
CORRESPONDENCE/MEMORANDUM _____ **State of Wisconsin**

Date: June 5, 2020

To: Beth Cannestra, P.E.
Director, Bureau of Project Development
Attn: Dave Stertz, P.E.

From: H. Bruce Enke, P.E.
Project Development Chief
Northeast Region

Subject: DESIGN STUDY REPORT
Project I.D. 6590-02-06
Waupaca – Clintonville
CTH N (N) to USH 45
STH 22
Waupaca County

Having considered the economic and social effects of this project, its impact on the environment, and its consistency with the goals of community planning, we request your approval of the attached design study report.

Region Project Development Chief Date

Concur:

Bureau of Project Development,
Project Services Chief Date

DESIGN STUDY REPORT

1.0 PROJECT DESCRIPTION AND NEED

1.1. Federal Oversight Project (Yes or No): No

1.2. Project Length & Termini

Project Length: 12.16 miles

Termini/Limits:

STA 41+00 – STA 678+10.10

Project 6590-02-06 is located on STH 22 in Waupaca County, near the city of Manawa, the towns of Little Wolf, Union and Bear Creek, and the community of Symco. The project begins approximately 300' north of CTH N in Manawa and continues to the north and east approximately 12.2 miles to a point approximately 400' west of USH 45. See Attachment A – Project Location Map

1.3. Existing Roadway Information

Roadway	Functional Class (Arterial, Collector or Local)	Rural, Urban or Transitional	Corridors 2020 or Backbone (No or State which)	NHS Route (Yes or No)	Long Truck Route (No or state Federal or State)	Access Control Tier	On Ped. Trans. Plan (Yes or No)	On Bike Trans. Plan (Yes or No)
STH 22	Minor Arterial	Rural	No	No	No	Tier 3	No	No

1.4. Need for Project

The main purpose of this project is to improve the deteriorating pavement on STH 22. The last resurfacing project on this stretch of highway took place in 2000. Since that time longitudinal and transverse cracking has become visible in the existing asphaltic pavement. Without this project, maintenance costs along STH 22 will continue to increase and the pavement structure will continue to deteriorate.

The pavement condition index (PCI) values range from 38.9 near Poplar Road to 51.8 near CTH N.

The IRI values were 70 minimum and 117 maximum.

The culverts were inspected along the project length. Five culverts will be reconstructed, and 27 end-walls will be added or replaced. One box culvert will be removed, and a pipe culvert will be constructed.

2.0 Existing Facility Information

2.1. Posted Speed

Roadway or Roadway Segment	Posted Speed	Advisory Speed
STH 22, CTH N – 100 feet west of Riske Road/West River Road	55	N.A.
STH 22, Segment of road near the STH 110 intersection	55	40
STH 22, 100 feet west of Riske Road/West River Road – East River Road	35	N.A.
STH 22, near CTH O (South)	55	50
STH 22, near CTH O (North)	55	50
STH 22, East River Road – USH 45	55	N.A.

2.2. Geometrics

2.2.1. * Horizontal Alignment Features Outside Design Criteria

* Horizontal Feature (Curve, P.I. Deflection, etc.)	Location (Stationing)	* Size (Radius, P.I. Deflection, etc.) *	* Super- Elevation (S.E.)	Speed Rating
Curve	STA 172+31 - STA181+40	Radius = 575'	6%	40 mph
Curve	STA 215+27 - STA 219+71	Radius = 350'	5.8%	30 mph
Curve	STA 228+22 – STA 238+11	Radius = 843'	5%	35 mph
Curve	STA 281+00 – STA 294+00	Radius = 829'	5%	35 mph
Curve	STA 329+91 – STA 343+05	Radius = 843'	5%	35 mph

*Controlling Criteria

Comments:

The speed rating was determined from FDM 11-10, Exhibit 5.1, $e_{max}=6\%$, 1-lane ramps regardless of rotation point and 2-lane undivided highways with rotation about CL.

Horizontal Curve Radius:

There is a horizontal curve with $R = 575'$ and $SE = 6\%$ in the section of STH 22 posted at 55 mph, near the STH 110/STH 160 intersection. According to the superelevation table for $e_{max} = 6\%$ (FDM 11-10 Exhibit 5.1) and 2-lane undivided highway, the minimum radius is 1060' for a 3R design speed of 55 mph. Due to no crash history at this location, the horizontal curve will be allowed to remain.

There is a horizontal curve with $R = 350'$ and $SE = 5.8\%$ in the section of STH 22 posted at 35 mph, in Symco. According to the superelevation table for $e_{max} = 6\%$ (FDM 11-10 Exhibit 5.1) and 2-lane undivided highway, the minimum radius is 431' for a 3R design speed of 35 mph. Because there is no history of crashes at this location, the curve can remain.

There is a horizontal curve with $R = 843'$ and $SE = 5\%$ in the section of STH 22 posted at 55 mph, near East River Road. According to the superelevation table for $e_{max} = 6\%$ (FDM 11-10 Exhibit 5.1) and 2-lane undivided highway, the minimum radius is 1890' for a 3R design speed of 55 mph. Since there is no history of crashes at this location, the curve can remain.

There is a horizontal curve with $R = 829'$ and $SE = 5\%$ in the section of STH 22 posted at 55 mph, near CTH O (South). According to the superelevation table for $e_{max} = 6\%$ (FDM 11-10 Exhibit 5.1) and 2-lane undivided highway, the minimum radius is 1890'. Because there is no history of crashes at this location, the curve can remain.

There is a horizontal curve with $R = 817'$ and $SE = 5\%$ in the section of STH 22 posted at 55 mph, near CTH O, (North). According to the superelevation table for $e_{max} = 6\%$ (FDM 11-10 Exhibit 5.1) and 2-lane undivided highway, the minimum radius is 1890'. Because there is no history of crashes at this location, the curve can remain.

2.2.2. * Vertical Alignment Features/SSD Outside Design Criteria

* Vertical Feature (Curve, Vertical Grade Deflection, etc.)	Location (Stationing)	Sag or Crest	* % Grades	K Value/ Grade Deflection	Speed Rating	* SSD** Met (Yes or No/ Length)	DSD Met (Yes or No/ Length)
Curve	91+00 - 94+50	Sag	0.3%, 4.7%	80	55	N/366'	N.A.
Curve	99+00 - 109+00	Crest	4.7%, -4.5%	109	55	N/484'	N.A.
Curve	134+00 - 138+00	Crest	-0.5%, -3.6%	129	55	N/548'	N.A.
Curve	141+00 - 143+50	Sag	-3.6%, 0%	69	55	N/351'	N.A.
Curve	23+50 - 31+14	Crest	4%, -0.30%	178	55	N/486'	N.A.
Curve	158+70 - 170+00	Crest	5.25%, -4.7%	114	55	N/388'	N.A.
Curve	189+00 - 193+50	Crest	1.93%, - 1.25%	142	55	N/434	N.A.
Curve	239+50 - 244+50	Sag	-1.15%, 4.29%	92	55	N/411'	N.A.
Curve	247+50 - 253+14	Crest	4.29%, 0.36%	144	55	N/437	N.A.
Curve	257+50 - 262+70	Crest	0.36%, -3.4%	138	55	N/429'	N.A.
Curve	26+50 - 29+50	Crest	1.50%, - 1.00%	120	55	N/416'	N.A.

*Controlling Criteria

**SSD = Stopping Sight Distance

Comments:

This project is in sight distance category 1 per FDM 11-10-5. Upper minimum sight distance is SSD to a 6-inch object while minimum sight distance is SSD to a 24-inch object. DSD is not applicable.

FDM 11-10, Attachment 5.4 Sight Distances for Crest Vertical Curves

For design speed 55 mph, Category 1: SSD is 495 feet for a 6-inch object, $K = 185$ (upper minimum)

For design speed 55 mph, Category 1: SSD is 495 for a 24-inch object, $K = 114$ (minimum)

For design speed 35 mph, Category 1: SSD is 250 feet for a 6-inch object, $K = 48$ (upper minimum)

For design speed 35 mph, Category 1: SSD is 250 for a 24-inch object, $K = 29$ (minimum)

FDM 11-10, Attachment 5.6 Sight Distances for Sag Vertical Curves

For design speed 55 mph, Category 1: SSD is 495 feet for a 6-inch object, $K = 115$ (upper minimum)

For design speed 55 mph, Category 1: SSD is 495 for a 24-inch object, $K = 115$ (minimum)

For design speed 35 mph, Category 1: SSD is 250 feet for a 6-inch object, K = 49 (upper minimum)

For design speed 35 mph, Category 1: SSD is 250 for a 24-inch object, K = 49 (minimum)

The stations below and in the table refer to as-built plan sheets from plan s0482(3), t0035(05), and s0035(02) – see Attachment B

Sag curve STA 91+00 – STA 94+50 doesn't meet required SSD for upper minimum 6" object and minimum 24" object.

Crest curve STA 99+00 – STA 109+00 doesn't meet required SSD for upper minimum 6" object and minimum 24" object.

Crest curve STA 134+00 – STA 138+00 doesn't meet required SSD for upper minimum 6" object but meets SSD for minimum 24" object.

Sag curve STA 141+00 – STA 143+50 doesn't meet required SSD for upper minimum 6" object and minimum 24" object.

Crest curve STA 23+50 – STA 31+14 doesn't meet required SSD for upper minimum 6" object but meets SSD for minimum 24" object.

Crest curve STA 158+70 – STA 170+00 doesn't meet required SSD for upper minimum 6" object but meets SSD for minimum 24" object.

Crest curve STA 189+00 – STA 193+50 doesn't meet required SSD for upper minimum 6" object but meets SSD for minimum 24" object.

Sag curve STA 239+50 – STA 244+50 doesn't meet required SSD for upper minimum 6" object and minimum 6" object.

Crest curve STA 247+50 – STA 253+14 doesn't meet required SSD for upper minimum 6" object but meets SSD for minimum 24" object.

Crest curve STA 257+50 – STA 262+70 doesn't meet required SSD for upper minimum 6" object but meets SSD for minimum 24" object.

Crest curve STA 26+50 – STA 29+50 doesn't meet required SSD for upper minimum 6" object but meets SSD for minimum 24" object.

2.2.3 * Grades and Vertical Clearances Outside Design Criteria

Location (Stationing, Overpass Structures, etc.)	* % Grade	* Vertical Clearance
STA 91+00 – 94+50	4.7%	N.A.
STA 99+00 – 109+00	-4.7%, -4.5%	N.A.
STA 134+00 – 138+00	-3.6%	N.A.
STA 141+00 – 145+00	3.37%	N.A.
15+80 – 19+80	4.0%	N.A.
STA 23+50 – 31+14	4.0%	N.A.
152+42 – 156+42	3.37%, 5.25%	N.A.
STA 158+70 – 170+00	+5.25%, -4.7%	N.A.
176+50 – 184+50	-4.70%, +1.93%	N.A.
STA 239+50 – 244+50	4.29%	N.A.
STA 247+50 – 253+14	4.29%	N.A.
STA 257+50 – 262+70	-3.4%	N.A.

*Controlling Criteria

Comments: FDM: 11-10, 5.4.1. Attachment 5.3 – Maximum grades: Rural Arterials, Level Terrain

For 50 mph Design Speed – Maximum Grade is 4%

For 60 mph Design Speed – Maximum Grade is 3%

The stations in the table refer to as-built plan sheets from plan s0482(3), t0035(05), and s0035(02) – see Attachment B

Grades outside the design standards:

The truck percentage is low, 11%, for this project

There is no history of crashes due to these grades, therefore the grades can remain.

2.3 Side-Roads/Intersections/Interchanges

2.3.1 Side Roads

Roadway Name	Functional Class	Posted Speed (MPH)	Existing Traffic*** (AADT)	Approach Grades	Pedestrian Facilities (Yes or No)	Bicycle Facilities (Yes or No)
Fuhs Road	Local	Not Posted	Assumed <100	+0.5%	No	No
Prellwitz Road	Local	Not Posted	Assumed <100	-0.7%	No	No
Sturm Lake Road	Local	Not Posted	Assumed <100	+1.0%	No	No
Blake Creek Road	Local	Not Posted	Assumed <100	+0.2%	No	No
Riske Road	Local	Not Posted	Assumed <100	-1.0%	No	No
STH 110 & STH 161	Major Collector	45 mph	Assumed >100	+3.04%/ +0.32%	No	No
West River Road/Riske Road	Local	Not Posted	Assumed <100	-1.33%/ +1.74%	No	No
East River Road	Local	45 mph	Assumed <100	-1.33%	No	No
Symco Road	Local	25 mph	Assumed <100	-1.00%	Yes	Yes
CTH O	Minor Collector	Not Posted	Assumed >100	-1.2%	No	No
Beaver Road	Local	Not Posted	Assumed <100	+1.4%	No	No
CTH O	Minor Collector	Not posted	Assumed >100	-3.0%	No	No
Beaver Road	Local	Not Posted	Assumed <100	-1.5%	No	No
Shady Lane	Local	Not Posted	Assumed <100	+2.0%/ -3.1%	No	No
Dump Lane	Local	Not Posted	Assumed <100	1.4%	No	No
Beaver Creek Road	Local	Not Posted	Assumed <100	2.1%	No	No
Nicholson Road	Local	Not Posted	Assumed <100	-1.5%	No	No
CTH T	Minor Collector	55 mph	Assumed >100	-0.42%/ +0.42%	No	No
Bell Corners Road	Local	Not Posted	Assumed <100	-0.8%	No	No
Meidan Road	Local	Not Posted	Assumed <100	-2.1%	No	No
Poplar Road	Local	Not Posted	Assumed <100	+2.0%	No	No
Pleasant View Road	Local	Not Posted	Assumed <100	-1.5%	No	No
Pine Grove Road	Local	Not Posted	Assumed <100	-2.4%	No	No
USH 45	Principal Arterial	55 mph	Assumed >100	-2.0%	No	No

***If Existing Traffic volumes are not available, then state at a minimum whether AADT is assumed <100 or >100.

Comments:

2.3.2 Intersections

Intersecting Roadway Names	Intersect. Type	Intersect. Angle	Traffic Control	* SSD** Met [(Y/N) / Length]	ISD** Met [(Y/N) / Length]	DSD** Met [(Y/N) / Length]	Vision Triangle (Y/N)	Corner Clearance to Driveways Present (Y/N)
Fuhs Road	C	90°	Stop Sign	Y/200'	Y	N/A	N	N
Prellwitz Road	C	90°	Stop Sign	Y/200'	Y	N/A	Y	Y
Sturm Lake Road	C	90°	Stop Sign	Y/200'	Y	N/A	Y	Y
Blake Creek Road	C	90°	Stop Sign	Y/200'	Y	N/A	Y	Y
Riske Road	C	90°	Stop Sign	Y	Y	N/A	N	Y
STH 110 and STH 161	B1	90°	Stop Sign	Y	Y	N/A	Y	Y
West River Road/ Riske Road	B2	90°	Stop Sign	Y	Y	N/A	N	Y
Symco Road	B2	81°	Stop Sign	Y	Y	N/A	Y	Y
Church Street	D	73°	Stop Sign	Y	Y	N/A	N	Y
East River Road	B2	90°	Stop Sign	Y	Y	N/A	Y	Y
CTH O (S)	A2	90°	Stop Sign	Y	Y	N/A	Y	Y
Beaver Road	C	90°	Stop Sign	Y	Y	N/A	Y	Y
CTH O (N)	A2	90°	Stop Sign	Y	Y	N/A	Y	Y
Beaver Road	C	90°	Stop Sign	Y	Y	N/A	Y	Y
Shady Lane	C	90°	Stop Sign	Y	Y	N/A	Y	Y
Dump Lane	C	90°	Stop Sign	Y	Y	N/A	Y	Y
Hemlock Lane	C	90°	Stop Sign	Y	Y	N/A	Y	N
Beaver Creek Road	D	90°	Stop Sign	Y	Y	N/A	N	Y
Nicholson Road	D	90°	Stop Sign	Y	Y	N/A	Y	Y
CTH T	B2	90°	Stop Sign	Y	Y	N/A	N	N
Bells Corner Road	D	90°	Stop Sign	Y	Y	N/A	N	Y
Meidan Road	D	90°	Stop Sign	Y	Y	N/A	Y	Y
Poplar Road	D	53°	Stop Sign	Y	Y	N/A	Y	Y
Pleasant View Road	D	90°	Stop Sign	Y	Y	N/A	Y	Y
Pine Grove Road	D	90°	Stop Sign	Y	Y	N/A	Y	Y
USH 45	A2	90°	Stop Sign	Y	Y	N/A	Y	Y

*Controlling Criteria

**SSD=Stopping Sight Distance, ISD=Intersection Sight Distance, and DSD=Decision Sight Distance (See FDM 11-25-1).

Comments: This project is in sight distance category 1 per FDM 11-10-5. Upper minimum sight distance is SSD to a 6-inch object, while minimum sight distance is to a 24-inch object. DSD is not required for Category 1 situations.

Intersection Angle: According to the FDM 11-25 Table 2.8, the desirable intersection angle at STH 22 and

Poplar Road is between 85° and 95°. The existing intersection angle is 51° - the traffic count on Poplar Road is only around 20 vehicles per day.

2.3.3 Interchanges

Intersecting Roadway Names	Interchange Type	Ramp Types	Ramp Design Speed	Horizontal Curve on Ramp	Vertical Curve on Ramp	Ramp Grades	* SSD** [(Met (Y/N) / Length]	DSD** [Met (Y/N) / Length]
None								

*Controlling Criteria

**SSD = Stopping Sight Distance & DSD = Decision Sight Distance (See FDM 11-25-1).

Comments:

2.4 Cross Section

STA 41+00 – STA 206+00 and from STA 220+00 to STA 678+10 (Rural)

Begin Project – Symco and from Symco – End Project

Number of roadways: 1

Number of lanes: 2

Median width: N/A

* Lane width: 12' Travel Lanes

* Shoulder width (Total and Paved or Curb & Gutter): Total - 6', Paved - 3'

Bicycle Facility Type: Paved shoulder

Sidewalk and curb ramps: None

* Cross slope: 2%

* Super-elevation: 6%

* Horizontal clearance: 6'; horizontal clearance – (FDM 11-15, table 1.2 – required lateral clearance from edge of driving lane for rural highway is the greater of 6 ft. or finished shoulder width + 2 feet)
The existing horizontal clearance is 6' based on field conditions.

Clear Zone: FDM 11-40-1.11.1.1 – Rural Highways: Design AADT is greater than or equal to 1,500:
18' or existing clear zone but not farther than the right-of-way limits

* Vertical clearance: No vertical obstructions

Side-slopes and Ditch sections: 4:1 Typical

*Controlling Criteria

Comments: See existing typical cross sections in Attachment C

STA 206+00 – STA 220+00 (Urban)

Symco

Number of roadways: 1

Number of lanes: 2

Median width: N/A

* Lane width: 12'

* Shoulder width: 3.75'

Bicycle Facility Type: Shared wide travel lanes

Sidewalk and curb ramps: 5'-wide sidewalk exists along the south side of STH 22 in Symco between Riske Road and Symco Road. The curb ramps at the Riske Road and Symco Road intersections are not ADA compliant and will be reconstructed.

* Cross slope: 2%

* Super-elevation: 5.8%

* Horizontal clearance: 2' behind face of curb minimum

Clear Zone Requirement: FDM 11-40-1.11.1.1 – recommended clear zone for urban highway, low speed (40 mph posted or less): to the extent that is practical

* Vertical clearance: the existing vertical clearance is limited by overhead utility crossings. The minimum required vertical clearance for overhead utilities is 17'.

Side-slopes and Ditch sections: None

*Controlling Criteria

Comments: See existing typical cross sections in Attachment C

2.5 Pavement Structure/Condition

Roadway	Pavement Types & Thicknesses	Physical Description
STH 22 – STA 41+00 to STA 206+00 and from STA 220+00 to STA 678+10 (Rural)	5" existing asphaltic concrete pavement over 8" existing pulverized asphaltic pavement and crushed aggregate base course over 3" crushed aggregate base course over 15" granular subbase	Alligator cracking, rutting, longitudinal and transverse cracking
STH 22 – STA 206+00 to STA 220+00 (Urban)	4" existing asphaltic concrete pavement over 10" existing concrete over 15" crushed aggregate base course	Alligator cracking, rutting, longitudinal and transverse cracking

Comments: See Attachment C – Existing Typical Cross Sections

2.6 Right of Way

The existing right of way varies along this STH 22 corridor. It is 33' left and right from centerline, from the beginning work limits to the town of Symco. Then it varies in Symco but is generally 33' left and right from centerline.

See the attached plan sheets for locations.

2.6.1 Encroachments

Location (Station & Distance Left or Right)	Encroachment Type
N.A.	

Comments: Encroachments are not investigated for perpetuation improvement strategies.

2.6.2 Unique Right of Way Issues

None

2.7 Structures

Existing Structure I.D. #	Feature Crossed	Structure Type	Sufficiency Rating	* Clear Roadway Width	Railing Type	* Structurally Deficient or Functionally Obsolete	* Inventory Load Rating
B-68-66 – constructed in 1998	Blake Creek	Bridge	96	40'	Metal–Type W	No	HS 22
B-68-88 – constructed in 1998	Little Wolf River	Bridge	97	35.4'	Metal – Type F	No	HS 22

*Controlling Criteria

Comments: FDM 11-35-1-2, Attachment 1.1; meets desirable of 36' for A1 roadway

The clear roadway width noted above is from face of curb to face of curb.

2.8 Utilities

Utility Name	Type of Utility	General Location	Underground/ Overhead/Both
Frontier Com of WI	Communication Line	Beaver Road – USH 45, along the west and north side of STH 22	B
Solarus	Communication Line	Waiting on system maps	
Alliant Energy	Electricity	Along Project Limits from CTH N – CTH T	O
WE Energies	Electricity	Along south side of STH 22 from Shady Lane to USH 45	O
ANR Pipeline Co	Gas/Petroleum	Waiting on system maps	
WE Energies Gas	Gas/Petroleum	Crosses STH 22 at Pine Grove Road	U
Manawa WWTF	Sewer	Waiting on system maps	

Comments:

2.9 Railroad Crossings

Location (Sta.)	Railroad Name	No. of Tracks	Function	Crossing Type
None				

Comments:

2.10 Special Soils Conditions

None

2.11 Unique Project Features

None

3.0 TRAFFIC INFORMATION

3.1 Traffic Volumes/Conditions

3.1.1 See attached Traffic Forecast Report – Attachment D

3.1.2 Highway Capacity Analysis

Location (Roadway Segment or Intersection)	Existing Level of Service	Design Year Level of Service Under Existing Roadway	Design Year Level of Service Under Proposed Roadway
022N122 000 to 022N133 000 (CTH N to CTH T)	B	B	B
022N133 000 to 022N138 000 (CTH T to USH 45)	A	A	A

Comments: The project is not anticipated to affect corridor level of service.

3.2 Existing Crash Analysis

Was a Region Safety Certification Document completed?

☒	Yes	☐	No
☐	Yes	☒	No
☐	Yes	☐	No

Were any crash problems identified?

If Yes, did you discuss safety mitigation measures with the Region Safety Engineer?

Comments:

There was a total of 27 crashes along the project corridor between 2012 and 2016 after crash validation. The most common crash types were run-off-the-road (18 crashes, 67 percent) and rear-end crashes (8 crashes, 30 percent). Weather may have been a factor in 12 crashes (44 percent). There were no fatal crashes. Six crashes involving intoxicated drivers failing to negotiate signed curves and running off the road on the right shoulder were not included in the crash calculations.

See Attachment J – Safety Certification Document

4.0 PROPOSED DESIGN CRITERIA

4.1 Design Class

Roadway or Roadway Segment	Design Class
STH 22	RA2-1 (Minor Arterial - Rural) from FDM 11-40, Attachment 7.2 Station 41+00 – Station 206+00 and from Station 220+00 – Station 678+10
STH 22	RA2-1 (Minor Arterial - Urban) from FDM 11-40, Attachment 7.2 Station 206+00 - Sta 220+00

4.2 * Design Speed

Roadway or Roadway Segment	Design Speed	Posted Speed
STH 22, Begin Project – Symco	55 mph	55 mph
STH 22, Symco	35 mph	35 mph
STH 22, Symco – End Project	55 mph	55 mph

* Controlling Criteria

Comments: The design speed is 35 mph (posted speed 35 mph) in the urban section of roadway. The design speed and posted speed are the same in the rural section.

4.3 Design Criteria Outside of Desirable Standards

There are seven crest curves that do not meet required SSD of 495' for design speed of 55 mph for upper minimum 6" object but meet for minimum 24" object. There are four vertical curves that do not meet required SSD for both upper minimum and minimum objects. See Section 2.2.2.

The proposed curb ramp in the SW quadrant of STH 22 and Symco Road will be a modified Type 4A. The sidewalk on the south side of STH 22 ends at Symco Road. There is no sidewalk in the other quadrants – see plan sheet.

4.4 Exceptions to Standards

None

4.4.1 Safety Screening Analysis (SSA) per FDM 11-1-4 (3R projects and Preventive Maintenance (PM) Group I and Group II pavement strategy projects)

See attached Safety Screening worksheets for locations and details of Crash Flags and Improvement Flags within the project limits.

***National Highway System (NHS) Roadway- Substandard Geometric Features (3R & PM projects)**

NHS roadway name:

Location				Feature Type	Magnitude of Variance
Sta.	to Sta.	RP	to RP		

* This documentation is required only for 3R projects on the National Highway System.

These substandard features are located on highway segments containing no flags or only Crash Type Flags. These features do not contribute significantly to the crash situation on these segments of highway, so these highway segments are covered by the Programmatic Exception to Standards.

See attached map

Comments:

4.5 Typical Cross Section Elements Considered

Do nothing alternative was considered for this project. No lane expansion was analyzed.

5.0 PROPOSED DESIGN IMPROVEMENT

5.1 Improvement Type

RSRF10 – Resurfacing (Overlay < 2.5 inches) Program Code 303 State Highway Rehabilitation

5.2 Geometrics

5.2.1 * Horizontal alignment

No changes are proposed to the mainline horizontal alignment. See Attachment E – Preliminary Plan Sheets

5.2.2 * Vertical alignment/Stopping sight distance

No changes are proposed to the mainline vertical alignment. See Attachment E – Preliminary Plan Sheets

5.2.3 * Grades

No changes to mainline grades.

* Controlling Criteria

5.3 Sideroads/Intersections/Interchanges

5.3.1 Side roads

Roadway Name	Functional Class	Design Speed (MPH)	Design Year Traffic (AADT)	Design Class	Approach Grades	Ped. Facilities (Y / N)	Bike Facilities (Y / N)
Fuhs Road	Local	25	Assumed <100	L1	Same as existing – see Table 2.3.2	N	N
Prellwitz Road	Local	25	Assumed <100	L1	“	N	N
Sturm Lake Road	Local	25	Assumed <100	L1	“	N	N
Blake Creek Road	Local	25	Assumed <100	L1	“	N	N
Riske Road	Local	25	Assumed <100	L1	“	N	N
STH 110 & STH 161	Major Collector	45	Assumed >100	B1	“	N	N
West River Road/ Riske Road	Local	25	Assumed <100	L1	“	N	N
Symco Road	Local	25	Assumed <100	L1	“	Y	Y
East River Road	Local	25	Assumed <100	L1	“	N	N
CTH O	Minor Collector	25	Assumed >100	L1	“	N	N
Beaver Road	Local	25	Assumed <100	L1	“	N	N
CTH O	Minor Collector	25	Assumed >100	B2	“	N	N
Beaver Road	Local	25	Assumed <100	L1	“	N	N
Shady Lane	Local	25	Assumed <100	L1	“	N	N
Dump Lane	Local	25	Assumed <100	L1	“	N	N
Hemlock Lane	Local	25	Assumed <100	L1	“	N	N
Beaver Creek Road	Local	25	Assumed <100	L1	“	N	N

Roadway Name	Functional Class	Design Speed (MPH)	Design Year Traffic (AADT)	Design Class	Approach Grades	Ped. Facilities (Y / N)	Bike Facilities (Y / N)
Fuhs Road	Local	25	Assumed <100	TR1	Same as existing – see Table 2.3.2	N	N
Prellwitz Road	Local	25	Assumed <100	L1	“	N	N
Sturm Lake Road	Local	25	Assumed <100	L1	“	N	N
Blake Creek Road	Local	25	Assumed <100	L1	“	N	N
Riske Road	Local	25	Assumed <100	L1	“	N	N
STH 110 & STH 161	Major Collector	45	Assumed >100	B1	“	N	N
West River Road/ Riske Road	Local	25	Assumed <100	L1	“	N	N
Symco Road	Local	25	Assumed <100	L1	“	Y	Y
East River Road	Local	25	Assumed <100	L1	“	N	N
CTH O	Minor Collector	25	Assumed >100	L1	“	N	N
Beaver Road	Local	25	Assumed <100	L1	“	N	N
CTH O	Minor Collector	25	Assumed >100	B2	“	N	N
Beaver Road	Local	25	Assumed <100	L1	“	N	N
Shady Lane	Local	25	Assumed <100	L1	“	N	N
Dump Lane	Local	25	Assumed <100	L1	“	N	N
Hemlock Lane	Local	25	Assumed <100	L1	“	N	N
Beaver Creek Road	Local	25	Assumed <100	L1	“	N	N
Nicholson Road	Local	25	Assumed <100	L1	“	N	N
CTH T	Minor Collector	25	Assumed <100	B2	“	N	N
Bell Corners Road	Local	25	Assumed <100	L1	“	N	N
Meidan Road	Local	25	Assumed <100	L1	“	N	N
Poplar Road	Local	25	Assumed <100	L1	“	N	N
Pleasant View Road	Local	25	Assumed <100	L1	“	N	N

Pine Grove Road	Local	25	Assumed <100	L1	"	N	N
USH 45	Principal Arterial	55	9900	B1	"	N	N

Comments:

5.3.2 Intersections

Intersecting Roadway Names	Intersect. Type	Intersect. Angle	Traffic Control	* SSD** Met [(Y/N) / Length]	ISD** Met [(Y/N) / Length]	DSD** Met [(Y/N)/ Length]	Vision Triangles Proposed (Y / N)	Corner Clearance to Driveways Met (Y / N)
Fuhs Road	C	90°	One-Way Stop	Same as present facility – See section 2.3.2	Same as present facility See section 2.3.2	Same as present facility See section 2.3.2	Same as present facility See section 2.3.2	Same as present facility See section 2.3.2
Prellwitz Road	C	90°	Stop sign	“	“	“	“	“
Sturm Lake Road	C	90°	Stop sign	“	“	“	“	“
Blake Creek Road	C	90°	Stop sign	“	“	“	“	“
Riske Road	C	90°	Stop sign	“	“	“	“	“
STH 110/ STH 161	B2	90°	Stop sign	“	“	“	“	“
West River Road/ Riske Road	C	90°	Stop sign	“	“	“	“	“
Symco Road	C	90°	Stop sign	“	“	“	“	“
East River Road	B2	90°	Stop sign	“	“	“	“	“
CTH O (South)	C	90°	Stop sign	“	“	“	“	“
Beaver Road	C	90°	Stop sign	“	“	“	“	“
CTH O (North)	C	90°	Stop sign	“	“	“	“	“
Beaver Road	C	90°	Stop sign	“	“	“	“	“
Shady Lane	C	90°	Stop sign	“	“	“	“	“
Dump Lane	C	90°	Stop sign	“	“	“	“	“
Hemlock Lane	C	90°	Stop sign	“	“	“	“	“
Beaver Creek Road	C	90°	Stop sign	“	“	“	“	“
Nicholson Road	C	90°	Stop sign	“	“	“	“	“
CTH T	B2	90°	Stop sign	“	“	“	“	“
Bell Corners Road	C	90°	Stop sign	“	“	“	“	“
Meidan Road	C	90°	Stop sign	“	“	“	“	“
Poplar Road	CI	53°	Stop sign	“	“	“	“	“
Pleasant View Road	C	90°	Stop sign	“	“	“	“	“
Pine Grove Road	C	90°	Stop sign	“	“	“	“	“

* Controlling Criteria

**SSD = Stopping Sight Distance, ISD = Intersection Sight Distance & DSD = Decision Sight Distance (See FDM 11-10).

Comments:

25 mph design speed assumed for unposted side streets

Intersection Types: same as present facility – See Section 2.3.2.

Intersection Angle: FDM 11-25-2.8.1.1: The standard for intersection angel is between 75 and 105 (desirable), 70 minimum and 110 (maximum).

Intersection angles at the Poplar intersection will not be improved since the historical crash rate is low and since intersection reconstruction is beyond the scope of this project.

Stopping Sight Distance; Same as present facility – see Section 2.3.2.

5.3.3 Interchanges

Name of Intersecting Roadways	Interchange Type	Ramp Type	Ramp Design Speed	Ramp Grades	* SSD** Met [(Y/N) / Length]	DSD** Met [(Y/N) / Length]	Vision Triangle (Yes or No)
None							

* Controlling Criteria

**SSD = Stopping Sight Distance & DSD = Decision Sight Distance (See FDM 11—25-1).

Comments:

5.4 Roundabouts

A roundabout was not considered on this project.

5.5 Cross Section/Pavement Structure

STA 41+00 – STA 206+00 and from STA 220+00 – 678+10 (Rural)

Begin project - Symco and from Symco – End Project

Number of roadways: 1

Number of lanes: 2

Median width/Type: None

* Lane width/Type (Driving, Parking, Bike Lane, etc.): 2 12-ft. driving lanes

* Shoulder width (Total & Paved or Curb & Gutter): Total: 6 ft., Paved: 3 ft.

Bike facilities proposed: Paved shoulders

Sidewalk and curb ramps: None

Pedestrian facilities/sidewalk proposed: None

* Cross slope: 0.02 Ft/Ft

* Super-elevation: 0.05 Ft/Ft, 0.058 Ft/Ft, 0.06 Ft/Ft

Description	S.E.	Does PES apply for eligible SS-CC?	Proposed recommendation from SSA
STH 110 NB	6%	Yes	Meets design justification
River Road E	5.8%	Yes	Meets design justification
CTH O (North)	5%	Yes	Meets design justification
CTH O (South)	5%	Yes	Meets design justification

Comment: Based on the results from the Safety Screening Analysis, the substandard super-elevation rates are eligible for the design justification.

* Horizontal clearance: 8 feet

* Vertical clearance: The vertical clearance required is 17'. This is found in BHM 9-15-25-2.2. The existing vertical clearance is limited by existing overhead utility crossings.

Pavement Structure: 2" HMA over 3" existing asphaltic pavement over 8" existing pulverized asphaltic pavement and crushed aggregate base course over 15" granular subbase

Clear Zone: 18 feet

Side-slope / Ditch Sections: 4:1 Normal, 3:1 Maximum

* Controlling Criteria

Comments: See finished typical cross sections

STA 206+00 – STA 220+00 (Urban)

Community of Symco

Number of roadways: 1

Number of lanes: 2

Median width/Type: None

* Lane width/Type (Driving, Parking, Bike Lane, etc.): 2 12-ft. driving lanes

* Shoulder width (Total & Paved or Curb & Gutter): 3.75 ft. with curb and gutter

Bike facilities proposed: Shared wide travel lanes

Sidewalk and curb ramps: Curb ramps will be constructed on the south side of STH 22 in Symco, see plan sheet. New curb ramps will be realigned because the existing curb ramps have no receiving pedestrian accommodations in the intersections.

Pedestrian facilities/sidewalk proposed: A section of new sidewalk will be constructed next to the curb ramps

* Cross slope: 0.02 Ft/Ft

* Super-elevation: 0.058 Ft/Ft

* Horizontal clearance: 8 feet

* Vertical clearance: The vertical clearance required is 17'. This is found in BHM 9-15-25-2.2. The existing vertical clearance is limited by existing overhead utility crossings.

Pavement Structure: 2" HMA over 5" existing crushed aggregate base course over 7.3" granular subbase

Clear Zone: 18 feet

Side-slope / Ditch Sections: 4:1 normal, 3:1 max

* Controlling Criteria

Comments: See finished typical cross sections

5.6 Street Lighting

Location	Type	Break-away Requirements
None		

5.7 Structures

5.7.1 Bridge Structures

Structure I.D. #	Location	Structure Type	Length	* Clear Width	No. of Spans	* Vertical Clearance	* Horizontal Clearance
None							
	Proposed Improvement:						
	Proposed Improvement:						
	Proposed Improvement:						

* Controlling Criteria

Comments: No bridge structures

5.7.2 Box Culverts and Multiple Pipe Structures

Structure I.D. #	Location	Type	Length	No. Pipes
None				
	Proposed Improvement:			
	Proposed Improvement:			

Comments: No box culverts or multiple pipe structures

5.7.3 Retaining Walls and Noise Barrier Structures

Structure I.D. #	Location	Type	Length	Height
None				
	Proposed Improvement:			
	Proposed Improvement:			

Comments: No retaining walls or noise barrier structures

5.7.4 Sign Bridge Structures

Structure I.D. #	Location	Type	Length	Clear Roadway Width	* Vertical Clearance	* Horizontal Clearance	Clear Zone Under
None							
	Proposed Improvement:						
	Proposed Improvement:						

* Controlling Criteria

Comments: No sign bridges

5.7.5 Tunnel Structures

All Other Structures						
Structure I.D. #	Location	Type (Veh., Ped., Bicycle, etc.)	Length	Lighting Type	* Vertical Clearance	* Horizontal Clearance
None						
	Safety Features			Coordination with Local Emergency Responders		
	Proposed Improvement:					
	Safety Features			Coordination with Local Emergency Responders		
	Proposed Improvement:					

* Controlling Criteria

Comments: No tunnel structures

5.8 Permanent Traffic Control

Will permanent signs be installed (Yes or No)? No

Are non-standard sign layout details needed (Yes or no)? No

Comments:

5.9 Transportation Management Plan

See the Transportation Management Plan Attachment H

5.10 Safety Enhancements/Mitigation Measures

Curb Ramps

Two curb ramps will be constructed and detectable warning fields will be installed.

West River Road and STH 22: the existing curb ramp will be reconstructed to standards as a Type 1 curb ramp. There is no receiving curb ramp; however, we will maintain ~~what is there now and construct sidewalk and a curb ramp~~. There are residences to the west and north of this intersection. In the future, there may be a curb ramp and sidewalk constructed in the northwest ~~corner of West River Road and STH 22~~.

Symco Road and STH 22: the existing curb ramp will be reconstructed as a Type 4a curb ramp. There is no receiving curb ramp ~~to the east~~. The new curb ramp will be located at the end of the sidewalk near the parking lot ~~east of~~ the Little Wolf River.

Beam Guard

The beam guard was reviewed by the NE Region and the SW Region. There are two locations where beam guard end treatment will be reconstructed.

Blake Creek: existing guard rail includes end treatment that is outdated. Beam guard energy absorbing terminals will be constructed at Blake Creek at all four corners. Existing beam guard is at the correct height and in good condition and will remain. See attached plan sheets, Attachment E.

Little Wolf River: the beam guard end treatment located near the Little Wolf River in Symco is outdated. From the design review, traffic could run off the road, hit the beam guard on the north side and end up down the slope. Beam guard energy absorbing terminals will be constructed. Curb and gutter will be constructed to new standards at this location. The beam guard on the south side of STH 22 at the Little Wolf River will remain. There is no crash history at this location. From a field inspection, the beam guard is at the correct height and is in good condition. It is unlikely that traffic will leave the road and hit the beam guard end treatment.

Thrie beam at the Little Wolf River is in good condition and will remain.

Centerline rumble strips will be constructed.

5.11 Real Estate

5.11.1 Real Estate Acquisition

Plat I.D.:

Relocations		Land (Acres)	Permanent Easements	Temporary Easements	Construction Permits
Type	Number				
None					

Comments:

5.11.2 Encroachment Actions

Encroachment Location	Encroachment Type	What is to be Done? (Removed, Revocable Permit, etc.)
See comment below	-	-

Comments: Encroachments were not determined for this project. If there is an encroachment that is deemed to be unsafe or create hazardous travel, it will be brought to the supervisor's attention for removal.

5.12 Utilities

Is Project Trans 220 Utility Project (Yes or No)? Yes

Describe any special design features to accommodate utilities:

None

Major Utility Agreements:

None

Comments:

5.13 Railroads

Describe improvements to Railroad Facilities:

N.A.

Railroad Agreements:

N.A.

Comments:

5.14 Financing and Scheduling

Construction I.D.	Cost Estimate	Type of Funding			Proposed Timeframe for Construction	Ties to Other Work or Projects	Incentive/ Disincentive Clauses (Yes or No)
		% Fed.	% State	% Local			
6590-02-76	\$3,255,000	80	20	0	April – July 2023	N/A	No

Describe Incentive/Disincentive Clauses:

None

Non-participating Work:

N.A.

Deferred Construction Work (Preventive Maintenance projects)

N.A.

5.15 Unique or Non-standard Features

5.15.1 Hazardous Waste

Phase 1 was completed on December 17, 2019. No further action is necessary.

5.15.2 Environmental Commitments

See Attachment G

5.15.3 Community Sensitive Design/Public Involvement

Public Involvement is expected to be a LOM with mailings.

5.15.4 Value Engineering

N.A.

6.0 SYNOPSIS

	Completion/Approval Dates	Status of Coordination or Other Information as Needed
Concept Definition Report	5/2/19	Completed
Scoping Document	5/22/19	Completed
Public Involvement Plan	5/29/19	Initial PIP Approved
Final Aesthetic & Visual Level of Impact Worksheet	N.A.	N.A.
Speed Limit Change Declaration	N.A.	N.A.
Environmental Document (Type: PCE)	6/5/20	Draft completed 5/5/20
Public Hearing/Public Information Meetings	N.A.	N.A.
SHPO Involvement	4/16/20	Sent notice on 2/13/20
DNR Involvement	2/24/20	Sent notification on 2/13/20
Agricultural Impact Statement	N.A.	N.A.
Pavement Design Report	10/25/17	Completed
Roundabout Review	N.A.	-
Transportation Management Plan (Type: 2)	60% approval on 5/21/20	TMP Type 2
Permits Required (Types: 401, 404)	-	Ongoing
Local Project Agreements	N.A.	-
Value Engineering Study	N.A.	-
Status of Statutory Actions	N.A.	-

7.0 ATTACHMENTS

Attachment A – Project Location/Overview Map

Attachment B – As-Built Plan Sheets

Attachment C – Existing Typical Cross Sections

Attachment D – Traffic Forecast Report

Attachment E – Preliminary Plan Sheets

Attachment F – Finished Typical Cross Sections

Attachment G – Environmental Commitments Basic Sheets and Correspondence Letters

Attachment H – Transportation Management Plan Documentation

Attachment I – Safety Certification Document (SCD)

Attachment A

Project Location/Overview Map

SHAWANO CO.

R-11-E

Town of Germania

SHAWANO CO.

R-15-E

Town of Belle Plaine

6590-02-06
CTH N - USH 45
STH 22
WAUPACA COUNTY

END PROJECT

LITTLE WOLF RIVER

BLAKE CREEK

BEGIN PROJECT

LEGEND

- Freeway
- Multilane Divided
- U.S. or State Hwy
- County Trunk Hwy
- Town Road
- Firelane
- Railroad
- State Trail
- Interchange
- Highway Separation
- Interstate Highway No.
- U.S. Highway No.
- State Highway No.
- County Highway Letter
- State Boundary
- County Boundary
- Civil Town Boundary
- Section Line
- Dam
- Hospital
- Airport
- County Seat
- Unincorporated Village
- Fish Hatchery
- Game Farm
- Public Hunt or Fish Grds.
- Public Camp & Picnic Grds.
- Ranger Station
- State Park
- County Park
- Without Facilities
- Rest Area
- Wayside

MILES OF HIGHWAY
as of Dec. 31, 2017

STATE	197
COUNTY	334
LOCAL ROADS	1132
OTHER ROADS	0
TOTAL FOR COUNTY	1663

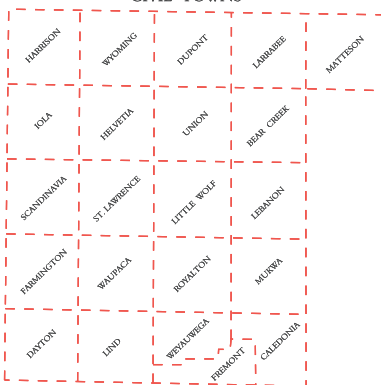
Land Area (2000 Census) 748 sq mi
Population (2010 Census) 52480
County Seat Waupaca

WAUSHARA CO.

WAUSHARA CO.

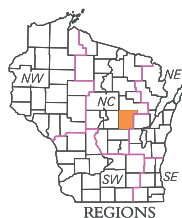
WINNEBAGO CO.

CIVIL TOWNS



SECTION NUMBERING
OF A TOWNSHIP

6	5	4	3	2	1
7	8	9	10	11	12
13	14	15	16	17	18
19	20	21	22	23	24
25	26	27	28	29	30
31	32	33	34	35	36



WAUPACA CO.

