POND SITING REPORT

FINAL

Florida Department of Transportation

District 7

Gandy Boulevard (US 92/SR 600) Project Development and Environment (PD&E) Study

Limits of Project: 4th Street to West Shore Boulevard

Pinellas and Hillsborough Counties, Florida

Work Program Segment Number: 441250-1

ETDM Number: 14335

Date: February 2023

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 23 U.S.C. § 327 and a Memorandum of Understanding dated May 26, 2022, and executed by the Federal Highway Administration and FDOT.

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PROFESSIONAL ENGINEER CERTIFICATION
POND SITING REPORT

Project: Gandy Blvd (US 92/SR 600) PD&E Study

ETDM Number: 14335

Financial Project ID: 441250-1-22-01

Federal Aid Project Number: N/A

This Pond Siting Report contains engineering information that fulfills the purpose and need for the Gandy Boulevard Project Development & Environment Study from 4th Street in Pinellas County to West Shore Blvd in Hillsborough County, Florida. I acknowledge that the procedures and references used to develop the results contained in this report are standard to the professional practice of transportation engineering as applied through professional judgment and experience.

I hereby certify that I am a registered professional engineer in the State of Florida practicing with Inwood Consulting Engineers, and that I have prepared or approved the evaluation, findings, opinions, conclusions, or technical advice for this project.

This item has been digitally signed and sealed by Renato Chuw, PE on the date adjacent to the seal.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

EXECUTIVE SUMMARY

The Florida Department of Transportation (FDOT) District Seven is conducting a Project Development and Environment (PD&E) study along US Highway 92/State Road 600/Gandy Boulevard in Pinellas and Hillsborough Counties to evaluate roadway and safety improvements along the corridor. The study limits extend for 7 miles from US 92/SR 687/4th Street North in Pinellas County to CR 587/West Shore Boulevard in Hillsborough County. The study will evaluate the effects of widening and reconstructing this section of Gandy Boulevard to reduce traffic congestion and improve pedestrian and bicycle accommodations.

The PD&E study is supported by preliminary engineering design activities and will determine the proposed build alternative, which will be depicted on typical roadway sections and conceptual design plans. The build alternative and the no-build, or "no action," alternative will be evaluated and compared to assess potential effects to the natural and physical environment, to determine their ability to meet the project's Purpose and Need, to obtain and consider agency and public comments, and to ensure compliance with all applicable federal and state laws. The proposed build alternative will include the construction of stormwater management facilities (SMFs) along with the use of nutrient mitigation credits. The no-build alternative will assume no improvements are made to the facility beyond routine roadway maintenance. A Natural Resources Evaluation (NRE) is being prepared as the environmental document for this study.

The purpose of this Pond Siting Report is to discuss, analyze, and identify the stormwater management plan for the proposed roadway improvements based on environmental, hydrologic, hydraulic, and economic factors. Stormwater management for water quality treatment and runoff attenuation will be provided using wet detention ponds within some basins, while regional approaches to nutrient removal will be taken in other basins by utilizing the Old Tampa Bay (OTB) Water Quality Improvement Project and optional supplemental dry retention swales. The design of the drainage and stormwater facilities will comply with the standards set forth by the FDOT Drainage Manual and the Southwest Florida Water Management District (SWFWMD) Environmental Resource Permit (ERP) manual.

Alternative pond sites have been identified along the project limits. The analysis estimates right-of-way needs using a volumetric analysis, which accounts for water quality treatment and water quantity for runoff attenuation. The total pond cost estimate found in this document includes construction costs of the stormwater facility, any costs associated with mitigation of wetland impacts, and preliminary right of way cost estimates provided by FDOT. This information is used to estimate total acquisition costs associated with each pond site and to budget the appropriate funds for acquisition.

Please note that the volumetric analysis of the pond sites is performed with preliminary data, reasonable engineering judgment, and assumptions. Pond sites and configurations may change during final design as more detailed information on Seasonal High Water Table (SHWT), wetland hydrologic

information, and final roadway profile become available. Please refer to **Table 1-1** for a **Summary of Recommended Stormwater Management Alternatives**.

Table 1-1: Summary of Recommended Stormwater Management Alternatives

Basin	Recommended Preferred Pond Alternative	Pond Right-of-Way Area (ac)	Total Required Right-of-Way Acquisition (ac)	Total Pond Cost ($)
1	Pond 1	1.64	0	$110,281
2	Pond 2B	1.30	1.30	$754,569
3	OTB Mitigation Credits*	0	0	$0
4	OTB Mitigation Credits*	0	0	$0
	TOTALS:	**2.94**	**1.30**	**$864,850**

*Refers to Old Tampa Bay Water Quality Improvement Project mitigation credits. See Section 5.4.2

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SECTION 1 INTRODUCTION

1.1 PROJECT DESCRIPTION

The Florida Department of Transportation (FDOT), District Seven, is conducting a Project Development and Environment (PD&E) study to evaluate improvements to US 92/SR 600/Gandy Boulevard including roadway widening, bridge widening and/or replacement, new stormwater management facilities, and pedestrian and bicycle accommodations. The limits of the study are from US 92/SR 687/4th Street North in St. Petersburg (Pinellas County) to CR 587/South West Shore Boulevard in Tampa (Hillsborough County), a distance of approximately 7.0 miles. The project study area and project limits are shown in **Figure 1-1**. The existing Gandy Boulevard is a four-lane roadway with sidewalks and segments of multi-use trails. The project is located in Sections 7 and 8 of Township 30 South, Range 18 East, and Sections 15, 16, 17, 18, and 19 of Township 30 South, Range 17 East. Proposed improvements include a 4-lane to 6-lane controlled access elevated roadway, frontage roads and multi-use trails. The results of the study will aid FDOT District Seven and the FDOT Office of Environmental Management (OEM) in deciding the location and design concept for the proposed improvements.

The project was evaluated through FDOT's Efficient Transportation Decision Making (ETDM) process as project #14335. An ETDM Programming Screen Summary Report containing comments from the Environmental Technical Advisory Team (ETAT) was published on November 8, 2018. The ETAT evaluated the project's effects on various natural, physical, and social resources.

1.2 PROJECT PURPOSE AND NEED

The purpose of this project is to reduce traffic congestion and improve pedestrian and bicycle accommodations on Gandy Boulevard.

This project is needed to address current and future traffic demand by improving roadway capacity and to address pedestrian and bicycle accommodations with potential connectivity over Old Tampa Bay. According to Forward Pinellas (Metropolitan Planning Organization) Active Transportation Plan, construction of bike lanes and a trail from 4th Street to west of San Martin Boulevard is planned. The Duke Energy/Pinellas Loop Trail from 28th Street to San Martin Boulevard and the San Martin Boulevard Trail from Macoma Drive (at Patica Road NE) to Gandy Boulevard are also planned.

Roadway Capacity: The US 92/SR 600/Gandy Boulevard PD&E study segment was divided into three segments for the purposes of roadway capacity and pedestrian analysis. The segment from 4th Street to the west end of the Gandy Bridge operates at a deficient level of service (LOS) in both the existing year 2020 and design year 2050. The segment from the east end of the Gandy bridges to West Shore Boulevard is forecasted to have a deficient LOS in the design year 2050.

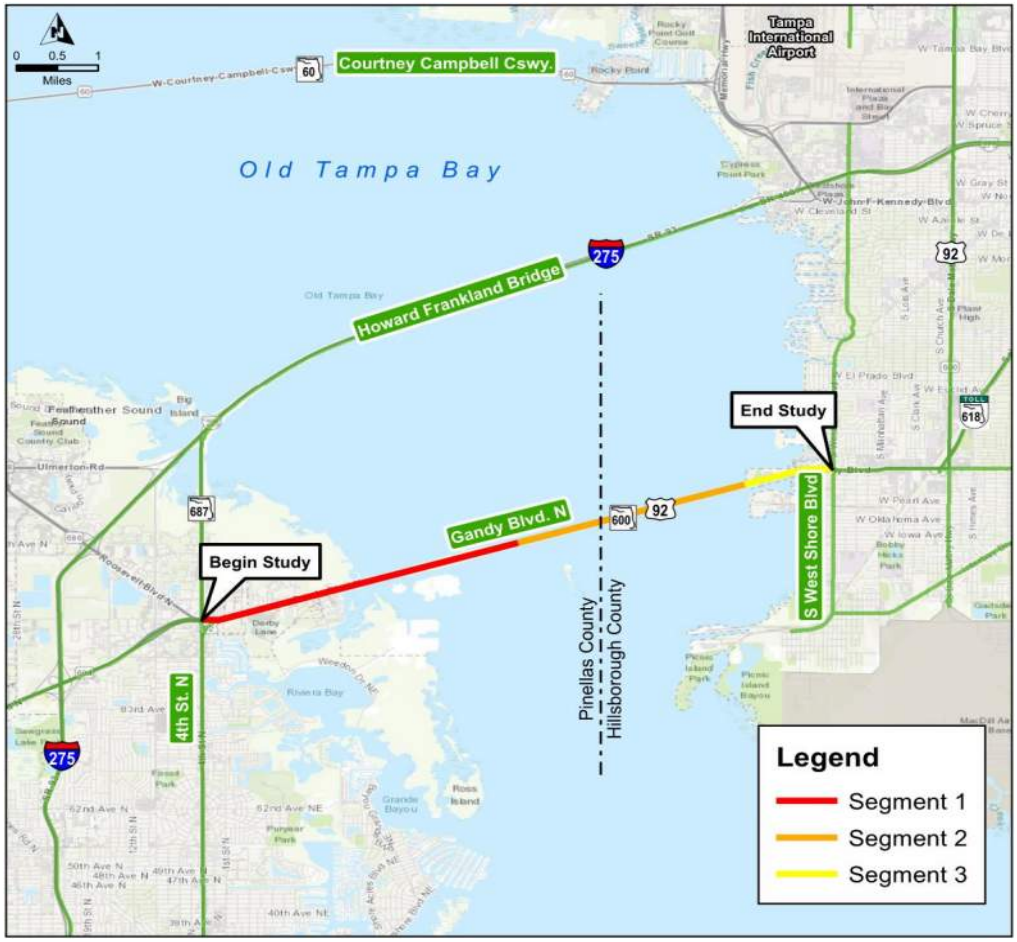
Roadway Deficiencies: On the western side of the Gandy Bridge, a sidewalk is present on the south side of the roadway from the vicinity of 99th Avenue North to approximately 0.25 miles east of San Fernando Drive. On the north side of the roadway a sidewalk is present from Oak Street to Brighton Bay Boulevard. At Brighton Bay Boulevard, a multi-use trail begins and terminates in the vicinity of the west end of Gandy bridges over Old Tampa Bay. On the eastern side of the Gandy Bridge, sidewalks are present on both sides of the roadway from the vicinity of Gandy Park South to West Shore Boulevard. There are no pedestrian or bicycle accommodations located on the Gandy Bridge. This project will address the need for bicycle and pedestrian improvements along the US 92/SR 600/Gandy Boulevard corridor.

1.3 EXISTING FACILITY AND PROJECT SEGMENTS

Gandy Boulevard is part of FDOT's Strategic Intermodal System (SIS) and a designated hurricane evacuation route. FDOT's functional classification for Gandy Boulevard is an urban principal arterial-other roadway.

The project was divided into three segments for the purpose of evaluating future traffic capacity needs and differences in existing roadway typical sections as shown in **Figure 1-1**.

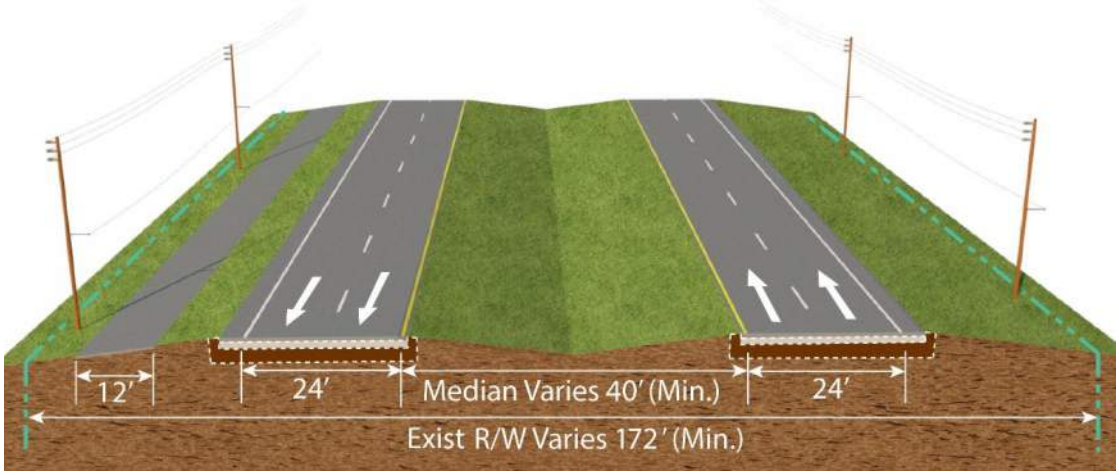
Figure 1-1: Project Location Map



1.3.1 Segment 1

Segment 1 (Pinellas Segment) begins at the western project limit at 4th Street and extends 3.5 miles to the west end of the Gandy bridges over Old Tampa Bay in Pinellas County. Within Segment 1, the existing facility consists of a four-lane divided roadway with a varying median width (40 feet minimum), four 12-foot travel lanes, paved outside shoulders (four-foot minimum) designated for bicycle use on the south side, intermittent sidewalk segments, a 12-foot multi-use trail on the north side, and open ditches along the outside. The existing right-of-way (ROW) width varies in Segment 1 with a minimum width of 172 feet as shown in **Figure 1-2**. There are numerous side street and driveway connections to the residential and business land uses between 4th Street and San Fernando Drive.

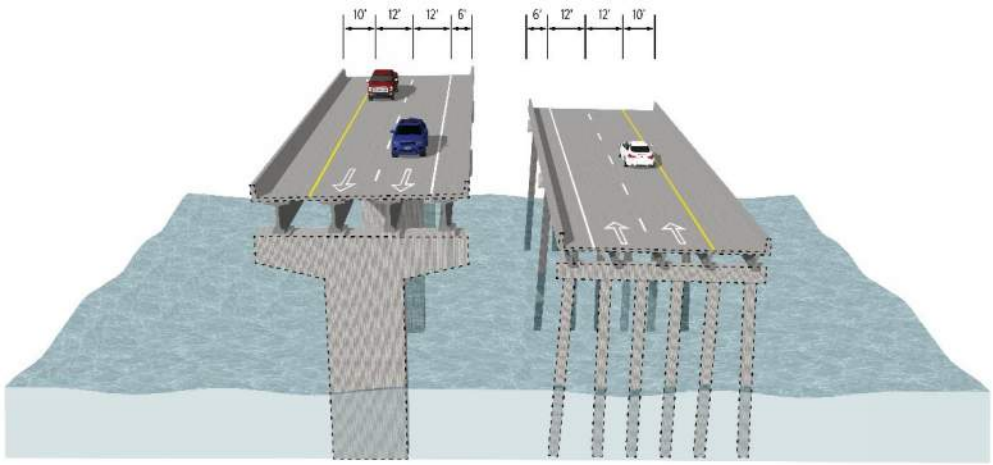
Figure 1-2: Existing Roadway Typical Section – Segment 1



1.3.2 Segment 2

Segment 2 (Bay Segment) includes the Gandy bridges over Old Tampa Bay. The existing eastbound bridge (#100300), constructed in 1975, and existing westbound bridge (#100585), constructed in 1996, extend approximately 2.5 miles. Both the existing eastbound and westbound bridges consist of two 12-foot travel lanes, a six-foot inside shoulder, and a ten-foot outside shoulder as shown in **Figure 1-3**. The westbound bridge was designed to accommodate an additional travel lane by widening on both sides of the bridge. Currently, neither the eastbound or westbound bridge provides pedestrian or bicycle accommodations.

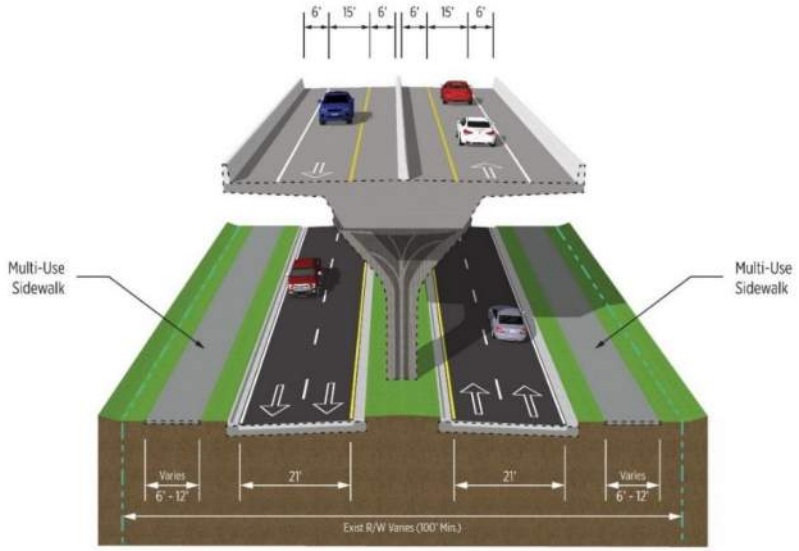
Figure 1-3: Existing Bridges Typical Section – Segment 2



1.3.3 Segment 3

Segment 3 (Hillsborough Segment) begins at the east end of the Gandy bridges over Old Tampa Bay and extends approximately one mile to West Shore Boulevard in Hillsborough County. Within Segment 3, the existing Gandy Boulevard consists of a four-lane divided roadway. The typical section consists of two 11-foot travel lanes, urban curb and gutter, and a 6 to 12-foot sidewalk/multi-use trail on the north and south side. There is a varying median width due to the inside two elevated travel lanes which serve as the Selmon Expressway (SR 618) viaduct operated and maintained by the Tampa Hillsborough Expressway Authority. The existing ROW width varies in Segment 3 with a minimum width of 100 feet as shown in **Figure 1-4**.

Figure 1-4: Existing Roadway Typical Section (Curb and Gutter) – Segment 3



1.4 PROPOSED ACTION

The proposed action is to reduce traffic congestion and improve pedestrian and bicycle accommodations by reconstructing Gandy Boulevard to provide an elevated controlled access roadway mainline separated from local traffic with frontage roads and multi-use trails on both sides of the corridor for pedestrians and bicyclists. The proposed action will also widen the existing westbound Gandy bridge to accommodate a third travel lane and construct a new bridge to provide a wider structure for three travel lanes and a multi-use trail.

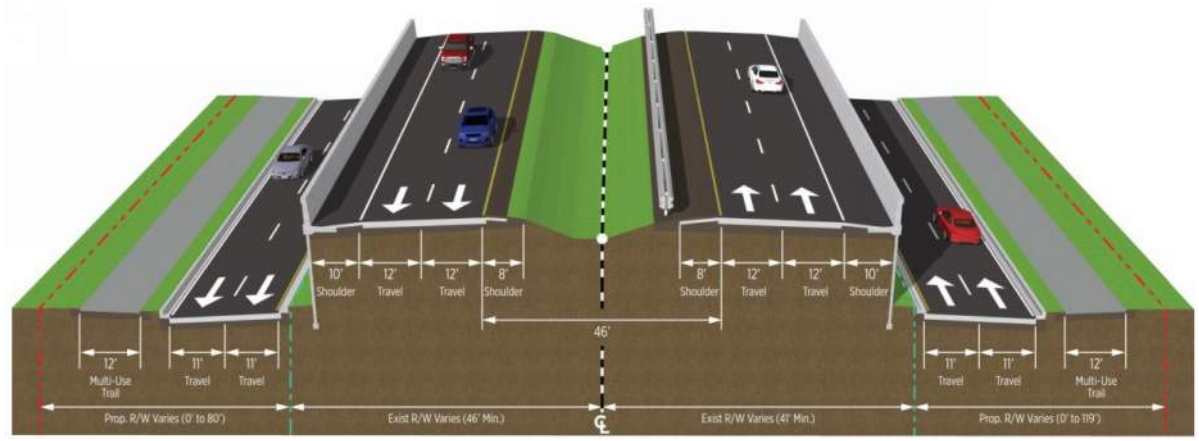
1.5 BUILD ALTERNATIVE

1.5.1 Segment 1

Typical Section 1

The Build Alternative for Segment 1 (Pinellas Segment) includes three typical sections. Typical Section 1 is proposed from 4th Street to Brighton Bay Boulevard and from east of San Martin Boulevard to approximately 3,000 feet east of San Fernando Drive. Typical Section 1 consists of an elevated controlled access facility with two 12-foot travel lanes in each direction, varying inside shoulder widths (four feet to eight feet paved), ten-foot paved outside shoulders, and a 46-foot depressed median separated by guardrail. The local traffic will be accommodated along eastbound and westbound one-way frontage roads consisting of two 11-foot travel lanes with curb and gutter. Twelve-foot multi-use trails are proposed along the outside of the frontage roads on both sides of the corridor as shown in **Figure 1-5**. Typical Section 1 will require ROW acquisition to the south side of Gandy Boulevard approaching Brighton Bay Boulevard which varies from zero to 119 feet. The alignment shifts from the south to the north through the San Martin Boulevard intersection heading east where the ROW acquisition varies from zero to 80 feet.

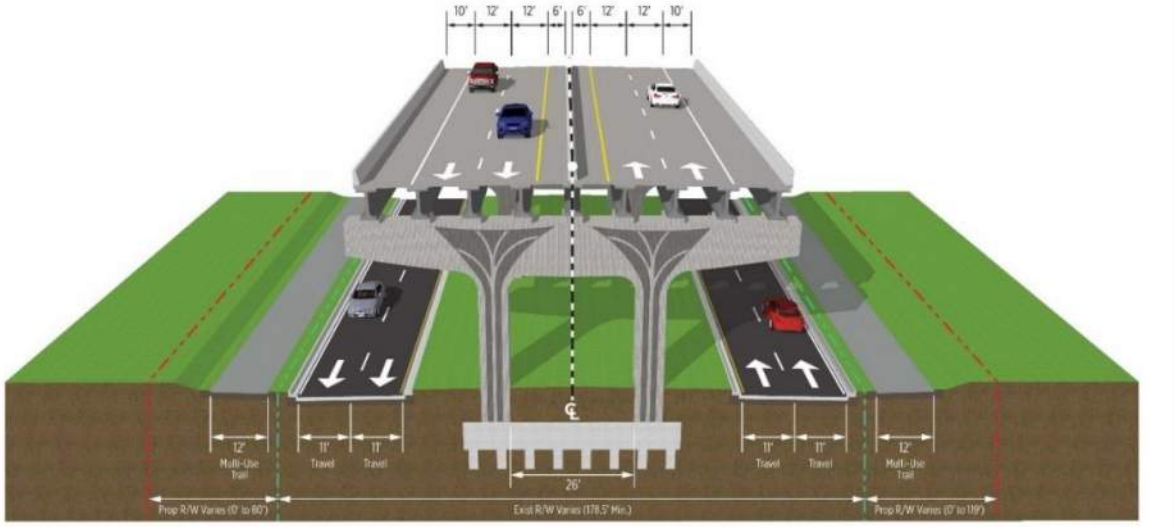
Figure 1-5: Segment 1 – Typical Section 1



Typical Section 2

Typical Section 2 is proposed from west of Brighton Bay Boulevard to San Martin Boulevard and consists of a centered elevated viaduct with frontage roads on both sides. The viaduct consists of two 12-foot travel lanes in each direction separated by a concrete barrier wall with six-foot inside shoulders and ten-foot outside shoulders. The bridge concept could be widened to the outside if additional lanes are needed in the future. The eastbound and westbound frontage roads consist of two 11-foot travel lanes with curb and gutter. Twelve-foot multi-use trails are proposed along the outside of the frontage roads on both sides of the corridor as shown in **Figure 1-6**. Typical Section 2 will require ROW acquisition along the south side of Gandy Boulevard which varies from zero to 119 feet and along the north side of Gandy Boulevard varying from zero to 80 feet.

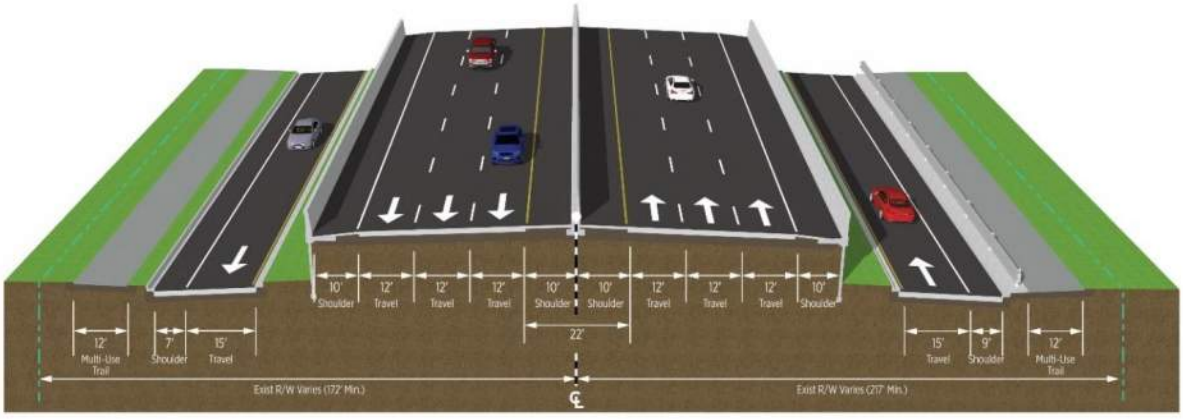
Figure 1-6: Segment 1 – Typical Section 2



Typical Section 3

Typical Section 3 is proposed from East of San Fernando Drive to the west end of the Gandy bridges. An additional travel lane in either direction is developed from the direct connect access ramps from the local frontage roads creating a six-lane typical section throughout the causeway which continues east over the Gandy bridges. Typical Section 3 consists of an elevated controlled access roadway with three 12-foot travel lanes in each direction, ten-foot paved inside shoulders, and ten-foot paved outside shoulders with barrier wall in each direction. The median transitions from 46 feet to 22 feet with opposing travel lanes separated by median barrier wall. One-lane frontage roads are proposed on the outside of the controlled access roadway in each direction with a 15-foot travel lane, varying outside shoulder widths (seven feet to nine feet paved), curb and gutter, and a 12-foot multi-use trail. One of the frontage roads will provide access to multi-use trail parking. Typical Section 3 is proposed within the existing FDOT ROW as shown in **Figure 1-7**.

Figure 1-7: Segment 1 – Typical Section 3

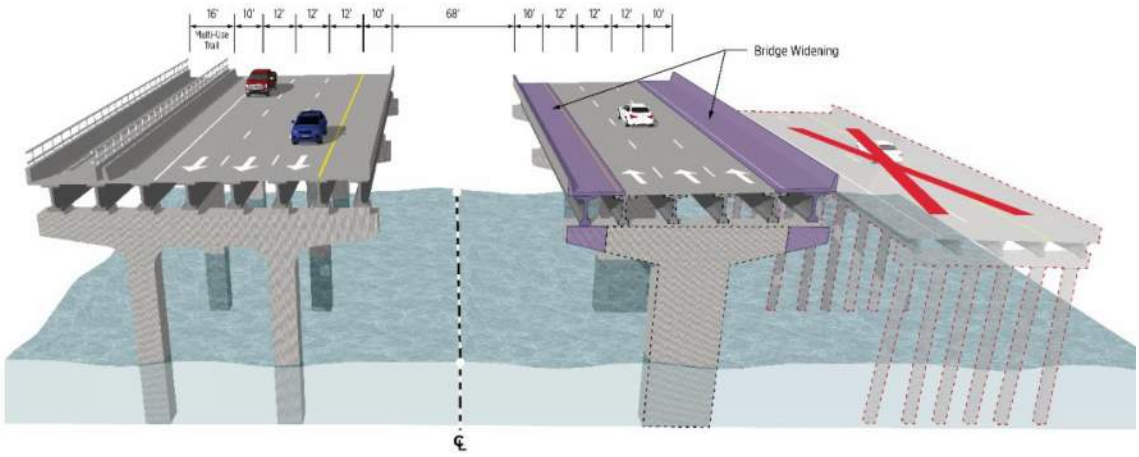


1.5.2 Segment 2

Typical Section 4

The Build Alternative for Segment 2 (Bay Segment) includes Typical Section 4 with three eastbound travel lanes, three westbound travel lanes, and a multi-use trail on the north side of the westbound bridge. As part of the Build Alternative, the existing eastbound bridge (#100300) will be demolished. The existing westbound bridge (#100585) will be widened to both the north and south sides and placed into service as the eastbound bridge. The widened bridge (#100585) will consist of three 12-foot travel lanes and ten-foot inside and outside shoulders. A new westbound bridge will be constructed on the north side of the widened bridge. The new westbound bridge will consist of three 12-foot travel lanes, ten-foot inside and outside shoulders, and a 16-foot multi-use trail separated by barrier wall as shown in **Figure 1-8**. The typical section includes an 88-foot median with approximately 65 feet of separation between the two bridges for constructability. The proposed bridge improvements over Old Tampa Bay are within the existing FDOT ROW.

Figure 1-8: Segment 2 – Typical Section 4

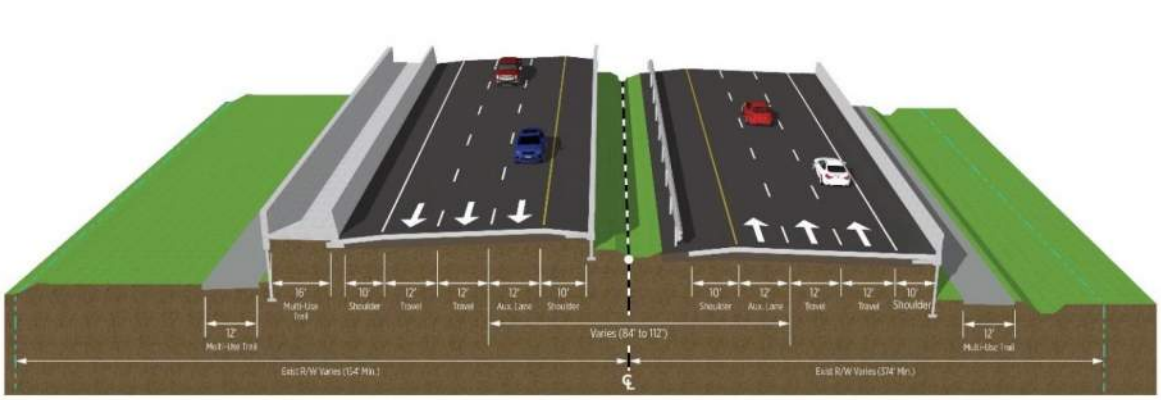


1.5.3 Segment 3

Typical Section 5

The Build Alternative for Segment 3 (Hillsborough Segment) provides a four-lane and six-lane divided typical section. Typical Section 5 is a transitional typical section proposed between the east end of the Gandy bridges to approximately 1,800 feet west of Bridge Street where the Selmon Expressway two-lane elevated viaduct begins in the median. Typical Section 5 consists of three 12-foot travel lanes in each direction, ten-foot paved inside shoulders bordered with guardrail and barrier wall, and ten-foot paved outside shoulders with barrier wall. The inside travel lanes function as the general use lanes across the Gandy bridges and become auxiliary lanes to serve as the entrance and exit lanes for the Selmon Expressway viaduct in the median. A 12-foot wide multi-use trail is proposed on both sides of the roadway as shown in **Figure 1-9**.

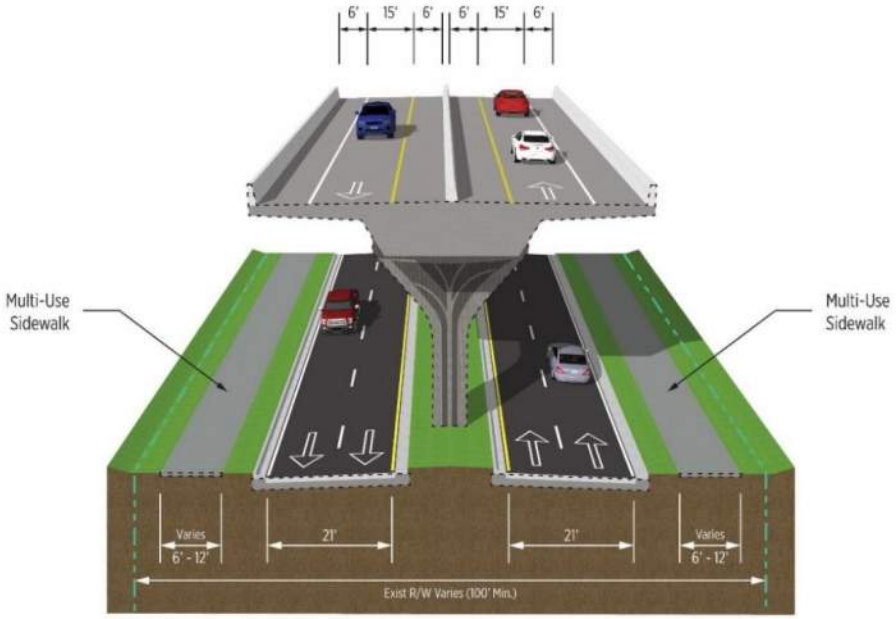
Figure 1-9: Segment 3 – Typical Section 5



Typical Section 6

Typical Section 6 is proposed from approximately 1,800 feet west of Bridge Street to West Shore Boulevard. The proposed improvements within the limits of Typical Section 6 are limited to intersection and access management improvements, and auxiliary lane development to connect the proposed relocated Gandy Boat Ramp turnout approximately 800 feet west of Bridge Street. The proposed typical section will match the existing roadway with a four-lane divided roadway, one 10-foot travel lane and one 11-foot travel lane in each direction. Typical Section 6 will accommodate the existing Selmon Expressway two-lane viaduct within the median with intermittent bridge piers. (**Figure 1-10**). The Segment 3 improvements are proposed within the existing FDOT ROW.

Figure 1-10: Segment 3 – Typical Section 6



1.6 PROPOSED POND SITES

There are four proposed drainage basins associated with the Build Alternative. In Basin 1, there is one proposed stormwater management facility (SMF), which is an expansion of an existing FDOT SMF. In Basin 2, there are two offsite wet detention SMF alternatives, both located on the south side of Gandy Boulevard, and one (Pond 2B) is recommended for this study. Basins 3 are 4 are proposed to utilize nutrient removal credits that were created by the Old Tampa Bay Water Quality Improvement Project, and therefore do not have proposed SMFs. In total, two SMFs are recommended for this study.

1.7 PURPOSE OF THIS REPORT

The purpose of this Pond Siting Report (PSR) is to discuss, analyze, and identify the stormwater management plan for the proposed roadway improvements based on environmental, hydrologic, hydraulic, and economic factors. This Pond Siting Report was prepared in accordance with the FDOT *PD&E Manual* to meet the requirements of the National Environmental Policy Act (NEPA) and other associated federal and state laws, rules, and regulations.

SECTION 2 DESIGN CRITERIA

The design of the stormwater management facilities for the project is governed by the rules set forth by the SWFWMD and FDOT. Water treatment and attenuation requirements will comply with the guidelines as defined in Chapter 62-330 of the Florida Administrative Code (F.A.C) and the Environmental Resource Permit Applicant's Handbook (Volume II).

Wet detention ponds will provide for water quality improvements as well as water quantity attenuation for the project runoff. Dry retention swales within the existing right of way are identified in select areas throughout the study to assist in nutrient loading reductions and are intended as opportunities for Best Management Practices (BMP). The stormwater ponds are designed and sized for the most conservative typical section. Please refer to the sections below for the water quality, water quantity, and pond facilities configuration criterion used for the project.

2.1 SWFWMD CRITERIA

- Water Quality:
    - Wet Detention Ponds: Treatment will be provided for one inch (1") over the net new Directly Connected Impervious Areas (DCIA) for alterations to existing public roadway projects.
        - An outfall control structure shall be designed to drawdown the system's treatment volume 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). 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.
    - Dry Retention Ponds: Treatment will be provided for one-half inch (0.5") over net new DCIA for alterations to existing public roadway projects.
        - The entire treatment volume is to be infiltrated within 72 hours after a storm event.

  The project traverses seven (7) Waterbody IDs (WBID) within SWFWMD: 1661D Tinney Creek, 1624 Roosevelt Basin (Channel 2 Subbasin), 1654 Snug Harbor, 1558G Old Tampa Bay, 1558GB Gandy Boulevard, 1558F Old Tampa Bay (Lower Segment), and 1609 Direct Runoff to Bay (Interbay Peninsula); of which none are impaired for nutrients. However, due to other nutrient constraints within the area, including the Old Tampa Bay Water Quality Improvement Project and EPA requirements (see **Section 5.4** for more information), a pre versus post nutrient loading analysis will be required for this study. Please refer to the **WBID Map**, **Figure 6** in **Appendix A** for more information. In addition, the project outfalls to the Pinellas County

Aquatic Preserve which is an Outstanding Florida Water (OFW) and will need to adhere to OFW treatment criteria which includes 50% additional treatment.

- Water Quantity:
  - The project located within an open drainage basin, the allowable discharge is:
    - Historic discharge, which is the peak rate at which runoff leaves the 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 relevant to the project.

  Offsite discharges and peak stages for the existing and proposed conditions shall be computed using the SWFWMD's 25-year/24-hour rainfall maps and the Natural Resources Conservation Service (NRCS) Type II Florida Modified 24-hour rainfall distribution with an Antecedent Moisture Condition (AMC) II. The rate of runoff leaving the site shall not cause adverse offsite impacts. Maintenance of pre-development offsite low flow may be required in hydrologically sensitive areas. Pre vs. post attenuation is considered from the beginning of the study at 4th Street to Brighton Bay Blvd., which is consistent with previous permitted facilities in the area. From east of Brighton Bay Blvd to the end of the project at West Shore Blvd, attenuation is not required because of the direct connection to the tidal bay.

- **Detention/Retention Pond Configuration**:
  - Littoral Zone – Manmade wet detention systems shall include a minimum of 35 percent littoral zone, concentrated at the outfall and shall be no deeper than 3.5 feet below the design overflow elevation.
  - Width – Wet detention water quality treatment systems shall be designed with a 100 feet minimum width for linear areas in excess of 200 feet length. Area and width requirements will be waived for projects to be operated by single owner entities, or entities with full time maintenance staffs (i.e. FDOT).
  - Depth – The detention facility shall not be excavated to a depth that breaches the aquitard such that it would allow for lesser quality water to pass, either way, between the two systems. In those geographical areas of the district where there is not an aquitard present, the depth of the pond shall not be excavated to within two feet of the underlying limestone which is part of a drinking water aquifer.
  - Side Slopes – All retention and detention facilities should have stabilized side slopes no steeper than 1V:4H out to a depth of two feet below the control elevation, unless for purposes of public safety, side slopes designed or permitted steeper than 1V:4H will

require a six foot chain link fence or other protection sufficient to prevent accidental incursion into the retention or detention area.

- ○ For wet detention systems, the bottom elevation of the pond must be at least one foot below the control elevation.
- ○ Maintenance Access – Perimeter maintenance and operation easements, with a minimum width of 20 feet and slopes no steeper than 1V:4H, should be provided landward of the control elevation water line. Widths less than 20 feet are allowed when it can be demonstrated that equipment can enter and perform the necessary maintenance for the system.
- ○ Karst Areas: Portions of the project are located within a Sensitive Karst Area (SKA); therefore, stormwater management ponds shall not be excavated through a confining layer as it would allow polluted water to drain into the Florida Aquifer. If no confining layer is present, the stormwater management ponds should not be excavated to within two (2) feet of the underlying limestone layer. Geotechnical analysis will be required for the ponds which should look for sinkhole indicators (i.e. 100% loss of circulations). A map of SKA is located **Appendix A**, **Figure 7**.

2.2 FDOT CRITERIA

- **Water Quality**: That which is specified in Sections 2.1 above.
- **Water Quantity**: Critical Duration as defined by Chapter 14-86 F.A.C.
  - ○ Open Basins
    - Ponds shall be sized such that the post development discharge rate (or volume) does not exceed the pre-development discharge rate (or volume) for the critical duration (1-hour through 3-day) storm and up to the 100-year storm. This applies only to basins subject to historical flooding.
- **Detention/Retention Pond Configuration**:
  - ○ Maintenance Berm: Provide a minimum 20 feet of horizontal clearance between the top edge of the control elevation and the right-of-way line. Provide at least 15 feet adjacent to the pond at a slope of 1:8 or flatter. Create the inside edge of the maintenance berm to have a minimum radius of 30 feet and be a minimum of one foot above the maximum design stage elevation.
  - ○ Freeboard: Provide at least one foot of clearance between the maximum design stage of the pond and the inside edge of the berm. For linear treatment swales, the minimum freeboard is 0.5 foot.
  - ○ Side Slopes: Provide a slope of 1V:4H or flatter. Install fences around ponds only when a documented maintenance need for restricted access has been demonstrated

(Section 5.4.4.2 from the FDOT Drainage Manual) or when pond side slopes above the normal water level are steeper than 1V:4H and are unavoidable. A design variation is required to install fences around stormwater management facilities.

- Permanent (Normal) Pool Depth: For facilities designed to be wet, provide a minimum permanent pool depth of six feet to minimize aquatic growth.

SECTION 3 DATA COLLECTION

The design team collected and reviewed data from the following sources:

- Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) Panel Nos. 12103C0207H, 12103C0164H, 12103C0163H, and 12103C0207H, Effective Date 8/24/21 in Pinellas County, Florida and 12103C0343J, Effective Date 10/7/2021, in Hillsborough County, Florida.
- United States Geological Survey (USGS) Quadrangle Maps
- United States Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS) Soils Survey of Pinellas County, Florida, 2020 and Soils Survey of Hillsborough County, Florida, 2020
- Existing Permit Databases (SWFWMD)
- 1-ft LIDAR Data Source: Florida Division of Emergency Management (FDEM), Pinellas County and Hillsborough County, 2005

SECTION 4 EXISTING DRAINAGE CONDITIONS

4.1 TOPOGRAPHY & HYDROLOGIC FEATURES

Topography throughout the project is relatively flat with elevations ranging from 0 feet to 10 feet. All elevations mentioned in this report are in reference to the North American Vertical Datum of 1988 (NAVD) unless otherwise stated. Reference material that was originally in the National Geodetic Datum of 1929 (NGVD) was converted to NAVD using the equation NAVD = NGVD – 0.89 feet. Please refer to the **USGS Quadrangle Map**, **Figure 2** in **Appendix A**. The Pinellas County Aquatic Preserve is an Outstanding Florida Water (OFW) and is within the Pinellas County segment of the study. There are five (5) existing cross drains underneath Gandy Blvd and the bridge over Old Tampa Bay within the project limits. The cross drains allow for conveyance of offsite and onsite runoff beneath the road toward its historical path. The size and geometry of all cross drains and bridges culverts have been established from existing plans and permit documents. Please refer to **Table 4-1** for a **Summary of Existing Cross Drains.**

Table 4-1: Summary of Existing Cross Drains

Structure No.	Station	Description
CD-1	214+49	5'W x 3'H CBC
CD-2	226+51	24" RCP
CD-3	247+41	24" RCP
CD-4	260+87	24" x 38" RCP
CD-5	566+33	24" RCP

4.2 SOILS DATA AND GEOTECHNICAL INVESTIGATION

The soil survey of Pinellas and Hillsborough Counties, Florida (dated 2020) published by the USDA NRCS have been reviewed within the project vicinity. USDA Soil Survey Geographic database (SSURGO) data was also obtained from NRCS to create a soils map for the project limits using GIS ArcMap. The soil survey map for the project vicinity is illustrated in **Figure 3** of **Appendix A**. Soils are detailed in **Table 4-2** and **Table 4-3** below.

Table 4-2: USDA NRCS Soil Survey Information for Pinellas County

Soil No.	USDA Soil Name	Seasonal High Ground Water		HSG	Soil Classification		
		Depth (feet)	Duration (months)		Depth (inches)	Unified	AASHTO
10	EauGallie soils and Urban land	0.5-1.5	---	A/D	0-5	SP, SP-SM	A-3
					5-23	SM, SP-SM	A-2-4, A-3
					23-47	SP, SP-SM	A-2-4, A-3
					47-59	SC, SC-SM, SM	A-2-4, A-2-6
					59-80	SM, SP-SM	A-2-4, A-3
13	Immokalee soils and Urban Land	0.5-1.5	---	A/D	0-6	SP, SP-SM	A-3
					6-35	SP, SP-SM	A-3
					35-50	SM, SP-SM	A-2-4, A-3
					50-80	SP, SP-SM	A-3
14	Kesson fine sand, very frequently flooded	0-0.5	Very Brief	A/D	0-5	SP-SM	A-2-4, A-3
					5-26	SP, SP-SM	A-3
					26-42	SP-SM, SP	A-3
					42-80	SP, SP-SM	A-3
16	Matlacha and St. Augustine soils and Urban land	2.0-3.0	---	B	0-42	SP, SP-SM	A-3
					42-80	SM, SP-SM	A-3
17	Myakka soils and Urban land	0.5-1.5	---	A/D	0-4	SP, SP-SM	A-3
					4-22	SP, SP-SM	A-3
					22-36	SM, SP-SM	A-2-4, A-3
					36-80	SP, SP-SM	A-3
22	Pineda Soils and Urban Land	0.0-1.0	---	C/D	0-4	SP, SP-SM	A-3
					4-37	SP, SP-SM	A-3
					37-55	SC, SC-SM, SM	A-2-4, A-2-6
					55-80	SM, SP, SP-SM	A-2-4, A-3
30	Urban Land, 0 to 2 percent slopes	---	---	---	-	-	-
					-	-	-
31	Wabasso Soils and Urban land	0.5-1.5	---	C/D	0-5	SP, SP-SM	A-3
					5-26	SP, SP-SM	A-3
					26-36	SM, SP-SM	A-2-4, A-3
					36-50	SC, SC-SM	A-2-4, A-2-6
					50-80	SM, SP-SM	A-2-4, A-3
32	Wulfert muck, tidal, 0 to 1 percent slopes	0.0	Very Brief	A/D	0-35	PT	-
					35-80	SM, SP-SM	A-2-4, A-3
100	Waters of the Gulf of Mexico	0.0	12	N/A			

Table 4-3: USDA NRCS Soil Survey Information for Hillsborough County

Soil No.	USDA Soil Name	Seasonal High Ground Water		HSG	Soil Classification		
		Depth (feet)	Duration (months)		Depth (inches)	Unified	AASHTO
45	St. Augustine-Urban land complex	1.5-3.0	---	A/D	0-3	SP, SP-SM	A-3
					3-80	SP-SM, SM	A-3, A-2-4
58	Wabasso-Urban land complex	0.5-1.5	---	C/D	0-21	SP, SP-SM	A-3
					21-31	SP-SM, SM	A-3, A-2-4
					31-48	SC, SM-SC	A-2-4, A-2-6
					48-80	SP-SM, SM	A-3, A-2-4
99	Water	0.0	12	N/A			
100	Waters of the Gulf of Mexico	0.0	12	N/A			

The soils encountered along the project limits are Hydrologic Soil Group (HSG) A/D, B, and C/D. Group A soils have low runoff potential and high infiltration rates even when thoroughly wetted. They consist chiefly of deep, well to excessively drained sand or gravel and have a high rate of water transmission. Group B soils have a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture and have a moderate rate of water transmission. Group C soils have low infiltration rates when thoroughly wetted and consist chiefly of soils with a layer that impedes downward movement of water and soils with moderately fine to fine texture and have a slow rate of water transmission. Group D soils have high runoff potential. They have very low infiltration rates when thoroughly wetted and consist chiefly of clay soils with a high swelling potential, soils with a permanent high-water table, soils with a claypan or clay layer at or near the surface, and shallow soils over nearly impervious material. These soils have a very low rate of water transmission. If a soil is assigned to a dual HSG, the first letter is for drained areas and the second is for un-drained areas. Soils are only assigned a dual class if they are group D in their natural condition. According to the Soil Survey, there are 10 different soil types located along the project limits within Pinellas County and 4 different soil types located along the project limits within Hillsborough County. The ground water depth varies from 0' to 3' along the project per the NRCS Soil Survey information.

A preliminary geotechnical investigation was not performed for this study. Reasonable assumptions are made to set the control elevations of the pond site alternatives based on available information such as adjacent wetland elevations, adjacent permitted stormwater systems, and NRCS information. A geotechnical investigation should be completed during the design phase for the selected stormwater ponds.

4.2.1 Contamination Screening

Contamination screening was conducted by Tierra, Inc. As a result of the contamination screening evaluation, the 3 pond alternative sites have been assigned Contamination Risk Potential Ratings (CRPR). The CRPR rating system was developed by FDOT and incorporates four levels of risk: No, Low,

Medium, and High. All 3 pond alternative sites were given a CRPR of "Low." The rankings provided by Tierra are located in **Appendix I**.

The sites, business operations and/or facilities identified, to date, and the risk rankings given to them are preliminary. It should be understood that these risk rankings may change pending receipt of information which indicates a discharge occurred on-site or in nearby surrounding areas. Variables that may change the risk ranking include a facility's non-compliance to environmental regulations, new discharges to the soil or groundwater, and modifications to current permits. Should any of these variables change, additional assessment of the facilities should be conducted.

4.3 ENVIRONMENTAL CHARACTERISTICS

4.3.1 Land Use Data

The project corridor is predominantly urban at both ends of the corridor with wetlands throughout the causeway and open water under the bridge. Please see **Figure 4** for **the Land Use Map** in **Appendix A**. The widening of Gandy Boulevard does not alter the existing or future land uses in the area.

4.3.2 Cultural Features

A desktop cultural resource analysis has been conducted by SEARCH Inc. The Area of Potential Effects (APE) for the ponds was defined as the pond footprints in addition to a 100-foot buffer. As a result of the preliminary study, three previously recorded cultural resource sites were recorded within the pond APE. However, it was determined that all sites have a "Low" probability of prehistoric archaeological resources and historic archaeological resources due to significant soil disturbance associated with modern development.

In conclusion, no proposed pond site should be avoided due to cultural resource issues. Following the selection of preferred pond sites, systematic archaeological field survey is recommended in accordance with the guidelines and standards promulgated by 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. Please refer to the Preliminary Cultural Resource Assessment Survey Ponds Addendum included in **Appendix H**.

4.3.3 Natural and Biological Features

The proposed project has potential to involve several state-listed, federal-listed, and other protected wildlife species. These species and their anticipated involvement are identified in the *Natural Resources Evaluation (NRE) Report* prepared for this study under separate cover and summarized in the Pond Alternatives Evaluation Matrix located in **Appendix D**.

The project corridor was evaluated for the presence of potentially occurring species. The recommended alternative minimizes impacts to wetlands, protected species and their habitats to the greatest extent practicable. Due to the lack of suitable habitat or defined conservation measures for the following listed species, the recommended alternative "may affect, but is not likely to adversely

affect" the American crocodile, Eastern indigo snake, giant manta ray, Gulf sturgeon, green sea turtle, Kemp's Ridley sea turtle, loggerhead sea turtle, red knot, piping plover, smalltooth sawfish, West Indian manatee, and wood stork; and was considered to have "no effect" on Eastern black rail, federally-listed plant species, and leatherback sea turtle. Similarly, "no adverse effect is anticipated" for the Florida burrowing owl, American oystercatcher, black skimmer, gopher tortoise, least tern, snowy plover, state-listed plant species, or wading birds. The likelihood of each species occurring within the project corridor was evaluated based on historic ranges, literature review, aerial photography interpretation to identify suitable habitat, and field investigations.

The identification of wetlands has been investigated and is included within the *NRE Report* prepared for this study under separate cover. This project will impact wetlands and surface waters that are regulated under State and Federal regulations. Proposed pond sites have been located to avoid wetland impacts.

4.4 FLOODPLAINS

According to the Federal Emergency Management Agency (FEMA), the relevant Flood Insurance Rate Map (FIRM) panel numbers are 12103C0207H, 12103C0226H, 12103C0163H, 12103C0164H, in Pinellas County, dated 8/24/21, and 12057C0343J, in Hillsborough County, dated 10/7/2021.

According to the FEMA FIRMs, the entirety of the project lies within Zone AE and Zone VE of the 100-year floodplain with elevations ranging from 9 to 14 feet. These areas are associated with Old Tampa Bay and have a 1% probability of flooding every year with predicted flood water elevations that have been established. The flood zones within the project area are directly connected to Old Tampa Bay and therefore are tidally influenced. There are no federally regulated floodways within the project limits. Please refer to **Figure 5** in **Appendix A** for the **FEMA Floodplains Map**.

4.4.1 Flooding History and Maintenance Concern

Discussions were held with the FDOT regarding drainage issues along the project corridor. Abdul Waris from FDOT indicated that a flooding complaint was received for flooding occurring within the ditch between the Goodwill Industries property and the adjacent Mobile Home Park. The ditch, which has an easement over it and outfalls to the roadway R/W, has since been cleaned out to ease the flooding. Additional maintenance issues related to local construction have been submitted to FDOT and subsequently resolved. Copies of these requests can be found in **Appendix J – Correspondence**.

4.5 EXISTING DRAINAGE PERMITS

There are currently eight (8) SWFWMD permits within the project limits that are adjacent to or along Gandy Blvd that may be impacted by the proposed improvements. The sections below briefly describe the permitted condition and the impacts to the permit associated with the proposed improvements. Generally, permits are listed in order from the beginning of the project to the end (west to east). Documents from select permits that will be significantly impacted by the widening of Gandy Blvd or were used for the collection of drainage data can be found in **Appendix F – Existing Permits**.

4.5.1 Permit No. 14232.000

Permit No. 14232.000 was issued on August 30, 1996. This permit is for the safety improvements at the intersection of SR 600 (Gandy Boulevard) and 4th Street. The permitted limits are located at the begin study limits and it is anticipated that the proposed improvements will impact the intersection. This permit was used for collection of drainage information for the purpose of this PD&E Study.

4.5.2 Permit No. 11339.007 and 11339.011

Permit No. 11339.007 (issued on July 8, 2010) and 11339.011 (issued on December 30th, 2014 as a modification) are for the reconstruction of Gandy Boulevard from I-275 to east of 4th Street to a 6-lane divided, limited access facility. The proposed study limits are within the permitted project limits east of 4th street and the calculations for Basins 1 and 2 consider the permitted calculations to be taken as the existing condition for this Study. Stormwater pond alternative Pond 1 proposes to expand Pond 1100-A1 of the permitted project. Relevant documents can be found in **Appendix F**.

4.5.3 Permit No. 11333.000 and 11339.000

Permit No. 11333.000 (issued on May 17, 1995) and 11339.000 (issued on December 20th, 1993) are for the construction of the Gandy Boulevard Bridge over Old Tampa Bay. Permit No. 11339.000 includes the construction of dry retention treatment swales along Gandy Boulevard at the east end of the bridge. The majority of these swales have been impacted by the recent Selmon Expressway project (Permit No. 11759.005). The remaining swales are anticipated to be impacted with the widening of Gandy Boulevard under this Study and will need to be accounted for in the proposed design. The nutrient loading calculations located in **Appendix E** include estimated compensation needs for this pond. Additionally, the existing permitted eastbound bridge will be demolished. The existing westbound bridge will be widened to both the north and south sides and placed into service as the eastbound bridge and new westbound bridge will be constructed on the north side of the widened bridge.

4.5.4 Permit No. 1764.000

Permit No. 1764.000 (issued on January 29, 1987) is for the construction of the Pelican Sound residential development. The normal water elevation from this permit was used to assist in determining control elevations for Pond 2A and 2B. This permit is not anticipated to be impacted by this Study. Relevant documents can be found in **Appendix F**.

4.5.5 Permit No. 5322.000

Permit No. 5322.000 (issued on June 29, 1989) is for the construction of the St. Petersburg Kennel Club. The proposed roadway widening will impact the permitted limits of the site and proposed Pond 2B is located within the permit limits. This permit was used for collection of drainage information for the purpose of this PD&E Study.

4.5.6 Permit No. 23680.001

Permits No. 23680.001 (issued on February 2, 2015) is for the parking lot improvements of the Channel 10 News building. Improvements included the construction of a dry retention treatment pond, which will be impacted by the proposed roadway widening for this Study. Impacts to the existing treatment facility will need to be accounted for in the proposed design. The nutrient loading calculations located in **Appendix E** include estimated compensation needs for this pond. Relevant documents can be found in **Appendix F**.

4.5.7 Permit No. 11759.004 and 11759.005

Permit No. 11759.004 (issued on April 14, 2017) and Permit No. 11759.005 (issued on January 9th, 2018 as a modification) are for the western extension of the Selmon Expressway and include modifications to Gandy Boulevard from the end of the Old Tampa Bay Bridge to the existing Selmon Expressway. Construction on this project was recently completed and includes construction of an elevated viaduct expressway above Gandy Boulevard. The widening of Gandy Boulevard and construction of a new westbound bridge over Old Tampa Bay are anticipated to alter the alignment of Gandy Boulevard within this area; therefore portions of this permitted project will be impacted. This permit also provides information on existing swales along Gandy Boulevard (originally permitted under 11339.000 but not well documented) which will be impacted by this Study. Relevant documents for the Selmon Expressway can be found in **Appendix F**.

4.5.8 Permit No. 920.019

Permit No. 920.019 (issued on February 19, 2019) for the initial release of water quality credits for the Old Tampa Bay Water Quality Improvement Project. It is a modification to earlier permits which included various modifications to the Courtney Campbell Causeway that allowed for the creation of the water quality credits. This permit creates a ledger of water quality credits that are intended to be released in phases as new monitoring goals are met within the project area. Subsequent modifications to this permit have been submitted to amend the ledger each time new credits are released or a new project utilizes credits. A copy of the original ledger is located in **Appendix G** with other documents pertaining to the Water Quality Improvement Project. More information about the Water Quality Improvement Project can be found in **Section 5.4.2**.

4.6 EXISTING DRAINAGE BASINS

There are currently four (4) existing drainage basins within the project limits. These drainage basins are part of the Tampa Bay watershed. Existing basin limits were determined by reviewing existing SWFWMD permits, watershed data, and 1-foot contours taken from LiDAR data to identify the most probable drainage patterns and outfall locations. Refer to the **Existing Basin Maps** in **Appendix B** for basin locations. The sections below describe the basin limits and characteristics.

4.6.1 Basin 1

Basin 1 begins at the start of the study, 4th Street, at station 201+00 and continues east to CD-1 at station 214+26. This basin is located within WBID 1661D – Tinney Creek, which is not impaired for nutrients, but this area is subject to a TMDL based on nutrient impairment identified by the US EPA. See Section 5.4 for more information. The existing Basin 1 matches the limits of Basin 1100-A1 from SWFWMD Permit No. 43011339.011. Per the permit, stormwater runoff from Gandy Boulevard within Basin 1100-A1 is treated within the FDOT stormwater treatment Pond 1100-A1, located underneath the overpass. Pond 1100-A1 discharges to the existing storm drain system on 4th Street. This basin is considered an open basin and the ultimate outfall is Old Tampa Bay.

4.6.2 Basin 2

Basin 2 begins at CD-1 at station 214+26 and continues east to the intersection of Gandy Boulevard and Brighton Bay Blvd at station 240+35. This basin is located within WBID 1661D – Tinney Creek and 1624 – Roosevelt Basin, which are not impaired for nutrients, but this area is subject to a TMDL based on nutrient impairment identified by the US EPA. See Section 5.4 for more information. The existing Basin 2 encompasses all of Basin 1200 (1200-C1, 1200-C2, and 1200-C3), 12D, 12E, and "Outfall" from existing SWFWMD Permit No. 43011339.011. In the existing condition, Basin 1200 provides treatment and attenuation for the westbound lanes within treatment swales along the north side of Gandy Boulevard. The swales discharge into Tinney Creek at CD-1. This basin is considered an open basin and the ultimate outfall is Old Tampa Bay.

4.6.3 Basin 3

Basin 3 begins at the intersection of Gandy Boulevard and Brighton Bay Blvd at station 240+35 and extends through the Old Tampa Bay bridge. This basin is located within WBID 1624 – Roosevelt Basin, 1558G – Old Tampa Bay, 1558GB – Gandy Boulevard, and 1558F – Old Tampa Bay (Lower Segment). There is no formal stormwater treatment along the basin limits. Stormwater runoff from the roadway is collected within roadside swales and conveyed east to the wetland system connecting to Old Tampa Bay. The bridge over Old Tampa Bay discharges directly into the bay via scuppers. This basin is considered an open basin and the ultimate outfall is Old Tampa Bay which is subject to a TMDL based on nutrient impairment identified by the US EPA. See **Section 5.4** for more information.

4.6.4 Basin 4

Basin 4 begins at the eastern end of the Old Tampa Bay bridge and continues to west of Bridge Street at Station 567+13. The project limits extend slightly beyond Basin 4 but east of Bridge Street the project ties to the existing Gandy Boulevard, so a separate basin was not delineated. This basin is located within WBID 1609 – Direct Runoff to Bay. Recent improvements were constructed within this basin under the Tampa Hillsborough Expressway Authority (THEA) Selmon Expressway Project, SWFWMD Permit No. 43011759.005. Prior to the Selmon Expressway Project, roadway runoff in this basin was treated within a series of dry retention swales originally permitted under Permit No. 43011339.000. Most of the swales were removed as part of the Selmon Expressway Project, and lost

volume was compensated for in new permitted ponds outside the limits of this study. There are three remaining dry retention swales within the limits of Basin 4. This basin is considered an open basin and the ultimate outfall is Old Tampa Bay which is subject to a TMDL based on nutrient impairment by the US EPA. See **Section 5.4** for more information.

SECTION 5 PROPOSED DRAINAGE CONDITIONS

The stormwater runoff from the project limits will be collected and conveyed to the recommended preferred pond alternative for Basins 1 and 2 via curb and gutter. The various pond alternatives consist of wet detention ponds. The ponds will discharge at or near the same cross drains or storm sewer systems that carry the roadway runoff in the existing condition. The proposed ponds have been sized to achieve the required water quality treatment and water quantity attenuation and assist the Department in the right-of-way estimation for the project.

5.1 PROPOSED BASINS

The evaluation for the proposed basin delineation started with four (4) drainage basins within the project limits, matching the existing basins. The basins were delineated with the goal of utilizing existing stormwater management facilities and reducing the need for additional proposed ponds. The expansion of the existing FDOT pond within Basin 1 was investigated and two (2) pond alternatives were analyzed for Basin 2. Basins 3 and 4 are within the Old Tampa Bay watershed and anticipate utilizing water quality credits from the permitted ledger for the Old Tampa Bay permit for the stormwater treatment of these basins. The onsite roadway basin areas draining to the ponds were determined to be the areas within the proposed right-of-way limits. The limits of the proposed basins typically begin and end at the same locations as the existing condition. Please see the basin descriptions below for more information. The location of the ultimate outfall in the proposed condition is the same as the existing condition. Attenuation in the proposed ponds is provided for within Basins 1 and 2 and impacts to the storage within the existing drainage swales along the north side of Gandy Boulevard will be accommodated for within the proposed ponds. Basins 3 and 4 are part of the Old Tampa Bay watershed, which is under tidal influence. Therefore, attenuation is not required for these basins. Please refer to the **Basin Maps** in **Appendix B** for the pond locations. **Table 5-1: Summary of Proposed Drainage Basins** provides a summary of the proposed basin limits.

Table 5-1: Summary of Proposed Drainage Basins

Basin Name	From Station	To Station
1	201+00	214+26
2	214+26	240+35
3	240+35	527+00
4	527+00	567+13

5.2 METHODOLOGY OF POND DETERMINATION

5.2.1 General Process

The pond sizing analysis assumes that all ponds will be designed using the appropriate criteria for wet detention based on the best available water table data and other conditions at the proposed site. Our

preliminary investigation indicates that the proposed pond site alternatives will have minimal impacts to offsite runoff. The report focuses on the preliminary estimate of required pond volumes necessary for each roadway drainage basin. A 20% upsize in the required pond right-of-way area has been applied for all the stormwater treatment ponds to account for preliminary parameters such as the estimated average wet seasonal water elevations, ground elevations and potential natural contouring of the ponds.

For each basin, pre-development and post-development impervious areas were measured in Microstation due to irregular shaping of roadway features caused by the need for frontage roads, turn-lanes, and on- and off-ramps for elevated roadway sections. Please refer to **Section 1.1** of this report for descriptions of each typical section and to **Appendix B – Basin Maps** for the proposed roadway concept. The ponds were sized for the SWFWMD 25 year-24 hour storm. Since the existing permit (Permit No. 11339.011) for Gandy Boulevard within this area provides a rainfall depth of 9.0 inches for this storm, this is the rainfall depth used for pond sizing calculations. Additionally, the storm sewer tailwater was checked for the FDOT 10 year-24 hour storm with a rainfall depth of 6.53 inches according to data from the National Oceanic and Atmospheric Administration (NOAA) Atlas 14 website.

