CORRESPONDENCE/MEMORANDUM _____ **State of Wisconsin**

Date: February 24, 2017

To: Jeff Olson
WisDOT NW Region Project Development Section
Local Program Project Manager

From: Ryan McKane, P.E.
Knight E/A
NW Region – Local Program Management Consultant

Subject: DESIGN STUDY REPORT
Project I.D. 8357-01-02
T Russell, Little Sand Bay Road
Old CTH K – Termini
Local Street
Bayfield 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.

Ryan B McKane 2/24/17
Local Program Management Consultant Date

Concur:

Jeffrey D. Olson 2/24/17
WisDot NW Region Project Development Section Date
Local Program Project Manager

DESIGN STUDY REPORT

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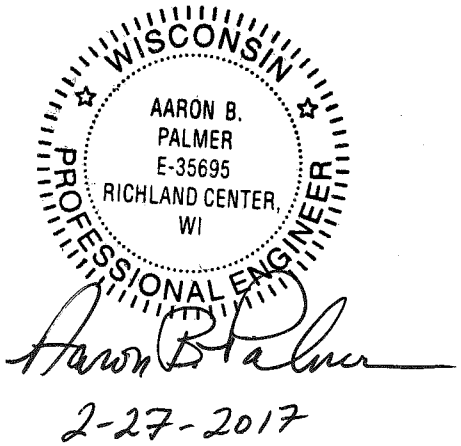


Prepared By:
Westbrook Associated Engineers, Inc.
619 East Hoxie Street
Spring Green, WI 53588

February, 2017

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: 2.631 miles

Termini/Limits:

The project is located in Section 04, T51N, R04W and Section 32 and 33, T52N, R04W, Town of Russell, Bayfield County. The project limits extend from Sta. 100+16.08 which is approximately 16.08' north of the intersection of Little Sand Bay Road and Old CTH K to Sta. 239+06.45 at the termini of Little Sand Bay Road. (See attached Project Location Map – Exhibit A)

1.3. Functional Classification/Access Control

Roadway Name	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)
Little Sand Bay Road	Minor Collector	Rural	No	No	No	None	No	No

1.4. Need for the Project

The need for this project is to improve roadway conditions by replacing the existing surface of Little Sand Bay Road from Old CTH K, Sta. 100+16.08, to Ridge Road, Sta. 155+33.29, and widening the roadway width throughout the entire project length. The existing pavement from Old CTH K to Ridge Road is in poor condition and requires rehabilitation. From Ridge Road to Termini the existing pavement structure is in fair condition. Little Sand Bay Road is the main access road to Little Sand Bay Campground and the National Park Service (NPS) (AINLS) Visitor Center which is a popular recreation area. During the summer months, when traffic loads increase, the travel conditions can become unsafe when two larger vehicles, such as campers, pass one another due to the narrow traveled way and lack of shoulders.

2.0 PRESENT FACILITY

2.1. Posted Speed

Roadway or Roadway Segment	Posted Speed	Advisory Speed
Little Sand Bay Road Sta. 100+16.08 – Sta. 217+00	40 mph	None
Little Sand Bay Road Sta. 217+00 – Sta. 231+50	25 mph	None
Little Sand Bay Road Sta. 231+50 - Termini	15 mph	None

2.2. Geometrics

2.2.1. * Horizontal Alignment Features Outside of Desirable or Minimum Design Standards.

* Horizontal Feature (Curve, P.I. Deflection, etc.)	Location (Stationing)	* Size (Radius, P.I. Deflection, etc.)*	* Super-Elevation (s.e.)	Speed Rating
Curve	178+64 – 179+50	426 ft	4%	35 mph
Curve	179+53 – 181+80	199 ft	4%	25 mph
Curve	181+87 – 182+87	435 ft	4%	35 mph
Curve	192+15 – 194+20	178 ft	4%	25 mph
Curve	194+39 – 194+98	248 ft	4 %	25 mph
Curve	204+50 – 206+39	155 ft	4 %	20 mph
Curve	206+57 – 207+35	332 ft	4 %	30 mph

*Controlling Criteria

Comments: All curves are located in shoulder widening section and will not be upgraded.

2.2.2. * Vertical Alignment Features/SSD Outside Desirable or Minimum Design Standards.

* 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)
None							

*Controlling Criteria **SSD = Stopping Sight Distance

Comments: None

2.2.3 * Grades and Vertical Clearance Outside Desirable or Minimum Design Standards.

Location (Stationing, Overpass Structures, etc.)	* % Grade	* Vertical Clearance
None		

*Controlling Criteria

Comments: None

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)
Old CTH K	Minor Collector	55	>100	+3.46, +3.02	No	No
Ridge Road	Minor Collector	35	<100	+5.26, +1.85	No	No

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

Comments: None

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)
Old CTH K	C	91°	1-way Stop	Y 306 ft	Y 770 ft	Y 356 ft	Y	N
Ridge Road	C	90°	2-way Stop	Y 325 ft	Y 565 ft	Y 353 ft	N	N

*Controlling Criteria

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

Comments:

Has intersection control evaluation (ICE) worksheet been coordinated (Yes or No)? No

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: None

2.4 Cross Section

Number of roadways:	1
Number of lanes:	2
Median width:	None
* Lane width:	11’ – 12’
* Shoulder width (Total and Paved or Curb & Gutter):	Varies 0’ – 3’ unpaved
Bicycle Facility Type:	None
Sidewalk and curb ramps:	None
* Cross slope:	Varies 0% - 2%

* Super-elevation:	None
* Horizontal clearance:	6’
Clear Zone:	10’
* Vertical clearance:	N/A
Side-slopes and Ditch sections:	4:1 Typ.

*Controlling Criteria

2.5 Pavement Structure/Condition

Roadway	Pavement Types & Thicknesses	Physical Description
Little Sand Bay Road (Old CTH K – Ridge Rd)	2” Asphaltic Surface 8” Base Aggregate 6” Sand	Fair
Little Sand Bay Road (Ridge Rd – Termini)	4.5” Asphaltic Surface Unknown Base	Fair

2.6 Right Of Way

2.6.1 Encroachments

Location (Station & Distance Left or Right)	Encroachment Type
None	

2.6.2 Unique Right of Way Issues:

The existing right-of-way is 33 ft on each side of the roadway center.

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
None							

*Controlling Criteria

Comments:

2.8 Utilities

Utility Name	Type of Utility	General Location	Underground/ Overhead/Both
CenturyLink	Communication	Throughout Project	Both
Bayfield Electric	Electric	Throughout Project	Underground

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

Project ends at the Little Sand Bay Campground and NPS Visitor Center entrance.

3.0 TRAFFIC

3.1 Traffic Volumes/Conditions

Construction AADT = 360 (2017)

Design AADT = 380 (2037)

3.1.1 See attached Traffic Forecast Report - Attachment

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
None			

Comments:

3.2 Crash Analysis

3.2.1 Project Crash Information

Roadway	Crash Rate [1] (Year.)	Statewide Crash Rate [1] (Year)	Number & Severity of Crashes			
			Fatal	Injury	Property Damage	Total No. Crashes
Little Sand Bay Road	81 (2014)	411 (2014)	0	1	0	1

[1] Crash rate based on 100 million vehicles miles traveled (100 MVMT)

Comments: Crash Rate and Statewide Crash Rate calculated using 2014 statewide average crash rates data.

3.2.2 Significant Crash Locations or Patterns

Location or Pattern	Year	Number & Severity of Crashes				Crash Rate[2]	Possible Factors Contributing to Crashes
		Fatal	Injury	Property Damage	Total		
None							

[2] Crashes per million entering vehicles (MEV)

Comments:

4.0 PROPOSED DESIGN CRITERIA

4.1 Design Class

Roadway or Roadway Segment	Design Class
Little Sand Bay Road	L2

4.2 * Design Speed

Roadway or Roadway Segment	Design Speed	Posted Speed
Little Sand Bay Road Sta. 100+16.08 – Sta. 217+00	40 mph	35 mph
Little Sand Bay Road Sta. 217+00 – Sta. 231+50	30 mph	25 mph
Little Sand Bay Road Sta. 231+50 - Termini	25 mph	15 mph

* Controlling Criteria

4.3 Design Criteria Outside Of Desirable Standards

Throughout the project a clear zone of 7-feet and 3:1 side slopes are used. The 3:1 side slopes are being used in order to maintain a slope intercept near existing slope intercepts and reduce the amount of wetlands impacted throughout the project. Using slopes greater than 3:1 would also require the purchase of additional right-of-way which would significantly increase the project cost.

Areas within the Shoulder Reconstruction have horizontal alignment features below standards, but will not be upgraded. The alignment will not be upgraded as this section of Little Sand Bay Road was recently repaved as a local project and is not in this projects scope.

4.4 Exceptions To Standards

None

4.4.1 Safety Screening Analysis (SSA) and Programmatic Exception to Standards per FDM 11-1-4 (3R projects and Preventive Maintenance (PM) Group I and Group II pavement strategy projects (FDM 3-1 Exhibit 5.1))

See attached Safety Screening worksheets for locations and details of Crash Flags, Improvement Flags, and Programmatic Exceptions to Standards within the project limits.

****National Highway System (NHS) Roadway- Substandard Geometric Features Covered by a Programmatic Exception to Standards (3R & PM projects)***

NHS roadway name: None

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:

Substandard Geometric Features <u>NOT</u> Covered by a Programmatic Exception to Standards and NOT corrected as part of PM project (PM Group I and Group II pavement strategy projects)

Roadway Name: None

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

Construction is required for safety improvements or to correct the above sub-standard features. The region will either consider this construction for HSIP funding or address this construction with future programming. Operational improvements will be incorporated into the PM project at these locations that are consistent with the scope of the preventive maintenance work and appropriate based on the analysis of crash types.

<u>Comments:</u>

4.5 Typical Cross Section Elements Considered

The typical cross section follows the criteria for design class L2 roadways and was controlled by the existing facility. Two, 11 foot, lanes were maintained through the pulverized section with 3 foot wide shoulders providing a 22 foot traveled way width and a 28 foot roadway width. In the shoulder widening portion of the project a 3 foot shoulder was also used. Paved and unpaved shoulders were considered for this project. Due to the frequency of trucks with trailers and campers that use Little Sand Bay Road paved shoulders were chosen to provide a wider roadway.

5.0 PROPOSED DESIGN IMPROVEMENT

5.1 Improvement Type

Pavement Replacement under Legislative Subprogram 206 – Forrest Lands Access Program (FLAP)

5.2 Geometrics

5.2.1 * Horizontal alignment

The proposed horizontal alignment consists of a 7848 ft series of tangent sections, a 426 ft radii curve, a 199 ft radii curve, a 435 ft radii curve, a 809 ft series of tangent sections, a 624 ft radii curve, a 178 ft radii curve, a 248 ft radii curve, a 858 ft series of tangent sections, a 629 ft radii curve, a 155 radii curve, 332 ft radii curve, a 1260 ft series of tangent sections, a 498 ft radii curve, a 451 ft radii curve, a 350 ft series of tangent sections, a 408 ft radii curve, a 443 ft radii curve, a 535 ft radii curve, and a 260 ft tangent. See attached plan sheets for more details. See section 2.2.1 for a list of substandard curves located in the shoulder widening section of the project. The existing alignment will remain.

5.2.2 * Vertical alignment/Stopping sight distance

The proposed vertical alignment follows the vertical alignment of the existing facilities.

5.2.3 * Grades

Proposed grades match existing.

* 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)
None							

Comments: The pulverizing of Little Sand Bay Road will cross Ridge Road and no additional work will be performed along Ridge Road.

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)
Old CTH K	C	91^{o}	1-way Stop	Y 306 ft	Y 770 ft	Y 356 ft	Y	Y
Ridge Road	C	90^{o}	2-way Stop	Y 325 ft	Y 565 ft	Y 353 ft	N	Y

* Controlling Criteria

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

Comments: No changes made to intersection design.

