



COMBINED DESIGN REPORT

Volume 2 of 3
Combined Design Report

ILLINOIS ROUTE 47 (FAP 326) Reed Road to US 14



P-91-101-07

McHenry County, Illinois

IDOT – Division of Highways – District One

September 2017

ENGINEERING DESIGN

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**APPENDIX A-1
DESIGN CRITERIA CHECKLIST**



Key Route: F.A.P. Route 47

Marked Route/Road Name: Illinois Route 47

State Job No.: P-91-101-07 Contract No.: _____

Functional Classification: Strategic Regional Arterial Highway Type: Rural/Suburban Arterial

County(ies): McHenry Project Length: 7.6 miles (40,425 feet)

City: Dorr and Grafton townships Section: _____

Project Location: IL Route 47 - Reed Road to U.S. 14

Project Scope of Work

a. Check the appropriate box. See Section 31-6 for definitions.

- New construction *Reconstruction *3R (non-freeway) *3R (freeway)
- 3P SMART HSIP Other

**Note: May include "Allowed to Remain in Place" criteria.*

This form is required for all new construction, reconstruction, and 3R projects.

b. Provide a brief project description:

Reconstruction of 7.6 miles with two lanes in each direction separated by a raised-curb median in the suburban section and wide depressed median in rural areas. Accommodations for an 8-foot multi-use path and 5 feet sidewalk are also provided throughout the project limits.

In the suburban area starting at Reed Road to Rainsford Drive, there is a 22 feet raised curb median with 10 feet outside shoulders.

In the rural section from Rainsford Drive to Hercules Road, there is a 30 feet wide depressed median with 6 feet inside shoulders. The two lanes in each direction slopes 1/4"/ft (2.0%) at the center of the two lanes with 10 feet outside shoulders and a M-4.24 curb.

In the suburban section between Hercules Road to US 14, the pavement cross slope is 1/4"/ft sloping away from the 18 feet raised curb (B-6.12) median with B-6.24 combination concrete curb and gutter.

Design Criteria (Provide numerical values, where indicated.)	Does the proposed design meet the criteria?		
	Yes	No	N/A
1. Basic Design Controls (Chapter 31)			
a. Design speed 50 (Reed to Rainsford-Suburban) mph 60 (Rainsford to Hercules-Rural) (km/h) 45 (Hercules to US 14-Suburban)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Stopping Sight Distance (SSD) application for vertical curves (downgrade adjusted SSD used)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Truck SSD (level) (at specific sites)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d. Level of service (mainline) The design projects the LOS to be B in 2040.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Horizontal Alignment (mainline) (Chapter 32)			
a. Horizontal curvature (minimum radius for selected design speed) 1330 feet (Rural) and 715 feet (Suburban) feet (meters)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Superelevation rates ($e_{max} = 6\%$)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Superelevation transition lengths Varies, Tangent Runout + SE Runoff Length	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. SSD application at horizontal curves (downgrade adjusted SSD used)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Superelevation distribution between tangent and curve (ratio or percent) 67% tangent and 33% curve	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. "Breakover" of outside shoulder on super-elevated curves (percent) 8%	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. Relative longitudinal slope of shoulder to edge of traveled way on high side of S.E. curve adjacent to bridge with S.E.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h. Superelevation development at reverse curves	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Design Criteria (Provide numerical values, where indicated.)	Does the proposed design meet the criteria?		
	Yes	No	N/A
i. Is superelevation transition length located off of bridges and bridge approach pavements? There is no superelevation near the Kishwaukee River crossing.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j. Horizontal stopping sight distance on inside of horizontal curves (Level SSD for passenger cars)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Vertical Alignment (mainline) (Chapter 33)			
a. Maximum grades (in percent) 3.96% (Rural) and 1.34% (Suburban)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. SSD at crest vertical curves (level SSD for passenger cars)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. SSD at sag vertical curves (level SSD for passenger cars)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Minimum grades (in percent) considering drainage 0.50% (Rural) and 0.40% (Suburban)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Critical length of grade Design per BDE Figure 33-2A	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Truck-climbing lanes/critical grade analysis	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g. Design criteria for truck-climbing lanes (e.g., lane width and shoulder width)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h. Minimum length of vertical curves for selected design speed $3V$, where V is the design speed in mph (km/hr)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i. Maximum length of vertical curves (drainage of curbed facilities and bridges) 760 feet	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Cross Section Elements (mainline) (Chapter 34)			
a. Lane widths 12 feet (meters)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Design Criteria (Provide numerical values, where indicated.)	Does the proposed design meet the criteria?		
	Yes	No	N/A
b. Traveled way widening	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Cross-slopes on through lanes (in percent):			
Inside lane Lane 1 <u>-2.0%</u>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Outside lanes Lane 2 <u>2.0%</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lane 3 _____	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Lane 4 _____	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d. Shoulder widths <u>6</u> feet (meters)(inside)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>10</u> feet (meters)(outside)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Design of parking lanes:			
• Cross-slope _____ %	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
• Width _____ feet (meters)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f. Type of curb and gutter used on median			
B-6.24	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. Drainage of raised curb medians:			
• Direction of flow of median surface or pavement <u>Towards Gutter</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Direction of cross-slope on gutter <u>6</u> %	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h. Type of curb and gutter used along outside edges of pavement <u>M-4.24</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i. Two Way Left Turn Lane (TWLTL) width:			
• Flush type _____ feet (meters)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
• Traversable type _____ feet (meters)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
j. Median widths:			
• Urban _____ feet (meters)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
• Suburban <u>Either 18 or 22</u> feet (meters)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Rural <u>30</u> feet (meters)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
k. Shoulder cross slopes <u>4</u> %	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
l. Fill slopes <u>3:1</u> (V:H)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Design Criteria (Provide numerical values, where indicated.)	Does the proposed design meet the criteria?		
	Yes	No	N/A
m. Outside roadway ditch:			
• Slopes <u>3:1</u> • Depth <u>Varies</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Widths <u>4 feet</u>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Median ditch:			
• Slopes <u>2 feet</u> • Depth <u>4:1</u>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
• Width <u>Varies</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
n. Cross-section transitions into bridges/ underpasses	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
o. Use of mountable curbs (V > 45 mph (70 km/h)) M-4.24	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
p. Cross-section transition details (e.g., four-lane to two-lane)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5. Intersections (Chapter 36)			
a. Accommodation of design vehicle (identify vehicle) <u>WB-65</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Level of service:			
• Through lanes <u>C</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Turn lanes <u>D</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Skew angle The angle is more than 15 degrees at Lucas Road, but less than 30 degrees	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Profiles All profiles meet design criteria.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Volume guidelines for turn-lanes:			
• Right-turns	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Left turns	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Design of right-turn lanes	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Design of left-turn lanes	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Design Criteria (Provide numerical values, where indicated.)		Does the proposed design meet the criteria?		
		Yes	No	N/A
g. Turn-lane tapers	Approach taper	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Departure taper	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Bay taper	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h. Turning roadway widths 12 feet		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i. Turn-lane lengths	Deceleration (rural) 530 ft (Stop)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Storage (urban) The storage length is only 137.4 feet between Willowbrooke and US 14	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
j. Intersection sight distance: List criteria and type <u>Minor road turns onto Major roadway; truck (rural) and SU (urban)</u>		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
k. Median opening length <u>Varies, Per BDE Sec 36-4.04(b)</u> feet (meters)		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
l. Minimum corner island size <u>100 (Rural) and 50 (Urban)</u> sq. ft (sq. m)		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
m. Does right-turn radius accommodate design vehicle without encroachment?		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
n. Driveway widths Varies, however, the minimum width is 12 feet (meters)		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
o. Type of traffic control:				
• Two-way stop All except IL Route 176		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• All-way stop		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
• Traffic signals Illinois Route 176		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
p. Is maximum grade exceeded on any approach? The maximum grade does NOT exceed any approach.		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
q. Max. superelevation "e" (in percent) for intersections on curve 5%		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

6. Interchanges (Chapter 37)				
a. Exit terminal	Standard type	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	Design speed of first curve	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	Are any exit terminals located on mainline horizontal curve?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Design Criteria (Provide numerical values, where indicated.)		Does the proposed design meet the criteria?		
		Yes	No	N/A
b. Entrance terminal	Standard type	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	Length of tangent after the entering curve	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	Design speed of entering curve	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c. Design speed of ramp proper _____ mph (km/h)		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d. Design speed of crossroad _____ mph (km/h)		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e. Maximum ramp grades:		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
• Exit ramp _____ %		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
• Entrance ramp _____ %		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f. Ramp pavement width _____ feet (meters)		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g. Ramp shoulder widths:		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
• Left _____ feet (meters)		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
• Right _____ feet (meters)		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h. Horizontal ramp curvature in conjunction with selected design speeds		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
i. Superelevation development on ramps	Superelevation rate	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	Transition length	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	Distribution between tangent & curve	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
j. Vertical curvature compliance with selected design speed on ramp		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
k. Length of access control at crossroad		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
l. Type of traffic control at crossroad:		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
• Stop signs		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
• Traffic signals		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
• Free flow		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
m. Is length of crest vertical curve used on crossroad \geq that required by the selected design speed of crossroad?		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Design Criteria (Provide numerical values, where indicated.)			Does the proposed design meet the criteria?		
			Yes	No	N/A
n. Are crossroad approach grades through ramp/ crossroad intersections $\leq 2\%$?			<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
o. Are ramp/crossroad intersections located on a tangent section of crossroad alignment?			<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
p. Is decision sight distance available in advance of exit gore?			<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
q. Is clear recovery area available beyond gore nose?			<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
r. Level of service:					
• Exit terminal _____			<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
• Entrance terminal _____			<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
• Ramp proper _____			<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
• Weaving area _____			<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
• Ramp/crossroad intersection			<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
s. Freeway lane drops	Location	Upgrade	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
		Downgrade	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
		Inside lane	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
		Outside lane	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
		At exit terminal	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
		Beyond exit terminal	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
		Taper length	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
7. Roadside Safety (Chapter 38)					
a. Horizontal clearances:					
• Clear zones on tangent sections 30 feet			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Clear zones on outside of horizontal curves			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Barrier warrants					
Where clear zone width not met, guardrail was added.			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Barrier length of need					
To be designed in Phase II			<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

APPENDIX A-2
DESIGN EXCEPTION FORMS

**IL Route 47 from Reed Road to US 14
McHenry County
Job No. P-91-101-07**

Design Exception Table				
Level One Design Exceptions				
#	Proposed Design	BDE Standard	Location	Reason for Exception
1	Lane 1: -2.0%; Lane 2: +2.0%	Through Lane Cross Slopes: Lane 1: +2.0%; Lane 2: +2.0%; (BDE 34-2.01(b)); Travel Lane Cross Slope +2.0% (BDE Figure 46-3E)	IL RTE 47: Sta. 381+00 to 716+00	Sloping of inside lanes to the median improves the water quality in an environmentally sensitive area. The median has shoulders and is depressed. Inlets have been placed in the median to minimize the potential of pavement flooding.
2	R=275-feet	Minimum Radius for Horizontal Curve on Local Street: Rmin=835-feet (50-mph Design Speed) (BLRSM Figure 29-2B)	Pleasant Valley Road: Proposed Curve Pleasant-1; Sta. 2133+27.91 to 2134+49.31	Pleasant Valley Road is a local road that will be reconstructed by the local agency at a future date. The proposed 275-foot curve is necessary in order to avoid the acquisition of a residential property. The proposed curve will be advisory posted for 30-mph. Potential mitigation to address the design exception includes advisory posting Pleasant Valley Road for 30-mph in conformance with Rmin=275-feet for 30-mph design speed.
3	R=120-feet	Minimum Radii for Horizontal Curves on Local Street (BLRSM Figure 29-2C and Figure 29-3C): Rmin=125-feet (20-mph Design Speed; emax=4.0%)	Swanson Road: Proposed Curves: Prswanson-1 Sta. 503+91.66 to 505+27.88 to 104+00.75; Prswanson-2 Sta. 505+85.00 to 507+19.86	Swanson Road is a local street with low traffic volumes. The curves will be advisory posted at 20-mph consistent with the proposed radii of 120-feet. Both curves are proximate to a stop condition at its intersection with IL-176. Right-of-way is constrained by a commercial business and by ComEd transmission line towers. Per BRLSM Section 29-4.03(b), e(max) set at 4.0%. Through lanes are widened to 15-feet through the curves to accommodate turning vehicles. Potential mitigation to address the design exception includes advisory posting Swanson Road for 20-mph consistent with the proposed 120-foot radii for the curves.

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4	Distance between PT and PC of Reverse Curves = 57.12-feet	Minimum Tangent Distance Between PT and PC of Reverse Curves on Local Street: for Continuously Rotating Plane = 121.5-feet – (BLRSM Equation 29-3.4)	Swanson Road: Proposed Curves: Prswanson-1 Sta. 503+91.66 to 505+27.88 to 104+00.75; Prswanson-2 Sta. 505+85.00 to 507+19.86	Swanson Road is a local street with low traffic volumes. The curves will be advisory posted at 20-mph consistent with the proposed radii of 120-feet. Both curves are proximate to a stop condition at its intersection with IL-176. Right-of-way is constrained by a commercial business and by ComEd transmission line towers. Per BRLSM Section 29-4.03(b), e(max) set at 4.0%. Through lanes are widened to 15-feet through the curves to accommodate turning vehicles. Potential mitigation to address the design exception includes advisory posting Swanson Road for 20-mph consistent with the proposed 120-foot radii for the curves.
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Level 2 Design Exceptions

#	Proposed Design	BDE Standard	Location	Reason for Exception
5	K=206	Vertical Curve K-values > 167 on Curbed Roadways: Maximum K-value for Drainage on Curbed Roadways is 167; BDE 33-4.01(d); BDE 33-4.02(e)	IL RTE 47: VPI Sta. 732+85.00	Longitudinal profile grades of at least 0.3% are provided with 2.0% pavement cross slopes. The potential for travel lane ponding is nonexistent due to the presence of shoulders between the outside travel lanes and the proposed mountable curb and gutters.
6	K=205	Vertical Curve K-values > 167 on Curbed Roadways: Maximum K-value for Drainage on Curbed Roadways is 167; BDE 33-4.01(d); BDE 33-4.02(e)	IL RTE 47: VPI Sta. 738+00.00	Longitudinal profile grades of at least 0.3% are provided with 2.0% pavement cross slopes. The potential for travel lane ponding is nonexistent due to the presence of shoulders between the outside travel lanes and the proposed mountable curb and gutters.
7	K=168	Vertical Curve K-values > 167 on Curbed Roadways: Maximum K-value for Drainage on Curbed Roadways is 167; BDE 33-4.01(d); BDE 33-4.02(e)	IL RTE 47: VPI Sta. 742+00.00	Longitudinal profile grades of at least 0.3% are provided with 2.0% pavement cross slopes. The potential for travel lane ponding is nonexistent due to the presence of shoulders between the outside travel lanes and the proposed mountable curb and gutters.

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8	K=188	Vertical Curve K-values > 167 on Curbed Roadways: Maximum K-value for Drainage on Curbed Roadways is 167; BDE 33-4.01(d); BDE 33-4.02(e)	IL RTE 47: VPI Sta. 744+00.00	Longitudinal profile grades of at least 0.3% are provided with 2.0% pavement cross slopes. The potential for travel lane ponding is nonexistent due to the presence of shoulders between the outside travel lanes and the proposed mountable curb and gutters.
9	30-feet	Depressed Rural Median Width: Greater Than or Equal to 40-feet; (BDE Figure 34-3.A)	IL RTE 47: proposed rural typical section of mainline roadway: Sta. 381+00 to 617+89; Sta. 640+88 to 718+00	Policy value impacts other than cost include additional ROW acquisition that would result in greater socio-economic and substantial wetland impacts. Applying the design exception saves approximately 8-acres of wetland impacts. The design exception minimizes the levels of environmental impacts. The proposed 30-foot rural median matches the existing/proposed 18-foot urban median and the project termini when the two 6-foot shoulders are tapered to zero. The clear width between the innermost northbound and southbound travel lanes is 30-feet e-e. Potential mitigation to address the design exception includes the use of cable barrier protection.
10	Back-to-back left turn storage bays of 137.4-feet	Left Turn Lane Storage Lengths: 185-foot minimum storage length (45-mph design speed); (BDE Figure 36-3.I)	IL RTE 47: between US 14 and Willow Brook Drive; Sta. 768+01 to 772+77	It is physically impossible to maintain access to existing roadways and maintain minimum distance between the storage bays due to the location of the existing roadways. Eliminating the southbound to eastbound left turn lane to Willow Brooke Drive, in favor of applying the full design requirements to the northbound to westbound left turn at US-14 would modify traffic patterns in the area, and create a public inconvenience for those users accustomed to full access at Willow Brooke Drive. Potential mitigation to address the design exception includes effective storage of the left turn bays are 204-feet which includes one-third of the 200-foot taper length (66.7-feet). The opening to the left turn storage bays are 8-feet in width at a distance of 66.7-feet from the end of the storage bays. The effective storage of 204-feet meets the minimum 185-foot requirement for the stop condition.

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11	14 foot V-shaped drainage swales at 6:1 (16.7%) slopes between back of curb and proposed multi-use path or 5-foot sidewalk	Outside Roadway Ditch: 3 to 10-foot shelves at 5% cross slopes behind back of curb before sidewalk or drainage swale at variable depths; (BDE Figure 34-4.B)	IL-47: Sta. 718+00 to 745+92.31; and Sta. 752.84.98 to 773+19.98	Policy value impacts other than cost include additional ROW acquisition that would result in greater socio-economic and substantial wetland impacts. The 14 foot V-shaped drainage swales at 6:1 (16.7%) slopes between back of curb and proposed multi-use path or sidewalk are required to pick up localized drainage.
12	4:1 median slopes	Rural Median Ditch Slopes: 5:1 median slopes; (BDE 34-3.04(c))	IL RTE 47: Regions of the mainline roadway where left-turn channelization is present: Sta. 374+68 to 380+33 Sta. 393+70 to 406+40 Sta. 416+46 to 428+83 Sta. 447+35 to 460+85 Sta. 473+15 to 485+70 Sta. 511+99 to 524+79 Sta. 551+74 to 564+72 Sta. 569+49 to 581+99 Sta. 589+72 to 606+25 Sta. 627+80 to 633+40 Sta. 652+34 to 665+14 Sta. 685+10 to 697+76 Sta. 720+58 to 729+35 Sta. 734+23 to 742+81 Sta. 754+90 to 758+73 Sta. 763+02 to 772+77	Policy value impacts other than cost include additional ROW acquisition that would result in greater socio-economic and substantial wetland impacts. Approximately 8-acres of wetland impacts are eliminated. The design exception values minimize the levels of environmental impacts.
13	Intersection Sight Distance: 845 ft (BDE Figure 36-6.E)	530 ft	Rainsford Dr. right-turn onto northbound IL Route 47	Due to the horizontal curve south of this intersection, vehicles turning right from Rainsford Dr. onto northbound IL 47 may not be able to see the approaching vehicles for the entire length of the required ISD. Policy value impacts other than cost include additional ROW acquisition that would result in greater socio-economic impacts. Adjusting the alignment of IL 47 would require additional ROW from commercial properties adjacent to IL 47 south of Rainsford Dr as well as affecting the signalized intersection of IL 47 and Reed Rd to the south.

**IL Route 47 from Reed Road to US 14
McHenry County
Job No. P-91-101-07**

14	Intersection Sight Distance: 1350 ft (BDE Figure 36-6.E)	852 ft	Pleasant Valley Road left-turn onto northbound IL 47.	Due to the horizontal curve south of this intersection, vehicles turning right from Pleasant Valley Rd. onto northbound IL 47 may not be able to see the approaching vehicles for the entire length of the required ISD. Policy value impacts other than cost include additional ROW acquisition that would result in greater socio-economic and substantial wetland impacts in order to either re-align Pleasant Valley Rd further to the north or to adjust the IL 47 horizontal curve at the intersection of IL 176.
15	K=180	Maximum K - value for Drainage on Curbed Roadways is 167; BDE 33 - 4.A	IL RTE 47: VPI Sta. 581+60.00	The minimum vertical curve length is proposed at this location, which results in a K-value greater than the maximum. The proposed profile is constrained by ROW limitations, existing development and wetlands. The need to have a minimum grade-line of 0.3% grade for drainage purposes is met within this section.
16	K=190	Maximum K - value for Drainage on Curbed Roadways is 167; BDE 33 - 4.A	IL RTE 47: VPI Sta. 630+00.00	The minimum vertical curve length is proposed at this location, which results in a K-value greater than the maximum. The proposed profile is constrained by ROW limitations, existing development and wetlands. The need to have a minimum grade-line of 0.3% grade for drainage purposes is met within this section.
17	K=64	Minimum K - value is 151 for 60 mph design speed; BDE 33 - 4.B	IL RTE 176 (East Leg): Sta. 302+10.00	The design of the vertical curve results in a K - value less than the minimum. The proposed profile is constrained by ROW limitations, existing development and wetlands.
18	SSD = 375'	Minimum sight distance is 570 for 60 mph and level - grade; BDE Figure 33 - 4.B	IL RTE 176 (East Leg): Sta. 302+10.00	The design of the vertical curve results in a stopping sight distance that is less than the minimum. The proposed profile is constrained by ROW limitations, existing development and wetlands.
19	K=187	Maximum K - value for Drainage on Curbed Roadways is 167; BDE 33 - 4.A	IL RTE 176 (West Leg): Sta. 416+80.00	The design of the vertical curve results in a K - value less than the minimum. The proposed profile is constrained by ROW limitations, existing development and wetlands.

**IL Route 47 from Reed Road to US 14
McHenry County
Job No. P-91-101-07**

20	K=69	Minimum K - value is 151 for 60 mph design speed; BDE 33 - 4.B	IL RTE 176 (West Leg): Sta. 426+75.00	The design of the vertical curve results in a stopping sight distance that is less than the minimum. The proposed profile is constrained by ROW limitations, existing development and wetlands.
21	2.7 feet	3.0 feet	Sta. 398+00	Can't raise roadway profile due to wetlands & wildlife impacts. Increasing the proposed structure size will not increase freeboard value due to natural high-water elevation. There are no reports of flooding at this location. 100-year edge of pavement protection will be provided. Sloping of inside lanes to the median improves the water quality in an environmentally sensitive area. The median has shoulders and is depressed. Inlets have been placed in the median to minimize the potential of pavement flooding.



Route FAP 0326	Street 	Marked Illinois Route 47	Contract # 	State Job # P-91-101-07
Section 	County McHenry	Municipality **Grafton Township and Dorr Township		
Local Agency N/A	LRS Section # N/A	Permit Applicant N/A	Permit # N/A	

Project Limits
Reed Road to US-14

Project Length 7.6-miles (40,425-feet) **Current Posted Speed** 40-55-mph **FHWA Oversight?** Yes No

Estimate of Cost 102,235,894	Functional Classification Other Princ. Arterial (SRA)	Design Yr 2040	Design Traffic ADT 28,000	Design Traffic DHV AM 2,105	PM 2,250
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On the NHS System? Yes No **Structure Numbers** 056-0025 **Type of Project (Construction, Reconstruction, 3R, HES, etc.)** Reconstruction

Brief Project Description
Reconstruction of IL-47 from 2-lane undivided to a 4-lane divided highway.

EXCEPTION DOCUMENTATION

Level of Exception Interstate Non-Interstate

Design Element for Which an Exception is Requested
Through Lane Cross Slopes

Design Element Policy Value
Lane 1: +2.0%; Lane 2: +2.0%; Lane 3+: +2.5% - BDE 34-2.01(b); 2% for Two Lanes Adjacent to Median - BDE Figure 46-3E

Proposed Design Element Value
Lane 1: -2.0%; Lane 2: +2.0%

Location(s) of Exception
Sta. 381+00 to 716+00

Crash History and Potential of Exception Location(s)
368 total crashes between 2008 and 2012. None were related to this Design Exception. It was not a 5% segment for 2008 to 2012; however, the split intersection of IL176 was a 5% location in 2010. Proposed scope of work will improve the safety and operations related to this exception request.

Cost of Using Policy Value \$0.00	Cost of Using Proposed Exception Value \$0.00
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Impacts Other Than Cost of Using Policy Value
Sloping of inside lanes to the median improves the water quality in an environmentally sensitive area.

Proposed Mitigation to Address Exception
Use of a skid-resistant pavement surfaces in areas of cross slope design variances; Inlet spacing designed to ensure no standing water encroachments in areas of cross slope variances.

Geometric Compatibility with Adjacent Sections
Proposed design elements transition and match the proposed typical sections of the IL-47 project.

Potential Effects on Other Design Elements
None

Potential Impacts on Mobility or Traffic Operations

None

Summary of Justification for Exception

Sloping of inside lanes to the median improves the water quality in an environmentally sensitive area. The median has shoulders and is depressed. Inlets have been placed in the median to minimize the potential of pavement flooding.

Coordination Meeting Date

Prepared By

Date

Kirsten Mawhinney, P.E., AECOM

12/24/2015

PAVEMENT/RESURFACING EXCEPTIONS

New Pavement **Pavement Widening** **Resurfacing**

Design Period/ Expected Service Life

Design Year

Structural Design Traffic

%PV

%SU

%MU

Design Element Policy Value

Proposed Design Element Value

Location(s) of Exception

Cost of Using Policy Value

Cost of Using Proposed Element Value

Summary of Justification

Prepared By

Date

APPROVAL/DISAPPROVAL

BDE Approval Date

BDE Disapproval Date

BDE Comments on Disapproval

FHWA Approval Date (Interstate Only)

FHWA Disapproval Date (Interstate Only)



Route FAP 0326	Street 	Marked Illinois Route 47	Contract # 	State Job # P-91-101-07
Section 	County McHenry	Municipality **Grafton Township and Dorr Township		
Local Agency N/A	LRS Section # N/A	Permit Applicant N/A	Permit # N/A	

Project Limits
Reed Road to US-14

Project Length 7.6-miles (40,425-feet) **Current Posted Speed** 40-55-mph **FHWA Oversight?** Yes No

Estimate of Cost 102,235,894	Functional Classification Other Princ. Arterial (SRA)	Design Yr 2040	Design Traffic ADT 5,000	Design Traffic DHV AM 380	Design Traffic DHV PM 345
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On the NHS System? Yes No **Structure Numbers** 056-0025 **Type of Project (Construction, Reconstruction, 3R, HES, etc.)** Reconstruction

Brief Project Description
Reconstruction of IL-47 from 2-lane undivided to a 4-lane divided highway.

EXCEPTION DOCUMENTATION

Level of Exception Interstate Non-Interstate

Design Element for Which an Exception is Requested
Minimum Radius for Horizontal Curve on Local Street

Design Element Policy Value
Rmin=835-feet for 50-mph Design Speed and e(max)=6.0%; BLRSM Figure 29-2B

Proposed Design Element Value
R=275-feet

Location(s) of Exception
Proposed Curve Pleasant-1; Sta. 2133+27.91 to 2134+49.31

Crash History and Potential of Exception Location(s)
368 total crashes between 2008 and 2012. None were related to this Design Exception. It was not a 5% location for 2008 to 2012. Proposed scope of work will improve the safety and operations related to this exception request.

Cost of Using Policy Value \$200,000.00	Cost of Using Proposed Exception Value \$0.00
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Impacts Other Than Cost of Using Policy Value
None

Proposed Mitigation to Address Exception
Curve will be advisory posted for 30-mph in conformance with Rmin=275-feet for 30-mph design speed.

Geometric Compatibility with Adjacent Sections
Proposed curve is geometrically compatible with the existing horizontal alignment.

Potential Effects on Other Design Elements
None

Potential Impacts on Mobility or Traffic Operations

None

Summary of Justification for Exception

Pleasant Valley Road is a local road that will be reconstructed by the local agency at a future date. The proposed 275-foot curve is necessary in order to avoid the acquisition of a residential property. The proposed curve will be advisory posted for 30-mph.

Coordination Meeting Date	Prepared By	Date
	Kirsten Mawhinney, P.E., AECOM	12/24/2015

PAVEMENT/RESURFACING EXCEPTIONS

New Pavement Pavement Widening Resurfacing

Design Period/ Expected Service Life	Design Year	Structural Design Traffic	%PV	%SU	%MU

Design Element Policy Value	Proposed Design Element Value

Location(s) of Exception

Cost of Using Policy Value	Cost of Using Proposed Element Value

Summary of Justification

Prepared By	Date

APPROVAL/DISAPPROVAL

BDE Approval Date	BDE Disapproval Date

BDE Comments on Disapproval

FHWA Approval Date (Interstate Only)	FHWA Disapproval Date (Interstate Only)



Route FAP 0326	Street 	Marked Illinois Route 47	Contract # 	State Job # P-91-101-07
Section 	County McHenry	Municipality **Grafton Township and Dorr Township		
Local Agency N/A	LRS Section # N/A	Permit Applicant N/A	Permit # N/A	

Project Limits
Reed Road to US-14

Project Length
7.6-miles (40,425-feet)

Current Posted Speed
40-55-mph

FHWA Oversight?
 Yes No

Estimate of Cost 102,235,894	Functional Classification Other Princ. Arterial (SRA)	Design Yr 2040	Design Traffic ADT 500	Design Traffic DHV AM 40	Design Traffic DHV PM 20
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On the NHS System?
 Yes No

Structure Numbers
056-0025

Type of Project (Construction, Reconstruction, 3R, HES, etc.)
Reconstruction

Brief Project Description
Reconstruction of IL-47 from 2-lane undivided to a 4-lane divided highway.

EXCEPTION DOCUMENTATION

Level of Exception Interstate Non-Interstate

Design Element for Which an Exception is Requested
Minimum Radii for Horizontal Curves on Local Street

Design Element Policy Value
Low Speed Urban (BLRSM 29-4): Rmin=125-feet for 20-mph Design Speed and e(max)=4.0% - BLRSM Figure 29-3C

Proposed Design Element Value
R=120-feet for 20-mph Design Speed and e(max)=4.0%

Location(s) of Exception
Proposed Curves: Prswanson-1 Sta. 503+91.66 to 505+27.88; Prswanson-2 Sta. 505+85.00 to 507+19.86

Crash History and Potential of Exception Location(s)
368 total crashes between 2008 and 2012. None were related to this Design Exception. It was not a 5% location for 2008 to 2012. Proposed scope of work will improve the safety and operations related to this exception request.

Cost of Using Policy Value \$2,000,000.00	Cost of Using Proposed Exception Value \$0.00
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Impacts Other Than Cost of Using Policy Value
None

Proposed Mitigation to Address Exception
Curve will be advisory posted at 20-mph consistent with the proposed 120-foot radii for the curves.

Geometric Compatibility with Adjacent Sections
Proposed curve is compatible with adjacent sections.

Potential Effects on Other Design Elements
None

Potential Impacts on Mobility or Traffic Operations
None

Summary of Justification for Exception
Right-of-way is constrained by a commercial business and by ComEd power line towers.

Coordination Meeting Date

Prepared By

Date

PAVEMENT/RESURFACING EXCEPTIONS

New Pavement Pavement Widening Resurfacing

Design Period/ Expected Service Life

Design Year

Structural Design Traffic

%PV

%SU

%MU

Design Element Policy Value

Proposed Design Element Value

Location(s) of Exception

Cost of Using Policy Value

Cost of Using Proposed Element Value

Summary of Justification

Prepared By

Date

APPROVAL/DISAPPROVAL

BDE Approval Date

BDE Disapproval Date

BDE Comments on Disapproval

FHWA Approval Date (Interstate Only)

FHWA Disapproval Date (Interstate Only)



Route FAP 0326	Street 	Marked Illinois Route 47	Contract # 	State Job # P-91-101-07
Section 	County McHenry	Municipality **Grafton Township and Dorr Township		
Local Agency N/A	LRS Section # N/A	Permit Applicant N/A	Permit # N/A	

Project Limits
Reed Road to US-14

Project Length 7.6-miles (40,425-feet) **Current Posted Speed** 40-55-mph **FHWA Oversight?** Yes No

Estimate of Cost 102,235,894	Functional Classification Other Princ. Arterial (SRA)	Design Yr 2040	Design Traffic ADT 500	Design Traffic DHV AM 40	Design Traffic DHV PM 20
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On the NHS System? Yes No **Structure Numbers** 056-0025 **Type of Project (Construction, Reconstruction, 3R, HES, etc.)** Reconstruction

Brief Project Description
Reconstruction of IL-47 from 2-lane undivided to a 4-lane divided highway.

EXCEPTION DOCUMENTATION

Level of Exception Interstate Non-Interstate

Design Element for Which an Exception is Requested
Minimum Radii for Horizontal Curves on Local Street

Design Element Policy Value
Low Speed Urban (BLRSM 29-4): Minimum Tangent Distance Between PT and PC of Reverse Curves for Continuously Rotating Plane of 121.5-feet – BLRSM Equation 29-3.4

Proposed Design Element Value
Distance between PT and PC of Reverse Curves=57.12-feet

Location(s) of Exception
Proposed Curves: Prswanson-1 Sta. 503+91.66 to 505+27.88; Prswanson-2 Sta. 505+85.00 to 507+19.86

Crash History and Potential of Exception Location(s)
368 total crashes between 2008 and 2012. None were related to this Design Exception. It was not a 5% location for 2008 to 2012. Proposed scope of work will improve the safety and operations related to this exception request.

Cost of Using Policy Value \$2,000,000.00	Cost of Using Proposed Exception Value \$0.00
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Impacts Other Than Cost of Using Policy Value
None

Proposed Mitigation to Address Exception
Curve will be advisory posted at 20-mph consistent with the proposed 120-foot radii for the curves.

Geometric Compatibility with Adjacent Sections
Proposed curve is compatible with adjacent sections.

Potential Effects on Other Design Elements
None

Potential Impacts on Mobility or Traffic Operations

None

Summary of Justification for Exception

Right-of-way is constrained by a commercial business and by ComEd power line towers.

Coordination Meeting Date

Prepared By

Date

Kirsten Mawhinney, P.E., AECOM

12/24/2015

PAVEMENT/RESURFACING EXCEPTIONS

New Pavement Pavement Widening Resurfacing

Design Period/ Expected Service Life

Design Year

Structural Design Traffic

%PV

%SU

%MU

Design Element Policy Value

Proposed Design Element Value

Location(s) of Exception

Cost of Using Policy Value

Cost of Using Proposed Element Value

Summary of Justification

Prepared By

Date

APPROVAL/DISAPPROVAL

BDE Approval Date

BDE Disapproval Date

BDE Comments on Disapproval

FHWA Approval Date (Interstate Only)

FHWA Disapproval Date (Interstate Only)



Route FAP 0326	Street 	Marked Illinois Route 47	Contract # 	State Job # P-91-101-07
Section 	County McHenry	Municipality **Grafton Township and Dorr Township		
Local Agency N/A	LRS Section # N/A	Permit Applicant N/A	Permit # N/A	

Project Limits
Reed Road to US-14

Project Length 7.6-miles (40,425-feet) **Current Posted Speed** 40-55-mph **FHWA Oversight?** Yes No

Estimate of Cost 102,235,894	Functional Classification Other Princ. Arterial (SRA)	Design Yr 2040	Design Traffic ADT 26,000	Design Traffic DHV AM 1,615	Design Traffic DHV PM 1,905
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On the NHS System? Yes No **Structure Numbers** 056-0025 **Type of Project (Construction, Reconstruction, 3R, HES, etc.)** Reconstruction

Brief Project Description
Reconstruction of IL-47 from 2-lane undivided to a 4-lane divided highway.

EXCEPTION DOCUMENTATION

Level of Exception Interstate Non-Interstate

Design Element for Which an Exception is Requested
Vertical Curve K-values > 167 on Curbed Roadways

Design Element Policy Value
Maximum K-value for Drainage on Curbed Roadways is 167; BDE 33-4.01(d); BDE 33-4.02(e)

Proposed Design Element Value
K=206 L=165-feet

Location(s) of Exception
VPI Sta. 732+85.00

Crash History and Potential of Exception Location(s)
368 total crashes between 2008 and 2012. None were related to this Design Exception. It was not a 5% location for 2008 to 2012. Proposed scope of work will improve the safety and operations related to this exception request.

Cost of Using Policy Value \$200,000.00	Cost of Using Proposed Exception Value \$0.00
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Impacts Other Than Cost of Using Policy Value
None

Proposed Mitigation to Address Exception
Shoulders adjacent to outside travel lanes and mountable curb and gutter.

Geometric Compatibility with Adjacent Sections
Proposed design elements transition and match the proposed typical sections of the IL-47 project.

Potential Effects on Other Design Elements
None

Potential Impacts on Mobility or Traffic Operations

None

Summary of Justification for Exception

The minimum vertical curve length is proposed at this location, which results in a K-value greater than the maximum. The proposed profile is constrained by ROW limitations, existing development and the need to to have a minimum gradeline of 0.3% grade for drainager purposes within this urban section.

Coordination Meeting Date	Prepared By	Date
	Kirsten Mawhinney, P.E., AECOM	12/24/2015

PAVEMENT/RESURFACING EXCEPTIONS

New Pavement Pavement Widening Resurfacing

Design Period/ Expected Service Life	Design Year	Structural Design Traffic	%PV	%SU	%MU

Design Element Policy Value	Proposed Design Element Value

Location(s) of Exception

Cost of Using Policy Value	Cost of Using Proposed Element Value

Summary of Justification

Prepared By	Date

APPROVAL/DISAPPROVAL

BDE Approval Date	BDE Disapproval Date

BDE Comments on Disapproval

FHWA Approval Date (Interstate Only)	FHWA Disapproval Date (Interstate Only)



Route FAP 0326	Street 	Marked Illinois Route 47	Contract # 	State Job # P-91-101-07
Section 	County McHenry	Municipality **Grafton Township and Dorr Township		
Local Agency N/A	LRS Section # N/A	Permit Applicant N/A	Permit # N/A	

Project Limits
Reed Road to US-14

Project Length 7.6-miles (40,425-feet) **Current Posted Speed** 40-55-mph **FHWA Oversight?** Yes No

Estimate of Cost 102,235,894	Functional Classification Other Princ. Arterial (SRA)	Design Yr 2040	Design Traffic ADT 26,000	Design Traffic DHV AM 1,615	Design Traffic DHV PM 1,905
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On the NHS System? Yes No **Structure Numbers** 056-0025 **Type of Project (Construction, Reconstruction, 3R, HES, etc.)** Reconstruction

Brief Project Description
Reconstruction of IL-47 from 2-lane undivided to a 4-lane divided highway.

EXCEPTION DOCUMENTATION

Level of Exception Interstate Non-Interstate

Design Element for Which an Exception is Requested
Vertical Curve K-values > 167 on Curbed Roadways

Design Element Policy Value
Maximum K-value for Drainage on Curbed Roadways is 167; BDE 33-4.01(d); BDE 33-4.02(e)

Proposed Design Element Value
K=205 L=165-feet

Location(s) of Exception
VPI Sta. 738+00.00

Crash History and Potential of Exception Location(s)
368 total crashes between 2008 and 2012. None were related to this Design Exception. It was not a 5% location for 2008 to 2012. Proposed scope of work will improve the safety and operations related to this exception request.

Cost of Using Policy Value \$200,000.00	Cost of Using Proposed Exception Value \$0.00
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Impacts Other Than Cost of Using Policy Value
None

Proposed Mitigation to Address Exception
Shoulders adjacent to outside travel lanes and mountable curb and gutter.

Geometric Compatibility with Adjacent Sections
Proposed design elements transition and match the proposed typical sections of the IL-47 project.

Potential Effects on Other Design Elements
None

Potential Impacts on Mobility or Traffic Operations

None

Summary of Justification for Exception

The minimum vertical curve length is proposed at this location, which results in a K-value greater than the maximum. The proposed profile is constrained by ROW limitations, existing development and the need to to have a minimum gradeline of 0.3% grade for drainager purposes within this urban section.

Coordination Meeting Date	Prepared By	Date
	Kirsten Mawhinney, P.E., AECOM	12/24/2015

PAVEMENT/RESURFACING EXCEPTIONS

New Pavement Pavement Widening Resurfacing

Design Period/ Expected Service Life	Design Year	Structural Design Traffic	%PV	%SU	%MU

Design Element Policy Value	Proposed Design Element Value

Location(s) of Exception

Cost of Using Policy Value	Cost of Using Proposed Element Value

Summary of Justification

Prepared By	Date

APPROVAL/DISAPPROVAL

BDE Approval Date	BDE Disapproval Date

BDE Comments on Disapproval

FHWA Approval Date (Interstate Only)	FHWA Disapproval Date (Interstate Only)



Route FAP 0326	Street 	Marked Illinois Route 47	Contract # 	State Job # P-91-101-07
Section 	County McHenry	Municipality **Grafton Township and Dorr Township		
Local Agency N/A	LRS Section # N/A	Permit Applicant N/A	Permit # N/A	

Project Limits
Reed Road to US-14

Project Length 7.6-miles (40,425-feet) **Current Posted Speed** 40-55-mph **FHWA Oversight?** Yes No

Estimate of Cost 102,235,894	Functional Classification Other Princ. Arterial (SRA)	Design Yr 2040	Design Traffic ADT 26,000	Design Traffic DHV AM 1,630	Design Traffic DHV PM 1,900
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On the NHS System? Yes No **Structure Numbers** 056-0025 **Type of Project (Construction, Reconstruction, 3R, HES, etc.)** Reconstruction

Brief Project Description
Reconstruction of IL-47 from 2-lane undivided to a 4-lane divided highway.

EXCEPTION DOCUMENTATION

Level of Exception Interstate Non-Interstate

Design Element for Which an Exception is Requested
Vertical Curve K-values > 167 on Curbed Roadways

Design Element Policy Value
Maximum K-value for Drainage on Curbed Roadways is 167; BDE 33-4.01(d); BDE 33-4.02(e)

Proposed Design Element Value
K=168 L=135-feet

Location(s) of Exception
VPI Sta. 742+00.00

Crash History and Potential of Exception Location(s)
368 total crashes between 2008 and 2012. None were related to this Design Exception. It was not a 5% location for 2008 to 2012. Proposed scope of work will improve the safety and operations related to this exception request.

Cost of Using Policy Value \$200,000.00	Cost of Using Proposed Exception Value \$0.00
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Impacts Other Than Cost of Using Policy Value
None

Proposed Mitigation to Address Exception
Shoulders adjacent to outside travel lanes and mountable curb and gutter.

Geometric Compatibility with Adjacent Sections
Proposed design elements transition and match the proposed typical sections of the IL-47 project.

Potential Effects on Other Design Elements
None

Potential Impacts on Mobility or Traffic Operations

None

Summary of Justification for Exception

The minimum vertical curve length is proposed at this location, which results in a K-value greater than the maximum. The proposed profile is constrained by ROW limitations, existing development and the need to to have a minimum gradeline of 0.3% grade for drainager purposes within this urban section.

Coordination Meeting Date	Prepared By	Date
	Kirsten Mawhinney, P.E., AECOM	12/24/2015

PAVEMENT/RESURFACING EXCEPTIONS

New Pavement Pavement Widening Resurfacing

Design Period/ Expected Service Life	Design Year	Structural Design Traffic	%PV	%SU	%MU

Design Element Policy Value	Proposed Design Element Value

Location(s) of Exception

Cost of Using Policy Value	Cost of Using Proposed Element Value

Summary of Justification

Prepared By	Date

APPROVAL/DISAPPROVAL

BDE Approval Date	BDE Disapproval Date

BDE Comments on Disapproval

FHWA Approval Date (Interstate Only)	FHWA Disapproval Date (Interstate Only)



Route FAP 0326	Street 	Marked Illinois Route 47	Contract # 	State Job # P-91-101-07
Section 	County McHenry	Municipality **Grafton Township and Dorr Township		
Local Agency N/A	LRS Section # N/A	Permit Applicant N/A	Permit # N/A	

Project Limits
Reed Road to US-14

Project Length 7.6-miles (40,425-feet) **Current Posted Speed** 40-55-mph **FHWA Oversight?** Yes No

Estimate of Cost 102,235,894	Functional Classification Other Princ. Arterial (SRA)	Design Yr 2040	Design Traffic ADT 26,000	Design Traffic DHV AM 1,630	Design Traffic DHV PM 1,900
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On the NHS System? Yes No **Structure Numbers** 056-0025 **Type of Project (Construction, Reconstruction, 3R, HES, etc.)** Reconstruction

Brief Project Description
Reconstruction of IL-47 from 2-lane undivided to a 4-lane divided highway.

EXCEPTION DOCUMENTATION

Level of Exception Interstate Non-Interstate

Design Element for Which an Exception is Requested
Vertical Curve K-values > 167 on Curbed Roadways

Design Element Policy Value
Maximum K-value for Drainage on Curbed Roadways is 167; BDE 33-4.01(d); BDE 33-4.02(e)

Proposed Design Element Value
K=188 L=150-feet

Location(s) of Exception
VPI Sta. 744+00.00

Crash History and Potential of Exception Location(s)
368 total crashes between 2008 and 2012. None were related to this Design Exception. It was not a 5% location for 2008 to 2012. Proposed scope of work will improve the safety and operations related to this exception request.

Cost of Using Policy Value \$200,000.00	Cost of Using Proposed Exception Value \$0.00
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Impacts Other Than Cost of Using Policy Value
None

Proposed Mitigation to Address Exception
Shoulders adjacent to outside travel lanes and mountable curb and gutter.

Geometric Compatibility with Adjacent Sections
Proposed design elements transition and match the proposed typical sections of the IL-47 project.

Potential Effects on Other Design Elements
None

Potential Impacts on Mobility or Traffic Operations

None

Summary of Justification for Exception

The minimum vertical curve length is proposed at this location, which results in a K-value greater than the maximum. The proposed profile is constrained by ROW limitations, existing development and the need to to have a minimum gradeline of 0.3% grade for drainager purposes within this urban section.

Coordination Meeting Date	Prepared By	Date
	Kirsten Mawhinney, P.E., AECOM	12/24/2015

PAVEMENT/RESURFACING EXCEPTIONS

New Pavement Pavement Widening Resurfacing

Design Period/ Expected Service Life	Design Year	Structural Design Traffic	%PV	%SU	%MU

Design Element Policy Value	Proposed Design Element Value

Location(s) of Exception

Cost of Using Policy Value	Cost of Using Proposed Element Value

Summary of Justification

Prepared By	Date

APPROVAL/DISAPPROVAL

BDE Approval Date	BDE Disapproval Date

BDE Comments on Disapproval

FHWA Approval Date (Interstate Only)	FHWA Disapproval Date (Interstate Only)



Route FAP 0326	Street 	Marked Illinois Route 47	Contract # 	State Job # P-91-101-07
Section 	County McHenry		Municipality **Grafton Township and Dorr Township	
Local Agency N/A	LRS Section # N/A	Permit Applicant N/A	Permit # N/A	

Project Limits
Reed Road to US-14

Project Length 7.6-miles (40,425-feet) **Current Posted Speed** 40-55-mph **FHWA Oversight?** Yes No

Estimate of Cost 102,235,894	Functional Classification Other Princ. Arterial (SRA)	Design Yr 2040	Design Traffic ADT 28,000	Design Traffic DHV AM 2,105	PM 2,250
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On the NHS System? Yes No **Structure Numbers** 056-0025 **Type of Project (Construction, Reconstruction, 3R, HES, etc.)** Reconstruction

Brief Project Description
Reconstruction of IL-47 from 2-lane undivided to a 4-lane divided highway.

EXCEPTION DOCUMENTATION

Level of Exception Interstate Non-Interstate

Design Element for Which an Exception is Requested
Depressed Rural Median Width

Design Element Policy Value
Greater Than or Equal to 40-feet; BDE Figure 34-3.A

Proposed Design Element Value
30-feet

Location(s) of Exception
Proposed rural typical section of mainline roadway; Sta. 381+00 to 718+00.

Crash History and Potential of Exception Location(s)
368 total crashes between 2008 and 2012. None were related to this Design Exception. It was not a 5% segment for 2008 to 2012; however, the split intersection of IL176 was a 5% location in 2010. Proposed scope of work will improve the safety and operations related to this exception request.

Cost of Using Policy Value \$5,000,000.00	Cost of Using Proposed Exception Value \$0.00
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Impacts Other Than Cost of Using Policy Value
Policy value impacts other than cost for full width medians include additional ROW acquisition that would result in greater socio-economic and wetland impacts. The design exception values minimize the levels of environmental impacts.

Proposed Mitigation to Address Exception
Use of Cable Barrier

Geometric Compatibility with Adjacent Sections
Matches existing and proposed 18-foot urban median at project termini when the shoulders are tapered to zero feet.

Potential Effects on Other Design Elements
None

Potential Impacts on Mobility or Traffic Operations

None

Summary of Justification for Exception

Policy value impacts other than cost include additional ROW acquisition that would result in greater socio-economic and substantial wetland impacts. Applying the design exception saves approximately 8-acres of wetland impacts. The design exception minimizes the levels of environmental impacts.

Coordination Meeting Date	Prepared By	Date
	Kirsten Mawhinney, P.E., AECOM	12/24/2015

PAVEMENT/RESURFACING EXCEPTIONS

New Pavement Pavement Widening Resurfacing

Design Period/ Expected Service Life	Design Year	Structural Design Traffic	%PV	%SU	%MU

Design Element Policy Value	Proposed Design Element Value

Location(s) of Exception

Cost of Using Policy Value	Cost of Using Proposed Element Value

Summary of Justification

Prepared By	Date

APPROVAL/DISAPPROVAL

BDE Approval Date	BDE Disapproval Date

BDE Comments on Disapproval

FHWA Approval Date (Interstate Only)	FHWA Disapproval Date (Interstate Only)



Route FAP 0326	Street 	Marked Illinois Route 47	Contract # 	State Job # P-91-101-07
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Section 	County McHenry	Municipality **Grafton Township and Dorr Township
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Local Agency N/A	LRS Section # N/A	Permit Applicant N/A	Permit # N/A
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Project Limits
Reed Road to US-14

Project Length 7.6-miles (40,425-feet)	Current Posted Speed 40-55-mph	FHWA Oversight? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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Estimate of Cost 102,235,894	Functional Classification Other Princ. Arterial (SRA)	Design Yr 2040	Design Traffic ADT 27,000	Design Traffic DHV AM 1,765	Design Traffic DHV PM 2,115
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On the NHS System? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Structure Numbers 056-0025	Type of Project (Construction, Reconstruction, 3R, HES, etc.) Reconstruction
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Brief Project Description
Reconstruction of IL-47 from 2-lane undivided to a 4-lane divided highway.

EXCEPTION DOCUMENTATION

Level of Exception Interstate Non-Interstate

Design Element for Which an Exception is Requested
Left Turn Lane Storage Lengths

Design Element Policy Value
185-foot minimum storage length for 45-mph design speed; BDE Figure 36-3.1

Proposed Design Element Value
Back-to-back left turn storage bays of 137.4-feet separated by 200' taper.

Location(s) of Exception
IL-47 - between US-14 and Willow Brooke Drive; Sta. 768+01 to 772+77

Crash History and Potential of Exception Location(s)
368 total crashes between 2008 and 2012. Two were related to this Design Exception. It was not a 5% location for 2008 to 2012. Proposed scope of work will improve the safety and operations related to this exception request.

Cost of Using Policy Value \$500,000.00	Cost of Using Proposed Exception Value \$0.00
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Impacts Other Than Cost of Using Policy Value
Eliminating the southbound to eastbound left turn lane to Willow Brooke Drive, in favor of applying the full design requirements to the northbound to westbound left turn at US-14 would slightly modify traffic patterns in the area, and create a public inconvenience for those users accustomed to full access at Willow Brooke Drive.

Proposed Mitigation to Address Exception
Effective storage of the left turn bays are 204-feet which includes one-third of the 200-foot taper length (66.7-feet). The opening to the left turn storage bays are 8-feet in width at a distance of 66.7-feet from the end of the storage bays. The effective storage of 204-feet meets the minimum 185-foot requirement for the stop condition.

Geometric Compatibility with Adjacent Sections
Proposed design elements transition and match the proposed typical sections of the IL-47 project.

Potential Effects on Other Design Elements
None

Potential Impacts on Mobility or Traffic Operations

None

Summary of Justification for Exception

It is physically impossible to maintain access to existing roadways and maintain minimum distance between the storage bays due to the location of the existing roadways. Eliminating the southbound to eastbound left turn lane to Willow Brooke Drive, in favor of applying the full design requirements to the northbound to westbound left turn at US-14 would modify traffic patterns in the area, and create a public inconvenience for those users accustomed to full access at Willow Brooke Drive.

Coordination Meeting Date	Prepared By	Date
	Kirsten Mawhinney, P.E., AECOM	12/24/2015

PAVEMENT/RESURFACING EXCEPTIONS

New Pavement Pavement Widening Resurfacing

Design Period/ Expected Service Life	Design Year	Structural Design Traffic	%PV	%SU	%MU

Design Element Policy Value	Proposed Design Element Value

Location(s) of Exception

Cost of Using Policy Value	Cost of Using Proposed Element Value

Summary of Justification

Prepared By	Date

APPROVAL/DISAPPROVAL

BDE Approval Date	BDE Disapproval Date

BDE Comments on Disapproval

FHWA Approval Date (Interstate Only)	FHWA Disapproval Date (Interstate Only)



Route FAP 0326	Street 	Marked Illinois Route 47	Contract # 	State Job # P-91-101-07
Section 	County McHenry	Municipality **Grafton Township and Dorr Township		
Local Agency N/A	LRS Section # N/A	Permit Applicant N/A	Permit # N/A	

Project Limits
Reed Road to US-14

Project Length 7.6-miles (40,425-feet) **Current Posted Speed** 40-55-mph **FHWA Oversight?** Yes No

Estimate of Cost 102,235,894	Functional Classification Other Princ. Arterial (SRA)	Design Yr 2040	Design Traffic ADT 27,000	Design Traffic DHV AM 1,595	Design Traffic DHV PM 2,025
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On the NHS System? Yes No **Structure Numbers** 056-0025 **Type of Project (Construction, Reconstruction, 3R, HES, etc.)** Reconstruction

Brief Project Description
Reconstruction of IL-47 from 2-lane undivided to a 4-lane divided highway.

EXCEPTION DOCUMENTATION

Level of Exception Interstate Non-Interstate

Design Element for Which an Exception is Requested
Outside Roadway Fill Section Shelf and Drainage Swale for Curbed Facilities

Design Element Policy Value
3 to 10-foot shelves at 5% cross slopes behind back of curb before sidewalk or drainage swale at variable depths; BDE Figure 34-4.B

Proposed Design Element Value
14 foot V-shaped drainage swales at 6:1 (16.7%) slopes between back of curb and proposed multi-use path or 5-foot sidewalk

Location(s) of Exception
IL-47: Sta. 718+00 to 745+92.31; and Sta. 752.84.98 to 773+19.98

Crash History and Potential of Exception Location(s)
368 total crashes between 2008 and 2012. None were related to this Design Exception. It was not a 5% location for 2008 to 2012. Proposed scope of work will improve the safety and operations related to this exception request.

