LETTING DATE

PCC PAVEMENT - GRADE AND REPLACE
BRF-415-1(52)--38-77

POLK Co.

IOWA DOT
Highway Division

PLANS OF PROPOSED IMPROVEMENT ON THE

PRIMARY ROAD SYSTEM
POLK COUNTY
PCC PAVEMENT - GRADE AND REPLACE
INTERSECTION OF IOWA HIGHWAY 415 AND 66TH AVENUE

SCALES: As Noted

REVISIONS

TOTAL	131
PROJECT IDENTIFICATION NUMBER	
12-77-415-030	
PROJECT NUMBER	
BRF-415-1(52)--38-77	
R.O.W. PROJECT NUMBER	

Refer to the Proposal Form for list of applicable specifications.

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

NO MILEAGE SUMMARY

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

For Project Location Map
Refer to Sheet A.2

INDEX OF SHEETS

* Color Plan Sheets

Anticipated Project Development Schedule:

D3 - Plans for Preliminary Structure
March 19, 2014

B1 - Bridges and Structures Layout
April 9, 2014

S2 - Identification of Soils Related ROW Issues
June 4, 2014

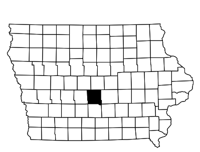
D5 - Plans to Right of Way
June 18, 2014

66th AVENUE DESIGN DATA URBAN

2012	AADT	5,400	V.P.D.
2037	AADT	8,860	V.P.D.
20--	DHV	--	V.P.H.
TRUCKS		5	%
Total Design ESALs		--	

IA HWY 415 DESIGN DATA URBAN

2012	AADT	24,100	V.P.D.
2037	AADT	38,500	V.P.D.
20--	DHV	--	V.P.H.
TRUCKS		4	%
Total Design ESALs		--	



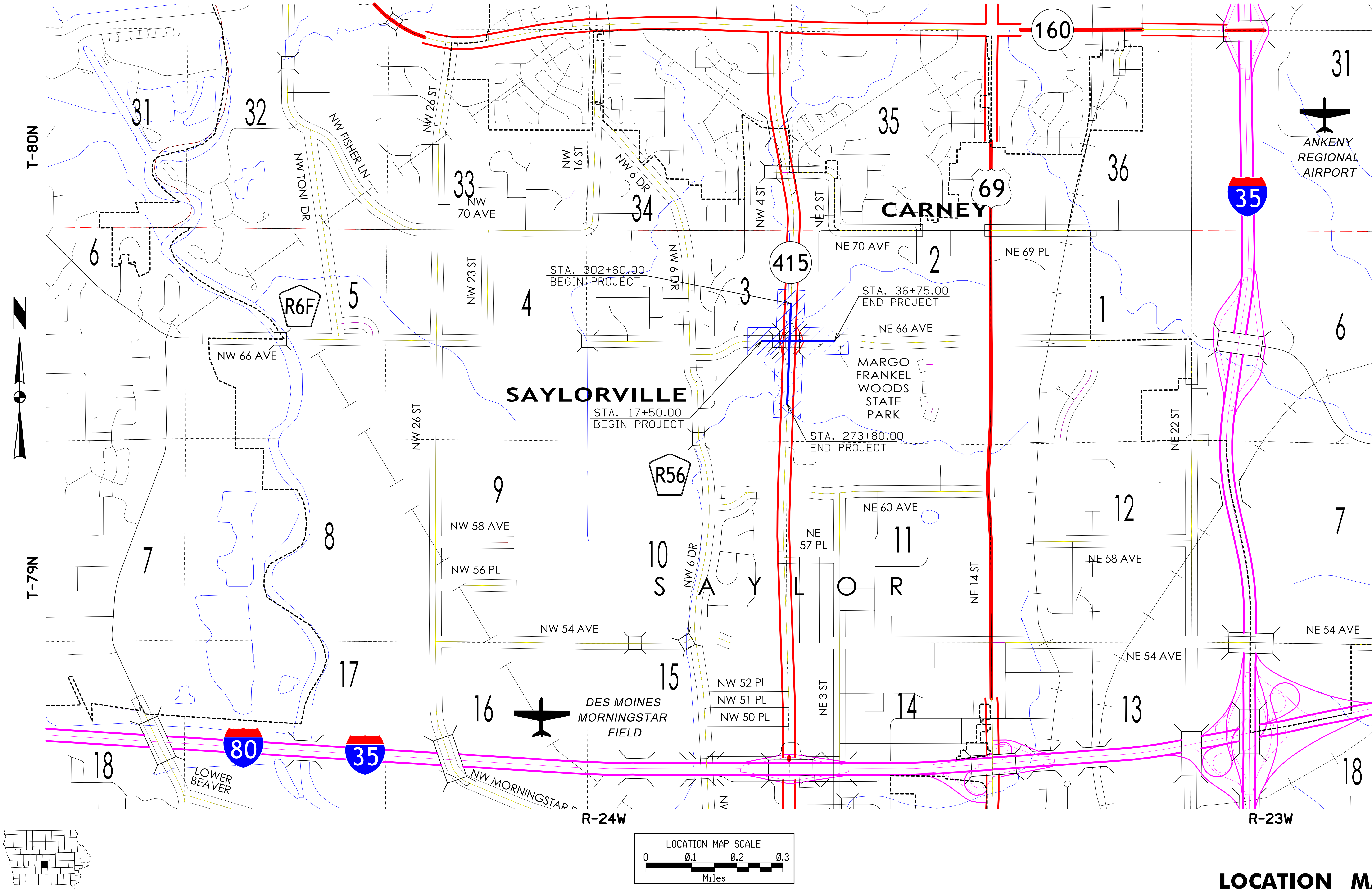
INDEX OF SEALS

SHEET NO.	NAME	TYPE
A.1	ANDREW G. BURKE	Primary Signature Block
N.1	TIMOTHY CROUCH	Traffic Signalization
Q.1	DENNIS HOOVER	Geotechnical
V.1	STEVE KUNZ	Structural
V.1	KYLE D. RILEY	Hydraulic

PRELIMINARY PLANS

Subject to change by final design.

D5 PLAN - Date: 06-18-2014



LOCATION MAP

ENGLISH	IOWA DOT	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	POLK COUNTY	PROJECT NUMBER	BRF-415-1(52)--38-77	SHEET NUMBER	A.2

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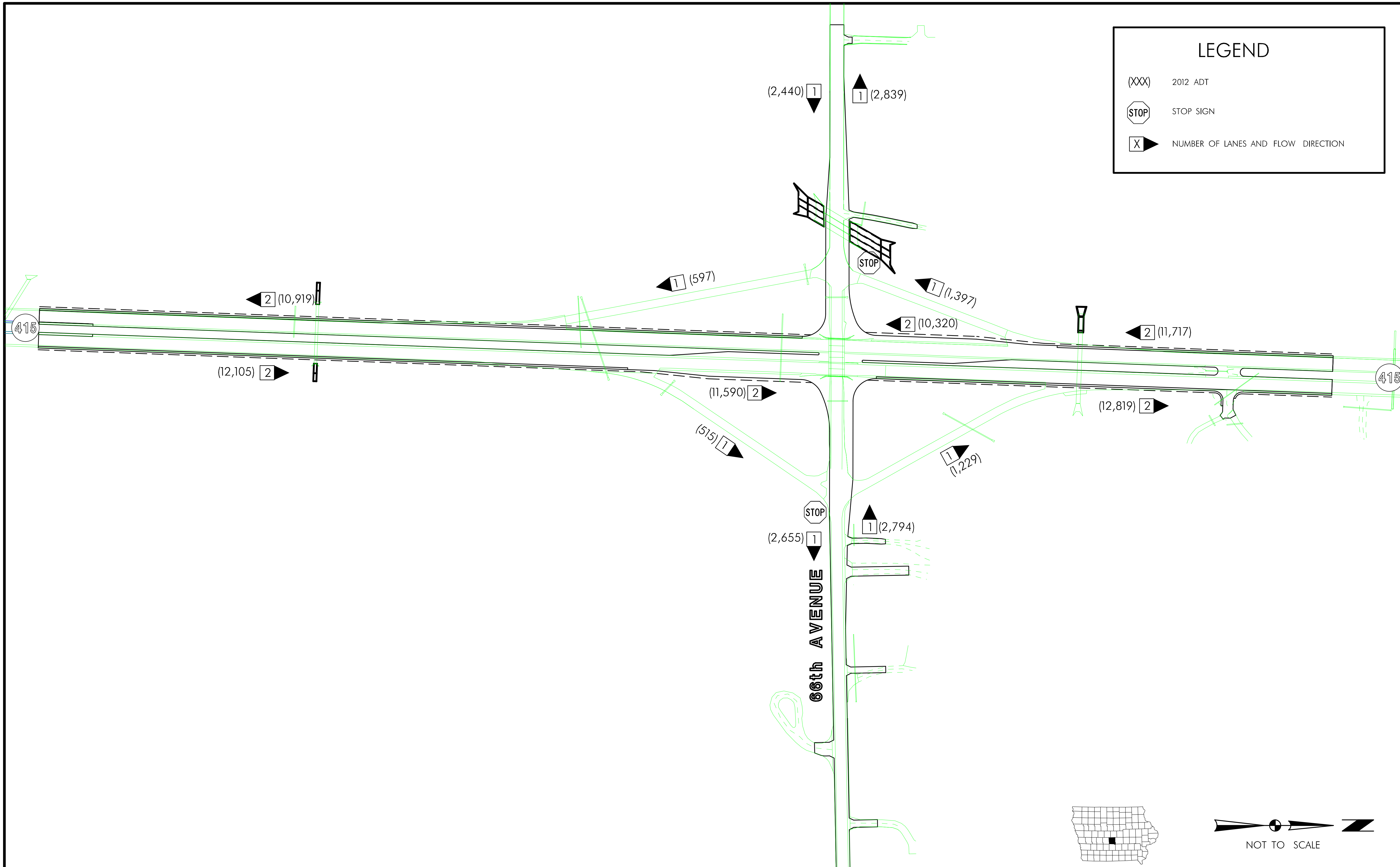


TRAFFIC DATA

ENGLISH | IOWA DOT | DESIGN TEAM **SNYDER & ASSOCIATES, INC.** | **POLK** COUNTY | PROJECT NUMBER **BRF-415-1(52)--38-77** | SHEET NUMBER **A.3**

12:13:56 PM 6/20/2014 V8i_IDOTRoadD:\1120800L\Cadd\Design\77415052a01.sht

Roadway	IA HIGHWAY 415			
PIN Number			**Submittal Date**	
Project Number	BRF-415-1(52)--38-77			**Approval Date**
District	1	**Assistant District Engineer**	Tony Gustafson	
County	Polk	**or**		
Route	IA Highway 415	**Office Director**		
Location	66th Avenue Intersection			
Work Type	PCC Replace			
Segment Manager				
Designer	Snyder and Associates, Inc.			
Design Manual Section 1C-1 last update: 08-05-13	**Rural Expressways (Rural Arterials)**			

Design Element		Preferred	Acceptable Criteria	Project Values
Design speed (mph)		70	50	60
Maximum superelevation rate (Refer to Section 2A-2)		6%	8%	6%
Design lane width (ft)		12	12	12
Full depth paved width (ft)	Outside lane	14', 12' if using full depth paved shoulders	12	14
	Inside lane(s)	12	12	12
Right turn lane or an auxiliary lane (ft)		12	10	12
Left turn lane (ft)		12	10	12
Pavement cross-slope (on tangent sections)	Through lanes	2%, However, when adjacent lanes slope in the same direction, increase slope by 0.5% per lane up to 3%	1.5% minimum, 3% maximum	2%-2.5%
	Auxiliary and turn lanes	3%	3% maximum	1%-3%
	Crown break at centerline	4%	4% maximum	0% to 4%
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	n/a
	Design speed ≥ 60 mph	4-inch sloped	6-inch sloped	6" sloped
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	preferred*
	Beyond standard ditch depth and design clear zone	3.5:1	3:1	3.5:1
	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	--	varies
	Median ditch depth (ft)	4	--	varies
Median width (ft) (Refer to Section 3E-1)		64	50	28'**
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 left and right of the design lane widths	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	16.5
	Over non-primary	16.5 at interchange locations, 15 at all other locations	14	15
	Over railroad	23.3	23.3	n/a
	Sign trusses and pedestrian crossings	17.5	17	17.5
Structural Capacity		Contact Office of Bridges and Structures	Contact Office of Bridges and Structures	n/a
Level of Service		B	B	

DESIGN CRITERIA

Roadway Design Speed (mph) =			60												
Design Manual Section 1C-1 last update: 08-05-13			**Design Criteria for High Speed Roadways**												
Design Element			Preferred Criteria Design Speed, mph						Acceptable Criteria Design Speed, mph						Project Values
			50	55	60	65	70	75	50	55	60	65	70	75	
Stopping sight distance (ft) (Refer to Section 6D-1)			425	495	570	645	730	820	425	495	570	645	730	820	645
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	n/a
		e_{max} = 8%	--	--	--	--	--	--	758	960	1200	1480	1810	2210	
Minimum vertical curve length (ft) (Refer to Section 2B-1)			150	165	180	195	210	225	150	165	180	195	210	225	330
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	193
	sag vertical curves	roadways without fixed-source lighting	96	115	136	157	181	206	96	115	136	157	181	206	136
		roadways with fixed-source lighting	96	115	136	157	181	206	54	66	78	91	106	121	n/a
Minimum gradient (%)	(Refer to Section 2B-1)		0.5						0.3% with a curb, 0.0% without a curb						0.27%
Maximum gradient (%)	(Refer to Section 2B-1)	Urban roadways	4	3					7	6	6	--	--	--	n/a
		Rural roadways							5	5	4	4	4	4	4.0%***
		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						****

Design year ADT =	38,500 (2037)									
Design Manual Section 1C-1 last update: 08-05-13	**Effective Shoulder Width and Type for Multilane Arterials**									
Preferred (Values shown in feet)					Acceptable (Values shown in feet)					Project Values
	Rural Roadways		Urban Roadways			Rural Roadways		Urban Roadways		
Auxiliary lanes or turn lanes with shoulders	6		6		Auxiliary lanes or turn lanes with shoulders	6		0		6
Turn lanes with curbs	6		See Section 3C-2		Turn lanes with curbs	6		0		n/a
Expressways	Outside		Median Side		Expressways	Outside		Median Side		
	Effective Shoulder Width	Paved Width	Effective Shoulder Width	Paved Width		Effective Shoulder Width	Paved Width	Effective Shoulder Width	Paved Width	
Routes where bicycles are to be accommodated	10	10	6	6	Routes where bicycles are to be accommodated	8	4	4	4	n/a
On roadways approaching urban areas (due to increased bike traffic)	10	10	6	6						
On all curves with a superelevation rate of 7.0% or greater	10	10	6	6	On all other Expressways (Multilane Arterials)	8	2*	4	4	10' / 6'
On roadways with design year ADT > 6500 vpd	10	6	6	6						
On all other Expressways (Multilane Arterials)	10	4	6	4						

*Requires safety edge-See 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:

*** preferred will be designed. values within median may vary slightly depending on final typical section. foreslopes on outside lane are anticipated to be within this range.**
****between edge of shoulders**
*****based on existing tie in slopes. new grades do not exceed 2.00%**
******32' for outside lanes will be designed and 28' for inside lanes based on available median width.**

DESIGN CRITERIA

Roadway	NW 66th Avenue			
PIN Number			**Submittal Date**	
Project Number	BRF-415-1(52)--38-77			**Approval Date**
District	1	**Assistant District Engineer**	Tony Gustafson	
County	Polk	**or**		
Route	NW 66th Avenue	**Office Director**		
Location	at IA Highway 415			
Work Type	PCC replacement			
Segment Manager				
Designer	Snyder & Associates, Inc.			
Design Manual Section 1C-1 last update: 08-05-13	**Urban Multilane Roadways (Urban Arterials)**			

Design Element		Preferred	Acceptable Criteria	Project Values
Design speed (mph)		The anticipated posted speed limit	30	35
Maximum superelevation rate (Refer to Section 2A-2)		4%	8%	4%
Design lane width (ft)		12	11	12
Full depth paved width (ft)	Outside lane	Design lane width + curb and gutter unit or 14 feet for roadways with shoulders, 12' if using full depth shoulders	Match design lane width	15.5
	Inside lane(s)	Design lane width + curb and gutter unit. 12' for roadways without a curb and gutter unit	Match design lane width	15.5
Right turn lane or an auxiliary lane (ft)		12	10	12.5
Left turn lane (ft)	With raised or painted median	12 ft + median	10 ft + median	12
	With depressed median	12	10	n/a
Two-way left turn lane (ft)		14	11	n/a
Parking lane width (ft)		10	7	n/a
Pavement cross-slope (on tangent sections)	Through lanes	2%, However, when adjacent lanes slope in the same direction, increase slope by 0.5% per lane up to 3%	1.5% minimum, 3% maximum	2%
	Auxiliary and turn lanes	3%	3% maximum	2%.
	Crown break at centerline	4%	4% maximum	4%
Shoulder cross-slope (on tangent sections)	Shoulders	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 and gutter units	Match pavement cross-slope	6% maximum	2%
	Parking lanes	1% greater than pavement cross-slope	6% maximum	n/a
Curb type (Refer to Section 3C-2)	Design speed ≤ 45 mph	6-inch standard	any shape	6-inch std
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% than 4:1/3:1*
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
Median width (ft) (Refer to Section 3E-1)		See Section 3E-1	0	n/a
Bridge width—new	Bridge length ≤ 200 ft	design lane widths + effective shoulder widths or curb-to-curb width	design lane widths + effective shoulder widths or curb-to-curb width	n/a
	Bridge length > 200 ft	design lane widths + effective shoulder widths or curb-to-curb width	Curb-to-curb width or design lane widths + 4 ft offset each side for roadways with shoulders	n/a
Bridge width—existing		design lane widths + no less than 2 ft left and right	design lane widths + 2 ft left and right of the design widths	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	16.5
	Over non-primary	16.5 at interchange locations, 15 at all other locations	14	15
	Over railroad	23.3	23.3	n/a
	Sign truss and pedestrian crossings	17.5	17	17.5
Structural Capacity		Contact Office of Bridges and Structures	Contact Office of Bridges and Structures	n/a
Level of Service		C	D	

DESIGN CRITERIA

Roadway Design Speed (mph) =			35										
Design Manual Section 1C-1 last update: 08-05-13			**Design Criteria for Low Speed Roadways**										
Design Element			Preferred Criteria					Acceptable Criteria					Project Values
			Design Speed, mph					Design Speed, mph					
			25	30	35	40	45	25	30	35	40	45	
Stopping sight distance (ft) (Refer to Section 6D-1)			155	200	250	305	360	155	200	250	305	360	250'**
Minimum horizontal curve radius (ft) and superelevation rate (Refer to Sections 2A-2 and 2A-3)	Method 2 superelevation and side friction distribution	e = 4% max	See Table 10 in Section 2A-3					--					n/a
	Method 5 superelevation and side friction distribution	e_{max} = 6%	144	231	340	485	643	144	231	340	485	643	n/a
		e_{max} = 8%	--	--	--	--	--	134	214	314	444	587	n/a
Minimum vertical curve length (ft) (Refer to Section 2B-1)			75	90	105	120	135	75	90	105	120	135	220'
Minimum rate of vertical curvature (K) (Refer to Section 2B-1)	crest vertical curves		12	19	29	44	61	12	19	29	44	61	84
	sag vertical curves	roadways without fixed-source lighting	26	37	49	64	79	26	37	49	64	79	50/27***
		roadways with fixed-source lighting	26	37	49	64	79	14	20	27	35	44	50/27***
Minimum gradient (%)	(Refer to Section 2B-1)		0.5					0.3% with a curb, 0.0% without a curb					0.66%****
Maximum gradient (%)	(Refer to Section 2B-1)	Urban roadways	5					–	9	8	8	7	6.0%
		Rural roadways						–	–	–	6	6	n/a
Clear zone			See "Preferred Clear Zone" table in Section 8A-2					See "Acceptable Clear Zone" table in Section 8A-2					*****

DESIGN CRITERIA

Design year ADT =	n/a									
Design Manual Section 1C-1 last update: 08-05-13	Effective Shoulder Width and Type for Multilane Arterials									
Preferred (Values shown in feet)					Acceptable (Values shown in feet)					Project Values
	Rural Roadways		Urban Roadways			Rural Roadways		Urban Roadways		
Auxiliary lanes or turn lanes with shoulders	6		6		Auxiliary lanes or turn lanes with shoulders	6		0		n/a
Turn lanes with curbs	6		See Section 3C-2		Turn lanes with curbs	6		0		at f/curb
Expressways	Outside		Median Side		Expressways	Outside		Median Side		
	Effective Shoulder Width	Paved Width	Effective Shoulder Width	Paved Width		Effective Shoulder Width	Paved Width	Effective Shoulder Width	Paved Width	
Routes where bicycles are to be accommodated	10	10	6	6	Routes where bicycles are to be accommodated	8	4	4	4	n/a
On roadways approaching urban areas (due to increased bike traffic)	10	10	6	6						
On all curves with a superelevation rate of 7.0% or greater	10	10	6	6	On all other Expressways (Multilane Arterials)	8	2*	4	4	n/a
On roadways with design year ADT > 6500 vpd	10	6	6	6						
On all other Expressways (Multilane Arterials)	10	4	6	4						

*Requires safety edge-See 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:

***4:1 foreslopes along the north side of 66th and 3:1 foreslopes along the south side of 66th based on minimizing the impacts to the Park property.**
**** Stopping sight distance measured for eastbound traffic at intersection. Approach grade to intersection is 3.0% and therefore the brake distance would decrease slightly.**
***** K-value of 27 is based on the comfort curve criteria because of intersection lighting.**
****** 0.66% based on tie in grades**
*******clear zone of 19.5' on the north side of 66th and 10.5' on the south side of 66th (from the traveled way). The north side values are based on providing future sidewalk accommodations as well as a future above ground utility/tree corridor. The south side values are based on minimizing the impacts to the Park property while providing a minimum of 10' clear zone from the travelled way. Iowa DOT 8A-2 "Clear-zone Distances for Urban Facilities" notes a 12' preferable/10' acceptable from the back of curb, Urban Design Aids note 10' from face of curb, Alternative Urban Design Guides note 3' from the face or curb. The 3.5' curb and gutter section is included in the clear zone widths.**

DESIGN CRITERIA

IOWA DEPARTMENT OF TRANSPORTATION

TO OFFICE: District 1 **DATE:** April 4, 2013

ATTENTION: Scott A. Dockstader **PROJECT:** Polk County BRF-415-1(52)--38-77 PIN: 12-77-415-030

FROM: Kevin K. Patel

OFFICE: Design

SUBJECT: Project Concept Statement; (Final Approval, D0)

This project involves the removal of the IA 415 bridge (Maint. No 7703.7S415 over NW 66th Ave., 2.1 miles north of I-80.

A concept review was held on September 19, 2012 Those present included Tony Gustafson from District 1; Patricia Schwarz from the Office of Bridges and Structures; Mark Sloppy from the Office of Location and Environment; and Kevin Patel and Jean Borton from the Office of Design.

The three alternatives considered were:
1. Remove the existing bridge and construct an at grade intersection with traffic signals, at a cost of $5,928,400.
2. Remove and replace the existing bridge with new dual bridges. Raise the grade of IA 415 and construct a tight diamond interchange at a cost of $13,070,000.
3. Remove the existing bridge. Construct dual bridges over IA 415, remove the existing ramps and close the interchange, creating a grade separation, at a cost of $6,980,600.

A public information meeting was held on February 28th, 2013 to present the three options shown in this concept and to receive comments, suggestions and recommendations from the public. Based upon public input it is recommended that alternative 1 (the at-grade intersection) be carried forth. The cost of this option is estimated to be approximately $5,928,400.

The Draft Project Concept Statement was sent out for review and comment with concerns to be resolved by Thursday, March 28, 2013. Comments received during the review period have been considered and resolved.

This project is recommended for construction in FY 2017. The Office of Design will coordinate plan preparation with assistance from the Office of Bridges and Structures.

KKP: jmb
Attach.

cc:

J. F. Adam	M. J. Kennerly	K. D. Nicholson
D. L. Maifield	R. L. Stanley	M. D. Masteller
B. R. Smith	A. A. Welch	N. L. McDonald
G. A. Novey	P. Lu	D. R. Claman
B. C. Worrel	A. Loonan	N. M. Miller
E. C. Wright	T. D. Crouch	M. J. Sankey
M. A. Swenson	J. W. Smith	R. A. Younie
S. J. Gent	D. E. Sprengeler	J. Vortherms
C. C. Poole	S. P. Anderson	B. D. Hofer
J. P. Rost	S. C. Marler	L. C. Funnell
D. L. Newell	E. J. Ranney	D. R. Tebben
T. J. Gustafson	W. W. Musgrove	L. A. Starbuck
M. Clayton	J. L. Tibodeau	G. L. Martens
C. N. Quick	FHWA	W. A. Sorenson
J. D. LaVine	M. E. Khoda	M. Ross

FINAL PROJECT CONCEPT STATEMENT

IA 415 Bridge over NW 66th Ave.,
2.1 miles north of I-80.

Polk County
BRF-415-1(52)--38-77
PIN: 12-77-415-030
Maint. No.7703.7S415
FHWA No. 41080

Highway Division
Office of Design

Kevin K. Patel, P.E.
515-239-1540

April 4, 2013

I. STUDY AREA

A. Project Description

This project involves the removal/replacement of the IA 415 bridge (Maint. No 7703.7S415) over NW 66th Ave., 2.1 miles north of I-80.

The three alternatives considered were:
1. Remove the existing bridge and construct an at grade intersection with traffic signals, at a cost of $5,928,400.
2. Remove and replace the existing bridge with new dual bridges. Raise the grade of IA 415 and construct a tight diamond interchange at a cost of $13,070,000.
3. Remove the existing bridge. Construct dual bridges over IA 415, remove the existing ramps and close the interchange, creating a grade separation, at a cost of $6,980,600.

A public information meeting was held on February 28th, 2013 to present the three options shown in this concept and to receive comments, suggestions and recommendations from the public. Based upon public input it is recommended that alternative 1 (the at-grade intersection) be carried forth. The cost of this option is estimated to be approximately $5,928,400.

CONCEPT STATEMENT

B. Need for Project

The bridge is classified as structurally deficient due to the structural capacity. It is posted for 40 Tons for all vehicles. The bridge does not provide required vertical clearance and clearance signs are in place on the approach roadways under the bridge. Cracking and leaching are found widely spread over the top and bottom of the deck and abutments. Provided with the condition and the age of the bridge, remove the bridge and replace it with an at-grade intersection would be a practical and economical solution.


On NW 66th Ave. looking east.


On NW 66th Ave. looking west.

C. Present Facility

The existing structure is a 33' long x 82' wide concrete rigid frame bridge which was constructed in 1942. In 1942 the existing southbound lanes were constructed. In 1962 the northbound lanes were then added to provide a 4-lane roadway. The existing cross section has 24' wide PCC pavements, 6' wide inside paved shoulders, 10' wide outside partial paved shoulders with variable foreslopes and a 28' median.

D. Traffic Estimates

The 2017 and 2037 average daily traffic estimates are 24,300 ADT with 3 % trucks and 38,500 ADT with 4% trucks, respectively.

E. Sufficiency Ratings

IA 415 is classified as a "commercial and industrial" route and is a maintenance service level "B" road with a sufficiency rating of 90. The federal bridge sufficiency rating is 37.

F. Access Control

Access control rights will be acquired for this project.

G. Crash History

During the five-year study period from January 1, 2007 through December 31, 2011, there were 27 crashes including, one fatal crash, one personal injury crash, three possible unknown crashes and twenty two personal property crashes. Seven of these crashes involved the bridge, and seven of them in some way involved a ramp.

II. PROJECT CONCEPT

A. Feasible Alternatives

Alternative #1 - Remove the existing bridge and construct a signalized intersection.

Remove the existing bridge and construct a signalized intersection by lower the profile grade of IA 415 approximately 9 ft. and raising the grade of NW 66th Ave. approximately 8 ft. at the intersection. This will require approximately 2,650 ft. of reconstruction on IA 415. The existing ramps will be removed. Left and right turn lanes will be constructed on all legs of the intersection.

The IA 415 typical cross section will consist of a 24 ft. wide roadway (26 ft. wide pavement) with 10 ft. effective outside shoulders (2 ft. outside pavement, 4 ft. additional paved and 4 ft. granular) and 6 ft. wide effective inside shoulders (4 ft. paved and 2 ft. granular). A 3 ft. wide raised median on the inside of the left turn lanes will be constructed and a 6 ft. wide painted median on the outside of the turn lanes will be placed.

The profile grade on NW 66th Ave., east of the intersection will be lowered approximately 10 ft. to improve the vertical profile through the intersection. This will require approximately 1,730 ft. of reconstruction on NW 66th Ave. The typical section of N.W. 66th Ave. will consist of 24 ft. wide roadway. A 3.5 ft. curb and gutter section will be constructed on 66th Ave. for the east bound lanes and also for the west end of the west bound lanes. The westbound lanes east of the bridges will have a 10 ft. wide granular shoulder.

The triple box culvert under NW 66th Ave. will need to be extended and the entrances in the northwest and northeast quadrants may need to be relocated. It is anticipated that the existing storm sewer on NW 66th Ave., west of IA 415 will need to be removed and replaced. East of IA 415, new storm sewer will need to be constructed on the south side of NW 66th Ave. in the area of the new curb and gutter section. It appears there are median drain pipes that will need to be replaced as well as a 24 inch pipe crossing under IA 415 south of the intersection.

Apply erosion control and rural seeding and fertilizing to all disturbed areas.

New traffic signals and lighting will be required at the intersection.

Right of Way will be required for this alternative.

IA 415 traffic will be maintained with two-lane, two-way operation utilizing median crossovers in the northbound or southbound lanes through staged construction. Sheet piling and temporary concrete barrier rail will be required due to the narrow median and elevation differential between the two lanes. NW 66th Ave. traffic will be relocated on an off-site detour during construction.

Item	Estimated Cost
Bridge Removal	20,000
Removal of Pavement	135,300
PCC Pavement	972,400
Modified Subbase	281,500
Class 10 Roadway and Borrow	726,900
Class 10 Waste	238,400
Excavation Class 13 Waste	92,700
Paved Shoulder	145,800
Granular Shoulder	192,700
Earth Shoulder Construction	11,700
Curb and Gutter	36,000
Guardrail Removal	1,100
Class 20 Excavation	2,400
Structural Concrete for RCB Extensions	331,400
Concrete Roadway Pipes	16,000
Storm Sewer and Intakes	248,000
Longitudinal Subdrains and Outlets	41,800
Seeding and Fertilizing	17,000
Traffic Signals	150,000
Right of Way	30,000
Staged Construction	500,000
Traffic Control - 5%	184,600
Mobilization - 5%	184,600
M & C - 30%	1,368,100
Alternate No. 1 Project Total	**$5,928,400**

Polk County
BRF-415-1(52)--38-77
PIN: 12-77-415-030
Page 5

Alternative #2 - Replace bridges and construct a tight diamond interchange

Replace the existing 33' long x 82' wide concrete rigid frame bridge with twin 184'8" x 40' pretensioned prestressed concrete beam bridges.

The typical cross section adjacent to the bridge will consist of a 24 ft. wide roadway (26 ft. wide pavement) with 10 ft. effective outside shoulders (2 ft. outside pavement, 4 ft. additional paved and 4 ft. granular) and 6 ft. wide effective inside shoulders (4 ft. paved and 2 ft. granular).

The bridges will be constructed on the existing horizontal alignment. The profile grade will need to be raised a minimum of 5 ft. which will require approximately 4,900 ft. of roadway reconstruction. New bridge approaches will be constructed. The existing bridge guardrail will be replaced and the shoulders will be paved 20 ft. beyond the ends of the guardrail. Class 10 will be necessary to flatten the existing foreslopes and to construct the new guardrail blisters. Class E revetment for slope protection will be placed under the bridges. Construct new bridge end drains on each corner of the bridges.

The existing ramps will be removed and new ramps will be constructed. Based upon the new horizontal and vertical geometry of the ramp, the construction of these ramps on the south side of the interchange will impact the adjacent Margo Frankel Woods State Park (4f land). The ramp on the northwest quadrant of the interchange will also impact the existing ditch, thus requiring it to be relocated.

Access control requirements will necessitate that 4 entrances on the north side of the interchange and at least 3 entrances along NW. 66th Ave be closed or relocated.

With the new construction and relocation of the ramps new culverts will be required.

Apply erosion control and rural seeding and fertilizing to all disturbed areas.

Right of way will be required for this project.

IA 415 traffic will be maintained with two-lane, two-way operation utilizing median crossovers in the northbound or southbound lanes through staged construction. NW 66th Ave. traffic will be relocated on an off-site detour during construction.

Item	Estimated Cost
Bridge Costs	
New Bridge	$ 1,296,200
Bridge Removal	20,000
Staging - 10%	131,600
Mobilization - 10%	144,800
M & C - 15%	238,900
Bridge Total	**$ 1,831,400**

Polk County
BRF-415-1(52)--38-77
PIN: 12-77-415-030
Page 6

Roadway Costs	
Bridge Approaches	131,600
Removal of Pavement	198,100
PCC Pavement	1,604,000
Modified Subbase	447,900
Paved Shoulder	205,000
Granular Shoulder	228,500
Earth Shoulder Construction	41,800
Class 10 Roadway and Borrow	2,096,600
Excavation Class 13 Waste	108,100
Guardrail (Includes Removal)	35,500
Paved Shoulders for Guardrail	17,800
Class 10 for Guardrail Blisters	26,400
Bridge End Drains	23,200
Culvert Extensions	277,600
Concrete Roadway Pipes	9,400
Longitudinal Subdrains and Outlets	50,400
Clearing and Grubbing	35,800
Seeding and Fertilizing	17,000
Right of Way	1,800,000
Wetland Mitigation	50,000
Staged Construction	500,000
Traffic Control - 5%	370,200
Mobilization - 5%	370,200
M & C - 30%	2,593,500
Roadway Total	**$ 11,238,600**
Alternate No. 2 Project Total	**$13,070,000**

Alternative #3 - Replace bridges remove ramps and close interchange

Replace the existing 33' long x 82' wide concrete rigid frame bridge with twin 140' x 40' pretensioned prestressed concrete beam bridges.

Remove the existing ramps and close the interchange thus prohibiting access to IA 415. NW 66th Ave. will be used as constructed.

The typical cross section adjacent to the bridge will consist of a 24 ft. wide roadway (26 ft. wide pavement) with 10 ft. effective outside shoulders (2 ft. outside pavement, 4 ft. additional paved and 4 ft. granular) and 6 ft. wide effective inside shoulders (4 ft. paved and 2 ft. granular).

The bridges will be constructed on the existing horizontal alignment. The vertical profile on IA 415 will need to be raised a minimum of 5 ft. which will require approximately 3,100 ft. of roadway reconstruction. New bridge approaches will be constructed. The existing bridge guardrail will be replaced and the shoulders will be paved 20 ft. beyond the ends of the guardrail. Class 10 will be necessary to flatten the

Polk County
BRF-415-1(52)--38-77
PIN: 12-77-415-030
Page 7

existing foreslopes and to construct the new guardrail blisters. Class E revetment for slope protection will be placed under the bridges. Construct new bridge end drains on each corner of the bridges.

Apply erosion control and rural seeding and fertilizing to all disturbed areas.

Right of way will not be required for this project.

IA 415 traffic will be maintained with two-lane, two-way operation utilizing median crossovers in the northbound or southbound lanes through staged construction. NW 66th Ave. traffic will be relocated on an off-site detour during construction.

Item	Estimated Cost
Bridge Costs	
New Bridge	$ 1,804,000
Bridge Removal	20,000
Mobilization - 10%	182,400
M & C - 15%	300,960
Bridge Total	**$ 2,307,400**
Roadway Costs	
Bridge Approaches	131,600
Removal of Pavement	122,000
PCC Pavement	774,500
Modified Subbase	223,700
Paved Shoulder	138,500
Granular Shoulder	35,300
Earth Shoulder Construction	9,300
Class 10 Roadway and Borrow	1,157,500
Excavation Class 13 Waste	68,400
Guardrail (Includes Removal)	35,500
Paved Shoulders for Guardrail	17,800
Class 10 for Guardrail Blisters	26,400
Bridge End Drains	23,200
Concrete Roadway Pipes	6,200
Longitudinal Subdrains and Outlets	33,800
Seeding and Fertilizing	9,700
Staged Construction	500,000
Traffic Control - 5%	140,700
Mobilization - 5%	140,700
M & C - 30%	1,078,400
Roadway Total	**$ 4,673,200**
Alternate No. 3 Project Total	**$ 6,980,600**

CONCEPT STATEMENT

B. Detour Analysis

IA 415 traffic will be maintained with two-lane, two-way operation utilizing median crossovers in the northbound or southbound lanes through staged construction. Sheet piling and temporary concrete barrier rail will be required due to the narrow median and elevation differential between the two lanes.

NW 66th Ave will be closed and an offsite detour will be utilized. It is anticipated the detour will be in place for approximately 180 days. The detour would follow NW 26th Street from the intersection of NW 66th Ave., north to the intersection with IA 140 (Oralabor Rd.), then east to U.S. 69 and south back to NE 66th Ave. Out of distance travel is 4.3 miles. The total distance user cost is anticipated to be $418,400. Compensation for non-state roadways will be $74,700 as calculated by the Gas Tax Method. Detour signing costs will be $10,000.

C. Recommendations

It is recommended that the present structure be removed and an at grade intersection constructed, as described in Alternative No. 1.

D. Construction Sequence

It is anticipated that all work on this project will be awarded to one prime contractor. The Office of Design will coordinate the plan preparation with assistance from the Office of Bridges and Structures.

E. Special Considerations

There are no bike paths or sidewalks adjacent to IA 415 or N.W. 66th Ave.; therefore no ADA accommodations are planned in conjunction with this project.

Right of Way will be required for this project.

The Office of Location and Environment has completed their review and have the following recommendations:

Federal and state law requires that impacts to wetlands and streams be avoided and minimized. Project design should focus on the least environmentally damaging, practicable alternative.

Project specific recommendations:

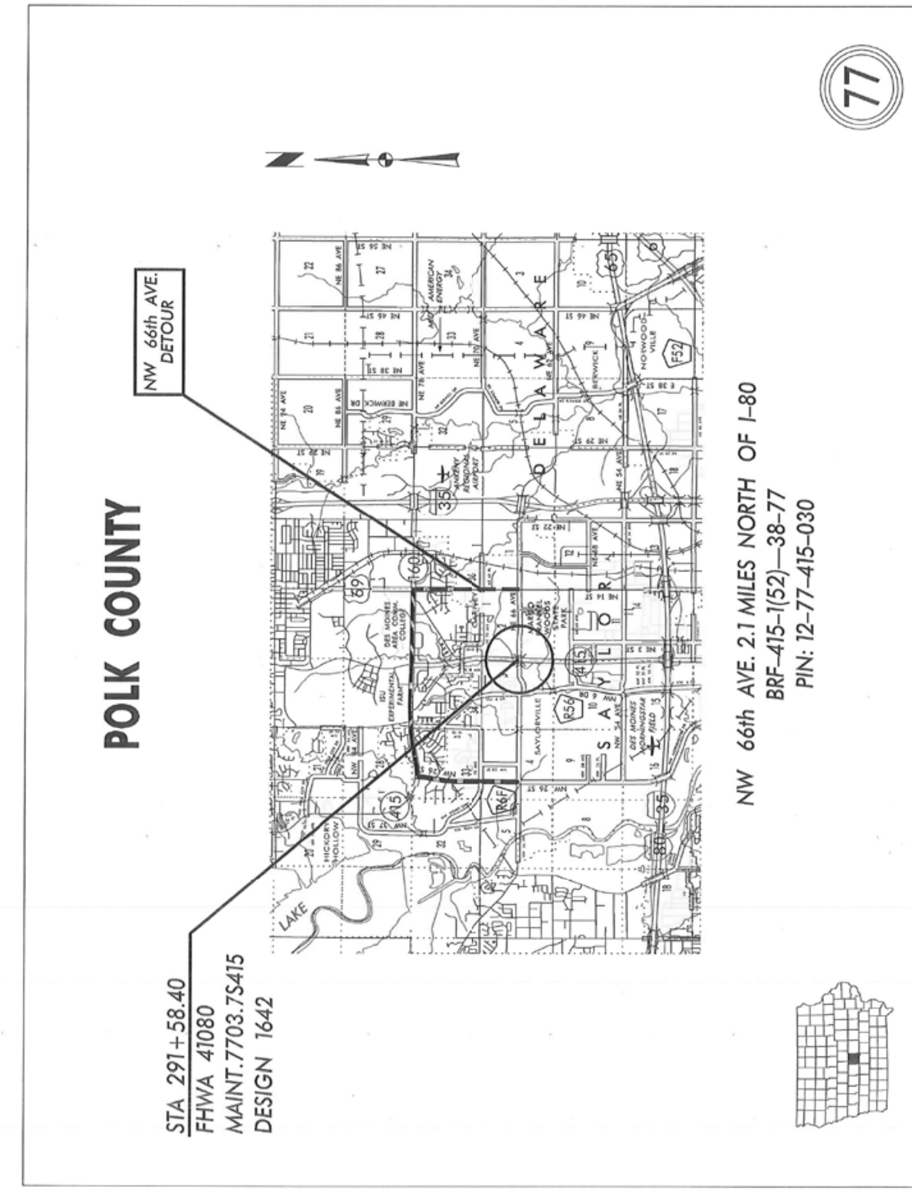
1. Based on the information provided in the Draft Concept dated March 14, 2012, we have determined that a Section 404 Permit will be required for this work. We expect the work to be covered by Nationwide Permit #14.
2. Wetland mitigation will not be required.
3. Stream mitigation will be required for the extension to the triple box culvert under NW 66th Ave. We request to use the ROW where the existing SB off-ramp is located (NW quad) for stream mitigation. We will coordinate with the Office of Design, Bridges and Structures, District 1 regarding any proposed stream mitigation.
4. Because clearing and grubbing is anticipated, and the project area meets desktop criteria for Indiana bat, further review for Indiana bat will be necessary. The results of this review will be sent separately.
5. A sovereign lands permit may be required if additional ROW is purchased south of NW 66th Ave (the DNR-owned Margo Frankel Woods State Park).

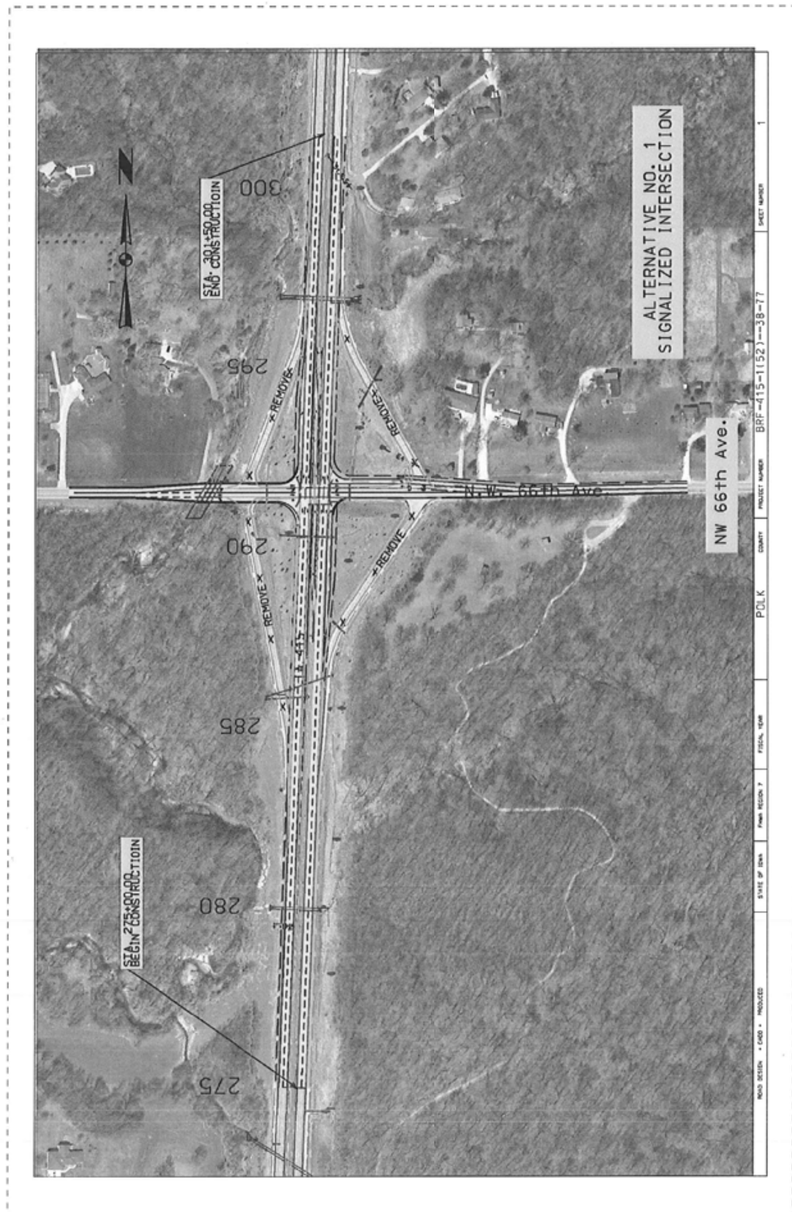
If the project concept changes, additional ROW or borrow becomes necessary, or extra work is identified during construction, further review by this office may be required.

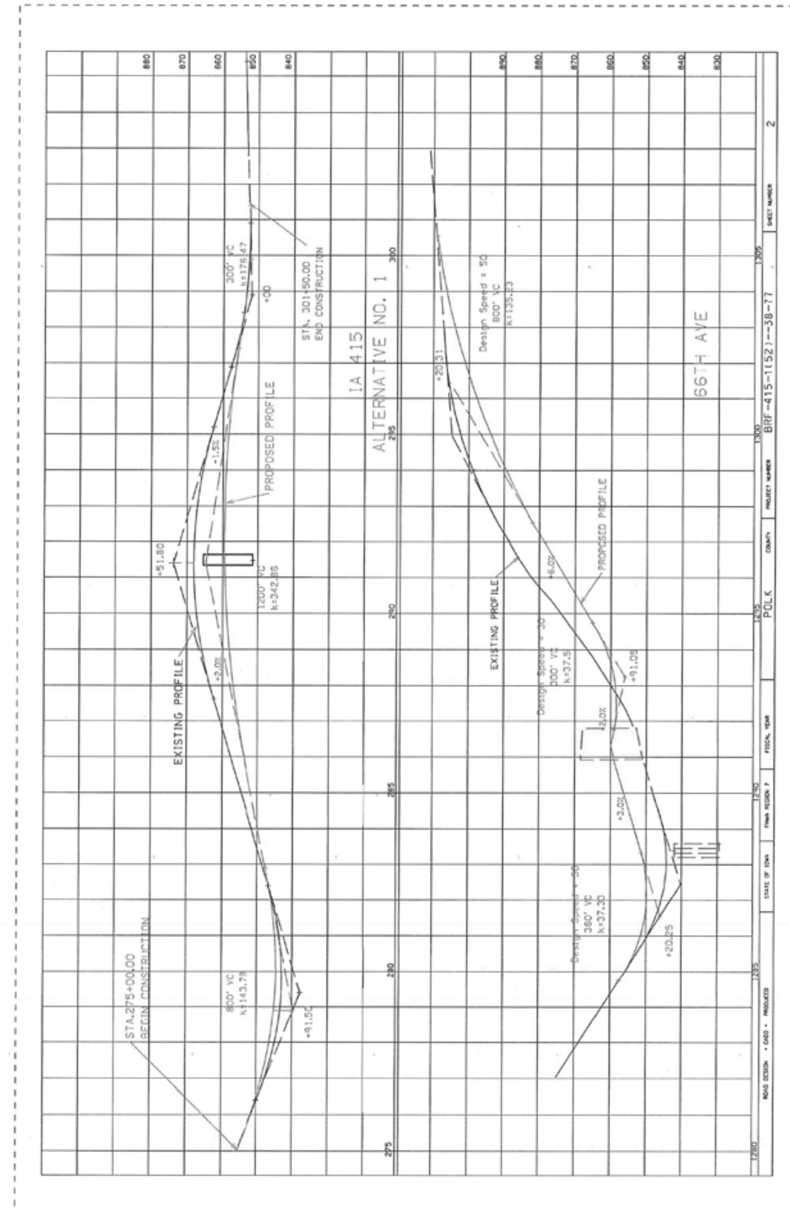
F. Program Status

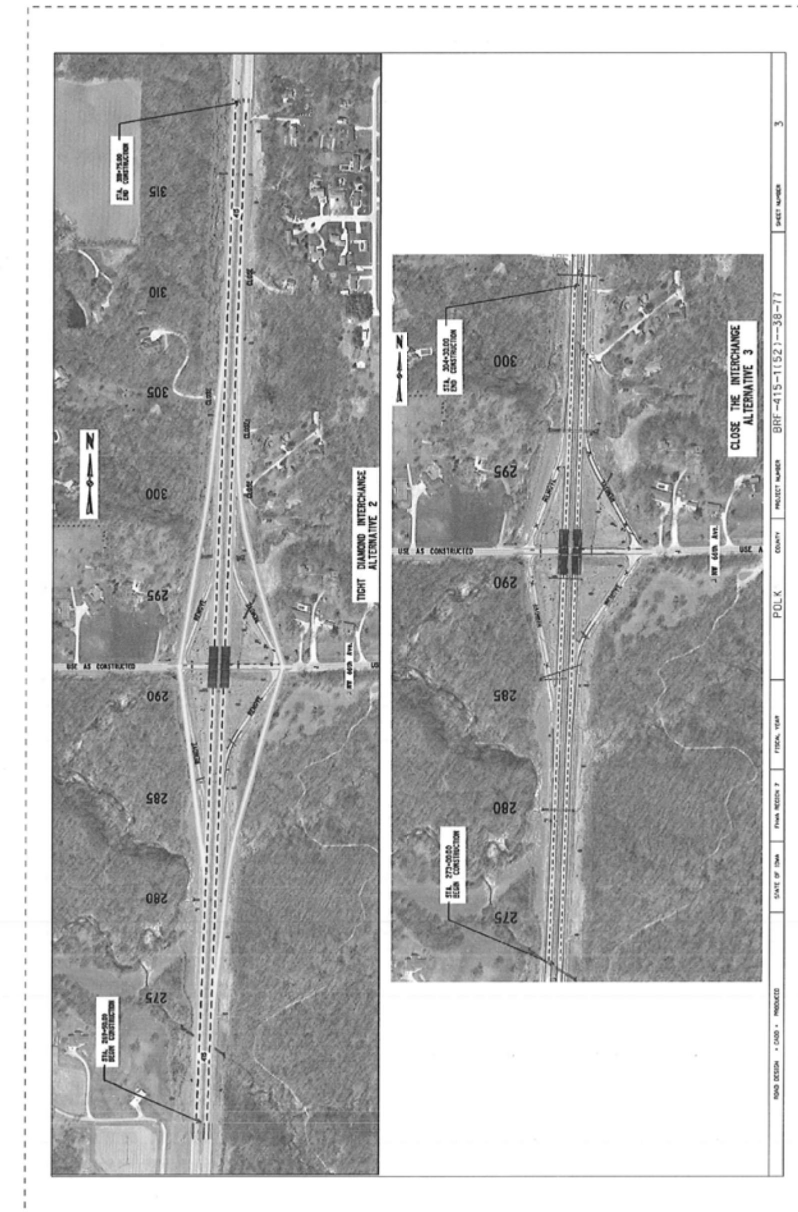
Site data has been developed by the Office of Design. This project is listed in the 2013-2017 Iowa Transportation Improvement Program, with $1,500,000 programmed for replacement/repair in FY 2017. In addition to the use of bridge reserve funding, general program funds will be necessary to supplement the cost of this project.. A schedule of events will be developed following approval of the Project Concept.

KKP: jmb









CONCEPT STATEMENT

ENGLISH	IOWA DOT	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	POLK	COUNTY	PROJECT NUMBER	BRF-415-1(52)--38-77	SHEET NUMBER A.13

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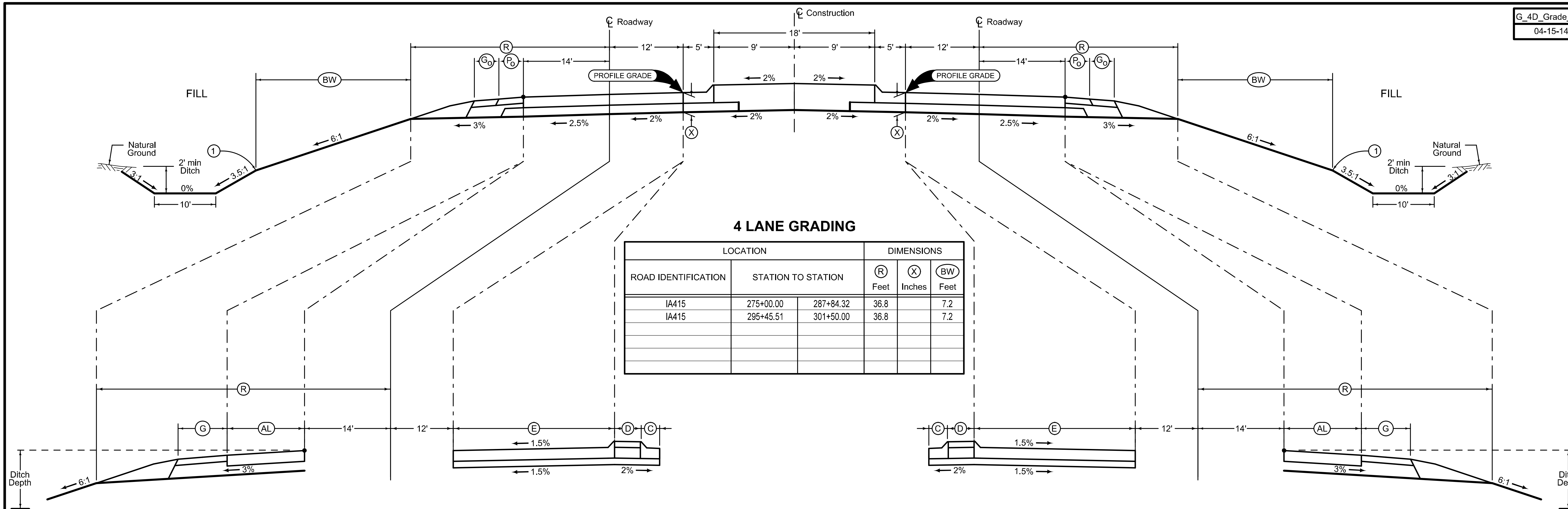


4 LANE GRADING

LOCATION			DIMENSIONS		
ROAD IDENTIFICATION	STATION TO STATION		R Feet	X Inches	BW Feet
IA415	275+00.00	287+84.32	36.8		7.2
IA415	295+45.51	301+50.00	36.8		7.2

Auxiliary Lane Grading

LOCATION			AL	G
ROAD IDENTIFICATION	STATION TO STATION		Feet	Feet
IA415	292+42.17	294+65.51	12	6
IA415	294+65.51	295+45.51	12 - 0	6

Auxiliary Lane Grading

LOCATION			C	D	E
ROAD IDENTIFICATION	STATION TO STATION		Feet	Feet	Feet
IA415	292+15.51	294+15.51	5	5	18
IA415	294+15.51	295+45.51	5	5 - 18	18 - 5

Auxiliary Lane Grading

LOCATION			C	D	E
ROAD IDENTIFICATION	STATION TO STATION		Feet	Feet	Feet
IA415	287+84.32	289+14.32	5	18 - 5	5 - 18
IA415	289+14.32	291+14.32	5	5	18

Auxiliary Lane Grading

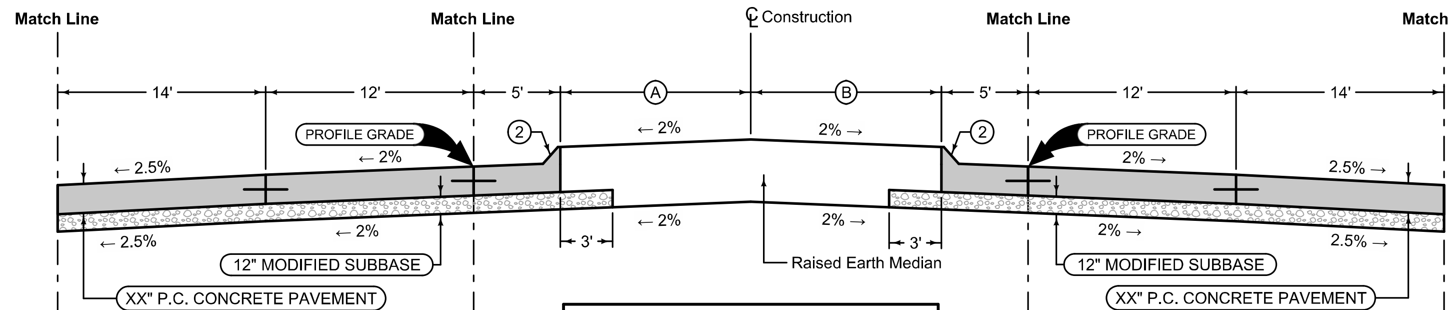
LOCATION			AL	G
ROAD IDENTIFICATION	STATION TO STATION		Feet	Feet
IA415	286+92.46	288+72.46	0 - 12	6
IA415	288+72.46	290+79.22	12	6

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

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

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

MAINLINE IA415
GRADING



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

	BEGIN STATION	END STATION
1	275+00.00	301+50.00

1 Cross slope transition near begin & end limits.

4DP_Raised_Out_ 04-19-11

	BEGIN STATION	END STATION	A Feet	B Feet
1	275+00.00	287+84.32	9.0	9.0
1	295+45.51	301+50.00	9.0	9.0

1 Ditch to median transition near Project Limits

2 6" sloped curb

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

	BEGIN STATION	END STATION
1	275+00.00	301+50.00

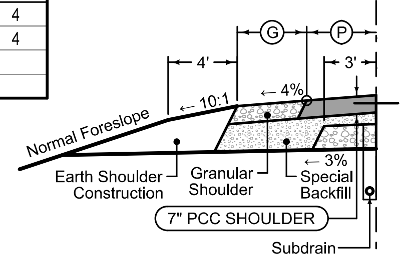
1 Cross slope transition near begin & end limits.

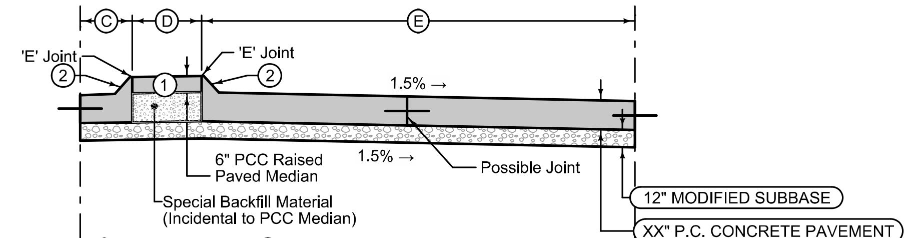
Combination Shoulder

Shoulder Jointing:
Longitudinal joint: B

4_C_ 10-15-13

Direction of Travel	BEGIN STATION	END STATION	P Feet	G Feet
SB	301+50.00	296+45.51	4	4
SB	290+78.17	275+00.00	4	4





1 Paved median when D is 4.0'. Raised earth median when D is greater than 4.0'.

2 6" sloped curb

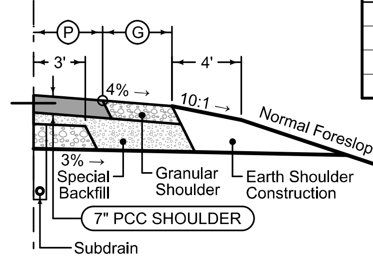
BEGIN STATION	END STATION	C Feet	D Feet	E Feet
287+64.32	289+14.32	5.0	18 - 5	5 - 18
291+14.32	291+14.32	5.0	5.0	18.0

Combination Shoulder

Shoulder Jointing:
Longitudinal joint: B

4_C_ 10-15-13

Direction of Travel	BEGIN STATION	END STATION	P Feet	G Feet
NB	275+00.00	286+92.46	4	4
NB	292+45.95	301+50.00	4	4

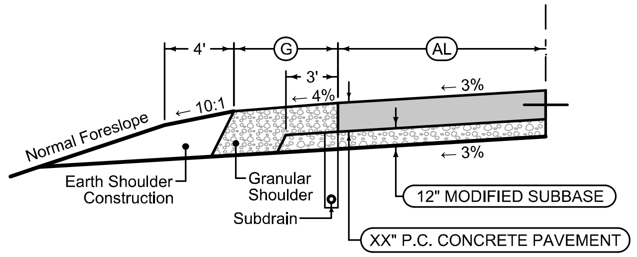


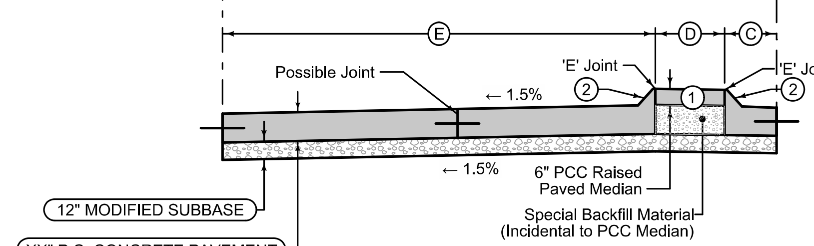
Auxiliary Lane

Longitudinal joint: L or KT
Transverse joint: Match Mainline

Auxiliary Lane Granular Shoulder

4_AuxLane_PCC_ 10-19-10				2_AL_Shldr_G_ 10-19-10
Direction of Travel	BEGIN STATION	END STATION	AL Feet	G Feet
SB	296+45.51	294+65.51	0-12	6.0
SB	294+65.51	292+42.17	12.0	6.0





1 Paved median when D is 4.0'. Raised earth median when D is greater than 4.0'.

2 6" sloped curb

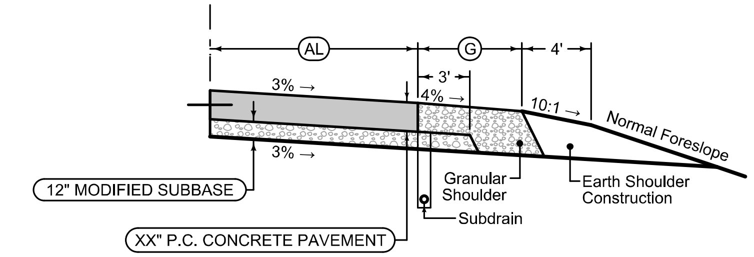
BEGIN STATION	END STATION	C Feet	D Feet	E Feet
292+15.51	294+15.51	5.0	5.0	18.0
294+15.51	295+65.51	5.0	5 - 18	18 - 5

Auxiliary Lane

Longitudinal joint: L or KT
Transverse joint: Match Mainline

Auxiliary Lane Granular Shoulder

4_AuxLane_PCC_ 10-19-10				2_AL_Shldr_G_ 10-19-10
Direction of Travel	BEGIN STATION	END STATION	AL Feet	G Feet
NB	286+92.46	288+72.46	0-12	6.0
NB	288+72.46	290+79.22	12	6.0



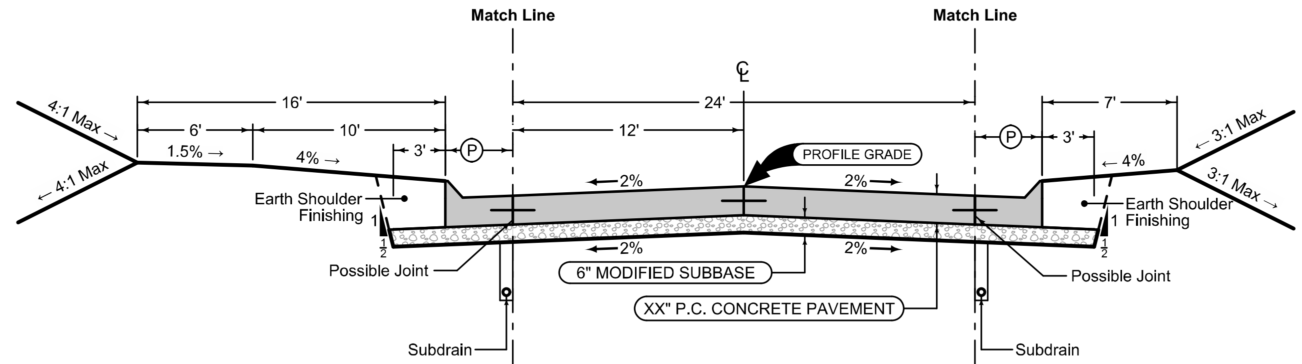
MAINLINE IA415 PAVING

Curbed Shoulder

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

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

2_Curb_ MODIFIED			
STATION TO STATION		P Feet	Curb Type See PV-102
17+50.00	18+64.62	3.5	6" STD
30+92.69	36+50.00	3.5	6" STD



Mainline Jointing:
Transverse joints: CD at 15' spacing
Longitudinal joint: L-2

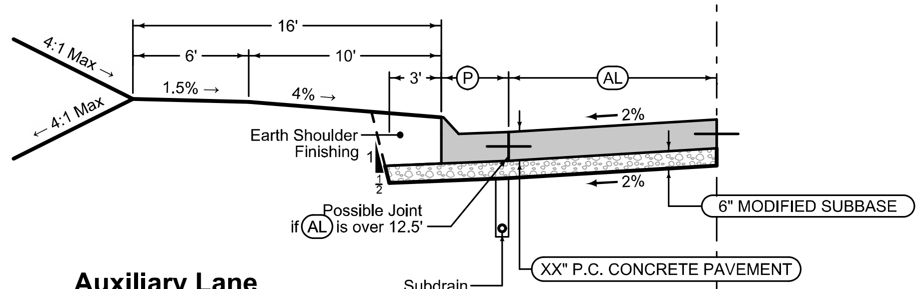
2P_ 10-19-10	
STATION TO STATION	
17+50.00	23+31.56
26+54.05	36+75.00

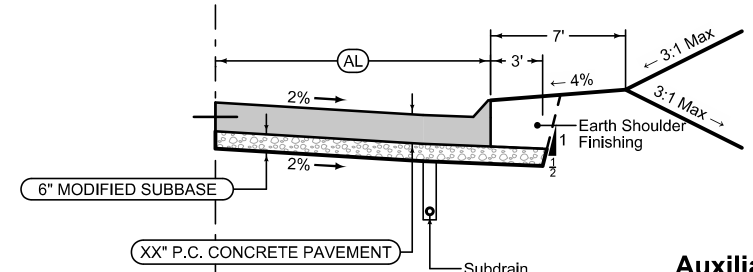
Curbed Shoulder

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

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

2_Curb_ MODIFIED			
STATION TO STATION		P Feet	Curb Type See PV-102
17+50.00	20+44.62	3.5	6" STD
26+54.05	36+50.00	3.5	6" STD





Curbed Shoulder

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

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

2_Curb_ 04-19-11			
STATION TO STATION		P Feet	Curb Type See PV-102
18+64.62	23+31.56	3.5	6" STD

Auxiliary Lane

Longitudinal joint: L or KT
Transverse joint: Match Mainline

	2_AuxLane_PCC_ MODIFIED		
	STATION TO STATION		AL Feet
	18+64.62	21+64.62	0-12.0
	21+64.62	23+31.56	12.0
1	25+86.78	27+60.26	24.5
1	27+60.26	30+92.69	24.5-3.5

1 Integral Curb and Gutter included in this range.

Auxiliary Lane

Longitudinal joint: L or KT
Transverse joint: Match Mainline

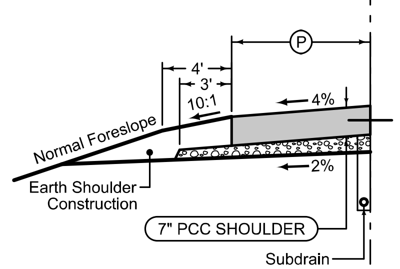
2_AuxLane_PCC_ MODIFIED		
STATION TO STATION		AL Feet
20+44.62	21+79.62	3.5-12.5
21+79.62	23+92.95	12.5

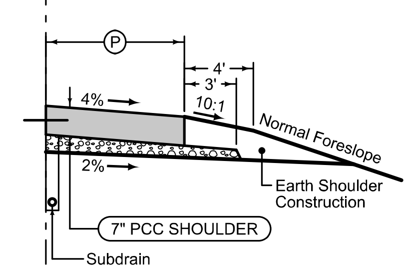
Full Depth PCC Shoulder

Shoulder Jointing:
Longitudinal joint: L-2 or KT-2
Transverse joints: C at 20' spacing

	2_P_FullPCC_ 10-19-10		
	STATION TO STATION		P Feet
1	36+50.00	36+75.00	4

1 Curb runout from 36+50 to 36+60.





Full Depth PCC Shoulder

Shoulder Jointing:
Longitudinal joint: L-2 or KT-2
Transverse joints: C at 20' spacing

	2_P_FullPCC_ 10-19-10		
	STATION TO STATION		P Feet
1	36+50.00	36+75.00	4

1 Curb runout from 36+50 to 36+60.

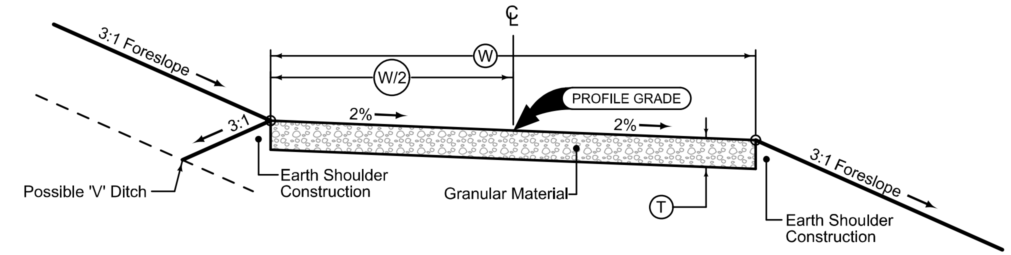
SIDEROAD NW 66 AVENUE
PAVING & GRADING

LOCATION			DIMENSIONS			6" Special Backfill
ROAD IDENTIFICATION	STATION TO STATION		GRANULAR			
			W Feet	T Inches	G Feet	Tons/Station
WEST TEMPORARY ACCESS	418+53.84	422+48.90	12	6	-	-
WEST TEMPORARY ACCESS	422+48.90	423+50.56	VARIES	6	-	-
WEST TEMPORARY ACCESS	423+50.56	423+12.67	8	6	-	-
EAST TEMPORARY ACCESS	528+50.82	529+30.00	12	6	-	-
EAST TEMPORARY ACCESS	529+30.00	529+40.00	VARIES	6	-	-
EAST TEMPORARY ACCESS	529+40.00	536+18.78	20	6	-	-

Quantity calculations based on vertical pavement edges.