Has intersection control evaluation (ICE) worksheet been coordinated (Yes or No)? No

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

None

5.5 Cross Section/Pavement Structure

Number of roadways:	1
Number of lanes:	2
Median width/Type:	None
* Lane width/Type (Driving, Parking, Bike Lane, etc.):	11 ft (driving)
* Shoulder width (Total & Paved or Curb & Gutter):	3.5 ft (3 ft paved)
Bike facilities proposed:	Paved Shoulders

Pedestrian facilities / sidewalk proposed:	None
* Cross slope:	2% Normal Crown
* Super-elevation:	None
* Horizontal clearance:	6 ft
* Vertical clearance:	None
Pavement Structure:	Pulverize Section: 2.5-inch Asphaltic Surface over 2-inch Base Aggregate Dense over Pulverized Material. Shoulder Widening Section: Existing roadway remains with 2.5-inch Asphaltic Surface Shoulders over 10-inch Base Aggregate Dense 1¼-Inch
Clear Zone:	7 ft
Side-slope / Ditch Sections:	3:1 Typical

* Controlling Criteria

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:						

* Controlling Criteria

Comments:

5.7.2 Box Culverts and Multiple Pipe Structures

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

Comments:

5.7.3 Retaining Walls and Noise Barrier Structures

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

Comments:

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:						

* Controlling Criteria

Comments:

5.7.5 Tunnel 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:					

* Controlling Criteria

Comments:

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: Exhibit 5.

5.10 Safety Enhancements/Mitigation Measures

- Increase roadway width with the addition of paved shoulders throughout the entirety of the project.
- Improved pavement condition from Old CTH K to Ridge Road.

5.11 Real Estate

5.11.1 Real Estate Acquisition

Plat I.D.: 8357-01-02

Relocations		Land	Permanent	Temporary	Construction
Type	Number	(Acres)	Easements	Easements	Permits
None	None	0.00	0.41	0.00	0

Comments: Nine parcels are impacted by this project. A total of 0.41 acres of permanent easement is required. Two are for vision and seven are for drainage purposes.

5.11.2 Encroachment Actions

Encroachment Location	Encroachment Type	What is to be Done? (Removed, Revocable Permit, etc.)
None		

Comments:

5.12 Utilities

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

Describe any special design features to accommodate utilities:

None

Major Utility Agreements:

None

Comments:

5.13 Railroads

Describe improvements to Railroad Facilities:

None

Railroad Agreements:

None

Comments: No railroad facilities within the vicinity of the project.

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			
8357-01-72	$843,000 (includes 15% E&C)	100	0	0	2017	None	No

Comments: The project has a federal funding limit of $843,000. The Federal Lands Access Program will be funding $667,740 (72.21%) and the National Park Service will be funding $175,260 (28.79%). Any Project costs over the federal funding limit will be covered by the Town of Russell. The PS&E is scheduled for May 1st, 2017, with a bid letting date of August 8th, 2017.

Describe Incentive/Disincentive Clauses:

None

Non-participating Work:

None

Deferred Construction Work (Preventative Maintenance projects)

None

5.15 Unique or Non-standard Features

5.15.1 Hazardous Waste

A WisDOT Phase 1 Hazardous Material Assessment was approved on 1/21/16. No issues pertaining to hazardous materials or waste were identified.

5.15.2 Environmental Commitments

Commitments are being made for streams, floodplains and erosion control. See Exhibit 4.

5.15.3 Community Sensitive Design/Public Involvement

None

5.15.4 Value Engineering

None

6.0 SYNOPSIS

	Completion/Approval Dates	Status of Coordination or Other Information as Needed
Concept Definition Report	N/A	
Scoping Document	N/A	
Public Involvement Plan	02/03/2016	
Final Aesthetic & Visual Level of Impact Worksheet	N/A	
Speed Limit Change Declaration	N/A	
Environmental Document (Type: CEC)	02/23/2017	
Public Hearing/Public Information Meetings	02/10/2016	
SHPO Involvement	02/14/2017	
DNR Involvement	12/18/2015	Initial Correspondence
Agricultural Impact Statement	N/A	
Pavement Design Report	10/27/2016	
Roundabout Review	N/A	
Transportation Management Plan (Type: 2)	02/27/2017	Approved 60%
Permits Required (Types: 401 & LOP-10-R)	11/15/2016	
Local Project Agreements	04/23/2015	
Value Engineering Study	N/A	
Status of Statutory Actions	N/A	

7.0 ATTACHMENTS

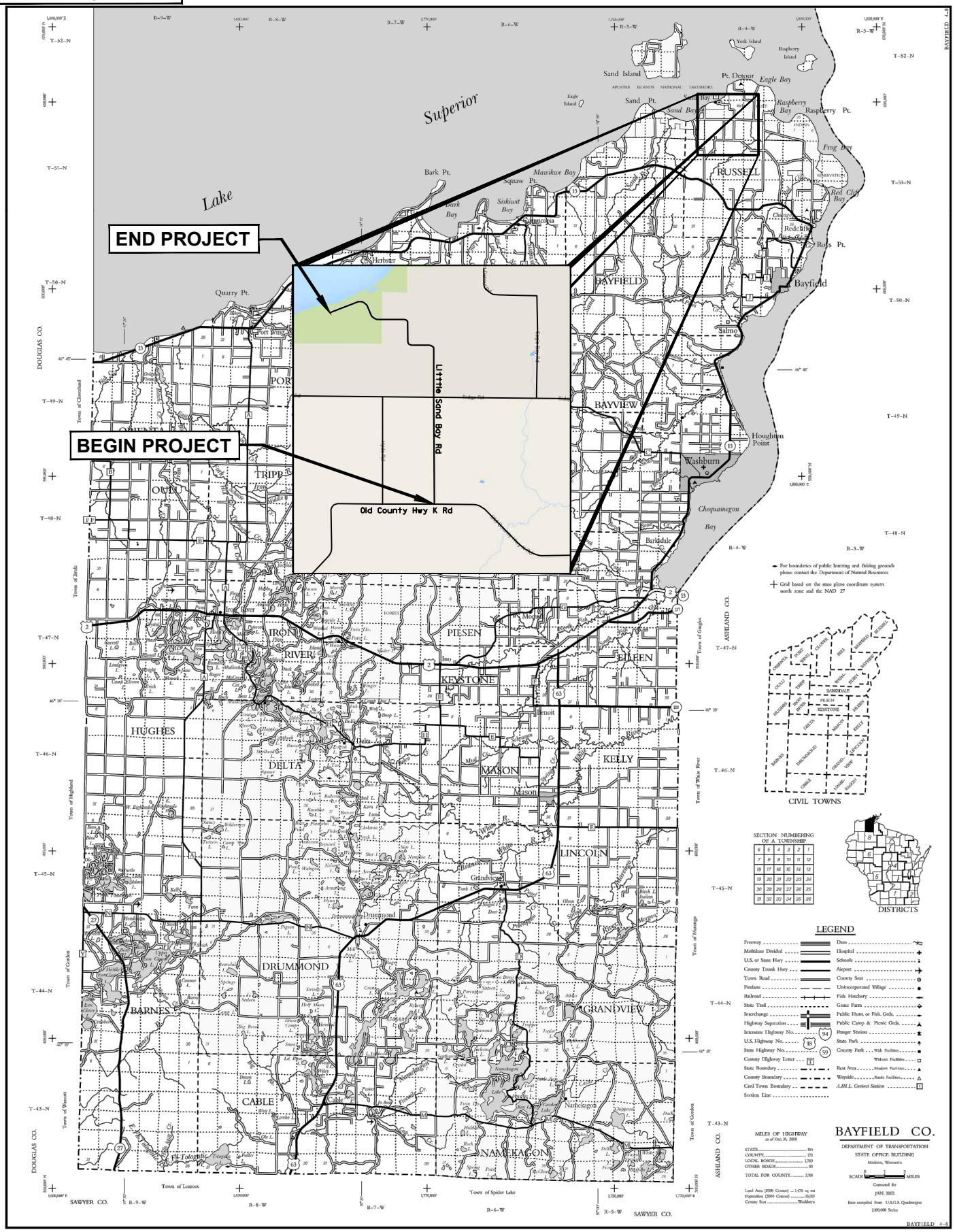
1 – Project Location/Overview Map
2 – Existing Typical Cross Section(s) & Finished/Proposed Typical Cross Section(s)
3 – Preliminary Plan Sheet(s)
4 – Environmental Commitments Basic Sheet
5 – Transportation Management Plan Documentation and Request for Approval Form
6 – Pavement Design Report
7 – Roadside Hazard Analysis

