

**DRAFT INTERSECTION FEASIBILITY REPORT**

**Sunset Point Road (County Road 576) at North Betty Lane  
Project No. 001018A**



Prepared for:

Pinellas County  
Department of Environment and Infrastructure

Prepared by:

**LOCHNER**

H.W. Lochner, Inc.  
4350 W. Cypress Street, Suite 800  
Tampa, FL 33607

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## **1.0 INTRODUCTION**

### **1.1 Project Description**

This project is located within an unincorporated area of northwestern Pinellas County and an incorporated area of the City of Clearwater. The project is located in Section 3 of Township 29 S. and Range 15 E. and is approximately half of a mile long (see **Exhibit 1.1** for Project Location Map). Sunset Point Road is a two-lane undivided section with curb, but no gutter within project limits. It is classified as an east-west urban minor arterial, per Pinellas County, for the entire length of the project.

The proposed improvements include widening Sunset Point Road on the approaches to North Betty Lane to include new exclusive left turning lanes, bicycle lanes, curb and gutter, sidewalks and new closed drainage system. The existing Sunset Point Road bridge over the Spring Branch Tributary of Stevenson Creek will be removed and replaced with a new structure. The existing traffic signal at North Betty Lane will be replaced with new mast arms and a new controller.

### **1.2 Purpose**

The purpose of this report is to evaluate a staged implementation of the previously recommended improvements from the Project Development and Environment (PD&E) Study documented in the Preliminary Engineering Report prepared by American Consulting Engineers of Florida, LLC dated November 2009. The PD&E study recommended improvements along Sunset Point Road From U.S. Alt. 19 (Edgewater Drive) to Keene Road.

This report will look at implementing the needed improvements to the intersection in conjunction with replacement of the Sunset Point Bridge across the Spring Branch Creek.





Betty Lane

Sunset Point Rd

Project  
Location

PINELLAS

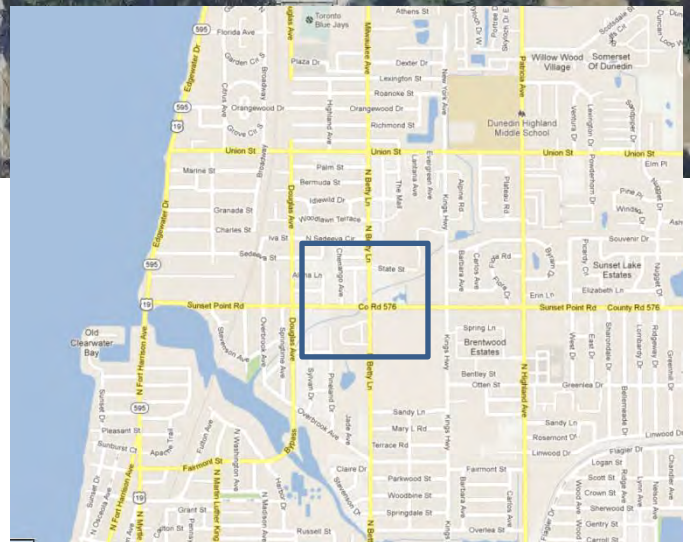


Exhibit 1.1

## Project Location Map

## **2.0 ROADWAY CHARACTERISTICS**

### **2.1 Functional Classification**

Sunset Point Road is classified as an Urban Minor Arterial per Pinellas County. The current posted speed limit is 35 mph.

### **2.2 Typical Section**

The existing roadway has two 12-foot lanes with concrete curb on the outside. There are no exclusive left turn lanes or exclusive right turn lanes within the project limits. See **Exhibit 2.1** for existing typical section.

The proposed typical section consists of widening the current pavement to accommodate three lanes. The typical will consist of two 11-foot lanes (one in each direction), two 4-foot bicycle lanes, and one continuous 12-foot center left turn lane. See **Exhibit 2.2** for proposed typical section.

### **2.3 Alignment**

#### **2.3.1 Horizontal Alignment**

The existing horizontal alignment through the corridor is tangential with no curves.

#### **2.3.2 Vertical Alignment**

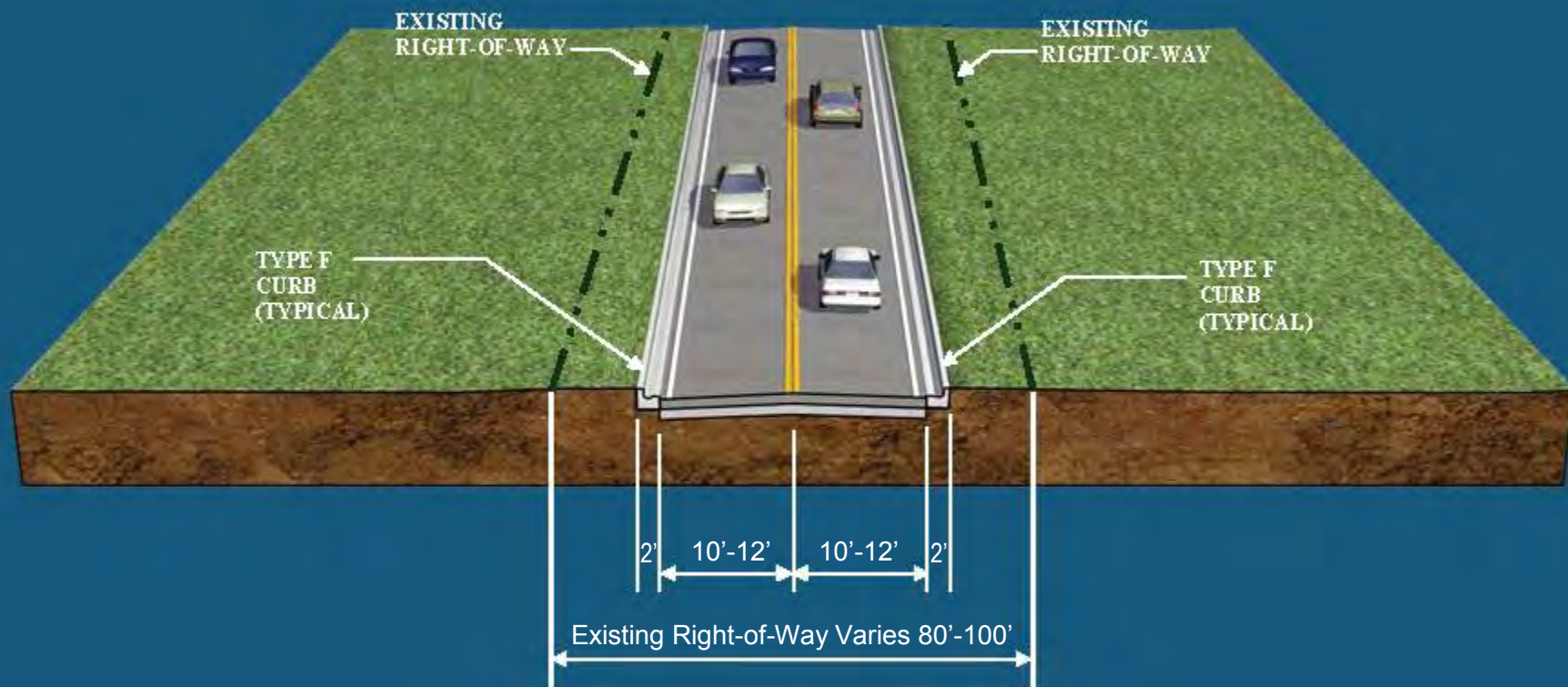
The existing vertical alignment thru the project limits drops to the east with grades varying between 0.20% at 0.40% until reaching a sag low point approximately 780' east of Betty Lane.

The proposed vertical alignment will closely follow the grades of the existing roadway with adjustments in elevation to maintain a minimum base clearance of 1 ft. above the seasonal high water, where possible. Vertical grades will range between 0.2% and 4.0%. All vertical grade breaks greater than 0.7% (45 mph design speed) will include vertical curves.