DEPARTMENT OF TRANSPORTATION
Madison, Wisconsin

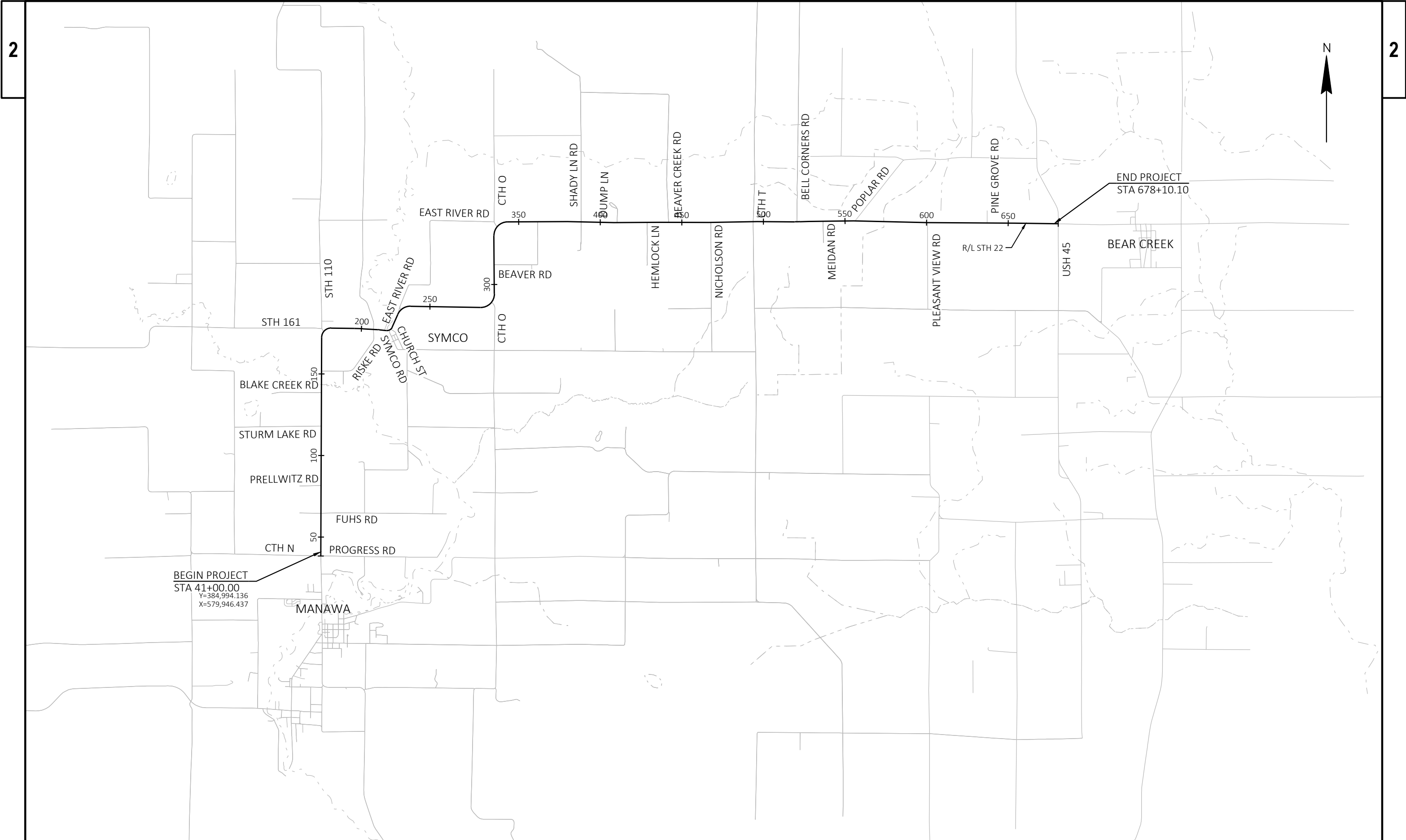
SCALE 0 1 2 MILES

Corrected for

JAN. 2019

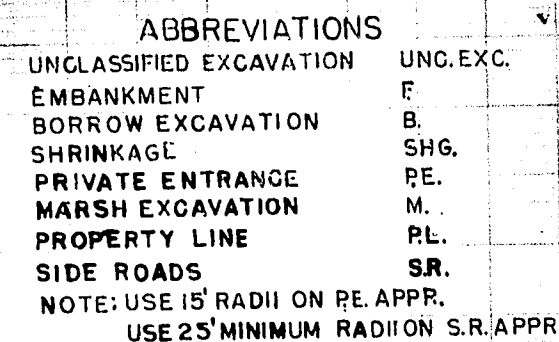
Base compiled from U.S.G.S. Quadrangles
1:100,000 Series

For boundaries of public hunting and fishing grounds
please contact the Department of Natural Resources



Attachment B

As-Built Plan Sheets

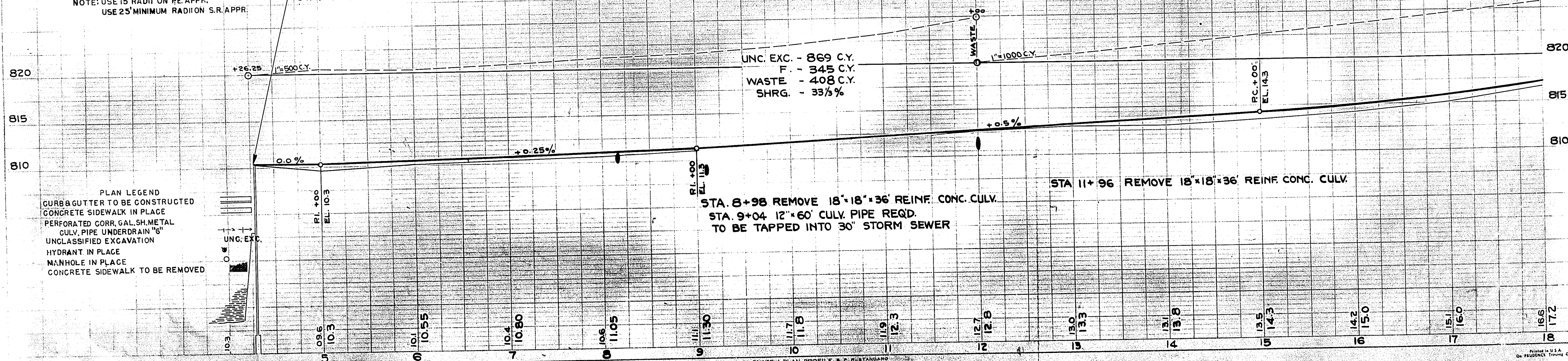


BEGINNING OF PROJECT S 0482 (3)
STA. 4+26.25

STA 11+96	REMOVE 18"X18"X36' REINF. CONC. CULV.
-----------	---------------------------------------

STA. 8+98 REMOVE 18" x 18" x 36' REINF. CONC. CULV.
STA. 9+04 12" x 60' CULV. PIPE REQD.
TO BE TAPPED INTO 30" STORM SEWER

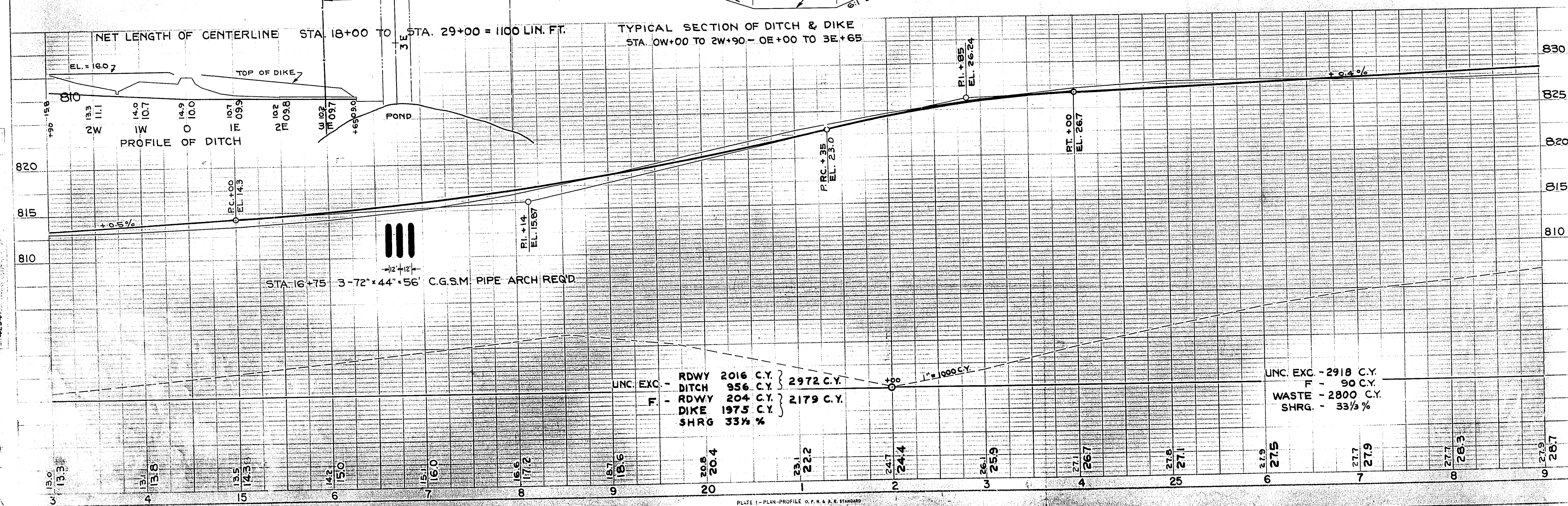
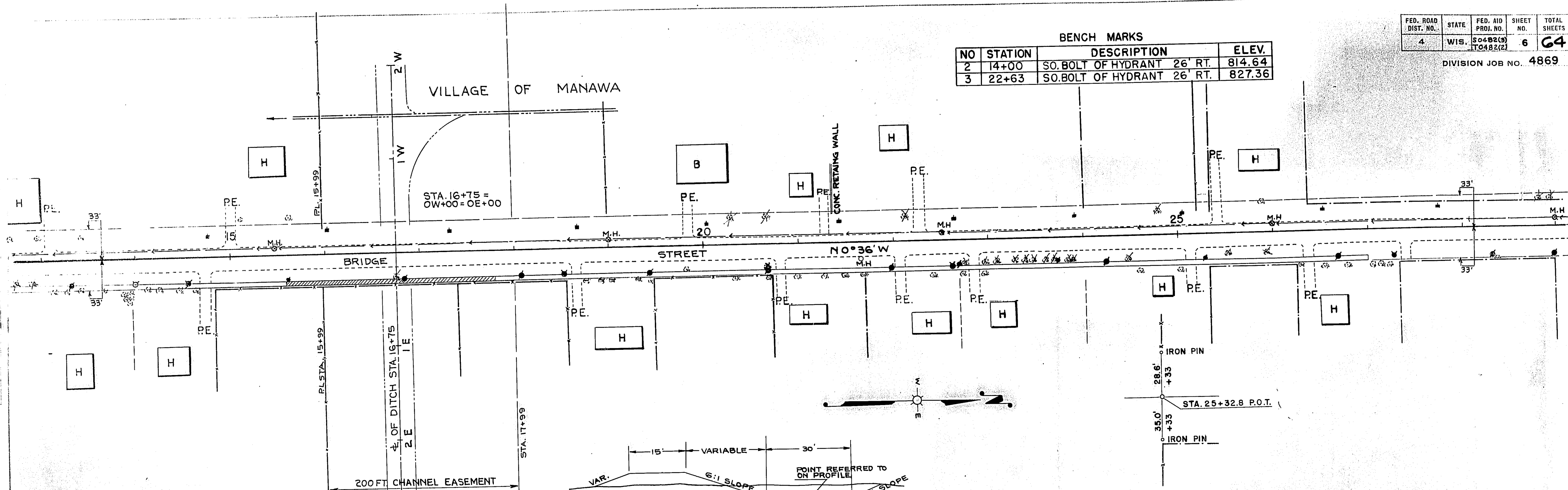
PLAN LEGEND
CURB & GUTTER TO BE CONSTRUCTED
CONCRETE SIDEWALK IN PLACE
PERFORATED CORR. GAL. SH. METAL
CULV. PIPE UNDER DRAIN "6"
UNCLASSIFIED EXCAVATION
HYDRANT IN PLACE
MANHOLE IN PLACE
CONCRETE SIDEWALK TO BE REMOVED



FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
4	WIS.	SO482(3) TO482(2)	6	64

DIVISION JOB NO. 4869

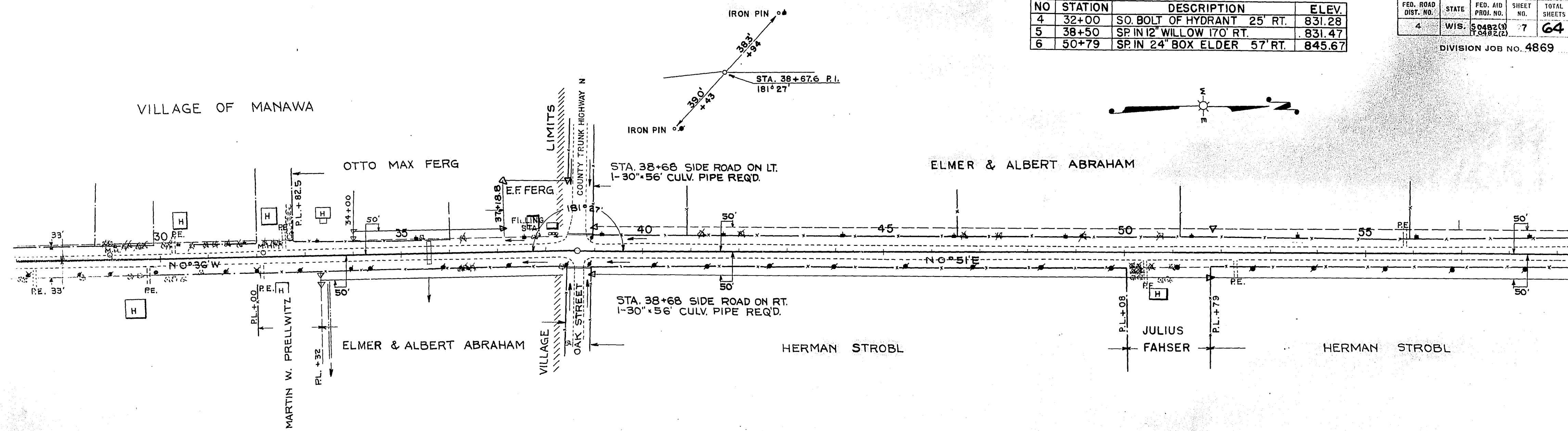
BENCH MARKS			
NO	STATION	DESCRIPTION	ELEV.
2	14+00	SO. BOLT OF HYDRANT 26' RT.	814.64
3	22+63	SO. BOLT OF HYDRANT 26' RT.	827.36



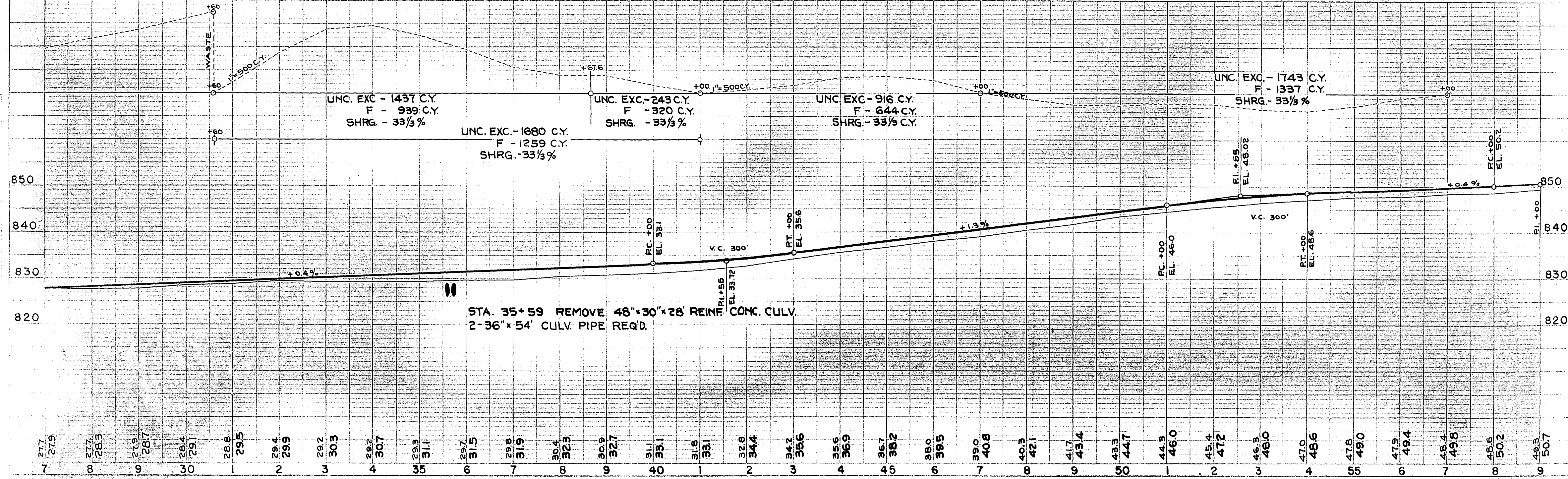
BENCH MARKS			
NO	STATION	DESCRIPTION	ELEV.
4	32+00	SO. BOLT OF HYDRANT 25' RT.	831.28
5	38+50	SP. IN 12' WILLOW 170' RT.	831.47
6	50+79	SP. IN 24' BOX ELDER 57' RT.	845.67

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
4	WIS.	50482(3)	7	64

DIVISION JOB NO. 4869



NET LENGTH OF CENTERLINE STA. 29+00 TO STA. 38+67.6 = 967.6 LIN. FT.
 NET LENGTH OF CENTERLINE STA. 38+67.6 TO STA. 59+00 = 2032.4 LIN. FT.



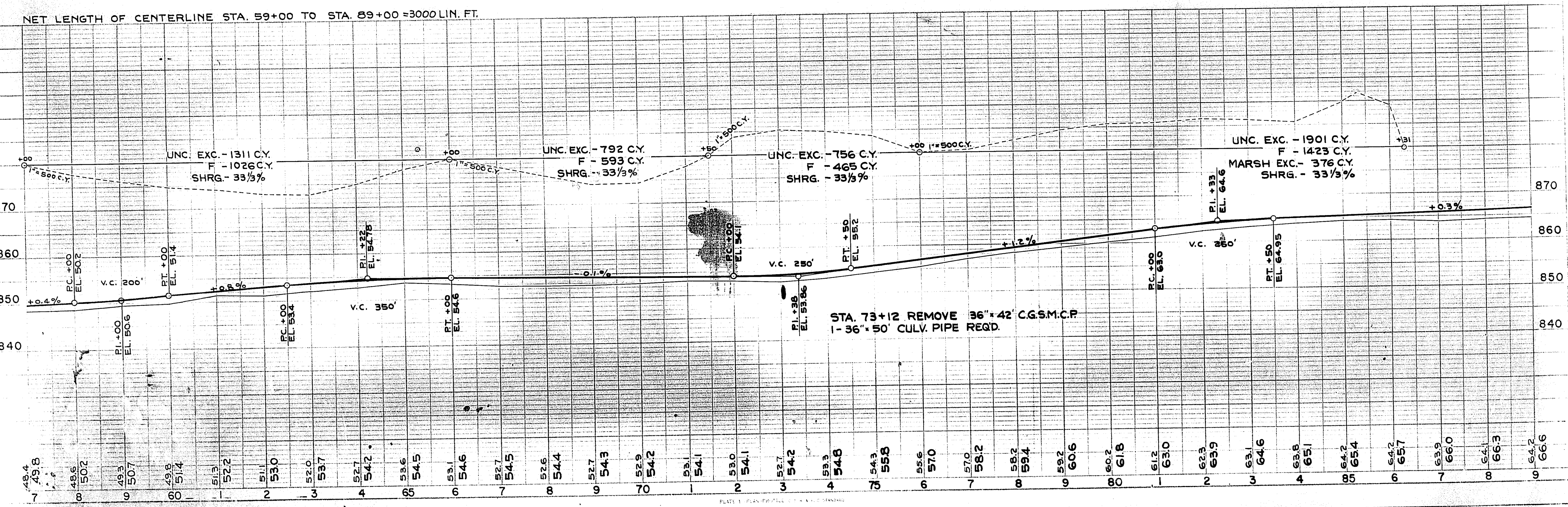
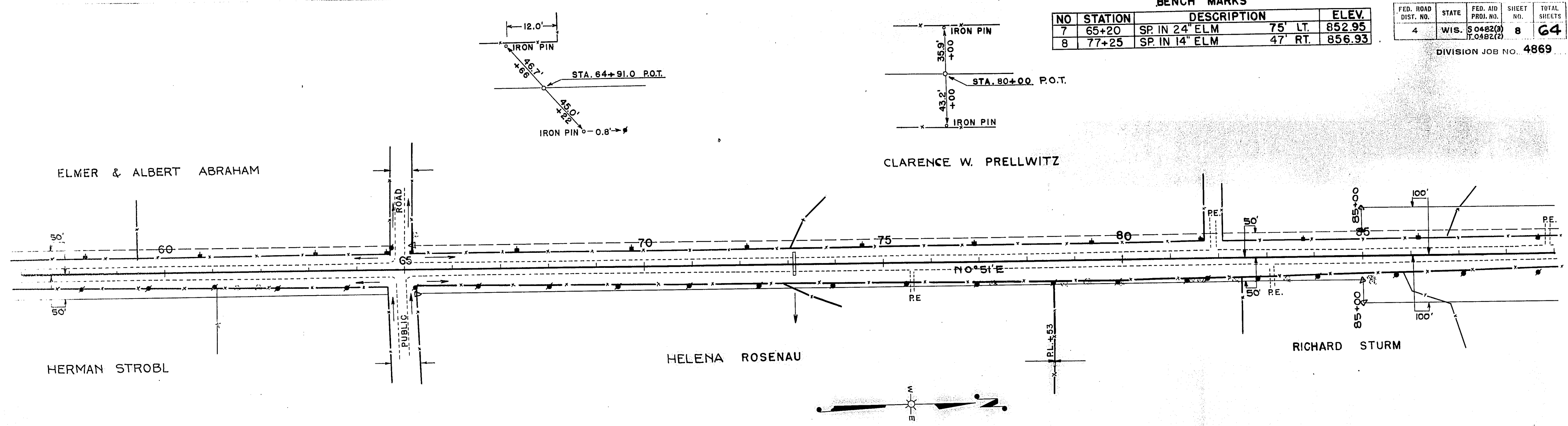
PLAN
 SURVEYED
 PLOTTED
 NOTE BOOK
 ALGAMAY
 NO. 4293

PROFILE
 SURVEYED
 PLOTTED
 NOTE BOOK
 ALGAMAY
 NO. 4294

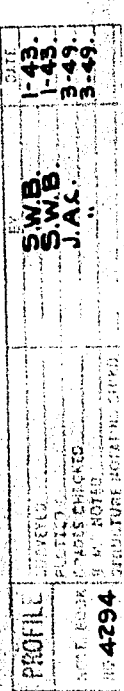
NO	STATION	DESCRIPTION	ELEV.
7	65+20	SP. IN 24" ELM	75' LT. 852.95
8	77+25	SP. IN 14" ELM	47' RT. 856.93

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
4	WIS.	50482(2)	8	64

DIVISION JOB NO. 4869



FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
4	WIS.	50482(3) T0482(2)	9	6

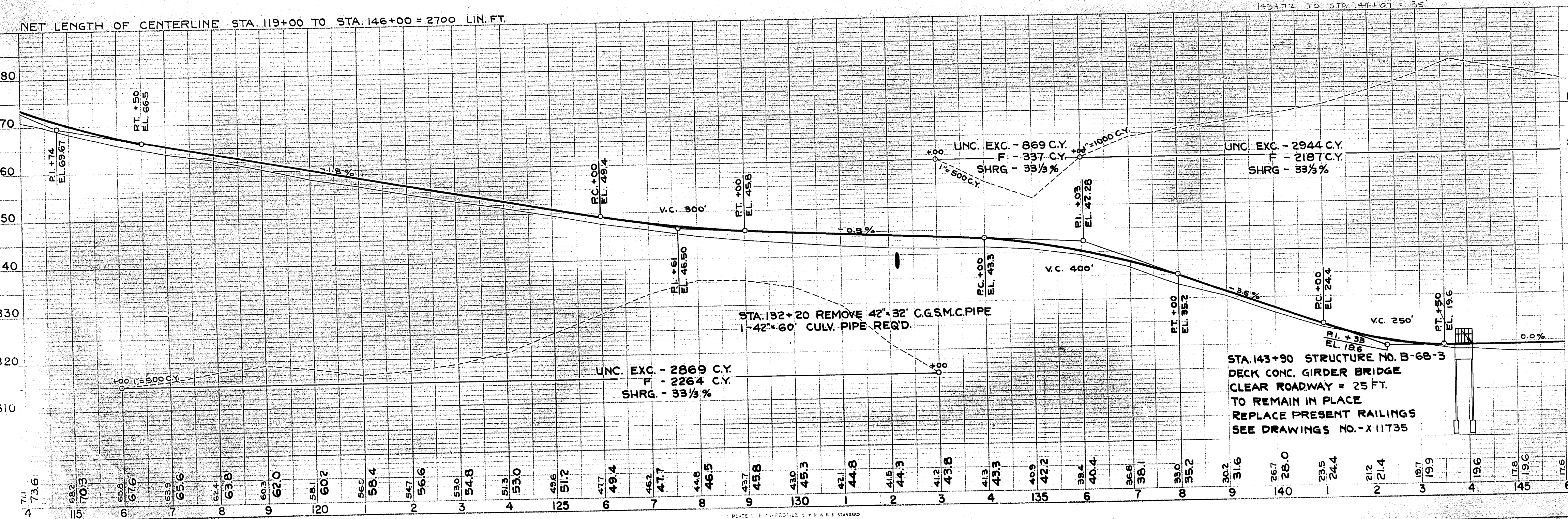
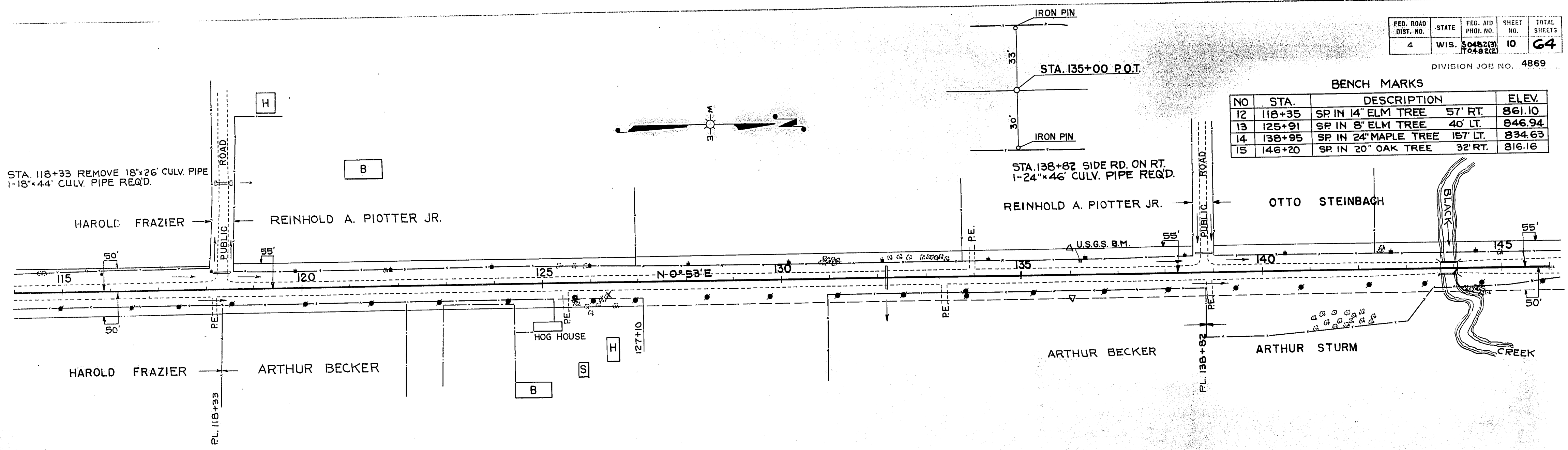


FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
4	WIS.	50482(3) 10482(2)	10	64

DIVISION JOB NO. 4869

BENCH MARKS

NO	STA.	DESCRIPTION	ELEV.
12	118+35	SP IN 14" ELM TREE 57' RT.	861.10
13	125+91	SP IN 8" ELM TREE 40' LT.	846.94
14	138+95	SP IN 24" MAPLE TREE 157' LT.	834.63
15	146+20	SP IN 20" OAK TREE 32' RT.	816.16



PLAN
DATE 1-23
BY S.W.B.
CHECKED J.A.C.
NOTE: BOOK ADJUSTMENT CHECKED
NO. 4293

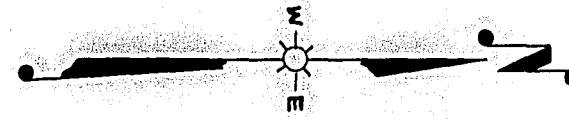
PROFILE
DATE 1-23
BY S.W.B.
CHECKED J.A.C.
NOTE: BOOK ADJUSTMENT CHECKED
NO. 4294

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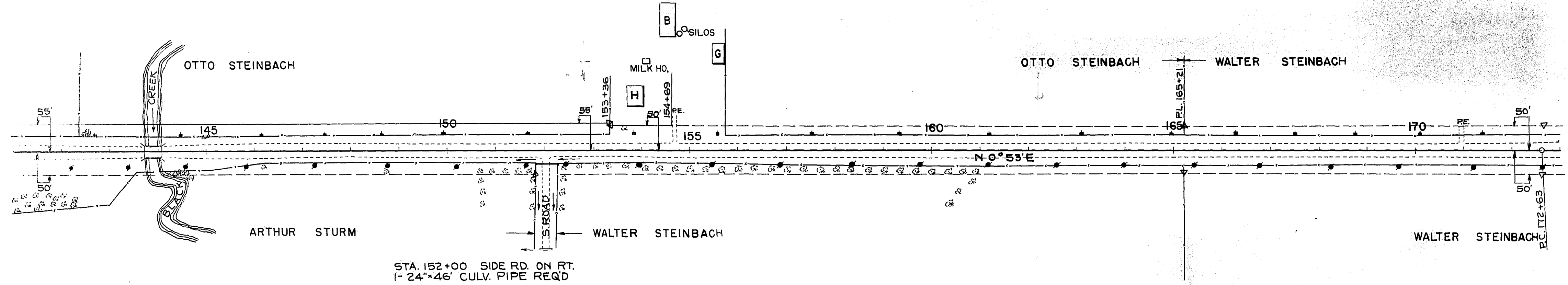
DIVISION JOB NO. 4869

BENCH MARKS

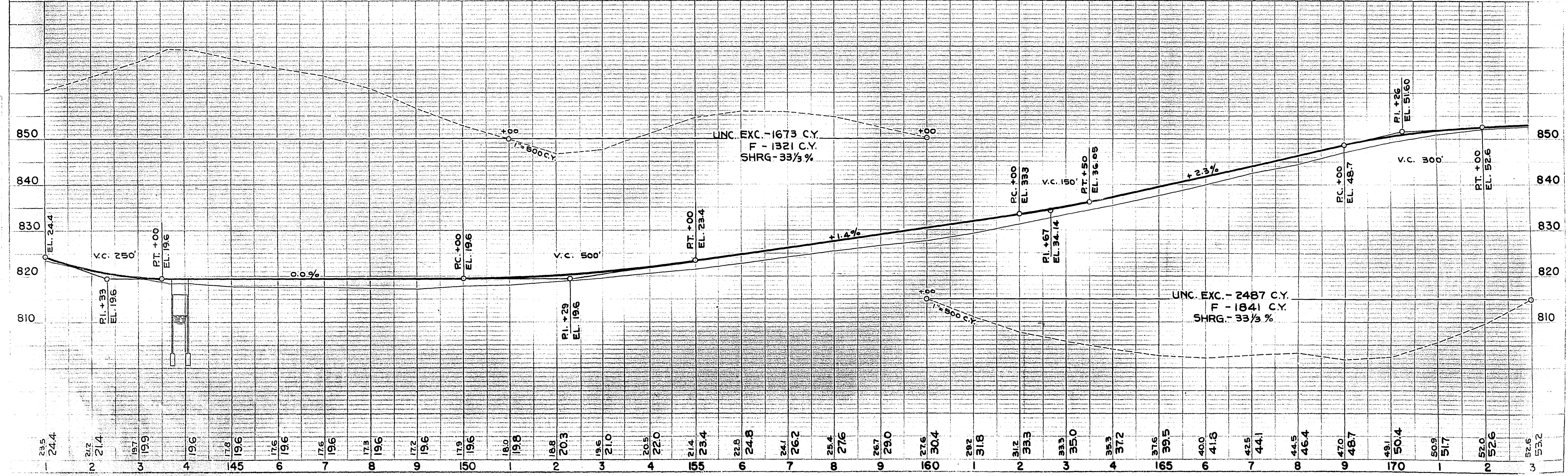
NO	STA.	DESCRIPTION	ELEV.
15	146+20	SP. IN 20" OAK TREE 32' RT.	816.16
16	160+75	SP. IN 12" BASS TREE 40' LT.	827.66



PLAN
DATE: 1-23
S.W.B.
C.S.P.
F.W.P.
NOTE BOOK
4293



NET LENGTH OF CENTERLINE STA. 146+00 TO STA. 173+00 = 2700 LIN. FT.



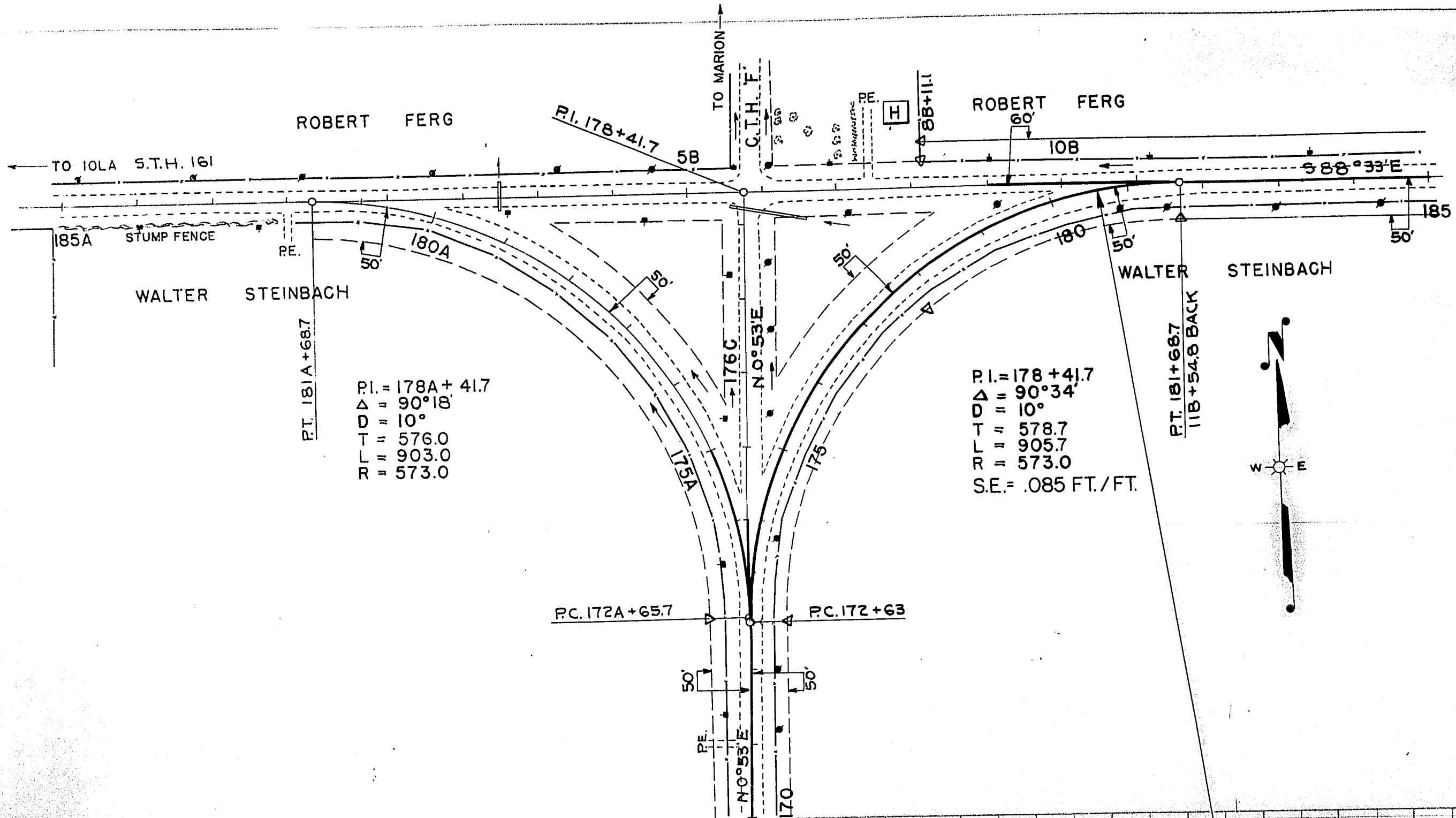
PROFILE
DATE: 1-23
S.W.B.
J.A.C.
NOTE BOOK
4294

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
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DIVISION JOB NO. 4869

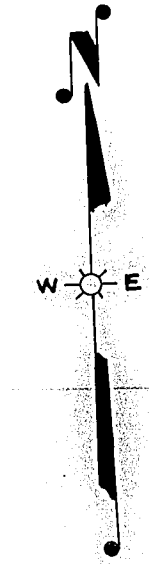
BENCH MARKS

NO	STATION	DESCRIPTION	ELEV.
17	175+00	SP IN POWER POLE 31' LT.	852.55



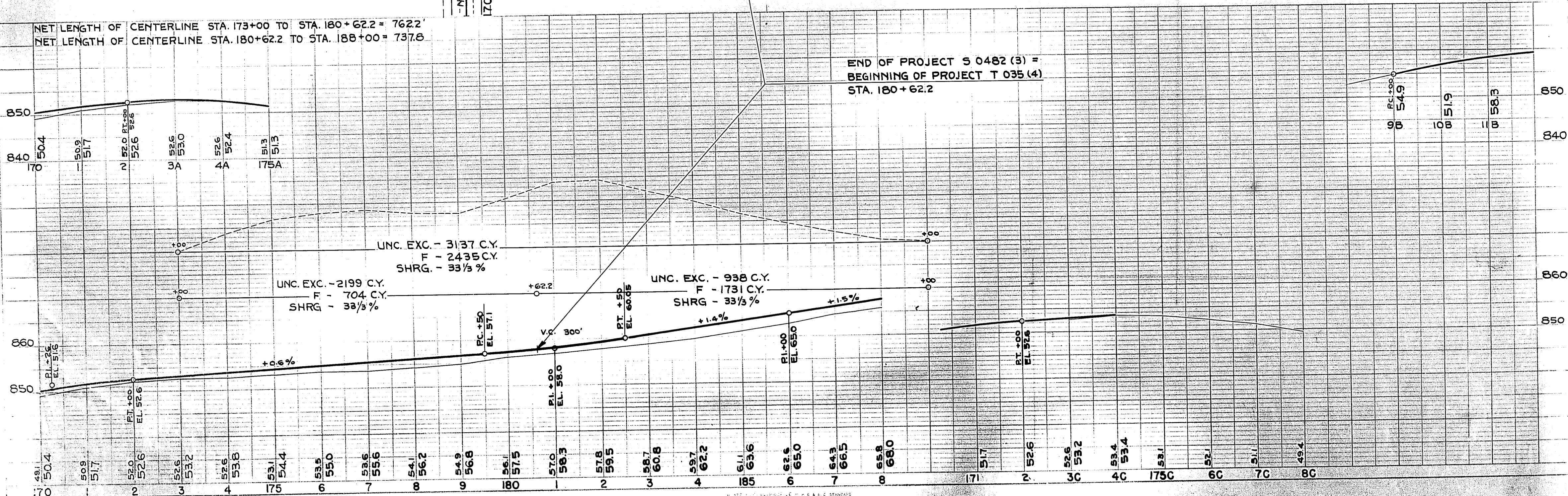
PI. = 178A + 41.7
Δ = 90°18'
D = 10°
T = 576.0
L = 903.0
R = 573.0

PI. = 178 + 41.7
Δ = 90°34'
D = 10°
T = 578.7
L = 905.7
R = 573.0
SE = .085 FT./FT.



NET LENGTH OF CENTERLINE STA. 173+00 TO STA. 180+62.2 = 762.2'
NET LENGTH OF CENTERLINE STA. 180+62.2 TO STA. 188+00 = 737.8

END OF PROJECT S 0482 (3) =
BEGINNING OF PROJECT T 035 (4)
STA. 180 + 62.2



UNC. EXC. - 3137 C.Y.
F - 2435 C.Y.
SHRG. - 33 1/3 %

UNC. EXC. - 938 C.Y.
F - 1731 C.Y.
SHRG. - 33 1/3 %

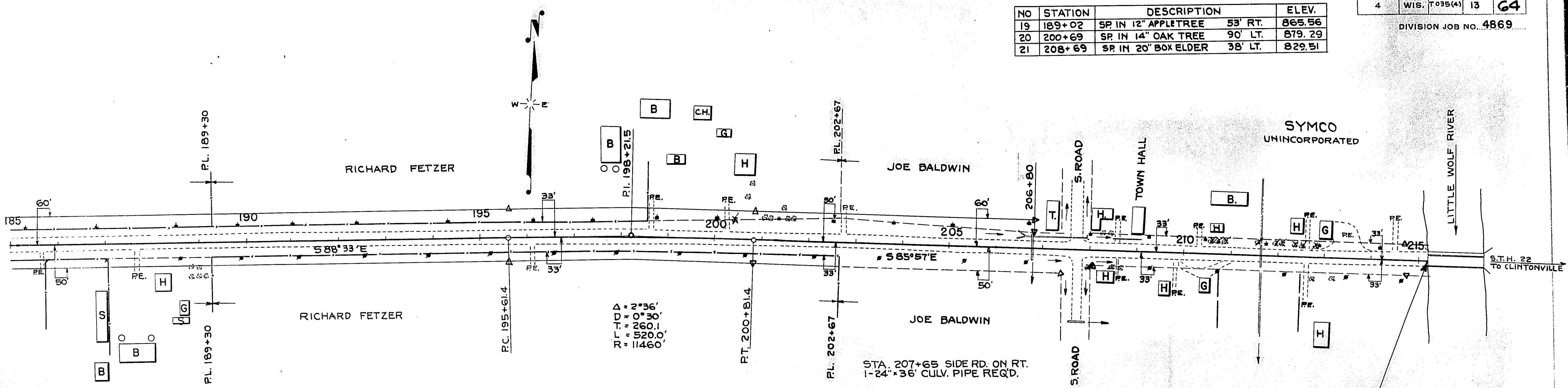
PLAN
NO. 4893

PROFILE
NO. 4894

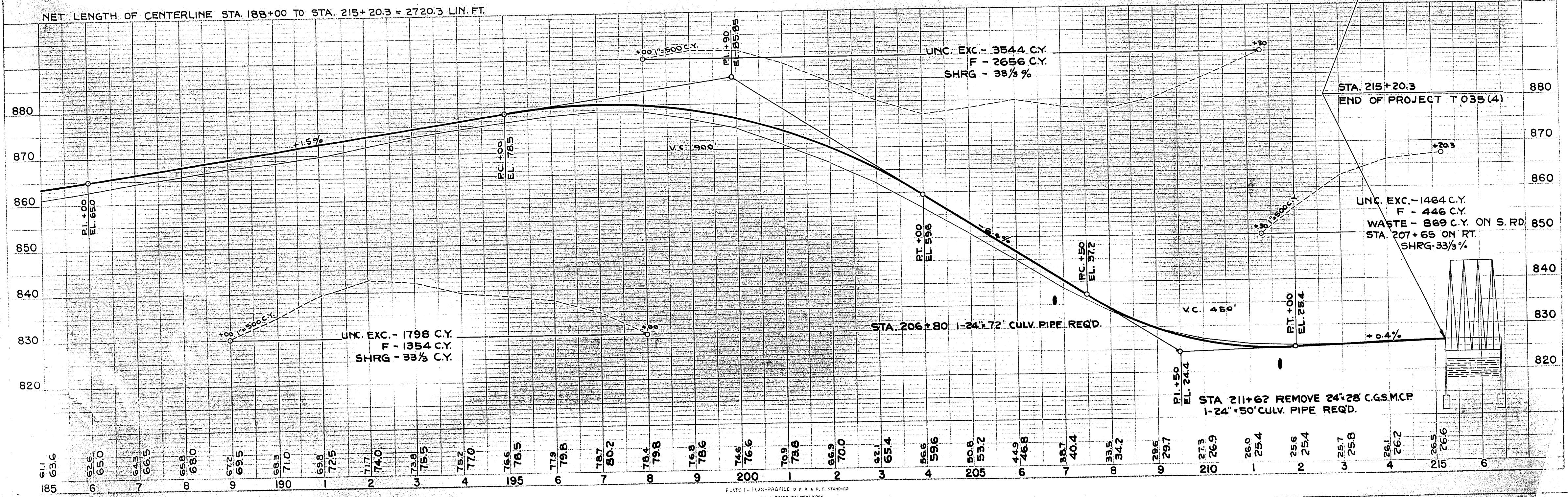
BENCH MARKS				
NO	STATION	DESCRIPTION		ELEV.
19	189+02	SP IN 12" APPLE TREE	53' RT.	865.56
20	200+69	SP IN 14" OAK TREE	90' LT.	879.29
21	208+69	SP IN 20" BOX ELDER	38' LT.	829.51

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
4	WIS.	T035(4)	13	64

DIVISION JOB NO. 4869



NET LENGTH OF CENTERLINE STA. 188+00 TO STA. 215+20.3 = 2720.3 LIN. FT.