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

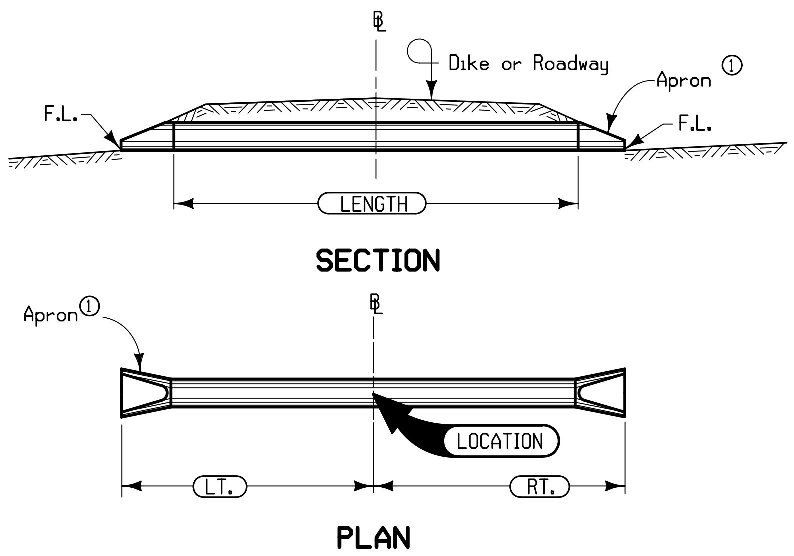
Temp_Access
MODIFIED



TEMPORARY ACCESS PAVING

TEMPORARY ACCESS PAVING & GRADING

1101
04-30-02



Notes:

BL shall be ℄ of roadway, dike, survey, or other; as detailed on plans.

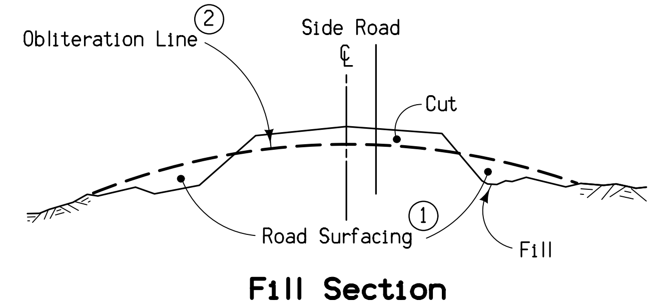
Skew angle is the angle which one end of the pipe is ahead (by stationing) of line perpendicular to the BL (example skew Rt. ahead 30°).

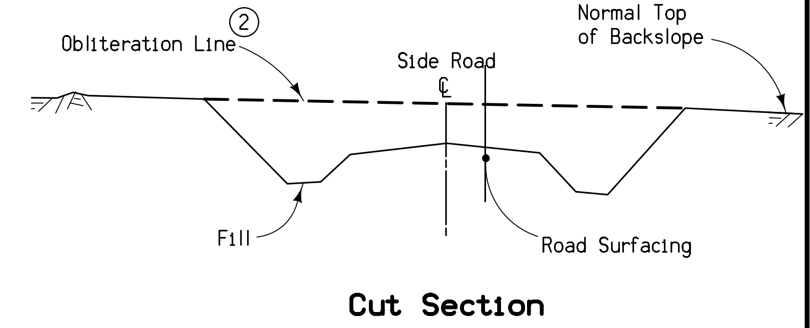
Refer to tabular listing and other plans for additional information.

① See Standard Road Plan RF-3 For Conc. or RF-5 for Metal.

PIPE CULVERT

4302
04-03-01





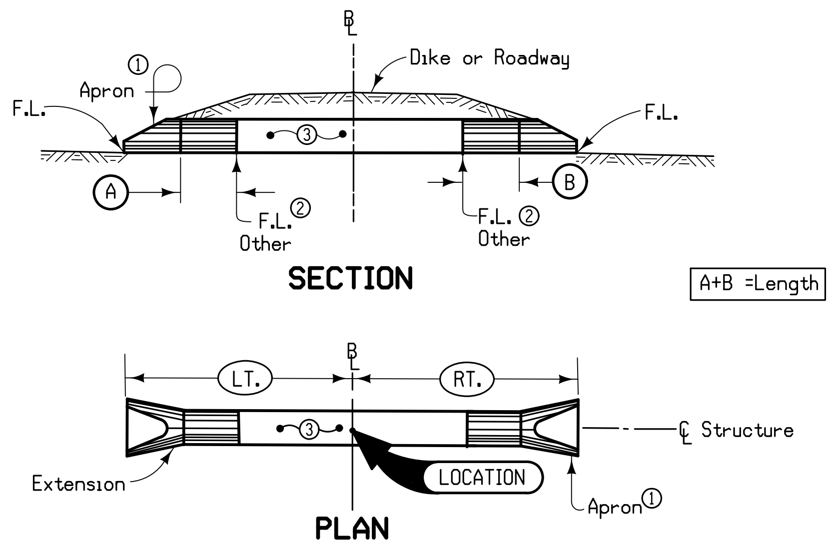
① Existing road surfacing (granular material) shall be placed as shown unless otherwise directed by the Engineer or provided for in the detail project plans.

② When specified, the upper 1' to be suitable for vegetation (grass or crops).

Note:
The work of obliterating or reshaping old roadbeds shall be done at the direction of the Engineer.

TYPICAL DETAILS FOR OBLITERATION EXISTING ROADBED

1301
10-03-00



Notes:

BL shall be ℄ of roadway, dike, survey, or other; as detailed on plans.

Extension shall be on line of existing structure to Lt., Rt. or both as specified. Adaptors may be required, see Standard Road Plan RF-2.

Refer to tabular listing and other plans for additional information.

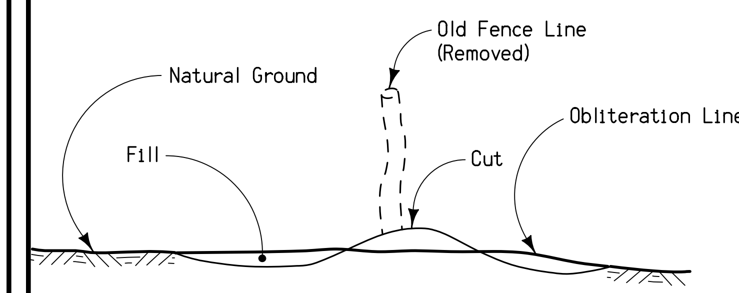
① See Standard Road Plan RF-3 for concrete, RF-5 for metal.

② Optional type "D" section only when specified in tabulation.

③ Existing structure.

PIPE EXTENSION

4301
08-20-96

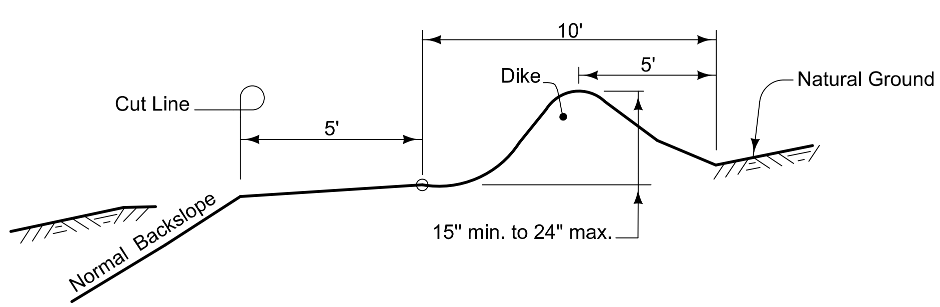


TYPICAL DETAILS FOR OBLITERATION OF OLD FENCE RIDGE

Notes:

The work of obliterating or reshaping old fence ridges shall be done at the direction of the Engineer.

4101
04-20-10

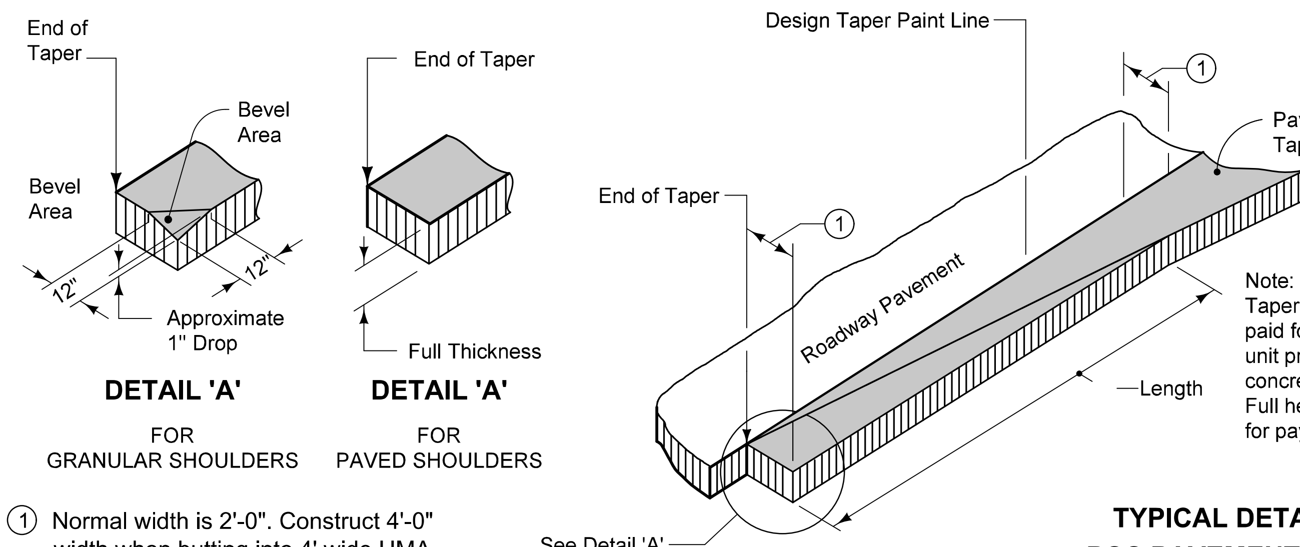


Refer to plans for locations of intercepting ditches. Dike for intercepting ditch shall be made by taking earth from roadway side. Do not excavate back of dike.

TYPICAL CROSS SECTION INTERCEPTING DITCH

TYPICAL CROSS SECTIONS & DETAILS

7101
10-19-10

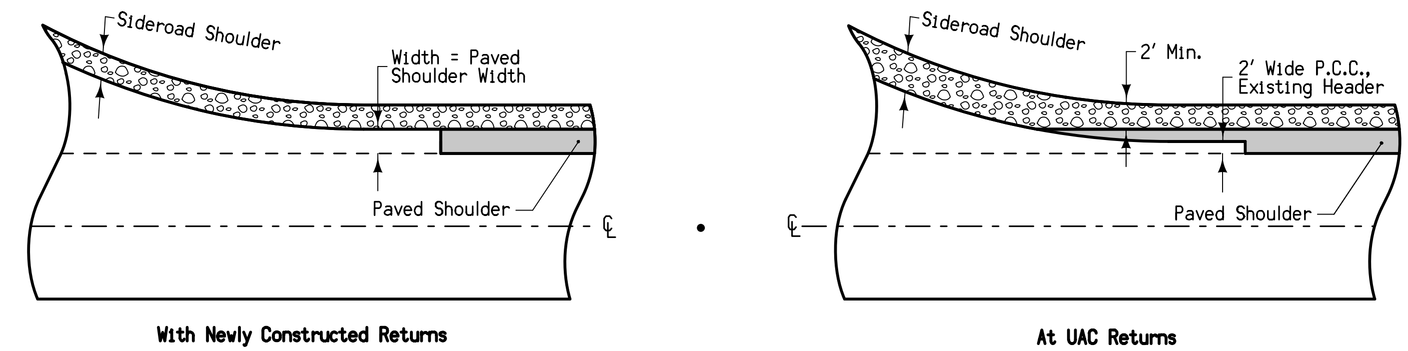


Note:
Taper pavement to be paid for at the contract unit price for P.C. concrete pavement. Full header is included for payment.

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

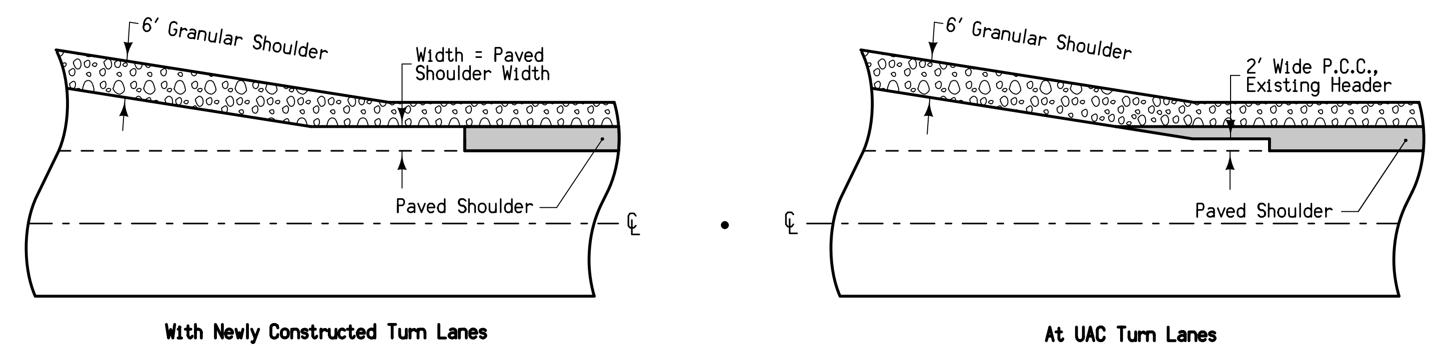
TYPICAL DETAILS OF PCC PAVEMENT HEADER

7154B
10-20-09



PAVED SHOULDER DETAIL AT RETURNS

7154A
10-20-09



PAVED SHOULDER DETAIL AT TURN LANES

TYPICAL CROSS SECTIONS & DETAILS

ENGLISH	IOWA DOT	DESIGN TEAM SNYDER & ASSOCIATES, INC.	POLK COUNTY	PROJECT NUMBER	BRF-415-1(52)--38-77	SHEET NUMBER	B.6

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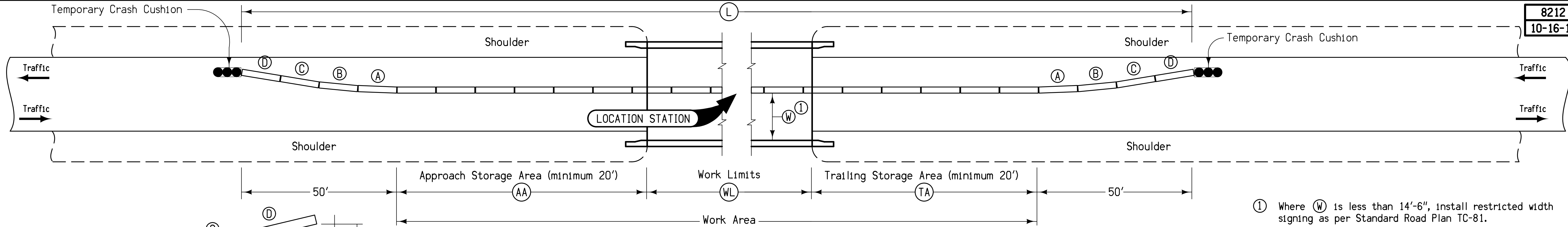
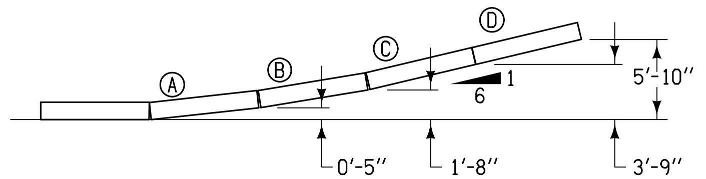




BARRIER OFFSETS FOR FLARE SECTIONS

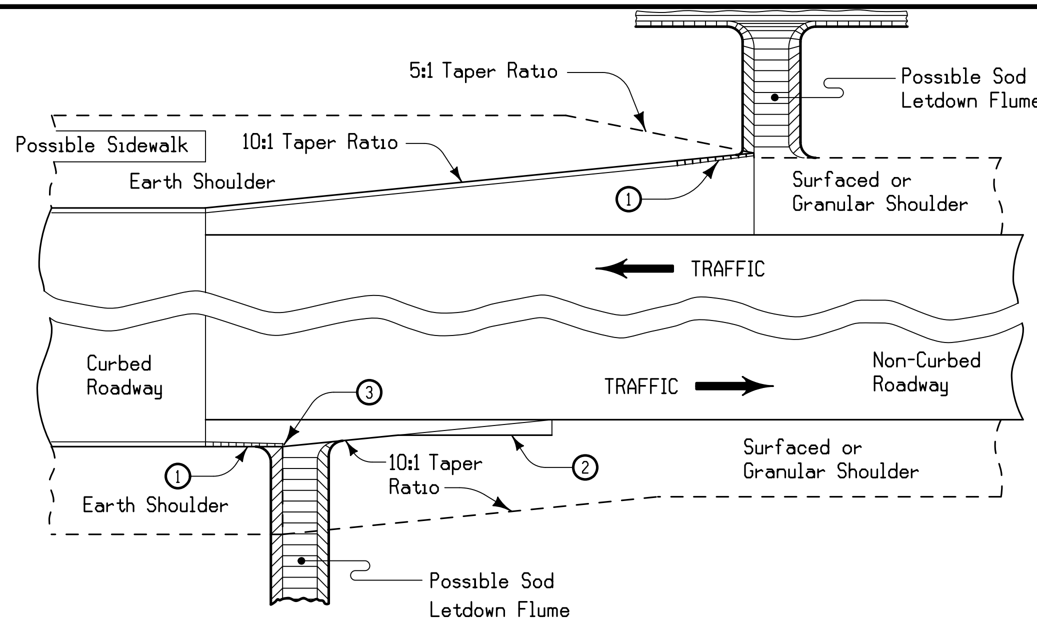
8212
10-16-12

① Where Ⓦ is less than 14′-6″, install restricted width signing as per Standard Road Plan TC-81.

Station	Side	AA	WL	TA	L	Anchored	W ①	Remarks
		Feet	Feet	Feet	Feet	X	Ft-Inches	

TEMPORARY CONCRETE BARRIER LAYOUT for Two-Way Traffic

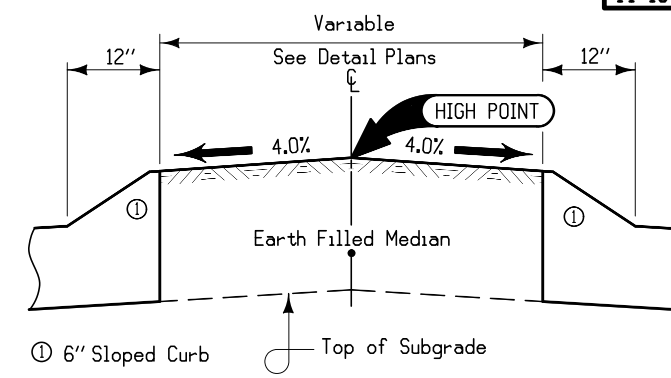
6147
10-15-13



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

TRANSITION BETWEEN CURBED AND NON-CURBED ROADWAYS

6136
11-10-92



① 6″ Sloped Curb

RAISED EARTH MEDIAN WITH SLOPED CURB

Note:

This section is typical only, and may be appropriately modified in areas specifically designated by the engineer. Material for filling median and the necessary finishing of the median surface are included in the appropriate items of "Estimate of Quantities".

TYPICAL CROSS SECTIONS & DETAILS

DRAINAGE STRUCTURES BY CULVERT CONTRACTOR

* Not a Bid Item

Location	Design Number	Size (Ft.)	Kind	Lgth. New Const. (Lin. Ft.)	No. of Aprons	Flow Line Elevation Left	Flow Line Elevation Right	Flow Line Elevation Other	Flow Line Elevation Other	Dimensions - Lin. Ft. Total Left	Dimensions - Lin. Ft. Total Right	Dimensions - Lin. Ft. Extensions Left	Dimensions - Lin. Ft. Extensions Right	Skew Ahead Degrees Left	Skew Ahead Degrees Right	By Road Contractor Dike Lt.	By Road Contractor Dike Rt.	Dike Location Station	Dike Top. Elev.	Dike Type	Comp. Backfill (Cu. Yds.)	Floodable* Backfill (A) (Cu. Yds.)	Porous* Backfill (B) (Cu. Yds.)	Flooded Backfill (A+B) (Cu. Yds.)	Remarks
279+97.72		6x6	RCB	51	2	825.32	833.53					30	21	-	-										Use parallel wingwalls
296+96.32		10x12	RCB	4	0	837.69		832.72				4	-	-	-										Use 10x12 flume section with basin
21+92.59		12X10	TRI RCB	120	2	833.50	833.24					79	41	30	-										Use 30° skew headwalls

DRAINAGE STRUCTURE BY ROAD CONTRACTOR

Length of unclassified pipe calculated is based on using Reinforced Concrete Pipe.
* Not a bid item
1 Diameter or equivalent diameter
2 UNCL = Unclassified Pipe CMP = Corrugated Metal Pipe RCP = Reinforced Concrete Pipe LCP = Arch or Elliptical Low Clearance Pipe SARC = Steel Arch Pipe

Drainage Area (ACRE)	Location	Type	Size 1 (IN)	Kind Of Pipe 2	Length New Const. (LF)	Bedding Class	Design Cover (H) (FT)	Camber* (RF-30B) (FT)	Apron No. IN	Apron No. OUT	Apron Guard* (RF-26) No.	Elbow* (RF-13) No.	Diaphragm* (RF-7) No.	Tee Section* (RF-21) No.	"D" Section* (RF-13) No.	Reducer* No.	Adaptors* (RF-2) Type	Adaptors* (RF-2) No.	Connected Pipe Joint* (RF-14) Type	4" Perforated Subdrain* (FT)	Flow Line Elevations Lt.	Flow Line Elevations Rt.	Flow Line Elevations Other	Flow Line Elevations Other	Dimensions Lin. Ft. Total Lt.	Dimensions Lin. Ft. Total Rt.	Dimensions Lin. Ft. Extensions Lt.	Dimensions Lin. Ft. Extensions Rt.	Skew Ahead Degrees Lt.	Skew Ahead Degrees Rt.	Dike Rt./Lt.	Dike Location Station	Dike Top Elevation	Dike Type	Class 20 (CY)	Flowable Mortar (CY)	Floodable* Backfill (A) (CY)	Porous* Backfill (B) (CY)	Flooded Backfill (A+B) (CY)	Remarks
6.6	422+00.00	CMP	18	CMP	23	C	1.0		1	1											840.60	840.43			12.0	11.0														TEMPORARY

ACCESS POINTS AND SAFETY RAMPS

Refer to Cross-Sections

Length of unclassified pipe calculated is based on using Reinforced Concrete Pipe.
1 Refer to MI-210
2 Refer to EW-501.
3 Refer to EW-501 or EW-502.
*Predetermined for access point not constructed with this project.

Location Station	Location Side	Type: A, B, C, Safety Ramp, or Predetermined*	Length of Opening 1 Case (1 or 2)	Length of Opening 1 1½" Dropped Curb (LF)	Length of Opening 1 3" Dropped Curb (LF)	W (FT)	1 2 PR (FT)	2 SR (FT)	Pipe Culvert 3 H (FT)	Pipe Culvert 3 Size (IN)	Pipe Culvert 3 Pipe Length (LF)	Pipe Culvert 3 Lt. (LF)	Pipe Culvert 3 Rt. (LF)	Aprons (No.)	Driveway Surface Area HMA (SY)	Driveway Surface Area PCC (SY)	Driveway Surfacing Material (TON)	Remarks
300+30.10	RT	B		-	-	23.0	20.0	15.0										NO PIPE
17+84.30	LT	C	2	24.0	-	14.0	-	-										NO PIPE
21+71.61	LT	C	2	21.0	-	12.0	-	-	9.0	24.0	79.0	46.0	33.0	1				APRON ON INLET ONLY
28+98.39	LT	C	2	20.0	-	12.0	-	-										NO PIPE
29+66.79	LT	C	2	30.0	-	20.0	-	-										NO PIPE
31+85.71	LT	C	2	24.0		14.0	-	-										NO PIPE
33+60.40	RT	C	2	40.0	-	30.0	-	-										NO PIPE
35+27.32	LT	C	2	26.0	-	16.0	-	-										NO PIPE

SURVEY SYMBOLS

- EB Electrical Box
- FHD Fire Hydrants
- FLG Flag Poles
- HDG Hedge Row
- GP Guard Post (Less Than 4 Posts)
- GV Gas Valve
- IN Storm Sewer Intake
- INB Storm Sewer Beehive Intake
- LUM Luminaire
- MH Utility Access (Manhole)
- MM Mile Marker Post
- PPA Power Pole Co. 1
- PR Electic Riser Pole
- SHR Shrub
- SI Sign
- SL Speed Limit Sign
- SP Stream Profile
- TCB Traffic Signal Box
- TDC Tree Deciduous
- TEV Evergeen Tree
- TLNR Tree Line Right
- TLNL Tree Line Left
- TPA Telephone Pole Co. 1
- TPD Telephone Pedestal
- TSB Telephone Switch Box
- TSG Traffic Signal
- TSL Traffic Signal and Luminare
- TW Top of Water
- WV Water Valve
- BRG Bridge
- BNK Stream Bank
- PIP Pipe Culvert
- CON Concrete or A/C Slab
- CU Back of Curb
- CUL Culvert
- D Centerline Draw or Stream (Down)
- DIK Centerline of Dike or Dam
- DU Centerline Draw or Stream (Up)
- E4 — ELD Underground Electric Line Co. 4
- ENP Edge Paved Entrance & Park Lot
- ENT Centerline BL of Entrance
- ENU Edge Unpaved Entrance & Parking
- EP Edge of Paved Roads (ML or SR)
- FCL Chain Link and Security Fence
- F04 — FOD Underground Fiber Optic Co. 4
- FW Wire Fence
- FWD Wood Fence
- GDL Guard Rail Steel
- G — GLA Underground Gas Line Co. 1
- RIP Rip-Rap
- San. — SAA Sanitary Sewer Line Co. 1
- St.S. — STA Storm Sewer Line Co. 1
- TDL Trafic Detection Loop
- Tile — TIL Tile Line
- T1 — TLA Underground Telephone Line Co. 1
- W — WLA Underground Water Line Co. 1
- BL Topo Breakline
- C Centerline BL of Road (ML or SR)
- SNP Unpaved Shoulder
- RET Retaining Walls
- F03 — FOC Underground Fiber Optic Co. 3

UTILITY LEGEND

(power pole)	MidAmerican Energy Company Teresa McGuire 515-281-2260 TMMcGuire@midamerican.com
E4	Polk County Public Works Bob Rice 515-286-3705 robert.rice@polkcountyiowa.gov
F04	Des Moines Water Works Katie Kinsey 515-283-8796 Kinsey@DMWW.com
G	MidAmerican Energy Company Teresa McGuire 515-281-2260 TMMcGuire@midamerican.com
San.	Polk County Public Works Bob Rice 515-286-3705 robert.rice@polkcountyiowa.gov
St.S.	IDOT Robert Mingus 800 Lincoln Way Ames, IA 50010 515-290-9691 robert.mingus@dot.iowa.gov
T1	Century Link Tom Sturmer 303-664-8090 Thomas.sturmer@qwest.com
W	Des Moines Water Works Katie Kinsey 515-283-8796 Kinsey@DMWW.com
F02	Windstream/Paetec Joel Schroeder 800-289-1901 locate.desk@windstream.com
	Mediacom Paul May 515-246-2252 pmay@mediacomcc.com

PLAN VIEW COLOR LEGEND OF PLAN AND PROFILE SHEETS

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

PROFILE VIEW COLOR LEGEND OF PLAN AND PROFILE SHEETS

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

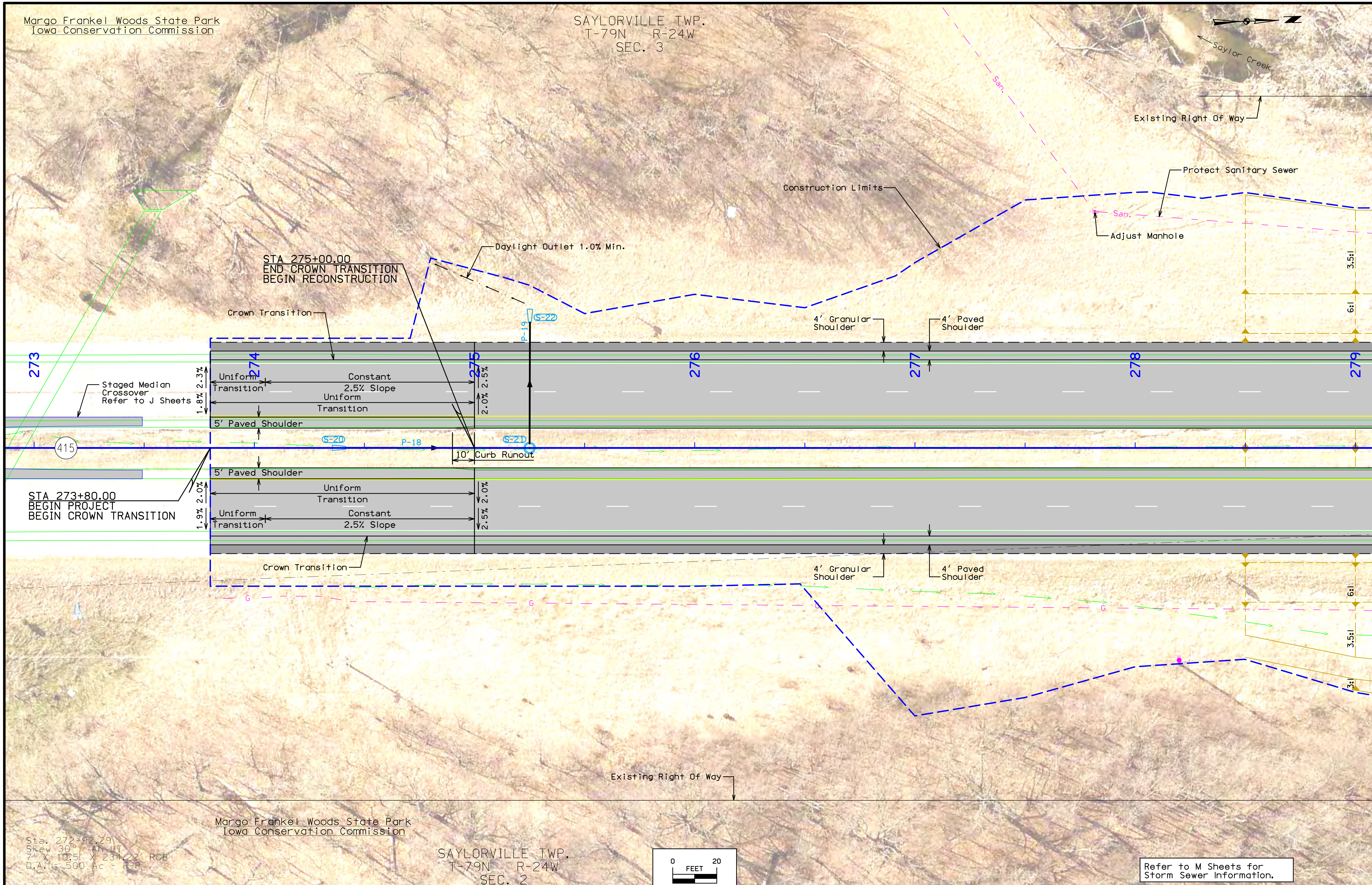
Reference Point
Station
Survey Line
Section Corner
Ground Line Intercept
Saw Cut
Guardrail
Trench Drain
HighTension Cable Guardrail
Sheet Pile
Pavement Removal
Clearing & Grubbing Area

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)



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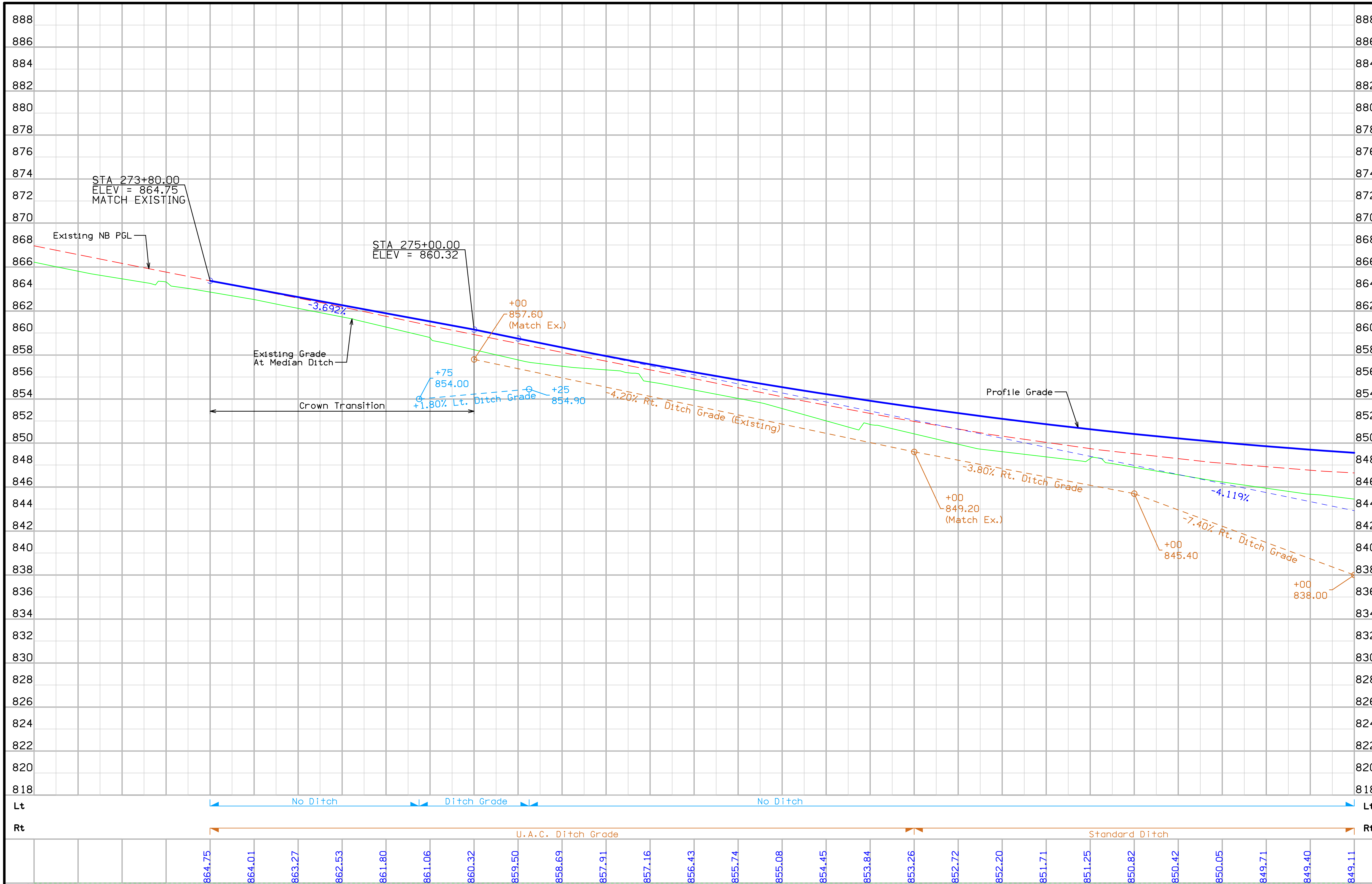

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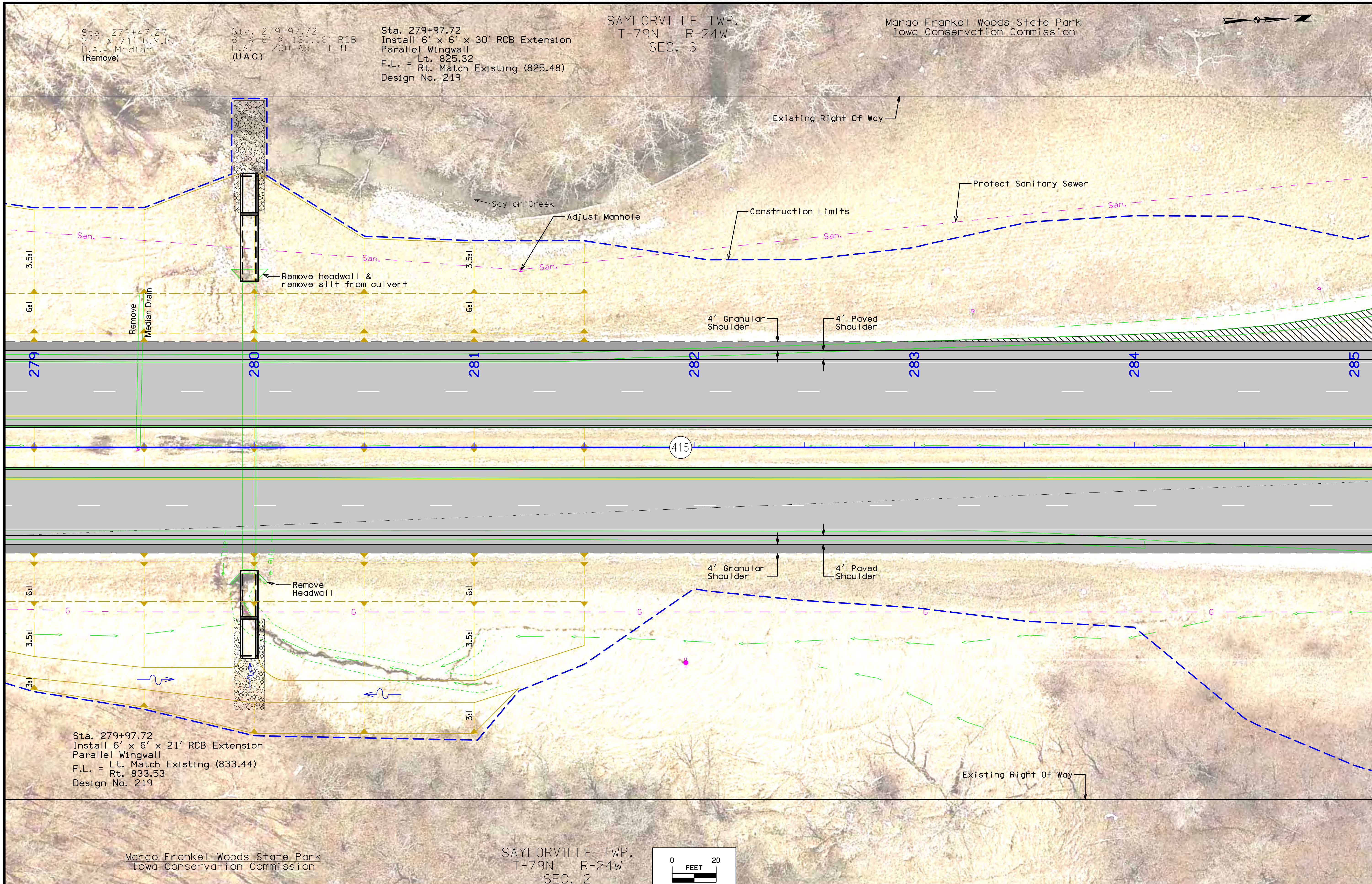

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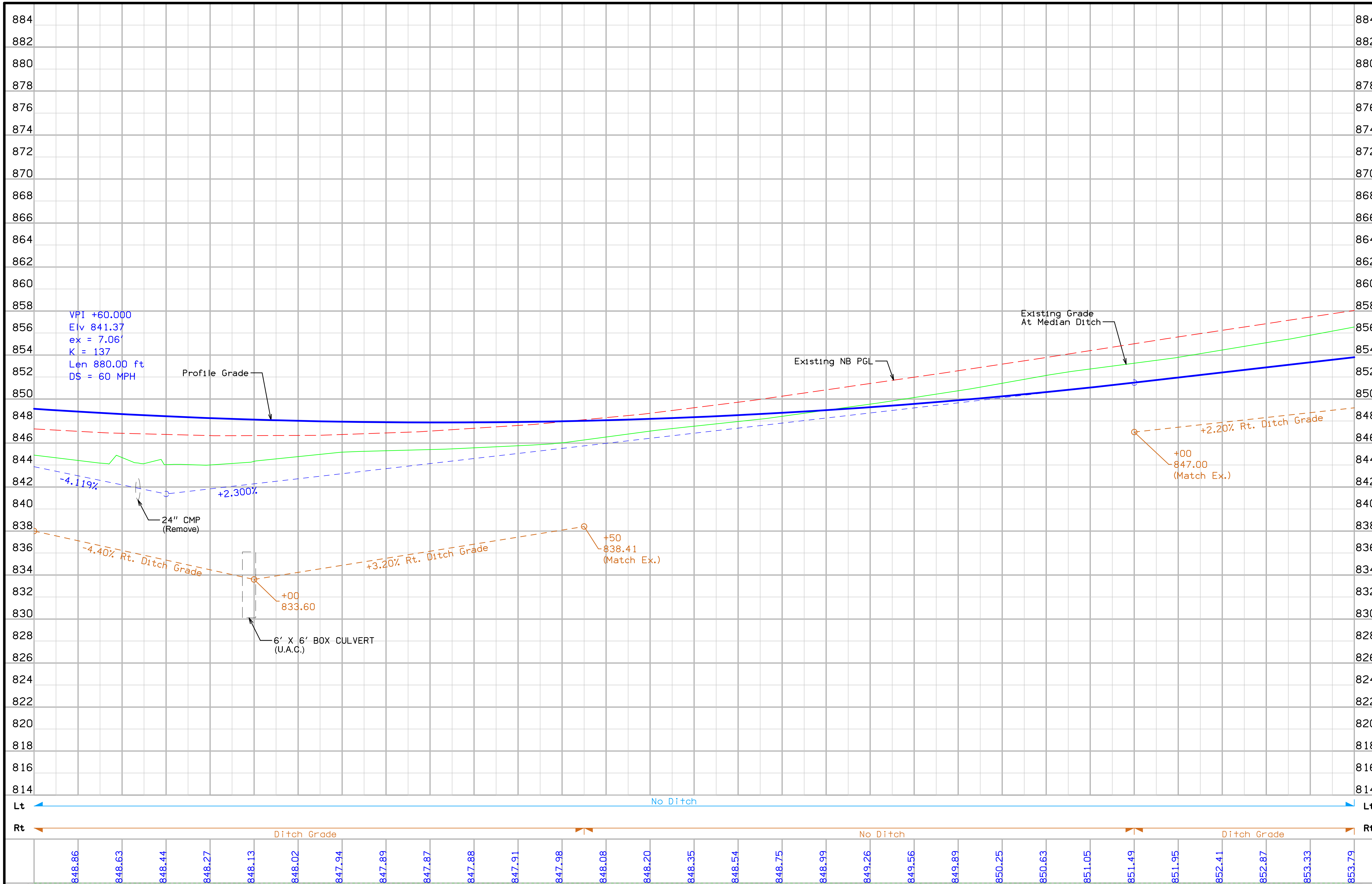

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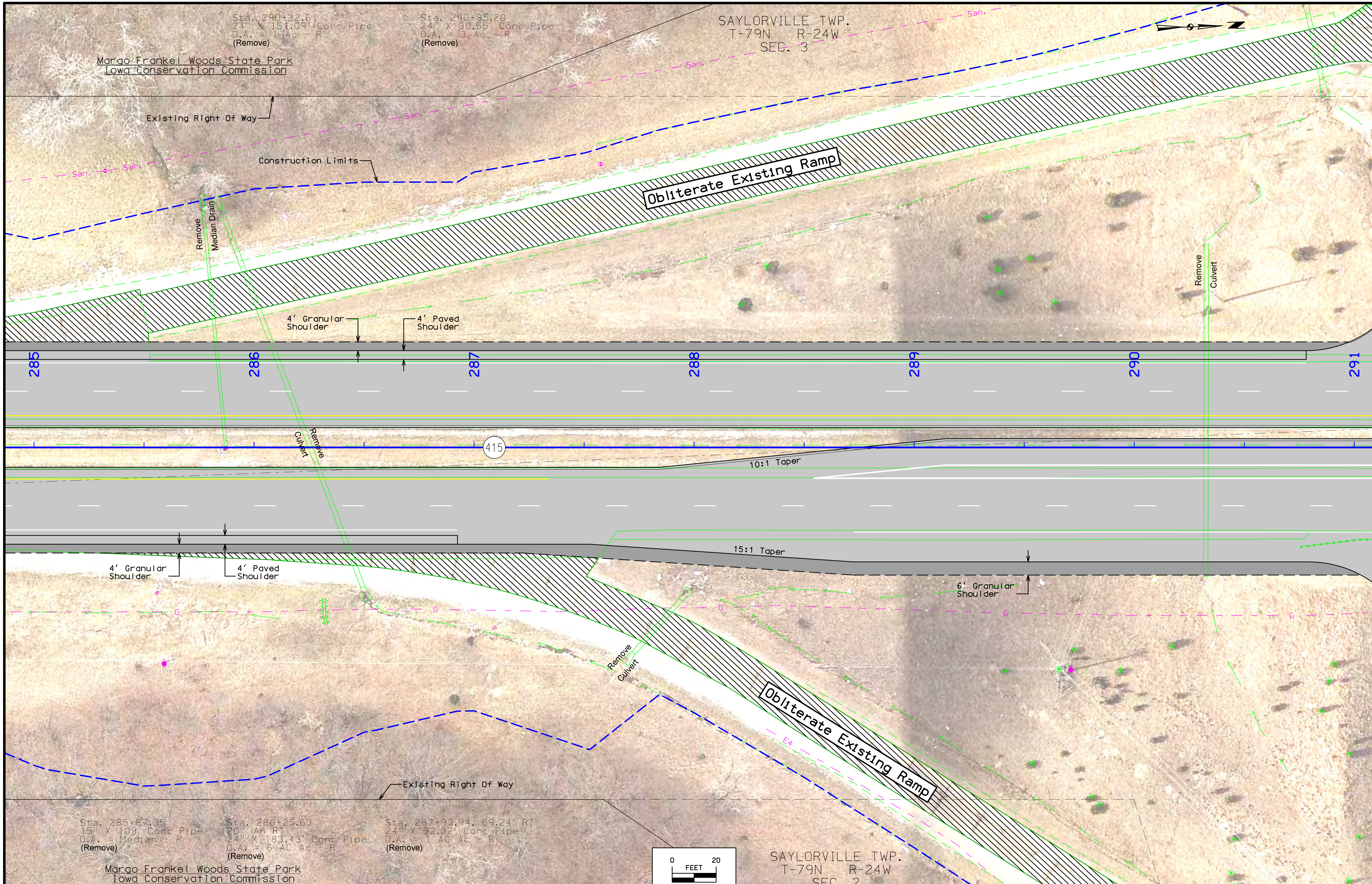

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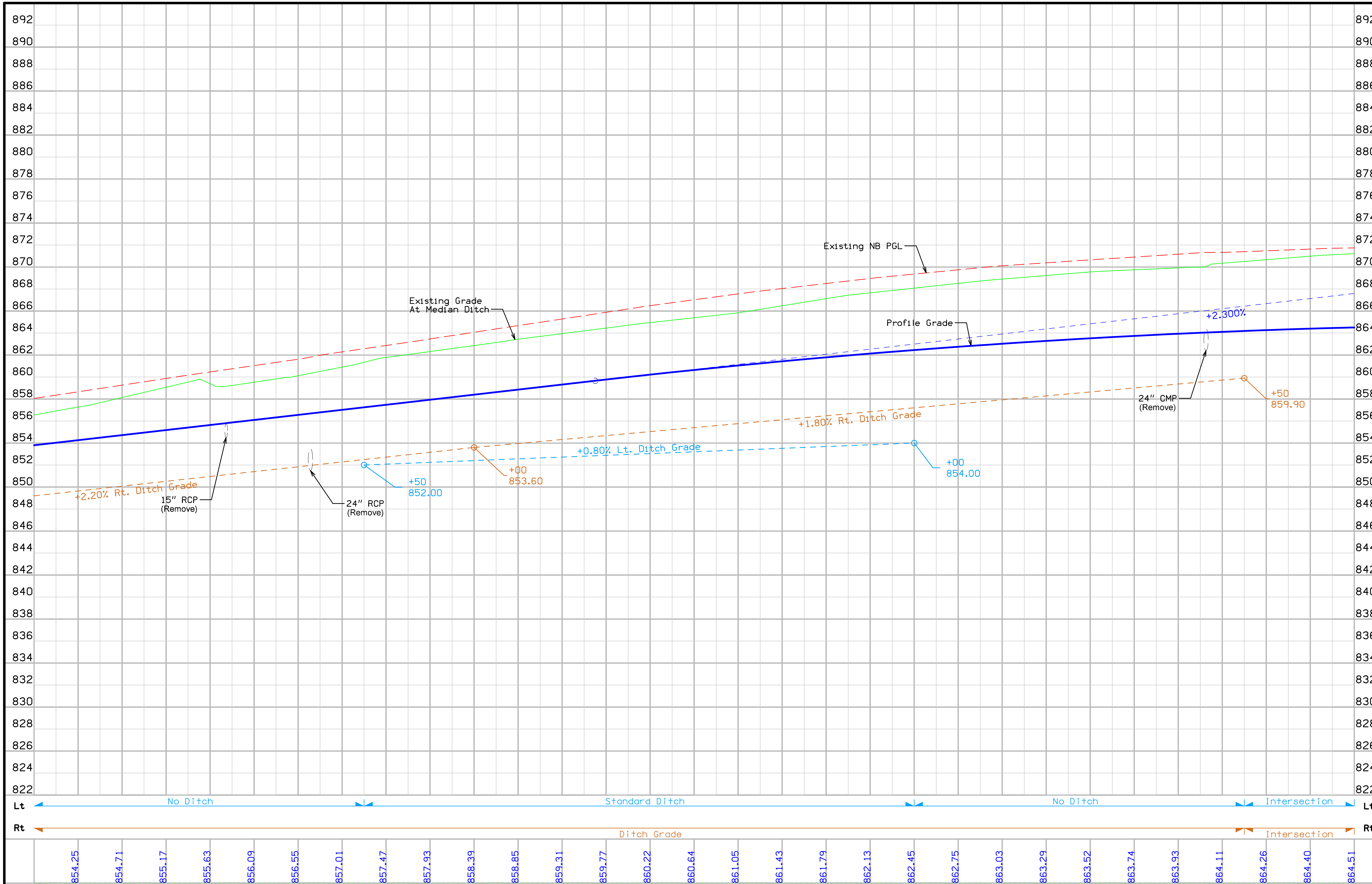

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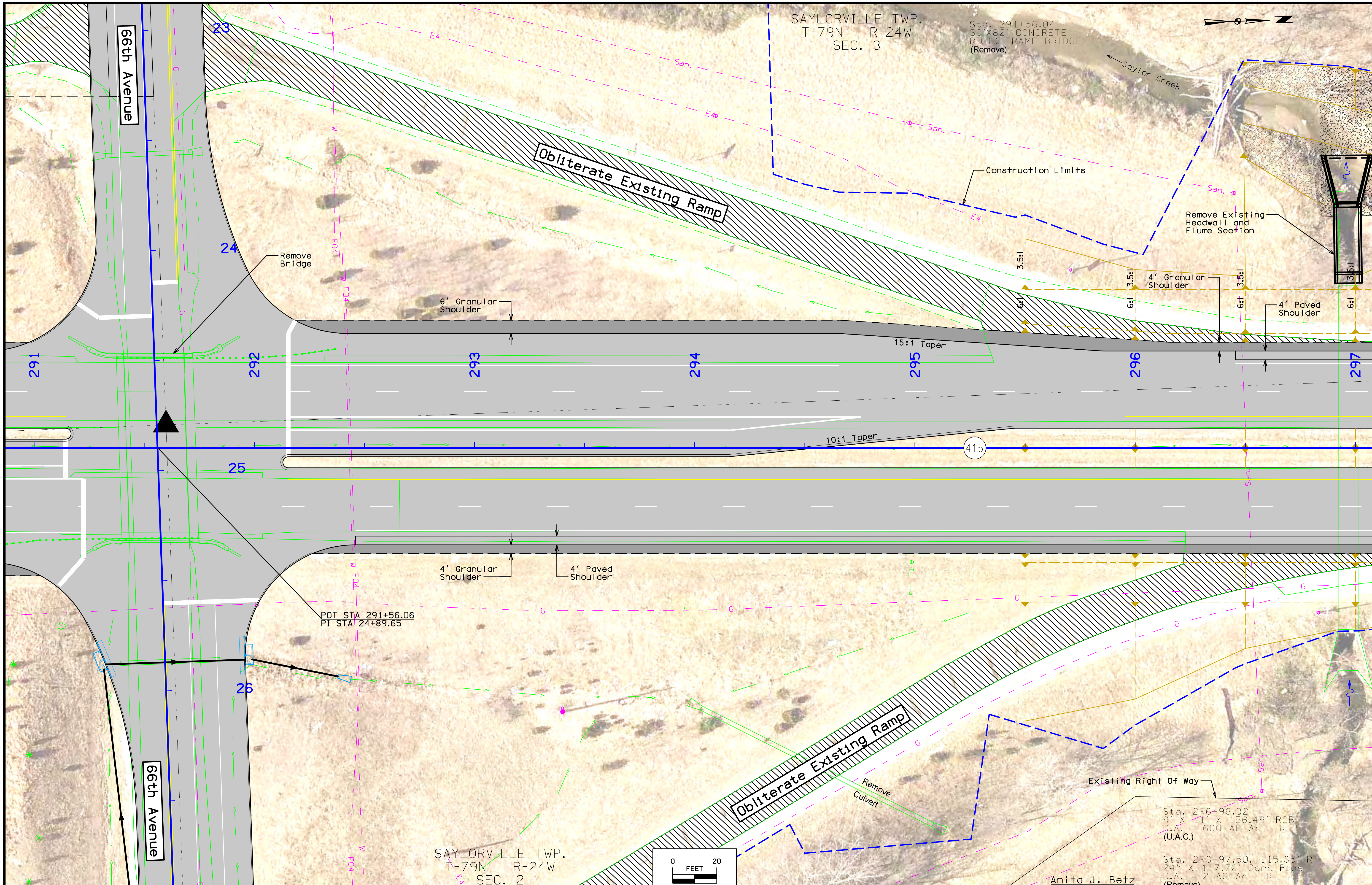

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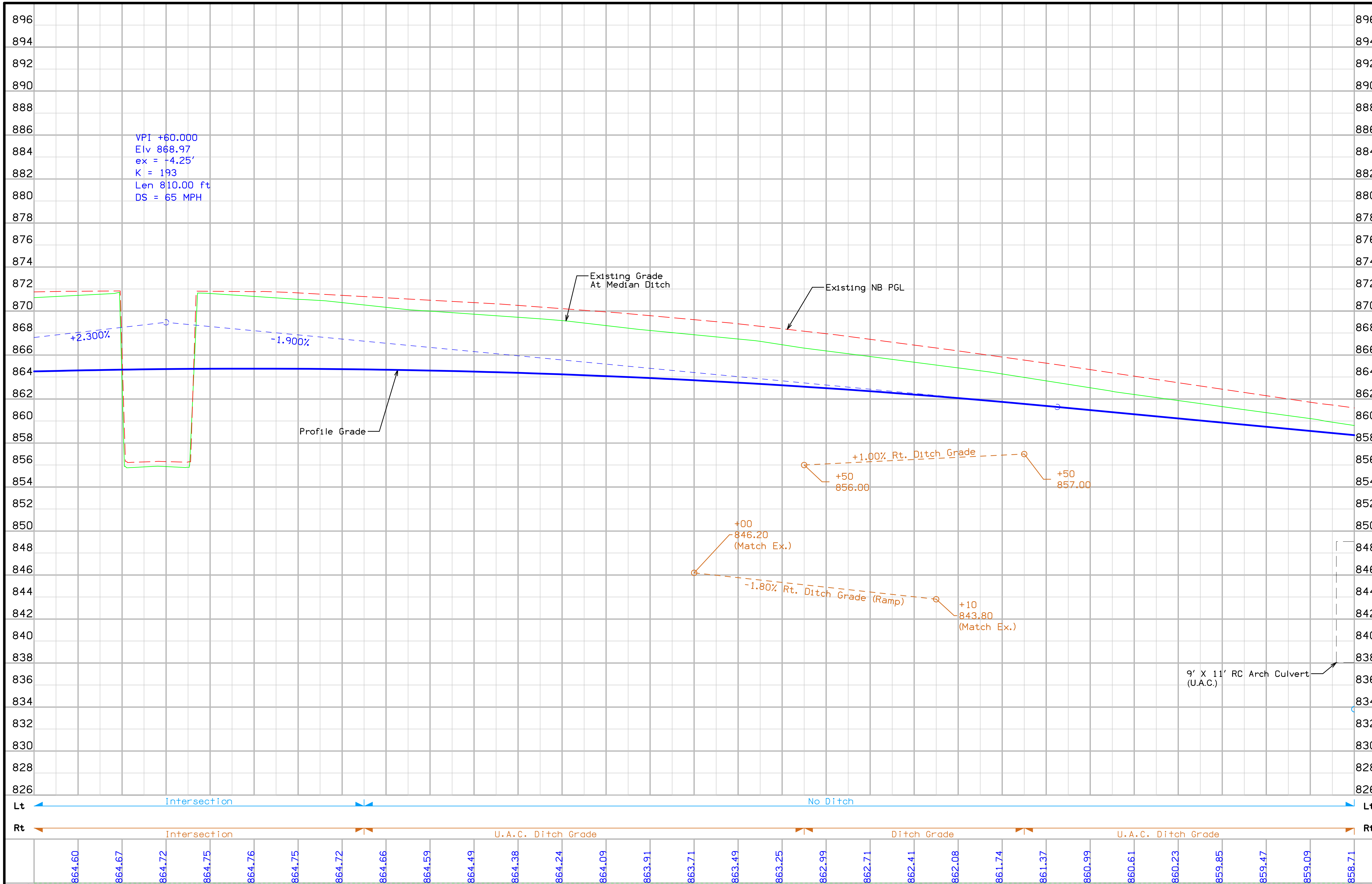

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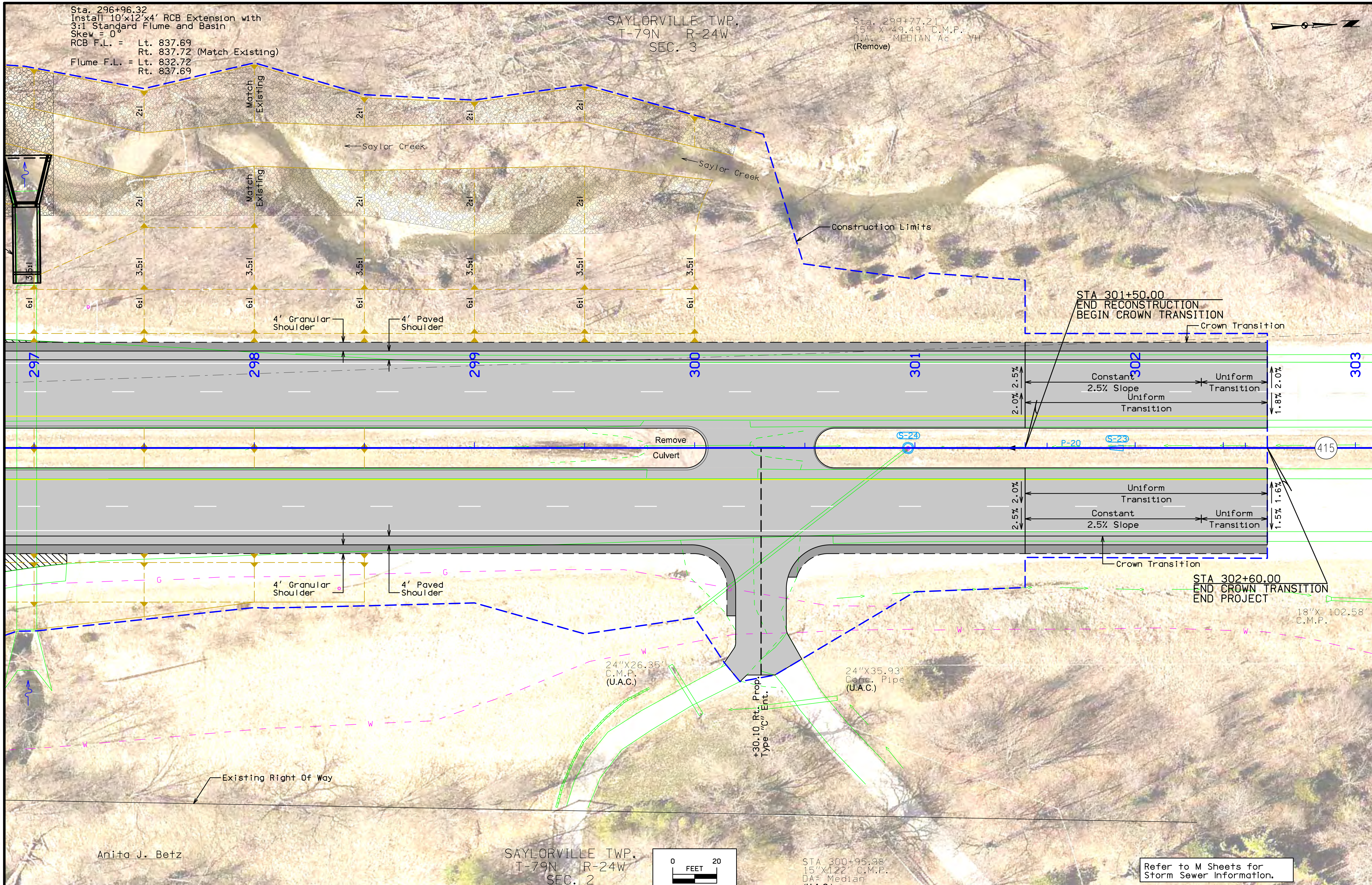

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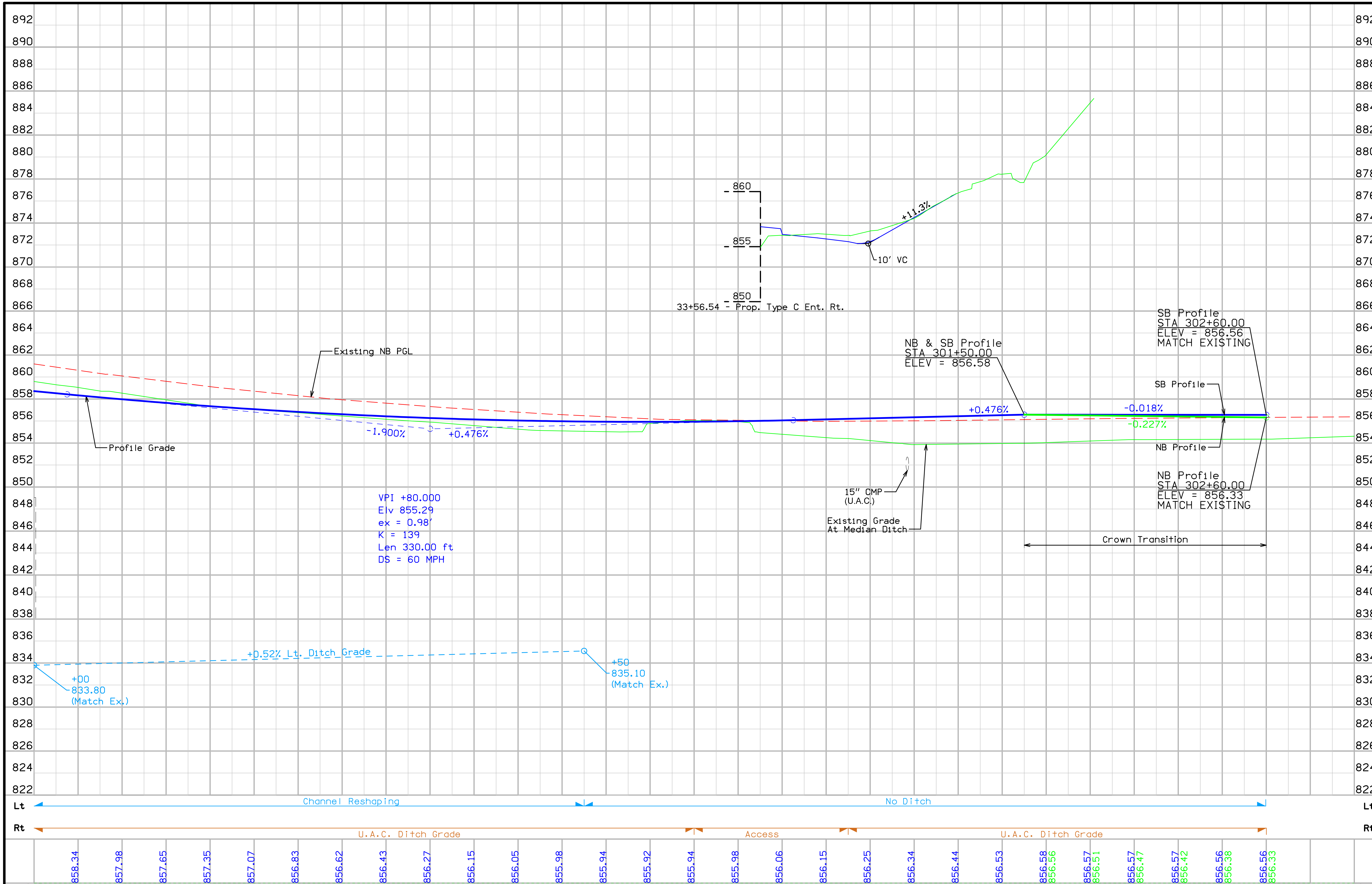

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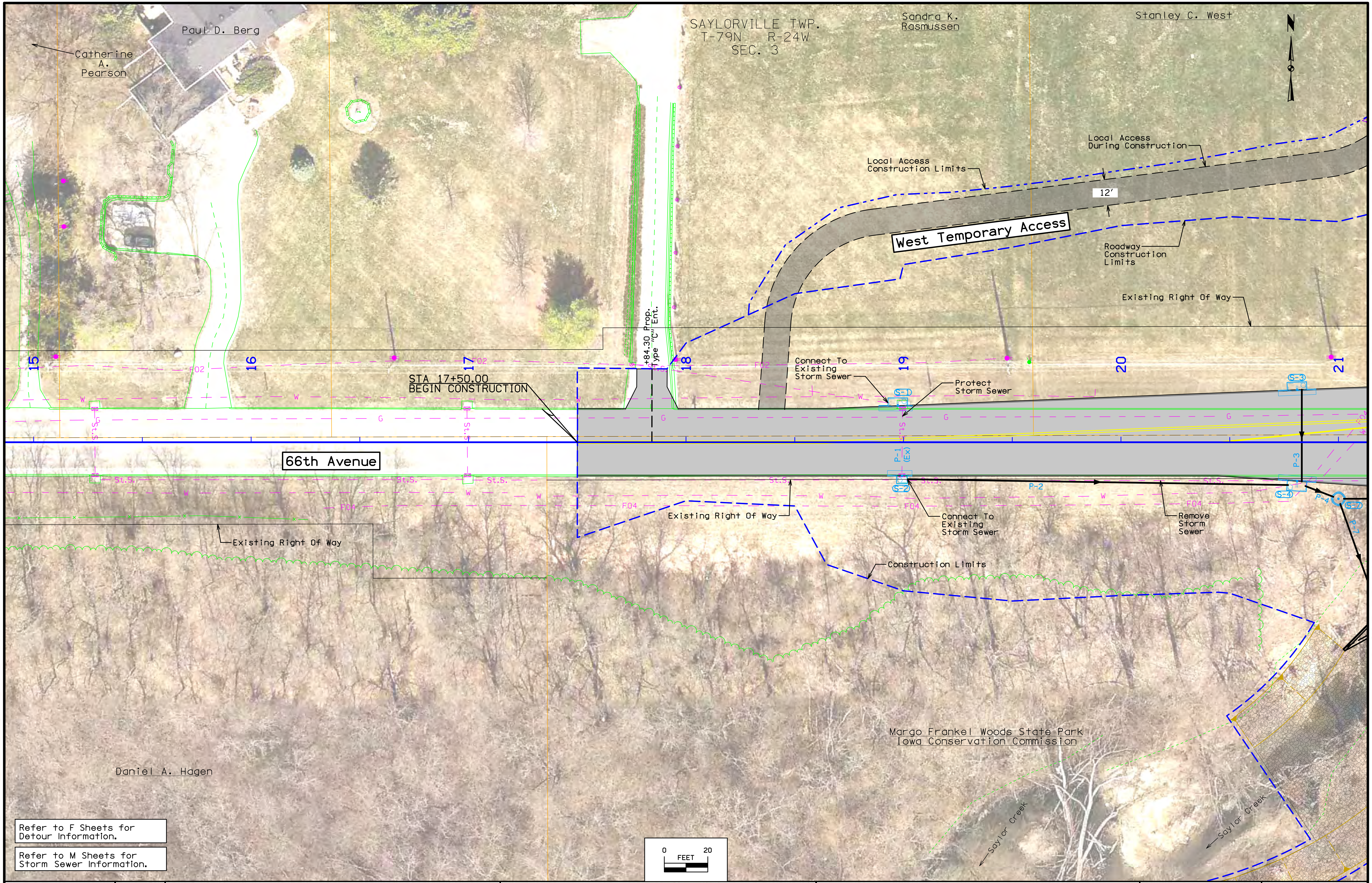