## EXISTING SUNSET POINT ROAD FROM EAST OF US ALT. 19 TO DOUGLAS AVE.



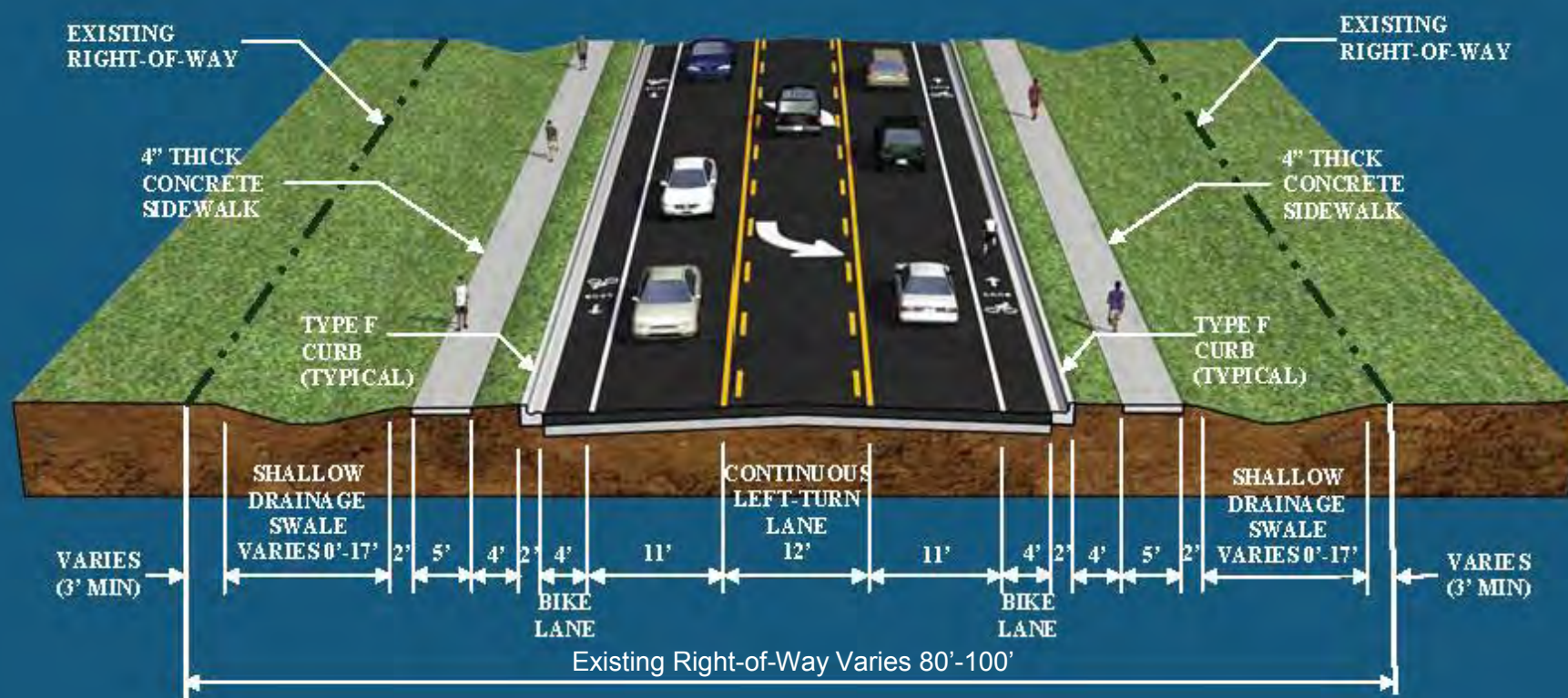
2-LANE URBAN UNDIVIDED ROADWAY WITH CURB  
DESIGN SPEED = 45 MPH  
TYPICAL SECTION (N.T.S.)

Exhibit 2.1

**Existing Typical Section**



## PROPOSED SUNSET POINT ROAD FROM DOUGLAS AVE TO WEST OF HIGHLAND AVE



**PROPOSED 3-LANE ROADWAY**  
**DESIGN SPEED = 45 MPH**  
**TYPICAL SECTION (N.T.S.)**

Exhibit 2.2

**Proposed Typical Section**



## 2.4 Pedestrian and Bicycle Accommodations

Concrete sidewalks are provided along Sunset Point for a short distance west of Betty Lane. There are no pedestrian accommodations on the existing bridge crossing over Spring Branch Creek. However, a temporary steel truss pedestrian bridge has been constructed over Spring Branch Creek to the south of the existing bridge to provide pedestrians a means of crossing the creek. The residential character of the surrounding land uses and the nearby Calvin A. Hunsinger, Sandy Lane Elementary, and Sunset Point Christian schools create significant pedestrian volumes as evidenced by well-worn foot paths on both sides of the roadway. Bicycle lanes are not currently provided within the project limits.

There is a sidewalk project (PID 000372A) that will provide a continuous sidewalk along the south side of Sunset Point Road throughout project limits. This project should construct these improvements prior to construction of the intersection and bridge improvements.

The proposed typical section will retain and/or reconstruct 5-foot sidewalks along both sides of the roadway west of Betty Lane and along the south side to the east. The temporary steel truss pedestrian bridge will be removed with the construction of the new bridge culvert. Four-foot bicycle lanes will be provided on both sides of Sunset Point Road.

## 2.5 Transit Accommodations

Pinellas Suncoast Transit Authority (PSTA) has bus services within the project corridor on both Sunset Point Road and North Betty Lane. These services include bus line 66 running east/west on Sunset Point Road, and bus line 78 running north/south on North Betty Lane. There are two bus stops located within the project limits. The proposed improvements along this corridor may involve relocation of these bus stops. Coordination efforts should be made with PSTA during final design to provide appropriate pads and shelters along the roadway design as well as accommodations during construction.

## 2.6 Right-of-Way

The typical right-of-way width throughout the project limits varies from 80 to 100 feet. The existing right-of-way widths are shown in **Table 2.1**.

**Table 2.1 – Existing Right-of-Way Widths**

Segment	Right-of-Way Width
West of North Betty Lane	80 ft.
North Betty Lane	60 ft.
East of North Betty Lane	80 – 100 ft.

## **2.7 Bridge**

The Sunset Point Road bridge (No. BR0003) over the Spring Branch Tributary of Stevenson Creek is located approximately 170 feet west of North Betty Lane. The structure is a cast-in-place concrete arch culvert, with a span length of 19 feet and a width of approximately 22 feet. The typical section of the bridge consists of two travel lanes with no shoulders and a clear roadway width of approximately 20'-9" with 8" wide concrete barriers. Existing bridge plans are not available, and the year of construction is unknown. Based upon substandard lane widths and substandard traffic barriers, the bridge is functionally obsolete. A recent Bridge Replacement Study dated March 2012 evaluated rehabilitation versus replacement options and recommended removal of the existing bridge and construction of a new structure.

The proposed intersection improvement project at Sunset Point Road and North Betty Lane will increase the width of the roadway and also provide bicycle and pedestrian accommodations. The proposed typical section consists of two thru lanes, a turn lane, bicycle lanes, and sidewalks. The existing structure would therefore need to be widened to both sides in order to accommodate the proposed roadway typical section. The proposed overall new bridge width is 64'-2".

There is a prefabricated truss pedestrian bridge (No. PB0015) located immediately to the south of the vehicular bridge which currently accommodates pedestrian traffic. The pedestrian bridge is approximately 110-feet long with approximately 21-feet of lateral separation from the vehicular bridge. This bridge will be impacted by the construction of the new bridge. Additionally, pedestrians will be accommodated on the new structure. The truss will need to be removed prior/concurrent with the new bridge construction.

### 3.0 DESIGN CRITERIA

The selection of design criteria for this project was based on numerous factors including facility type, traffic projections, desired level of service, and roadway classification. Sunset Point Road has an Urban Minor Arterial design functional classification. The roadway is currently posted at 35 mph. The design speed approved and evaluated in the Preliminary Engineering Report prepared by American Consulting Engineers of Florida, LLC for project no. 920476, dated November 2009 was 45 mph.

The proposed improvements for Sunset Point Road follow the latest Pinellas County and Florida Department of Transportation design standards. The design standards utilized in this project are documented and contained in the *Design Criteria Memorandum for Improvements to Sunset Point Road*.

The Standards, manuals, and guidelines to be used in this project include:

- “FDOT Plans Preparation Manual”, January 2013
- “Manual of Uniform Minimum Standards for Design Construction and Maintenance for Streets and Highways”, May 2011, a.k.a. “Florida Greenbook”
- “A Policy on Geometric Design of Highways and Streets”, AASHTO, 2011
- “Florida Intersection Design Guide”, FDOT, 2013
- “Drainage Manual”, FDOT, January 2013
- “Design Standards”, FDOT, 2013, a.k.a. “Standard Indices”
- Pinellas County Land Development Code (LDC)
- “TR-55” Technical Release – 55, United States Department of Agriculture, Natural Resources Conservation Service (Urban Hydrology for Small Watersheds)
- Pinellas County Department of Public Works Standard Technical Specifications for Roadway and Related Construction
- Southwest Florida Water Management District (SWFWMD) Environmental Resource Permit (ERP) Basis of Review (BOR), December 2011
- LRFD Bridge Design Specifications, 6<sup>th</sup> Edition (2012)

- Manual for Condition Evaluation and Load and Resistance Factor Rating (LRFR) of Highway Bridges, 2<sup>nd</sup> edition with 2011 interim
- FDOT Structures Design Manual, January 2013

A Design Criteria Summary Table is included in Appendix A.



## **4.0 ENVIRONMENTAL**

### **4.1 Land Use**

The predominant existing land use along the project corridor is residential with some commercial uses. The commercial and retail businesses located in the project corridor include Auto Body Unlimited, Inc., Tech-One Auto Repair, and Better Than Dirt. Single story apartment buildings and single family houses are also found within the project corridor. In addition to the commercial and residential uses, Calvin A. Hunsinger and Sandy Lane Elementary schools are located in the southeast section of the project corridor.