ATTACHMENT 1

PROJECT LOCATION MAP

Little Sand Bay Road,
Town of Russell,
Bayfield County

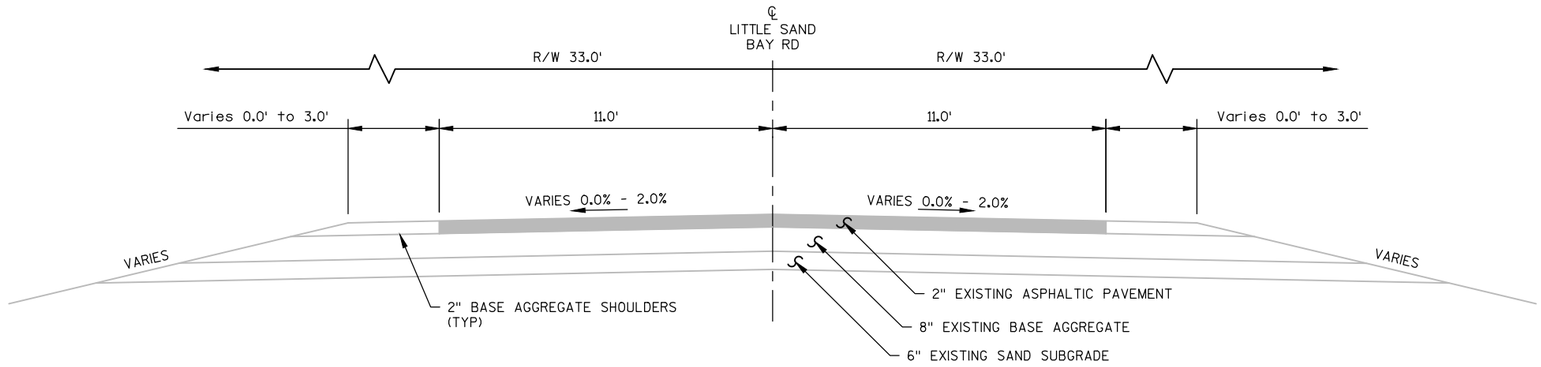
BAYFIELD COUNTY



ATTACHMENT 2

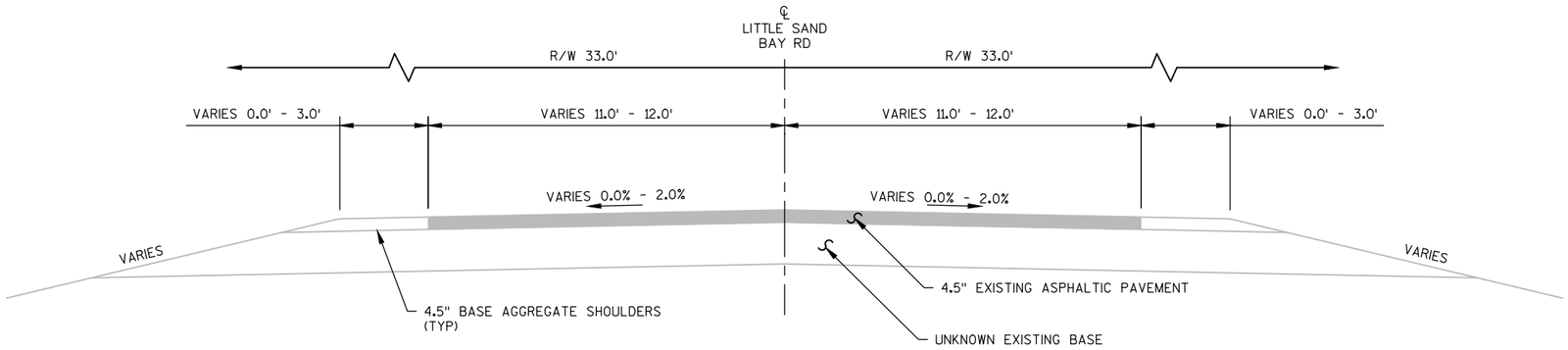
EXISTING & PROPOSED CROSS SECTIONS

2



TYPICAL EXISTING SECTION

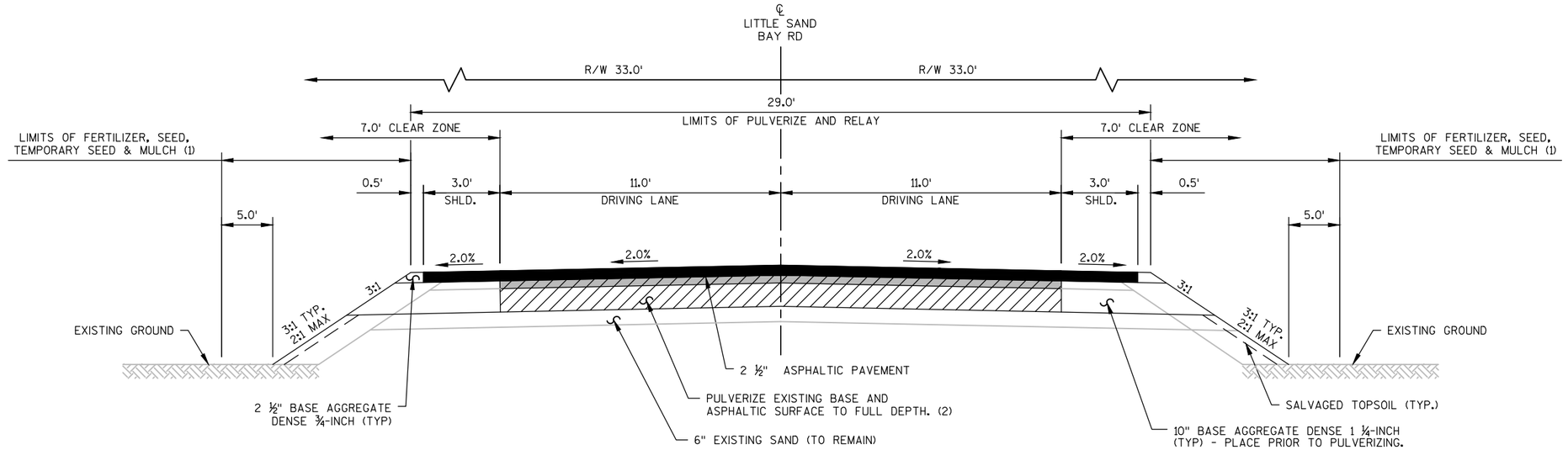
STA. 100+16.09 - STA. 155+33.29



TYPICAL EXISTING SECTION

STA. 155+33.29 - STA. 239+06.45

PROJECT NO: 8357-01-72	HWY: LITTLE SAND BAY RD	COUNTY: BAYFIELD	TYPICAL SECTIONS	SHEET	E



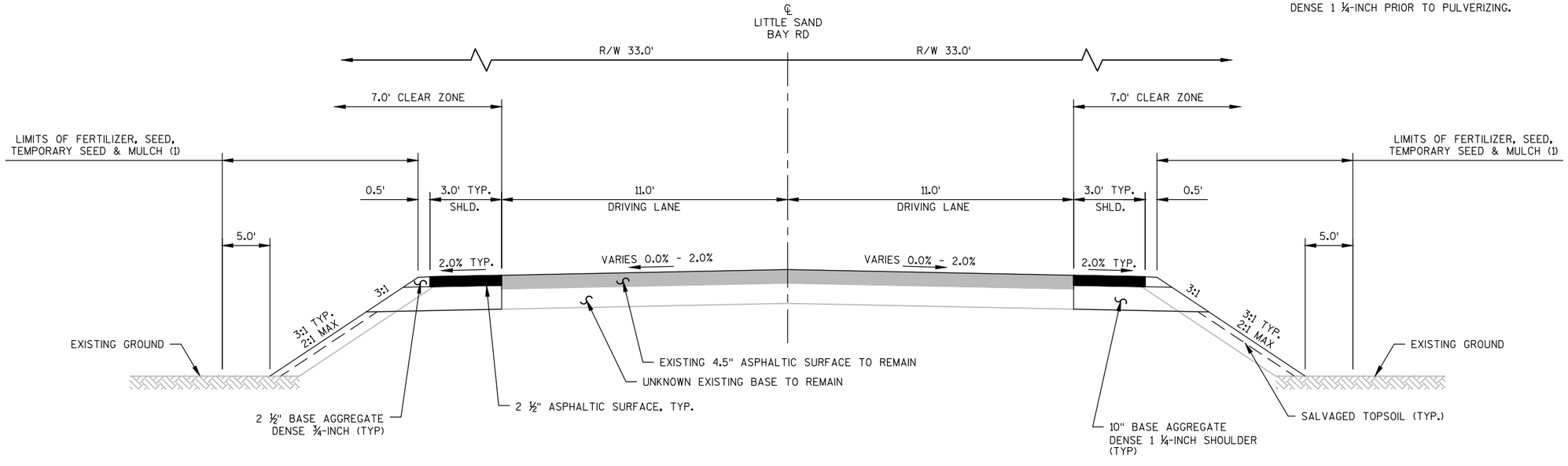
TYPICAL FINISHED SECTION

PULVERIZE FULL DEPTH

STA. 100+16.09 - STA. 155+33.29

(1) - PLACE EROSION MAT INSTEAD OF MULCH AS SHOWN ON EROSION CONTROL SHEETS OR AS THE ENGINEER DIRECTS.

(2) - PLACE 2" LIFT OF BASE AGGREGATE DENSE 1 ¼-INCH PRIOR TO PULVERIZING.