BENCH MARKS			
NO.	STATION	DESCRIPTION	EL.
1	2+80	15" BOX ELDER 60' RT.	835.26
2	11+83	24" ELM 25' RT.	834.62

PROJECT	SHEET	TOTAL
T 035(5)	5	70

11-49
1-50
2-50
3-50

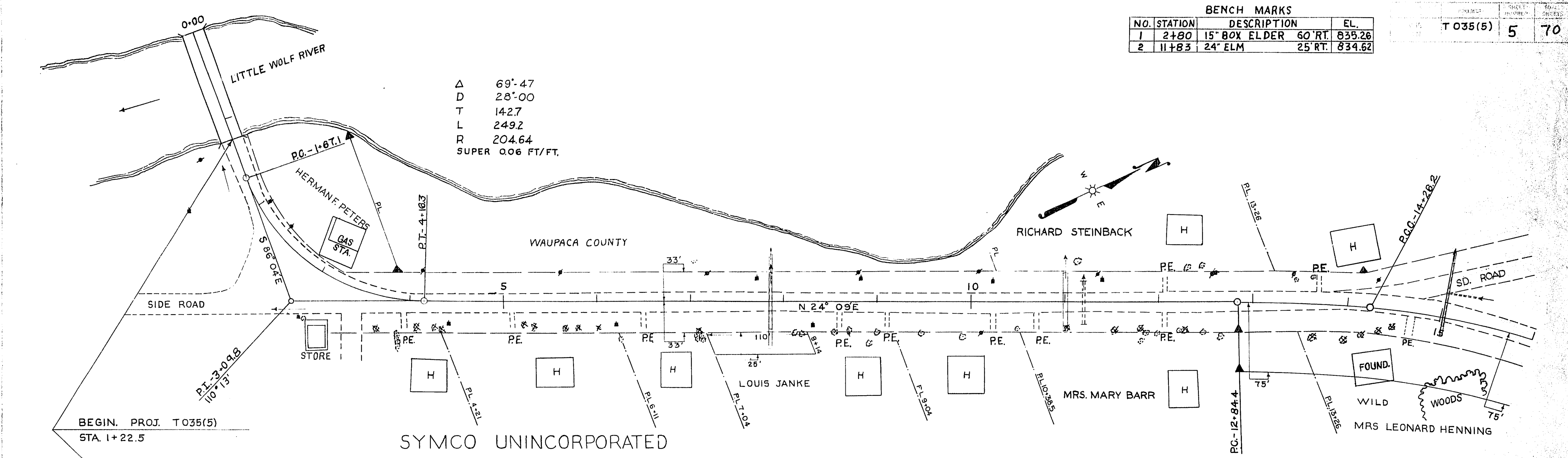
ALT.
WFS
C.A.W.
F.A.W.

4443

11-49
1-50
2-50
3-50

ALT.
WFS
C.A.W.
F.A.W.

4446



Δ 69°-47
D 28°-00
T 142.7
L 249.2
R 204.64
SUPER 0.06 FT/FT.

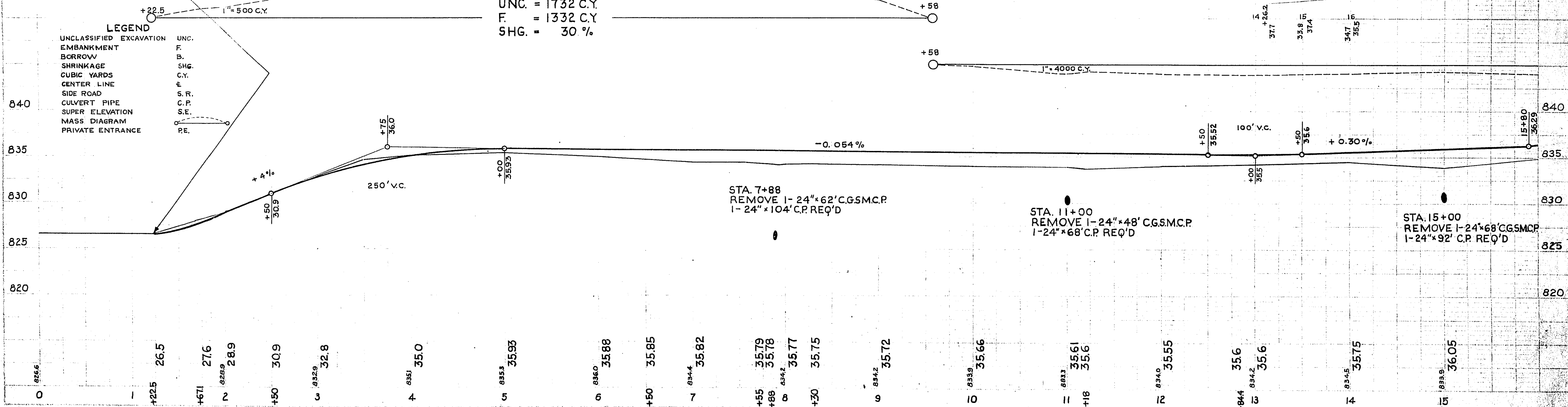
BEGIN. PROJ. T 035(5)
STA. 1+22.5

SYMCO UNINCORPORATED

NET LENGTH OF CENTERLINE STA. 1+22.5 TO STA. 15+00 = 1377.5 LIN. FT.

UNC. = 1732 C.Y.
F. = 1332 C.Y.
SHG. = 30 %

SIDE ROAD PROFILE LT. STA. 14+26.2



LEGEND
UNCLASSIFIED EXCAVATION
EMBANKMENT
BORROW
SHRINKAGE
CUBIC YARDS
CENTER LINE
SIDE ROAD
CULVERT PIPE
SUPER ELEVATION
MASS DIAGRAM
PRIVATE ENTRANCE

UNC.
F.
B.
SHG.
C.Y.
E.
S.R.
C.P.
S.E.
P.E.

STA. 7+88
REMOVE 1-24" x 62' CGSM.C.P.
1-24" x 104' C.P. REQ'D

STA. 11+00
REMOVE 1-24" x 48' CGSM.C.P.
1-24" x 68' C.P. REQ'D

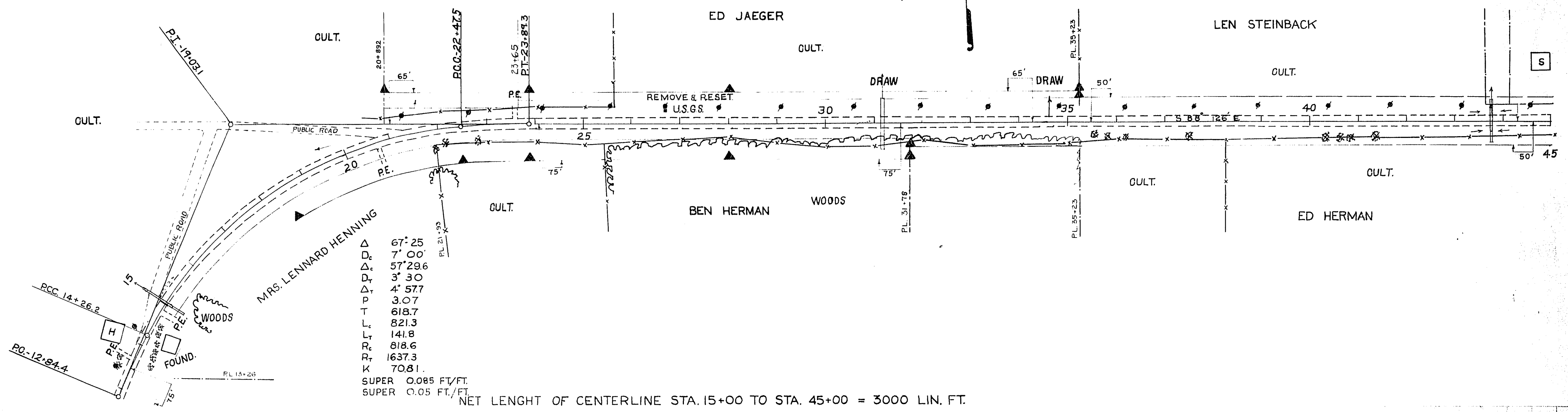
STA. 15+00
REMOVE 1-24" x 68' CGSM.C.P.
1-24" x 92' C.P. REQ'D

1-49
1-50
2-50
3-50
ALT.
WES.
S.A.T.
LWR

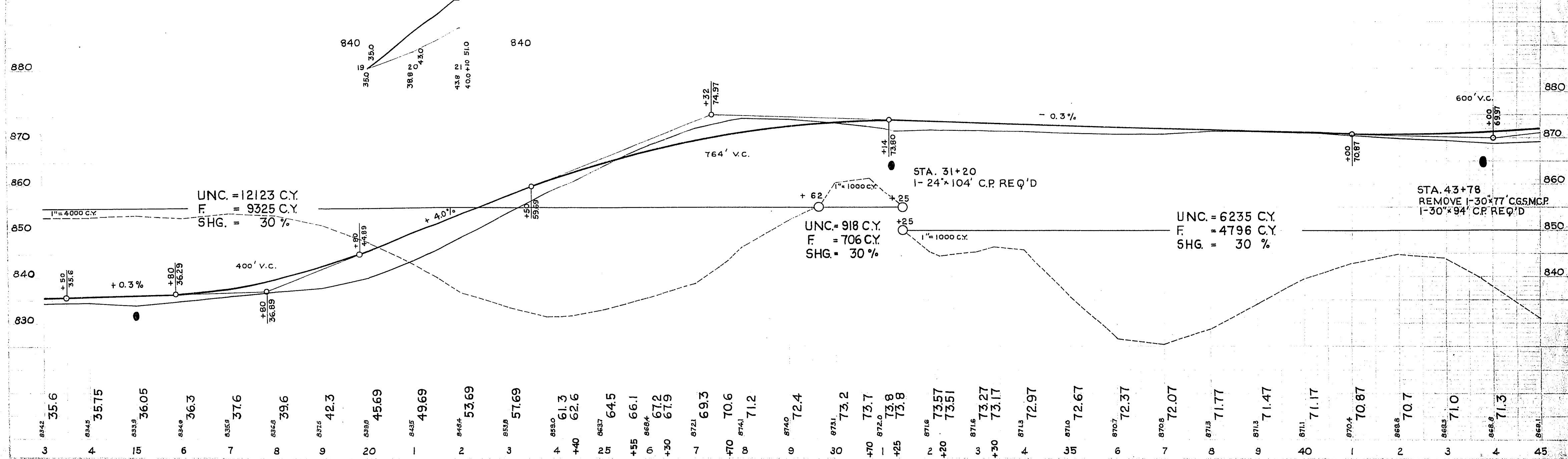
1-49
1-50
2-50
3-50
ALT.
WES.
F.A.W.
G.P.D.
F.A.W.

BENCH MARKS			
NO.	STATION	DESCRIPTION	EL.
3	21+00	18" OAK 175' RT.	846.33
4	32+90	15" ELM 50' RT.	874.75
5	45+78	38" ELM 40' LT.	868.18

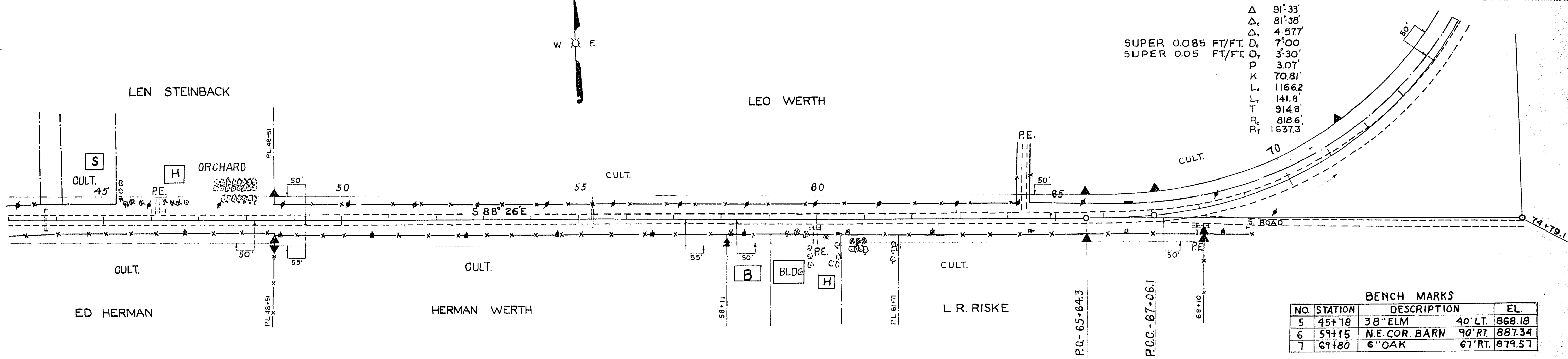
T 035(5) 6 70



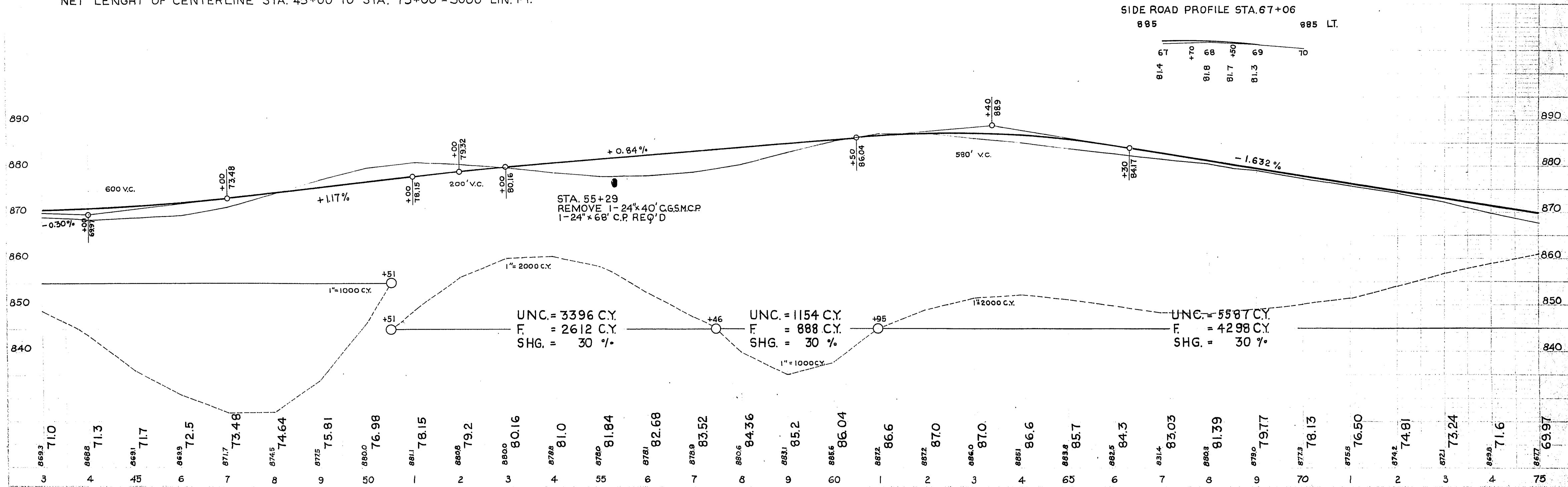
SIDE ROAD PROFILE LT. STA. 21+10



11-48
1-50
2-50
2-50
4-443



NET LENGTH OF CENTERLINE STA. 45+00 TO STA. 75+00 = 3000 LIN. FT.



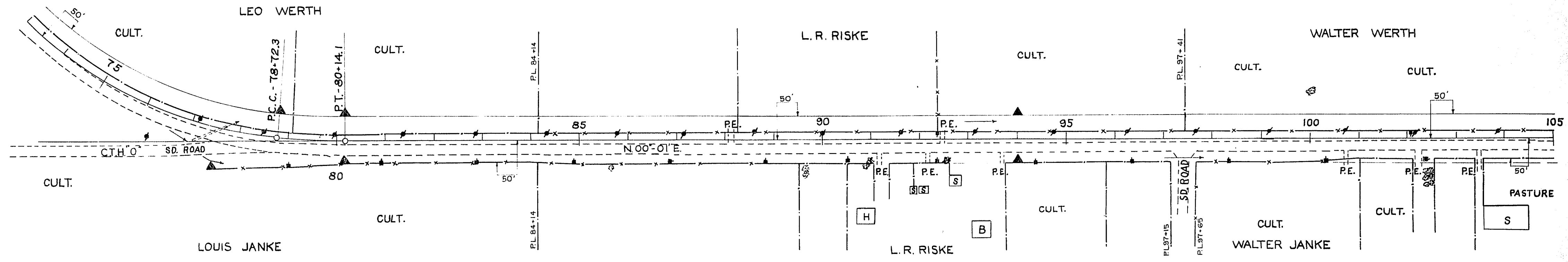
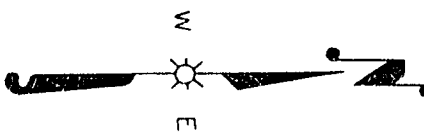
11-49
1-50
2-50
3-50
4443

11-49
1-50
2-50
3-50
4446

Δ 91°-33'
 D_c 7'-00' SUPER 0.085 FT./FT.
 D_r 3'-30' SUPER 0.05 FT./FT.
 Δ_c 81°-38'
 Δ_r 4°-57.7'
 K 70.81
 L_c 1166.2'
 L_r 141.8'
 T 914.8'
 R_c 818.6'
 R_r 1637.3'
 P 3.07

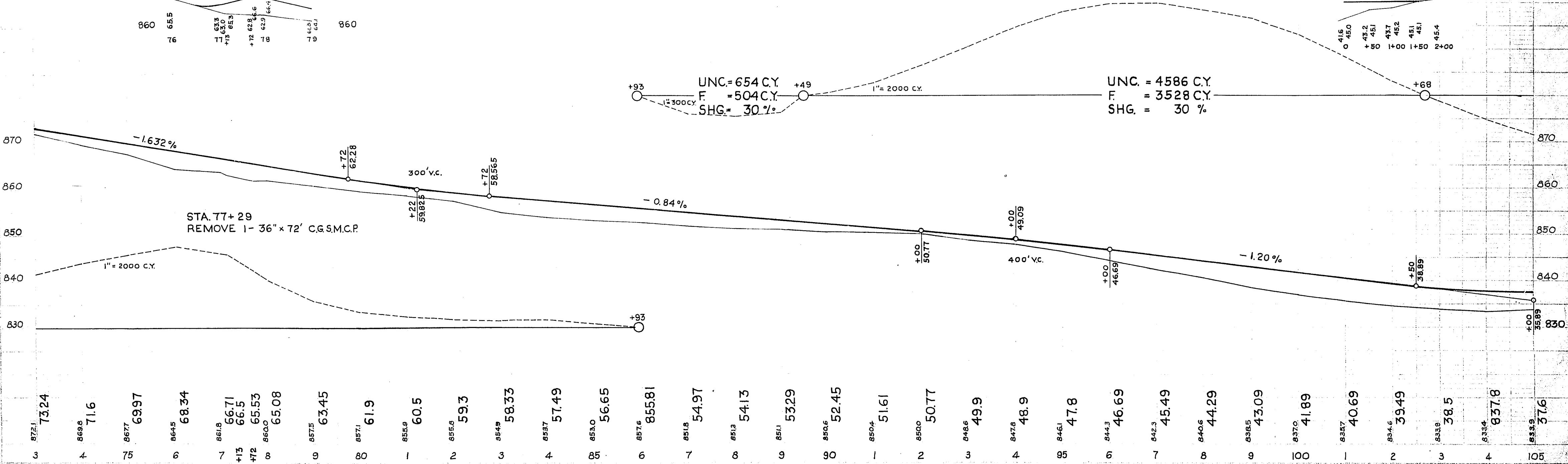
BENCH MARKS			
NO.	STATION	DESCRIPTION	EL.
8	85+63	24" OAK	55' RT. 859.75
9	100+15	18" OAK	130' LT. 835.48

T 035(5)	8	70
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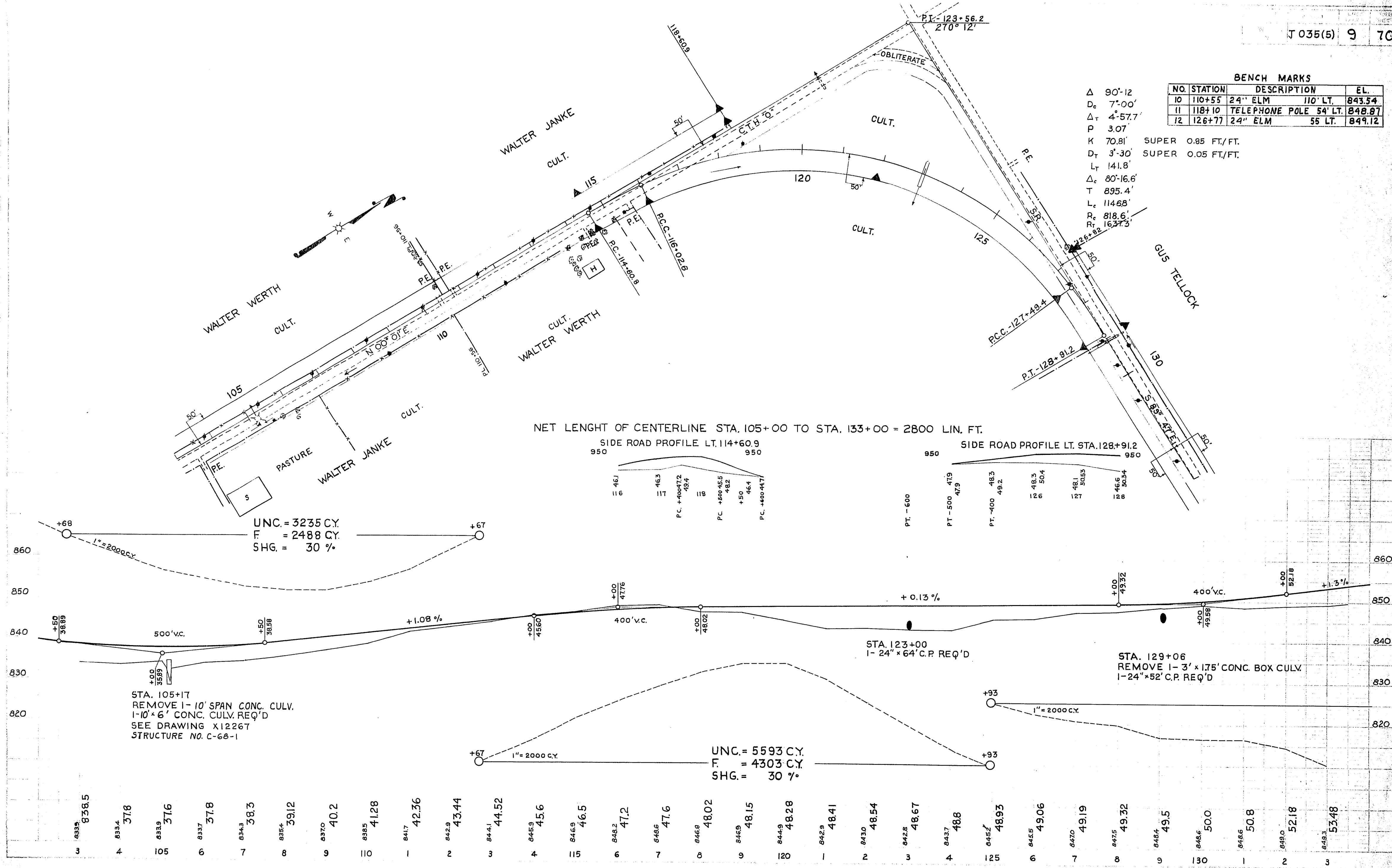
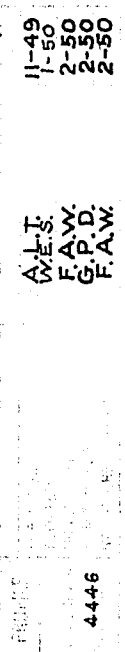
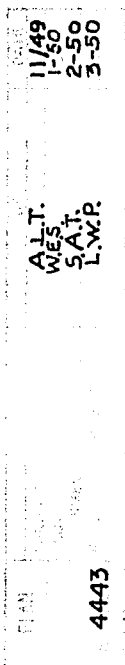
NET LENGTH OF CENTERLINE STA. 75+00 TO STA. 105+00 = 3000 LIN. FT.
SIDE ROAD PROFILE STA. 78+72.3

SIDE ROAD PROFILE STA. 97+41



NO.	STATION	DESCRIPTION	EL.
10	110+55	24" ELM 110' LT.	843.54
11	118+10	TELEPHONE POLE 54' LT.	848.87
12	126+77	24" ELM 55 LT.	849.12

	NO. STATION	
Δ 90°-12	10	110+55
D _c 7°-00'	11	118+10
Δ _τ 4°-57.7'	12	126+77
P 3.07'		
K 70.81'	SUPER 0.85 FT./FT.	
D _τ 3°-30'	SUPER 0.05 FT./FT.	
L _τ 141.8'		
Δ _c 80°-16.6'		
T 895.4'		
L _c 11468'		
P _c 818.6'		
R _τ 1637.3'		

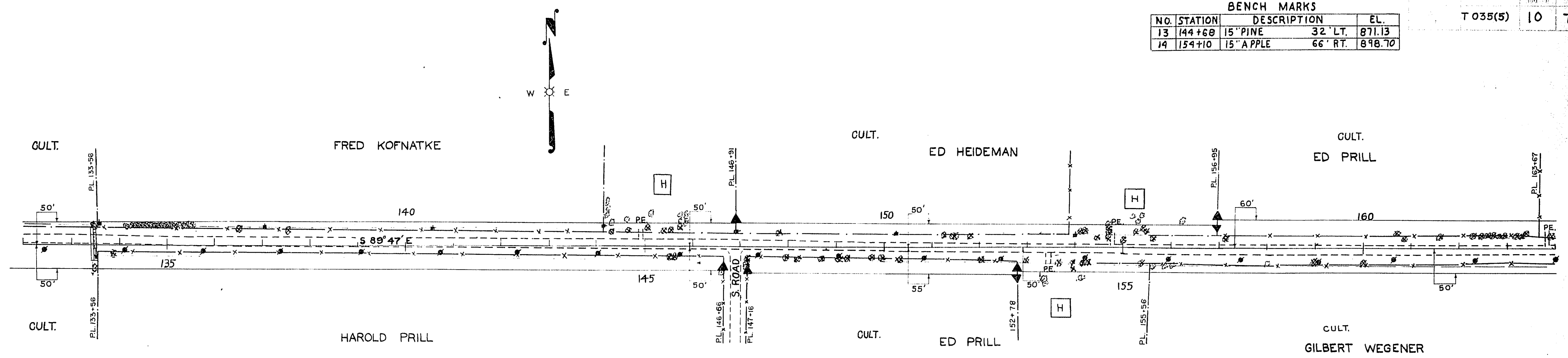


11-49
ALT.
P.E.S.
2-50
S.A.T.
3-50
4443

11-49
ALT.
P.E.S.
2-50
S.A.T.
3-50
4446

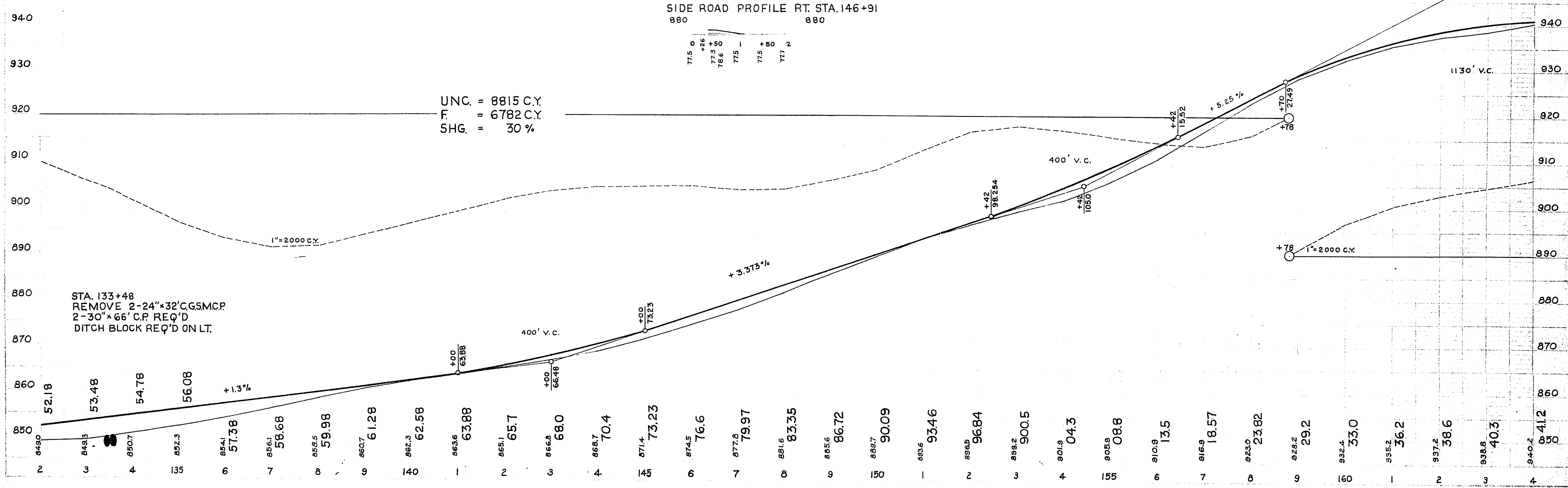
BENCH MARKS			
NO.	STATION	DESCRIPTION	EL.
13	144+68	15" PINE 32' LT.	871.13
14	154+10	15" APPLE 66' RT.	898.70

T 035(5)	10	70
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NET LENGTH OF CENTERLINE STA. 133+00 TO STA. 164+00 = 3100 LIN. FT.

SIDE ROAD PROFILE RT. STA. 146+91

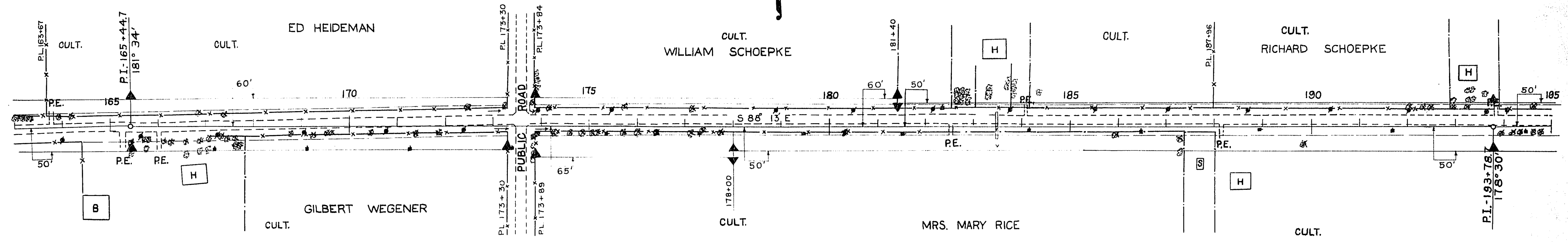
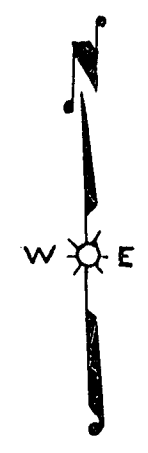


11-49
1-50
2-50
3-50
4443

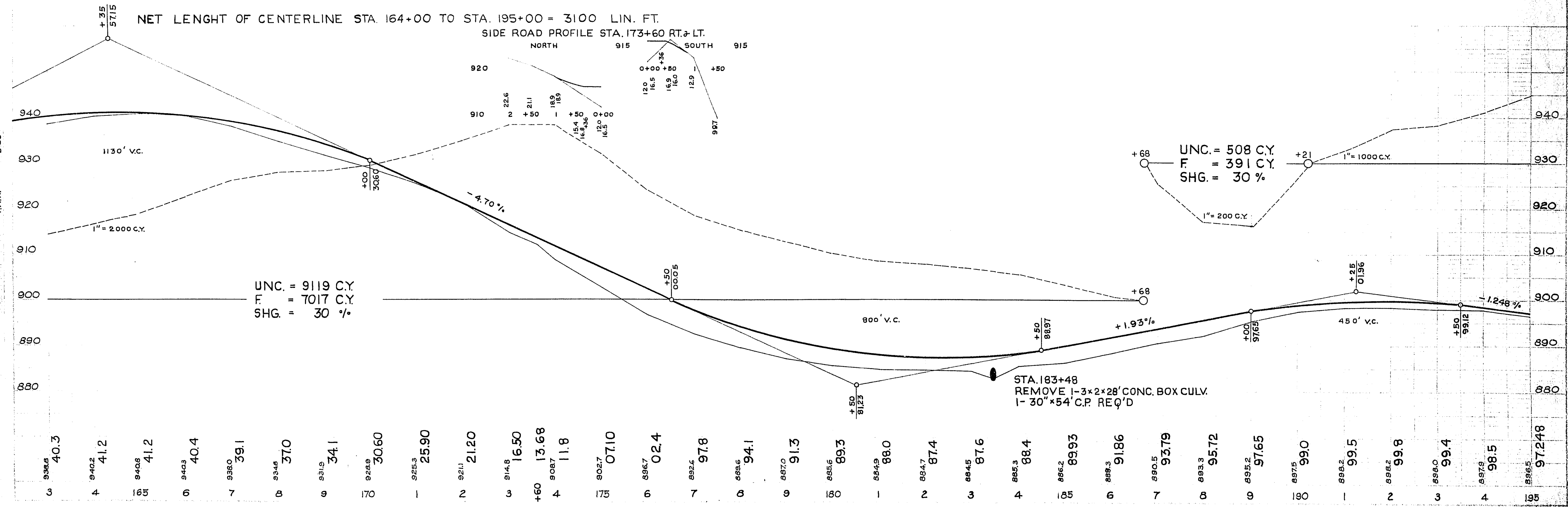
11-49
1-50
2-50
3-50
4446

BENCH MARKS			
NO.	STATION	DESCRIPTION	EL.
15	165+56	18" BOX ELDER	81' RT. 938.08
16	175+72	12" MAPLE	45' LT. 901.11
17	187+25	24" ELM	84' RT. 892.85

T 035(5) 11 70



NET LENGTH OF CENTERLINE STA. 164+00 TO STA. 195+00 = 3100 LIN. FT.
SIDE ROAD PROFILE STA. 173+60 RT. & LT.



12/49
1-50
2-50
3-50
W.T.
S.A.T.
L.W.R.

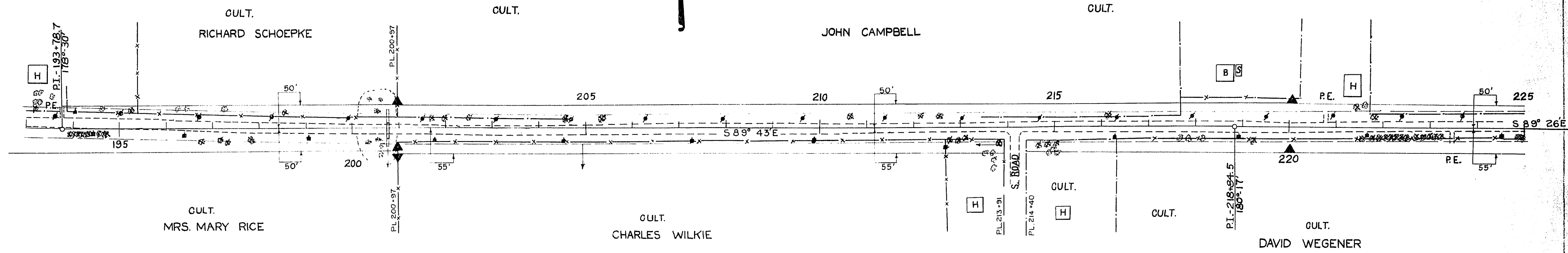
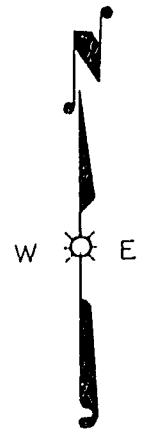
4443

1-50
2-50
3-50
A.T.
F.A.W.
G.P.O.
F.A.W.

4446

BENCH MARKS				
NO.	STATION	DESCRIPTION	EL.	
18	200+80	18" WILLOW	36' RT.	882.84
19	213+68	10" APPLE	72' RT.	900.54
20	221+63	8" APPLE	47' LT.	912.36

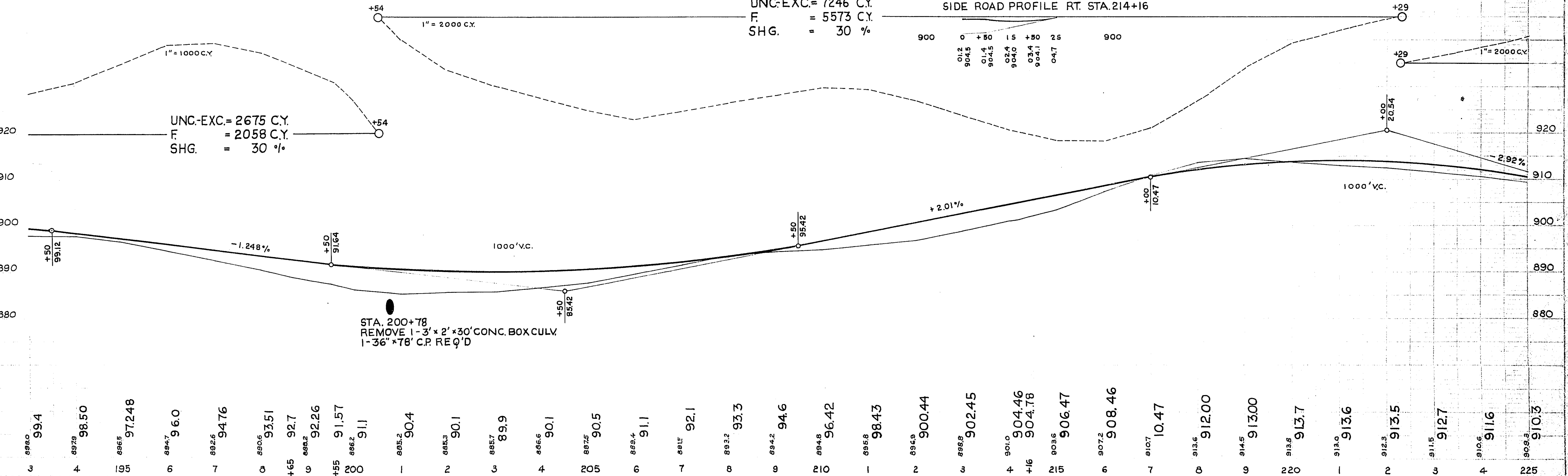
T 035(5) 12 70



NET LENGHT OF CENTERLINE STA. 195+00 TO STA. 225+00 = 3000 LIN. FT.

UNC-EXC.= 7246 C.Y.
F. = 5573 C.Y.
SHG. = 30 %

SIDE ROAD PROFILE RT. STA. 214+16



T 035(5) 13 70



SIDE ROAD PROFILE LT. STA. 227+32



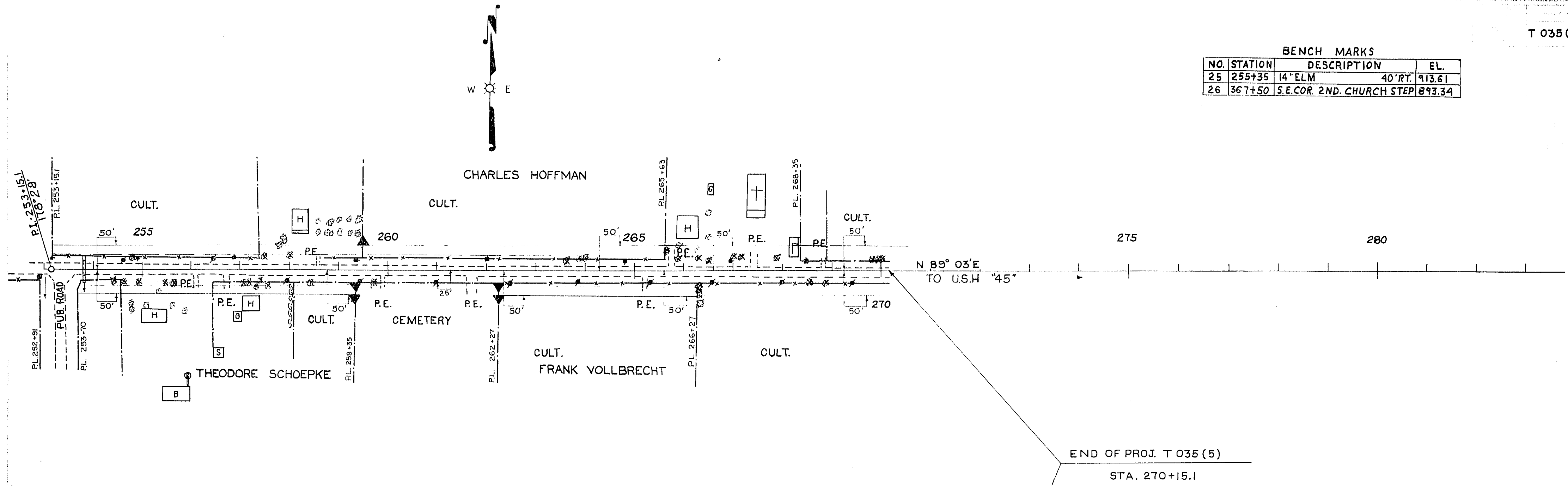
BENCH MARKS			
NO.	STATION	DESCRIPTION	EL.
25	255+35	14" ELM	40' RT. 913.61
26	367+50	S.E. COR. 2ND. CHURCH STEP	893.34

ALT.
11-49
1-50
2-50
2-50
SAT.
L.W.P.

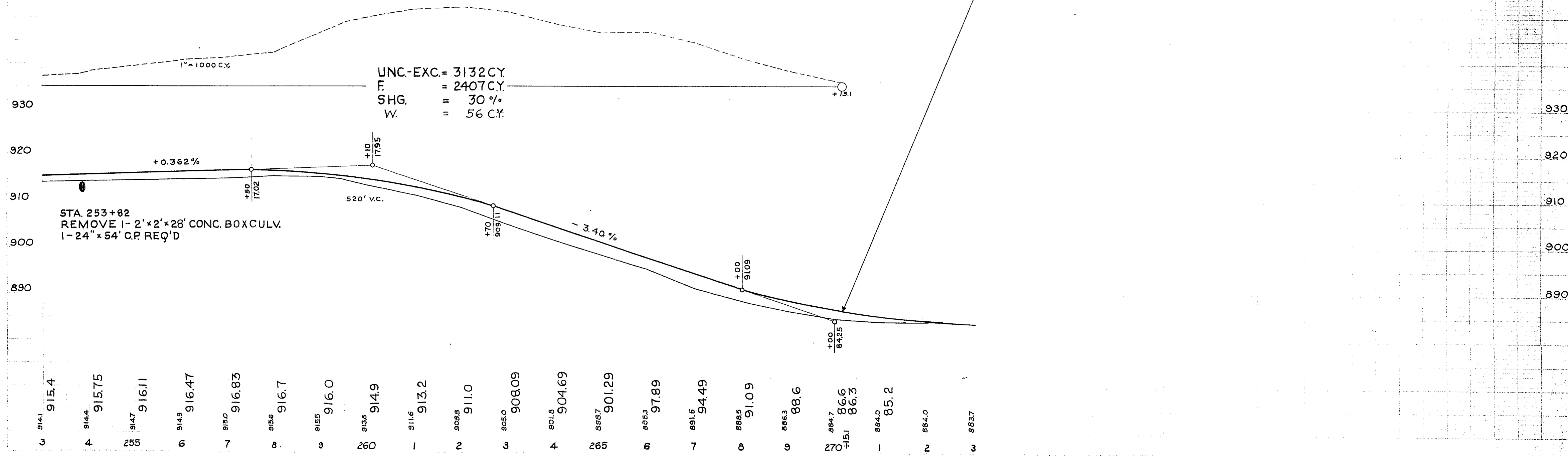
4383

ALT.
11-49
1-50
2-50
2-50
FAW.
C.P.D.
P.A.W.

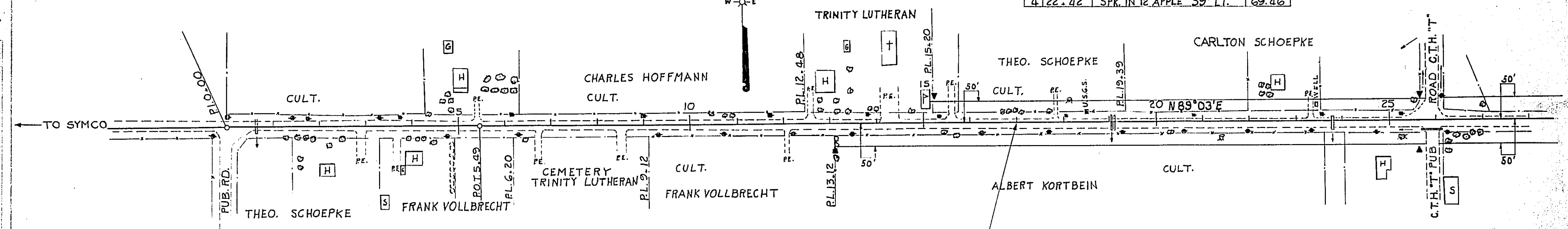
4446



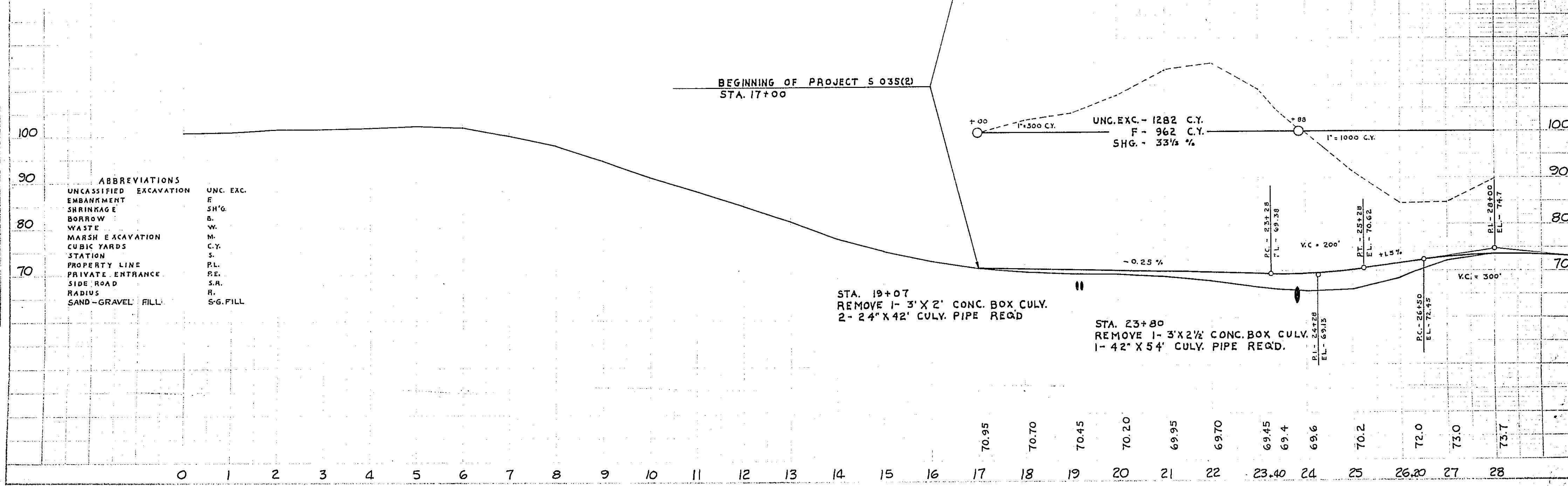
NET LENGTH OF CENTERLINE STA. 255+00 TO STA. 270+15.1 = 1515.1 LIN. FT.