### **4.2 Wetlands**

An environmental scientist field-delineated the wetlands and surface waters located within the Study Area during field reviews in July 2012. Wetlands and other surface water (OSW) boundaries within the project area were delineated in accordance with guidelines found within the 1987 U.S. Army Corps of Engineers Wetlands Delineation Manual (Technical Report – Y-87-1) utilizing the USACOE/USEPA Rapanos Guidance and Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region (Version 2.0), and Chapter 62-340, F.A.C. – Delineation of the Landward Extent of Wetlands and Surface Waters.

Four (4) wetland and/or surface water features were identified in the Study Area. A brief description of each is presented in the following section. The location and boundaries of these areas are provided in **Exhibit 4.1**.

#### ***SW-1***

SW-1 is a small tributary (Spring Branch) to Stevenson Creek, which flows out to St. Joseph's Sound. SW-1 crosses Sunset Point Road in a north-south orientation, west of Betty Lane. North of Sunset Point Road, it angles to the northeast and crosses North Betty Lane via a box culvert. South of Sunset Point Road, it angles to the southwest and approximately 0.5 miles it empties into Stevenson Creek (a designated Outstanding Florida Water). Within the Project Study Area, this surface water has approximately 1:1 side slopes armored with concrete/sand bags, poured concrete, and broken concrete riprap. There are only small portions of vegetated bank. During the 2009 PD&E study, it was determined that SW-1 in the vicinity of Sunset Point Road is not sovereign submerged land.

#### ***WL-1/OSW-1***

WL-1 is a Pinellas County mitigation site, located east of Betty Lane on the north side of Sunset Point Road. The mitigation site is a forested area with an open water component. On the east side of wetland, the mitigation site is connected to a roadside ditch. This ditch portion of the wetland area would be considered an Other Surface Water (OSW). It is a manmade feature excavated for the conveyance of water as part of the roadway stormwater management system. A small portion of the ditch extends to the east of a

culverted driveway connection. OSW-1 connects to OSW-2 via culvert under Sunset Point Road.

### **OSW-2**

OSW-2 is a manmade ditch on the south side of Sunset Point Road, west of Kings Highway. It is a manmade feature excavated for the conveyance of water as part of the roadway stormwater management system and would also be considered an Other Surface Water. OSW-2 connects to OSW-1 via culvert under Sunset Point Road.

### **WL-2**

WL-2 is located just to the south of OSW-2 and is separated by a small berm. W3 is a depressional area consisting of Carolina willow.

## **4.3 Protected Species**

The Study Area was surveyed for habitat that has the potential to include protected species. Surveys, using pedestrian transects, were performed during field reviews in July 2012. Areas of preferred foraging habitat for several protected wading bird species are present within the project area. The project is located within the 15-mile Core Foraging Areas of a documented wood stork (*Mycteria americana*) rookery. Habitat Management Guidelines for the Wood Stork require that any alteration to wetlands within the CFA be compensated within the CFA. While small foraging areas utilized by these species may be affected by this project, there will be no permanent impacts to nesting areas or rookeries.

The eastern indigo snake (*Drymarchon corais couperi*) utilizes a wide variety of habitats ranging from mangrove swamps to xeric scrub communities. The eastern indigo snake prefers upland/wetland ecotone breaks for feeding. Due to available habitat within the project corridor, standard protective measures are recommended to be implemented during construction to minimize any impact.

## **4.4 Permitting**

Several agencies regulate wetlands within the Study Area. These agencies include the U.S. Army Corps of Engineers (USACOE) and the Southwest Florida Water Management District (SWFWMD). Other agencies, including the U.S. Fish and Wildlife Service (USFWS), the U.S. Environmental Protection Agency (USEPA), and the Florida Fish and Wildlife Conservation Commission (FFWCC), review and comment on wetland permit applications. In addition, the Florida Department of Environmental Protection (FDEP) regulates stormwater discharges from construction. It is anticipated that the following permits will be required for this project:

<b><u>Permits/Licenses</u></b>	<b><u>Issuing Agency</u></b>
Section 404 Dredge and Fill Permit	USACOE
Environmental Resource Permit (ERP)	SWFWMD
National Pollutant Discharge	FDEP
Elimination System (NPDES) Permit	

The complexity of the permitting process will depend greatly on the degree of the impact to jurisdictional areas. A Nationwide permit will likely be required from the USACOE. Nationwide permits (NWPs) are issued for minor activities if the conditions of the appropriate permit type are met. Nationwide Permit 14 for Linear Transportation Projects allows no greater than 1/2-acre of impact to waters of the United States. Mitigation will be required for wetland impacts.

SWFWMD requires an Environmental Resource Permit (ERP) when construction of any project results in the creation of a new, or modification of an existing surface water management system or results in impacts to waters of the State or isolated wetlands. In addition to potential wetland impacts, SWFWMD reviews water quality issues relating to the operation of the proposed project and water quantity attenuation resulting from project related changes in land use. As with USACOE permits, the complexity associated with the ERP permitting process will depend on the size of the project and/or the extent of wetland impacts. Based on the limited impact to wetlands (less than 1 acre), a general ERP will be required by SWFWMD. Mitigation will be required for wetland impacts.

Federal law 40 CFR Part 122 prohibits point source discharges of stormwater associated with industrial activity, including certain construction activities pursuant to 40 CFR 122.26(b)(14)(x), to waters of the United States without a National Pollutant Discharge Elimination System (NPDES) permit. Under the State of Florida's delegated authority to administer the NPDES program (FDEP), operators that have stormwater discharge associated with industrial activity to surface waters of the State must file for and obtain either coverage under an appropriate generic permit contained in Chapter 62-621, Florida Administrative Code (F.A.C.), or an individual permit issued pursuant to Chapter 62-620, F.A.C. A major component of the NPDES permit is the development of a Stormwater Pollution Prevention Plan (SWPPP). The SWPPP identifies potential sources of pollution that may reasonably be expected to affect the quality of stormwater discharges from the site and discusses good engineering practices that will be used to reduce the pollutants.

Depending on the types of permits needed from the regulatory agencies, the permitting process can range from 60 to 180 days.

#### **4.5 Potential Contamination Sites**

*A Phase I Level I Environmental Assessment Hazardous Materials Evaluation Report* was previously prepared by American Consulting Engineers of Florida, LLC, in March 2008. The report outlines the potential contamination sites located within the project limits.

A total of four (4) sites were identified within the project limits as potential contamination sites. The sites were rated either **None**, **Low**, **Medium** or **High** for their potential to contain petroleum or hazardous materials contamination. Three (3) sites received a rating of **Low**, and one (1) site received a rating of **None**, based upon the current and past existence of hazardous materials or petroleum products and the potential of the material/product to be encountered during proposed roadway construction activities.

Sites assigned a rating of **None** or **Low** are not likely to cause any contamination impacts to the project corridor and no further assessments are recommended for these sites.

The four (4) sites identified are summarized in **Table 4.1**. The Map ID numbers correspond to **Exhibit 4.2**.

**Table 4.1 – Summary of Potential Contamination Sites**

<b>Map ID</b>	<b>Site Name</b>	<b>Site Address</b>	<b>Risk Rating</b>	<b>Government Database</b>
2	XCEL 825	1201 Sunset Point Rd	Low	LUST, Spills80, UST
3	John's Auto Body	1300 Sunset Point Rd	Low	FINDS, RCRAIN
4	City of Clearwater Lift Station 24	1351 Sunset Point Rd	Low	LUST, Spills80, UST
5	Sunset Point Baptist School	1390 Sunset Point Rd	None	FINDS

Further environmental assessment and testing based on the recommendations of the Level I report should be conducted during the design phase.