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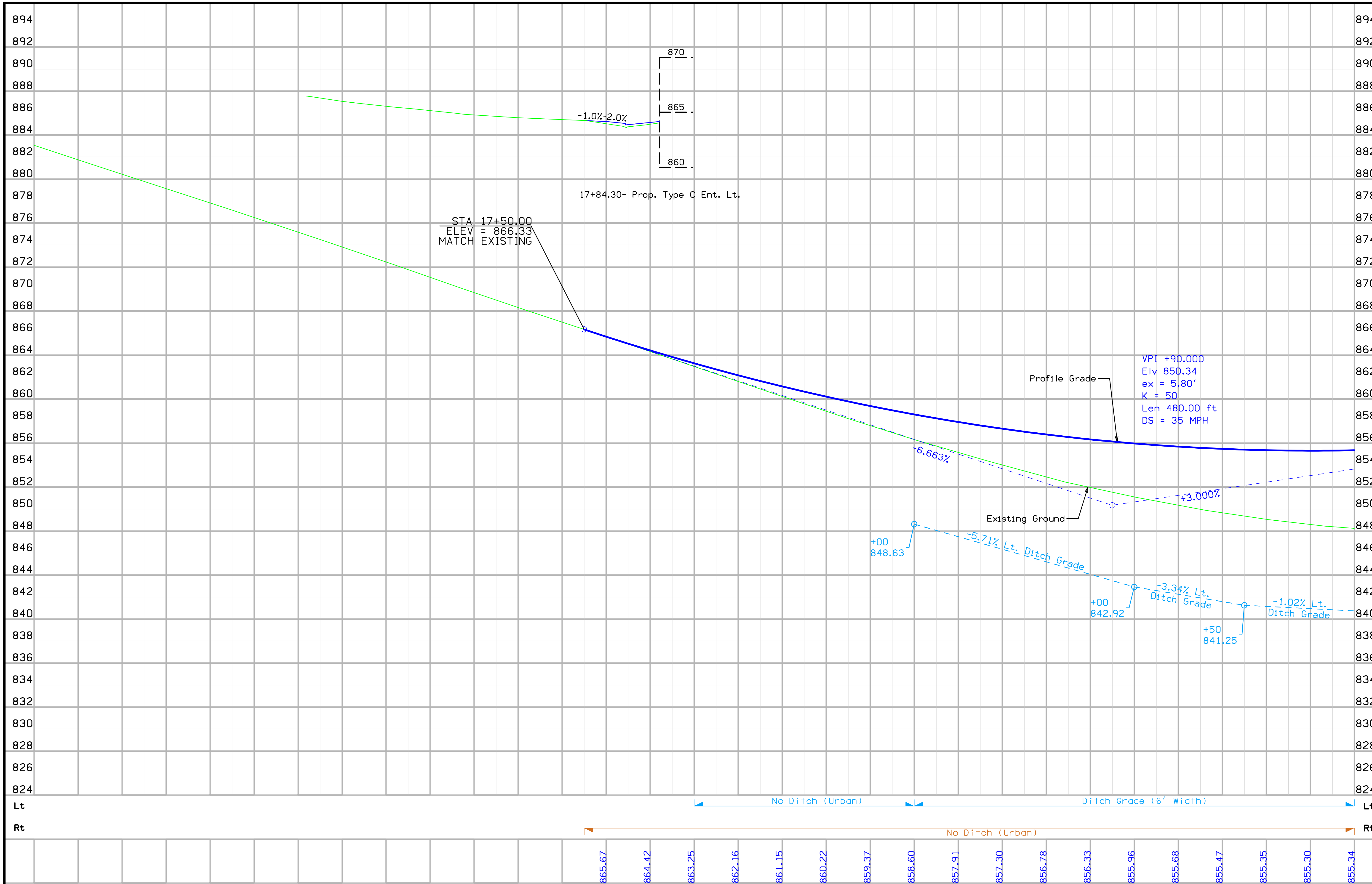

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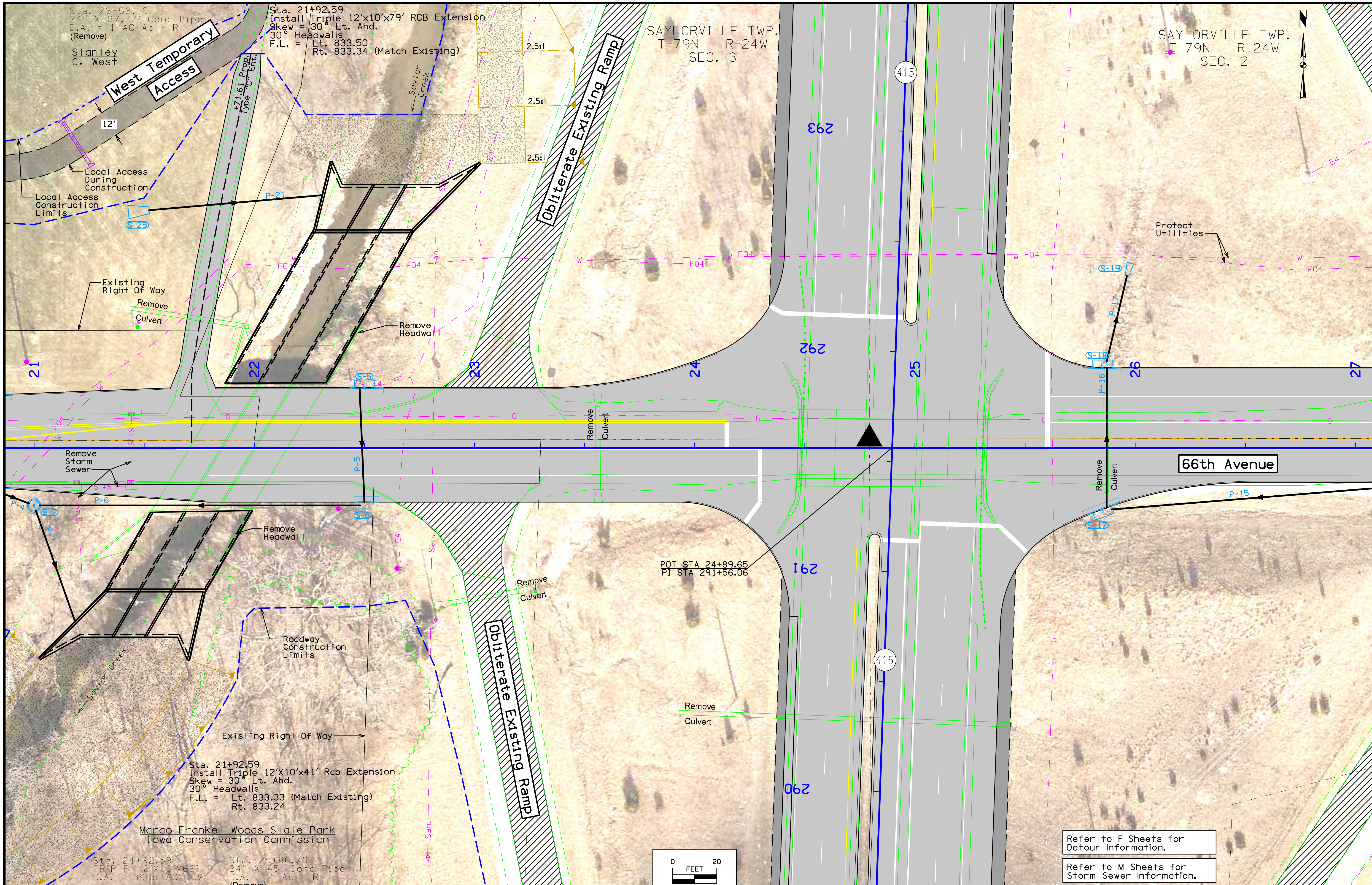

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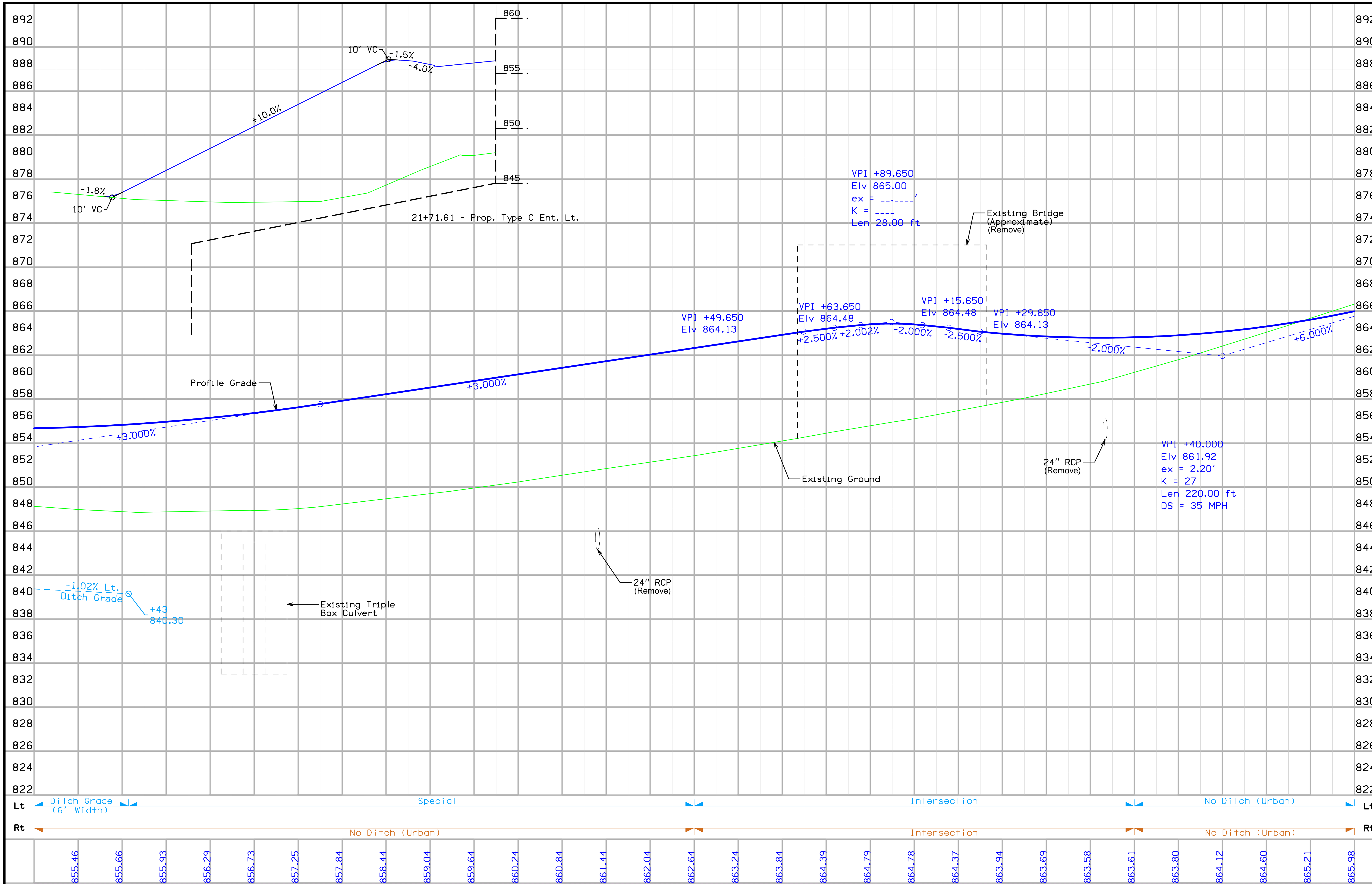

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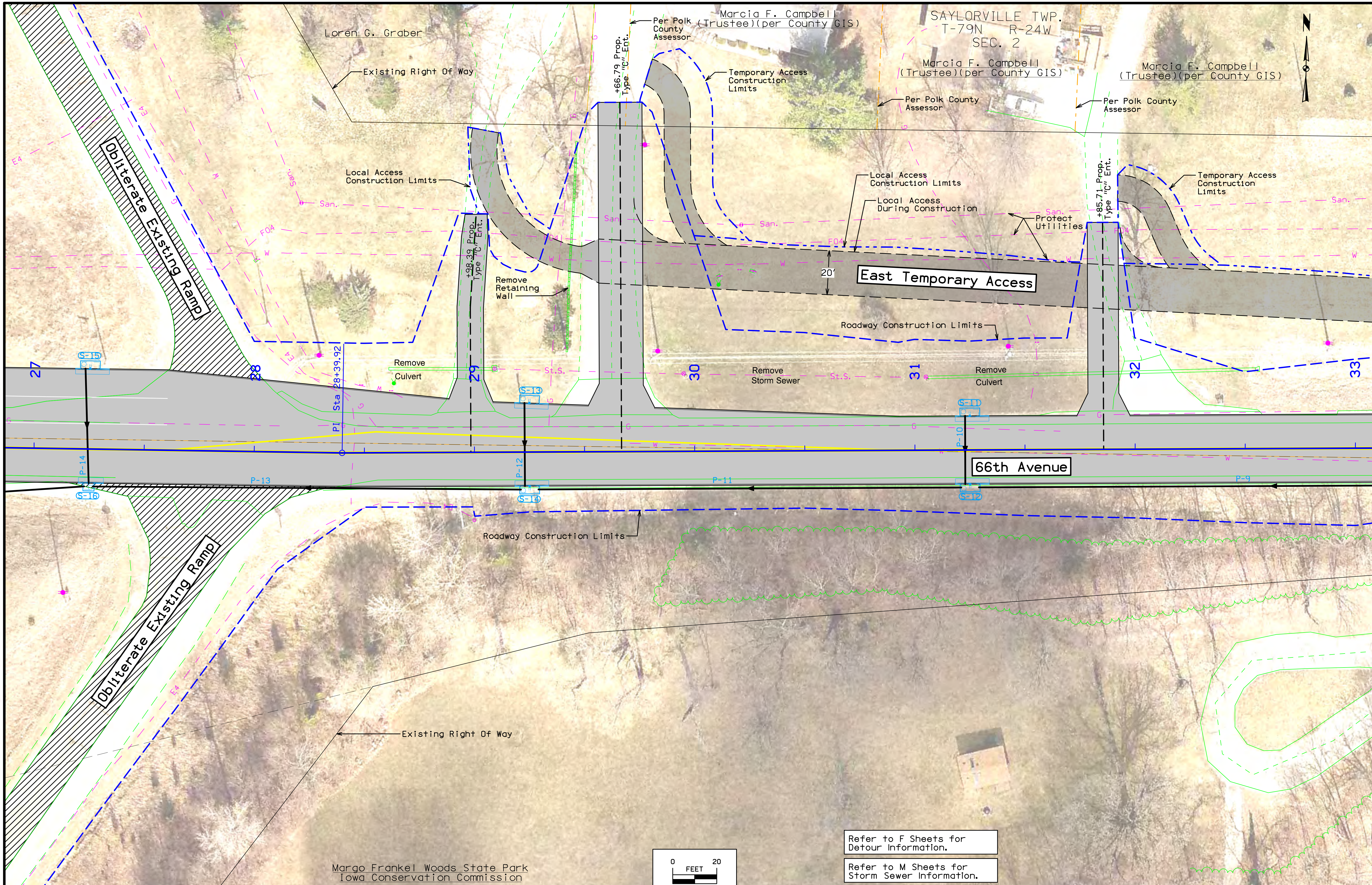

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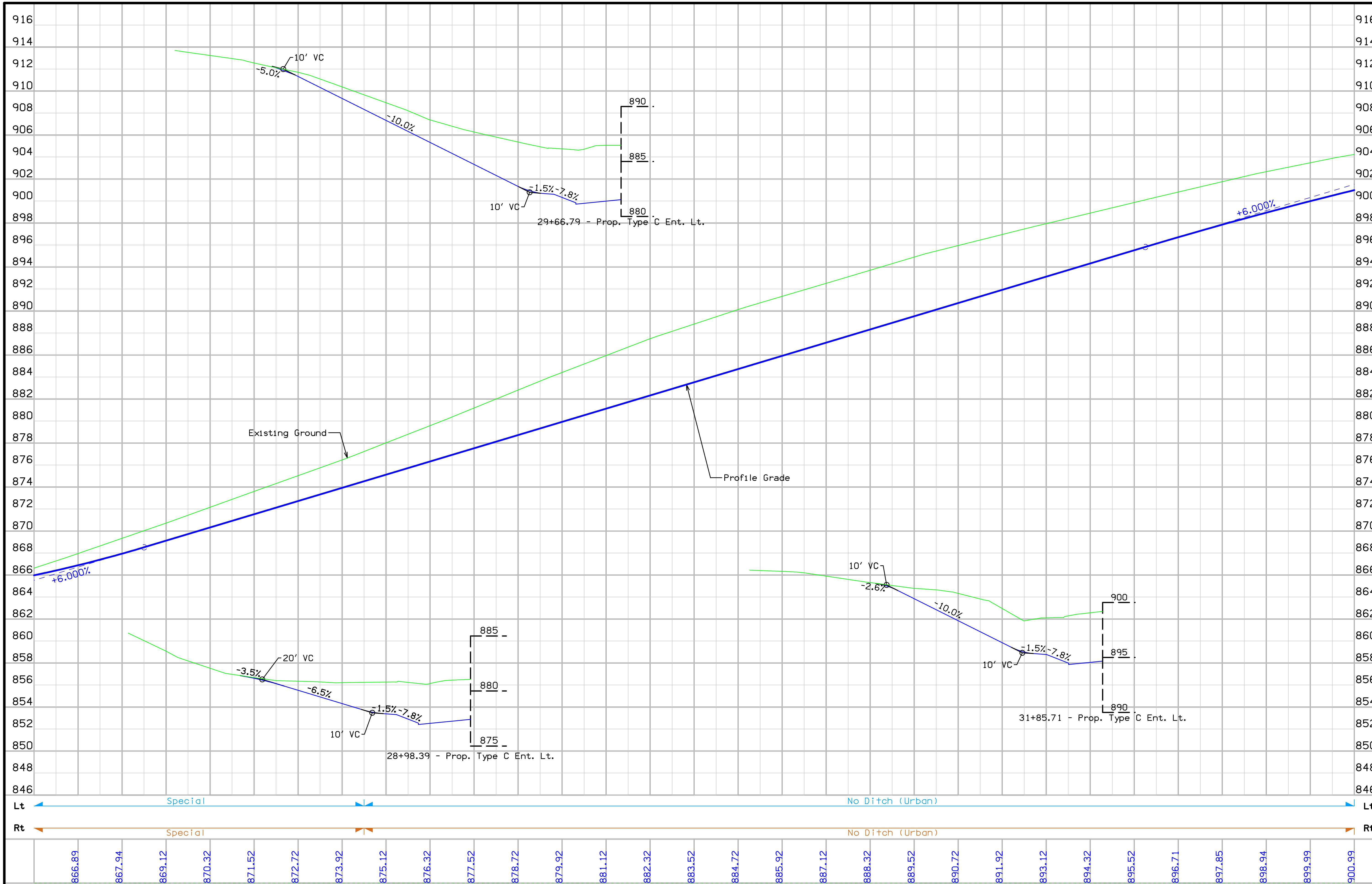

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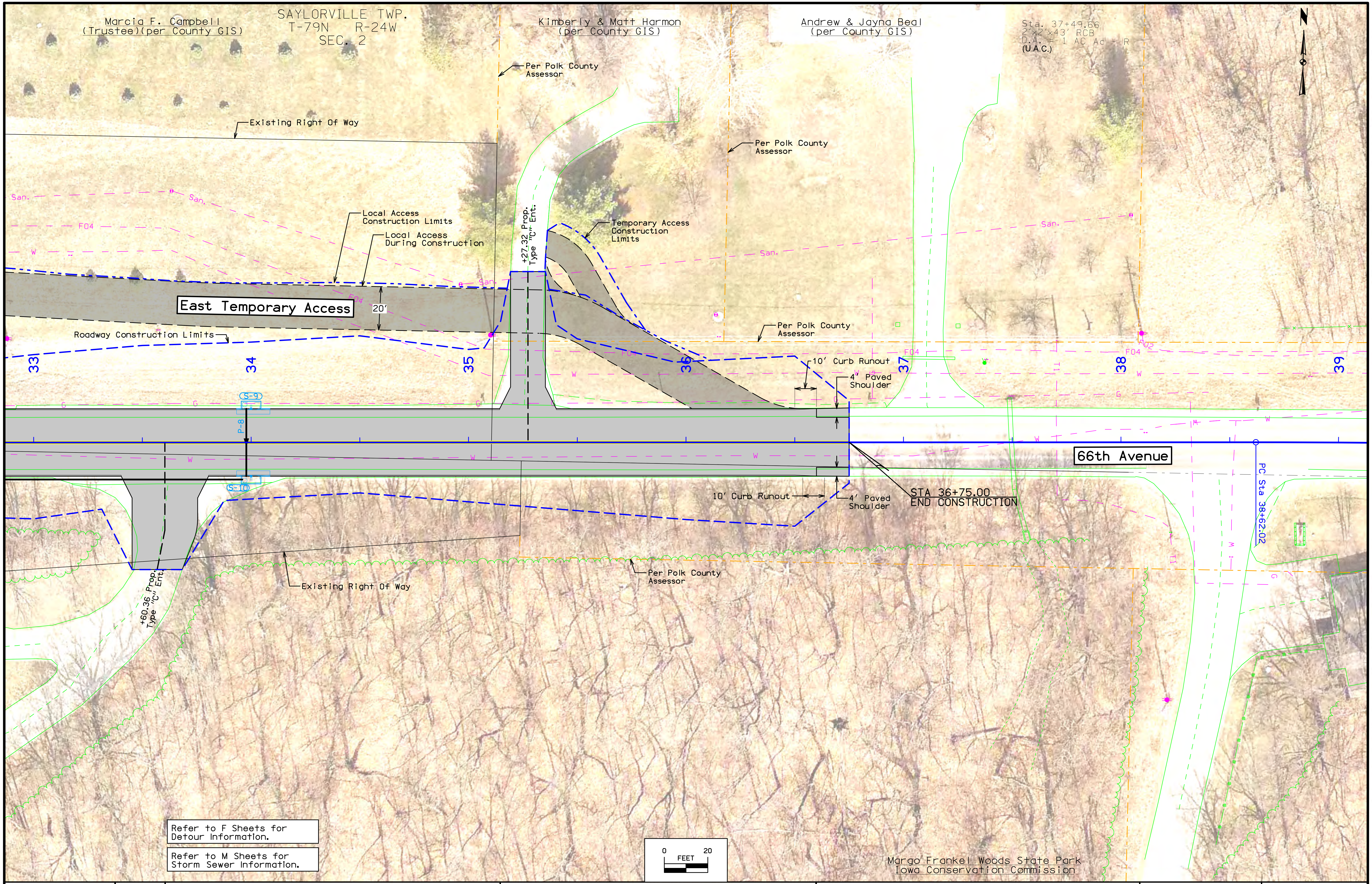

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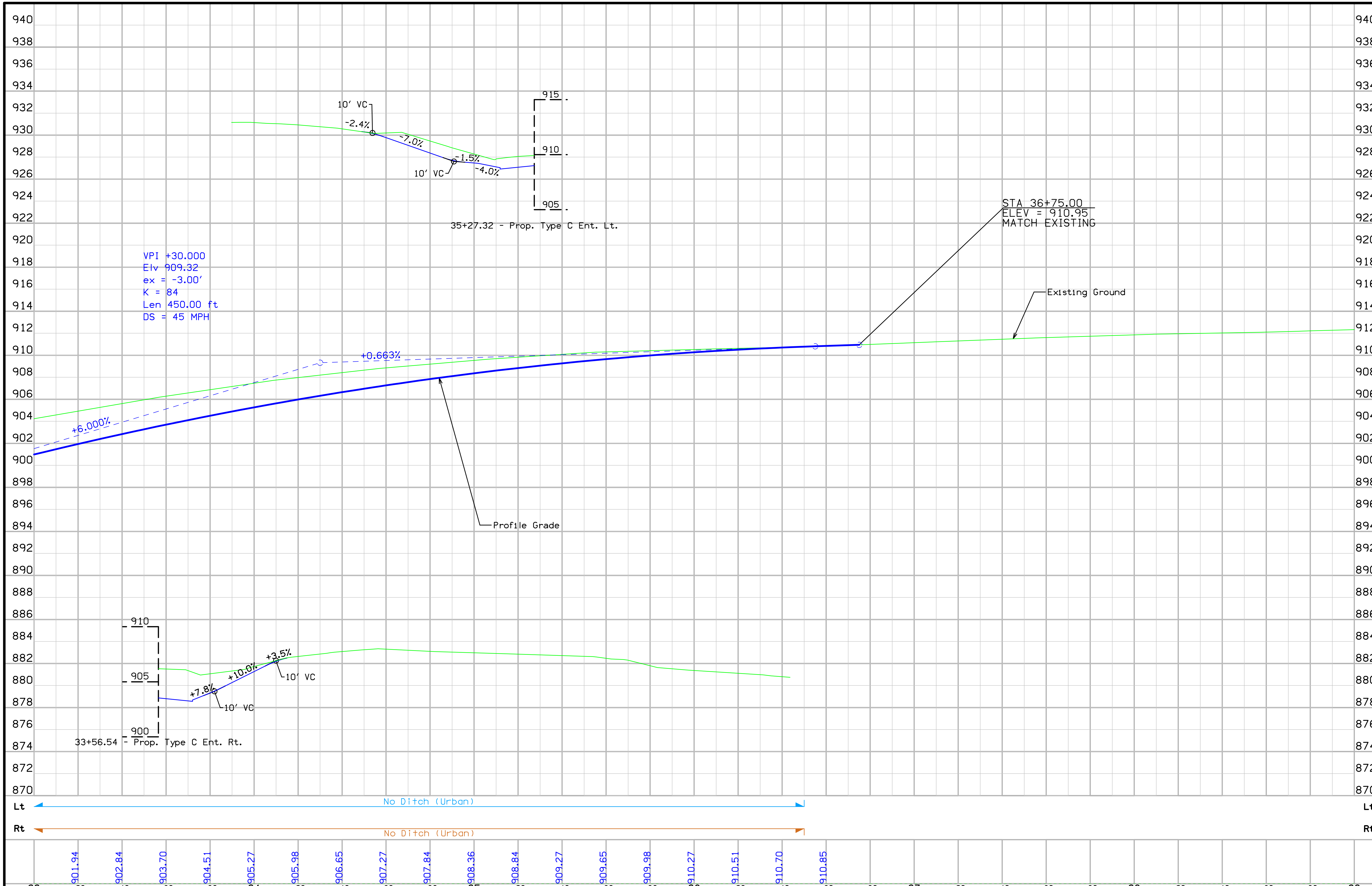

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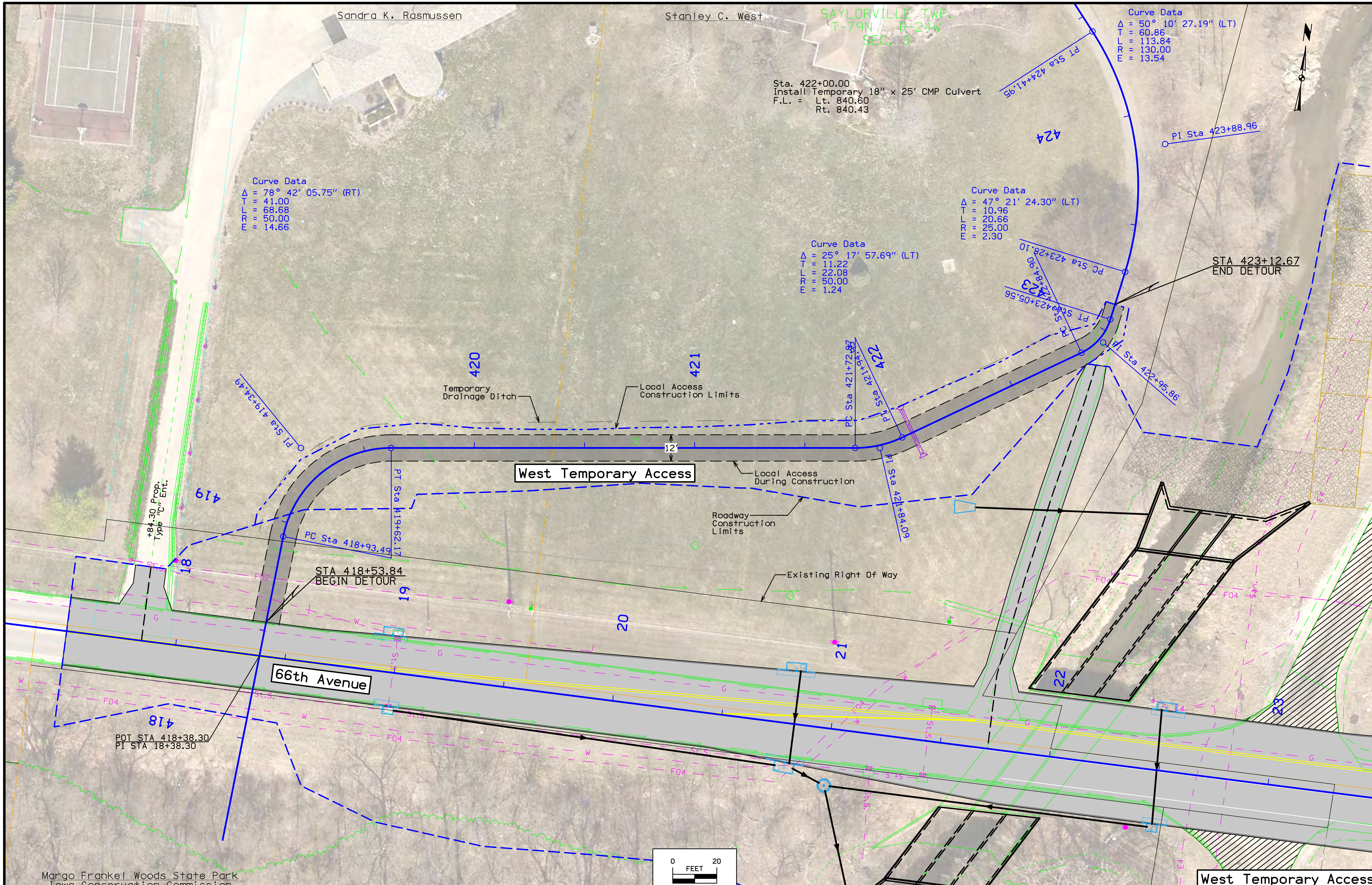

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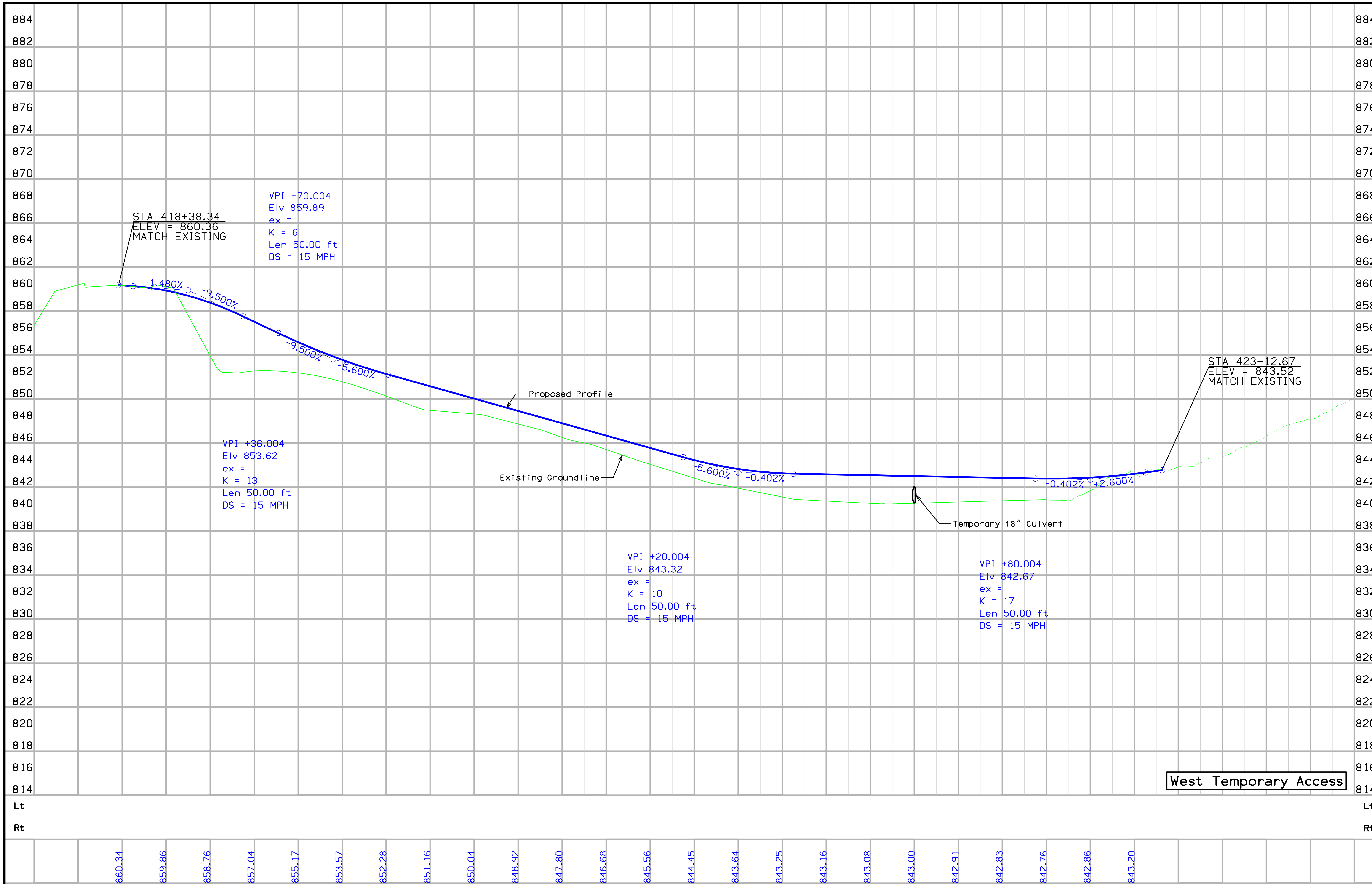

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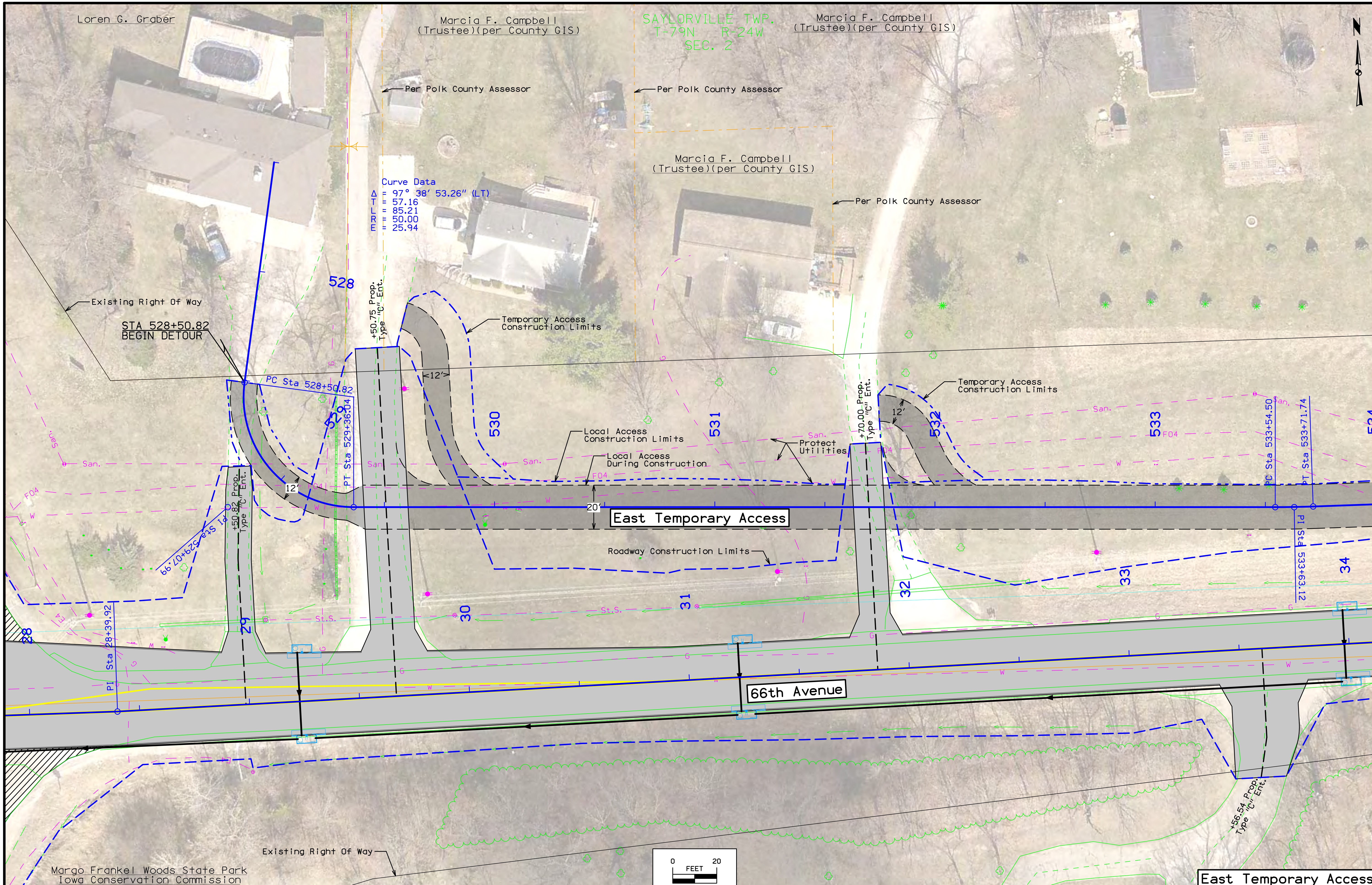

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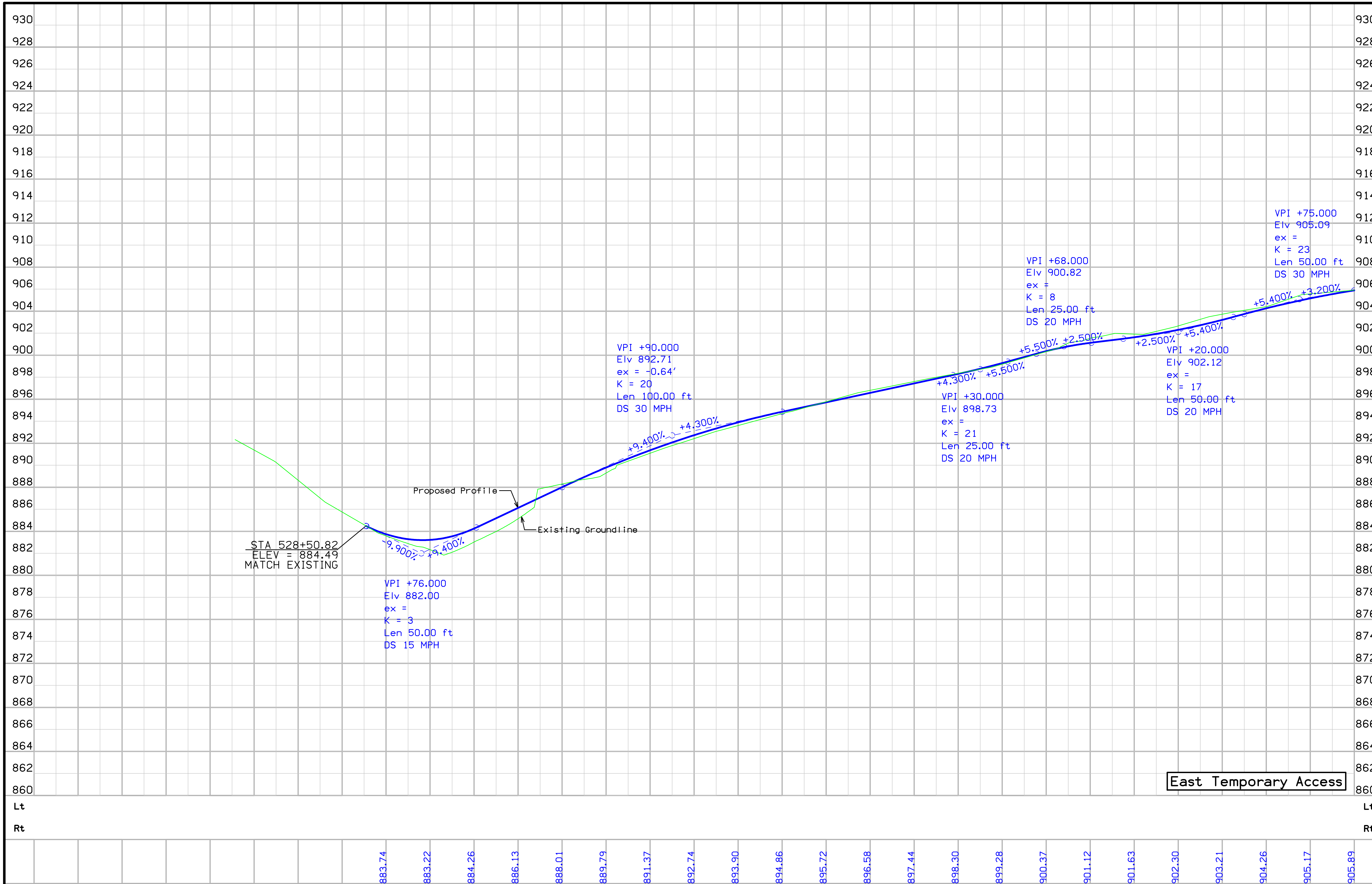

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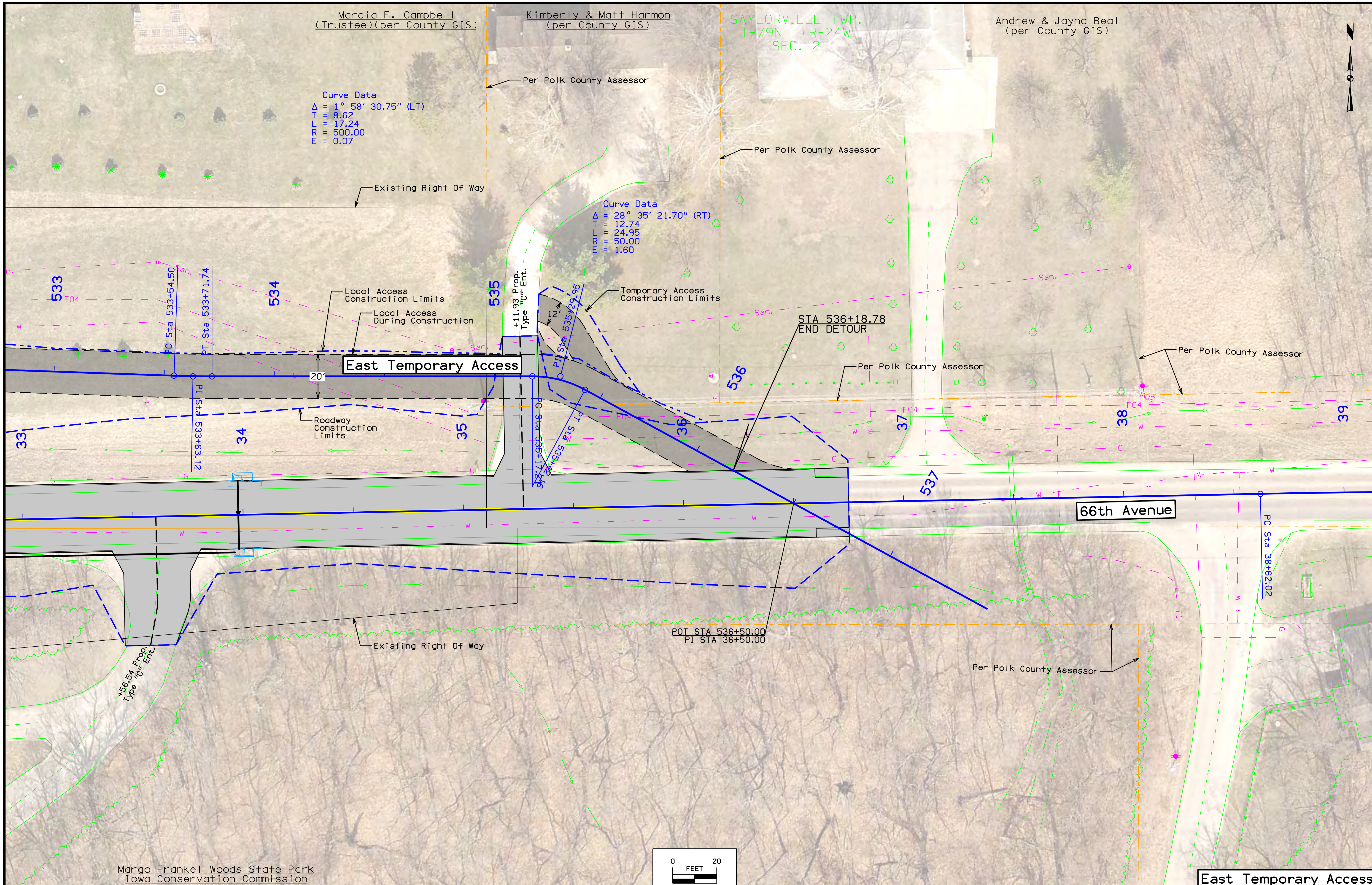

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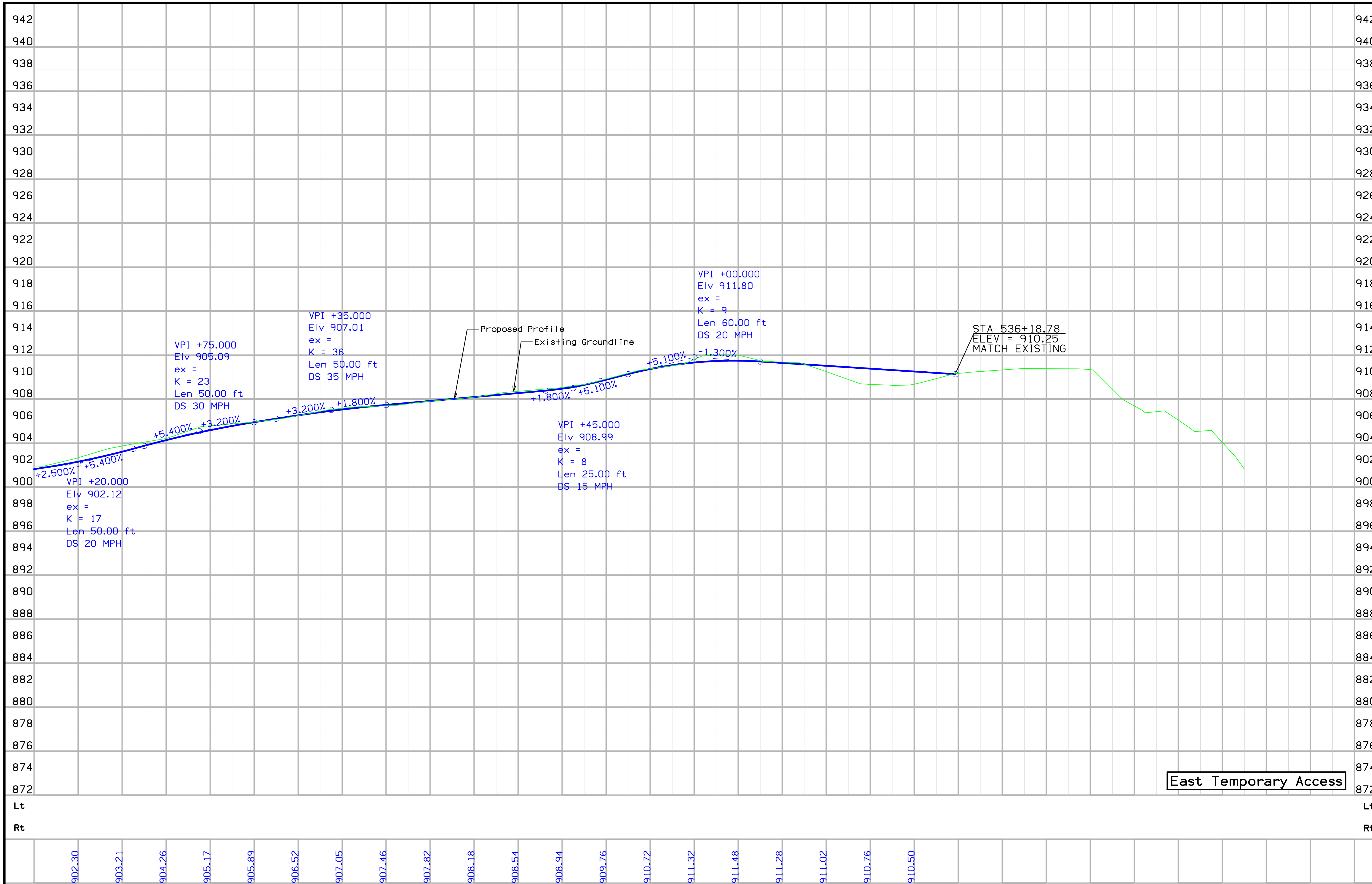


ENGLISH	IOWA DOT	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	POLK COUNTY	PROJECT NUMBER	BRF-415-1(52)--38-77	SHEET NUMBER	F.6

12:21:00 PM 6/20/2014 V8i_IDOTRoadD:\1120800L\Cadd\Design\77415052f01.dgn

Survey Information

General Information

Measurement units for this survey are US survey feet. This survey is for a Bridge Removal Project at the intersection of Ia. 415 and NW 66th Avenue. The 2005 survey information was updated as appropriate.

Vertical Control

This survey is relative to NAVD 88 vertical datum. A three wire bench level run was run throughout this project. BM # 525 from the 1994 John Adams Survey, Project # IM-35-3(69)82--13-77, was used for the vertical datum. The three wire bench level loop run originated at BM # 500. A three wire level loop was then was run east to Hwy. 415, then north to the junction of Hwy 160, then returned back to BM # 500. Benches were established along this Bench Run. Additional three level loops were then run later. Note: During the course of our survey BM # 504 was destroyed. An additional BM was set. The additional BM is # 523

Vertical Equations to the Project Datum Bench Marks and Other Benches along this Survey are as Follows:

BM # 500 this survey Elev. = 805.50 (NAVD 88 English).
Datum Mark = BM # 525 1994 John Adams Survey Proj. # IM-35-3(69)82--13-77
Elev. = 245.477 (NGVD 29 Metric)
Elev. = 805.37 (NGVD 29 English)

BM # 512 this survey	Elev. = 841.82 (NAVD 88 English)
= BM # 29 Project # 132 (8)	Elev. = 68.12
BM # 513 this survey	Elev. = 874.84 (NAVD 88 English)
= BM # 30 Project # 132 (8)	Elev. = 101.00
BM # 515 this survey	Elev. = 850.82 (NAVD 88 English)
= BM # 32 Project # 132 (8)	Elev. = 77.07
BM # 516 this survey	Elev. = 854.60 (NAVD 88 English)
= BM # 33 Project # 132 (8)	Elev. = 81.02

Horizontal Control

A 2005 GPS network for Project HES-415-1(041) - -2H-77 was used. Datum is NAD83 (1996) Iowa State Plane South Zone (US Survey Feet.). The project coordinates are scaled about control Pt. G015- 612178.99N, 1607685.75E, 870.69EL. 1/Combined Scale Factor of project= 1.000056017

Alignment Information

From 2005 Survey Information
The mainline alignment for this survey is a retrace of Project # FN-415-1(1)--21-77, and Project # F-415-1(1)- -20-77. The mainline alignment was created in centerline of median.
Stationing was obtained at PI Sta. 194+96.0 and was backed up to PI 159+14.04, then carried ahead to PI 374+86.26. The following PI points were used to create this CL alignment.

PI 159+13.7 Project # FN-415-1(1)--21-77 (fd. iron pin)
PI 194+96.0 Project # FN-415-1(1)--21-77 (fd. hinge nail)
PI 243+42.2 Project # FN-415-1(1)--21-77 (not set)
PI 326+00.38 (not set)
PI 656+06.93 Project # FN-415-1(1)--20-77 (fd. x)
PI 674+92.46 Project # FN-415-1(1)--20-77 (fd. lead plug with nail)

Mainline Equations

PI Sta. 159+14.04 this survey
=PI Sta. 159+13.7 Project # FN-415-1(1)--21-77
=PI STA 48+50.507 (metric) SR C 1994 John Adams Project. # IM-35-3(69)82--13-77

PI Sta. 194+96.0 this survey
=PI Sta. 194+96.0 Project # FN-415-1(1)--21-77
= PI Sta. 59+42.423 (metric) SR C 1994 John Adams Project. # IM-35-3(69)82--13-77

PI Sta. 243+42.22 this survey
=PI Sta. 243+42.2 Project # FN-415-1(1)--21-77

PI Sta. 356+02.68 this survey
=PI Sta. 656+06.93 Project # FN-415-1(1)--20-77

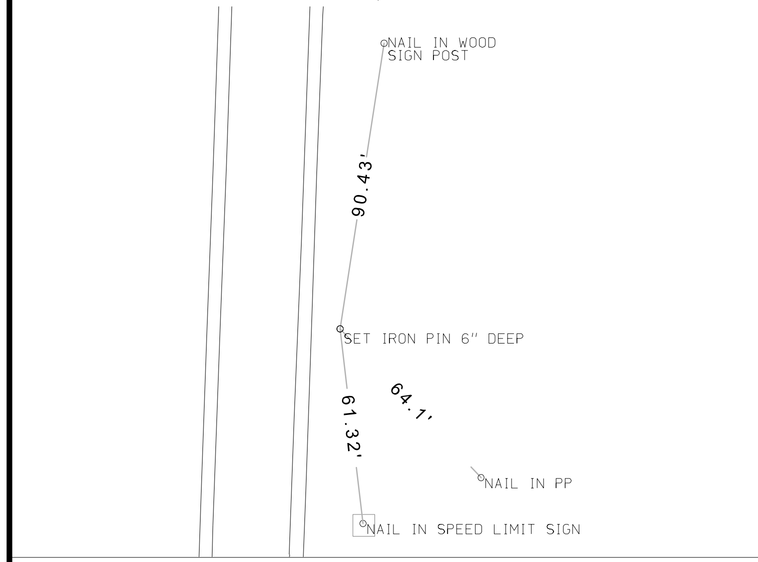
PI Sta. 374+86.26 this survey
=PI Sta. 674+92.46 Project # FN-415-1(1)--20-77

The side road alignment of NW 66th for this survey is a retrace of Polk County Project # L-1046--73-77, and Project # L-1082(2)--73-77. Stationing was held at PI Sta. 13+73.17 carried back and ahead without equation.

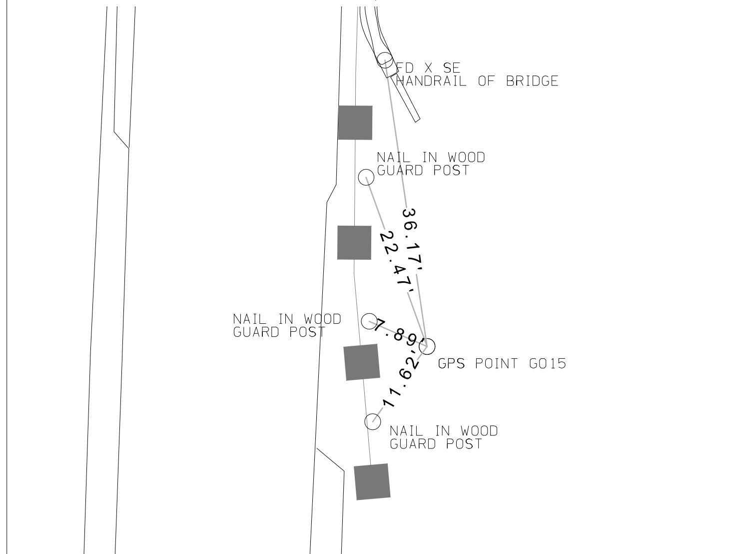
VERTICAL CONTROL

Point	North	East	Elevation	Station	Offset	Feature	Description
511	610527.7640	1607670.5251	866.3200	274+42.33	96.4936	BM	SET\RR SPK W SIDE P.POLE
512	611084.1598	1607650.0096	841.8190	279+97.61	55.6796	BM	FD\IHC BM ON INLET HDWL
513	612214.7746	1607680.4692	874.8352	291+28.58	44.8439	BM	FD X HANDRAIL SE END 2ND
514	612776.2614	1607738.9726	851.4676	296+91.83	82.8103	BM	FD\IHC BM ON INLET HDWL
515	613485.4596	1607618.0661	850.8171	303+96.14	-63.9061	BM	FD X OUTLET HDWL 36" RCP
516	614684.2420	1607662.3575	854.5974	315+95.74	-63.4078	BM	CUT X OUTLET HDWL 36" RCP

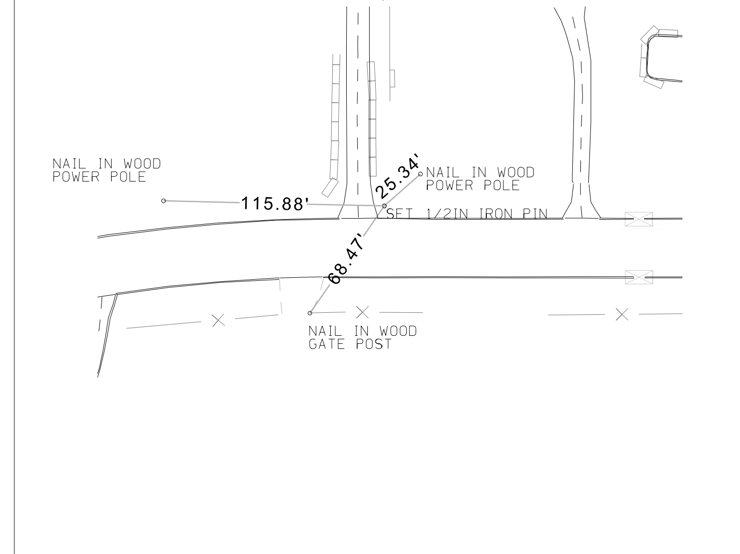
STA 267+42.48, 51.18' RT
CP 308, SET IRON PIN 6" DEEP
N=609830.031, E=1607599.739



STA 290+93.01, 51.43' RT
CP 15, FOUND REBAR
N=612178.99, E=1607685.75



STA 291+39.36, 1095.19' LT
CP 316, SET 1/2" IRON PIN
N=612267.169, E=1606541.587



STA 292+48.95, 892.25' LT
CP 317, SET 1/2" IRON PIN
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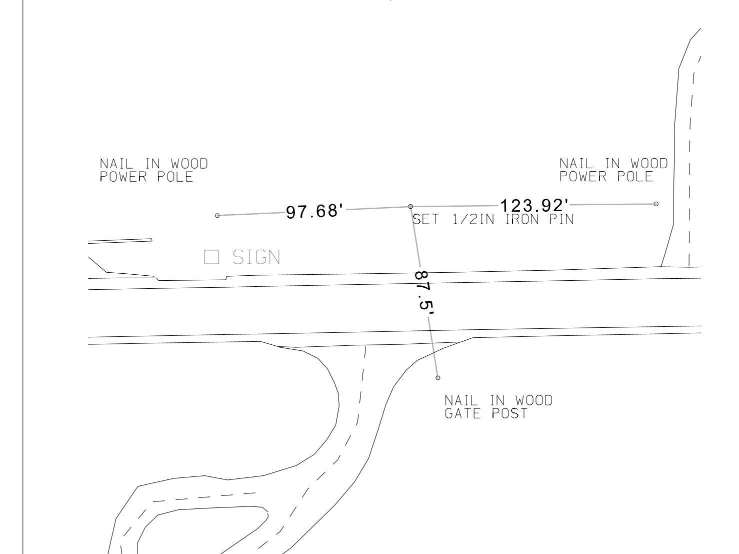

STA 297+62.22, 61.16' LT
CP 310, SET 1/2" IRON PIN 6" DEEP
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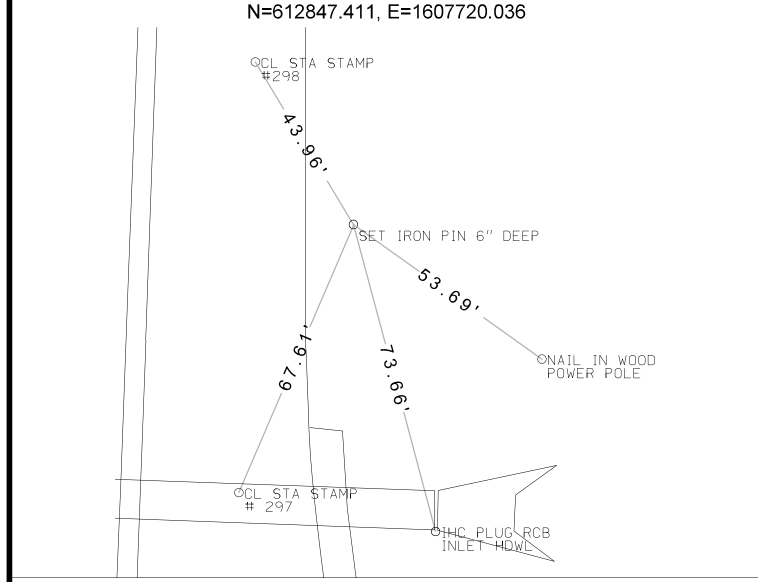

STA 304+88.35, 49.02' RT
CP 311, SET 1/2" IRON PIN 6" DEEP
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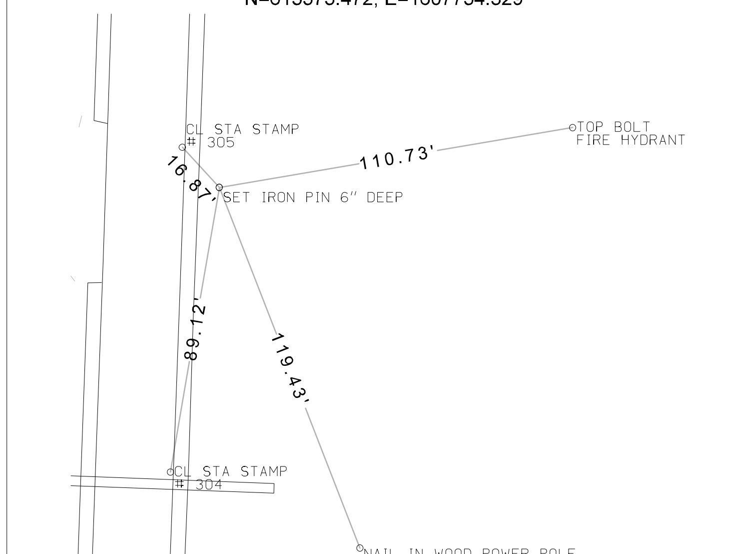

STA 315+36.83, 56.45' RT
CP 312, SET 1/2" IRON PIN 6" DEEP
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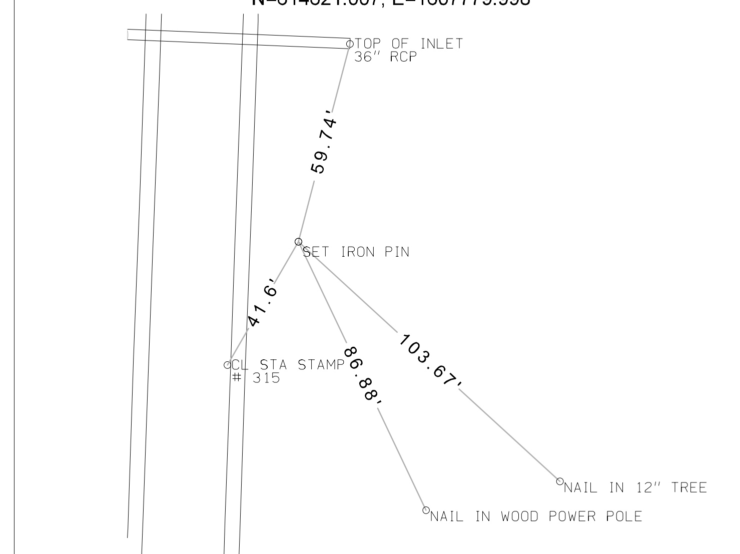
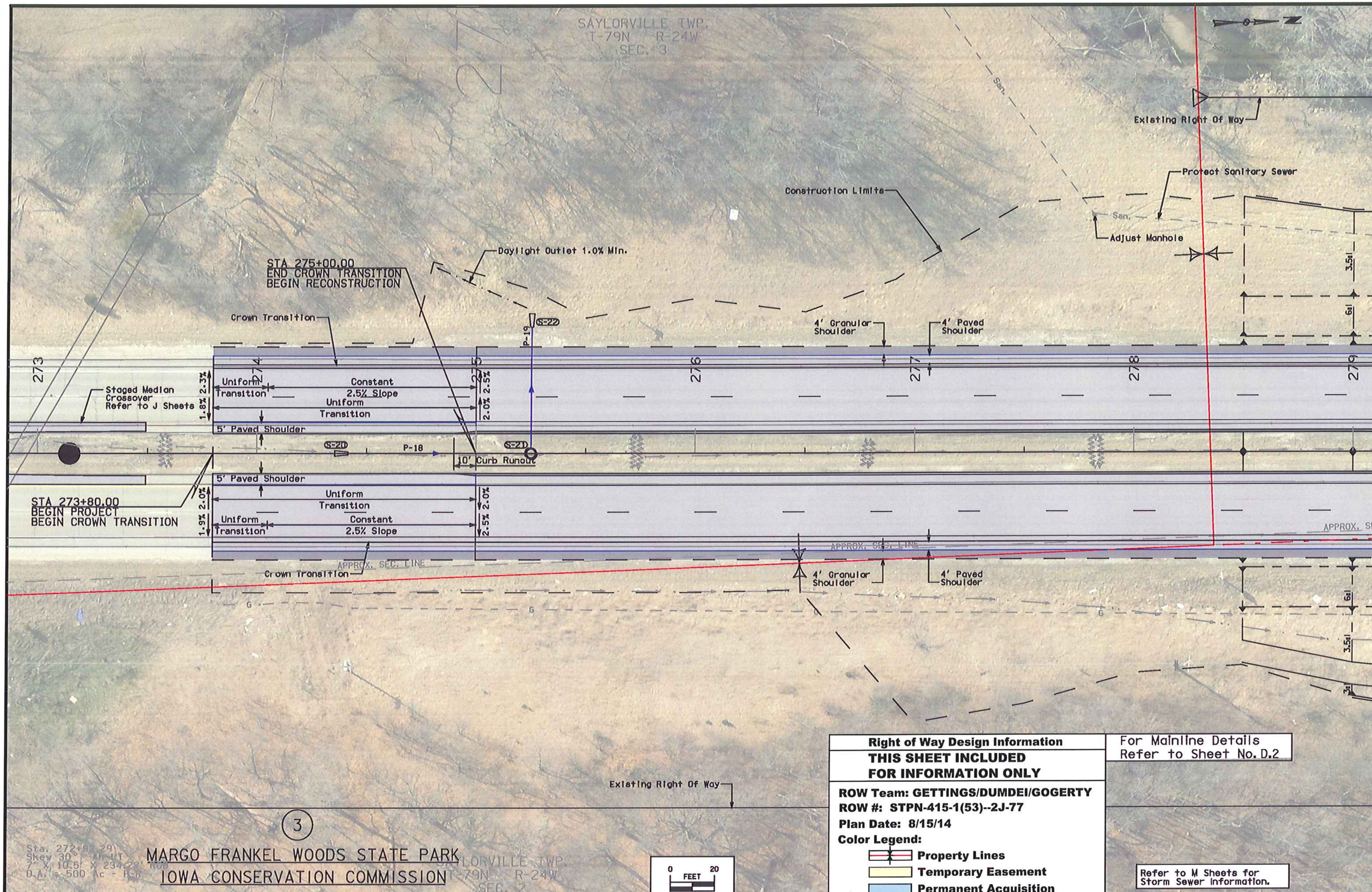


Polk	ROW: STPN-415-1(53)--2J-77				PIN	12-77-415-030													
	NW 66th Ave 2.1 miles N of I-80 (Remove Bridge)																		
		STATE			COUNTY			CITY				BORROW							
PARCEL NO.	OWNER NAME	FEE	EASE		FEE		EASE	FEE	EASE		EXCESS	FEE	T.E.	MITIGATION	OTHER	HOUSE	BUILDING(S)	A/C ONLY	TOTAL ACQ.
1	Sandra K. Rasmussen - Fee						5007 SF												
2	Stanley C. West - Fee						13932 SF												
3	Margo Frankel Woods State Park - Fee Iowa Conservation Commission - Fee						50737 SF												
4	Anita J. Betz - Fee																		
5	Marcia F. Campbell - Fee																		
6	Matt Harmon - Fee																		
6 Parcels	"TOTALS	0 AC	0 AC		0 AC	0 AC		0 AC	0 AC		0 AC	0 AC	0 AC	0 AC					
		0 SF		0 SF	0 SF		69676 SF	0 SF		0 SF	0 SF								



FILE NO. | ENGLISH | DESIGN TEAM **SNYDER & ASSOCIATES, INC.** | POLK COUNTY | PROJECT NUMBER BRF-415-1(52)--38-77 | SHEET NUMBER H.1

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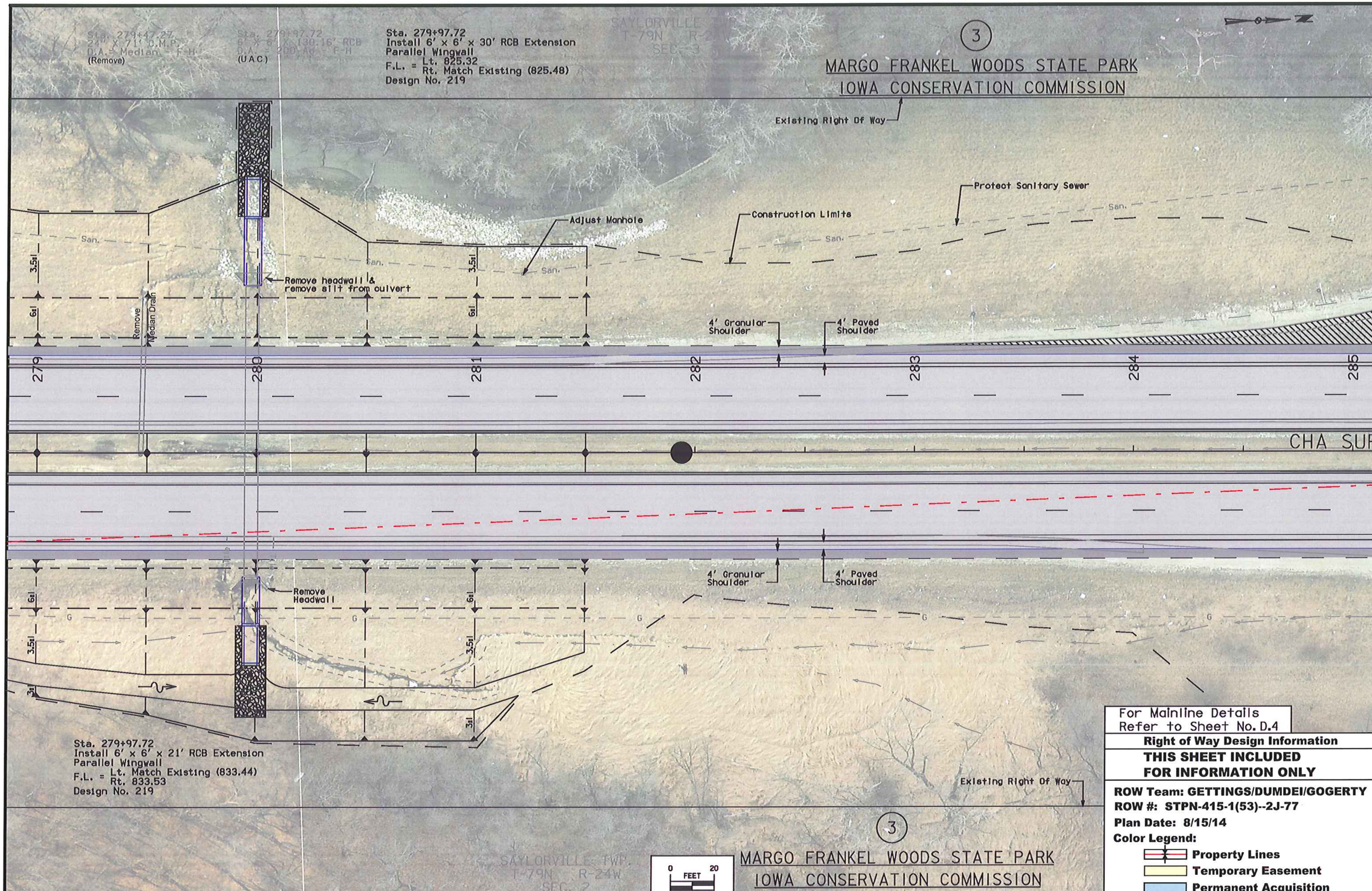