The locations of potential pond sites were selected by first considering proximity to the outfall location, then by considering site features such as estimated average wet seasonal water elevations, soil types, land use, and aesthetic features. It is not anticipated that any of the pond site alternatives will alter existing or future land uses of surrounding properties or significantly impact existing landscapes. During the final design, additional consideration should be given to aesthetic features to comply with the Highway Beautification Act including softening of the pond contours, landscaping, and other aesthetics features.

The following parameters were considered in determining the size and location of the potential pond sites:

- Hydrologic and hydraulic factors such as existing ground elevations, soil types, estimated average wet seasonal water elevations (AWSWE) stormwater conveyance feasibility, and allowable hydraulics grade line (HGL);
- Environmental resource impacts including wetlands and threatened or endangered species;
- Floodplain impacts;
- Major utility conflict potential;
- Parcel descriptions and land usage;
- Impacts to cultural resources;
- Impacts to contamination sites;
- Impacts to public/conservation lands

5.3 STORMWATER POND EVALUATION

The following sections detail each proposed basin and the relevant pond site alternatives. The full Pond Alternatives Evaluation Matrix is available in **Appendix D**. Please note that the recommended preferred pond site alternative for each basin was selected based on the lowest estimated total cost including the cost of right-of-way acquisition, construction, potential remediation of contaminated soil, and wetland mitigation unless otherwise noted in the Pond Site Evaluation Matrix. A graphic of basin limits and pond locations (including supplemental swales) can be found in the Proposed Basin Maps in **Appendix B**.

5.3.1 Basin 1

Basin 1 maintains the same limits as the existing condition beginning at the start of the study, 4th Street, at station 201+00 and continuing east to CD-1 at station 214+26. This basin is located within WBID 1661D – Tinney Creek, which is not impaired for nutrients; however, nutrient loading analysis has been performed due to EPA water quality constraints within the area. See Section 5.4 for more information. The proposed area for Basin 1 includes the originally permitted Basin 1100-A1 from SWFWMD Permit No. 43011339.011 along with an additional 0.32 acres of area that was previously part of the existing Basin 2 (within permitted Basin 12E). There is one (1) alternative for this basin, which is an expansion of the existing on-site FDOT wet detention Pond 1100-A1, renamed Pond 1 for the purpose of this study. More information about Pond 1 is discussed in the following section. Calculations and parameters for this pond are located in **Appendix C – Pond Design Calculations**. Relevant information from the permit for the existing pond is located in **Appendix F**

5.3.1.1 Pond 1

Pond 1 will serve as the treatment and attenuation pond for Basin 1 and is located in the center of Gandy Boulevard underneath the overpass at approximately station 202+00. This pond site sits within the existing Gandy Boulevard right-of-way. The pond site has no impacts to wetlands and no impacts to floodplains. According to the Pinellas County Soil Survey, Pond 1 consists of Eau Gallie Soils and Urban Land (#10, HSG A/D). According to permit data for the existing pond, the existing ground is at elevation 4.61 feet NAVD and the normal water/control elevation is at 0.71 feet NAVD. Preliminary pond sizing calculations indicate that this pond requires a total area of 1.64 acres, which expands the existing pond by 0.27 acres. The pond can be expanded slightly to the west and south within the existing R/W footprint. This pond will maintain its existing outfall to the storm drain system on 4th street. **This is the recommended preferred alternative for this basin.**

5.3.2 Basin 2

Basin 2 maintains the same limits as the existing condition beginning at the CD-1, at station 214+26 and continuing east to the intersection of Gandy Boulevard and Brighton Bay Blvd at station 240+35. This basin is located within WBID 1661D – Tinney Creek and 1624 – Roosevelt Basin, which are not impaired for nutrients; however, nutrient loading analysis has been performed due to EPA water quality constraints within the area. See Section 5.4 for more information. There are two (2)

alternatives for this basin, which are both offsite wet detention ponds. The alternatives are discussed in the following sections. All calculations and parameters for each alternative are located in **Appendix C – Pond Design Calculations**. **The recommended preferred alternative for this basin is Pond 2B.**

5.3.2.1 Pond 2A

Pond 2A will serve as the treatment and attenuation pond for Basin 2. Pond 2A is located south of Gandy Boulevard at approximately station 208+00. This pond site sits within parcel 19-30-17-00000-120-0200. The pond site has no impacts to wetlands and no impacts to floodplains. According to the Pinellas County Soil Survey, Pond 2A consists of Immokalee Soils and Urban Land (#13, HSG A/D) and Matlacha and St. Augustine Soils and Urban Land (#16, HSG B). According to LIDAR data obtained for this pond site, the existing ground is at approximately 5.00 feet NAVD. With the data compiled from preliminary pond soil borings, available permits, and soil information, it was determined that Pond 2A will be a wet pond with the normal water/control elevation set at elevation 1.00 feet. Preliminary pond sizing calculations indicate that this pond requires 2.86 acres of area. This pond will outfall to the nearby wetland system.

5.3.2.2 Pond 2B

Pond 2B will serve as the treatment and attenuation pond for Basin 2. Pond 2B is located south of Gandy Boulevard at approximately station 225+00. This pond site sits within parcel 18-30-17-00000-440-0900. The pond site has no impacts to wetlands and 1.08 acres of impacts to Zone AE floodplains. According to the Pinellas County Soil Survey, Pond 2B consists of Immokalee Soils and Urban Land (#13, HSG A/D) and Matlacha and St. Augustine Soils and Urban Land (#16, HSG B). According to LIDAR data obtained for this pond site, the existing ground is at approximately 3.50 feet NAVD. With the data compiled from preliminary pond soil borings, available permits, and soil information, it was determined that Pond 2B will be a wet pond with the normal water/control elevation set at elevation 1.00 feet. Preliminary pond sizing calculations indicate that this pond requires 1.30 acres of area. This pond will outfall to the adjacent ditch. **This is the recommended preferred alternative for this basin.**

5.3.3 Basin 3

Basin 3 begins at the intersection of Gandy Boulevard and Brighton Bay Blvd at station 240+35 and extends through the Old Tampa Bay bridge. This basin is located within WBID 1624 – Roosevelt Basin, 1558G – Old Tampa Bay, 1558GB – Gandy Boulevard, and 1558F – Old Tampa Bay (Lower Segment) which are not impaired for nutrients. This basin is located within the area of the Old Tampa Bay Water Quality Improvement Project. Through coordination with FDOT and SWFWMD, it was determined that in lieu of traditional stormwater ponds, this project would be eligible to utilize water quality credits from the Water Quality Improvement Plan. As such, Basin 3 does not have any pond alternatives. Instead, preliminary nutrient loading analysis has been performed to estimate the amount of water quality credit that will be required. Additional information about the Improvement Project can be found in **Section 5.4.2**.

5.3.3.1 Supplemental Swales

In addition to the Old Tampa Bay Water Quality Improvement credits, another nutrient removal option has been identified within Basin 3 to include the use of the wide median under the proposed bridge between Brighton Bay Blvd. and Mangrove Cay Ln. to provide a treatment swale. Additional information about the swales is available in **Section 5.4.3**.

5.3.4 Basin 4

Basin 4 begins at the eastern end of the Old Tampa Bay bridge and continues to west of Bridge Street at Station 567+13. This basin is located within WBID 1609 – Direct Runoff to Bay, which is not impaired for nutrients. This basin is located within the area of the Old Tampa Bay Water Quality Improvement Project. Through coordination with FDOT and SWFMWD, it was determined that in lieu of traditional stormwater ponds, this project would be eligible to utilize mitigation credits from the Water Quality Improvement Plan. As such, Basin 4 does not have any pond alternatives. Instead, preliminary nutrient loading analysis has been performed to estimate the amount of water quality credit that will be required. Additional information about the Improvement Project can be found in **Section 5.4.2**.

5.3.4.1 Supplemental Swales

In addition to the Old Tampa Bay Water Quality Improvement credits, another nutrient removal option has been identified within Basin 4 to include the use of open median spaces to provide treatment swales. Two potential swale locations were identified within the medians. Additional information about the swales is available in **Section 5.4.3**.

5.3.5 Floodplain Compensation

The entirety of the project limits lies within FEMA Zone AE and VE floodplains (excluding the bridge). The floodplains have 100-year established Base Flood Elevations ranging from 9 to 14 feet throughout the corridor. These floodplains are all tidally influenced due to their direct connection to Old Tampa Bay and it was thus determined that floodplain compensation would not be required for this study. However, floodplain impacts were estimated for both the proposed roadway improvements and the proposed ponds which create impacts due to raised berms. More information regarding floodplain impacts can be found in the *Location Hydraulics Report* prepared for this study.

5.4 NUTRIENT LOADING AND WATER QUALITY MONITORING

Nutrient loading analysis has been performed for all basins. The sections below describe the approach to nutrient loading analysis for each basin. All analysis was performed using BMPTRAINS 2020 software developed by the University of Central Florida Stormwater Management Academy. Results of the analysis are included in **Appendix E** – Nutrient Loading Analysis and summarized in the following sections.

5.4.1 Basins 1 and 2

Basins 1 and 2 traverse WBIDs 1661D (Tinney Creek) and 1624 (Roosevelt Basin). These WBIDs are currently not impaired for nutrients per the FDEP 303(d) list (note: 1661D was previously impaired but has been delisted per FDEP). However, the entire project drains to Tampa Bay and is within the area of the Tampa Bay Estuary Program (TBEP) implemented by the US EPA. The TBEP sets numeric nutrient criteria for the Tampa Bay area in the form of annual load targets for each segment of the bay. While these criteria do not set limits on individual projects, in an effort to support overall nutrient reduction to the bay, nutrient loading analysis has been performed for this project to show no adverse affects to downstream waters. Analysis has been performed on the recommended preferred alternative for each basin, Pond 1 and Pond 2B. Documents pertaining to the TBEP are located in **Appendix G**.

For Basin 1, the existing condition for nutrient loading analysis is considered to be the condition before the original Pond 1100-A1 was constructed. For Basin 2, the existing condition for nutrient loading analysis is considered to be the condition before the original Basin 1200 swales (1200-C1, 1200-C2, and 1200-C3) were constructed. Existing areas were taken from documents for Permit No. 43011339.011. Relevant pages from these documents are located in **Appendix F**.

Please note, the pre-permit existing basin area for Basin 1 is slightly smaller than the area currently considered to be the existing basin area, as the basin was expanded slightly with the original permit.

Table 5-2 provides a summary of nutrient removal for Basins 1 and 2.

Table 5-2: Basins 1 and 2 Nutrient Removal Results

Pond	Existing Nitrogen Loading (kg/yr)	Existing Phosphorus Loading (kg/yr)	Proposed Nitrogen Loading* (kg/yr)	Proposed Phosphorus Loading* (kg/yr)	Nitrogen Removal Met?	Phosphorus Removal Met?
1	14.30	1.88	12.27	0.88	YES	YES
2B	83.50	10.99	64.38	5.27	YES	YES
TOTAL	**97.80**	**12.87**	**76.65**	**6.15**	**YES**	**YES**

*Proposed loading represents quantities after BMP treatment is applied.

5.4.2 Basins 3 and 4

Basins 3 and 4 are located within the area of the Old Tampa Bay Water Quality Improvement Project. This project sought to improve the overall circulation of Old Tampa Bay by replacing 229 feet of the Courtney Campbell Causeway with a bridge to restore historic flow patterns. The project created a water quality credit ledger that releases new credits in phases throughout the monitoring portion of the project. These credits can be used by FDOT in lieu of traditional stormwater treatment facilities. Through coordination with the Department and SWFWMD, it was determined that the Gandy Boulevard widening project would be eligible to utilize these mitigation credits.

The Water Quality Improvement Project was permitted through a series of permits and modifications under the SWFWMD Permit No. 43000920. Initial water quality credits were released under modification 19 (43000920.19) in 2019. Subsequent phases have released additional credits. As of the date of this report, the most recent revision to the ledger was done under modification 30 (43000920.30) for the widening of I-275 and SR 60 (FPID 412531-1) and Reo Street (FPID 447615-1) and shows that 90% of the available credits have been released. A copy of this ledger can be found in **Appendix G** along with other supplemental documents for the Water Quality Improvement Project. **Table 5-3** below summarizes the phases through which credits have been released so far, as well as the number of credits that have been used. Based on the results of the preliminary nutrient loading analysis, it was estimated that a *total mitigation credit of 281.61 kg/yr of Nitrogen* will be required for the Gandy Boulevard widening project, including 30.31 kg/yr to compensate for the Channel 10 Pond and existing Basin 4 swales which will be impacted by the widening of Gandy Boulevard. See **Appendix E** for more detailed information about the nutrient loading analyses.

Table 5-3: Summary of Water Quality Improvement Credits

Date	Phase	Modification Sequence Number	Mitigation Value Added (kg N/year)
3/8/2019	A – Tidal Flux Established	19	2032.20
2/2/2021	C – Salinity Improvement	23	3048.30
2/2/2021	D & E – Chlorophyll-a and TN Improvement	23	2032.20
11/9/2021	B. EPC* Historic TN and Chlorophyll-a Improvement	27	2032.20
		Total Credits Released to Date:	9144.90
		Total Credits Used to Date:	-969.21
		Current Credit Balance:	**8175.69**
		Credits Required for Gandy Boulevard Widening:	-281.61
		Future Credit Balance:	**7894.08**

*EPC refers to the Hillsborough County Environmental Protection Commission

5.4.3 Supplemental Swales

In addition to the Old Tampa Bay Water Quality Improvement credits, another nutrient removal option has been identified within Basins 3 and 4 to include the use of several median spaces to provide

treatment swales. Potential swale locations were identified and nutrient loading analysis was done to determine the amount of nutrient removal that may be possible within the swales. Since this is an optional improvement, the available nutrient removal has not been deducted from the required water quality credits. During the design phase, it should be determined whether to move forward with the treatment swales in addition to or in place of the water quality credits.

In total, three potential swale locations were identified (one in Basin 3 and two in Basin 4) and it is anticipated that the swales can provide nutrient removal of up to 193.08 kg/yr of Nitrogen and 25.41 kg/yr of Phosphorus. See **Appendix E** for more detailed information about the nutrient loading analyses.

SECTION 6 ENVIRONMENTAL LOOK AROUNDS (ELAS)

Environmental Look Arounds (ELAs) provide a unique opportunity to team up with regional stakeholders to explore watershed wide stormwater needs and alternative permitting approaches for the project. Areas of potential cooperation are documented in this report for future follow up as the design moves forward.

From the onset of this study, a regional approach towards delineation of the drainage basins was taken with the goal of having fewer traditional stormwater management ponds in the final constructed condition. A preliminary pond siting meeting was conducted in June 2019 where it was determined early on in the study that Basin 1 could utilize an existing FDOT stormwater pond and no other alternative offsite ponds needed to be considered for this basin (refer to **Appendix J – Correspondence** for meeting minutes). In Basin 2, it was determined that there were not any significant ELA opportunities and the best approach would be to evaluate offsite pond alternatives. However, it was discussed that Pond 2A is somewhat oversized and could serve as a regional pond option within this basin to provide capacity for future projects. Please note that Pond 2A is not the recommended alternative for this basin.

In addition to these traditional stormwater ponds, alternative approaches to stormwater management and nutrient removal were identified through the Tampa Bay Estuary Program and Old Tampa Bay Water Quality Improvement Project. The Tampa Bay Estuary Program (TBEP) seeks to build partnerships to restore and protect Tampa Bay through the implementation of a management plan that is scientifically sound and community-based. As part of the Gandy Blvd PD&E Study, a meeting was conducted with the TBEP staff in August 2021 (refer to **Appendix J – Correspondence** for meeting minutes) to describe the purpose of the study, inquire about specific requirements or concerns from the TBEP and explore potential partnership opportunities between the Department and the TBEP. The focus of the TBEP is nutrient management and circulation of the bay.

Since 2018, the bay has experienced a decline in seagrass coverage and water quality, primarily in the Old Tampa Bay (OTB) segment, due to poor circulation and long residence times. Improving the circulation of OTB as a whole is desired by the TBEP, and encouraged the Department to consider ways to improve the circulation when large infrastructure/bridge projects are proposed. It was recognized that the Gandy Blvd bridge and causeway may not be the most significant impediment to circulation in this region of the OTB; however, linking multiple causeway alteration projects together was viewed as necessary to improve the circulation patterns in OTB. The TBEP indicated that the proposed Gandy Blvd bridge improvement and construction are not anticipated to significantly impact the bay since the main contributors to the water quality issues are nutrient runoff from other developments and the existing poor circulation.

A ”big picture” approach should be considered for various projects within the bay where the TBEP is willing to partner with the Department. For the Gandy Blvd PD&E study, the proposed bridge and roadway concept improvements will have negligible effects on OTB's water quality. This is addressed

with the OTB Water Quality Improvement project and required credits from the established ledger. In Basins 3 and 4, rather than siting traditional stormwater management ponds, it is proposed that nutrient credits will be used from the OTB Water Quality Project. Documents pertaining to the TBEP and OTB Project are located in **Appendix G**.

SECTION 7 TOTAL POND COST ESTIMATE

The total pond cost estimate for each alternative site includes construction costs of the stormwater facility, any costs associated with mitigation of wetland impacts, and preliminary right of way cost estimates which include any administrative costs and legal fees. The total pond cost estimate for each alternative is available in **Appendix D – Pond Alternatives Evaluation Matrix**. The preliminary right-of-way cost estimates by FDOT are used to estimate total acquisition costs associated with each pond site and to budget the appropriate funds for acquisition. Right-of-way cost estimates are not real estate appraisals and do not reflect market value.

SECTION 8 CONCLUSIONS AND RECOMMENDATIONS

Potential ponds have been sized and located within Basins 1 and 2 for this PD&E Study. For the remainder of the project, it is anticipated that credits from the Old Tampa Bay Water Quality Improvement Project can be used by the Department at no cost. The analysis estimates right-of-way needs using a volumetric analysis, which accounts for water quality treatment and water quantity for runoff attenuation. Please note that the estimated right-of-way areas for the ponds were based on pond sizes determined from preliminary data calculations, reasonable engineering judgment, and assumptions. Pond sizes and configurations may change during final design as more detailed information on SHWT, wetland normal pool elevation, final roadway profile design, etc. become available. Additionally, estimated mitigation credit requirements are based on preliminary calculations and may change during final design as more detailed information about the roadway design becomes available. The amount of credit available for is also subject to change. Please refer to **Table 8-1** for **Recommended Preferred Stormwater Management Alternatives.**

Table 8-1: Recommended Preferred Stormwater Management Alternatives

Basin	From Station	To Station	Preferred Alternative	Required Treatment + Attenuation (ac-ft)	Provided Treatment + Attenuation (ac-ft)	Pond R/W Area (incl. easements) (ac)*
1	201+00	214+26	Pond 1	1.58	1.64	1.64
2	214+26	240+35	Pond 2B	1.36	1.65	1.30
3	240+35	527+00	OTB	0	0	0
4	527+00	567+13	OTB	0	0	0
			Total:	**3.00**	**3.29**	**2.94**

*Pond R/W area includes 20% safety factor

APPENDICES

Appendix A Figures

Appendix B Basin Maps

Appendix C Pond Design Calculations

Appendix D Pond Alternatives Evaluation Matrix

Appendix E Nutrient Loading Analysis

Appendix F Existing Permits

Appendix G Old Tampa Bay Water Quality/Tampa Bay Estuary Documents

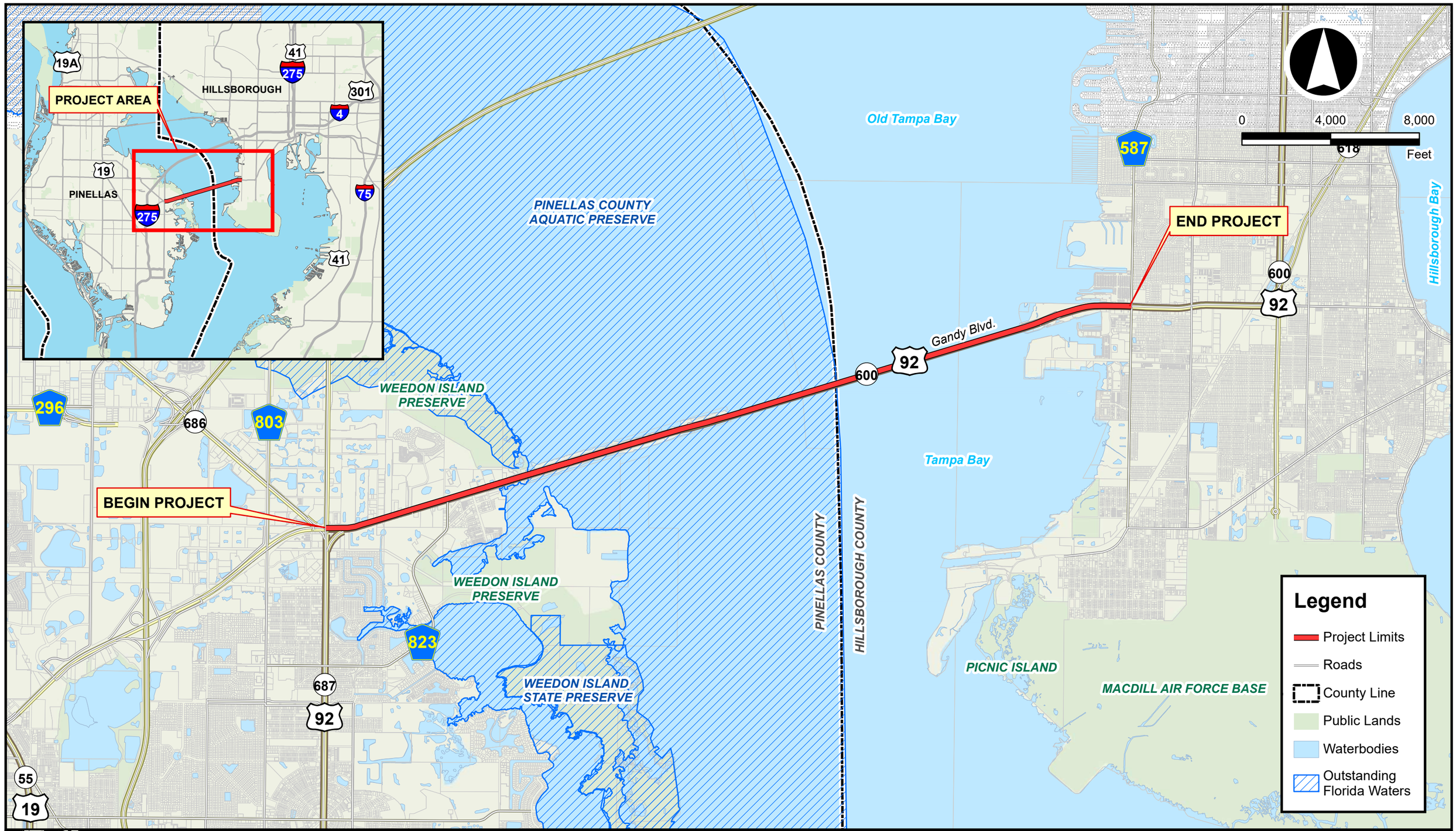
Appendix H Cultural Resources Ponds Addendum

Appendix I Contamination Screening Pond Rankings

Appendix J Correspondence

APPENDIX A

Figures



Florida Department of Transportation

District 7

US 92 / SR 600 / Gandy Boulevard PD&E Study

From 4th Street to West Shore Boulevard
Hillsborough & Pinellas Counties, Florida

Financial Project ID: 441250-1-22-01

PROJECT LOCATION MAP

Figure
1

SAFETY HARBOR

GANDY BRIDGE

ST. PETERSBURG

PORT TAMPA

BEGIN PROJECT

END PROJECT

0 3,000 6,000 Feet

Legend

Project Limits

USGS Quadrangle

Copyright:© 2013 National Geographic Society, i-cubed

Florida Department of Transportation

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US 92 / SR 600 / Gandy Boulevard PD&E Study

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Hillsborough & Pinellas Counties, Florida

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USGS QUADRANGLE MAP

Figure 2

Pinellas County Soil Descriptions

3: Anclote Fine Sand,
7: Basinger Fine Sand, Frequently Ponded, 0 to 1 Percent Slopes*
10: EauGallie Soils and Urban Land
12: Felda Fine Sand, Frequently Ponded, 0 to 1 Percent Slopes*
13: Immokalee Soils and Urban Land
14: Kesson Fine Sand, Very Frequently Flooded
16: Matlacha and St. Augustine Soils and Urban
17: Myakka Soils and Urban Land
22: Pineda Soils and Urban Land
24: Pits*
30: Urban Land, 0 to 2 Percent Slopes
31: Wabasso Soils and Urban Land
32: Wulfert Muck, Tidal, 0 to 1 Percent Slopes
58: Wabasso - Urban Land Complex*
99: Water*
100: Waters of the Gulf of Mexico

Hillsborough County Soil Descriptions

22: Immokalee - Urban Land Complex*
32: Myakka - Urban Land Complex*
45: St. Augustine - Urban Land Complex
56: Urban Land, 0 to 2 Percent Slopes*
58: Wabasso - Urban Land Complex
99: Water
100: Waters of the Gulf of Mexico

*Soil does not intersect study limits

BEGIN PROJECT

END PROJECT

0 2,500 5,000 Feet

Gandy Blvd.

PINELLAS COUNTY

HILLSBOROUGH COUNTY

Legend

- Project Limits
- Roads
- Parcels
- County Line

Soil Rating

Hydrogroup

- A/D
- B
- B/D
- C/D
- Water
- Pits/Urban Land

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Florida Department of Transportation
District 7

US 92 / SR 600 / Gandy Boulevard PD&E Study

From 4th Street to West Shore Boulevard
Hillsborough & Pinellas Counties, Florida

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NRCS SOILS MAP

Figure 3

SWFWMD LAND USE

URBAN AND BUILT UP
- 1200: RESIDENTIAL MED DENSITY 2 TO 5 DWELLING UNITS PER ACRE
- 1300: RESIDENTIAL HIGH DENSITY
- 1400: COMMERCIAL AND SERVICES
- 1500: INDUSTRIAL
- 1700: INSTITUTIONAL
- 1800: RECREATIONAL
- 1900: OPEN LAND

RANGELAND
- 3200: SHRUB AND BRUSHLAND

UPLAND FOREST
- 4110: PINE FLATWOODS

WATER
- 5300: RESERVOIRS
- 5400: BAYS AND ESTUARIES

WETLANDS
- 6120: MANGROVE SWAMPS
- 6150: STREAM AND LAKE SWAMPS (BOTTOMLAND)
- 6210: CYPRESS
- 6300: WETLAND FORESTED MIXED
- 6410: FRESHWATER MARSHES
- 6420: SALTWATER MARSHES
- 6440: EMERGENT AQUATIC VEGETATION
- 6600: SALT FLATS

BARREN LAND
- 7100: BEACHES OTHER THAN SWIMMING

TRANSPORTATION AND UTILITIES
- 8100: TRANSPORTATION
- 8200: COMMUNICATION
- 8300: UTILITIES

BEGIN PROJECT

END PROJECT

0 2,500 5,000 Feet

Gandy Blvd.

PINELLAS COUNTY

HILLSBOROUGH COUNTY

Legend
- Project Limits
- Roads
- Parcels
- County Line

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Florida Department of Transportation
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US 92 / SR 600 / Gandy Boulevard PD&E Study

From 4th Street to West Shore Boulevard
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LAND USE MAP

Figure
4

Flood Zone Descriptions

AE: 100-year flood zone with established Base Flood Elevation (BFE)

VE: 100-year coastal flood zone with wave action and established Base Flood Elevation (BFE)

PANEL 12103C0161H eff. 8/24/2021

PANEL 12057C0337J eff. 10/7/2021

PANEL 12057C0341J eff. 10/7/2021

PANEL 12103C0144H eff. 8/24/2021

PANEL 12103C0163H eff. 8/24/2021

PANEL 12103C0164H eff. 8/24/2021

PANEL 12103C0207H eff. 8/24/2021

PANEL 12103C0226H eff. 8/24/2021

PANEL 12057C0452J eff. 10/7/2021

PANEL 12057C0343J eff. 10/7/2021

PANEL 12057C0344J eff. 10/7/2021

PANEL 12057C0456J eff. 10/7/2021

BEGIN PROJECT

END PROJECT

Gandy Blvd.

92

600

686

687

823

587

PINELLAS COUNTY

HILLSBOROUGH COUNTY

EL. 8 ft
EL. 9 ft
EL. 10 ft
EL. 11 ft
EL. 12 ft
EL. 13 ft
EL. 14 ft
EL. 15 ft

0 2,500 5,000 Feet

Legend

- Project Limits
- Roads
- Parcels
- County Line
- FEMA FIRM Panels

Flood Zone

- AE
- VE
- OPEN WATER

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Florida Department of Transportation
District 7

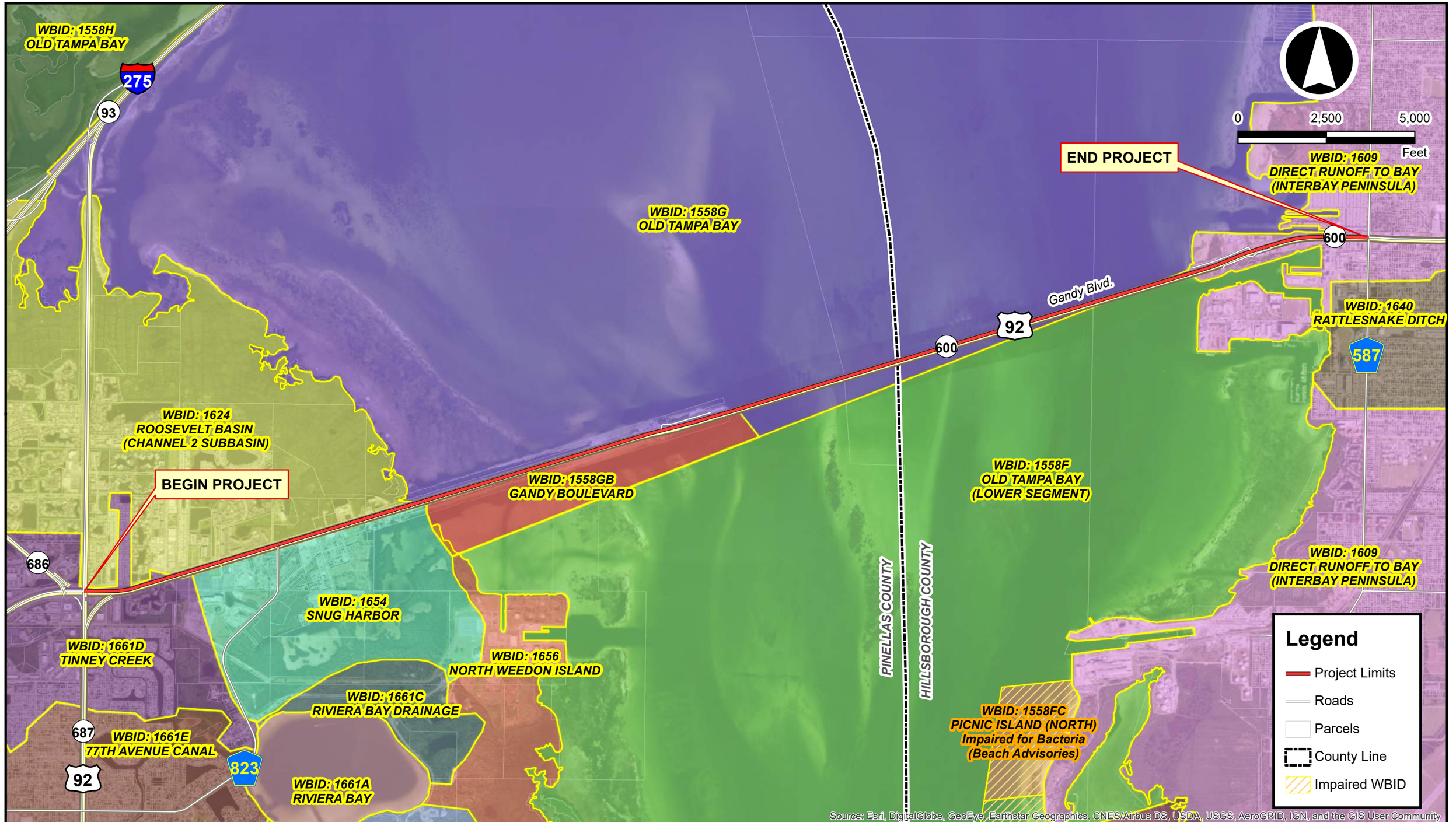
US 92 / SR 600 / Gandy Boulevard PD&E Study

From 4th Street to West Shore Boulevard
Hillsborough & Pinellas Counties, Florida

Financial Project ID: 441250-1-22-01

FEMA MAP

Figure 5



Florida Department of Transportation
District 7

US 92 / SR 600 / Gandy Boulevard PD&E Study

From 4th Street to West Shore Boulevard
Hillsborough & Pinellas Counties, Florida

Financial Project ID: 441250-1-22-01

WBID MAP

Figure
6

Florida Department of Transportation
District 7

US 92 / SR 600 / Gandy Boulevard PD&E Study

From 4th Street to West Shore Boulevard
Hillsborough & Pinellas Counties, Florida

Financial Project ID: 441250-1-22-01

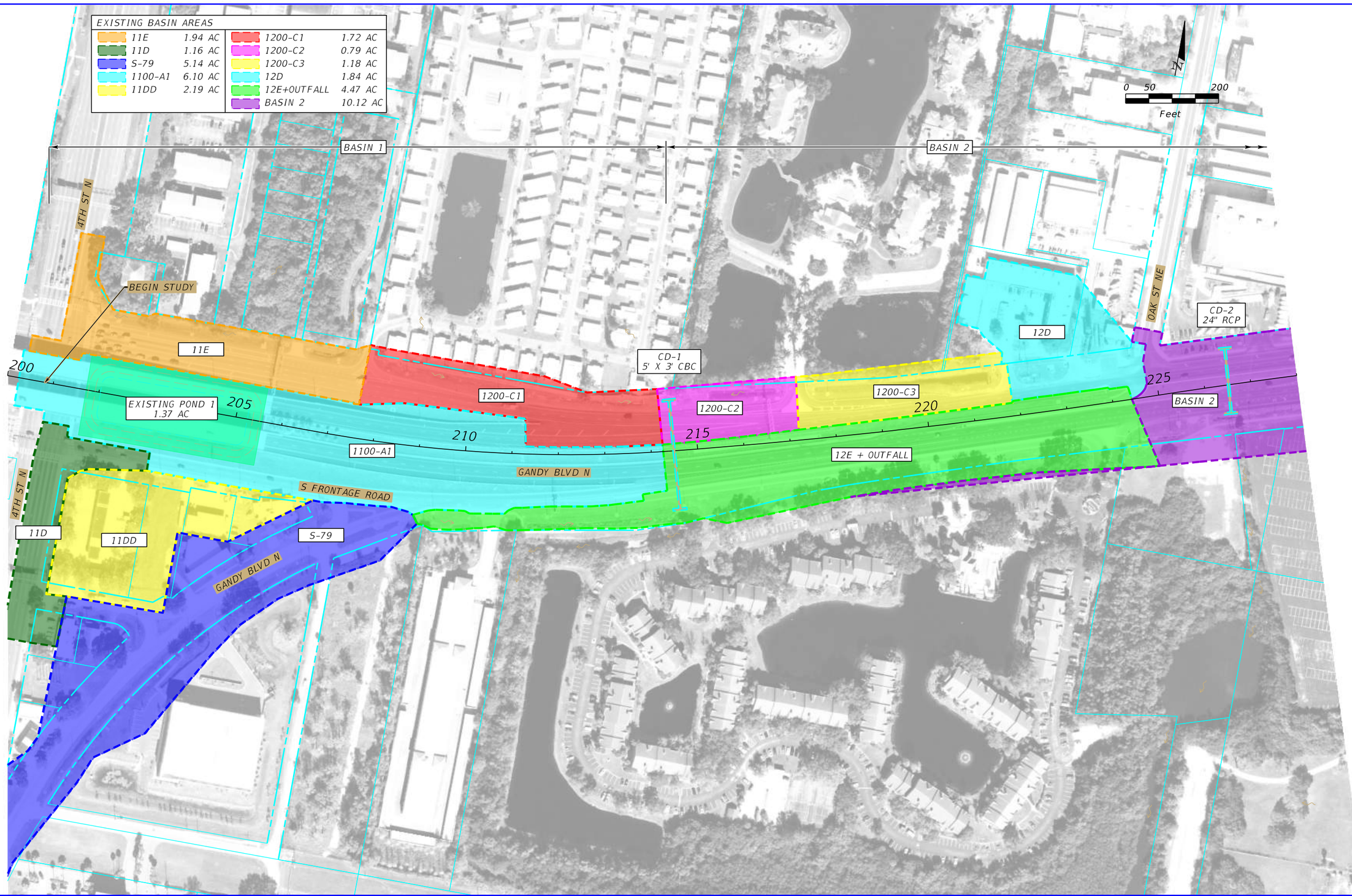
SENSITIVE KARST AREAS MAP

Figure 7

APPENDIX B

Basin Maps

EXISTING BASIN AREAS			
11E	1.94 AC	1200-C1	1.72 AC
11D	1.16 AC	1200-C2	0.79 AC
S-79	5.14 AC	1200-C3	1.18 AC
1100-A1	6.10 AC	12D	1.84 AC
11DD	2.19 AC	12E+OUTFALL	4.47 AC
		BASIN 2	10.12 AC



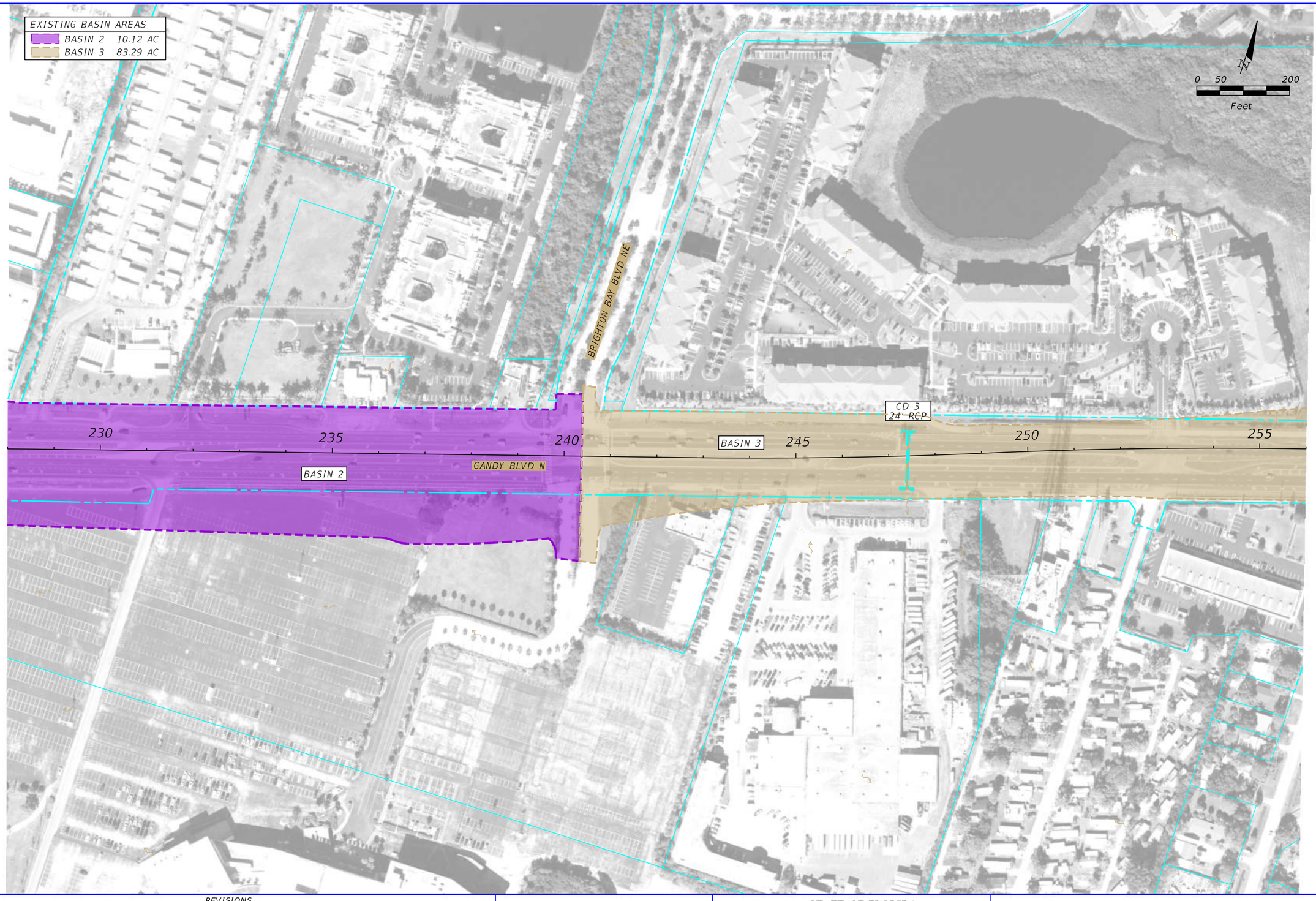
REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 600	PINELLAS HILLSBOROUGH	441250-1-22-01

BASIN MAPS (EXISTING)

SHEET NO. 1



REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 600	PINELLAS HILLSBOROUGH	441250-1-22-01

BASIN MAPS (EXISTING)

SHEET NO. 2

EXISTING BASIN AREAS
BASIN 3 83.29 AC

N

0 50 200
Feet

MANGROVE CAY LN NE

CD-4
24" X 38" RCP

260 265 BASIN 3 270 275 280

GANDY BLVD N

SNUG HARBOR RD NE

SAN FERNANDO DR NE

SAN MARTIN BLVD NE

RICARDO PL NE

SAVONA DR

PLAZA COMERCIO NE

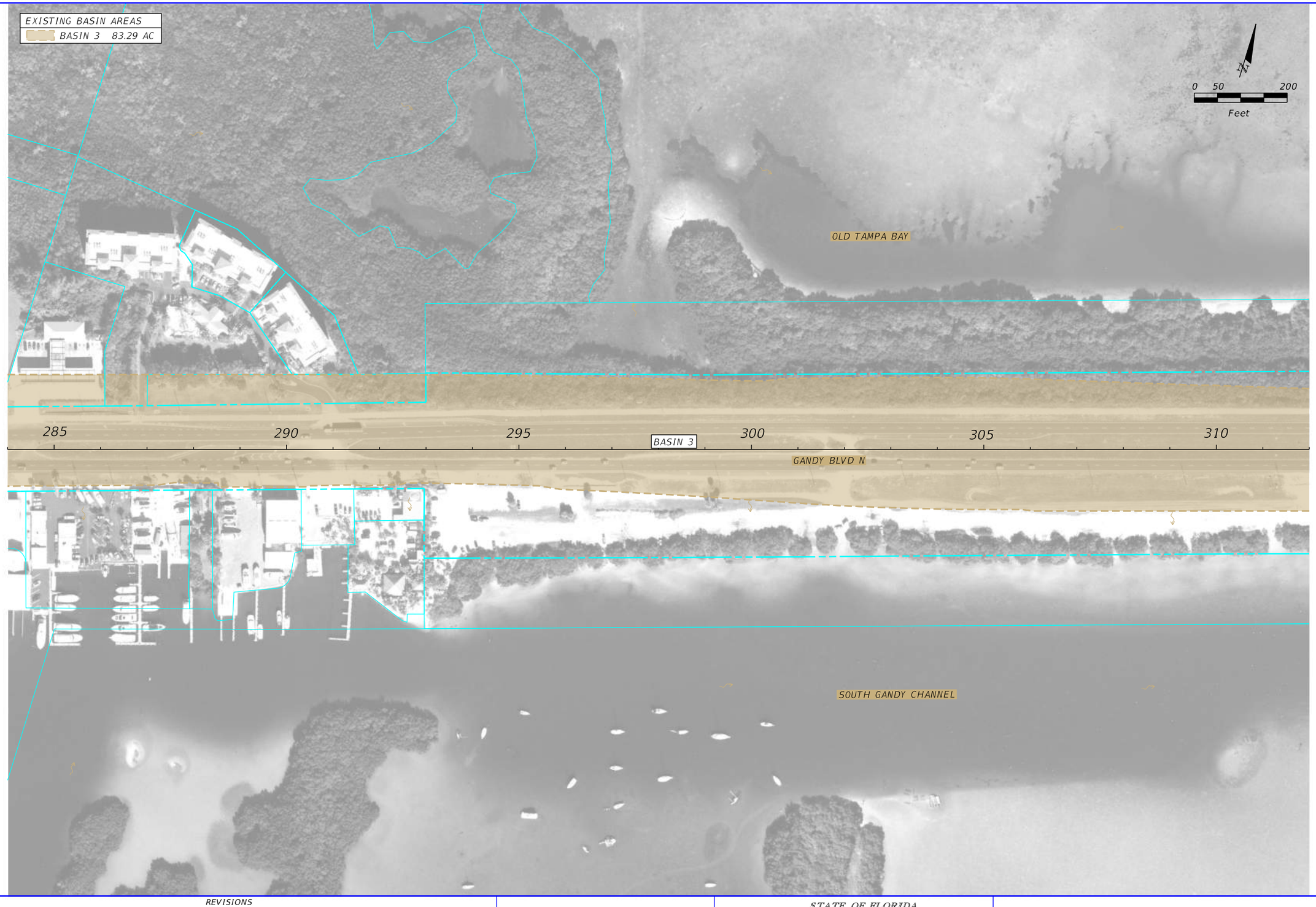
REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 600	PINELLAS HILLSBOROUGH	441250-1-22-01

BASIN MAPS (EXISTING)

SHEET NO. 3



REVISIONS					STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION				SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID	BASIN MAPS (EXISTING)	4
					SR 600	PINELLAS HILLSBOROUGH	441250-1-22-01		

EXISTING BASIN AREAS

BASIN 3 83.29 AC

N

0 50 200

Feet

OLD TAMPA BAY

315 320 325 330 335 340

BASIN 3

GANDY BLVD N

SOUTH GANDY CHANNEL

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 600	PINELLAS HILLSBOROUGH	441250-1-22-01

BASIN MAPS (EXISTING)

SHEET NO. 5

EXISTING BASIN AREAS

BASIN 3 83.29 AC

N

0 50 200

Feet

OLD TAMPA BAY

340 345 350 355 GANDY BLVD N 360 365

BASIN 3

SOUTH GANDY CHANNEL

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 600	PINELLAS HILLSBOROUGH	441250-1-22-01

BASIN MAPS (EXISTING)

SHEET NO. 6

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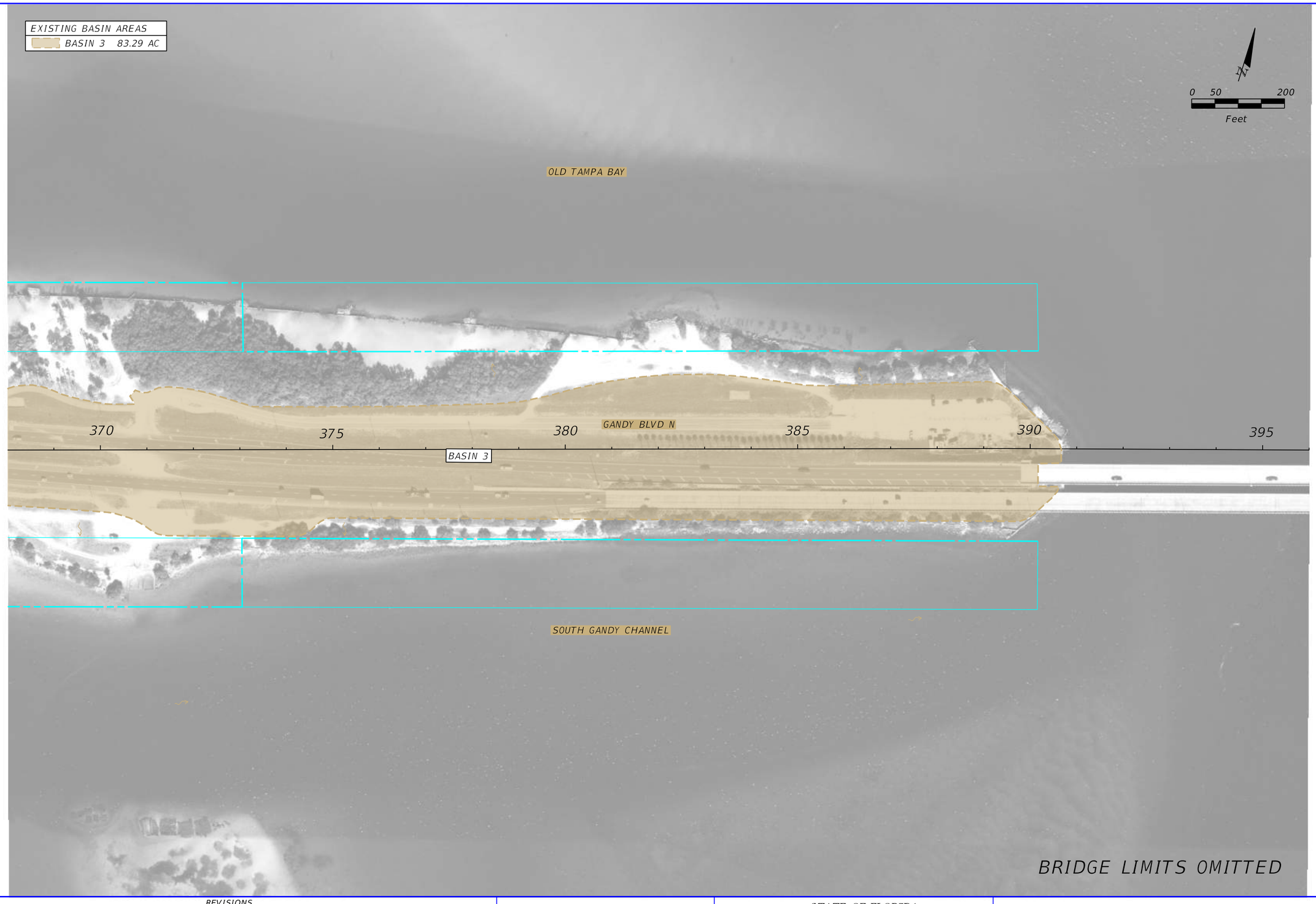

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 600	PINELLAS HILLSBOROUGH	441250-1-22-01

BASIN MAPS (EXISTING)

SHEET NO. 7

EXISTING BASIN AREAS

BASIN 4 24.42 AC

OLD TAMPA BAY

OLD TAMPA BAY

N

0 50 200

Feet

EXISTING SWALE H1

EXISTING SWALE H3

EXISTING SWALE H2

530 535 540 545 550

BASIN 4

SELMON EXPRESSWAY

GANDY BLVD N

OLD TAMPA BAY

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 600	PINELLAS HILLSBOROUGH	441250-1-22-01

BASIN MAPS (EXISTING)

SHEET NO. 8

EXISTING BASIN AREAS

BASIN 4 24.42 AC

N

0 50 200

Feet

OLD TAMPA BAY

CD-5
24" RCP

BASIN 4

555 560 565 570 575

SELMON EXPRESSWAY

GANDY BLVD N

7TH BLVD

S WEST SHORE BLVD

END STUDY

BRIDGE ST

OLD TAMPA BAY

S WEST SHORE BLVD

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 600	PINELLAS HILLSBOROUGH	441250-1-22-01

BASIN MAPS (EXISTING)

SHEET NO. 9

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PROPOSED BASIN AREAS

11E	1.94 AC
11D	1.16 AC
S-79	5.14 AC
BASIN 1	6.42 AC
11DD	2.19 AC
BASIN 2	19.80 AC

N

0 50 200

Feet

4TH ST N

BEGIN STUDY

11E

200

POND 1
1.64 AC
(EXPAND EXISTING
POND BY 0.27 AC)

205

210

BASIN 1

GANDY BLVD N

CD-1
5' X 3' CBC

215

220

225

OAK ST NE

CD-2
24" RCP

BASIN 2

POND 2B
1.30 AC

4TH ST N

11D

11DD

S-79

GANDY BLVD N

100TH AVE N

POND 2A
2.86 AC

99TH AVE N

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 600	PINELLAS HILLSBOROUGH	441250-1-22-01

BASIN MAPS
(PROPOSED)

SHEET NO.
10

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PROPOSED BASIN AREAS

BASIN 2	19.80 AC
BASIN 3	83.29 AC

0 50 200

Feet

BRIGHTON BAY BLVD NE

CD-3
24" RCP

BASIN 3

SWALE 1 - 2.76 AC

BASIN 2

230 235 240 245 250 255

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 600	PINELLAS HILLSBOROUGH	441250-1-22-01

BASIN MAPS (PROPOSED)

SHEET NO. 11

PROPOSED BASIN AREAS
BASIN 3 83.29 AC

N

0 50 200
Feet

MANGROVE CAY LN NE

CD-4
24" X 38" RCP

260 265 270 275 280

BASIN 3

N 72° 47' 36" E

GANDY BLVD N

N 72° 47' 36" E

SNUG HARBOR RD NE

SAN FERNANDO DR NE

SAN MARTIN BLVD NE

RICARDO PL NE

SAVONA DR

PLAZA COMERCIO NE

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 600	PINELLAS HILLSBOROUGH	441250-1-22-01

BASIN MAPS (PROPOSED)

SHEET NO. 12

dduffy 1/12/2023 1:29:29 PM Default F:\Projects\KCA-001\Drainage\PLANRD01_prop.dgn

PROPOSED BASIN AREAS

BASIN 3 83.29 AC

N

0 50 200

Feet

OLD TAMPA BAY

285

290

295

300

305

310

BASIN 3

GANDY BLVD N

SOUTH GANDY CHANNEL

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 600	PINELLAS HILLSBOROUGH	441250-1-22-01

BASIN MAPS (PROPOSED)

SHEET NO. 13

PROPOSED BASIN AREAS

BASIN 3 83.29 AC

0 50 200

Feet

OLD TAMPA BAY

320

315

325

330

335

340

BASIN 3

GANDY BLVD N

SOUTH GANDY CHANNEL

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 600	PINELLAS HILLSBOROUGH	441250-1-22-01

BASIN MAPS (PROPOSED)

SHEET NO. 14

PROPOSED BASIN AREAS

BASIN 3 83.29 AC

N

0 50 200

Feet

OLD TAMPA BAY

340 345 350 355 GANDY BLVD N 360 365

BASIN 3

SOUTH GANDY CHANNEL

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 600	PINELLAS HILLSBOROUGH	441250-1-22-01

BASIN MAPS (PROPOSED)

SHEET NO. 15

PROPOSED BASIN AREAS

BASIN 3 83.29 AC

N

0 50 200

Feet

OLD TAMPA BAY

370 375 380 385 390 395

GANDY BLVD N

N 72° 47' 36" E

BASIN 3

SOUTH GANDY CHANNEL

BRIDGE LIMITS OMMITTED

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 600	PINELLAS HILLSBOROUGH	441250-1-22-01

BASIN MAPS (PROPOSED)

SHEET NO. 16

PROPOSED BASIN AREAS

BASIN 4 24.42 AC

OLD TAMPA BAY

OLD TAMPA BAY

N

0 50 200

Feet

530

535

540

545

550

BASIN 4

SELMON EXPRESSWAY

SWALE 2 - 1.16 AC

N 72° 47' 36" E

GANDY BLVD N

SWALE 3 - 0.39 AC

OLD TAMPA BAY

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 600	PINELLAS HILLSBOROUGH	441250-1-22-01

BASIN MAPS (PROPOSED)

SHEET NO. 17

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PROPOSED BASIN AREAS

BASIN 4 24.42 AC

OLD TAMPA BAY

BASIN 4

555

560

565

570

575

SELMON EXPRESSWAY

GANDY BLVD N

CD-5
24" RCP

7TH BLVD

BRIDGE ST

S WEST SHORE BLVD

END STUDY

N

0 50 200

Feet

OLD TAMPA BAY

S WEST SHORE BLVD

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 600	PINELLAS HILLSBOROUGH	441250-1-22-01

BASIN MAPS (PROPOSED)

SHEET NO. 18

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APPENDIX C

Pond Design Calculations

EXISTING BASINS WITH MINOR MODIFICATIONS

3000 Dovera Drive, Suite 200, Oviedo, FL 32765
(407) 971-8850 (phone)
(407) 971-8955 (fax)

Made by: DLD
Checked by: MOL

DATE: October 6, 2022
Job Number: KCA-001-01

PROJECT : **Gandy Blvd**
BASIN NAME : **Existing Basins**

AREA COMPARISON

Note: The proposed project limits for Gandy Blvd include small portions of existing (permitted) basins 11E, 11D, and S-79. The proposed study will include minor improvements within these basins (shared use path or sidewalk) that will not require additional treatment volume. Some basins require a small amount of additional attenuation volume which can be accomodated in their existing ponds. The tables below provide a comparison of the existing vs. proposed impervious areas within these basins.

BASIN 11E

Note: This basin drains to existing Pond 1100-A2. This pond has additional capacity available that is anticipated to be sufficient for the 0.05 acres of additional impervious area. This should be verified during the design phase.

Existing Area:

Description	Area
Impervious Area	1.20 ac
Pervious Area	0.74 ac
Total Area:	1.94 ac

Proposed Area:

Description	Area
Impervious Area	1.25 ac
Pervious Area	0.69 ac
Total Area:	1.94 ac

BASIN 11D

Existing Area:

Description	Area
Impervious Area	1.12 ac
Pervious Area	0.04 ac
Total Area:	1.16 ac

Proposed Area:

Description	Area
Impervious Area	1.12 ac
Pervious Area	0.04 ac
Total Area:	1.16 ac

BASIN S-79

Existing Area:

Description	Area
Impervious Area	1.47 ac
Pervious Area	3.67 ac
Total Area:	5.14 ac

Proposed Area:

Description	Area
Impervious Area	1.46 ac
Pervious Area	3.68 ac
Total Area:	5.14 ac

BASIN 1

3000 Dovera Drive, Suite 200, Oviedo, FL 32765
(407) 971-8850 (phone)
(407) 971-8955 (fax)

Made by: DLD
Checked by: MOL

DATE: January 12, 2023
Job Number: KCA-001-01

PROJECT : **Gandy Blvd**
BASIN NAME : **Basin 1**
POND NAME : **Pond 1**

Station Limits: From: 201+00 To: 214+26

Roadway Length = 1326 ft
R/W Width = 255 ft

EXISTING CONDITION

Note: Existing areas for Basin 1 are taken from the permit information for Basin 1100-A1.

Roadway Area:

Description	Area
Impervious Area Treated (Basin 1100-A1)	4.10 ac
Pervious Area (Basin 1100-A1)	0.63 ac
Total Area:	4.73 ac

Pond Area:

Description	Area
Impervious Area (Water)	0.35 ac
Impervious Area Treated (Bridge)	0.63 ac
Pervious Area	0.39 ac
Total Area:	1.37 ac

Total Area:

Impervious Area: **4.73 ac**
Pervious Area: **1.02 ac**
Water Surface Area: **0.35 ac** (Only includes water surface area not covered by bridge)
Total Area: **6.10 ac**

Curve Number:

Land Use Description	Soil Group	CN	Area	CN*Area
Impervious areas; Streets & roads	D	98	4.10 ac	401.8
Open Space (lawns, parks, golf courses, cemeteries, etc.) Good condition (grass cover > 75%)	D	80	0.63 ac	50.4
Impervious areas; Streets & roads	D	98	0.63 ac	61.7
Existing Lakes (Water surface)	D	100	0.35 ac	35.0
Open Space (lawns, parks, golf courses, cemeteries, etc.) Good condition (grass cover > 75%)	D	80	0.39 ac	31.2
		Total:	6.10 ac	580.1

Denotes Pond Location

CN = Total CN*Area / Total Area = **95.1**

Runoff:

	SWFWMD (25yr/24hr)	FDOT Storm Sewer (10yr/24hr)
Soil Capacity (S) = 1000/CN - 10 = **0.51 in**		
Precipitation (P) =	9.00 in	6.53 in
Runoff (Q) = $(P - 0.2S)^2 / (P + 0.8S)$		
Runoff (Q) =	**8.41 in**	**5.95 in**
Runoff (Q) =	**4.28 ac-ft**	**3.02 ac-ft**

3000 Dovera Drive, Suite 200, Oviedo, FL 32765
(407) 971-8850 (phone)
(407) 971-8955 (fax)

Made by: DLD
Checked by: MOL

DATE: January 12, 2023
Job Number: KCA-001-01

PROJECT : **Gandy Blvd**
BASIN NAME : **Basin 1**
POND NAME : **Pond 1**

Station Limits: From: 201+00 To: 214+26

Roadway Length = 1326 ft
R/W Width = 255 ft

PROPOSED CONDITION

Note: Proposed areas measured in Microstation. The proposed basin includes an additional 0.32 acres of area taken from the existing Basin 2

Roadway Area:

Description	Area
Impervious Area (Treated)*	2.33 ac
Impervious Area (Untreated)*	0.91 ac
Pervious Area	1.81 ac
Total Area:	5.05 ac

Pond Area:

Description	Area
Impervious Area (Water)	0.37 ac
Impervious Area Treated (Bridge)*	0.65 ac
Pervious Area	0.35 ac
Total Area:	1.37 ac

*Treated areas include travel lanes, turn lanes, and the bridge. Areas not included in treatment area include sidewalks, shared-use paths, and shoulders per discussion with SWFWMD.

Total Area:

Impervious Area: **3.89 ac**
Pervious Area: **2.16 ac**
Water Surface Area: **0.37 ac** (Only includes water surface area not covered by bridge)
Total Area: **6.42 ac**

Curve Number:

Land Use Description	Soil Group	CN	Area	CN*Area
Impervious areas; Streets & roads	D	98	3.24 ac	317.5
Open Space (lawns, parks, golf courses, cemeteries, etc.) Good condition (grass cover > 75%)	D	80	1.81 ac	144.8
Impervious areas; Streets & roads	D	98	0.65 ac	63.7
Open Space (lawns, parks, golf courses, cemeteries, etc.) Good condition (grass cover > 75%)	D	80	0.35 ac	28.0
Proposed Ponds (Water Surface)	D	100	0.37 ac	37.0
		Total:	6.42 ac	591.0

Denotes Pond Location

CN = Total CN*Area / Total Area = **92.1**

Runoff:

		SWFWMD (25yr/24hr)	FDOT Storm Sewer (10yr/24hr)
Soil Capacity (S) = $\frac{1000}{CN} - 10$ = 0.86 in	Precipitation (P) =	9.00 in	6.53 in
Runoff (Q) = $\frac{(P - 0.2S)^2}{(P + 0.8S)}$	Runoff (Q) =	**8.04 in**	**5.60 in**
	Runoff (Q) =	**4.30 ac-ft**	**2.99 ac-ft**

3000 Dovera Drive, Suite 200, Oviedo, FL 32765
(407) 971-8850 (phone)
(407) 971-8955 (fax)

Made by: DLD
Checked by: MOL

DATE: January 12, 2023
Job Number: KCA-001-01

PROJECT : **Gandy Blvd**
BASIN NAME : **Basin 1**
POND NAME : **Pond 1**

POND SIZING

Required Treatment Volume (TV)

Selection criteria

Permitting Agency	**SWFWMD**
StormW.Mgmt.	**Wet Detention**
Online/Offline	**Online**
Impaired/OFW	**Yes/Yes**
Open/Closed Basin	**Open**

Net New DCIA = -1.75 ac
(Proposed Treated Area - Existing Treated Area)*

*Treated areas include travel lanes, turn lanes, and the bridge.

Wet Detention	**1.00 in**	x DCIA (Net New) = 0.00 ac-ft

Treatment V_{req} = Largest of Trt. Vol. = 0.00 ac-ft
50% additional V required for OFW = 0.00 ac-ft
Treatment V in Existing Pond = 0.39 ac-ft (Permit No. 11339.011)
Total Treatment Volume Required = 0.39 ac-ft

Required Attenuation Volume:

Total Runoff (ac-ft)

	SWFWMD (25yr/24hr)	FDOT Storm Sewer (10yr/24hr)
Q_{pre} =	4.28 ac-ft	3.02 ac-ft
Q_{post} =	4.30 ac-ft	2.99 ac-ft
ΔQ =	**0.03 ac-ft**	**-0.03 ac-ft**

Existing Attenuation Volumes in Pond
Existing attenuation volumes calulcated by comparing runoff from pre-development and post-development areas using permitted curve numbers.