BENCH MARKS			
NO.	STA.	DESCRIPTION	EL.
1	2+19	SPK. IN 12" ASH 42' RT.	100.00
2	6+59	SPK. IN 30" ELM 26' RT.	99.87
3	14+47	X ON S.E. CORNER 2ND CH. STEP	79.73
4	22+42	SPK. IN 12" APPLE 59' LT.	69.46



NET LENGTH OF CENTERLINE STA. 17+00 TO STA. 27+00 = 1000 LIN. FT.



ABBREVIATIONS	
UNCASSIFIED EXCAVATION	UNC. EXC.
EMBANKMENT	E
SHRINKAGE	SH.G.
BORROW	B.
WASTE	W.
MARSH EXCAVATION	M.
CUBIC YARDS	C.Y.
STATION	S.
PROPERTY LINE	PL.
PRIVATE ENTRANCE	PE.
SIDE ROAD	S.R.
RADIUS	R.
SAND-GRAVEL FILL	S-G.FILL

DATE 12-76
SHEET 5
PROJECT S 035(2)

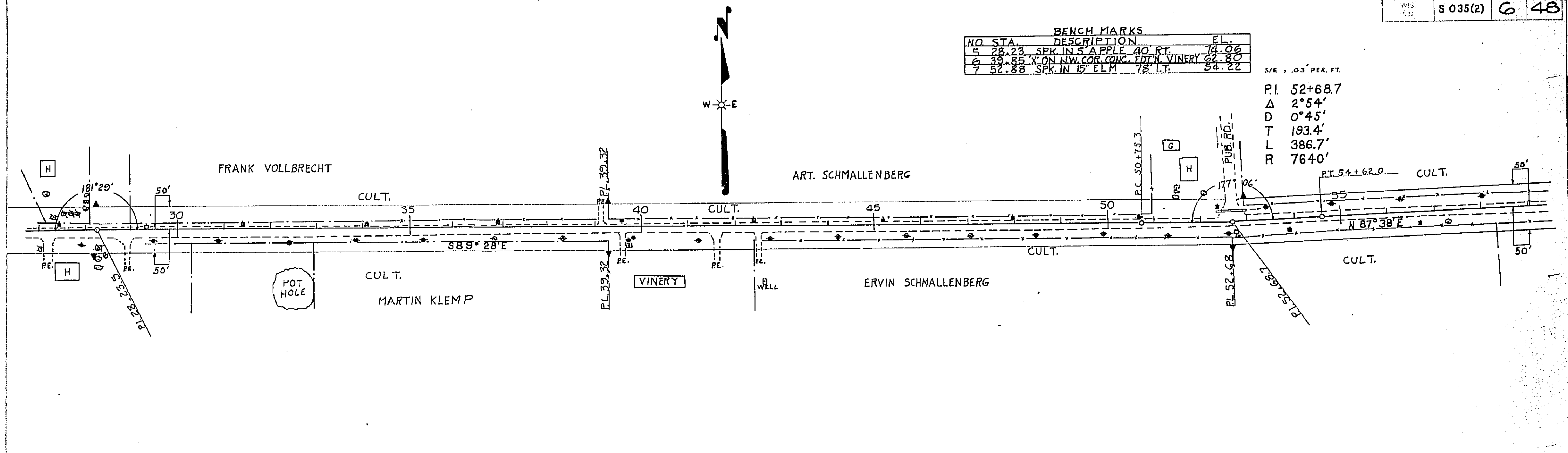
DATE 12-76
SHEET 5
PROJECT S 035(2)

NO.	DISTRICT	PROJ. NO.	SHEET NUMBER	TOTAL SHEETS
WIS.	6.N	S 035(2)	6	48

NO.	STA.	DESCRIPTION	EL.
5	28.23	SPK. IN 5' APPLE 40' RT.	74.06
6	39.85	X ON N.W. COR. CONC. FDTN. VINERY	62.80
7	52.88	SPK. IN 15' ELM 78' LT.	54.22

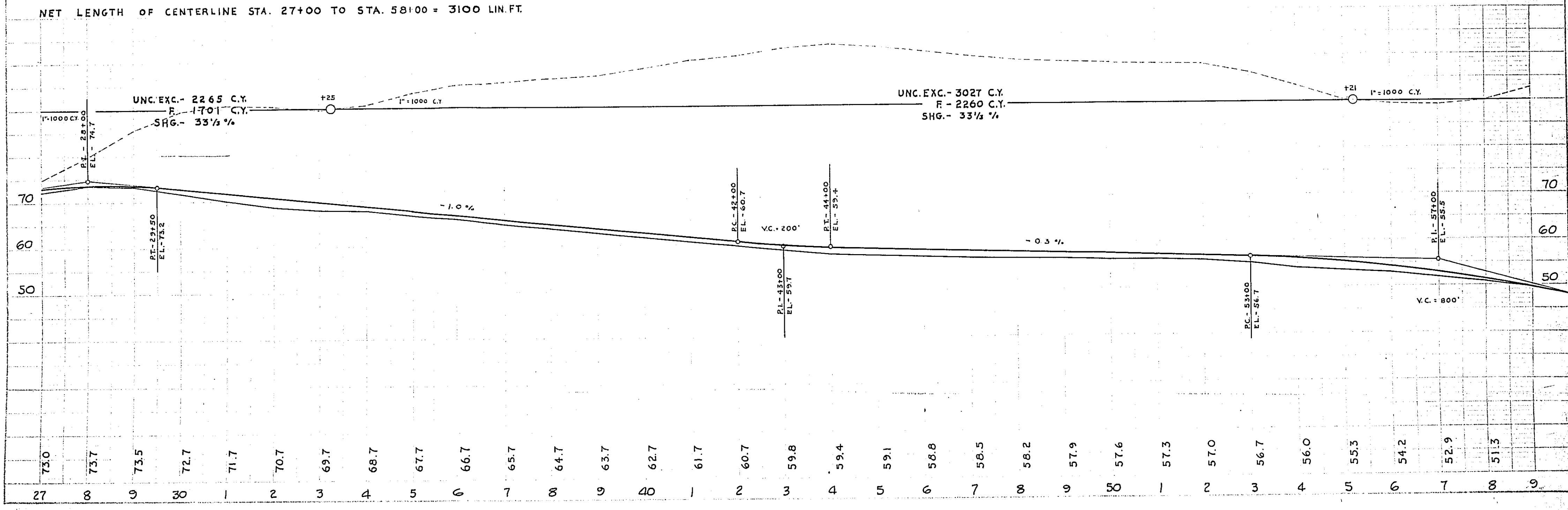
S/E = .03' PER. FT.
 P.I. 52+68.7
 Δ 2°54'
 D 0°45'
 T 193.4'
 L 386.7'
 R 7640'

PLAN
 DATE 12-1-47
 DRAWN BY JAC
 CHECKED BY JAC
 NO. 4383

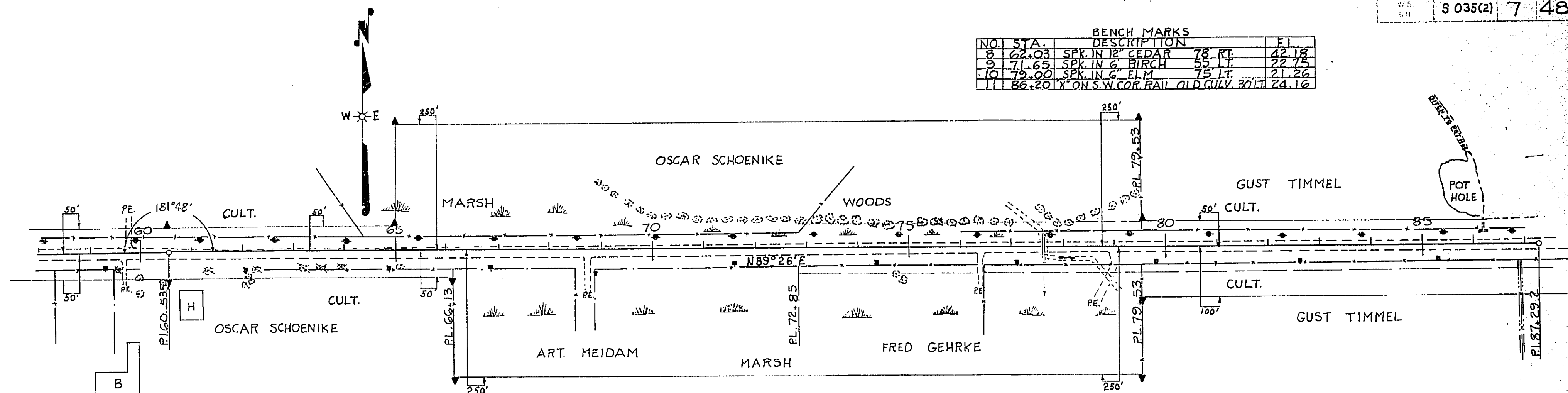


NET LENGTH OF CENTERLINE STA. 27+00 TO STA. 58+00 = 3100 LIN. FT.

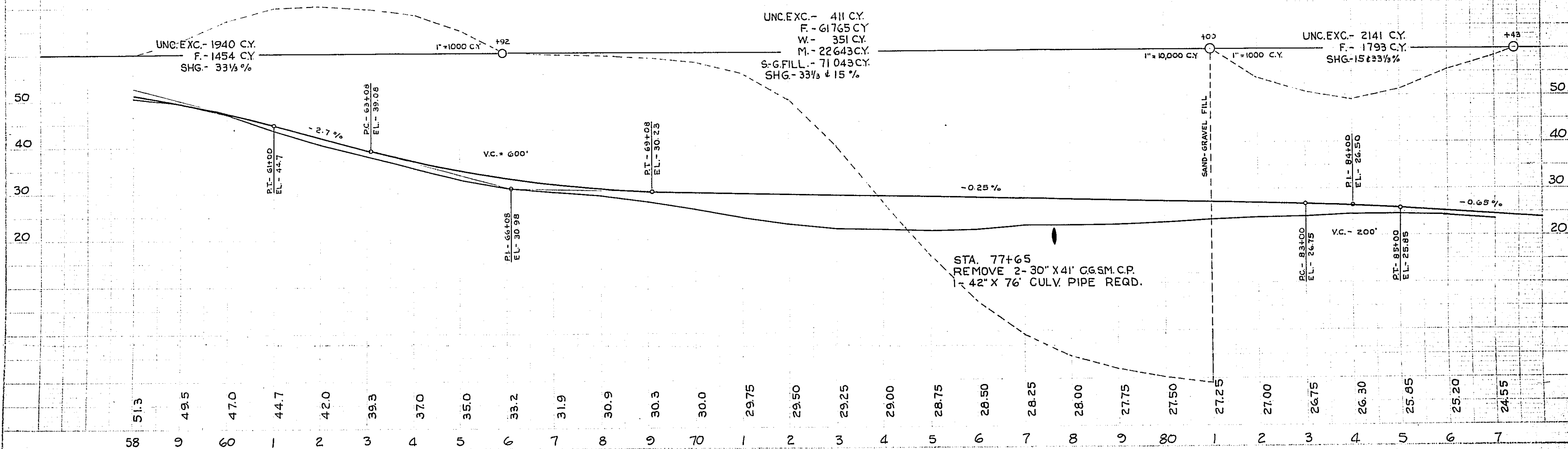
PROFILE
 DATE 12-1-47
 DRAWN BY JAC
 CHECKED BY JAC
 NO. 4384



BENCH MARKS				
NO.	STA.	DESCRIPTION		FI
9	62.03	SPK. IN 12" CEDAR	78 FT.	42.18
8	71.65	SPK. IN 6" BIRCH	55 FT.	22.75
10	79.00	SPK. IN 6" ELM	75 FT.	21.26
11	86.20	X ON S.W. COR. RAIL	OLD CULY 30 FT.	24.16

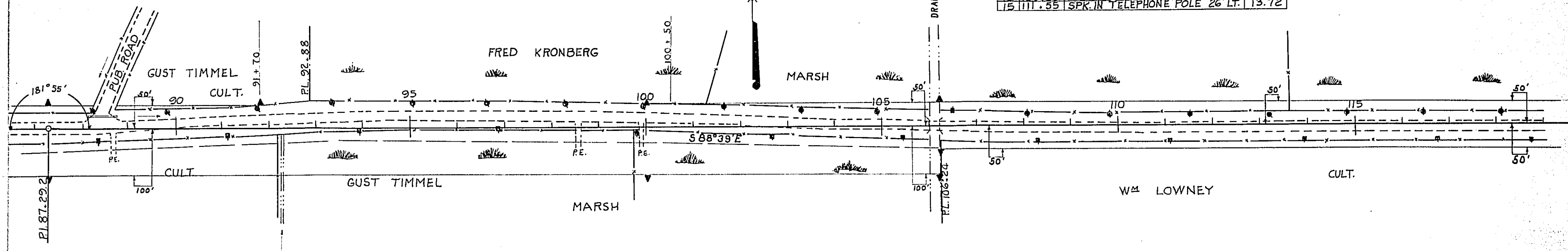


NET LENGTH OF CENTERLINE STA. 58+00 TO STA. 87+00 = 2900 LIN. FT.

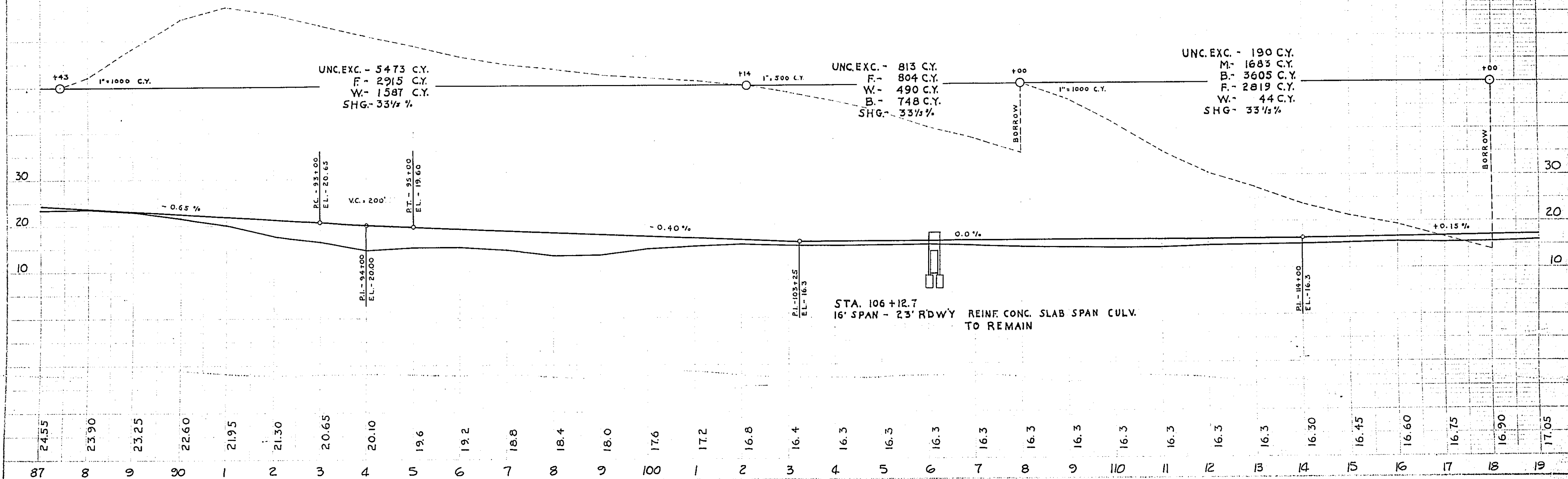


DATE	PROJECT	SHEET NUMBER	TOTAL SHEETS
WIS. 5H	S 035(2)	8	48

BENCH MARKS		
NO.	STA.	DESCRIPTION
12	89.40	SPK IN POWER POLE 85' LT.
13	96.65	SPK IN TELEPHONE POLE 56' LT.
14	106.23	X ON N.E. CORNER WALL BR.
15	111.55	SPK IN TELEPHONE POLE 26' LT.



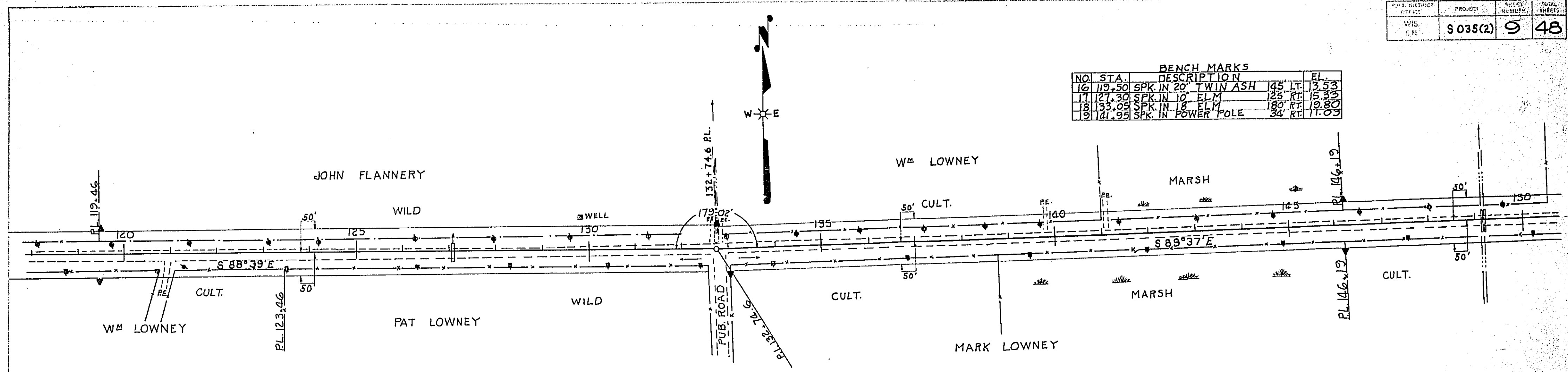
NET LENGTH OF CENTERLINE STA. 87+00 TO STA. 118+00 = 3100 LIN. FT.



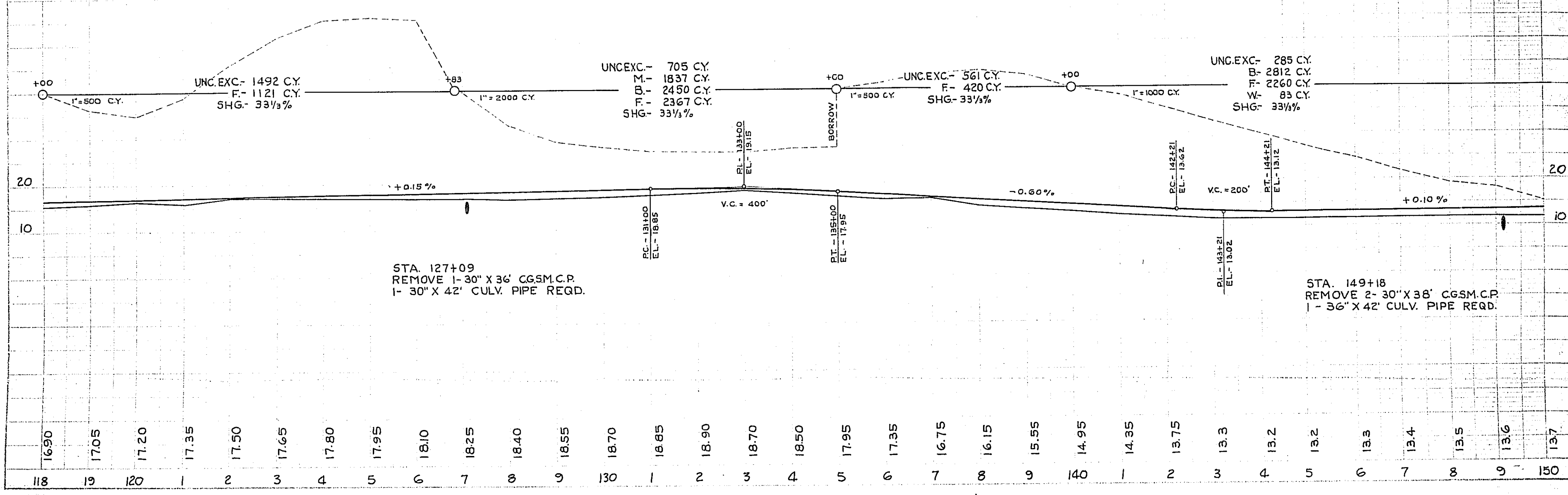
PROJECT	SHEET	TOTAL
WIS. S 035(2)	9	48

NO.	STA.	DESCRIPTION	EL.
16	119+50	SPK. IN 20' TWIN ASH	145' LT. 13.53
17	127+30	SPK. IN 10' ELM	125' RT. 15.33
18	133+09	SPK. IN 18' ELM	180' RT. 19.80
19	141+99	SPK. IN POWER POLE	34' RT. 11.03

PLAN
DATE 12-27-47
BY J. J. J.
CHECKED J. J. J.
NO. 4383



NET LENGTH OF CENTERLINE STA. 118+00 TO STA. 150+00 = 3200 LIN. FT.

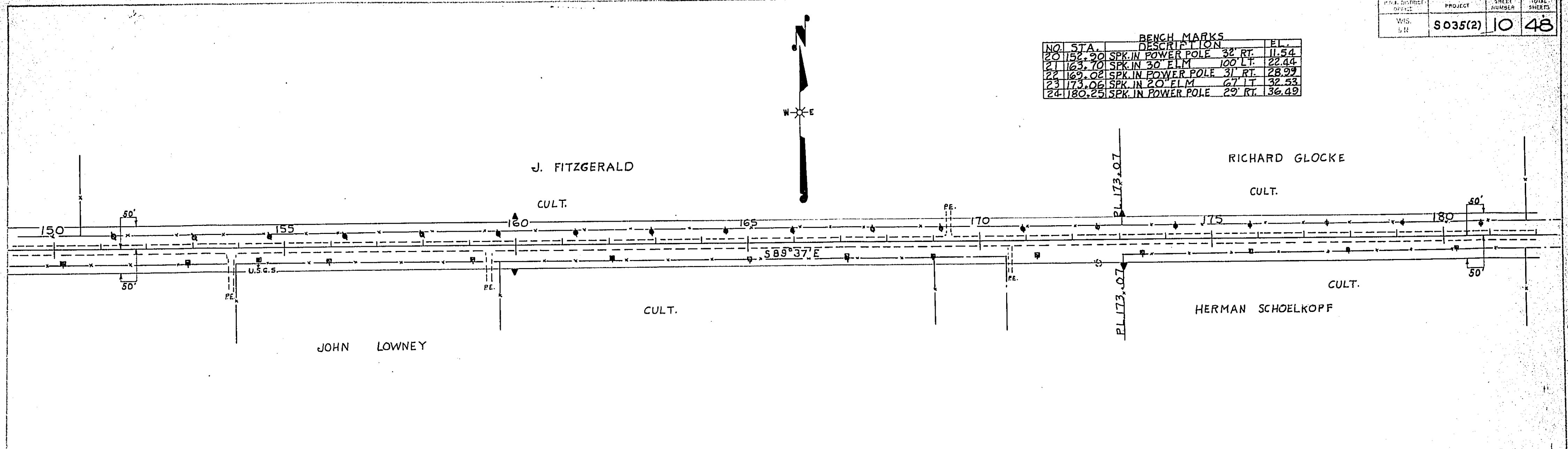


PROFILE
DATE 12-27-47
BY J. J. J.
CHECKED J. J. J.
NO. 4384

PROJECT	SHEET NUMBER	TOTAL SHEETS
S035(2)	10	48

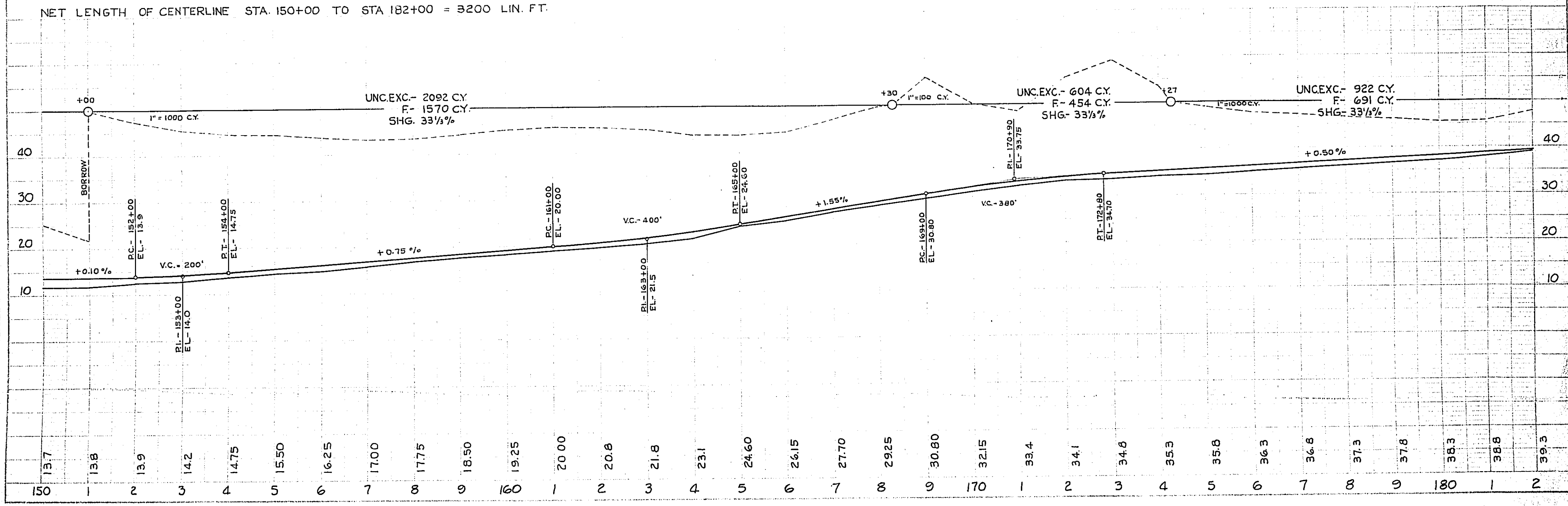
BENCH MARKS			
NO.	STA.	DESCRIPTION	EL.
20	152.90	SPK. IN POWER POLE 32' RT.	11.54
21	163.70	SPK. IN 30' ELM. 100' LT.	22.44
22	169.02	SPK. IN POWER POLE 31' RT.	28.99
23	173.06	SPK. IN 20' ELM. 67' LT.	32.53
24	180.25	SPK. IN POWER POLE 29' RT.	36.49

DATE	12-24-48
BY	NAVJ
CHKD	L.R.
PLAN	4353
DESIGNED BY	NAVJ
CHECKED BY	L.R.
DATE	12-24-48
PROJECT	S035(2)
SHEET	10
TOTAL	48

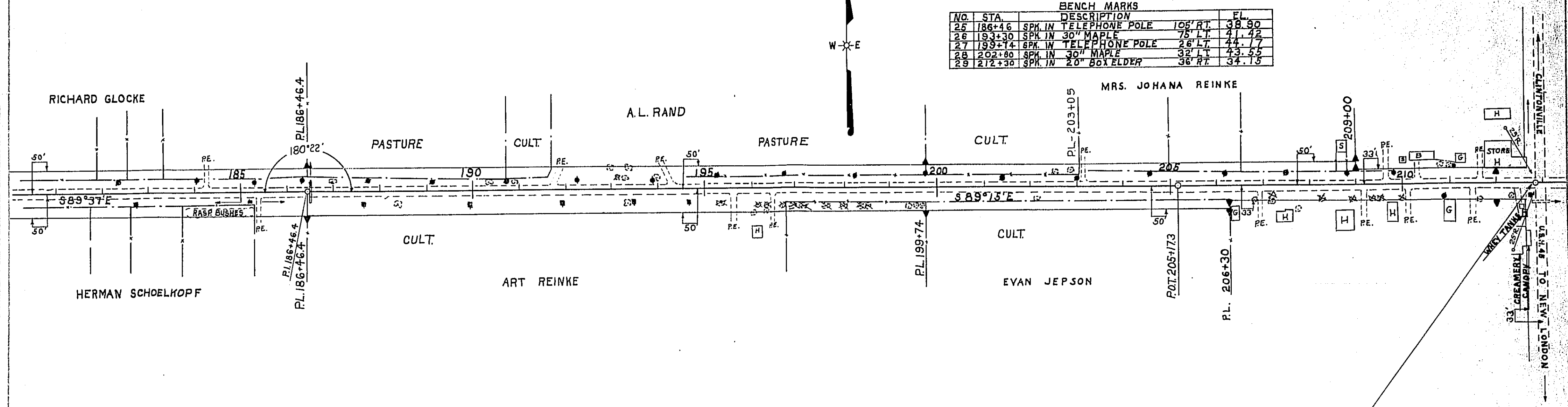


NET LENGTH OF CENTERLINE STA. 150+00 TO STA 182+00 = 3200 LIN. FT.

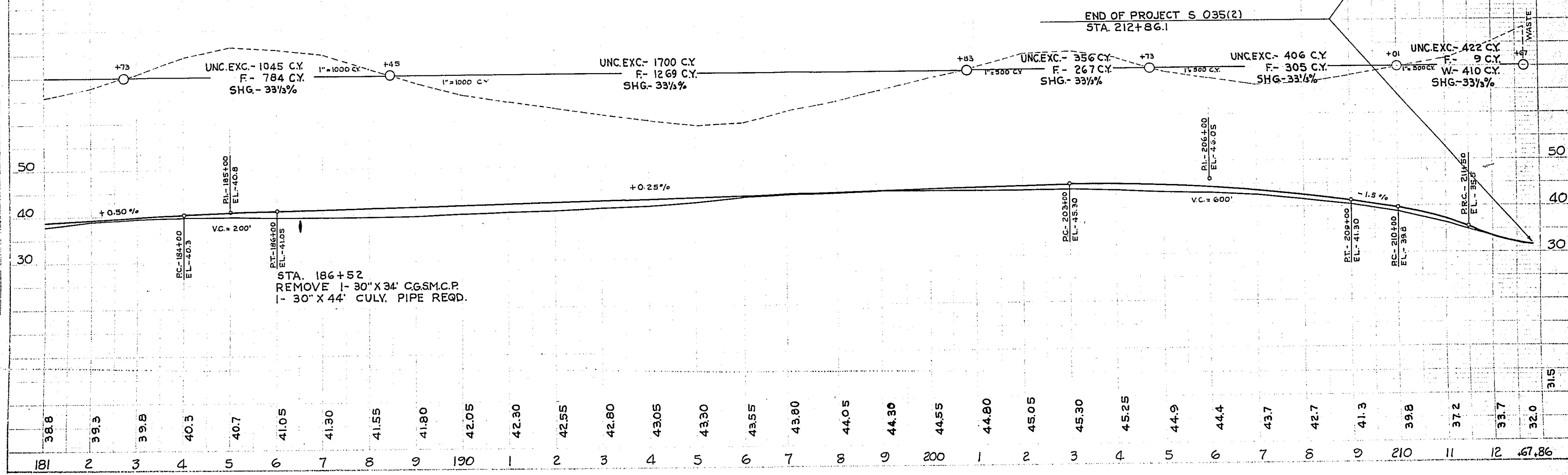
DATE	12-24-48
BY	NAVJ
CHKD	L.R.
PROFILE	4354
DESIGNED BY	NAVJ
CHECKED BY	L.R.
DATE	12-24-48
PROJECT	S035(2)
SHEET	10
TOTAL	48



BENCH MARKS			
NO.	STA.	DESCRIPTION	EL.
25	186+46	SPK. IN TELEPHONE POLE 105' RT.	38.90
26	193+30	SPK. IN 30" MAPLE 75' LT.	41.42
27	199+14	SPK. IN TELEPHONE POLE 26' LT.	44.17
28	202+80	SPK. IN 30" MAPLE 32' LT.	43.55
29	212+30	SPK. IN 20" BOX ELDER 36' RT.	34.15

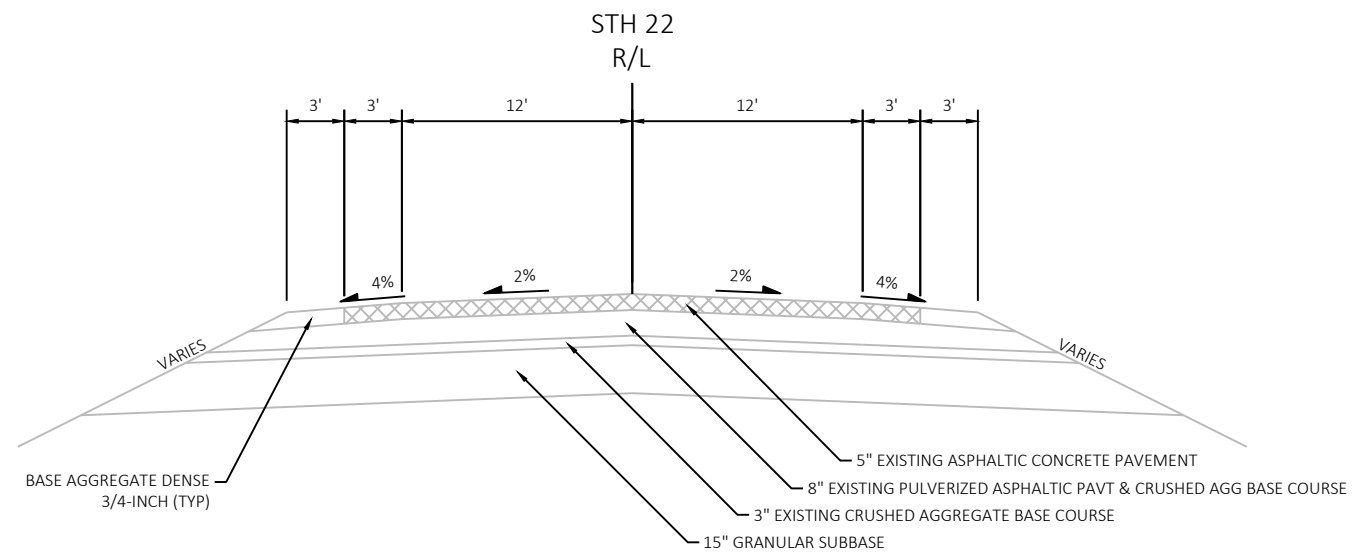


NET LENGTH OF CENTERLINE STA. 182+00 TO STA. 212+86.1 = 3086.1 LIN. FT.



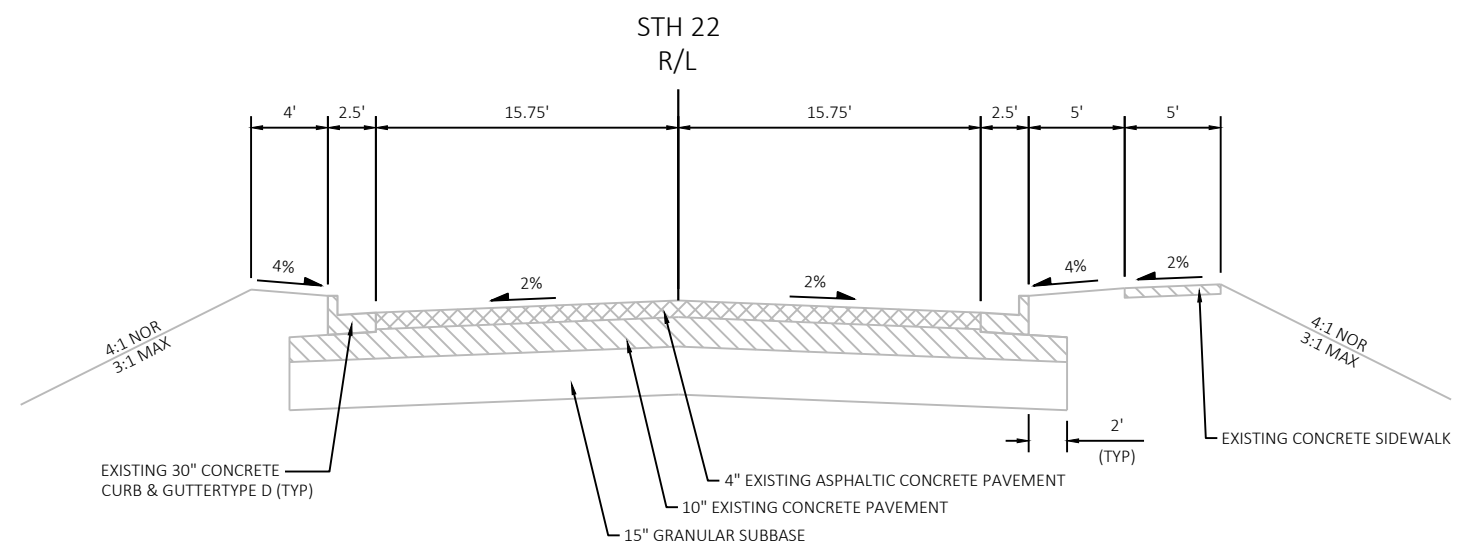
Attachment C

Existing Typical Cross Sections



EXISTING TYPICAL SECTION STH 22

STA 41+00 TO STA 142+50
STA 145+30 TO STA 205+98.90
STA 219+71.40 TO STA 609+00

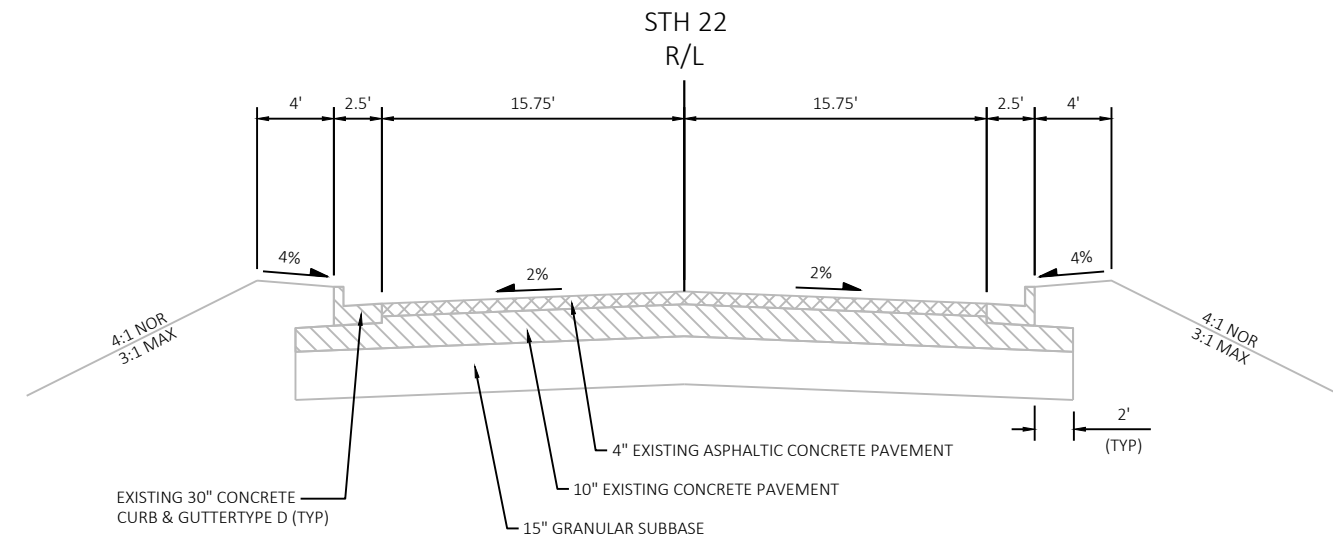


EXISTING TYPICAL SECTION STH 22

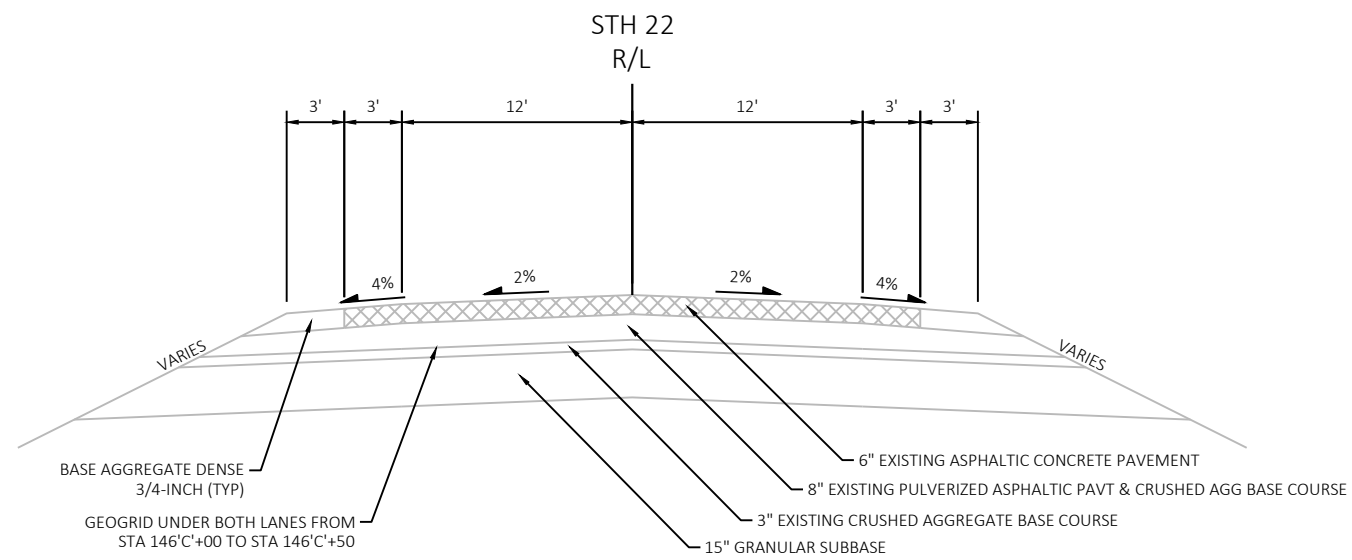
STA 205+98.90 TO STA 217+00

2

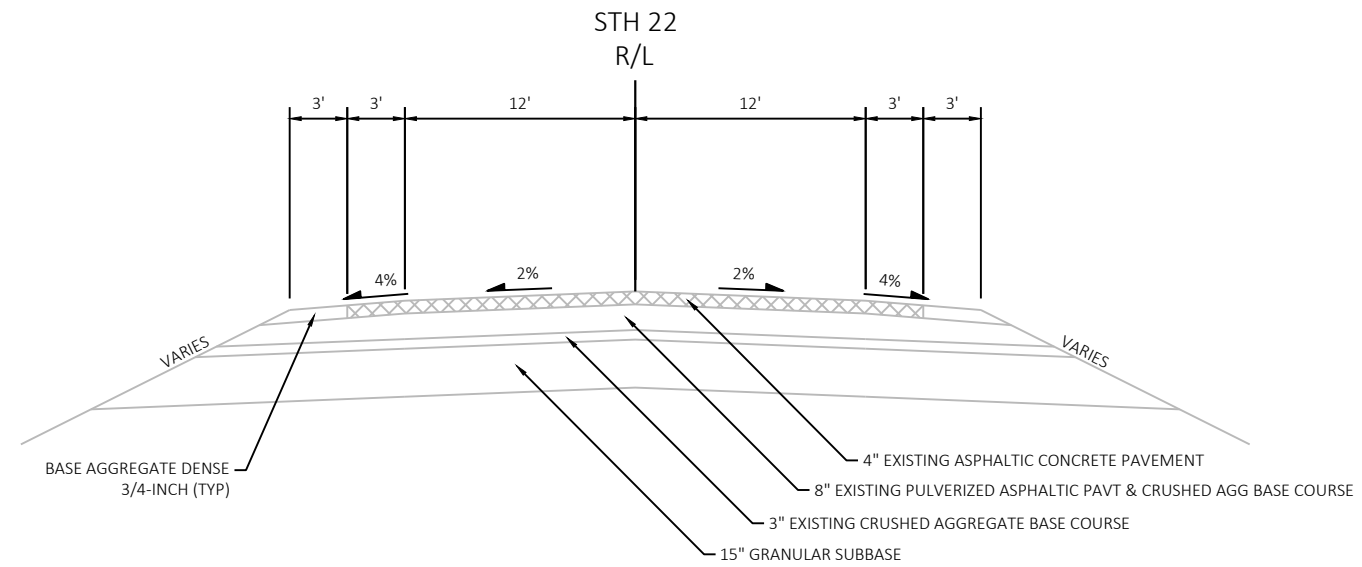
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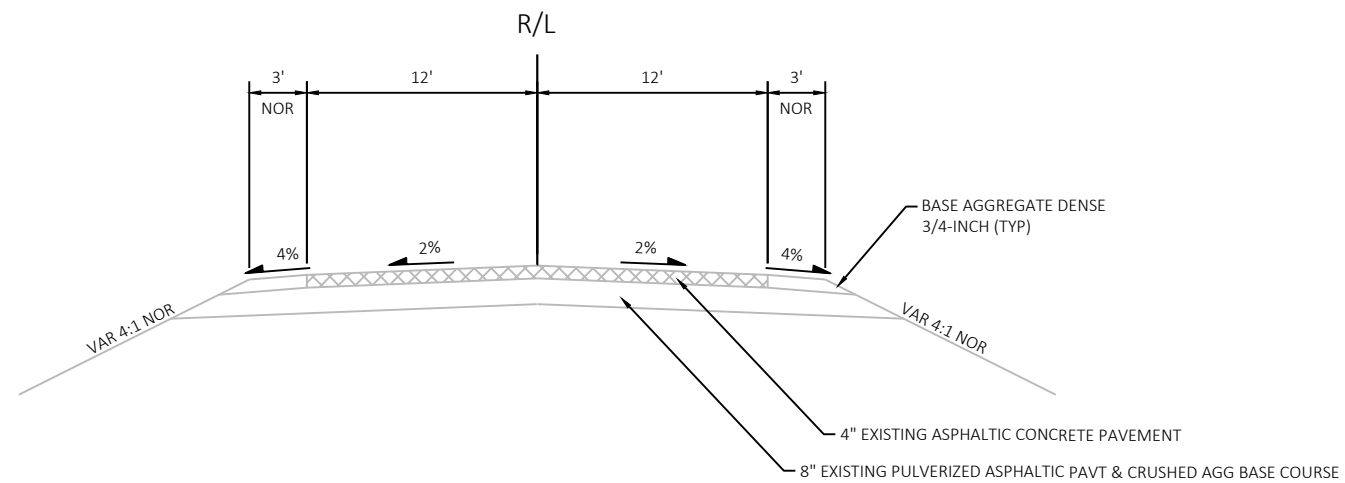
EXISTING TYPICAL SECTION STH 22
STA 217+00 TO STA 219+71.40