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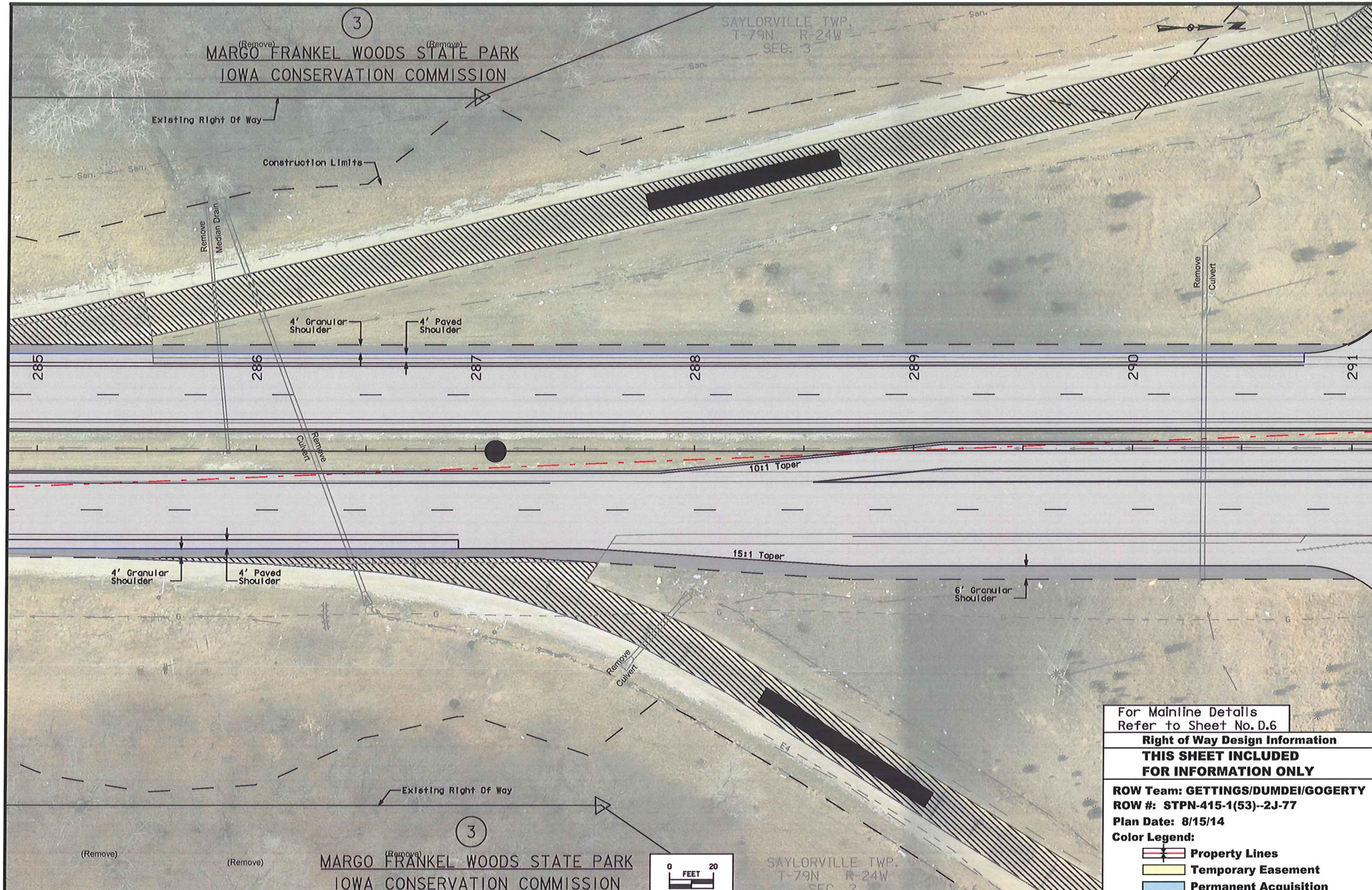

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	POLK COUNTY	PROJECT NUMBER	BRF-415-1(52)--38-77	SHEET NUMBER	H.3

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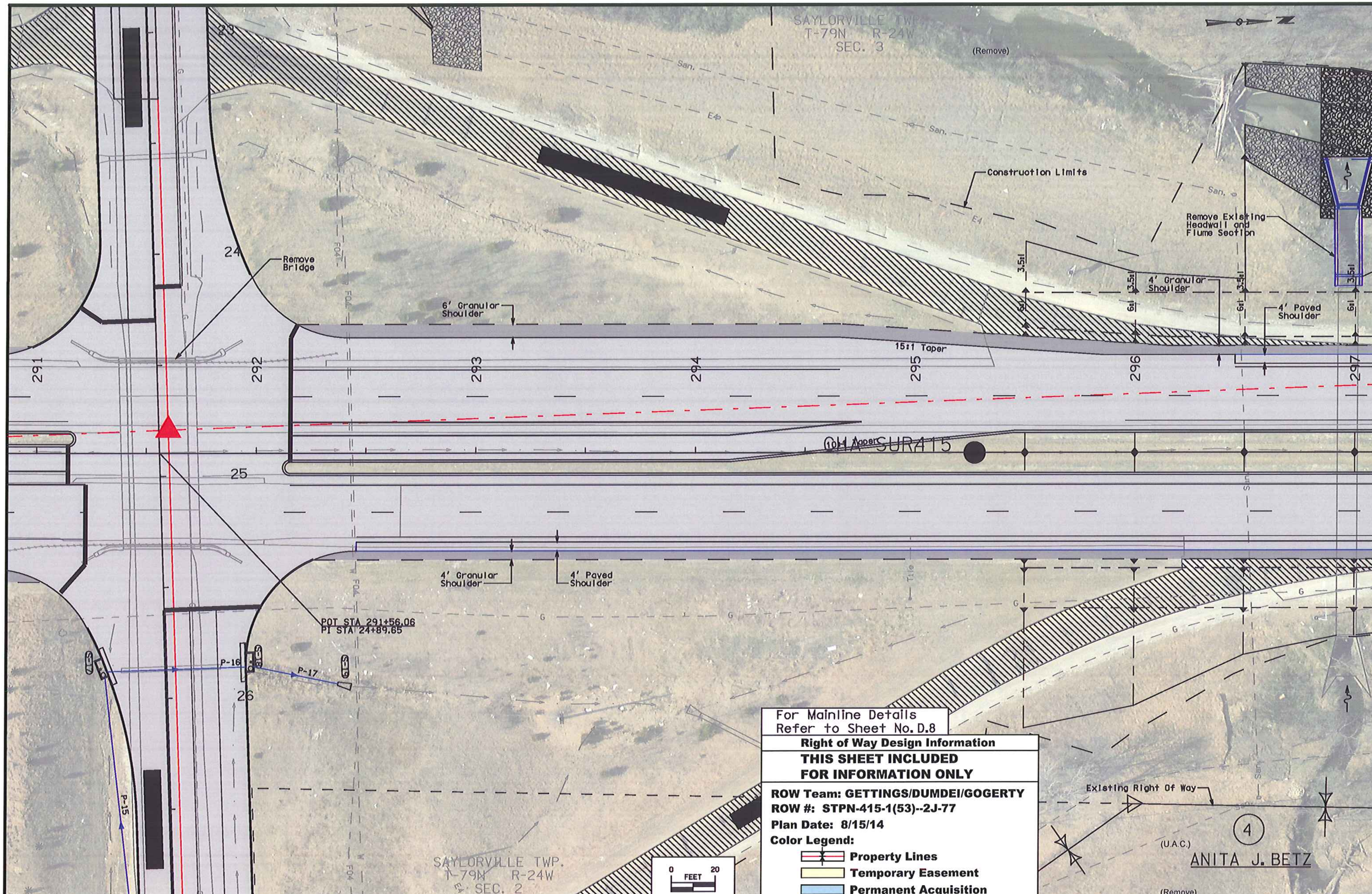

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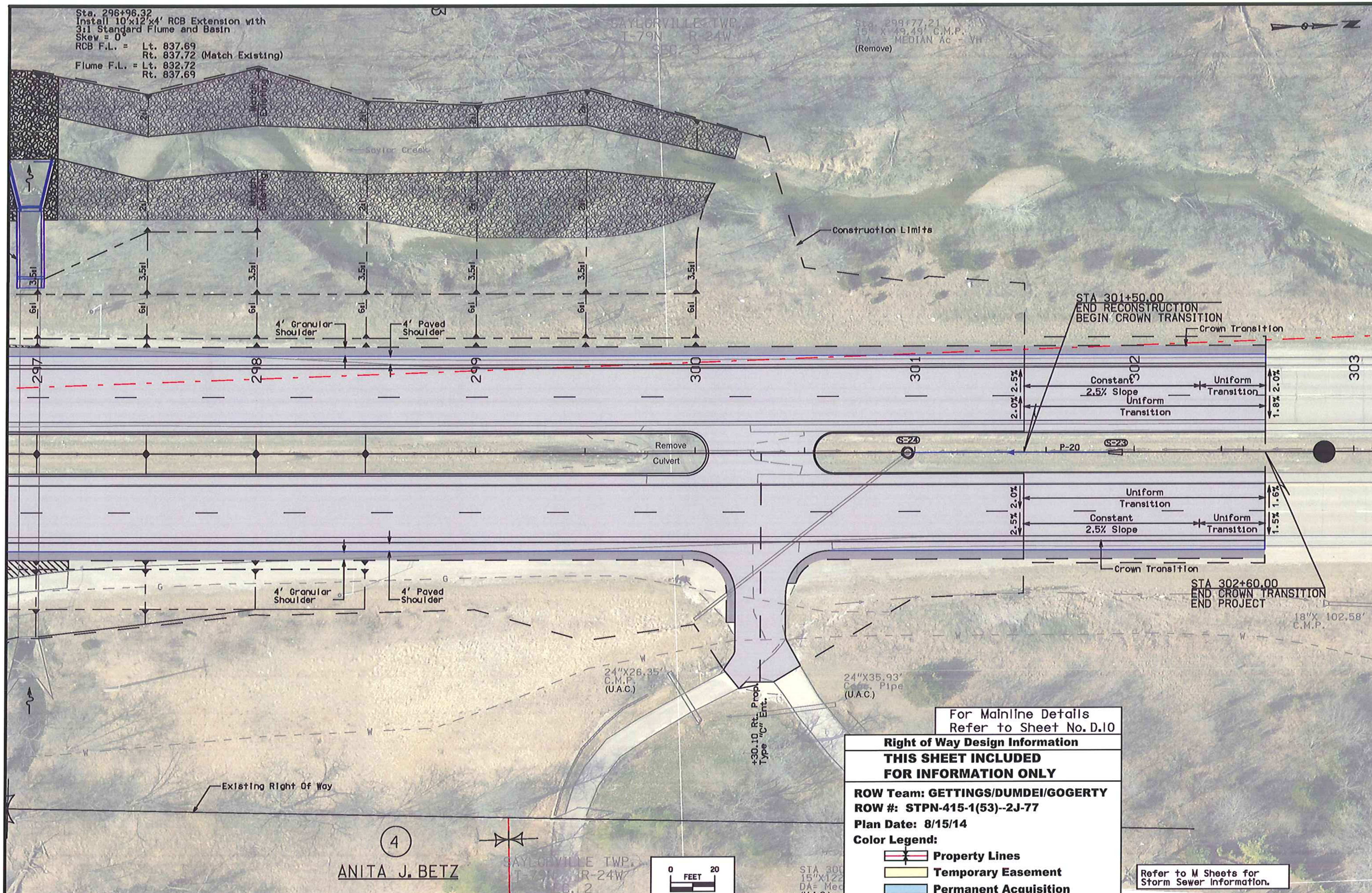

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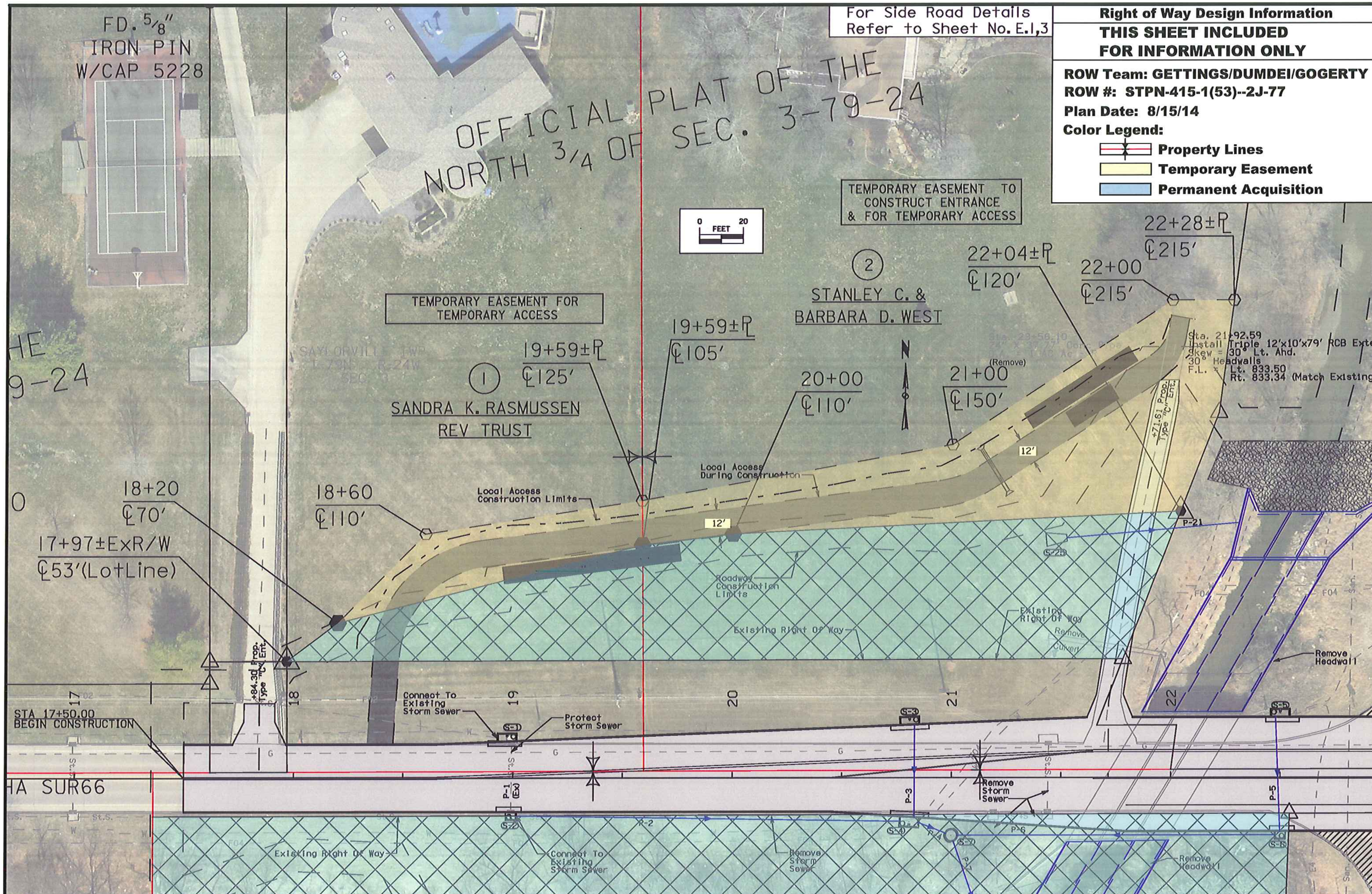

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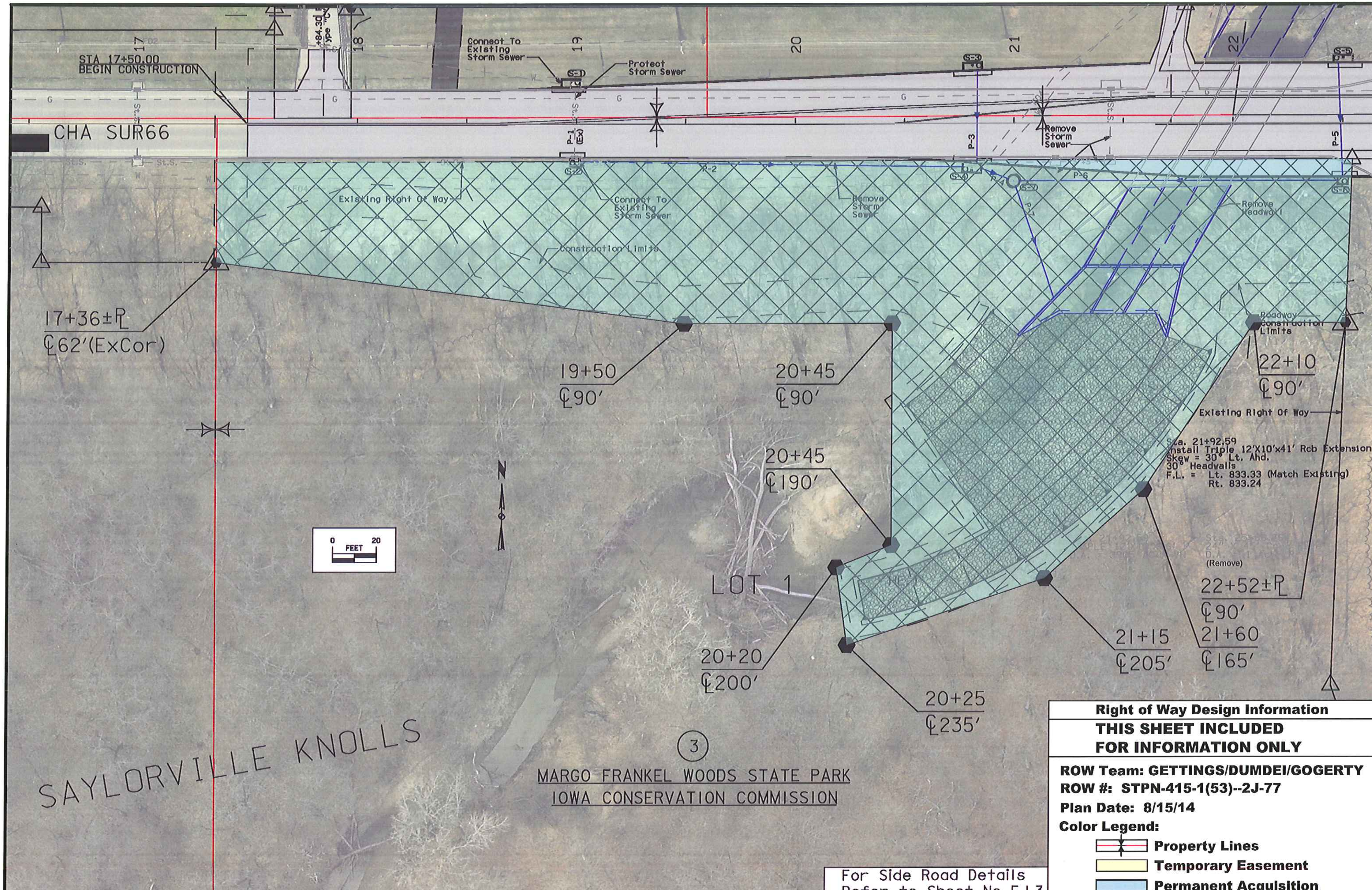

Right of Way Design Information

THIS SHEET INCLUDED FOR INFORMATION ONLY

ROW Team: GETTINGS/DUMDEI/GOGERTY
ROW #: STPN-415-1(53)--2J-77
Plan Date: 8/15/14
Color Legend:
- Property Lines
- Temporary Easement
- Permanent Acquisition

For Side Road Details
Refer to Sheet No. E.1.3

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	POLK COUNTY	PROJECT NUMBER	BRF-415-1(52)--38-77	SHEET NUMBER	HE.2

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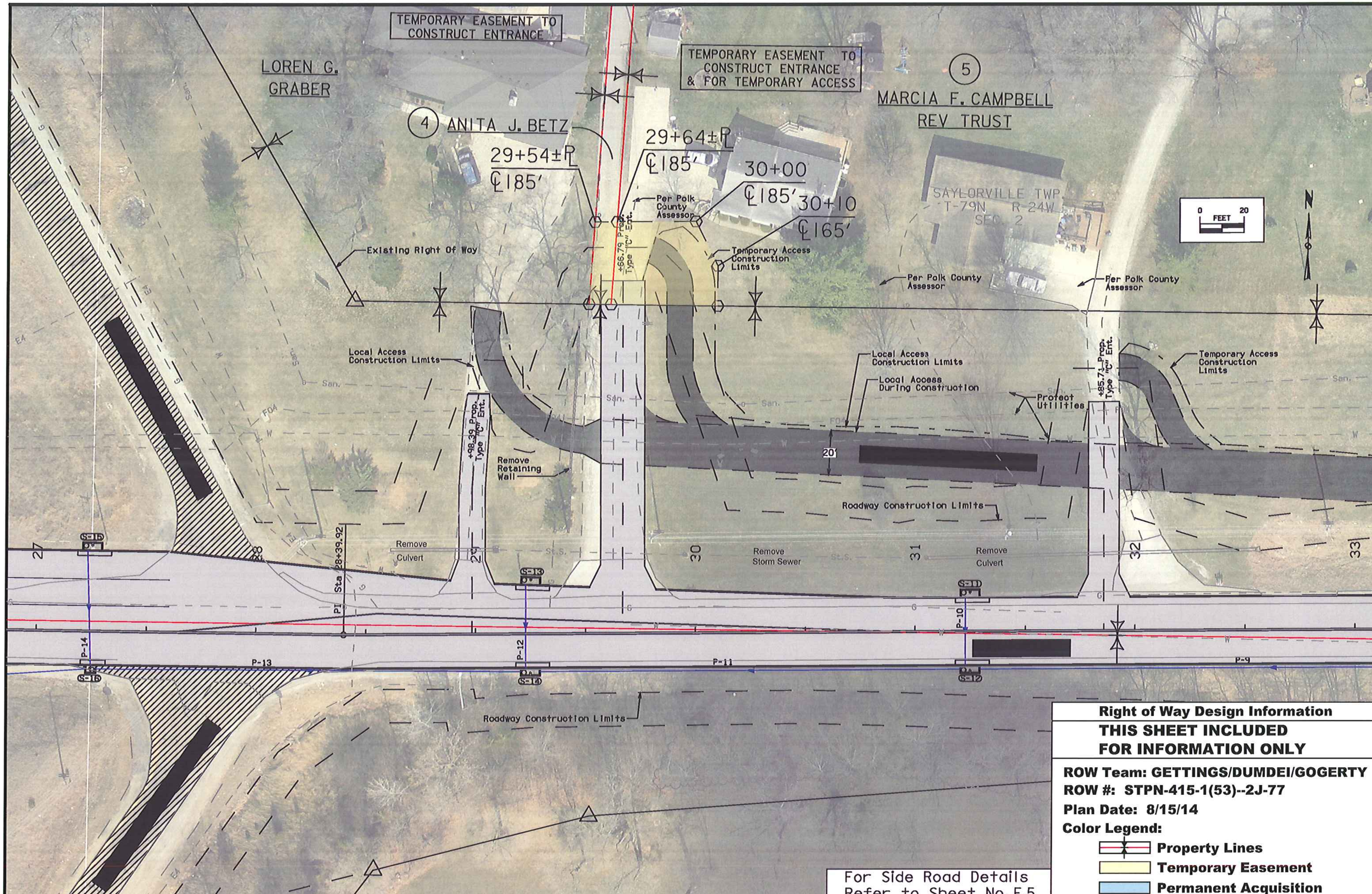
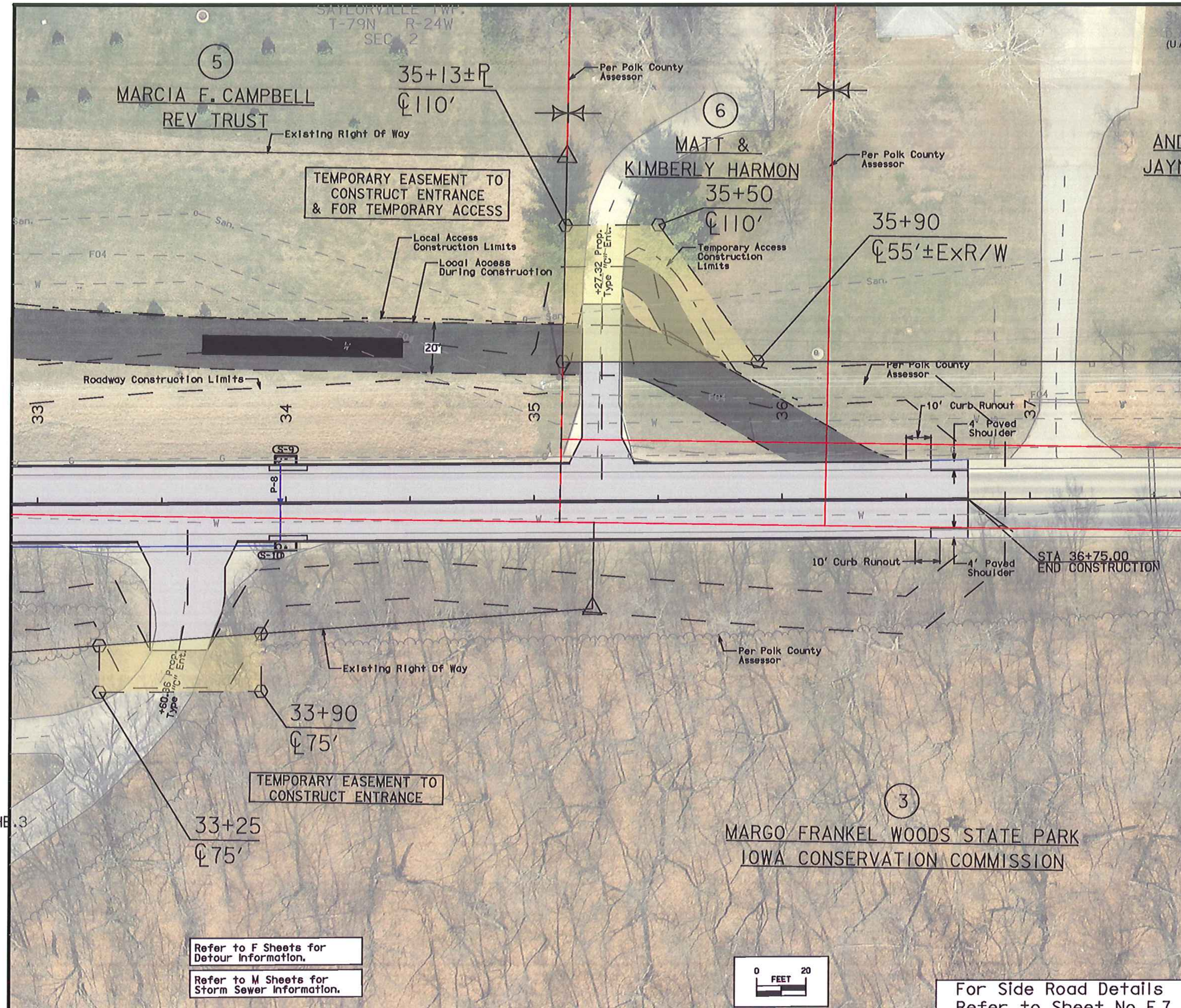


Right of Way Design Information

THIS SHEET INCLUDED FOR INFORMATION ONLY

ROW Team: GETTINGS/DUMDEI/GOGERTY
ROW #: STPN-415-1(53)--2J-77
Plan Date: 8/15/14
Color Legend:
Property Lines
Temporary Easement
Permanent Acquisition

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	POLK COUNTY	PROJECT NUMBER	BRF-415-1(52)--38-77	SHEET NUMBER	HE.3



Right of Way Design Information

THIS SHEET INCLUDED FOR INFORMATION ONLY

ROW Team: GETTINGS/DUMDEI/GOGERTY

ROW #: STPN-415-1(53)--2J-77

Plan Date: 8/15/14

Color Legend:

- **Property Lines**
- **Temporary Easement**
- **Permanent Acquisition**

FILE NO.	ENGLISH	DESIGN TEAM	COUNTY	PROJECT NUMBER	SHEET NUMBER	HE.4

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108-23A
08-01-08

TRAFFIC CONTROL PLAN

1. All 66th Avenue traffic shall be detoured as shown on Sheet J.6. Only local traffic will be allowed within the construction limits.
2. One lane of traffic in each direction shall be maintained on Ia Highway 415 at all times during construction.
3. Exit ramps shall be closed from Ia Highway 415 and 66th Avenue traffic during construction.
4. Median crossovers shall be included for staged construction of Ia Highway 415. Refer to plans and TC-61 for additional information.
5. Traffic control will be per the "TC" Series of the Standard Road Plans.
6. Access to local residential properties will be maintained throughout construction.

108-26A
08-01-08

STAGING NOTES

See Staging Plans for individual staging sections and plan views.

Construction of 66th Avenue can take place later in the sequencing of staging for Ia Highway 415. Coordinate with Iowa DOT and Engineer.

In general the construction staging shall be as follows.

IA HIGHWAY 415
Construct median crossovers prior to staged construction. Close inside lanes as required.

Stage 1
1. Shift northbound traffic to existing outside lane and install TBR, temporary shoring, and temporary pavement markings.
2. Construct temporary pavement markings and other items as noted in TC-61.
3. Shift southbound traffic to existing inside lane of northbound traffic according to TC-61 utilizing temporary median crossovers.
4. Remove and reconstruct southbound through lanes and right turn lane within the project limits.
5. Obliterate existing ramp terminals.
6. Remove the existing bridge in sections to maintain traffic on east portion of bridge.
7. Perform channel regrading along Saylor Creek and construct RCB extension.
8. Maintain access to Margo Frankel Wood State Park and Type C entrance at STA 263+60+/-
9. Maintain access to property owners during construction.
10. Provide interim drainage relief swales at 283+00, 287+00, and 296+00 across the proposed southbound lanes during major grading operations. Remove these swales during subgrade preparation and paving operations.
11. Utilize existing median intakes at 279+50 and 301+00 for temporary drainage during construction.

Stage 2
1. Install TBR and temporary pavement markings along newly constructed pavement.
2. Construct temporary pavement markings and other items as noted in TC-61.
3. Shift traffic to newly constructed southbound lanes according to TC-61 utilizing the temporary median crossovers.
4. Cut in relief swales at 279+50, 283+50, 288+00, 294+00, & 298+50 across the existing northbound lanes immediately after traffic has been shifted to new southbound lanes.
4. Remove remaining bridge structure.
5. Remove and reconstruct through northbound through lanes and right turn lane within the project limits.
6. Provide temporary access for properties at STA 300+30+/- during this stage. Use of existing shoulders during mainline paving is allowable. Construct driveway in stages to maintain access at all times.

Stage 3
1. Install traffic control in conformance with TC-418, shifting traffic to the outside lanes on the newly constructed pavement. Traffic will be divided during this stage.
2. Construct the southbound curb and gutter section, northbound and southbound left turn lanes, intersection pavement and median finishing.
3. Provide temporary access for properties at STA 300+30+/- during this stage. Allow access to these properties through the median break during construction. Construct the median break pavement in stages to allow access at all times.
4. The work within Stage 3 may be constructed within Stage 2 if approved by the Engineer. Additional traffic control and work area protections may be required.

66TH AVENUE
Close 66th Avenue to through traffic and post detour route.

Stage 1
1. Construct temporary detour routes for property owners along 66th Avenue.
2. Extend triple RCB along 66th Avenue.
3. Remove and replace 66th Avenue as shown in the plans.
4. Stage paving as required on 66th Avenue to maintain access to property owners and Park entrance.

Stage 2
1. Maintain detour route for 66th Avenue.
2. Construct remaining pavement along 66th Avenue while maintaining access to property owners and Park entrance.
3. Short term closure of Park entrance is allowable. Coordinate this closure with Iowa DOT, Engineer, and Iowa DNR.

CROSS SECTION VIEW COLOR LEGEND OF TRAFFIC CONTROL AND STAGING SHEETS

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

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

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

PLAN VIEW COLOR LEGEND OF TRAFFIC CONTROL AND STAGING SHEETS

LINEWORK	Design Color No.	
Green	(2)	Existing Topographic Features and Labels
Magenta	(5)	Pavement Marking Call Outs
Blue	(1)	Proposed Alignment, Stationing, Tic Marks, and Alignment Annotation
Yellow	(4)	Pavement Markings, Yellow
Off White	(254)	Pavement Markings, White

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

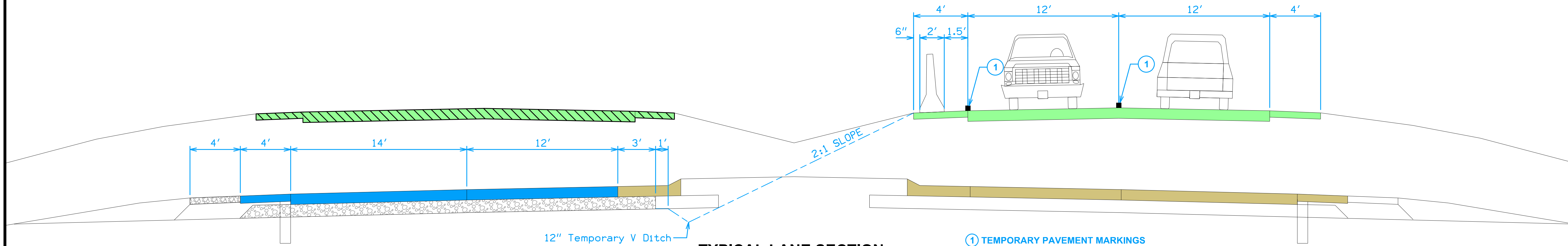
PLAN VIEW PATTERN AND SYMBOL LEGEND OF TRAFFIC CONTROL AND STAGING SHEETS

- Channelizing Device
- Crash Cushion
- Drum
- Traffic Signal
- Temporary Lane Separator
- Flagger
- Tubular Marker
- Temporary Floodlighting
- Channelizer Marker
- Traffic Sign
- Concrete Barrier Marker
- Type III Barricade
- Delineator
- Type A Warning Light
- Temporary Barrier Rail
- Direction of Traffic
- Pavement Removal
- Safety Closure

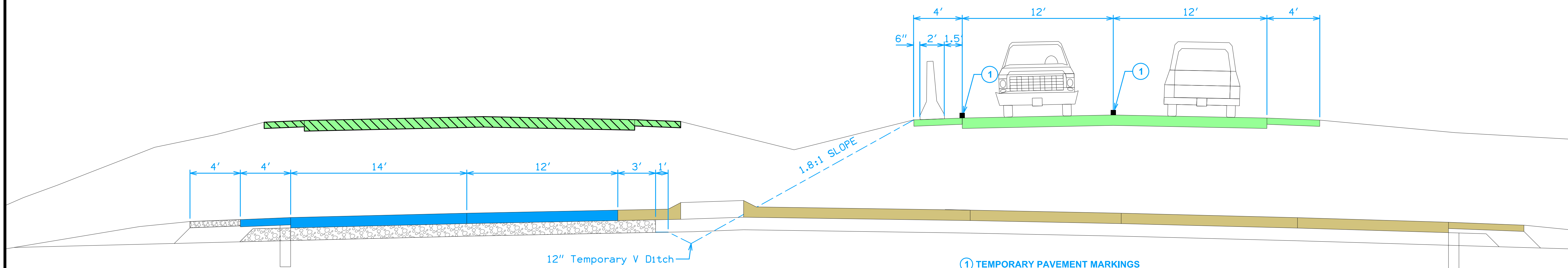
NOTE: Device spacing according to Standard Road Plans unless specifically dimensioned.

TRAFFIC CONTROL AND STAGING LEGEND AND SYMBOL INFORMATION SHEET

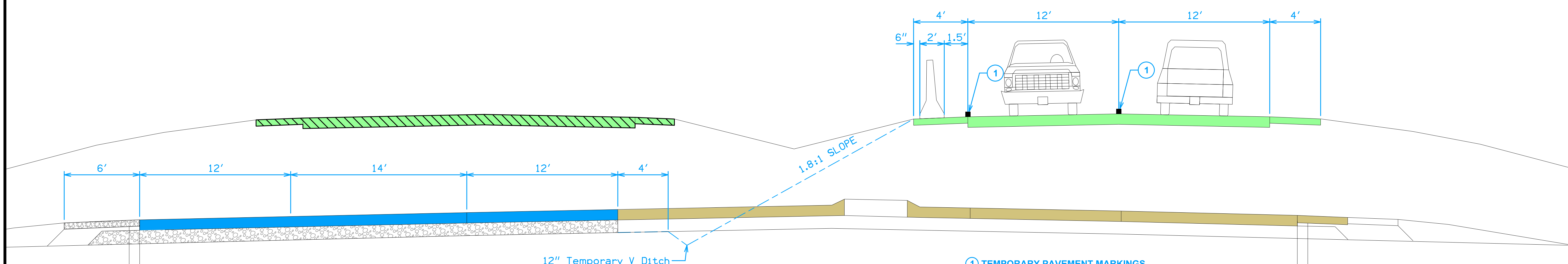
(COVERS SHEET SERIES J)



TYPICAL LANE SECTION
LOOKING NORTH



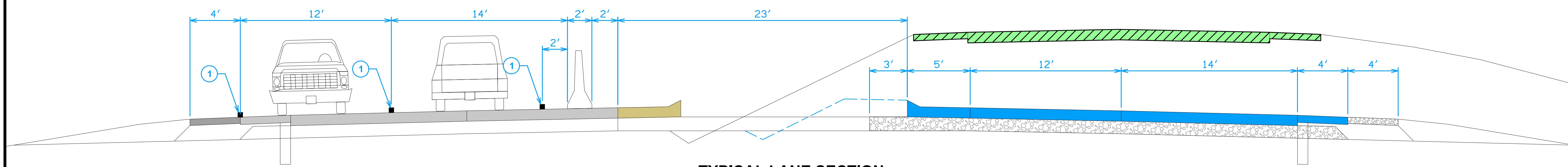
STA 287+34.37 THRU STA 291+17.32
AUXILLARY LANE SECTION
LOOKING NORTH



STA 292+12.51 THRU STA 296+45.51
AUXILLARY LANE SECTION
LOOKING NORTH

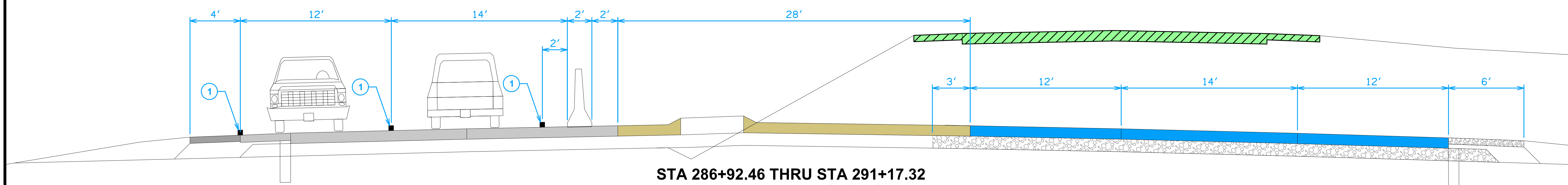
STAGE 1
HWY 415

C ENGLISH	IOWA DOT	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	POLK COUNTY	PROJECT NUMBER	BRF-415-1(52)--38-77	SHEET NUMBER	J.3



TYPICAL LANE SECTION
LOOKING NORTH

(1) TEMPORARY PAVEMENT MARKINGS



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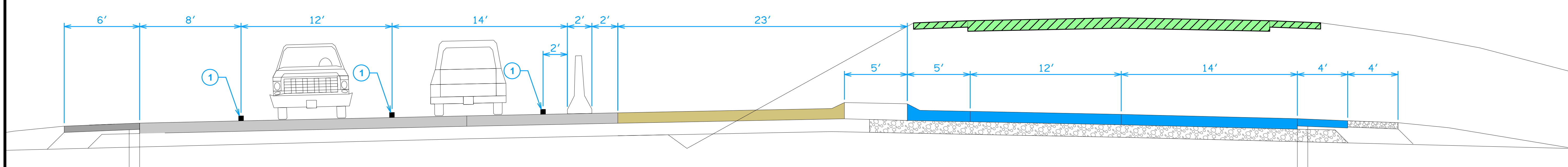
AUXILLARY LANE SECTION
LOOKING NORTH

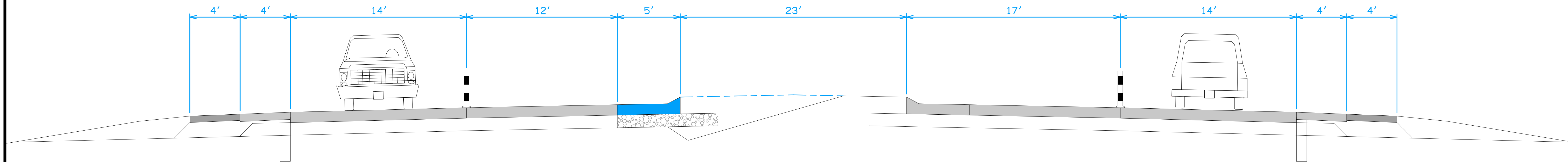
(1) TEMPORARY PAVEMENT MARKINGS



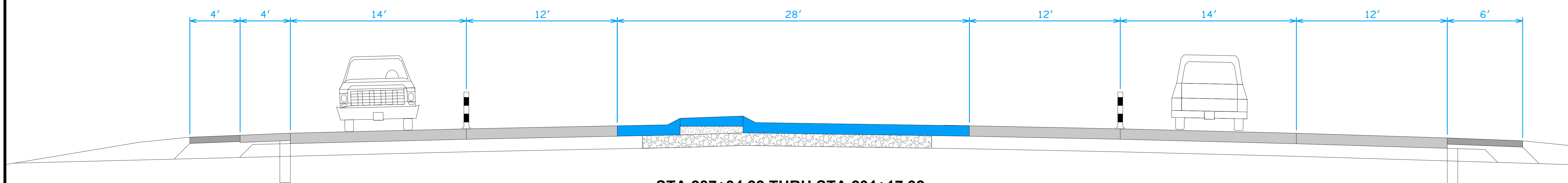
STA 292+12.51 THRU STA 295+75.51
AUXILLARY LANE SECTION
LOOKING NORTH

(1) TEMPORARY PAVEMENT MARKINGS

STAGE 2
HWY 415



TYPICAL LANE SECTION
LOOKING NORTH



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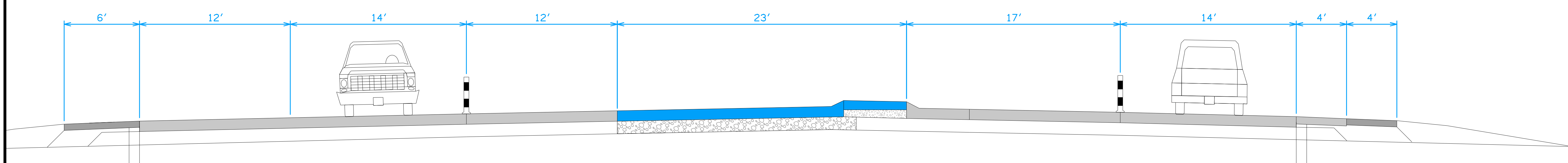
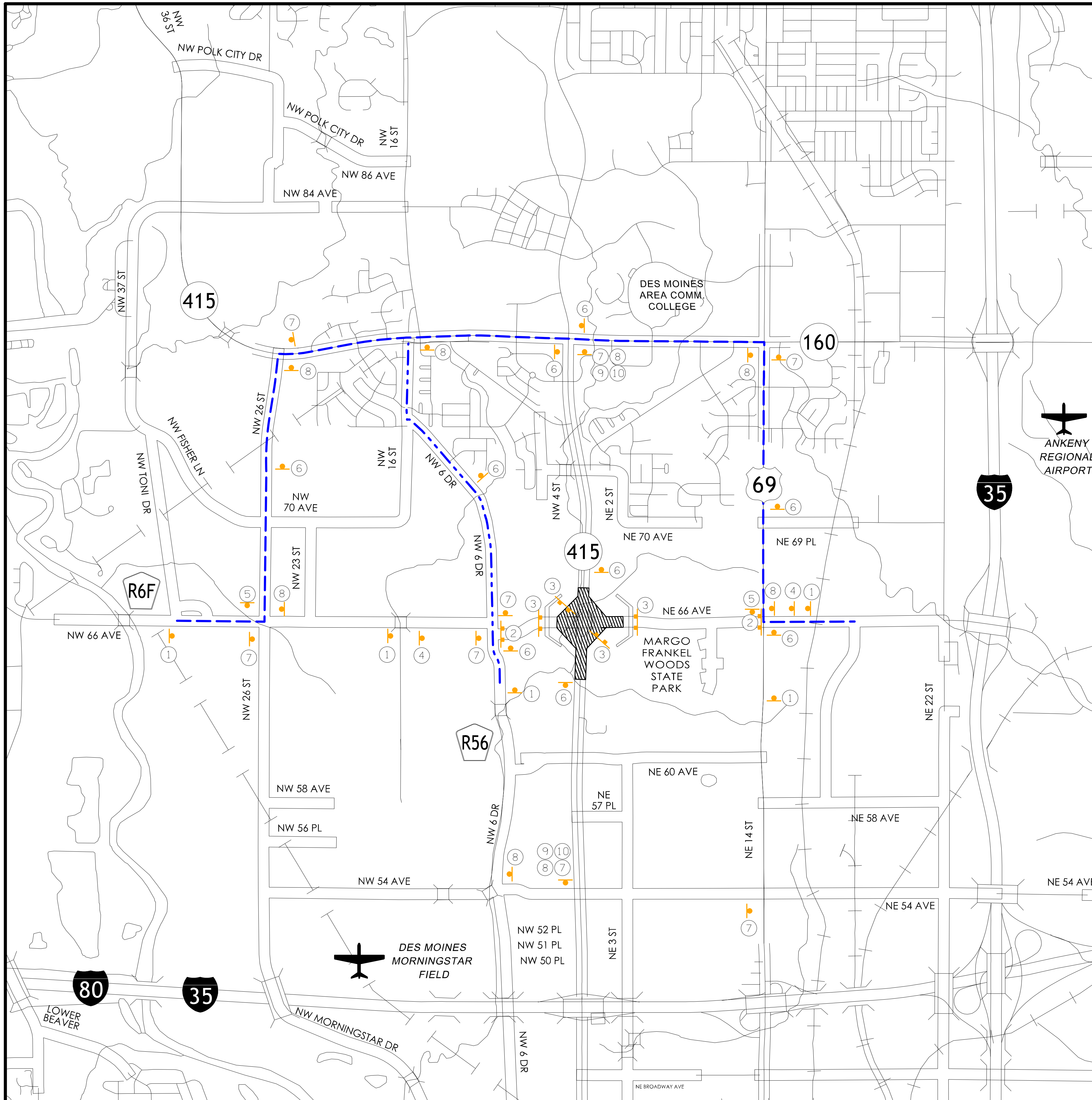
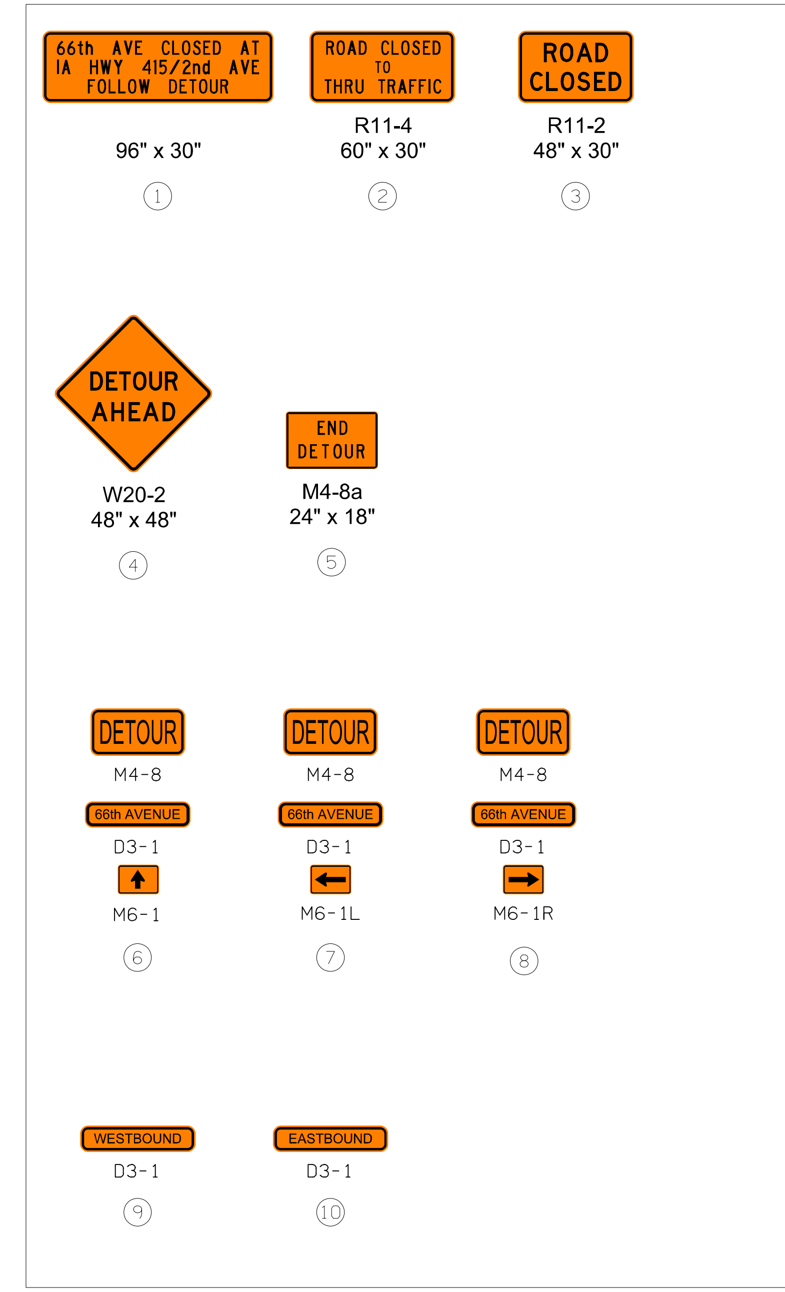
AUXILLARY LANE SECTION
LOOKING NORTH



STA 292+12.51 THRU STA 295+45.51
AUXILLARY LANE SECTION
LOOKING NORTH

STAGE 3
HWY 415





DETOUR ROUTE
66TH STREET

C	ENGLISH	IOWA DOT	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	POLK COUNTY	PROJECT NUMBER	BRF-415-1(52)--38-77	SHEET NUMBER	J.6

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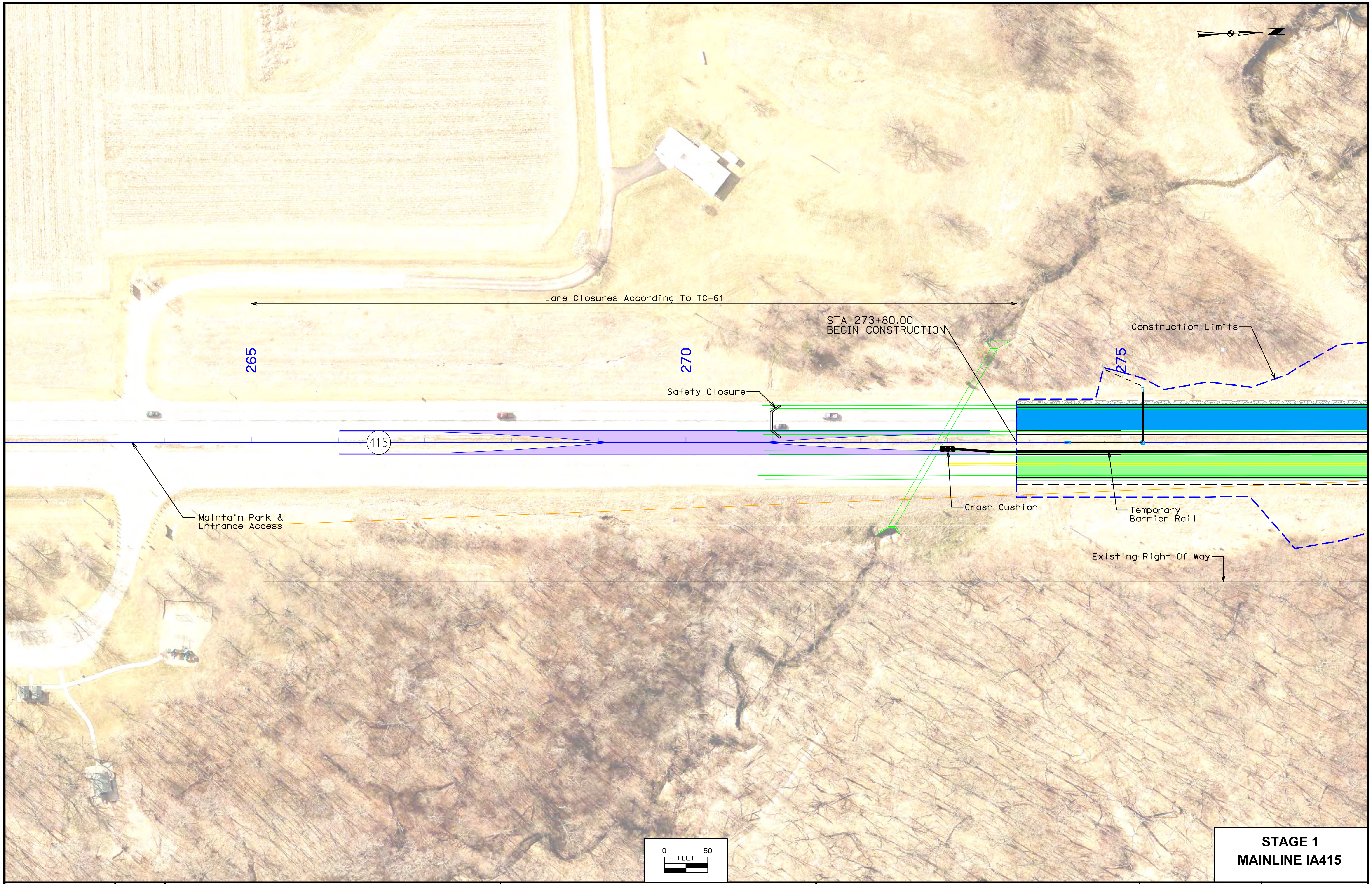

STAGE 1
MAINLINE IA415

C ENGLISH	IOWA DOT	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	POLK COUNTY	PROJECT NUMBER	BRF-415-1(52)--38-77	SHEET NUMBER	J.7

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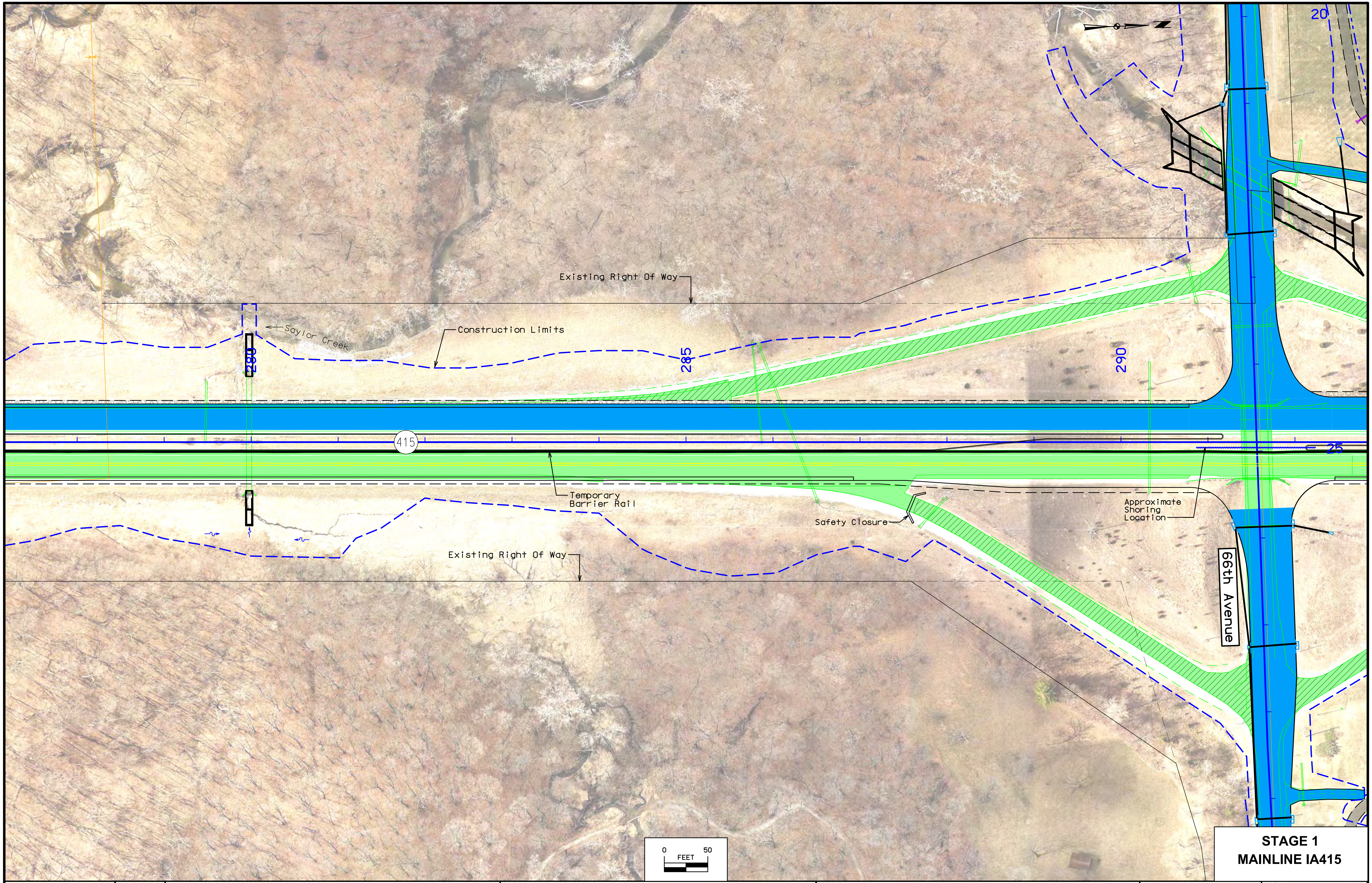

STAGE 1
MAINLINE IA415

ENGLISH	IOWA DOT	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	POLK COUNTY	PROJECT NUMBER	BRF-415-1(52)--38-77	SHEET NUMBER	J.8

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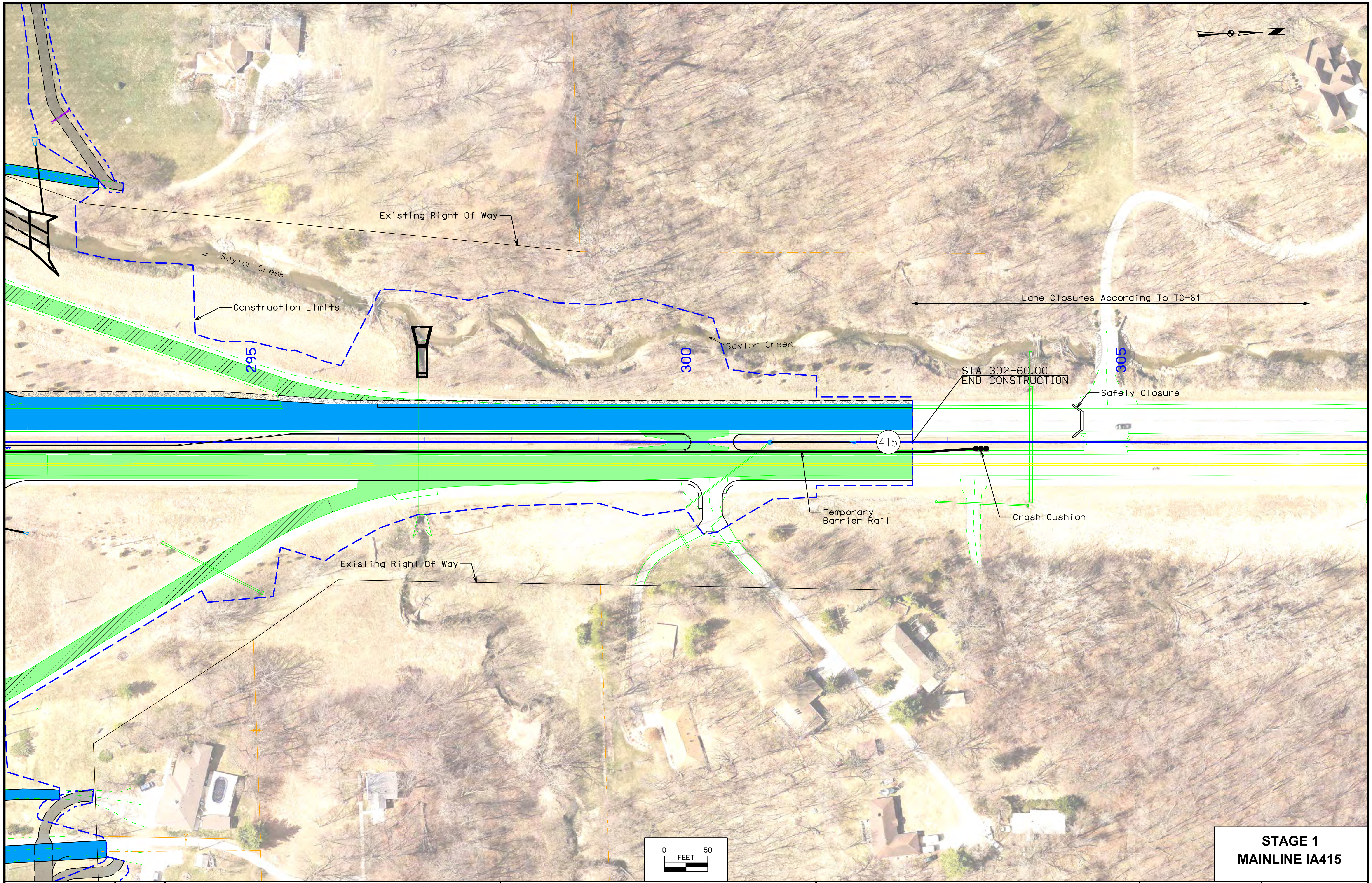

STAGE 1
MAINLINE IA415

C ENGLISH	IOWA DOT	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	POLK COUNTY	PROJECT NUMBER	BRF-415-1(52)--38-77	SHEET NUMBER	J.9	

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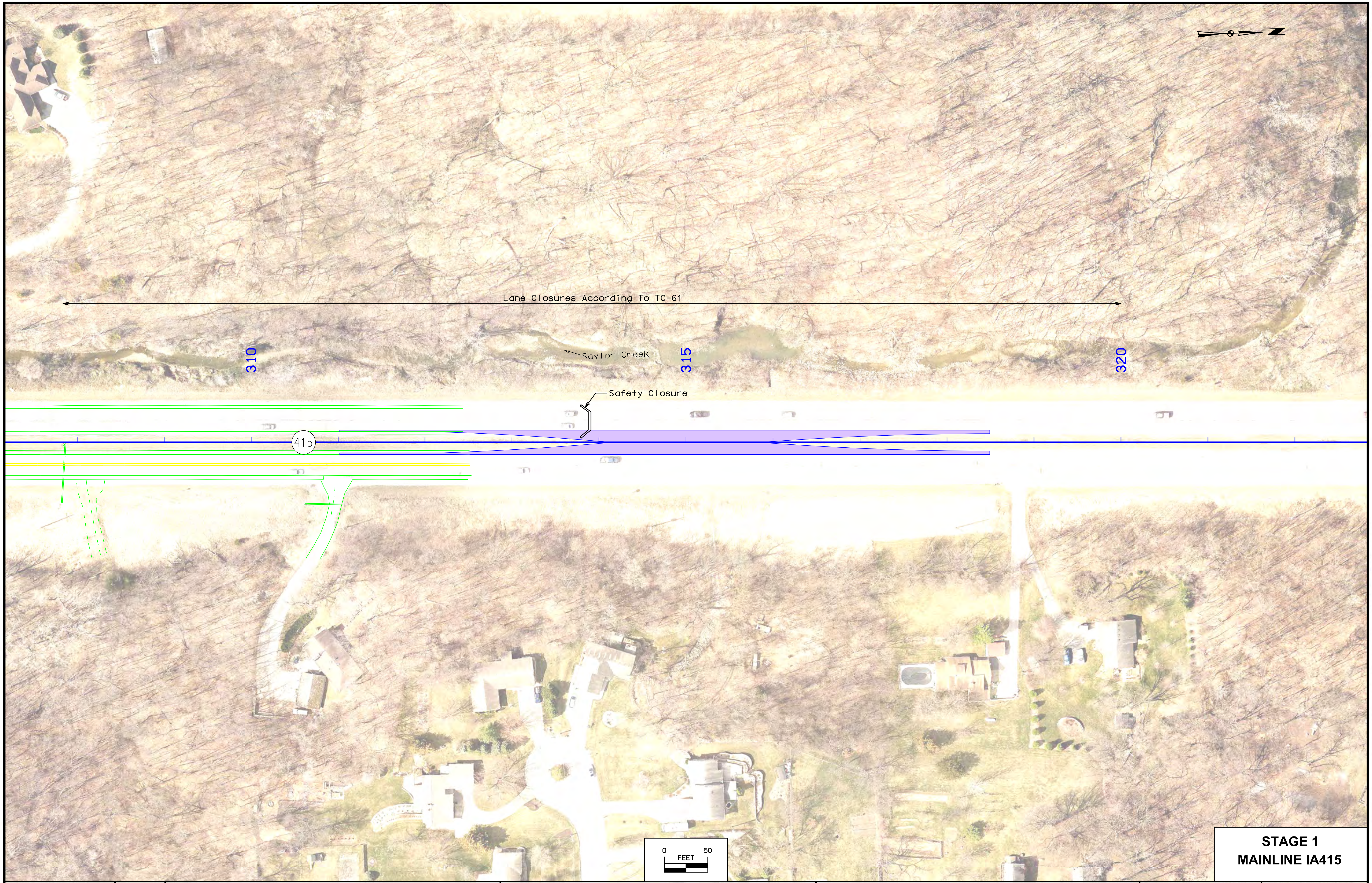
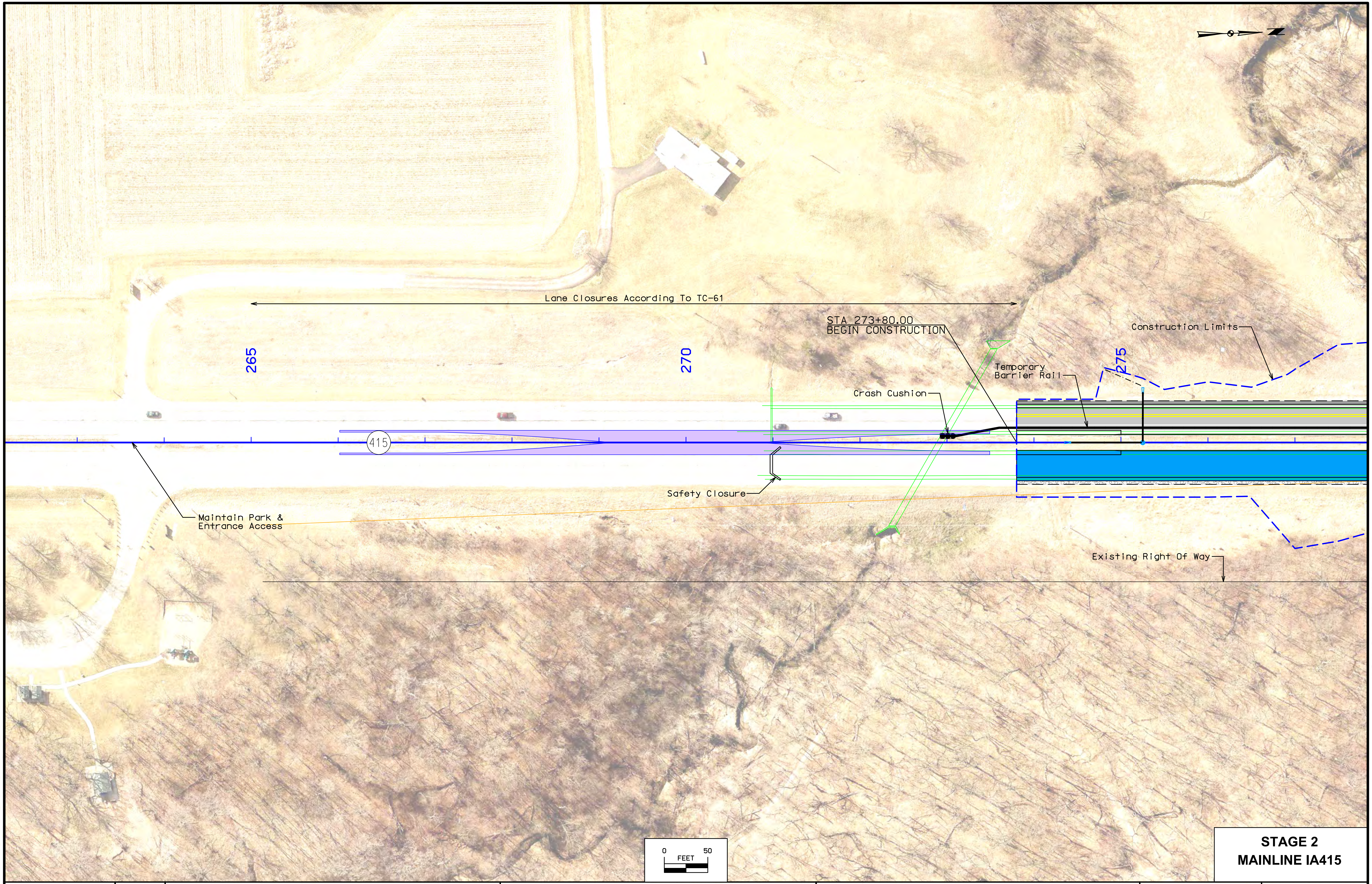
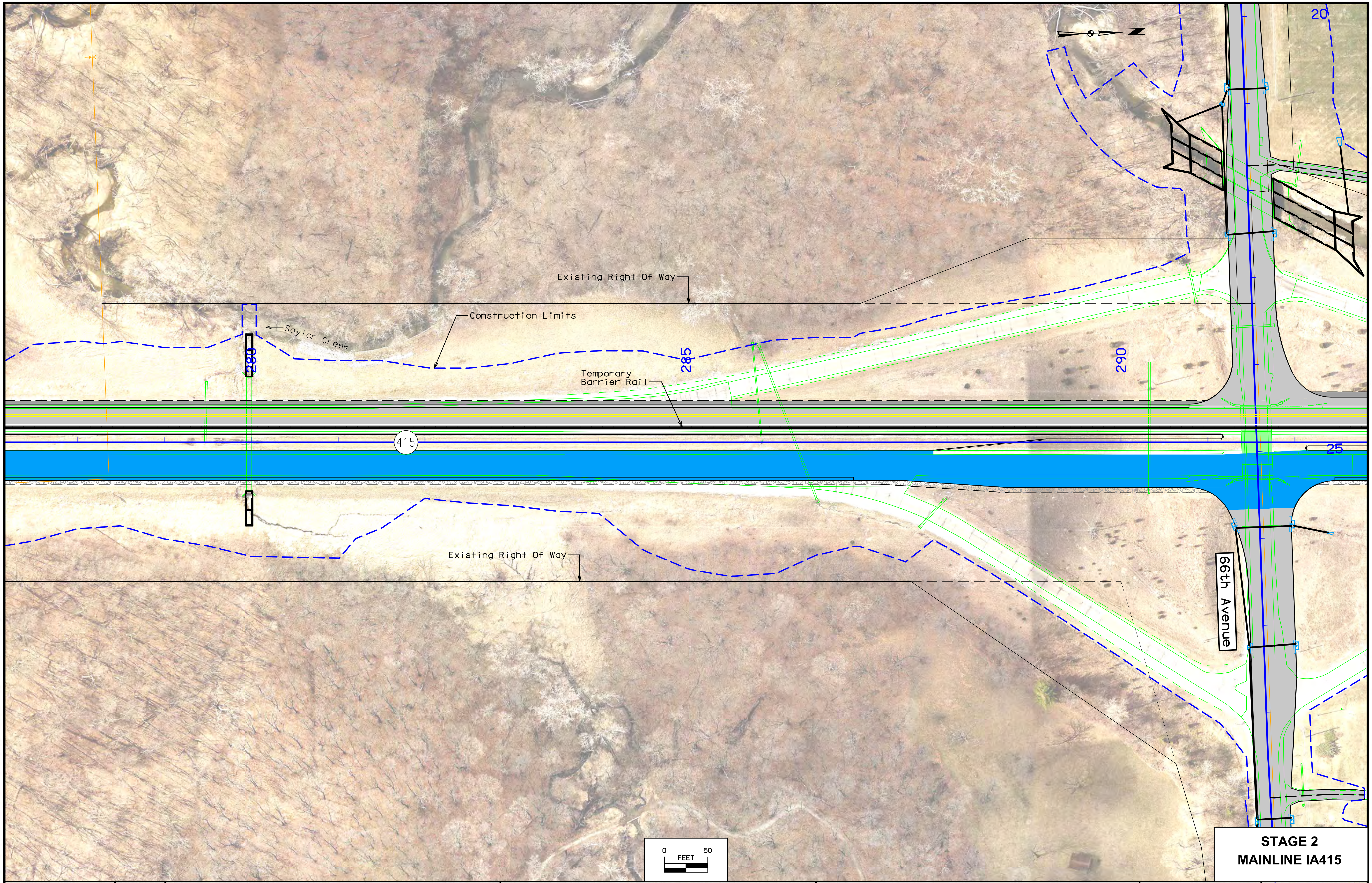