TYPICAL FINISHED SECTION

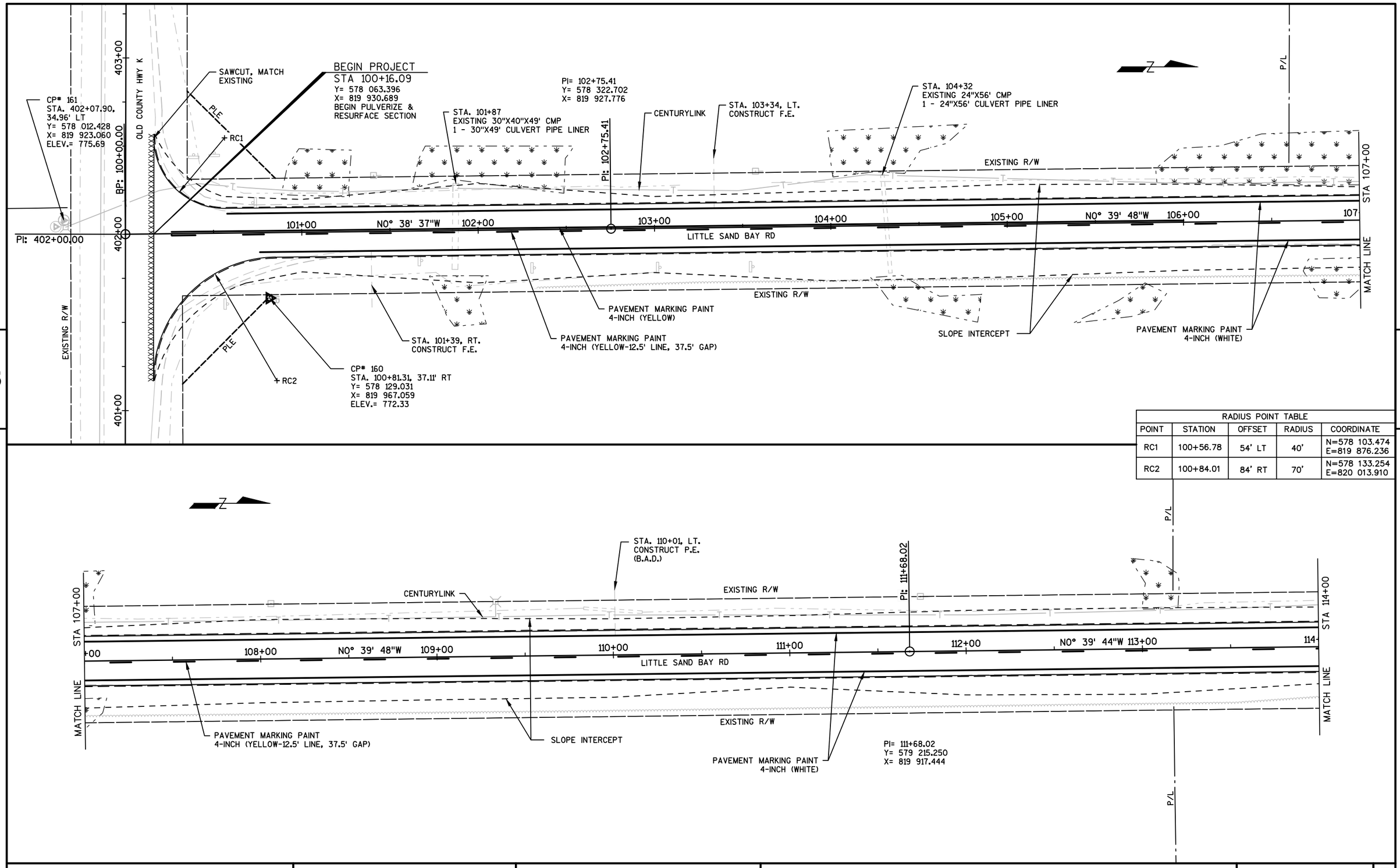
SHOULDER WIDENING

STA. 155+33.29 - STA. 239+06.45

PROJECT NO: 8357-01-72	HWY: LITTLE SAND BAY RD	COUNTY: BAYFIELD	TYPICAL SECTIONS	SHEET	E

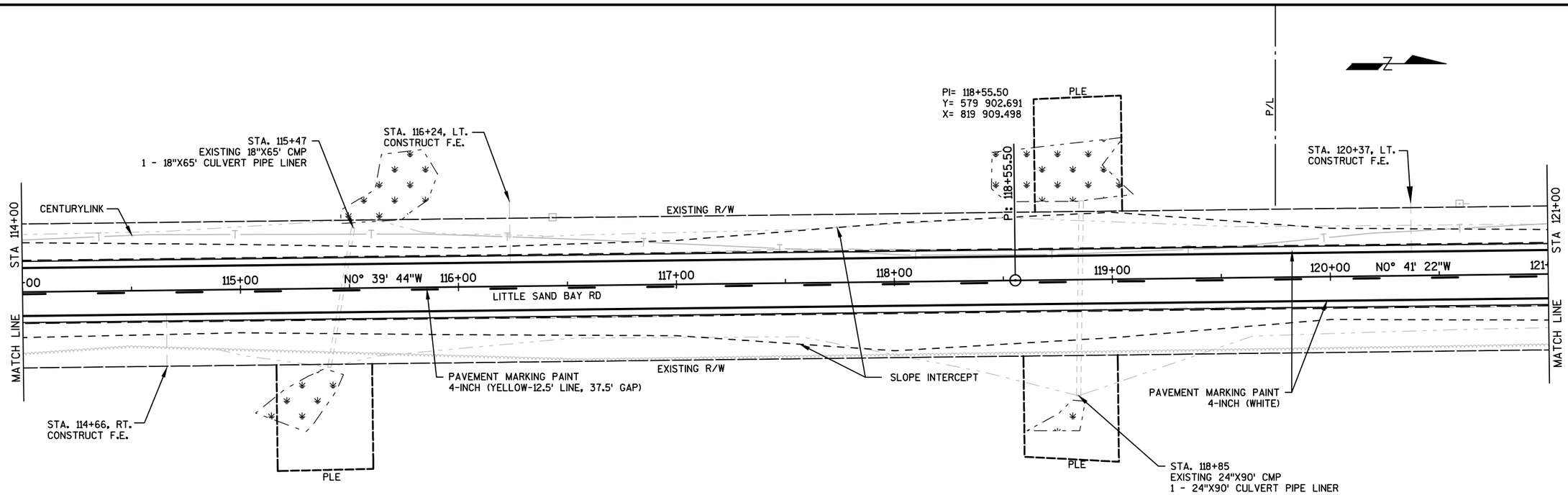
ATTACHMENT 3

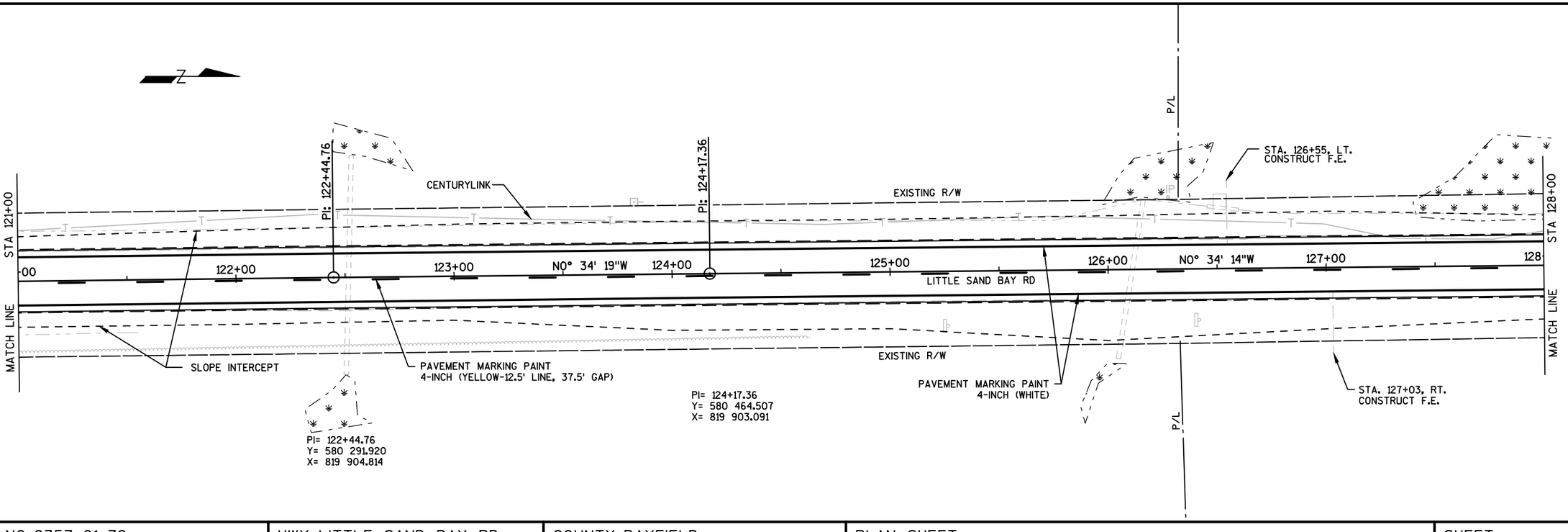
PRELIMINARY PLAN SHEETS



RADIUS POINT TABLE				
POINT	STATION	OFFSET	RADIUS	COORDINATE
RC1	100+56.78	54' LT	40'	N=578 103.474 E=819 876.236
RC2	100+84.01	84' RT	70'	N=578 133.254 E=820 013.910

PROJECT NO: 8357-01-72	HWY: LITTLE SAND BAY RD	COUNTY: BAYFIELD	PLAN SHEET	SHEET	E





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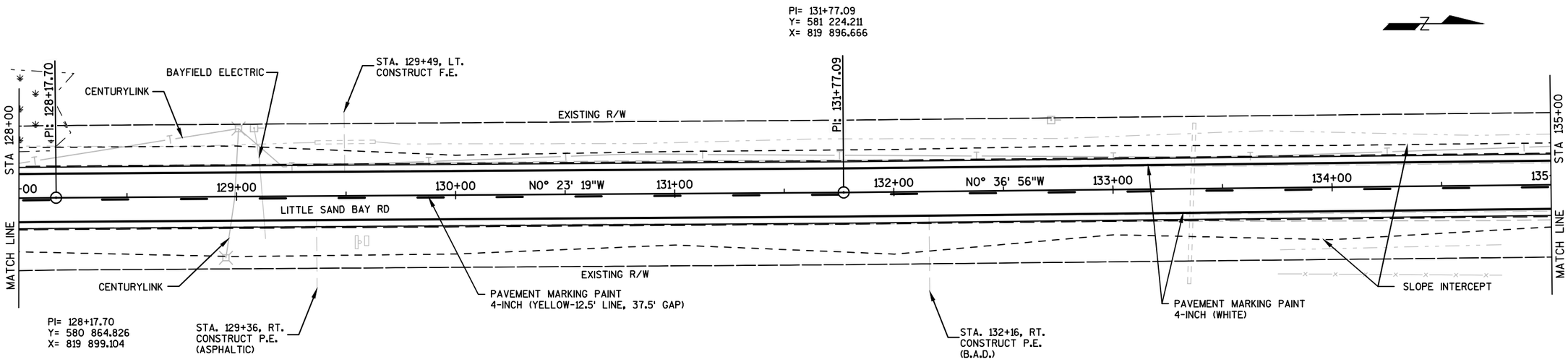