Cost of Using Policy Value \$500,000.00	Cost of Using Proposed Exception Value \$0.00
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Impacts Other Than Cost of Using Policy Value
Policy value impacts other than cost include additional ROW acquisition that would result in greater socio-economic and substantial wetland impacts. The design exception values minimize the levels of environmental impacts.

Proposed Mitigation to Address Exception
None

Geometric Compatibility with Adjacent Sections
Proposed design elements transition and match the proposed typical sections of the IL-47 project.

Potential Effects on Other Design Elements
None

Potential Impacts on Mobility or Traffic Operations

None

Summary of Justification for Exception

Policy value impacts other than cost include additional ROW acquisition that would result in greater socio-economic and substantial wetland impacts. The 14 foot V-shaped drainage swales at 6:1 (16.7%) slopes between back of curb and proposed multi-use path or sidewalk are required to pick up localized drainage.

Coordination Meeting Date	Prepared By	Date
	Kirsten Mawhinney, P.E., AECOM	12/24/2015

PAVEMENT/RESURFACING EXCEPTIONS

New Pavement Pavement Widening Resurfacing

Design Period/ Expected Service Life	Design Year	Structural Design Traffic	%PV	%SU	%MU

Design Element Policy Value	Proposed Design Element Value

Location(s) of Exception

Cost of Using Policy Value	Cost of Using Proposed Element Value

Summary of Justification

Prepared By	Date

APPROVAL/DISAPPROVAL

BDE Approval Date	BDE Disapproval Date

BDE Comments on Disapproval

FHWA Approval Date (Interstate Only)	FHWA Disapproval Date (Interstate Only)



Route FAP 0326	Street 	Marked Illinois Route 47	Contract # 	State Job # P-91-101-07
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Section 	County McHenry	Municipality **Grafton Township and Dorr Township
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Local Agency N/A	LRS Section # N/A	Permit Applicant N/A	Permit # N/A
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Project Limits
Reed Road to US-14

Project Length 7.6-miles (40,425-feet)	Current Posted Speed 40-55-mph	FHWA Oversight? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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Estimate of Cost 102,235,894	Functional Classification Other Princ. Arterial (SRA)	Design Yr 2040	Design Traffic ADT 28,000	Design Traffic DHV AM 2,105	Design Traffic DHV PM 2,250
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On the NHS System? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Structure Numbers 056-0025	Type of Project (Construction, Reconstruction, 3R, HES, etc.) Reconstruction
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Brief Project Description
Reconstruction of IL-47 from 2-lane undivided to a 4-lane divided highway.

EXCEPTION DOCUMENTATION

Level of Exception Interstate Non-Interstate

Design Element for Which an Exception is Requested
Rural Median Ditch Bottom Widths and Median Slopes.

Design Element Policy Value
2-foot ditch bottom widths, 5:1 median slopes, variable depths; BDE 34-3.04(C)

Proposed Design Element Value
2-foot ditch bottom widths, and 4:1 and steeper/variable slopes, variable depths

Location(s) of Exception

Sta. 374+68 to 380+33
 Sta. 393+70 to 406+40
 Sta. 416+46 to 428+83
 Sta. 447+35 to 460+85
 Sta. 473+15 to 485+70
 Sta. 511+99 to 524+79
 Sta. 551+74 to 564+72
 Sta. 569+49 to 581+99
 Sta. 589+72 to 606+25
 Sta. 627+80 to 633+40
 Sta. 652+34 to 665+14
 Sta. 685+10 to 697+76
 Sta. 720+58 to 729+35
 Sta. 734+23 to 742+81
 Sta. 754+90 to 758+73
 Sta. 763+02 to 772+77

Crash History and Potential of Exception Location(s)
368 total crashes between 2008 and 2012. None were related to this Design Exception. It was not a 5% location for 2008 to 2012. Proposed scope of work will improve the safety and operations related to this exception request.

Cost of Using Policy Value
\$1,000,000.00

Cost of Using Proposed Exception Value
\$0.00

Impacts Other Than Cost of Using Policy Value

Policy value impacts other than cost include additional ROW acquisition that would result in greater socio-economic and substantial wetland impacts. The design exception values minimize the levels of environmental impacts.

Proposed Mitigation to Address Exception

Rounding of ditch bottoms to facilitate conveyance. Geo treatments and Bio-swaling should reduce velocities and erosion.

Geometric Compatibility with Adjacent Sections

Transitions to match proposed typical section in areas where channelization is not present.

Potential Effects on Other Design Elements

None

Potential Impacts on Mobility or Traffic Operations

None

Summary of Justification for Exception

Policy value impacts other than cost include additional ROW acquisition that would result in greater socio-economic and substantial wetland impacts. Approximately 8-acres of wetland impacts are eliminated. The design exception values minimize the levels of environmental impacts. Proposed ditch depths are 2-feet with that depth needed for water storage of the bio swales.

Coordination Meeting Date	Prepared By	Date
	Kirsten Mawhinney, P.E., AECOM	12/24/2015

PAVEMENT/RESURFACING EXCEPTIONS

New Pavement Pavement Widening Resurfacing

Design Period/ Expected Service Life	Design Year	Structural Design Traffic	%PV	%SU	%MU

Design Element Policy Value	Proposed Design Element Value

Location(s) of Exception

Cost of Using Policy Value	Cost of Using Proposed Element Value

Summary of Justification

Prepared By	Date

APPROVAL/DISAPPROVAL

BDE Approval Date	BDE Disapproval Date

BDE Comments on Disapproval

FHWA Approval Date (Interstate Only)	FHWA Disapproval Date (Interstate Only)



Route FAP 0326	Street 	Marked Illinois Route 47	Contract # 	State Job # P-91-101-07
Section 	County McHenry	Municipality **Grafton Township and Dorr Township		
Local Agency N/A	LRS Section # N/A	Permit Applicant N/A	Permit # N/A	

Project Limits
Reed Road to US-14

Project Length 7.6-miles (40,425-feet) **Current Posted Speed** 40-55-mph **FHWA Oversight?** Yes No

Estimate of Cost 102,235,894	Functional Classification Other Princ. Arterial (SRA)	Design Yr 2040	Design Traffic ADT 2,000	Design Traffic DHV AM 260	Design Traffic DHV PM 360
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On the NHS System? Yes No **Structure Numbers** 056-0025 **Type of Project (Construction, Reconstruction, 3R, HES, etc.)** Reconstruction

Brief Project Description
Reconstruction of IL-47 from 2-lane undivided to a 4-lane divided highway.

EXCEPTION DOCUMENTATION

Level of Exception Interstate Non-Interstate

Design Element for Which an Exception is Requested
Intersection Sight Distance for right-turning vehicle from minor street to major street

Design Element Policy Value
845 feet per BDE Figure 36-6.E

Proposed Design Element Value
530 feet

Location(s) of Exception
Rainsford Dr. right-turn to northbound IL 47

Crash History and Potential of Exception Location(s)
368 total crashes between 2008 and 2012. None were related to this Design Exception. It was not a 5% location for 2008 to 2012. Proposed scope of work will improve the safety and operations related to this exception request.

Cost of Using Policy Value \$1,000,000.00	Cost of Using Proposed Exception Value \$0.00
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Impacts Other Than Cost of Using Policy Value
Policy value impacts other than cost include additional ROW acquisition that would result in greater socio-economic impacts. The design exception values minimize the levels of environmental impacts and avoids changes to the section of IL 47 that has already been widened.

Proposed Mitigation to Address Exception
None

Geometric Compatibility with Adjacent Sections
Proposed design elements transition and match the existing reconstruction of IL 47 south of Rainsford Dr.

Potential Effects on Other Design Elements
None

Potential Impacts on Mobility or Traffic Operations

None

Summary of Justification for Exception

Policy value impacts other than cost include additional ROW acquisition that would result in greater socio-economic impacts. Adjusting the alignment of IL 47 would require additional ROW from commercial properties adjacent to IL 47 south of Rainsford Dr as well as affecting the signalized intersection of IL 47 and Reed Rd to the south.

Coordination Meeting Date

Prepared By

Date

Kirsten Mawhinney, P.E., AECOM

12/24/2015

PAVEMENT/RESURFACING EXCEPTIONS

New Pavement **Pavement Widening** **Resurfacing**

Design Period/ Expected Service Life

Design Year

Structural Design Traffic

%PV

%SU

%MU

Design Element Policy Value

Proposed Design Element Value

Location(s) of Exception

Cost of Using Policy Value

Cost of Using Proposed Element Value

Summary of Justification

Prepared By

Date

APPROVAL/DISAPPROVAL

BDE Approval Date

BDE Disapproval Date

BDE Comments on Disapproval

FHWA Approval Date (Interstate Only)

FHWA Disapproval Date (Interstate Only)



Route FAP 0326	Street 	Marked Illinois Route 47	Contract # 	State Job # P-91-101-07
Section 	County McHenry	Municipality **Grafton Township and Dorr Township		
Local Agency N/A	LRS Section # N/A	Permit Applicant N/A	Permit # N/A	

Project Limits
Reed Road to US-14

Project Length 7.6-miles (40,425-feet) **Current Posted Speed** 40-55-mph **FHWA Oversight?** Yes No

Estimate of Cost 102,235,894	Functional Classification Other Princ. Arterial (SRA)	Design Yr 2040	Design Traffic ADT 5,000	Design Traffic DHV AM 380	Design Traffic DHV PM 345
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On the NHS System? Yes No **Structure Numbers** 056-0025 **Type of Project (Construction, Reconstruction, 3R, HES, etc.)** Reconstruction

Brief Project Description
Reconstruction of IL-47 from 2-lane undivided to a 4-lane divided highway.

EXCEPTION DOCUMENTATION

Level of Exception Interstate Non-Interstate

Design Element for Which an Exception is Requested
Intersection Sight Distance for right-turning vehicle from minor street to major street

Design Element Policy Value
1350 feet per BDE Figure 36-6.E

Proposed Design Element Value
852 feet

Location(s) of Exception
Pleasant Valley Rd. left-turn to northbound IL 47

Crash History and Potential of Exception Location(s)
368 total crashes between 2008 and 2012. None were related to this Design Exception. It was not a 5% location for 2008 to 2012. Proposed scope of work will improve the safety and operations related to this exception request.

Cost of Using Policy Value \$1,000,000.00	Cost of Using Proposed Exception Value \$0.00
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Impacts Other Than Cost of Using Policy Value
Additional right-of-way would be required and additional impacts to wetlands adjacent to the corridor.

Proposed Mitigation to Address Exception
Re-alignment of Pleasant Valley Rd as part of proposed improvements increase ISD compared to existing.

Geometric Compatibility with Adjacent Sections
Proposed design elements transition and match the proposed typical sections of the IL-47 project.

Potential Effects on Other Design Elements
None

Potential Impacts on Mobility or Traffic Operations

None

Summary of Justification for Exception

Policy value impacts other than cost include additional ROW acquisition that would result in greater socio-economic and substantial wetland impacts in order to either re-align Pleasant Valley Rd further to the north or to adjust the IL 47 horizontal curve at the intersection of IL 176.

Coordination Meeting Date	Prepared By	Date
	Kirsten Mawhinney, P.E., AECOM	12/24/2015

PAVEMENT/RESURFACING EXCEPTIONS

New Pavement Pavement Widening Resurfacing

Design Period/ Expected Service Life	Design Year	Structural Design Traffic	%PV	%SU	%MU

Design Element Policy Value	Proposed Design Element Value

Location(s) of Exception

Cost of Using Policy Value	Cost of Using Proposed Element Value

Summary of Justification

Prepared By	Date

APPROVAL/DISAPPROVAL

BDE Approval Date	BDE Disapproval Date

BDE Comments on Disapproval

FHWA Approval Date (Interstate Only)	FHWA Disapproval Date (Interstate Only)



Route FAP 0326	Street 	Marked Illinois Route 47	Contract # 	State Job # P-91-101-07
Section 	County McHenry		Municipality **Grafton Township and Dorr Township	
Local Agency N/A	LRS Section # N/A	Permit Applicant N/A	Permit # N/A	

Project Limits
Reed Road to US-14

Project Length
7.6-miles (40,425-feet)

Current Posted Speed
40-55-mph

FHWA Oversight?
 Yes No

Estimate of Cost 102,235,894	Functional Classification Other Princ. Arterial (SRA)	Design Yr 2040	Design Traffic ADT 26,000	Design Traffic DHV AM 1110	PM 1310
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On the NHS System?
 Yes No

Structure Numbers
056-0025

Type of Project (Construction, Reconstruction, 3R, HES, etc.)
Reconstruction

Brief Project Description
Reconstruction of IL-47 from 2-lane undivided to a 4-lane divided highway.

EXCEPTION DOCUMENTATION

Level of Exception Interstate Non-Interstate

Design Element for Which an Exception is Requested
Vertical Curve K-values > 167

Design Element Policy Value
Maximum K-value for Drainage on Curbed Roadways is 167; BDE Figure 33-4.A

Proposed Design Element Value
K=180 L=190-feet

Location(s) of Exception
VPI Sta. 630+00.00

Crash History and Potential of Exception Location(s)
368 total crashes between 2008 and 2012. None were related to this Design Exception. It was not a 5% location for 2008 to 2012. Proposed scope of work will improve the safety and operations related to this exception request.

Cost of Using Policy Value \$200,000.00	Cost of Using Proposed Exception Value \$0.00
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Impacts Other Than Cost of Using Policy Value
Impacts to ROW and wetlands.

Proposed Mitigation to Address Exception
None.

Geometric Compatibility with Adjacent Sections
Proposed design elements transition and match the proposed typical sections of the IL-47 project.

Potential Effects on Other Design Elements
None

Potential Impacts on Mobility or Traffic Operations

None

Summary of Justification for Exception

The minimum vertical curve length is proposed at this location, which results in a K-value greater than the maximum. The proposed profile is constrained by ROW limitations, existing development and wetlands. The need to have a minimum gradeline of 0.3% grade for drainage purposes is met within this section.

Coordination Meeting Date	Prepared By	Date
	Kirsten Mawhinney, P.E., AECOM	09-12-2016

PAVEMENT/RESURFACING EXCEPTIONS

New Pavement Pavement Widening Resurfacing

Design Period/ Expected Service Life	Design Year	Structural Design Traffic	%PV	%SU	%MU

Design Element Policy Value	Proposed Design Element Value

Location(s) of Exception

Cost of Using Policy Value	Cost of Using Proposed Element Value

Summary of Justification

Prepared By	Date

APPROVAL/DISAPPROVAL

BDE Approval Date	BDE Disapproval Date

BDE Comments on Disapproval

FHWA Approval Date (Interstate Only)	FHWA Disapproval Date (Interstate Only)



Route FAP 0326	Street 	Marked Illinois Route 47	Contract # 	State Job # P-91-101-07
Section 	County McHenry	Municipality **Grafton Township and Dorr Township		
Local Agency N/A	LRS Section # N/A	Permit Applicant N/A	Permit # N/A	

Project Limits
Reed Road to US-14

Project Length
7.6-miles (40,425-feet)

Current Posted Speed
40-55-mph

FHWA Oversight?
 Yes No

Estimate of Cost 102,235,894	Functional Classification Other Princ. Arterial (SRA)	Design Yr 2040	Design Traffic ADT 26,000	Design Traffic DHV AM 450	PM 785
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On the NHS System?
 Yes No

Structure Numbers
056-0025

Type of Project (Construction, Reconstruction, 3R, HES, etc.)
Reconstruction

Brief Project Description
Reconstruction of IL-47 from 2-lane undivided to a 4-lane divided highway.

EXCEPTION DOCUMENTATION

Level of Exception Interstate Non-Interstate

Design Element for Which an Exception is Requested
Vertical Curve K-values < 151

Design Element Policy Value
Minimum K-value for Drainage is 151 BDE Figure 33-4.B

Proposed Design Element Value
K= 64 L= 320-feet

Location(s) of Exception
VPI Sta. 302+10.00 on IL RTE 176 (east leg)

Crash History and Potential of Exception Location(s)
368 total crashes between 2008 and 2012. None were related to this Design Exception. It was not a 5% location for 2008 to 2012. Proposed scope of work will improve the safety and operations related to this exception request.

Cost of Using Policy Value \$400,000.00	Cost of Using Proposed Exception Value \$0.00
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Impacts Other Than Cost of Using Policy Value
Impacts to ROW and wetlands.

Proposed Mitigation to Address Exception
None.

Geometric Compatibility with Adjacent Sections
Proposed design elements transition and match the proposed typical sections of the IL-47 project.

Potential Effects on Other Design Elements
None

Potential Impacts on Mobility or Traffic Operations
None

Summary of Justification for Exception
The design of the vertical curve results in a K-value less than the minimum. The proposed profile is constrained by ROW limitations, existing development and wetlands.

Coordination Meeting Date

Prepared By

Date

PAVEMENT/RESURFACING EXCEPTIONS

New Pavement Pavement Widening Resurfacing

Design Period/ Expected Service Life

Design Year

Structural Design Traffic

%PV

%SU

%MU

Design Element Policy Value

Proposed Design Element Value

Location(s) of Exception

Cost of Using Policy Value

Cost of Using Proposed Element Value

Summary of Justification

Prepared By

Date

APPROVAL/DISAPPROVAL

BDE Approval Date

BDE Disapproval Date

BDE Comments on Disapproval

FHWA Approval Date (Interstate Only)

FHWA Disapproval Date (Interstate Only)



Route FAP 0326	Street 	Marked Illinois Route 47	Contract # 	State Job # P-91-101-07
Section 	County McHenry	Municipality **Grafton Township and Dorr Township		
Local Agency N/A	LRS Section # N/A	Permit Applicant N/A	Permit # N/A	
Project Limits Reed Road to US-14				
Project Length 7.6-miles (40,425-feet)		Current Posted Speed 40-55-mph	FHWA Oversight? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Estimate of Cost 102,235,894	Functional Classification Other Princ. Arterial (SRA)	Design Yr 2040	Design Traffic ADT 26,000	Design Traffic DHV AM 545 PM 525
On the NHS System? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Structure Numbers 056-0025	Type of Project (Construction, Reconstruction, 3R, HES, etc.) Reconstruction		
Brief Project Description Reconstruction of IL-47 from 2-lane undivided to a 4-lane divided highway.				

EXCEPTION DOCUMENTATION

Level of Exception Interstate Non-Interstate

Design Element for Which an Exception is Requested
Vertical Curve K-values > 167

Design Element Policy Value
Maximum K-value is 167 for drainage on curbed roadways per BDE Figure 33-4.A

Proposed Design Element Value
K= 176 L= 190-feet

Location(s) of Exception
VPI Sta. 416+80.00 on IL RTE 176 (west leg)

Crash History and Potential of Exception Location(s)
368 total crashes between 2008 and 2012. None were related to this Design Exception. It was not a 5% location for 2008 to 2012. Proposed scope of work will improve the safety and operations related to this exception request.

Cost of Using Policy Value \$400,000.00	Cost of Using Proposed Exception Value \$0.00
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Impacts Other Than Cost of Using Policy Value
Impacts to ROW and wetlands.

Proposed Mitigation to Address Exception
None.

Geometric Compatibility with Adjacent Sections
Proposed design elements transition and match the proposed typical sections of the IL-47 project.

Potential Effects on Other Design Elements
None

Potential Impacts on Mobility or Traffic Operations
None

Summary of Justification for Exception
The design of the vertical curve results in a K-value less than the minimum. The proposed profile is constrained by ROW limitations, existing development and wetlands.

Coordination Meeting Date

Prepared By

Date

PAVEMENT/RESURFACING EXCEPTIONS

New Pavement Pavement Widening Resurfacing

Design Period/ Expected Service Life

Design Year

Structural Design Traffic

%PV

%SU

%MU

Design Element Policy Value

Proposed Design Element Value

Location(s) of Exception

Cost of Using Policy Value

Cost of Using Proposed Element Value

Summary of Justification

Prepared By

Date

APPROVAL/DISAPPROVAL

BDE Approval Date

BDE Disapproval Date

BDE Comments on Disapproval

FHWA Approval Date (Interstate Only)

FHWA Disapproval Date (Interstate Only)



Route FAP 0326	Street 	Marked Illinois Route 47	Contract # 	State Job # P-91-101-07
Section 	County McHenry	Municipality **Grafton Township and Dorr Township		
Local Agency N/A	LRS Section # N/A	Permit Applicant N/A	Permit # N/A	

Project Limits
Reed Road to US-14

Project Length
7.6-miles (40,425-feet)

Current Posted Speed
40-55-mph

FHWA Oversight?
 Yes No

Estimate of Cost 102,235,894	Functional Classification Other Princ. Arterial (SRA)	Design Yr 2040	Design Traffic ADT 26,000	Design Traffic DHV AM 450	PM 785
--	---	--------------------------	-------------------------------------	-------------------------------------	---------------

On the NHS System? Yes No

Structure Numbers
056-0025

Type of Project (Construction, Reconstruction, 3R, HES, etc.)
Reconstruction

Brief Project Description
Reconstruction of IL-47 from 2-lane undivided to a 4-lane divided highway.

EXCEPTION DOCUMENTATION

Level of Exception Interstate Non-Interstate

Design Element for Which an Exception is Requested
Stopping sight distance < 570

Design Element Policy Value
Minimum stopping sight distance is 570-feet per BDE Figure 33-4.B

Proposed Design Element Value
SSD = 385

Location(s) of Exception
VPI Sta. 302+10.00 on IL RTE 176 (east leg)

Crash History and Potential of Exception Location(s)
368 total crashes between 2008 and 2012. None were related to this Design Exception. It was not a 5% location for 2008 to 2012. Proposed scope of work will improve the safety and operations related to this exception request.

Cost of Using Policy Value \$400,000.00	Cost of Using Proposed Exception Value \$0.00
---	---

Impacts Other Than Cost of Using Policy Value
Impacts to ROW and wetlands.

Proposed Mitigation to Address Exception
None.

Geometric Compatibility with Adjacent Sections
Proposed design elements transition and match the proposed typical sections of the IL-47 project.

Potential Effects on Other Design Elements
None

Potential Impacts on Mobility or Traffic Operations
None

Summary of Justification for Exception
The design of the vertical curve results in a K-value less than the minimum. The proposed profile is constrained by ROW limitations, existing development and wetlands.

Coordination Meeting Date

Prepared By

Date

PAVEMENT/RESURFACING EXCEPTIONS

New Pavement Pavement Widening Resurfacing

Design Period/ Expected Service Life

Design Year

Structural Design Traffic

%PV

%SU

%MU

Design Element Policy Value

Proposed Design Element Value

Location(s) of Exception

Cost of Using Policy Value

Cost of Using Proposed Element Value

Summary of Justification

Prepared By

Date

APPROVAL/DISAPPROVAL

BDE Approval Date

BDE Disapproval Date

BDE Comments on Disapproval

FHWA Approval Date (Interstate Only)

FHWA Disapproval Date (Interstate Only)



Route FAP 0326	Street 	Marked Illinois Route 47	Contract # 	State Job # P-91-101-07
Section 	County McHenry	Municipality **Grafton Township and Dorr Township		
Local Agency N/A	LRS Section # N/A	Permit Applicant N/A	Permit # N/A	

Project Limits
Reed Road to US-14

Project Length 7.6-miles (40,425-feet)	Current Posted Speed 40-55-mph	FHWA Oversight? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
--	--	---

Estimate of Cost 102,235,894	Functional Classification Other Princ. Arterial (SRA)	Design Yr 2040	Design Traffic ADT 26,000	Design Traffic DHV AM 1080	PM 1140
--	---	--------------------------	-------------------------------------	--------------------------------------	---------

On the NHS System? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Structure Numbers 056-0025	Type of Project (Construction, Reconstruction, 3R, HES, etc.) Reconstruction
--	--------------------------------------	--

Brief Project Description
Reconstruction of IL-47 from 2-lane undivided to a 4-lane divided highway.

EXCEPTION DOCUMENTATION

Level of Exception Interstate Non-Interstate

Design Element for Which an Exception is Requested
Vertical Curve K-values > 167

Design Element Policy Value
Maximum K-value for Drainage on Curbed Roadways is 167; BDE Figure 33-4.A

Proposed Design Element Value
K=180 L=180-feet

Location(s) of Exception
VPI Sta. 581+60.00

Crash History and Potential of Exception Location(s)
368 total crashes between 2008 and 2012. None were related to this Design Exception. It was not a 5% location for 2008 to 2012. Proposed scope of work will improve the safety and operations related to this exception request.

Cost of Using Policy Value \$200,000.00	Cost of Using Proposed Exception Value \$0.00
---	---

Impacts Other Than Cost of Using Policy Value
Impacts to ROW and wetlands.

Proposed Mitigation to Address Exception
None.

Geometric Compatibility with Adjacent Sections
Proposed design elements transition and match the proposed typical sections of the IL-47 project.

Potential Effects on Other Design Elements
None

Potential Impacts on Mobility or Traffic Operations

None

Summary of Justification for Exception

The minimum vertical curve length is proposed at this location, which results in a K-value greater than the maximum. The proposed profile is constrained by ROW limitations, existing development and wetlands. The need to have a minimum gradeline of 0.3% grade for drainage purposes is met within this section.

Coordination Meeting Date	Prepared By	Date
	Kirsten Mawhinney, P.E., AECOM	09-12-2016

PAVEMENT/RESURFACING EXCEPTIONS

New Pavement Pavement Widening Resurfacing

Design Period/ Expected Service Life	Design Year	Structural Design Traffic	%PV	%SU	%MU

Design Element Policy Value	Proposed Design Element Value

Location(s) of Exception

Cost of Using Policy Value	Cost of Using Proposed Element Value

Summary of Justification

Prepared By	Date

APPROVAL/DISAPPROVAL

BDE Approval Date	BDE Disapproval Date

BDE Comments on Disapproval

FHWA Approval Date (Interstate Only)	FHWA Disapproval Date (Interstate Only)



Route FAP 0326	Street 	Marked Illinois Route 47	Contract # 	State Job # P-91-101-07
Section 	County McHenry	Municipality **Grafton Township and Dorr Township		
Local Agency N/A	LRS Section # N/A	Permit Applicant N/A	Permit # N/A	

Project Limits
Reed Road to US-14

Project Length
7.6-miles (40,425-feet)

Current Posted Speed
40-55-mph

FHWA Oversight?
 Yes No

Estimate of Cost 102,235,894	Functional Classification Other Princ. Arterial (SRA)	Design Yr 2040	Design Traffic ADT 26,000	Design Traffic DHV AM 545	PM 525
--	---	--------------------------	-------------------------------------	-------------------------------------	---------------

On the NHS System?
 Yes No

Structure Numbers
056-0025

Type of Project (Construction, Reconstruction, 3R, HES, etc.)
Reconstruction

Brief Project Description
Reconstruction of IL-47 from 2-lane undivided to a 4-lane divided highway.

EXCEPTION DOCUMENTATION

Level of Exception Interstate Non-Interstate

Design Element for Which an Exception is Requested
Vertical Curve K-values < 151

Design Element Policy Value
Minimum K-value for is 151 per BDE Figure 33-4.B

Proposed Design Element Value
K= 69 L= 340-feet

Location(s) of Exception
VPI Sta. 426+75.00 on IL RTE 176 (west leg)

Crash History and Potential of Exception Location(s)
368 total crashes between 2008 and 2012. None were related to this Design Exception. It was not a 5% location for 2008 to 2012. Proposed scope of work will improve the safety and operations related to this exception request.

Cost of Using Policy Value \$400,000.00	Cost of Using Proposed Exception Value \$0.00
---	---

Impacts Other Than Cost of Using Policy Value
Impacts to ROW and wetlands.

Proposed Mitigation to Address Exception
None.

Geometric Compatibility with Adjacent Sections
Proposed design elements transition and match the proposed typical sections of the IL-47 project.

Potential Effects on Other Design Elements
None

Potential Impacts on Mobility or Traffic Operations
None

Summary of Justification for Exception
The design of the vertical curve results in a K-value less than the minimum. The proposed profile is constrained by ROW limitations, existing development and wetlands.

Coordination Meeting Date

Prepared By

Date

PAVEMENT/RESURFACING EXCEPTIONS

New Pavement Pavement Widening Resurfacing

Design Period/ Expected Service Life

Design Year

Structural Design Traffic

%PV

%SU

%MU

Design Element Policy Value

Proposed Design Element Value

Location(s) of Exception

Cost of Using Policy Value

Cost of Using Proposed Element Value

Summary of Justification

Prepared By

Date

APPROVAL/DISAPPROVAL

BDE Approval Date

BDE Disapproval Date

BDE Comments on Disapproval

FHWA Approval Date (Interstate Only)

FHWA Disapproval Date (Interstate Only)



Key Route FA 326	Marked Route/Road Name IL Route 47	Contract # 	State Job # P-91-101-07
Section 105X-RS-3	County(ies) McHenry	Municipality Village of Huntley	
Local Agency 	LRS Section # 	Permit Applicant 	Permit #

Project Limits
from US Route 14 to Reed Road

Project Length

Current Posted Speed
55 MPH

Estimate of Cost 	Functional Classification 	Design Yr 	Design Traffic ADT 	Design Traffic DHV AM	PM
----------------------	-------------------------------	---------------	------------------------	--------------------------	----

On the NHS System? Yes No

Structure Numbers
Ex:056-0250 Pr:056-0305

Type of Project (Construction, Reconstruction, 3R, 3P, SMART, HSIP, etc.)
Reconstruction

Brief Project Description

EXCEPTION DOCUMENTATION

Level of Exception Level One Level Two

Design Element for Which an Exception is Requested

Low edge of pavement freeboard within the floodplain

Design Element Policy Value

3.0 feet

Proposed Design Element Value

2.7 feet

Location(s) of Exception

Sta. 398+00

Crash History and Potential of Exception Location(s)

Cost of Using Policy Value

Cost of Using Proposed Exception Value

Impacts Other Than Cost of Using Policy Value

Nearby wetlands and wildlife

Proposed Mitigation to Address Exception

Proposed design will provide 100-yr low edge of pavement protection

Geometric Compatibility with Adjacent Sections

Potential Effects on Other Design Elements

Potential Impacts on Mobility or Traffic Operations

Summary of Justification for Exception

Can't raise roadway profile due to wetlands & wildlife impacts. Increasing the proposed structure size will not increase freeboard value due to natural headwater elevation. There are no reports of flooding at this location. 100-year edge of pavement protection will be provided.

Coordination Meeting Date

Prepared By

Date

12/13/16

Francisco Rios / Cary Lewis

11/21/16

PAVEMENT/RESURFACING EXCEPTIONS

New Pavement Pavement Widening Resurfacing

Design Period/ Expected Service Life

Design Year

Structural Design Traffic

%PV

%SU

%MU

Design Element Policy Value

Proposed Design Element Value

Location(s) of Exception

Cost of Using Policy Value

Cost of Using Proposed Element Value

Summary of Justification

Prepared By

Date

APPROVAL/DISAPPROVAL

BDE Approval Date

FHWA Approval Date (Level One)

APPENDIX A-3
BICYCLE AND PEDESTRIAN CHECKLIST

Generators	Yes	NA	Generators	Yes	NA
Residential Areas	★	<input type="checkbox"/>	Shopping Centers	<input type="checkbox"/>	★
Parks	★	<input type="checkbox"/>	Hospitals	<input type="checkbox"/>	★
Recreation Areas	★	<input type="checkbox"/>	Employment Center	<input type="checkbox"/>	★
Churches	<input type="checkbox"/>	★	Government Offices	<input type="checkbox"/>	★
Schools	★	<input type="checkbox"/>	Local Businesses	★	<input type="checkbox"/>
Libraries	<input type="checkbox"/>	★	Industrial Plants	★	<input type="checkbox"/>
Existing Bicycle Trails	★	<input type="checkbox"/>	Public Transportation Facilities	<input type="checkbox"/>	★
Planned Bicycle Trails	★	<input type="checkbox"/>	Other ()	<input type="checkbox"/>	★

CHECKLIST FOR BICYCLE TRAVEL GENERATORS IN PROJECT VICINITY

Figure 17-1.A

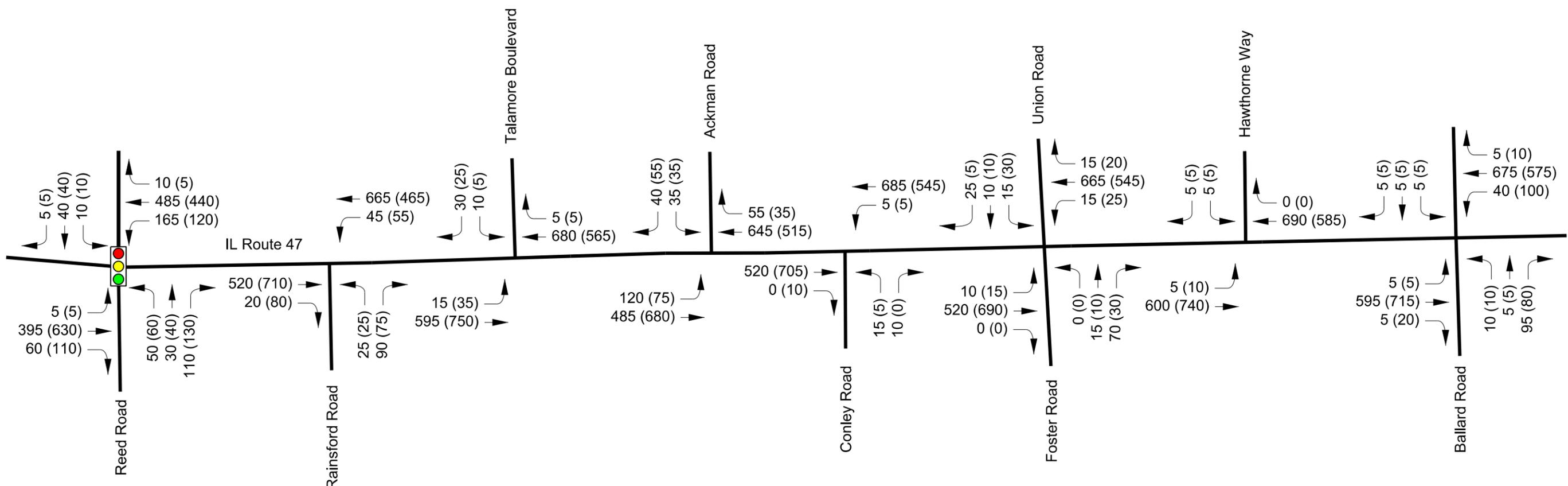
Organization	Yes	NA	Organizations*	Yes	NA
Metropolitan Planning Organization (if applicable)	★	<input type="checkbox"/>	League of Illinois Bicyclists*	★	<input type="checkbox"/>
Local Municipalities	★	<input type="checkbox"/>	Illinois Department of Natural Resources*	★	<input type="checkbox"/>
Park or Forest Preserve Districts	★	<input type="checkbox"/>	Trails for Illinois*	<input type="checkbox"/>	★
Sub-Regional Planning Council (as appropriate)	★	<input type="checkbox"/>	Active Transportation Alliance (District 1 only)*	<input type="checkbox"/>	★
Local Bicycle Clubs, Advocacy Groups	★	<input type="checkbox"/>			

**Note: Addresses are presented in Section 17-5.*

CHECKLIST FOR ORGANIZATIONS AND PUBLIC COORDINATION

Figure 17-1.C

**APPENDIX A-4
TRAFFIC DIAGRAM**



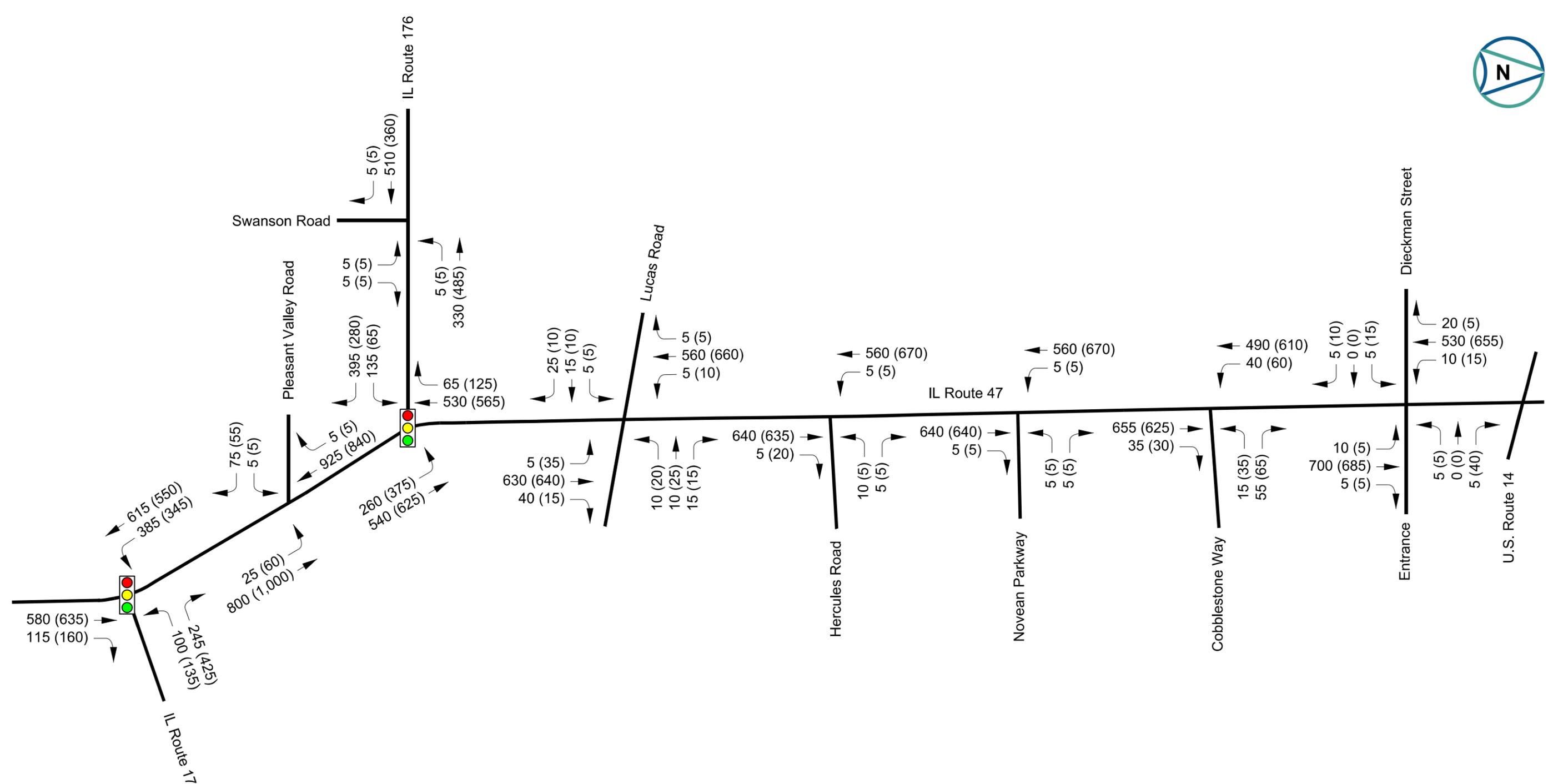
LEGEND

Intersection	Peak Hour		XXX (XXX)	A.M. (P.M.)
	A.M.	P.M.		
Reed Road	8:15 - 9:15	5:45 - 6:45		Signalized Intersection
Rainsford Road	8:15 - 9:15	5:45 - 6:45		
Talamore Boulevard	7:45 - 8:45	5:45 - 6:45		
Ackman Road	7:45 - 8:45	5:15 - 6:15		
Conley Road	7:00 - 8:00	4:30 - 5:30		
Union/Foster Road	7:15 - 8:15	4:30 - 5:30		
Hawthorne Way	8:15 - 9:15	4:30 - 5:30		
Ballard Road	8:15 - 9:15	4:45 - 5:45		

Illinois Department of Transportation
 IL Route 47 Phase I Engineering Services
 Reed Road to Ballard Road

2011 PEAK HOUR TRAFFIC

Not to Scale



LEGEND

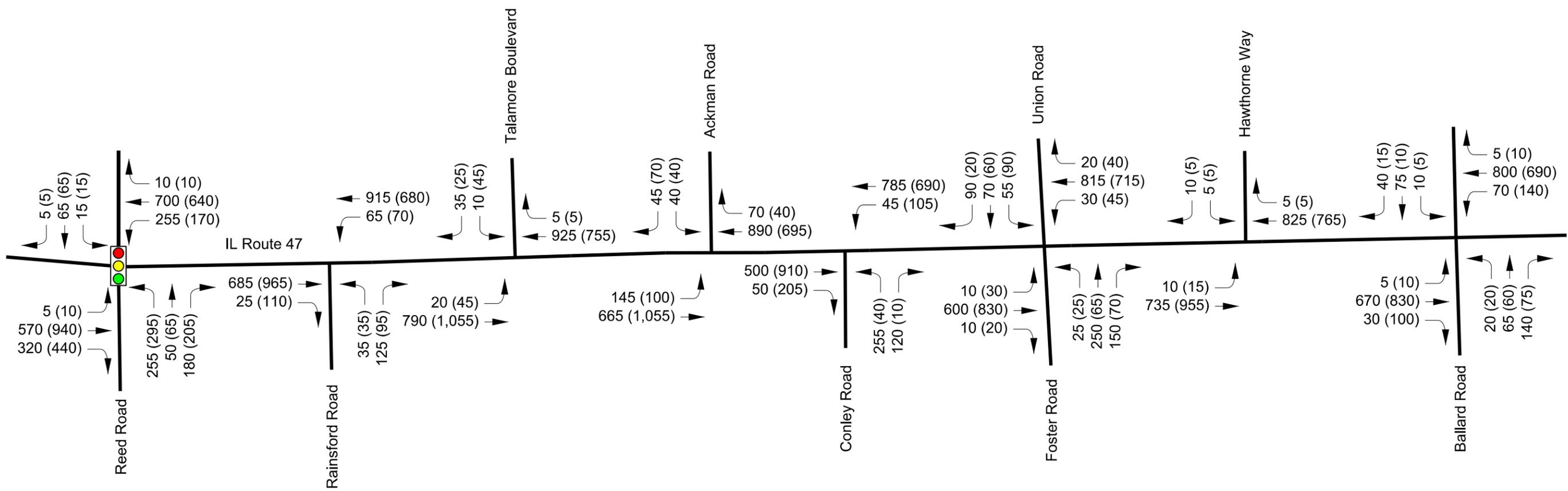
Intersection	Peak Hour		XXX (XXX)	A.M. (P.M.)
	A.M.	P.M.		
IL Route 176 South	8:00 - 9:00	5:45 - 6:45		
Pleasant Valley Road	7:45 - 8:45	5:45 - 6:45		
IL Route 176 North	7:00 - 8:00	4:30 - 5:30		
Lucas Road	7:15 - 8:15	4:30 - 5:30		
Hercules Road	7:15 - 8:15	4:45 - 5:45		
Novean Parkway	7:00 - 8:00	4:45 - 5:45		
Cobblestone Way	7:15 - 8:15	4:45 - 5:45		
Dieckman Street	7:15 - 8:15	4:45 - 5:45		
Swanson Road	7:15 - 8:15	4:45 - 5:45		

	Signalized Intersection
--	-------------------------

Illinois Department of Transportation
 IL Route 47 Phase I Engineering Services
 IL Route 176 to U.S. Route 14

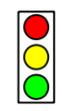
2011 PEAK HOUR TRAFFIC

Not to Scale



LEGEND

XXX (XXX) A.M. (P.M.)



Signalized Intersection

Projected ADT

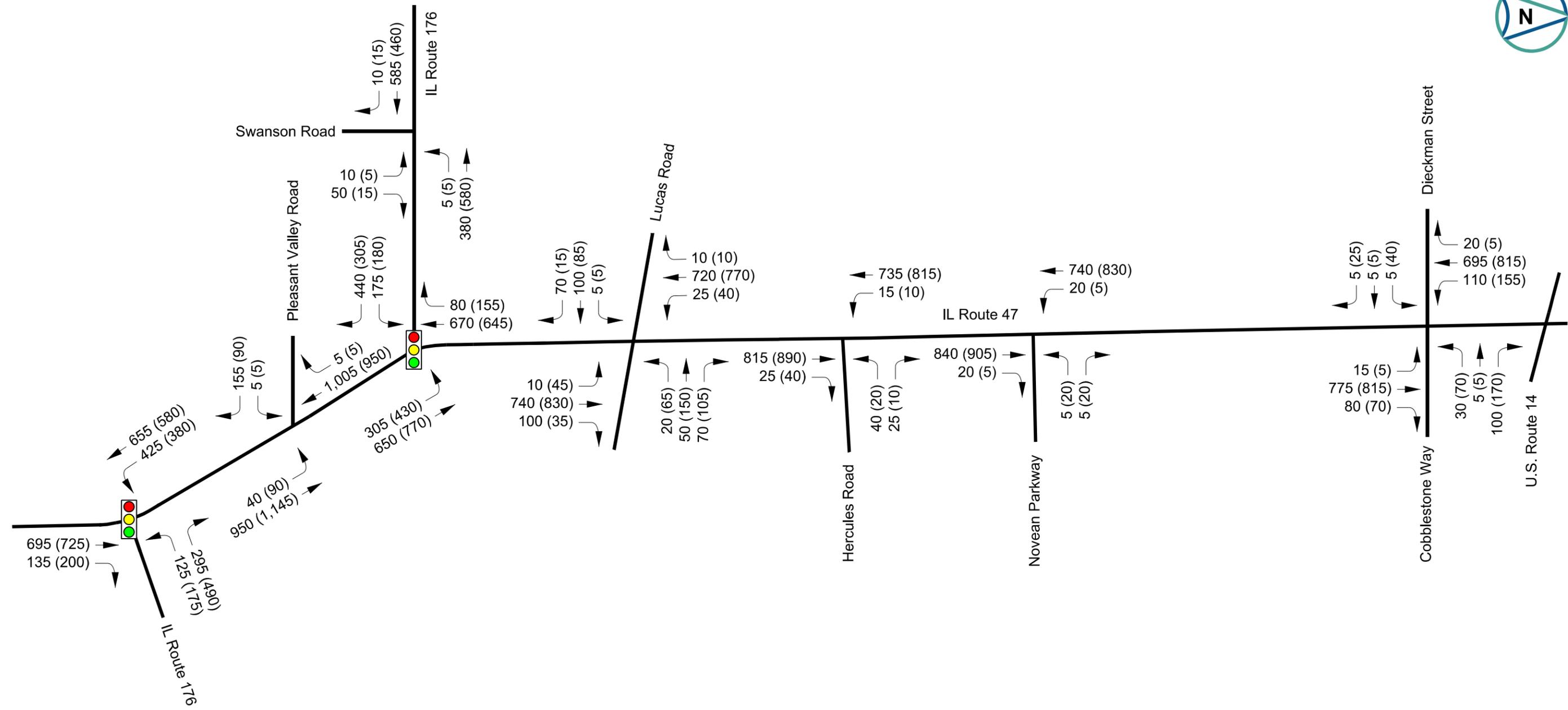
29,000	23,000	24,000	24,000	21,000	21,000	21,000	21,000
13,000	1,000	4,000	6,000	1,000	1,000	2,000	1,000
2,000		1,000	2,000	6,000	1,000	1,000	

Illinois Department of Transportation
 IL Route 47 Phase I Engineering Services
 Reed Road to Ballard Road

2040 PEAK HOUR TRAFFIC

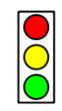


Not to Scale

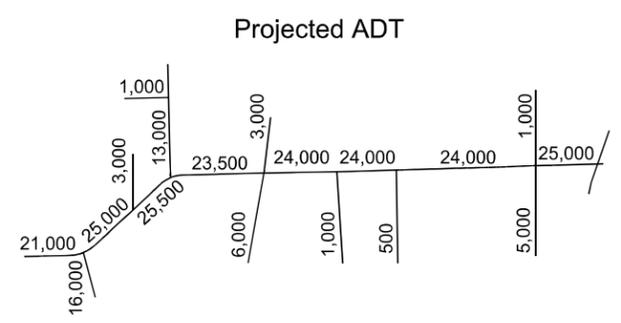


LEGEND

XXX (XXX) A.M. (P.M.)



Signalized Intersection



Illinois Department of Transportation
 IL Route 47 Phase I Engineering Services
 IL Route 176 to U.S. Route 14

2040 PEAK HOUR TRAFFIC



Not to Scale

**APPENDIX A-5
INTERSECTION DESIGN STUDIES**

SIGNALIZED INTERSECTION
CAPACITY ANALYSIS

HIGHWAY CAPACITY SOFTWARE
PROGRAM NAME HCS
VERSION 2010

BASIC CONDITIONS
AREA: CBD (OTHER) PHF 0.95
SIGNAL TYPE FULLY ACTUATED ARRIVAL TYPE 3/4

PHASE	PHASE	PHASE
 G/C = 0.6 G = 5.8 Sec. AMBER = 4.0 SEC ALL RED = 2 SEC	 G/C = 0.19 G = 17.2 Sec. AMBER = 3.5 SEC ALL RED = 1 SEC	 G/C = 0.56 G = 50.4 Sec. AMBER = 4 SEC ALL RED = 2 SEC
 G/C = 0.10 G = 9.1 Sec. AMBER = 4.0 SEC ALL RED = 2 SEC	 G/C = 0.18 G = 15.8 Sec. AMBER = 3.5 SEC ALL RED = 1 SEC	 G/C = 0.54 G = 48.5 Sec. AMBER = 4 SEC ALL RED = 2 SEC

APPR. A GR = -2 % A.M. T = 7 % R = 0 % L = 0 % PKG 0 (MNV/HR) BUS 0 (STOP/HR) PDS/HR 50 BIKES/HR 0
P.M. T = 3 % R = 0 % L = 0 % PKG 0 (MNV/HR) BUS 0 (STOP/HR) PDS/HR 50 BIKES/HR 0

MOVEMENT	L/W	DHV	PHF	BASE SAT.	V/S	USED G/C	CAP C	V/C	DELAY d	LOS	APPR. DELAY	APPR. LOS	95TH QUEUE	%RED-TIME QUEUE
A.M. AD	2/12	480	0.95	1900	0.31	0.19	629	0.80	37.2	D	13.8	B	218	257
A.M. AB	2/12	830	0.95	2000	0.50	0.80	2825	0.31	0.3	A			25	138
P.M. AD	2/12	450	0.95	1900	0.28	0.18	600	0.79	37.9	D	12.5	B	208	237
P.M. AB	2/12	945	0.95	2000	0.54	0.77	2800	0.36	0.4	A			25	174

APPR. B GR = +1 % A.M. T = 8 % R = 0 % L = 0 % PKG 0 (MNV/HR) BUS 0 (STOP/HR) PDS/HR 50 BIKES/HR 0
P.M. T = 5 % R = 0 % L = 0 % PKG 0 (MNV/HR) BUS 0 (STOP/HR) PDS/HR 50 BIKES/HR 0

MOVEMENT	L/W	DHV	PHF	BASE SAT.	V/S	USED G/C	CAP C	V/C	DELAY d	LOS	APPR. DELAY	APPR. LOS	95TH QUEUE	%RED-TIME QUEUE
A.M. BA	2/12	910	0.95	2000	0.55	0.56	1947	0.49	12.9	B	12.1	B	213	273
A.M. BD	1/12	170	0.95	1900	0.11	0.63	982	0.18	7.5	A			53	81
P.M. BA	2/12	925	0.95	2000	0.54	0.54	1946	0.50	14.0	B	12.7	B	225	280
P.M. BD	1/12	215	0.95	1900	0.14	0.64	1007	0.23	7.3	A			65	99

APPR. D GR = -4.0 % A.M. T = 3 % R = 0 % L = 0 % PKG 0 (MNV/HR) BUS 0 (STOP/HR) PDS/HR 50 BIKES/HR 0
P.M. T = 3 % R = 0 % L = 0 % PKG 0 (MNV/HR) BUS 0 (STOP/HR) PDS/HR 50 BIKES/HR 0

MOVEMENT	L/W	DHV	PHF	BASE SAT.	V/S	USED G/C	CAP C	V/C	DELAY d	LOS	APPR. DELAY	APPR. LOS	95TH QUEUE	%RED-TIME QUEUE
A.M. DB	2/12	135	0.95	1900	0.08	0.06	220	0.65	44.2	D	44.2	D	70	84
A.M. DA	1/12	315	0.95	1900										
A.M. DB	2/12	245	0.95	1900	0.15	0.10	350	0.74	42.3	D	42.3	D	123	143
P.M. DA	1/12	540	0.95	1900										

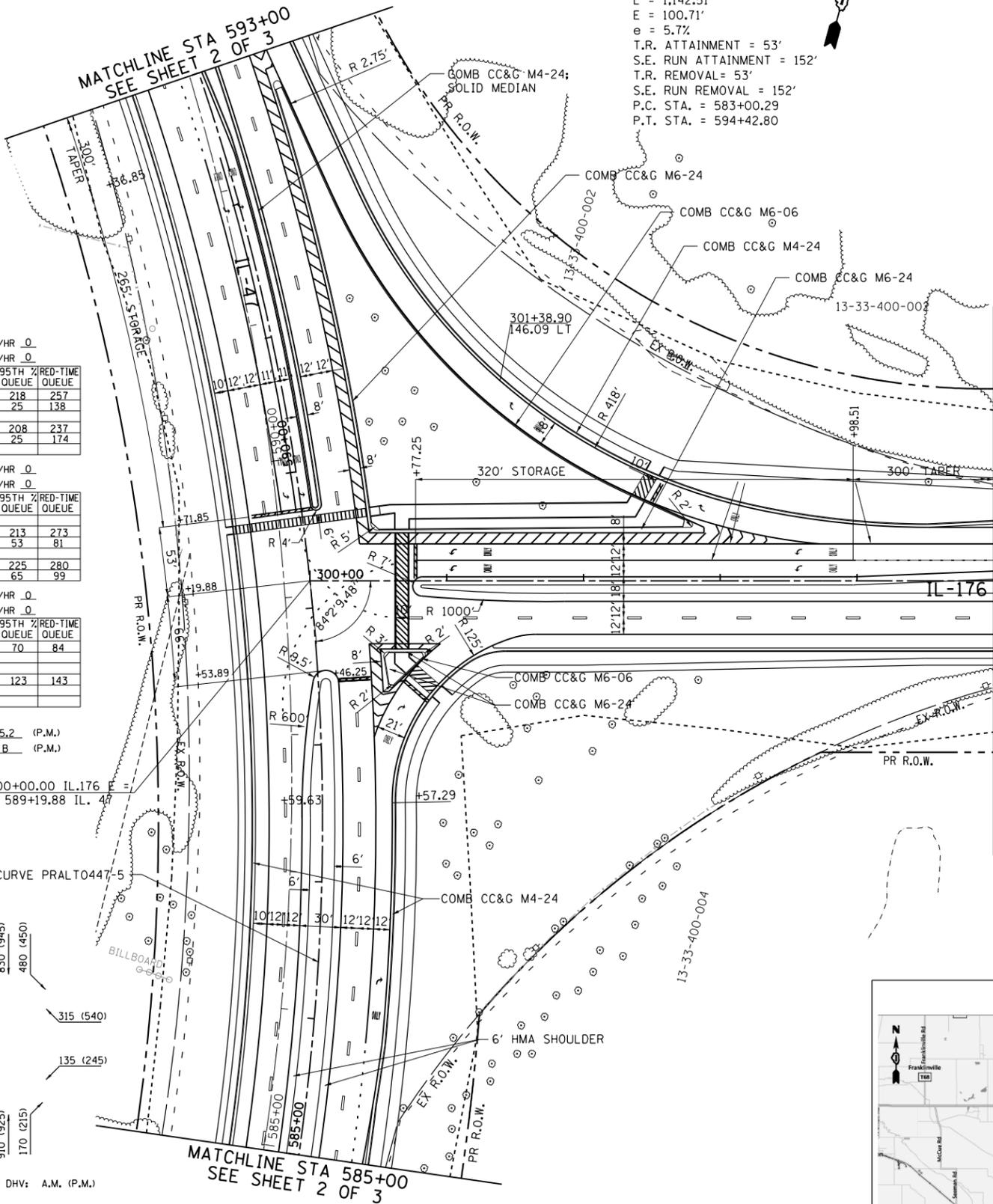
INTERSECTION DELAY 14.7 (A.M.), 15.2 (P.M.)
INTERSECTION LOS B (A.M.), B (P.M.)