STAGE 1
MAINLINE IA415



STAGE 2
MAINLINE IA415



STAGE 2
MAINLINE IA415

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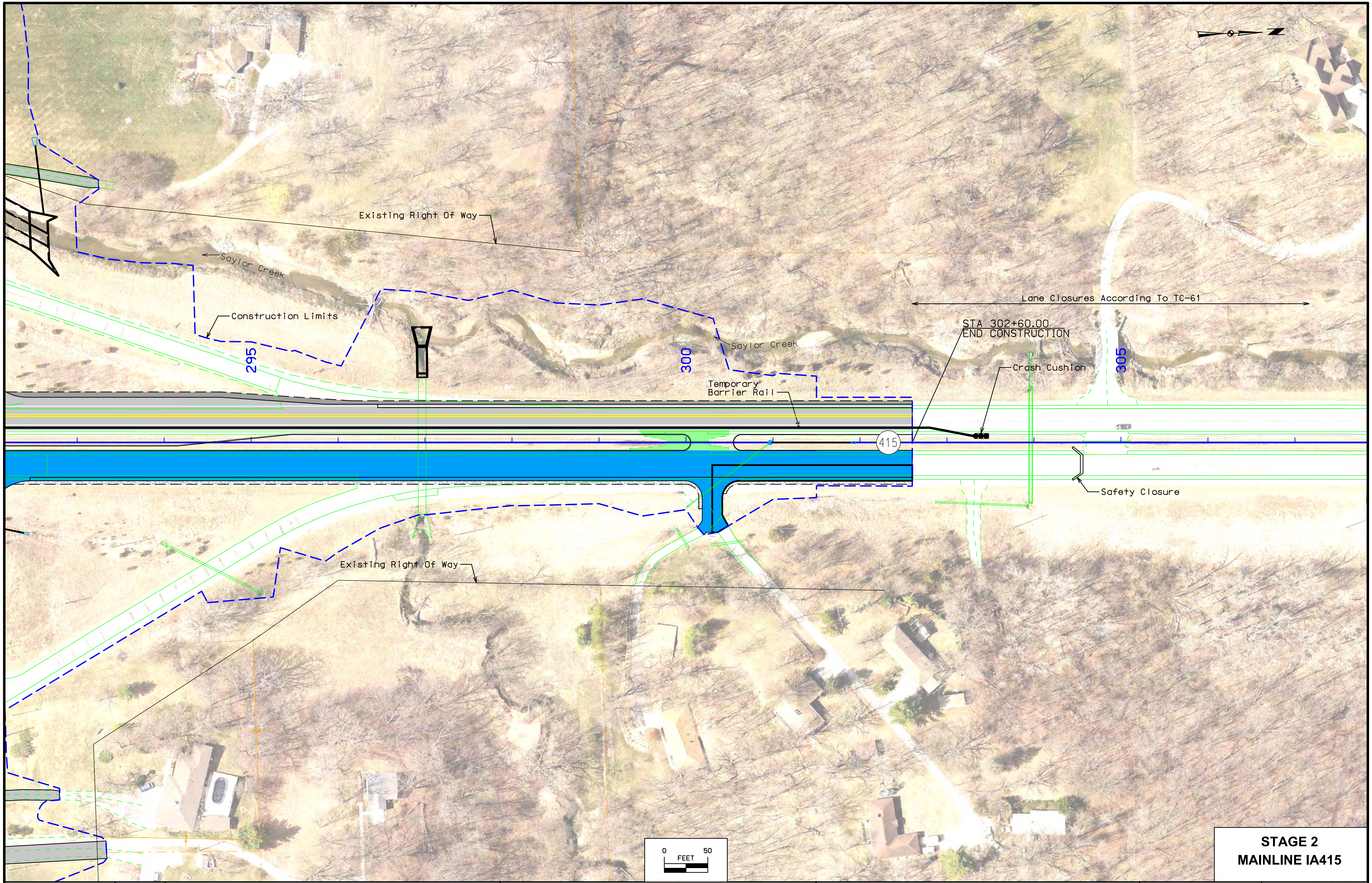

STAGE 2
MAINLINE IA415

C ENGLISH	IOWA DOT	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	POLK COUNTY	PROJECT NUMBER	BRF-415-1(52)--38-77	SHEET NUMBER	J.13

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STAGE 2
MAINLINE IA415

ENGLISH	IOWA DOT	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	POLK COUNTY	PROJECT NUMBER	BRF-415-1(52)--38-77	SHEET NUMBER	J.14

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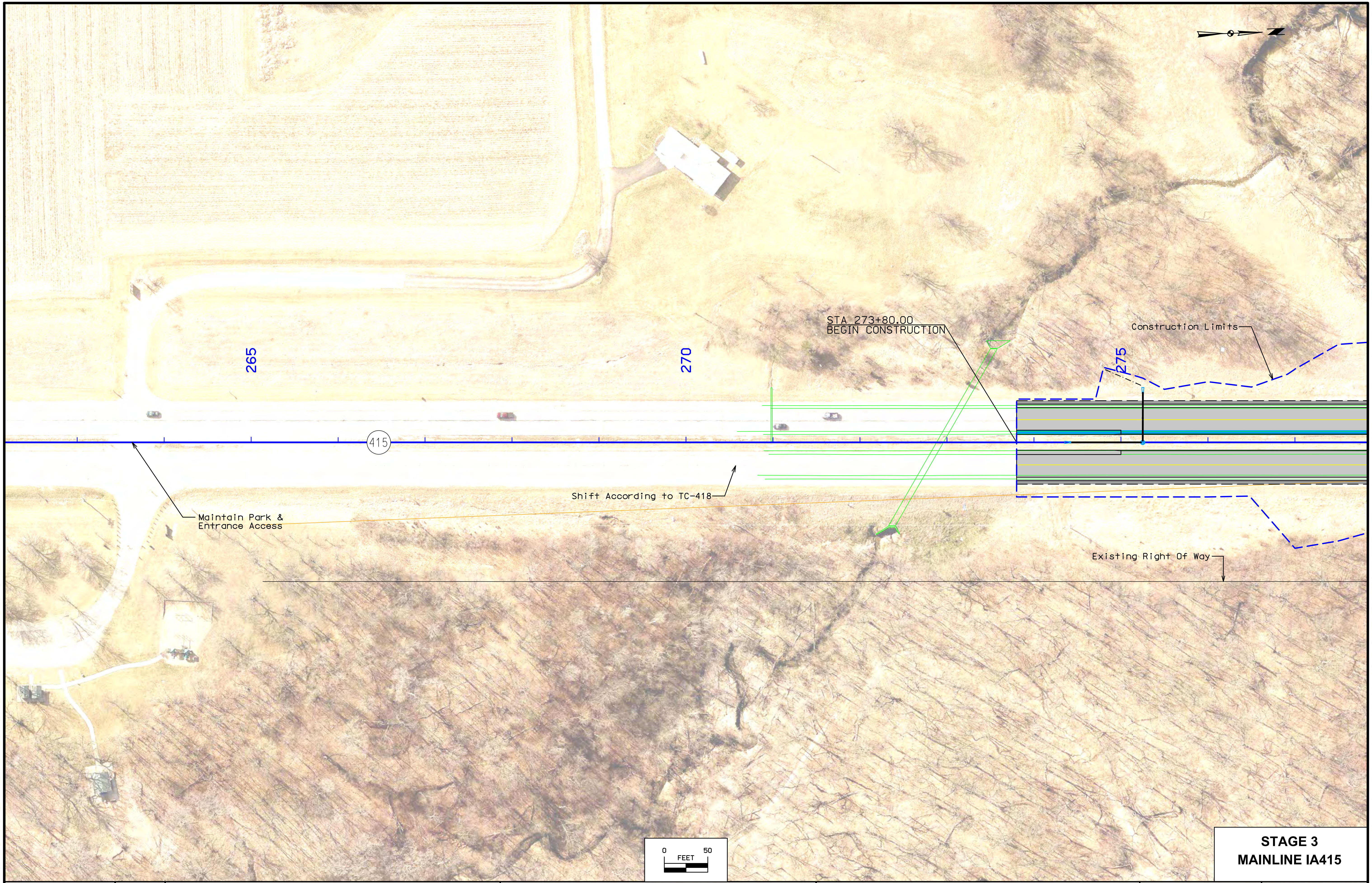

STAGE 3
MAINLINE IA415

C ENGLISH	IOWA DOT	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	POLK COUNTY	PROJECT NUMBER	BRF-415-1(52)--38-77	SHEET NUMBER J.15

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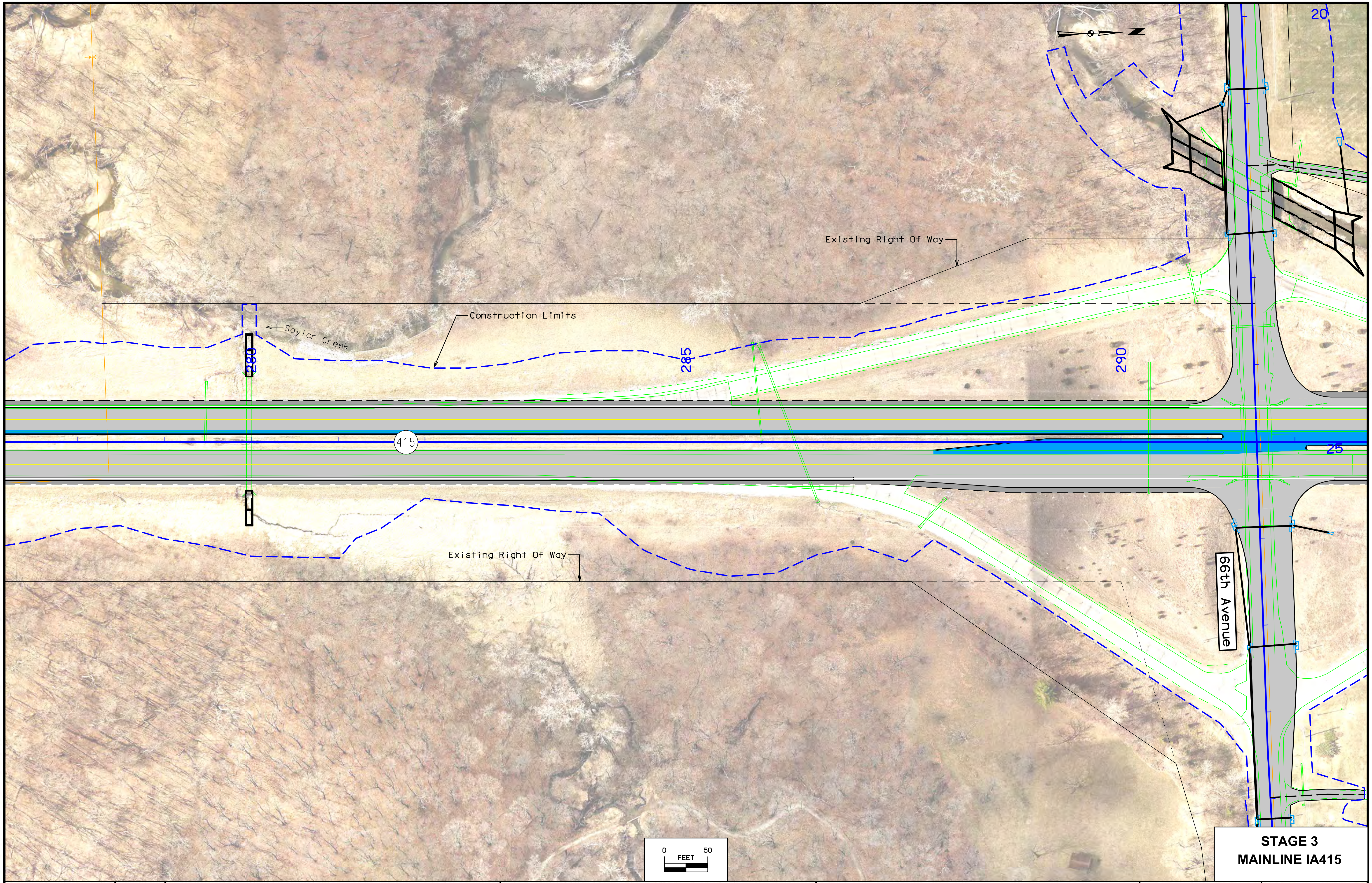

STAGE 3
MAINLINE IA415

ENGLISH	IOWA DOT	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	POLK	COUNTY	PROJECT NUMBER	BRF-415-1(52)--38-77	SHEET NUMBER	J.16

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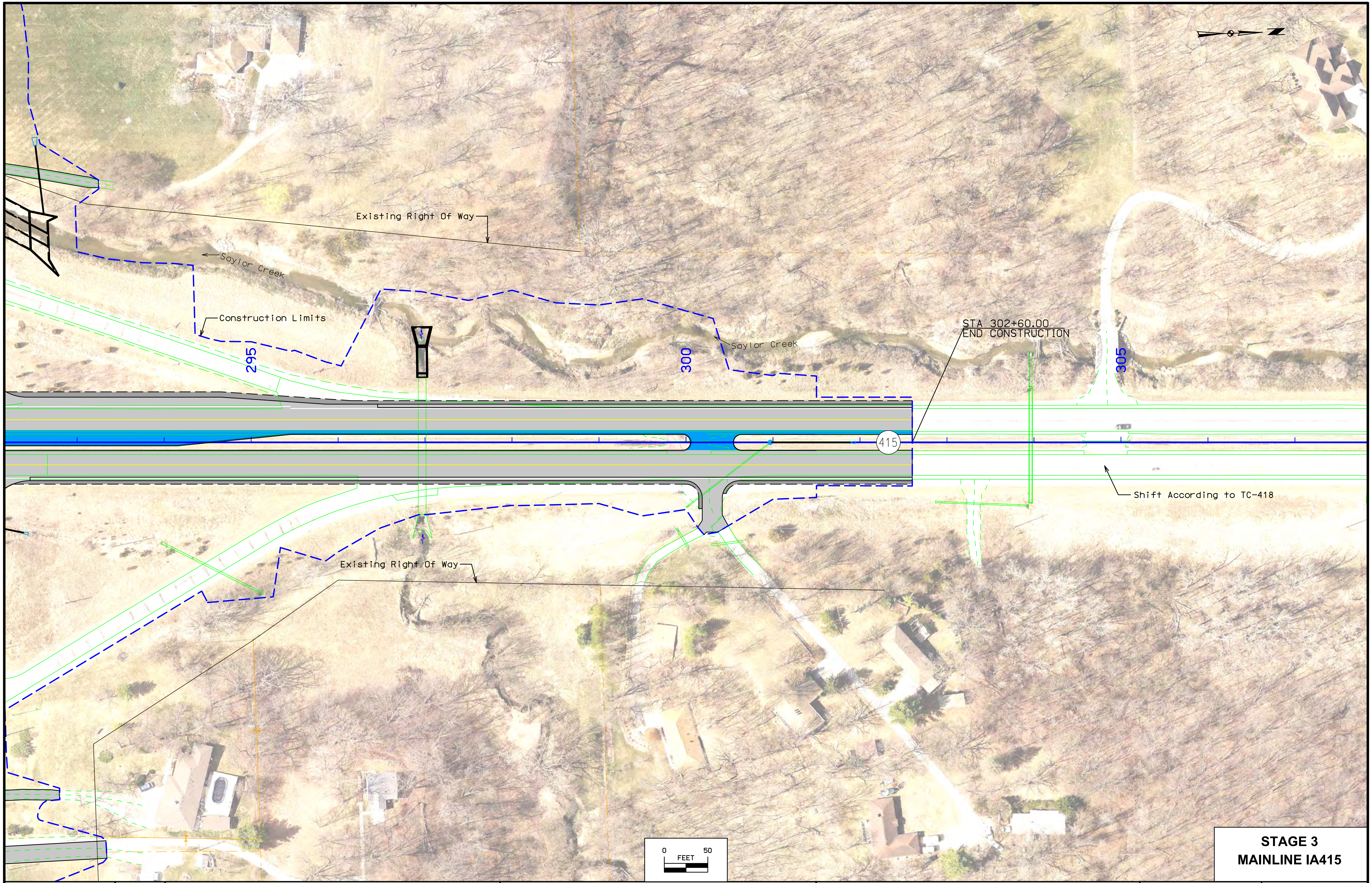

STAGE 3
MAINLINE IA415

C	ENGLISH	IOWA DOT	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	POLK COUNTY	PROJECT NUMBER	BRF-415-1(52)--38-77	SHEET NUMBER J.17

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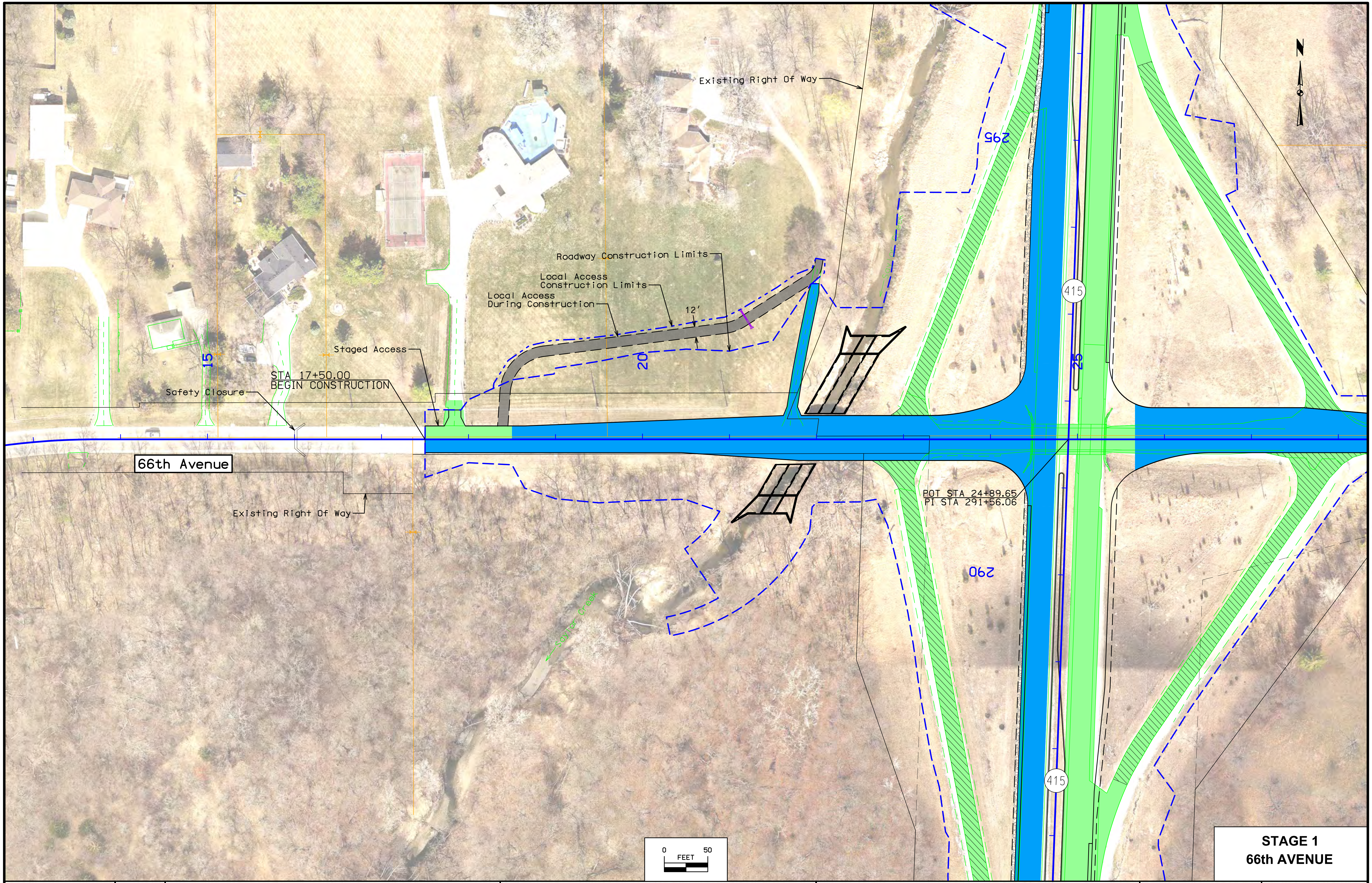

STAGE 1
66th AVENUE

ENGLISH	IOWA DOT	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	POLK COUNTY	PROJECT NUMBER	BRF-415-1(52)--38-77	SHEET NUMBER	J.18

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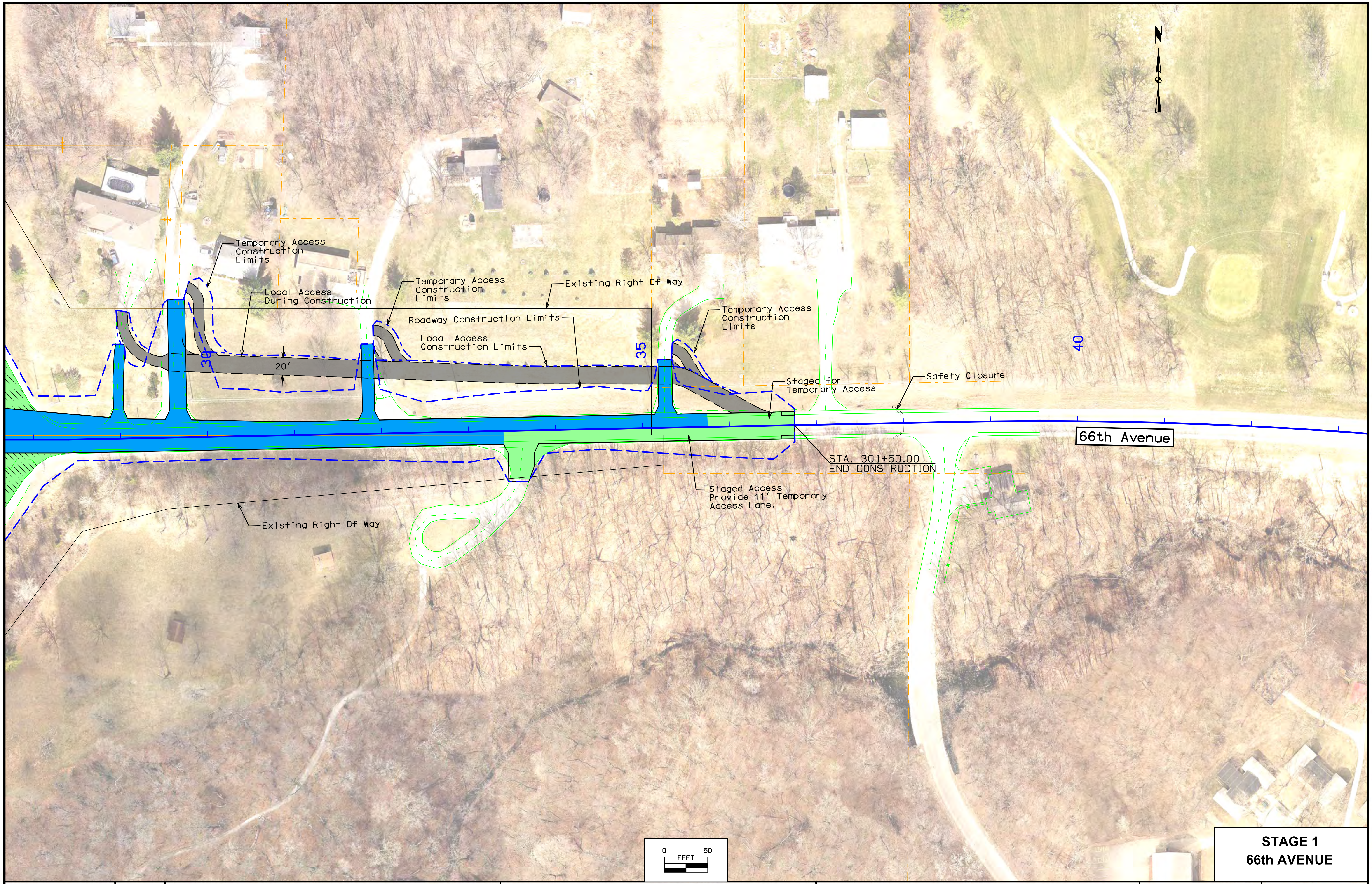

STAGE 1
66th AVENUE

ENGLISH	IOWA DOT	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	POLK COUNTY	PROJECT NUMBER	BRF-415-1(52)--38-77	SHEET NUMBER	J.19

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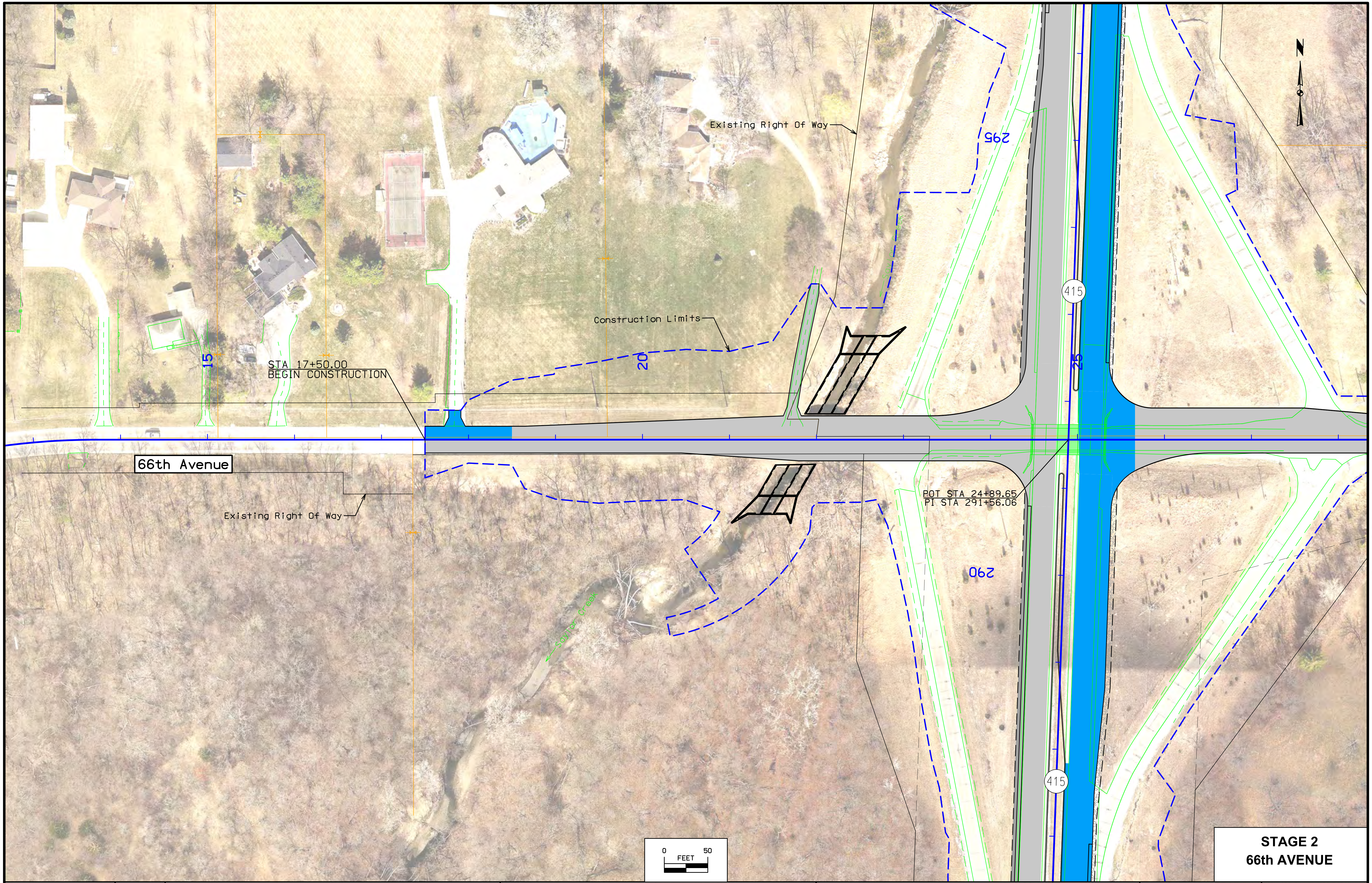

STAGE 2
66th AVENUE

ENGLISH	IOWA DOT	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	POLK COUNTY	PROJECT NUMBER	BRF-415-1(52)--38-77	SHEET NUMBER	J.20

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STAGE 2
66th AVENUE

ENGLISH	IOWA DOT	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	POLK COUNTY	PROJECT NUMBER	BRF-415-1(52)--38-77	SHEET NUMBER	J.21

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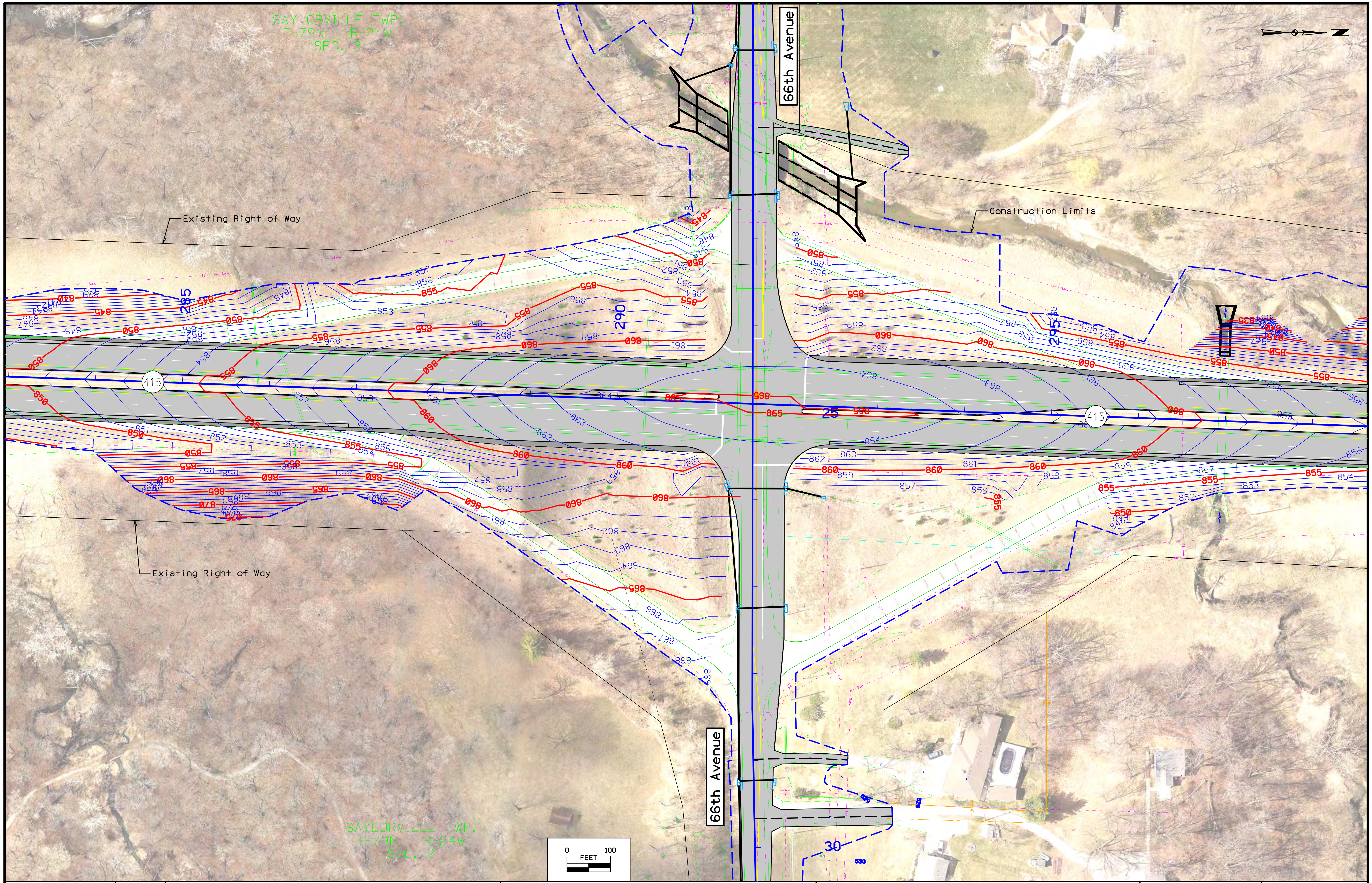


ENGLISH	IOWA DOT	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	POLK COUNTY	PROJECT NUMBER	BRF-415-1(52)--38-77	SHEET NUMBER	K.1

12:22:17 PM 6/20/2014 V8i_IDOTRoadD:\1120800L\Cadd\Design\77415052k01.sht

STORM SEWER

* Bid Item
** For SW-545

For bedding and backfill purposes under Primary roads, use material complying with Article 4120.04 (Class A Crushed Stone) of the Standard Specifications for all bedding and backfill. Place and compact the material according to Article 2435.03, A and Article 2552.03, E (Class I materials).

INTAKES AND UTILITY ACCESSES

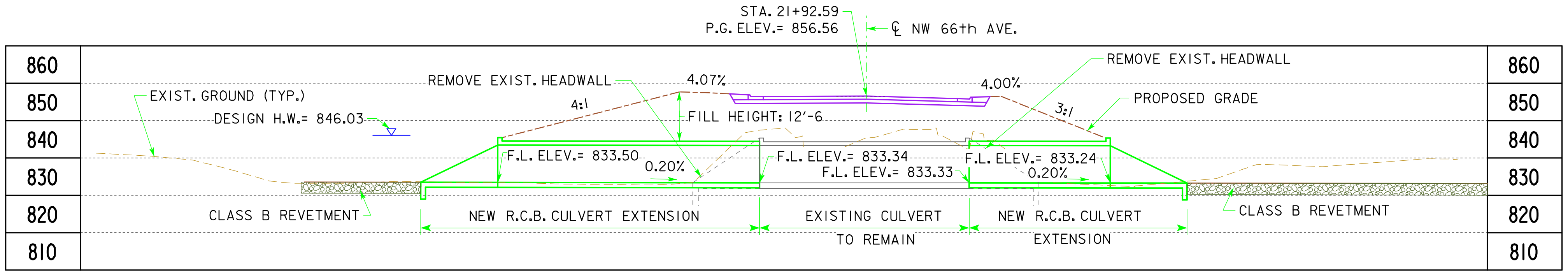
No.	Location Station and Offset	*Type or Standard Road Plan	Form Grade Elev.	Bottom Well Elev.	Extension Length** FT	Notes
S-1	19+00.00, -16.92	SW-509	858.26	851.20		
S-2	19+00.00, 15.50	SW-507	858.29	850.00		
S-3	20+80.97, -24.15	SW-509	854.82	849.07		
S-4	20+80.97, 17.92	SW-510	854.95	846.50		
S-5	22+50.00, -27.50	SW-509	857.59	851.84		
S-6	22+50.00, 24.50	SW-507	857.65	851.02		
S-7	21+00.00, 26.00	SW-401	855.34	834.49		60" Diameter, Rim = F/G
S-8	NOT USED					NOT USED
S-9	34+00.00, -15.50	SW-509	904.96	899.21		
S-10	34+00.00, 15.50	SW-509	904.96	898.60		
S-11	31+25.00, -15.50	SW-509	890.71	884.96		
S-12	31+25.00, 15.50	SW-509	890.71	884.35		
S-13	29+25.00, -22.21	SW-509	878.58	872.83		
S-14	29+25.00, 15.50	SW-509	878.71	871.77		
S-15	27+25.00, -36.50	SW-509	866.41	860.66		
S-16	27+25.00, 15.50	SW-507	866.83	859.84		
S-17	25+85.00, 27.80	SW-509	863.02	856.80		
S-18	25+85.00, -36.53	SW-509	862.84	854.36		
S-19	25+97.80, -83.97	RF-3	858.00			18" Diameter Outlet, F/L = F/G
S-20	274+40.00, -0.02	RF-27	861.75			Beveled Pipe and Guard, 15" Diameter
S-21	275+25.00, 0.00	SW-401	859.64	855.20		48" Diameter, Rim = F/G
S-22	275+25.00, -87.33	RF-3	854.90			15" Diameter Outlet, F/L = F/G
S-23	301+90.00, 0.00	RF-27	854.00			Beveled Pipe and Guard, 15" Diameter
S-24	300+96.86, 0.00	SW-401	856.66	850.99		48" Diameter, Rim = F/G
S-25	21+42.89, -107.0	RF-3	840.3			24" Diameter Outlet, F/L = F/G

PIPES

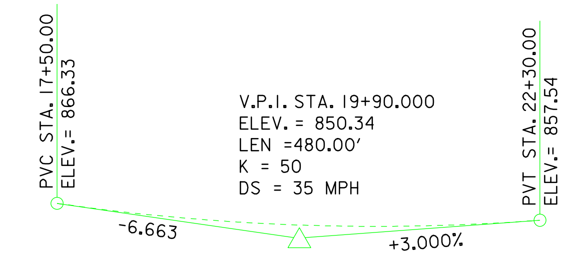
Design Length, Slope, and Flowlines are calculated from inside wall to inside wall along CL of pipe. An additional 6 ft length is added to Design Length to account for estimated length to center of structures.

Line Number	Intake/Utility Access No. From	To	Class 'D'	Pipe Diameter IN	Bid* Length FT	Design Length FT	Slope %	Flow Lines Inlet Elevation	Flow Lines Outlet Elevation	Flow Lines Other Elevation	Pipe Profile Sheet No.	Notes
P-1	S-1	S-2	2000	15	38.5	32.5	1.75	851.70	851.13			Existing Pipe
P-2	S-2	S-4	2000	15	180.9	174.9	1.50	850.50	847.88			
P-3	S-3	S-4	2000	15	48.3	42.3	1.00	849.57	849.15			
P-4	S-4	S-7	2000	24	19.8	13.8	1.00	847.00	846.86			
P-5	S-5	S-6	2000	15	58.1	52.1	1.00	852.34	851.82			
P-6	S-6	S-7	2000	15	151.5	145.5	1.00	851.52	850.06			
P-7	S-7	S-8	3000	24	55	49	1.00	835.49	835.00			R-2 Bedding, Outlet into RCB wingwall
P-8	S-9	S-10	2000	15	37	31	1.00	899.71	899.40			
P-9	S-10	S-12	2000	15	273	267	5.00	899.10	885.75			
P-10	S-11	S-12	2000	15	37	31	1.00	885.46	885.15			
P-11	S-12	S-14	2000	15	198	192	6.00	884.85	873.33			
P-12	S-13	S-14	2000	15	43.8	37.8	2.00	873.33	872.57			
P-13	S-14	S-16	2000	15	200.3	194.3	6.00	872.27	860.61			
P-14	S-15	S-16	2000	15	58.1	52.1	1.00	861.16	860.64			
P-15	S-16	S-17	2000	15	140.2	134.2	2.00	860.34	857.65			
P-16	S-17	S-18	2000	18	69.6	63.6	1.00	857.30	856.66			
P-17	S-18	S-19	2000	18	45.6	39.6	1.50	854.86	854.27			
P-18	S-20	S-21	2000	15	87.5	81.5	10.00	864.05	855.90			
P-19	S-21	S-22	2000	15	85.3	79.3	1.00	855.70	854.90			
P-20	S-23	S-24	2000	15	95.7	89.7	2.47	854.00	851.79			
P-21	S-25	S-26	2000	24	88.4	88.4	4.86	840.3	836			Outlet into RCB wingwall

BENCH MARK: #515, FOUND CUT "X" IN OUTLET HEADWALL OF 36" RCP STA. 303+96.14, 63.91' LT. (HWY 415 STATIONING) ELEV.= 850.82



LONGITUDINAL SECTION ALONG ℄ CULVERT



PROPOSED PROFILE GRADE
NW 66th AVENUE

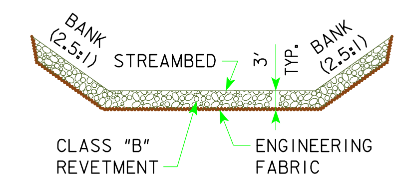
TRAFFIC ESTIMATE

2012 AADT	5,400	V.P.D.
2037 AADT	8,860	V.P.D.
DHV	-	V.P.H.
TRUCKS	5	%
TOTAL DESIGN ESALs	-	

HYDRAULIC DATA

DRAINAGE AREA = 6.1 SQ. MI.
Q_{50} = 3,690 CFS
Q_{100} = 4,395 CFS
Q_{500} = 5,940 CFS
HW ELEV. = 846.03'
STREAM SLOPE = 11.09 FT./MI.

100 YR. DISCHARGES FROM POLK COUNTY F.I.S., DATED JULY 19, 2000. F.I.S. DATUM (NGVD29) 0.125 FT. BELOW PROJECT DATUM (NAVD88).



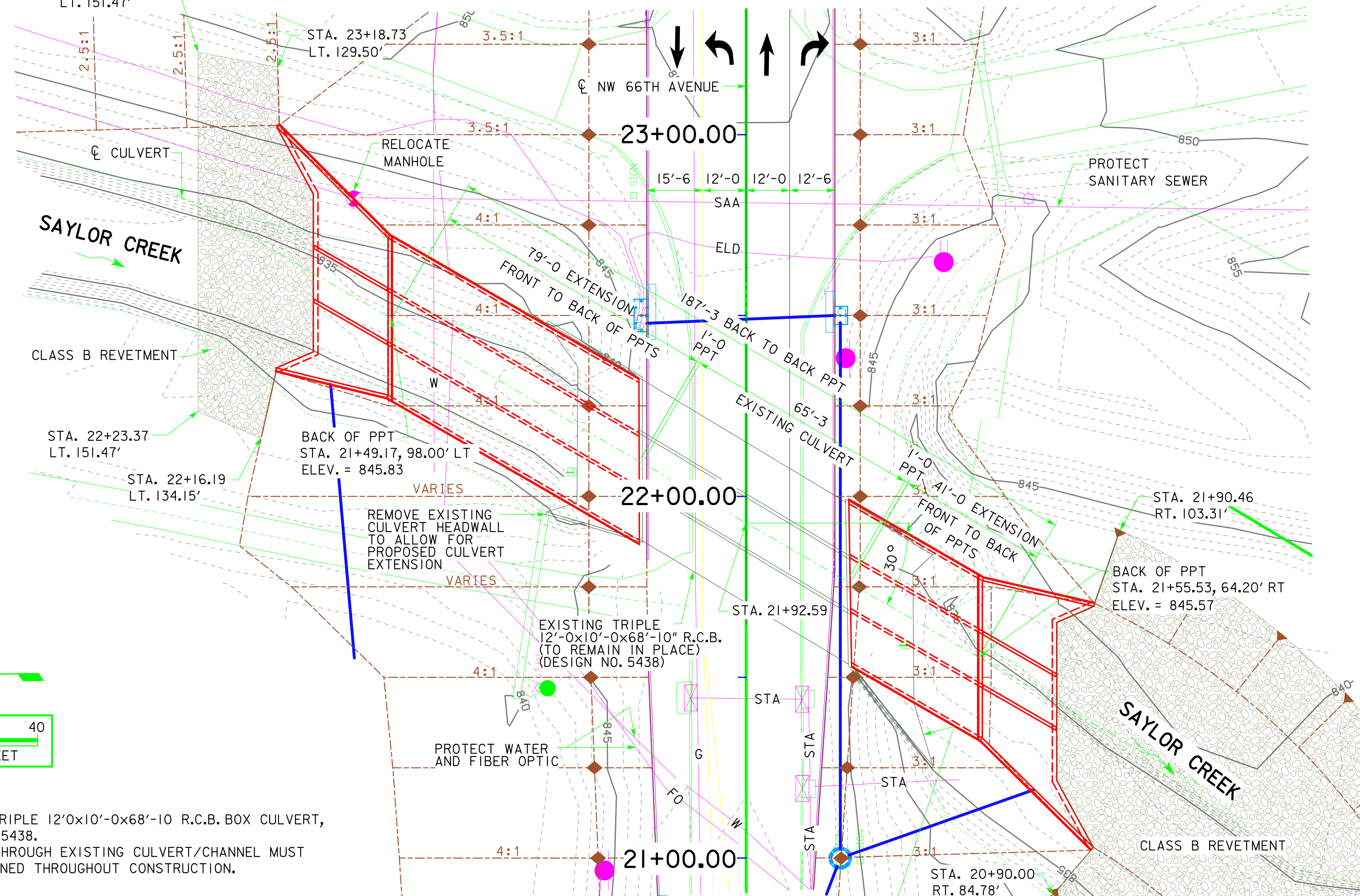
SECTION A-A

LOCATION

NW 66th AVENUE OVER SAYLOR CREEK
T-79N R-24W
SECTION 3
SAYLORVILLE TOWNSHIP
POLK COUNTY
FHWA# 281361
LATITUDE 41.680361°N
LONGITUDE 93.621083°W

UTILITIES LEGEND:

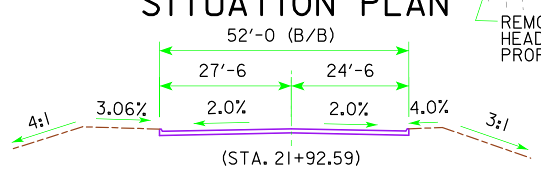
FO - FOA FIBER OPTIC
W - WATER
SAA - SANITARY SEWER LINE
STA - STORM SEWER LINE
G - GAS
ELD - ELECTRIC



0 ENGLISH 40
SCALE IN FEET

PLAN NOTES:
1. EXISTING TRIPLE 12'0x10'-0x68'-10 R.C.B. BOX CULVERT, DESIGN NO. 5438.
2. DRAINAGE THROUGH EXISTING CULVERT/CHANNEL MUST BE MAINTAINED THROUGHOUT CONSTRUCTION.

SITUATION PLAN



TYPICAL ROADWAY SECTION
(NW 66th AVENUE)

ESTIMATED REVETMENT QUANTITIES

LOCATION	REVETMENT CL. B (TON)	ENGINEERING FABRIC (SY)	EXCAVATION (CY)
INLET	494	305	470
OUTLET	1882	1162	2465
TOTALS	2376	1467	2935

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

HYDRAULIC DESIGN

LICENSED PROFESSIONAL ENGINEER Kyle D. Riley 20550 IOWA

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

Signature: Date: 0X-XX-2014
Kyle D. Riley
Printed or Typed Name

My license renewal date is December 31, 2014

Pages or sheets covered by this seal: V.01 (HYDRAULIC DATA)

PRELIMINARY

DESIGN FOR 30° SKEW

TRIPLE 12'-0 x 10'-0
R.C.B. CULVERT EXTENSION

SITUATION PLAN

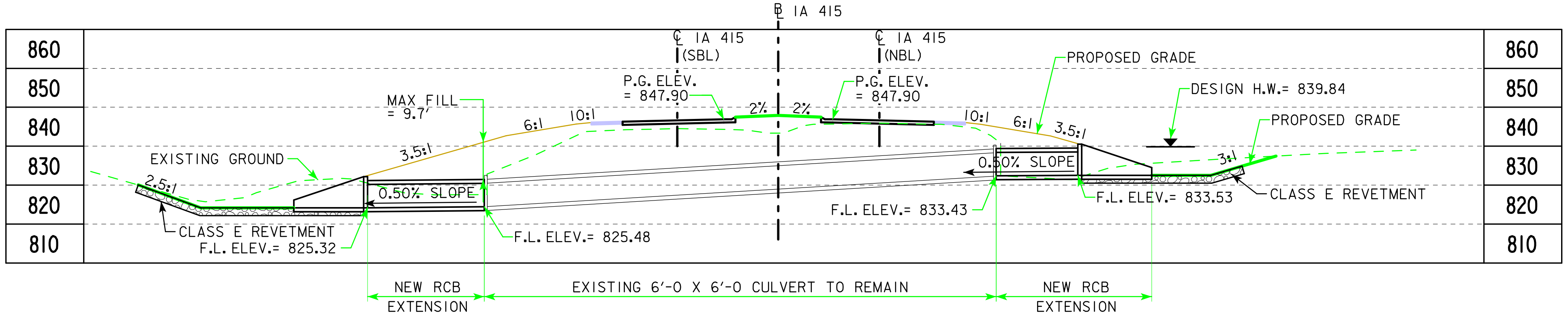
STA. 21+92.59 MAY, 2014

POLK COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

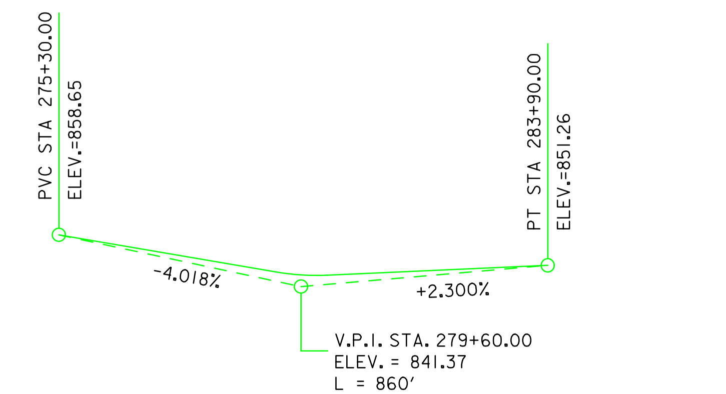
DESIGN SHEET NO. ____ OF ____ FILE NO. 31077 DESIGN NO. 119

DESIGN TEAM SHUCK-BRITSON INC. 2409 GRAND AVENUE DES MOINES, IOWA 50312 515-243-4477 S.B.I. NO. 112.0800.01L | POLK COUNTY | PROJECT NUMBER: BFR-415-1(52)--38-77 | SHEET NUMBER V.1

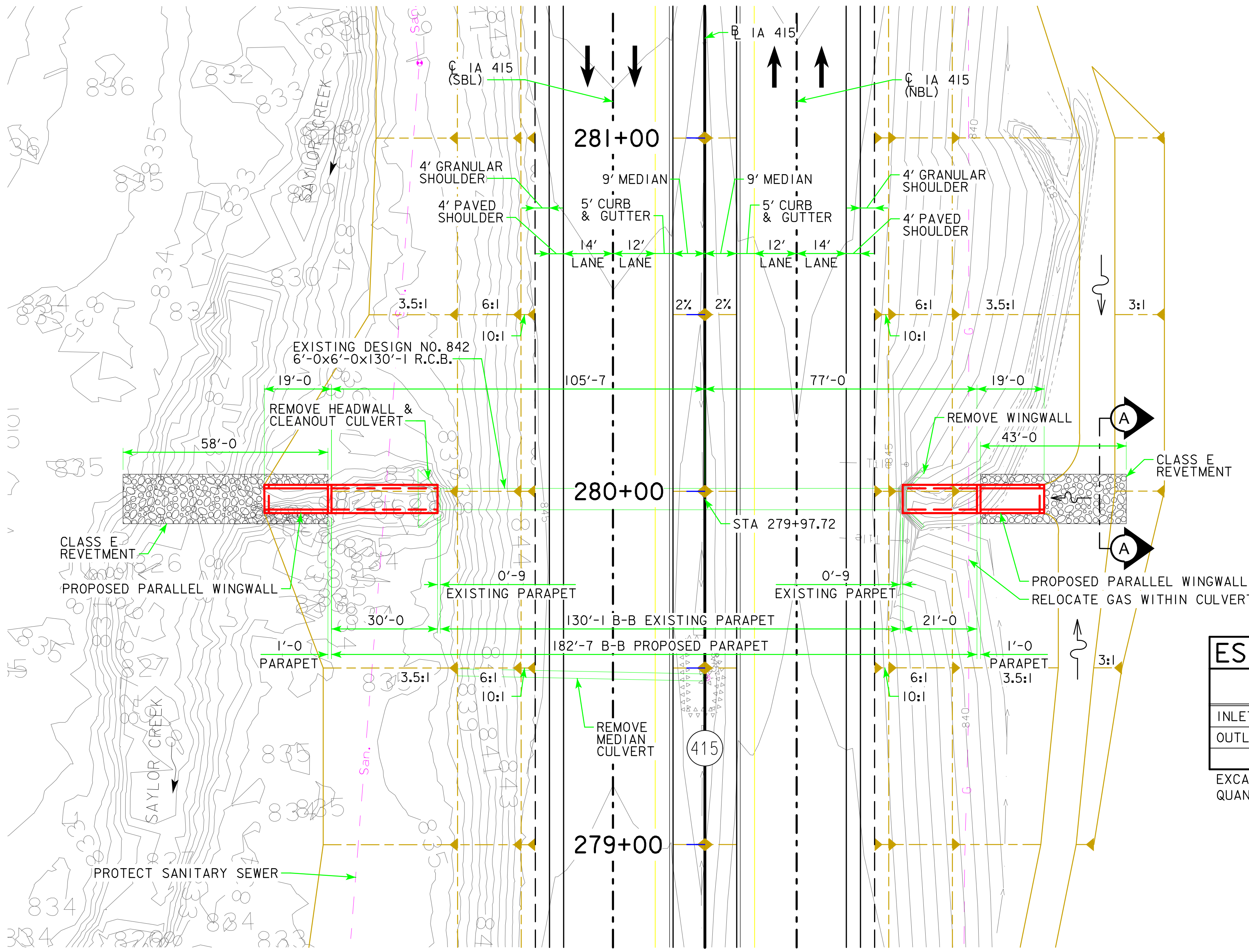


LONGITUDINAL SECTION ALONG ℄ CULVERT

BENCH MARK NO. 511 - STA. 274+42.33, 96.4936' RT., SET/RR SPK W SIDE P.POLE, ELEV. 866.32, N. 610527.764 E. 1607670.525



PROFILE GRADE ON IA415



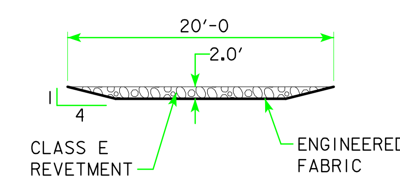
SITUATION PLAN

TRAFFIC ESTIMATE

2012 AADT	24,100	V.P.D.
2037 AADT	38,500	V.P.D.
20__ DHV	-	V.P.H.
TRUCKS	4	%
TOTAL DESIGN ESALs	-	

UTILITIES LEGEND

FO - FOA FIBER OPTIC
W - WATER
SAA - SANITARY SEWER LINE
STA - STORM SEWER LINE
G - GAS
ELD - ELECTRIC



SECTION A-A

HYDRAULIC DATA

DRAINAGE AREA = 200 ACRES
Q_{50} = 242 CFS
HW ELEV. = 839.84

ESTIMATED REVENTMENT QUANTITIES

LOCATION	REVETMENT CL. E (TON)	ENGINEERING FABRIC (SY)	EXCAVATION (CY)
INLET	52	49	69
OUTLET	81	75	150
TOTALS	133	124	219

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

LOCATION

IA 415
T-79N R-24W
SECTION 2 & 3
SAYLORVILLE TOWNSHIP
POLK COUNTY
LATITUDE 41.677167° N
LONGITUDE 93.620167° W

N

0 ENGLISH 40
SCALE IN FEET

PRELIMINARY

DESIGN FOR 0° SKEW

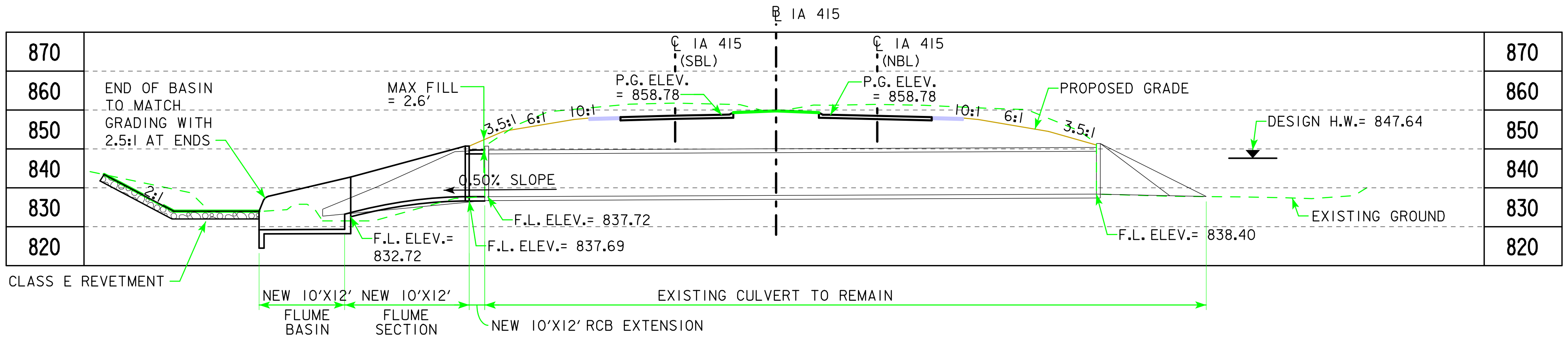
6'-0 x 6'-0 REINFORCED CONCRETE BOX CULVERT EXTENSION SITUATION PLAN

STA. 279+97.72 MAY, 2014

POLK COUNTY

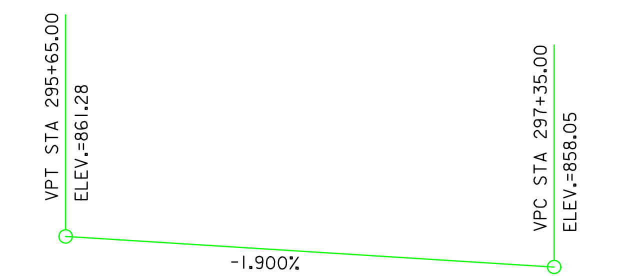
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. ___ OF ___ FILE NO. 31077 DESIGN NO. 219

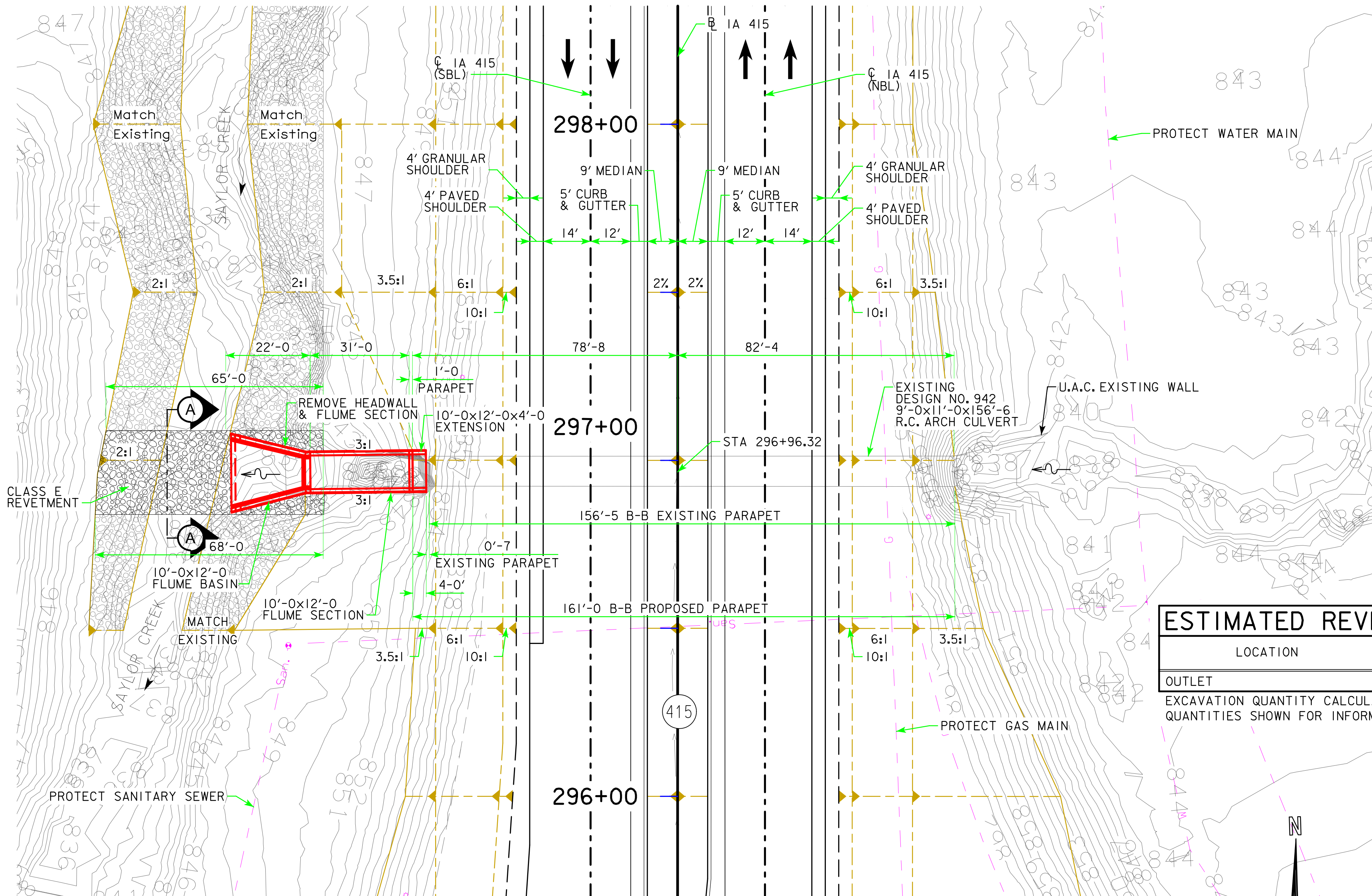


LONGITUDINAL SECTION ALONG ℄ CULVERT

BENCH MARK NO. 514 - STA. 296+91.83, 82.810' RT., FD/IHC BM ON INLET HDWL, ELEV. 851.468, N. 612776.261 E. 1607738.973

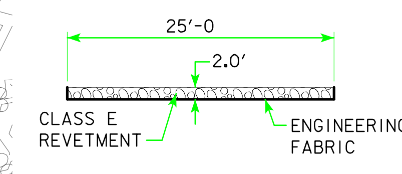


PROFILE GRADE ON IA415



SITUATION PLAN

0	ENGLISH	40
	SCALE IN FEET	



SECTION A-A

TRAFFIC ESTIMATE

2012 AADT	24,100	V.P.D.
2037 AADT	38,500	V.P.D.
20__ DHV	-	V.P.H.
TRUCKS	4	%
TOTAL DESIGN ESALs	-	

UTILITIES LEGEND

FO - FOA FIBER OPTIC
W - WATER
SAA - SANITARY SEWER LINE
STA - STORM SEWER LINE
G - GAS
ELD - ELECTRIC

HYDRAULIC DATA

DRAINAGE AREA = 600 ACRES
Q_{50} = 704 CFS
HW ELEV. = 847.64

ESTIMATED REVENTMENT QUANTITIES

LOCATION	REVETMENT CL. E (TON)	ENGINEERING FABRIC (SY)	EXCAVATION (CY)
OUTLET	143	132	210

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

LOCATION

IA 415
T-79N R-24W
SECTION 3
SAYLORVILLE TOWNSHIP
POLK COUNTY
LATITUDE 41.381833° N
LONGITUDE 93.619944° W

PRELIMINARY

DESIGN FOR 0° SKEW

10'-0 x 12'-0 REINFORCED CONCRETE BOX CULVERT EXTENSION SITUATION PLAN

STA. 296+96.32 MAY, 2014

POLK COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. ____ OF ____ FILE NO. 31077 DESIGN NO. 319

LINE STYLE LEGEND OF CROSS SECTION SHEETS (ROAD)

- Existing Ground Line (LiDAR Surface)
- Existing Ground Line (Surveyed Surface)
- Proposed Template
- Proposed Topsoil Placement
- Additional Topsoil Removal
- Subrade Treatment
- Granular Shoulder
- Pavement
- Existing Pipe\RCB
- Proposed Pipe\RCB
- Proposed Dike
- All Elements Associated with Proposed Entrances

LINE STYLE LEGEND OF CROSS SECTION SHEETS (SOILS)

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

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

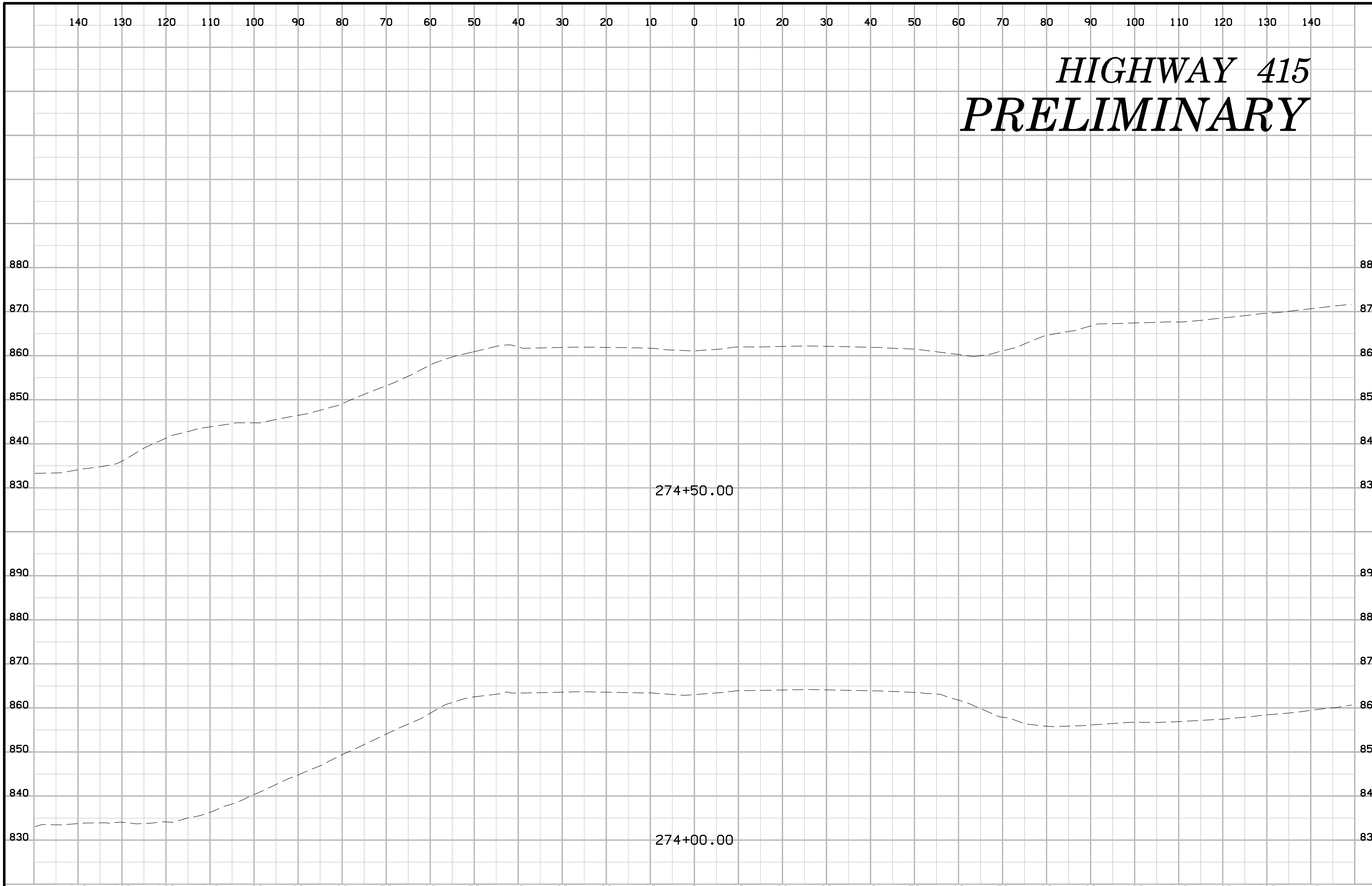
Note: Vertical or near vertical lines connecting soil layers at edges of cross sections are only for the purpose of calculating template quantities and do not depict soil stratification.

