)	5 x 10	--	UAC & 5'X10'
Bridge width—new*	Bridge length ≤ 200 ft	design lane widths + effective shoulder widths	design lane widths + effective shoulder widths	N/A
	Bridge length > 200 ft	design lane widths + effective shoulder widths	design lane width + 4' right and left of the design lane widths	N/A
Bridge width—existing*		design lane widths + no less than 2 ft left and right	design lane widths + 2 ft. offset left and right	N/A
Vertical clearance (ft) (above lanes, shoulders and 25 feet left and right of the center of railroad tracks)	Over primary	16.5	16	N/A
	Over non-primary	16.5 at interchange locations, 15 at all other locations	14	N/A
	Over railroad	23.3	23.3	N/A
	Sign trusses and pedestrian bridges	17.5	17	N/A
Structural Capacity		Contact Office of Bridges and Structures	Contact Office of Bridges and Structures	N/A
Level of Service		B	B	N/A

*FHWA notification via email is required if acceptable critera is not met on the NHS system (No formal design exeption is required)

Design year ADT =

Design Manual Section 1C-1
Last Updated: 04-29-19

Effective Shoulder Width and Type for Two-Lane Highways

Preferred (values shown in feet)	Rural Roadways	Urban Roadways	Acceptable (values shown in feet)	Rural Roadways	Urban Roadways	Project Values
Turn lanes with shoulders	6	6	Turn lanes with shoulders	6	0	N/A
Turn lanes with curbs	6	See Section 3C-2	Turn lanes with curbs	6	0	N/A
	Effective Shoulder Width	Paved Width		Effective Shoulder Width	Paved Width	
Climbing Lanes	6	4	Climbing Lanes	4	0	N/A
Two-Lane Highways	Effective Shoulder Width	Paved Width	Two-Lane Highways	Effective Shoulder Width	Paved Width	
Routes where bicycles are to be accommodated	10	10	Design year ADT > 2000 vpd	8	0*	6' Paved
On roadways approaching urban areas (due to increased bike traffic)	10	10				
On all curves with a superelevation rate of 7.0% or greater	10	10	Design year ADT between 400 - 2000 vpd	6	0*	
On roadways with design year ADT > 5000	10	6				
On all other NHS	10	6				
On non-NHS routes with design year ADT > 3000	10	6	Design year ADT < 400 vpd	4	0*	
On non-NHS routes with design year ADT < 3000	8	0*				

*Requires safety edge-Refer to Section 3C-6

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

Notes:

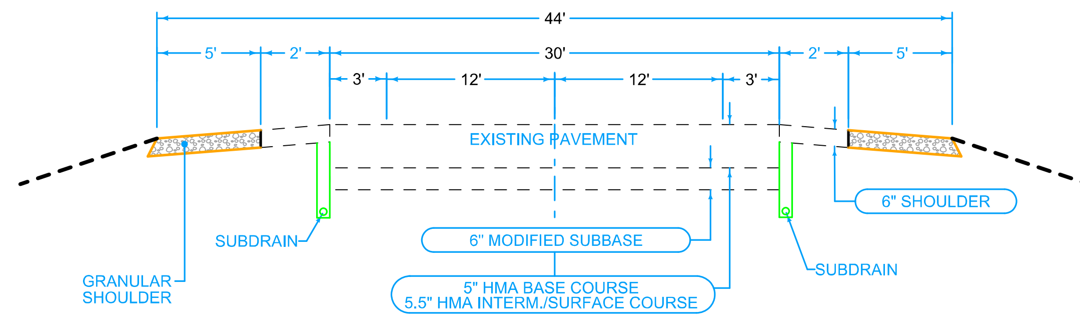
To limit grading limits and impacts to existing ROW, the section adjacent to the shoulder was removed and the foreslope grading takes place following the end of the shoulder.

Roadway Design Speed (mph) = 50

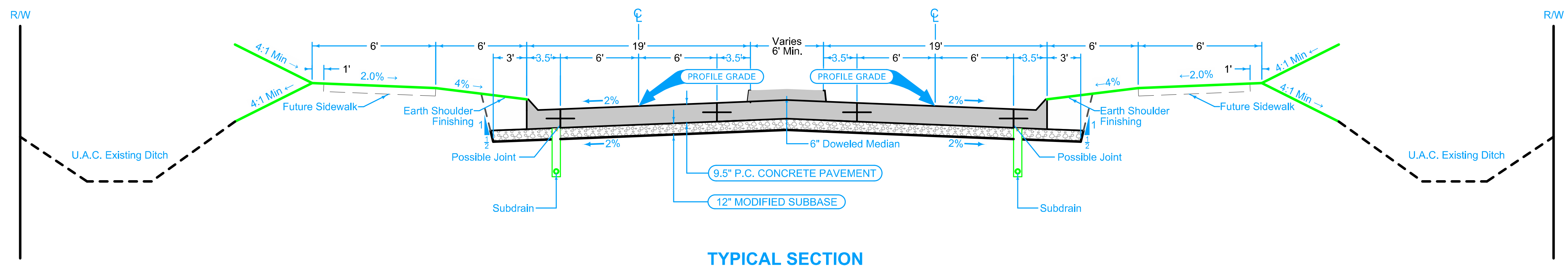
Design Manual Section 1C-1
Last Updated: 04-29-19

Design Criteria for High Speed Roadways

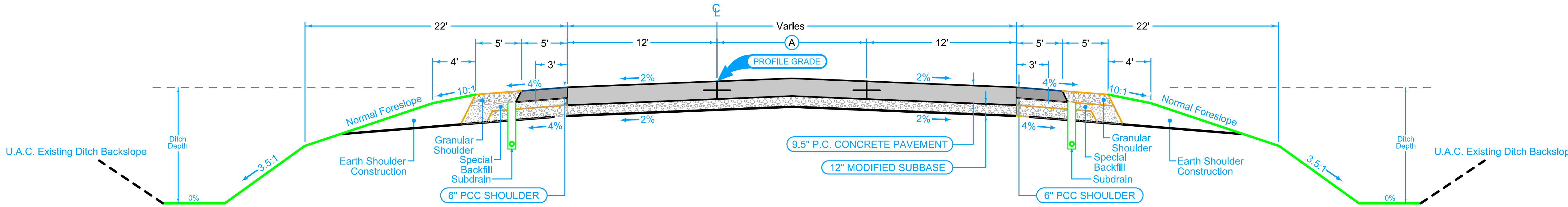
Design Element	Preferred Criteria, Design Speed, mph: 50	55	60	65	70	75	Acceptable Criteria, Design Speed, mph: 50	55	60	65	70	75	Project Values
Stopping sight distance (ft) (Refer to Section 6D-1)	425	495	570	645	730	820	425	495	570	645	730	820	425
Minimum horizontal curve radius (ft) (Refer to Sections 2A-2 and 2A-3) — Method 5 superelevation and side friction distribution — e_{max} = 6%	833	1060	1330	1660	2040	2500	833	1060	1330	1660	2040	2500	833
Method 5 superelevation and side friction distribution — e_{max} = 8%	--	--	--	--	--	--	758	960	1200	1480	1810	2210	N/A
Minimum vertical curve length (ft) (Refer to Section 2B-1)	150	165	180	195	210	225	150	165	180	195	210	225	
Minimum rate of vertical curvature (K) (Refer to Section 2B-1) — crest vertical curves	84	114	151	193	247	312	84	114	151	193	247	312	150
sag vertical curves — roadways without fixed-source lighting	96	115	136	157	181	206	96	115	136	157	181	206	96
sag vertical curves — roadways with fixed-source lighting	96	115	136	157	181	206	54	66	78	91	106	121	54
Minimum gradient (%) (Refer to Section 2B-1)	0.5						0.3% with a curb, 0.0% without a curb						.6
Maximum gradient (%) (Refer to Section 2B-1) — Urban roadways	4		3				7	6	6	–	–	–	2%
Rural roadways							5	5	4	4	4	4	2%
Interstates							5	5	4	4	4	4	N/A
Clear zone	See "Preferred Clear Zone" table in Section 8A-2						See "Acceptable Clear Zone" table in Section 8A-2						16



TYPICAL SECTION
IA 415 - EXISTING TYPICAL
FOR INFORMATION ONLY

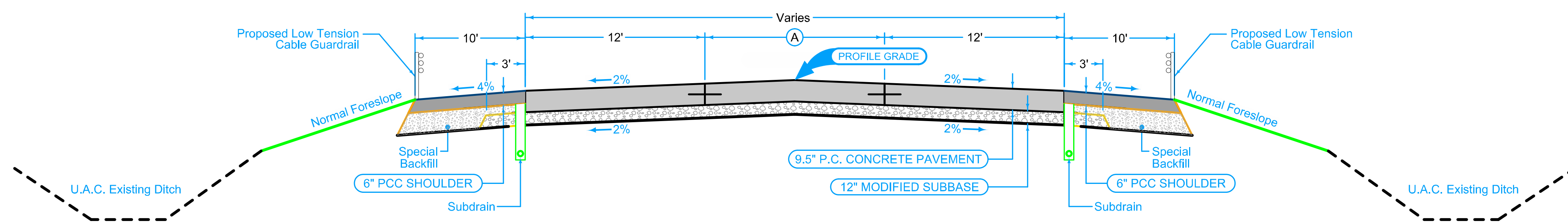


TYPICAL SECTION
IA 415 - URBAN SECTION
STA. 89+55.83 TO 91+91.64
STA. 93+35.69 TO 95+66.16



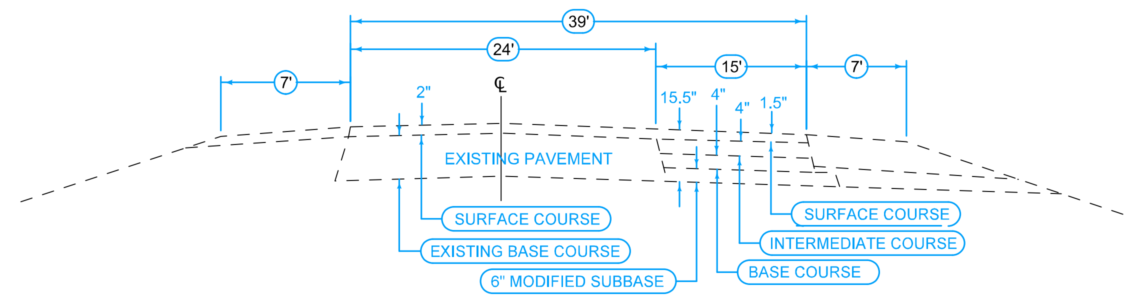
TYPICAL SECTION
IA 415 - RURAL SECTION
STA. 85+98.19 TO 89+55.83

STATION TO STATION		(A) Feet
85+98.19	89+55.83	12.4' - 13'

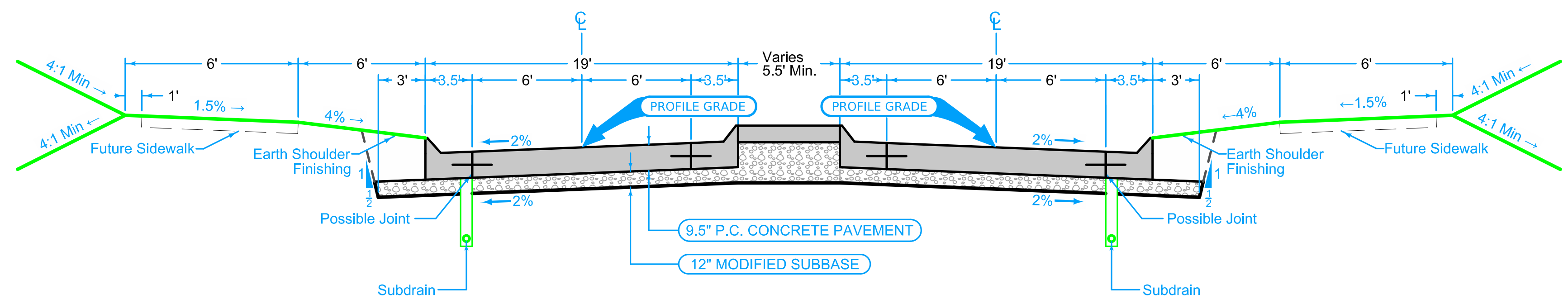


TYPICAL SECTION
IA 415 - RURAL SECTION
STA. 95+66.16 TO 97+38.97

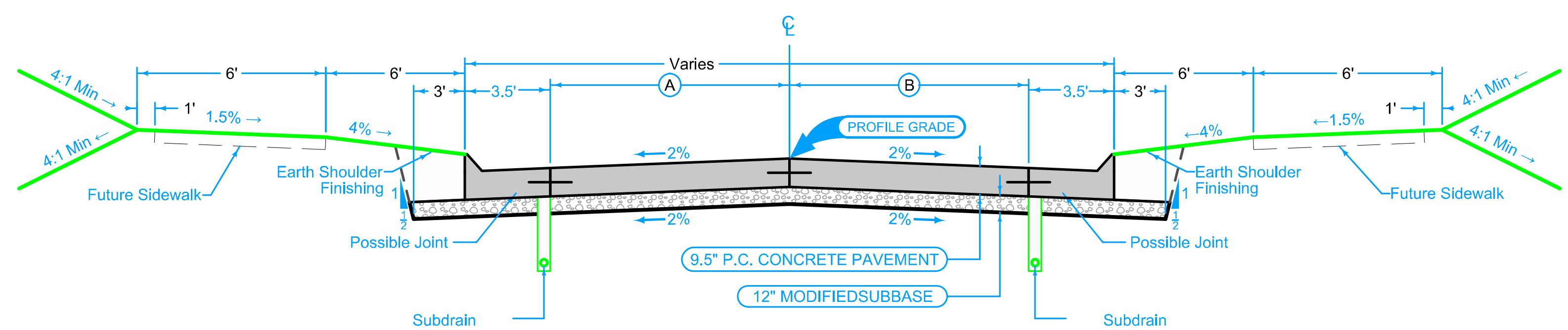
STATION TO STATION		(A) Feet
95+66.16	97+38.97	15' - 11.7'



TYPICAL SECTION
NW 106TH AVENUE - EXISTING TYPICAL
FOR INFORMATION ONLY



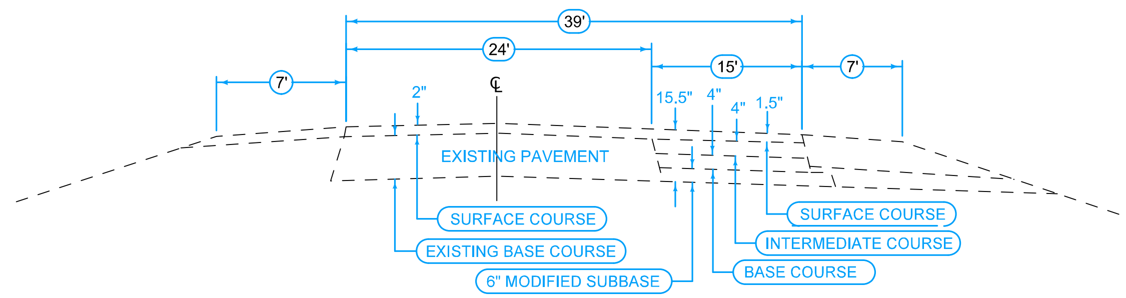
TYPICAL SECTION
NW 106TH AVENUE - URBAN SECTION
STA. 790+34.52 TO 792+08.23



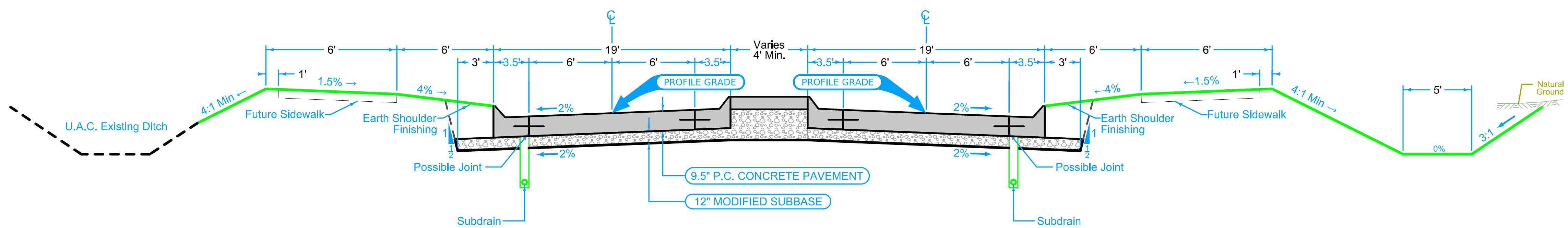
TYPICAL SECTION
NW 106TH AVENUE - URBAN SECTION
STA. 788+29.77 TO 790+34.52

STATION TO STATION		A Feet	B Feet
788+29.77	790+34.52	20.1'-22'	17.5'-22'

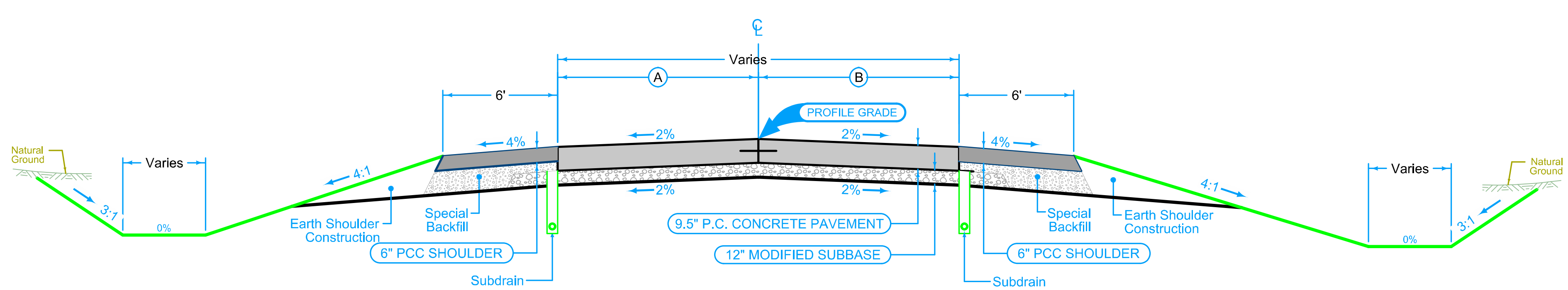
FILE NO.	ENGLISH	DESIGN TEAM **Snyder & Associates, Inc.**	**POLK** COUNTY	PROJECT NUMBER **HSIPX-415-1(086)--3L-77**	SHEET NUMBER **B.3**



TYPICAL SECTION
NW BEAVER DRIVE - EXISTING TYPICAL
FOR INFORMATION ONLY

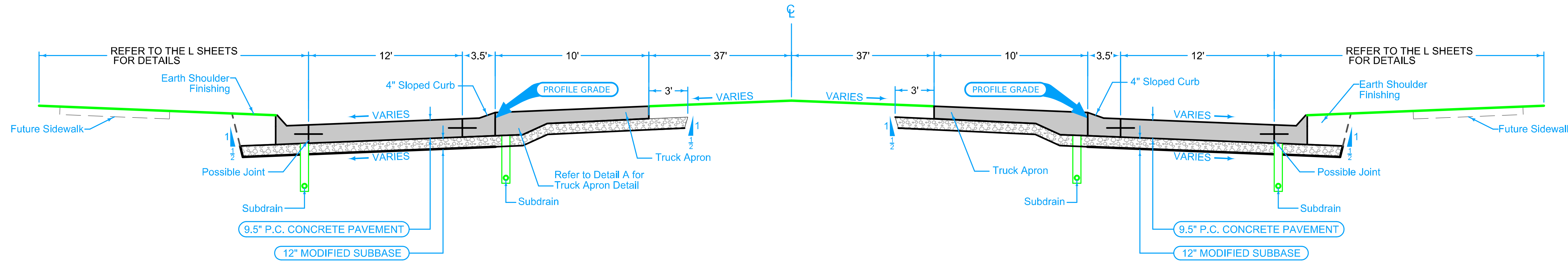


TYPICAL SECTION
NW BEAVER DRIVE - URBAN SECTION
STA. 793+51.87 TO 795+09.39

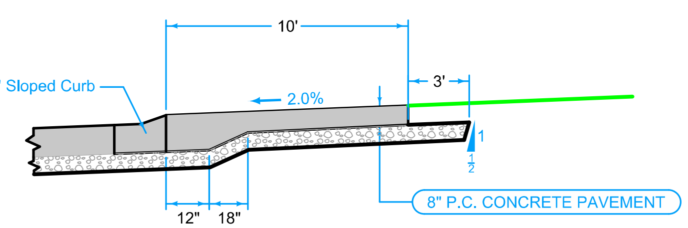


STATION TO STATION		A Feet	B Feet
795+09.39	797+00.00	20.2' - 13'	20.9' - 13'

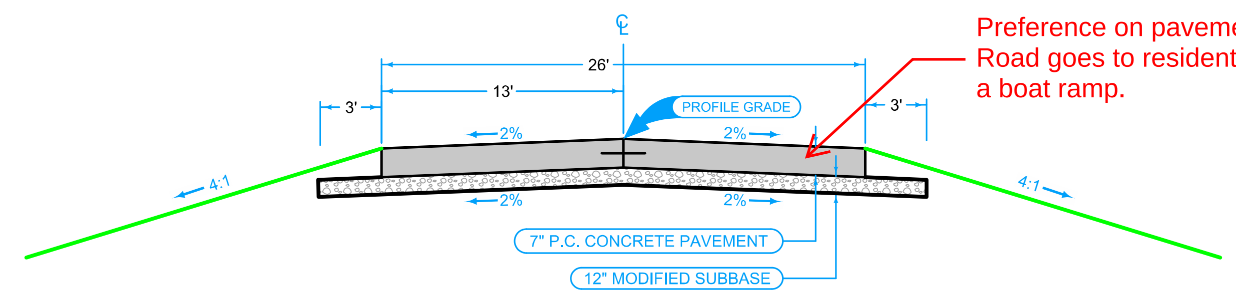
TYPICAL SECTION
NW BEAVER DRIVE - RURAL SECTION
STA. 795+09.39 TO 797+00.00



TYPICAL SECTION
IA 415 AND NW 106TH AVENUE/NW BEAVER DRIVE
SINGLE LANE ROUNDABOUT

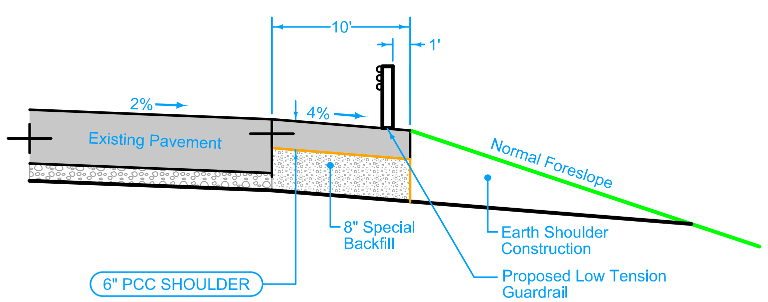


'DETAIL A'
ROUNDABOUT TRUCK APRON



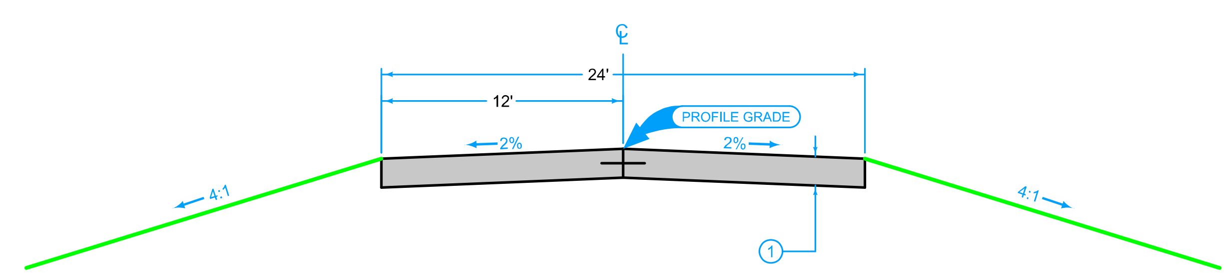
Preference on pavement thickness? Road goes to residential homes and a boat ramp.

TYPICAL SECTION
NW 100TH STREET - RURAL SECTION



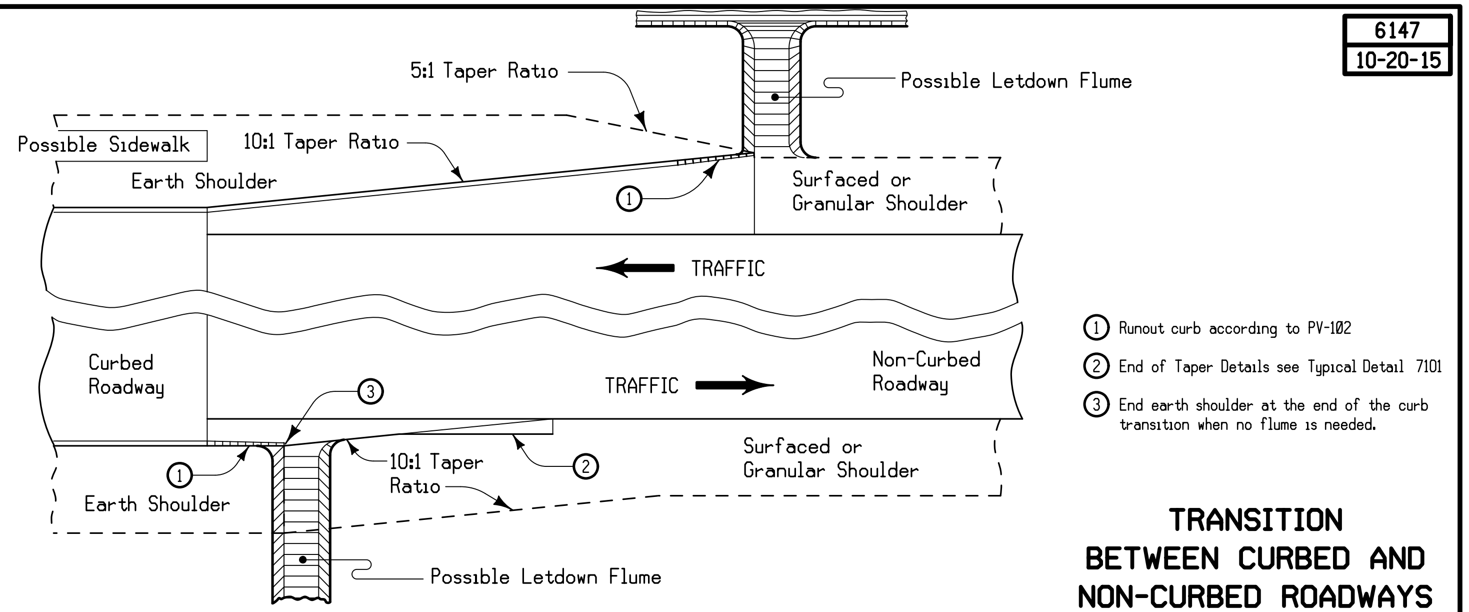
'DETAIL B'
PAVED PCC SHOULDER AT GUARDRAIL

STATION TO STATION		Side
97+38.97	97+98.00	RT
97+38.97	98+79.05	LT

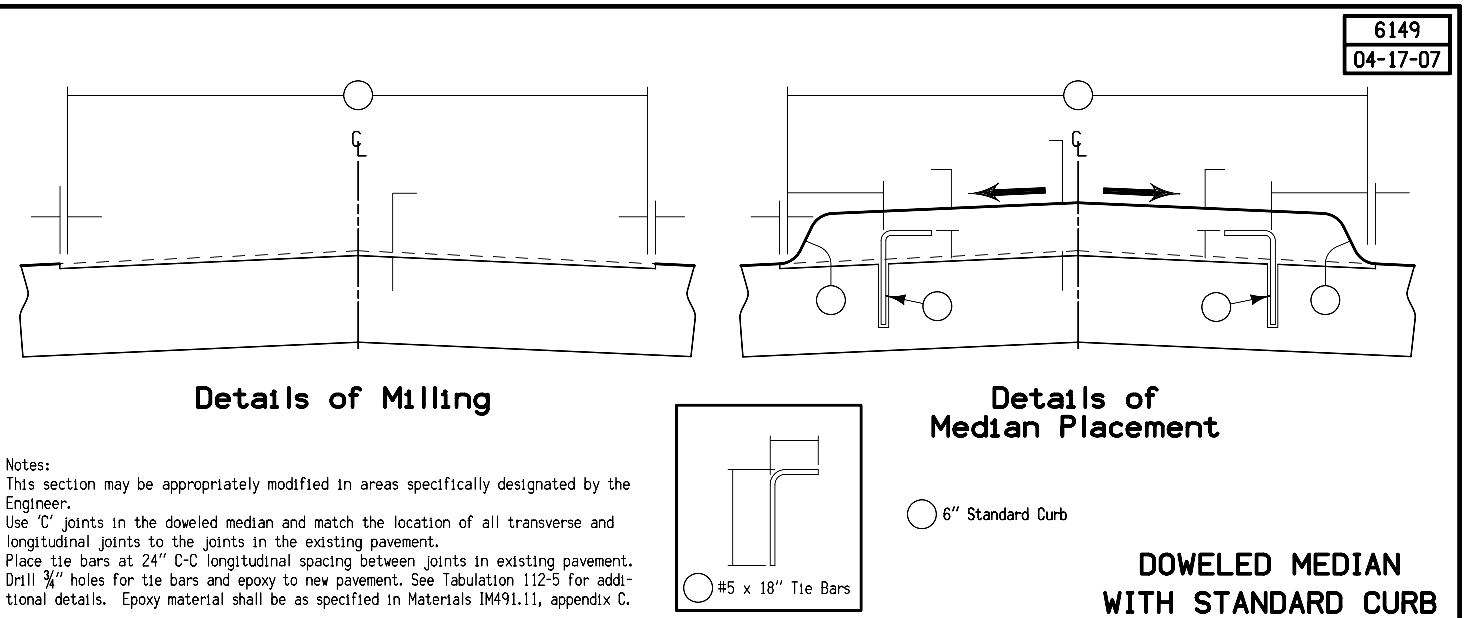


TYPICAL SECTION
NW 100TH STREET/NW 101ST WAY - TEMPORARY PAVEMENT

(1) THE CONTRACTOR MAY CHOOSE TO USE 7" PCC OR 8" HMA PAVEMENT.



TRANSITION BETWEEN CURBED AND NON-CURBED ROADWAYS



Notes:
This section may be appropriately modified in areas specifically designated by the Engineer.
Use 'C' joints in the doweled median and match the location of all transverse and longitudinal joints to the joints in the existing pavement.
Place tie bars at 24" C-C longitudinal spacing between joints in existing pavement. Drill ¾" holes for tie bars and epoxy to new pavement. See Tabulation 112-5 for additional details. Epoxy material shall be as specified in Materials IM491.11, appendix C.

DOWELED MEDIAN WITH STANDARD CURB

SURVEY SYMBOLS

- Interstate Highway Symbol
- U.S. Highway Symbol
- Iowa Highway Symbol
- County Road Highway Symbol
- Evergreen Tree
- Deciduous Tree
- F Fruit Tree
- SB Shrub (Bushes)
- Timber
- Hedge
- Stump
- Swamp
- Rock Outcrop
- Broken Concrete
- Revetment (Rip Rap)
- Cemetery
- G Grave
- CV Cave
- SH Sink Hole
- Board Fence
- Chain Link or Security Fence
- Wire Fence
- Terrace
- Earth Dam or Dike (Existing)
- Tile Outlet
- Edge of Water
- Existing Drainage
- Right of Way Rail or Lot Corner
- Concrete Monument
- Well
- Windmill
- Beehive Intake
- Existing Intake
- Existing Utility Access (Manhole)
- Fire Hydrant
- WH Water Hydrant (Rural)
- Septic Tank
- C Cistern
- LP L.P. Gas Tank (No Footing)
- UST Underground Storage Tank
- Latrine
- Satellite TV Dish
- WHU Water Hook Up
- RT Radio Tower
- TA Tower Anchor
- Guardrail (Beam or Cable)
- GP Guard Post (one or two)
- Guard Post (over two)
- FP Filler Pipe
- GV Gas Valve
- WV Water Valve
- SL Speed Limit Sign
- MM Mile Marker Post
- SIGN Sign
- TCB Traffic Signal Control Box
- RRB Rail Road Signal Control Box
- TSB Telephone Switch Box
- EB Electric Box

UTILITY LEGEND

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.	
Lavender	(9)	Temporary Pavement Shading
Gray, Light	(48)	Proposed Pavement Shading
Orange	(6)	Proposed Granular Shading
Orange	(70)	Proposed Shoulder Granular Shading
Gray	(80)	Proposed Shoulder Paved Full Depth Shading
Gray	(80)	Proposed Shoulder Paved Partial Depth Shading
Gray, Dark	(112)	Proposed Grade and Pave Shading "In conjunction with a paving project"
Brown, Light	(236)	Grading Shading
Orange, Light	(134)	Proposed Granular Entrance Shading
Gray, Light	(48)	Proposed Paved Entrance Shading
Tan	(8)	Proposed Sidewalk Shading
Blue, Light	(230)	Proposed Sidewalk Landing Shading
Pink	(11)	Proposed Sidewalk Ramp Shading
Green, Light	(225)	Existing Pavement Shading
Red	(3)	Proposed Structure Shading
Red	(3)	Delineates Restricted Areas

PROFILE VIEW COLOR LEGEND OF PLAN AND PROFILE SHEETS

LINEWORK	Design Color No.	
Green	(10)	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

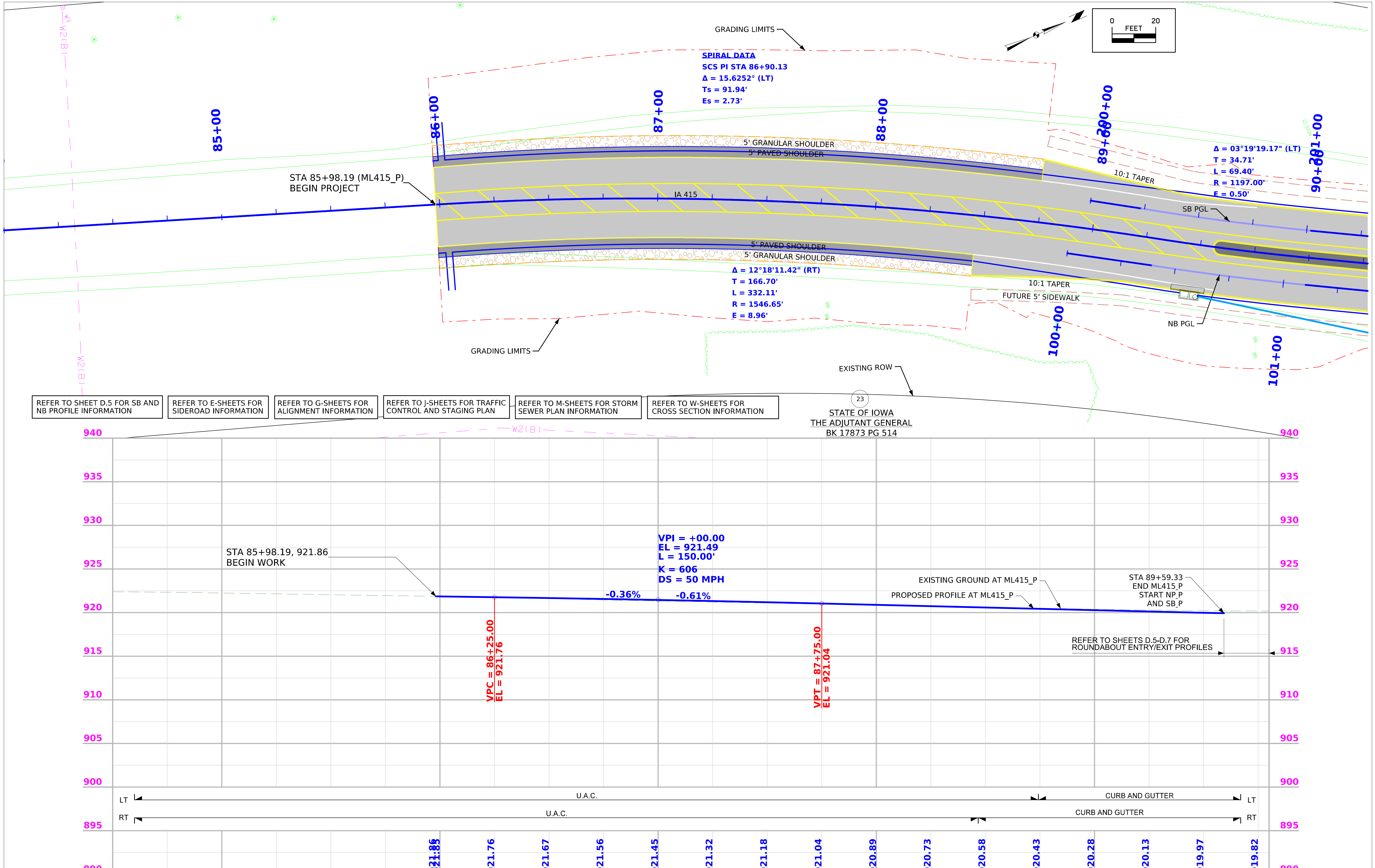
- Survey Line
- Section Corner
- Ground Line Intercept
- Saw Cut
- Guardrail
- Trench Drain
- HighTension Cable Guardrail
- Sheet Pile
- Pavement Removal
- Clearing & Grubbing Area

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
- C/A Access Control
- Property Line

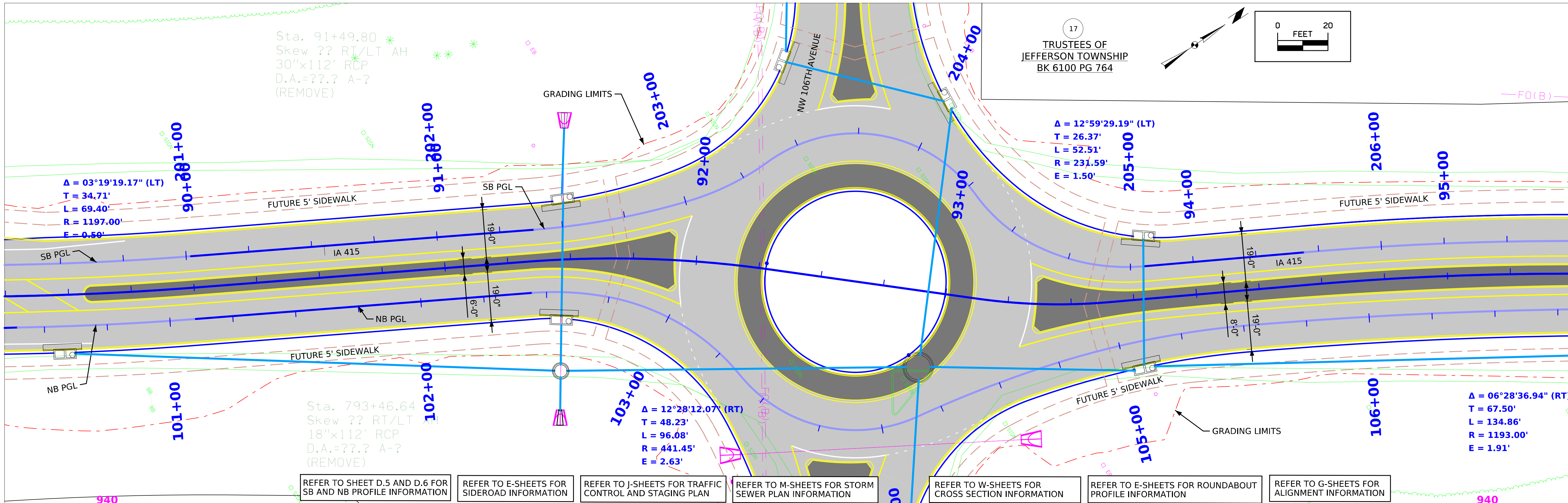
PLAN AND PROFILE LEGEND AND SYMBOL INFORMATION SHEET

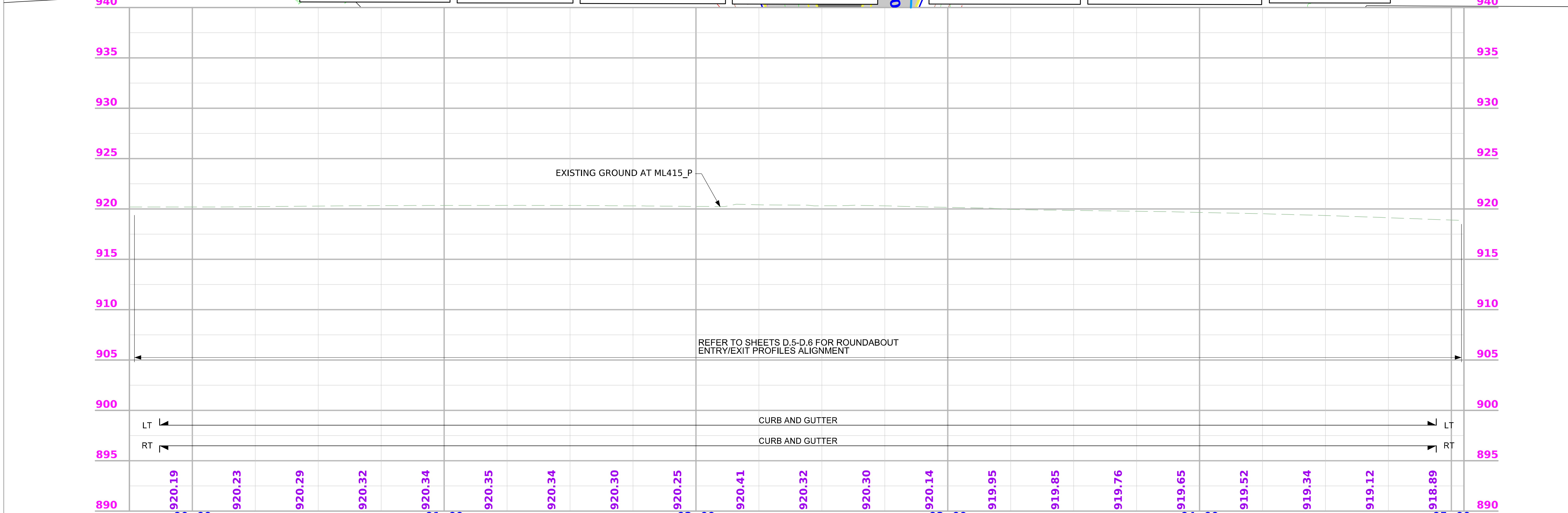
(COVERS SHEET SERIES D, E, F, & K)



FILE NO.	ENGLISH	DESIGN TEAM Snyder & Associates, Inc.	POLK COUNTY	PROJECT NUMBER HSIPX-415-1(086)--3L-77	SHEET NUMBER D.2

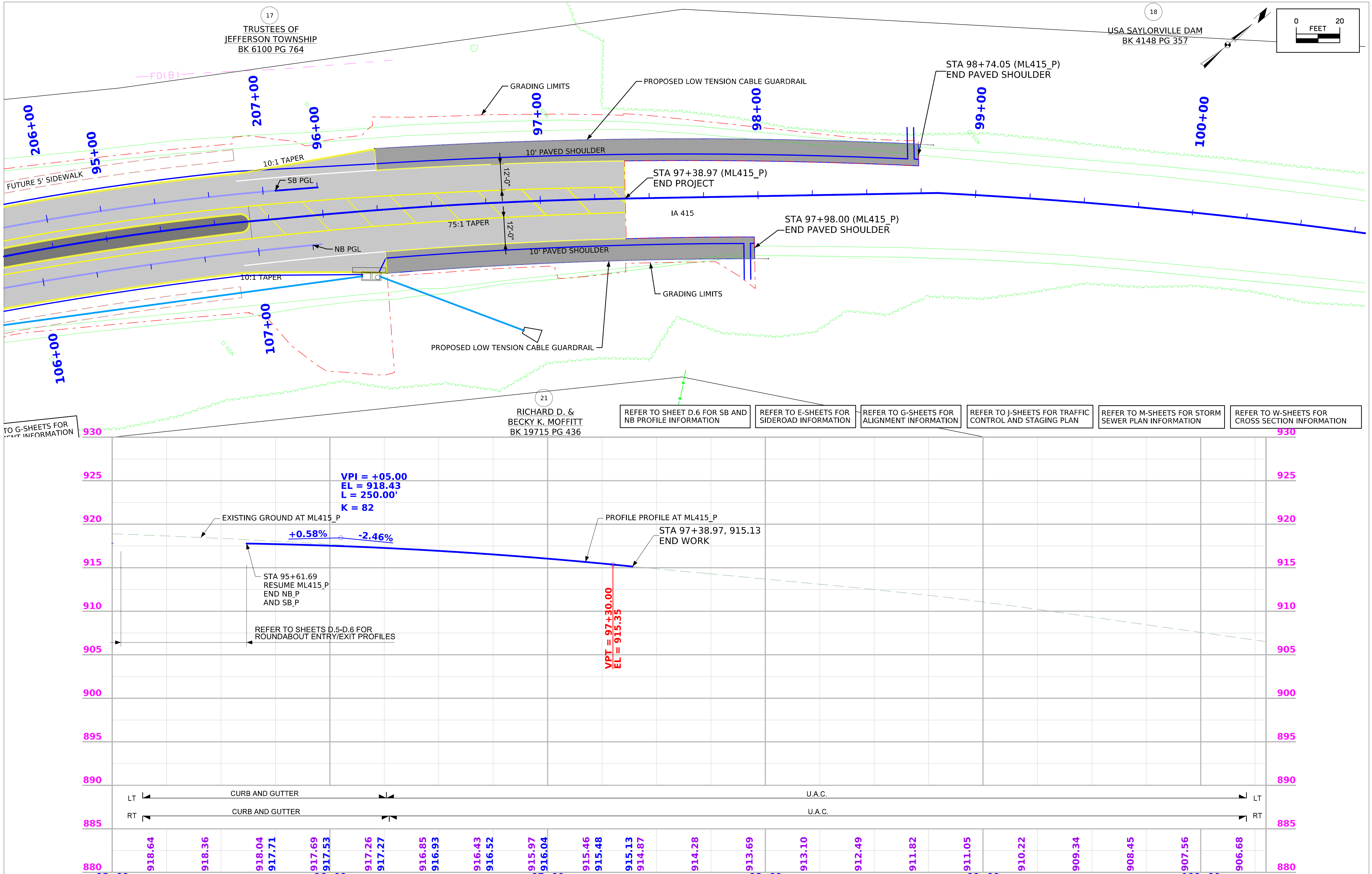
1:50:13 PM 6/6/2024 egutierrez pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\7741502024\Design\CADD_Files\Sheet_Files\SHT_77415086Z08_D2-D6.dgn