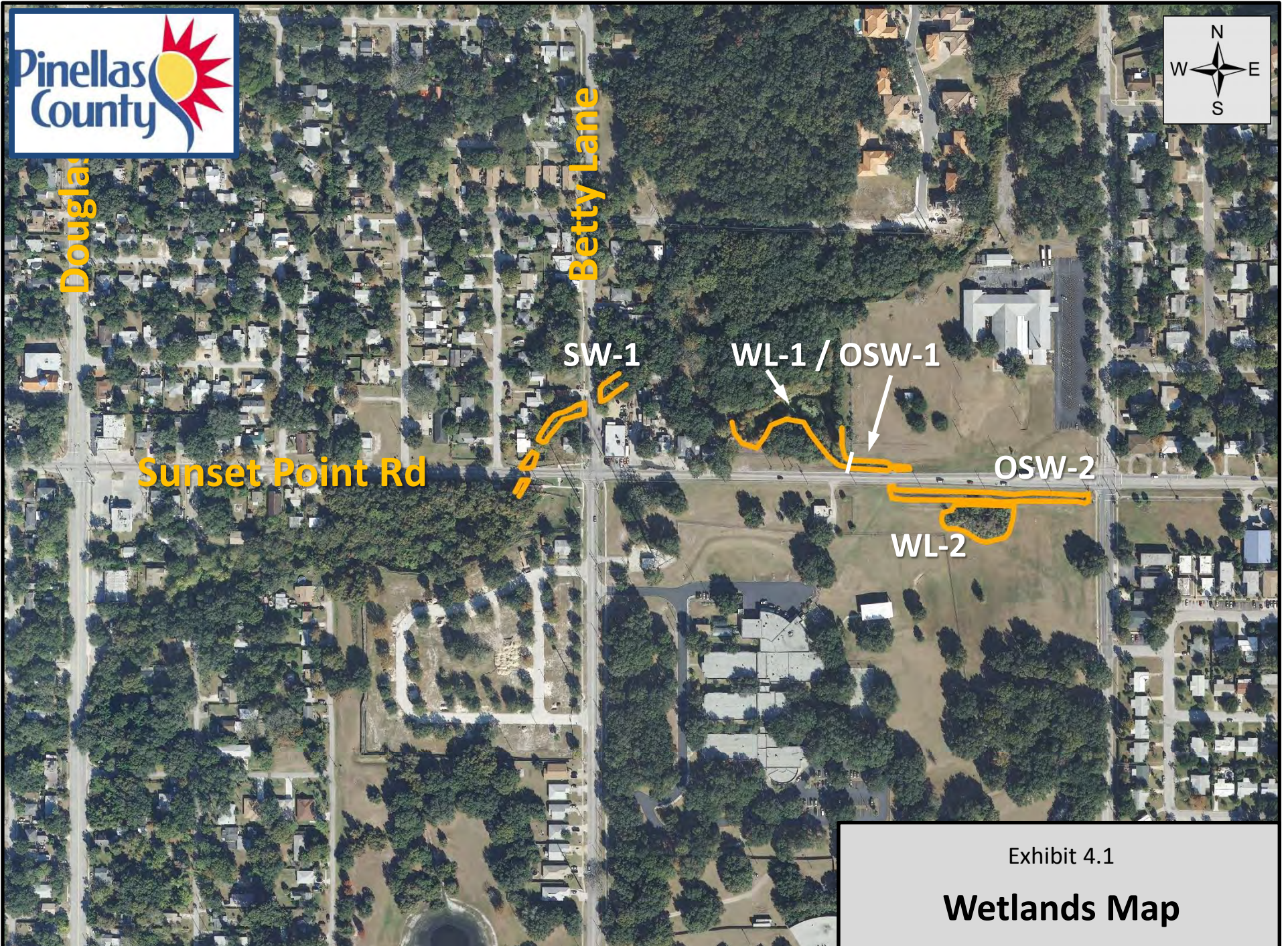


Exhibit 4.1  
**Wetlands Map**





Exhibit 4.2  
**Potential Contamination Sites**



## 5.0 TRAFFIC ANALYSIS

### 5.1 Existing Traffic Conditions

A Traffic Technical Memorandum (TTM) was prepared by American Consulting Engineers of Florida, and submitted to Pinellas county Public Works in May 2008.

The existing conditions were determined by performing bi-directional traffic volume counts over a 72-hour period along Sunset Point Road during the week of January 14, 2008. Traffic volumes were collected during the peak season on a Tuesday, Wednesday, and Thursday. The characteristics on this 3-day period were averaged as Peak Season Weekly Average Daily Traffic (PSWADT). The PSWADT to Annual Average Daily Traffic (AADT) factor during the time period these counts were conducted is according to the latest FDOT Traffic Information CD. The PSWADT volumes collected are equivalent to the AADT volumes, and are provided in **Table 5.1**.

Manual vehicle turning movement counts (TMCs) were also collected during the week of January 14, 2008. The AM and PM peak hours of the study corridor were from 7:30 – 8:30 AM and 4:45 – 5:45 PM, respectively. The existing 2008 vehicle TMCs for the Sunset Point Rd and North Betty Lane intersection are show in **Exhibit 5.1**.

The existing Level of Service (LOS) for the intersection of Sunset Point Rd and North Betty Lane was analyzed using SYNCHRO, and the results are shown in **Table 5.2**. The existing signal timings were obtained from the City of Clearwater, and the levels of service were calculated based on AM and PM Peak Hour turning movements.

**Table 5.1 – Existing 2008 Daily Traffic Counts (Two-Way)**

Count Location (Along Sunset Point Rd)	Jan 15 2008	Jan 16 2008	Jan 17 2008	3-day Average (AADT)
Edgewater Drive to North Betty Lane	8,411	8,587	8,543	8,514
North Betty Lane to Highland Avenue	12,155	12,038	12,268	12,274

**Table 5.2 – Existing 2008 Intersection LOS**

Location	Cycle Length (sec)	Period	Delay (sec.)	LOS
Sunset Point Rd at North Betty Lane	50	AM	10.9	B
	50	PM	12.8	B

### 5.2 Future Design Year 2025 Traffic Conditions

Future traffic projections were forecasted for the design year 2025 at the intersection of Sunset Point Rd and North Betty Lane. The traffic projections were calculated by applying a calculated growth factor of 0.75% per year to the existing traffic volumes. The

projected daily traffic volumes are outlined in **Table 5.3** for both the AM and PM Peak Hours. The 2025 peak hour TMVs are shown in **Exhibit 5.2**.

**Table 5.3 – Design Year 2025 Traffic Projections (Two-Way)**

<b>Count Location (Along Sunset Point Rd)</b>	<b>AADT</b>
Edgewater Drive to North Betty Lane	9,667
North Betty Lane to Highland Avenue	13,936

The future design year 2025 LOS for the intersection of Sunset Point Rd and North Betty Lane was analyzed using the existing signal timings. The design year 2025 LOS is summarized in **Table 5.4**.

**Table 5.4 – Design Year 2025 Intersection LOS**

<b>Location</b>	<b>Cycle Length (sec)</b>	<b>Period</b>	<b>Delay (sec.)</b>	<b>LOS</b>
Sunset Point Rd at North Betty Lane	45	AM	11.7	B
	45	PM	14.4	B

### **5.3 Crash Analysis**

Crash data were previously analyzed in the 2008 TTM. Crash data were obtained in the for a three year period from the Pinellas County Metropolitan Planning Organization (MPO) for the time period extending between July 1, 2004, and June 30, 2007.

According to the data, a total of 41 crashes were reported for the western segment of Sunset Point Road, between Douglas Avenue and Kings Highway. **Table 5.5** summarizes the three-year crash history along Sunset Point Road.

The TTM concluded that the cause of these crashes may be attributed to the lack of exclusive turn lanes along Sunset Point Road and that a majority of the recorded crashes could be avoided with the installation of a continuous middle left turn lane.

**Table 5.5 – Crash Summary**

<b>Roadway Segment along Sunset Point Road</b>	<b>2004 July-Dec</b>	<b>2005</b>	<b>2006</b>	<b>2007 Jan-June</b>	<b>Three Year Total</b>
Douglas Avenue to North Betty Lane	<b>5</b>	<b>13</b>	<b>10</b>	<b>3</b>	<b>31</b>
North Betty Lane to Kings Highway	<b>2</b>	<b>6</b>	<b>2</b>	<b>0</b>	<b>10</b>



## 5.4 Recommended Improvements

The existing and future overall capacity and Level of Service (LOS) for the Sunset Point Rd and North Betty Lane intersection meets the Pinellas County LOS standard “C”. The following are the proposed improvements for the Sunset Point Rd and North Betty Lane intersection:

- Add sidewalks and bike lanes to better accommodate pedestrian and bicycle travel through the intersection.
- Provide and upgrade pedestrian features at the traffic signal.
- Provide additional eastbound and westbound left turn lanes for a staged implementation of the recommended 3-lane typical section from the 2009 PD&E study.

Recommend storage lengths for the eastbound and westbound left turn lanes at the Sunset Point Road and North Betty Lane intersection were determined using the FDOT Plans Preparation Manual, Volume 1. These recommended storage lengths are shown in **Table 5.6**.

**Table 5.6 – Recommended Storage Lengths**

<b>Sunset Point Road at Betty Lane</b>	<b>Recommended Left Turn Lane Storage (ft)</b>
Eastbound Approach	<b>300</b>
Westbound Approach	<b>250</b>