SWFWMD	FDOT Storm Sewer
1.16 ac-ft	1.08 ac-ft

3000 Dovera Drive, Suite 200, Oviedo, FL 32765
(407) 971-8850 (phone)
(407) 971-8955 (fax)

Made by: DLD
Checked by: MOL

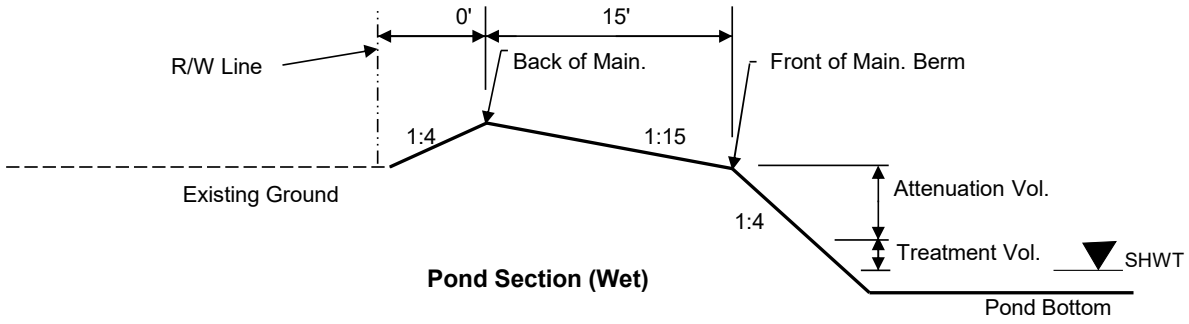
DATE: January 12, 2023
Job Number: KCA-001-01

PROJECT : **Gandy Blvd**
BASIN NAME : **Basin 1**
POND NAME : **Pond 1**

Maintenance Area Width =	15.0 ft	@ 1:15	Existing Ground Elevation =	4.61
Pond Tie-In Width =	0.0 ft	@ 1:4	Normal Water Elevation =	0.71
Maximum Storage Depth (**SD**) =	2.90 ft	with 1.0 ft freeboard	Lowest EOP Elevation =	4.61

Hydraulic Grade Line (HGL) check

HGL Slope =	0.100%	Use 0.05% for very flat terrain to 0.1% for flat terrain
Distance from Pond to Lowest EOP =	750 ft	
Estimated Energy Losses =	0.8 ft	
HGL Clearance =	1.0 ft	Use 1.0 foot as a standard HGL clearance (no junction losses)
Estimated Storm Sewer Tailwater EL =	2.9 ft	



Pond Section (Wet)

3000 Dovera Drive, Suite 200, Oviedo, FL 32765
(407) 971-8850 (phone)
(407) 971-8955 (fax)

Made by: DLD
Checked by: MOL

DATE: January 12, 2023
Job Number: KCA-001-01

PROJECT : **Gandy Blvd**
BASIN NAME : **Basin 1**
POND NAME : **Pond 1**

Pond Stage / Storage Calculations

ELEVATION	DESCRIPTION	AREA	DIMENSIONS		STORAGE
			LENGTH	WIDTH	
4.61	Pond R/W	1.37 ac	366.0 ft	163.0 ft	
4.61	Back of Main. Berm	1.37 ac	366.0 ft	163.0 ft	3.82 ac-ft
4.11		1.19 ac	351.0 ft	148.0 ft	3.18 ac-ft
3.61	Front of Main. Berm	1.03 ac	336.0 ft	133.0 ft	2.63 ac-ft
2.61	Provided Treat.Vol.+Att.Vol	0.94 ac	328.0 ft	125.0 ft	1.64 ac-ft
2.54	Req'd Treat.Vol+Att. Vol	0.94 ac	327.4 ft	124.4 ft	1.58 ac-ft
2.39	Estimated Storm Sewer TW	0.92 ac	326.2 ft	123.2 ft	1.44 ac-ft
1.19	Top of Treatment Vol.	0.83 ac	316.6 ft	113.6 ft	0.39 ac-ft
0.71	Normal Water Level	0.79 ac	312.8 ft	109.8 ft	0.00 ac-ft
-0.29		0.71 ac	304.8 ft	101.8 ft	
-1.29	Pond Bottom	0.66 ac	304.8 ft	93.8 ft	

Required Treatment+Attenuation Vol.= 1.58 ac-ft
Required Treatment+Attenuation Stage= 2.54 ft

Provided Treatment+Attenuation Vol.= 1.64 ac-ft
Provided Treatment+Attenuation Stage= 2.61 ft

Estimated Treat. Vol.+Storm Sewer Att.= 1.44 ac-ft
Estimated Storm Sewer TW EL.= 2.39 ft
HGL requirements met

Required Treatment Vol.= 0.39 ac-ft
Treatment Vol. Stage = 1.19 ft

PROPOSED POND R/W (Safety Factor of 20%) = 1.64 ac

BASIN 2

Inwood consulting engineers

3000 Dovera Drive, Suite 200, Oviedo, FL 32765
(407) 971-8850 (phone)
(407) 971-8955 (fax)

Made by: DLD
Checked by: MOL

DATE: January 12, 2023
Job Number: KCA-001-01

PROJECT : **Gandy Blvd**
BASIN NAME : **Basin 2**
POND NAME : **Pond 2A**

Station Limits: From: 214+26 To: 240+35

Roadway Length = 2609 ft
R/W Width = 255 ft

EXISTING CONDITION

Note: Existing areas for permitted basins are summarized on the right. These areas are used where available and the remaining areas (outside of the permit limits) are measured in Microstation. "Untreated" impervious areas include sidewalks, shared-use paths, and shoulders. "Treated" impervious areas include travel lanes, turn lanes, and driveways.

Roadway Area:

Description	Area
Existing Permitted Impervious (Treated)	2.05 ac
Existing Permitted Impervious (Untreated)	3.42 ac
Existing Permitted Pervious	4.25 ac
Existing Permitted Impervious Water	0.28 ac
Basin 2 Impervious (Treated)	3.98 ac
Basin 2 Impervious (Untreated)	2.69 ac
Basin 2 Pervious	3.45 ac
Total Area:	20.12 ac

Summary of Existing Basin Areas:

Basin	Impervious Treated	Impervious Untreated	Pervious	Water
1200-C1	0.93 ac	0.00 ac	0.63 ac	0.16 ac
1200-C2	0.53 ac	0.00 ac	0.22 ac	0.04 ac
1200-C3	0.59 ac	0.00 ac	0.51 ac	0.08 ac
12D	0.00 ac	1.43 ac	0.41 ac	0.00 ac
12E + Outfall	0.00 ac	1.99 ac	2.48 ac	0.00 ac

Total Area:

Impervious Area: **12.14 ac**
Pervious Area: **7.70 ac**
Water Surface Area: **0.28 ac**
Pervious Pond Area: **2.39 ac**
Total Area: **22.51 ac**

Curve Number:

Land Use Description	Soil Group	CN	Area	CN*Area
Impervious areas; Streets & roads	D	98	12.14 ac	1189.7
Open Space (lawns, parks, golf courses, cemeteries, etc.) Good condition (grass cover > 75%)	D	80	7.70 ac	616.0
Existing Lakes (Water surface)	D	100	0.28 ac	28.0
Open Space (lawns, parks, golf courses, cemeteries, etc.) Fair condition (grass cover 50% to 75%)	D	84	2.39 ac	200.5
		Total:	22.51 ac	2034.2

Denotes Pond Location

CN = Total CN*Area / Total Area = **90.4**

			SWFWMD (25yr/24hr)	FDOT Storm Sewer (10yr/24hr)
Soil Capacity (S) =	$\frac{1000}{CN} - 10$ =	**1.06 in**	Precipitation (P) =	9.00 in	6.53 in
Runoff (Q) =	$\frac{(P - 0.2S)^2}{(P + 0.8S)}$		Runoff (Q) =	**7.84 in**	**5.41 in**
			Runoff (Q) =	**14.70 ac-ft**	**10.14 ac-ft**

3000 Dovera Drive, Suite 200, Oviedo, FL 32765
(407) 971-8850 (phone)
(407) 971-8955 (fax)

Made by: DLD
Checked by: MOL

DATE: January 12, 2023
Job Number: KCA-001-01

PROJECT : **Gandy Blvd**
BASIN NAME : **Basin 2**
POND NAME : **Pond 2A**

Station Limits: From: 214+26 To: 240+35

Roadway Length = 2609 ft
R/W Width = 255 ft

PROPOSED CONDITION

Roadway Area:

Note: Proposed areas measured in Microstation. The proposed basin is 0.32 acres smaller than the existing basin due to some area being moved to Basin 1.

Roadway Area:

Description	Area
Basin 2 Impervious (Treated)	9.14 ac
Basin 2 Impervious (Untreated)	4.84 ac
Basin 2 Pervious	5.82 ac
Total Area:	19.80 ac

Pond Area:

Pervious Pond Area :	1.04 ac	
Water Surface Area:	1.35 ac	Wet Pond
Total Pond Area:	2.39 ac	

Total Area:

Impervious Area:	**13.98 ac**
Pervious Area:	**6.86 ac**
Water Surface Area:	**1.35 ac**
Total Area:	**22.19 ac**

Curve Number:

Land Use Description	Soil Group	CN	Area	CN*Area
Impervious areas; Streets & roads	D	98	13.98 ac	1370.0
Open Space (lawns, parks, golf courses, cemeteries, etc.) Fair condition (grass cover 50% to 75%)	D	84	5.82 ac	488.9
Open Space (lawns, parks, golf courses, cemeteries, etc.) Good condition (grass cover > 75%)	D	80	1.04 ac	82.9
Proposed Ponds (Water Surface)	D	100	1.35 ac	135.1
		Total:	22.19 ac	2076.8

Denotes Pond Location

CN = Total CN*Area / Total Area = **93.6**

Runoff:

		SWFWMD (25yr/24hr)	FDOT Storm Sewer (10yr/24hr)
Soil Capacity (S) = $\frac{1000}{CN} - 10$ = 0.68 in	Precipitation (P) =	9.00 in	6.53 in
Runoff (Q) = $\frac{(P - 0.2S)^2}{(P + 0.8S)}$	Runoff (Q) =	**8.23 in**	**5.78 in**
	Runoff (Q) =	**15.22 ac-ft**	**10.68 ac-ft**

3000 Dovera Drive, Suite 200, Oviedo, FL 32765
(407) 971-8850 (phone)
(407) 971-8955 (fax)

Made by: DLD **DATE:** January 12, 2023
Checked by: MOL **Job Number:** KCA-001-01

PROJECT : **Gandy Blvd**
BASIN NAME : **Basin 2**
POND NAME : **Pond 2A**

POND SIZING

Required Treatment Volume (TV)

Selection criteria

Permitting Agency	**SWFWMD**
StormW.Mgmt.	**Wet Detention**
Online/Offline	**Online**
Impaired/OFW	**Yes/Yes**
Open/Closed Basin	**Open**

Net New DCIA = 3.11 ac
(Proposed Treated Area - Existing Treated Area)

Wet Detention	**1.00 in**	x DCIA (Net New) =	0.26 ac-ft

Note:DCIA accounts for impervious area which contribute pollutants

Treatment V_{req} = Largest of Trt. Vol. = 0.26 ac-ft
50% additional V required for OFW = 0.13 ac-ft
Treatment V in Existing Ponds = 0.17 ac-ft (Permit No. 11339.011)
Total Treatment Volume Required = 0.56 ac-ft

Required Attenuation Volume:

Total Runoff (ac-ft)

	SWFWMD (25yr/24hr)	FDOT Storm Sewer (10yr/24hr)
Q_{pre} =	14.70 ac-ft	10.14 ac-ft
Q_{post} =	15.22 ac-ft	10.68 ac-ft
ΔQ =	**0.51 ac-ft**	**0.54 ac-ft**

Existing Attenuation Volumes in Swales
Existing attenuation volumes calulcated by evaluating storage volumes at modeled 25 year and 10 year pond elevations (per permit ICPR model)

SWFWMD	FDOT Storm Sewer
0.66 ac-ft	0.51 ac-ft

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Made by: DLD
Checked by: MOL

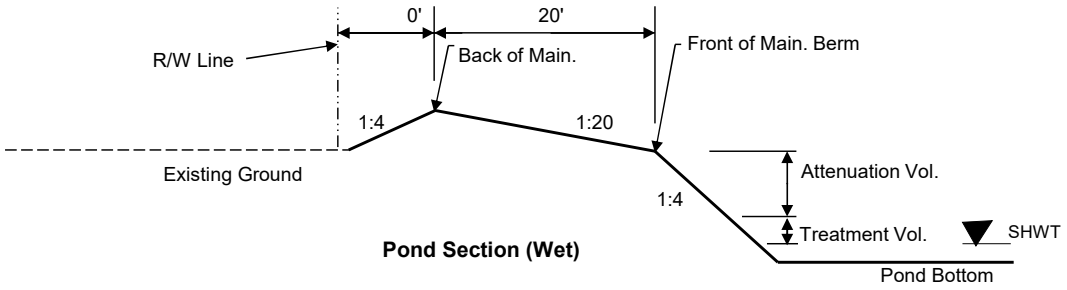
DATE: January 12, 2023
Job Number: KCA-001-01

PROJECT : **Gandy Blvd**
BASIN NAME : **Basin 2**
POND NAME : **Pond 2A**

Maintenance Area Width =	20.0 ft	@ 1:20	Existing Ground Elevation =	5.00
Pond Tie-In Width =	0.0 ft	@ 1:4	Normal Water Elevation =	1.00
Maximum Storage Depth (**SD**) =	3.00 ft	with 1.0 ft freeboard	Lowest EOP Elevation =	5.50

Hydraulic Grade Line (HGL) check

HGL Slope =	0.100%	Use 0.05% for very flat terrain to 0.1% for flat terrain
Distance from Pond to Lowest EOP =	2000 ft	
Estimated Energy Losses =	2.0 ft	
HGL Clearance =	1.0 ft	Use 1.0 foot as a standard HGL clearance (no junction losses)
Estimated Storm Sewer Tailwater EL =	2.5 ft	



Pond Section (Wet)

3000 Dovera Drive, Suite 200, Oviedo, FL 32765
(407) 971-8850 (phone)
(407) 971-8955 (fax)

Made by: DLD
Checked by: MOL

DATE: January 12, 2023
Job Number: KCA-001-01

PROJECT : **Gandy Blvd**
BASIN NAME : **Basin 2**
POND NAME : **Pond 2A**

Pond Stage / Storage Calculations

ELEVATION	DESCRIPTION	AREA	DIMENSIONS		STORAGE
			LENGTH	WIDTH	
5.00	Pond R/W	2.39 ac	594.0 ft	175.0 ft	
5.00	Back of Main. Berm	2.39 ac	594.0 ft	175.0 ft	6.64 ac-ft
4.50		2.04 ac	574.0 ft	155.0 ft	5.53 ac-ft
4.00	Front of Main. Berm	1.72 ac	554.0 ft	135.0 ft	4.60 ac-ft
3.00	Provided Treat.Vol.+Att.Vol	1.59 ac	546.0 ft	127.0 ft	2.94 ac-ft
2.22	Req'd Treat.Vol+Att. Vol	1.50 ac	539.7 ft	120.7 ft	1.73 ac-ft
2.14	Estimated Storm Sewer TW	1.49 ac	539.1 ft	120.1 ft	1.61 ac-ft
1.41	Top of Treatment Vol.	1.40 ac	533.3 ft	114.3 ft	0.56 ac-ft
1.00	Normal Water Level	1.35 ac	530.0 ft	111.0 ft	0.00 ac-ft
-1.00		1.12 ac	514.0 ft	95.0 ft	
-5.00	Pond Bottom	0.73 ac	506.0 ft	63.0 ft	

Required Treatment+Attenuation Vol.= 1.73 ac-ft
Required Treatment+Attenuation Stage= 2.22 ft

Provided Treatment+Attenuation Vol.= 2.94 ac-ft
Provided Treatment+Attenuation Stage= 3.00 ft

Estimated Treat. Vol.+Storm Sewer Att.= 1.61 ac-ft
Estimated Storm Sewer TW EL.= 2.14 ft
HGL requirements met

Required Treatment Vol.= 0.56 ac-ft
Treatment Vol. Stage = 1.41 ft

PROPOSED POND R/W (Safety Factor of 20%) = 2.86 ac

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Made by: DLD
Checked by: MOL

DATE: January 12, 2023
Job Number: KCA-001-01

PROJECT : **Gandy Blvd**
BASIN NAME : **Basin 2**
POND NAME : **Pond 2B**

Station Limits: From: 214+26 To: 240+35

Roadway Length = 2609 ft
R/W Width = 255 ft

EXISTING CONDITION

Note: Existing areas for permitted basins are summarized on the right. These areas are used where available and the remaining areas (outside of the permit limits) are measured in Microstation. "Untreated" impervious areas include sidewalks, shared-use paths, and shoulders. "Treated" impervious areas include travel lanes, turn lanes, and driveways.

Roadway Area:

Description	Area
Existing Permitted Impervious (Treated)	2.05 ac
Existing Permitted Impervious (Untreated)	3.42 ac
Existing Permitted Pervious	4.25 ac
Existing Permitted Impervious Water	0.28 ac
Basin 2 Impervious (Treated)	3.98 ac
Basin 2 Impervious (Untreated)	2.69 ac
Basin 2 Pervious	3.45 ac
Total Area:	20.12 ac

Summary of Existing Basin Areas:

Basin	Impervious Treated	Impervious Untreated	Pervious	Water
1200-C1	0.93 ac	0.00 ac	0.63 ac	0.16 ac
1200-C2	0.53 ac	0.00 ac	0.22 ac	0.04 ac
1200-C3	0.59 ac	0.00 ac	0.51 ac	0.08 ac
12D	0.00 ac	1.43 ac	0.41 ac	0.00 ac
12E + Outfall	0.00 ac	1.99 ac	2.48 ac	0.00 ac

Total Area:

Impervious Area:	**12.14 ac**
Pervious Area:	**7.70 ac**
Water Surface Area:	**0.28 ac**
Pervious Pond Area:	**1.08 ac**
Total Area:	**21.20 ac**

Curve Number:

Land Use Description	Soil Group	CN	Area	CN*Area
Impervious areas; Streets & roads	D	98	12.14 ac	1189.7
Open Space (lawns, parks, golf courses, cemeteries, etc.) Good condition (grass cover > 75%)	D	80	7.70 ac	616.0
Existing Lakes (Water surface)	D	100	0.28 ac	28.0
Open Space (lawns, parks, golf courses, cemeteries, etc.) Fair condition (grass cover 50% to 75%)	D	84	1.08 ac	90.7
		Total:	21.20 ac	1924.5

Denotes Pond Location

CN = Total CN*Area / Total Area = **90.8**

Runoff:

	SWFWMD (25yr/24hr)	FDOT Storm Sewer (10yr/24hr)
Soil Capacity (S) = $\frac{1000}{CN} - 10$ = **1.02 in**		
Precipitation (P) =	9.00 in	6.53 in
Runoff (Q) = $\frac{(P - 0.2S)^2}{(P + 0.8S)}$	**7.89 in**	**5.45 in**
Runoff (Q) =	**13.93 ac-ft**	**9.63 ac-ft**

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(407) 971-8850 (phone)
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Made by: DLD
Checked by: MOL

DATE: January 12, 2023
Job Number: KCA-001-01

PROJECT : **Gandy Blvd**
BASIN NAME : **Basin 2**
POND NAME : **Pond 2B**

Station Limits: From: 214+26 To: 240+35

Roadway Length = 2609 ft
R/W Width = 255 ft

Note: Basin End Station at Sta 296+00 due to station equation.

PROPOSED CONDITION

Note: Proposed areas measured in Microstation. The proposed basin is 0.32 acres smaller than the existing basin due to some area being moved to Basin 1.

Roadway Area:

Description	Area
Basin 2 Impervious (Treated)	9.14 ac
Basin 2 Impervious (Untreated)	4.84 ac
Basin 2 Pervious	5.82 ac
Total Area:	19.80 ac

Pond Area:

Pervious Pond Area :	0.70 ac	
Water Surface Area:	0.38 ac	Wet Pond
Total Pond Area:	1.08 ac	

Total Area:

Impervious Area:	**13.98 ac**
Pervious Area:	**6.52 ac**
Water Surface Area:	**0.38 ac**
Total Area:	**20.88 ac**

Curve Number:

Land Use Description	Soil Group	CN	Area	CN*Area
Impervious areas; Streets & roads	D	98	13.98 ac	1370.0
Open Space (lawns, parks, golf courses, cemeteries, etc.) Good condition (grass cover > 75%)	D	80	5.82 ac	465.6
Open Space (lawns, parks, golf courses, cemeteries, etc.) Good condition (grass cover > 75%)	D	80	0.70 ac	56.1
Proposed Ponds (Water Surface)	D	100	0.38 ac	37.9
		Total:	20.88 ac	1929.7

Denotes Pond Location

CN = Total CN*Area / Total Area = **92.4**

Runoff:

	SWFWMD (25yr/24hr)	FDOT Storm Sewer (10yr/24hr)
Soil Capacity (S) = $\frac{1000}{CN} - 10$ = 0.82 in		
Precipitation (P) =	9.00 in	6.53 in
Runoff (Q) = $\frac{(P - 0.2S)^2}{(P + 0.8S)}$	**8.08 in**	**5.64 in**
Runoff (Q) =	**14.07 ac-ft**	**9.81 ac-ft**

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Made by: DLD
Checked by: MOL

DATE: January 12, 2023
Job Number: KCA-001-01

PROJECT : **Gandy Blvd**
BASIN NAME : **Basin 2**
POND NAME : **Pond 2B**

POND SIZING

Required Treatment Volume (TV)

Selection criteria

Permitting Agency	**SWFWMD**
StormW.Mgmt.	**Wet Detention**
Online/Offline	**Online**
Impaired/OFW	**Yes/Yes**
Open/Closed Basin	**Open**

Net New DCIA = 3.11 ac
(Proposed Treated Area - Existing Treated Area)

Wet Detention	**1.00 in**	x DCIA (Net New) =	0.26 ac-ft

Treatment V_{req} = Largest of Trt. Vol. = 0.26 ac-ft
50% additional V required for OFW = 0.13 ac-ft
Treatment V in Existing Ponds = 0.17 ac-ft (Permit No. 11339.011)
Total Treatment Volume Required = 0.56 ac-ft

Required Attenuation Volume:

Total Runoff (ac-ft)

	SWFWMD (25yr/24hr)	FDOT Storm Sewer (10yr/24hr)
Q_{pre} =	13.93 ac-ft	9.63 ac-ft
Q_{post} =	14.07 ac-ft	9.81 ac-ft
ΔQ =	**0.14 ac-ft**	**0.18 ac-ft**

Existing Attenuation Volumes in Swales
Existing attenuation volumes calulcated by evaluating storage volumes at modeled 25 year and 10 year pond elevations (per permit ICPR model)

SWFWMD	FDOT Storm Sewer
0.66 ac-ft	0.51 ac-ft

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Made by: DLD
Checked by: MOL

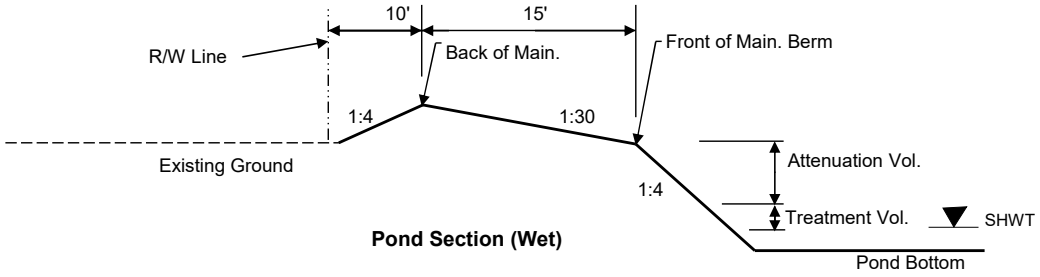
DATE: January 12, 2023
Job Number: KCA-001-01

PROJECT : **Gandy Blvd**
BASIN NAME : **Basin 2**
POND NAME : **Pond 2B**

Maintenance Area Width =	15.0 ft	@ 1:30	Existing Ground Elevation =	3.50
Pond Tie-In Width =	10.0 ft	@ 1:4	Normal Water Elevation =	1.00
Maximum Storage Depth (**SD**) =	4.00 ft	with 1.0 ft freeboard	Lowest EOP Elevation =	5.50

Hydraulic Grade Line (HGL) check

HGL Slope =	0.100%	Use 0.05% for very flat terrain to 0.1% for flat terrain
Distance from Pond to Lowest EOP =	500 ft	
Estimated Energy Losses =	0.5 ft	
HGL Clearance =	1.0 ft	Use 1.0 foot as a standard HGL clearance (no junction losses)
Estimated Storm Sewer Tailwater EL =	4.0 ft	



Pond Section (Wet)

3000 Dovera Drive, Suite 200, Oviedo, FL 32765
(407) 971-8850 (phone)
(407) 971-8955 (fax)

Made by: DLD
Checked by: MOL

DATE: January 12, 2023
Job Number: KCA-001-01

PROJECT : **Gandy Blvd**
BASIN NAME : **Basin 2**
POND NAME : **Pond 2B**

Pond Stage / Storage Calculations

ELEVATION	DESCRIPTION	AREA	DIMENSIONS		STORAGE
			LENGTH	WIDTH	
3.50	Pond R/W	1.08 ac	260.0 ft	181.0 ft	
6.00	Back of Main. Berm	0.89 ac	240.0 ft	161.0 ft	2.63 ac-ft
5.75		0.75 ac	225.0 ft	146.0 ft	2.43 ac-ft
5.50	Front of Main. Berm	0.63 ac	210.0 ft	131.0 ft	2.25 ac-ft
4.50	Provided Treat.Vol.+Att.Vol	0.57 ac	202.0 ft	123.0 ft	1.65 ac-ft
3.98	Req'd Treat.Vol+Att. Vol	0.54 ac	197.8 ft	118.8 ft	1.36 ac-ft
3.76	Estimated Storm Sewer TW	0.53 ac	196.1 ft	117.1 ft	1.25 ac-ft
2.35	Top of Treatment Vol.	0.45 ac	184.8 ft	105.8 ft	0.56 ac-ft
1.00	Normal Water Level	0.38 ac	174.0 ft	95.0 ft	0.00 ac-ft
-1.00		0.29 ac	158.0 ft	79.0 ft	
-10.00	Pond Bottom	0.02 ac	130.0 ft	7.0 ft	

Required Treatment+Attenuation Vol.= 1.36 ac-ft
Required Treatment+Attenuation Stage= 3.98 ft

Provided Treatment+Attenuation Vol.= 1.65 ac-ft
Provided Treatment+Attenuation Stage= 4.50 ft

Estimated Treat. Vol.+Storm Sewer Att.= 1.25 ac-ft
Estimated Storm Sewer TW EL.= 3.76 ft
HGL requirements met

HGL requirements met

Required Treatment Vol.= 0.56 ac-ft
Treatment Vol. Stage = 2.35 ft

PROPOSED POND R/W (Safety Factor of 20%) = 1.30 ac

BASIN 3

3000 Dovera Drive, Suite 200, Oviedo, FL 32765
(407) 971-8850 (phone)
(407) 971-8955 (fax)

Made by: DLD
Checked by: MOL

DATE: November 17, 2022
Job Number: KCA-001-01

PROJECT : **Gandy Blvd**
BASIN NAME : **Basin 3**
POND NAME : **Supplemental Swales**

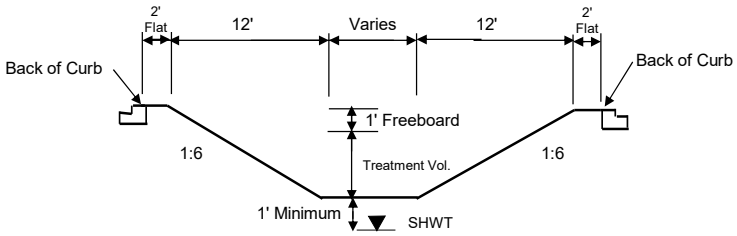
Station Limits: From: 242+09
To: 342+75

Note: These swales are intented to use available median space throughout Basin 3 to provide optional additional stormwater treatment. They are not a pond site alternative. Calculations have been performed only to show available volume and potential treatment provided.

Maintenance Area Width =	0.0 ft	@ 1:20	Existing Ground Elevation =	5.50
Pond Tie-In Width =	2.0 ft	@ 1:0	Normal Water Elevation =	2.50
Maximum Storage Depth (**SD**) =	1.00 ft	with 1.0 ft freeboard	Lowest EOP Elevation =	5.50

Hydraulic Grade Line (HGL) check

HGL Slope =	0.050%	Use 0.05% for very flat terrain to 0.1% for flat terrain
Distance from Pond to Lowest EOP =	0 ft	
Estimated Energy Losses =	0.0 ft	
HGL Clearance =	1.0 ft	Use 1.0 foot as a standard HGL clearance (no junction losses)
Allowable Storm Sewer Tailwater EL =	4.50 ft	



Dry Retention Linear Swale 1

Pond Stage / Storage Calculations - SWALE 1

ELEVATION	DESCRIPTION	AREA*	DIMENSIONS		STORAGE
			LENGTH	WIDTH	
5.50	Pond R/W	2.92 ac	1452.0 ft	74.0 ft	
5.50	Back of Berm	2.78 ac	1448.0 ft	70.0 ft	
4.50	Provided Treatment Vol.	2.35 ac	1436.0 ft	58.0 ft	2.13 ac-ft
3.50	Pond Bottom	1.91 ac	1424.0 ft	46.0 ft	0.00 ac-ft

*Areas measured in Microstation due to irregular shaping of swales.

Total Treatment Volume Available = 2.13 ac-ft

BASIN 4

3000 Dovera Drive, Suite 200, Oviedo, FL 32765
(407) 971-8850 (phone)
(407) 971-8955 (fax)

Made by: DLD
Checked by: MOL
DATE: November 17, 2022
Job Number: KCA-001-01

PROJECT : **Gandy Blvd**
BASIN NAME : **Basin 4**
POND NAME : **Supplemental Swales**

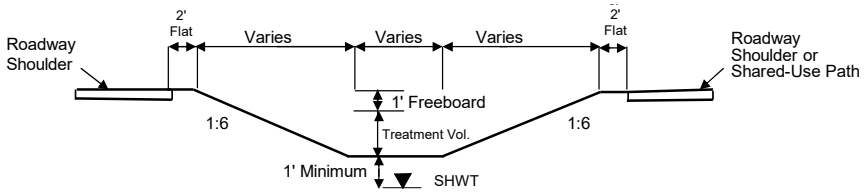
Station Limits: From: 529+15
To: 567+13

Note: These swales are intented to use available median space throughout Basin 4 to provide optional additional stormwater treatment. They are not a pond site alternative. Calculations have been performed only to show available volume and potential treatment provided.

Maintenance Area Width =	0.0 ft	@ 1:20	Existing Ground Elevation =	10.00
Pond Tie-In Width =	2.0 ft	@ 1:0	Normal Water Elevation =	5.00
Maximum Storage Depth (**SD**) =	1.00 ft	with 1.0 ft freeboard	Lowest EOP Elevation =	10.00

Hydraulic Grade Line (HGL) check

HGL Slope =	0.050%	Use 0.05% for very flat terrain to 0.1% for flat terrain
Distance from Pond to Lowest EOP =	0 ft	
Estimated Energy Losses =	0.0 ft	
HGL Clearance =	1.0 ft	Use 1.0 foot as a standard HGL clearance (no junction losses)
Allowable Storm Sewer Tailwater EL =	9.00 ft	



Dry Retention Linear Swales 2 & 3

Pond Stage / Storage Calculations - SWALE 2

ELEVATION	DESCRIPTION	AREA*	DIMENSIONS		STORAGE
			LENGTH	WIDTH	
10.00	Pond R/W	0.95 ac	814.0 ft	62.0 ft	
10.00	Back of Berm	0.87 ac	810.0 ft	58.0 ft	
9.00	Provided Treatment Vol.	0.64 ac	798.0 ft	46.0 ft	0.53 ac-ft
8.00	Pond Bottom	0.41 ac	774.0 ft	22.0 ft	0.00 ac-ft

Pond Stage / Storage Calculations - SWALE 3

ELEVATION	DESCRIPTION	AREA*	DIMENSIONS		STORAGE
			LENGTH	WIDTH	
10.00	Pond R/W	0.38 ac	431.0 ft	27.0 ft	
10.00	Back of Berm	0.33 ac	427.0 ft	23.0 ft	
9.00	Provided Treatment Vol.	0.21 ac	415.0 ft	11.0 ft	0.09 ac-ft
8.50	Pond Bottom	0.15 ac	409.0 ft	5.0 ft	0.00 ac-ft

*Areas measured in Microstation due to irregular shaping of swales.

Total Treatment Volume Available = 0.62 ac-ft

NOAA RAINFALL DATA

NOAA Atlas 14, Volume 9, Version 2
Location name: Saint Petersburg, Florida, USA*
Latitude: 27.8793°, Longitude: -82.5842°
Elevation: 7.51 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Deborah Martin, Sandra Pavlovic, Ishani Roy, Michael St. Laurent, Carl Trypaluk, Dale Unruh, Michael Yekta, Geoffery Bonnin

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	**0.549** (0.474-0.647)	**0.615** (0.531-0.726)	**0.720** (0.618-0.852)	**0.802** (0.684-0.955)	**0.909** (0.739-1.11)	**0.987** (0.780-1.23)	**1.06** (0.801-1.36)	**1.13** (0.809-1.50)	**1.22** (0.828-1.67)	**1.27** (0.842-1.80)
10-min	**0.803** (0.694-0.947)	**0.901** (0.777-1.06)	**1.05** (0.905-1.25)	**1.18** (1.00-1.40)	**1.33** (1.08-1.63)	**1.45** (1.14-1.80)	**1.55** (1.17-2.00)	**1.65** (1.18-2.20)	**1.78** (1.21-2.45)	**1.87** (1.23-2.64)
15-min	**0.979** (0.846-1.16)	**1.10** (0.948-1.30)	**1.29** (1.10-1.52)	**1.43** (1.22-1.71)	**1.62** (1.32-1.99)	**1.76** (1.39-2.20)	**1.89** (1.43-2.44)	**2.02** (1.44-2.69)	**2.17** (1.48-2.99)	**2.28** (1.50-3.22)
30-min	**1.51** (1.30-1.78)	**1.68** (1.45-1.98)	**1.96** (1.68-2.32)	**2.18** (1.86-2.60)	**2.48** (2.02-3.04)	**2.70** (2.13-3.38)	**2.91** (2.20-3.75)	**3.12** (2.23-4.15)	**3.38** (2.30-4.66)	**3.56** (2.35-5.04)
60-min	**1.95** (1.68-2.29)	**2.19** (1.89-2.58)	**2.58** (2.21-3.05)	**2.90** (2.47-3.45)	**3.34** (2.72-4.11)	**3.67** (2.91-4.61)	**4.00** (3.03-5.18)	**4.34** (3.11-5.80)	**4.78** (3.26-6.61)	**5.10** (3.37-7.22)
2-hr	**2.39** (2.07-2.80)	**2.69** (2.33-3.16)	**3.19** (2.76-3.76)	**3.61** (3.09-4.27)	**4.19** (3.44-5.14)	**4.64** (3.70-5.80)	**5.10** (3.88-6.56)	**5.56** (4.01-7.40)	**6.18** (4.24-8.51)	**6.65** (4.42-9.34)
3-hr	**2.59** (2.25-3.02)	**2.93** (2.54-3.42)	**3.50** (3.03-4.10)	**3.99** (3.43-4.71)	**4.71** (3.89-5.79)	**5.28** (4.23-6.60)	**5.88** (4.50-7.57)	**6.50** (4.72-8.66)	**7.36** (5.09-10.1)	**8.03** (5.36-11.3)
6-hr	**2.98** (2.61-3.45)	**3.34** (2.92-3.88)	**4.01** (3.49-4.67)	**4.65** (4.01-5.44)	**5.64** (4.72-6.99)	**6.50** (5.26-8.17)	**7.44** (5.76-9.62)	**8.48** (6.22-11.3)	**9.97** (6.96-13.8)	**11.2** (7.53-15.6)
12-hr	**3.47** (3.05-4.00)	**3.82** (3.35-4.41)	**4.58** (4.00-5.30)	**5.38** (4.67-6.26)	**6.73** (5.73-8.43)	**7.98** (6.54-10.1)	**9.40** (7.36-12.2)	**11.0** (8.17-14.8)	**13.4** (9.48-18.5)	**15.5** (10.5-21.4)
24-hr	**3.99** (3.52-4.57)	**4.45** (3.93-5.10)	**5.46** (4.79-6.27)	**6.53** (5.69-7.55)	**8.36** (7.17-10.5)	**10.1** (8.29-12.7)	**12.0** (9.44-15.5)	**14.2** (10.6-18.9)	**17.5** (12.4-24.0)	**20.3** (13.8-27.9)
2-day	**4.54** (4.03-5.17)	**5.26** (4.66-5.98)	**6.68** (5.90-7.63)	**8.11** (7.11-9.31)	**10.4** (8.96-12.9)	**12.5** (10.4-15.6)	**14.9** (11.8-19.1)	**17.5** (13.1-23.1)	**21.4** (15.3-29.1)	**24.6** (16.9-33.6)
3-day	**5.04** (4.49-5.71)	**5.77** (5.13-6.54)	**7.24** (6.41-8.24)	**8.73** (7.67-9.98)	**11.2** (9.62-13.8)	**13.4** (11.1-16.6)	**15.9** (12.6-20.2)	**18.7** (14.0-24.5)	**22.8** (16.3-30.9)	**26.2** (18.1-35.7)
4-day	**5.49** (4.90-6.20)	**6.18** (5.50-6.98)	**7.61** (6.75-8.63)	**9.08** (8.00-10.4)	**11.5** (9.97-14.2)	**13.8** (11.5-17.1)	**16.3** (13.0-20.8)	**19.2** (14.5-25.2)	**23.4** (16.9-31.7)	**27.0** (18.7-36.6)
7-day	**6.60** (5.91-7.41)	**7.22** (6.46-8.12)	**8.57** (7.63-9.67)	**10.0** (8.85-11.3)	**12.4** (10.8-15.2)	**14.7** (12.3-18.1)	**17.2** (13.8-21.8)	**20.1** (15.3-26.3)	**24.5** (17.7-32.9)	**28.2** (19.5-38.0)
10-day	**7.53** (6.75-8.42)	**8.22** (7.36-9.21)	**9.64** (8.61-10.8)	**11.1** (9.85-12.6)	**13.6** (11.8-16.4)	**15.8** (13.2-19.3)	**18.3** (14.6-23.0)	**21.1** (16.1-27.4)	**25.3** (18.3-33.9)	**28.8** (20.1-38.7)
20-day	**10.2** (9.17-11.3)	**11.3** (10.2-12.6)	**13.4** (12.0-14.9)	**15.2** (13.5-17.0)	**17.8** (15.3-21.0)	**20.0** (16.7-23.9)	**22.4** (17.9-27.5)	**24.9** (18.9-31.6)	**28.3** (20.6-37.3)	**31.1** (21.8-41.5)
30-day	**12.6** (11.4-13.9)	**14.1** (12.7-15.6)	**16.7** (15.0-18.5)	**18.8** (16.8-21.0)	**21.8** (18.7-25.2)	**24.1** (20.1-28.4)	**26.4** (21.1-32.1)	**28.7** (21.9-36.2)	**31.9** (23.1-41.5)	**34.3** (24.1-45.5)
45-day	**15.8** (14.4-17.5)	**17.8** (16.1-19.6)	**20.9** (18.9-23.2)	**23.4** (21.0-26.1)	**26.8** (23.0-30.8)	**29.4** (24.5-34.4)	**31.9** (25.5-38.5)	**34.3** (26.2-42.9)	**37.5** (27.3-48.4)	**39.8** (28.1-52.6)
60-day	**18.8** (17.1-20.7)	**21.0** (19.0-23.1)	**24.5** (22.1-27.1)	**27.3** (24.5-30.3)	**31.1** (26.8-35.7)	**34.0** (28.4-39.7)	**36.7** (29.5-44.2)	**39.5** (30.2-49.1)	**43.0** (31.4-55.4)	**45.5** (32.3-60.1)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

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PF graphical

PDS-based depth-duration-frequency (DDF) curves
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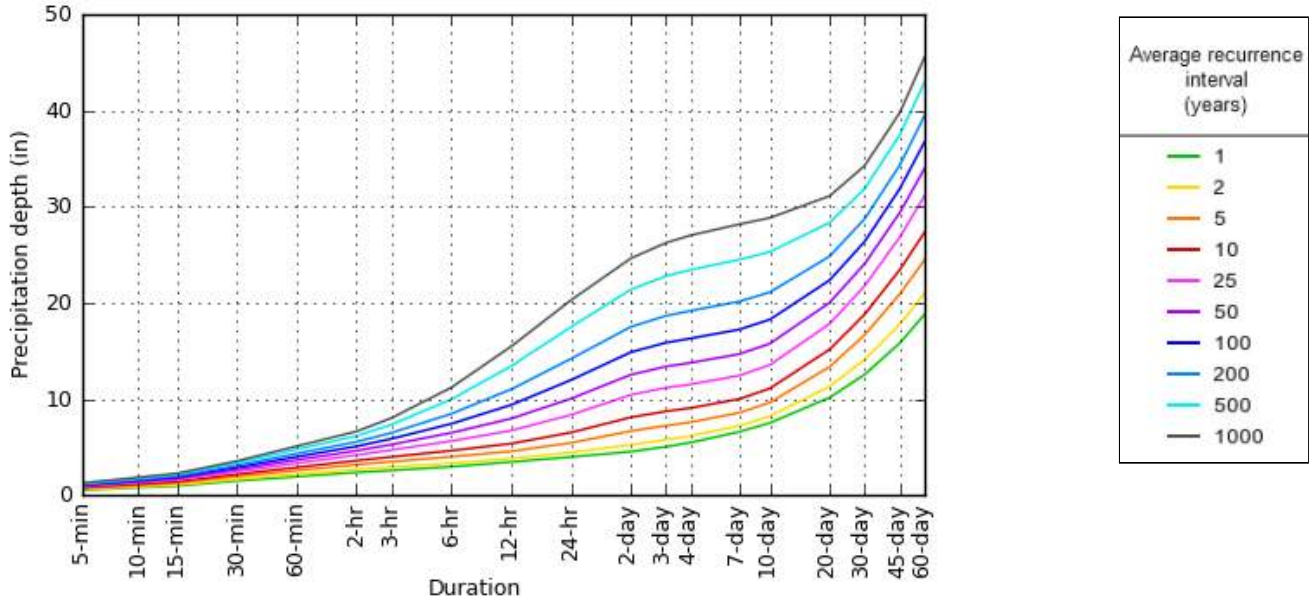

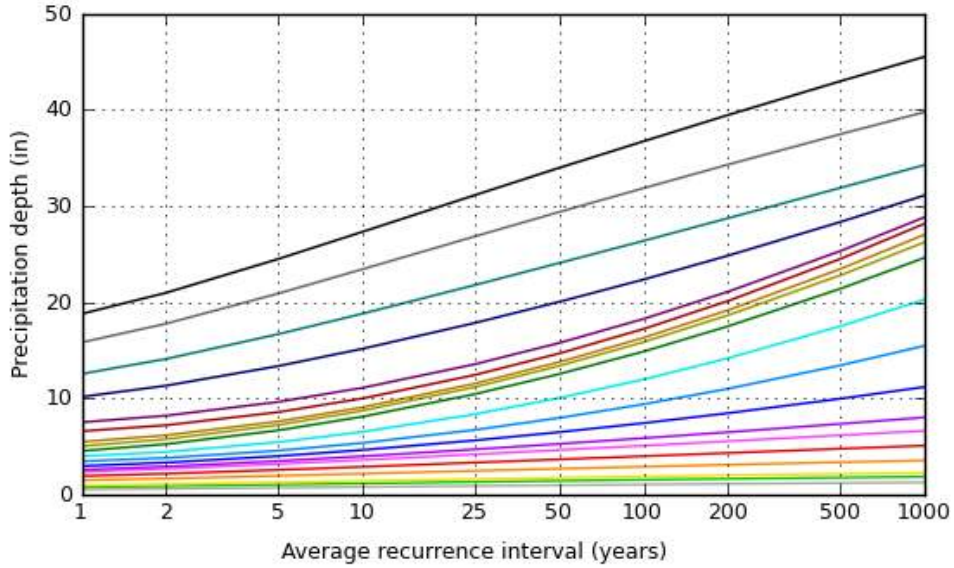

NOAA Atlas 14, Volume 9, Version 2

Created (GMT): Thu Oct 13 16:12:52 2022

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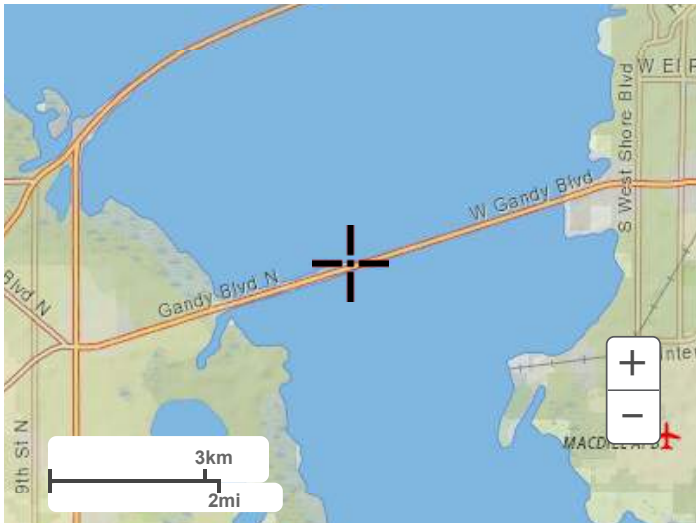
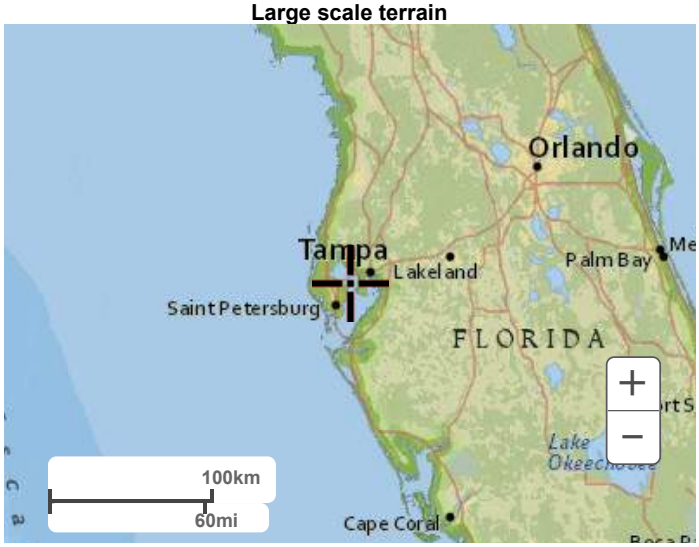
Maps & aerials

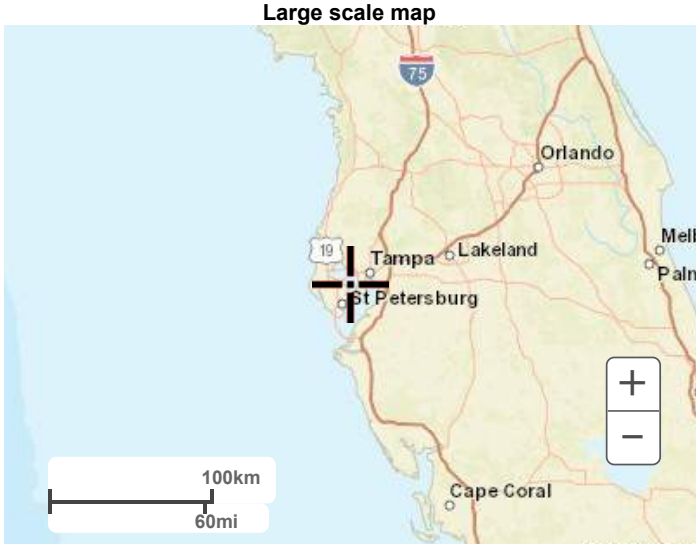
Small scale terrain



Large scale terrain



Large scale map



Large scale aerial

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US Department of Commerce
National Oceanic and Atmospheric Administration
National Weather Service
National Water Center
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

Disclaimer

APPENDIX D

Pond Alternatives Evaluation Matrix

Inwood Consulting Engineers, Inc.
3000 Dovera Drive, Suite 200, Oviedo FL32765
(407) 971-8850 phone (407) 971-8955 fax

US 92 / SR 600 / Gandy Blvd

from 4th St. to Westshore Blvd.

BASIN 1 ALTERNATIVE POND SITES

ENGINEERING DATA & ANALYSIS

Alternatives	Location	Existing Ground Elevation (ft)	Pond Type	Soil Names & Hydrologic Groups	Estimated SHWT Elevation (ft)	Lowest Edge of Existing Roadway (ft)	Distance From Lowest Edge of Proposed Roadway (ft)	Estimated Allowable $DHW_{25yr/24hr}$ (ft)	Estimated Allowable Treatment & Attenuation Depth (ft)	Outfall Location	Roadway Drainage Area Excluding Pond (ac)	Required Treatment & Attenuation Volume (ac-ft)	Required Pond Access Area (ac)	Required Pond Area (ac)	Required Pond Area Including Access (ac)
Exist Pond 1	Existing FDOT Pond SWF 1100-A1	4.61	Wet Detention	EauGallie Soils and Urban Land (#10, A/D)	0.71	4.61	750	2.61	1.90	Existing Stormsewer System to Tinney Creek	5.05	1.58	0.00	1.64	1.64

IMPACT & COST ANALYSIS

Alternatives	Pond Floodplain Impacts (ac)	FEMA Floodzone	Arch. / Historical Impact Potential	Wetland Impacts (ac)	Threatened or Endangered Species Impacts	Environmental Impact Risk	Hazardous Materials & Contamination Potential	Major Utility Conflict Potential (Y/N)	Existing Land Use	Future Land Use	Total Area of Parcels (Including Non-Impacted Area) (ac)	Total Pond Costs	Rankings
Exist Pond 1	0.00	AE (EL. 9)	Low	0.00	N/A	Low	Low	N	Transportation	Transportation	0.00	$110,281	1

Note: The cost evaluation for the stormwater management facility alternatives in this report include stormwater management facility construction costs, costs associated with wetland impacts, potential remediation of contaminated sites, and parcel acquisition costs. The stormwater management facility construction costs include cost of installed drainage structures, drainage pipes and outfalls, clearing and grubbing, earthwork excavation and grading, berm construction, erosion protection, access accommodations, and sodding.

The potential occurrence of any listed species within each proposed pond site was valued as low, medium, or high based on FLUCFCS type, FNAI reports, and data gathered during field reviews. A determination of low was given for areas that are developed and exhibited minimal to no available habitat for listed species. A determination of medium was given for areas where suitable habitat was identified within one quarter mile of the pond site, or suboptimal habitat was observed within the pond site. A determination of high was given for direct observations of listed species, or areas with greater than one mile of contiguous suitable habitat.

Inwood Consulting Engineers, Inc.
3000 Dovera Drive, Suite 200, Oviedo FL32765
(407) 971-8850 phone (407) 971-8955 fax

US 92 / SR 600 / Gandy Blvd

from 4th St. to Westshore Blvd.

BASIN 2 ALTERNATIVE POND SITES

ENGINEERING DATA & ANALYSIS

Alternatives	Location	Existing Ground Elevation (ft)	Pond Type	Soil Names & Hydrologic Groups	Estimated SHWT Elevation (ft)	Lowest Edge of Existing Roadway (ft)	Distance From Lowest Edge of Proposed Roadway (ft)	Estimated Allowable $DHW_{25yr/24hr}$ (ft)	Estimated Allowable Treatment & Attenuation Depth (ft)	Outfall Location	Roadway Drainage Area Excluding Pond (ac)	Required Treatment & Attenuation Volume (ac-ft)	Required Pond Access Area (ac)	Required Pond Area (ac)	Required Pond Area Including Access (ac)
Pond 2A	Parcel No. 19-30-17-00000-120-0200	5.00	Wet Detention	Immokalee Soils and Urban Land (#13, A/D); Matlacha and St. Augustine Soils and Urban Land (#16, B)	1.00	5.50	2000	3.00	2.00	Ditch system to Tinney Creek	19.80	1.73	0.00	2.86	2.86
Pond 2B	Parcel No. 18-30-17-00000-440-0900	3.50	Wet Detention	Immokalee Soils and Urban Land (#13, A/D); Matlacha and St. Augustine Soils and Urban Land (#16, B)	1.00	5.50	500	4.50	3.50	Ditch system to Tinney Creek	19.80	1.36	0.00	1.30	1.30

IMPACT & COST ANALYSIS

Alternatives	Pond Floodplain Impacts (ac)	FEMA Floodzone	Arch. / Historical Impact Potential	Wetland Impacts (ac)	Threatened or Endangered Species Impacts	Environmental Impact Risk	Hazardous Materials & Contamination Potential	Major Utility Conflict Potential (Y/N)	Existing Land Use	Future Land Use	Total Area of Parcels (Including Non-Impacted Area) (ac)	Total Pond Costs	Rankings
Pond 2A	0.00	AE (EL. 9)	Low	0.00	Gopher tortoise, Eastern indigo snake, Florida burrowing owl	Medium	Low	N	Commercial	Commercial	2.86	$3,292,000	2
Pond 2B	1.08	AE (EL. 10)	Low	0.00	N/A	Low	Low	N	Commercial	Commercial	1.57	$588,400	1

Note: The cost evaluation for the stormwater management facility alternatives in this report include stormwater management facility construction costs, costs associated with wetland impacts, potential remediation of contaminated sites, and parcel acquisition costs. The stormwater management facility construction costs include cost of installed drainage structures, drainage pipes and outfalls, clearing and grubbing, earthwork excavation and grading, berm construction, erosion protection, access accommodations, and sodding. The associated parcel acquisition cost for each alternative evaluated include the estimated cost of land and any impacted improvements, administrative costs and legal fees. The right-of-way cost estimates are a budget tool used by the Department to estimate total acquisition costs associated with each pond size and to budget te appropriate funds for acquisition. Right-of-way cost estimates are not real estate appraisals and do not reflect market value. In addition, FDOT uses appraisals that comply with the Uniform Standards of Professional Appraisail Practice (USPAP) for acquisition purposes.

The potential occurrence of any listed species within each proposed pond site was valued as low, medium, or high based on FLUCFCS type, FNAI reports, and data gathered during field reviews. A determination of low was given for areas that are developed and exhibited minimal to no available habitat for listed species. A determination of medium was given for areas where suitable habitat was identified within one quarter mile of the pond site, or suboptimal habitat was observed within the pond site. A determination of high was given for direct observations of listed species, or areas with greater than one mile of contiguous suitable habitat.

APPENDIX E

Nutrient Loading Analysis

Inwood consulting engineers

3000 Dovera Drive, Suite 200, Oviedo, FL 32765
(407) 971-8850 (phone)
(407) 971-8955 (fax)

Made by: DLD
Checked by: MOL

DATE: November 16, 2022
Job Number: KCA-001-01

PROJECT : **Gandy Blvd**

Basins 1 and 2 Ponds

Basin	Existing		Proposed		Difference	
	N (kg/yr)	P (kg/yr)	N (kg/yr)	P (kg/yr)	N (kg/yr)	P (kg/yr)
1*	14.30	1.88	12.27	0.88	-2.03	-1.00
2*	83.50	10.99	64.38	5.27	-19.12	-5.72
Total	97.80	12.87	76.65	6.15	**-21.15**	**-6.72**

*Existing Basin information taken from Permit No. 43011339.011 and is based on the pre-existing condition prior to construction of the ponds.

Old Tampa Bay Mitigation Credits

Basin	Existing		Proposed		Difference	
	N (kg/yr)	P (kg/yr)	N (kg/yr)	P (kg/yr)	N (kg/yr)	P (kg/yr)
Basin 3	291.48	38.35	438.44	57.69	146.96	19.34
Bridge - Pinellas	63.39	8.34	87.51	11.52	24.12	3.17
Bridge - Hillsborough	126.19	16.60	193.12	25.41	66.93	8.81
Basin 4	101.74	13.39	115.03	15.14	13.29	1.75
Total	582.80	76.69	834.10	109.76	**251.30**	**33.07**

Required Compensation

Channel 10 Pond

The existing ponds (Permit No. 23680.001) on the Channel 10 property will be impacted by the widening of Gandy Boulevard. The ponds currently provide nutrient removal for the site. Information was taken from the permit calculations to compare the existing and proposed nutrient loading from the site. The existing loading is taken as the loading from the site after the pond (BMP) is applied. Since the BMP will be removed, the proposed loading is taken as the loading from the site without the BMP applied.

Basin 4 Existing Swales

The existing swales (original Permit No. 11339.000, information obtained through Permit No. 11759.005) within Basin 4 will be impacted by the widening of Gandy Boulevard. Existing nutrient removal calculations were not available for the swales; however, the swale volumes were available and BMPTrains was used to estimate the nutrient removal the swales would be able to provide based on available information.

Basin	Existing		Proposed		Difference	
	N (kg/yr)	P (kg/yr)	N (kg/yr)	P (kg/yr)	N (kg/yr)	P (kg/yr)
Channel 10 Pond	0.44	0.07	1.58	0.23	1.14	0.16
Basin 4 Existing Swales	90.11	11.86	119.28	15.69	29.17	3.83
Total	90.55	11.93	120.86	15.92	**30.31**	**3.99**

TOTAL MITIGATION CREDITS REQUIRED = 281.61 N kg/yr

Supplemental Swales*

*These swales are optional and utilize open median space to provide additional nutrient removal. Available nutrient removal can be deducted from the required mitigation credits and should be further investigated during the design phase.

	Potential Removal	
	N (kg/yr)	P (kg/yr)
Swale 1	148.07	19.48
Swale 2	37.68	4.96
Swale 3	7.33	0.97

Potential Removal in Swales = 193.08 N kg/yr

BASIN 1

3000 Dovera Drive, Suite 200, Oviedo, FL 32765
(407) 971-8850 (phone)
(407) 971-8955 (fax)

Made by: DLD
Checked by: MOL

DATE: October 13, 2022
Job Number: KCA-001-01

PROJECT : **Gandy Blvd**
BASIN NAME : **Basin 1**
POND NAME : **Pond 1**

PERMANENT POOL VOLUME CALCULATIONS

Basin Characteristics

Meterological Zone: **4**
Annual Rainfall (P) = **51.00** **in**

Existing Condition*:

*Existing Basin information taken from Permit No. 43011339.007 and is based on the pre-existing condition prior to construction of Pond 1100-A1.

Land Use	Area (ac)	CN	Product
Roadway Paved Area	1.48	98.00	145.04
Roadway Pervious Area	4.08	80.00	326.40
Water Area	0.37	100.00	37.00
Total	**5.93**		508.44

%DCIA = 24.96 %
Non-DCIA CN = 80.00

Proposed Condition:

Land Use	Area (ac)	CN	Product
Roadway Paved Area	3.47	98.00	340.06
Roadway Pervious Area	1.81	80.00	144.80
Pond Pervious Area	0.35	80.00	28.00
Pond Area at NWL	0.79	100.00	78.85
Total	**6.42**		591.71

%DCIA = 54.06 %
Non-DCIA CN = 80.00

Min. Permanent Pool Vol. = Area x Composite C x P x 14 / (365 x 12) = **0.69** **ac-ft**

Stage Storage Calc. for Permanent Pool

ELEV. (ft)		AREA (ac)	AVG AREA (ac)	Delta D (ft)	Delta storage (ac-ft)	Sum Storage (ac-ft)
0.71	Normal Water Level	0.79				1.43
			0.75	1.00	0.75	
-0.29		0.71				0.68
			0.68	1.00	0.68	
-1.29	Pond Bottom	0.66				0.00

Permanent Pool Volume Provided = **1.43** **ac-ft**
Resident Time Provided = Perm. Pool Vol. Provided x 365 x 12 / (Area x C x P) **28.9** **Days**

Complete Report (not including cost)

Project: Gandy Blvd
Date: 10/13/2022 12:57:41 PM

Site and Catchment Information

Analysis: Net Improvement

Catchment Name	Basin 1
Rainfall Zone	Florida Zone 4
Annual Mean Rainfall	51.00

Pre-Condition Landuse Information

Landuse	Highway: TN=1.520 TP=0.200
Area (acres)	5.93
Rational Coefficient (0-1)	0.30
Non DCIA Curve Number	80.00
DCIA Percent (0-100)	24.96
Nitrogen EMC (mg/l)	1.520
Phosphorus EMC (mg/l)	0.200
Runoff Volume (ac-ft/yr)	7.629
Groundwater N (kg/yr)	0.000
Groundwater P (kg/yr)	0.000
Nitrogen Loading (kg/yr)	14.299
Phosphorus Loading (kg/yr)	1.881

Post-Condition Landuse Information

Landuse	Highway: TN=1.520 TP=0.200
Area (acres)	6.42
Rational Coefficient (0-1)	0.50
Non DCIA Curve Number	80.00
DCIA Percent (0-100)	54.06
Wet Pond Area (ac)	0.79
Nitrogen EMC (mg/l)	1.520
Phosphorus EMC (mg/l)	0.200

Runoff Volume (ac-ft/yr)	12.070
Groundwater N (kg/yr)	0.000
Groundwater P (kg/yr)	0.000
Nitrogen Loading (kg/yr)	22.620
Phosphorus Loading (kg/yr)	2.976

Catchment Number: 1 Name: Basin 1

Project: Gandy Blvd
Date: 10/13/2022

Wet Detention with Littoral Shelf Design

Permanent Pool Volume (ac-ft)	1.430
Permanent Pool Volume (ac-ft) for 31 days residence	1.025
Annual Residence Time (days)	43
Littoral Zone Efficiency Credit	10
Wetland Efficiency Credit	

Watershed Characteristics

Catchment Area (acres)	6.42
Contributing Area (acres)	5.630
Non-DCIA Curve Number	80.00
DCIA Percent	54.06
Rainfall Zone	Florida Zone 4
Rainfall (in)	51.00

Surface Water Discharge

Required TN Treatment Efficiency (%)	37
Provided TN Treatment Efficiency (%)	46
Required TP Treatment Efficiency (%)	37
Provided TP Treatment Efficiency (%)	70

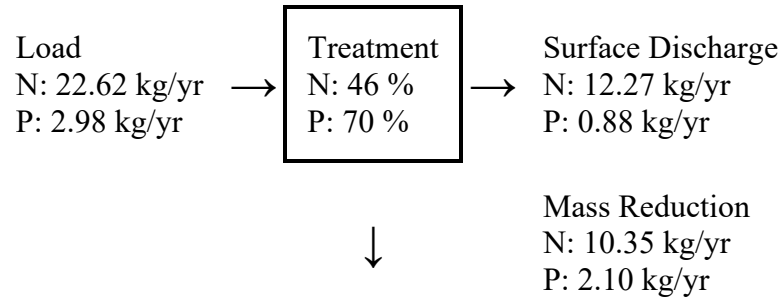
Media Mix Information

Type of Media Mix	Not Specified
Media N Reduction (%)	
Media P Reduction (%)	

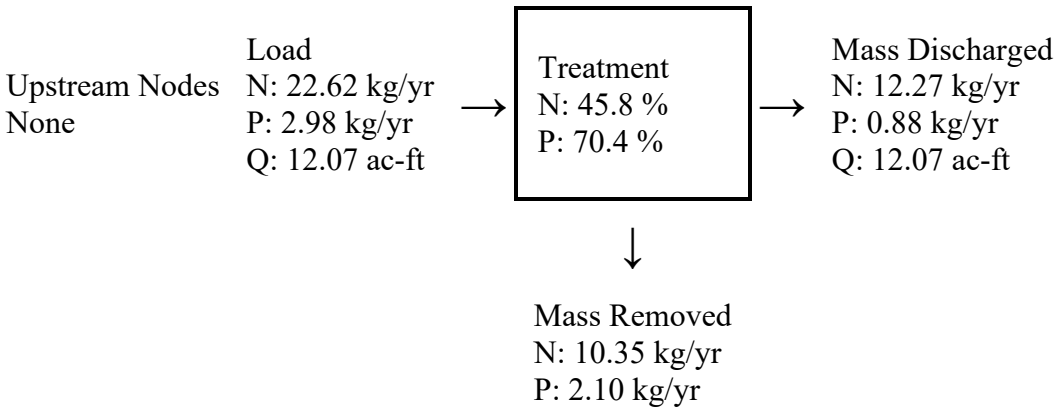
Groundwater Discharge (Stand-Alone)

Treatment Rate (MG/yr)	0.000
TN Mass Load (kg/yr)	0.000
TN Concentration (mg/L)	0.000
TP Mass Load (kg/yr)	0.000
TP Concentration (mg/L)	0.000

Load Diagram for Wet Detention with Littoral Shelf (stand-alone)



Load Diagram for Wet Detention (As Used In Routing)



Summary Treatment Report Version: 4.3.5

Project: Gandy Blvd

Date:10/13/2022

Analysis Type: Net Improvement
BMP Types:
Catchment 1 - (Basin 1) Wet Detention with Littoral Shelf
Based on % removal values to the nearest percent

Routing Summary
Catchment 1 Routed to Outlet

Total nitrogen target removal met? **Yes**
Total phosphorus target removal met? **Yes**

Summary Report

Nitrogen

Surface Water Discharge

Total N pre load	14.3 kg/yr	
Total N post load	22.62 kg/yr	
Target N load reduction	37 %	
Target N discharge load	14.3 kg/yr	
Percent N load reduction	46 %	
Provided N discharge load	12.27 kg/yr	27.06 lb/yr
Provided N load removed	10.35 kg/yr	22.82 lb/yr

Phosphorus

Surface Water Discharge

Total P pre load	1.881 kg/yr	
Total P post load	2.976 kg/yr	
Target P load reduction	37 %	
Target P discharge load	1.881 kg/yr	
Percent P load reduction	70 %	
Provided P discharge load	.88 kg/yr	1.94 lb/yr
Provided P load removed	2.097 kg/yr	4.623 lb/yr

BASIN 2

3000 Dovera Drive, Suite 200, Oviedo, FL 32765
(407) 971-8850 (phone)
(407) 971-8955 (fax)

Made by: DLD
Checked by: MOL
DATE: October 7, 2022
Job Number: KCA-001-01

PROJECT : **Gandy Blvd**
BASIN NAME : **Basin 2**
POND NAME : **Pond 2B**

PERMANENT POOL VOLUME CALCULATIONS

Basin Characteristics

Meterological Zone: **4**
Annual Rainfall (P) = **51.00 in**

Existing Condition*:

*Existing Basin information taken from Permit No. 43011339.007 where available and is based on the pre-existing condition prior to construction of the Basin 1200 Swales. Areas outside the permit limits are based on measurements taken in Microstation.