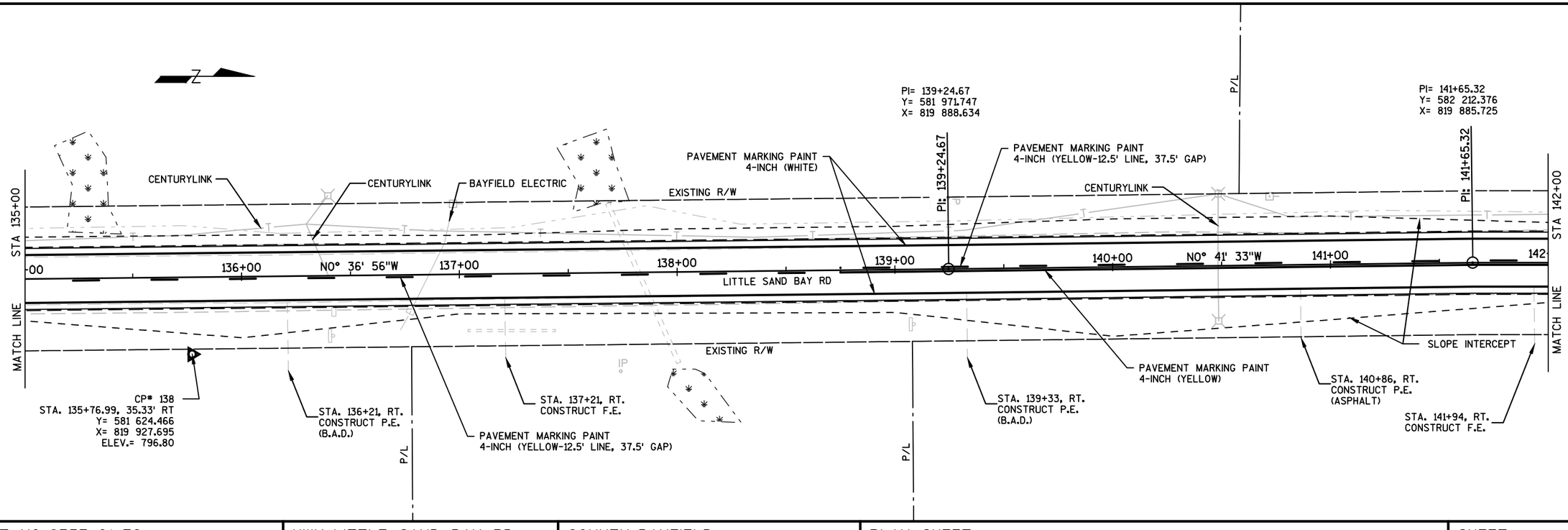

PROJECT NO: 8357-01-72	HWY: LITTLE SAND BAY RD	COUNTY: BAYFIELD	PLAN SHEET	SHEET	E

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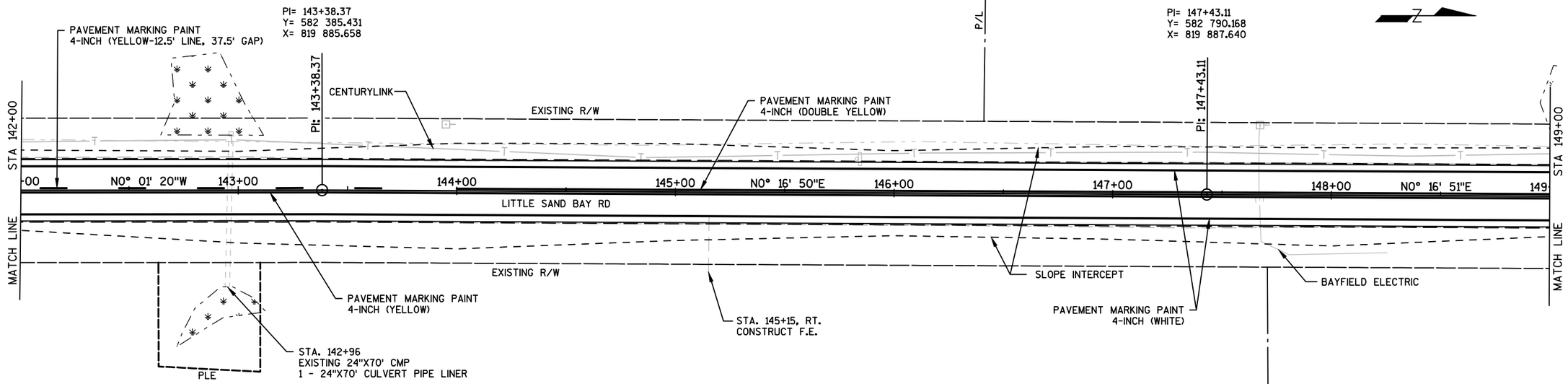
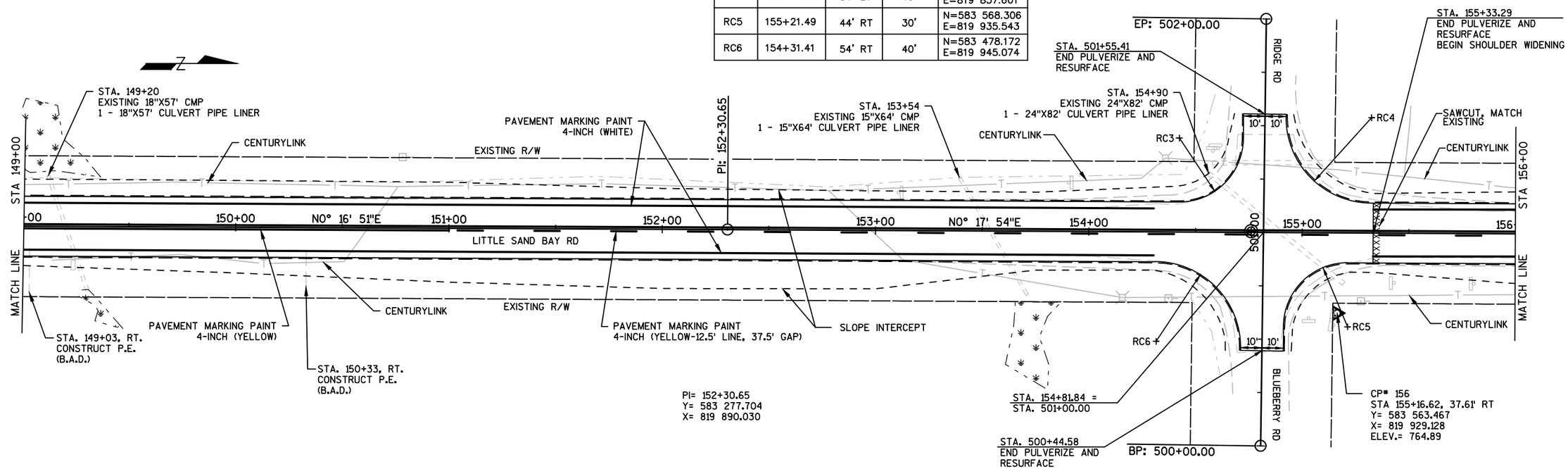
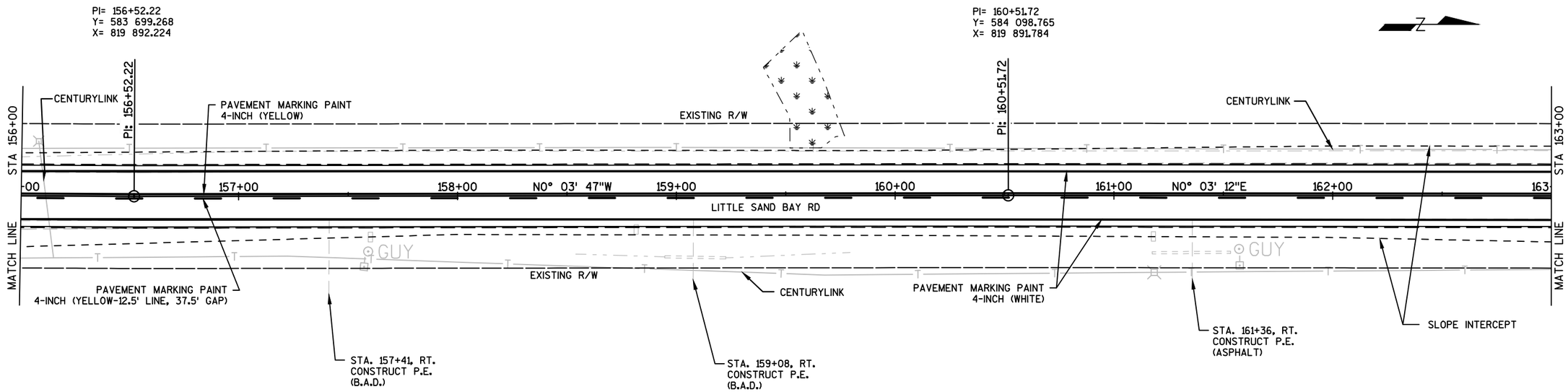
LAYOUT NAME - 050203_PN
PLOT DATE : 12/16/2016 9:49 AM
PLOT BY : ERIK MEYER
PLOT NAME :
PLOT SCALE : 1 IN:50 FT

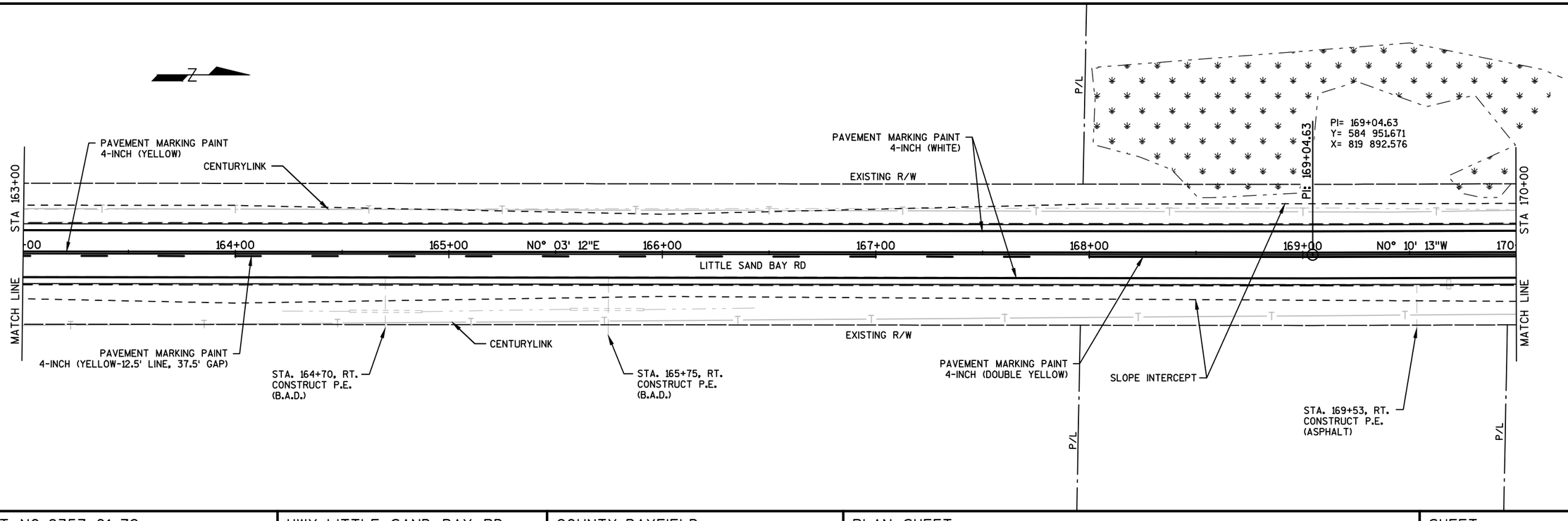


RADIUS POINT TABLE				
POINT	STATION	OFFSET	RADIUS	COORDINATE
RC3	154+42.20	44' LT	30'	N=583 489.471 E=819 847.132
RC4	155+32.28	54' LT	40'	N=583 579.605 E=819 837.601
RC5	155+21.49	44' RT	30'	N=583 568.306 E=819 935.543
RC6	154+31.41	54' RT	40'	N=583 478.172 E=819 945.074



PROJECT NO: 8357-01-72	HWY: LITTLE SAND BAY RD	COUNTY: BAYFIELD	PLAN SHEET	SHEET	E





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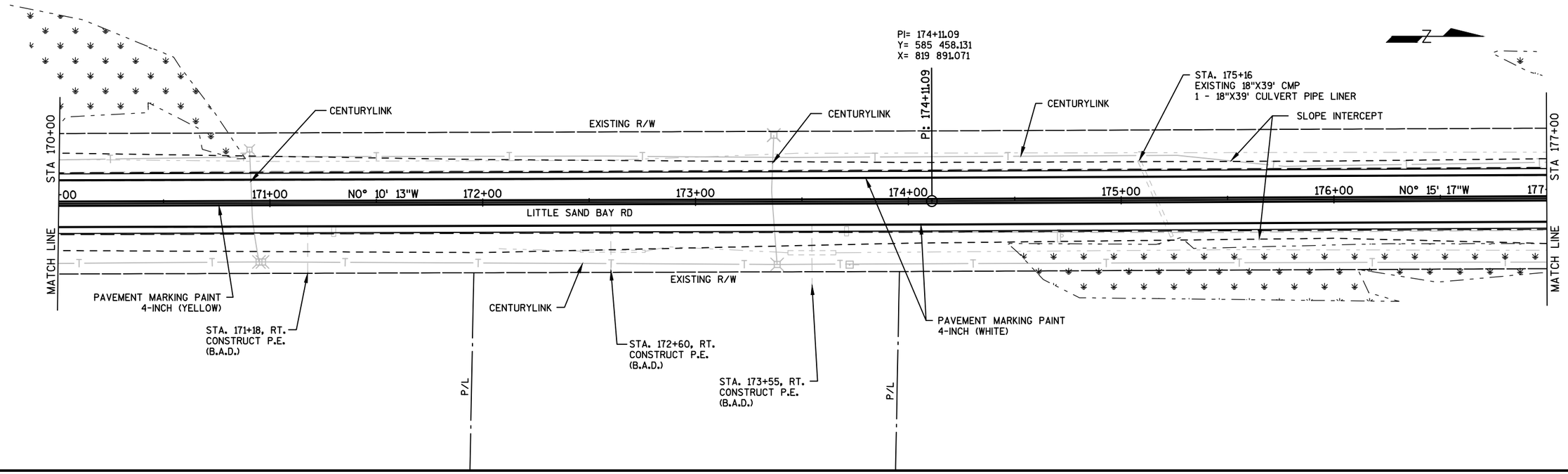
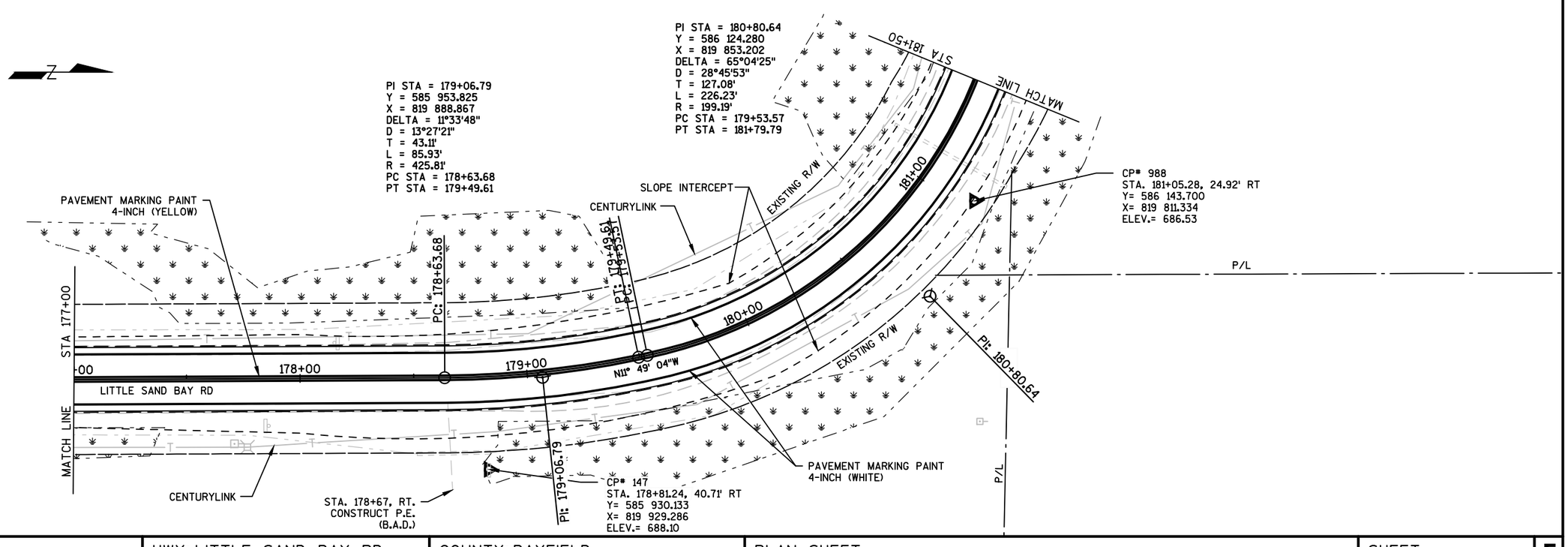
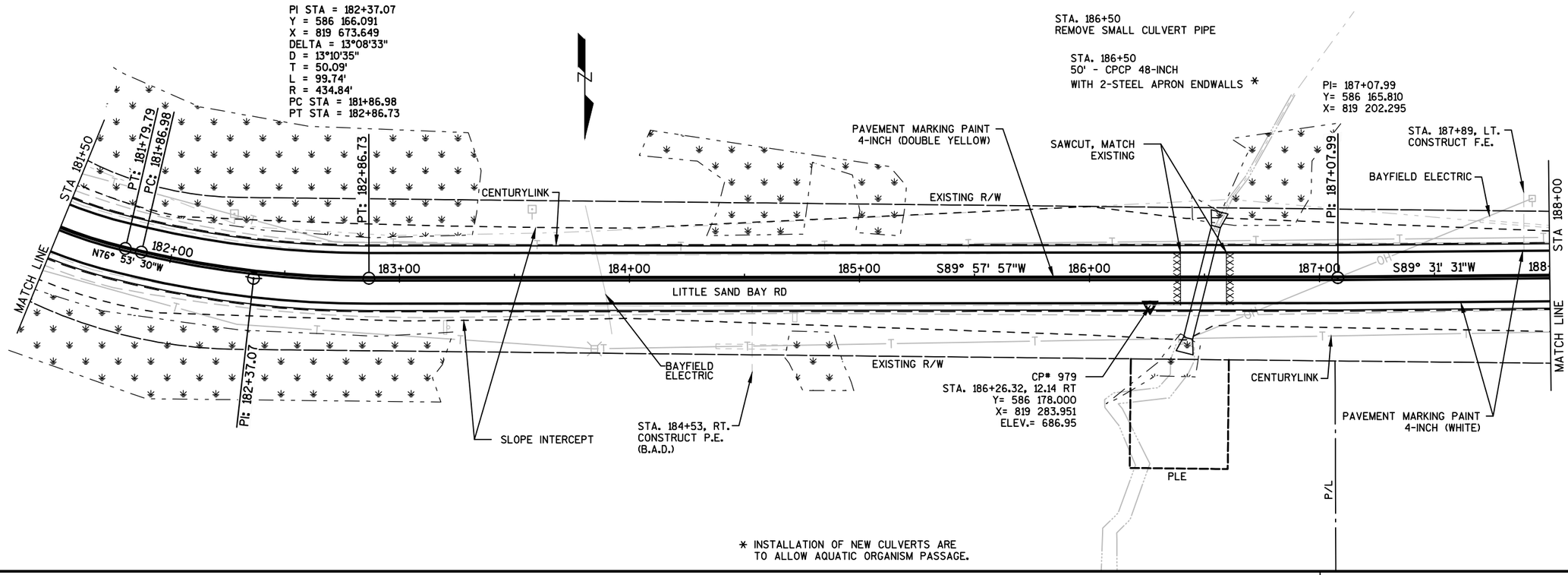