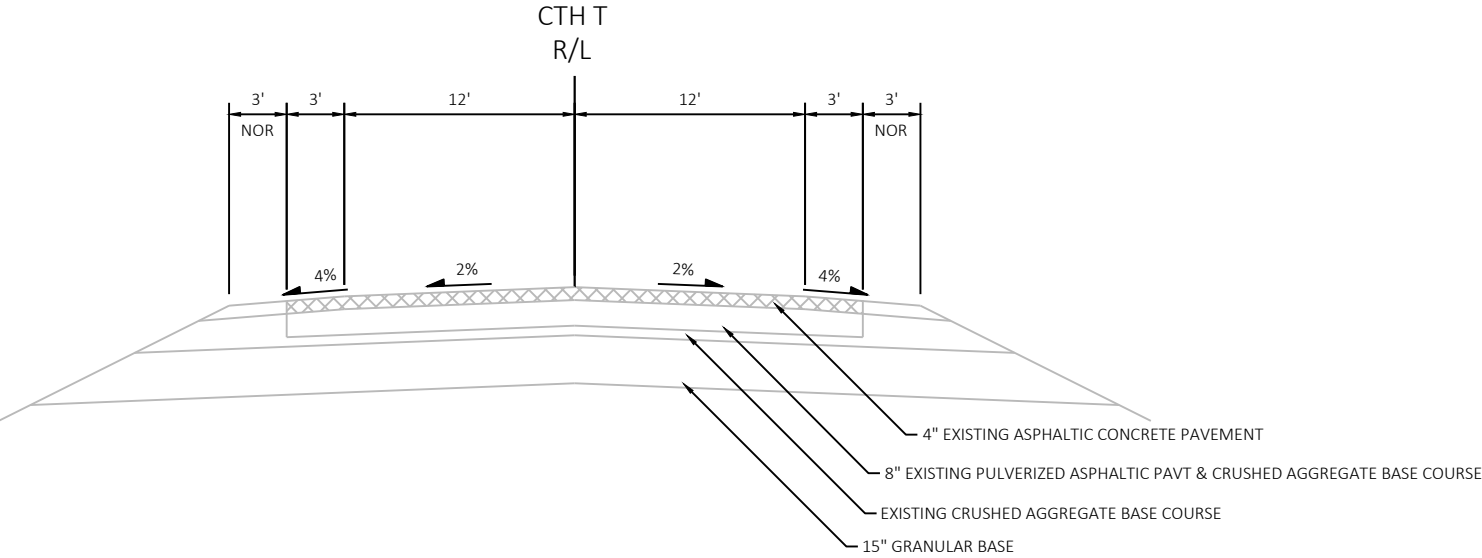
EXISTING TYPICAL SECTION STH 22
STA 609+00 TO STA 623+00



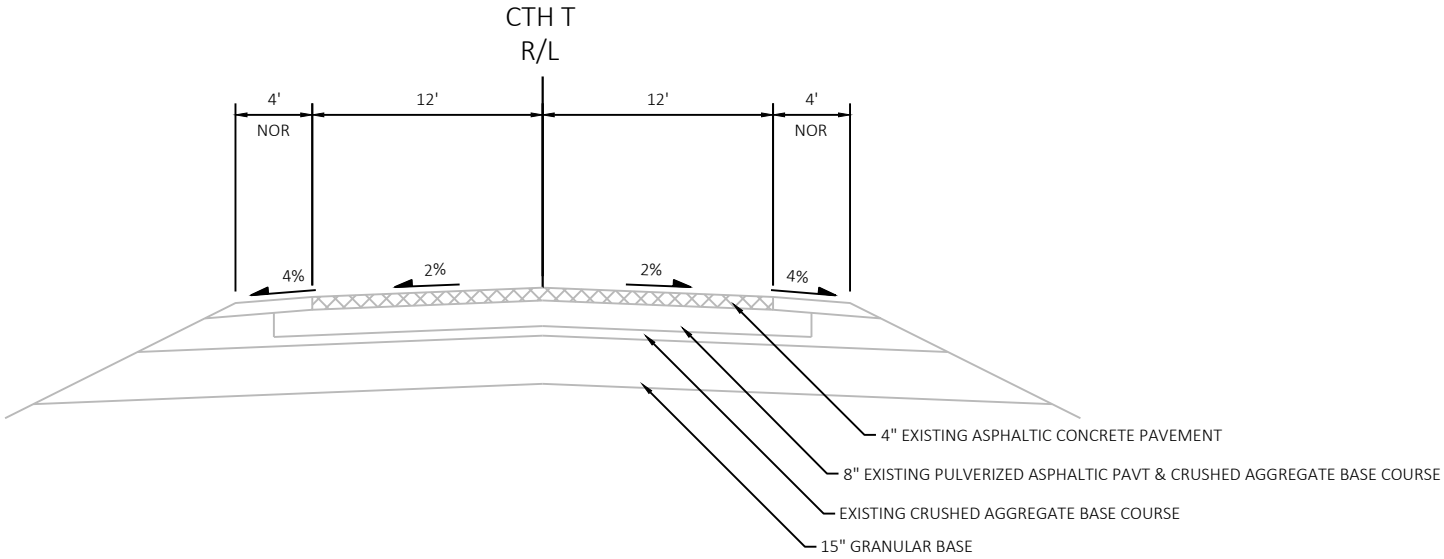
EXISTING TYPICAL SECTION STH 22
STA 623+00 TO STA 678+10.10



EXISTING TYPICAL SECTION EAST RIVER ROAD
STA 10+00 TO STA 85+00



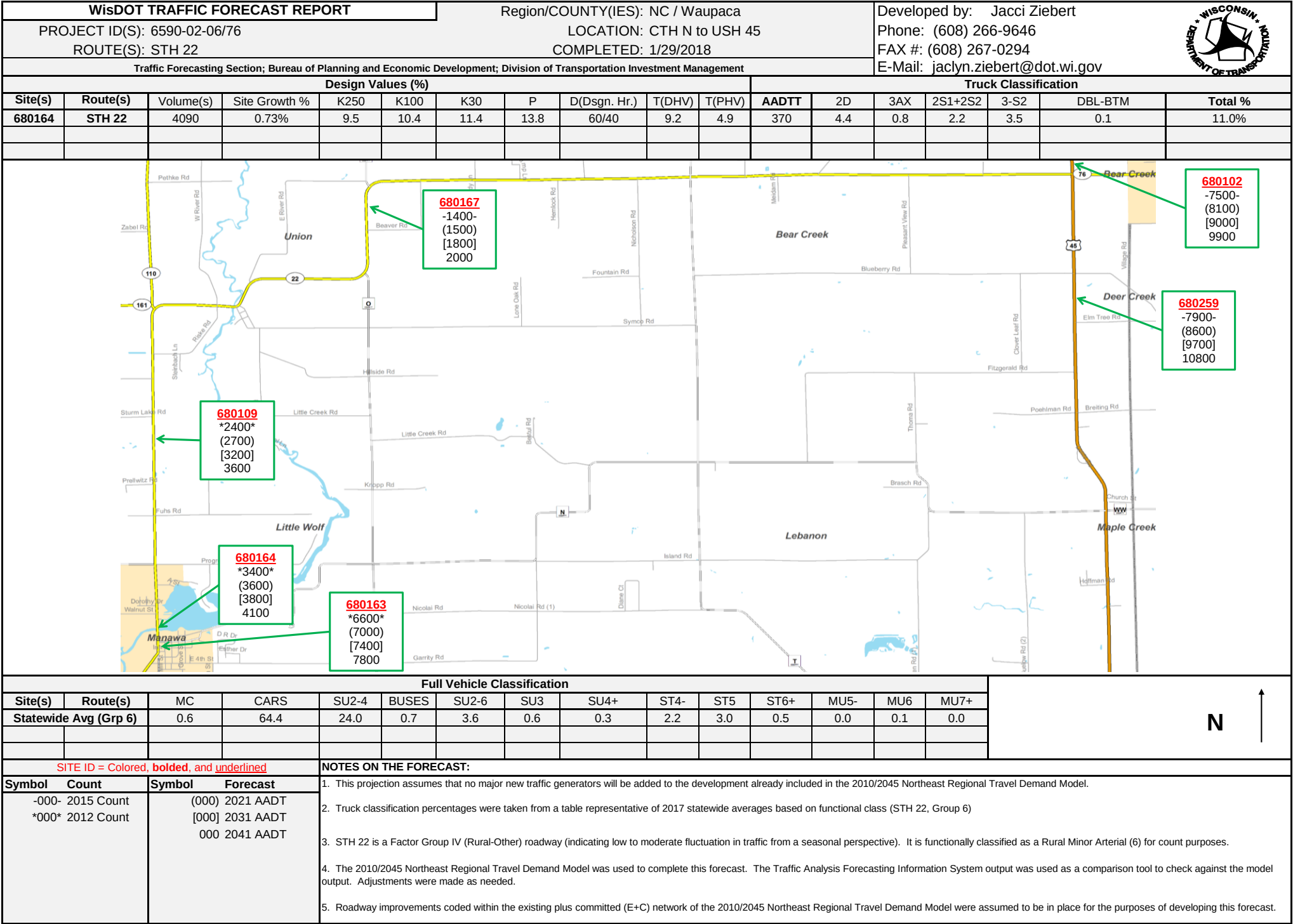
EXISTING TYPICAL SECTION CTH T
STA 7'T'+50 TO STA 9'T'+50



EXISTING TYPICAL SECTION CTH T
STA 10'T'+50 TO STA 12'T'+50

Attachment D

Traffic Forecast Report



Wisconsin Department of Transportation

ANNUAL CONTINUOUS LOCATIONS VEHICLE CLASSIFICATION

PERCENT OF TRAFFIC BY FUNCTIONAL CLASSIFICATION

FOR TRAFFIC YEAR: 2017

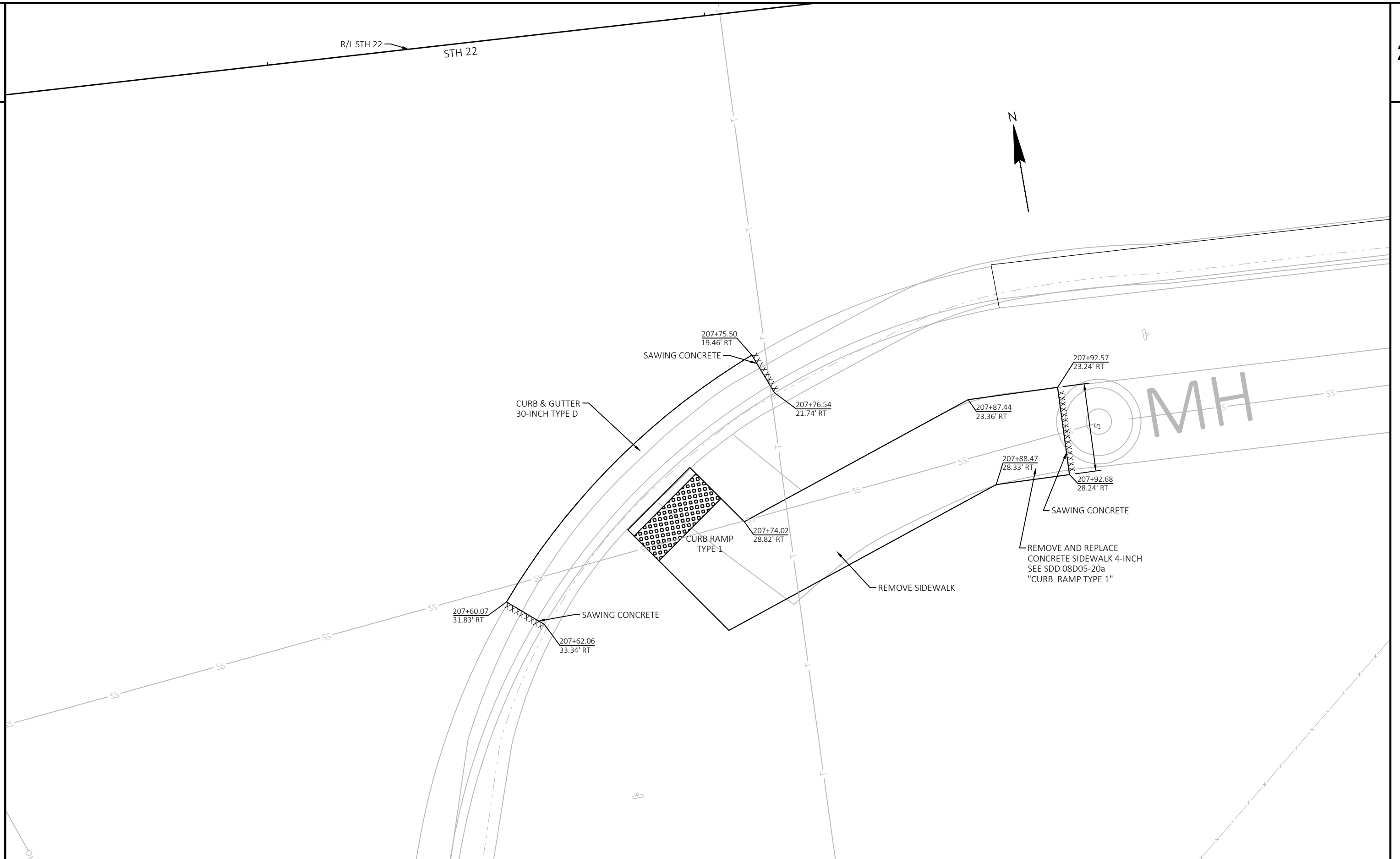
FUNCTIONAL SYSTEM	Motor - Cycle	Pasenger Car	PU/Panel Truck	Bus	2 Axle 6 Tired	3 Axle SU	4 or More Axle SU	4 or Less Axle ST	5 Axle ST	6 or More Axle ST	5 or Less Axle MT	6 Axle MT	7 or More Axle MT	Total
R Principal Arterial - Interstate	0.23	70.04	13.61	0.91	2.16	0.39	0.15	1.53	10.40	0.16	0.29	0.13	0.01	100
R Principal Arterial - Other	0.45	64.68	21.11	0.77	3.10	0.67	0.33	2.06	6.20	0.48	0.08	0.04	0.04	100
R Minor Arterial - Other	0.61	64.41	24.02	0.74	3.64	0.57	0.25	2.20	2.98	0.51	0.00	0.07	0.00	100
R Major Collector	0.66	65.68	26.05	0.79	3.43	0.90	0.37	1.26	0.77	0.09	0.00	0.01	0.01	100
R Minor Collector	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
R Local System	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
U Principal Arterial - Interstate	0.20	67.14	15.03	0.74	2.38	0.44	0.18	1.43	11.64	0.17	0.41	0.23	0.02	100
U Principal Arterial - Other Freeways	0.30	72.28	17.87	0.60	2.55	0.53	0.25	1.55	3.80	0.19	0.06	0.03	0.01	100
U Principal Arterial - Other	0.43	74.38	18.19	0.52	2.64	0.37	0.18	0.87	2.10	0.19	0.06	0.06	0.02	100
U Minor Arterial	0.54	73.61	20.48	0.40	2.86	0.46	0.17	0.63	0.79	0.06	0.00	0.00	0.00	100
U Collector	0.59	69.71	20.43	0.45	2.77	0.68	0.14	1.04	4.05	0.07	0.05	0.01	0.00	100
U Local System	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0

Attachment E

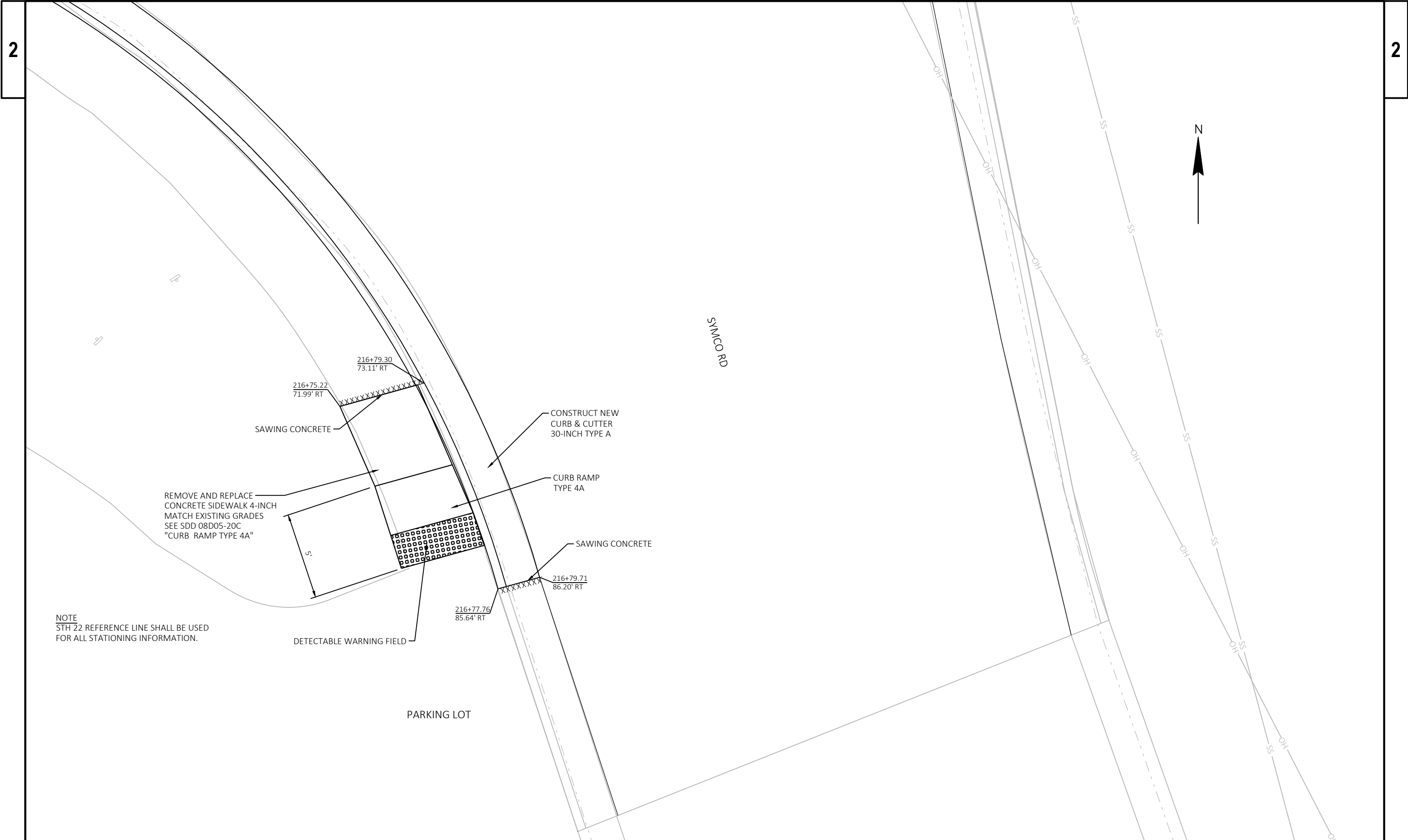
Preliminary Plan Sheets

2

2



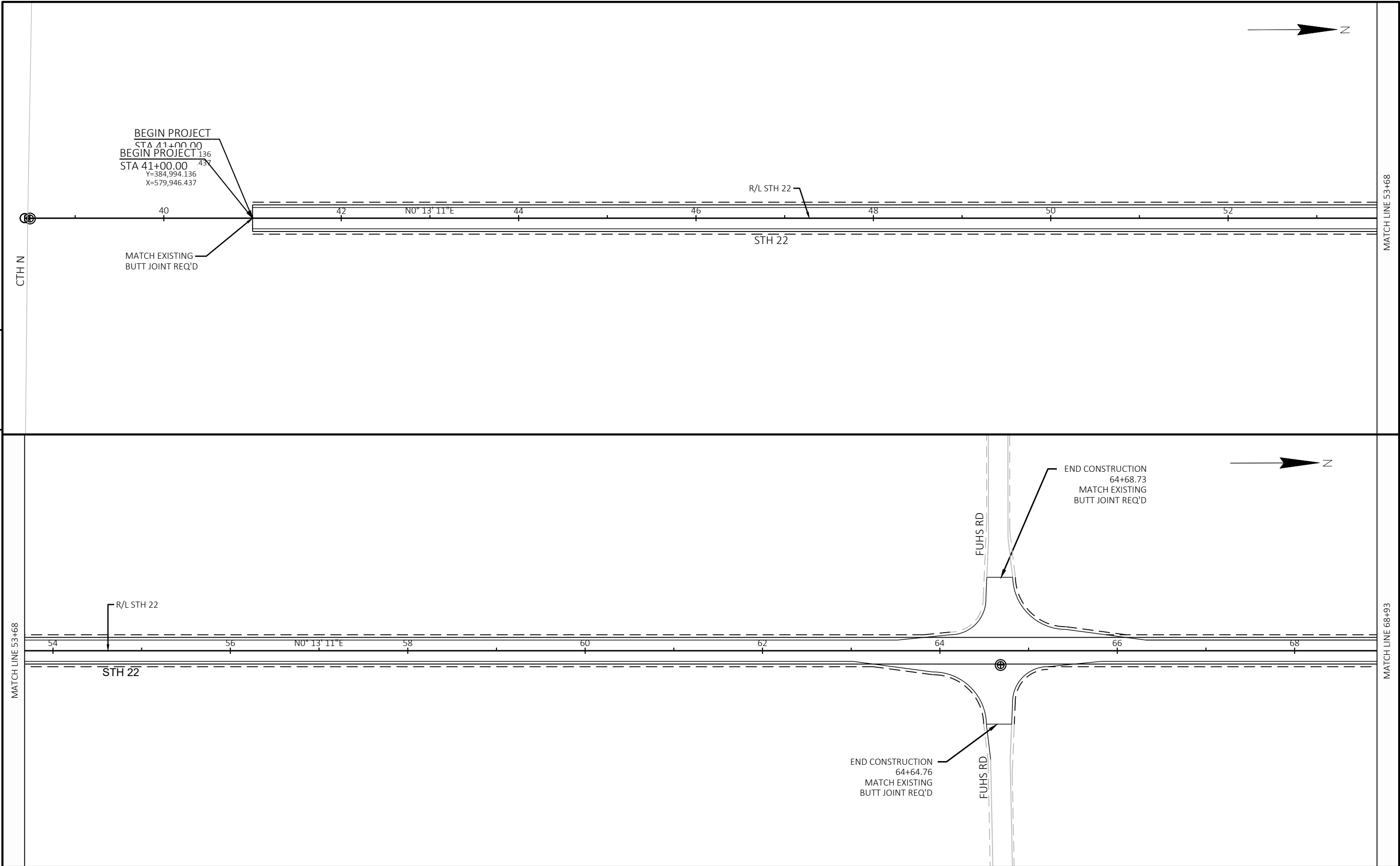
PROJECT NO: 6590-02-76	HWY: STH 22	COUNTY: WAUPACA	PLAN DETAILS - RISKE RD CURB RAMP	SHEET	E
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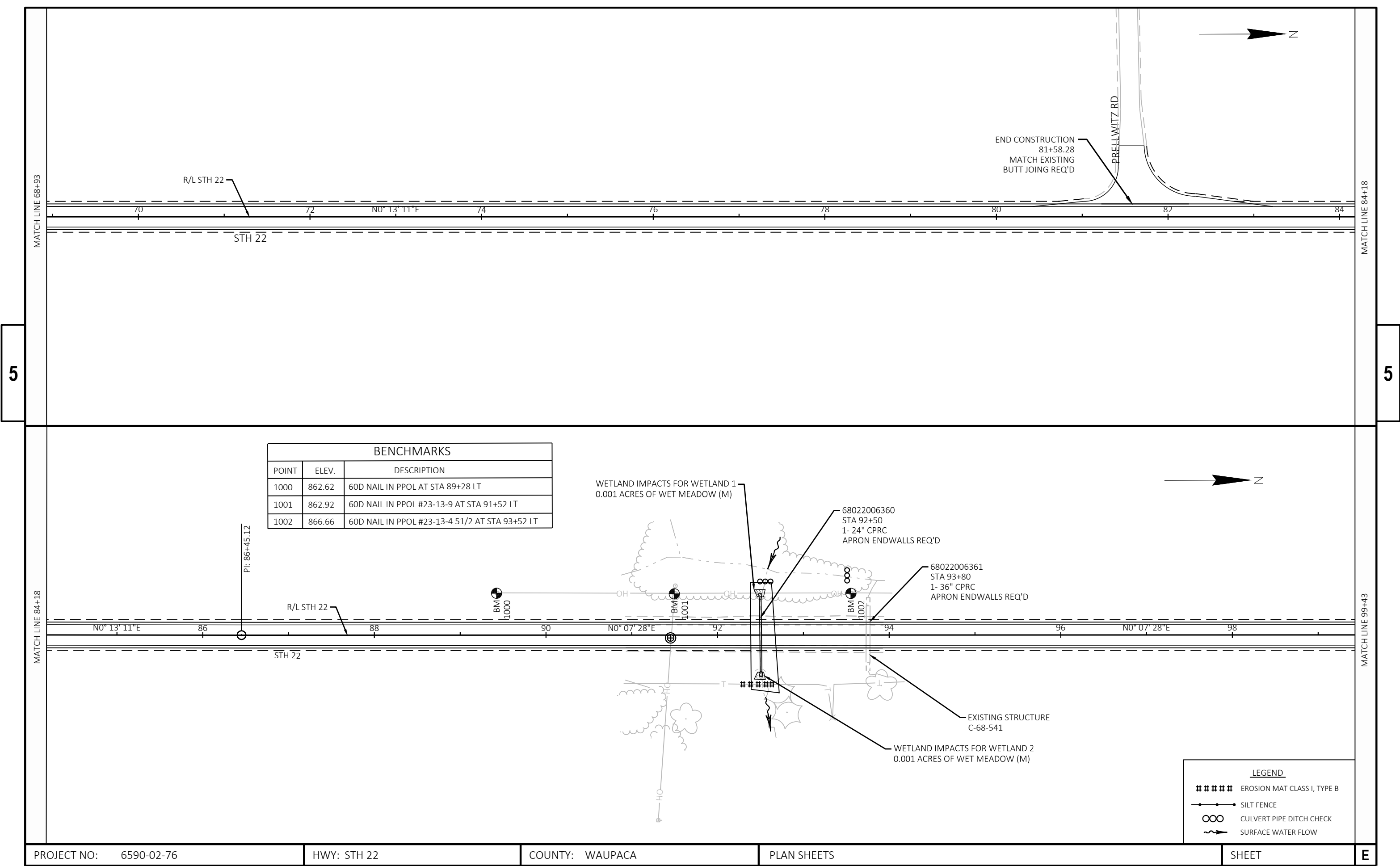
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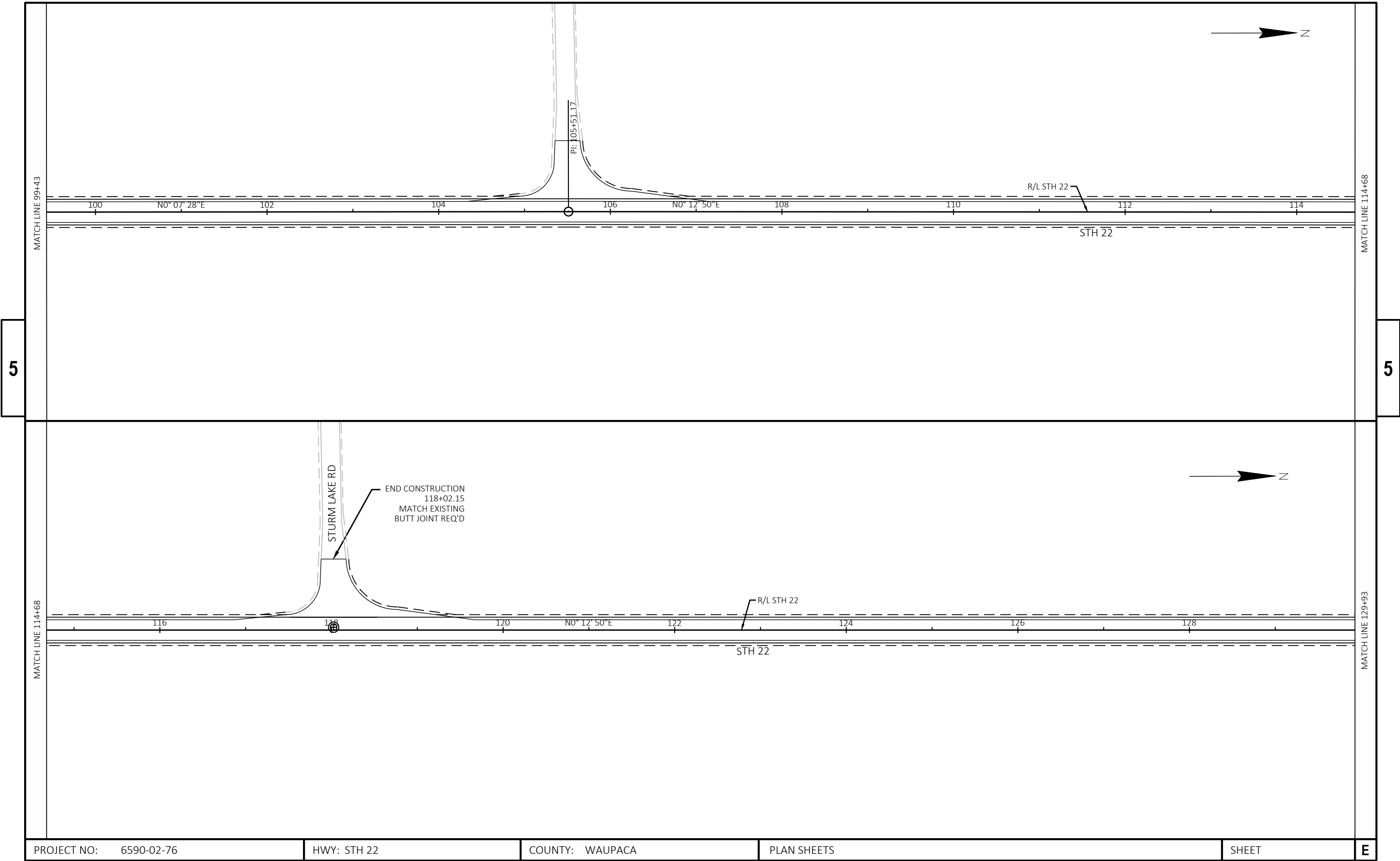
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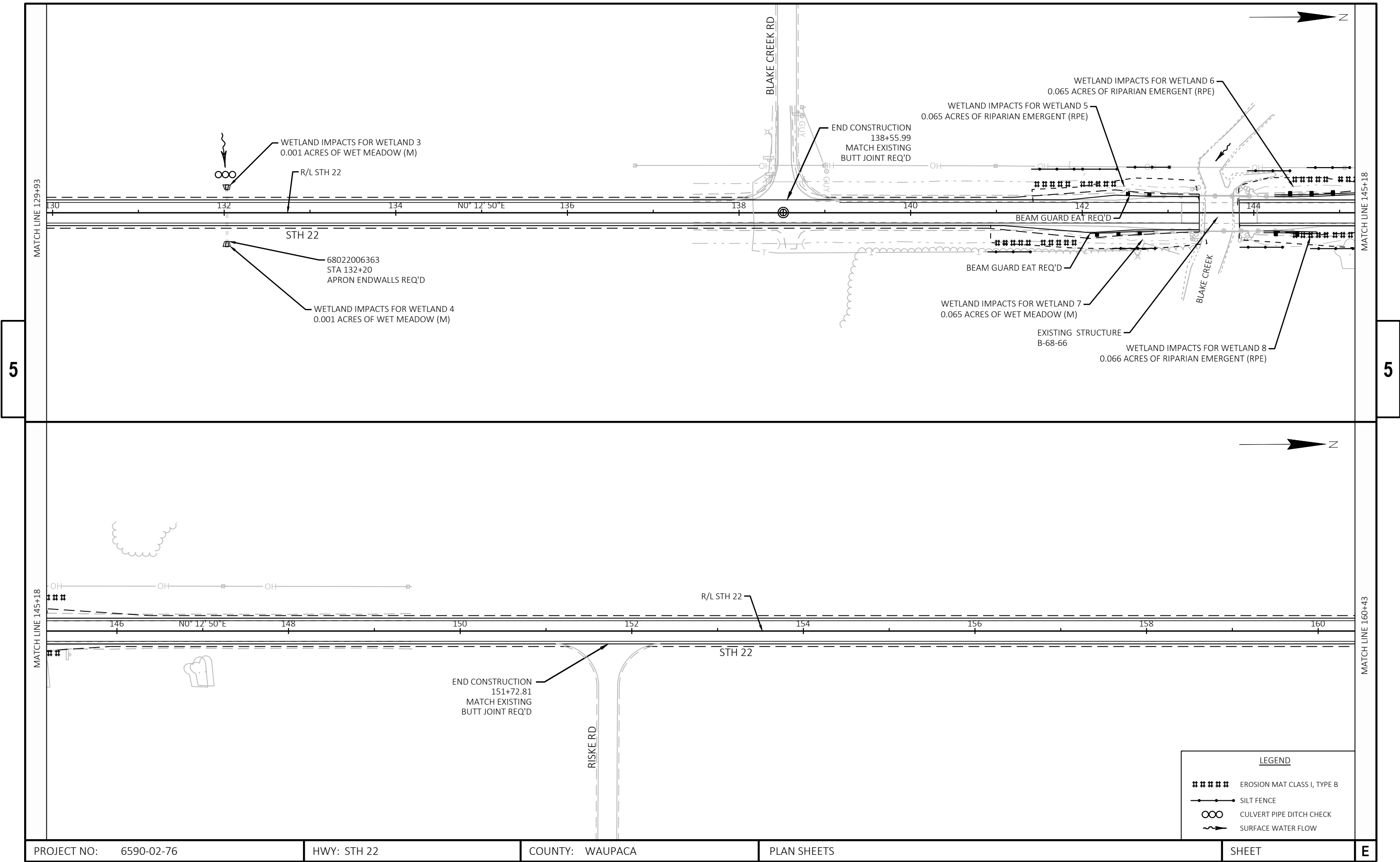
PROJECT NO: 6590-02-76	HWY: STH 22	COUNTY: WAUPACA	PLAN DETAILS - SYMCO RD CURB RAMP	SHEET	E
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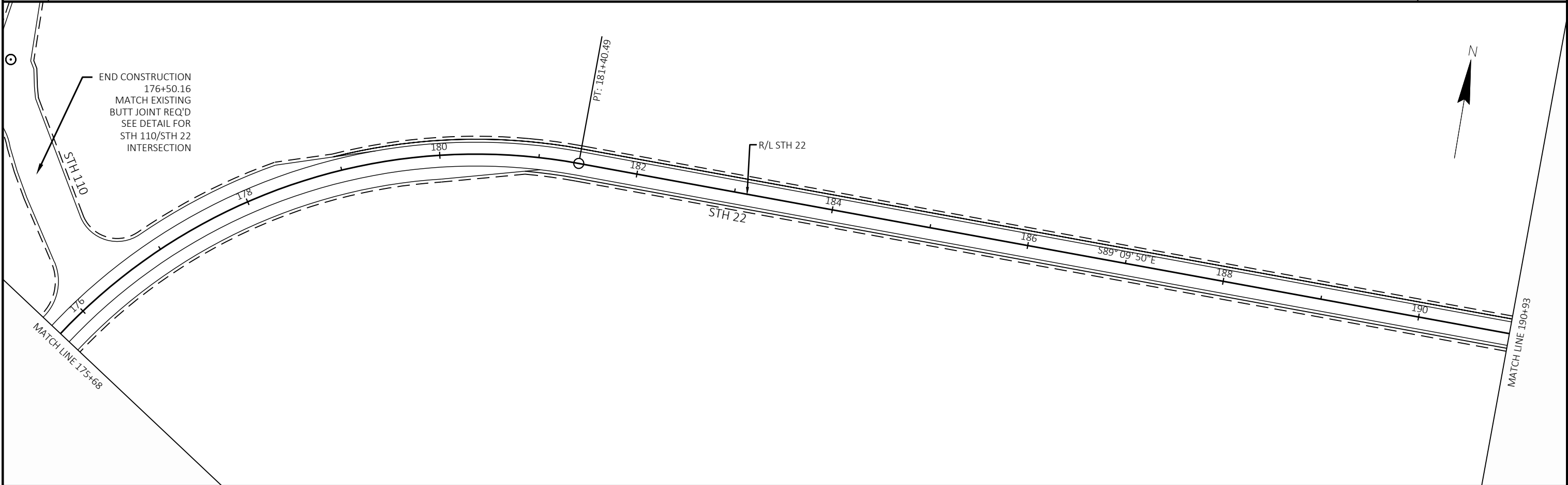


PROJECT NO: 6590-02-76	HWY: STH 22	COUNTY: WAUPACA	PLAN SHEETS	SHEET	E
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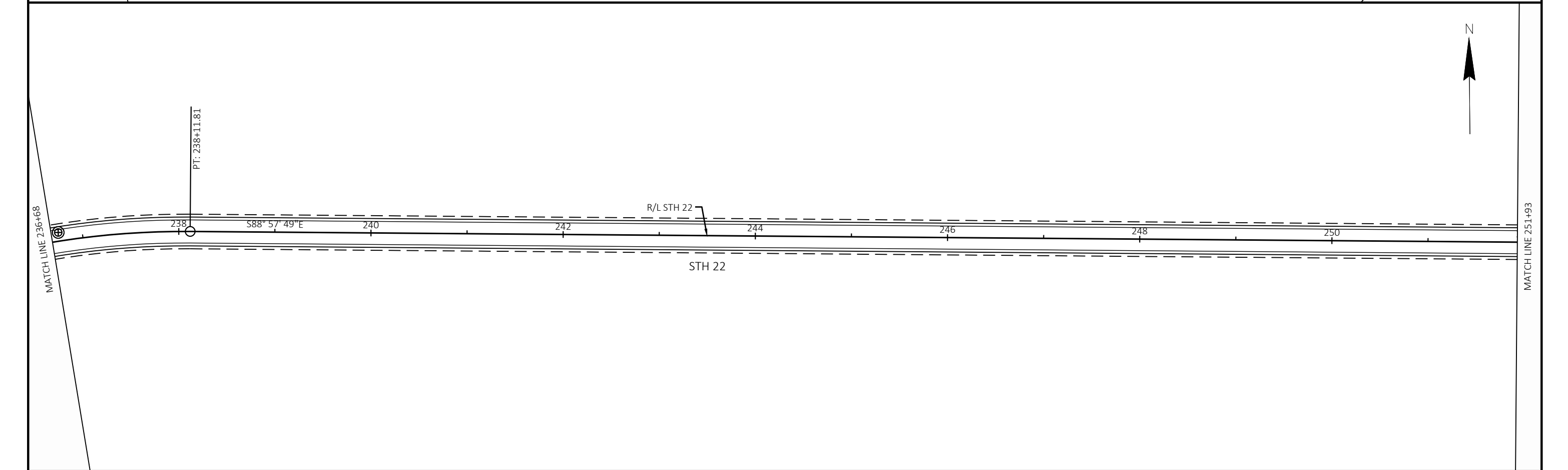
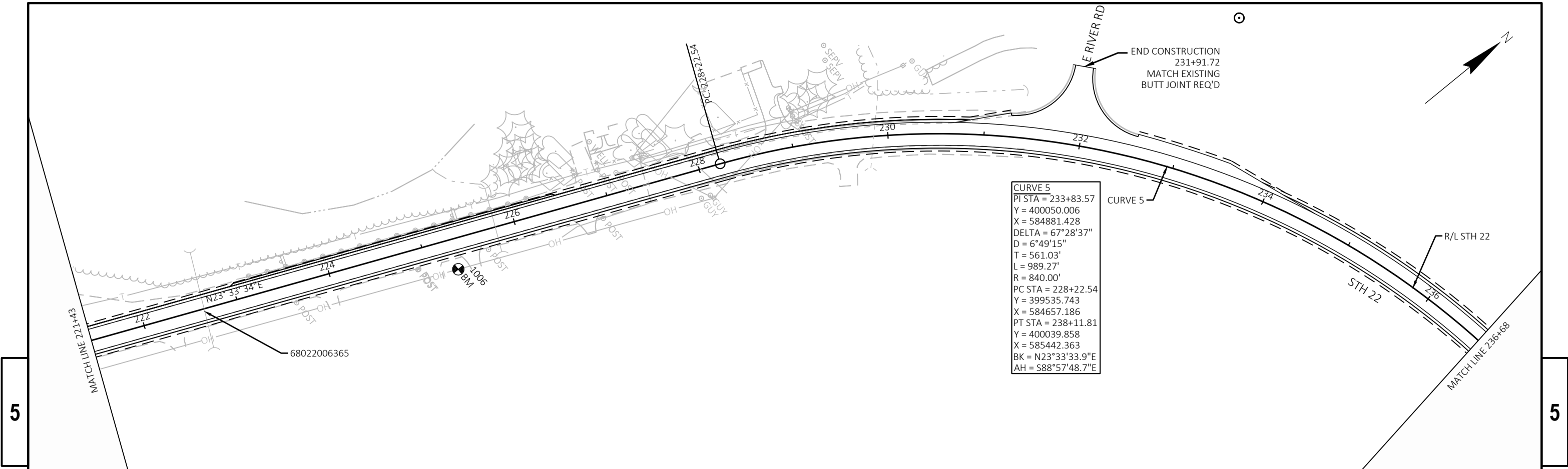




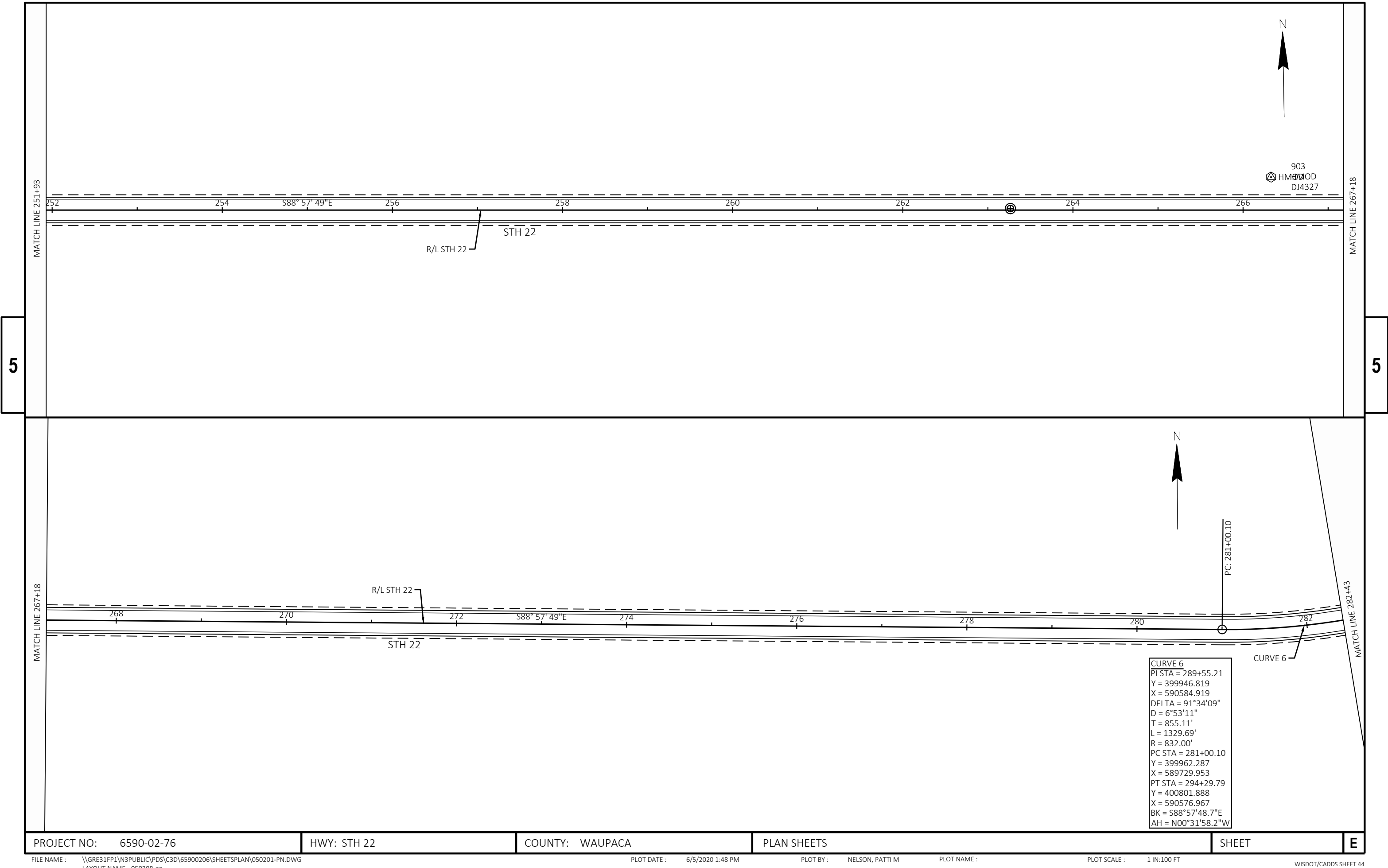




PROJECT NO: 6590-02-76	HWY: STH 22	COUNTY: WAUPACA	PLAN SHEETS	SHEET	E
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PROJECT NO: 6590-02-76	HWY: STH 22	COUNTY: WAUPACA	PLAN SHEETS	SHEET	E
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5