TRAFFIC DATA

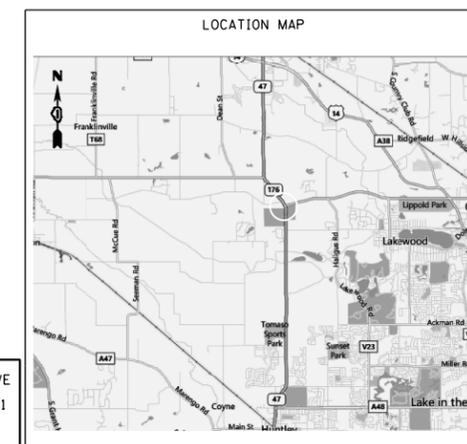
MOVEMENT	YEAR 2011 PEAK HOUR TRAFFIC		PERCENT TRUCK TRAFFIC IN PEAK HOUR		ESTIMATED PERCENT INCREASE BY 2040		YEAR 2040 DESIGN PEAK HOUR TRAFFIC	
	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.
AB	524	464	7%	3%	58%	100%	830	945
AD	340	304	6%	2%	41%	48%	480	450
AC								
BA	494	515	9%	5%	84%	80%	910	925
BC								
BD	96	142	2%	2%	82%	51%	175	215
CD								
CA								
CB								
DC								
DB	57	79	6%	4%	137%	210%	135	245
DA	133	221	2%	2%	137%	144%	315	540
TOTAL A	1491	1504			70%	90%	2535	2860
TOTAL B	1171	1200			75%	94%	2050	2330
TOTAL C								
TOTAL D	626	746			77%	94%	1105	1450

APPROACH	8TH MAX. HOUR TRAFFIC
A (NORTH)	422
B (SOUTH)	361
D (EAST)	165

PROP. CURVE PRALTO447-6
PI STA. = 588+94.07
Δ = 38° 30' 23" (LT)
D = 3° 22' 13"
R = 1,700.00'
T = 593.77'
L = 1,142.51'
E = 100.71'
e = 5.7%
T.R. ATTAINMENT = 53'
S.E. RUN ATTAINMENT = 152'
T.R. REMOVAL = 53'
S.E. RUN REMOVAL = 152'
P.C. STA. = 583+00.29
P.T. STA. = 594+42.80



- GENERAL NOTES**
- PROFILES ARE NOT PROVIDED, SINCE APPROACH GRADES ARE MORE THAN ONE PERCENT
 - TYPE M4.24 CURB AND GUTTER TO BE USED ON OUTER EDGES OF PAVEMENT
 - TYPE M4.24 CURB AND GUTTER TO BE USED ON CHANNELIZING ISLAND
 - ALL DIMENSIONS ARE SHOWN E-E OF PAVEMENT UNLESS OTHERWISE NOTED
 - INTERSECTION IS A HIGH ACCIDENT LOCATION IL ROUTE 47 & IL ROUTE 176 (EAST LEG) YEAR 2010
 - INTERSECTION IS PART OF INTERCONNECTED SYSTEM FROM IL 176 (WEST LEG) TO IL 176 (EAST LEG)
 - ALL SIDEWALKS AND RAMPS AS SHOWN ARE IN COMPLIANCE WITH THE AMERICAN DISABILITIES ACT.
 - EXPECTED PEDESTRIAN/BICYCLE USAGE 50 PDS/HOUR
 - ALL ENTRANCES AS SHOWN ARE IN COMPLIANCE WITH IDOT 'POLICIES ON ACCESS TO STATE HIGHWAYS'.
 - SCOPE OF WORK: RECONSTRUCT TO PROVIDE 2 LANES IN EACH DIRECTION ON IL 47, DUAL SB LEFT TURN LANES, & DUAL WB LEFT TURN LANES
 - DESIGN EXCEPTIONS: THROUGH LANE CROSS SLOPES: LANE 1 = +2.0% VS. -2.0%, DEPRESSED RURAL MEDIAN WIDTH GREATER THAN OR EQUAL TO 40 FT VS. 30 FT, OUTSIDE ROADWAY DITCH: 3 TO 10 FOOT SHELVES AT 5% CROSS SLOPES VS. 14 FT V-SHAPED DRAINAGE SWALES AT 6:1 SLOPES, RURAL MEDIAN DITCH SLOPES 5:1 VS. 4:1 MEDIAN SLOPES, MAXIMUM K-VALUE FOR DRAINAGE ON CURBED ROADWAYS IS 167 VS. 180, MINIMUM K-VALUE FOR 60MPH DESIGN SPEED IS 167 VS. 64, MINIMUM SIGHT DISTANCE FOR 60MPH AND LEVEL-GRADE IS 570' VS 375'
 - HCS2010 VERSION 6.70 SOFTWARE WAS USED FOR THE CAPACITY ANALYSIS.
 - ACTUAL TRAFFIC SIGNAL LOCATIONS WILL BE DETERMINED IN THE DESIGN PHASE.



DRAWING NO. _____
INTERSECTION DESIGN STUDY

FAP ROUTE 326 WITH ILLINOIS ROUTE 47
FAP ROUTE 335 WITH ILLINOIS ROUTE 176 (EAST LEG)

SEC. NO. _____ PROJ. NO. P-91-101-07
SCALE 1"=50' COUNTY MCHENRY
SUN _____ REV. NO. _____

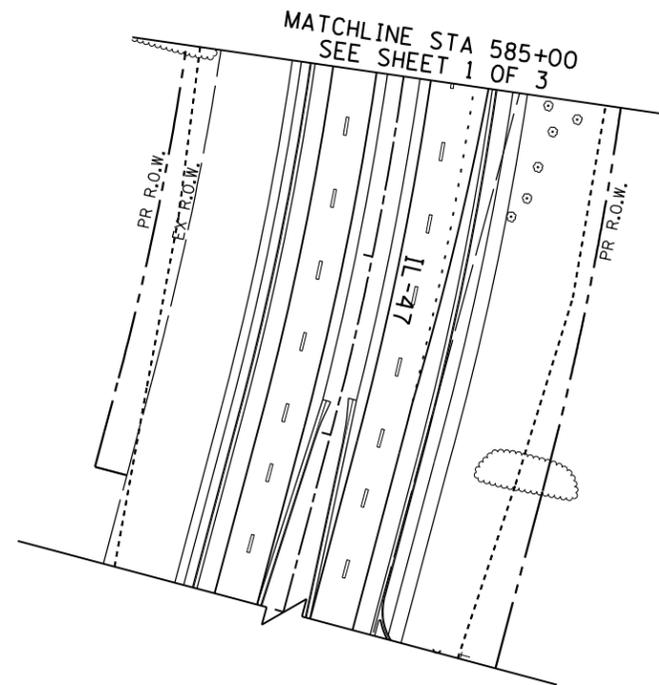
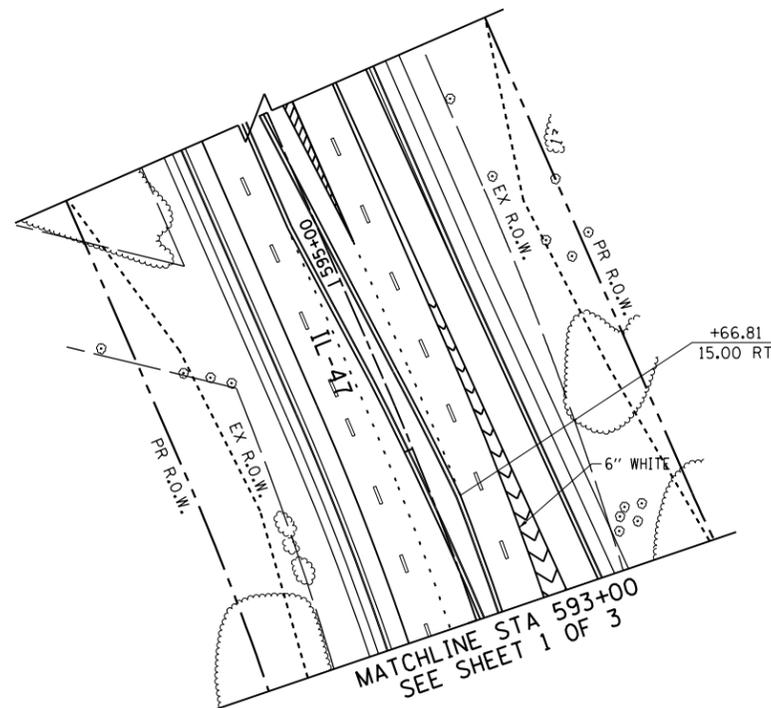
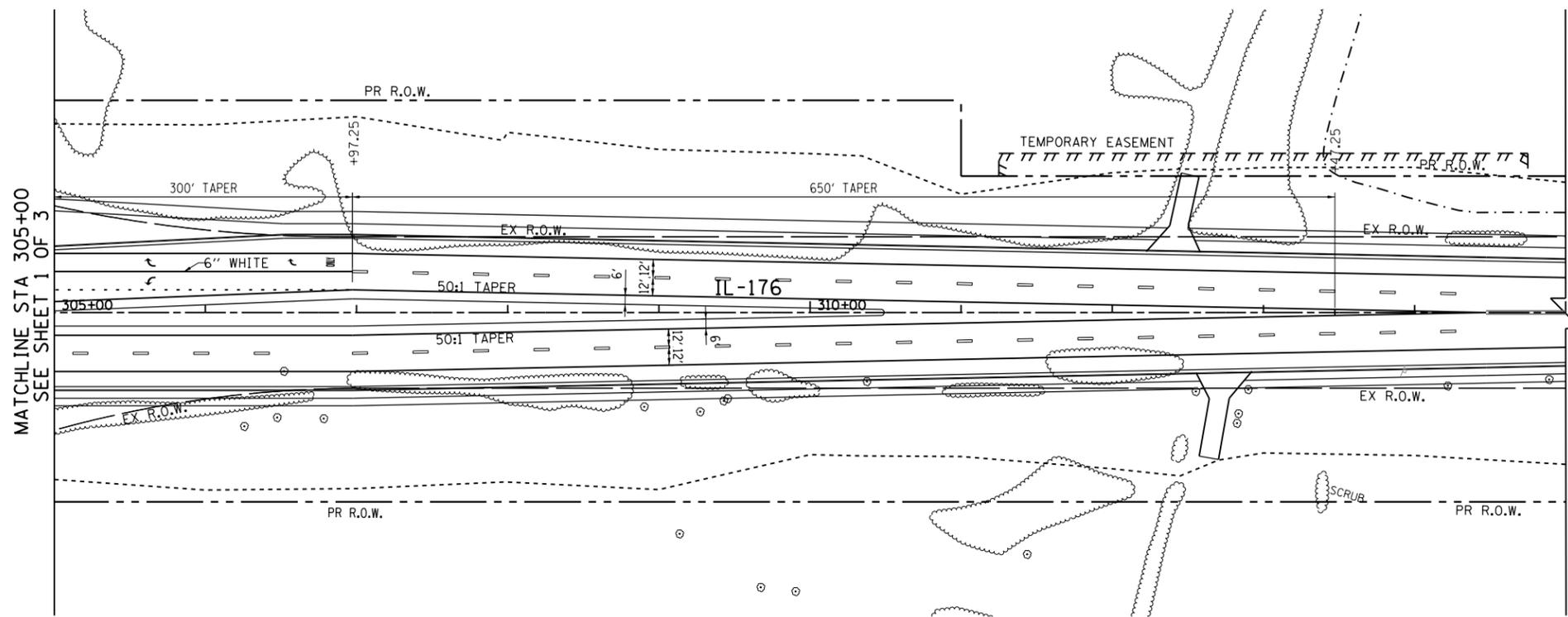
DATE	QA/QC REVIEWER	REMARKS
10/4/13	JDH	FIRST SUBMITTAL
12/20/13	JDH	SECOND SUBMITTAL
12/08/15	KM	THIRD SUBMITTAL
5/09/16	KM	FOURTH SUBMITTAL
3/29/17	AFC	FIFTH SUBMITTAL

CADD FILE NAME -DGN-SPEC-
REF FILE NAME _____
SHEET NO. 56 I.D.S. SHEET 1 OF 4

PREPARED BY:
AECOM
303 E. WACKER DRIVE
SUITE 1400
CHICAGO, IL 60601
(312) 373-7700
FAX (312) 373-6800
PROJ. MGR. KM PROJ. ENG. AFC

PLOT DATE = 6/19/2017
 FILE NAME = P:\P62089827\000_CAD\006_Civil\Sheets\05_084-105-IL-47-IL-176E-01.dgn
 PLOT SCALE = 100,000 / 1"
 USER NAME = hamegrae@f

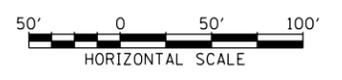
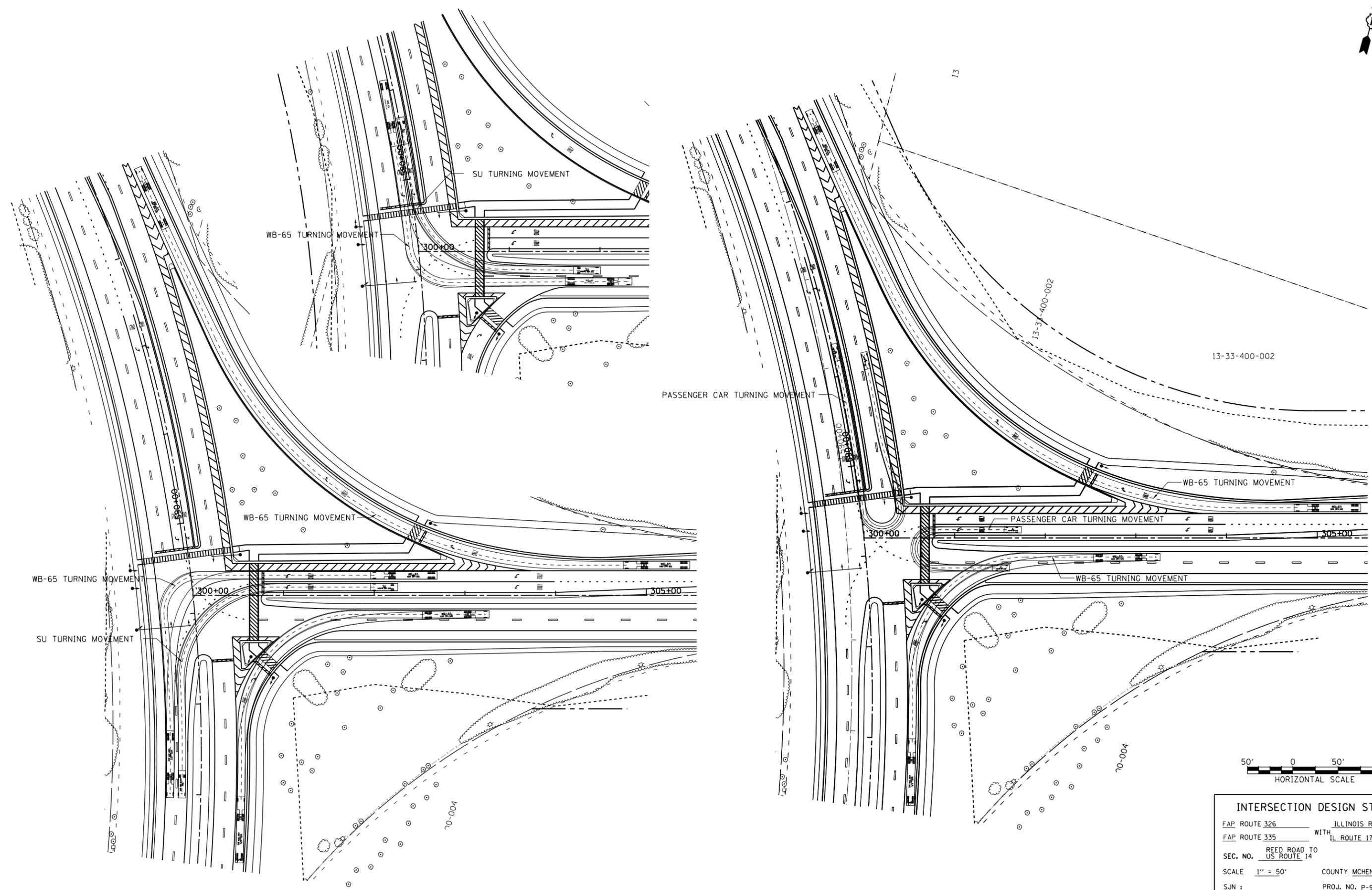
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 USER NAME = hmcgrae



INTERSECTION DESIGN STUDY
 FAP ROUTE 326 _____ ILLINOIS ROUTE 47
 FAP ROUTE 335 _____ WITH IL ROUTE 176 (EAST LEG)
 SEC. NO. REED ROAD TO US ROUTE 14
 SCALE 1" = 50' COUNTY MCHENRY
 SJN : _____ PROJ. NO. P-91-101-07
 SHEET NO. 57 I.D.S. SHEET 2 OF 4



PLOT DATE = 6/19/2017
 FILE NAME = P:\PROJECTS\9827\000_CAD\006_Civil\Sheets\IDS\004_IDS_IL47_IL176E-03.dgn
 PLOT SCALE = 100,000 / 1"
 USER NAME = hmcgrath



INTERSECTION DESIGN STUDY
 FAP ROUTE 326 ILLINOIS ROUTE 47
 FAP ROUTE 335 WITH IL ROUTE 176 (EAST LEG)
 SEC. NO. REED ROAD TO US ROUTE 14
 SCALE 1" = 50' COUNTY MCHENRY
 SJN : PROJ. NO. P-91-101-07
 SHEET NO. 58 I.D.S. SHEET 3 OF 4

SIGNALIZED INTERSECTION
CAPACITY ANALYSIS

HIGHWAY CAPACITY SOFTWARE
PROGRAM NAME IL 47 AT IL 176 INTERSECTION IMPROVEMENTS
INTERSECTION IL 47 AT IL 176 WEST

BASIC CONDITIONS
AREA: CBD (OTHER) PHF 0.95 (CIRCLE ONE)
SIGNAL TYPE FULLY ACTUATED ARRIVAL TYPE 3/4

C = SIGNAL CYCLE = 90 SEC. $\Sigma A/C = 15 / 90 = 0.17$

PHASE	PHASE	PHASE
AMBER= 4 SEC ALL RED= 2 SEC G/C= 0.08 G = 7 Sec.	AMBER= 3.5 SEC ALL RED= 1 SEC G/C= 0.14 G = 12.8 Sec.	AMBER= 4 SEC ALL RED= 2 SEC G/C= 0.60 G = 53.7 Sec.
AMBER= 4 SEC ALL RED= 2 SEC G/C= 0.08 G = 7.3 Sec.	AMBER= 3.5 SEC ALL RED= 1 SEC G/C= 0.18 G = 16.5 Sec.	AMBER= 4 SEC ALL RED= 2 SEC G/C= 0.55 G = 49.6 Sec.

APPR. A GR= -1 %A.M. T= 8 % R= 0 % L= 0 % PKG 0 (MNV/HR) BUS 0 (STOP/HR) PDS/HR 50 BIKES/HR 0
P.M. T= 9 % R= 0 % L= 0 % PKG 0 (MNV/HR) BUS 0 (STOP/HR) PDS/HR 50 BIKES/HR 0

MOVEMENT	L/W	DHV	PHF	BASE SAT.	V/S	USED G/C	CAP C	V/C	DELAY d	LOS	APPR. DELAY	APPR. LOS	95TH QUEUE	RED-TIME QUEUE
A.M. AB	2/12	680	0.95	2000	0.40	0.60	2136	0.34	9.6	A	9.2	A	128	183
A.M. AC	1/12	55	0.95	1900	0.04	0.67	942	0.06	5.1	A			25	26
P.M. AB	2/12	870	0.95	2000	0.53	0.55	1918	0.48	13.1	B	12.3	B	205	268
P.M. AC	1/12	130	0.95	1900	0.09	0.63	976	0.14	7.0	A			38	63

APPR. B GR= -1 %A.M. T= 8 % R= 0 % L= 0 % PKG 0 (MNV/HR) BUS 0 (STOP/HR) PDS/HR 50 BIKES/HR 0
P.M. T= 6 % R= 0 % L= 0 % PKG 0 (MNV/HR) BUS 0 (STOP/HR) PDS/HR 50 BIKES/HR 0

MOVEMENT	L/W	DHV	PHF	BASE SAT.	V/S	USED G/C	CAP C	V/C	DELAY d	LOS	APPR. DELAY	APPR. LOS	95TH QUEUE	RED-TIME QUEUE
A.M. BC	2/12	345	0.95	1900	0.22	0.14	477	0.76	39.7	D	12.5	B	168	194
A.M. BA	2/12	765	0.95	2000	0.45	0.79	2796	0.29	0.3	A			25	135
P.M. BC	2/12	460	0.95	1900	0.29	0.18	606	0.80	37.6	D	13.4	B	213	251
P.M. BA	2/12	850	0.95	2000	0.50	0.79	2834	0.32	0.3	A			25	150

APPR. C GR= -4 %A.M. T= 4 % R= 0 % L= 0 % PKG 0 (MNV/HR) BUS 0 (STOP/HR) PDS/HR 50 BIKES/HR 0
P.M. T= 5 % R= 0 % L= 0 % PKG 0 (MNV/HR) BUS 0 (STOP/HR) PDS/HR 50 BIKES/HR 0

MOVEMENT	L/W	DHV	PHF	BASE SAT.	V/S	USED G/C	CAP C	V/C	DELAY d	LOS	APPR. DELAY	APPR. LOS	95TH QUEUE	RED-TIME QUEUE
A.M. CA	2/12	160	0.95	1900	0.10	0.08	253	0.67	43.4	D	43.4	D	80	100
A.M. CB	1/12	385	0.95	1900										
P.M. CA	2/12	170	0.95	1900	0.11	0.08	261	0.69	43.4	D	43.4	D	85	107
P.M. CB	1/12	355	0.95	1900										

INTERSECTION DELAY 13.8 (A.M.), 15.0 (P.M.)
INTERSECTION LOS B (A.M.), B (P.M.)

TRAFFIC DATA

MOVEMENT	YEAR 2011 PEAK HOUR TRAFFIC		PERCENT TRUCK TRAFFIC IN PEAK HOUR		ESTIMATED PERCENT INCREASE BY 2040		YEAR 2040 DESIGN PEAK HOUR TRAFFIC	
	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.
AB	242	233	7%	10%	180%	273%	680	870
AD								
AC	29	56	16%	5%	90%	132%	55	130
BA	429	509	8%	6%	78%	67%	765	850
BC	202	284	5%	7%	71%	62%	345	460
BD								
CD								
CA	116	119	8%	10%	38%	43%	160	170
CB	291	202	2%	2%	32%	76%	385	355
DC								
DB								
DA								
TOTAL A	816	917			103%	120%	1660	2020
TOTAL B	1164	1228			87%	106%	2175	2535
TOTAL C	638	661			48%	67%	945	1115
TOTAL D								

APPROACH	8TH MAX. HOUR TRAFFIC
A (NORTH)	159
B (SOUTH)	436
C (WEST)	177

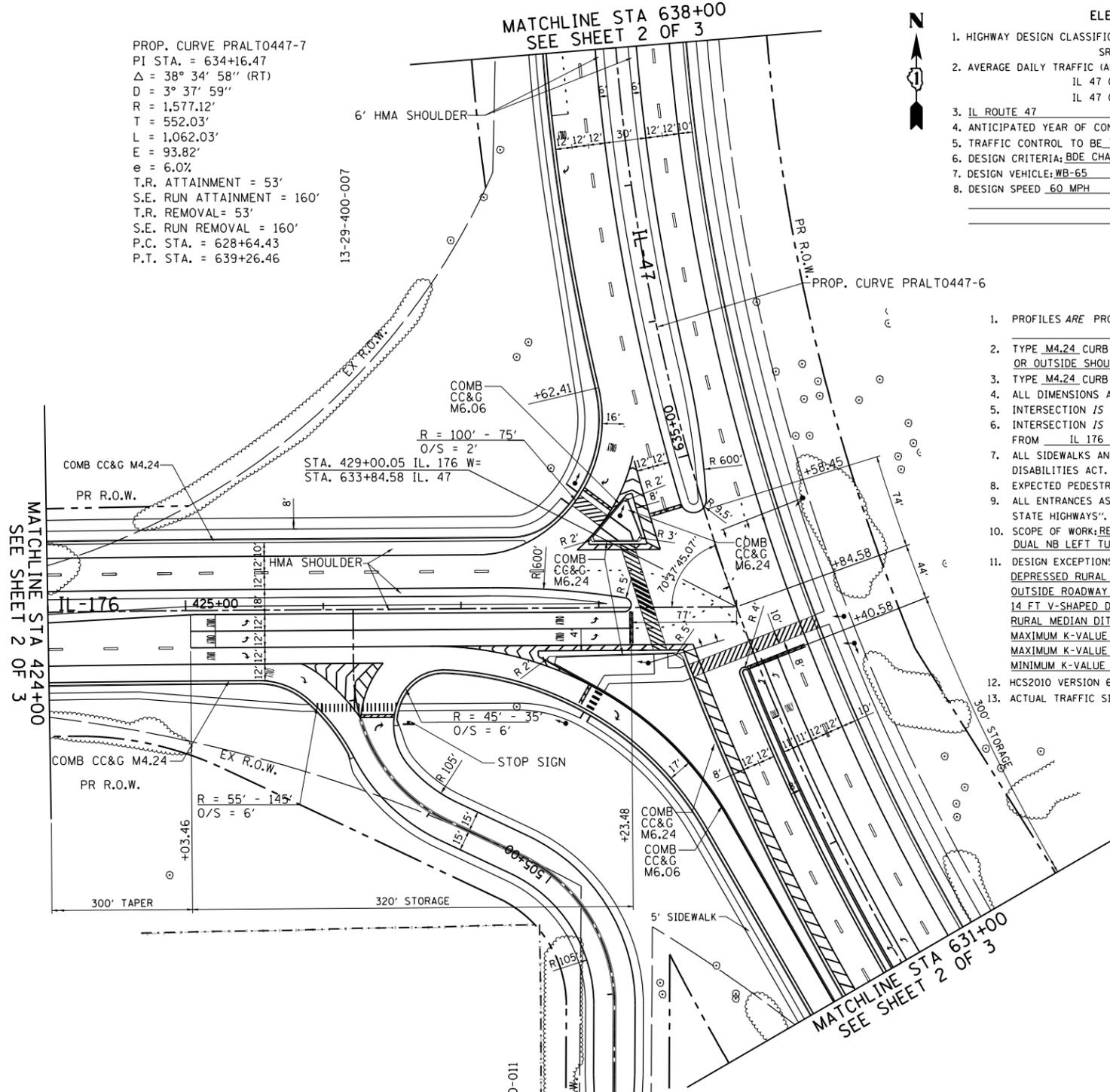
(DESIGN YEAR) DHV: A.M. (P.M.)

PROP. CURVE PRALTO447-7
PI STA. = 634+16.47
 $\Delta = 38^\circ 34' 58''$ (RT)
D = 3° 37' 59"
R = 1,577.12'
T = 552.03'
L = 1,062.03'
E = 93.82'
e = 6.0%
T.R. ATTAINMENT = 53'
S.E. RUN ATTAINMENT = 160'
T.R. REMOVAL = 53'
S.E. RUN REMOVAL = 160'
P.C. STA. = 628+64.43
P.T. STA. = 639+26.46

MATCHLINE STA 638+00
SEE SHEET 2 OF 3

MATCHLINE STA 424+00
SEE SHEET 2 OF 3

MATCHLINE STA 631+00
SEE SHEET 2 OF 3

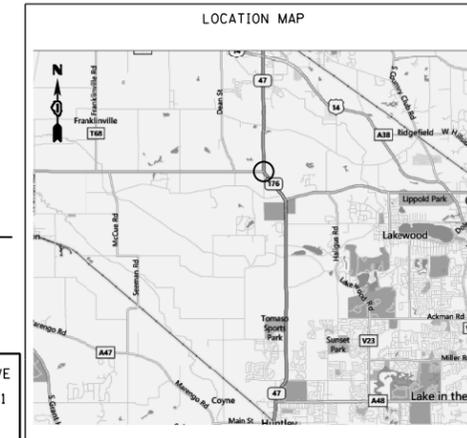


ELEMENTS CONTROLLING DESIGN

- HIGHWAY DESIGN CLASSIFICATION IL ROUTE 176 WEST - OTHER PRINCIPAL ARTERIAL
SRA: YES X NO (BOTH ROUTES)
- AVERAGE DAILY TRAFFIC (ADT) DATA: IL 176: EXISTING 9,700 (2011) DESIGN 12,000
IL 47 (NORTH OF IL 176): EXISTING 14,300 (2011) DESIGN 25,000
IL 47 (SOUTH OF IL 176): EXISTING 18,700 (2011) DESIGN 27,000
- IL ROUTE 47 IS THE PREFERENCE ROUTE
- ANTICIPATED YEAR OF CONSTRUCTION 2020 DESIGN YEAR 2040
- TRAFFIC CONTROL TO BE SIGNAL MODERNIZATION WARRANTS MET EXISTING TRAFFIC SIGNALS
- DESIGN CRITERIA: BDE CHAPTER 49
- DESIGN VEHICLE: WB-65 TRUCK ROUTE DESIGNATION CLASS II
- DESIGN SPEED 60 MPH POSTED SPEED 55 MPH (BOTH ROUTES)

GENERAL NOTES

- PROFILES ARE PROVIDED, SINCE APPROACH GRADES ARE GREATER THAN ONE PERCENT.
- TYPE M4.24 CURB AND GUTTER TO BE USED ON OUTER EDGES OF PAVEMENT OR OUTSIDE SHOULDER
- TYPE M4.24 CURB AND GUTTER TO BE USED ON CHANNELIZING ISLAND
- ALL DIMENSIONS ARE SHOWN E-E OF PAVEMENT UNLESS OTHERWISE NOTED
- INTERSECTION IS A HIGH ACCIDENT LOCATION YEAR
- INTERSECTION IS PART OF INTERCONNECTED SYSTEM FROM IL 176 (WEST LEG) TO IL 176 (EAST LEG)
- ALL SIDEWALKS AND RAMPS AS SHOWN ARE IN COMPLIANCE WITH THE AMERICAN DISABILITIES ACT.
- EXPECTED PEDESTRIAN/BICYCLE USAGE 50 PDS/HOUR
- ALL ENTRANCES AS SHOWN ARE IN COMPLIANCE WITH IDOT "POLICIES ON ACCESS TO STATE HIGHWAYS".
- SCOPE OF WORK: RECONSTRUCT TO PROVIDE 2 LANES IN EACH DIRECTION ON IL 47, DUAL NB LEFT TURN LANES, & DUAL EB LEFT TURN LANES
- DESIGN EXCEPTIONS: THROUGH LANE CROSS SLOPES: LANE 1 = +2.0% VS. -2.0%, DEPRESSED RURAL MEDIAN WIDTH GREATER THAN OR EQUAL TO 40 FT VS. 30 FT, OUTSIDE ROADWAY DITCH: 3 TO 10 FOOT SHELVES AT 5% CROSS SLOPES VS. 14 FT V-SHAPED DRAINAGE SWALES AT 6:1 SLOPES, RURAL MEDIAN DITCH SLOPES 5:1 VS. 4:1 MEDIAN SLOPES, MAXIMUM K-VALUE FOR DRAINAGE ON CURBED ROADWAYS IS 167 VS. 190, MAXIMUM K-VALUE FOR DRAINAGE ON CURBED ROADWAYS IS 167 VS. 187, MINIMUM K-VALUE FOR 60MPH DESIGN SPEED IS 167 VS. 70
- HCS2010 VERSION 6.70 SOFTWARE WAS USED FOR THE CAPACITY ANALYSIS.
- ACTUAL TRAFFIC SIGNAL LOCATIONS WILL BE DETERMINED IN THE DESIGN PHASE.

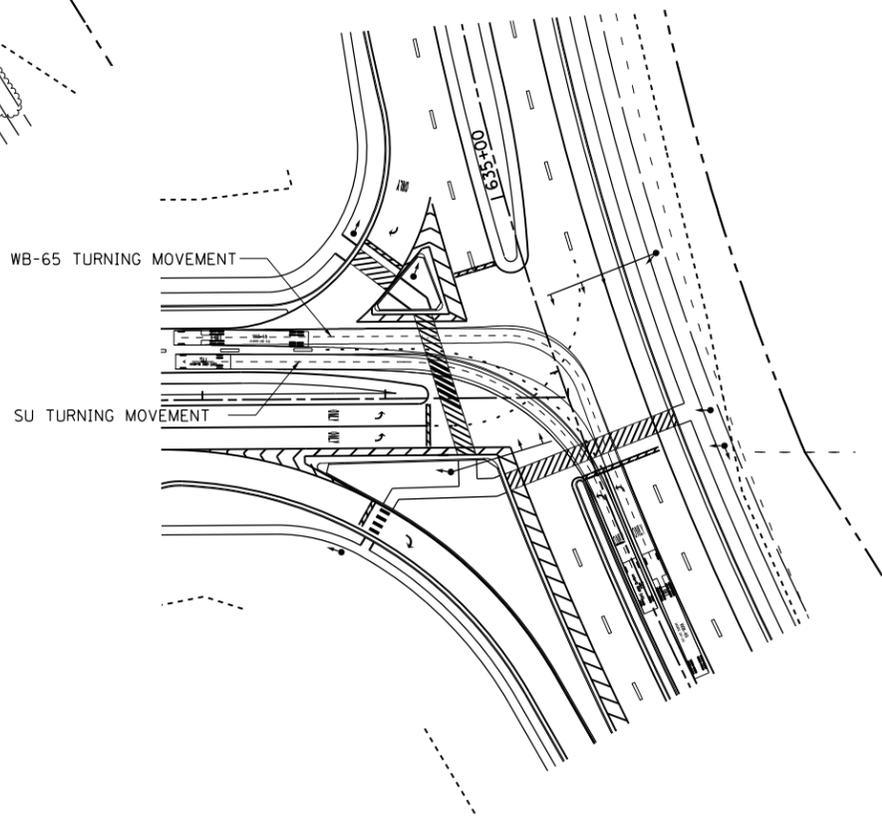
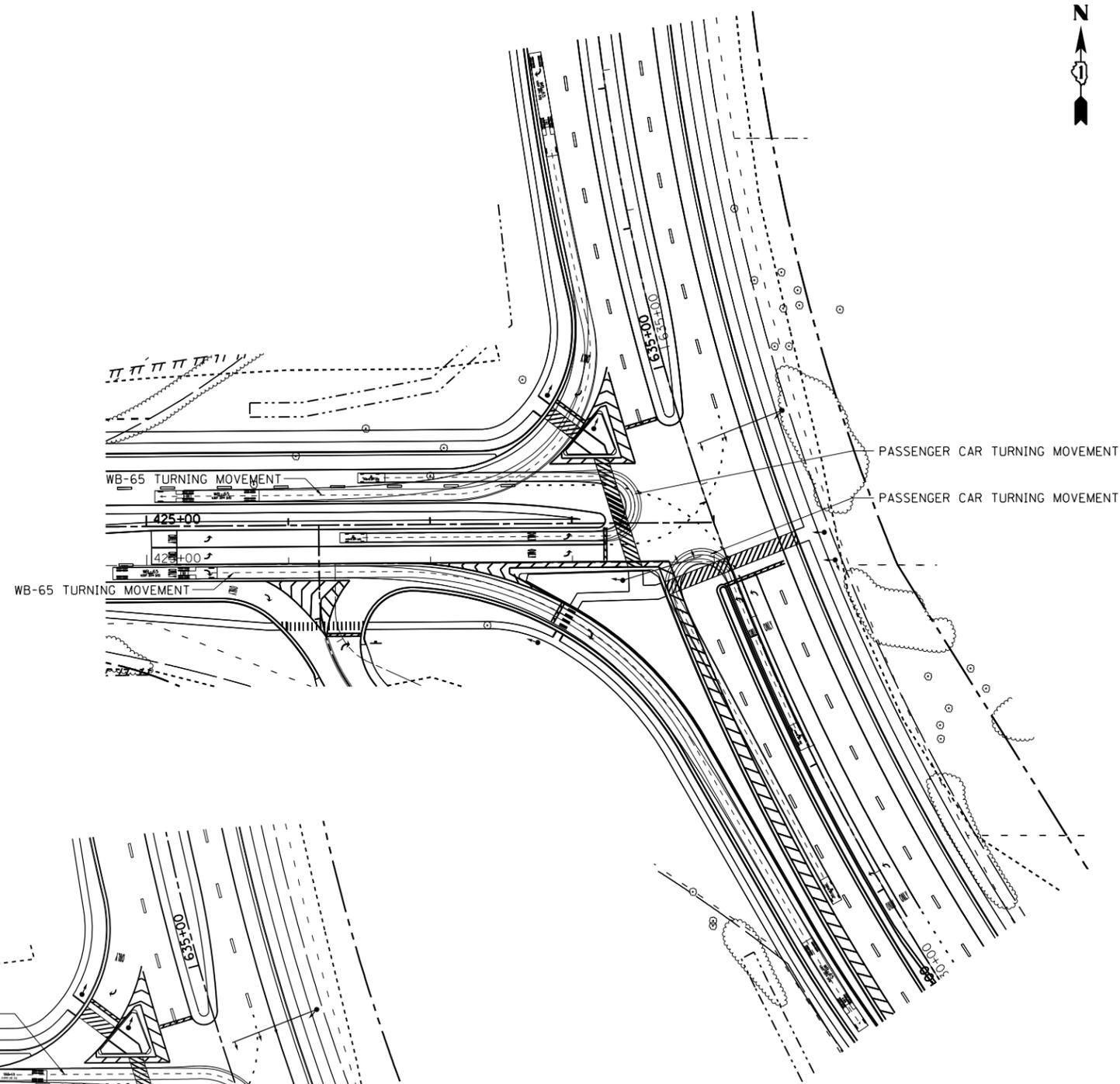
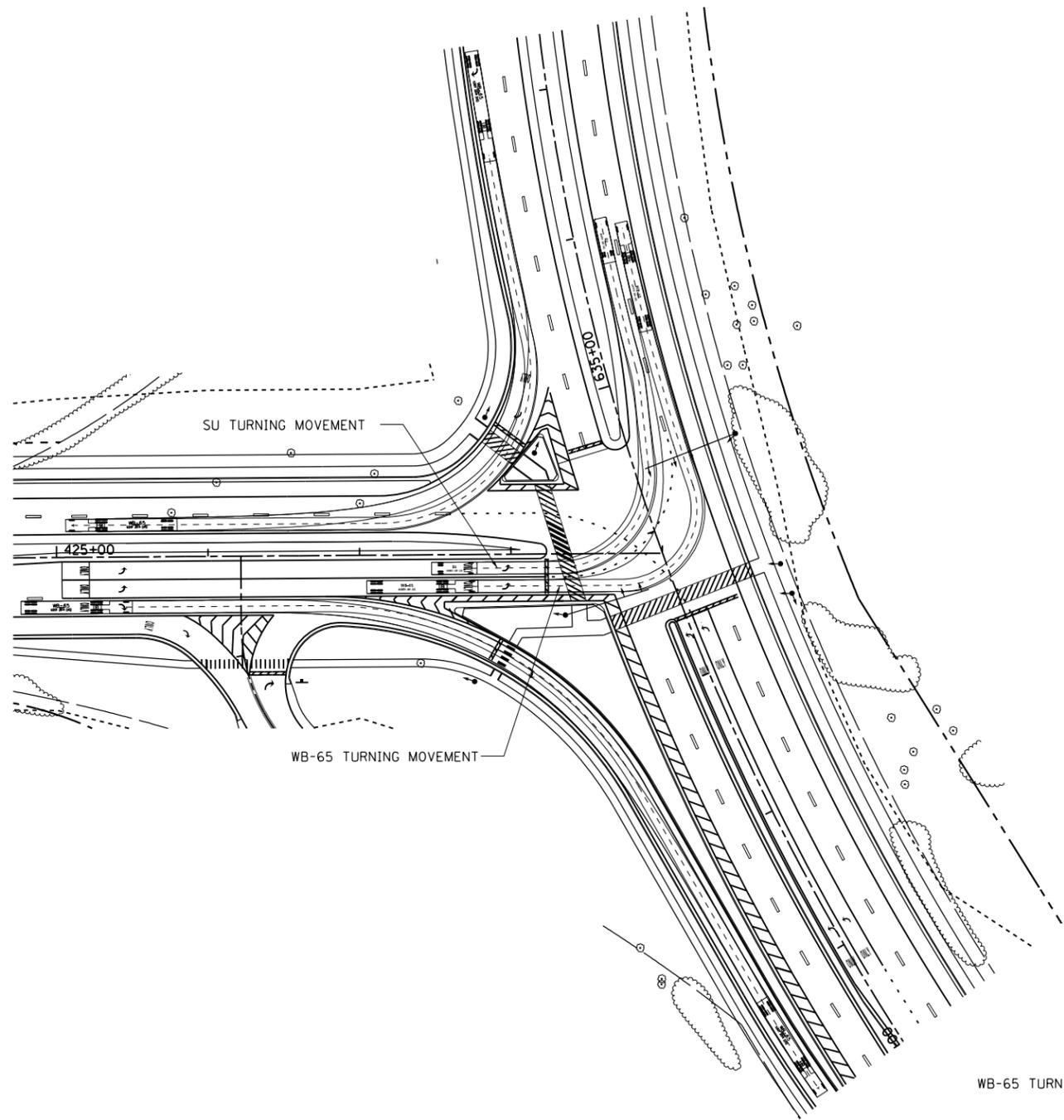


DRAWING NO. _____		INTERSECTION DESIGN STUDY	
FAP ROUTE 326	WITH ILLINOIS ROUTE 47	FAP ROUTE 533	WITH ILLINOIS ROUTE 176 (WEST LEG)
SEC. NO. _____	PROJ. NO. P-91-101-07	SCALE 1"=50'	COUNTY MCHENRY
SJN : _____	REV. NO. _____		
DATE	QA/QC REVIEWER	REMARKS	
10/4/13	JDH	FIRST SUBMITTAL	
12/20/13	JDH	SECOND SUBMITTAL	
12/08/15	KM	THIRD SUBMITTAL	
5/09/16	KM	FOURTH SUBMITTAL	
3/29/17	AFC	FIFTH SUBMITTAL	
CADD FILE NAME <DGN-SPEC>			
REF FILE NAME _____			
SHEET NO. 60		I.D.S. SHEET 1 OF 4	

PREPARED BY: **AECOM**
303 E. WACKER DRIVE
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PROJ. MGR. KM PROJ. ENG. AFC

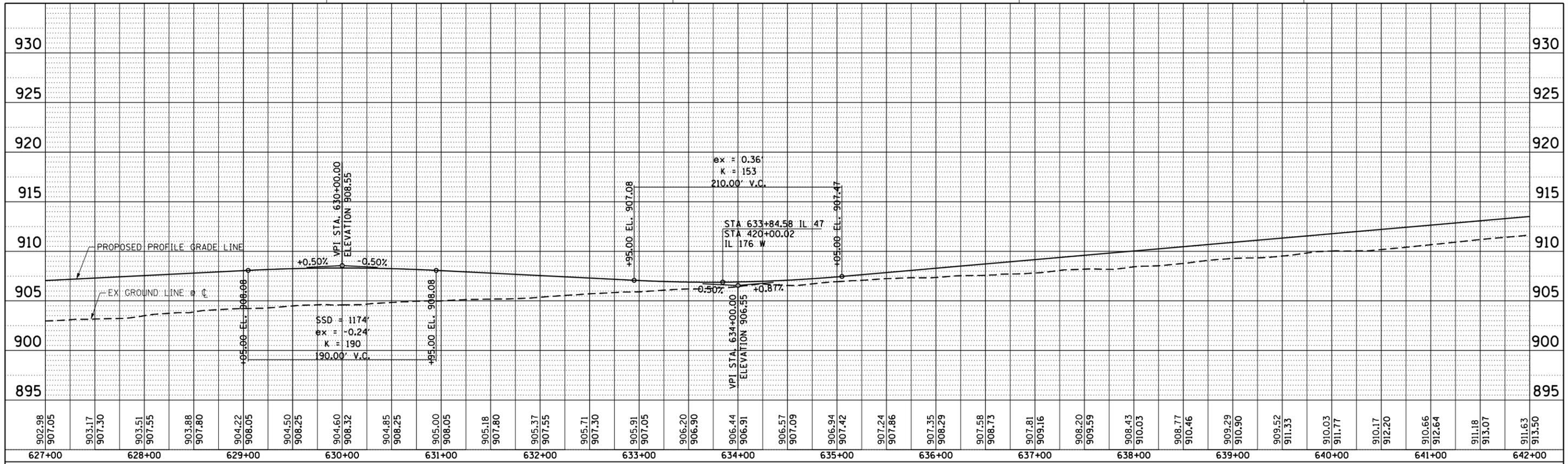
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USER NAME = hanegeaaf

PLOT DATE = 6/19/2017
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 PLOT SCALE = 100,000 / 1"
 USER NAME = hmcgrae

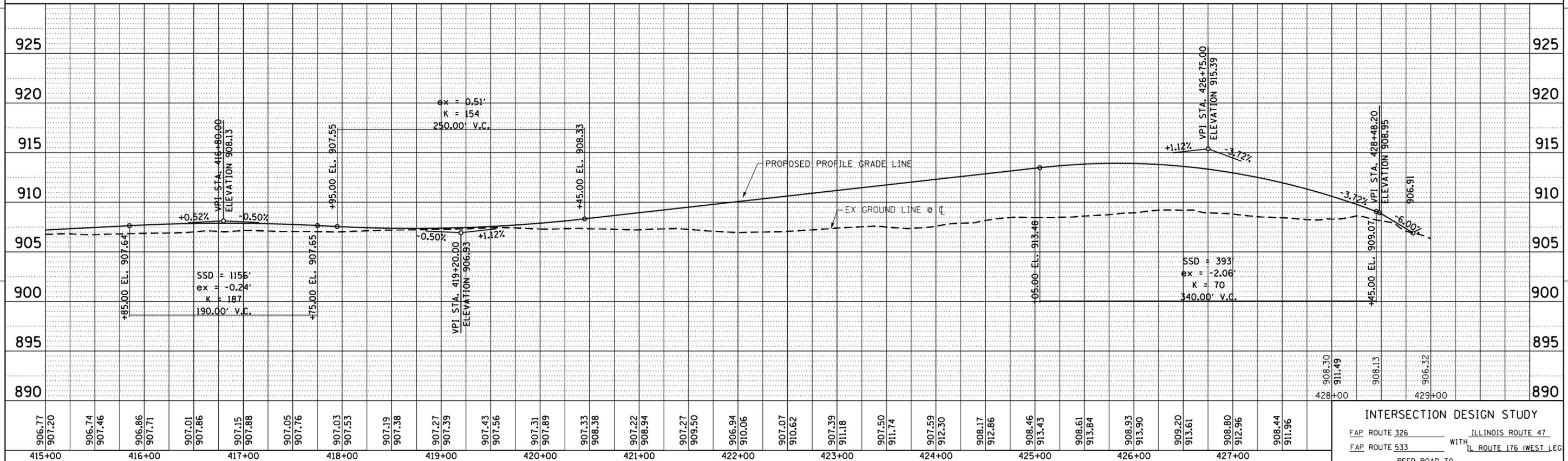


INTERSECTION DESIGN STUDY
 FAP ROUTE 326 ILLINOIS ROUTE 47
 FAP ROUTE 533 WITH IL ROUTE 176 (WEST LEG)
 SEC. NO. REED ROAD TO US ROUTE 14
 SCALE 1" = 50' COUNTY MCHENRY
 SJN : PROJ. NO. P-91-101-07
 SHEET NO. 62 I.D.S. SHEET 3 OF 4

PLOT DATE = 4/15/2017
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 PLOT SCALE = 100.000 / 1" / 1"
 USER NAME = hmcgrae



PROPOSED PROFILE IL 47

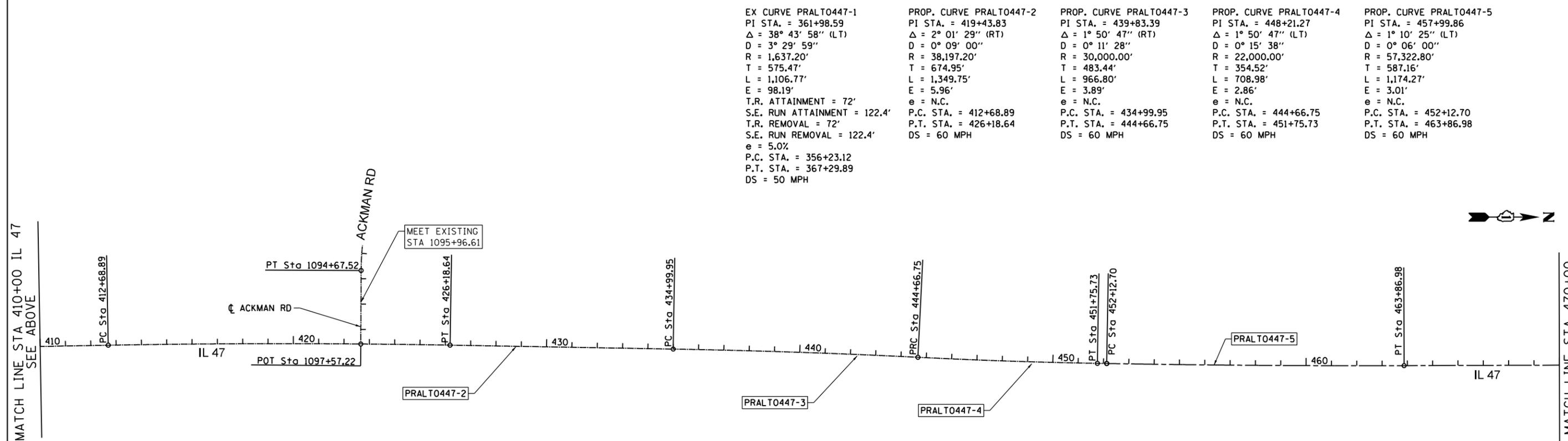
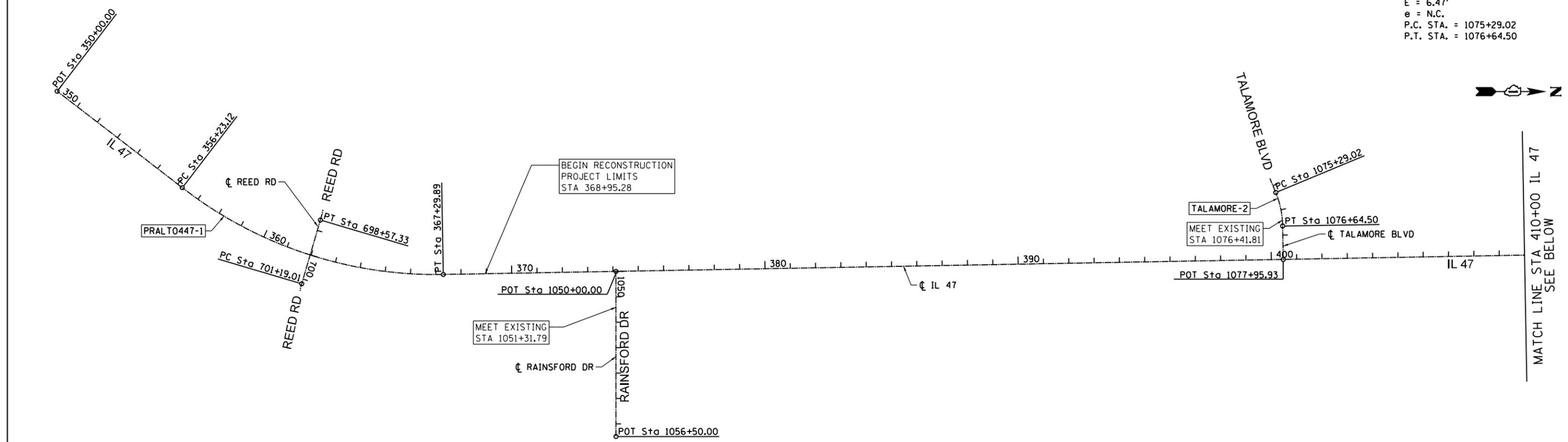


PROPOSED PROFILE IL 176

INTERSECTION DESIGN STUDY
 FAP ROUTE 326 WITH ILLINOIS ROUTE 47
 FAP ROUTE 533 WITH IL ROUTE 176 (WEST LEG)
 SEC. NO. REED ROAD TO US ROUTE 14
 SCALE 1" = 50' COUNTY MCHENRY
 SJN : PROJ. NO. P-91-101-07
 SHEET NO. 63 I.D.S. SHEET 4 OF 4

**APPENDIX A-6
ALIGNMENT PLAN**

PROP. CURVE TALAMORE-2
 PI STA. = 1075+97.57
 $\Delta = 21^\circ 33' 43''$ (RT)
 $D = 15^\circ 54' 56''$
 $R = 360.00'$
 $T = 68.55'$
 $L = 135.48'$
 $E = 6.47'$
 $e = \text{N.C.}$
 P.C. STA. = 1075+29.02
 P.T. STA. = 1076+64.50



EX CURVE PRALTO447-1
 PI STA. = 361+98.59
 $\Delta = 38^\circ 43' 58''$ (LT)
 $D = 3^\circ 29' 59''$
 $R = 1,637.20'$
 $T = 575.47'$
 $L = 1,106.77'$
 $E = 98.19'$
 $T.R. \text{ ATTAINMENT} = 72'$
 $S.E. \text{ RUN ATTAINMENT} = 122.4'$
 $T.R. \text{ REMOVAL} = 72'$
 $S.E. \text{ RUN REMOVAL} = 122.4'$
 $e = 5.0\%$
 P.C. STA. = 356+23.12
 P.T. STA. = 367+29.89
 DS = 50 MPH