PROJECT NO: 8357-01-72	HWY: LITTLE SAND BAY RD	COUNTY: BAYFIELD	PLAN SHEET	SHEET	E



PROJECT NO: 8357-01-72	HWY: LITTLE SAND BAY RD	COUNTY: BAYFIELD	PLAN SHEET	SHEET	E

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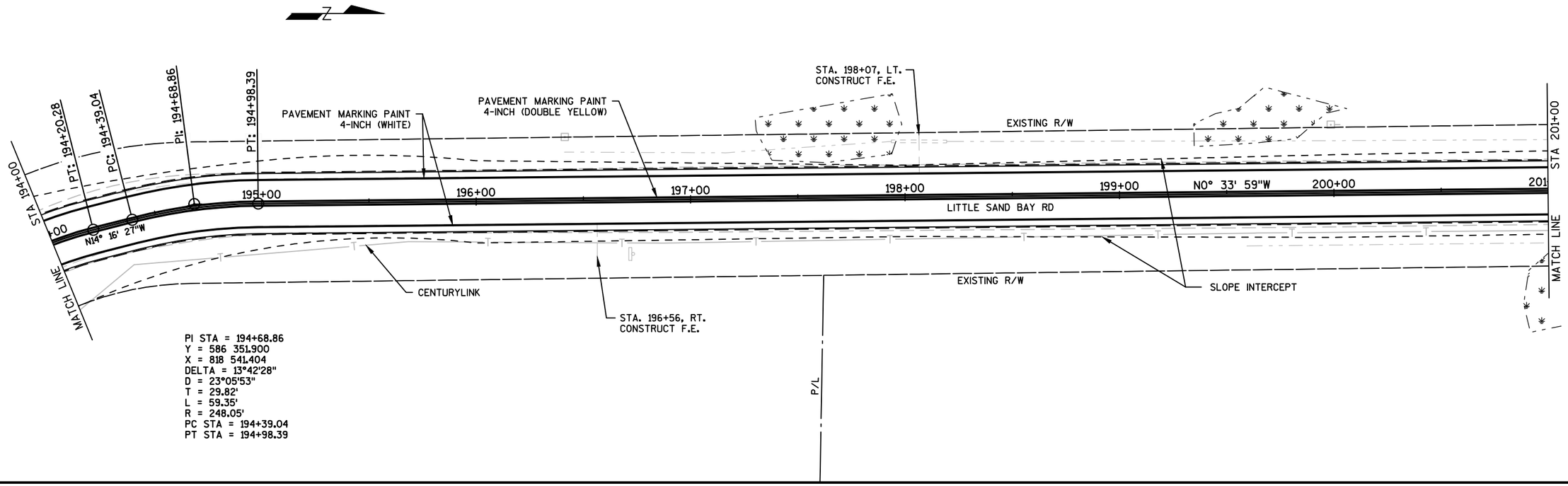
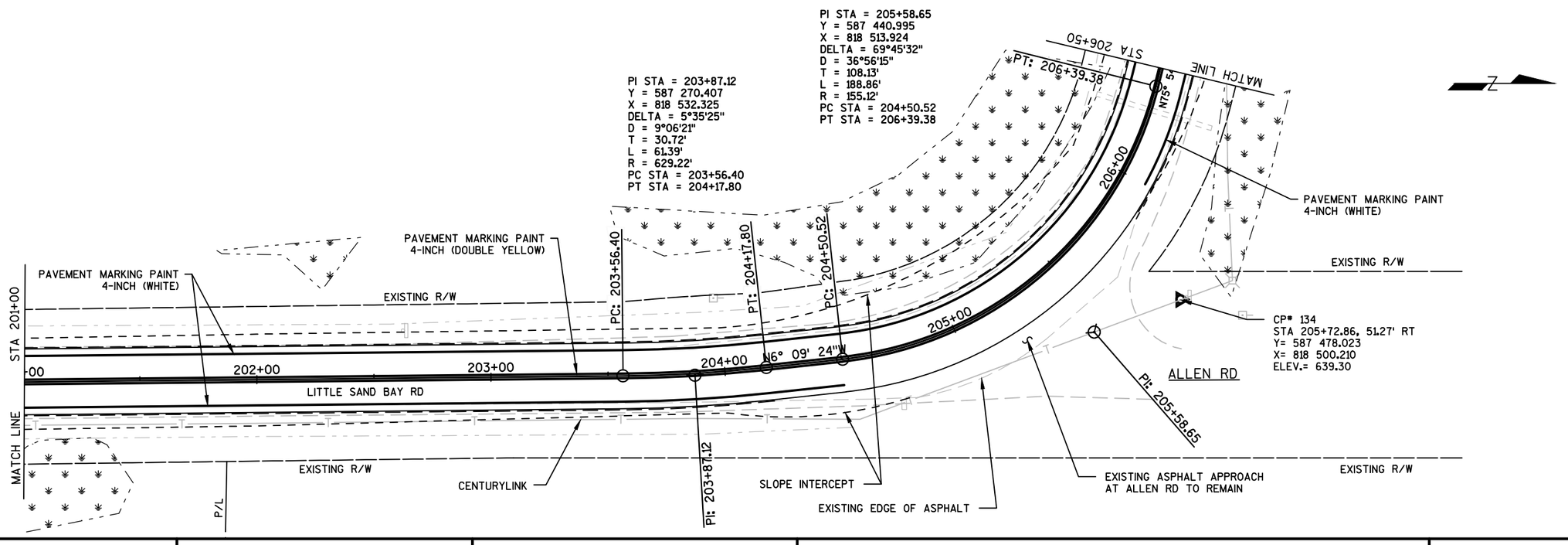
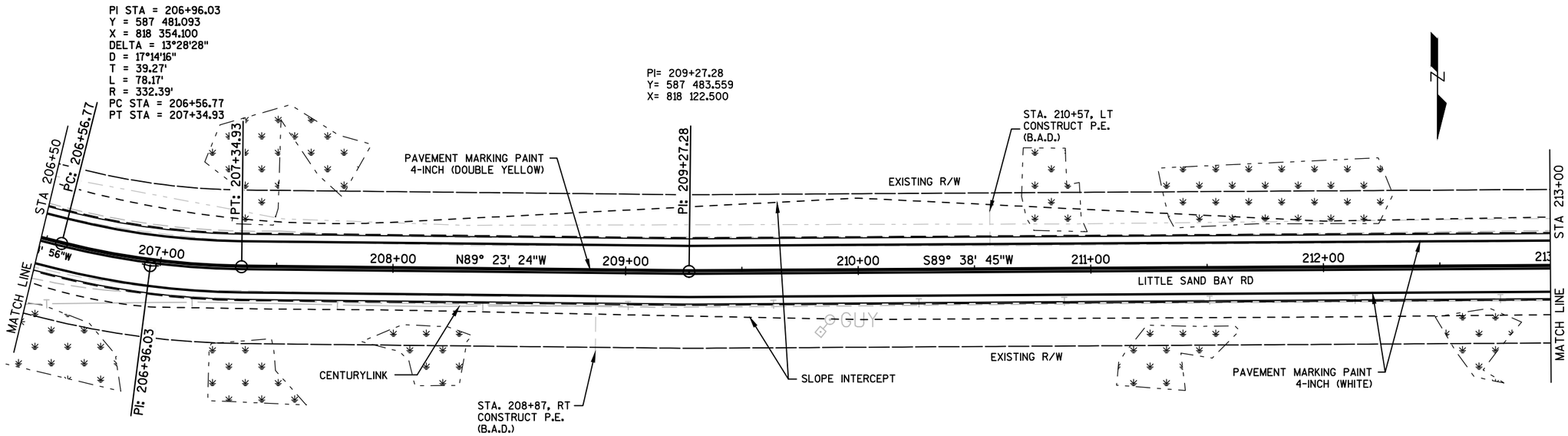
LAYOUT NAME - 050207_PN

