STORMWATER MANAGEMENT FACILITY (SMF) SITING REPORT

Florida Department of Transportation

District 7

I-275 (SR 93) Design Change Re-evaluation

Project Development and Environment Study
from south of 54th Avenue South to north of 4th Street North

Pinellas County, Florida

Work Program Item Segment Number: 424501-1

ETDM Project Number: 12556

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The environmental review, consultation, and other actions required by applicable federal environmental laws for this project are being, or have been, carried out by the Florida Department of Transportation (FDOT) pursuant to Title 23, Section 327 of the United States Code (23 U.S.C. § 327) and a Memorandum of Understanding dated December 14, 2016, and executed by FHWA and FDOT.

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1 Introduction

1.1 Project Description

The Florida Department of Transportation (FDOT), District Seven is conducting a Design Change Re-evaluation to evaluate and document proposed changes to the originally approved Type II Categorical Exclusion (CE) and subsequent Re-evaluation for I-275 (SR 93) from south of 54th Avenue South to north of 4th Street North in Pinellas County, Florida. A Project Development and Environment (PD&E) study was conducted for the 16.3-mile corridor to analyze the need for operational improvements and evaluate the location, conceptual design, and social, economic, and environmental effects of any proposed improvements. Following a Public Hearing held on September 29, 2015, FHWA approved the Type II CE for this project on July 15, 2016.

Following approval of the Type II CE, FDOT performed a Design Change Re-evaluation in 2017 to evaluate a change to the approved Typical Section of Segment C (from Dr. MLK, Jr. Boulevard to north of 4th Street North). The 2017 Re-evaluation assessed the repurposing of one of the two approved express lanes to accommodate the provision of three general use through lanes, one auxiliary lane, and one express lane in each direction for this segment of the study corridor. The 2017 Design Change Re-evaluation was approved by FDOT on April 26, 2017.

FDOT is currently conducting another Design Change Re-evaluation to assess impacts of accommodating improvements for a second express lane in Segment C and the addition of two express lanes in Segment B from north of I-375 to south of Gandy Boulevard. These proposed improvements would tie-in with planned improvements to the Howard Frankland Bridge (FPID 422904-2 and 422904-4). This re-evaluation also analyzes replacing the I-275 ramp bridges on 4th Street North over Big Island Gap.

The current re-evaluation also analyzes replacing the I-275 ramp bridges on 4th Street North over Big Island Gap, providing trail connections from the Howard Frankland Bridge to 4th Street North and Ulmerton Road, and ramp connection modifications at the Gandy Boulevard and Gateway Expressway interchange areas. To meet drainage and stormwater requirements, pond sites will be needed to accommodate new impervious surface due to widening to accommodate express lanes. Several of these new pond site locations will be outside of the existing right of way.

1.2 Purpose and Need

The purpose of this project is to provide for operational improvements that maximize capacity within the I-275 corridor, improve lane continuity, and connect I-275 within Pinellas County to the future network of express lanes planned for the Tampa Bay Region. Improvements are needed within the I-275 corridor to help improve existing traffic congestion, enhance safety, and better accommodate future travel demands associated with projected growth in employment and population. The addition of express lanes is included in the Pinellas County Metropolitan Planning Organization (MPO) 2040 Long Range Transportation Plan (LRTP).

I-275 is a vital link in the local and regional transportation network and serves as a critical evacuation route. As a major north-south corridor through Pinellas County, I-275 links the Tampa Bay Region with the remainder of the state and the nation supporting commerce, trade, and tourism. Preserving the operational integrity and regional functionality of I-275 is critical to the mobility and economy of the Tampa Bay Region.

1.3 Description of the Design Change

The current Design Change Re-evaluation includes a typical section change to extend two buffer separated express lanes in both directions from I-375 to north of 4th Street North, as well as a 12-ft wide outside shoulder to accommodate bus-on-shoulder operations from I-375 to Gandy Boulevard. This concept supersedes the 2017 Design Change Re-evaluation concept. The current Design Change Re-evaluation also includes trail connections from the Howard Frankland Bridge to 4th Street North and Ulmerton Road. To accommodate the new trail connection, the 4th Street North bridge over Big Island Gap will undergo either widening or reconstruction.

The Gateway Expressway interchange area will also be modified under this re-evaluation. Ramps located to the south of the Gateway area will carry drivers from northbound I-275 Express Lanes to Gateway Expressway, as well as carry drivers from the Gateway Expressway to southbound I-275 Express Lanes. In addition, access to southbound I-275 from the Gandy Boulevard interchange will be modified by connecting the westbound-to-southbound loop on ramp and the eastbound-to southbound on ramp into a frontage road system that provides one entry point onto southbound I-275. Finally, additional drainage and stormwater requirements, such as pond sites, will be needed to accommodate the new impervious surface due to the express lane widening. Several of these new pond site locations will be outside of the existing right of way.

1.4 Purpose of this Report

This Stormwater Management Facility (SMF) Siting Report has been prepared as part of the Design Change Re-evaluation to analyze stormwater treatment and attenuation requirements for the basins affected by the addition of two express lanes in Segment B from north of I-375 to south of Gandy Boulevard (Basins 11 through 20). In addition, this report includes the analysis of alternative SMF sites for basins within Segment A which required right-of-way for stormwater management (Basins 2 and 7) as determined in the Alternative Stormwater Management Facility Technical Memorandum (April 2015).

This SMF Siting Report presents potential SMF site locations for meeting applicable stormwater management criteria that are hydraulically feasible and environmentally permittable based on the best available information. Alternatives were analyzed and evaluated for the following:

- Environmental impacts including wetlands, upland habitat and protected species involvement
- Cultural resources
- Petroleum and hazardous materials contamination
- Economic factors including construction costs and estimated land costs
- Hydrologic factors such as soil types and seasonal high groundwater table (SHWT) elevations
- Floodplains
- Stormwater conveyance and hydraulic parameters

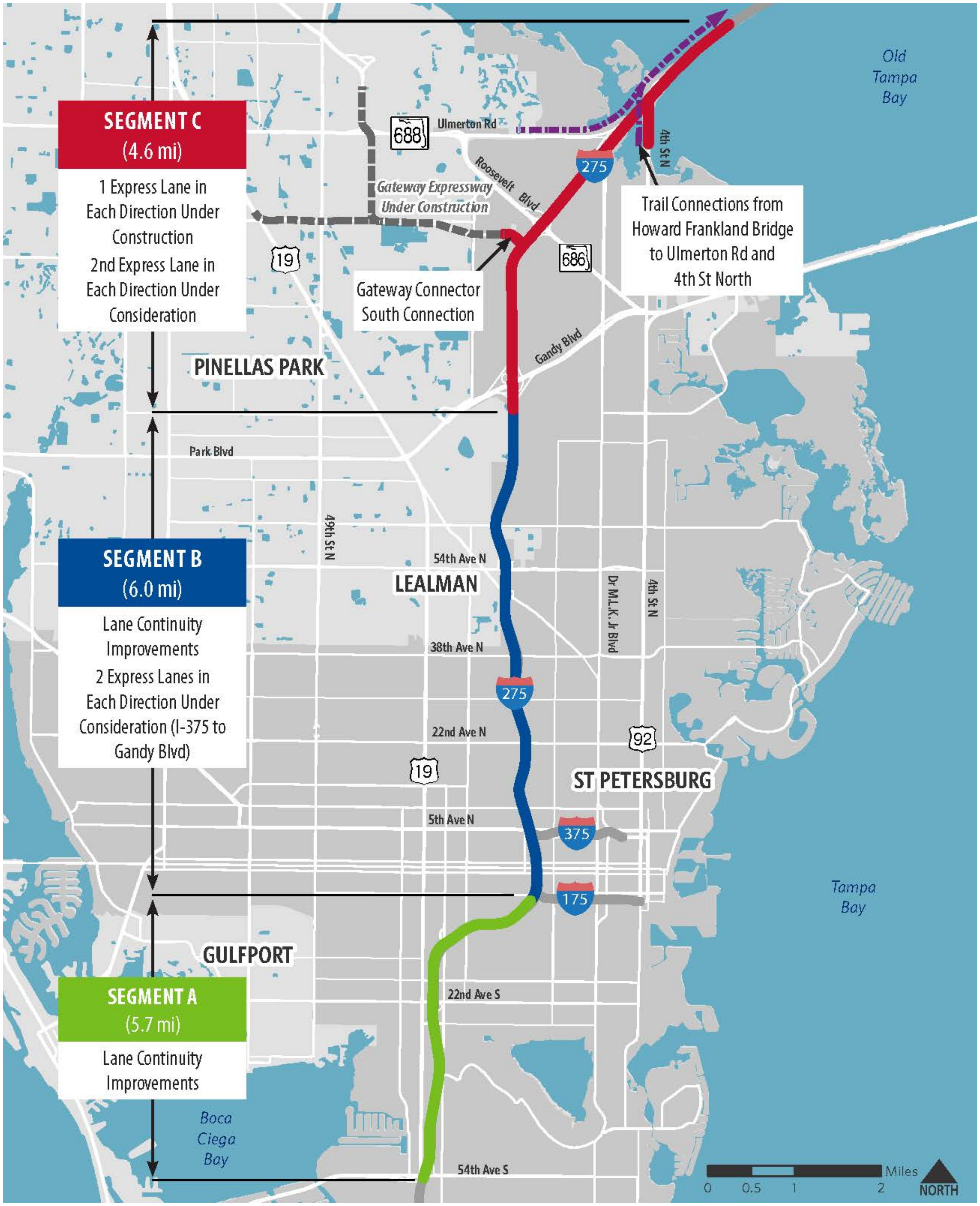


Figure 1.1. Project Location Map

2 Stormwater Management Design Criteria

The design of the stormwater management facilities (ponds) for this project is regulated by the rules and criteria set forth by the Florida Department of Transportation (FDOT), the Southwest Florida Water Management District (SWFWMD) and the Florida Department of Environmental Protection (FDEP). The requirements of each agency are discussed in the following sections.

2.1 FDOT Criteria

The design of stormwater management systems for Department projects shall comply with the water quality, rate, and quantity requirements of Section 334.044(15), F.S., Chapter 14-86, F.A.C., Rules of the Department of Transportation only in closed basins or areas subject to historical flooding.

2.1.1 Water Quality

FDOT's requirement is to meet or exceed the applicable regulatory agency criteria.

2.1.2 Water Quantity

FDOT's requirement is to meet or exceed the applicable regulatory agency criteria. There are no closed basins within the limits of this PD&E Study.

2.1.3 Stormwater Management Facilities

Based on the 2019 FDOT Drainage Manual and the 2017 FDOT Drainage Design Guide, the following criteria were used in the design of the SMF alternatives for this project.

- Stormwater management facilities shall be designed with a minimum 20' wide maintenance berm and sloped no steeper than 1:8 (vertical: horizontal) toward the SMF bottom.
- Side slopes will be no steeper than 1:4 (vertical: horizontal) out to a depth of two feet below the control elevation.
- One (1) foot of freeboard is required above the maximum design stage. The freeboard shall be measured from the inside edge of the maintenance berm.

Please refer to **Appendix E** for *Figure 5.1 Minimum Clearance Retention-Detention Ponds*, excerpted from the 2019 FDOT Drainage Manual.

2.2 SWFWMD Criteria

The design of the project stormwater management facilities will comply with the requirements of Chapter 40D-4, F.A.C., rules of the Southwest Florida Water Management District.

2.2.1 Water Quality

Dry retention systems require treatment of the first one-half inch ($^1/_2$") of stormwater runoff from the contributing drainage area.

Wet detention systems require treatment of the first one inch (1”) of stormwater runoff from the contributing drainage area.

The contributing drainage area is defined as follows:

- For off-line treatment systems and on-line treatment systems, including wet detention, which provide storage of the treatment volume off-line from the primary conveyance path of flood discharges, use the area of new pavement.
- For all other on-line treatment systems, including wet-detention, use the entire on-site directly connected impervious areas contributing to the system; directly connected impervious areas are those new and existing pavement areas connected to the treatment systems by pavement or pipe that contribute untreated runoff.

Projects discharging directly into Outstanding Florida Waters (OFW) shall be required to provide treatment for a volume 50 percent more than required for the selected treatment system.

When alterations involve extreme hardship, in order to provide direct treatment of new project area, the District will consider proposals to satisfy the overall public interest that shall include equivalent treatment of alternate existing pavement areas to achieve the required pollution abatement. For example, existing untreated contributing areas not otherwise required to be included for treatment may be included for treatment by the system in lieu of direct treatment of new project area when the pollution abatement is equivalent and benefits the same receiving waters.

Existing treatment capacity being displaced by any roadway project will require additional compensating treatment volume.

For dry retention systems, the total treatment volume shall again be available within 72 hours, however, only that volume which can again be available within 36 hours may be counted as part of the volume required for water quantity storage.

For wet detention systems, include a minimum of 35 percent littoral zone, concentrated at the outfall, for biological assimilation of pollutants. The percentage of littoral zone is based on the ratio of vegetated littoral zone to the surface area of the pond at the control elevation. The littoral zone shall be no deeper than 3.5 feet below the design overflow elevation. The treatment volume should not cause the pond level to rise more than 18 inches above the control elevation. The wet detention system's treatment volume shall be discharged in no less than 120 hours (5 days) with no more than one-half the total volume being discharged within the first 60 hours (2.5 days). Due to the detention time required for wet detention systems, only that volume which drains below the overflow elevation within 36 hours may be counted as part of the volume required for water quantity storage.

Treatment of off-site areas is not required.

2.2.2 Water Quantity

For a project or portion of a project located within an open drainage basin, the allowable discharge is:

- Historic discharge, which is the peak rate at which water leaves a parcel of land by gravity under existing site conditions, or the legally allowable discharge at the time of permit application; or
- Amounts determined in previous District permit actions.

Unless otherwise specified, off-site discharges and peak stages for the existing and developed conditions shall be computed using the Southwest Florida Water Management District's 24-hour, 25-year rainfall maps and the Natural Resources Conservation Service type II Florida Modified 24-hour rainfall distribution with an antecedent moisture condition II.

Please refer to **Appendix E** for Table D-1: Rainfall Ratios (Accumulated 24-Hour Total), excerpted from the SWFWMD Environmental Resource Permit Applicant's Handbook Volume II (June 2018), Appendix A, Part D - Project Design Aids.

2.3 FDEP Criteria

The design of the project stormwater management facilities will comply with the requirements of Chapter 62-302, F.A.C., rules of the Florida Department of Environmental Protection.

2.3.1 Impaired Waters

The freshwater segment of Joe's Creek (Waterbody Identification (WBID) 1668A) in Pinellas County is listed as an impaired water body for dissolved oxygen, nutrients, and Biochemical Oxygen Demand (BOD). A Total Maximum Daily Load (TMDL) for the freshwater segment was prepared by the U.S. Environmental Protection Agency (EPA) and released in September 2007. The TMDL indicates a target pollutant load reduction of 49% for total phosphorus and 49% for total nitrogen.

Basins 14, 15 and 16 discharge to Joe's Creek; therefore, a pre-development versus post-development pollutant loading analysis will be required for these basins. The University of Central Florida's BMPTRAINS model spreadsheet will be used to calculate pollutant loadings for this SMF Siting Report.

2.4 Permits

Permits are expected to be required from the following agencies:

- Southwest Florida Water Management District
  - Environmental Resource Permit
- United States Army Corps of Engineers
  - Section 404, Dredge and Fill Permit
- Florida Department of Environmental Protection
  - National Pollutant Discharge Elimination System Permit

3 Drainage Description

3.1 Pinellas County Drainage Basins

The project crosses the following Pinellas County Watersheds, from south to north:

Frenchman's Creek Watershed (#48 on Figure in Appendix E)

Frenchman's Creek watershed is located in southern Pinellas County and lies entirely within the City of St. Petersburg. The basin contains approximately 2,400 acres of land, most of which is designated on the Future Land Use Map as residential urban, residential low and medium, commercial general, residential/office general, residential/office/retail, recreation/open space, preservation, and public/semi-public. Minor outfalls can be found throughout the basin, none draining more than one square mile. The terrain is gently sloping toward Boca Ciega Bay on the west basin shore.

Booker Creek Watershed (#40 on Figure in Appendix E)

Booker Creek watershed is located in southeast Pinellas County and lies entirely within the City of St. Petersburg. Of the 3,100 acres in the basin, most of the land is designated on the Future Land Use Map as residential urban but also includes a complete urban mix of residential low medium, medium and high, commercial general, residential/office general, residential /office/retail, industrial limited and general, recreation/open space, and public/semi-public. The major outfall is approximately 4.5 miles in length and outlets into Bayboro Harbor. Because of the development, an accurate estimate of the basin permeability cannot be determined. Several storage areas are either existing or under construction along the outfall channel. The basin terrain is gently sloping at its upper end and steep sloping at its lower end.

Joe's Creek Watershed (#35 on Figure in Appendix E)

Joe's Creek watershed is located in south central Pinellas County and includes parts of the Cities of Pinellas Park and St. Petersburg, and all of Kenneth City. The basin contains approximately 9,500 acres of land, much of which is designated on the Future Land Use Map as residential low and residential urban, including a complete urban mix of residential low medium, medium and high, commercial general, mixed use, industrial, recreation/open space, preservation and public/semipublic.

Most of the undeveloped area is located in the low lying northwest corner of the basin where the major outfall empties into Cross Bayou Canal. The major outfall and its tributaries generally flow east to west, and total 11.2 miles in length. Most of the soil has a medium permeability rating, and many small (1 to 3 acres) natural water storage areas are located throughout subdivisions in the basin. Terrain is gently sloping in the east, steep sloping in the middle, and practically flat in the west basin area.

The freshwater segment of Joe’s Creek (Waterbody Identification (WBID) 1668A) in Pinellas County is listed as an impaired water for dissolved oxygen, nutrients, and Biochemical Oxygen Demand (BOD). A Total Maximum Daily Load (TMDL) for the freshwater segment was prepared by the U.S. Environmental Protection Agency (EPA) and released in September 2007. The TMDL indicates a target pollutant load reduction of 49% for total phosphorus and 49% for total nitrogen.

Basins 14, 15 and 16 discharge to Joe’s Creek and will be required to meet pre/post pollutant loading. The wet detention ponds in these basins will provide water quality treatment benefits but will not be sufficient to meet TMDL requirements alone. A 1.0-acre dry retention pretreatment area will be required to supplement the wet detention ponds to meet the required nutrient removal efficiencies. The dry retention area will be located in the median of Basin 15, in series with the downstream wet pond. This dry pretreatment area should meet the required nutrient removal efficiencies for all three basins.

Sawgrass Lake Watershed (#30 on Figure in Appendix E)

Sawgrass Lake watershed is located in east central Pinellas County, and parts of the Cities of Pinellas Park and St. Petersburg. The central northern portion of the basin consists of Sawgrass Lake Park (390 acres) and mostly undeveloped vacant land. Sawgrass Lake has a total surface area of 20 acres and has very little developed area along its shoreline. The herbaceous wetland around the lake provides valuable habitat for many bird and reptile species. Much of the 5,800 acre drainage area is designated on the Future Land Use Map as residential urban, including a complete urban mix of residential low, low medium, medium and high, commercial general, residential/ office/retail, industrial limited, recreation/open space, preservation and public/semi-public. The major outfall and its three tributaries total 7.6 miles in length, and outlet into Old Tampa Bay. Soil in the west half of the basin has a medium permeability rating. Terrain is fairly steep in the southern basin area, and gently sloping to flat in the remainder. Most of the eastern half of the basin is flood prone. Drainage from Sawgrass Lake flows into Riviera Bay through the Turner Creek ditch. A water control structure located on Sawgrass Park's eastern boundary controls the flow of drainage that is released into Turner Creek.

Roosevelt Watershed (#23 on Figure in Appendix E)

Roosevelt watershed is located in east central Pinellas County and contains parts of the Cities of Pinellas Park and St. Petersburg. Most of the basin's 8,000 acres is designated on the Future Land Use Map as industrial limited and transportation /utility, with lesser amounts of residential urban, low medium and medium, residential/office general, commercial recreation, recreation/open space and preservation. Three separate major outfalls, totaling 9.5 miles in length, drain 5,000 acres of the watershed and outlet into Old Tampa Bay. Soil in the basin generally has a medium permeability rating. The terrain is flat with many natural water storage areas located throughout the basin. Due to its low elevation, most of the northeast area is flood prone. Also, extensive highway construction, gravel quarrying and landfill operations have occupied a good portion of the land. Adequate culvert capacity has been provided at most of the major highways which cross the basin.

3.2 Project Drainage Basins

Basin 2

Basin 2 begins just north of 54th Avenue South (Sta. 100+00) and extends to 38th Avenue South (Sta. 146+40). The drainage area consists of the roadway right-of-way between these stations. The total basin area is 48.56 acres, with the existing impervious area equal to 15.30 acres. The estimated low edge of pavement (LEOP) elevation is 20.76 ft NGVD. The proposed improvements will generate approximately 2.72 acres of new impervious area. A wet detention pond within the existing right-of-way will be utilized to provide the required treatment and attenuation volumes. The basin drains to a cross drain at Sta. 114+15 and ultimately flows west into a canal which outfalls into Boca Ciega Bay.

Basin 7

Basin 7 begins at Sta. 245+00 and extends to the I-175 interchange (Sta. 280+00). The drainage area consists of the I-275 roadway right-of-way between Sta. 245+00 to Sta. 260+00 (NB) and between Sta. 245+00 to Sta. 280+00 (SB), as well as a portion of I-175 WB. The total basin area is 26.70 acres, with the existing impervious area equal to 9.42 acres. The estimated LEOP elevation is 63.06 ft NGVD. The proposed improvements will generate approximately 1.60 acres of new impervious area. A wet detention pond will be utilized to provide the required treatment and attenuation volumes. The basin drains to a storm drain system at Sta. 271+96 that flows north along 20th Street South and eventually into Booker Creek.

Basin 11

Basin 11 begins at 5th Avenue North (Sta. 316+50) and extends to north of 13th Avenue North (Sta. 346+85). The drainage area consists of the roadway right-of-way between these stations, as well the northernmost portion of the I-375 Interchange. The total basin area is 27.32 acres, with the existing impervious area equal to 12.08 acres. The estimated LEOP elevation is 60.66 ft NGVD. The proposed improvements will generate approximately 3.77 acres of new impervious area. A wet detention pond will be utilized to provide the required treatment and attenuation volumes. The basin drains to an existing 10’x9’ concrete box culvert on the east side of I-275 and ultimately discharges into Booker Creek. Booker Creek flows south into Bayboro Harbor.

Basin 12

Basin 12 begins north of 13th Avenue North (Sta. 346+85) and extends to Sta. 391+88. The drainage area consists of the roadway right-of-way between these stations, including the 22nd Avenue North Interchange. The total basin area is 41.31 acres, with the existing impervious area equal to 16.94 acres. The estimated LEOP elevation is 57.66 ft NGVD. The proposed improvements will generate approximately 6.08 acres of new impervious area. A wet detention pond will be utilized to provide the required treatment and attenuation volumes. The basin drains to an existing concrete box culvert on the west side of I-275 at Sta. 351+00 and ultimately discharges into Booker Creek. Booker Creek flows south into Bayboro Harbor.

Basin 13

Basin 13 begins at Sta. 391+88 and extends to 30th Avenue North (Sta. 400+00). The drainage area consists of the roadway right-of-way between these stations. The total basin area is 5.70 acres, with the existing impervious area equal to 2.14 acres. The estimated LEOP elevation is 67.16 ft NGVD. The proposed improvements will generate approximately 1.65 acres of new impervious area. A wet detention pond will be utilized to provide the required treatment and attenuation volumes. The basin drains to an existing storm drain system on the west side of I-275 at Sta. 395+15. The existing storm drain flows west along 28th Avenue North and ultimately discharges into Booker Creek. Booker Creek flows south into Bayboro Harbor.

Basin 14

Basin 14 begins at 30th Avenue North (Sta. 400+00) and extends to just south of 38th Avenue North (Sta. 425+25). The drainage area consists of the roadway right-of-way between these stations and includes the southern ramps for the 38th Avenue North Interchange. The total basin area is 23.90 acres, with the existing impervious area equal to 7.84 acres. The estimated LEOP elevation is 58.86

ft NGVD. The proposed improvements will generate approximately 5.00 acres of new impervious area. A wet detention pond within the existing right-of-way will be utilized to provide the required treatment and attenuation volumes. The basin drains to an existing storm drain system on the west side of I-275 at Sta. 423+88, discharges to the 25th Street N Outfall and ultimately into Joe's Creek. Joe's Creek flows west into Cross Bayou. This basin discharges to an impaired water body, Joe's Creek. Please refer to **Section 3.1** and **Section 4.3.2** for a detailed discussion and **Appendix D** for calculations.

Basin 15

Basin 15 begins just south of 38th Avenue North (Sta. 425+25) and ends at Sta. 446+00. The drainage area consists of the roadway right-of-way between these stations and includes the 38th Avenue North Interchange. The total basin area is 23.74 acres, with the existing impervious area equal to 9.90 acres. The estimated LEOP elevation is 49.56 ft NGVD. The proposed improvements will generate approximately 1.97 acres of new impervious area. A wet detention pond will be utilized to provide the required treatment and attenuation volumes. The basin drains to an existing storm drain system at Sta. 440+00 that flows west, ultimately into Joe's Creek. Joe's Creek flows west into Cross Bayou. This basin discharges to an impaired water body, Joe's Creek. Please refer to **Section 3.1** and **Section 4.3.2** for a detailed discussion and **Appendix D** for calculations.

Basin 16

Basin 16 begins at Sta. 446+00 and ends south of 54th Avenue North at Sta. 473+50. The drainage area consists of the roadway right-of-way between these stations. The total basin area is 19.98 acres, with the existing impervious area equal to 9.73 acres. The estimated LEOP elevation is 50.56 ft NGVD. The proposed improvements will generate approximately 3.57 acres of new impervious area. A wet detention pond will be utilized to provide the required treatment and attenuation volumes. The basin drains to an existing storm drain system at Sta. 453+25 that flows west, ultimately into Joe's Creek. Joe's Creek flows west into Cross Bayou. This basin discharges to an impaired water body, Joe's Creek. Please refer to **Section 3.1** and **Section 4.3.2** for a details and **Appendix D** for calculations.

Basin 17

Basin 17 begins at south of 54th Avenue North at Sta. 473+50 and extends to Sta. 328+00 (Station Equation: 499+99.72 = 324+97.73). The drainage area consists of the roadway right-of-way between these stations and includes the 54th Avenue North Interchange. The total basin area is 36.66 acres, with the existing impervious area equal to 13.93 acres. The estimated LEOP elevation is 25.25 ft NGVD. The proposed improvements will generate approximately 4.14 acres of new impervious area. A wet detention pond within the existing right-of-way will be utilized to provide the required treatment and attenuation volumes. The basin outfalls to an existing ditch on the east side of I-275 at Sta. 325+16. This existing ditch flows north within the I-275 right-of-way, ultimately discharging into the Turner Creek ditch which flows east into Riviera Bay.

Basin 18

Basin 18 begins at Sta. 328+00 and extends to the Gandy Boulevard Interchange at Sta. 421+17 (Sta. 440+00 for I-275 NB). The drainage area consists of the roadway right-of-way between these stations and includes the southwest, southeast and northeast quadrants of the Gandy Boulevard Interchange. The total basin area is 130.02 acres, with the existing impervious area equal to 38.45 acres. The estimated LEOP elevation is 11.59 ft NGVD. The proposed improvements will generate approximately 21.95 acres of new impervious area. A wet detention pond will be utilized to provide the required treatment and attenuation volumes. The basin outfalls to a double box culvert at Sta. 386+65 that discharges into the Turner Creek ditch which flows east into Riviera Bay.

Basin 19

Basin 19 begins at Sta. 421+17 and extends to just north of the Gandy Boulevard Interchange at Sta. 440+00. The drainage area consists of the roadway right-of-way between these stations and includes the northwest quadrant of the Gandy Boulevard Interchange. The total basin area is 73.20 acres, with the existing impervious area equal to 16.96 acres. The estimated LEOP elevation is 12.84 ft NGVD. The proposed improvements will generate approximately 2.21 acres of new impervious area. A wet detention pond within the existing right-of-way will be utilized to provide the required treatment and attenuation volumes. The basin outfalls to ditch west of the interchange via a double 24” pipe under Ramp C. This ditch flows southwest to a concrete box culvert under Gandy Boulevard and into Sawgrass Lake. Sawgrass Lake flows into Riviera Bay through the Turner Creek ditch. A water control structure located on Sawgrass Park's eastern boundary controls the flow of drainage that is released into Turner Creek.

Basin 20

Basin 20 begins just north of the Gandy Boulevard Interchange at Sta. 440+00 and ends at Sta. 491+50 (SB) and Sta. 477+00 (NB), south of the Roosevelt Boulevard Interchange. The drainage area consists of the roadway right-of-way between these stations. The total basin area is 31.20 acres, with the existing impervious area equal to 14.62 acres. The estimated LEOP elevation is 11.79 ft NGVD. The proposed improvements will generate approximately 7.46 acres of new impervious area. A wet detention pond will be utilized to provide the required treatment and attenuation volumes. The basin outfalls to a double box culvert at Sta. 466+70 that discharges into the 102nd Avenue ditch which flows east to 16th Street North and then flows north into Roosevelt Creek Tributary 2 and ultimately into Tampa Bay.

4 Stormwater Management

4.1 Methodology

In addition to the environmental considerations discussed in Section 5.0, stormwater management methodology and criteria were used to determine the SMF site alternatives.

As described in Section 1.4, this report provides alternative stormwater management facility sites for the basins affected by the addition of two express lanes in Segment B from north of I-375 to south of Gandy Boulevard (Basins 11 through 20) and for basins within Segment A which required right-of-way for stormwater management (Basins 2 and 7) as determined in the Alternative Stormwater Management Facility Technical Memorandum (April 2015). Three (3) alternative SMF sites were analyzed for the majority of the basins; however, some of the basins have fewer alternatives as detailed below:

Basin 2 – stormwater management is accomplished within the existing right-of-way (1 alternative)

Basin 13 – limited sites available within the vicinity (2 alternatives)

Basin 14 – stormwater management is accomplished within the existing right-of-way (1 alternative)

Basin 17 – stormwater management is accomplished within the existing right-of-way (1 alternative)

Basin 18 – limited sites available within the vicinity (2 alternatives)

Basin 19 – stormwater management is accomplished within the existing right-of-way (1 alternative)

Basin 20 – limited sites available within the vicinity (2 alternatives)

The provided treatment and attenuation volumes were calculated and areas for the proposed SMF site alternatives were established using these volumes and the estimated seasonal high groundwater elevation. For detailed calculations associated with the SMF siting and sizing, see **Appendix D** – Stormwater Management Calculations. The SMF site alternatives are shown in **Appendix C** – Pond Site Alternatives.

The following parameters for each site were analyzed in the selection process:

- Soil Type
- Estimated average ground elevation – based on 1-foot digital contours from SWFWMD LiDAR data for Pinellas County
- Estimated Seasonal High Groundwater Table (SHWT) elevations – estimated based on the NRCS soil information at the SMF site

4.2 SMF Design Alternatives

Several stormwater management facility types were considered including wet detention systems, dry detention systems, retention systems, swale systems and underground exfiltration trench systems. SWFWMD's water quantity requirements specify the peak post-development runoff rate shall not exceed the peak pre-development runoff rate for the 25-year/24-hour design storm event. The required water quality volume is based on the type of treatment system proposed. The following is a list of design methodologies and their associated rules.

4.2.1 Wet Detention Systems

This method involves storing stormwater runoff in a wet bottom pond, above the normal water surface. The discharge rate from the wet bottom pond is controlled by an outlet structure to prevent downstream flooding and erosion. SWFWMD requires a wet detention treatment system for public roads to treat 1.0 inch of runoff from the contributing area. An additional 50% above the proposed basin treatment volume must be provided for discharge to Outstanding Florida Waters (OFW). Due to the normally high groundwater elevations along the project, long conveyance distances and depth of the storm drain system inverts, wet detention systems were selected as the most feasible method for stormwater treatment and attenuation.

4.2.2 Dry Detention Systems

This method involves storing stormwater runoff in a dry bottom pond, above the seasonal high groundwater table elevation. Filtering the stormwater runoff through the pond bottom to the groundwater table provides water quality treatment. The use of dry detention systems would be prohibitive due to the anticipated depth of the storm drain system inverts and the normally high groundwater elevations along the project. Therefore, dry detention systems were only considered as an alternative stormwater management facility for basins that do not meet nutrient removal requirements through wet detention alone.

4.2.3 Retention Systems

This concept provides storage and water quality treatment through retention. Retention systems are designed to prevent discharge of a given volume of runoff by complete on-site storage. The high water table and low permeability rates in ‘D’ type soils present on this project discourage the use of this method. The retention system design must assure that long-term recovery and flood protection is provided. For this project, the discharge limitation would require a pond size too large to be accommodated within the land available. Therefore, the option would be too cost-prohibitive and is not used.

4.2.4 Swale Systems

This method involves storing stormwater runoff in a dry bottom swale, above the seasonal high groundwater table elevation. Filtering of the stormwater runoff through the swale bottom to the groundwater table provides water quality treatment. The use of swales would not provide sufficient volume to attenuate and treat the proposed runoff volumes for this project.

4.2.5 Underground Exfiltration Trench Systems

This concept provides storage and water quality treatment through exfiltration into the surrounding soils. Exfiltration is accomplished using a perforated pipe laid in a rock-filled trench that allows the runoff to percolate into the surrounding ground. Exfiltration systems are costly and have high maintenance requirements due to very large pipe sizes and sediment buildup. Moreover, exfiltration systems would not provide sufficient available volume to capture and treat stormwater runoff effectively. Exfiltration is generally used as a last resort. High ground water table normally discourages the use of this method. Therefore, exfiltration systems are not a viable solution for this project.

4.3 Proposed Stormwater Management Design

Wet detention is the selected method of stormwater management for the project. Wet detention was chosen due to the predominantly poorly drained soils, seasonal depths to groundwater ranging from 2.0 feet above to 3.5 feet below ground and storm drain system requirements. Additionally, the storm drain systems require the pond inflow structures to be below the control water level (CWL) or normal water level (NWL) of the proposed ponds.

4.3.1 SWFWMD SMF Sizing Criteria

The SWFWMD rules dictate the use of the 25-year/24-hour design storm event. The required treatment volume was calculated for each basin (1-inch over the area of new roadway impervious area). The NRCS method was used to calculate pre-development and post-development runoff volumes. The runoff volume difference between pre-development and post-development conditions was used to determine the SMF volume required for attenuation of the design storm event. The attenuation volume calculated was added to the required treatment volume to size each SMF alternative. The design analysis is strictly a Volumetric Analysis for the purposes of this report (see **Appendix D** – Stormwater Management Calculations).

4.3.2 Impaired Waters

The freshwater segment of Joe's Creek (Waterbody Identification (WBID) 1668A) in Pinellas County is listed as an impaired water body for dissolved oxygen, nutrients, and Biochemical Oxygen Demand (BOD). A Total Maximum Daily Load (TMDL) for the freshwater segment was prepared by the U.S. Environmental Protection Agency (EPA) and released in September 2007. The TMDL indicates a target pollutant load reduction of 49% for total phosphorus and 49% for total nitrogen.

Basins 14, 15 and 16 discharge to Joe's Creek. Therefore, a pre-development versus post-development pollutant loading analysis (net improvement) has been performed for these basins using the University of Central Florida's BMPTRAINS model spreadsheet. Wet detention is not sufficient to provide the required nutrient removal. Additional dry retention (in series with wet detention) was provided in these basins in order to meet nutrient removal criteria. Please refer to **Appendix D** – Stormwater Management Calculations.

4.3.3 Curve Numbers

Runoff curve numbers were obtained from the FDOT Drainage Design Guide (January 2017) – Appendix B, Table B-7 (see **Appendix E**). When soils in a dual hydrologic group, such as B/D, were encountered, curve numbers for group D soils were utilized to be consistent with adjacent existing permits. Since ground cover is good throughout the study area, Open Spaces, Good Condition was chosen for the Land Use Description. Please refer to **Appendix D** – Stormwater Management Calculations.

4.3.4 Seasonal High Groundwater Table Elevation

4.3.4.1 Soil Survey

The NRCS Soil Survey for Pinellas County was used to obtain estimated SHWT elevations. The SHWT is defined by the Natural Resource Conservation Service (NRCS) as the highest level of saturated zone in the soil in a year with normal rainfall, which persists in the soil for more than a few weeks. Along most of the project alignment, the SHWT levels are estimated to be 0 to 1.0 feet below the natural ground surface. SHWT elevations were estimated based on the NRCS soil information for the SMF site alternative.

4.3.4.2 Vertical Limitations

The maximum design stage is limited to the low edge of pavement (LEOP) elevation in the basin. For SMFs adjacent to the road, the top of the treatment volume is constrained to the low point in the road minus the base clearance. These criteria were used to establish the available depth for treatment and attenuation as illustrated below:

Available depth for treatment = LEOP – base clearance – SHWT elevation

Available depth for treatment and attenuation = LEOP –SHWT elevation

4.3.5 Conclusion

In conclusion, SMF alternatives were sized based on the combination of treatment and attenuation volumes calculated based on SWFWMD requirements. The maximum volume required was determined by using the treatment requirements to establish a pollution abatement volume and the volume difference between pre-development and post-development conditions for the 25-year/24-hour storm event. The two volumes were then added together to approximate a required SMF size for the basin. The proposed SMF area was considered in the basin calculations to establish the design volumes. Alternate SMF sites have been analyzed for minimum area, outfall characteristics, land use, and environmental conditions.

Each SMF design includes:

- 20-foot maintenance berm sloped 10:1 toward the SMF bottom;
- 4:1 side slopes from the top of the bank to the SMF bottom; and
- 1-foot of freeboard measured from the inside edge of the maintenance berm
- The wet detention treatment method will be used for all SMF site alternatives.

A 10% contingency was added to each SMF alternative size to account for limited site-specific data. Please refer to **Appendix D** – Stormwater Management Calculations.

4.4 Alternative SMF Sites

The following stormwater management facility site alternatives were evaluated for this report:

Basin 2

2A is a 1.1-acre area located in the median of I-275 the centerline near Sta. 115+00 (SB). After providing the required stormwater management, SMF 2A will discharge west to the basin outfall, an offsite ditch located between the XTC Supercenter and Crystal Inn near Sta. 115+00 (SB).

Basin 7

7A is located north of and adjacent to the I-275 right-of-way near Sta. 249+00. This 1.1-acre site is located on a number of undeveloped residential lots north and south of 8th Avenue South. In addition, 4360 SF will be required for a cul-de-sac on 8th Avenue South. After providing the required stormwater management, SMF 7A will discharge into the I-275 roadside ditch and flow north to the basin outfall at Sta. 272+00 (SB).

7B is located north of and adjacent to the I-275 right-of-way near Sta. 256+00. This 1.0-acre site is located on a number of undeveloped residential lots south of 7th Avenue South. In addition, 2600 SF will be required for a cul-de-sac on 8th Avenue South. After providing the required stormwater management, SMF 7B will discharge into the I-275 roadside ditch and flow north to the basin outfall at Sta. 272+00 (SB).

7C is located south of and adjacent to the I-275 right-of-way near Sta. 257+50. This 1.0-acre site is located on a number of undeveloped residential lots east of 22nd Street South. After providing the required stormwater management, SMF 7C will discharge into the I-275 roadside ditch and flow north to the basin outfall at Sta. 272+00 (SB).

Basin 11

11A is located west of the I-275 right-of-way near Sta. 327+00. This 1.5-acre site is located on a number of developed residential lots south of 8th Avenue North. In addition, a 3600 SF easement will be required in order to provide access for the inflow and outflow pipes. After providing the required stormwater management, SMF 11A will discharge into an existing storm drain system and flow to basin outfall at Sta. 318+50 RT (NB).

11B is located west of and adjacent to the I-275 right-of-way near Sta. 331+00. This 1.4-acre site is located on a number of developed residential lots south of 9th Avenue North. After providing the required stormwater management, SMF 11B will discharge into an existing storm drain system and flow to basin outfall at Sta. 318+50 RT (NB).

11C is located east of and adjacent to the I-275 right-of-way, north of 9th Avenue North. This 7.5-acre site is owned by the City of St. Petersburg and is an existing pond. In order to provide the required stormwater management for this project, the existing pond will require expansion. Use of this pond will require coordination with the City of St. Petersburg.

Basin 12

12A is located west of the I-275 right-of-way near Sta. 355+00, between the two railroad tracks spanned by the interstate in this area. This 2.0-acre site is located on a vacant industrial parcel immediately south of Home Depot. A 10,320 SF easement will be required in order to provide access for the inflow and outflow pipes. After providing the required stormwater management, SMF 12A will discharge into an existing storm drain system and flow to the basin outfall at Sta. 351+50 LT.

12B is located east of and adjacent to the I-275 right-of-way near Sta. 355+00. This 2.0-acre site is located on several occupied industrial parcels between I-275 and 19th Street North, along to 15th Avenue North. After providing the required stormwater management, SMF 12B will discharge into an existing storm drain system and flow to the basin outfall at Sta. 351+50 LT.

12C is located east of and adjacent to the I-275 right-of-way near Sta. 357+50. This 2.2-acre site is located on a number of occupied residential lots between I-275 and 19th Street North and includes the roadway right-of-way for 16th Avenue North. After providing the required stormwater management, SMF 12B will discharge into an existing storm drain system and flow to the outfall at Sta. 351+50 LT.

Basin 13

13A is located east of and adjacent to the I-275 right-of-way near Sta. 395+00. This 1.3-acre site is located on a number of occupied residential lots north and south of 29th Avenue North and includes the roadway right-of-way for 29th Avenue North from the I-275 right-of-way east to 21st Street North. After providing the required stormwater management, SMF 13A will discharge into an existing storm drain system and flow to the basin outfall located at Sta. 395+30 LT.

13B is located west of and adjacent to the I-275 right-of-way near Sta. 395+00. This 1.3-acre site is located on a number of occupied residential lots north and south of 29th Avenue North and includes the roadway right-of-way for 28th Avenue North from the I-275 right-of-way west to 22nd Street North. After providing the required stormwater management, SMF 13B will discharge into an existing storm drain system and flow to the basin outfall located at Sta. 395+30 LT.

Basin 14

14A is a 1.9-acre area located in the median of I-275 near Sta. 418+50 (NB). After providing the required stormwater management, SMF 14A will discharge into an existing storm drain system and flow to the basin outfall located at Sta. 445+60 LT.

Basin 15

15A is located west of and adjacent to the I-275 right-of-way near Sta. 438+00 (SB). This 1.0-acre site is located on a portion of a larger commercial parcel. SMF 15A will discharge into an existing storm drain system and flow to the basin outfall located at Sta. 440+35 LT (SB).

15B is located east of and adjacent to the I-275 right-of-way near Sta. 439+00 (NB). This 1.1-acre site is located on a number of occupied residential lots between 42nd Avenue North and 41st Avenue North. In addition, 5920 SF will be required for restoring connections for existing adjacent parcels. After providing the required stormwater management, SMF 15B will discharge into an existing storm drain system and flow to the basin outfall located at Sta. 440+35 LT (SB).

15C is located west of and adjacent to the I-275 right-of-way near Sta. 442+25 (SB). This 1.2-acre site is located on a number of occupied residential lots between 42nd Avenue North and 43rd Avenue North. After providing the required stormwater management, SMF 15C will discharge into an existing storm drain system and flow to the basin outfall located at Sta. 440+35 LT (SB).

Basin 16

16A is located west of the I-275 right-of-way near Sta. 456+00. This 1.2-acre site is located on a number of occupied residential lots between Xenia Street North and 24th Street North, on the north side of 46th Avenue North. An 18,425 SF easement will be required in order to provide access for the inflow and outflow pipes. After providing the required stormwater management, SMF 16A will discharge into an existing storm drain system and flow to the basin outfall located at Sta. 453+00 RT.

16B is located west of the I-275 right-of-way near Sta. 456+00. This 1.2-acre site is located on a number of occupied residential lots, adjacent to Hewitt's Lake, west of Xenia Street North and north of 46th Avenue North. A 6,325 SF easement will be required in order to provide access for the inflow and outflow pipes. After providing the required stormwater management, SMF 16B will discharge into an existing storm drain system and flow to the basin outfall located at Sta. 453+00 RT.

16C is located east of and adjacent to the I-275 right-of-way near Sta. 450+00. This 1.3-acre site is located on a number of occupied residential lots between 45th Avenue North and Salem Avenue North. After providing the required stormwater management, SMF 16C will discharge into an existing storm drain system and flow to the basin outfall located at 453+00 RT.

Basin 17

17A is a 1.6-acre area located in the northwest quadrant of the 54th Avenue North interchange. After providing the required stormwater management, SMF 17A will discharge into an existing storm drain system and flow to the basin outfall located at Sta. 325+20 LT.

Basin 18

18A is located east of and adjacent to the I-275 right-of-way near Sta. 385+00. This 4.1-acre site is located immediately south of and adjacent to the Turner Creek Ditch on four occupied residential lots easts. After providing the required stormwater management, SMF 18A will discharge into the Turner Creek Ditch and flow east into Riviera Bay.

18B is located east of and adjacent to the I-275 right-of-way near Sta. 390+00. This 5.0-acre site is located immediately north of and adjacent to the Turner Creek Ditch on a parcel owned by Pinellas County Public Schools. After providing the required stormwater management, SMF 18B will discharge into the Turner Creek Ditch and flow east into Riviera Bay.

Basin 19

19A is a 2.1-acre area located in the northwest quadrant of the Gandy Boulevard interchange. After providing the required stormwater management, SMF 19A will discharge to the west, under the SB I-275 exit ramp and flow to the basin outfall.

Basin 20

20A is located west of and adjacent to the I-275 right-of-way near Sta. 457+50. This 2.1-acre site is located on a large industrial parcel and is adjacent to an existing pond. After providing the required stormwater management, SMF 20A will discharge into the I-275 roadside ditch and flow north to the outfall ditch along 102nd Avenue North at Sta. 467+00.

20B is located west of and adjacent to the I-275 right-of-way near Sta. 442+00. This 2.1-acre site is located on a vacant industrial parcel and is immediately south of Valpak. After providing the required stormwater management, SMF 20B will discharge into the I-275 roadside ditch and flow north to the outfall ditch along 102nd Avenue North at Sta. 467+00.

4.5 Environmental Look Around

An Environmental Look Around (ELA) is currently being conducted for this section of I-275. The purpose of the ELA to coordinate with regional stakeholders to explore watershed wide stormwater needs and alternative permitting approaches. A progress meeting was held on May 22, 2019 to present the results of the preliminary analysis and provide a progress update on the ELA investigations. Below is a summary of the information presented at the meeting:

- The preliminary analysis indicates that all PD&E preferred offsite ponds could potentially be replaced with ELAs within Pinellas County and City of St. Petersburg proposed Regional Pond Sites.
- The intent is to pursue agreements with other governmental agencies that achieve win-win solutions for both while minimizing impacts to the community and reducing right-of-way takes.
- Meetings will be scheduled with Pinellas County, City of St. Petersburg and SWFWMD as soon as possible to obtain stakeholder buy-in on the ELA approach.
- The preliminary analyses, as well as the follow-up stakeholder correspondence, will be compiled into an ELA Memorandum and submitted to FDOT.
- The PD&E SMFSR and community meetings will continue to show the PD&E SMFSR Preferred Pond Sites along with general discussions regarding ELAs being investigated. The intent is to present the current right-of-way needs during PD&E with the goal of reducing the proposed right-of-way footprint during design.

In addition, a meeting was held with SWFWMD on April 9, 2019 to confirm the applicability, if any, of the Old Tampa Bay (OTB) water quality credits to Tampa Bay Next (TBN) program. The limits of this PD&E Study are known as TBN Section 2. Meeting notes and exhibits from this meeting are included in Appendix F.

5 Environmental Clearances

The environmental clearances described in the sections below are also summarized in **Table 6-1**: Stormwater Management Facility Site Evaluation Matrix.

5.1 Wetlands and Surface Waters

Based on the results of the preliminary data collection and field reviews, it has been determined that 5 of the 25 evaluated alternative pond sites involve wetlands or surface water impacts. Alternative pond sites with a ‘moderate’ ranking for wetland involvement include: 2A, 11C, 18A, and 18B. Alternative pond site 20B was determined to have a ranking of ‘Low’.

Final impact acreages to jurisdictional wetlands can only be determined following the establishment of agency approved wetlands limits and upon completion of final pond design. This includes maintenance of hydrology and provisions for adequate wetland buffering (15-foot minimum and 25-foot average set back from wetlands) to minimize secondary impacts. Where feasible, measures to avoid or minimize wetland and water quality impacts will be implemented during final pond site design.

5.2 Protected Species

Based on results of preliminary data collection and field reviews, it has been determined that 21 of the 25 evaluated alternative pond sites have a ‘low’ potential for impacting protected species.

The potential involvement with protected species and their habitat is ‘moderate’ for 16A and 18A. Suitable habitat is present within these sites.

11C, an existing City pond, has a ‘high’ potential for impacting protected species. A wood stork was observed during the field review. 18B, an existing permitted wetland mitigation area, also has a 'high' ranking.

5.3 Cultural Resources

As a result of the preliminary study, one previously recorded archaeological site is recorded within two of the proposed pond sites (18A and 18B). The lithic scatter type site (8PI01212) has not been evaluated by the State Historic Preservation Officer (SHPO) but the recorders did not consider it significant. Background research indicated that 49 historic resources were previously recorded within or immediately adjacent to twelve of the proposed pond sites. Of these, the Kenwood Historic District (8PI11176) and 21 contributing resources to the historic district are located within or adjacent to proposed pond sites 11A and 11B. The Kenwood Historic District (8PI11176) was listed in the NRHP in 2003 and the building at 2105 7th Avenue North (8PI07410) is considered NRHP-eligible as a contributing resource to the Kenwood Historic District, both are located with pond 11A. Pond 11B is adjacent to the Kenwood Historic District except for 2118 9th Avenue (8PI7588), located within a portion of Pond 11B and is considered a contributing resource but has not been evaluated by the SHPO. Background research also included a review of the Pinellas County Property Appraisers website, which indicated the potential for 45 historic buildings (50 years of age or older) within or immediately adjacent to eleven of the proposed pond sites (Twitty 2019).

As a result of the preliminary probability pond analysis, proposed pond sites 11A and 11B should be avoided for this project. Following the selection of preferred pond sites, systematic archaeological field survey is recommended in accordance with the guidelines and standards promulgated by the Florida Department of Transportation (FDOT) and Florida Division of Historical Resources (FDHR). The selected pond sites considered to have a low potential also should be surveyed and judgmentally tested. Historical/architectural field survey is also recommended.

In 2016 ACI also prepared an associated Pond Technical Memorandum (FDHR Survey #22781). Based on the results of these reports, ten historic resources (8PI11652, 8PI12273, 8PI12341, 8PI12343, 8PI12345, 8PI12418, 8PI12723, 8PI12724, 8PI12354, and 8PI12433) were previously recorded within or immediately adjacent to twelve of the proposed pond sites (Table 3; Figures 2-5). These include one linear resource, the Orange Belt Railway (8PI12273), two building complexes (8PI12724 & 8PI12354), five Frame Vernacular style buildings (8PI11652, 8PI12341, 8PI12343, 8PI12723, and 8PI12433), one Mission style building (8PI12345), and one Masonry Vernacular style building (8PI12418). Of these, eight (8PI12341, 8PI12343, 8PI12345, 8PI12418, 8PI12723, 8PI12724, and 8PI12433) were evaluated as ineligible for listing in the NRHP by the SHPO. The Orange Belt Railway is located adjacent to pond 12A and was determined to have insufficient information by the SHPO in 2015.

A review of relevant quadrangle maps, historic aerial photographs, and Pinellas County property appraiser's website data revealed the potential for 13 new historic resources 50 years of age or older (constructed 1969 or earlier) within the APE (Twitty 2019). In addition, several 1973 buildings, part of the Meadow Lawn Pinellas Addition Subdivision developed in 1971, were noted south of proposed pond site 18A.

Please refer to **Appendix G** for the Preliminary Cultural Resource Assessment Probability Analysis Technical Memorandum and to the Cultural Resource Assessment Survey Proposed Pond Site Alternatives and Re-evaluation Technical Memorandum (under separate cover).

5.4 Contamination and Hazardous Materials

A total of twelve (12) preferred pond sites were evaluated and resulted in the following risk rankings: two (2) "Medium" risk rankings, five (5) "Low" risk rankings and five (5) "No" risk rankings for potential contamination and hazardous material impacts.

The pond alternatives with a "medium" risk ranking are:

- 11C - This pond site was observed as an existing stormwater drainage pond located adjacent east of I-275 ROW.
  - Concerns: Railroad tracks are located adjacent east of this pond site. Historically, railroads used arsenic based pesticides and/or herbicides for vegetation and weed control along its corridors. In addition, petroleum-based and creosote compounds were often used to preserve railroad ties. Therefore, the railroad tracks located adjacent east are considered a contamination concern to Pond 11C.
  - Risk Rating: Due to the railroad tracks located adjacent east, this pond site is assigned a risk rating of Medium.

- 12A - Please note that a locked gate prevented access to this pond site during the site reconnaissance. According to Google Earth aerial photography, this pond site is composed of a vacant concrete lot located 120 feet northwest of existing I-275 ROW.
    - Concerns: Railroad tracks are located adjacent east and west of this pond site. Historically, railroads used arsenic based pesticides and/or herbicides for vegetation and weed control along its corridors. In addition, petroleum-based and creosote compounds were often used to preserve railroad ties. Therefore, the railroad tracks located adjacent east and west are considered a contamination concern to Pond 12A.
    - Risk Rating: Due to the railroad tracks located adjacent east and west, this pond site is assigned a risk rating of Medium.

For sites ranked “No” or “Low”, no additional work is recommended at this time. Should a facility’s permitting or regulatory status change between now and the time acquisitions are initiated, additional screening should be conducted.

For the two sites with risk rankings of “Medium”, a Level 2 field screening is recommended to determine if environmental impacts exist at the proposed pond sites. All pond sites selected for final design, regardless of risk ranking, will require limited field screening in accordance with the Department Contamination Impact Coordinator requirements outlined in the scope of work. This will include, at a minimum, soil screening for arsenic concentrations and potential buried debris.

6 Results

6.1 SMF Site Evaluation Matrix

An evaluation matrix was developed to present the alternatives in each basin with respect to the environmental clearances discussed in Section 5.0 and the right-of-way cost estimate discussed in Section 6.2. **Table 6-1** shows all of the evaluated pond sites and the recommended ranking.

SMF sizes and configurations in this report are based on preliminary assumptions and calculations. Final SMF sizes and configurations will be determined in the design phase and could be different from those used in this report and presented in the following tables as more detailed information on seasonal high groundwater table, wetland normal pool elevations, final roadway design, geotechnical data, etc. becomes available.

6.2 Right-of-Way Cost Estimate

A right-of-way cost estimate, dated January 22, 2019, was prepared for each SMF alternative.

Please see **Appendix H** for the right-of-way cost estimate.

TABLE 6-1
STORMWATER MANAGEMENT FACILITY SITE EVALUATION MATRIX

SMF Site Alternative	Size (acres)	Easement Size (feet^2)	Wetland and Surface Waters Ranking	Wetland or Surface Water Type	Impact Estimate (acres)	Mitigation Assumption	[1] Protected Species Ranking	Potential Species	Contamination and Hazardous Material Rating	Cultural Resource Potential	[2] Wetland Mitigation Cost Estimate	Right-of-Way Cost Estimate	SMF Site Ranking
2A	0.7	-	Moderate	SW (Forested)	0.22	Section 373.4137, F.S.	Low	Least Tern (GIS), EIS (historic)	No	Low	$0	$0	1
7A	1.1	4,360	None	N/A	0	N/A	Low	Gopher tortoise	Low	Low	$0	$565,300	2
7B	1.0	2,600	None	N/A	0	N/A	Low	Gopher tortoise	Low	Low	$0	$537,600	1
7C	1.0	-	None	N/A	0	N/A	Low	Gopher tortoise	Low	Moderate	$0	$2,090,900	3
11A	1.5	3,600	None	N/A	0	N/A	Low	--	Low	High	$0	$5,156,500	3
11B	1.4	-	None	N/A	0	N/A	Low	--	Low	High	$0	$4,044,000	2
11C	7.5	-	Moderate	SW (herbaceous)	4.6 (lake) 0.96 (SFH)	Section 373.4137, F.S.	[6] High	Wood stork observed (SFH); other wading bird foraging expected	Medium	Low	$115,623.36	$469,700	1
12A	2.0	-	None	N/A	0	N/A	Low	--	Medium	Low	$0	$2,653,600	1
12B	2.0	-	None	N/A	0	N/A	Low	--	Low	High	$0	$4,380,100	2
12C	2.2	-	None	N/A	0	N/A	Low	--	Low	High	$0	$4,916,400	3
13A	1.3	-	None	N/A	0	N/A	Low	--	No	High	$0	$2,490,400	2
13B	1.0	-	None	N/A	0	N/A	Low	--	Low	Low	$0	$1,329,700	1
14A	1.9	-	None	N/A	0	N/A	Low	--	No	Low	$0	$0	1
15A	1.0	-	None	N/A	0	N/A	Low	--	Low	Low	$0	$1,187,200	1
15B	1.1	5,920	None	N/A	0	N/A	Low	--	No	High	$0	$2,658,600	3
15C	1.2	-	None	N/A	0	N/A	Low	--	No	High	$0	$2,352,000	2
16A	1. 2	18,425	None	N/A	0	N/A	Moderate	Wood stork; other wading bird (roosting)	No	Low	$0	$2,644,800	1
16B	1.2	6,325	None	N/A	0	N/A	Low	--	No	High	$0	$3,449,500	3

TABLE 6-1
STORMWATER MANAGEMENT FACILITY SITE EVALUATION MATRIX

SMF Site Alternative	Size (acres)	Easement Size ($feet^2$)	Wetland and Surface Waters Ranking	Wetland or Surface Water Type	Impact Estimate (acres)	Mitigation Assumption	[1] Protected Species Ranking	Potential Species	Contamination and Hazardous Material Rating	Cultural Resource Potential	[2] Wetland Mitigation Cost Estimate	Right-of-Way Cost Estimate	SMF Site Ranking
16C	1.3	-	None	N/A	0	N/A	Low	--	No	High	$0	$3,407,900	2
17A	1.6	-	None	N/A	0	N/A	Low	Wood stork; other wading birds	Low	Low	$0	$0	1
18A	4.1	-	Moderate	WL – Forested	1.21	Section 373.4137, F.S.	Low	Wood stork, other wading birds; EIS	No	Moderate	$145,733.61	$2,826,200	1
18B	5.0	-	[3] Moderate	WL – Forested	[4] 4.54	Section 373.4137, F.S.	High	Wood stork, other wading birds; least tern; EIS	No	Moderate	$0	$613,200	2
19A	2.1	-	None	N/A	0	N/A	Low	Wood stork; other wading birds	Low	Low	$0	$0	1
20A	2.1	-	None	N/A	0	N/A	Low	Gopher tortoise; EIS	No	Low	$0	$802,100	1
20B	2.1	-	Low	[5] SW	*Deminimis*	N/A	Low	Gopher tortoise; EIS; wood stork; wading birds; least tern	Medium	Low	$0	$1,371,500	2

[1] Low (L) - Little or no suitable habitat; Moderate (M) – Suitable habitat present within the project limits or species record of occurrence (based on FNAI, GIS, literature review) within or adjacent the project ROW; High (H) – Suitable habitat present within the project limits and species observed within or adjacent the project ROW.

[2] Estimated wetland mitigation: FDOT Mitigation Program 2019/2020 cost/acre = $120,441.

[3] Pinellas School Board Mitigation Area

[4] Permitted wetland mitigation

[5] Pond may be adjusted to avoid ditch (SW) impact

[6] Within the wood stork 15-mile Core Foraging Area.

7 Conclusions and Recommendations

A preferred alternative for each basin was recommended based on their ranking of critical site selection parameters. The ranking was based on: environmental impacts, including wetlands and surface waters, protected species, cultural resources and contamination; hydrologic factors such as estimated seasonal high groundwater table elevations and soil types; and economic factors based on estimated land costs. The preferred SMF site for each basin is shown in **Table 7-1** below.

TABLE 7-1: PREFERRED SMF SITES

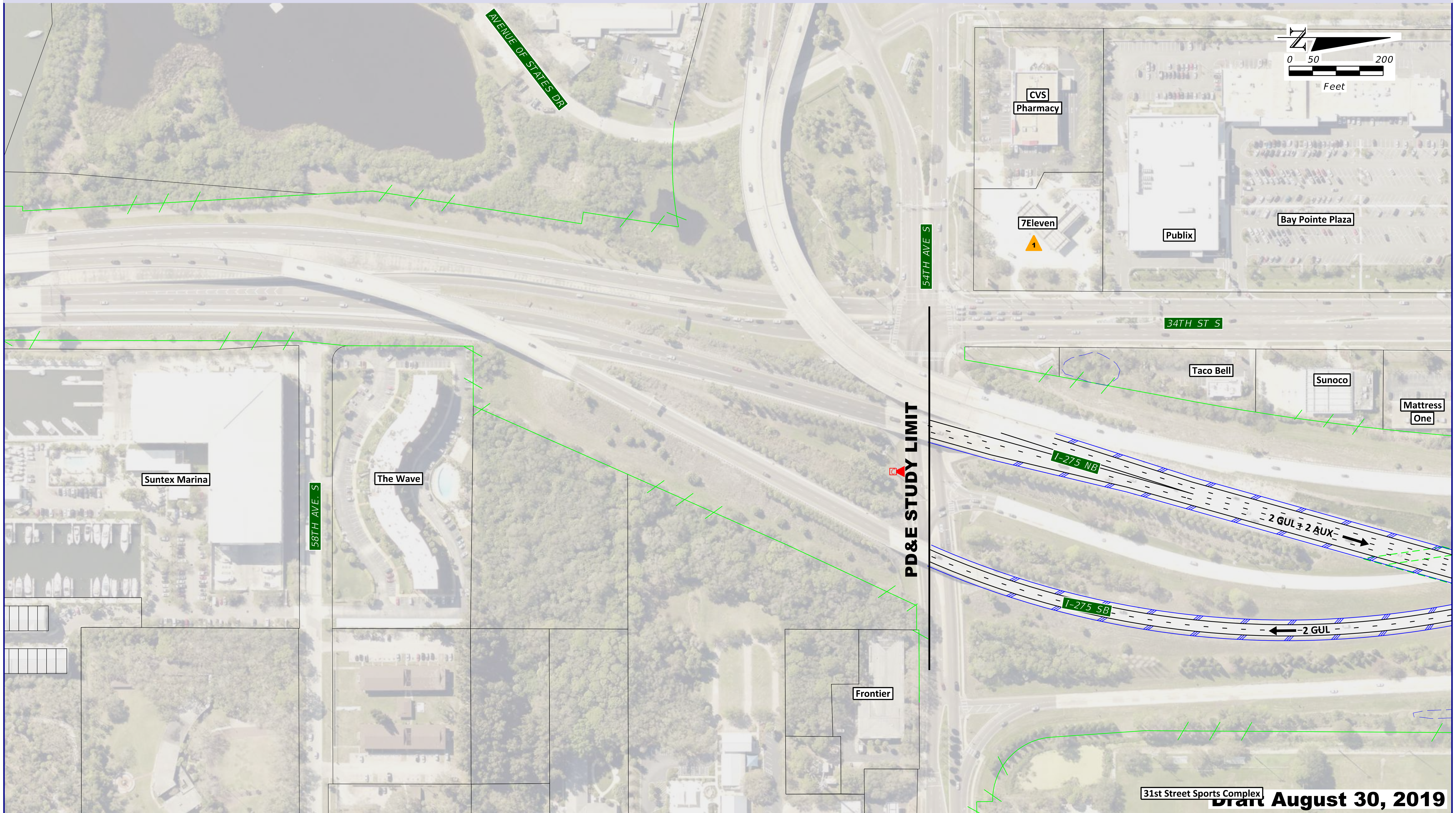
Basin	Preferred SMF Site	SMF Size (acres)
2	2A *	0.7
7	7B	1.0
11	11C	7.5 **
12	12A	2.0
13	13B	1.0
14	14A *	1.9
15	15A	1.0
16	16A	1.2
17	17A *	1.6
18	18A	4.1
19	19A *	2.1
20	20A	2.1

* Within the existing right-of-way.

** Easement over existing City stormwater facility.

Appendix A.
Concept Plans

I-275 (SR 93) DESIGN CHANGE RE-EVALUATION



Draft August 30, 2019

LEGEND:

- PAVEMENT WIDENING/ RECONSTRUCTION
- PAVEMENT REMOVAL
- BARRIER WALL
- BRIDGE WIDENING
- PEDESTRIAN TRAIL
- EXPRESS LANE BRIDGE
- EXPRESS LANES
- BRIDGES
- KENWOOD HISTORIC DISTRICT
- SEAGRASS
- WETLANDS
- SURFACE WATER
- MANGROVES
- FLOOD PLAINS
- CONTAMINATION
- POTENTIAL RESIDENTIAL RELOCATION
- POTENTIAL NOISE BARRIER
- PROPOSED LA R/W
- EXISTING LA R/W
- PROPOSED EASEMENT
- PREFERRED SMF SITE & PROPOSED SMF R/W
- ITS CAMERA
- EL = EXPRESS LANES
- GUL = GENERAL USE LANES
- AUX = AUXILIARY LANES

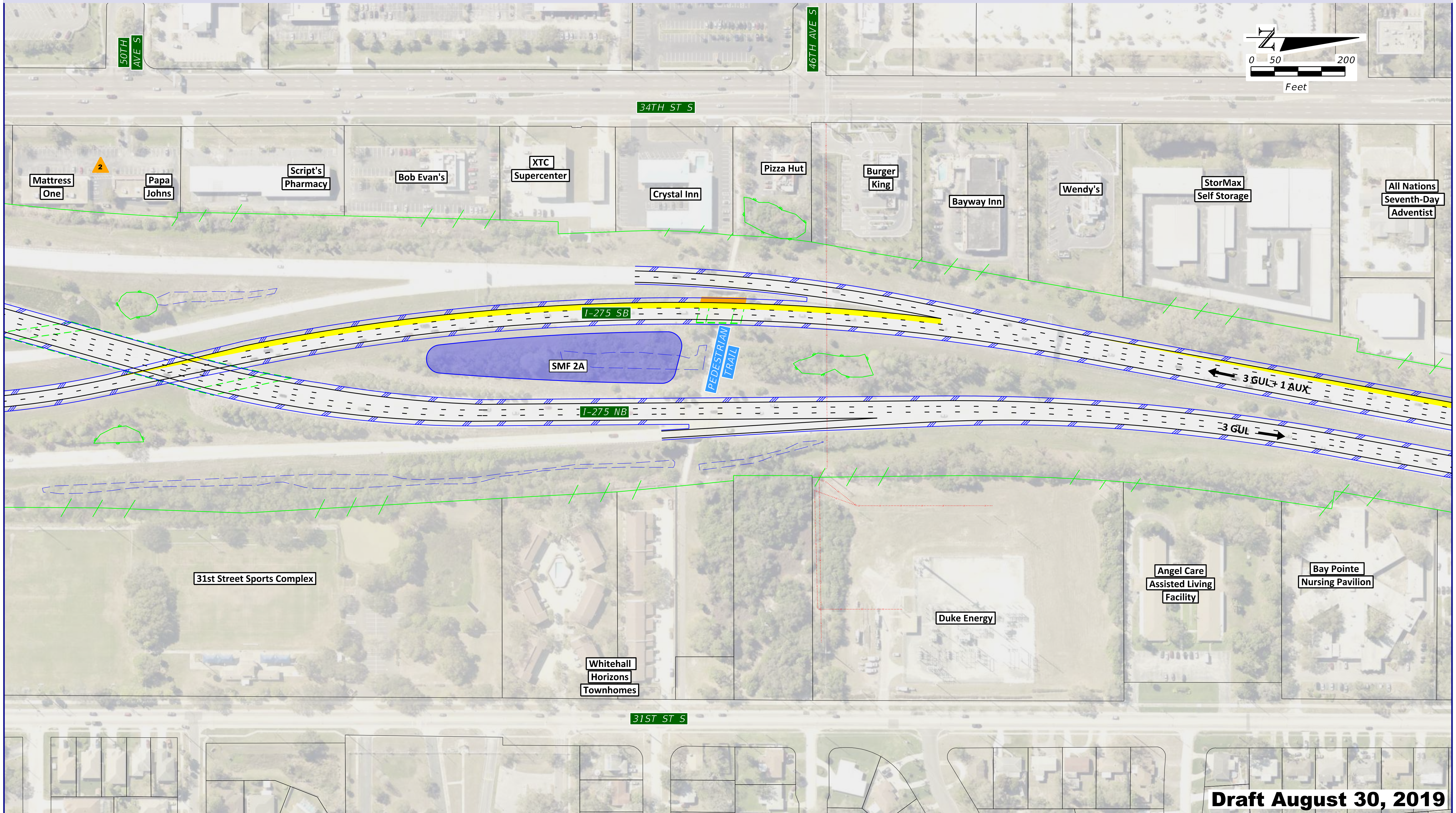
Aerial Photos Jan. '18 - Apr. '18

Concept Plans
Design Change Re-evaluation

SHEET NO. 1

CTOMPKINS 8/30/2019 10:19:57 AM I:\TPA\PRJ\000014672\CADD\42450112201\roadway\PLANRD02.DGN

I-275 (SR 93) DESIGN CHANGE RE-EVALUATION



LEGEND:

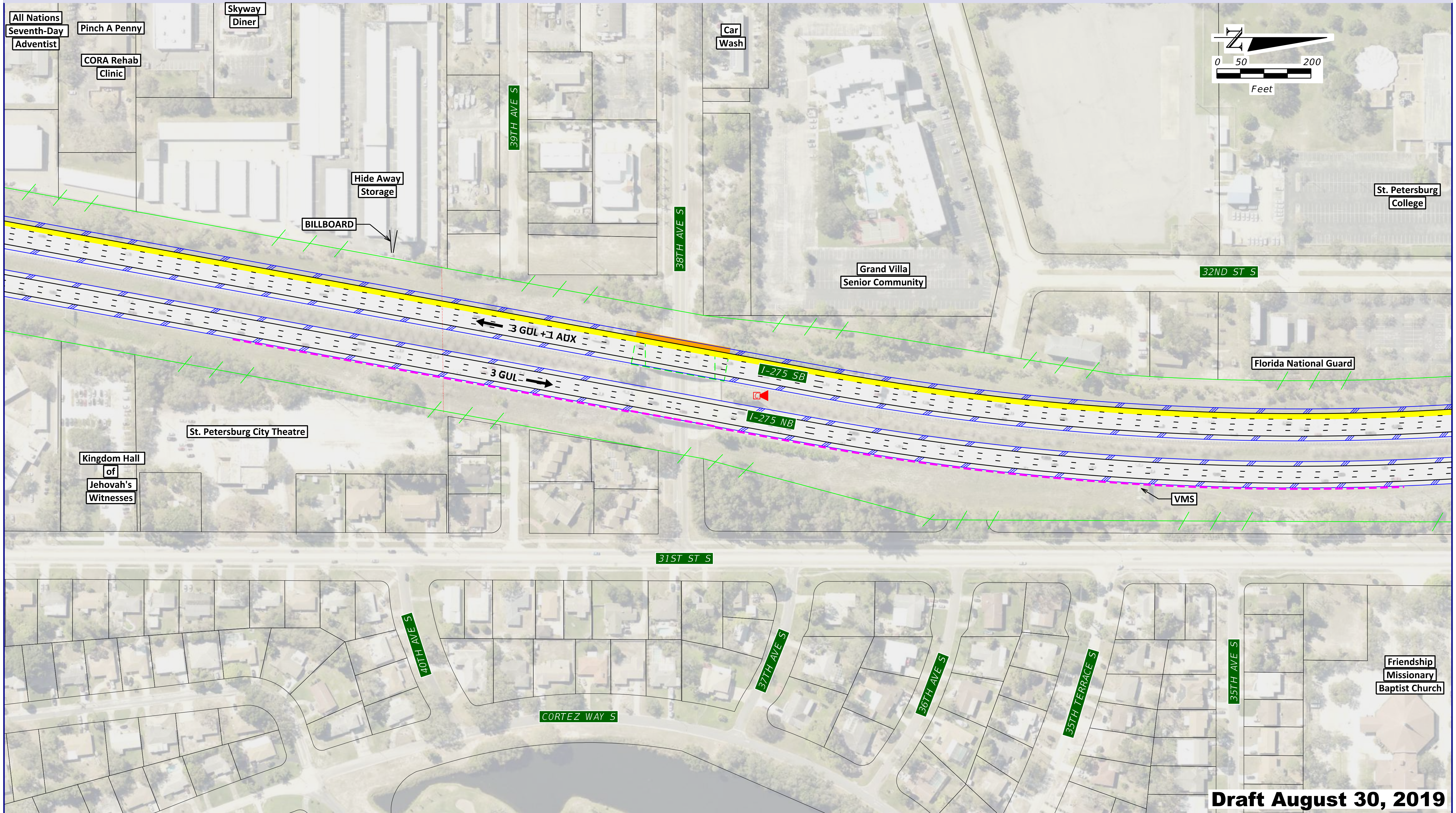
- PAVEMENT WIDENING/ RECONSTRUCTION
- PAVEMENT REMOVAL
- BARRIER WALL
- BRIDGE WIDENING
- PEDESTRIAN TRAIL
- EXPRESS LANE BRIDGE
- EXPRESS LANES
- BRIDGES
- KENWOOD HISTORIC DISTRICT
- SEAGRASS
- WETLANDS
- SURFACE WATER
- MANGROVES
- FLOOD PLAINS
- CONTAMINATION
- POTENTIAL RESIDENTIAL RELOCATION
- POTENTIAL NOISE BARRIER
- PROPOSED LA R/W
- EXISTING LA R/W
- PROPOSED EASEMENT
- PREFERRED SMF SITE & PROPOSED SMF R/W
- ITS CAMERA
- EL = EXPRESS LANES
- GUL = GENERAL USE LANES
- AUX = AUXILIARY LANES

Aerial Photos Jan. '18 - Apr. '18

Concept Plans
Design Change Re-evaluation

SHEET NO. 2

I-275 (SR 93) DESIGN CHANGE RE-EVALUATION



LEGEND:

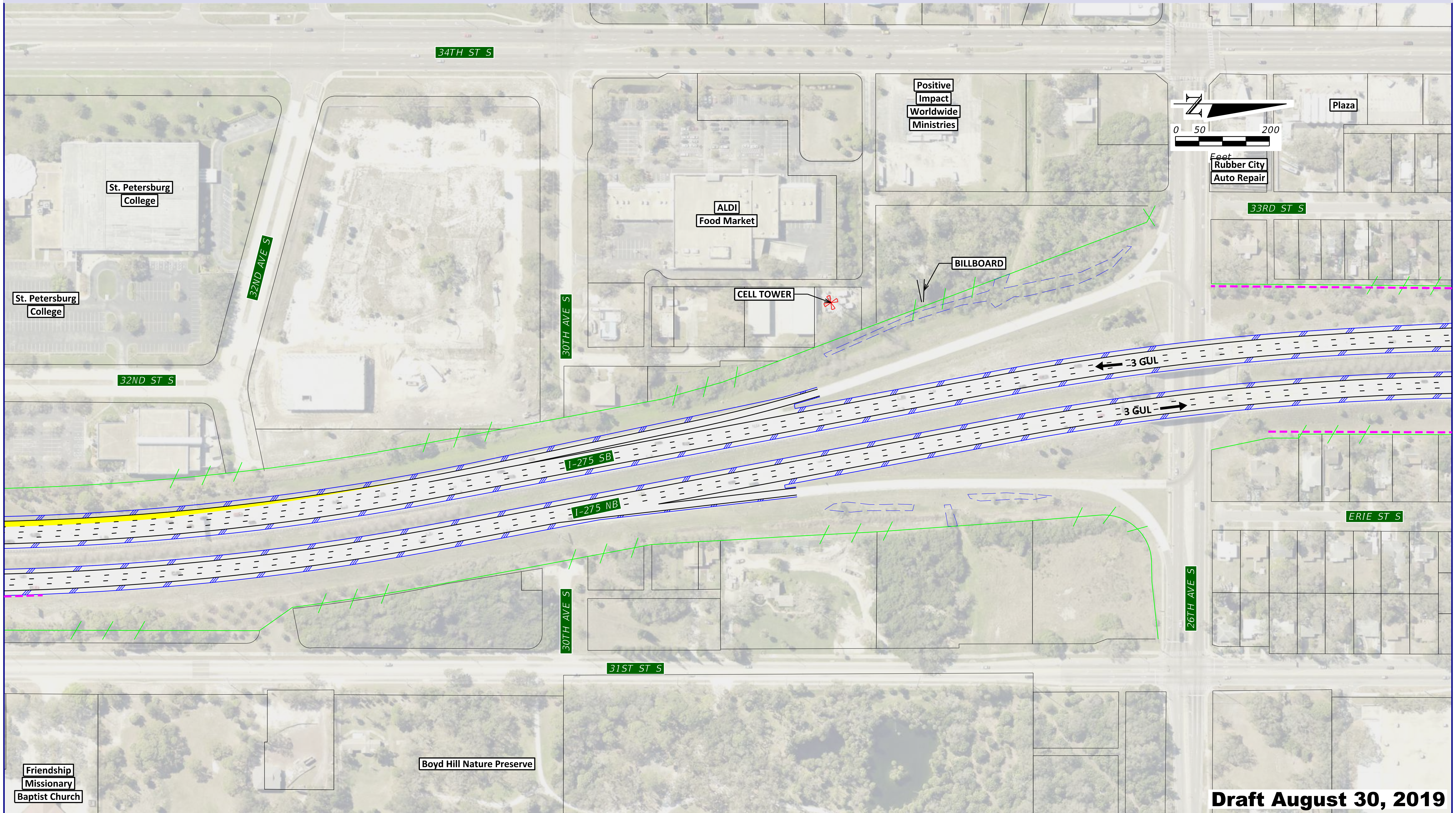
- PAVEMENT WIDENING/ RECONSTRUCTION
- PAVEMENT REMOVAL
- BARRIER WALL
- BRIDGE WIDENING
- PEDESTRIAN TRAIL
- EXPRESS LANE BRIDGE
- EXPRESS LANES
- BRIDGES
- KENWOOD HISTORIC DISTRICT
- SEAGRASS
- WETLANDS
- SURFACE WATER
- MANGROVES
- FLOOD PLAINS
- CONTAMINATION
- POTENTIAL RESIDENTIAL RELOCATION
- POTENTIAL NOISE BARRIER
- PROPOSED LA R/W
- EXISTING LA R/W
- PROPOSED EASEMENT
- PREFERRED SMF SITE & PROPOSED SMF R/W
- ITS CAMERA
- EL = EXPRESS LANES
- GUL = GENERAL USE LANES
- AUX = AUXILIARY LANES

Aerial Photos Jan. '18 - Apr. '18

Concept Plans
Design Change Re-evaluation

SHEET NO. 3

I-275 (SR 93) DESIGN CHANGE RE-EVALUATION



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LEGEND:

- PAVEMENT WIDENING/ RECONSTRUCTION
- PAVEMENT REMOVAL
- BARRIER WALL
- BRIDGE WIDENING
- PEDESTRIAN TRAIL
- EXPRESS LANE BRIDGE
- EXPRESS LANES
- BRIDGES
- KENWOOD HISTORIC DISTRICT
- SEAGRASS
- WETLANDS
- SURFACE WATER
- MANGROVES
- FLOOD PLAINS
- CONTAMINATION
- POTENTIAL RESIDENTIAL RELOCATION
- POTENTIAL NOISE BARRIER
- PROPOSED LA R/W
- EXISTING LA R/W
- PROPOSED EASEMENT
- PREFERRED SMF SITE & PROPOSED SMF R/W
- ITS CAMERA

EL = EXPRESS LANES
GUL = GENERAL USE LANES
AUX = AUXILIARY LANES

Aerial Photos Jan. '18 - Apr. '18

Concept Plans
Design Change Re-evaluation

SHEET NO. 4

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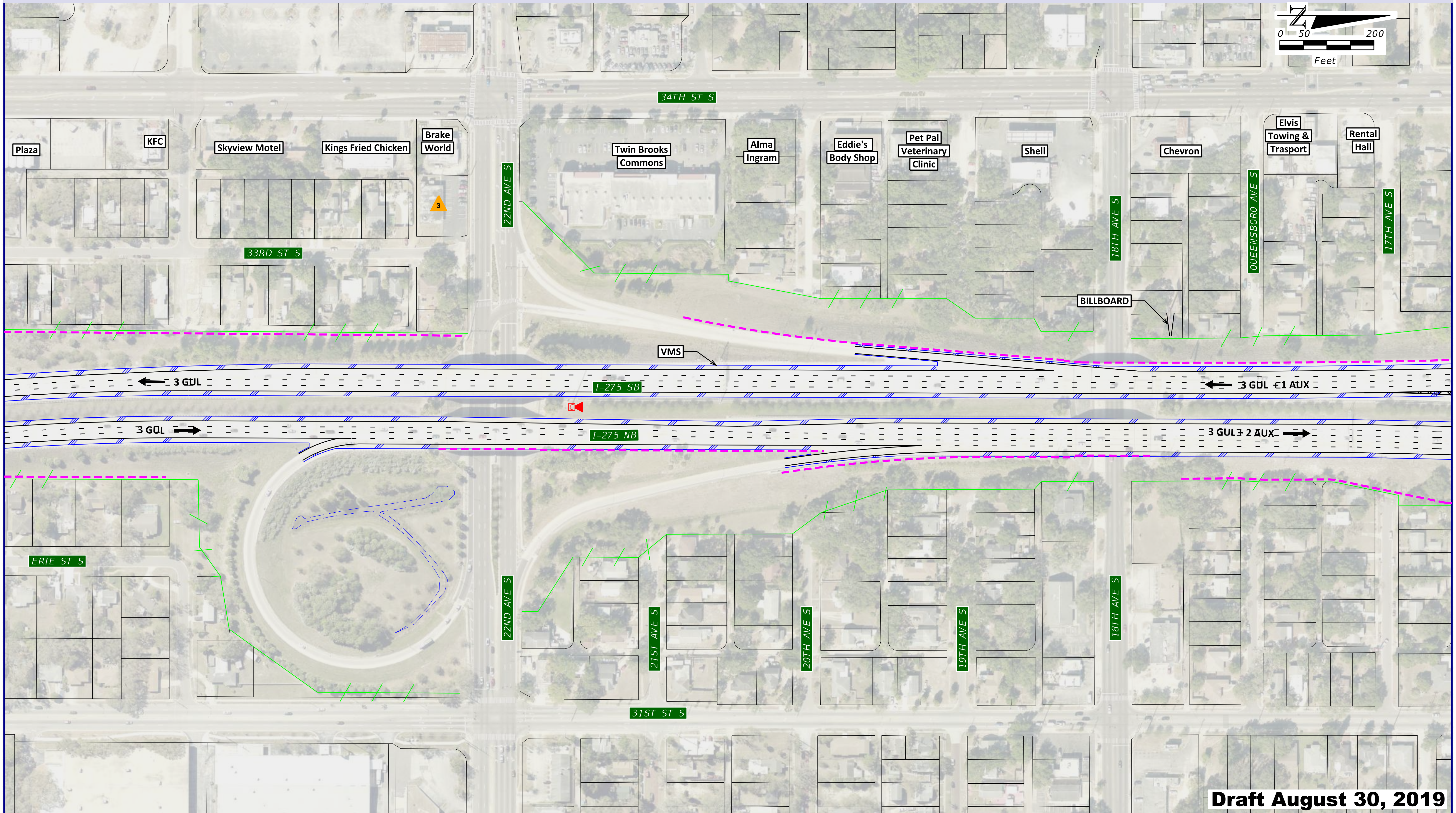


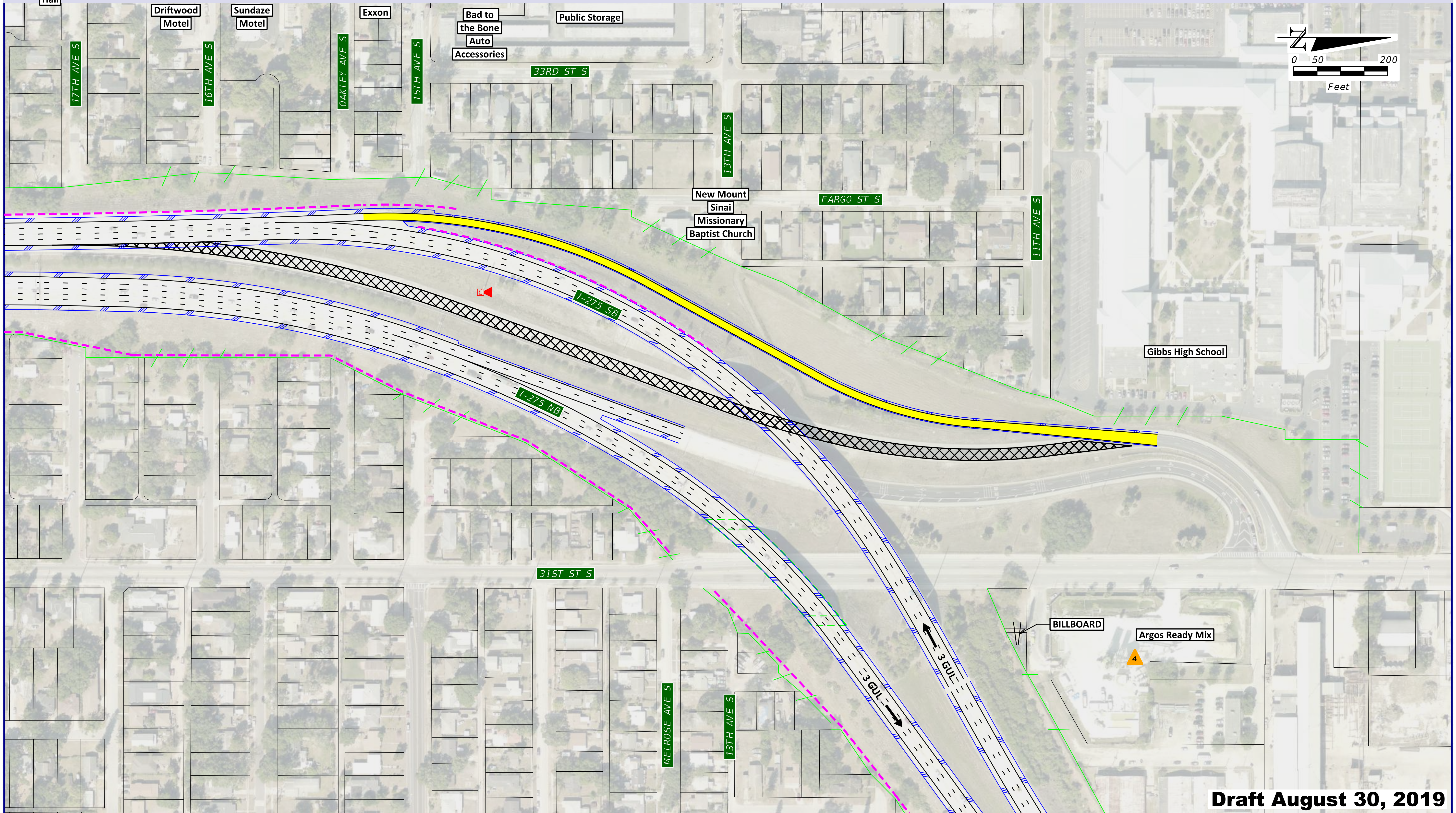
LEGEND:

- PAVEMENT WIDENING/ RECONSTRUCTION
- PAVEMENT REMOVAL
- BARRIER WALL
- BRIDGE WIDENING
- PEDESTRIAN TRAIL
- EXPRESS LANE BRIDGE
- EXPRESS LANES
- BRIDGES
- KENWOOD HISTORIC DISTRICT
- SEAGRASS
- WETLANDS
- SURFACE WATER
- MANGROVES
- FLOOD PLAINS
- CONTAMINATION
- POTENTIAL RESIDENTIAL RELOCATION
- POTENTIAL NOISE BARRIER
- PROPOSED LA R/W
- EXISTING LA R/W
- PROPOSED EASEMENT
- PREFERRED SMF SITE & PROPOSED SMF R/W
- ITS CAMERA
- EL = EXPRESS LANES
- GUL = GENERAL USE LANES
- AUX = AUXILIARY LANES

Aerial Photos Jan. '18 - Apr. '18

Concept Plans
Design Change Re-evaluation

SHEET NO. 5



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LEGEND:

- PAVEMENT WIDENING/ RECONSTRUCTION
- PAVEMENT REMOVAL
- BARRIER WALL
- BRIDGE WIDENING
- PEDESTRIAN TRAIL
- EXPRESS LANE BRIDGE
- EXPRESS LANES
- BRIDGES
- KENWOOD HISTORIC DISTRICT
- SEAGRASS
- WETLANDS
- SURFACE WATER
- MANGROVES
- FLOOD PLAINS
- CONTAMINATION
- POTENTIAL RESIDENTIAL RELOCATION
- POTENTIAL NOISE BARRIER
- PROPOSED LA R/W
- EXISTING LA R/W
- PROPOSED EASEMENT
- PREFERRED SMF SITE & PROPOSED SMF R/W
- ITS CAMERA

EL = EXPRESS LANES
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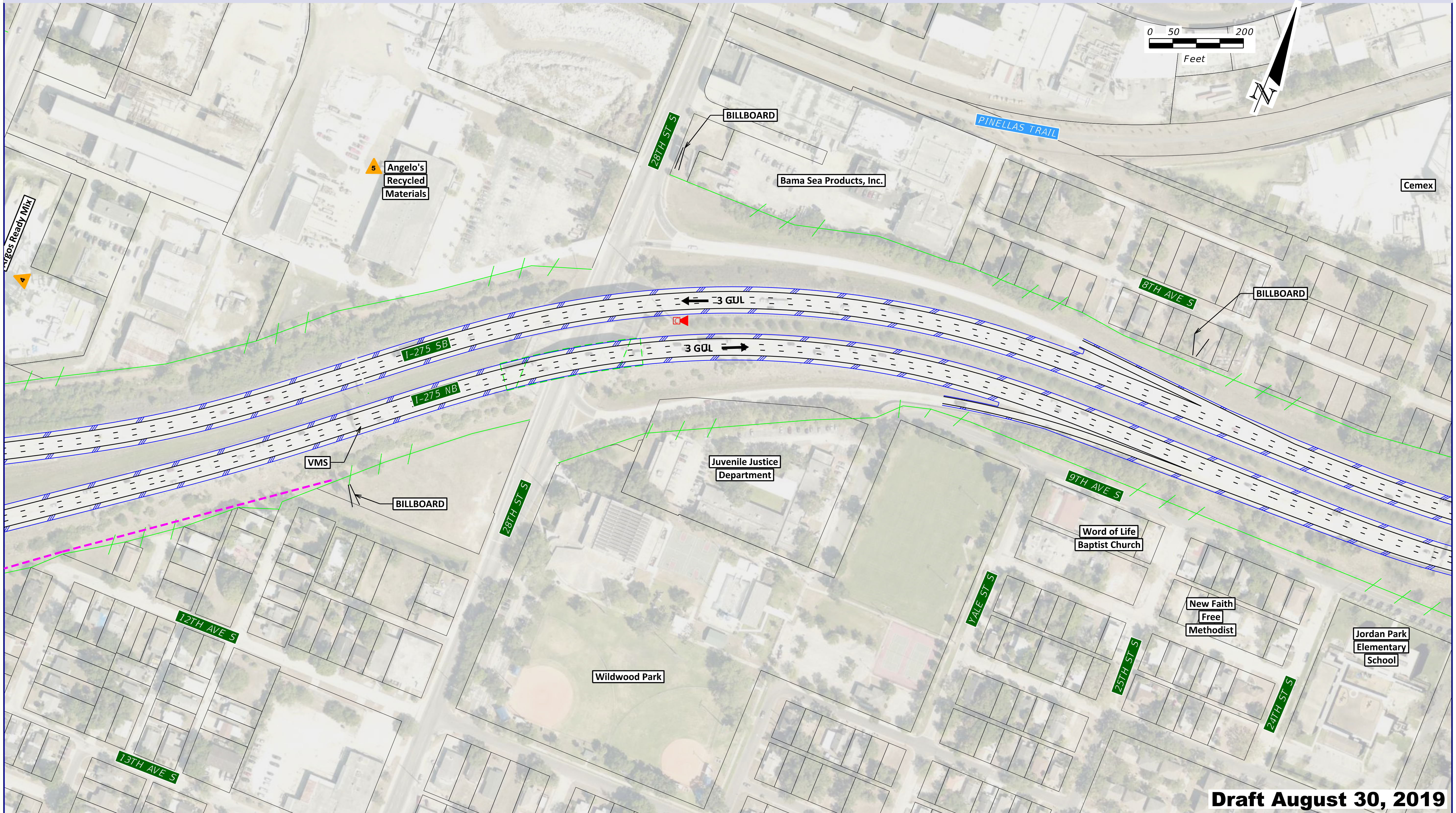
AUX = AUXILIARY LANES
Aerial Photos Jan. '18 - Apr. '18

Concept Plans
Design Change Re-evaluation

SHEET NO.
6

I-275 (SR 93) DESIGN CHANGE RE-EVALUATION



LEGEND:

- PAVEMENT WIDENING/ RECONSTRUCTION
- PAVEMENT REMOVAL
- BARRIER WALL
- BRIDGE WIDENING
- PEDESTRIAN TRAIL
- EXPRESS LANE BRIDGE
- EXPRESS LANES
- BRIDGES
- KENWOOD HISTORIC DISTRICT
- SEAGRASS
- WETLANDS
- SURFACE WATER
- MANGROVES
- FLOOD PLAINS
- CONTAMINATION
- POTENTIAL RESIDENTIAL RELOCATION
- POTENTIAL NOISE BARRIER
- PROPOSED LA R/W
- EXISTING LA R/W
- PROPOSED EASEMENT
- PREFERRED SMF SITE & PROPOSED SMF R/W
- ITS CAMERA
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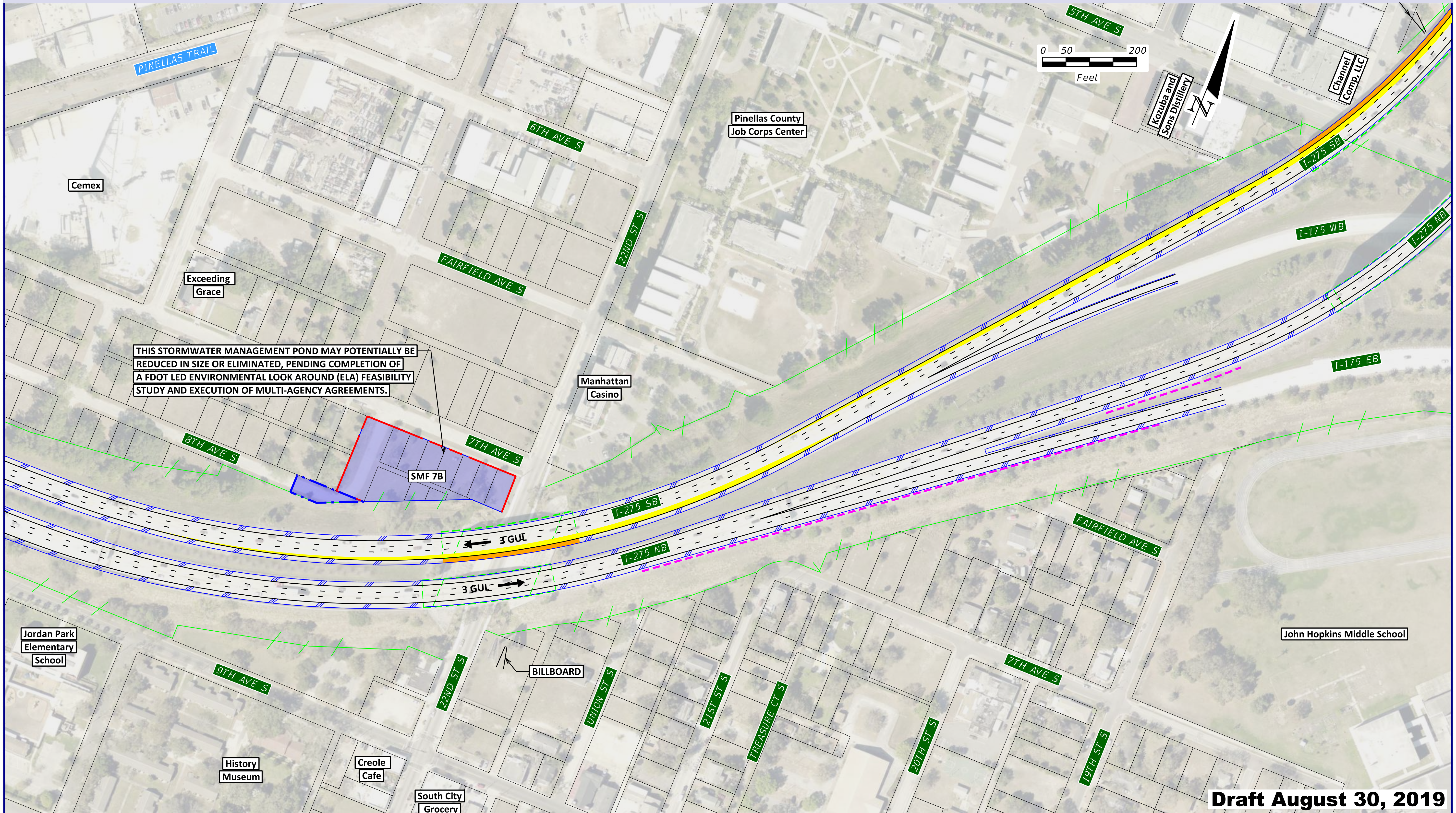
- GUL = GENERAL USE LANES
- AUX = AUXILIARY LANES

Aerial Photos Jan. '18 - Apr. '18

Concept Plans
Design Change Re-evaluation

SHEET NO. 7



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LEGEND:

- PAVEMENT WIDENING/ RECONSTRUCTION
- PAVEMENT REMOVAL
- BARRIER WALL
- BRIDGE WIDENING
- PEDESTRIAN TRAIL
- EXPRESS LANE BRIDGE
- EXPRESS LANES
- BRIDGES
- KENWOOD HISTORIC DISTRICT
- SEAGRASS
- WETLANDS
- SURFACE WATER
- MANGROVES
- FLOOD PLAINS
- CONTAMINATION
- POTENTIAL RESIDENTIAL RELOCATION
- POTENTIAL NOISE BARRIER
- PROPOSED LA R/W
- EXISTING LA R/W
- PROPOSED EASEMENT
- PREFERRED SMF SITE & PROPOSED SMF R/W
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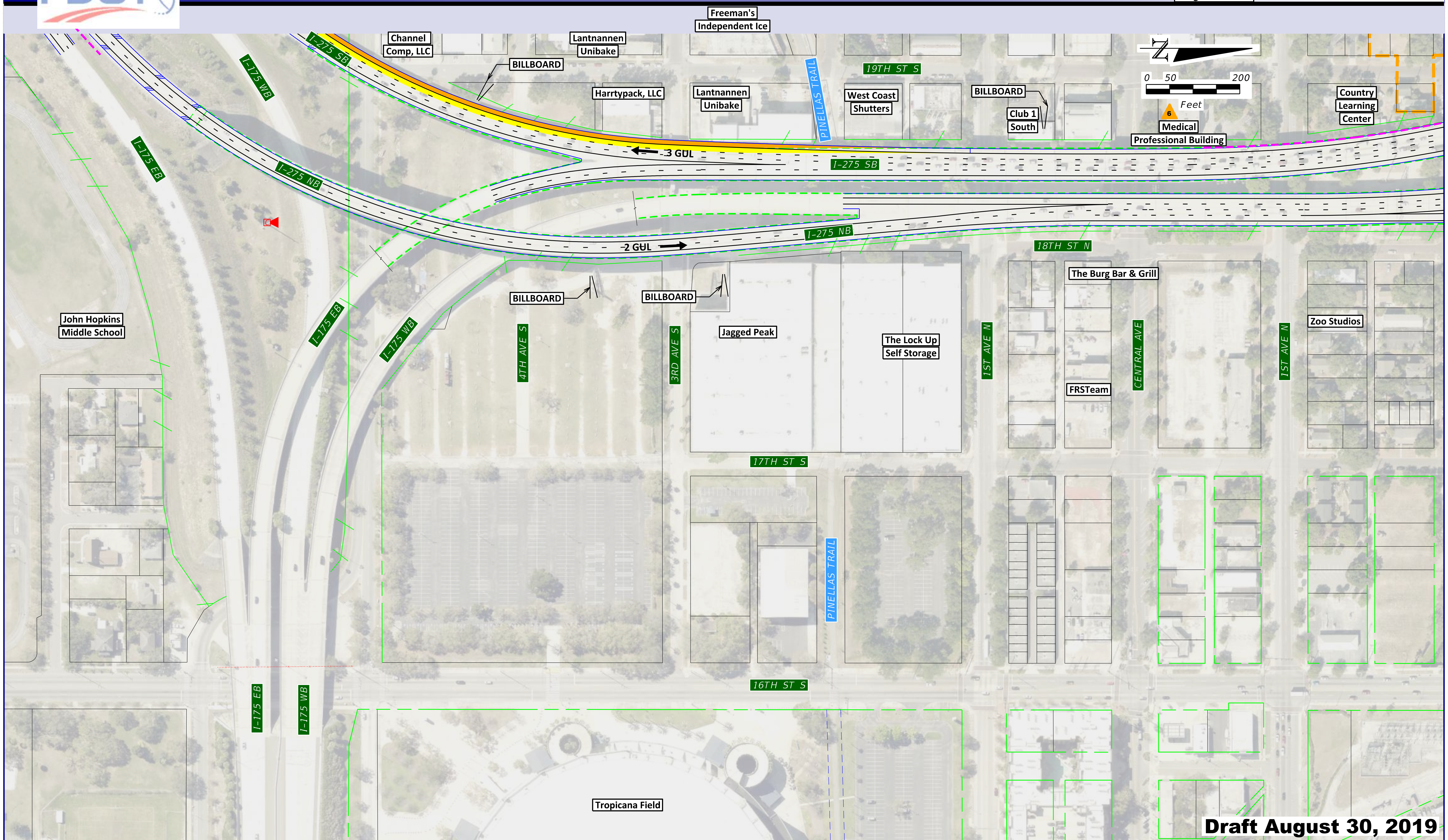
- AUX = AUXILIARY LANES

Aerial Photos Jan. '18 - Apr. '18

Concept Plans
Design Change Re-evaluation

SHEET NO. 8

I-275 (SR 93) DESIGN CHANGE RE-EVALUATION



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LEGEND:
- PAVEMENT WIDENING/ RECONSTRUCTION
- PAVEMENT REMOVAL
- BARRIER WALL
- BRIDGE WIDENING
- PEDESTRIAN TRAIL
- EXPRESS LANE BRIDGE
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- BRIDGES
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- SURFACE WATER
- MANGROVES
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- CONTAMINATION
- POTENTIAL RESIDENTIAL RELOCATION
- POTENTIAL NOISE BARRIER
- PROPOSED LA R/W
- EXISTING LA R/W
- PROPOSED EASEMENT
- PREFERRED SMF SITE & PROPOSED SMF R/W
- ITS CAMERA
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- AUX = AUXILIARY LANES

Aerial Photos Jan. '18 - Apr. '18

Concept Plans
Design Change Re-evaluation

SHEET NO. 9

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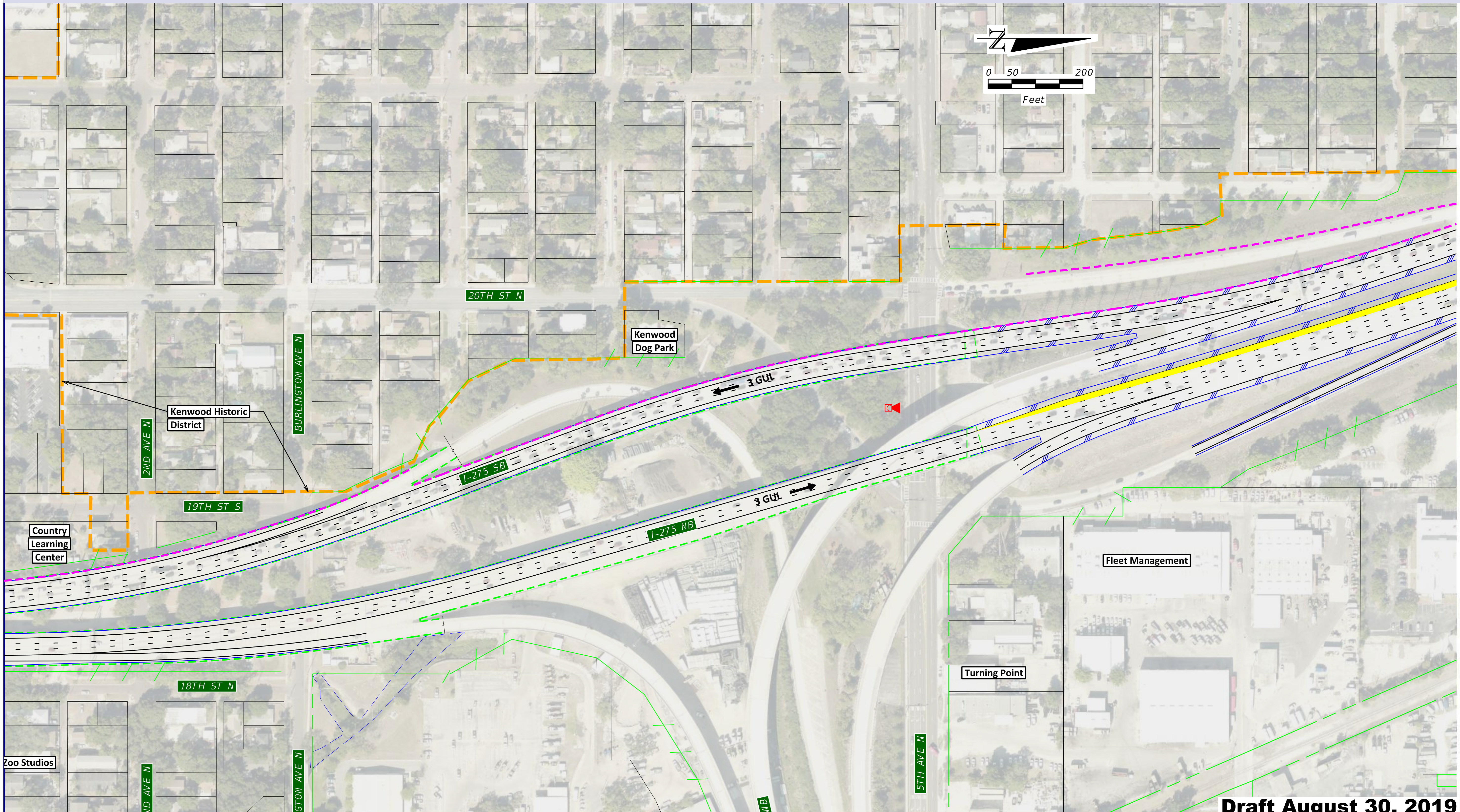
I-275 (SR 93) DESIGN CHANGE RE-EVALUATION



LEGEND:

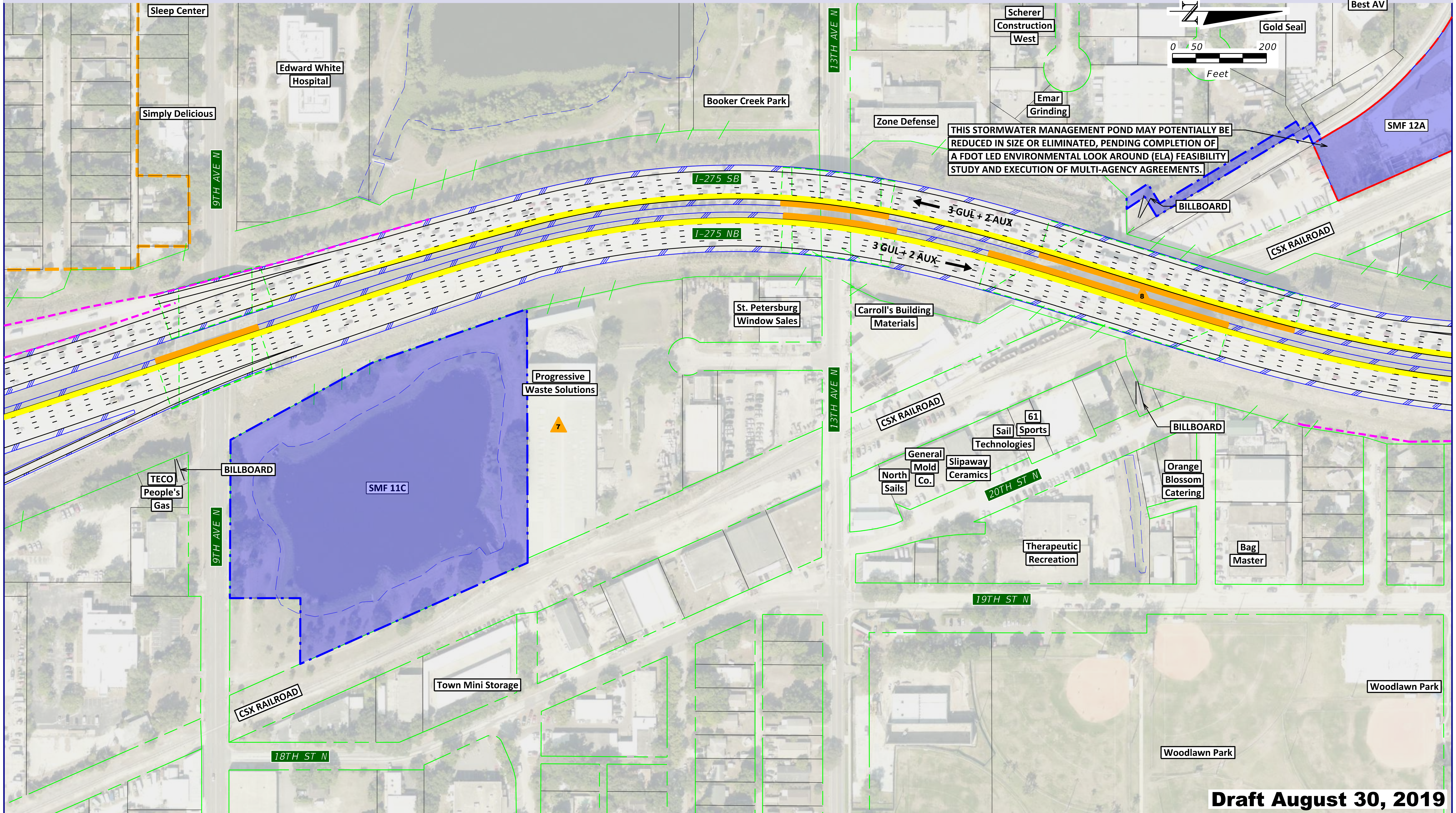
	PAVEMENT WIDENING/ RECONSTRUCTION		PEDESTRIAN TRAIL		SEAGRASS		FLOOD PLAINS		PROPOSED LA R/W		ITS CAMERA
	PAVEMENT REMOVAL		EXPRESS LANE BRIDGE		WETLANDS		CONTAMINATION		EXISTING LA R/W		EL = EXPRESS LANES
	BARRIER WALL		EXPRESS LANES		SURFACE WATER		POTENTIAL RESIDENTIAL RELOCATION		PROPOSED EASEMENT		GUL = GENERAL USE LANES
	BRIDGE WIDENING		BRIDGES		MANGROVES		POTENTIAL NOISE BARRIER		PREFERRED SMF SITE & PROPOSED SMF R/W		AUX = AUXILIARY LANES
			KENWOOD HISTORIC DISTRICT								Aerial Photos Jan. '18 - Apr. '18

Concept Plans

Design Change Re-evaluation

SHEET NO. 10

CTOMPKINS 8/30/2019 10:21:54 AM I:\TPA\PRJ\000014672\CADD\42450112201\roadway\PLANRD11.DGN



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LEGEND:

- PAVEMENT WIDENING/ RECONSTRUCTION
- PAVEMENT REMOVAL
- BARRIER WALL
- BRIDGE WIDENING
- PEDESTRIAN TRAIL
- EXPRESS LANE BRIDGE
- EXPRESS LANES
- BRIDGES
- KENWOOD HISTORIC DISTRICT
- SEAGRASS
- WETLANDS
- SURFACE WATER
- MANGROVES
- FLOOD PLAINS
- CONTAMINATION
- POTENTIAL RESIDENTIAL RELOCATION
- POTENTIAL NOISE BARRIER
- PROPOSED LA R/W
- EXISTING LA R/W
- PROPOSED EASEMENT
- PREFERRED SMF SITE & PROPOSED SMF R/W
- ITS CAMERA
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- GUL = GENERAL USE LANES
- AUX = AUXILIARY LANES

Aerial Photos Jan. '18 - Apr. '18

Concept Plans
Design Change Re-evaluation

SHEET NO. 11

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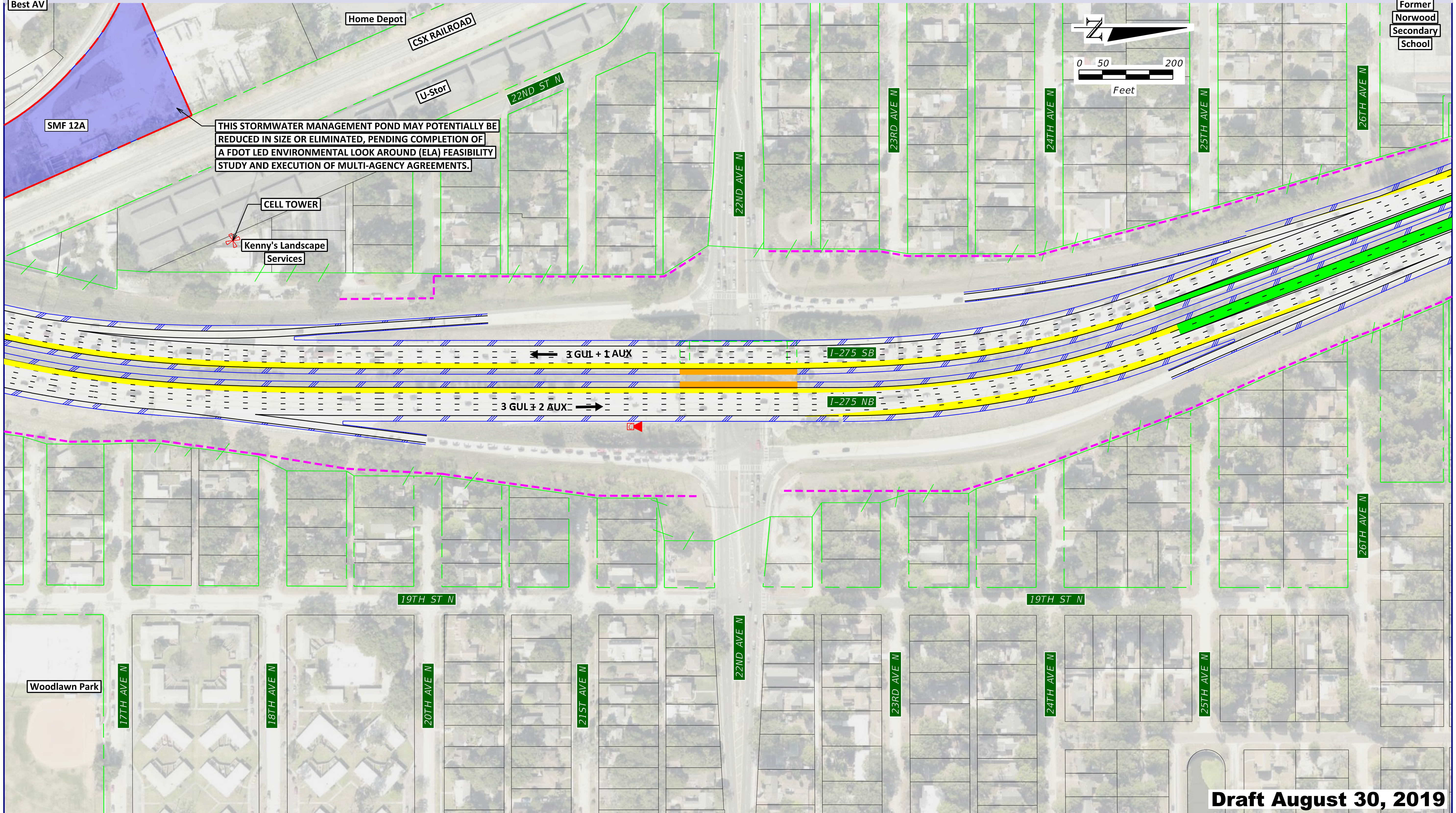
I-275 (SR 93) DESIGN CHANGE RE-EVALUATION



LEGEND:

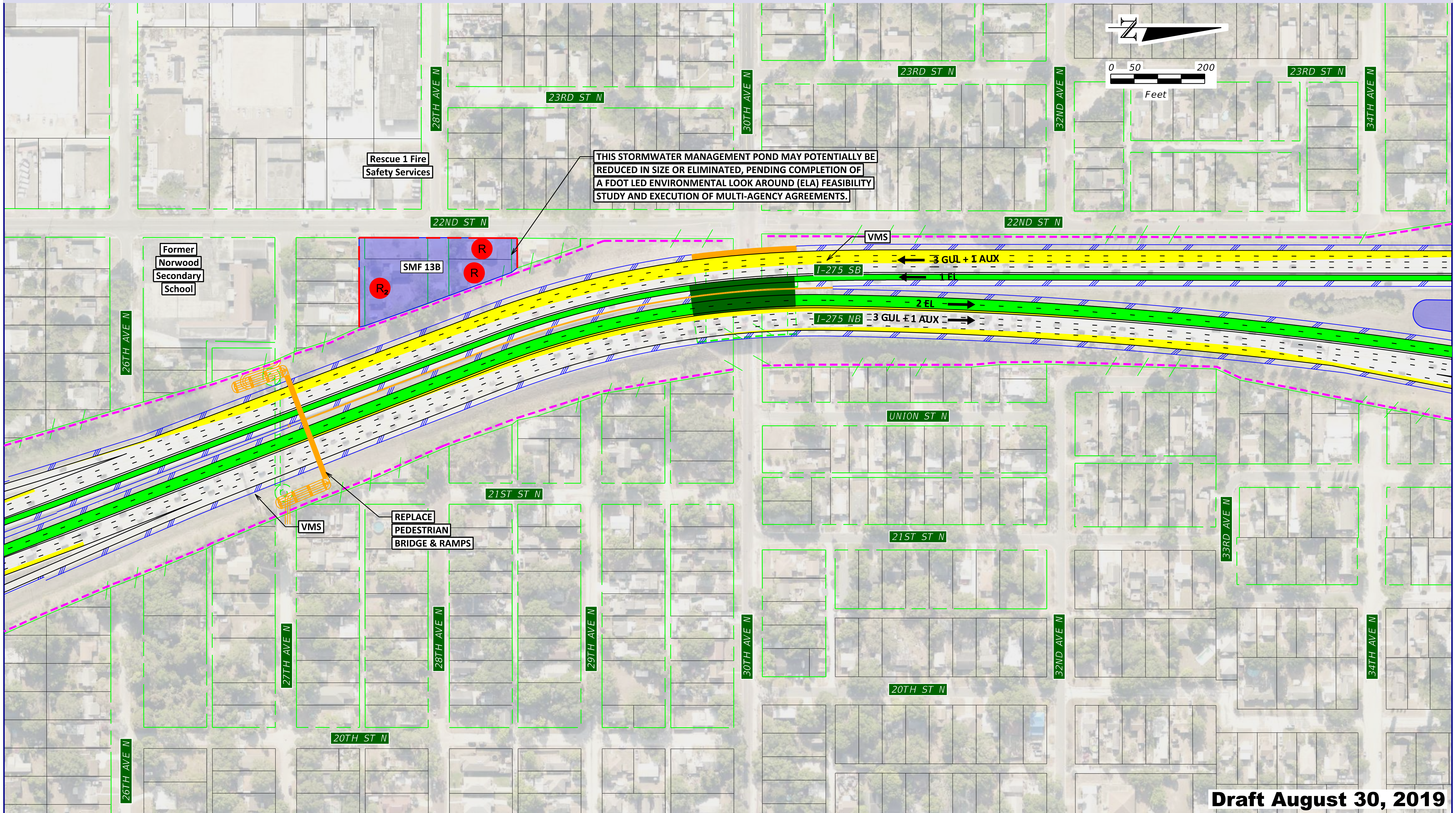
PAVEMENT WIDENING/ RECONSTRUCTION	PEDESTRIAN TRAIL	SEAGRASS	FLOOD PLAINS	PROPOSED LA R/W
PAVEMENT REMOVAL	EXPRESS LANE BRIDGE	WETLANDS	CONTAMINATION	EXISTING LA R/W
BARRIER WALL	EXPRESS LANES	SURFACE WATER	POTENTIAL RESIDENTIAL RELOCATION	PROPOSED EASEMENT
BRIDGE WIDENING	BRIDGES	MANGROVES	POTENTIAL NOISE BARRIER	PREFERRED SMF SITE & PROPOSED SMF R/W
	KENWOOD HISTORIC DISTRICT			

ITS CAMERA
EL = EXPRESS LANES
GUL = GENERAL USE LANES
AUX = AUXILIARY LANES
Aerial Photos Jan. '18 - Apr. '18

Concept Plans
Design Change Re-evaluation

SHEET NO.
12

I-275 (SR 93) DESIGN CHANGE RE-EVALUATION



LEGEND:

- PAVEMENT WIDENING/ RECONSTRUCTION
- PAVEMENT REMOVAL
- BARRIER WALL
- BRIDGE WIDENING
- PEDESTRIAN TRAIL
- EXPRESS LANE BRIDGE
- EXPRESS LANES
- BRIDGES
- KENWOOD HISTORIC DISTRICT
- SEAGRASS
- WETLANDS
- SURFACE WATER
- MANGROVES
- FLOOD PLAINS
- CONTAMINATION
- POTENTIAL RESIDENTIAL RELOCATION
- POTENTIAL NOISE BARRIER
- PROPOSED LA R/W
- EXISTING LA R/W
- PROPOSED EASEMENT
- PREFERRED SMF SITE & PROPOSED SMF R/W
- ITS CAMERA
- EL = EXPRESS LANES
- GUL = GENERAL USE LANES
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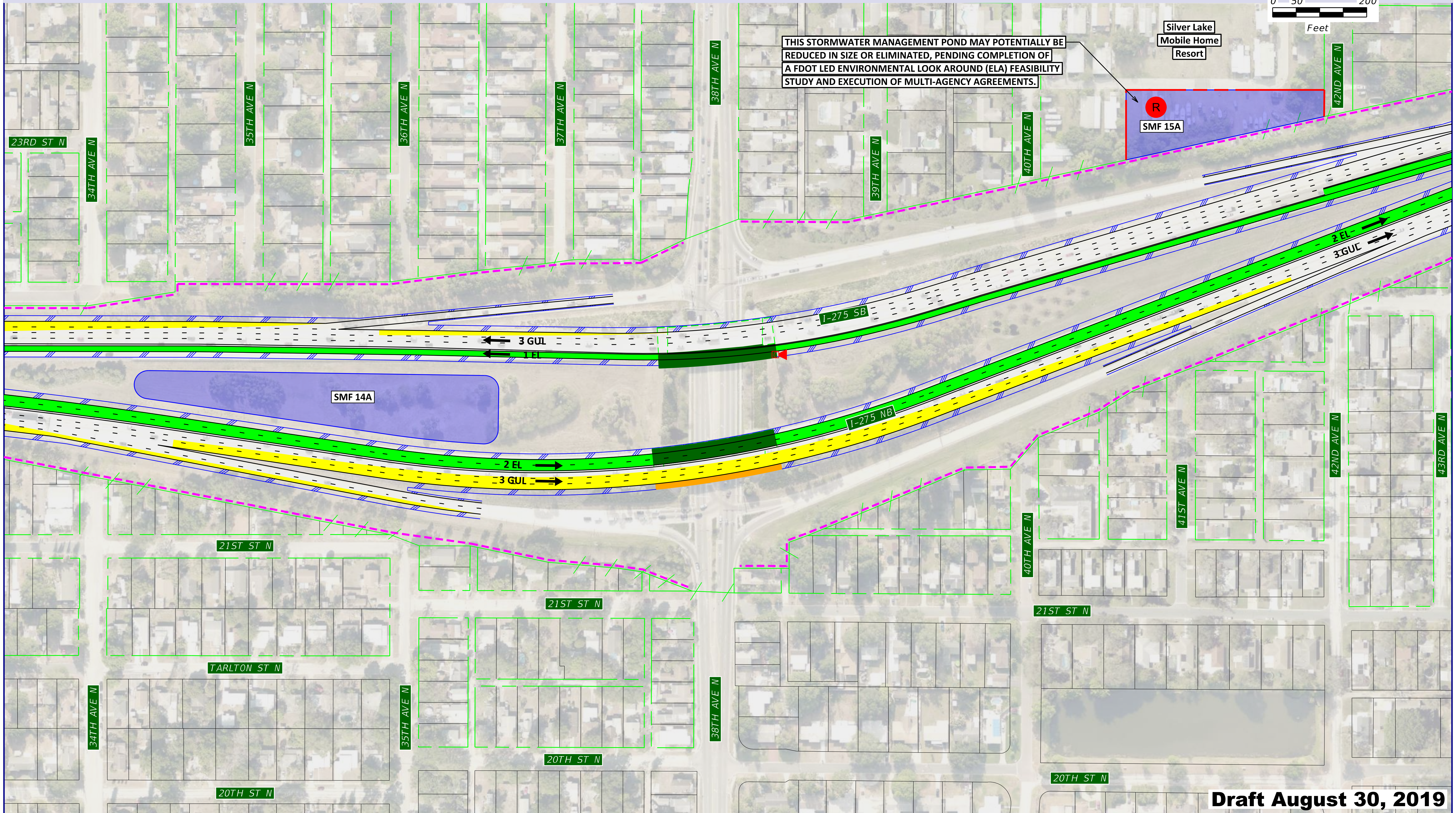
Aerial Photos Jan. '18 - Apr. '18

Concept Plans
Design Change Re-evaluation

SHEET NO. 13

I-275 (SR 93) DESIGN CHANGE RE-EVALUATION



Draft August 30, 2019

LEGEND:

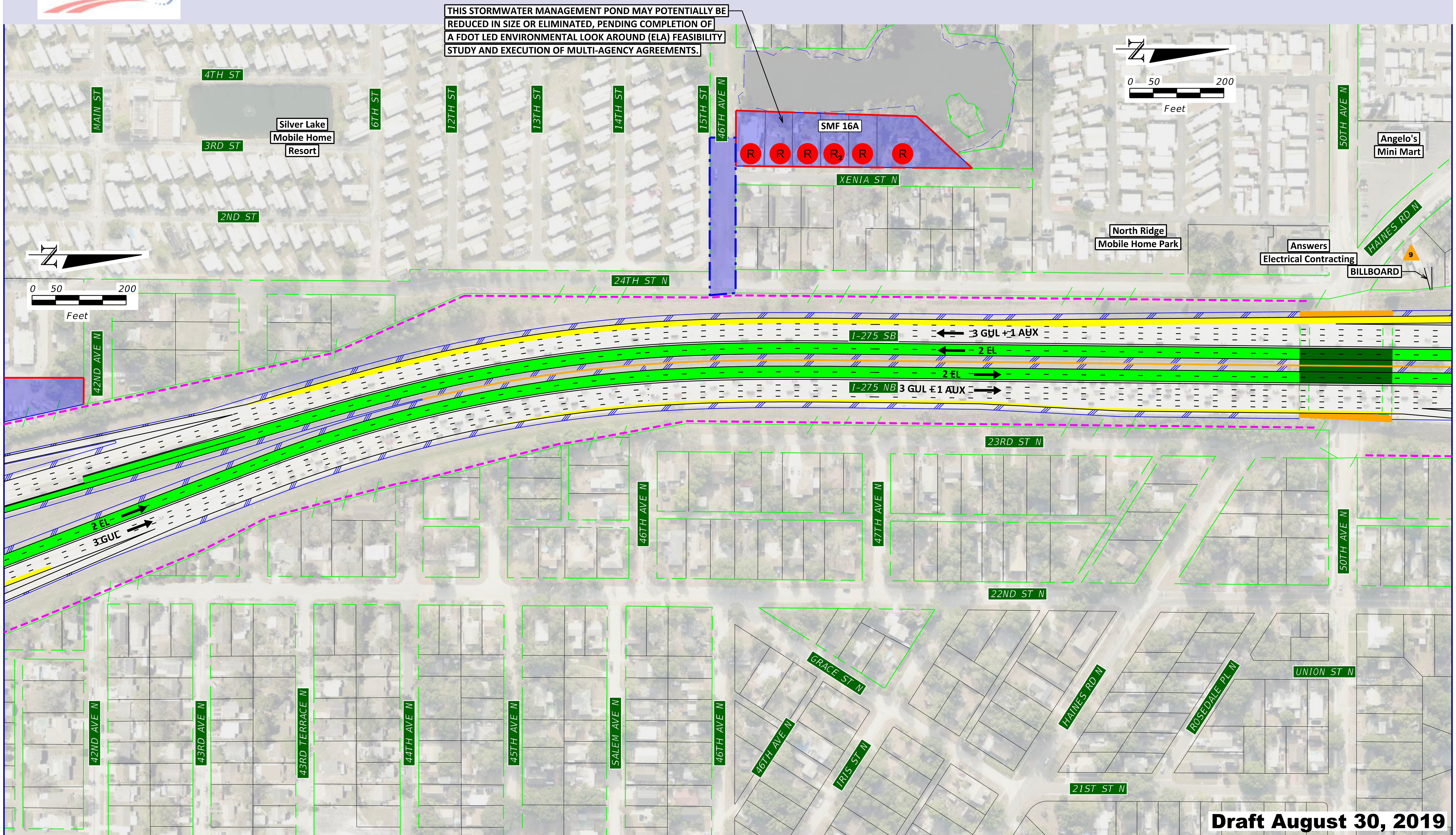
- PAVEMENT WIDENING/ RECONSTRUCTION
- PAVEMENT REMOVAL
- BARRIER WALL
- BRIDGE WIDENING
- PEDESTRIAN TRAIL
- EXPRESS LANE BRIDGE
- EXPRESS LANES
- BRIDGES
- KENWOOD HISTORIC DISTRICT
- SEAGRASS
- WETLANDS
- SURFACE WATER
- MANGROVES
- FLOOD PLAINS
- CONTAMINATION
- POTENTIAL RESIDENTIAL RELOCATION
- POTENTIAL NOISE BARRIER
- PROPOSED LA R/W
- EXISTING LA R/W
- PROPOSED EASEMENT
- PREFERRED SMF SITE & PROPOSED SMF R/W
- ITS CAMERA
- EL = EXPRESS LANES
- GUL = GENERAL USE LANES
- AUX = AUXILIARY LANES

Aerial Photos Jan. '18 - Apr. '18

Concept Plans
Design Change Re-evaluation

SHEET NO. 14

I-275 (SR 93) DESIGN CHANGE RE-EVALUATION



LEGEND:

- PAVEMENT WIDENING/ RECONSTRUCTION
- PAVEMENT REMOVAL
- BARRIER WALL
- BRIDGE WIDENING
- PEDESTRIAN TRAIL
- EXPRESS LANE BRIDGE
- EXPRESS LANES
- BRIDGES
- KENWOOD HISTORIC DISTRICT
- SEAGRASS
- WETLANDS
- SURFACE WATER
- MANGROVES
- FLOOD PLAINS
- CONTAMINATION
- POTENTIAL RESIDENTIAL RELOCATION
- POTENTIAL NOISE BARRIER
- PROPOSED LA R/W
- EXISTING LA R/W
- PROPOSED EASEMENT
- PREFERRED SMF SITE & PROPOSED SMF R/W
- ITS CAMERA
- EL = EXPRESS LANES
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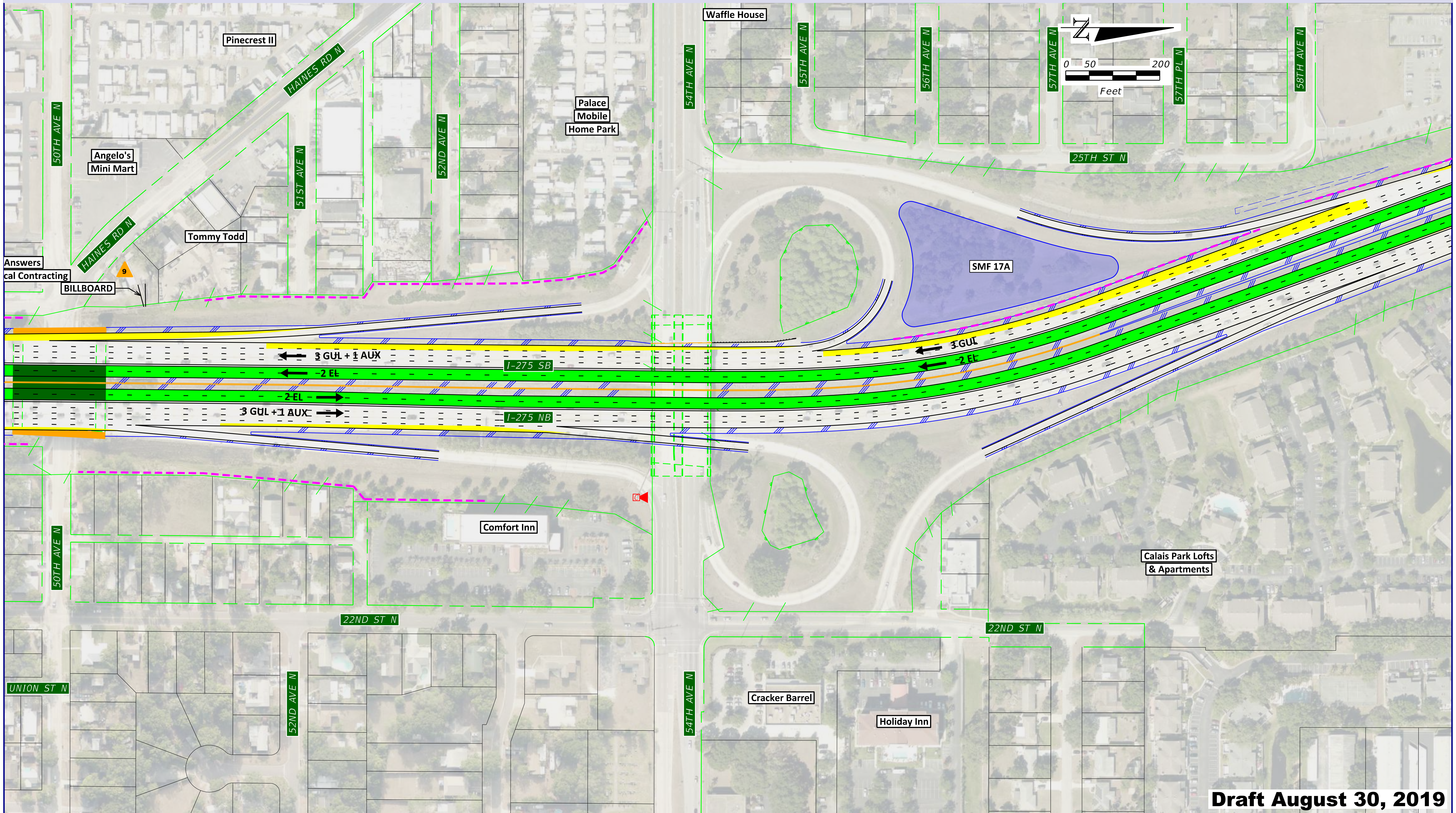
Aerial Photos Jan. '18 - Apr. '18

Concept Plans
Design Change Re-evaluation

SHEET NO. 15

I-275 (SR 93) DESIGN CHANGE RE-EVALUATION



LEGEND:

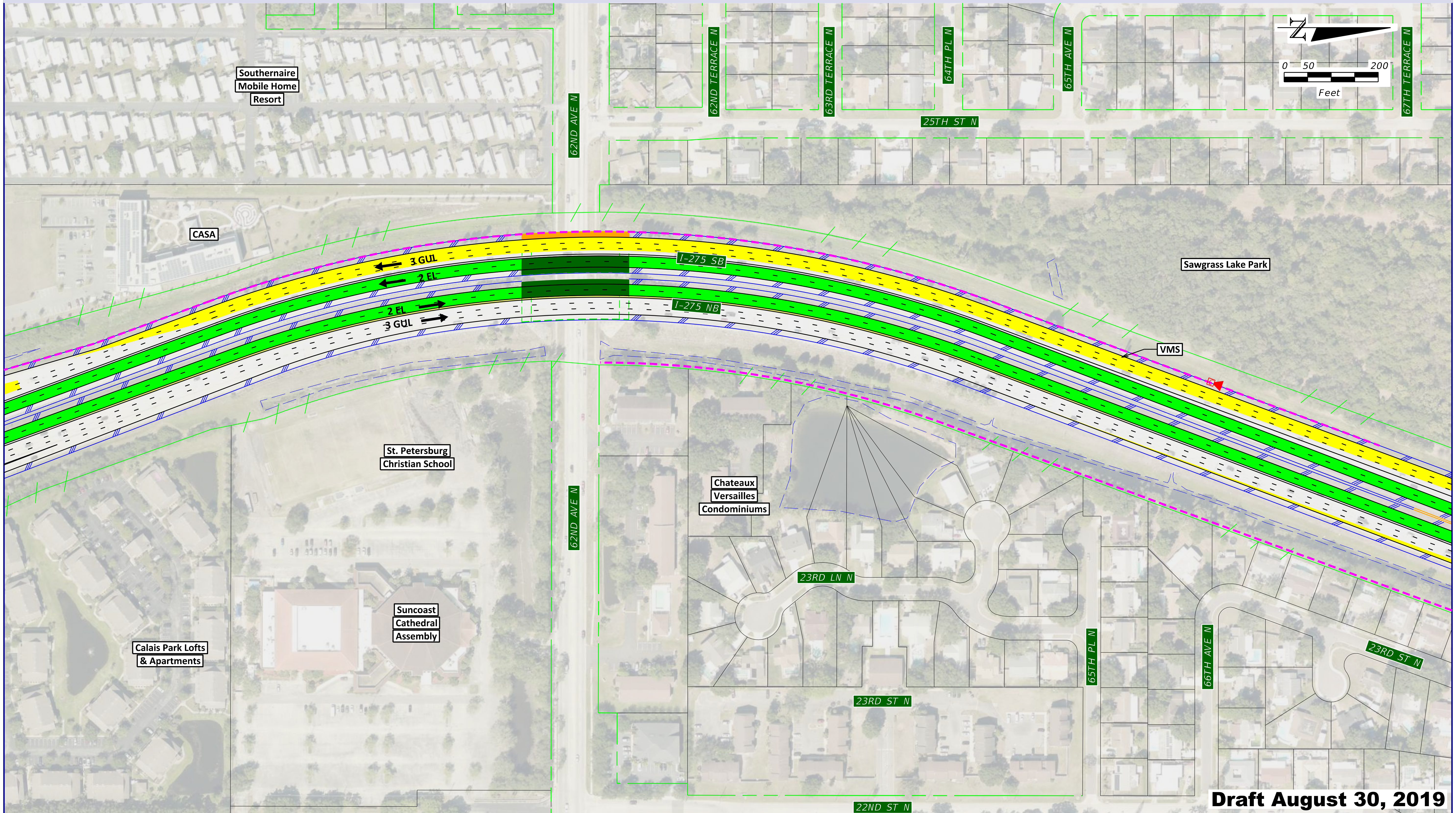
PAVEMENT WIDENING/ RECONSTRUCTION	PEDESTRIAN TRAIL	SEAGRASS	FLOOD PLAINS	PROPOSED LA R/W
PAVEMENT REMOVAL	EXPRESS LANE BRIDGE	WETLANDS	CONTAMINATION	EXISTING LA R/W
BARRIER WALL	EXPRESS LANES	SURFACE WATER	POTENTIAL RESIDENTIAL RELOCATION	PROPOSED EASEMENT
BRIDGE WIDENING	BRIDGES	MANGROVES	POTENTIAL NOISE BARRIER	PREFERRED SMF SITE & PROPOSED SMF R/W
	KENWOOD HISTORIC DISTRICT			

ITS CAMERA
EL = EXPRESS LANES
GUL = GENERAL USE LANES
AUX = AUXILIARY LANES
Aerial Photos Jan. '18 - Apr. '18

Concept Plans
Design Change Re-evaluation

SHEET NO. 16

I-275 (SR 93) DESIGN CHANGE RE-EVALUATION



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LEGEND:

- PAVEMENT WIDENING/ RECONSTRUCTION
- PAVEMENT REMOVAL
- BARRIER WALL
- BRIDGE WIDENING
- PEDESTRIAN TRAIL
- EXPRESS LANE BRIDGE
- EXPRESS LANES
- BRIDGES
- KENWOOD HISTORIC DISTRICT
- SEAGRASS
- WETLANDS
- SURFACE WATER
- MANGROVES
- FLOOD PLAINS
- CONTAMINATION
- POTENTIAL RESIDENTIAL RELOCATION
- POTENTIAL NOISE BARRIER
- PROPOSED LA R/W
- EXISTING LA R/W
- PROPOSED EASEMENT
- PREFERRED SMF SITE & PROPOSED SMF R/W
- ITS CAMERA
- EL = EXPRESS LANES
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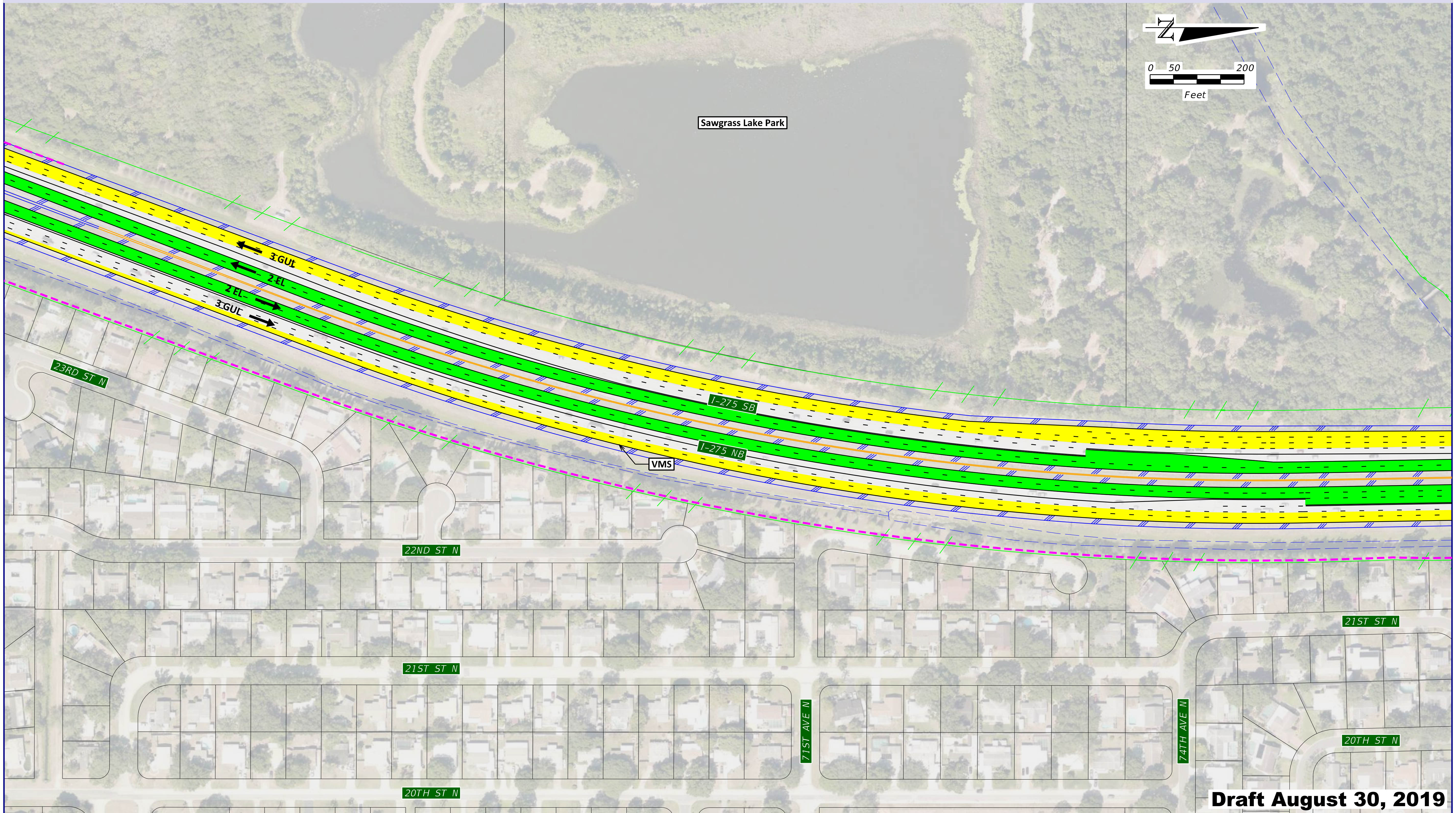
- AUX = AUXILIARY LANES

Aerial Photos Jan. '18 - Apr. '18

Concept Plans
Design Change Re-evaluation

SHEET NO. 17



LEGEND:

PAVEMENT WIDENING/ RECONSTRUCTION
PAVEMENT REMOVAL
BARRIER WALL
BRIDGE WIDENING
PEDESTRIAN TRAIL
EXPRESS LANE BRIDGE
EXPRESS LANES
BRIDGES
KENWOOD HISTORIC DISTRICT
SEAGRASS
WETLANDS
SURFACE WATER
MANGROVES
FLOOD PLAINS
CONTAMINATION
POTENTIAL RESIDENTIAL RELOCATION
POTENTIAL NOISE BARRIER
PROPOSED LA R/W
EXISTING LA R/W
PROPOSED EASEMENT
PREFERRED SMF SITE & PROPOSED SMF R/W
ITS CAMERA
EL = EXPRESS LANES
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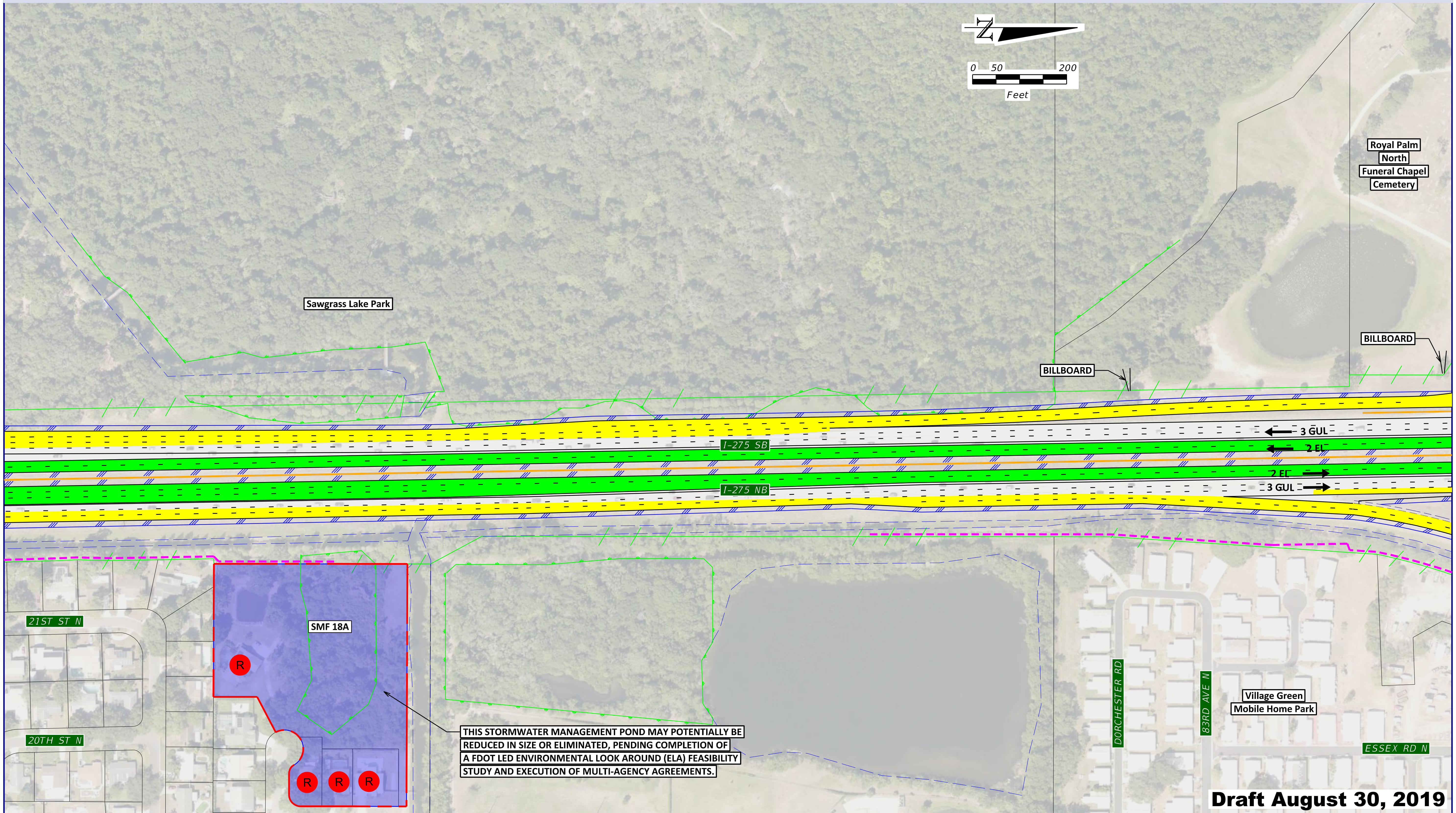
AUX = AUXILIARY LANES
Aerial Photos Jan. '18 - Apr. '18

Concept Plans
Design Change Re-evaluation

SHEET NO.
18

I-275 (SR 93) DESIGN CHANGE RE-EVALUATION



LEGEND:

PAVEMENT WIDENING/ RECONSTRUCTION	PEDESTRIAN TRAIL	SEAGRASS	FLOOD PLAINS	PROPOSED LA R/W
PAVEMENT REMOVAL	EXPRESS LANE BRIDGE	WETLANDS	CONTAMINATION	EXISTING LA R/W
BARRIER WALL	EXPRESS LANES	SURFACE WATER	POTENTIAL RESIDENTIAL RELOCATION	PROPOSED EASEMENT
BRIDGE WIDENING	BRIDGES	MANGROVES	POTENTIAL NOISE BARRIER	PREFERRED SMF SITE & PROPOSED SMF R/W
	KENWOOD HISTORIC DISTRICT			

ITS CAMERA
EL = EXPRESS LANES
GUL = GENERAL USE LANES
AUX = AUXILIARY LANES
Aerial Photos Jan. '18 - Apr. '18

Concept Plans
Design Change Re-evaluation

SHEET NO. 19

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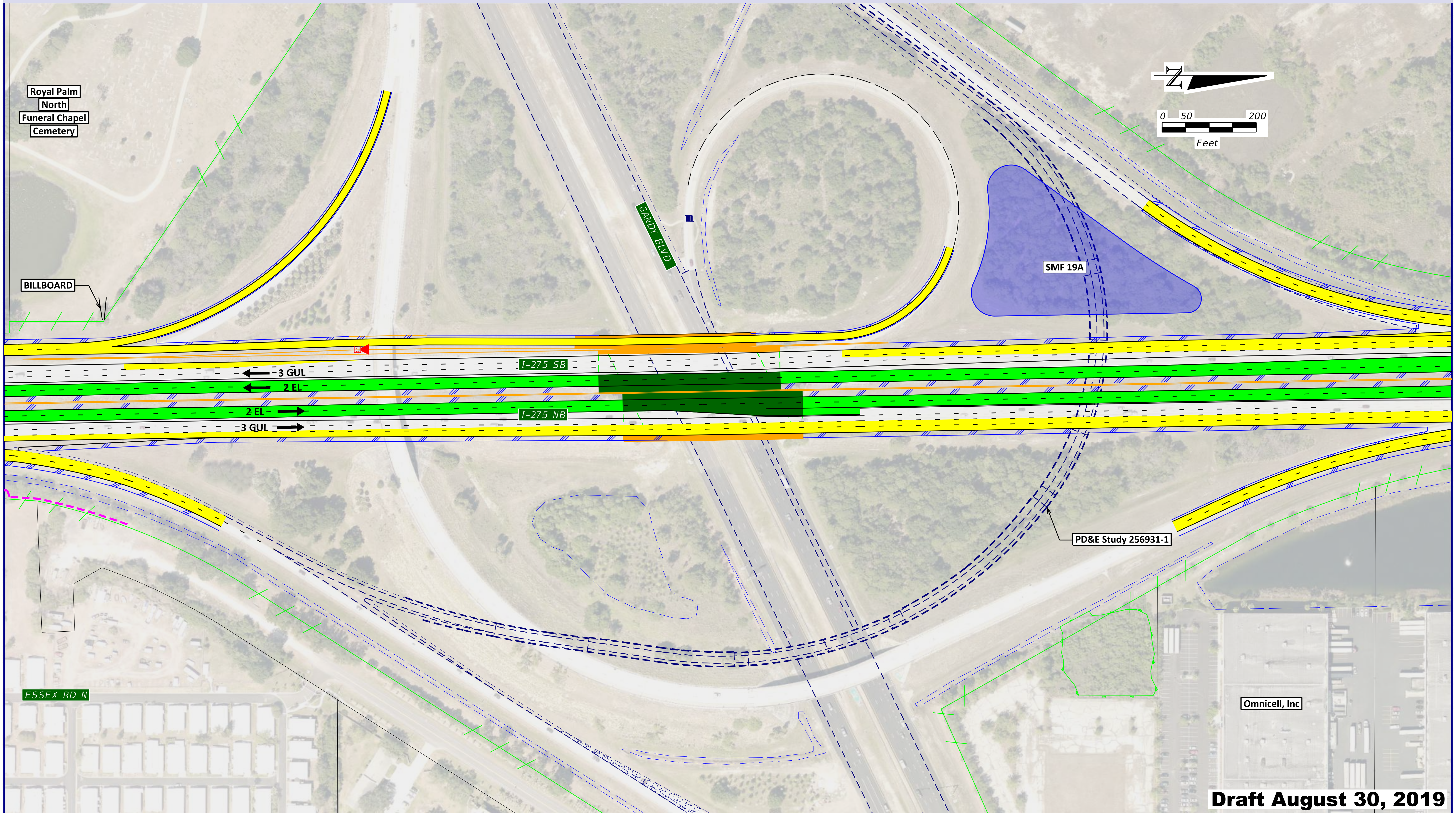
I-275 (SR 93) DESIGN CHANGE RE-EVALUATION



LEGEND:

- PAVEMENT WIDENING/ RECONSTRUCTION
- PAVEMENT REMOVAL
- BARRIER WALL
- BRIDGE WIDENING
- PEDESTRIAN TRAIL
- EXPRESS LANE BRIDGE
- EXPRESS LANES
- BRIDGES
- KENWOOD HISTORIC DISTRICT
- SEAGRASS
- WETLANDS
- SURFACE WATER
- MANGROVES
- FLOOD PLAINS
- CONTAMINATION
- POTENTIAL RESIDENTIAL RELOCATION
- POTENTIAL NOISE BARRIER
- PROPOSED LA R/W
- EXISTING LA R/W
- PROPOSED EASEMENT
- PREFERRED SMF SITE & PROPOSED SMF R/W
- ITS CAMERA

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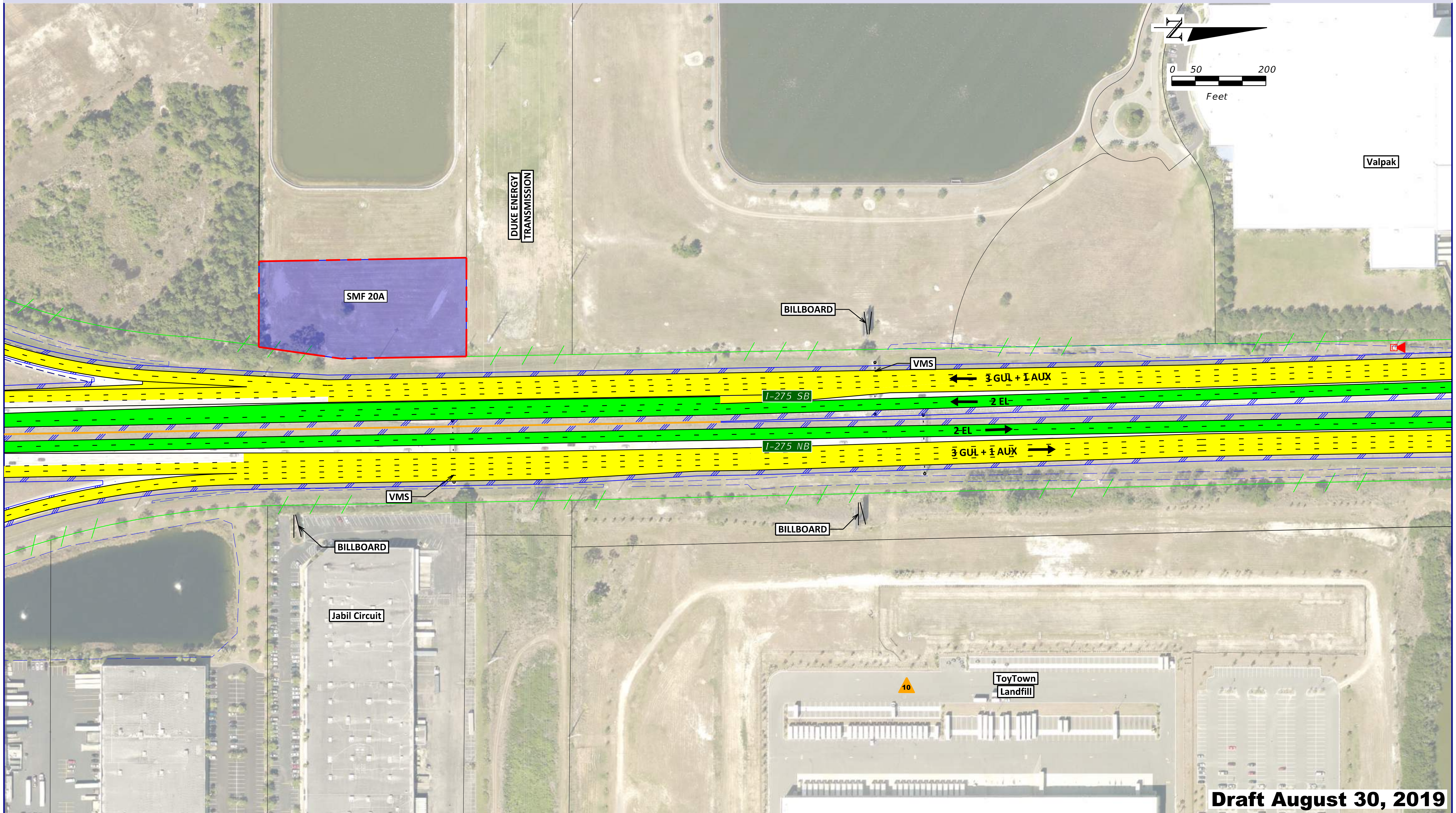
GUL = GENERAL USE LANES
AUX = AUXILIARY LANES

Aerial Photos Jan. '18 - Apr. '18

Concept Plans
Design Change Re-evaluation

SHEET NO. 20

CTOMPKINS 8/30/2019 10:24:07 AM I:\TPA\PRJ\000014672\CADD\42450112201\roadway\PLANRD21.DGN



LEGEND:

- PAVEMENT WIDENING/ RECONSTRUCTION
- PAVEMENT REMOVAL
- BARRIER WALL
- BRIDGE WIDENING
- PEDESTRIAN TRAIL
- EXPRESS LANE BRIDGE
- EXPRESS LANES
- BRIDGES
- KENWOOD HISTORIC DISTRICT
- SEAGRASS
- WETLANDS
- SURFACE WATER
- MANGROVES
- FLOOD PLAINS
- CONTAMINATION
- POTENTIAL RESIDENTIAL RELOCATION
- POTENTIAL NOISE BARRIER
- PROPOSED LA R/W
- EXISTING LA R/W
- PROPOSED EASEMENT
- PREFERRED SMF SITE & PROPOSED SMF R/W
- ITS CAMERA

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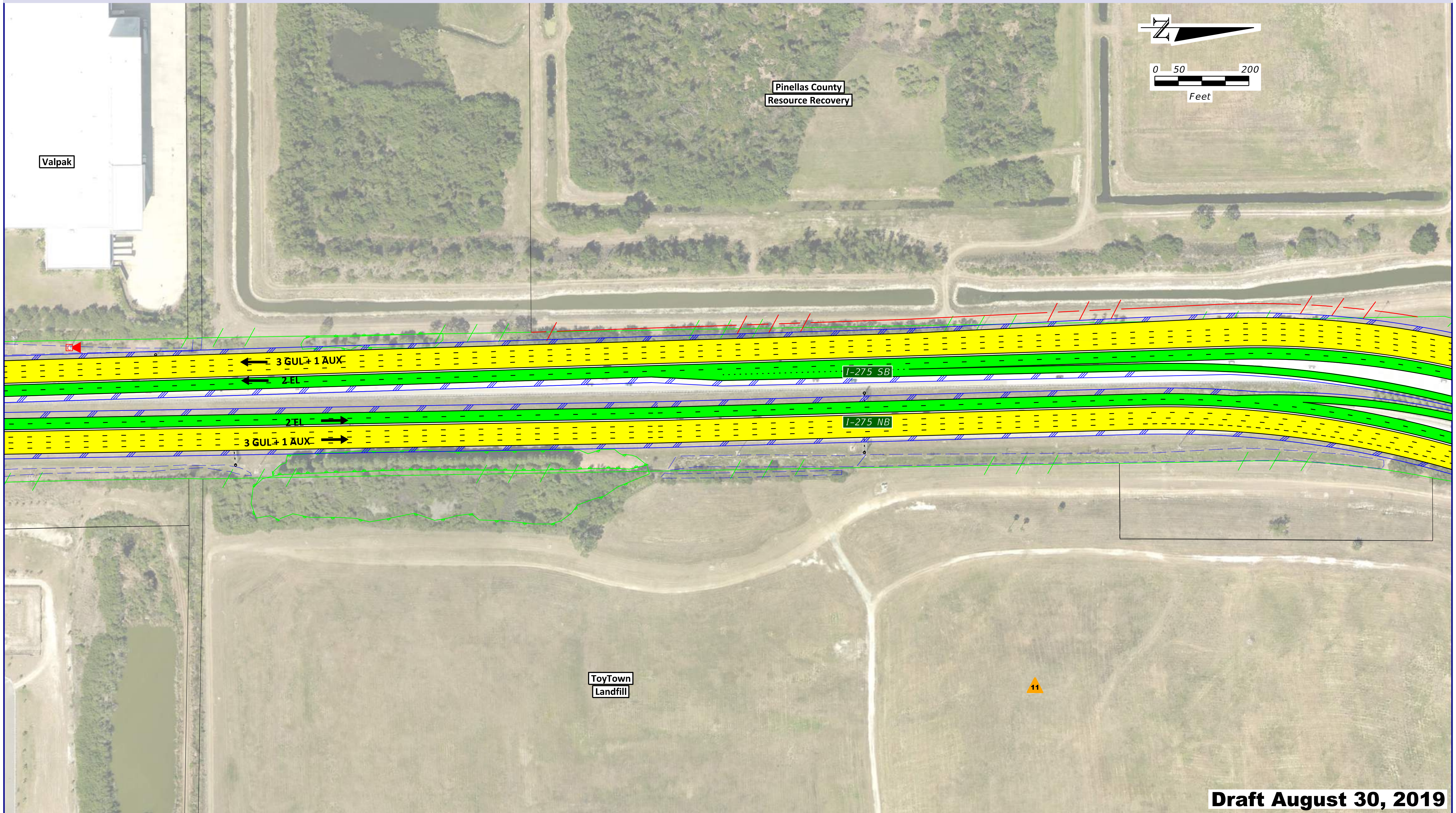
AUX = AUXILIARY LANES
Aerial Photos Jan. '18 - Apr. '18

Concept Plans
Design Change Re-evaluation

SHEET NO. 21

I-275 (SR 93) DESIGN CHANGE RE-EVALUATION



LEGEND:

- PAVEMENT WIDENING/ RECONSTRUCTION
- PAVEMENT REMOVAL
- BARRIER WALL
- BRIDGE WIDENING
- PEDESTRIAN TRAIL
- EXPRESS LANE BRIDGE
- EXPRESS LANES
- BRIDGES
- KENWOOD HISTORIC DISTRICT
- SEAGRASS
- WETLANDS
- SURFACE WATER
- MANGROVES
- FLOOD PLAINS
- CONTAMINATION
- POTENTIAL RESIDENTIAL RELOCATION
- POTENTIAL NOISE BARRIER
- PROPOSED LA R/W
- EXISTING LA R/W
- PROPOSED EASEMENT
- PREFERRED SMF SITE & PROPOSED SMF R/W
- ITS CAMERA

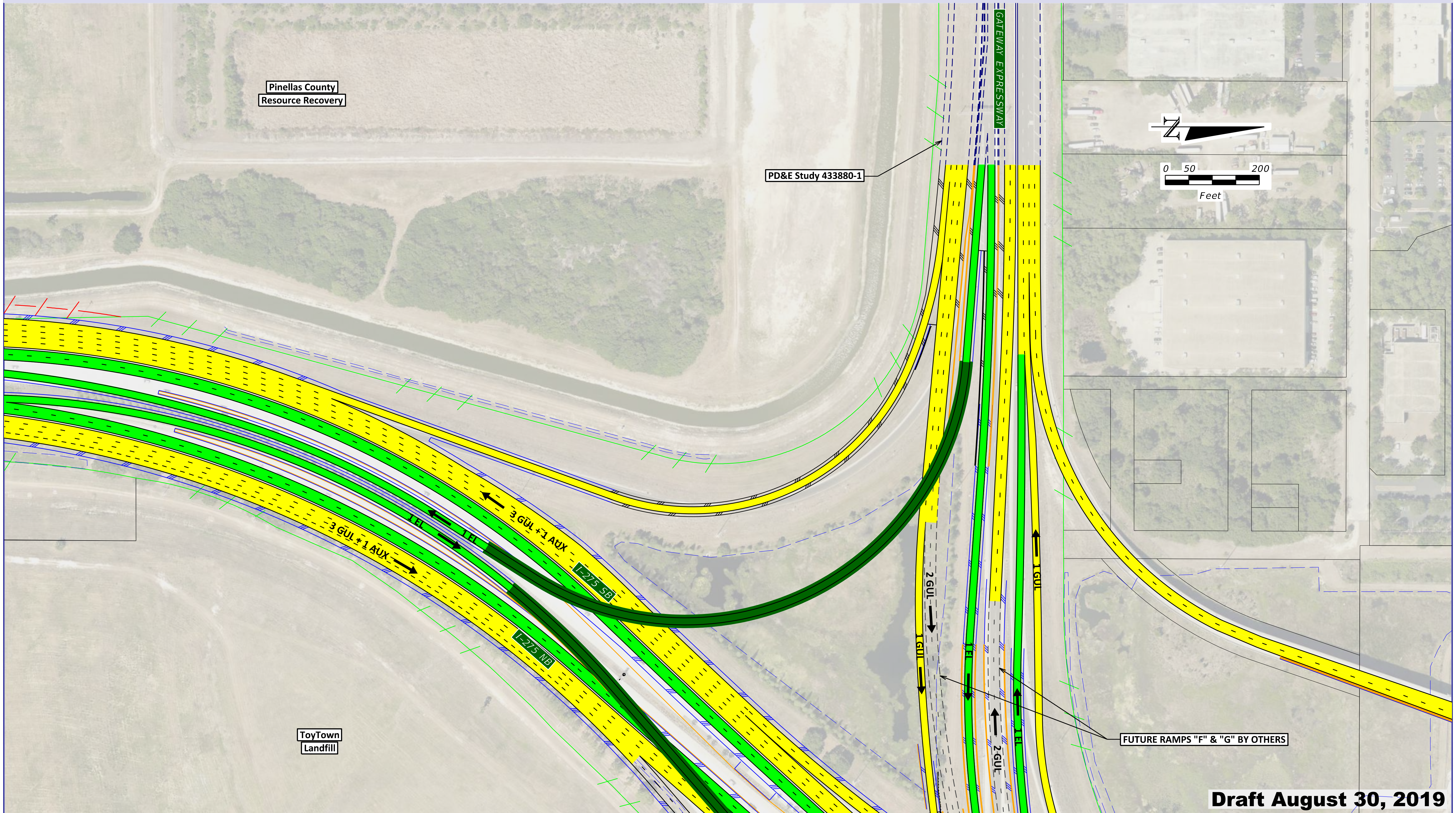
EL = EXPRESS LANES
GUL = GENERAL USE LANES
AUX = AUXILIARY LANES

Aerial Photos Jan. '18 - Apr. '18

Concept Plans
Design Change Re-evaluation

SHEET NO. 22

I-275 (SR 93) DESIGN CHANGE RE-EVALUATION



Draft August 30, 2019

LEGEND:

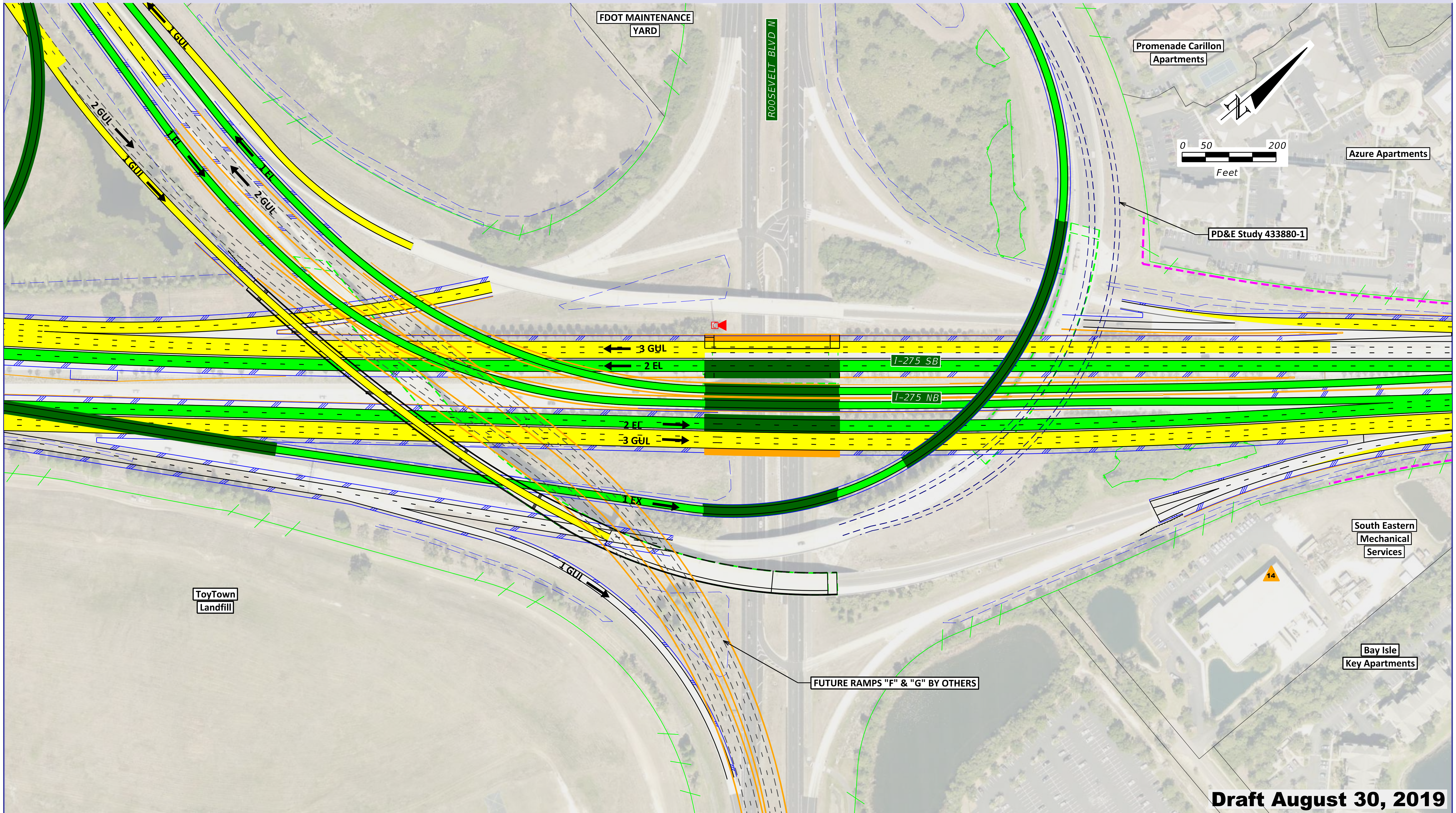
- PAVEMENT WIDENING/ RECONSTRUCTION
- PAVEMENT REMOVAL
- BARRIER WALL
- BRIDGE WIDENING
- PEDESTRIAN TRAIL
- EXPRESS LANE BRIDGE
- EXPRESS LANES
- BRIDGES
- KENWOOD HISTORIC DISTRICT
- SEAGRASS
- WETLANDS
- SURFACE WATER
- MANGROVES
- FLOOD PLAINS
- CONTAMINATION
- POTENTIAL RESIDENTIAL RELOCATION
- POTENTIAL NOISE BARRIER
- PROPOSED LA R/W
- EXISTING LA R/W
- PROPOSED EASEMENT
- PREFERRED SMF SITE & PROPOSED SMF R/W
- ITS CAMERA
- EL = EXPRESS LANES
- GUL = GENERAL USE LANES
- AUX = AUXILIARY LANES

Aerial Photos Jan. '18 - Apr. '18

Concept Plans
Design Change Re-evaluation

SHEET NO. 23

I-275 (SR 93) DESIGN CHANGE RE-EVALUATION



Draft August 30, 2019

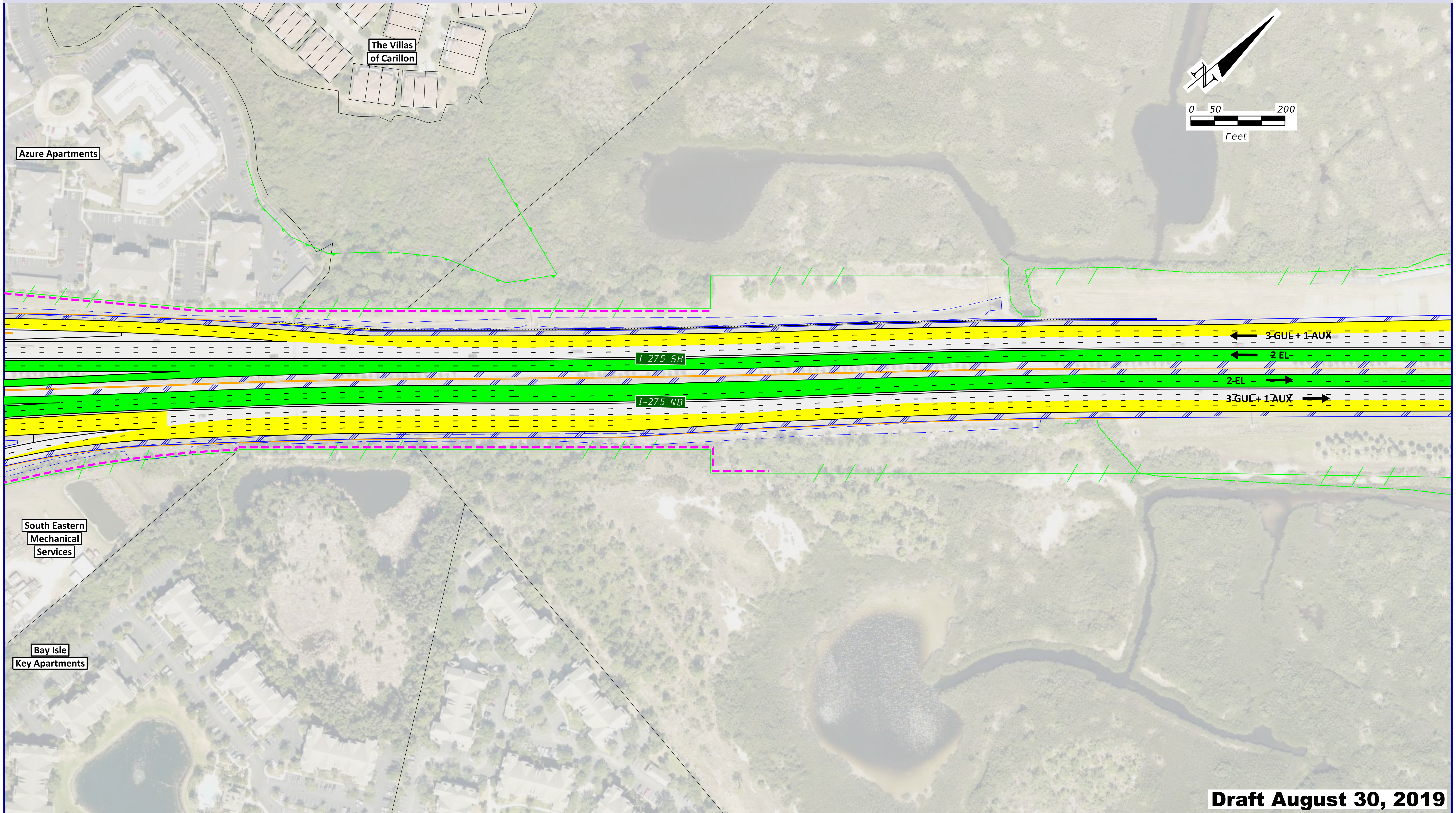
LEGEND:

- PAVEMENT WIDENING/ RECONSTRUCTION
- PAVEMENT REMOVAL
- BARRIER WALL
- BRIDGE WIDENING
- PEDESTRIAN TRAIL
- EXPRESS LANE BRIDGE
- EXPRESS LANES
- BRIDGES
- KENWOOD HISTORIC DISTRICT
- SEAGRASS
- WETLANDS
- SURFACE WATER
- MANGROVES
- FLOOD PLAINS
- CONTAMINATION
- POTENTIAL RESIDENTIAL RELOCATION
- POTENTIAL NOISE BARRIER
- PROPOSED LA R/W
- EXISTING LA R/W
- PROPOSED EASEMENT
- PREFERRED SMF SITE & PROPOSED SMF R/W
- ITS CAMERA
- EL = EXPRESS LANES
- GUL = GENERAL USE LANES
- AUX = AUXILIARY LANES

Aerial Photos Jan. '18 - Apr. '18

Concept Plans
Design Change Re-evaluation

SHEET NO. 24



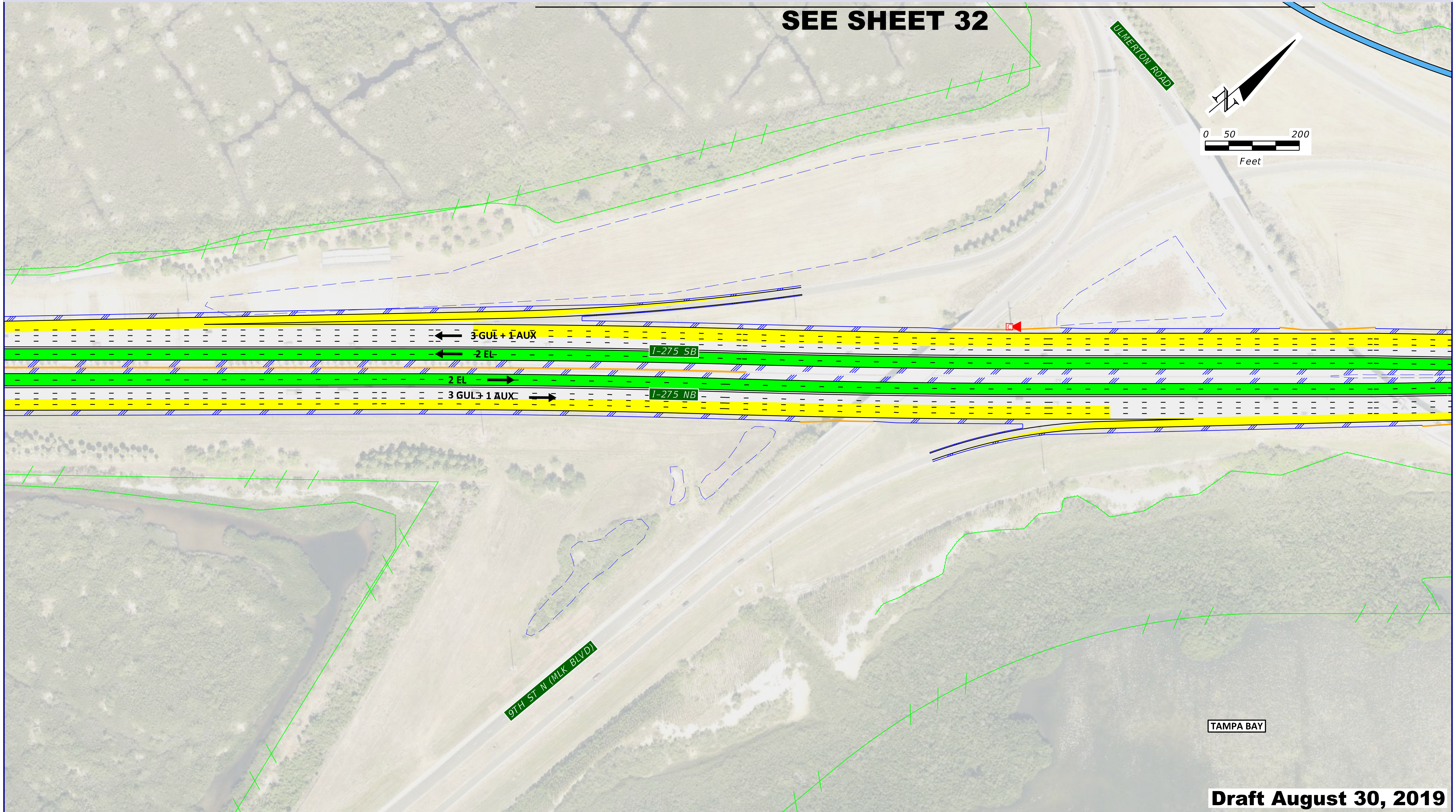
LEGEND:

PAVEMENT WIDENING/ RECONSTRUCTION	PEDESTRIAN TRAIL	SEAGRASS	FLOOD PLAINS
PAVEMENT REMOVAL	EXPRESS LANE BRIDGE	WETLANDS	CONTAMINATION
BARRIER WALL	EXPRESS LANES	SURFACE WATER	POTENTIAL RESIDENTIAL RELOCATION
BRIDGE WIDENING	BRIDGES	MANGROVES	POTENTIAL NOISE BARRIER
	KENWOOD HISTORIC DISTRICT		

PROPOSED LA R/W	ITS CAMERA
EXISTING LA R/W	EL = EXPRESS LANES
PROPOSED EASEMENT	GUL = GENERAL USE LANES
PREFERRED SMF SITE & PROPOSED SMF R/W	AUX = AUXILIARY LANES
	Aerial Photos Jan. '18 - Apr. '18

Concept Plans
Design Change Re-evaluation

SHEET NO. 25



LEGEND:

- PAVEMENT WIDENING/ RECONSTRUCTION
- PAVEMENT REMOVAL
- BARRIER WALL
- BRIDGE WIDENING
- PEDESTRIAN TRAIL
- EXPRESS LANE BRIDGE
- EXPRESS LANES
- BRIDGES
- KENWOOD HISTORIC DISTRICT
- SEAGRASS
- WETLANDS
- SURFACE WATER
- MANGROVES
- FLOOD PLAINS
- CONTAMINATION
- POTENTIAL RESIDENTIAL RELOCATION
- POTENTIAL NOISE BARRIER
- PROPOSED LA R/W
- EXISTING LA R/W
- PROPOSED EASEMENT
- PREFERRED SMF SITE & PROPOSED SMF R/W
- ITS CAMERA

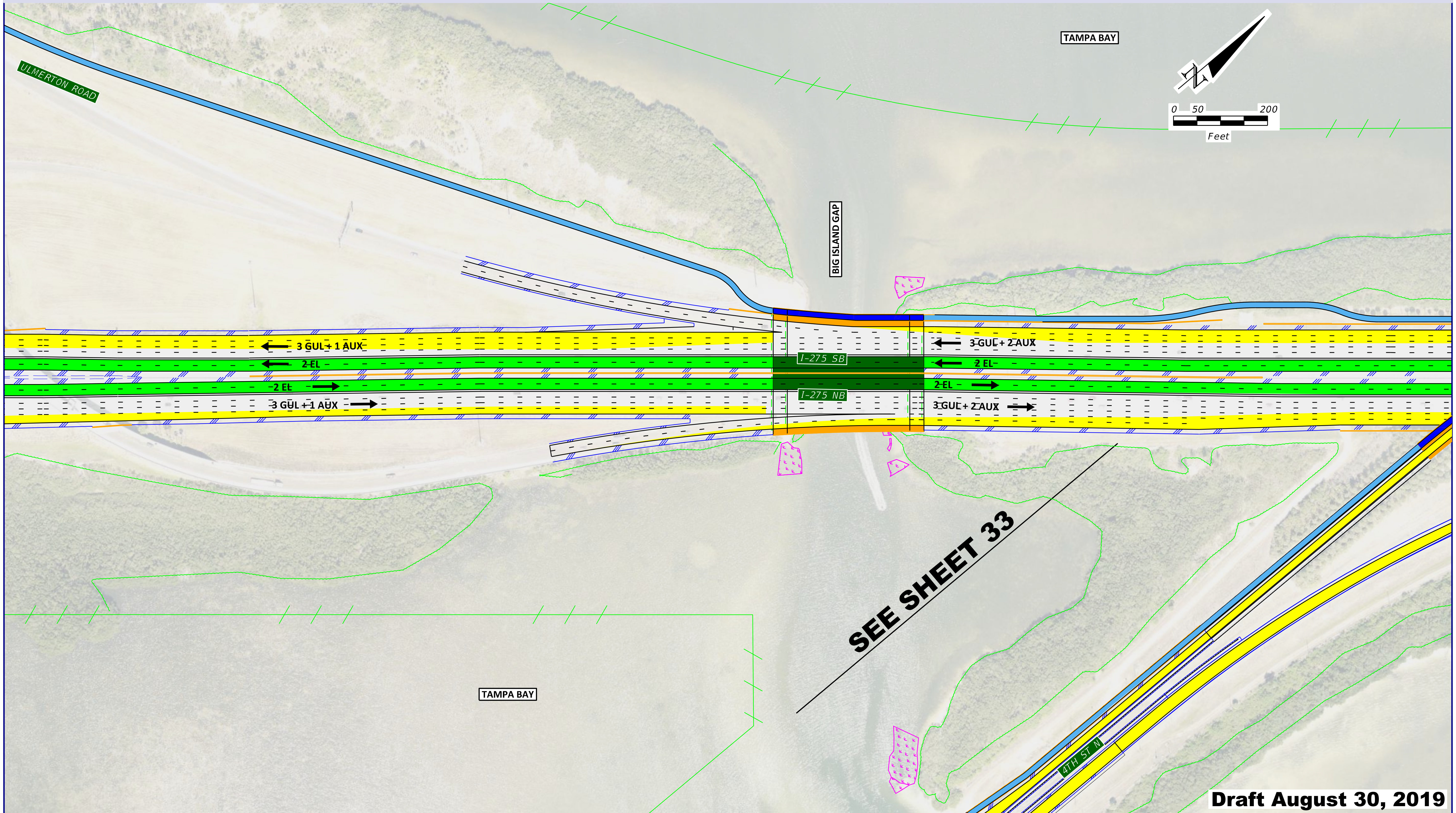
EL = EXPRESS LANES
GUL = GENERAL USE LANES
AUX = AUXILIARY LANES

Aerial Photos Jan. '18 - Apr. '18

Concept Plans
Design Change Re-evaluation

CTOMPKINS 8/30/2019 10:25:27 AM I:\TPA\PRJ\000014672\CADD\42450112201\roadway\PLANRD27.DGN

I-275 (SR 93) DESIGN CHANGE RE-EVALUATION



LEGEND:

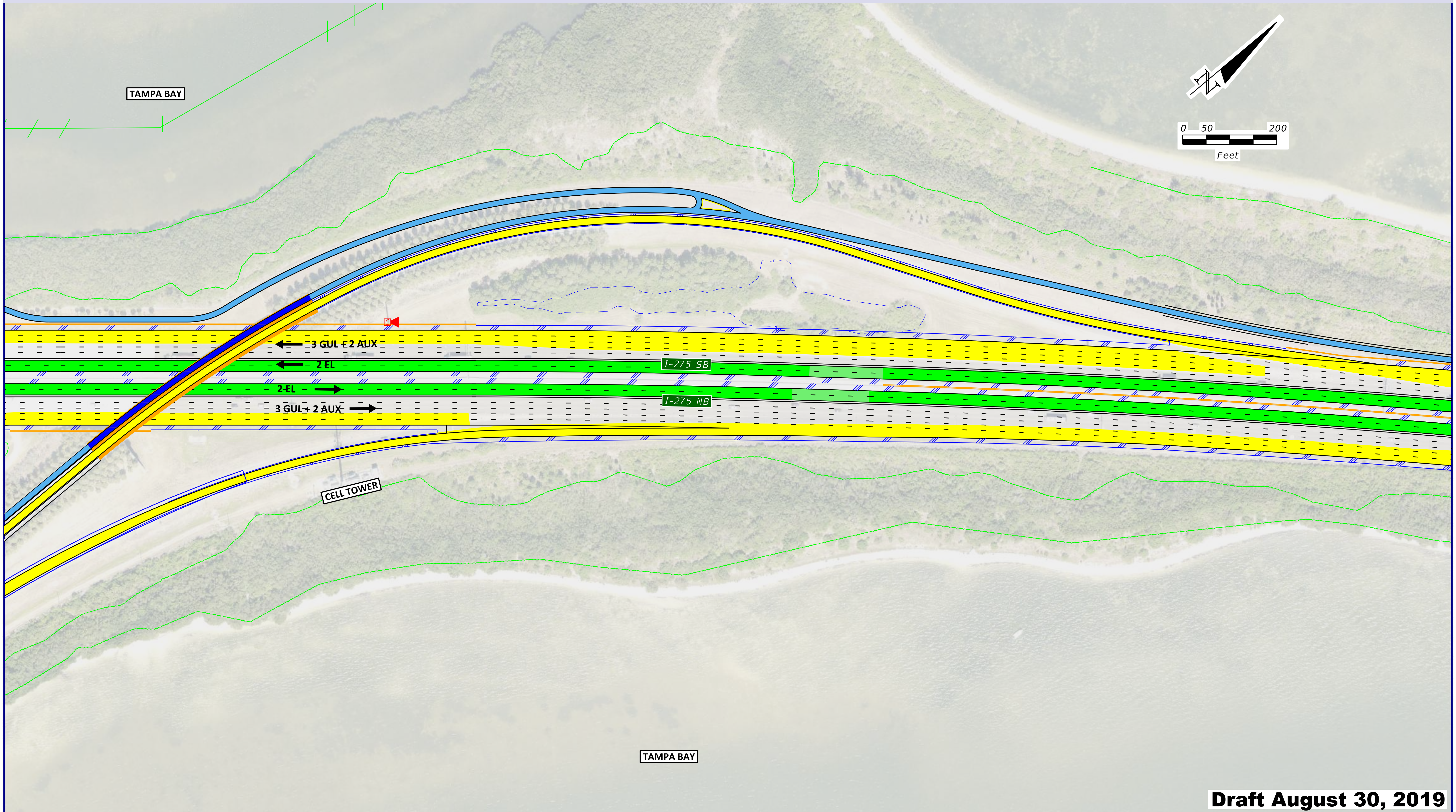
- PAVEMENT WIDENING/ RECONSTRUCTION
- PAVEMENT REMOVAL
- BARRIER WALL
- BRIDGE WIDENING
- PEDESTRIAN TRAIL
- EXPRESS LANE BRIDGE
- EXPRESS LANES
- BRIDGES
- KENWOOD HISTORIC DISTRICT
- SEAGRASS
- WETLANDS
- SURFACE WATER
- MANGROVES
- FLOOD PLAINS
- CONTAMINATION
- POTENTIAL RESIDENTIAL RELOCATION
- POTENTIAL NOISE BARRIER
- PROPOSED LA R/W
- EXISTING LA R/W
- PROPOSED EASEMENT
- PREFERRED SMF SITE & PROPOSED SMF R/W
- ITS CAMERA

EL = EXPRESS LANES
GUL = GENERAL USE LANES
AUX = AUXILIARY LANES
Aerial Photos Jan. '18 - Apr. '18

Concept Plans
Design Change Re-evaluation

SHEET NO. 27

I-275 (SR 93) DESIGN CHANGE RE-EVALUATION



Draft August 30, 2019

LEGEND:

- PAVEMENT WIDENING/ RECONSTRUCTION
- PAVEMENT REMOVAL
- BARRIER WALL
- BRIDGE WIDENING
- PEDESTRIAN TRAIL
- EXPRESS LANE BRIDGE
- EXPRESS LANES
- BRIDGES
- KENWOOD HISTORIC DISTRICT
- SEAGRASS
- WETLANDS
- SURFACE WATER
- MANGROVES
- FLOOD PLAINS
- CONTAMINATION
- POTENTIAL RESIDENTIAL RELOCATION
- POTENTIAL NOISE BARRIER
- PROPOSED LA R/W
- EXISTING LA R/W
- PROPOSED EASEMENT
- PREFERRED SMF SITE & PROPOSED SMF R/W
- ITS CAMERA

EL = EXPRESS LANES
GUL = GENERAL USE LANES
AUX = AUXILIARY LANES

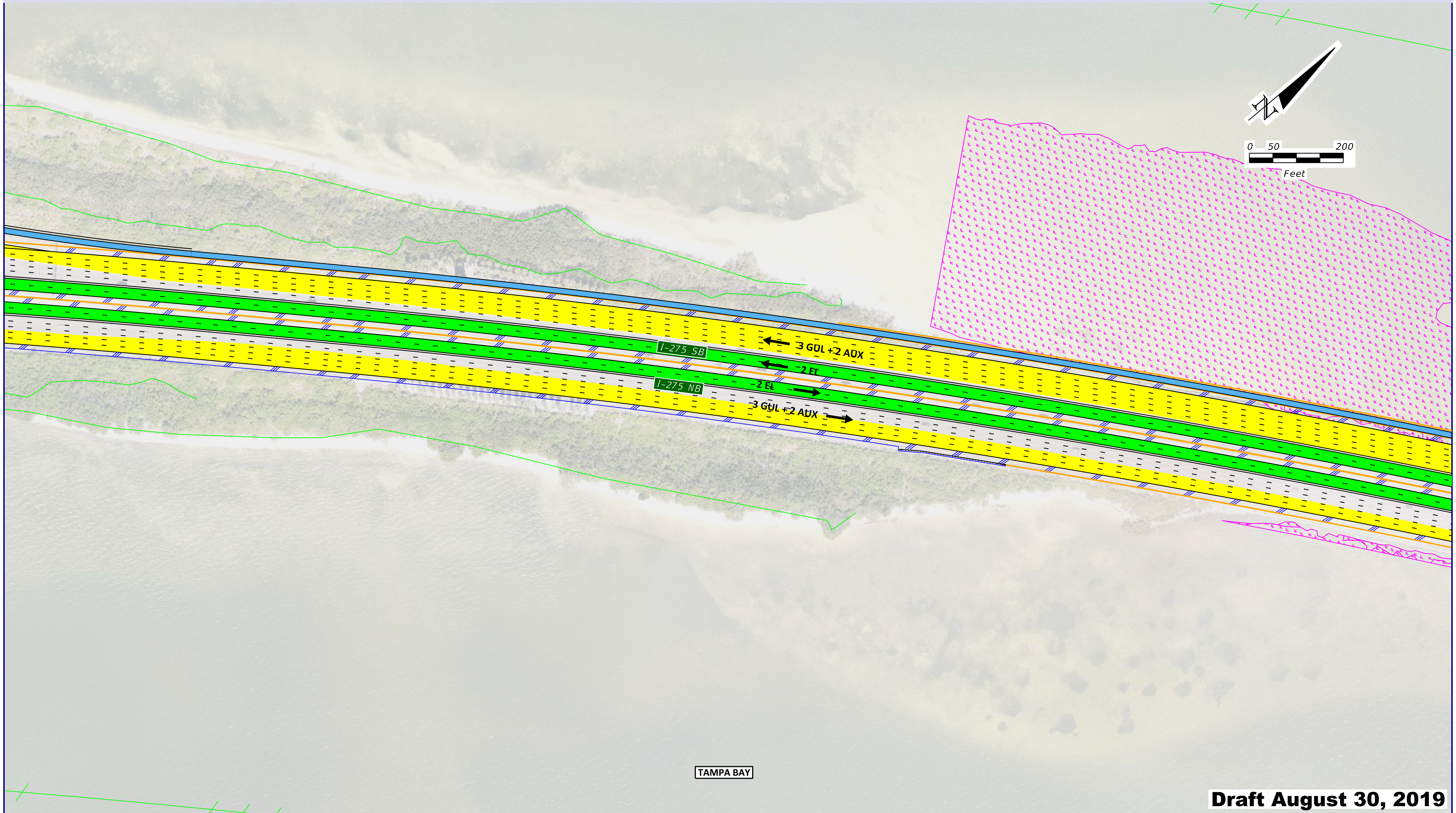
Aerial Photos Jan. '18 - Apr. '18

Concept Plans
Design Change Re-evaluation

SHEET NO. 28

CTOMPKINS 8/30/2019 10:25:52 AM I:\TPA\PRJ\000014672\CADD\42450112201\roadway\PLANRD29.DGN

I-275 (SR 93) DESIGN CHANGE RE-EVALUATION



Draft August 30, 2019

LEGEND:

- PAVEMENT WIDENING/ RECONSTRUCTION
- PAVEMENT REMOVAL
- BARRIER WALL
- BRIDGE WIDENING
- PEDESTRIAN TRAIL
- EXPRESS LANE BRIDGE
- EXPRESS LANES
- BRIDGES
- KENWOOD HISTORIC DISTRICT
- SEAGRASS
- WETLANDS
- SURFACE WATER
- MANGROVES
- FLOOD PLAINS
- CONTAMINATION
- POTENTIAL RESIDENTIAL RELOCATION
- POTENTIAL NOISE BARRIER
- PROPOSED LA R/W
- EXISTING LA R/W
- PROPOSED EASEMENT
- PREFERRED SMF SITE & PROPOSED SMF R/W
- ITS CAMERA

EL = EXPRESS LANES
GUL = GENERAL USE LANES
AUX = AUXILIARY LANES

Aerial Photos Jan. '18 - Apr. '18

Concept Plans
Design Change Re-evaluation

SHEET NO. 29

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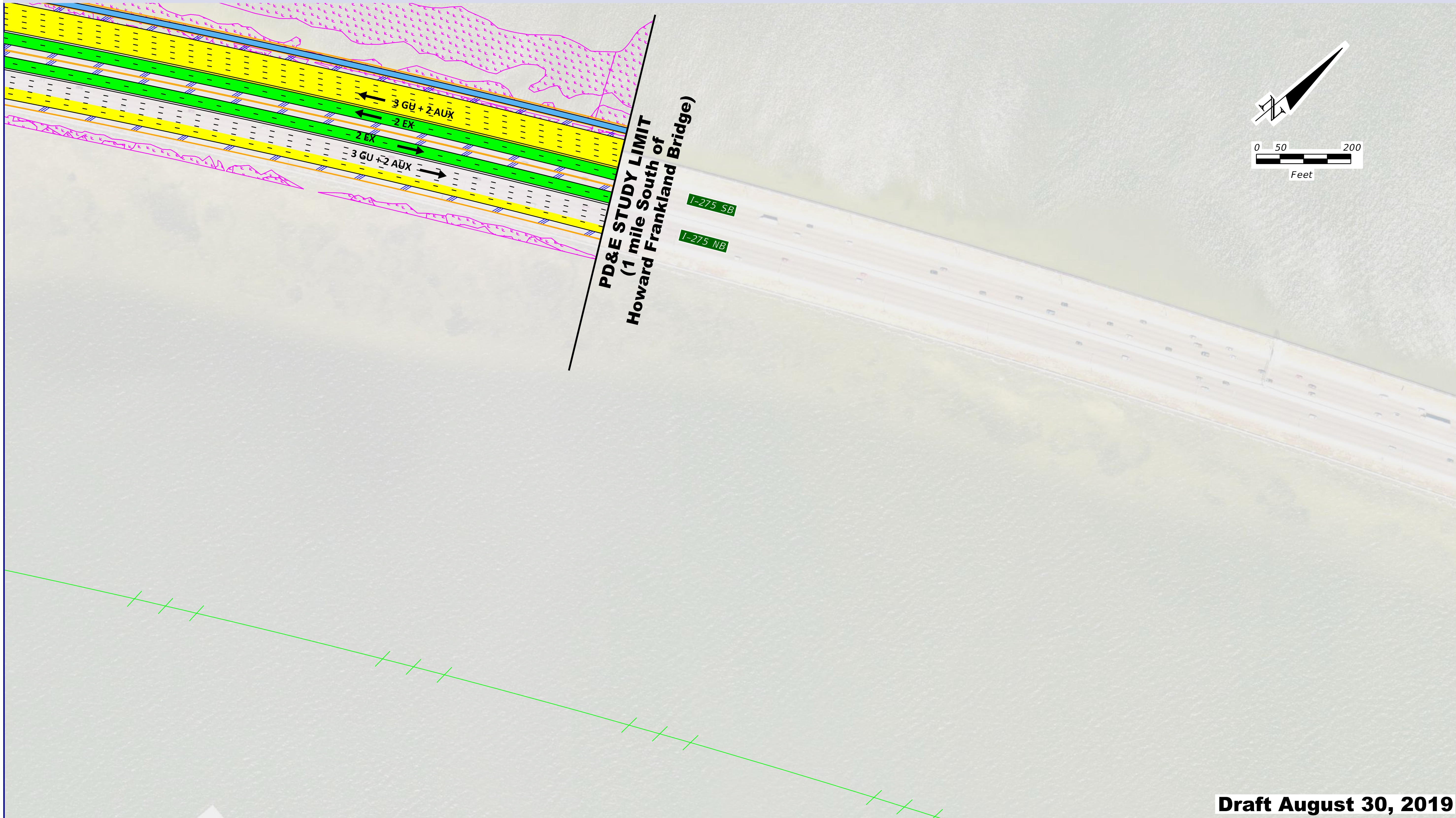


Draft August 30, 2019

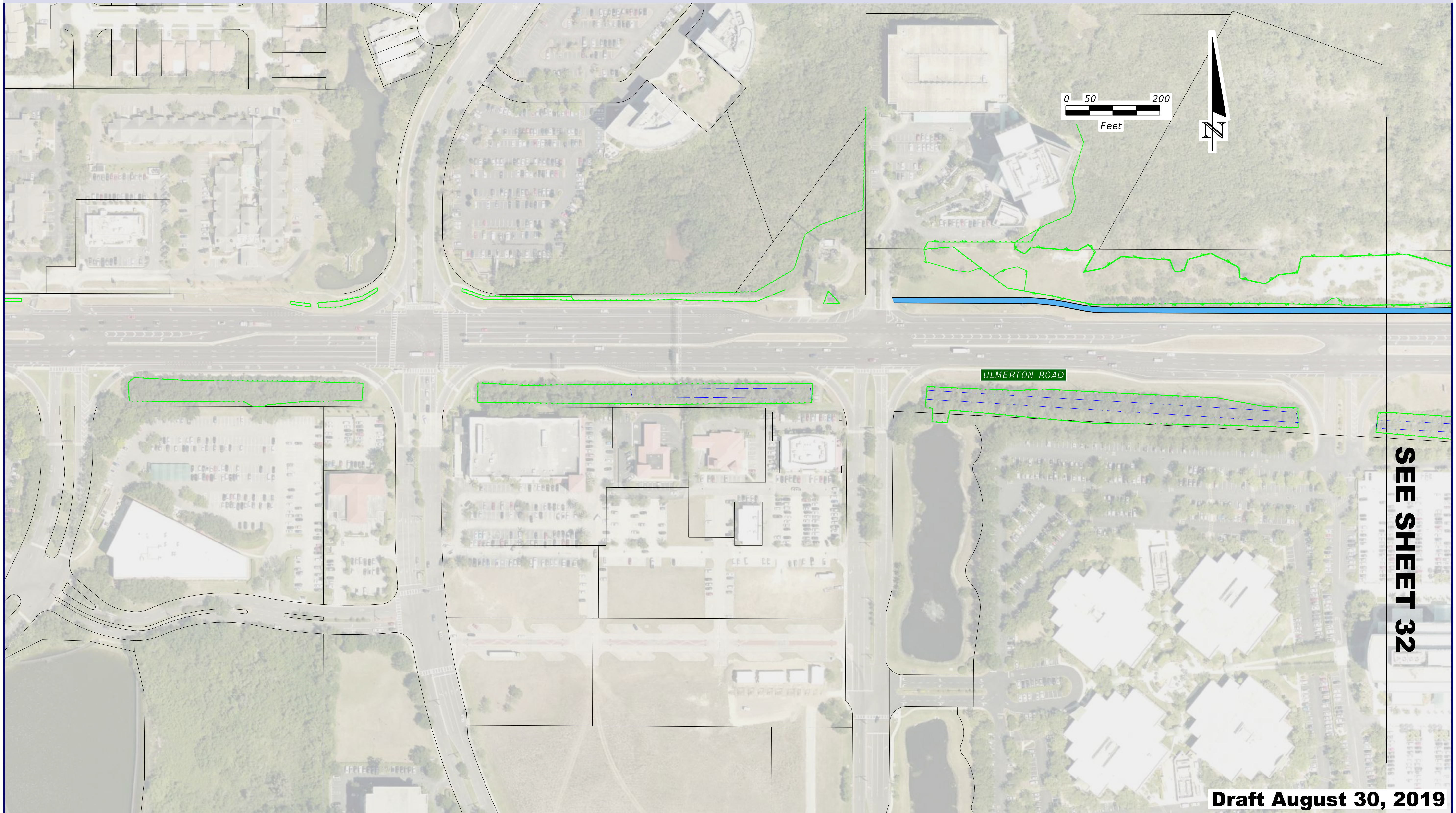
LEGEND:

- PAVEMENT WIDENING/ RECONSTRUCTION
- PAVEMENT REMOVAL
- BARRIER WALL
- BRIDGE WIDENING
- PEDESTRIAN TRAIL
- EXPRESS LANE BRIDGE
- EXPRESS LANES
- BRIDGES
- KENWOOD HISTORIC DISTRICT
- SEAGRASS
- WETLANDS
- SURFACE WATER
- MANGROVES
- FLOOD PLAINS
- CONTAMINATION
- POTENTIAL RESIDENTIAL RELOCATION
- POTENTIAL NOISE BARRIER
- PROPOSED LA R/W
- EXISTING LA R/W
- PROPOSED EASEMENT
- PREFERRED SMF SITE & PROPOSED SMF R/W
- ITS CAMERA
- EL = EXPRESS LANES
- GUL = GENERAL USE LANES
- AUX = AUXILIARY LANES

Aerial Photos Jan. '18 - Apr. '18

Concept Plans
Design Change Re-evaluation

SHEET NO. 30

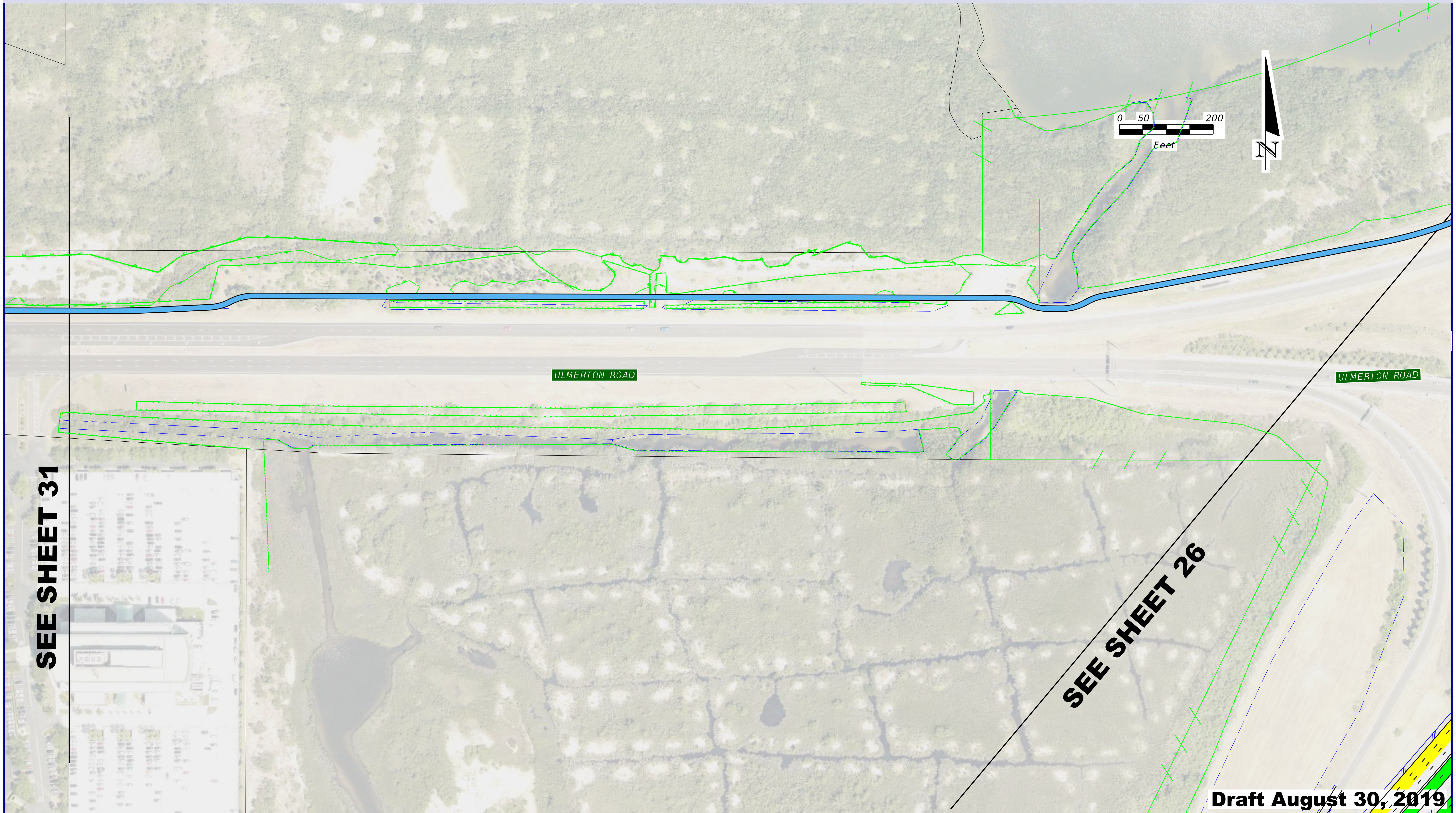


LEGEND:
PAVEMENT WIDENING/ RECONSTRUCTION
PAVEMENT REMOVAL
BARRIER WALL
BRIDGE WIDENING
PEDESTRIAN TRAIL
EXPRESS LANE BRIDGE
EXPRESS LANES
BRIDGES
KENWOOD HISTORIC DISTRICT
SEAGRASS
WETLANDS
SURFACE WATER
MANGROVES
FLOOD PLAINS
CONTAMINATION
POTENTIAL RESIDENTIAL RELOCATION
POTENTIAL NOISE BARRIER
PROPOSED LA R/W
EXISTING LA R/W
PROPOSED EASEMENT
PREFERRED SMF SITE & PROPOSED SMF R/W
ITS CAMERA
EL = EXPRESS LANES
GUL = GENERAL USE LANES
AUX = AUXILIARY LANES
Aerial Photos Jan. '18 - Apr. '18

Concept Plans
Design Change Re-evaluation

SHEET NO. 31

I-275 (SR 93) DESIGN CHANGE RE-EVALUATION



LEGEND:

- PAVEMENT WIDENING/ RECONSTRUCTION
- PAVEMENT REMOVAL
- BARRIER WALL
- BRIDGE WIDENING
- PEDESTRIAN TRAIL
- EXPRESS LANE BRIDGE
- EXPRESS LANES
- BRIDGES
- KENWOOD HISTORIC DISTRICT
- SEAGRASS
- WETLANDS
- SURFACE WATER
- MANGROVES
- FLOOD PLAINS
- CONTAMINATION
- POTENTIAL RESIDENTIAL RELOCATION
- POTENTIAL NOISE BARRIER
- PROPOSED LA R/W
- EXISTING LA R/W
- PROPOSED EASEMENT
- PREFERRED SMF SITE & PROPOSED SMF R/W
- ITS CAMERA

EL = EXPRESS LANES
GUL = GENERAL USE LANES
AUX = AUXILIARY LANES
Aerial Photos Jan. '18 - Apr. '18

Concept Plans
Design Change Re-evaluation

SHEET NO.
32

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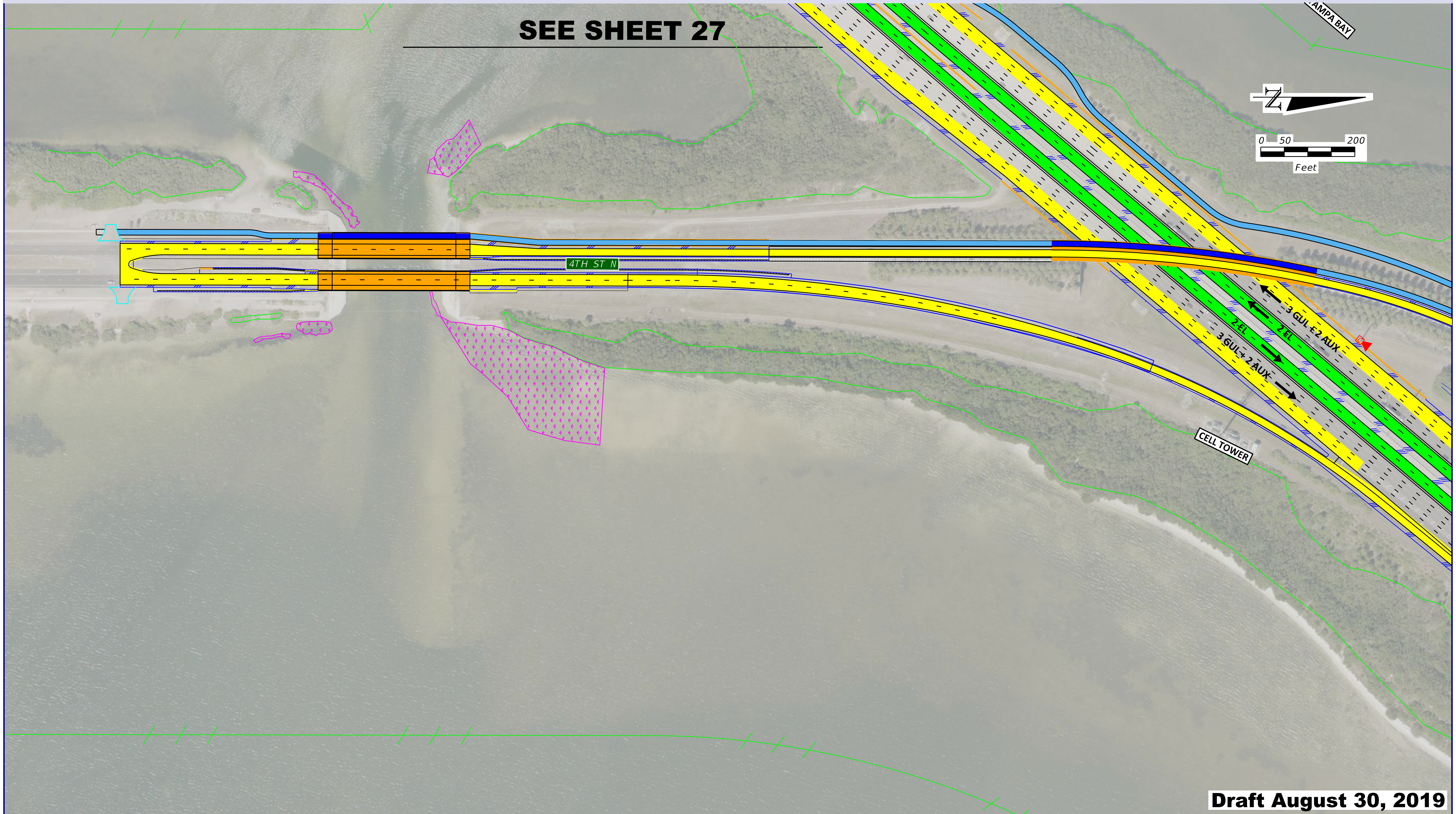

LEGEND:

	PAVEMENT WIDENING/ RECONSTRUCTION		PEDESTRIAN TRAIL		SEAGRASS		FLOOD PLAINS		PROPOSED LA R/W
	PAVEMENT REMOVAL		EXPRESS LANE BRIDGE		WETLANDS		CONTAMINATION		EXISTING LA R/W
	BARRIER WALL		EXPRESS LANES		SURFACE WATER		POTENTIAL RESIDENTIAL RELOCATION		PROPOSED EASEMENT
	BRIDGE WIDENING		BRIDGES		MANGROVES		POTENTIAL NOISE BARRIER		PREFERRED SMF SITE & PROPOSED SMF R/W
			KENWOOD HISTORIC DISTRICT						

ITS CAMERA
EL = EXPRESS LANES
GUL = GENERAL USE LANES
AUX = AUXILIARY LANES
Aerial Photos Jan. '18 - Apr. '18

Concept Plans
Design Change Re-evaluation

SHEET NO.
33

$USER$ $DATE$ $TIME$ $FILE$

Appendix B.
Drainage Maps

LEGEND:

- PAVEMENT WIDENING
- EXPRESS LANES
- PAVEMENT REMOVAL
- BRIDGE WIDENING
- BRIDGES
- BARRIER WALL
- DIRECTION OF FLOW
- WETLANDS
- BASIN BOUNDARY

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
I-275	PINELLAS	424501-1-22-01

DRAINAGE MAP (01)

SHEET NO. B-1

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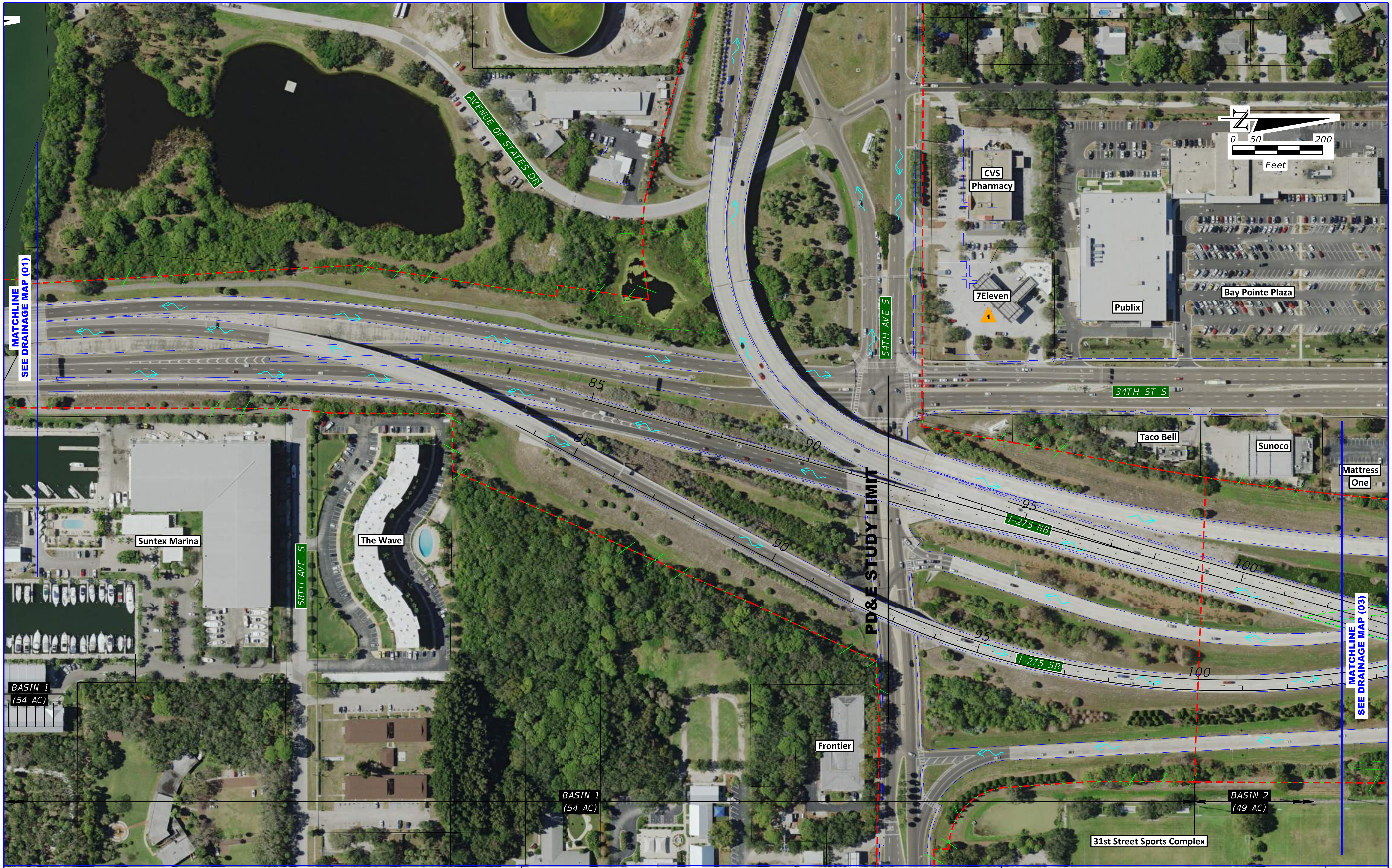

LEGEND:

- PAVEMENT WIDENING
- EXPRESS LANES
- PAVEMENT REMOVAL
- BRIDGE WIDENING
- BRIDGES
- BARRIER WALL
- DIRECTION OF FLOW
- WETLANDS
- BASIN BOUNDARY

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
I-275	PINELLAS	424501-1-22-01

DRAINAGE MAP (02)

SHEET NO.
B-2

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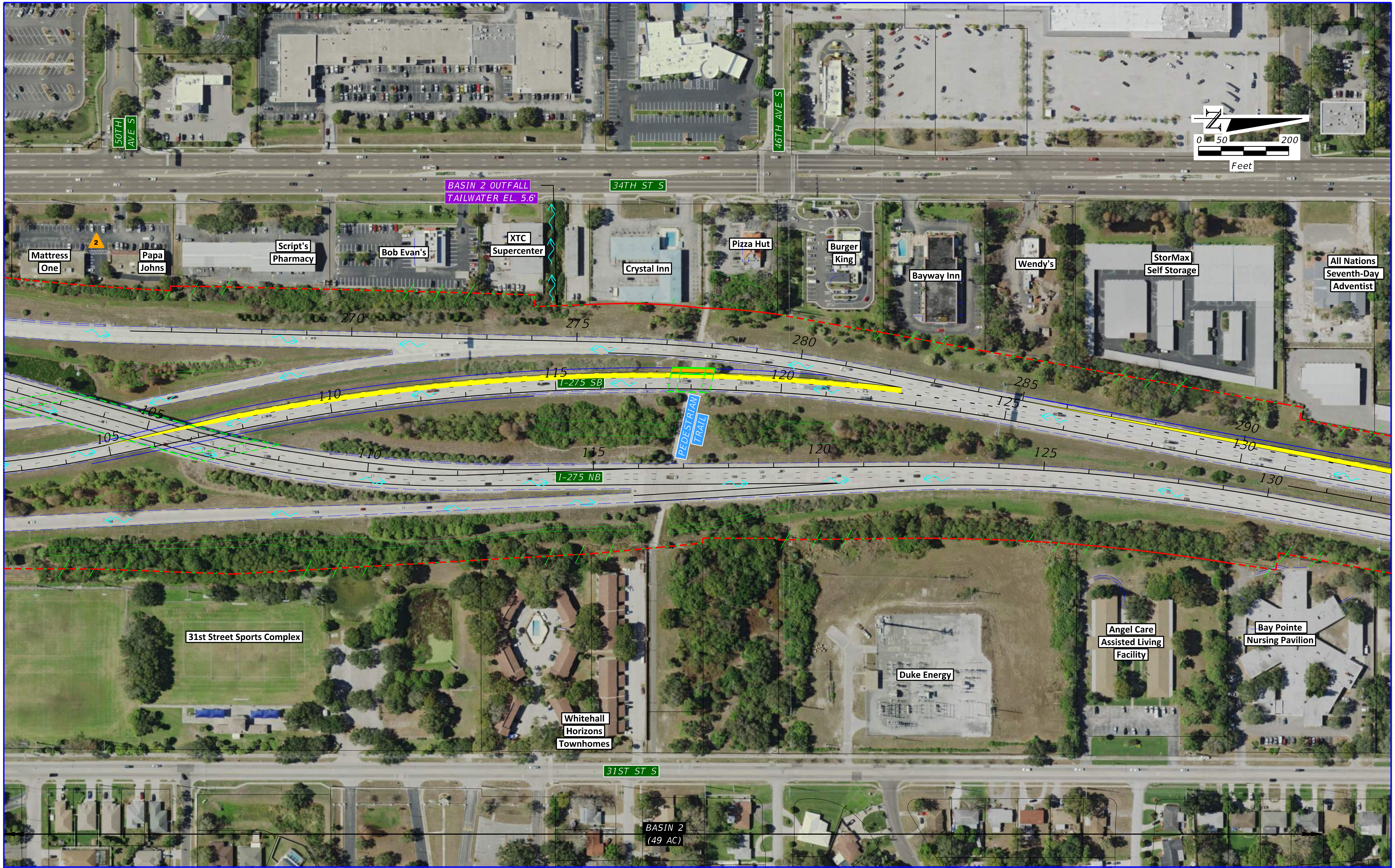

LEGEND:

PAVEMENT WIDENING	BRIDGE WIDENING	DIRECTION OF FLOW
EXPRESS LANES	BRIDGES	WETLANDS
PAVEMENT REMOVAL	BARRIER WALL	BASIN BOUNDARY

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
I-275	PINELLAS	424501-1-22-01

DRAINAGE MAP (03)

SHEET NO. B-3

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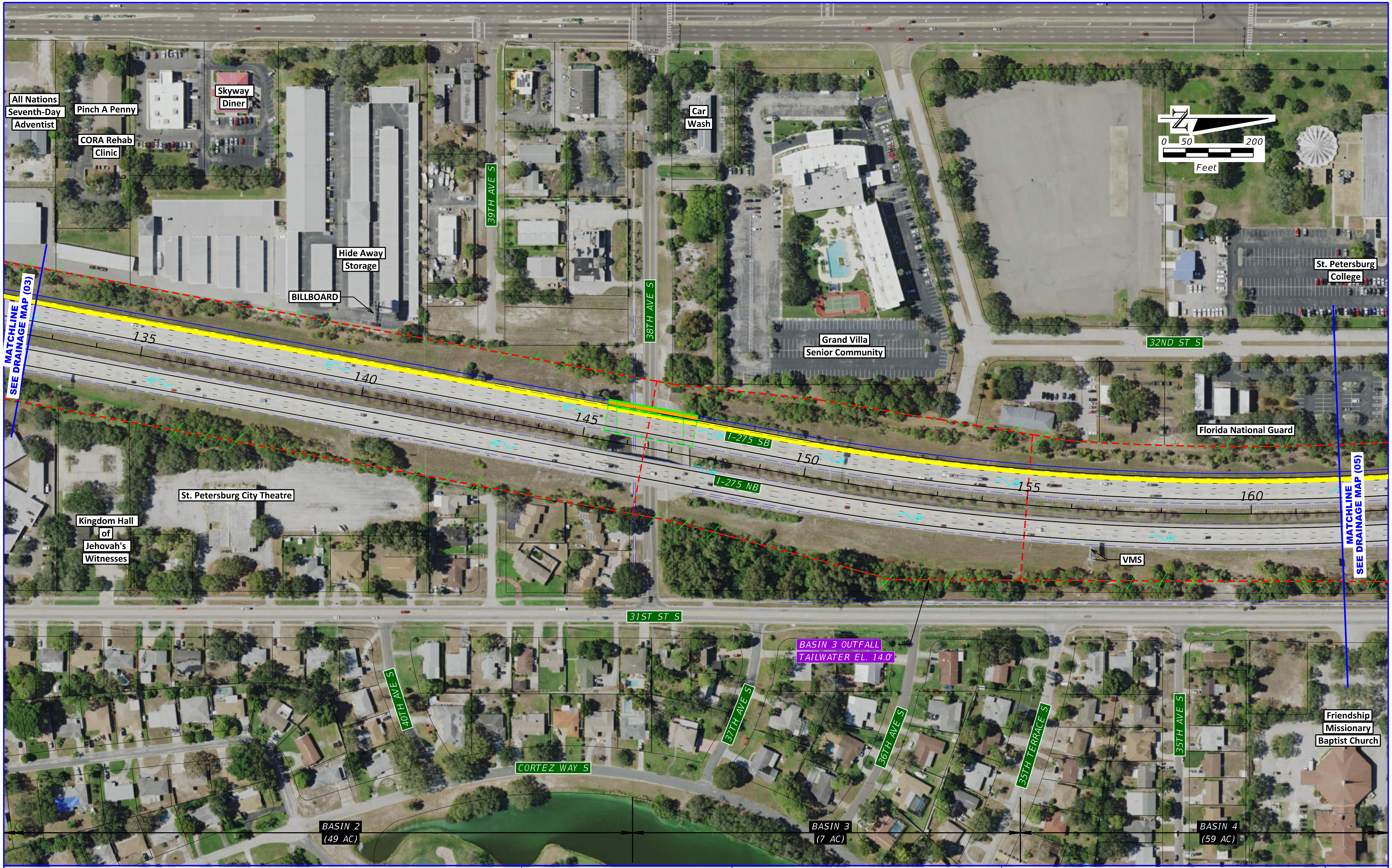


LEGEND:

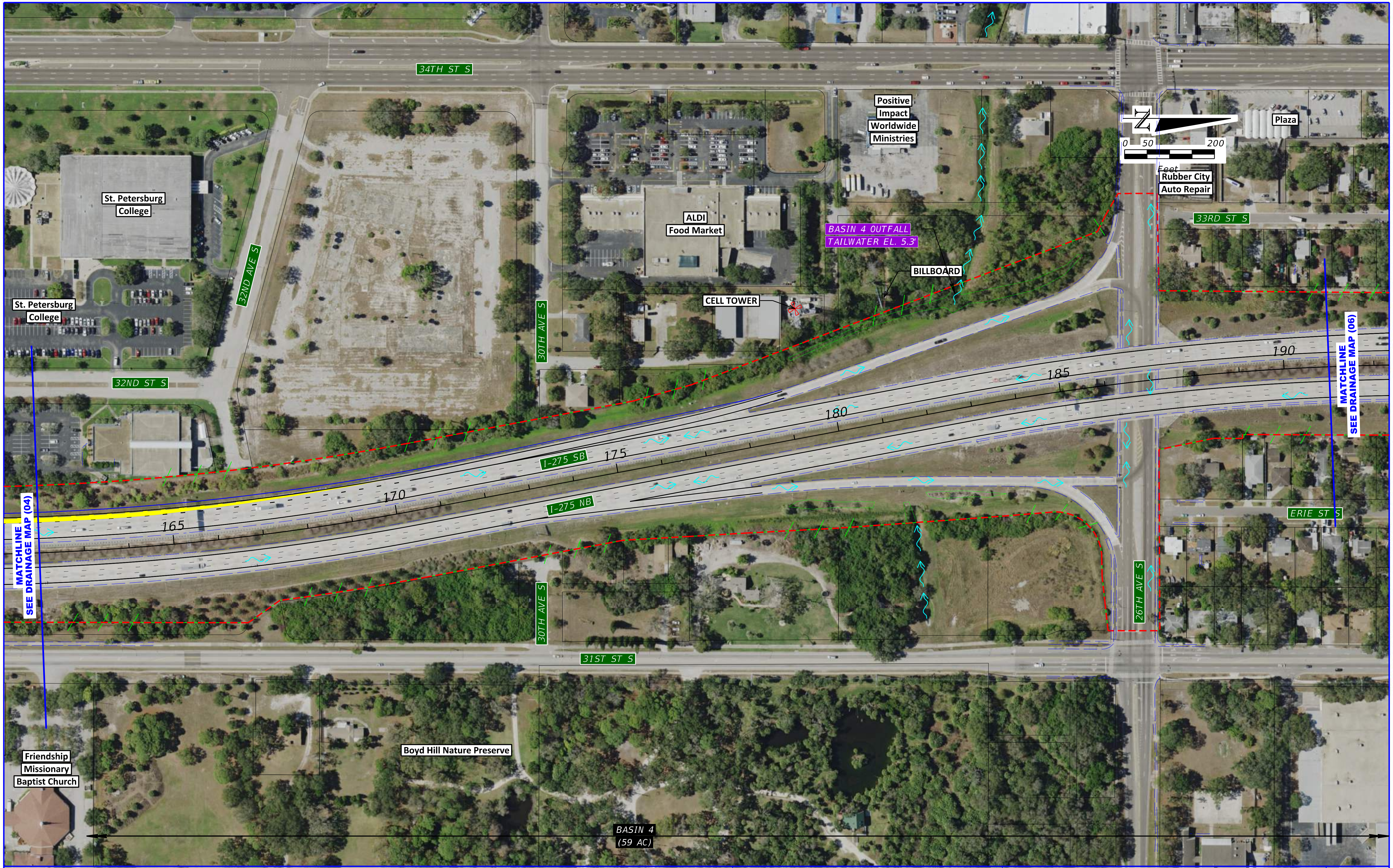
- PAVEMENT WIDENING
- EXPRESS LANES
- PAVEMENT REMOVAL
- BRIDGE WIDENING
- BRIDGES
- BARRIER WALL
- DIRECTION OF FLOW
- WETLANDS
- BASIN BOUNDARY

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
I-275	PINELLAS	424501-1-22-01

DRAINAGE MAP (04)

SHEET NO.
B-4



LEGEND:

PAVEMENT WIDENING	BRIDGE WIDENING	DIRECTION OF FLOW
EXPRESS LANES	BRIDGES	WETLANDS
PAVEMENT REMOVAL	BARRIER WALL	BASIN BOUNDARY

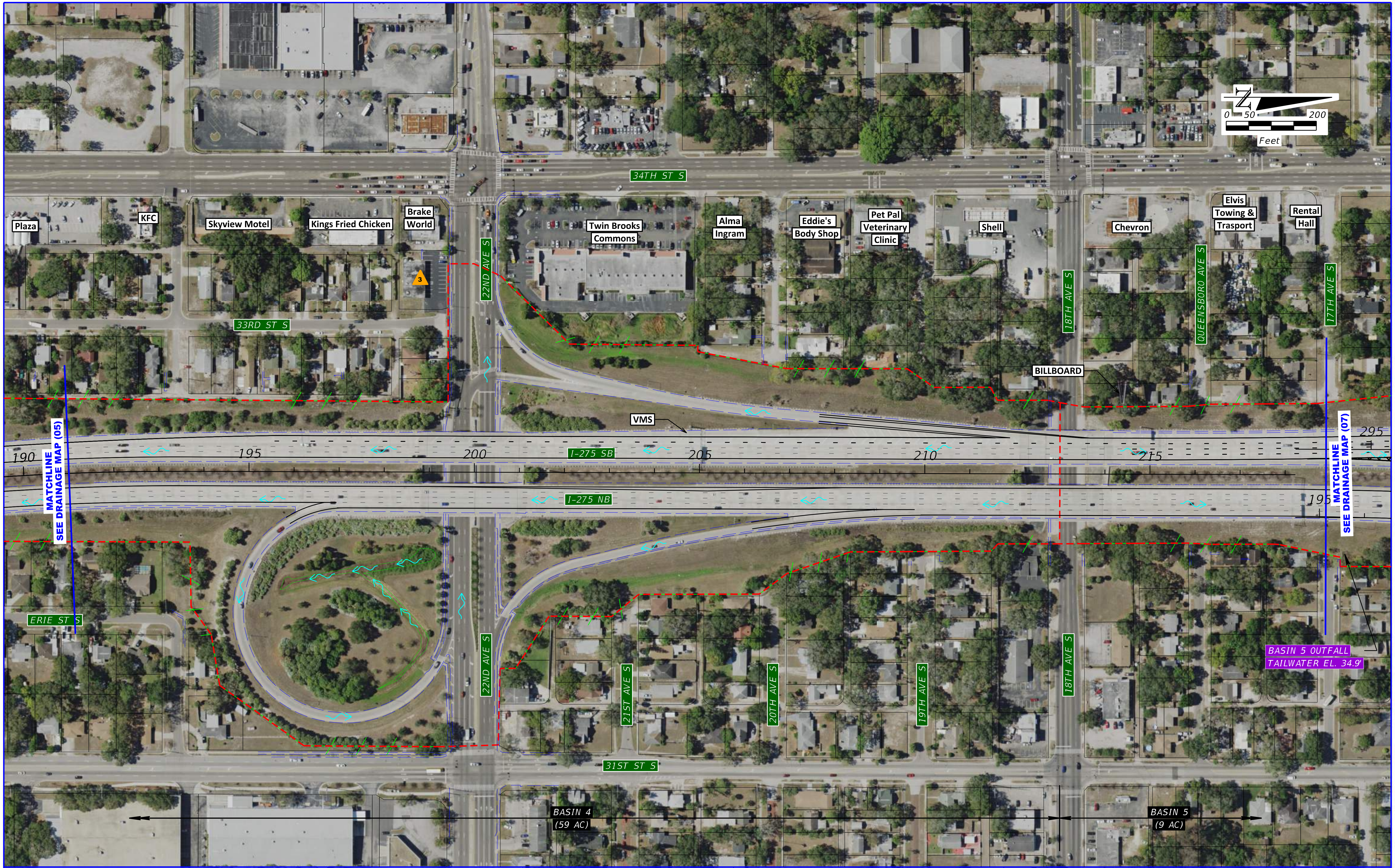
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
I-275	PINELLAS	424501-1-22-01

DRAINAGE MAP (05)

SHEET NO.
B-5

RDORZBACK 6/20/2019 9:33:06 AM I:\TPA\PRJ\000014672\CADD\42450112201\drainage\DRMPRD05.DGN



LEGEND:

PAVEMENT WIDENING	BRIDGE WIDENING	DIRECTION OF FLOW
EXPRESS LANES	BRIDGES	WETLANDS
PAVEMENT REMOVAL	BARRIER WALL	BASIN BOUNDARY

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
I-275	PINELLAS	424501-1-22-01

DRAINAGE MAP (06)

SHEET NO.
B-6

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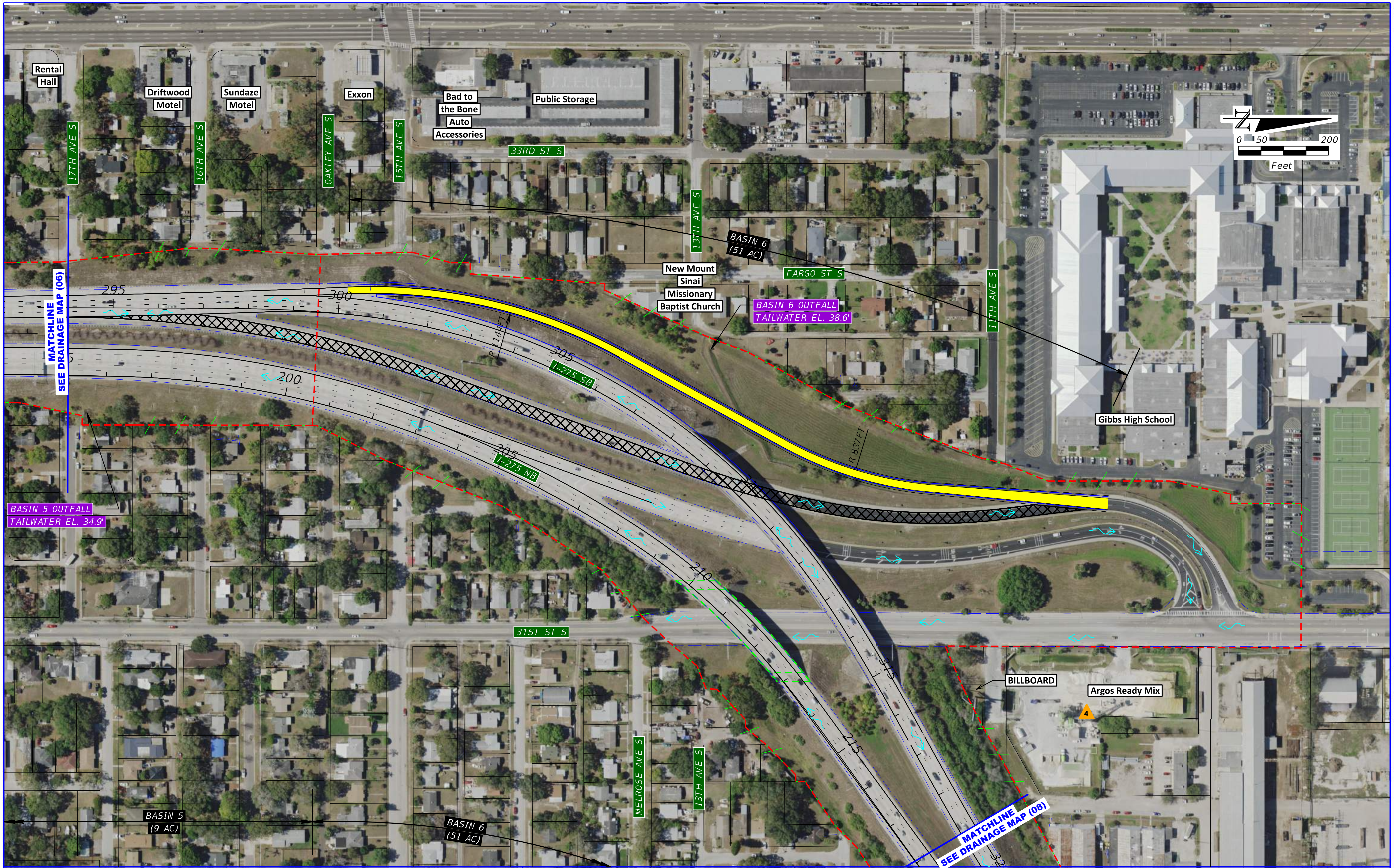

LEGEND:

PAVEMENT WIDENING	BRIDGE WIDENING	DIRECTION OF FLOW
EXPRESS LANES	BRIDGES	WETLANDS
PAVEMENT REMOVAL	BARRIER WALL	BASIN BOUNDARY

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
I-275	PINELLAS	424501-1-22-01

DRAINAGE MAP (07)

SHEET NO.
B-7

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LEGEND:

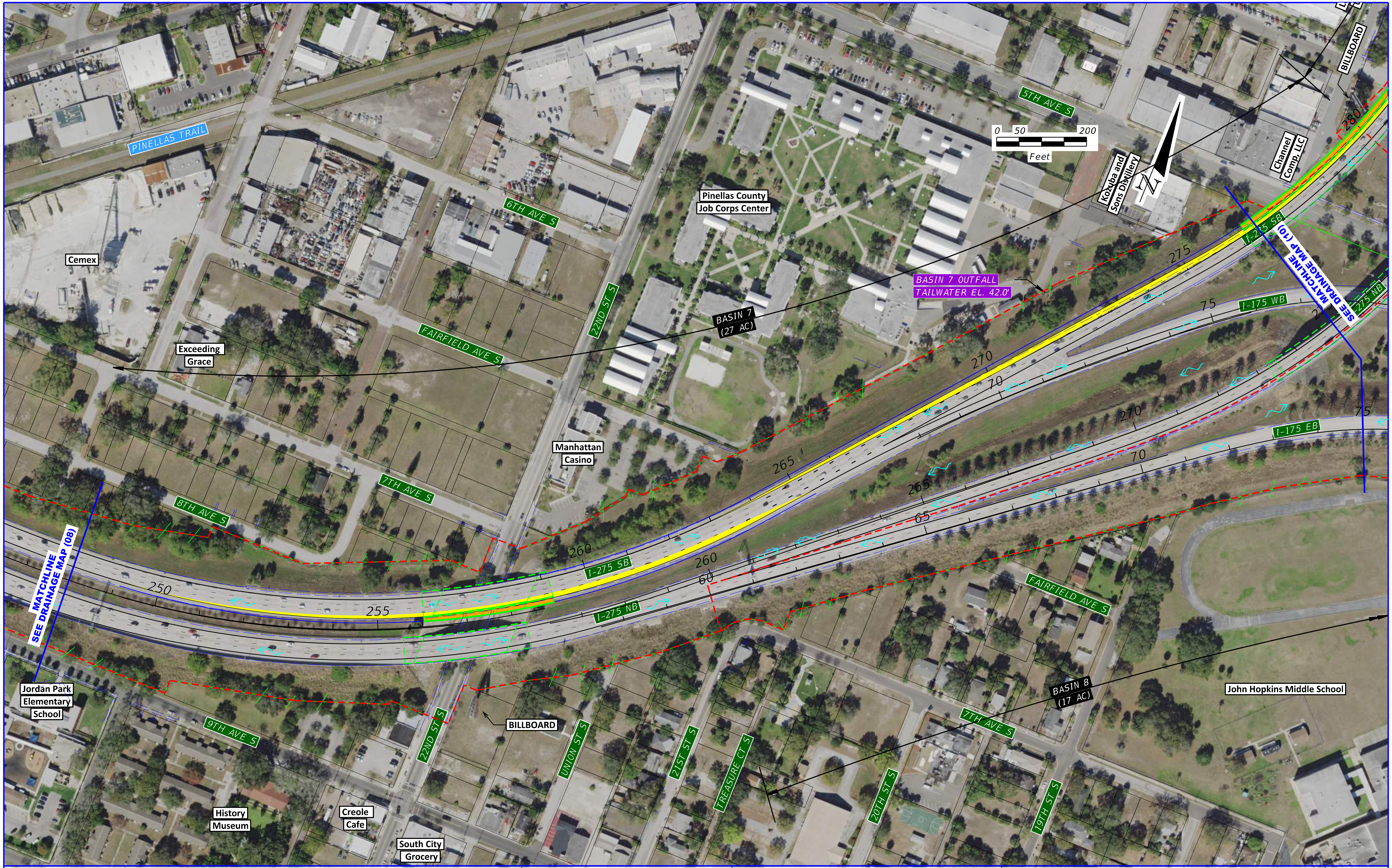
PAVEMENT WIDENING	BRIDGE WIDENING	DIRECTION OF FLOW
EXPRESS LANES	BRIDGES	WETLANDS
PAVEMENT REMOVAL	BARRIER WALL	BASIN BOUNDARY

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
I-275	PINELLAS	424501-1-22-01

DRAINAGE MAP (08)

SHEET NO.
B-8



LEGEND:

PAVEMENT WIDENING	BRIDGE WIDENING	DIRECTION OF FLOW
EXPRESS LANES	BRIDGES	WETLANDS
PAVEMENT REMOVAL	BARRIER WALL	BASIN BOUNDARY

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
I-275	PINELLAS	424501-1-22-01

DRAINAGE MAP (09)

SHEET NO.
B-9

LEGEND:

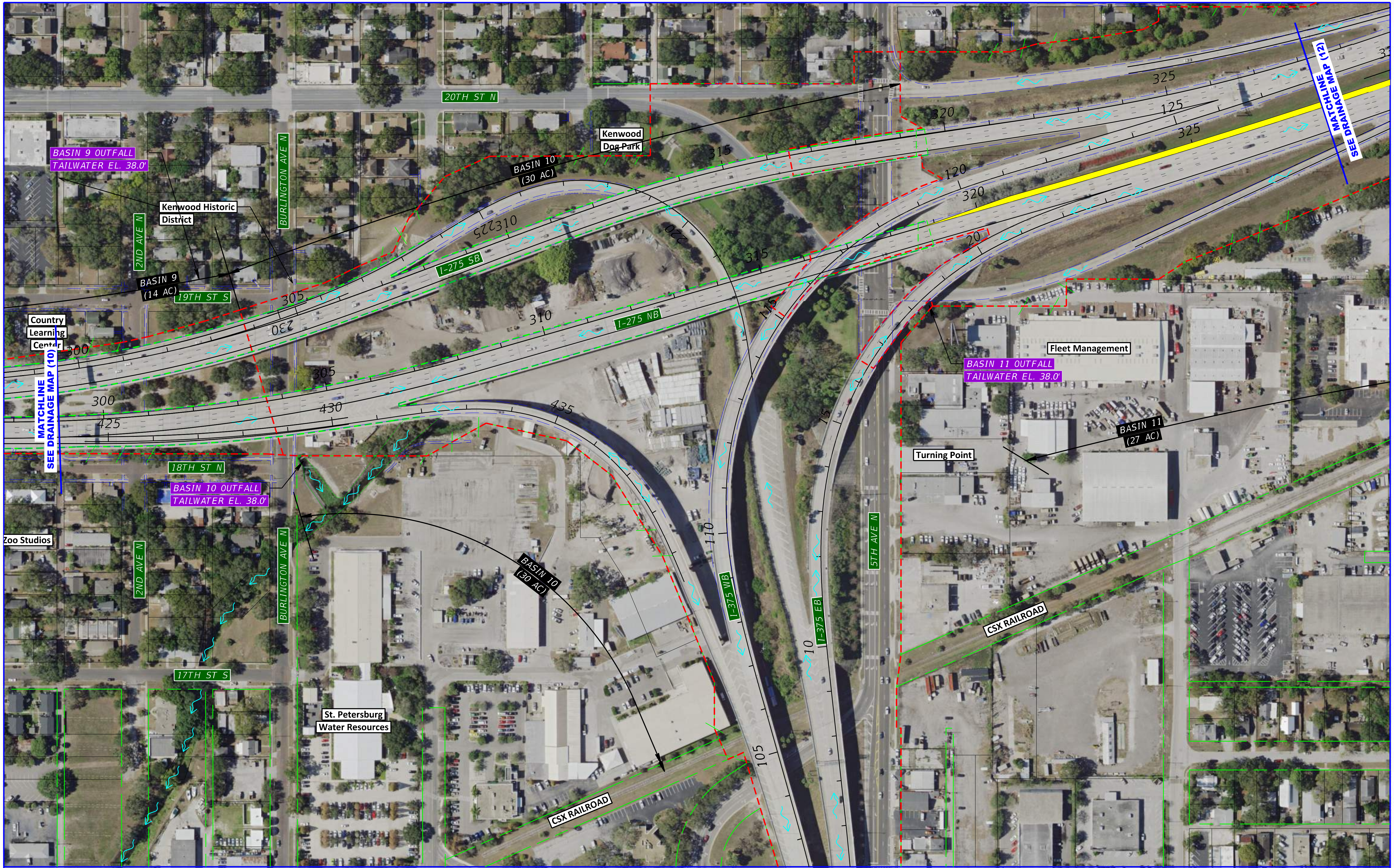
- PAVEMENT WIDENING
- EXPRESS LANES
- PAVEMENT REMOVAL
- BRIDGE WIDENING
- BRIDGES
- BARRIER WALL
- DIRECTION OF FLOW
- WETLANDS
- BASIN BOUNDARY

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
I-275	PINELLAS	424501-1-22-01

DRAINAGE MAP (10)

SHEET NO. B-10



LEGEND:

- PAVEMENT WIDENING
- EXPRESS LANES
- PAVEMENT REMOVAL
- BRIDGE WIDENING
- BRIDGES
- BARRIER WALL
- DIRECTION OF FLOW
- WETLANDS
- BASIN BOUNDARY

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
I-275	PINELLAS	424501-1-22-01

DRAINAGE MAP (11)

SHEET NO. B-11

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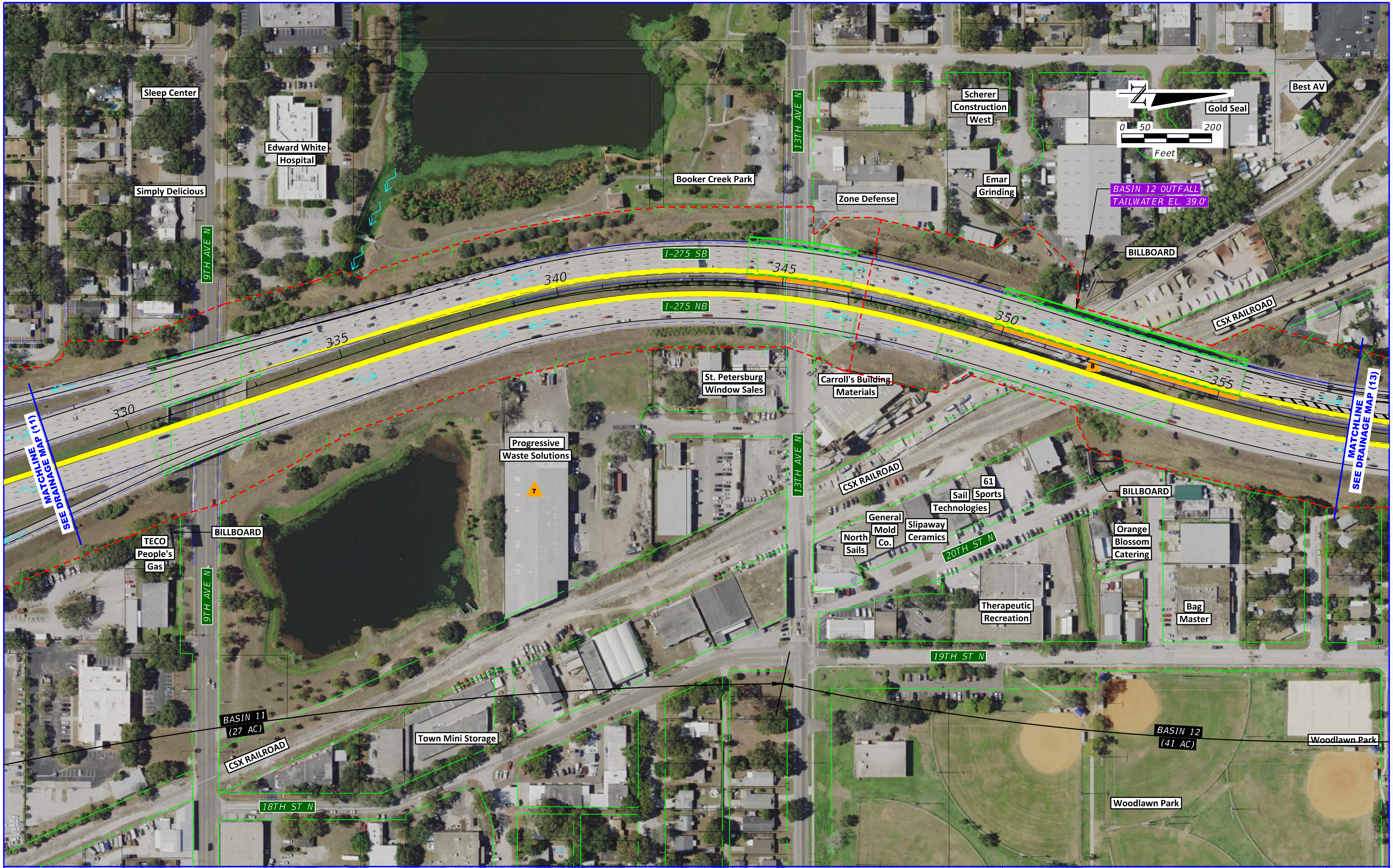

LEGEND:

- PAVEMENT WIDENING
- EXPRESS LANES
- PAVEMENT REMOVAL
- BRIDGE WIDENING
- BRIDGES
- BARRIER WALL
- DIRECTION OF FLOW
- WETLANDS
- BASIN BOUNDARY

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
I-275	PINELLAS	424501-1-22-01

DRAINAGE MAP (12)

SHEET NO.

B-12

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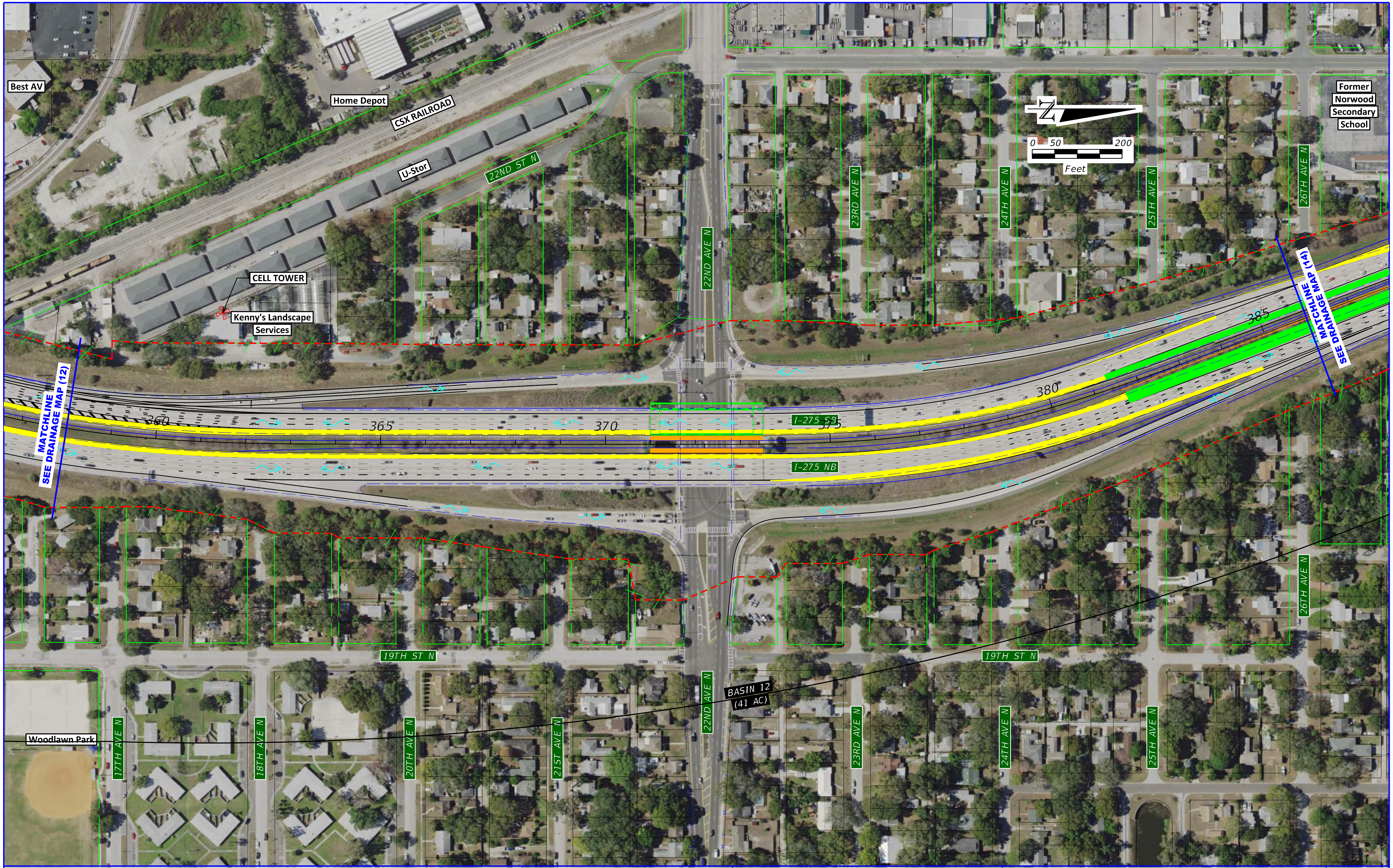

LEGEND:

PAVEMENT WIDENING	BRIDGE WIDENING	DIRECTION OF FLOW
EXPRESS LANES	BRIDGES	WETLANDS
PAVEMENT REMOVAL	BARRIER WALL	BASIN BOUNDARY

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
I-275	PINELLAS	424501-1-22-01

DRAINAGE MAP (13)

SHEET NO.
B-13

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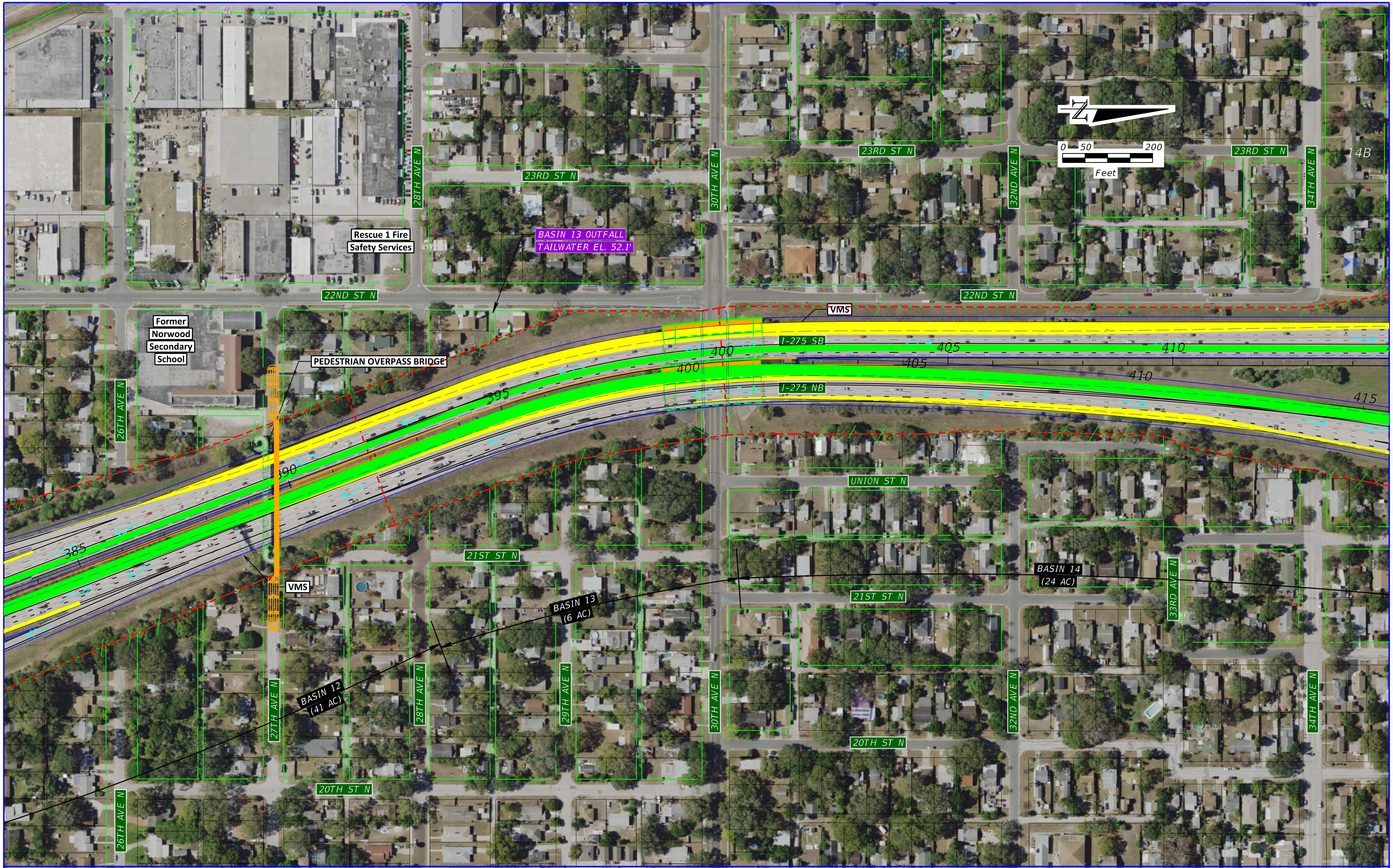

LEGEND:

- PAVEMENT WIDENING
- EXPRESS LANES
- PAVEMENT REMOVAL
- BRIDGE WIDENING
- BRIDGES
- BARRIER WALL
- DIRECTION OF FLOW
- WETLANDS
- BASIN BOUNDARY

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
I-275	PINELLAS	424501-1-22-01

DRAINAGE MAP (14)

SHEET NO.
B-14

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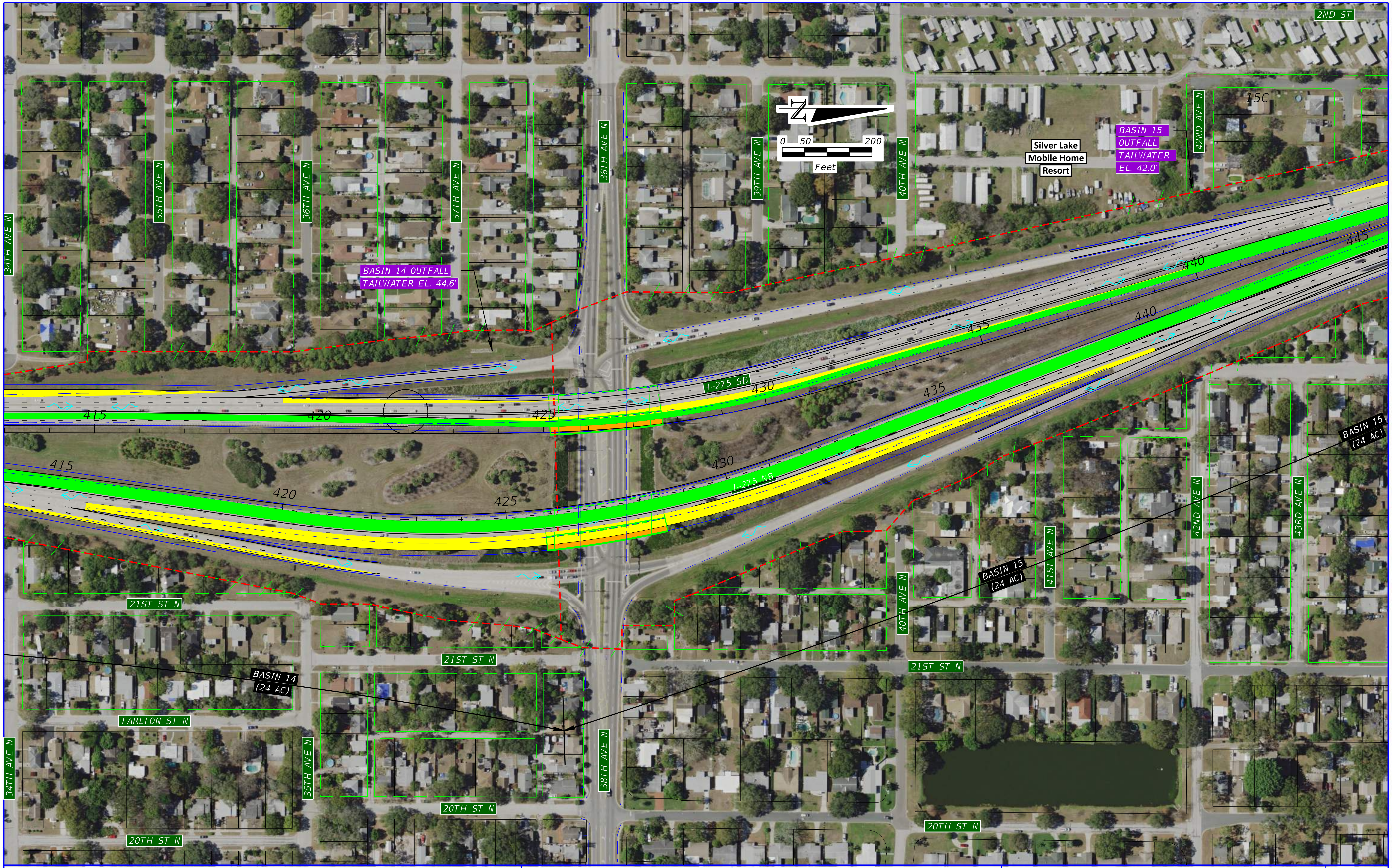

LEGEND:

PAVEMENT WIDENING	BRIDGE WIDENING
EXPRESS LANES	BRIDGES
PAVEMENT REMOVAL	BARRIER WALL
DIRECTION OF FLOW	WETLANDS
BASIN BOUNDARY	

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
I-275	PINELLAS	424501-1-22-01

DRAINAGE MAP (15)

SHEET NO. B-15

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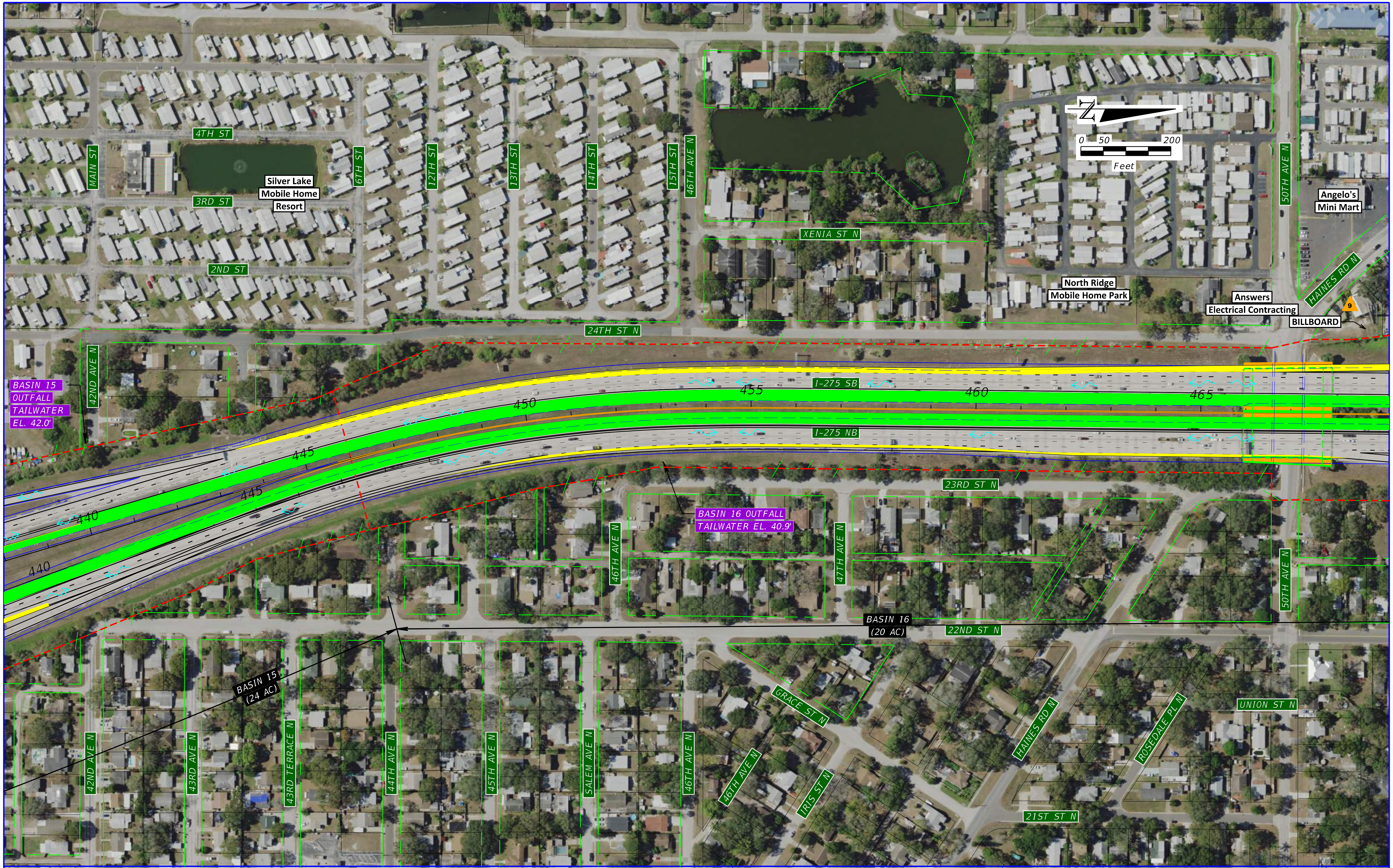

LEGEND:

PAVEMENT WIDENING	BRIDGE WIDENING	DIRECTION OF FLOW
EXPRESS LANES	BRIDGES	WETLANDS
PAVEMENT REMOVAL	BARRIER WALL	BASIN BOUNDARY

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
I-275	PINELLAS	424501-1-22-01

DRAINAGE MAP (16

SHEET NO.
B-16

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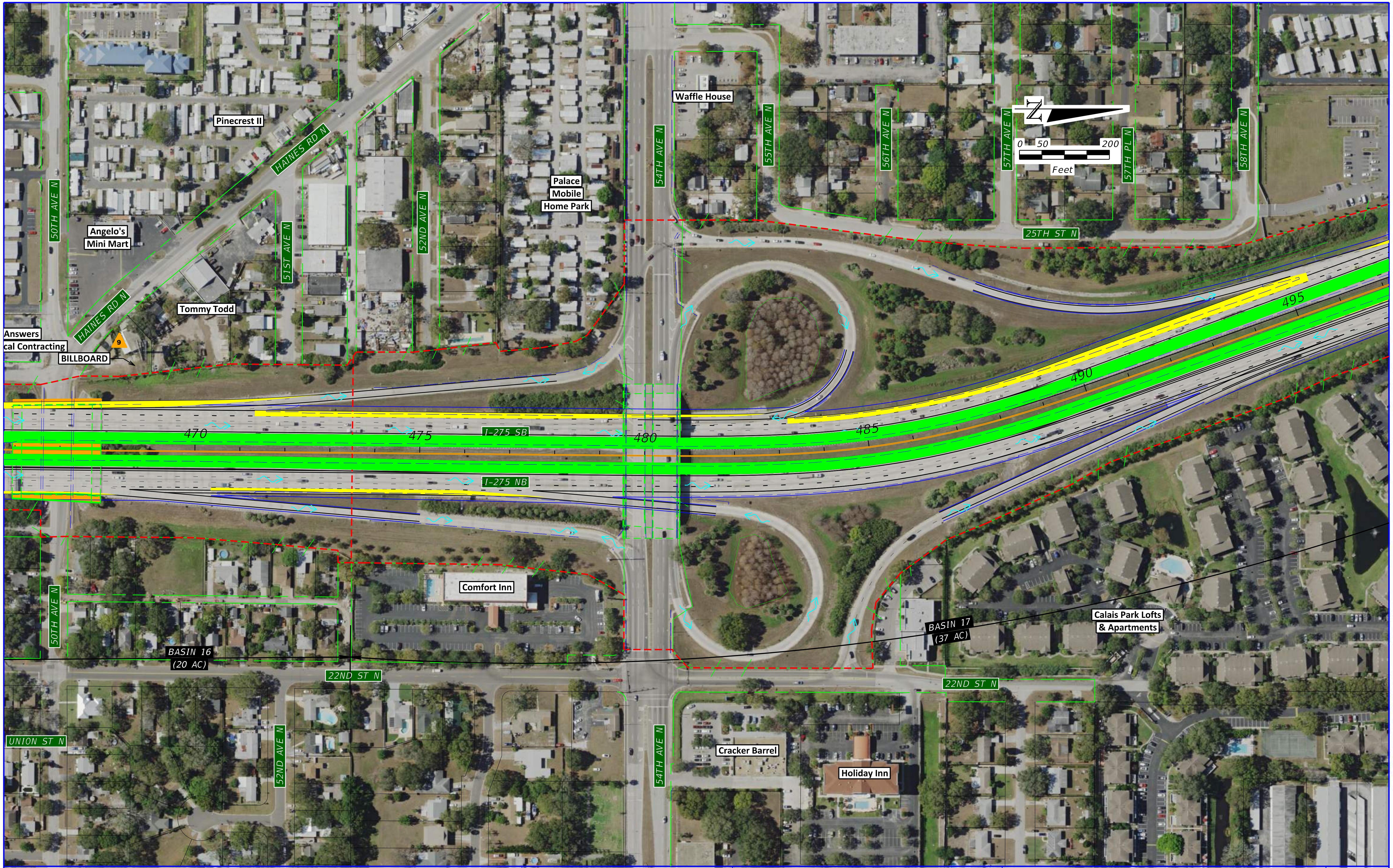


LEGEND:

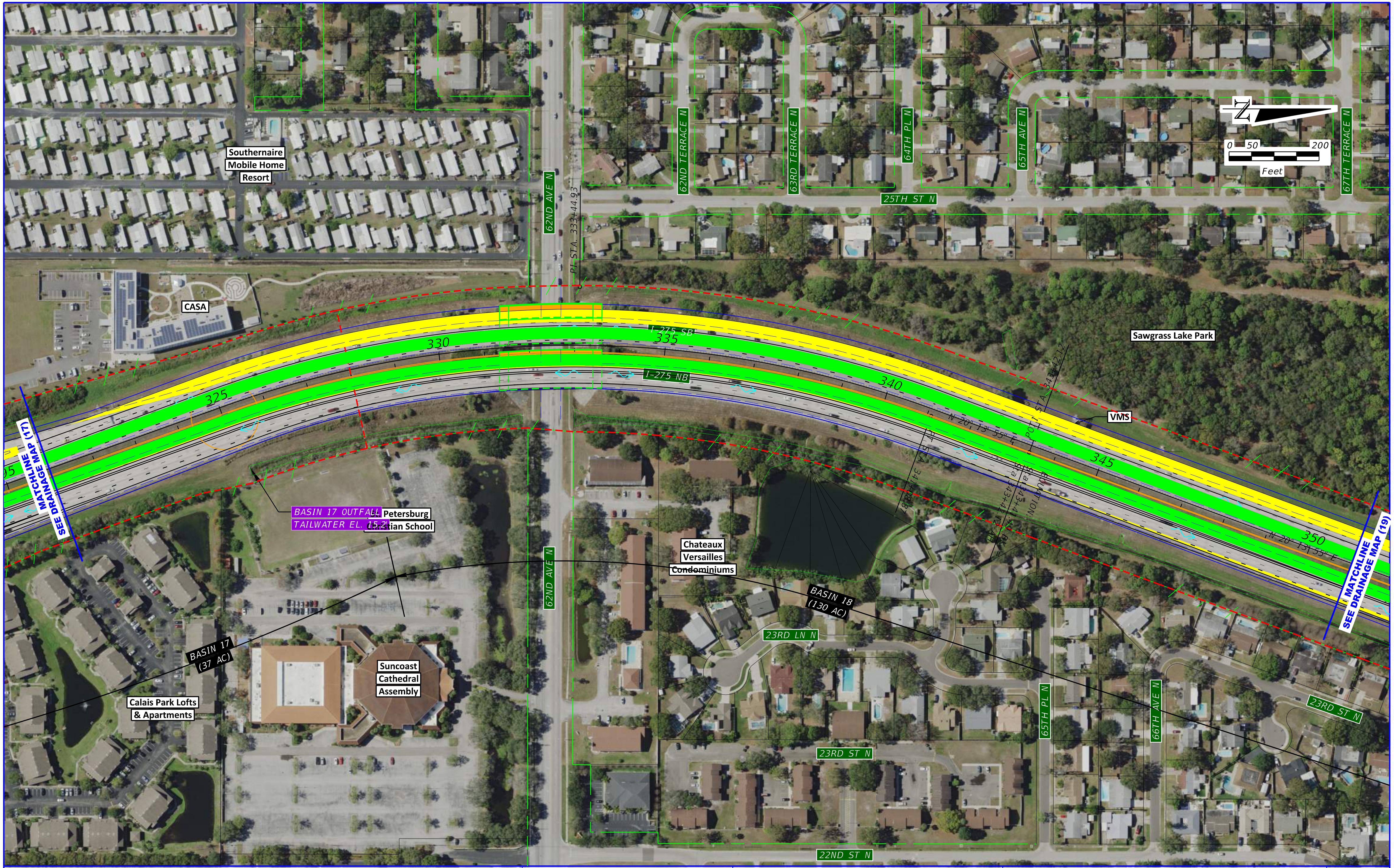
PAVEMENT WIDENING	BRIDGE WIDENING	DIRECTION OF FLOW
EXPRESS LANES	BRIDGES	WETLANDS
PAVEMENT REMOVAL	BARRIER WALL	BASIN BOUNDARY

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
I-275	PINELLAS	424501-1-22-01

DRAINAGE MAP (17)

SHEET NO.
B-17



LEGEND:

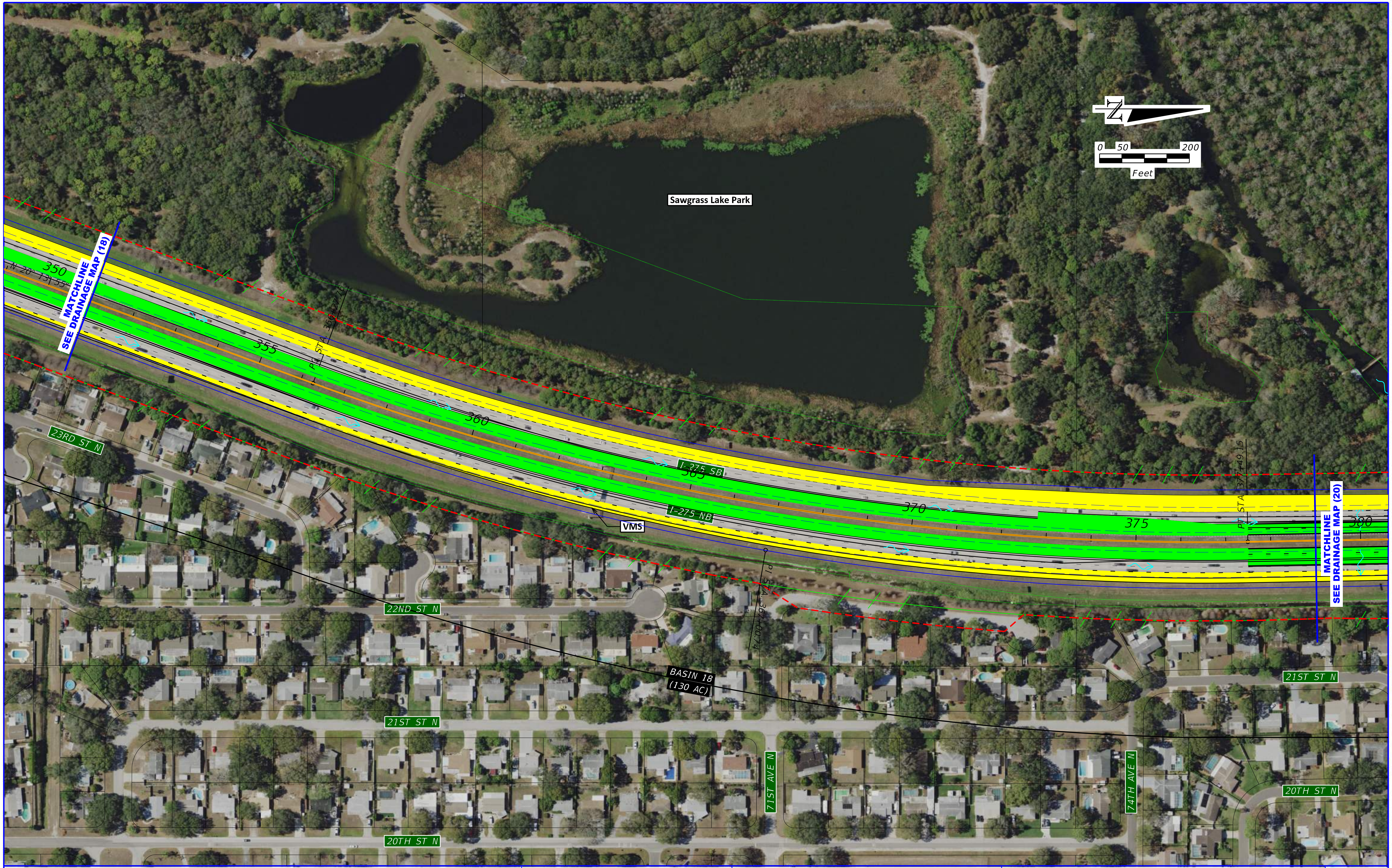
PAVEMENT WIDENING	BRIDGE WIDENING	DIRECTION OF FLOW
EXPRESS LANES	BRIDGES	WETLANDS
PAVEMENT REMOVAL	BARRIER WALL	BASIN BOUNDARY