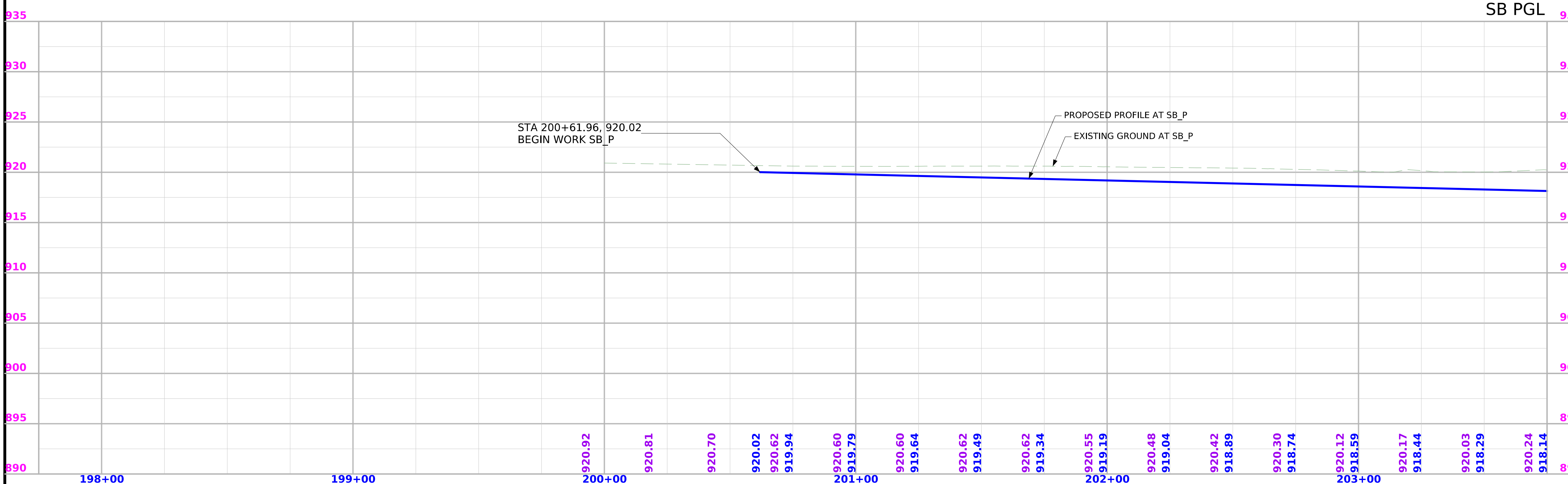
FILE NO.	ENGLISH	DESIGN TEAM **Snyder & Associates, Inc.**	**POLK** COUNTY	PROJECT NUMBER **HSIPX-415-1(086)--3L-77**	SHEET NUMBER **D.3**

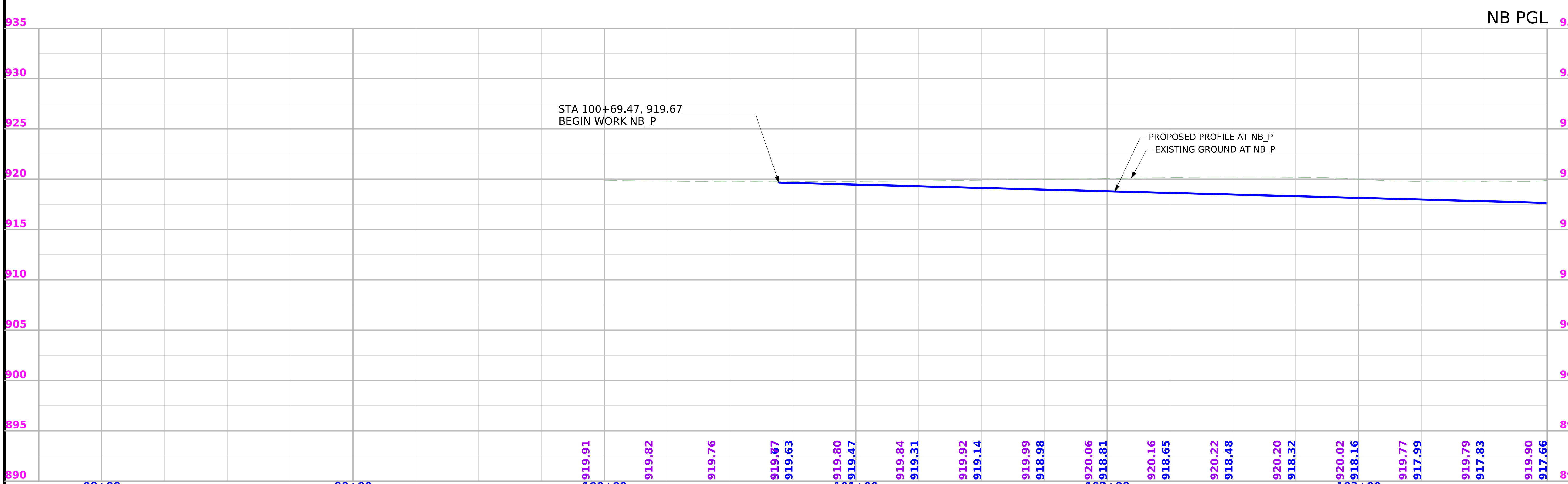
1:50:14 PM 6/6/2024 egutierrez pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\7741502024\Design\CADD_Files\Sheet_Files\SHT_77415086Z08_D2-D6.dgn



FILE NO.	ENGLISH	DESIGN TEAM **Snyder & Associates, Inc.**	**POLK** COUNTY	PROJECT NUMBER **HSIPX-415-1(086)--3L-77**	SHEET NUMBER **D.4**

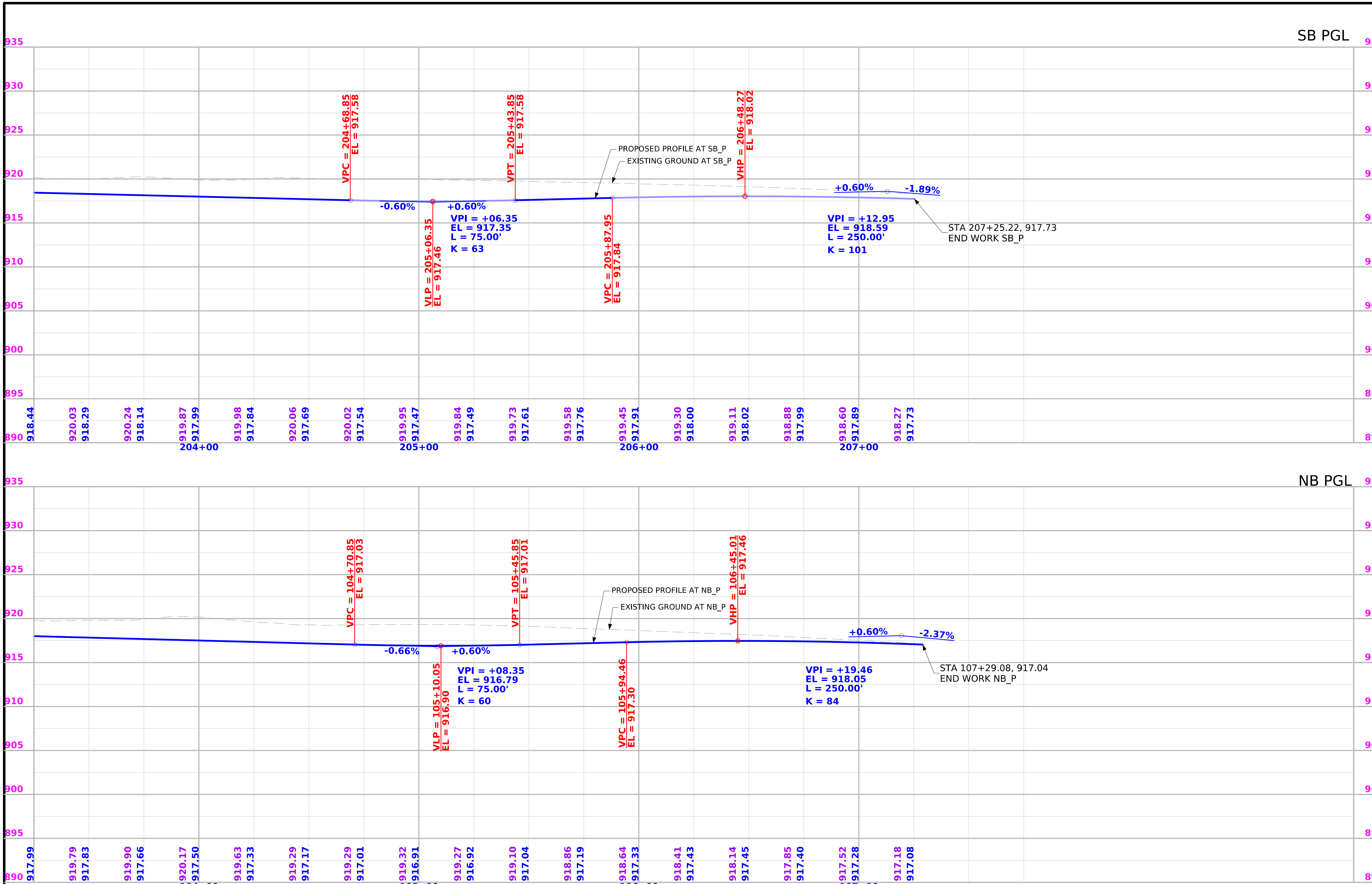
1:50:14 PM 6/6/2024 egutierrez pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\7741502024\Design\CADD_Files\Sheet_Files\SHT_77415086Z08_D2-D6.dgn



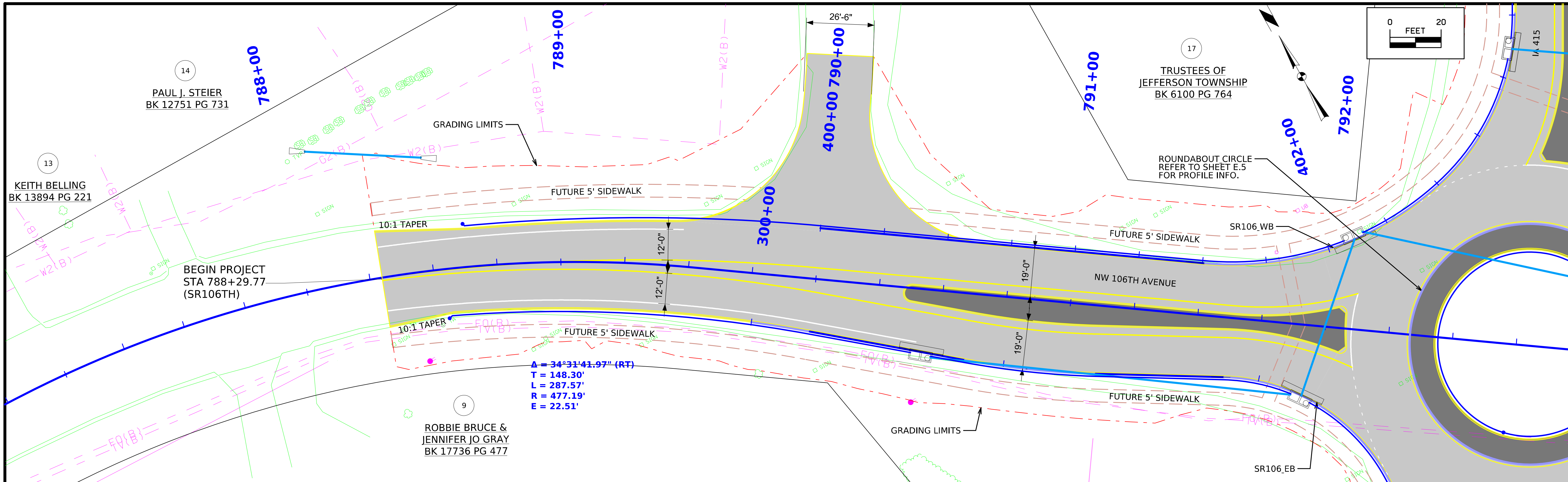


FILE NO.	ENGLISH	DESIGN TEAM **Snyder & Associates, Inc.**	**POLK** COUNTY	PROJECT NUMBER **HSIPX-415-1(086)--3L-77**	SHEET NUMBER **D.5**

1:50:16 PM 6/6/2024 egutierrez pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\7741502024\Design\CADD_Files\Sheet_Files\SHT_77415086Z08_D2-D6.dgn



FILE NO.	ENGLISH	DESIGN TEAM Snyder & Associates, Inc.	POLK COUNTY	PROJECT NUMBER HSIPX-415-1(086)--3L-77	SHEET NUMBER D.6



REFER TO D-SHEETS FOR MAINLINE INFORMATION

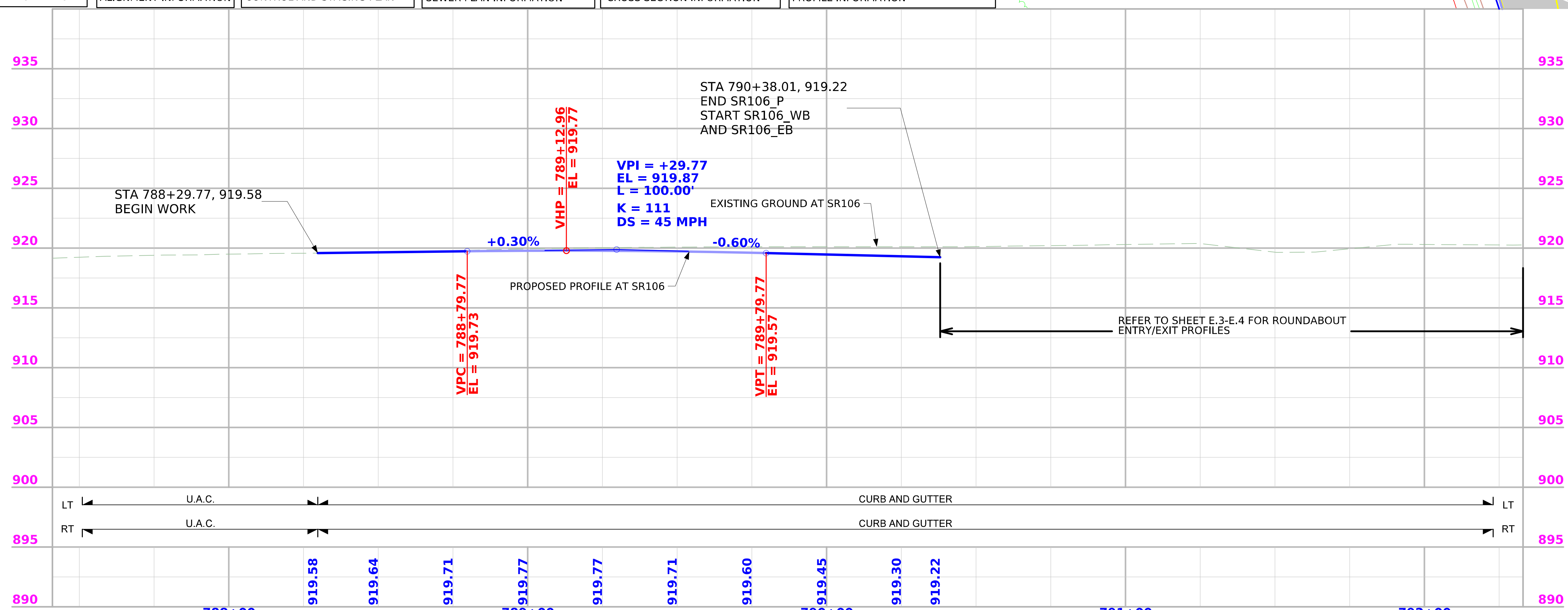
REFER TO G-SHEETS FOR ALIGNMENT INFORMATION

REFER TO J-SHEETS FOR TRAFFIC CONTROL AND STAGING PLAN

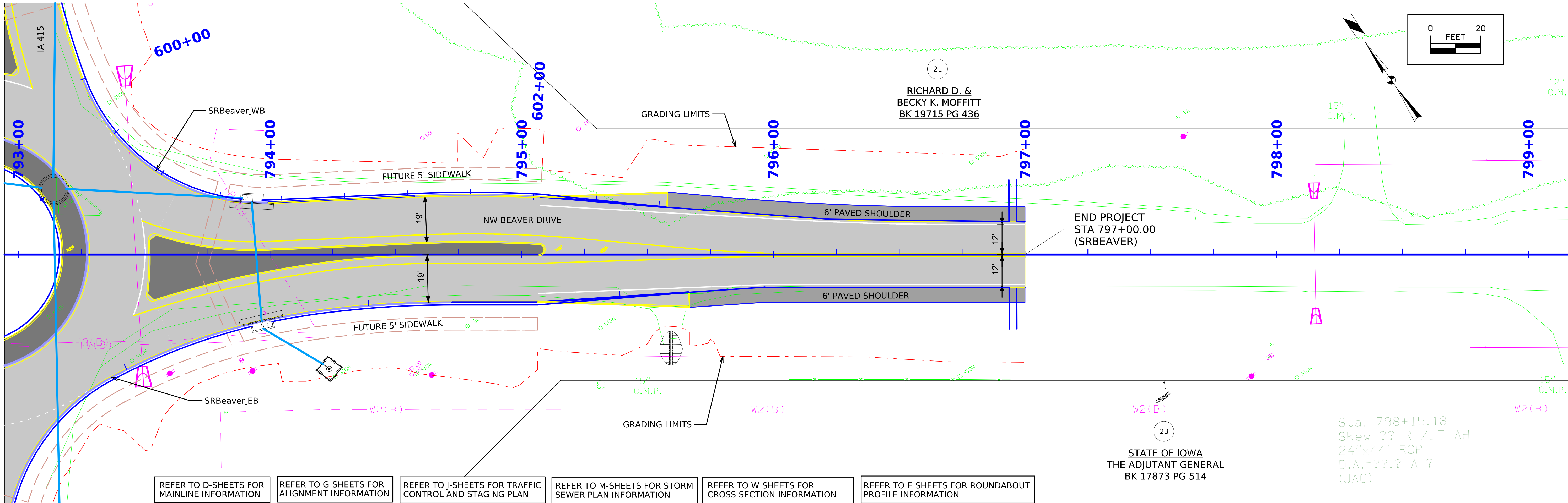
REFER TO M-SHEETS FOR STORM SEWER PLAN INFORMATION

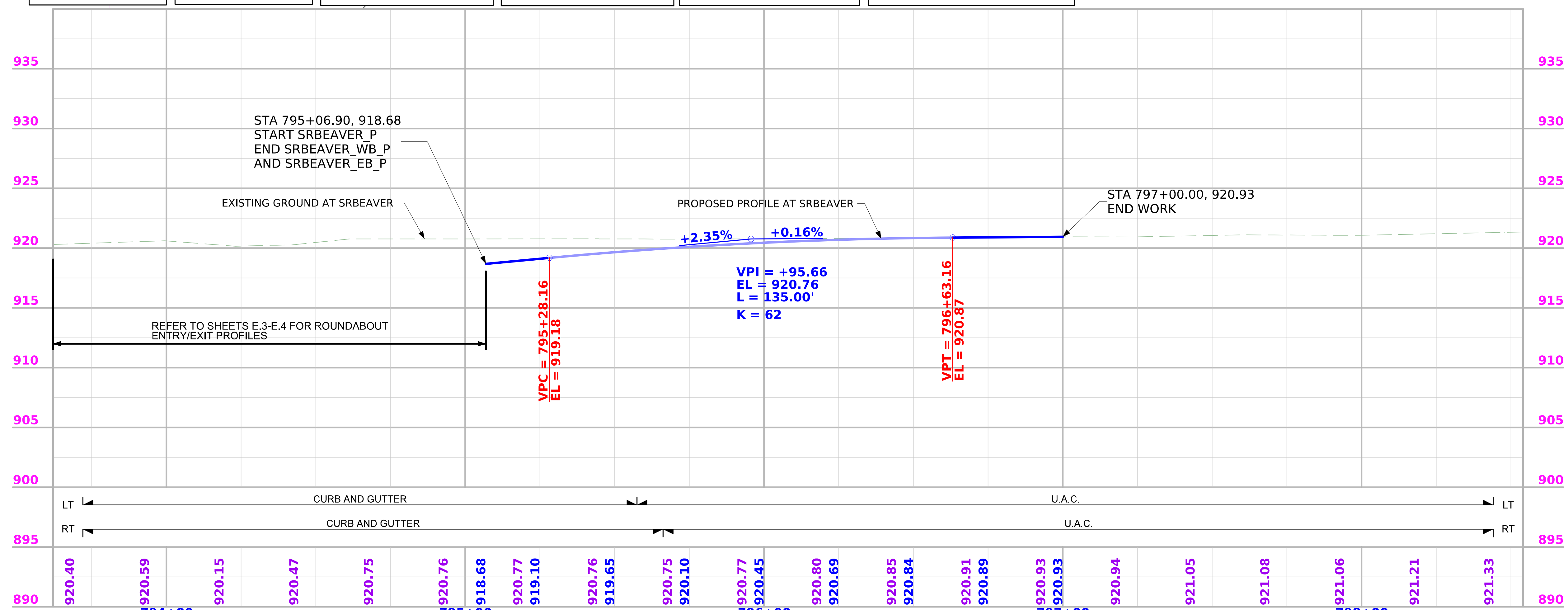
REFER TO W-SHEETS FOR CROSS SECTION INFORMATION

REFER TO E-SHEETS FOR ROUNDABOUT PROFILE INFORMATION



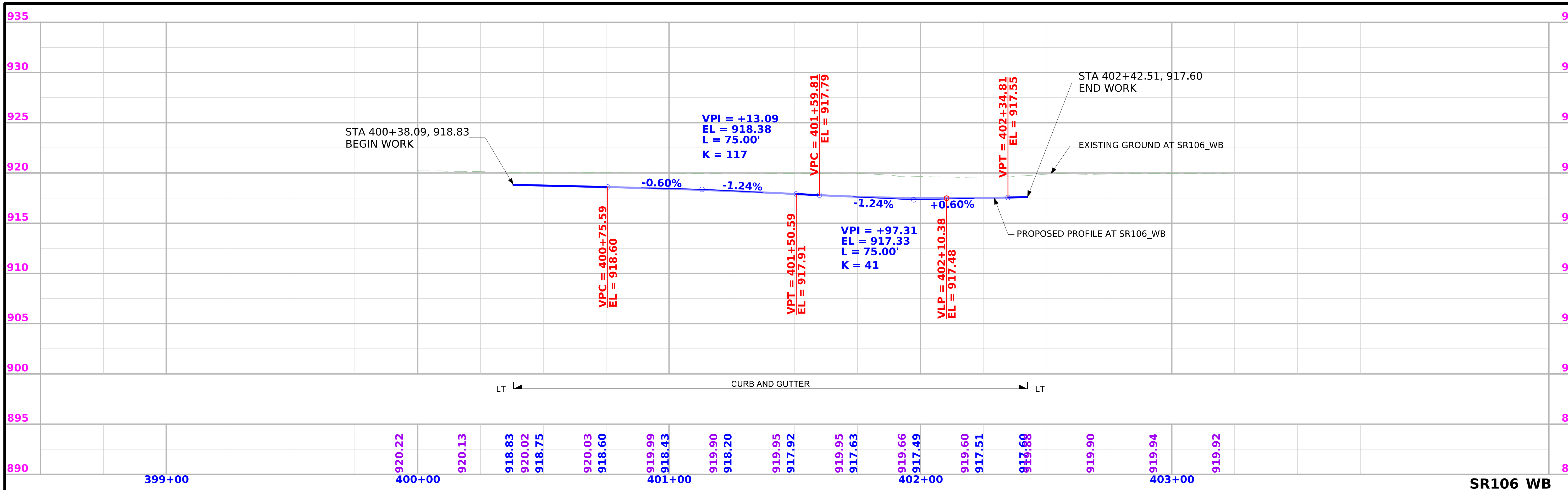
FILE NO.	ENGLISH	DESIGN TEAM **Snyder & Associates, Inc.**	**POLK** COUNTY	PROJECT NUMBER **HSIPX-415-1(086)--3L-77**	SHEET NUMBER **E.1**

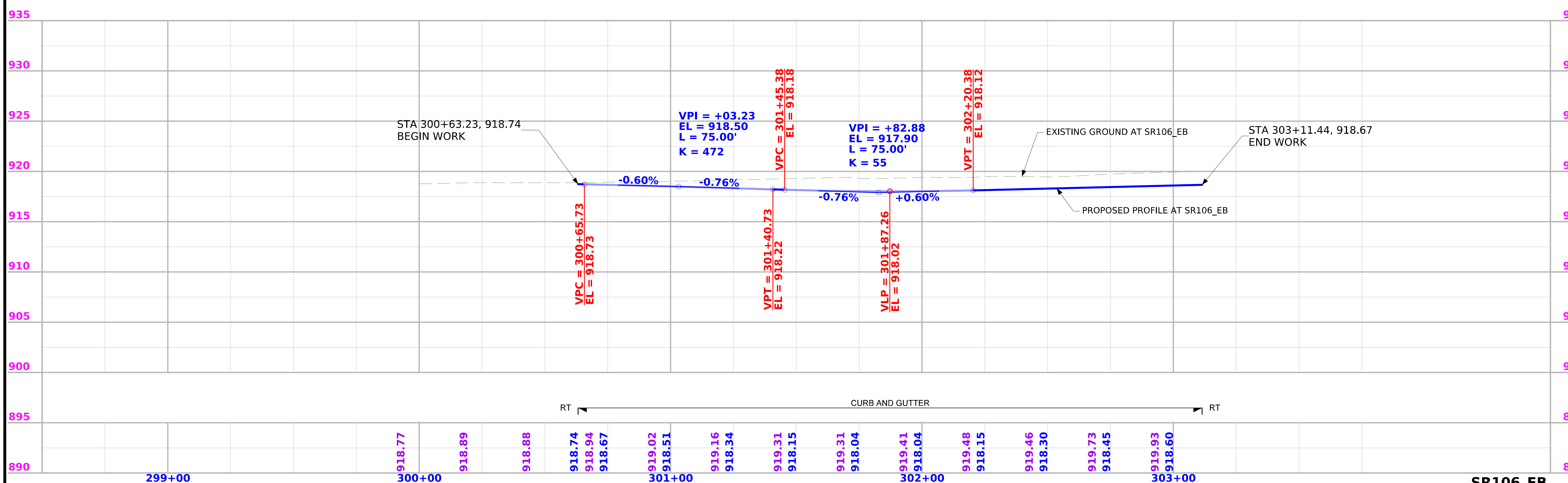




FILE NO.	ENGLISH	DESIGN TEAM Snyder & Associates, Inc.	POLK COUNTY	PROJECT NUMBER HSIPX-415-1(086)--3L-77	SHEET NUMBER E.2

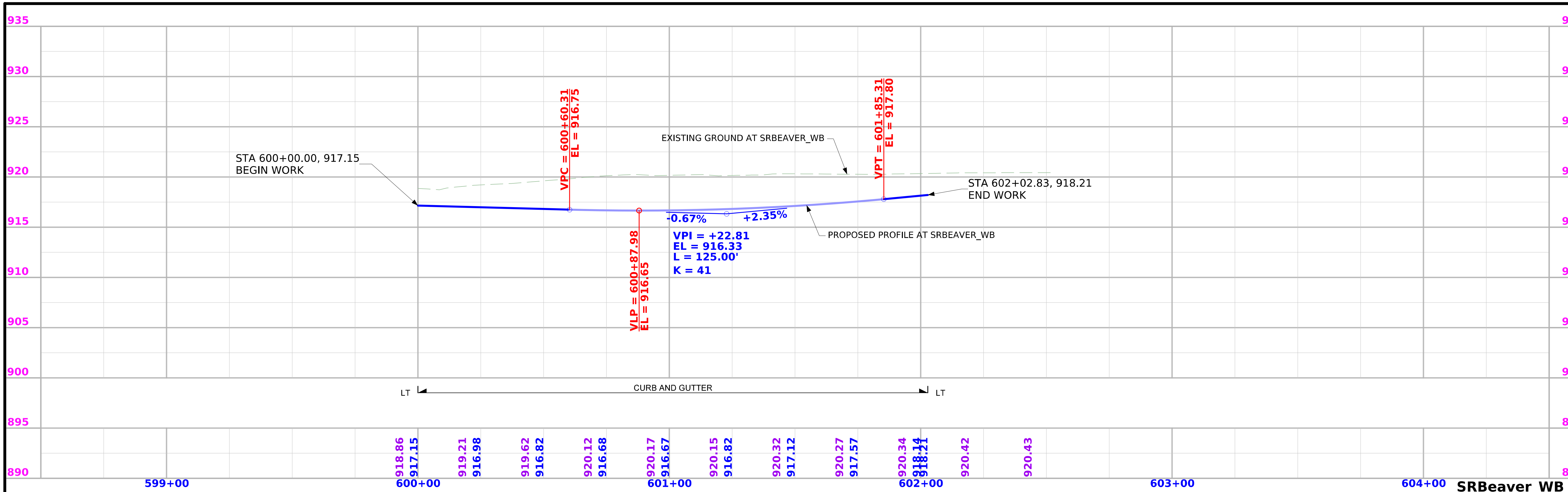
1:50:35 PM 6/6/2024 egutierrez pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\7741502024\Design\CADD_Files\Sheet_Files\SHT_77415086Z08_E1-E5.dgn

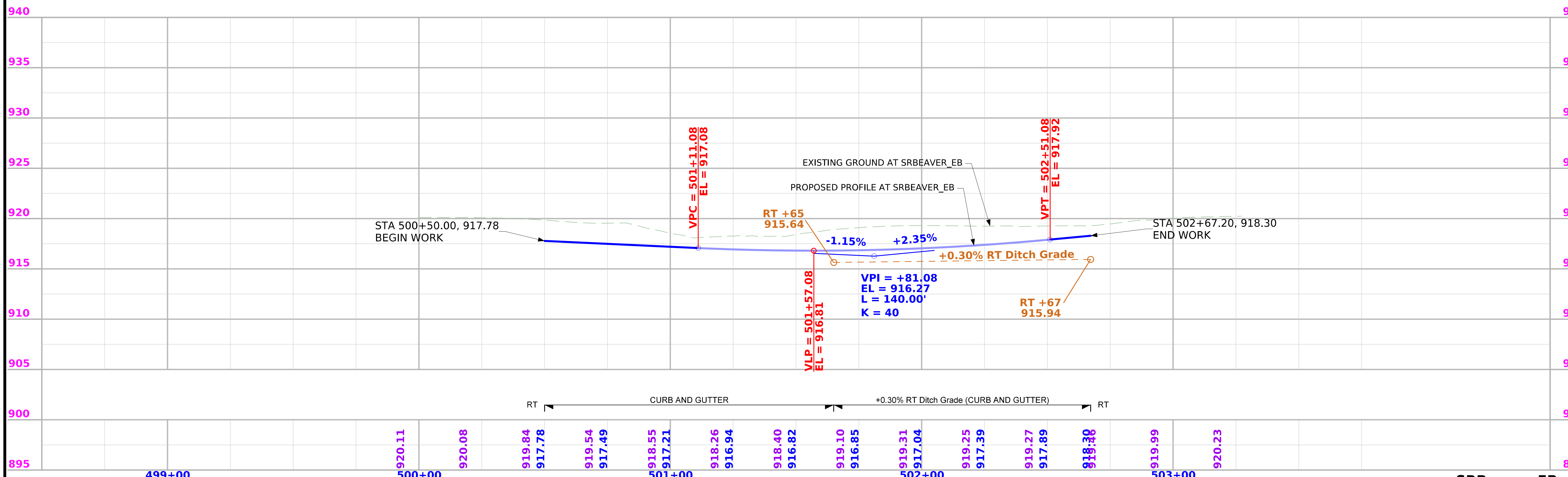




FILE NO.	ENGLISH	DESIGN TEAM **Snyder & Associates, Inc.**	**POLK** COUNTY	PROJECT NUMBER **HSIPX-415-1(086)--3L-77**	SHEET NUMBER **E.3**

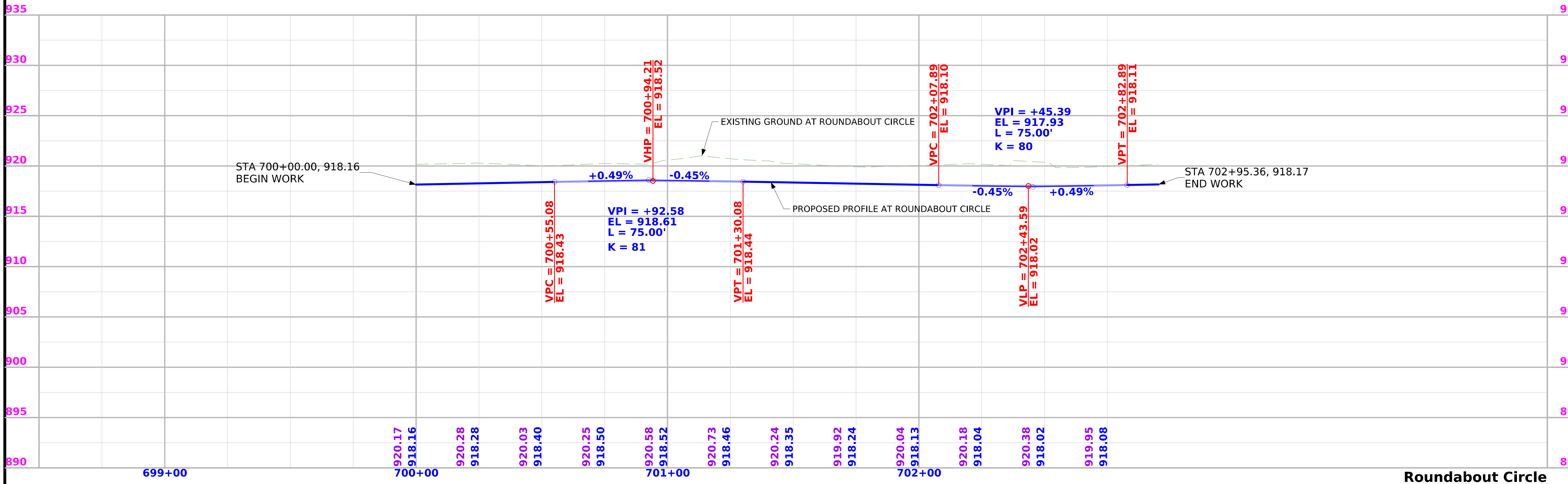
1:50:38 PM 6/6/2024 egutierrez pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\7741502024\Design\CADD_Files\Sheet_Files\SHT_77415086Z08_E1-E5.dgn





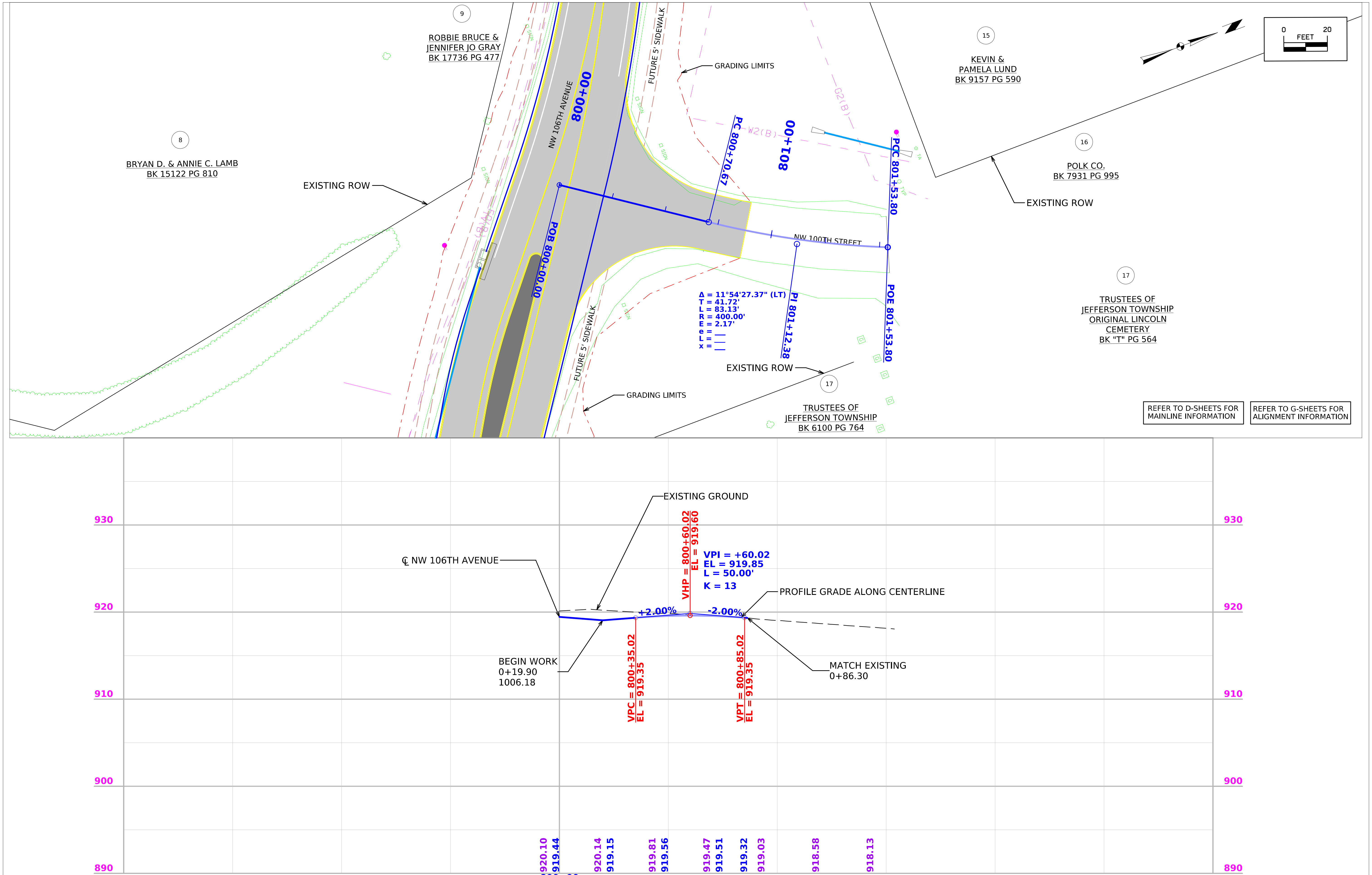
FILE NO.	ENGLISH	DESIGN TEAM **Snyder & Associates, Inc.**	**POLK** COUNTY	PROJECT NUMBER **HSIPX-415-1(086)--3L-77**	SHEET NUMBER **E.4**

1:50:40 PM 6/6/2024 egutierrez pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\7741502024\Design\CADD_Files\Sheet_Files\SHT_77415086Z08_E1-E5.dgn



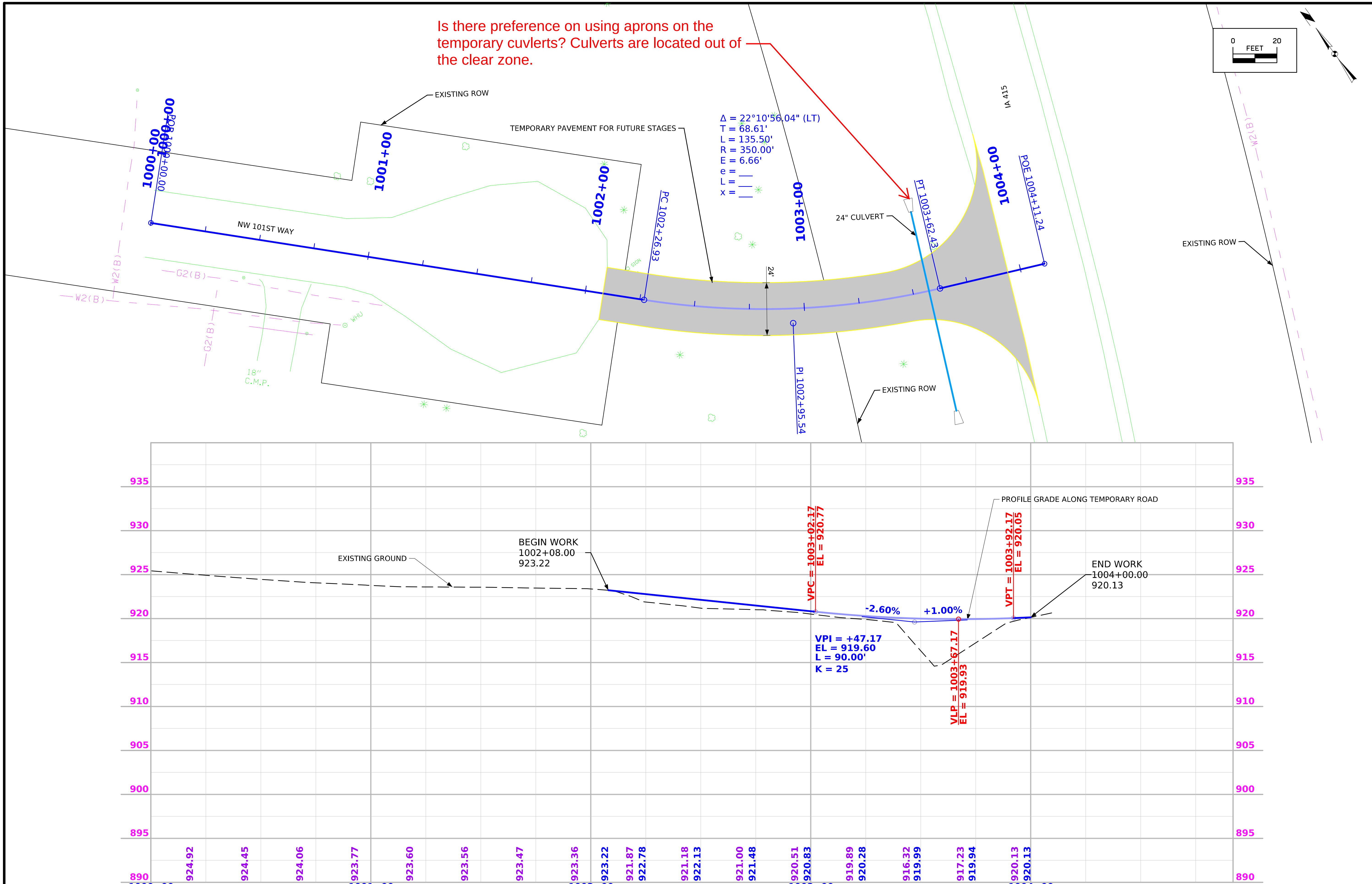
FILE NO.	ENGLISH	DESIGN TEAM Snyder & Associates, Inc.	POLK COUNTY	PROJECT NUMBER HSIPX-415-1(086)--3L-77	SHEET NUMBER E.5

1:50:42 PM 6/6/2024 egutierrez pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\7741502024\Design\CADD_Files\Sheet_Files\SHT_77415086Z08_E1-E5.dgn