Land Use	Area (ac)	CN	Product
Roadway Paved Area	11.16	98.00	1093.68
Roadway Pervious Area	8.96	80.00	716.80
Water Area	1.08	100.00	108.00
Total	**21.20**		1918.48

%DCIA = 52.64 %
Non-DCIA CN = 80.00

Proposed Condition:

Land Use	Area (ac)	CN	Product
Roadway Paved Area	13.98	98.00	1370.04
Roadway Pervious Area	5.82	80.00	465.60
Pond Pervious Area	0.70	80.00	56.07
Pond Area at NWL	0.38	100.00	37.95
Total	**20.88**		1929.66

%DCIA = 66.95 %
Non-DCIA CN = 80.00
Annual Rainfall (P) = **51.00 in**

Min. Permanent Pool Vol. = Area x Composite C x P x 14 / (365 x 12) = **2.28 ac-ft**

Stage Storage Calc. for Permanent Pool

ELEV. (ft)		AREA (ac)	AVG AREA (ac)	Delta D (ft)	Delta storage (ac-ft)	Sum Storage (ac-ft)
1.00	Normal Water Level	0.38				2.05
			0.33	2.00	0.67	
-1.00		0.29				1.38
			0.15	9.00	1.38	
-10.00	Pond Bottom	0.02				0.00

Permanent Pool Volume Provided = **2.05 ac-ft***
Resident Time Provided = Perm. Pool Vol. Provided x 365 x 12 / (Area x C x P) **12.6 Days**

*Note: The provided Permanent Pool Volume is slightly less than desired; however, the overall nutrient reduction is sufficient.

Complete Report (not including cost)

Project: Gandy Blvd
Date: 10/7/2022 2:57:49 PM

Site and Catchment Information

Analysis: Net Improvement

Catchment Name	Basin 2
Rainfall Zone	Florida Zone 4
Annual Mean Rainfall	51.00

Pre-Condition Landuse Information

Landuse	Highway: TN=1.520 TP=0.200
Area (acres)	21.20
Rational Coefficient (0-1)	0.49
Non DCIA Curve Number	80.00
DCIA Percent (0-100)	52.64
Nitrogen EMC (mg/l)	1.520
Phosphorus EMC (mg/l)	0.200
Runoff Volume (ac-ft/yr)	44.553
Groundwater N (kg/yr)	0.000
Groundwater P (kg/yr)	0.000
Nitrogen Loading (kg/yr)	83.499
Phosphorus Loading (kg/yr)	10.987

Post-Condition Landuse Information

Landuse	Highway: TN=1.520 TP=0.200
Area (acres)	20.88
Rational Coefficient (0-1)	0.59
Non DCIA Curve Number	80.00
DCIA Percent (0-100)	66.95
Wet Pond Area (ac)	0.38
Nitrogen EMC (mg/l)	1.520
Phosphorus EMC (mg/l)	0.200

Runoff Volume (ac-ft/yr)	51.722
Groundwater N (kg/yr)	0.000
Groundwater P (kg/yr)	0.000
Nitrogen Loading (kg/yr)	96.935
Phosphorus Loading (kg/yr)	12.755

Catchment Number: 1 Name: Basin 2

Project: Gandy Blvd
Date: 10/7/2022

Wet Detention Design

Permanent Pool Volume (ac-ft)	2.050
Permanent Pool Volume (ac-ft) for 31 days residence	4.393
Annual Residence Time (days)	14
Littoral Zone Efficiency Credit	
Wetland Efficiency Credit	

Watershed Characteristics

Catchment Area (acres)	20.88
Contributing Area (acres)	20.500
Non-DCIA Curve Number	80.00
DCIA Percent	66.95
Rainfall Zone	Florida Zone 4
Rainfall (in)	51.00

Surface Water Discharge

Required TN Treatment Efficiency (%)	14
Provided TN Treatment Efficiency (%)	34
Required TP Treatment Efficiency (%)	14
Provided TP Treatment Efficiency (%)	59

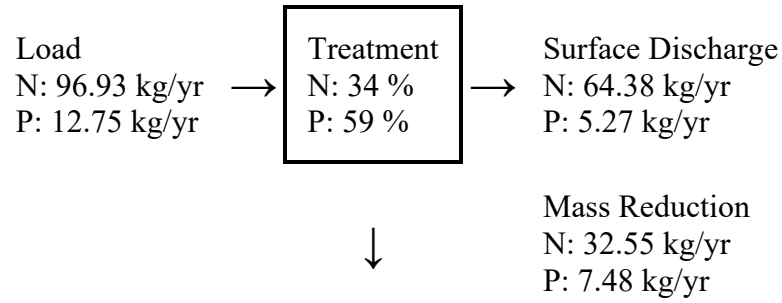
Media Mix Information

Type of Media Mix	Not Specified
Media N Reduction (%)	
Media P Reduction (%)	

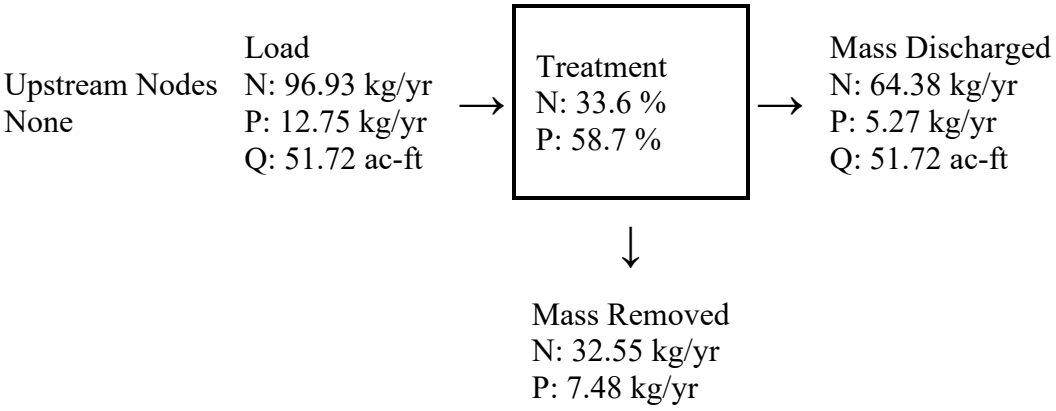
Groundwater Discharge (Stand-Alone)

Treatment Rate (MG/yr)	0.000
TN Mass Load (kg/yr)	0.000
TN Concentration (mg/L)	0.000
TP Mass Load (kg/yr)	0.000
TP Concentration (mg/L)	0.000

Load Diagram for Wet Detention (stand-alone)



Load Diagram for Wet Detention (As Used In Routing)



Summary Treatment Report Version: 4.3.5

Project: Gandy Blvd

Date:10/7/2022

Analysis Type: Net Improvement

BMP Types:

Catchment 1 - (Basin 2) Wet Detention

Routing Summary

Catchment 1 Routed to Outlet

Based on % removal values to the nearest percent

Total nitrogen target removal met? **Yes**

Total phosphorus target removal met? **Yes**

Summary Report

Nitrogen

Surface Water Discharge

Total N pre load	83.5 kg/yr	
Total N post load	96.93 kg/yr	
Target N load reduction	14 %	
Target N discharge load	83.5 kg/yr	
Percent N load reduction	34 %	
Provided N discharge load	64.38 kg/yr	141.96 lb/yr
Provided N load removed	32.55 kg/yr	71.78 lb/yr

Phosphorus

Surface Water Discharge

Total P pre load	10.987 kg/yr	
Total P post load	12.755 kg/yr	
Target P load reduction	14 %	
Target P discharge load	10.987 kg/yr	
Percent P load reduction	59 %	
Provided P discharge load	5.271 kg/yr	11.62 lb/yr
Provided P load removed	7.484 kg/yr	16.502 lb/yr

BASIN 3

3000 Dovera Drive, Suite 200, Oviedo, FL 32765
(407) 971-8850 (phone)
(407) 971-8955 (fax)

Made by: DLD
Checked by: MOL

DATE: November 16, 2022
Job Number: KCA-001-01

PROJECT : **Gandy Blvd**
BASIN NAME : **Basin 3 & 4**

AREA TOTALS - Basin 3 (Non-Bridge Limits)

Basin Characteristics

Meterological Zone: **4**
Annual Rainfall (P) = **51.00** **in**

Existing Condition:

Land Use	Area (ac)	CN	Product
Roadway Paved Area	38.71	98.00	3793.58
Roadway Pervious Area	39.28	80.00	3142.40
Pervious Sand Area	5.10	50.00	255.00
Water Area	0.20	100.00	20.00
Total	**83.29**		7210.98

%DCIA = 46.48 %
Non-DCIA CN = 76.55

Proposed Condition:

Land Use	Area (ac)	CN	Product
Roadway Paved Area	63.80	98.00	6252.40
Roadway Pervious Area	19.49	80.00	1559.20
Total	**83.29**		7905.62

%DCIA = 76.60 %
Non-DCIA CN = 80.00

3000 Dovera Drive, Suite 200, Oviedo, FL 32765
(407) 971-8850 (phone)
(407) 971-8955 (fax)

Made by: DLD
Checked by: MOL

DATE: November 16, 2022
Job Number: KCA-001-01

PROJECT : **Gandy Blvd**
BASIN NAME : **Basin 3 & 4**

AREA TOTALS - Basin 3 (Pinellas County Bridge Limits)

Basin Characteristics

Meterological Zone: 4
Annual Rainfall (P) = **51.00** in

Existing Condition:

Land Use	Area (ac)	CN	Product
Roadway Paved Area	9.67	98.00	947.66
Total	**9.67**		947.66

%DCIA = 100.00 %

Proposed Condition:

Land Use	Area (ac)	CN	Product
Roadway Paved Area	13.35	98.00	1308.30
Total	**13.35**		1308.30

%DCIA = 100.00 %

AREA TOTALS - Basin 3 (Hillsborough County Bridge Limits)

Basin Characteristics

Meterological Zone: 4
Annual Rainfall (P) = **51.00** in

Existing Condition:

Land Use	Area (ac)	CN	Product
Roadway Paved Area	19.25	98.00	1886.50
Total	**19.25**		1886.50

%DCIA = 100.00 %

Proposed Condition:

Land Use	Area (ac)	CN	Product
Roadway Paved Area	29.46	98.00	2887.08
Total	**29.46**		2887.08

%DCIA = 100.00 %

Complete Report (not including cost) Ver

Project: Gandy Blvd
Date: 11/14/2022 2:37:03 PM

Site and Catchment Information

Analysis: Net Improvement

Catchment Name	Basin 3
Rainfall Zone	Florida Zone 4
Annual Mean Rainfall	51.00

Pre-Condition Landuse Information

Landuse	Highway: TN=1.520 TP=0.200
Area (acres)	83.29
Rational Coefficient (0-1)	0.44
Non DCIA Curve Number	76.55
DCIA Percent (0-100)	46.48
Nitrogen EMC (mg/l)	1.520
Phosphorus EMC (mg/l)	0.200
Runoff Volume (ac-ft/yr)	155.527
Groundwater N (kg/yr)	0.000
Groundwater P (kg/yr)	0.000
Nitrogen Loading (kg/yr)	291.482
Phosphorus Loading (kg/yr)	38.353

Post-Condition Landuse Information

Landuse	Highway: TN=1.520 TP=0.200
Area (acres)	83.29
Rational Coefficient (0-1)	0.66
Non DCIA Curve Number	80.00
DCIA Percent (0-100)	76.60
Wet Pond Area (ac)	0.00
Nitrogen EMC (mg/l)	1.520
Phosphorus EMC (mg/l)	0.200

Runoff Volume (ac-ft/yr)	233.940
Groundwater N (kg/yr)	0.000
Groundwater P (kg/yr)	0.000
Nitrogen Loading (kg/yr)	438.441
Phosphorus Loading (kg/yr)	57.690

Catchment Number: 1 Name: Basin 3

Project: Gandy Blvd
Date: 11/14/2022

None Design

Watershed Characteristics

Catchment Area (acres)	83.29
Contributing Area (acres)	83.290
Non-DCIA Curve Number	80.00
DCIA Percent	76.60
Rainfall Zone	Florida Zone 4
Rainfall (in)	51.00

Surface Water Discharge

Required TN Treatment Efficiency (%)	34
Provided TN Treatment Efficiency (%)	
Required TP Treatment Efficiency (%)	34
Provided TP Treatment Efficiency (%)	

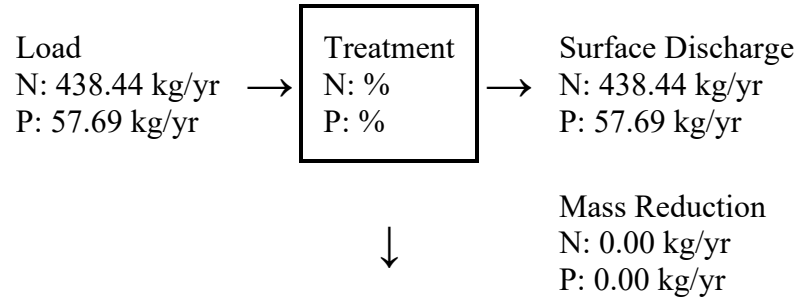
Media Mix Information

Type of Media Mix	Not Specified
Media N Reduction (%)	0.000
Media P Reduction (%)	0.000

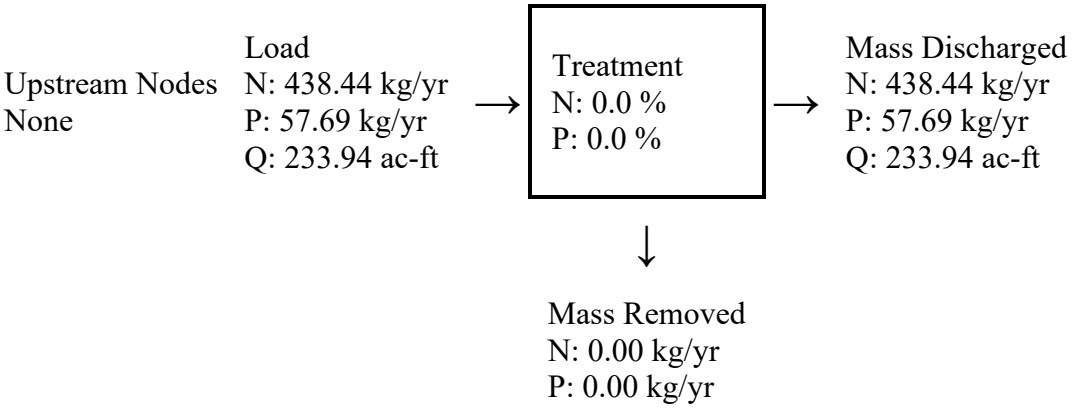
Groundwater Discharge (Stand-Alone)

Treatment Rate (MG/yr)	0.000
TN Mass Load (kg/yr)	0.000
TN Concentration (mg/L)	0.000
TP Mass Load (kg/yr)	0.000
TP Concentration (mg/L)	0.000

Load Diagram for None (stand-alone)



Load Diagram for None (As Used In Routing)



Summary Treatment Report Version: 4.3.5

Project: Gandy Blvd

Date:11/14/2022

Analysis Type: Net Improvement

BMP Types:

Catchment 1 - (Basin 3) None

Routing Summary

Catchment 1 Routed to Outlet

Based on % removal values to the nearest percent

Total nitrogen target removal met? **No**

Total phosphorus target removal met? **No**

Summary Report

Nitrogen

Surface Water Discharge

Total N pre load	291.48 kg/yr	
Total N post load	438.44 kg/yr	
Target N load reduction	34 %	
Target N discharge load	291.48 kg/yr	
Percent N load reduction	%	
Provided N discharge load	438.44 kg/yr	966.76 lb/yr
Provided N load removed	kg/yr	lb/yr

Phosphorus

Surface Water Discharge

Total P pre load	38.353 kg/yr	
Total P post load	57.69 kg/yr	
Target P load reduction	34 %	
Target P discharge load	38.353 kg/yr	
Percent P load reduction	%	
Provided P discharge load	57.69 kg/yr	127.21 lb/yr
Provided P load removed	kg/yr	lb/yr

Complete Report (not including cost)

Project: Gandy Blvd
Date: 10/7/2022 3:34:53 PM

Site and Catchment Information

Analysis: Net Improvement

Catchment Name	Basin 3 - Pinellas Bridge
Rainfall Zone	Florida Zone 4
Annual Mean Rainfall	51.00

Pre-Condition Landuse Information

Landuse	Highway: TN=1.520 TP=0.200
Area (acres)	9.67
Rational Coefficient (0-1)	0.82
Non DCIA Curve Number	100.00
DCIA Percent (0-100)	100.00
Nitrogen EMC (mg/l)	1.520
Phosphorus EMC (mg/l)	0.200
Runoff Volume (ac-ft/yr)	33.823
Groundwater N (kg/yr)	0.000
Groundwater P (kg/yr)	0.000
Nitrogen Loading (kg/yr)	63.390
Phosphorus Loading (kg/yr)	8.341

Post-Condition Landuse Information

Landuse	Highway: TN=1.520 TP=0.200
Area (acres)	13.35
Rational Coefficient (0-1)	0.82
Non DCIA Curve Number	100.00
DCIA Percent (0-100)	100.00
Wet Pond Area (ac)	0.00
Nitrogen EMC (mg/l)	1.520
Phosphorus EMC (mg/l)	0.200

Runoff Volume (ac-ft/yr)	46.695
Groundwater N (kg/yr)	0.000
Groundwater P (kg/yr)	0.000
Nitrogen Loading (kg/yr)	87.514
Phosphorus Loading (kg/yr)	11.515

Catchment Number: 1 Name: Basin 3 - Pinellas Bridge

Project: Gandy Blvd
Date: 10/7/2022

None Design

Watershed Characteristics

Catchment Area (acres)	13.35
Contributing Area (acres)	13.350
Non-DCIA Curve Number	100.00
DCIA Percent	100.00
Rainfall Zone	Florida Zone 4
Rainfall (in)	51.00

Surface Water Discharge

Required TN Treatment Efficiency (%)	28
Provided TN Treatment Efficiency (%)	
Required TP Treatment Efficiency (%)	28
Provided TP Treatment Efficiency (%)	

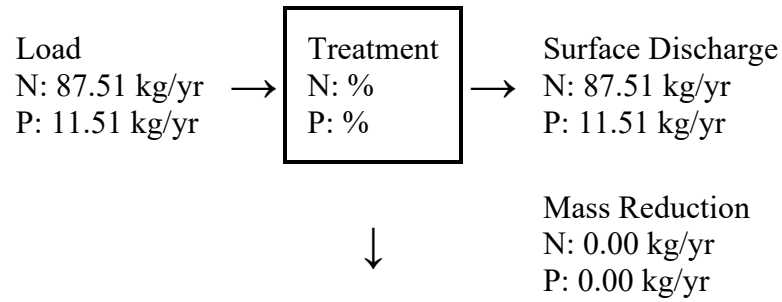
Media Mix Information

Type of Media Mix	Not Specified
Media N Reduction (%)	0.000
Media P Reduction (%)	0.000

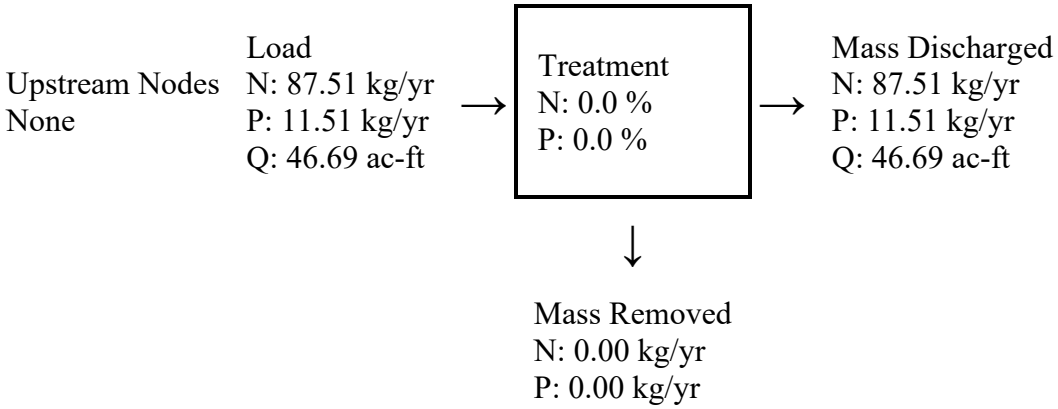
Groundwater Discharge (Stand-Alone)

Treatment Rate (MG/yr)	0.000
TN Mass Load (kg/yr)	0.000
TN Concentration (mg/L)	0.000
TP Mass Load (kg/yr)	0.000
TP Concentration (mg/L)	0.000

Load Diagram for None (stand-alone)



Load Diagram for None (As Used In Routing)



Summary Treatment Report Version: 4.3.5

Project: Gandy Blvd

Date:10/7/2022

Analysis Type: Net Improvement

BMP Types:

Catchment 1 - (Basin 3 - Pinellas Bridge) None

Routing Summary

Catchment 1 Routed to Outlet

Based on % removal values to the nearest percent

Total nitrogen target removal met? **No**

Total phosphorus target removal met? **No**

Summary Report

Nitrogen

Surface Water Discharge

Total N pre load	63.39 kg/yr	
Total N post load	87.51 kg/yr	
Target N load reduction	28 %	
Target N discharge load	63.39 kg/yr	
Percent N load reduction	%	
Provided N discharge load	87.51 kg/yr	192.97 lb/yr
Provided N load removed	kg/yr	lb/yr

Phosphorus

Surface Water Discharge

Total P pre load	8.341 kg/yr	
Total P post load	11.515 kg/yr	
Target P load reduction	28 %	
Target P discharge load	8.341 kg/yr	
Percent P load reduction	%	
Provided P discharge load	11.515 kg/yr	25.39 lb/yr
Provided P load removed	kg/yr	lb/yr

Complete Report (not including cost)

Project: Gandy Blvd
Date: 10/7/2022 3:38:24 PM

Site and Catchment Information

Analysis: Net Improvement

Catchment Name	Basin 3 - Hillsborough Bridge
Rainfall Zone	Florida Zone 4
Annual Mean Rainfall	51.00

Pre-Condition Landuse Information

Landuse	Highway: TN=1.520 TP=0.200
Area (acres)	19.25
Rational Coefficient (0-1)	0.82
Non DCIA Curve Number	100.00
DCIA Percent (0-100)	100.00
Nitrogen EMC (mg/l)	1.520
Phosphorus EMC (mg/l)	0.200
Runoff Volume (ac-ft/yr)	67.332
Groundwater N (kg/yr)	0.000
Groundwater P (kg/yr)	0.000
Nitrogen Loading (kg/yr)	126.190
Phosphorus Loading (kg/yr)	16.604

Post-Condition Landuse Information

Landuse	Highway: TN=1.520 TP=0.200
Area (acres)	29.46
Rational Coefficient (0-1)	0.82
Non DCIA Curve Number	100.00
DCIA Percent (0-100)	100.00
Wet Pond Area (ac)	0.00
Nitrogen EMC (mg/l)	1.520
Phosphorus EMC (mg/l)	0.200

Runoff Volume (ac-ft/yr)	103.044
Groundwater N (kg/yr)	0.000
Groundwater P (kg/yr)	0.000
Nitrogen Loading (kg/yr)	193.120
Phosphorus Loading (kg/yr)	25.411

Catchment Number: 1 Name: Basin 3 - Hillsborough Bridge

Project: Gandy Blvd
Date: 10/7/2022

None Design

Watershed Characteristics

Catchment Area (acres)	29.46
Contributing Area (acres)	29.460
Non-DCIA Curve Number	100.00
DCIA Percent	100.00
Rainfall Zone	Florida Zone 4
Rainfall (in)	51.00

Surface Water Discharge

Required TN Treatment Efficiency (%)	35
Provided TN Treatment Efficiency (%)	
Required TP Treatment Efficiency (%)	35
Provided TP Treatment Efficiency (%)	

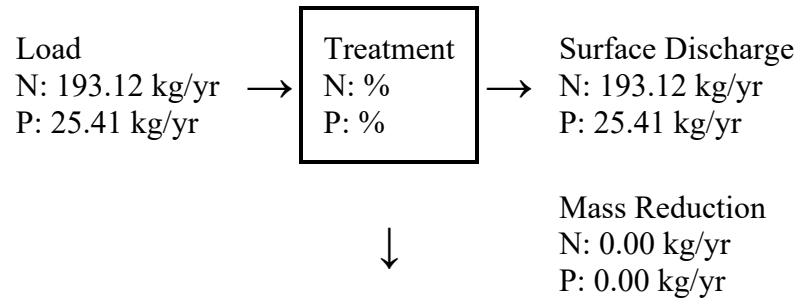
Media Mix Information

Type of Media Mix	Not Specified
Media N Reduction (%)	0.000
Media P Reduction (%)	0.000

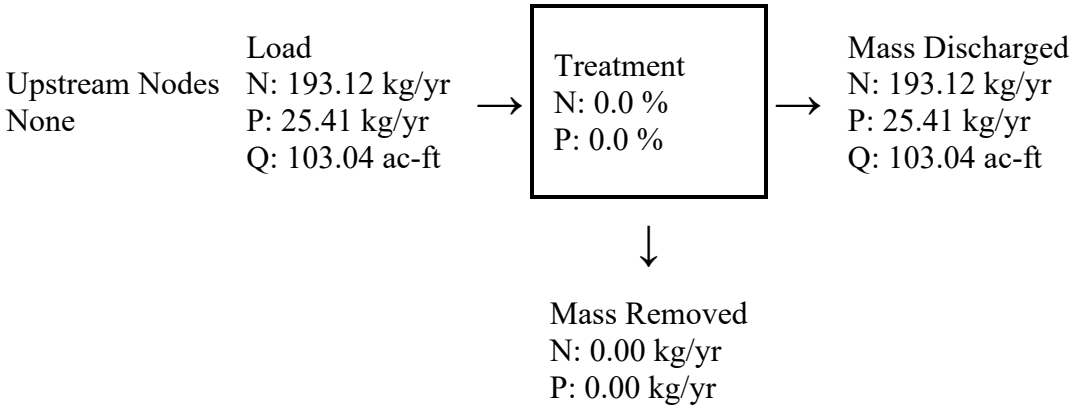
Groundwater Discharge (Stand-Alone)

Treatment Rate (MG/yr)	0.000
TN Mass Load (kg/yr)	0.000
TN Concentration (mg/L)	0.000
TP Mass Load (kg/yr)	0.000
TP Concentration (mg/L)	0.000

Load Diagram for None (stand-alone)



Load Diagram for None (As Used In Routing)



Summary Treatment Report Version: 4.3.5

Project: Gandy Blvd

Date:10/7/2022

Analysis Type: Net Improvement
BMP Types:
Catchment 1 - (Basin 3 - Hillsborough Bridge)
None
Based on % removal values to the nearest percent
Total nitrogen target removal met? **No**
Total phosphorus target removal met? **No**

Routing Summary
Catchment 1 Routed to Outlet

Summary Report

Nitrogen

Surface Water Discharge

Total N pre load	126.19 kg/yr	
Total N post load	193.12 kg/yr	
Target N load reduction	35 %	
Target N discharge load	126.19 kg/yr	
Percent N load reduction	%	
Provided N discharge load	193.12 kg/yr	425.83 lb/yr
Provided N load removed	kg/yr	lb/yr

Phosphorus

Surface Water Discharge

Total P pre load	16.604 kg/yr	
Total P post load	25.411 kg/yr	
Target P load reduction	35 %	
Target P discharge load	16.604 kg/yr	
Percent P load reduction	%	
Provided P discharge load	25.411 kg/yr	56.03 lb/yr
Provided P load removed	kg/yr	lb/yr

Summary Treatment Report Version: 4.3.5

Project: Gandy Blvd

Date:11/16/2022

Analysis Type: BMP Analysis

BMP Types:

Catchment 1 - (Supplemental Swale 1) Retention

Routing Summary

Catchment 1 Routed to Outlet

Based on % removal values to the nearest percent

Summary Report

Nitrogen

Surface Water Discharge

Total N post load	438.44 kg/yr	
Percent N load reduction	34 %	
Provided N discharge load	290.37 kg/yr	640.27 lb/yr
Provided N load removed	148.07 kg/yr	326.5 lb/yr

Phosphorus

Surface Water Discharge

Total P post load	57.69 kg/yr	
Percent P load reduction	34 %	
Provided P discharge load	38.207 kg/yr	84.25 lb/yr
Provided P load removed	19.483 kg/yr	42.96 lb/yr

BASIN 4

3000 Dovera Drive, Suite 200, Oviedo, FL 32765
(407) 971-8850 (phone)
(407) 971-8955 (fax)

Made by: DLD
Checked by: MOL

DATE: November 16, 2022
Job Number: KCA-001-01

PROJECT : **Gandy Blvd**
BASIN NAME : **Basin 3 & 4**

AREA TOTALS - Basin 4

Basin Characteristics

Meterological Zone: **4**
Annual Rainfall (P) = **51.00** **in**

Existing Condition:

Land Use	Area (ac)	CN	Product
Roadway Paved Area	13.85	98.00	1357.30
Roadway Pervious Area	10.57	80.00	845.60
Total	**24.42**		2202.90

%DCIA = 56.72 %
Non-DCIA CN = 80.00

Proposed Condition:

Land Use	Area (ac)	CN	Product
Roadway Paved Area	16.27	98.00	1594.46
Roadway Pervious Area	8.15	80.00	652.00
Total	**24.42**		2246.46

%DCIA = 66.63 %
Non-DCIA CN = 80.00

Complete Report (not including cost)

Project: Gandy Blvd
Date: 11/15/2022 3:19:23 PM

Site and Catchment Information

Analysis: Net Improvement

Catchment Name	Basin 4
Rainfall Zone	Florida Zone 4
Annual Mean Rainfall	51.00

Pre-Condition Landuse Information

Landuse	Highway: TN=1.520 TP=0.200
Area (acres)	24.42
Rational Coefficient (0-1)	0.52
Non DCIA Curve Number	80.00
DCIA Percent (0-100)	56.72
Nitrogen EMC (mg/l)	1.520
Phosphorus EMC (mg/l)	0.200
Runoff Volume (ac-ft/yr)	54.284
Groundwater N (kg/yr)	0.000
Groundwater P (kg/yr)	0.000
Nitrogen Loading (kg/yr)	101.736
Phosphorus Loading (kg/yr)	13.386

Post-Condition Landuse Information

Landuse	Highway: TN=1.520 TP=0.200
Area (acres)	24.42
Rational Coefficient (0-1)	0.59
Non DCIA Curve Number	80.00
DCIA Percent (0-100)	66.63
Wet Pond Area (ac)	0.00
Nitrogen EMC (mg/l)	1.520
Phosphorus EMC (mg/l)	0.200

Runoff Volume (ac-ft/yr)	61.379
Groundwater N (kg/yr)	0.000
Groundwater P (kg/yr)	0.000
Nitrogen Loading (kg/yr)	115.035
Phosphorus Loading (kg/yr)	15.136

Catchment Number: 1 Name: Basin 4

Project: Gandy Blvd
Date: 11/15/2022

None Design

Watershed Characteristics

Catchment Area (acres)	24.42
Contributing Area (acres)	24.420
Non-DCIA Curve Number	80.00
DCIA Percent	66.63
Rainfall Zone	Florida Zone 4
Rainfall (in)	51.00

Surface Water Discharge

Required TN Treatment Efficiency (%)	12
Provided TN Treatment Efficiency (%)	
Required TP Treatment Efficiency (%)	12
Provided TP Treatment Efficiency (%)	

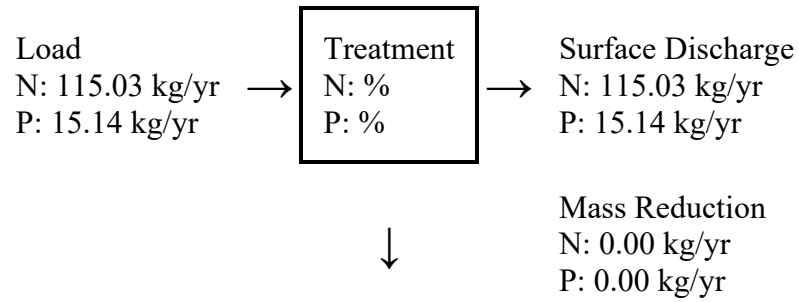
Media Mix Information

Type of Media Mix	Not Specified
Media N Reduction (%)	0.000
Media P Reduction (%)	0.000

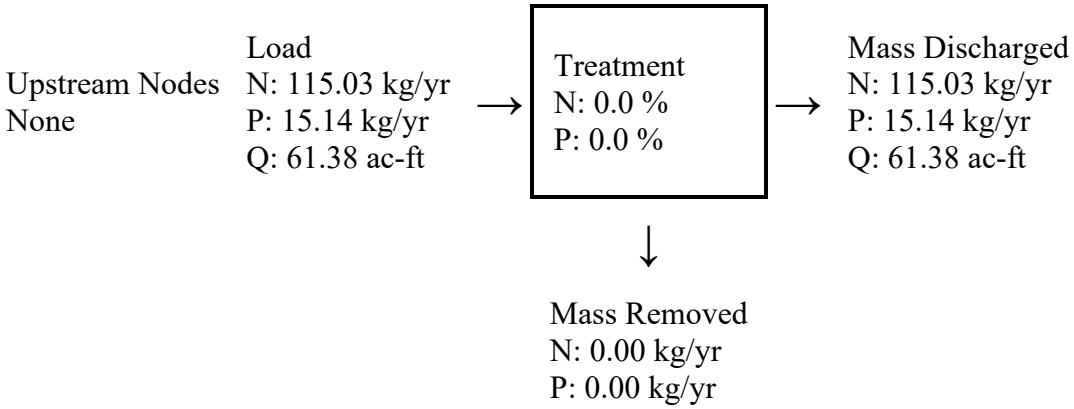
Groundwater Discharge (Stand-Alone)

Treatment Rate (MG/yr)	0.000
TN Mass Load (kg/yr)	0.000
TN Concentration (mg/L)	0.000
TP Mass Load (kg/yr)	0.000
TP Concentration (mg/L)	0.000

Load Diagram for None (stand-alone)



Load Diagram for None (As Used In Routing)



Summary Treatment Report Version: 4.3.5

Project: Gandy Blvd

Date:11/15/2022

Analysis Type: Net Improvement

BMP Types:

Catchment 1 - (Basin 4) None

Routing Summary

Catchment 1 Routed to Outlet

Based on % removal values to the nearest percent

Total nitrogen target removal met? **No**

Total phosphorus target removal met? **No**

Summary Report

Nitrogen

Surface Water Discharge

Total N pre load	101.74 kg/yr	
Total N post load	115.03 kg/yr	
Target N load reduction	12 %	
Target N discharge load	101.74 kg/yr	
Percent N load reduction	%	
Provided N discharge load	115.03 kg/yr	253.65 lb/yr
Provided N load removed	kg/yr	lb/yr

Phosphorus

Surface Water Discharge

Total P pre load	13.386 kg/yr	
Total P post load	15.136 kg/yr	
Target P load reduction	12 %	
Target P discharge load	13.386 kg/yr	
Percent P load reduction	%	
Provided P discharge load	15.136 kg/yr	33.38 lb/yr
Provided P load removed	kg/yr	lb/yr

Summary Treatment Report Version: 4.3.5

Project: Gandy Blvd

Date:11/16/2022

Analysis Type: BMP Analysis

BMP Types:

Catchment 1 - (Supplemental Swale 2) Retention

Routing Summary

Catchment 1 Routed to Outlet

Based on % removal values to the nearest percent

Summary Report

Nitrogen

Surface Water Discharge

Total N post load	115.03 kg/yr	
Percent N load reduction	33 %	
Provided N discharge load	77.36 kg/yr	170.58 lb/yr
Provided N load removed	37.68 kg/yr	83.08 lb/yr

Phosphorus

Surface Water Discharge

Total P post load	15.136 kg/yr	
Percent P load reduction	33 %	
Provided P discharge load	10.179 kg/yr	22.44 lb/yr
Provided P load removed	4.957 kg/yr	10.931 lb/yr

Summary Treatment Report Version: 4.3.5

Project: Gandy Blvd

Date:11/16/2022

Analysis Type: BMP Analysis

BMP Types:

Catchment 1 - (Supplemental Swale 3) Retention

Routing Summary

Catchment 1 Routed to Outlet

Based on % removal values to the nearest percent

Summary Report

Nitrogen

Surface Water Discharge

Total N post load	115.03 kg/yr	
Percent N load reduction	6 %	
Provided N discharge load	107.7 kg/yr	237.48 lb/yr
Provided N load removed	7.33 kg/yr	16.17 lb/yr

Phosphorus

Surface Water Discharge

Total P post load	15.136 kg/yr	
Percent P load reduction	6 %	
Provided P discharge load	14.171 kg/yr	31.25 lb/yr
Provided P load removed	.965 kg/yr	2.128 lb/yr

Summary Treatment Report Version: 4.3.5

Project: Gandy Blvd

Date:10/12/2022

Analysis Type: BMP Analysis

BMP Types:

Catchment 1 - (Basin 4 - Existing Swales) Retention

Routing Summary

Catchment 1 Routed to Outlet

Based on % removal values to the nearest percent

Summary Report

Nitrogen

Surface Water Discharge

Total N post load	119.28 kg/yr	
Percent N load reduction	24 %	
Provided N discharge load	90.11 kg/yr	198.7 lb/yr
Provided N load removed	29.16 kg/yr	64.31 lb/yr

Phosphorus

Surface Water Discharge

Total P post load	15.694 kg/yr	
Percent P load reduction	24 %	
Provided P discharge load	11.857 kg/yr	26.14 lb/yr
Provided P load removed	3.837 kg/yr	8.461 lb/yr

APPENDIX F

Existing Permits

PERMIT NO. 11339.011

Gandy Boulevard Improvements (to 4th Street)

Southwest Florida Water Management District
2379 Broad Street, Brooksville, Florida 34604-6899
(352) 796-7211 or 1-800-423-1476 (FL only)
SUNCOM 628-4150 TDD only 1-800-231-6103 (FL only)
On the Internet at: WaterMatters.org

An Equal Opportunity Employer

Bartow Service Office
170 Century Boulevard
Bartow, Florida 33830-7700
(863) 534-1448 or
1-800-492-7862 (FL only)

Sarasota Service Office
6750 Fruitville Road
Sarasota, Florida 34240-9711
(941) 377-3722 or
1-800-320-3503 (FL only)

Tampa Service Office
7601 Highway 301 North
Tampa, Florida 33637-6759
(813) 985-7481 or
1-800-836-0797 (FL only)

December 30, 2014

Florida Department of Transportation - District 7
Attn: Virginia Creighton
11201 North McKinley Drive
Tampa, FL 33612

Subject: **Notice of Intended Agency Action - Approval**
ERP Individual Construction Major Modification

Project Name:	Gandy Boulevard (S.R. 694) Improvements from W West of MLK, Jr. (9th Street)
App ID/Permit No:	698358 / 43011339.011
County:	PINELLAS
Sec/Twp/Rge:	S17/T30S/R17E, S19/T30S/R17E, S23/T30S/R16E, S18/T30S/R17E, S24/T30S/R16E

Dear Permittee(s):

The Southwest Florida Water Management District (District) has completed its review of the application for Environmental Resource Permit modification. Based upon a review of the information you have submitted, the District hereby gives notice of its intended approval of the application.

The File of Record associated with this application can be viewed at http://www18.swfwmd.state.fl.us/erp/erp/search/ERPSearch.aspx and is also available for inspection Monday through Friday, except for District holidays, from 8:00 a.m. through 5:00 p.m. at the District's Tampa Service Office, 7601 U.S. Highway 301 North, Tampa, Florida 33637.

If you have any questions or concerns regarding the application or any other information, please contact the Environmental Resource Permit Bureau in the Tampa Service Office.

Sincerely,

David Kramer, P.E.
Manager
Environmental Resource Permit Bureau
Regulation Division

cc: U. S. Army Corps of Engineers
Stephan F. Heimburg, P.E., The Heimburg Group, Inc.

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December 30, 2014

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County:	PINELLAS
Sec/Twp/Rge:	S17/T30S/R17E, S19/T30S/R17E, S23/T30S/R16E, S18/T30S/R17E, S24/T30S/R16E

Dear Permittee(s):

The Southwest Florida Water Management District (District) is in receipt of your application for the Environmental Resource Permit modification. Based upon a review of the information you submitted, the application is approved. Please refer to the attached Notice of Rights to determine any legal rights you may have concerning the District's agency action on the permit application described in this letter.

If approved construction plans are part of the permit, construction must be in accordance with these plans. These drawings are available for viewing or downloading through the District's Application and Permit Search Tools located at www.WaterMatters.org/permits.

The District's action in this matter only becomes closed to future legal challenges from members of the public if such persons have been properly notified of the District's action and no person objects to the District's action within the prescribed period of time following the notification. The District does not publish notices of agency action. If you wish to limit the time within which a person who does not receive actual written notice from the District may request an administrative hearing regarding this action, you are strongly encouraged to publish, at your own expense, a notice of agency action in the legal advertisement section of a newspaper of general circulation in the county or counties where the activity will occur. Publishing notice of agency action will close the window for filing a petition for hearing. Legal requirements and instructions for publishing notices of agency action, as well as a noticing form that can be used, are available from the District's website at www.WaterMatters.org/permits/noticing. If you publish notice of agency action, a copy of the affidavit of publication provided by the newspaper should be sent to the District's Tampa Service Office for retention in this permit's File of Record.

If you have any questions or concerns regarding your permit or any other information, please contact the Environmental Resource Permit Bureau in the Tampa Service Office.

Sincerely,

David Kramer, P.E.
Manager
Environmental Resource Permit Bureau
Regulation Division

Enclosures: Approved Permit w/Conditions Attached
As-Built Certification and Request for Conversion to Operation Phase
Notice of Authorization to Commence Construction
Notice of Rights

cc: U. S. Army Corps of Engineers
Stephan F. Heimburg, P.E., The Heimburg Group, Inc.

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
ENVIRONMENTAL RESOURCE

INDIVIDUAL CONSTRUCTION MAJOR MODIFICATION
PERMIT NO. 43011339.011

EXPIRATION DATE: December 30, 2019 **PERMIT ISSUE DATE:** December 30, 2014

This permit is issued under the provisions of Chapter 373, Florida Statutes, (F.S.), and the Rules contained in Chapter 62-330, Florida Administrative Code, (F.A.C.). The permit authorizes the Permittee to proceed with the construction of a surface water management system in accordance with the information outlined herein and shown by the application, approved drawings, plans, specifications, and other documents, attached hereto and kept on file at the Southwest Florida Water Management District (District). Unless otherwise stated by permit specific condition, permit issuance constitutes certification of compliance with state water quality standards under Section 401 of the Clean Water Act, 33 U.S.C. 1341. All construction, operation and maintenance of the surface water management system authorized by this permit shall occur in compliance with Florida Statutes and Administrative Code and the conditions of this permit.

PROJECT NAME: Gandy Boulevard (S.R. 694) Improvements from W West of MLK, Jr. (9th Street)

GRANTED TO: Florida Department of Transportation - District 7
Attn: Virginia Creighton
11201 North McKinley Drive
Tampa, FL 33612

OTHER PERMITTEES: N/A

ABSTRACT: This permit authorization is for the alteration of a previously permitted storm water management system designed to serve a roadway improvement project in the south Pinellas County. This project includes the portion of Gandy Boulevard (SR 694) that begins at Interstate 275 and ends east of 4th Street. The original project authorized under Construction Permit No. 43011339.007 consists of widening and reconstruction to transform the existing four-lane partially controlled access roadway to six-lane fully-controlled access roadway.

The modifications are shown on the permitted plans and include:

-The elimination of Ponds 600Treatment, 600B,and 600D, as originally shown in the approved plans for Construction Permit No. 43011339.007;

-The reconfiguration of the remaining ponds;

-Additions and reconfigurations to the contributing areas in Basins 700, 800, 900, 1100 and 1200.

Water quality treatment and attenuation are to be provided in the remaining 13 proposed wet detention ponds originally authorized under Construction Permit No. 43011339.007, with the modifications referenced above. The site discharges to Tinney Creek (WBID 1661D), which is verified as impaired for dissolved oxygen; therefore, water quality certification is waived as a condition of this permit. Information regarding the wetlands and/or surface waters is stated below and on the permitted construction drawings for the project.

OP. & MAIN. ENTITY: Florida Department of Transportation - District 7

OTHER OP. & MAIN. ENTITY: N/A

COUNTY: PINELLAS

SEC/TWP/RGE: S17/T30S/R17E, S19/T30S/R17E, S23/T30S/R16E, S18/T30S/R17E, S24/T30S/R16E

TOTAL ACRES OWNED OR UNDER CONTROL:	114.91
PROJECT SIZE:	8.98 Acres
LAND USE:	Road Projects
DATE APPLICATION FILED:	June 18, 2014
AMENDED DATE:	November 20, 2014

I. Water Quantity/Quality

POND No.	Area Acres @ Top of Bank	Treatment Type
700B	1.74	MAN-MADE WET DETENTION
700D1	1.80	MAN-MADE WET DETENTION
700D2	0.19	MAN-MADE WET DETENTION
800D	2.08	MAN-MADE WET DETENTION
8H	0.58	MAN-MADE WET DETENTION
8K	0.37	MAN-MADE WET DETENTION
900D	2.49	MAN-MADE WET DETENTION
1100A1	1.00	MAN-MADE WET DETENTION
1100A2	1.20	MAN-MADE WET DETENTION
1100A3	0.86	MAN-MADE WET DETENTION
1200C1	0.37	MAN-MADE WET DETENTION
1200C2	0.13	MAN-MADE WET DETENTION
1200C3	0.22	MAN-MADE WET DETENTION
	Total: **13.03**	

Comments: Water quality treatment and attenuation are to be provided in 13 proposed wet detention ponds as authorized under Construction Permit No. 43011339.007, with the modifications described in the "ABSTRACT" above. Compensatory water quality treatment is to be provided in the remaining ponds to mitigate the effects of the 3 ponds being eliminated in Basin 600. A portion of the project discharges to an impaired waterbody (Tinney Creek–WBID 1661D). Calculations submitted for the previous permit demonstrated that the presumptive criteria would be greater than the net improvement criteria; therefore, the presumptive criteria were used for the design. The operation and maintenance inspection requirements of Construction Permit No. 43011339.007 are to be replaced with the operation and maintenance requirements of this modification.

A mixing zone is not required.
A variance is not required.

II. 100-Year Floodplain

Encroachment (Acre-Feet of fill)	Compensation (Acre-Feet of excavation)	Compensation Type	Encroachment Result* (feet)
0.00	0.00	No Encroachment	N/A

Comments: The project is within the 100-year flood zone caused by tidal surge. Mitigation for encroachment is not required.

*Depth of change in flood stage (level) over existing receiving water stage resulting from floodplain encroachment caused by a project that claims Minimal Impact type of compensation.

III. Environmental Considerations

Wetland/Other Surface Water Information

Wetland/Other Surface Water Comments:
The project area for this ERP modification contains 3.31-acres of wetlands and 10.59-acres of other surface waters that have been previously approved and reported in ERP 43011339.007, entitled FDOT- Gandy Blvd (SR 694) W of 9th St to E of 4th St, issued July 8, 2010. This permit modification does not authorize any wetland or other surface water impacts or change any of the previously authorized wetland or other surface water impacts or mitigation.

Mitigation Information
Mitigation Comments:
The project area for this ERP modification contains mitigation information that have been previously approved in ERP 43011339.007, entitled FDOT- Gandy Blvd (SR 694) W of 9th St to E of 4th St, issued July 8, 2010. This permit modification does not change any of the previously authorized wetland mitigation plans.

Specific Conditions

1. If the ownership of the project area covered by the subject permit is divided, with someone other than the Permittee becoming the owner of part of the project area, this permit may be terminated, unless the terms of the permit are modified by the District or the permit is transferred pursuant to Rule 40D-1.6105, F.A.C. In such situations, each land owner shall obtain a permit (which may be a modification of this permit) for the land owned by that person. This condition shall not apply to the division and sale of lots or units in residential subdivisions or condominiums.

2. The Permittee shall retain the design professional registered or licensed in Florida, to conduct on-site observations of construction and assist with the as-built certification requirements of this project. The Permittee shall inform the District in writing of the name, address and phone number of the design professional so employed. This information shall be submitted prior to construction.

3. Wetland buffers shall remain in an undisturbed condition except for approved drainage facility construction/maintenance.

4. The following boundaries, as shown on the approved construction drawings, shall be clearly delineated on the site prior to initial clearing or grading activities:

   wetland and surface water areas

   wetland buffers

   limits of approved wetland impacts

   The delineation shall endure throughout the construction period and be readily discernible to construction and District personnel.

5. This Permit Modification No. 43011339.011, amends the previously issued Permit No. 43011339.007, replaces its Specific Condition No. 9 with Specific Condition No. 10 of this modification, and adds conditions. All other original permit conditions remain in effect.

   This Permit Modification No. 43011339.011, amends the previously issued Permit No. 43011339.010, and adds conditions. All original permit conditions remain in effect.

6. Certification of compliance with state water quality standards under Section 401 of the Clean Water Act, 33 U.S.C. 1341 is waived.

7. If limestone bedrock is encountered during construction of the stormwater water management system, the District must be notified and construction in the affected area shall cease.

8. The Permittee shall notify the District of any sinkhole development in the stormwater management system within 48 hours of discovery and must submit a detailed sinkhole evaluation and repair plan for approval by the District within 30 days of discovery.

9. The Permitted Plan Set for this project includes:
   Plan Sheets 1-158 and 176-346 from the submittal received by the District on August 19, 2014; and Plan Sheets 366-386 from the submittal received by the District on December 17, 2014.

10. The operation and maintenance entity shall provide for the inspection of the permitted project after conversion of the permit to the operation and maintenance phase. For systems utilizing retention or wet detention, the inspections shall be performed five (5) years after operation is authorized and every five (5) years thereafter.

    The operation and maintenance entity must maintain a record of each inspection, including the date of inspection, the name and contact information of the inspector, whether the system was functioning as designed and permitted, and make such record available upon request of the District.

    Within 30 days of any failure of a stormwater management system or deviation from the permit, an inspection report shall be submitted using Form 62-330.311(1), “Operation and Maintenance Inspection Certification” describing the remedial actions taken to resolve the failure or deviation.

11. District staff must be notified in advance of any proposed construction dewatering. If the dewatering activity is likely to result in offsite discharge or sediment transport into wetlands or surface waters, a written dewatering plan must either have been submitted and approved with the permit application or submitted to the District as a permit prior to the dewatering event as a permit modification. A water use permit may be required prior to any use exceeding the thresholds in Chapter 40D-2, F.A.C.

12. Off-site discharges during construction and development shall be made only through the facilities authorized by this permit. Water discharged from the project shall be through structures having a mechanism suitable for regulating upstream stages. Stages may be subject to operating schedules satisfactory to the District.

13. The permittee shall complete construction of all aspects of the stormwater management system, including wetland compensation (grading, mulching, planting), water quality treatment features, and discharge control facilities prior to beneficial occupancy or use of the development being served by this system.

14. The following shall be properly abandoned and/or removed in accordance with the applicable regulations:

    a. Any existing wells in the path of construction shall be properly plugged and abandoned by a licensed well contractor.
    b. Any existing septic tanks on site shall be abandoned at the beginning of construction.
    c. Any existing fuel storage tanks and fuel pumps shall be removed at the beginning of construction

15. All stormwater management systems shall be operated to conserve water in order to maintain environmental quality and resource protection; to increase the efficiency of transport, application and use; to decrease waste; to minimize unnatural runoff from the property and to minimize dewatering of offsite property.

16. This permit is valid only for the specific processes, operations and designs indicated on the approved drawings or exhibits submitted in support of the permit application. Any substantial deviation from the approved drawings, exhibits, specifications or permit conditions, including construction within the total land area but outside the approved project area(s), may constitute grounds for revocation or enforcement action by the District, unless a modification has been applied for and approved. Examples of substantial deviations include excavation of ponds, ditches or sump areas deeper than shown on the approved plans.

GENERAL CONDITIONS

1. The general conditions attached hereto as Exhibit "A" are hereby incorporated into this permit by reference and the Permittee shall comply with them.

David Kramer, P.E.

Authorized Signature

EXHIBIT A

GENERAL CONDITIONS:

1 The following general conditions are binding on all individual permits issued under this chapter, except where the conditions are not applicable to the authorized activity, or where the conditions must be modified to accommodate, project-specific conditions.

a. All activities shall be implemented following the plans, specifications and performance criteria approved by this permit. Any deviations must be authorized in a permit modification in accordance with Rule 62-330.315, F.A.C., or the permit may be revoked and the permittee may be subject to enforcement action.

b. A complete copy of this permit shall be kept at the work site of the permitted activity during the construction phase, and shall be available for review at the work site upon request by the Agency staff. The permittee shall require the contractor to review the complete permit prior to beginning construction.

c. Activities shall be conducted in a manner that does not cause or contribute to violations of state water quality standards. Performance-based erosion and sediment control best management practices shall be installed immediately prior to, and be maintained during and after construction as needed, to prevent adverse impacts to the water resources and adjacent lands. Such practices shall be in accordance with the *State of Florida Erosion and Sediment Control Designer and Reviewer Manual (Florida Department of Environmental Protection and Florida Department of Transportation June 2007)*, and the *Florida Stormwater Erosion and Sedimentation Control Inspector's Manual (Florida Department of Environmental Protection, Nonpoint Source Management Section, Tallahassee, Florida, July 2008)*, which are both incorporated by reference in subparagraph 62-330.050(8)(b)5, F.A.C., unless a projectspecific erosion and sediment control plan is approved or other water quality control measures are required as part of the permit.

d. At least 48 hours prior to beginning the authorized activities, the permittee shall submit to the Agency a fully executed Form 62-330.350(1), "Construction Commencement Notice,"[effective date], incorporated by reference herein (<http://www.flrules.org/Gateway/reference.asp?No=Ref-02505>), indicating the expected start and completion dates. A copy of this form may be obtained from the Agency, as described in subsection 62-330.010(5), F.A.C. If available, an Agency website that fulfills this notification requirement may be used in lieu of the form.

e. Unless the permit is transferred under Rule 62-330.340, F.A.C., or transferred to an operating entity under Rule 62-330.310, F.A.C., the permittee is liable to comply with the plans, terms and conditions of the permit for the life of the project or activity.

f. Within 30 days after completing construction of the entire project, or any independent portion of the project, the permittee shall provide the following to the Agency, as applicable:

    1. For an individual, private single-family residential dwelling unit, duplex, triplex, or quadruplex - "Construction Completion and Inspection Certification for Activities Associated with a Private Single-Family Dwelling Unit" [Form 62-330.310(3)]; or

    2. For all other activities - "As-Built Certification and Request for Conversion to Operational Phase" [Form 62-330.310(1)].

    3. If available, an Agency website that fulfills this certification requirement may be used in lieu of the form.

g. If the final operation and maintenance entity is a third party:

    1. Prior to sales of any lot or unit served by the activity and within one year of permit issuance, or within 30 days of as- built certification, whichever comes first, the permittee shall submit, as applicable, a copy of the operation and maintenance documents (see sections 12.3 thru 12.3.3 of Volume I) as filed with the Department of State, Division of Corporations and a copy of any easement, plat, or deed restriction

needed to operate or maintain the project, as recorded with the Clerk of the Court in the County in which the activity is located.

2. Within 30 days of submittal of the as- built certification, the permittee shall submit “Request for Transfer of Environmental Resource Permit to the Perpetual Operation Entity” [Form 62-330.310(2)] to transfer the permit to the operation and maintenance entity, along with the documentation requested in the form. If available, an Agency website that fulfills this transfer requirement may be used in lieu of the form.

h. The permittee shall notify the Agency in writing of changes required by any other regulatory agency that require changes to the permitted activity, and any required modification of this permit must be obtained prior to implementing the changes.

i. This permit does not:

1. Convey to the permittee any property rights or privileges, or any other rights or privileges other than those specified herein or in Chapter 62-330, F.A.C.;

2. Convey to the permittee or create in the permittee any interest in real property;

3. Relieve the permittee from the need to obtain and comply with any other required federal, state, and local authorization, law, rule, or ordinance; or

4. Authorize any entrance upon or work on property that is not owned, held in easement, or controlled by the permittee.

j. Prior to conducting any activities on state-owned submerged lands or other lands of the state, title to which is vested in the Board of Trustees of the Internal Improvement Trust Fund, the permittee must receive all necessary approvals and authorizations under Chapters 253 and 258, F.S. Written authorization that requires formal execution by the Board of Trustees of the Internal Improvement Trust Fund shall not be considered received until it has been fully executed.

k. The permittee shall hold and save the Agency harmless from any and all damages, claims, or liabilities that may arise by reason of the construction, alteration, operation, maintenance, removal, abandonment or use of any project authorized by the permit.

l. The permittee shall notify the Agency in writing:

1. Immediately if any previously submitted information is discovered to be inaccurate; and

2. Within 30 days of any conveyance or division of ownership or control of the property or the system, other than conveyance via a long-term lease, and the new owner shall request transfer of the permit in accordance with Rule 62-330.340, F.A.C. This does not apply to the sale of lots or units in residential or commercial subdivisions or condominiums where the stormwater management system has been completed and converted to the operation phase.

m. Upon reasonable notice to the permittee, Agency staff with proper identification shall have permission to enter, inspect, sample and test the project or activities to ensure conformity with the plans and specifications authorized in the permit.

n. If any prehistoric or historic artifacts, such as pottery or ceramics, stone tools or metal implements, dugout canoes, or any other physical remains that could be associated with Native American cultures, or early colonial or American settlement are encountered at any time within the project site area, work involving subsurface disturbance in the immediate vicinity of such discoveries shall cease. The permittee or other designee shall contact the Florida Department of State, Division of Historical Resources, Compliance and Review Section, at (850) 245-6333 or (800) 847-7278, as well as the appropriate permitting agency office. Such subsurface work shall not resume without verbal or written authorization from the Division of Historical Resources. If unmarked human remains are encountered, all work shall stop immediately and notification

shall be provided in accordance with Section 872.05, F.S. (2012).

o. Any delineation of the extent of a wetland or other surface water submitted as part of the permit application, including plans or other supporting documentation, shall not be considered binding unless a specific condition of this permit or a formal determination under Rule 62-330.201, F.A.C., provides otherwise.

p. The permittee shall provide routine maintenance of all components of the stormwater management system to remove trapped sediments and debris. Removed materials shall be disposed of in a landfill or other uplands in a manner that does not require a permit under Chapter 62-330, F.A.C., or cause violations of state water quality standards.

q. This permit is issued based on the applicant's submitted information that reasonably demonstrates that adverse water resource-related impacts will not be caused by the completed permit activity. If any adverse impacts result, the Agency will require the permittee to eliminate the cause, obtain any necessary permit modification, and take any necessary corrective actions to resolve the adverse impacts.

r. A Recorded Notice of Environmental Resource Permit may be recorded in the county public records in accordance with Rule 62-330.090(7), F.A.C. Such notice is not an encumbrance upon the property.

2. In addition to those general conditions in subsection (1) above, the Agency shall impose any additional project-specific special conditions necessary to assure the permitted activities will not be harmful to the water resources, as set forth in Rules 62-330.301 and 62-330.302, F.A.C., Volumes I and II, as applicable, and the rules incorporated by reference in this chapter.

SOUTHWEST FLORIDA
WATER MANAGEMENT DISTRICT

NOTICE OF

AUTHORIZATION

TO COMMENCE CONSTRUCTION

Gandy Boulevard (S.R. 694) Improvements from W West of MLK, Jr. (9th Street)

PROJECT NAME

Road Projects

PROJECT TYPE

PINELLAS

COUNTY

S17/T30S/R17E...
See Permit for additional STR listings

SEC(S)/TWP(S)/RGE(S)

Florida Department of Transportation - District 7

PERMITTEE

APPLICATION ID/PERMIT NO: 698358 / 43011339.011

DATE ISSUED: December 30, 2014

David Kramer, P.E.

Issuing Authority

THIS NOTICE SHOULD BE CONSPICUOUSLY DISPLAYED AT THE SITE OF THE WORK

Notice of Rights

ADMINISTRATIVE HEARING

1. You or any person whose substantial interests are or may be affected by the District's intended or proposed action may request an administrative hearing on that action by filing a written petition in accordance with Sections 120.569 and 120.57, Florida Statutes (F.S.), Uniform Rules of Procedure Chapter 28-106, Florida Administrative Code (F.A.C.) and District Rule 40D-1.1010, F.A.C. Unless otherwise provided by law, a petition for administrative hearing must be filed with (received by) the District within 21 days of receipt of written notice of agency action. "Written notice" means either actual written notice, or newspaper publication of notice, that the District has taken or intends to take agency action. "Receipt of written notice" is deemed to be the fifth day after the date on which actual notice is deposited in the United States mail, if notice is mailed to you, or the date that actual notice is issued, if sent to you by electronic mail or delivered to you, or the date that notice is published in a newspaper, for those persons to whom the District does not provide actual notice.

2. Pursuant to Subsection 373.427(2)(c), F.S., for notices of intended or proposed agency action on a consolidated application for an environmental resource permit and use of state-owned submerged lands concurrently reviewed by the District, a petition for administrative hearing must be filed with (received by) the District within 14 days of receipt of written notice.

3. Pursuant to Rule 62-532.430, F.A.C., for notices of intent to deny a well construction permit, a petition for administrative hearing must be filed with (received by) the District within 30 days of receipt of written notice of intent to deny.

4. Any person who receives written notice of an agency decision and who fails to file a written request for a hearing within 21 days of receipt or other period as required by law waives the right to request a hearing on such matters.

5. Mediation pursuant to Section 120.573, F.S., to settle an administrative dispute regarding District intended or proposed action is not available prior to the filing of a petition for hearing.