PROP. CURVE PRALTO447-2
 PI STA. = 419+43.83
 $\Delta = 2^\circ 01' 29''$ (RT)
 $D = 0^\circ 09' 00''$
 $R = 38,197.20'$
 $T = 674.95'$
 $L = 1,349.75'$
 $E = 5.96'$
 $e = \text{N.C.}$
 P.C. STA. = 412+68.89
 P.T. STA. = 426+18.64
 DS = 60 MPH

PROP. CURVE PRALTO447-3
 PI STA. = 439+83.39
 $\Delta = 1^\circ 50' 47''$ (RT)
 $D = 0^\circ 11' 28''$
 $R = 30,000.00'$
 $T = 483.44'$
 $L = 966.80'$
 $E = 3.89'$
 $e = \text{N.C.}$
 P.C. STA. = 434+99.95
 P.T. STA. = 444+66.75
 DS = 60 MPH

PROP. CURVE PRALTO447-4
 PI STA. = 448+21.27
 $\Delta = 1^\circ 50' 47''$ (LT)
 $D = 0^\circ 15' 38''$
 $R = 22,000.00'$
 $T = 354.52'$
 $L = 708.98'$
 $E = 2.86'$
 $e = \text{N.C.}$
 P.C. STA. = 444+66.75
 P.T. STA. = 451+75.73
 DS = 60 MPH

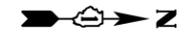
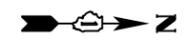
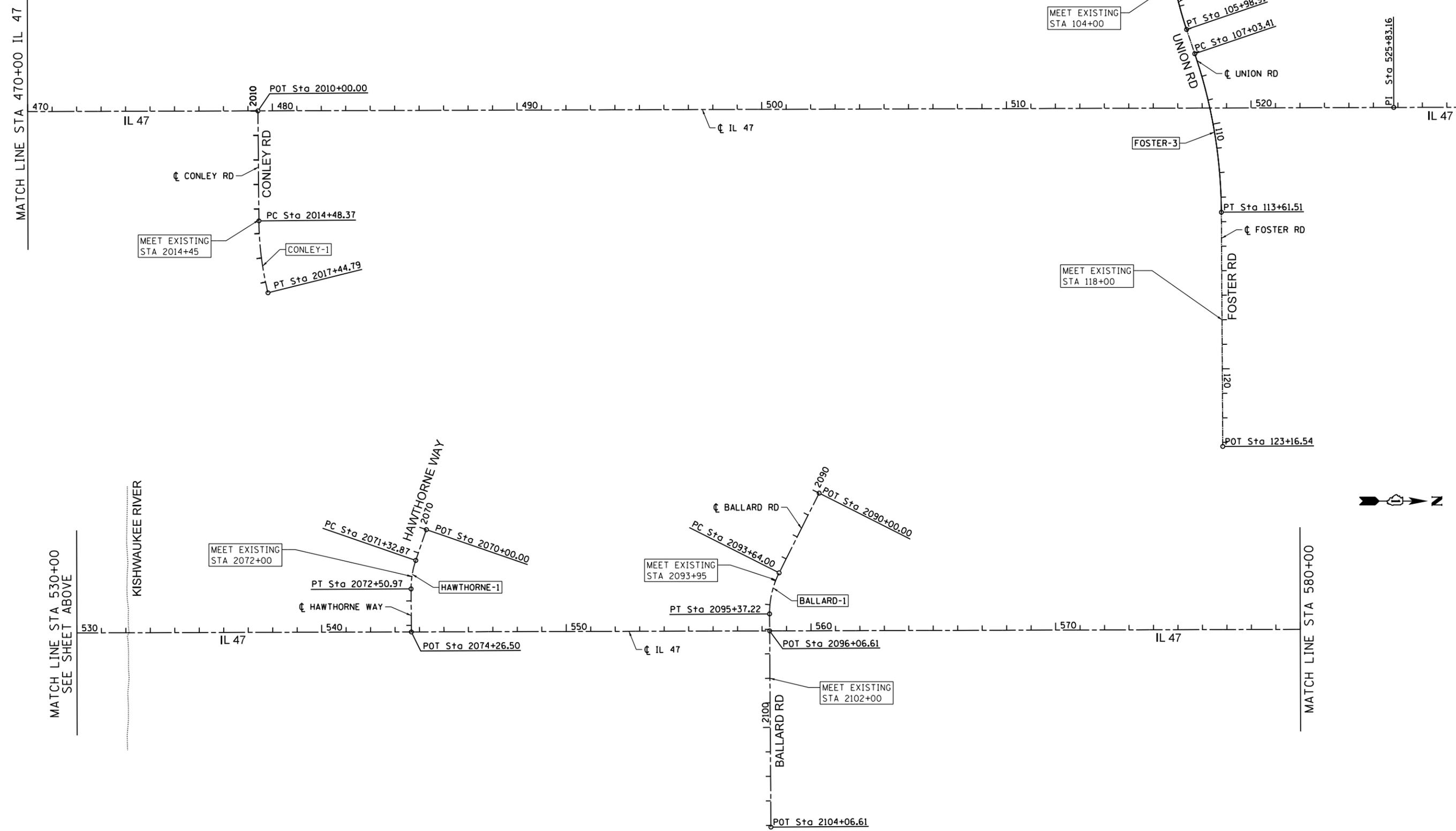
PROP. CURVE PRALTO447-5
 PI STA. = 457+99.86
 $\Delta = 1^\circ 10' 25''$ (LT)
 $D = 0^\circ 06' 00''$
 $R = 57,322.80'$
 $T = 587.16'$
 $L = 1,174.27'$
 $E = 3.01'$
 $e = \text{N.C.}$
 P.C. STA. = 452+12.70
 P.T. STA. = 463+86.98
 DS = 60 MPH

MATCH LINE STA 410+00 IL 47
SEE ABOVE

MATCH LINE STA 470+00
SEE BELOW

FILE NAME = 39027_SHT_Alignment-Ties-01.dgn	USER NAME = hanegraafe	DESIGNED - AFC	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	ALIGNMENT AND TIES IL ROUTE 47			F.A.P. RTE. = 47	SECTION = REED ROAD TO US 14	COUNTY = MCHENRY	TOTAL SHEETS = 336	SHEET NO. = 2
	PLOT SCALE = 400.000' / in.	CHECKED - KM	REVISED -		SCALE: 1"=100'	SHEET NO. 1	OF 4 SHEETS	STA. 350+00	T00 STA. 470+00	CONTRACT NO.		
PLOT DATE = 4/5/2017	DATE -	REVISED -			FED. ROAD DIST. NO. 1 ILLINOIS FED. AID PROJECT							
P:\P60039027\000_CAD\006_Civil\Sheets\Alignment_Ties\39027_SHT_Alignment-Ties-01.dgn 4/5/2017												

EX CURVE CONLEY-1 PI STA. = 2015+97.27 $\Delta = 13^\circ 28' 19''$ (LT) D = 4° 32' 42" R = 1,260.64' T = 148.89' L = 296.41' E = 8.76' e = N.C. P.C. STA. = 2014+48.37 P.T. STA. = 2017+44.79 DS = 20 MPH	EX CURVE FOSTER-1 PI STA. = 102+92.59 $\Delta = 47^\circ 06' 44''$ (LT) D = 20° 27' 46" R = 280.00' T = 122.07' L = 230.23' E = 25.45' e = N.C. P.C. STA. = 101+70.52 P.T. STA. = 104+00.75 DS = 20 MPH	PROP. CURVE FOSTER-2 PI STA. = 104+99.97 $\Delta = 7^\circ 29' 20''$ (LT) D = 3° 46' 46" R = 1,516.00' T = 99.22' L = 198.15' E = 3.24' e = N.C. P.C. STA. = 104+00.75 P.T. STA. = 105+98.91 DS = 20 MPH	PROP. CURVE FOSTER-3 PI STA. = 110+35.32 $\Delta = 18^\circ 23' 36''$ (RT) D = 2° 47' 42" R = 2,050.00' T = 331.90' L = 658.10' E = 26.69' e = N.C. P.C. STA. = 107+03.41 P.T. STA. = 113+61.51 DS = 20 MPH	EX CURVE HAWTHORNE-1 PI STA. = 2071+92.49 $\Delta = 19^\circ 19' 55''$ (LT) D = 16° 22' 13" R = 350.00' T = 59.61' L = 118.09' E = 5.04' e = N.C. P.C. STA. = 2071+32.87 P.T. STA. = 2072+50.97 DS = 20 MPH	EX CURVE BALLARD-1 PI STA. = 2094+52.26 $\Delta = 27^\circ 05' 07''$ (LT) D = 15° 38' 12" R = 366.42' T = 88.26' L = 173.22' E = 10.48' e = N.C. P.C. STA. = 2093+64.00 P.T. STA. = 2095+37.22 DS = 20 MPH
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FILE NAME = 39027_SHT_Alignment-Ties-02.dgn	USER NAME = hanegraafe	DESIGNED - AFC	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	ALIGNMENT AND TIES IL ROUTE 47		F.A.P. RTE. = 47	SECTION = REED ROAD TO US 14	COUNTY = MCHENRY	TOTAL SHEETS = 336	SHEET NO. = 3
	PLOT SCALE = 400.000' / in.	CHECKED - KM	REVISED -				SCALE: 1"=100'	SHEET NO. 2 OF 4 SHEETS	STA. 470+00 TO STA. 580+00	CONTRACT NO.	
PLOT DATE = 4/5/2017	DATE =	REVISED -	REVISED -								

P:\P60039027\000_CAD\006_Civil\Sheets\Alignment_Ties\39027_SHT_Alignment-Ties-02.dgn
4/5/2017

PROP. CURVE PRALTO447-6
 PI STA. = 588+94.07
 $\Delta = 38^\circ 30' 23''$ (LT)
 D = 3° 22' 13"
 R = 1,700.00'
 T = 593.77'
 L = 1,142.51'
 E = 100.71'
 e = 5.8%
 T.R. ATTAINMENT = 80'
 S.E. RUN ATTAINMENT = 232'
 T.R. REMOVAL = 80'
 S.E. RUN REMOVAL = 232'
 P.C. STA. = 583+00.29
 P.T. STA. = 594+42.80
 DS = 60 MPH

PROP. CURVE WEST176-1
 PI STA. = 404+14.46
 $\Delta = 0^\circ 49' 27''$ (LT)
 D = 0° 28' 39"
 R = 12,000.00'
 T = 86.30'
 L = 172.60'
 E = 0.31'
 e = N.C.
 P.C. STA. = 403+28.16
 P.T. STA. = 405+00.76
 DS = 60 MPH

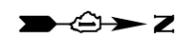
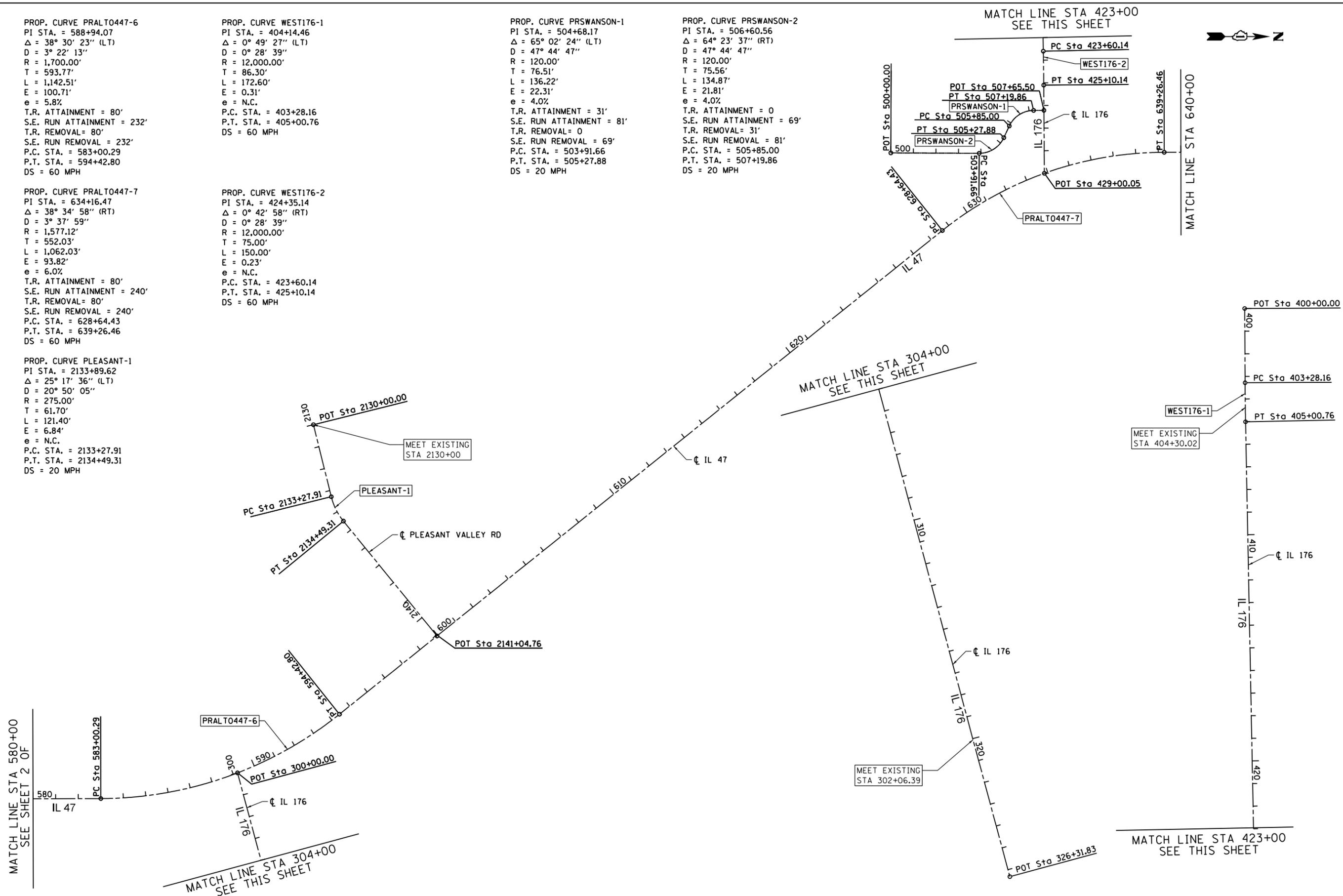
PROP. CURVE PRSWANSON-1
 PI STA. = 504+68.17
 $\Delta = 65^\circ 02' 24''$ (LT)
 D = 47° 44' 47"
 R = 120.00'
 T = 76.51'
 L = 136.22'
 E = 22.31'
 e = 4.0%
 T.R. ATTAINMENT = 31'
 S.E. RUN ATTAINMENT = 81'
 T.R. REMOVAL = 0
 S.E. RUN REMOVAL = 69'
 P.C. STA. = 503+91.66
 P.T. STA. = 505+27.88
 DS = 20 MPH

PROP. CURVE PRSWANSON-2
 PI STA. = 506+60.56
 $\Delta = 64^\circ 23' 37''$ (RT)
 D = 47° 44' 47"
 R = 120.00'
 T = 75.56'
 L = 134.87'
 E = 21.81'
 e = 4.0%
 T.R. ATTAINMENT = 0
 S.E. RUN ATTAINMENT = 69'
 T.R. REMOVAL = 31'
 S.E. RUN REMOVAL = 81'
 P.C. STA. = 505+85.00
 P.T. STA. = 507+19.86
 DS = 20 MPH

PROP. CURVE PRALTO447-7
 PI STA. = 634+16.47
 $\Delta = 38^\circ 34' 58''$ (RT)
 D = 3° 37' 59"
 R = 1,577.12'
 T = 552.03'
 L = 1,062.03'
 E = 93.82'
 e = 6.0%
 T.R. ATTAINMENT = 80'
 S.E. RUN ATTAINMENT = 240'
 T.R. REMOVAL = 80'
 S.E. RUN REMOVAL = 240'
 P.C. STA. = 628+64.43
 P.T. STA. = 639+26.46
 DS = 60 MPH

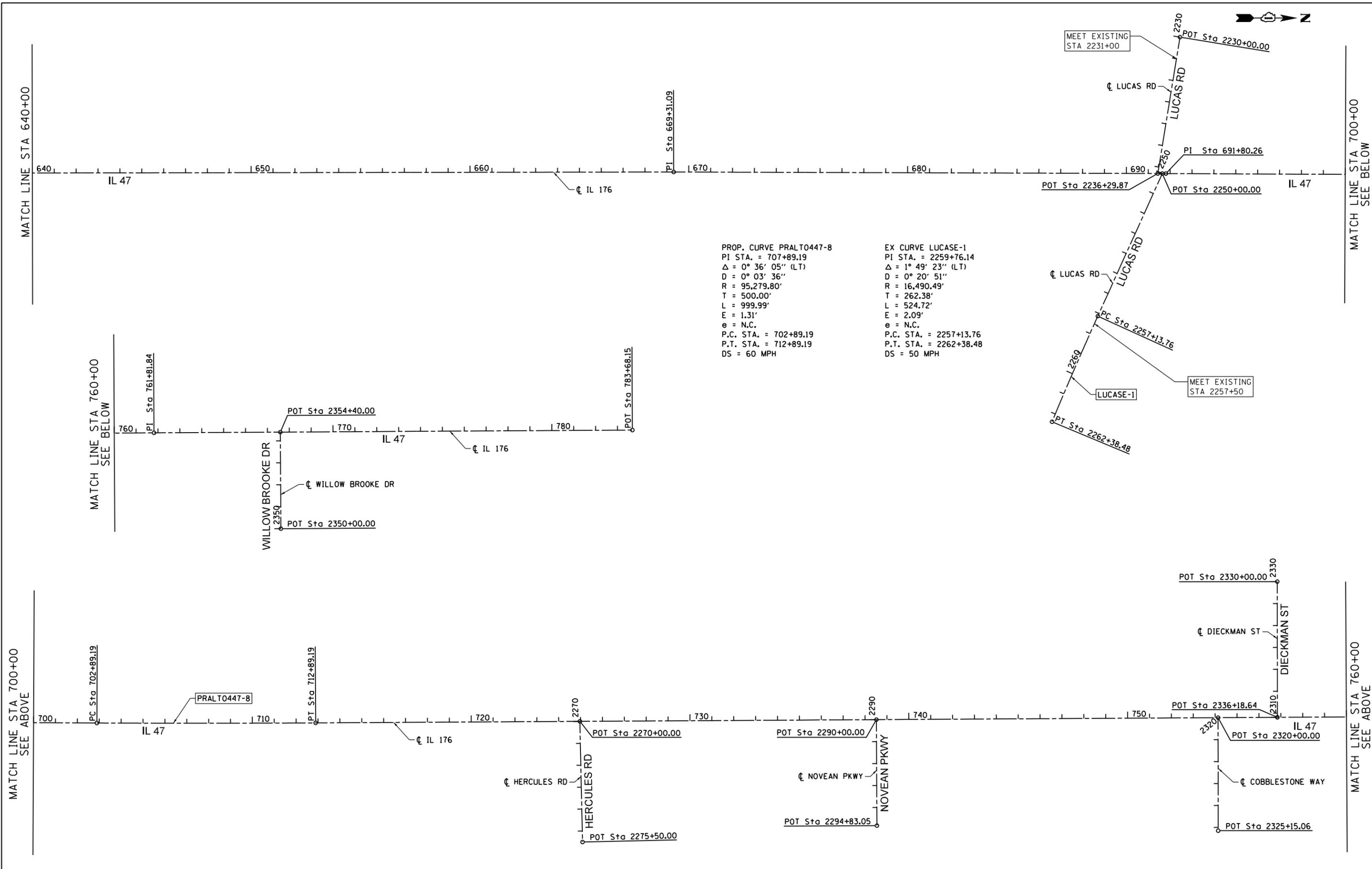
PROP. CURVE WEST176-2
 PI STA. = 424+35.14
 $\Delta = 0^\circ 42' 58''$ (RT)
 D = 0° 28' 39"
 R = 12,000.00'
 T = 75.00'
 L = 150.00'
 E = 0.23'
 e = N.C.
 P.C. STA. = 423+60.14
 P.T. STA. = 425+10.14
 DS = 60 MPH

PROP. CURVE PLEASANT-1
 PI STA. = 2133+89.62
 $\Delta = 25^\circ 17' 36''$ (LT)
 D = 20° 50' 05"
 R = 275.00'
 T = 61.70'
 L = 121.40'
 E = 6.84'
 e = N.C.
 P.C. STA. = 2133+27.91
 P.T. STA. = 2134+49.31
 DS = 20 MPH



FILE NAME = 39027_SHT_Alignment-Ties-03.dgn	USER NAME = hanegraafe	DESIGNED - AFC	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	ALIGNMENT AND TIES IL ROUTE 47		F.A.P. RTE. = 47	SECTION = REED ROAD TO US 14	COUNTY = MCHENRY	TOTAL SHEETS = 336	SHEET NO. = 4
	PLOT SCALE = 400.000' / in.	CHECKED - KM	REVISED -				SCALE: 1"=100'	SHEET NO. 3 OF 4 SHEETS	STA. 580+00 TO STA. 640+00	CONTRACT NO.	
PLOT DATE = 4/5/2017	DATE =	REVISED -	REVISED -								

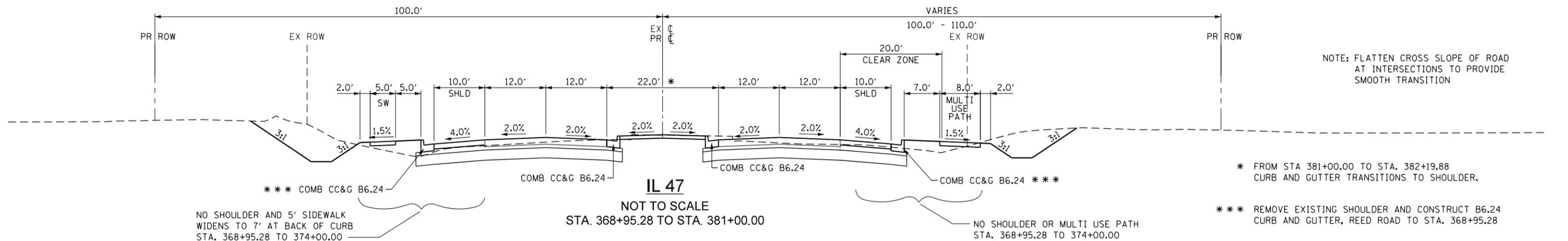
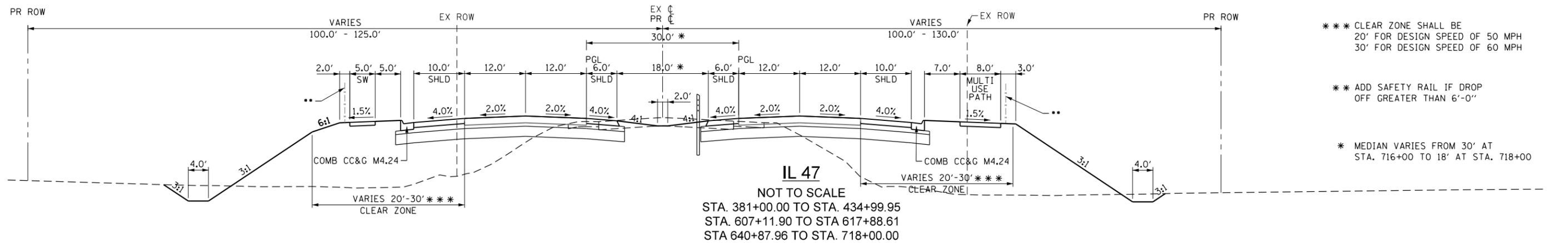
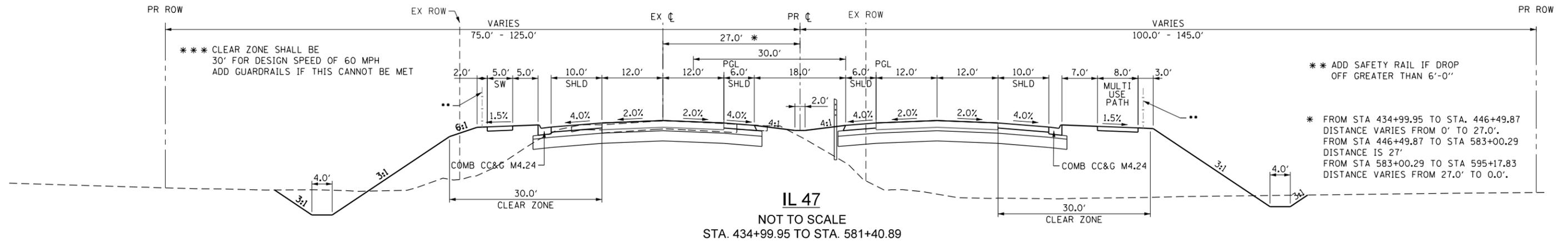
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 4/5/2017



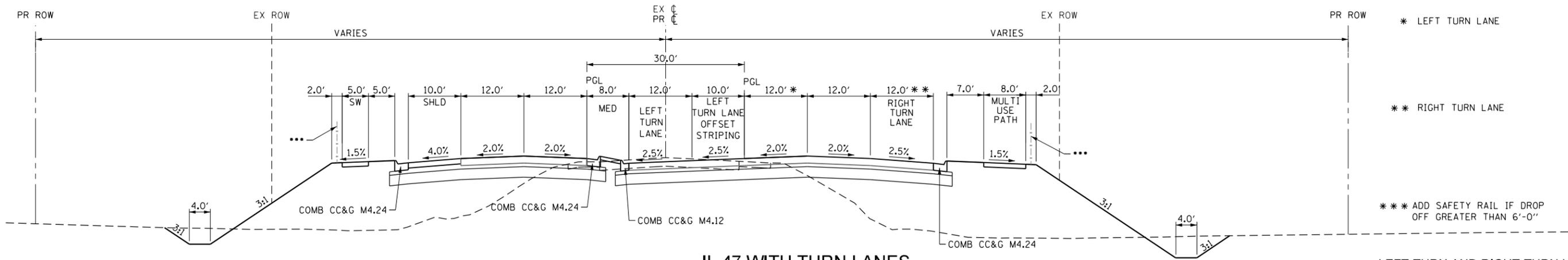
FILE NAME = 39027_SHT_Alignment-Ties-04.dgn	USER NAME = hanegraafe	DESIGNED - AFC	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	ALIGNMENT AND TIES IL ROUTE 47			F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	PLOT SCALE = 400.000' / in.	CHECKED - KM	REVISED -					47	REED ROAD TO US 14	MCHENRY	336	5
	PLOT DATE = 4/5/2017	DATE -	REVISED -		SCALE: 1"=100'			SHEET NO. 4 OF 4 SHEETS		STA. 640+00 TO STA. 783+68.15	FED. ROAD DIST. NO. 1 ILLINOIS FED. AID PROJECT	
										CONTRACT NO.		

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4/5/2017

**APPENDIX A-7
TYPICAL CROSS SECTIONS**



FILE NAME = 39027_SHT_TYSEC-01.dgn	USER NAME = hanegraafe	DESIGNED - AFC	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	TYPICAL CROSS SECTIONS IL ROUTE 47			F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	PLOT SCALE = 20.000' / in.	DRAWN - PHP	REVISED -					47	REED ROAD TO US 14	MCHENRY	336	6
	PLOT DATE = 4/5/2017	CHECKED - KM	REVISED -		SCALE: SHEET NO. OF SHEETS STA. TO STA.			CONTRACT NO.				
		DATE -	REVISED -		FED. ROAD DIST. NO. 1 ILLINOIS FED. AID PROJECT							



* LEFT TURN LANE
 ** RIGHT TURN LANE
 *** ADD SAFETY RAIL IF DROP OFF GREATER THAN 6'-0"

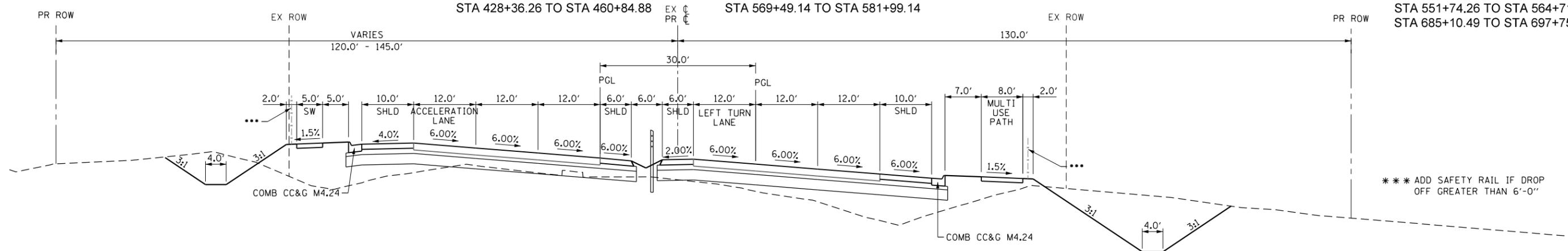
RIGHT-TURN LANE
 STA 369+32.23 TO STA 373+67.23
 STA 544+45.20 TO STA 549+75.17

LEFT-TURN LANE
 STA 374+60.90 TO STA 380+33.35
 STA 394+30.51 TO STA 399+97.18
 STA 416+45.87 TO STA 422+11.11
 STA 428+36.26 TO STA 460+84.88

IL 47 WITH TURN LANES

LEFT-TURN LANE
 STA 653+34.08 TO STA 665+14.08
 STA 374+60.90 TO STA 380+33.35
 STA 480+05.54 TO STA 485+70.54
 STA 569+49.14 TO STA 581+99.14

LEFT-TURN AND RIGHT-TURN LANES
 STA 400+96.41 TO STA 406+61.41
 STA 423+33.13 TO STA 428+98.19
 STA 473+01.78 TO STA 478+66.78
 STA 511+98.48 TO STA 524+78.58
 STA 551+74.26 TO STA 564+71.41
 STA 685+10.49 TO STA 697+75.72



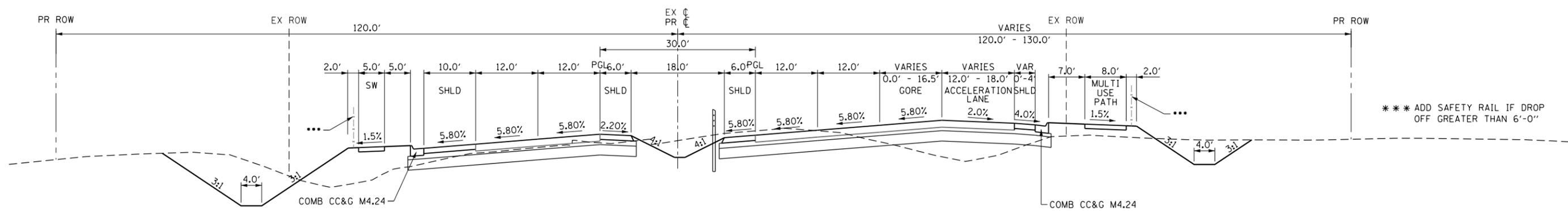
ACCELERATION LANE
 NORMAL CROWN: STA 617+88.61 TO STA 627+02.93
 5.80% TO NORMAL CROWN: STA 627+02.93 TO 629+10.93
 FULLY SUPERELEVATED @ (5.80%): STA 629+10.93 TO STA 633+04.64

IL 47 WITH ACCELERATION LANE

NOT TO SCALE
 STA 617+88.61 TO STA 640+87.96

IL 47
 NORMAL CROWN TO 6.00%: STA 625+92.43 TO STA 629+12.43
 FULLY SUPERELEVATED @ (6.00%): STA 629+12.43 TO STA 638+78.46
 6.00% TO NORMAL CROWN: STA 638+78.46 TO 641+98.46

*** ADD SAFETY RAIL IF DROP OFF GREATER THAN 6'-0"



IL 47 WITH ACCELERATION LANE

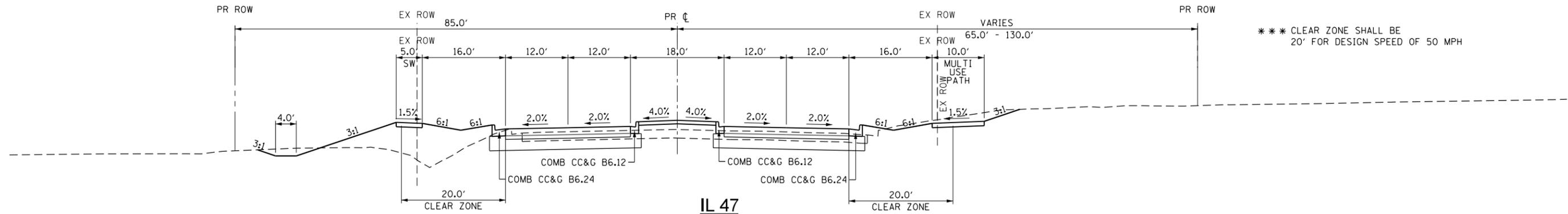
NOT TO SCALE
 STA 581+38.79 TO 604+60.30

IL 47
 NORMAL CROWN TO 5.80%: STA 580+34.69 TO STA 583+46.69
 FULLY SUPERELEVATED @ (5.80%): STA 583+46.69 TO STA 593+96.40
 5.80% TO NORMAL CROWN: STA 593+96.40 TO STA 597+08.40

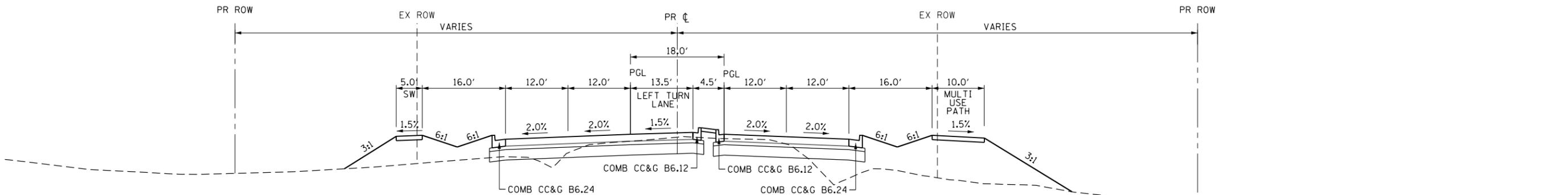
*** ADD SAFETY RAIL IF DROP OFF GREATER THAN 6'-0"

FILE NAME = 39027_SHT_TYPSEC-02.dgn	USER NAME = hanegraafe	DESIGNED - AFC	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	TYPICAL CROSS SECTIONS IL ROUTE 47			F.A.P. RTE. 47	SECTION REED ROAD TO US 14	COUNTY MCHENRY	TOTAL SHEETS 336	SHEET NO. 7
	PLOT SCALE = 20.000' / in.	CHECKED - KM	REVISED -		SCALE:	SHEET NO.	OF SHEETS	STA.	TO STA.	FED. ROAD DIST. NO. 1 ILLINOIS FED. AID PROJECT		
PLOT DATE = 4/5/2017	DATE -	REVISED -	REVISED -						CONTRACT NO.			

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 4/5/2017



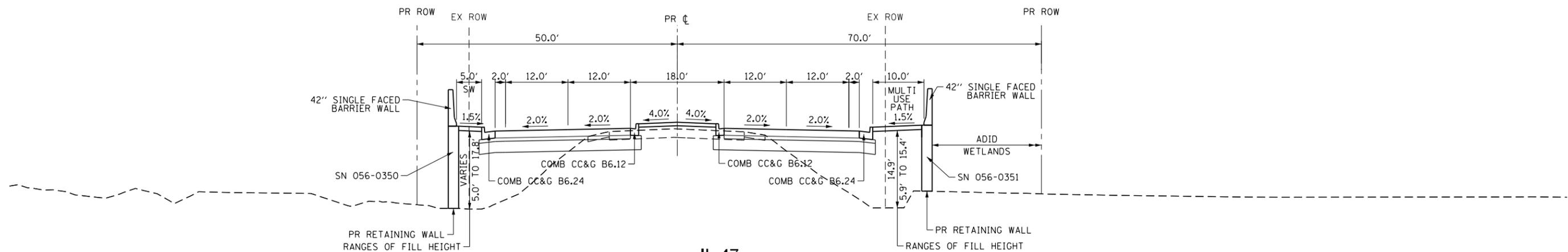
IL 47
 NOT TO SCALE
 STA 718+00.00 TO STA 745+92.31
 STA 752+84.98 TO STA 773+19.98



IL 47 WITH LEFT TURN LANE

NOT TO SCALE
 LEFT-TURN LANE
 STA 725+49.82 TO STA 729+34.82
 STA 734+23.14 TO STA 742+80.48
 STA 754+87.49 TO STA 758+72.49
 STA 763+02.63 TO STA 772+76.72

LEFT-TURN AND RIGHT-TURN LANES
 STA 719+11.26 TO STA 724+43.48



IL 47
 NOT TO SCALE
 LT STA 745+92.31 TO LT STA 752+84.98
 RT STA 745+94.76 TO RT STA 751+61.96

FILE NAME = 39027_SHT_TYPSEC-03.dgn
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 DESIGNED - AFC
 DRAWN - PHP
 PLOT SCALE = 20.000' / in.
 CHECKED - KM
 DATE -
 PLOT DATE = 4/5/2017

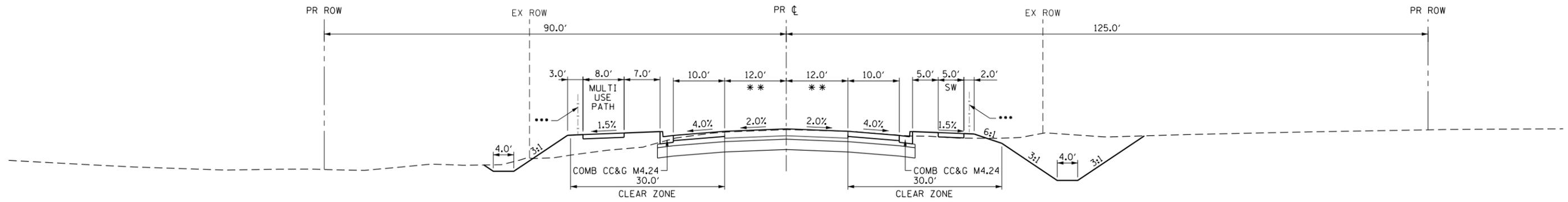
DESIGNED - AFC
 DRAWN - PHP
 CHECKED - KM
 DATE -
 REVISED -
 REVISED -
 REVISED -
 REVISED -

STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION

TYPICAL CROSS SECTIONS
 IL ROUTE 47

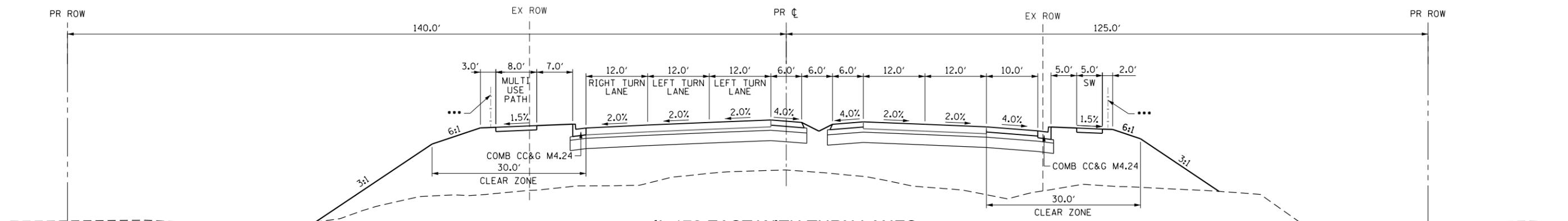
SCALE: SHEET NO. OF SHEETS STA. TO STA.

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
47	REED ROAD TO US 14	MCHENRY	336	8
CONTRACT NO.				
FED. ROAD DIST. NO. 1 ILLINOIS FED. AID PROJECT				



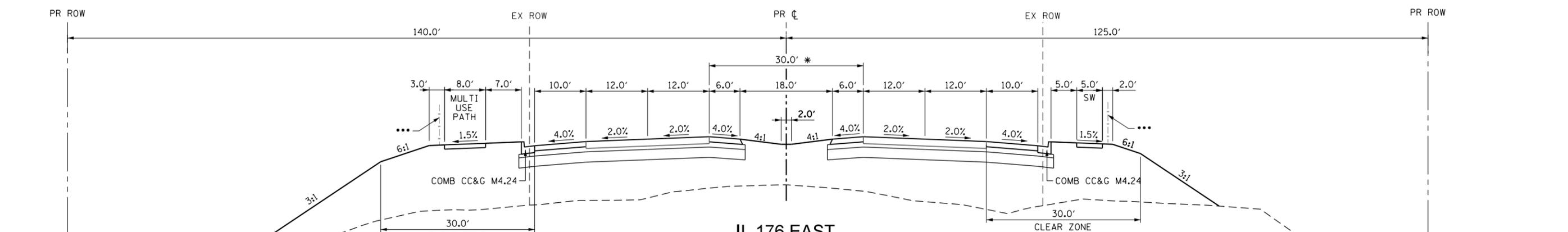
IL 176 EAST
 NOT TO SCALE
 STA 314+06.39 TO STA 320+06.39

** FROM STA 314+06.39 TO STA. 320+06.39
 DISTANCE VARIES FROM 24' TO 12'.
 *** ADD SAFETY RAIL IF DROP
 OFF GREATER THAN 6'-0"



IL 176 EAST WITH TURN LANES
 NOT TO SCALE
 LEFT TURN LANE

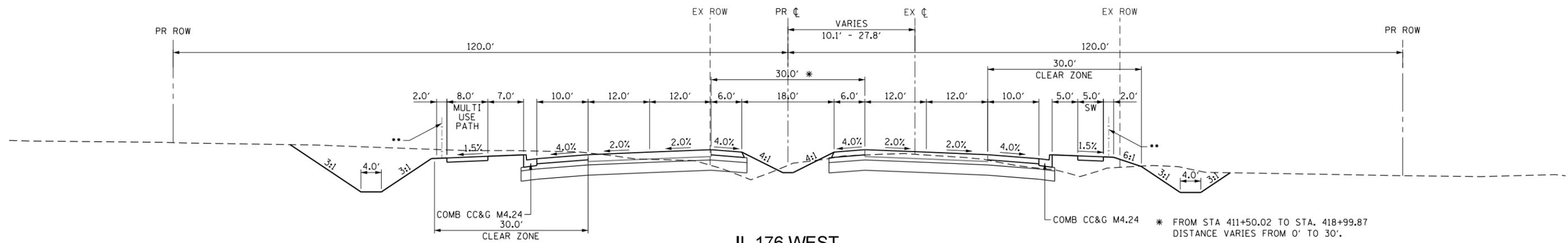
*** ADD SAFETY RAIL IF DROP
 OFF GREATER THAN 6'-0"



IL 176 EAST
 NOT TO SCALE
 STA 308+00.00 TO STA 314+06.39

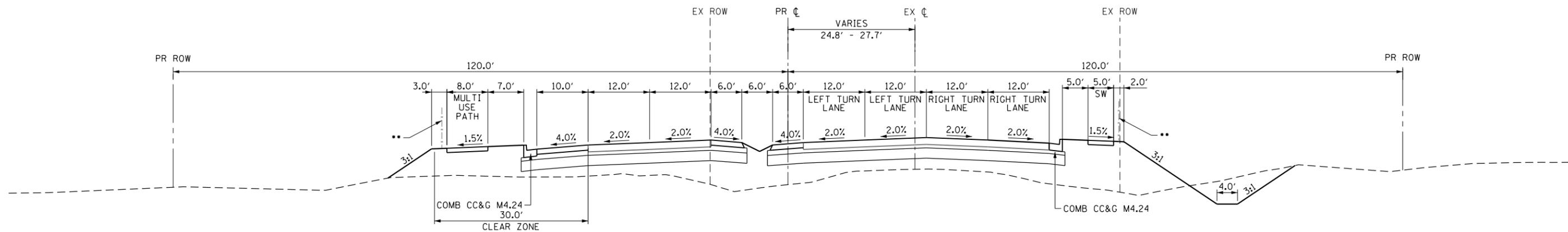
* FROM STA 306+56.33 TO STA. 314+06.39
 DISTANCE VARIES FROM 30' TO 0'.
 *** ADD SAFETY RAIL IF DROP
 OFF GREATER THAN 6'-0"

FILE NAME = 39027_SHT_TYPSEC-04.dgn	USER NAME = hanegraafe	DESIGNED - AFC	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	TYPICAL CROSS SECTIONS IL ROUTE 47			F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	PLOT SCALE = 20.000' / in.	CHECKED - KM	REVISED -					47	REED ROAD TO US 14	MCHENRY	336	9
PLOT DATE = 4/5/2017	DATE -	REVISED -	SCALE: SHEET NO. OF SHEETS STA. TO STA.			FED. ROAD DIST. NO. 1 ILLINOIS FED. AID PROJECT						
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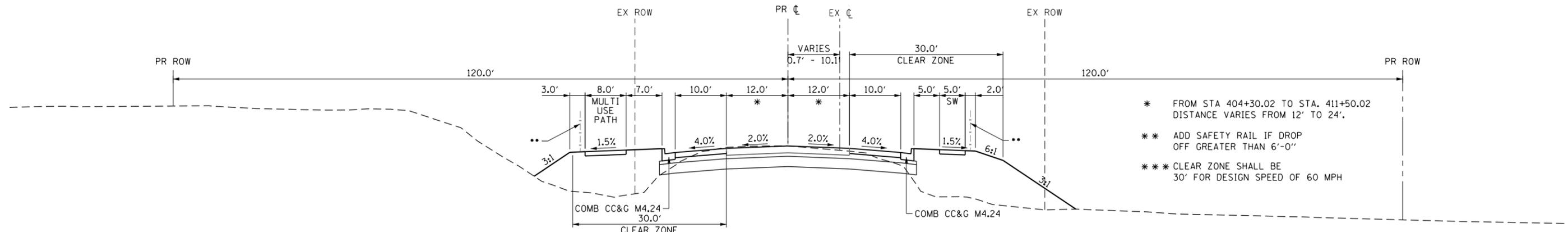
IL 176 WEST
 NOT TO SCALE
 STA 411+50.02 TO STA 420+75.00

* FROM STA 411+50.02 TO STA. 418+99.87
 DISTANCE VARIES FROM 0' TO 30'.
 ** ADD SAFETY RAIL IF DROP
 OFF GREATER THAN 6'-0"
 *** CLEAR ZONE SHALL BE
 30' FOR DESIGN SPEED OF 60 MPH



IL 176 WEST WITH TURN LANES
 NOT TO SCALE

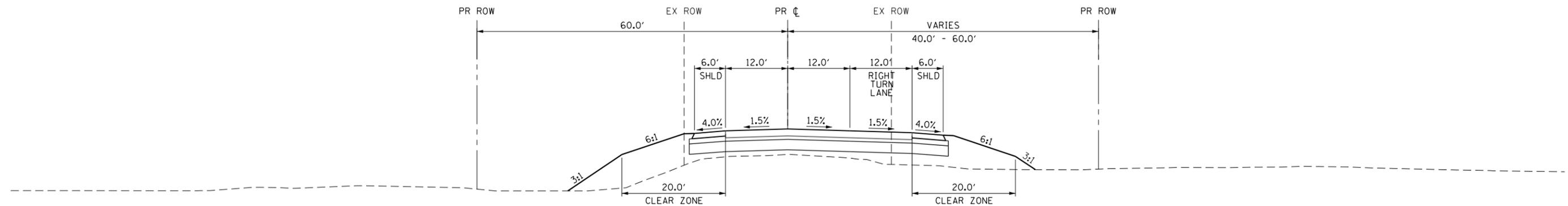
** ADD SAFETY RAIL IF DROP
 OFF GREATER THAN 6'-0"
 *** CLEAR ZONE SHALL BE
 30' FOR DESIGN SPEED OF 60 MPH



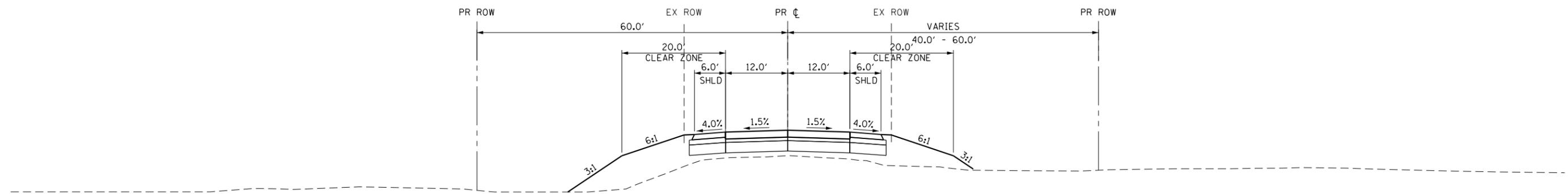
IL 176 WEST
 NOT TO SCALE
 STA 404+30.02 TO STA 411+50.02

* FROM STA 404+30.02 TO STA. 411+50.02
 DISTANCE VARIES FROM 12' TO 24'.
 ** ADD SAFETY RAIL IF DROP
 OFF GREATER THAN 6'-0"
 *** CLEAR ZONE SHALL BE
 30' FOR DESIGN SPEED OF 60 MPH

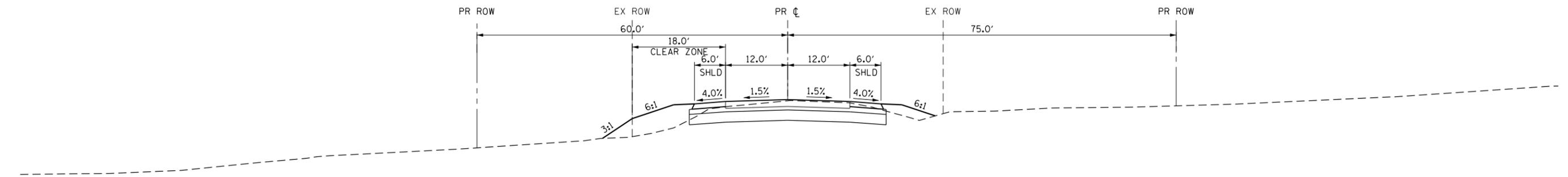
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	PLOT SCALE = 20.000' / in.	CHECKED - KM	REVISED -					47	REED ROAD TO US 14	MCHENRY	336	10
PLOT DATE = 4/5/2017	DATE -	REVISED -	SCALE: SHEET NO. OF SHEETS STA. TO STA.			CONTRACT NO.						
P:\P60039027\000_CAD\006_Civil\Sheets\Typ_Section\39027_SHT_TYPSEC-05.dgn 4/5/2017					FED. ROAD DIST. NO. 1 ILLINOIS FED. AID PROJECT							



UNION / FOSTER ROAD
NOT TO SCALE
RIGHT TURN LANE



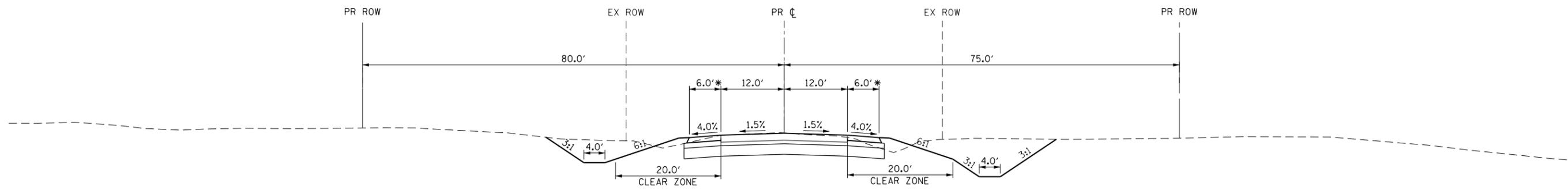
UNION / FOSTER ROAD
NOT TO SCALE
STA 104+00.00 TO STA 118+00.00



CONLEY RD
NOT TO SCALE
STA 2011+58.65 TO STA 2014+45.00

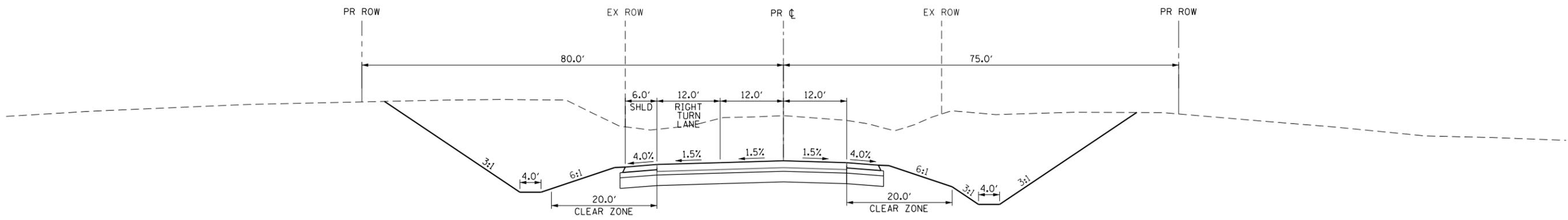
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	PLOT SCALE = 20.000' / in.	DRAWN - PHP	REVISED -					47	REED ROAD TO US 14	MCHENRY	336	11
	PLOT DATE = 4/5/2017	CHECKED - KM	REVISED -		CONTRACT NO.			FED. ROAD DIST. NO. 1 ILLINOIS FED. AID PROJECT				
		DATE -	REVISED -		SCALE:	SHEET NO.	OF SHEETS				STA.	TO STA.