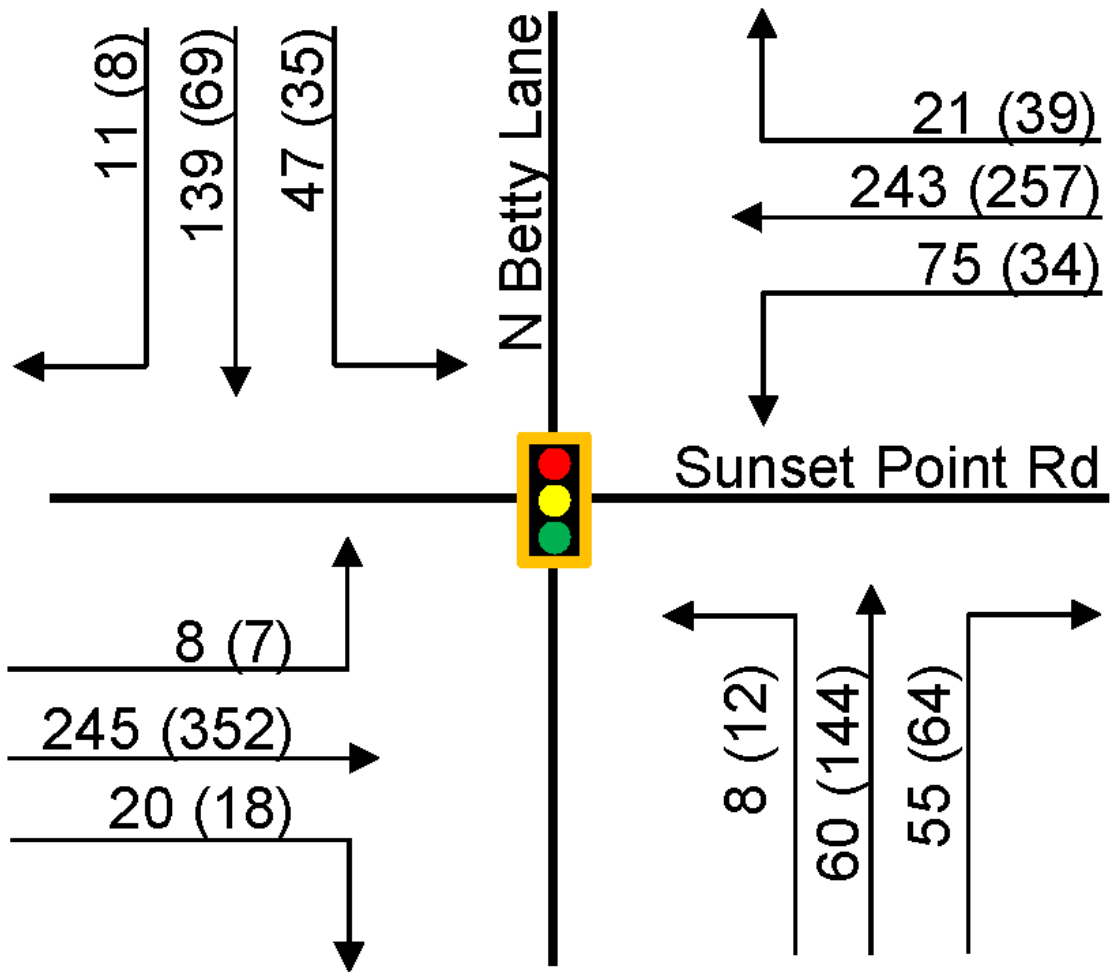


Exhibit 5.1  
Existing 2008 Peak Hour  
Turning Movement Volumes

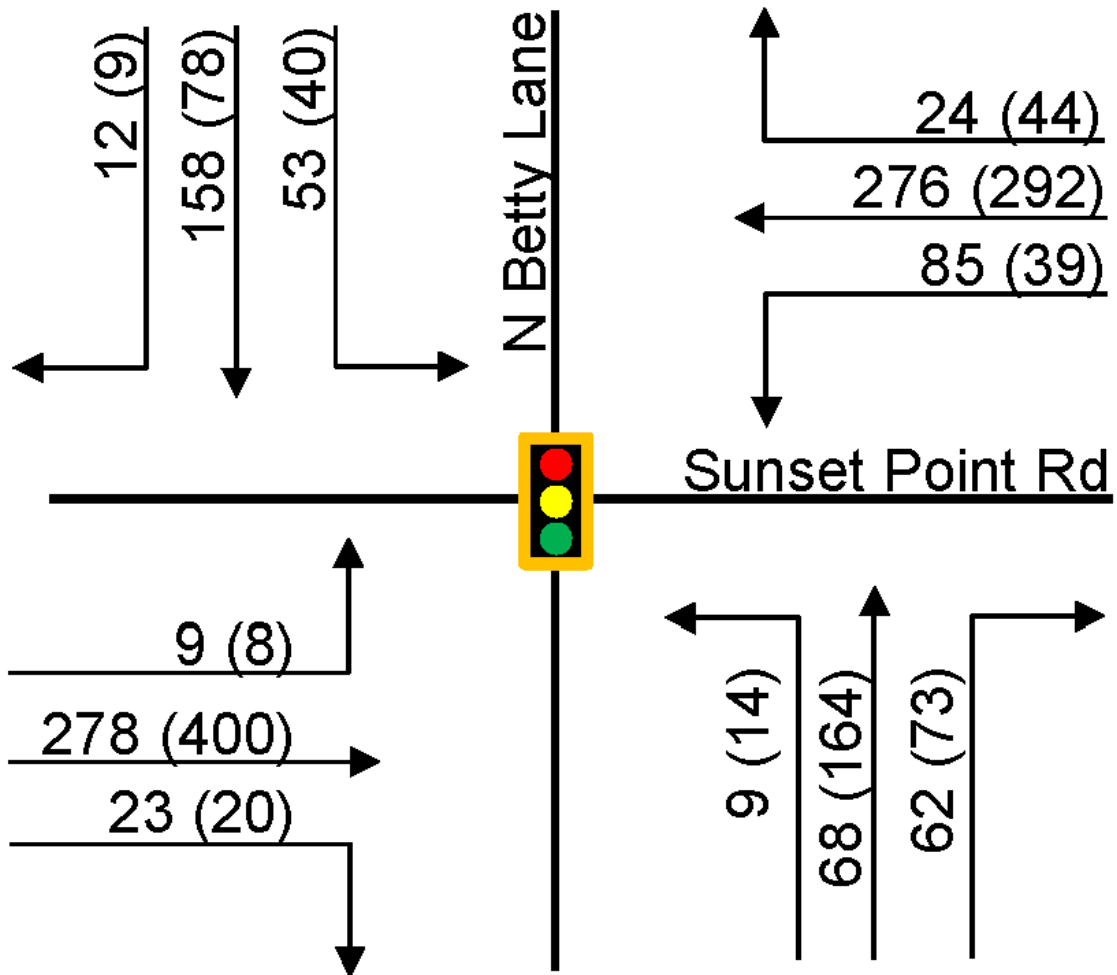


Exhibit 5.2  
**Future 2025 Peak Hour  
Turning Movement Volumes**

## **6.0 DRAINAGE CONSIDERATIONS**

The project is located within the Stevenson Creek Watershed in Pinellas County, Florida. Flow is generally toward the southwest to the Gulf of Mexico.

### **6.1 Existing Drainage**

Within the project limits, Sunset Point Road traverses one major tributary; Spring Branch Tributary bisects the existing roadway and functions as a basin divide. Sunset Point Road crosses over the Spring Branch Tributary just west of North Betty Lane. The existing two-lane bridge is a cast-in-place concrete arch culvert, in poor structural condition. The Spring Branch Tributary flows southwest into Stevenson's Creek before its ultimate outfall into the Gulf of Mexico. The open basins along Sunset Point Road currently drain to curb and gutter systems that discharge into the Spring Branch Tributary. Also, the north and south portion of North Betty Lane both have closed drainage systems that collect and convey offsite stormwater into the Spring Branch Tributary. Please refer to **Exhibit 6.1** for a detailed Drainage Basin Map.

As shown on the Floodplains Map in **Exhibit 6.2**, much of the project area is located in Zone AE, with base flood elevations determined (EL.14 to EL 15). In addition, according to Pinellas County Highway Division personnel, there have been significant localized flooding problems where Chenango Avenue and Macomber Avenue intersect with Sunset Point Road west of N Betty Lane which will be addressed by this project.

### **6.2 Proposed Drainage**

A stormwater management facility will be required for water quality, water quantity and floodplain compensation. Pinellas County has already acquired the parcel on the NW corner of Sunset Point Road and North Betty Lane. In addition, they are currently working to acquire the adjacent residential parcel to the west.

This project will collect drainage in a closed drainage system which will discharge to the proposed pond. All roadway inlets will be standard FDOT inlets and accessible from the edge of the roadway. This will ensure that the inlet structure will be readily accessible and large enough to enter for cleaning and inspection. In addition, inlets will be spaced so that spread standards are met. Ditch bottom inlets used to collect overland flow will also be standard FDOT inlets and placed within areas easily accessible from the roadway. Ditch slopes will be 4:1 (horizontal to vertical) or flatter to allow vehicles to safely traverse the slope and ease of maintenance. Slope of drainage pipes will be designed at no less than the minimal slope to allow self-cleansing and have a minimum diameter of 18-inches to allow cleaning in the event sediment collects within the system. The drainage design will allow the County to use standard maintenance procedures for upkeep of the system.

As part of the proposed roadway improvements, the existing bridge over the Spring Branch Tributary must be widened. In an effort to identify any increased velocities upstream or downstream and any potential flooding impacts as a result of the bridge

replacement, a bridge hydraulic analysis is currently being conducted by Interflow Engineering to determine the “ultimate” waterway opening based on assumed future conditions of larger waterway openings downstream and the restricted waterway opening size that will be constructed with the new bridge culvert.

### **6.3 Permitting**

The Southwest Florida Water Management District (SWFWMD) will require a General Environmental Resource Permit (ERP) for the impacts to the Spring Branch Tributary and addition of impervious area within the existing right-of-way. SWFWMD will require demonstration that water quality and water quantity criteria have been met.