6. A request or petition for administrative hearing must comply with the requirements set forth in Chapter 28-106, F.A.C. A request or petition for a hearing must: (1) explain how the substantial interests of each person requesting the hearing will be affected by the District's intended action or proposed action, (2) state all material facts disputed by the person requesting the hearing or state that there are no material facts in dispute, and (3) otherwise comply with Rules 28-106.201 and 28-106.301, F.A.C. Chapter 28-106, F.A.C. can be viewed at www.flrules.org or at the District's website at www.WaterMatters.org/permits/rules.

7. A petition for administrative hearing is deemed filed upon receipt of the complete petition by the District Agency Clerk at the District's Tampa Service Office during normal business hours, which are 8:00 a.m. to 5:00 p.m., Monday through Friday, excluding District holidays. Filings with the District Agency Clerk may be made by mail, hand-delivery or facsimile transfer (fax). The District does not accept petitions for administrative hearing by electronic mail. Mailed filings must be addressed to, and hand-delivered filings must be delivered to, the Agency Clerk, Southwest Florida Water Management District, 7601 Highway 301 North,Tampa,FL 33637-6759. Faxed filings must be transmitted to the District Agency Clerk at (813) 367-3054. Any petition not received during normal business hours shall be filed as of 8:00 a.m. on the next business day. The District's acceptance of faxed petitions for filing is subject to certain conditions set forth in the District's Statement of Agency Organization and Operation, available for viewing at www.WaterMatters.org/about.

JUDICIAL REVIEW

1. Pursuant to Sections 120.60(3) and 120.68, F.S., a party who is adversely affected by District action may seek judicial review of the District's action. Judicial review shall be sought in the Fifth District Court of Appeal or in the appellate district where a party resides or as otherwise provided by law.

2. All proceedings shall be instituted by filing an original notice of appeal with the District Agency Clerk within 30 days after the rendition of the order being appealed, and a copy of the notice of appeal, accompanied by any filing fees prescribed by law, with the clerk of the court, in accordance with Rules 9. 110 and 9.190 of the Florida Rules of Appellate Procedure (Fla. R. App. P.). Pursuant to Fla. R. App. P. 9.020(h), an order is rendered when a signed written order is filed with the clerk of the lower tribunal.

FPID NO.: 256931-2-52-01
PROJECT: Gandy Design Build
SUBJECT: Basin Data/Curve Numbers

BY: P Tibma DATE: 05-03-2013
REVISED: D Wonders 01-07-14

BASIN 1100 EXISTING

CN SUBBASIN	98 IMPERVIOUS TREATED AREA (AC)	98 IMPERVIOUS UNTREATED AREA (AC)	80 PERVIOUS AREA (AC)	100 WATER AREA (AC)	TOTAL AREA (AC)	CURVE NUMBER
11D		1.11	0.04		1.15	97.37
11E	1.20		0.70		1.90	91.37
11F		0.06	0.67		0.73	81.48
S-145		0.48			0.48	98.00
S-146		0.07	0.24		0.31	84.06
S-147		0.53	0.08		0.61	95.64
S-77		0.83	0.10		0.93	96.06
S-79		1.47	3.70		5.17	85.12
Pond 1	1.48		4.08	0.37	5.93	85.74
Pond 2	0.78		1.35	0.66	2.79	89.76
11 OUTFALL		0.37			0.37	98.00
TOTALS	3.46	4.92	10.96	1.03	20.37	

BASIN 1100 PERMITTED

CN SUBBASIN	98 IMPERVIOUS TREATED AREA (AC)	98 IMPERVIOUS UNTREATED AREA (AC)	80 PERVIOUS AREA (AC)	100 WATER AREA (AC)	TOTAL AREA (AC)	CURVE NUMBER
11D		1.11	0.04		1.15	97.37
11E	1.20		0.70		1.90	91.37
S-145A		0.23			0.23	98.00
S-146		0.18	0.36		0.54	86.00
S-147		0.39	0.05		0.44	95.95
S-77		0.83	0.10		0.93	96.06
S-79		1.47	3.70		5.17	85.12
1100A1	4.92		0.30	0.98	6.20	97.45
1100A2	2.62		0.68	0.91	4.21	95.52
1100A3	1.89		1.19	0.55	3.63	92.40
11 OUTFALL		0.37			0.37	98.00
TOTALS	10.63	4.58	7.12	2.44	24.77	

BASIN 1100 MODIFIED

CN SUBBASIN	98 IMPERVIOUS TREATED AREA (AC)	98 IMPERVIOUS UNTREATED AREA (AC)	80 PERVIOUS AREA (AC)	100 WATER AREA (AC)	TOTAL AREA (AC)	CURVE NUMBER
11D		1.12	0.04		1.16	97.38
11DD*		1.18	1.01		2.19	89.70
11E	1.20		0.74		1.94	91.13
S-145A		0.33	0.03		0.36	96.50
S-146		0.32	0.44		0.76	87.58
S-147		0.39	0.05		0.44	95.95
S-77		0.83	0.10		0.93	96.06
S-79		1.47	3.67		5.14	85.15
1100A1	4.33		1.02	0.75	6.10	95.24
1100A2	2.28		1.45	0.93	4.66	92.80
1100A3	1.40		1.66	0.47	3.53	89.80
11 OUTFALL		0.37			0.37	98.00
TOTALS	9.21	6.01	10.21	2.15	27.58	

* Basin 11DD was not included in either the pre- or post- modeling used to obtain permit mod 010

FPID NO.: 256931-2-52-01
PROJECT: Gandy Design Build
SUBJECT: Basin Data/Curve Numbers

BY: P Tibma DATE: 05-03-2013
REVISED: D Wonders 02-25-14

BASIN 1200 EXISTING

CN SUBBASIN	98 IMPERVIOUS TREATED AREA (AC)	98 IMPERVIOUS UNTREATED AREA (AC)	80 PERVIOUS AREA (AC)	100 WATER AREA (AC)	TOTAL AREA (AC)	CURVE NUMBER
12B		3.03	3.67		6.70	88.14
OUTFALL		1.46	1.84		3.30	87.96
1200 Offsite			43.00		43.00	80.00
TOTALS	0.00	4.49	48.51	0.00	53.00	

BASIN 1200 PERMITTED

CN SUBBASIN	98 IMPERVIOUS TREATED AREA (AC)	98 IMPERVIOUS UNTREATED AREA (AC)	80 PERVIOUS AREA (AC)	100 WATER AREA (AC)	TOTAL AREA (AC)	CURVE NUMBER
12D		1.54	0.48		2.02	93.72
12E		1.37	1.10		2.47	89.98
1200C1	0.86		0.57	0.29	1.72	92.37
1200C2	0.49		0.24	0.06	0.79	92.68
1200C3	0.53		0.52	0.13	1.18	90.29
OUTFALL		0.62	1.38		2.00	85.58
1200 Offsite			43.00		43.00	80.00
TOTALS	1.88	3.53	47.29	0.48	53.18	

BASIN 1200 MODIFIED

CN SUBBASIN	98 IMPERVIOUS TREATED AREA (AC)	98 IMPERVIOUS UNTREATED AREA (AC)	80 PERVIOUS AREA (AC)	100 WATER AREA (AC)	TOTAL AREA (AC)	CURVE NUMBER
12D		1.43	0.41		1.84	93.99
12E		1.37	1.10		2.47	89.98
1200C1	0.93		0.63	0.16	1.72	91.59
1200C2	0.53		0.22	0.04	0.79	93.09
1200C3	0.59		0.51	0.08	1.18	90.36
OUTFALL		0.62	1.38		2.00	85.58
1200 Offsite			43.00		43.00	85.00
TOTALS	2.05	3.42	47.25	0.28	53.00	

FIGURE 1 -
BASIN MAP FOR
PERMITTED CONCEPT

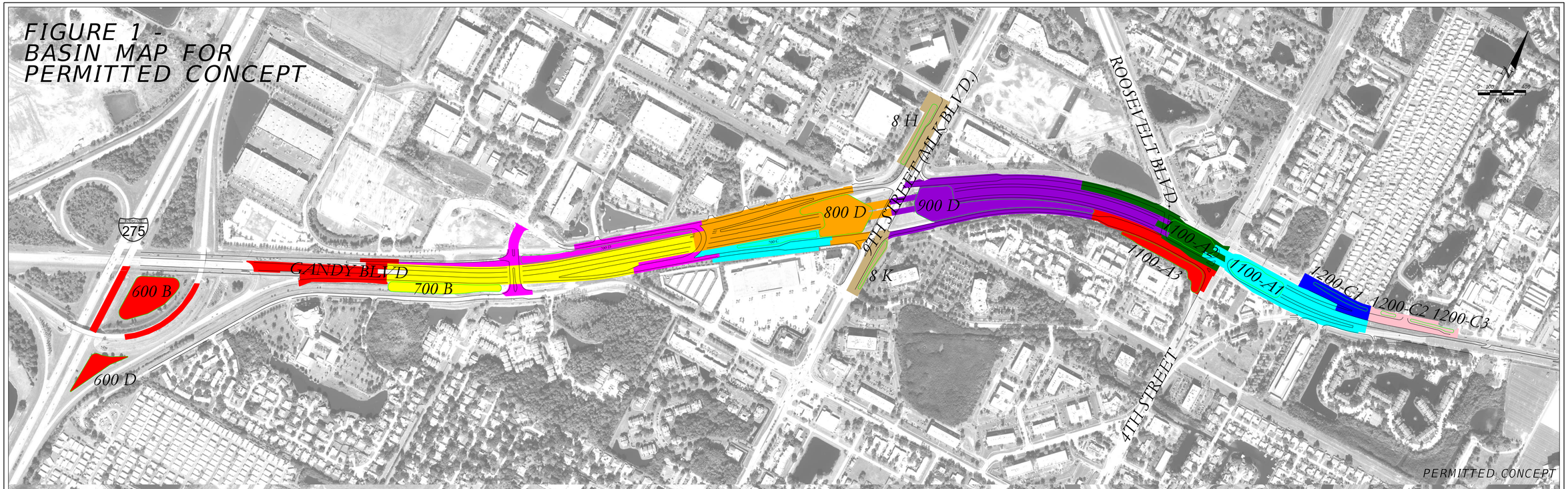

FIGURE 2 -
BASIN MAP FOR
DEMOYA / BCC TEAM CONCEPT

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION

BASIN COMPARISON

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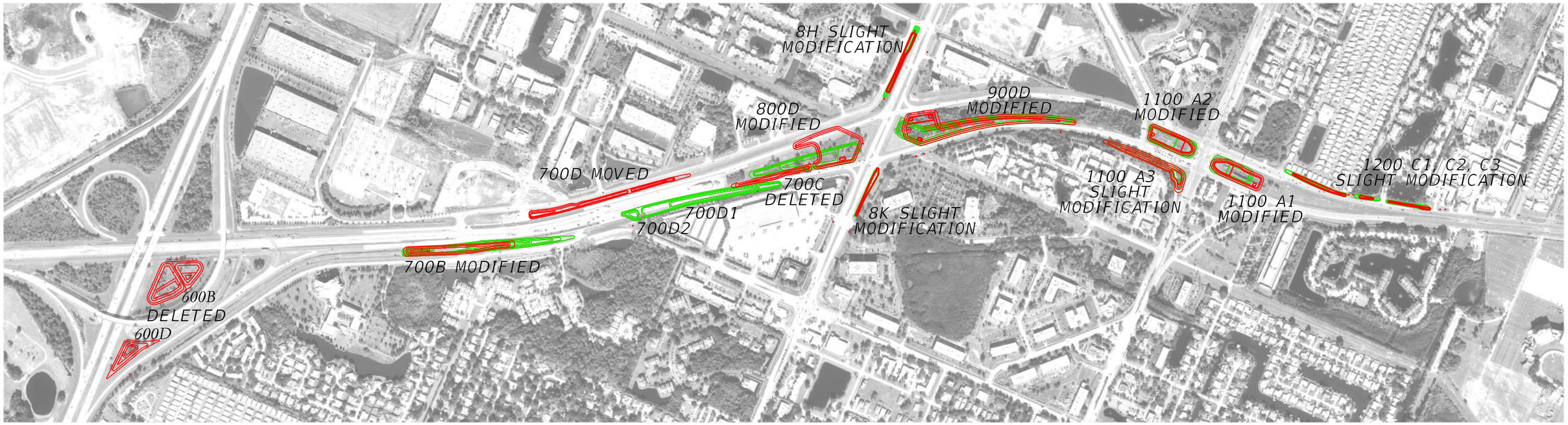


BASIN	600			700			800			900		1100		1200			PROJECT TOTALS
SMF	600-B1	600-B2	600-D	700-B	700-D1	700-D2	800-D	8-H	8-K	900-D	1100-A1	1100-A2	1100-A3	1200-C1	1200-C2	1200-C3	
PERMITTED DESIGN																	
BASIN AREA	5.52	1.03	1.03	11.84	6.70	2.46	10.54	2.38	1.54	14.28	6.20	4.21	3.63	1.72	0.78	1.03	
POND AREA @ T.O.B.	1.40	0.70	0.61	1.16	0.92	0.72	2.45	0.37	0.23	2.52	1.13	1.04	0.84	0.35	0.08	0.18	
POND AREA @ CONTROL	1.02	0.44	0.40	0.71	0.63	0.26	2.14	0.32	0.17	1.79	0.86	0.79	0.42	0.24	0.05	0.10	
PROPOSED DESIGN																	
BASIN AREA	N/A	N/A	N/A	9.88	8.67	2.02	10.41	2.48	3.18	13.46	6.10	6.60	3.53	1.72	0.79	1.18	
POND AREA @ T.O.B.	N/A	N/A	N/A	1.74	1.80	0.19	2.08	0.58	0.37	2.49	1.00	1.20	0.86	0.37	0.13	0.22	
POND AREA @ CONTROL	N/A	N/A	N/A	1.43	1.55	0.15	1.78	0.24	0.12	1.83	0.75	0.93	0.47	0.16	0.04	0.08	8.98

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION

POND MODIFICATIONS

SMF	**8K**	**Elevation (ft)**	**Area (ac)**
	Top of Bank	6.0	0.37
	Weir	4.0	0.18
	Control	3.4	0.12
	Littoral Zone	3.0	0.09
	Top of Sump	N.A.	0.00
	Bot of Sump	N.A.	0.00
SMF	**900 D**	**Elevation (ft)**	**Area (ac)**
	Top of Bank	6.5	2.49
	Weir	4.1	1.96
	Control	3.5	1.83
	Littoral Zone	2.5	1.57
	Top of Sump	2.5	1.10
	Bot of Sump	-3.5	0.62
SMF	**1100 A1**	**Elevation (ft)**	**Area (ac)**
	Top of Bank	4.5	1.00
	Weir	2.1	0.80
	Control	1.6	0.75
	Littoral Zone	0.6	0.67
	Top of Sump	0.6	0.41
	Bot of Sump	-0.4	0.36
SMF	**1100 A2**	**Elevation (ft)**	**Area (ac)**
	Top of Bank	4.5	1.20
	Weir	2.1	0.98
	Control	1.6	0.93
	Littoral Zone	0.6	0.83
	Top of Sump	0.6	0.48
	Bot of Sump	-0.4	0.43
SMF	**1100 A3**	**Elevation (ft)**	**Area (ac)**
	Top of Bank	5.4	0.86
	Weir	3.2	0.53
		2.7	0.47
	Littoral Zone	1.6	0.32
	Top of Sump	1.6	0.18
	Bot of Sump	-1.0	0.09
SMF	**1200 C1**	**Elevation (ft)**	**Area (ac)**
	Top of Bank	5.5	0.37
	Weir	4.3	0.21
	Control	3.9	0.16
	Littoral Zone	2.9	0.06

Basin	900	1100			1200		
SMF	900 D	1100 A1	1100 A2	1100 A3	1200 C1	1200 C2	1200 C3
Impervious Area (ac)	9.23	4.33	3.48	1.40	0.93	0.53	0.59
Pervious Area (ac)	2.40	1.02	2.19	1.66	0.63	0.22	0.51
Water Area (ac)	1.83	0.75	0.93	0.47	0.16	0.04	0.08
Basin Area (ac)	13.46	6.10	6.60	3.53	1.72	0.79	1.18
Water Quality Volume Required (ac-ft)	0.77	0.36	0.29	0.12	0.08	0.09	
Water Quality Volume Provided (ac-ft)	1.14	0.39	0.48	0.25	0.07	0.10	
Littoral Zone Required (ac)	0.64	0.27	0.33	0.16	0.06	0.04	
Littoral Zone Provided (ac)	0.73	0.35	0.45	0.29	0.16	0.12	

6.0 PROTECTIVE TREATMENT

6.1 Erosion/Sedimentation Control

1) Sediment and erosion control measures such as sediment barriers, turbidity barriers, and inlet protection systems shall be installed and maintained to prevent sediment from migrating off site.

2) The erosion control will minimize the extent and duration of the area exposed at one time.

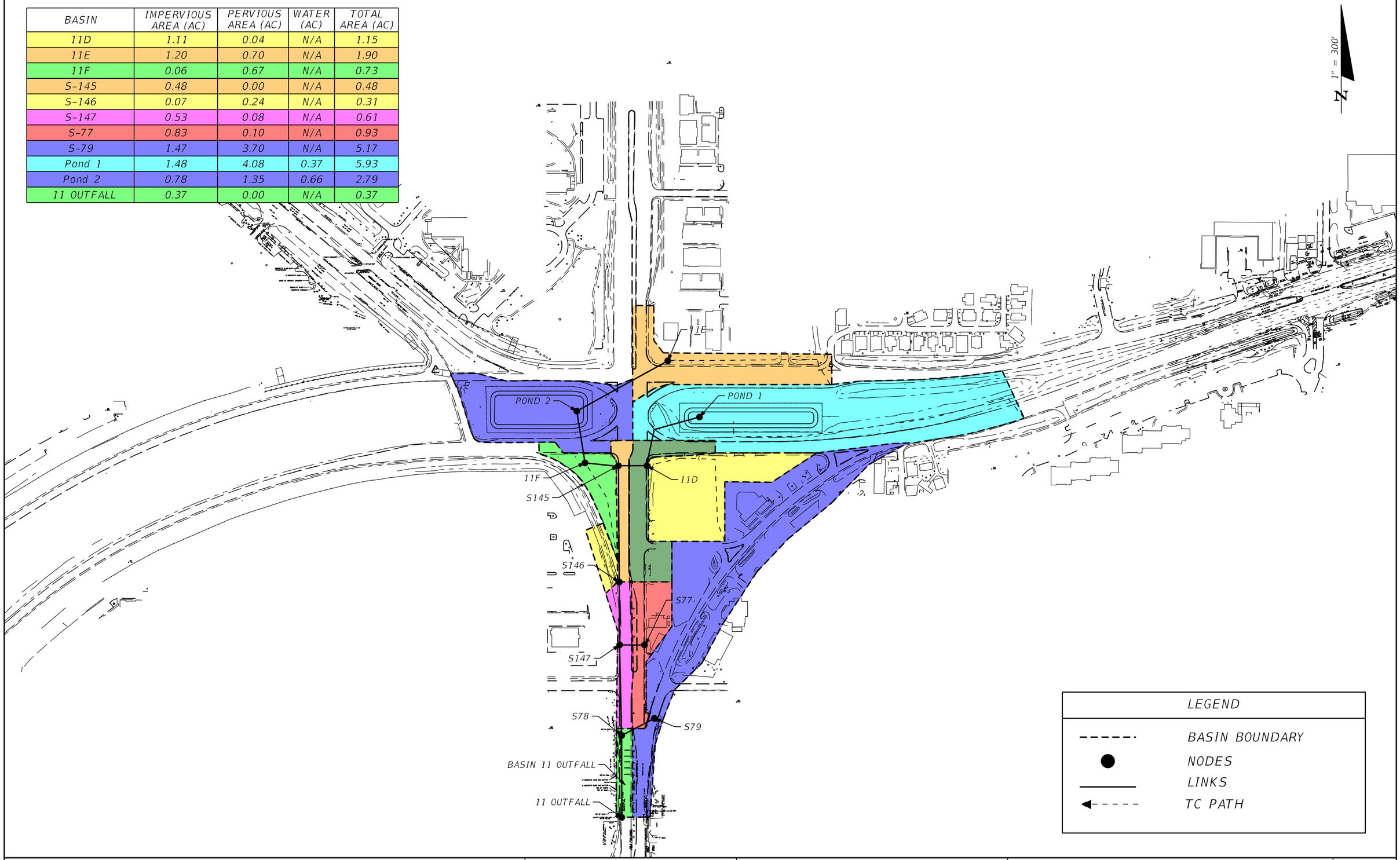
3) The erosion control plan will apply perimeter control practices to protect the disturbed area from off-site flow and to prevent sedimentation damage to areas downstream of the construction site.

4) All disturbed areas will be stabilized immediately after final grade has been obtained by sod, seed and mulching or other approved methods.

5) The contractor will be responsible for having a contingency plan in place to accommodate high flow rain events and cleanup measures for any sediment migration off-site.

6) The contractor will seek to establish a staging area immediately upland from the project site which will be approved by the FDOT prior to mobilization.

BASIN	IMPERVIOUS AREA (AC)	PERVIOUS AREA (AC)	WATER (AC)	TOTAL AREA (AC)
11D	1.11	0.04	N/A	1.15
11E	1.20	0.70	N/A	1.90
11F	0.06	0.67	N/A	0.73
S-145	0.48	0.00	N/A	0.48
S-146	0.07	0.24	N/A	0.31
S-147	0.53	0.08	N/A	0.61
S-77	0.83	0.10	N/A	0.93
S-79	1.47	3.70	N/A	5.17
Pond 1	1.48	4.08	0.37	5.93
Pond 2	0.78	1.35	0.66	2.79
11 OUTFALL	0.37	0.00	N/A	0.37



LEGEND

- BASIN BOUNDARY
- NODES
- LINKS
- TC PATH

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

THE HEIMBURG GROUP, INC.
5461 W. WATERS AVENUE, SUITE 910
TAMPA, FL 33634
(813) 749-0823
C.A. NO. 00027842

ENGINEER OF RECORD:
STEPHAN HEIMBURG, P.E. NO. 41934

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
694	PINELLAS	256931-2-52-01

EXISTING CONDITIONS BASIN 1100

SHEET NO.

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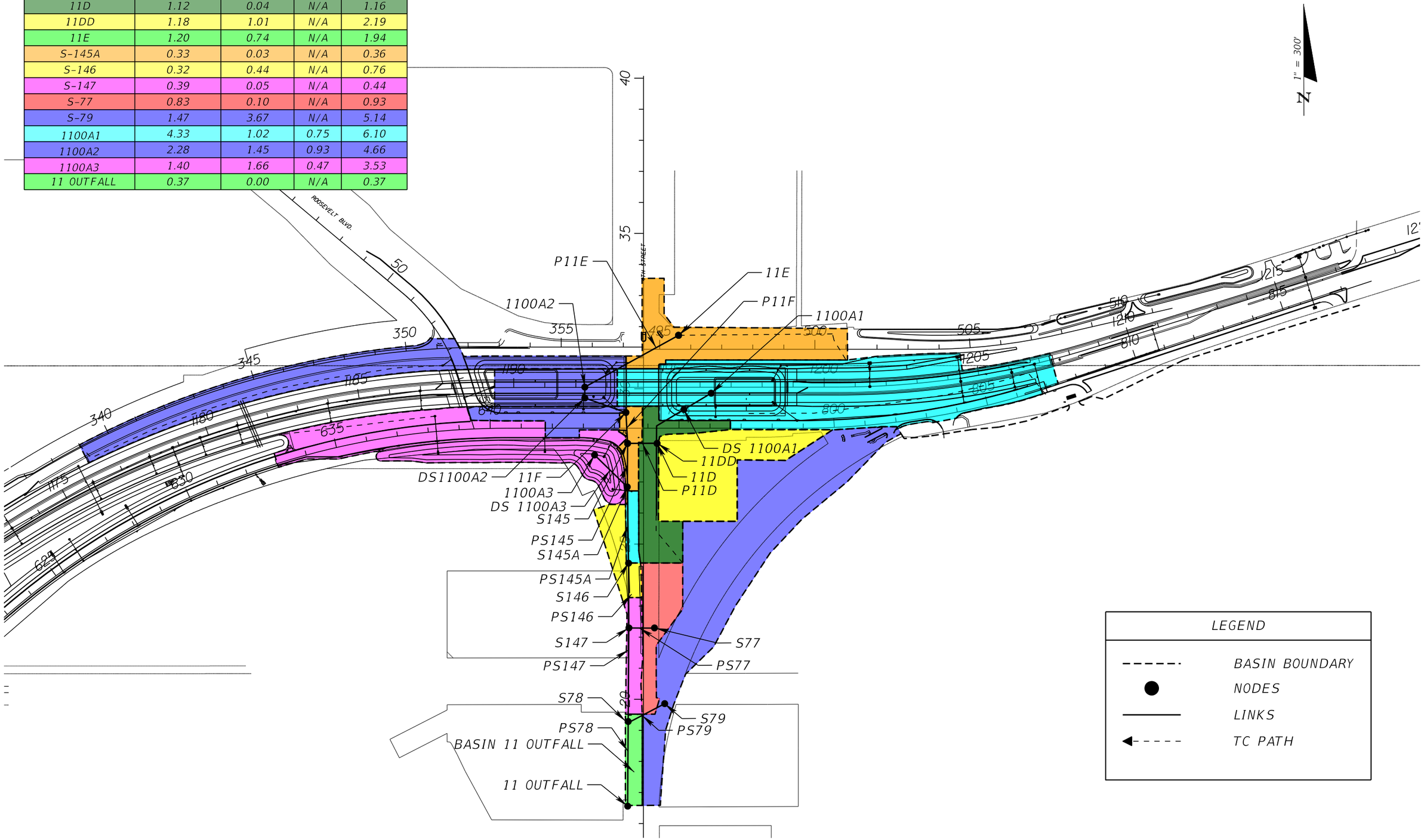
BASIN	IMPERVIOUS AREA (AC)	PERVIOUS AREA (AC)	WATER (AC)	TOTAL AREA (AC)
11D	1.12	0.04	N/A	1.16
11DD	1.18	1.01	N/A	2.19
11E	1.20	0.74	N/A	1.94
S-145A	0.33	0.03	N/A	0.36
S-146	0.32	0.44	N/A	0.76
S-147	0.39	0.05	N/A	0.44
S-77	0.83	0.10	N/A	0.93
S-79	1.47	3.67	N/A	5.14
1100A1	4.33	1.02	0.75	6.10
1100A2	2.28	1.45	0.93	4.66
1100A3	1.40	1.66	0.47	3.53
11 OUTFALL	0.37	0.00	N/A	0.37



REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

THE HEIMBURG GROUP, INC.
5461 W. WATERS AVENUE, SUITE 910
TAMPA, FL 33634
(813) 749-0823
C.A. NO. 00027842

ENGINEER OF RECORD:
STEPHAN HEIMBURG, P.E. NO. 41934

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
694	PINELLAS	256931-2-52-01

PROPOSED CONDITION BASIN 1100

SHEET NO.

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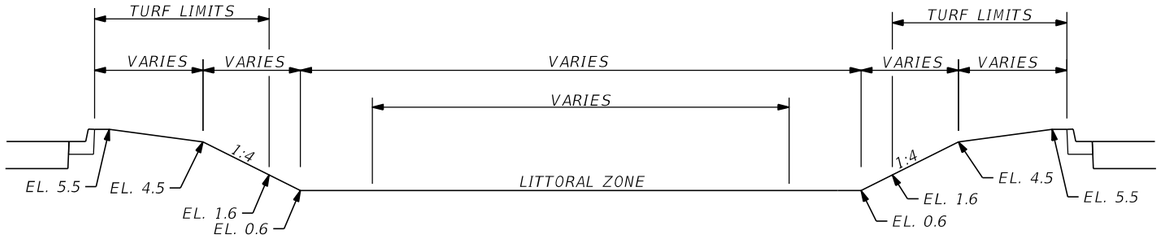
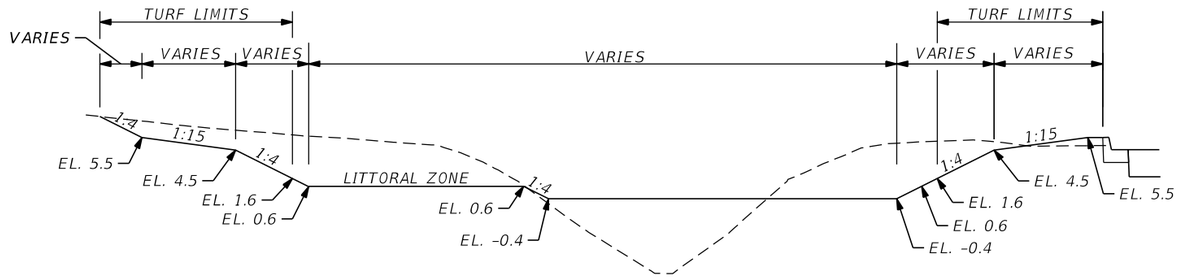


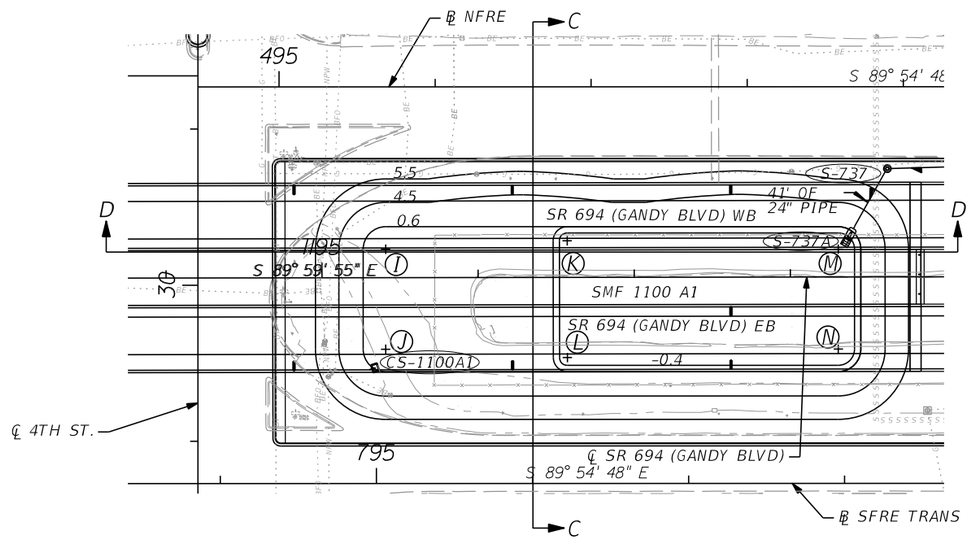
SECTION C-C
N.T.S.



SECTION D-D
N.T.S.

POND 1100 A1 DATA		
STAGE	ELEV	AREA (AC)
BACK OF BERM	5.5	1.32
TOP OF BANK	4.5	1.00
WEIR	2.1	0.80
CONTROL	1.6	0.75
LITTORAL	0.6	0.67
TOP OF SUMP	0.6	0.41
BOTTOM OF SUMP	-0.4	0.36

POND 1100 A1 DATA			
POINT	RADII (FT)	STA.	OFFSET
I	45	1195+40.75	18.23' LT
J	45	1195+40.66	45.77' RT
K	9	1196+57.06	23.46' LT
L	9	1196+57.06	51.34' RT
M	45	1198+30.80	17.80' LT
N	45	1198+30.71	46.20' RT



SMF 1100 A1

SWFWMD 25-YR, 24-HR DHW = 4.5
FDOT 100-YR, 8-HR DHW = 5.0
WEIR EL = 2.1
CONTROL EL = 1.6

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

THE HEIMBURG GROUP, INC.
5461 W. WATERS AVENUE, SUITE 910
TAMPA, FL 33634
(813) 749-0823
C.A. NO. 00027842

ENGINEER OF RECORD:
STEPHAN HEIMBURG, P.E. NO. 41934

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
694	PINELLAS	256931-2-52-01

SMF 1100 A1
POND DETAIL SHEET

SHEET NO.

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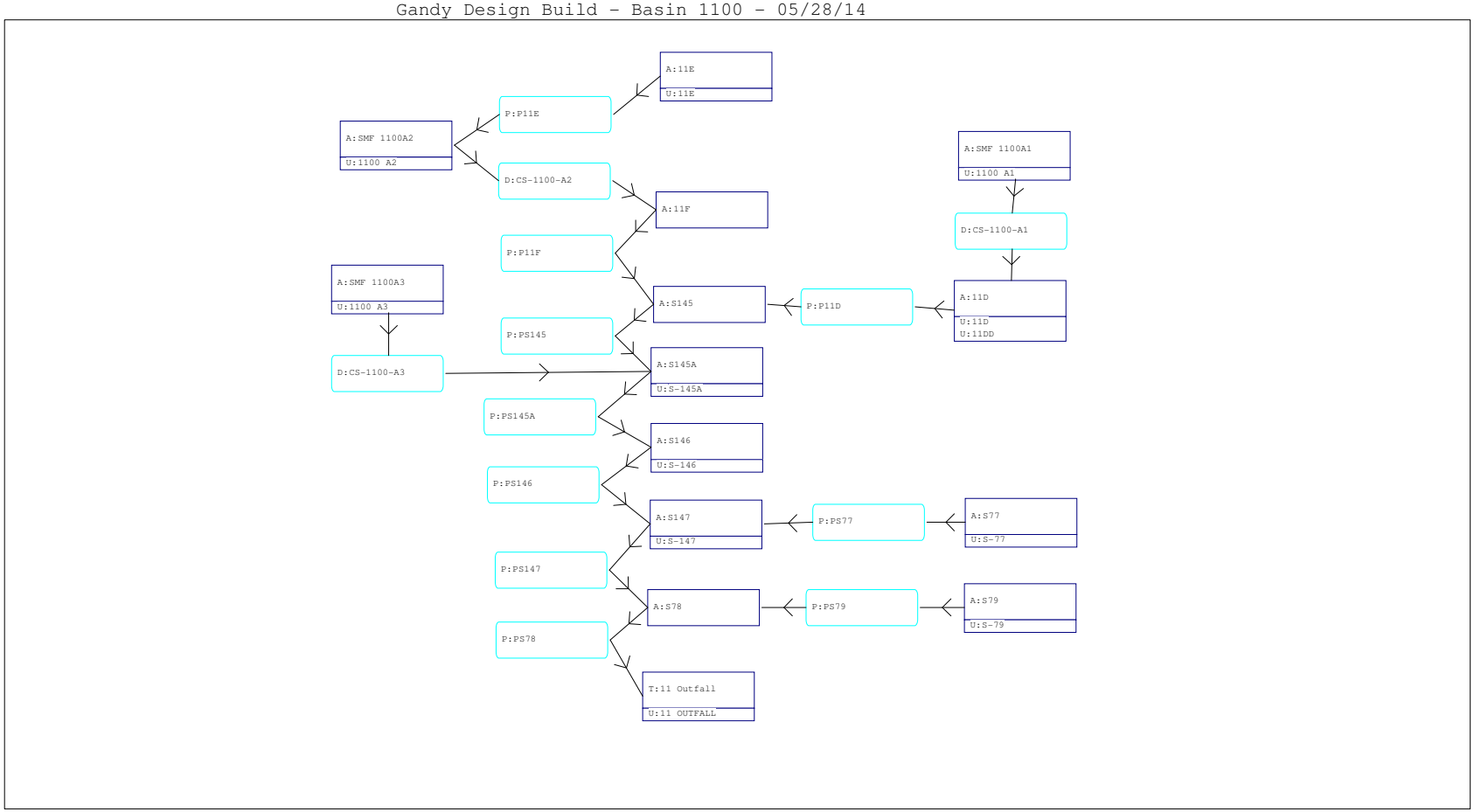
Nodes
A Stage/Area
V Stage/Volume
T Time/Stage
M Manhole

Basins
O Overland Flow
U SCS Unit CN
S SBUH CN
Y SCS Unit GA
Z SBUH GA

Links
P Pipe
W Weir
C Channel
D Drop Structure
B Bridge
R Rating Curve
H Breach
E Percolation
F Filter
X Exfil Trench

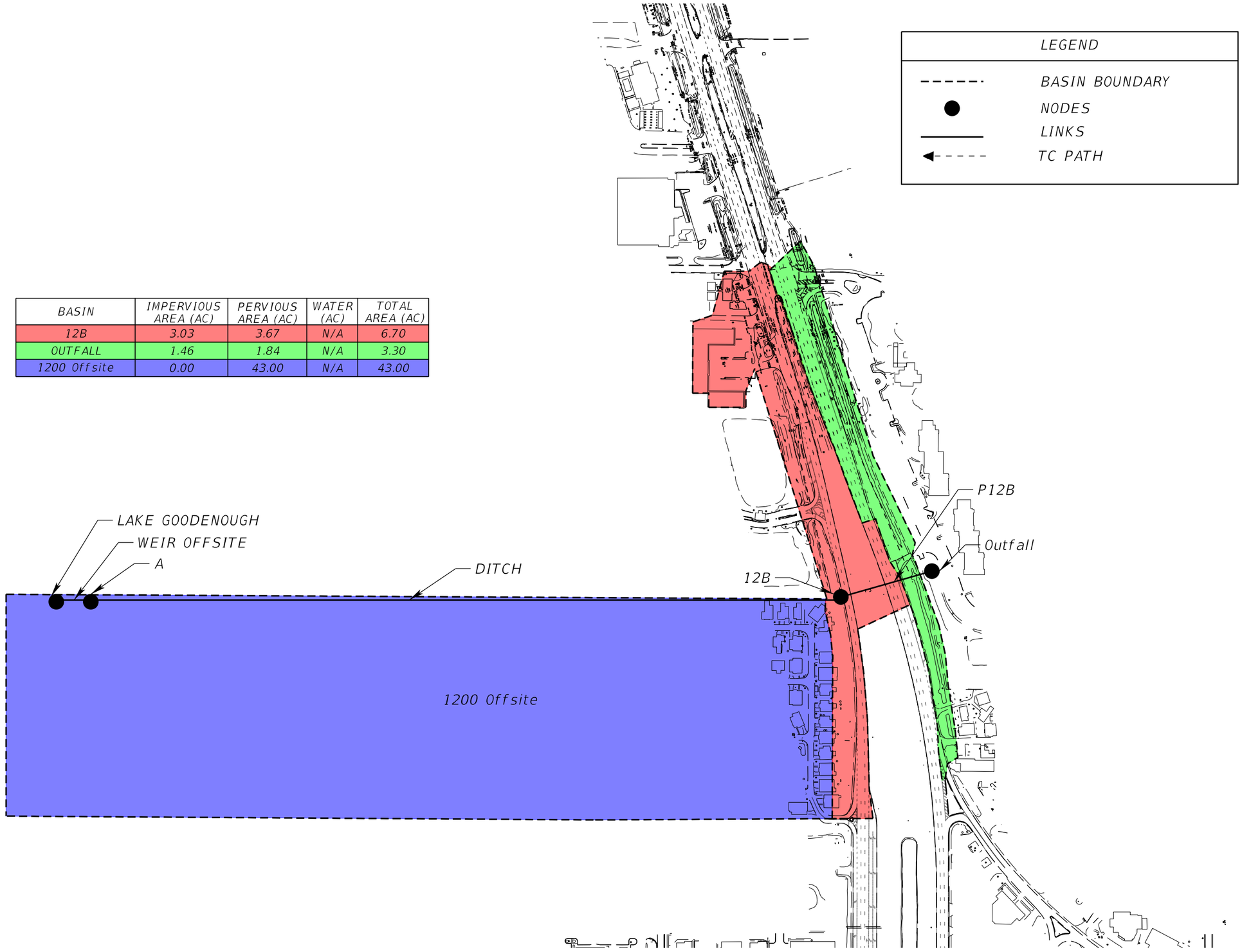


Name	Group	Simulation	Max Time Stage hrs	Max Stage ft	Warning Stage ft	Max Delta Stage ft	Max Surf Area ft2	Max Time Inflow hrs	Max Inflow cfs	Max Time Outflow hrs	Max Outflow cfs
S79	BASE	100Y024H	12.35	2.46	4.75	0.0011	5165	12.17	5.290	12.38	5.164
SMF 1100A1	BASE	010Y008H	5.14	3.86	4.50	0.0022	41222	4.00	15.155	5.70	6.017
SMF 1100A1	BASE	025Y024H	13.11	4.50	4.50	0.0028	43569	12.08	27.858	13.82	6.532
SMF 1100A1	BASE	100Y008H	5.35	5.04	4.50	0.0024	45513	4.00	22.717	7.69	7.107
SMF 1100A1	BASE	100Y024H	13.35	3.45	4.50	0.0010	39732	12.00	7.246	13.69	4.762
SMF 1100A2	BASE	010Y008H	6.05	3.91	4.50	0.0024	49923	4.08	13.640	6.47	3.713
SMF 1100A2	BASE	025Y024H	13.99	4.45	4.50	0.0028	52078	12.25	21.766	14.48	4.866
SMF 1100A2	BASE	100Y008H	5.68	4.83	4.50	0.0030	53618	4.08	20.858	6.32	7.501
SMF 1100A2	BASE	100Y024H	15.62	4.15	4.50	0.0011	50887	12.08	7.370	16.43	4.350
SMF 1100A3	BASE	010Y008H	6.16	4.86	5.40	0.0018	33937	4.00	8.664	6.16	1.201
SMF 1100A3	BASE	025Y024H	13.64	5.27	5.40	0.0020	36626	12.00	17.691	13.67	1.653
SMF 1100A3	BASE	100Y008H	5.18	5.52	5.40	0.0017	38266	4.00	13.281	5.18	3.730
SMF 1100A3	BASE	100Y024H	16.45	5.36	5.40	0.0011	37222	12.00	4.156	16.45	1.764

1" = 300'

N

BASIN	IMPERVIOUS AREA (AC)	PERVIOUS AREA (AC)	WATER (AC)	TOTAL AREA (AC)
12B	3.03	3.67	N/A	6.70
OUTFALL	1.46	1.84	N/A	3.30
1200 Offsite	0.00	43.00	N/A	43.00



REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

THE HEIMBURG GROUP, INC.
5461 W. WATERS AVENUE, SUITE 910
TAMPA, FL 33634
(813) 749-0823
C.A. NO. 00027842

ENGINEER OF RECORD:
STEPHAN HEIMBURG, P.E. NO. 41934

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
694	PINELLAS	256931-2-52-01

EXISTING CONDITIONS BASIN 1200

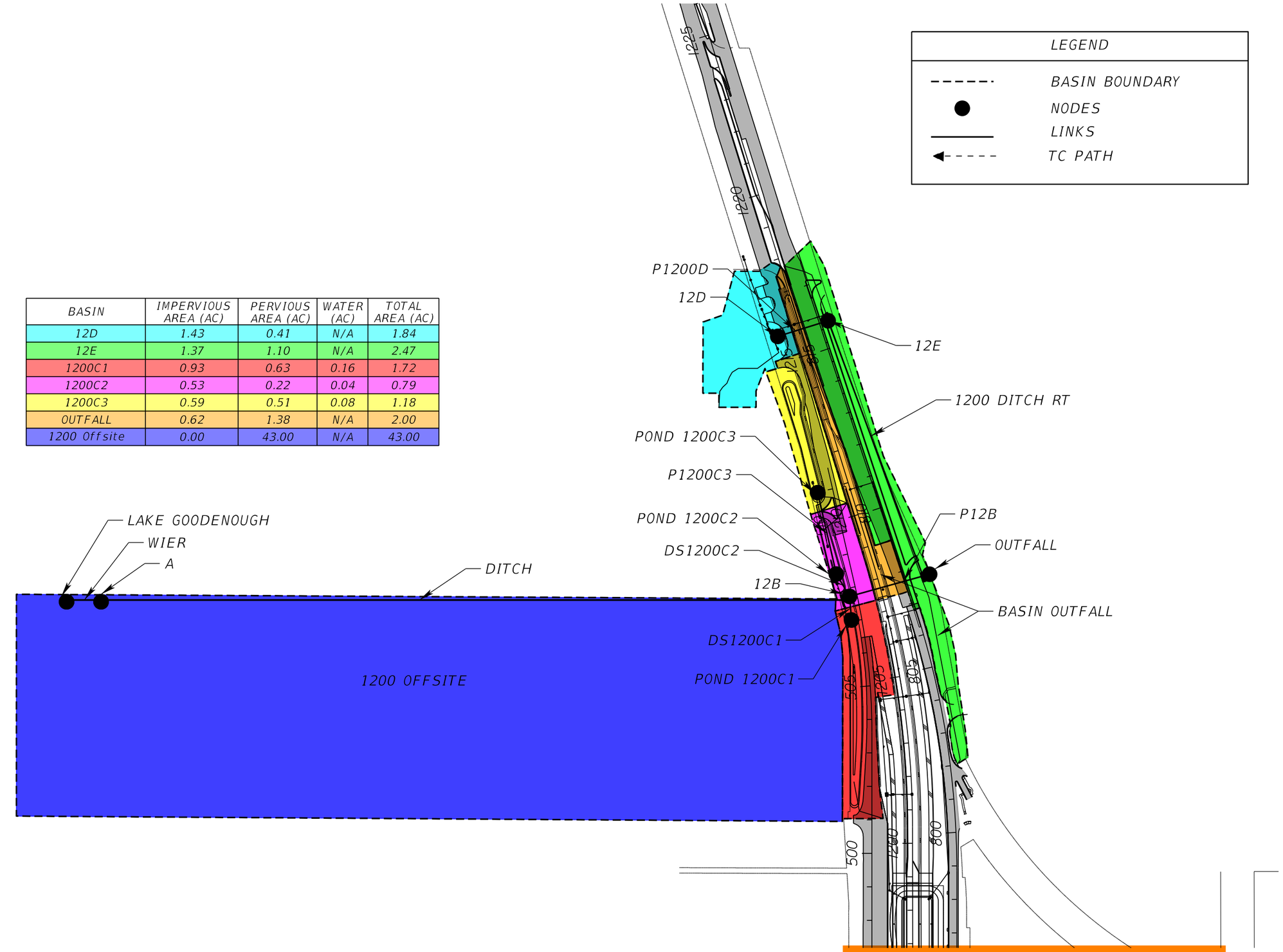
SHEET NO.

ptibma 5/2/2014 9:24:40 AM J:\PROJECTS - CADD\25693125201\drainage\DRDTRD212.DGN

1" = 300'

N

BASIN	IMPERVIOUS AREA (AC)	PERVIOUS AREA (AC)	WATER (AC)	TOTAL AREA (AC)
12D	1.43	0.41	N/A	1.84
12E	1.37	1.10	N/A	2.47
1200C1	0.93	0.63	0.16	1.72
1200C2	0.53	0.22	0.04	0.79
1200C3	0.59	0.51	0.08	1.18
OUTFALL	0.62	1.38	N/A	2.00
1200 Offsite	0.00	43.00	N/A	43.00



REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

THE HEIMBURG GROUP, INC.
5461 W. WATERS AVENUE, SUITE 910
TAMPA, FL 33634
(813) 749-0823
C.A. NO. 00027842

ENGINEER OF RECORD:
STEPHAN HEIMBURG, P.E. NO. 41934

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
694	PINELLAS	256931-2-52-01

PROPOSED CONDITION BASIN 1200

SHEET NO.

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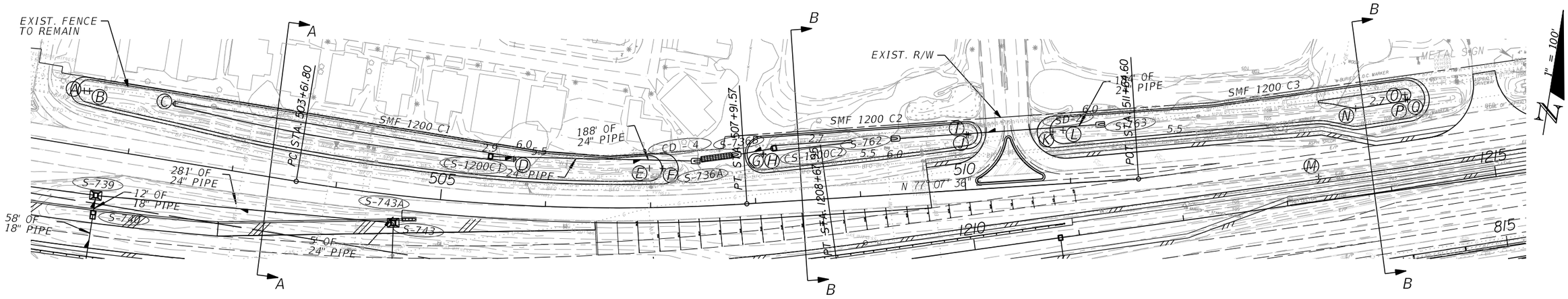


SMF 1200 C1

SWFWMD 25-YR, 24-HR DHW = 5.2
FDOT 100-YR, 8-HR DHW = 5.2
WEIR EL = 4.3
CONTROL EL = 3.9

POND 1200C1 DATA		
STAGE	ELEV	AREA (AC)
BACK OF BERM	6.0	0.44
TOP OF BANK	5.5	0.37
WEIR	4.3	0.21
CONTROL	3.9	0.16
LITTORAL	2.9	0.06

SMF 1200 C2

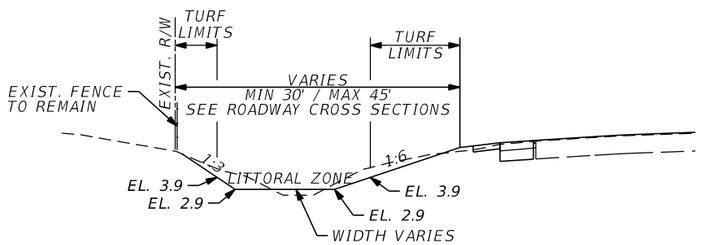
SWFWMD 25-YR, 24-HR DHW = 5.1
FDOT 100-YR, 8-HR DHW = 5.1
WEIR EL = 4.3
CONTROL EL = 3.7

POND 1200C2 DATA		
STAGE	ELEV	AREA (AC)
BACK OF BERM	6.0	0.16
TOP OF BANK	5.5	0.13
WEIR	4.3	0.07
CONTROL	3.7	0.04
LITTORAL	2.7	0.01

SMF 1200 C3

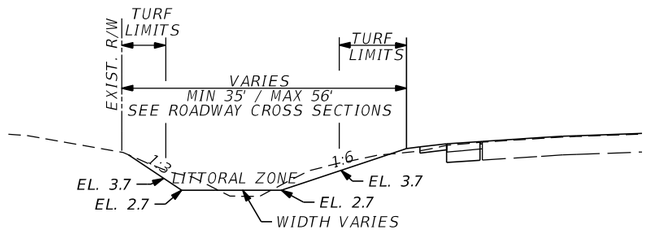
SWFWMD 25-YR, 24-HR DHW = 5.2
FDOT 100-YR, 8-HR DHW = 5.2
WEIR EL = 4.3
CONTROL EL. = 3.7

POND 1200C3 DATA		
STAGE	ELEV	AREA (AC)
BACK OF BERM	6.0	0.27
TOP OF BANK	5.5	0.22
WEIR	4.3	0.13
CONTROL	3.7	0.08
LITTORAL	2.7	0.02



SECTION A-A

N.T.S.



SECTION B-B

N.T.S.

POND 1200 C1, 1200 C2, AND 1200 C3 DATA			
POINT	RADII (FT)	STA.	OFFSET
A	13	1201+26.66	172.55' LT
B	11	1201+32.00	172.90' LT
C	2	1202+19.64	170.33' LT
D	2	1205+62.26	129.58' LT
E	12	1206+96.69	114.18' LT
F	15	1207+10.02	112.99' LT
G	15	1208+10.40	117.55' LT
H	18	1208+10.68	116.79' LT
I	11	1210+06.84	109.42' LT
J	13	1210+08.47	108.61' LT
K	15	1210+88.51	100.37' LT
L	13	1210+98.42	100.54' LT
M	50	1213+32.77	23.66' LT
N	20	1213+76.56	82.66' LT
O	6	1214+24.69	88.96' LT
P	18	1214+24.73	84.76' LT
Q	21	1214+26.72	84.01' LT

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

THE HEIMBURG GROUP, INC.
5461 W. WATERS AVENUE, SUITE 910
TAMPA, FL 33634
(813) 749-0823
C.A. NO. 00027842

ENGINEER OF RECORD:
STEPHAN HEIMBURG, P.E. NO. 41934

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
694	PINELLAS	256931-2-52-01

SMF 1200 C1, 1200 C2, & 1200 C3 POND DETAIL SHEET

SHEET NO.

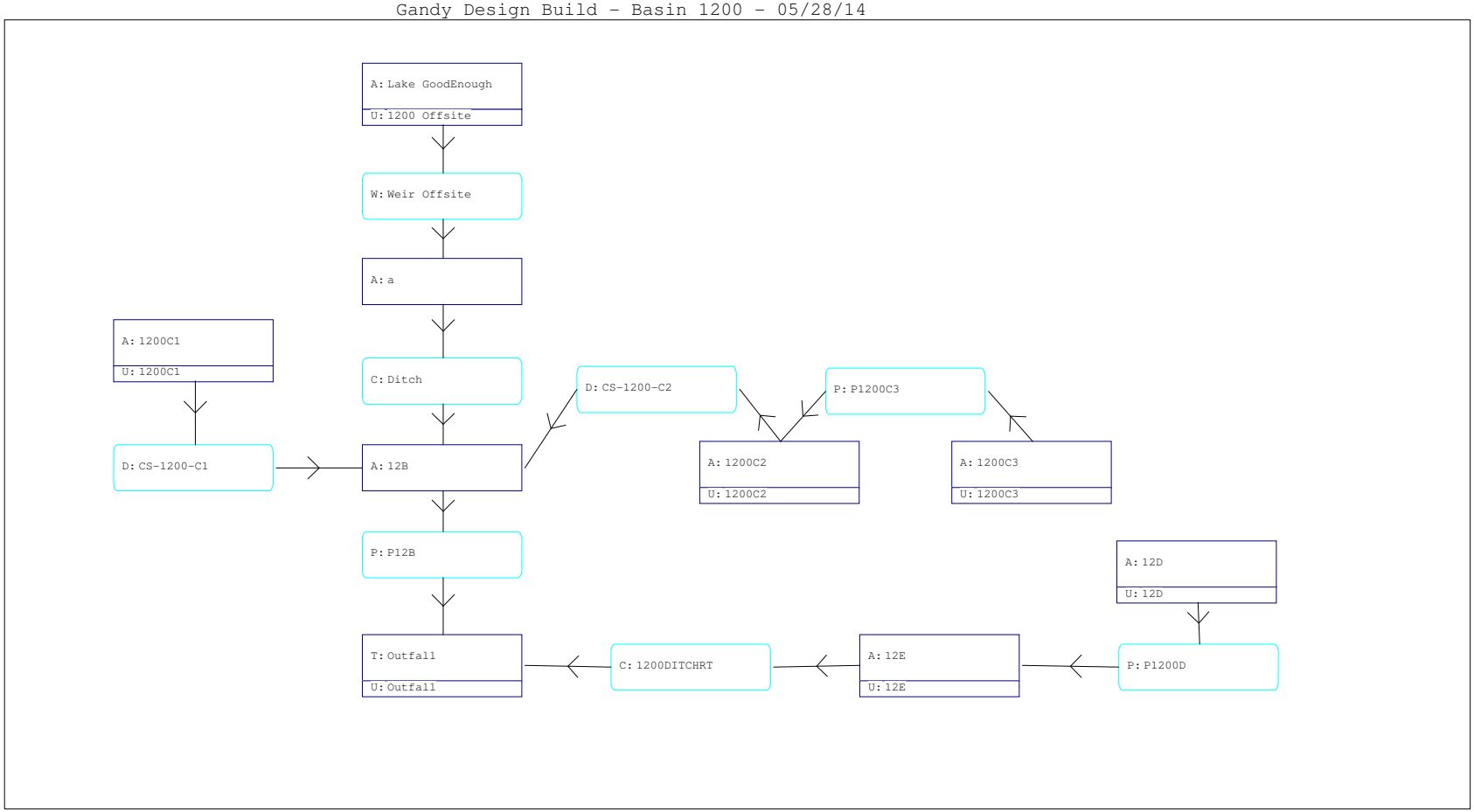
E-80

cheimburg 6/5/2014 8:29:44 AM J:\PROJECTS - CADD\25693125201\drainage\PDPLRD107.DGN

Nodes
A Stage/Area
V Stage/Volume
T Time/Stage
M Manhole

Basins
O Overland Flow
U SCS Unit CN
S SBUH CN
Y SCS Unit GA
Z SBUH GA

Links
P Pipe
W Weir
C Channel
D Drop Structure
B Bridge
R Rating Curve
H Breach
E Percolation
F Filter
X Exfil Trench



Name	Group	Simulation	Max Time Stage hrs	Max Stage ft	Warning Stage ft	Max Delta Stage ft	Max Surf Area ft2	Max Time Inflow hrs	Max Inflow cfs	Max Time Outflow hrs	Max Outflow cfs
1200C1	BASE	010Y008H	4.12	4.98	5.00	0.0001	13085	4.00	4.31	4.12	3.59
1200C1	BASE	025Y024H	12.34	5.22	5.00	0.0002	14477	12.00	8.76	12.34	5.64
1200C1	BASE	100Y008H	4.11	5.21	5.00	0.0001	14460	4.00	6.54	4.11	5.61
1200C1	BASE	100Y024H	12.10	4.75	5.00	-0.0000	11744	12.00	2.04	12.10	1.93
1200C2	BASE	010Y008H	4.09	4.90	5.00	0.0001	4352	4.00	4.53	4.09	4.42
1200C2	BASE	025Y024H	12.27	5.12	5.00	0.0002	4843	12.08	7.46	12.27	7.15
1200C2	BASE	100Y008H	4.08	5.09	5.00	0.0001	4781	4.00	6.93	4.08	6.79
1200C2	BASE	100Y024H	12.06	4.68	5.00	-0.0000	3883	12.00	2.28	12.06	2.26
1200C3	BASE	010Y008H	4.09	4.93	5.00	0.0001	7720	4.00	2.92	4.13	2.62
1200C3	BASE	025Y024H	12.29	5.21	5.00	0.0002	8627	12.00	5.95	12.33	4.24
1200C3	BASE	100Y008H	4.09	5.17	5.00	0.0001	8509	4.00	4.46	4.13	4.04
1200C3	BASE	100Y024H	12.06	4.69	5.00	-0.0000	6938	12.00	1.39	12.11	1.35
12B	BASE	010Y008H	6.44	3.70	5.00	0.0000	43541	6.27	30.83	6.44	30.78
12B	BASE	025Y024H	14.39	3.86	5.00	0.0000	45288	14.16	41.31	14.39	41.11
12B	BASE	100Y008H	6.36	4.09	5.00	0.0000	47395	6.05	53.26	6.36	52.82
12B	BASE	100Y024H	15.26	3.75	5.00	-0.0000	44100	15.11	34.68	15.26	34.64
12D	BASE	010Y008H	4.08	3.70	4.00	0.0000	247	4.08	4.06	4.08	4.06
12D	BASE	025Y024H	12.19	3.94	4.00	0.0002	209	12.17	6.67	12.17	6.65
12D	BASE	100Y008H	4.08	3.89	4.00	0.0001	219	4.08	6.14	4.08	6.13
12D	BASE	100Y024H	12.03	3.56	4.00	0.0001	260	12.00	2.11	12.00	2.11
12E	BASE	010Y008H	4.09	3.61	4.00	-0.0000	5742	4.08	9.22	4.09	9.19
12E	BASE	025Y024H	12.22	3.75	4.00	0.0001	5933	12.17	15.31	12.22	15.12
12E	BASE	100Y008H	4.09	3.72	4.00	0.0000	5899	4.08	14.13	4.09	14.09
12E	BASE	100Y024H	12.05	3.54	4.00	0.0000	5627	12.00	4.89	12.05	4.89
a	BASE	010Y008H	6.47	5.36	5.00	0.0002	45446	5.48	31.51	6.47	29.23
a	BASE	025Y024H	14.31	5.90	5.00	0.0002	48524	13.14	42.97	14.30	39.36
a	BASE	100Y008H	6.22	6.43	5.00	0.0002	51643	5.45	54.32	6.20	50.61
a	BASE	100Y024H	15.34	5.52	5.00	0.0001	46385	14.31	32.30	15.35	32.05
Lake GoodEnough	BASE	010Y008H	6.43	5.44	5.00	0.0001	104544	4.42	54.47	5.48	31.51
Lake GoodEnough	BASE	025Y024H	14.27	6.00	5.00	0.0002	104544	12.58	83.81	13.14	42.97
Lake GoodEnough	BASE	100Y008H	6.18	6.54	5.00	0.0002	104544	4.42	89.21	5.45	54.32
Lake GoodEnough	BASE	100Y024H	15.30	5.61	5.00	0.0001	104544	12.42	40.46	14.31	32.30
Outfall	BASE	010Y008H	0.00	3.50	3.60	0.0000	5880	5.19	33.94	0.00	0.00
Outfall	BASE	025Y024H	0.00	3.50	3.60	0.0000	5880	12.41	44.79	0.00	0.00
Outfall	BASE	100Y008H	0.00	3.50	3.60	0.0000	5880	6.08	57.02	0.00	0.00
Outfall	BASE	100Y024H	0.00	3.50	3.60	0.0000	5880	15.08	39.10	0.00	0.00

PERMIT NO. 1764.000

Pelican Sound

CONTRACTOR, SEE TOPOGRAPHY AND TREE SURVEY PLAN FOR LOCATION OF EROSION CONTROL DEVICES

NOTE: SEE OFF-SITE IMPROVEMENT PLAN FOR LOCATION OF EXISTING UTILITIES

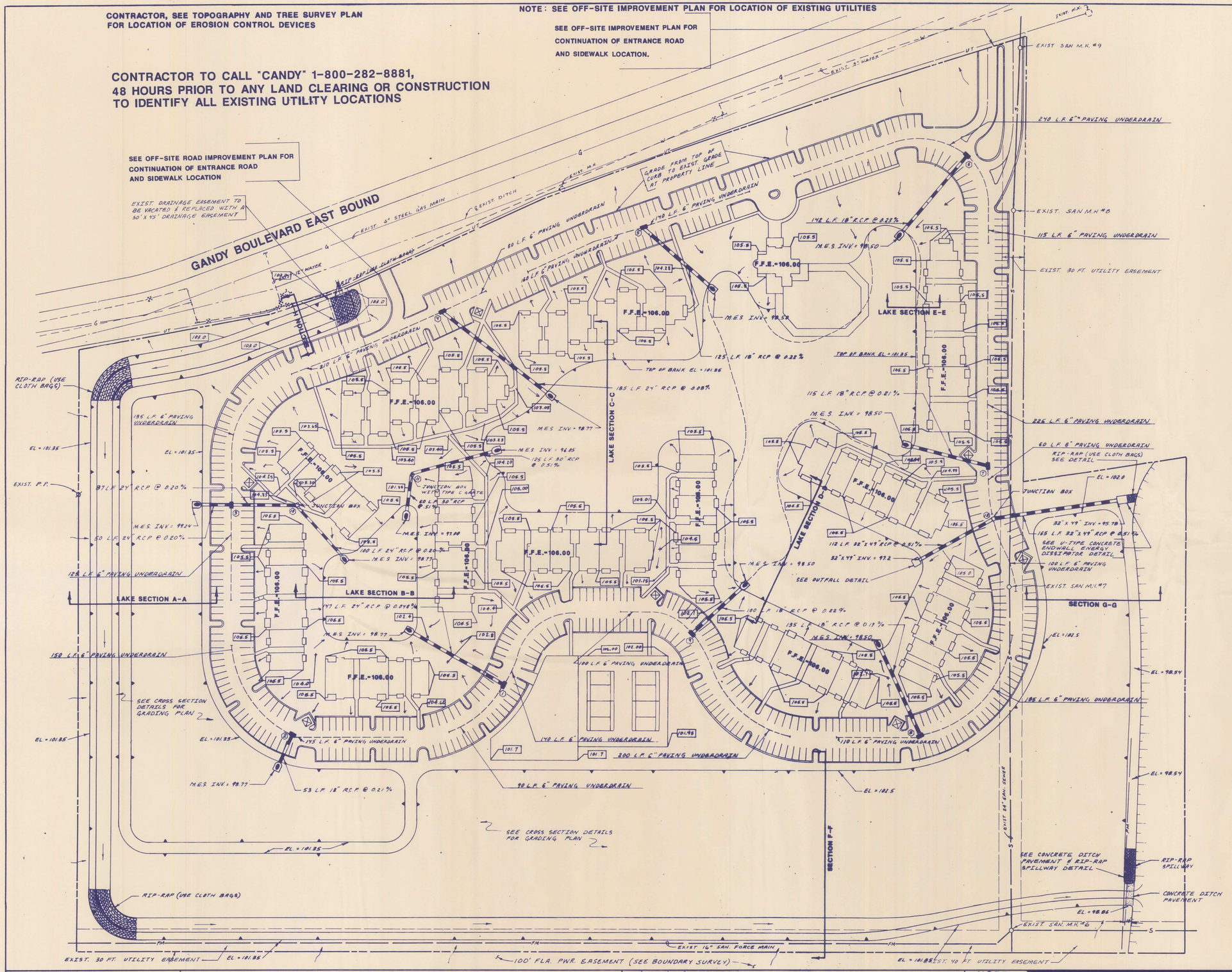
SEE OFF-SITE IMPROVEMENT PLAN FOR CONTINUATION OF ENTRANCE ROAD AND SIDEWALK LOCATION.