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4/5/2017



BALLARD RD
 NOT TO SCALE
 STA 2093+95.00 TO STA 2102+00.00

* SHOULDER TAPERS TO NO SHOULDER WEST OF IL 47



BALLARD RD WITH RIGHT TURN LANE
 NOT TO SCALE
 RIGHT TURN LANE

FILE NAME = 39027_SHT_TYPSPEC-07.dgn
 USER NAME = hanegraafe
 PLOT SCALE = 20.000' / in.
 PLOT DATE = 4/5/2017

DESIGNED - AFC
 DRAWN - PHP
 CHECKED - KM
 DATE -

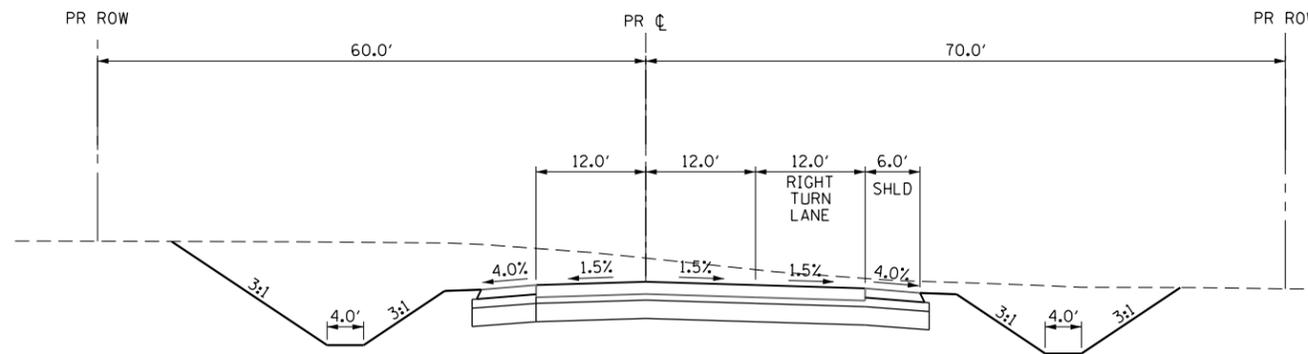
REVISED -
 REVISED -
 REVISED -
 REVISED -

**STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION**

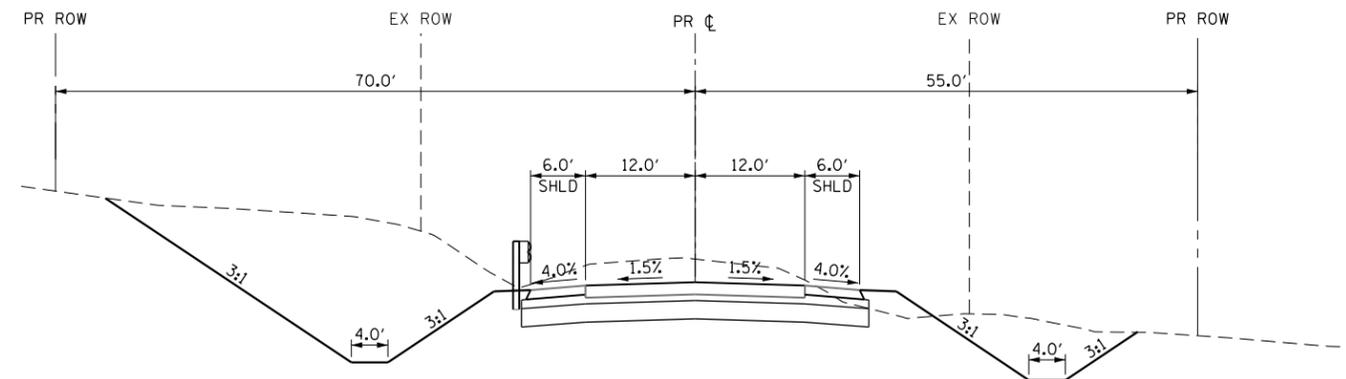
**TYPICAL CROSS SECTIONS
 BALLARD ROAD**

SCALE: SHEET NO. OF SHEETS STA. TO STA.

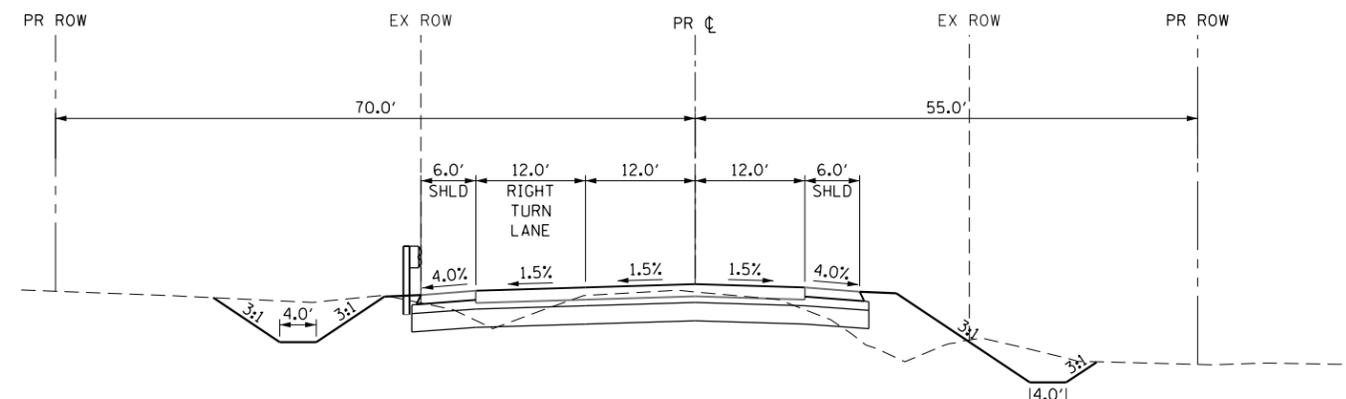
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
47	REED ROAD TO US 14	MCHENRY	336	12
CONTRACT NO.				
FED. ROAD DIST. NO. 1 ILLINOIS FED. AID PROJECT				



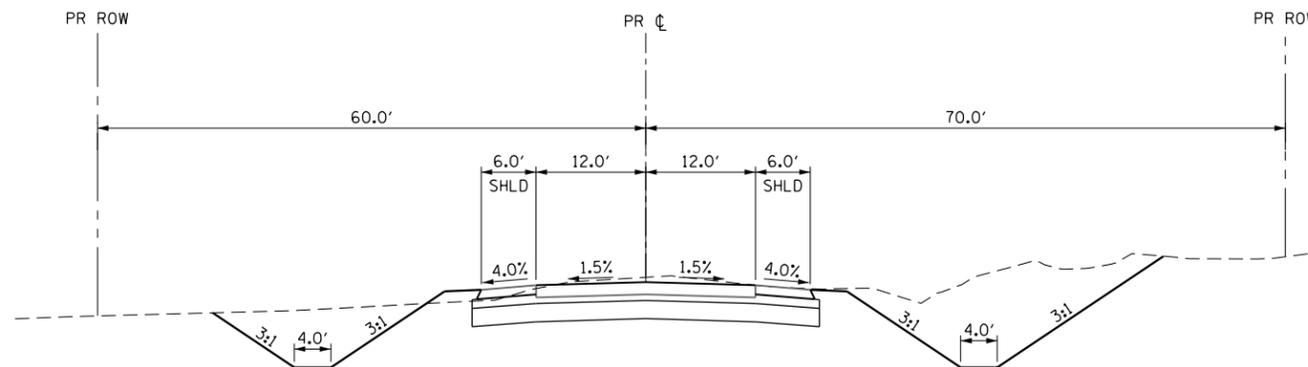
PLEASANT VALLEY ROAD WITH RIGHT TURN
NOT TO SCALE
RIGHT TURN LANE



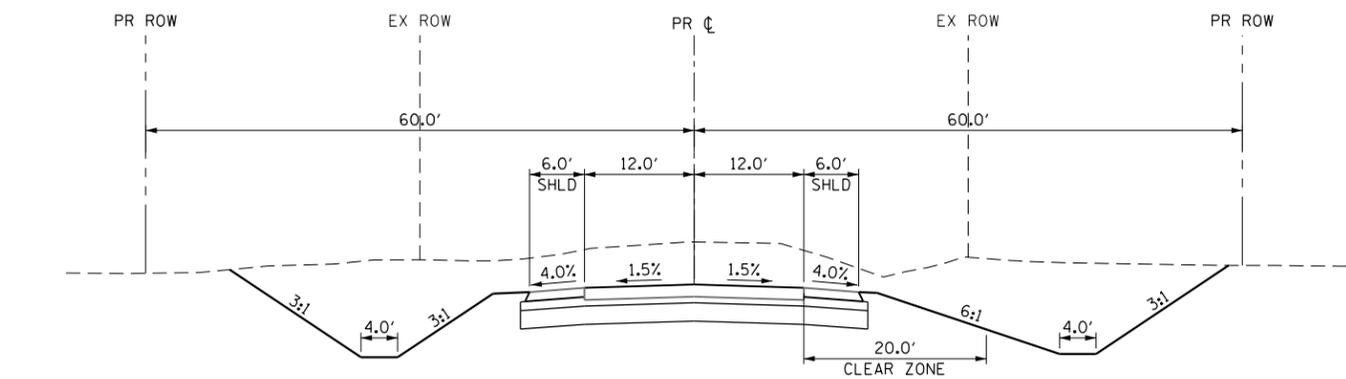
LUCAS ROAD (EAST)
NOT TO SCALE
STA 2251+94.48 TO STA 2257+50



LUCAS ROAD (EAST) WITH RIGHT TURN
NOT TO SCALE
RIGHT TURN LANE



PLEASANT VALLEY ROAD
NOT TO SCALE
STA 2132+00.00 TO STA 2139+51.67



LUCAS ROAD (WEST)
NOT TO SCALE
STA 2231+00.00 TO STA 2235+00.67

FILE NAME = 39027_SHT_TYPSPEC-08.dgn	USER NAME = hanegraafe	DESIGNED - AFC	REVISED -
		DRAWN - PHP	REVISED -
	PLOT SCALE = 20.000' / in.	CHECKED - KM	REVISED -
	PLOT DATE = 4/5/2017	DATE -	REVISED -

**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

**TYPICAL CROSS SECTIONS
PLEASANT VALLEY & LUCAS ROAD**

SCALE: SHEET NO. OF SHEETS STA. TO STA.

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
47	REED ROAD TO US 14	MCHENRY	336	13
CONTRACT NO.				
FED. ROAD DIST. NO. 1 ILLINOIS FED. AID PROJECT				

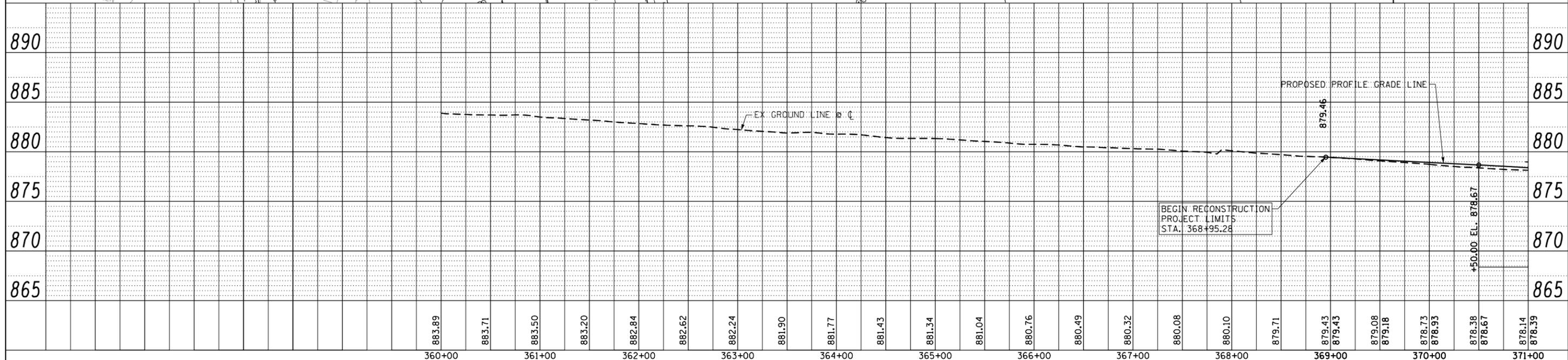
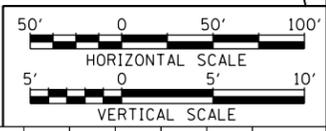
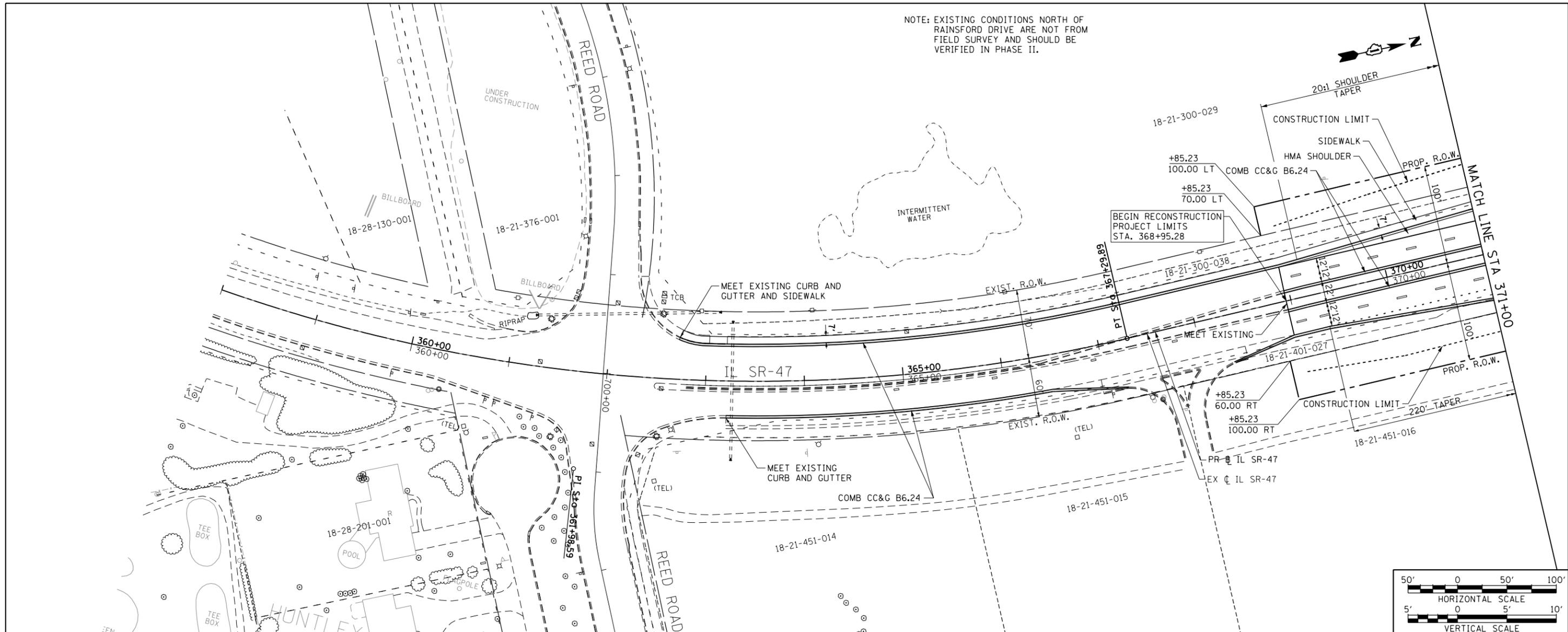
**APPENDIX A-8
PLAN AND PROFILE**

NOTE: EXISTING CONDITIONS NORTH OF RAINSFORD DRIVE ARE NOT FROM FIELD SURVEY AND SHOULD BE VERIFIED IN PHASE II.



PLAN	SURVEYED	DATE
	PLOTTED	
	ALIGNED	
	CHECKED	
	DESIGNED	
	BY	
	NO.	

PROFILE	SURVEYED	DATE
	PLOTTED	
	GRADES	
	CHECKED	
	STRUCTURE	
	NOTATIONS	
	BY	
	NO.	

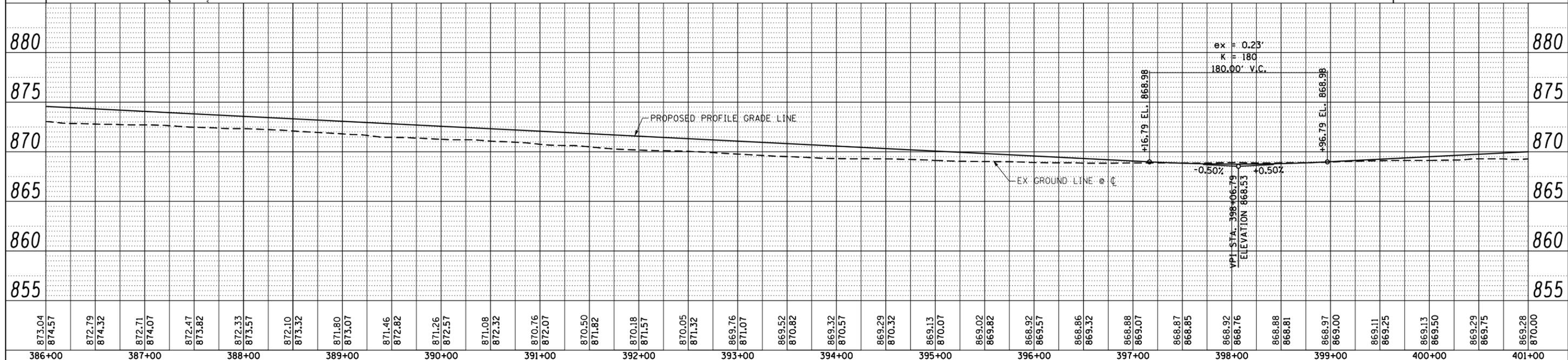
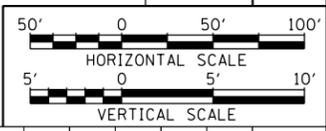
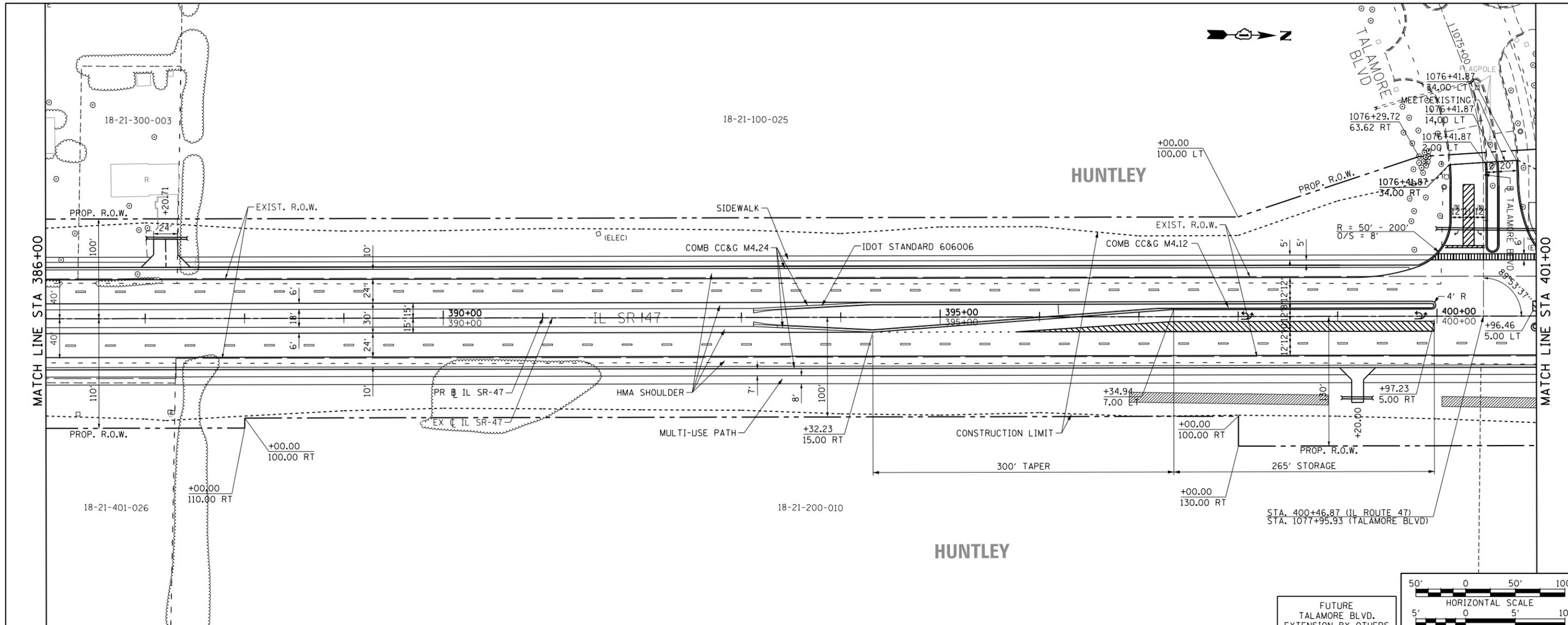


FILE NAME = 39027_PP_01.dgn	USER NAME = hanegraefe	DESIGNED -	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	PROPOSED PLAN AND PROFILE			F.A.P. RTE. 47	SECTION REED ROAD TO US 14	COUNTY MCHENRY	TOTAL SHEETS 336	SHEET NO. 14
	PLOT SCALE = 100.000' / in.	CHECKED -	REVISED -		SCALE: 1" = 50'	SHEET NO. 1 OF 42 SHEETS	STA. 358+00 TO STA. 371+00	CONTRACT NO.				
	PLOT DATE = 4/5/2017	DATE = 03/31/2017	REVISED -		FED. ROAD DIST. NO. 1 ILLINOIS FED. AID PROJECT							

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4/5/2017

PLAN	SURVEYED	BY	DATE
	PLOTTED		
	ALIGNED		
	CHECKED		
	FILED		
	NO.		

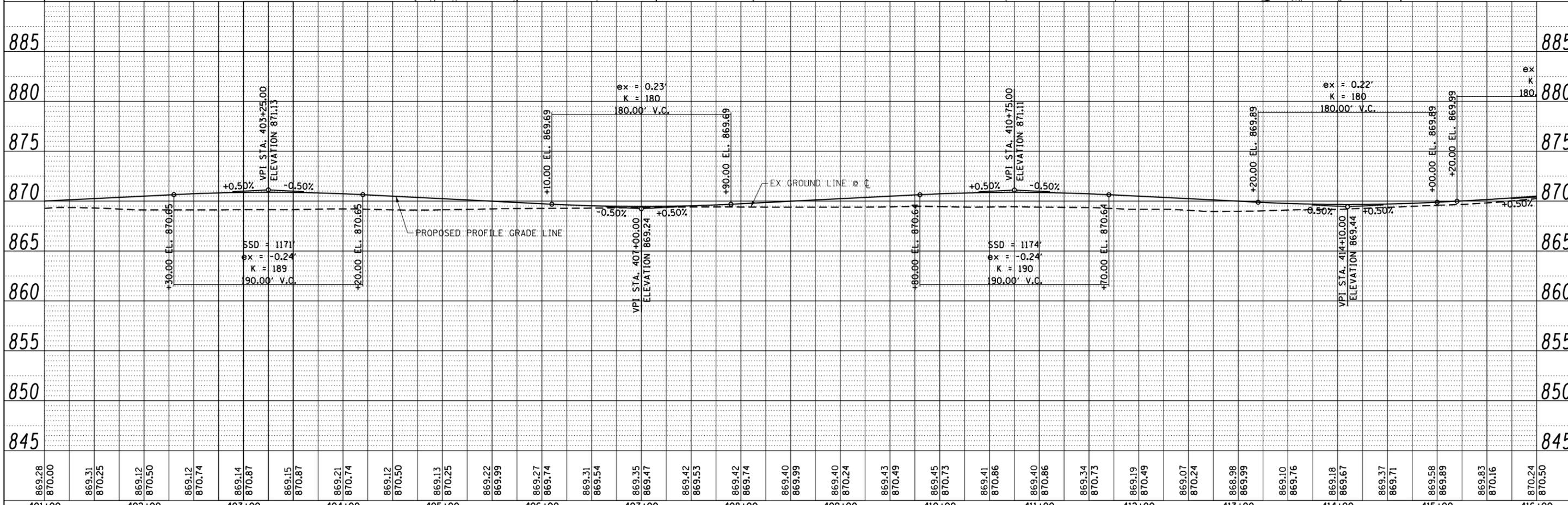
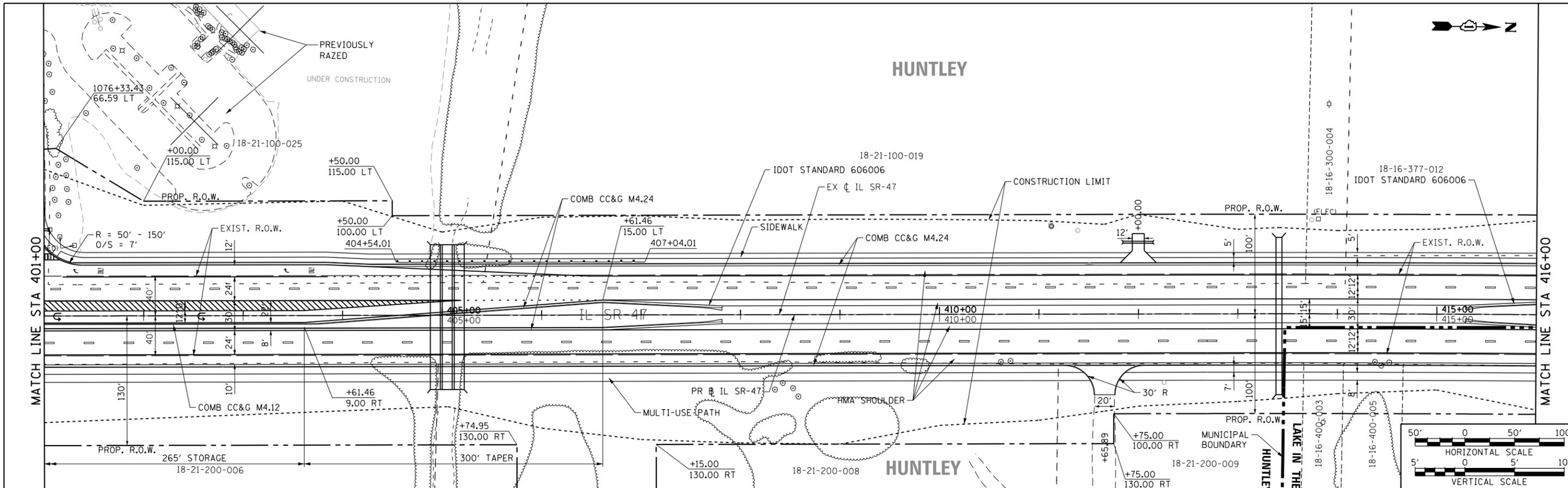
PROFILE	SURVEYED	BY	DATE
	PLOTTED		
	GRADES		
	CHECKED		
	STRUCTURE		
	NOTATIONS		
	CHKD		



FILE NAME = 39027_PP_03.dgn	USER NAME = hanegraafe	DESIGNED -	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	PROPOSED PLAN AND PROFILE			F.A.P. RTE. 47	SECTION REED ROAD TO US 14	COUNTY MCHENRY	TOTAL SHEETS 336	SHEET NO. 16
	PLOT SCALE = 100.000' / in.	CHECKED -	REVISED -		SCALE: 1" = 50'	SHEET NO. 3	OF 42 SHEETS	STA. 386+00	TO STA. 401+00	CONTRACT NO.		
	PLOT DATE = 4/5/2017	DATE = 03/31/2017	REVISED -		FED. ROAD DIST. NO. 1 ILLINOIS FED. AID PROJECT							
P:\P60039027\000_CAD\006_Civil\Sheets\Plan_Profile\Proposed-ALT04\39027_PP_03.dgn 4/5/2017												

PLAN	SURVEYED	DATE
	PLOTTED	
	GRADES CHECKED	
	STRUCTURE NOTATIONS OK'D	
	NOTE BOOK NO.	
	FILE NAME	

PROFILE	SURVEYED	DATE
	PLOTTED	
	GRADES CHECKED	
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	NOTE BOOK NO.	
	FILE NAME	

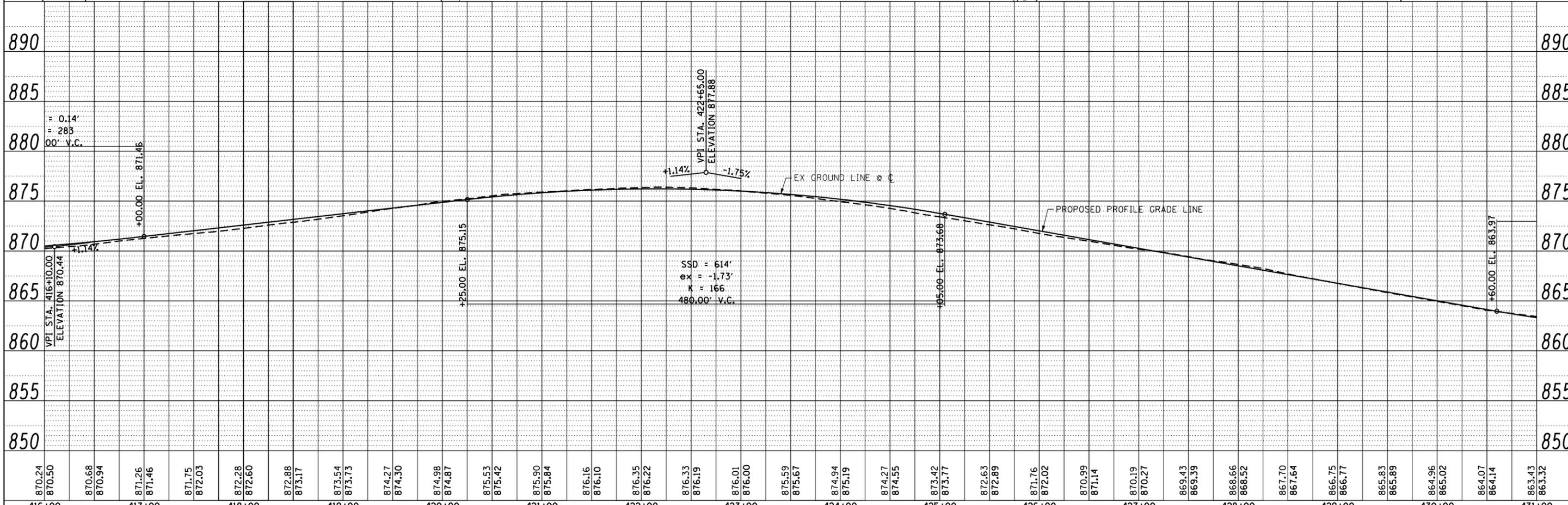
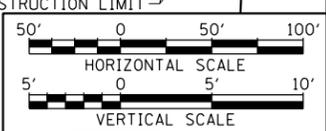
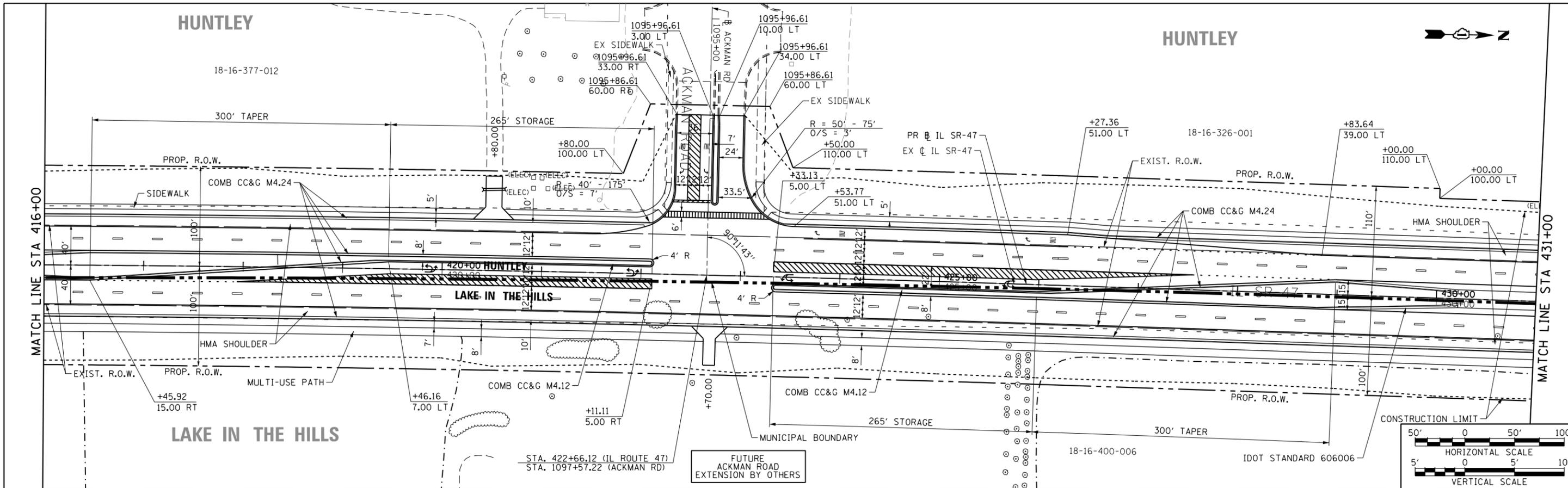


FILE NAME = 39027_PP_04.dgn	USER NAME = hanegraafe	DESIGNED -	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	PROPOSED PLAN AND PROFILE			F.A.P. RTE. 47	SECTION REED ROAD TO US 14	COUNTY MCHENRY	TOTAL SHEETS 336	SHEET NO. 17
	PLOT SCALE = 100.000' / in.	CHECKED -	REVISED -		SCALE: 1" = 50'	SHEET NO. 4 OF SHEETS	STA. 401+00 TO STA. 416+00	CONTRACT NO.				
	PLOT DATE = 4/5/2017	DATE = 03/12/2015	REVISED -		FED. ROAD DIST. NO. 1 ILLINOIS FED. AID PROJECT							

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4/5/2017

PLAN	SURVEYED	DATE
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NOTE BOOK NO.	CARD FILE NAME	

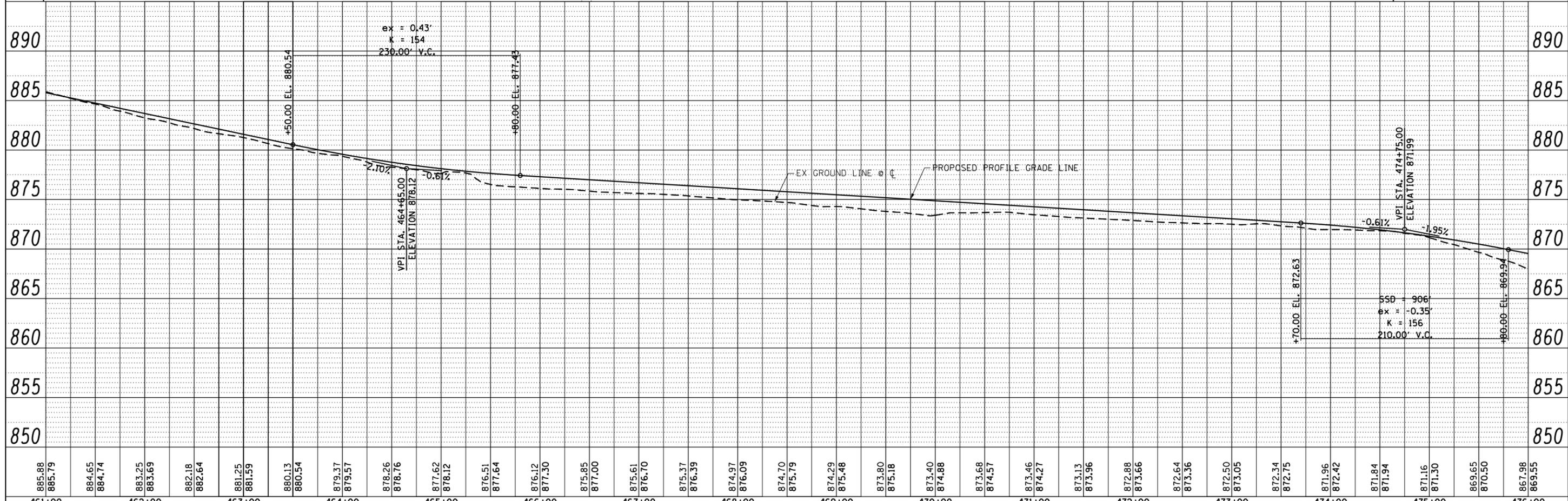
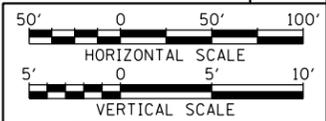
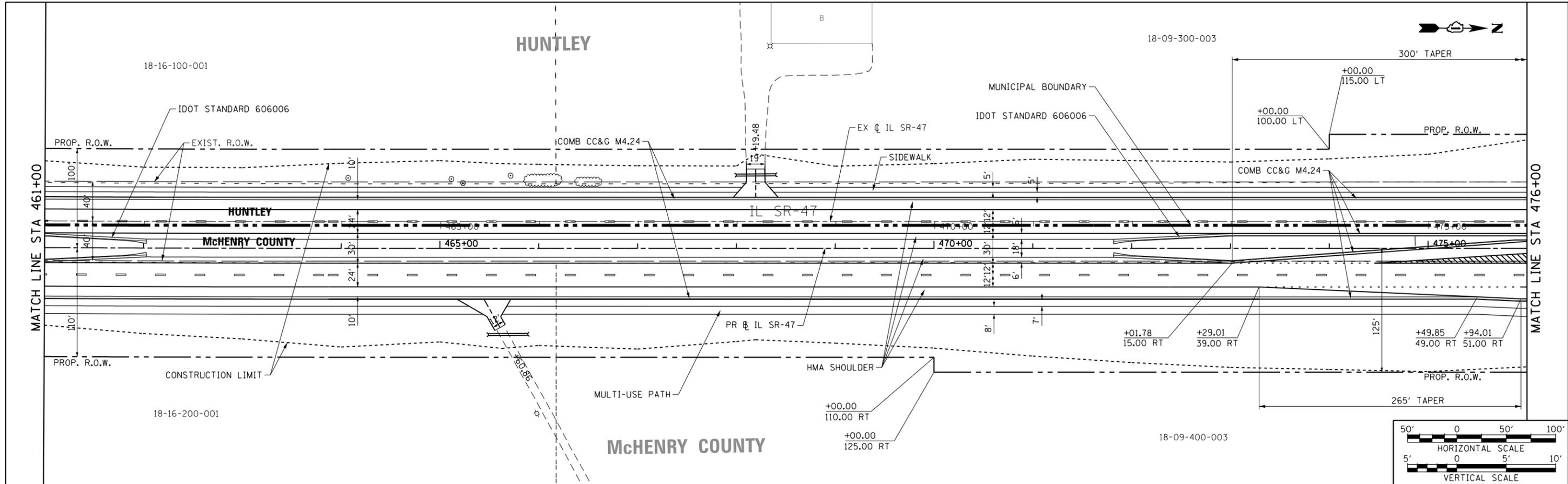
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	PLOTTED	
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	STRUCTURE NOTATIONS CHECKED	
NOTE BOOK NO.	NOTATIONS CHECKED	



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	PLOT SCALE = 100.000' / in.	CHECKED -	REVISED -			CONTRACT NO.				
	PLOT DATE = 4/5/2017	DATE = 03/12/2015	REVISED -			FED. ROAD DIST. NO. 1 ILLINOIS FED. AID PROJECT				

PLAN	SURVEYED	BY	DATE
	NOTED		
	ALIGNED		
	CHECKED		
	FILED		
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PROFILE	SURVEYED	BY	DATE
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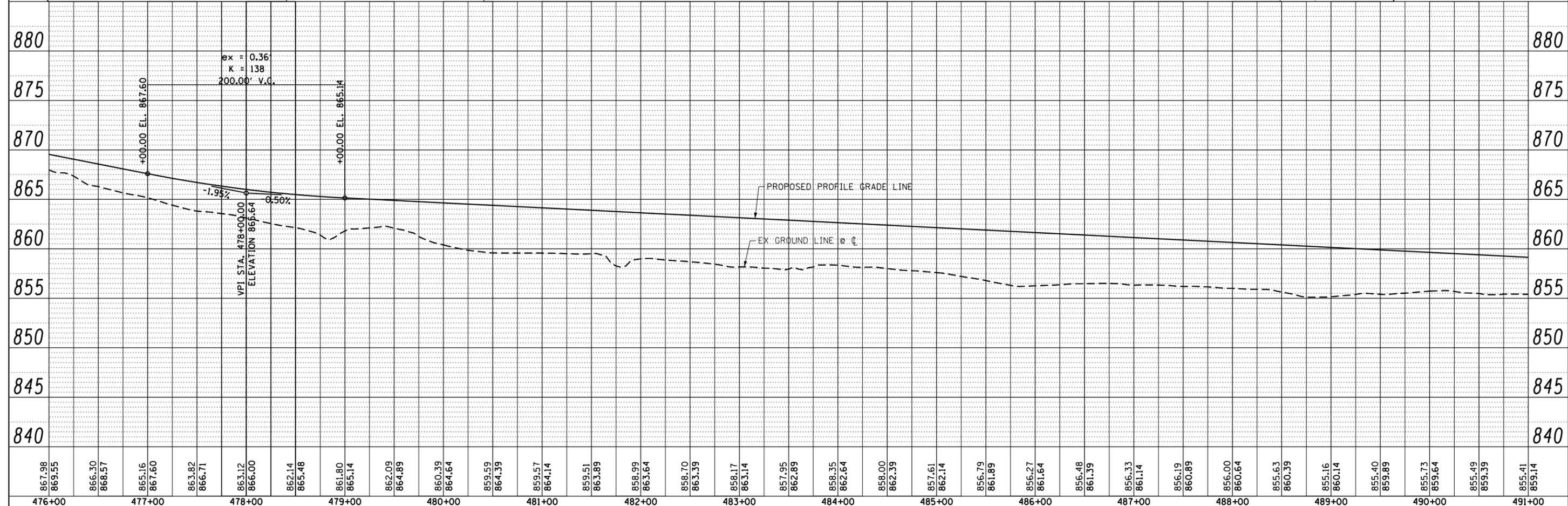
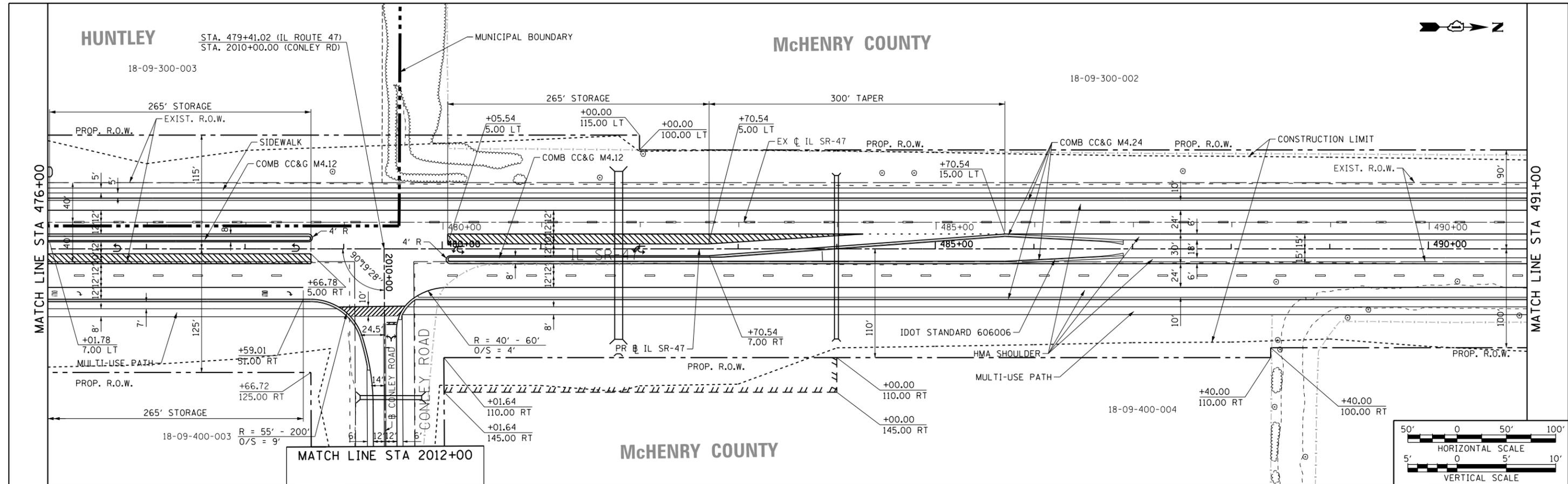


885.88	885.79	884.65	884.74	883.25	883.69	882.18	882.64	881.25	881.59	880.13	880.54	879.37	879.57	878.26	878.76	877.62	878.12	876.51	877.64	876.12	877.30	875.85	877.00	875.61	876.70	875.37	876.39	874.97	876.09	874.70	875.79	874.29	875.48	873.80	875.18	873.40	874.88	873.68	874.57	873.46	874.27	873.13	873.96	872.88	873.66	872.64	873.36	872.50	873.05	872.34	872.75	871.96	872.42	871.84	871.94	871.16	871.30	869.65	870.50	867.98	869.55
461+00	462+00	463+00	464+00	465+00	466+00	467+00	468+00	469+00	470+00	471+00	472+00	473+00	474+00	475+00	476+00																																														
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PLOT SCALE = 100.000' / in.		CHECKED -		REVISED -		CONTRACT NO.																																																							
PLOT DATE = 4/5/2017		DATE = 03/12/2015		REVISED -		SCALE: 1" = 50'																																										SHEET NO. 8 OF SHEETS		STA. 461+00 TO STA. 476+00		FED. ROAD DIST. NO. 1 ILLINOIS FED. AID PROJECT									

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4/5/2017

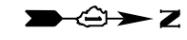
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	PLOTTED	BY
	NOTE BOOK	
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	CHECKED	
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	NO.	

PROFILE	SURVEYED	DATE
	PLOTTED	BY
	GRADES	
	CHECKED	
	STRUCTURE	
	NOTATIONS	
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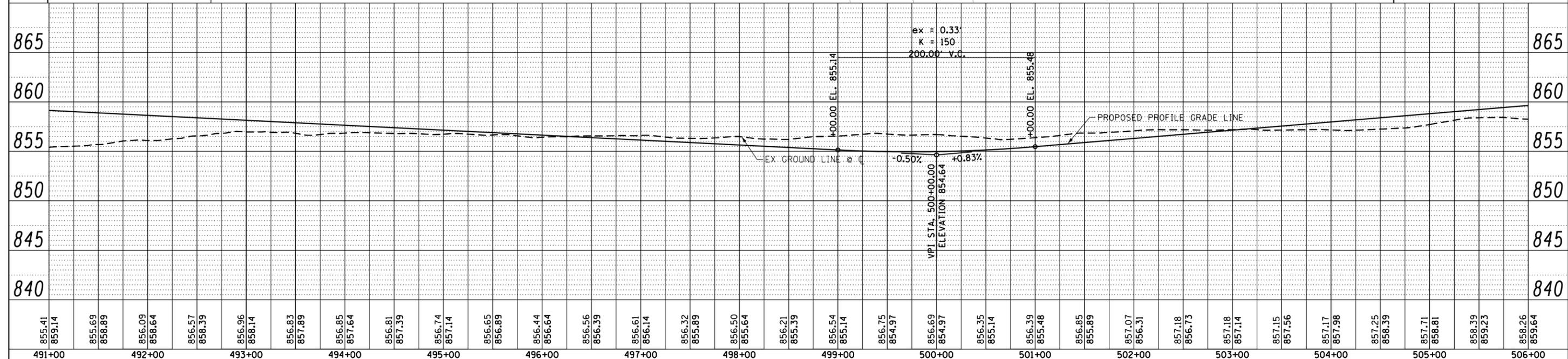
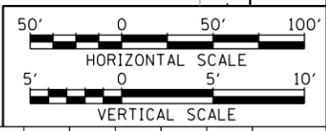
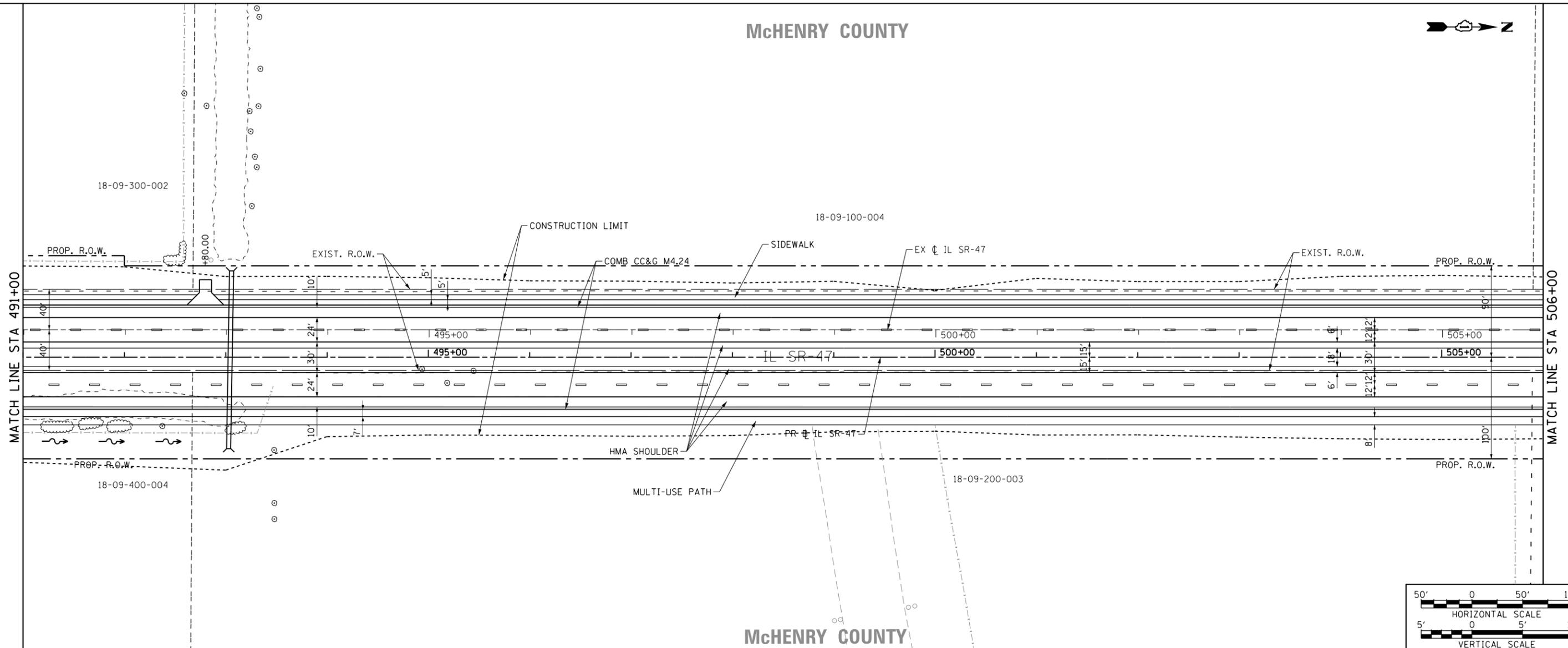
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PLOT SCALE = 100.000 / in.	CHECKED -	REVISD -	SCALE: 1" = 50'		SHEET NO. 9	OF SHEETS	STA. 476+00 TO STA. 491+00	CONTRACT NO.				
PLOT DATE = 4/5/2017	DATE = 03/12/2015	REVISD -	FED. ROAD DIST. NO. 1 ILLINOIS FED. AID PROJECT									
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McHENRY COUNTY



PLAN	SURVEYED	DATE
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	ALIGNED	
	CHECKED	
	FILED	
NO.	FILE NAME	

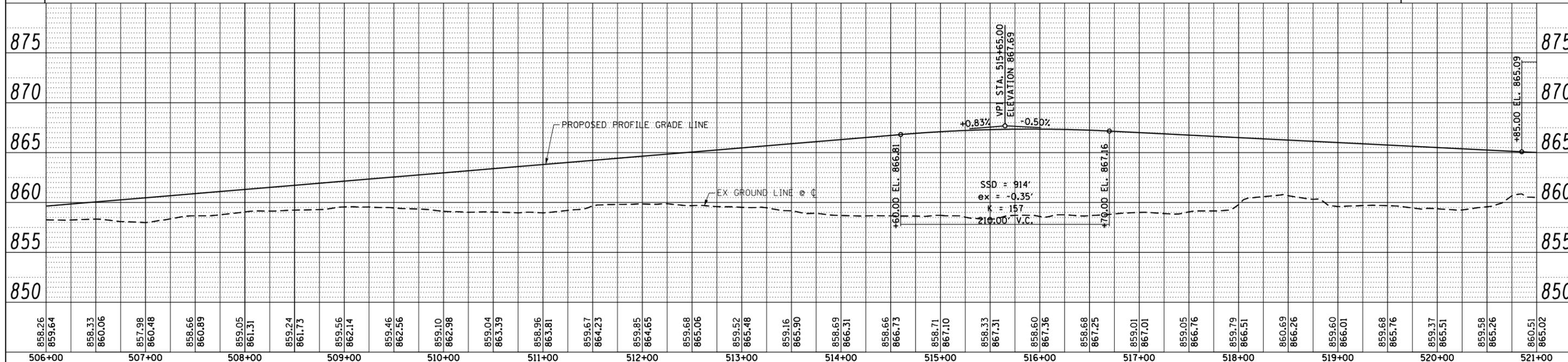
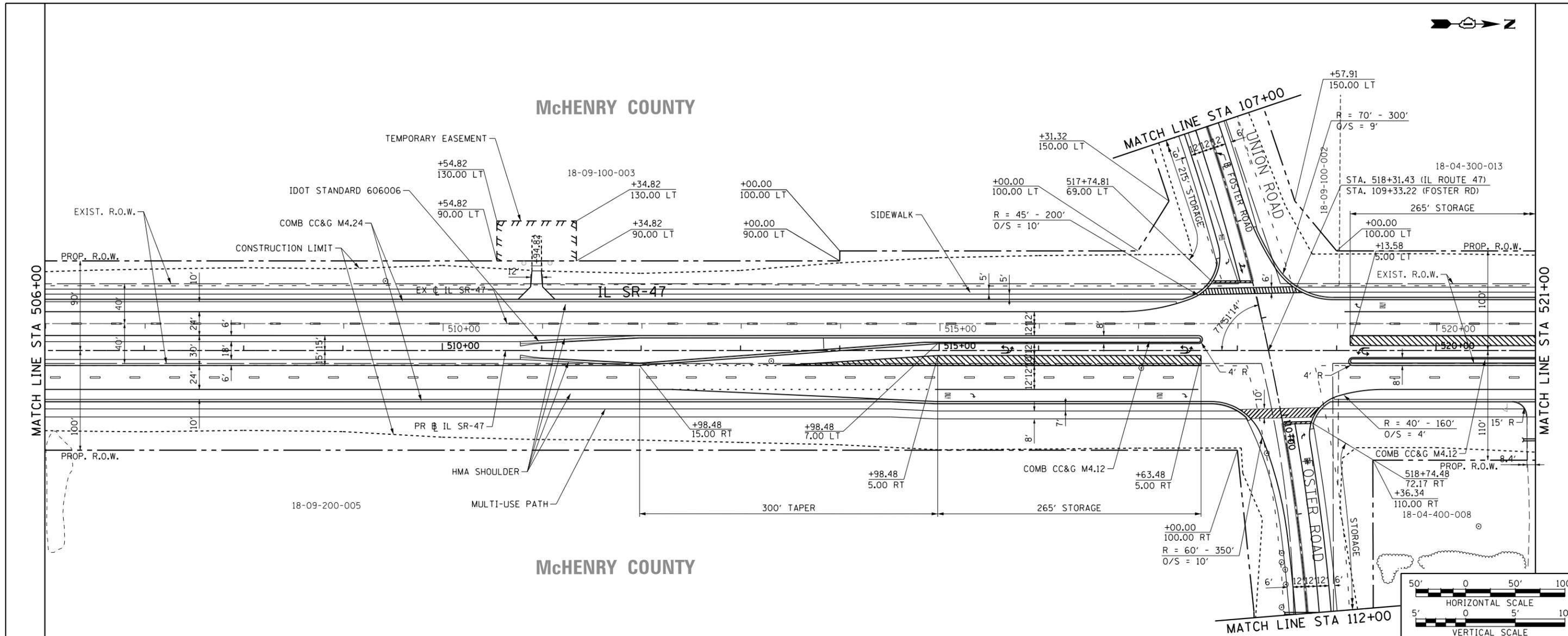
PROFILE	SURVEYED	DATE
	PLOTTED	
	GRADES CHECKED	
	STRUCTURE NOTATIONS CHECKED	
NO.	FILE NAME	



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PLOT SCALE = 100.000' / in.	CHECKED -	REVISED -	SCALE: 1" = 50'			SHEET NO. 10 OF 42 SHEETS	STA. 491+00 TO STA. 506+00	CONTRACT NO.			
PLOT DATE = 4/5/2017	DATE = 03/31/2017	REVISED -	FED. ROAD DIST. NO. 1 ILLINOIS FED. AID PROJECT								
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PLAN	SURVEYED	DATE
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PROFILE	SURVEYED	DATE
	PLOTTED	
	GRADES	
	CHECKED	
	STRUCTURE	
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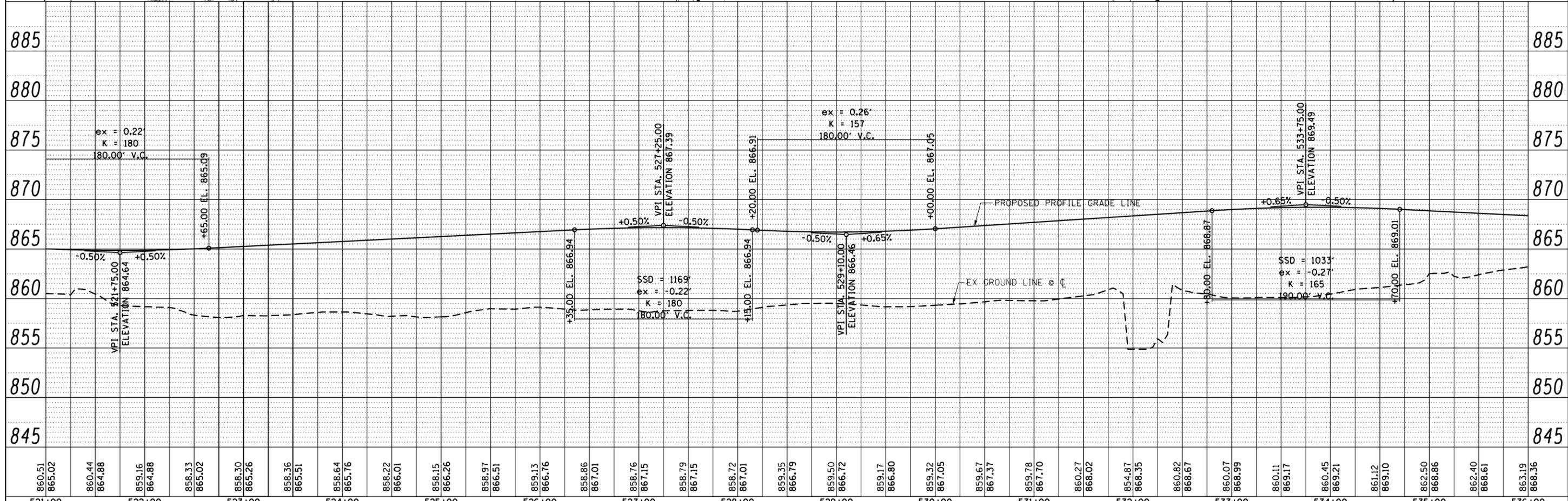
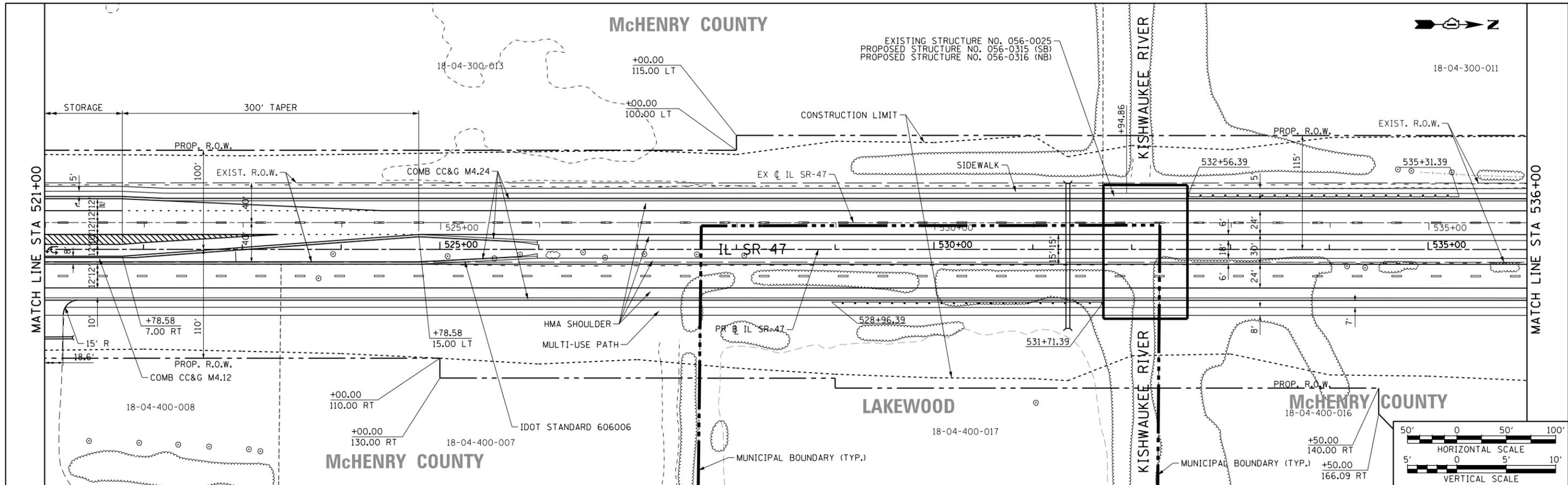


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PLOT SCALE = 100.000' / in.	CHECKED -	REVISED -	SCALE: 1" = 50'					SHEET NO. 11	OF 42 SHEETS	STA. 506+00 TO STA. 521+00	CONTRACT NO.	
PLOT DATE = 4/5/2017	DATE = 03/31/2017	REVISED -			FED. ROAD DIST. NO. 1 ILLINOIS FED. AID PROJECT							

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4/5/2017

PLAN	SURVEYED	DATE
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	ALIGNED	
	CHECKED	
	FILE NAME	
	NO.	