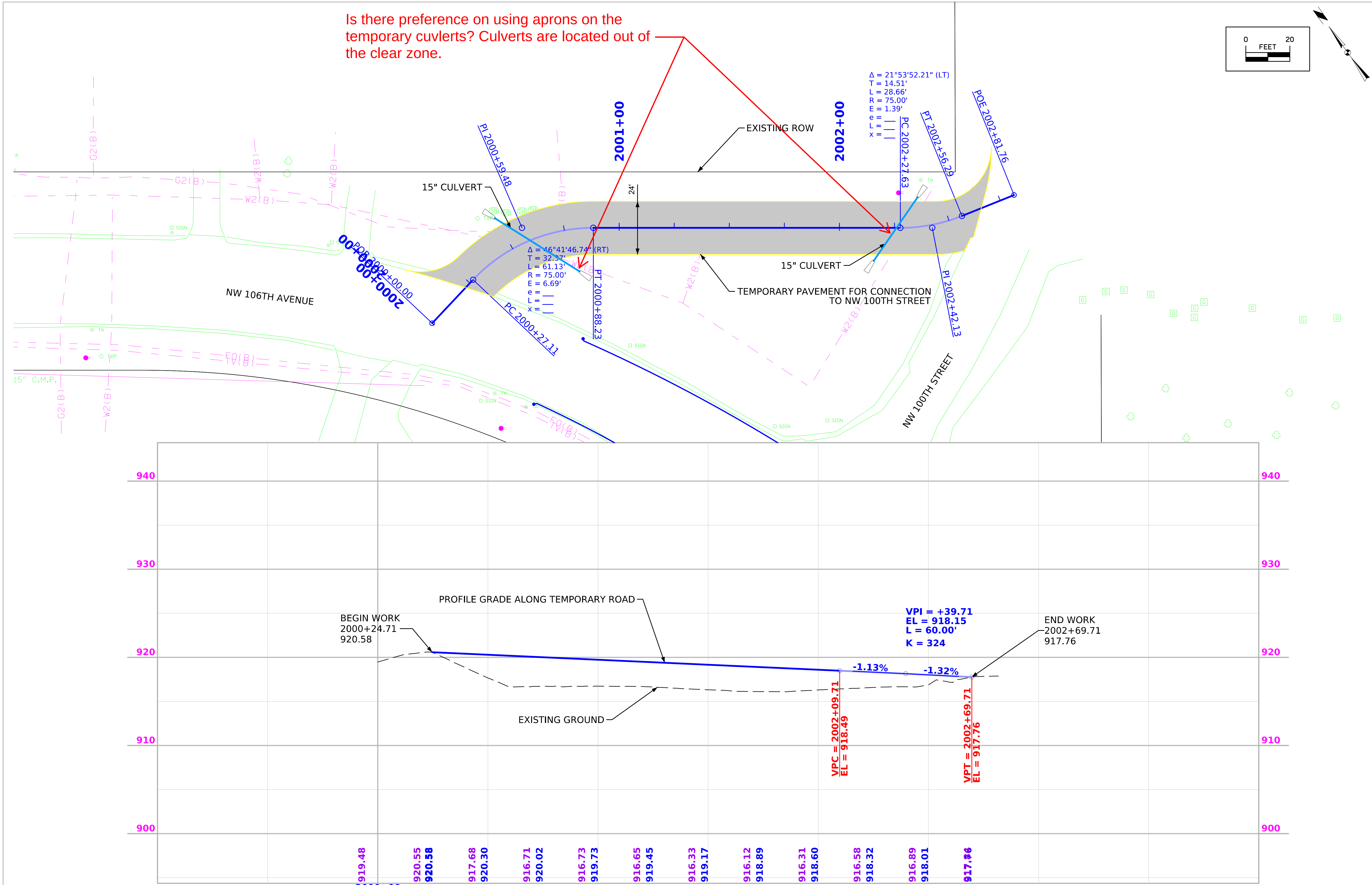
FILE NO. | ENGLISH | DESIGN TEAM Snyder & Associates, Inc. | POLK COUNTY | PROJECT NUMBER HSIPX-415-1(086)--3L-77 | SHEET NUMBER E.6

1:51:09 PM 6/6/2024 egutierrez pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\7741502024\Design\CADD_Files\Sheet_Files\SHT_77415086Z08_E6

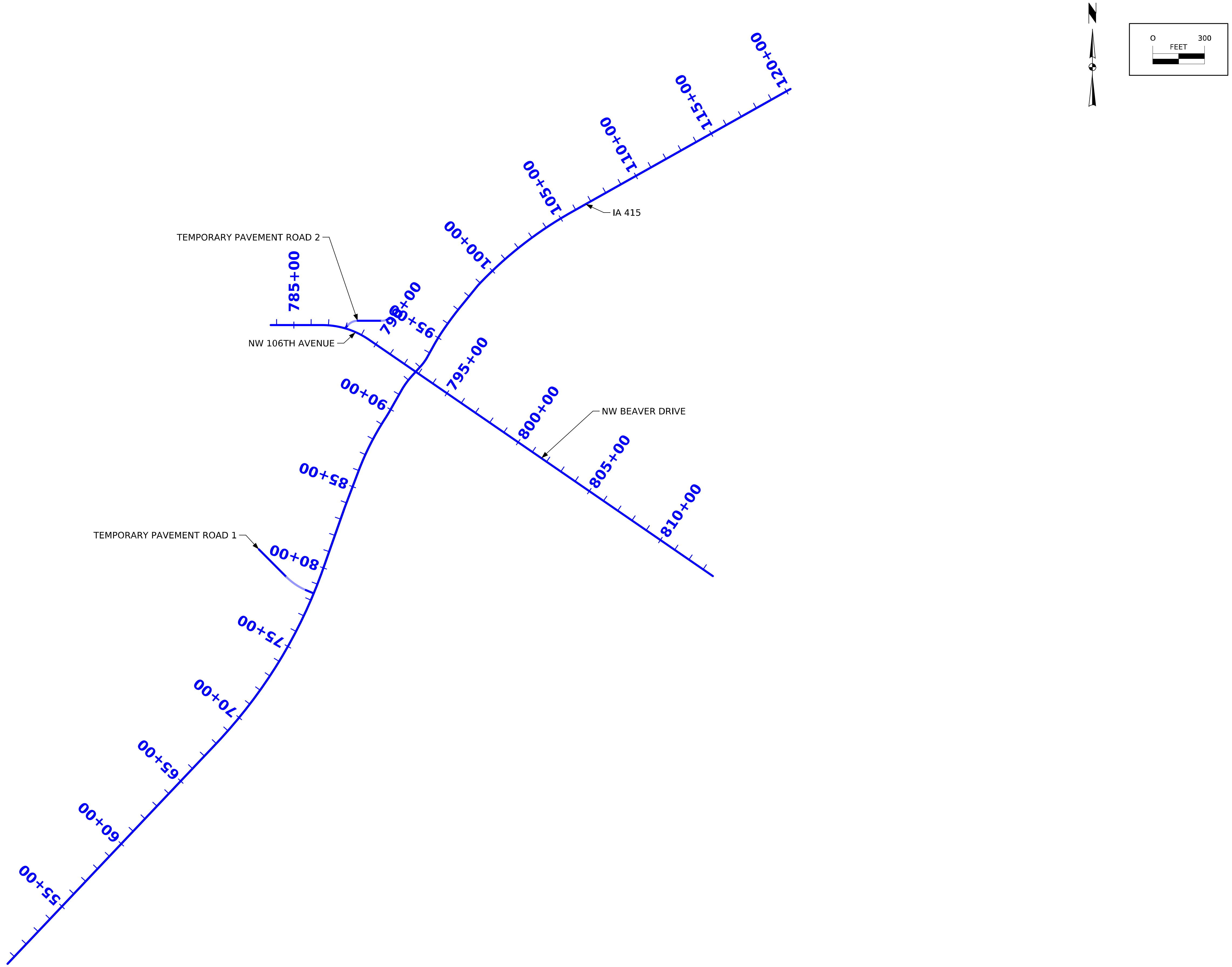


FILE NO.	ENGLISH	DESIGN TEAM Snyder & Associates, Inc.	POLK COUNTY	PROJECT NUMBER HSIPX-415-1(086)--3L-77	SHEET NUMBER F.1

1:51:22 PM 6/6/2024 egutierrez pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\7741502024\Design\CADD_Files\Sheet_Files\SHT_77415086Z08_F1-F2.dgn



FILE NO.	ENGLISH	DESIGN TEAM Snyder & Associates, Inc.	POLK COUNTY	PROJECT NUMBER HSIPX-415-1(086)--3L-77	SHEET NUMBER F.2



FILE NO.	ENGLISH	DESIGN TEAM **Snyder & Associates, Inc.**	**POLK** COUNTY	PROJECT NUMBER **HSIPX-415-1(086)--3L-77**	SHEET NUMBER **G.1**

1:51:43 PM 6/6/2024 egutierrez pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\7741502024\Design\CADD_Files\Sheet_Files\SHT_77415086Z08_G1-G8.dgn

IA 415

Alignment Name: ML415_P
Alignment Description:
Alignment Style: Alignment\Geom_Baseline

		Station	Northing	Easting
Element: Linear				
START	(START)	50+42.600 R1	7544107.109	18487044.9
PC	(PC)	67+97.312 R1	7545381.158	18488251.47

Tangential Direction: N43°26'30.560"E
Tangential Length: 1754.712

		Station	Northing	Easting
Element: Circular				
PC	(PC)	67+97.312 R1	7545381.158	18488251.47
HPI	(HPI)	74+07.252 R1	7545824.019	18488670.88
CC	(CC)		7547350.537	18486171.96
PT	(PT)	79+99.236 R1	7546399.338	18488873.45

Radius: 2864.061
Delta: 24.045° Left
Degree of Curvature (Arc): 2.001°
Length: 1201.924

Tangent: 609.94
Chord: 1193.124
Middle Ordinate: 62.819
External: 64.227
Back Tangent Direction: N43°26'30.560"E
Back Radial Direction: S46°33'29.440"E
Chord Direction: N31°25'10.295"E
Ahead Radial Direction: S70°36'09.969"E
Ahead Tangent Direction: N19°23'50.031"E

		Station	Northing	Easting
Element: Linear				
PT	(PT)	79+99.236 R1	7546399.338	18488873.45
HPI	(HPI)	83+70.151 R1	7546749.199	18488996.64

Tangential Direction: N19°23'50.031"E
Tangential Length: 370.914

		Station	Northing	Easting
Element: Linear				
HPI	(HPI)	83+70.151 R1	7546749.199	18488996.64
PC	(PC)	85+98.189 R1	7546962.578	18489077.08

Tangential Direction: N20°39'21.185"E
Tangential Length: 228.039

		Station	Northing	Easting
Element: Circular				
PC	(PC)	85+98.189 R1	7546962.578	18489077.08
HPI	(HPI)	87+64.888 R1	7547118.563	18489135.88
CC	(CC)		7546417.039	18490524.33
PRC	(GeomBL1)	89+30.304 R1	7547258.435	18489226.56

Radius: 1546.654
Delta: 12.303° Right
Degree of Curvature (Arc): 3.704°
Length: 332.114

Tangent: 166.698
Chord: 331.477
Middle Ordinate: 8.906
External: 8.957
Back Tangent Direction: N20°39'14.124"E
Back Radial Direction: S69°20'45.876"E
Chord Direction: N26°48'19.835"E
Ahead Radial Direction: S57°02'34.454"E
Ahead Tangent Direction: N32°57'25.546"E

		Station	Northing	Easting
Element: Circular				
PRC	(PRC)	89+30.304 R1	7547258.435	18489226.56
HPI	(HPI)	89+65.014 R1	7547287.56	18489245.44
CC	(CC)		7547909.615	18488222.19
PT	(PT)	89+99.705 R1	7547317.73	18489262.61

Radius: 1196.998
Delta: 3.322° Left
Degree of Curvature (Arc): 4.787°
Length: 69.402

Tangent: 34.711
Chord: 69.392
Middle Ordinate: 0.503
External: 0.503
Back Tangent Direction: N32°57'25.550"E

IA 415

Back Radial Direction: S57°02'34.450"E
Chord Direction: N31°17'45.964"E
Ahead Radial Direction: S60°21'53.623"E
Ahead Tangent Direction: N29°38'06.377"E

		Station	Northing	Easting
Element: Linear				
PT	(PT)	89+99.705 R1	7547317.73	18489262.61
PC	(PC)	91+32.732 R1	7547433.356	18489328.39

Tangential Direction: N29°38'06.378"E
Tangential Length: 133.026

		Station	Northing	Easting
Element: Circular				
PC	(PC)	91+32.732 R1	7547433.356	18489328.39
HPI	(HPI)	91+80.962 R1	7547475.277	18489352.24
CC	(CC)		7547215.068	18489712.09
PT	(PT)	92+28.811 R1	7547511.06	18489384.57

Radius: 441.453
Delta: 12.470° Right
Degree of Curvature (Arc): 12.979°
Length: 96.079

Tangent: 48.23
Chord: 95.89
Middle Ordinate: 2.611
External: 2.627
Back Tangent Direction: N29°38'06.378"E
Back Radial Direction: S60°21'53.622"E
Chord Direction: N35°52'12.412"E
Ahead Radial Direction: S47°53'41.554"E
Ahead Tangent Direction: N42°06'18.446"E

		Station	Northing	Easting
Element: Linear				
PT	(PT)	92+28.811 R1	7547511.06	18489384.57
PC	(PC)	93+12.369 R1	7547573.053	18489440.6

Tangential Direction: N42°06'18.446"E
Tangential Length: 83.558

		Station	Northing	Easting
Element: Circular				
PC	(PC)	93+12.369 R1	7547573.053	18489440.6
HPI	(HPI)	93+38.738 R1	7547592.617	18489458.28
CC	(CC)		7547728.334	18489268.78
PT	(PT)	93+64.881 R1	7547615.654	18489471.11

Radius: 231.593
Delta: 12.991° Left
Degree of Curvature (Arc): 24.740°
Length: 52.512

Tangent: 26.369
Chord: 52.4
Middle Ordinate: 1.487
External: 1.496
Back Tangent Direction: N42°06'18.446"E
Back Radial Direction: S47°53'41.554"E
Chord Direction: N35°36'33.851"E
Ahead Radial Direction: S60°53'10.743"E
Ahead Tangent Direction: N29°06'49.257"E

		Station	Northing	Easting
Element: Linear				
PT	(PT)	93+64.881 R1	7547615.654	18489471.11
PC	(PC)	94+44.227 R1	7547684.975	18489509.71

Tangential Direction: N29°06'49.257"E
Tangential Length: 79.346

		Station	Northing	Easting
Element: Circular				
PC	(PC)	94+44.227 R1	7547684.975	18489509.71
HPI	(HPI)	95+11.730 R1	7547743.949	18489542.56
CC	(CC)		7547104.528	18490551.99
PCC	(PCC)	95+79.088 R1	7547798.842	18489581.84

Radius: 1193
Delta: 6.477° Right
Degree of Curvature (Arc): 4.803°
Length: 134.861

Tangent: 67.502
Chord: 134.789
Middle Ordinate: 1.905
External: 1.908
Back Tangent Direction: N29°06'49.257"E
Back Radial Direction: S60°53'10.743"E

IA 415

Chord Direction: N32°21'07.729"E
Ahead Radial Direction: S54°24'33.799"E
Ahead Tangent Direction: N35°35'26.201"E

		Station	Northing	Easting
Element: Circular				
PCC	(PCC)	95+79.088 R1	7547798.842	18489581.84
HPI	(HPI)	96+59.075 R1	7547864.651	18489627.31
CC	(CC)		7546691.144	18491185.23
PT	(PT)	97+38.973 R1	7547926.514	18489678.01

Radius: 1948.809
Delta: 4.701° Right
Degree of Curvature (Arc): 2.940°
Length: 159.884

Tangent: 79.987
Chord: 159.839
Middle Ordinate: 1.639
External: 1.641
Back Tangent Direction: N34°38'18.742"E
Back Radial Direction: S55°21'41.258"E
Chord Direction: N36°59'19.936"E
Ahead Radial Direction: S50°39'38.871"E
Ahead Tangent Direction: N39°20'21.129"E

		Station	Northing	Easting
Element: Linear				
PT	(GeomBL3)	97+38.973 R1	7547926.514	18489678.01
PC	(PC)	98+82.473 R1	7548037.498	18489768.98

Tangential Direction: N39°20'21.129"E
Tangential Length: 143.5

		Station	Northing	Easting
Element: Circular				
PC	(PC)	98+82.473 R1	7548037.498	18489768.98
HPI	(HPI)	102+29.800 R1	7548290.48	18490006.96
CC	(CC)		7546479.932	18491424.71
PT	(PT)	105+71.795 R1	7548460.856	18490309.63

Radius: 2273.208
Delta: 17.374° Right
Degree of Curvature (Arc): 2.520°
Length: 689.322

Tangent: 347.326
Chord: 686.684
Middle Ordinate: 26.079
External: 26.381
Back Tangent Direction: N43°15'00.334"E
Back Radial Direction: S46°44'59.666"E
Chord Direction: N51°56'13.947"E
Ahead Radial Direction: S29°22'32.440"E
Ahead Tangent Direction: N60°37'27.560"E

		Station	Northing	Easting
Element: Linear				
PT	(PT)	105+71.795 R1	7548460.856	18490309.63
END	(END)	120+26.807 R1	7549174.589	18491577.56

Tangential Direction: N60°37'27.560"E
Tangential Length: 1455.012

NW 106TH AVENUE

Alignment Name: SR106TH
Alignment Description:
Alignment Style: Alignment\Geom_BaselineSecondary

		Station	Northing	Easting
Element: Linear				
START	(START)	783+65.630 R1	7547807.191	18488568.17
PC	(PC)	786+63.330 R1	7547807.192	18488865.87
	Tangential Direction:	N89°59'59.263"E		
	Tangential Length:	297.7		
Element: Circular				
PC	(PC)	786+63.330 R1	7547807.192	18488865.87
HPI	(HPI)	788+11.630 R1	7547807.193	18489014.17
CC	(CC)		7547330.005	18488865.87
PT	(PT)	789+50.899 R1	7547723.135	18489136.35
	Radius:	477.187		
	Delta:	34.528° Right		
	Degree of Curvature (Arc):	12.007°		
	Length:	287.569		
	Tangent:	148.3		
	Chord:	283.237		
	Middle Ordinate:	21.499		
	External:	22.513		
	Back Tangent Direction:	N89°59'59.263"E		
	Back Radial Direction:	S00°00'00.737"E		
	Chord Direction:	S72°44'09.752"E		
	Ahead Radial Direction:	S34°31'41.234"W		
	Ahead Tangent Direction:	S55°28'18.766"E		
Element: Linear				
PT	(PT)	789+50.899 R1	7547723.135	18489136.35
END	(END)	792+67.286 R1	7547543.803	18489397
	Tangential Direction:	S55°28'18.766"E		
	Tangential Length:	316.387		

NW BEAVER DRIVE

Alignment Name: GeomSEC
Alignment Description:
Alignment Style: Alignment\Geom_BaselineSecondary

		Station	Northing	Easting
Element: Linear				
START	(START)	792+67.290 R1	7547543.803	18489397
END	(END)	813+68.411 R1	7546352.866	18491128.01
	Tangential Direction:	S55°28'18.767"E		
	Tangential Length:	2101.121		

TEMPORARY PAVEMENT ROAD 1

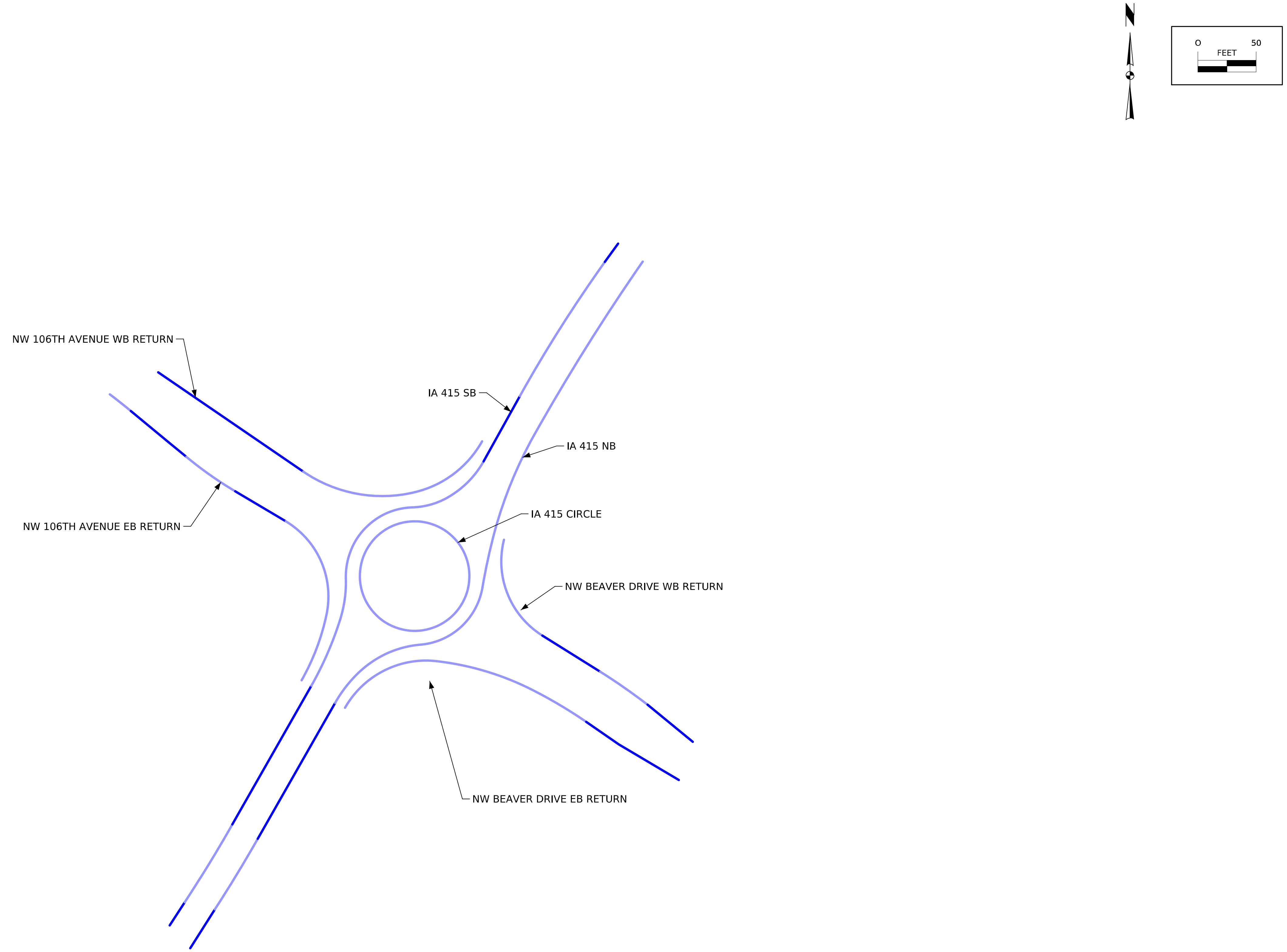
Alignment Name: SRTEMP-1
Alignment Description:
Alignment Style: Alignment\Geom_Baseline

		Station	Northing	Easting
Element: Linear				
START	(START)	1000+00.000 R1	7546507.779	18488499.49
PC	(PC)	1002+26.927 R1	7546347.327	18488659.96
	Tangential Direction:	S45°00'12.507"E		
	Tangential Length:	226.927		
Element: Circular				
PC	(PC)	1002+26.927 R1	7546347.327	18488659.96
HPI	(HPI)	1002+95.538 R1	7546298.815	18488708.48
CC	(CC)		7546594.83	18488907.43
PT	(PT)	1003+62.430 R1	7546272.211	18488771.72
	Radius:	350		
	Delta:	22.182° Left		
	Degree of Curvature (Arc):	16.370°		
	Length:	135.504		
	Tangent:	68.611		
	Chord:	134.659		
	Middle Ordinate:	6.537		
	External:	6.662		
	Back Tangent Direction:	S45°00'12.507"E		
	Back Radial Direction:	S44°59'47.493"W		
	Chord Direction:	S56°05'40.526"E		
	Ahead Radial Direction:	S22°48'51.456"W		
	Ahead Tangent Direction:	S67°11'08.544"E		
Element: Linear				
PT	(PT)	1003+62.430 R1	7546272.211	18488771.72
END	(END)	1004+11.243 R1	7546253.284	18488816.72
	Tangential Direction:	S67°11'08.544"E		
	Tangential Length:	48.813		

TEMPORARY PAVEMENT ROAD 2

Alignment Name: SRTEMP-2
Alignment Description:
Alignment Style: Alignment\Geom_Baseline

		Station	Northing	Easting
Element: Linear				
START	(START)	2000+00.000 R1	7547788.499	18488998.13
PC	(PC)	2000+27.108 R1	7547808.227	18489016.72
	Tangential Direction:	N43°18'13.257"E		
	Tangential Length:	27.108		
Element: Circular				
PC	(PC)	2000+27.108 R1	7547808.227	18489016.72
HPI	(HPI)	2000+59.483 R1	7547831.787	18489038.92
CC	(CC)		7547756.787	18489071.3
PT	(PT)	2000+88.234 R1	7547831.787	18489071.3
	Radius:	75		
	Delta:	46.696° Right		
	Degree of Curvature (Arc):	76.394°		
	Length:	61.125		
	Tangent:	32.375		
	Chord:	59.448		
	Middle Ordinate:	6.141		
	External:	6.689		
	Back Tangent Direction:	N43°18'13.257"E		
	Back Radial Direction:	S46°41'46.743"E		
	Chord Direction:	N66°39'06.629"E		
	Ahead Radial Direction:	S00°00'00.000"W		
	Ahead Tangent Direction:	S90°00'00.000"E		
Element: Linear				
PT	(PT)	2000+88.234 R1	7547831.787	18489071.3
PC	(PC)	2002+27.625 R1	7547831.787	18489210.69
	Tangential Direction:	S90°00'00.000"E		
	Tangential Length:	139.392		
Element: Circular				
PC	(PC)	2002+27.625 R1	7547831.787	18489210.69
HPI	(HPI)	2002+42.134 R1	7547831.787	18489225.2
CC	(CC)		7547906.787	18489210.69
PT	(PT)	2002+56.289 R1	7547837.198	18489238.66
	Radius:	75		
	Delta:	21.898° Left		
	Degree of Curvature (Arc):	76.394°		
	Length:	28.664		
	Tangent:	14.509		
	Chord:	28.49		
	Middle Ordinate:	1.365		
	External:	1.391		
	Back Tangent Direction:	S90°00'00.000"E		
	Back Radial Direction:	S00°00'00.000"W		
	Chord Direction:	N79°03'03.897"E		
	Ahead Radial Direction:	S21°53'52.206"E		
	Ahead Tangent Direction:	N68°06'07.794"E		
Element: Linear				
PT	(PT)	2002+56.289 R1	7547837.198	18489238.66
END	(END)	2002+81.759 R1	7547846.697	18489262.29
	Tangential Direction:	N68°06'07.794"E		
	Tangential Length:	25.469		



0
50
FEET
NW 106TH AVENUE WB RETURN
IA 415 SB
IA 415 NB
NW 106TH AVENUE EB RETURN
IA 415 CIRCLE
NW BEAVER DRIVE WB RETURN
NW BEAVER DRIVE EB RETURN

415 NB

Alignment Name: IA415_NB_P
Alignment Description:
Alignment Style: Alignment\Geom_Baseline

Element: Circular

		Station	Northing	Easting
PC	(PC)	100+00.000 R1	7547227.885	18489215.16
HPI	(HPI)	100+21.136 R1	7547246.323	18489225.5
CC	(CC)		7546216.394	18491020.06
PT	(PT)	100+42.271 R1	7547264.546	18489236.2

Radius: 2069
Delta: 1.171° Right
Degree of Curvature (Arc): 2.769°
Length: 42.271

Tangent: 21.136
Chord: 42.27
Middle Ordinate: 0.108
External: 0.108
Back Tangent Direction: N29°16'00.915"E
Back Radial Direction: S60°43'59.085"E
Chord Direction: N29°51'07.971"E
Ahead Radial Direction: S59°33'44.974"E
Ahead Tangent Direction: N30°26'15.026"E

Element: Linear

		Station	Northing	Easting
PT	(PT)	100+42.271 R1	7547264.546	18489236.2
PC	(PC)	102+43.799 R1	7547438.028	18489338.76

Tangential Direction: N30°35'23.819"E
Tangential Length: 201.528

Element: Circular

		Station	Northing	Easting
PC	(PC)	102+43.799 R1	7547438.028	18489338.76
HPI	(HPI)	102+61.189 R1	7547452.997	18489347.61
CC	(CC)		7547394.515	18489412.36
PCC	(PCC)	102+78.110 R1	7547463.32	18489361.6

Radius: 85.5
Delta: 22.993° Right
Degree of Curvature (Arc): 67.013°
Length: 34.311

Tangent: 17.39
Chord: 34.081
Middle Ordinate: 1.715
External: 1.75
Back Tangent Direction: N30°35'31.526"E
Back Radial Direction: S59°24'28.474"E
Chord Direction: N42°05'18.576"E
Ahead Radial Direction: S36°24'54.375"E
Ahead Tangent Direction: N53°35'05.625"E

Element: Circular

		Station	Northing	Easting
PCC	(PCC)	102+78.110 R1	7547463.321	18489361.6
HPI	(HPI)	103+03.386 R1	7547478.325	18489381.94
CC	(CC)		7547402.965	18489406.13
PRC	(PRC)	103+26.868 R1	7547477.957	18489407.22

Radius: 75
Delta: 37.248° Right
Degree of Curvature (Arc): 76.394°
Length: 48.758

Tangent: 25.275
Chord: 47.904
Middle Ordinate: 3.927
External: 4.144
Back Tangent Direction: N53°35'07.221"E
Back Radial Direction: S36°24'52.779"E
Chord Direction: N72°12'34.171"E
Ahead Radial Direction: S00°50'01.121"W
Ahead Tangent Direction: S89°09'58.879"E

415 NB

Element: Circular

		Station	Northing	Easting
PRC	(PRC)	103+26.868 R1	7547477.957	18489407.22
HPI	(HPI)	103+77.517 R1	7547477.221	18489457.86
CC	(CC)		7547536.951	18489408.08
PRC	(PRC)	104+10.576 R1	7547527.169	18489466.26

Radius: 59
Delta: 81.290° Left
Degree of Curvature (Arc): 97.111°
Length: 83.707

Tangent: 50.649
Chord: 76.861
Middle Ordinate: 14.233
External: 18.758
Back Tangent Direction: S89°10'00.824"E
Back Radial Direction: S00°49'59.176"W
Chord Direction: N50°11'18.005"E
Ahead Radial Direction: S80°27'23.166"E
Ahead Tangent Direction: N09°32'36.834"E

Element: Circular

		Station	Northing	Easting
PRC	(PRC)	104+10.576 R1	7547527.169	18489466.26
HPI	(HPI)	104+35.654 R1	7547551.9	18489470.42
CC	(CC)		7547444.27	18489959.34
PCC	(PCC)	104+60.691 R1	7547576.091	18489477.03

Radius: 500
Delta: 5.743° Right
Degree of Curvature (Arc): 11.459°
Length: 50.115

Tangent: 25.079
Chord: 50.094
Middle Ordinate: 0.628
External: 0.629
Back Tangent Direction: N09°32'36.834"E
Back Radial Direction: S80°27'23.166"E
Chord Direction: N12°24'53.831"E
Ahead Radial Direction: S74°42'49.173"E
Ahead Tangent Direction: N15°17'10.827"E

Element: Circular

		Station	Northing	Easting
PCC	(PCC)	104+60.691 R1	7547576.097	18489477.03
HPI	(HPI)	105+04.632 R1	7547618.483	18489488.62
CC	(CC)		7547481.313	18489823.81
PCC	(PCC)	105+48.139 R1	7547656.831	18489510.07

Radius: 359.5
Delta: 13.937° Right
Degree of Curvature (Arc): 15.938°
Length: 87.448

Tangent: 43.941
Chord: 87.232
Middle Ordinate: 2.656
External: 2.675
Back Tangent Direction: N15°17'13.557"E
Back Radial Direction: S74°42'46.443"E
Chord Direction: N22°15'20.352"E
Ahead Radial Direction: S60°46'32.854"E
Ahead Tangent Direction: N29°13'27.146"E

Element: Circular

		Station	Northing	Easting
PCC	(PCC)	105+48.139 R1	7547656.831	18489510.07
HPI	(HPI)	106+36.673 R1	7547734.096	18489553.29
CC	(CC)		7546771.673	18491092.3
PT	(PT)	107+25.067 R1	7547806.782	18489603.84

Radius: 1813
Delta: 5.591° Right
Degree of Curvature (Arc): 3.160°
Length: 176.928

415 NB

Tangent: 88.534
Chord: 176.858
Middle Ordinate: 2.158
External: 2.16
Back Tangent Direction: N29°13'27.146"E
Back Radial Direction: S60°46'32.854"E
Chord Direction: N32°01'11.697"E
Ahead Radial Direction: S55°11'03.752"E
Ahead Tangent Direction: N34°48'56.248"E

CIRCLE

Alignment Name: RAB
Alignment Description:
Alignment Style: Alignment\Geom_Baseline

Element: Circular

		Station	Northing	Easting
PC	(PC)	700+00.000 R1	7547575.74	18489434.62
CC	(CC)		7547536.951	18489408.08
PT	(PT)	702+95.286 R1	7547575.727	18489434.63

Radius: 47
Delta: 359.971° Left
Degree of Curvature (Arc): 121.906°
Length: 295.286

Tangent: 0
Chord: 0.023
Middle Ordinate: 0
External: 0
Back Tangent Direction: N55°37'10.530"W
Back Radial Direction: N34°22'49.470"E
Chord Direction: S55°36'18.972"E
Ahead Radial Direction: N34°24'32.578"E
Ahead Tangent Direction: N55°35'27.422"W

415 SB

Alignment Name: IA415_SB_P1
Alignment Description:
Alignment Style: Alignment\Geom_Baseline

		Station	Northing	Easting
Element: Circular				
PC	(PC)	200+00.000 Rt	7547240.53	18489192.98
HPI	(HPI)	200+06.663 Rt	7547246.293	18489196.32
CC	(CC)		7546434.698	18490582.18
PT	(PT)	200+13.325 Rt	7547252.028	18489199.71
	Radius:	1606		
	Delta:	0.475° Right		
	Degree of Curvature (Arc):	3.568°		
	Length:	13.325		
	Tangent:	6.663		
	Chord:	13.325		
	Middle Ordinate:	0.014		
	External:	0.014		
	Back Tangent Direction:	N30°07'00.148"E		
	Back Radial Direction:	S59°52'59.852"E		
	Chord Direction:	N30°21'15.838"E		
	Ahead Radial Direction:	S59°24'28.473"E		
	Ahead Tangent Direction:	N30°35'31.527"E		
Element: Linear				
PT	(PT)	200+13.325 Rt	7547252.028	18489199.71
HPI	(HPI)	200+42.809 Rt	7547277.408	18489214.72
	Tangential Direction:	N30°35'31.527"E		
	Tangential Length:	29.484		
Element: Linear				
HPI	(HPI)	200+42.809 Rt	7547277.273	18489214.68
PC	(PC)	202+80.993 Rt	7547482.305	18489335.89
	Tangential Direction:	N30°35'31.526"E		
	Tangential Length:	238.184		
Element: Circular				
PC	(PC)	202+80.993 Rt	7547482.305	18489335.89
HPI	(HPI)	202+87.176 Rt	7547487.627	18489339.04
CC	(CC)		7547535.996	18489245.08
PCC	(PCC)	202+93.345 Rt	7547493.281	18489341.54
	Radius:	105.5		
	Delta:	6.708° Left		
	Degree of Curvature (Arc):	54.309°		
	Length:	12.352		
	Tangent:	6.183		
	Chord:	12.345		
	Middle Ordinate:	0.181		
	External:	0.181		
	Back Tangent Direction:	N30°35'31.526"E		
	Back Radial Direction:	S59°24'28.474"E		
	Chord Direction:	N27°14'16.700"E		
	Ahead Radial Direction:	S66°06'58.126"E		
	Ahead Tangent Direction:	N23°53'01.874"E		
Element: Circular				
PCC	(PCC)	202+93.345 Rt	7547493.282	18489341.54
HPI	(HPI)	203+14.673 Rt	7547512.784	18489350.18
CC	(CC)		7547529.72	18489259.25
PRC	(PRC)	203+35.229 Rt	7547534.088	18489349.14
	Radius:	90		
	Delta:	26.665° Left		
	Degree of Curvature (Arc):	63.662°		
	Length:	41.885		

415 SB

	Tangent:	21.329		
	Chord:	41.508		
	Middle Ordinate:	2.426		
	External:	2.493		
	Back Tangent Direction:	N23°52'59.298"E		
	Back Radial Direction:	S66°07'00.702"E		
	Chord Direction:	N10°33'03.020"E		
	Ahead Radial Direction:	N87°13'06.742"E		
	Ahead Tangent Direction:	N02°46'53.258"W		
Element: Circular				
PRC	(PRC)	203+35.229 Rt	7547534.088	18489349.14
HPI	(HPI)	203+95.301 Rt	7547594.089	18489346.23
CC	(CC)		7547536.951	18489408.08
PRC	(PRC)	204+28.969 Rt	7547595.923	18489406.27
	Radius:	59		
	Delta:	91.031° Right		
	Degree of Curvature (Arc):	97.111°		
	Length:	93.739		
	Tangent:	60.072		
	Chord:	84.186		
	Middle Ordinate:	17.658		
	External:	25.2		
	Back Tangent Direction:	N02°46'53.258"W		
	Back Radial Direction:	N87°13'06.742"E		
	Chord Direction:	N42°44'03.339"E		
	Ahead Radial Direction:	S01°45'00.064"E		
	Ahead Tangent Direction:	N88°14'59.936"E		
Element: Circular				
PRC	(PRC)	204+28.969 Rt	7547595.923	18489406.27
HPI	(HPI)	204+44.519 Rt	7547596.398	18489421.82
CC	(CC)		7547660.893	18489404.29
PCC	(PCC)	204+59.496 Rt	7547603.856	18489435.46
	Radius:	65		
	Delta:	26.909° Left		
	Degree of Curvature (Arc):	88.147°		
	Length:	30.527		
	Tangent:	15.551		
	Chord:	30.248		
	Middle Ordinate:	1.784		
	External:	1.834		
	Back Tangent Direction:	N88°15'00.030"E		
	Back Radial Direction:	S01°44'59.970"E		
	Chord Direction:	N74°47'43.648"E		
	Ahead Radial Direction:	S28°39'32.735"E		
	Ahead Tangent Direction:	N61°20'27.265"E		
Element: Circular				
PCC	(PCC)	204+59.496 Rt	7547603.857	18489435.47
HPI	(HPI)	204+82.750 Rt	7547615.011	18489455.87
CC	(CC)		7547674.494	18489396.86
PT	(PT)	205+04.772 Rt	7547635.327	18489467.18
	Radius:	80.5		
	Delta:	32.225° Left		
	Degree of Curvature (Arc):	71.175°		
	Length:	45.276		
	Tangent:	23.254		
	Chord:	44.682		
	Middle Ordinate:	3.162		
	External:	3.291		
	Back Tangent Direction:	N61°20'19.637"E		
	Back Radial Direction:	S28°39'40.363"E		
	Chord Direction:	N45°13'34.447"E		
	Ahead Radial Direction:	S60°53'10.743"E		
	Ahead Tangent Direction:	N29°06'49.257"E		

415 SB

Element: Linear				
PT	(PT)	205+04.772 Rt	7547635.327	18489467.18
PC	(PC)	205+68.840 Rt	7547691.3	18489498.36
	Tangential Direction:	N29°06'49.257"E		
	Tangential Length:	64.068		
Element: Circular				
PC	(PC)	205+68.840 Rt	7547691.3	18489498.36
HPI	(HPI)	206+37.078 Rt	7547750.917	18489531.56
CC	(CC)		7547104.528	18490551.99
PCC	(PCC)	207+05.170 Rt	7547806.408	18489571.27
	Radius:	1206		
	Delta:	6.477° Right		
	Degree of Curvature (Arc):	4.751°		
	Length:	136.331		
	Tangent:	68.238		
	Chord:	136.258		
	Middle Ordinate:	1.926		
	External:	1.929		
	Back Tangent Direction:	N29°06'49.257"E		
	Back Radial Direction:	S60°53'10.743"E		
	Chord Direction:	N32°21'07.729"E		
	Ahead Radial Direction:	S54°24'33.799"E		
	Ahead Tangent Direction:	N35°35'26.201"E		
Element: Circular				
PCC	(PCC)	207+05.170 Rt	7547806.408	18489571.27
HPI	(HPI)	207+14.912 Rt	7547814.33	18489576.94
CC	(CC)		7546479.932	18491424.71
PT	(PT)	207+24.654 Rt	7547822.203	18489582.68
	Radius:	2279.208		
	Delta:	0.490° Right		
	Degree of Curvature (Arc):	2.514°		
	Length:	19.484		
	Tangent:	9.742		
	Chord:	19.484		
	Middle Ordinate:	0.021		
	External:	0.021		
	Back Tangent Direction:	N35°35'26.201"E		
	Back Radial Direction:	S54°24'33.799"E		
	Chord Direction:	N35°50'07.843"E		
	Ahead Radial Direction:	S53°55'10.515"E		
	Ahead Tangent Direction:	N36°04'49.485"E		

NW 106TH AVENUE EB RETURN

Alignment Name: SR106_EB_P
Alignment Description:
Alignment Style: Alignment\Geom_Baseline Secondary

		Station	Northing	Easting
Element: Circular				
PC	(PC)	300+00.000 R1	7547693.744	18489145.36
HPI	(HPI)	300+12.288 R1	7547686.38	18489155.2
CC	(CC)		7547285.461	18488839.74
PT	(PT)	300+24.571 R1	7547678.551	18489164.67
	Radius:	510		
	Delta:	2.760° Right		
	Degree of Curvature (Arc):	11.234°		
	Length:	24.571		
	Tangent:	12.288		
	Chord:	24.569		
	Middle Ordinate:	0.148		
	External:	0.148		
	Back Tangent Direction:	S53°10'59.122"E		
	Back Radial Direction:	S36°49'00.878"W		
	Chord Direction:	S51°48'10.307"E		
	Ahead Radial Direction:	S39°34'38.507"W		
	Ahead Tangent Direction:	S50°25'21.493"E		
Element: Linear				
PT	(PT)	300+24.571 R1	7547678.551	18489164.67
PC	(PC)	300+86.285 R1	7547639.232	18489212.24
	Tangential Direction:	S50°25'21.493"E		
	Tangential Length:	61.714		
Element: Circular				
PC	(PC)	300+86.285 R1	7547639.232	18489212.24
HPI	(HPI)	301+12.056 R1	7547622.813	18489232.1
CC	(CC)		7547895.897	18489424.4
PT	(PT)	301+37.724 R1	7547609.646	18489254.25
	Radius:	333		
	Delta:	8.851° Left		
	Degree of Curvature (Arc):	17.206°		
	Length:	51.439		
	Tangent:	25.771		
	Chord:	51.388		
	Middle Ordinate:	0.993		
	External:	0.996		
	Back Tangent Direction:	S50°25'21.493"E		
	Back Radial Direction:	S39°34'38.507"W		
	Chord Direction:	S54°50'52.583"E		
	Ahead Radial Direction:	S30°43'36.326"W		
	Ahead Tangent Direction:	S59°16'23.674"E		
Element: Linear				
PT	(PT)	301+37.724 R1	7547609.646	18489254.25
PC	(PC)	301+90.377 R1	7547582.743	18489299.51
	Tangential Direction:	S59°16'23.674"E		
	Tangential Length:	52.653		
Element: Circular				
PC	(PC)	301+90.377 R1	7547582.743	18489299.51
HPI	(HPI)	302+28.825 R1	7547563.098	18489332.56
CC	(CC)		7547522.57	18489263.75
PCC	(PCC)	302+60.695 R1	7547524.667	18489333.72
	Radius:	70		
	Delta:	57.556° Right		
	Degree of Curvature (Arc):	81.851°		
	Length:	70.318		
	Tangent:	38.448		
	Chord:	67.399		
	Middle Ordinate:	8.646		

NW 106TH AVENUE EB RETURN

		Station	Northing	Easting
	External:	9.864		
	Back Tangent Direction:	S59°16'23.674"E		
	Back Radial Direction:	S30°43'36.326"W		
	Chord Direction:	S30°29'42.243"E		
	Ahead Radial Direction:	S88°16'59.187"W		
	Ahead Tangent Direction:	S01°43'00.813"E		
Element: Circular				
PCC	(PCC)	302+60.695 R1	7547524.665	18489333.72
HPI	(HPI)	302+86.764 R1	7547498.608	18489334.5
CC	(CC)		7547521.971	18489243.76
PT	(PT)	303+11.443 R1	7547476.168	18489321.23
	Radius:	90		
	Delta:	32.307° Right		
	Degree of Curvature (Arc):	63.662°		
	Length:	50.748		
	Tangent:	26.068		
	Chord:	50.078		
	Middle Ordinate:	3.553		
	External:	3.699		
	Back Tangent Direction:	S01°42'54.618"E		
	Back Radial Direction:	S88°17'05.382"W		
	Chord Direction:	S14°26'18.455"W		
	Ahead Radial Direction:	N59°24'28.472"W		
	Ahead Tangent Direction:	S30°35'31.528"W		