CONTRACTOR TO CALL "CANDY" 1-800-282-8881, 48 HOURS PRIOR TO ANY LAND CLEARING OR CONSTRUCTION TO IDENTIFY ALL EXISTING UTILITY LOCATIONS

SEE OFF-SITE ROAD IMPROVEMENT PLAN FOR CONTINUATION OF ENTRANCE ROAD AND SIDEWALK LOCATION

EXIST. DRAINAGE EASEMENT TO BE VACATED & REPLACED WITH A 50' X 95' DRAINAGE EASEMENT

GANDY BOULEVARD EAST BOUND



LEGEND

EXISTING:

- WATERMAIN
- ELEVATION
- STORMSEWER
- SANITARY SEWER

PROPOSED:

- WATER METER & SERVICE
- ELEVATION
- WATERMAIN & HYDRANT
- STORM SEWER
- ASPHALT PAVEMENT
- PROPERTY LINE
- DIRECTION OF STORMWATER RUNOFF
- EROSION CONTROL BARRIER
- SANITARY LATERAL WITH CLEANOUT
- CONCRETE FLUME
- SANITARY SEWER
- SIDEWALK

STORM SEWER INDEX

STRUCT. NO.	STRUCT. TYPE	TOP EL.	N. INV.	S. INV.	E. INV.	W. INV.
1	GRATE TYPE E	101.84	98.84	—	—	—
2	GRATE TYPE E	101.89	98.88	—	—	—
3	GRATE TYPE E	102.14	—	—	99.14	99.14
4	GRATE TYPE E	101.92	—	98.92	—	—
5	GRATE TYPE E	101.77	—	98.77	—	—
6	GRATE TYPE E	101.82	—	—	—	98.82
7	GRATE TYPE E	101.74	—	—	—	98.74
8	GRATE TYPE E	101.76	98.76	—	—	—
9	GRATE TYPE E	101.72	—	—	98.72	—
10	JUNCTION BOX	105.14	—	98.97	—	98.97
11	JUNCTION BOX	101.35	96.69	96.69	—	—
12	JUNCTION BOX	102.28	—	—	96.62	96.62

NOTES

1. ALL ELEVATIONS REFER TO N.G.V.D. OF 1929. MEAN SEA LEVEL = 0.00, SEA LEVEL DATUM. CITY OF ST. PETERSBURG DATUM = 97.0 = MEAN SEA LEVEL = 0.00.

   BENCHMARK: PINELLAS COUNTY BENCHMARK (GANDY D) UNADJUSTED ELEVATION = 5.591 NGVD OF 1929, MEAN SEA LEVEL = 0.00.
2. ALL WORK TO BE DONE ACCORDING TO CITY OF ST. PETERSBURG STANDARDS AND SPECIFICATIONS.
3. ALL DISTURBED AREAS WITHIN PUBLIC RIGHT-OF-WAY ARE TO BE RESTORED TO ORIGINAL CONDITION OR BETTER.
4. CONTRACTOR TO NOTIFY THE ENGINEER OF ANY DISCREPANCIES BETWEEN THE PLANS AND FIELD CONDITIONS.
5. CONTRACTOR TO CALL "CANDY" 1-800-282-8881, 48 HOURS PRIOR TO ANY CONSTRUCTION FOR UTILITY LOCATIONS.
6. ALL UTILITY LOCATIONS SHOWN ARE APPROXIMATE. CONTRACTOR TO VERIFY ALL LOCATIONS BEFORE BEGINNING WORK.
7. THE CONTRACTOR SHALL PROVIDE ALL BRACING, SHEETING OR SHORING NECESSARY TO CONSTRUCT AND PROTECT ANY EXCAVATION AGAINST COLLAPSING. TRENCHES SHALL BE KEPT DRY WHILE PIPE IS LAID. DEWATERING SHALL BE PROVIDED WHERE NECESSARY.
8. ALL PIPE SHALL BE PLACED ON DRY, UNDISTURBED SOIL. WET UNSUITABLE MATERIAL SHALL BE REPLACED WITH COMPACTED SELECTED BACKFILL MATERIAL.

POOR ORIGINAL

401764 00

5

OWNER	PROJECT NAME	REVISIONS	NORTH
PROPERTY COMPANY OF AMERICA 2431 EAST 61st STREET SUITE 800 TULSA, OKLAHOMA 74136	SEC. 18&19 TWP. 30 RNG. 17 **PELICAN SOUND** **DRAINAGE & GRADING PLAN**	NO. DATE BY	N

PEER

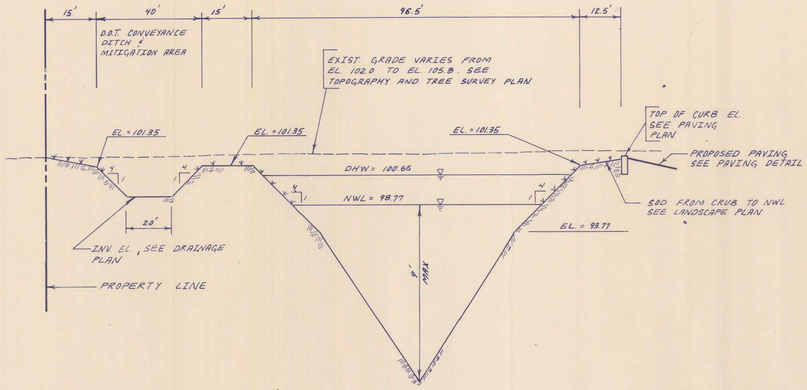
PROFESSIONAL ENGINEERING RESOURCES, INC.

CIVIL ENGINEERS · PLANNERS · PERMIT EXPEDITORS

4930 PARK BOULEVARD, PINELLAS PARK, FLORIDA, 33565, 813-545-9818

PROJECT NO.	DESIGNED BY	DRAWN BY	CHECKED BY	DATE	SCALE		APPROVED	SHEET NO.
86-132	PVS	MJ	PVS	12/4/86	1"=60'	☒ PRELIMINARY ☐ CONSTRUCTION ☐ RECORD DRAWING	401764 00 PAUL V. SHERMA, REG. NO. 35628	3

AF 44242A



LAKE SECTION A-A
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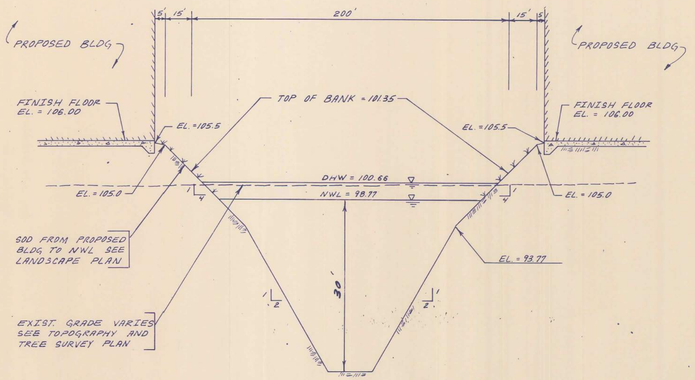
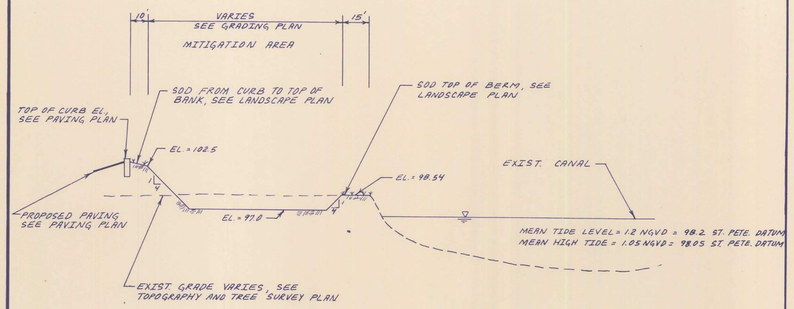
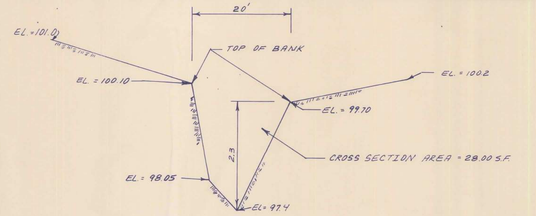


LAKE SECTION C-C
N.T.S.



SECTION G-G
N.T.S.



SECTION A-A
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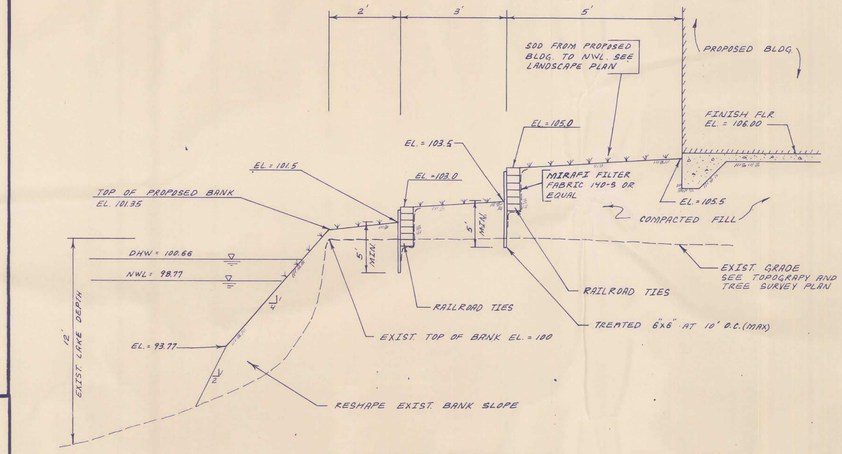
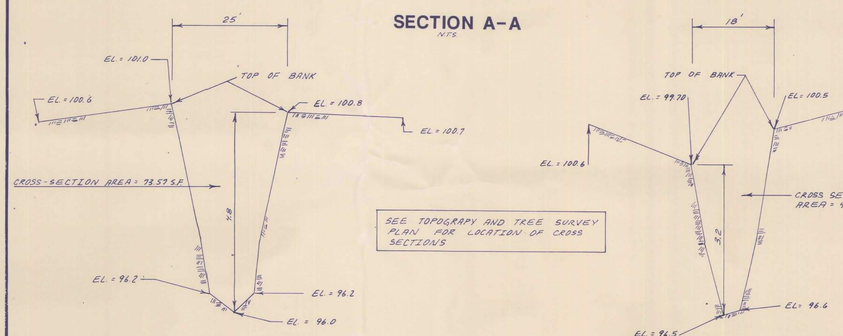
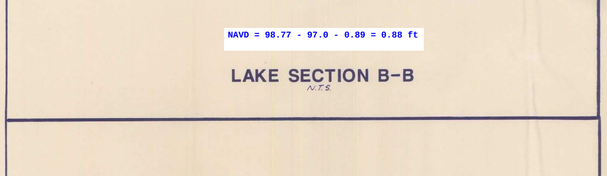


LAKE SECTION E-E
N.T.S.



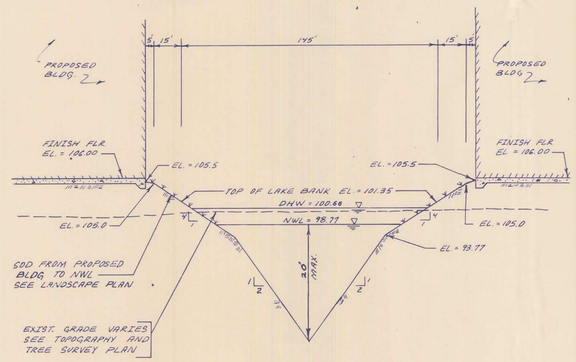
SECTION B-B
N.T.S.

SECTION C-C
N.T.S.

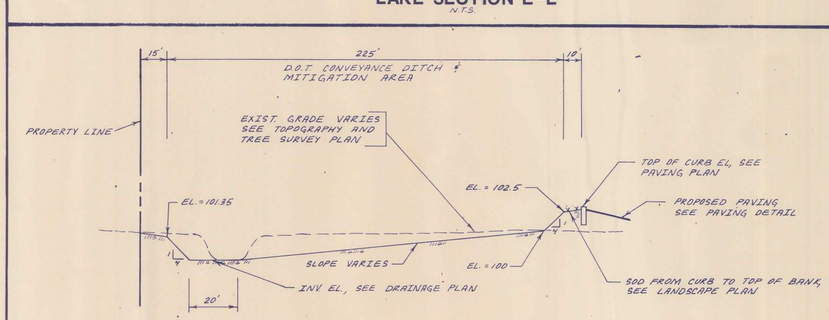


NAVD = 98.77 - 97.0 - 0.89 = 0.88 ft

LAKE SECTION B-B
N.T.S.



LAKE SECTION D-D
N.T.S.



SECTION F-F
N.T.S.

EXIST. ON-SITE D.O.T. DITCH CROSS-SECTIONS

POOR ORIGINAL

14

OWNER	PROJECT NAME	SEC.___ TWP.___ RNG.___	NO.	DATE	BY	REVISIONS	NORTH
PROPERTY COMPANY OF AMERICA 2431 EAST 61st STREET SUITE 800 TULSA, OKLAHOMA 74136	**PELICAN SOUND** PAVING & GRADING DETAILS						N.A.

PEER
PROFESSIONAL ENGINEERING RESOURCES, INC.
CIVIL ENGINEERS · PLANNERS · PERMIT EXPEDITORS
4930 PARK BOULEVARD, PINELLAS PARK, FLORIDA, 33565, 813-545-9818

PROJECT NO.	DESIGNED BY	DRAWN BY	CHECKED BY	DATE	SCALE:	APPROVED	SHEET NO.
86-132					N.A.	☑ PRELIMINARY ☐ CONSTRUCTION ☐ RECORD DRAWING	401764 -08 PAUL V. SHERMA, REG. NO. 35628	14

PERMIT NO. 23680.000

Channel 10 Parking Expansion

Southwest Florida Water Management District
2379 Broad Street, Brooksville, Florida 34604-6899
(352) 796-7211 or 1-800-423-1476 (FL only)
SUNCOM 628-4150 TDD only 1-800-231-6103 (FL only)
On the Internet at: WaterMatters.org

An Equal Opportunity Employer

Bartow Service Office
170 Century Boulevard
Bartow, Florida 33830-7700
(863) 534-1448 or
1-800-492-7862 (FL only)

Sarasota Service Office
6750 Fruitville Road
Sarasota, Florida 34240-9711
(941) 377-3722 or
1-800-320-3503 (FL only)

Tampa Service Office
7601 Highway 301 North
Tampa, Florida 33637-6759
(813) 985-7481 or
1-800-836-0797 (FL only)

February 02, 2015

Pacific and Southern Company, Inc.
Attn: Elliott Wiser
11450 Gandy Boulevard North
St. Petersburg, FL 33702

Subject: **Notice of Intended Agency Action - Approval**
ERP Individual Construction

Project Name:	WTSP - Channel 10 Parking Lot Modifications
App ID/Permit No:	705134 / 43023680.001
County:	PINELLAS
Sec/Twp/Rge:	S17/T30S/R17E

Dear Permittee(s):

The Southwest Florida Water Management District (District) has completed its review of the application for Environmental Resource Permit. Based upon a review of the information you have submitted, the District hereby gives notice of its intended approval of the application.

The File of Record associated with this application can be viewed at http://www18.swfwmd.state.fl.us/erp/erp/search/ERPSearch.aspx and is also available for inspection Monday through Friday, except for District holidays, from 8:00 a.m. through 5:00 p.m. at the District's Tampa Service Office, 7601 U.S. Highway 301 North, Tampa, Florida 33637.

If you have any questions or concerns regarding the application or any other information, please contact the Environmental Resource Permit Bureau in the Tampa Service Office.

Sincerely,

Michelle K. Hopkins, P.E.
Bureau Chief
Environmental Resource Permit Bureau
Regulation Division

cc: J. Heath Johnson, P.E., Water Resource Associates, Inc.

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2379 Broad Street, Brooksville, Florida 34604-6899
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February 02, 2015

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Attn: Elliott Wiser
11450 Gandy Boulevard North
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ERP Individual Construction

Project Name:	WTSP - Channel 10 Parking Lot Modifications
App ID/Permit No:	705134 / 43023680.001
County:	PINELLAS
Sec/Twp/Rge:	S17/T30S/R17E

Dear Permittee(s):

The Southwest Florida Water Management District (District) is in receipt of your application for the Environmental Resource Permit. Based upon a review of the information you submitted, the application is approved. Please refer to the attached Notice of Rights to determine any legal rights you may have concerning the District's agency action on the permit application described in this letter.

If approved construction plans are part of the permit, construction must be in accordance with these plans. These drawings are available for viewing or downloading through the District's Application and Permit Search Tools located at www.WaterMatters.org/permits.

The District's action in this matter only becomes closed to future legal challenges from members of the public if such persons have been properly notified of the District's action and no person objects to the District's action within the prescribed period of time following the notification. The District does not publish notices of agency action. If you wish to limit the time within which a person who does not receive actual written notice from the District may request an administrative hearing regarding this action, you are strongly encouraged to publish, at your own expense, a notice of agency action in the legal advertisement section of a newspaper of general circulation in the county or counties where the activity will occur. Publishing notice of agency action will close the window for filing a petition for hearing. Legal requirements and instructions for publishing notices of agency action, as well as a noticing form that can be used, are available from the District's website at www.WaterMatters.org/permits/noticing. If you publish notice of agency action, a copy of the affidavit of publication provided by the newspaper should be sent to the District's Tampa Service Office for retention in this permit's File of Record.

If you have any questions or concerns regarding your permit or any other information, please contact the Environmental Resource Permit Bureau in the Tampa Service Office.

Sincerely,

Michelle K. Hopkins, P.E.
Bureau Chief
Environmental Resource Permit Bureau
Regulation Division

Enclosures: Approved Permit w/Conditions Attached
As-Built Certification and Request for Conversion to Operation Phase
Notice of Authorization to Commence Construction
Notice of Rights

cc: J. Heath Johnson, P.E., Water Resource Associates, Inc.

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
ENVIRONMENTAL RESOURCE

INDIVIDUAL CONSTRUCTION
PERMIT NO. 43023680.001

EXPIRATION DATE: **February 02, 2020** **PERMIT ISSUE DATE:** **February 02, 2015**

This permit is issued under the provisions of Chapter 373, Florida Statutes, (F.S.), and the Rules contained in Chapter 62-330, Florida Administrative Code, (F.A.C.). The permit authorizes the Permittee to proceed with the construction of a surface water management system in accordance with the information outlined herein and shown by the application, approved drawings, plans, specifications, and other documents, attached hereto and kept on file at the Southwest Florida Water Management District (District). Unless otherwise stated by permit specific condition, permit issuance constitutes certification of compliance with state water quality standards under Section 401 of the Clean Water Act, 33 U.S.C. 1341. All construction, operation and maintenance of the surface water management system authorized by this permit shall occur in compliance with Florida Statutes and Administrative Code and the conditions of this permit.

PROJECT NAME:	WTSP - Channel 10 Parking Lot Modifications
GRANTED TO:	Pacific and Southern Company, Inc. Attn: Elliott Wiser 11450 Gandy Boulevard North St. Petersburg, FL 33702
OTHER PERMITTEES:	N/A

ABSTRACT: This permit authorization is for the modification of an existing unpermitted storm water management system to serve a television station parking lot expansion. The proposed project is to construct additional parking for the TV station, construct two swales to convey runoff to the pond, and modify the pond to meet current District rule. Treatment is provided by wet detention for the existing and proposed areas of the property; the post-development peak discharge rate from the pond will not exceed the pre-development peak discharge rate from the pond for a 25-year/24-hour storm event. The project discharges to WBID 1624 - Direct Runoff to Bay (Roosevelt Basin Marine), a water body that is verified as impaired for dissolved oxygen (nutrients) and Nutrients (Chlorophyll-a and Historic Chlorophyll-a); therefore, water quality certification is waived as a condition of this permit. The applicant's engineer of record has demonstrated through calculations that the District's presumptive criteria governs for the required water quality treatment volume. No wetlands or other surface waters exist within the project area. The project is located on the north side of Gandy Boulevard at the intersection of San Fernando Boulevard Northeast in the city of St. Petersburg, Florida.

OP. & MAIN. ENTITY:	Pacific and Southern Company, Inc.
OTHER OP. & MAIN. ENTITY:	N/A
COUNTY:	PINELLAS
SEC/TWP/RGE:	S17/T30S/R17E
TOTAL ACRES OWNED OR UNDER CONTROL:	7.13
PROJECT SIZE:	2.00 Acres
LAND USE:	Commercial
DATE APPLICATION FILED:	November 24, 2014
AMENDED DATE:	N/A

I. Water Quantity/Quality

POND No.	Area Acres @ Top of Bank	Treatment Type
Pond	0.68	MAN-MADE WET DETENTION
	Total: **0.68**	

Water Quantity/Quality Comments:

Treatment is provided by wet detention for the existing and proposed areas of the property.
The post-development peak discharge rate from the pond will not exceed the pre-development peak discharge rate from the pond for a 25-year/24-hour storm event.
The project discharges to WBID 1624 - Direct Runoff to Bay (Roosevelt Basin Marine), a water body that is verified as impaired for dissolved oxygen (nutrients) and Nutrients (Chlorophyll-a and Historic Chlorophyll-a); therefore, water quality certification is waived as a condition of this permit.
The applicant's engineer of record has demonstrated through calculations that the District's presumptive criteria governs for the required water quality treatment volume.
A mixing zone is not required.
A variance is not required.

II. 100-Year Floodplain

Encroachment (Acre-Feet of fill)	Compensation (Acre-Feet of excavation)	Compensation Type	Encroachment Result* (feet)
0.00	0.00	No Encroachment	N/A

*****Depth of change in flood stage (level) over existing receiving water stage resulting from floodplain encroachment caused by a project that claims Minimal Impact type of compensation.

III. Environmental Considerations

No wetlands or other surface waters exist within the project area.

Specific Conditions

1. If the ownership of the project area covered by the subject permit is divided, with someone other than the Permittee becoming the owner of part of the project area, this permit may be terminated, unless the terms of the permit are modified by the District or the permit is transferred pursuant to Rule 40D-1.6105, F.A.C. In such situations, each land owner shall obtain a permit (which may be a modification of this permit) for the land owned by that person. This condition shall not apply to the division and sale of lots or units in residential subdivisions or condominiums.

2. The Permittee shall retain the design professional registered or licensed in Florida, to conduct on-site observations of construction and assist with the as-built certification requirements of this project. The Permittee shall inform the District in writing of the name, address and phone number of the design professional so employed. This information shall be submitted prior to construction.

3. Certification of compliance with state water quality standards under Section 401 of the Clean Water Act, 33 U.S.C. 1341 is waived.

4. If limestone bedrock is encountered during construction of the stormwater management system, the District must be notified and construction in the affected area shall cease.

5. The Permittee shall notify the District of any sinkhole development in the stormwater management system within 48 hours of discovery and must submit a detailed sinkhole evaluation and repair plan for approval by the District within 30 days of discovery.

6. The Permitted Plan Set for this project includes the set received by the District on January 15, 2015.

7. The operation and maintenance entity shall provide for the inspection of the permitted project after conversion of the permit to the operation and maintenance phase. For systems utilizing retention or wet detention, the inspections shall be performed five (5) years after operation is authorized and every five (5) years thereafter.

   The operation and maintenance entity must maintain a record of each inspection, including the date of inspection, the name and contact information of the inspector, whether the system was functioning as designed and permitted, and make such record available upon request of the District.

   Within 30 days of any failure of a stormwater management system or deviation from the permit, an inspection report shall be submitted using Form 62-330.311(1), “Operation and Maintenance Inspection Certification” describing the remedial actions taken to resolve the failure or deviation.

8. District staff must be notified in advance of any proposed construction dewatering. If the dewatering activity is likely to result in offsite discharge or sediment transport into wetlands or surface waters, a written dewatering plan must either have been submitted and approved with the permit application or submitted to the District as a permit prior to the dewatering event as a permit modification. A water use permit may be required prior to any use exceeding the thresholds in Chapter 40D-2, F.A.C.

9. Off-site discharges during construction and development shall be made only through the facilities authorized by this permit. Water discharged from the project shall be through structures having a mechanism suitable for regulating upstream stages. Stages may be subject to operating

schedules satisfactory to the District.

10. The permittee shall complete construction of all aspects of the stormwater management system, including wetland compensation (grading, mulching, planting), water quality treatment features, and discharge control facilities prior to beneficial occupancy or use of the development being served by this system.

11. The following shall be properly abandoned and/or removed in accordance with the applicable regulations:

    a. Any existing wells in the path of construction shall be properly plugged and abandoned by a licensed well contractor.

    b. Any existing septic tanks on site shall be abandoned at the beginning of construction.

    c. Any existing fuel storage tanks and fuel pumps shall be removed at the beginning of construction

12. All stormwater management systems shall be operated to conserve water in order to maintain environmental quality and resource protection; to increase the efficiency of transport, application and use; to decrease waste; to minimize unnatural runoff from the property and to minimize dewatering of offsite property.

13. This permit is valid only for the specific processes, operations and designs indicated on the approved drawings or exhibits submitted in support of the permit application. Any substantial deviation from the approved drawings, exhibits, specifications or permit conditions, including construction within the total land area but outside the approved project area(s), may constitute grounds for revocation or enforcement action by the District, unless a modification has been applied for and approved. Examples of substantial deviations include excavation of ponds, ditches or sump areas deeper than shown on the approved plans.

14. A “Recorded notice of Environmental Resource Permit,” Form No. 62-330.090(1), shall be recorded in the public records of the County(s) where the project is located.

GENERAL CONDITIONS

1. The general conditions attached hereto as Exhibit "A” are hereby incorporated into this permit by reference and the Permittee shall comply with them.

Michelle K. Hopkins, P.E.

Authorized Signature

EXHIBIT A

GENERAL CONDITIONS:

1 The following general conditions are binding on all individual permits issued under this chapter, except where the conditions are not applicable to the authorized activity, or where the conditions must be modified to accommodate, project-specific conditions.

a. All activities shall be implemented following the plans, specifications and performance criteria approved by this permit. Any deviations must be authorized in a permit modification in accordance with Rule 62-330.315, F.A.C., or the permit may be revoked and the permittee may be subject to enforcement action.

b. A complete copy of this permit shall be kept at the work site of the permitted activity during the construction phase, and shall be available for review at the work site upon request by the Agency staff. The permittee shall require the contractor to review the complete permit prior to beginning construction.

c. Activities shall be conducted in a manner that does not cause or contribute to violations of state water quality standards. Performance-based erosion and sediment control best management practices shall be installed immediately prior to, and be maintained during and after construction as needed, to prevent adverse impacts to the water resources and adjacent lands. Such practices shall be in accordance with the *State of Florida Erosion and Sediment Control Designer and Reviewer Manual (Florida Department of Environmental Protection and Florida Department of Transportation June 2007)*, and the *Florida Stormwater Erosion and Sedimentation Control Inspector's Manual (Florida Department of Environmental Protection, Nonpoint Source Management Section, Tallahassee, Florida, July 2008)*, which are both incorporated by reference in subparagraph 62-330.050(8)(b)5, F.A.C., unless a projectspecific erosion and sediment control plan is approved or other water quality control measures are required as part of the permit.

d. At least 48 hours prior to beginning the authorized activities, the permittee shall submit to the Agency a fully executed Form 62-330.350(1), "Construction Commencement Notice,"[effective date], incorporated by reference herein (<http://www.flrules.org/Gateway/reference.asp?No=Ref-02505>), indicating the expected start and completion dates. A copy of this form may be obtained from the Agency, as described in subsection 62-330.010(5), F.A.C. If available, an Agency website that fulfills this notification requirement may be used in lieu of the form.

e. Unless the permit is transferred under Rule 62-330.340, F.A.C., or transferred to an operating entity under Rule 62-330.310, F.A.C., the permittee is liable to comply with the plans, terms and conditions of the permit for the life of the project or activity.

f. Within 30 days after completing construction of the entire project, or any independent portion of the project, the permittee shall provide the following to the Agency, as applicable:

1. For an individual, private single-family residential dwelling unit, duplex, triplex, or quadruplex - "Construction Completion and Inspection Certification for Activities Associated with a Private Single-Family Dwelling Unit" [Form 62-330.310(3)]; or

2. For all other activities - "As-Built Certification and Request for Conversion to Operational Phase" [Form 62-330.310(1)].

3. If available, an Agency website that fulfills this certification requirement may be used in lieu of the form.

g. If the final operation and maintenance entity is a third party:

1. Prior to sales of any lot or unit served by the activity and within one year of permit issuance, or within 30 days of as- built certification, whichever comes first, the permittee shall submit, as applicable, a copy of the operation and maintenance documents (see sections 12.3 thru 12.3.3 of Volume I) as filed with the Department of State, Division of Corporations and a copy of any easement, plat, or deed restriction

needed to operate or maintain the project, as recorded with the Clerk of the Court in the County in which the activity is located.

2. Within 30 days of submittal of the as- built certification, the permittee shall submit “Request for Transfer of Environmental Resource Permit to the Perpetual Operation Entity” [Form 62-330.310(2)] to transfer the permit to the operation and maintenance entity, along with the documentation requested in the form. If available, an Agency website that fulfills this transfer requirement may be used in lieu of the form.

h. The permittee shall notify the Agency in writing of changes required by any other regulatory agency that require changes to the permitted activity, and any required modification of this permit must be obtained prior to implementing the changes.

i. This permit does not:

1. Convey to the permittee any property rights or privileges, or any other rights or privileges other than those specified herein or in Chapter 62-330, F.A.C.;

2. Convey to the permittee or create in the permittee any interest in real property;

3. Relieve the permittee from the need to obtain and comply with any other required federal, state, and local authorization, law, rule, or ordinance; or

4. Authorize any entrance upon or work on property that is not owned, held in easement, or controlled by the permittee.

j. Prior to conducting any activities on state-owned submerged lands or other lands of the state, title to which is vested in the Board of Trustees of the Internal Improvement Trust Fund, the permittee must receive all necessary approvals and authorizations under Chapters 253 and 258, F.S. Written authorization that requires formal execution by the Board of Trustees of the Internal Improvement Trust Fund shall not be considered received until it has been fully executed.

k. The permittee shall hold and save the Agency harmless from any and all damages, claims, or liabilities that may arise by reason of the construction, alteration, operation, maintenance, removal, abandonment or use of any project authorized by the permit.

l. The permittee shall notify the Agency in writing:

1. Immediately if any previously submitted information is discovered to be inaccurate; and

2. Within 30 days of any conveyance or division of ownership or control of the property or the system, other than conveyance via a long-term lease, and the new owner shall request transfer of the permit in accordance with Rule 62-330.340, F.A.C. This does not apply to the sale of lots or units in residential or commercial subdivisions or condominiums where the stormwater management system has been completed and converted to the operation phase.

m. Upon reasonable notice to the permittee, Agency staff with proper identification shall have permission to enter, inspect, sample and test the project or activities to ensure conformity with the plans and specifications authorized in the permit.

n. If any prehistoric or historic artifacts, such as pottery or ceramics, stone tools or metal implements, dugout canoes, or any other physical remains that could be associated with Native American cultures, or early colonial or American settlement are encountered at any time within the project site area, work involving subsurface disturbance in the immediate vicinity of such discoveries shall cease. The permittee or other designee shall contact the Florida Department of State, Division of Historical Resources, Compliance and Review Section, at (850) 245-6333 or (800) 847-7278, as well as the appropriate permitting agency office. Such subsurface work shall not resume without verbal or written authorization from the Division of Historical Resources. If unmarked human remains are encountered, all work shall stop immediately and notification

shall be provided in accordance with Section 872.05, F.S. (2012).

o. Any delineation of the extent of a wetland or other surface water submitted as part of the permit application, including plans or other supporting documentation, shall not be considered binding unless a specific condition of this permit or a formal determination under Rule 62-330.201, F.A.C., provides otherwise.

p. The permittee shall provide routine maintenance of all components of the stormwater management system to remove trapped sediments and debris. Removed materials shall be disposed of in a landfill or other uplands in a manner that does not require a permit under Chapter 62-330, F.A.C., or cause violations of state water quality standards.

q. This permit is issued based on the applicant's submitted information that reasonably demonstrates that adverse water resource-related impacts will not be caused by the completed permit activity. If any adverse impacts result, the Agency will require the permittee to eliminate the cause, obtain any necessary permit modification, and take any necessary corrective actions to resolve the adverse impacts.

r. A Recorded Notice of Environmental Resource Permit may be recorded in the county public records in accordance with Rule 62-330.090(7), F.A.C. Such notice is not an encumbrance upon the property.

2. In addition to those general conditions in subsection (1) above, the Agency shall impose any additional project-specific special conditions necessary to assure the permitted activities will not be harmful to the water resources, as set forth in Rules 62-330.301 and 62-330.302, F.A.C., Volumes I and II, as applicable, and the rules incorporated by reference in this chapter.

CATCHMENTS AND TREATMENT SUMMARY RESULTS V7.0

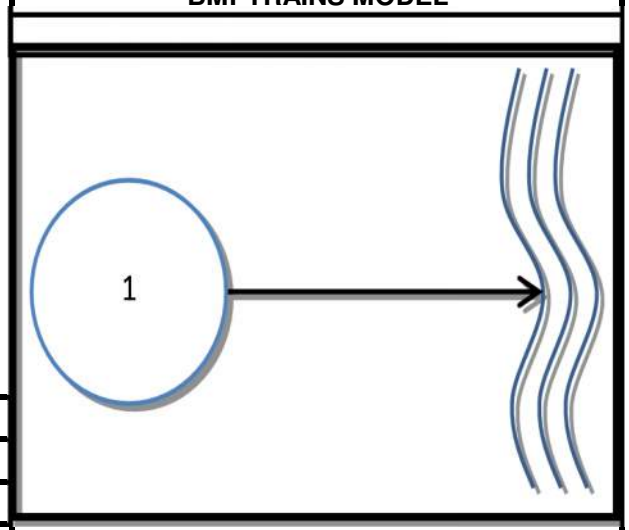
CALCULATION METHODS:

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	WTSP Channel 10 Parking Lot	Optional Identification		
	Catchment 1:	Catchment 2:	Catchment 3:	Catchment 4:
BMP Name	Retention Basin			
BMP Name				
BMP Name				

Summary Performance

Catchment Configuration	A - Single Catchment		1/13/2015
Nitrogen Pre Load (kg/yr)	0.58		BMPTRAINS MODEL
Phosphorus Pre Load (kg/yr)	0.09		
Nitrogen Post Load (kg/yr)	1.58		
Phosphorus Post Load (kg/yr)	0.24		
Target Load Reduction (N) %	37		
Target Load Reduction (P) %	37		
Target Discharge Load, N (kg/yr)	1.00		
Target Discharge Load, P (kg/yr)	0.15		
Provided Overall Efficiency, N (%):	72		
Provided Overall Efficiency, P (%):	69		
Discharged Load, N (kg/yr & lb/yr):	0.44	0.97	
Discharged Load, P (kg/yr & lb/yr):	0.07	0.17	
Load Removed, N (kg/yr & lb/yr):	1.14	2.51	
Load Removed, P (kg/yr & lb/yr):	0.16	0.36	



CAD File Name: S:\~PROJECT FILES\0933 - WTSP - CHANNEL 10\CADD\PLANS\PLAN_SITE.DWG
Plot Date: 11/21/2014 11:17:05 AM
2014 WRA

EXISTING BUILDING

Parcel Id.#
17-30-17-00000-130-0100
Portugese Gap Inc
910 Park Place Drive
Englewood, FL 34223-2439

Approximate Boundary

S 89°53'48" W 477.87' (D)

Two Story Masonry Building Address #11450

Concrete wall
Masonry Wall
Overhang
Concrete "D" Curb
GRASS
Concrete Sidewalk
ASPHALT
Concrete
Concrete Flume
Top of Bank
EXISTING RETENTION POND
Fountain
RETENTION POND
Edge of Water
TBM #1
Edge of Pavement
ONE WAY
Asphalt Entrance
PROPERTY EXIT
PROPERTY LINE
BEGIN FDOT TYPE 'D' CURB
END FDOT TYPE 'D' CURB
198 LF FDOT TYPE 'D' CURB
Gandy Boulevard
U.S. HIGHWAY 92
Public Right-of-Way width varies
(Asphalt Pavement)
N 72°29'28" E 456.30' (D)
18" RCP
12" RCP
2.69'
Edge of Pavement
Possession Lane
Lane Line
Bike Lane
Sidewalk
D #1
D #2
D #3
D #4
D #5
6' Chain Link Fence
Gate
Dish Support
Conc.
Broken Conc. with Wires
Wood Box
3' Wood Board Fence
Security Mirror
3' Chain Fence
4" PVC Cable
TBM #2
Edge of Rock
CRUSHED ROCK
Concrete Steps
Plastic Locker
Cable Rock
Tower
3' Diameter Conc.
Masonry Electrical Building
Height = 15'±
F.F.E. = 10.26'
Gul off
Parcel Id.# 17-30-17-00000-410-0200
Pacific & Southern Co Inc
11450 Gandy Boulevard
St Petersburg, FL 33702-1908
Approximate Right-of-way Boundary of Gandy Boulevard per FDOT Map Section No.15090-2502
N 17°30'31"W 48.40' (F)
LESS & EXCEPT
N 17°03'23"W 48.39' (F)
½ Vacated 10' Alley (D)
S 17°30'32" E 753.07' (D)
Corner Set
Found
Parcel Id.# 17-30-17-00000-410-0130
No Corner Set or Found
2.22'
Top of Bank
Toe of Slope

PROPOSED BOLLARDS (TIE INTO EXISTING CHAINED BOLLARDS)
EXISTING ASPHALT PARKING LOT
PROPOSED 5' WIDE CONCRETE SIDEWALK (SEE DETAIL, SHEET C-07)
REPLACE EXISTING STRIPING AFTER MILL / OVERLAY, TYP. (MATCH EXISTING)
IMPROVEMENTS TO EXISTING ASPHALT PARKING LOT (MILL / OVERLAY LIMITS, 3,000 SF +/-)
PROPERTY LINE
PROPOSED ASPHALT PARKING LOT
14 PARKING SPOTS W/ WHEEL STOPS
16 PARKING SPOTS W/ WHEEL STOPS
32 LF FDOT TYPE 'D' CURB
TREATMENT SWALE 'B'
TREATMENT SWALE 'A'
PROPOSED STRIPING, WHITE TRAFFIC PAINT, TYP.
PROPOSED WHEEL STOP (TYP.)
24'
18'
9'
6'
4'

NEW ASPHALT PAVEMENT
MILL / OVERLAY
CONCRETE

0 10' 20' 40'
SCALE:
HORZ: 1"=20'
IF SHEET IS LESS THAN 22"X34", USE GRAPHIC SCALE

REVISIONS

NO.	DATE	DESCRIPTION	BY

Engineering ~ Environmental
Water Resource
8043 Cooper Creek Blvd, Suite 210
University Park, Florida 34201
Phone: 941.275.9721 Fax: 941.275.9729
www.wraconsultants.com CA 00007652

DRAWING: SITE PLAN
PROJECT: WTSP- CHANNEL 10 LOT PAVING
DESIGNED: DRAWN: APPROVED:
SEC: TWN: RNG:
JOB #:0933

JARET H. JOHNSON
LICENSE
NO. 72938
11/21/14
STATE OF FLORIDA
PROFESSIONAL ENGINEER

Original Date: 11/21/2014
Last Modified:
Scale: AS NOTED

C-04

PERMIT NO. 11759.005

Selmon Expressway Western Extension

Southwest Florida Water Management District
2379 Broad Street, Brooksville, Florida 34604-6899
(352) 796-7211 or 1-800-423-1476 (FL only)
SUNCOM 628-4150 TDD only 1-800-231-6103 (FL only)
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Tampa Service Office
7601 Highway 301 North
Tampa, Florida 33637-6759
(813) 985-7481 or
1-800-836-0797 (FL only)

January 09, 2018

Tampa Hillsborough Expressway Authority
Attn: David May
1104 E. Twiggs St., Suite 300
Tampa, FL 33602

FDOT District 7
Attn: Virginia Creighton
11201 N. McKinley Drive
Tampa, FL 33612

Subject: **Notice of Intended Agency Action - Approval**
ERP Minor Modification

Project Name:	Selmon West Extension (Elevated Roadway Minor Mod)
App ID/Permit No:	756316 / 43011759.005
County:	Hillsborough
Letter Received:	November 21, 2017
Expiration Date:	January 09, 2023
Sec/Twp/Rge:	S09/T30S/R18E, S04/T30S/R18E, S07/T30S/R18E, S08/T30S/R18E

Dear Permittee(s):

The Southwest Florida Water Management District (District) has completed its review of the application for Environmental Resource Permit modification. Based upon a review of the information you have submitted, the District hereby gives notice of its intended approval of the application.

The File of Record associated with this application can be viewed at http://www18.swfwmd.state.fl.us/erp/erp/search/ERPSearch.aspx and is also available for inspection Monday through Friday, except for District holidays, from 8:00 a.m. through 5:00 p.m. at the District's Tampa Service Office, 7601 U.S. Highway 301 North, Tampa, Florida 33637.

If you have any questions or concerns regarding the application or any other information, please contact the Environmental Resource Permit Bureau in the Tampa Service Office.

Sincerely,

Michelle K. Hopkins, P.E.
Bureau Chief
Environmental Resource Permit Bureau
Regulation Division

cc: Carol Conner, P.E.
Michael A. Holt, P.E., AECOM

Southwest Florida Water Management District
2379 Broad Street, Brooksville, Florida 34604-6899
(352) 796-7211 or 1-800-423-1476 (FL only)
SUNCOM 628-4150 TDD only 1-800-231-6103 (FL only)
On the Internet at: WaterMatters.org

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Bartow Service Office
170 Century Boulevard
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6750 Fruitville Road
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January 09, 2018

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Subject: **Notice of Agency Action - Approval**
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Project Name:	Selmon West Extension (Elevated Roadway Minor Mod)
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Sec/Twp/Rge:	S09/T30S/R18E, S04/T30S/R18E, S07/T30S/R18E, S08/T30S/R18E

Dear Permittee(s):

The Southwest Florida Water Management District (District) is in receipt of your application for the Environmental Resource Permit modification. Based upon a review of the information you submitted, the application is approved.

This modification to Permit No. 43011759.004 authorizes the following:

1. Construction of a new elevated portion of the Leroy Selmon Expressway (viaduct) along the median of existing Gandy Boulevard as shown on the permitted plans (will extend from Old Tampa Bay approximately two miles before merging into the existing Leroy Selmon Expressway interchange, east of Dale Mabry Highway). Construction will also consist of proposed surface roadway and drainage infrastructure improvements along existing Gandy Boulevard.

2. The engineer-of-record demonstrated that the proposed additional impervious area (4.62 acres) is less than the allowable, permitted amount of additional impervious area (6.47 acres). No adverse water quality or quantity impacts are anticipated.

3. Construction of all aspects of the permitted stormwater management systems for Permit No. 43011759.004, entitled Selmon West Extension (THEA Project No. O-16-01515), shall be completed prior to, or concurrent with, the construction associated with this permit modification (Permit No. 43011759.005).

4. All other terms and conditions of Permit No. 43011759.004 dated April 14, 2017, and entitled Selmon West Extension (THEA Project No. O-16-01515) apply.

Please refer to the attached Notice of Rights to determine any legal rights you may have concerning the District's agency action on the permit application described in this letter.

If approved construction plans are part of the permit, construction must be in accordance with these plans. These drawings are available for viewing or downloading through the District's Application and Permit Search Tools located at www.WaterMatters.org/permits.

The District's action in this matter only becomes closed to future legal challenges from members of the public if such persons have been properly notified of the District's action and no person objects to the District's action within the prescribed period of time following the notification. The District does not publish notices of agency action. If you wish to limit the time within which a person who does not receive actual written notice from the District may request an administrative hearing regarding this action, you are strongly encouraged to publish, at your own expense, a notice of agency action in the legal advertisement section of a newspaper of general circulation in the county or counties where the activity will occur. Publishing notice of agency action will close the window for filing a petition for hearing. Legal requirements and instructions for publishing notices of agency action, as well as a noticing form that can be used, are available from the District's website at www.WaterMatters.org/permits/noticing. If you publish notice of agency action, a copy of the affidavit of publication provided by the newspaper should be sent to the District's Tampa Service Office for retention in this permit's File of Record.

If you have any questions or concerns regarding your permit or any other information, please contact the Environmental Resource Permit Bureau in the Tampa Service Office.

Sincerely,

Michelle K. Hopkins, P.E.
Bureau Chief
Environmental Resource Permit Bureau
Regulation Division

Enclosures: Notice of Rights
cc: Carol Conner, P.E.
Michael A. Holt, P.E., AECOM

Notice of Rights

ADMINISTRATIVE HEARING

1. You or any person whose substantial interests are or may be affected by the District's intended or proposed action may request an administrative hearing on that action by filing a written petition in accordance with Sections 120.569 and 120.57, Florida Statutes (F.S.), Uniform Rules of Procedure Chapter 28-106, Florida Administrative Code (F.A.C.) and District Rule 40D-1.1010, F.A.C. Unless otherwise provided by law, a petition for administrative hearing must be filed with (received by) the District within 21 days of receipt of written notice of agency action. "Written notice" means either actual written notice, or newspaper publication of notice, that the District has taken or intends to take agency action. "Receipt of written notice" is deemed to be the fifth day after the date on which actual notice is deposited in the United States mail, if notice is mailed to you, or the date that actual notice is issued, if sent to you by electronic mail or delivered to you, or the date that notice is published in a newspaper, for those persons to whom the District does not provide actual notice.

2. Pursuant to Subsection 373.427(2)(c), F.S., for notices of intended or proposed agency action on a consolidated application for an environmental resource permit and use of state-owned submerged lands concurrently reviewed by the District, a petition for administrative hearing must be filed with (received by) the District within 14 days of receipt of written notice.

3. Pursuant to Rule 62-532.430, F.A.C., for notices of intent to deny a well construction permit, a petition for administrative hearing must be filed with (received by) the District within 30 days of receipt of written notice of intent to deny.

4. Any person who receives written notice of an agency decision and who fails to file a written request for a hearing within 21 days of receipt or other period as required by law waives the right to request a hearing on such matters.

5. Mediation pursuant to Section 120.573, F.S., to settle an administrative dispute regarding District intended or proposed action is not available prior to the filing of a petition for hearing.

6. A request or petition for administrative hearing must comply with the requirements set forth in Chapter 28-106, F.A.C. A request or petition for a hearing must: (1) explain how the substantial interests of each person requesting the hearing will be affected by the District's intended action or proposed action, (2) state all material facts disputed by the person requesting the hearing or state that there are no material facts in dispute, and (3) otherwise comply with Rules 28-106.201 and 28-106.301, F.A.C. Chapter 28-106, F.A.C. can be viewed at www.flrules.org or at the District's website at www.WaterMatters.org/permits/rules.

7. A petition for administrative hearing is deemed filed upon receipt of the complete petition by the District Agency Clerk at the District's Tampa Service Office during normal business hours, which are 8:00 a.m. to 5:00 p.m., Monday through Friday, excluding District holidays. Filings with the District Agency Clerk may be made by mail, hand-delivery or facsimile transfer (fax). The District does not accept petitions for administrative hearing by electronic mail. Mailed filings must be addressed to, and hand-delivered filings must be delivered to, the Agency Clerk, Southwest Florida Water Management District, 7601 Highway 301 North,Tampa,FL 33637-6759. Faxed filings must be transmitted to the District Agency Clerk at (813) 367-9776. Any petition not received during normal business hours shall be filed as of 8:00 a.m. on the next business day. The District's acceptance of faxed petitions for filing is subject to certain conditions set forth in the District's Statement of Agency Organization and Operation, available for viewing at www.WaterMatters.org/about.

JUDICIAL REVIEW

1. Pursuant to Sections 120.60(3) and 120.68, F.S., a party who is adversely affected by District action may seek judicial review of the District's action. Judicial review shall be sought in the Fifth District Court of Appeal or in the appellate district where a party resides or as otherwise provided by law.

2. All proceedings shall be instituted by filing an original notice of appeal with the District Agency Clerk within 30 days after the rendition of the order being appealed, and a copy of the notice of appeal, accompanied by any filing fees prescribed by law, with the clerk of the court, in accordance with Rules 9. 110 and 9.190 of the Florida Rules of Appellate Procedure (Fla. R. App. P.). Pursuant to Fla. R. App. P. 9.020(h), an order is rendered when a signed written order is filed with the clerk of the lower tribunal.

PERMITTED DRAWINGS SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT (SWFWMD)
For construction permits, the Permittee shall notify the District in writing when construction begins.

SEC 6, T 30 S, R 18 E
SEC 7, T 30 S, R 18 E

DITCH H5
ERP PERMIT #4011339.00

BASIN 300
OUTFALL

BASIN 300
AREA = 1.95 AC

BASIN 100

DITCH H3
ERP PERMIT #4011339.00

DITCH H1
ERP PERMIT #4011339.00

℄ SURVEY AND CONSTRUCTION
GANDY BLVD.

BASIN 100
OUTFALL
EXIST. 30" RCP

DITCH H2
ERP PERMIT #4011339.00

BASIN 100 AREA
= 4.21 AC

SR 600 GANDY BLVD. WESTBOUND

SR 600 GANDY BLVD. EASTBOUND

FRONTAGE ROAD

BASIN 200

BASIN 200
OUTFALL
EXIST. 18" RCP

BASIN 200
AREA = 4.45 AC

DITCH H4
ERP PERMIT #4011339.00

BASIN 500
AREA = 4.91 AC

DITCH H6
ERP PERMIT #4011339.00

S-401 S-402 S-403 S-404 S-409 S-409A S-410 S-411 S-412 S-412A S-413 S-414 S-415 S-416 S-417 S-418 S-419 S-420 S-421 S-422 S-423 S-424 S-425 S-426 S-427 S-428 S-429 S-430 S-431

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23

BEGIN PROJECT
BEGIN CONSTRUCTION
STA 600+66.58 ℄ CONST. GANDY BLVD. =
STA. 600+66.58 ℄ CONST. SELMON WEST EXTENSION

DO NOT USE THE INFORMATION ON THIS SHEET FOR CONSTRUCTION PURPOSES.
This sheet is in the plans for documentation to assist construction personnel with drainage concerns.

N

0 50 200
Feet

FLIGHT DATE 2016

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

AECOM Technical Services, Inc.
7650 West Courtney
Campbell Causeway
Tampa, FL 33607-1462
C.A. No. 8115
Michael A. Holt, P.E. No. 76111

TAMPA HILLSBOROUGH EXPRESSWAY AUTHORITY

ROAD NO.	COUNTY	THEA PROJECT NO. FDOT FINANCIAL PROJECT ID
SR 618 SR 600	HILLSBOROUGH	O-17-00217 439023-1-52-01

DRAINAGE MAP (1)

SHEET NO. 4

selbyr 11/13/2017 11:43:37 AM c:\pwworking\aecom_ds16_na\ryan.selby@aecom.com\dms27848\DRMPRD01.DGN

DITCH H5
ERP PERMIT #4011339.00

℄ SURVEY AND CONSTRUCTION
GANDY BLVD.

DITCH H7
ERP PERMIT #4011339.00

BASIN 400
OUTFALL

BASIN 500
OUTFALL
EXIST. 18" RCP

BASIN 400
AREA = 2.99 AC

BASIN BD-102
AREA = 0.26 AC

BASIN BD-104
AREA = 0.21 AC

BASIN BD-106
AREA = 0.26 AC

BASIN BD-108
AREA = 0.22 AC

BASIN BD-109
AREA = 0.24 AC

BASIN BD-110
AREA = 0.28 AC

BASIN BD-107
AREA = 0.26 AC

BASIN BD-111
AREA = 0.28 AC

10'X4' BOX CULVERT

BASIN BD-112
AREA = 0.28 AC

S-432 S-433 S-434 S-435 S-436 S-436A S-437 S-438 S-438A S-439 S-439A S-440 S-441 S-443 S-444 S-446 S-447 S-448 S-449 S-450 S-451 S-456 S-457 S-458 S-458A S-461 S-462 S-462A S-464 S-466 S-467 S-470 S-471 S-473 S-474 S-475 S-478 S-479

1630 1635 1640 1645 1650 1655 1660 1665 1670 1675

SEC 5, T 30 S, R 18 E
SEC 8, T 30 S, R 18 E

WESTSHORE BLVD

S. RENELLIE DR.

BEGIN BRIDGE
END ℄ GANDY RAMP WB 913+56.03 =
END ℄ GANDY RAMP EB STA. 817+34.26 =
STA. 632+70.63 ℄ CONST. SELMON WEST EXTENSION =
STA. 148+73.18, 22.92' LT ℄ SURVEY GANDY BLVD.

BASIN BD-103
AREA = 0.29 AC

BASIN BD-102
AREA = 0.23 AC

BASIN BD-105
AREA = 0.22 AC

BASIN BD-113
AREA = 0.24 AC

BASIN BD-114
AREA = 0.24 AC

END AREA 1
STA 650+11.69, 0.80' (LT) ℄ CONST. GANDY BLVD. =
STA. 650+16.03 ℄ CONST. SELMON WEST EXTENSION

DITCH H6
ERP PERMIT #4011339.00

DO NOT USE THE INFORMATION ON THIS SHEET FOR CONSTRUCTION PURPOSES.
This sheet is in the plans for documentation to assist construction personnel with drainage concerns.

N

0 50 200
Feet

FLIGHT DATE 2016

PERMITTED DRAWINGS SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT (SWFWMD)
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REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

AECOM Technical Services, Inc.
7650 West Courtney
Campbell Causeway
Tampa, FL 33607-1462
C.A. No. 8115
Michael A. Holt, P.E. No. 76111

TAMPA HILLSBOROUGH EXPRESSWAY AUTHORITY

ROAD NO.	COUNTY	THEA PROJECT NO. FDOT FINANCIAL PROJECT ID
SR 618 SR 600	HILLSBOROUGH	O-17-00217 439023-1-52-01

DRAINAGE MAP (2)

SHEET NO. 5

selbyr 11/13/2017 11:44:33 AM c:\pwworking\aecom_ds16_na\ryan.selby@aecom.com\dms27848\DRMPRD02.DGN

3.3 Proposed Drainage West of Leroy Selmon Expressway

Roadway improvements within the Gandy Blvd. causeway area includes milling and resurfacing at the Begin Project limit (Sta. 600+66.58), and reconstruction along the causeway includes widening and shifting out the roadway alignment to accommodate ramps for the elevated roadway. The reconstruction of the causeway area will impact the existing treatment ponds H4 thru H7. Conservatively, it is assumed that the impacts will result in a total loss of approximately 0.63 ac-ft of permitted treatment volume. The Table below includes the permitted and proposed treatment volume provided along the causeway area. It is anticipated that the future drainage design will convey the proposed roadway runoff to the open pervious areas for pre-treatment prior to discharging to Old Tampa Bay. The 0.63 ac-ft of lost treatment volume will be compensated for in proposed ponds within the LSE Interchange area. The Post-Development Pond Storage and Residence Volume Computations provided in Exhibit 7 demonstrates that there is a surplus of approximately 4.0 ac-ft of presumptive treatment volume provided in the proposed design.

Pond Number	Treatment Volume (ac-ft)		Comment
	Permitted	Proposed	
H1	0.08	0.08	No Proposed Impact
H2	0.16	0.16	No Net Impact Proposed
H3	0.16	0.16	No Net Impact Proposed
H4	0.19	0.00	Proposed for Impact
H5	0.23	0.00	Proposed for Impact
H6	0.17	0.00	Proposed for Impact
H7	0.04	0.00	Proposed for Impact
Total	**1.03**	**0.40**	

These swales to be impacted by widening of Gandy Boulevard.

The proposed elevated roadway includes bridge piers located within the limits of the existing median to minimize impacts to Gandy Blvd. As such, the curb and gutter section of the Gandy Blvd. and the associated storm drain system from the causeway are to the CSX crossing will generally not be impacted. Proposed deck drains will be provided along the elevated roadway to collect and convey the runoff to the existing storm drain system along Gandy Blvd. The proposed runoff will not be treated or attenuated prior to discharging into the Bay.

The roadway improvements from the eastern Gandy Bridge causeway to the CSX railroad will result in approximately 4.56 ac of additional impervious area. Summation of the Gandy Boulevard Additional Impervious Areas are located in Exhibit 16. Throughout this report, 5.50 ac of additional impervious area was conservatively assumed for the roadway improvements west of the CSX railroad. The 5.50 ac of additional impervious area is represented as sub-basin Selmon West-Off in the Post Development Basin DCIA Determination located in Exhibit 6.

4.0 Stormwater Model

The original Norma Park drainage study and related stormwater model encompassed 2.71 square miles and consisted of 6 major drainage basins, with numerous sub-basins draining to the related nodes which were then connected by links and modelled to the ultimate discharge at Old Tampa Bay. This model used a combination of MSSM and SWMM3 computer programs, but did not analyze the ponds hydrodynamically, but rather used a rating curve to estimate the pond discharge. The Dames and Moore drainage model used

These swales to be impacted by widening of Gandy Boulevard

POND H1 (NO PROPOSED IMPACT)
ERP PERMIT #4011339.00

POND H2 (NO NET IMPACT PROPOSED)
ERP PERMIT #4011339.00

POND H3 (NO NET IMPACT PROPOSED)
ERP PERMIT #4011339.00

BASIN 100
OUTFALL
EXIST. 30" RCP

BASIN 100
AREA = 4.21 AC

FRONTAGE RD.

SR 600 (GANDY BLVD.) WESTBOUND

SR 600 (GANDY BLVD.) EASTBOUND

BASIN 200
AREA = 4.45 AC

BEGIN PROJECT
STA. 600+66.58 ℄ CONST. SELMON WEST EXTENSION
STA. 116+81.18 ℄ SURVEY GANDY BLVD.

BASIN 200
OUTFALL
EXIST. 18" RCP

POND H4 (0.32 AC IMPACT)
ERP PERMIT #4011339.00

OSW #3 (0.15 AC IMPACT)

POND H5 (0.46 AC IMPACT)
ERP PERMIT #4011339.00

POND H7 (0.05 AC IMPACT)
ERP PERMIT #4011339.00

BASIN 300
OUTFALL

BASIN 300
AREA = 1.95 AC

BASIN 400
AREA = 3.34 AC

BASIN 400
OUTFALL

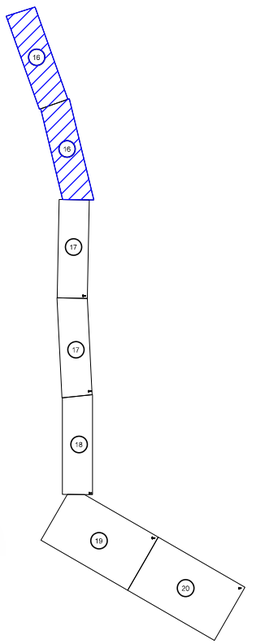
BASIN 500
OUTFALL
EXIST. 18" RCP

BASIN 500
AREA = 4.91 AC

POND H6 (0.34 AC IMPACT)
ERP PERMIT #4011339.00

DRAINAGE PLAN NOTES

1. EXISTING CULVERTS, CLOSED SYSTEM CONVEYANCE, PIPE AND UTILITIES SHOWN WITHIN THE PROJECT BOUNDARIES SUBJECT TO CHANGE AND MAY BE REMOVED AND REPLACED.
2. THIS PROJECT IS PLANNED AS A DESIGN-BUILD PROJECT, WHICH WILL COMBINE THE PROJECT'S DESIGN AND CONSTRUCTION PHASES INTO A SINGLE CONTRACT, AS SUCH, THE DRAINAGE IMPROVEMENTS PREVIOUSLY KNOWN ARE INTENDED TO SERVE AS A PART OF THE DESIGN AND CONSTRUCTION CRITERIA PACKAGE, WHICH PROVIDES THE CRITERIA FOR DESIGN AND CONSTRUCTION.
3. THE CONVEYANCE SYSTEM DESIGN AND DETAILS WILL BE PROVIDED BY THE DESIGN-BUILD FIRM AND, UPON SUBMITTAL WILL BE REQUIRED TO PROVIDE ALL DETAILS NECESSARY FOR CONSTRUCTION, INCLUDING, BUT NOT LIMITED TO, HYDRAULIC CALCULATIONS, STORMWATER POLLUTION PREVENTION SYSTEM DESIGN, DEWATERING, AND EXCAVATION/FILLING DETAILS. THE SELECTED DESIGN-BUILD FIRM WILL BE RESPONSIBLE FOR PROCURING AND/OR MODIFYING AND AMENDING ALL PERMITS FOR CONSTRUCTION.
4. THESE PLANS ARE INTENDED TO SHOW HOW THE PROJECT IS INTENDED TO BE CONSTRUCTED WITHIN THE PROJECT LIMITS AND THE EXPANSION/MODIFICATIONS OF THE EXISTING STORMWATER MANAGEMENT FACILITIES AS SHOWN.



LEGEND

- PROPOSED FOR IMPACT
- NO PROPOSED IMPACT & NO NET IMPACT PROPOSED

DRAINAGE MAP

SELMON WEST EXTENSION

FROM THE GANDY BRIDGE TO THE WESTERN TERMINUS OF THE LEE ROY SELMON EXPRESSWAY

SHEET NO. 16

TAMPA-HILLSBOROUGH EXPRESSWAY AUTHORITY | WSP | PARSONS BRINCKERHOFF

$USERS $DATES $TIMES $FILES

EXHIBIT 17

APPENDIX G

Old Tampa Bay Water Quality Improvement Project

And Tampa Bay Estuary Program Documents

PERMIT NO. 920.019

Old Tampa Bay Water Quality Project
Initial Credits Release

Southwest Florida Water Management District
2379 Broad Street, Brooksville, Florida 34604-6899
(352) 796-7211 or 1-800-423-1476 (FL only)
SUNCOM 628-4150 TDD only 1-800-231-6103 (FL only)
On the Internet at: WaterMatters.org

An Equal Opportunity Employer

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Tampa Service Office
7601 Highway 301 North
Tampa, Florida 33637-6759
(813) 985-7481 or
1-800-836-0797 (FL only)

March 08, 2019

Florida Department of Transportation District 7
Attn: Virginia Creighton
11201 N. McKinley Drive
Tampa, FL 33612

Subject: **Notice of Intended Agency Action - Approval**
ERP Minor Modification

Project Name:	FDOT Old Tampa Bay Water Quality Improvement Project Initial WQ Credit Release
App ID/Permit No:	779593 / 43000920.019
County:	Hillsborough,Pinellas
Letter Received:	February 19, 2019
Expiration Date:	March 08, 2024
Sec/Twp/Rge:	S10/T29S/R17E

Dear Permittee(s):

The Southwest Florida Water Management District (District) has completed its review of the application for Environmental Resource Permit modification. Based upon a review of the information you have submitted, the District hereby gives notice of its intended approval of the application.

The File of Record associated with this application can be viewed at http://www18.swfwmd.state.fl.us/erp/erp/search/ERPSearch.aspx and is also available for inspection Monday through Friday, except for District holidays, from 8:00 a.m. through 5:00 p.m. at the District's Tampa Service Office, 7601 U.S. Highway 301 North, Tampa, Florida 33637.

If you have any questions or concerns regarding the application or any other information, please contact the Environmental Resource Permit Bureau in the Tampa Service Office.

Sincerely,

David Kramer, P.E.
Manager
Environmental Resource Permit Bureau
Regulation Division

cc: Shayne Paynter, P.E., Atkins North America, Inc.