Correspondence with the FDEP indicates that the Spring Branch Tributary in the vicinity of Sunset Point Road is not sovereign submerged land. As such, bridge widening will not require sovereign submerged land authorization from the Florida Board of Trustees.

Florida’s NPDES stormwater program requires a Generic Permit for stormwater discharge from construction activities that disturb more than 5 acres of land. The construction plans will include preparation of a Stormwater Pollution Prevention Plan (SWPPP) which will outline guidelines for the Contractor and can be used by the Contractor to apply for the Notice-of-Intent (NOI) to utilize the State of Florida’s Generic Permit.



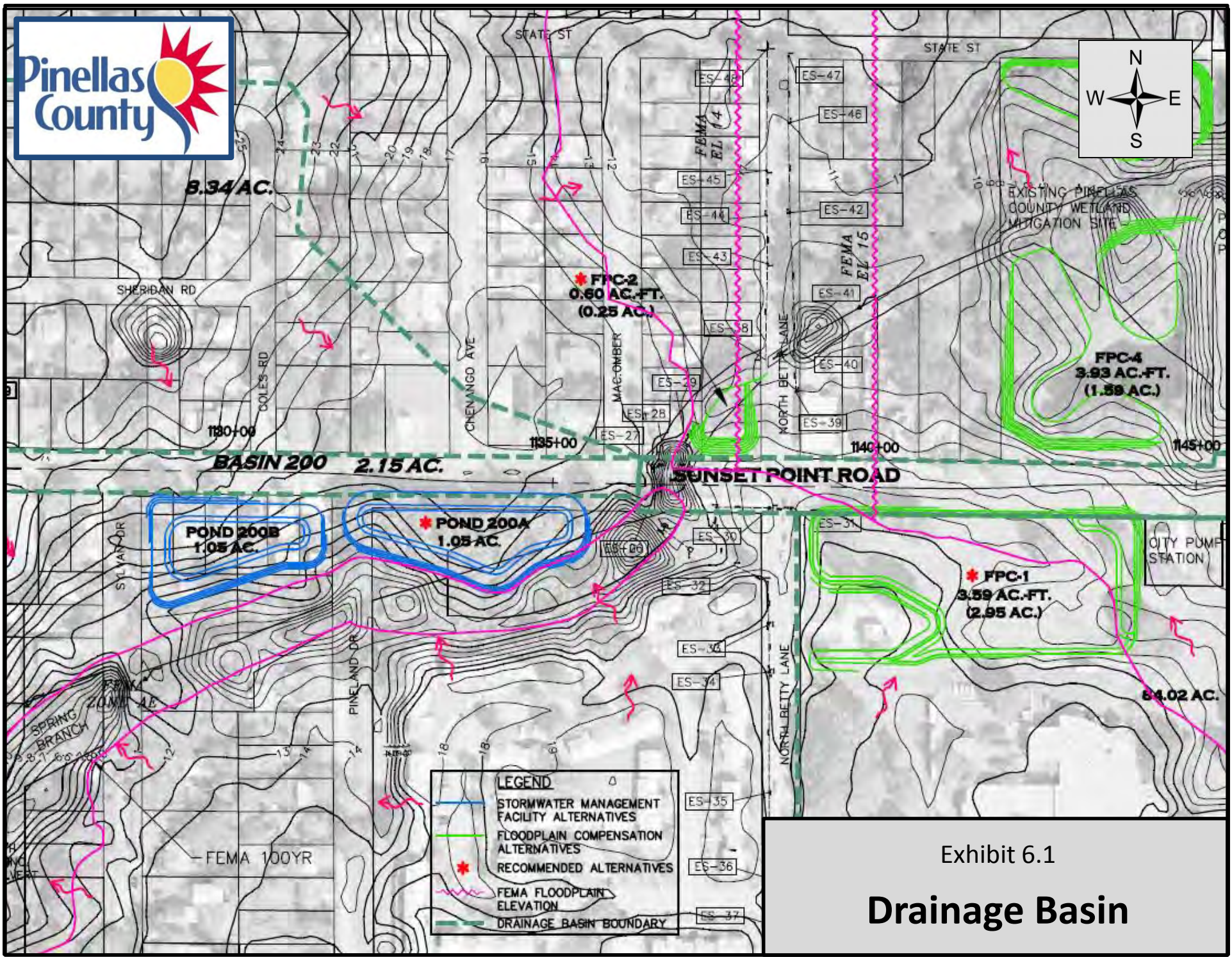


Exhibit 6.1

# Drainage Basin





Exhibit 6.2



## **7.0 UTILITIES**

### **7.1 Existing Utilities**

The following utility owners have facilities within the project limits:

- Cable Television (Brighthouse Networks)
- Gas (City of Clearwater)
- Water (City of Clearwater)
- Sanitary Sewer (City of Clearwater)
- Electric Transmission (Progress Energy)
- Electric Distribution (Progress Energy)
- Telephone (Verizon)
- Telephone (Knology Broadband)

### **7.2 Potential Utility Relocations**

Construction of the new bridge over Spring Branch Creek will likely impact several existing utilities including a waterline and buried telephone on the south side, and several buried telephone lines on the north side.

New storm sewer east of N. Betty Lane may potentially impact buried telephone on the north side and a waterline and buried telephone on the south side.

Additionally, the roadway widening will impact the Progress Energy electric distribution poles and associated overhead joint utilities along the south side of Sunset Point Road.

The Progress Energy Transmission line running along the west side of N. Betty Lane will need to be considered when determining the location of traffic signal foundations. Drilled shaft construction may be constrained by the overhead transmission lines.

## **8.0 DRIVEWAYS AND ACCESS MANAGEMENT**

There are several existing driveways along the north side of Sunset Point Road east of N. Betty Lane that are poorly defined. The business in the northeast corner of the intersection is currently parking on the public right-of-way. The face of the building is offset approximately 10-feet from the R/W line and 30-feet from the proposed edge of pavement.

Sufficient space exists to accommodate parking of vehicles while not obstructing travel along the sidewalk along this stretch of roadway. Further more detailed analysis will need to be done to determine the extent of parking that might be considered to remain on the existing right-of-way and where the driveway curb cuts might be allowed.

## **9.0 CONSTRUCTION DETOURS**

During the construction of the new Sunset Point bridge culvert across Spring Branch Creek, Sunset Point Road will need to be closed to traffic. To accommodate vehicles traveling west on Sunset Point Road, the recommended detour will reroute traffic north of the bridge culvert along N. Betty Lane to Union Street, and back south along Douglas Avenue to Sunset Point Road. For vehicles traveling east on Sunset Point Road, the recommended detour will reroute traffic south along Douglas Avenue to Overbrooke Avenue, then north along N. Betty Lane to Sunset Point Road. These recommended detours are depicted in **Exhibit 9.1**.

The timing and duration of these detours will need to be closely coordinated with the local schools and with PSTA. These duration restrictions may influence the decision on what type of bridge structure might be best for this location depending upon speed of construction. It is recommended that coordination with the schools occur before the Phase II bridge assessment report is completed.



**APPENDIX A**  
**DESIGN CRITERIA SUMMARY TABLE**

DESIGN CRITERIA REPORT SUMMARY TABLE					
Sunset Point Road (County Road 576) at North Betty Lane, Pinellas County					
DESIGN ELEMENT	DESIGN CRITERIA	STANDARD REFERENCE	EXISTING CONDITIONS	PROPOSED DESIGN	VARIATION OR EXCEPTION REQUIRED (YES/NO)
<b>General</b>					
Functional Classification	Urban Minor Arterial	1, C.2		Urban Minor Arterial	No
Posted Speed (MPH)	35			35	No
Design Speed (MPH)	45	1, Table 3-1		45	No
Design Vehicle	P (Passenger Car) SU or BUS for turns	2		P (Passenger Car) SU or BUS for turns	No
Design Period	20 years after opening	2		20 years after opening	No
<b>Cross Section Data</b>					
Number of Through Lanes	2	N/A		2	No
Travel Lane Widths	11'	1, Table 3-7		11'	No
Auxiliary Lane (Turn Lanes)	10'	1, Table 3-7		12'	No
Bicycle Lane Width	4'	1, Figure 9-1		4'	No
Median Widths	15.5'	1, Table 3-11		N/A	No
Recoverable Terrain (Clear Zone)	4' (min: 1.5')	1, Table 3-12		4' (min: 1.5')	No
Border Width	1.5'	1, Chapter 19 E.10		1.5'	No
Cross Slope (travel lanes)	0.015% - 0.04%	1, Chapter 3, C.7.b.2		0.015% - 0.04%	No
Front Slopes	1:4	1, Chapter 3 C.7.f.2		1:4	No
Back Slopes	1:3	1, Chapter 3 C.7.f.2		1:3	No
<b>VERTICAL GEOMETRY</b>					
Minimum K value for Crest Vertical Curves	98	1, Table 3-6		98	No
Minimum Lengths of Crest Vertical Curves	135'	1, Table 3-6		135'	No
Minimum K value for Sag Vertical Curves	79	1, Table 3-6		79	No
Minimum Lengths of Sag Vertical Curves	135'	1, Table 3-6		135'	No
Stopping Sight Distance	360'	1, Table 3-6		360'	No
Passing Sight Distance	1625'	1, Table 3-6		1625'	No
Grades	6%	1, Table 3-4		0.06	No
Maximum Change in Grade Without a Vertical Curve	0.70%	1, Table 3-5		0.007	No
Minimum Vertical Clearances for Signals	16' (min: 14')	1, Chapter 3 C.7.j.4.(b)		16' (min: 14')	No
<b>HORIZONTAL GEOMETRY</b>					
Maximum Deflection Without Curve (DMS)	1°00'00"	3, Table 2.8.1A		1°00'00"	No
Length of Horizontal Curves	15V = 675' (min: 400')	3, Table 2.8.2A		15V = 675' (min: 400')	No
Maximum Curvature of Horizontal Curves	8°15'	1, Table 3-3		8°15'	No
Maximum Curvature of Horizontal Curve (Using Normal Cross Slope)	2°45'	3, Table - 2.8.4		2°45'	No
Superelevation Transition	80/20 to 50/50	3, Section 2.9		80/20 to 50/50	No
Superelevation Transition Rate	1:150	3, Table 2.9.4		1:150	No
e (max)	0.05 ft/ft	1, Table 3-3		0.05 ft/ft	No