NW 106TH AVENUE WB RETURN

Alignment Name: SR106_WB_P
Alignment Description:
Alignment Style: Alignment\Geom_Baseline Secondary

		Station	Northing	Easting
Element: Linear				
START	(START)	400+00.000 R1	7547711.75	18489188.02
PC	(PC)	401+50.867 R1	7547626.558	18489312.53
	Tangential Direction:	S55°37'10.530"E		
	Tangential Length:	150.867		
Element: Circular				
PC	(PC)	401+50.867 R1	7547626.558	18489312.53
HPI	(HPI)	402+04.214 R1	7547596.433	18489356.56
CC	(CC)		7547725.594	18489380.29
PCC	(PCC)	402+51.264 R1	7547608.937	18489408.42
	Radius:	120		
	Delta:	47.936° Left		
	Degree of Curvature (Arc):	47.746°		
	Length:	100.397		
	Tangent:	53.347		
	Chord:	97.495		
	Middle Ordinate:	10.347		
	External:	11.324		
	Back Tangent Direction:	S55°37'10.532"E		
	Back Radial Direction:	S34°22'49.468"W		
	Chord Direction:	S79°35'15.504"E		
	Ahead Radial Direction:	S13°33'20.476"E		
	Ahead Tangent Direction:	N76°26'39.524"E		
Element: Circular				
PCC	(PCC)	402+51.264 R1	7547608.938	18489408.42
HPI	(HPI)	402+90.705 R1	7547618.183	18489446.76
CC	(CC)		7547696.43	18489387.32
PT	(PT)	403+25.610 R1	7547652.641	18489465.95
	Radius:	90		
	Delta:	47.330° Left		
	Degree of Curvature (Arc):	63.662°		
	Length:	74.346		
	Tangent:	39.442		
	Chord:	72.25		
	Middle Ordinate:	7.568		
	External:	8.263		
	Back Tangent Direction:	N76°26'37.106"E		
	Back Radial Direction:	S13°33'22.894"E		
	Chord Direction:	N52°46'43.180"E		
	Ahead Radial Direction:	S60°53'10.746"E		
	Ahead Tangent Direction:	N29°06'49.254"E		

NW BEAVER DRIVE EB RETURN

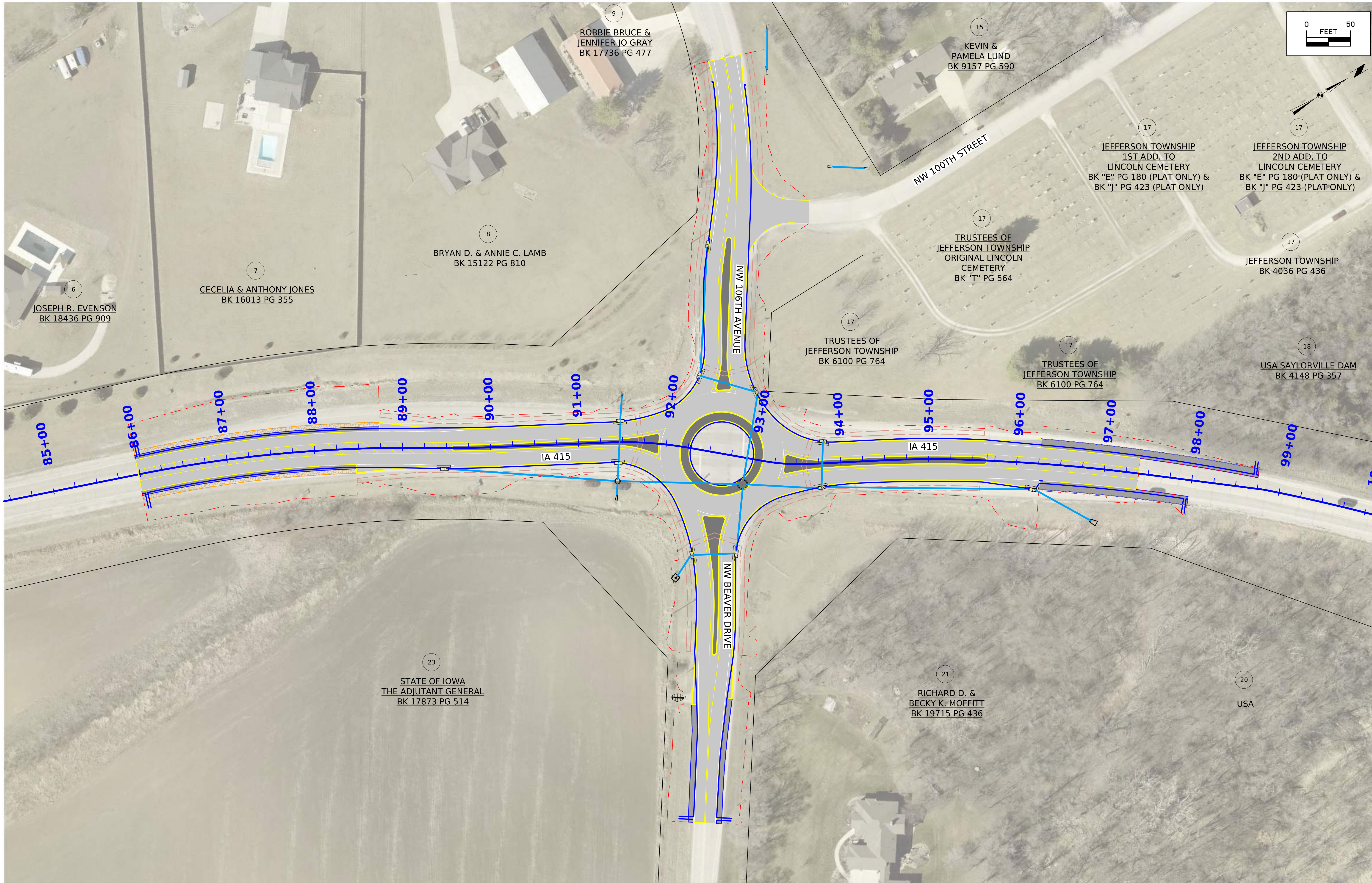
Alignment Name: SRBeaver_EB_P
Alignment Description:
Alignment Style: Alignment\Geom_Baseline Secondary

		Station	Northing	Easting
Element: Circular				
PC	(PC)	500+00.000 R1	7547401.7	18489358
HPI	(HPI)	500+94.454 R1	7547479.436	18489411.65
CC	(CC)		7547336.376	18489452.65
PCC	(PCC)	501+58.152 R1	7547441.911	18489498.33
	Radius:	115		
	Delta:	78.795° Right		
	Degree of Curvature (Arc):	49.822°		
	Length:	158.152		
	Tangent:	94.454		
	Chord:	145.98		
	Middle Ordinate:	26.132		
	External:	33.817		
	Back Tangent Direction:	N34°36'48.719"E		
	Back Radial Direction:	S55°23'11.281"E		
	Chord Direction:	N74°00'39.768"E		
	Ahead Radial Direction:	S23°24'30.817"W		
	Ahead Tangent Direction:	S66°35'29.183"E		
Element: Circular				
PCC	(PCC)	501+58.152 R1	7547441.911	18489498.33
HPI	(HPI)	501+97.089 R1	7547426.442	18489534.07
CC	(CC)		7547074.833	18489339.42
PT	(PT)	502+35.781 R1	7547404.372	18489566.14
	Radius:	400		
	Delta:	11.120° Right		
	Degree of Curvature (Arc):	14.324°		
	Length:	77.629		
	Tangent:	38.937		
	Chord:	77.507		
	Middle Ordinate:	1.882		
	External:	1.891		
	Back Tangent Direction:	S66°35'29.183"E		
	Back Radial Direction:	S23°24'30.817"W		
	Chord Direction:	S61°01'53.991"E		
	Ahead Radial Direction:	S34°31'41.200"W		
	Ahead Tangent Direction:	S55°28'18.800"E		
Element: Linear				
PT	(PT)	502+35.781 R1	7547404.372	18489566.14
HPI	(HPI)	502+56.480 R1	7547392.64	18489583.2
	Tangential Direction:	S55°28'18.800"E		
	Tangential Length:	20.699		
Element: Linear				
HPI	(HPI)	502+56.480 R1	7547392.64	18489583.2
END	(END)	503+46.758 R1	7547346.517	18489660.8
	Tangential Direction:	S59°16'34.150"E		
	Tangential Length:	90.278		

NW BEAVER DRIVE WB RETURN

Alignment Name: SRBeaver_WB_P
Alignment Description:
Alignment Style: Alignment\Geom_Baseline

		Station	Northing	Easting
Element: Circular				
PC	(PC)	600+00.000 R1	7547568.156	18489484.75
HPI	(HPI)	600+54.816 R1	7547515.054	18489471.15
CC	(CC)		7547549.547	18489557.41
PT	(PT)	600+94.673 R1	7547485.972	18489517.62
	Radius:	75		
	Delta:	72.325° Left		
	Degree of Curvature (Arc):	76.394°		
	Length:	94.673		
	Tangent:	54.816		
	Chord:	88.512		
	Middle Ordinate:	14.449		
	External:	17.897		
	Back Tangent Direction:	S14°21'59.732"W		
	Back Radial Direction:	N75°38'00.268"W		
	Chord Direction:	S21°47'45.235"E		
	Ahead Radial Direction:	S32°02'29.798"W		
	Ahead Tangent Direction:	S57°57'30.202"E		
Element: Linear				
PT	(PT)	600+94.673 R1	7547485.972	18489517.62
PC	(PC)	601+53.168 R1	7547454.93	18489567.2
	Tangential Direction:	S57°56'54.288"E		
	Tangential Length:	58.494		
Element: Circular				
PC	(PC)	601+53.168 R1	7547454.93	18489567.2
HPI	(HPI)	601+78.019 R1	7547441.746	18489588.26
CC	(CC)		7547022.622	18489296.62
PT	(PT)	602+02.832 R1	7547426.575	18489607.95
	Radius:	510		
	Delta:	5.579° Right		
	Degree of Curvature (Arc):	11.234°		
	Length:	49.664		
	Tangent:	24.852		
	Chord:	49.644		
	Middle Ordinate:	0.604		
	External:	0.605		
	Back Tangent Direction:	S57°57'30.202"E		
	Back Radial Direction:	S32°02'29.798"W		
	Chord Direction:	S55°10'07.151"E		
	Ahead Radial Direction:	S37°37'15.901"W		
	Ahead Tangent Direction:	S52°22'44.099"E		
Element: Linear				
PT	(PT)	602+02.832 R1	7547426.575	18489607.95
END	(END)	602+52.964 R1	7547394.828	18489646.75
	Tangential Direction:	S50°42'29.913"E		
	Tangential Length:	50.133		



FILE NO.	ENGLISH	DESIGN TEAM **Snyder & Associates, Inc.**	**POLK** COUNTY	PROJECT NUMBER **HSIPX-415-1(086)--3L-77**	SHEET NUMBER **H.1**

1:52:12 PM 6/6/2024 egutierrez pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\7741502024\Design\CADD_Files\Sheet_Files\SHT_77415086Z08_H1.dgn

108-23A
8/1/2008

TRAFFIC CONTROL PLAN

In order to minimize vehicle traffic congestion, the contractor shall comply with the following restrictions, for the limits of construction.

A minimum of a single lane of traffic shall be maintained at all times along IA 415 during construction unless a flagger is needed during Stage 1 or Stage 5. When a flaggers is needed, this work shall be performed during the hours of 10:00 a.m. to 3:00 p.m.

Shoulder and lane closures (per Standard Road Plans TC-202, TC-252, TC-402, & TC-418) will be necessary for construction. If any roads need to be closed during construction, notify any residents that are affected two (2) weeks prior to temporary road closures and changes in traffic pattern during construction.

During the road closure of NW 106th Avenue and NW Beaver Drive, traffic will be detoured, see Staging Notes.

The Contractor shall coordinate traffic control with other projects within the area.

Traffic control on this project shall be in accordance with the TC Series Standard Road Plans listed elsewhere in these plans. For additional complementary information, refer to part 6 of the Manual on Uniform Traffic Control Devices for streets and highways, as adopted by the Department per 761 of the Iowa Administrative Code (IAC), Chapter 130 and the current standard specifications.

Where possible, all post mounted signs shall be placed at least 2 feet beyond the curb or edge of shoulder. All signs to be in place longer than three days must be post mounted.

The location for storage of equipment by the Contractor during non-working hours shall be as approved by the Engineer in charge of construction. The Contractor will be responsible for securing a safe storage area for equipment and materials to be used on the project.

Access for garbage and postal services must be maintained at all times unless arranged otherwise by agreement between the Contractor and property owner.

108-26A
8/1/2008

STAGING NOTES

GENERAL STAGING NOTES:

Do not start any work until after traffic control is in place and approved by the Engineer.

Contractor is allowed to submit a revised staging plan to the Engineer prior to construction.

Coordinate all construction with utility companies and their relocations and services.

IA 415 is a high volume roadway, construction activity in the area will disrupt traffic on IA 415 and its side streets. Therefore, it is advisable to adopt a construction sequence that directs activities in an orderly manner and minimized disruptions to traffic as much as possible.

It is recognized that as the various activities related to construction progress, certain situations may arise which will preclude adhering to the original construction sequence or which, in the opinion of the Contractor, should result in more efficient staging operations. Should the Contractor desire to deviate from the original plan, they shall submit a written alternate plan to the Resident Construction Engineer for approval.

STAGE 1 - TEMPORARY PAVEMENT
- Install traffic control along IA 415 per Standard Road Plan TC-202 to install temporary pavement. Traffic Control shall be installed for the temporary pavement connection to NW 101st Way and temporary widening along IA 415.
- Install traffic control along NW 106th Avenue and NW 100th Street per Standard Road Plan TC-202 to install temporary connection.
- A flagger may be used during the paving of the temporary connection to NW 100th St, NW 101st Way, and temporary widening along IA 415. Install traffic control per Standard Road Plan TC-251. The use of a flagger shall be limited to the hours of 10:00 a.m. to 3:00 p.m.

STAGE 2 - PERMANENT NB IA-415 PAVEMENT
- Install traffic control along IA 415 per Standard Road Plan TC-253 to shift traffic head to head on the existing SB lanes. Minimum 11' lanes shall be maintained at all times.
- Install traffic control along NW Beaver Drive to close the existing WB right turn lane.
- Install traffic control along NW 106th Avenue per Standard Road Plan TC-252 to fully close the roadway from NW 100th Street to IA 415. Refer to the detour route sheets for NW 106th Avenue detour route.
- The intersection of IA 415 and NW Beaver Drive shall remain open during this phase. The intersection will be stopped controlled.
- Do not construct the medians along IA 415. Medians will be doweled on at a later time.

STAGE 3 - PERMANENT NW BEAVER DRIVE PAVEMENT
- Head to head traffic shall be maintained along IA 415 from Phase 2.
- Install traffic control along NW Beaver Drive per Standard Road Plan TC-252 to fully close the roadway. Refer to the detour route sheets for NW Beaver Drive detour routes.
- Do not construct the nose of the median along NW Beaver Drive. Median nose will be doweled on at a later time.

STAGE 4 - PERMANENT SB IA-415 PAVEMENT
- Install traffic control along IA 415 per Standard Road Plan TC-253 to shift traffic head to head to the previously constructed NB IA 415 lanes. Minimum 11' lanes shall be maintained at all times.
- Maintain the NW 106th Avenue full road closure while NW 106th Avenue is being constructed.
- NW Beaver Drive shall be opened.

STAGE 5 - MEDAIN AND TRUCK APRON ALONG IA-415
- Install traffic control per the J Sheets along IA 415 to narrow drive lanes to maintain a minimum 12' lanes.
- Construct doweled on medians along IA 415 and median nose along NW Beaver Drive.
- Install traffic control per the J Sheets along the roundabout circle to construct the truck apron.
- Truck apron and doweled on median work cannot be done at the same time.
- A flagger may be used during the paving of the doweled on medians and truck apron. Install traffic control per Standard Road Plan TC-251. Flaggers are to be used during non-peak traffic hours to avoid traffic delays.

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

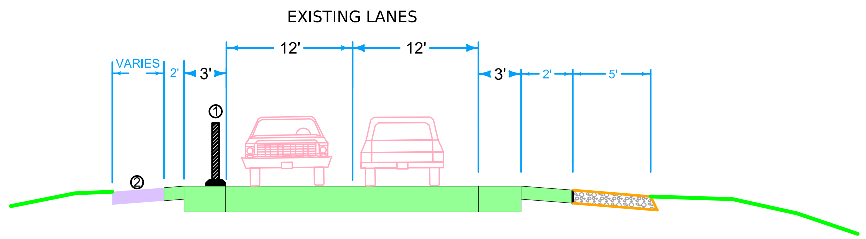
Channelizing Device	Crash Cushion (Temp or Perm)
Drum	Traffic Signal
Temporary Lane Separator	Flagger
Tubular Marker	Temporary Floodlighting
Channelizer Marker	Traffic Sign
Concrete Barrier Marker	Type III Barricade
Delineator	Type A Warning Light
Temporary Barrier Rail	Direction of Traffic
Pavement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

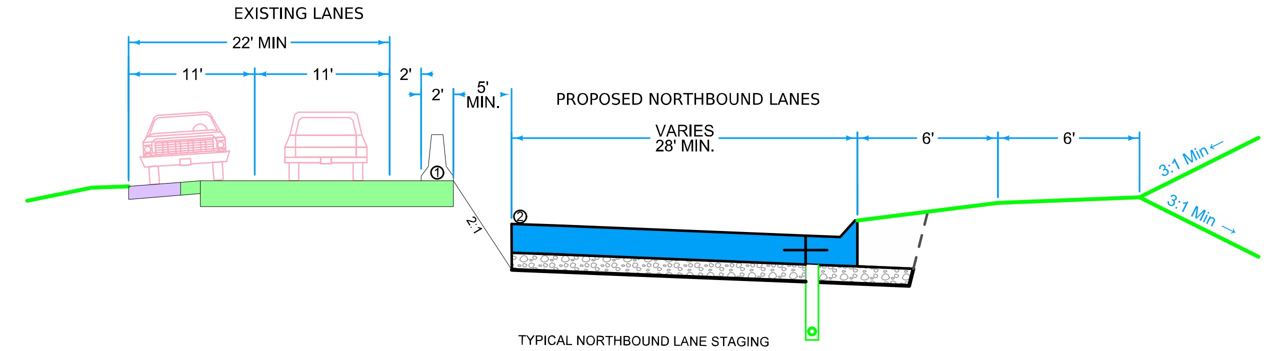
STAGE 1



TYPICAL SHOULDER CLOSURE FOR
IA 415

NOTES:
1. CHANNELIZER
2. TEMPORARY PAVEMENT SHALL BE CONSTRUCTED FOR ADDITIONAL SPACE TO ALLOW FOR HEAD-TO-HEAD TRAFFIC IN FUTURE STAGES.

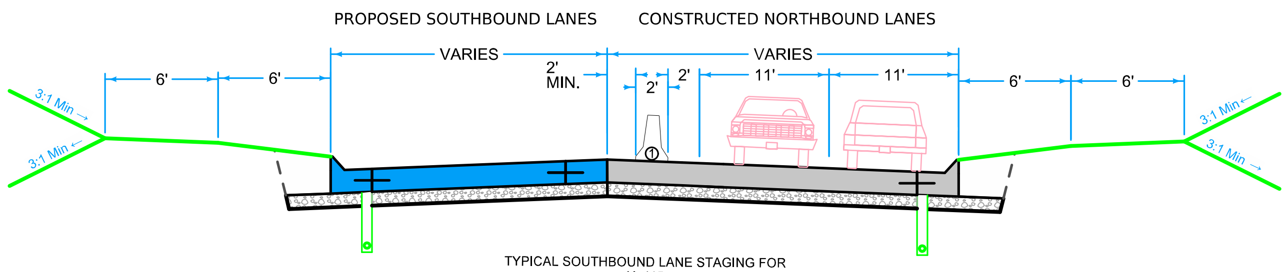
STAGE 2/3



TYPICAL NORTHBOUND LANE STAGING

NOTES:
1. TEMPORARY BARRIER RAIL (PINNED)
2. DOWELED ON MEDAIN TO BE CONSTRUCTED IN STAGE 5 TO ALLOW HEAD-TO-HEAD TRAFFIC ALONG IA 415 DURING STAGE 4.

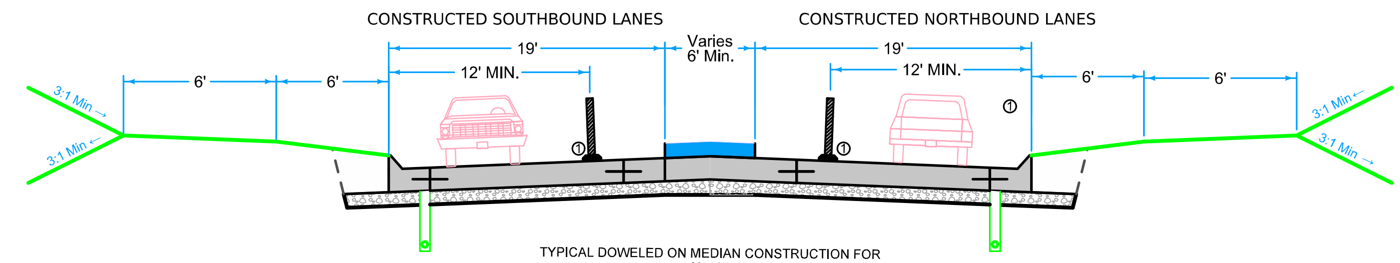
STAGE 4



TYPICAL SOUTHBOUND LANE STAGING FOR
IA 415

NOTES:
1. TEMPORARY BARRIER RAIL (NOT PINNED)

STAGE 5



TYPICAL DOWELED ON MEDIAN CONSTRUCTION FOR
IA 415

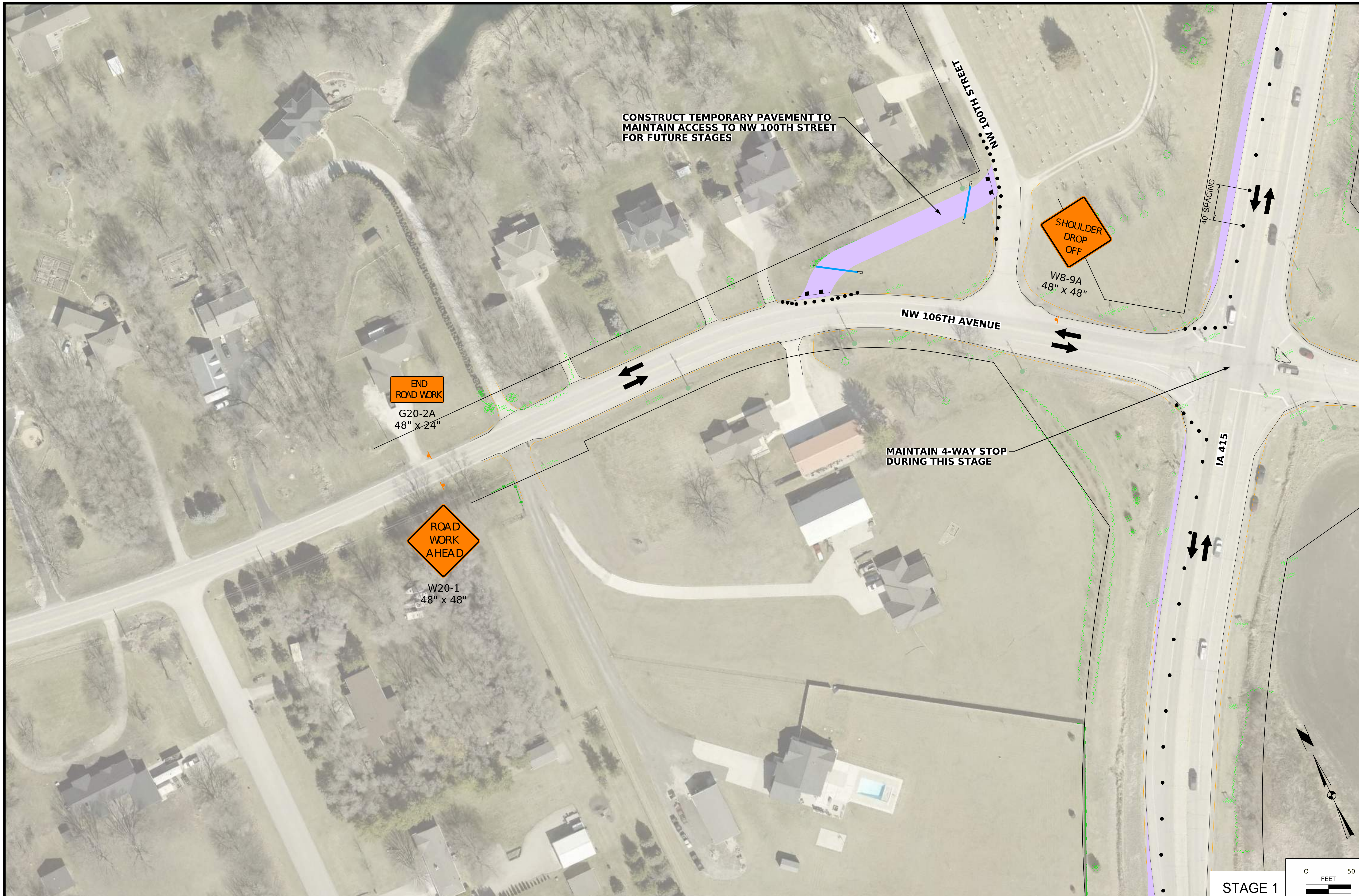
NOTES:
1. 42" CHANNELIZER
2. FLAGGERS WILL BE USED DURING CONSTRUCTION OF PAVED SPLITTER ISLANDS AND TRUCK APRON, ALLOWING TRAFFIC TO FLOW IN 15 MINUTE INTERVALS*


NW 101ST WAY
ROAD CLOSED
R11-2
48" x 30"
CONSTRUCT TEMPORARY PAVEMENT FOR NW 106TH AVENUE DETOUR ROUTE IN FUTURE STAGES
END ROAD WORK
G20-2A
48" x 24"
40' SPACING
IA 415
350'
350'
ROAD WORK AHEAD
W20-1
48" x 48"
SHOULDER DROP OFF
W8-9A
48" x 48"
STAGE 1
0
50
FEET

FILE NO.	ENGLISH	DESIGN TEAM Snyder & Associates, Inc.	POLK COUNTY	PROJECT NUMBER HSIPX-415-1(086)--3L-77	SHEET NUMBER J.5

1:53:11 PM 6/6/2024 egutierrez pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\7741502024\Design\CADD_Files\Sheet_Files\SHT_77415086Z08_J04-J07

FILE NO.	ENGLISH	DESIGN TEAM Snyder & Associates, Inc.	POLK COUNTY	PROJECT NUMBER HSIPX-415-1(086)--3L-77	SHEET NUMBER J.6



FILE NO.	ENGLISH	DESIGN TEAM Snyder & Associates, Inc.		POLK COUNTY	PROJECT NUMBER HSIPX-415-1(086)--3L-77	SHEET NUMBER J.7

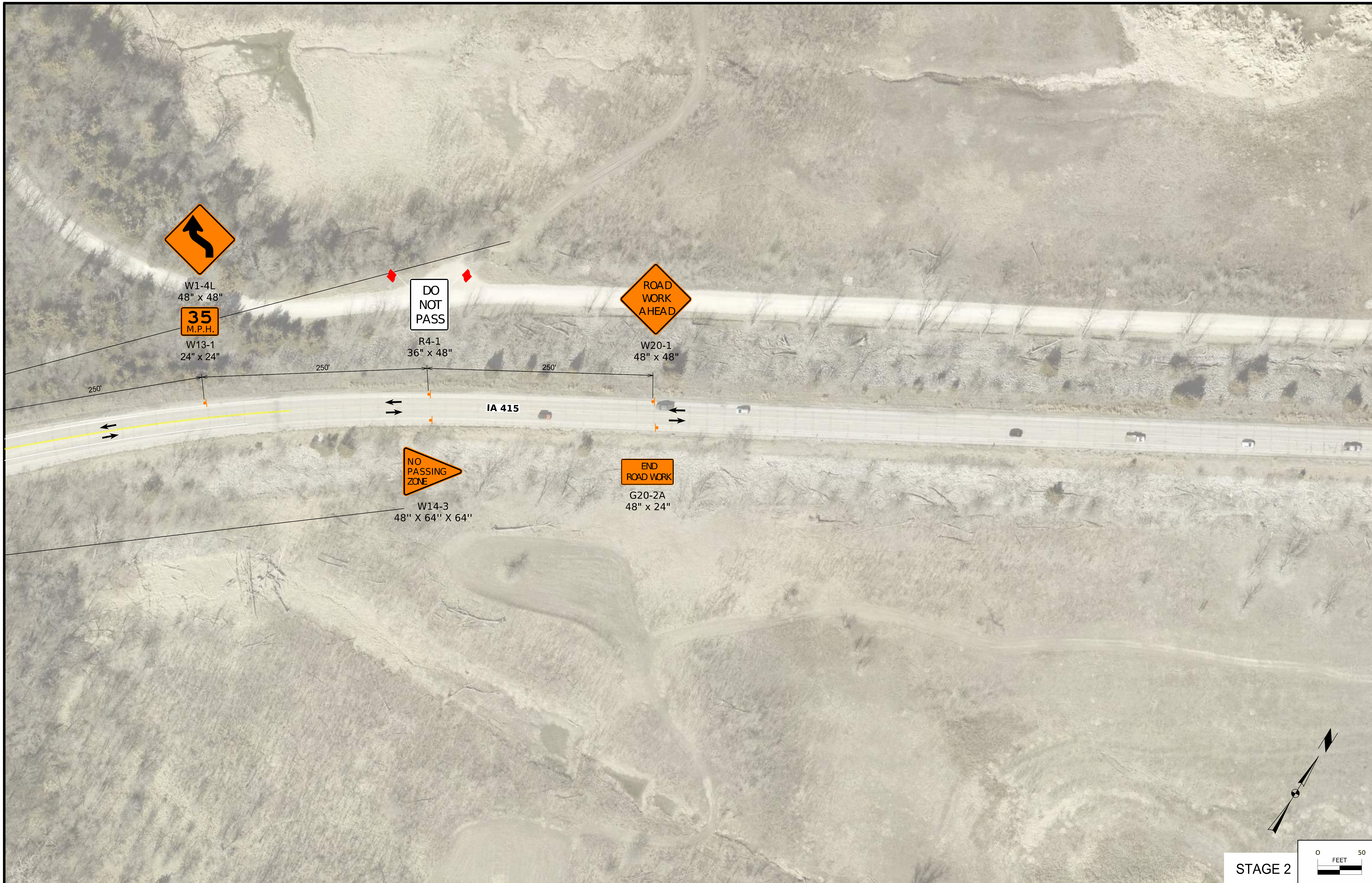
1:53:15 PM 6/6/2024 egutierrez pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\7741502024\Design\CADD_Files\Sheet_Files\SHT_77415086Z08_J04-J07

FILE NO.	ENGLISH	DESIGN TEAM Snyder & Associates, Inc.	POLK COUNTY	PROJECT NUMBER HSIPX-415-1(086)--3L-77	SHEET NUMBER J.8

1:53:36 PM 6/6/2024 egutierrez pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\7741502024\Design\CADD_Files\Sheet_Files\SHT_77415086Z08_J08-J10

FILE NO.	ENGLISH	DESIGN TEAM Snyder & Associates, Inc.	POLK COUNTY	PROJECT NUMBER HSIPX-415-1(086)--3L-77	SHEET NUMBER J.9

1:53:38 PM 6/6/2024 egutierrez pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\7741502024\Design\CADD_Files\Sheet_Files\SHT_77415086Z08_J08-J10

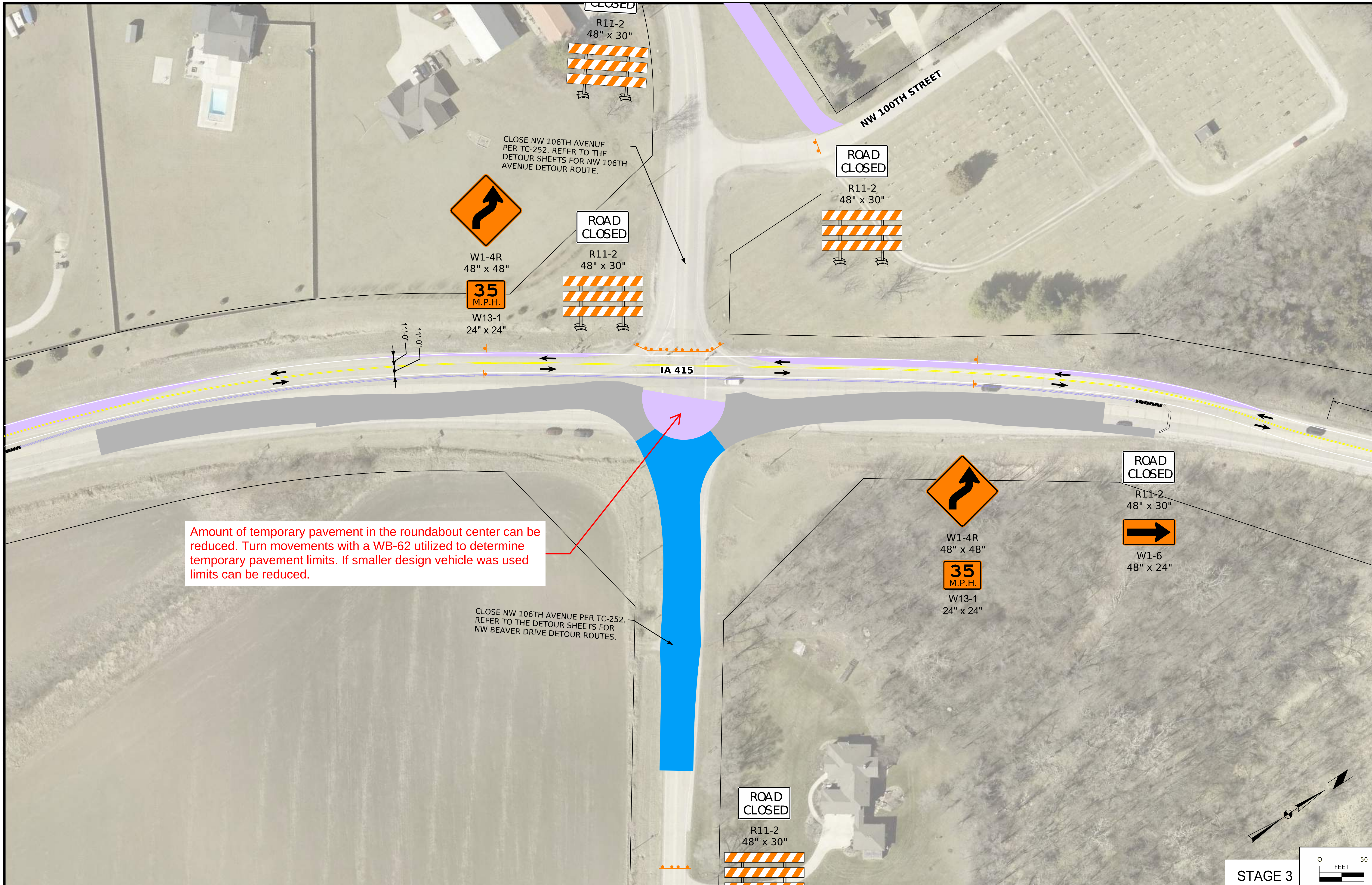


FILE NO.	ENGLISH	DESIGN TEAM Snyder & Associates, Inc.	POLK COUNTY	PROJECT NUMBER HSIPX-415-1(086)--3L-77	SHEET NUMBER J.10

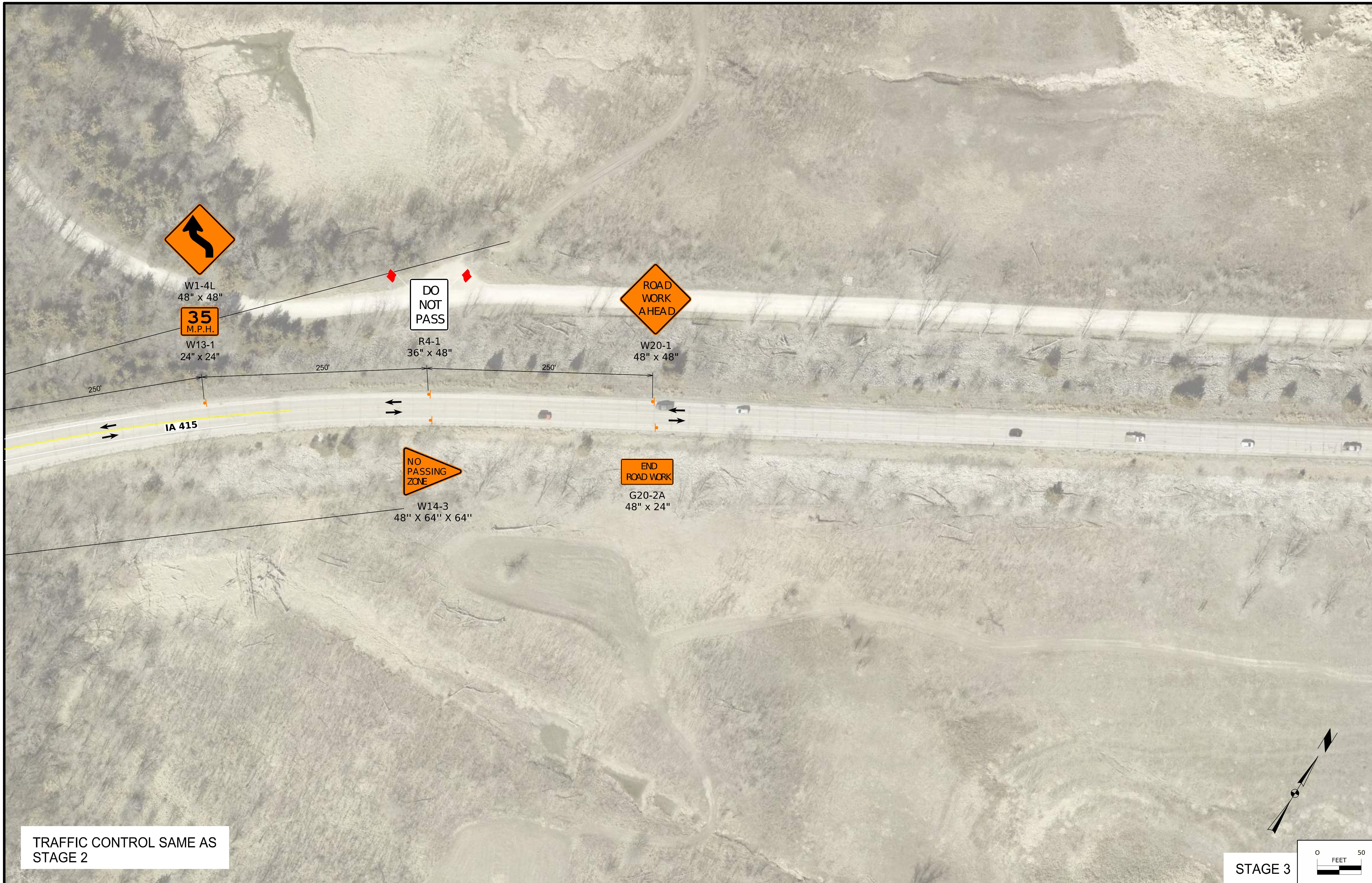
1:53:40 PM 6/6/2024 egutierrez pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\7741502024\Design\CADD_Files\Sheet_Files\SHT_77415086Z08_J08-J10

FILE NO.	ENGLISH	DESIGN TEAM Snyder & Associates, Inc.	POLK COUNTY	PROJECT NUMBER HSIPX-415-1(086)--3L-77	SHEET NUMBER J.11

1:53:52 PM 6/6/2024 egutierrez pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\7741502024\Design\CADD_Files\Sheet_Files\SHT_77415086Z08_J11-J13



FILE NO.	ENGLISH	DESIGN TEAM Snyder & Associates, Inc.	POLK COUNTY	PROJECT NUMBER HSIPX-415-1(086)--3L-77	SHEET NUMBER J.12

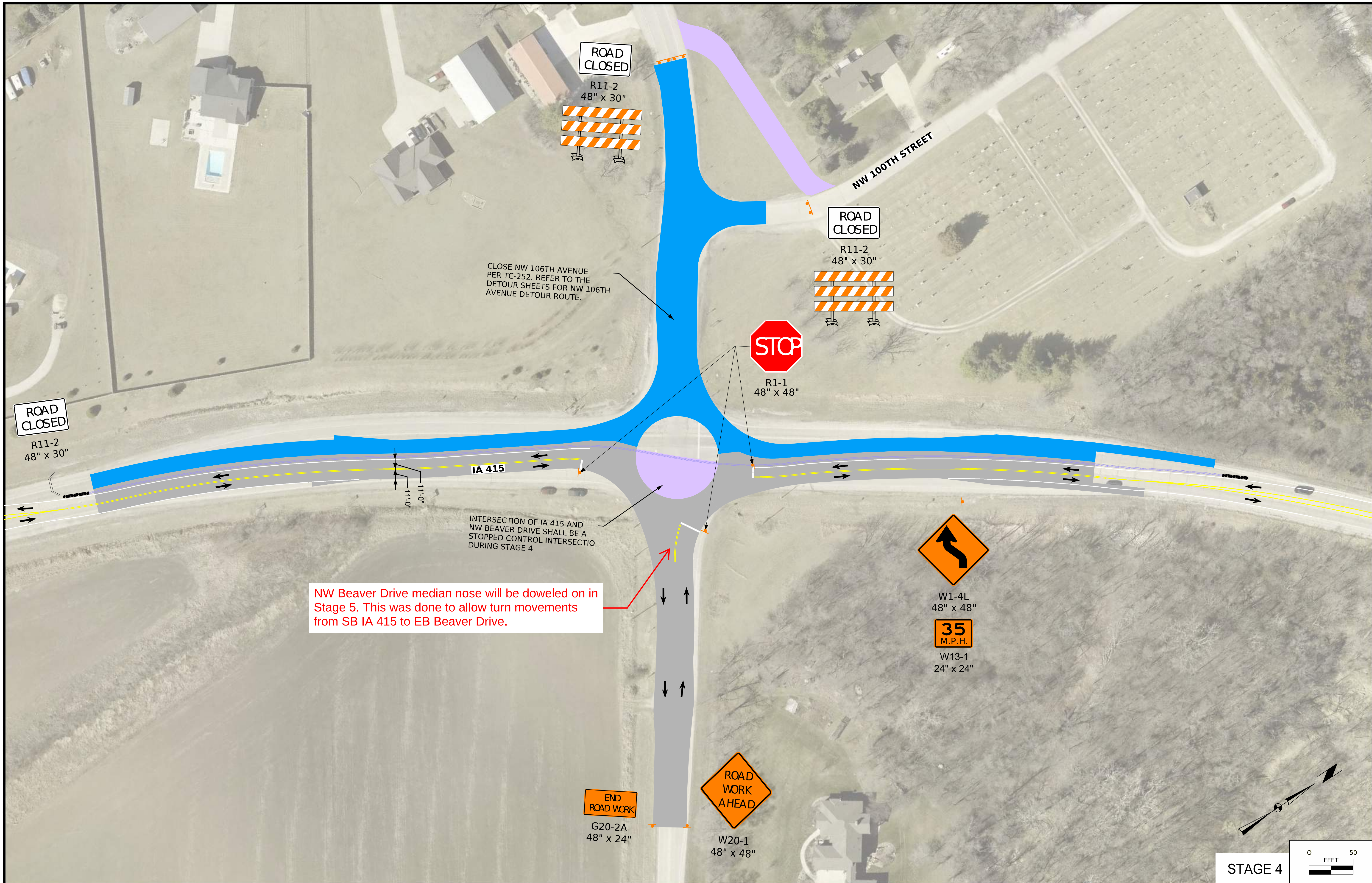


FILE NO.	ENGLISH	DESIGN TEAM Snyder & Associates, Inc.		POLK COUNTY	PROJECT NUMBER HSIPX-415-1(086)--3L-77	SHEET NUMBER J.13	

1:53:56 PM 6/6/2024 egutierrez pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\7741502024\Design\CADD_Files\Sheet_Files\SHT_77415086Z08_J11-J13

FILE NO.	ENGLISH	DESIGN TEAM Snyder & Associates, Inc.	POLK COUNTY	PROJECT NUMBER HSIPX-415-1(086)--3L-77	SHEET NUMBER J.14

1:54:07 PM 6/6/2024 egutierrez pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\7741502024\Design\CADD_Files\Sheet_Files\SHT_77415086Z08_J14-J16