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
I-275	PINELLAS	424501-1-22-01

DRAINAGE MAP (18)

SHEET NO.
B-18



LEGEND:

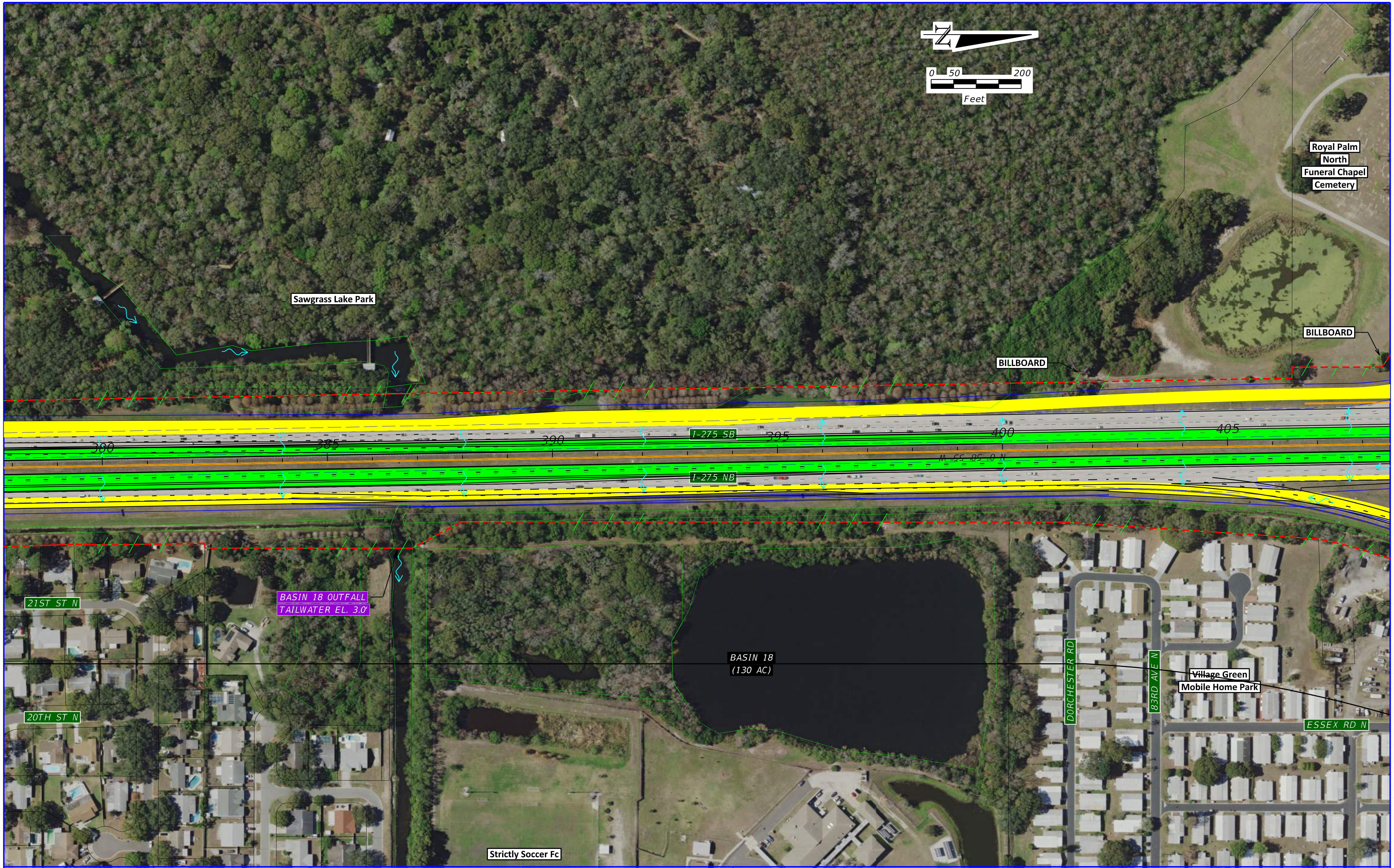
PAVEMENT WIDENING	BRIDGE WIDENING	DIRECTION OF FLOW
EXPRESS LANES	BRIDGES	WETLANDS
PAVEMENT REMOVAL	BARRIER WALL	BASIN BOUNDARY

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
I-275	PINELLAS	424501-1-22-01

DRAINAGE MAP (19)

SHEET NO.
B-19



LEGEND:

- PAVEMENT WIDENING
- EXPRESS LANES
- PAVEMENT REMOVAL
- BRIDGE WIDENING
- BRIDGES
- BARRIER WALL
- DIRECTION OF FLOW
- WETLANDS
- BASIN BOUNDARY

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
I-275	PINELLAS	424501-1-22-01

DRAINAGE MAP (20)

SHEET NO.
B-20

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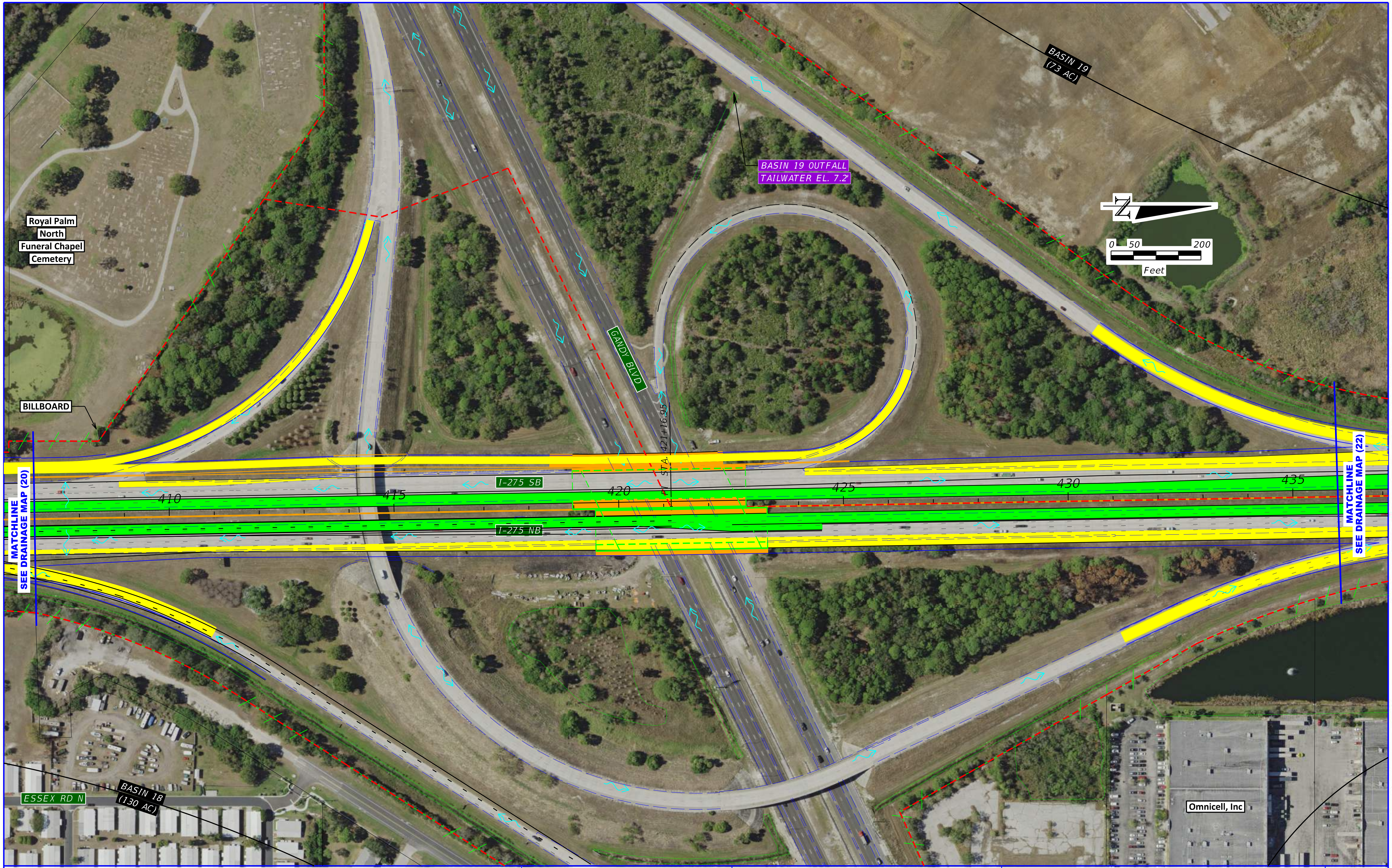

LEGEND:

PAVEMENT WIDENING	BRIDGE WIDENING	DIRECTION OF FLOW
EXPRESS LANES	BRIDGES	WETLANDS
PAVEMENT REMOVAL	BARRIER WALL	BASIN BOUNDARY

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
I-275	PINELLAS	424501-1-22-01

DRAINAGE MAP (21)

SHEET NO.
B-21

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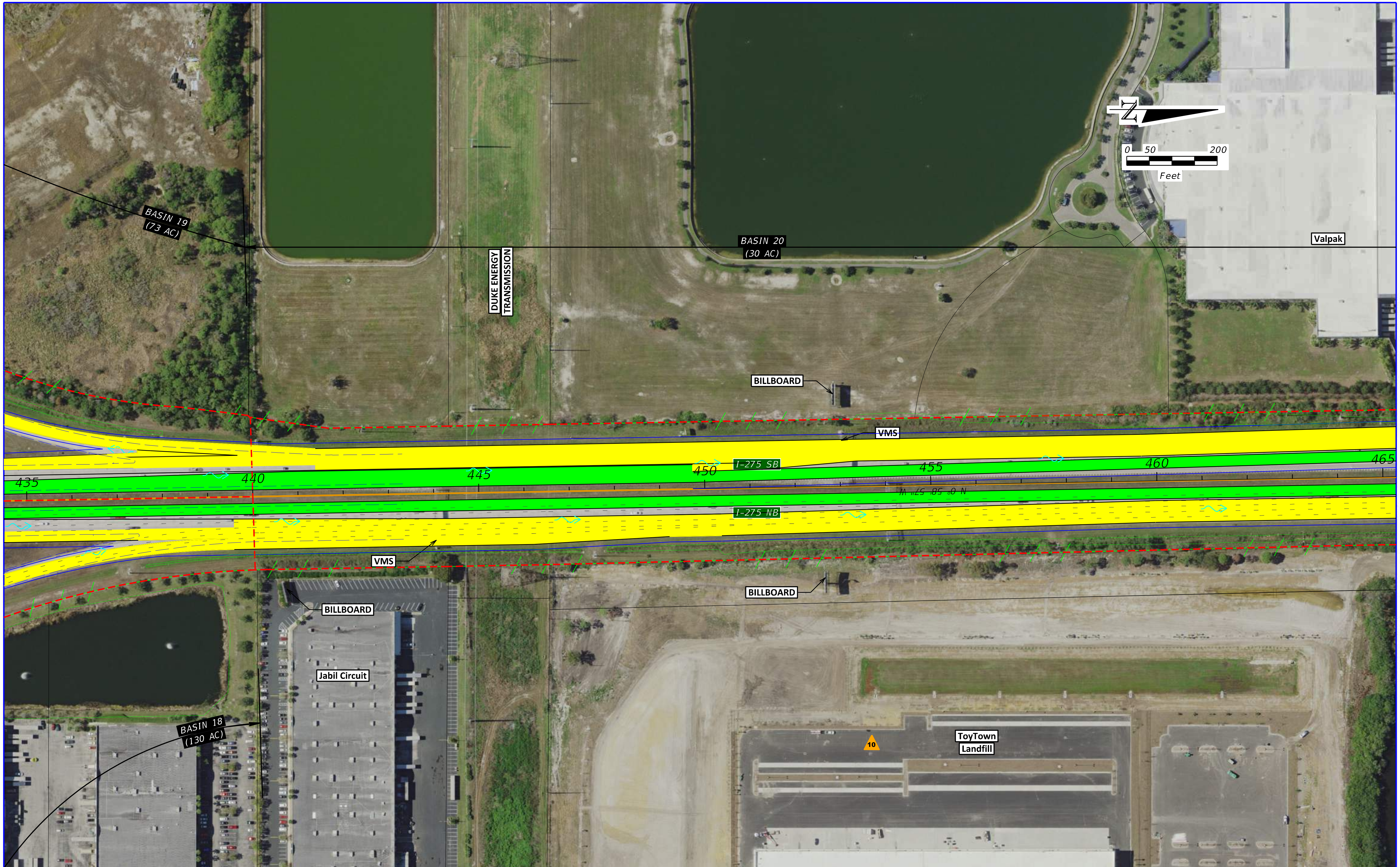


LEGEND:

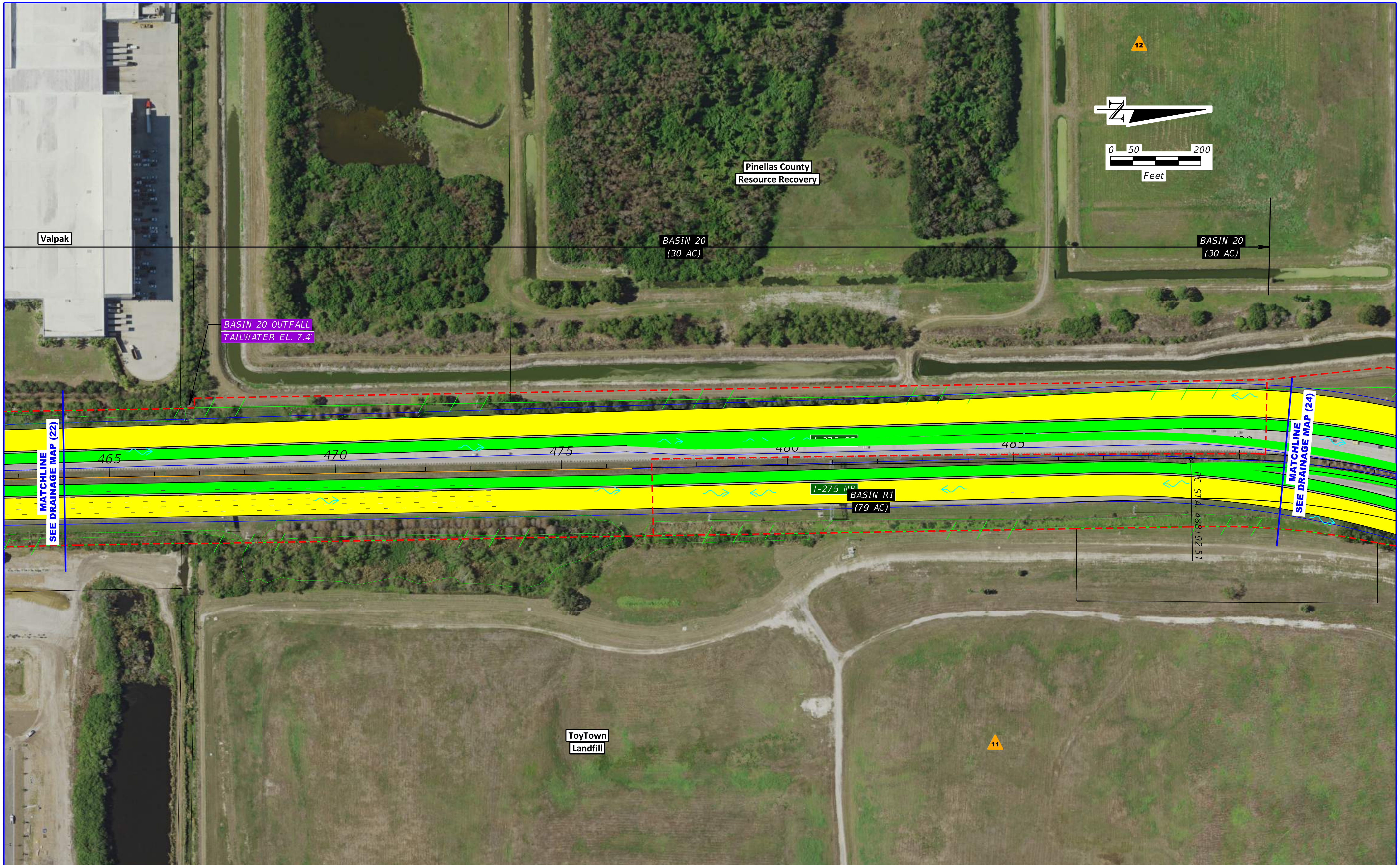
PAVEMENT WIDENING	BRIDGE WIDENING	DIRECTION OF FLOW
EXPRESS LANES	BRIDGES	WETLANDS
PAVEMENT REMOVAL	BARRIER WALL	BASIN BOUNDARY

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
I-275	PINELLAS	424501-1-22-01

DRAINAGE MAP (22)

SHEET NO.
B-22



LEGEND:

- PAVEMENT WIDENING
- EXPRESS LANES
- PAVEMENT REMOVAL
- BRIDGE WIDENING
- BRIDGES
- BARRIER WALL
- DIRECTION OF FLOW
- WETLANDS
- BASIN BOUNDARY

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
I-275	PINELLAS	424501-1-22-01

DRAINAGE MAP (23)

SHEET NO.
B-23

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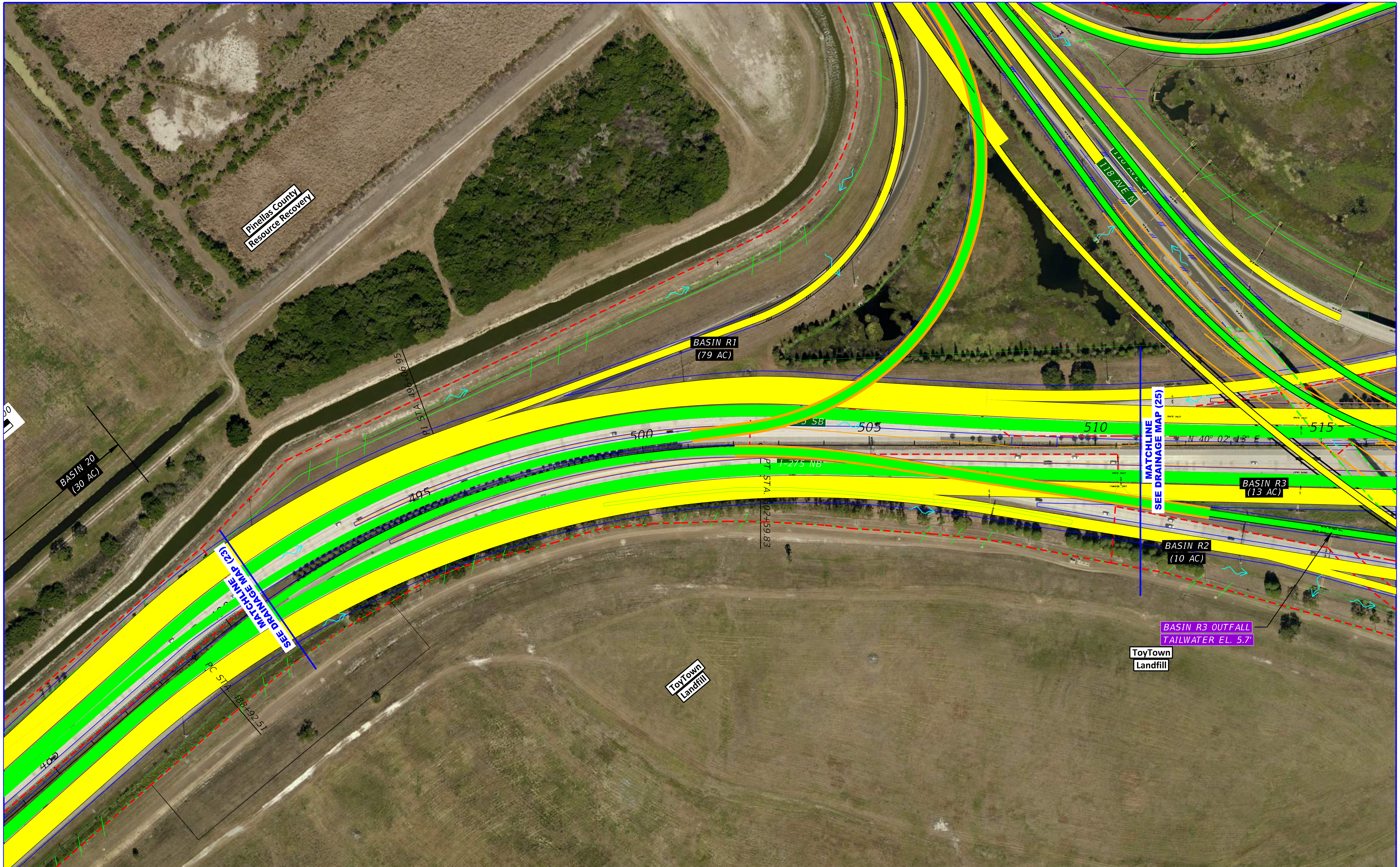


LEGEND:

- PAVEMENT WIDENING
- EXPRESS LANES
- PAVEMENT REMOVAL
- BRIDGE WIDENING
- BRIDGES
- BARRIER WALL
- DIRECTION OF FLOW
- WETLANDS
- BASIN BOUNDARY

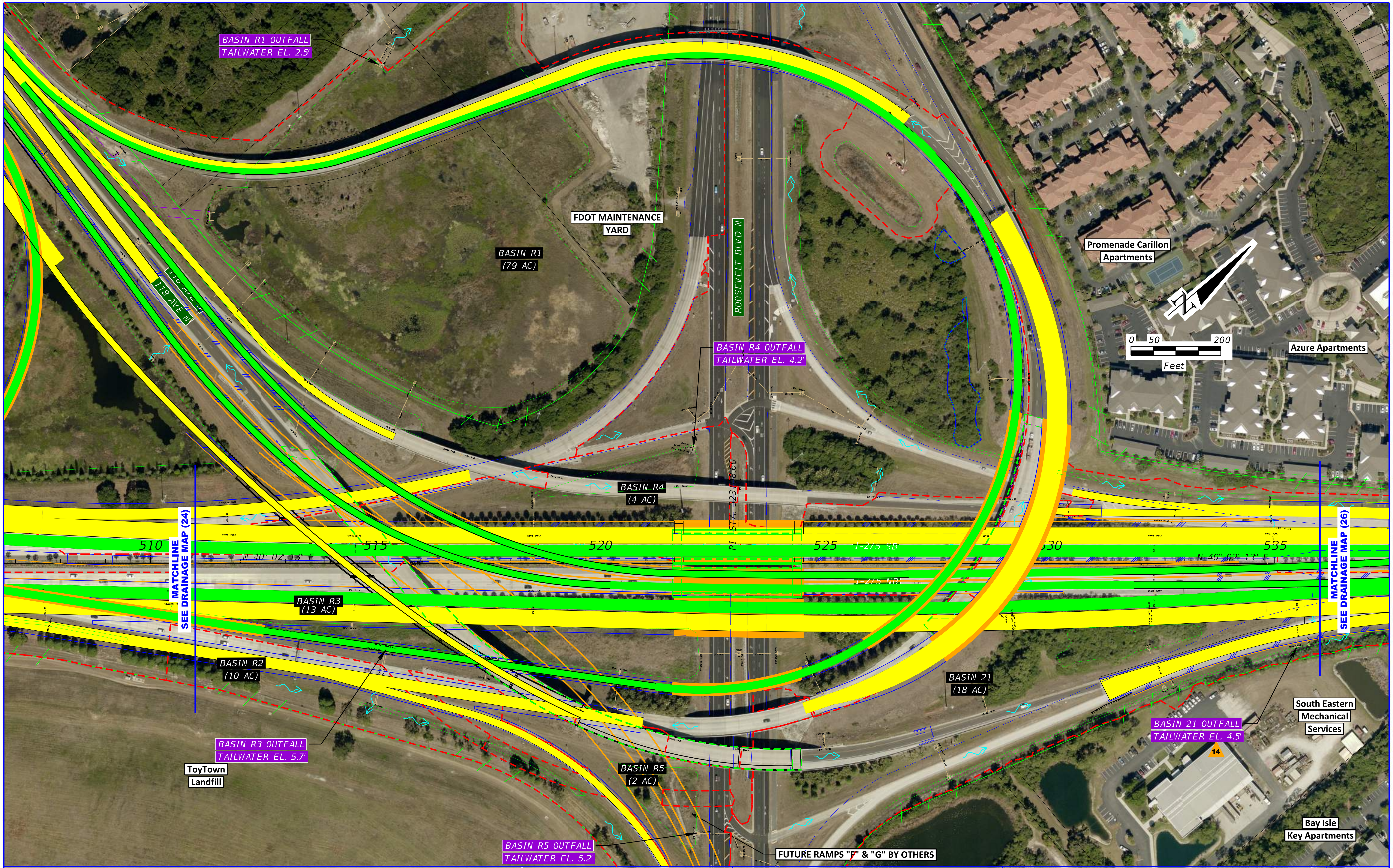
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
I-275	PINELLAS	424501-1-22-01

DRAINAGE MAP (24)

SHEET NO.
B-24

$USER$ $DATE$ $TIME$ $FILE$



LEGEND:

PAVEMENT WIDENING	BRIDGE WIDENING	DIRECTION OF FLOW
EXPRESS LANES	BRIDGES	WETLANDS
PAVEMENT REMOVAL	BARRIER WALL	BASIN BOUNDARY

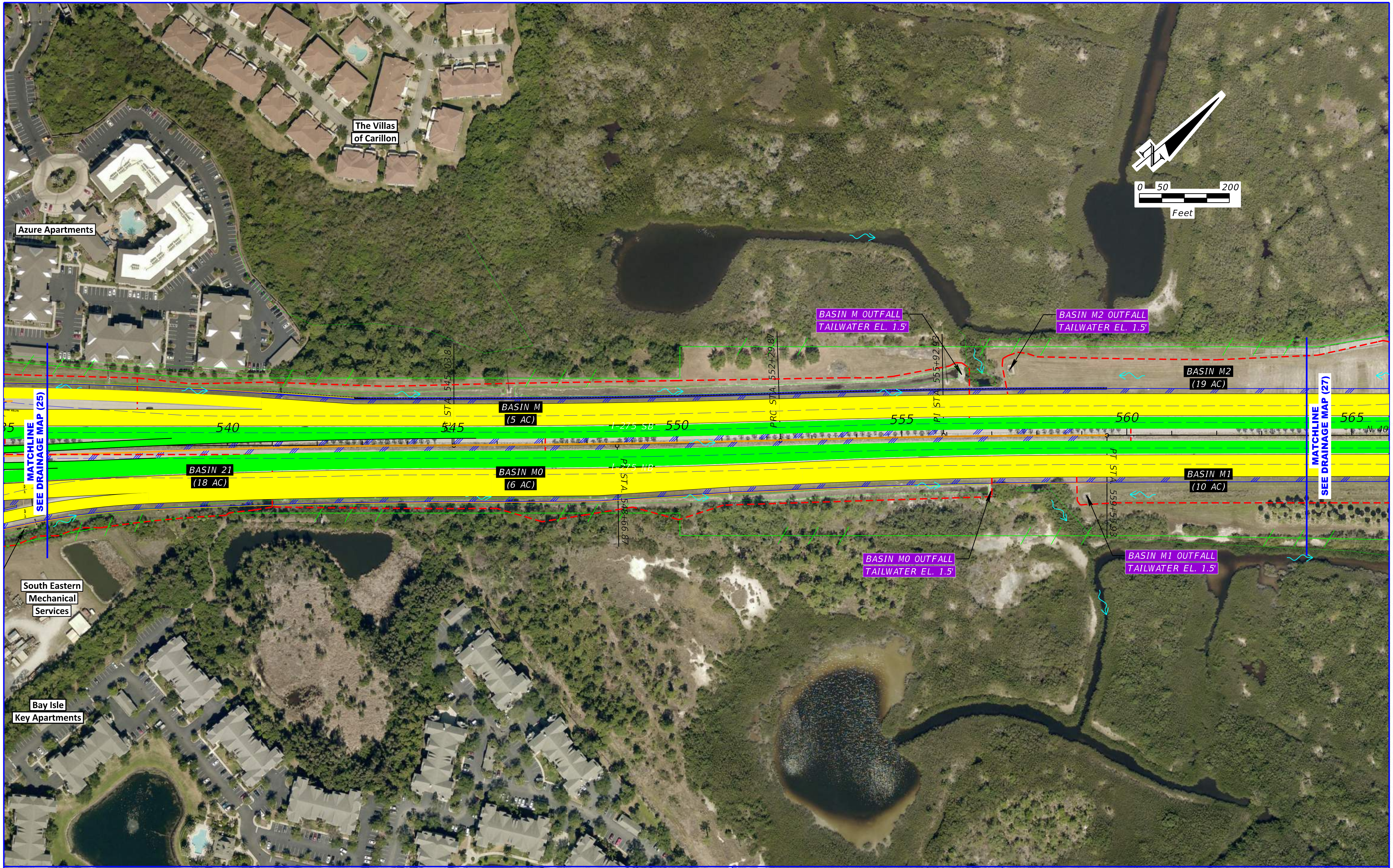
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
I-275	PINELLAS	424501-1-22-01

DRAINAGE MAP (25)

SHEET NO.
B-25

$USER$ $DATE$ $TIME$ $FILE$



LEGEND:

- PAVEMENT WIDENING
- EXPRESS LANES
- PAVEMENT REMOVAL
- BRIDGE WIDENING
- BRIDGES
- BARRIER WALL
- DIRECTION OF FLOW
- WETLANDS
- BASIN BOUNDARY

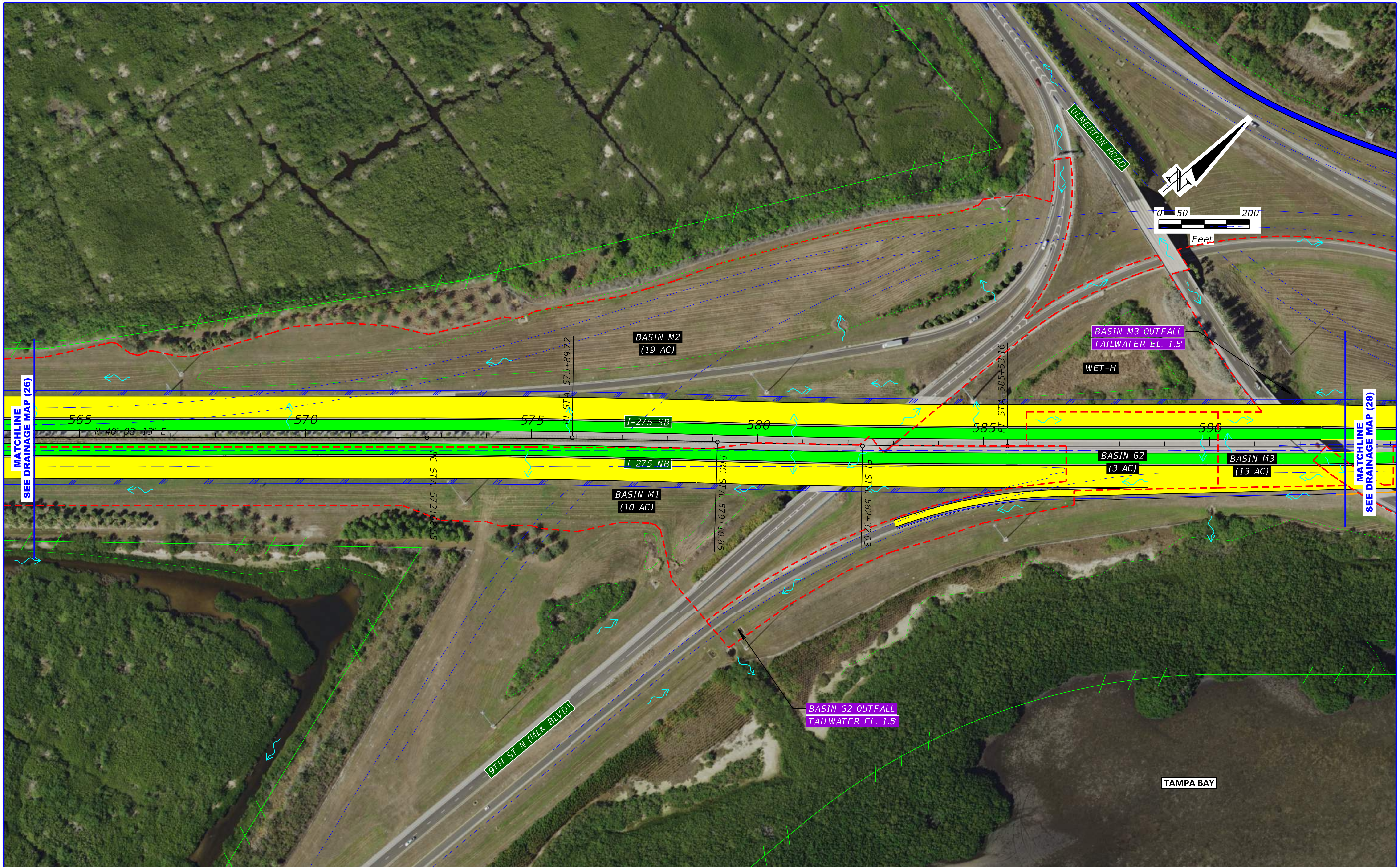
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
I-275	PINELLAS	424501-1-22-01

DRAINAGE MAP (26)

SHEET NO.
B-26

$USERS $DATES $TIMES $FILES



LEGEND:

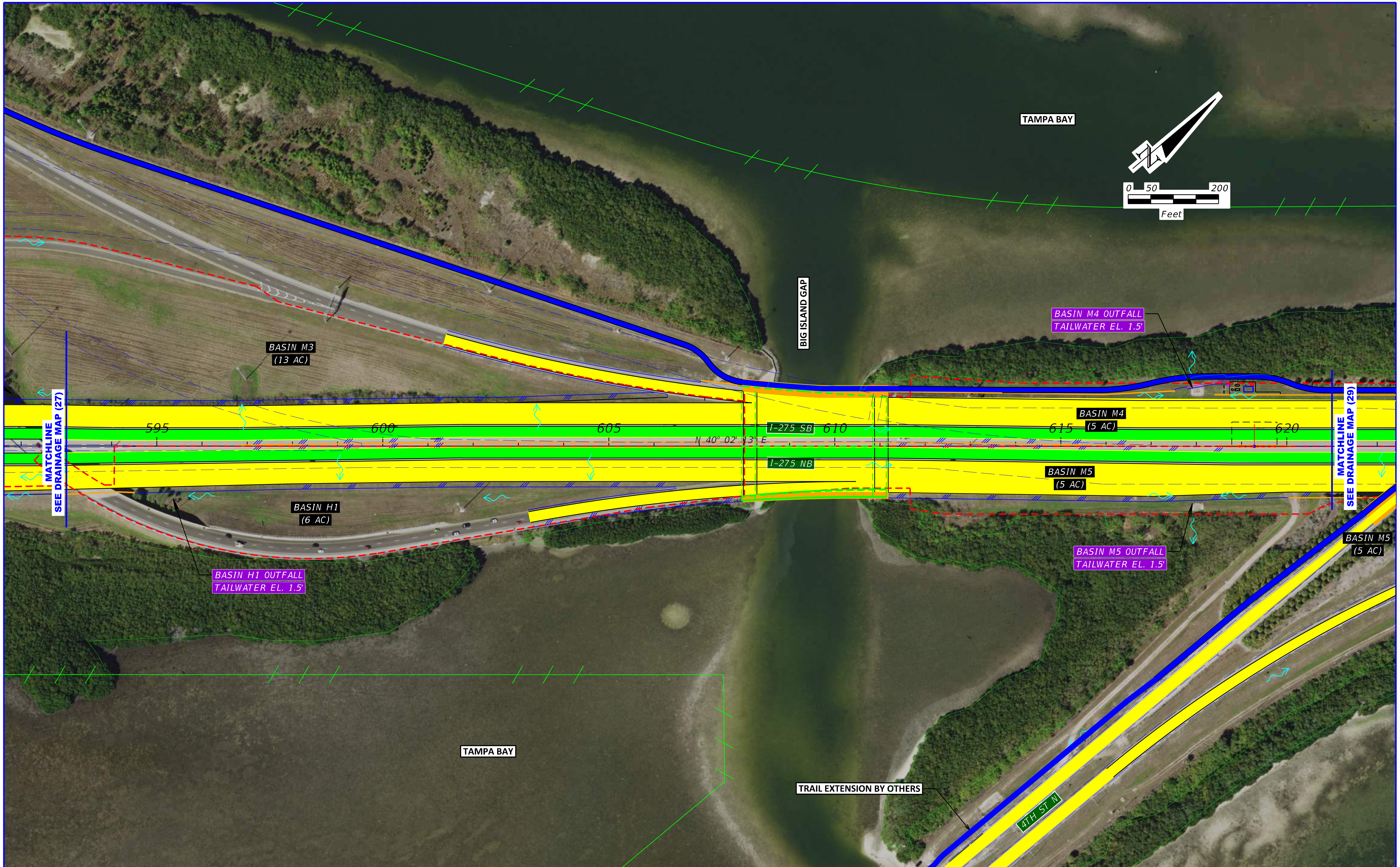
PAVEMENT WIDENING	BRIDGE WIDENING
EXPRESS LANES	BRIDGES
PAVEMENT REMOVAL	BARRIER WALL
DIRECTION OF FLOW	
WETLANDS	
BASIN BOUNDARY	

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
I-275	PINELLAS	424501-1-22-01

DRAINAGE MAP (27)

SHEET NO.
B-27



LEGEND:

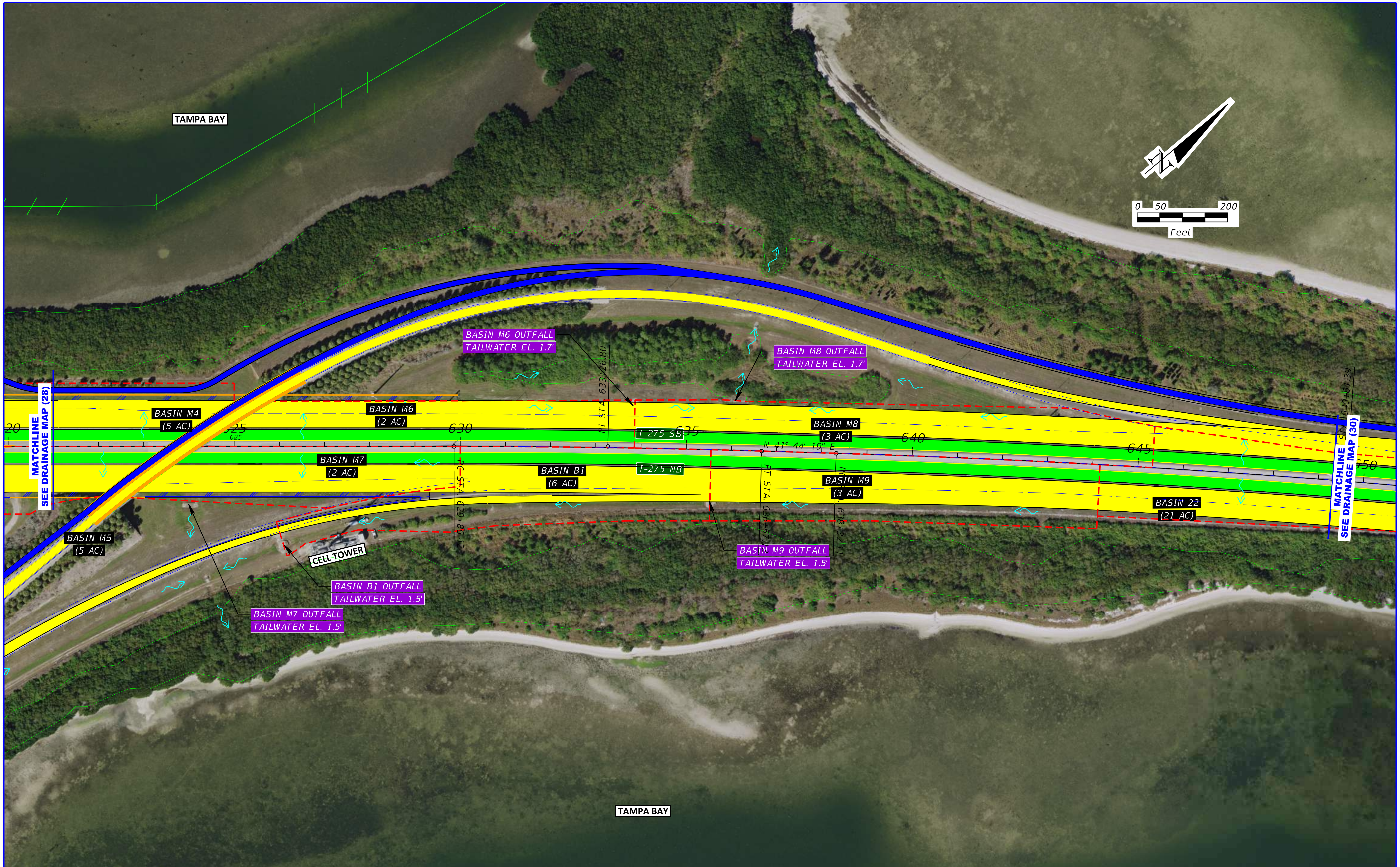
- PAVEMENT WIDENING
- EXPRESS LANES
- PAVEMENT REMOVAL
- BRIDGE WIDENING
- BRIDGES
- BARRIER WALL
- DIRECTION OF FLOW
- WETLANDS
- BASIN BOUNDARY

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
I-275	PINELLAS	424501-1-22-01

DRAINAGE MAP (28)

SHEET NO.
B-28



LEGEND:

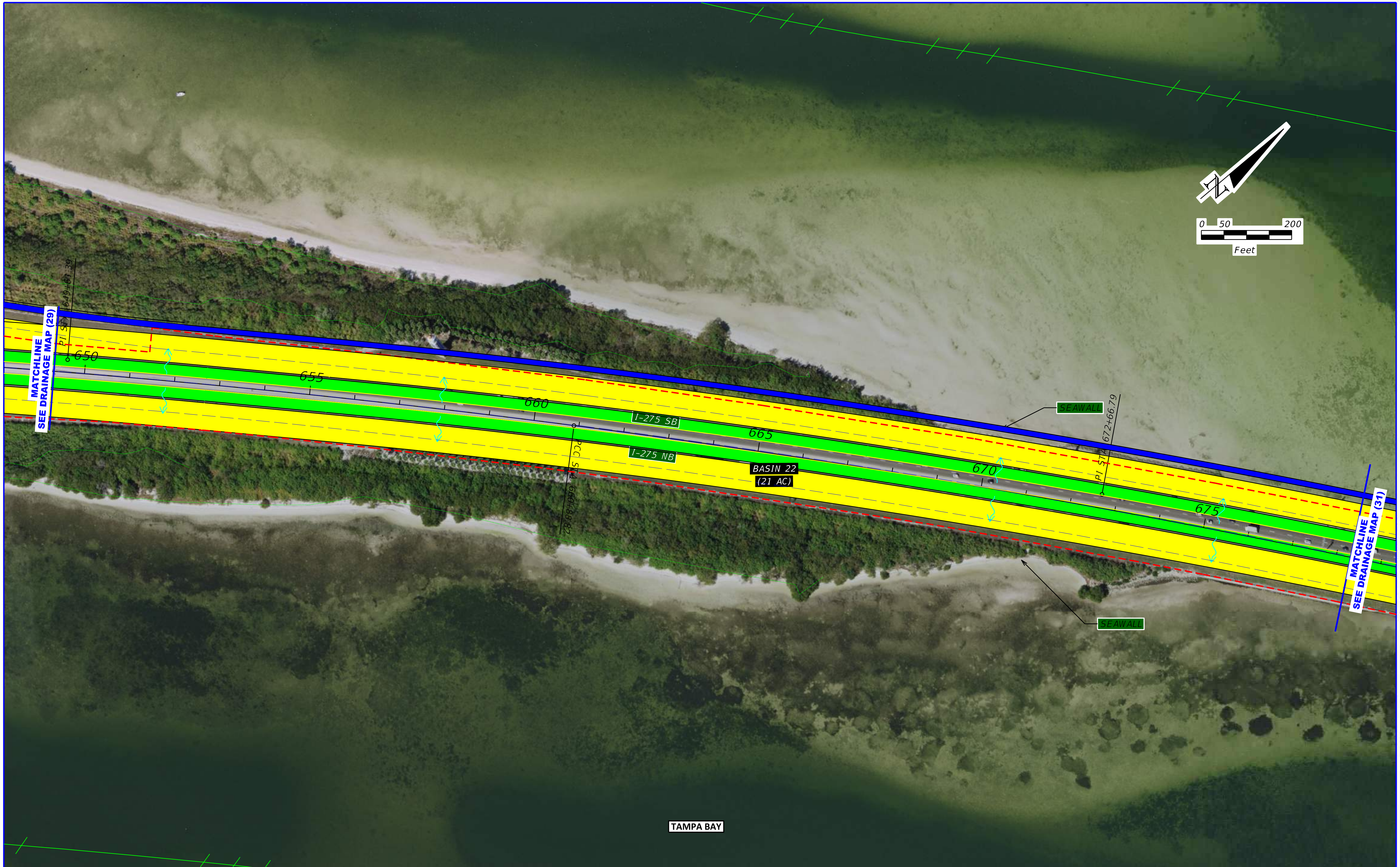
PAVEMENT WIDENING	BRIDGE WIDENING
EXPRESS LANES	BRIDGES
PAVEMENT REMOVAL	BARRIER WALL
DIRECTION OF FLOW	
WETLANDS	
BASIN BOUNDARY	

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
I-275	PINELLAS	424501-1-22-01

DRAINAGE MAP (29)

SHEET NO.
B-29



LEGEND:

PAVEMENT WIDENING	BRIDGE WIDENING	DIRECTION OF FLOW
EXPRESS LANES	BRIDGES	WETLANDS
PAVEMENT REMOVAL	BARRIER WALL	BASIN BOUNDARY

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
I-275	PINELLAS	424501-1-22-01

DRAINAGE MAP (30)

SHEET NO. B-30

LEGEND:

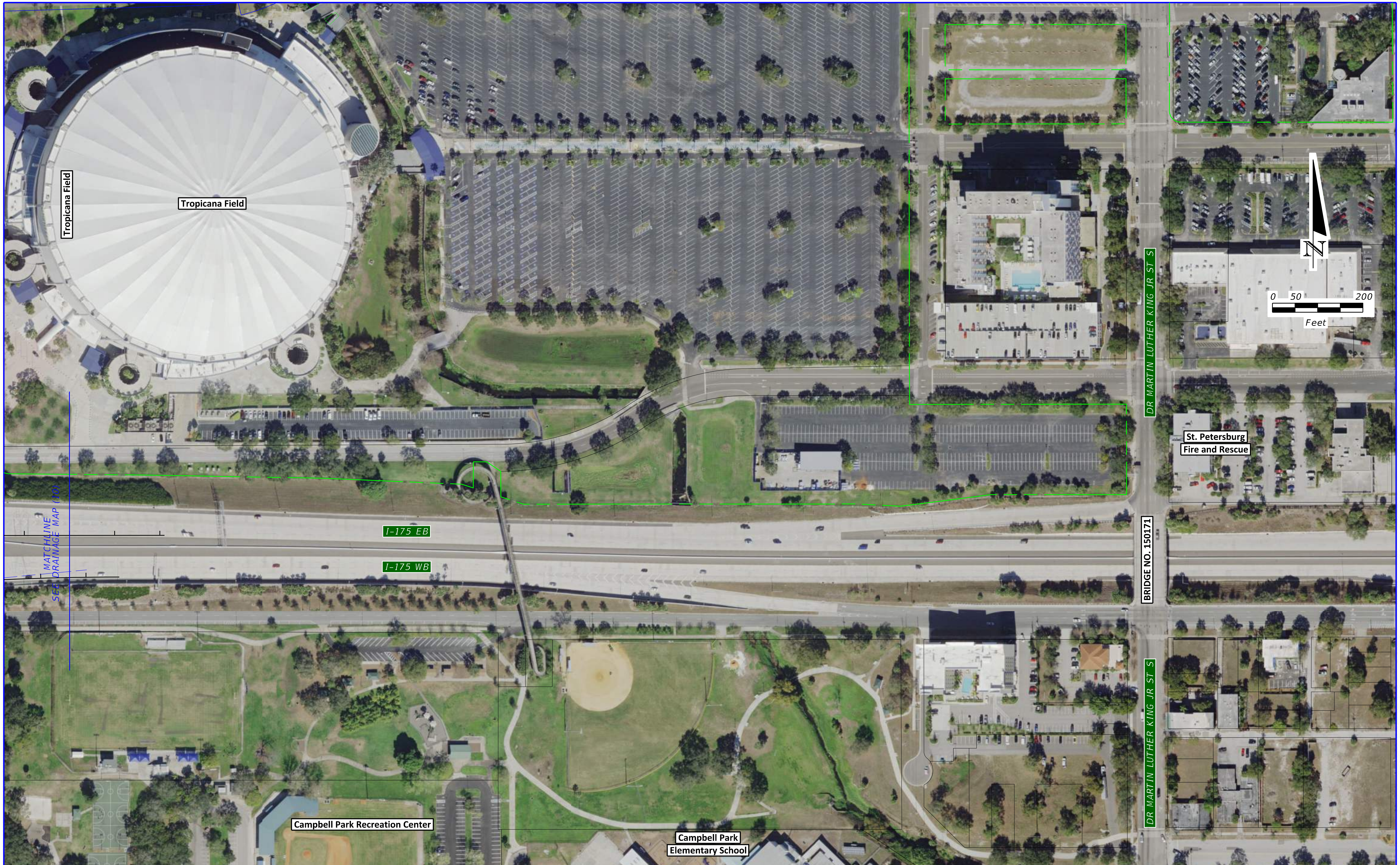
PAVEMENT WIDENING	BRIDGE WIDENING	DIRECTION OF FLOW
EXPRESS LANES	BRIDGES	WETLANDS
PAVEMENT REMOVAL	BARRIER WALL	BASIN BOUNDARY

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
I-275	PINELLAS	424501-1-22-01

DRAINAGE MAP (31)

SHEET NO. B-31



LEGEND:

PAVEMENT WIDENING	BRIDGE WIDENING	DIRECTION OF FLOW
EXPRESS LANES	BRIDGES	WETLANDS
PAVEMENT REMOVAL	BARRIER WALL	BASIN BOUNDARY

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
I-275	PINELLAS	424501-1-22-01

DRAINAGE MAP (32)

SHEET NO.
B-32

LEGEND:

PAVEMENT WIDENING	BRIDGE WIDENING	DIRECTION OF FLOW
EXPRESS LANES	BRIDGES	WETLANDS
PAVEMENT REMOVAL	BARRIER WALL	BASIN BOUNDARY

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
I-275	PINELLAS	424501-1-22-01

DRAINAGE MAP (33)

SHEET NO.
B-33

LEGEND:

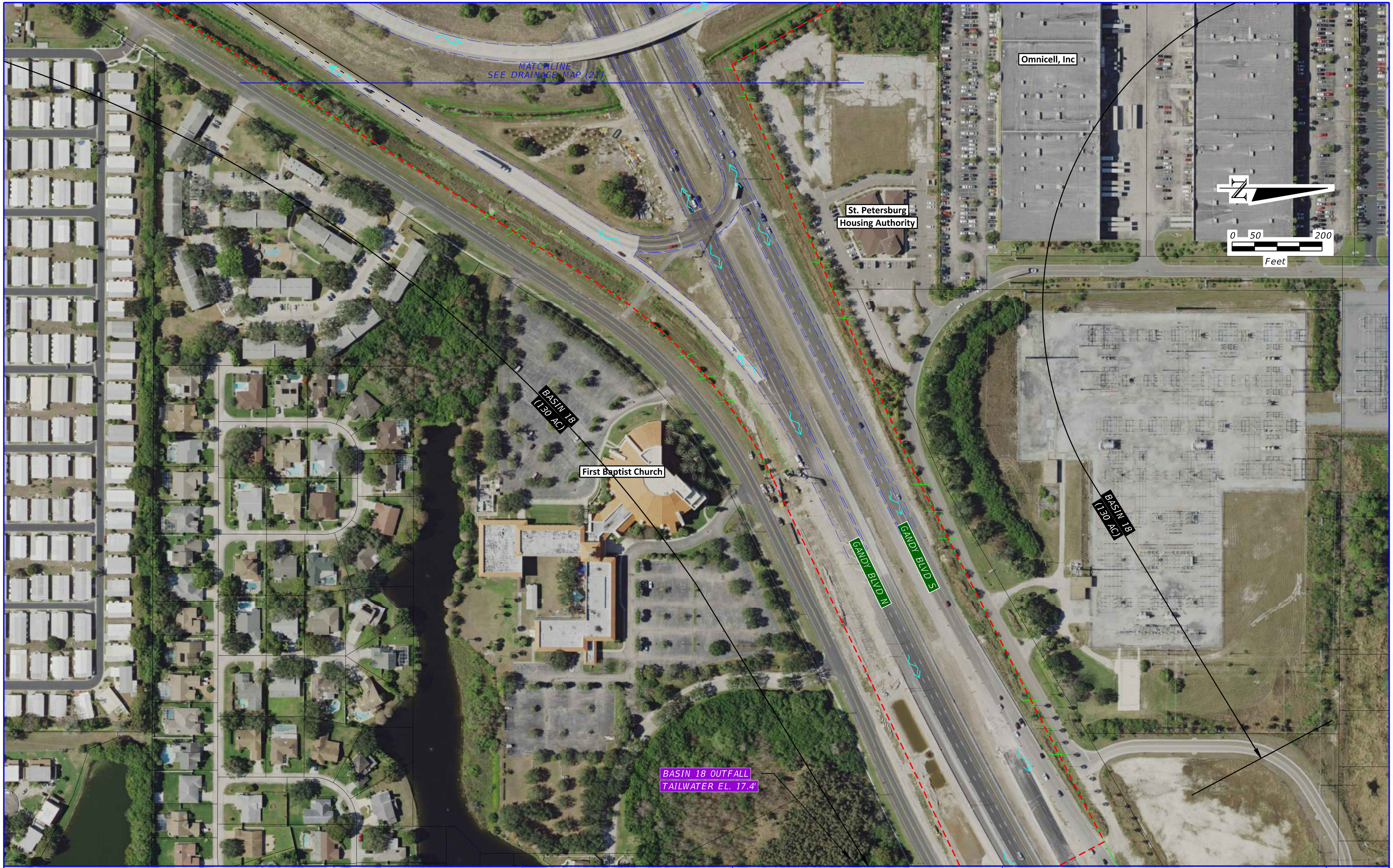
PAVEMENT WIDENING	BRIDGE WIDENING	DIRECTION OF FLOW
EXPRESS LANES	BRIDGES	WETLANDS
PAVEMENT REMOVAL	BARRIER WALL	BASIN BOUNDARY

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
I-275	PINELLAS	424501-1-22-01

DRAINAGE MAP (34)

SHEET NO.
B-34



LEGEND:

PAVEMENT WIDENING	BRIDGE WIDENING	DIRECTION OF FLOW
EXPRESS LANES	BRIDGES	WETLANDS
PAVEMENT REMOVAL	BARRIER WALL	BASIN BOUNDARY

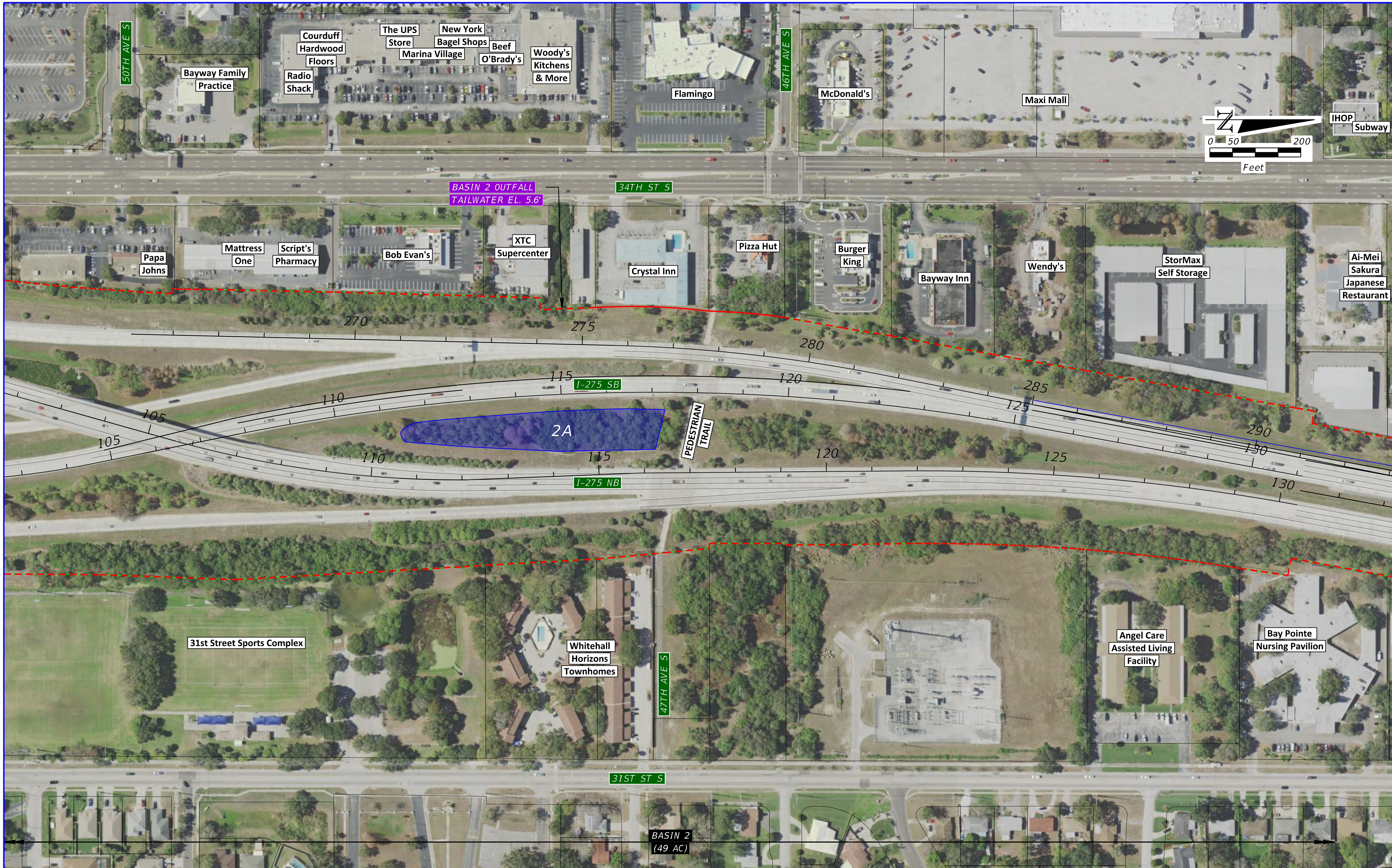
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
I-275	PINELLAS	424501-1-22-01

DRAINAGE MAP (35)

SHEET NO.
B-35

Appendix C.
Pond Site Alternatives



LEGEND:

- PAVEMENT WIDENING
- MASTER WIDENING
- PAVEMENT REMOVAL
- BRIDGE WIDENING
- BRIDGES
- BARRIER WALL
- DIRECTION OF FLOW
- WETLANDS
- BASIN BOUNDARY

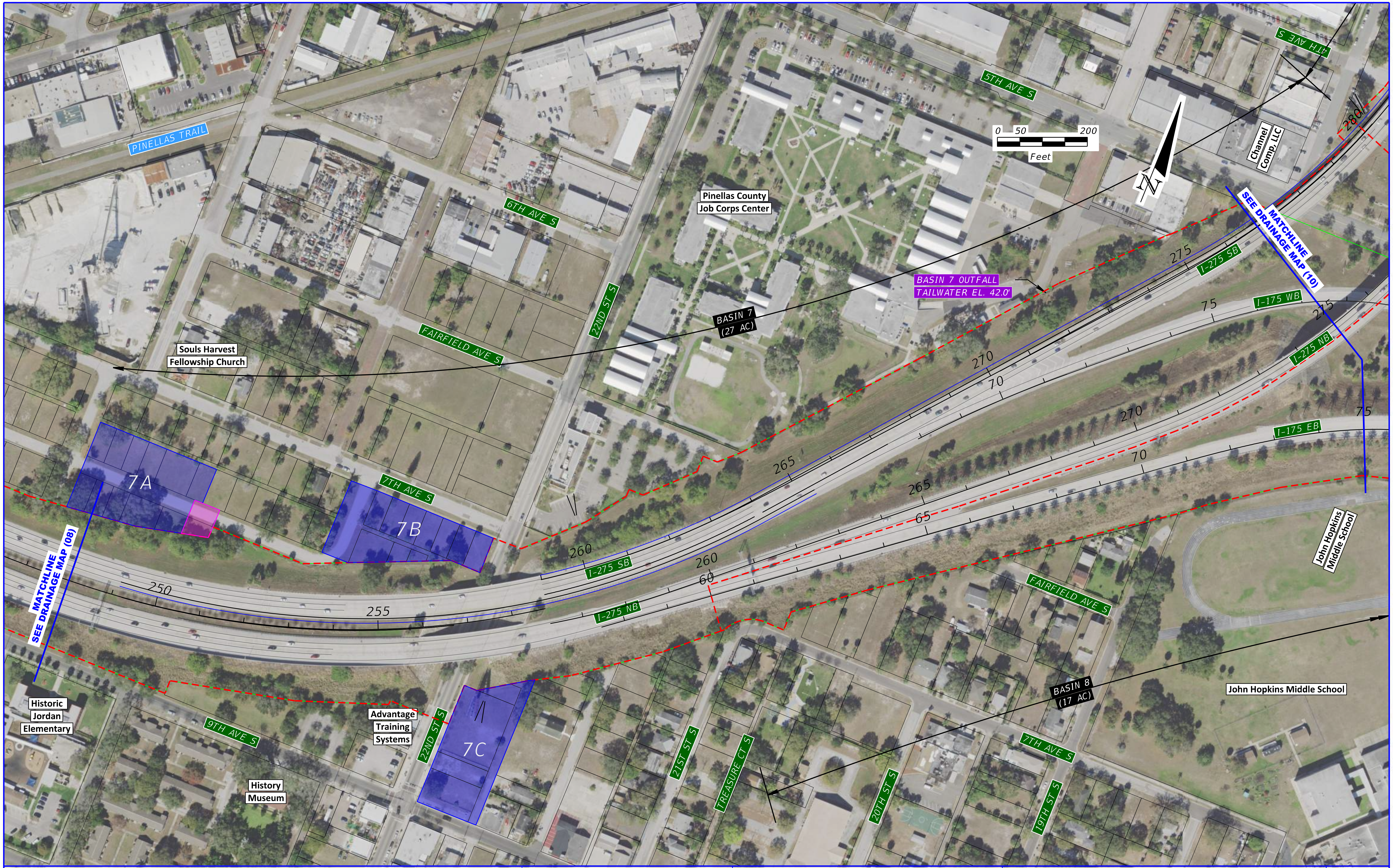
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
I-275	PINELLAS	424501-1-22-01

BASIN 2
SMF SITE ALTERNATIVES

SHEET NO.
C-1

$USER$ $DATE$ $TIME$ $FILE$



LEGEND:

PAVEMENT WIDENING	BRIDGE WIDENING	DIRECTION OF FLOW
MASTER WIDENING	BRIDGES	WETLANDS
PAVEMENT REMOVAL	BARRIER WALL	BASIN BOUNDARY

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
I-275	PINELLAS	424501-1-22-01

BASIN 7
SMF SITE ALTERNATIVES

SHEET NO.
C-2

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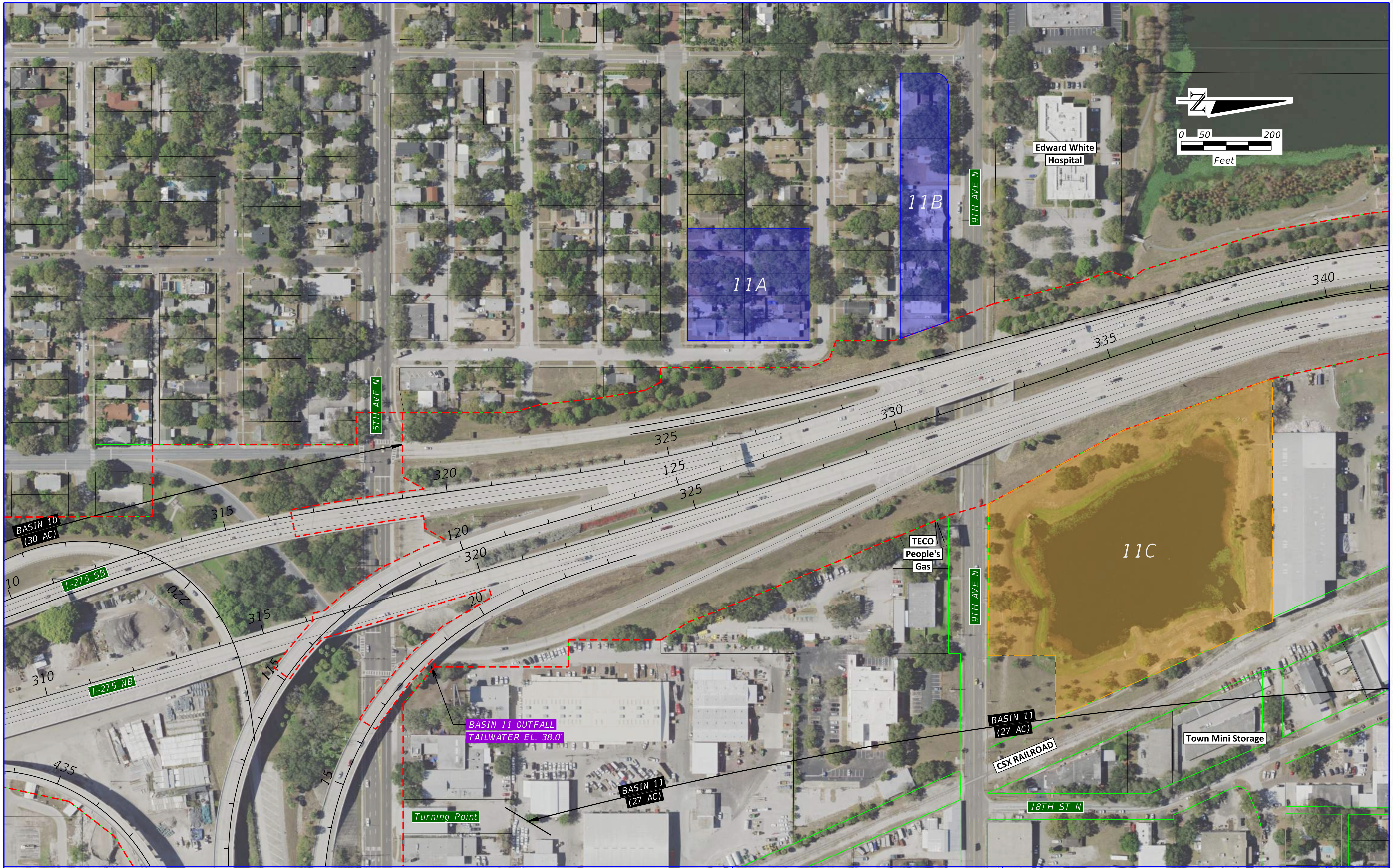

LEGEND:

- PAVEMENT WIDENING
- MASTER WIDENING
- PAVEMENT REMOVAL
- BRIDGE WIDENING
- BRIDGES
- BARRIER WALL
- DIRECTION OF FLOW
- WETLANDS
- BASIN BOUNDARY

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
I-275	PINELLAS	424501-1-22-01

BASIN 11
SMF SITE ALTERNATIVES

SHEET NO.
C-3

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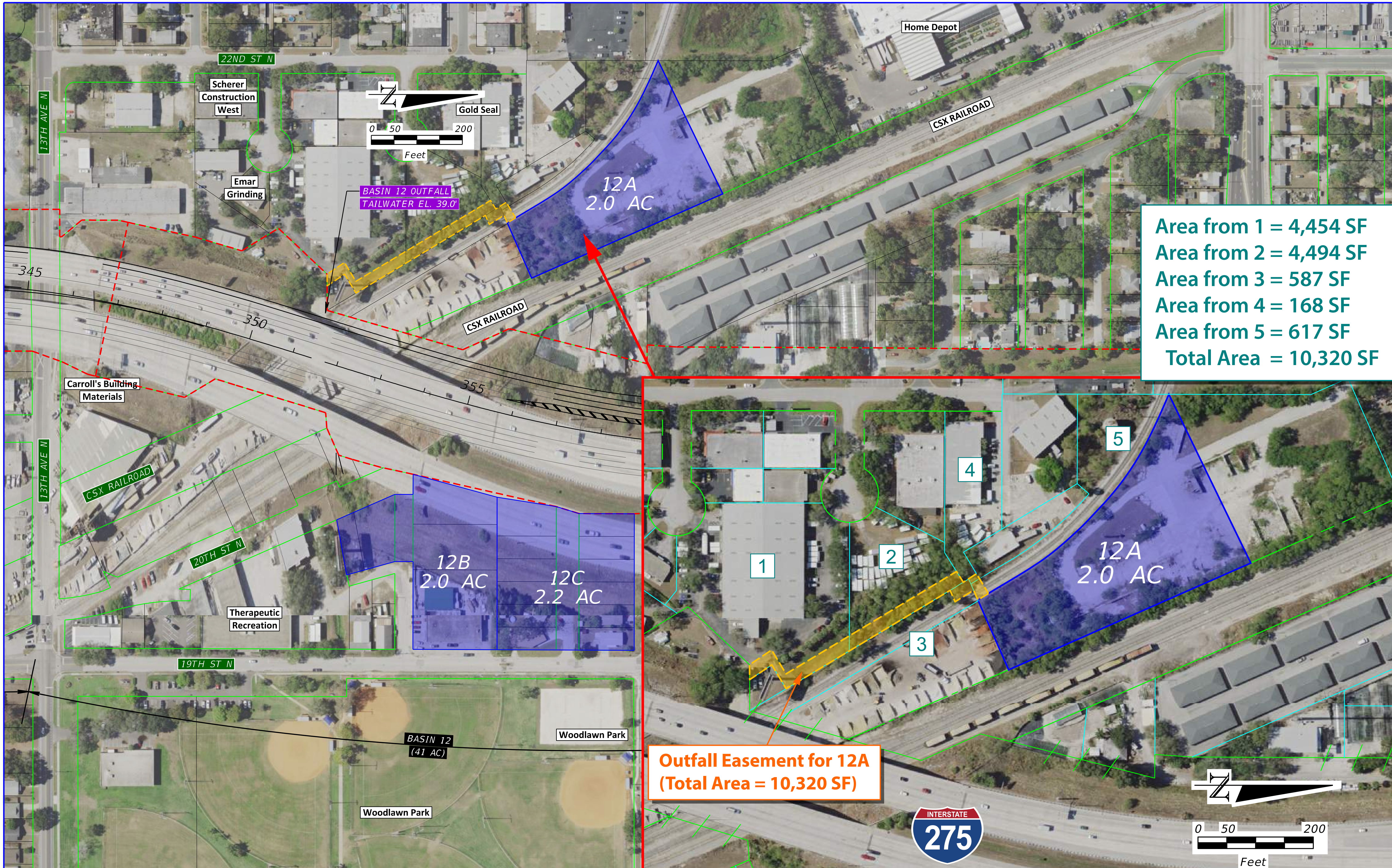

LEGEND:

PAVEMENT WIDENING	BRIDGE WIDENING
MASTER WIDENING	BRIDGES
PAVEMENT REMOVAL	BARRIER WALL
DIRECTION OF FLOW	WETLANDS
BASIN BOUNDARY	

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
I-275	PINELLAS	424501-1-22-01

BASIN 12
SMF SITE ALTERNATIVES

SHEET NO.
C-4

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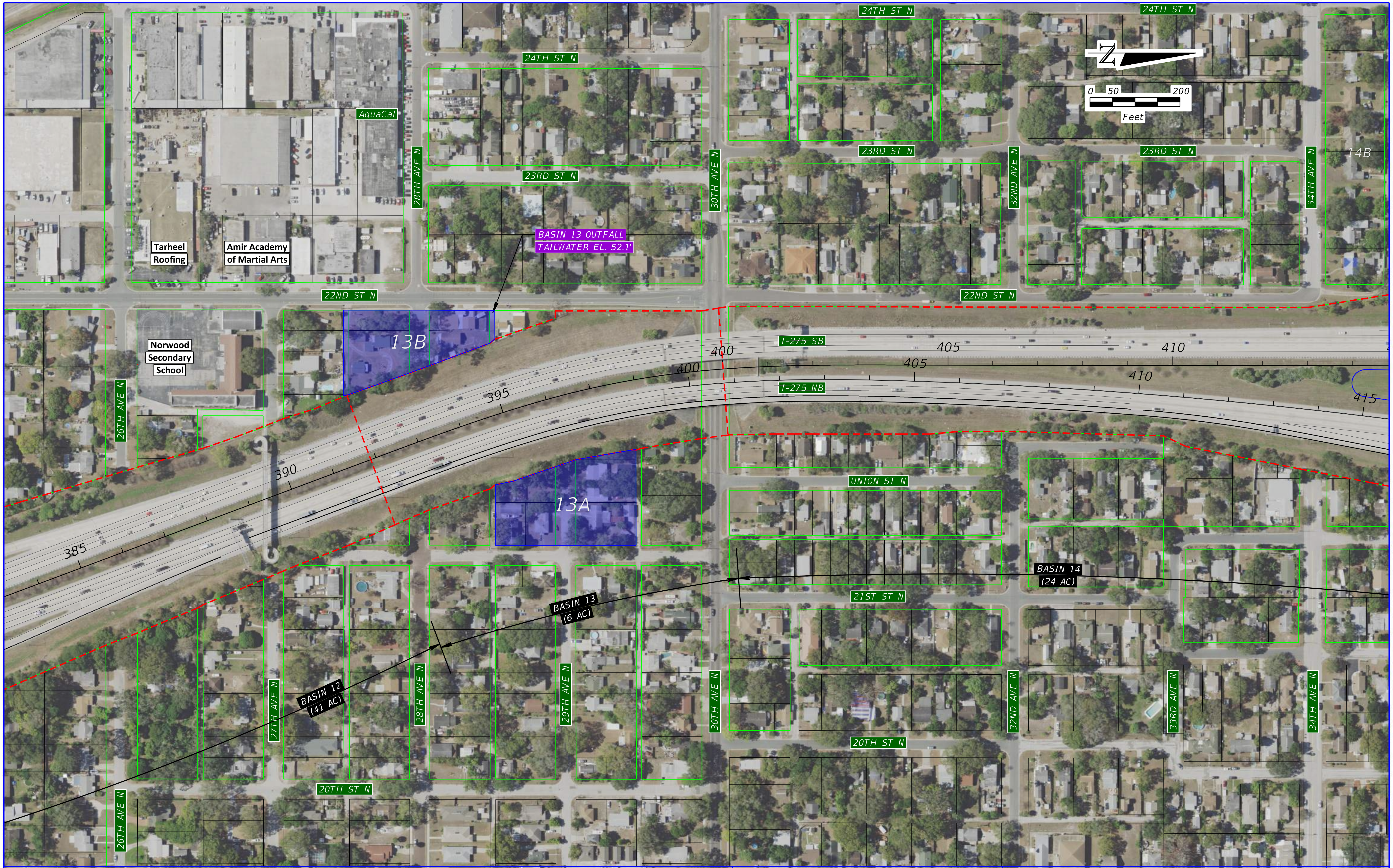


LEGEND:

PAVEMENT WIDENING	BRIDGE WIDENING	DIRECTION OF FLOW
MASTER WIDENING	BRIDGES	WETLANDS
PAVEMENT REMOVAL	BARRIER WALL	BASIN BOUNDARY

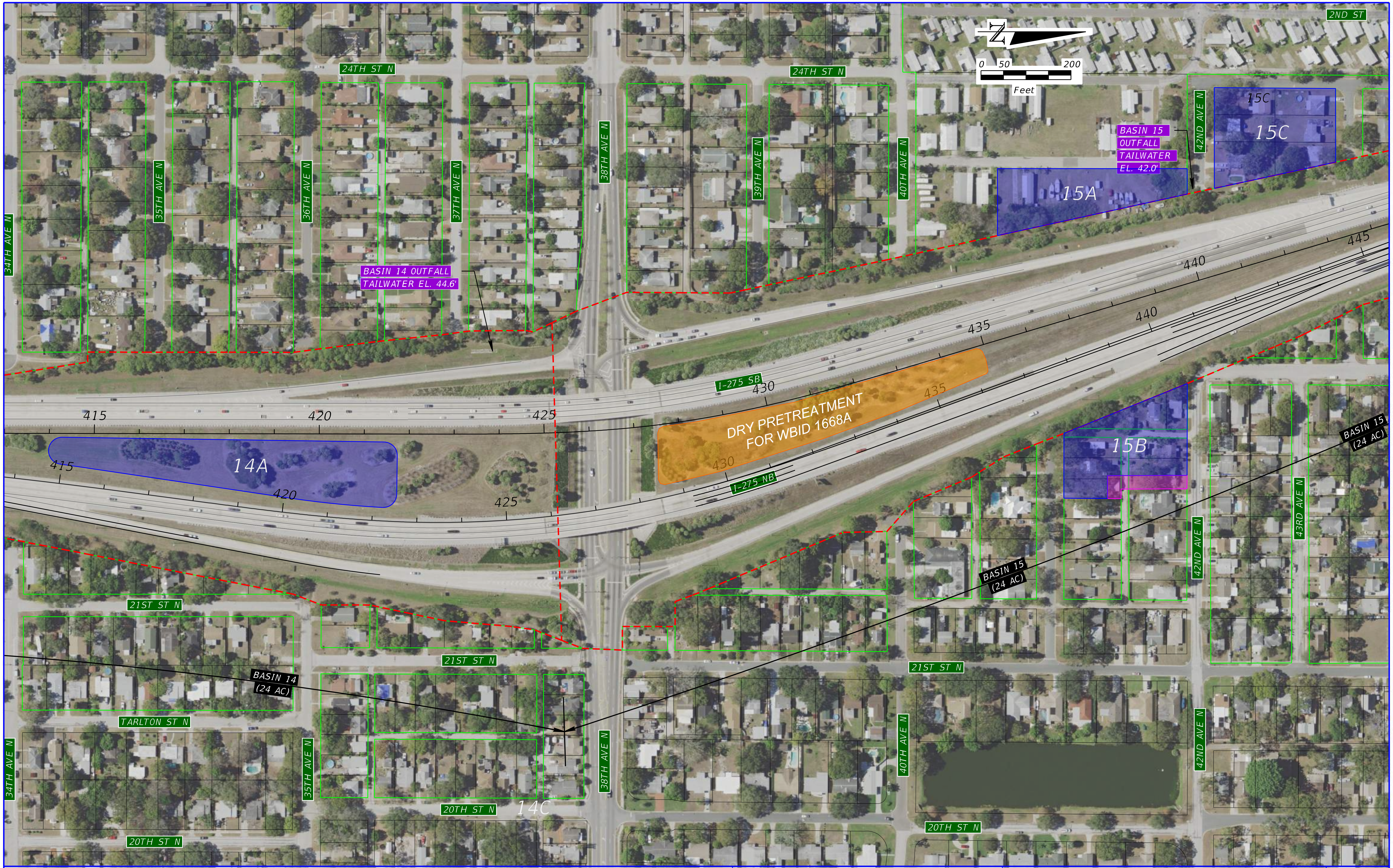
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
I-275	PINELLAS	424501-1-22-01

BASIN 13
SMF SITE ALTERNATIVES

SHEET NO.
C-5

$USER$ $DATE$ $TIME$ $FILE$



LEGEND:

PAVEMENT WIDENING	BRIDGE WIDENING	DIRECTION OF FLOW
MASTER WIDENING	BRIDGES	WETLANDS
PAVEMENT REMOVAL	BARRIER WALL	BASIN BOUNDARY

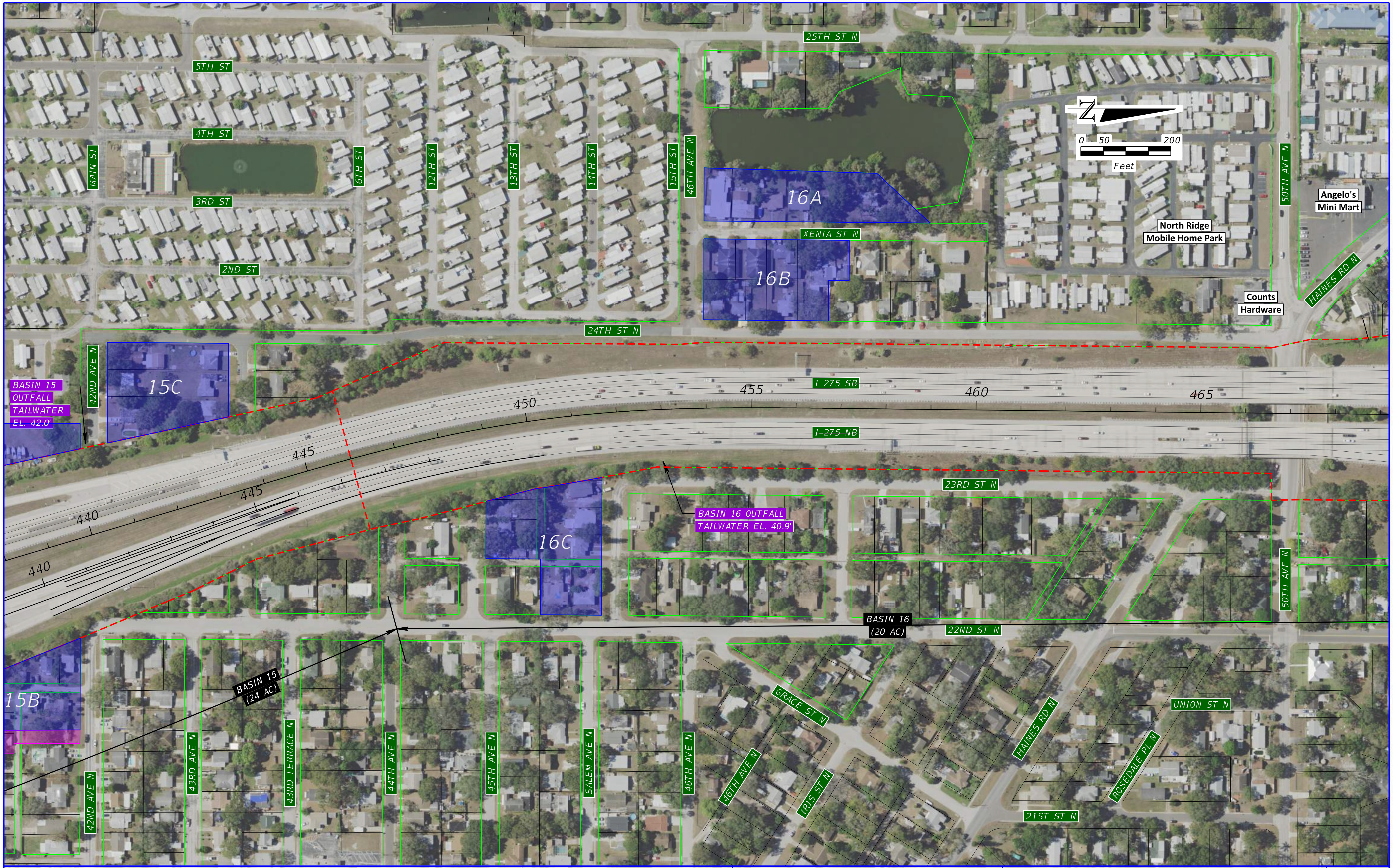
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
I-275	PINELLAS	424501-1-22-01

BASIN 14 & 15
SMF SITE ALTERNATIVES

SHEET NO.
C-6

$USER$ $DATE$ $TIME$ $FILE$



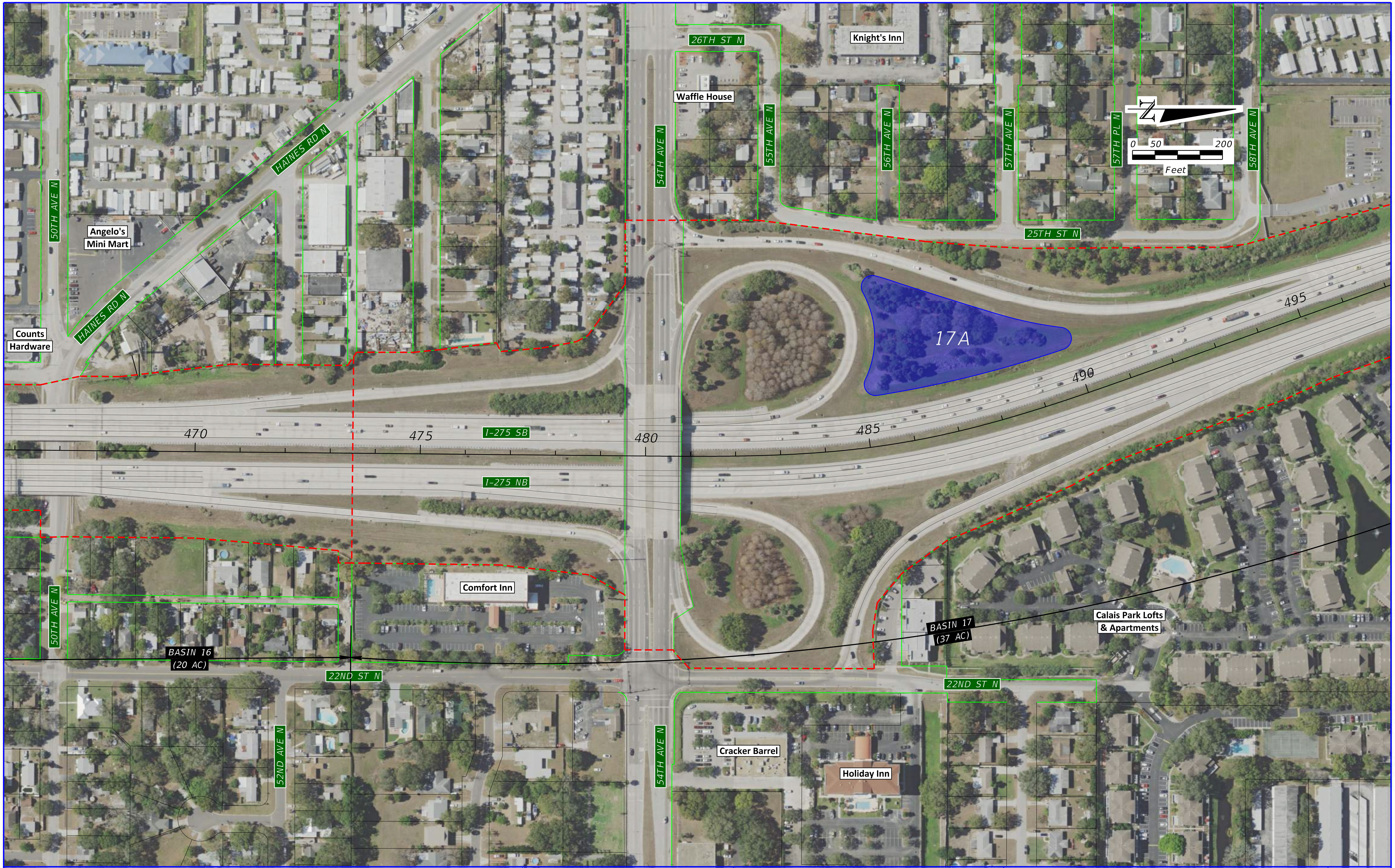
LEGEND:

PAVEMENT WIDENING
MASTER WIDENING
PAVEMENT REMOVAL
BRIDGE WIDENING
BRIDGES
BARRIER WALL
DIRECTION OF FLOW
WETLANDS
BASIN BOUNDARY

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
I-275	PINELLAS	424501-1-22-01

BASIN 16
SMF SITE ALTERNATIVES

SHEET NO.
C-7



LEGEND:

- PAVEMENT WIDENING
- MASTER WIDENING
- PAVEMENT REMOVAL
- BRIDGE WIDENING
- BRIDGES
- BARRIER WALL
- DIRECTION OF FLOW
- WETLANDS
- BASIN BOUNDARY

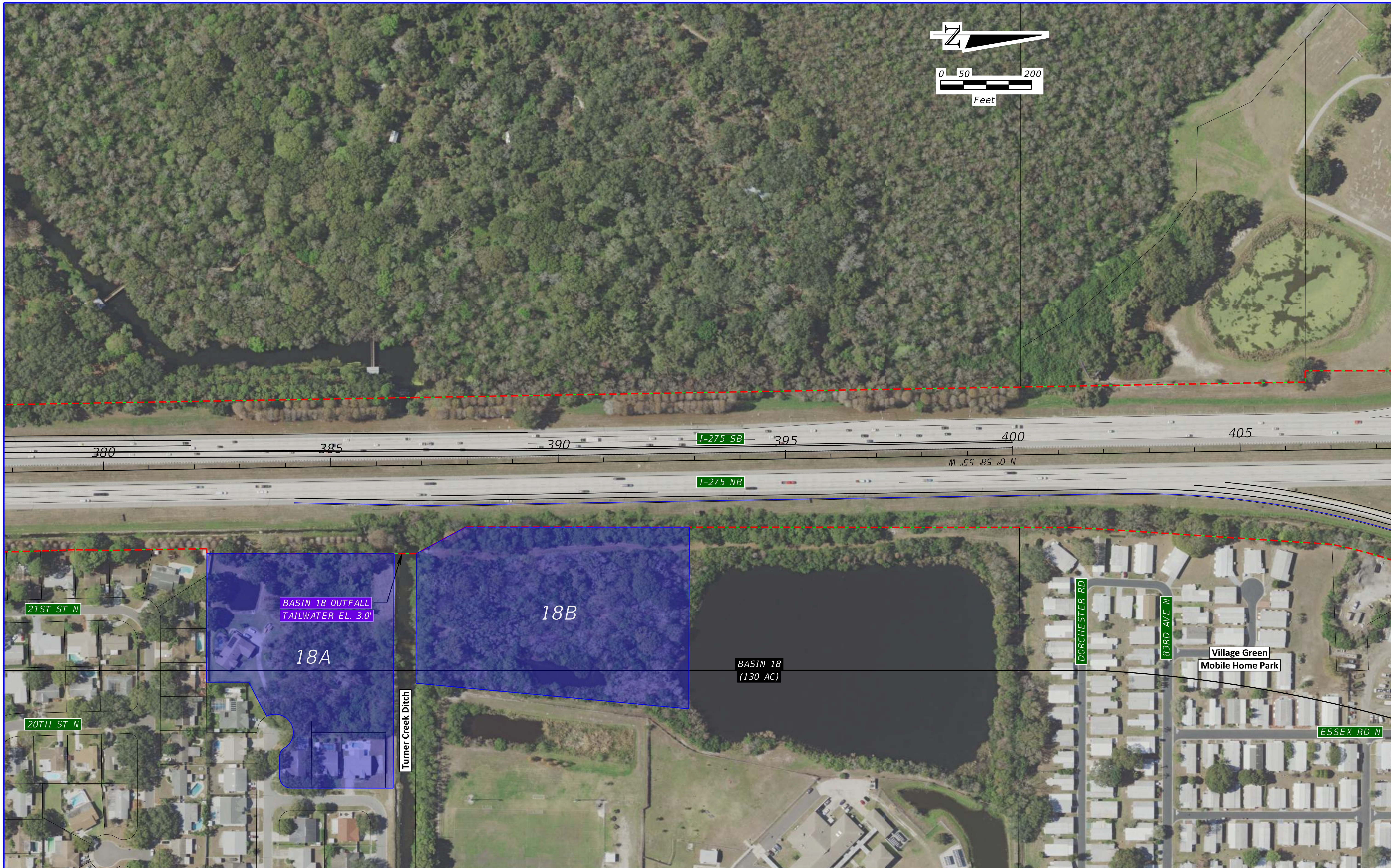
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
I-275	PINELLAS	424501-1-22-01

BASIN 17
SMF SITE ALTERNATIVES

SHEET NO.
C-8

$USER$ $DATE$ $TIME$ $FILE$



LEGEND:

PAVEMENT WIDENING	BRIDGE WIDENING	DIRECTION OF FLOW
MASTER WIDENING	BRIDGES	WETLANDS
PAVEMENT REMOVAL	BARRIER WALL	BASIN BOUNDARY

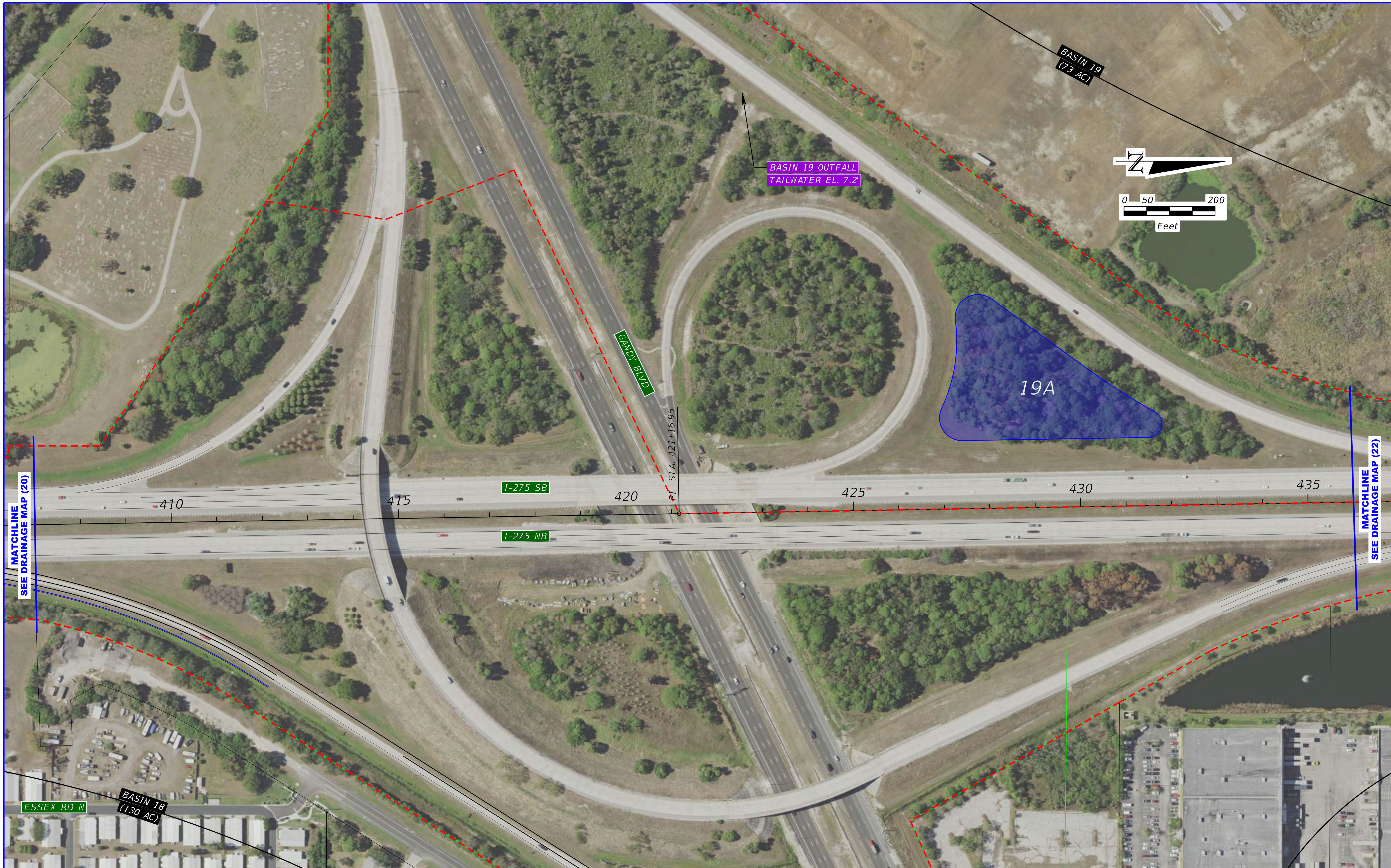
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
I-275	PINELLAS	424501-1-22-01

BASIN 18
SMF SITE ALTERNATIVES

SHEET NO.
C-9

$USER$ $DATE$ $TIME$ $FILE$



LEGEND:

PAVEMENT WIDENING	BRIDGE WIDENING	DIRECTION OF FLOW
MASTER WIDENING	BRIDGES	WETLANDS
PAVEMENT REMOVAL	BARRIER WALL	BASIN BOUNDARY

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
I-275	PINELLAS	424501-1-22-01

BASIN 19
SMF SITE ALTERNATIVES

SHEET NO.
C-10

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LEGEND:

PAVEMENT WIDENING	BRIDGE WIDENING	DIRECTION OF FLOW
MASTER WIDENING	BRIDGES	WETLANDS
PAVEMENT REMOVAL	BARRIER WALL	BASIN BOUNDARY

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
I-275	PINELLAS	424501-1-22-01

BASIN 20
SMF SITE ALTERNATIVES

SHEET NO.
C-11

$USER$ $DATE$ $TIME$ $FILE$

Appendix D.
Stormwater Management Calculations

BASIN 2

Curve Number and Runoff Volume Calculation (SWFWMD 25YR/24HR)

Pre-Condition Curve Number Calculation

Land Use Description	Soil Map Unit	Hydrologic Group	Area		CN	Product
Impervious Roadway	--	--	15.30	acres	98	1499
Sod/Grass	17	B	33.26	acres	80	2661
		Subtotal:	**48.56**	**acres**		
Pond Site	17	B	0.90	acres	80	72
		Totals:	49.46	acres		4232
		Pre-Condition Composite Curve Number:	85.6			

Pre-Condition Runoff Volume Calculation

25-yr/24-hr Rainfall Depth (P) = 9.00 IN
CN = 85.6
Drainage Area (A) = 49.46 AC
Potential maximum retention after runoff begins (S) and S is:
(S) = 1000/CN-10 = 1.69 IN
Runoff Depth (Q) = (P-0.2S)^2/(P+0.8S) = 7.25 IN
Pre-Condition Runoff Volume (V_{PRE}) = A x Q = 29.89 AC-FT

Post-Condition Curve Number Calculation

Land Use Description	Soil Map Unit	Hydrologic Group	Area		CN	Product
Impervious Roadway	--	--	15.30	acres	98	1499
New Impervious Roadway	--	--	2.72	acres	98	267
Sod/Grass	17	B	30.54	acres	80	2443
		Subtotal:	**48.56**	**acres**		
Pond Impervious	--	--	0.23	acres	100	23
Pond Pervious	17	B	0.67	acres	80	54
		Totals:	49.46	acres		4286
		Post-Condition Composite Curve Number:	86.7			

Post-Condition Runoff Volume Calculation

25-yr/24-hr Rainfall Depth (P) = 9.00 IN
CN = 86.7
Drainage Area (A) = 49.46 AC
Potential maximum retention after runoff begins (S) and S is:
(S) = 1000/CN-10 = 1.54 IN
Runoff Depth (Q) = (P-0.2S)^2/(P+0.8S) = 7.38 IN
Post-Condition Runoff Volume (V_{POST}) = A x Q = 30.43 AC-FT

Required Attenuation Volume = V_{POST} - V_{PRE} = 0.55 AC-FT

BASIN 2 (POND A)

TREATMENT VOLUME CALCULATION

BASIN 2 R/W AREA=	48.56	ACRES
BASIN 2 EXIST. IMPERVIOUS AREA=	15.30	ACRES
BASIN 2 NEW IMPERVIOUS AREA =	2.72	ACRES

TREATMENT VOLUME REQUIRED:

1 inch x 2.72 acres = **0.23** **AC-FT**

POND SIZE ESTIMATION

NRCS SOILS AT POND: 16 - Matlacha and St. Augustine

NRCS HIGH WATER DEPTH: 2.0-3.0 FT (FROM PINELLAS COUNTY SOIL SURVEY)

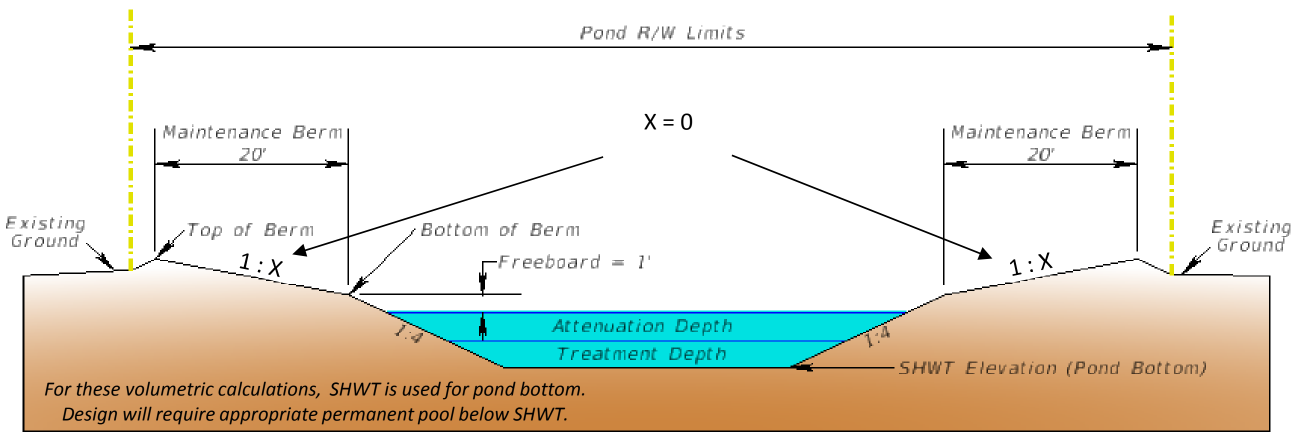
VERTICAL LIMITATIONS:

AT POND SITE:

AVERAGE NATURAL GROUND EL =	6.0	FT
SHWT EL =	4.0	FT

AT ROADWAY:

LOW EOP EL =	20.8	FT



Conveyance loss to pond =	0.9	FT	
Conveyance loss to outfall =	0.2	FT	
Available depth for treatment and attenuation =	14.8	FT	= 177.12 in
Treatment Depth =	14	in	
Attenuation Depth =	25	in	
Approx. low edge of pavement elevation (LEOP) =	20.8	FT	
Approx. Proposed Top of Berm elevation =	8.4	FT	
Average Ground at Pond Site =	6.0	FT	
Actual Depth of Treatment and Attenuation =	3.3	FT	
Pond Bottom Elevation =	4.0	FT	

BASIN 2 (POND A)

POND SIZE ESTIMATION (CONTIN.)