1. "Manual of Uniform Minimum Standards for Design Construction and Maintenance for Streets and Highways", FDOT, May 2011 (aka Florida Green Book)

2. Previously approved Preliminary Engineering Report, prepared by American Engineering Consultants of Florida, LLC, November 2009

3. Plans Preparation Manual, Volume 1, January 2012

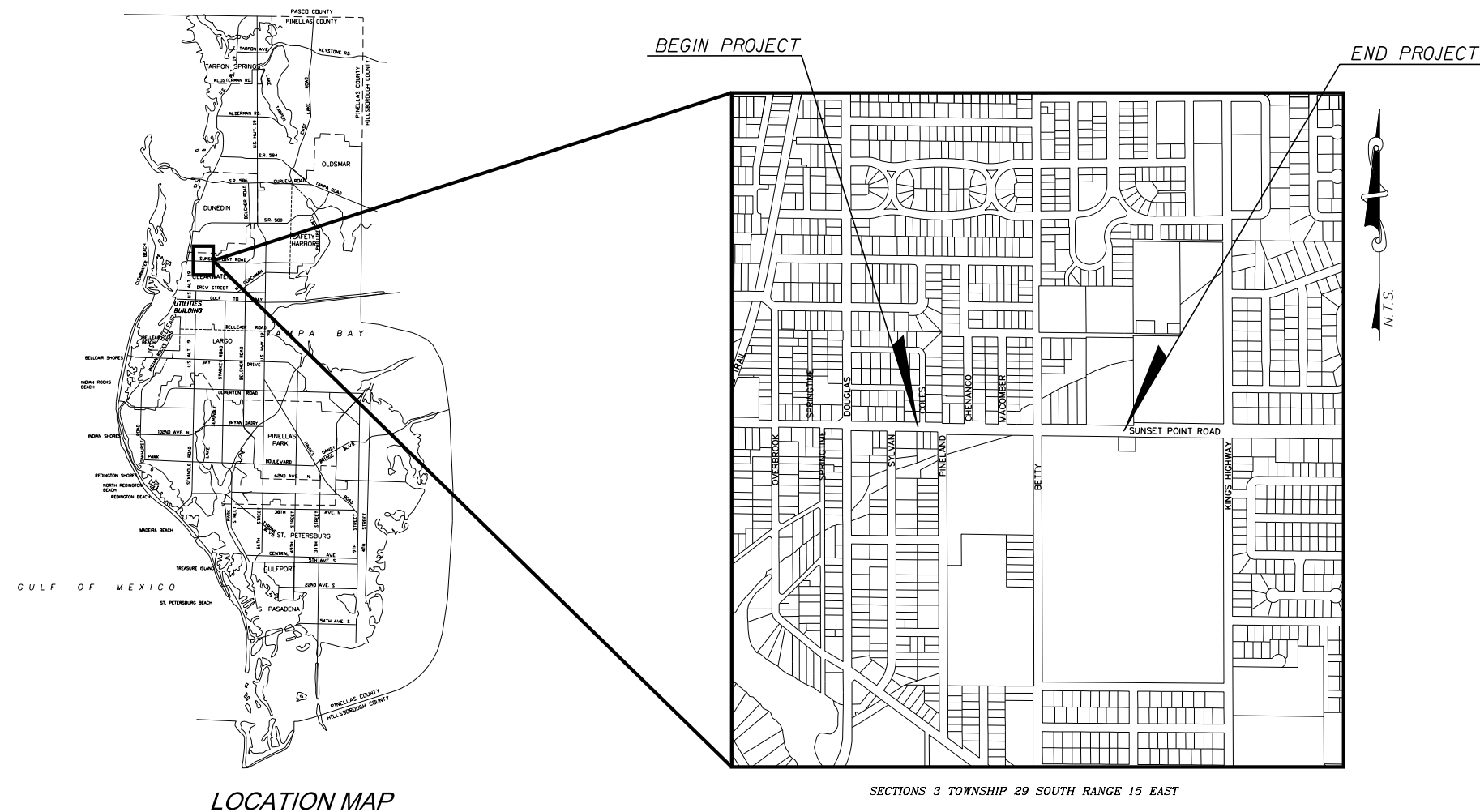
**APPENDIX B**  
**SCHEMATIC PLANS (BOUND SEPARATELY)**



# APPENDIX B: SCHEMATIC PLANS (NOT FOR CONSTRUCTION)

## SUNSET POINT (CR 576) AT NORTH BETTY LANE

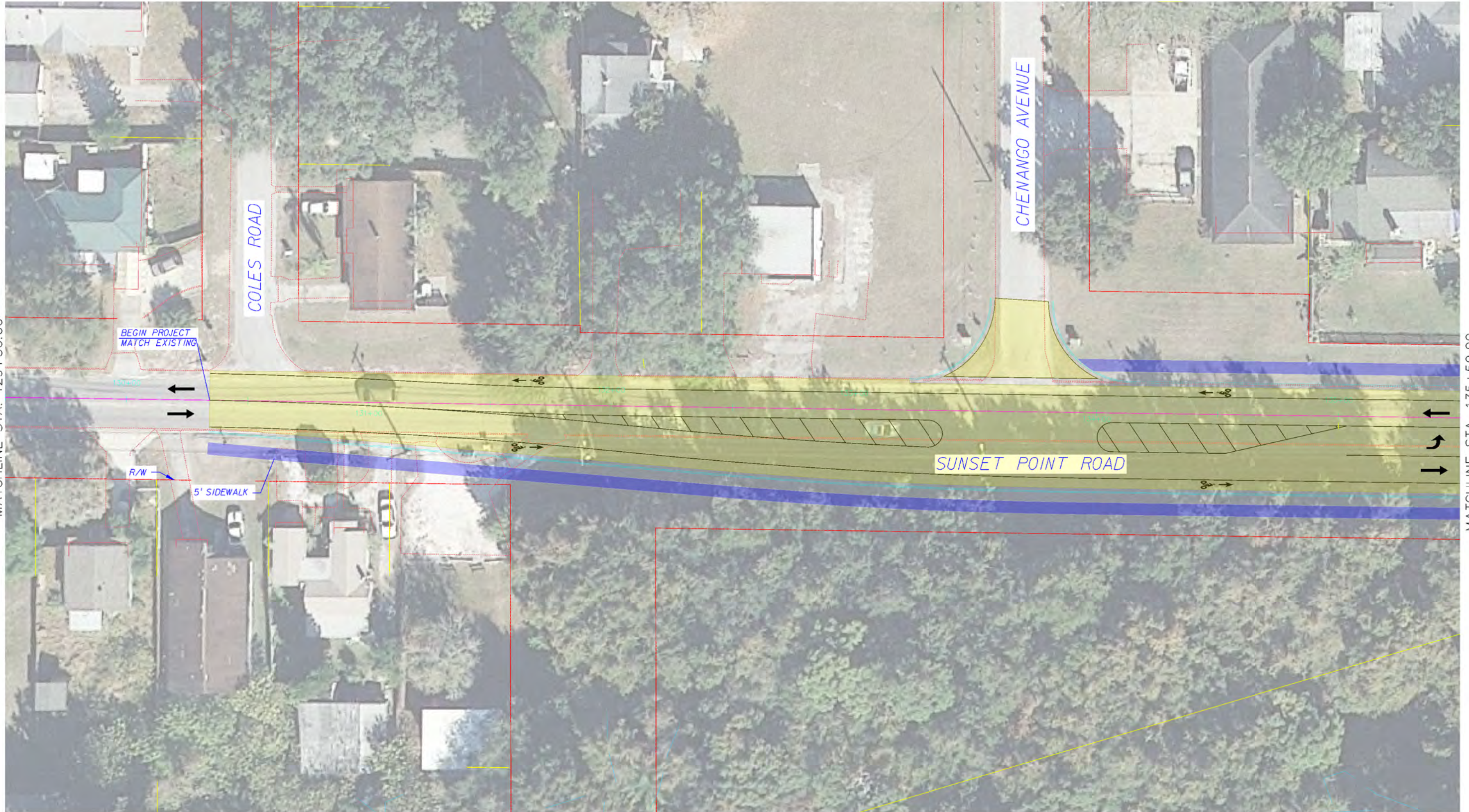
PROJECT NO. XXXX



PREPARED BY:  
**LOCHNER**  
4350 W. CYPRESS ST. SUITE 800  
TAMPA, FLORIDA 33607  
FBPR CERTIFICATE OF AUTH. #894



MATCHLINE STA. 129+50.00



MATCHLINE STA. 135+50.00

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED	####
DRAWN	####
CHECKED	####