Southwest Florida Water Management District
2379 Broad Street, Brooksville, Florida 34604-6899
(352) 796-7211 or 1-800-423-1476 (FL only)
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March 08, 2019

Florida Department of Transportation District 7
Attn: Virginia Creighton
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Project Name:	FDOT Old Tampa Bay Water Quality Improvement Project Initial WQ Credit Release
App ID/Permit No:	779593 / 43000920.019
County:	Hillsborough,Pinellas
Letter Received:	February 19, 2019
Expiration Date:	March 08, 2024
Sec/Twp/Rge:	S10/T29S/R17E

Dear Permittee(s):

The Southwest Florida Water Management District (District) is in receipt of your application for the Environmental Resource Permit modification. Based upon a review of the information you submitted, the application is approved.

This modification to Environmental Resource Permit (ERP) No. 43000920.017 authorizes the following:

1. The release of 20 percent of the available credits, equivalent to approximately 612 acres of impervious surface or 2,032.20 Kg N/year, as outlined in the release schedule referred to in Specific Condition No. 24. The establishment of tidal flux results have been provided in the Water Circulation Monitoring Report received by the District on February 19, 2019.

2. The withdrawal of 418.36 Kg N/year credit from the Old Tampa Bay Water Quality Credit Ledger to offset impervious area impacts associated with SWFWMD Permit No. 43001034.012, "Northbound Howard Frankland Bridge Replacement and I-275 Widening." The credit balance contained in the ledger labeled " Old Tampa Bay Water Quality Credit Ledger " is updated as follows:

3. Pursuant to the Old Tampa Bay Water Quality Credit Ledger, the water quality credit balance is 1,613.84 Kg N/year.

4. The Old Tampa Bay Water Quality Credit Ledger of Compensatory Total Nitrogen Credits dated March 6, 2019, in the District's Water Management Information System (WMIS) is approved with this Minor Modification and can be viewed at http://www18.swfwmd.state.fl.us/erp/erp/search/ERPSearch.aspx.

5. All other terms and conditions of ERP No. 43000920.017, dated September 6, 2017 and entitled FDOT Old Tampa Bay Water Quality Improvement Project, apply.

Please refer to the attached Notice of Rights to determine any legal rights you may have concerning the District's agency action on the permit application described in this letter.

If approved construction plans are part of the permit, construction must be in accordance with these plans. These drawings are available for viewing or downloading through the District's Application and Permit Search Tools located at www.WaterMatters.org/permits.

The District's action in this matter only becomes closed to future legal challenges from members of the public if such persons have been properly notified of the District's action and no person objects to the District's action within the prescribed period of time following the notification. The District does not publish notices of agency action. If you wish to limit the time within which a person who does not receive actual written notice from the District may request an administrative hearing regarding this action, you are strongly encouraged to publish, at your own expense, a notice of agency action in the legal advertisement section of a newspaper of general circulation in the county or counties where the activity will occur. Publishing notice of agency action will close the window for filing a petition for hearing. Legal requirements and instructions for publishing notices of agency action, as well as a noticing form that can be used, are available from the District's website at www.WaterMatters.org/permits/noticing. If you publish notice of agency action, a copy of the affidavit of publication provided by the newspaper should be sent to the District's Tampa Service Office for retention in this permit's File of Record.

If you have any questions or concerns regarding your permit or any other information, please contact the Environmental Resource Permit Bureau in the Tampa Service Office.

Sincerely,

David Kramer, P.E.
Manager
Environmental Resource Permit Bureau
Regulation Division

Enclosures: Notice of Rights
cc: Shayne Paynter, P.E., Atkins North America, Inc.

Notice of Rights

ADMINISTRATIVE HEARING

1. You or any person whose substantial interests are or may be affected by the District's intended or proposed action may request an administrative hearing on that action by filing a written petition in accordance with Sections 120.569 and 120.57, Florida Statutes (F.S.), Uniform Rules of Procedure Chapter 28-106, Florida Administrative Code (F.A.C.) and District Rule 40D-1.1010, F.A.C. Unless otherwise provided by law, a petition for administrative hearing must be filed with (received by) the District within 21 days of receipt of written notice of agency action. "Written notice" means either actual written notice, or newspaper publication of notice, that the District has taken or intends to take agency action. "Receipt of written notice" is deemed to be the fifth day after the date on which actual notice is deposited in the United States mail, if notice is mailed to you, or the date that actual notice is issued, if sent to you by electronic mail or delivered to you, or the date that notice is published in a newspaper, for those persons to whom the District does not provide actual notice.

2. Pursuant to Subsection 373.427(2)(c), F.S., for notices of intended or proposed agency action on a consolidated application for an environmental resource permit and use of state-owned submerged lands concurrently reviewed by the District, a petition for administrative hearing must be filed with (received by) the District within 14 days of receipt of written notice.

3. Pursuant to Rule 62-532.430, F.A.C., for notices of intent to deny a well construction permit, a petition for administrative hearing must be filed with (received by) the District within 30 days of receipt of written notice of intent to deny.

4. Any person who receives written notice of an agency decision and who fails to file a written request for a hearing within 21 days of receipt or other period as required by law waives the right to request a hearing on such matters.

5. Mediation pursuant to Section 120.573, F.S., to settle an administrative dispute regarding District intended or proposed action is not available prior to the filing of a petition for hearing.

6. A request or petition for administrative hearing must comply with the requirements set forth in Chapter 28-106, F.A.C. A request or petition for a hearing must: (1) explain how the substantial interests of each person requesting the hearing will be affected by the District's intended action or proposed action, (2) state all material facts disputed by the person requesting the hearing or state that there are no material facts in dispute, and (3) otherwise comply with Rules 28-106.201 and 28-106.301, F.A.C. Chapter 28-106, F.A.C. can be viewed at www.flrules.org or at the District's website at www.WaterMatters.org/permits/rules.

7. A petition for administrative hearing is deemed filed upon receipt of the complete petition by the District Agency Clerk at the District's Tampa Service Office during normal business hours, which are 8:00 a.m. to 5:00 p.m., Monday through Friday, excluding District holidays. Filings with the District Agency Clerk may be made by mail, hand-delivery or facsimile transfer (fax). The District does not accept petitions for administrative hearing by electronic mail. Mailed filings must be addressed to, and hand-delivered filings must be delivered to, the Agency Clerk, Southwest Florida Water Management District, 7601 Highway 301 North,Tampa,FL 33637-6759. Faxed filings must be transmitted to the District Agency Clerk at (813) 367-9776. Any petition not received during normal business hours shall be filed as of 8:00 a.m. on the next business day. The District's acceptance of faxed petitions for filing is subject to certain conditions set forth in the District's Statement of Agency Organization and Operation, available for viewing at www.WaterMatters.org/about.

JUDICIAL REVIEW

1. Pursuant to Sections 120.60(3) and 120.68, F.S., a party who is adversely affected by District action may seek judicial review of the District's action. Judicial review shall be sought in the Fifth District Court of Appeal or in the appellate district where a party resides or as otherwise provided by law.

2. All proceedings shall be instituted by filing an original notice of appeal with the District Agency Clerk within 30 days after the rendition of the order being appealed, and a copy of the notice of appeal, accompanied by any filing fees prescribed by law, with the clerk of the court, in accordance with Rules 9. 110 and 9.190 of the Florida Rules of Appellate Procedure (Fla. R. App. P.). Pursuant to Fla. R. App. P. 9.020(h), an order is rendered when a signed written order is filed with the clerk of the lower tribunal.

Water Circulation Monitoring Report
December 2018

FDOT *Old Tampa Bay Water Quality Improvement Project* (FPID 439206-1-C2-01)

Hillsborough County, Florida

SUBMITTED TO

U.S. Army Corps of Engineers
Regulatory Division, Enforcement Section
2833 Northwest 41st Street, Unit 130
Gainesville, FL 32606

Southwest Florida Water Management District
7601 Highway 301 North
Tampa, FL 33637-6579

PREPARED FOR

Florida Department of Transportation
11201 North McKinley Drive, MS7-820
Tampa, FL 33612

PREPARED BY

501 East Kennedy Boulevard, Suite 1010
Tampa, FL 33602

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1

Project Overview

The Old Tampa Bay Water Quality Improvement Project (Project) was permitted by the U.S. Army Corps of Engineers (USACE) under Permit #SAJ-2016-02935 (IP-SB)] and by the Southwest Florida Water Management District (District) under Permit #43000920.017. Ms. Virginia Creighton, PWS, of the Florida Department of Transportation (Department), is the Permittee Contact and may be reached at 813-975-6151. Mr. Gary Serviss (VHB) is the contact for the consultant and can be reached at 813-327-5450.

The Project was implemented by the Department to improve the overall ecological condition of the far eastern portion of Old Tampa Bay (OTB). Specific project objectives include restoration of historical tidal flushing and water circulation, in addition to nutrient concentration reduction. The reestablishment of historical flow patterns and associated water quality improvements will be accomplished through the removal of 229 linear feet of the Courtney Campbell Causeway (CCC) (SR 60) in the area immediately west of Ben T. Davis Beach. The project impacts include the excavation of 0.54 acres of sand and placement of 0.12 acres of riprap, but also restore 0.85 acres of jurisdictional area in the channel under the bridge. Once implemented, flushing north and south of the causeway will be increased which will reduce residence time within OTB. Ultimately, improved circulation and water quality conditions are expected to increase species diversity and abundance over 320 acres of seagrass beds on the north side of the CCC.

The project area is located within Sections, 9, 10 and 11; Township 29 South; Range 17 East, in Hillsborough County, Florida, on the north side of the CCC. The water circulation monitoring area, for the purpose of this monitoring report (Report 1), covers a quarter-mile radius around the constructed opening located at approximately 27°58'22.9" N, 82°35'09.1" W (**Figure 1**).

1.1 Project Progress

On December 17, 2018, the first post-construction monitoring event to evaluate water circulation through the constructed opening was conducted. The monitoring efforts included an assessment of tracer dye movement and movement of neutrally buoyant objects during an incoming and outgoing tide. Water quality field measurements and sample collection for nutrient analysis were also conducted on December 17, but those results will be in a subsequent report. This report discusses the results of the December 2018 water circulation monitoring (tracer dye and neutrally buoyant object movements).

1.2 Problem areas and Recommended Corrective Action

No corrective or maintenance activities were necessary during the water circulation relative to the mitigation areas and no recommendations are proposed at this time.

2

Success Criteria/Requirements

Success criteria are provided in the USACE and District permits for water quality improvement and seagrass mitigation. Partial credit release is authorized as each criterion is reached. Credits for water circulation will be granted when the following criteria have been met:

Success Criteria	Current Status of Mitigation Site	Criteria Demonstrated
a. Tidal flux restored as demonstrated by movement of tracer-dye on incoming and outgoing tides.	Visual Observation of movement	
	Incoming Tidal Flux: Yes	Yes
	Outgoing Tidal Flux: Yes	Yes
b. A post-construction reduction of 50% in the difference in dissolution rate in each mitigation stratum in comparison to the control stratum,	Dissolution Rate Difference to Stratum D	
	Stratum A: NA%	No
	Stratum B: NA%	No
	Stratum C: NA%	No
c. The difference in monthly mean values of salinity recorded at high tide between Stratum C vs. Stratum D will decrease compared to pre-construction condition.	Difference in Mean Monthly Values	
	Stratum C vs. Stratum D: NA	No
d. The difference in monthly mean values of Chlorophyll-a (Chl-a) and Total Nitrogen (TN) recorded at high tide between Stratum C vs. Stratum D will decrease compared to pre-construction condition.	Difference in Mean Monthly Values	
	Chl-a Stratum C vs. Stratum D: NA	No
	TN Stratum C vs. Stratum D: NA	No
e. The difference in monthly mean values of salinity, Chl-a and TN recorded at high tide between Stratum C vs. Stratum D will be reduced 50% compared to pre-construction differences.	Difference in Mean Monthly Values	
	Salinity Stratum C vs. Stratum D: NA	No
	Chl-a Stratum C vs. Stratum D: NA	No
	TN Stratum C vs. Stratum D: NA	No

Success Criteria	Current Status of Mitigation Site	Criteria Demonstrated
f. Circulation will be documented by the distance traveled by neutrally buoyant objects travelling ¼ mile in all directions over two hours on incoming and outgoing tides.	Visual Observation of ¼ Mile Travel Incoming Tide Travel: 41 minutes (east only) Outgoing Tide Travel: 14 minutes	 No Yes
g. Seagrass Restoration will be successful: For Stratum B East and Stratum C East, when the percent of sampled locations with at least two species of seagrass increases by at least 25 percent, compared to surveys conducted in April of 2016.	Percent Difference in Seagrass Diversity Stratum B East: NA Stratum C East: NA	 No No
The difference in mean percent coverage between Stratum D and Stratum B East and Stratum D and Stratum C East is reduced by more than 25 percent compared to surveys conducted in April of 2016.	Percent Difference in Seagrass Cover Stratum B East: NA Stratum C East: NA	 No No

3

Summary Data

The December 2018 post-construction water circulation monitoring event was conducted on December 17, 2018. Results are provided in the following paragraphs. The methods of data collection were consistent with those described in the Old Tampa Bay/Courtney Campbell Causeway Water Quality Monitoring and Compliance Plan (May 2017) as referenced in the permits.

3.1 Tide and Weather Data

Tide and wind data collected at the Old Port Tampa Station (8726607) by the National Oceanic and Atmospheric Administration (NOAA) are depicted in **Figure 2** as a reference to evaluate tide conditions surrounding the monitoring event. Verified water levels, wind speed, wind direction, and wind gusts during monitoring are provided in **Table 1**.

3.2 Tracer Dye Movement

Non-toxic, fluorescent tracer dye was deployed into the water on the south side of the causeway bridge on an incoming tide at 07:54 AM, and its movement was visually observed to confirm tidal movement across the constructed opening under the causeway during the next two hours. Dye movement were tracked using direct observation from a boat and kayaks and by aerial image capture using a remote-controlled drone. Dye movements confirmed water dispersed through the opening and primarily followed the navigation channels to the north between Strata B and C and east along the causeway. Dispersal was also observed to the east northeast over the shallow seagrass areas between the channels in Stratum C to a distance beyond the quarter-mile radius of the constructed opening.

Tracer dye was deployed at 1:26 PM on the north side of the causeway bridge to assess tidal movement across the opening during the outgoing tide. Visual observations and aerial imagery confirms water dispersed into Old Tampa Bay in all directions well beyond a quarter-mile from the causeway opening.

Oblique aerial photographs from the drone including time, location, and directional data are provided in Section 6.0 Supporting Data as visual documentation to confirm water dispersal during the incoming and outgoing tides.

3.3 Distance Traveled by Neutrally Buoyant Objects

A total of 48 grapefruits were deployed as neutrally buoyant objects on the south edge of the causeway bridge and tracked north of the bridge to assess the movement of water during the incoming tide. The grapefruit were visually observed and their locations recorded by scientists in kayaks using GPS devices to record movement patterns and rate of travel until they passed beyond a quarter mile from the constructed opening.

During the December 17 incoming tide, the objects passed the north edge of the opening at 07:56 AM and began passing the designated quarter-mile radius at 08:37 AM, which represents an average travel rate of 32 feet per minute (**Table 2**). All objects deployed in the incoming tide current followed the east-west channel, heading east, and six of the objects passed the quarter-mile mark (Figure 3) within the two-hour monitoring window. Many became stranded in the rocks along the channel's southern edge.

A total of 48 grapefruits were deployed on the north side of the constructed opening to measure water movement during the outgoing tide cycle. These objects began to pass the south edge of the bridge's aperture at 13:49 PM and traveled south and east into Old Tampa Bay. The first cluster of objects passed the quarter-mile mark heading generally south at 14:03, which represents a travel rate of 94 feet per minute. Several of the objects travelled east and passed the quarter-mile mark, although their movement was noticeably slower (**Figure 4**).

Figure 2. Tide and Wind Data Reported by the NOAA for December 17, 2018

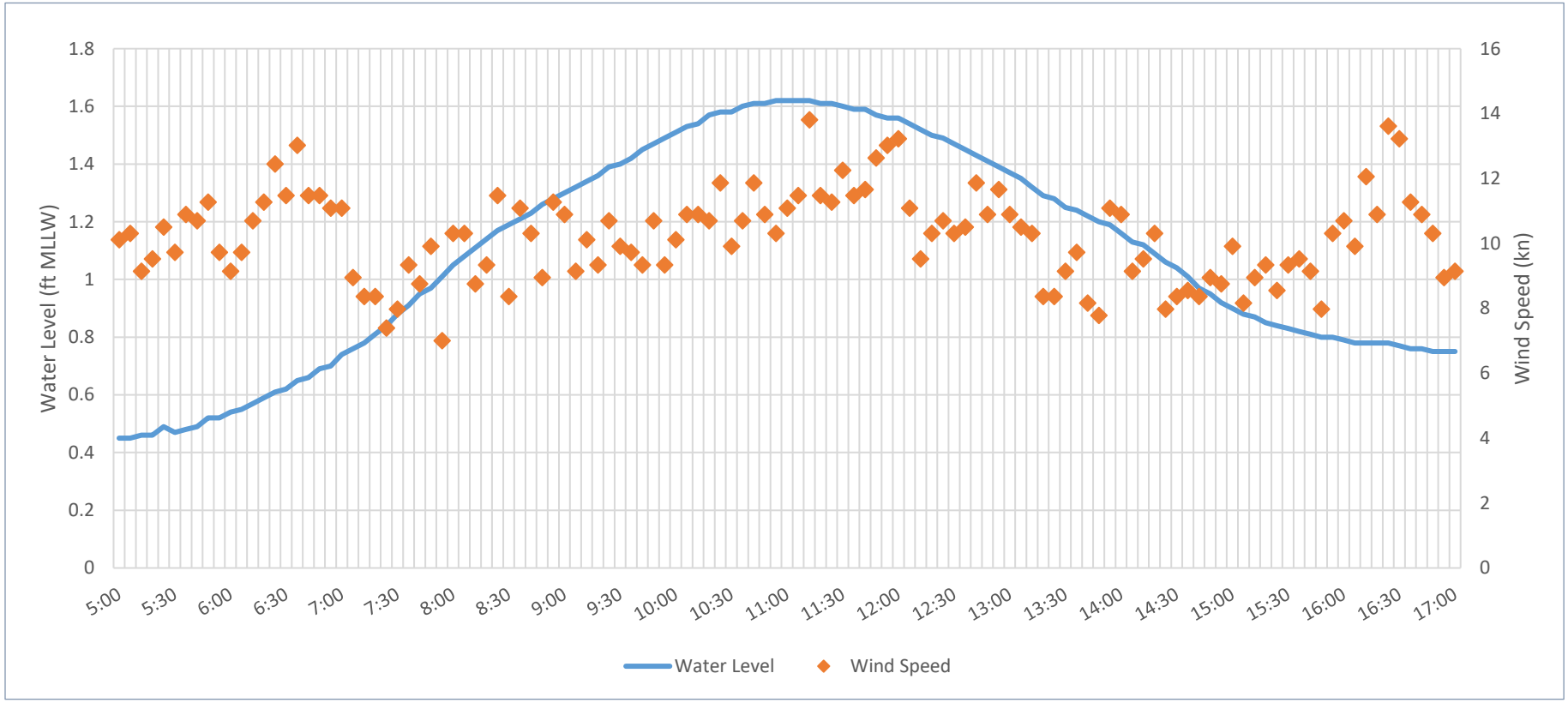


Table 1. Tide and Wind Data during the Monitored Tide Cycle as Reported by the NOAA.

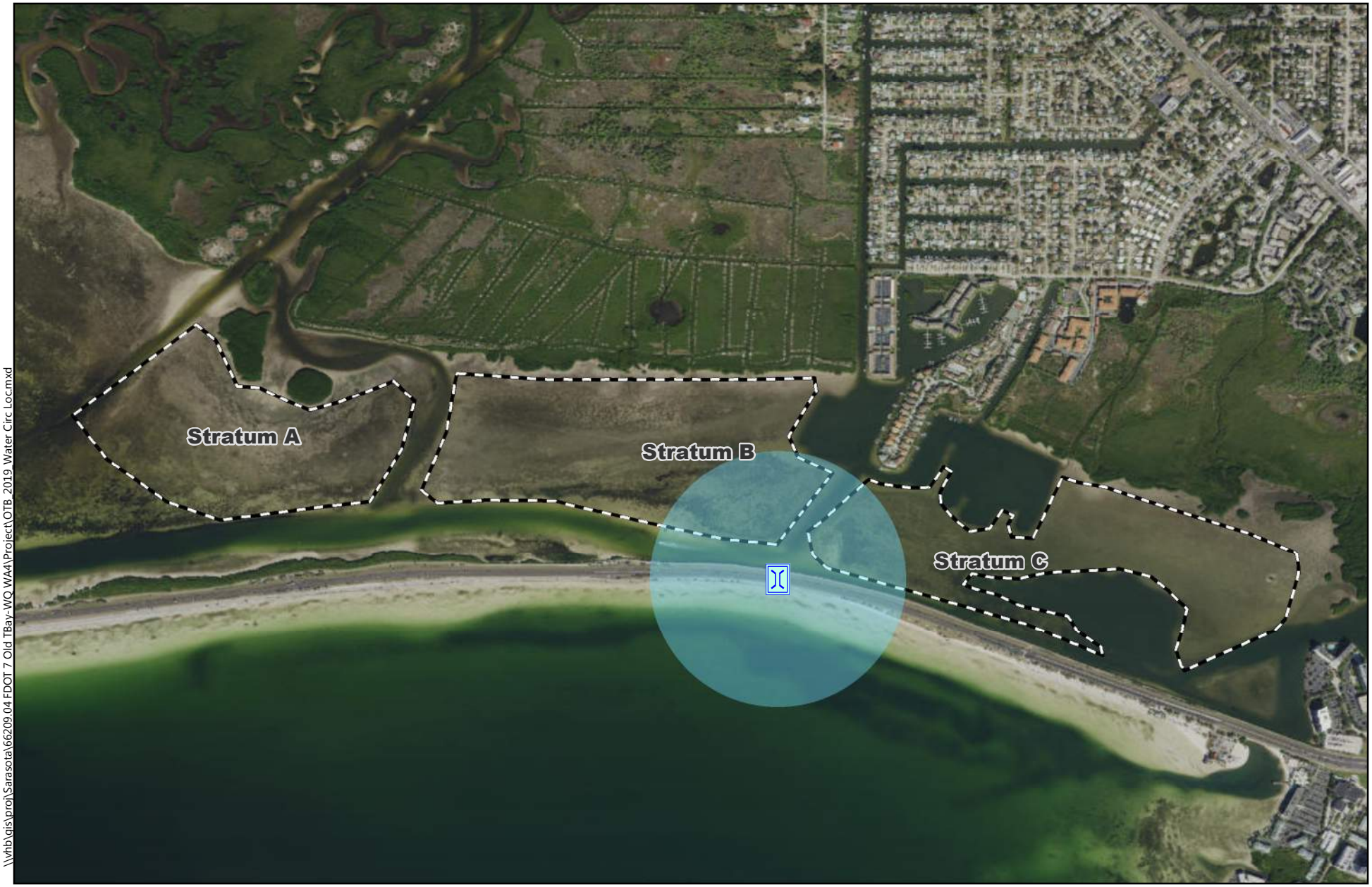
Date	Time	Water Level (ft MLLW)	Wind Speed (kn)	Wind Direction (degrees)	Wind Gusts (kn)
Incoming Tide Cycle					
12/17/2018	07:48	0.97	9.91	7	11.66
12/17/2018	07:54	1.01	7	349	9.33
12/17/2018	08:00	1.05	10.3	5	12.63
12/17/2018	08:06	1.08	10.3	348	11.66
12/17/2018	08:12	1.11	8.75	4	11.47
12/17/2018	08:18	1.14	9.33	6	12.25
12/17/2018	08:24	1.17	11.47	6	14.19
12/17/2018	08:30	1.19	8.36	10	12.05
12/17/2018	08:36	1.21	11.08	4	13.22
12/17/2018	08:42	1.23	10.3	353	13.61
12/17/2018	08:48	1.26	8.94	9	12.63
12/17/2018	08:54	1.28	11.27	6	12.83
12/17/2018	09:00	1.3	10.89	5	12.83
Outgoing Tide Cycle					
12/17/2018	13:24	1.28	8.36	332	12.05
12/17/2018	13:30	1.25	9.14	325	11.27
12/17/2018	13:36	1.24	9.72	328	11.27
12/17/2018	13:42	1.22	8.16	323	10.89
12/17/2018	13:48	1.2	7.78	313	10.5
12/17/2018	13:54	1.19	11.08	316	13.02
12/17/2018	14:00	1.16	10.89	314	12.83
12/17/2018	14:06	1.13	9.14	315	11.86
12/17/2018	14:12	1.12	9.52	317	11.86
12/17/2018	14:18	1.09	10.3	311	12.25
12/17/2018	14:24	1.06	7.97	307	10.5
12/17/2018	14:30	1.04	8.36	302	11.66
12/17/2018	14:36	1.01	8.55	313	10.89
12/17/2018	14:42	0.97	8.36	310	10.5
12/17/2018	14:48	0.95	8.94	310	11.66

Table 2. Summary of Movement by Neutrally Buoyant Objects during a Monitored Tide Cycle on December 17, 2018.

Object	Timestamp	Time Elapsed	Distance Traveled (ft)	Cardinal Direction	Rate (ft/min)	Rate (mph)
Incoming Tide Cycle						
1	8:37	0:41	1327	E	32	0.4
2	8:37	0:41	1327	E	32	0.4
3	8:37	0:41	1327	E	32	0.4
4	8:38	0:42	1389	E	33	0.4
5	8:38	0:42	1389	E	33	0.4
6	8:44	0:48	1296	E	27	0.3
Outgoing Tide Cycle						
8	14:03	0:14	1328	S	95	1.1
9	14:03	0:14	1317	S	94	1.1
10	14:03	0:14	1315	S	94	1.1
11	14:03	0:14	1311	S	94	1.1
12	14:03	0:14	1311	S	94	1.1
13	14:03	0:14	1306	S	93	1.1
14	14:18	0:29	1747	S	60	0.7
15	14:25	0:36	1692	E	47	0.5
16	14:26	0:37	1400	E	38	0.4
17	14:43	0:54	1149	E	21	0.2

4

Maps and Plans



\\vhb\gis\proj\Sarasota\66209.04 FDOT 7 Old TBay-WQ WA4\Project\OTB_2019_Water Circ Loc.mxd

0 500 1000 2000 Feet

Bridge Location

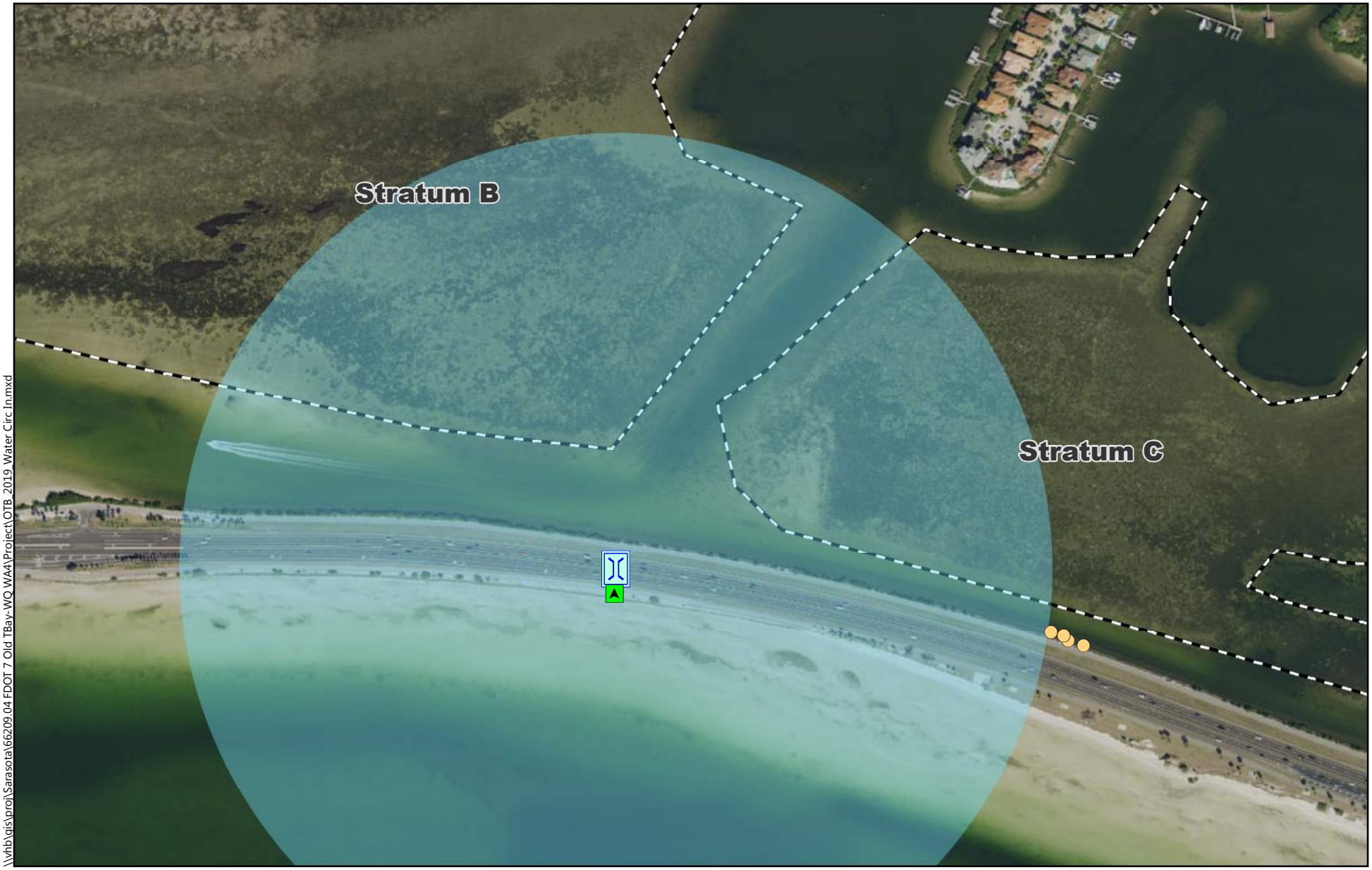
Water Circulation Monitoring Area (Quarter-mile Radius)

Sampling Strata Boundaries

Old Tampa Bay
Water Quality Improvement Project | Hillsborough County

FIGURE 1

Location of Water Circulation Monitoring Area



\\vhb\gis\proj\Sarasota\66209.04 FDOT 7 Old TBay-WQ WA4\Project\OTB_2019_Water Circ In.mxd

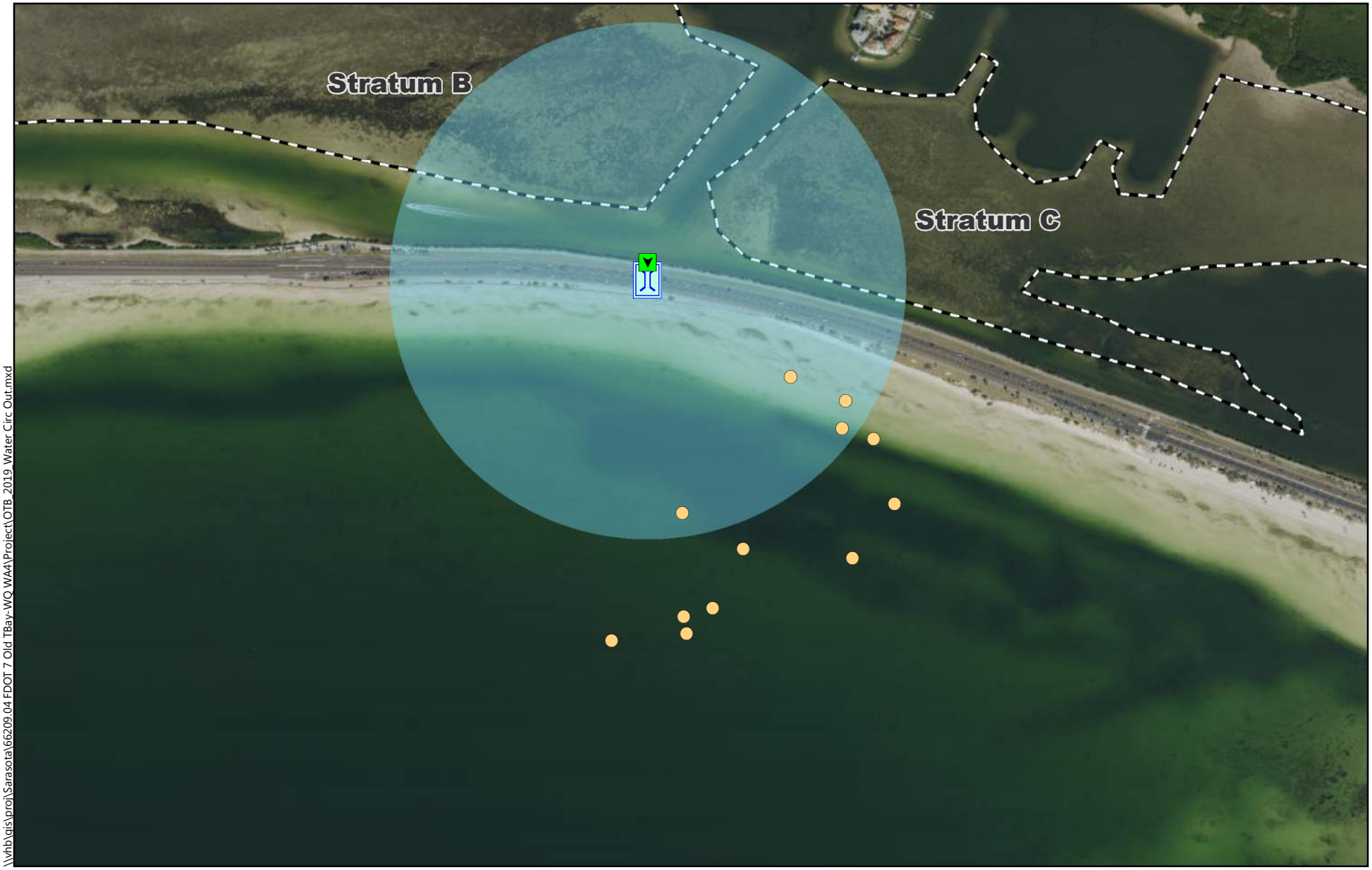
0 250 500 1000 Feet

Object Dispersal Location
Start Location (07:54)
Bridge Location
Water Circulation Monitoring Area (Quarter-mile Radius)
Sampling Strata Boundaries

Old Tampa Bay
Water Quality Improvement Project | Hillsborough County

FIGURE 3

Neutrally Buoyant Object Movements during the Incoming Tide



\\vhb\gis\proj\Sarasota\66209.04 FDOT 7 Old TBay-WQ WA4\Project\OTB_2019_Water Circ Out.mxd

0 250 500 1000 Feet

Object Dispersal Location

Start Location (13:49)

Bridge Location

Water Circulation Monitoring Area (Quarter-mile Radius)

Sampling Strata Boundaries

Old Tampa Bay
Water Quality Improvement Project | Hillsborough County

FIGURE 4

Neutrally Buoyant Object Movements during the Outgoing Tide

5

Conclusions

Results of the December 2018 water circulation confirmed that water passed through the constructed opening and dispersed beyond a quarter mile from the aperture within the required 2-hour timeframe designated by the permits in most directions. During the incoming tide, tracer dye was observed primarily within the channels to the north and east directions and spread across Stratum C (northeast) as water levels rose. Neutrally buoyant objects passed the quarter-mile mark within the required timeframe, but only traveled east along the channel parallel to the causeway. The monitored high tide during the survey was lower than the average high tide, and water levels only reached 1.62 feet above mean lower low water (MLLW). It is expected that water circulation will be broader and objects will disperse in other directions during stronger high tides and periods of higher water levels.

The rate of dye and grapefruit dispersal was higher during the outgoing tide. Tracer dye dispersed into Old Tampa Bay in all directions, and the neutrally buoyant objects began passing beyond a quarter mile from the constructed opening in 14 minutes. Most of the objects traveled south of the causeway, although several of the objects also traveled in a generally eastern direction at a slower rate.

The dye tracer study documented that the project has meet success criterion a. Tidal Flux Restored. The neutrally buoyant object study demonstrated partial success, with objects passing the quarter mile distance within two hours to the south and east. The next buoyant object study will be scheduled during a more typical high tide to determine if water elevation changes object movement.

Water quality, water circulation (including dissolution block testing), and seagrass monitoring will continue through 2019 to assess the success criteria established in USACE Permit # SAJ-2016-02935 (IP-SB)] and the District Permit # 43000920.017.

6

Supporting Data

Aerial photographs including time, location, and directional data are provided below as visual documentation to confirm water dispersal during the incoming and outgoing tide cycles.

FDOT Old Tampa Bay Water Quality Improvement Project
(FPID 439206-1-C2-01
Water Circulation Monitoring

December 2018

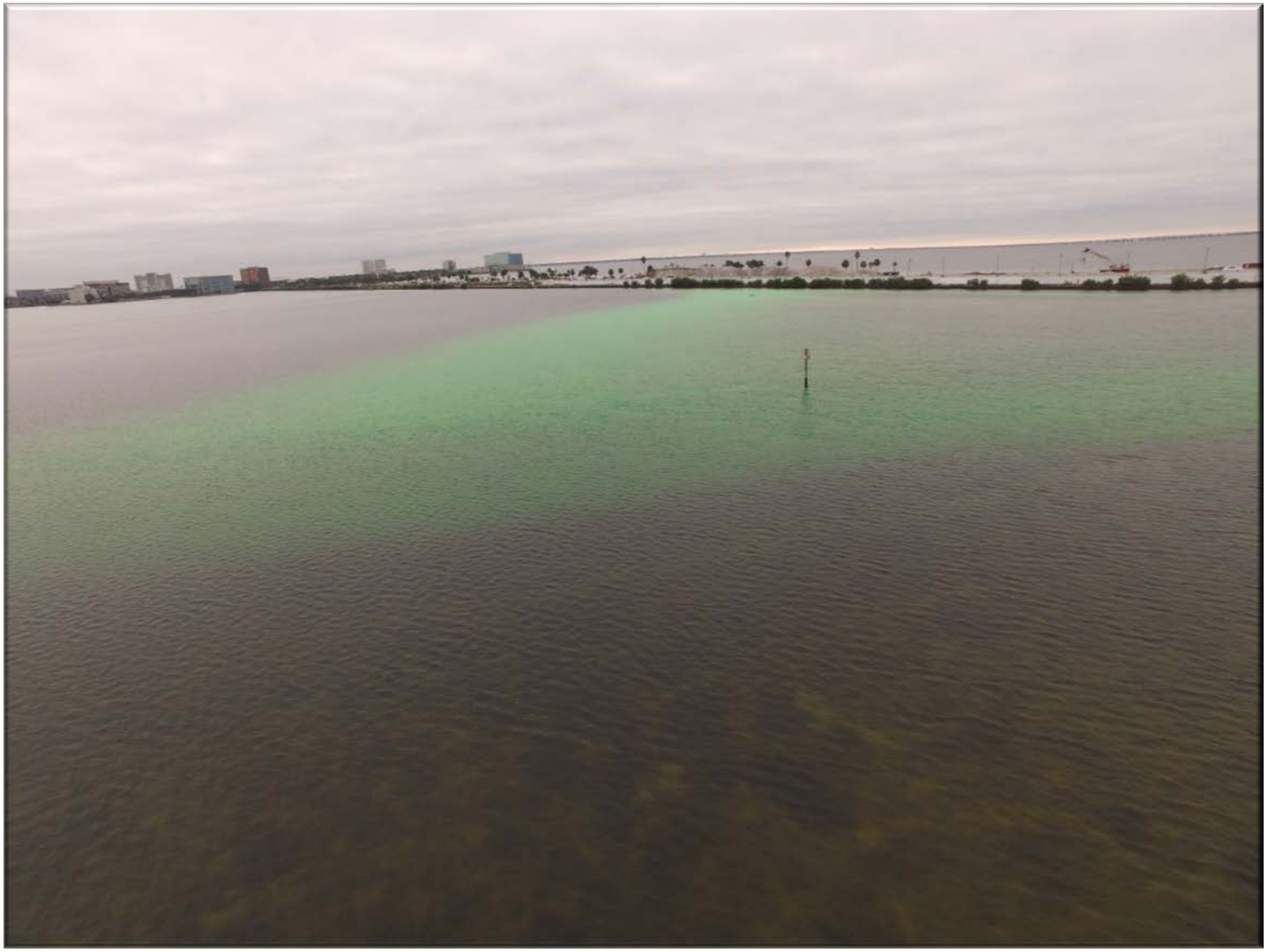


Photo Metadata

Tide Cycle

Incoming

File ID

DJI_0003.JPG

Date

12/17/2018

Time

8:20:18 AM

Latitude

27° 58' 31.44" N

Longitude

82° 35' 6.03" W

Orientation (degrees)

141.9

FDOT Old Tampa Bay Water Quality Improvement Project
(FPID 439206-1-C2-01
Water Circulation Monitoring

December 2018

Photo Metadata

Tide Cycle

Incoming

File ID

DJI_0012.JPG

Date

12/17/2018

Time

8:22:14 AM

Latitude

27° 58' 32.51" N

Longitude

82° 34' 55.07" W

Orientation (degrees)

233.8

FDOT Old Tampa Bay Water Quality Improvement Project
(FPID 439206-1-C2-01
Water Circulation Monitoring

December 2018

Photo Metadata

Tide Cycle

Incoming

File ID

DJI_0019.JPG

Date

12/17/2018

Time

8:23:46 AM

Latitude

27° 58' 21.34" N

Longitude

82° 34' 55.88" W

Orientation (degrees)

321.1

FDOT Old Tampa Bay Water Quality Improvement Project
(FPID 439206-1-C2-01
Water Circulation Monitoring

December 2018

Photo Metadata

Tide Cycle

Incoming

File ID

DJI_0024.JPG

Date

12/17/2018

Time

8:24:19 AM

Latitude

27° 58' 22.71" N

Longitude

82° 35' 1.72" W

Orientation (degrees)

67.4

FDOT Old Tampa Bay Water Quality Improvement Project
(FPID 439206-1-C2-01
Water Circulation Monitoring

December 2018

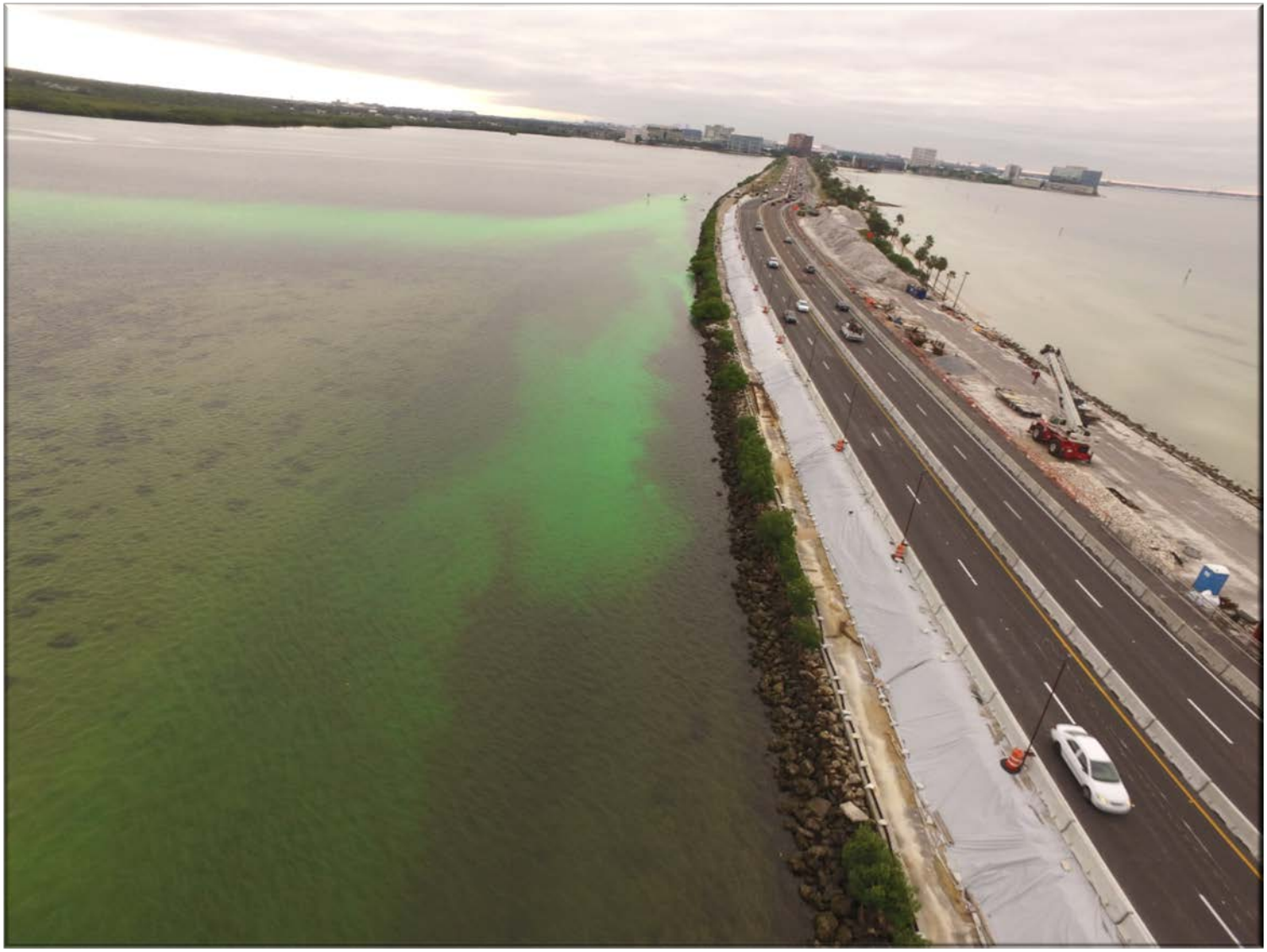


Photo Metadata

Tide Cycle

Incoming

File ID

DJI_0039.JPG

Date

12/17/2018

Time

8:28:39 AM

Latitude

27° 58' 23.98" N

Longitude

82° 35' 8.05" W

Orientation (degrees)

97.9

FDOT Old Tampa Bay Water Quality Improvement Project
(FPID 439206-1-C2-01
Water Circulation Monitoring

December 2018

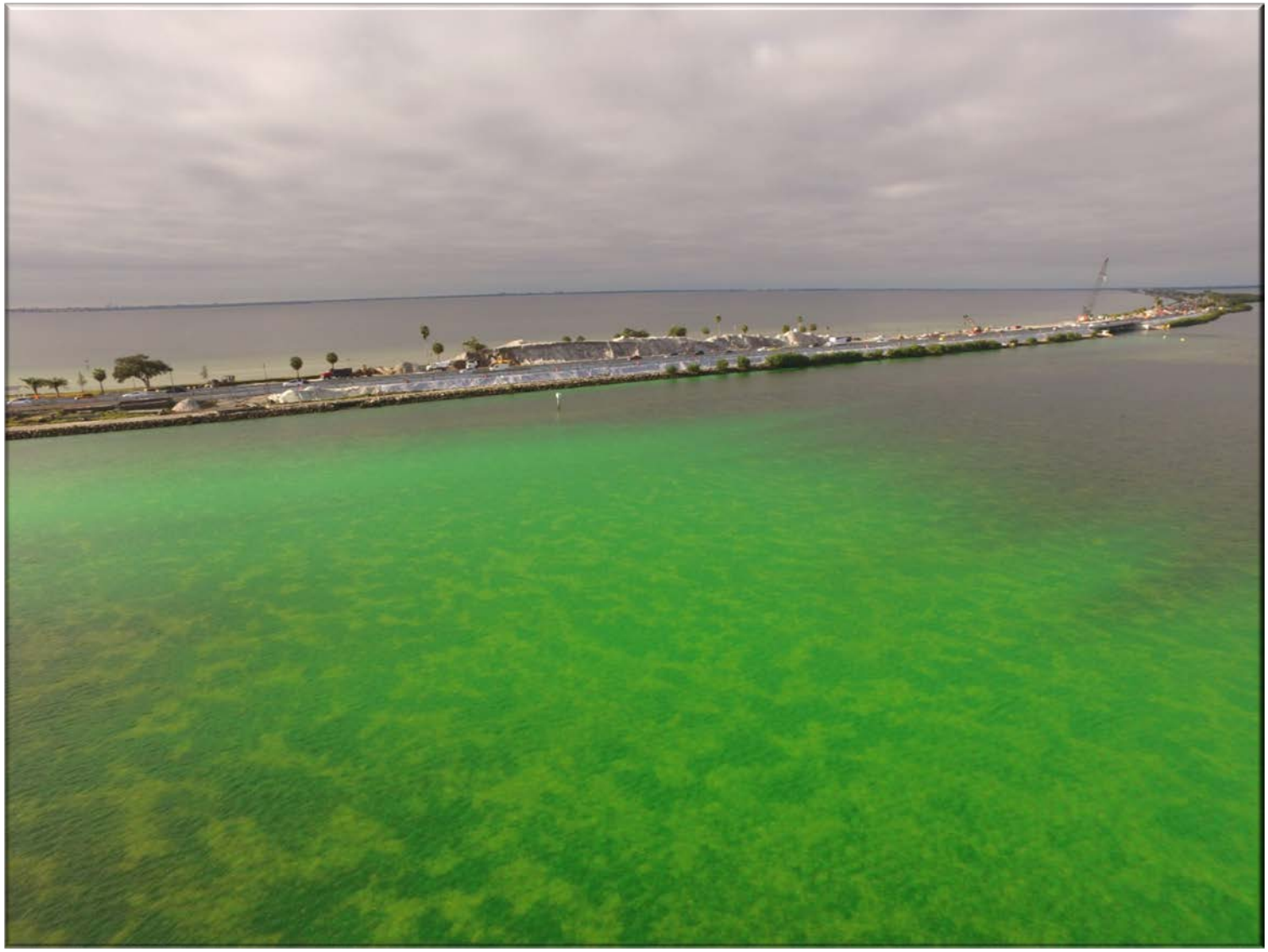


Photo Metadata

Tide Cycle

Incoming

File ID

DJI_0055.JPG

Date

12/17/2018

Time

8:59:36 AM

Latitude

27° 58' 25.43" N

Longitude

82° 34' 52.48" W

Orientation (degrees)

228.3

FDOT Old Tampa Bay Water Quality Improvement Project
(FPID 439206-1-C2-01
Water Circulation Monitoring

December 2018

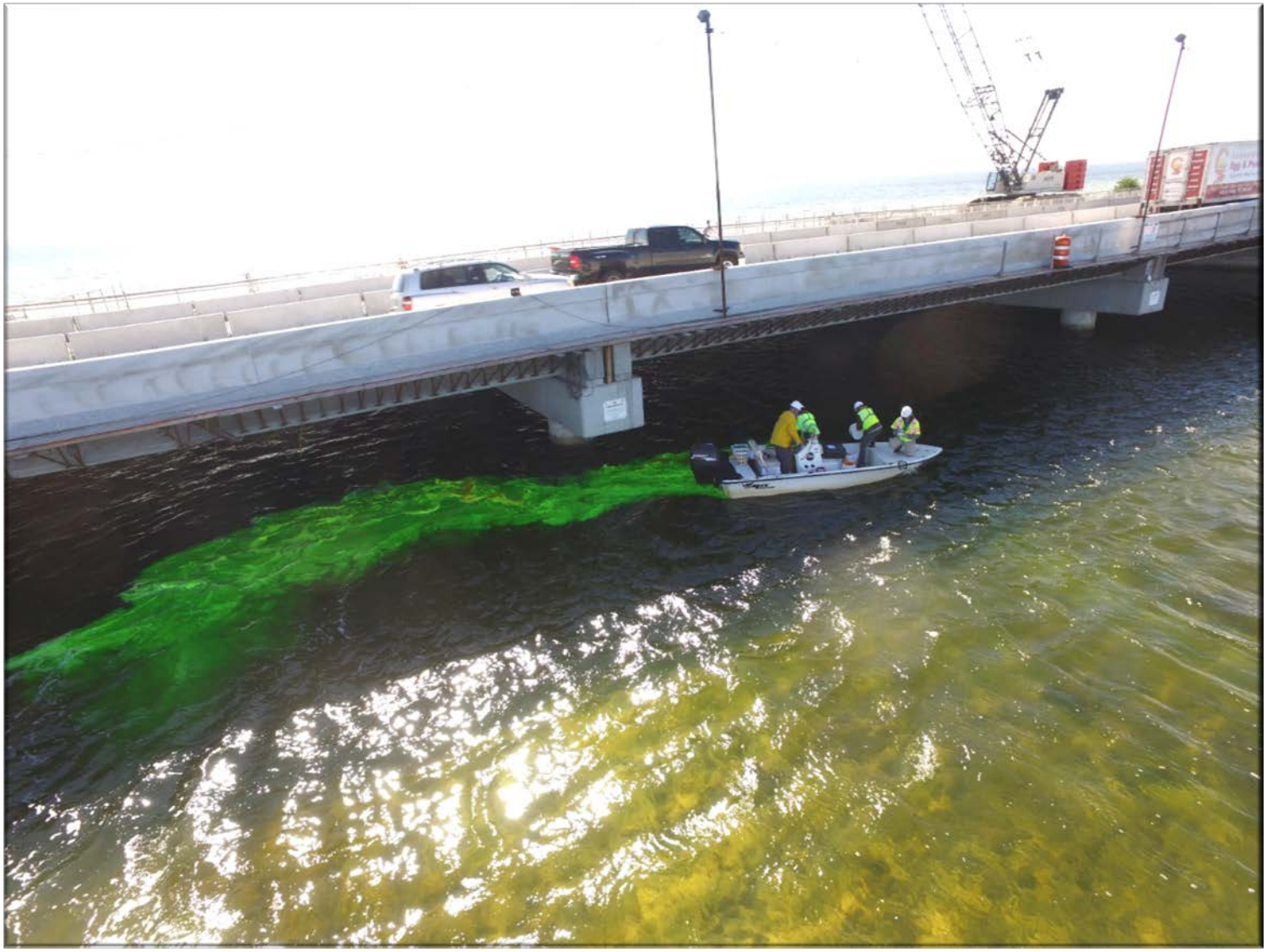


Photo Metadata

Tide Cycle

Outgoing

File ID

DJI_0016.JPG

Date

12/17/2018

Time

1:26:40 PM

Latitude

27° 58' 23.91" N

Longitude

82° 35' 8.89" W

Orientation (degrees)

210.8

FDOT Old Tampa Bay Water Quality Improvement Project
(FPID 439206-1-C2-01
Water Circulation Monitoring

December 2018

Photo Metadata

Tide Cycle

Outgoing

File ID

DJI_0047.JPG

Date

12/17/2018

Time

1:32:16 PM

Latitude

27° 58′ 15.71" N

Longitude

82° 35′ 08.74" W

Orientation (degrees)

352

FDOT Old Tampa Bay Water Quality Improvement Project
(FPID 439206-1-C2-01
Water Circulation Monitoring

December 2018

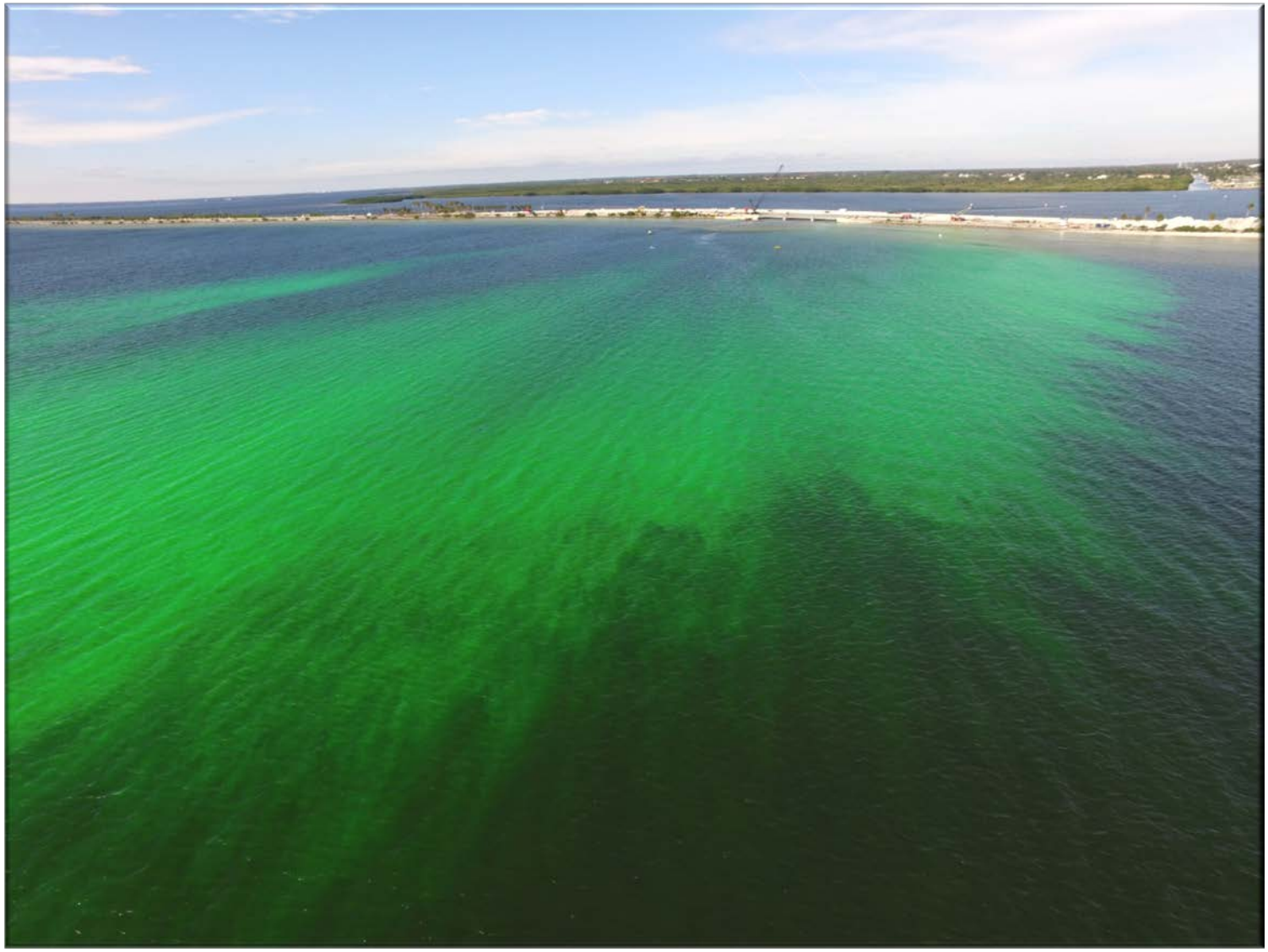


Photo Metadata

Tide Cycle

Outgoing

File ID

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Date

12/17/2018

Time

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Latitude

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Longitude

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Orientation (degrees)

324.1

FDOT Old Tampa Bay Water Quality Improvement Project
(FPID 439206-1-C2-01
Water Circulation Monitoring

December 2018

Photo Metadata

Tide Cycle

Outgoing

File ID

DJI_0057.JPG

Date

12/17/2018

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Orientation (degrees)

334.3

FDOT Old Tampa Bay Water Quality Improvement Project
(FPID 439206-1-C2-01
Water Circulation Monitoring

December 2018

Photo Metadata

Tide Cycle

Outgoing

File ID

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Date

12/17/2018

Time

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Longitude

82° 35' 17.24" W

Orientation (degrees)

55.9

FDOT
Florida Department of Transportation
RON DESANTIS
GOVERNOR
11201 N. McKinley Drive
Tampa, FL 33612
KEVIN J. THIBAULT, P.E.
SECRETARY

February 18, 2019
David Kramer
Southwest Florida Water Management District
Dave.Kramer@swfwmd.state.fl.us

RE: FDOT Old Tampa Bay Water Quality Improvement Project/Permit 43000920.017
FPID 439206-1-52-01

The intent of this letter is to amend the subject permit with a water quality credit ledger as well as to provide demonstration that the first milestone in the water quality success monitoring plan has been achieved. The establishment of sufficient tidal flux results in release of 20 percent of the available credits, approximately 612 acres of impervious pavement or 2,032.2 Kg N/year, per the permit conditions. Please see attached Water Quality Credit Release schedule and ledger as well as the Water Circulation Monitoring Report, dated December 2018. If you have any questions, please do not hesitate to call me at 813-975-6151 or email me at virginia.creighton@dot.state.fl.us.

Sincerely,

Ginger Creighton

Virginia (Ginger) Creighton, PWS
Environmental Permits Coordinator
Dept. of Transportation District Seven

Enclosures: Water Quality Monitoring Plan excerpts, updated Release Schedule and Ledger

Copy by email:
Gary Serviss, gserviss@vhb.com
Ed Cronyn, ed.cronyn@atkinsglobal.com
Shayne Paynter, Shayne.Paynter@atkinsglobal.com
Cristina Jackson, mcjackson@hntb.com

Excerpts from Old Tampa Bay Water Quality Monitoring and Compliance Plan, May 2017

Water Quality Success Criteria and Value	
Success Criteria	Available Equivalent Annual Reduction Value
A.) Tidal flux restored upon construction of opening. Movement of non-toxic, fluorescent tracer-dye is proposed as a visual observation to confirm tidal exchange across the constructed opening. Documentation of tidal exchange via tracer-dye would help to corroborate model results, and was also utilized with the Fort DeSoto tidal restoration project completed in 2004 (NOAA 2006, Fehrman 2005). The Fort DeSoto tidal restoration project was funded in part by the FDOT through the Southwest Florida Water Management District for seagrass mitigation credit (SWFWMD 2017). For this project, dye will be placed in the water south of the opening during an incoming tide, and again on the north side of the opening during an outgoing tide. Visual observation (either aerial or on-water) will document the extent of dye- dispersal. Efforts will be made to quantify the distance such water masses will have moved through the opening during an incoming tide and outgoing tide.	See Release Table Below
B.) Dissolution rate experiment. The dissolution rate of a solid in water is often utilized as a simpleand cost-effective measurement of relative water motion (Jokiel and Morrissey, 1993; NOAA 2013), and thus was selected as one of the measurements to quantify lower levels of tidal exchange in Stratum C than in Strata A and B along with hydrodynamic modeling for this project (FDOT 2016b). The method for this project consisted of attaching blocks of Plaster of Paris to an anchor, suspending in five locations in these three strata, and measuring rate of loss in weight, as described below. Plastic one-gallon water jugs were used to form the mold for the Plaster of Paris. After formation and drying to a constant weight, the molds were drilled for the placement of a bolt and washer set up to allow for their deployment in the field. A series of bolts and washers were attached to a piece of rebar with a 90-degree angle via rope. The weight of the bolt and washer and the Plaster of Paris block were weighed initially, and then two additional times: after one and three days left in the field. The amount of Plaster of Paris lost per unit time was recorded (in units of hours). The rate of loss was normalized to 24 hours, and results quantified as a percentage loss per day. As a surrogate for net water movement, the blocks made of Plaster of Paris will be suspended in the water column at 10 randomly located stations each in strata A, B, C and D. Each sampling location will be at a site with at least 3 feet of water depth at MSL, in order to minimize effects of surface turbulence and shallow sandbars. The average dissolution rate (percent loss per day, by weight) will be recorded and reported in the mitigation polygons in Strata A through C and in the control site (Stratum D), prior to and after the opening of the causeway. The dissolution rate in each mitigation area will be compared to the control site. A post-construction reduction of 50% in the difference in dissolution rate in each mitigation stratum in comparison to the control stratum, will be deemed to demonstrate successful restoration of tidal movement.	See Release Table Below
C.) The difference in monthly mean values of salinity recorded at high tide between Strata C vs. D will decrease after restoration, as compared to the current (pre-construction) condition. The detection of differences will be based on water quality data obtained before and after construction of the opening, as described in the monitoring program summary table.	See Release Table Below
D.) The difference in monthly mean values of water column Chlorophyll-a (at high tide) between Strata C vs. D will decrease after restoration, as compared to the current (pre-construction) condition. The detection of post-construction improvement will be based on water quality data obtained over a two year period as described in the monitoring program summary table above, or shorter if monitoring demonstrates compliance with this criteria over a shorter time period.	See Release Table Below
E.) The difference in monthly mean values of water column Total Nitrogen (TN) concentrations between Strata C vs. D will decrease after the restoration, as compared to the current (preconstruction) condition. The detection of post-construction improvement will be based on water quality data obtained over a two year period as described in the monitoring program summary table above, or shorter if monitoring demonstrates compliance with this criteria over a shorter time period.	See Release Table Below

F.) Water quality restoration will be considered complete when the differences between mean values in the restoration focus area (Stratum C) vs. the reference area (Stratum D) for the above mentioned water quality components have been reduced by 50%, compared to baseline (preconstruction) differences. For example, if salinities in Stratum D averaged 30 parts per thousand (ppt) in the two months prior to construction of the opening, while salinities in Stratum C averaged 26, the difference in salinity would be 4 ppt during the "Before" period. If data collected in the first four months after construction of the opening (the "After" period) resulted in mean monthly salinities in Stratum D still at 30 ppt, while over the same time period mean monthly salinities in Stratum C averaged 28, the difference in salinity would be 2 ppt, and the difference in mean monthly values would have decreased by 50%, from 4 to 2 ppt. In this situation, the site will have achieved the success criteria.	See Release Table Below

Old Tampa Bay Water Quality Improvement Release Schedule

Phase (see success criteria above)	Release	Compensatory Impervious Area Credits (Acres)	Compensatory Total Nitrogen Credits (Kg N/year)
A. Tidal Flux Established	20%	612.00	2,032.20
B. Dissolution Rate Improvement	20%	612.00	2,032.20
C. Salinity Improvement	30%	918.00	3,048.30
D. to E. Chlorophyll-a and TN Improvement	20%	612.00	2,032.20
F. Restoration vs. Reference Differences Reduced by 50%	10%	306.00	1,016.10
	Total	3,060.00	10,161.00

Old Tampa Bay Water Quality Credit Ledger

Water Quality Credit Ledger								
Date	Success Criteria Milestone	Permit Mod Number	Entity Using Mitigation (if subtracting)	Permit Number of Entity Using Mitigation	Project Name for Permit Using Mitigation	Mitigation Value Added (Kg N/year)	Mitigation Subtracted (Kg N/year)	Mitigation Balance (Kg N/year)
2/20/2019	A. Tidal Flux Established					2,032.20		2,032.20
2/20/2019			FDOT, District Seven	43001034.01	Northbound Howard Frankland Bridge Replacement and I-275 Widening		418.36	1,613.84

PERMIT NO. 920.030

Widening of I-275, SR 60, and Reo Street

Most Recent Revision to
Old Tampa Bay Water Quality Ledger

Florida Department of Transportation

RON DESANTIS
GOVERNOR

11201 North McKinley Drive
Tampa, FL 33612-6456

KEVIN J. THIBAULT, P.E.
SECRETARY

July 8, 2022

Mirko Soko, PE
Southwest Florida Water Management District
Submitted via ePermit portal

RE: Water Quality Ledger--FDOT Old Tampa Bay Water Quality Improvement Project/Permit 43000920.017 (FPID 439206-1)

The intent of this letter is to amend the subject permit with a 419.77 Kg/year Nitrogen loading debit from the ledger for TBN Segment 4 and Segment 5 (I-275) & Veterans Connector (SR 60) (permit 43002958.023/FPID 412531-1) and 3.965 Kg/year Nitrogen loading debit for Reo Street Widening from West Gray Street to Cypress Street (permit 43045697.000/FPID 447615-1).