5

CURVE 6
PI STA = 289+55.21
Y = 399946.819
X = 590584.919
DELTA = 91°34'09"
D = 6°53'11"
T = 855.11'
L = 1329.69'
R = 832.00'
PC STA = 281+00.10
Y = 399962.287
X = 589729.953
PT STA = 294+29.79
Y = 400801.888
X = 590576.967
BK = S88°57'48.7"E
AH = N00°31'58.2"W

CURVE 6

END CONSTRUCTION
288+63.55
MATCH EXISTING
BUTT JOINT REQ'D

CTHO

PT: 294+29.79

N0°31'58"W

STH 22

R/L STH 22

N

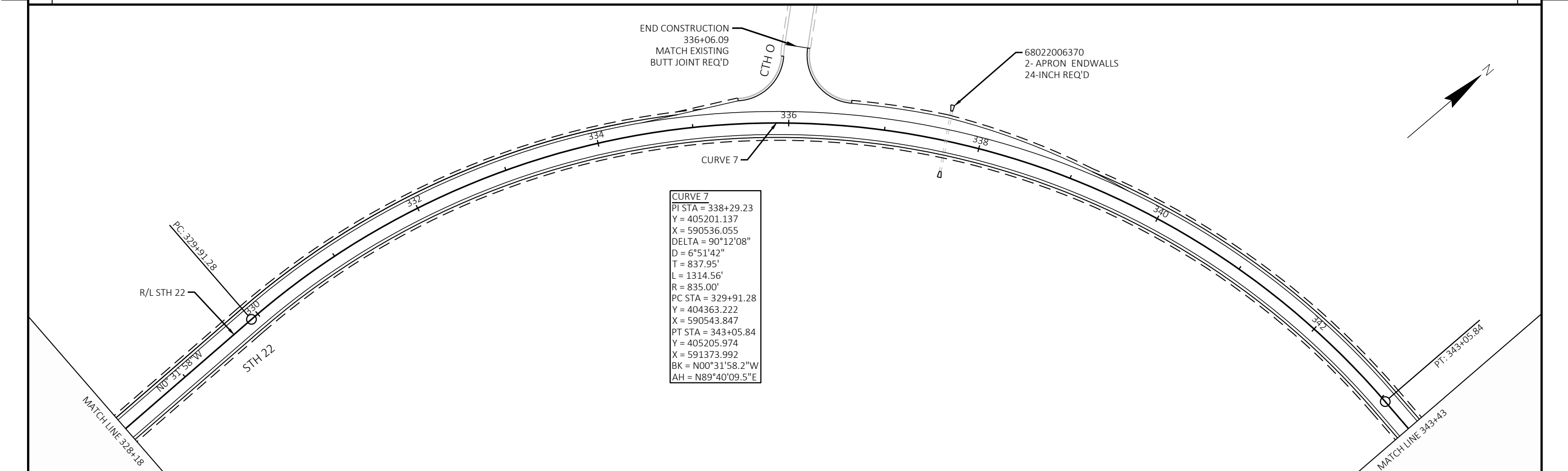
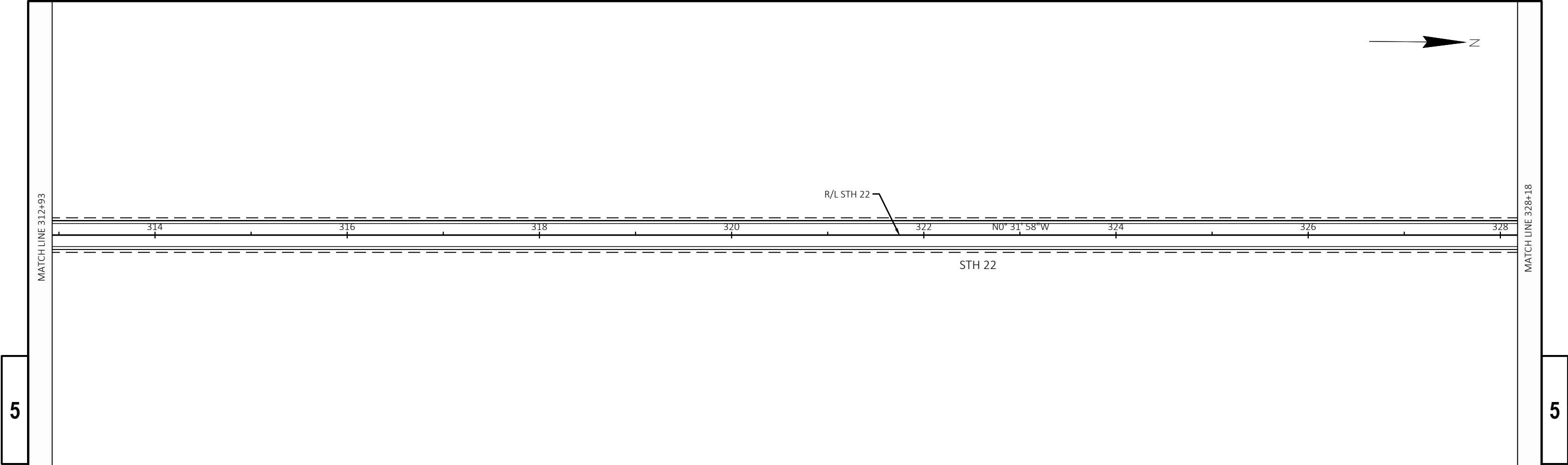
R/L STH 22

STH 22

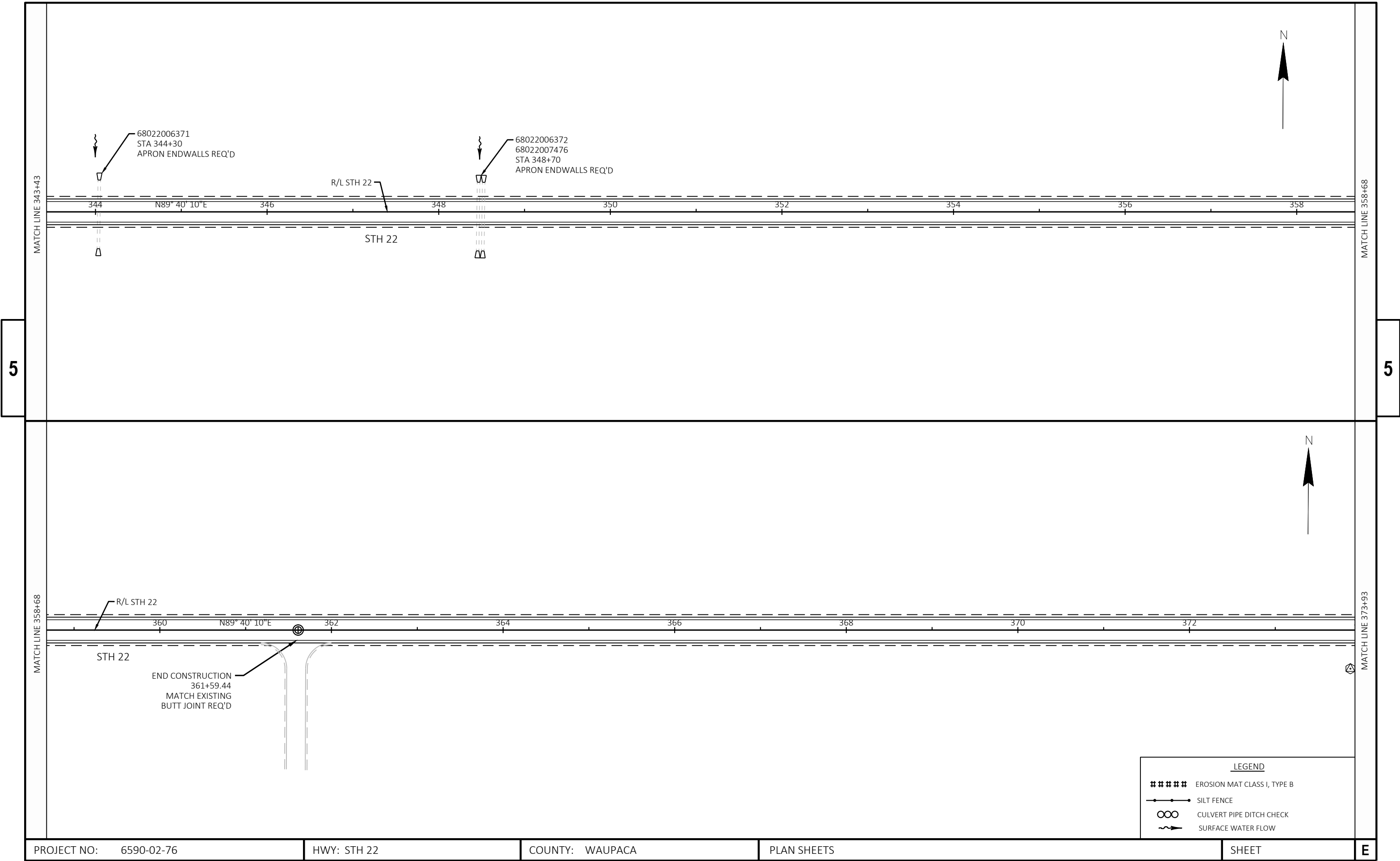
END CONSTRUCTION
312+12.43
MATCH EXISTING
BUTT JOINT REQ'D

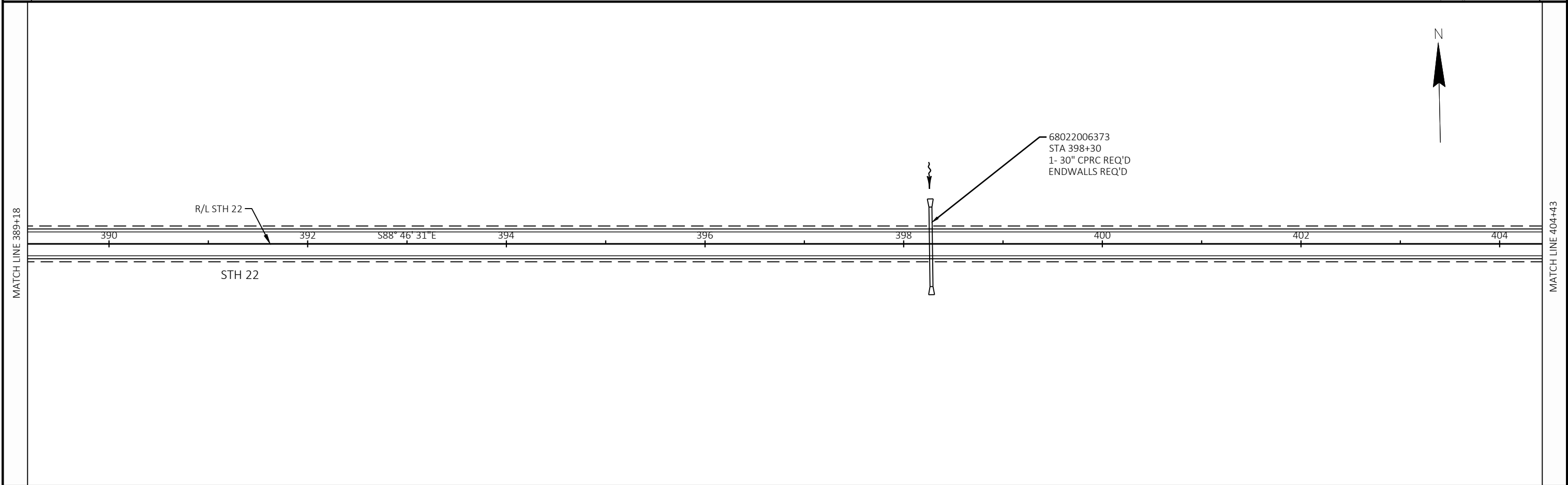
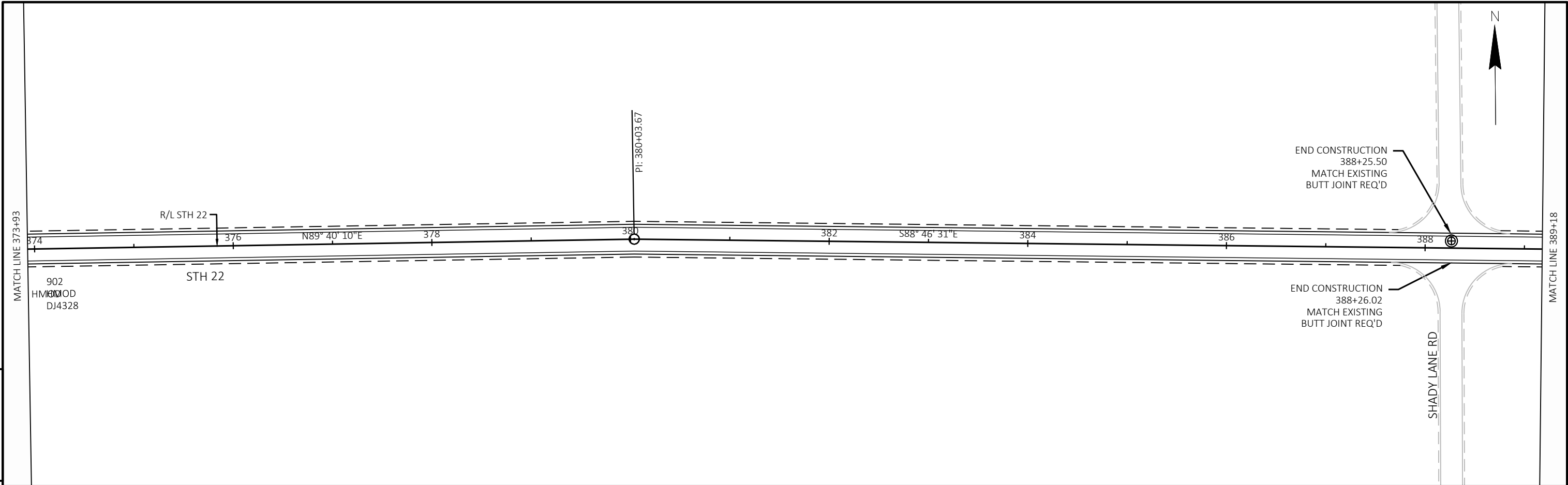
BEAVER RD

MATCH LINE 312+93

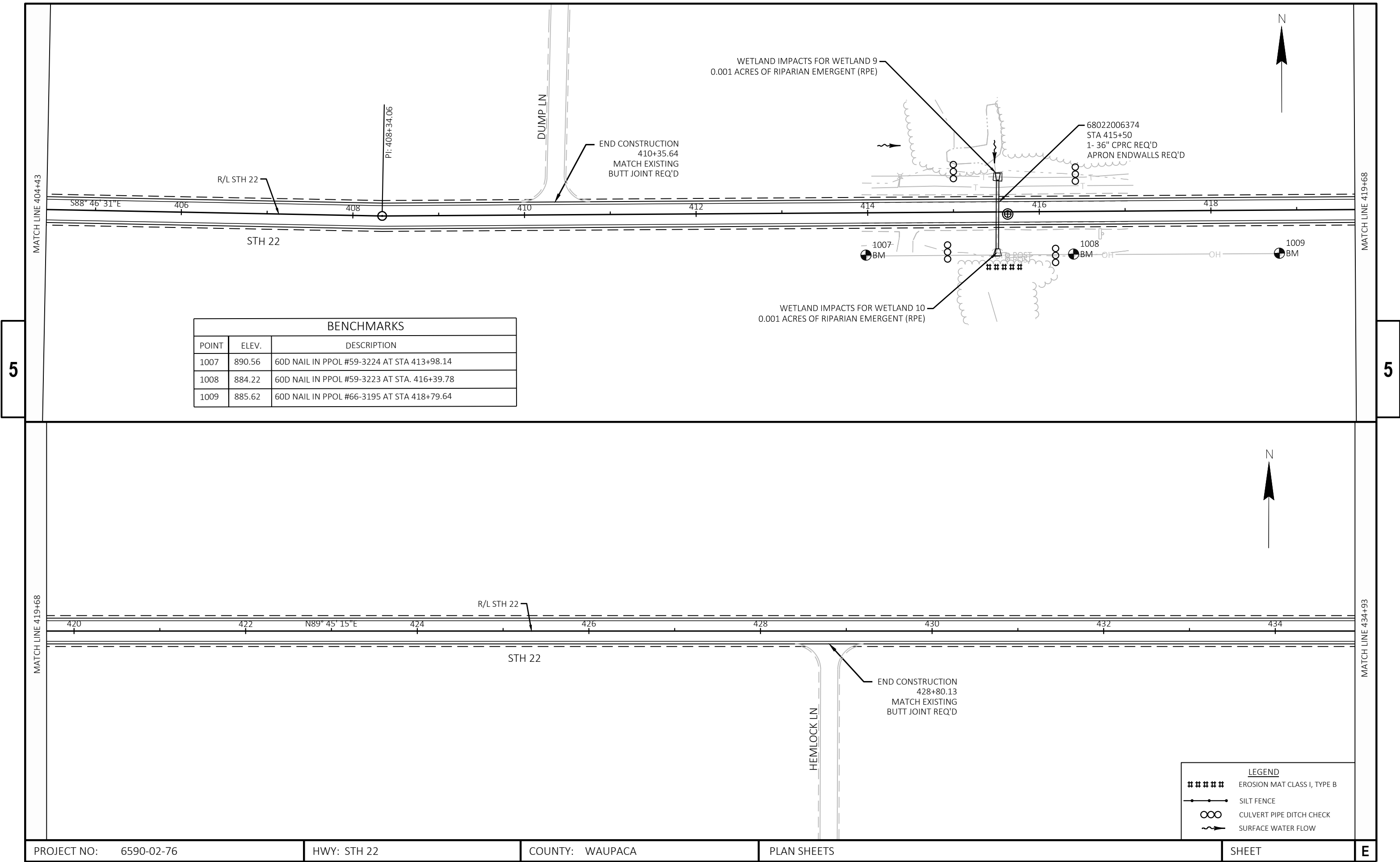


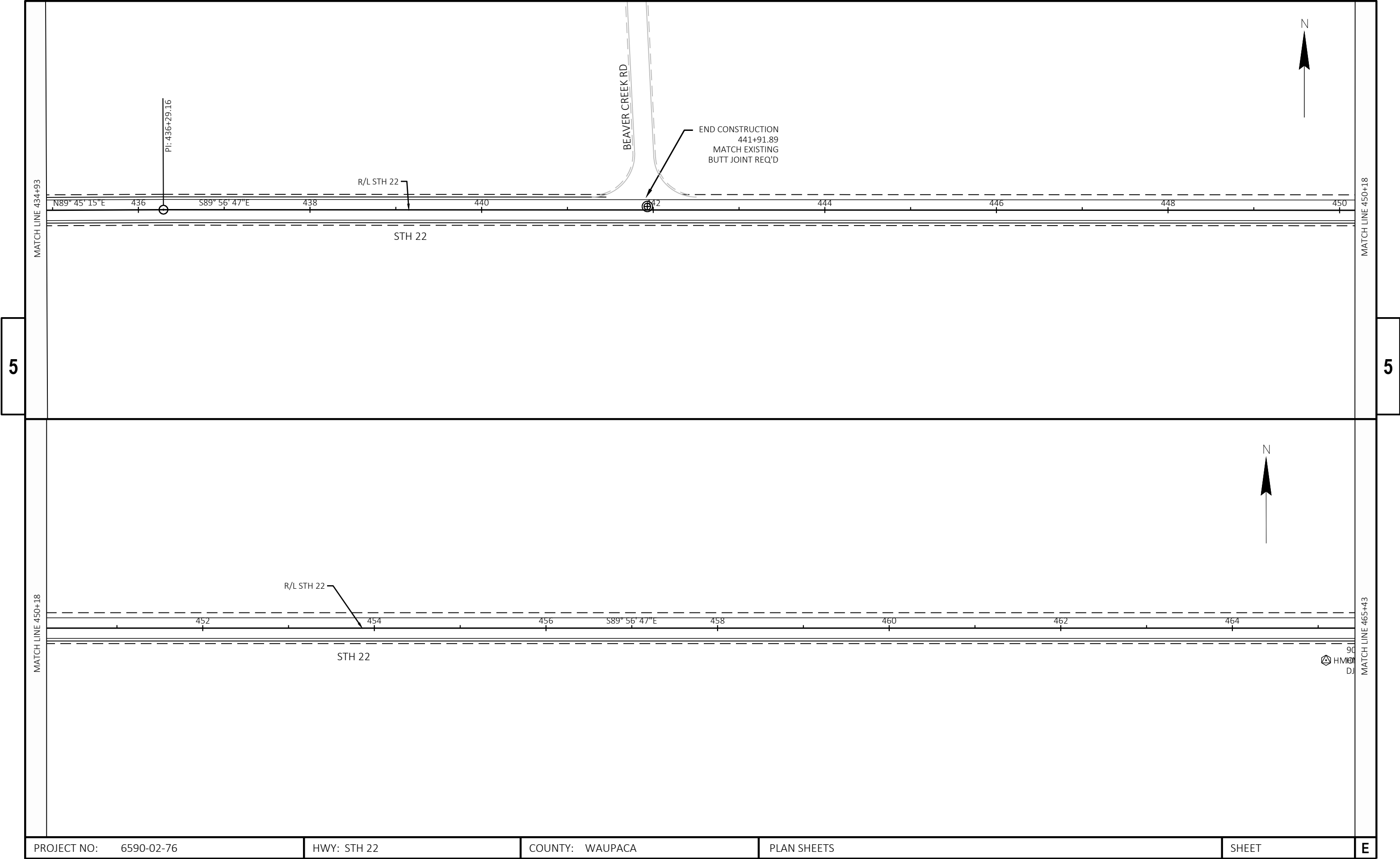
CURVE 7
PI STA = 338+29.23
Y = 405201.137
X = 590536.055
DELTA = 90°12'08"
D = 6°51'42"
T = 837.95'
L = 1314.56'
R = 835.00'
PC STA = 329+91.28
Y = 404363.222
X = 590543.847
PT STA = 343+05.84
Y = 405205.974
X = 591373.992
BK = N00°31'58.2"W
AH = N89°40'09.5"E



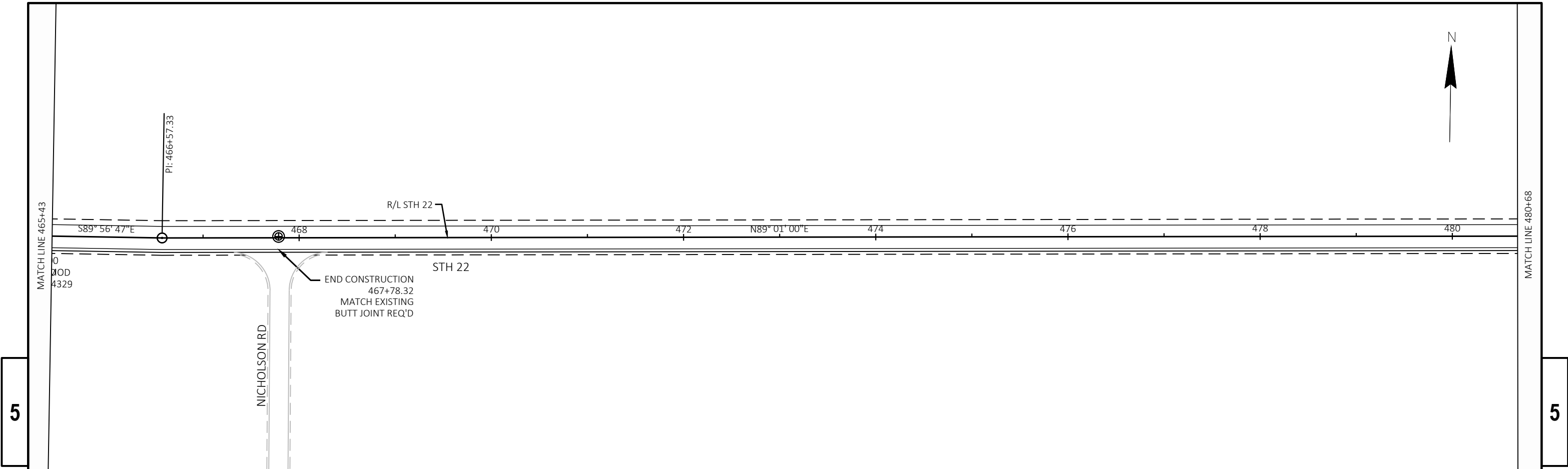


PROJECT NO: 6590-02-76	HWY: STH 22	COUNTY: WAUPACA	PLAN SHEETS	SHEET	E
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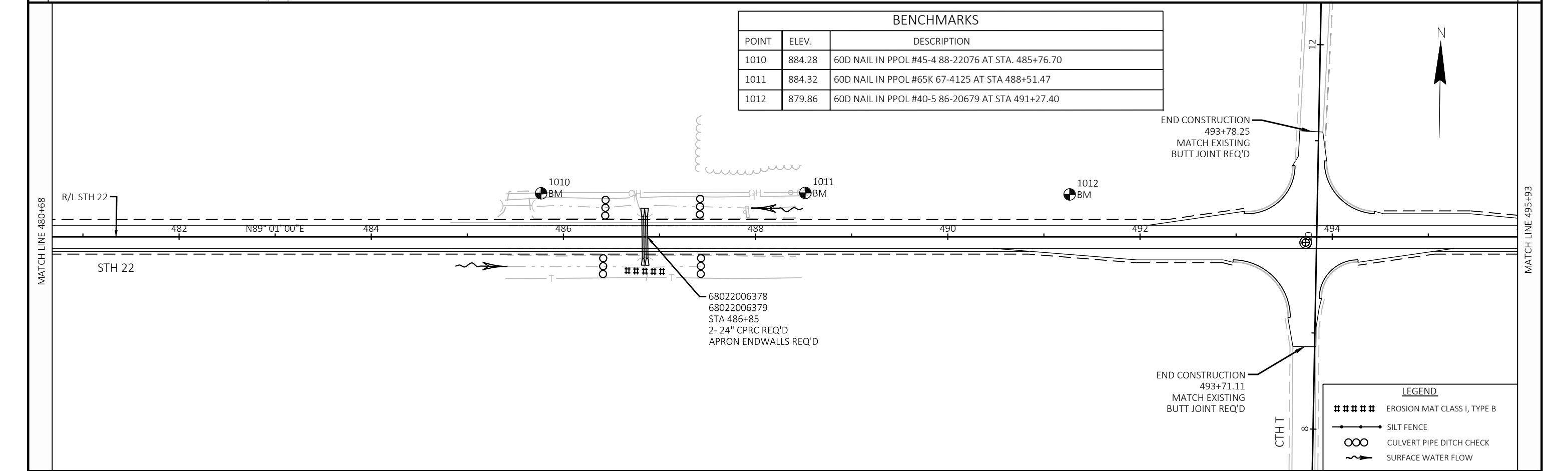


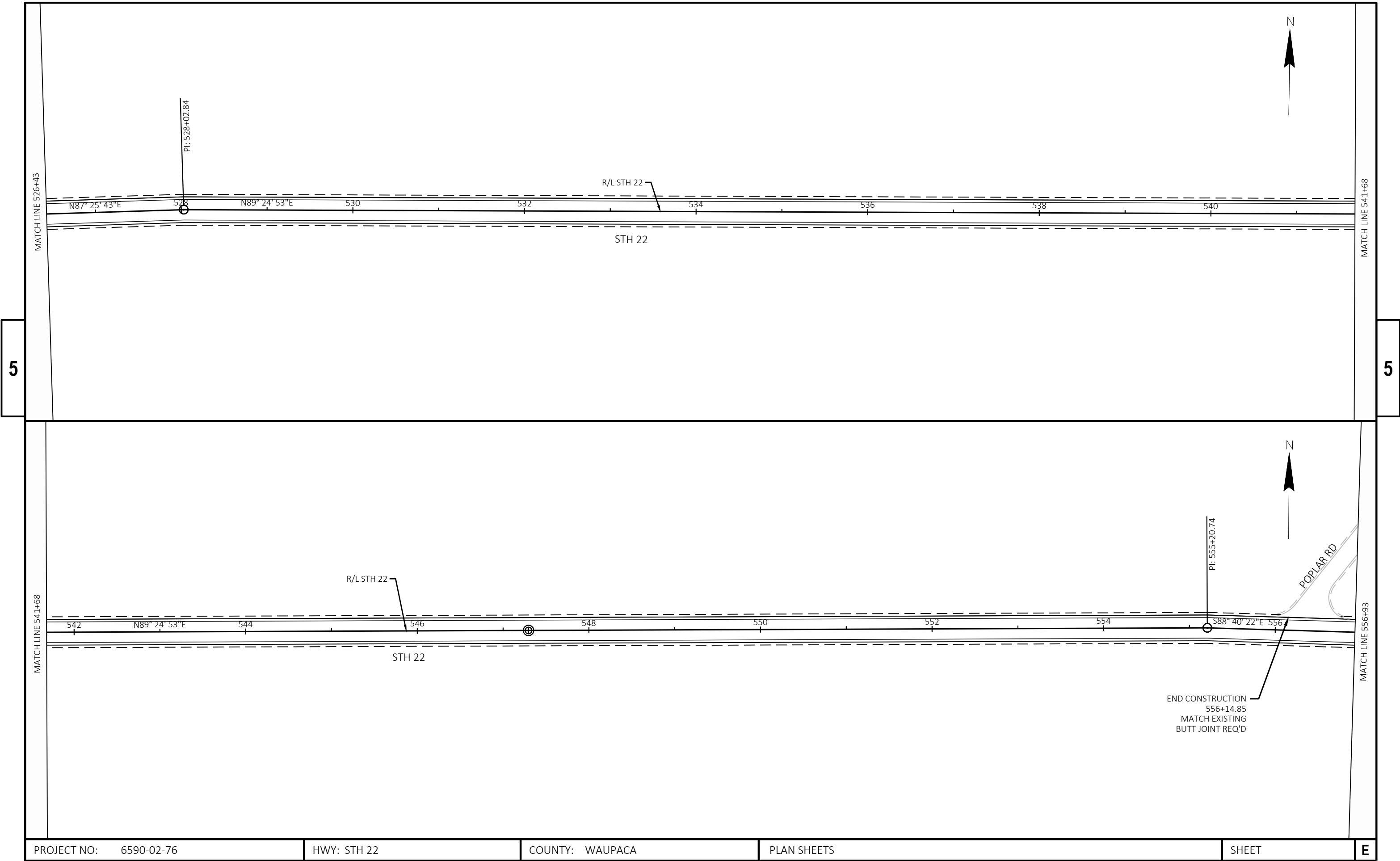


PROJECT NO: 6590-02-76	HWY: STH 22	COUNTY: WAUPACA	PLAN SHEETS	SHEET	E
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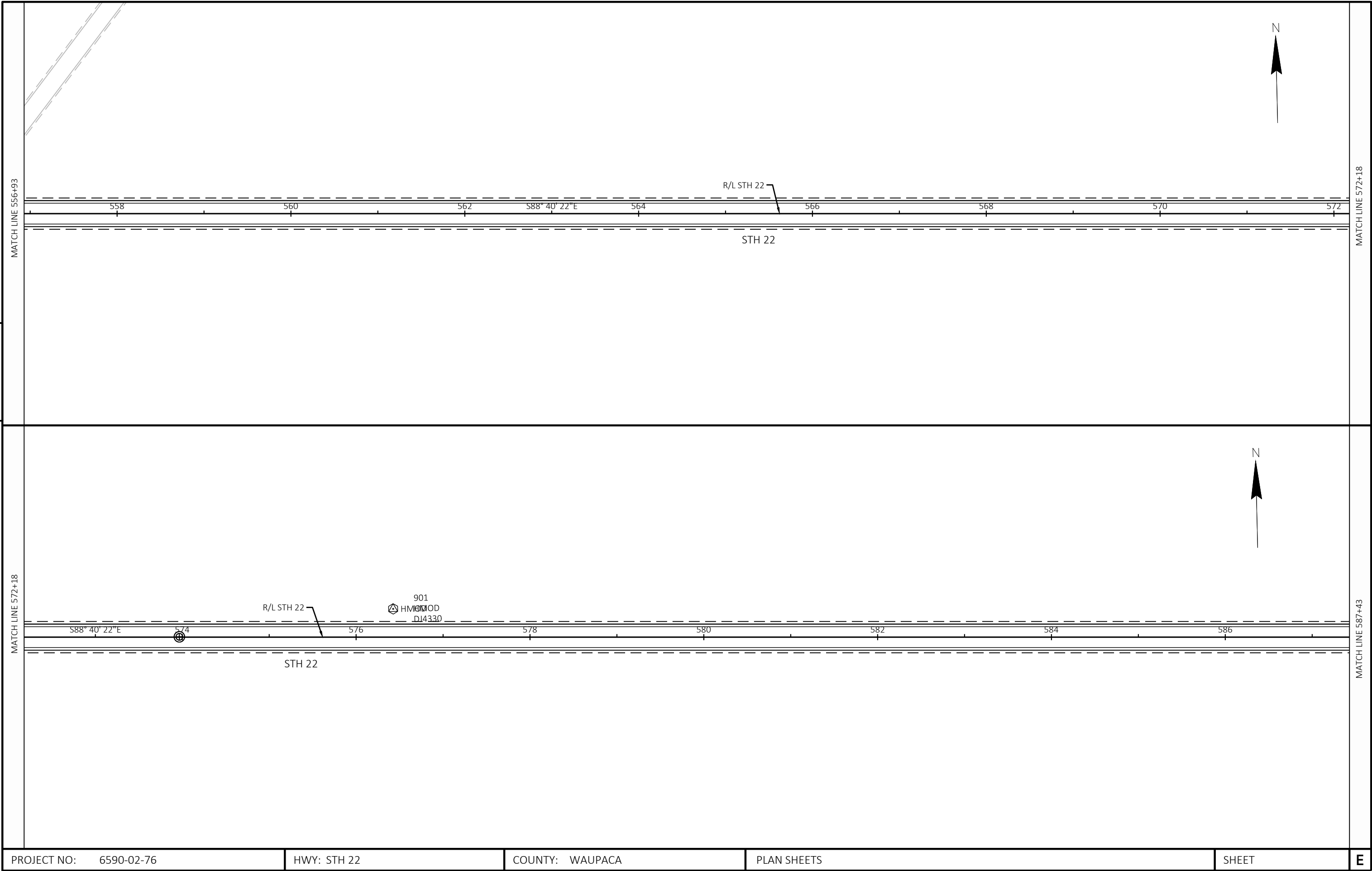


BENCHMARKS		
POINT	ELEV.	DESCRIPTION
1010	884.28	60D NAIL IN PPOL #45-4 88-22076 AT STA. 485+76.70
1011	884.32	60D NAIL IN PPOL #65K 67-4125 AT STA 488+51.47
1012	879.86	60D NAIL IN PPOL #40-5 86-20679 AT STA 491+27.40