SYMBOL LEGEND OF CROSS SECTION SHEETS

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

CROSS SECTION LEGEND AND SYMBOL INFORMATION SHEET

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



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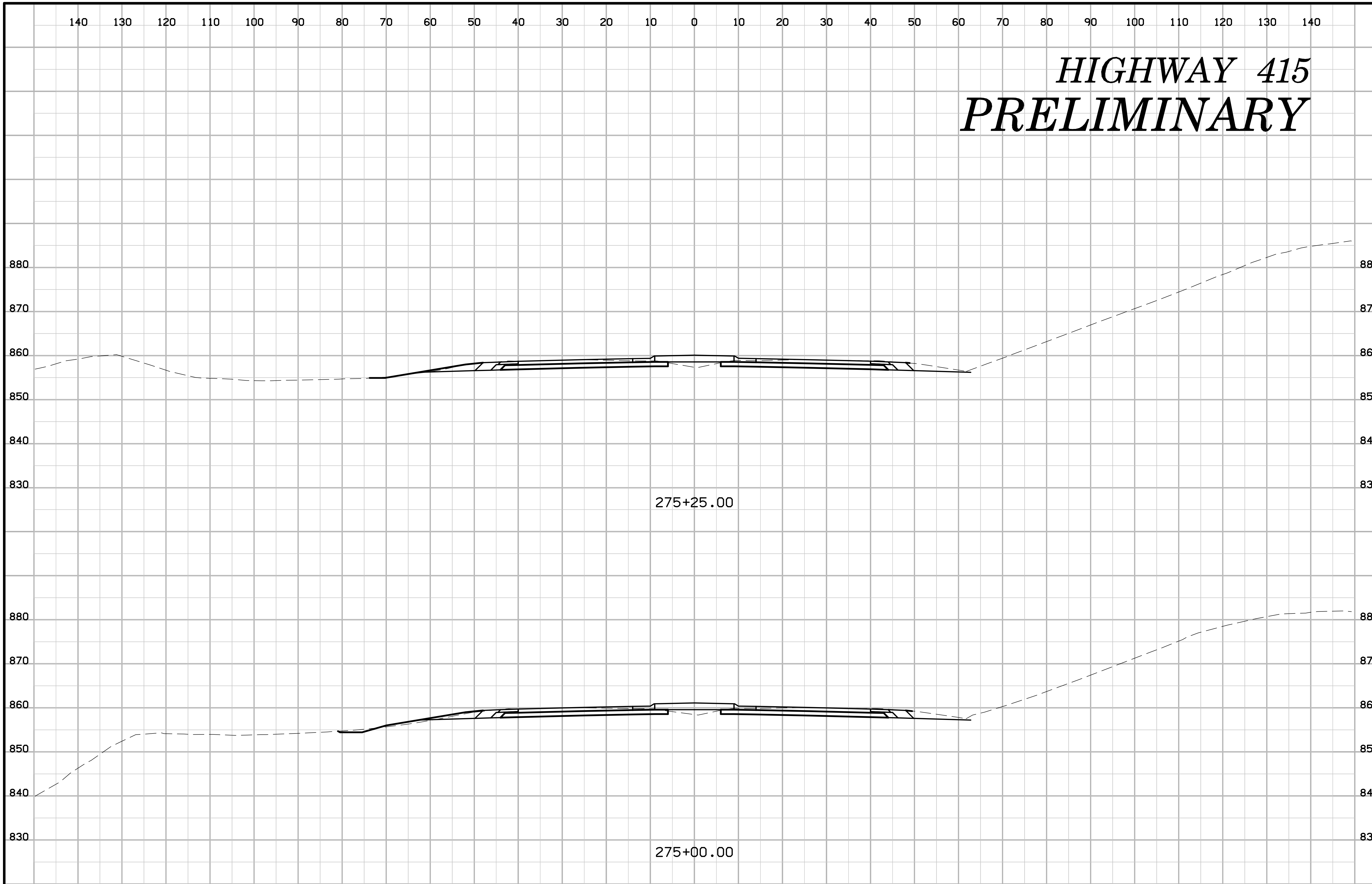
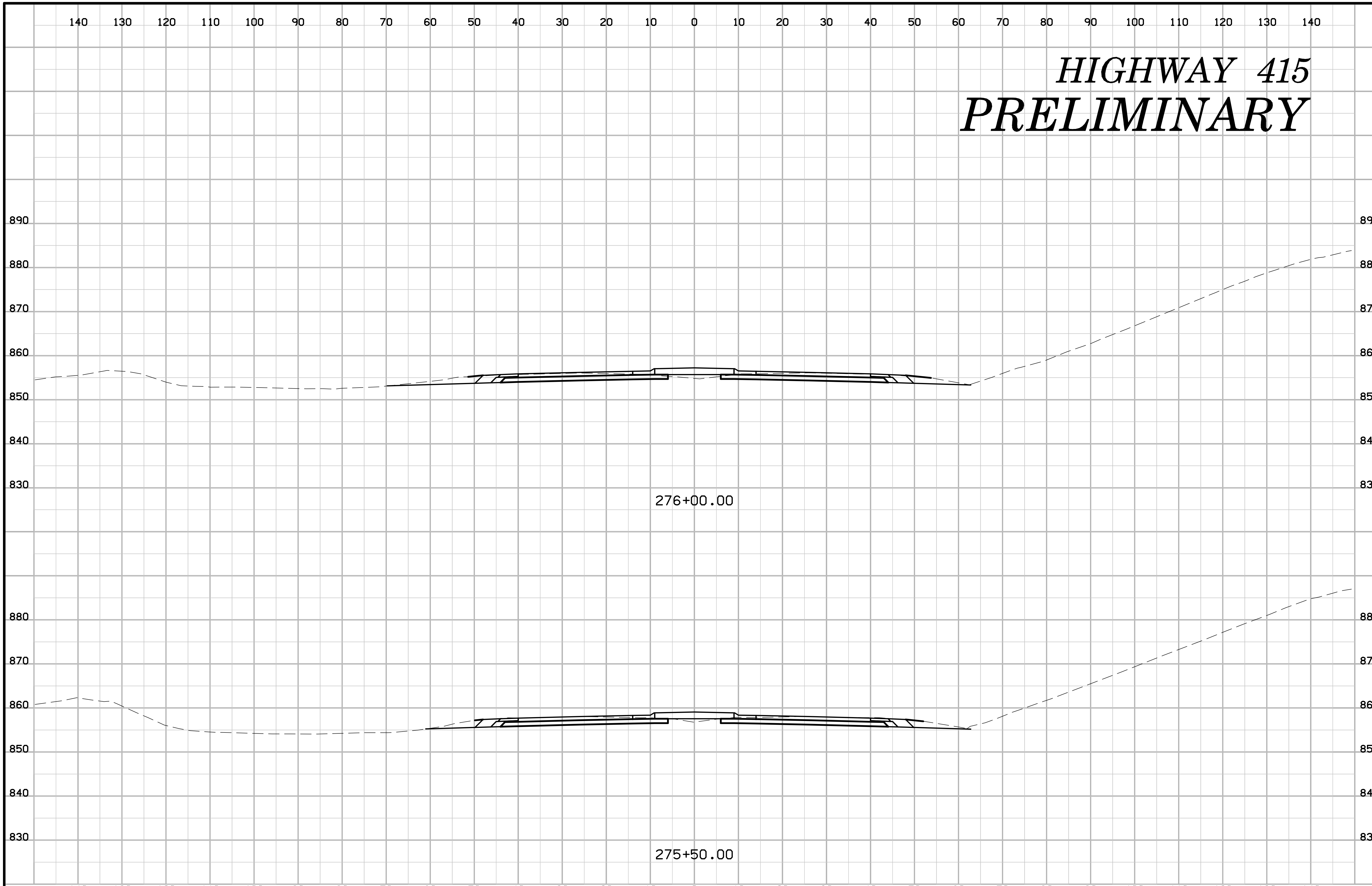
HIGHWAY 415
PRELIMINARY





ENGLISH	IOWA DOT	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	POLK COUNTY	PROJECT NUMBER	BRF-415-1(52)--38-77	SHEET NUMBER	W.4

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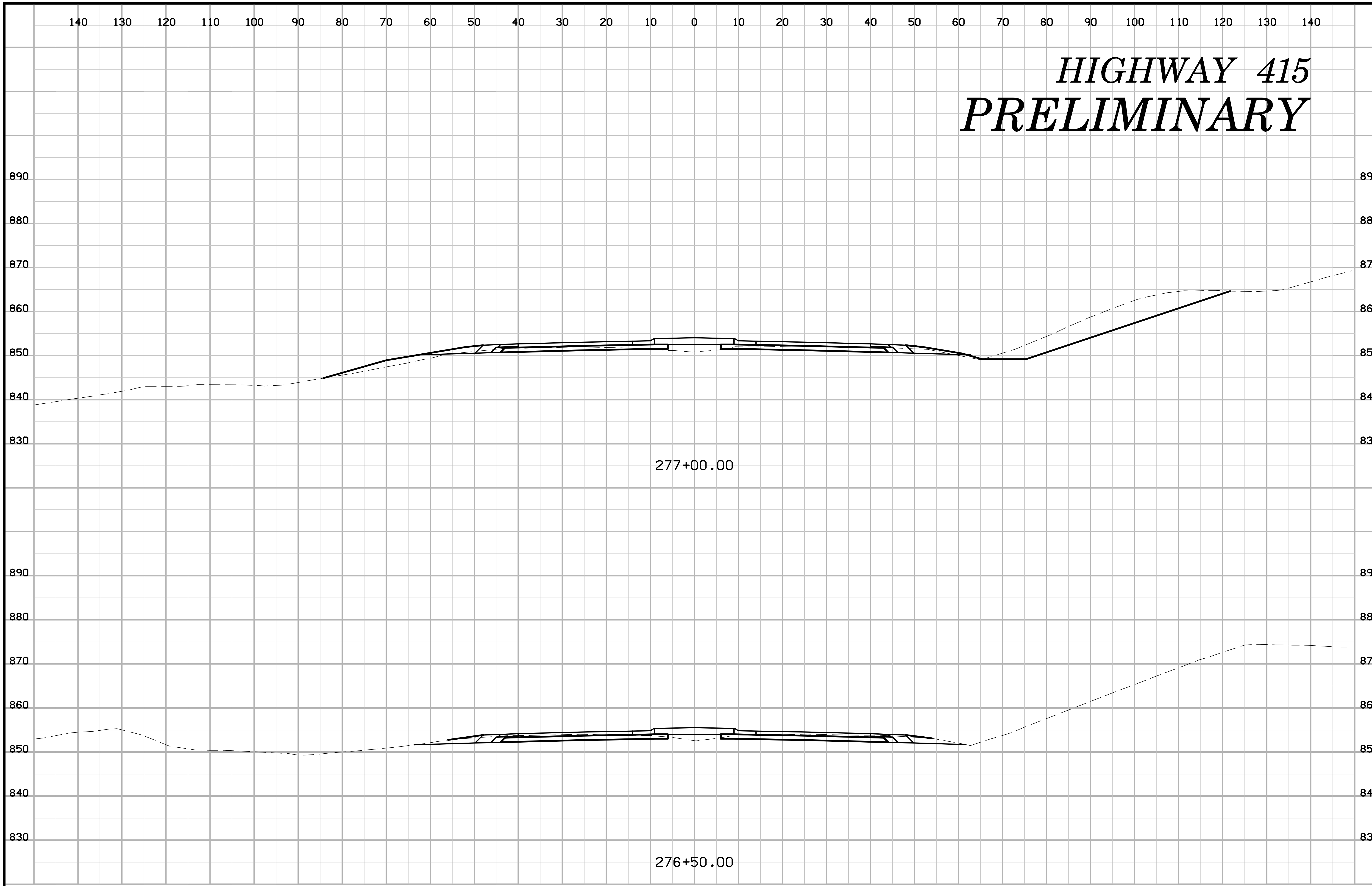

ENGLISH	IOWA DOT	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	POLK COUNTY	PROJECT NUMBER	BRF-415-1(52)--38-77	SHEET NUMBER	W.5

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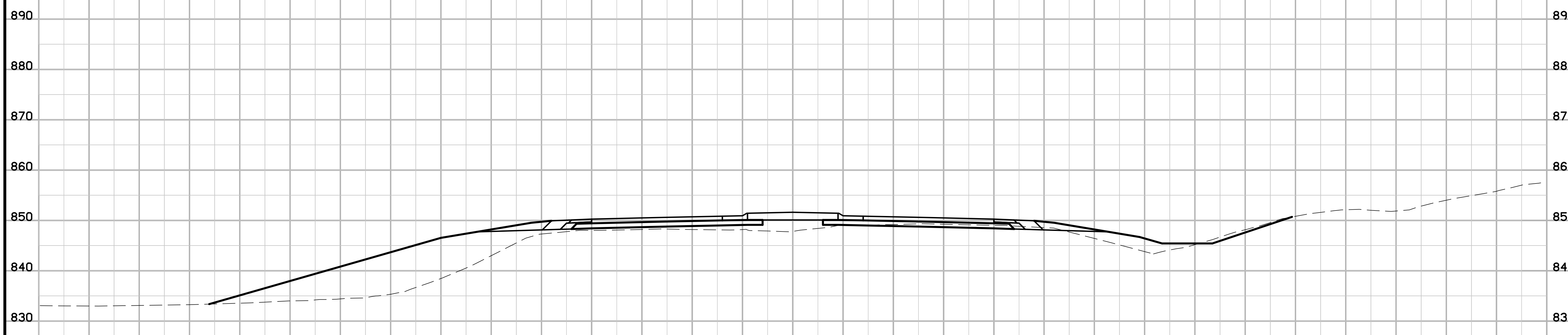
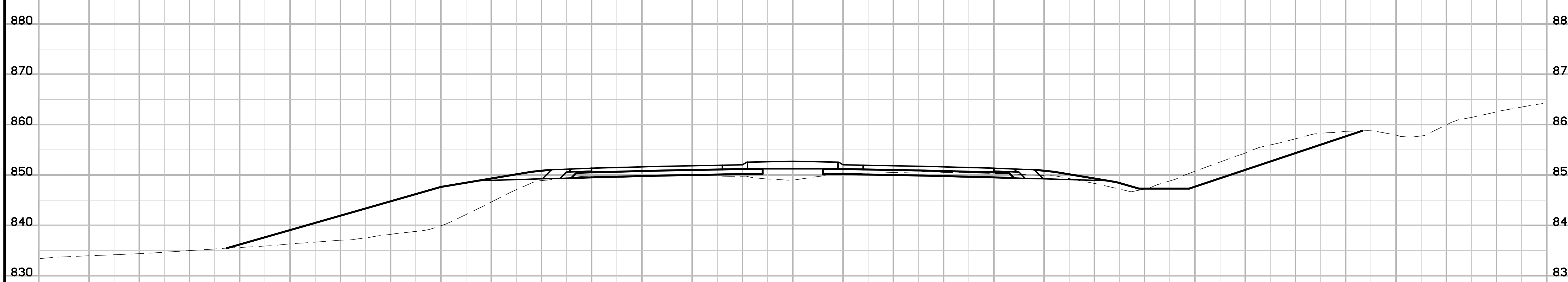
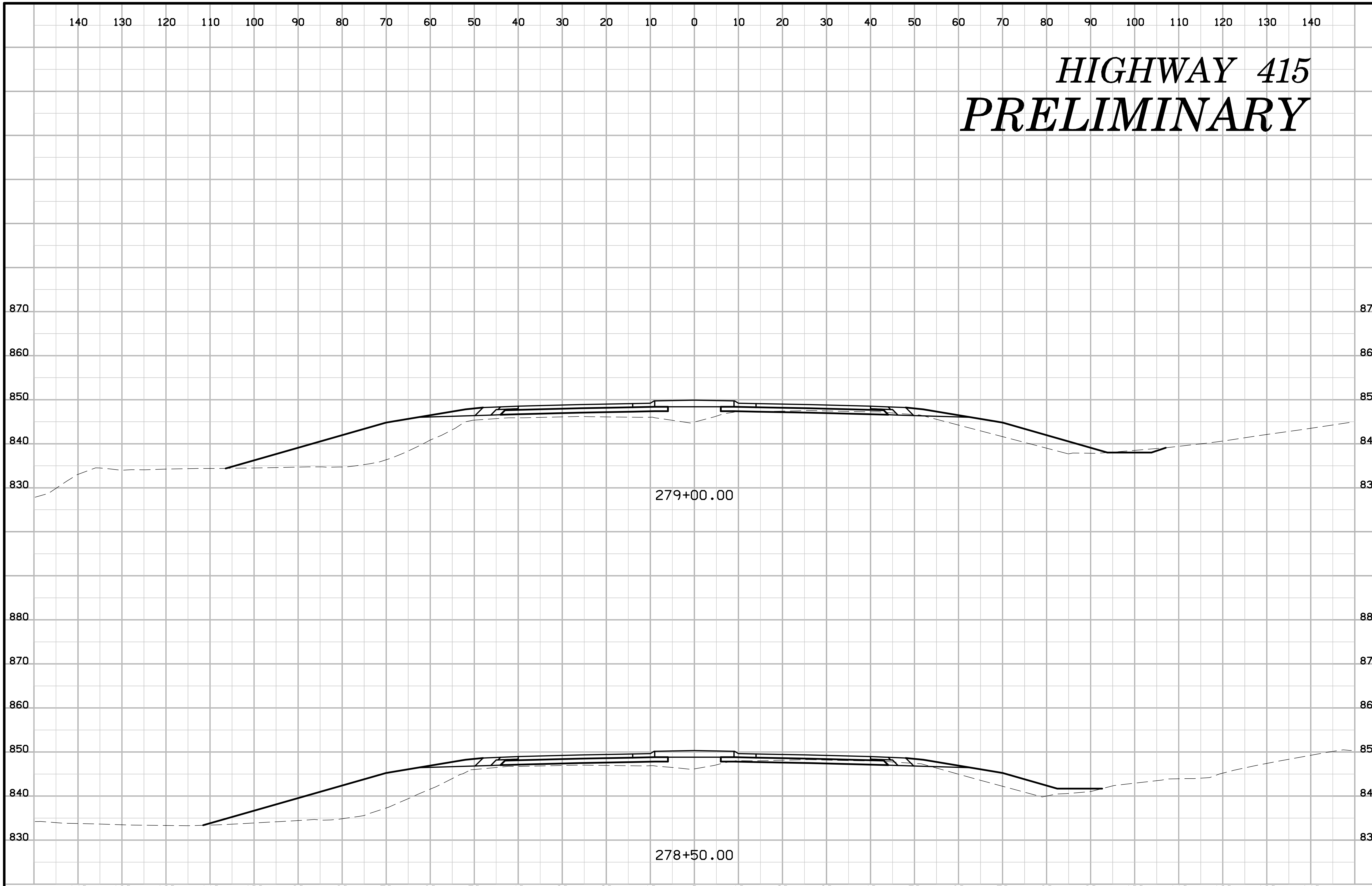
HIGHWAY 415
PRELIMINARY



278+00.00



277+50.00



ENGLISH	IOWA DOT	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	POLK COUNTY	PROJECT NUMBER	BRF-415-1(52)--38-77	SHEET NUMBER W.7

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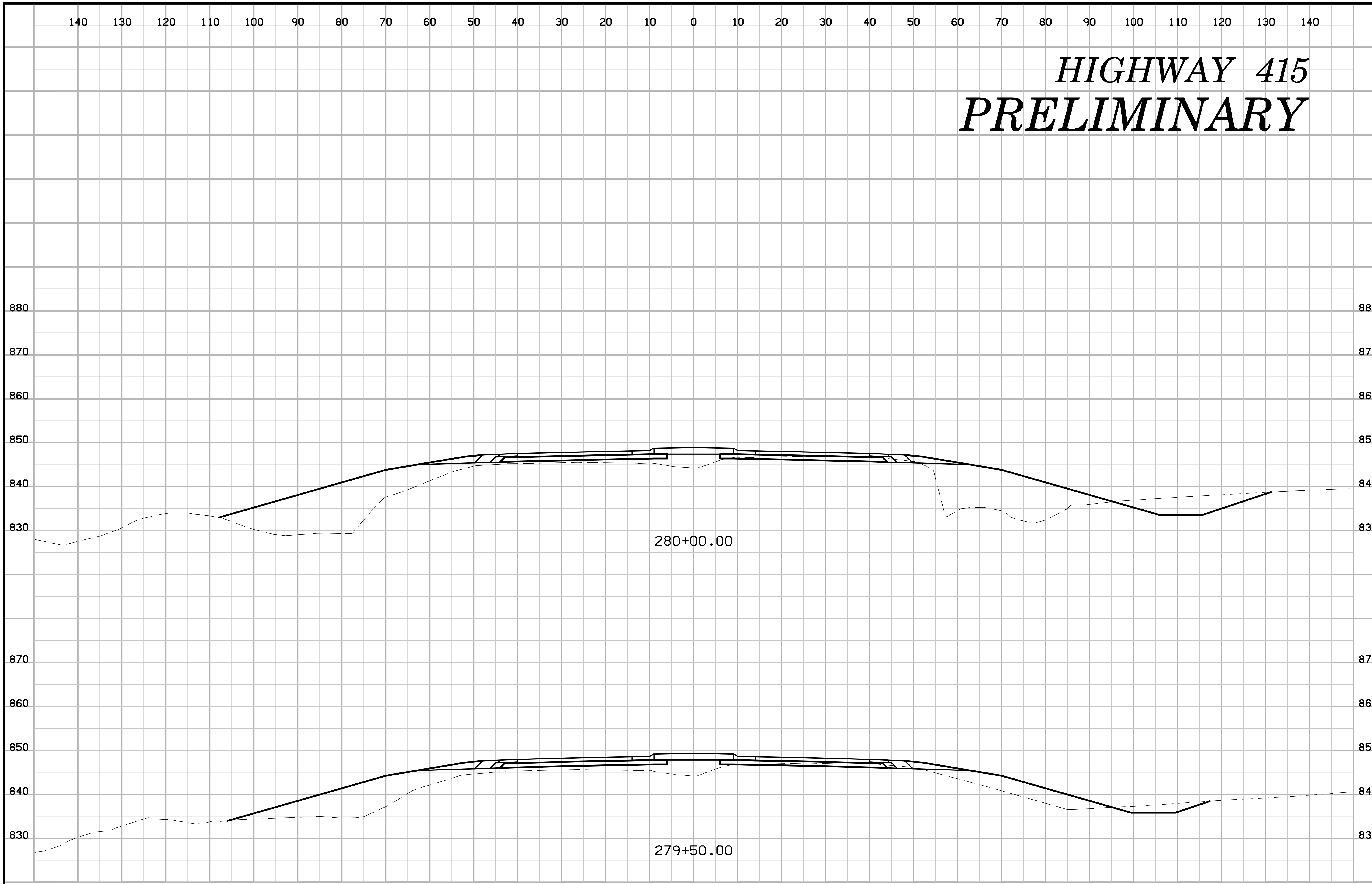

ENGLISH	IOWA DOT	DESIGN TEAM	SNYDER & ASSOCIATES, INC.		POLK COUNTY	PROJECT NUMBER	BRF-415-1(52)--38-77	SHEET NUMBER	W.8

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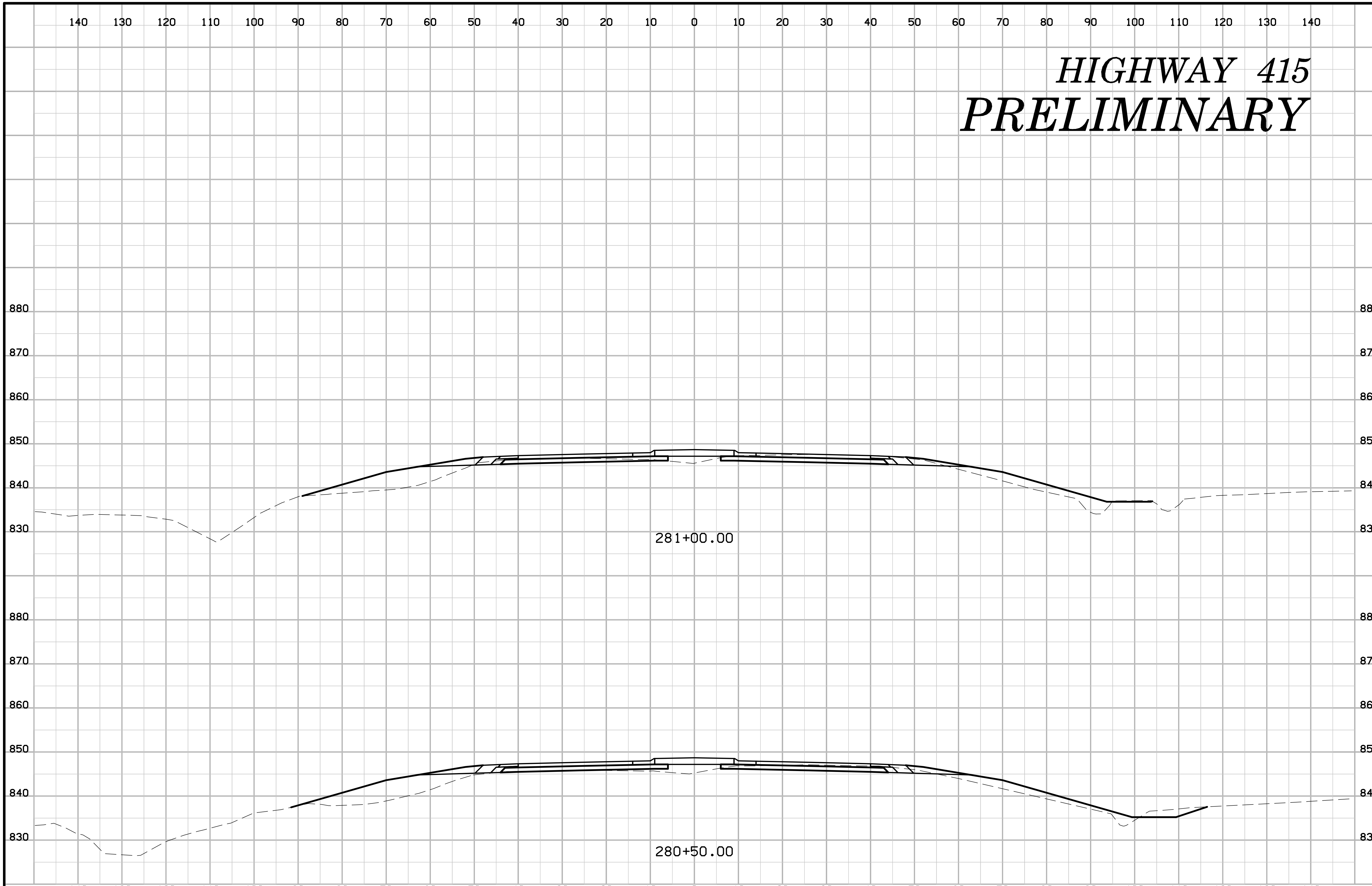

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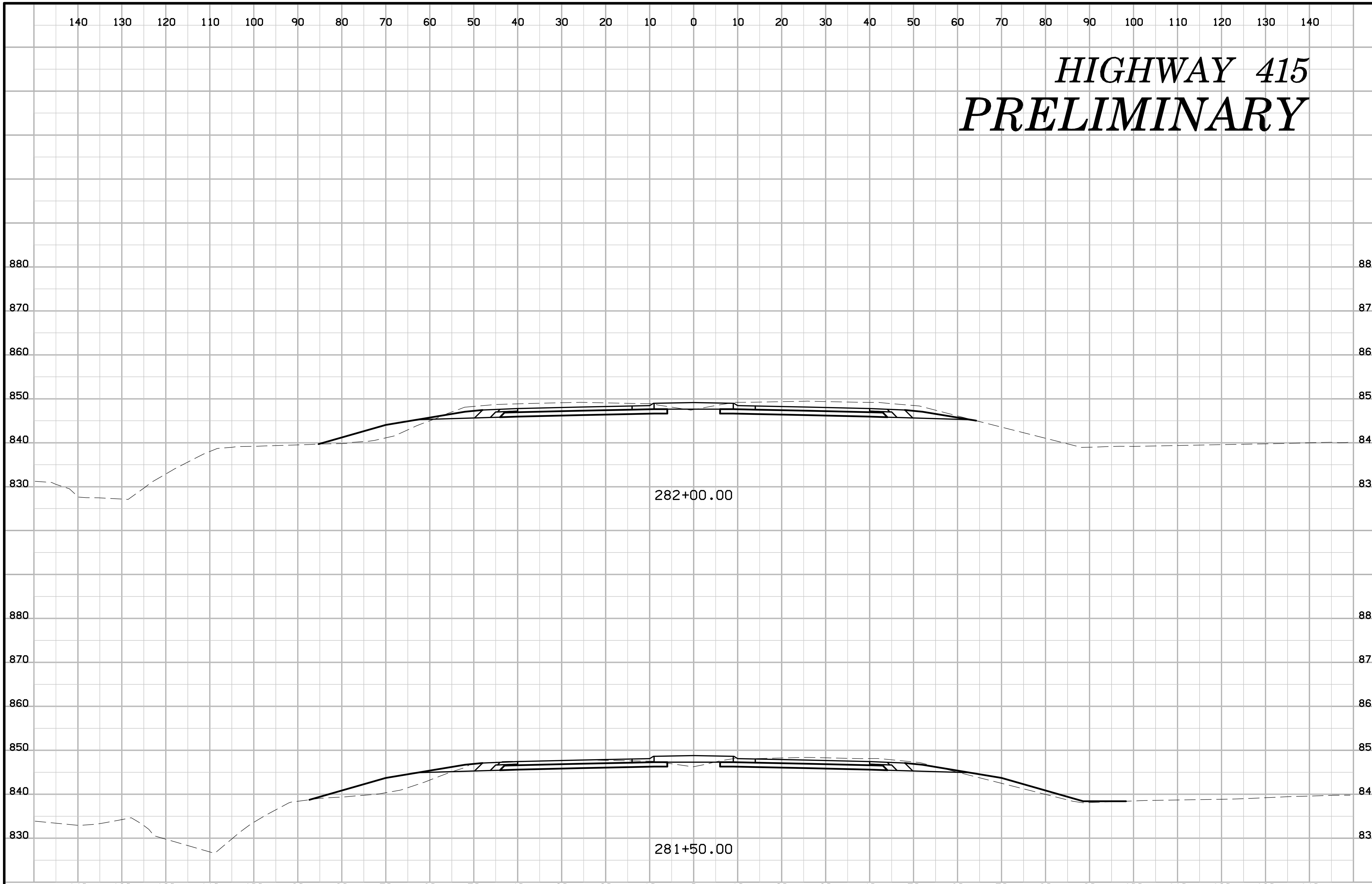

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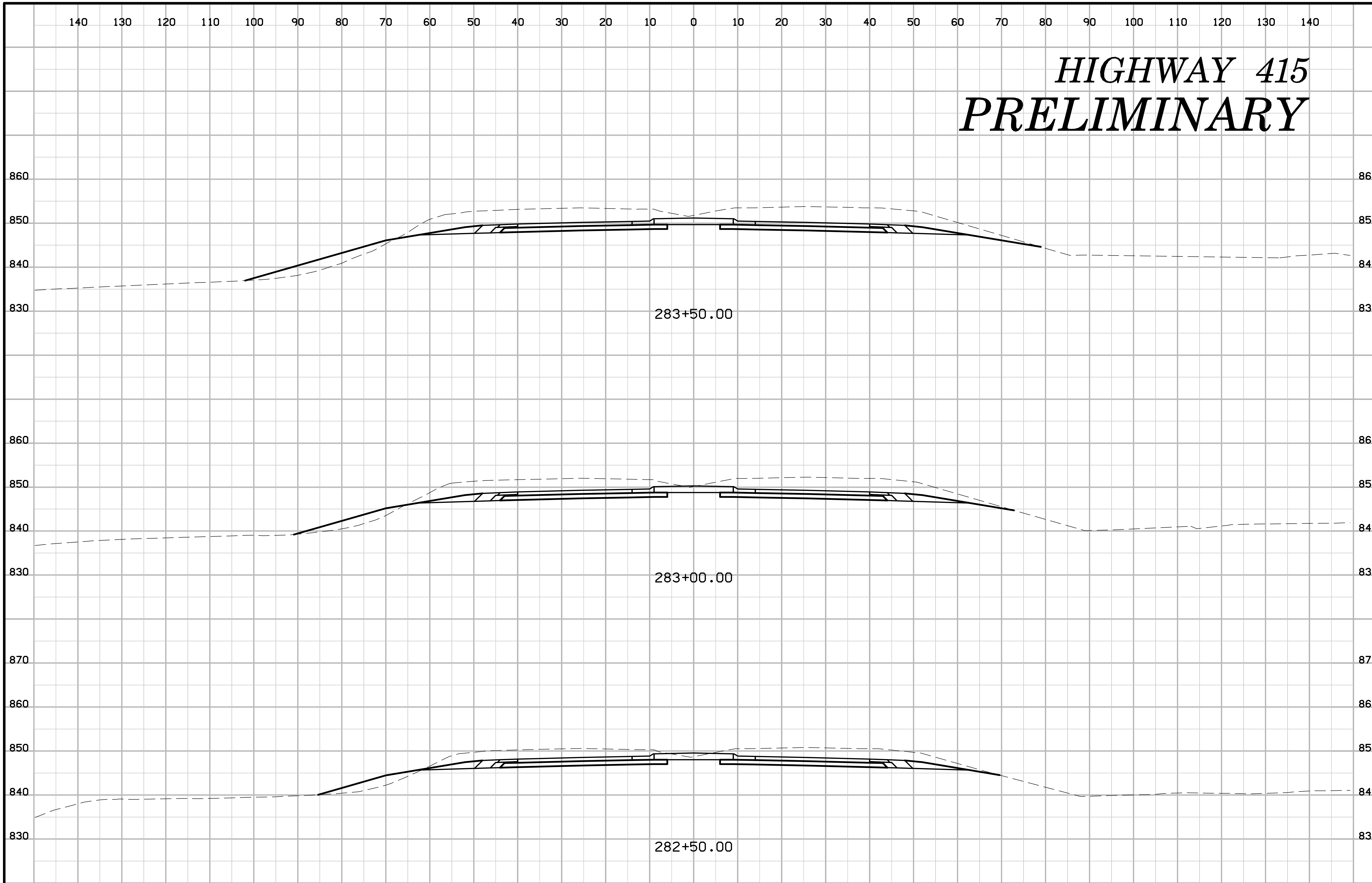

ENGLISH	IOWA DOT	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	POLK COUNTY	PROJECT NUMBER	BRF-415-1(52)--38-77	SHEET NUMBER	W.11

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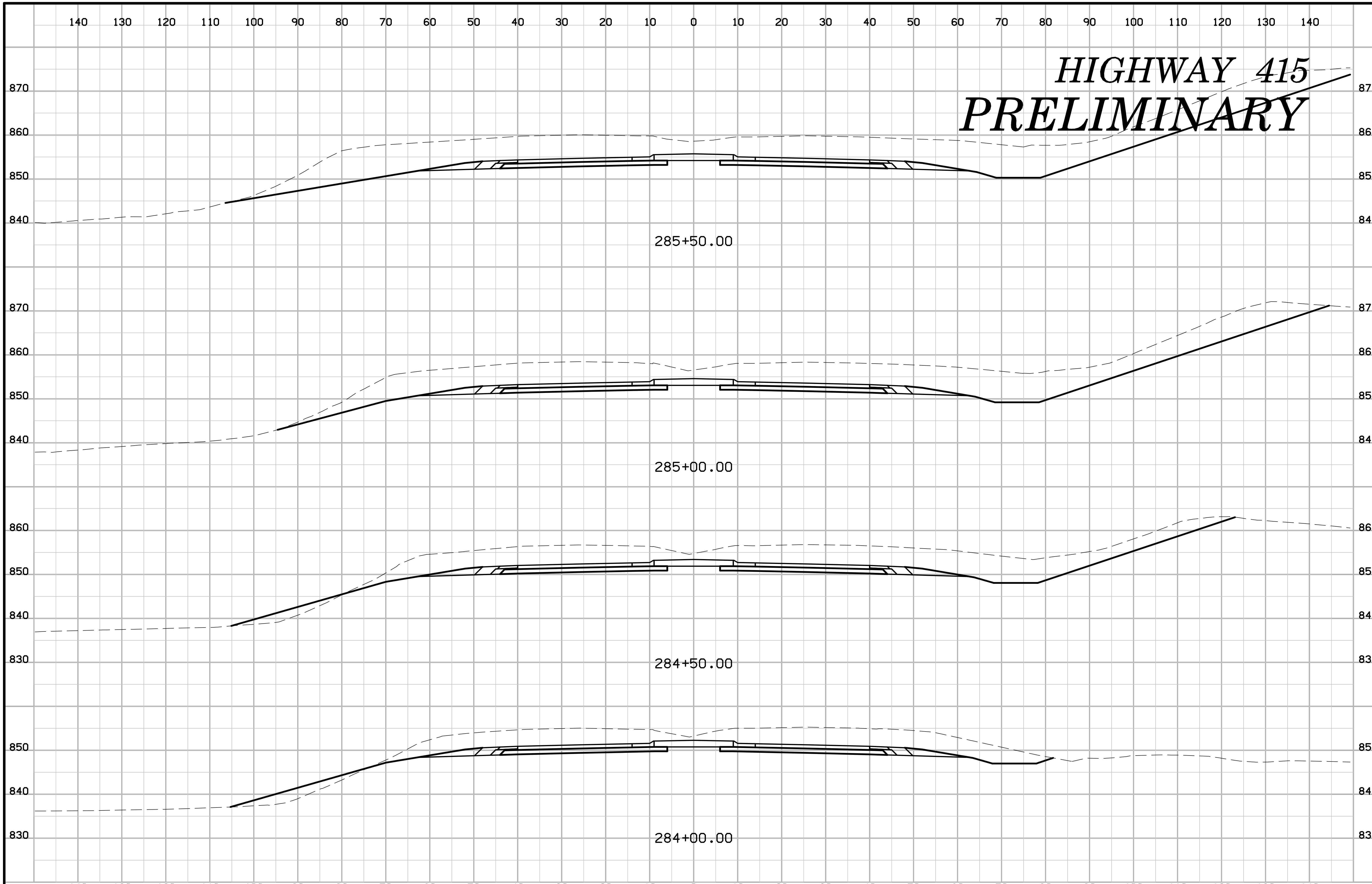

ENGLISH | IOWA DOT | DESIGN TEAM | SNYDER & ASSOCIATES, INC. | POLK COUNTY | PROJECT NUMBER BRF-415-1(52)--38-77 | SHEET NUMBER W.12

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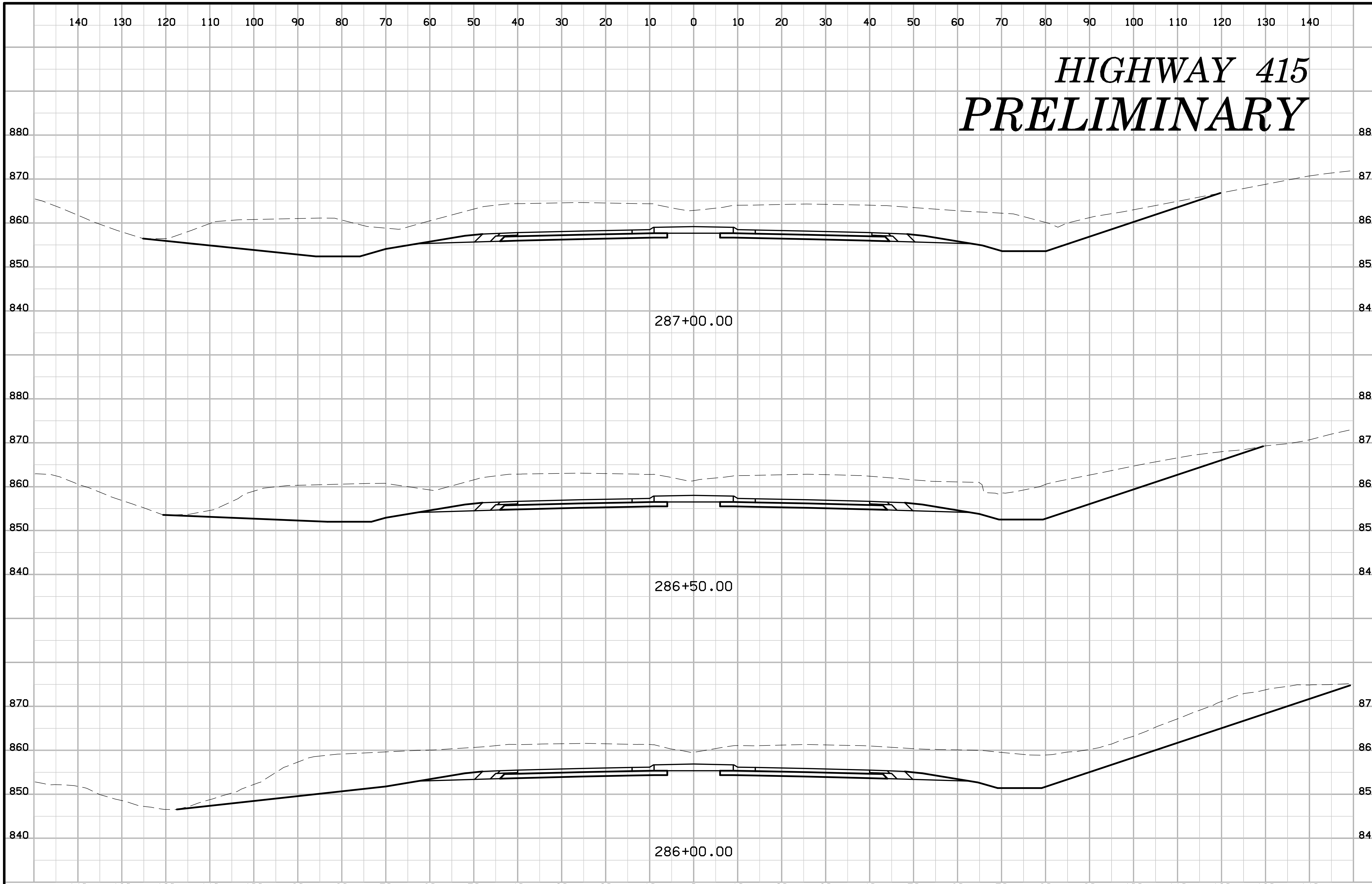

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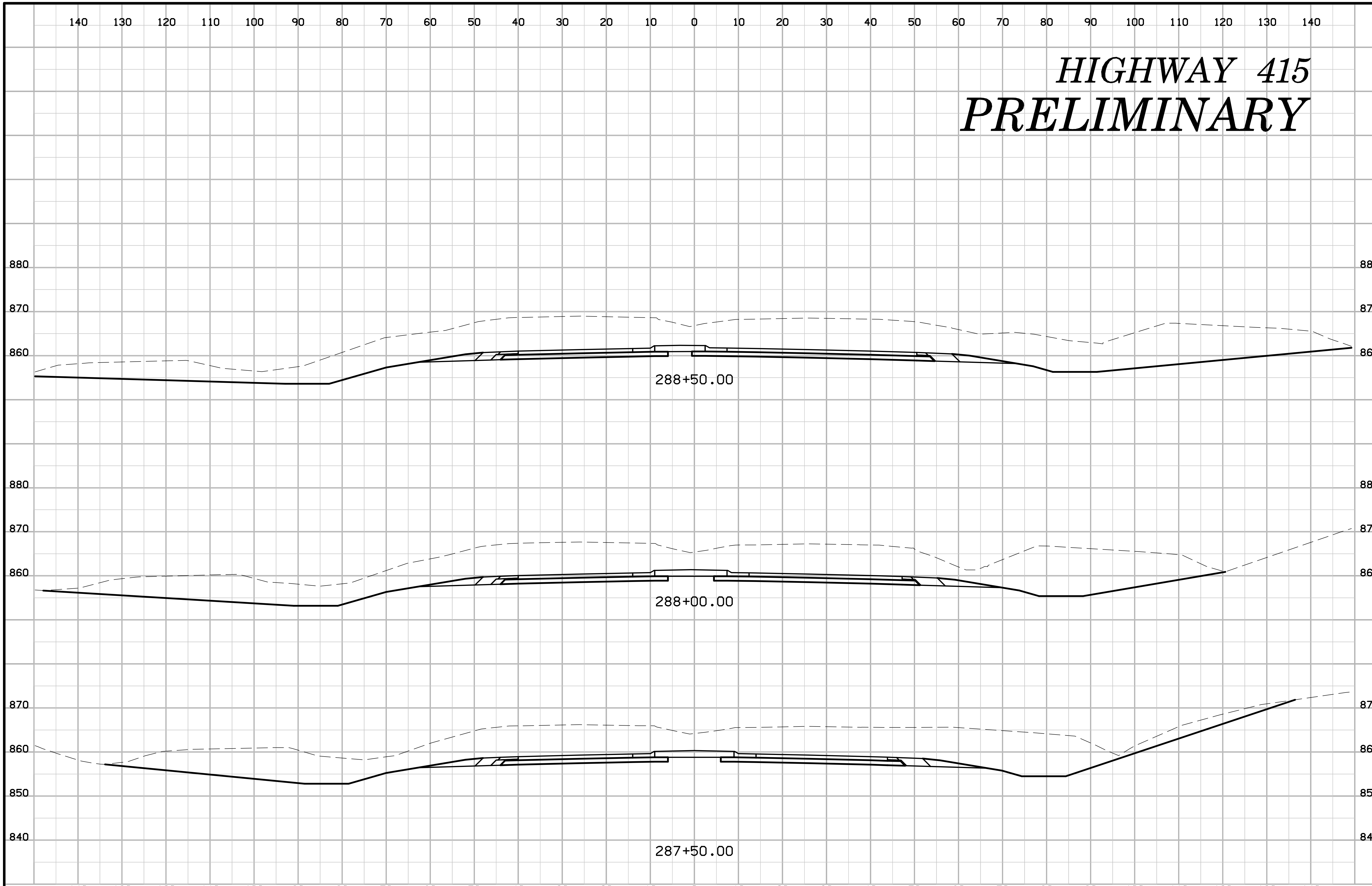
HIGHWAY 415
PRELIMINARY



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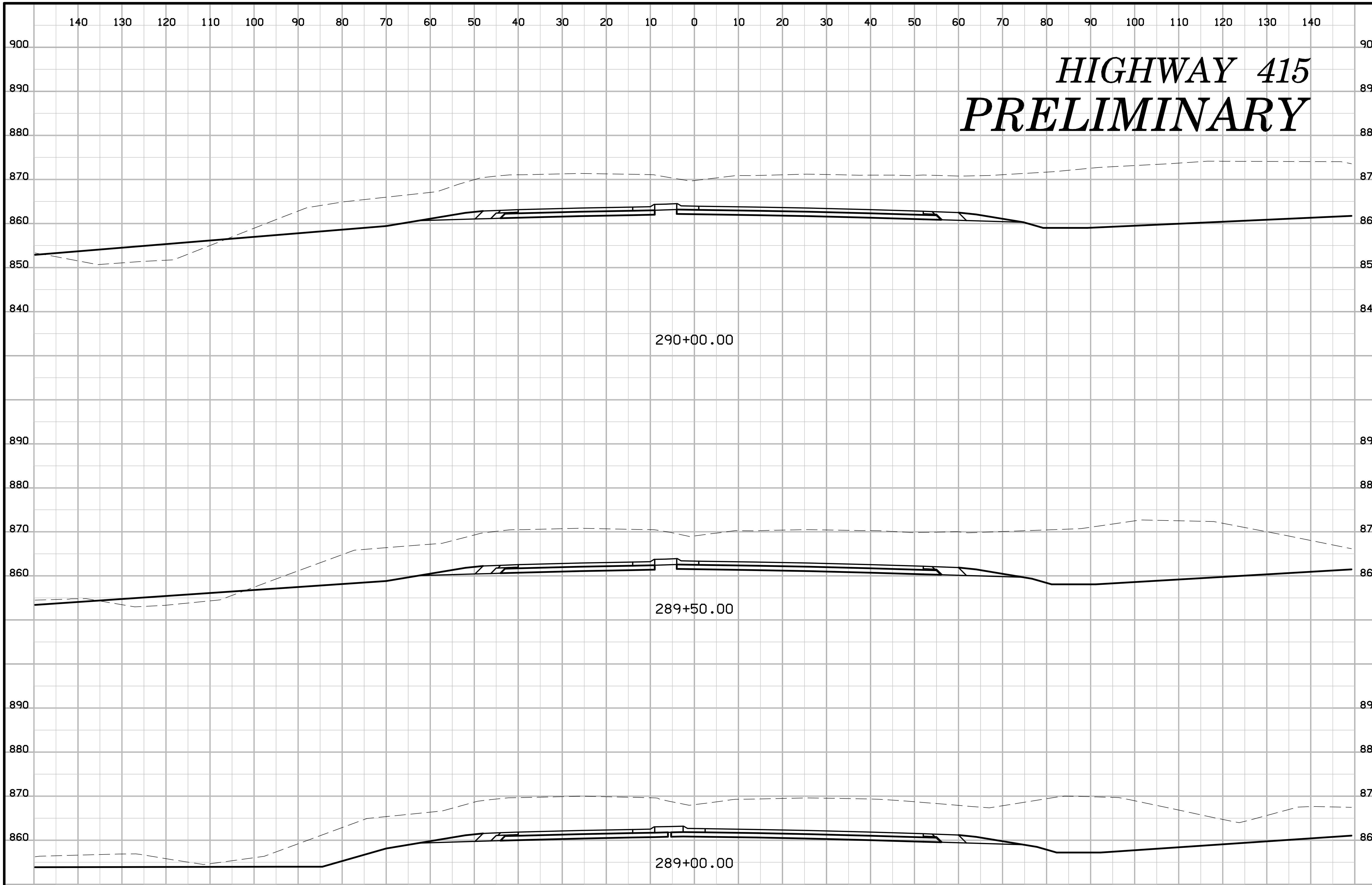
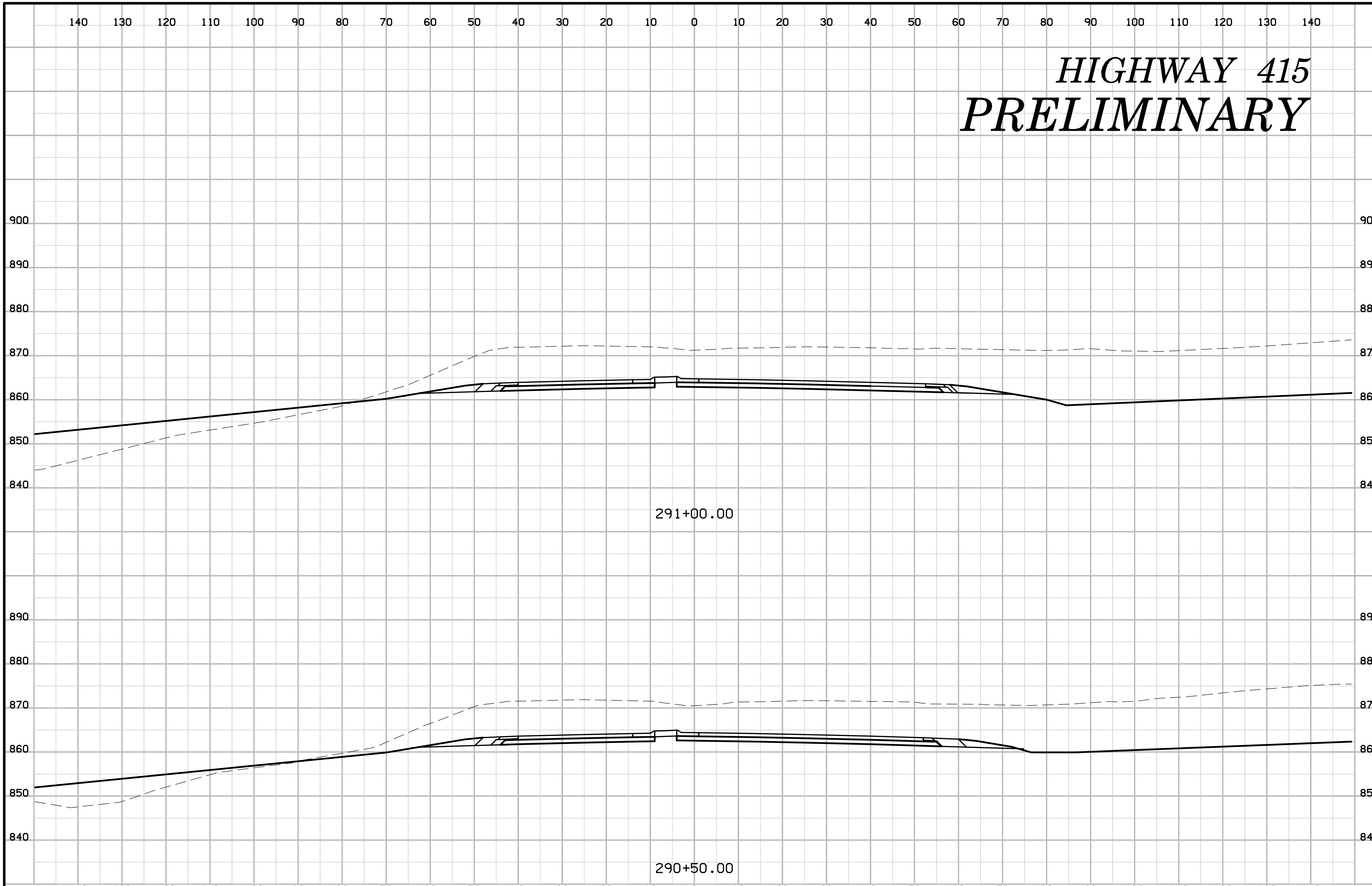


ENGLISH	IOWA DOT	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	POLK COUNTY	PROJECT NUMBER	BRF-415-1(52)--38-77	SHEET NUMBER	W.15

HIGHWAY 415
PRELIMINARY



ENGLISH	IOWA DOT	DESIGN TEAM	SNYDER & ASSOCIATES, INC.		POLK COUNTY	PROJECT NUMBER	BRF-415-1(52)--38-77	SHEET NUMBER	W.16

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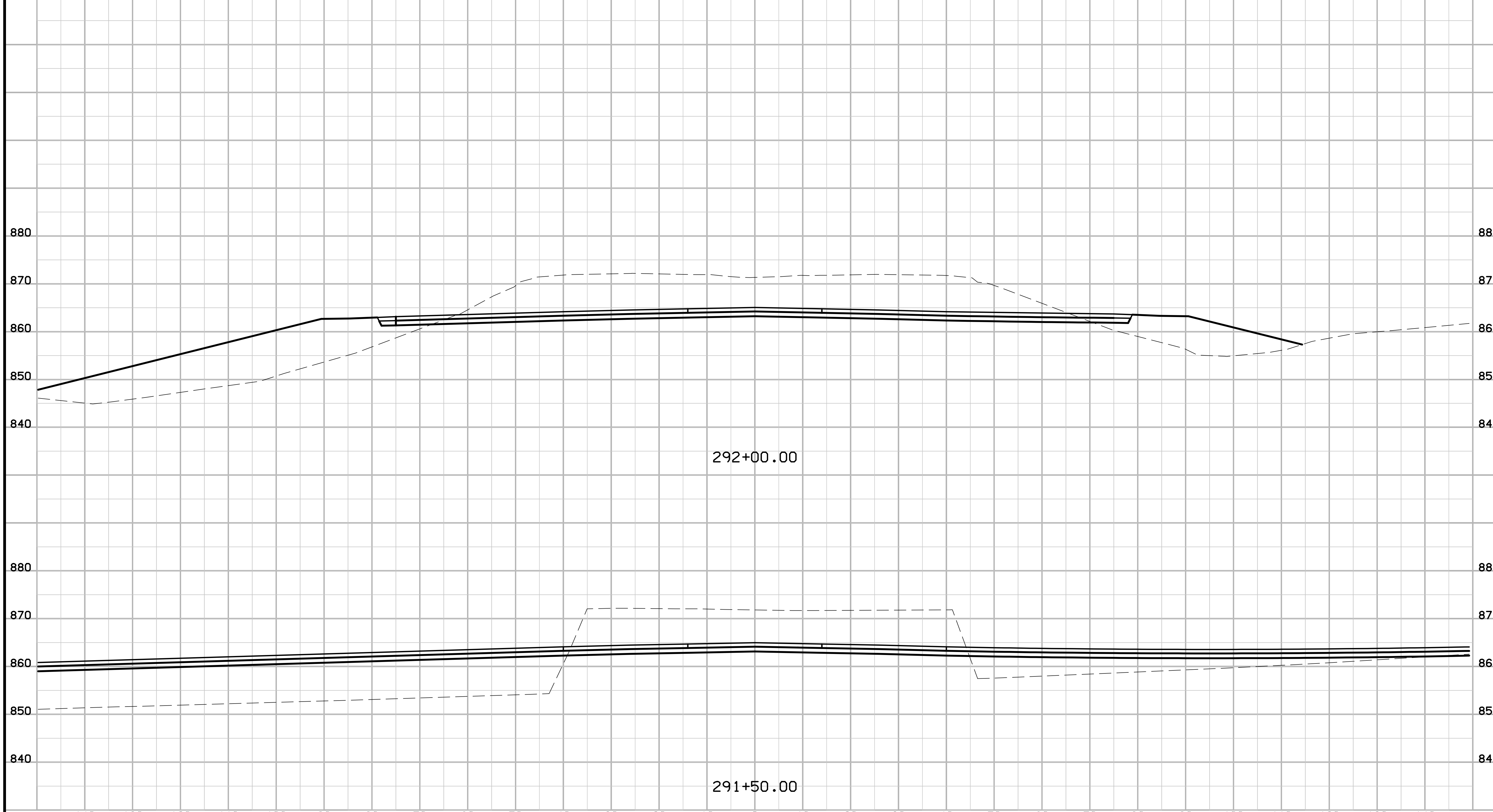
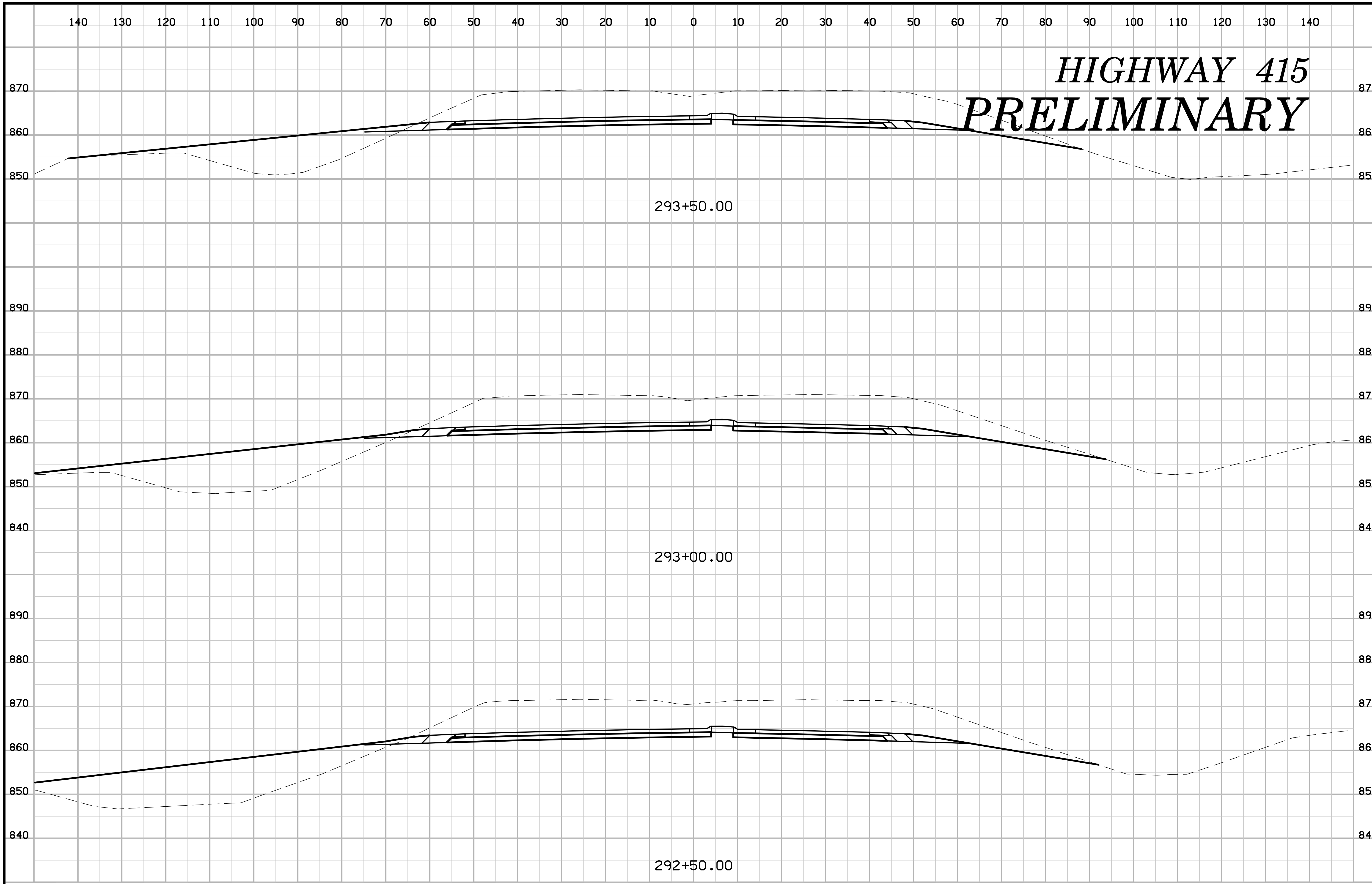
HIGHWAY 415
PRELIMINARY





ENGLISH	IOWA DOT	DESIGN TEAM	SNYDER & ASSOCIATES, INC.		POLK COUNTY	PROJECT NUMBER	BRF-415-1(52)--38-77	SHEET NUMBER	W.18

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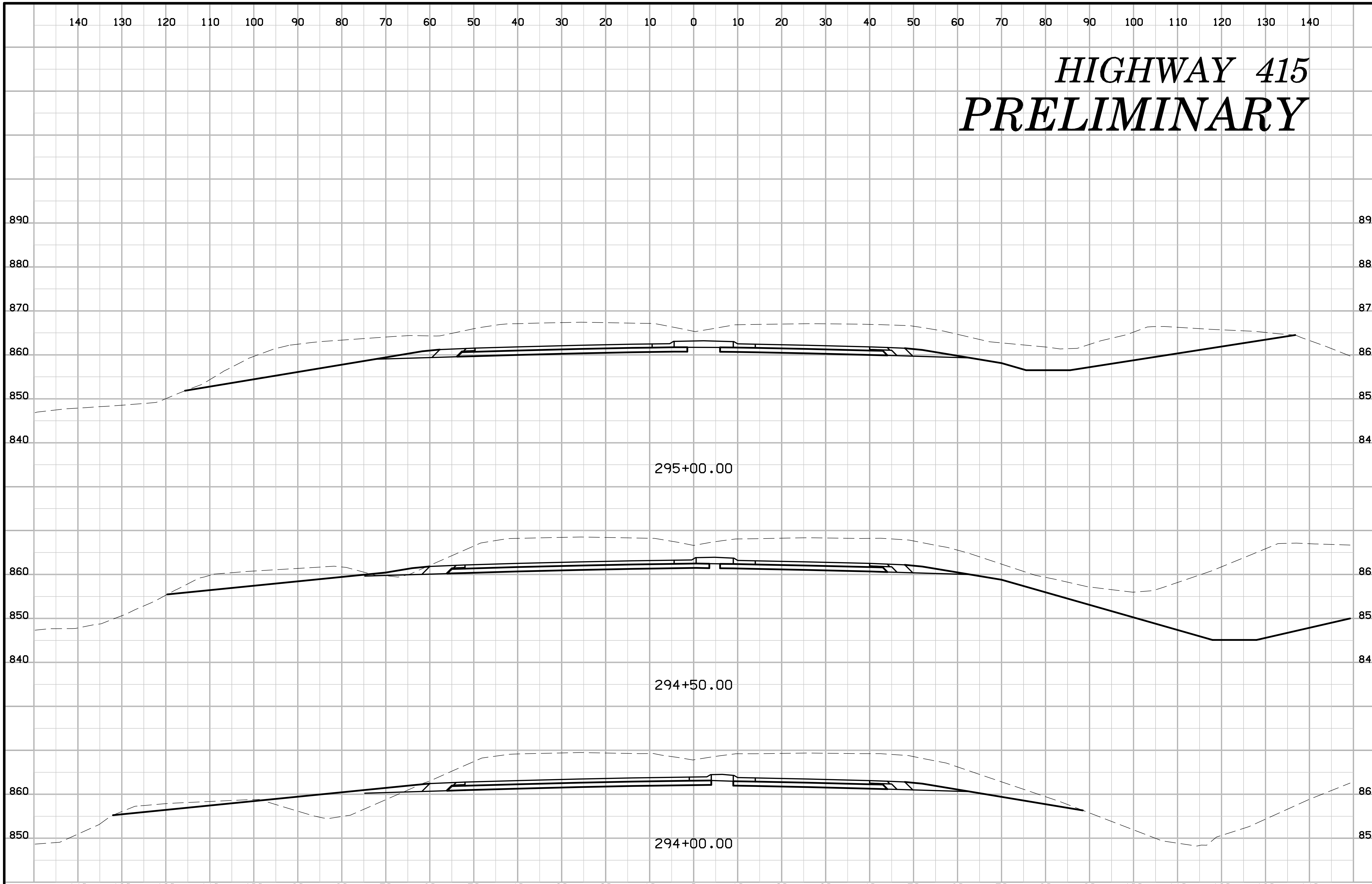

ENGLISH	IOWA DOT	DESIGN TEAM	SNYDER & ASSOCIATES, INC.		POLK COUNTY	PROJECT NUMBER	BRF-415-1(52)--38-77	SHEET NUMBER	W.19

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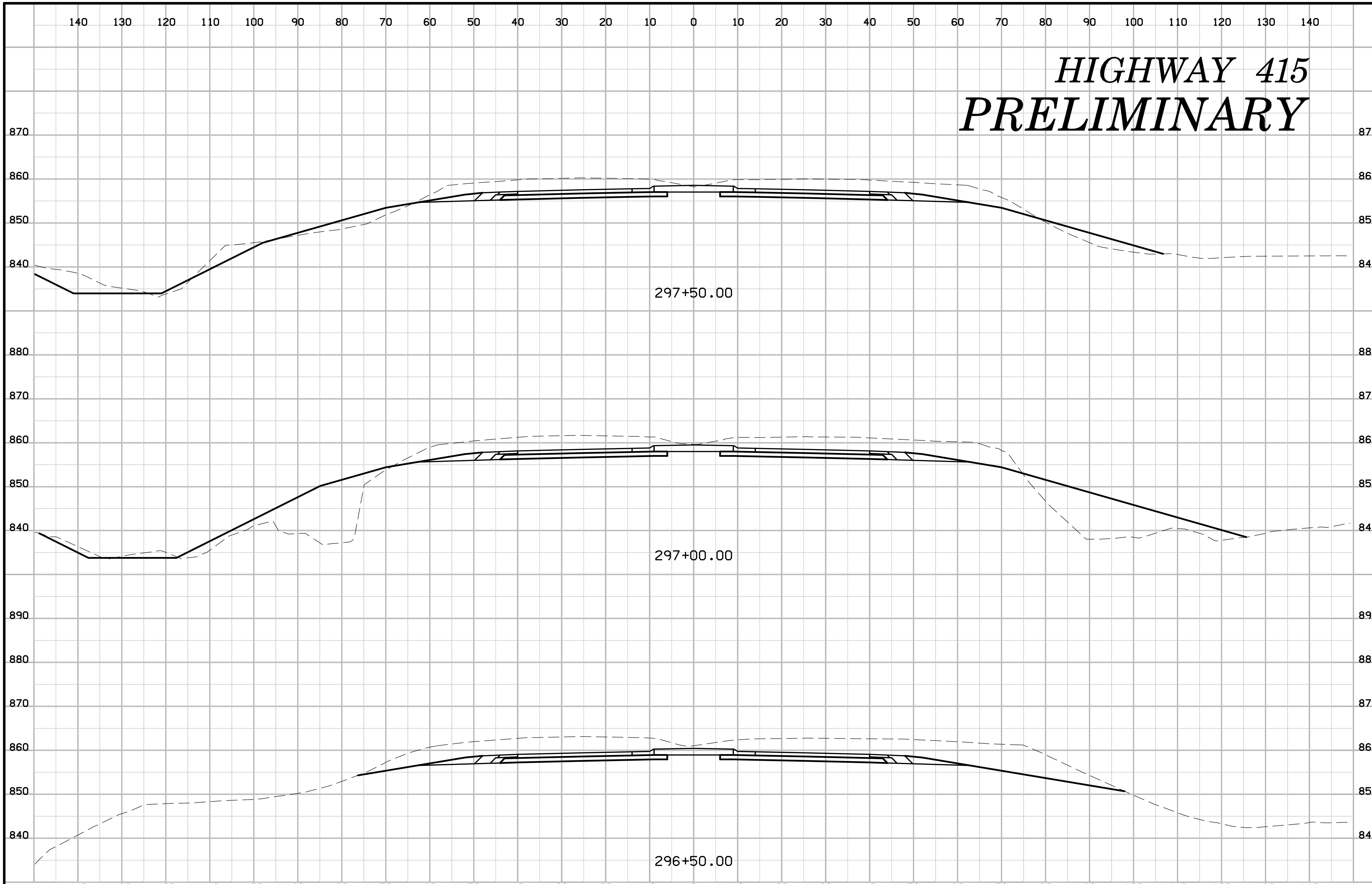
HIGHWAY 415