PROFILE	SURVEYED	DATE
	PLOTTED	BY
	GRADES	
	CHECKED	
	STRUCTURE	
	NOTATIONS	
	CPAD	
	NO.	



860.51	865.02	860.44	864.88	859.16	864.88	858.33	865.02	858.30	865.26	858.36	865.51	858.64	865.76	858.22	866.01	858.15	866.26	858.97	866.51	859.13	866.76	858.86	867.01	858.76	867.15	858.79	867.15	858.72	867.01	859.35	866.79	859.50	866.72	859.17	866.80	859.32	867.05	859.67	867.37	859.78	867.70	860.27	868.02	854.87	868.35	860.82	868.16	860.07	868.99	860.11	869.17	860.45	869.21	861.12	869.10	862.50	868.86	862.40	868.61	863.19	868.36
521+00	522+00	523+00	524+00	525+00	526+00	527+00	528+00	529+00	530+00	531+00	532+00	533+00	534+00	535+00	536+00																																														

FILE NAME =	USER NAME = dshevoz	DESIGNED -	REVISED -
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		CHECKED -	REVISED -
		DATE = 08/24/2017	REVISED -

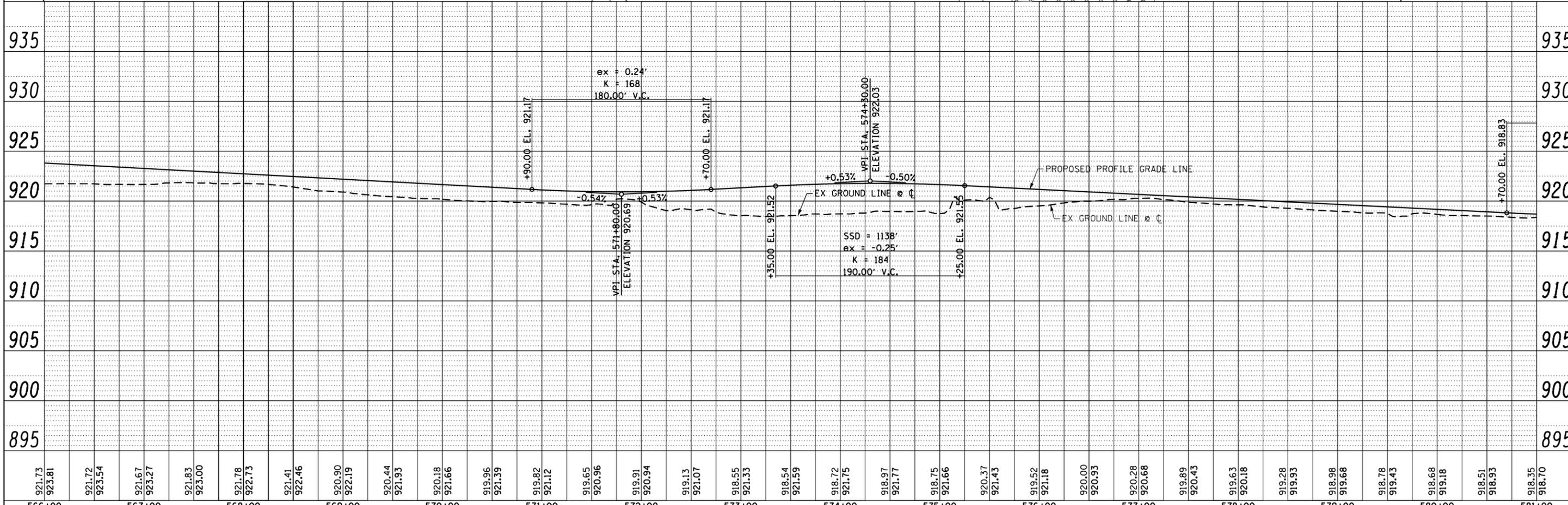
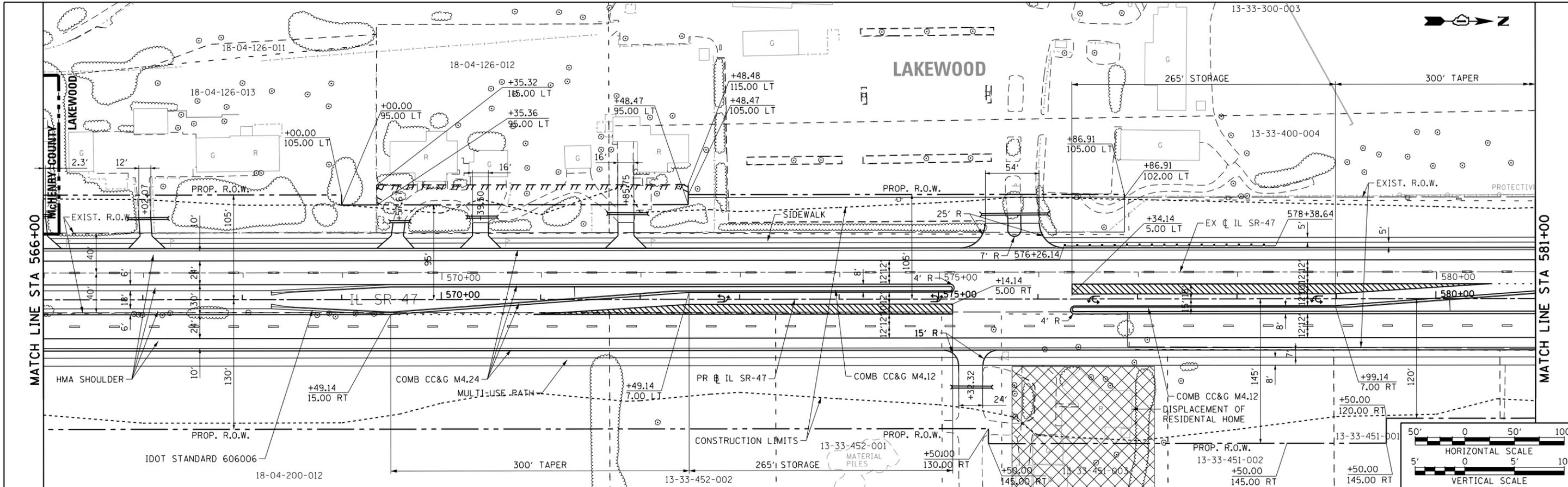
STATE OF ILLINOIS		DEPARTMENT OF TRANSPORTATION	
PROPOSED PLAN AND PROFILE		SCALE: 1" = 50'	
SHEET NO. 12	OF SHEETS	STA. 521+00	TO STA. 536+00

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
47	REED ROAD TO US 14	McHENRY	336	25
CONTRACT NO.				
FED. ROAD DIST. NO. 1 ILLINOIS FED. AID PROJECT				

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9/8/2017

PLAN	SURVEYED	DATE
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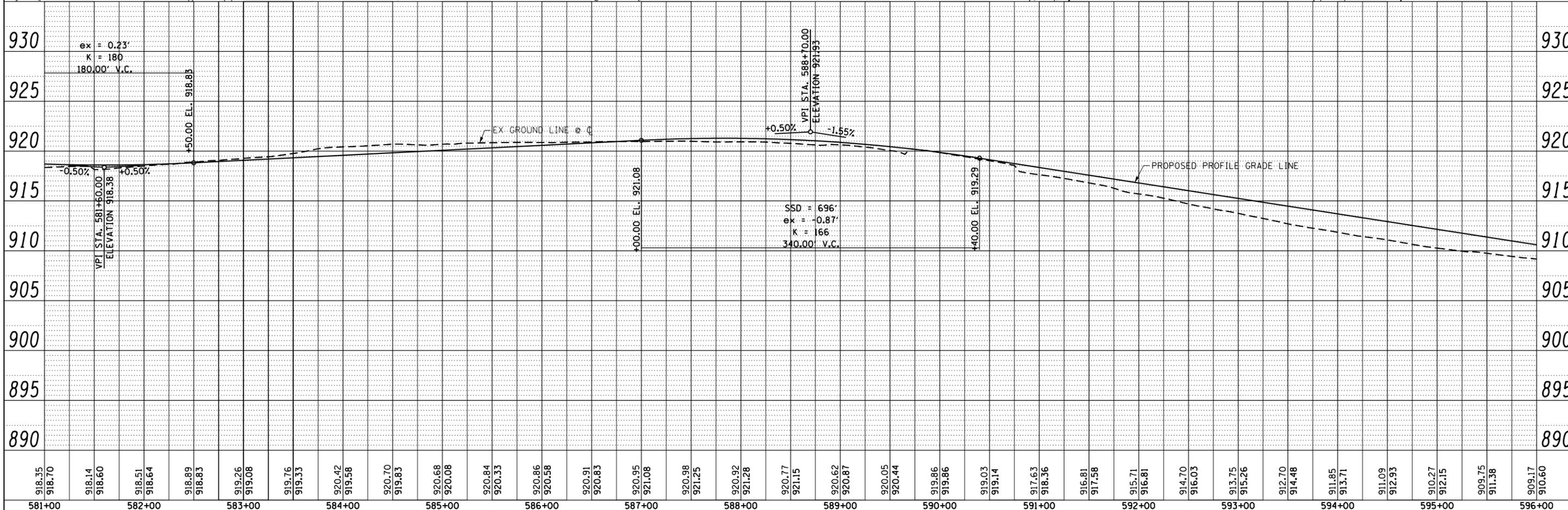
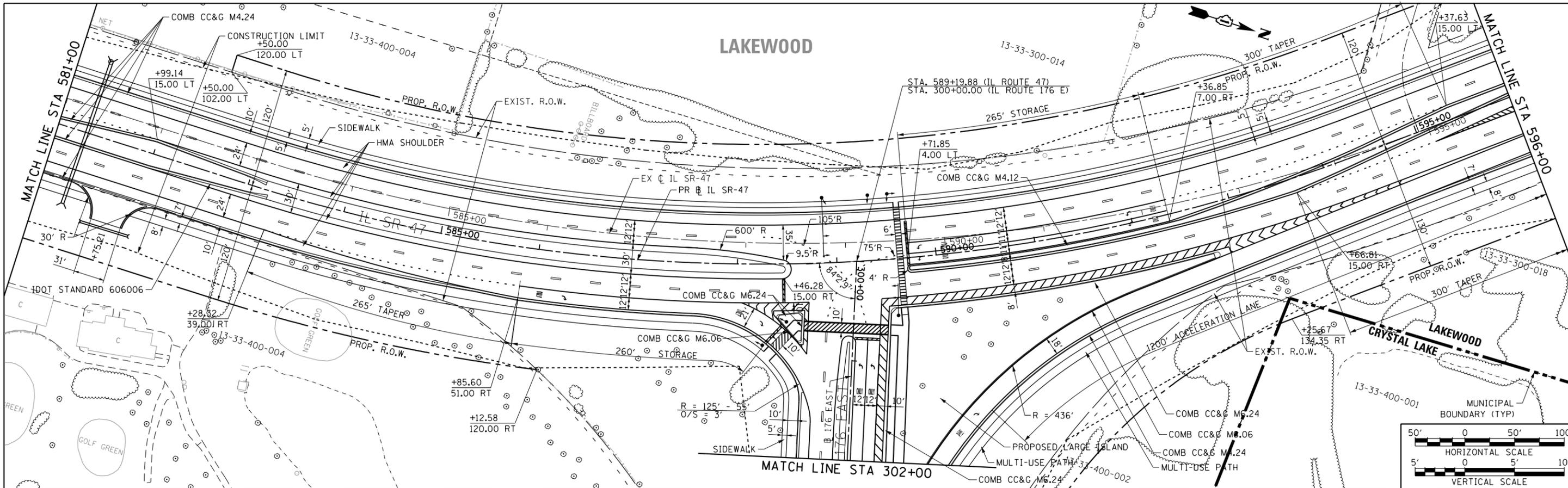
PROFILE	SURVEYED	DATE
	PLOTTED	
	GRADES CHECKED	
	STRUCTURE NOTATIONS OK'D	
	NO. _____	



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566+00	567+00	568+00	569+00	570+00	571+00	572+00	573+00	574+00	575+00	576+00	577+00	578+00	579+00	580+00	581+00																																														

PLAN	SURVEYED	DATE
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	ALIGNED	
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	FILE NAME _____	

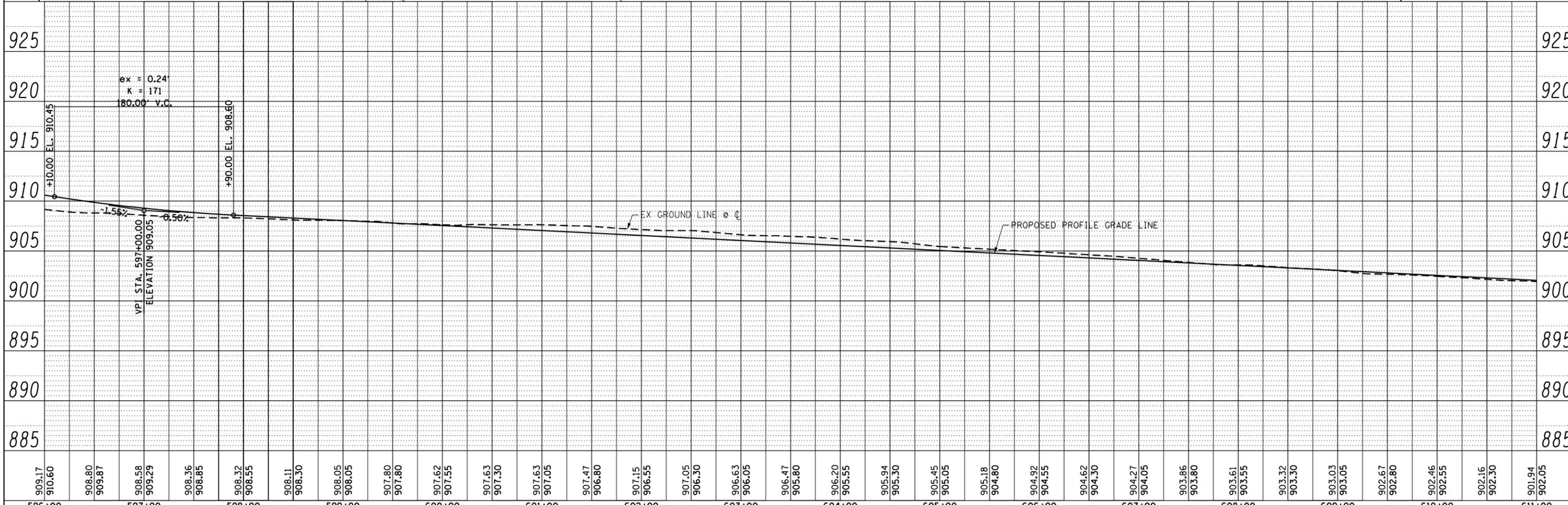
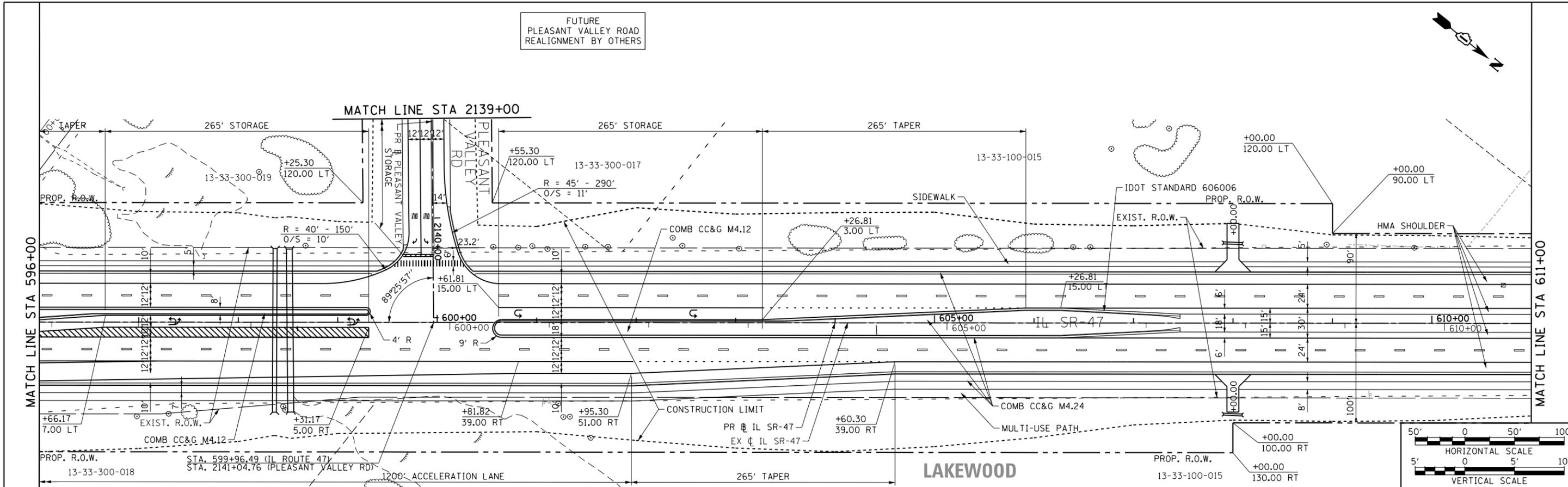


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PLOT SCALE = 100.000' / in.	CHECKED -	REVISED -	CONTRACT NO.							
PLOT DATE = 9/8/2017	DATE = 08/24/2017	REVISED -	FED. ROAD DIST. NO. 1 ILLINOIS FED. AID PROJECT							

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DATE	
BY	
PLAN	SURVEYED
	NOTED
	PLOTTED
	CHECKED
	ALIGNED
	FILED
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DATE	
BY	
PROFILE	SURVEYED
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	STRUCTURE
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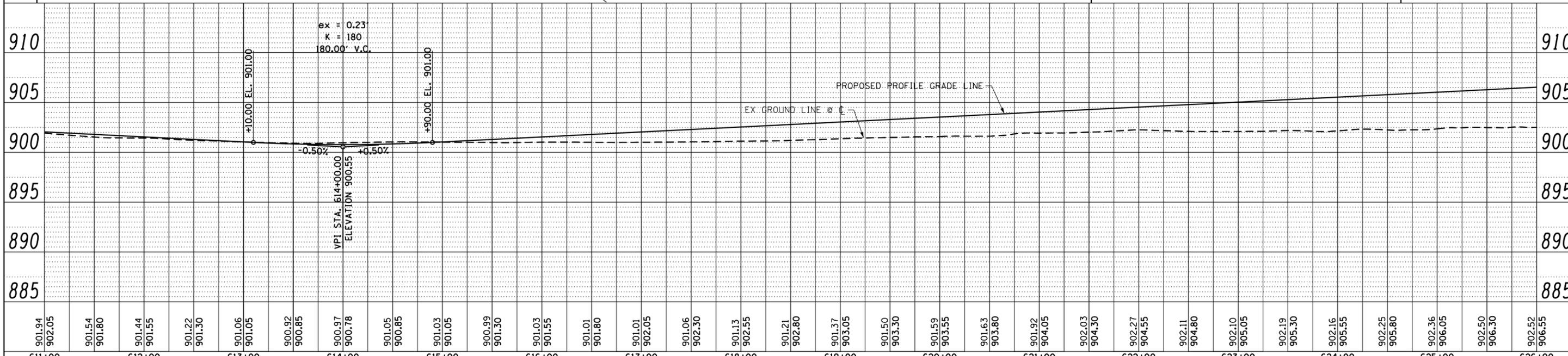
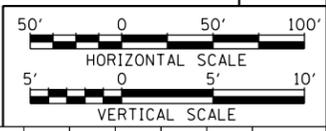
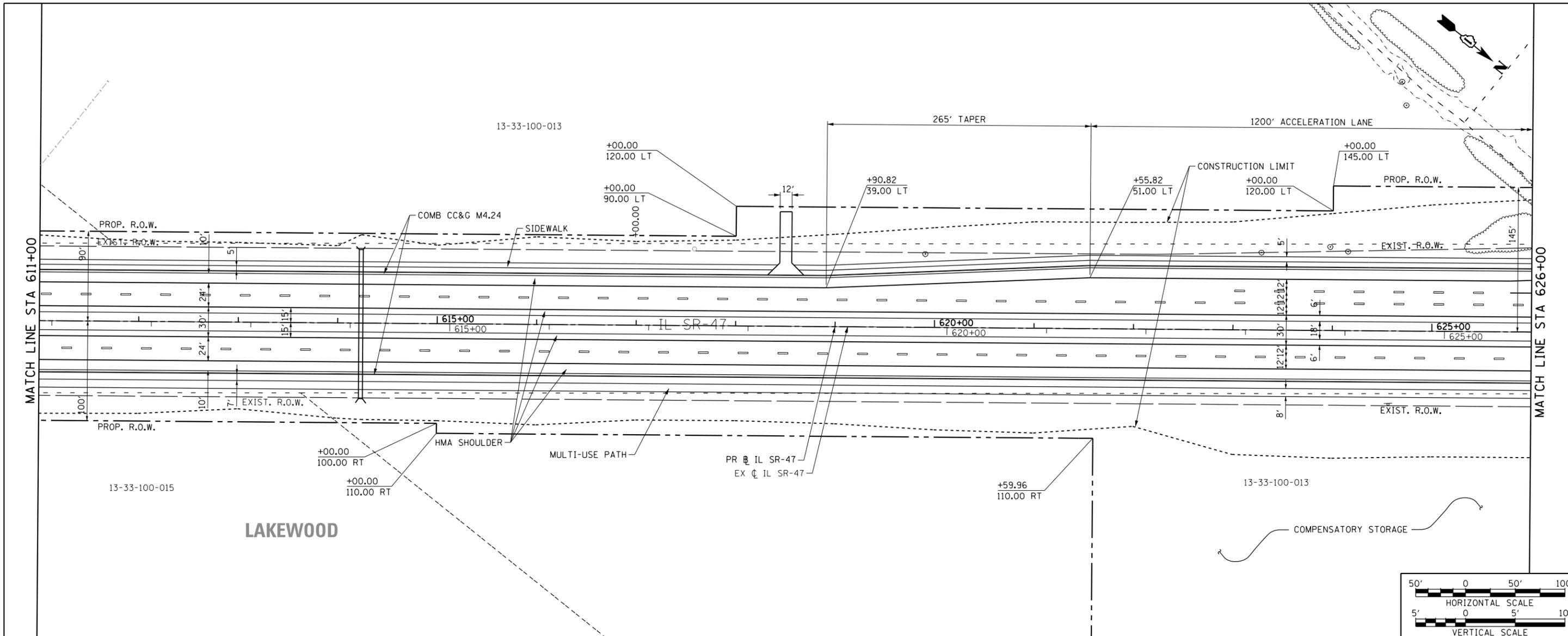


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PLOT SCALE = 100.000' / in.	CHECKED -	REVISED -	REVISED -		SCALE: 1" = 50'	SHEET NO. 17	OF SHEETS	STA. 596+00	TO STA. 611+00	CONTRACT NO. ILLINOIS FED. AID PROJECT		
PLOT DATE = 9/11/2017	DATE = 08/24/2017	REVISED -	REVISED -									

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PLAN	SURVEYED	DATE
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	NO.	

PROFILE	SURVEYED	DATE
	PLOTTED	BY
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	CHECKED	
	STRUCTURE	
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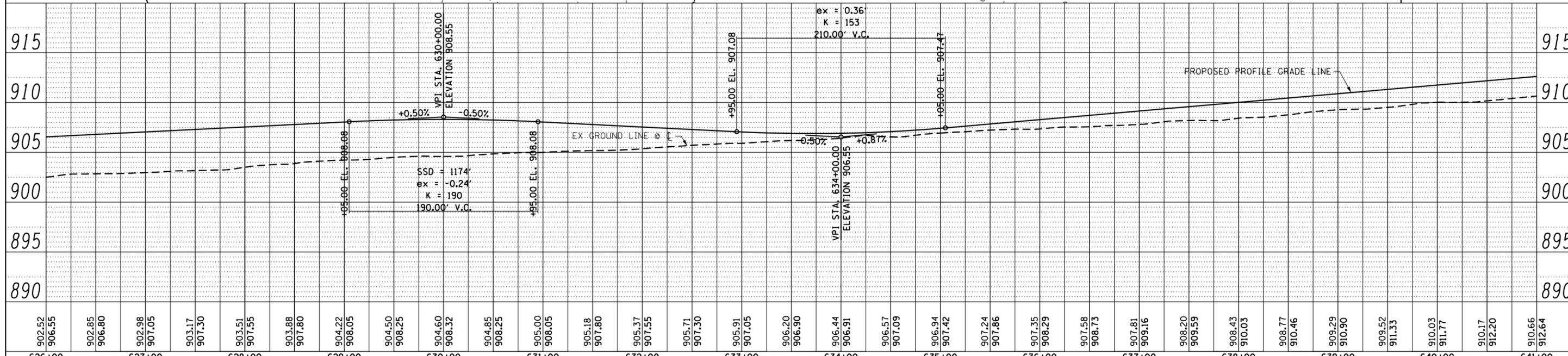
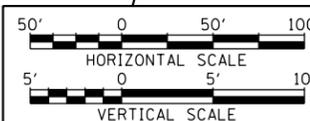
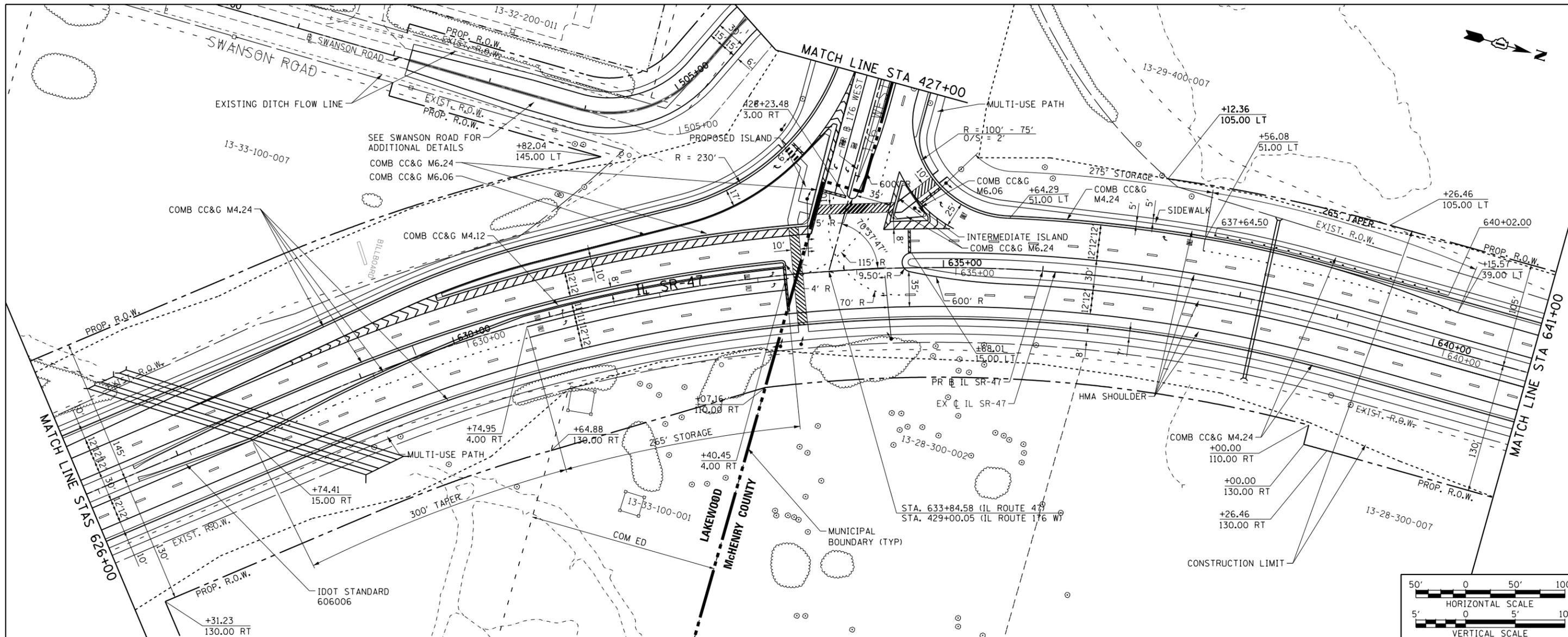


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PLOT SCALE = 100.000' / in.	CHECKED -	REVISED -	SCALE: 1" = 50'			SHEET NO. 18 OF 42 SHEETS	STA. 611+00 TO STA. 626+00	CONTRACT NO.		FED. ROAD DIST. NO. 1	ILLINOIS FED. AID PROJECT
PLOT DATE = 9/11/2017	DATE = 08/24/2017	REVISED -									

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9/11/2017

PLAN	SURVEYED	DATE
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	NOTE BOOK	
	NO. _____	
	CHECKED	
	FILE NAME	
	NO. _____	

PROFILE	SURVEYED	DATE
	GRADES CHECKED	BY
	STRUCTURE	
	NOTATIONS	
	NO. _____	



FILE NAME = 39027_PP_19.dgn	USER NAME = dshevez	DESIGNED -	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	PROPOSED PLAN AND PROFILE	F.A.P. RTE. 47	SECTION REED ROAD TO US 14	COUNTY MCHENRY	TOTAL SHEETS 336	SHEET NO. 32
PLOT SCALE = 100.000' / in.	CHECKED -	REVISED -	SCALE: 1" = 50'			SHEET NO. 19 OF 42 SHEETS	STA. 626+00 TO STA. 641+00	CONTRACT NO.		FED. ROAD DIST. NO. 1 ILLINOIS FED. AID PROJECT
PLOT DATE = 9/8/2017	DATE = 08/24/2017	REVISED -								

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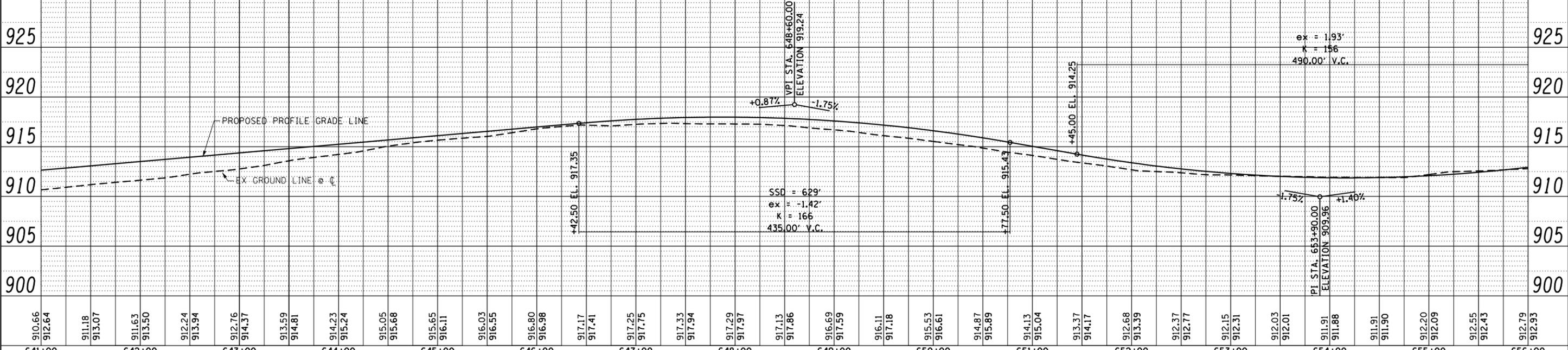
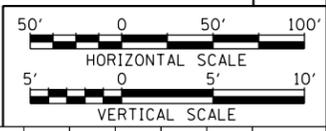
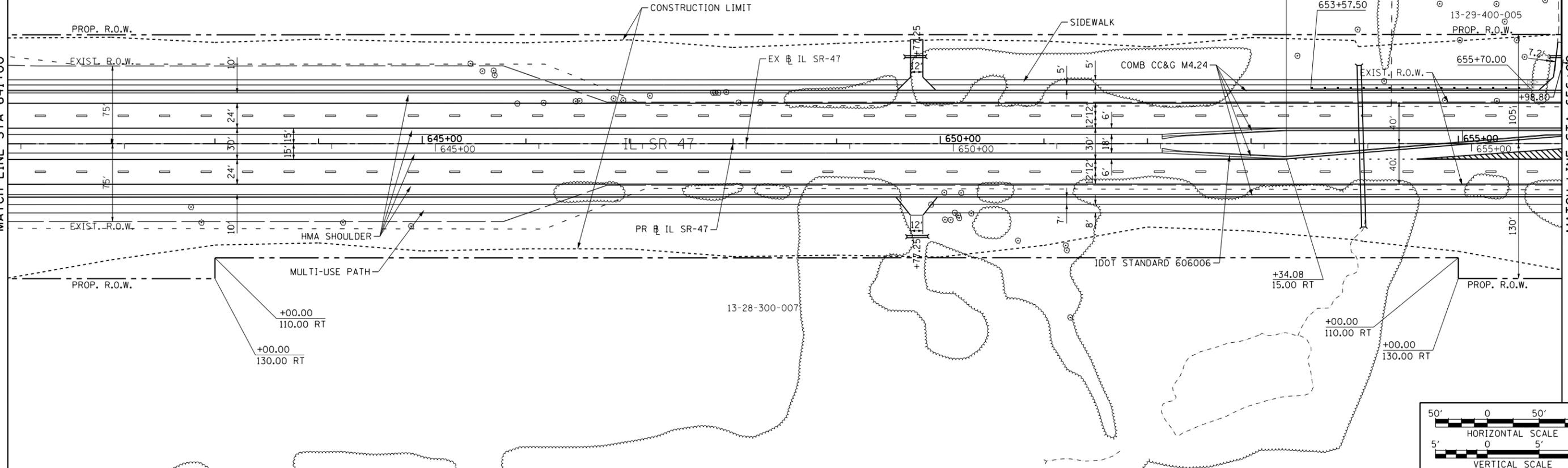
13-29-400-007

PLAN	SURVEYED	BY	DATE
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	GRADES CHECKED		
	STRUCTURE NOTATIONS CHECKED		
	NOTE BOOK NO.		
	FIELD FILE NAME		

PROFILE	SURVEYED	BY	DATE
	PLOTTED		
	GRADES CHECKED		
	STRUCTURE NOTATIONS CHECKED		
	NOTE BOOK NO.		
	FIELD FILE NAME		

MATCH LINE STA 641+00

MATCH LINE STA 656+00



910.66	912.64	911.18	913.07	911.63	913.50	912.24	913.94	912.76	914.37	913.59	914.81	914.23	915.24	915.05	915.68	915.65	916.11	916.03	916.55	916.80	916.98	917.17	917.41	917.25	917.75	917.33	917.94	917.29	917.97	917.13	917.86	916.69	917.59	916.11	917.18	915.53	916.61	914.87	915.89	914.13	915.04	913.37	914.17	912.68	913.39	912.37	912.77	912.15	912.31	912.03	912.01	911.91	911.88	911.91	911.90	912.20	912.09	912.55	912.43	912.79	912.93
641+00	642+00	643+00	644+00	645+00	646+00	647+00	648+00	649+00	650+00	651+00	652+00	653+00	654+00	655+00	656+00																																														

FILE NAME = 39027_PP_20.dgn

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 DESIGNED -
 DRAWN -
 CHECKED -
 DATE = 03/31/2017

REVISED -
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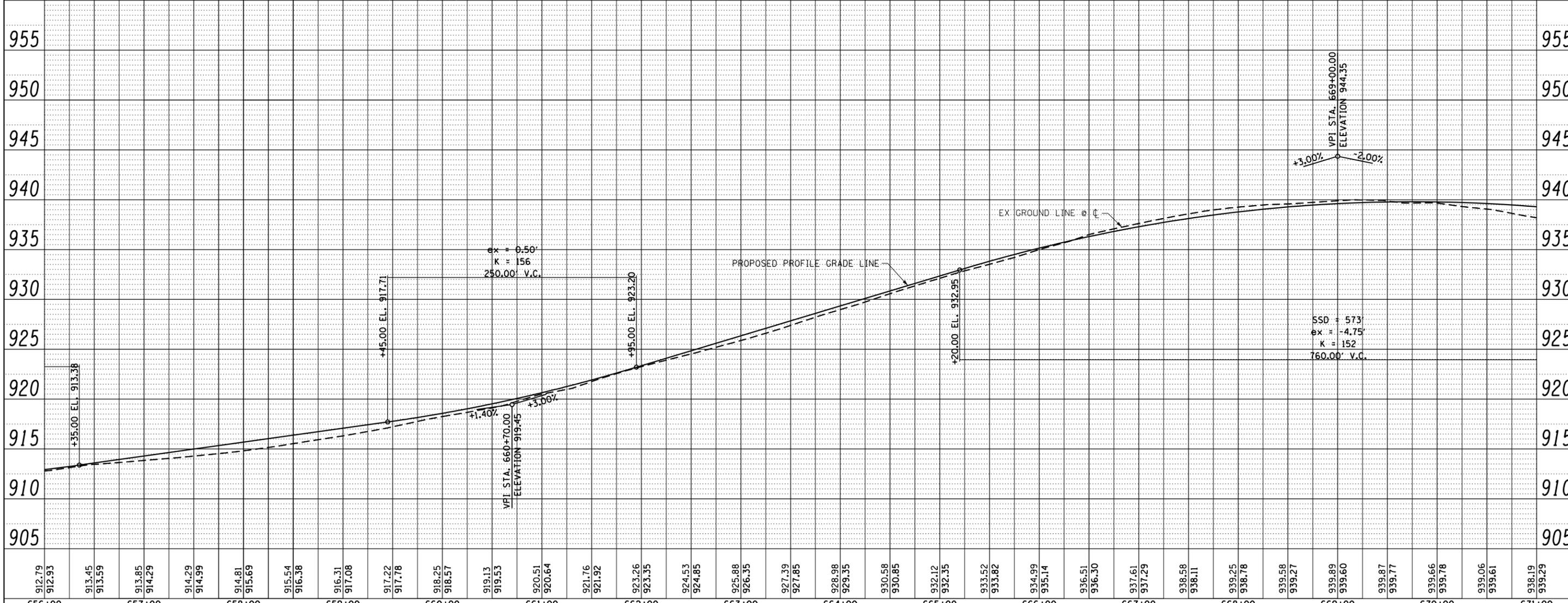
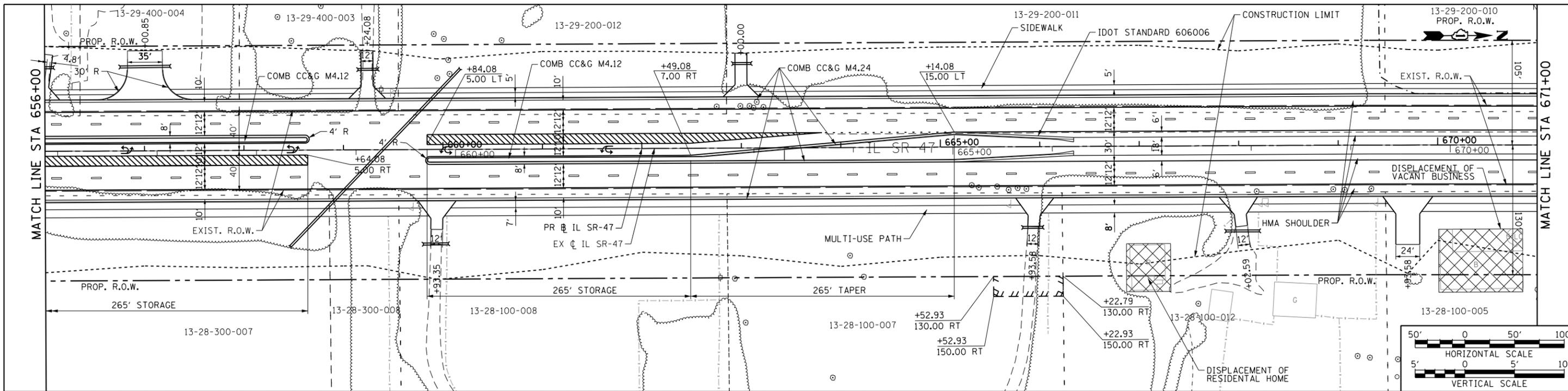
STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION

PROPOSED PLAN AND PROFILE
 SCALE: 1" = 50'
 SHEET NO. 20 OF 42 SHEETS
 STA. 641+00 TO STA. 656+00

F.A.P. RT.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
47	REED ROAD TO US 14	MCHENRY	336	33
CONTRACT NO.				
FED. ROAD DIST. NO. 1 ILLINOIS FED. AID PROJECT				

PLAN	SURVEYED	BY	DATE
	PLOTTED		
	ALIGNED		
	CHECKED		
	FILED		
	NO. _____		
	FILE NAME _____		

PROFILE	SURVEYED	BY	DATE
	PLOTTED		
	GRADES CHECKED		
	STRUCTURE NOTATIONS CHECKED		
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	FILE NAME _____		

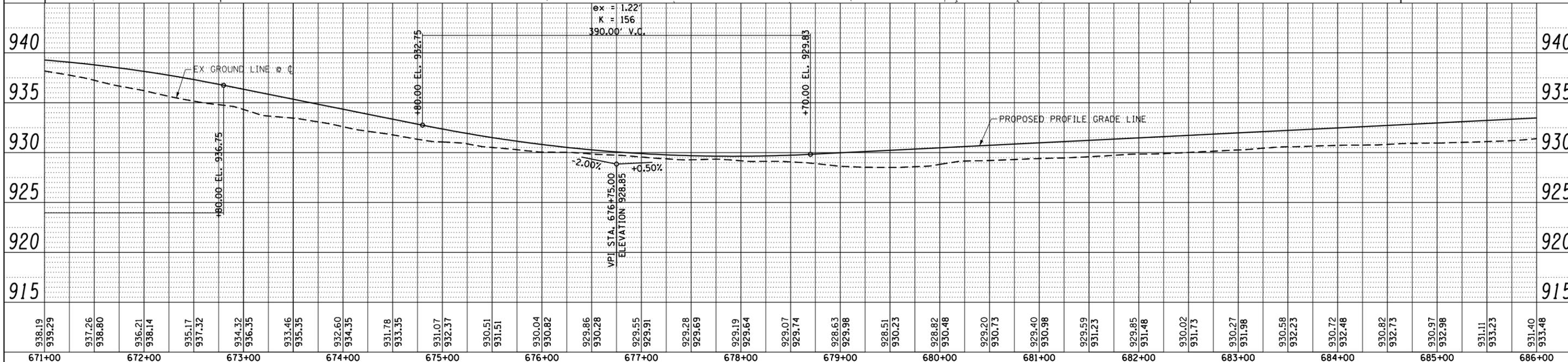
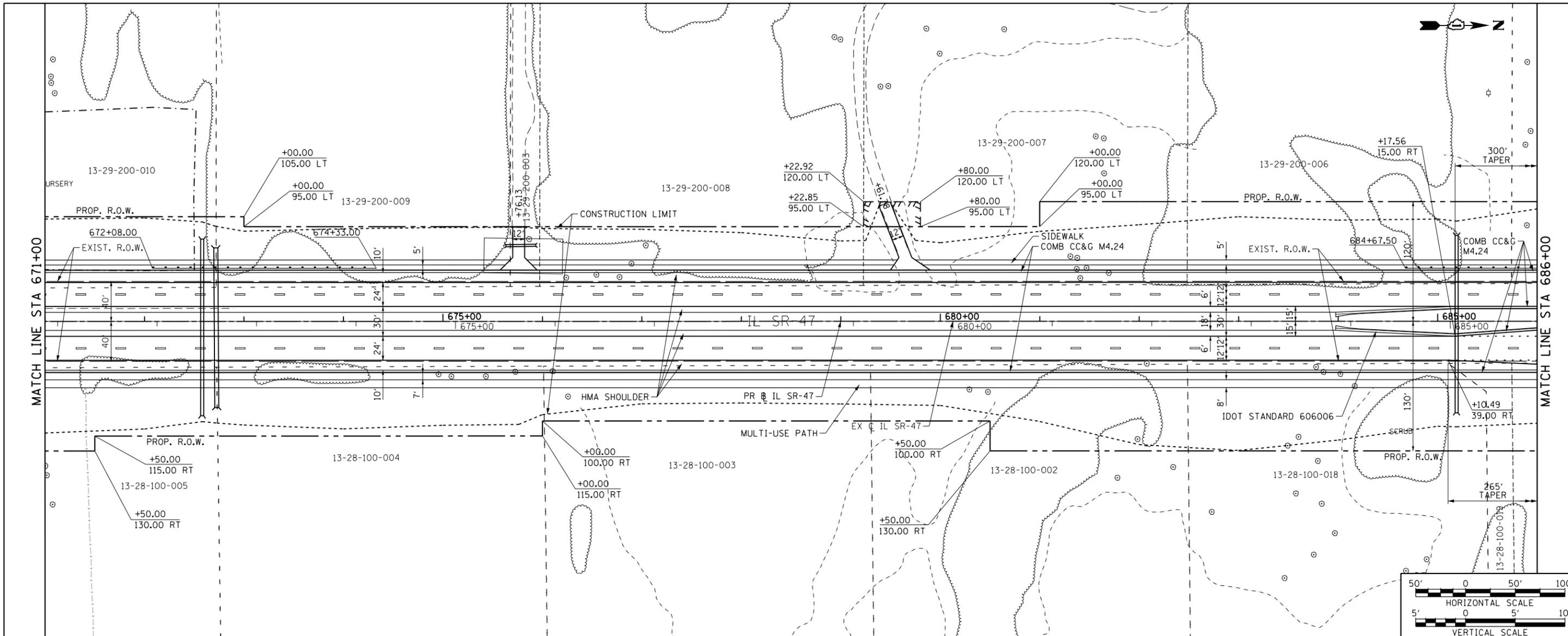


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PLOT SCALE = 100.000' / in.	CHECKED -	REVISED -	REVISED -		SCALE: 1" = 50'	SHEET NO. 21	OF 42 SHEETS	STA. 656+00	TO STA. 671+00	CONTRACT NO. _____		
PLOT DATE = 8/29/2017	DATE = 01-15-2013	REVISED -	REVISED -		FED. ROAD DIST. NO. _____ ILLINOIS FED. AID PROJECT _____							

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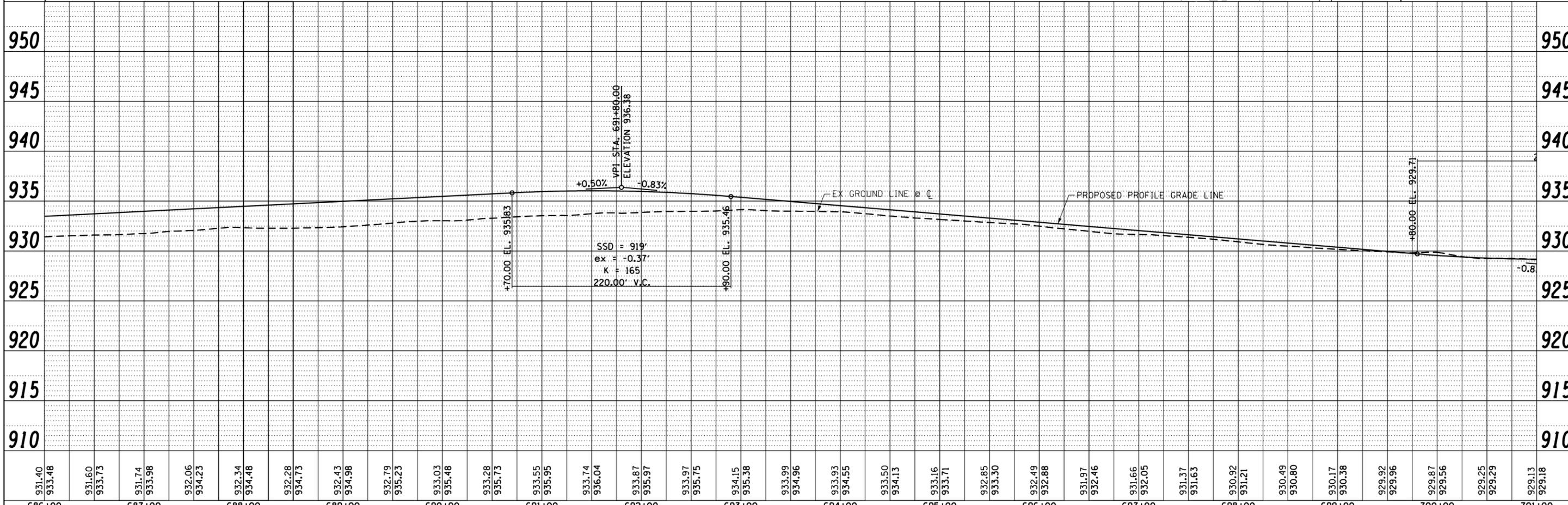
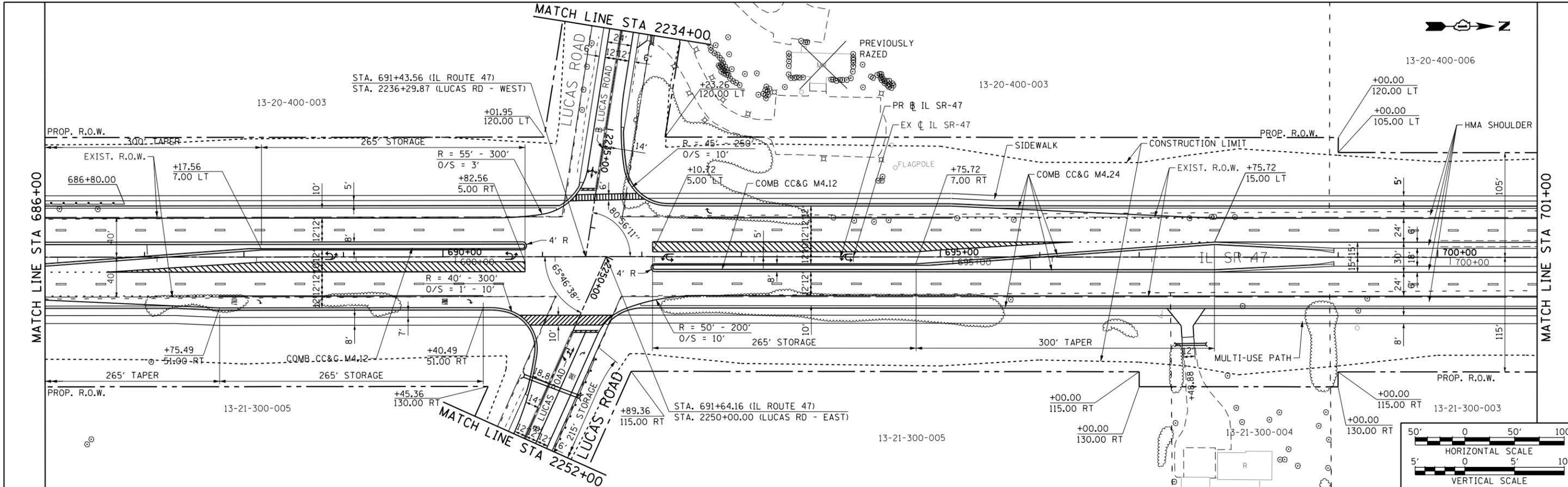
PROFILE	SURVEYED	DATE
	PLOTTED	
	GRADES	
	CHECKED	
	STRUCTURE	
	NOTATIONS	
	CHFD	
	NO.	