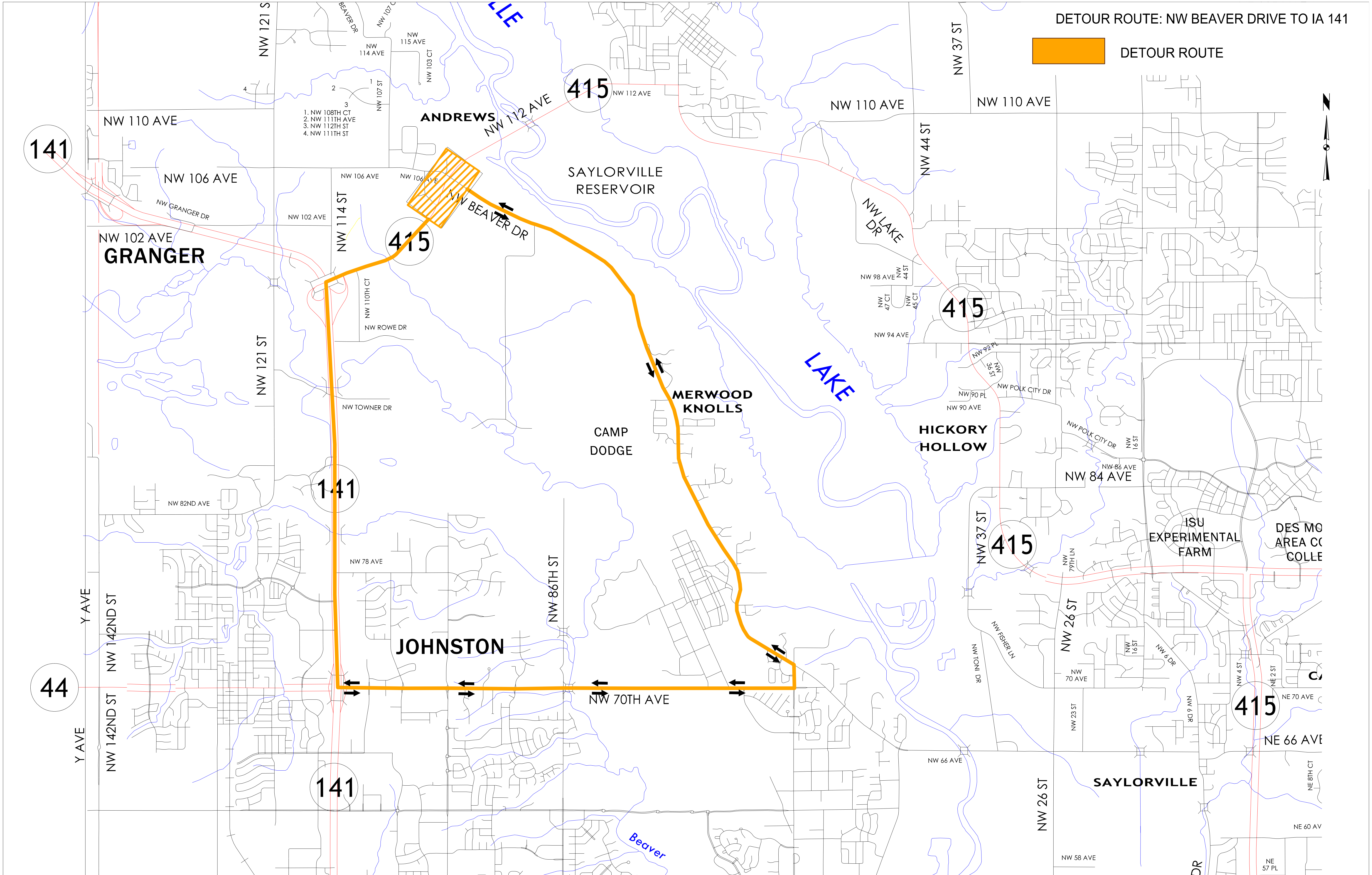
FILE NO.	ENGLISH	DESIGN TEAM Snyder & Associates, Inc.	POLK COUNTY	PROJECT NUMBER HSIPX-415-1(086)--3L-77	SHEET NUMBER J.15

1:54:10 PM 6/6/2024 egutierrez pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\7741502024\Design\CADD_Files\Sheet_Files\SHT_77415086Z08_J14-J16

FILE NO.	ENGLISH	DESIGN TEAM Snyder & Associates, Inc.	POLK COUNTY	PROJECT NUMBER HSIPX-415-1(086)--3L-77	SHEET NUMBER J.16

1:54:12 PM 6/6/2024 egutierrez pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\7741502024\Design\CADD_Files\Sheet_Files\SHT_77415086Z08_J14-J16

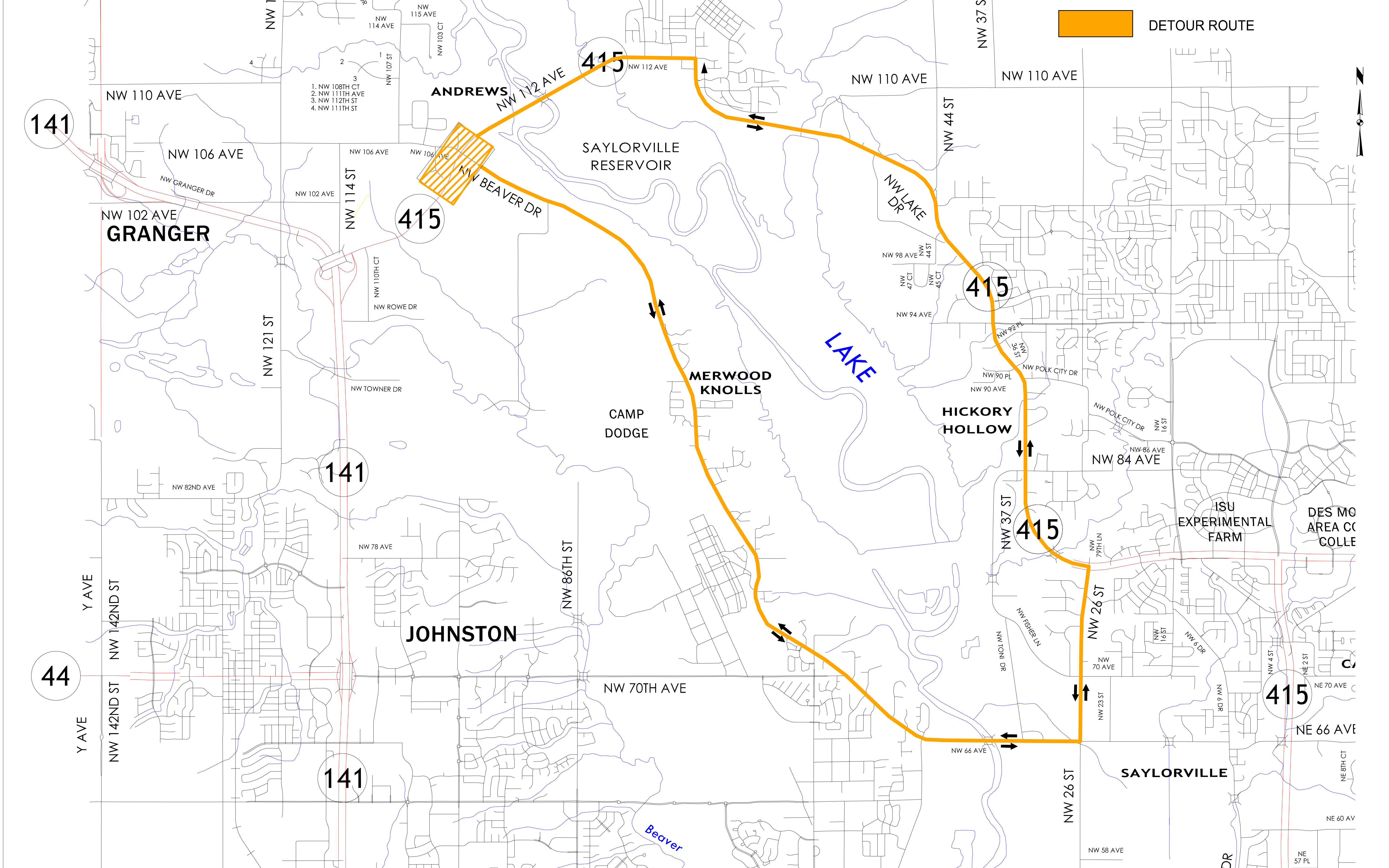

ROAD WORK AHEAD
W20-1
48" x 48"
END ROAD WORK
G20-2A
48" x 24"
NW 100TH STREET
BE PREPARED TO STOP
W20-7B
48" x 48"
NW 106TH AVENUE
INSTALL CHANNELIZERS 1' FROM FACE OF CURB WHILE INSTALLING TRUCK APRON.
INSTALL ROUNDABOUT TRUCK APRON
INSTALL DOWELED-ON MEDIAN
TRUCK APRON AND DOWELED ON MEDIAN WORK CANNOT TAKE PLACE AT THE SAME TIME
IA 415
35' (TYP.) SPACING
12' MIN.
INSTALL DOWELED-ON MEDIAN
INSTALL DOWELED-ON MEDIAN
12' MIN.
IA 415
NW BEAVER DRIVE
STAGE 5
0
50
FEET



FILE NO. | ENGLISH | DESIGN TEAM **Snyder & Associates, Inc.** | **POLK** COUNTY | PROJECT NUMBER **HSIPX-415-1(086)--3L-77** | SHEET NUMBER **J.18**

1:54:41 PM 6/6/2024 egutierrez pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\7741502024\Design\CADD_Files\Sheet_Files\SHT_77415086Z08_J18-J20

DETOUR ROUTE: NW BEAVER DRIVE TO IA 415



FILE NO. | ENGLISH | DESIGN TEAM **Snyder & Associates, Inc.** | **POLK** COUNTY | PROJECT NUMBER **HSIPX-415-1(086)--3L-77** | SHEET NUMBER **J.19**

1:54:42 PM 6/6/2024 egutierrez pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\7741502024\Design\CADD_Files\Sheet_Files\SHT_77415086Z08_J18-J20

FILE NO.	ENGLISH	DESIGN TEAM **Snyder & Associates, Inc.**		**POLK** COUNTY	PROJECT NUMBER **HSIPX-415-1(086)--3L-77**	SHEET NUMBER **J.20**	REVISED

1:54:44 PM 6/6/2024 egutierrez pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\7741502024\Design\CADD_Files\Sheet_Files\SHT_77415086Z08_J18-J20

SURVEY SYMBOLS

- Interstate Highway Symbol
- U.S. Highway Symbol
- Iowa Highway Symbol
- County Road Highway Symbol
- Evergreen Tree
- Deciduous Tree
- Fruit Tree
- Shrub (Bushes)
- Timber
- Hedge
- Stump
- Swamp
- Rock Outcrop
- Broken Concrete
- Revetment (Rip Rap)
- Cemetery
- Grave
- Cave
- Sink Hole
- Board Fence
- Chain Link or Security Fence
- Wire Fence
- Terrace
- Earth Dam or Dike (Existing)
- Tile Outlet
- Edge of Water
- Existing Drainage
- Right of Way Rail or Lot Corner
- Concrete Monument
- Well
- Windmill
- Beehive Intake
- Existing Intake
- Existing Utility Access (Manhole)
- Fire Hydrant
- WH Water Hydrant (Rural)
- Septic Tank (Example Text and Line)
- C Cistern
- LP L.P. Gas Tank (No Footing)
- UST Underground Storage Tank
- Latrine
- Satellite TV Dish
- WHU Water Hook Up
- RT Radio Tower
- TA Tower Anchor
- Guardrail (Beam or Cable)
- GP Guard Post (one or two)
- Guard Post (over two)
- FP Filler Pipe
- GV Gas Valve
- WV Water Valve
- SL Speed Limit Sign
- MM Mile Marker Post
- SIGN Sign
- TCB Traffic Signal Control Box
- RRB Rail Road Signal Control Box
- TSB Telephone Switch Box
- EB Electric Box

UTILITY LEGEND

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

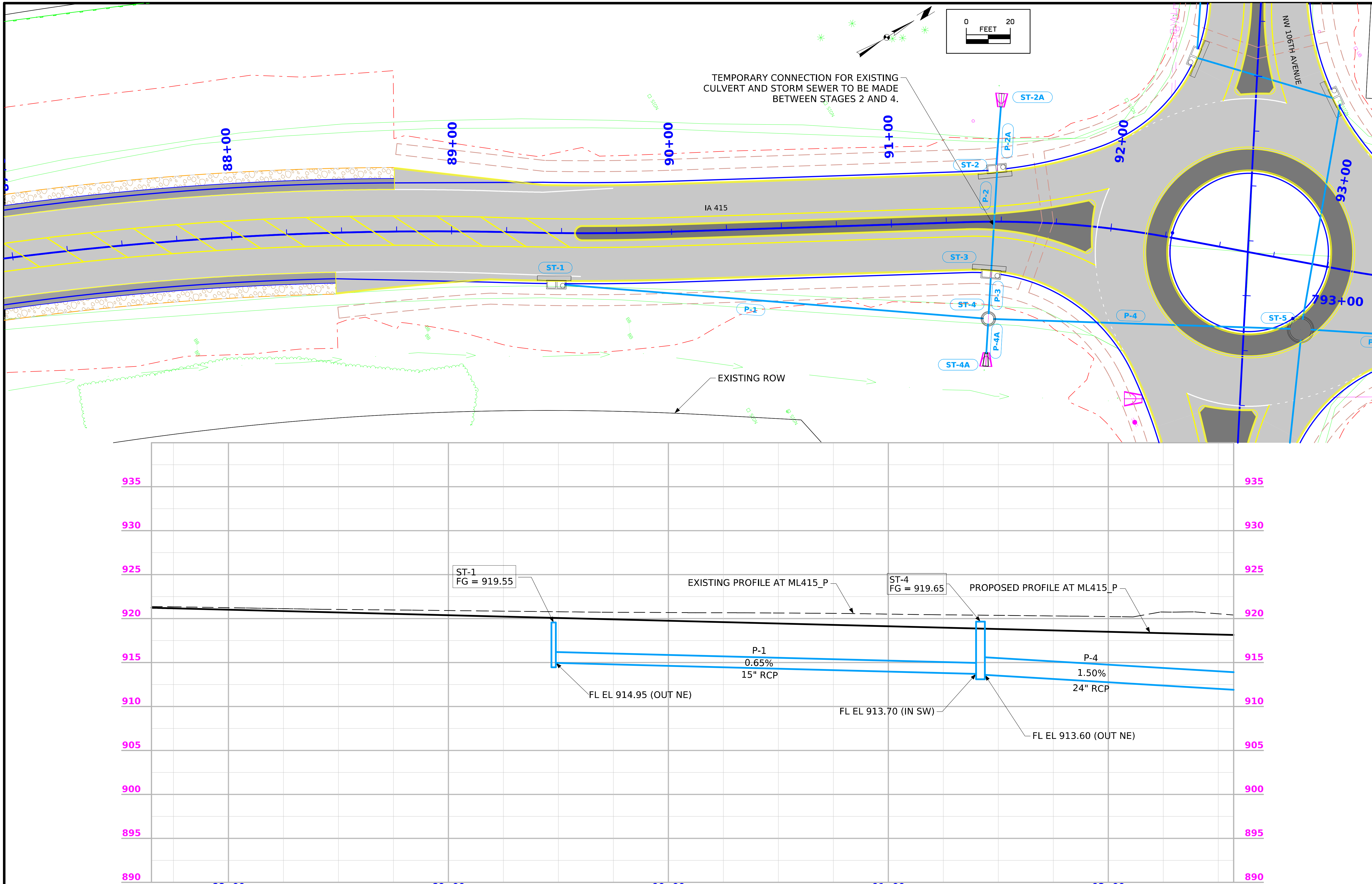
- Survey Line
- Section Corner
- Ground Line Intercept
- Saw Cut
- Guardrail
- Clearing & Grubbing Area
- Pavement Removal

RIGHT-OF-WAY LEGEND

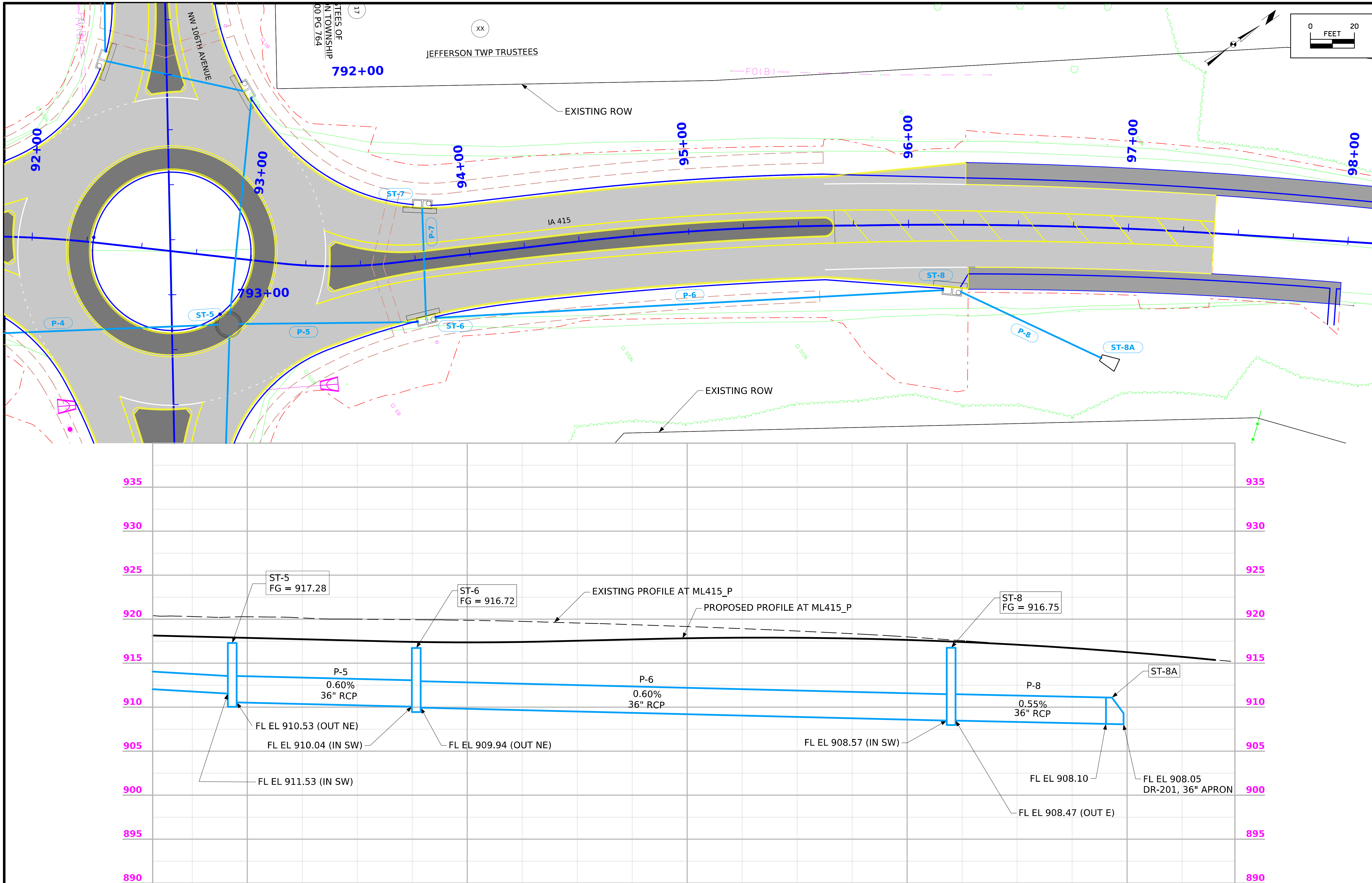
- Proposed Right-of-Way
- Existing and Proposed Right-of-Way
- Easement and Existing Right-of-Way
- Borrow
- Easement (Temporary)
- Easement
- Excess
- A/C Access Control

STORM SEWER LEGEND AND SYMBOL INFORMATION SHEET

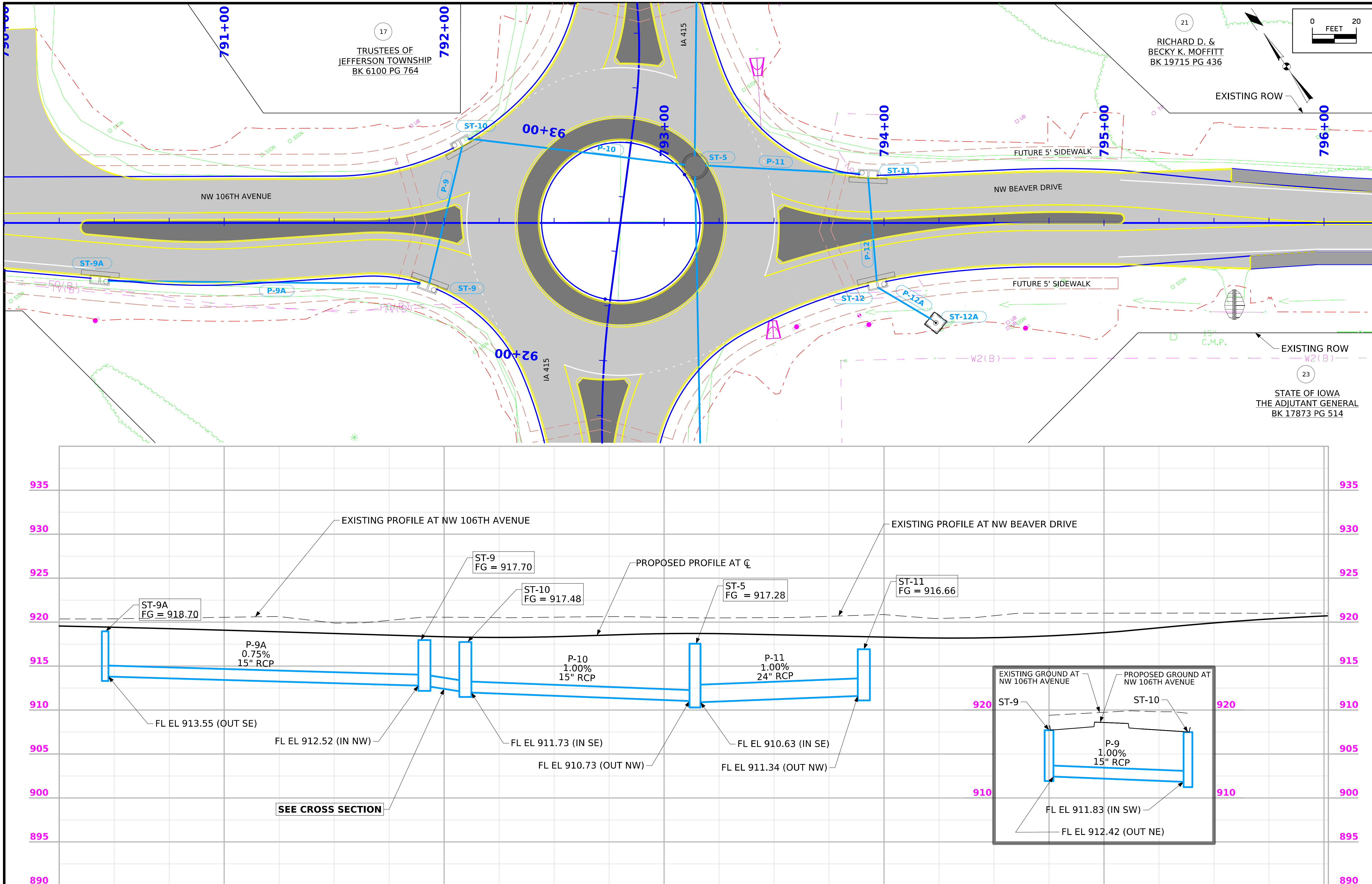
(COVERS SHEET SERIES M)



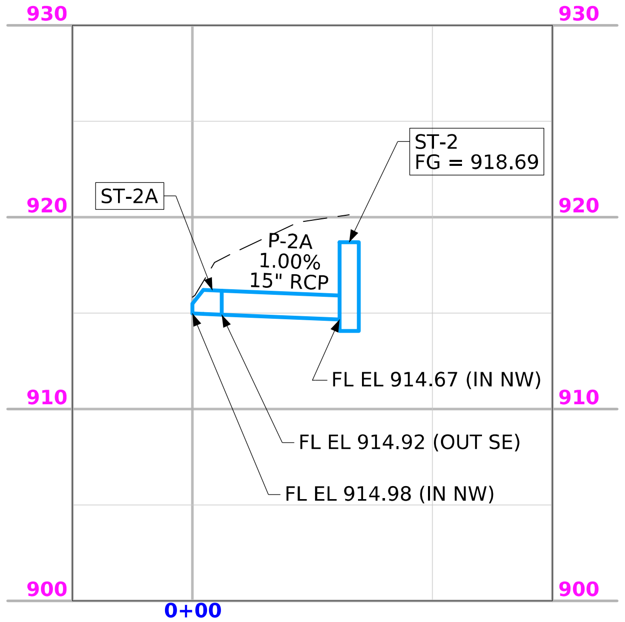
FILE NO.	ENGLISH	DESIGN TEAM **Snyder & Associates, Inc.**		**POLK** COUNTY	PROJECT NUMBER **HSIPX-415-1(086)--3L-77**	SHEET NUMBER **M.2**

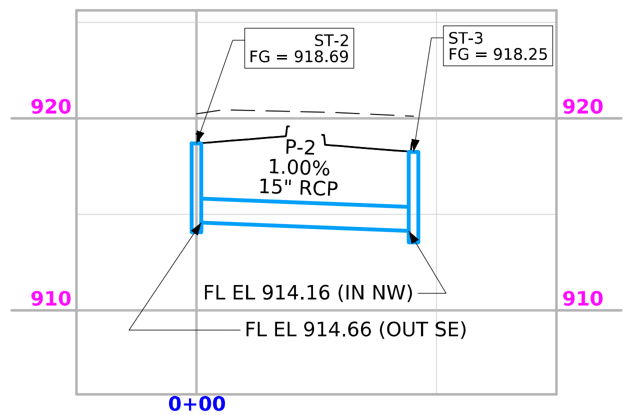


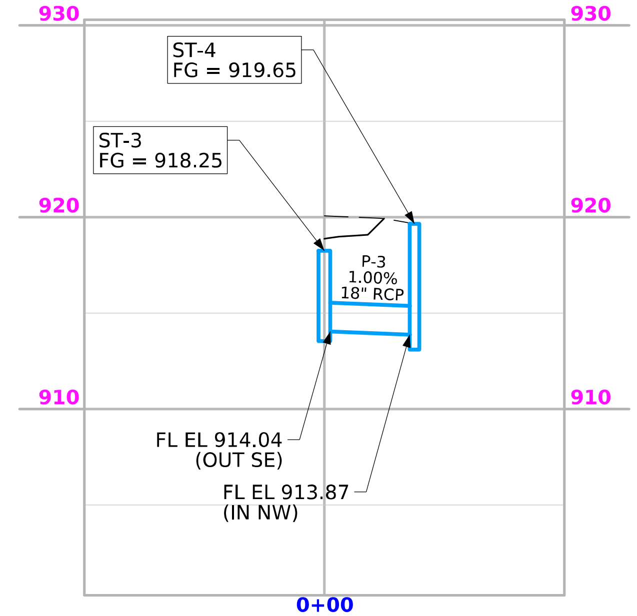
FILE NO.	ENGLISH	DESIGN TEAM **Snyder & Associates, Inc.**	**POLK** COUNTY	PROJECT NUMBER **HSIPX-415-1(086)--3L-77**	SHEET NUMBER **M.3**

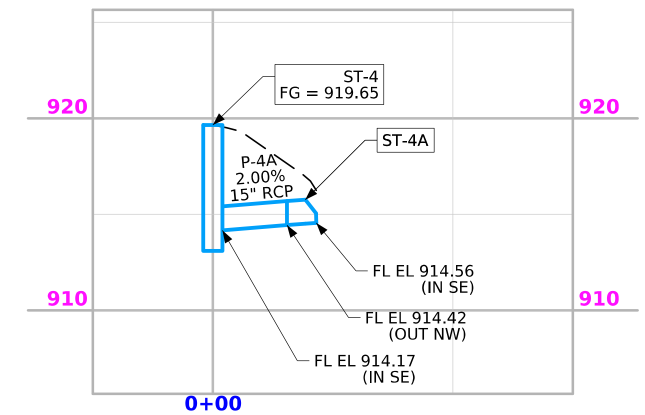


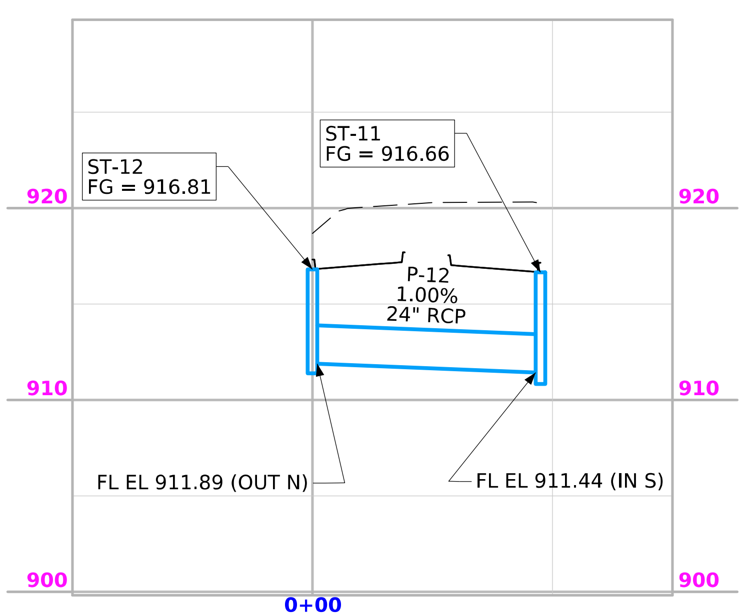
FILE NO.	ENGLISH	DESIGN TEAM **Snyder & Associates, Inc.**	**POLK** COUNTY	PROJECT NUMBER **HSIPX-415-1(086)--3L-77**	SHEET NUMBER **M.4**

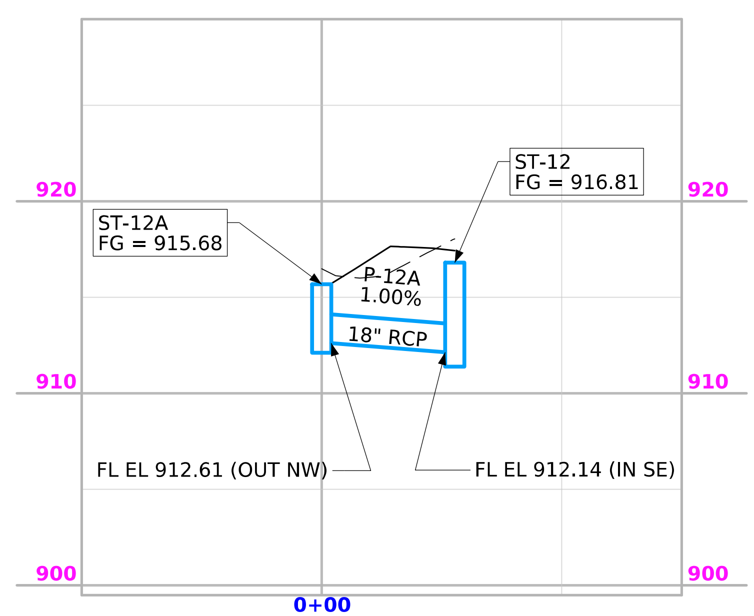


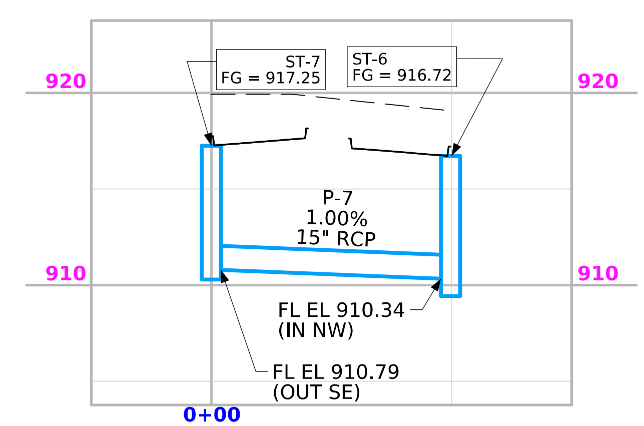












FILE NO.	ENGLISH	DESIGN TEAM **Snyder & Associates, Inc.**	**POLK** COUNTY	PROJECT NUMBER **HSIPX-415-1(086)--3L-77**	SHEET NUMBER **M.5**

1:55:42 PM 6/6/2024 egutierrez pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\7741502024\Design\CADD_Files\Sheet_Files\SHT_77415086Z08_M2-M5.dgn

1 Diameter or equivalent diameter

STORM SEWER

* Bid Item
** For SW-545

INTAKES AND UTILITY ACCESSES

No.	Location Station and Offset	*Type or Standard Road Plan	Form Grade Elev.	Bottom Well Elev.	Extension Length** FT	Notes
ST-1	89+47.85, 22.00' RT	SW-509	919.55	914.45		
ST-2	91+48.02, 22.66' LT	SW-509	918.69	914.07		
ST-2A	91+49.81, 58.21' LT	Apron (15")	914.98			
ST-3	91+45.30, 22.48' RT	SW-509	918.25	913.54		
ST-4A	91+42.09, 65.72' RT	Apron (15")	914.56			
ST-4	91+43.77, 44.22' RT	SW-401 (60")	919.65	913.1		
ST-5	92+93.18, 30.28' RT	SW-401 (84")	917.28	910.03		
ST-6	93+76.85, 26.06' RT	SW-509	916.72	909.44		
ST-7	93+80.82, 23.58' LT	SW-509	917.25	910.29		
ST-8	96+20.00, 28.64' RT	SW-509	916.75	907.97		
ST-8A	96+97.31, 62.26' RT	Apron (36")	908.05			Outlet
ST-9	791+93.15, 27.70' RT	SW-509	917.70	911.92		
ST-9A	790+43.55, 24.57' RT	SW-509	918.70	913.05		
ST-10	792+08.22, 35.10' LT	SW-509	917.48	911.23		
ST-11	793+92.77, 20.73' LT	SW-509	916.66	910.84		
ST-12	793+96.69, 26.59' RT	SW-509	916.81	911.39		
ST-12A	794+21.60, 46.60' RT	SW-513 (4'x4')	915.68	912.11		
		TOTALS				
		SW-509	**11**	EA		
		SW-401 (60")	**1**	EA		
		SW-401 (84")	**1**	EA		
		APRON (15")	**2**	EA		
		APRON (36")	**1**	EA		
		SW-513 (4'x4')	**1**	EA		

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.

Line Number	Intake/Utility Access No. From	Intake/Utility Access No. To	Class 'D'	Pipe Size 1 IN	Bid* Length FT	Design Length FT	Slope %	Connected Pipe Joint (DR-121) Type	Flow Lines Inlet Elevation	Flow Lines Outlet Elevation	Flow Lines Other Elevation	Pipe Profile Sheet No.	Notes
P-1	ST-1	ST-4	2000	15	195.0	191.0	0.65		914.95	913.70		M.2	
P-2A	ST-2A	ST-2	2000	15	27.0	25.0	1.00		914.92	914.67		M.5	
P-2	ST-2	ST-3	2000	15	48.0	44.0	1.00		914.66	914.16		M.5	
P-3	ST-3	ST-4	2000	18	21.0	17.0	1.00		914.04	913.87		M.5	
P-4A	ST-4A	ST-4	2000	15	16.0	14.0	2.00		914.42	914.17		M.5	
P-4	ST-4	ST-5	2000	24	142.0	138.0	1.50		913.60	911.53		M.2	
P-5	ST-5	ST-6	2000	36	87.0	83.0	0.60		910.53	910.04		M.3	
P-6	ST-6	ST-8	2000	36	232.0	228.0	0.60		909.94	908.57		M.3	
P-7	ST-7	ST-6	2000	15	50.0	46.0	1.00		910.79	910.34		M.5	
P-8	ST-8	ST-8A	2000	36	71.0	69.0	0.55		908.47	908.10		M.3	
P-9A	ST-9A	ST-9	2000	15	142.0	138.0	0.75		913.55	912.52		M.4	
P-9	ST-9	ST-10	2000	15	64.0	60.0	1.00		912.42	911.83		M.4	
P-10	ST-10	ST-5	2000	15	104.0	100.0	1.00		911.73	910.73		M.4	
P-11	ST-11	ST-5	2000	24	75.0	71.0	1.00		911.34	910.63		M.4	
P-12	ST-12	ST-11	2000	24	50.0	46.0	1.00		911.89	911.44		M.5	
P-12A	ST-12A	ST-12	2000	18	28.0	24.0	2.00		912.61	912.14		M.5	
				TOTALS									
				15	**646**	LF							
				18	**49**	LF							
				24	**267**	LF							
				36	**390**	LF							

CROSS SECTION VIEW COLOR LEGEND

Design Color No.	Feature
Aggregate	
(64)	Choke Stone
(42)	Engineering Fabric
(8)	Flooded Backfill
(92)	Macadam Stone
(20)	Modified
(12)	Plowing Shaping
(14)	Porous Backfill
(8)	Revetment Class A
(6)	Revetment Class B
(62)	Revetment Class C
(188)	Revetment Class D
(28)	Revetment Class E
(12)	Shoulder Special Backfill
(12)	Special Backfill
(20)	Subbase
(20)	Subbase Lower
(20)	Subbase Upper
(118)	Subgrade Treatment
Asphalt	
(207)	HMA Base Course
(207)	HMA Interim Course
(207)	HMA Surface Course
Concrete	
(0)	Barrier Concrete
(0)	Barrier Concrete Footing
(0)	Curb Gutter
(48)	Flowable Mortar
(0)	Median Concrete
(0)	PCC Pavement
(0)	Sidewalk
Shoulder	
(209)	Shoulder HMA
(0)	Shoulder PCC
(6)	Shoulder Granular
Existing	
(0)	Existing Pavement

Design Color No.	Feature
Structural	
(112)	Noise Wall
(112)	Noise Wall Footing
(112)	Retaining Wall Back
(112)	Retaining Wall Back Excavate
(112)	Retaining Wall Face
(112)	Retaining Wall Front Excavate
(112)	Retaining Wall Front Footing
(112)	Retaining Wall MSE Gutter
(112)	Retaining Wall Reinforced Earth
Grading	
(8)	Behind Curb Cut
(6)	Granular
(13)	Granular Back Fill
(48)	Rock Undercut
(8)	Shoulder Earth Fill
(2)	Side Slopes
(226)	Side Slopes Dressing
Substrata	
(128)	Boulder Substrata
(48)	Broken Weathered Substrata
(3)	Core Out Substrata
(203)	Existing Pavement Substrata
(6)	Loam Substrata
(80)	Rock Substrata
(4)	Select Sand Substrata
(3)	Shale Substrata
(10)	Topsoil Substrata
Unsuitable / Waste	
(3)	Unsuitable Type A
(13)	Unsuitable Type B
(11)	Unsuitable Type C
(3)	Waste

NOTES:

Text

NOTES:

Text

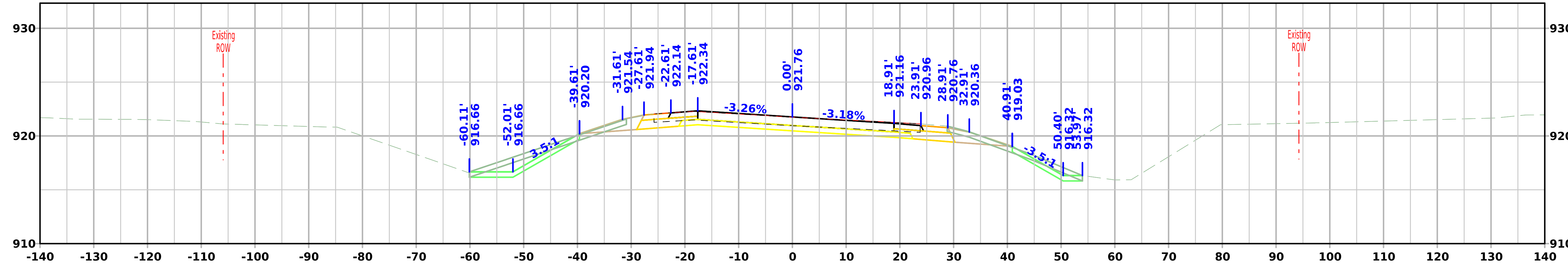
CROSS SECTIONS
LEGEND AND INFORMATION SHEET

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

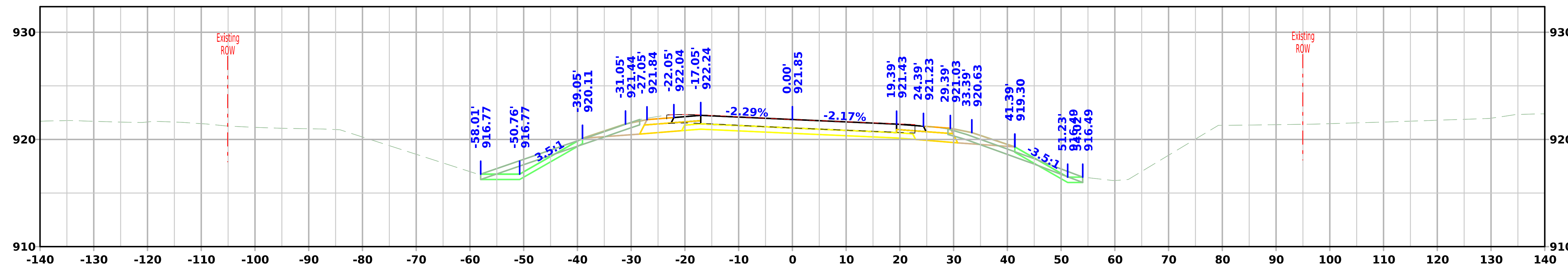
FILE NO.	ENGLISH	DESIGN TEAM **Snyder & Associates, Inc.**	**POLK** COUNTY	PROJECT NUMBER **HSIPX-415-1(086)--3L-77**	SHEET NUMBER **W.1**

8:22:08 AM 6/6/2024 egutierrez pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\7741502024\Design\CADD_Files\Sheet_Files\SHT_77415086Z08_W1.dgn

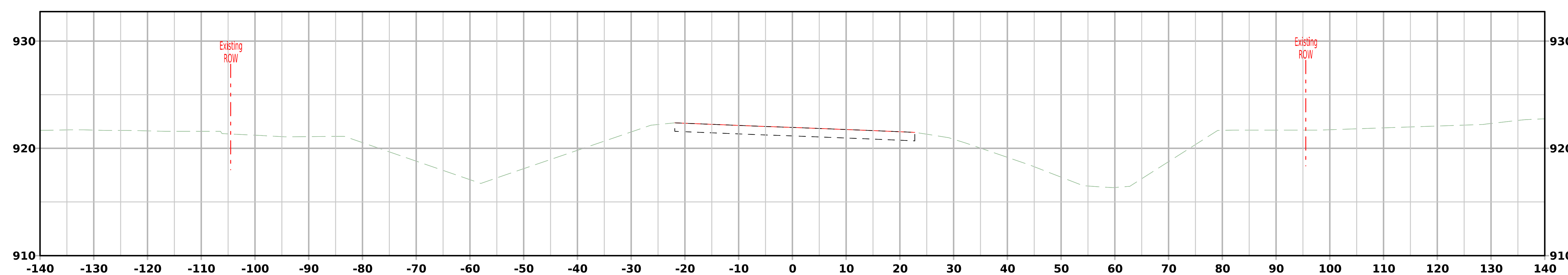
ML - IA 415



STA 86+25.00



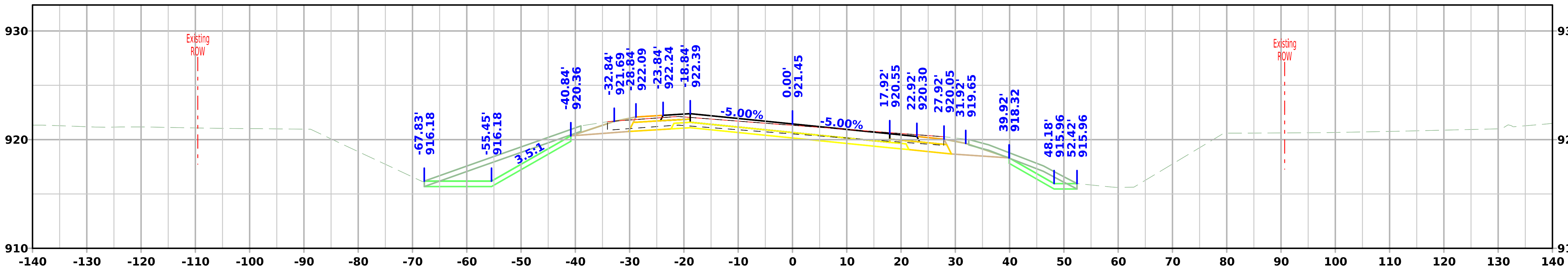
STA 86+00.00



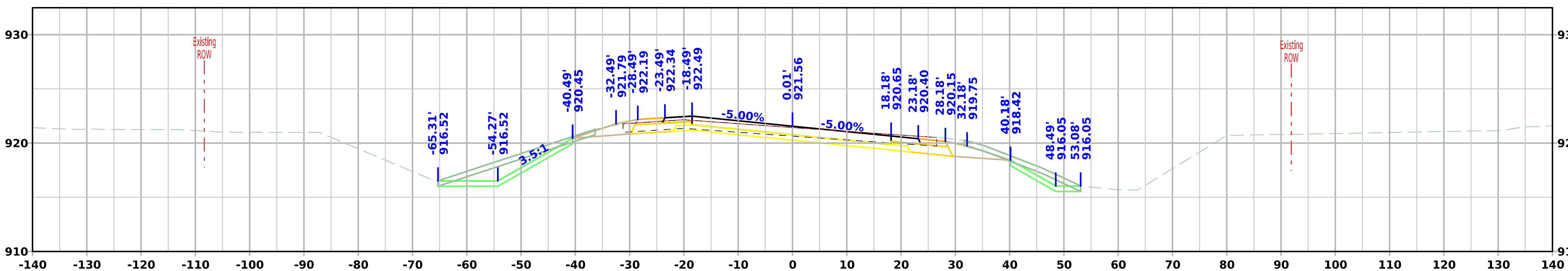
STA 85+75.00

FILE NO.	ENGLISH	DESIGN TEAM Snyder & Associates, Inc.		POLK COUNTY	PROJECT NUMBER HSIPX-415-1(086)--3L-77	SHEET NUMBER W.2