PRELIMINARY

296+00.00

295+50.00



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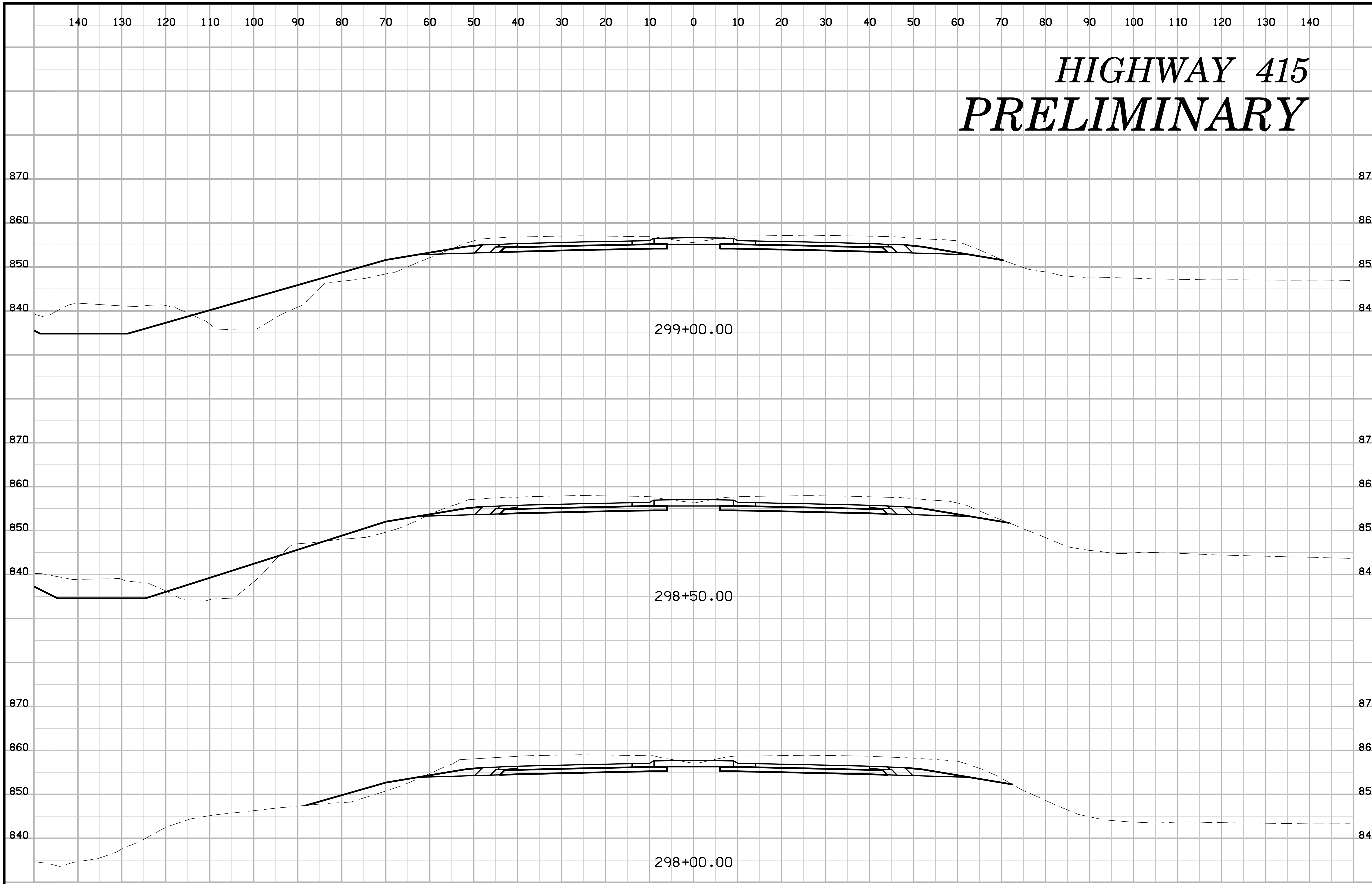
HIGHWAY 415
PRELIMINARY



ENGLISH	IOWA DOT	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	POLK COUNTY	PROJECT NUMBER	BRF-415-1(52)--38-77	SHEET NUMBER	W.22

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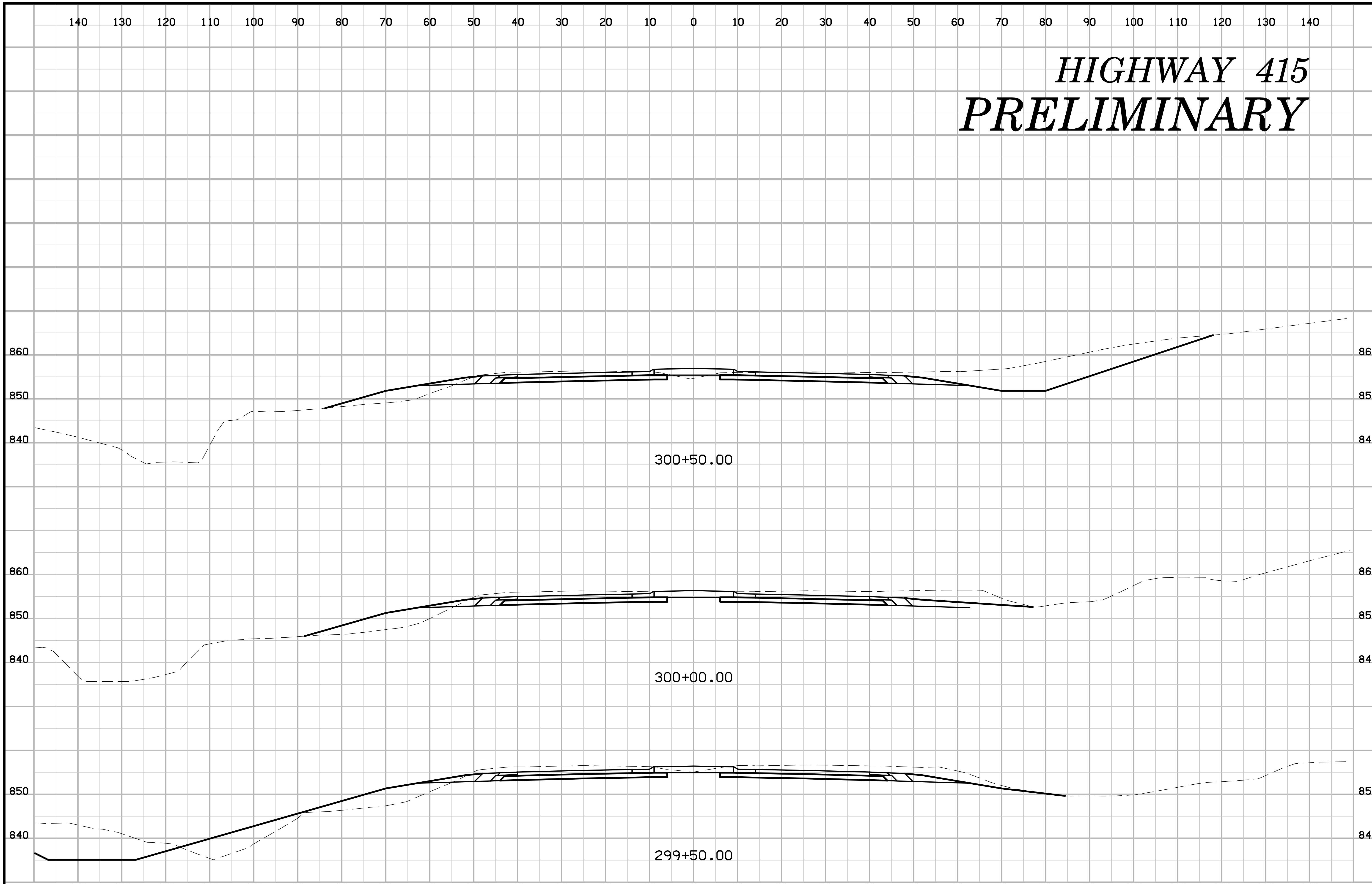

ENGLISH	IOWA DOT	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	POLK COUNTY	PROJECT NUMBER	BRF-415-1(52)--38-77	SHEET NUMBER	W.23

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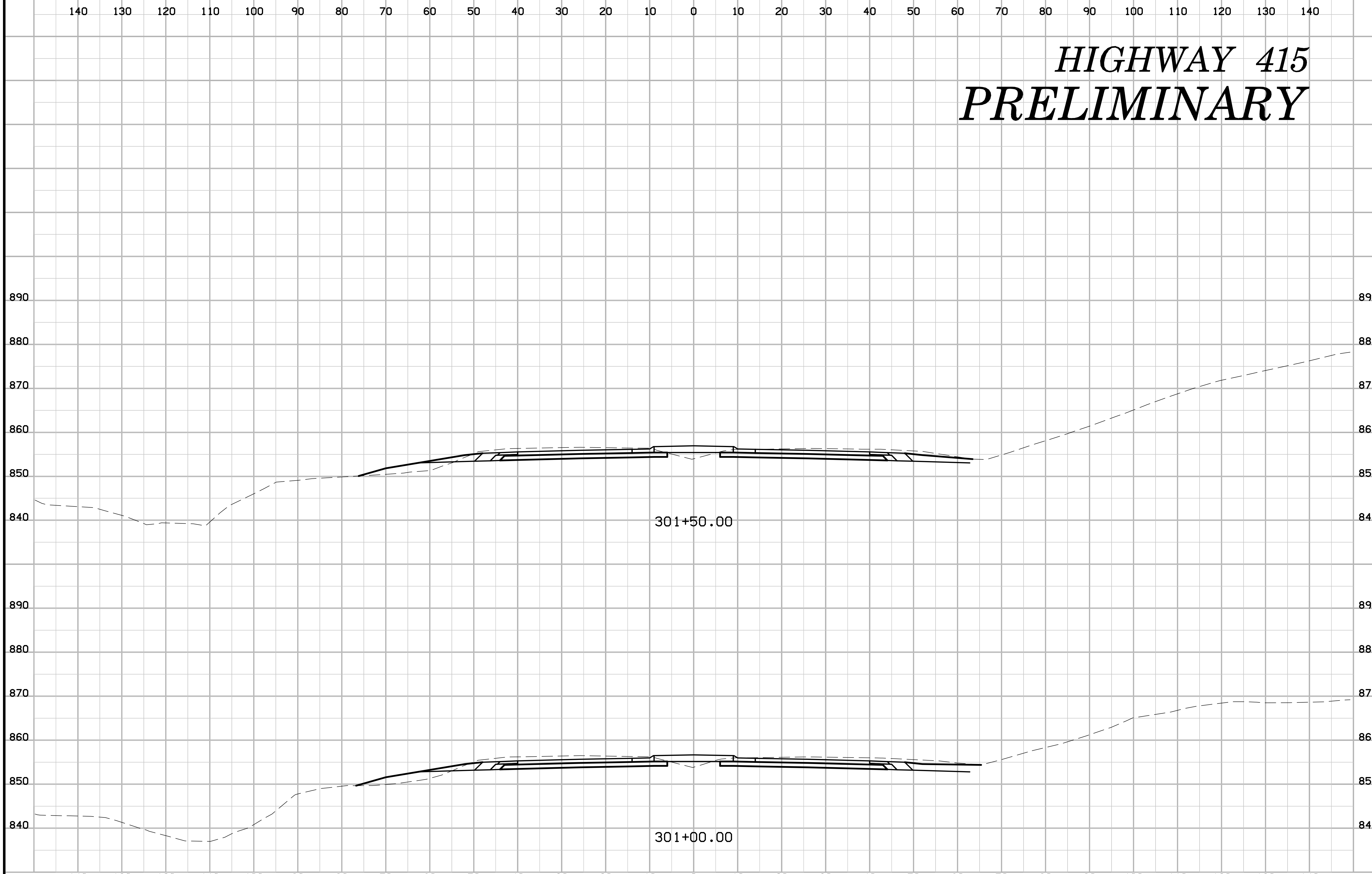
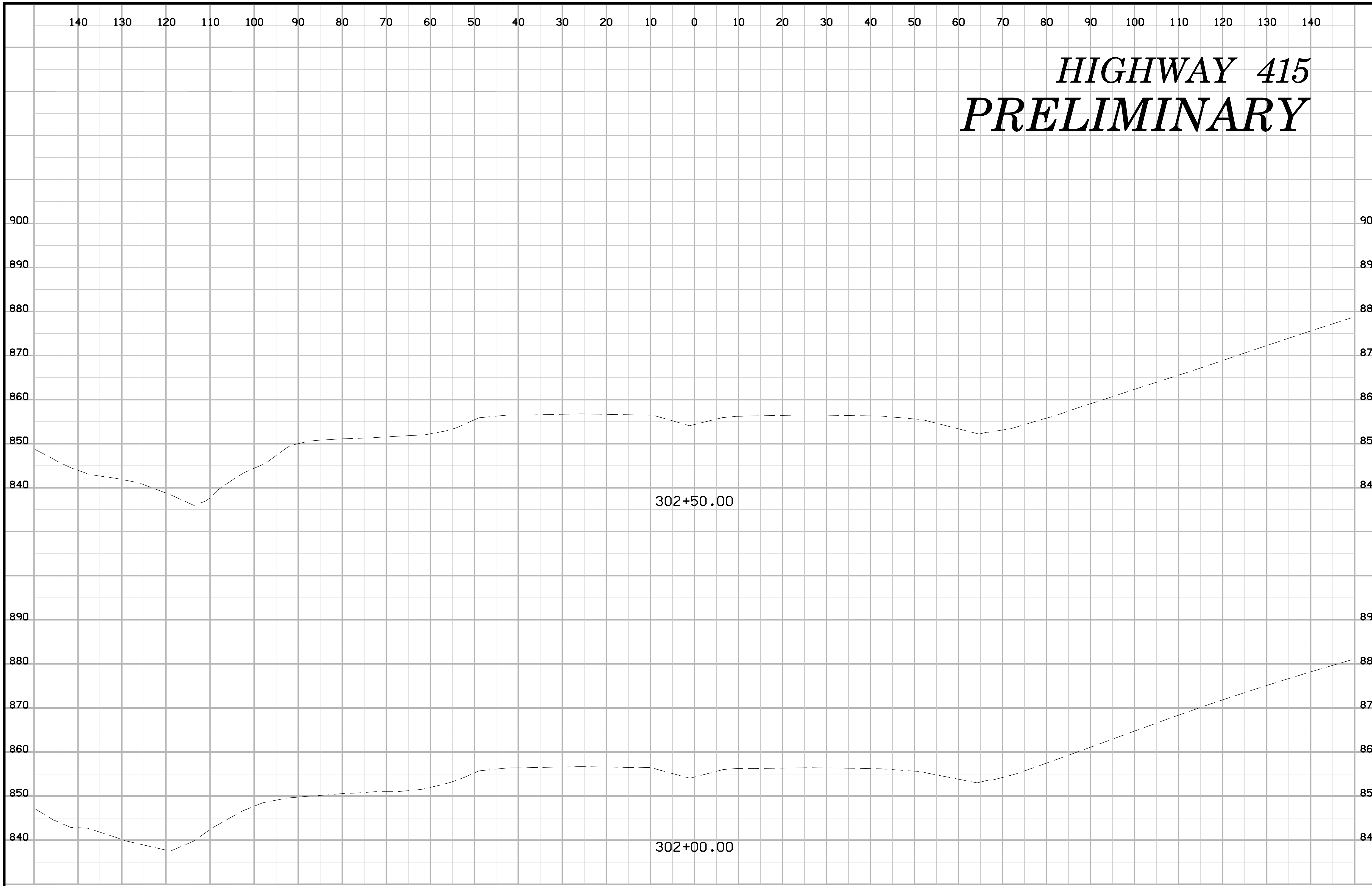
HIGHWAY 415
PRELIMINARY





ENGLISH	IOWA DOT	DESIGN TEAM	SNYDER & ASSOCIATES, INC.		POLK COUNTY	PROJECT NUMBER	BRF-415-1(52)--38-77	SHEET NUMBER	W.25

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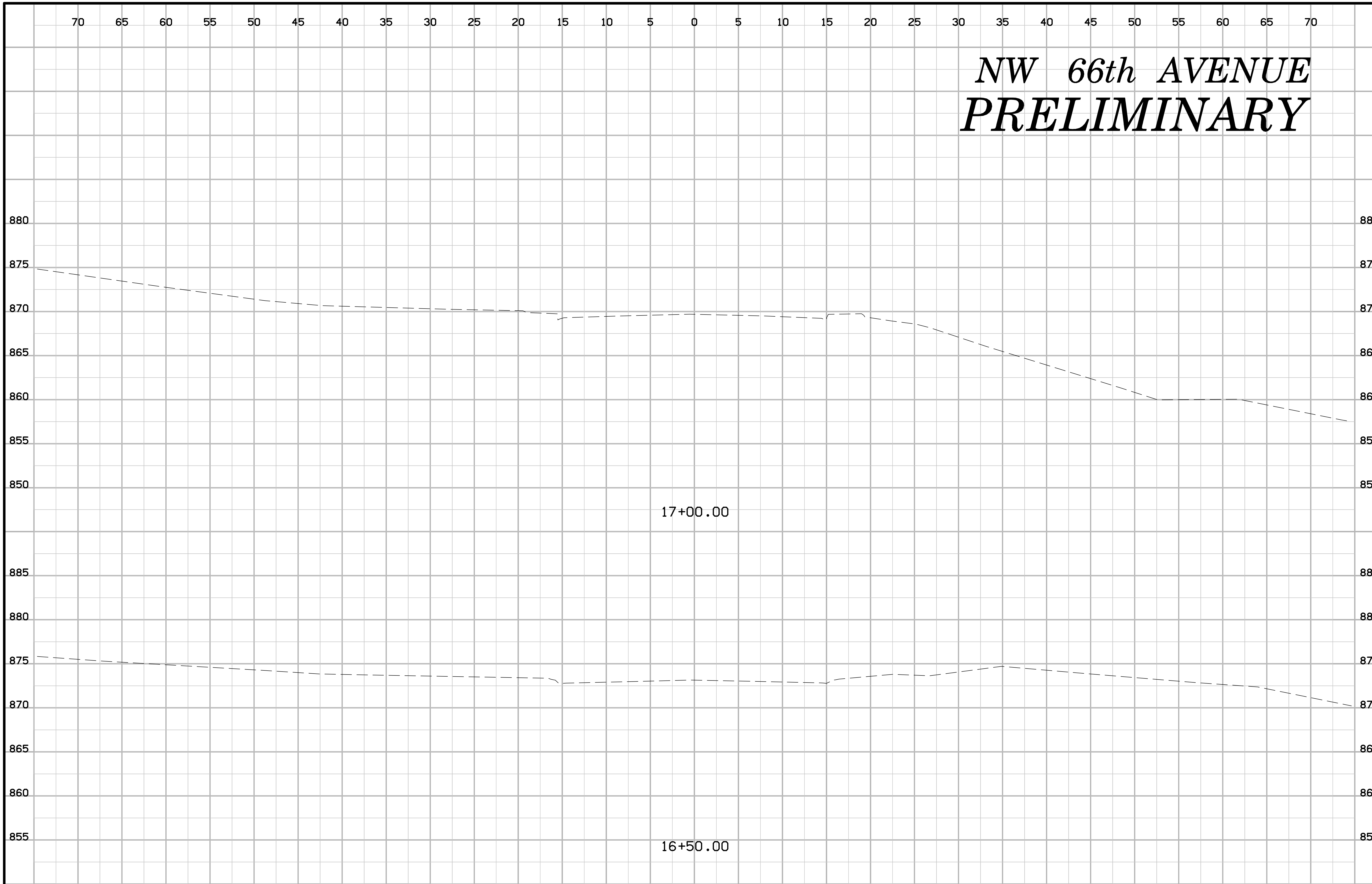
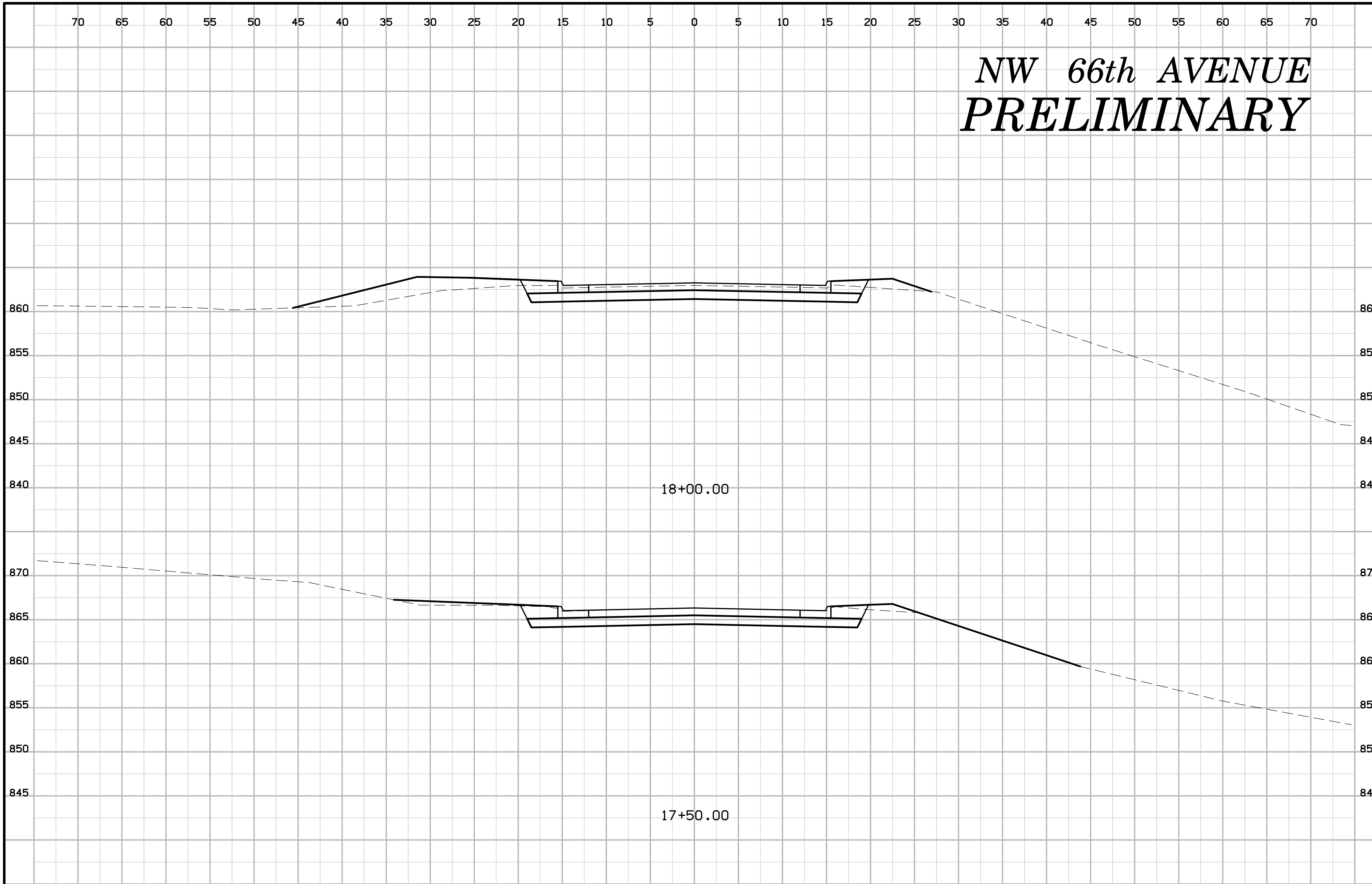
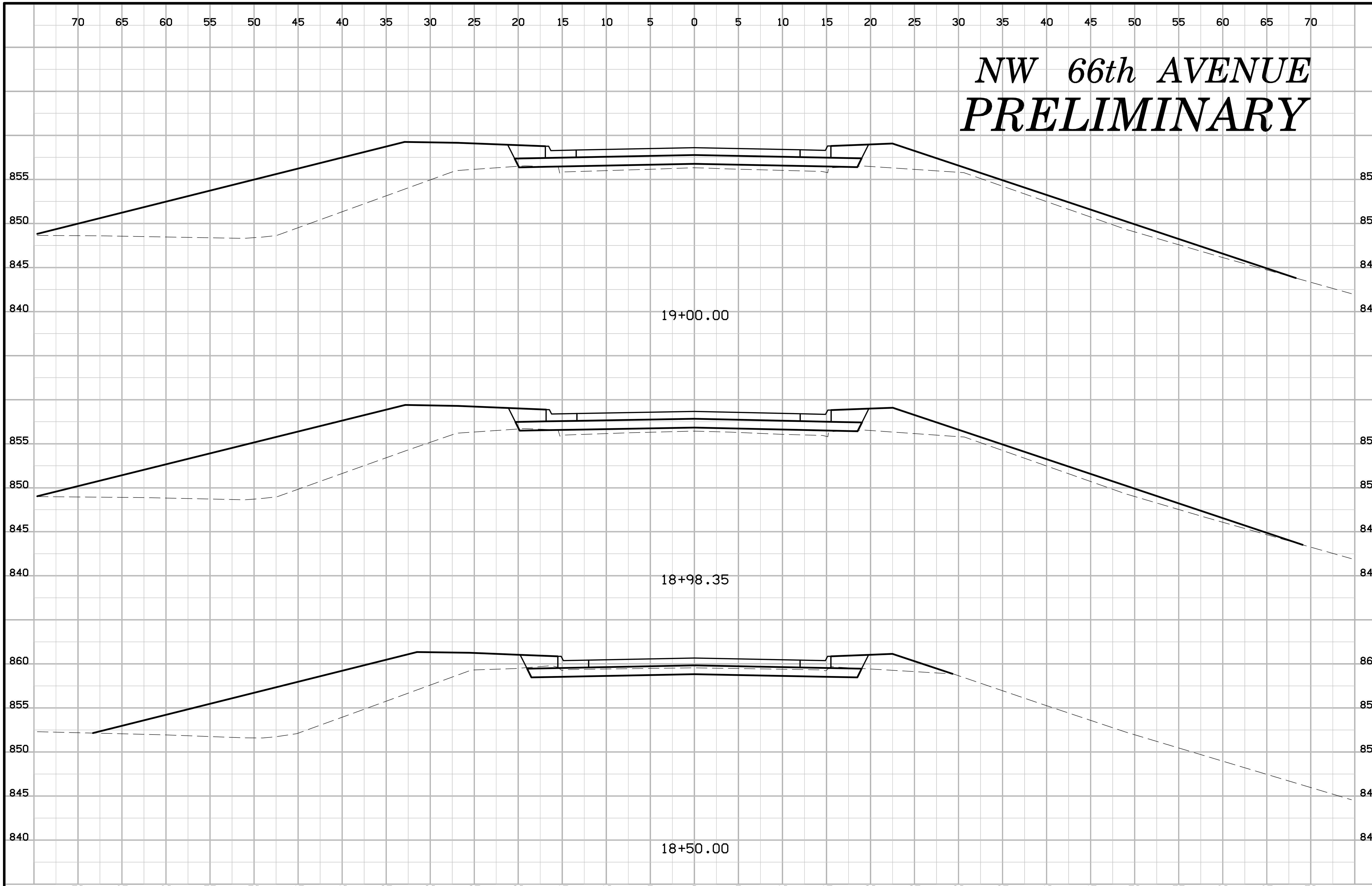
NW 66th AVENUE
PRELIMINARY



NW 66th AVENUE
PRELIMINARY





C	ENGLISH	IOWA DOT	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	POLK COUNTY	PROJECT NUMBER	BRF-415-1(52)--38-77	SHEET NUMBER X.3

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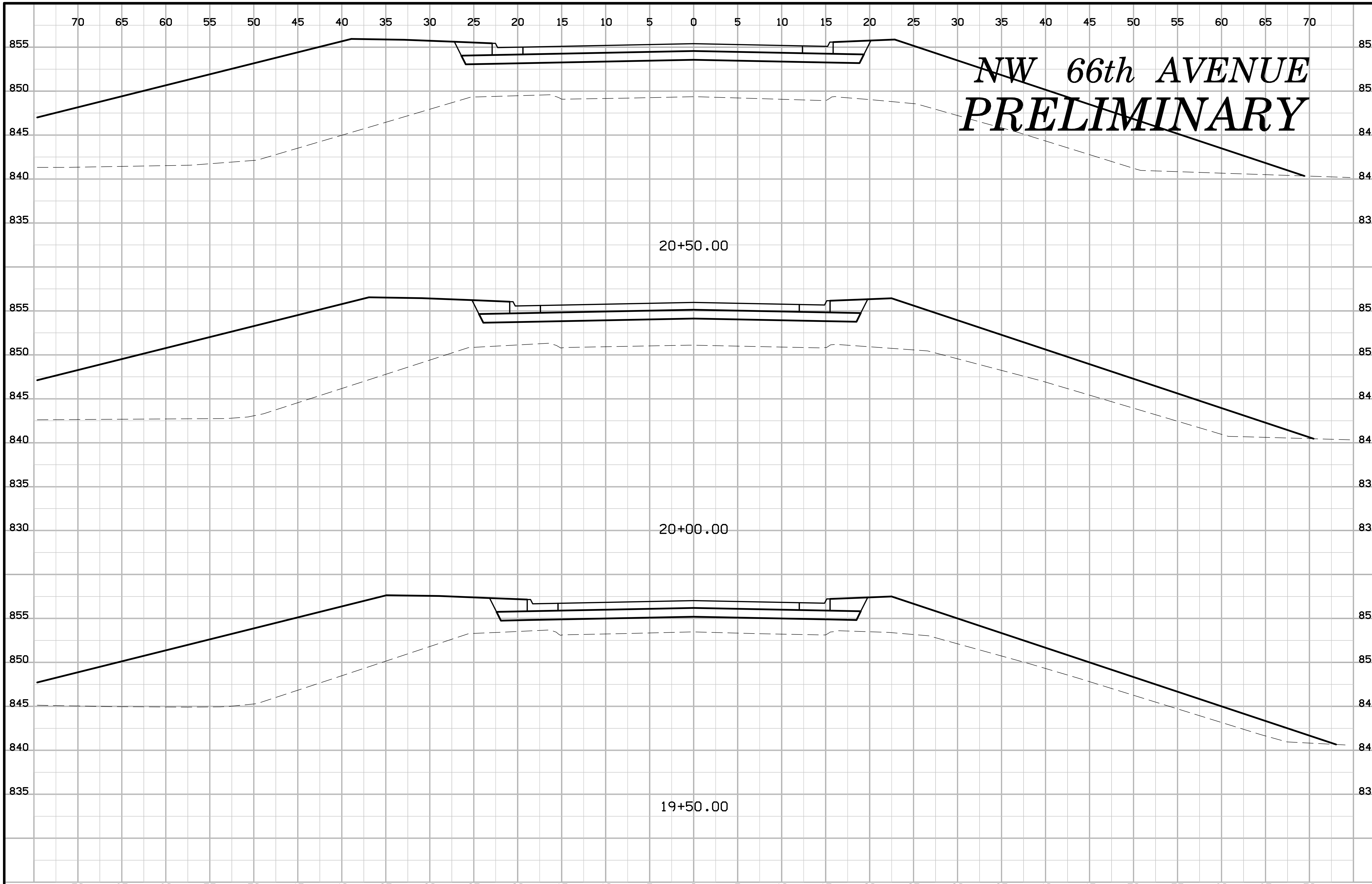

C	ENGLISH	IOWA DOT	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	POLK COUNTY	PROJECT NUMBER	BRF-415-1(52)--38-77	SHEET NUMBER	X.4

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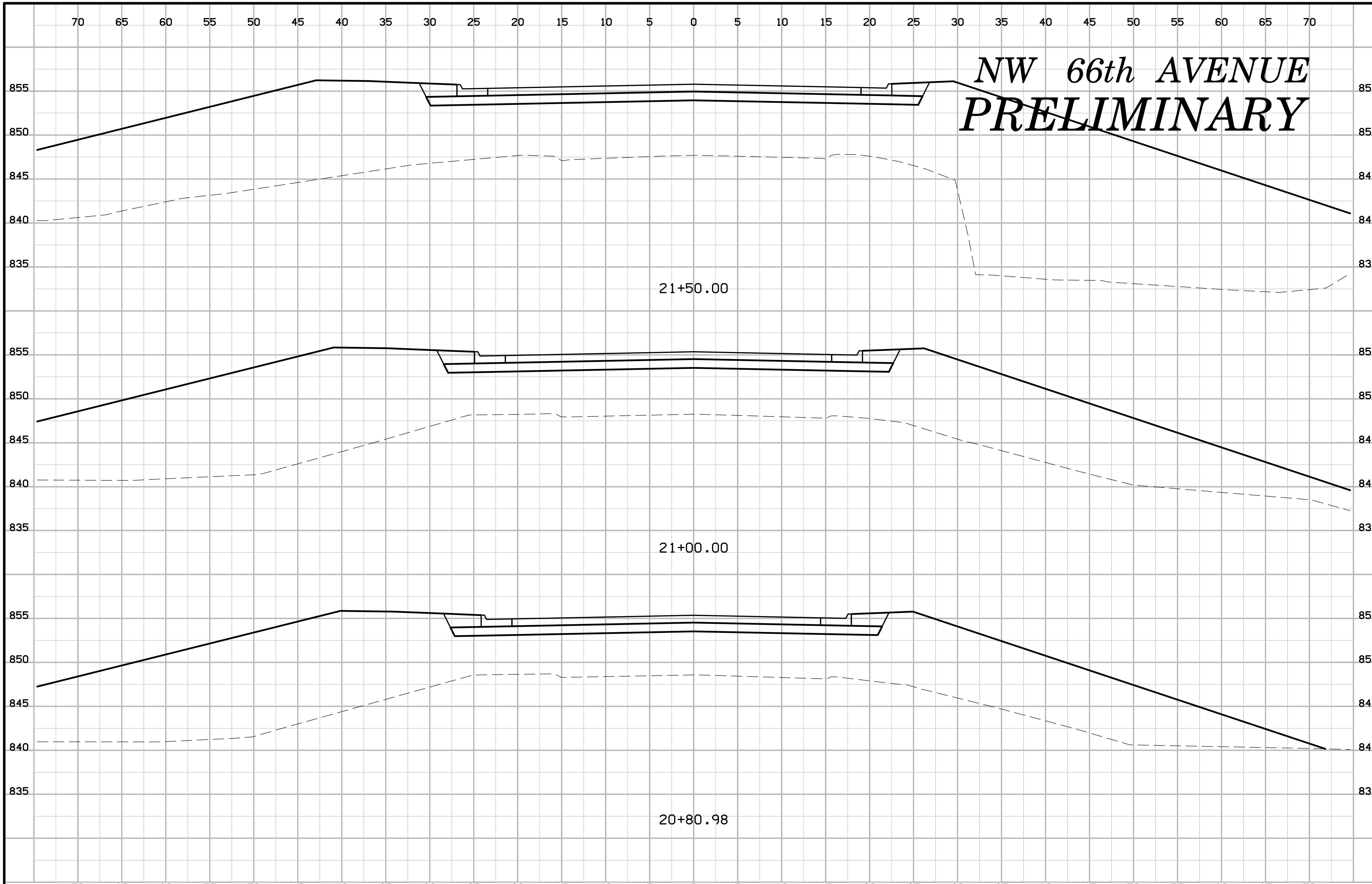

C	ENGLISH	IOWA DOT	DESIGN TEAM	SNYDER & ASSOCIATES, INC.		POLK COUNTY	PROJECT NUMBER	BRF-415-1(52)--38-77	SHEET NUMBER	X.5

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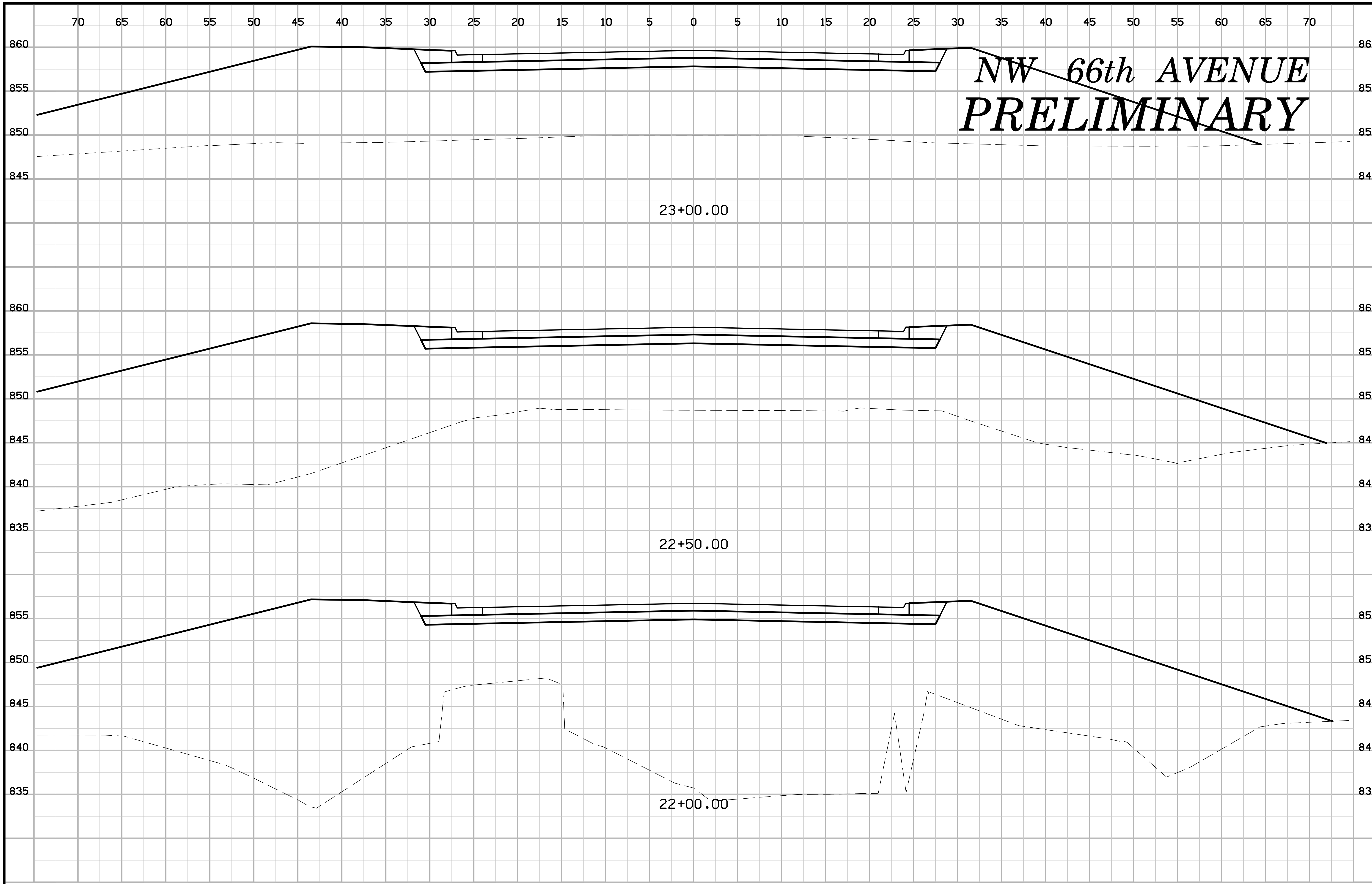

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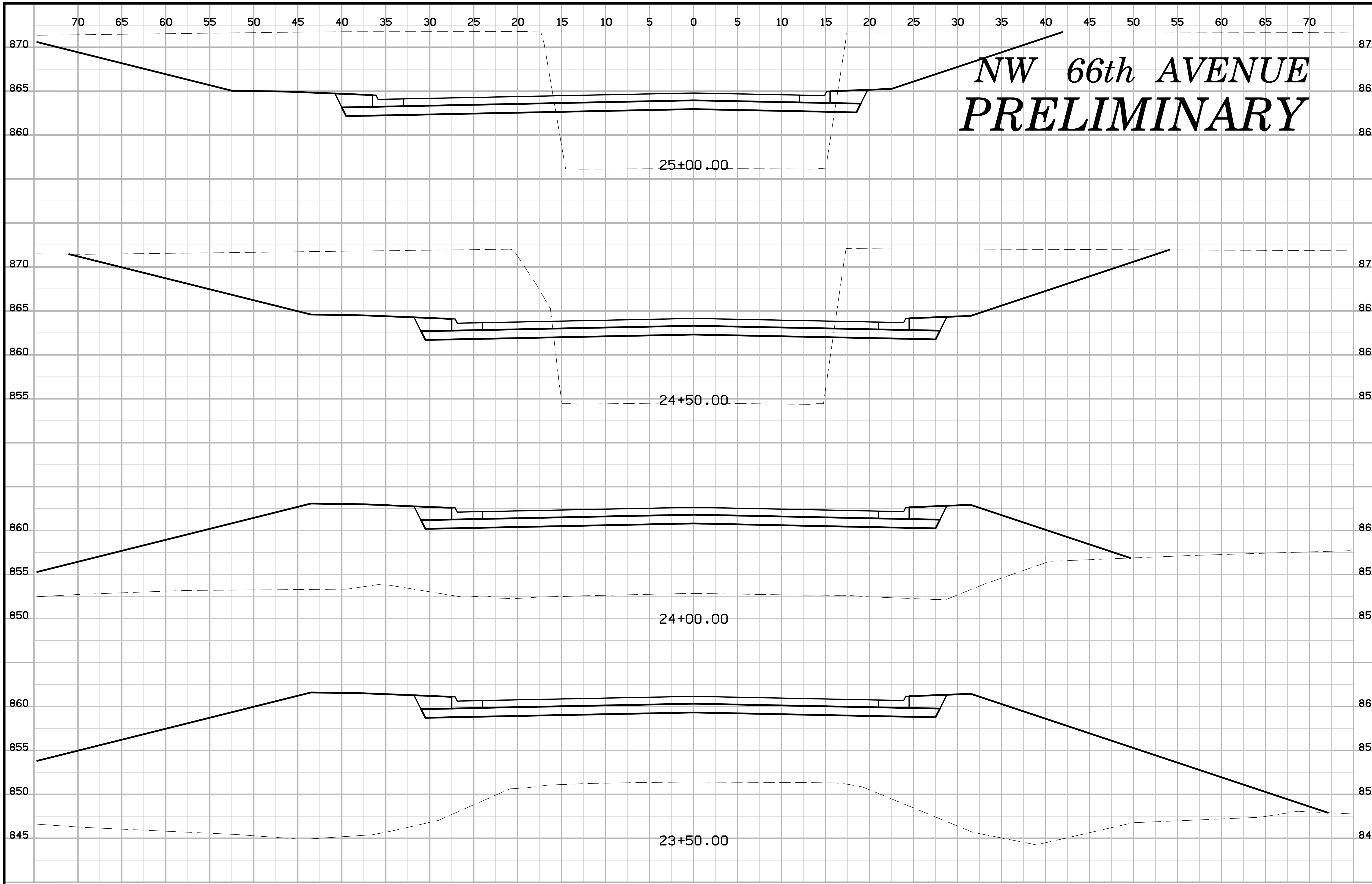

C	ENGLISH	IOWA DOT	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	POLK COUNTY	PROJECT NUMBER	BRF-415-1(52)--38-77	SHEET NUMBER X.7

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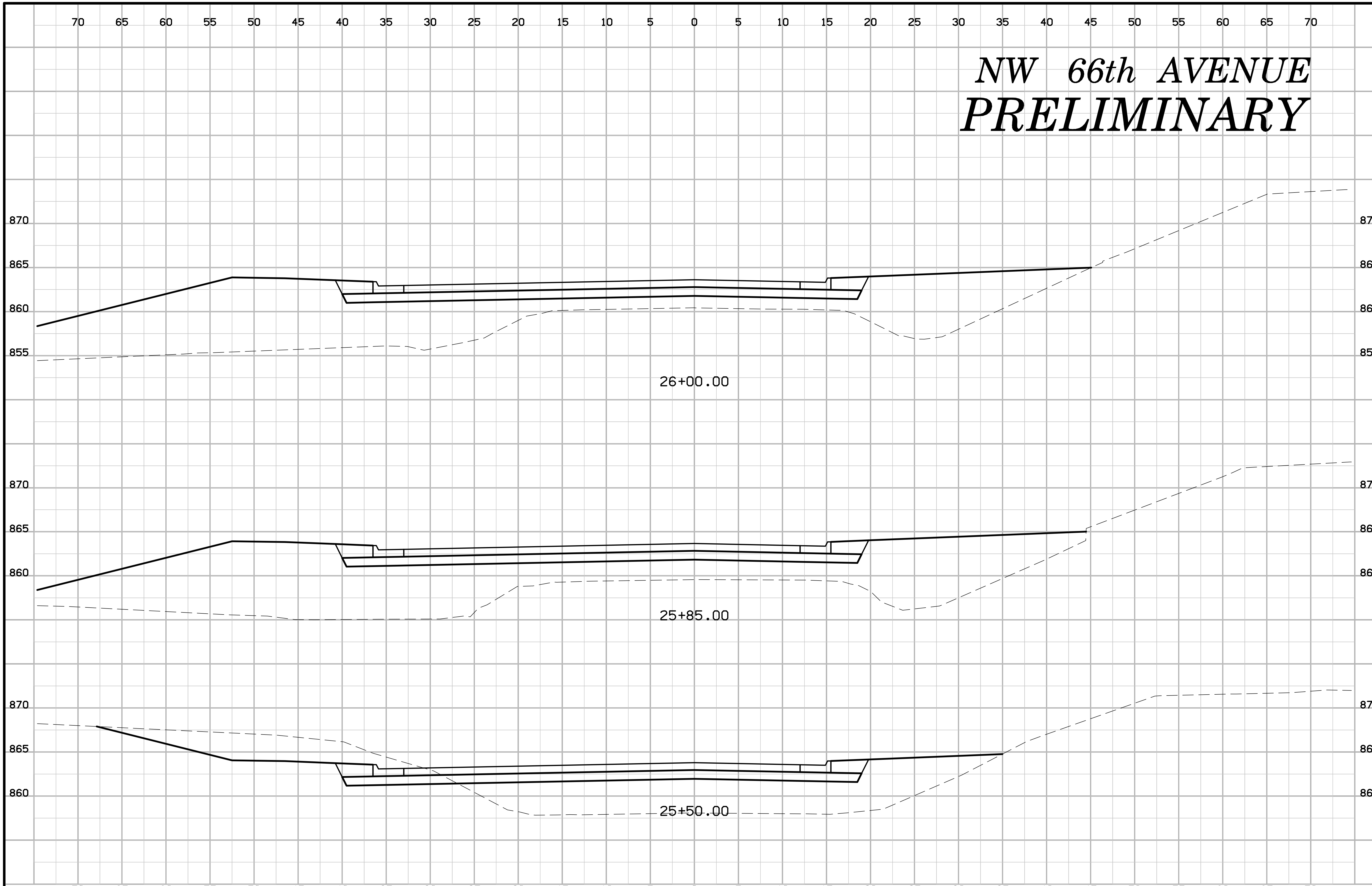
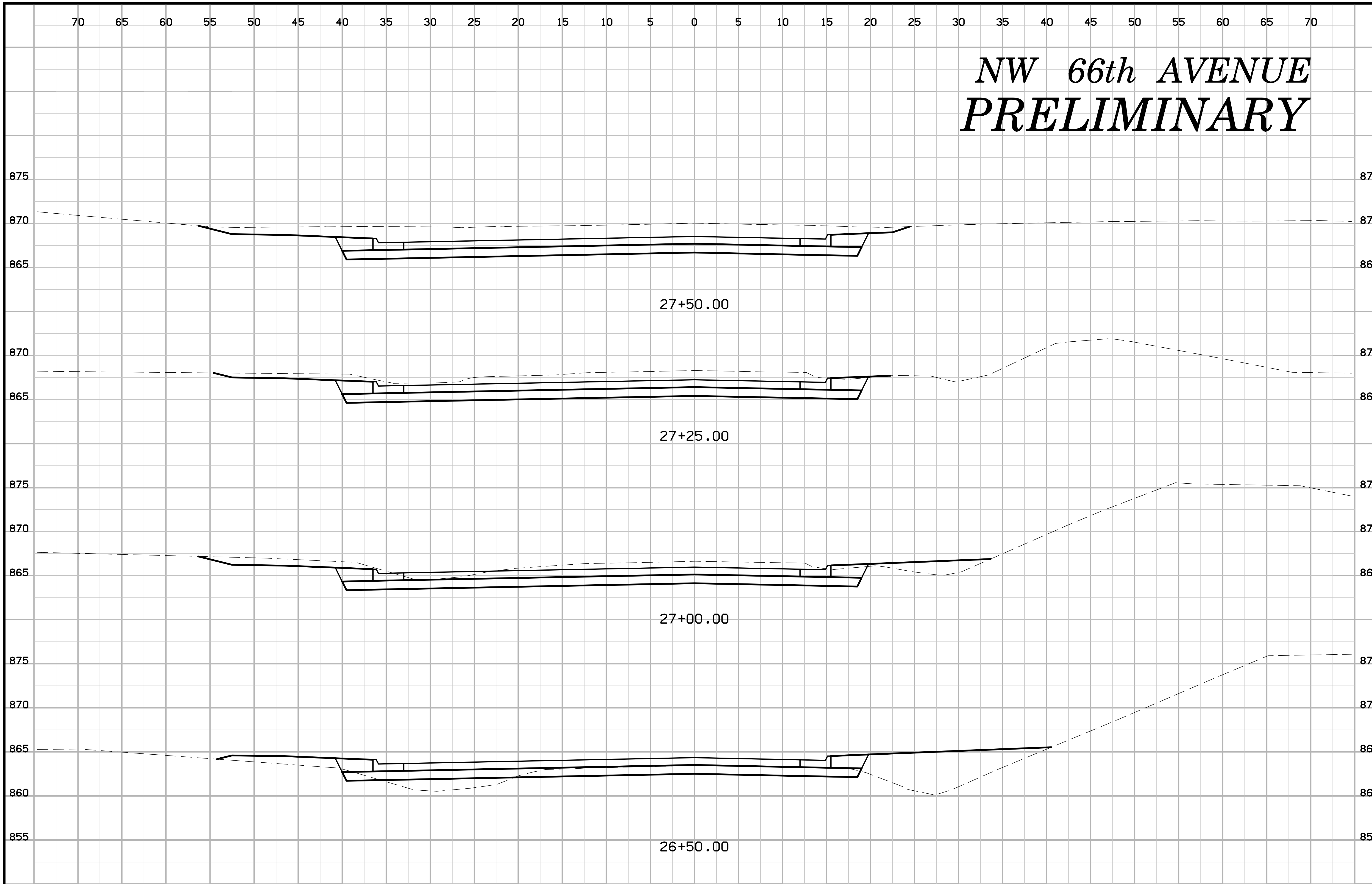
NW 66th AVENUE
PRELIMINARY





C	ENGLISH	IOWA DOT	DESIGN TEAM SNYDER & ASSOCIATES, INC.	POLK COUNTY	PROJECT NUMBER BRF-415-1(52)--38-77	SHEET NUMBER X.9	

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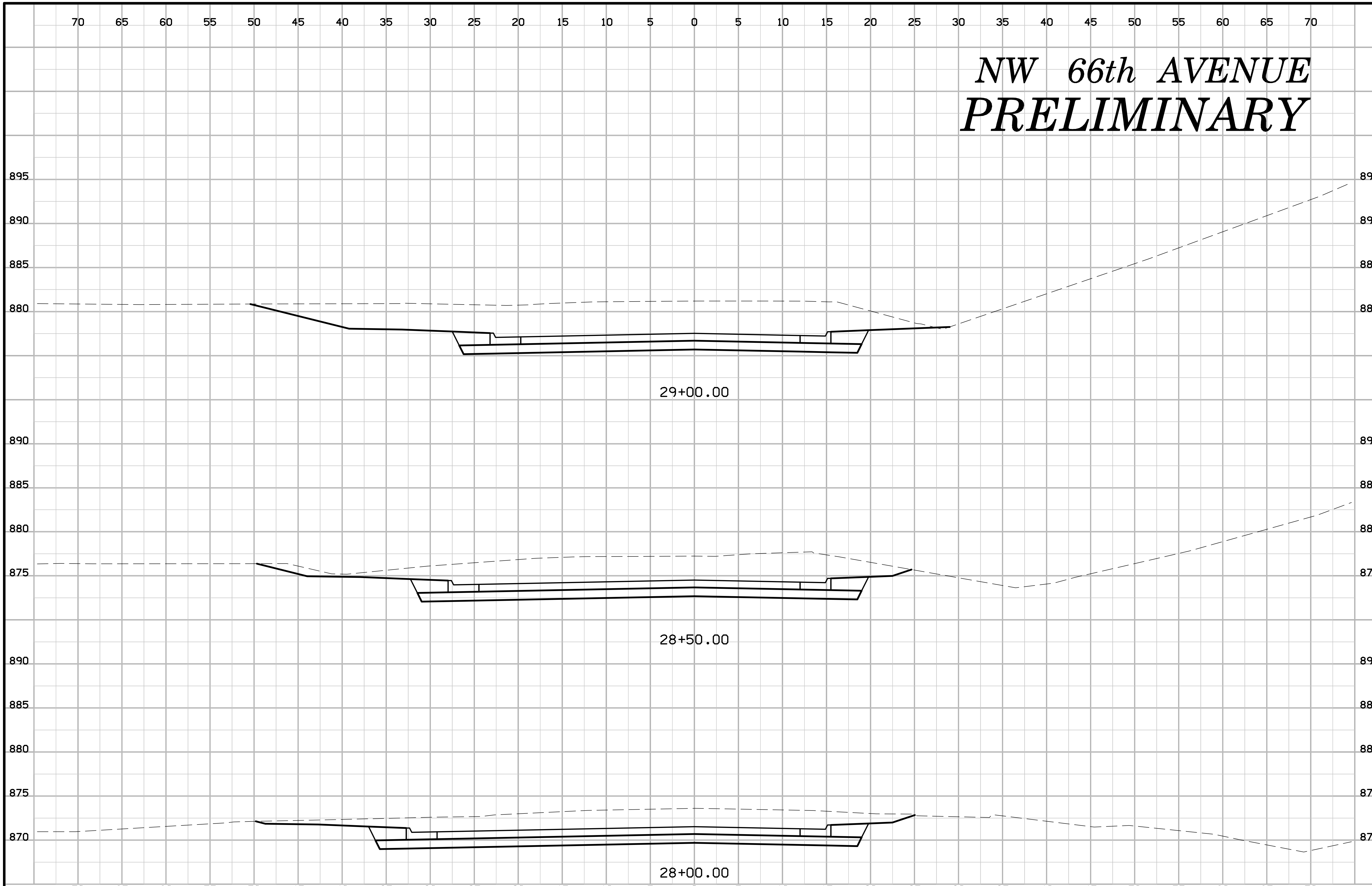
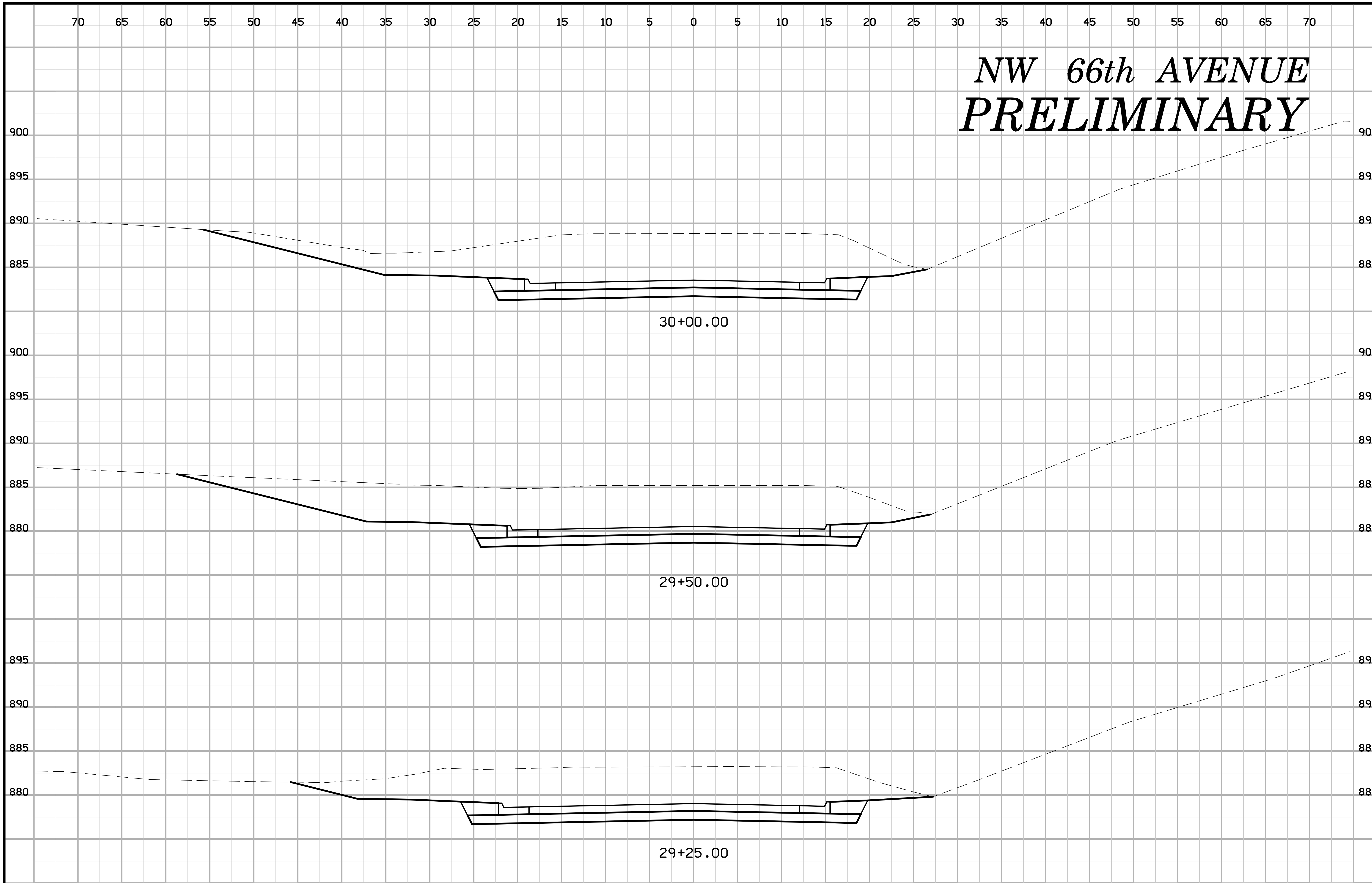
NW 66th AVENUE
PRELIMINARY





C ENGLISH IOWA DOT DESIGN TEAM SNYDER & ASSOCIATES, INC. POLK COUNTY PROJECT NUMBER BRF-415-1(52)--38-77 SHEET NUMBER X.11

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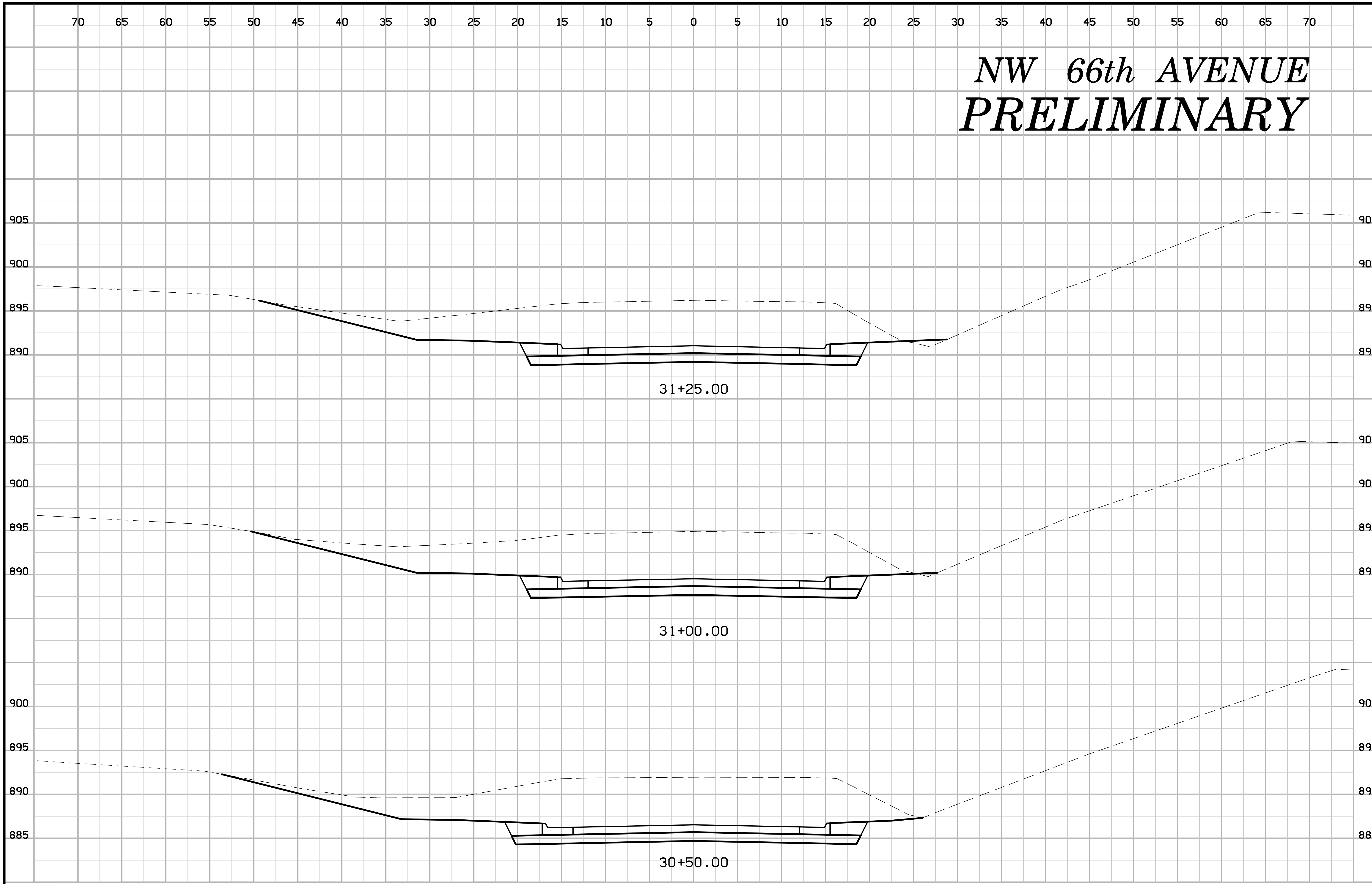
NW 66th AVENUE
PRELIMINARY



C ENGLISH	IOWA DOT	DESIGN TEAM	SNYDER & ASSOCIATES, INC.		POLK COUNTY	PROJECT NUMBER	BRF-415-1(52)--38-77	SHEET NUMBER X.12

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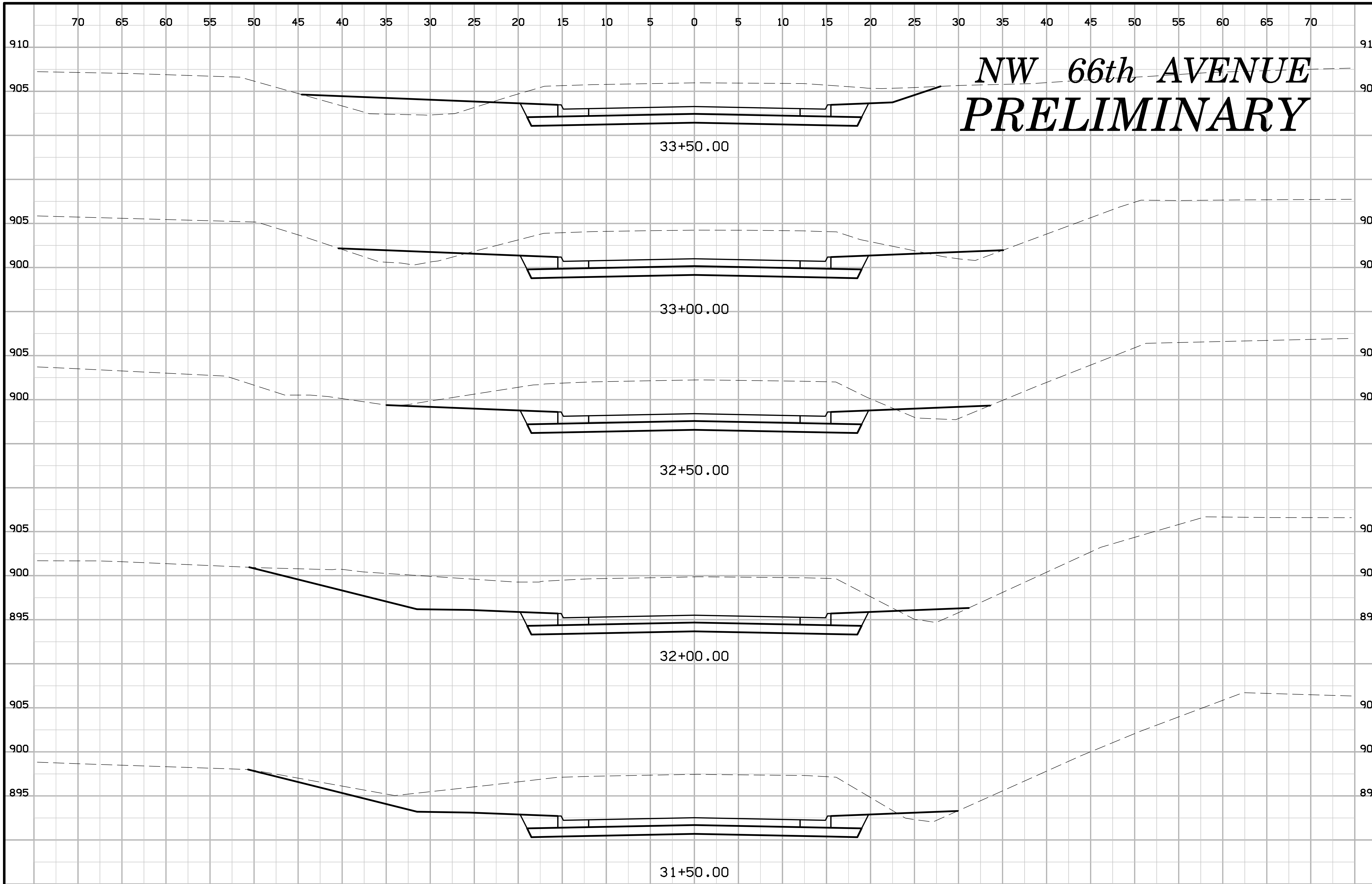

C ENGLISH	IOWA DOT	DESIGN TEAM	SNYDER & ASSOCIATES, INC.		POLK COUNTY	PROJECT NUMBER	BRF-415-1(52)--38-77	SHEET NUMBER X.13

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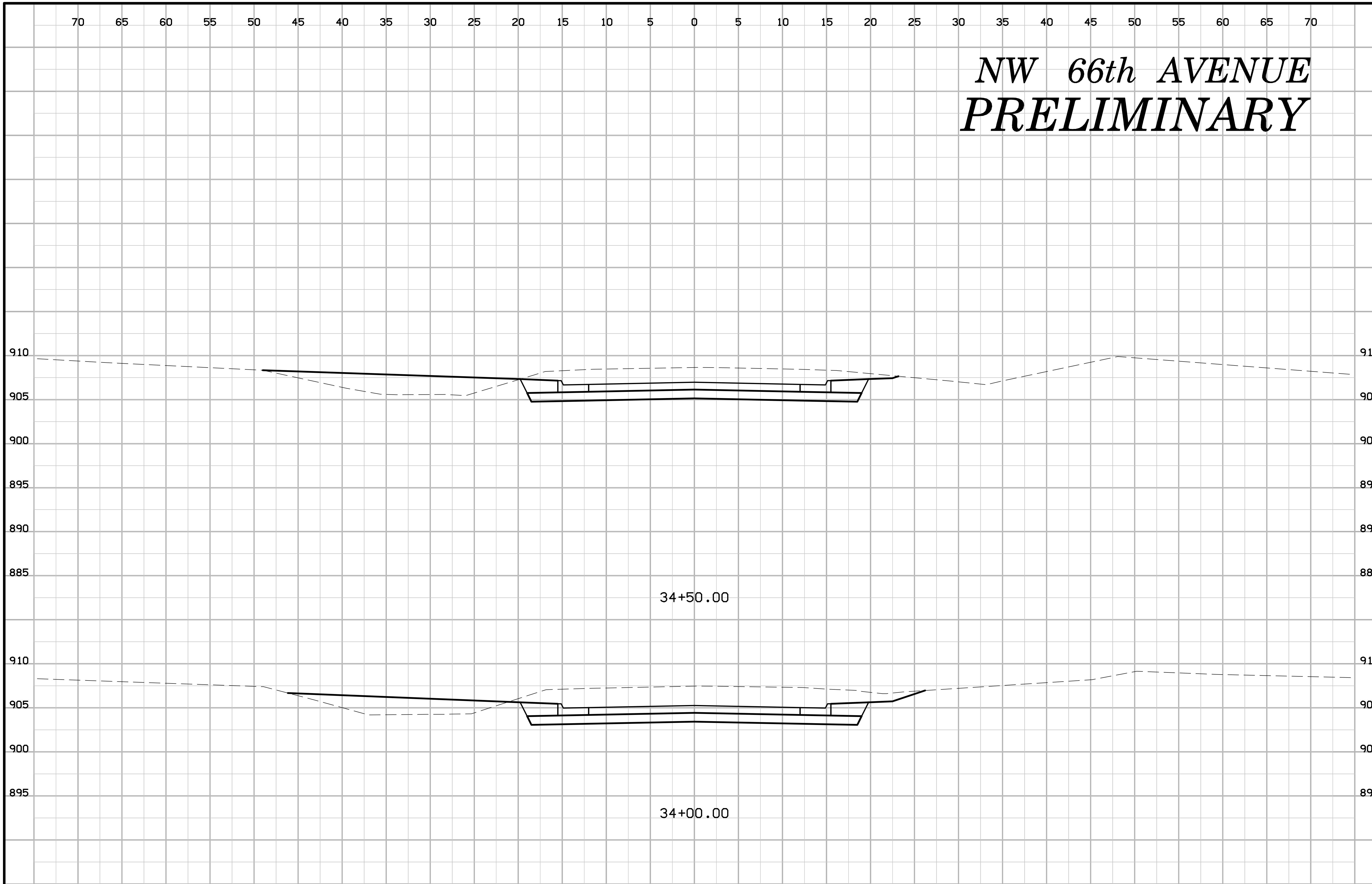
NW 66th AVENUE
PRELIMINARY



C	ENGLISH	IOWA DOT	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	POLK COUNTY	PROJECT NUMBER	BRF-415-1(52)--38-77	SHEET NUMBER X.14