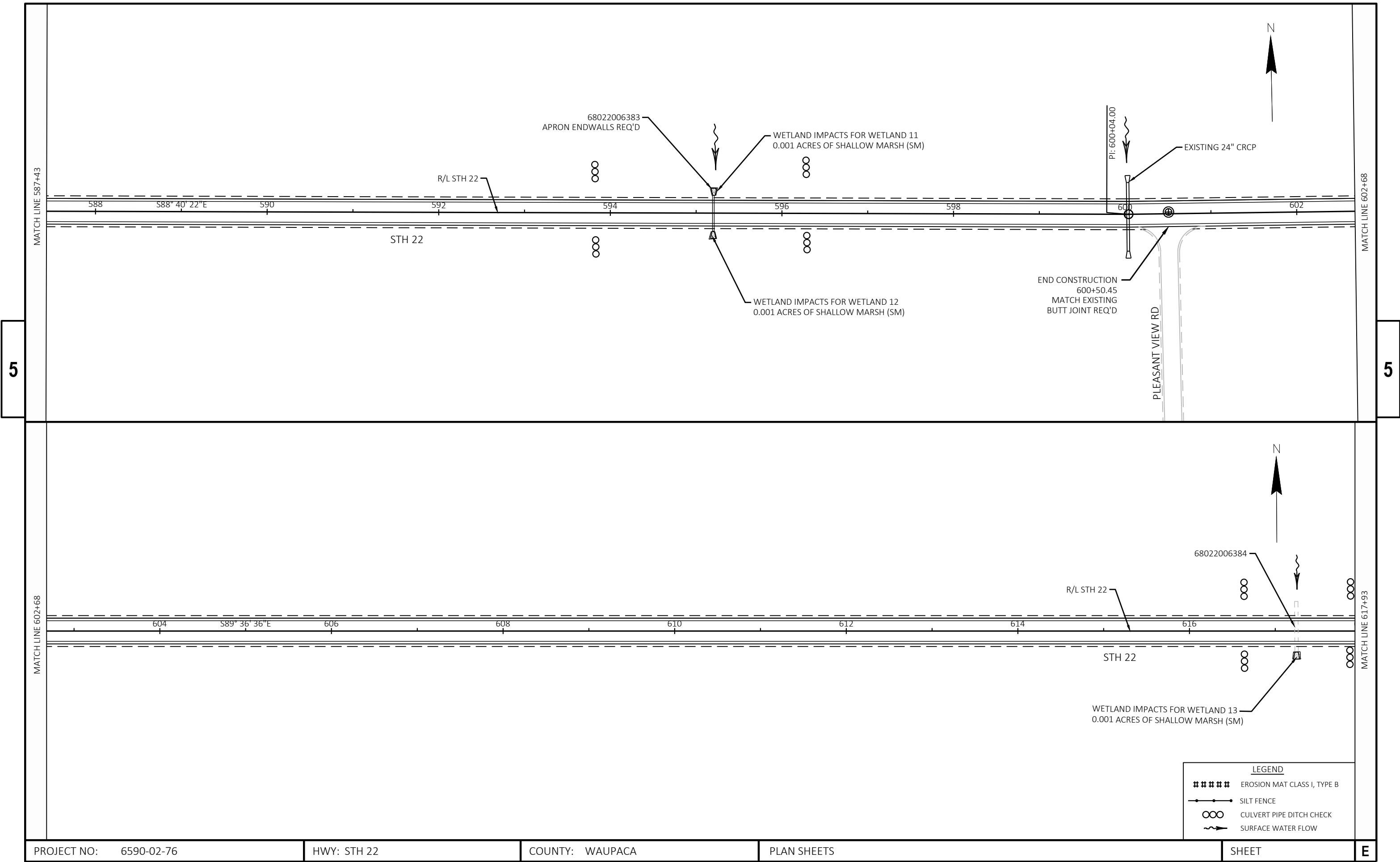




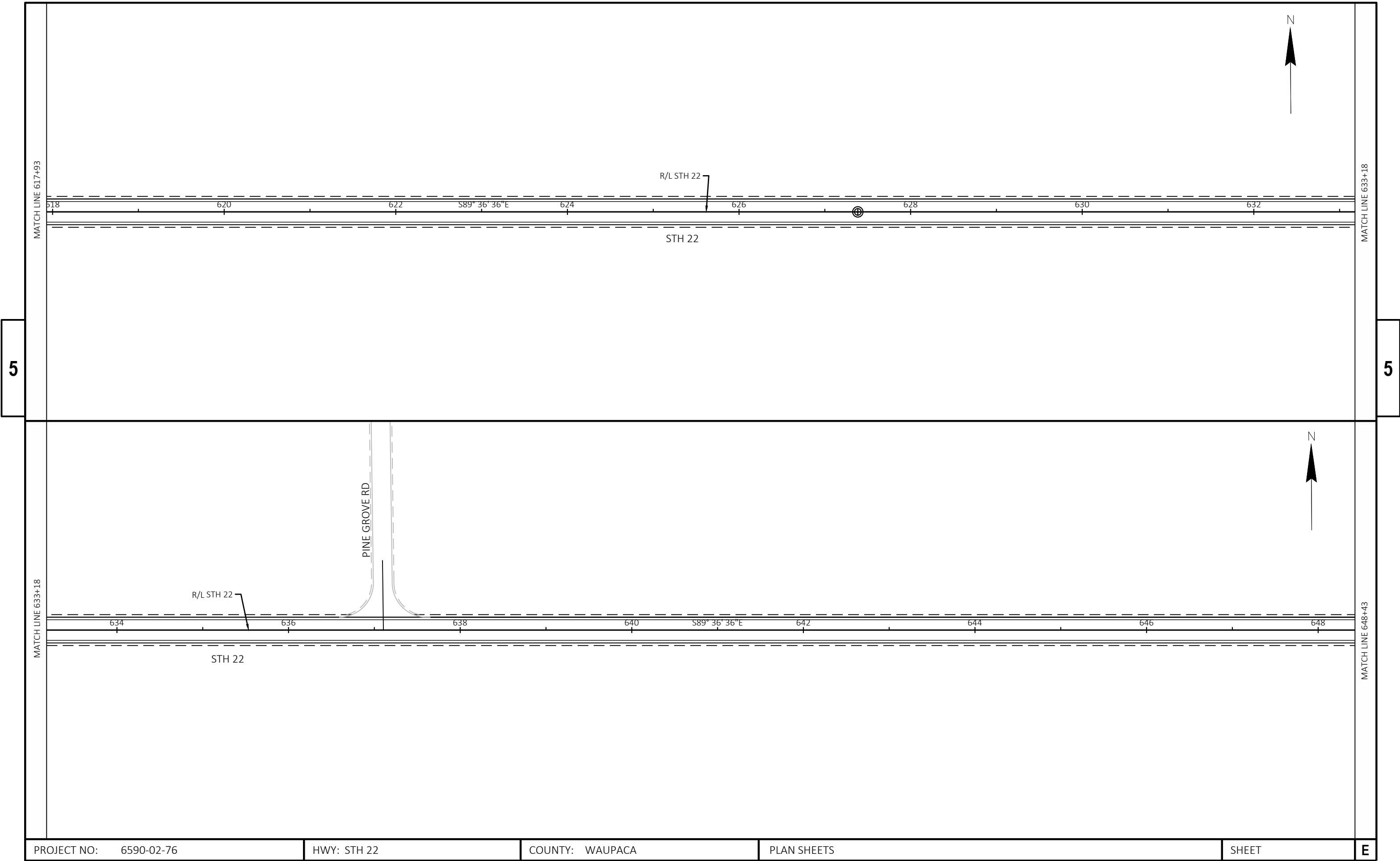
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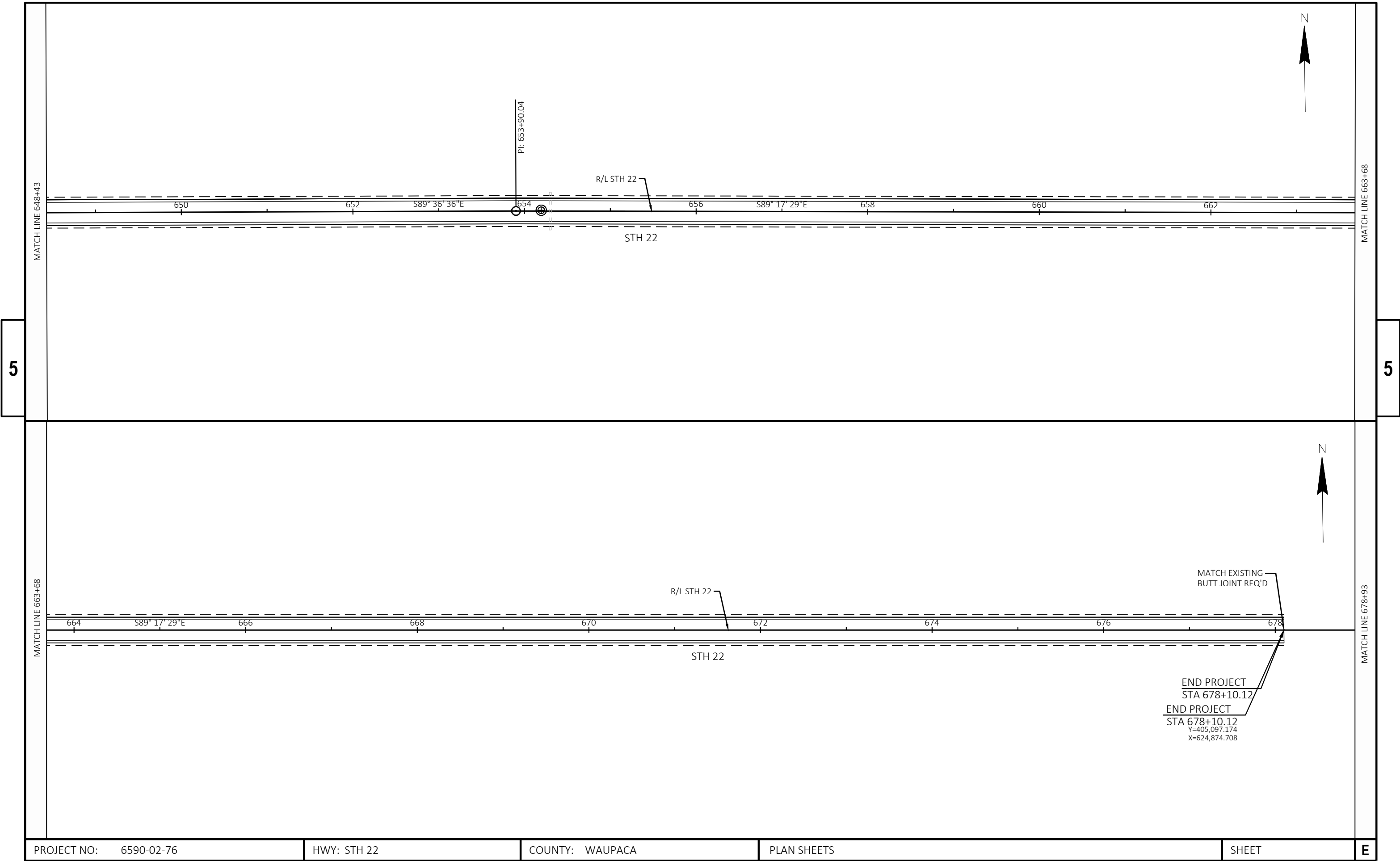
PROJECT NO: 6590-02-76	HWY: STH 22	COUNTY: WAUPACA	PLAN SHEETS	SHEET	E
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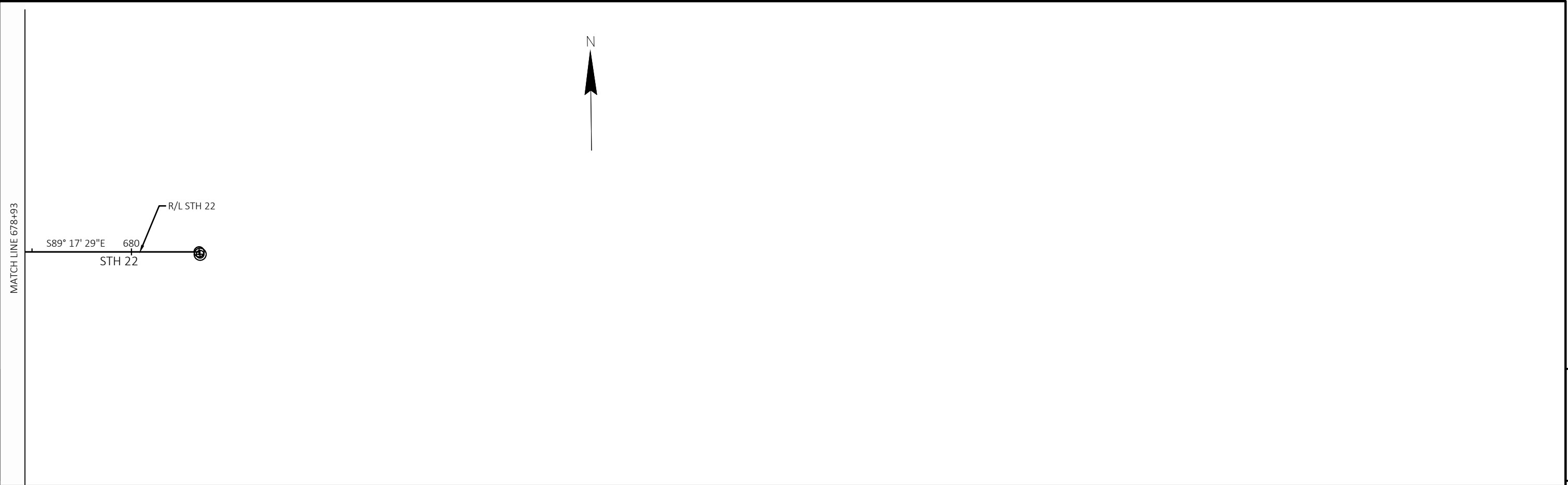
PROJECT NO: 6590-02-76	HWY: STH 22	COUNTY: WAUPACA	PLAN SHEETS	SHEET	E
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PROJECT NO: 6590-02-76	HWY: STH 22	COUNTY: WAUPACA	PLAN SHEETS	SHEET	E
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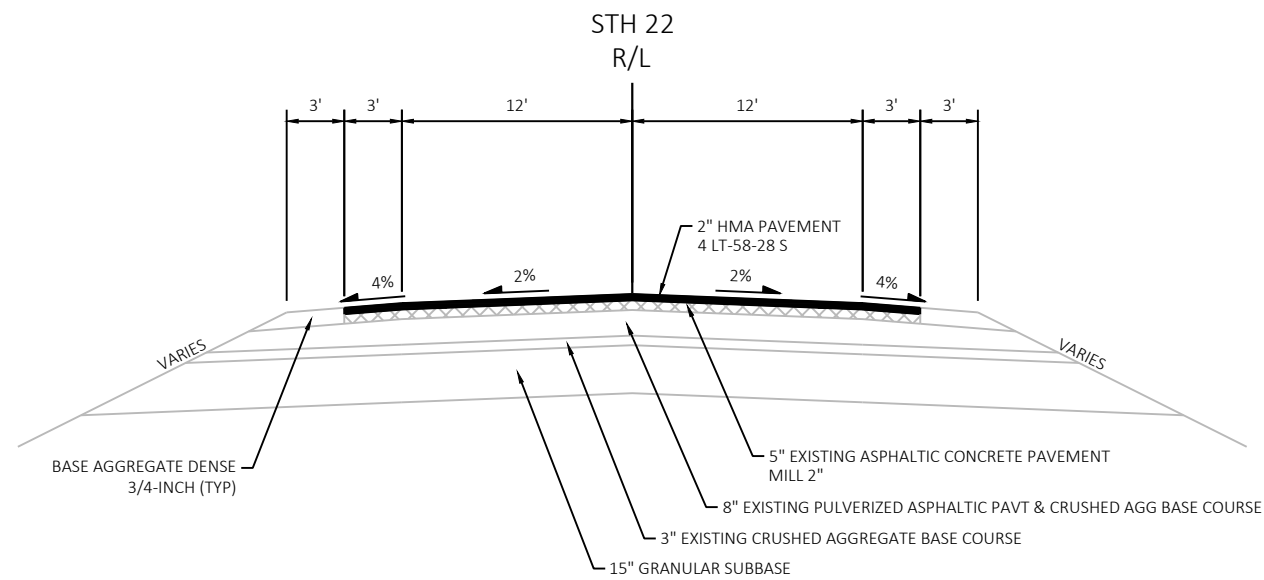
PROJECT NO: 6590-02-76	HWY: STH 22	COUNTY: WAUPACA	PLAN SHEETS	SHEET	E
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PROJECT NO: 6590-02-76	HWY: STH 22	COUNTY: WAUPACA	PLAN SHEETS	SHEET	E
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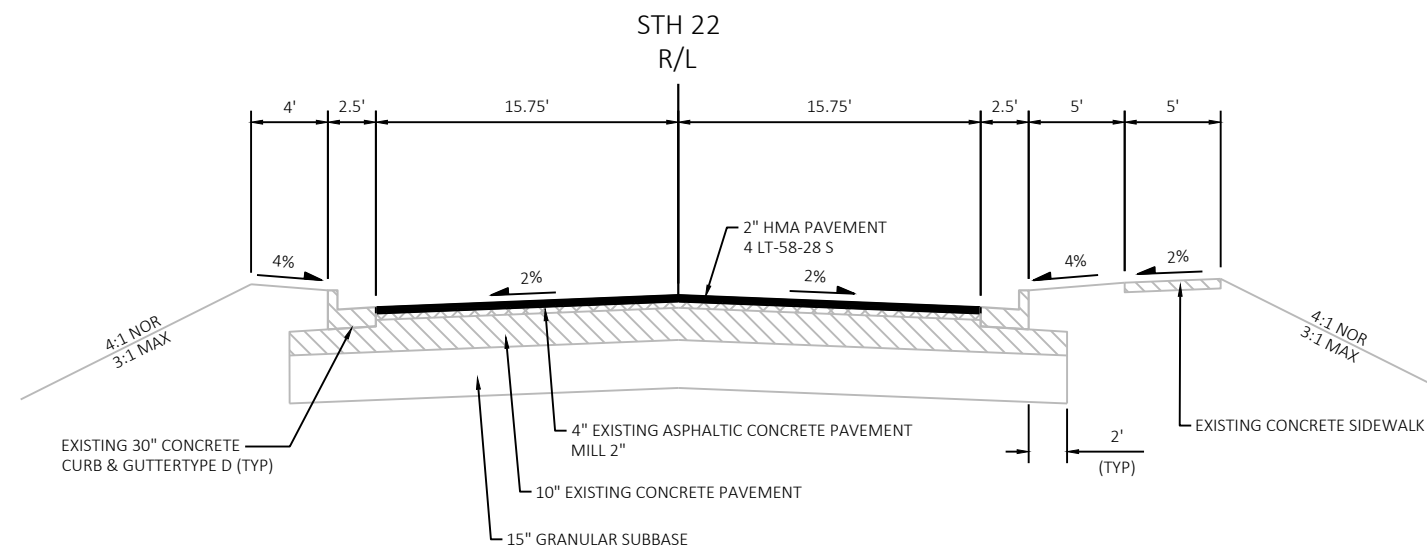
Attachment F

Finished Typical Cross Sections



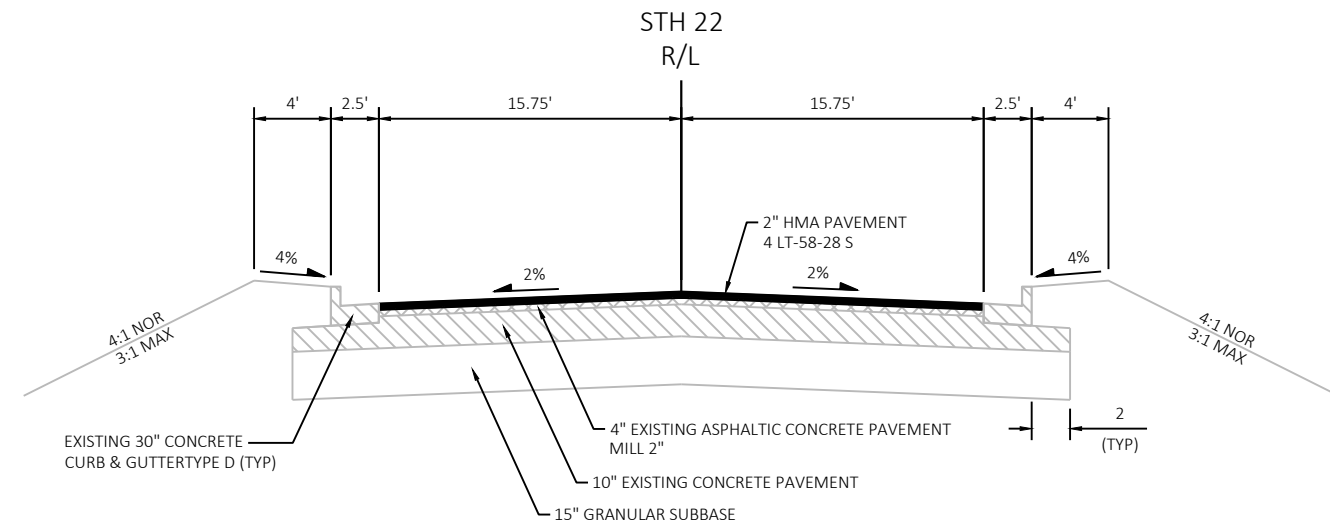
FINISHED TYPICAL SECTION STH 22

STA 41+00 TO STA 142+50
STA 145+30 TO STA 205+98.90
STA 219+71.40 TO 609+00

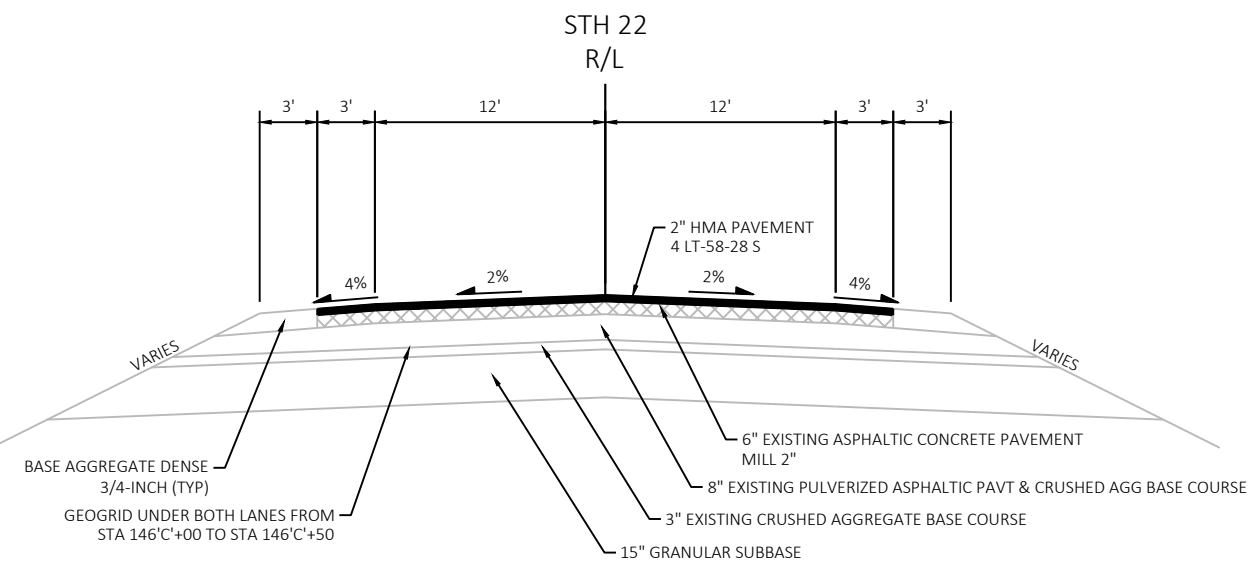


FINISHED TYPICAL SECTION STH 22

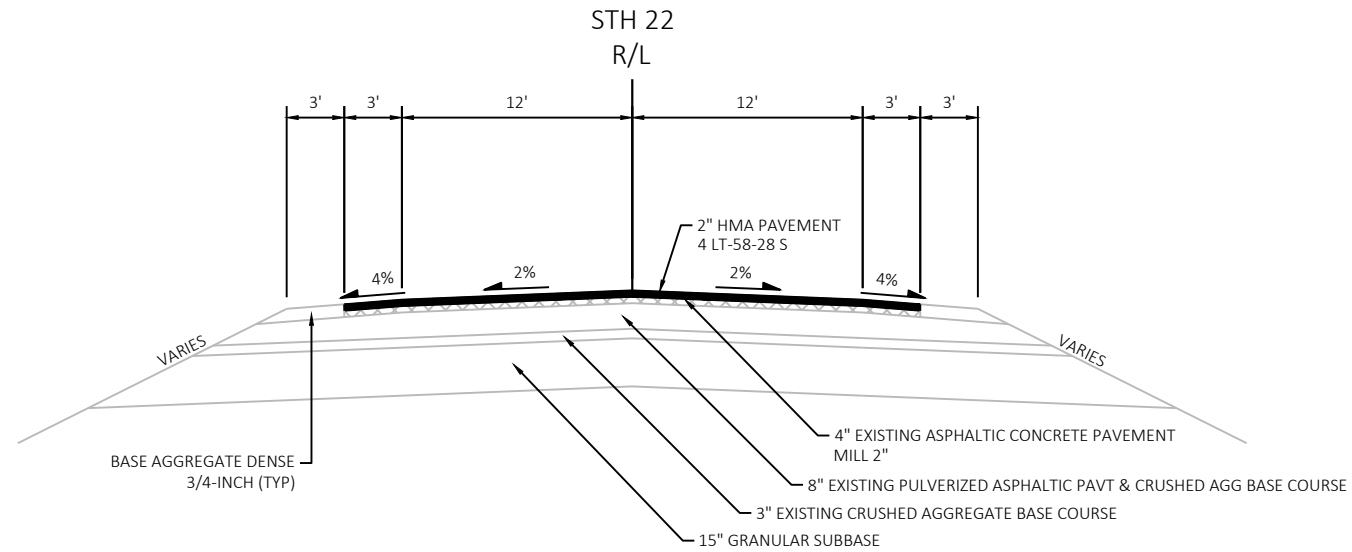
STA 205+98.90 STA 217+00



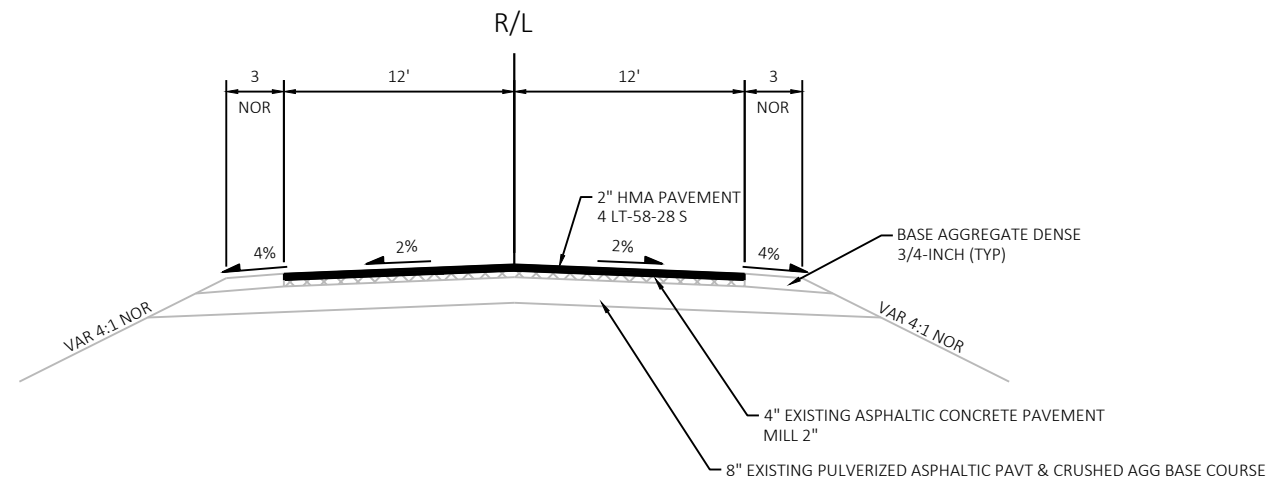
FINISHED TYPICAL SECTION STH 22
STA 217+00 TO STA 219+71.40



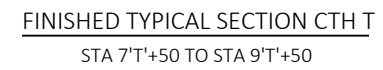
FINISHED TYPICAL SECTION STH 22
STA 609+00 TO STA 623+00



FINISHED TYPICAL SECTION STH 22
STA 623+00 TO STA 678+10.10



FINISHED TYPICAL SECTION EAST RIVER ROAD
STA 10+00 TO STA 10+85



Attachment G

Environmental Commitments Basic Sheet and Correspondence Letters

Section Five: Environmental Commitments

Identify and describe any avoidance, minimization or compensation measures (commitments) in detail. Be specific on what needs to happen and specifically where on the project. Indicate when the commitment should be implemented and who in WisDOT is responsible for fulfilling each commitment (Project Manager, Environmental Coordinator, etc.). Please note if the commitment will be indicated on the final plan, recorded in the Plans, Specifications and Estimates (PS&E), under special provisions in the final plan set, in construction notes, or some other written format. Attach a copy of this completed matrix to the design study report and the PS&E submittal package. Be sure to capture all commitments for each factor listed below and update it if further commitments are made after the Environmental Document is signed.

Factor	Commitment (If none, include N/A)
Business and Economics	During construction local access will be maintained for businesses and residents, emergency personnel and local businesses. Project construction leader (PCL) is responsible for this.
Community	Local access will be maintained to all properties. PCL is responsible.
Aesthetics	N/A
Agriculture	N/A
Relocations	N/A
Indirect Impacts	N/A
Cumulative Impacts	N/A
Environmental Justice	N/A
Historic Properties	On Section 106 Screening List as of 3/15/19. See Attachment H.
Burial Sites	One un-catalogued burial site extends into, two archaeological sites abut, and one un-catalogued burial site is outside the project area. Burial Site BWP-0009 (Nicholson Lutheran Cemetery) extends into un-catalogued. Region must notify WisDOT's Cultural Resources Team (CRT) when the project is within one (1) year of construction. CRT will petition the Wisconsin Historical Society (WHS) for authorization to work within the boundaries of the burial site under State Statue 157.70. Burial Site 47WP170 (unnamed site) and Site 47WP282 (P. Poe 14) abuts the project. If the undertaking includes ground disturbance beyond the existing ditch back slope intercept, a qualified archaeologist shall monitor the construction-related ground disturbing activities. Burial Site 47WP170 (unnamed site) and 47WP282 (P. Poe 14) abuts the project. The site should not be used for borrow or waste disposal, or for the staging of personnel, equipment and /or supplies. Burial site 47WP27/BWP-0168 (Little Wolf Cemetery and Cache) is outside – un-catalogued. The burial site should not be used for borrow or waste disposal, and the site area not currently capped by asphalt/concrete should not be used for the staging of personnel, equipment and/or supplies. See Attachment I.
Tribal Lands	N/A
Section 4(f)	N/A
Section 6(f) or Other Specially Funded Lands	N/A
Wetlands	Wetlands were delineated in November 2019. A total of 0.4 acres of shallow marsh, wet meadow, and riparian emergent wetlands will be impacted. Wetlands will be mitigated using Hope Marsh Phase 2. See Attachment G.
Surface Water Resources	N/A
Floodplains	N/A

Groundwater, Wells and Springs	N/A
Coastal Zones	N/A
Unique Wildlife and Habitat Concerns	N/A
Threatened and/or Endangered Species	N/A
Air Quality	N/A
Construction Sound	WisDOT Standard Specification 107.8(6) and 108.7.1 will apply.
Traffic Noise	N/A
Hazardous Substances, Contamination and Asbestos	Hazmat Phase 1 is completed. No further action is necessary.
Storm water	N/A
Erosion Control	Best management practices will be used during construction and an Erosion Control Implementation Plan (ECIP) will be submitted and followed by the construction contractor. PCL will make sure this is followed.
Other:	
Other:	

WisDOT Division of Transportation System Development
Northeast Region
944 Vanderperren Way
Green Bay, WI 54304

Governor Tony Evers
Secretary Craig Thompson
wisconsindot.gov
Telephone: (920)492-5643
FAX: (920)492-5640
Email: ner.dtsd@dot.wi.gov



February 12, 2020

DNR Wisconsin Rapids Service Center
ATTN: Casey Jones
473 Griffith Drive
Wisconsin Rapids, WI 54494

RE: Initial Project Notification

Project ID: 6590-02-06 (Design); 6590-02-76 (Construction)
Highway: STH 22
Title: Waupaca – Clintonville
Limits: County N – US Highway 45
County: Waupaca

The Wisconsin Department of Transportation (WisDOT) is in the process of developing plans for a proposed project located on WIS 22 in Waupaca County. The project includes an asphaltic resurfacing level improvement section from County N to US Highway 45 (12.0 miles). Five culvert pipes will be replaced, and 27 culvert end-walls will be constructed. Beam guard will be reconstructed and two curb ramps will be constructed. Real estate acquisition is not anticipated with this project. I have enclosed a location map and preliminary plan sheets.

This project is currently scheduled for construction in 2023 but may be moved up if funding is available.

Please advise us of any environmental concerns or potential conflicts regarding this project. If you require further information or have any questions, please feel free to contact me at (920) 360-7029 or kyle.treml@dot.wi.gov.

Sincerely,

Kyle Trembl, P.E.
Project Manager

Enclosures
DTNR002 Form
Location Map

DNR/DOT PROJECT REVIEW

State of Wisconsin – Department of Natural Resources (DNR) and Department of Transportation (WisDOT)
DTNR0002 6/2018

DNR Internet: http://dnr.wi.gov/	WisDOT Internet: http://wisconsindot.gov/
CASEY JONES DNR WISCONSIN RAPIDS SERVICE CENTER 473 GRIFFITH DRIVE WISCONSIN RAPIDS, WI 54494	Wisconsin Department of Transportation Division of Transportation Systems Development 944 VANDERPERREN WAY GREEN BAY, WI 54304

Inform WisDOT Regional Environmental Coordinator, if more than 45 days is needed.

Design Project ID 6590-02-06	Project Highway STH 22	Review Submittal Date (m/d/yy) 2/12/20
Construction Project ID 6590-02-76	Estimated Project Cost (range) \$2,500,000.00 to \$3,500,000.00	Construction Year (yyyy) 2023
Project Name Waupaca - Clintonville	Project Limits CTH N - USH 45	
County Waupaca	Project on Tribal Land ☐ Yes ☒ No	
Contact Name Kyle Trembl	Contact (Area Code) Phone Number (920) 360-7029	
Section/Township/Range 23N13E, 24N13E, 24N14E	Estimated Area of Ground Disturbance (acres)	

Type of Review Requested ☒ Initial Review ☒ Final Concurrence ☐ Scope Change ☐ Other:	Document Type ☐ Environmental Assessment (EA) ☐ Environmental Report (ER) ☒ Programmatic Categorical Exclusion (PCE) ☐ Categorical Exclusion Checklist (CEC)
WisDOT Project Classification ☐ Bridge Rehabilitation, FDM 3-5-2 ☐ Bridge Replacement, FDM 3-5-2 ☐ Expansion, FDM 3-5-2 ☐ Pavement Replacement, FDM 3-5-2 ☐ Preventive Maintenance, FDM 3-1-5 ☐ SHRM (State Hwy Rehab/Maint), Maintenance Manual 13.08 ☐ Recondition, FDM 3-5-2 ☐ Reconstruction, FDM 3-5-2 ☒ Resurface, FDM 3-5-2 ☐ Safety (HSIP), PMM 4-1-10 ☐ Other:	Work Involved ☒ Beam Guard Replacement ☐ Borrow and/or Waste Site Required ☐ Channel Change/Stream Relocation ☐ Clearing and Grubbing ☒ Culvert Replacement or Extensions ☐ Dredging ☒ Grading ☐ Fill Outside Toe of Slope ☐ Intersection Improvement ☐ Right of Way Acquisition ☐ Shoulder Work ☐ Storm Sewer ☐ Other:

Storm Water Management (check all that apply)

- ☐ Trans 401 post construction requirements
☐ NPDES MS4/Urbanized Area
☐ TMDL Implementation Area
☐ Transportation Construction General Permit (TCGP)

For more information, please see the back of this form.

Project Description and Reason for Project:

(include project location map with limits and necessary attachments; attach additional sheets if needed)

The resurfacing level improvement section from CTH N to USH 45 will include a mill and overlay of STH 22, base aggregate dense, beam guard replacements, pavement marking, and culvert replacements. The resurfacing will be conducted under a moving operation with flagging and single lane closures. Upon final inspection for determination of culvert repairs along the corridor, additional traffic impacts will be evaluated. Real estate acquisition is not anticipated.

**WisDOT Division of Transportation System
Development**
Northeast Region
944 Vanderperren Way
Green Bay, WI 54304

**Governor Tony Evers
Secretary Craig Thompson**
wisconsindot.gov
Telephone: (920) 492-5643
FAX: (920) 492-5640
Email: ner.dtsd@dot.wi.gov



February 13, 2020

Prairie Band Potawatomi Nation
Attn: Ms. Hattie Mitchell, THPO
16281 Q Road
Mayetta, KS 66509

Project I.D. 6590-02-06
Waupaca – Clintonville
CTH N – USH 45
WIS 22
Waupaca County

Re: Initial Project Notification

The Wisconsin Department of Transportation (WisDOT) is in the process of developing plans for a proposed project along WIS 22 in Waupaca County (see attached map). The project limits are from County N to USH 45 (12.16 miles). The project will consist of an asphaltic resurfacing including replacement of beam guard, replacement of five culvert pipes, and addition of two curb ramps.

Construction is currently scheduled for 2023, with a possible advanceable date of 2022 pending funding availability.

Your tribe has requested to be notified of undertakings in this area of Wisconsin. Attached is information regarding the proposed undertaking to assist you in providing comments regarding the determination of the area of potential effect (APE) and potential impacts to historic properties and/or burial sites. Other environmental studies will also be conducted and may include an endangered species survey, contaminated material investigations, wetland review, soil testing and right-of-way surveys. Information obtained from these studies will assist the engineers in design to avoid, minimize or mitigate the proposed project's effect upon cultural and natural resources.

WisDOT would be pleased to receive any comments regarding these projects or any information you wish to share pertaining to cultural resources located in the area. If your tribe wishes to become a consulting party under Section 106 of the National Historic Preservation Act or would like to receive additional information regarding these proposed projects, please contact Kyle Trembl at 944 Vanderperren Way, Green Bay, WI 54304, by email at kyle.trembl@dot.wi.gov, or by phone at (920) 360-7029.

Sincerely,

Kyle Trembl

Kyle Trembl, P.E.
Project Manager

Attachments: Project Location Map

Cc: DTSD Bureau of Technical Services, Environmental Services Section



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Green Bay Ecological Services Field Office
2661 Scott Tower Drive
New Franken, WI 54229-9565
Phone: (920) 866-1717 Fax: (920) 866-1710



In Reply Refer To:

February 26, 2020

Consultation Code: 03E17000-2018-TA-0537

Event Code: 03E17000-2020-E-02458

Project Name: 6590-02-06 STH 22 Resurfacing

Subject: Verification letter for the '6590-02-06 STH 22 Resurfacing' project under the January 5, 2016, Programmatic Biological Opinion on Final 4(d) Rule for the Northern Long-eared Bat and Activities Excepted from Take Prohibitions.

Dear Mike Helmrick:

The U.S. Fish and Wildlife Service (Service) received on February 26, 2020 your effects determination for the '6590-02-06 STH 22 Resurfacing' (the Action) using the northern long-eared bat (*Myotis septentrionalis*) key within the Information for Planning and Consultation (IPaC) system. This IPaC key assists users in determining whether a Federal action is consistent with the activities analyzed in the Service's January 5, 2016, Programmatic Biological Opinion (PBO). The PBO addresses activities excepted from "take"[\[1\]](#) prohibitions applicable to the northern long-eared bat under the Endangered Species Act of 1973 (ESA) (87 Stat.884, as amended; 16 U.S.C. 1531 et seq.).

Based upon your IPaC submission, the Action is consistent with activities analyzed in the PBO. The Action may affect the northern long-eared bat; however, any take that may occur as a result of the Action is not prohibited under the ESA Section 4(d) rule adopted for this species at 50 CFR §17.40(o). Unless the Service advises you within 30 days of the date of this letter that your IPaC-assisted determination was incorrect, this letter verifies that the PBO satisfies and concludes your responsibilities for this Action under ESA Section 7(a)(2) with respect to the northern long-eared bat.

Please report to our office any changes to the information about the Action that you submitted in IPaC, the results of any bat surveys conducted in the Action area, and any dead, injured, or sick northern long-eared bats that are found during Action implementation. If the Action is not completed within one year of the date of this letter, you must update and resubmit the information required in the IPaC key.

This IPaC-assisted determination allows you to rely on the PBO for compliance with ESA Section 7(a)(2) only for the northern long-eared bat. It **does not** apply to the following ESA-protected species that also may occur in the Action area:

- Gray Wolf, *Canis lupus* (Endangered)
- Karner Blue Butterfly, *Lycaeides melissa samuelis* (Endangered)
- Snuffbox Mussel, *Epioblasma triquetra* (Endangered)

If the Action may affect other federally listed species besides the northern long-eared bat, a proposed species, and/or designated critical habitat, additional consultation between you and this Service office is required. If the Action may disturb bald or golden eagles, additional coordination with the Service under the Bald and Golden Eagle Protection Act is recommended.

[1]Take means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct [ESA Section 3(19)].

Action Description

You provided to IPaC the following name and description for the subject Action.

1. Name

6590-02-06 STH 22 Resurfacing

2. Description

The following description was provided for the project '6590-02-06 STH 22 Resurfacing':

State Highway (STH) 22 provides local commuter and regional truck access between Columbia and Oconto Counties in central Wisconsin. The existing highway is showing signs of deterioration including rutting, and alligator, longitudinal and transverse cracking.

The Wisconsin Department of Transportation (WisDOT) is proposing to complete routine preventative maintenance on STH 22 between County Highway (CTH) N and United States Highway (USH) 45 in the village of Bear Creek in Waupaca County. The proposed project will include a thin mill and overlay. Up to 2.5 inches of the top layer of asphalt will be removed. An equal amount of new asphalt mix will be replaced. In addition, other routine highway maintenance such as culvert replacement, culvert repair, beam guard replacement, signage installation, and other related jobs will be completed to ensure that existing highway infrastructure meets current design and safety standards.

This project is being completed as a part of the WisDOT expedited review program. Design work will be completed by 2021. Construction is anticipated in 2025, but may be advanced to as early as 2021 if funding becomes available.

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/place/44.49767378916539N88.9202478316511W>



Determination Key Result

This Federal Action may affect the northern long-eared bat in a manner consistent with the description of activities addressed by the Service's PBO dated January 5, 2016. Any taking that may occur incidental to this Action is not prohibited under the final 4(d) rule at 50 CFR §17.40(o). Therefore, the PBO satisfies your responsibilities for this Action under ESA Section 7(a)(2) relative to the northern long-eared bat.

Determination Key Description: Northern Long-eared Bat 4(d) Rule

This key was last updated in IPaC on May 15, 2017. Keys are subject to periodic revision.

This key is intended for actions that may affect the threatened northern long-eared bat.

The purpose of the key for Federal actions is to assist determinations as to whether proposed actions are consistent with those analyzed in the Service's PBO dated January 5, 2016.

Federal actions that may cause prohibited take of northern long-eared bats, affect ESA-listed species other than the northern long-eared bat, or affect any designated critical habitat, require ESA Section 7(a)(2) consultation in addition to the use of this key. Federal actions that may affect species proposed for listing or critical habitat proposed for designation may require a conference under ESA Section 7(a)(4).

Determination Key Result

This project may affect the threatened Northern long-eared bat; therefore, consultation with the Service pursuant to Section 7(a)(2) of the Endangered Species Act of 1973 (87 Stat.884, as amended; 16 U.S.C. 1531 et seq.) is required. However, based on the information you provided, this project may rely on the Service's January 5, 2016, *Programmatic Biological Opinion on Final 4(d) Rule for the Northern Long-Eared Bat and Activities Excepted from Take Prohibitions* to fulfill its Section 7(a)(2) consultation obligation.

Qualification Interview

1. Is the action authorized, funded, or being carried out by a Federal agency?
Yes
2. Have you determined that the proposed action will have "no effect" on the northern long-eared bat? (If you are unsure select "No")
No
3. Will your activity purposefully **Take** northern long-eared bats?
No
4. Is the project action area located wholly outside the White-nose Syndrome Zone?
Automatically answered
No
5. Have you contacted the appropriate agency to determine if your project is near a known hibernaculum or maternity roost tree?

Location information for northern long-eared bat hibernacula is generally kept in state Natural Heritage Inventory databases – the availability of this data varies state-by-state. Many states provide online access to their data, either directly by providing maps or by providing the opportunity to make a data request. In some cases, to protect those resources, access to the information may be limited. A web page with links to state Natural Heritage Inventory databases and other sources of information on the locations of northern long-eared bat roost trees and hibernacula is available at www.fws.gov/midwest/endangered/mammals/nleb/nhisites.html.

Yes

6. Will the action affect a cave or mine where northern long-eared bats are known to hibernate (i.e., hibernaculum) or could it alter the entrance or the environment (physical or other alteration) of a hibernaculum?

No

7. Will the action involve Tree Removal?

No

Project Questionnaire

If the project includes forest conversion, report the appropriate acreages below. Otherwise, type '0' in questions 1-3.

1. Estimated total acres of forest conversion:

0

2. If known, estimated acres of forest conversion from April 1 to October 31

0

3. If known, estimated acres of forest conversion from June 1 to July 31

0

If the project includes timber harvest, report the appropriate acreages below. Otherwise, type '0' in questions 4-6.

4. Estimated total acres of timber harvest

0

5. If known, estimated acres of timber harvest from April 1 to October 31

0

6. If known, estimated acres of timber harvest from June 1 to July 31

0

If the project includes prescribed fire, report the appropriate acreages below. Otherwise, type '0' in questions 7-9.

7. Estimated total acres of prescribed fire

0

8. If known, estimated acres of prescribed fire from April 1 to October 31

0

9. If known, estimated acres of prescribed fire from June 1 to July 31

0

If the project includes new wind turbines, report the megawatts of wind capacity below. Otherwise, type '0' in question 10.

10. What is the estimated wind capacity (in megawatts) of the new turbine(s)?

0

Attachment H

Transportation Management Plan Documentation

WisDOT TMP Documentation and Request for Approval

TMP ID: 7148

Approved (60%)

This is a request for approval of the Transportation Management Plan (TMP) for the project detailed below. Impacts resulting from project activities meet the current work zone policies of the Wisconsin Department of Transportation.

Section 1A - Project Information:

TmpType:	2
Region:	NC
Local Program:	No
Created Comment:	
Federal Oversight:	No
Design ID:	6590-02-06
Project Title:	WAUPACA - CLINTONVILLE
County:	WAUPACA
Highway:	WIS 22
Construction Year:	2021
Mainline AADT:	2700
Crossroad AADT:	1500
Construction ID(s):	6590-02-76
Project Type:	RESURFACING (OVERLAY < 2.5 INCHES)
Project Limits:	CTH N (N) TO USH 45
Project Length:	12.16
Project Duration:	60
Engineer's Estimate:	\$3M-10M
PS&E Date:	2022-05-01 00:00:00.0
LET Date:	2022-11-08 00:00:00.0
NHS Route:	No

Section 1B - Project Impacts:

Anticipated Begin: 2023-04-17
Anticipated End: 2023-08-31
OSOW Route: No
OSOW Type:

Section 1C - Location:

Location Number: 1
Begin County: WAUPACA
End County: WAUPACA
Highway: WIS 22 NB
Closure Type: Mainline
Begin Landmark: COUNTY N
Direction From: Downstream from landmark
Distance From (mi): 0.02
End Landmark: WIS 76
Direction From: Upstream from landmark
Distance From (mi): 0.02

Location Number: 2
Begin County: WAUPACA
End County: WAUPACA
Highway: WIS 22 SB
Closure Type: Mainline
Begin Landmark: SILVER CREEK RD
Direction From: Downstream from landmark
Distance From (mi): 0.8
End Landmark: COUNTY N
Direction From: At Landmark

Distance From (mi): 0.0

Section 2-Project Description

Brief description of work activities:

Milling 2" and placing a 2" HMA overlay on STH 22 from CTH N to USH 45. Replace five culverts and add end-walls. Replace beam guard energy absorbing terminals and two curb ramps.

Section 3

Within the project limits are there:

Pedestrians: Yes

Bicyclists: Yes

Transit Service: No

Railroads: No

Airports: No

Commercial waterway: No

Controlled intersections: No

Dynamic message boards: No

What are the current traffic conditions:

Posted speed(mph): 55

Normal travel time(min): 14

Current capacity(vphpl): 1700

Truck %: 11

Queueing present: No

Queueing when:

Section 4

List of chosen strategies:

Strategy	Justification/Comment	Cost
Shoulder Closure	Shoulder closures as needed for culvert pipe work, beam guard replacements, and shouldering.	\$2000
Flagging Operation/One-lane, Two-Way Operation	Lane closures will be necessary during culvert reconstruction.	\$2000
Temporary Portable Rumble Strips (TPRS)	Needed for flagging operations.	\$0
Fixed Message Signs	Place 7 days prior to construction and remove when construction begins.	\$1400

Cost of chosen strategies (sum of strategy costs): \$5400

Section 5

Describe how access to traffic generators (businesses, schools, etc.) and everyday services will be maintained:

During resurfacing of STH 22 one lane of traffic will be open at all times. Also, during culvert pipe replacements traffic will be temporarily shifted to one side (2-way traffic) using flagging.

Describe how impacts to bicycle riders will be mitigated/coordinated:

There is sidewalk in Symco on the south side of the street. Bicycle riders will be able to use the sidewalk during construction. There will be short time-frames when the sidewalk will be closed when they are reconstructing two curb ramps. The time frame will be approximately 7 days per ramp.

Are there anticipated traffic impacts from the proposed project on other road/routes in the region/corridor?

No

Does the project affect other regions/states?

No

List holidays or major special events that occur during the project:

Holiday/Special Event	Begin Date	End Date
Memorial Day	05/26/2023 12:00 PM	05/30/2023 06:00 AM
Independence Day and Iola Car Show	07/03/2023 12:00 PM	07/10/2023 06:00 AM
Labor Day	09/01/2023 12:00 PM	09/05/2023 06:00 AM
Union Thresheree	07/26/2023 06:00 AM	07/31/2023 06:00 AM
Symco Hotrod & Kustom Weekender	08/09/2023 06:00 AM	08/14/2023 06:00 AM

How will traffic disruptions be minimized during listed events and holidays?

No construction activities will be allowed during the listed holidays.

Section 6 - Traffic Analysis**Section 6+ - Traffic Analysis****What is the anticipated travel delay during the project for each impacted roadway?**

#	Location Description	WZ Capacity (vphpl)	Delay (min)	Queue (min)	Delay Cause
1	WIS 22 NB from COUNTY N to WIS 76	300	5	0.1	Flagging
2	WIS 22 SB from SILVER CREEK RD to COUNTY N	300	5	0.1	Flagging

How was the work zone capacity determined?

Based on the typical flagging operation, capacity is 300 vphpl. For this rural roadway, a 5-minute or less delay is assumed, based on the lower AADT of 2700.

Section 6+ - Lane Closure Hours**a)Are there restrictions on when lane closures are allowed?**

Yes

b)What hours/days are lane closures permitted?

The contractor will be required to provide full two-lane operations during non-work times. Flagging operations only during daytime hours. See section 5 - Holidays or major special events for additional restrictions.

c)If the project is reporting zero delay, show the delay

incurred if the lane closures hours identified are not followed:

Section 7 - Public Information Strategies

Choose strategies that will be used to mitigate the impacts to the public:

Strategy	Intended Audience	Comments
Press Releases/Media Alerts	Local officials, business owners and residents	
Coordination with Media/Schools/Businesses/Emergency Services	Local officials, business owners and property owners	
Freight travel information/Lane Closure System (LCS)	Truck drivers and business owners	
Region Weekly Construction Update	Business and property owners	

Section 8 - Incident Management Strategies

List of chosen strategies:

Strategy	Comments	Cost
Standard RIMC Process		\$0

Cost of chosen strategies (sum of strategy costs): \$0

Section 9 - Staging Plans

Briefly describe the staging planned for maintaining traffic:

Construct STH 22 using single lane closure, moving operations with flaggers. Maintain side road cross traffic access. Construct beam guard end improvements utilizing a single-lane closure, moving operations with flaggers. Replace culvert endwalls utilizing a shoulder closure. Maintain a minimum 11' travel lane with a 1' buffer width for a total of 12' lane width at locations where the shoulder will be closed immediately adjacent to the milling or paving operations and adjacent to beam guard construction. Maintain emergency access to the project area at all times. Keep all private entrances and field entrances accessible at all times other than temporarily for milling and paving operations, or with approval of the engineer and notification of the property owner 48 hours in advance of closing access.

Describe how pedestrians will be accommodated during construction:

Pedestrians will be able to use the sidewalk during construction. Two curb ramps will be constructed at two locations and will be closed for approximately one week each. When the sidewalk is closed during construction, signs will direct pedestrians and bicyclists to use the roadway shoulder.

Vehicle Size Restrictions:

#	Location Description	Min lane width to maintain (ft)	Min lane width plus shoulder (ft)	Min Height (ft)	Min shy distance to TCBP (ft)
1	WIS 22 NB from COUNTY N to WIS 76	11	14		
2	WIS 22 SB from SILVER CREEK RD to COUNTY N	11	14		

Attachments:

Attachments for TMP ID 7148 are listed below:

[F] Section_2

[f] 65900276-work zone impact assessment.pdf

[F] Section_3

[f] 18_01_29_TFReport_STH 22_65900206.pdf

[F] Section_7

[f] 65900206-piop.pdf

* [F] represents folder and [f] represents file.

Approvals:

60% Approvals:

Signature Role	Signature Status	Signatory	Sign On
Project Manager (PM)	Signed	Kyle Treml	03/04/2020 10:09 AM
Regional Traffic (RT)	Signed	Cara Abts	05/19/2020 11:25 AM
Regional Project Development Chief (RPDC)	Signed	Jed Peters	05/21/2020 01:36 PM

Attachment I

Safety Certification Document (SCD)

Safety Certification Document
Project ID 6590-02-06

1. **Did the project have Meta-Manager Safety Flags?** Yes ☒ No ☐

Comments: Three segments were flagged for crash rate and/or KAB crash rate in the 2012-2016 data used for scoping.

2. **Did relevant crashes remain after initial Crash Vetting Process?** Yes ☐ No ☒

Comments: No crashes remained after vetting. SCP concluded.