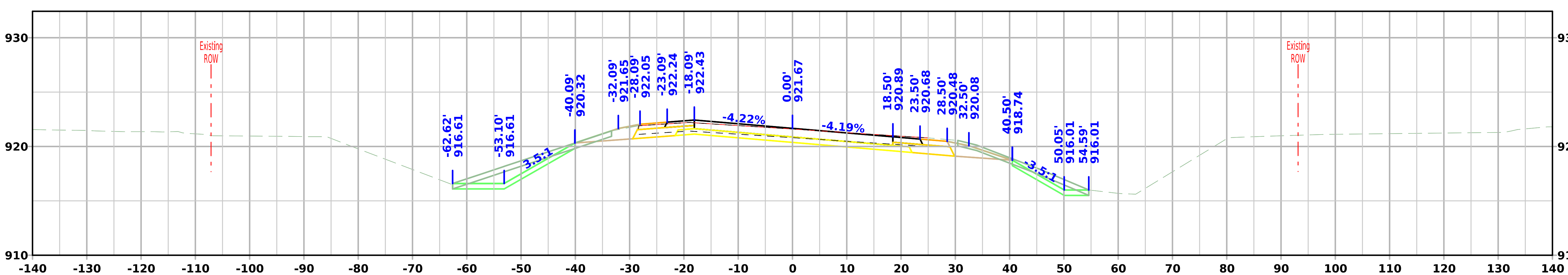
ML - IA 415



STA 87+00.00



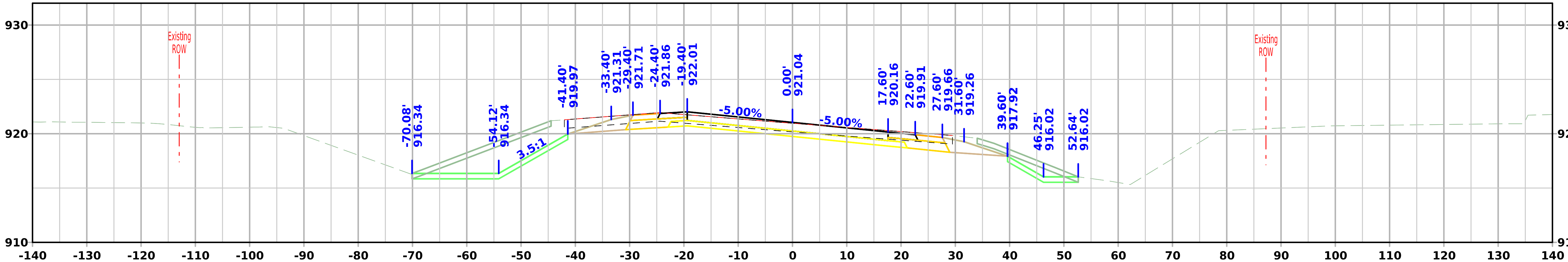
STA 86+75.00



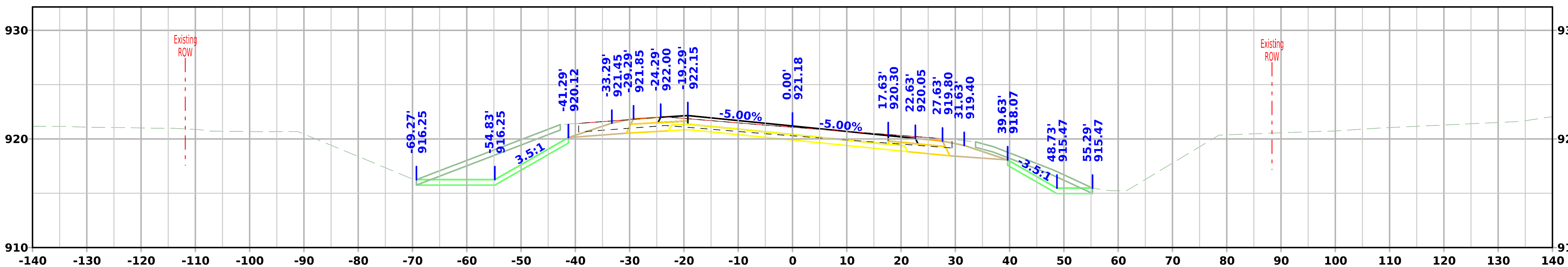
STA 86+50.00

FILE NO.	ENGLISH	DESIGN TEAM Snyder & Associates, Inc.	POLK COUNTY	PROJECT NUMBER HSIPX-415-1(086)--3L-77	SHEET NUMBER W.3

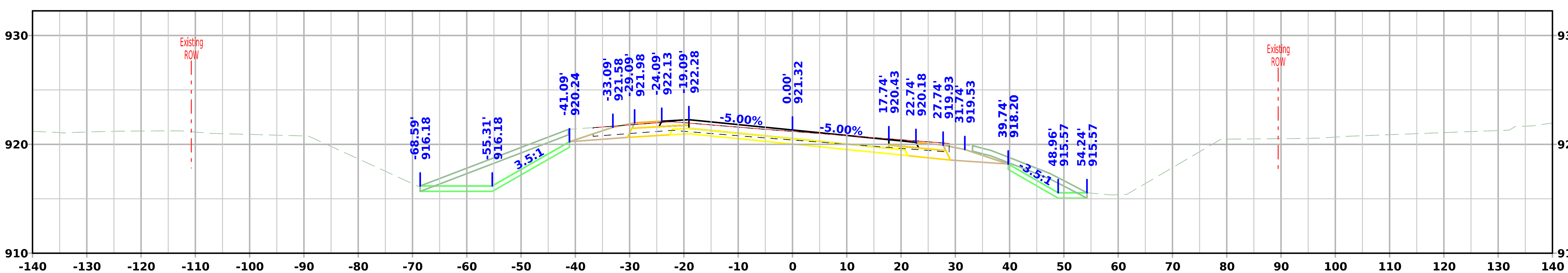
ML - IA 415



STA 87+75.00



STA 87+50.00

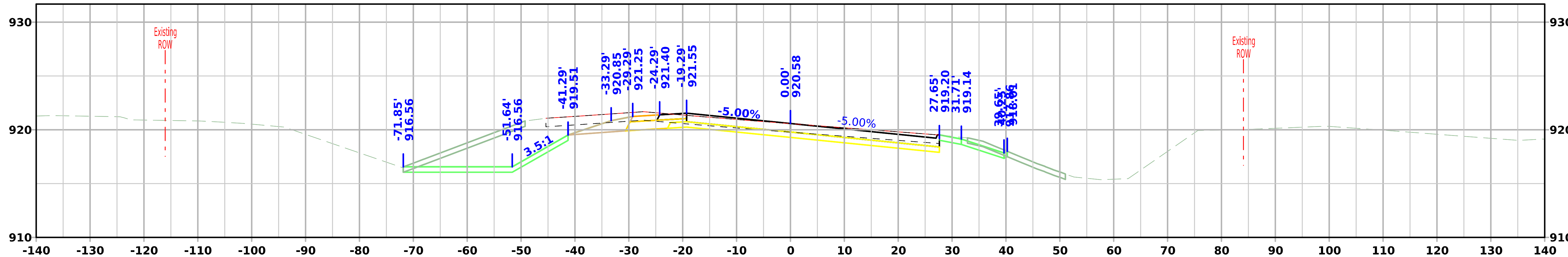


STA 87+25.00

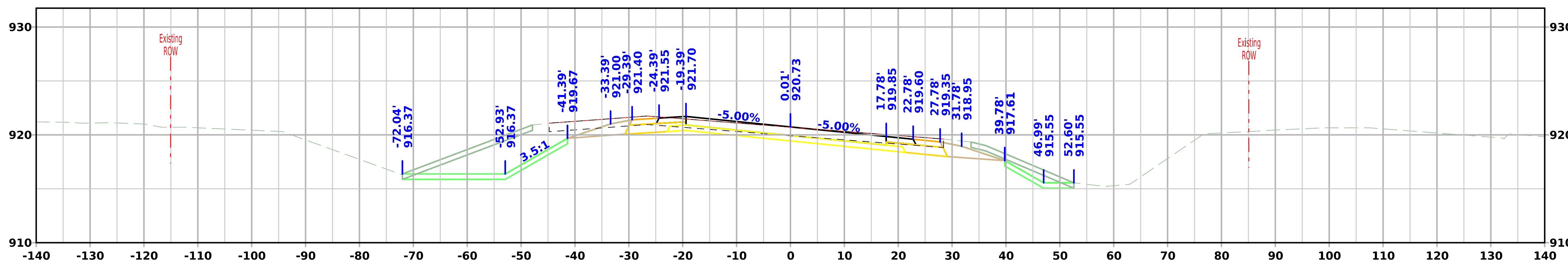
FILE NO.	ENGLISH	DESIGN TEAM Snyder & Associates, Inc.		POLK COUNTY	PROJECT NUMBER HSIPX-415-1(086)--3L-77	SHEET NUMBER W.4

8:22:25 AM 6/6/2024 egutierrez pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\7741502024\Design\CADD_Files\Sheet_Files\SHT_77415086Z08_W2-W24.dgn

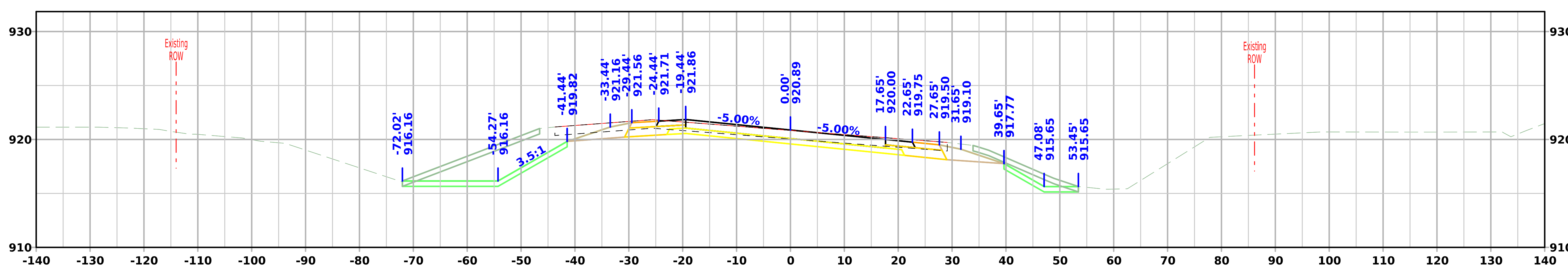
ML - IA 415



STA 88+50.00



STA 88+25.00

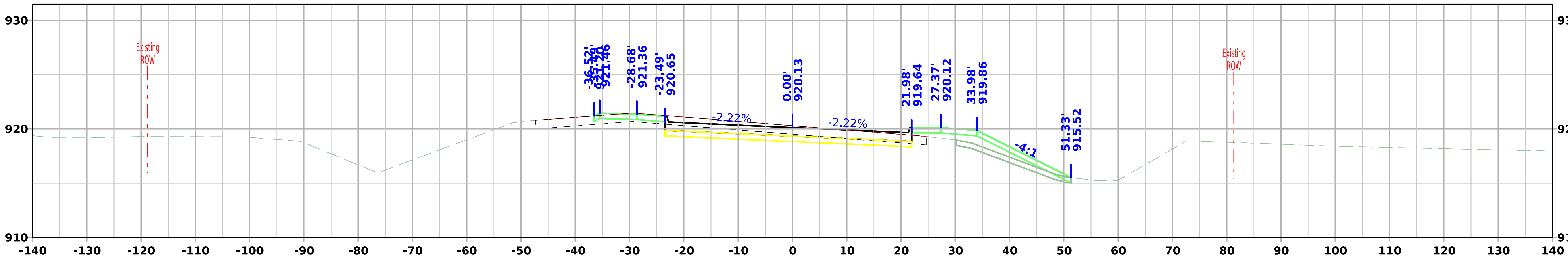


STA 88+00.00

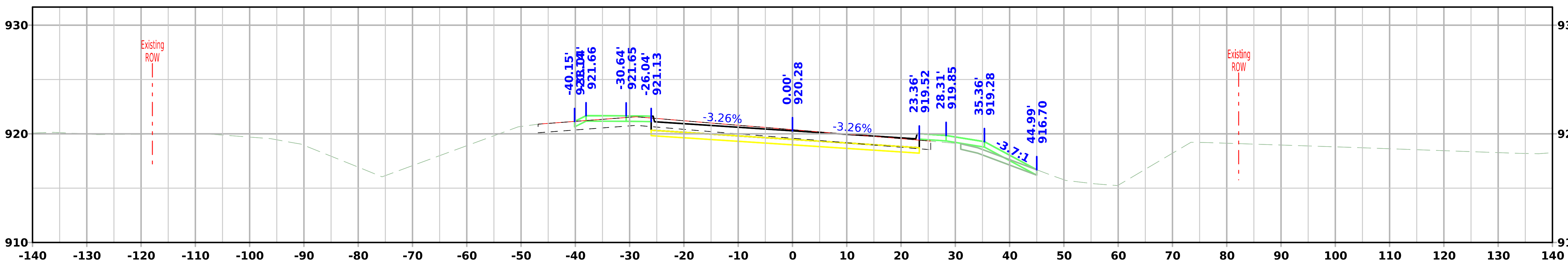
FILE NO.	ENGLISH	DESIGN TEAM Snyder & Associates, Inc.	POLK COUNTY	PROJECT NUMBER HSIPX-415-1(086)--3L-77	SHEET NUMBER W.5

8:22:26 AM 6/6/2024 egutierrez pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\7741502024\Design\CADD_Files\Sheet_Files\SHT_77415086Z08_W2-W24.dgn

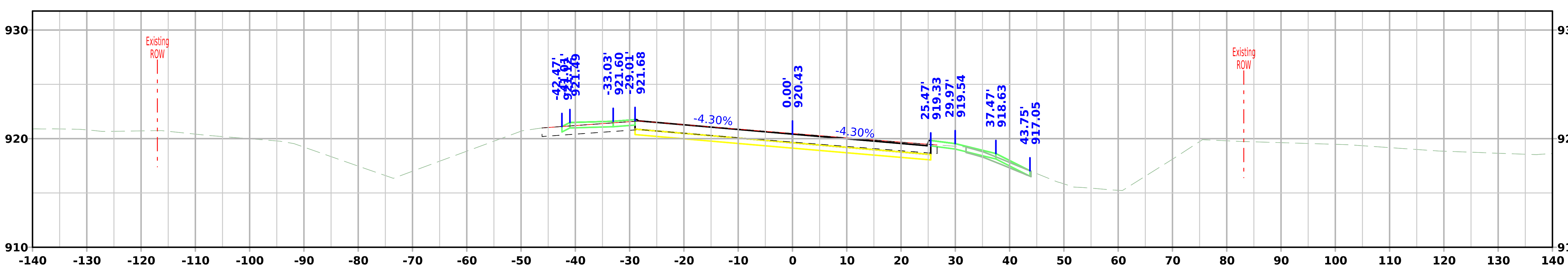
ML - IA 415



STA 89+25.00



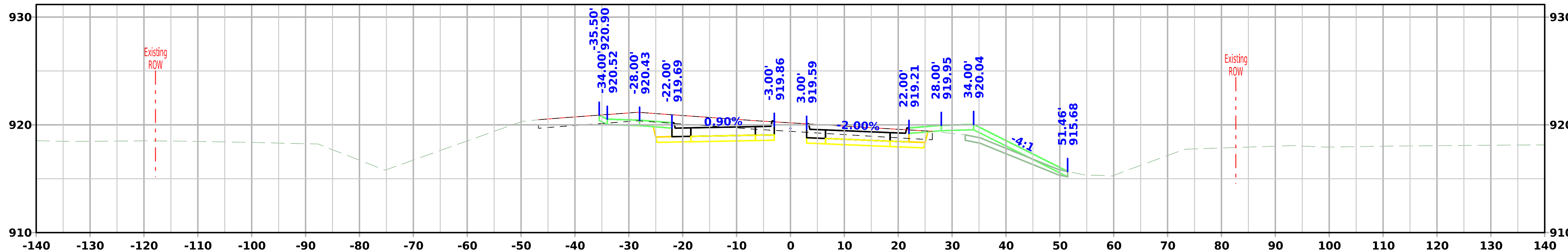
STA 89+00.00



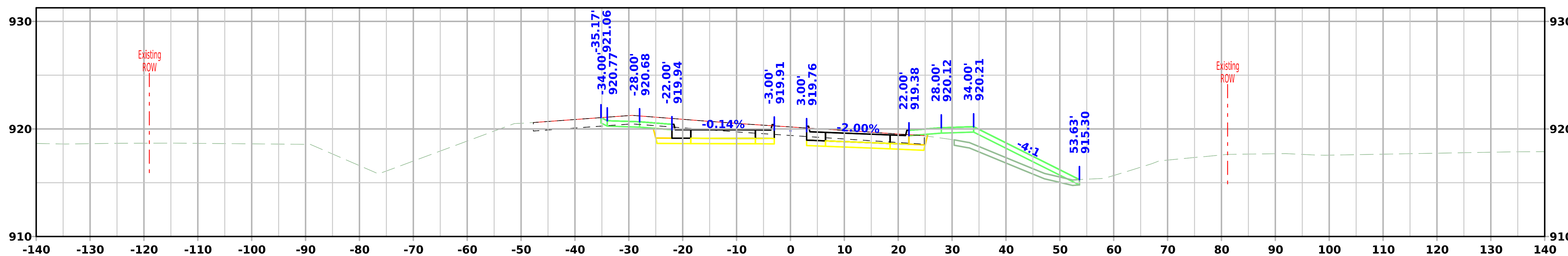
STA 88+75.00

FILE NO.	ENGLISH	DESIGN TEAM Snyder & Associates, Inc.	POLK COUNTY	PROJECT NUMBER HSIPX-415-1(086)--3L-77	SHEET NUMBER W.6

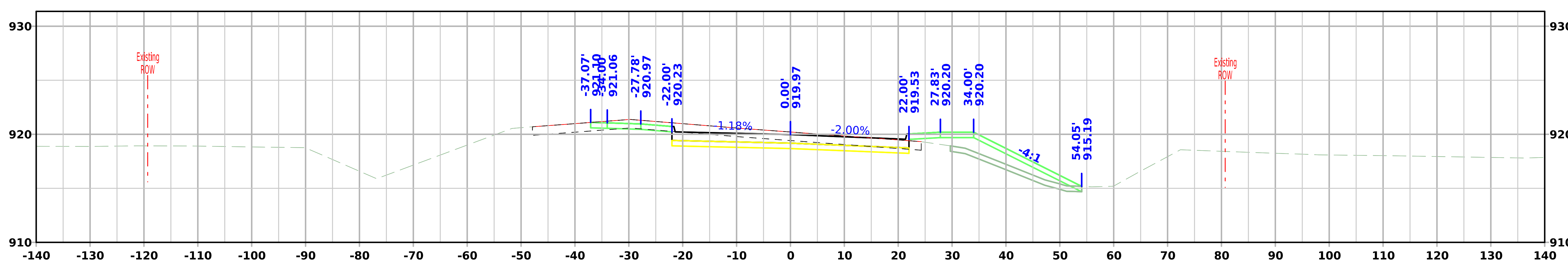
ML - IA 415



STA 90+00.00



STA 89+75.00

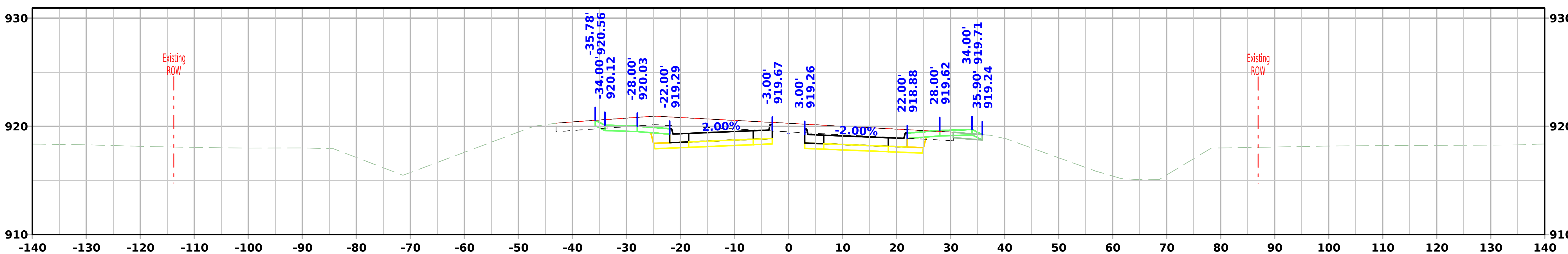


STA 89+50.00

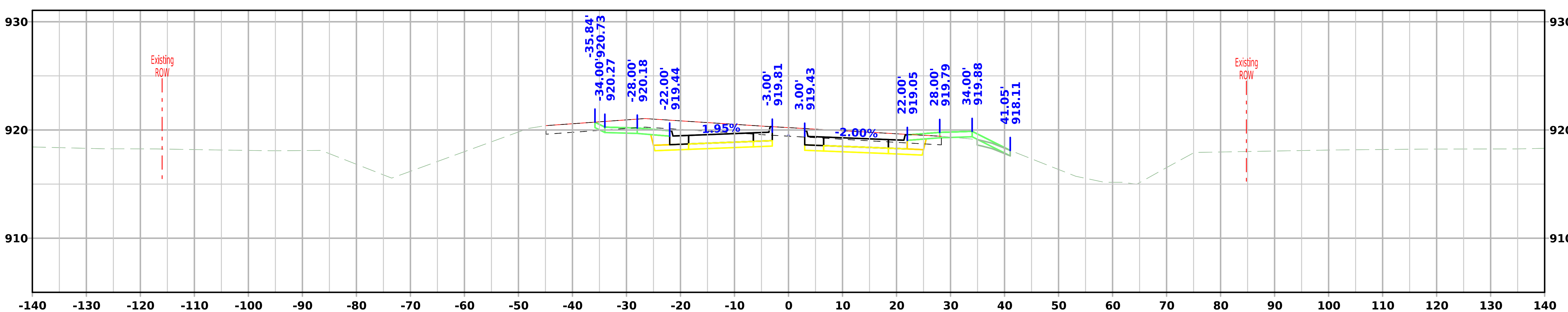
FILE NO.	ENGLISH	DESIGN TEAM Snyder & Associates, Inc.	POLK COUNTY	PROJECT NUMBER HSIPX-415-1(086)--3L-77	SHEET NUMBER W.7

8:22:29 AM 6/6/2024 egutierrez pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\7741502024\Design\CADD_Files\Sheet_Files\SHT_77415086Z08_W2-W24.dgn

ML - IA 415

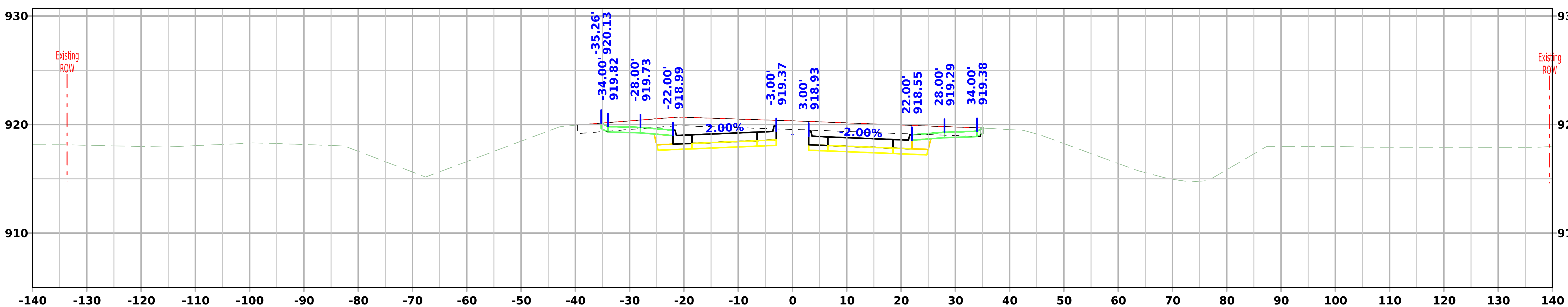


STA 90+50.00

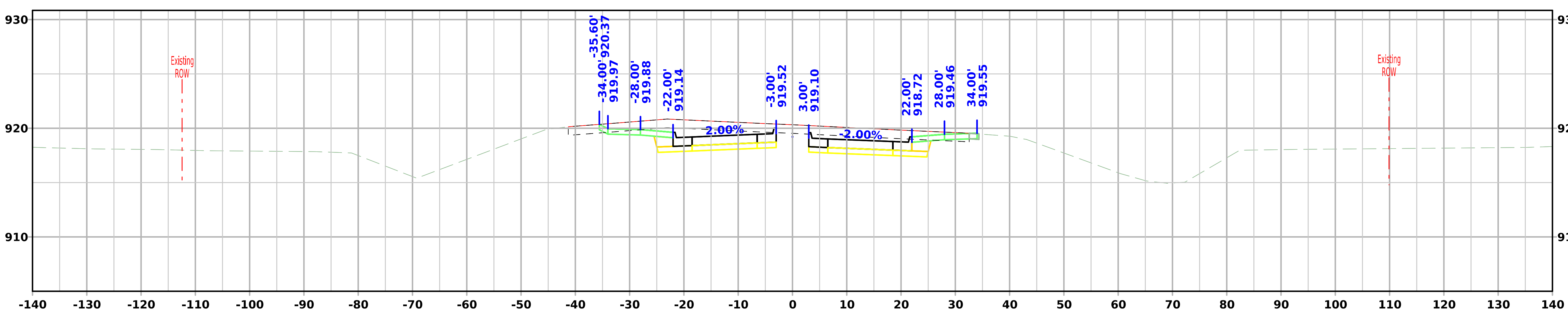


STA 90+25.00

ML - IA 415



STA 91+00.00

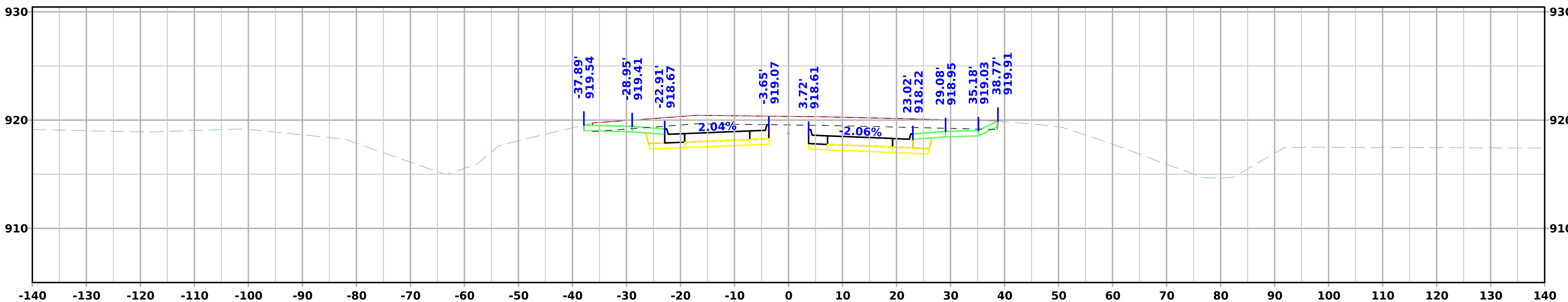


STA 90+75.00

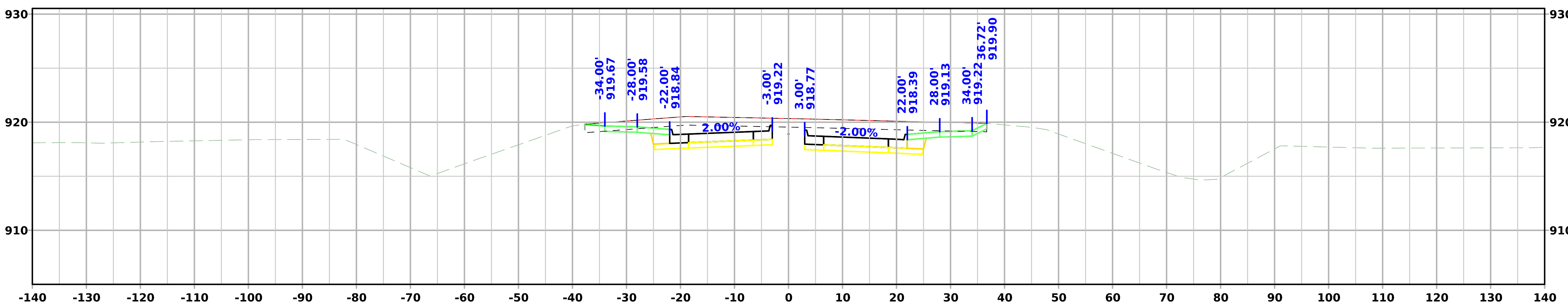
FILE NO.	ENGLISH	DESIGN TEAM Snyder & Associates, Inc.	POLK COUNTY	PROJECT NUMBER HSIPX-415-1(086)--3L-77	SHEET NUMBER W.9

8:22:32 AM 6/6/2024 egutierrez pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\7741502024\Design\CADD_Files\Sheet_Files\SHT_77415086Z08_W2-W24.dgn

ML - IA 415

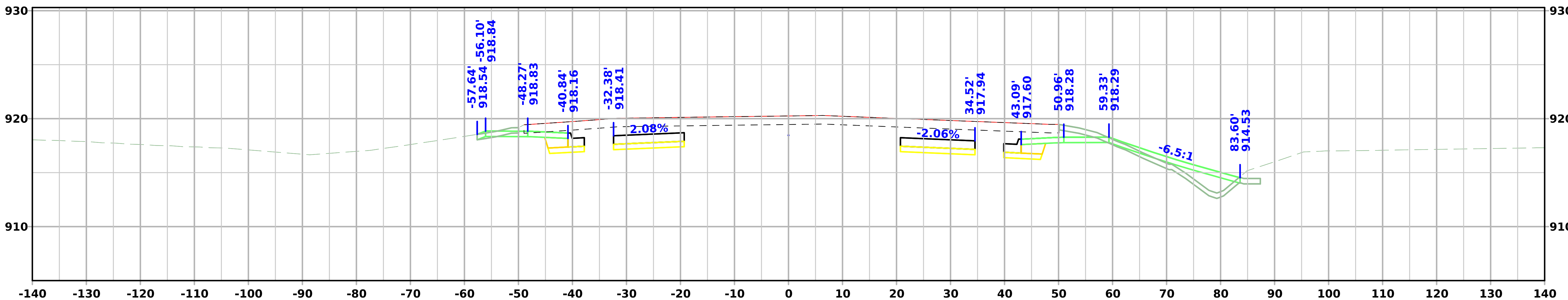


STA 91+50.00

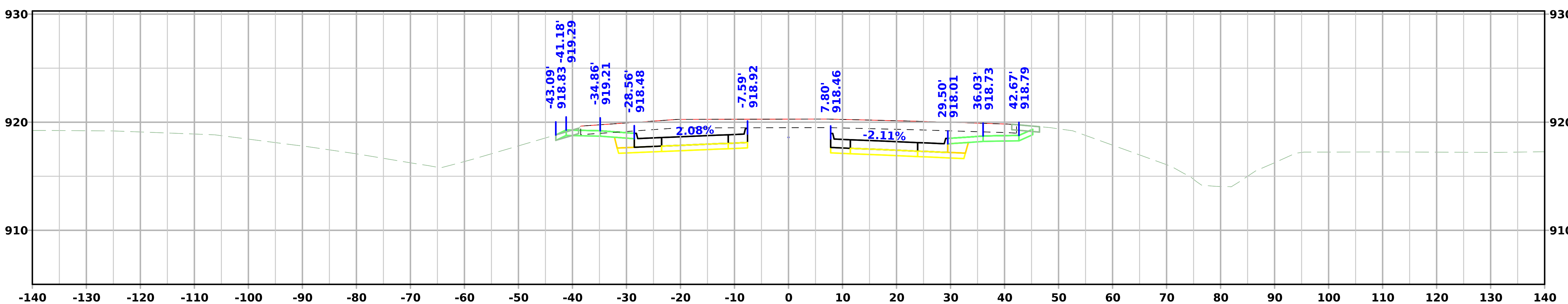


STA 91+25.00

ML - IA 415



STA 92+00.00

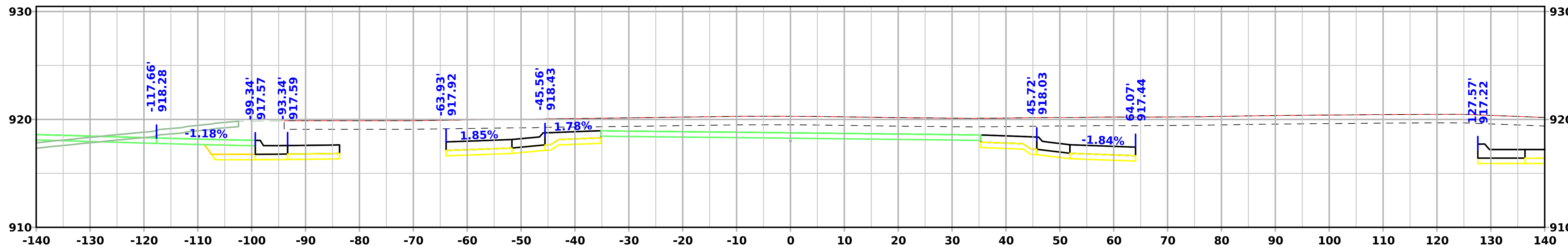


STA 91+75.00

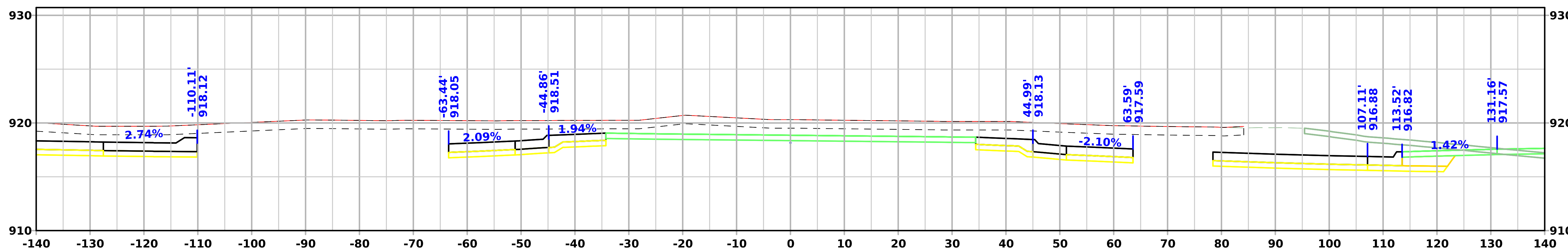
FILE NO.	ENGLISH	DESIGN TEAM Snyder & Associates, Inc.	POLK COUNTY	PROJECT NUMBER HSIPX-415-1(086)--3L-77	SHEET NUMBER W.11

8:22:35 AM 6/6/2024 egutierrez pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\7741502024\Design\CADD_Files\Sheet_Files\SHT_77415086Z08_W2-W24.dgn

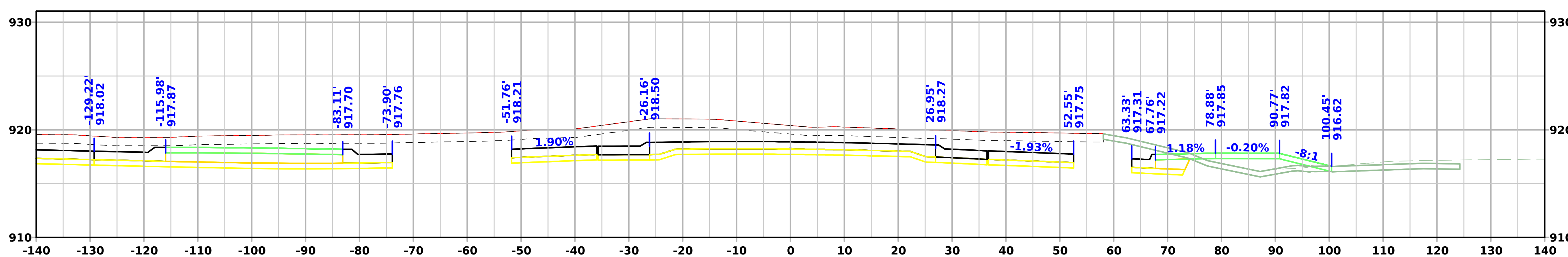
ML - IA 415



STA 92+75.00



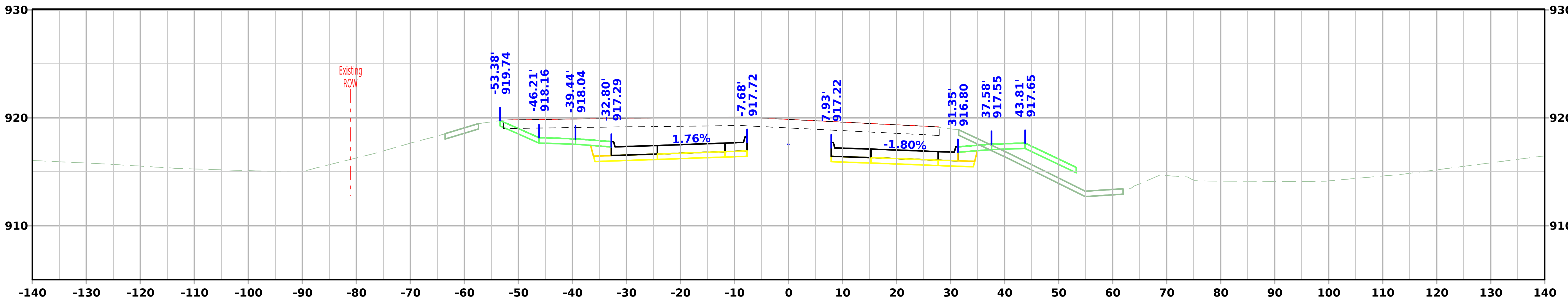
STA 92+50.00



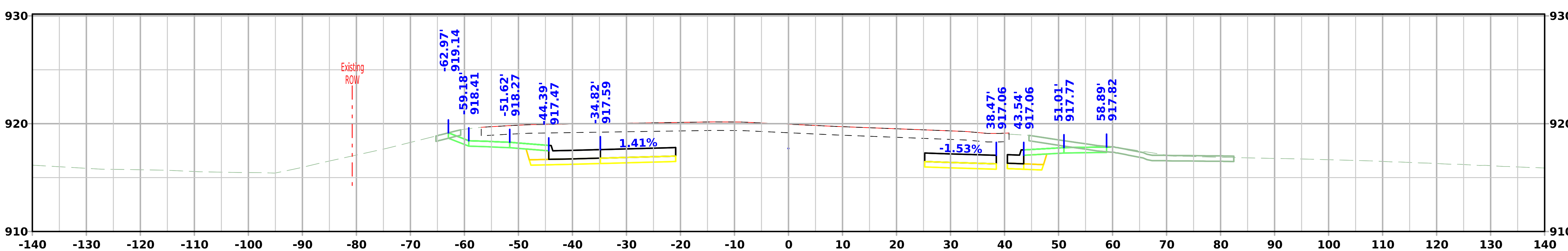
STA 92+25.00

FILE NO.	ENGLISH	DESIGN TEAM Snyder & Associates, Inc.		POLK COUNTY	PROJECT NUMBER HSIPX-415-1(086)--3L-77	SHEET NUMBER W.12

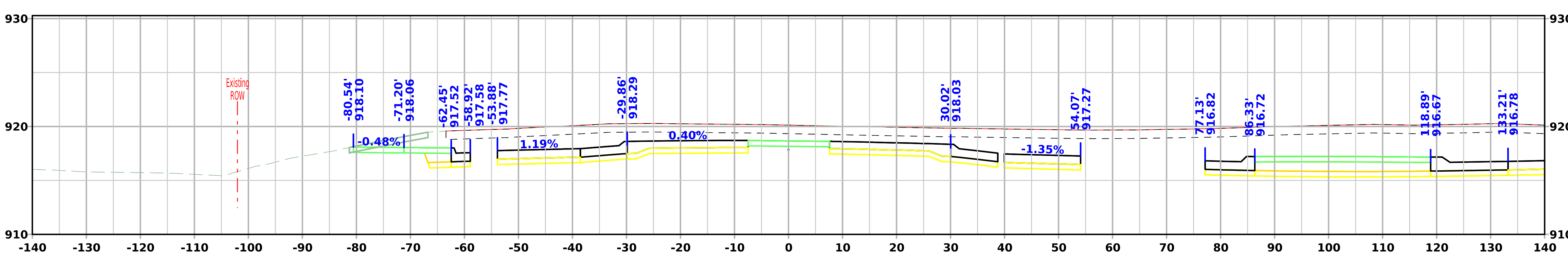
ML - IA 415



STA 93+50.00



STA 93+25.00

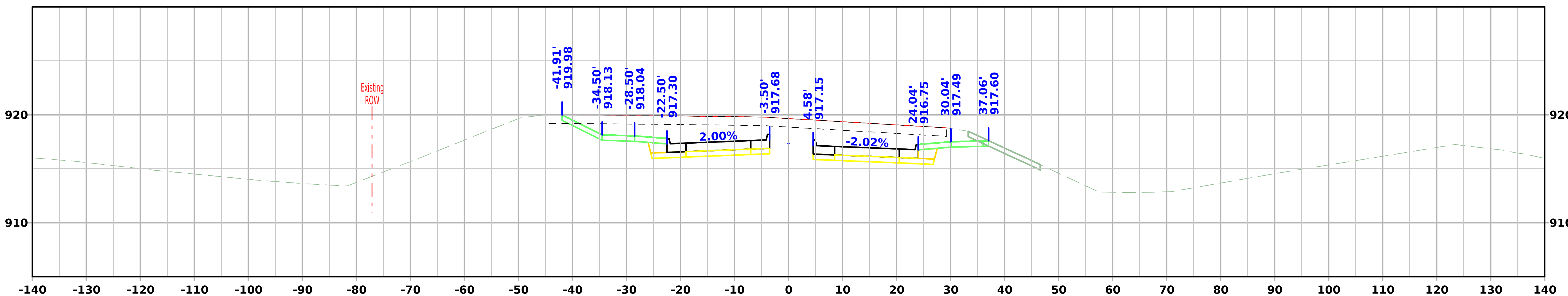


STA 93+00.00

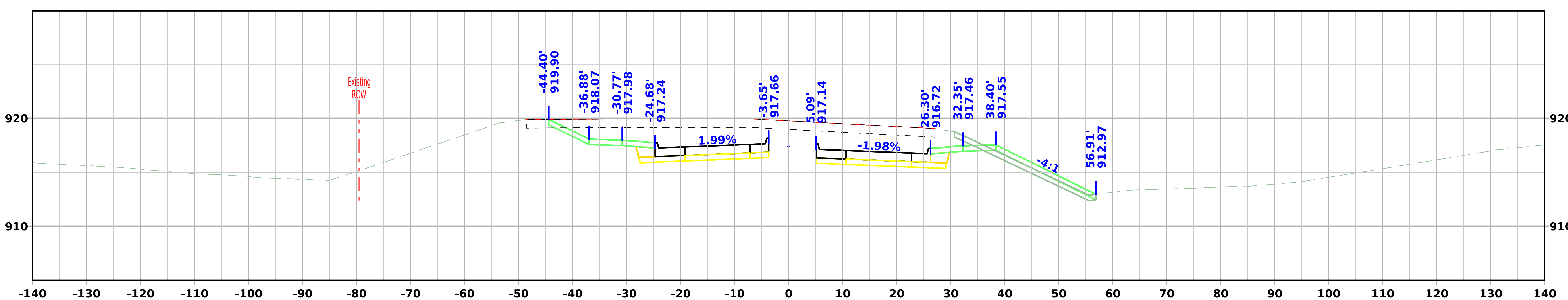
FILE NO.	ENGLISH	DESIGN TEAM Snyder & Associates, Inc.	POLK COUNTY	PROJECT NUMBER HSIPX-415-1(086)--3L-77	SHEET NUMBER W.13