FILE NAME = 39027_PP_22.dgn	USER NAME = hanegraafe	DESIGNED -	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	PROPOSED PLAN AND PROFILE			F.A.P. RTE. 47	SECTION REED ROAD TO US 14	COUNTY MCHENRY	TOTAL SHEETS 336	SHEET NO. 35			
PLOT SCALE = 100.000' / in.	CHECKED -	REVISED -	SCALE: 1" = 50'					SHEET NO. 22	OF 42 SHEETS	STA. 671+00	TO STA. 686+00	CONTRACT NO.			
PLOT DATE = 4/5/2017	DATE = 03/31/2017	REVISED -	FED. ROAD DIST. NO. 1 ILLINOIS FED. AID PROJECT												

PLAN	SURVEYED	DATE
NOTE BOOK	PLOTTED	BY
NO.	ALIGNED	
	CHECKED	
	FILE NAME	

PROFILE	SURVEYED	DATE
NOTE BOOK	GRADES CHECKED	BY
NO.	STRUCTURE	
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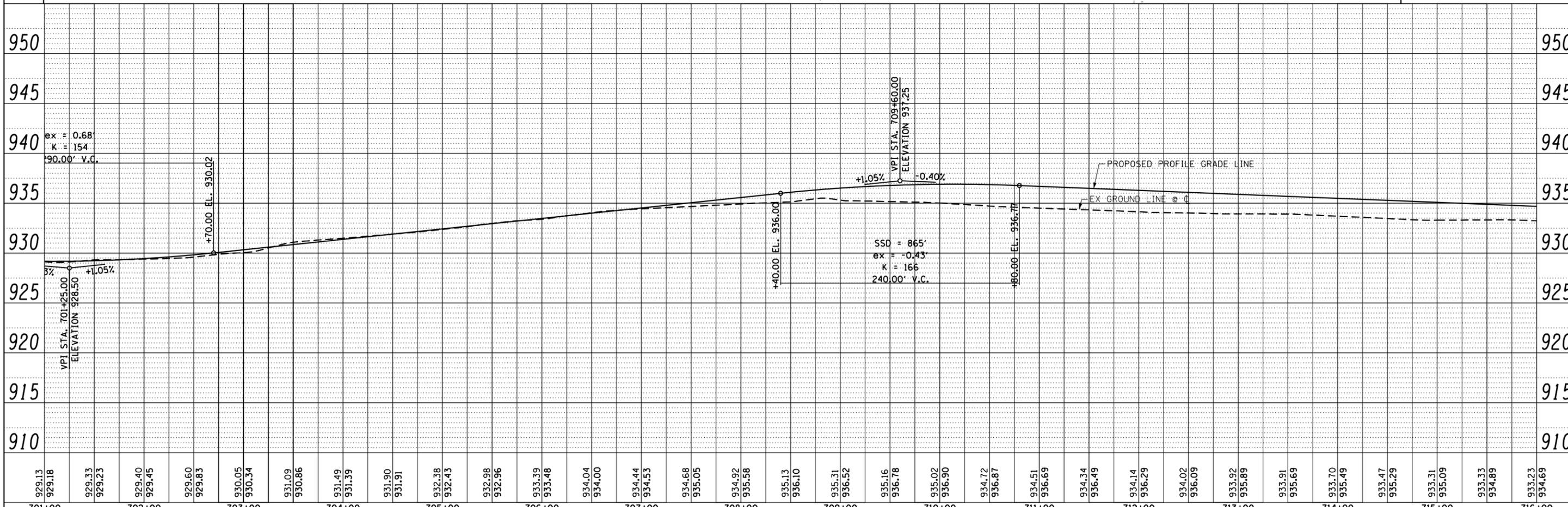
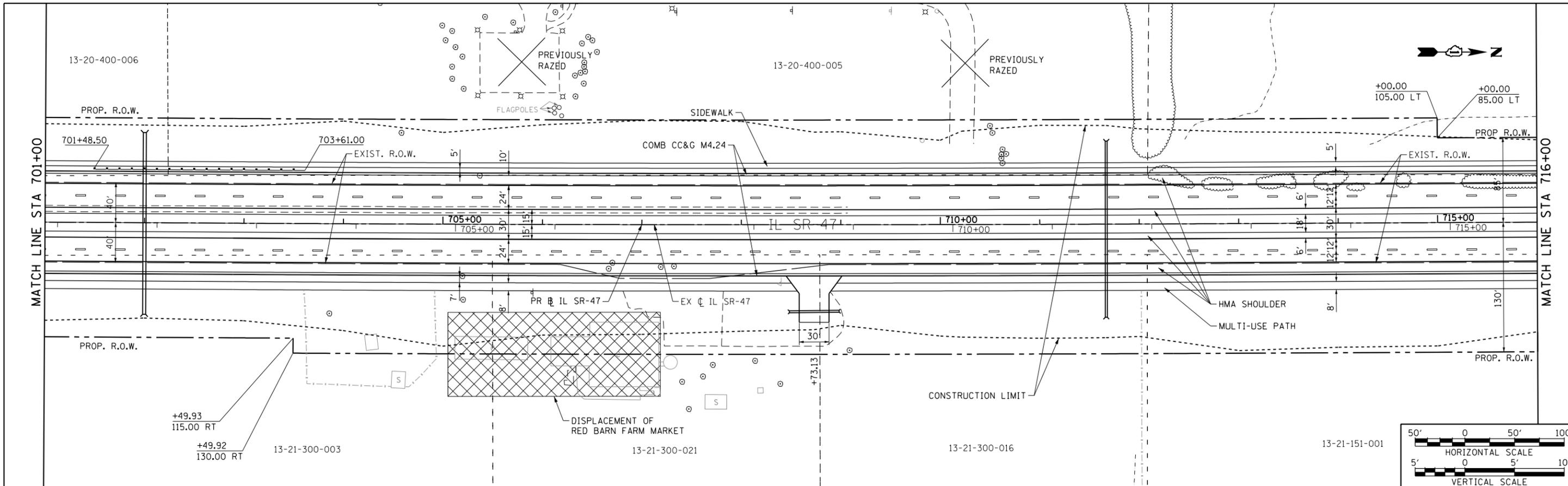


FILE NAME = 39027_PP_23.dgn	USER NAME = hanegraafe	DESIGNED -	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	PROPOSED PLAN AND PROFILE			F.A.P. RTE. 47	SECTION REED ROAD TO US 14	COUNTY MCHENRY	TOTAL SHEETS 336	SHEET NO. 36
PLOT SCALE = 100.000' / in.	CHECKED -	REVISED -	REVISED -		SCALE: 1" = 50'	SHEET NO. 23 OF SHEETS	STA. 686+00 TO STA. 701+00	CONTRACT NO.				
PLOT DATE = 4/5/2017	DATE = 03/12/2015	REVISED -	REVISED -		FED. ROAD DIST. NO. 1 ILLINOIS FED. AID PROJECT							

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4/5/2017

PLAN	SURVEYED	DATE
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PROFILE	SURVEYED	DATE
	PLOTTED	BY
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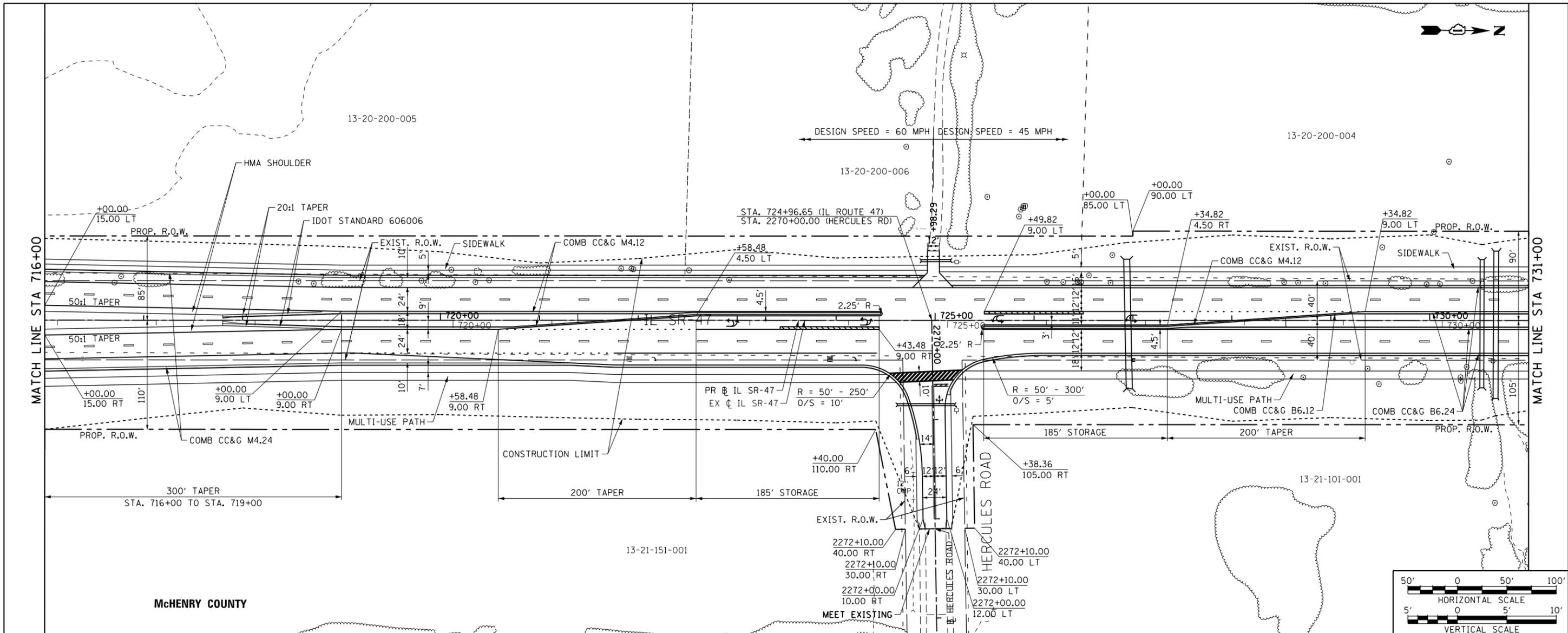


FILE NAME = 39027_PP_24.dgn	USER NAME = ChruA	DESIGNED -	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	PROPOSED PLAN AND PROFILE				F.A.P. RTE. 47	SECTION REED ROAD TO US 14	COUNTY MCHENRY	TOTAL SHEETS 336	SHEET NO. 37
PLOT SCALE = 100.000' / in.	CHECKED -	REVISED -	REVISED -		SCALE: 1" = 50'	SHEET NO. 24 OF SHEETS	STA. 701+00 TO STA. 716+00	CONTRACT NO.					
PLOT DATE = 8/29/2017	DATE = 08/24/2017	REVISED -	REVISED -		FED. ROAD DIST. NO. 1 ILLINOIS FED. AID PROJECT								

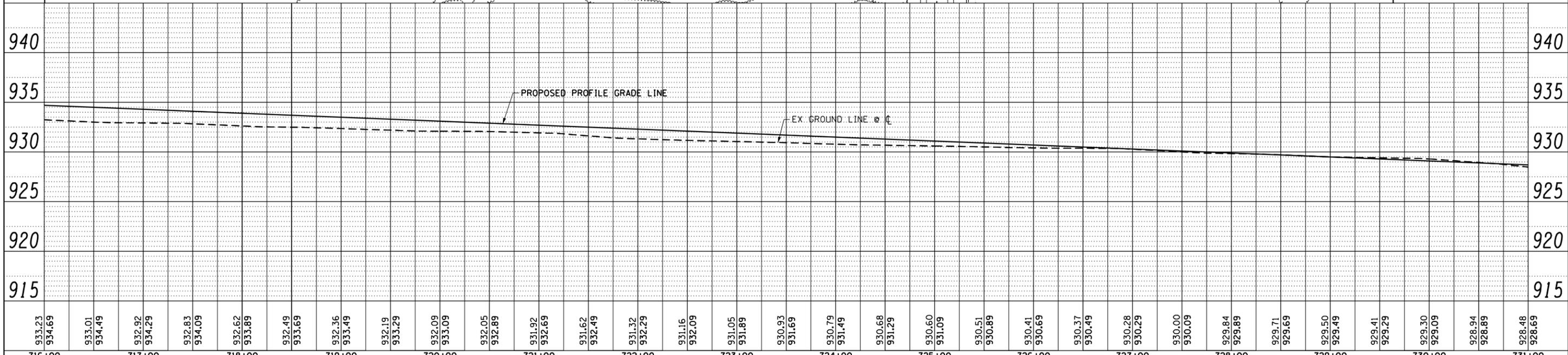
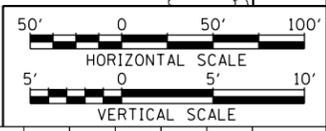
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8/29/2017

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	CHECKED
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	FILE NAME
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	PLOTTED
	GRADES CHECKED
	STRUCTURE NOTATIONS CHECKED
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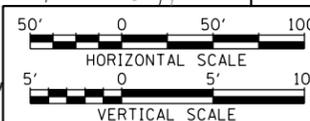
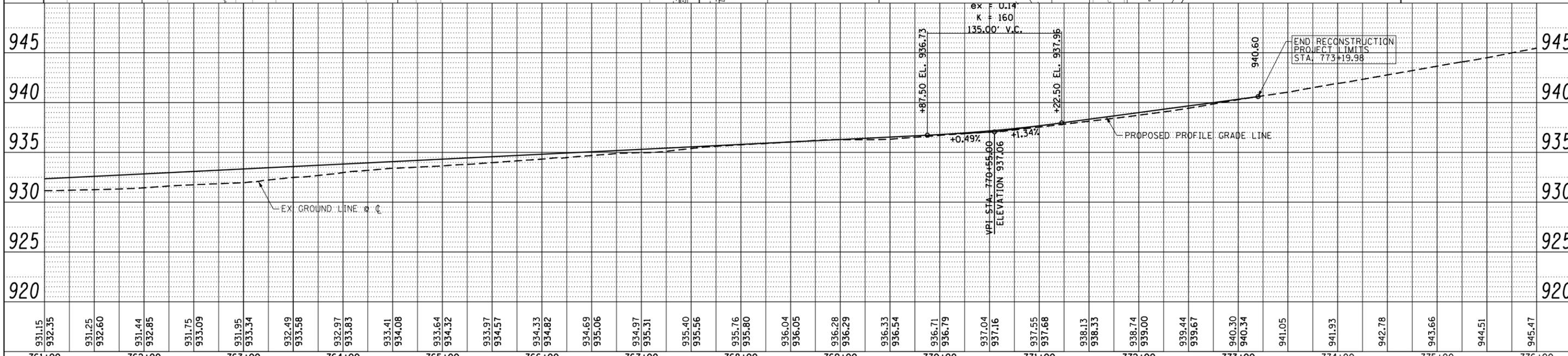
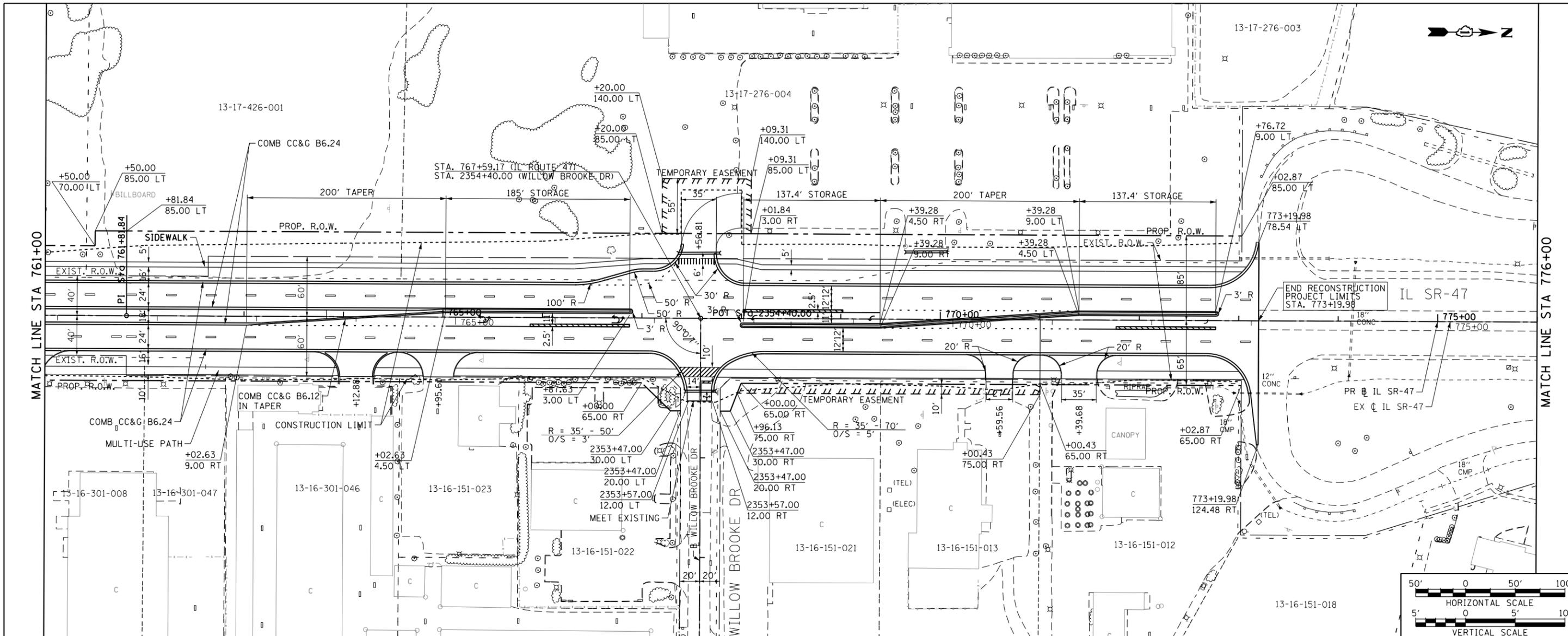
McHENRY COUNTY



FILE NAME = 39027_PP_25.dgn	USER NAME = hanegraafe	DESIGNED -	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	PROPOSED PLAN AND PROFILE				F.A.P. RTE. 47	SECTION REED ROAD TO US 14	COUNTY MCHENRY	TOTAL SHEETS 336	SHEET NO. 38
	PLOT SCALE = 100.000' / in.	CHECKED -	REVISED -		SCALE: 1" = 50'	SHEET NO. 25	OF 42 SHEETS	STA. 716+00 TO STA. 731+00	CONTRACT NO.				
	PLOT DATE = 4/5/2017	DATE = 03/31/2017	REVISED -		FED. ROAD DIST. NO. 1 ILLINOIS FED. AID PROJECT								

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PROFILE	SURVEYED
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	GRADES
	CHECKED
	STRUCTURE
	NOTATIONS
	CHKD
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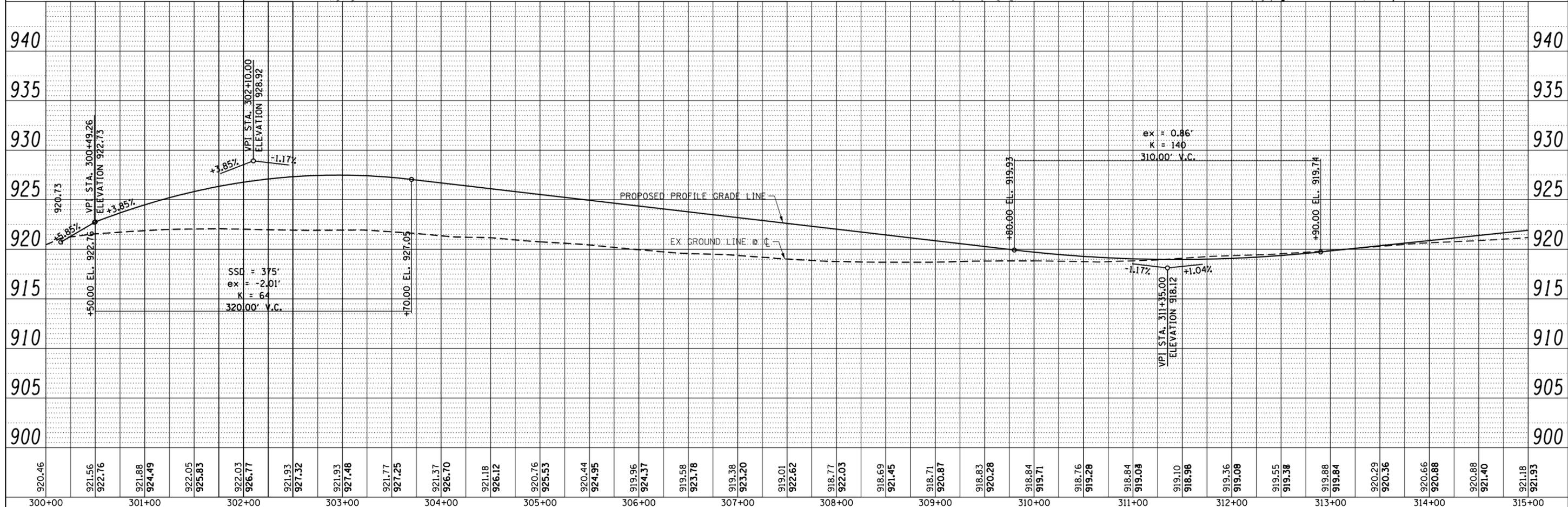
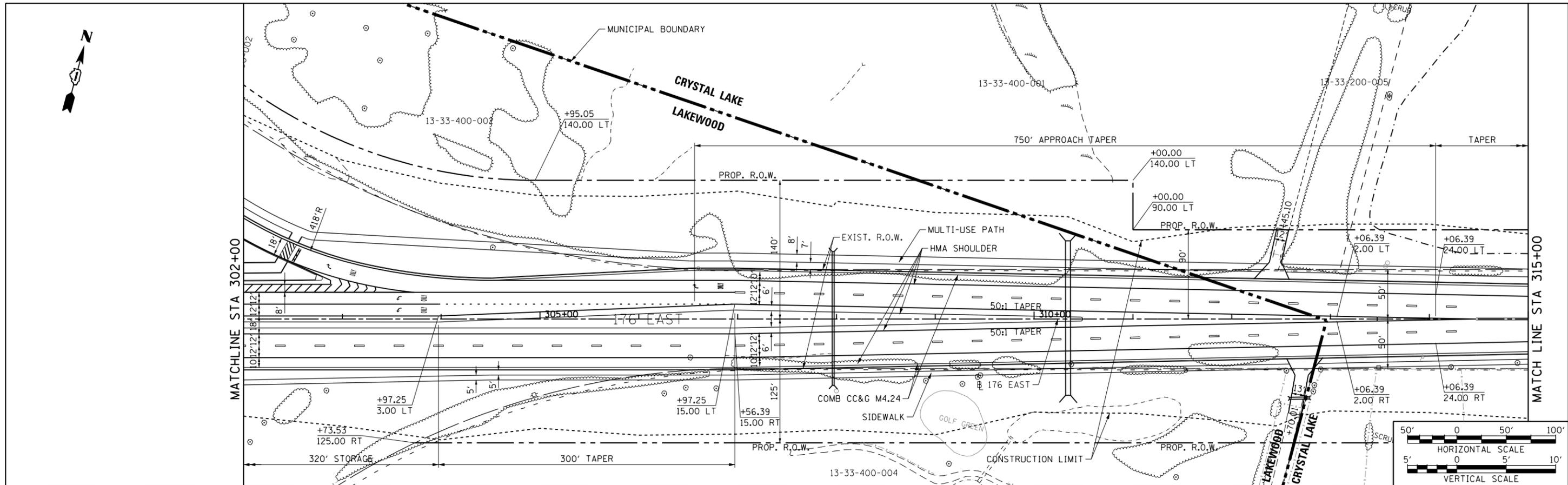


FILE NAME = 39027_PP_28.dgn	USER NAME = hanegraafe	DESIGNED -	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	PROPOSED PLAN AND PROFILE		F.A.P. RTE. 47	SECTION REED ROAD TO US 14	COUNTY MCHENRY	TOTAL SHEETS 336	SHEET NO. 41
	PLOT SCALE = 100.000' / in.	CHECKED -	REVISED -		SCALE: 1" = 50'	SHEET NO. 28 OF 42 SHEETS	STA. 761+00 TO STA. 776+00	CONTRACT NO.		FED. ROAD DIST. NO. 1 ILLINOIS FED. AID PROJECT	
	PLOT DATE = 4/5/2017	DATE = 03/31/2017	REVISED -								

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4/5/2017

PLAN	SURVEYED	DATE
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	GRADES	
	CHECKED	
	STRUCTURE	
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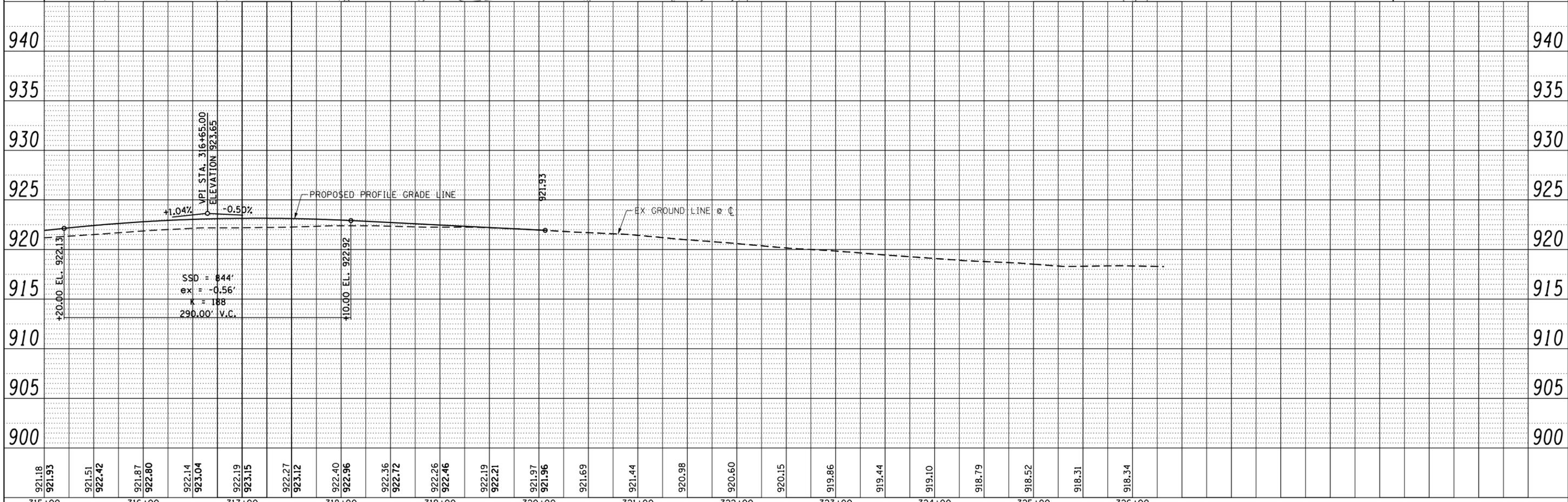
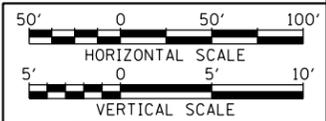
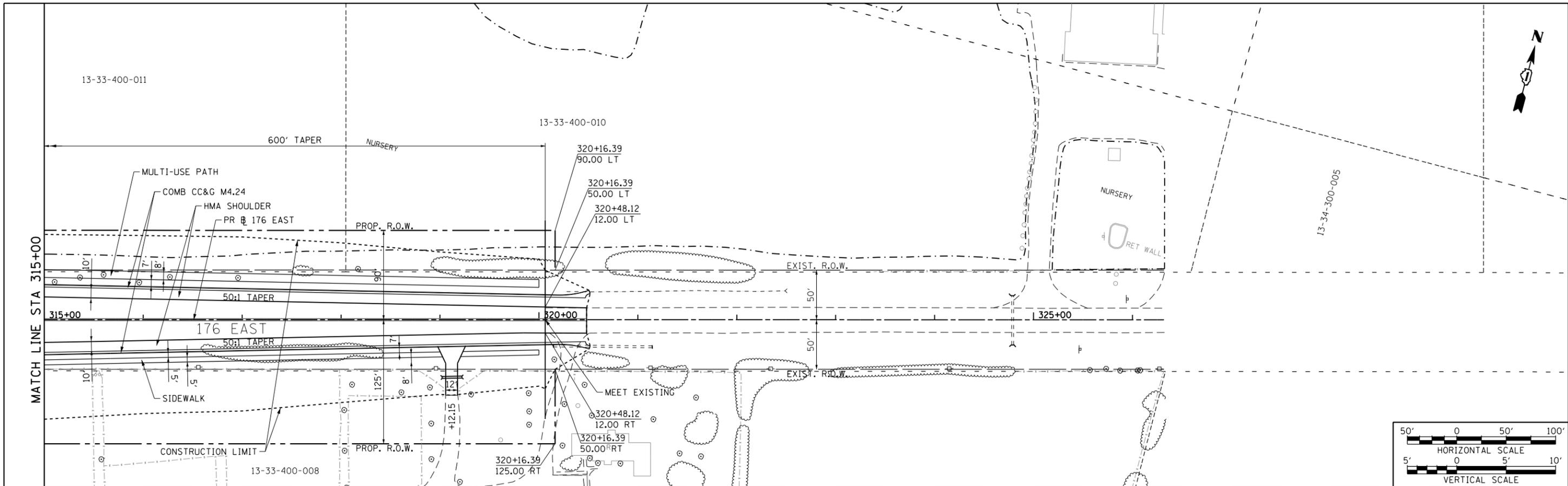


FILE NAME = 39027_PP_29-176East.dgn	USER NAME = dshevoz	DESIGNED -	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	PROPOSED PLAN AND PROFILE IL ROUTE 176 (EAST)	F.A.P. RTE. 47	SECTION REED ROAD TO US 14	COUNTY MCHENRY	TOTAL SHEETS 336	SHEET NO. 42	
PLOT SCALE = 100.000' / in.	CHECKED -	REVISED -	SCALE: 1" = 50'			SHEET NO. 29 OF SHEETS	STA. 300+00 TO STA. 315+00	CONTRACT NO.		FED. ROAD DIST. NO. 1	ILLINOIS FED. AID PROJECT
PLOT DATE = 9/8/2017	DATE = 08/24/2017	REVISED -									

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9/8/2017

PLAN	SURVEYED	BY	DATE
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	NOTE BOOK		
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PROFILE	SURVEYED	BY	DATE
	PLOTTED		
	GRADES CHECKED		
	STRUCTURE		
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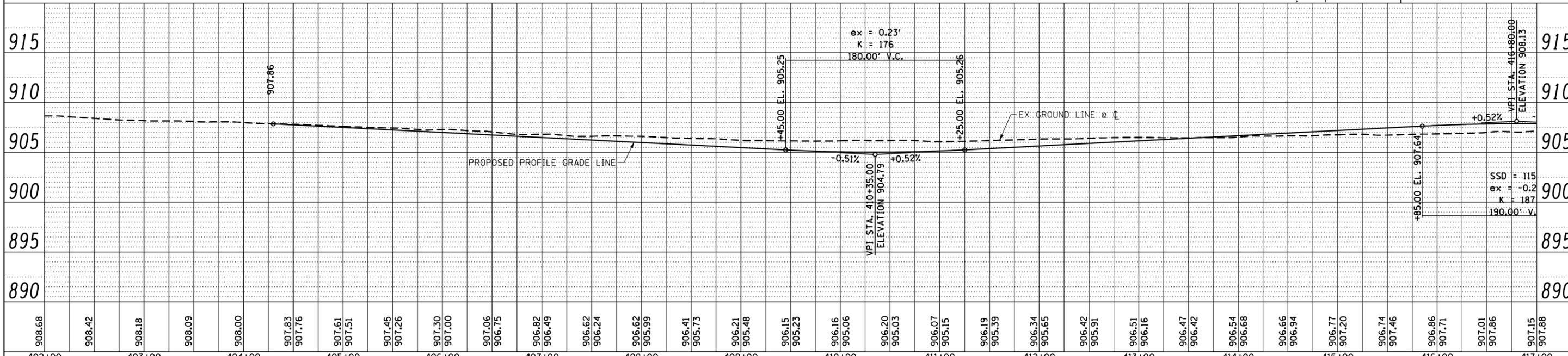
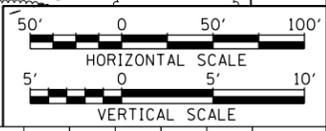
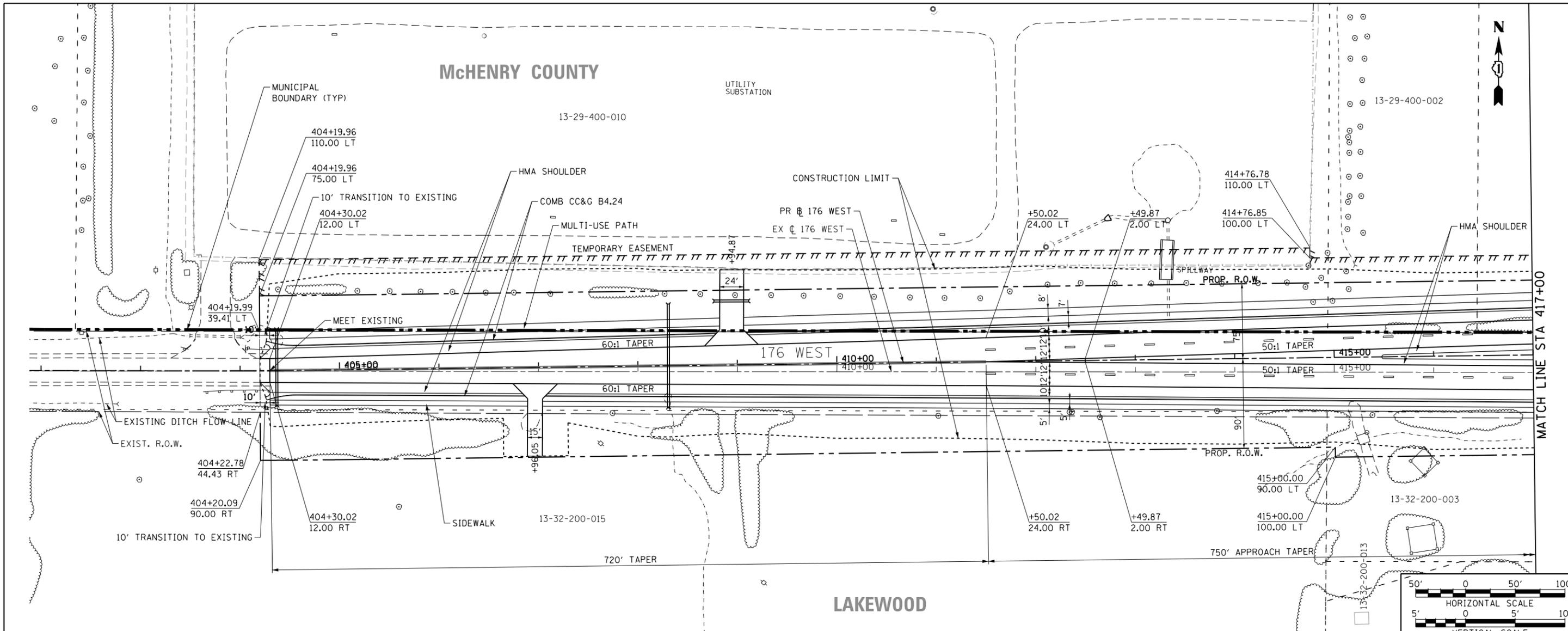


FILE NAME = 39027_PP_30_176East.dgn	USER NAME = hanegaafe	DESIGNED -	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	PROPOSED PLAN AND PROFILE IL ROUTE 176 (EAST)	F.A.P. RTE. 47	SECTION REED ROAD TO US 14	COUNTY MCHENRY	TOTAL SHEETS 336	SHEET NO. 43	
PLOT SCALE = 100.000' / in.	CHECKED -	REVISED -	SCALE: 1" = 50'			SHEET NO. 30 OF SHEETS	STA. 315+00 TO STA. 326+00	CONTRACT NO.		FED. ROAD DIST. NO. 1	ILLINOIS FED. AID PROJECT
PLOT DATE = 4/5/2017	DATE - 03/12/2015	REVISED -									

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4/5/2017

PLAN	SURVEYED	DATE
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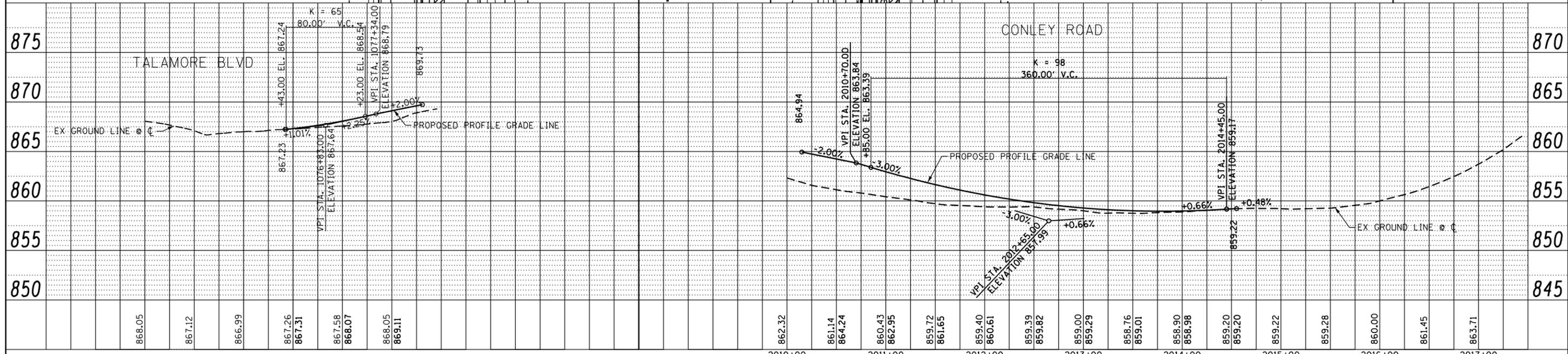
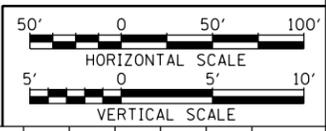
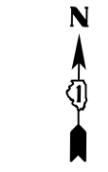
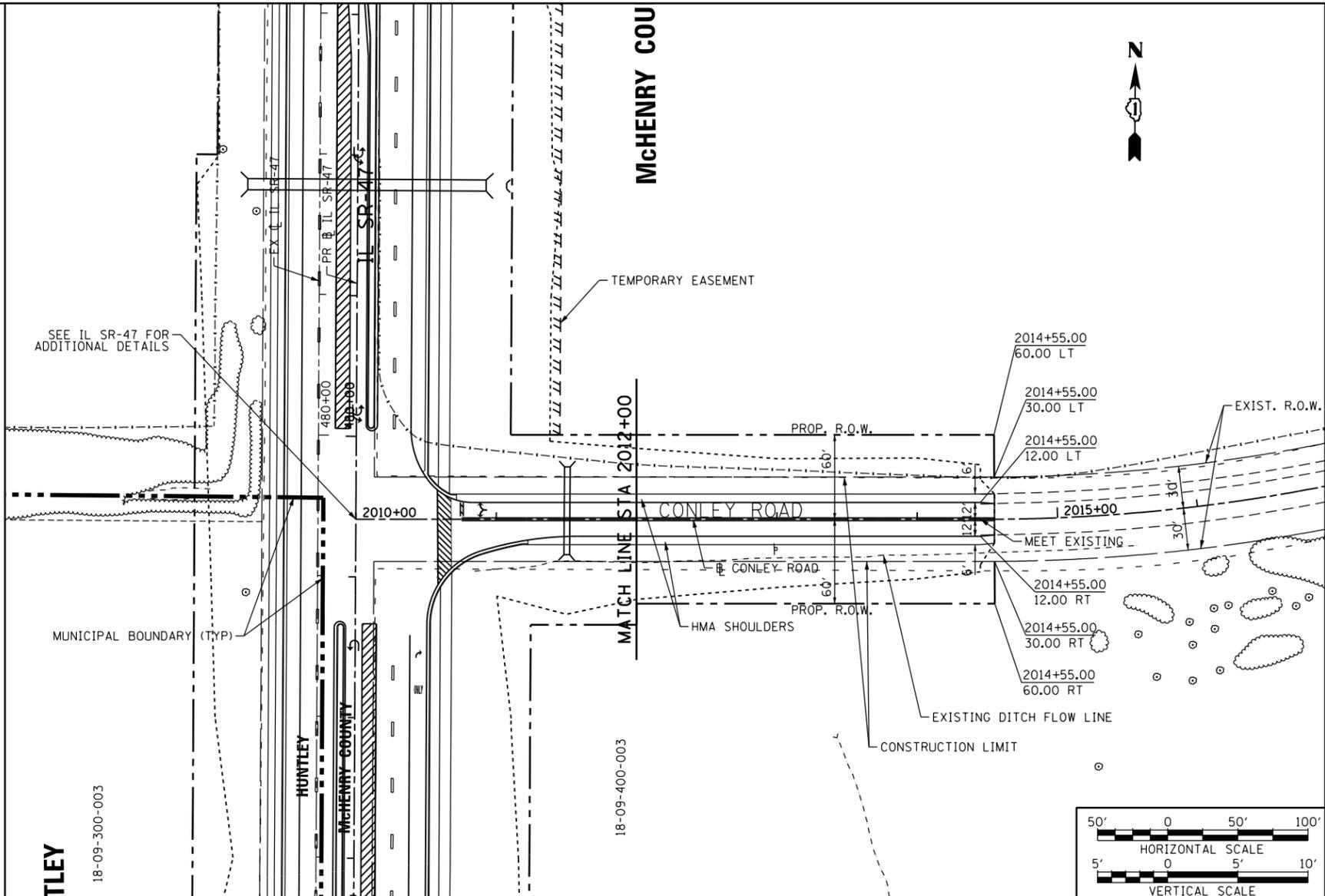
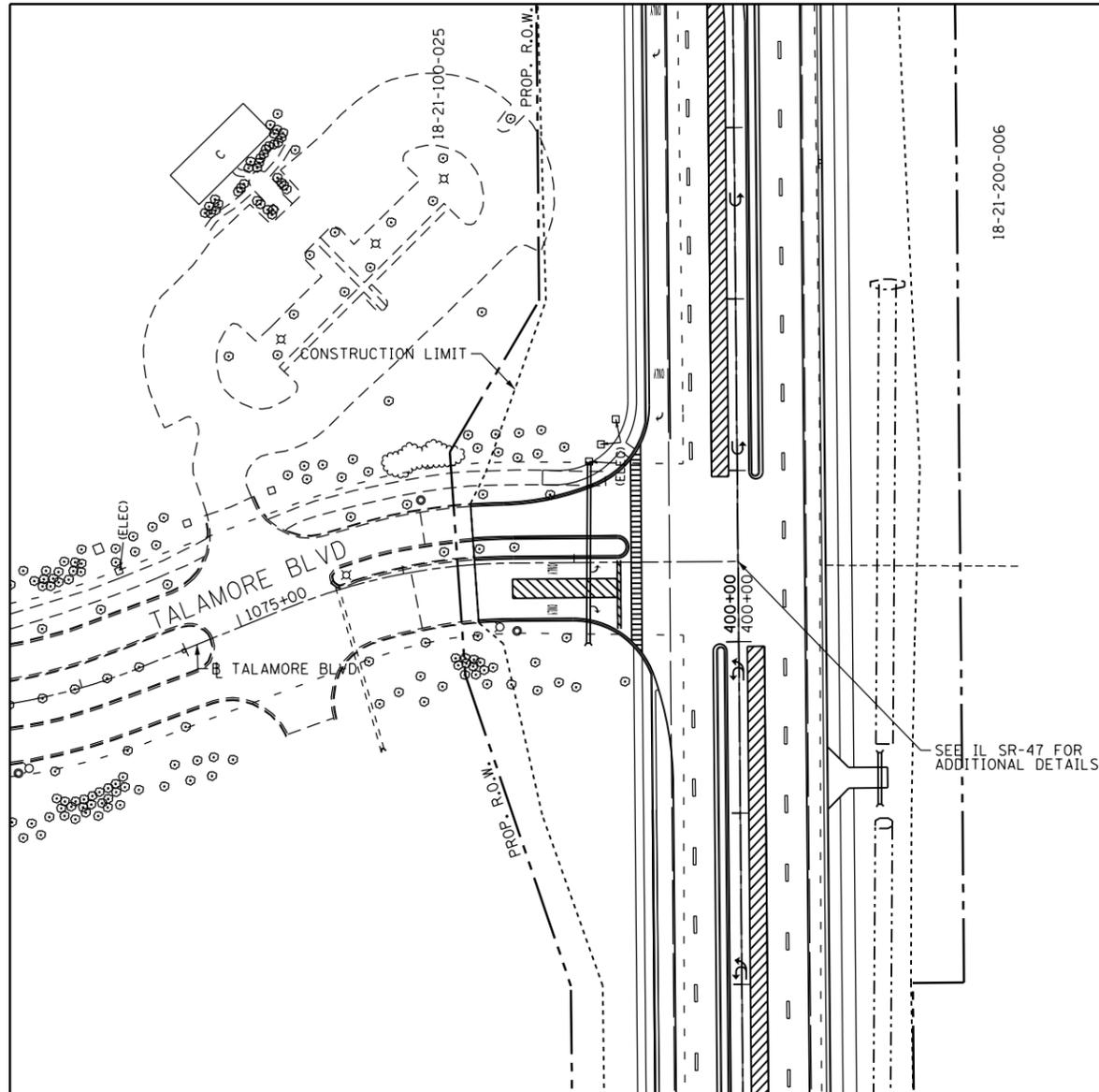


FILE NAME = 39027_PP_31-176West.dgn	USER NAME = dshevoz	DESIGNED -	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	PROPOSED PLAN AND PROFILE IL ROUTE 176 (WEST)	F.A.P. RT. = 47	SECTION = REED ROAD TO US 14	COUNTY = MCHENRY	TOTAL SHEETS = 336	SHEET NO. = 44
PLOT SCALE = 100.000' / in.	CHECKED -	REVISED -	SCALE: 1" = 50'			SHEET NO. 31 OF 42 SHEETS	STA. 402+00 TO STA. 417+00	CONTRACT NO.		FED. ROAD DIST. NO. 1 ILLINOIS FED. AID PROJECT
PLOT DATE = 9/8/2017	DATE = 08/24/2017	REVISED -								

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9/8/2017

PLAN	SUBMITTED	DATE
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	GRADES CHECKED	
	STRUCTURE NOTATIONS CHKD	
	NOTE BOOK NO.	
	FILE NAME	

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	GRADES CHECKED	
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	FILE NAME	

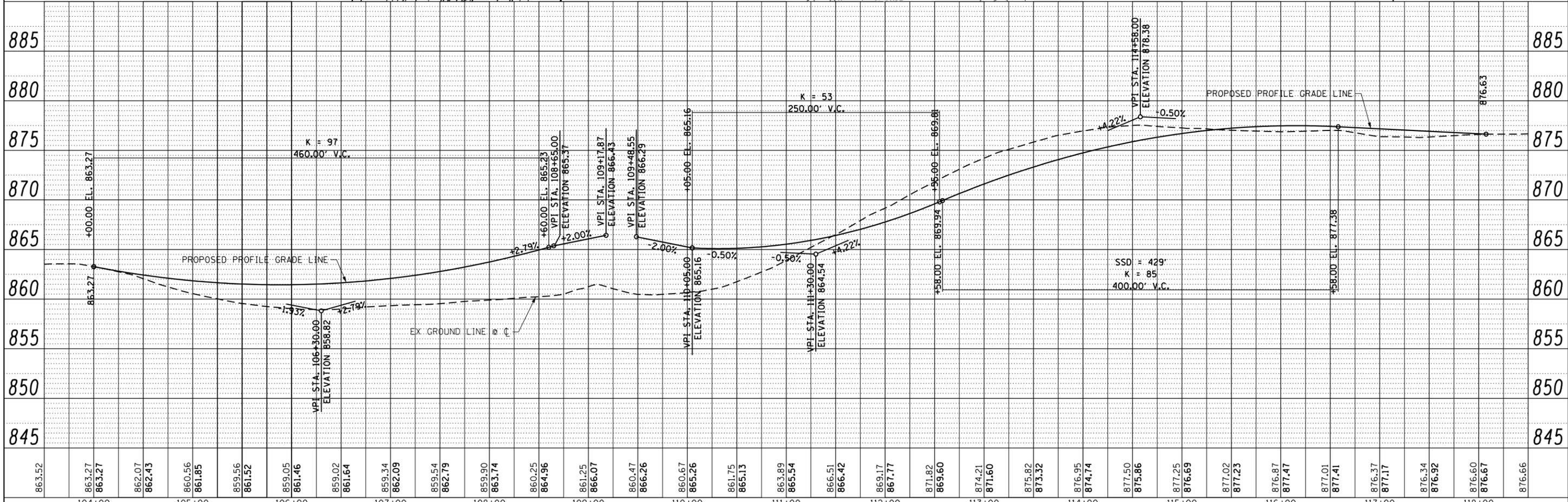
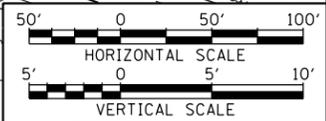
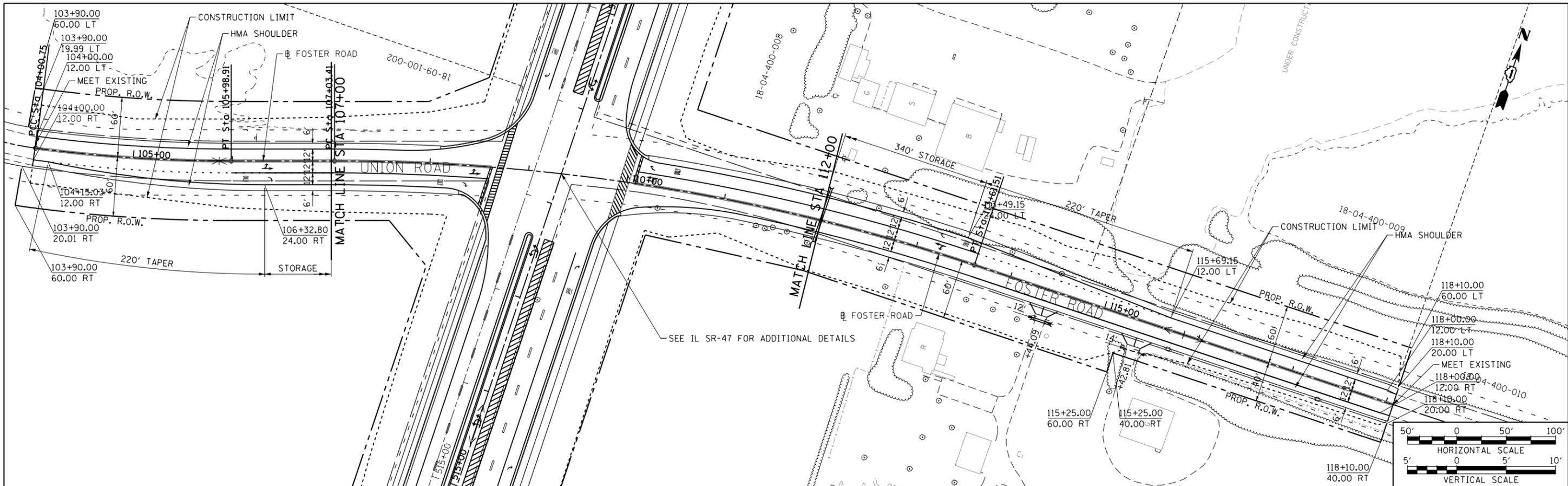