Treatment Volume provided by treatment depth	**0.24**	**AC-FT**
Square dimension at bottom of treatment depth	90.0	FT
Square dimension at top of treatment depth	99.3	FT
Square dimension at top of attenuation depth	116.0	FT
Attenuation Volume provided by attenuation depth	**0.56**	**AC-FT**
Square dimension at top of freeboard	124.0	FT
Square dimension at top berm	164.0	FT
Outside pond dimensions (including tie-down)	183.2	FT

Minimum Total Area Required: **0.93 ACRES**

THE POND SIZE INCLUDES A 10% SAFETY FACTOR FOR BOTH LENGTH & WIDTH

POND 2A STAGE-STORAGE CALCULATIONS

Estimated Seasonal High Water Table (SHWT) = 4.00 ft
Estimated Low Edge of Pavement = 20.76 ft

Elevation	Area	Area	Acumulated Volume	Total Volume	Total Volume	REMARKS
(ft)	(sf)	(ac)	(cf)	(cf)	(ac-ft)	
4.00	8100.0	0.19	0.0	0.0	0.00	
5.17	9867.1	0.23	10480.8	10480.8	0.24	*TV*
7.25	13456.0	0.31	24294.9	34775.7	0.80	*AV*
8.25	15376.0	0.35	14416.0	49191.7	1.13	
8.25	26896.0	0.62	0.0	49191.7	1.13	*Top of Berm*
6.00	40610.3	0.93	--	--	--	

Required Treatment Volume = 0.23 ac-ft
Provided Treatment Volume = 0.24 ac-ft ✓

Required Attenuation Volume = 0.55 ac-ft
Provided Attenuation Volume = 0.56 ac-ft ✓

BASIN 7

Curve Number and Runoff Volume Calculation (SWFWMD 25YR/24HR)

Pre-Condition Curve Number Calculation

Land Use Description	Soil Map Unit	Hydrologic Group	Area		CN	Product
Impervious Roadway	--	--	9.42	acres	98	923
Sod/Grass	17	C	17.28	acres	80	1382
		Subtotal:	**26.70**	**acres**		
Pond Site	17	C	1.04	acres	80	83
		Totals:	27.74	acres		2389
		Pre-Condition Composite Curve Number:	86.1			

Pre-Condition Runoff Volume Calculation

25-yr/24-hr Rainfall Depth (P) = 9.00 IN

CN = 86.1

Drainage Area (A) = 27.74 AC

Potential maximum retention after runoff begins (S) and S is:

(S) = 1000/CN-10 = 1.61 IN

Runoff Depth (Q) = (P-0.2S)^2/(P+0.8S) = 7.32 IN

Pre-Condition Runoff Volume (V_{PRE}) = A x Q = 16.92 AC-FT

Post-Condition Curve Number Calculation

Land Use Description	Soil Map Unit	Hydrologic Group	Area		CN	Product
Impervious Roadway	--	--	9.42	acres	98	923
New Impervious Roadway	--	--	1.60	acres	98	157
Sod/Grass	17	C	15.68	acres	80	1254
		Subtotal:	**26.70**	**acres**		
Pond Impervious	--	--	0.28	acres	100	28
Pond Pervious	17	C	0.76	acres	80	61
		Totals:	27.74	acres		2423
		Post-Condition Composite Curve Number:	87.4			

Post-Condition Runoff Volume Calculation

25-yr/24-hr Rainfall Depth (P) = 9.00 IN

CN = 87.4

Drainage Area (A) = 27.74 AC

Potential maximum retention after runoff begins (S) and S is:

(S) = 1000/CN-10 = 1.45 IN

Runoff Depth (Q) = (P-0.2S)^2/(P+0.8S) = 7.47 IN

Post-Condition Runoff Volume (V_{POST}) = A x Q = 17.27 AC-FT

Required Attenuation Volume = V_{POST} - V_{PRE} = 0.35 AC-FT

BASIN 7 (POND A)

TREATMENT VOLUME CALCULATION

BASIN 2 R/W AREA=	26.70	ACRES
BASIN 2 EXIST. IMPERVIOUS AREA=	9.42	ACRES
BASIN 2 NEW IMPERVIOUS AREA =	1.60	ACRES

TREATMENT VOLUME REQUIRED:

1 inch x 1.60 acres = **0.13** **AC-FT**

POND SIZE ESTIMATION

NRCS SOILS AT POND: 17 - Myakka

NRCS HIGH WATER DEPTH: 0.5-1.5 FT (FROM PINELLAS COUNTY SOIL SURVEY)

VERTICAL LIMITATIONS:

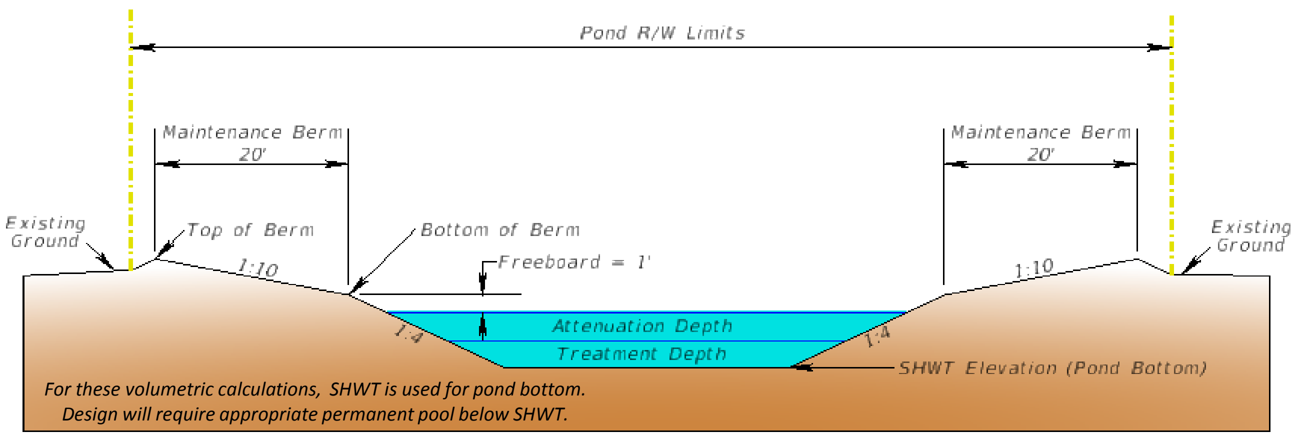
AT POND SITE:

AVERAGE NATURAL GROUND EL = 50.0 FT

SHWT EL = 49.0 FT

AT ROADWAY:

LOW EOP EL = 63.1 FT



Conveyance loss to pond =	0.7	FT	
Conveyance loss to outfall =	0.4	FT	
Available depth for treatment and attenuation =	12.0	FT	= 144.12 in
Treatment Depth =	7	in	
Attenuation Depth =	18	in	
Approx. low edge of pavement elevation (LEOP) =	63.1	FT	
Approx. Proposed Top of Berm elevation =	52.4	FT	
Average Ground at Pond Site =	50.0	FT	
Actual Depth of Treatment and Attenuation =	2.1	FT	
Pond Bottom Elevation =	49.0	FT	

BASIN 7 (POND A)

POND SIZE ESTIMATION (CONTIN.)

Treatment Volume provided by treatment depth	**0.15**	**AC-FT**
Square dimension at bottom of treatment depth	105.0	FT
Square dimension at top of treatment depth	109.7	FT
Square dimension at top of attenuation depth	121.7	FT
Attenuation Volume provided by attenuation depth	**0.47**	**AC-FT**
Square dimension at top of freeboard	129.7	FT
Square dimension at top berm	169.7	FT
Outside pond dimensions (including tie-down)	189.1	FT

Minimum Total Area Required: **0.99 ACRES**

THE POND SIZE INCLUDES A 10% SAFETY FACTOR FOR BOTH LENGTH & WIDTH

POND 7A STAGE-STORAGE CALCULATIONS

Estimated Seasonal High Water Table (SHWT) = 49.00 ft
Estimated Low Edge of Pavement = 63.06 ft

Elevation	Area	Area	Acumulated Volume	Total Volume	Total Volume	REMARKS
(ft)	(sf)	(ac)	(cf)	(cf)	(ac-ft)	
49.00	11025.0	0.25	0.0	0.0	0.00	
49.58	12026.8	0.28	6723.4	6723.4	0.15	*TV*
51.08	14802.8	0.34	20122.2	26845.6	0.62	*AV*
52.08	16813.4	0.39	15808.1	42653.7	0.98	
52.08	28786.8	0.66	0.0	42653.7	0.98	*Top of Berm*
50.00	43283.4	0.99	--	--	--	

Required Treatment Volume =	0.13	ac-ft	
Provided Treatment Volume =	**0.15**	**ac-ft**	✓
Required Attenuation Volume =	0.35	ac-ft	
Provided Attenuation Volume =	**0.47**	**ac-ft**	✓

BASIN 7 (POND B)

TREATMENT VOLUME CALCULATION

BASIN 2 R/W AREA=	26.70	ACRES
BASIN 2 EXIST. IMPERVIOUS AREA=	9.42	ACRES
BASIN 2 NEW IMPERVIOUS AREA =	1.60	ACRES

TREATMENT VOLUME REQUIRED:

1 inch x 1.60 acres = **0.13** **AC-FT**

POND SIZE ESTIMATION

NRCS SOILS AT POND: 17 - Myakka

NRCS HIGH WATER DEPTH: 0.5-1.5 FT (FROM PINELLAS COUNTY SOIL SURVEY)

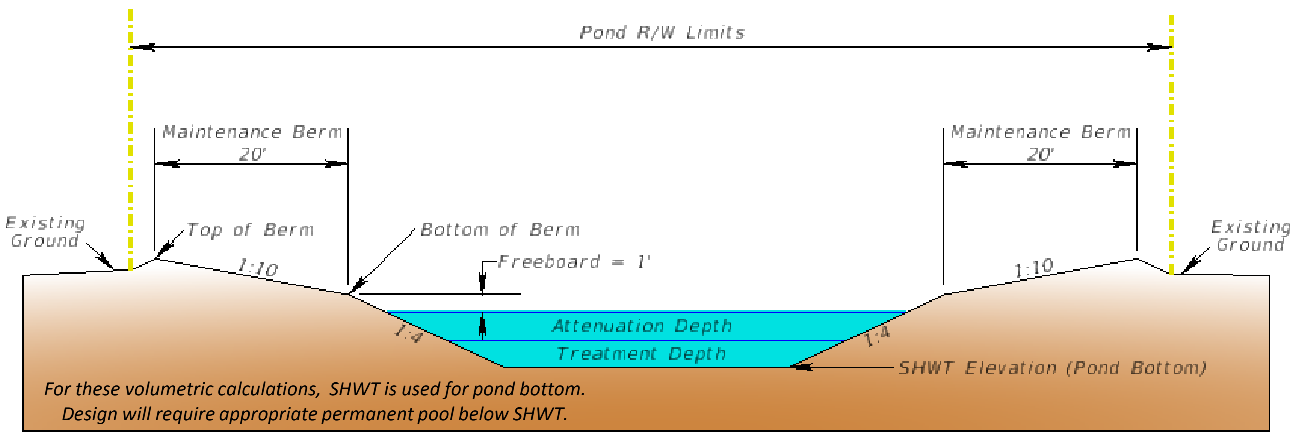
VERTICAL LIMITATIONS:

AT POND SITE:

AVERAGE NATURAL GROUND EL =	50.0	FT
SHWT EL =	49.0	FT

AT ROADWAY:

LOW EOP EL =	63.1	FT



Conveyance loss to pond =	0.5	FT	
Conveyance loss to outfall =	0.9	FT	
Available depth for treatment and attenuation =	11.7	FT	= 140.52 in
Treatment Depth =	7	in	
Attenuation Depth =	18	in	
Approx. low edge of pavement elevation (LEOP) =	63.1	FT	
Approx. Proposed Top of Berm elevation =	52.9	FT	
Average Ground at Pond Site =	50.0	FT	
Actual Depth of Treatment and Attenuation =	2.1	FT	
Pond Bottom Elevation =	49.0	FT	

BASIN 7 (POND B)

POND SIZE ESTIMATION (CONTIN.)

Treatment Volume provided by treatment depth	**0.14**	**AC-FT**
Square dimension at bottom of treatment depth	100.0	FT
Square dimension at top of treatment depth	104.7	FT
Square dimension at top of attenuation depth	116.7	FT
Attenuation Volume provided by attenuation depth	**0.42**	**AC-FT**
Square dimension at top of freeboard	124.7	FT
Square dimension at top berm	164.7	FT
Outside pond dimensions (including tie-down)	188.1	FT

Minimum Total Area Required: **0.98 ACRES**

THE POND SIZE INCLUDES A 10% SAFETY FACTOR FOR BOTH LENGTH & WIDTH

POND 7B STAGE-STORAGE CALCULATIONS

Estimated Seasonal High Water Table (SHWT) = 49.00 ft
Estimated Low Edge of Pavement = 63.06 ft

Elevation	Area	Area	Acumulated Volume	Total Volume	Total Volume	REMARKS
(ft)	(sf)	(ac)	(cf)	(cf)	(ac-ft)	
49.00	10000.0	0.23	0.0	0.0	0.00	
49.58	10955.1	0.25	6111.9	6111.9	0.14	*TV*
51.08	13611.1	0.31	18424.7	24536.6	0.56	*AV*
52.08	15541.8	0.36	14576.4	39113.0	0.90	
52.08	27115.1	0.62	0.0	39113.0	0.90	*Top of Berm*
50.00	42826.9	0.98	--	--	--	

Required Treatment Volume = 0.13 ac-ft
Provided Treatment Volume = 0.14 ac-ft ✓

Required Attenuation Volume = 0.35 ac-ft
Provided Attenuation Volume = 0.42 ac-ft ✓

BASIN 7 (POND C)

TREATMENT VOLUME CALCULATION

BASIN 2 R/W AREA= 26.70 ACRES
BASIN 2 EXIST. IMPERVIOUS AREA= 9.42 ACRES

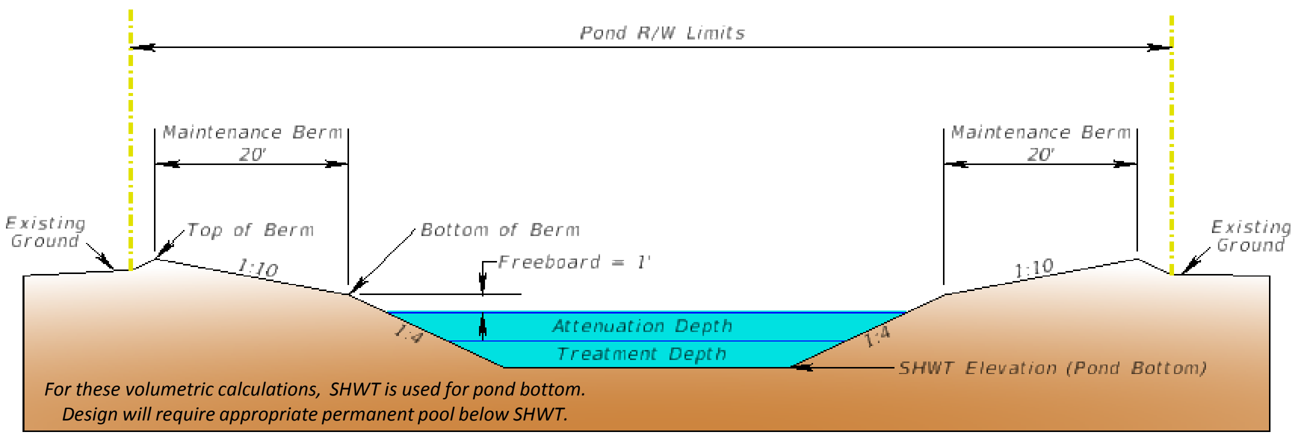
BASIN 2 NEW IMPERVIOUS AREA = 1.60 ACRES

TREATMENT VOLUME REQUIRED:
1 inch x 1.60 acres = **0.13** **AC-FT**

POND SIZE ESTIMATION

NRCS SOILS AT POND: 17 - Myakka
NRCS HIGH WATER DEPTH: 0.5-1.5 FT (FROM PINELLAS COUNTY SOIL SURVEY)

VERTICAL LIMITATIONS:
AT POND SITE:
AVERAGE NATURAL GROUND EL = 50.0 FT
SHWT EL = 49.0 FT
AT ROADWAY:
LOW EOP EL = 63.1 FT



Conveyance loss to pond =	0.6	FT	
Conveyance loss to outfall =	0.9	FT	
Available depth for treatment and attenuation =	11.6	FT	= 138.72 in
Treatment Depth =	7	in	
Attenuation Depth =	18	in	
Approx. low edge of pavement elevation (LEOP) =	63.1	FT	
Approx. Proposed Top of Berm elevation =	53.0	FT	
Average Ground at Pond Site =	50.0	FT	
Actual Depth of Treatment and Attenuation =	2.1	FT	
Pond Bottom Elevation =	49.0	FT	

BASIN 7 (POND C)

POND SIZE ESTIMATION (CONTIN.)

Treatment Volume provided by treatment depth	**0.15**	**AC-FT**
Square dimension at bottom of treatment depth	105.0	FT
Square dimension at top of treatment depth	109.7	FT
Square dimension at top of attenuation depth	121.7	FT
Attenuation Volume provided by attenuation depth	**0.47**	**AC-FT**
Square dimension at top of freeboard	129.7	FT
Square dimension at top berm	169.7	FT
Outside pond dimensions (including tie-down)	193.3	FT

Minimum Total Area Required: **1.04 ACRES**

THE POND SIZE INCLUDES A 10% SAFETY FACTOR FOR BOTH LENGTH & WIDTH

POND 7C STAGE-STORAGE CALCULATIONS

Estimated Seasonal High Water Table (SHWT) = 49.00 ft
Estimated Low Edge of Pavement = 63.06 ft

Elevation	Area	Area	Acumulated Volume	Total Volume	Total Volume	REMARKS
(ft)	(sf)	(ac)	(cf)	(cf)	(ac-ft)	
49.00	11025.0	0.25	0.0	0.0	0.00	
49.58	12026.8	0.28	6723.4	6723.4	0.15	*TV*
51.08	14802.8	0.34	20122.2	26845.6	0.62	*AV*
52.08	16813.4	0.39	15808.1	42653.7	0.98	
52.08	28786.8	0.66	0.0	42653.7	0.98	*Top of Berm*
50.00	45227.1	1.04	--	--	--	

Required Treatment Volume = 0.13 ac-ft
Provided Treatment Volume = 0.15 ac-ft ✓

Required Attenuation Volume = 0.35 ac-ft
Provided Attenuation Volume = 0.47 ac-ft ✓

BASIN 11

Curve Number and Runoff Volume Calculation (SWFWMD 25YR/24HR)

Pre-Condition Curve Number Calculation

Land Use Description	Soil Map Unit	Hydrologic Group	Area		CN	Product
Impervious Roadway	--	--	12.08	acres	98	1184
Sod/Grass	17	C	15.24	acres	80	1219
		Subtotal:	**27.32**	**acres**		
Pond Site	17	C	1.52	acres	80	122
		Totals:	28.84	acres		2525
		Pre-Condition Composite Curve Number:	87.5			

Pre-Condition Runoff Volume Calculation

25-yr/24-hr Rainfall Depth (P) = 9.00 IN
CN = 87.5
Drainage Area (A) = 28.84 AC
Potential maximum retention after runoff begins (S) and S is:
(S) = 1000/CN-10 = 1.42 IN
Runoff Depth (Q) = (P-0.2S)^2/(P+0.8S) = 7.49 IN
Pre-Condition Runoff Volume (V_{PRE}) = A x Q = 18.01 AC-FT

Post-Condition Curve Number Calculation

Land Use Description	Soil Map Unit	Hydrologic Group	Area		CN	Product
Impervious Roadway	--	--	12.08	acres	98	1184
New Impervious Roadway	--	--	3.77	acres	98	369
Sod/Grass	17	C	11.47	acres	**80**	918
		Subtotal:	**27.32**	**acres**		
Pond Impervious	--	--	0.66	acres	100	66
Pond Pervious	17	C	0.86	acres	80	69
		Totals:	28.84	acres		2606
		Post-Condition Composite Curve Number:	90.4			

Post-Condition Runoff Volume Calculation

25-yr/24-hr Rainfall Depth (P) = 9.00 IN
CN = 90.4
Drainage Area (A) = 28.84 AC
Potential maximum retention after runoff begins (S) and S is:
(S) = 1000/CN-10 = 1.07 IN
Runoff Depth (Q) = (P-0.2S)^2/(P+0.8S) = 7.83 IN
Post-Condition Runoff Volume (V_{POST}) = A x Q = 18.83 AC-FT

Required Attenuation Volume = V_{POST} - V_{PRE} = 0.82 AC-FT

BASIN 11 (POND A)

TREATMENT VOLUME CALCULATION

BASIN 11 R/W AREA= 27.32 ACRES
BASIN 11 EXIST. IMPERVIOUS AREA= 12.08 ACRES

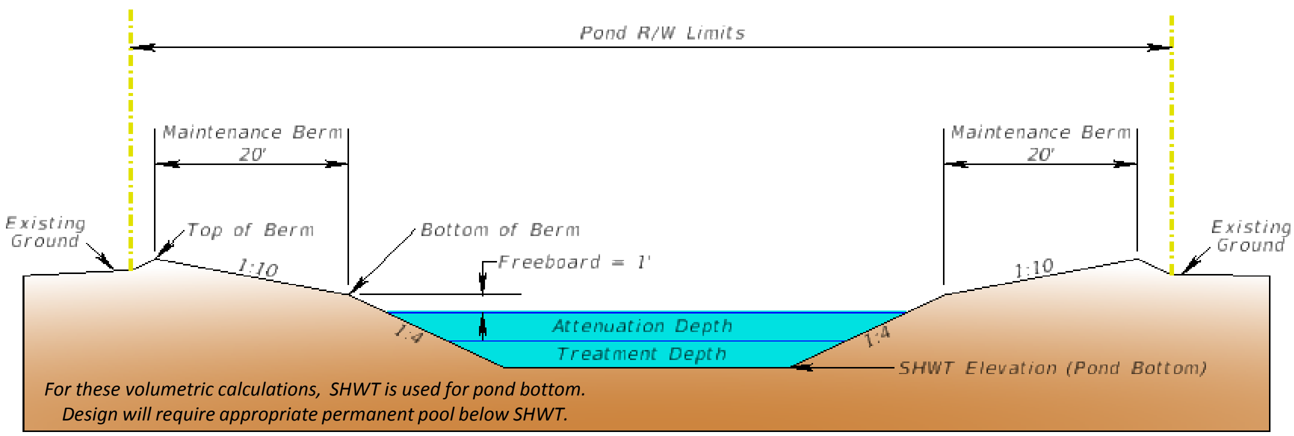
BASIN 11 NEW IMPERVIOUS AREA = 3.77 ACRES

TREATMENT VOLUME REQUIRED:
1 inch x 3.77 acres = **0.31** **AC-FT**

POND SIZE ESTIMATION

NRCS SOILS AT POND: 4 - Astatula Soils
NRCS HIGH WATER DEPTH: 6.0 FT (FROM PINELLAS COUNTY SOIL SURVEY)

VERTICAL LIMITATIONS:
AT POND SITE:
AVERAGE NATURAL GROUND EL = 46.0 FT
SHWT EL = 40.0 FT
AT ROADWAY:
LOW EOP EL = 60.7 FT



Conveyance loss to pond =	0.4	FT	
Conveyance loss to outfall =	0.8	FT	
Available depth for treatment and attenuation =	18.5	FT	= 222.42 in
Treatment Depth =	8	in	
Attenuation Depth =	18	in	
Approx. low edge of pavement elevation (LEOP) =	60.7	FT	
Approx. Proposed Top of Berm elevation =	43.9	FT	
Average Ground at Pond Site =	46.0	FT	
Actual Depth of Treatment and Attenuation =	2.2	FT	
Pond Bottom Elevation =	40.0	FT	

BASIN 11 (POND A)

POND SIZE ESTIMATION (CONTIN.)

Treatment Volume provided by treatment depth	**0.33**	**AC-FT**
Square dimension at bottom of treatment depth	145.0	FT
Square dimension at top of treatment depth	150.3	FT
Square dimension at top of attenuation depth	162.3	FT
Attenuation Volume provided by attenuation depth	**0.85**	**AC-FT**
Square dimension at top of freeboard	170.3	FT
Square dimension at top berm	210.3	FT
Outside pond dimensions (including tie-down)	193.7	FT

Minimum Total Area Required: **1.04 ACRES**

THE POND SIZE INCLUDES A 10% SAFETY FACTOR FOR BOTH LENGTH & WIDTH

POND 11A STAGE-STORAGE CALCULATIONS

Estimated Seasonal High Water Table (SHWT) = 40.00 ft
Estimated Low Edge of Pavement = 60.66 ft

Elevation	Area	Area	Acumulated Volume	Total Volume	Total Volume	REMARKS
(ft)	(sf)	(ac)	(cf)	(cf)	(ac-ft)	
40.00	21025.0	0.48	0.0	0.0	0.00	
40.67	22600.1	0.52	14541.7	14541.7	0.33	*TV*
42.17	26352.1	0.60	36714.2	51255.9	1.18	*AV*
43.17	29013.4	0.67	27682.8	78938.6	1.81	
43.17	44240.1	1.02	0.0	78938.6	1.81	*Top of Berm*
46.00	45383.2	1.04	--	--	--	

Required Treatment Volume = 0.31 ac-ft
Provided Treatment Volume = 0.33 ac-ft ✓

Required Attenuation Volume = 0.82 ac-ft
Provided Attenuation Volume = 0.85 ac-ft ✓

BASIN 11 (POND B)

TREATMENT VOLUME CALCULATION

BASIN 11 R/W AREA= 27.32 ACRES
BASIN 11 EXIST. IMPERVIOUS AREA= 12.08 ACRES

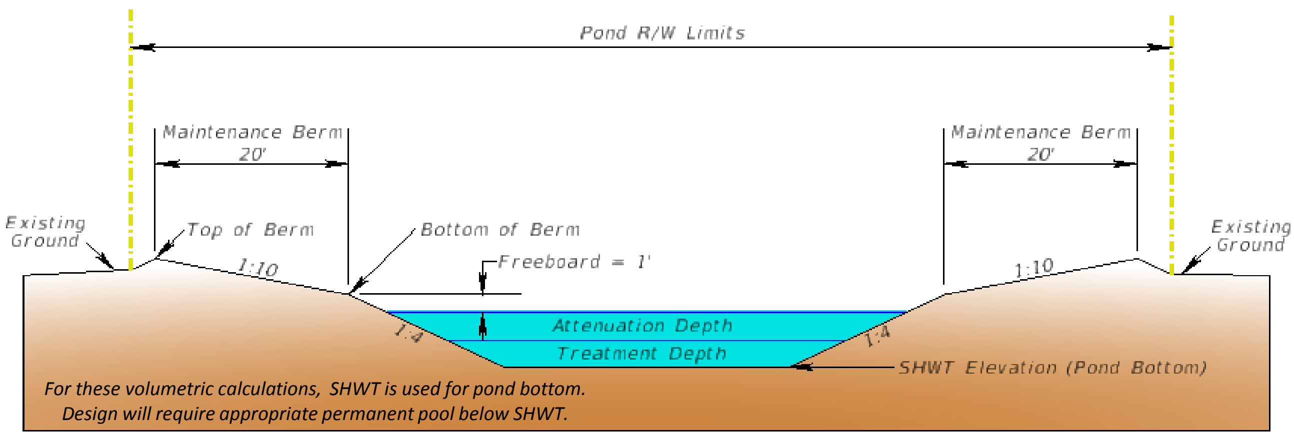
BASIN 11 NEW IMPERVIOUS AREA = 3.77 ACRES

TREATMENT VOLUME REQUIRED:
1 inch x 3.77 acres = **0.31** **AC-FT**

POND SIZE ESTIMATION

NRCS SOILS AT POND: 17 - Myakka
NRCS HIGH WATER DEPTH: 0.5-1.5 FT (FROM PINELLAS COUNTY SOIL SURVEY)

VERTICAL LIMITATIONS:
AT POND SITE:
AVERAGE NATURAL GROUND EL = 40.0 FT
SHWT EL = 39.0 FT
AT ROADWAY:
LOW EOP EL = 60.7 FT



Conveyance loss to pond =	0.1	FT	
Conveyance loss to outfall =	0.8	FT	
Available depth for treatment and attenuation =	19.7	FT	= 236.94 in
Treatment Depth =	8	in	
Attenuation Depth =	18	in	
Approx. low edge of pavement elevation (LEOP) =	60.7	FT	
Approx. Proposed Top of Berm elevation =	42.9	FT	
Average Ground at Pond Site =	40.0	FT	
Actual Depth of Treatment and Attenuation =	2.2	FT	
Pond Bottom Elevation =	39.0	FT	

BASIN 11 (POND B)

POND SIZE ESTIMATION (CONTIN.)

Treatment Volume provided by treatment depth	**0.33**	**AC-FT**
Square dimension at bottom of treatment depth	145.0	FT
Square dimension at top of treatment depth	150.3	FT
Square dimension at top of attenuation depth	162.3	FT
Attenuation Volume provided by attenuation depth	**0.85**	**AC-FT**
Square dimension at top of freeboard	170.3	FT
Square dimension at top berm	210.3	FT
Outside pond dimensions (including tie-down)	233.9	FT

Minimum Total Area Required: **1.52 ACRES**

THE POND SIZE INCLUDES A 10% SAFETY FACTOR FOR BOTH LENGTH & WIDTH

POND 11B STAGE-STORAGE CALCULATIONS

Estimated Seasonal High Water Table (SHWT) = 39.00 ft
Estimated Low Edge of Pavement = 60.66 ft

Elevation	Area	Area	Acumulated Volume	Total Volume	Total Volume	REMARKS
(ft)	(sf)	(ac)	(cf)	(cf)	(ac-ft)	
39.00	21025.0	0.48	0.0	0.0	0.00	
39.67	22600.1	0.52	14541.7	14541.7	0.33	*TV*
41.17	26352.1	0.60	36714.2	51255.9	1.18	*AV*
42.17	29013.4	0.67	27682.8	78938.6	1.81	
42.17	44240.1	1.02	0.0	78938.6	1.81	*Top of Berm*
40.00	66179.3	1.52	--	--	--	

Required Treatment Volume = 0.31 ac-ft
Provided Treatment Volume = 0.33 ac-ft ✓

Required Attenuation Volume = 0.82 ac-ft
Provided Attenuation Volume = 0.85 ac-ft ✓

BASIN 11 (POND C)

TREATMENT VOLUME CALCULATION

BASIN 11 R/W AREA=	27.32	ACRES
BASIN 11 EXIST. IMPERVIOUS AREA=	12.08	ACRES
BASIN 11 NEW IMPERVIOUS AREA =	3.77	ACRES

TREATMENT VOLUME REQUIRED:

1 inch x 3.77 acres = **0.31** **AC-FT**

POND SIZE ESTIMATION

NRCS SOILS AT POND: 16 - Matlacha and St. Augustine soils

NRCS HIGH WATER DEPTH: 2.0-3.0 FT (FROM PINELLAS COUNTY SOIL SURVEY)

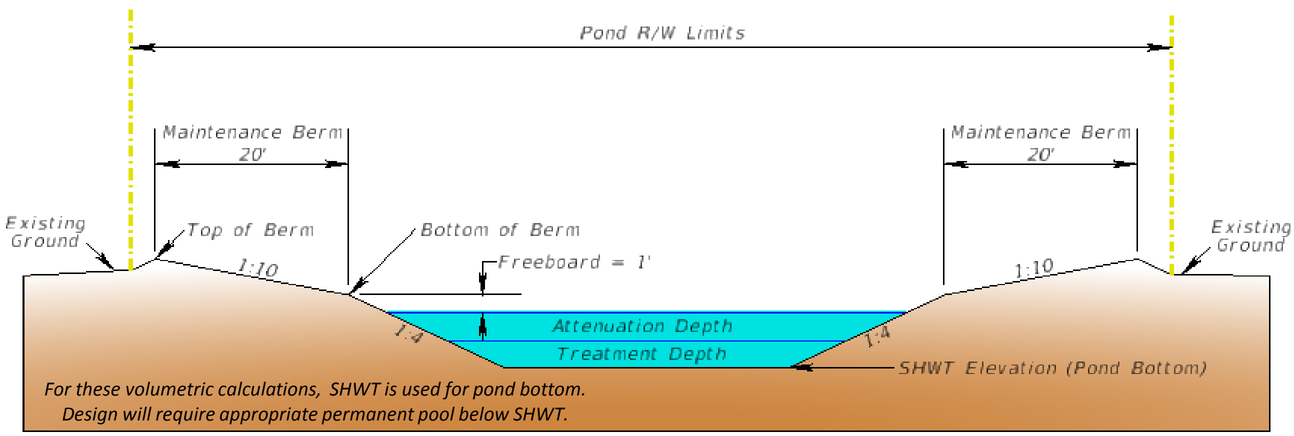
VERTICAL LIMITATIONS:

AT POND SITE:

AVERAGE NATURAL GROUND EL =	44.0	FT
SHWT EL =	41.5	FT

AT ROADWAY:

LOW EOP EL =	60.7	FT



Conveyance loss to pond =	0.5	FT	
Conveyance loss to outfall =	0.4	FT	
Available depth for treatment and attenuation =	17.2	FT	= 206.67 in
Treatment Depth =	9	in	
Attenuation Depth =	20	in	
Approx. low edge of pavement elevation (LEOP) =	60.7	FT	
Approx. Proposed Top of Berm elevation =	45.3	FT	
Average Ground at Pond Site =	44.0	FT	
Actual Depth of Treatment and Attenuation =	2.4	FT	
Pond Bottom Elevation =	41.5	FT	

BASIN 11 (POND C)

POND SIZE ESTIMATION (CONTIN.)

Treatment Volume provided by treatment depth	**0.32**	**AC-FT**
Square dimension at bottom of treatment depth	134.0	FT
Square dimension at top of treatment depth	140.0	FT
Square dimension at top of attenuation depth	153.3	FT
Attenuation Volume provided by attenuation depth	**0.83**	**AC-FT**
Square dimension at top of freeboard	161.3	FT
Square dimension at top berm	201.3	FT
Outside pond dimensions (including tie-down)	212.1	FT

Minimum Total Area Required: **1.25 ACRES**

THE POND SIZE INCLUDES A 10% SAFETY FACTOR FOR BOTH LENGTH & WIDTH

POND 11C STAGE-STORAGE CALCULATIONS

Estimated Seasonal High Water Table (SHWT) = 41.50 ft
Estimated Low Edge of Pavement = 60.66 ft

Elevation (ft)	Area (sf)	Area (ac)	Acumulated Volume (cf)	Total Volume (cf)	Total Volume (ac-ft)	REMARKS
41.50	17956.0	0.41	0.0	0.0	0.00	
42.25	19600.0	0.45	14083.5	14083.5	0.32	*TV*
43.92	23511.1	0.54	35925.9	50009.4	1.15	*AV*
44.92	26028.4	0.60	24769.8	74779.2	1.72	
44.92	40535.1	0.93	0.0	74779.2	1.72	*Top of Berm*
44.00	54416.4	1.25	--	--	--	

Required Treatment Volume = 0.31 ac-ft
Provided Treatment Volume = 0.32 ac-ft ✓

Required Attenuation Volume = 0.82 ac-ft
Provided Attenuation Volume = 0.83 ac-ft ✓

BASIN 12

Curve Number and Runoff Volume Calculation (SWFWMD 25YR/24HR)

Pre-Condition Curve Number Calculation

Land Use Description	Soil Map Unit	Hydrologic Group	Area		CN	Product
Impervious Roadway	--	--	16.94	acres	98	1660
Sod/Grass	16, 17, 30	B/D	24.37	acres	80	1950
		Subtotal:	**41.31**	**acres**		
Pond Site	17	B/D	2.03	acres	80	162
		Totals:	43.34	acres		3772
	Pre-Condition Composite Curve Number:		87.0			

Pre-Condition Runoff Volume Calculation

25-yr/24-hr Rainfall Depth (P) = 9.00 IN
CN = 87.0
Drainage Area (A) = 43.34 AC
Potential maximum retention after runoff begins (S) and S is:
(S) = 1000/CN-10 = 1.49 IN
Runoff Depth (Q) = (P-0.2S)^2/(P+0.8S) = 7.43 IN
Pre-Condition Runoff Volume (V_{PRE}) = A x Q = 26.84 AC-FT

Post-Condition Curve Number Calculation

Land Use Description	Soil Map Unit	Hydrologic Group	Area		CN	Product
Impervious Roadway	--	--	16.94	acres	98	1660
New Impervious Roadway	--	--	6.08	acres	98	596
Sod/Grass	16, 17, 30	B/D	18.29	acres	80	1463
		Subtotal:	**41.31**	**acres**		
Pond Impervious	--	--	0.75	acres	100	75
Pond Pervious	17	B/D	1.28	acres	80	102
		Totals:	43.34	acres		3897
	Post-Condition Composite Curve Number:		89.9			

Post-Condition Runoff Volume Calculation

25-yr/24-hr Rainfall Depth (P) = 9.00 IN
CN = 89.9
Drainage Area (A) = 43.34 AC
Potential maximum retention after runoff begins (S) and S is:
(S) = 1000/CN-10 = 1.12 IN
Runoff Depth (Q) = (P-0.2S)^2/(P+0.8S) = 7.78 IN
Post-Condition Runoff Volume (V_{POST}) = A x Q = 28.10 AC-FT

Required Attenuation Volume = V_{POST} - V_{PRE} = 1.26 AC-FT

BASIN 12 (POND A)

TREATMENT VOLUME CALCULATION

BASIN 12 R/W AREA=	41.31	ACRES
BASIN 12 EXIST. IMPERVIOUS AREA=	16.94	ACRES
BASIN 12 NEW IMPERVIOUS AREA =	6.08	ACRES

TREATMENT VOLUME REQUIRED:

1 inch x 6.08 acres = **0.51** **AC-FT**

POND SIZE ESTIMATION

NRCS SOILS AT POND: 17 - Myakka (Urban Land)

NRCS HIGH WATER DEPTH: 0.5-1.5 FT (FROM PINELLAS COUNTY SOIL SURVEY)

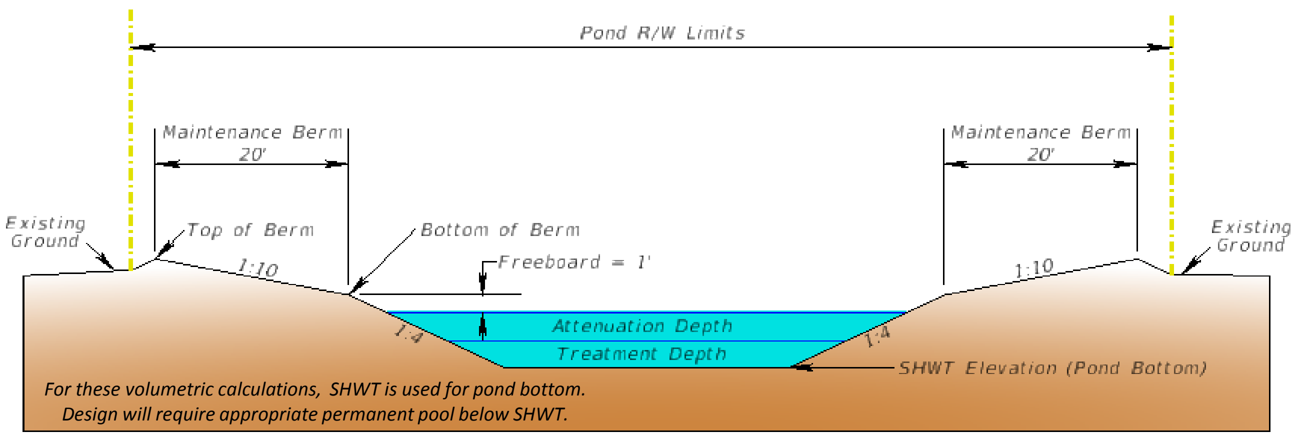
VERTICAL LIMITATIONS:

AT POND SITE:

AVERAGE NATURAL GROUND EL =	48.0	FT
SHWT EL =	47.0	FT

AT ROADWAY:

LOW EOP EL =	57.7	FT



Conveyance loss to pond =	1.0	FT	
Conveyance loss to outfall =	0.6	FT	
Available depth for treatment and attenuation =	8.0	FT	= 96.42 in
Treatment Depth =	9	in	
Attenuation Depth =	19	in	
Approx. low edge of pavement elevation (LEOP) =	57.7	FT	
Approx. Proposed Top of Berm elevation =	51.0	FT	
Average Ground at Pond Site =	48.0	FT	
Actual Depth of Treatment and Attenuation =	2.3	FT	
Pond Bottom Elevation =	47.0	FT	

BASIN 12 (POND A)

POND SIZE ESTIMATION (CONTIN.)

Treatment Volume provided by treatment depth	**0.55**	**AC-FT**
Square dimension at bottom of treatment depth	175.0	FT
Square dimension at top of treatment depth	181.0	FT
Square dimension at top of attenuation depth	193.7	FT
Attenuation Volume provided by attenuation depth	**1.27**	**AC-FT**
Square dimension at top of freeboard	201.7	FT
Square dimension at top berm	241.7	FT
Outside pond dimensions (including tie-down)	265.4	FT

Minimum Total Area Required: **1.96 ACRES**

THE POND SIZE INCLUDES A 10% SAFETY FACTOR FOR BOTH LENGTH & WIDTH

POND 12A STAGE-STORAGE CALCULATIONS

Estimated Seasonal High Water Table (SHWT) = 47.00 ft
Estimated Low Edge of Pavement = 57.67 ft

Elevation	Area	Area	Acumulated Volume	Total Volume	Total Volume	REMARKS
(ft)	(sf)	(ac)	(cf)	(cf)	(ac-ft)	
47.00	30625.0	0.70	0.0	0.0	0.00	
47.75	32761.0	0.75	23769.8	23769.8	0.55	*TV*
49.33	37506.8	0.86	55628.7	79398.4	1.82	*AV*
50.33	40669.4	0.93	39088.1	118486.5	2.72	
50.33	58402.8	1.34	0.0	118486.5	2.72	*Top of Berm*
48.00	85237.5	1.96	--	--	--	

Required Treatment Volume = 0.51 ac-ft
Provided Treatment Volume = 0.55 ac-ft ✓

Required Attenuation Volume = 1.26 ac-ft
Provided Attenuation Volume = 1.27 ac-ft ✓

BASIN 12 (POND B)

TREATMENT VOLUME CALCULATION

BASIN 12 R/W AREA=	41.31	ACRES
BASIN 12 EXIST. IMPERVIOUS AREA=	16.94	ACRES
BASIN 12 NEW IMPERVIOUS AREA =	6.08	ACRES

TREATMENT VOLUME REQUIRED:

1 inch x 6.08 acres = **0.51** **AC-FT**

POND SIZE ESTIMATION

NRCS SOILS AT POND: 17 - Myakka (Urban Land)

NRCS HIGH WATER DEPTH: 0.5-1.5 FT (FROM PINELLAS COUNTY SOIL SURVEY)

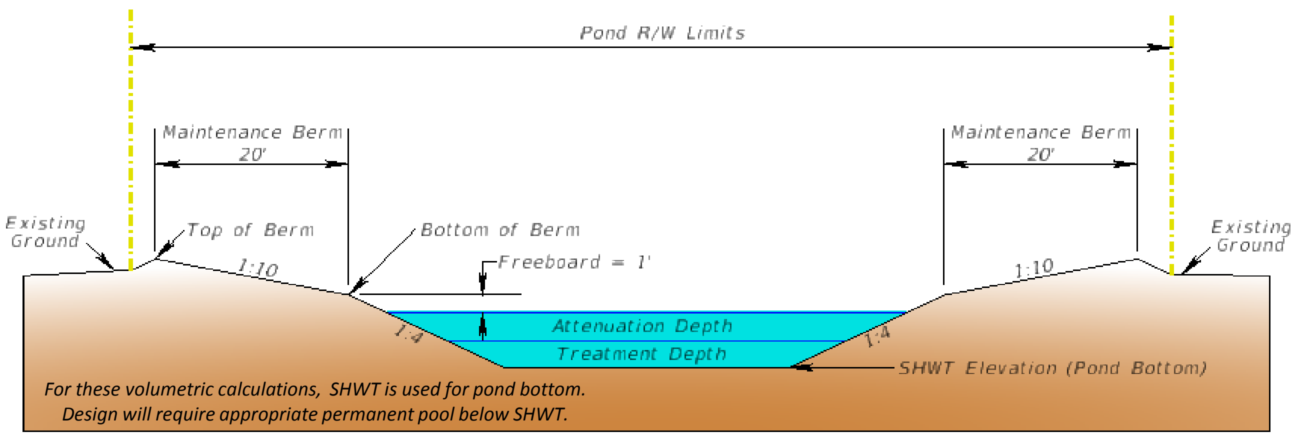
VERTICAL LIMITATIONS:

AT POND SITE:

AVERAGE NATURAL GROUND EL =	42.0	FT
SHWT EL =	41.0	FT

AT ROADWAY:

LOW EOP EL =	57.7	FT



Conveyance loss to pond =	1.3	FT	
Conveyance loss to outfall =	1.2	FT	
Available depth for treatment and attenuation =	13.2	FT	= 158.46 in
Treatment Depth =	9	in	
Attenuation Depth =	20	in	
Approx. low edge of pavement elevation (LEOP) =	57.7	FT	
Approx. Proposed Top of Berm elevation =	45.6	FT	
Average Ground at Pond Site =	42.0	FT	
Actual Depth of Treatment and Attenuation =	2.4	FT	
Pond Bottom Elevation =	41.0	FT	

BASIN 12 (POND B)

POND SIZE ESTIMATION (CONTIN.)

Treatment Volume provided by treatment depth	**0.52**	**AC-FT**
Square dimension at bottom of treatment depth	170.0	FT
Square dimension at top of treatment depth	176.0	FT
Square dimension at top of attenuation depth	189.3	FT
Attenuation Volume provided by attenuation depth	**1.27**	**AC-FT**
Square dimension at top of freeboard	197.3	FT
Square dimension at top berm	237.3	FT
Outside pond dimensions (including tie-down)	266.4	FT

Minimum Total Area Required: **1.97 ACRES**

THE POND SIZE INCLUDES A 10% SAFETY FACTOR FOR BOTH LENGTH & WIDTH

POND 12B STAGE-STORAGE CALCULATIONS

Estimated Seasonal High Water Table (SHWT) = 41.00 ft
Estimated Low Edge of Pavement = 57.67 ft

Elevation	Area	Area	Acumulated Volume	Total Volume	Total Volume	REMARKS
(ft)	(sf)	(ac)	(cf)	(cf)	(ac-ft)	
41.00	28900.0	0.66	0.0	0.0	0.00	
41.75	30976.0	0.71	22453.5	22453.5	0.52	*TV*
43.42	35847.1	0.82	55685.9	78139.4	1.79	*AV*
44.42	38940.4	0.89	37393.8	115533.2	2.65	
44.42	56327.1	1.29	0.0	115533.2	2.65	*Top of Berm*
42.00	85863.8	1.97	--	--	--	

Required Treatment Volume = 0.51 ac-ft
Provided Treatment Volume = 0.52 ac-ft ✓

Required Attenuation Volume = 1.26 ac-ft
Provided Attenuation Volume = 1.27 ac-ft ✓

BASIN 12 (POND C)

TREATMENT VOLUME CALCULATION

BASIN 12 R/W AREA= 41.31 ACRES
BASIN 12 EXIST. IMPERVIOUS AREA= 16.94 ACRES

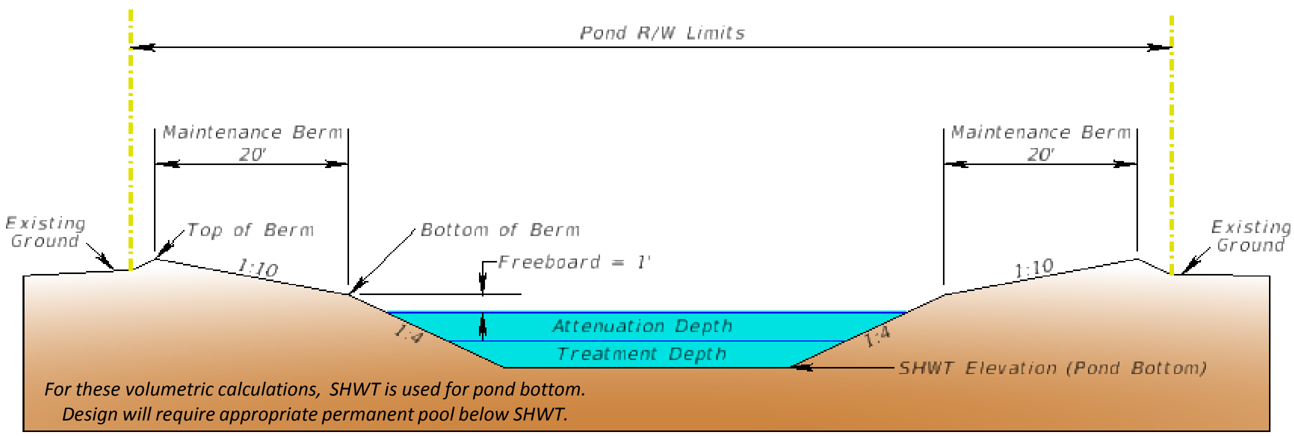
BASIN 12 NEW IMPERVIOUS AREA = 6.08 ACRES

TREATMENT VOLUME REQUIRED:
1 inch x 6.08 acres = **0.51** **AC-FT**

POND SIZE ESTIMATION

NRCS SOILS AT POND: 17 - Myakka
NRCS HIGH WATER DEPTH: 0.5-1.5 FT (FROM PINELLAS COUNTY SOIL SURVEY)

VERTICAL LIMITATIONS:
AT POND SITE:
AVERAGE NATURAL GROUND EL = 44.0 FT
SHWT EL = 43.0 FT
AT ROADWAY:
LOW EOP EL = 57.7 FT



Conveyance loss to pond =	1.7	FT	
Conveyance loss to outfall =	0.2	FT	
Available depth for treatment and attenuation =	11.8	FT	= 141.24 in
Treatment Depth =	8	in	
Attenuation Depth =	18	in	
Approx. low edge of pavement elevation (LEOP) =	57.7	FT	
Approx. Proposed Top of Berm elevation =	46.4	FT	
Average Ground at Pond Site =	44.0	FT	
Actual Depth of Treatment and Attenuation =	2.2	FT	
Pond Bottom Elevation =	43.0	FT	

BASIN 12 (POND C)

POND SIZE ESTIMATION (CONTIN.)

Treatment Volume provided by treatment depth	**0.57**	**AC-FT**
Square dimension at bottom of treatment depth	190.0	FT
Square dimension at top of treatment depth	195.3	FT
Square dimension at top of attenuation depth	207.3	FT
Attenuation Volume provided by attenuation depth	**1.40**	**AC-FT**
Square dimension at top of freeboard	215.3	FT
Square dimension at top berm	255.3	FT
Outside pond dimensions (including tie-down)	274.4	FT

Minimum Total Area Required: **2.09 ACRES**

THE POND SIZE INCLUDES A 10% SAFETY FACTOR FOR BOTH LENGTH & WIDTH

POND 12C STAGE-STORAGE CALCULATIONS

Estimated Seasonal High Water Table (SHWT) = 43.00 ft
Estimated Low Edge of Pavement = 57.67 ft

Elevation (ft)	Area (sf)	Area (ac)	Acumulated Volume (cf)	Total Volume (cf)	Total Volume (ac-ft)	REMARKS
43.00	36100.0	0.83	0.0	0.0	0.00	
43.67	38155.1	0.88	24751.7	24751.7	0.57	*TV*
45.17	42987.1	0.99	60856.7	85608.4	1.97	*AV*
46.17	46368.4	1.06	44677.8	130286.1	2.99	
46.17	65195.1	1.50	0.0	130286.1	2.99	*Top of Berm*
44.00	91125.1	2.09	--	--	--	

Required Treatment Volume = 0.51 ac-ft
Provided Treatment Volume = 0.57 ac-ft ✓

Required Attenuation Volume = 1.26 ac-ft
Provided Attenuation Volume = 1.40 ac-ft ✓

BASIN 13

Curve Number and Runoff Volume Calculation (SWFWMD 25YR/24HR)

Pre-Condition Curve Number Calculation

Land Use Description	Soil Map Unit	Hydrologic Group	Area		CN	Product
Impervious Roadway	--	--	2.14	acres	98	210
Sod/Grass	17	B/D	3.56	acres	80	285
		Subtotal:	**5.70**	**acres**		
Pond Site	17	B/D	0.92	acres	80	74
		Totals:	6.62	acres		568
	Pre-Condition Composite Curve Number:		85.8			

Pre-Condition Runoff Volume Calculation

25-yr/24-hr Rainfall Depth (P) = 9.00 IN
CN = 85.8
Drainage Area (A) = 6.62 AC
Potential maximum retention after runoff begins (S) and S is:
(S) = 1000/CN-10 = 1.65 IN
Runoff Depth (Q) = (P-0.2S)^2/(P+0.8S) = 7.28 IN
Pre-Condition Runoff Volume (V_{PRE}) = A x Q = 4.02 AC-FT

Post-Condition Curve Number Calculation

Land Use Description	Soil Map Unit	Hydrologic Group	Area		CN	Product
Impervious Roadway	--	--	2.14	acres	98	210
New Impervious Roadway	--	--	1.65	acres	98	162
Sod/Grass	17	B/D	1.76	acres	80	141
		Subtotal:	**5.55**	**acres**		
Pond Impervious	--	--	0.30	acres	100	30
Pond Pervious	17	B/D	0.62	acres	80	50
		Totals:	6.47	acres		592
	Post-Condition Composite Curve Number:		91.5			

Post-Condition Runoff Volume Calculation

25-yr/24-hr Rainfall Depth (P) = 9.00 IN
CN = 91.5
Drainage Area (A) = 6.47 AC
Potential maximum retention after runoff begins (S) and S is:
(S) = 1000/CN-10 = 0.93 IN
Runoff Depth (Q) = (P-0.2S)^2/(P+0.8S) = 7.97 IN
Post-Condition Runoff Volume (V_{POST}) = A x Q = 4.30 AC-FT

Required Attenuation Volume = V_{POST} - V_{PRE} = 0.28 AC-FT

BASIN 13 (POND A)

TREATMENT VOLUME CALCULATION

BASIN 13 R/W AREA= 5.70 ACRES
BASIN 13 EXIST. IMPERVIOUS AREA= 2.14 ACRES

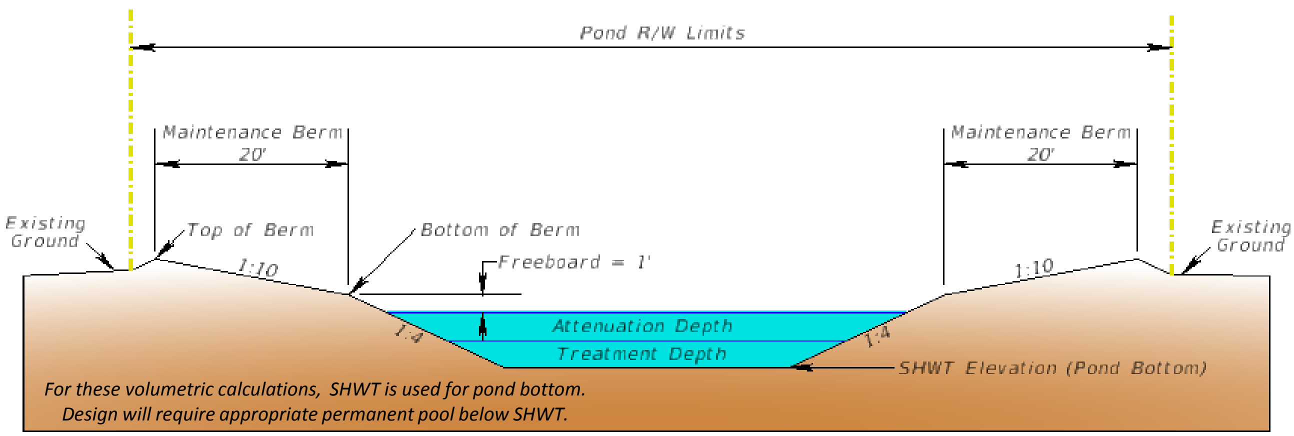
BASIN 13 NEW IMPERVIOUS AREA = 1.65 ACRES

TREATMENT VOLUME REQUIRED:
1 inch x 1.65 acres = **0.14** **AC-FT**

POND SIZE ESTIMATION

NRCS SOILS AT POND: 17 - Myakka
NRCS HIGH WATER DEPTH: 0.5-1.5 FT (FROM PINELLAS COUNTY SOIL SURVEY)

VERTICAL LIMITATIONS:
AT POND SITE:
AVERAGE NATURAL GROUND EL = 58.0 FT
SHWT EL = 57.0 FT
AT ROADWAY:
LOW EOP EL = 67.2 FT



Conveyance loss to pond =	0.2	FT	
Conveyance loss to outfall =	0.2	FT	
Available depth for treatment and attenuation =	8.8	FT	= 105.00 in
Treatment Depth =	8	in	
Attenuation Depth =	16	in	
Approx. low edge of pavement elevation (LEOP) =	67.2	FT	
Approx. Proposed Top of Berm elevation =	60.2	FT	
Average Ground at Pond Site =	58.0	FT	
Actual Depth of Treatment and Attenuation =	2.0	FT	
Pond Bottom Elevation =	57.0	FT	

BASIN 13 (POND A)

POND SIZE ESTIMATION (CONTIN.)

Treatment Volume provided by treatment depth	**0.16**	**AC-FT**
Square dimension at bottom of treatment depth	100.0	FT
Square dimension at top of treatment depth	105.3	FT
Square dimension at top of attenuation depth	116.0	FT
Attenuation Volume provided by attenuation depth	**0.38**	**AC-FT**
Square dimension at top of freeboard	124.0	FT
Square dimension at top berm	164.0	FT
Outside pond dimensions (including tie-down)	181.8	FT

Minimum Total Area Required: **0.92 ACRES**

THE POND SIZE INCLUDES A 10% SAFETY FACTOR FOR BOTH LENGTH & WIDTH

POND 13A STAGE-STORAGE CALCULATIONS

Estimated Seasonal High Water Table (SHWT) = 57.00 ft
Estimated Low Edge of Pavement = 67.16 ft

Elevation	Area	Area	Acumulated Volume	Total Volume	Total Volume	REMARKS
(ft)	(sf)	(ac)	(cf)	(cf)	(ac-ft)	
57.00	10000.0	0.23	0.0	0.0	0.00	
57.67	11095.1	0.25	7031.7	7031.7	0.16	*TV*
59.00	13456.0	0.31	16367.4	23399.1	0.54	*AV*
60.00	15376.0	0.35	14416.0	37815.1	0.87	
60.00	26896.0	0.62	0.0	37815.1	0.87	*Top of Berm*
58.00	40009.6	0.92	--	--	--	

Required Treatment Volume = 0.14 ac-ft
Provided Treatment Volume = 0.16 ac-ft ✓

Required Attenuation Volume = 0.28 ac-ft
Provided Attenuation Volume = 0.38 ac-ft ✓

BASIN 13 (POND B)

TREATMENT VOLUME CALCULATION

BASIN 13 R/W AREA=	5.70	ACRES
BASIN 13 EXIST. IMPERVIOUS AREA=	2.14	ACRES
BASIN 13 NEW IMPERVIOUS AREA =	1.65	ACRES

TREATMENT VOLUME REQUIRED:

1 inch x 1.65 acres = **0.14** **AC-FT**

POND SIZE ESTIMATION

NRCS SOILS AT POND: 17 - Myakka

NRCS HIGH WATER DEPTH: 0.5-1.5 FT (FROM PINELLAS COUNTY SOIL SURVEY)

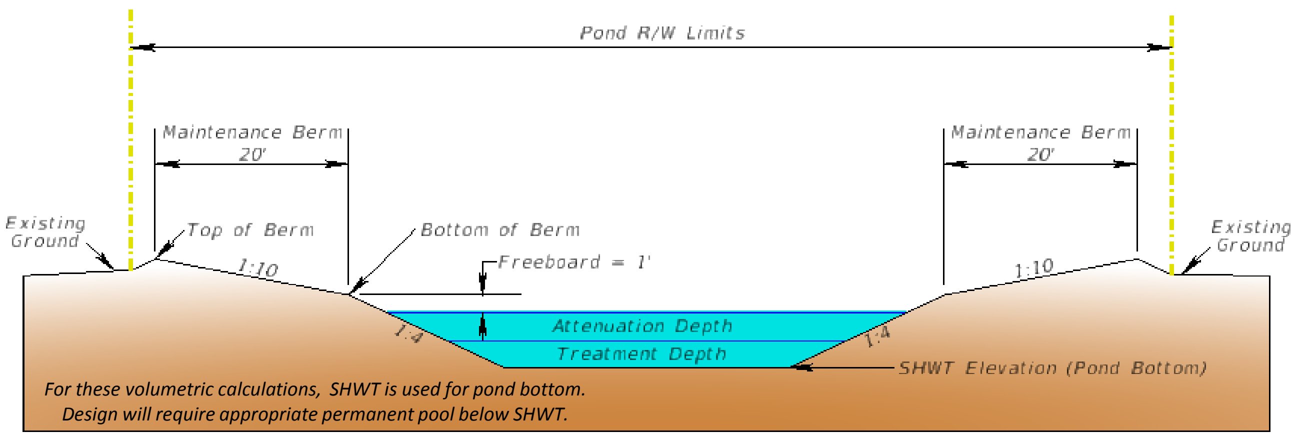
VERTICAL LIMITATIONS:

AT POND SITE:

AVERAGE NATURAL GROUND EL =	58.0	FT
SHWT EL =	57.0	FT

AT ROADWAY:

LOW EOP EL =	67.2	FT



Conveyance loss to pond =	0.2	FT	
Conveyance loss to outfall =	0.0	FT	
Available depth for treatment and attenuation =	9.0	FT	= 107.46 in
Treatment Depth =	6	in	
Attenuation Depth =	12	in	
Approx. low edge of pavement elevation (LEOP) =	67.2	FT	
Approx. Proposed Top of Berm elevation =	59.5	FT	
Average Ground at Pond Site =	58.0	FT	
Actual Depth of Treatment and Attenuation =	1.5	FT	
Pond Bottom Elevation =	57.0	FT	

BASIN 13 (POND B)

POND SIZE ESTIMATION (CONTIN.)

Treatment Volume provided by treatment depth	**0.14**	**AC-FT**
Square dimension at bottom of treatment depth	110.0	FT
Square dimension at top of treatment depth	114.0	FT
Square dimension at top of attenuation depth	122.0	FT
Attenuation Volume provided by attenuation depth	**0.32**	**AC-FT**
Square dimension at top of freeboard	130.0	FT
Square dimension at top berm	170.0	FT
Outside pond dimensions (including tie-down)	182.2	FT

Minimum Total Area Required: **0.92 ACRES**

THE POND SIZE INCLUDES A 10% SAFETY FACTOR FOR BOTH LENGTH & WIDTH

POND 13B STAGE-STORAGE CALCULATIONS

Estimated Seasonal High Water Table (SHWT) = 57.00 ft
Estimated Low Edge of Pavement = 67.16 ft

Elevation (ft)	Area (sf)	Area (ac)	Acumulated Volume (cf)	Total Volume (cf)	Total Volume (ac-ft)	REMARKS
57.00	12100.0	0.28	0.0	0.0	0.00	
57.50	12996.0	0.30	6274.0	6274.0	0.14	*TV*
58.50	14884.0	0.34	13940.0	20214.0	0.46	*AV*
59.50	16900.0	0.39	15892.0	36106.0	0.83	
59.50	28900.0	0.66	0.0	36106.0	0.83	*Top of Berm*
58.00	40168.2	0.92	--	--	--	

Required Treatment Volume = 0.14 ac-ft
Provided Treatment Volume = 0.14 ac-ft ✓

Required Attenuation Volume = 0.28 ac-ft
Provided Attenuation Volume = 0.32 ac-ft ✓

BASIN 14

Curve Number and Runoff Volume Calculation (SWFWMD 25YR/24HR)

Pre-Condition Curve Number Calculation

Land Use Description	Soil Map Unit	Hydrologic Group	Area		CN	Product
Impervious Roadway	--	--	7.84	acres	98	768
Sod/Grass	17	B/D	16.06	acres	80	1285
		Subtotal:	**23.90**	**acres**		
Pond Site	17	B/D	0.00	acres	80	0
		Totals:	23.90	acres		2053
		Pre-Condition Composite Curve Number:	85.9			

Pre-Condition Runoff Volume Calculation

25-yr/24-hr Rainfall Depth (P) = 9.00 IN
CN = 85.9
Drainage Area (A) = 23.90 AC
Potential maximum retention after runoff begins (S) and S is:
(S) = 1000/CN-10 = 1.64 IN
Runoff Depth (Q) = (P-0.2S)^2/(P+0.8S) = 7.29 IN
Pre-Condition Runoff Volume (V_{PRE}) = A x Q = 14.52 AC-FT

Post-Condition Curve Number Calculation

Land Use Description	Soil Map Unit	Hydrologic Group	Area		CN	Product
Impervious Roadway	--	--	7.84	acres	98	768
New Impervious Roadway	--	--	5.00	acres	98	490
Sod/Grass	17	B/D	9.31	acres	80	745
		Subtotal:	**22.15**	**acres**		
Pond Impervious	--	--	0.67	acres	100	67
Pond Pervious	17	B/D	1.08	acres	80	86
		Totals:	23.90	acres		2157
		Post-Condition Composite Curve Number:	90.2			

Post-Condition Runoff Volume Calculation

25-yr/24-hr Rainfall Depth (P) = 9.00 IN
CN = 90.2
Drainage Area (A) = 23.90 AC
Potential maximum retention after runoff begins (S) and S is:
(S) = 1000/CN-10 = 1.08 IN
Runoff Depth (Q) = (P-0.2S)^2/(P+0.8S) = 7.82 IN
Post-Condition Runoff Volume (V_{POST}) = A x Q = 15.57 AC-FT

Required Attenuation Volume = V_{POST} - V_{PRE} = 1.05 AC-FT

BASIN 14 (POND A)

TREATMENT VOLUME CALCULATION

BASIN 14 R/W AREA=	23.90	ACRES
BASIN 14 EXIST. IMPERVIOUS AREA=	7.84	ACRES
BASIN 14 NEW IMPERVIOUS AREA =	5.00	ACRES

TREATMENT VOLUME REQUIRED:

1 inch x 5.00 acres = **0.42** **AC-FT**

POND SIZE ESTIMATION

NRCS SOILS AT POND: 17 - Myakka

NRCS HIGH WATER DEPTH: 0.5-1.5 FT (FROM PINELLAS COUNTY SOIL SURVEY)

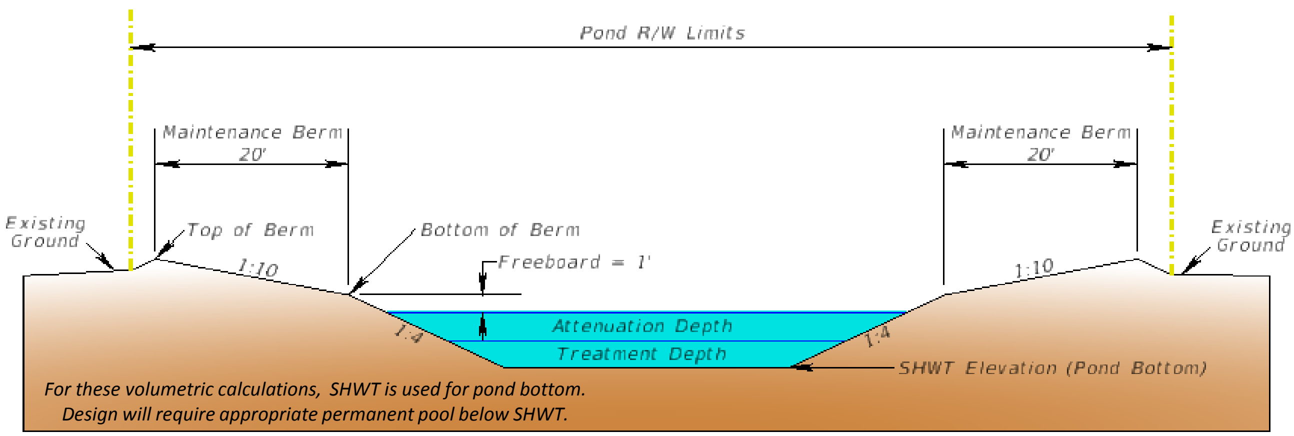
VERTICAL LIMITATIONS:

AT POND SITE:

AVERAGE NATURAL GROUND EL =	56.0	FT
SHWT EL =	55.0	FT

AT ROADWAY:

LOW EOP EL =	58.9	FT



Conveyance loss to pond =	0.1	FT	
Conveyance loss to outfall =	0.4	FT	
Available depth for treatment and attenuation =	2.4	FT	= 29.22 in
Treatment Depth =	8	in	
Attenuation Depth =	18	in	
Approx. low edge of pavement elevation (LEOP) =	58.9	FT	
Approx. Proposed Top of Berm elevation =	58.5	FT	
Average Ground at Pond Site =	56.0	FT	
Actual Depth of Treatment and Attenuation =	2.2	FT	
Pond Bottom Elevation =	55.0	FT	

BASIN 14 (POND A)

POND SIZE ESTIMATION (CONTIN.)

Treatment Volume provided by treatment depth	**0.43**	**AC-FT**
Square dimension at bottom of treatment depth	165.0	FT
Square dimension at top of treatment depth	170.3	FT
Square dimension at top of attenuation depth	182.3	FT
Attenuation Volume provided by attenuation depth	**1.07**	**AC-FT**
Square dimension at top of freeboard	190.3	FT
Square dimension at top berm	230.3	FT
Outside pond dimensions (including tie-down)	250.7	FT

Minimum Total Area Required: **1.75 ACRES**

THE POND SIZE INCLUDES A 10% SAFETY FACTOR FOR BOTH LENGTH & WIDTH

POND 14A STAGE-STORAGE CALCULATIONS

Estimated Seasonal High Water Table (SHWT) = 55.00 ft
Estimated Low Edge of Pavement = 58.86 ft

Elevation	Area	Area	Acumulated Volume	Total Volume	Total Volume	REMARKS
(ft)	(sf)	(ac)	(cf)	(cf)	(ac-ft)	
55.00	27225.0	0.63	0.0	0.0	0.00	
55.67	29013.4	0.67	18746.1	18746.1	0.43	*TV*
57.17	33245.4	0.76	46694.2	65440.3	1.50	*AV*
58.17	36226.8	0.83	34736.1	100176.4	2.30	
58.17	53053.4	1.22	0.0	100176.4	2.30	*Top of Berm*
56.00	76028.9	1.75	--	--	--	

Required Treatment Volume = 0.42 ac-ft
Provided Treatment Volume = 0.43 ac-ft ✓

Required Attenuation Volume = 1.05 ac-ft
Provided Attenuation Volume = 1.07 ac-ft ✓

BASIN 15

Curve Number and Runoff Volume Calculation (SWFWMD 25YR/24HR)

Pre-Condition Curve Number Calculation

Land Use Description	Soil Map Unit	Hydrologic Group	Area		CN	Product
Impervious Roadway	--	--	9.90	acres	98	970
Sod/Grass	17	B/D	13.84	acres	80	1107
		Subtotal:	**23.74**	**acres**		
Pond Site	17	B/D	0.99	acres	80	79
		Totals:	24.73	acres		2157
		Pre-Condition Composite Curve Number:	87.2			

Pre-Condition Runoff Volume Calculation

25-yr/24-hr Rainfall Depth (P) = 9.00 IN
CN = 87.2
Drainage Area (A) = 24.73 AC
Potential maximum retention after runoff begins (S) and S is:
(S) = 1000/CN-10 = 1.47 IN
Runoff Depth (Q) = (P-0.2S)^2/(P+0.8S) = 7.45 IN
Pre-Condition Runoff Volume (V_{PRE}) = A x Q = 15.36 AC-FT

Post-Condition Curve Number Calculation

Land Use Description	Soil Map Unit	Hydrologic Group	Area		CN	Product
Impervious Roadway	--	--	9.90	acres	98	970
New Impervious Roadway	--	--	1.97	acres	98	193
Sod/Grass	17	B/D	11.87	acres	80	950
		Subtotal:	**23.74**	**acres**		
Pond Impervious	--	--	0.26	acres	100	26
Pond Pervious	17	B/D	0.73	acres	80	58
		Totals:	24.73	acres		2197
		Post-Condition Composite Curve Number:	88.8			

Post-Condition Runoff Volume Calculation

25-yr/24-hr Rainfall Depth (P) = 9.00 IN
CN = 88.8
Drainage Area (A) = 24.73 AC
Potential maximum retention after runoff begins (S) and S is:
(S) = 1000/CN-10 = 1.25 IN
Runoff Depth (Q) = (P-0.2S)^2/(P+0.8S) = 7.65 IN
Post-Condition Runoff Volume (V_{POST}) = A x Q = 15.77 AC-FT

Required Attenuation Volume = V_{POST} - V_{PRE} = 0.41 AC-FT

BASIN 15 (POND A)

TREATMENT VOLUME CALCULATION

BASIN 15 R/W AREA=	23.74	ACRES
BASIN 15 EXIST. IMPERVIOUS AREA=	9.90	ACRES
BASIN 15 NEW IMPERVIOUS AREA =	1.97	ACRES

TREATMENT VOLUME REQUIRED:

1 inch x 1.97 acres = **0.16** **AC-FT**

POND SIZE ESTIMATION

NRCS SOILS AT POND: 17 - Myakka

NRCS HIGH WATER DEPTH: 0.5-1.5 FT (FROM PINELLAS COUNTY SOIL SURVEY)

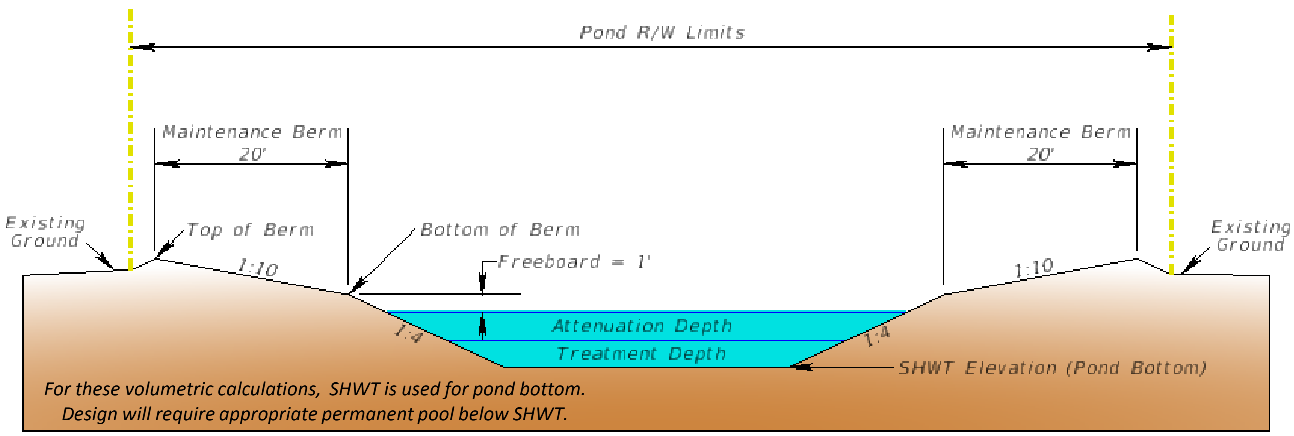
VERTICAL LIMITATIONS:

AT POND SITE:

AVERAGE NATURAL GROUND EL =	43.0	FT
SHWT EL =	42.0	FT

AT ROADWAY:

LOW EOP EL =	49.6	FT



Conveyance loss to pond =	0.1	FT	
Conveyance loss to outfall =	0.0	FT	
Available depth for treatment and attenuation =	6.5	FT	= 77.52 in
Treatment Depth =	10	in	
Attenuation Depth =	20	in	
Approx. low edge of pavement elevation (LEOP) =	49.6	FT	
Approx. Proposed Top of Berm elevation =	45.5	FT	
Average Ground at Pond Site =	43.0	FT	
Actual Depth of Treatment and Attenuation =	2.5	FT	
Pond Bottom Elevation =	42.0	FT	

BASIN 15 (POND A)

POND SIZE ESTIMATION (CONTIN.)

Treatment Volume provided by treatment depth	**0.20**	**AC-FT**
Square dimension at bottom of treatment depth	100.0	FT
Square dimension at top of treatment depth	106.7	FT
Square dimension at top of attenuation depth	120.0	FT
Attenuation Volume provided by attenuation depth	**0.50**	**AC-FT**
Square dimension at top of freeboard	128.0	FT
Square dimension at top berm	168.0	FT
Outside pond dimensions (including tie-down)	188.2	FT

Minimum Total Area Required: **0.98 ACRES**

THE POND SIZE INCLUDES A 10% SAFETY FACTOR FOR BOTH LENGTH & WIDTH

POND 15A STAGE-STORAGE CALCULATIONS

Estimated Seasonal High Water Table (SHWT) = 42.00 ft
Estimated Low Edge of Pavement = 49.56 ft

Elevation (ft)	Area (sf)	Area (ac)	Acumulated Volume (cf)	Total Volume (cf)	Total Volume (ac-ft)	REMARKS
42.00	10000.0	0.23	0.0	0.0	0.00	
42.83	11377.8	0.26	8907.4	8907.4	0.20	*TV*
44.50	14400.0	0.33	21481.5	30388.9	0.70	*AV*
45.50	16384.0	0.38	15392.0	45780.9	1.05	
45.50	28224.0	0.65	0.0	45780.9	1.05	*Top of Berm*
43.00	42857.3	0.98	--	--	--	

Required Treatment Volume = 0.16 ac-ft
Provided Treatment Volume = 0.20 ac-ft ✓

Required Attenuation Volume = 0.41 ac-ft
Provided Attenuation Volume = 0.50 ac-ft ✓

BASIN 15 (POND B)

TREATMENT VOLUME CALCULATION

BASIN 15 R/W AREA= 23.74 ACRES
BASIN 15 EXIST. IMPERVIOUS AREA= 9.90 ACRES

BASIN 15 NEW IMPERVIOUS AREA = 1.97 ACRES

TREATMENT VOLUME REQUIRED:
1 inch x 1.97 acres = **0.16** **AC-FT**

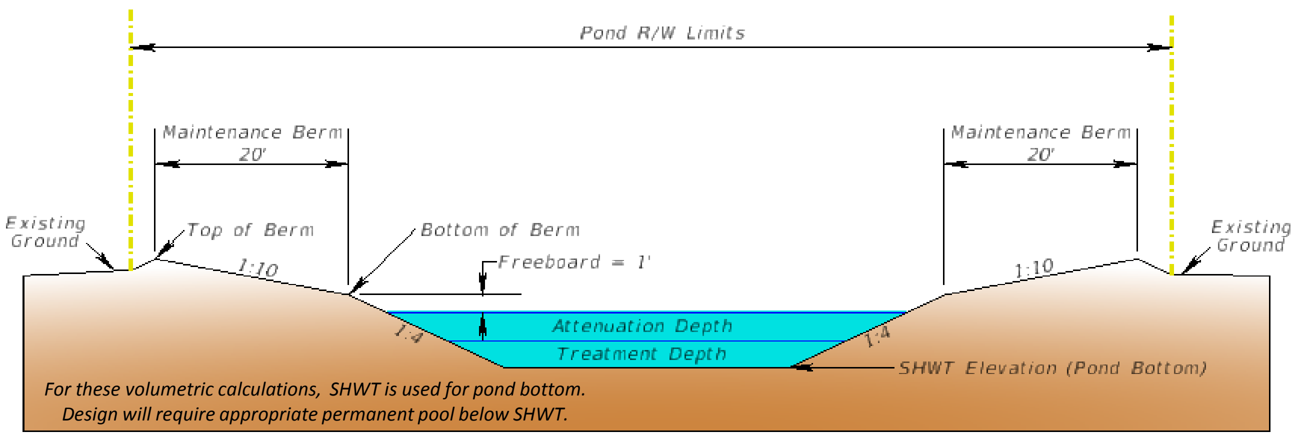
POND SIZE ESTIMATION

NRCS SOILS AT POND: 17 - Myakka
NRCS HIGH WATER DEPTH: 0.5-1.5 FT (FROM PINELLAS COUNTY SOIL SURVEY)

VERTICAL LIMITATIONS:

AT POND SITE:
AVERAGE NATURAL GROUND EL = 44.0 FT
SHWT EL = 43.0 FT

AT ROADWAY:
LOW EOP EL = 49.6 FT



Conveyance loss to pond =	0.2	FT	
Conveyance loss to outfall =	0.2	FT	
Available depth for treatment and attenuation =	5.2	FT	= 62.34 in
Treatment Depth =	9	in	
Attenuation Depth =	21	in	
Approx. low edge of pavement elevation (LEOP) =	49.6	FT	
Approx. Proposed Top of Berm elevation =	46.7	FT	
Average Ground at Pond Site =	44.0	FT	
Actual Depth of Treatment and Attenuation =	2.5	FT	
Pond Bottom Elevation =	43.0	FT	

BASIN 15 (POND B)

POND SIZE ESTIMATION (CONTIN.)

Treatment Volume provided by treatment depth	**0.18**	**AC-FT**
Square dimension at bottom of treatment depth	100.0	FT
Square dimension at top of treatment depth	106.0	FT
Square dimension at top of attenuation depth	120.0	FT
Attenuation Volume provided by attenuation depth	**0.52**	**AC-FT**
Square dimension at top of freeboard	128.0	FT
Square dimension at top berm	168.0	FT
Outside pond dimensions (including tie-down)	189.2	FT

Minimum Total Area Required: **0.99 ACRES**

THE POND SIZE INCLUDES A 10% SAFETY FACTOR FOR BOTH LENGTH & WIDTH

POND 15B STAGE-STORAGE CALCULATIONS

Estimated Seasonal High Water Table (SHWT) = 43.00 ft
Estimated Low Edge of Pavement = 49.56 ft

Elevation	Area	Area	Acumulated Volume	Total Volume	Total Volume	REMARKS
(ft)	(sf)	(ac)	(cf)	(cf)	(ac-ft)	
43.00	10000.0	0.23	0.0	0.0	0.00	
43.75	11236.0	0.26	7963.5	7963.5	0.18	*TV*
45.50	14400.0	0.33	22431.5	30395.0	0.70	*AV*
46.50	16384.0	0.38	15392.0	45787.0	1.05	
46.50	28224.0	0.65	0.0	45787.0	1.05	*Top of Berm*
44.00	43332.3	0.99	--	--	--	

Required Treatment Volume = 0.16 ac-ft
Provided Treatment Volume = 0.18 ac-ft ✓

Required Attenuation Volume = 0.41 ac-ft
Provided Attenuation Volume = 0.52 ac-ft ✓

BASIN 15 (POND C)

TREATMENT VOLUME CALCULATION

BASIN 15 R/W AREA=	23.74	ACRES
BASIN 15 EXIST. IMPERVIOUS AREA=	9.90	ACRES
BASIN 15 NEW IMPERVIOUS AREA =	1.97	ACRES

TREATMENT VOLUME REQUIRED:

1 inch x 1.97 acres = **0.16** **AC-FT**

POND SIZE ESTIMATION

NRCS SOILS AT POND: 17 - Myakka

NRCS HIGH WATER DEPTH: 0.5-1.5 FT (FROM PINELLAS COUNTY SOIL SURVEY)

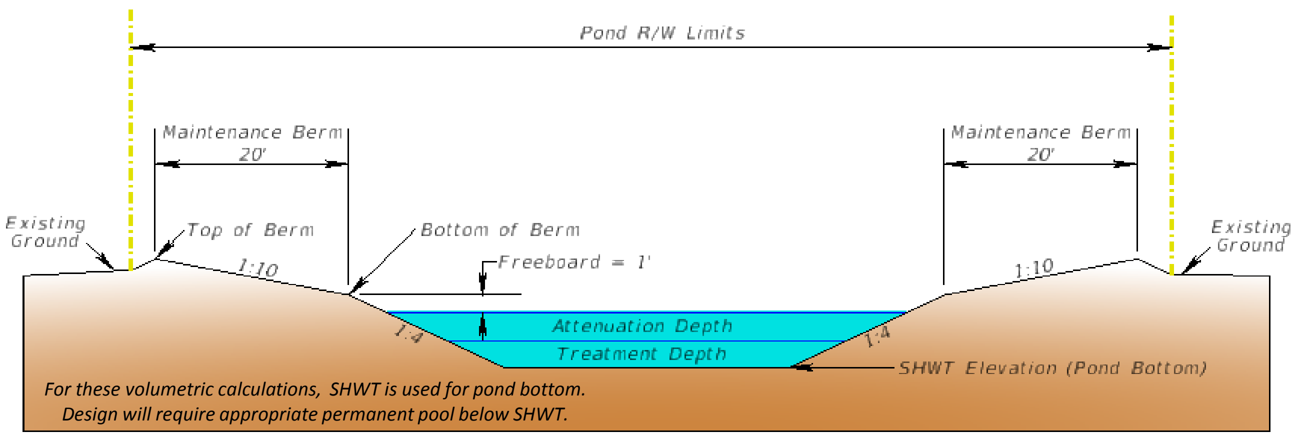
VERTICAL LIMITATIONS:

AT POND SITE:

AVERAGE NATURAL GROUND EL =	46.0	FT
SHWT EL =	45.0	FT

AT ROADWAY:

LOW EOP EL =	49.6	FT



Conveyance loss to pond =	0.1	FT	
Conveyance loss to outfall =	0.0	FT	
Available depth for treatment and attenuation =	3.4	FT	= 40.74 in
Treatment Depth =	9	in	
Attenuation Depth =	19	in	
Approx. low edge of pavement elevation (LEOP) =	49.6	FT	
Approx. Proposed Top of Berm elevation =	48.4	FT	
Average Ground at Pond Site =	46.0	FT	
Actual Depth of Treatment and Attenuation =	2.3	FT	
Pond Bottom Elevation =	45.0	FT	

BASIN 15 (POND C)

POND SIZE ESTIMATION (CONTIN.)