8:22:39 AM 6/6/2024 egutierrez pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\7741502024\Design\CADD_Files\Sheet_Files\SHT_77415086Z08_W2-W24.dgn

ML - IA 415

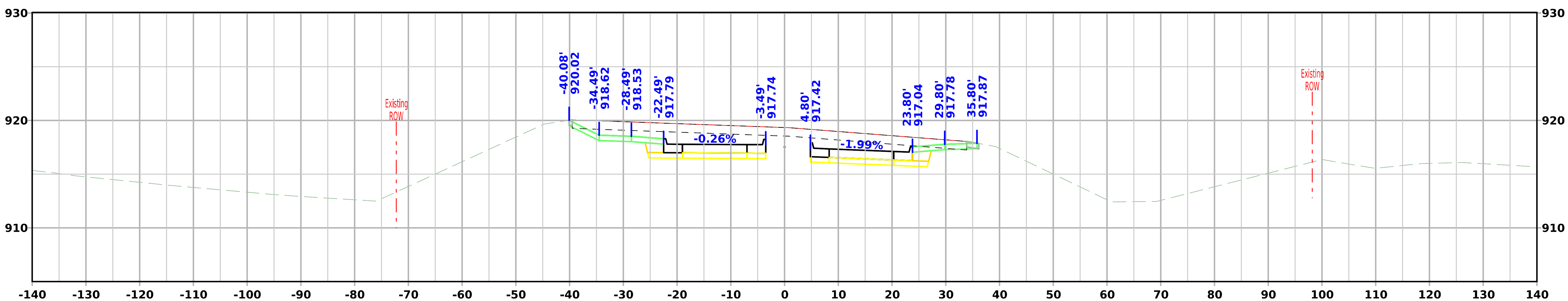


STA 94+00.00

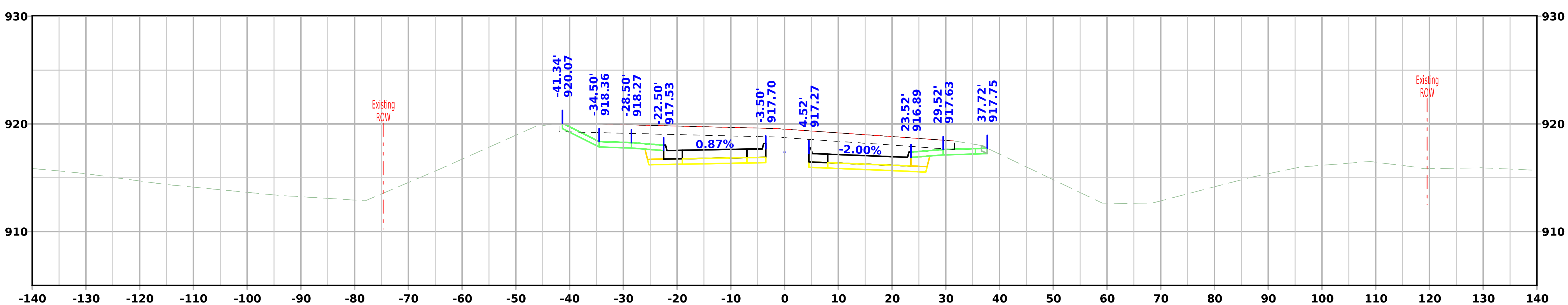


STA 93+75.00

ML - IA 415



STA 94+50.00

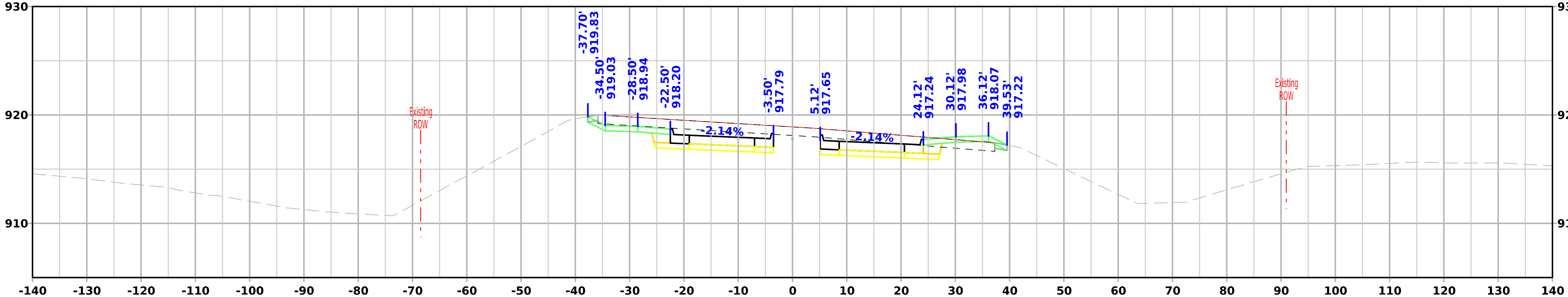


STA 94+25.00

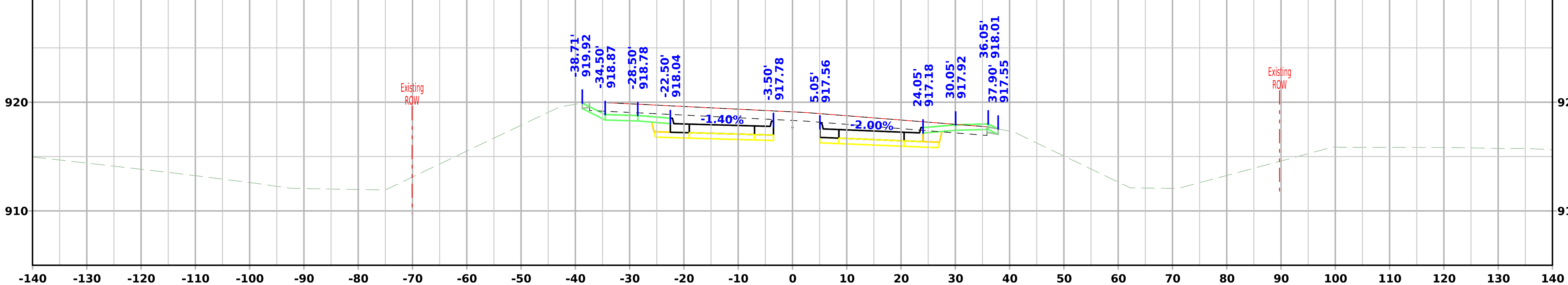
FILE NO.	ENGLISH	DESIGN TEAM Snyder & Associates, Inc.	POLK COUNTY	PROJECT NUMBER HSIPX-415-1(086)--3L-77	SHEET NUMBER W.15

8:22:42 AM 6/6/2024 egutierrez pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\7741502024\Design\CADD_Files\Sheet_Files\SHT_77415086Z08_W2-W24.dgn

ML - IA 415

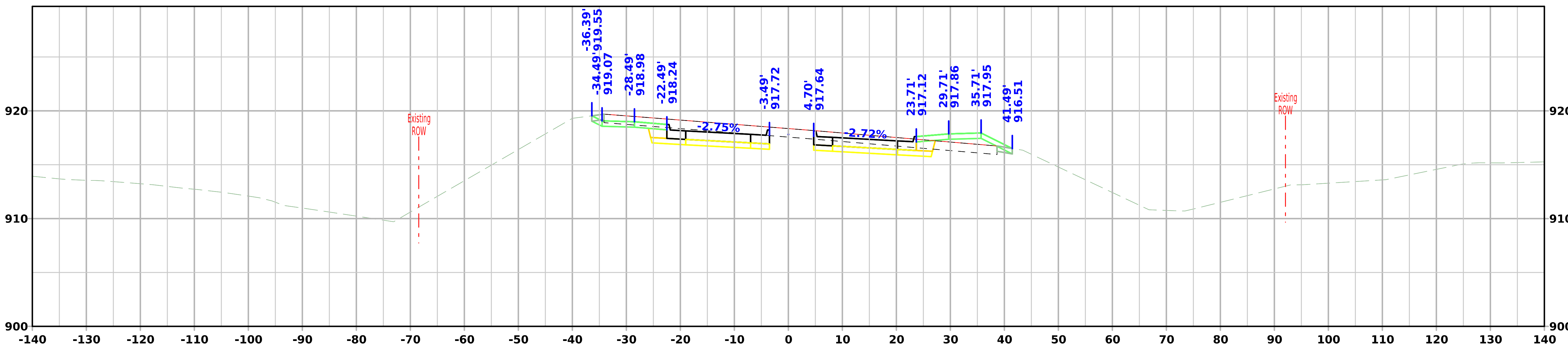


STA 95+00.00

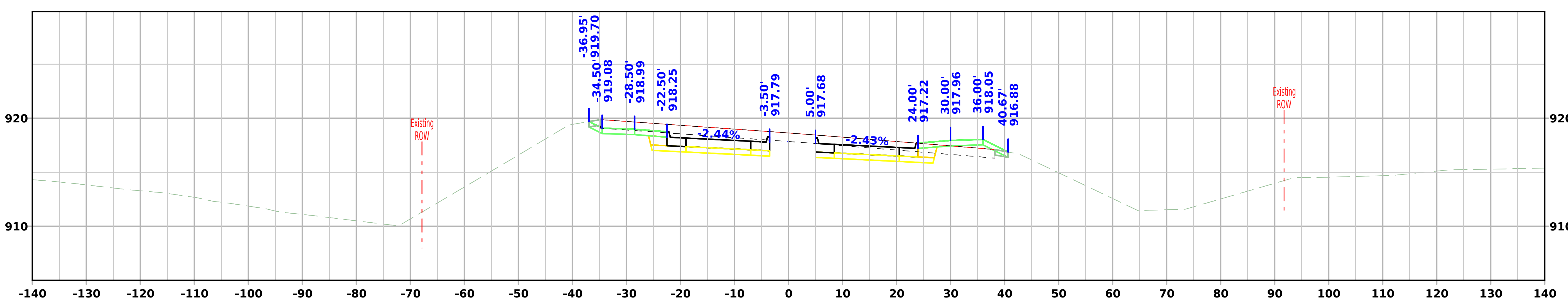


STA 94+75.00

ML - IA 415

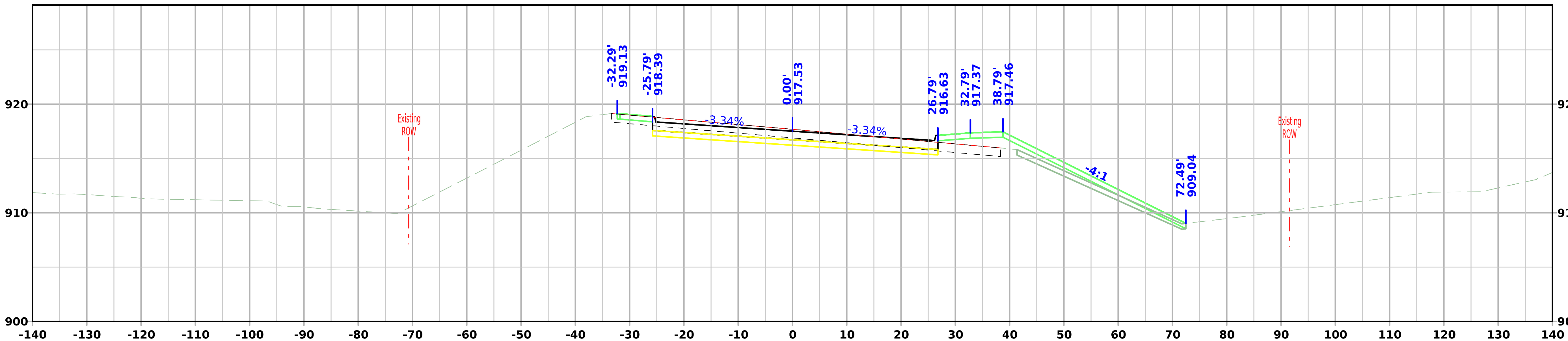


STA 95+50.00

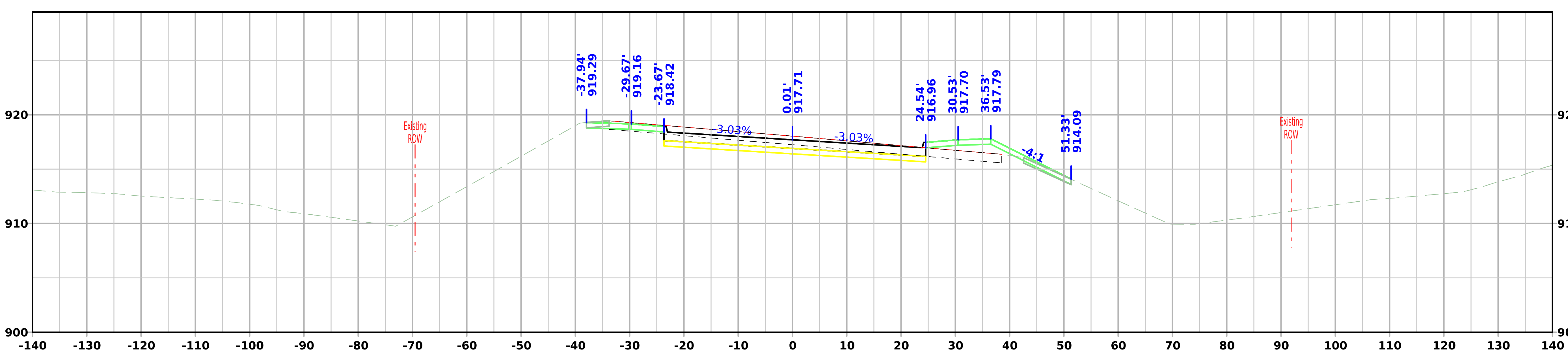


STA 95+25.00

ML - IA 415



STA 96+00.00

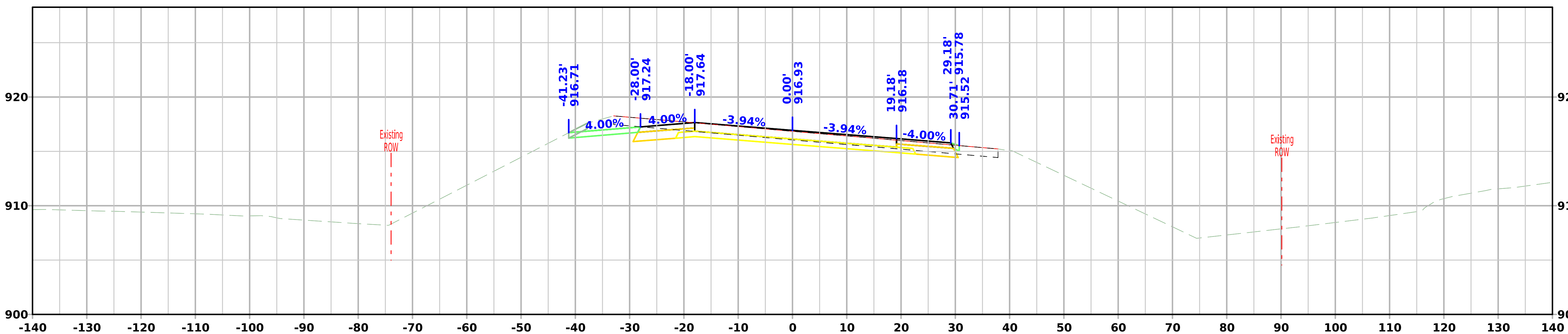


STA 95+75.00

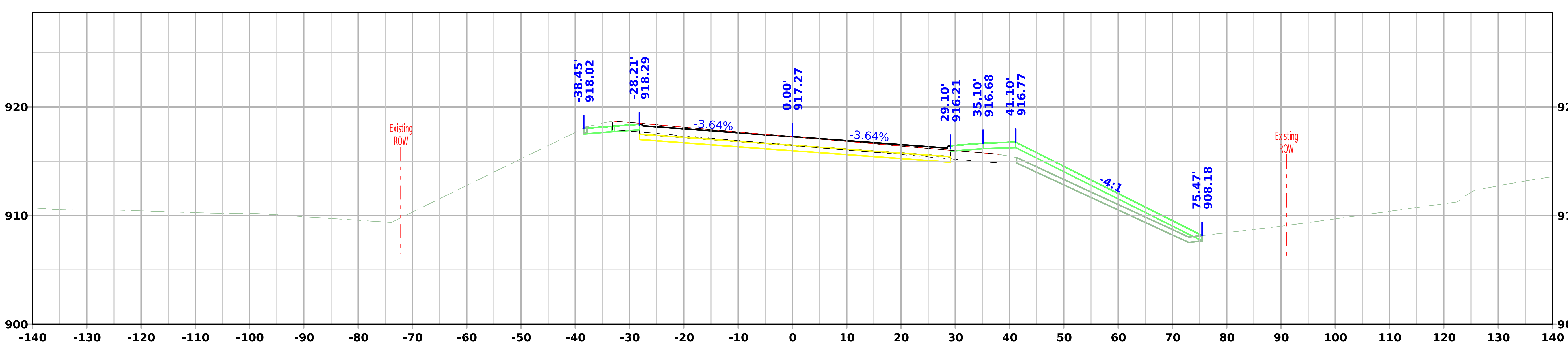
FILE NO.	ENGLISH	DESIGN TEAM Snyder & Associates, Inc.	POLK COUNTY	PROJECT NUMBER HSIPX-415-1(086)--3L-77	SHEET NUMBER W.18

8:22:46 AM 6/6/2024 egutierrez pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\7741502024\Design\CADD_Files\Sheet_Files\SHT_77415086Z08_W2-W24.dgn

ML - IA 415

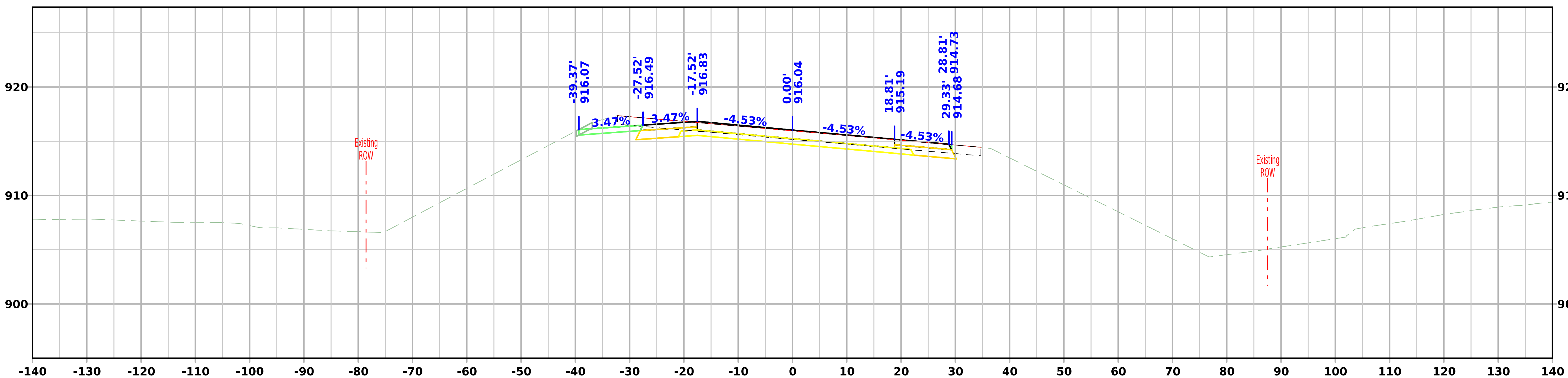


STA 96+50.00

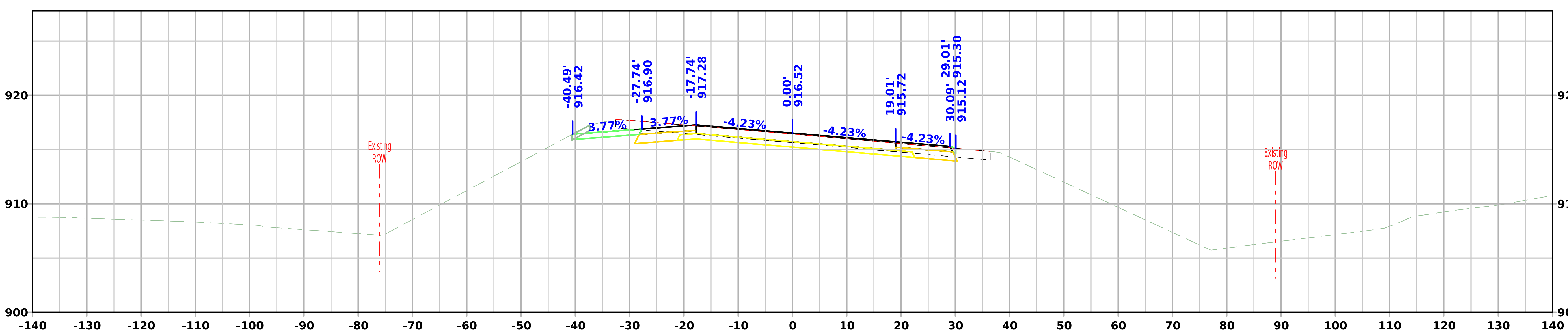


STA 96+25.00

ML - IA 415



STA 97+00.00

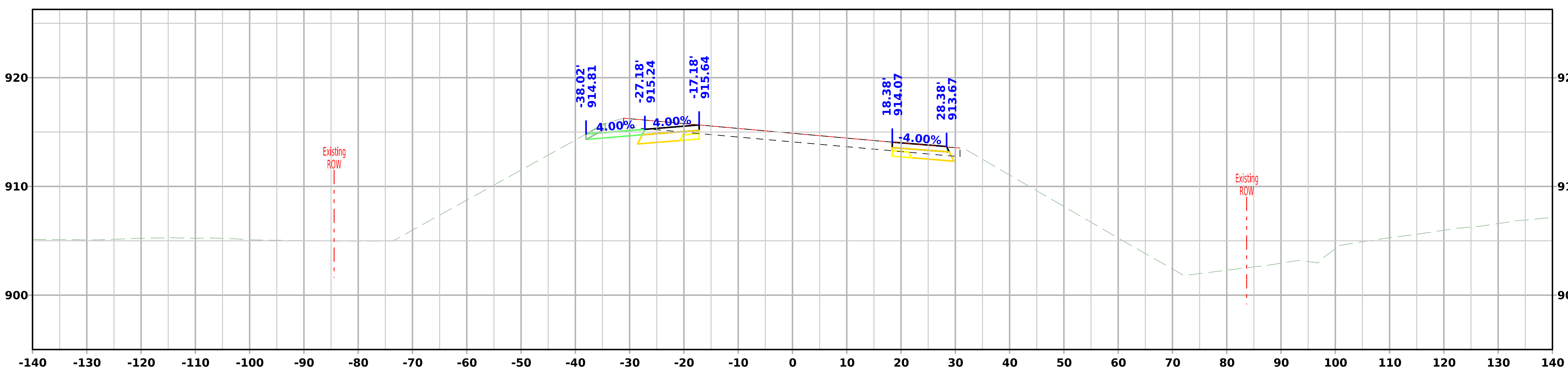


STA 96+75.00

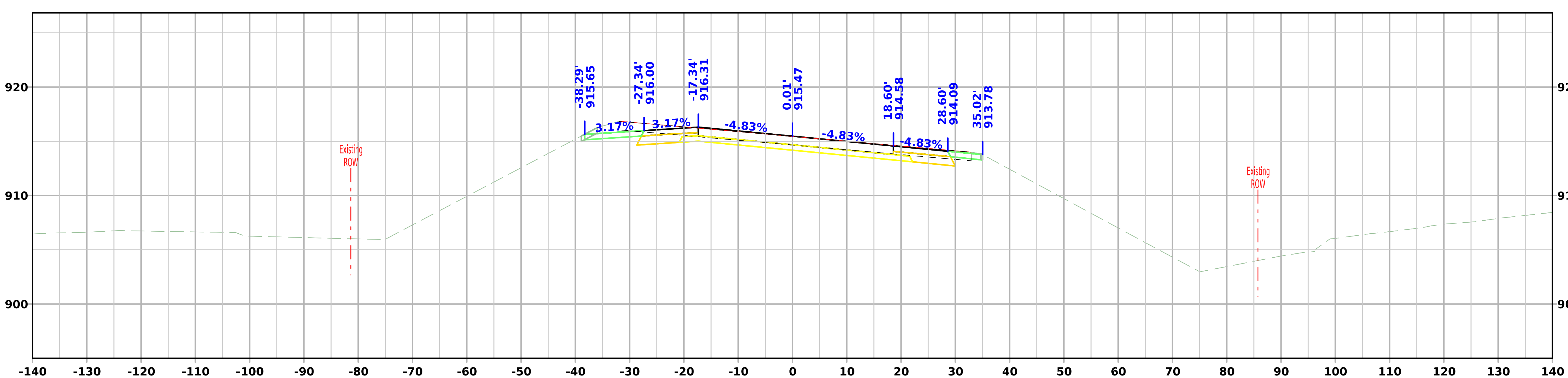
FILE NO.	ENGLISH	DESIGN TEAM Snyder & Associates, Inc.		POLK COUNTY	PROJECT NUMBER HSIPX-415-1(086)--3L-77	SHEET NUMBER W.20

8:22:49 AM 6/6/2024 egutierrez pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\7741502024\Design\CADD_Files\Sheet_Files\SHT_77415086Z08_W2-W24.dgn

ML - IA 415



STA 97+50.00

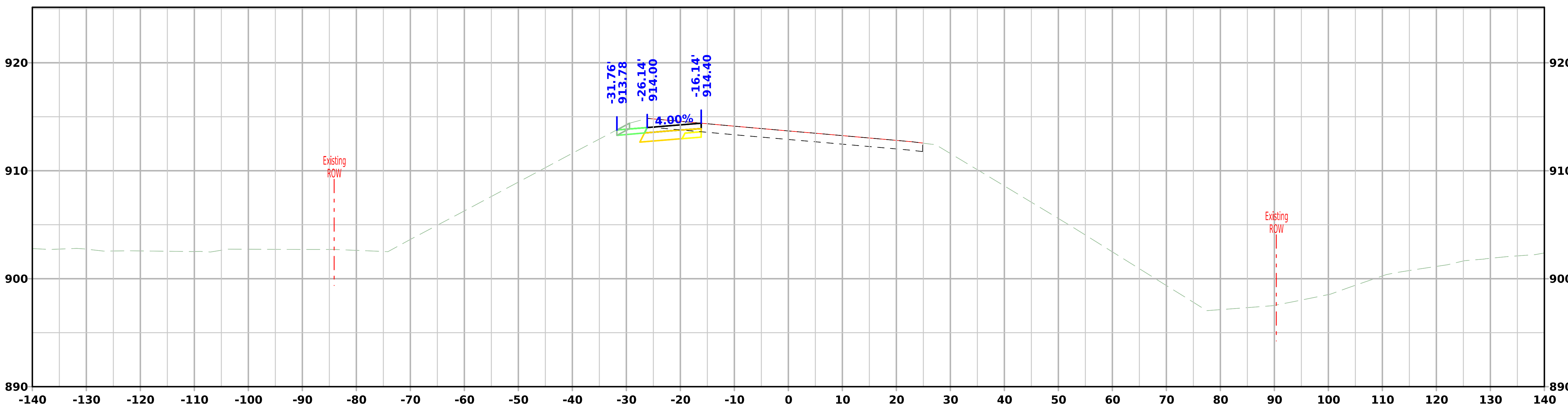


STA 97+25.00

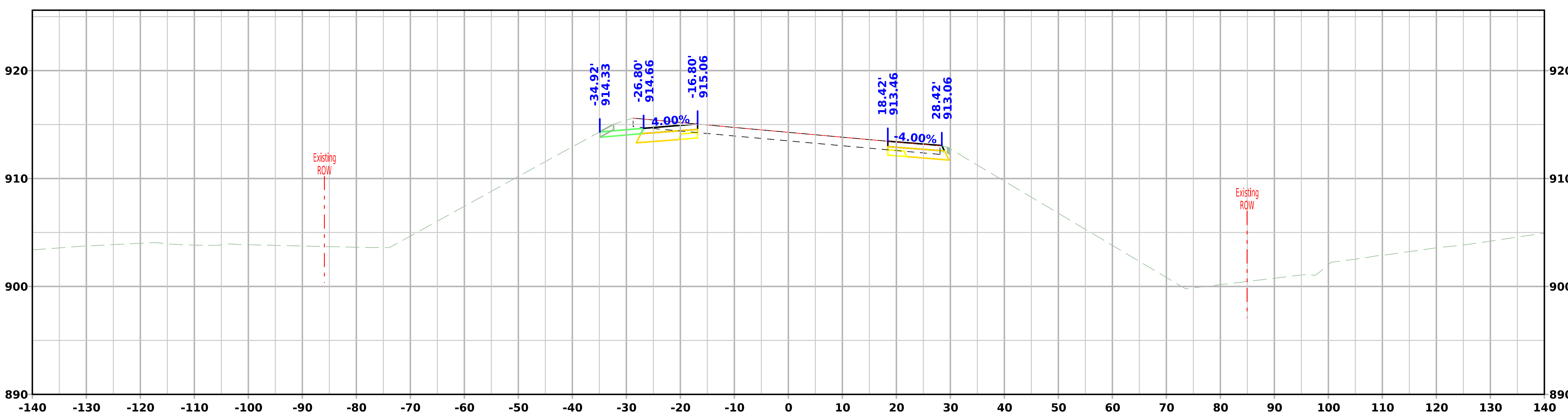
FILE NO.	ENGLISH	DESIGN TEAM Snyder & Associates, Inc.		POLK COUNTY	PROJECT NUMBER HSIPX-415-1(086)--3L-77	SHEET NUMBER W.21

8:22:50 AM 6/6/2024 egutierrez pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\7741502024\Design\CADD_Files\Sheet_Files\SHT_77415086Z08_W2-W24.dgn

ML - IA 415



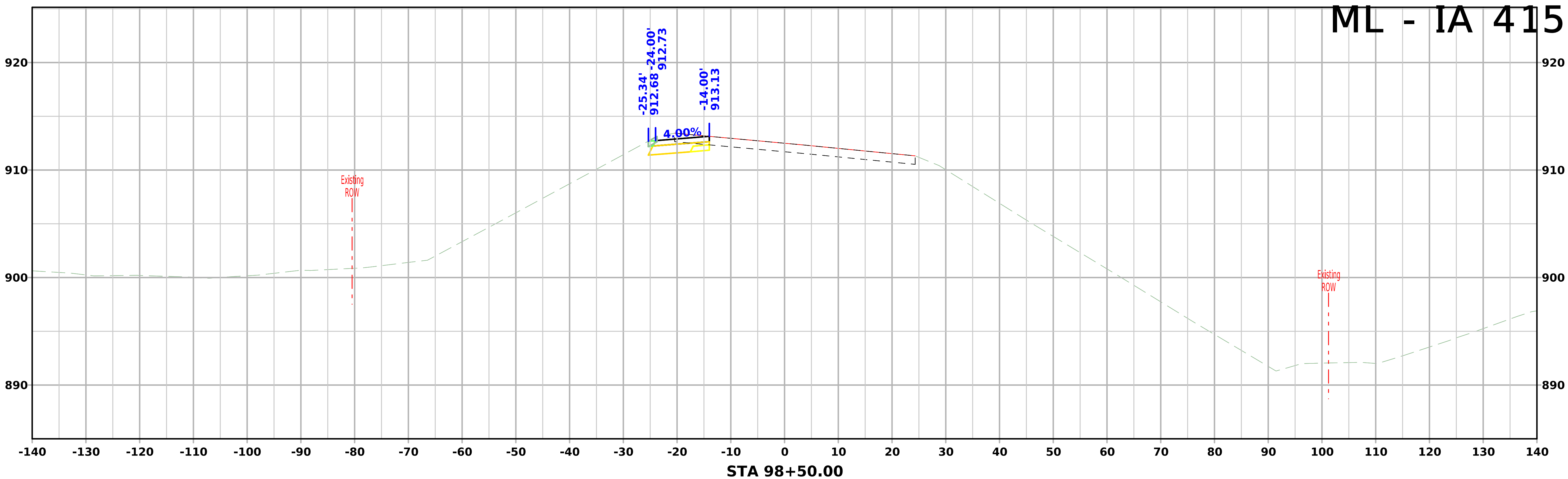
STA 98+00.00



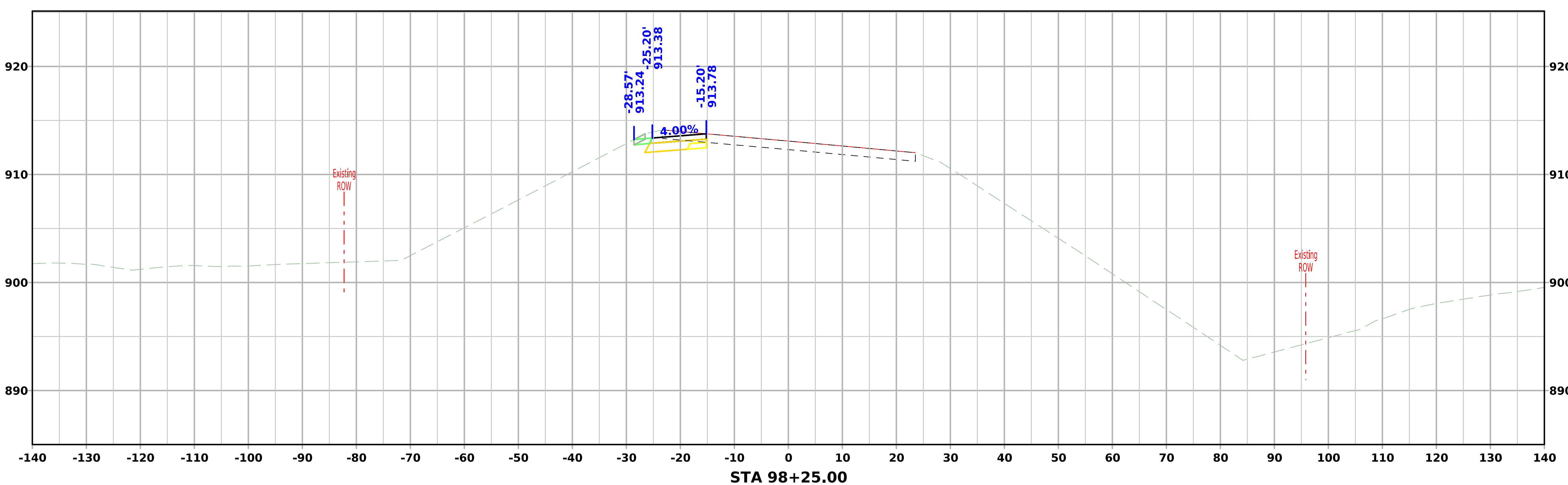
STA 97+75.00

FILE NO.	ENGLISH	DESIGN TEAM Snyder & Associates, Inc.		POLK COUNTY	PROJECT NUMBER HSIPX-415-1(086)--3L-77	SHEET NUMBER W.22

ML - IA 415



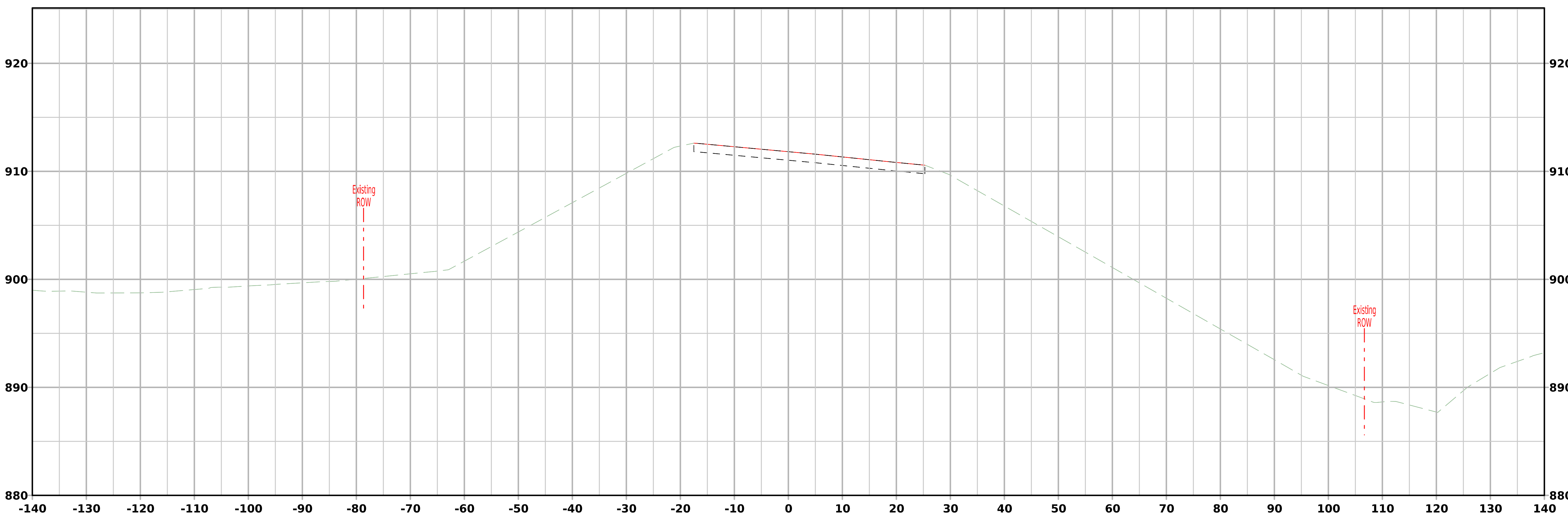
STA 98+50.00



STA 98+25.00

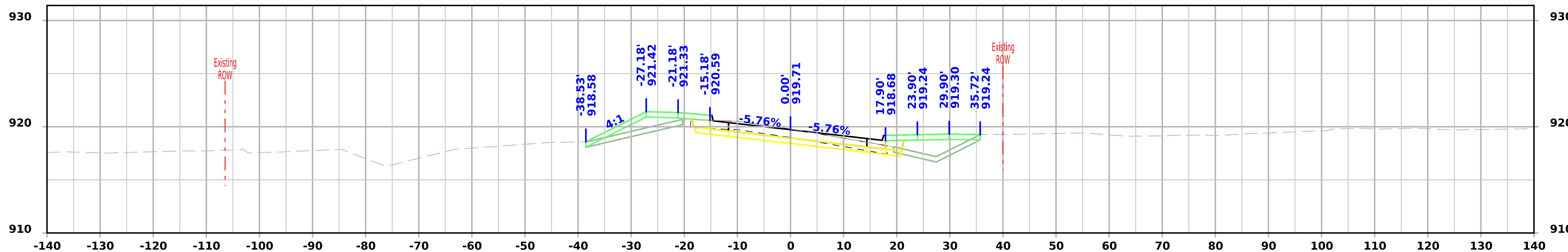
FILE NO.	ENGLISH	DESIGN TEAM Snyder & Associates, Inc.	POLK COUNTY	PROJECT NUMBER HSIPX-415-1(086)--3L-77	SHEET NUMBER W.23

ML - IA 415

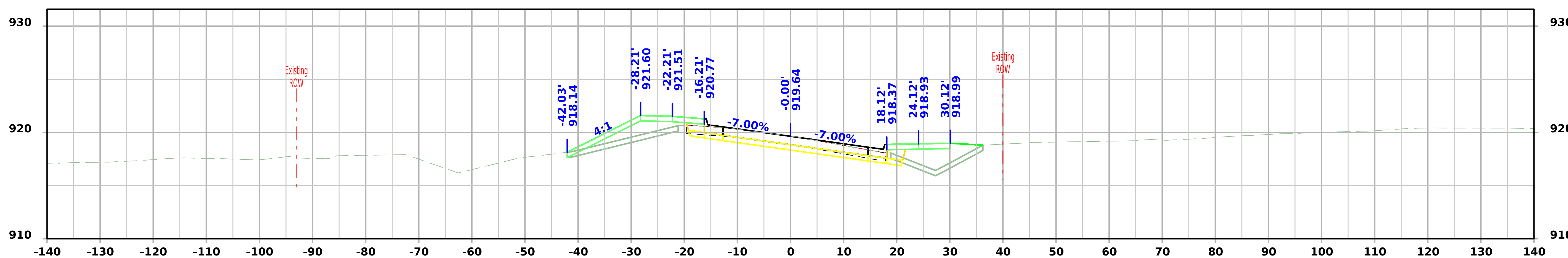


STA 98+75.00

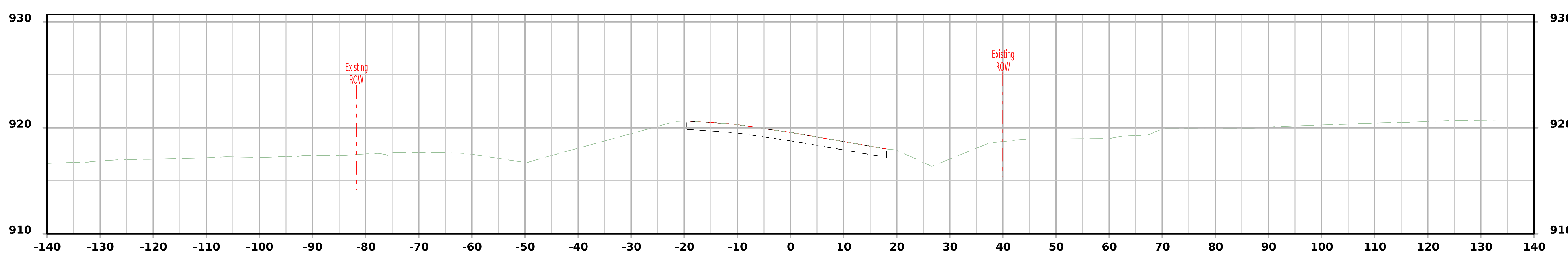
SR - 106TH



STA 788+75.00



STA 788+50.00

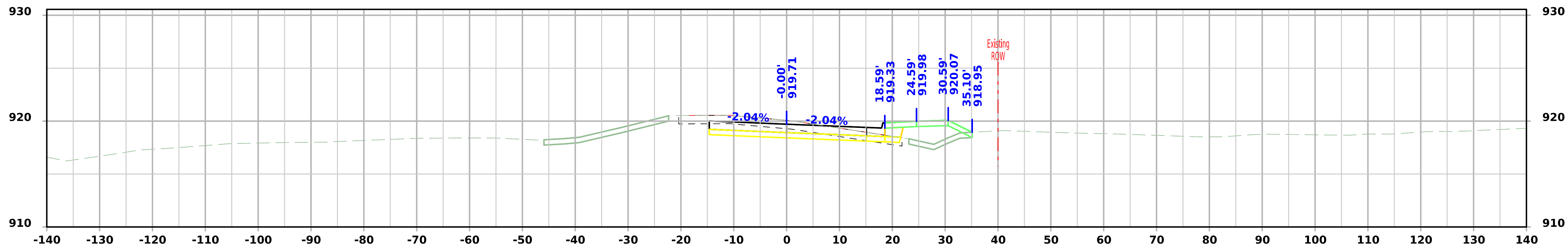


STA 788+25.00

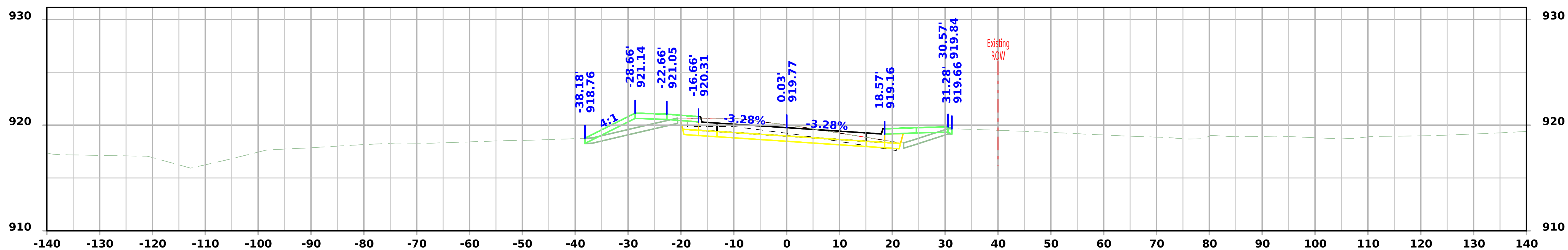
FILE NO.	ENGLISH	DESIGN TEAM Snyder & Associates, Inc.		POLK COUNTY	PROJECT NUMBER HSIPX-415-1(086)--3L-77	SHEET NUMBER X.1

8:23:05 AM 6/6/2024 egutierrez pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\7741502024\Design\CADD_Files\Sheet_Files\SHT_77415086Z08_X1-X14.dgn