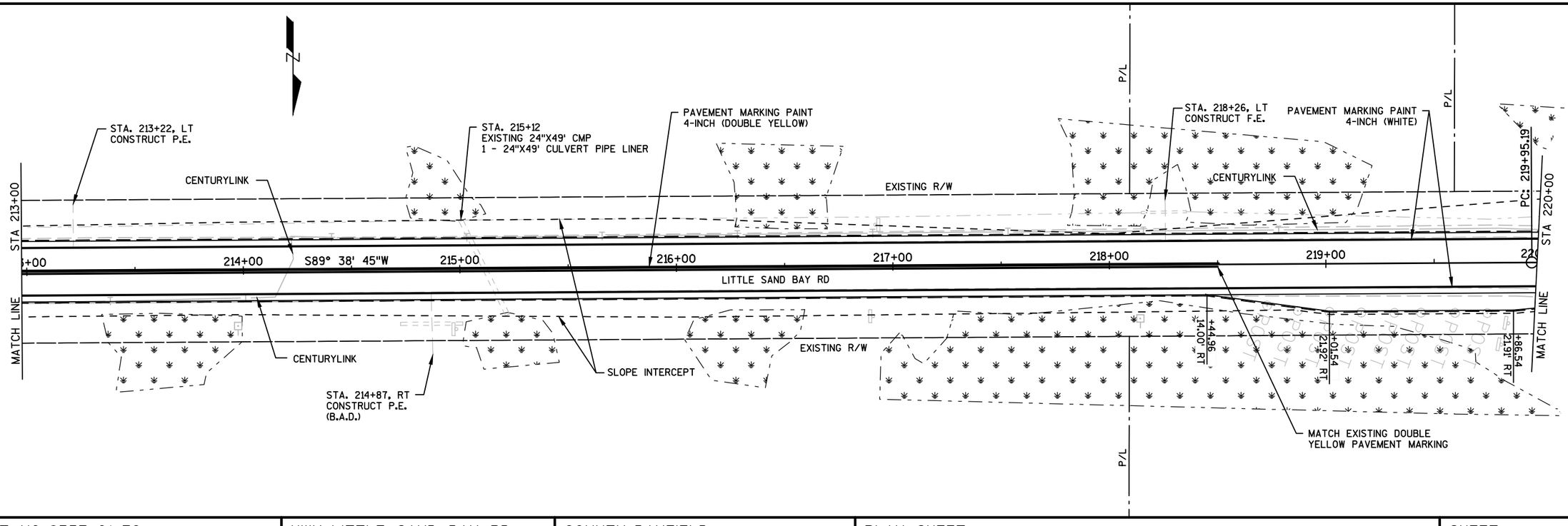
PLOT DATE : 12/16/2016 10:39 AM PLOT BY : ERIK MEYER PLOT NAME : PLOT SCALE : 1 IN:50 FT



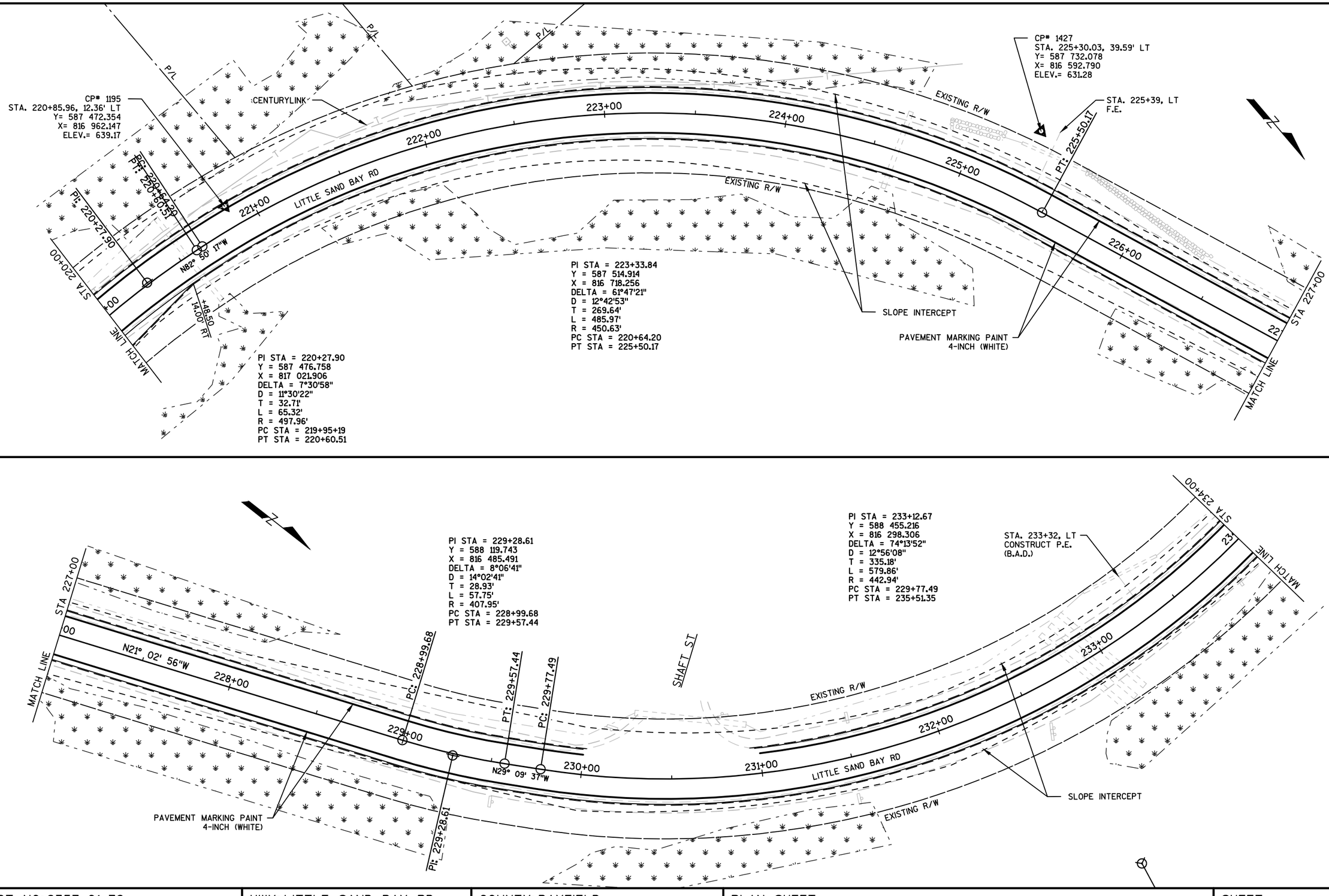


PROJECT NO: 8357-01-72	HWY: LITTLE SAND BAY RD	COUNTY: BAYFIELD	PLAN SHEET	SHEET	E





PROJECT NO: 8357-01-72	HWY: LITTLE SAND BAY RD	COUNTY: BAYFIELD	PLAN SHEET	SHEET	E



PROJECT NO: 8357-01-72	HWY: LITTLE SAND BAY RD	COUNTY: BAYFIELD	PLAN SHEET	SHEET	E

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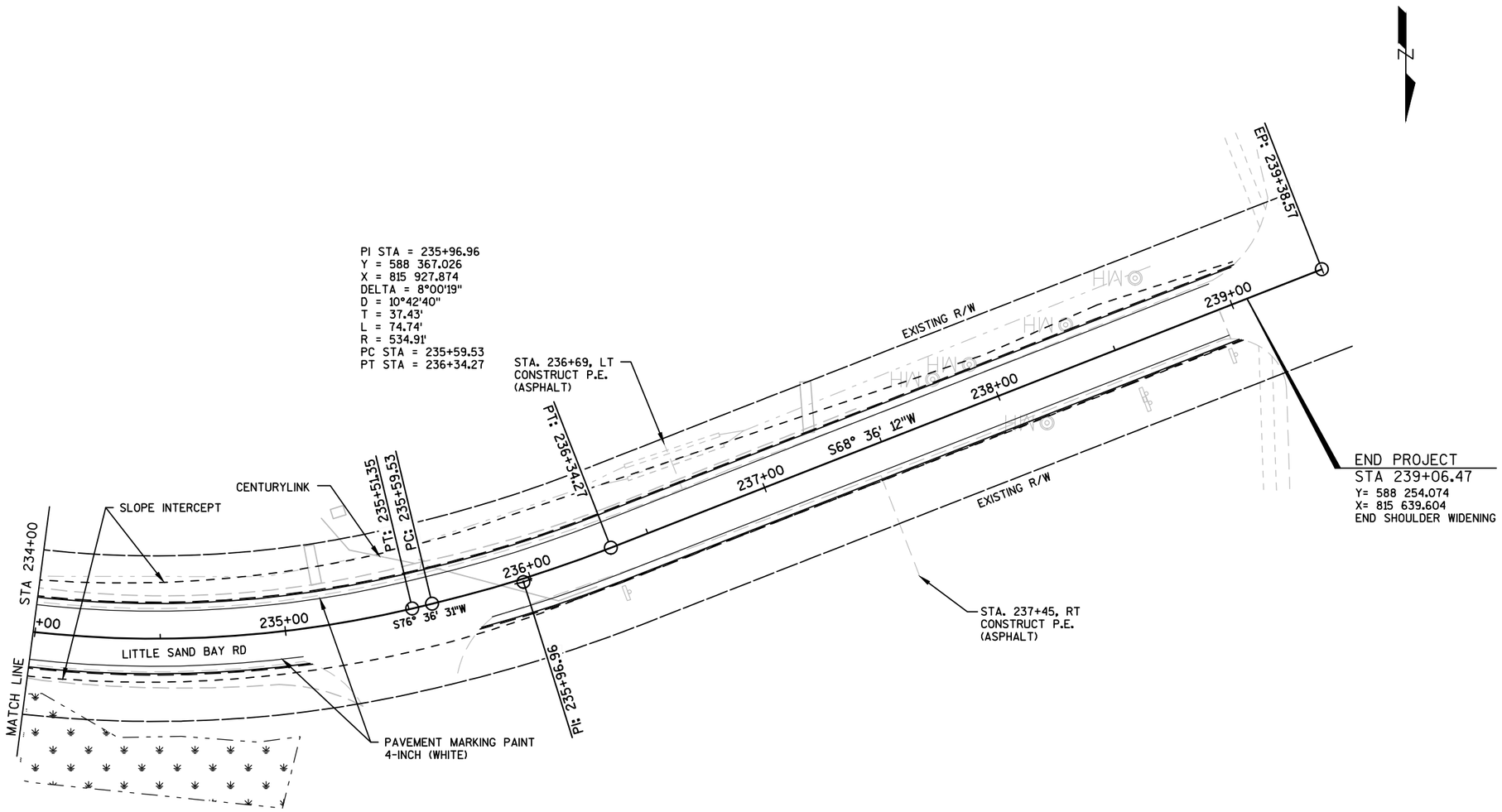
LAYOUT NAME - 050210_PN

PLOT DATE : 12/16/2016 11:14 AM PLOT BY : ERIK MEYER PLOT NAME : PLOT SCALE : 1 IN:50 FT



PROJECT NO: 8357-01-72	HWY: LITTLE SAND BAY RD	COUNTY: BAYFIELD	PLAN SHEET	SHEET	E

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LAYOUT NAME - 052011_PN
PLOT DATE : 12/16/2016 11:17 AM PLOT BY : ERIK MEYER PLOT NAME : PLOT SCALE : 1 IN:50 FT

ATTACHMENT 4

ENVIRONMENTAL COMMITMENTS BASIC SHEET

VII. Mitigation & Commitments – List any environmental mitigation measures or commitments that will be incorporated into the project. Any items listed below must be incorporated into the project plans and contract documents. *Attach a copy of this page to the design study report (DSR) and the plans, specifications, and estimate (PS&E) submittal package.*

Environmental Factor	Commitment (If none, include 'No special or supplemental commitments required.')
General Economics	No special or supplemental commitments required.
Business	No special or supplemental commitments required.
Agriculture	No special or supplemental commitments required.
Community or Residential	No special or supplemental commitments required.
Indirect Effects	No special or supplemental commitments required.
Cumulative Effects	No special or supplemental commitments required.
Environmental Justice	No special or supplemental commitments required.
Historic Resources	No special or supplemental commitments required.
Archaeological/Burial Sites	No special or supplemental commitments required.
Tribal Coordination/Consultation	Commitments Made. The signed Red Cliff Land Use Permit shall be on site and within view of the nearest public road. The contractor shall send a written notification of the commencement of fieldwork to the appropriate tribal government with a copy of such notification mailed to the Bureau of Indian Affairs, Midwest Regional Office prior to the commencement of such fieldwork. All excavated materials shall be returned as closely as practical to pre-excavation conditions. Vehicular activity shall be restricted to existing roadways and trails. The contractor shall conduct all operations in such a manner as to minimize or prevent environmental damage to all lands or waterways. The construction supervisor will assure the fulfillment of these commitments.
Section 4(f) and 6(f) or Other Unique Areas	No special or supplemental commitments required.
Aesthetics	No special or supplemental commitments required.
Wetlands	Commitments Made. Approximately 0.140 acres of wetland will be impacted. The wetland impacts will be mitigated at a state mitigation site at the appropriate ratio per the DOT Wetland Mitigation Banking Technical Guideline. The Regional Environmental Coordinator and construction supervisor will assure fulfillment of this commitment. Commitment will be in the special provisions.