Treatment Volume provided by treatment depth	**0.18**	**AC-FT**
Square dimension at bottom of treatment depth	100.0	FT
Square dimension at top of treatment depth	106.0	FT
Square dimension at top of attenuation depth	118.7	FT
Attenuation Volume provided by attenuation depth	**0.46**	**AC-FT**
Square dimension at top of freeboard	126.7	FT
Square dimension at top berm	166.7	FT
Outside pond dimensions (including tie-down)	185.7	FT

Minimum Total Area Required: **0.96 ACRES**

THE POND SIZE INCLUDES A 10% SAFETY FACTOR FOR BOTH LENGTH & WIDTH

POND 15C STAGE-STORAGE CALCULATIONS

Estimated Seasonal High Water Table (SHWT) = 45.00 ft
Estimated Low Edge of Pavement = 49.56 ft

Elevation (ft)	Area (sf)	Area (ac)	Acumulated Volume (cf)	Total Volume (cf)	Total Volume (ac-ft)	REMARKS
45.00	10000.0	0.23	0.0	0.0	0.00	
45.75	11236.0	0.26	7963.5	7963.5	0.18	*TV*
47.33	14081.8	0.32	20043.2	28006.7	0.64	*AV*
48.33	16044.4	0.37	15063.1	43069.9	0.99	
48.33	27777.8	0.64	0.0	43069.9	0.99	*Top of Berm*
46.00	41705.3	0.96	--	--	--	

Required Treatment Volume =	0.16	ac-ft	
Provided Treatment Volume =	**0.18**	**ac-ft**	✓
Required Attenuation Volume =	0.41	ac-ft	
Provided Attenuation Volume =	**0.46**	**ac-ft**	✓

BASIN 16

Curve Number and Runoff Volume Calculation (SWFWMD 25YR/24HR)

Pre-Condition Curve Number Calculation

Land Use Description	Soil Map Unit	Hydrologic Group	Area		CN	Product
Impervious Roadway	--	--	9.73	acres	98	954
Sod/Grass	17	B/D	10.25	acres	80	820
		Subtotal:	**19.98**	**acres**		
Pond Site	17	B/D	1.20	acres	80	96
		Totals:	21.18	acres		1870
		Pre-Condition Composite Curve Number:	88.3			

Pre-Condition Runoff Volume Calculation

25-yr/24-hr Rainfall Depth (P) = 9.00 IN

CN = 88.3

Drainage Area (A) = 21.18 AC

Potential maximum retention after runoff begins (S) and S is:

(S) = 1000/CN-10 = 1.33 IN

Runoff Depth (Q) = (P-0.2S)^2/(P+0.8S) = 7.58 IN

Pre-Condition Runoff Volume (V_{PRE}) = A x Q = 13.38 AC-FT

Post-Condition Curve Number Calculation

Land Use Description	Soil Map Unit	Hydrologic Group	Area		CN	Product
Impervious Roadway	--	--	9.73	acres	98	954
New Impervious Roadway	--	--	3.57	acres	98	350
Sod/Grass	17	B/D	6.68	acres	80	534
		Subtotal:	**19.98**	**acres**		
Pond Impervious	--	--	0.43	acres	100	43
Pond Pervious	17	B/D	0.77	acres	80	62
		Totals:	21.18	acres		1942
		Post-Condition Composite Curve Number:	91.7			

Post-Condition Runoff Volume Calculation

25-yr/24-hr Rainfall Depth (P) = 9.00 IN

CN = 91.7

Drainage Area (A) = 21.18 AC

Potential maximum retention after runoff begins (S) and S is:

(S) = 1000/CN-10 = 0.90 IN

Runoff Depth (Q) = (P-0.2S)^2/(P+0.8S) = 8.00 IN

Post-Condition Runoff Volume (V_{POST}) = A x Q = 14.12 AC-FT

Required Attenuation Volume = V_{POST} - V_{PRE} = 0.74 AC-FT

BASIN 16 (POND A)

TREATMENT VOLUME CALCULATION

BASIN 16 R/W AREA=	19.98	ACRES
BASIN 16 EXIST. IMPERVIOUS AREA=	9.73	ACRES
BASIN 16 NEW IMPERVIOUS AREA =	3.57	ACRES

TREATMENT VOLUME REQUIRED:

1 inch x 3.57 acres = **0.30** **AC-FT**

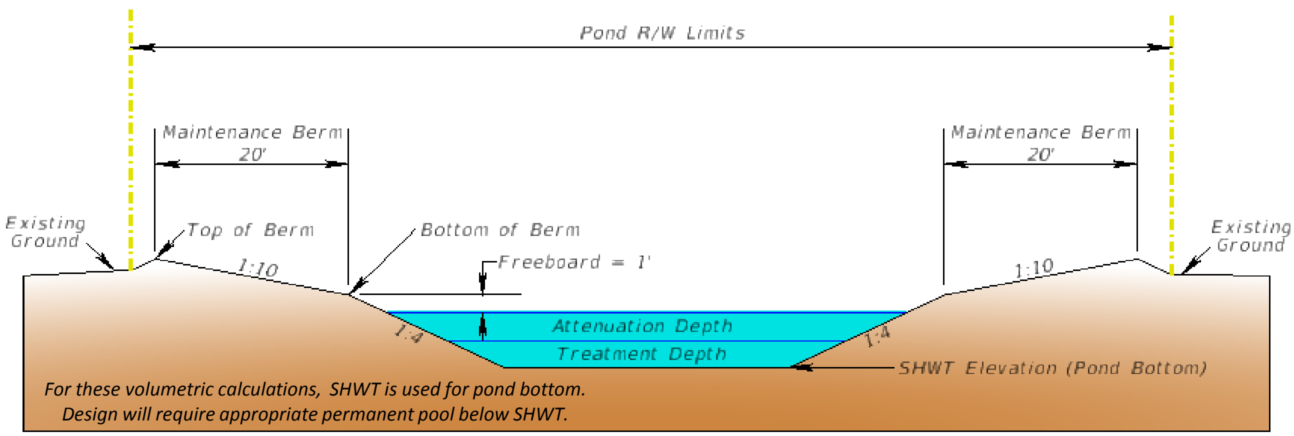
POND SIZE ESTIMATION

NRCS SOILS AT POND: 16- Matlacha and St Augustine

NRCS HIGH WATER DEPTH: 2.0-3.0 FT (FROM PINELLAS COUNTY SOIL SURVEY)

VERTICAL LIMITATIONS:

AT POND SITE:		
AVERAGE NATURAL GROUND EL =	44.0	FT
SHWT EL =	42.0	FT
AT ROADWAY:		
LOW EOP EL =	50.6	FT



Conveyance loss to pond =	0.1	FT	
Conveyance loss to outfall =	0.3	FT	
Available depth for treatment and attenuation =	7.2	FT	= 86.82 in
Treatment Depth =	13	in	
Attenuation Depth =	25	in	
Approx. low edge of pavement elevation (LEOP) =	50.6	FT	
Approx. Proposed Top of Berm elevation =	46.4	FT	
Average Ground at Pond Site =	44.0	FT	
Actual Depth of Treatment and Attenuation =	3.2	FT	
Pond Bottom Elevation =	42.0	FT	

BASIN 16 (POND A)

POND SIZE ESTIMATION (CONTIN.)

Treatment Volume provided by treatment depth	**0.33**	**AC-FT**
Square dimension at bottom of treatment depth	110.0	FT
Square dimension at top of treatment depth	118.7	FT
Square dimension at top of attenuation depth	135.3	FT
Attenuation Volume provided by attenuation depth	**0.77**	**AC-FT**
Square dimension at top of freeboard	143.3	FT
Square dimension at top berm	183.3	FT
Outside pond dimensions (including tie-down)	202.9	FT

Minimum Total Area Required: **1.14 ACRES**

THE POND SIZE INCLUDES A 10% SAFETY FACTOR FOR BOTH LENGTH & WIDTH

POND 16A STAGE-STORAGE CALCULATIONS

Estimated Seasonal High Water Table (SHWT) = 42.00 ft
Estimated Low Edge of Pavement = 50.56 ft

Elevation	Area	Area	Acumulated Volume	Total Volume	Total Volume	REMARKS
(ft)	(sf)	(ac)	(cf)	(cf)	(ac-ft)	
42.00	12100.0	0.28	0.0	0.0	0.00	
43.08	14081.8	0.32	14181.8	14181.8	0.33	*TV*
45.17	18315.1	0.42	33746.8	47928.6	1.10	*AV*
46.17	20544.4	0.47	19429.8	67358.3	1.55	
46.17	33611.1	0.77	0.0	67358.3	1.55	*Top of Berm*
44.00	49797.4	1.14	--	--	--	

Required Treatment Volume = 0.30 ac-ft
Provided Treatment Volume = 0.33 ac-ft ✓

Required Attenuation Volume = 0.74 ac-ft
Provided Attenuation Volume = 0.77 ac-ft ✓

BASIN 16 (POND B)

TREATMENT VOLUME CALCULATION

BASIN 16 R/W AREA=	19.98	ACRES
BASIN 16 EXIST. IMPERVIOUS AREA=	9.73	ACRES
BASIN 16 NEW IMPERVIOUS AREA =	3.57	ACRES

TREATMENT VOLUME REQUIRED:

1 inch x 3.57 acres = **0.30** **AC-FT**

POND SIZE ESTIMATION

NRCS SOILS AT POND: 16- Matlacha and St Augustine

NRCS HIGH WATER DEPTH: 2.0-3.0 FT (FROM PINELLAS COUNTY SOIL SURVEY)

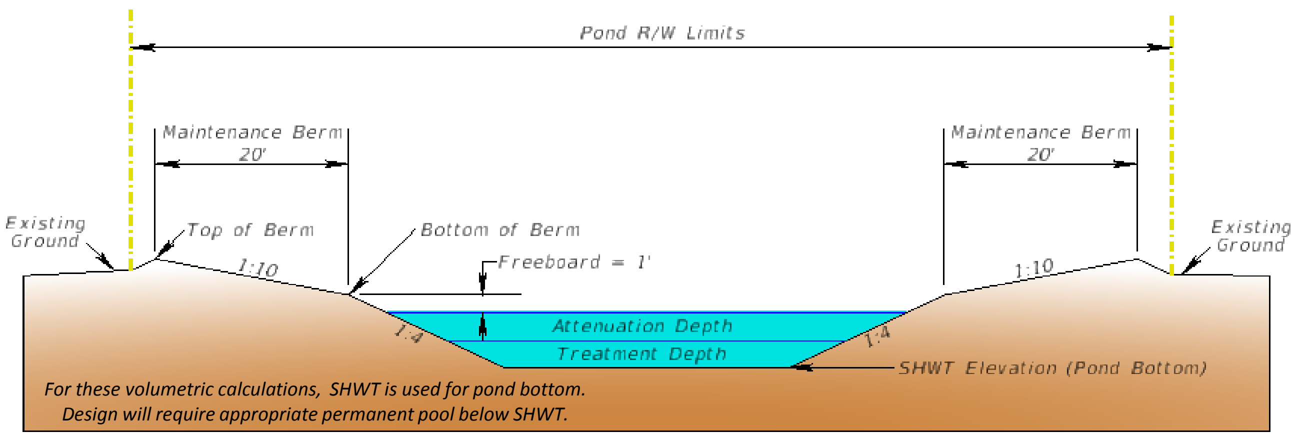
VERTICAL LIMITATIONS:

AT POND SITE:

AVERAGE NATURAL GROUND EL =	45.0	FT
SHWT EL =	43.0	FT

AT ROADWAY:

LOW EOP EL =	50.6	FT



Conveyance loss to pond =	0.1	FT	
Conveyance loss to outfall =	0.2	FT	
Available depth for treatment and attenuation =	6.3	FT	= 75.66 in
Treatment Depth =	13	in	
Attenuation Depth =	25	in	
Approx. low edge of pavement elevation (LEOP) =	50.6	FT	
Approx. Proposed Top of Berm elevation =	47.3	FT	
Average Ground at Pond Site =	45.0	FT	
Actual Depth of Treatment and Attenuation =	3.2	FT	
Pond Bottom Elevation =	43.0	FT	

BASIN 16 (POND B)

POND SIZE ESTIMATION (CONTIN.)

Treatment Volume provided by treatment depth	**0.33**	**AC-FT**
Square dimension at bottom of treatment depth	110.0	FT
Square dimension at top of treatment depth	118.7	FT
Square dimension at top of attenuation depth	135.3	FT
Attenuation Volume provided by attenuation depth	**0.77**	**AC-FT**
Square dimension at top of freeboard	143.3	FT
Square dimension at top berm	183.3	FT
Outside pond dimensions (including tie-down)	202.1	FT

Minimum Total Area Required: **1.13 ACRES**

THE POND SIZE INCLUDES A 10% SAFETY FACTOR FOR BOTH LENGTH & WIDTH

POND 16B STAGE-STORAGE CALCULATIONS

Estimated Seasonal High Water Table (SHWT) = 43.00 ft
Estimated Low Edge of Pavement = 50.56 ft

Elevation	Area	Area	Acumulated Volume	Total Volume	Total Volume	REMARKS
(ft)	(sf)	(ac)	(cf)	(cf)	(ac-ft)	
43.00	12100.0	0.28	0.0	0.0	0.00	
44.08	14081.8	0.32	14181.8	14181.8	0.33	*TV*
46.17	18315.1	0.42	33746.8	47928.6	1.10	*AV*
47.17	20544.4	0.47	19429.8	67358.3	1.55	
47.17	33611.1	0.77	0.0	67358.3	1.55	*Top of Berm*
45.00	49425.0	1.13	--	--	--	

Required Treatment Volume =	0.30	ac-ft	
Provided Treatment Volume =	**0.33**	**ac-ft**	✓
Required Attenuation Volume =	0.74	ac-ft	
Provided Attenuation Volume =	**0.77**	**ac-ft**	✓

BASIN 16 (POND C)

TREATMENT VOLUME CALCULATION

BASIN 16 R/W AREA=	19.98	ACRES
BASIN 16 EXIST. IMPERVIOUS AREA=	9.73	ACRES
BASIN 16 NEW IMPERVIOUS AREA =	3.57	ACRES

TREATMENT VOLUME REQUIRED:

1 inch x 3.57 acres = **0.30** **AC-FT**

POND SIZE ESTIMATION

NRCS SOILS AT POND: 17 - Myakka

NRCS HIGH WATER DEPTH: 0.5-1.5 FT (FROM PINELLAS COUNTY SOIL SURVEY)

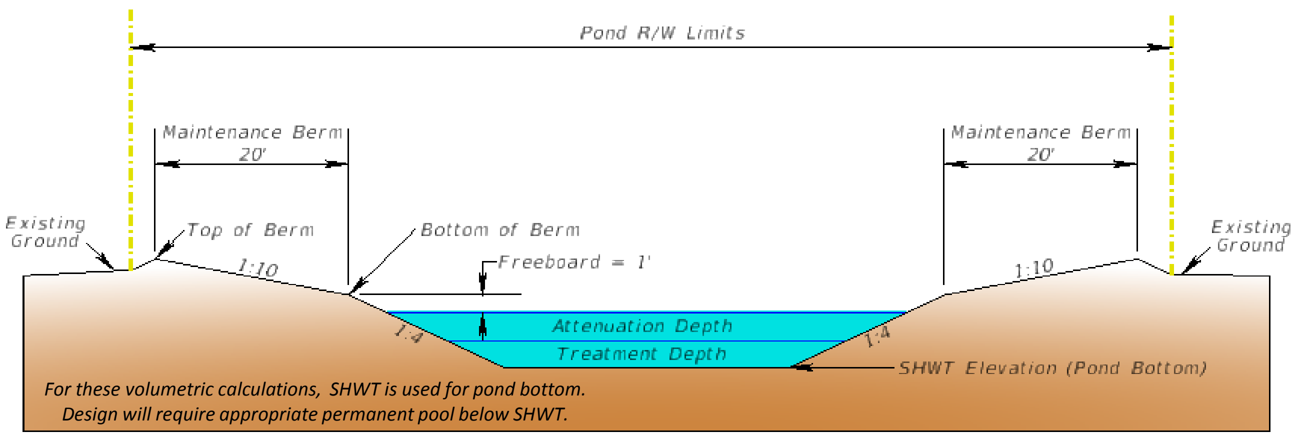
VERTICAL LIMITATIONS:

AT POND SITE:

AVERAGE NATURAL GROUND EL =	48.0	FT
SHWT EL =	47.0	FT

AT ROADWAY:

LOW EOP EL =	50.6	FT



Conveyance loss to pond =	0.2	FT	
Conveyance loss to outfall =	0.3	FT	
Available depth for treatment and attenuation =	2.1	FT	= 25.56 in
Treatment Depth =	10	in	
Attenuation Depth =	20	in	
Approx. low edge of pavement elevation (LEOP) =	50.6	FT	
Approx. Proposed Top of Berm elevation =	50.8	FT	
Average Ground at Pond Site =	48.0	FT	
Actual Depth of Treatment and Attenuation =	2.5	FT	
Pond Bottom Elevation =	47.0	FT	

BASIN 16 (POND C)

POND SIZE ESTIMATION (CONTIN.)

Treatment Volume provided by treatment depth	**0.34**	**AC-FT**
Square dimension at bottom of treatment depth	130.0	FT
Square dimension at top of treatment depth	136.7	FT
Square dimension at top of attenuation depth	150.0	FT
Attenuation Volume provided by attenuation depth	**0.79**	**AC-FT**
Square dimension at top of freeboard	158.0	FT
Square dimension at top berm	198.0	FT
Outside pond dimensions (including tie-down)	220.2	FT

Minimum Total Area Required: **1.35 ACRES**

THE POND SIZE INCLUDES A 10% SAFETY FACTOR FOR BOTH LENGTH & WIDTH

POND 16C STAGE-STORAGE CALCULATIONS

Estimated Seasonal High Water Table (SHWT) = 47.00 ft
Estimated Low Edge of Pavement = 50.56 ft

Elevation	Area	Area	Acumulated Volume	Total Volume	Total Volume	REMARKS
(ft)	(sf)	(ac)	(cf)	(cf)	(ac-ft)	
47.00	16900.0	0.39	0.0	0.0	0.00	
47.83	18677.8	0.43	14824.1	14824.1	0.34	*TV*
49.50	22500.0	0.52	34314.8	49138.9	1.13	*AV*
50.50	24964.0	0.57	23732.0	72870.9	1.67	
50.50	39204.0	0.90	0.0	72870.9	1.67	*Top of Berm*
48.00	58670.5	1.35	--	--	--	

Required Treatment Volume =	0.30	ac-ft	
Provided Treatment Volume =	**0.34**	**ac-ft**	✓
Required Attenuation Volume =	0.74	ac-ft	
Provided Attenuation Volume =	**0.79**	**ac-ft**	✓

BASIN 17

Curve Number and Runoff Volume Calculation (SWFWMD 25YR/24HR)

Pre-Condition Curve Number Calculation

Land Use Description	Soil Map Unit	Hydrologic Group	Area		CN	Product
Impervious Roadway	--	--	13.93	acres	98	1365
Sod/Grass	4, 11, 17	B/D	22.73	acres	74	1682
		Subtotal:	**36.66**	**acres**		
Pond Site	4, 17	B/D	2.35	acres	74	174
		Totals:	39.01	acres		3221
		Pre-Condition Composite Curve Number:	82.6			

Pre-Condition Runoff Volume Calculation

25-yr/24-hr Rainfall Depth (P) = 9.00 IN
CN = 82.6
Drainage Area (A) = 39.01 AC
Potential maximum retention after runoff begins (S) and S is:
(S) = 1000/CN-10 = 2.11 IN
Runoff Depth (Q) = (P-0.2S)^2/(P+0.8S) = 6.88 IN
Pre-Condition Runoff Volume (V_{PRE}) = A x Q = 22.38 AC-FT

Post-Condition Curve Number Calculation

Land Use Description	Soil Map Unit	Hydrologic Group	Area		CN	Product
Impervious Roadway	--	--	13.93	acres	98	1365
New Impervious Roadway	--	--	4.14	acres	98	406
Sod/Grass	4, 11, 17	B/D	18.59	acres	74	1376
		Subtotal:	**36.66**	**acres**		
Pond Impervious	--	--	1.00	acres	100	100
Pond Pervious	4, 17	B/D	1.35	acres	74	100
		Totals:	39.01	acres		3346
		Post-Condition Composite Curve Number:	85.8			

Post-Condition Runoff Volume Calculation

25-yr/24-hr Rainfall Depth (P) = 9.00 IN
CN = 85.8
Drainage Area (A) = 39.01 AC
Potential maximum retention after runoff begins (S) and S is:
(S) = 1000/CN-10 = 1.66 IN
Runoff Depth (Q) = (P-0.2S)^2/(P+0.8S) = 7.28 IN
Post-Condition Runoff Volume (V_{POST}) = A x Q = 23.66 AC-FT

Required Attenuation Volume = V_{POST} - V_{PRE} = 1.28 AC-FT

BASIN 17 (POND A)

TREATMENT VOLUME CALCULATION

BASIN 17 R/W AREA=	36.66	ACRES
BASIN 17 EXIST. IMPERVIOUS AREA=	13.93	ACRES
BASIN 17 NEW IMPERVIOUS AREA =	4.14	ACRES

TREATMENT VOLUME REQUIRED:

1 inch x 4.14 acres = **0.35** **AC-FT**

POND SIZE ESTIMATION

NRCS SOILS AT POND: 4 - Astatula

NRCS HIGH WATER DEPTH: > 6.0 FT (FROM PINELLAS COUNTY SOIL SURVEY)

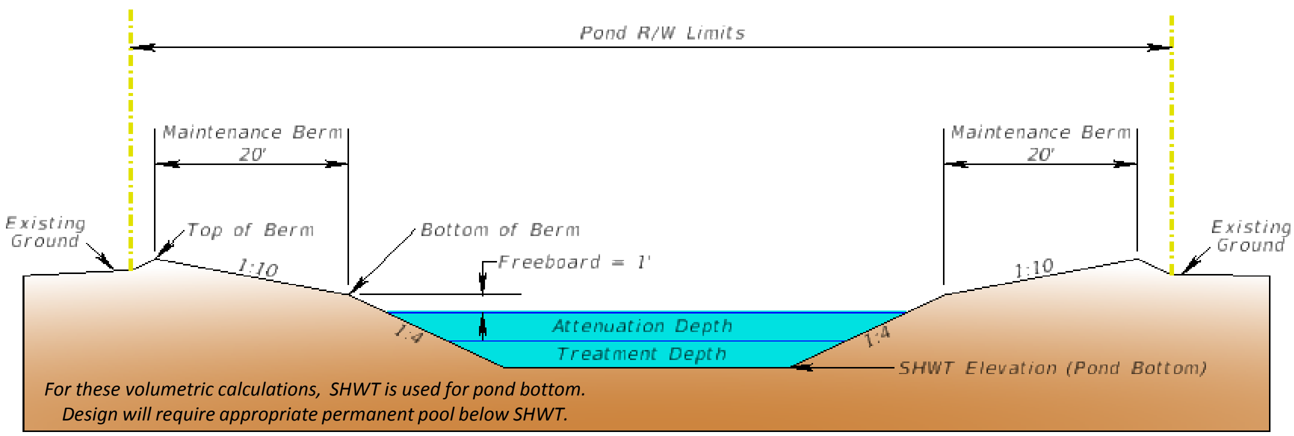
VERTICAL LIMITATIONS:

AT POND SITE:

AVERAGE NATURAL GROUND EL =	24.0	FT
SHWT EL =	18.0	FT

AT ROADWAY:

LOW EOP EL =	25.3	FT



Conveyance loss to pond =	0.3	FT	
Conveyance loss to outfall =	0.8	FT	
Available depth for treatment and attenuation =	5.3	FT	= 63.00 in
Treatment Depth =	12	in	
Attenuation Depth =	24	in	
Approx. low edge of pavement elevation (LEOP) =	25.3	FT	
Approx. Proposed Top of Berm elevation =	24.8	FT	
Average Ground at Pond Site =	24.0	FT	
Actual Depth of Treatment and Attenuation =	3.0	FT	
Pond Bottom Elevation =	20.0	FT	

BASIN 17 (POND A)

POND SIZE ESTIMATION (CONTIN.)

Treatment Volume provided by treatment depth	**0.62**	**AC-FT**
Square dimension at bottom of treatment depth	160.0	FT
Square dimension at top of treatment depth	168.0	FT
Square dimension at top of attenuation depth	184.0	FT
Attenuation Volume provided by attenuation depth	**1.42**	**AC-FT**
Square dimension at top of freeboard	192.0	FT
Square dimension at top berm	232.0	FT
Outside pond dimensions (including tie-down)	238.0	FT

Minimum Total Area Required: **1.57 ACRES**

THE POND SIZE INCLUDES A 10% SAFETY FACTOR FOR BOTH LENGTH & WIDTH

POND 17A STAGE-STORAGE CALCULATIONS

Estimated Seasonal High Water Table (SHWT) = 18.00 ft
Estimated Low Edge of Pavement = 25.25 ft

Elevation	Area	Area	Acumulated Volume	Total Volume	Total Volume	REMARKS
(ft)	(sf)	(ac)	(cf)	(cf)	(ac-ft)	
20.00	25600.0	0.59	0.0	0.0	0.00	
21.00	28224.0	0.65	26912.0	26912.0	0.62	*TV*
23.00	33856.0	0.78	62080.0	88992.0	2.04	*AV*
24.00	36864.0	0.85	35360.0	124352.0	2.85	
24.00	53824.0	1.24	0.0	124352.0	2.85	*Top of Berm*
24.00	68539.2	1.57	--	--	--	

Required Treatment Volume =	0.35	ac-ft	
Provided Treatment Volume =	**0.62**	**ac-ft**	✓
Required Attenuation Volume =	1.28	ac-ft	
Provided Attenuation Volume =	**1.42**	**ac-ft**	✓

BASIN 18

Curve Number and Runoff Volume Calculation (SWFWMD 25YR/24HR)

Pre-Condition Curve Number Calculation

Land Use Description	Soil Map Unit	Hydrologic Group	Area		CN	Product
Impervious Roadway	--	--	38.45	acres	98	3768
Sod/Grass	11, 17, 18, 22, 26, 29	B/D	91.57	acres	80	7326
		Subtotal:	**130.02**	**acres**		
Pond Site	20	B/D	8.66	acres	80	693
		Totals:	138.68	acres		11787

Pre-Condition Composite Curve Number: 85.0

Pre-Condition Runoff Volume Calculation

25-yr/24-hr Rainfall Depth (P) = 9.00 IN
CN = 85.0
Drainage Area (A) = 138.68 AC
Potential maximum retention after runoff begins (S) and S is:
(S) = 1000/CN-10 = 1.77 IN
Runoff Depth (Q) = (P-0.2S)^2/(P+0.8S) = 7.18 IN
Pre-Condition Runoff Volume (V_{PRE}) = A x Q = 82.98 AC-FT

Post-Condition Curve Number Calculation

Land Use Description	Soil Map Unit	Hydrologic Group	Area		CN	Product
Impervious Roadway	--	--	38.45	acres	98	3768
New Impervious Roadway	--	--	21.95	acres	98	2151
Sod/Grass	11, 17, 18, 22, 26, 29	B/D	69.62	acres	80	5570
		Subtotal:	**130.02**	**acres**		
Pond Impervious	--	--	5.46	acres	100	546
Pond Pervious	20	B/D	3.20	acres	80	256
		Totals:	138.68	acres		12291

Post-Condition Composite Curve Number: 88.6

Post-Condition Runoff Volume Calculation

25-yr/24-hr Rainfall Depth (P) = 9.00 IN
CN = 88.6
Drainage Area (A) = 138.68 AC
Potential maximum retention after runoff begins (S) and S is:
(S) = 1000/CN-10 = 1.28 IN
Runoff Depth (Q) = (P-0.2S)^2/(P+0.8S) = 7.62 IN
Post-Condition Runoff Volume (V_{POST}) = A x Q = 88.11 AC-FT

Required Attenuation Volume = V_{POST} - V_{PRE} = 5.13 AC-FT

BASIN 18 (POND A)

TREATMENT VOLUME CALCULATION

BASIN 18 R/W AREA (I-275)=	130.02	ACRES
BASIN 18 EXIST. IMPERVIOUS AREA=	38.45	ACRES
BASIN 18 NEW IMPERVIOUS AREA =	21.95	ACRES

TREATMENT VOLUME REQUIRED:

1 inch x 21.95 acres = **1.83** **AC-FT**

POND SIZE ESTIMATION

NRCS SOILS AT POND: 7 - Basinger Fine Sands

NRCS HIGH WATER DEPTH: 0.0-0.5 FT (FROM PINELLAS COUNTY SOIL SURVEY)

VERTICAL LIMITATIONS:

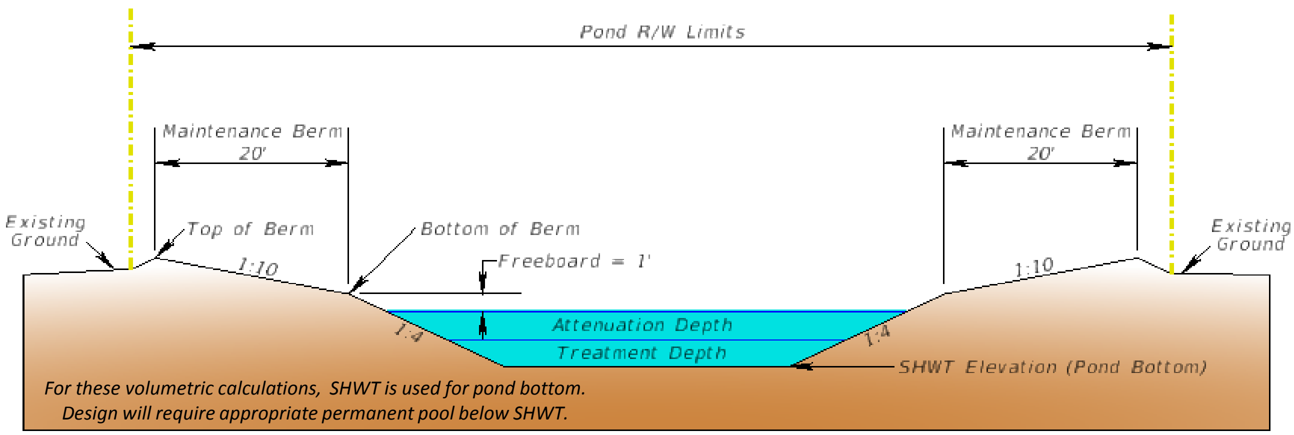
AT POND SITE:

AVERAGE NATURAL GROUND EL = 5.0 FT

SHWT EL = 4.5 FT (FROM SWFWMD ERP NO. 15130.000)

AT ROADWAY:

LOW EOP EL = 11.6 FT



Conveyance loss to pond =	3.0	FT	
Conveyance loss to outfall =	0.0	FT	
Available depth for treatment and attenuation =	3.1	FT	= 37.08 in
Treatment Depth =	12	in	
Attenuation Depth =	30	in	
Approx. low edge of pavement elevation (LEOP) =	11.6	FT	
Approx. Proposed Top of Berm elevation =	9.0	FT	
Average Ground at Pond Site =	5.0	FT	
Actual Depth of Treatment and Attenuation =	3.5	FT	
Pond Bottom Elevation =	4.5	FT	

BASIN 18 (POND A)

POND SIZE ESTIMATION (CONTIN.)

Treatment Volume provided by treatment depth	**1.92**	**AC-FT**
Square dimension at bottom of treatment depth	285.0	FT
Square dimension at top of treatment depth	293.0	FT
Square dimension at top of attenuation depth	313.0	FT
Attenuation Volume provided by attenuation depth	**5.27**	**AC-FT**
Square dimension at top of freeboard	321.0	FT
Square dimension at top berm	361.0	FT
Outside pond dimensions (including tie-down)	393.0	FT

Minimum Total Area Required: **4.29 ACRES**

THE POND SIZE INCLUDES A 10% SAFETY FACTOR FOR BOTH LENGTH & WIDTH

POND 18A STAGE-STORAGE CALCULATIONS

Estimated Seasonal High Water Table (SHWT) = 4.50 ft
Estimated Low Edge of Pavement = 11.59 ft

Elevation	Area	Area	Acumulated Volume	Total Volume	Total Volume	REMARKS
(ft)	(sf)	(ac)	(cf)	(cf)	(ac-ft)	
4.50	81225.0	1.86	0.0	0.0	0.00	
5.50	85849.0	1.97	83537.0	83537.0	1.92	*TV*
8.00	97969.0	2.25	229772.5	313309.5	7.19	*AV*
9.00	103041.0	2.37	100505.0	413814.5	9.50	
9.00	130321.0	2.99	0.0	413814.5	9.50	*Top of Berm*
5.00	186883.3	4.29	--	--	--	

Required Treatment Volume = 1.83 ac-ft
Provided Treatment Volume = 1.92 ac-ft ✓

Required Attenuation Volume = 5.13 ac-ft
Provided Attenuation Volume = 5.27 ac-ft ✓

BASIN 18 (POND B)

TREATMENT VOLUME CALCULATION

BASIN 18 R/W AREA (I-275)=	130.02	ACRES
BASIN 18 EXIST. IMPERVIOUS AREA=	38.45	ACRES
BASIN 18 NEW IMPERVIOUS AREA =	21.95	ACRES

TREATMENT VOLUME REQUIRED:

1 inch x 21.95 acres = **1.83** **AC-FT**

POND SIZE ESTIMATION

NRCS SOILS AT POND: 18 - Okeechobee

NRCS HIGH WATER DEPTH: 0.0 FT (FROM PINELLAS COUNTY SOIL SURVEY)

VERTICAL LIMITATIONS:

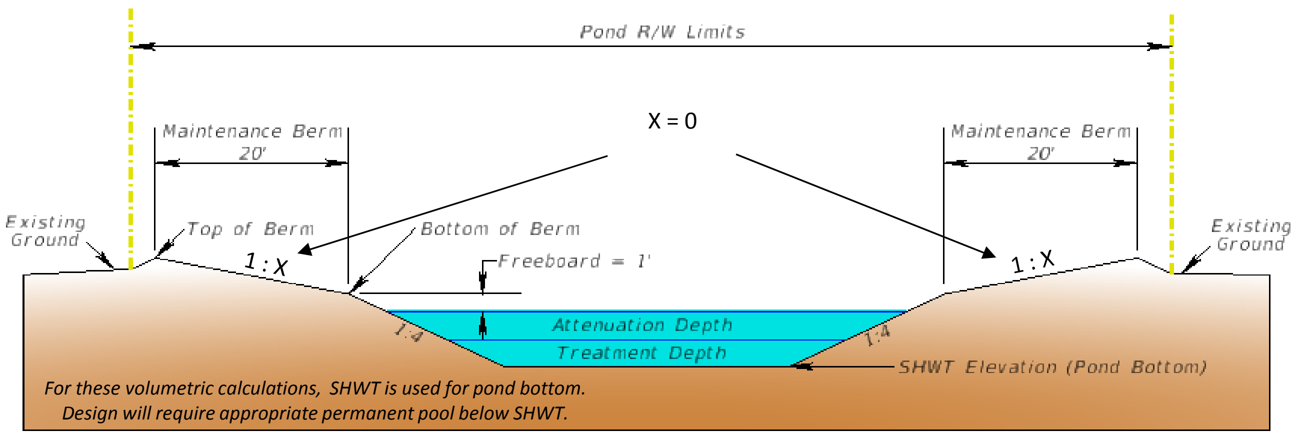
AT POND SITE:

AVERAGE NATURAL GROUND EL = 2.0 FT

SHWT EL = 2.0 FT (MEAN HIGH WATER ELEVATION 1.98 FT)

AT ROADWAY:

LOW EOP EL = 11.6 FT



Conveyance loss to pond =	3.7	FT	
Conveyance loss to outfall =	0.1	FT	
Available depth for treatment and attenuation =	4.8	FT	= 57.72 in
Treatment Depth =	9	in	
Attenuation Depth =	23	in	
Approx. low edge of pavement elevation (LEOP) =	11.6	FT	
Approx. Proposed Top of Berm elevation =	5.7	FT	
Average Ground at Pond Site =	2.0	FT	
Actual Depth of Treatment and Attenuation =	2.7	FT	
Pond Bottom Elevation =	2.0	FT	

BASIN 18 (POND B)

POND SIZE ESTIMATION (CONTIN.)

Treatment Volume provided by treatment depth	**1.91**	**AC-FT**
Square dimension at bottom of treatment depth	330.0	FT
Square dimension at top of treatment depth	336.0	FT
Square dimension at top of attenuation depth	351.3	FT
Attenuation Volume provided by attenuation depth	**5.20**	**AC-FT**
Square dimension at top of freeboard	359.3	FT
Square dimension at top berm	399.3	FT
Outside pond dimensions (including tie-down)	429.3	FT

Minimum Total Area Required: **5.12 ACRES**

THE POND SIZE INCLUDES A 10% SAFETY FACTOR FOR BOTH LENGTH & WIDTH

POND 18B STAGE-STORAGE CALCULATIONS

Estimated Seasonal High Water Table (SHWT) = 1.98 ft
Estimated Low Edge of Pavement = 11.59 ft

Elevation	Area	Area	Acumulated Volume	Total Volume	Total Volume	REMARKS
(ft)	(sf)	(ac)	(cf)	(cf)	(ac-ft)	
1.98	108900.0	2.50	0.0	0.0	0.00	
2.73	112896.0	2.59	83173.5	83173.5	1.91	*TV*
4.65	123435.1	2.83	226484.0	309657.5	7.11	*AV*
5.65	129120.4	2.96	126277.8	435935.3	10.01	
5.65	159467.1	3.66	0.0	435935.3	10.01	*Top of Berm*
2.00	223008.1	5.12	--	--	--	

Required Treatment Volume =	1.83	ac-ft	
Provided Treatment Volume =	**1.91**	**ac-ft**	✓
Required Attenuation Volume =	5.13	ac-ft	
Provided Attenuation Volume =	**5.20**	**ac-ft**	✓

BASIN 19

Curve Number and Runoff Volume Calculation (SWFWMD 25YR/24HR)

Pre-Condition Curve Number Calculation

Land Use Description	Soil Map Unit	Hydrologic Group	Area		CN	Product
Impervious Roadway	--	--	16.96	acres	98	1662
Sod/Grass	12, 22	B/D	56.24	acres	80	4499
		Subtotal:	**73.20**	**acres**		
Pond Site	12, 22	B/D	0.00	acres	80	0
		Totals:	73.20	acres		6161
		Pre-Condition Composite Curve Number:	84.2			

Pre-Condition Runoff Volume Calculation

25-yr/24-hr Rainfall Depth (P) = 9.00 IN
CN = 84.2
Drainage Area (A) = 73.20 AC
Potential maximum retention after runoff begins (S) and S is:
(S) = 1000/CN-10 = 1.88 IN
Runoff Depth (Q) = (P-0.2S)^2/(P+0.8S) = 7.08 IN
Pre-Condition Runoff Volume (V_{PRE}) = A x Q = 43.19 AC-FT

Post-Condition Curve Number Calculation

Land Use Description	Soil Map Unit	Hydrologic Group	Area		CN	Product
Impervious Roadway	--	--	16.96	acres	98	1662
New Impervious Roadway	--	--	2.21	acres	98	217
Sod/Grass	12, 22	B/D	52.27	acres	80	4182
		Subtotal:	**71.44**	**acres**		
Pond Impervious	--	--	0.74	acres	100	74
Pond Pervious	12, 22	B/D	1.02	acres	80	82
		Totals:	73.20	acres		6216
		Post-Condition Composite Curve Number:	84.9			

Post-Condition Runoff Volume Calculation

25-yr/24-hr Rainfall Depth (P) = 9.00 IN
CN = 84.9
Drainage Area (A) = 73.20 AC
Potential maximum retention after runoff begins (S) and S is:
(S) = 1000/CN-10 = 1.78 IN
Runoff Depth (Q) = (P-0.2S)^2/(P+0.8S) = 7.17 IN
Post-Condition Runoff Volume (V_{POST}) = A x Q = 43.74 AC-FT

Required Attenuation Volume = V_{POST} - V_{PRE} = 0.56 AC-FT

BASIN 19 (POND A)

TREATMENT VOLUME CALCULATION

BASIN 19 R/W AREA=	73.20	ACRES
BASIN 19 EXIST. IMPERVIOUS AREA=	16.96	ACRES
BASIN 19 NEW IMPERVIOUS AREA =	2.21	ACRES

TREATMENT VOLUME REQUIRED:

1 inch x 2.21 acres = **0.18** **AC-FT**

POND SIZE ESTIMATION

NRCS SOILS AT POND: 12 - Felda, 22 - Pineda

NRCS HIGH WATER DEPTH: 0.0-1.0 FT (FROM PINELLAS COUNTY SOIL SURVEY)

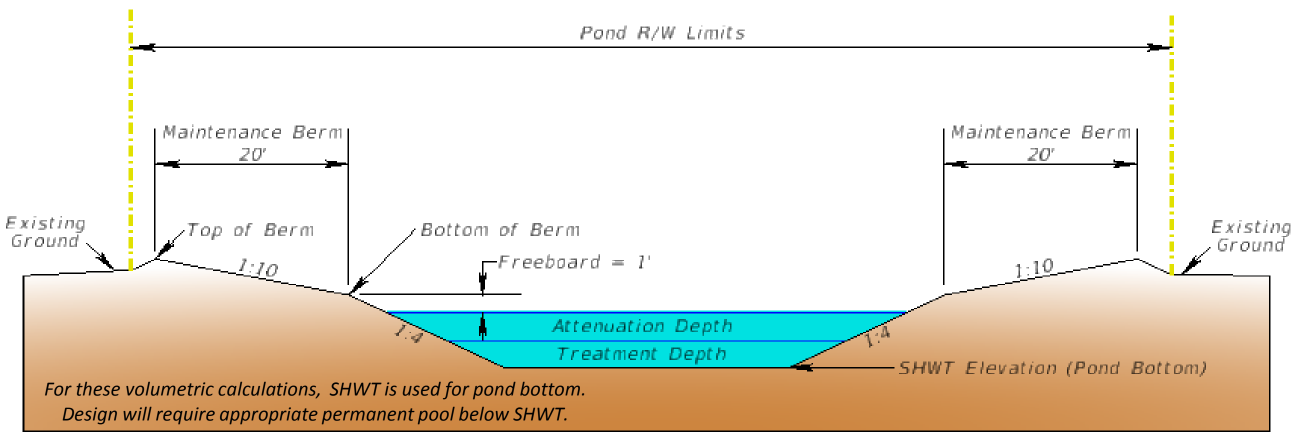
VERTICAL LIMITATIONS:

AT POND SITE:

AVERAGE NATURAL GROUND EL =	10.0	FT
SHWT EL =	9.5	FT

AT ROADWAY:

LOW EOP EL =	12.8	FT



Conveyance loss to pond =	0.4	FT	
Conveyance loss to outfall =	0.5	FT	
Available depth for treatment and attenuation =	1.5	FT	= 18.34 in
Treatment Depth =	6	in	
Attenuation Depth =	10	in	
Approx. low edge of pavement elevation (LEOP) =	12.8	FT	
Approx. Proposed Top of Berm elevation =	12.3	FT	
Average Ground at Pond Site =	10.0	FT	
Actual Depth of Treatment and Attenuation =	1.3	FT	
Pond Bottom Elevation =	9.5	FT	

BASIN 19 (POND A)

POND SIZE ESTIMATION (CONTIN.)

Treatment Volume provided by treatment depth	**0.36**	**AC-FT**
Square dimension at bottom of treatment depth	175.0	FT
Square dimension at top of treatment depth	179.0	FT
Square dimension at top of attenuation depth	185.7	FT
Attenuation Volume provided by attenuation depth	**0.64**	**AC-FT**
Square dimension at top of freeboard	193.7	FT
Square dimension at top berm	233.7	FT
Outside pond dimensions (including tie-down)	252.0	FT

Minimum Total Area Required: **1.76 ACRES**

THE POND SIZE INCLUDES A 10% SAFETY FACTOR FOR BOTH LENGTH & WIDTH

POND 19A STAGE-STORAGE CALCULATIONS

Estimated Seasonal High Water Table (SHWT) = 9.50 ft
Estimated Low Edge of Pavement = 12.84 ft

Elevation	Area	Area	Acumulated Volume	Total Volume	Total Volume	REMARKS
(ft)	(sf)	(ac)	(cf)	(cf)	(ac-ft)	
9.50	30625.0	0.70	0.0	0.0	0.00	
10.00	32041.0	0.74	15666.5	15666.5	0.36	*TV*
10.83	34472.1	0.79	27713.8	43380.3	1.00	*AV*
11.83	37506.8	0.86	35989.4	79369.7	1.82	
11.83	54600.1	1.25	0.0	79369.7	1.82	*Top of Berm*
10.00	76811.4	1.76	--	--	--	

Required Treatment Volume = 0.18 ac-ft
Provided Treatment Volume = 0.36 ac-ft ✓

Required Attenuation Volume = 0.56 ac-ft
Provided Attenuation Volume = 0.64 ac-ft ✓

BASIN 20

Curve Number and Runoff Volume Calculation (SWFWMD 25YR/24HR)

Pre-Condition Curve Number Calculation

Land Use Description	Soil Map Unit	Hydrologic Group	Area		CN	Product
Impervious Roadway	--	--	14.62	acres	98	1433
Sod/Grass	12, 22	B/D	16.58	acres	80	1326
		Subtotal:	**31.20**	**acres**		
Pond Site	12, 22	B/D	2.67	acres	80	214
		Totals:	33.87	acres		2973
	Pre-Condition Composite Curve Number:		87.8			

Pre-Condition Runoff Volume Calculation

25-yr/24-hr Rainfall Depth (P) = 9.00 IN
CN = 87.8
Drainage Area (A) = 33.87 AC
Potential maximum retention after runoff begins (S) and S is:
(S) = 1000/CN-10 = 1.39 IN
Runoff Depth (Q) = (P-0.2S)^2/(P+0.8S) = 7.52 IN
Pre-Condition Runoff Volume (V_{PRE}) = A x Q = 21.22 AC-FT

Post-Condition Curve Number Calculation

Land Use Description	Soil Map Unit	Hydrologic Group	Area		CN	Product
Impervious Roadway	--	--	14.62	acres	98	1433
New Impervious Roadway	--	--	7.46	acres	98	731
Sod/Grass	12, 22	B/D	9.12	acres	80	730
		Subtotal:	**31.20**	**acres**		
Pond Impervious	--	--	1.21	acres	100	121
Pond Pervious	12, 22	B/D	1.46	acres	80	117
		Totals:	33.87	acres		3131
	Post-Condition Composite Curve Number:		92.4			

Post-Condition Runoff Volume Calculation

25-yr/24-hr Rainfall Depth (P) = 9.00 IN
CN = 92.4
Drainage Area (A) = 33.87 AC
Potential maximum retention after runoff begins (S) and S is:
(S) = 1000/CN-10 = 0.82 IN
Runoff Depth (Q) = (P-0.2S)^2/(P+0.8S) = 8.09 IN
Post-Condition Runoff Volume (V_{POST}) = A x Q = 22.83 AC-FT

Required Attenuation Volume = V_{POST} - V_{PRE} = 1.61 AC-FT

BASIN 20 (POND A)

TREATMENT VOLUME CALCULATION

BASIN 20 R/W AREA=	31.20	ACRES
BASIN 20 EXIST. IMPERVIOUS AREA=	14.62	ACRES
BASIN 20 NEW IMPERVIOUS AREA =	7.46	ACRES

TREATMENT VOLUME REQUIRED:

1 inch x 7.46 acres = **0.62** **AC-FT**

POND SIZE ESTIMATION

NRCS SOILS AT POND: 12 - Felda, 22 - Pineda

NRCS HIGH WATER DEPTH: 0.0-1.0 FT (FROM PINELLAS COUNTY SOIL SURVEY)

VERTICAL LIMITATIONS:

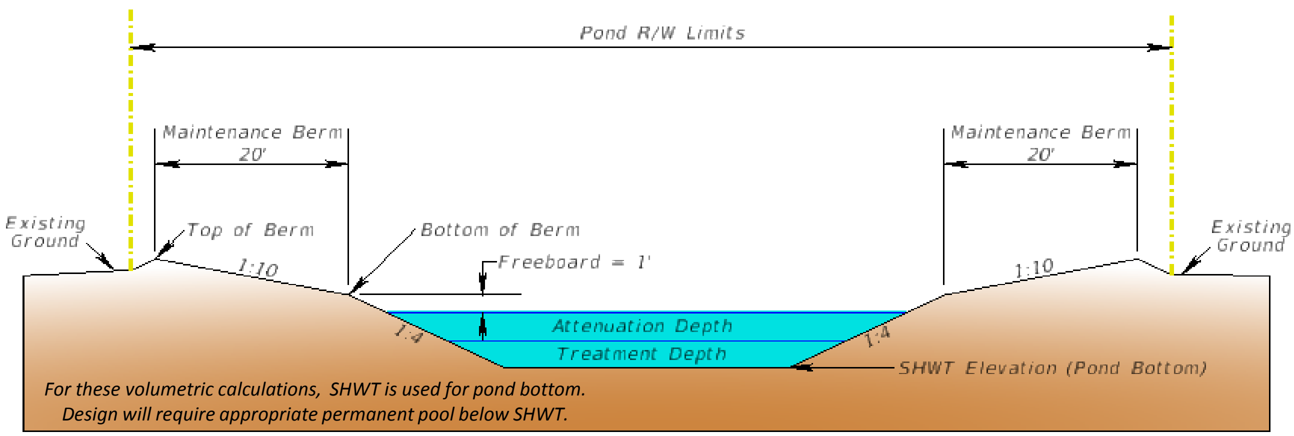
AT POND SITE:

AVERAGE NATURAL GROUND EL = 8.5 FT

SHWT EL = 5.3 FT (FROM SWFWMD ERP NO. 26538.000)

AT ROADWAY:

LOW EOP EL = 11.8 FT



Conveyance loss to pond =	0.8	FT	
Conveyance loss to outfall =	0.3	FT	
Available depth for treatment and attenuation =	4.4	FT	= 52.98 in
Treatment Depth =	8	in	
Attenuation Depth =	19	in	
Approx. low edge of pavement elevation (LEOP) =	11.8	FT	
Approx. Proposed Top of Berm elevation =	8.9	FT	
Average Ground at Pond Site =	8.5	FT	
Actual Depth of Treatment and Attenuation =	2.3	FT	
Pond Bottom Elevation =	5.3	FT	

BASIN 20 (POND A)

POND SIZE ESTIMATION (CONTIN.)

Treatment Volume provided by treatment depth	**0.63**	**AC-FT**
Square dimension at bottom of treatment depth	200.0	FT
Square dimension at top of treatment depth	205.3	FT
Square dimension at top of attenuation depth	218.0	FT
Attenuation Volume provided by attenuation depth	**1.63**	**AC-FT**
Square dimension at top of freeboard	226.0	FT
Square dimension at top berm	266.0	FT
Outside pond dimensions (including tie-down)	269.0	FT

Minimum Total Area Required: **2.01 ACRES**

THE POND SIZE INCLUDES A 10% SAFETY FACTOR FOR BOTH LENGTH & WIDTH

POND 20A STAGE-STORAGE CALCULATIONS

Estimated Seasonal High Water Table (SHWT) = 5.30 ft
Estimated Low Edge of Pavement = 11.79 ft

Elevation	Area	Area	Acumulated Volume	Total Volume	Total Volume	REMARKS
(ft)	(sf)	(ac)	(cf)	(cf)	(ac-ft)	
5.30	40000.0	0.92	0.0	0.0	0.00	
5.97	42161.8	0.97	27387.3	27387.3	0.63	*TV*
7.55	47524.0	1.09	71001.2	98388.5	2.26	*AV*
8.55	51076.0	1.17	49300.0	147688.5	3.39	
8.55	70756.0	1.62	0.0	147688.5	3.39	*Top of Berm*
8.50	87556.8	2.01	--	--	--	

Required Treatment Volume =	0.62	ac-ft	
Provided Treatment Volume =	**0.63**	**ac-ft**	✓
Required Attenuation Volume =	1.61	ac-ft	
Provided Attenuation Volume =	**1.63**	**ac-ft**	✓

BASIN 20 (POND B)

TREATMENT VOLUME CALCULATION

BASIN 20 R/W AREA=	31.20	ACRES
BASIN 20 EXIST. IMPERVIOUS AREA=	14.62	ACRES
BASIN 20 NEW IMPERVIOUS AREA =	7.46	ACRES

TREATMENT VOLUME REQUIRED:

1 inch x 7.46 acres = **0.62** **AC-FT**

POND SIZE ESTIMATION

NRCS SOILS AT POND: 12 - Felda, 22 - Pineda

NRCS HIGH WATER DEPTH: 0.0-1.0 FT (FROM PINELLAS COUNTY SOIL SURVEY)

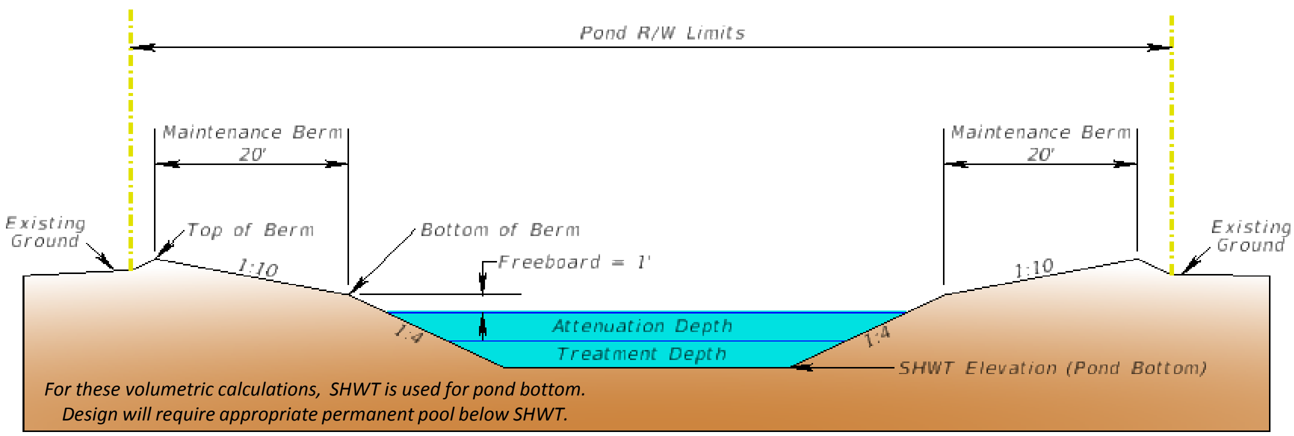
VERTICAL LIMITATIONS:

AT POND SIZE:

AVERAGE NATURAL GROUND EL =	9.0	FT	
SHWT EL =	5.3	FT	(FROM SWFWMD ERP NO. 26538.000)

AT ROADWAY:

LOW EOP EL =	11.8	FT



Conveyance loss to pond =	1.0	FT	
Conveyance loss to outfall =	0.3	FT	
Available depth for treatment and attenuation =	4.2	FT	= 50.34 in
Treatment Depth =	8	in	
Attenuation Depth =	19	in	
Approx. low edge of pavement elevation (LEOP) =	11.8	FT	
Approx. Proposed Top of Berm elevation =	8.9	FT	
Average Ground at Pond Site =	9.0	FT	
Actual Depth of Treatment and Attenuation =	2.3	FT	
Pond Bottom Elevation =	5.3	FT	

BASIN 20 (POND B)

POND SIZE ESTIMATION (CONTIN.)

Treatment Volume provided by treatment depth	**0.63**	**AC-FT**
Square dimension at bottom of treatment depth	200.0	FT
Square dimension at top of treatment depth	205.3	FT
Square dimension at top of attenuation depth	218.0	FT
Attenuation Volume provided by attenuation depth	**1.63**	**AC-FT**
Square dimension at top of freeboard	226.0	FT
Square dimension at top berm	266.0	FT
Outside pond dimensions (including tie-down)	265.0	FT
Minimum Total Area Required:	**1.95**	**ACRES**

THE POND SIZE INCLUDES A 10% SAFETY FACTOR FOR BOTH LENGTH & WIDTH

POND 20B STAGE-STORAGE CALCULATIONS

Estimated Seasonal High Water Table (SHWT) = 5.30 ft
Estimated Low Edge of Pavement = 11.79 ft

Elevation (ft)	Area (sf)	Area (ac)	Acumulated Volume (cf)	Total Volume (cf)	Total Volume (ac-ft)	REMARKS
5.30	40000.0	0.92	0.0	0.0	0.00	
5.97	42161.8	0.97	27387.3	27387.3	0.63	*TV*
7.55	47524.0	1.09	71001.2	98388.5	2.26	*AV*
8.55	51076.0	1.17	49300.0	147688.5	3.39	
8.55	70756.0	1.62	0.0	147688.5	3.39	*Top of Berm*
9.00	84972.3	1.95	--	--	--	

Required Treatment Volume =	0.62	ac-ft	
Provided Treatment Volume =	**0.63**	**ac-ft**	✓
Required Attenuation Volume =	1.61	ac-ft	
Provided Attenuation Volume =	**1.63**	**ac-ft**	✓

Net Improvement Calculations for WBID 1668A - Joe's Creek
(Basins 14, 15 and 16)

GENERAL SITE INFORMATION: V7.3	GO TO INTRODUCTION PAGE		Blue Numbers =	Input data
			Red Numbers =	Calculated or Carryover
Select the appropriate Meteorological Zone, input the appropriate Mean Annual Rainfall amount and select the type of analysis	NAME OF PROJECT		HELP	
	I-275 JOE'S CREEK		VIEW ZONE MAP	

	CLICK ON CELL BELOW TO SELECT	
Meteorological Zone (Please use zone map):	Zone 4	
Mean Annual Rainfall (Please use rainfall map):	51.00	Inches
	CLICK ON CELL BELOW TO SELECT	
Type of analysis:	Specified removal efficiency	
Treatment efficiency (N, P) (leave empty if net improvement or BMP analysis is used):	49.00	49.00 %

VIEW MEAN ANNUAL RAINFALL MAP

GO TO WATERSHED CHARACTERISTICS

Select the STORMWATER TREATMENT ANALYSIS Button below to begin analyzing the effectiveness of Best Management Practices.

STORMWATER TREATMENT ANALYSIS

Systems available for analysis:
Retention Basin with option for calculating effluent concentration
Wet Detention
Exfiltration Trench
Pervious Pavement
Stormwater Harvesting
Underdrain Biofiltration
Greenroof
Rainwater Harvesting
Floating Island with Wet Detention
Vegetated Natural Buffer
Vegetated Filter Strip
Swale
Rain Garden
Lined reuse pond
User Defined BMP

RESET INPUT FOR STORMWATER TREATMENT ANALYSIS

Model documentation and example problems.

There is a user's manual for the BMPTRAINS model. It can be downloaded from www.stormwater.ucf.edu. The results from the example problems shown in the manual however may not reflect current model results due to ongoing updates of the model.

METHODOLOGY FOR CALCULATING REQUIRED TREATMENT EFFICIENCY

METHODOLOGY FOR RETENTION SYSTEMS

METHODOLOGY FOR WET DETENTION SYSTEMS

METHODOLOGY FOR GREENROOF SYSTEMS

METHODOLOGY FOR WATER HARVESTING SYSTEMS

Net Improvement Calculations for WBID 1668A - Joe's Creek

(Basins 14, 15 and 16)

WATERSHED CHARACTERISTICS V7.3	GO TO STORMWATER TREATMENT ANALYSIS				Blue Numbers =	Input data	HELP - LAND USES/EMC
					Red Numbers =	Calculated	
SELECT CATCHMENT CONFIGURATION	CLICK ON CELL BELOW TO SELECT CONFIGURATION				VIEW CATCHMENT CONFIGURATION		
	A - Single Catchment						

CATCHMENT NO.1 CHARACTERISTICS:	\ If mixed land uses (side calculation)					
	CLICK ON CELL BELOW TO SELECT		Land use	Area Acres	non DCIA CN	%DCIA
Pre-development land use:	Highway: TN=1.640 TP=0.220					
with default EMCs	CLICK ON CELL BELOW TO SELECT					
Post-development land use:	Highway: TN=1.640 TP=0.220					
with default EMCs			Total			
Total pre-development catchment area:	67.62	AC				
Total post-development catchment or BMP analysis area:	69.82	AC				
Pre-development Non DCIA CN:	80.00					
Pre-development DCIA percentage:	40.62	%				
Post-development Non DCIA CN:	80.00					
Post-development DCIA percentage:	56.21	%				
Estimated Area of BMP (used for rainfall excess not loadings)	2.20	AC				

OVERWRITE DEFAULT CONCENTRATIONS USING:				
	PRE:		POST:	
EMC(N):		mg/L		mg/L
EMC(P):		mg/L		mg/L
CLICK ON CELL BELOW TO SELECT:				
USE DEFAULT CONCENTRATIONS				

Average annual runoff volume:	149.288	ac-ft/year
Pre-development Annual Mass Loading - **Nitrogen:**	239.092	kg/year
Pre-development Annual Mass Loading - **Phosphorus:**	32.073	kg/year
Post-development Annual Mass Loading - **Nitrogen:**	301.942	kg/year
Post-development Annual Mass Loading - **Phosphorus:**	40.504	kg/year

Pre-development
catchment area:

Basin 14 = 23.90 ac
Basin 15 = 23.74 ac
Basin 16 = 19.98 ac
Total = 67.62 ac

Post-development
catchment area:

Basin 14 = 23.90 ac
Basin 15 = 23.74 ac
Basin 16 = 19.98 ac
BMPs = 2.20 ac
Total = 69.82 ac

Pre-development
DCIA percentage:

Basin 14 = 7.84 ac
Basin 15 = 9.90 ac
Basin 16 = 9.73 ac
Total = 27.47 ac / 67.62ac
DCIA = 40.62%

Post-development
DCIA percentage:

Basin 14 = 12.84 ac
Basin 15 = 11.87 ac
Basin 16 = 13.30 ac
Total = 38.01 ac / 67.62ac
DCIA = 56.21%

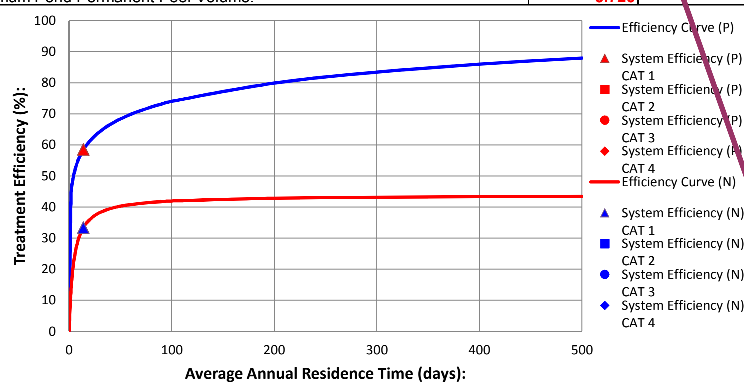
Net Improvement Calculations for WBID 1668A - Joe's Creek

(Basins 14, 15 and 16)

WET DETENTION:					V7.3
WET DETENTION POND SERVING:	I-275 JOE'S CREEK				
	Catchment 1	Catchment 2	Catchment 3	Catchment 4	
Total pre-development catchment area:	67.620	0.000	0.000	0.000	ac
Total post-development catchment area:	67.620	0.000	0.000	0.000	ac
Average annual residence time (between 1 and 500 days):	14.00				days
Littoral Zone or other improvements used?	NO				
Littoral Zone or other improvement efficiency credit:					%
Total **Nitrogen** removal required:	49.000				%
Total **Phosphorus** removal required:	49.000				%
Total **Nitrogen** removal efficiency provided:	33.324				%
Total **Phosphorous** removal efficiency provided:	58.430				%
Is the wet detention sufficient:	NO				
Average annual runoff volume:	149.288				ac-ft/yr

To Achieve the Treatment Efficiency Shown in the Graph Below, the Following Must Hold

	Catchment 1	Catchment 2	Catchment 3	Catchment 4	
Minimum Pond Permanent Pool Volume:	5.726				ac-ft



NOTE FOR TREATMENT EFFICIENCY GRAPH:

The purpose of the treatment efficiency graphs is to help illustrate the treatment efficiency of the wet detention system as the function of average annual residence time (and permanent pool volume). The graph illustrates that there is a point of diminished return as the permanent pool volume is substantially increased. The lines are produced from the conditions of catchment one, thus other catchments are shown with the data points.

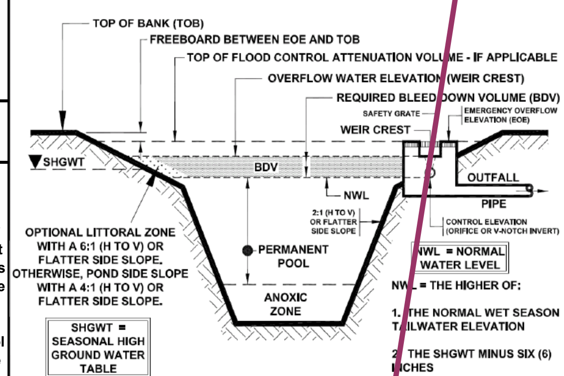
Blue Numbers =	Input data
Red Numbers =	Calculated or Carryover

GO TO STORMWATER TREATMENT ANALYSIS

HELP - EXAMPLE PROBLEM 4

REQUIRED REMAINING TREATMENT EFFICIENCIES OF TREATMENT SYSTEM IN SERIES WITH WET DETENTION. USE FOR SIZING OF TREATMENT SYSTEM IN SERIES WITH WET DETENTION.

	Catchment 1	Catchment 2	Catchment 3	Catchment 4	
Remaining treatment efficiency needed (**Nitrogen**):	23.510				%
Remaining treatment efficiency needed (**Phosphorus**):	0.000				%



TYPICAL X-SECTION OF A WET DETENTION SYSTEM

Source of Graphic: draft **STORMWATER QUALITY APPLICANT'S HANDBOOK** dated March 2010, by the Department of Environmental Protection, available at: http://www.dep.state.fl.us/water/wetlands/erp/rules/stormwater, March 2010

Wet detention does not provide sufficient removal.

Need additional treatment system in series to achieve nitrogen removal.

Net Improvement Calculations for WBID 1668A - Joe's Creek

(Basins 14, 15 and 16)

RETENTION BASIN: V7.3

Blue Numbers =	Input data
Red Numbers =	Calculated or Carryover

RETENTION BASIN SERVING: I-275 JOE'S CREEK

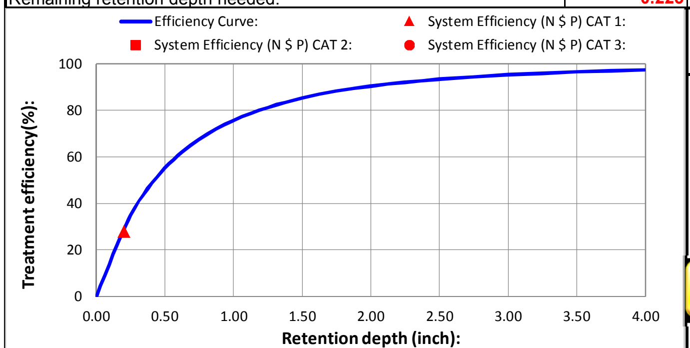
GO TO STORMWATER TREATMENT ANALYSIS

	Catchment 1	Catchment 2	Catchment 3	Catchment 4	
Watershed area:	67.620	0.000	0.000	0.000	ac
Required Treatment Eff (**Nitrogen**):	49.000	49.000	49.000	49.000	%
Required Treatment Eff (**Phosphorus**):	49.000	49.000	49.000	49.000	%
Required retention depth over the watershed to meet required efficiency:	0.425	0.425	0.425	0.425	in
Required water quality retention volume:	2.393	0.000	0.000	0.000	ac-ft

ERROR MESSAGE WINDOW FOR SINGLE RETENTION BASIN:

RETENTION BASIN FOR MULTIPLE TREATMENT SYSTEMS (if there is a need for additional removal efficiencies in a series of BMPs):

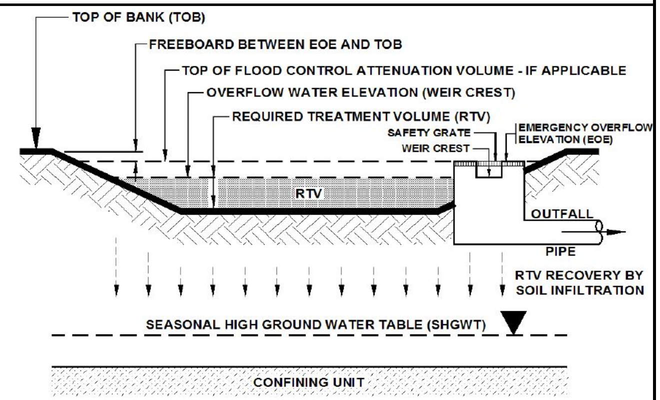
	Catchment 1	Catchment 2	Catchment 3	Catchment 4	
Retention volume based on retention depth	1.127	0.000	0.000	0.000	ac-ft
Provided retention depth (inches over the watershed area):	0.200				in
Provided treatment efficiency (**Nitrogen**):	27.870	0.000	0.000	0.000	%
Provided treatment efficiency (**Phosphorus**):	27.870	0.000	0.000	0.000	%
Remaining treatment efficiency (**Nitrogen**):	29.295	49.000	49.000	49.000	%
Remaining treatment efficiency (**Phosphorus**):	29.295	49.000	49.000	49.000	%
Remaining retention depth needed:	0.225	0.425	0.425	0.425	in



NOTE FOR TREATMENT EFFICIENCY GRAPH:

The purpose of this graph is to help illustrate the treatment efficiency of the retention system as the function of retention depth **for a single BMP and in a single catchment**. The graph illustrates that there is a diminished return as the retention depth is increased. Thus evaluations of other alternatives in "treatment trains" and compensatory treatment should be considered.

HELP - EXAMPLE PROBLEM 3



TYPICAL CROSS SECTION OF A "DRY" RETENTION SYSTEM

View Media Mixes

	Catchment 1	Catchment 2	Catchment 3	Catchment 4
If using media mix as a filter before water enters the ground, specify type				
Nitrogen mass reduction in groundwater discharge (%)				
Phosphorus mass reduction in groundwater discharge (%)				

Source of Graphic: draft **STORMWATER QUALITY APPLICANT'S HANDBOOK** dated March 2010, by the Department of Environmental Protection, available at: http://www.dep.state.fl.us/water/wetlands/erp/rules/stormwater, March 2010.

Net Improvement Calculations for WBID 1668A - Joe's Creek

(Basins 14, 15 and 16)

CATCHMENTS AND TREATMENT SUMMARY RESULTS					V7.3

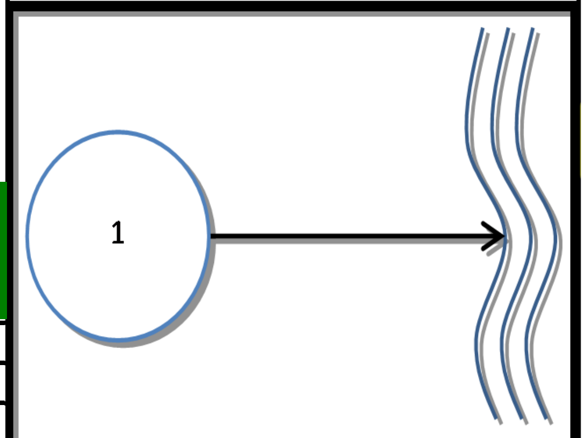
CALCULATION METHODS:

1. The effectiveness of each BMP in a single catchment is converted to an equivalent capture volume.
2. Certain BMP treatment train combinations have not been evaluated and in practice they are at this time not used, an example is a greenroof following a tree well.
3. If multiple BMPs are used in a single catchment and one of them is detention, then it is assumed to be last in series.

PROJECT TITLE	I-275 JOE'S CREEK	Optional Identification		
	Catchment 1:	Catchment 2:	Catchment 3:	Catchment 4:
BMP Name	Retention Basin			
BMP Name	Wet Detention			
BMP Name				

Summary Performance of Entire Watershed

Catchment Configuration	A - Single Catchment		6/20/2019
			BMPTRAINS MODEL
Nitrogen Pre Load (kg/yr)	239.09		
Phosphorus Pre Load (kg/yr)	32.07		
Nitrogen Post Load (kg/yr)	301.94		
Phosphorus Post Load (kg/yr)	40.50		
Target Load Reduction (N) %	49		
Target Load Reduction (P) %	49		
Target Discharge Load, N (kg/yr)	153.99		
Target Discharge Load, P (kg/yr)	20.66	Criteria Met	
Provided Overall Efficiency, N (%):	49		
Provided Overall Efficiency, P (%):	67		
Discharged Load, N (kg/yr & lb/yr):	153.89	338.95	
Discharged Load, P (kg/yr & lb/yr):	13.31	29.31	
Load Removed, N (kg/yr & lb/yr):	148.06	326.11	
Load Removed, P (kg/yr & lb/yr):	27.20	59.90	



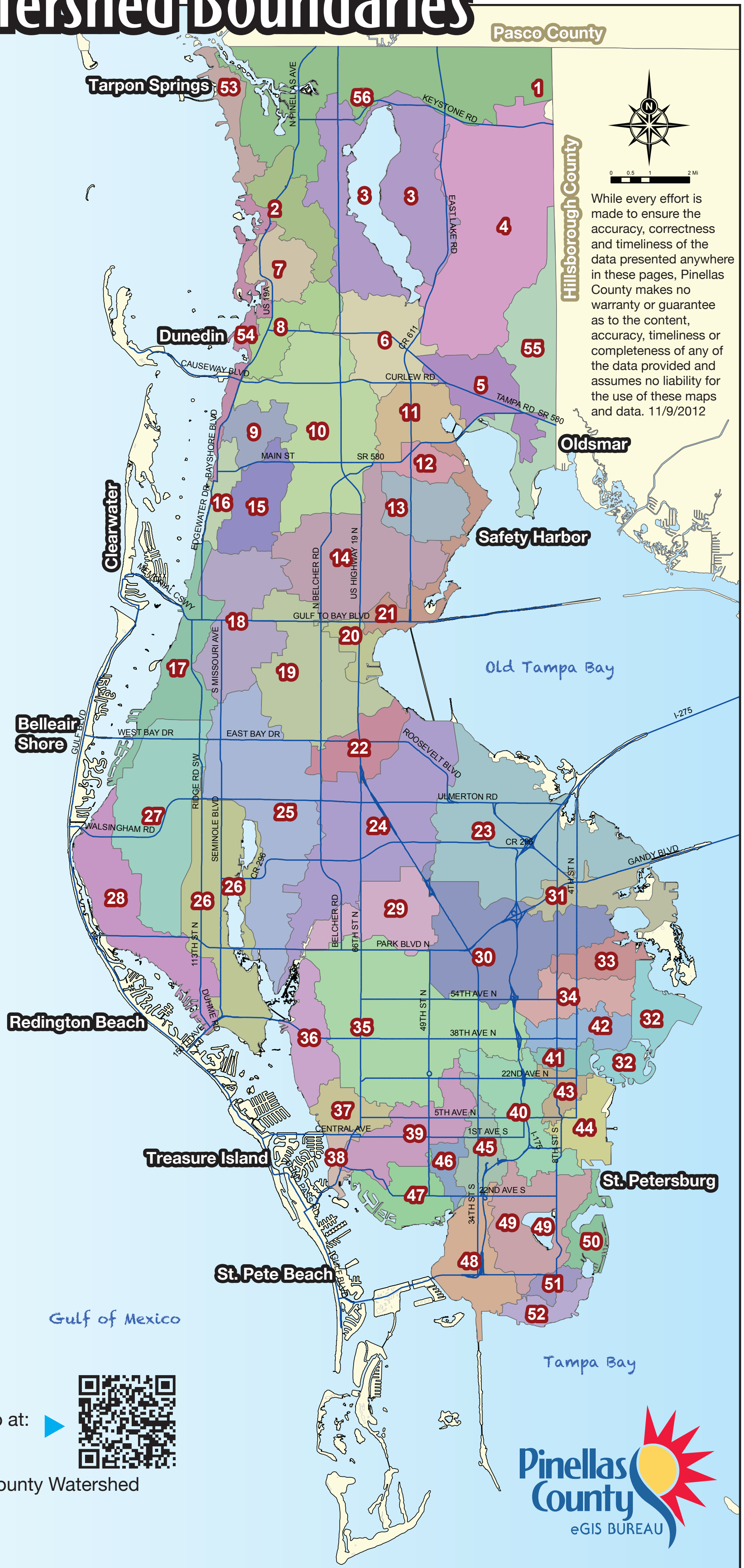
Available Pond Volume for Dry Pretreatment in Joe's Creek

Available Stage Storage						REMARKS
Elevation (ft)	Area (sf)	Area (ac)	Acu. Volume (cf)	Total Volume (cf)	Total Volume (ac-ft)	
57.0	17100.0	0.393	0.0	0.0	0.00	
60.0	29232.0	0.671	69498.0	69498.0	1.60	
61.0	33852.0	0.777	31542.0	101040.0	2.32	*Weir EL*
63.0	43956.0	1.009	77808.0	178848.0	4.11	

Appendix E.
Figures

Pinellas County Watershed Boundaries

1) Anclote River
2) Klosterman Bayou
3) Lake Tarpon
3) Lake Tarpon Basin
4) Brooker Creek
5) Oldsmar
6) South Creek
7) Sutherland Bayou
8) Smith Bayou
9) Cedar Creek
10) Curlew Creek
11) Possum Branch
12) Bishop Creek
13) Mullet Creek
14) Alligator Creek
15) Spring Branch
16) Coastal Zone 4
17) Coastal Zone 1
18) Stevensons Creek
19) Allen's Creek
20) Coastal Zone 2
21) Coastal Zone 3
22) Long Branch
23) Roosevelt
24) Cross Bayou
25) Starkey Road
26) Lake Seminole Basin
26) Lake Seminole
27) McKay Creek
28) Coastal Zone 5
29) Pinellas Park Ditch #1
30) Sawgrass Lake
31) Tinney Creek
32) NE St. Petersburg
33) 70th Ave North Canal
34) 54th Ave East Canal
35) Joe's Creek
36) Long Bayou
37) Pasadena Lake
38) SW St. Petersburg
39) Bear Creek
40) Booker Creek
41) North Coffee Pot Bayou
42) 45th Ave North East Canal
43) Coffee Pot Bayou
44) Albert Whitted
45) 34th Street
46) Clam Bayou
47) Gulfport
48) Frenchman's Creek
49) Lake Maggiore
49) Lake Maggiore / Salt Creek
50) Big Bayou
51) Little Bayou Creek
52) Pinellas Point
53) St. Joeseph Sound
54) Clearwater Harbor North
55) Hillsborough County
56) Salt Lake



For more information about watersheds view this video at:
http://youtu.be/dUIAANVBYHM

For more information about Pinellas County Watershed Management visit our website at:
www.pinellascounty.org/watershed

Pinellas County
eGIS BUREAU

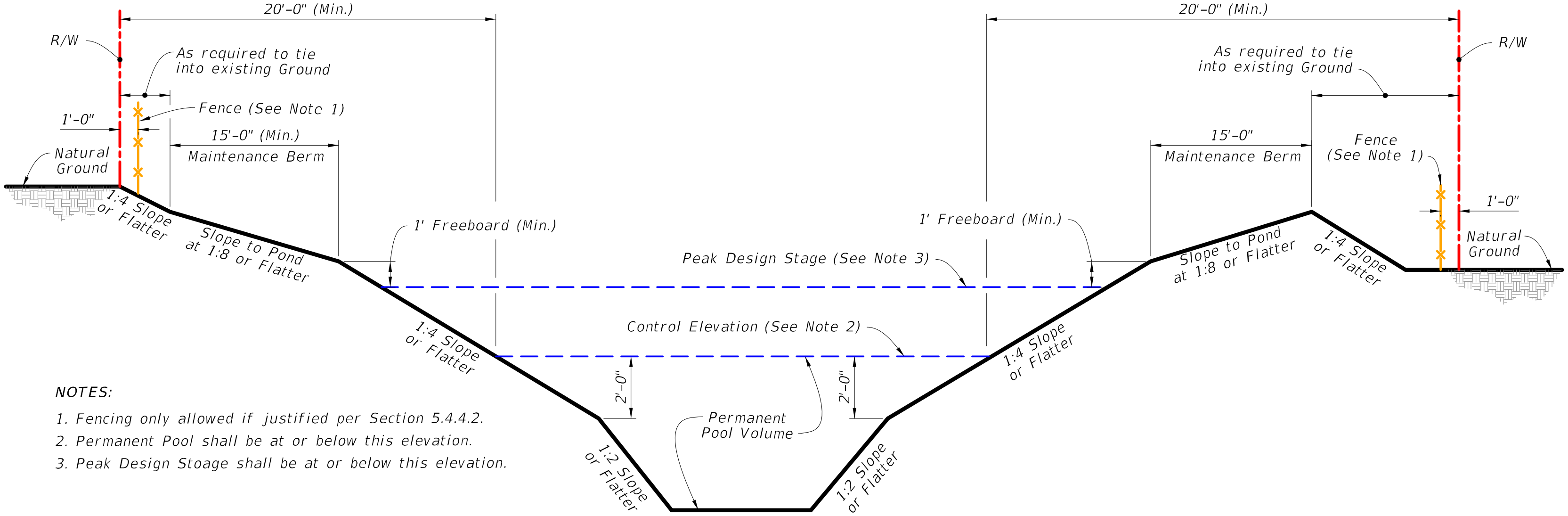


Figure 5-1: Minimum Clearance Retention-Detention Ponds

TABLE D-1

RAINFALL RATIOS (ACCUMULATED 24-HOUR TOTAL)

TIME (HR	SCS TYPE II FL. MODIFIED
0.0	.000
0.5	.006
1.0	.012
1.5	.019
2.0	.025
2.5	.032
3.0	.039
3.5	.047
4.0	.054
4.5	.062
5.0	.071
5.5	.080
6.0	.089
6.5	.099
7.0	.110
7.5	.122
8.0	.134
8.5	.148
9.0	.164
9.5	.181
10.0	.201
10.5	.226
11.0	.258
11.5	.308
12.0	.607
12.5	.719
13.0	.757
13.5	.785
14.0	.807
14.5	.826
15.0	.842
15.5	.857
16.0	.870
16.5	.882
17.0	.893
17.5	.904
18.0	.913
18.5	.923
19.0	.931
19.5	.940
20.0	.948
20.5	.955
21.0	.962
21.5	.969
22.0	.976
22.5	.983
23.0	.989
23.5	.995
24.0	1.000

Table B-7: SCS Runoff Curve Numbers – Agricultural, Suburban, and Urban Land

Land Use Description		Hydrologic Soil Group A	B	C	D
Cultivated Land[a]:					
Without conservation treatment		72	81	88	91
With conservation treatment		62	71	78	81
Pasture or range land:					
Poor condition		68	79	86	89
Good condition		39	61	74	80
Meadow: good condition		30	58	71	78
Wood or Forest Land:					
Thin stand, poor cover, no mulch		45	66	77	83
Good cover [b]		25	55	70	77
Open Spaces, Lawns, Parks, Golf Courses, Cemeteries:					
Good condition: grass cover on 75% or more of the area		39	61	74	80
Fair condition: grass cover on 50% to 75% of the area		49	69	79	84
Poor condition: grass cover on 50% or less of the area		68	79	86	89
Commercial and Business Areas (85% impervious)		89	92	94	95
Industrial Districts (72% impervious)		81	88	91	93
Residential [c]					
Average lot size	Average % Impervious [d]				
1/8 acre or less	65	77	85	90	92
1/4 acre	38	61	75	83	87
1/3 acre	30	57	72	81	86
1/2 acre	25	54	70	80	85
1 acre	20	51	68	79	84
Paved Parking Lots, Roofs, Driveways [e]:		98	98	98	98
Streets and Roads:					
Paved with curbs and storm sewers [e]		98	98	98	98
Gravel		76	85	89	91
Dirt		72	82	87	89
Paved with open ditches		83	89	92	93
Newly graded area (no vegetation established)[f]		77	86	91	94

[a] For a more detailed description of agricultural land use curve numbers, refer to Table B-8. .
[b] Good cover is protected from grazing and litter and brush cover soil.
[c] Curve numbers are computed assuming the runoff from the house and driveway is directed toward the street with a minimum of roof water directed to lawns where additional infiltration could occur, which depends on the depth and degree of the permeability of the underlying strata.
[d] The remaining pervious areas (lawn) are considered to be in good pasture condition for these curve numbers.
[e] In some warmer climates of the country, a curve number of 96 may be used.
[f] Use for temporary conditions during grading and construction.
Note: These values are for Antecedent Moisture Condition II, and $I_a = 0.2S$.
Reference: USDA, SCS, TR-55 (1984).

Appendix F. Correspondence

RESPONSES TO COMMENTS FROM TBN PD&E POND SITING MEETING

Date: November 2018
Project: I-275 (TBN Section 2)
Reviewer: Christina Jackson

Financial Project ID: 424501-1
Responses By: Tracy Ellison

Basin No.	Comment	Response
11	11C appears as the preferred site (suggested by the City, does not impact residential or commercial, might not be considered a park (4f))	Concur.
12	All 3 alternatives appear to impact multiple residential/commercial properties. Could we find an alternative that doesn't? Can we consider vaults underneath the road as a "within ROW" alternative?	The Basin 12 sites are based on suggestions from the City of St. Pete. Basin 12 is heavily developed and avoiding residential or commercial impacts may not be possible. Per the Pinellas County Soil Survey, the depth to the seasonal high water table in this area is 0.5-1.5 feet, which makes utilization of underground vaults or other alternative treatment options impractical. Additionally, FHWA may have an issue with placing vaults under interstate pavement.
13	All 3 alternatives appear to impact multiple residential/commercial properties. Could we find an alternative that doesn't? Can we consider vaults underneath the road as a "within ROW" alternative?	The Basin 13 locations are based on suggestions from the City of St. Pete. Basin 13 is heavily developed and avoiding residential or commercial impacts may not be possible. Per the Pinellas County Soil Survey, the depth to the seasonal high water table in this area is 0.5-1.5 feet, which makes utilization of underground vaults or other alternative treatment options impractical. Additionally, FHWA may have an issue with placing vaults under interstate pavement.

RESPONSES TO COMMENTS FROM TBN PD&E POND SITING MEETING

Date: November 2018
Project: I-275 (TBN Section 2)
Reviewer: Christina Jackson

Financial Project ID: 424501-1
Responses By: Tracy Ellison

Basin No.	Comment	Response
14	All 3 alternatives appear to impact multiple residential properties. Could we find an alternative that doesn't? Was the median area evaluated for pond alternatives (using the new impervious area only)? Can we consider vaults underneath the road as a "within ROW" alternative? Also, this basin appears to drain to Joe's Creek which has 3 water quality projects that FDOT could potentially partner with and obtain water quality credits for. Attenuation could potentially be provided within the median area.	The Basin 14 locations are based on suggestions from the City of St. Pete. Basin 14 is heavily developed and avoiding residential or commercial impacts may not be possible. We will evaluate the median as a pond alternative using the new impervious area only. Per the Pinellas County Soil Survey, the depth to the seasonal high water table in this area is 0.5-1.5 feet, which makes utilization of underground vaults or other alternative treatment options impractical. Additionally, FHWA may have an issue with placing vaults under interstate pavement or allowing attenuation in the median.
15	All 3 alternatives appear to impact multiple residential properties. Could we find an alternative that doesn't? Was the median area evaluated for pond alternatives (using the new impervious area only)? Can we consider vaults underneath the road as a "within ROW" alternative? Also, this basin appears to drain to Joe's Creek which has 3 water quality projects that FDOT could potentially partner with and obtain water quality credits for. Attenuation could potentially be provided within the median area.	The Basin 15 locations are based on suggestions from the City of St. Pete. Basin 15 is heavily developed and avoiding residential or commercial impacts may not be possible. Per the Pinellas County Soil Survey, the depth to the seasonal high water table in this area is 0.5-1.5 feet, which makes utilization of underground vaults or other alternative treatment options impractical. Additionally, FHWA may have an issue with placing vaults under interstate pavement or allowing attenuation in the median.

RESPONSES TO COMMENTS FROM TBN PD&E POND SITING MEETING

Project: I-275 (TBN Section 2) Financial Project ID: 424501-1
Reviewer: Christina Jackson Responses By: Tracy Ellison

Basin No.	Comment	Response
16	All 3 alternatives appear to impact multiple residential properties. Could we find an alternative that doesn't? Was the median area evaluated for pond alternatives (using the new impervious area only)? Can we consider vaults underneath the road as a "within ROW" alternative? Also, this basin appears to drain to Joe's Creek which has 3 water quality projects that FDOT could potentially partner with and obtain water quality credits for. Attenuation could potentially be provided within the median area.	The Basin 16 locations are based on suggestions from the City of St. Pete. Basin 16 is heavily developed and avoiding residential or commercial impacts may not be possible. Per the Pinellas County Soil Survey, the depth to the seasonal high water table in this area is 2.0-3.0 feet, which makes utilization of underground vaults or other alternative treatment options impractical. Additionally, FHWA may have an issue with placing vaults under interstate pavement or allowing attenuation in the median.
17	17A appears as the preferred site since it is all within the ROW.	Concur. This pond alternative will be sized for the new impervious area only.
18	18A appears to be within Sawgrass Lake (owned by SWFWMD) and will require further coordination with SWFWMD regarding options for expanding. 18B appears to be within school property and will require further coordination with the County regarding options for expanding. 18C appears as the least desirable as it would impact residential property.	Concur.
19	Please verify if an alternative within the infield areas can be provided and if so please site/label just like Alt. 17A.	The pond alternative for Basin 19 will be shown within the infield area of the interchange.

RESPONSES TO COMMENTS FROM TBN PD&E POND SITING MEETING

Date: November 2018
Project: I-275 (TBN Section 2)
Reviewer: Christina Jackson

Financial Project ID: 424501-1
Responses By: Tracy Ellison

Basin No.	Comment	Response
20	All alternatives appear to impact commercial properties. Please consider verifying if the small vacant FDOT parcel adjacent to the City Regional pond could provide treatment and attenuation for the new impervious area only.	A pond site providing treatment and attenuation for only the new impervious in Basin 20 would require at least 1.5 acres depending on site conditions. We could not locate the small vacant FDOT parcel adjacent to the City Regional pond to evaluate its size/suitability.

RESPONSES TO PRELIMINARY TBN SECTION 2 POND SITE CALCULATIONS COMMENTS

Date: December 2018
Project: TB Next Section 2
Reviewer: Cristina Jackson, PE - GEC

Financial Project ID: 424501-1-22-01
Responses By: Tracy Ellison, PE – Lochner

Comment No.	Comment	Response
1	Please verify whether any of the existing basins discharge to Impaired Water Bodies (i.e. Joe's Creek) which will require nutrient loading analysis. If so, please provide calculations to verify that the proposed wet detention ponds will not require an additional pre-treatment.	Basins 14, 15 and 16 discharge to Joe's Creek and will be required to meet pre/post pollutant loading. The wet detention ponds in these basins will provide water quality treatment benefits but will not be sufficient to meet TMDL requirements alone. A 1.0-acre dry retention pretreatment area will be required to supplement the wet detention ponds to meet the required nutrient removal efficiencies. The dry retention area will be located in the median of Basin 15, in series with the downstream wet pond. This dry pretreatment area will meet the required nutrient removal efficiencies for all three basins. This dry retention area will be added to the Basin 14 & 15 Pond Site Alternatives Map for clarity. Calculations are included as Attachment #1 to these responses.

RESPONSES TO PRELIMINARY TBN SECTION 2 POND SITE CALCULATIONS COMMENTS

Date: December 2018
Project: TB Next Section 2
Reviewer: Cristina Jackson, PE - GEC

Financial Project ID: 424501-1-22-01
Responses By: Tracy Ellison, PE – Lochner

Comment No.	Comment	Response
2	Please verify the approach to the pond sizing calculations. The stage-storage calculations for the evaluated pond site alternatives indicate the same elevation for the top and bottom of the maintenance berm (indicating flat maintenance berms) however, the typical pond section graphics indicate top of the maintenance is two feet higher than the bottom of the maintenance berm (20-foot maintenance berm at 1:10 slope). a. If the intent is to maintain a 1:10 slope, please revise the top of the maintenance berm elevation, tie down distances and overall footprints of the pond site alternatives as these would likely be increased. b. If the intent is to maintain a flat berm, please revise the typical pond section graphic to show the flat berm.	The intent is to maintain a flat berm. The typical pond section graphic included in the calculations will be revised to show a flat berm.
3	Please verify that the pond sizing assumptions (square pond sites) is appropriate for all situations. For example, pond site alternative 2B has a long and narrow rectangular shape. It appears that in a situation like this, most of the pond site footprint may need to be devoted to typical maintenance berm rather than the stormwater volume.	A contingency factor (10%) has been included for all of the pond sizes. This is to account for the preliminary nature of the information available at this phase, such as geotechnical information, survey and final pond configuration. We will evaluate long, narrow ponds to ensure that this contingency is appropriate and adjust if necessary. This approach will apply to 2B, 11B, 12A and 16A.

RESPONSES TO PRELIMINARY TBN SECTION 2 POND SITE CALCULATIONS COMMENTS

Date: December 2018
Project: TB Next Section 2
Reviewer: Cristina Jackson, PE - GEC

Financial Project ID: 424501-1-22-01
Responses By: Tracy Ellison, PE – Lochner

Comment No.	Comment	Response
4	Please verify that a Curve Number of 80 is an appropriate assumption for all existing pervious areas.	The intent was to base the curve number on the majority soil type within each basin. • The majority soil type in Basins 2, 7, 11-16, and 18 are Myakka which is within HSG D and assigned a CN of 80. • The majority soil type in Basin 17 is Astatula which is within HSG C and assigned a curve number of 74. *The curve number for all pervious areas within Basin 17 will be revised to 74.* Revised calculations are included in Attachment #2 to these responses. • The majority soil type in Basins 19 and 20 is Pineda which is within HSG D and assigned a CN of 80.
5	It appears the pond sizing calculations are missing calculations for alternative 15C.	We apologize for the omission. Pond sizing calculations for alternative 15C are included in Attachment #2 to these responses.
6	The pond sizing calculations for alternative 18C start the initial stage at elevation 0.0. Please verify this assumption. Please consider starting the initial stage at the tidal tailwater elevation (i.e. MHW).	Assume comment is in reference to alternative 18B (there is no pond alternative 18C). The calculations have been revised to show the pond bottom (initial stage) at MHW and are included in Attachment #2 to these responses.
7	Please verify if any of the proposed pond sites require inflow/outfall easements (i.e. 11A, 16A)? If so, please consider showing in the graphics.	Easements will be added/shown on the Pond Site Alternative Maps for alternatives 11A, 16A and 16B.