FILE NAME = 39027_PP_33-Conley.dgn	USER NAME = ChiuA	DESIGNED -	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	PROPOSED PLAN AND PROFILE CONLEY ROAD			F.A.P. RTE. 47	SECTION REED ROAD TO US 14	COUNTY MCHENRY	TOTAL SHEETS 336	SHEET NO. 46
PLOT SCALE = 100.000' / in.	CHECKED -	REVISED -	REVISED -		SCALE: 1" = 50'	SHEET NO. 33	OF 42 SHEETS	STA. 2010+00	TO STA. 2017+00	CONTRACT NO.		
PLOT DATE = 9/7/2017	DATE = 08/24/2017	REVISED -	REVISED -		FED. ROAD DIST. NO. 1 ILLINOIS FED. AID PROJECT							

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9/7/2017

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	CHECKED	
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NOTE BOOK NO.	CARD FILE NAME	

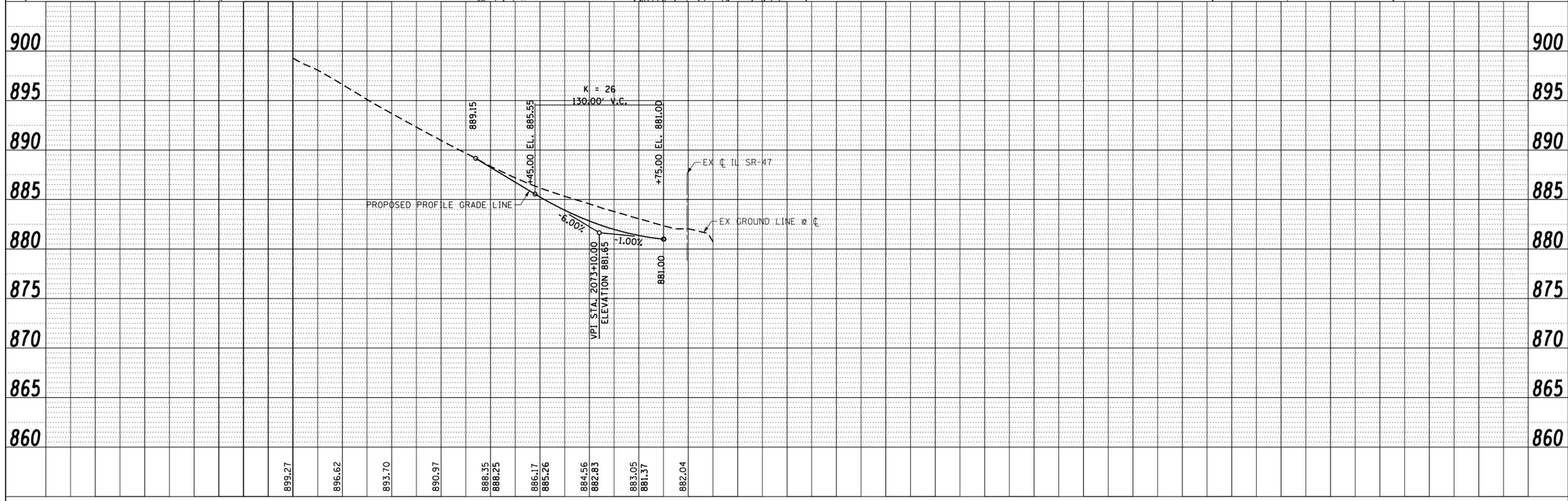
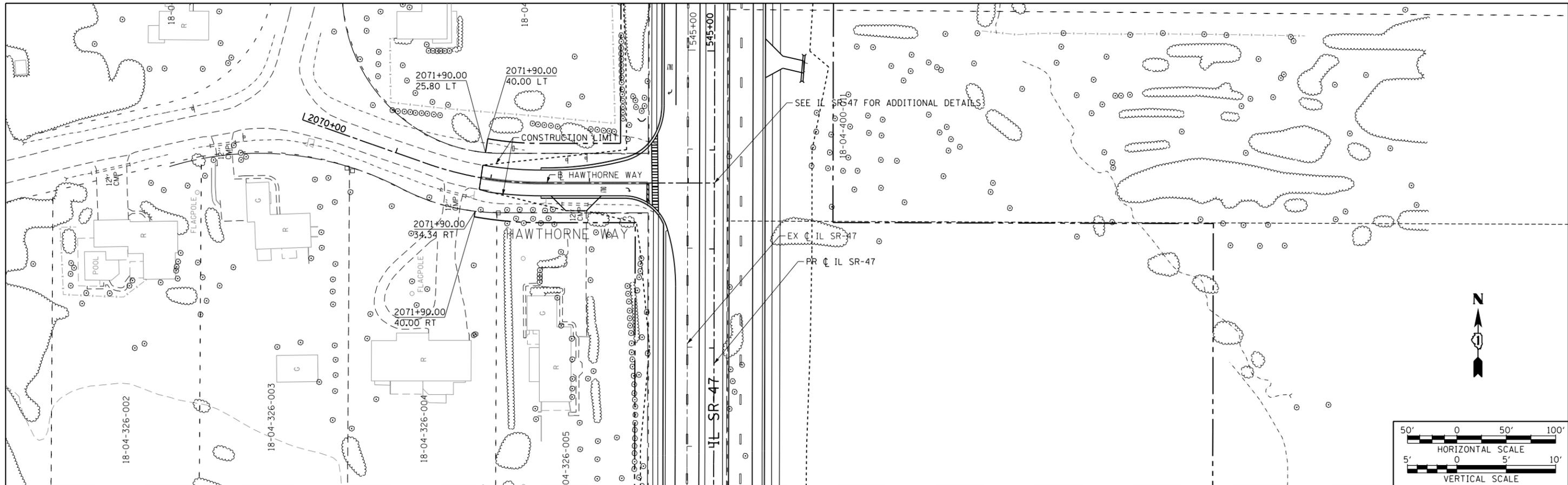
PROFILE	SURVEYED	DATE
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	STRUCTURE NOTATIONS CHECKED	
NOTE BOOK NO.	NOTATION CHORD	



FILE NAME = 39027_PP_34-Foster.dgn	USER NAME = hanegraafe	DESIGNED -	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	PROPOSED PLAN AND PROFILE UNION AND FOSTER ROAD	F.A.P. RT. 47	SECTION REED ROAD TO US 14	COUNTY MCHENRY	TOTAL SHEETS 336	SHEET NO. 47	
PLOT SCALE = 100.000' / in.	CHECKED -	REVISED -	SCALE: 1" = 50'			SHEET NO. 34 OF SHEETS	STA. 104+00 TO STA. 118+00	CONTRACT NO.			
PLOT DATE = 4/5/2017	DATE - 03/12/2015	REVISED -	FED. ROAD DIST. NO. 1 ILLINOIS FED. AID PROJECT								
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PROFILE	SURVEYED	BY	DATE
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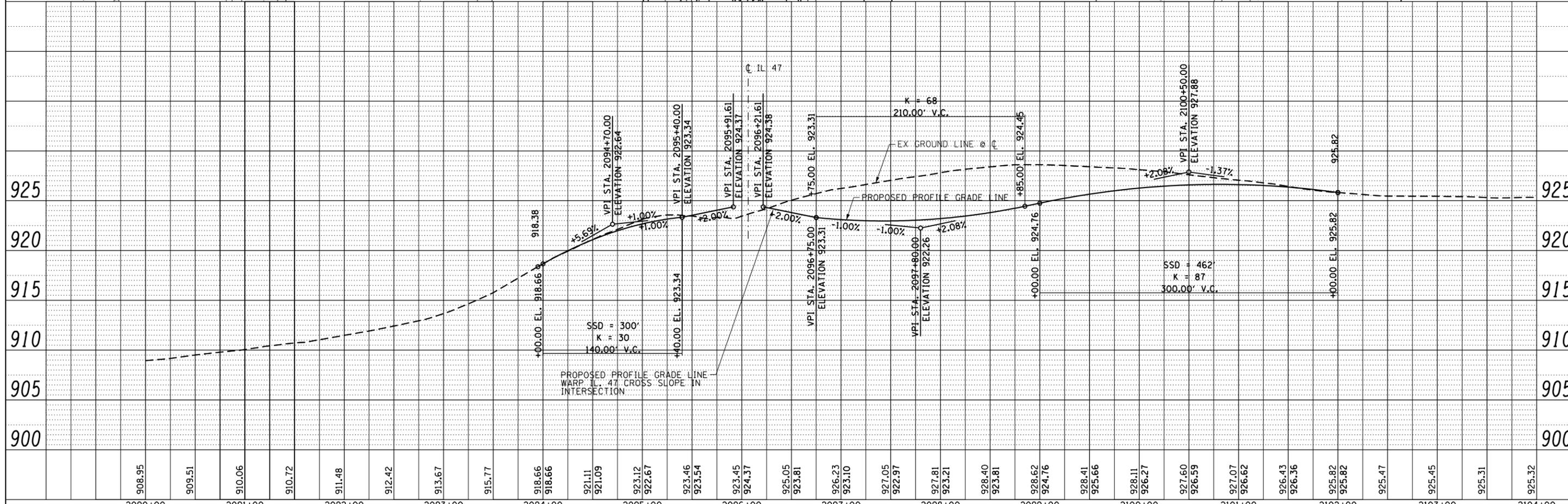
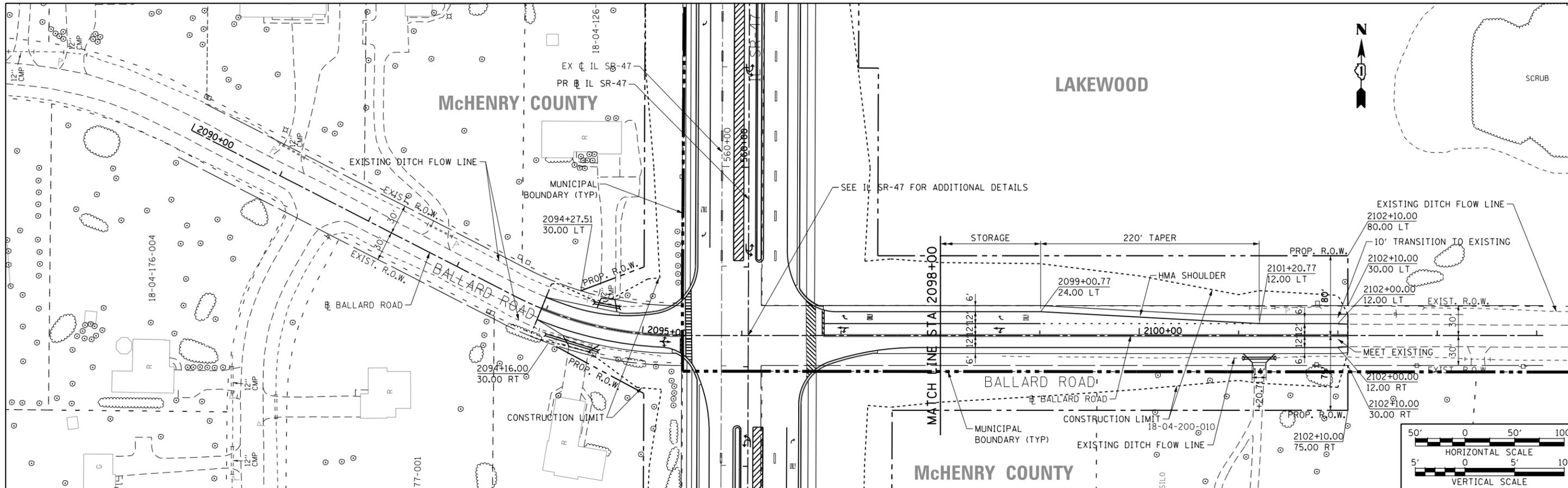


FILE NAME = 39027_PP_35-Hawthorne.dgn	USER NAME = hanegraefe	DESIGNED -	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	PROPOSED PLAN AND PROFILE HAWTHORNE WAY	F.A.P. RTE. 47	SECTION REED ROAD TO US 14	COUNTY MCHENRY	TOTAL SHEETS 336	SHEET NO. 48	
PLOT SCALE = 100.000' / in.	CHECKED -	REVISED -	SCALE: 1" = 5035			SHEET NO. 35 OF SHEETS	STA. TO STA.	CONTRACT NO.		FED. ROAD DIST. NO. 1 ILLINOIS FED. AID PROJECT	
PLOT DATE = 4/5/2017	DATE - 03/12/2015	REVISED -									

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4/5/2017

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PROFILE	SURVEYED	DATE
	PLOTTED	BY
	GRADES	
	CHECKED	
	STRUCTURE	
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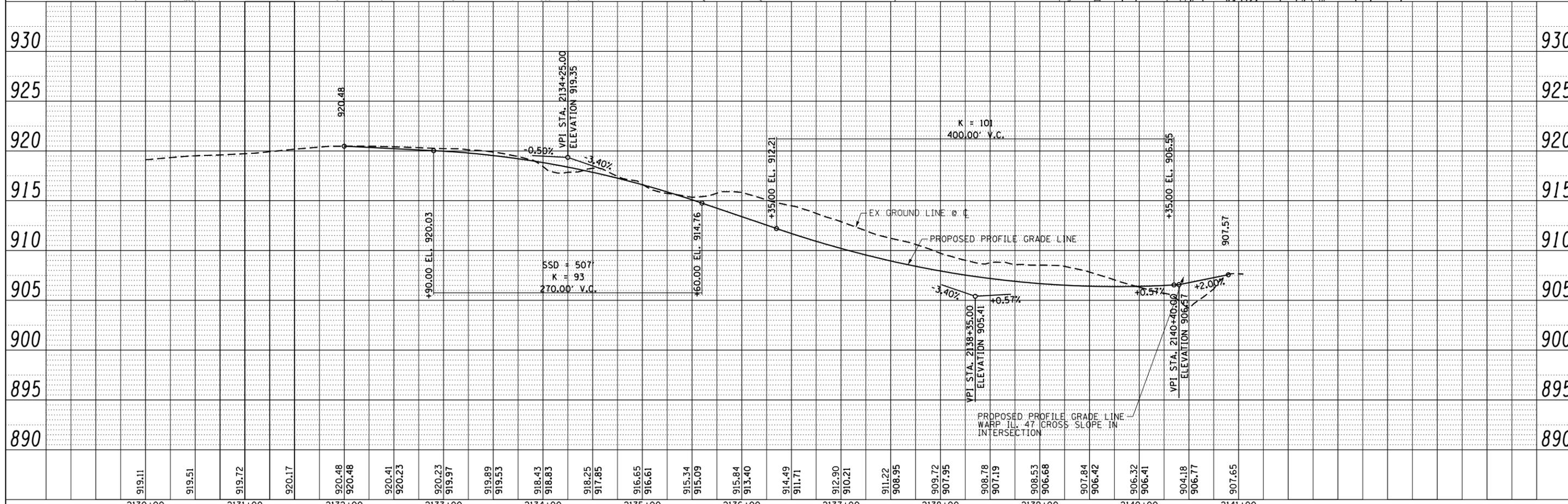
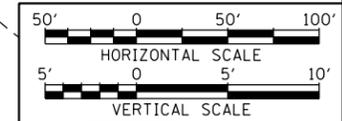
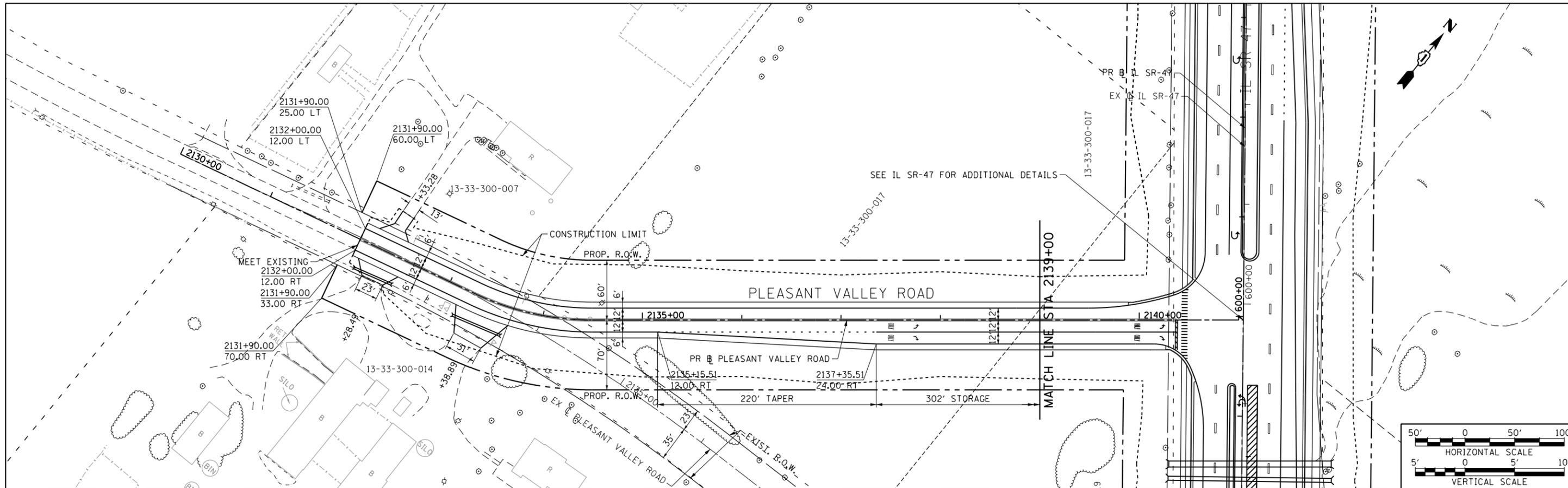


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PLOT SCALE = 100.000' / in.	CHECKED -	REVISED -	SCALE: 1" = 50'		SHEET NO. 36	OF SHEETS	STA. 2090+00 TO STA. 2104+00	CONTRACT NO.	
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9/8/2017

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	PLOTTED	BY
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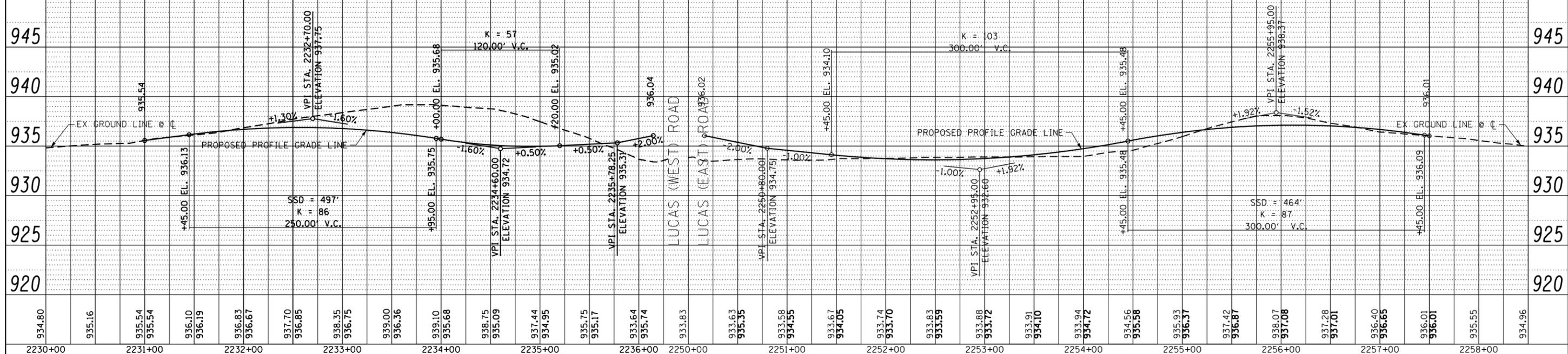
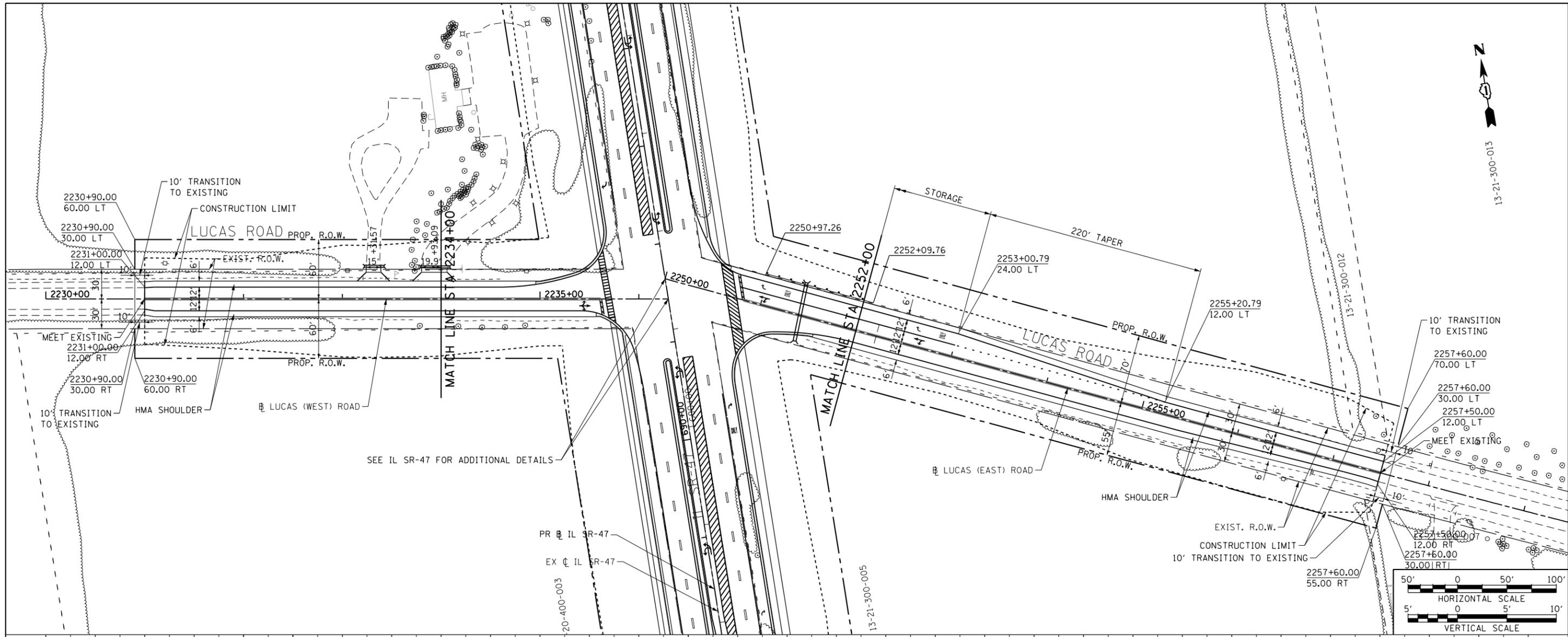


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PLOT DATE = 4/5/2017	DATE - 03/12/2015	REVISED -	FED. ROAD DIST. NO. 1 ILLINOIS FED. AID PROJECT								

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4/5/2017

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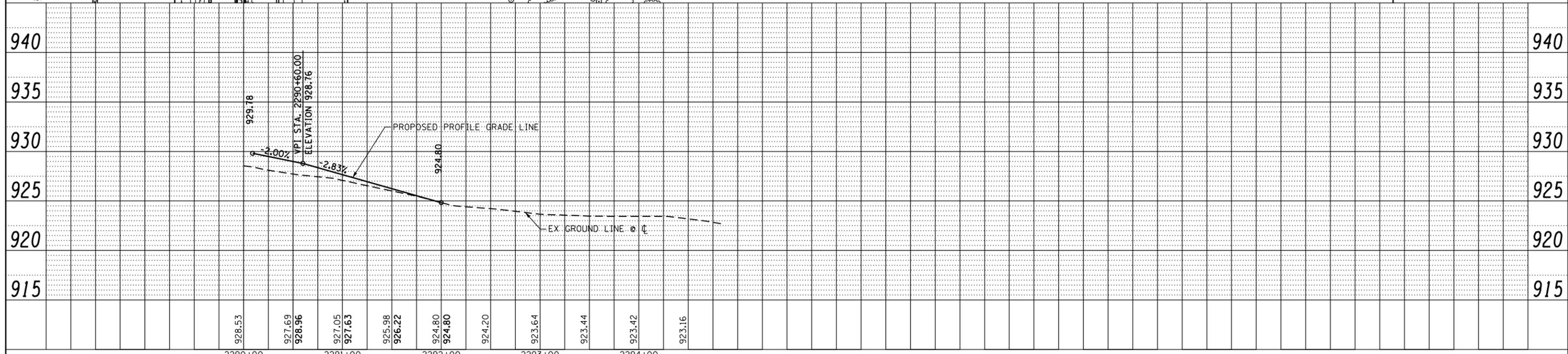
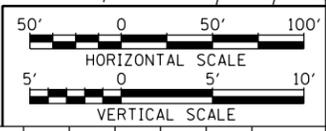
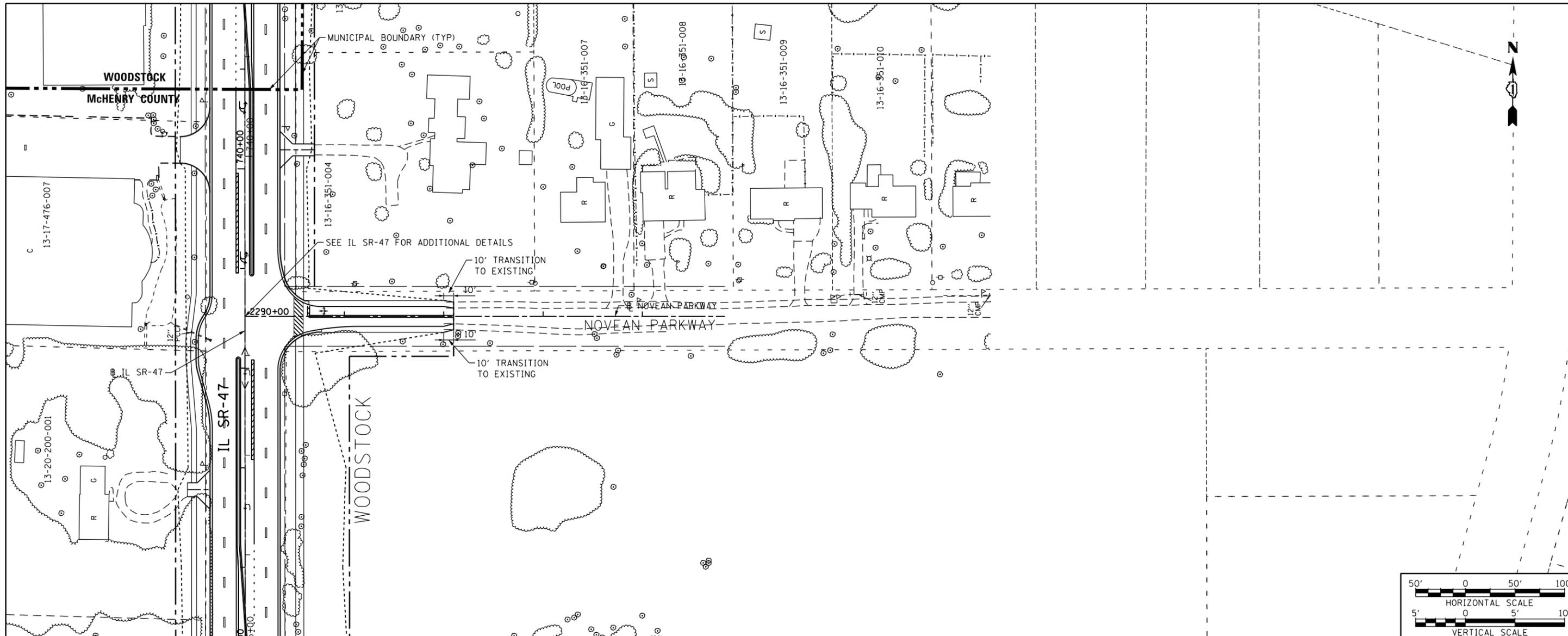


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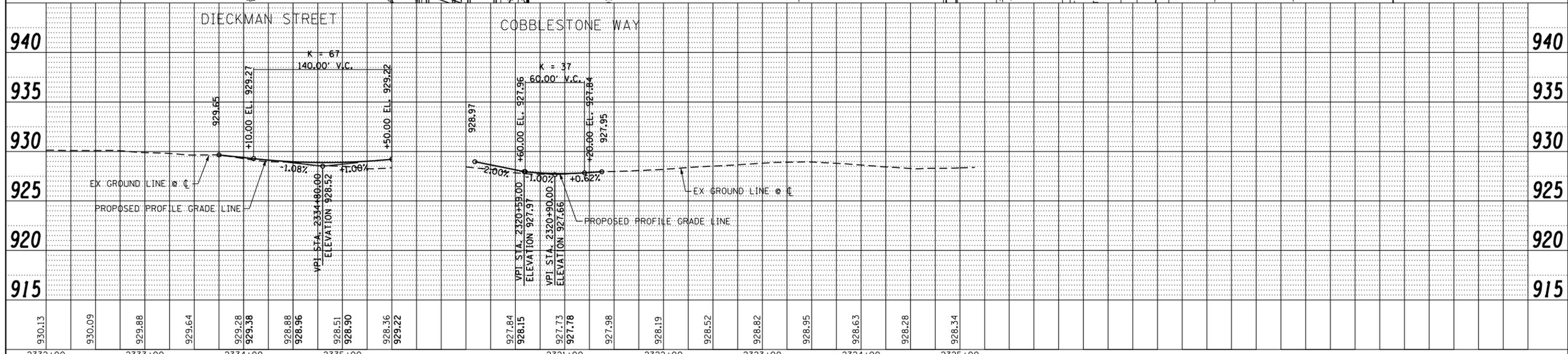
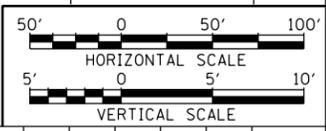
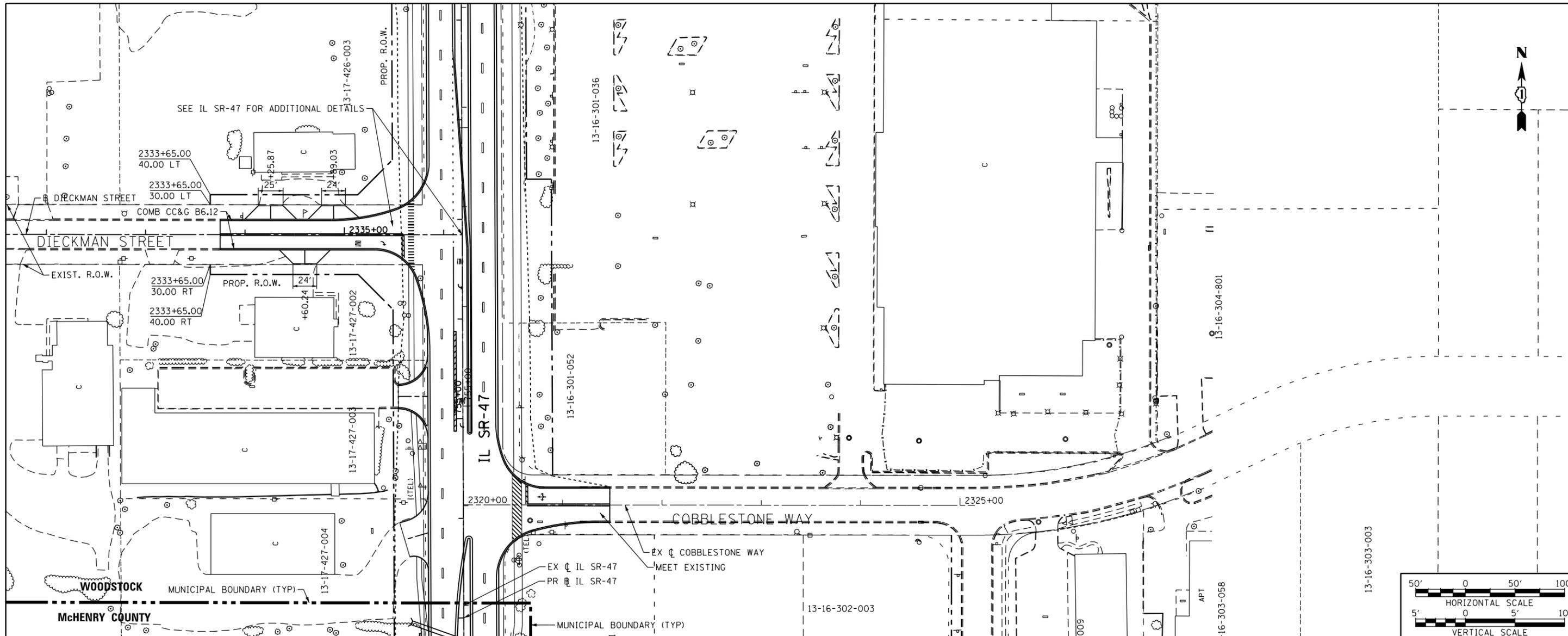
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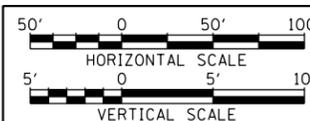
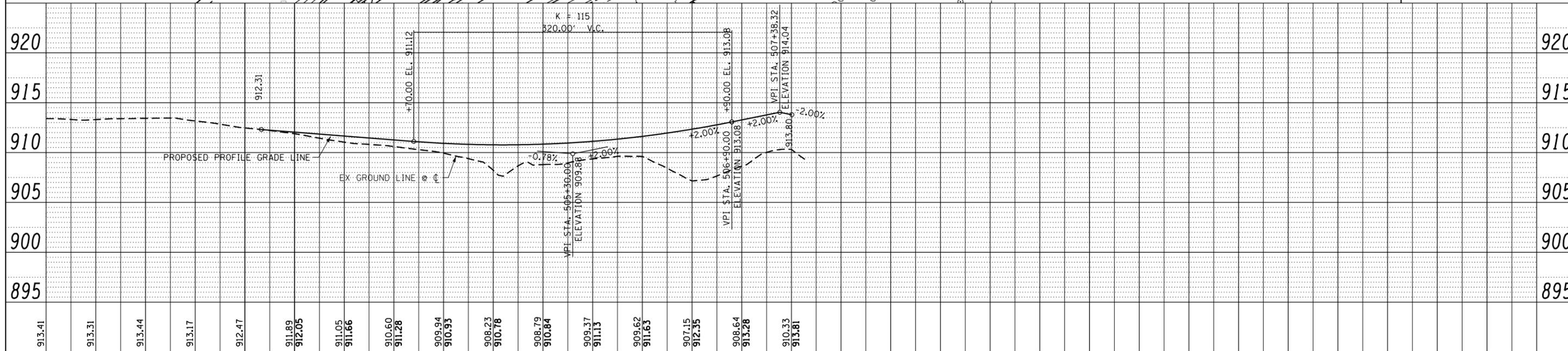
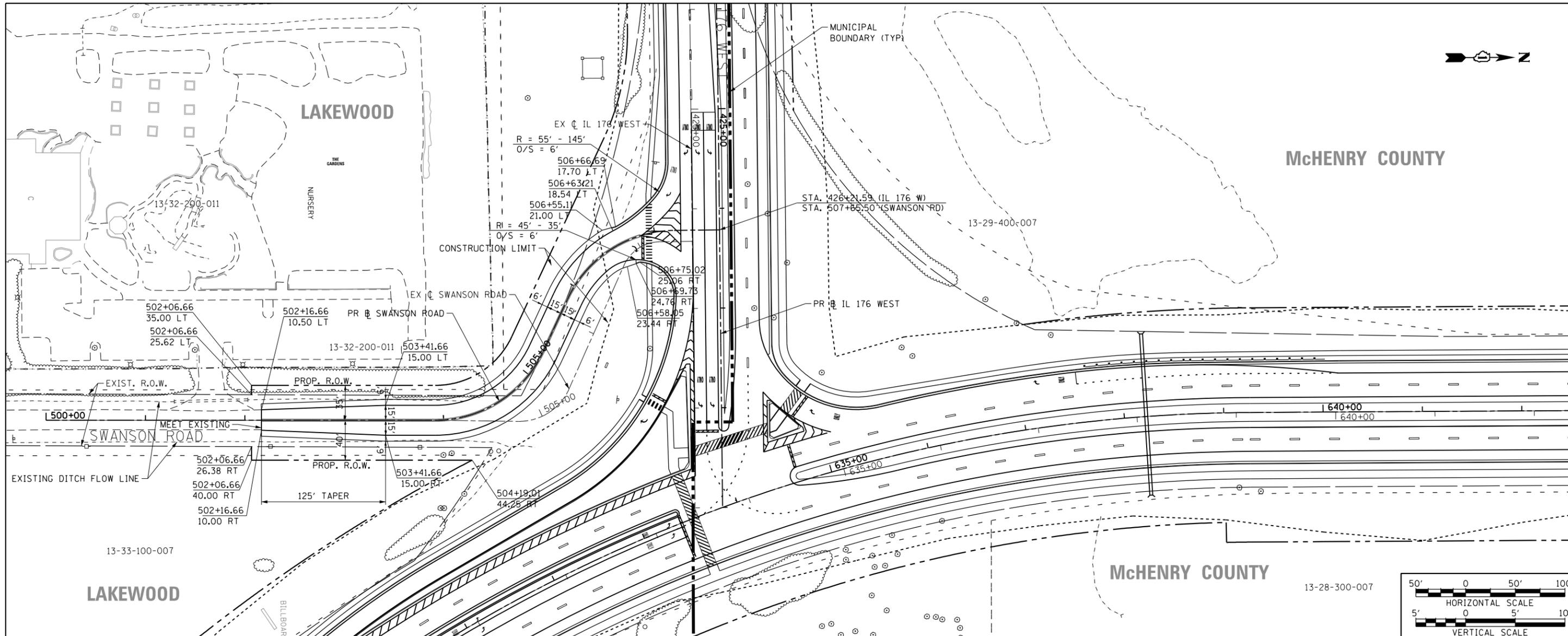
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	STRUCTURE NOTATIONS CHKD	



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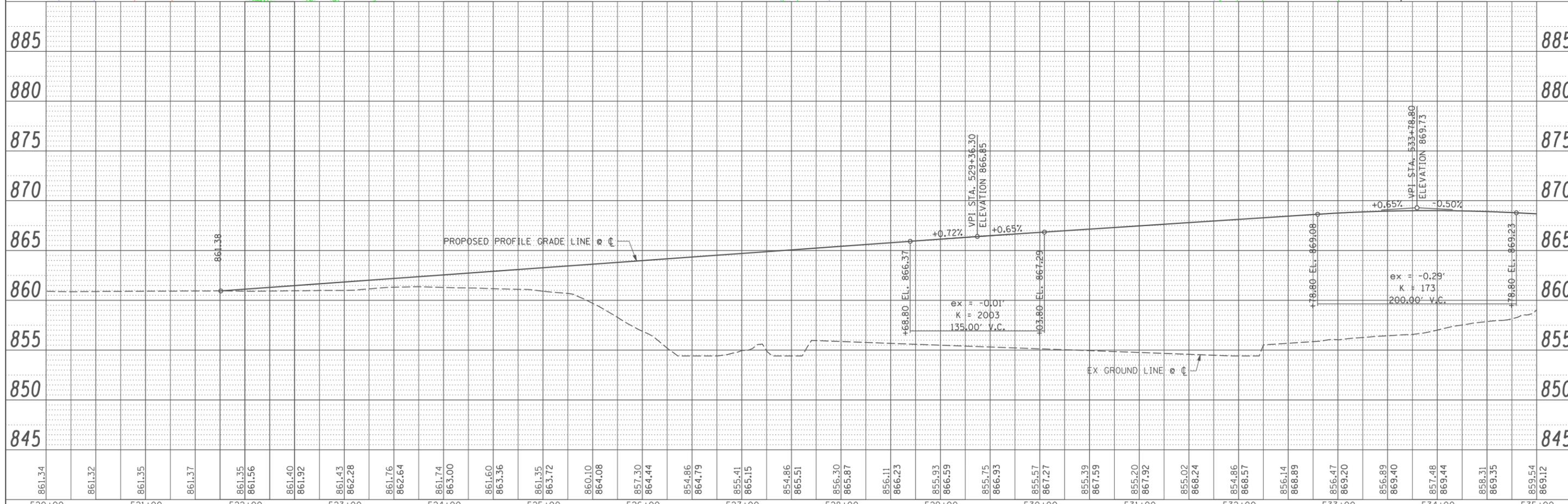
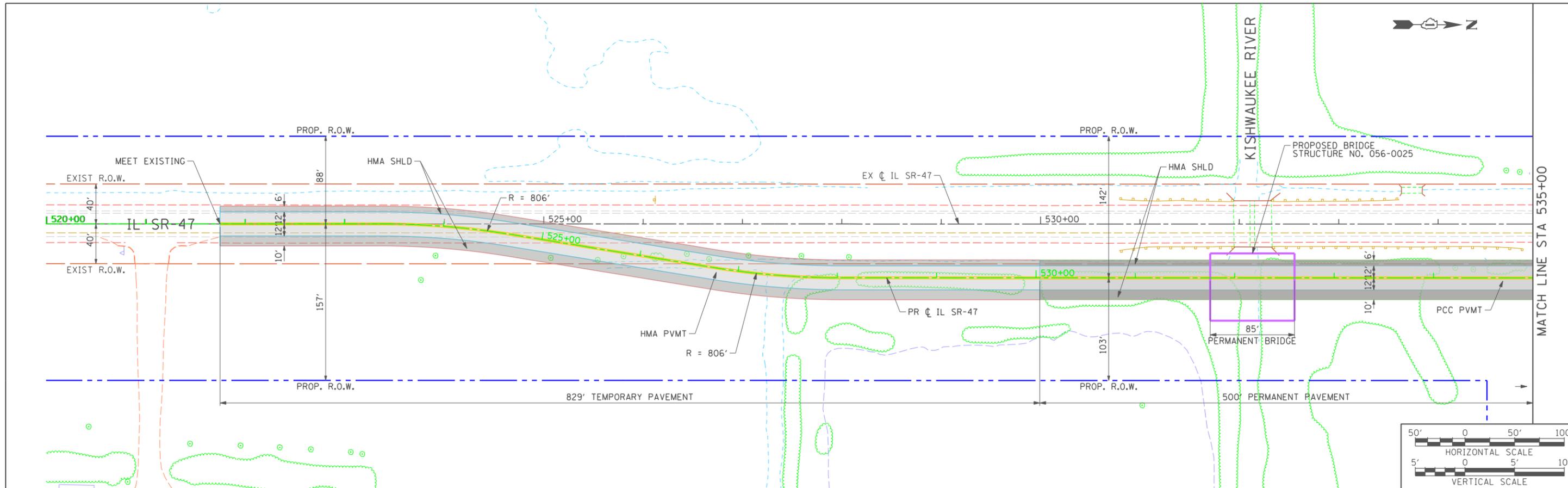
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PLOT DATE = 9/8/2017	DATE = 08/24/2017	REVISED -						CONTRACT NO.			

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APPENDIX A-9
KISHWAUKEE RIVER BRIDGE REPLACEMENT

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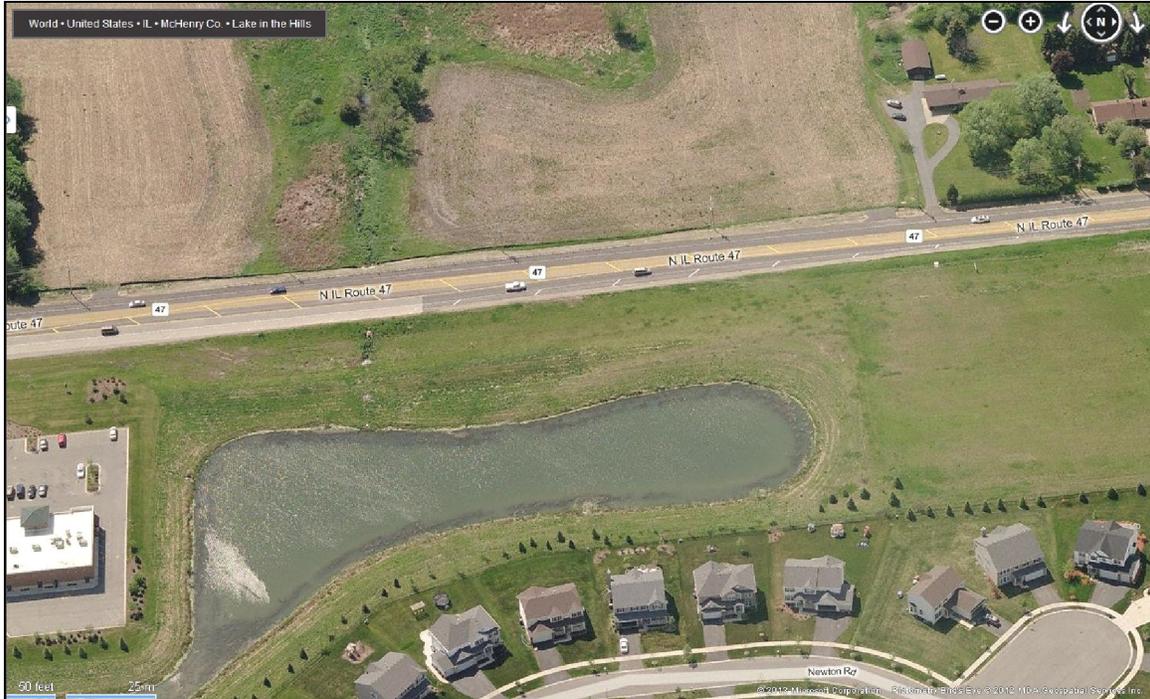
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APPENDIX A-10
TRAFFIC MANAGEMENT PLAN

TRAFFIC MANGAGEMENT PLAN

IL-47 Corridor Improvement Project Reed Road to US-14

McHenry County, State of Illinois
Section No.: TBD



Prepared For:

February 12, 2013



**Illinois Department
of Transportation**

**Division of Highways
Region One / District One**

201 West Center Court
Schaumburg, Illinois 60696

www.dot.state.il.us

Prepared By:

AECOM

303 East Wacker Drive, Suite 1400
Chicago, Illinois 60601

www.aecom.com

TRAFFIC MANAGEMENT PLAN

ROUTE: IL-47
LIMITS: Reed Road to US-14
LOCATION: McHenry County
SECTION NO.: TBD

Introduction

The IL-47 corridor improvement involves the reconstruction of the existing two-lane roadway into a four-lane divided highway. The improvement is approximately eight miles in length, and spans the communities of the City of Woodstock, the Village of Lake in the Hills, and the Village of Huntley. The northern terminus of the improvement is US-14. The southern terminus is Reed Road. Major high-volume crossroads include the east and west alignments of IL-176.

IL-47 is listed on the Department's Significant Route Locations Map dated 2007 at the following link. This map also appears on page 5 of this document:

http://www.dot.il.gov/illinoisshsp/WorkZoneSafetyMobility/03092009_Appendix_B.pdf

Its status as a significant route coupled with its full reconstruction scope results in a "Significant Projects-Long Term" classification and requires the preparation of this Traffic Management Plan (TMP).

The project is currently unfunded. The construction of the project is listed in the Department's current five-year plan.

Traffic Management Plan (TMP)

The IL-47 TMP includes a Traffic Control Plan (TCP), a Transportation Operations Plan (TOP), and a Public Information Plan (PIP). The details of those plans will be finalized during Phase II engineering design, and those component plans cover the following safety and congestion mitigation strategies:

Traffic Control Plan (TCP)

IDOT utilizes various Temporary Traffic Control Plan (TCP) strategies including signal phasing adjustments within the project limits, lane shifts, channelizing devices, temporary pavement markings, flaggers/traffic control officers, temporary signals as needed, lighting devices as needed, temporary lane closures, temporary signage, incentive/disincentive clauses in the contract documents, coordination with local stakeholders and adjacent projects, restrictions for special events as requested by the local municipalities, improvement and/or signing of alternate routes and pedestrian accommodations among others. The traffic control plans will be in conformance with State standards that will be in effect at the time of letting.

Transportation Operations Plan (TOP)

IDOT utilizes various Transportation Operations Plan (TOP) strategies which can include traffic radio, portable changeable message signs, speed limit reduction initiatives, high occupancy vehicle (HOV) lanes, variable work hours, signal timing/coordination improvements, temporary traffic signals, alternate route improvements, parking and turn restrictions, reversible lanes, heavy vehicle restrictions, coordination with adjacent projects, incidence response coordination, Intelligent Transportation System (ITS) monitoring, surveillance through closed circuit TV (CCTV) and loop detectors, traffic screens, and local detour routes among others.

Public Information Plan (PIP)

IDOT utilizes various Public Information Plan (PIP) strategies depending on the level of public involvement within the project, population and traveling public density, and overall resource availability within the project area. The strategies utilized can include brochures/mailers, press releases and media advisories, paid advertisements, telephone hot lines, websites, public hearings and/or meetings, press conferences, community task forces, coordination with media outlets, municipalities, schools and emergency services, work zone education campaigns and signage among others.

The following safety and congestion mitigation strategies will be implemented for the IL-47 corridor improvement:

All traffic control devices will conform to the Illinois Manual on Uniform Traffic Control Devices (ILMUTCD). Temporary traffic signals will include emergency preemption and communication devices. Temporary traffic signal controllers will be supplied by one of the District approved closed loop equipment manufacturers.

Temporary traffic signals within any existing closed loop traffic signal system shall be interconnected to that system using similar brand control equipment. Traffic signal management systems shall be maintained in operation as indicated by the plans or as directed by the Resident Engineer. To best mitigate traffic queues, detection at temporary traffic signals shall be included for all approaches of the existing signalized intersections unless stated otherwise in the temporary traffic signal plans.

All signs, barricades, and temporary striping will conform to the ILMUTCD and applicable State standards. Vehicular access to local businesses and properties will be maintained at all times during construction, except when paving operations occur directly on or in front of entrances. In those cases, flag persons will be used to direct traffic. In the case of multi-entrance businesses, at least one entrance will remain open at all times. Property and business owners will be notified in advance of any temporary closures. All properties will have access at the end of every workday.

The IL-47 reconstruction will be performed in two primary stages with minor preparation of the roadway surface such as curb and gutter removal, temporary pavement installation, and temporary striping operations being performed under advanced, pre-stage work.

Stage I reconstruction will maintain existing traffic patterns of two-way traffic with one lane in each direction on the existing roadway. The existing roadway will be modified to maintain two-way traffic flow by the installation of temporary pavement in the existing median and shoulder areas. The IL-47 existing typical section accommodates one lane of travel in each direction. Stage I reconstruction will similarly maintain one lane of travel in each direction. Stage I operations will include curb and gutter removal, shoulder and pavement removal, earthwork, installation of the proposed drainage system, installation of temporary drainage pipes for maintaining drainage system connections along with the bulkheading of newly installed lateral pipes, the installation of roadway lighting and signal posts, and the reconstruction of the new pavement on the east half-section of the proposed IL-47 right-of-way. The northbound lanes will be constructed during Stage I. The suggested Stage I typical section appears on page 6.

Stage II reconstruction will establish two-way traffic with one lane in each direction on the newly reconstructed pavement established during Stage I operations. Stage II operations will include curb and gutter removal, shoulder and pavement removal, earthwork, installation of the proposed drainage system, the removal of temporary drainage pipes and lateral pipe bulkheads, the installation of roadway lighting and signal posts, and the installation of permanent landscaping and erosion control measures. The southbound lanes will be constructed during Stage II. Major operations will be completed at the end of Stage II reconstruction. The suggested Stage II typical section appears on page 6.

The proposed right-of-way along IL-47 and its crossroads is sufficient to implement the project under the two-stage reconstruction operations summarized in the paragraphs above.

Traffic will remain open on all crossroads at all times.

Two (2) through lanes with minimum widths of 10-foot edge-to-edge (preferably 11-foot edge-to-edge) will be provided during all construction stages. The 10-foot minimum lane widths are sufficient for emergency vehicles and truck traffic. Eleven (11) foot lanes should be used where feasible.

Similarly, the reconstruction of the structure over the Kishwaukee River will be performed in two stages that dovetail with the IL-47 staging plans.

The TMP as described in this document meets the requirements of the Work Zone Safety and Mobility Rule.



IDOT DISTRICT 1

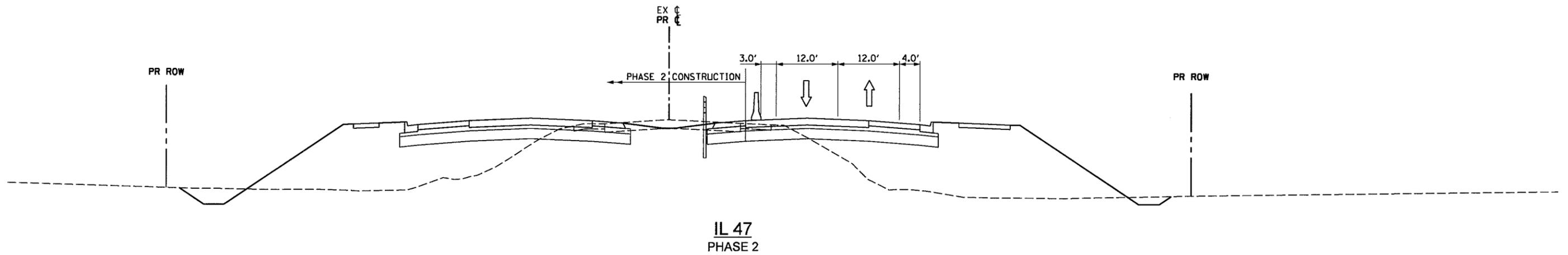
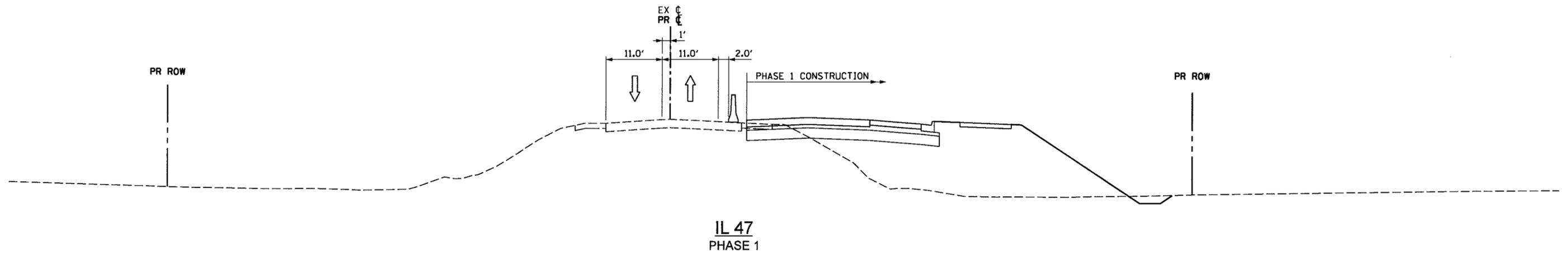
SIGNIFICANT ROUTE LOCATIONS



Significant Locations (2007)

- Approaching Significant Route Designation.
- Consider as a Significant Route.

Appendix B
9/10/2007



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