Rivers, Streams and Floodplains	Commitments Made. The contractor shall replace the culvert on the unnamed tributary to Lake Superior between June 15th and March 1st. This is a warm water fishery and this needs to be done in order to protect developing fish eggs and substrate for aquatic organisms. The invert elevations of the culvert pipe shall be set an adequate distance below the natural streambed as to allow for natural streambed sediment to occupy the bottom of the culvert pipe. The width and depth of the unnamed tributary shall not be altered. However, a minor amount of dredging necessary to place the structure elements is permissible. Adequate precautions should be taken to prevent transporting or introducing invasive species via construction equipment, as provided under chapter NR 40 Wis. Adm. Code. Any equipment coming into contact with surface waters must be properly cleaned and disinfected to address the spread of invasive species and viruses in accordance to STSP 107-055. The construction supervisor will assure fulfillment of this commitment. Commitments will be recorded in the special provisions.
Lakes or other Open Water	No special or supplemental commitments required.
Groundwater, Wells and Springs	No special or supplemental commitments required.
Upland Wildlife and Habitat	No special or supplemental commitments required.
Coastal Zones	No special or supplemental commitments required.
Threatened and Endangered Species	No special or supplemental commitments required.
Air Quality	No special or supplemental commitments required.
Construction Stage Sound Quality	No special or supplemental commitments required.
Traffic Noise	No special or supplemental commitments required.
Hazardous Substances or Contamination	No special or supplemental commitments required.
Storm Water	No special or supplemental commitments required.
Erosion Control	Commitments Made. Standard WisDOT measures for erosion control and precautions during construction will be implemented according to the Wisconsin Standard Specifications for Highway and Structure Construction. Construction site erosion and sediment control procedures will be followed as set forth in TRANS 401 and the WisDOT/WDNR Cooperative Agreement. If erosion mat is used along stream banks, DNR recommends that biodegradable non-netted mat be used. No erosion mat is anticipated with this project. The contractor should restrict the removal of vegetative cover and exposure of bare ground to the minimum amounts necessary to complete construction. Restoration of disturbed soils should take place as soon as conditions permit. The construction supervisor will assure fulfillment of these commitments. These commitments will be recorded in the notes to construction.
Other	No special or supplemental commitments required.

ATTACHMENT 5

TMP DOCUMNETATION

WisDOT TMP Documentation and Request for Approval

TMP ID: 2971

Version: Current

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.

1A. Project Information:

TMP Type: Type 2
Region: NW
Local Program: Yes
Created Comment: Created from Scratch. User comment:

Design ID: 8357-01-02
Project Title: T RUSSELL, LITTLE SAND BAY ROAD
County: BAYFIELD
Highway: Other - Local Road

Construction ID: 8357-01-72
Project Type: PAVEMENT REPLACEMENT
Project Limits: OLD CTH K TO TERMINI
Project Length: 2.631 Mile(s)
Project Duration: 42 Day(s)
Engineer's Estimate: less than $1 Million
PS&E Date: 05/01/2017
LET Date: 08/08/2017
NHS Route: No
AADT: 350
AADT Year: 2015
Federal Oversight: No

1B. Project Impacts:

Anticipated Begin: 09/2017
Anticipated End: 11/2017
Delay: Minor
OSOW Route: No

1C. Location:

Local Road

Begin County: BAYFIELD
End County: BAYFIELD
Roadway Name: Little Sand Bay Road
Begin Landmark (LR): Old CTH K

End Landmark (LR): Termini

2. Brief description of work activities.

The proposed action is a roadway rehabilitation and widening project that consists of pulverizing Little Sand Bay Road from Old CTH K to Ridge Road and shoulder widening from Ridge Road to Termini.

3. Briefly describe the staging planned for maintaining traffic.

Little Sand Bay Road will remain open to through traffic during construction operations with lane closures, suitable for moving operations, utilizing a flagger.

4. Will there be restrictions on pedestrian/bicycle access?

☐ Yes ☑ No

5. Briefly describe how access to traffic generators, businesses, school buses, garbage trucks, postal services, and transit impacts will be mitigated (alternate routes, etc.).

a) Are the strategies in compliance with ADA?

Little Sand Bay Road will remain open to through traffic.

b) Is access to bus stops affected?

☐ Yes ☑ No

6. Will the project have lane closures?

☑ Yes ☐ No

If Yes:

a) Are there restrictions on when lane closures are allowed?

☐ Yes ☑ No

b) What hours/days are lane closures permitted?

No restrictions.

c) How were traffic counts used in determining permitted lane closure times?(For multi-lane roadways, indicate peak hour volume per direction of travel. For two-lane, two-way roadways indicate AADT)?

The 2017 construction year AADT is 360. Due to the low AADT and the construction being completed prior to the peak summer tourist season no restrictions were applied to lane closures.

7. Please provide the following.

a) Minimum lane width to be maintained.

11 feet

b) Minimum lane width plus shoulder width to accommodate OSOW.

N/A

c) Minimum height (if less than typically available)

N/A

8. Will the project be detoured?

☐ Yes ☑ No

9. List major special events and holidays, and how traffic disruptions will be minimized.

N/A

10. Describe the method(s) (LCAT, Quadro, FDM 11-50-30, etc.) used to estimate motorist delays or queue length (Applicable only for freeways, expressways, and signalized corridors).

N/A

11. What is the anticipated travel delay during peak travel periods (also indicate frequency, e.g. daily and duration)? Please compare the peak hour volumes per lane with the work zone capacity criteria in FDM 11-50-30. If it exceeds the estimated capacity, a delay calculation is required. If the delay is more than 15 minutes, the TMP will be a type 3 and if less than 15 minutes, it generally will be a type 2. The Regional Work Zone Engineer can assist you in determining your delay.

N/A

12. Identify alternate routes anticipated, and any alternate route improvements or signing planned.

No alternate routes improvements or signing planned. A travel lane will be maintained throughout the construction process in order to grant access to the campground located at the project termini. An alternate route to avoid the reconditioning portion of the project from Old CTH K to Ridge Road is available by turning North onto Hyde Road, east of the intersection of Little Sand Bay Road and Old CTH K, and turn right onto Ridge Road. Traffic will then continue west to the intersection with Little Sand Bay Road.

13. Are any intersection traffic control changes proposed such as temporary

signals, temporary changes to an all way stop, etc?

No changes proposed.

14. Are there anticipated traffic impacts from the proposed project on other roads/routes in the region/corridor? Identify other projects in the corridor (only if delay anticipated on this project).

None.

15. Does the project affect other regions/states?

☐ Yes ☑ No

16. Check mitigation strategies planned

STRATEGY	COMMENTS
☑ Public information campaigns	1) A PIM meeting was held on February 09, 2016. 2) Press Release.
☐ Off-peak lane closures	
☐ Temporary widening to maintain traffic lanes	
☐ Changeable message signs (PCMS)	
☐ Ramp closures	
☐ Temporary signals/timing revisions	
☐ Coordination with adjacent projects	
☐ Innovative contracting, (lane rental, A+B, etc)	
☐ Temporary Emergency Pullouts	
☐ Motorist service patrols	
☐ Nighttime Work	
☐ Enhanced Traffic control devices (Wet reflective pavement marking, temp concrete barrier, etc)	
☐ Reduced regulatory speed limit (requires declaration approved by Regional Traffic Engineer, & by BTO if 65-mph hwy or higher speed facility.)	

17. Describe public information strategies planned (coordinate this activity

with your Regional Communications Manager).

The County will notify the public prior to construction.

18. Describe incident management strategies planned.

Emergency services and law enforcement will be notified prior to construction. Access will be maintained at all times during construction for emergency services and law enforcement.

19. Describe how transit impacts will be mitigated.

N/A

Attachments:

Attachments for TMP ID 2971 are listed below.

[f] 01-Overview Map.pdf (Overview Map)

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

Approvals:

ATTACHMENT 6

PAVEMENT DESIGN REPORT

Pavement Design Report

Date: July 19, 2016

To: Ryan McKane, P.E.
NW Region Local Program Management Consultant

From: Aaron Palmer, P.E.
Westbrook Associated Engineers, Inc.

WISCONSIN
AARON B. PALMER E-35695 RICHLAND CENTER, WI
PROFESSIONAL ENGINEER
7/19/16

Subject: **Pavement Design Report** (PDR)
I.D. 8357-01-72
T Russell, Little Sand Bay Road
Old CTH K – Termini
Local Street
Bayfield County

Executive Summary:

Recondition Little Sand Bay Road from Sta. 100+16.08 to Sta. 155+33.29 with:

2.5" of 4 LT 58-34 S HMA Pavement, over
2.0" of Base Aggregate Dense 1 ¼-Inch, over
10.0" of Pulverized and Relayed Surface, over
Remaining existing material.

Approved: Ryan B McKane
Date: 10/27/16

Ryan McKane, PE
NW Region LPMC
Project Manager

Widen Shoulders from Sta. 155+33.29 to Sta. 238+94.47 with:

2.5" of 4 LT 58-34 S HMA Pavement, over
10.0" of Base Aggregate Dense 1 ¼-Inch.

- Use 36,000 ESALs on cover sheet.

Location:

The project is located in Section 04, T51N, R04W and Section 32 and 33, T52N, Town of Russell, Bayfield County. The project limits extend from Station 100+16.08 which is approximately 16.08' north of the intersection of Little Sand Bay Road and Old CTH K to Station 238+94.47 at the Termini of Little Sand Bay Road. The project is approximately 2.618 miles in length. Little Sand Bay Road is classified as a minor collector. See Exhibit A for the Project Location Map.

Proposed Improvement:

The proposed improvement will rehabilitate Little Sand Bay Road from the intersection of Old CTH K, Sta. 100+16.08, to the intersection of Ridge Road, Sta. 155+33.29, and widen the shoulders from the intersection of Ridge Road to Termini, Sta. 238+94.47.

ATTACHMENT 7

ROADSIDE HAZARD ANALYSIS

Roadside Hazard Analysis

Project I.D. 8357-01-02

Entered by: ETM 10/18/2016
Checked by: LCS 10/19/16

Speed (MPH) = 40
AADT = 340
Alignment = 2.629 miles

Hazard ID	Station or Stations	Offset (ft)	L/R	Total length of hazard FT	Description	Action	Discussion
1	102+00 to 108+00	4	R	400	Steep Slopes	Widen Shoulders	Ranges from 3:1 to 4:1 slopes. Shoulder is being widened, however due to funding slopes may not be extended past R/W. At minimum slopes will match existing. Speed limit being decreased to 35 mph.
2	118 +00 to 119+00	4	L/R	100	Steep Slopes	Widen Shoulders	See ID 1.
3	125+00 to 129+00	4	L	400	Steep Slopes	Widen Shoulders	See ID 1.
4	152+00 to 153+00	4	R	100	Steep Slopes	Widen Shoulders	See ID 1.
5	184+00 to 190+65	4	L	665	Steep Slopes	Widen Shoulders	See ID 1.
6	218+45 to 220+49	2-8	R	204	Shoulder Drop	Pave Pullout	The pullout where cars stop for pictures with the Apostle Island sign will be paved up to the existing posts.
7							