3. **Are safety improvements needed to address concerns after the CGA Process?** Yes ☐ No ☐

Comments:

4. **Were safety mitigation alternatives analyzed in this project?** Yes ☐ No ☐

4.1. **Provide narrative of existing geometric conditions**

4.2. **Provide narrative of crash history that was used to begin the SMCP**

4.3. **Provide narrative of safety mitigation alternatives analyzed in SMCP**

4.4. **Analysis Results**

4.5. **Provide narrative of reasonable and acceptable safety mitigation alternatives for consideration in the project improvement process**

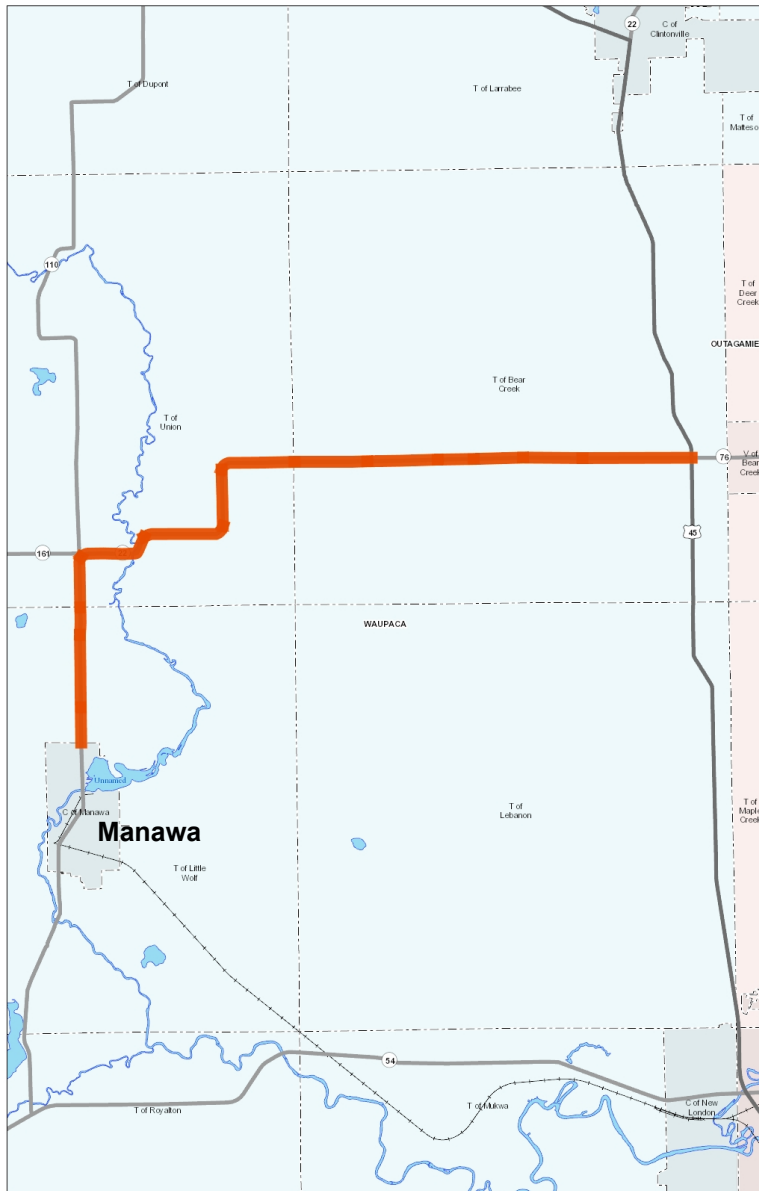
5. Approval

<i>Michael B. Wendt</i>	04/26/2019
Region Planning Chief	Date

ATTACHMENTS

- A. Project Location/Overview Map (from CDR)
- B. Project Justification/Scoping Document
- C. Sites of Promise Documentation
 - a. Tabular data illustrating safety flags
 - b. Meta-Manager file (XLS kept in electronic file)
- D. Crash Vetting Documentation
- E. Safety Certification Worksheet
- F. Design Criteria & SSA Worksheets

CDR Map



Scoping Document

Design ID: 6590-02-06 **Delivery:** \$270,000 (9%)

Construction ID: 6590-02-76 **Amount:** \$3,000,000 **Delivery:** \$255,000 (8.5%)

Highway: STH 22 **County:** Waupaca **Work Type:** Resurface 10

Title: Waupaca - Clintonville **Length:** 12.0 miles

Subtitle: CTH N (N) to USH 45

Photolog: 022N_2016 **Begin Frame (PLM):** 7538 (71.65) **End Frame (PLM):** 8738 (83.65)

Begin RP: 022N122+0.08 **End RP:** 022N138

NHS Route: No **OSOW Route:** No **OSOW High Route:** No

State Truck Route: **Functional Classification:** Minor Arterial

Connections 2030: No

Existing Cross Section **Travel Lanes:** 2 **Travel Lane Width:** 12 ft

Total Shoulder Width: 6 ft **Paved Shoulder Width:** 3 ft **Existing Speed Limit:** 55 mph

Past Work Done:

- 2000: Pulverize and relay, with 4-6 in of asphalt from CTH N (N) to USH 45 (Gapped Symco section).
 - 12' lanes, 6' shoulders with 3' paved
- 1998: Reconstruct from W River Rd to Symco Rd. 4" HMA, 10" of base course, 15" granular subbase.
 - Urban template 12' lanes, 4' paved shoulder, 36' F – F curb and gutter
- 1949-1951: 2.5" HMA over 8" base course

Construction Year (2021) ADT: 1500 – 2700 vehicles/day

Design Year (2041) ADT: 2000-3600 vehicles/day

Percent Truck Traffic: 11.0%

Bridge Number: B-68-66 **Feature Over/Under:** Blake Creek **Roadway Width:** 40 ft

Deck Length: 47.8 ft **Sufficiency Rating:** 96 **Inventory Load Rating:** HS 22

Bridge Number: B-68-88 **Feature Over/Under:** Little Wolf River **Roadway Width:** 35.4 ft

Deck Length: 112.5 ft **Sufficiency Rating:** 97 **Inventory Load Rating:** HS 22

- This bridge will get a polymer overlay with FY 19 fast track project 1009-46-35/66. Project has a EPS&E 2/1/19; programmed PS&E 5/1/24, Let 8/13/24

Need: The existing pavement has alligator cracking, rutting, longitudinal and transverse cracking.

Proposed Improvement: Remove the top layer of pavement and apply a new surface.

2017 PMDSS Recommendation: Patch, Structural Overlay (≥ 4 in)

2024 PMDSS Recommendation: Mill and Overlay (Short Term Overlay) (< 2.5 in)

Pavement Treatment Discussion

PMDSS, which provides recommended improvements to maximize the longevity of the existing pavement structure, is recommending “patch and structural overlay (≥ 4 in)” in 2017 and a “mill and overlay (short term overlay) (< 2.5 in)” in 2024 for the Low-Cost Solution.

Theme X’ provides WisDOT’s guiding principles for asset management, project scoping and project prioritization. Theme X’ places the highest priority (after safety) on doing “Right Time Resurfaces” (thin mill & fill), defined as having a PCI greater than 70. This is based on the assumption that by keeping the pavement in “good” condition or better that it will provide the best benefit/cost ratio.

Project will qualify for a “Downshift, Low Cost treatment” in Theme X’.

The Theme X’ “Downshift” principle is applied to lower function roadways (Minor Arterial or below) with a PCI less than 55. The goal is to maintain a state of good repair using low cost treatments (when a Service Life Extension is projected to be greater than 4 years) in lieu of more costly improvements, thus freeing up funding to invest in other projects.

Though the proposed improvement may not always meet the PMDSS recommendation, it will still be compliant with Theme X’ and will still provide a good Service Life Extension. After 2024 the proposed improvement is anticipated to meet the Downshift criteria; however, the roadway is approaching critical pavement replacement status.

EPSE: 2/1/2021

PSE: 5/1/2024

Let: 11/12/2024

Current PCI: 46.2

Projected PCI at EPSE: 35.7

Theme X’ Category at EPSE: Downshift, Low Cost treatment

Theme X’ Compliant at EPSE: Yes

Proposed Design Class: 3RA1-3

General Notes

- Guardrail needs will be determined per project
 - Guardrail replacement will be included in the scoping estimate but will need to be determined in design
- Expect to pave around to the back of radius on intersections or to a logical point.
- 3R project and a full DSR is needed. The scoping document should be attached to the DSR.

Traffic

- Meets PES
- There was a total of 27 crashes along the project corridor between 2012 and 2016 after crash validation. The most common crash types were run-off-the-road (18 crashes, 67 percent) and rear-end crashes (8 crashes, 30 percent). Weather may have been a factor in 12 crashes (44 percent). There were no fatal crashes. Six crashes involving intoxicated drivers failing to negotiate signed curves and running off the road on the right shoulder were not included in the crash calculations.
- Centerline rumble strips

Substandard Controlling Criteria

- See fd-11-40-4.3 ([fd-11-40-4.3\6590-02-06 fd-11-40-4.3.xlsx](#))
- Maximum grade, stopping sight distance and horizontal curve radius at several locations

Proposed Traffic Control

- Daytime lane closures with flagging.

Maintenance

- No culvert cleanings with this project
- Replace endwalls on culverts 690220920, 930 & 970.
- Replace culvert 680220890
- Replace culvert 680220900 – 42x60 cattle pass. Propose resizing to 36 in pipe.
- Replace culvert 680221020
- Replace culvert 680221030
- Replace culvert 680221070
- Replace culvert 680221071
- Culvert 680220870 does not need to be replaced. The county will fix the erosion issue in the summer of 2018.

Environmental

- CEC checklist is anticipated. See PMP for additional information.
- Wetland delineation at B-68-88 has already been done in house.

Access

- No access modifications are anticipated for this project.

Real Estate

- No real estate anticipated for this project.

Survey and Mapping

- No survey requests by programming

Structures

- Replace guardrail as required.

Pavement

- 2" mill and overlay with no grade increases
- An abbreviated pavement report will be provided
- No cores or borings anticipated

Railroad

- No railroads within 1,000 ft of the project.

Bike-Ped

- A five-foot wide sidewalk exists along the south side of STH 22 in the community of Symco between Riske Road and Symco Road. The curb ramps at the Riske Road and Symco Road intersections are not ADA compliant and will need to be replaced.
- Outside of the community of Symco, three-foot paved shoulders exist along the STH 22 segment. No changes are recommended for the paved shoulders.

Curb Ramps

When we do a resurfacing project, or any project that is considered an ADA "alteration", ADA requires us to upgrade curb ramps "to the maximum extent feasible:"

- When there is a real estate process on a project for any reason (e.g. for culverts, access management, etc.), then it's required that any necessary ROW also be obtained to get the curb ramps up to current standards.
- However, if the project does not have a real estate process at all, then the ramps are required to be upgraded to the maximum extent feasible within the existing ROW. This could mean installing DWF's or modifying one or two stones, etc. Another way to say this is that the real estate process does not have to be initiated solely for curb ramp work.

Planning

- Traffic forecasts have been requested and received

Public Involvement

- Public involvement is expected to be a LOM with mailings.

Draft Limits

- Begin project at butt joint approximately 400 ft north of CTH N (N)
- End project at butt joint approximately 350 ft west of USH 45

Agreed to Scope

-

Action Items/Unresolved Issues

- Waiting for OPS unit to find out if signs need to be replaced.

Scoping Meeting Date: February 26, 2018

Attended: Richard Simon, Tom Krizenesky, Cole Dineen, Jon Motquin, Cheryl Simon, Kevin Garrigan, Dave Meurett, Cara Abts, George Fechhelm, Mike Kretschmer

Called In: Dan Tyler, Tom Nelson, Kristen Mchugh, Rich Handrick

Topics:

- Paving limits at STH 110 and STH 161 intersection, agreed to go down 110 to match historical limits
- Looking at HSIP project at intersection of USH 45/ STH 22. Will address the east approach under the HSIP project or future project. Work will go to county line

SEGMENT #	PDP_ID	SEQNO	TRAF_SEG_ID	RECKEY	FOS_PROJ_ID	PDP_FRM	ACSI_INTS_NM	PDP_TO	PDP_MILE	DIVUND	HWY_DIR	CRASH RATE - formula	CRASH RATEFLAG - formula	CRASH RATE	CRASH RATE FLAG	UCL_CRSH_RT - formula	CRASHES - formula	MMGR_KAB_CRSH_RT - formula	MMGR_KAB_CRSH_RT_FL - formula	MMGR_KAB_CRSH_RT	MMGR_KAB_CRSH_RT_FL	UCL_KAB_CRSH_RT	UCL_KAB_CRSH_RT - formula	MMGR_FATAL_CRSH_TOI	MMGR_INCAP_INJ_CRSH_TOI	MMGR_NONINCAP_INJ_CRSH_TOI	CRSHSPOT	HSTL_AADT_5_YR	YRS_OTI	SEVINDEX	SIREDDUC	LOP	IMPELAG	SFTY_TRVL_CLS_CD	
NOTE: As of 10/30/17																																			
NOTE: violet shaded cells are manually input, orange cells are connecting highway																																			
1	4162	25940	20087	450654	022N122 000	CTH N	022N124 000	1.50 U	022N	53.28	0.51	53.28	0.00	104.19	5	10.66	0.34	10.66	0.00	31.19	31.20	0	1	0	0	3428	5	14							420
2	4163	25950	20087	450654	022N124 000	LAKE STURM RD	022N126T000	1.10 U	022N	72.66	0.67	72.66	0.00	108.95	5	29.06	0.87	29.06	0.00	33.49	33.49	0	0	2	0	3428	5	11	6	12	YES				420
3	4164	25960	5886	450654	022N126T000	STH 110 NB	022N128 000	1.01 U	022N	311.08	1.99	311.08	1.99	156.60	10	124.43	2.39	124.43	2.39	51.99	51.98	0	1	3	1	1744	5	27	14	18	YES				410
4	4165	25970	5886	450654	022N128 000	RIVER RD E	022N129 000	1.13 U	022N	83.41	0.54	83.41	0.00	153.55	3	0.00	0.00	0.00	0.00	50.48	50.48	0	0	0	0	1744	5	5							410
5	4166	25980	5886	450654	022N129 000	CTH O	022N130 000	0.90 U	022N	244.37	1.53	244.37	1.53	159.93	7	69.82	1.30	69.82	1.30	53.62	53.62	0	0	2	0	1744	5	13		1				410	
6	4167	25990	5886	450654	022N130 000	CTH O	022N131 000	0.99 U	022N	158.68	1.01	158.68	1.01	157.17	5	31.74	0.61	31.74	0.00	52.27	52.26	0	1	0	0	1744	5	13		1				410	
7	4168	26000	5886	450654	022N131 000	SHADY LANE RD	022N132 000	1.01 U	022N	124.43	0.79	124.43	0.00	156.60	4	0.00	0.00	0.00	0.00	51.99	51.98	0	0	0	0	1744	5	5							410
8	4169	26010	5886	450654	022N132 000	BEAVER CREEK RD	022N133 000	0.99 U	022N	31.74	0.20	31.74	0.00	157.17	1	0.00	0.00	0.00	0.00	52.27	52.26	0	0	0	0	1744	5	1							410
9	4171	26020	3540	450654	022N133 000	CTH T	022N135 000	1.18 U	022N	39.83	0.24	39.83	0.00	163.96	1	0.00	0.00	0.00	0.00	55.61	55.61	0	0	0	0	1166	5	1							410
10	4172	26030	3540	450654	022N135 000	POPLAR RD	022N136 070	1.54 U	022N	61.03	0.39	61.03	0.00	156.07	2	30.52	0.59	30.52	0.00	51.72	51.72	0	0	1	0	1166	5	5							410
11	4173	26040	3540	450655	022N136 070	0.06 M W OF PINE	022N138 000	0.81 U	022N	174.05	0.98	174.05	0.00	177.07	3	0.00	0.00	0.00	0.00	62.07	62.06	0	0	0	0	1166	5	3							410

SPOT #	PDP_ID	SPOT_RP_KY	FEATURE_NEAR	SFTY_TRVL_CLS	DOT_CNTRY_CD	CMTY_TY	CMTY_NM	TIER	RTE_SORTER	SPOT_ADT_5YR_AVG	SPOT_CRSH_TOT	SPOT_FATAL_CRSH_TOT	SPOT_INCAP_INJ_CRSH_TOT	SPOT_KAB_CRSH_TOT	SPOT_ROR_TOT	SPOT_CRSH_RT_FL_ADI	SPOT_FATAL_CRSH_RT_FL_ADI	SPOT_INCAP_INJ_CRSH_RT_FL_ADI	SPOT_KAB_CRSH_RT_FL_ADI	SPOT_ROR_CRSH_RT_FL_ADI	SPOT_INTS_TOT	SPOT_NONINTS_TOT	SPOT_WTHR_CRSH_TOT
NOTE: As of 11/27/17																							
NOTE: italics has not been determined																							
NOTE: violet shaded cells are manually input, orange cells are connecting highway, gray shaded cells are manually entered ADT, green shaded cells are manually combined intersections that were split due to RP coding																							
1A	4162	022N122 000	PROGRESS RD	420: Rural 2-lane Highways with 2,000 < AADT = 7,000	68	T	LITTLE WOLF	3	1854	3428	1	0	0	0	0	0.36	0.00	0.00	0.00	0.00	1	0	0
1B	4162	022N123 000	FUHS RD	420: Rural 2-lane Highways with 2,000 < AADT = 7,000	68	T	LITTLE WOLF	3	1855	3428	2	0	1	1	0	0.73	0.00	2.51	1.06	0.00	2	0	0
1C	4162	022N123 070	G FARM UNIT DRWY	420: Rural 2-lane Highways with 2,000 < AADT = 7,000	68	T	LITTLE WOLF	3	1856	3428	1	0	0	0	0	0.36	0.00	0.00	0.00	0.00	0	1	0
1D	4162	022N123 080		420: Rural 2-lane Highways with 2,000 < AADT = 7,000	68	T	LITTLE WOLF	3	1857	3428	1	0	0	0	0	0.36	0.00	0.00	0.00	0.00	0	1	0
2A	4163	022N125 010	B680066/STH 22-110/BLAKE CREEK	420: Rural 2-lane Highways with 2,000 < AADT = 7,000	68	T	UNION	3	1858	3428	2	0	0	0	2	0.73	0.00	0.00	0.00	1.26	0	0	2
2B	4163	022N125 050		420: Rural 2-lane Highways with 2,000 < AADT = 7,000	68	T	UNION	3	1859	3428	2	0	0	1	1	0.73	0.00	0.00	1.06	0.63	0	1	0
2C	4163	022N125 060	FIELD DRWY	420: Rural 2-lane Highways with 2,000 < AADT = 7,000	68	T	UNION	3	1860	3428	1	0	0	1	1	0.36	0.00	0.00	1.06	0.63	0	0	0
3A	4164	022N126T000	STH 110 NB	410: Rural 2-lane Highways with AADT = 2,000	68	T	UNION	1	1861	1744	4	0	0	3	3	1.11	0.00	0.00	2.38	1.18	1	0	1
3B	4164	022N126T010		410: Rural 2-lane Highways with AADT = 2,000	68	T	UNION	3	1862	1744	2	0	1	1	2	0.56	0.00	1.85	0.79	0.79	0	0	1
3C	4164	022N126T040	FIELD DRWY	410: Rural 2-lane Highways with AADT = 2,000	68	T	UNION	3	1863	1744	1	0	0	0	0	0.28	0.00	0.00	0.00	0.00	0	1	0
3D	4164	022N126T070	WOLF RIVER UNDER	410: Rural 2-lane Highways with AADT = 2,000	68	T	UNION	3	1864	1744	1	0	0	0	0	0.28	0.00	0.00	0.00	0.00	1	0	0
3E	4164	022N126T080	SYMCO RD	410: Rural 2-lane Highways with AADT = 2,000	68	T	UNION	3	1865	1744	2	0	0	0	0	0.56	0.00	0.00	0.00	0.00	2	0	1
4A	4165	022N128 000	RIVER RD E	410: Rural 2-lane Highways with AADT = 2,000	68	T	UNION	3	1866	1744	2	0	0	0	1	0.56	0.00	0.00	0.00	0.39	0	1	0
4B	4165	022N128 110		410: Rural 2-lane Highways with AADT = 2,000	68	T	UNION	3	1867	1744	1	0	0	0	1	0.28	0.00	0.00	0.00	0.39	0	0	1
5A	4166	022N129 000	CTH O	410: Rural 2-lane Highways with AADT = 2,000	68	T	UNION	3	1868	1744	1	0	0	0	0	0.28	0.00	0.00	0.00	0.00	1	0	1
5B	4166	022N129 010		410: Rural 2-lane Highways with AADT = 2,000	68	T	UNION	3	1869	1744	1	0	0	0	1	0.28	0.00	0.00	0.00	0.39	0	0	1
5C	4166	022N129 020	G FARM UNIT DRWY	410: Rural 2-lane Highways with AADT = 2,000	68	T	UNION	3	1870	1744	1	0	0	0	1	0.28	0.00	0.00	0.00	0.39	0	0	1
5D	4166	022N129 030	G FARM UNIT DRWY	410: Rural 2-lane Highways with AADT = 2,000	68	T	UNION	3	1871	1744	1	0	0	0	1	0.28	0.00	0.00	0.00	0.39	0	0	1
5E	4166	022N129 050	G FARM UNIT DRWY	410: Rural 2-lane Highways with AADT = 2,000	68	T	UNION	3	1872	1744	2	0	0	1	0	0.56	0.00	0.00	0.79	0.00	0	2	1
5F	4166	022N129 080		410: Rural 2-lane Highways with AADT = 2,000	68	T	UNION	3	1873	1744	1	0	0	1	1	0.28	0.00	0.00	0.79	0.39	0	0	0
6A	4167	022N130 000	CTH O	410: Rural 2-lane Highways with AADT = 2,000	68	T	UNION	3	1874	1744	1	0	0	0	0	0.28	0.00	0.00	0.00	0.00	1	0	1
6B	4167	022N130 010		410: Rural 2-lane Highways with AADT = 2,000	68	T	UNION	3	1875	1744	1	0	0	0	1	0.28	0.00	0.00	0.00	0.39	0	0	0
6C	4167	022N130 030		410: Rural 2-lane Highways with AADT = 2,000	68	T	UNION	3	1876	1744	1	0	0	0	0	0.28	0.00	0.00	0.00	0.00	0	1	0
6D	4167	022N130 060		410: Rural 2-lane Highways with AADT = 2,000	68	T	UNION	3	1877	1744	1	0	1	1	0	0.28	0.00	1.85	0.79	0.00	0	1	0
6E	4167	022N130 090	G FARM UNIT DRWY	410: Rural 2-lane Highways with AADT = 2,000	68	T	UNION	3	1878	1744	1	0	0	0	0	0.28	0.00	0.00	0.00	0.00	0	1	0
7A	4168	022N131 010		410: Rural 2-lane Highways with AADT = 2,000	68	T	BEAR CREEK	3	1879	1744	1	0	0	0	0	0.28	0.00	0.00	0.00	0.00	0	1	0
7B	4168	022N131 050	D FIELD DRWY	410: Rural 2-lane Highways with AADT = 2,000	68	T	BEAR CREEK	3	1880	1744	1	0	0	0	0	0.28	0.00	0.00	0.00	0.00	0	1	0
7C	4168	022N131 060		410: Rural 2-lane Highways with AADT = 2,000	68	T	BEAR CREEK	3	1881	1744	1	0	0	0	1	0.28	0.00	0.00	0.00	0.39	0	0	1
7D	4168	022N131 070		410: Rural 2-lane Highways with AADT = 2,000	68	T	BEAR CREEK	3	1882	1744	1	0	0	0	0	0.28	0.00	0.00	0.00	0.00	0	1	1
8A	4169	022N132 070	FIELD DRWY	410: Rural 2-lane Highways with AADT = 2,000	68	T	BEAR CREEK	3	1883	1744	1	0	0	0	0	0.28	0.00	0.00	0.00	0.00	0	1	0
9A	4171	022N133 010		410: Rural 2-lane Highways with AADT = 2,000	68	T	BEAR CREEK	3	1884	1166	1	0	0	0	1	0.38	0.00	0.00	0.00	0.53	0	0	1
10A	4172	022N135 000	POPLAR RD	410: Rural 2-lane Highways with AADT = 2,000	68	T	BEAR CREEK	3	1885	1166	1	0	0	1	0	0.38	0.00	0.00	1.04	0.00	1	0	1
10B	4172	022N136 020		410: Rural 2-lane Highways with AADT = 2,000	68	T	BEAR CREEK	3	1886	1166	1	0	0	0	0	0.38	0.00	0.00	0.00	0.00	0	1	0
11A	4173	022N136 080		410: Rural 2-lane Highways with AADT = 2,000	68	T	BEAR CREEK	3	1887	1166	1	0	0	0	1	0.38	0.00	0.00	0.00	0.53	0	0	0
11B	4173	022N136 120	G FARM UNIT DRWY	410: Rural 2-lane Highways with AADT = 2,000	68	T	BEAR CREEK	3	1888	1166	1	0	0	0	1	0.38	0.00	0.00	0.00	0.53	0	0	1
11C	4173	022N138 000		410: Rural 2-lane Highways with AADT = 2,000	68	T	BEAR CREEK	3	1889	1166	1	0	0	0	1	0.38	0.00	0.00	0.00	0.53	0	0	0

DOCTNMBR	ACCDATE	NTFYHOUR	ONHWY	ONSTR	ATHWY	ATSTR	ATNMBR	INTDIR	INTDIS	ACCDTYPE	MNRCOLL	RLTNRDWY	ROADCOND	ACCDSVR	INJSVR	ALCFLAG	TOTVEH	TRVLDIR1	DRVROD1	TRFCNTL1	POSTSPD1	DRVRPC1	TRVLDIR2	DRVROD2	TRFCNTL2	POSTSPD2	DRVRPC2	LATDECDG	LONDECDG	SEGMENT	NOTE	
REMOVED																																
FMCCJ7R	11/30/2012	0	22			110		E	4	DITCH	NO	RTSH		INJ B	Y		1 E	NEGCRV	NONE	55	LOC,FVC,DC								0	0	4164	OWI, FAILED TO NEG CURVE. CHEVRONS/NIGHT ARROW PRESENT.
FMC72XM	3/19/2013	15	22			161		N	4		SSOP	ON	ICE	INJ B			2 N	NEGCRV	NONE	55	TFC		N	NEGCRV	NONE	55			0	0	4164	LOST CTRL ON ICY RD
FMF0DMK	8/13/2013	15	22			110		N	2	OVRTRN	NO	LTSH		INJ C			1 N	NEGCRV	NONE	55	TFC							44.51353	-88.919402	4164	TOOK CURVE TOO FAST, LOAD SHIFTED	
FMCFQWC	12/9/2013	23	22			110		N	9	TFSIGN	NO	ON	SNOW	PD			1 N	NEGCRV	NONE	55	TFC,FVC							44.51389	-88.91813	4164	LOST CTRL ON SNOWY RD	
FMFCHZZ	12/26/2013	19	22			SYMCO RD	E6415		0	OT PST	NO	ON	WET	PD	Y		1 N	NEGCRV	NONE	35	DC							44.513522	-88.904284	4164	OWI, "SWERVED TO MISS DEER", FAILED TO NEG CURVE. CHEVRONS/NIGHT ARROW PRESENT.	
FMC7T5D	1/3/2014	18	22	SB		W RIVER RD			6		REAR	ON		PD	Y		2 S	GO STR	NONE	35	FTC		S	GO STR	NONE	35		44.513636	-88.906595	4164	FTC, OWI, ROAD RAGE	
FMCLXGD	1/13/2014	8	22			CHURCH ST			0	TREE	NO	LTSH		PD			1 N	NEGCRV	NONE	35	FVC							44.513718	-88.903901	4164	SLID...PANICKED WHILE DOWNSHIFTING, USED EMERGENCY BRAKE, LOST CTRL	
FMCLXJW	7/25/2015	14	22			RISKE RD		W	15		REAR	ON		PD			2 S	GO STR	NONE	55	ID		S	LT TRN	NONE	55		44.513807	-88.910986	4164	INATTENTIVE DRIVING, REAR-END	
FMC8KP0	6/25/2016	11	22			110		E	10		SSS	ON		INJ A			2 E	GO STR	NONE	55	FVC		E	GO STR	NONE	55		44.513906	-88.917765	4164	MCS SIDESWIPED, ALL PEOPLE THROWN	
FMC2MGN	6/6/2012	22	22			BEAVER RD		N	2		REAR	ON		PD			2 N	GO STR	NONE	55	FTC		N	GO STR	NONE	55		0	0	4166	U1 STOPPED FAST FOR DEER, U2 COULDN'T REACT IN TIME TO AVOID RE	
FMC99HM	7/13/2012	13	22		O			S	10	DITCH	NO	RTSH		INJ B			1 S	GO STR	NONE	55	FVC							0	0	4166	HIT SHOULDER ON MC, LOST CTRL	
FMFD88M	11/25/2014	2	22			BEAVER RD		S	20	OVRTRN	NO	LTSH	SNOW	PD			1 S	GO STR	NONE	55	TFC,LOC							44.521765	-88.879663	4166	LOST CTRL ON SNOWY RD	
FMFNDMZ	2/24/2015	23	22		O			N	20	OVRTRN	NO	RTSH	ICE	PD			1 N	GO STR	NONE	55	TFC,FVC							44.521214	-88.879656	4166	LOST CTRL ON ICY RD	
FMF14V4	2/24/2015	17	22		O			N	6	PK VEH	NO	ON	ICE	PD			2 E	NEGCRV	NONE	55				LG PRK	NONE	55		44.519115	-88.879737	4166	LOST CTRL ON ICY RD, STRUCK VEH ASSISTING VEH IN DITCH - 2NDARY CRASH	
FMC8KMP	11/18/2015	17	22			BEAVER RD		N	5		REAR	ON	WET	INJ B			2 S	GO STR	NONE	55	FTC		S	SL/ST	NONE	55		44.525353	-88.879704	4166	U1 SLOWED FOR DEER, STRUCK BY U2	
FMF7T07	1/13/2016	23	22		O				0	DITCH	NO	RTSH	SNOW	PD	Y		1 S	NEGCRV	NONE	55	TFC,FVC,DC							44.518294	-88.880293	4166	OWI, FAILED TO NEG CURVE. NIGHT ARROW PRESENT.	
FMC8KFC	9/6/2013	23	22		O			E	6	DITCH	NO	RTSH		INJ C	Y		1 W	GO STR	NONE	55	FVC,DC							0	0	4167	OWI, FAILED TO NEG CURVE. CHEVRONS/NIGHT ARROW PRESENT.	
FMCH7DB	11/15/2014	11	22			BEAVER RD	E7149	E	21		ANGL	ON		INJ A			2 W	OVT LT	NONE	55	OTHR		W	LT TRN	NONE	55	OTHR	44.531833	-88.865242	4167	2 UNITS ATTEMPTED TO PASS COMBINE AT THE SAME TIME	
FMC99NR	11/25/2014	13	22		O				0	DITCH	NO	LTSH	SNOW	PD			1 S	NEGCRV	NONE	55	TFC,FVC							44.530977	-88.878996	4167	LOST CTRL ON SNOWY RD	
FMHHZBH	9/11/2015	7	22			BEAVER RD		W	14		REAR	ON		PD			2 N	GO STR	NONE	55	ID		N	STOPED	NONE	55		44.5318	-88.872406	4167	SCHOOL BUS STOPPED TRAFFIC, U1 FELL ASLEEP, STRUCK U2	
FMD7FSH	9/30/2015	0	22			SHADY LN		W	11	OT ANML	NO	BLNK	BLNK	PD			1 N	BLNK	BLNK	55								44.531829	-88.861452	4167	OTHER ANIMAL	

Safety Certification Worksheet

Worksheet ID: _____

Design ID: 6590-02-06

Date of Analysis: 1/24/2019

Meta Manager Version _____

Highway: STH 22

Project Title: Waupaca-Clintonville, CTH N (N) to USH 45

Project Description: Resurfacing

Meta Manager Crash Years 2012-2016

System Screening - Sites of Promise									Crash Vetting - Sites of Promise	Contributing Geometric Analysis	
See FDM 11-38-10.2 for guidance									See FDM 11-38-10.3 for guidance	See FDM 11-38-10.4 for guidance	
PDP ID	From RP	RP Description	To RP	Length (PDP_Mile)	Crash Rate Flag (RATEFLAG) (Insert value if ≥ 1.0)	KAB Crash Rate Flag (MMGR_KAB_CRSH_RT) (Insert value if ≥ 1.00)	Intersection Crash Rate Flag (MM Database Name) (Insert value if ≥ 1.0)	Intersection KAB Crash Rate Flag (MM Database Name) (Insert value if ≥ 1.0)	Summarize the contributing factors for ALL crashes in the flagged segment or intersection.	Which geometric features contribute to the type and severity of the crashes?	Possible Countermeasures for Safety Mitigation Process
4162	022N122 000	CTH N	022N124 000	1.5					N/A	N/A	
4163	022N124 000	LAKE STURM RD	022N126T000	1.1					N/A	N/A	
4164	022N126T000	STH 110 NB	022N128 000	1.01	1.99	2.39			9 of 9 crashes removed because no engineering countermeasures exist. These involved driver condition (OWI), driver error, or poor pavement conditions. No crash patterns evident.	N/A	
4165	022N128 000	RIVER RD E	022N129 000	1.13					N/A	N/A	
4166	022N129 000	CTH O	022N130 000	0.9	1.53	1.3			7 of 7 crashes removed because no engineering countermeasures exist. These involved driver condition (OWI), driver error, animals, or poor pavement conditions. No crash patterns evident.	N/A	
4167	022N130 000	CTH O	022N131 000	0.99	1.01				5 of 5 crashes removed because no engineering countermeasures exist. These involved driver condition (OWI), driver error, animals, or poor pavement conditions. No crash patterns evident.	N/A	
4168	022N131 000	SHADY LANE RD	022N132 000	1.01					N/A	N/A	
4169	022N132 000	BEAVER CREEK RD	022N133 000	0.99					N/A	N/A	
4171	022N133 000	CTH T	022N135 000	1.18					N/A	N/A	
4172	022N135 000	POPLAR RD	022N136 070	1.54					N/A	N/A	
4173	022N136 070	0.06 M W OF PINE GROVE	022N138 000	0.81					N/A	N/A	

Design Criteria Evaluation Worksheet		Functional Class	Minor Arterial
Project ID:	6590-02-06/76	NHS Route?	No
Highway:	STH 22	FED Truck route?	
Project Limits:	CTH N (N) to USH 45	rural or urban	Rural
Project Description:	Waupaca - Clintonville	no. of travel lanes	2
Design Year:		divided or undivided	Undivided
		Posted Speed	55 mph
		Design Speed	55 mph
		Design Year AADT	
		Percent trucks	16.60%
		Design Class	3RA1-3

source	MetaManager Safety Analysis	MetaManager Safety Analysis	MetaManager Safety Analysis	MetaManager Safety Analysis	See List on p.2 of Att. 4.3	See List on p.2 of Att. 4.3	See List on p.2 of Att. 4.3	See List on p.2 of Att. 4.3				FDM 11-40-6 11-20-1, 11-15-1	FDM 11-40, 11-44 11-10, 11-15		see Att. 4.1, Table A4.1		Col. 15 of SSA WORKSHEET	FDM 11-40, 11-44		
destination					Col. 11 of SSA WORKSHEET											Col. 10 of SSA WORKSHEET				
notes	Segmentation for MetaManager Safety Analysis	STN Reference Point	Physical location of STN Reference Point	STN Reference Point		Some design criteria have different standards depending on their function For example, Lane width requirements are different for travel lanes and turn lanes	Unit of measurement for design criteria - For example, lane width is measured in feet	Is standard for design criteria a minimum (Min.) or maximum (Max.)standard? For example, lane width is a MIN standard; maximum grade is a MAX standard Some criteria have both MIN and MAX (e.g., superelevation rate)	Use if checking multiple criteria for the same geometric element For example,, max and min cross slope; curve radius and superelevation)					Yes = Existing is substandard based on 3R Design Standard without a PES in col (16) No =PES is not Needed - Existing meets 3R Design Standard without a PES in col (16) (Neither a PES nor an ES is needed)	Yes = Design Criteria is both Controlling and eligible for PES No = PES cannot Apply - Design Criteria is either non-Controlling or Design Criteria is Controlling but is not eligible for PES	SS-CC = Sub-Standard Controlling Criteria Yes if both col (17) and col (18) are Yes No if either col (17) or col (18) are No	SS-CC = Sub-Standard Controlling Criteria Yes = PES Applies - If col (19) of this worksheet is Yes and col (15) of the Safety Screening Analysis (SSA) Worksheet is Yes No = PES does not Apply - If col (19) of this worksheet is Yes and col (15) of the Safety Screening Analysis (SSA) Worksheet is No NA (not applicable) = PES is not needed or PES cannot apply or PES does not apply * NA if col. (17 & 19) = No (PES is not needed) * NA if col. (18 & 19) = No (PES cannot apply)	Applicable only for controlling criteria that are eligible for a PES NA if col. (18) = No	Yes = PES applies (i.e., col. (20) ="Yes") and existing in col. (14) does rgs meet standard in col. (21) (Improve existing to meet standard in col. (21) unless approved ES) No = PES applies (i.e., col. (20) ="Yes") and existing in col. (14) meets standard in col. (21) NA (not applicable) = PES is not needed or PES cannot apply or PES does not apply * NA if col. (17 and 19) = No -- PES is not needed * NA if col. (18 and 19) = No -- PES cannot apply * NA if col. (20) = No -- PES does not apply (If existing in col. (14) is does not meet standard in col. (16) then Improve to meet standard in col. (16) unless approved ES)	
col. No.	(1)	(2)	(3)	(4)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)
Heading:	PDP ID	From RP	RP Description	To RP	Design Criteria	Design Criteria Element	unit	MIN or MAX?	Multiple-criteria-ID	Describe Existing Condition	Existing dimension	Design Class	3R Design Standard without a PES	Is Existing Dimension in col.(14) substandard compared to Design Standard in col. (16)? (Yes / No)	Is Design Criteria eligible for a PES? (Yes / No)	Are there existing SS-CC in the roadway segment that are eligible for a PES? (Yes / No)	Did the Safety Screening Analysis (SSA) determine that a PES applies for the eligible SS-CC? (Yes / No / NA)	3R Design Standard with a PES	Does Existing Dimension in col. (14) Need to be improved to meet Design Standard in col. (21)? (Yes / No / NA)	Comments
		022N122	CTH N	022N123	None															No substandard controlling criteria
		022N123	Fuhs Rd	022N124	Stopping Sight Distance	Stopping Sight Distance-Sag Vertical Curve	ft	Min	1	The existing stopping sight distance is 366 ft.	366 ft	3RA1-3	495 ft			Yes	Yes			SSD for unobstructed sag curves are not controlling criteria. The existing curve is rated for 45 mph.
		022N123	Fuhs Rd	022N124	Stopping Sight Distance	Stopping Sight Distance-Crest Vertical Curve-Category-1-2	ft	Min	2	The existing stopping sight distance is 366 ft.	484 ft	3RA1-3	495 ft	Yes		Yes	Yes			The existing curve is rated for 50 mph.
		022N123	Fuhs Rd	022N124	Maximum Grade	Maximum Grade Level	Percent	Max	3	The existing grade is 4.7%.	4.70%	3RA1-3	3%	Yes		Yes	Yes			
		022N123	Fuhs Rd	022N124	Maximum Grade	Maximum Grade Level	Percent	Max	4	The existing grade is 4.5%.	4.50%	3RA1-3	3%	Yes		Yes	Yes			
		022N124	Sturm Lake Rd	022N125	None															No substandard controlling criteria
		022N125	Blake Creek Rd	022N126T	Stopping Sight Distance	Stopping Sight Distance-Sag Vertical Curve	ft	Min	1	The existing stopping sight distance is 351 ft.	351 ft	3RA1-3	495 ft			Yes	Yes			SSD for unobstructed sag curves are not controlling criteria. The existing curve is rated for 40 mph.
		022N125	Blake Creek Rd	022N126T	Maximum Grade	Maximum Grade Level	Percent	Max	1	The existing grade is 3.6%.	3.60%	3RA1-3	3%	Yes		Yes	Yes			
		022N126T	STH 110	022N128	Horizontal Curve Radius	Horizontal Curve Radius Rmin	ft	Min	1	The existing curve radius is 573 ft and a 6% superelevation rate.	573 ft	3RA1-3	1,060 ft	Yes		Yes	Yes			The curve is rated for 40 mph design speed.
		022N126T	STH 110	022N128	Horizontal Curve Radius	Superelevation Rate-percent-minimum-for-R-and-speed	Percent	Min	1	The existing curve radius is 344 ft and a 5.8% superelevation rate.	5.80%	3RA1-3	6%	Yes		Yes	Yes			The curve is rated for 30 mph design speed.
		022N126T	STH 110	022N128	Maximum Grade	Maximum Grade Level	Percent	Max	2	The existing grade is 5.82%.	5.82%	3RA1-3	3%	Yes		Yes	Yes			
		022N126T	STH 110	022N128	Maximum Grade	Maximum Grade Level	Percent	Max	3	The existing grade is 3.55%.	3.55%	3RA1-3	3%	Yes		Yes	Yes			
		022N126T	STH 110	022N128	Maximum Grade	Maximum Grade Level	Percent	Max	4	The existing grade is 4.0%.	4.00%	3RA1-3	3%	Yes		Yes	Yes			
		022N128	E River Rd	022N129	Horizontal Curve Radius	Horizontal Curve Radius Rmin	ft	Min	1	The existing curve radius is 843 ft and a 5% superelevation rate.	843 ft	3RA1-3	1,890 ft	Yes		Yes	Yes			The existing curve is rated for 35 mph design speed.
		022N129	CTH O (S)	022N130	Horizontal Curve Radius	Horizontal Curve Radius Rmin	ft	Min	1	The existing curve radius is 829 ft and a 5% superelevation rate.	829 ft	3RA1-3	1,890 ft	Yes		Yes	Yes			The existing curve is rated for 35 mph design speed.
		022N130	CTH O (N)	022N131	Horizontal Curve Radius	Horizontal Curve Radius Rmin	ft	Min	1	The existing curve radius is 817 ft and a 5% superelevation rate.	817 ft	3RA1-3	1,890 ft	Yes		Yes	Yes			The existing curve is rated for 35 mph design speed.
		022N130	CTH O (N)	022N131	Maximum Grade	Maximum Grade Level	Percent	Max	2	The existing grade is 5.25%.	5.25%	3RA1-3	3%	Yes		Yes	Yes			
		022N130	CTH O (N)	022N131	Maximum Grade	Maximum Grade Level	Percent	Max	3	The existing grade is 4.7%.	4.70%	3RA1-3	3%	Yes		Yes	Yes			
		022N131	Shady Lane Rd	022N132	Maximum Grade	Maximum Grade Level	Percent	Max	1	The existing grade is 4.29%.	4.29%	3RA1-3	3%	Yes		Yes	Yes			
		022N131	Shady Lane Rd	022N132	Maximum Grade	Maximum Grade Level	Percent	Max	2	The existing grade is 3.4%.	3.40%	3RA1-3	3%	Yes		Yes	Yes			
		022N132	Beaver Creek Rd	022N133	Stopping Sight Distance	Stopping Sight Distance-Sag Vertical Curve	ft	Min	1	The existing stopping sight distance is 411 ft.	411 ft	3RA1-3	495 ft			Yes	Yes			SSD for unobstructed sag curves are not controlling criteria. The existing curve is rated for 45 mph.
		022N133	CTH T	022N134	None															No substandard controlling criteria
		022N134	Bell Corners Rd	022N135	None															No substandard controlling criteria
		022N135	Poplar Rd	022N136	None															No substandard controlling criteria
		022N136	Pleasant View Rd	022N137	None															No substandard controlling criteria
		022N137	Pine Grove Rd	022N138	None															No substandard controlling criteria

Project ID:

6590-02-06/76

Highway:

STH 22

Project Limits:

CTH N (N)

Project Description:

to USH 45
Waupaca - Clintonville

Design Year:

Identify Investigation Flags (IF) from MetaManager Safety Analysis (Meta-SA)

Conduct Manual Safety Analysis (Man-SA) to validate MetaManager Safety Analysis (Meta-SA)

source

(from STN Log)

(pull from col. 19 in SS-CC worksheet)

(pull from col. 8 in SS-CC worksheet)

destination

Col. 20 of the Design Criteria Evaluation worksheet

notes

SS-CC = Sub-Standard Controlling Criteria

Using engineering judgement, validate the crashes that produced the Investigation Flag.
If crashes were added or removed, explain why.
If additional crashes are identified or if crashes were identified to be removed, explain why in column 13.

Identify the most likely cause(s) of the crashes including roadway, human and vehicle factors.
If crashes were added or removed, explain why.
This information should include a justification for how it was determined whether the existing SS-CC contributed to the Investigation Flag.

Yes if improving the eligible SS-CC would help to reduce the frequency or severity of the crashes that generated the IF

No if improving the eligible SS-CC would NOT help to reduce the frequency or severity of the crashes that generated the IF

N/A (not applicable) if there is no eligible SS-CC in the roadway segment (i.e., col. (10) = No

Yes = PES Applies
* if col. (14) = No
* OR, if there is an eligible SS-CC but there is no IF

No = PES does not Apply
* if col. (14) = Yes

N/A (not applicable)
* if there is no eligible SS-CC in the roadway segment (i.e., col. (10) = No

Yes
* if there is no eligible SS-CC and no countermeasures have been employed to address the causes of the IF
* OR, if a PES Applies and no countermeasures have been employed to address the causes of the IF
* OR, if a PES does not Apply and improving the SS-CC is not sufficient to address the causes of the crashes

No
* if there is no IF
* OR, if a PES Applies and other countermeasures have been employed to address the causes of the IF
* OR, if a PES does not apply and improving the SS-CC is a sufficient countermeasure

What are proposed countermeasures for IF?

Consider countermeasures such as geometric improvements, education, enforcement, other low-cost safety treatments, etc., either singly or in combination

Explain if Existing Dimension in col. (14) of Design Criteria Evaluation Worksheet needs to be improved

col. No.

(1)

(2)

(3)

(4)

(10)

(11)

(12)

(13)

(14)

(15)

(16)

(17)

Heading:

PDP ID

From RP

RP Description

To RP

Are there existing SS-CC in the roadway segment that are eligible for a PES? (Yes / No)

Which SS-CC Exist?

If Crash Rate Flag or KAB Crash Rate Flag ≥ 1.0, was the flag verified? (Yes / No / N/A)

What are possible causes of the crash trend?

Does the existing eligible SS-CC contribute to the Investigation Flag (i.e. crashes)? (Yes / No / N/A)

Does PES Apply for eligible SS-CC? (Yes / No / N/A)

Does roadway segment contain un-addressed Investigation Flags? (Yes / No)

Proposed Recommendation from SSA

	4162	022N122 000	CTH N	022N124 000	Yes	Stopping Sight Distance, Maximum Grade	N/A		No	Yes	No	Meets programmatic exception to standards
	4163	022N124 000	LAKE STURM RD	022N126T000	Yes	Stopping Sight Distance, Maximum Grade	N/A		No	Yes	No	Meets programmatic exception to standards
	4164	022N126T000	STH 110 NB	022N128 000	Yes	Horizontal Curve Radius, Maximum Grade	No		No	Yes	No	Meets programmatic exception to standards
	4165	022N128 000	RIVER RD E	022N129 000	Yes	Horizontal Curve Radius	N/A		No	Yes	No	Meets programmatic exception to standards
	4166	022N129 000	CTH O	022N130 000	Yes	Horizontal Curve Radius	No		No	Yes	No	Meets programmatic exception to standards
	4167	022N130 000	CTH O	022N131 000	Yes	Horizontal Curve Radius, Maximum Grade	No		No	Yes	No	Meets programmatic exception to standards
	4168	022N131 000	SHADY LANE RD	022N132 000	Yes	Maximum Grade	N/A		No	Yes	No	Meets programmatic exception to standards
	4169	022N132 000	BEAVER CREEK RD	022N133 000	Yes	Stopping Sight Distance	N/A		No	Yes	No	Meets programmatic exception to standards
	4171	022N133 000	CTH T	022N135 000	No		N/A		N/A	No	No	
	4172	022N135 000	POPLAR RD	022N136 070	No		N/A		N/A	No	No	
	4173	022N136 070	0.06 M W OF PINE GROVE	022N138 000	No		N/A		N/A	No	No	

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Attachment 4.4
Worksheet Blank

Page 1