Applicability of the Old Tampa Bay Water Quality Credits to Tampa Bay Next

Date: April 9, 2019
Location: D7 Headquarters, Executive Room
11201 N. McKinley Drive
Tampa, FL 33612
Attendees: See Sign-In Sheet

Meeting Notes:

- The purpose of the meeting was to confirm applicability of the Old Tampa Bay (OTB) water quality credits to Tampa Bay Next (TBN) program.
- Dave Kramer (Dave) gave a brief overview of the OTB water quality improvement permit
  - The project original intent was to provide net benefit.
  - OTB is a performance-based project. 20% of the credit recently released is based on tidal flux improvement. The remaining credit will be released once the project results meet specified goals. Monitoring to be performed over the next 2 years.
  - The initial discussions with FDOT regarding utilizing the project's water quality credits were for projects such as the Howard Frankland bridge replacement (Section 3), I-275/SR 60 interchange (Section 4) and Gateway that are within the immediate vicinity of Tampa Bay.
  - Due to the innovative permitting approach, the permit requires SWFWMD to review the use of the credits on a "case by case" basis and ultimately requires a proof of no adverse water quality impact.
  - The biggest obstacle in utilizing credits is demonstrating no local water quality impacts. Previous discussions assumed that to be conservative, projects would provide local presumptive treatment and use OTB to supplement net improvement requirements.
  - The use of the OTB water quality credits is tracked at the District in a ledger maintained under the OTB ERP permit. The permit must be modified (short form modification) every time the credit is utilized for a project. FDOT has internal tracking system as well.

- Q&A
  - The OTB permit contained a water quality credit applicability boundary exhibit. Is the purpose of this exhibit to define the limits of where the water quality credits from the OTB can be applied to an FDOT project?

    The exhibit was provided during the application process by the Consultant and appears to reflect Tampa Bay and Coastal Areas watershed boundary. In general, the water quality credit would be applicable to FDOT projects located within these boundaries. However, concerns arise when the project which is to utilize credits discharges to other water bodies/WBIDs prior to discharging to the Bay. In that situation, reasonable assurance needs to be provided to the District that local water quality impacts will not occur.

  - Could the OTB credits be utilized to eliminate the need for presumptive stormwater treatment for any section of TBN within the OTB water quality credit applicability boundary if the project provides an onsite form of BMP (i.e. roadway ditches, attenuations ponds, etc.)?

    The District can apply criteria flexibility and may accept BMPs that do not meet presumptive criteria. However, reasonable assurance needs to be provided to the District that local water quality impacts will not occur. Wet pond permanent pool or linear dry ponds designed for attenuation could be accepted as BMPs in combination with the credits. FDOT may consider utilizing BMPTRAINS or other means to prove that BMPs sized for less than presumptive treatment will provide enough local benefit to provide reasonable assurance to the District that local water quality impacts will not occur.

- TBN Section 3 was recently permitted using water quality credits from OTB without an onsite form of BMP. TBN Section 3 directly discharges to Old Tampa Bay and therefore is not required to provide attenuation. Under what conditions can this approach be utilized (i.e. rely on the OTB credits without providing any other form of formal or informal stormwater treatment)? Looking at an aerial exhibit of Tampa Bay it seems that TBN Section 4 could follow the same approach due to the proximity to the Bay. Would the District agree to this approach to minimize hardships such as right of way acquisition, construction considerations, maintenance access, etc.?

  Yes for Section 4. Also, some portions of Section 2 appear to be located close enough to the Bay to completely rely on the credit as well. In these situations, at least sediment and trash control BMPs should be considered. The District recommends scheduling pre-application meetings prior to design to discuss and agree on appropriate levels of water quality treatment.

- Could the OTB credits be utilized to eliminate the need for presumptive stormwater treatment for any section of TBN outside of the OTB water quality credit applicability boundary if the project provides an onsite form of BMP (i.e. roadway ditches, attenuations ponds, etc.)?

  The EOR would need to address the local WBIDs assessment/impairment and prove no local water quality impact.

- If needed, could the OTB credits supplement the net improvement needs (when exceeding the minimum presumptive requirements) for any Section of TBN that is outside of the permitted credit applicability boundary?

  Yes, if the net improvement requirement is specific to Tampa Bay.

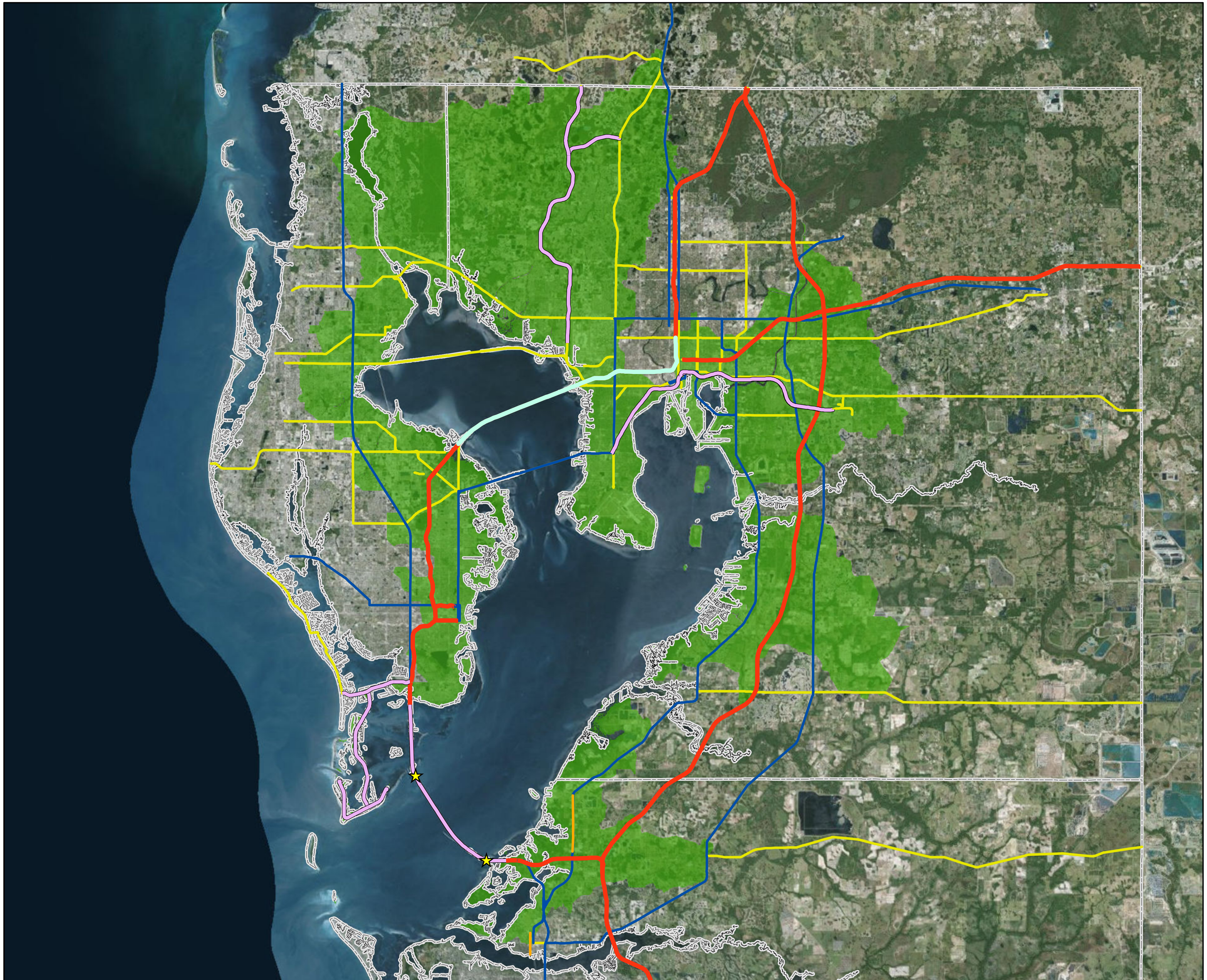
- Could the OTB credits be used to retrofit existing FDOT ponds with permitted presumptive stormwater treatment capacity to maximize pond's attenuation volume and to minimize additional right of way needs?

  Yes. It is up to the EOR to demonstrate no adverse impacts. It was also mentioned during the meeting that there is a possibility that some privately owned ponds within Section 4 could be impacted. The credits could be utilized to offset these impacts as well. Also, existing FDOT ponds that have been designed for the proposed conditions prior to net improvement (nutrient loading control) requirements do not need to address net improvement as along as the proposed activity remains within the previously permitted parameters.

- Can the OTB credits be used to offset stormwater treatment needs for potential Bus on Shoulder (BOS) operations within all TBN Sections?

  Yes, the OTB credits can be used to completely satisfy stormwater treatment for BOS operations on all Sections of TBN. The District is OK with that approach since there is already existing pavement with minimal improvement. FDOT inquired if it could provide BOS without credits/treatment. The District indicated it is up to EOR to show no adverse water quality impact if not using the credits. BOS is not considered an exempt activity and water quality must be addressed.

Section 2
Section 3
Section 4
Section 5
Section 6
Section 7
Section 8
Section 9
Section 10
N
1 in = 1 miles
TAMPA BAY AND COASTAL AREAS
HILLSBOROUGH RIVER BASIN
OLD TAMPA BAY W. Q. IMPROV. PRJ.
TAMPA BAY AND COASTAL AREAS
UPPER COASTAL AREAS
ALAFIA RIVER BASIN
TAMPA BAY AND COASTAL AREAS
LITTLE MANATEE RIVER BASIN
275
4
75



ROADS WITHIN TAMPA BAY & COASTAL AREAS ERP

Interstates		
I-4	I-175	I-375
I-75	I-275	

US Roads		
US-19	US-41	US-301
US-19A	US-41B	US-92

Toll Roads	
Veterans Expressway	Selmon Expressway
Suncoast Parkway	Pinellas Bayway
Skyway Bridge	CR-679

State Roads		
SR-41	SR-574	SR-618A
SR-43	SR-580	SR-628
SR-45	SR-595	SR-651
SR-54	SR-597	SR-678
SR-55	SR-599	SR-679
SR-60	SR-600	SR-682
SR-62	SR-616	SR-685
SR-93	SR-582	SR-686
SR-93A	SR-583	SR-687
SR-400	SR-584	SR-688
SR-568	SR-585	SR-693
SR-569	SR-586	SR-694
SR-592	SR-589	SR-699
SR-594	SR-590	
SR-573	SR-618	

Skyway Bridge Rest Areas
Interstates
US Roads
Toll Roads
State Roads
Addiional Projects of Interest
TBX
Tampa Bay & Coastal Areas ERP
County Boundaries

N

0 5 10
Miles

FDOT

Applicability of the Old Tampa Bay Water Quality Credits to Tampa Bay Next

Date: April 9, 2019
Location: D7 Headquarters, Executive Room
11201 N. McKinley Drive
Tampa, FL 33612

Attendee	Representing	Telephone	E-mail
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FDOT

TAMPA BAY NEXT
THE FUTURE OF TRANSPORTATION

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Appendix G.
Preliminary Cultural Resource Assessment Probability Analysis Technical Memorandum

PRELIMINARY CULTURAL RESOURCE ASSESSMENT
PROBABILITY ANALYSIS
TECHNICAL MEMORANDUM

PROPOSED POND SITE ALTERNATIVES
I-275/SR 93
FROM SOUTH OF 54TH AVENUE SOUTH TO
NORTH OF 4TH STREET NORTH
PINELLAS COUNTY, FLORIDA

Financial Project ID No.: 424501-1

Florida Department of Transportation
District Seven
11201 North McKinley Drive
Tampa, Florida 33612-6456

January 2019

PRELIMINARY CULTURAL RESOURCE ASSESSMENT PROBABILITY ANALYSIS TECHNICAL MEMORANDUM

PROPOSED POND SITE ALTERNATIVES
I-275/SR 93
FROM SOUTH OF 54TH AVENUE SOUTH TO NORTH OF 4TH STREET NORTH
PINELLAS COUNTY, FLORIDA

Financial Project ID No.: 424501-1

Prepared for:

Florida Department of Transportation
District Seven
11201 North McKinley Drive
Tampa, Florida 33612-6456

Prepared by:

Archaeological Consultants, Inc.
8110 Blaikie Court, Suite A
Sarasota, Florida 34240

In association with:

HDR
4830 W. Kennedy Boulevard, Suite 400
Tampa, Florida 33609

January 2019

PRELIMINARY CULTURAL RESOURCE ASSESSMENT
PROBABILITY ANALYSIS
TECHNICAL MEMORANDUM
PROPOSED POND SITE ALTERNATIVES
I-275/SR 93 FROM SOUTH OF 54TH AVENUE SOUTH TO
NORTH OF 4TH STREET NORTH
PINELLAS COUNTY, FLORIDA
Financial Project ID No.: 424501-1

1.0 INTRODUCTION

The purpose of this study was to determine, preliminarily, if any significant or potentially significant cultural resources, including archaeological sites and historic resources, will be impacted by the construction of a total 25 proposed pond site alternatives (hereinafter referred to as ponds) associated with improvements to I-275/SR 93 from south of 54th Avenue South to north of 4th Street North, Pinellas County (**Figure 1**). Known or potentially significant cultural resources are defined as those sites that are listed, determined eligible, or considered potentially eligible for listing in the National Register of Historic Places (NRHP). All work was conducted in compliance with the provisions of the *National Historic Preservation Act of 1966* (Public Law 89-665), as amended, and the implementing regulations 36 CFR 800, as well as with the provisions contained in the revised Chapter 267, *Florida Statutes* (*FS*).

The study methodology included a review of Florida Master Site File (FMSF) records, NRHP listings, relevant cultural resource assessment survey (CRAS) reports, the U.S. Department of Agriculture's (USDA) *Soil Survey of Pinellas County, Florida* (USDA 1972), as well as the United States Geological Survey (USGS) Pass-A-Grille, Safety Harbor, and St. Petersburg quadrangle maps (USGS 1956a, 1956b, 1956c). Relevant CRAS reports included the Project Development and Environment (PD&E) Study for I-275/SR 93 from south of 54th Avenue South to north of 4th Street North (Archaeological Consultants, Inc. [ACI] 2015), including additional FDOT projects, those conducted for private developers, cell towers, and several historic resources surveys.

As a result of the preliminary study, one previously recorded archaeological site is recorded within two of the proposed pond sites (18A and 18B). The lithic scatter type site (8PI01212) has not been evaluated by the State Historic Preservation Officer (SHPO) but the recorders did not consider it significant. Background research indicated that 49 historic resources were previously recorded within or immediately adjacent to twelve of the proposed pond sites (**Table 2; Figures 2-5**). Of these, the Kenwood Historic District (8PI11176) and 21 contributing resources to the historic district are located within or adjacent to proposed pond sites 11A and 11B. The Kenwood Historic District (8PI11176) was listed in the NRHP in 2003 and the building at 2105 7th Avenue North (8PI07410) is considered NRHP-eligible as a contributing resource to the Kenwood Historic District, both are located with pond 11A. Pond 11B is adjacent to the Kenwood Historic District except for 2118 9th Avenue (8PI7588), located within a portion of Pond 11b and is considered a contributing resource but has not been evaluated by the SHPO. Background research also included a review of the Pinellas County Property Appraisers website, which indicated the potential for 45historic buildings (50 years of age or older) within or immediately adjacent to 11of the proposed pond sites (Twitty 2019). This information is summarized in **Table 2**.

Figure 1. Location of the proposed pond sites, Pinellas County.

As a result of the preliminary probability pond analysis, proposed pond sites 11A and 11B should be avoided or taken into consideration for this project. Following the selection of preferred pond sites, systematic archaeological field survey is recommended; historical/architectural field survey is also recommended.

2.0 BACKGROUND RESEARCH, DESCRIPTION OF KNOWN ARCHAEOLOGICAL AND HISTORIC RESOURCES AND SITE POTENTIAL

Between 1978 and 2012, several archaeological and historical/architectural surveys were conducted within 500 feet of the I-275 project corridor. These include a number of historic structures surveys focused on neighborhoods or defined geographical areas such as the City of St. Petersburg (City of St. Petersburg Community Development 1981); Pinellas Park (Pinellas Park Planning Division 1993); Kenwood (Kitchen 1995); Crescent Heights and Crescent Lake (Stevenson Architects, Inc. 1996); the 22nd Street Corridor (Stevenson Architects, Inc. 2000); and the Dome Industrial Park Redevelopment Area (The Urban Group, Inc. 2008). Other surveys were carried out as part of FDOT projects along SR 686 (Browning 1988), SR 688 (Jackson 1991), SR 694 (Janus Research 1995; ACI 2002, 2012a), and the northbound Howard Frankland Bridge (I-275/SR 93) (ACI 2012b), as well as for private development (Janus Research 2001), for proposed cellular tower sites (Spriggs 2002; Ambrosino 2003), and during countywide surveys (New South Associates 2008; Pinellas County Planning Department 1995, 2008; Williams 1974), City of St. Petersburg-sponsored archaeological studies (Piper Archaeological Research and ACI 1978; Piper Archaeological Research 1987, 1991), among others.

Archaeological Sites: The FMSF search (January 2019) indicated that 15 previously recorded archaeological sites are located within one mile of the proposed pond sites (**Table 1**). Most of the sites consists of lithic scatter type sites and none has been evaluated by the SHPO. One of the sites, 8PI01212, is located within two of the proposed pond sites, 18A and 18B. It has not been evaluated by the SHPO but the recorders did not consider it eligible.

Based upon the results of previous archaeological surveys in the vicinity, an understanding of known patterns of aboriginal settlement in the general region, as well as an examination of the USGS quadrangle maps (USGS 1956a, 1956b, 1956c) and the USDA soil survey for Pinellas County (USDA 1972), each of the proposed pond sites were evaluated for archaeological site potential. Each was reviewed and assigned to either a low or moderate potential; there were no high potential areas (**Table 2**).

Many environmental factors had a direct influence upon site location selection. Among these variables are soil drainage, distance to freshwater, relative topography, and proximity to food and other resources including stone and clay. On the basis of the aforementioned projects, it has been repeatedly demonstrated that archaeological sites are most often located near permanent or semi-permanent sources of water. In addition, prehistoric sites are found, more often than not, on better drained soils, and at the better drained margins of wetland features such as swamps, sinkholes, wet prairies, lakes and ponds. In areas characterized by poorly drained soils, sites tend to be located in areas of slightly higher elevation.

Table 1. Previously recorded archaeological sites located within one half mile of the proposed pond sites.

SITE #	SITE NAME	SITE TYPE	CULTURE	SHPO EVAL.
8PI00229	Hart Creek	Lithic Scatter	Archaic, unspecified	Not Evaluated
8PI00742	No Name (NN)	Historic Refuse	Historic, unspecified	Not Evaluated
8PI00901	Sawgrass Lake #1	Lithic scatter	Archaic, unspecified	Not Evaluated
8PI00902	Sawgrass Lake #2	Artifact Scatter	Archaic, unspecified	Not Evaluated
8PI01192	New Publix	Lithic Scatter, Shell Midden	Prehistoric, unspecified	Not Evaluated
8PI01194	Village Green	Lithic Scatter	Archaic, unspecified	Not Evaluated
8PI01197	Broadwaters	Lithic Scatter	Early-Middle Archaic	Not Evaluated
8PI01198	Whitehall Gardens	Shell Midden	Prehistoric, unspecified	Not Evaluated
8PI01201	Maximo Moorings	Lithic scatter	Archaic, unspecified	Not Evaluated
8PI01212	Turner's Creek	Lithic scatter	Archaic, unspecified	Not Evaluated
8PI01214	Glen Lake	Lithic scatter	Transitional	Not Evaluated
8PI01215	Evensen	Lithic Scatter	Paleo-Early Archaic	Not Evaluated
8PI01237	Edward White Hospital	Lithic Scatter	Middle Archaic	Not Evaluated
8PI01253	Emerson Ave. Mound	Mound	Prehistoric, unspecified	Not Evaluated
8PI01258	Gandy Exit	Lithic scatter	Archaic, unspecified	Not Evaluated

Historic Resources: In 2015, ACI conducted a CRAS of this segment of I-275 which resulted in recording and updating 325 historic resources. This total includes 309 buildings, 13 building complex resource groups, one historic district, one railroad, and one cemetery. In addition to this report, the Kenwood Historic District (8PI11176) nomination form was reviewed. Based on the results of these reports, 49 historic resources were previously recorded within or immediately adjacent to twelve of the proposed pond sites (**Table 2; Figures 2-5**). The Kenwood Historic District (8PI11176) was listed in the NRHP in 2003 and contains 21 contributing resources that are located within or adjacent to proposed pond sites 11A and 11B. Of these, 20 have not been evaluated by the SHPO. Contributing resource, 2105 7th Avenue North (8PI07410) was considered NRHP-eligible in 2015 and is located in pond 11A. Pond 11B is adjacent to the Kenwood Historic District except for 2118 9th Avenue (8PI7588), located within a portion of Pond 11B and considered a contributing resource but has not been evaluated by SHPO. In addition, the Orange Belt Railway is located adjacent to pond 12A and was determined to have insufficient information by the SHPO in 2015.

Background research also included a review of the Pinellas County Property Appraisers website, which indicated the potential for 45 historic buildings (50 years of age or older) within or immediately adjacent to 11 of the proposed pond sites (Twitty 2019). This information is summarized in **Table 2**.

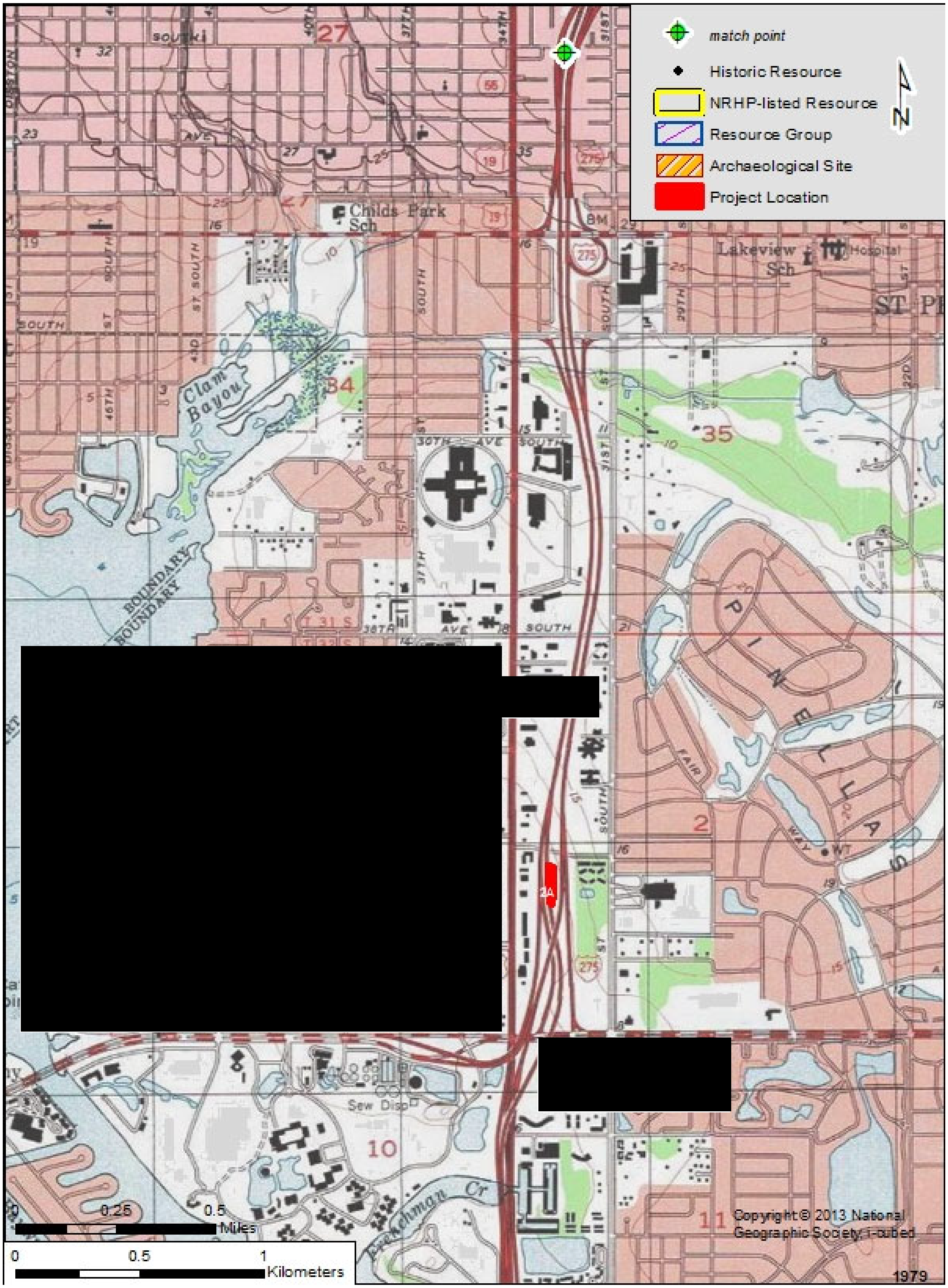

Figure 2. Previously recorded cultural resources within or in close proximity to the proposed pond sites.

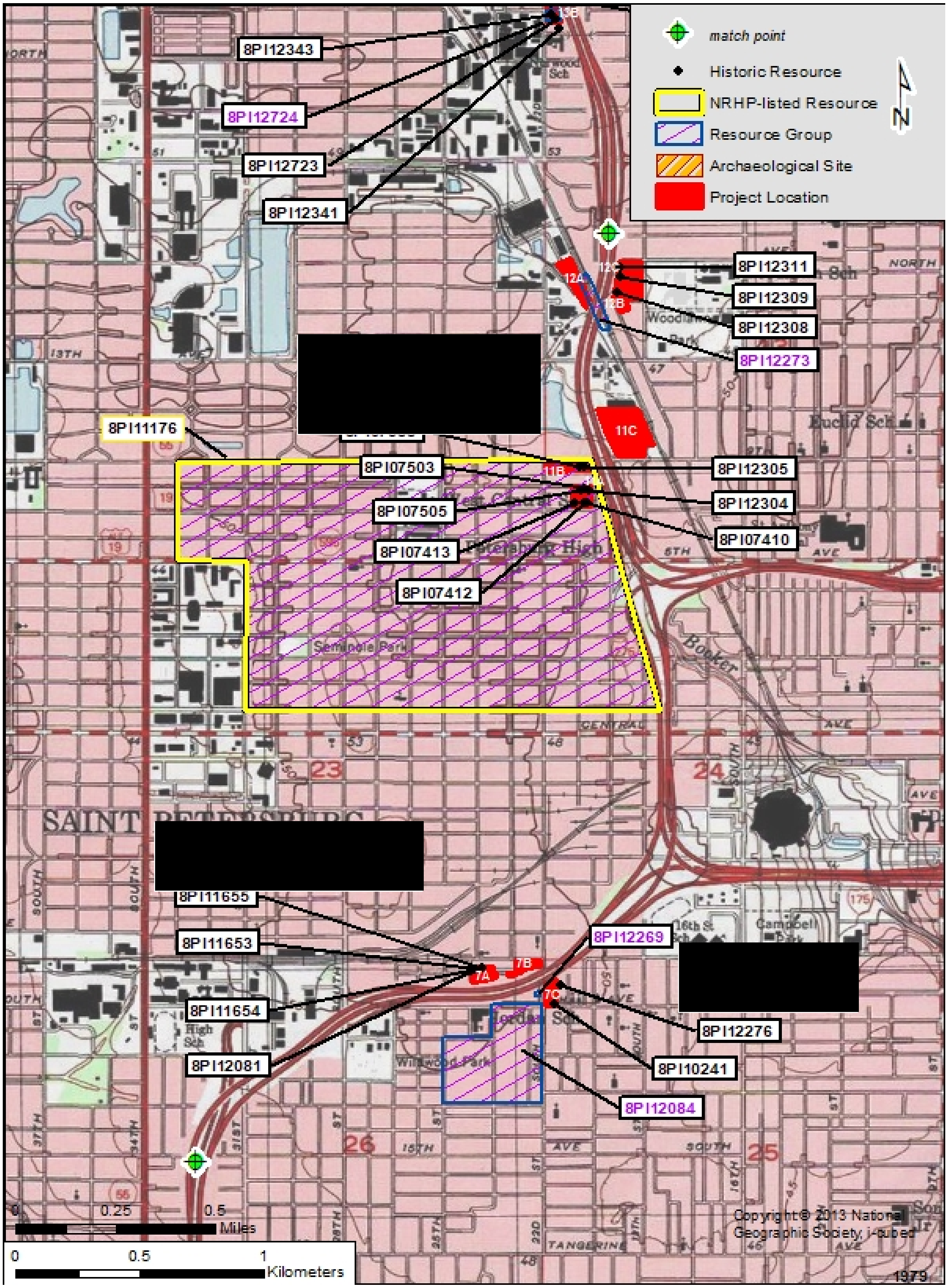

Figure 3. Previously recorded cultural resources within or in close proximity to the proposed pond sites.

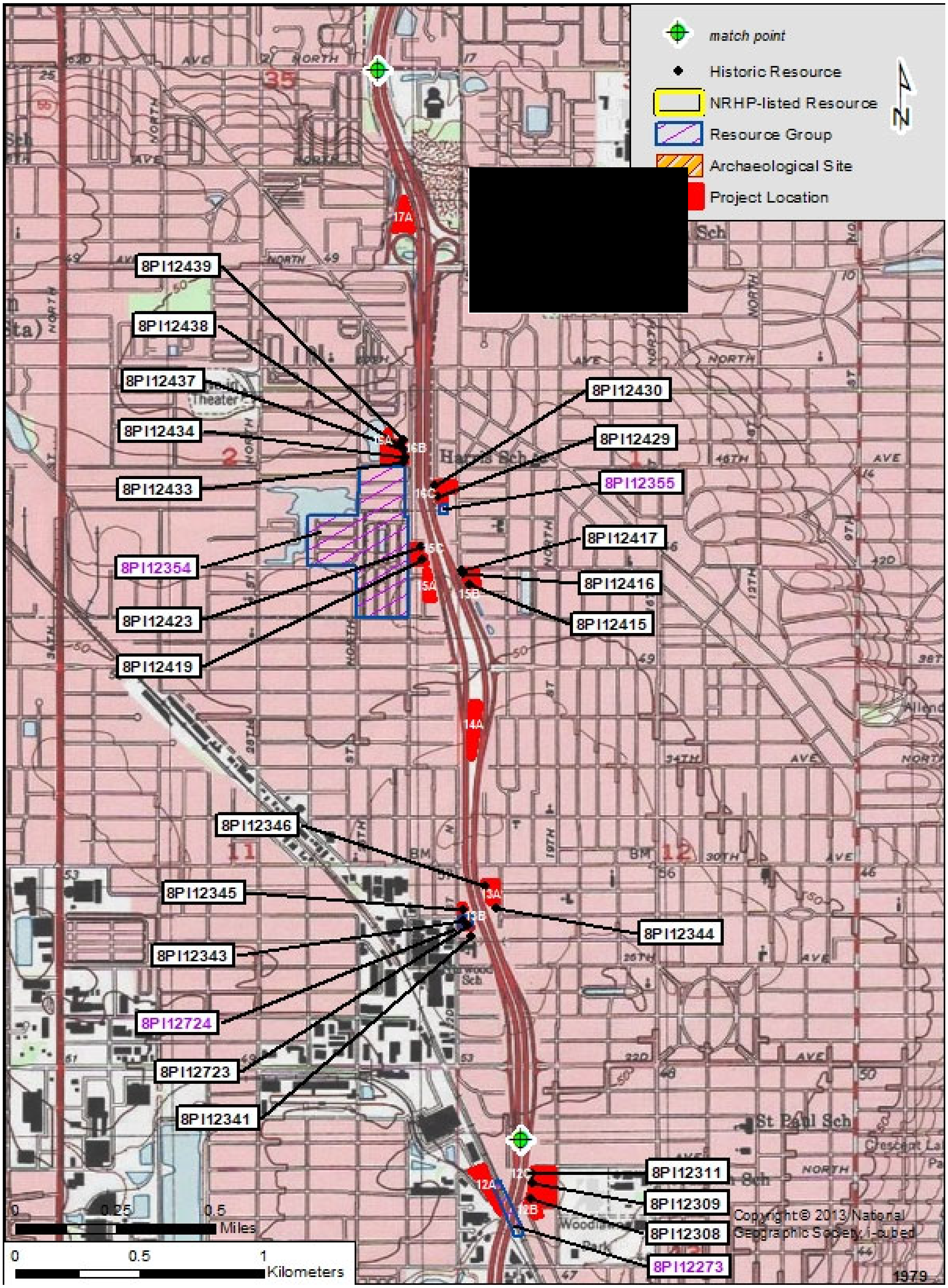

Figure 4. Previously recorded cultural resources within or in close proximity to the proposed pond sites.

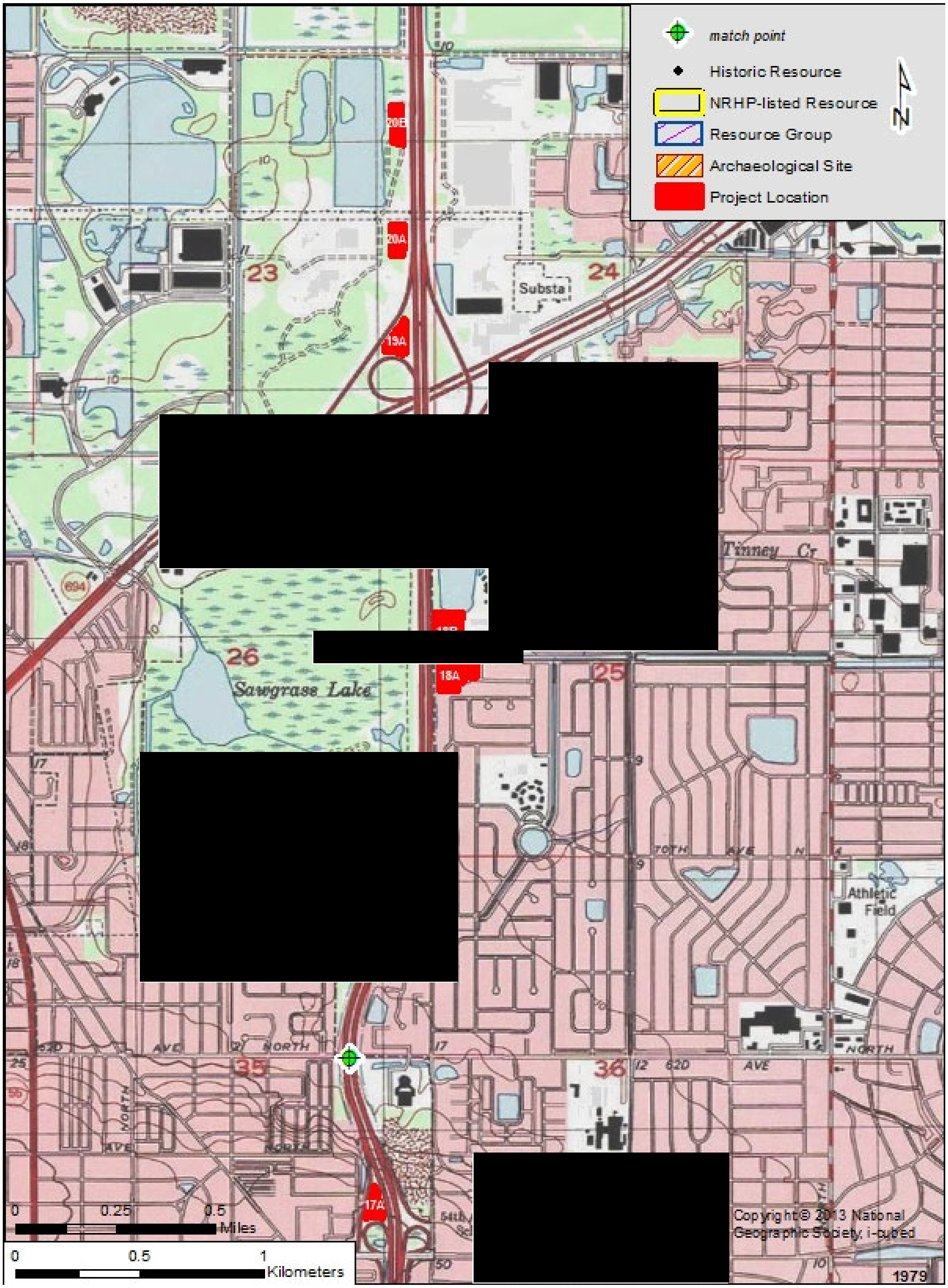

Figure 5. Previously recorded cultural resources within or in close proximity to the proposed pond sites.

Table 2. Archaeological and historic data.

POND	ZAP*	Comments (i.e. soils, vegetation, drainage, previously recorded sites, etc.)
2A	Low	Prehistoric Archaeological: no previously recorded sites within or adjacent to APE
	Low	Historic Archaeological: no previously recorded sites within or adjacent to APE
	Low	Historical: no previously recorded sites within or adjacent to APE
7A	Low	Prehistoric Archaeological: no previously recorded sites within or adjacent to APE
	Low	Historic Archaeological: no previously recorded sites within or adjacent to APE
	Low	Historical: 4 previously recorded resources within or adjacent to APE; however, these appear to have been destroyed.
7B	Low	Prehistoric Archaeological: no previously recorded sites within or adjacent to APE
	Low	Historic Archaeological: no previously recorded sites within or adjacent to APE
	Low	Historical: no previously recorded sites within or adjacent to APE
7C	Low	Prehistoric Archaeological: no previously recorded sites within or adjacent to APE
	Low	Historic Archaeological: no previously recorded sites within or adjacent to APE
	Moderate	Historical: no previously recorded sites within; 2 previously recorded buildings and 1 newly identified adjacent
11A	Low	Prehistoric Archaeological: no previously recorded sites within or adjacent to APE
	Low	Historic Archaeological: no previously recorded sites within or adjacent to APE
	High	Historical: The NRHP-listed Kenwood Historic District (8PI11176), 9 previously recorded buildings (8 buildings are contributing resources to HD), and 1 newly identified building are within the pond; 2 previously recorded & contributing resources to the historic district are adjacent to the pond.
11B	Low	Prehistoric Archaeological: no previously recorded sites within or adjacent to APE
	Low	Historic Archaeological: no previously recorded sites within or adjacent to APE
	High	Historical: Portion of the NRHP-listed Kenwood Historic District (8PI11176) and 2 previously recorded buildings and 2 newly identified within the pond; 10 contributing resources to the historic district and 1 newly identified resource are adjacent.
11C	Low-Moderate	Prehistoric Archaeological: no previously recorded sites within or adjacent to APE; pond is on elevated land upland from freshwater
	Low	Historic Archaeological: no previously recorded sites within or adjacent to APE
	Low	Historical: no previously recorded sites within or adjacent to APE
12A	Low	Prehistoric Archaeological: no previously recorded sites within or adjacent to APE
	Low	Historic Archaeological: no previously recorded sites within or adjacent to APE
	Moderate	Historical: no previously recorded resources within; 1 previously recorded Resource Group (8PI12273) adjacent to pond
12B	Low	Prehistoric Archaeological: no previously recorded sites within or adjacent to APE
	Low	Historic Archaeological: no previously recorded sites within or adjacent to APE
	High	Historical: 1 previously recorded and 3 newly identified buildings within APE
12C	Low	Prehistoric Archaeological: no previously recorded sites within or adjacent to APE
	Low	Historic Archaeological: no previously recorded sites within or adjacent to APE
	High	Historical: 2 previously recorded and 12 newly identified buildings within APE
13A	Low	Prehistoric Archaeological: no previously recorded sites within or adjacent to APE
	Low	Historic Archaeological: no previously recorded sites within or adjacent to APE
	High	Historical: 1 previously recorded building within APE
13B	Low	Prehistoric Archaeological: no previously recorded sites within or adjacent to APE
	Low	Historic Archaeological: no previously recorded sites within or adjacent to APE
	High	Historical: 4 previously recorded resources within; 1 previously recorded and 2 newly identified buildings adjacent.

POND	ZAP*	Comments (i.e. soils, vegetation, drainage, previously recorded sites, etc.)
14A	Low	Prehistoric Archaeological: no previously recorded sites within or adjacent to APE
	Low	Historic Archaeological: no previously recorded sites within or adjacent to APE
	Low	Historical: no previously recorded sites within or adjacent to APE
15A	Low	Prehistoric Archaeological: no previously recorded sites within or adjacent to APE
	Low	Historic Archaeological: no previously recorded sites within or adjacent to APE
	Low	Historical: no previously recorded sites within or adjacent to APE
15B	Low	Prehistoric Archaeological: no previously recorded sites within or adjacent to APE
	Low	Historic Archaeological: no previously recorded sites within or adjacent to APE
	High	Historical: 3 previously recorded and 4 newly identified buildings within APE
15C	Low	Prehistoric Archaeological: no previously recorded sites within or adjacent to APE
	Low	Historic Archaeological: no previously recorded sites within or adjacent to APE
	High	Historical: 2 previously recorded and 4 newly identified buildings within APE
16A	Low	Prehistoric Archaeological: no previously recorded sites within or adjacent to APE
	Low	Historic Archaeological: no previously recorded sites within or adjacent to APE
	High	Historical: no previously recorded sites within; 6 newly identified buildings adjacent to pond
16B	Low	Prehistoric Archaeological: no previously recorded sites within or adjacent to APE
	Low	Historic Archaeological: no previously recorded sites within or adjacent to APE
	High	Historical: 4 previously recorded and 1 newly identified building within; 1 previously recorded building adjacent
16C	Low	Prehistoric Archaeological: no previously recorded sites within or adjacent to APE
	Low	Historic Archaeological: no previously recorded sites within or adjacent to APE
	High	Historical: 2 previously recorded and 6 newly identified buildings within; 2 newly identified buildings adjacent
17A	Low	Prehistoric Archaeological: no previously recorded sites within or adjacent to APE
	Low	Historic Archaeological: no previously recorded sites within or adjacent to APE
	Low	Historical: no previously recorded sites within or adjacent to APE
18A	Moderate	Prehistoric Archaeological: portion of 8PI01212 within APE
	Low	Historic Archaeological: no previously recorded sites within or adjacent to APE
	Low	Historical: no previously recorded sites within or adjacent to APE
18B	Moderate	Prehistoric Archaeological: portion of 8PI01212 within APE
	Low	Historic Archaeological: no previously recorded sites within or adjacent to APE
	Low	Historical: no previously recorded sites within or adjacent to APE
19A	Low	Prehistoric Archaeological: no previously recorded sites within or adjacent to APE
	Low	Historic Archaeological: no previously recorded sites within or adjacent to APE
	Low	Historical: no previously recorded sites within or adjacent to APE
20A	Low	Prehistoric Archaeological: no previously recorded sites within or adjacent to APE
	Low	Historic Archaeological: no previously recorded sites within or adjacent to APE
	Low	Historical: no previously recorded sites within or adjacent to APE
20B	Low	Prehistoric Archaeological: no previously recorded sites within or adjacent to APE
	Low	Historic Archaeological: no previously recorded sites within or adjacent to APE
	Low	Historical: no previously recorded sites within or adjacent to APE

* Zone of Archaeological Potential

3.0 CONCLUSIONS AND RECOMMENDATIONS

As a result of the preliminary probability pond analysis, proposed pond sites 11A and 11B should be avoided or taken into consideration for this project. Following the selection of preferred pond sites, systematic archaeological field survey is recommended in accordance with the guidelines and standards promulgated by the Florida Department of Transportation (FDOT) and Florida Division of Historical Resources (FDHR). The selected pond sites considered to have a low potential also should be surveyed and judgmentally tested. Historical/architectural field survey is also recommended.

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Appendix H.
Right-of-Way Cost Estimate

Right of Way Cost Estimate

HDR #100626981-12.19

FM#: **424501-1**
County: **Pinellas**
Description: **I-275 54th Avenue to North of 4th Avenue Pond Sites**
Date: **January 22, 2019**
Purpose: **Special Purpose**
Prepared by: **Roger D. Patton, Real Estate Services Agent III**
HDR, Inc.

In accordance with your request, a cost estimate has been prepared for the above-referenced project and is submitted for distribution. The estimate considers 21 pond sites. The previous estimate dated July 30, 2018 was for nine pond sites. The costs for each pond site is as follows:

SMF-2A	$0 Existing FDOT R/W
SMF-7A	$565,300
SMF-7B	$537,600
SMF-7C	$2,090,900
SMF-11A	$5,156,100
SMF-11B	$4,044,000
SMF-11C	$469,700
SMF-12A	$2,653,600
SMF-12B	$4,380,100
SMF-12C	$4,916,400
SMF-13A	$2,490,900
SMF-13B	$1,329,700
SMF-14A	$0 Existing FDOT R/W
SMF-15A	$1,187,200
SMF-15B	$2,658,600
SMF-15C	$2,352,000
SMF-16A	$2,644,800
SMF-16B	$3,449,500
SMF-16C	$3,407,900
SMF-17A	$0 Existing FDOT R/W
SMF-18A	$2,826,200
SMF-18B	$613,200
SMF-19A	$0 Existing FDOT R/W
SMF-20A	$802,100
SMF-20B	$1,371,500

Your attention is directed toward the following for comments relating to any considerations or differences noted since our last estimate of the selected pond sites:

SMF-12A: The pond site as proposed encroaches on two properties and is the lowest cost of the alternates for Basin 12. One site is improved and utilized as a commercial building materials operation with common ownership to the south. The pond is situated at the rear of the site and no access easement was included in the current cost estimate. Access to this site, as configured, should be included on future maps.

The other half of the pond site is a landlocked vacant parcel, with an existing access easement. Shifting the pond onto this single parcel instead of split between the two indicates a potential savings of $2,095,100.

FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT SEVEN RIGHT OF WAY COST ESTIMATE

HDR#: 10062698-1-12.19

FM#:	424501-1	Alternate:	SMF 7A	District:	Seven
County:	Pinellas	Segment:	N/A	Date:	4-Jan-19
State Rd.:	N/A	FAP#:	N/A	C.E. Sequence	N/A
Project Des.	I-275 From S. of 54th Ave to 4th Ave North Pond Sites				

Parcels	Gross	Net
Commercial	0	0
Residential	0	0
Unimproved	1	1
Total Parcels	1	1

Estimated Relocatees:	
Business	0
Residential	0
Signs	0
Special	0
Total Relocatees	0

R/W SUPPORT COSTS (PHASE 41)

						Amount
1. Direct Labor Cost	(Parcels	1	x	20,000 =	Rate)	20,000
2. Indirect Overhead	(Parcels	1	x	0 =	Rate)	0
3.						

TOTAL PHASE 41 $20,000

R/W OPS (PHASE 4B)

									Amount
4. Appraisal Fees Through Trial					1	Parcels	x	30,000 =	30,000
5. Business Damage CPA Fees Through Trial					0	Claims	x	19,000 =	0
6. Court Reporter & Process Servers	50%	x	1	=	1	Parcels	x	500 =	500
7. Expert Witness	75%	x	1	=	1	Parcels	x	30,000 =	30,000
8. Mediators	75%	x	1	=	1	Parcels	x	2,400 =	2,400
9. Demolition, Asb. Abate., Survey, etc.					0	Imprvmet	x	15,000 =	0
10. Miscellaneous Contracts					0	Per Project	x	15,000 =	0
11. Appraisal Fee Review					0	Parcels	x	5,000 =	0
12.									

TOTAL PHASE 4B $62,900

R/W LAND COSTS (PHASE 43)

					Amount	Subtotal
13. Land, Improvements & Severance Damages and Cost to Cure Amount	0	x	120% * Design plan stage	=	0	
14. Water Retention & Mit. (0 Ponds)	295,168	x	120% (0 Parcels w/o R/W Acq)	=	354,200	
15. SUBTOTAL (52,276 SF)			(Lines 13 &14)			354,200
16. Admin. Settlements (Factor	20%	x	100% of Line 15)	=	70,800	
17. Litigation Awards (Factor	45%	x	0% of Line 15)	=	0	
18. Business Damages (Claims	0	x	0)	=	0	
19. Bus. Damages Incr (Factor	25%	x	$ -)	=	0	
20. Owner Appr. Fees (Parcels	1	x	$15,000)	=	15,000	
21. Owner CPA Fees (Claims	0	x	$16,000)	=	0	
22. Defend.Atty Fees (Sum of Lines 16, 17 & 19)	70,800	x	33%)	=	23,400	
23. Owner Expert Witn (Comm.+Unimp.)	0	+	1) x 18,000	=	18,000	
24. Other Condemn. Costs	1	x	$1,000	=	1,000	
25. SUBTOTAL			(Lines 16 thru 24)	=		128,200
26.						

TOTAL PHASE 43 $482,400

* *Design contingency for design plan stage:*
(1) PD&E plans - 120% (2) 30% plans - 115% (3) 60% plans - 110% (4) 90% plans -105% (5) 268 Date -100%

R/W ACQUISITION CONSULTANT (PHASE 42)

27. Acquisition Consultant-50% of parcels $20,000 x 0

TOTAL PHASE 42 $0

RELOCATION COSTS (PHASE 45)

			Number		Amount
Replacement Housing					
28. Owner	$35,000	x	0	=	0
29. Tenant	$25,000	x	0	=	0
Move Costs					
30. Residential	$5,000	x	0	=	0
31. Business/Farm	$40,000	x	0	=	0
32. Personal Property	$3,000	x	0	=	0
33. (Lines 28 thru 32)					

TOTAL PHASE 45 $0

34. Relocation Services Cost $0 (Not in Phase Total)

35.
36.
37. (All Phases) TOTAL ESTIMATE $565,300

Real Estate:	Roger D. Patton	Signed:	RDPatton	Date:	01/15/19
Bus. Dam. :	Alfred J. Thompson	Signed:	A Thompson By: RDP	Date:	01/15/19
Relocation:	Roger D. Patton	Signed:	RDPatton	Date:	01/15/19
Overall Review:	Alfred J. Thompson	Signed:	A Thompson By RDP	Date:	01/15/19

Cost Estimate Sequence #: Dated: In the Amount of $ Data Input Completion Date:

REMARKS:

This estimate is for SMF-7A. This is the first estimate for this pond alternate.

The following indicates the estimator's confidence in the above estimate:

- ____ Type A - indicates the most confidence
- ____ Type B - indicates above average confidence
- __x__ Type C - indicates below average confidence
- ____ Type D - indicates the least or no confidence

The following indicates the Department's purpose for this estimate:

Work Program Update: ____ Gaming 1: ____ Special Purpose: __x__ Docs to RW: ____

Comments:

FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT SEVEN RIGHT OF WAY COST ESTIMATE

HDR#: 10062698-1-12.19

FM#:	424501-1	Alternate:	SMF 7B	District:	Seven
County:	Pinellas	Segment:	N/A	Date:	4-Jan-19
State Rd.:	N/A	FAP#:	N/A	C.E. Sequence	N/A
Project Des.	I-275 From S. of 54th Ave to 4th Ave North Pond Sites				

Parcels	Gross	Net
Commercial	0	0
Residential	0	0
Unimproved	1	1
Total Parcels	1	1

Estimated Relocatees:	
Business	0
Residential	0
Signs	0
Special	0
Total Relocatees	0

R/W SUPPORT COSTS (PHASE 41)

						Amount
1. Direct Labor Cost	(Parcels	1	x	20,000 =	Rate)	20,000
2. Indirect Overhead	(Parcels	1	x	0 =	Rate)	0
3.						
					TOTAL PHASE 41	$20,000

R/W OPS (PHASE 4B)

								Amount
4. Appraisal Fees Through Trial				1	Parcels	x	30,000 =	30,000
5. Business Damage CPA Fees Through Trial				0	Claims	x	19,000 =	0
6. Court Reporter & Process Servers	50%	x	1 =	1	Parcels	x	500 =	500
7. Expert Witness	75%	x	1 =	1	Parcels	x	30,000 =	30,000
8. Mediators	75%	x	1 =	1	Parcels	x	2,400 =	2,400
9. Demolition, Asb. Abate., Survey, etc.				0	Imprvmet	x	15,000 =	0
10. Miscellaneous Contracts				0	Per Project	x	15,000 =	0
11. Appraisal Fee Review				0	Parcels	x	5,000 =	0
12.							TOTAL PHASE 4B	$62,900

R/W LAND COSTS (PHASE 43)

					Amount	Subtotal
13. Land, Improvements & Severance Damages and Cost to Cure Amount	0	x	120%	* Design plan stage =	0	
14. Water Retention & Mit. (0 Ponds)	276,928	x	120%	(0 Parcels w/o R/W Acq)	332,300	
15. SUBTOTAL (47,916 SF)				(Lines 13 &14)		332,300
16. Admin. Settlement: (Factor	20%	x	100%	of Line 15) =	66,500	
17. Litigation Awards (Factor	45%	x	0%	of Line 15) =	0	
18. Business Damages (Claims	0	x	0)	=	0	
19. Bus. Damages Incr (Factor	25%	x	$ -)	=	0	
20. Owner Appr. Fees (Parcels	1	x	$15,000)	=	15,000	
21. Owner CPA Fees (Claims	0	x	$16,000)	=	0	
22. Defend.Atty Fees (Sum of Lines 16, 17 & 19)	66,500	x	33%)	=	21,900	
23. Owner Expert Witn (Comm.+Unimp.)	0	+	1) x 18,000	=	18,000	
24. Other Condemn. Costs	1	x	$1,000	=	1,000	
25. SUBTOTAL				(Lines 16 thru 24) =		122,400
26.					TOTAL PHASE 43	$454,700

* *Design contingency for design plan stage:*
(1) PD&E plans - 120% (2) 30% plans - 115% (3) 60% plans - 110% (4) 90% plans -105% (5) 268 Date -100%

R/W ACQUISITION CONSULTANT (PHASE 42)

27. Acquisition Consultant-50% of parcels	$20,000	x	0	TOTAL PHASE 42	$0

RELOCATION COSTS (PHASE 45)

			Number		Amount
Replacement Housing					
28. Owner	$35,000	x	0	=	0
29. Tenant	$25,000	x	0	=	0
Move Costs					
30. Residential	$5,000	x	0	=	0
31. Business/Farm	$40,000	x	0	=	0
32. Personal Property	$3,000	x	0	=	0
33. (Lines 28 thru 32)				TOTAL PHASE 45	$0
34. Relocation Services Cost			$0	(Not in Phase Total)	

35.
36.
37.

(All Phases) TOTAL ESTIMATE $537,600

Real Estate:	Roger D. Patton	Signed: RDPatton	Date:	01/15/19
Bus. Dam. :	Alfred J. Thompson	Signed: AJThompson by: RDP	Date:	01/15/19
Relocation:	Roger D. Patton	Signed: RDPatton	Date:	01/15/19
Overall Review:	Alfred J. Thompson	Signed: AJThompson by: RDP	Date:	01/15/19

Cost Estimate Sequence #: Dated: In the Amount of $ Data Input Completion Date:

REMARKS:

This estimate is for SMF-7B. This was part of a previous estimate dated July 30, 2018 in the amount of $200,240 "unfactored"

The unit costs are the same while the overall take area has increased.

The following indicates the estimator's confidence in the above estimate:

- ____ Type A - indicates the most confidence
- ____ Type B - indicates above average confidence
- x Type C - indicates below average confidence
- ____ Type D - indicates the least or no confidence

The following indicates the Department's purpose for this estimate:

Work Program Update: ____ Gaming 1: ____ Special Purpose: x Docs to RW: ____

Comments:

FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT SEVEN RIGHT OF WAY COST ESTIMATE

HDR#: 10062698-1-12.19

FM#:	424501-1	Alternate:	SMF 7C	District:	Seven
County:	Pinellas	Segment:	N/A	Date:	4-Jan-19
State Rd.:	N/A	FAP#:	N/A	C.E. Sequence	N/A
Project Des.	I-275 From S. of 54th Ave to 4th Ave North Pond Sites				

Parcels	Gross	Net
Commercial	0	0
Residential	0	0
Unimproved	3	3
Total Parcels	3	3

Estimated Relocatees:	
Business	0
Residential	0
Signs	0
Special	0
Total Relocatees	0

R/W SUPPORT COSTS (PHASE 41)

						Amount
1. Direct Labor Cost	(Parcels	3	x	20,000 =	Rate)	60,000
2. Indirect Overhead	(Parcels	3	x	0 =	Rate)	0
3.						

TOTAL PHASE 41 $60,000

R/W OPS (PHASE 4B)

								Amount
4. Appraisal Fees Through Trial				3	Parcels	x	30,000 =	90,000
5. Business Damage CPA Fees Through Trial				0	Claims	x	19,000 =	0
6. Court Reporter & Process Servers	50%	x	3 =	2	Parcels	x	500 =	1,000
7. Expert Witness	75%	x	3 =	2	Parcels	x	30,000 =	60,000
8. Mediators	75%	x	3 =	2	Parcels	x	2,400 =	4,800
9. Demolition, Asb. Abate., Survey, etc.				1	Imprvmet	x	15,000 =	15,000
10. Miscellaneous Contracts				0	Per Project	x	15,000 =	0
11. Appraisal Fee Review				0	Parcels	x	5,000 =	0
12.								

TOTAL PHASE 4B $170,800

R/W LAND COSTS (PHASE 43)

					Amount	Subtotal
13. Land, Improvements & Severance Damages and Cost to Cure Amount	0	x	120%	* *Design plan stage* =	0	
14. Water Retention & Mit. (0 Ponds)	1,047,280	x	120%	(0 Parcels w/o R/W Acq)	1,256,700	
15. SUBTOTAL (43,560 SF)				(Lines 13 &14)		1,256,700
16. Admin. Settlement (Factor	20%	x	60%	of Line 15) =	150,800	
17. Litigation Awards (Factor	45%	x	40%	of Line 15) =	226,200	
18. Business Damages (Claims	0	x	0)	=	0	
19. Bus. Damages Incr (Factor	25%	x	$ -)	=	0	
20. Owner Appr. Fees (Parcels	3	x	$15,000)	=	45,000	
21. Owner CPA Fees (Claims	0	x	$16,000)	=	0	
22. Defend.Atty Fees (Sum of Lines 16, 17 & 19)	377,000	x	33%)	=	124,400	
23. Owner Expert Witn (Comm.+Unimp.)	0	+	3) x 18,000	=	54,000	
24. Other Condemn. Costs	3	x	$1,000	=	3,000	
25. SUBTOTAL				(Lines 16 thru 24) =		603,400
26.						

TOTAL PHASE 43 $1,860,100

* *Design contingency for design plan stage:*
(1) PD&E plans - 120% (2) 30% plans - 115% (3) 60% plans - 110% (4) 90% plans -105% (5) 268 Date -100%

R/W ACQUISITION CONSULTANT (PHASE 42)

27. Acquisition Consultant-50% of parcels $20,000 x 0

TOTAL PHASE 42 $0

RELOCATION COSTS (PHASE 45)

			Number		Amount
Replacement Housing					
28. Owner	$35,000	x	0	=	0
29. Tenant	$25,000	x	0	=	0
Move Costs					
30. Residential	$5,000	x	0	=	0
31. Business/Farm	$40,000	x	0	=	0
32. Personal Property	$3,000	x	0	=	0
33. (Lines 28 thru 32)					

TOTAL PHASE 45 $0

34. Relocation Services Cost $0 (Not in Phase Total)
35.
36.
37.

(All Phases) TOTAL ESTIMATE $2,090,900

Real Estate:	Roger D. Patton	Signed:	[signature]	Date: 01/15/19
Bus. Dam. :	Alfred J. Thompson	Signed:	A. J. Thompson	Date: 01/15/19
Relocation:	Roger D. Patton	Signed:	[signature]	Date: 01/15/19
Overall Review:	Alfred J. Thompson	Signed:	A. J. Thompson	Date: 01/15/19

Cost Estimate Sequence #: Dated: In the Amount of $ Data Input Completion Date:

REMARKS:

This estimate is for SMF-7C. This is the first estimate for this pond alternate.

The following indicates the estimator's confidence in the above estimate:
- ___ Type A - indicates the most confidence
- ___ Type B - indicates above average confidence
- x Type C - indicates below average confidence
- ___ Type D - indicates the least or no confidence

The following indicates the Department's purpose for this estimate:
Work Program Update: ___ Gaming 1: ___ Special Purpose: x Docs to RW: ___
Comments:

FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT SEVEN RIGHT OF WAY COST ESTIMATE

HDR#: 10062698-1-12.19

FM#:	424501-1	Alternate:	SMF-11A	District:	Seven
County:	Pinellas	Segment:	N/A	Date:	4-Jan-19
State Rd.:	N/A	FAP#:	N/A	C.E. Sequence	N/A
Project Des.	I-275 From S. of 54th Ave to 4th Ave North Pond Sites				

Parcels	Gross	Net
Commercial	0	0
Residential	10	10
Unimproved	0	0
Total Parcels	10	10

Estimated Relocatees:	
Business	6
Residential	15
Signs	0
Special	0
Total Relocatees	21

R/W SUPPORT COSTS (PHASE 41)

						Amount
1. Direct Labor Cost	(Parcels	10	x	20,000 =	Rate)	200,000
2. Indirect Overhead	(Parcels	10	x	0 =	Rate)	0
3.						
					TOTAL PHASE 41	$200,000

R/W OPS (PHASE 4B)

									Amount
4. Appraisal Fees Through Trial					10	Parcels	x	30,000 =	300,000
5. Business Damage CPA Fees Through Trial					0	Claims	x	19,000 =	0
6. Court Reporter & Process Servers	50%	x	10	=	5	Parcels	x	500 =	2,500
7. Expert Witness	75%	x	10	=	8	Parcels	x	30,000 =	240,000
8. Mediators	75%	x	10	=	8	Parcels	x	2,400 =	19,200
9. Demolition, Asb. Abate., Survey, etc.					15	Imprvmet	x	15,000 =	225,000
10. Miscellaneous Contracts					0	Per Project	x	15,000 =	0
11. Appraisal Fee Review					0	Parcels	x	5,000 =	0
12.									
						TOTAL PHASE 4B			$786,700

R/W LAND COSTS (PHASE 43)

						Amount	Subtotal
13. Land, Improvements & Severance Damages and Cost to Cure Amount	0	x	120%	* *Design plan stage*	=	0	
14. Water Retention & Mit. (0 Ponds)	1,953,390	x	120%	(0 Parcels w/o R/W Acq)		2,344,100	
15. SUBTOTAL (69,696SF)				(Lines 13 &14)			2,344,100
16. Admin. Settlement: (Factor	20%	x	60%	of Line 15)	=	281,300	
17. Litigation Awards (Factor	45%	x	40%	of Line 15)	=	421,900	
18. Business Damages (Claims	0	x	0)		=	0	
19. Bus. Damages Incr (Factor	25%	x	$ -)		=	0	
20. Owner Appr. Fees (Parcels	10	x	$15,000)		=	150,000	
21. Owner CPA Fees (Claims	0	x	$16,000)		=	0	
22. Defend.Atty Fees (Sum of Lines 16, 17 & 19)	703,200	x	33%)		=	232,100	
23. Owner Expert Witn (Comm.+Unimp.)	0	+	0) x	18,000	=	0	
24. Other Condemn. Costs	10	x	$1,000		=	10,000	
25. SUBTOTAL				(Lines 16 thru 24)	=		1,095,300
26.						TOTAL PHASE 43	$3,439,400

* *Design contingency for design plan stage:*
(1) PD&E plans - 120% (2) 30% plans - 115% (3) 60% plans - 110% (4) 90% plans -105% (5) 268 Date -100%

R/W ACQUISITION CONSULTANT (PHASE 42)

27. Acquisition Consultant-50% of parcels	$20,000	x	0	TOTAL PHASE 42	$0

RELOCATION COSTS (PHASE 45)

			Number		Amount
Replacement Housing					
28. Owner	$35,000	x	4	=	140,000
29. Tenant	$25,000	x	11	=	275,000
Move Costs					
30. Residential	$5,000	x	15	=	75,000
31. Business/Farm	$40,000	x	6	=	240,000
32. Personal Property	$3,000	x	0	=	0
33. (Lines 28 thru 32)				TOTAL PHASE 45	$730,000
34. Relocation Services Cost			$73,000	(Not in Phase Total)	

35.
36.
37.

(All Phases) TOTAL ESTIMATE $5,156,100

Real Estate:	Roger D. Patton	Signed:	RDPatton	Date:	01/15/19
Bus. Dam. :	Alfred J. Thompson	Signed:	A.J. Thompson	Date:	01/15/19
Relocation:	Roger D. Patton	Signed:	RDPatton	Date:	01/15/19
Overall Review:	Alfred J. Thompson	Signed:	A.J. Thompson	Date:	01/15/19

Cost Estimate Sequence #: Dated: In the Amount of $ Data Input Completion Date:

REMARKS:

This estimate is for SMF-11A. This is the first estimate for this pond alternate.

The following indicates the estimator's confidence in the above estimate:

- ____ Type A - indicates the most confidence
- ____ Type B - indicates above average confidence
- x Type C - indicates below average confidence
- ____ Type D - indicates the least or no confidence

The following indicates the Department's purpose for this estimate:

Work Program Update: ____ Gaming 1: ____ Special Purpose: x Docs to RW: ____

Comments:

FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT SEVEN RIGHT OF WAY COST ESTIMATE

HDR#: 10062698-1-12.19

FM#:	424501-1	Alternate:	SMF-11B	District:	Seven
County:	Pinellas	Segment:	N/A	Date:	4-Jan-19
State Rd.:	N/A	FAP#:	N/A	C.E. Sequence	N/A
Project Des.	I-275 From S. of 54th Ave to 4th Ave North Pond Sites				

Parcels	Gross	Net
Commercial	3	3
Residential	2	2
Unimproved	0	0
Total Parcels	5	5

Estimated Relocatees:	
Business	9
Residential	5
Signs	0
Special	0
Total Relocatees	14

R/W SUPPORT COSTS (PHASE 41)

						Amount
1. Direct Labor Cost	(Parcels	5	x	20,000 =	Rate)	100,000
2. Indirect Overhead	(Parcels	5	x	0 =	Rate)	0
3.						
					TOTAL PHASE 41	$100,000

R/W OPS (PHASE 4B)

								Amount
4. Appraisal Fees Through Trial					5	Parcels	x 30,000 =	150,000
5. Business Damage CPA Fees Through Trial					0	Claims	x 19,000 =	0
6. Court Reporter & Process Servers	50%	x	5	=	3	Parcels	x 500 =	1,500
7. Expert Witness	75%	x	5	=	4	Parcels	x 30,000 =	120,000
8. Mediators	75%	x	5	=	4	Parcels	x 2,400 =	9,600
9. Demolition, Asb. Abate., Survey, etc.					7	Imprvmet	x 15,000 =	105,000
10. Miscellaneous Contracts					0	Per Project	x 15,000 =	0
11. Appraisal Fee Review					0	Parcels	x 5,000 =	0
12.							TOTAL PHASE 4B	$386,100

R/W LAND COSTS (PHASE 43)

					Amount	Subtotal
13. Land, Improvements & Severance Damages and Cost to Cure Amount	0	x	120%	* *Design plan stage* =	0	
14. Water Retention & Mit. (0 Ponds)	1,729,738	x	120%	(0 Parcels w/o R/W Acq)	2,075,700	
15. SUBTOTAL (61,432 SF)				(Lines 13 &14)		2,075,700
16. Admin. Settlement: (Factor	20%	x	60%	of Line 15) =	249,100	
17. Litigation Awards (Factor	45%	x	40%	of Line 15) =	373,600	
18. Business Damages (Claims	0	x	0)	=	0	
19. Bus. Damages Incr (Factor	25%	x	$ -)	=	0	
20. Owner Appr. Fees (Parcels	5	x	$15,000)	=	75,000	
21. Owner CPA Fees (Claims	0	x	$16,000)	=	0	
22. Defend.Atty Fees (Sum of Lines 16, 17 & 19)	622,700	x	33%)	=	205,500	
23. Owner Expert Witn (Comm.+Unimp.)	3	+	0) x 18,000	=	54,000	
24. Other Condemn. Costs	5	x	$1,000	=	5,000	
25. SUBTOTAL				(Lines 16 thru 24) =		962,200
26.					TOTAL PHASE 43	$3,037,900

* *Design contingency for design plan stage:*
(1) PD&E plans - 120% (2) 30% plans - 115% (3) 60% plans - 110% (4) 90% plans -105% (5) 268 Date -100%

R/W ACQUISITION CONSULTANT (PHASE 42)

27. Acquisition Consultant-50% of parcels	$20,000	x	0	TOTAL PHASE 42	$0

RELOCATION COSTS (PHASE 45)

			Number		Amount
Replacement Housing					
28. Owner	$35,000	x	1	=	35,000
29. Tenant	$25,000	x	4	=	100,000
Move Costs					
30. Residential	$5,000	x	5	=	25,000
31. Business/Farm	$40,000	x	9	=	360,000
32. Personal Property	$3,000	x	0	=	0
33. (Lines 28 thru 32)				TOTAL PHASE 45	$520,000
34. Relocation Services Cost			$52,000	(Not in Phase Total)	
35.					
36.					
37.				(All Phases) TOTAL ESTIMATE	$4,044,000

Real Estate:	Roger D. Patton	Signed:		Date: 01/15/19
Bus. Dam. :	Alfred J. Thompson	Signed:	A. J. Thompson	Date: 01/15/19
Relocation:	Roger D. Patton	Signed:		Date: 01/15/19
Overall Review:	Alfred J. Thompson	Signed:	A. J. Thompson	Date: 01/15/19

Cost Estimate Sequence #: Dated: In the Amount of $ Data Input Completion Date:

REMARKS:

This estimate is for SMF-11B. A portion of this pond alternate was included in the prior estimate. The comparison between alternates is not applicable as the size and properties impacted are different.

The following indicates the estimator's confidence in the above estimate:
- ____ Type A - indicates the most confidence
- ____ Type B - indicates above average confidence
- x Type C - indicates below average confidence
- ____ Type D - indicates the least or no confidence

The following indicates the Department's purpose for this estimate:
Work Program Update: ____ Gaming 1: ____ Special Purpose: x Docs to RW: ____
Comments:

FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT SEVEN RIGHT OF WAY COST ESTIMATE

HDR#: 10062698-1-12.19

FM#:	424501-1	Alternate:	N/A	District:	Seven
County:	Pinellas	Segment:	SMF-11C	Date:	4-Jan-19
State Rd.:	N/A	FAP#:	N/A	C.E. Sequence	N/A

Project Des. I-275 From S. of 54th Ave to 4th Ave North Pond Sites

Parcels	Gross	Net
Commercial	0	0
Residential	0	0
Unimproved	1	1
Total Parcels	1	1

Estimated Relocatees:	
Business	0
Residential	0
Signs	0
Special	0
Total Relocatees	0

R/W SUPPORT COSTS (PHASE 41)

						Amount
1. Direct Labor Cost	(Parcels	1	x	20,000 =	Rate)	20,000
2. Indirect Overhead	(Parcels	1	x	0 =	Rate)	0
3.						

TOTAL PHASE 41 $20,000

R/W OPS (PHASE 4B)

								Amount
4. Appraisal Fees Through Trial				1	Parcels	x	30,000 =	30,000
5. Business Damage CPA Fees Through Trial				0	Claims	x	19,000 =	0
6. Court Reporter & Process Servers	50%	x	1 =	1	Parcels	x	500 =	500
7. Expert Witness	75%	x	1 =	1	Parcels	x	30,000 =	30,000
8. Mediators	75%	x	1 =	1	Parcels	x	2,400 =	2,400
9. Demolition, Asb. Abate., Survey, etc.				0	Imprvmet	x	15,000 =	0
10. Miscellaneous Contracts				0	Per Project	x	15,000 =	0
11. Appraisal Fee Review				0	Parcels	x	5,000 =	0
12.								

TOTAL PHASE 4B $62,900

R/W LAND COSTS (PHASE 43)

					Amount	Subtotal
13. Land, Improvements & Severance Damages and Cost to Cure Amount	0	x	120%	* Design plan stage =	0	
14. Water Retention & Mit. (0 Ponds)	294,030	x	120%	(0 Parcels w/o R/W Acq)	352,800	
15. SUBTOTAL (57,648 SF)				(Lines 13 &14)		352,800
16. Admin. Settlement: (Factor	0%	x	60%	of Line 15) =	0	
17. Litigation Awards (Factor	0%	x	40%	of Line 15) =	0	
18. Business Damages (Claims	0	x	0)	=	0	
19. Bus. Damages Incr (Factor	25%	x	$ -)	=	0	
20. Owner Appr. Fees (Parcels	1	x	$15,000)	=	15,000	
21. Owner CPA Fees (Claims	0	x	$16,000)	=	0	
22. Defend.Atty Fees (Sum of Lines 16, 17 & 19)	0	x	33%)	=	0	
23. Owner Expert Witn (Comm.+Unimp.)	0	+	1) x 18,000	=	18,000	
24. Other Condemn. Costs	1	x	$1,000	=	1,000	
25. SUBTOTAL				(Lines 16 thru 24) =		34,000
26.						

TOTAL PHASE 43 $386,800

* *Design contingency for design plan stage:*
(1) PD&E plans - 120% (2) 30% plans - 115% (3) 60% plans - 110% (4) 90% plans -105% (5) 268 Date -100%

R/W ACQUISITION CONSULTANT (PHASE 42)

27. Acquisition Consultant-50% of parcels $20,000 x 0

TOTAL PHASE 42 $0

RELOCATION COSTS (PHASE 45)

			Number		Amount
Replacement Housing					
28. Owner	$35,000	x	0	=	0
29. Tenant	$25,000	x	0	=	0
Move Costs					
30. Residential	$5,000	x	0	=	0
31. Business/Farm	$40,000	x	0	=	0
32. Personal Property	$3,000	x	0	=	0
33. (Lines 28 thru 32)					

TOTAL PHASE 45 $0

34. Relocation Services Cost $0 (Not in Phase Total)
35.
36.
37. (All Phases) TOTAL ESTIMATE $469,700

Real Estate:	Roger D. Patton	Signed:	RDPatton	Date:	01/15/19
Bus. Dam. :	Alfred J. Thompson	Signed:	AJThompson. by RDP	Date:	01/15/19
Relocation:	Roger D. Patton	Signed:	RDPatton	Date:	01/15/19
Overall Review:	Alfred J. Thompson	Signed:	AJThompson : by RDP	Date:	01/15/19

Cost Estimate Sequence #: Dated: In the Amount of $ Data Input Completion Date:

REMARKS:

This estimate is for SMF-11C. This is proposed as a permanent easement on an existing pond site.

The following indicates the estimator's confidence in the above estimate:

- ____ Type A - indicates the most confidence
- ____ Type B - indicates above average confidence
- x Type C - indicates below average confidence
- ____ Type D - indicates the least or no confidence

The following indicates the Department's purpose for this estimate:

Work Program Update: ____ Gaming 1: ____ Special Purpose: x Docs to RW: ____

Comments:

FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT SEVEN RIGHT OF WAY COST ESTIMATE

HDR#: 10062698-1-12.19

FM#:	424501-1	Alternate:	SMF-12A	District:	Seven
County:	Pinellas	Segment:	N/A	Date:	4-Jan-19
State Rd.:	N/A	FAP#:	N/A	C.E. Sequence	N/A
Project Des.	I-275 From S. of 54th Ave to 4th Ave North Pond Sites				

Parcels	Gross	Net
Commercial	1	1
Residential	0	0
Unimproved	1	1
Total Parcels	2	2

Estimated Relocatees:	
Business	0
Residential	0
Signs	0
Special	1
Total Relocatees	1

R/W SUPPORT COSTS (PHASE 41)

						Amount
1. Direct Labor Cost	(Parcels	2	x	20,000 =	Rate)	40,000
2. Indirect Overhead	(Parcels	2	x	0 =	Rate)	0
3.						
					TOTAL PHASE 41	$40,000

R/W OPS (PHASE 4B)

								Amount
4. Appraisal Fees Through Trial				2	Parcels	x	30,000 =	60,000
5. Business Damage CPA Fees Through Trial				1	Claims	x	19,000 =	19,000
6. Court Reporter & Process Servers	50%	x	2 =	1	Parcels	x	500 =	500
7. Expert Witness	75%	x	2 =	2	Parcels	x	30,000 =	60,000
8. Mediators	75%	x	2 =	2	Parcels	x	2,400 =	4,800
9. Demolition, Asb. Abate., Survey, etc.				1	Imprvmet	x	15,000 =	15,000
10. Miscellaneous Contracts				0	Per Project	x	15,000 =	0
11. Appraisal Fee Review				0	Parcels	x	5,000 =	0
12.							TOTAL PHASE 4B	$159,300

R/W LAND COSTS (PHASE 43)

					Amount	Subtotal
13. Land, Improvements & Severance Damages and Cost to Cure Amount	0	x	120%	* *Design plan stage* =	0	
14. Water Retention & Mit. (0 Ponds)	439,844	x	120%	(0 Parcels w/o R/W Acq)	527,800	
15. SUBTOTAL (87,120 SF)				(Lines 13 &14)		527,800
16. Admin. Settlement: (Factor	20%	x	60%	of Line 15) =	63,300	
17. Litigation Awards (Factor	45%	x	40%	of Line 15) =	95,000	
18. Business Damages (Claims	1	x	0)	=	1,200,000	
19. Bus. Damages Incr (Factor	25%	x	$1,200,000)	=	300,000	
20. Owner Appr. Fees (Parcels	2	x	$15,000)	=	30,000	
21. Owner CPA Fees (Claims	1	x	$16,000)	=	16,000	
22. Defend.Atty Fees (Sum of Lines 16, 17 & 19)	458,300	x	33%)	=	151,200	
23. Owner Expert Witn (Comm.+Unimp.)	1	+	1) x 18,000	=	36,000	
24. Other Condemn. Costs	2	x	$1,000	=	2,000	
25. SUBTOTAL				(Lines 16 thru 24) =		1,893,500
26.					TOTAL PHASE 43	$2,421,300

* *Design contingency for design plan stage:*
(1) PD&E plans - 120% (2) 30% plans - 115% (3) 60% plans - 110% (4) 90% plans -105% (5) 268 Date -100%

R/W ACQUISITION CONSULTANT (PHASE 42)

27. Acquisition Consultant-50% of parcels	$20,000	x	0	TOTAL PHASE 42	$0

RELOCATION COSTS (PHASE 45)

			Number		Amount
Replacement Housing					
28. Owner	$35,000	x	0	=	0
29. Tenant	$25,000	x	0	=	0
Move Costs					
30. Residential	$5,000	x	0	=	0
31. Business/Farm	$40,000	x	0	=	0
32. Personal Property (Parcel 1 + $30,000)	$3,000	x	1	=	33,000
33. (Lines 28 thru 32)				TOTAL PHASE 45	$33,000
34. Relocation Services Cost			$3,300	(Not in Phase Total)	

35.
36.
37.

(All Phases) TOTAL ESTIMATE $2,653,600

Real Estate:	Roger D. Patton	Signed:	RDPatton	Date: 01/15/19
Bus. Dam. :	Alfred J. Thompson	Signed:	A. J. Thompson	Date: 01/15/19
Relocation:	Roger D. Patton	Signed:	RDPatton	Date: 01/15/19
Overall Review:	Alfred J. Thompson	Signed:	A. J. Thompson	Date: 01/15/19

Cost Estimate Sequence #: Dated: In the Amount of $ Data Input Completion Date:

REMARKS:

This estimate is for SMF- 12A. This is the first cost estimate we have performed for this alternate.
An access easement from 13th Avenue N will be required to access this site and is not included in the total cost.

It is recommended that the engineer consider shifting this pond onto Parcel 2, a vacant tract with an existing access easement. A potential cost savings of $2,095,100 is estimated when shifting the entire pond site onto Parcel 2.

The following indicates the estimator's confidence in the above estimate:

- ____ Type A - indicates the most confidence
- ____ Type B - indicates above average confidence
- x Type C - indicates below average confidence
- ____ Type D - indicates the least or no confidence

The following indicates the Department's purpose for this estimate:
Work Program Update: ____ Gaming 1: ____ Special Purpose: x Docs to RW: ____
Comments:

FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT SEVEN RIGHT OF WAY COST ESTIMATE

HDR#: 10062698-1-12.19

FM#:	424501-1	Alternate:	SMF-12B	District:	Seven
County:	Pinellas	Segment:	N/A	Date:	4-Jan-19
State Rd.:	N/A	FAP#:	N/A	C.E. Sequence	N/A
Project Des.	I-275 From S. of 54th Ave to 4th Ave North Pond Sites				

Parcels	Gross	Net
Commercial	5	5
Residential	0	0
Unimproved	0	0
Total Parcels	5	5

Estimated Relocatees:	
Business	4
Residential	0
Signs	0
Special	1
Total Relocatees	5

R/W SUPPORT COSTS (PHASE 41)

							Amount
1. Direct Labor Cost	(Parcels	5	x	20,000 =	Rate)		100,000
2. Indirect Overhead	(Parcels	5	x	0 =	Rate)		0
3.							
						TOTAL PHASE 41	$100,000

R/W OPS (PHASE 4B)

									Amount
4. Appraisal Fees Through Trial					5	Parcels	x	30,000 =	150,000
5. Business Damage CPA Fees Through Trial					0	Claims	x	19,000 =	0
6. Court Reporter & Process Servers	50%	x	5	=	3	Parcels	x	500 =	1,500
7. Expert Witness	75%	x	5	=	4	Parcels	x	30,000 =	120,000
8. Mediators	75%	x	5	=	4	Parcels	x	2,400 =	9,600
9. Demolition, Asb. Abate., Survey, etc.					8	Imprvmet	x	15,000 =	120,000
10. Miscellaneous Contracts					0	Per Project	x	15,000 =	0
11. Appraisal Fee Review					0	Parcels	x	5,000 =	0
12.								TOTAL PHASE 4B	$401,100

R/W LAND COSTS (PHASE 43)

					Amount	Subtotal
13. Land, Improvements & Severance Damages and Cost to Cure Amount	0	x	120%	* *Design plan stage* =	0	
14. Water Retention & Mit. (0 Ponds)	2,112,276	x	120%	(0 Parcels w/o R/W Acq)	2,534,700	
15. SUBTOTAL (83,648 SF)				(Lines 13 &14)		2,534,700
16. Admin. Settlements (Factor	20%	x	60%	of Line 15) =	304,200	
17. Litigation Awards (Factor	45%	x	40%	of Line 15) =	456,200	
18. Business Damages (Claims	0	x	0)	=	0	
19. Bus. Damages Incr (Factor	25%	x	$ -)	=	0	
20. Owner Appr. Fees (Parcels	5	x	$15,000)	=	75,000	
21. Owner CPA Fees (Claims	0	x	$16,000)	=	0	
22. Defend.Atty Fees (Sum of Lines 16, 17 & 19)	760,400	x	33%)	=	250,900	
23. Owner Expert Witn (Comm.+Unimp.)	5	+	0) x 18,000	=	90,000	
24. Other Condemn. Costs	5	x	$1,000	=	5,000	
25. SUBTOTAL				(Lines 16 thru 24) =		1,181,300
26.					TOTAL PHASE 43	$3,716,000

* *Design contingency for design plan stage:*
(1) PD&E plans - 120% (2) 30% plans - 115% (3) 60% plans - 110% (4) 90% plans -105% (5) 268 Date -100%

R/W ACQUISITION CONSULTANT (PHASE 42)

27. Acquisition Consultant-50% of parcels	$20,000	x	0	TOTAL PHASE 42	$0

RELOCATION COSTS (PHASE 45)

			Number		Amount
Replacement Housing					
28. Owner	$35,000	x	0	=	0
29. Tenant	$25,000	x	0	=	0
Move Costs					
30. Residential	$5,000	x	0	=	0
31. Business/Farm	$40,000	x	4	=	160,000
32. Personal Property	$3,000	x	1	=	3,000
33. (Lines 28 thru 32)				TOTAL PHASE 45	$163,000
34. Relocation Services Cost			$16,300	(Not in Phase Total)	

35.
36.
37. (All Phases) TOTAL ESTIMATE $4,380,100

Real Estate:	Roger D. Patton	Signed:	[signature]	Date:	01/15/19
Bus. Dam. :	Alfred J. Thompson	Signed:	A.J. Thompson	Date:	01/15/19
Relocation:	Roger D. Patton	Signed:	[signature]	Date:	01/15/19
Overall Review:	Alfred J. Thompson	Signed:	A.J. Thompson	Date:	01/15/19

Cost Estimate Sequence #: Dated: In the Amount of $ Data Input Completion Date:

REMARKS:

This estimate is for SMF-12B and is the first cost estimate we have performed for this alternate.

The parcels are all improved commercial lots.

The following indicates the estimator's confidence in the above estimate:

- ___ Type A - indicates the most confidence
- ___ Type B - indicates above average confidence
- x Type C - indicates below average confidence
- ___ Type D - indicates the least or no confidence

The following indicates the Department's purpose for this estimate:
Work Program Update: ______ Gaming 1: ______ Special Purpose: x Docs to RW: ______
Comments:

FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT SEVEN RIGHT OF WAY COST ESTIMATE

HDR#: 10062698-1-12.19

FM#:	424501-1	Alternate:	SMF-12C	District:	Seven
County:	Pinellas	Segment:	N/A	Date:	4-Jan-19
State Rd.:	N/A	FAP#:	N/A	C.E. Sequence	N/A
Project Des.	I-275 From S. of 54th Ave to 4th Ave North Pond Sites				

Parcels	Gross	Net
Commercial	0	0
Residential	12	12
Unimproved	0	0
Total Parcels	12	12

Estimated Relocatees:	
Business	5
Residential	12
Signs	0
Special	0
Total Relocatees	17

R/W SUPPORT COSTS (PHASE 41)

						Amount
1. Direct Labor Cost	(Parcels	12	x	20,000 =	Rate)	240,000
2. Indirect Overhead	(Parcels	12	x	0 =	Rate)	0
3.						
					TOTAL PHASE 41	$240,000

R/W OPS (PHASE 4B)

									Amount
4. Appraisal Fees Through Trial					12	Parcels	x	30,000 =	360,000
5. Business Damage CPA Fees Through Trial					0	Claims	x	19,000 =	0
6. Court Reporter & Process Servers	50%	x	12	=	6	Parcels	x	500 =	3,000
7. Expert Witness	75%	x	12	=	9	Parcels	x	30,000 =	270,000
8. Mediators	75%	x	12	=	9	Parcels	x	2,400 =	21,600
9. Demolition, Asb. Abate., Survey, etc.					12	Imprvmet	x	15,000 =	180,000
10. Miscellaneous Contracts					0	Per Project	x	15,000 =	0
11. Appraisal Fee Review					0	Parcels	x	5,000 =	0
12.									
								TOTAL PHASE 4B	$834,600

R/W LAND COSTS (PHASE 43)

					Amount	Subtotal
13. Land, Improvements & Severance Damages and Cost to Cure Amount	0	x	120%	* *Design plan stage* =	0	
14. Water Retention & Mit. (0 Ponds)	1,798,813	x	120%	(0 Parcels w/o R/W Acq)	2,158,600	
15. SUBTOTAL (95,832 SF)				(Lines 13 &14)		2,158,600
16. Admin. Settlements (Factor	20%	x	60% of Line 15)	=	259,000	
17. Litigation Awards (Factor	45%	x	40% of Line 15)	=	388,500	
18. Business Damages (Claims	0	x	0)	=	0	
19. Bus. Damages Incr (Factor	25%	x	$ -)	=	0	
20. Owner Appr. Fees (Parcels	12	x	$15,000)	=	180,000	
21. Owner CPA Fees (Claims	0	x	$16,000)	=	0	
22. Defend.Atty Fees (Sum of Lines 16, 17 & 19)	647,500	x	33%)	=	213,700	
23. Owner Expert Witn (Comm.+Unimp.)	0	+	0) x 18,000	=	0	
24. Other Condemn. Costs	12	x	$1,000	=	12,000	
25. SUBTOTAL				(Lines 16 thru 24) =		1,053,200
26.					TOTAL PHASE 43	$3,211,800

* *Design contingency for design plan stage:*
(1) PD&E plans - 120% (2) 30% plans - 115% (3) 60% plans - 110% (4) 90% plans -105% (5) 268 Date -100%

R/W ACQUISITION CONSULTANT (PHASE 42)

27. Acquisition Consultant-50% of parcels	$20,000	x	0	TOTAL PHASE 42	$0

RELOCATION COSTS (PHASE 45)

			Number		Amount
Replacement Housing					
28. Owner	$35,000	x	7	=	245,000
29. Tenant	$25,000	x	5	=	125,000
Move Costs					
30. Residential	$5,000	x	12	=	60,000
31. Business/Farm	$40,000	x	5	=	200,000
32. Personal Property	$3,000	x	0	=	0
33. (Lines 28 thru 32)				TOTAL PHASE 45	$630,000
34. Relocation Services Cost			$63,000	(Not in Phase Total)	

35.
36.
37. (All Phases) TOTAL ESTIMATE $4,916,400

Real Estate:	Roger D. Patton	Signed:	R.D. Patton	Date:	01/15/19
Bus. Dam. :	Alfred J. Thompson	Signed:	A.J. Thompson	Date:	01/15/19
Relocation:	Roger D. Patton	Signed:	R.D. Patton	Date:	01/15/19
Overall Review:	Alfred J. Thompson	Signed:	A.J. Thompson	Date:	01/15/19

Cost Estimate Sequence #: Dated: In the Amount of $ Data Input Completion Date:

REMARKS:

This estimate is for SMF- 12C. This is the first cost estimate we have performed for this alternate.

The parcels are all improved residential lots.

The following indicates the estimator's confidence in the above estimate:

- ___ Type A - indicates the most confidence
- ___ Type B - indicates above average confidence
- _x_ Type C - indicates below average confidence
- ___ Type D - indicates the least or no confidence

The following indicates the Department's purpose for this estimate:

Work Program Update: ______ Gaming 1: ______ Special Purpose: x Docs to RW: ______

Comments:

FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT SEVEN RIGHT OF WAY COST ESTIMATE

HDR#: 10062698-1-12.19

FM#:	424501-1	Alternate:	SMF-13A	District:	Seven
County:	Pinellas	Segment:	N/A	Date:	4-Jan-19
State Rd.:	N/A	FAP#:	N/A	C.E. Sequence	N/A
Project Des.	I-275 From S. of 54th Ave to 4th Ave North Pond Sites				

Parcels	Gross	Net
Commercial	0	0
Residential	6	6
Unimproved	0	0
Total Parcels	6	6

Estimated Relocatees:	
Business	0
Residential	6
Signs	0
Special	0
Total Relocatees	6

R/W SUPPORT COSTS (PHASE 41)

						Amount
1. Direct Labor Cost	(Parcels	6	x	20,000 =	Rate)	120,000
2. Indirect Overhead	(Parcels	6	x	0 =	Rate)	0
3.						
					TOTAL PHASE 41	$120,000

R/W OPS (PHASE 4B)

									Amount
4. Appraisal Fees Through Trial					6	Parcels	x	30,000 =	180,000
5. Business Damage CPA Fees Through Trial					0	Claims	x	19,000 =	0
6. Court Reporter & Process Servers	50%	x	6	=	3	Parcels	x	500 =	1,500
7. Expert Witness	75%	x	6	=	5	Parcels	x	30,000 =	150,000
8. Mediators	75%	x	6	=	5	Parcels	x	2,400 =	12,000
9. Demolition, Asb. Abate., Survey, etc.					8	Imprvmet	x	15,000 =	120,000
10. Miscellaneous Contracts					0	Per Project	x	15,000 =	0
11. Appraisal Fee Review					0	Parcels	x	5,000 =	0
12.									
								TOTAL PHASE 4B	$463,500

R/W LAND COSTS (PHASE 43)

						Amount	Subtotal
13. Land, Improvements & Severance Damages and Cost to Cure Amount		0	x	120%	* *Design plan stage* =	0	
14. Water Retention & Mit. (0 Ponds)		935,965	x	120%	(0 Parcels w/o R/W Acq)	1,123,200	
15. SUBTOTAL (56,628 SF)					(Lines 13 &14)		1,123,200
16. Admin. Settlement:	(Factor	20%	x	60% of Line 15)	=	134,800	
17. Litigation Awards	(Factor	45%	x	40% of Line 15)	=	202,200	
18. Business Damages	(Claims	0	x	0)	=	0	
19. Bus. Damages Incr	(Factor	25%	x	$ -)	=	0	
20. Owner Appr. Fees	(Parcels	6	x	$15,000)	=	90,000	
21. Owner CPA Fees	(Claims	0	x	$16,000)	=	0	
22. Defend.Atty Fees	(Sum of Lines 16, 17 & 19)	337,000	x	33%)	=	111,200	
23. Owner Expert Witn	(Comm.+Unimp.)	0	+	0) x 18,000	=	0	
24. Other Condemn. Costs		6	x	$1,000	=	6,000	
25. SUBTOTAL					(Lines 16 thru 24) =		544,200
26.						TOTAL PHASE 43	$1,667,400

* *Design contingency for design plan stage:*
(1) PD&E plans - 120% (2) 30% plans - 115% (3) 60% plans - 110% (4) 90% plans -105% (5) 268 Date -100%

R/W ACQUISITION CONSULTANT (PHASE 42)

27. Acquisition Consultant-50% of parcels	$20,000	x	0	TOTAL PHASE 42	$0

RELOCATION COSTS (PHASE 45)

			Number		Amount
Replacement Housing					
28. Owner	$35,000	x	6	=	210,000
29. Tenant	$25,000	x	0	=	0
Move Costs					
30. Residential	$5,000	x	6	=	30,000
31. Business/Farm	$40,000	x	0	=	0
32. Personal Property	$3,000	x	0	=	0
33. (Lines 28 thru 32)				TOTAL PHASE 45	$240,000
34. Relocation Services Cost			$24,000	(Not in Phase Total)	

35.
36.
37.

(All Phases) TOTAL ESTIMATE $2,490,900

Real Estate:	Roger D. Patton	Signed:	RDPatton	Date: 01/15/19
Bus. Dam.:	Alfred J. Thompson	Signed:	A.J. Thompson	Date: 01/15/19
Relocation:	Roger D. Patton	Signed:	RDPatton	Date: 01/15/19
Overall Review:	Alfred J. Thompson	Signed:	A.J. Thompson	Date: 01/15/19

Cost Estimate Sequence #: Dated: In the Amount of $ Data Input Completion Date:

REMARKS:

This estimate is for SMF-13A. This is the first cost estimate we have performed for this alternate.

The parcels are all improved residential lots.