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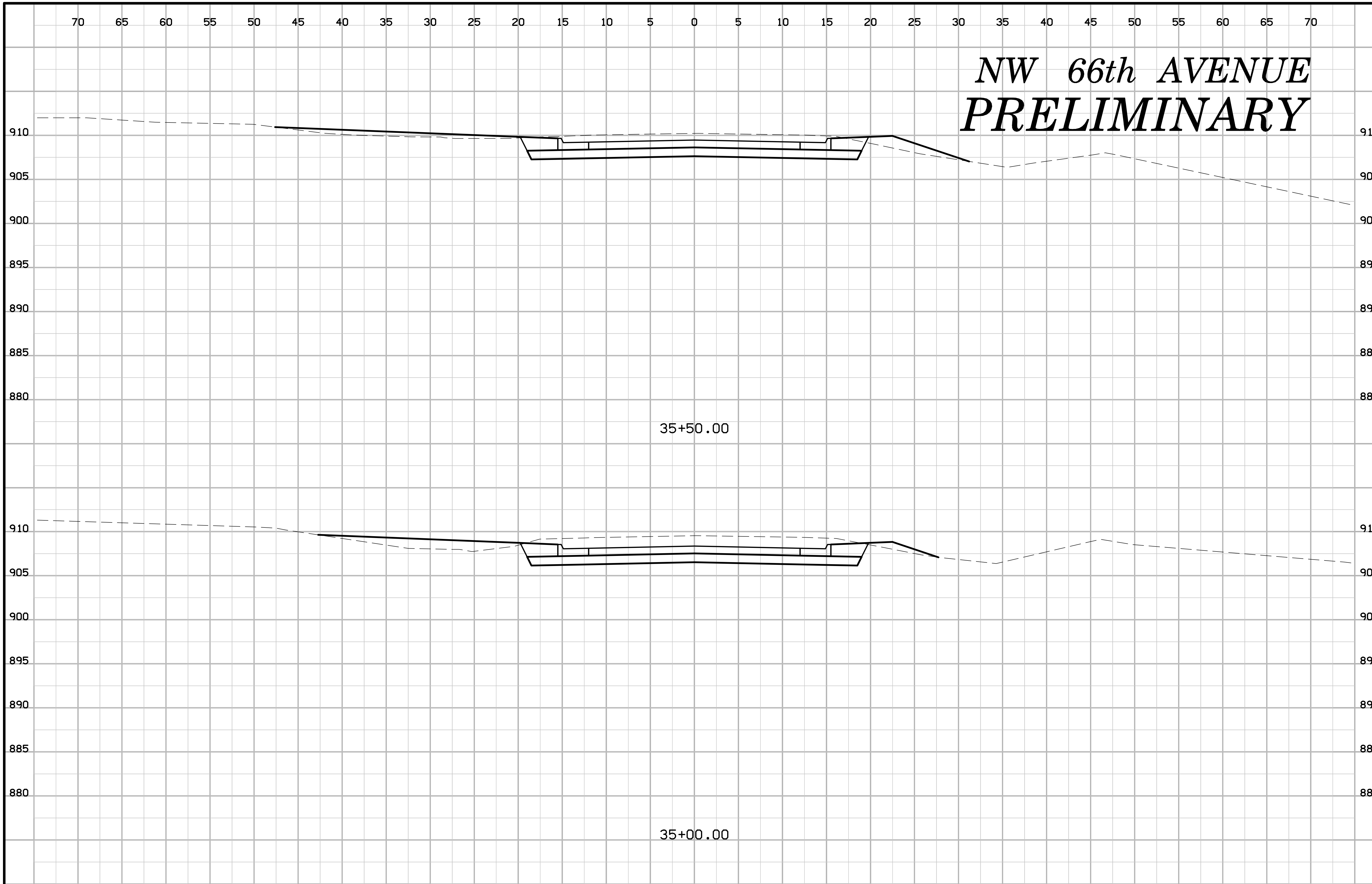
NW 66th AVENUE
PRELIMINARY



C	ENGLISH	IOWA DOT	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	POLK COUNTY	PROJECT NUMBER	BRF-415-1(52)--38-77	SHEET NUMBER X.15

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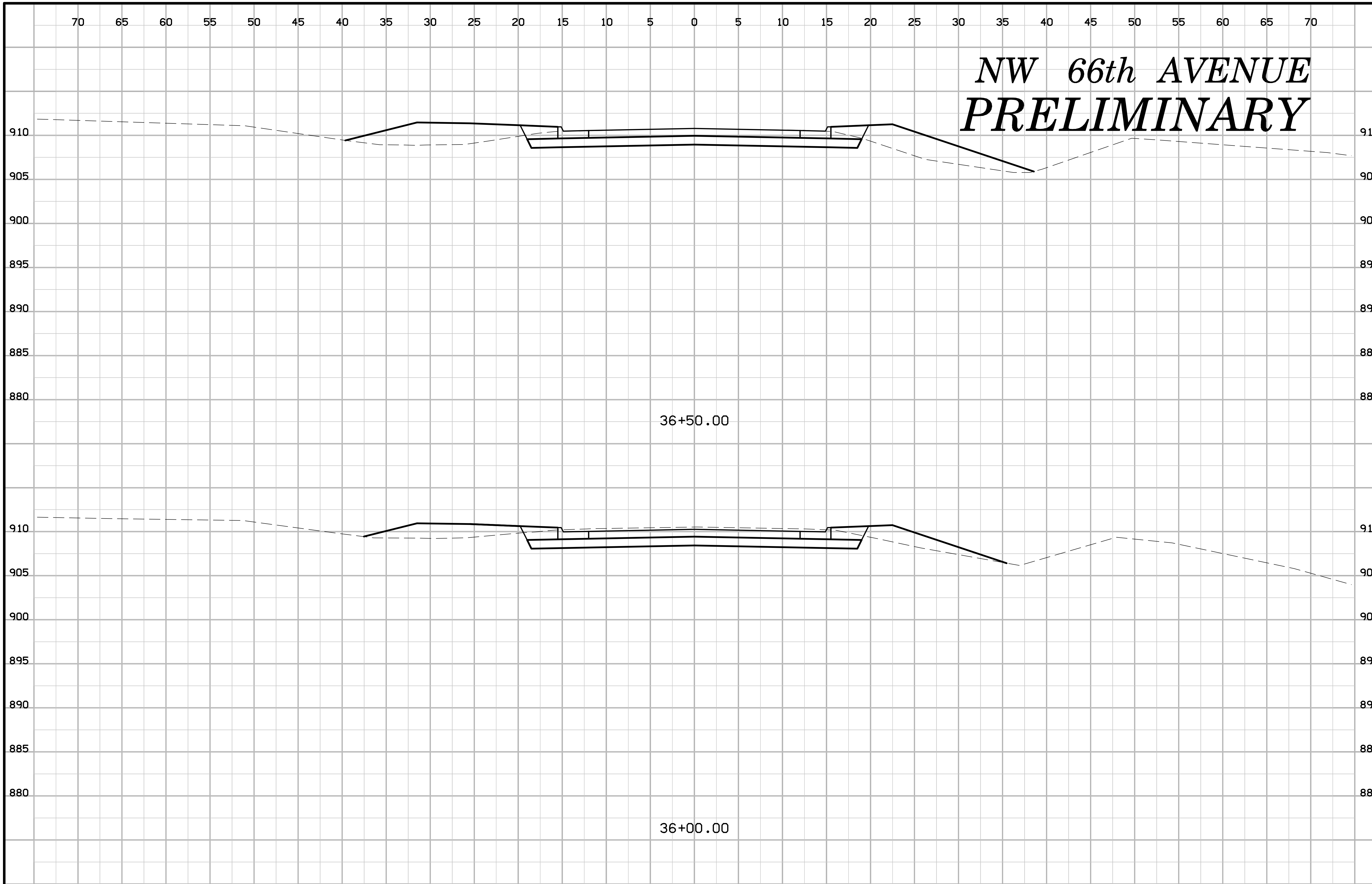
NW 66th AVENUE
PRELIMINARY



C	ENGLISH	IOWA DOT	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	POLK COUNTY	PROJECT NUMBER	BRF-415-1(52)--38-77	SHEET NUMBER	X.16

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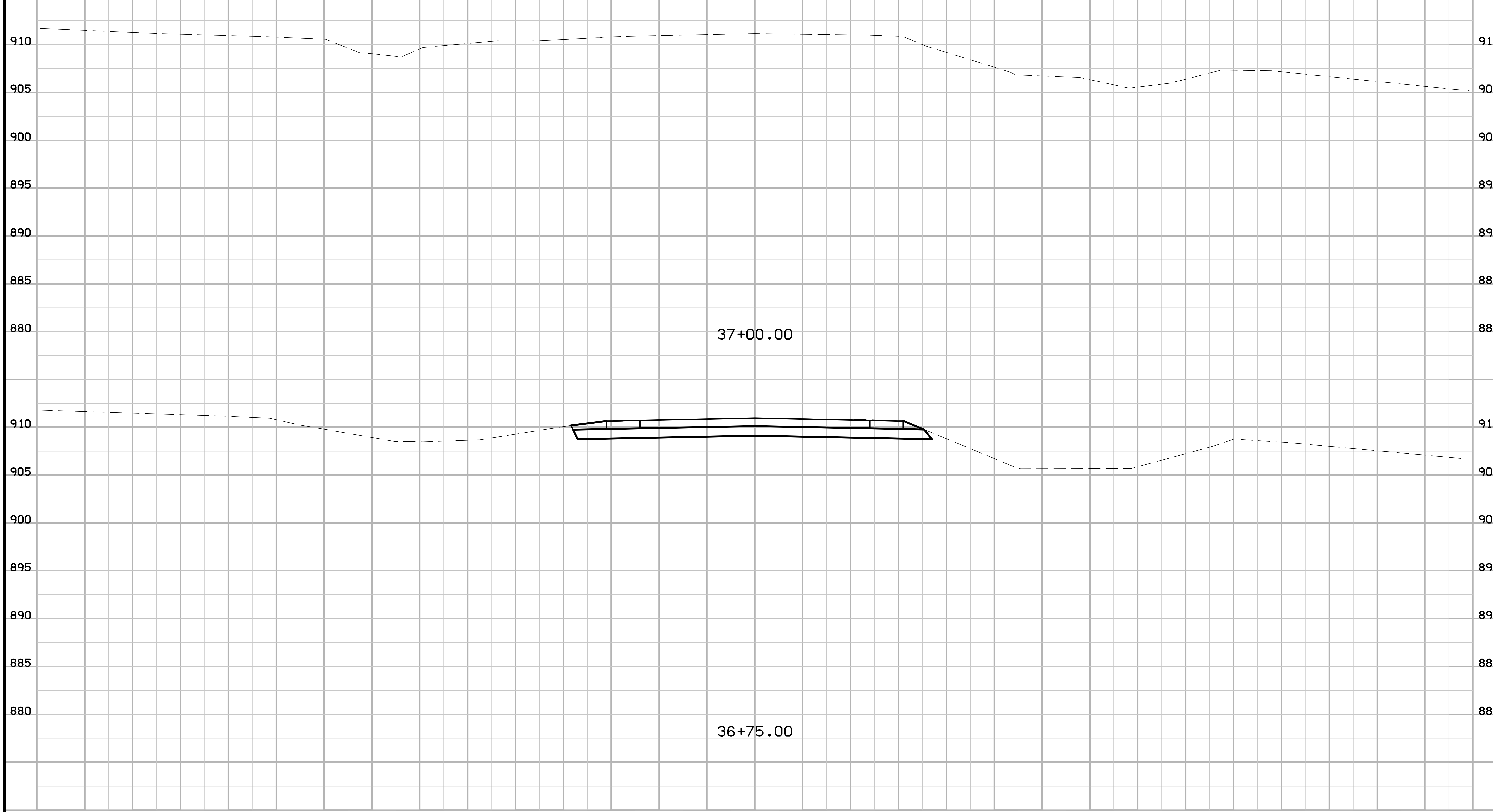
NW 66th AVENUE
PRELIMINARY



C ENGLISH | IOWA DOT | DESIGN TEAM SNYDER & ASSOCIATES, INC. | POLK COUNTY | PROJECT NUMBER BRF-415-1(52)--38-77 | SHEET NUMBER X.17

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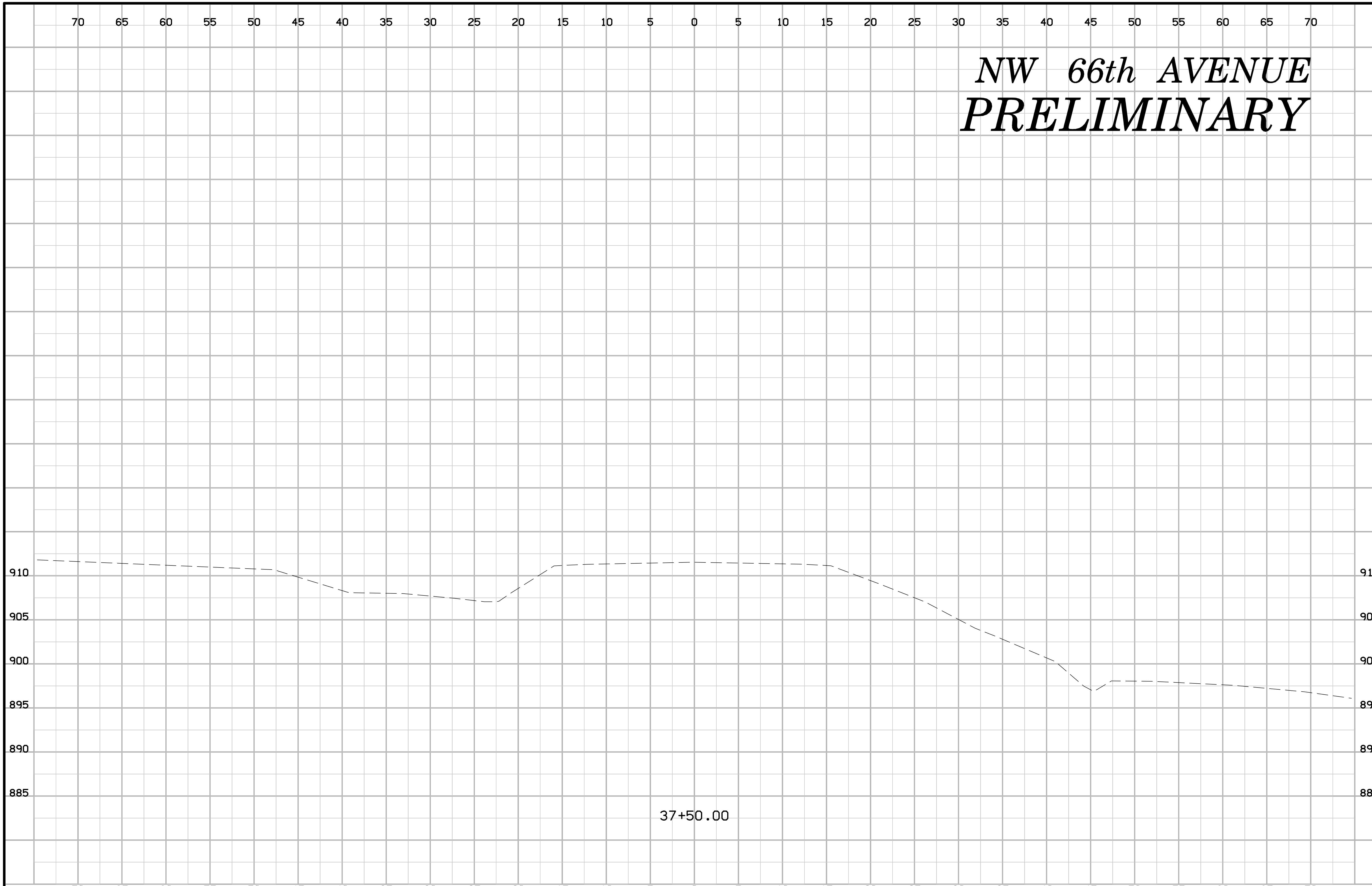
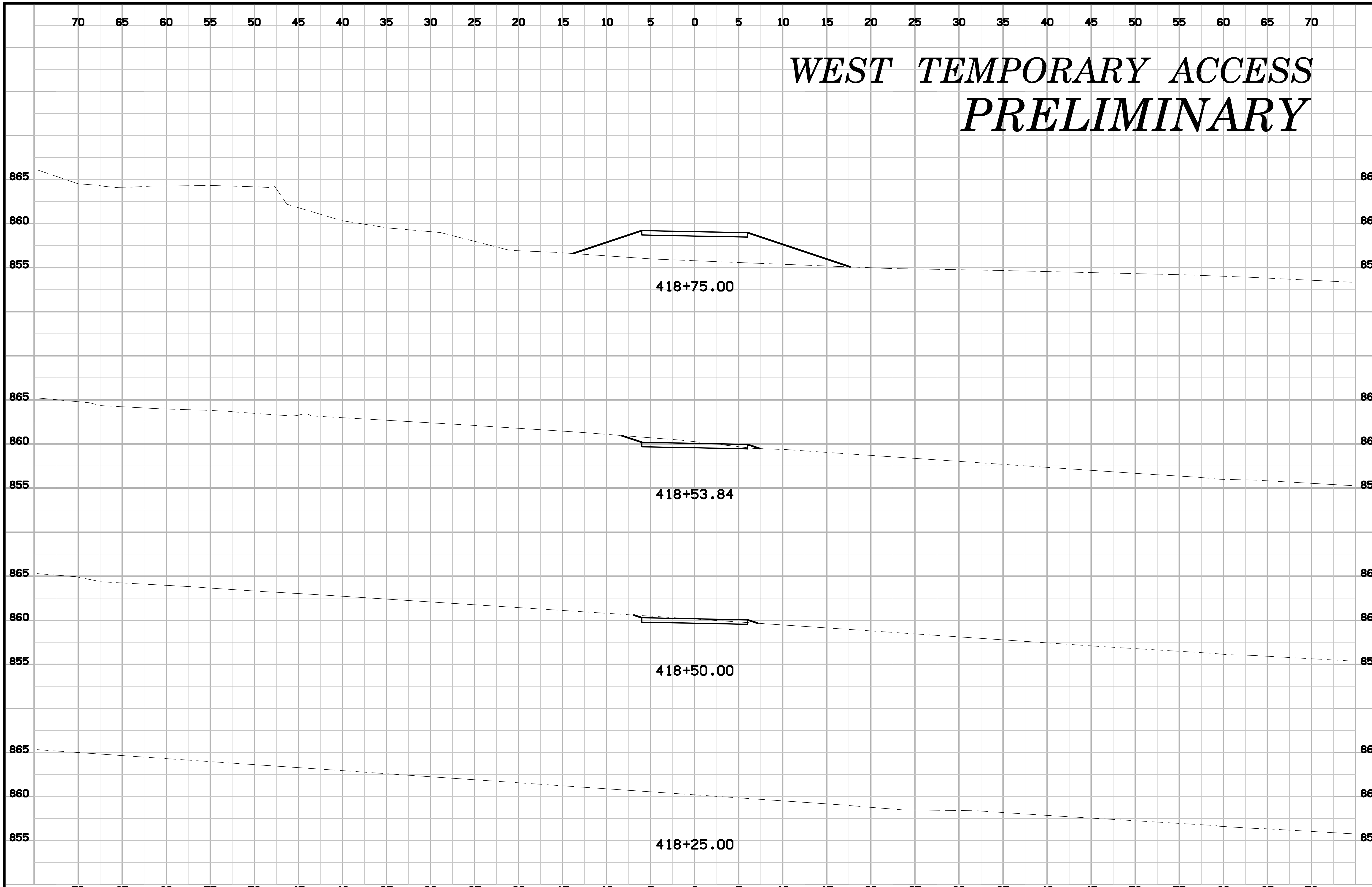
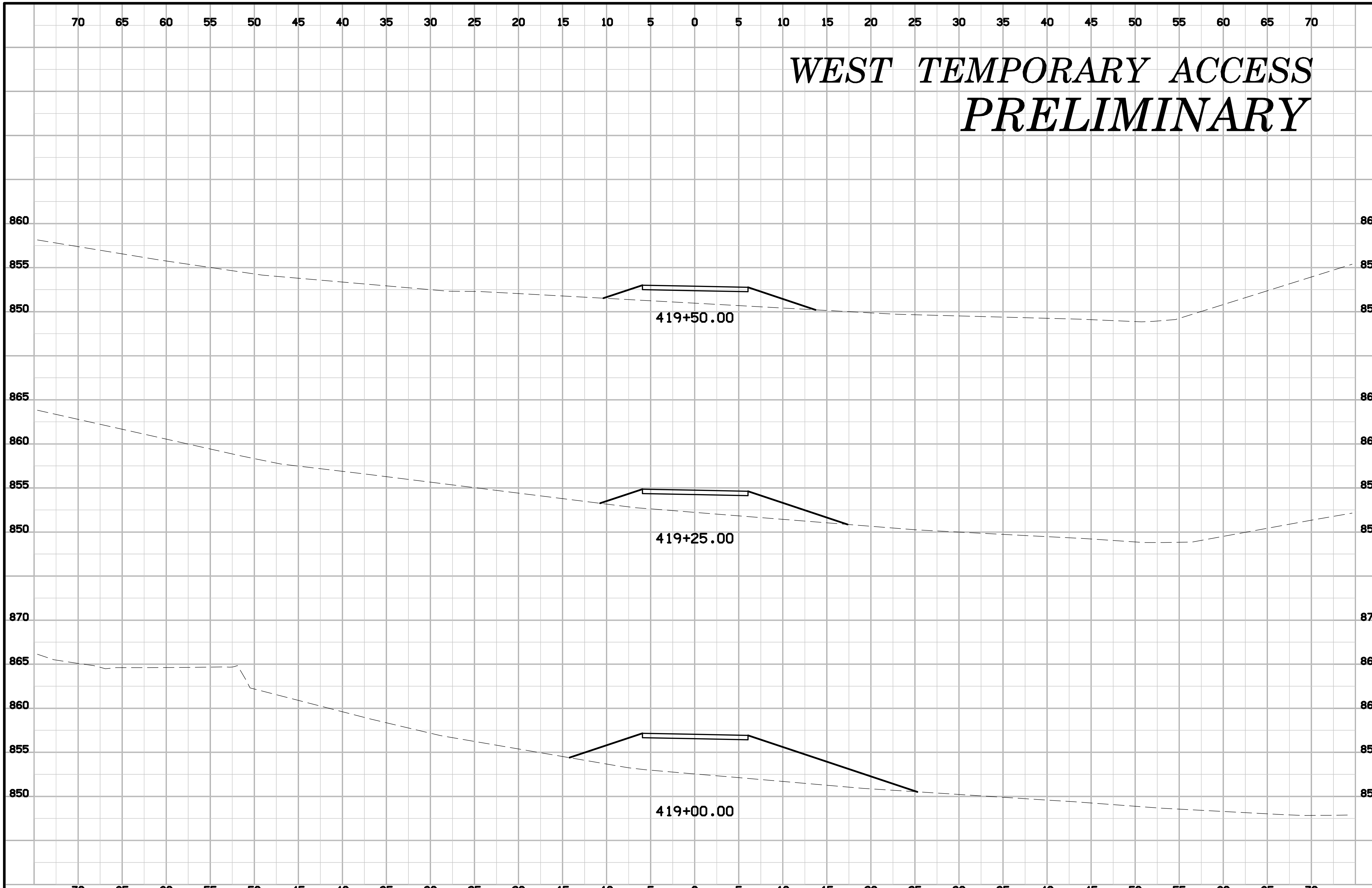


C	ENGLISH	IOWA DOT	DESIGN TEAM	SNYDER & ASSOCIATES, INC.		POLK COUNTY	PROJECT NUMBER BRF-415-1(52)--38-77	SHEET NUMBER X.18

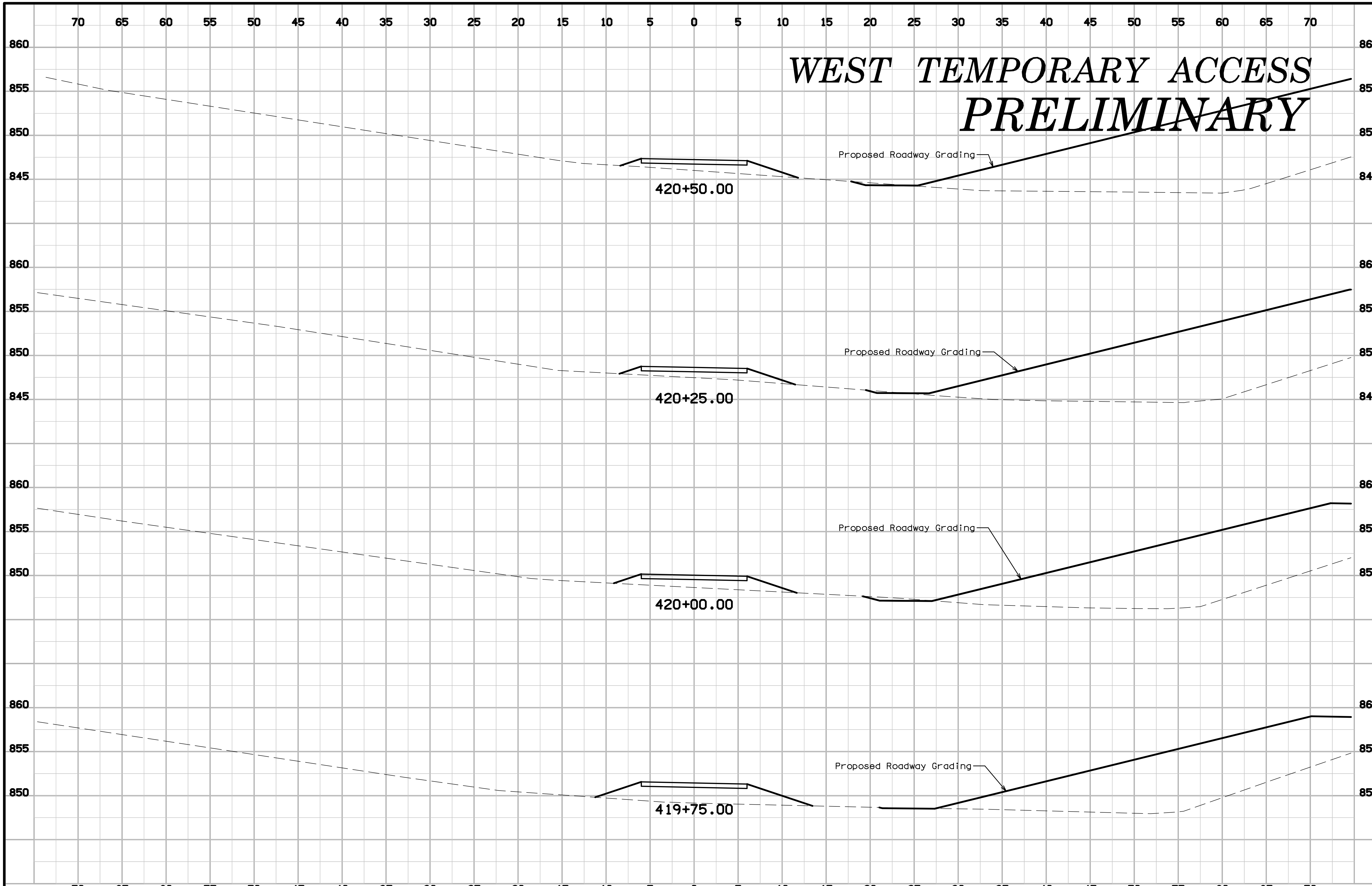


ENGLISH	IOWA DOT	DESIGN TEAM	SNYDER & ASSOCIATES, INC.		POLK COUNTY	PROJECT NUMBER	BRF-415-1(52)--38-77	SHEET NUMBER	Y.1

WEST TEMPORARY ACCESS
PRELIMINARY



ENGLISH	IOWA DOT	DESIGN TEAM	SNYDER & ASSOCIATES, INC.		POLK COUNTY	PROJECT NUMBER	BRF-415-1(52)--38-77	SHEET NUMBER	Y.2



ENGLISH	IOWA DOT	DESIGN TEAM	SNYDER & ASSOCIATES, INC.		POLK COUNTY	PROJECT NUMBER	BRF-415-1(52)--38-77	SHEET NUMBER	Y.3

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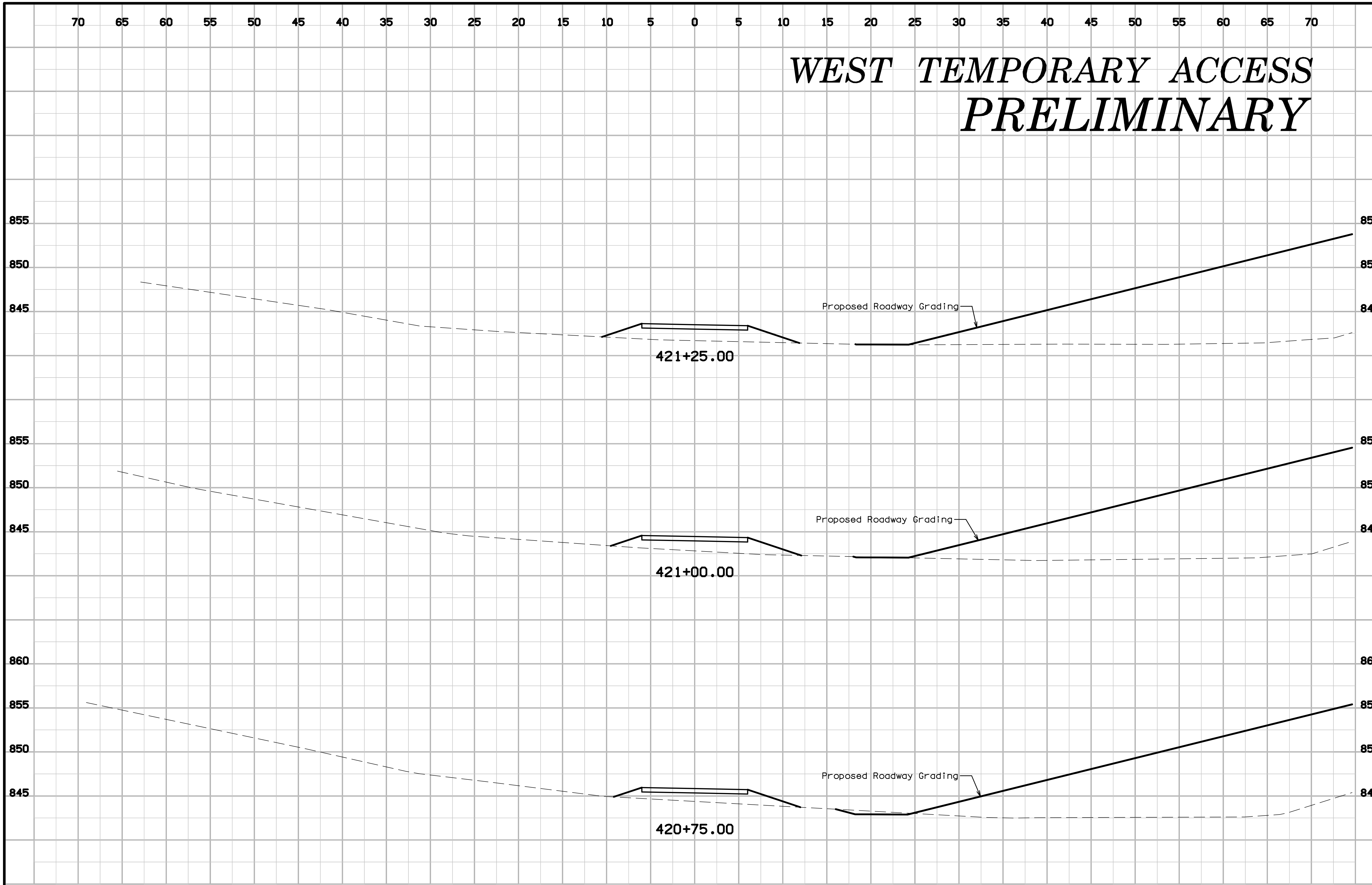

ENGLISH | IOWA DOT | DESIGN TEAM SNYDER & ASSOCIATES, INC. | POLK COUNTY | PROJECT NUMBER BRF-415-1(52)--38-77 | SHEET NUMBER Y.4

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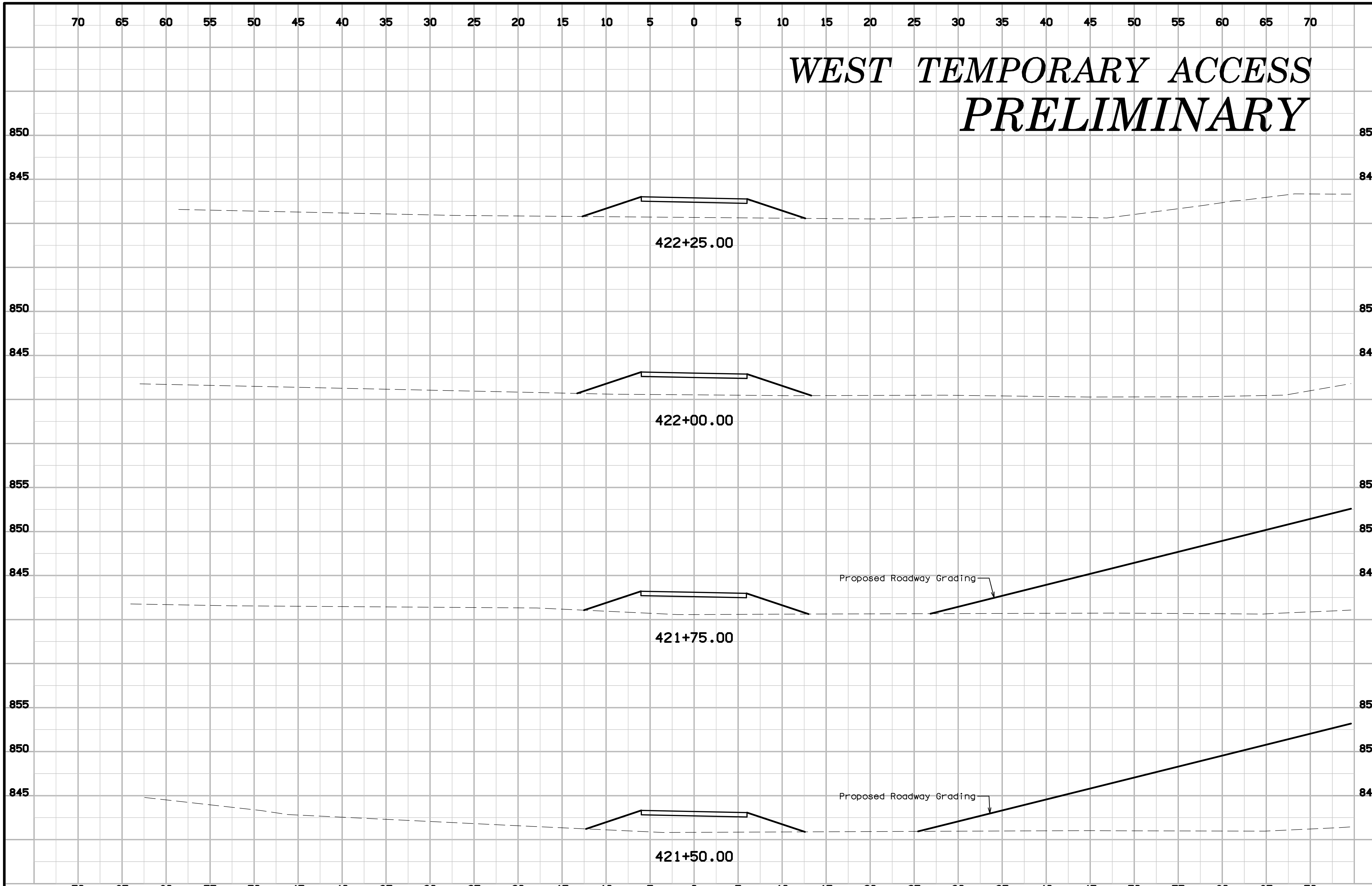
WEST TEMPORARY ACCESS
PRELIMINARY



ENGLISH	IOWA DOT	DESIGN TEAM SNYDER & ASSOCIATES, INC.		POLK COUNTY	PROJECT NUMBER BRF-415-1(52)--38-77	SHEET NUMBER Y.5

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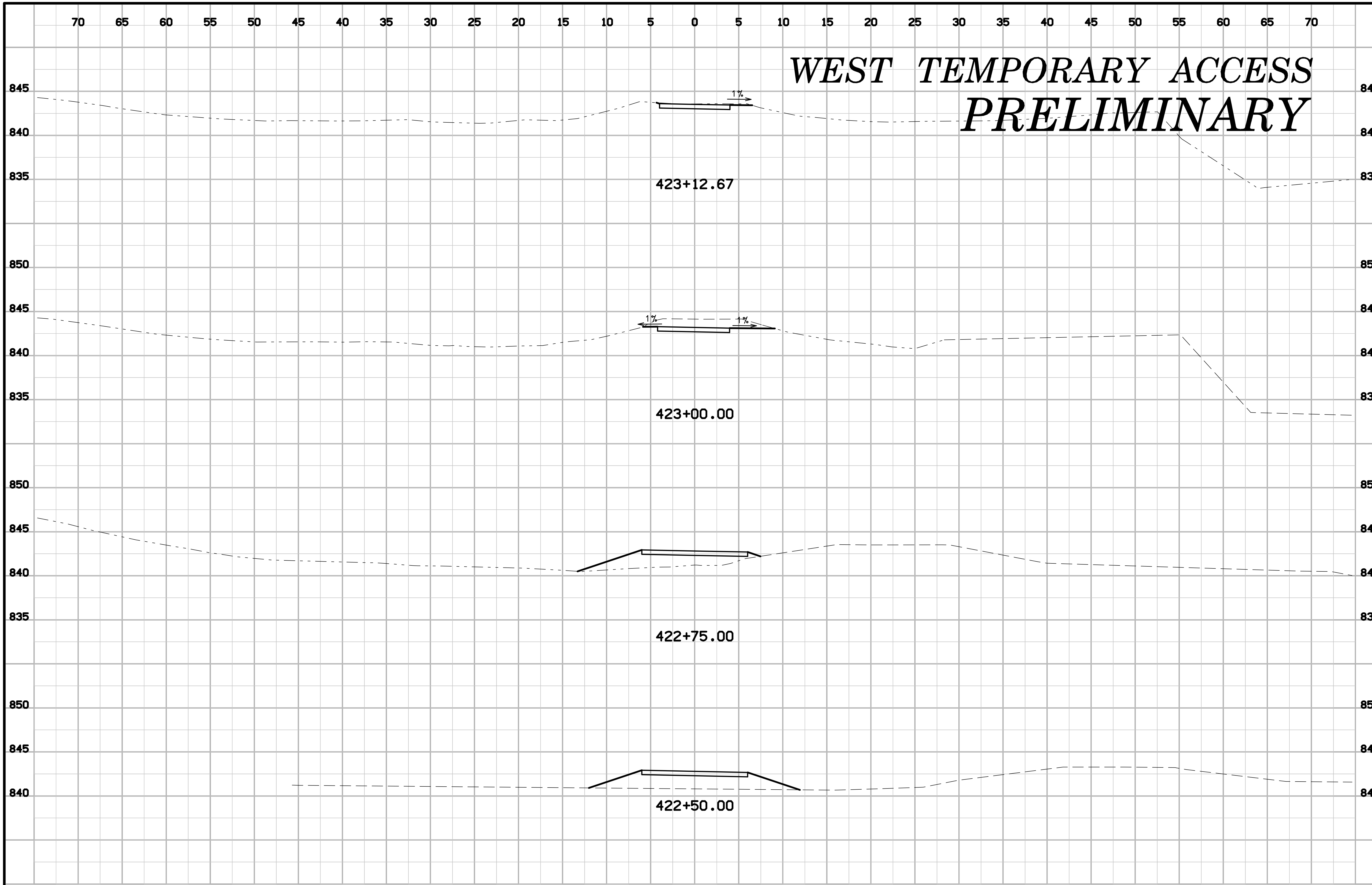

ENGLISH | IOWA DOT | DESIGN TEAM SNYDER & ASSOCIATES, INC. | POLK COUNTY | PROJECT NUMBER BRF-415-1(52)--38-77 | SHEET NUMBER Y.6

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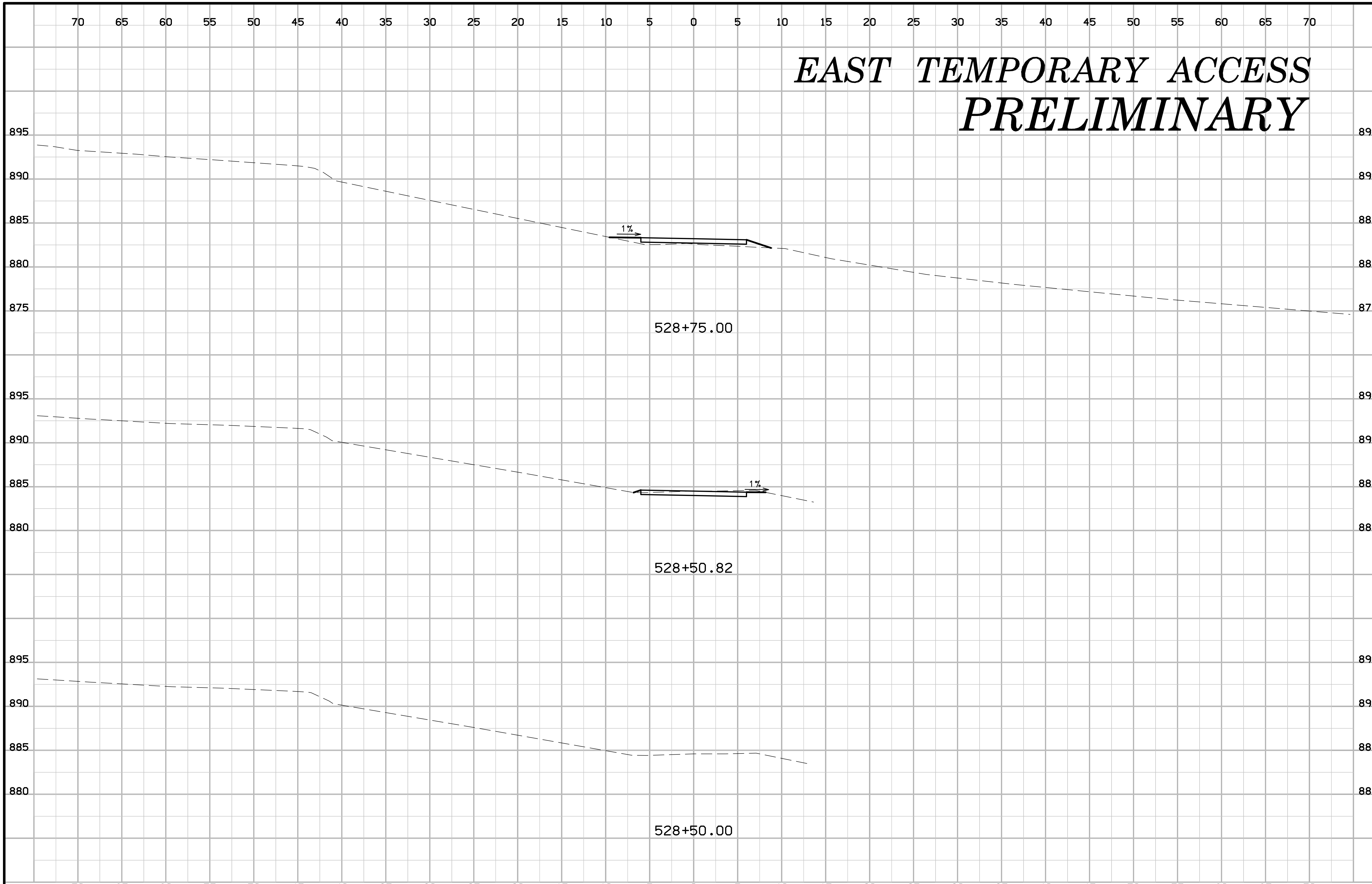

ENGLISH | IOWA DOT | DESIGN TEAM | SNYDER & ASSOCIATES, INC. | POLK COUNTY | PROJECT NUMBER BRF-415-1(52)--38-77 | SHEET NUMBER Y.7

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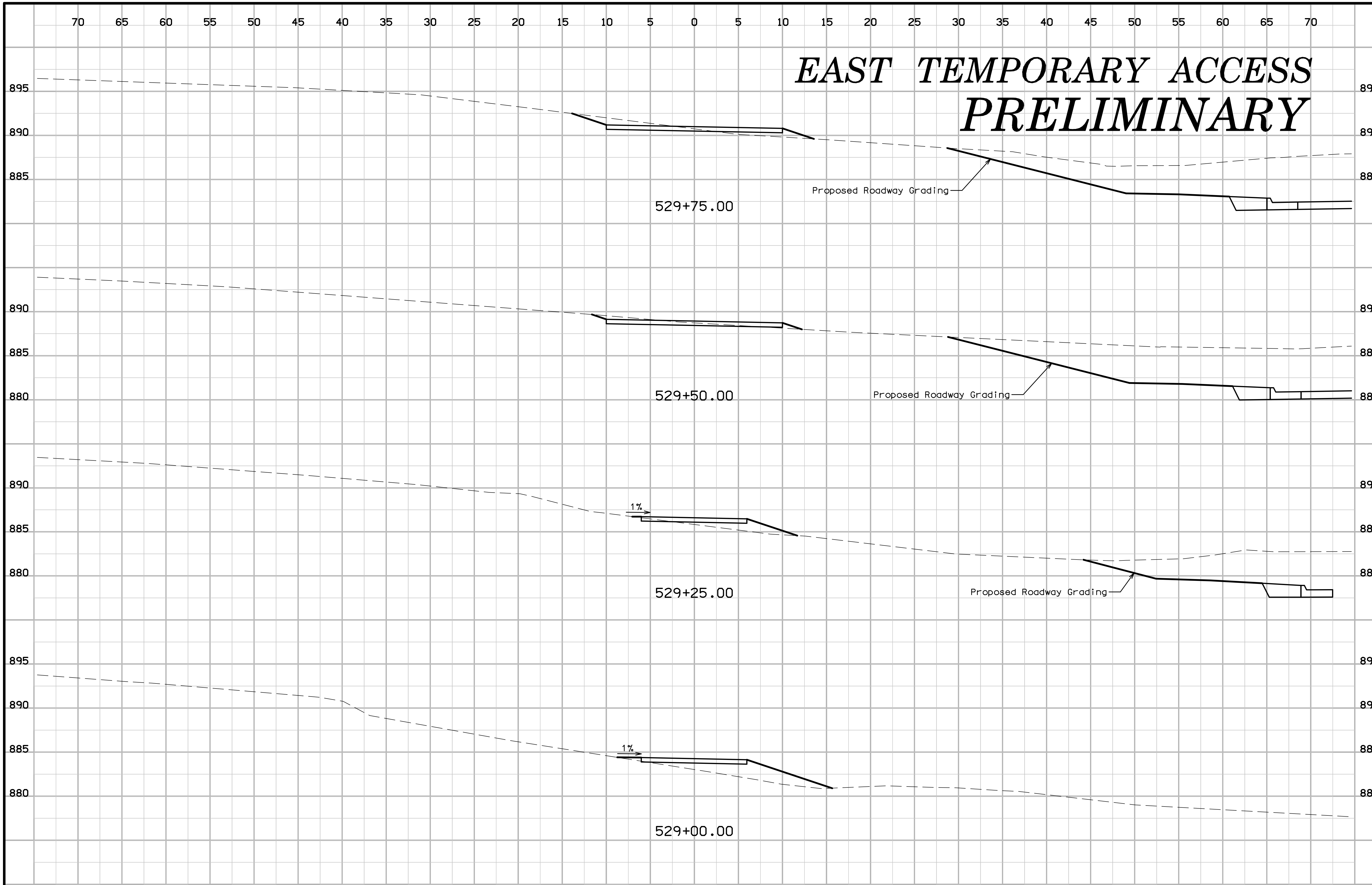

ENGLISH	IOWA DOT	DESIGN TEAM	SNYDER & ASSOCIATES, INC.		POLK COUNTY	PROJECT NUMBER	BRF-415-1(52)--38-77	SHEET NUMBER	Y.8

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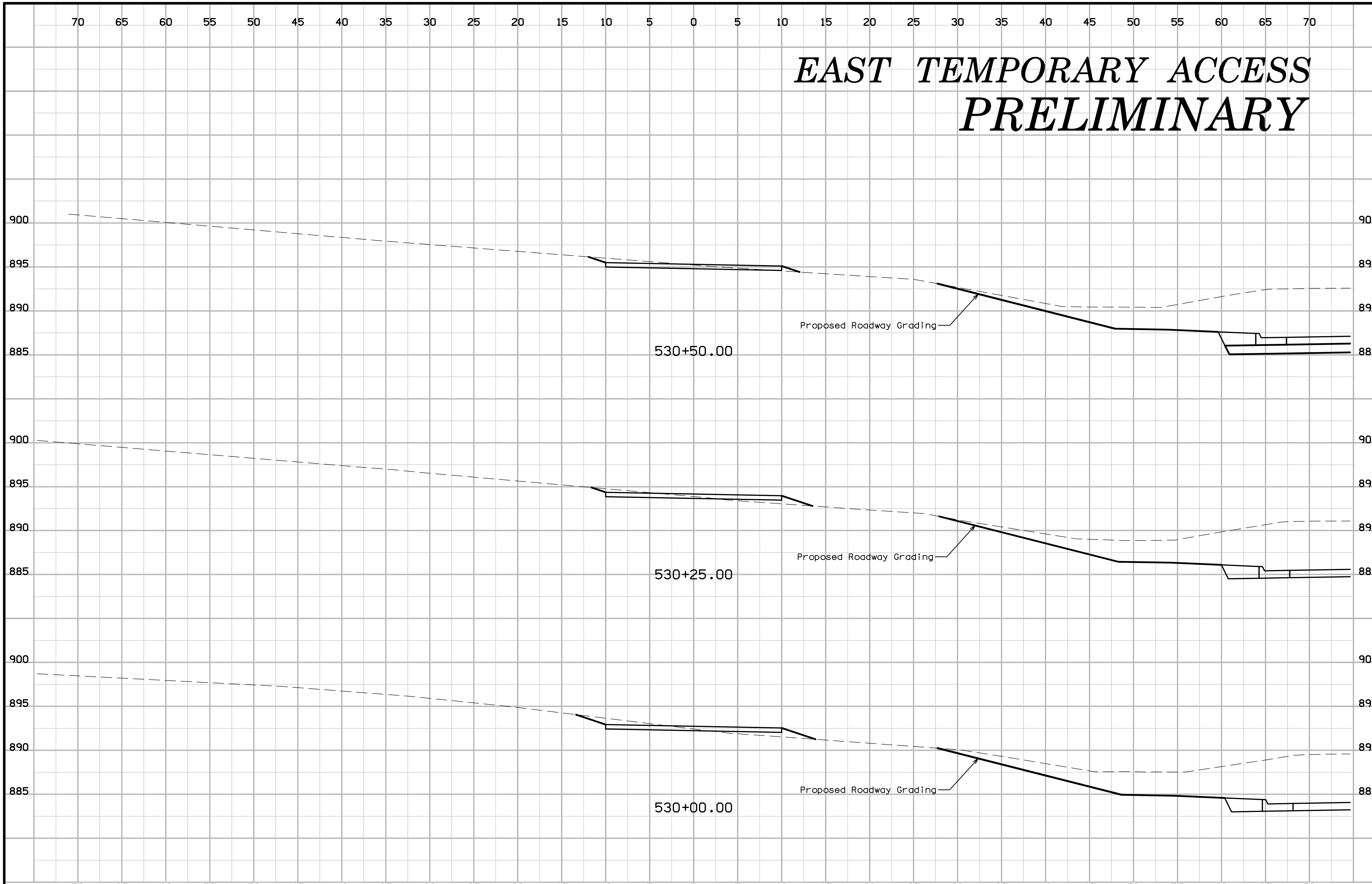
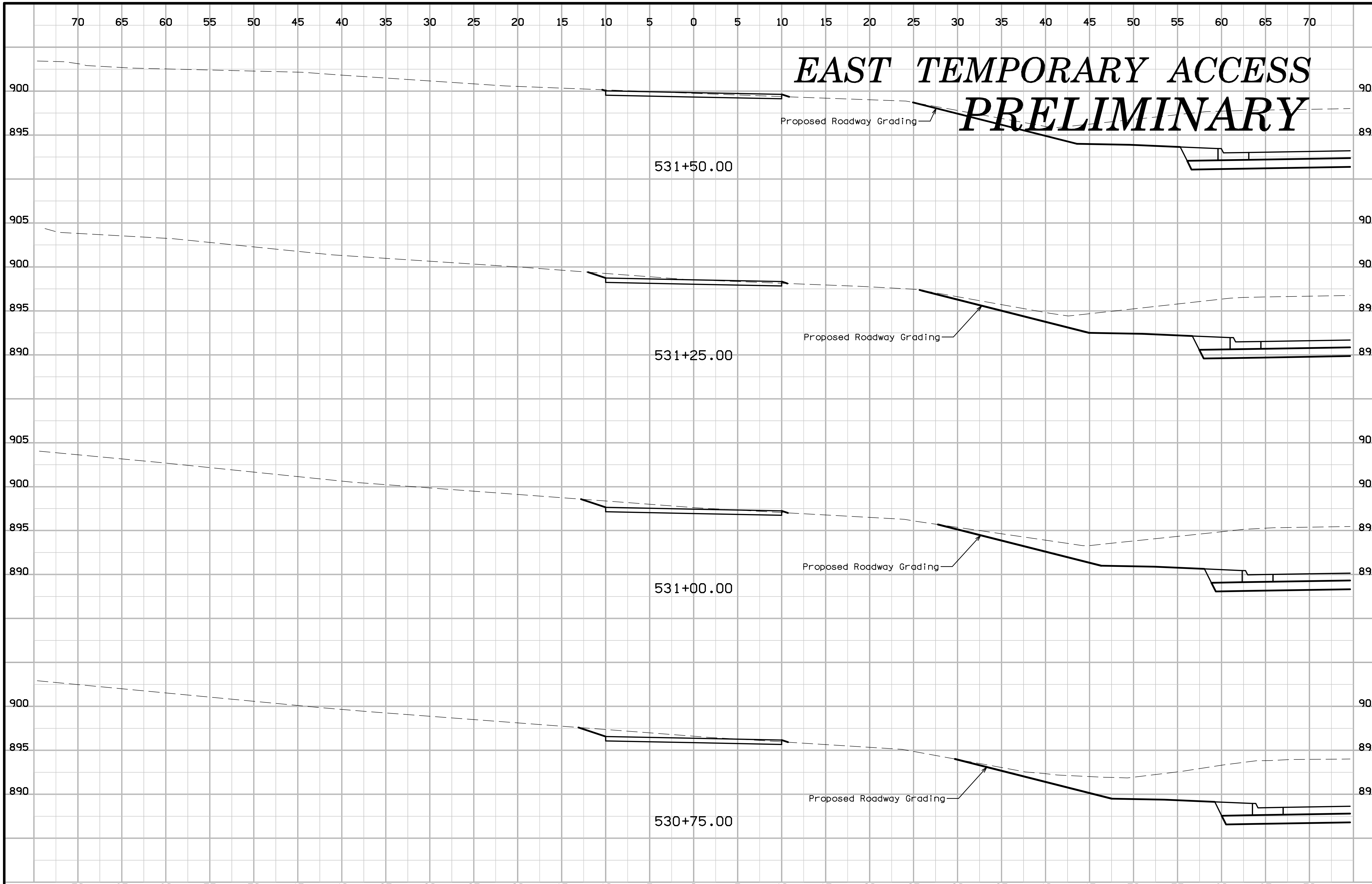
EAST TEMPORARY ACCESS
PRELIMINARY



ENGLISH	IOWA DOT	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	POLK COUNTY	PROJECT NUMBER	BRF-415-1(52)--38-77	SHEET NUMBER	Y.9



ENGLISH | IOWA DOT | DESIGN TEAM | SNYDER & ASSOCIATES, INC. | POLK COUNTY | PROJECT NUMBER BRF-415-1(52)--38-77 | SHEET NUMBER Y.10

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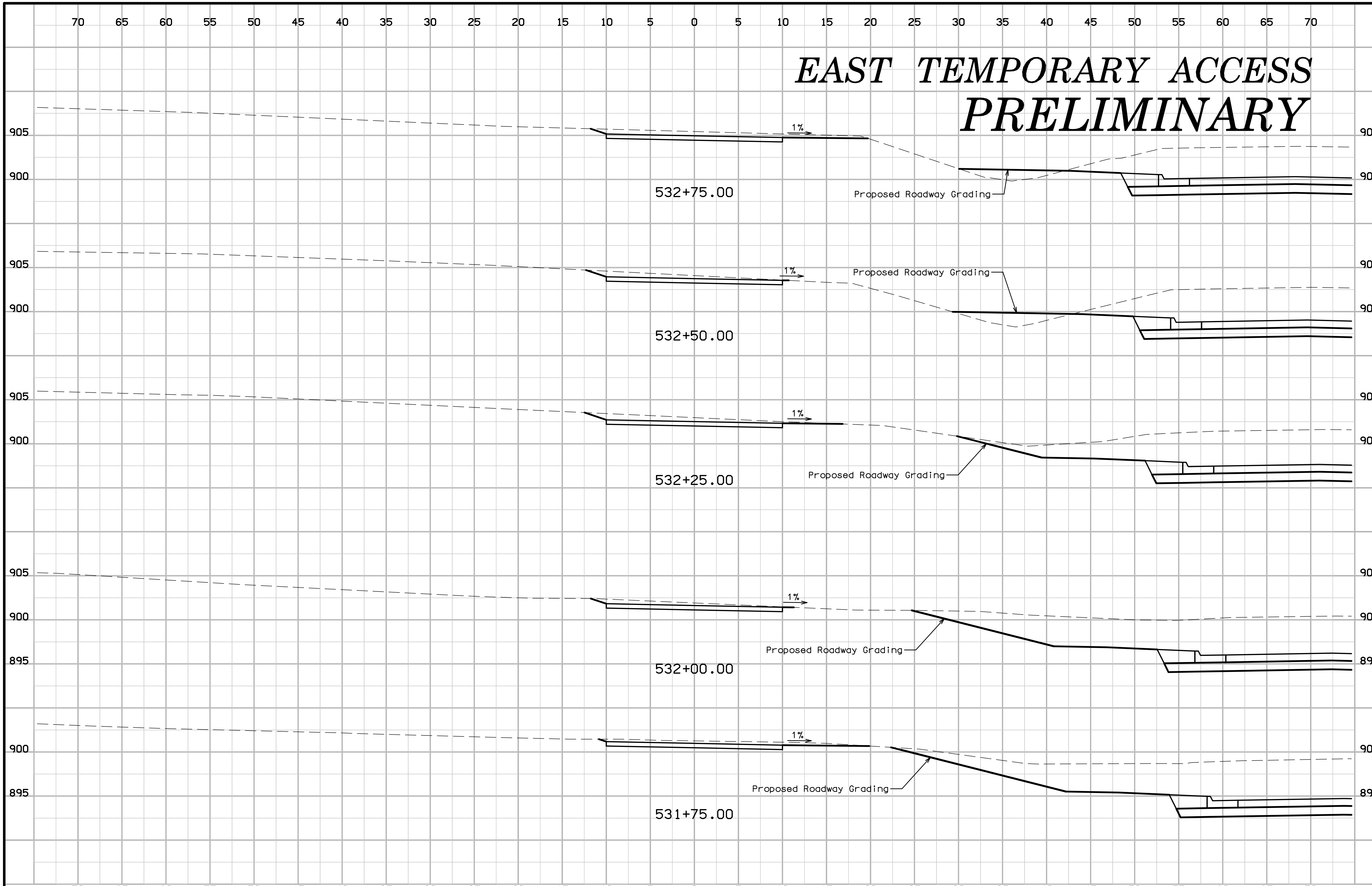

ENGLISH	IOWA DOT	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	POLK COUNTY	PROJECT NUMBER	BRF-415-1(52)--38-77	SHEET NUMBER Y.11

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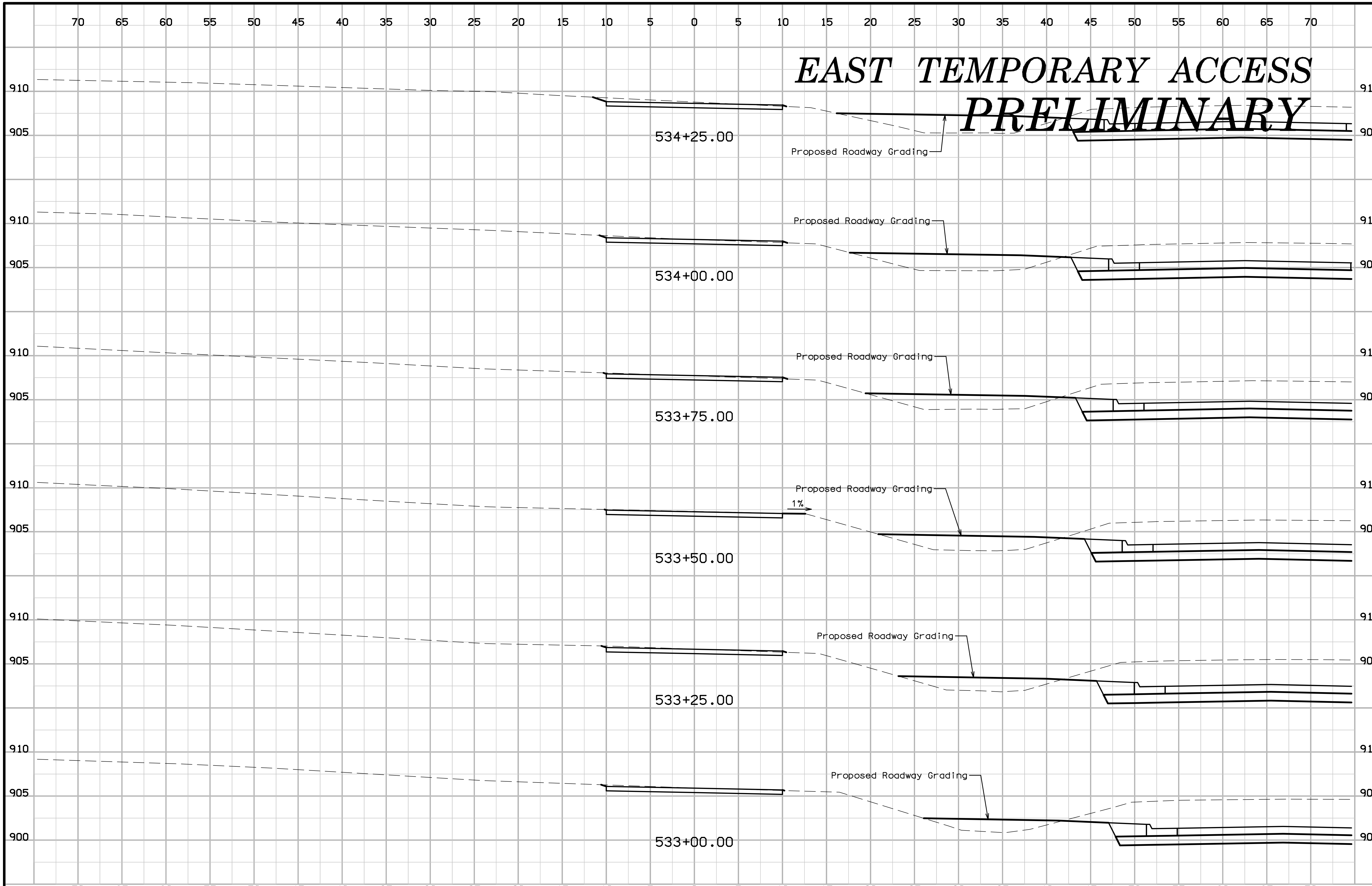

ENGLISH	IOWA DOT	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	POLK COUNTY	PROJECT NUMBER	BRF-415-1(52)--38-77	SHEET NUMBER Y.12

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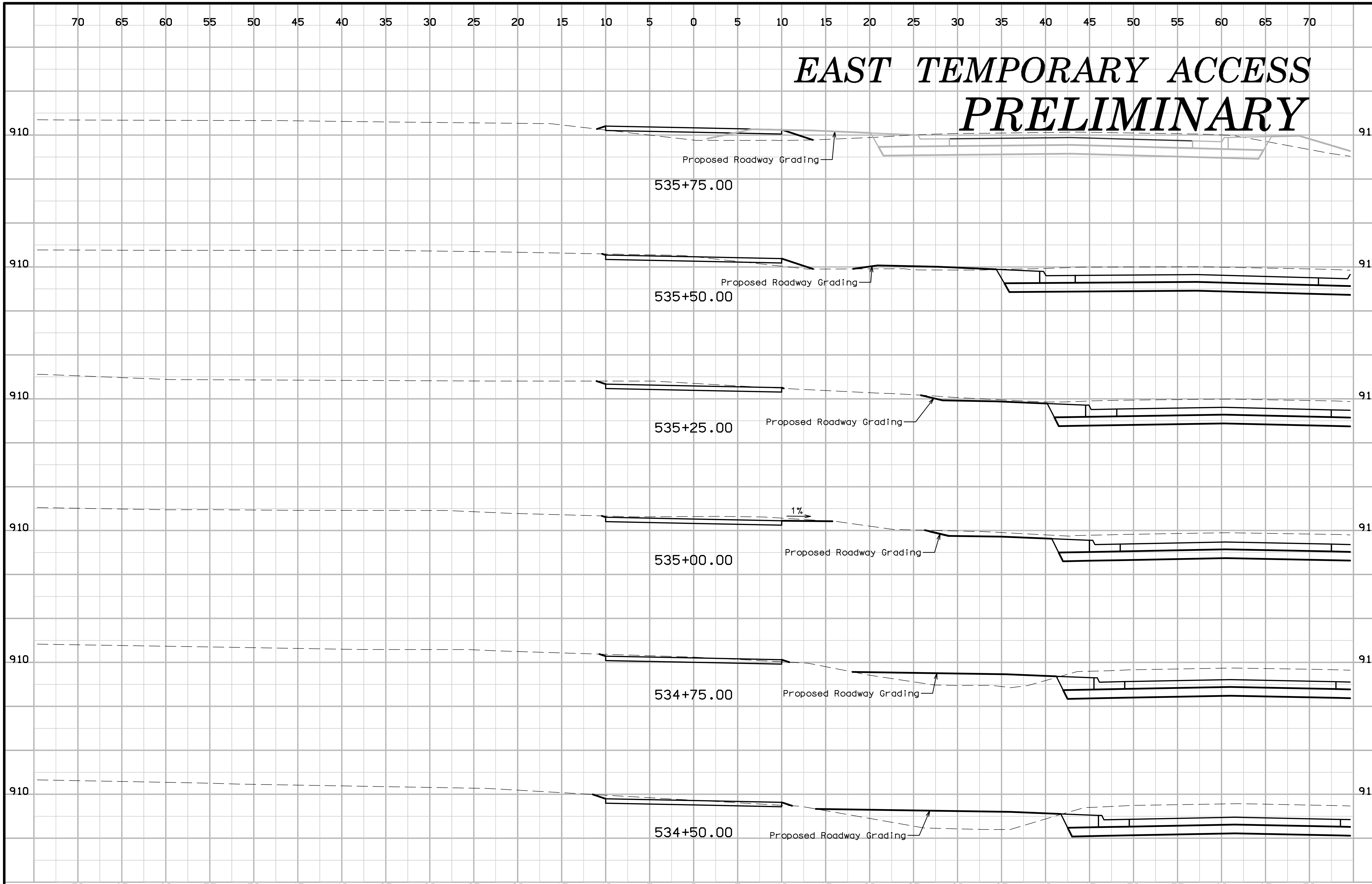

ENGLISH	IOWA DOT	DESIGN TEAM	SNYDER & ASSOCIATES, INC.		POLK COUNTY	PROJECT NUMBER	BRF-415-1(52)--38-77	SHEET NUMBER Y.13

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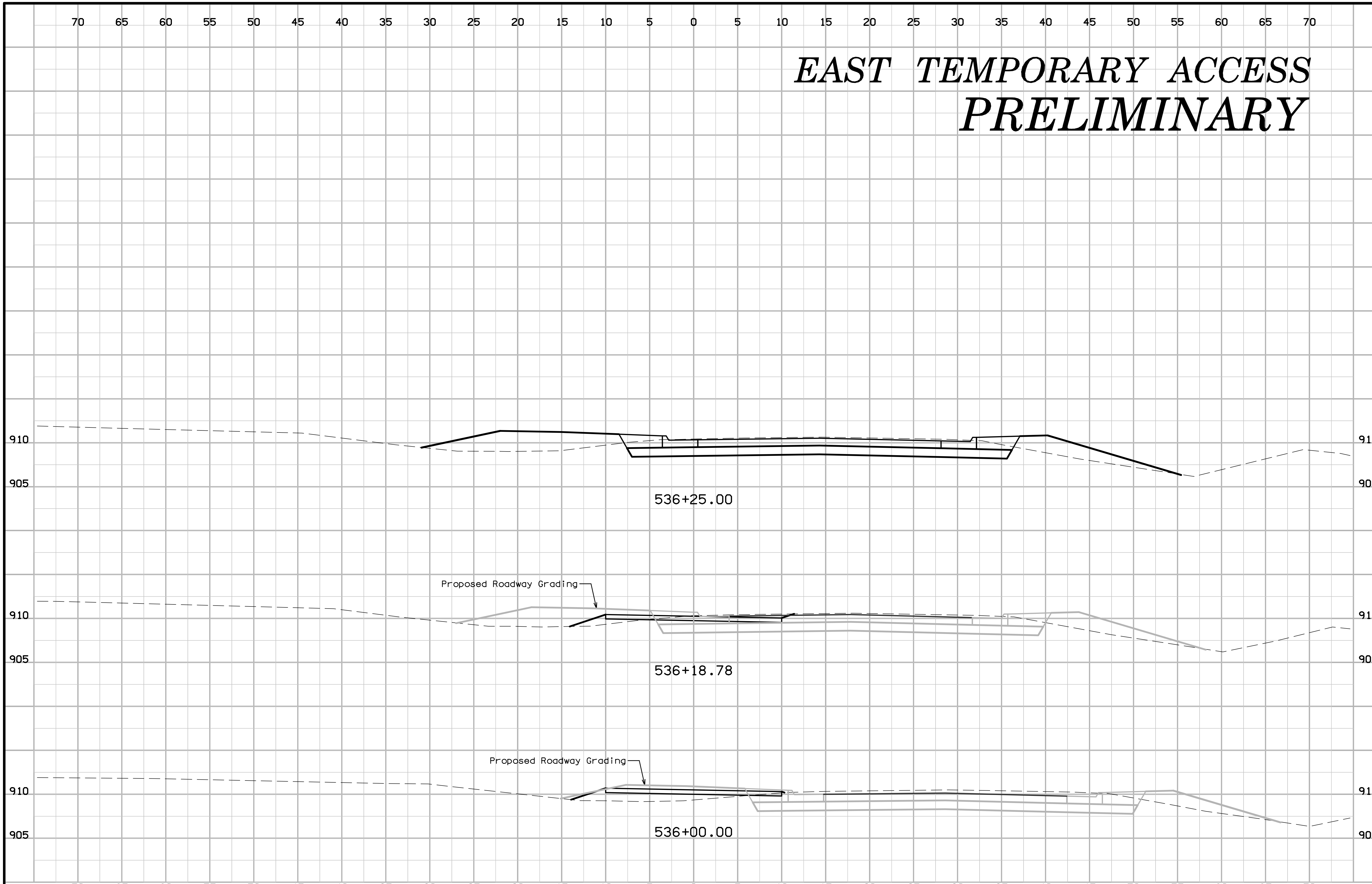

ENGLISH | IOWA DOT | DESIGN TEAM **SNYDER & ASSOCIATES, INC.** | **POLK** COUNTY | PROJECT NUMBER **BRF-415-1(52)--38-77** | SHEET NUMBER **Y.14**

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