DIVISION OF ENGINEERING  
AND TECHNICAL SUPPORT  
14 S. FT. HARRISON AVE., CLEARWATER, FL 33756

PROJECT: ####  
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DESCRIPTION:  
SUNSET POINT AT  
NORTH BETTY LANE

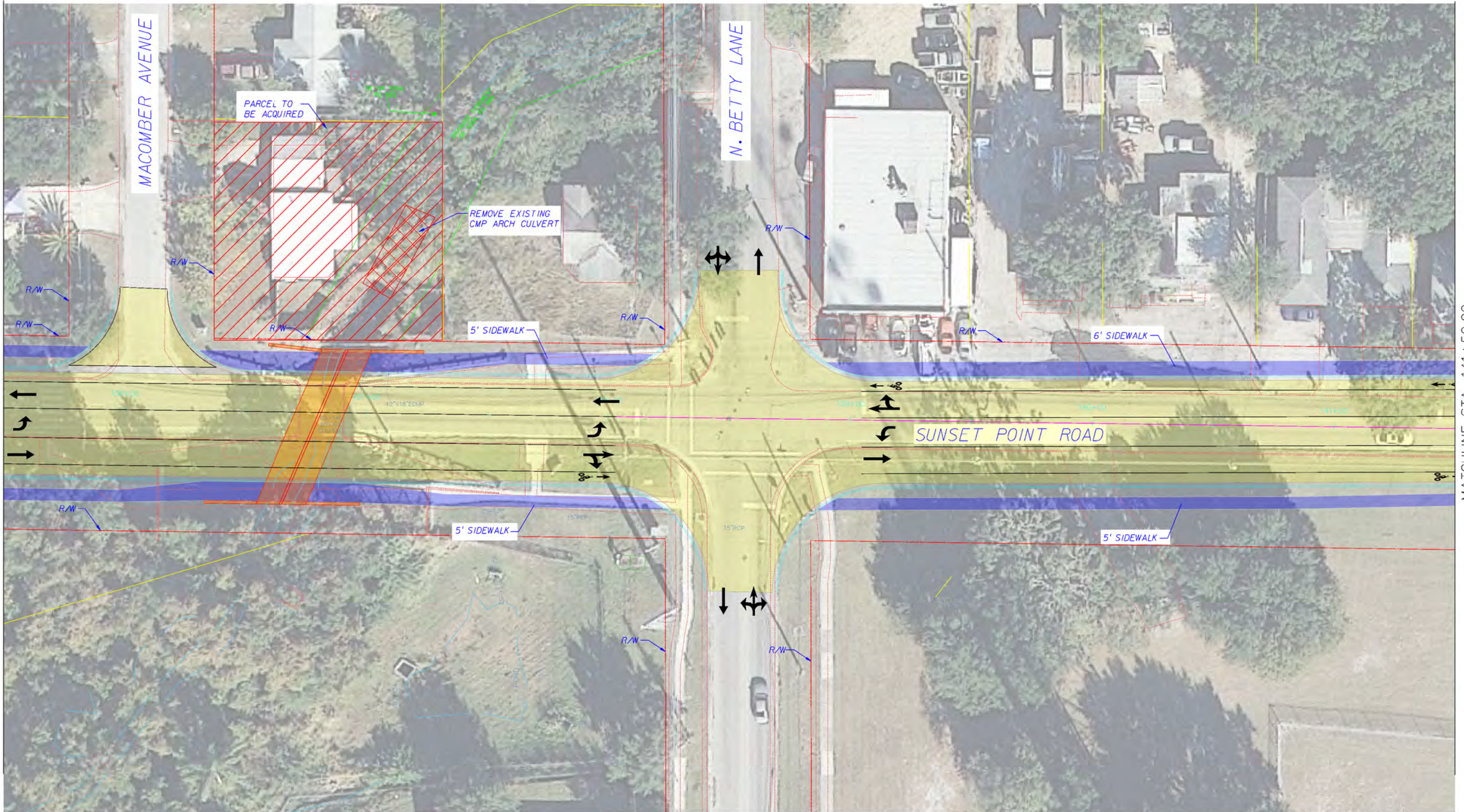
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MATCHLINE STA. 135+50.00



MATCHLINE STA. 141+50.00

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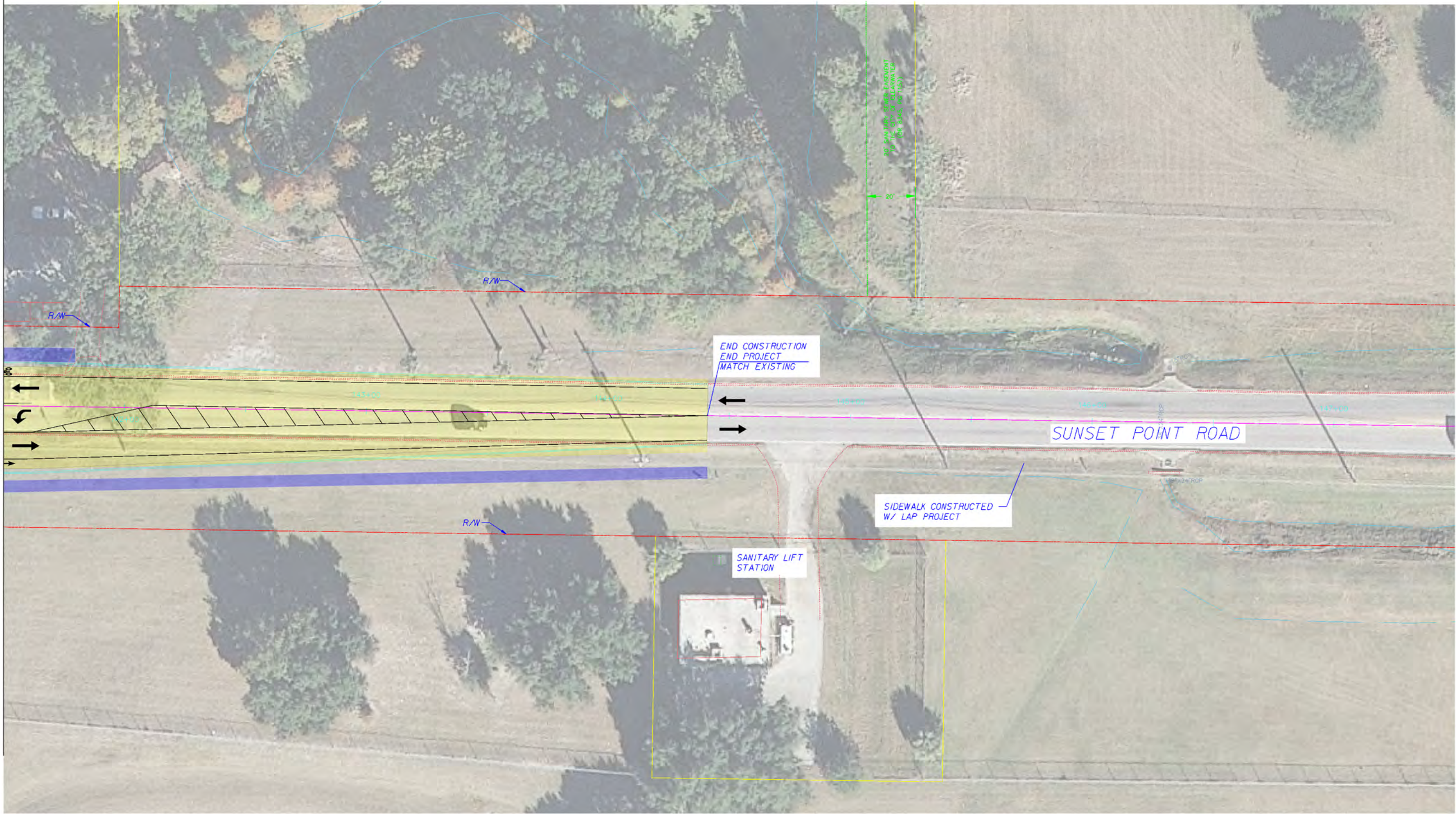
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MATCHLINE STA. 141+50.00



REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED	###
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DIVISION OF ENGINEERING  
AND TECHNICAL SUPPORT  
14 S. FT. HARRISON AVE., CLEARWATER, FL 33756

PROJECT: ###  
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DESCRIPTION:  
SUNSET POINT AT  
NORTH BETTY LANE

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