The following indicates the estimator's confidence in the above estimate:

	Type A - indicates the most confidence
	Type B - indicates above average confidence
x	Type C - indicates below average confidence
	Type D - indicates the least or no confidence

The following indicates the Department's purpose for this estimate:
Work Program Update: ___ Gaming 1: ___ Special Purpose: x Docs to RW: ___
Comments:

FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT SEVEN RIGHT OF WAY COST ESTIMATE

HDR#: 10062698-1-12.19

FM#:	424501-1	Alternate:	SMF-13B	District:	Seven
County:	Pinellas	Segment:	N/A	Date:	4-Jan-19
State Rd.:	N/A	FAP#:	N/A	C.E. Sequence	N/A
Project Des.	I-275 From S. of 54th Ave to 4th Ave North Pond Sites				

Parcels	Gross	Net
Commercial	0	0
Residential	3	3
Unimproved	0	0
Total Parcels	3	3

Estimated Relocatees:	
Business	2
Residential	4
Signs	0
Special	0
Total Relocatees	6

R/W SUPPORT COSTS (PHASE 41)

						Amount
1. Direct Labor Cost	(Parcels	3	x	20,000 =	Rate)	60,000
2. Indirect Overhead	(Parcels	3	x	0 =	Rate)	0
3.						
					TOTAL PHASE 41	$60,000

R/W OPS (PHASE 4B)

								Amount
4. Appraisal Fees Through Trial				3	Parcels	x	30,000 =	90,000
5. Business Damage CPA Fees Through Trial				0	Claims	x	19,000 =	0
6. Court Reporter & Process Servers	50%	x	3 =	2	Parcels	x	500 =	1,000
7. Expert Witness	75%	x	3 =	2	Parcels	x	30,000 =	60,000
8. Mediators	75%	x	3 =	2	Parcels	x	2,400 =	4,800
9. Demolition, Asb. Abate., Survey, etc.				7	Imprvmet	x	15,000 =	105,000
10. Miscellaneous Contracts				0	Per Project	x	15,000 =	0
11. Appraisal Fee Review				0	Parcels	x	5,000 =	0
12.							TOTAL PHASE 4B	$260,800

R/W LAND COSTS (PHASE 43)

					Amount	Subtotal
13. Land, Improvements & Severance Damages and Cost to Cure Amount	0	x	120%	* *Design plan stage* =	0	
14. Water Retention & Mit. (0 Ponds)	447,316	x	120%	(0 Parcels w/o R/W Acq)	536,800	
15. SUBTOTAL (43,560 SF)				(Lines 13 &14)		536,800
16. Admin. Settlement: (Factor	20%	x	60%	of Line 15) =	64,400	
17. Litigation Awards (Factor	45%	x	40%	of Line 15) =	96,600	
18. Business Damages (Claims	0	x	0)	=	0	
19. Bus. Damages Incr (Factor	25%	x	$ -)	=	0	
20. Owner Appr. Fees (Parcels	3	x	$15,000)	=	45,000	
21. Owner CPA Fees (Claims	0	x	$16,000)	=	0	
22. Defend.Atty Fees (Sum of Lines 16, 17 & 19)	161,000	x	33%)	=	53,100	
23. Owner Expert Witn (Comm.+Unimp.)	0	+	0) x 18,000	=	0	
24. Other Condemn. Costs	3	x	$1,000	=	3,000	
25. SUBTOTAL				(Lines 16 thru 24) =		262,100
26.					TOTAL PHASE 43	$798,900

* *Design contingency for design plan stage:*
(1) PD&E plans - 120% (2) 30% plans - 115% (3) 60% plans - 110% (4) 90% plans -105% (5) 268 Date -100%

R/W ACQUISITION CONSULTANT (PHASE 42)

27. Acquisition Consultant-50% of parcels	$20,000	x	0	TOTAL PHASE 42	$0

RELOCATION COSTS (PHASE 45)

			Number	=	Amount
Replacement Housing					
28. Owner	$35,000	x	1	=	35,000
29. Tenant	$25,000	x	3	=	75,000
Move Costs					
30. Residential	$5,000	x	4	=	20,000
31. Business/Farm	$40,000	x	2	=	80,000
32. Personal Property	$3,000	x	0	=	0
33. (Lines 28 thru 32)				TOTAL PHASE 45	$210,000
34. Relocation Services Cost			$21,000	(Not in Phase Total)	

35.
36.
37.

(All Phases) TOTAL ESTIMATE $1,329,700

Real Estate:	Roger D. Patton	Signed:	R D Patton	Date: 01/15/19
Bus. Dam. :	Alfred J. Thompson	Signed:	A.J. Thompson	Date: 01/15/19
Relocation:	Roger D. Patton	Signed:	R D Patton	Date: 01/15/19
Overall Review:	Alfred J. Thompson	Signed:	A.J. Thompson	Date: 01/15/19

Cost Estimate Sequence #: Dated: In the Amount of $ Data Input Completion Date:

REMARKS: This estimate is for SMF- 13B.

With the exception of some additional platted right of way, this estimate is essentially unchanged from the prior estimate dated July 30, 2018.

The following indicates the estimator's confidence in the above estimate:

	Type A - indicates the most confidence
	Type B - indicates above average confidence
x	Type C - indicates below average confidence
	Type D - indicates the least or no confidence

The following indicates the Department's purpose for this estimate:
Work Program Update: ______ Gaming 1: ______ Special Purpose: x Docs to RW: ______
Comments:

FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT SEVEN RIGHT OF WAY COST ESTIMATE

HDR#: 10062698-1-12.19

FM#:	424501-1	Alternate:	SMF-15A	District:	Seven
County:	Pinellas	Segment:	N/A	Date:	4-Jan-19
State Rd.:	N/A	FAP#:	N/A	C.E. Sequence	N/A

Project Des. I-275 From S. of 54th Ave to 4th Ave North Pond Sites

Parcels	Gross	Net
Commercial	1	1
Residential	0	0
Unimproved	0	0
Total Parcels	1	1

Estimated Relocatees:	
Business	1
Residential	1
Signs	0
Special	1
Total Relocatees	3

R/W SUPPORT COSTS (PHASE 41)

						Amount
1. Direct Labor Cost	(Parcels	1	x	20,000 =	Rate)	20,000
2. Indirect Overhead	(Parcels	1	x	0 =	Rate)	0
3.						

TOTAL PHASE 41 $20,000

R/W OPS (PHASE 4B)

								Amount
4. Appraisal Fees Through Trial				1	Parcels	x	30,000 =	30,000
5. Business Damage CPA Fees Through Trial				0	Claims	x	19,000 =	0
6. Court Reporter & Process Servers	50%	x	1 =	1	Parcels	x	500 =	500
7. Expert Witness	75%	x	1 =	1	Parcels	x	30,000 =	30,000
8. Mediators	75%	x	1 =	1	Parcels	x	2,400 =	2,400
9. Demolition, Asb. Abate., Survey, etc.				1	Imprvmet	x	15,000 =	15,000
10. Miscellaneous Contracts				0	Per Project	x	15,000 =	0
11. Appraisal Fee Review				0	Parcels	x	5,000 =	0
12.								

TOTAL PHASE 4B $77,900

R/W LAND COSTS (PHASE 43)

					Amount	Subtotal
13. Land, Improvements & Severance Damages and Cost to Cure Amount	0	x	120%	* *Design plan stage* =	0	
14. Water Retention & Mit. (0 Ponds)	509,480	x	120%	(0 Parcels w/o R/W Acq)	611,400	
15. SUBTOTAL (43,560 SF)				(Lines 13 &14)		611,400
16. Admin. Settlements (Factor	20%	x	0%	of Line 15) =	0	
17. Litigation Awards (Factor	45%	x	100%	of Line 15) =	275,100	
18. Business Damages (Claims	0	x	0)	=	0	
19. Bus. Damages Incr (Factor	25%	x	$ -)	=	0	
20. Owner Appr. Fees (Parcels	1	x	$15,000)	=	15,000	
21. Owner CPA Fees (Claims	0	x	$16,000)	=	0	
22. Defend.Atty Fees (Sum of Lines 16, 17 & 19)	275,100	x	33%)	=	90,800	
23. Owner Expert Witn (Comm.+Unimp.)	1	+	0) x 18,000	=	18,000	
24. Other Condemn. Costs	1	x	$1,000	=	1,000	
25. SUBTOTAL				(Lines 16 thru 24) =		399,900
26.						

TOTAL PHASE 43 $1,011,300

* *Design contingency for design plan stage:*
(1) PD&E plans - 120% (2) 30% plans - 115% (3) 60% plans - 110% (4) 90% plans -105% (5) 268 Date -100%

R/W ACQUISITION CONSULTANT (PHASE 42)

27. Acquisition Consultant-50% of parcels $20,000 x 0 — TOTAL PHASE 42 $0

RELOCATION COSTS (PHASE 45)

			Number		Amount
Replacement Housing					
28. Owner	$30,000	x	1	=	30,000
29. Tenant	$25,000	x	0	=	0
Move Costs					
30. Residential	$5,000	x	1	=	5,000
31. Business/Farm	$40,000	x	1	=	40,000
32. Personal Property	$3,000	x	1	=	3,000
33. (Lines 28 thru 32)					
34. Relocation Services Cost			$7,800	(Not in Phase Total)	

TOTAL PHASE 45 $78,000

35.
36.
37.

(All Phases) TOTAL ESTIMATE $1,187,200

Real Estate:	Roger D. Patton	Signed:	R.D. Patton	Date:	01/15/19
Bus. Dam. :	Alfred J. Thompson	Signed:	A.J. Thompson	Date:	01/15/19
Relocation:	Roger D. Patton	Signed:	R.D. Patton	Date:	01/15/19
Overall Review:	Alfred J. Thompson	Signed:	A.J. Thompson	Date:	01/15/19

Cost Estimate Sequence #: Dated: In the Amount of $ Data Input Completion Date:

REMARKS: Administrative Settlement and Litigation Awards have been adjusted to reflect one ownership. Administrative settlement is considered to be zero, while litigation is factored at 45%.

This estimate is for SMF- 15A. This is the first cost estimate we have performed for this alternate.

The following indicates the estimator's confidence in the above estimate:

	Type A - indicates the most confidence
	Type B - indicates above average confidence
X	Type C - indicates below average confidence
	Type D - indicates the least or no confidence

The following indicates the Department's purpose for this estimate:

Work Program Update: ______ Gaming 1: ______ Special Purpose: X Docs to RW: ______

Comments:

FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT SEVEN RIGHT OF WAY COST ESTIMATE

HDR#: 10062698-1-12.19

FM#:	424501-1	Alternate:	SMF-15B	District:	Seven
County:	Pinellas	Segment:	N/A	Date:	4-Jan-19
State Rd.:	N/A	FAP#:	N/A	C.E. Sequence	N/A
Project Des.	I-275 From S. of 54th Ave to 4th Ave North Pond Sites				

Parcels	Gross	Net
Commercial	0	0
Residential	7	7
Unimproved	0	0
Total Parcels	7	7

Estimated Relocatees:	
Business	1
Residential	7
Signs	0
Special	0
Total Relocatees	8

R/W SUPPORT COSTS (PHASE 41)

						Amount
1. Direct Labor Cost	(Parcels	7	x	20,000 =	Rate)	140,000
2. Indirect Overhead	(Parcels	7	x	0 =	Rate)	0
3.						

TOTAL PHASE 41 $140,000

R/W OPS (PHASE 4B)

								Amount
4. Appraisal Fees Through Trial				7	Parcels	x	30,000 =	210,000
5. Business Damage CPA Fees Through Trial				0	Claims	x	19,000 =	0
6. Court Reporter & Process Servers	50%	x	7 =	4	Parcels	x	500 =	2,000
7. Expert Witness	75%	x	7 =	5	Parcels	x	30,000 =	150,000
8. Mediators	75%	x	7 =	5	Parcels	x	2,400 =	12,000
9. Demolition, Asb. Abate., Survey, etc.				10	Imprvmet	x	15,000 =	150,000
10. Miscellaneous Contracts				0	Per Project	x	15,000 =	0
11. Appraisal Fee Review				0	Parcels	x	5,000 =	0
12.								

TOTAL PHASE 4B $524,000

R/W LAND COSTS (PHASE 43)

					Amount	Subtotal
13. Land, Improvements & Severance Damages and Cost to Cure Amount	0	x	120%	* *Design plan stage* =	0	
14. Water Retention & Mit. (0 Ponds)	936,788	x	120%	(0 Parcels w/o R/W Acq)	1,124,100	
15. SUBTOTAL (52,272 SF)				(Lines 13 &14)		1,124,100
16. Admin. Settlement: (Factor	20%	x	60%	of Line 15) =	134,900	
17. Litigation Awards (Factor	45%	x	40%	of Line 15) =	202,300	
18. Business Damages (Claims	0	x	0)	=	0	
19. Bus. Damages Incr (Factor	25%	x	$ -)	=	0	
20. Owner Appr. Fees (Parcels	7	x	$15,000)	=	105,000	
21. Owner CPA Fees (Claims	0	x	$16,000)	=	0	
22. Defend.Atty Fees (Sum of Lines 16, 17 & 19)	337,200	x	33%)	=	111,300	
23. Owner Expert Witn (Comm.+Unimp.)	0	+	0) x 18,000	=	0	
24. Other Condemn. Costs	7	x	$1,000	=	7,000	
25. SUBTOTAL				(Lines 16 thru 24) =		560,500
26.						

TOTAL PHASE 43 $1,684,600

* *Design contingency for design plan stage:*
(1) PD&E plans - 120% (2) 30% plans - 115% (3) 60% plans - 110% (4) 90% plans -105% (5) 268 Date -100%

R/W ACQUISITION CONSULTANT (PHASE 42)

27. Acquisition Consultant-50% of parcels $20,000 x 0

TOTAL PHASE 42 $0

RELOCATION COSTS (PHASE 45)

			Number		Amount
Replacement Housing					
28. Owner	$35,000	x	6	=	210,000
29. Tenant	$25,000	x	1	=	25,000
Move Costs					
30. Residential	$5,000	x	7	=	35,000
31. Business/Farm	$40,000	x	1	=	40,000
32. Personal Property	$3,000	x	0	=	0
33. (Lines 28 thru 32)					
34. Relocation Services Cost			$31,000	(Not in Phase Total)	

TOTAL PHASE 45 $310,000

35.
36.
37.

(All Phases) TOTAL ESTIMATE $2,658,600

Real Estate:	Roger D. Patton	Signed:	R.D. Patton	Date: 01/15/19
Bus. Dam.:	Alfred J. Thompson	Signed:	A.J. Thompson	Date: 01/15/19
Relocation:	Roger D. Patton	Signed:	R.D. Patton	Date: 01/15/19
Overall Review:	Alfred J. Thompson	Signed:	A.J. Thompson	Date: 01/15/19

Cost Estimate Sequence #: Dated: In the Amount of $ Data Input Completion Date:

REMARKS:

This estimate is for SMF-15B and is the first estimate we have performed for this alternate.

The following indicates the estimator's confidence in the above estimate:

- ___ Type A - indicates the most confidence
- ___ Type B - indicates above average confidence
- x Type C - indicates below average confidence
- ___ Type D - indicates the least or no confidence

The following indicates the Department's purpose for this estimate:

Work Program Update: ___ Gaming 1: ___ Special Purpose: x Docs to RW: ___

Comments:

FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT SEVEN RIGHT OF WAY COST ESTIMATE

HDR#: 10062698-1-12.19

FM#:	424501-1	Alternate:	SMF-15C	District:	Seven
County:	Pinellas	Segment:	N/A	Date:	4-Jan-19
State Rd.:	N/A	FAP#:	N/A	C.E. Sequence	N/A
Project Des.	I-275 From S. of 54th Ave to 4th Ave North Pond Sites				

Parcels	Gross	Net
Commercial	0	0
Residential	6	6
Unimproved	0	0
Total Parcels	6	6

Estimated Relocatees:	
Business	2
Residential	6
Signs	0
Special	0
Total Relocatees	8

R/W SUPPORT COSTS (PHASE 41)

						Amount
1. Direct Labor Cost	(Parcels	6	x	20,000 =	Rate)	120,000
2. Indirect Overhead	(Parcels	6	x	0 =	Rate)	0
3.						
					TOTAL PHASE 41	$120,000

R/W OPS (PHASE 4B)

									Amount
4. Appraisal Fees Through Trial				6	Parcels	x	30,000 =		180,000
5. Business Damage CPA Fees Through Trial				0	Claims	x	19,000 =		0
6. Court Reporter & Process Servers	50%	x	6 =	3	Parcels	x	500 =		1,500
7. Expert Witness	75%	x	6 =	5	Parcels	x	30,000 =		150,000
8. Mediators	75%	x	6 =	5	Parcels	x	2,400 =		12,000
9. Demolition, Asb. Abate., Survey, etc.				8	Imprvmet	x	15,000 =		120,000
10. Miscellaneous Contracts				0	Per Project	x	15,000 =		0
11. Appraisal Fee Review				0	Parcels	x	5,000 =		0
12.									
							TOTAL PHASE 4B		$463,500

R/W LAND COSTS (PHASE 43)

					Amount	Subtotal
13. Land, Improvements & Severance Damages and Cost to Cure Amount	0	x	120%	* Design plan stage =	0	
14. Water Retention & Mit. (0 Ponds)	817,620	x	120%	(0 Parcels w/o R/W Acq)	981,100	
15. SUBTOTAL (53,062 SF)				(Lines 13 &14)		981,100
16. Admin. Settlements (Factor	20%	x	60% of Line 15)	=	117,700	
17. Litigation Awards (Factor	45%	x	40% of Line 15)	=	176,600	
18. Business Damages (Claims	0	x	0)	=	0	
19. Bus. Damages Incr (Factor	25%	x	$ -)	=	0	
20. Owner Appr. Fees (Parcels	6	x	$15,000)	=	90,000	
21. Owner CPA Fees (Claims	0	x	$16,000)	=	0	
22. Defend.Atty Fees (Sum of Lines 16, 17 & 19)	294,300	x	33%)	=	97,100	
23. Owner Expert Witn (Comm.+Unimp.)	0	+	0) x 18,000	=	0	
24. Other Condemn. Costs	6	x	$1,000	=	6,000	
25. SUBTOTAL				(Lines 16 thru 24) =		487,400
26.					TOTAL PHASE 43	$1,468,500

* *Design contingency for design plan stage:*
(1) PD&E plans - 120% (2) 30% plans - 115% (3) 60% plans - 110% (4) 90% plans -105% (5) 268 Date -100%

R/W ACQUISITION CONSULTANT (PHASE 42)

27. Acquisition Consultant-50% of parcels	$20,000	x	0	TOTAL PHASE 42	$0

RELOCATION COSTS (PHASE 45)

			Number		Amount
Replacement Housing					
28. Owner	$35,000	x	4	=	140,000
29. Tenant	$25,000	x	2	=	50,000
Move Costs					
30. Residential	$5,000	x	6	=	30,000
31. Business/Farm	$40,000	x	2	=	80,000
32. Personal Property	$3,000	x	0	=	0
33. (Lines 28 thru 32)				TOTAL PHASE 45	$300,000
34. Relocation Services Cost			$30,000	(Not in Phase Total)	

35.
36.
37. (All Phases) TOTAL ESTIMATE $2,352,000

Real Estate:	Roger D. Patton	Signed:	R D Patton	Date:	01/15/19
Bus. Dam. :	Alfred J. Thompson	Signed:	A.J. Thompson	Date:	01/15/19
Relocation:	Roger D. Patton	Signed:	R D Patton	Date:	01/15/19
Overall Review:	Alfred J. Thompson	Signed:	A.J. Thompson	Date:	01/15/19

Cost Estimate Sequence #: Dated: In the Amount of $ Data Input Completion Date:

REMARKS:

This estimate is for SMF-15C and is the first estimate we have performed for this alternate.

The following indicates the estimator's confidence in the above estimate:

- ____ Type A - indicates the most confidence
- ____ Type B - indicates above average confidence
- x Type C - indicates below average confidence
- ____ Type D - indicates the least or no confidence

The following indicates the Department's purpose for this estimate:
Work Program Update: ____ Gaming 1: ____ Special Purpose: x Docs to RW: ____
Comments:

FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT SEVEN RIGHT OF WAY COST ESTIMATE

HDR#: 10062698-1-12.19

FM#:	424501-1	Alternate:	SMF-16A	District:	Seven
County:	Pinellas	Segment:	N/A	Date:	4-Jan-19
State Rd.:	N/A	FAP#:	N/A	C.E. Sequence	N/A
Project Des.	I-275 From S. of 54th Ave to 4th Ave North Pond Sites				

Parcels	Gross	Net
Commercial	0	0
Residential	6	6
Unimproved	0	0
Total Parcels	6	6

Estimated Relocatees:	
Business	5
Residential	7
Signs	0
Special	0
Total Relocatees	12

R/W SUPPORT COSTS (PHASE 41)

							Amount
1. Direct Labor Cost	(Parcels	6	x	20,000 =	Rate)		120,000
2. Indirect Overhead	(Parcels	6	x	0 =	Rate)		0
3.						TOTAL PHASE 41	$120,000

R/W OPS (PHASE 4B)

								Amount
4. Appraisal Fees Through Trial				6	Parcels	x	30,000 =	180,000
5. Business Damage CPA Fees Through Trial				0	Claims	x	19,000 =	0
6. Court Reporter & Process Servers	50%	x	6 =	3	Parcels	x	500 =	1,500
7. Expert Witness	75%	x	6 =	5	Parcels	x	30,000 =	150,000
8. Mediators	75%	x	6 =	5	Parcels	x	2,400 =	12,000
9. Demolition, Asb. Abate., Survey, etc.				7	Imprvmet	x	15,000 =	105,000
10. Miscellaneous Contracts				0	Per Project	x	15,000 =	0
11. Appraisal Fee Review				0	Parcels	x	5,000 =	0
12.							TOTAL PHASE 4B	$448,500

R/W LAND COSTS (PHASE 43)

					Amount	Subtotal
13. Land, Improvements & Severance Damages and Cost to Cure Amount	0	x	120%	* *Design plan stage* =	0	
14. Water Retention & Mit. (0 Ponds)	929,426	x	120%	(0 Parcels w/o R/W Acq)	1,115,300	
15. SUBTOTAL (68,915 SF)				(Lines 13 &14)		1,115,300
16. Admin. Settlements (Factor	20%	x	60%	of Line 15) =	133,800	
17. Litigation Awards (Factor	45%	x	40%	of Line 15) =	200,800	
18. Business Damages (Claims	0	x	0)	=	0	
19. Bus. Damages Incr (Factor	25%	x	$ -)	=	0	
20. Owner Appr. Fees (Parcels	6	x	$15,000)	=	90,000	
21. Owner CPA Fees (Claims	0	x	$16,000)	=	0	
22. Defend.Atty Fees (Sum of Lines 16, 17 & 19)	334,600	x	33%)	=	110,400	
23. Owner Expert Witn (Comm.+Unimp.)	0	+	0) x 18,000	=	0	
24. Other Condemn. Costs	6	x	$1,000	=	6,000	
25. SUBTOTAL				(Lines 16 thru 24) =		541,000
26.					TOTAL PHASE 43	$1,656,300

* *Design contingency for design plan stage:*
(1) PD&E plans - 120% (2) 30% plans - 115% (3) 60% plans - 110% (4) 90% plans -105% (5) 268 Date -100%

R/W ACQUISITION CONSULTANT (PHASE 42)

27. Acquisition Consultant-50% of parcels	$20,000	x	0	TOTAL PHASE 42	$0

RELOCATION COSTS (PHASE 45)

Replacement Housing			Number		Amount
28. Owner	$35,000	x	1	=	35,000
29. Tenant	$25,000	x	6	=	150,000
Move Costs					
30. Residential	$5,000	x	7	=	35,000
31. Business/Farm	$40,000	x	5	=	200,000
32. Personal Property	$3,000	x	0	=	0
33. (Lines 28 thru 32)				TOTAL PHASE 45	$420,000
34. Relocation Services Cost			$42,000	(Not in Phase Total)	

35.
36.
37. (All Phases) TOTAL ESTIMATE $2,644,800

Real Estate:	Roger D. Patton	Signed:	[signature]	Date:	01/15/19
Bus. Dam. :	Alfred J. Thompson	Signed:	A. J. Thompson	Date:	01/15/19
Relocation:	Roger D. Patton	Signed:	[signature]	Date:	01/15/19
Overall Review:	Alfred J. Thompson	Signed:	A. J. Thompson	Date:	01/15/19

Cost Estimate Sequence #: Dated: In the Amount of $ Data Input Completion Date:

REMARKS:

This estimate is for SMF-16A and is the first estimate we have performed for this alternate.

The following indicates the estimator's confidence in the above estimate:
- ____ Type A - indicates the most confidence
- ____ Type B - indicates above average confidence
- __x__ Type C - indicates below average confidence
- ____ Type D - indicates the least or no confidence

The following indicates the Department's purpose for this estimate:
Work Program Update: ____ Gaming 1: ____ Special Purpose: __x__ Docs to RW: ____
Comments:

FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT SEVEN RIGHT OF WAY COST ESTIMATE

HDR#: 10062698-1-12.19

FM#:	424501-1	Alternate:	SMF-16B	District:	Seven
County:	Pinellas	Segment:	N/A	Date:	4-Jan-19
State Rd.:	N/A	FAP#:	N/A	C.E. Sequence	N/A
Project Des.	I-275 From S. of 54th Ave to 4th Ave North Pond Sites				

Parcels	Gross	Net
Commercial	0	0
Residential	7	7
Unimproved	1	1
Total Parcels	8	8

Estimated Relocatees:	
Business	5
Residential	9
Signs	0
Special	0
Total Relocatees	14

R/W SUPPORT COSTS (PHASE 41)

						Amount
1. Direct Labor Cost	(Parcels	8	x	20,000 =	Rate)	160,000
2. Indirect Overhead	(Parcels	8	x	0 =	Rate)	0
3.						
					TOTAL PHASE 41	$160,000

R/W OPS (PHASE 4B)

									Amount
4. Appraisal Fees Through Trial					8	Parcels	x	30,000 =	240,000
5. Business Damage CPA Fees Through Trial					0	Claims	x	19,000 =	0
6. Court Reporter & Process Servers	50%	x	8	=	4	Parcels	x	500 =	2,000
7. Expert Witness	75%	x	8	=	6	Parcels	x	30,000 =	180,000
8. Mediators	75%	x	8	=	6	Parcels	x	2,400 =	14,400
9. Demolition, Asb. Abate., Survey, etc.					9	Imprvmet	x	15,000 =	135,000
10. Miscellaneous Contracts					0	Per Project	x	15,000 =	0
11. Appraisal Fee Review					0	Parcels	x	5,000 =	0
12.								TOTAL PHASE 4B	$571,400

R/W LAND COSTS (PHASE 43)

						Amount	Subtotal
13. Land, Improvements & Severance Damages and Cost to Cure Amount	0	x	120%	* *Design plan stage*	=	0	
14. Water Retention & Mit. (0 Ponds)	1,240,240	x	120%	(0 Parcels w/o R/W Acq)		1,488,300	
15. SUBTOTAL (60,325 SF)				(Lines 13 &14)			1,488,300
16. Admin. Settlement (Factor	20%	x	60%	of Line 15)	=	178,600	
17. Litigation Awards (Factor	45%	x	40%	of Line 15)	=	267,900	
18. Business Damages (Claims	0	x	0)		=	0	
19. Bus. Damages Incr (Factor	25%	x	$ -)		=	0	
20. Owner Appr. Fees (Parcels	8	x	$15,000)		=	120,000	
21. Owner CPA Fees (Claims	0	x	$16,000)		=	0	
22. Defend.Atty Fees (Sum of Lines 16, 17 & 19)	446,500	x	33%)		=	147,300	
23. Owner Expert Witn (Comm.+Unimp.)	0	+	1) x 18,000		=	18,000	
24. Other Condemn. Costs	8	x	$1,000		=	8,000	
25. SUBTOTAL				(Lines 16 thru 24)	=		739,800
26.						TOTAL PHASE 43	$2,228,100

* *Design contingency for design plan stage:*
(1) PD&E plans - 120% (2) 30% plans - 115% (3) 60% plans - 110% (4) 90% plans -105% (5) 268 Date -100%

R/W ACQUISITION CONSULTANT (PHASE 42)

27. Acquisition Consultant-50% of parcels	$20,000	x	0	TOTAL PHASE 42	$0

RELOCATION COSTS (PHASE 45)

Replacement Housing			Number		Amount
28. Owner	$35,000	x	2	=	70,000
29. Tenant	$25,000	x	7	=	175,000
Move Costs					
30. Residential	$5,000	x	9	=	45,000
31. Business/Farm	$40,000	x	5	=	200,000
32. Personal Property	$3,000	x	0	=	0
33. (Lines 28 thru 32)				TOTAL PHASE 45	$490,000
34. Relocation Services Cost			$49,000	(Not in Phase Total)	

35.
36.
37. (All Phases) TOTAL ESTIMATE $3,449,500

Real Estate:	Roger D. Patton	Signed:		Date:	01/15/19
Bus. Dam. :	Alfred J. Thompson	Signed:	A.J. Thompson	Date:	01/15/19
Relocation:	Roger D. Patton	Signed:		Date:	01/15/19
Overall Review:	Alfred J. Thompson	Signed:	A.J. Thompson	Date:	01/15/19

Cost Estimate Sequence #: Dated: In the Amount of $ Data Input Completion Date:

REMARKS:

This estimate is for SMF-16B and is the first estimate we have performed for this alternate.

The following indicates the estimator's confidence in the above estimate:

- ___ Type A - indicates the most confidence
- ___ Type B - indicates above average confidence
- x Type C - indicates below average confidence
- ___ Type D - indicates the least or no confidence

The following indicates the Department's purpose for this estimate:
Work Program Update: ___ Gaming 1: ___ Special Purpose: x Docs to RW: ___
Comments:

FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT SEVEN RIGHT OF WAY COST ESTIMATE

HDR#: 10062698-1-12.19

FM#:	424501-1	Alternate:	SMF-16C	District:	Seven
County:	Pinellas	Segment:	N/A	Date:	4-Jan-19
State Rd.:	N/A	FAP#:	N/A	C.E. Sequence	N/A

Project Des. I-275 From S. of 54th Ave to 4th Ave North Pond Sites

Parcels	Gross	Net
Commercial	0	0
Residential	8	8
Unimproved	1	2
Total Parcels	9	10

Estimated Relocatees:	
Business	2
Residential	8
Signs	0
Special	0
Total Relocatees	10

R/W SUPPORT COSTS (PHASE 41)

							Amount
1. Direct Labor Cost	(Parcels	10	x	20,000 =	Rate)		200,000
2. Indirect Overhead	(Parcels	10	x	0 =	Rate)		0
3.						TOTAL PHASE 41	$200,000

R/W OPS (PHASE 4B)

									Amount
4. Appraisal Fees Through Trial					10	Parcels	x	30,000 =	300,000
5. Business Damage CPA Fees Through Trial					0	Claims	x	19,000 =	0
6. Court Reporter & Process Servers	50%	x	10	=	5	Parcels	x	500 =	2,500
7. Expert Witness	75%	x	10	=	8	Parcels	x	30,000 =	240,000
8. Mediators	75%	x	10	=	8	Parcels	x	2,400 =	19,200
9. Demolition, Asb. Abate., Survey, etc.					8	Imprvmet	x	15,000 =	120,000
10. Miscellaneous Contracts					0	Per Project	x	15,000 =	0
11. Appraisal Fee Review					0	Parcels	x	5,000 =	0
12.								TOTAL PHASE 4B	$681,700

R/W LAND COSTS (PHASE 43)

					Amount	Subtotal
13. Land, Improvements & Severance Damages and Cost to Cure Amount	0	x	120%	* *Design plan stage* =	0	
14. Water Retention & Mit. (0 Ponds)	1,161,663	x	120%	(0 Parcels w/o R/W Acq)	1,394,000	
15. SUBTOTAL (56,628 SF)				(Lines 13 &14)		1,394,000
16. Admin. Settlements (Factor	20%	x	60%	of Line 15) =	167,300	
17. Litigation Awards (Factor	45%	x	40%	of Line 15) =	250,900	
18. Business Damages (Claims	0	x	0)	=	0	
19. Bus. Damages Incr (Factor	25%	x	$ -)	=	0	
20. Owner Appr. Fees (Parcels	10	x	$15,000)	=	150,000	
21. Owner CPA Fees (Claims	0	x	$16,000)	=	0	
22. Defend.Atty Fees (Sum of Lines 16, 17 & 19)	418,200	x	33%)	=	138,000	
23. Owner Expert Witn (Comm.+Unimp.)	0	+	2) x 18,000	=	36,000	
24. Other Condemn. Costs	10	x	$1,000	=	10,000	
25. SUBTOTAL				(Lines 16 thru 24) =		752,200
26.					TOTAL PHASE 43	$2,146,200

* *Design contingency for design plan stage:*
(1) PD&E plans - 120% (2) 30% plans - 115% (3) 60% plans - 110% (4) 90% plans -105% (5) 268 Date -100%

R/W ACQUISITION CONSULTANT (PHASE 42)

27. Acquisition Consultant-50% of parcels	$20,000	x	0	TOTAL PHASE 42	$0

RELOCATION COSTS (PHASE 45)

			Number		Amount
Replacement Housing					
28. Owner	$35,000	x	6	=	210,000
29. Tenant	$25,000	x	2	=	50,000
Move Costs					
30. Residential	$5,000	x	8	=	40,000
31. Business/Farm	$40,000	x	2	=	80,000
32. Personal Property	$3,000	x	0	=	0
33. (Lines 28 thru 32)				TOTAL PHASE 45	$380,000
34. Relocation Services Cost			$38,000	(Not in Phase Total)	

35.
36.
37. (All Phases) TOTAL ESTIMATE $3,407,900

Real Estate:	Roger D. Patton	Signed:	[signature]	Date:	01/15/19
Bus. Dam. :	Alfred J. Thompson	Signed:	A. J. Thompson	Date:	01/15/19
Relocation:	Roger D. Patton	Signed:	[signature]	Date:	01/15/19
Overall Review:	Alfred J. Thompson	Signed:	A. J. Thompson	Date:	01/15/19

Cost Estimate Sequence #: Dated: In the Amount of $ Data Input Completion Date:

REMARKS:

This estimate is for SMF-16C and is the first estimate we have performed for this alternate.

The following indicates the estimator's confidence in the above estimate:

- ____ Type A - indicates the most confidence
- ____ Type B - indicates above average confidence
- x Type C - indicates below average confidence
- ____ Type D - indicates the least or no confidence

The following indicates the Department's purpose for this estimate:
Work Program Update: ____ Gaming 1: ____ Special Purpose: x Docs to RW: ____
Comments:

FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT SEVEN RIGHT OF WAY COST ESTIMATE

HDR#: 10062698-1-12.19

FM#:	424501-1	Alternate:	SMF-18A	District:	Seven
County:	Pinellas	Segment:	N/A	Date:	4-Jan-19
State Rd.:	N/A	FAP#:	N/A	C.E. Sequence	N/A
Project Des.	I-275 From S. of 54th Ave to 4th Ave North Pond Sites				

Parcels	Gross	Net
Commercial	0	0
Residential	4	4
Unimproved	0	0
Total Parcels	4	4

Estimated Relocatees:	
Business	1
Residential	4
Signs	0
Special	0
Total Relocatees	5

R/W SUPPORT COSTS (PHASE 41)

						Amount
1. Direct Labor Cost	(Parcels	4	x	20,000 =	Rate)	80,000
2. Indirect Overhead	(Parcels	4	x	0 =	Rate)	0
3.					TOTAL PHASE 41	$80,000

R/W OPS (PHASE 4B)

								Amount
4. Appraisal Fees Through Trial				4	Parcels	x	30,000 =	120,000
5. Business Damage CPA Fees Through Trial				0	Claims	x	19,000 =	0
6. Court Reporter & Process Servers	50%	x	4 =	2	Parcels	x	500 =	1,000
7. Expert Witness	75%	x	4 =	3	Parcels	x	30,000 =	90,000
8. Mediators	75%	x	4 =	3	Parcels	x	2,400 =	7,200
9. Demolition, Asb. Abate., Survey, etc.				4	Imprvmet	x	15,000 =	60,000
10. Miscellaneous Contracts				0	Per Project	x	15,000 =	0
11. Appraisal Fee Review				0	Parcels	x	5,000 =	0
12.							TOTAL PHASE 4B	$278,200

R/W LAND COSTS (PHASE 43)

					Amount	Subtotal
13. Land, Improvements & Severance Damages and Cost to Cure Amount	0	x	120%	* *Design plan stage* =	0	
14. Water Retention & Mit. (0 Ponds)	1,318,713	x	120%	(0 Parcels w/o R/W Acq)	1,582,500	
15. SUBTOTAL (174,474 SF)				(Lines 13 &14)		1,582,500
16. Admin. Settlements (Factor	20%	x	60%	of Line 15) =	189,900	
17. Litigation Awards (Factor	45%	x	40%	of Line 15) =	284,900	
18. Business Damages (Claims	0	x	0)	=	0	
19. Bus. Damages Incr (Factor	25%	x	$ -)	=	0	
20. Owner Appr. Fees (Parcels	4	x	$15,000)	=	60,000	
21. Owner CPA Fees (Claims	0	x	$16,000)	=	0	
22. Defend.Atty Fees (Sum of Lines 16, 17 & 19)	474,800	x	33%)	=	156,700	
23. Owner Expert Witn (Comm.+Unimp.)	0	+	0) x 18,000	=	0	
24. Other Condemn. Costs	4	x	$1,000	=	4,000	
25. SUBTOTAL				(Lines 16 thru 24) =		695,500
26.					TOTAL PHASE 43	$2,278,000

* *Design contingency for design plan stage:*
(1) PD&E plans - 120% (2) 30% plans - 115% (3) 60% plans - 110% (4) 90% plans -105% (5) 268 Date -100%

R/W ACQUISITION CONSULTANT (PHASE 42)

27. Acquisition Consultant-50% of parcels	$20,000	x	0	TOTAL PHASE 42	$0

RELOCATION COSTS (PHASE 45)

			Number	=	Amount
Replacement Housing					
28. Owner	$35,000	x	3	=	105,000
29. Tenant	$25,000	x	1	=	25,000
Move Costs					
30. Residential	$5,000	x	4	=	20,000
31. Business/Farm	$40,000	x	1	=	40,000
32. Personal Property	$3,000	x	0	=	0
33. (Lines 28 thru 32)				TOTAL PHASE 45	$190,000
34. Relocation Services Cost			$19,000	(Not in Phase Total)	

35.
36.
37. (All Phases) TOTAL ESTIMATE $2,826,200

Real Estate:	Roger D. Patton	Signed:	RDPatton	Date:	01/15/19
Bus. Dam. :	Alfred J. Thompson	Signed:	A. J. Thompson	Date:	01/15/19
Relocation:	Roger D. Patton	Signed:	RDPatton	Date:	01/15/19
Overall Review:	Alfred J. Thompson	Signed:	A. J. Thompson	Date:	01/15/19

Cost Estimate Sequence #: Dated: In the Amount of $ Data Input Completion Date:

REMARKS:

This estimate is for SMF-18A. The prior estimate dated July 30, 2018 included only a portion of this current alternate.

This alternate now inlcudes 4 parcels with above average residential improvements.

The following indicates the estimator's confidence in the above estimate:

- ____ Type A - indicates the most confidence
- ____ Type B - indicates above average confidence
- x Type C - indicates below average confidence
- ____ Type D - indicates the least or no confidence

The following indicates the Department's purpose for this estimate:
Work Program Update: ____ Gaming 1: ____ Special Purpose: x Docs to RW: ____
Comments:

FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT SEVEN RIGHT OF WAY COST ESTIMATE HDR#: 10062698-1-12.19

FM#:	424501-1	Alternate:	SMF-18B	District:	Seven
County:	Pinellas	Segment:	N/A	Date:	4-Jan-19
State Rd.:	N/A	FAP#:	N/A	C.E. Sequence	N/A
Project Des.	I-275 From S. of 54th Ave to 4th Ave North Pond Sites				

Parcels	Gross	Net
Commercial	1	1
Residential	0	0
Unimproved	0	0
Total Parcels	1	1

Estimated Relocatees:	
Business	0
Residential	0
Signs	0
Special	0
Total Relocatees	0

R/W SUPPORT COSTS (PHASE 41)

						Amount
1. Direct Labor Cost	(Parcels	1	x	20,000 =	Rate)	20,000
2. Indirect Overhead	(Parcels	1	x	0 =	Rate)	0
3.					TOTAL PHASE 41	$20,000

R/W OPS (PHASE 4B)

								Amount
4. Appraisal Fees Through Trial				1	Parcels	x	30,000 =	30,000
5. Business Damage CPA Fees Through Trial				0	Claims	x	19,000 =	0
6. Court Reporter & Process Servers	50%	x	1 =	1	Parcels	x	500 =	500
7. Expert Witness	75%	x	1 =	1	Parcels	x	30,000 =	30,000
8. Mediators	75%	x	1 =	1	Parcels	x	2,400 =	2,400
9. Demolition, Asb. Abate., Survey, etc.				0	Imprvmet	x	15,000 =	0
10. Miscellaneous Contracts				0	Per Project	x	15,000 =	0
11. Appraisal Fee Review				0	Parcels	x	5,000 =	0
12.							TOTAL PHASE 4B	$62,900

R/W LAND COSTS (PHASE 43)

					Amount	Subtotal
13. Land, Improvements & Severance Damages and Cost to Cure Amount	0	x	120%	* *Design plan stage* =	0	
14. Water Retention & Mit. (0 Ponds)	326,700	x	120%	(0 Parcels w/o R/W Acq)	392,000	
15. SUBTOTAL (217,800)				(Lines 13 &14)		392,000
16. Admin. Settlements (Factor	20%	x	100% of Line 15)	=	78,400	
17. Litigation Awards (Factor	45%	x	0% of Line 15)	=	0	
18. Business Damages (Claims	0	x	0)	=	0	
19. Bus. Damages Incr (Factor	25%	x	$ -)	=	0	
20. Owner Appr. Fees (Parcels	1	x	$15,000)	=	15,000	
21. Owner CPA Fees (Claims	0	x	$16,000)	=	0	
22. Defend.Atty Fees (Sum of Lines 16, 17 & 19)	78,400	x	33%)	=	25,900	
23. Owner Expert Witn (Comm.+Unimp.)	1	+	0) x 18,000	=	18,000	
24. Other Condemn. Costs	1	x	$1,000	=	1,000	
25. SUBTOTAL				(Lines 16 thru 24) =		138,300
26.					TOTAL PHASE 43	$530,300

* *Design contingency for design plan stage:*
(1) PD&E plans - 120% (2) 30% plans - 115% (3) 60% plans - 110% (4) 90% plans -105% (5) 268 Date -100%

R/W ACQUISITION CONSULTANT (PHASE 42)

27. Acquisition Consultant-50% of parcels	$20,000	x	0	TOTAL PHASE 42	$0

RELOCATION COSTS (PHASE 45)

			Number		Amount
Replacement Housing					
28. Owner	$30,000	x	0	=	0
29. Tenant	$25,000	x	0	=	0
Move Costs					
30. Residential	$5,000	x	0	=	0
31. Business/Farm	$40,000	x	0	=	0
32. Personal Property	$3,000	x	0	=	0
33. (Lines 28 thru 32)				TOTAL PHASE 45	$0
34. Relocation Services Cost			$0	(Not in Phase Total)	

35.
36.
37. (All Phases) TOTAL ESTIMATE $613,200

Real Estate:	Roger D. Patton	Signed:	[signature]	Date:	01/15/19
Bus. Dam. :	Alfred J. Thompson	Signed:	A. J. Thompson	Date:	01/15/19
Relocation:	Roger D. Patton	Signed:	[signature]	Date:	01/15/19
Overall Review:	Alfred J. Thompson	Signed:	A. J. Thompson	Date:	01/15/19

Cost Estimate Sequence #: Dated: In the Amount of $ Data Input Completion Date:

REMARKS: Administrative Settlement and Litigation Awards have been adjusted to reflect one ownership. Administrative settlement is considered to be 100%, while litigation is factored at zero.

This estimate is for SMF-18B. The prior estimate dated July 30, 2018 was for a smaller site, but the unit price is unchanged.

The following indicates the estimator's confidence in the above estimate:
___ Type A - indicates the most confidence
___ Type B - indicates above average confidence
X Type C - indicates below average confidence
___ Type D - indicates the least or no confidence

The following indicates the Department's purpose for this estimate:
Work Program Update: ___ Gaming 1: ___ Special Purpose: x Docs to RW: ___
Comments:

FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT SEVEN RIGHT OF WAY COST ESTIMATE

HDR#: 10062698-1-12.19

FM#:	424501-1	Alternate:	SMF-20A	District:	Seven
County:	Pinellas	Segment:	N/A	Date:	4-Jan-19
State Rd.:	N/A	FAP#:	N/A	C.E. Sequence	N/A
Project Des.	I-275 From S. of 54th Ave to 4th Ave North Pond Sites				

Parcels	Gross	Net
Commercial	1	1
Residential	0	0
Unimproved	0	0
Total Parcels	1	1

Estimated Relocatees:	
Business	0
Residential	0
Signs	0
Special	0
Total Relocatees	0

R/W SUPPORT COSTS (PHASE 41)

						Amount
1. Direct Labor Cost	(Parcels	1	x	20,000 =	Rate)	20,000
2. Indirect Overhead	(Parcels	1	x	0 =	Rate)	0
3.						
					TOTAL PHASE 41	$20,000

R/W OPS (PHASE 4B)

									Amount
4. Appraisal Fees Through Trial					1	Parcels	x	30,000 =	30,000
5. Business Damage CPA Fees Through Trial					0	Claims	x	19,000 =	0
6. Court Reporter & Process Servers	50%	x	1	=	1	Parcels	x	500 =	500
7. Expert Witness	75%	x	1	=	1	Parcels	x	30,000 =	30,000
8. Mediators	75%	x	1	=	1	Parcels	x	2,400 =	2,400
9. Demolition, Asb. Abate., Survey, etc.					0	Imprvmet	x	15,000 =	0
10. Miscellaneous Contracts					0	Per Project	x	15,000 =	0
11. Appraisal Fee Review					0	Parcels	x	5,000 =	0
12.									
								TOTAL PHASE 4B	$62,900

R/W LAND COSTS (PHASE 43)

						Amount	Subtotal
13. Land, Improvements & Severance Damages and Cost to Cure Amount	0	x	120%	* *Design plan stage*	=	0	
14. Water Retention & Mit. (0 Ponds)	357,192	x	120%	(0 Parcels w/o R/W Acq)		428,600	
15. SUBTOTAL (91,746)				(Lines 13 &14)			428,600
16. Admin. Settlements (Factor	20%	x	0%	of Line 15)	=	0	
17. Litigation Awards (Factor	45%	x	100%	of Line 15)	=	192,900	
18. Business Damages (Claims	0	x	0)		=	0	
19. Bus. Damages Incr (Factor	25%	x	$ -)		=	0	
20. Owner Appr. Fees (Parcels	1	x	$15,000)		=	15,000	
21. Owner CPA Fees (Claims	0	x	$16,000)		=	0	
22. Defend.Atty Fees (Sum of Lines 16, 17 & 19)	192,900	x	33%)		=	63,700	
23. Owner Expert Witn (Comm.+Unimp.)	1	+	0) x 18,000		=	18,000	
24. Other Condemn. Costs	1	x	$1,000		=	1,000	
25. SUBTOTAL				(Lines 16 thru 24)	=		290,600
26.						TOTAL PHASE 43	$719,200

* *Design contingency for design plan stage:*
(1) PD&E plans - 120% (2) 30% plans - 115% (3) 60% plans - 110% (4) 90% plans -105% (5) 268 Date -100%

R/W ACQUISITION CONSULTANT (PHASE 42)

27. Acquisition Consultant-50% of parcels	$20,000	x	0	TOTAL PHASE 42	$0

RELOCATION COSTS (PHASE 45)

			Number		Amount
Replacement Housing					
28. Owner	$30,000	x	0	=	0
29. Tenant	$25,000	x	0	=	0
Move Costs					
30. Residential	$5,000	x	0	=	0
31. Business/Farm	$40,000	x	0	=	0
32. Personal Property	$3,000	x	0	=	0
33. (Lines 28 thru 32)				TOTAL PHASE 45	$0
34. Relocation Services Cost			$0	(Not In Phase Total)	

35.
36.
37. (All Phases) TOTAL ESTIMATE $802,100

Real Estate:	Roger D. Patton	Signed:		Date: 01/15/19
Bus. Dam. :	Alfred J. Thompson	Signed:	A. J. Thompson	Date: 01/15/19
Relocation:	Roger D. Patton	Signed:		Date: 01/15/19
Overall Review:	Alfred J. Thompson	Signed:	A. J. Thompson	Date: 01/15/19

Cost Estimate Sequence #: Dated: In the Amount of $ Data Input Completion Date:

REMARKS: Administrative Settlement and Litigation Awards have been adjusted to reflect one ownership. Administrative settlement is considered to be zero, while litigation is factored at 45%.

This estimate is for SMF-20A. This is the first estimate we have performed for this particular alternate.

Damages for creating a remnant added to the cost of this pond site.

The following indicates the estimator's confidence in the above estimate:

- ___ Type A - indicates the most confidence
- ___ Type B - indicates above average confidence
- X Type C - indicates below average confidence
- ___ Type D - indicates the least or no confidence

The following indicates the Department's purpose for this estimate:

Work Program Update: ___ Gaming 1: ___ Special Purpose: X Docs to RW: ___

Comments:

FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT SEVEN RIGHT OF WAY COST ESTIMATE

HDR#: 10062698-1-12.19

FM#:	424501-1	Alternate:	SMF-20B	District:	Seven
County:	Pinellas	Segment:	N/A	Date:	4-Jan-19
State Rd.:	N/A	FAP#:	N/A	C.E. Sequence	N/A
Project Des.	I-275 From S. of 54th Ave to 4th Ave North Pond Sites				

Parcels	Gross	Net
Commercial	0	0
Residential	0	0
Unimproved	1	1
Total Parcels	1	1

Estimated Relocatees:	
Business	0
Residential	0
Signs	0
Special	0
Total Relocatees	0

R/W SUPPORT COSTS (PHASE 41)

					Amount
1. Direct Labor Cost	(Parcels	1	x	20,000 = Rate)	20,000
2. Indirect Overhead	(Parcels	1	x	0 = Rate)	0
3.					

TOTAL PHASE 41 $20,000

R/W OPS (PHASE 4B)

									Amount
4. Appraisal Fees Through Trial					1	Parcels	x	30,000 =	30,000
5. Business Damage CPA Fees Through Trial					0	Claims	x	19,000 =	0
6. Court Reporter & Process Servers	50%	x	1	=	1	Parcels	x	500 =	500
7. Expert Witness	75%	x	1	=	1	Parcels	x	30,000 =	30,000
8. Mediators	75%	x	1	=	1	Parcels	x	2,400 =	2,400
9. Demolition, Asb. Abate., Survey, etc.					0	Imprvmet	x	15,000 =	0
10. Miscellaneous Contracts					0	Per Project	x	15,000 =	0
11. Appraisal Fee Review					0	Parcels	x	5,000 =	0
12.									

TOTAL PHASE 4B $62,900

R/W LAND COSTS (PHASE 43)

						Amount	Subtotal
13. Land, Improvements & Severance Damages and Cost to Cure Amount	0	x	120%	* Design plan stage	=	0	
14. Water Retention & Mit. (0 Ponds)	654,024	x	120%	(0 Parcels w/o R/W Acq)		784,800	
15. SUBTOTAL (91,746)				(Lines 13 &14)			784,800
16. Admin. Settlement (Factor	20%	x	0%	of Line 15)	=	0	
17. Litigation Awards (Factor	45%	x	100%	of Line 15)	=	353,200	
18. Business Damages (Claims	0	x	0)		=	0	
19. Bus. Damages Incr (Factor	25%	x	$ -)		=	0	
20. Owner Appr. Fees (Parcels	1	x	$15,000)		=	15,000	
21. Owner CPA Fees (Claims	0	x	$16,000)		=	0	
22. Defend.Atty Fees (Sum of Lines 16, 17 & 19)	353,200	x	33%)		=	116,600	
23. Owner Expert Witn (Comm.+Unimp.)	0	+	1) x	18,000	=	18,000	
24. Other Condemn. Costs	1	x	$1,000		=	1,000	
25. SUBTOTAL				(Lines 16 thru 24)	=		503,800
26.							

TOTAL PHASE 43 $1,288,600

* *Design contingency for design plan stage:*
(1) PD&E plans - 120% (2) 30% plans - 115% (3) 60% plans - 110% (4) 90% plans -105% (5) 268 Date -100%

R/W ACQUISITION CONSULTANT (PHASE 42)

27. Acquisition Consultant-50% of parcels $20,000 x 0

TOTAL PHASE 42 $0

RELOCATION COSTS (PHASE 45)

			Number		Amount
Replacement Housing					
28. Owner	$30,000	x	0	=	0
29. Tenant	$25,000	x	0	=	0
Move Costs					
30. Residential	$5,000	x	0	=	0
31. Business/Farm	$40,000	x	0	=	0
32. Personal Property	$3,000	x	0	=	0
33. (Lines 28 thru 32)					
34. Relocation Services Cost			$0	(Not in Phase Total)	

TOTAL PHASE 45 $0

35.
36.
37.

(All Phases) TOTAL ESTIMATE $1,371,500

Real Estate:	Roger D. Patton	Signed:	[signature]	Date:	01/15/19
Bus. Dam. :	Alfred J. Thompson	Signed:	A. J. Thompson	Date:	01/15/19
Relocation:	Roger D. Patton	Signed:	[signature]	Date:	01/15/19
Overall Review:	Alfred J. Thompson	Signed:	A. J. Thompson	Date:	01/15/19

Cost Estimate Sequence #: Dated: In the Amount of $ Data Input Completion Date:

REMARKS: Administrative Settlement and Litigation Awards have been adjusted to reflect one ownership. Administrative settlement is considered to be zero, while litigation is factored at 45%.

This estimate is for SMF-20B. The prior estimate dated July 30, 2018 on this parcel was for a smaller site.

Damages for diminishing the potential future development of the site added to the cost of this pond site.

The following indicates the estimator's confidence in the above estimate:

- ____ Type A - indicates the most confidence
- ____ Type B - indicates above average confidence
- X Type C - indicates below average confidence
- ____ Type D - indicates the least or no confidence

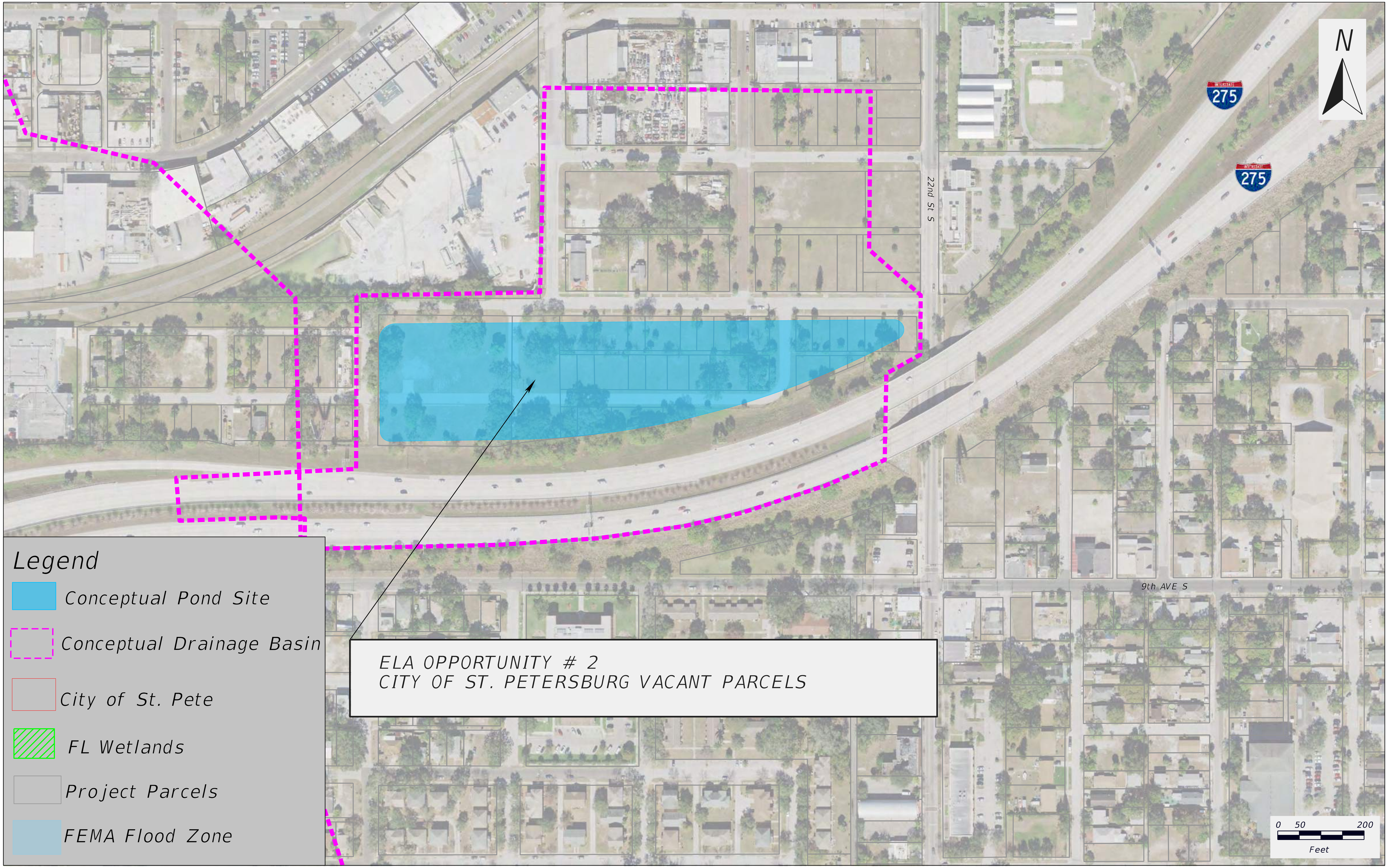
The following indicates the Department's purpose for this estimate:
Work Program Update: ____ Gaming 1: ____ Special Purpose: x Docs to RW: ____
Comments:

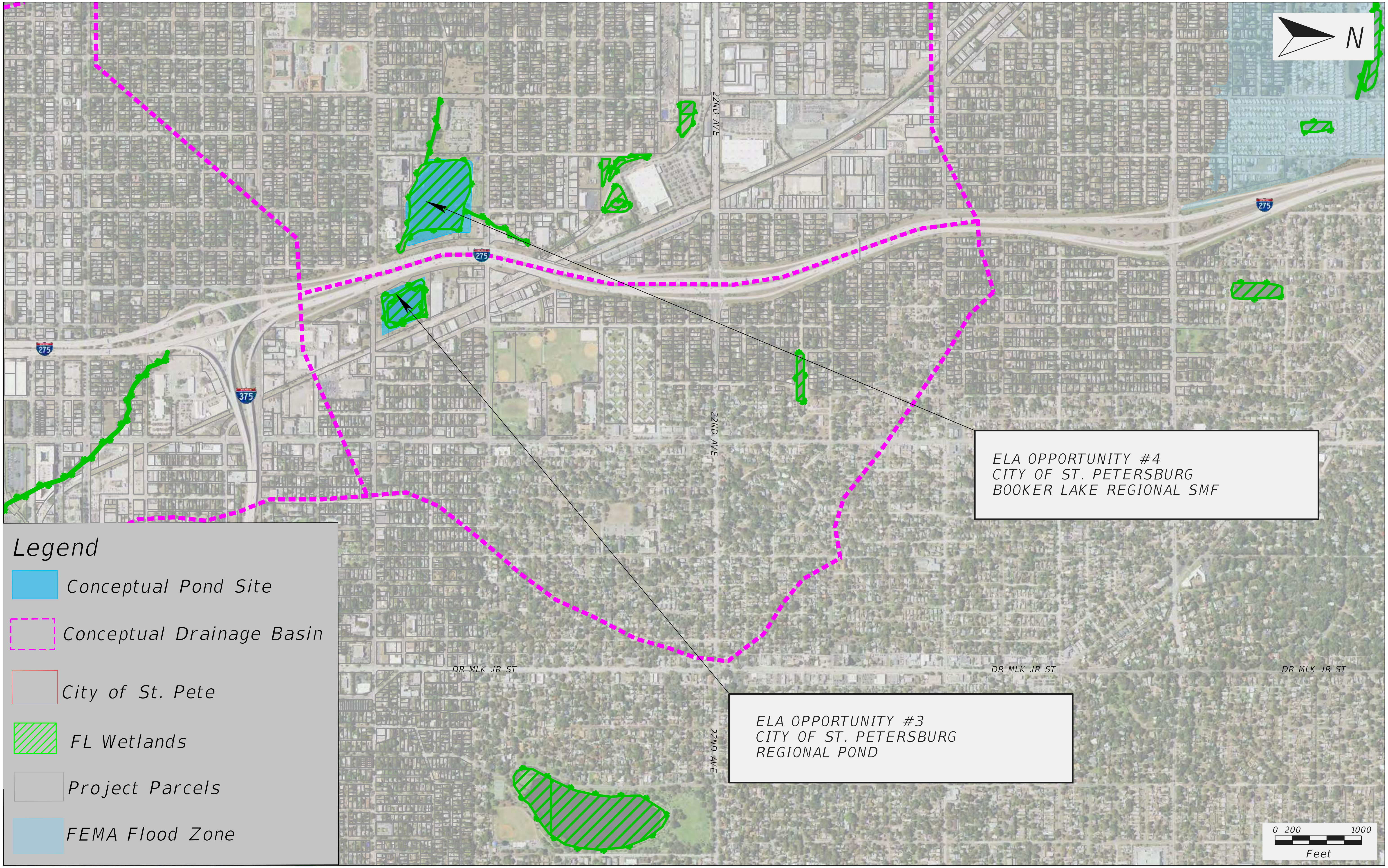
Appendix I.
Environmental Look Around Documentation

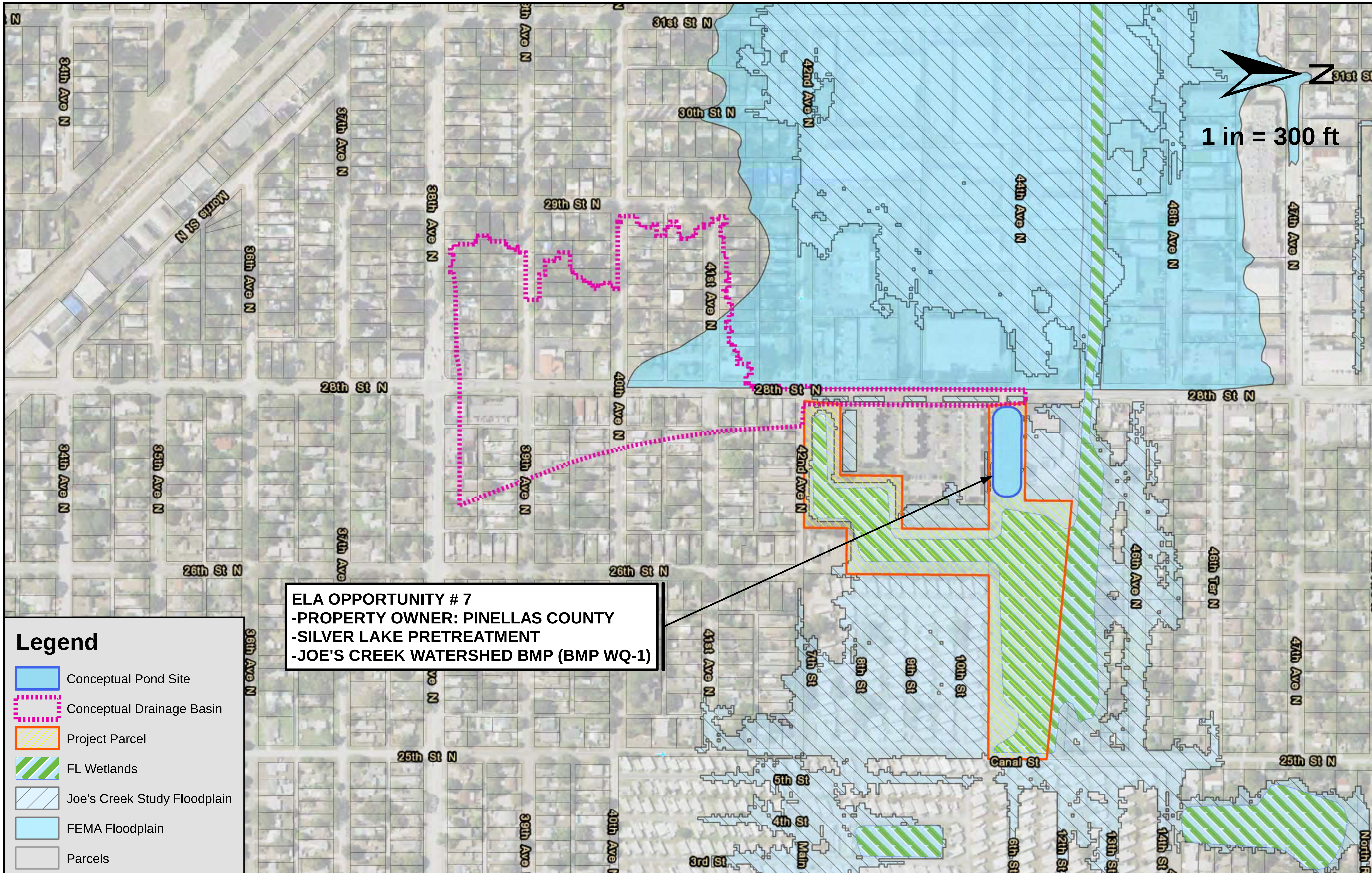
TBN S2 ELA Approach

PD&E Basin	Watershed	WBID	PD&E Preferred Pond	Needs ROW for Ponds	ELA for Offsite Pond Replacement/Reduction	Stakeholder Approach
2	Upper Coastal Areas	Boca Ciega Bay	2A	No	N/A - Ponds are within the ROW	N/A
7	Tampa Bay And Coastal Areas	Booker Creek	7B	Yes	Utilizes ELA # 2 (expanded SMF 7B), ELA # 3 (expanded SMF 11C) or ELA # 4 for Water Quality Treatment and Water Quantity Attenuation	Agreement with City of St. Pete for ELAs # 2, 3 or 4
11	Tampa Bay And Coastal Areas	Booker Creek	11C	Yes		
12	Tampa Bay And Coastal Areas	Booker Creek	12A	Yes		
13	Tampa Bay And Coastal Areas	Booker Creek	13B	Yes		
14	Upper Coastal Areas	Joe's Creek	14A	No	N/A - Ponds are within the ROW	N/A
15	Upper Coastal Areas	Joe's Creek	15A	Yes	Utilizes ELA #7, 8 or 9 for Water Quality Treatment & ELA #10/SMF 17A for Water Quantity Attenuation	Agreement with Pinellas County for ELAs #7, 8 or 9 and 10
16	Upper Coastal Areas	Joe's Creek	16A	Yes		
17	Tampa Bay And Coastal Areas	Sawgrass Lake Drain / 77th Avenue Canal	17A	No	Utilizes ELA #10 for Water Quality Treatment & Water Quantity Attenuation. Allows SMF 17A to provide Water Quantity Attenuation for Basins 15 and 16	N/A
18	Tampa Bay And Coastal Areas	Sawgrass Lake Drain / 77th Avenue Canal	18B	Yes	ELA #10 for Water Quality Treatment & Water Quantity Attenuation	Agreement with Pinellas County for ELA #10
19	Tampa Bay And Coastal Areas	Sawgrass Lake Drain / 77th Avenue Canal	19A	No	N/A - Ponds are within the ROW	N/A
20	Tampa Bay And Coastal Areas	Roosevelt Basin	20A	Yes	Utilize Water Quality Treatmeant Credits from the Old Tampa Bay Water Quality Improvement Project	Deduct Water Quality Treatment Credits from OTBWQ Project upon SWFWMD concurence

TAMPA BAY NEXT - SECTION 2 - ENVIRONMENTAL LOOK AROUND OPPORTUNITIES


N
275
275
22nd St S
9th AVE S
Legend
Conceptual Pond Site
Conceptual Drainage Basin
City of St. Pete
FL Wetlands
Project Parcels
FEMA Flood Zone
ELA OPPORTUNITY # 2
CITY OF ST. PETERSBURG VACANT PARCELS
0 50 200
Feet


N
22ND AVE
275
375
ELA OPPORTUNITY #4
CITY OF ST. PETERSBURG
BOOKER LAKE REGIONAL SMF
ELA OPPORTUNITY #3
CITY OF ST. PETERSBURG
REGIONAL POND
DR MLK JR ST
Legend
Conceptual Pond Site
Conceptual Drainage Basin
City of St. Pete
FL Wetlands
Project Parcels
FEMA Flood Zone
0 200 1000
Feet



ELA OPPORTUNITY # 7
-PROPERTY OWNER: PINELLAS COUNTY
-SILVER LAKE PRETREATMENT
-JOE'S CREEK WATERSHED BMP (BMP WQ-1)
1 in = 300 ft
N
Legend
Conceptual Pond Site
Conceptual Drainage Basin
Project Parcel
FL Wetlands
Joe's Creek Study Floodplain
FEMA Floodplain
Parcels
31st St N
30th St N
29th St N
28th St N
26th St N
25th St N
Morris St N
34th Ave N
35th Ave N
36th Ave N
37th Ave N
38th Ave N
39th Ave N
40th Ave N
41st Ave N
42nd Ave N
44th Ave N
46th Ave N
46th Ter N
47th Ave N
48th Ave N
Canal St
7th St
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10th St
5th St
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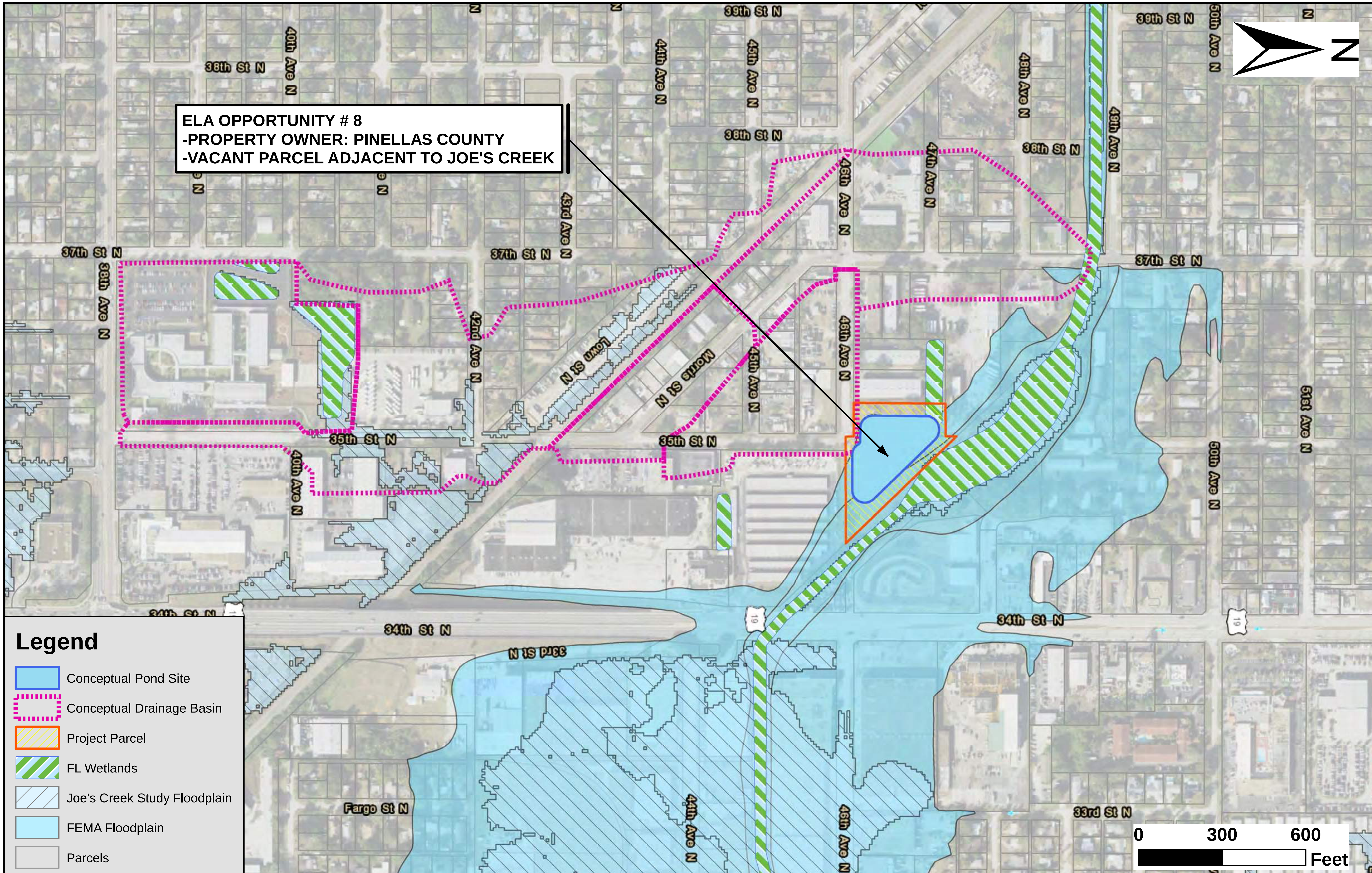
Main St
6th St
12th St
13th St
14th St


ELA OPPORTUNITY # 8
-PROPERTY OWNER: PINELLAS COUNTY
-VACANT PARCEL ADJACENT TO JOE'S CREEK
Legend
Conceptual Pond Site
Conceptual Drainage Basin
Project Parcel
FL Wetlands
Joe's Creek Study Floodplain
FEMA Floodplain
Parcels
0
300
600
Feet
N
39th St N
38th St N
37th St N
36th St N
35th St N
34th St N
33rd St N
Fargo St N
Lown St N
Morris St N
38th Ave N
40th Ave N
41st Ave N
42nd Ave N
43rd Ave N
44th Ave N
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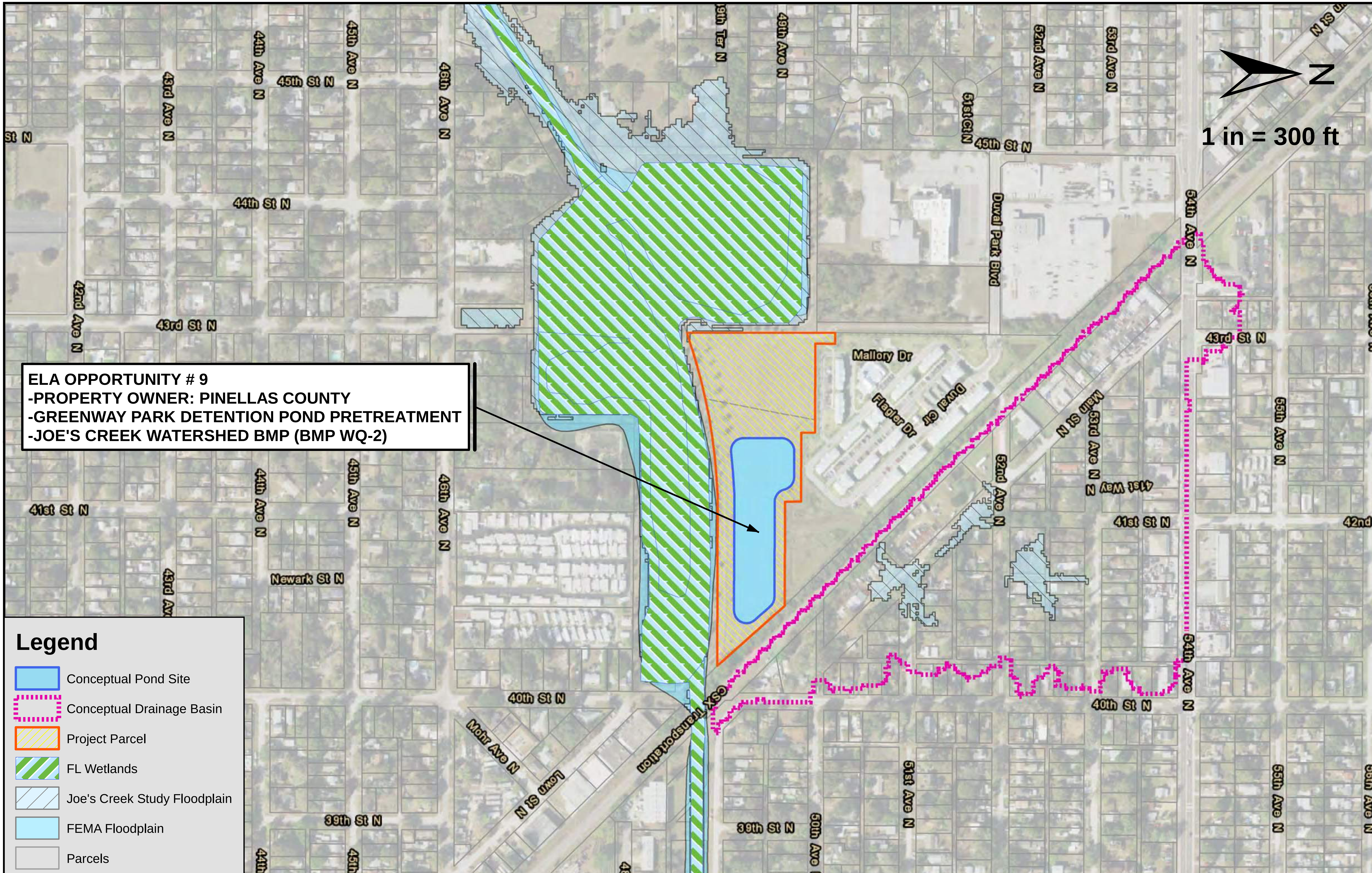
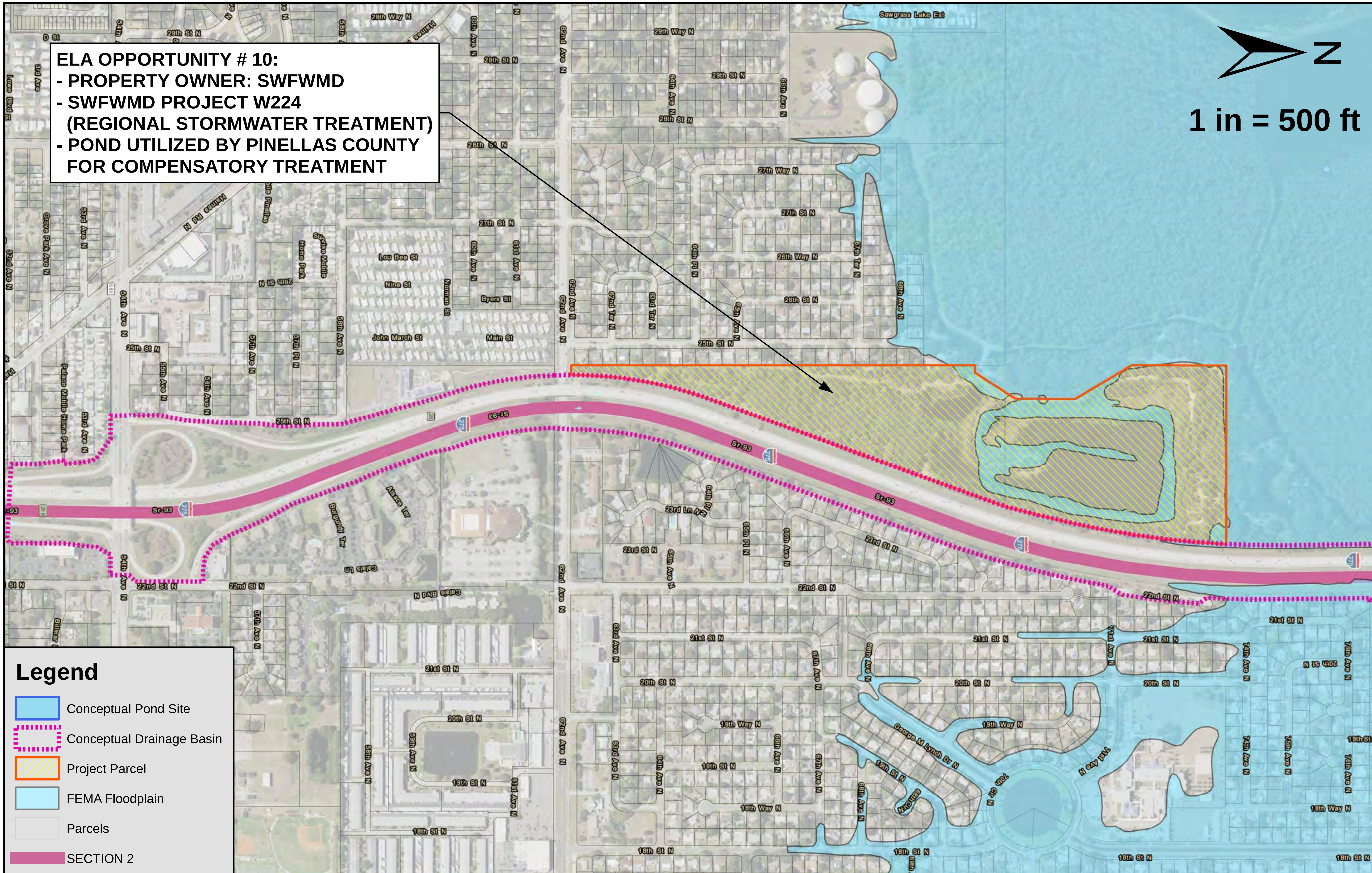
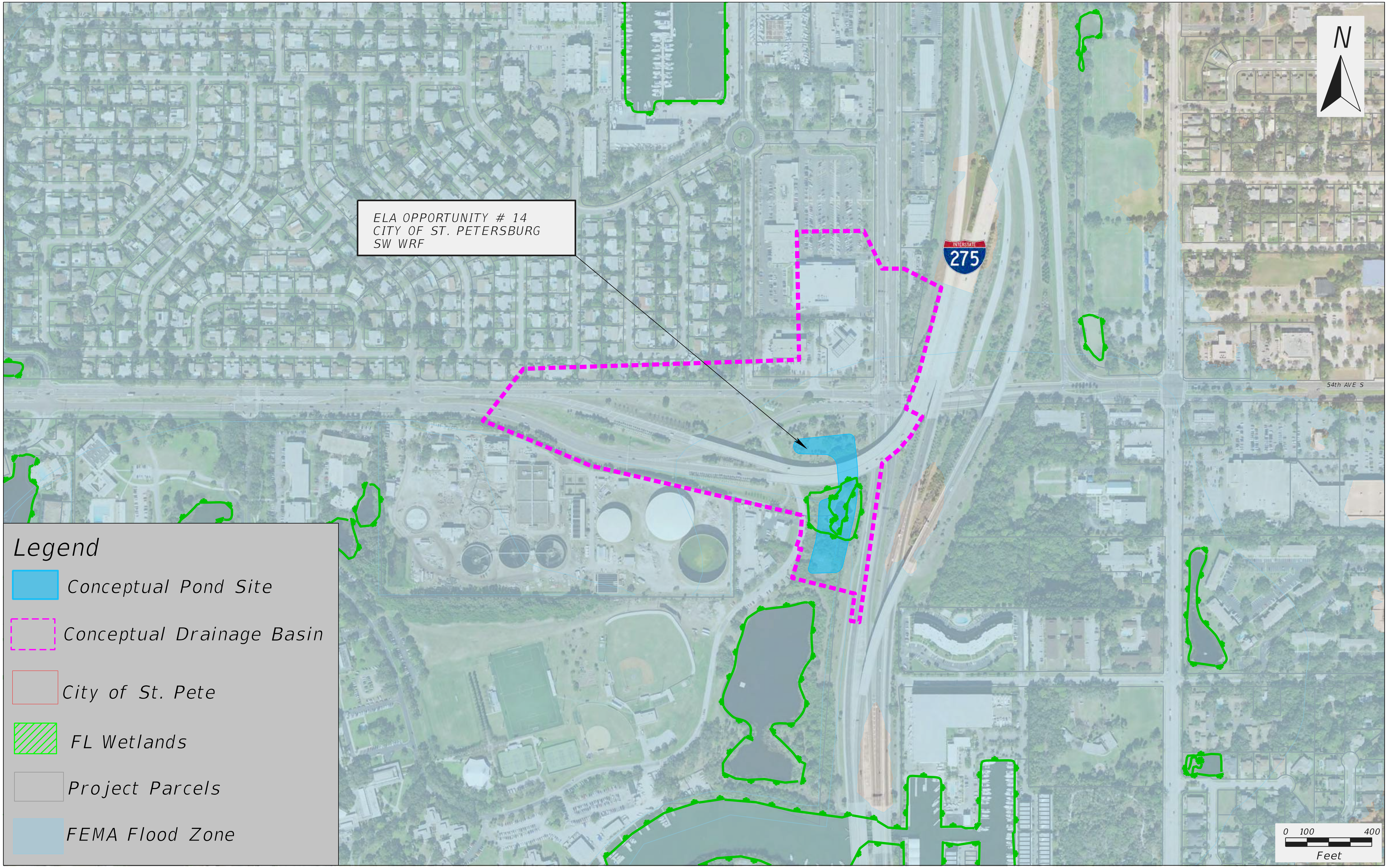
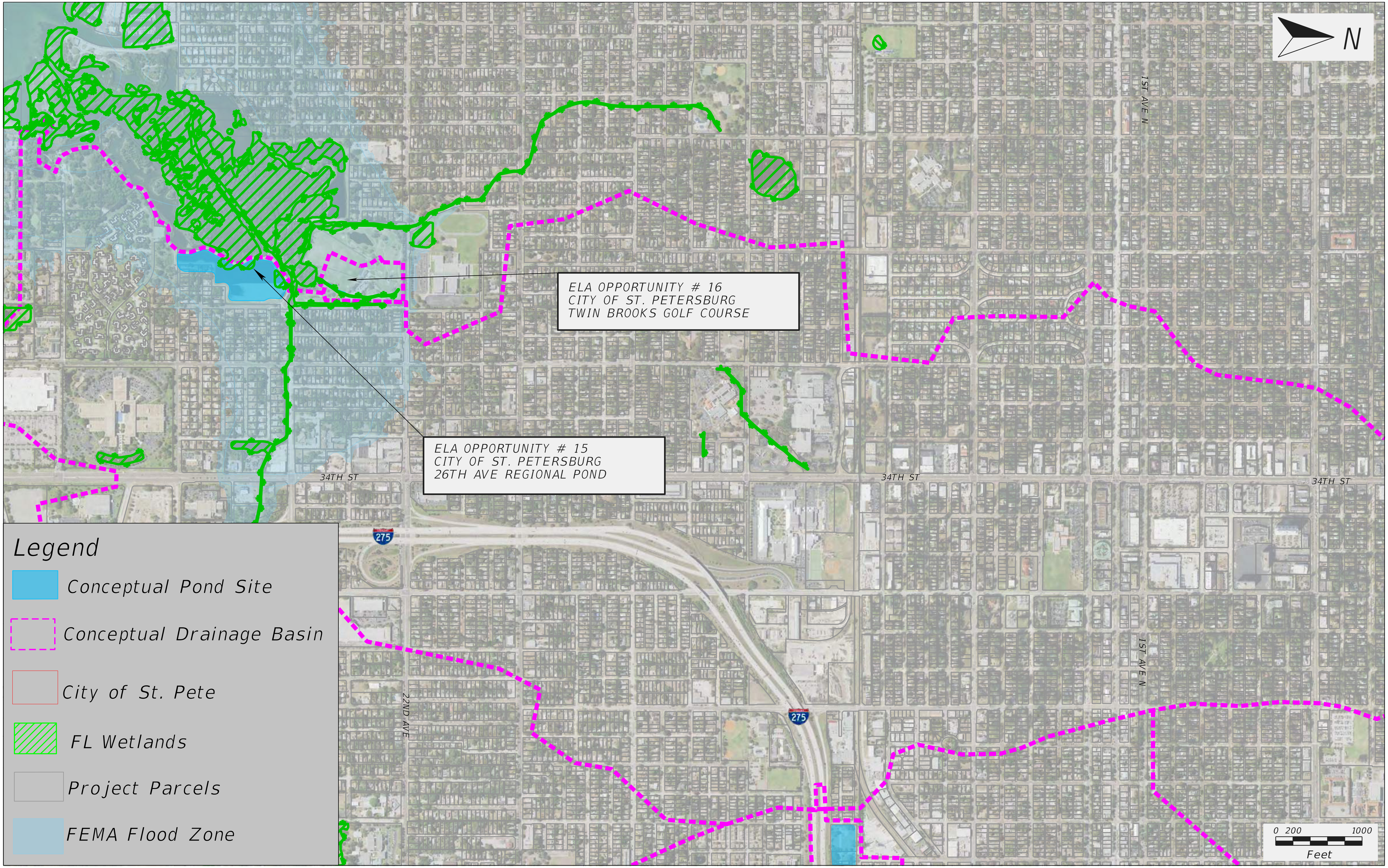
50th Ave N
51st Ave N
19

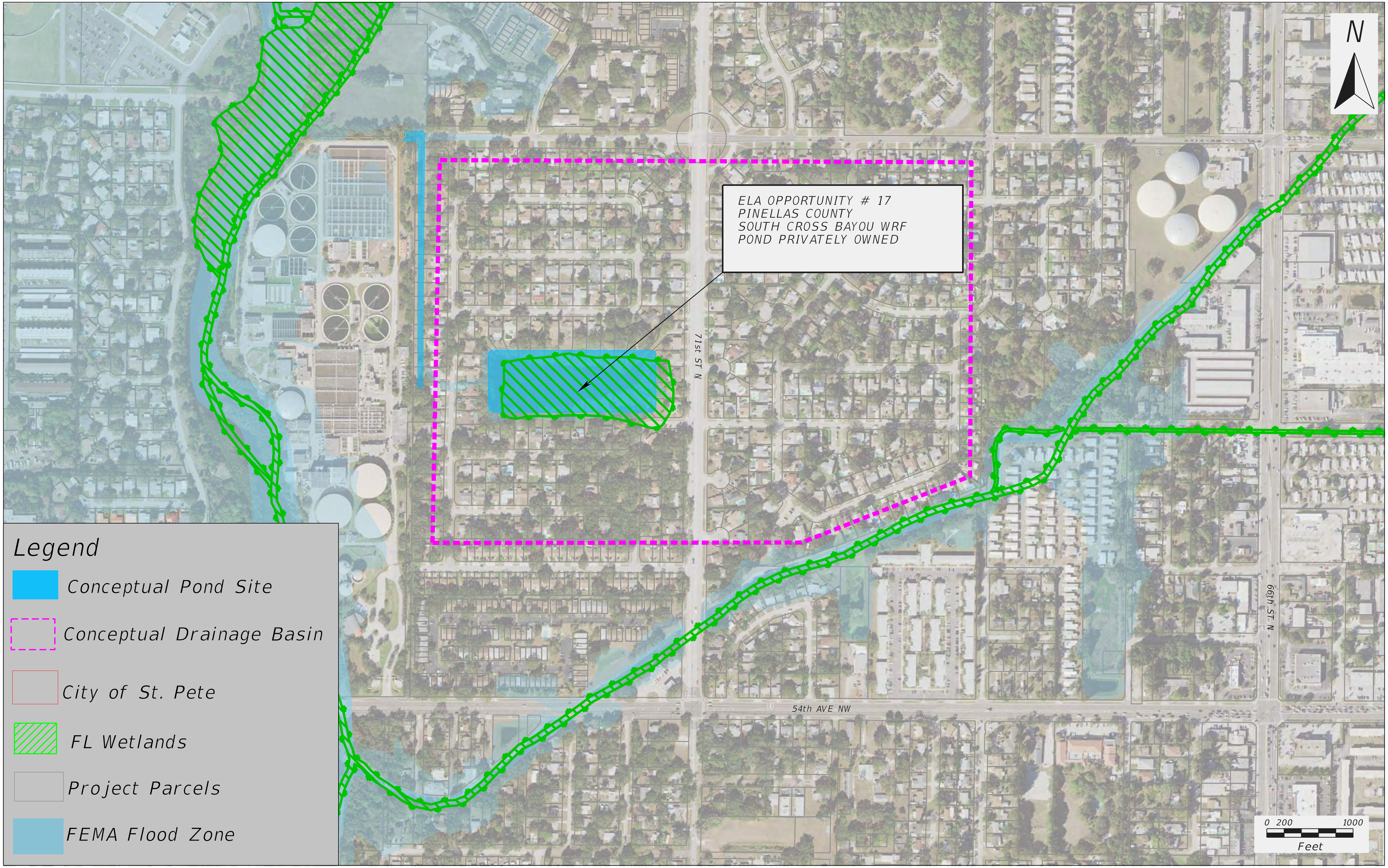

ELA OPPORTUNITY # 9
-PROPERTY OWNER: PINELLAS COUNTY
-GREENWAY PARK DETENTION POND PRETREATMENT
-JOE'S CREEK WATERSHED BMP (BMP WQ-2)
N
1 in = 300 ft
Legend
Conceptual Pond Site
Conceptual Drainage Basin
Project Parcel
FL Wetlands
Joe's Creek Study Floodplain
FEMA Floodplain
Parcels
45th St N
44th St N
43rd St N
41st St N
Newark St N
40th St N
39th St N
42nd Ave N
43rd Ave N
44th Ave N
45th Ave N
46th Ave N
49th Ave N
50th Ave N
51st Ave N
51st Cir N
52nd Ave N
53rd Ave N
54th Ave N
55th Ave N
56th Ave N
Duval Park Blvd
Mallory Dr
Flagler Dr
Duval Cir
Main St N
41st Way N
42nd St N
Mohr Ave N
Lown St N
CSX Transportation


ELA OPPORTUNITY # 10:
- PROPERTY OWNER: SWFWMD
- SWFWMD PROJECT W224
(REGIONAL STORMWATER TREATMENT)
- POND UTILIZED BY PINELLAS COUNTY
FOR COMPENSATORY TREATMENT
N
1 in = 500 ft
Legend
Conceptual Pond Site
Conceptual Drainage Basin
Project Parcel
FEMA Floodplain
Parcels
SECTION 2



ELA OPPORTUNITY # 14
CITY OF ST. PETERSBURG
SW WRF
INTERSTATE
275
54th AVE S
N
Legend
Conceptual Pond Site
Conceptual Drainage Basin
City of St. Pete
FL Wetlands
Project Parcels
FEMA Flood Zone
0 100 400
Feet


N
ELA OPPORTUNITY # 16
CITY OF ST. PETERSBURG
TWIN BROOKS GOLF COURSE
ELA OPPORTUNITY # 15
CITY OF ST. PETERSBURG
26TH AVE REGIONAL POND
34TH ST
34TH ST
34TH ST
1ST AVE N
1ST AVE N
22ND AVE
275
275
Legend
Conceptual Pond Site
Conceptual Drainage Basin
City of St. Pete
FL Wetlands
Project Parcels
FEMA Flood Zone
0 200 1000
Feet



ELA OPPORTUNITY # 17
PINELLAS COUNTY
SOUTH CROSS BAYOU WRF
POND PRIVATELY OWNED
71st ST N
54th AVE NW
66th ST N
N
Legend
Conceptual Pond Site
Conceptual Drainage Basin
City of St. Pete
FL Wetlands
Project Parcels
FEMA Flood Zone
0 200 1000
Feet