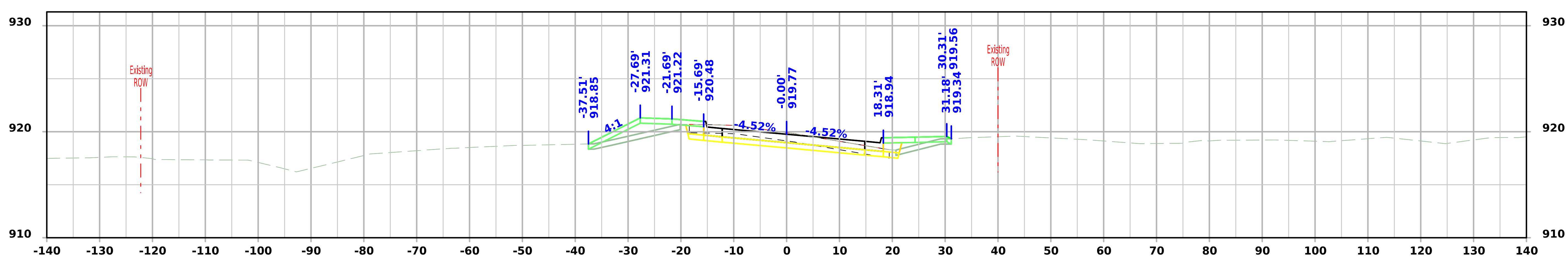
SR - 106TH



STA 789+50.00



STA 789+25.00

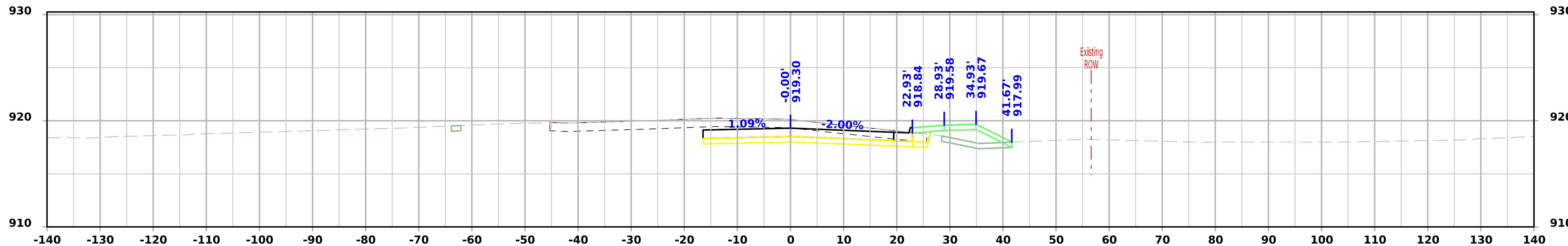


STA 789+00.00

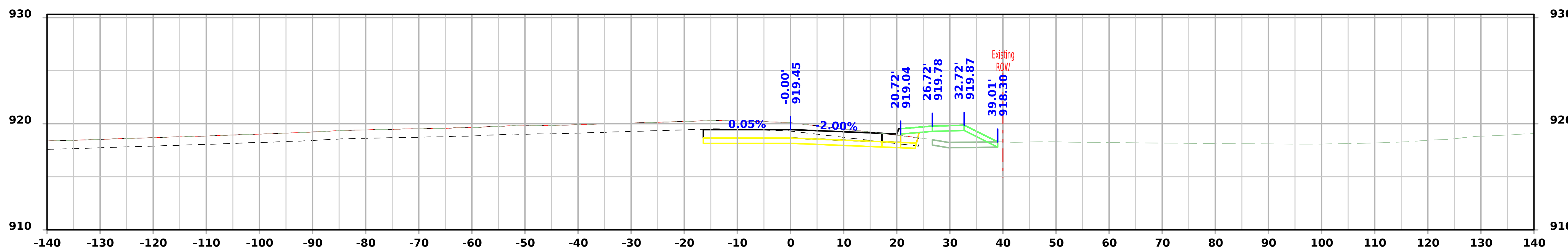
FILE NO.	ENGLISH	DESIGN TEAM Snyder & Associates, Inc.	POLK COUNTY	PROJECT NUMBER HSIPX-415-1(086)--3L-77	SHEET NUMBER X.2

8:23:08 AM 6/6/2024 egutierrez pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\7741502024\Design\CADD_Files\Sheet_Files\SHT_77415086Z08_X1-X14.dgn

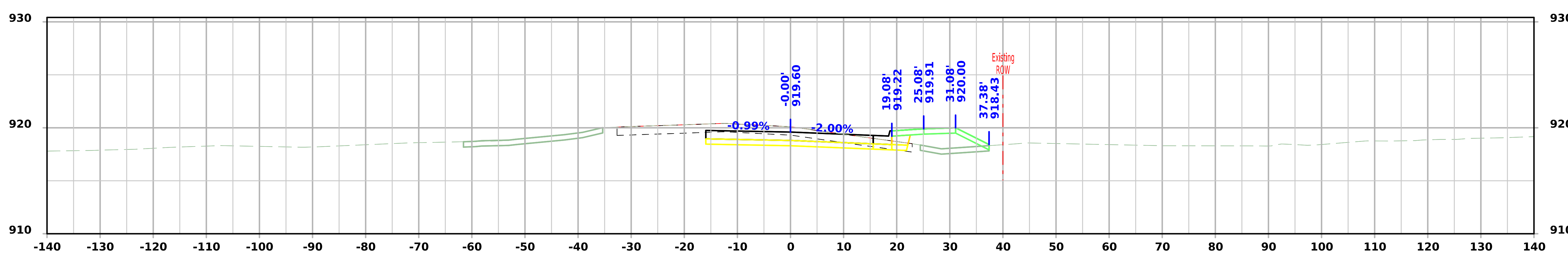
SR - 106TH



STA 790+25.00

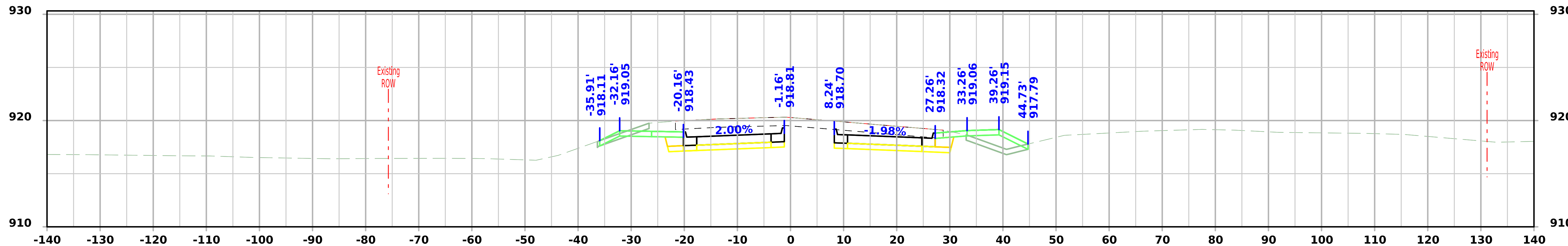


STA 790+00.00

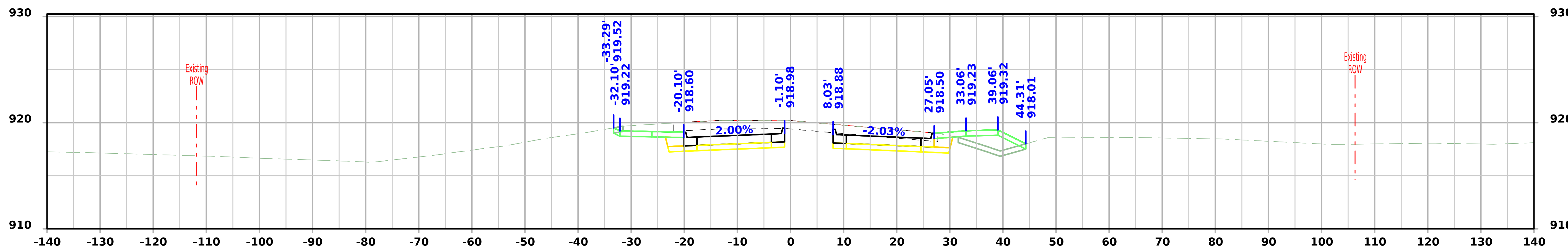


STA 789+75.00

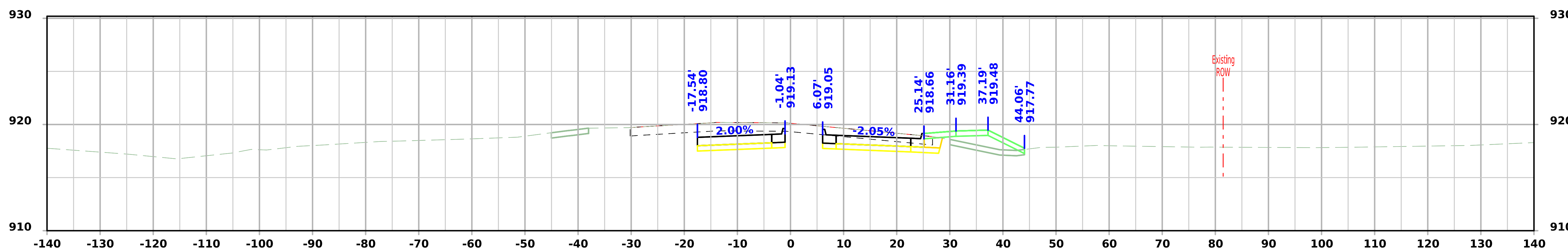
SR - 106TH



STA 791+00.00



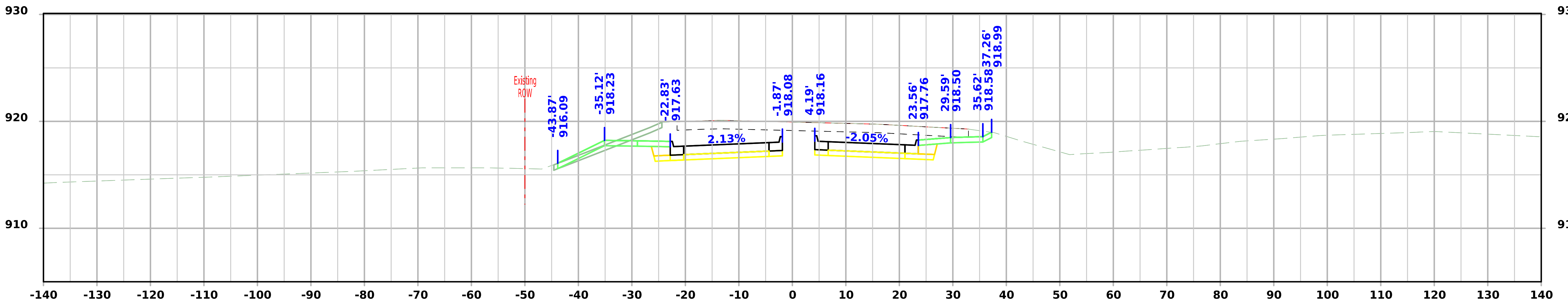
STA 790+75.00



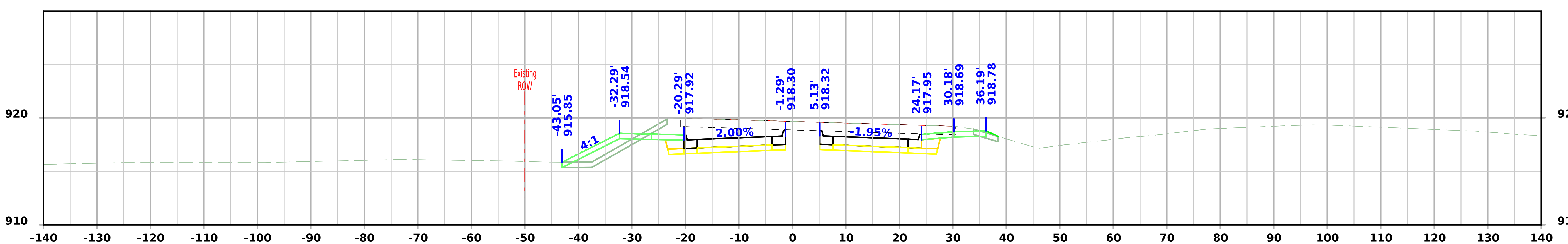
STA 790+50.00

FILE NO.	ENGLISH	DESIGN TEAM Snyder & Associates, Inc.	POLK COUNTY	PROJECT NUMBER HSIPX-415-1(086)--3L-77	SHEET NUMBER X.4

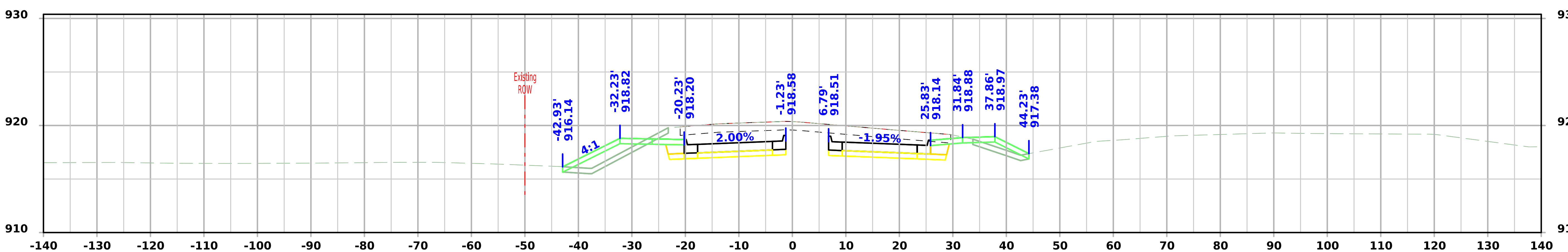
SR - 106TH



STA 791+75.00

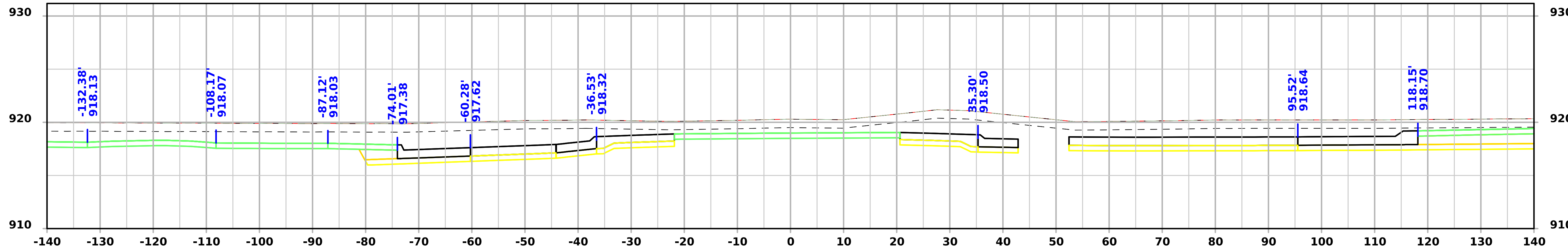


STA 791+50.00

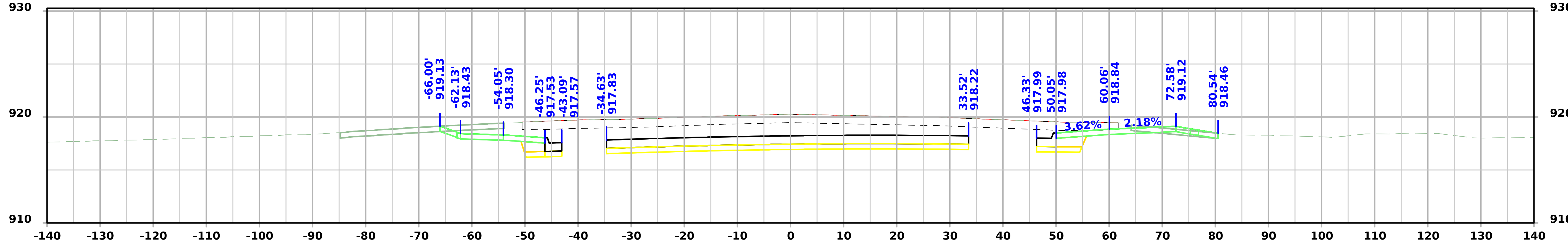


STA 791+25.00

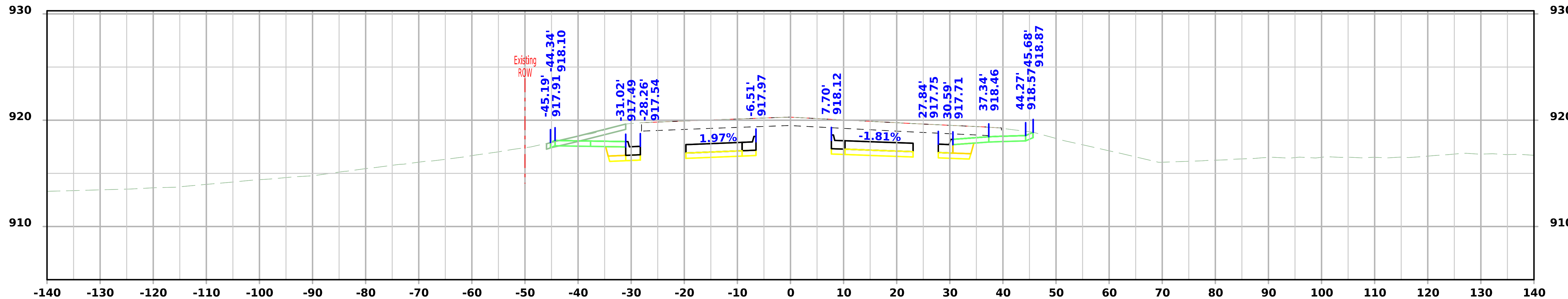
SR - 106TH



STA 792+50.00



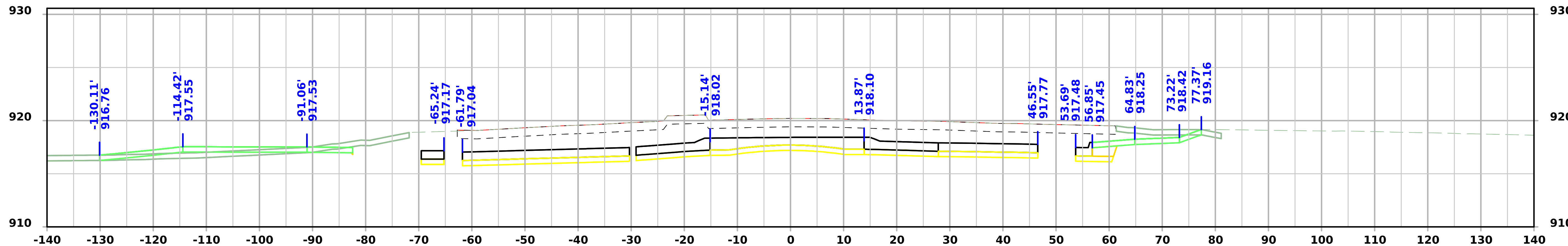
STA 792+25.00



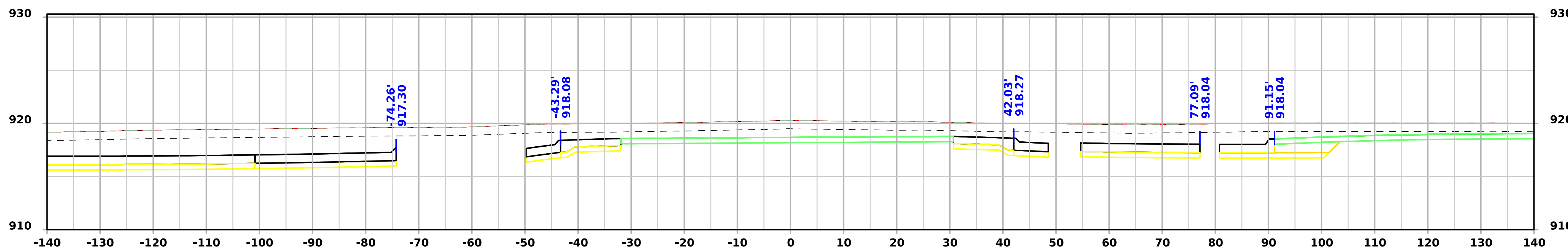
STA 792+00.00

FILE NO.	ENGLISH	DESIGN TEAM Snyder & Associates, Inc.		POLK COUNTY	PROJECT NUMBER HSIPX-415-1(086)--3L-77	SHEET NUMBER X.6

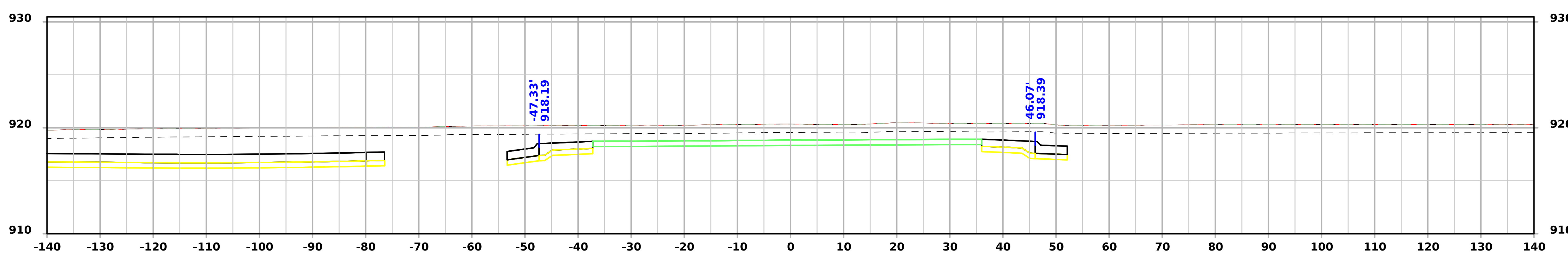
SR - BEAVER



STA 793+25.00



STA 793+00.00

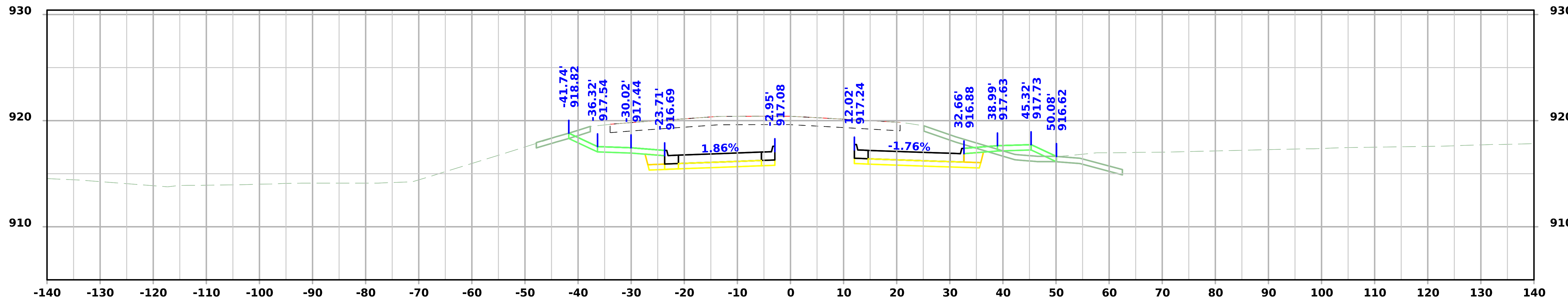


STA 792+75.00

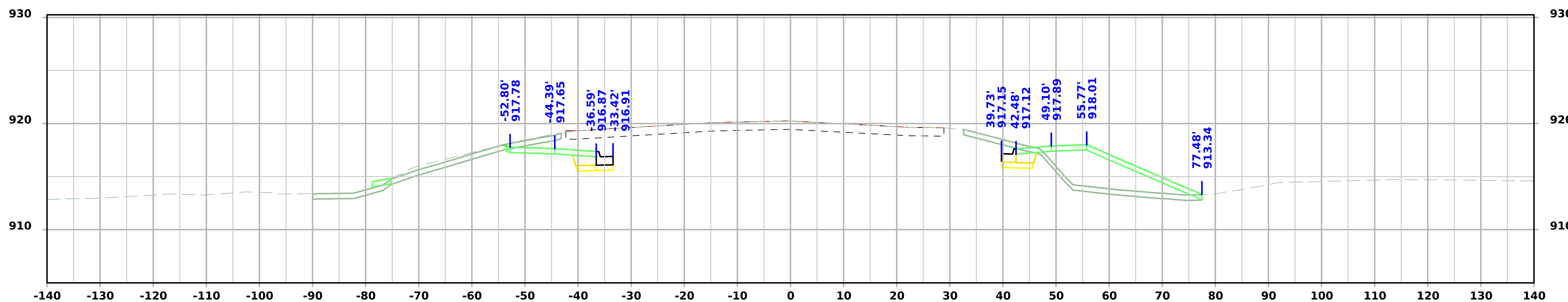
FILE NO.	ENGLISH	DESIGN TEAM Snyder & Associates, Inc.	POLK COUNTY	PROJECT NUMBER HSIPX-415-1(086)--3L-77	SHEET NUMBER X.7

8:23:18 AM 6/6/2024 egutierrez pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\7741502024\Design\CADD_Files\Sheet_Files\SHT_77415086Z08_X1-X14.dgn

SR - BEAVER

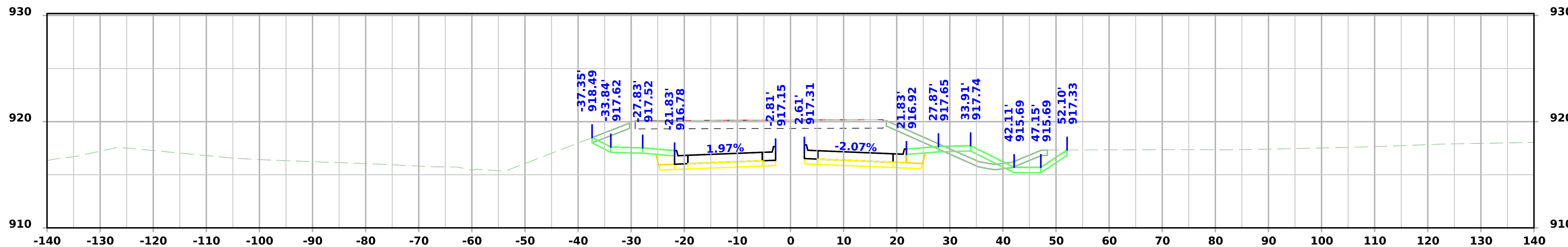


STA 793+75.00

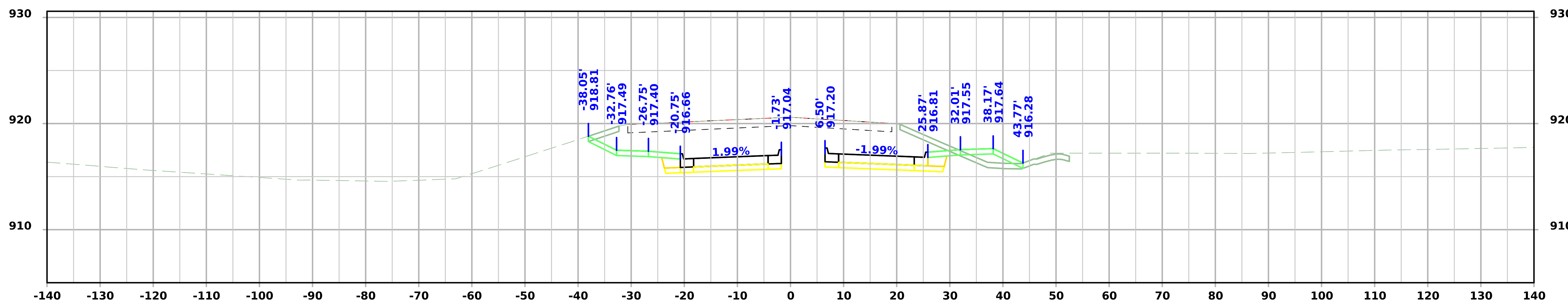


STA 793+50.00

SR - BEAVER



STA 794+25.00

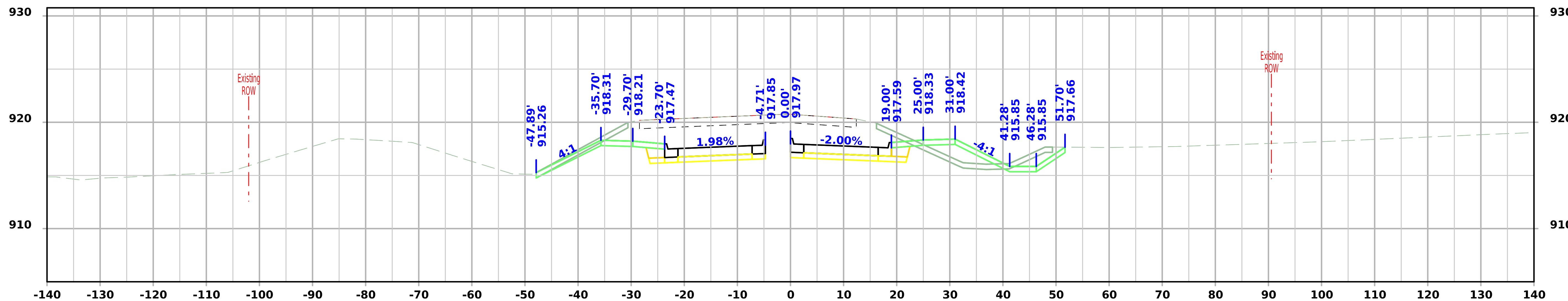


STA 794+00.00

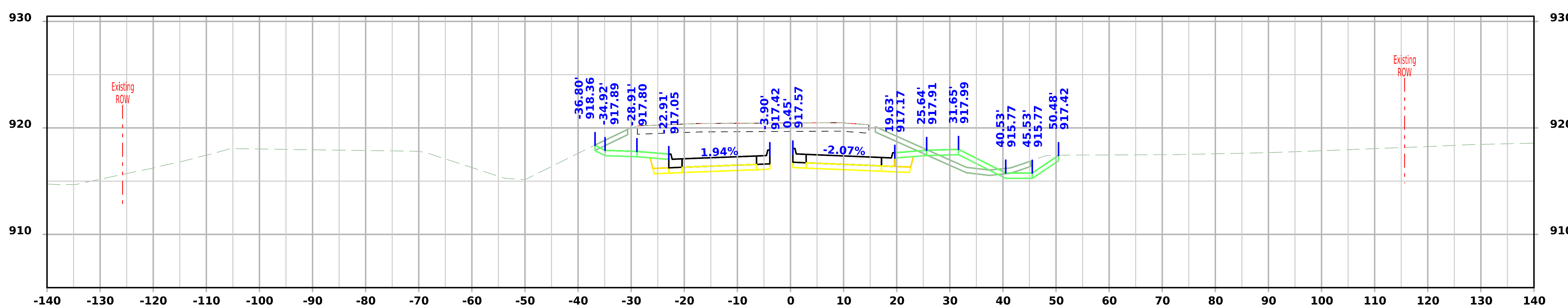
FILE NO.	ENGLISH	DESIGN TEAM Snyder & Associates, Inc.		POLK COUNTY	PROJECT NUMBER HSIPX-415-1(086)--3L-77	SHEET NUMBER X.9

8:23:23 AM 6/6/2024 egutierrez pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\7741502024\Design\CADD_Files\Sheet_Files\SHT_77415086Z08_X1-X14.dgn

SR - BEAVER

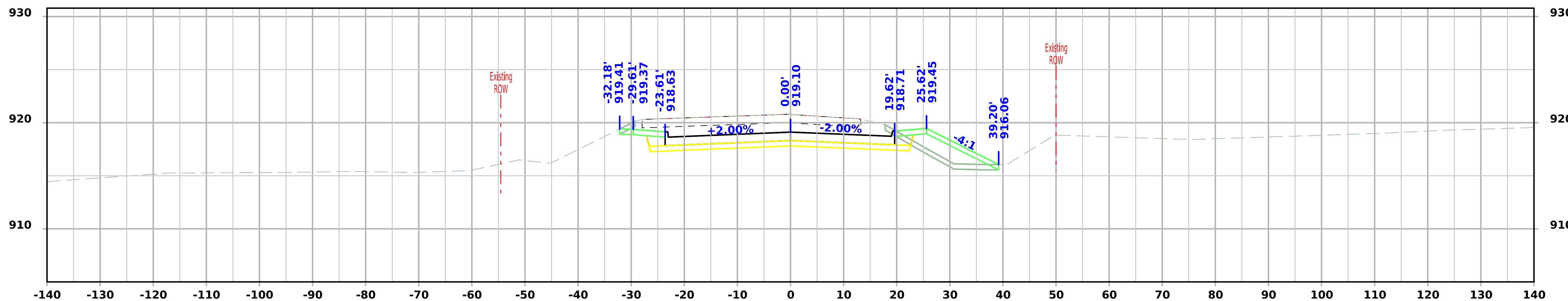


STA 794+75.00

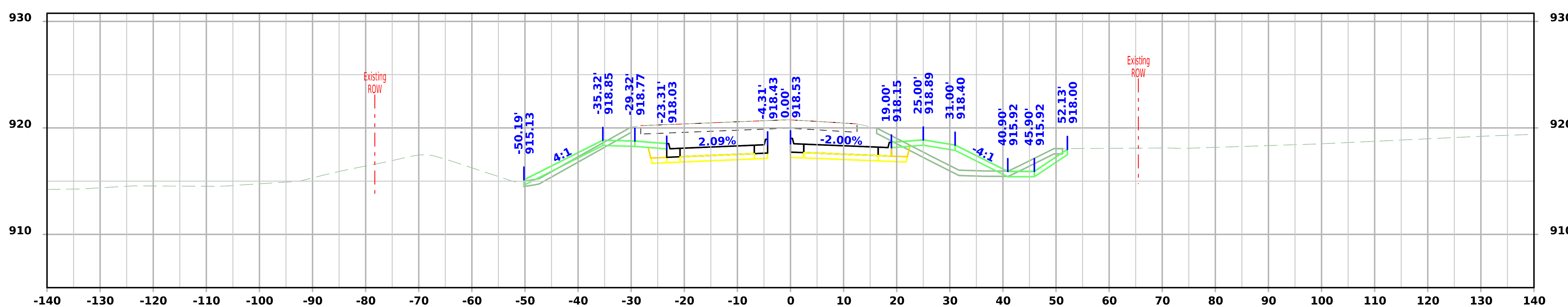


STA 794+50.00

SR - BEAVER



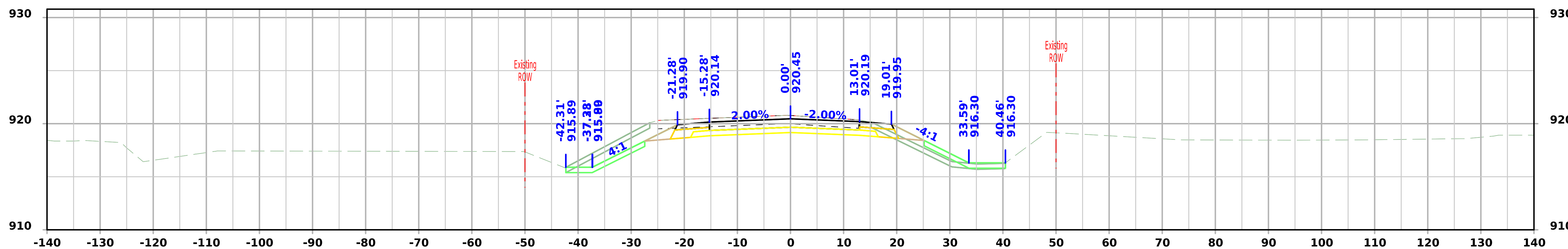
STA 795+25.00



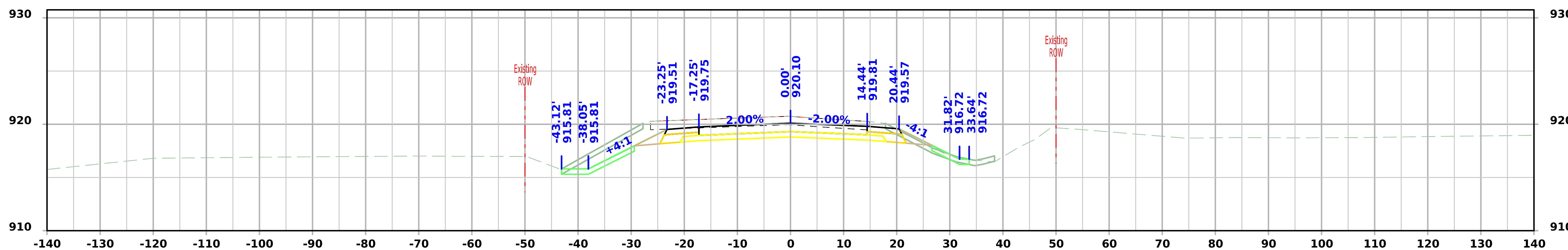
STA 795+00.00

FILE NO.	ENGLISH	DESIGN TEAM Snyder & Associates, Inc.	POLK COUNTY	PROJECT NUMBER HSIPX-415-1(086)--3L-77	SHEET NUMBER X.11

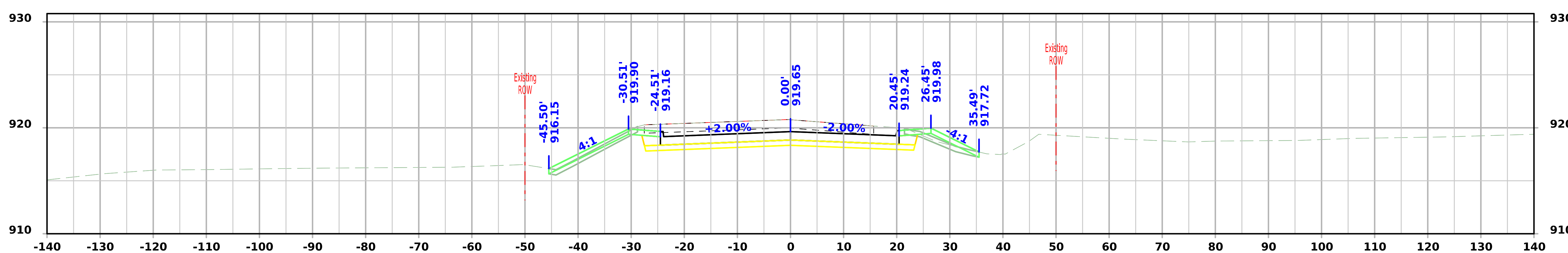
SR - BEAVER



STA 796+00.00



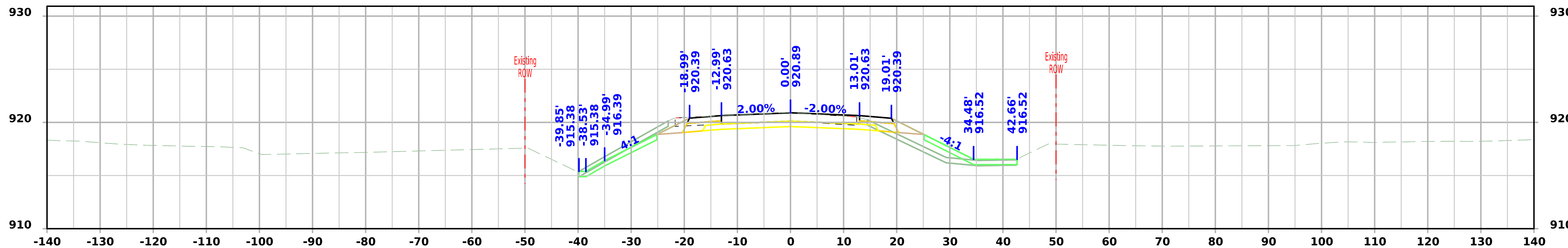
STA 795+75.00



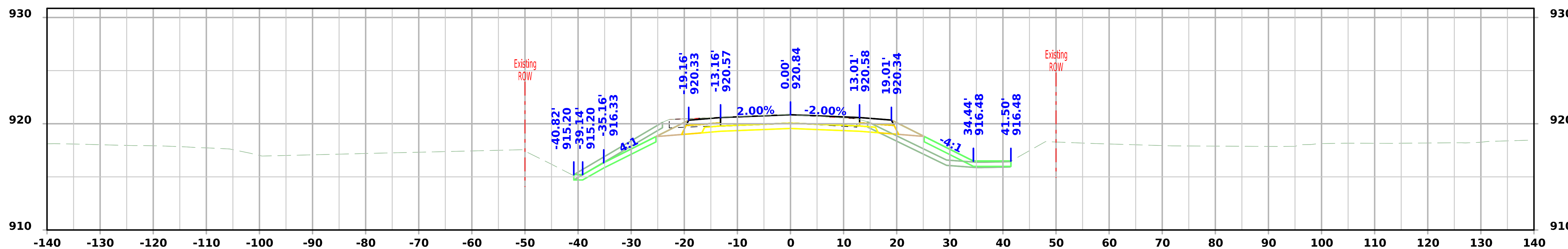
STA 795+50.00

FILE NO.	ENGLISH	DESIGN TEAM Snyder & Associates, Inc.		POLK COUNTY	PROJECT NUMBER HSIPX-415-1(086)--3L-77	SHEET NUMBER X.12

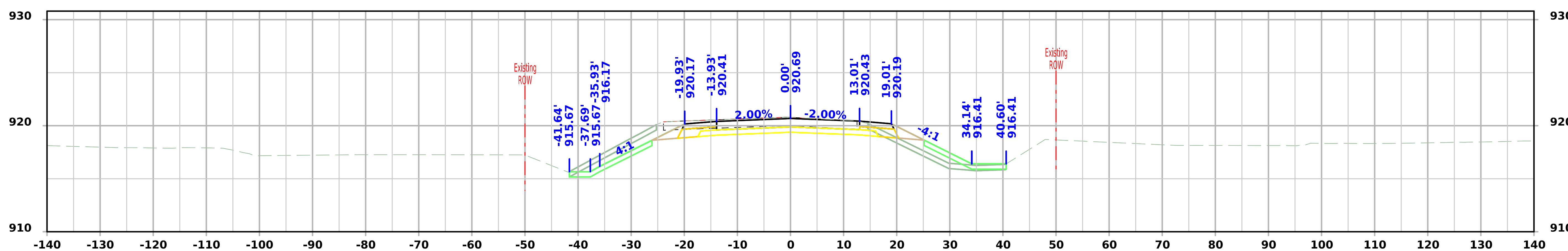
SR - BEAVER



STA 796+75.00



STA 796+50.00

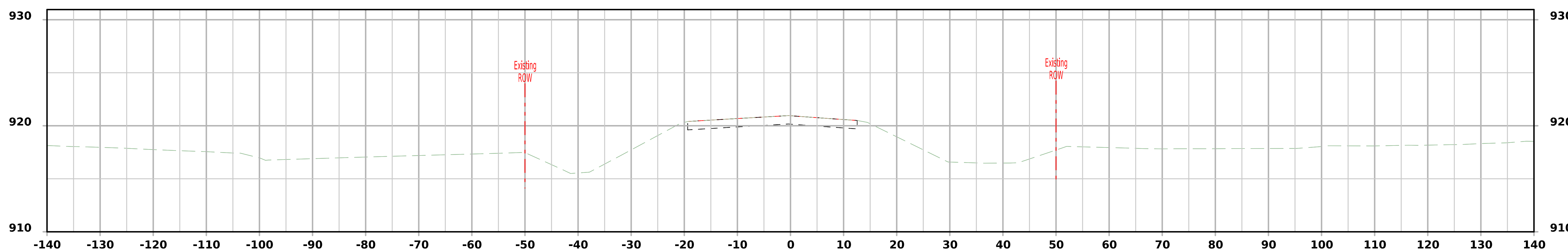


STA 796+25.00

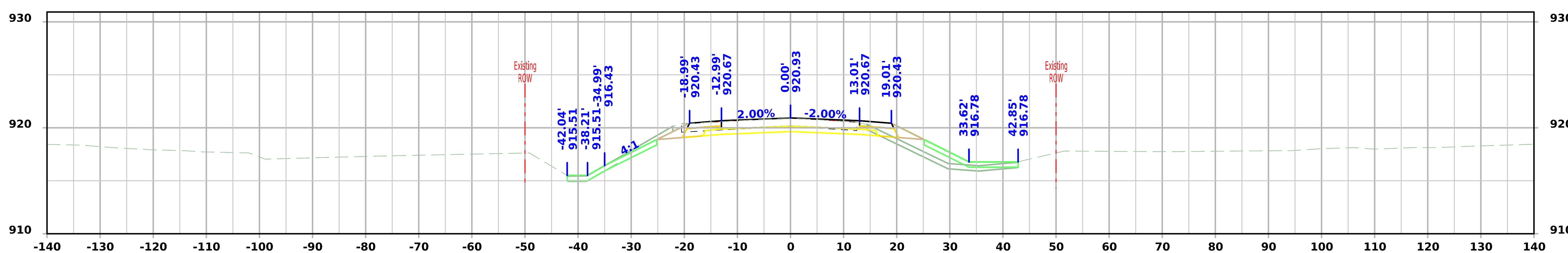
FILE NO.	ENGLISH	DESIGN TEAM Snyder & Associates, Inc.	POLK COUNTY	PROJECT NUMBER HSIPX-415-1(086)--3L-77	SHEET NUMBER X.13

8:23:31 AM 6/6/2024 egutierrez pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\7741502024\Design\CADD_Files\Sheet_Files\SHT_77415086Z08_X1-X14.dgn

SR - BEAVER



STA 797+25.00



STA 797+00.00