Please see attached ledger with updated accounting of compensatory nitrogen credits.

If you have any questions, please do not hesitate to call me at (813) 281-8225 or email me at Shayne.paynter@atkinsglobal.com.

Sincerely,

Shayne Paynter

Shayne Paynter, PhD, PE, PG
Drainage GEC Consultant
Florida Dept. of Transportation District Seven

Enclosures: Updated Compensatory Nitrogen Credit Ledger

Copy by email: Abdul Waris, PE, Abdul.Waris@dot.state.fl.us
Ed Cronyn, PWS, Edward.Cronyn@dot.state.fl.us
James Scott Stevens, jamesscott.stevens@dot.state.fl.us
Joel Johnson, Joel.Johnson@dot.state.fl.us
James Fine, jfine@hntb.com

Excerpts from Old Tampa Bay Water Quality Monitoring and Compliance Plan, May 2017

Water Quality Success Criteria and Value	
Success Criteria	Available Equivalent Annual Reduction Value
A.) Tidal flux restored upon construction of opening. Movement of non-toxic, fluorescent tracer-dye is proposed as a visual observation to confirm tidal exchange across the constructed opening. Documentation of tidal exchange via tracer-dye would help to corroborate model results, and was also utilized with the Fort DeSoto tidal restoration project completed in 2004 (NOAA 2006, Fehrman 2005). The Fort DeSoto tidal restoration project was funded in part by the FDOT through the Southwest Florida Water Management District for seagrass mitigation credit (SWFWMD 2017). For this project, dye will be placed in the water south of the opening during an incoming tide, and again on the north side of the opening during an outgoing tide. Visual observation (either aerial or on-water) will document the extent of dye- dispersal. Efforts will be made to quantify the distance such water masses will have moved through the opening during an incoming tide and outgoing tide	See Release Table Below
B.) In addition to the monitoring locations established by the Department, data will also be analyzed from Hillsborough County Environmental Protection Commission (EPC) stations within and adjacent to the mitigation area. EPC data to be analyzed includes 10 years of pre-construction TN and Chl-a data from EPC Stations 62 and 63 to establish the average baseline condition. The baseline difference for TN and Chl-a will be compared to data collected by EPC for up to two years subsequent to construction of the CCC opening. Success criteria is complete when average differences between mean values in the restoration focus area (Site 62) vs. the reference area (Site 63) for TN and Chl-a are reduced by20%, compared to 10-year preopening baseline- average.	See Release Table Below
C.) The difference in monthly mean values of salinity recorded at high tide between Strata C vs. D will decrease after restoration, as compared to the current (pre-construction) condition. The detection of differences will be based on water quality data obtained before and after construction of the opening, as described in the monitoring program summary table.	See Release Table Below
D.) The difference in monthly mean values of water column Chlorophyll-a (at high tide) between Strata C vs. D will decrease after restoration, as compared to the current (pre-construction) condition. The detection of post-construction improvement will be based on water quality data obtained over a two year period as described in the monitoring program summary table above, or shorter if monitoring demonstrates compliance with this criteria over a shorter time period.	See Release Table Below
E.) The difference in monthly mean values of water column Total Nitrogen (TN) concentrations between Strata C vs. D will decrease after the restoration, as compared to the current (preconstruction) condition. The detection of post-construction improvement will be based on water quality data obtained over a two year period as described in the monitoring program summary table above, or shorter if monitoring demonstrates compliance with this criteria over a shorter time period.	See Release Table Below
F.) Water quality restoration will be considered complete when the differences between mean values in the restoration focus area (Stratum C) vs. the reference area (Stratum D) for the above mentioned water quality components have been reduced by 50%, compared to baseline (preconstruction) differences. For example, if salinities in Stratum D averaged 30 parts per thousand (ppt) in the two months prior to construction of the opening, while salinities in Stratum C averaged 26, the difference in salinity would be 4 ppt during the “Before” period. If data collected in the first four months after construction of the opening (the “After” period) resulted in mean monthly salinities in Stratum D still at 30 ppt, while over the same time period mean monthly salinities in Stratum C averaged 28, the difference in salinity would be 2 ppt, and the difference in mean monthly values would have decreased by 50%, from 4 to 2 ppt. In this situation, the site will have achieved the success criteria.	See Release Table Below

Old Tampa Bay Water Quality Improvement Release Schedule

Phase (see success criteria above)	Release	Compensatory Impervious Area Credits (Acres)	Compensatory Total Nitrogen Credits (Kg N/year)
A. Tidal Flux Established	20%	612.00	2,032.20
B. EPC Historic TN and Chlorophyll-a Improvement	20%	612.00	2,032.20
C. Salinity Improvement	30%	918.00	3,048.30
D. to E. Chlorophyll-a and TN Improvement	20%	612.00	2,032.20
F. Restoration vs. Reference Differences Reduced by 50%	10%	306.00	1,016.10
	Total	3,060.00	10,161.00

Old Tampa Bay Water Quality Credit Ledger

Water Quality Credit Ledger								
Date	Success Criteria Milestone	Permit Mod Number	Entity Using Mitigation (if subtracting)	Permit Number of Entity Using Mitigation	Project Name for Permit Using Mitigation	Mitigation Value Added (Kg N/year)	Mitigation Subtracted (Kg N/year)	Mitigation Balance (Kg N/year)
3/8/2019	A. Tidal Flux Established	43000920.019				2,032.20		2,032.20
3/8/2019		43000920.019	FDOT, District Seven	43001034.012	Northbound Howard Frankland Bridge Replacement and I-275 Widening FPID 422904		418.36	1,613.84
4/5/2019		43000920.021	FDOT, District Seven	43042548.001	I-275 Bus on Shoulder Pilot Project FPID 443684-1		37.58	1,576.26
8/21/2019		43000920.022	FDOT, District Seven	43002958.020	I-275 Operational Improvements FPID 441111-1-52-01		66.03	1,510.23
2/2/2021	C. Salinity Improvement	43000920.023				3,048.30		4,558.53
	D. to E. Chlorophyll-a and TN Improvement					2,032.20		6,590.73
11/9/2021		43000920.027	FDOT, District Seven	43001034.015	Northbound Howard Frankland Bridge Replacement and I-275 Widening FPID 422904		22.33	6,568.40
11/9/2021	B. EPC Historic TN and Chlorophyll-a Improvement	43000920.027				2,032.20		8,600.60
2/4/2022		43000920.028	FDOT, District Seven	43002958.022	Cypress Street at LaSalle Street from East of Lake Street to North of Cypress St FPID 447614-1		1.18	8,599.42
7/8/2022			FDOT, District Seven	43002958.023	TBN Segment 4 and Segment 5 (I-275) & Veterans Connector (SR 60) FPID 412531-1		419.77	8,179.65
7/8/2022			FDOT, District Seven	43045697.000	Reo Street Widening from West Gray Street to Cypress Street FPID 447615-1		3.965	8,175.69

Current mitigation credit balance

PERMIT NO. 920.030

Widening of I-275, SR 60, and Reo Street

Most Recent Revision to
Old Tampa Bay Water Quality Ledger

Numeric Nutrient Criteria Recommendations for the Tampa Bay Estuary

SUMMARY AND TECHNICAL SUPPORT DOCUMENTS

Prepared for:

Tampa Bay Estuary Program

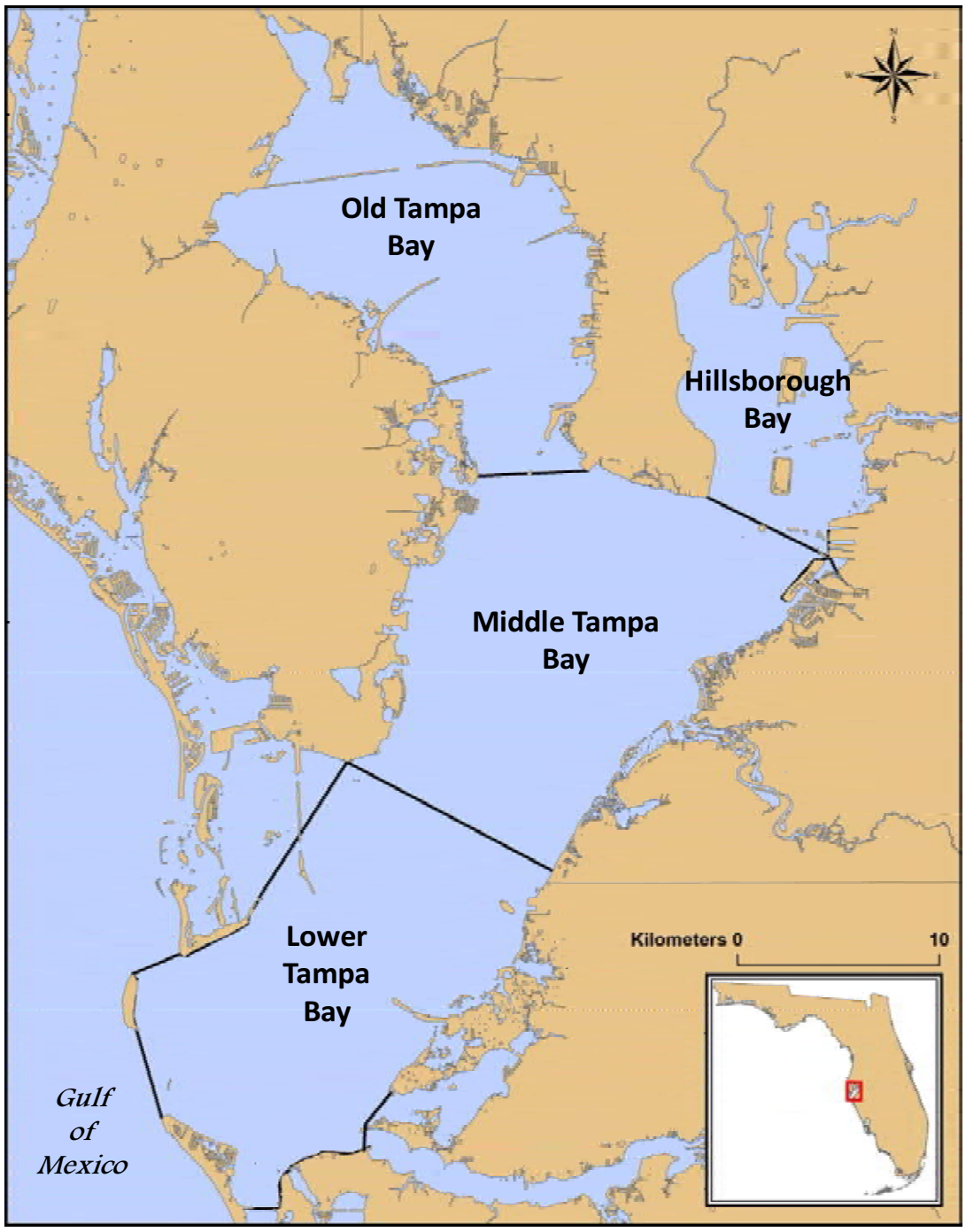
Prepared by:

Janicki Environmental, Inc.

22 February 2011

Objective

The objective of this document is to provide a summary of the recent work conducted by the Tampa Bay Estuary Program (TBEP) to provide the U.S. Environmental Protection Agency (EPA) and the Florida Department of Environmental Protection (FDEP) recommendations regarding the establishment of numeric nutrient criteria for the Tampa Bay Estuary. For reference, the following map of Tampa Bay depicts the four major bay segments referred to in this summary and the attached technical documents.



The Need for Numeric Nutrient Criteria

The FDEP began development of numeric nutrient standards in December 2001. The FDEP formed a technical advisory committee and an agency work group to assist in identifying appropriate nutrient standards. FDEP has conducted a number of workshops and meetings as well as several studies since 2002.

In 2008, several environmental groups filed suit against EPA in Federal Court alleging that EPA had determined in 1998 that Florida's current narrative nutrient standard did not comply with the Clean Water Act and that EPA had not established numeric nutrient standards pursuant to Section 303(c)(4)(B) of the Clean Water Act. As a consequence of this lawsuit, EPA sent FDEP a letter on January 14, 2009 finding that FDEP's narrative nutrient standard did not comply with the Clean Water Act and directing the State of Florida to develop numeric nutrient standards for rivers and lakes by January 2010 and estuarine and coastal waters by January 2011. EPA stated that it would adopt its own nutrient standards if FDEP could not meet these deadlines. In August 2009, the suit plaintiffs and EPA agreed to a Consent Decree formally establishing the deadlines and determined that EPA would be responsible for establishing numeric criteria for Florida waters.

Management of the Tampa Bay Estuary

The Tampa Bay Comprehensive Conservation and Management Plan (TBNEP, 1996) established the restoration of seagrass in the bay to levels estimated in the 1950s as a primary goal for overall bay restoration. In establishing and addressing this goal, a conceptual paradigm was developed to identify the primary, manageable factors thought to influence the recovery and sustainability of seagrass resources within the bay. Reduced water clarity as a result of excessive nitrogen loads to the bay and resulting light attenuation by phytoplankton responding to these loadings were the key water quality indicators by which seagrass recovery could be managed. A number of studies in the 1990s clearly established that nitrogen was the limiting nutrient in the Tampa Bay estuary and that phosphorus loadings to the bay from the enriched Bone Valley region were not controlling estuarine production.

In November 2002, the Florida Department of Environmental Protection (FDEP) concluded that the Tampa Bay Nitrogen Management Consortium's (TBNMC) nitrogen management strategy provided reasonable assurance that the state water quality criteria for nutrients would be met in Tampa Bay. Prior to this state determination, the U.S. Environmental Protection Agency (EPA) recognized a 1998 action by FDEP that proposed a total maximum load ("federally-recognized TMDL") of nitrogen that could be discharged to the bay annually and still meet state water quality standards related to nutrients. Both FDEP's reasonable assurance determination and the total maximum nitrogen loading recognized by EPA are based on statistical modeling and data analyses peer-reviewed by the TBEP, its partners, and state and federal regulators. Thus, the TBNMC's nitrogen loading targets developed for the major bay segments of Tampa Bay have been acknowledged by both FDEP and EPA as protective nutrient loads for this estuary. A five-year renewal of the Tampa Bay Reasonable Assurance (RA) was recently approved by order of the FDEP Secretary.

The Southwest Florida Water Management District recently reported on the seagrass acreage in Tampa Bay from its survey conducted in 2010. The results from this survey show an increase of approximately 3,250 acres since the 2008 survey (Figure 1). Therefore, there is tangible evidence

that the TBNMC nitrogen loading strategy continues to support seagrass recovery in the Tampa Bay Estuary.

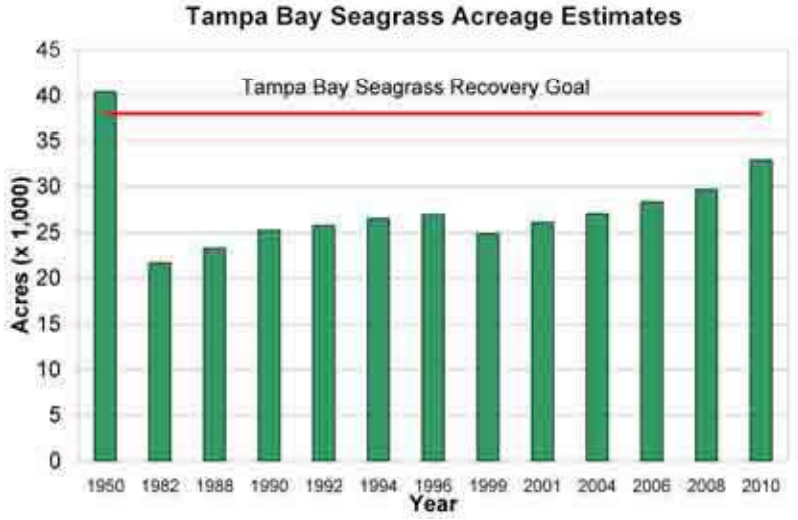


Figure 1. Tampa Bay seagrass coverage. Data source: Southwest Florida Water Management District.

Recent results from the Environmental Protection Commission of Hillsborough County ambient monitoring program indicate that the chlorophyll targets were achieved in all four bay segments of Tampa Bay in 2010 (Figure 2). Therefore, there is tangible evidence that the TBNMC nitrogen loading strategy continues to achieve water quality targets in the Tampa Bay Estuary.

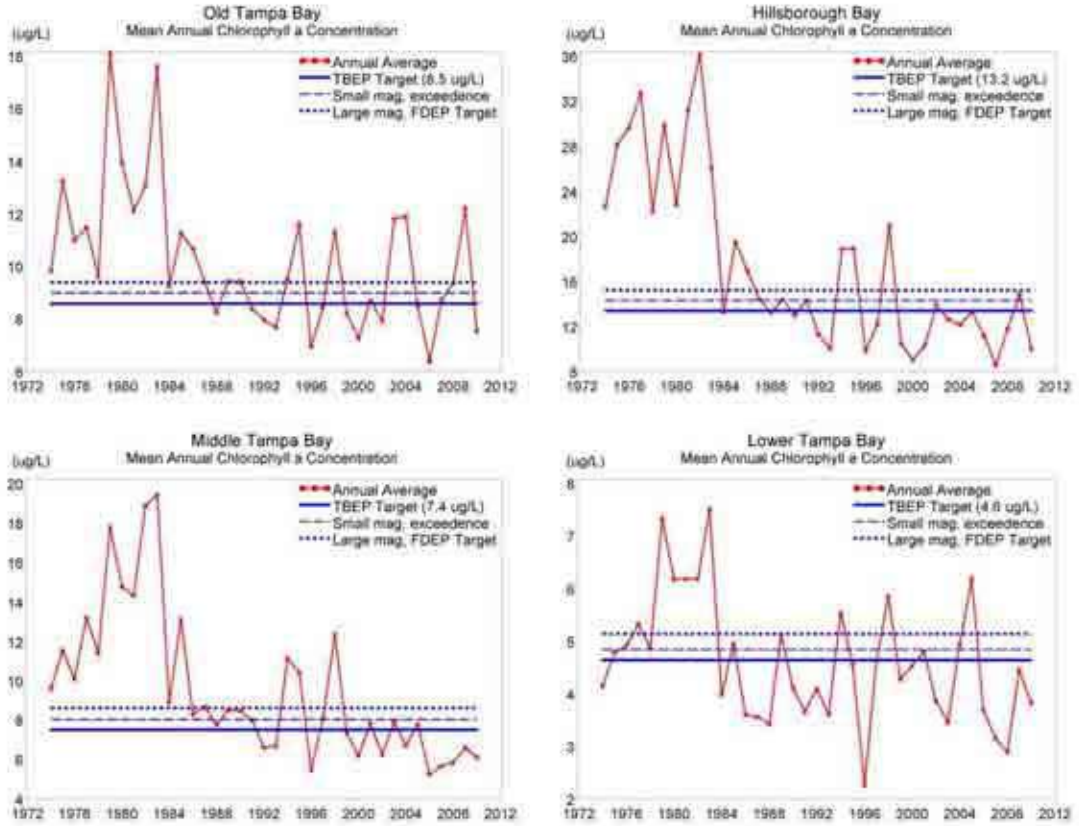


Figure 2. Tampa Bay mean annual chlorophyll *a* concentrations for each of the four major bay segments, 1974-2010. Data source: Environmental Protection Commission of Hillsborough County.

TBNMC Recommendation for Tampa Bay Numeric Nutrient Criteria

In March 2010, the TBNMC provided comments and requests regarding the development by EPA of protective loads for the Tampa Bay Estuary as it relates to establishing numeric nutrient criteria for inland waters and estuaries in Florida. As part of this effort, the TBNMC provided recommended protective nutrient loads for the Tampa Bay Estuary. The TBNMC proposed TN and TP loading criteria for the four mainstem segments of Tampa Bay as follows:

Proposed TN and TP loading criteria for the segments of Tampa Bay.		
Segment	**TN Load (tons/year)**	**TP Load (tons/year)**
Old Tampa Bay	486	104
Hillsborough Bay	1451	1093
Middle Tampa Bay	799	140
Lower Tampa Bay	349	52

EPA expectations are for both total nitrogen (TN) and total phosphorus (TP) protective loads. The recommended protective TN loads for the segments of Tampa Bay are those from the 1992-1994 period, as utilized in the Final 2009 Reasonable Assurance Addendum: Allocation & Assessment Report and in the federally-recognized Tampa Bay TMDL. The TBNMC recommended protective TP loads from the same time period in its comments and requests to the EPA in March 2010.

The TBNMC approach that has established state and federally-approved nitrogen loading targets for the estuary follows EPA's technical guidance that quantitative stressor-response relationships are the most preferred methodology in establishing numeric nutrient criteria (EPA, 2010). Multiple lines of empirical evidence justify maintaining existing TN and TP loads to the Tampa Bay Estuary. Water quality and clarity in the Bay has improved tremendously since significant management actions were initiated starting in the 1980s, seagrass acreage has increased to the highest levels observed since the 1950s and continues to increase, and economically important fish and wildlife populations have been maintained since routine monitoring programs began in the 1990s.

Continuing TBEP Input to EPA Regarding Numeric Nutrient Criteria

The TBEP, in cooperation with the Sarasota Bay Estuary Program and Charlotte Harbor National Estuary Program, supported the development of a document that identified the potential methods for the estimation of numeric nutrient criteria for southwest Florida estuaries (Janicki Environmental, 2010). This document identified several methods currently being considered by both EPA (EPA, 2010) and FDEP (2010) to establish numeric nutrient criteria for Florida estuarine waters.

In addition to the methods document, the TBEP has addressed several other issues associated with the establishment of numeric nutrient criteria for the Tampa Bay Estuary. These include:

- Expression of recommended TN and TP criteria as concentrations.
- Demonstration that the proposed criteria provide full aquatic life support, especially achievement of dissolved oxygen (DO) standards.
- The need for establishment of downstream protective values (DPVs) for terminal reaches that drain directly into Tampa Bay.
- Consideration of the influence of infrequent non-anthropogenic events, such as hurricanes and El Niño conditions, on implementation of the proposed criteria.

The following summarizes the TBEP recommendations regarding these issues. Detailed evaluations for each issue can be found in the attached documents.

- **Concentration-based Criteria**

Previous efforts by the TBEP have developed strong relationships between nutrient supply to Tampa Bay and resultant chlorophyll *a* concentrations in the bay, and between chlorophyll *a* concentrations and light availability for seagrasses. Thus, management actions have focused on controlling nitrogen loads to Tampa Bay, with measureable success as expressed by increases in a biological endpoint, seagrass acreage. The relationships are between nitrogen loads and chlorophyll *a*, however, not nitrogen concentrations in the bay and chlorophyll *a*.

TBEP recognizes that EPA intends to establish criteria for TN and TP and that these criteria may be expressed as ambient concentrations. Although the TBEP recommendations for TN and TP criteria remain the TN and TP loads reported above, recommendations for concentration-based numeric nutrient criteria consistent with the TN and TP loading recommendations have been developed and are being provided by the TBEP (Janicki Environmental, 2011a), in the event that EPA determines that loadings cannot be used as numeric nutrient criteria.

The Reference Period approach was selected to establish the proposed concentration-based numeric criteria for TN and TP. Based on a 1992-1994 reference period, segment-specific chlorophyll *a* targets have been identified and implemented as part of the Tampa Bay Nitrogen Management Strategy since 2000 (Janicki and Wade, 1996; Janicki, Wade, and Pribble, 2000). Using this similar and consistent approach, segment-specific annual geometric mean TN and TP concentrations from the 1992-1994 period were derived for this current effort. TN and TP concentration thresholds, as were developed for established, regulatory-recognized chlorophyll *a* thresholds, account for the inter-annual variability in the TN and TP concentrations observed from 1992-2009.

Application of the Reference Period approach resulted in the following recommendations for concentration-based TN and TP criteria for Tampa Bay. These criteria are:

- Old Tampa Bay TN = 0.93 mg/L TP = 0.31 mg/L
- Hillsborough Bay TN = 1.01 mg/L TP = 0.45 mg/L
- Middle Tampa Bay TN = 0.87 mg/L TP = 0.29 mg/L
- Lower Tampa Bay TN = 0.74 mg/L TP = 0.10 mg/L.

The criteria referenced above should be assessed as an annual geometric mean from long-term monthly water quality monitoring stations currently used in the state's chlorophyll *a* threshold assessments under the Tampa Bay RA determination. The assessment of TN and TP concentrations attainment should only occur when chlorophyll *a* thresholds are exceeded within a bay segment, and should coordinate with current regulatory assessments under the FDEP RA determination and EPA TMDL for TN loads in Tampa Bay. Further, compliance assessments should be conducted over five-year time frames, with no more than two consecutive years being greater than these established criteria if chlorophyll *a* thresholds are also exceeded during the same time period. This

approach is analogous to the chlorophyll *a* threshold assessments currently being conducted under the regulatory requirements for the FDEP RA determination and EPA TMDL for Tampa Bay.

- **Aquatic Life Support - Dissolved Oxygen**

The numeric nutrient criteria to be promulgated will need to provide full aquatic life support in each estuary. The aquatic life forms specifically influenced by excessive nutrient loadings to estuaries include seagrasses (affected by reduced water clarity due to excessive chlorophyll *a* concentrations) and fish and benthic communities (affected by reduced DO conditions). Seagrass support is provided by maintenance of appropriate nutrient conditions and the resulting chlorophyll *a* concentrations as discussed above. Support of fish and benthic communities is provided by maintenance of appropriate nutrient conditions and the resulting DO conditions.

The spatial and temporal distributions of DO concentrations in Tampa Bay's major bay segments have been characterized, the principal drivers of low DO conditions in Tampa Bay have been investigated, and the relevance of the empirical distribution of DO concentrations to the FDEP's Impaired Water Rule standard for DO have been evaluated with respect to the proposed numeric nutrient criteria for the Tampa Bay Estuary (Janicki Environmental, 2011b). The following conclusions can be drawn from these efforts:

- A descriptive characterization of the spatial and temporal attributes of observed DO concentrations used over 30 years of data, collected by 4 different sampling agencies. Examination of the spatial distribution of DO samples shows that DO exceedances < 4 mg/L were always less than 10% of the samples in all segments except Hillsborough Bay, never exceeded 15% of the samples in Hillsborough Bay, and are most likely to occur in Hillsborough Bay near the mouths of the Hillsborough River and Alafia River and along the western half of Hillsborough Bay. These are deeper areas, more likely to be stratified due to freshwater inputs, and have high organic sediment content.

- The principal factor affecting DO in Tampa Bay is temperature. That is evident in both the descriptive temporal plots and in the generalized linear model assessed in the quantitative assessment of those factors affecting the probability of DO being less than 4 mg/L. The model results indicate that stratification, bottom type, and sample depth were other factors that contributed to the probability of low DO conditions (i.e., < 4 mg/L). Furthermore, it was determined that chlorophyll *a* concentrations were not a significant factor contributing to the probability of low DO conditions in Tampa Bay. In other words, the occurrence of DO values below 4 mg/L were not significantly related to observed chlorophyll *a* concentrations at the time of sampling.

- Based on the weight-of-evidence presented here, it is reasonable to conclude that the proposed numeric nutrient criteria are protective of full aquatic life uses with respect to DO.

- **Downstream Protection Values**

Downstream Protection Values (DPVs) are defined by EPA as those water quality criteria in flowing waters that ensure protection of designated uses in the downstream estuarine waters as required by the Clean Water Act under 40 CFR 131.10(b). For freshwater lakes, EPA has determined that a

DPV for stream tributaries that flow into a downstream lake is either the allowable concentration or the allowable loading of TN and/or TP applied at the point of entry into the downstream waterbody (EPA Freshwater Rule, finalized December 2010). Either expression (concentration or loading) may be used for assessment and source control allocation purposes, such as TMDLs.

Based on input garnered from a January 28th, 2011, joint TBEP Technical Advisory Committee and TBNMC meeting and the adopted logic approved by EPA for DPVs for freshwater lakes, the TBEP staff contends that the existing federally-approved TMDL TN loading limits and the recommended TP loading limits meet the intent of DPVs for Tampa Bay major bay segments. Continued attainment of chlorophyll *a* thresholds in the major bay segments of Tampa Bay should provide sufficient evidence that the TN and TP contributions of tributaries draining to Tampa Bay are protective of the estuary. Therefore, the protective TN and TP loads recommended by the TBNMC in March 2010 to the EPA are sufficiently protective to attain in-bay chlorophyll *a* thresholds for Tampa Bay.

- **Recommendation for Consideration of Tidal Creeks as Unique Entities**

Questions have been raised as to whether the numeric nutrient criteria proposed for the estuary proper should apply to tidal creeks that drain to the estuary. Tidal creeks play an integral role in the ecological function of coastal estuaries (summarized in Janicki Environmental, 2011d). The treatment of tidal creeks in the implementation of the estuarine numeric nutrient criteria is, therefore, a significant issue. A thorough understanding of the ecological elements (e.g., faunal and floral species and communities), processes (e.g., primary productivity, nutrient cycling, secondary production), dynamics of tidal creeks (e.g., temporal fluctuations in dissolved oxygen) and function in exporting energy to estuarine and coastal ecotones is paramount to the establishment of ecologically appropriate nutrient criteria. Numeric nutrient criteria established for tidal creeks must consider the different ecological processes and functions that distinguish them from both from the freshwater systems upstream and the open estuary downstream. Only with careful consideration of these attributes can criteria be developed that will maintain the function of tidal creeks in support of the greater estuarine ecosystem. Recently, EPA's SAB (SAB Draft Panel Discussion, Jan. 25, 2011) concurred that tidal creeks warrant development of distinct criteria relative to the estuary proper.

Studies of Tampa Bay tidal creeks have revealed compelling evidence that these systems represent unique ecotones within the greater Tampa Bay estuary. Tidal creeks play an integral role in the ecological function of coastal estuaries as sites of high primary and secondary production, nursery and refuge habitat for several species of economically important fish and decapod crustaceans, and foraging areas for large-bodied fishes, wading birds, and other piscivorous species. Higher nutrient concentrations in tidal creeks relative to the greater estuary may be required to support the higher levels of primary and secondary production in these systems.

Analysis of fish collections in tidal creeks suggests that fishes inhabiting tidal creeks appear to be very tolerant to the typical DO conditions found in these systems. Both fish abundance and species richness data indicate that fish communities are relatively invariant to DO levels between 2-10 mg/L. There are indications that at DO concentrations below 2 mg/L, both fish abundance and species richness decline. Species richness of fish and decapod crustaceans may be a more sensitive indicator of the aquatic-life support function of tidal creeks; however, these need further

quantification to eliminate the possibility that seasonal recruitment patterns of estuarine-dependent fishes are not correlated with seasonal variation in DO concentrations due to temperature.

The most desirable approach to establish numeric nutrient criteria for these systems would be to develop stressor-response models. Stressor-response models require the identification of an indicator variable that can be used to evaluate the condition of the tidal creek. Moreover, stressor-response models require identification of a threshold value above (or below) which the system would no longer fully support its designated use. It is important that the established criteria for tidal creeks also account for the fact that these systems by nature are more variable than their upstream or downstream counterparts. This variability is in part what makes these systems so productive and also so difficult to generalize. The timing and volume of freshwater inflows are physical drivers that exert a great deal of control on tidal creeks. Inflows are deterministic of salinity regimes, nutrient delivery, water depths, temperatures and the potential for salinity stratification in these systems. Inflows also may control access to these systems for both small recruit species looking for refuge and for large-bodied predators. Therefore, the quantification of the effects on inflows on these systems will be necessary both to determine appropriate criteria and in the evaluation process. The extent of tidal creeks in the Tampa Bay watershed to which these recommendations pertain include, but may not be limited to, the systems identified in the maps provided in Figure 3a,b below.

Based on the recognized need to define distinct biological endpoints for tidal tributaries and water quality criteria to support them, TBEP staff recommends the following:

- Recognize tidal tributaries as a separate waterbody class; and
- Consider setting a schedule (i.e., within 3 years) by which time endpoints and criteria will be proposed, but do not attempt to set interim or final criteria with insufficient data.

TBEP has dedicated funds to continue work in tidal tributaries in Tampa Bay and will commit to work with EPA to develop recommendations by September 2014.

Figure 3. a) Named tidal creeks within the Tampa Bay watershed.

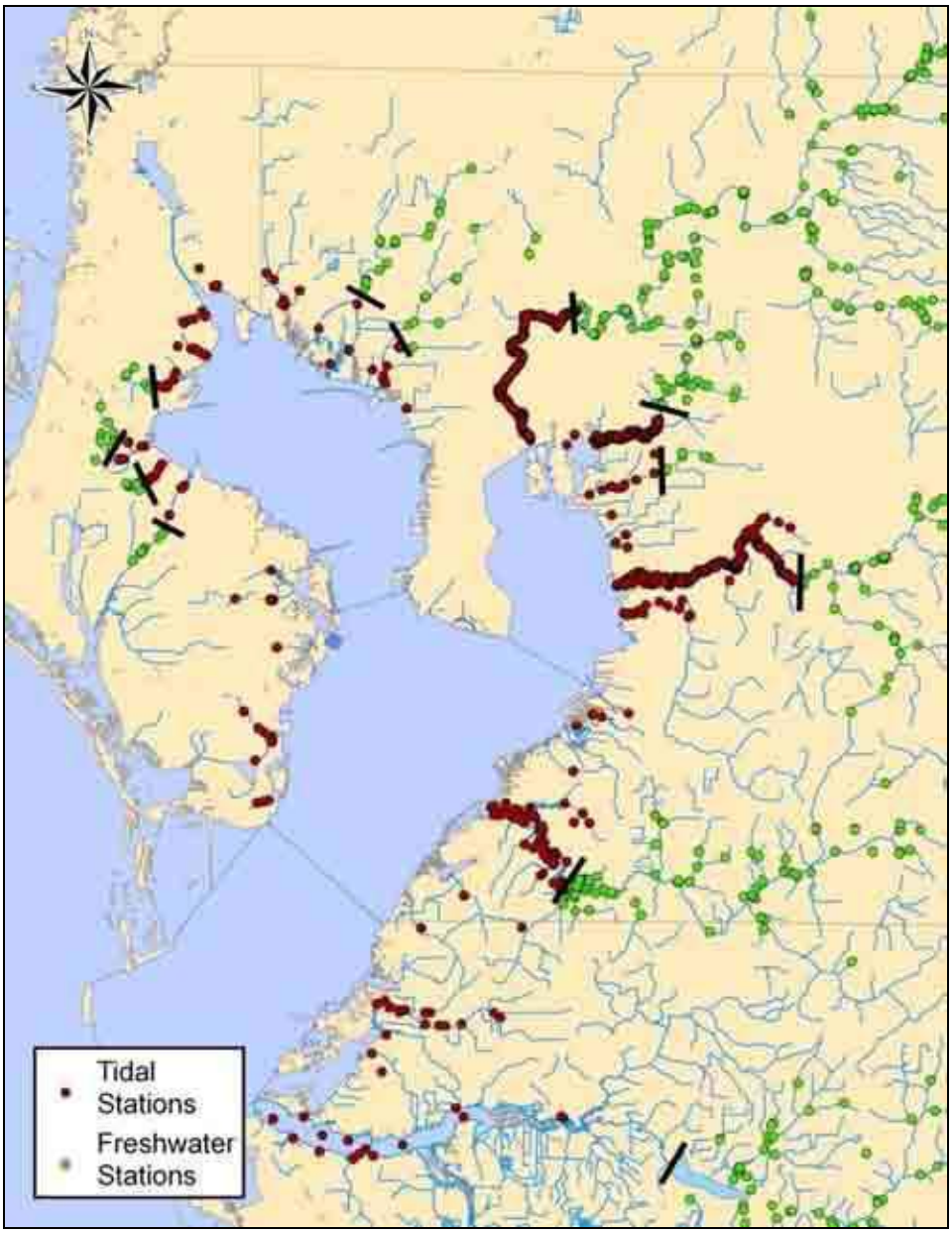


Figure 3. b) Approximate location of the upstream limit of tidal creeks and rivers as defined by empirical salinity data analysis of data from tributaries within the Tampa Bay watershed.

- **Implementation Considerations**

TBEP has addressed two key issues identified by the EPA regarding successful implementation of the proposed numeric nutrient criteria in Tampa Bay, namely the method to account for non-anthropogenic events, such as El Niño and hurricanes, and the allowable exceedance criteria (how often criteria may be exceeded before non-compliance is observed). Analyses were performed to direct input on these subjects (Janicki Environmental, 2011c), with the following conclusions:

- The annual response time to recover from the maximum monthly chlorophyll *a* concentration during a year is relatively short. Median annual response times are two

months or less in all segments, and average annual response times are three months or less in all segments. This indicates that the bay recovers very quickly from normal loading events.

- The typical response times to unusual events, such as El Niño, are longer and, depending upon the timing of such events, can span over parts of two successive years.

- Comparison of the two temporal assessment schemes (1 in 3 years) vs (2 in 5 years) suggested that the 2 in 5 rule was less likely to result in a violation due solely to natural variability.

- **Final Implementation and Assessment Recommendations**

It is recommended that the assessment of compliance with the proposed numeric nutrient criteria be performed in a manner similar to that which has been proposed by TBEP for compliance with both the Tampa Bay RA determination and EPA TMDL. The goal of the estuarine numeric nutrient criteria is to provide full aquatic-life support within the estuary. The TBEP has determined that seagrasses are important indicators of desirable conditions in the bay and has defined the water-quality conditions (i.e., chlorophyll *a* concentrations) that allow for the maintenance and growth of seagrass beds in Tampa Bay. Therefore, TBEP bases its compliance assessment on the comparison of both observed chlorophyll *a* concentrations and seagrass extent to the goals that have been established. To date, this has proven to be a successful adaptive management approach for abating nutrient eutrophication in the Tampa Bay Estuary.

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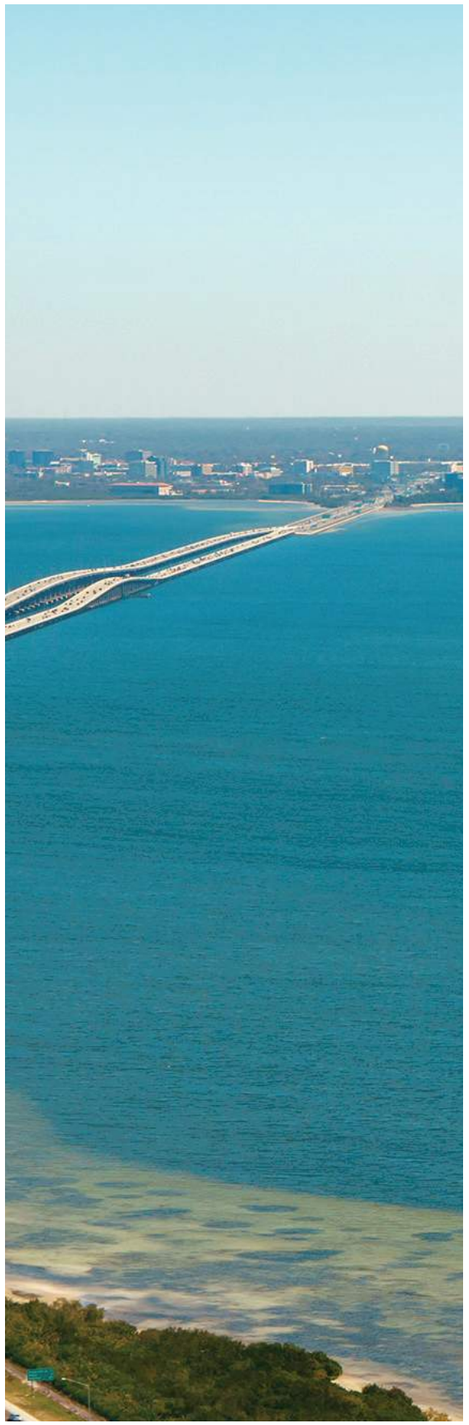

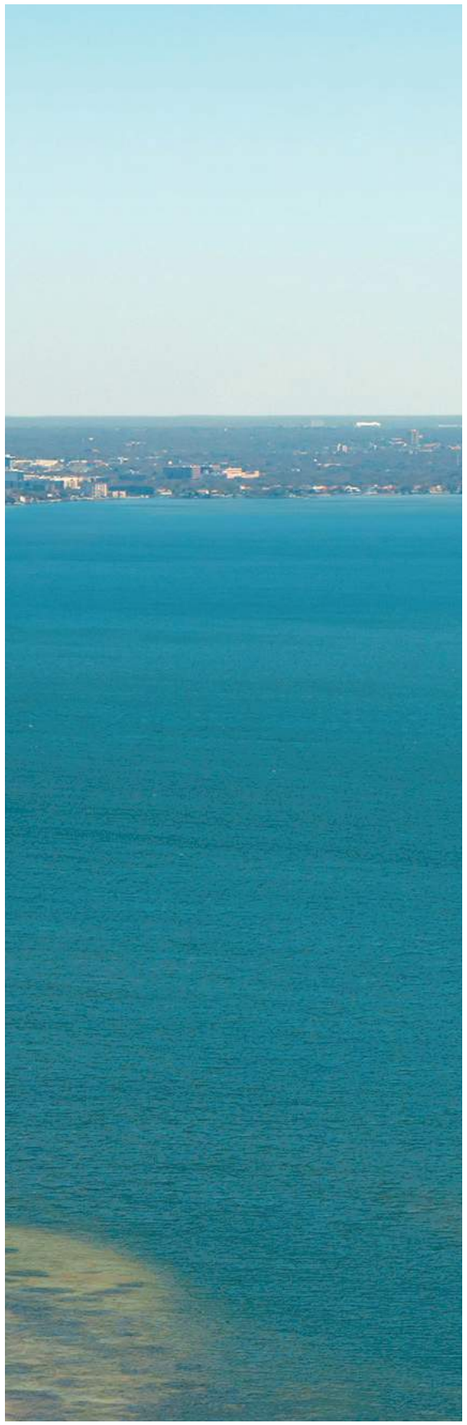

CHARTING THE COURSE:

THE COMPREHENSIVE CONSERVATION AND MANAGEMENT PLAN FOR TAMPA BAY

AUGUST 2017 REVISION

TBEP
TAMPA BAY ESTUARY PROGRAM
PARTNERSHIP FOR A HEALTHY BAY

HOW TO NAVIGATE THIS DOCUMENT:

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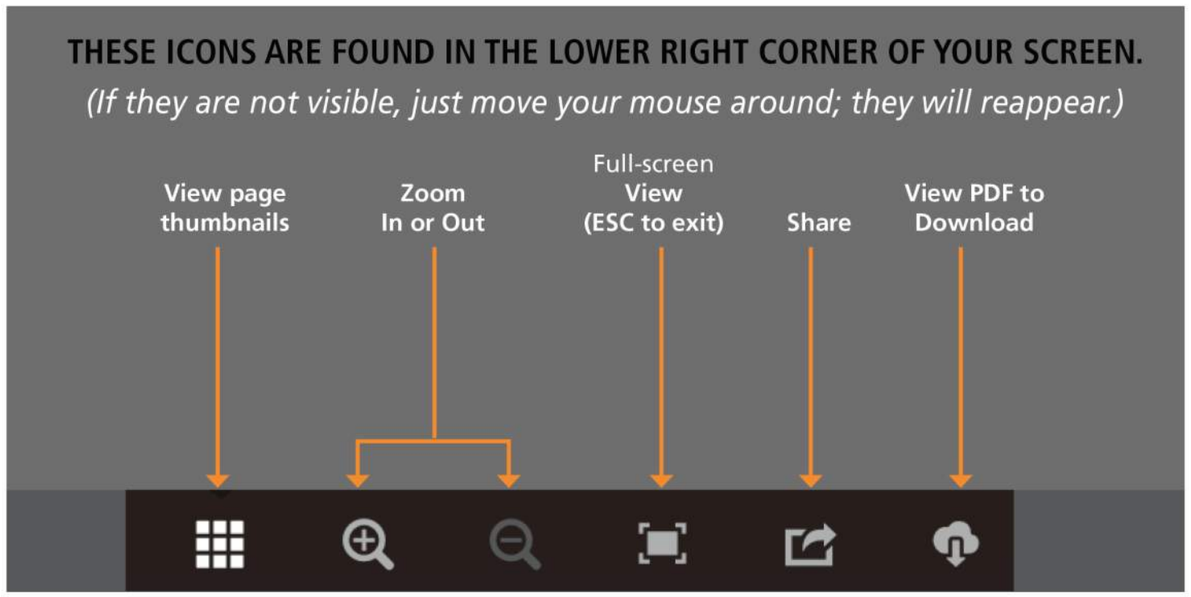

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Design and layout by Bazany Design

ACKNOWLEDGMENTS

The August 2017 Revision of *Charting the Course*: The Comprehensive Conservation and Management Plan for Tampa Bay was prepared by Nanette O'Hara (TBEP Public Outreach Coordinator), with research, writing and data/graphics support from Shafer Consulting and design by Bazany Design. TBEP staff and members of the TBEP's Technical Advisory and Community Advisory Committees and Nitrogen Management Consortium; the Tampa Bay Regional Planning Council Agency on Bay Management; and the Tampa Bay scientific and management community provided critical input and review. Comments from Felicia Burks (EPA Region 4, Atlanta) and Nancy Laurson (EPA Headquarters, Washington DC) and their colleagues provided valuable structural and content edits. This revision of *Charting the Course:* was approved by TBEP's Management and Policy Board in February 2017.

Blue crabs are an important commercial species in Tampa Bay. They contributed to total seafood harvests for the 4-county bay area valued at $35.3 million in 2015. Photo by Nanette O'Hara.

An aerial view of Shell Key, an undeveloped barrier island near the mouth of Tampa Bay. Shell Key is managed as a preserve by Pinellas County to protect its mangrove and seagrass resources. The island is among Florida's most important shorebird nesting beaches. It is also a prized recreational area, and public uses are carefully balanced to accommodate both people and wildlife.

Photo courtesy Pinellas County Communications.

INTRODUCTION

The 2017 Revision of *Charting The Course: The Comprehensive Conservation and Management Plan (CCMP) for Tampa Bay* is intended to serve as a community blueprint for action to sustain progress in protecting and restoring the bay over a 10-year horizon.

Key achievements since the 2006 Revision include:

- Surpassing TBEP's seagrass recovery goal of 38,000 acres baywide, with an estimated 41,655 acres in 2016;
- Meeting one or both water quality targets in all bay segments every year but one (2011), and;
- Establishing measurable restoration targets for freshwater wetlands (18,703 acres) and emergent tidal wetlands (22,739 acres).

Important goals and challenges for the 2017-2027 timeframe include:

- Maintaining at least 38,000 acres of seagrass by continuing to manage nitrogen loadings to the bay;
- Establishing restoration and protection targets for hard bottom habitats, coastal uplands and tidal tributaries, and;
- Planning for and adapting to a changing climate.

WHAT'S NEW IN THIS UPDATE

- This is the first CCMP designed exclusively on a digital platform.
- Two new categories have been added: Public Access and Local Implementation of CCMP Goals.
- Nine new actions have been added: *WQ-3, WW-5, COC-4, BH-10, DR-2, PE-2, PA-1, CC-2, LI-1.*
- Several existing actions were consolidated or moved to different categories that more accurately represent updated implementation strategies. See Index of Actions.
- Five actions have been completed and retired. See Index of Actions.
- New or revised goals adopted since the 2006 CCMP address Water Quality; Bay Habitats; Dredging; Fish and Wildlife; Invasive Species; Spill Prevention; Public Access; and Local Implementation of CCMP Goals. See Goals and Priorities Table.
- This CCMP codifies the desire of TBEP's local and regional partners to formally adopt the goals and actions of this Plan in their planning and guidance documents (see Action LI-1).

PUBLIC AND STAKEHOLDER INPUT

Community input into the development of the CCMP Update was solicited as follows:

- An online survey was conducted in 2015 to solicit public and stakeholder opinions about bay improvement and to rank priority issues. More than 400 people took the poll: 41% identified urban/residential runoff as the biggest threat to the bay's health *today,* while 31% said habitat loss will be the biggest threat to the bay *10 years from now.*
- External reviewers with expertise in issues specific to each action were enlisted to provide comments and guidance.
- Actions were developed over a 2-year period with quarterly reviews by TBEP's Technical Advisory Committee, Community Advisory Committee, and the Tampa Bay Regional Planning Council's Agency on Bay Management. Recommendations from these groups were presented to TBEP's Management Board, who made further recommendations for consideration by the Policy Board. Final adoption of individual actions, as well as the entire CCMP, came from the Policy Board – composed of elected and appointed officials, and high-level environmental administrators from TBEP partner governments and agencies.
- A matrix of comments submitted during the development of the CCMP is available on request.

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TAMPA BAY ESTUARY PROGRAM
PARTNERSHIP FOR A HEALTHY BAY

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TAMPA BAY WATERSHED

SIZE:

- **TAMPA BAY PROPER:** 400 SQUARE MILES
- **TAMPA BAY WATERSHED:** 2,200 SQUARE MILES

AVERAGE DEPTH: 11 FEET

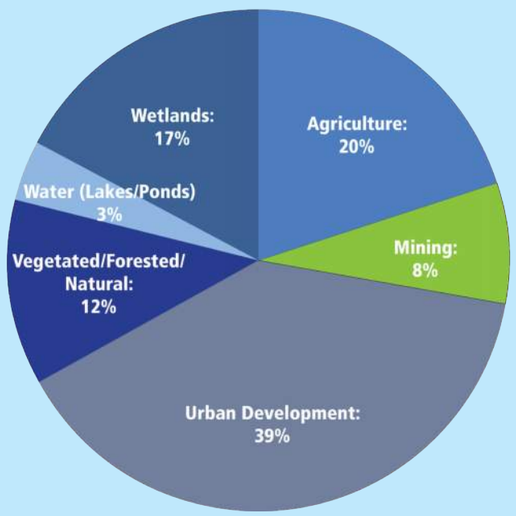
MAXIMUM DEPTH: 43 FEET (MAIN SHIPPING CHANNEL)

SALINITY RANGE: >20–35 PARTS PER THOUSAND IN BAY PROPER; <1–25 PARTS PER THOUSAND IN TIDAL TRIBUTARIES

POPULATION IN WATERSHED: 2.7 MILLION (2010 CENSUS)

MAJOR TRIBUTARIES: HILLSBOROUGH, ALAFIA, LITTLE MANATEE AND MANATEE RIVERS

Land Use in the Watershed



Tampa Bay Estuary Program Study Area.

A HISTORY OF TAMPA BAY

KEY MILESTONES IN THE RESTORATION OF TAMPA BAY, 1950–2016.

Courtesy Florida State Archives

1950s
Population less than ¼ of today.

1960s
Bay degradation is recognized.

Image credit JOR Johansson

1967
Environmental Protection Commission of Hillsborough County (EPCHC) established.

1970s
Save Our Bays and other citizen groups call for legislative action to reduce pollution discharges.

1972
EPA Clean Water Act approved.

1972
Florida's Wilson-Grizzle Act requires wastewater plants discharging to Tampa Bay to upgrade to Advanced Wastewater Treatment (AWT) standards, or enact 100% reclaimed.

SWFWMD photo

1974
EPCHC initiates baywide water quality monitoring program.

1982
Statewide Stormwater Rule is enacted, requiring nutrient management from municipal stormwater systems.

1979
City of Tampa's Howard F. Curren Wastewater Treatment Plant (WWTP) achieves AWT standard, reduces nitrogen loadings by 90%. City of St Petersburg implements 100% reclaimed water from their direct discharge, with similar reductions. Other WWTPs in the region implement nutrient reductions.

1982
The first Bay Area Science Information Symposium (BASIS) is conducted by the Tampa Bay Regional Planning Council.

1985
The Tampa Bay Regional Planning Council convenes the region to develop the Future of Tampa Bay report, including specific actions to reduce pollution and recover habitats in Tampa Bay. The Agency on Bay Management is established to support the report's recommendations.

1987
The State's Water Management Districts establish Surface Water Implementation and Management (SWIM) programs to restore and protect priority water bodies within each District. Tampa Bay is identified as the Southwest Florida Water Management District's priority water body.

1991
Tampa Bay is recognized by EPA as an "estuary of national significance," and the Tampa Bay National Estuary Program is created to develop a Comprehensive Conservation and Management Plan.

1996
The public/ private Tampa Bay Nitrogen Management Consortium (TBNMC) is formed to assist in meeting nitrogen management targets needed to meet seagrass goals.

1996
TBNEP's CCMP is approved by local partners, the Governor, and the EPA Administrator. Numeric goals for habitat restoration and water quality improvement are adopted.

1998
An Interlocal Agreement between the TBNEP partners forms a new Independent Special District of the State of Florida, the Tampa Bay Estuary Program. TBEP partners commit to implementing projects to assist in meeting numeric goals, and to support a funding schedule.

1998
The TBNMC develops an Action Plan (Partnership for Progress) to meet nutrient management targets.

2006
First year that all bay segments achieve TBEP water quality targets.

2009
TBNMC develops voluntary nutrient loading limits for all sources, to continue to meet water quality targets. Federal and state regulatory agencies adopt limits to meet regulatory requirements.

2014
Tampa Bay surpasses seagrass recovery goal of 38,000 acres.

2016
Seagrass coverage increases to 41,655 acres.

ABOUT US

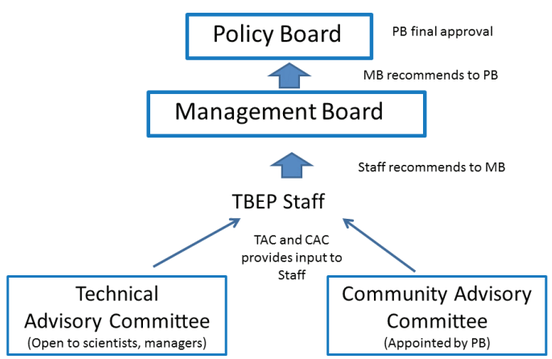
Tampa Bay was designated an "estuary of national significance" by Congress in 1990, laying the foundation for the creation of the Tampa Bay Estuary Program (TBEP) in 1991.

TBEP is an intergovernmental partnership of Hillsborough, Manatee, Pasco and Pinellas counties; the cities of Tampa, St. Petersburg and Clearwater; the U.S. Environmental Protection Agency (EPA); the Southwest Florida Water Management District (SWFWMD); and the Florida Department of Environmental Protection (FDEP). These partners have pledged, through a binding Interlocal Agreement, to achieve the science-based goals of *Charting the Course:* The Comprehensive Conservation and Management Plan for Tampa Bay.

TBEP is governed by a Policy Board of elected officials from our local government members, SWFWMD, EPA and FDEP. A larger Management Board comprised of administrators from local, regional and state government agencies and organizations makes recommendations to the Policy Board.

TBEP's mission of bay restoration, research and education is supported by several committees, including a Technical Advisory Committee of scientists and managers; a Nitrogen Management Consortium of industries, regulators and expanded city-county members; and a Community Advisory Committee of engaged citizens.

TBEP Structure



TBEP MISSION STATEMENT

The mission of the Tampa Bay Estuary Program is to build partnerships to restore and protect Tampa Bay through implementation of a scientifically sound, community-based management plan.

Photo by Merle Allshouse

ABOUT *CHARTING THE COURSE*

Charting The Course: The Comprehensive Conservation and Management Plan for Tampa Bay is intended to be a living document that reflects our evolving knowledge and understanding of bay processes and community needs. Major revisions of *Charting The Course* occur every 10 years; minor updates occur every 3-5 years.

There are 39 actions in the 2017 CCMP Update. Each action presents specific strategies to meet agreed-upon objectives. Responsible parties, implementation timetables, and results and deliverables are part of every action.

Costs estimates for implementing the various activities detailed in each action are as follows:

$	less than $25,000
$$	$25,000-$99,999
$$$	$100,000-$500,000
$$$$	More than $500,000

TBEP GOVERNMENT AND AGENCY PARTNERS

The following cities, counties, state and regional agencies and organizations are members of TBEP's Management and/or Policy Boards.

Elected officials represent cities and counties on the Policy Board. Other members are appointed or designated by their respective organizations.

- Hillsborough County
- Manatee County
- Pasco County
- Pinellas County
- City of Clearwater
- City of St. Petersburg
- City of Tampa
- Southwest Florida Water Management District
- U.S. Environmental Protection Agency
- Florida Department of Environmental Protection
- Florida Fish and Wildlife Conservation Commission
- Environmental Protection Commission of Hillsborough County
- Port Tampa Bay
- Port Manatee
- Tampa Bay Regional Planning Council
- Tampa Bay Water
- U.S. Army Corps of Engineers

Brown pelican with chicks. Photo by Gerold Morrison.

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Mr. Tom Welborn

Photo by Bryon Chamberlin

WE GRATEFULLY ACKNOWLEDGE THE CONTRIBUTIONS OF THE INDIVIDUALS WHO SERVED ON TBEP'S MANAGEMENT AND POLICY BOARDS FROM 2007–2017, AS WELL AS THE HUNDREDS OF ENVIRONMENTAL MANAGERS, SCIENTISTS, COMMERCIAL AND RECREATIONAL USERS AND CITIZENS WHO PARTICIPATED ON TBEP'S PERMANENT AND AD HOC COMMITTEES.

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GOALS AND PRIORITIES OF *CHARTING THE COURSE*

CCMP GOAL	RELATED ACTIONS
Water and Sediment Quality	
Reduce or preclude nutrient loadings in the bay from all sources, to meet water quality targets and maintain at least 38,000 acres of seagrass baywide Reduce the frequency and duration of harmful algal blooms Reduce the amount of toxic chemicals in contaminated bay sediments and protect relatively clean areas of the bay from contamination Reduce pollution from microplastics and emerging contaminants of concern Reduce bacterial contamination from sources in the watershed to maintain recreational uses of the bay such as fishing and swimming	**ACTIONS TO IMPROVE WATER QUALITY:** WQ-1 Implement the Tampa Bay nutrient management strategy WQ-3 Reduce frequency and duration of harmful algal blooms **ACTIONS TO REDUCE POLLUTION FROM STORMWATER RUNOFF:** SW-1 Reduce nitrogen runoff from urban landscapes SW-8 Expand adoption and implementation of Best Management Practices for commercial and urban agriculture SW-10 Expand use of Green Infrastructure practices **ACTIONS TO REDUCE THE EFFECTS OF AIR POLLUTION ON THE BAY:** AD-1 Continue to reduce nitrogen loading from atmospheric deposition **ACTIONS TO REDUCE POLLUTION FROM WASTEWATER DISCHARGED TO THE BAY:** WW-1 Expand the beneficial use of reclaimed water WW-2 Extend central sewer service to priority areas now served by septic systems WW-3 Require standardized monitoring and reporting of wastewater discharges WW-5 Reduce the occurrence of sanitary sewer overflows to the bay **ACTIONS TO REDUCE CONTAMINANTS OF CONCERN IN THE BAY:** COC-1 Address hot spots of sediment contamination in the bay COC-4 Identify and understand emerging contaminants **ACTIONS TO REDUCE PATHOGENS:** PH-2 Continue source and risk assessments of human and ecosystem health indicators suitable for Tampa Bay beaches and other recreational waters PH-4 Reduce fecal contamination from humans and pets in Tampa Bay Area waters PH-5 Reduce pollution from recreational boaters

Bay Habitats	
Update numeric targets and management actions for seagrass, marsh, mangrove, salt barrens, and freshwater wetlands; and establish initial numeric targets for tidal creeks, hard bottom habitats and coastal uplands Maintain at least 38,000 acres of seagrass baywide and reduce propeller scarring of seagrasses Assess and monitor mitigation of freshwater wetlands, estuarine wetlands, hard bottom and other habitat types Enhance ecosystem values of tidal tributaries Restore the historic balance of freshwater wetlands in the Tampa Bay watershed by restoring 871 acres of forested wetlands and 2,199 acres of non-forested wetland over 2008 levels	**ACTIONS TO INCREASE AND PRESERVE THE NUMBER AND DIVERSITY OF HEALTHY BAY HABITATS:** BH-1 Implement the Tampa Bay Habitat Master Plan BH-2 Establish and implement mitigation criteria BH-3 Reduce propeller scarring of seagrass and pursue seagrass transplanting opportunities BH-4 Identify hard bottom communities and avoid impacts BH-6 Encourage habitat enhancement along altered waterfront properties BH-8 Continue and enhance habitat mapping and monitoring programs BH-9 Enhance ecosystem values of tidal tributaries BH-10 Implement the Tampa Bay Freshwater Wetland Habitat Masterplan FI-1 Maintain seasonal freshwater flows in rivers
Dredging and Dredged Material Management	
Identify and implement appropriate beneficial uses of dredged material in Tampa Bay	**ACTIONS TO REDUCE THE IMPACT OF DREDGING AND IMPROVE DREDGED MATERIAL MANAGEMENT:** DR-1 Develop a plan for beneficial uses of dredged material in Tampa Bay DR-2 Continue to minimize impacts to bay wildlife and their habitats from dredging activities
Fish and Wildlife	
Increase on-water enforcement of environmental regulations Achieve a sustainable bay scallop population Preserve the abundance and diversity of Tampa Bay's fish and wildlife	**ACTIONS TO PROTECT AND ENHANCE FISHERIES AND WILDLIFE:** FW-1 Increase on-water enforcement of environmental regulations FW-3 Achieve a sustainable bay scallop population FW-5 Continue and expand the Critical Fisheries Monitoring Program FW-6 Preserve the diversity and abundance of bay wildlife

Spill Prevention and Response	
Reduce the risk of oil or chemical spills in the bay and protect high-priority environmentally sensitive areas Secure a permanent funding source for the Physical Oceanographic Real-Time System (PORTS) of navigational information	**ACTIONS TO IMPROVE SPILL PREVENTION AND RESPONSE:** SP-1 Continue implementation of advanced technology to improve coordination of ship movements in Tampa Bay SP-2 Evaluate and update spill response plans for priority areas
Invasive Species	
Reduce impacts of existing and potential harmful invasive species in Tampa Bay and its watershed	**ACTIONS TO REDUCE THE OCCURRENCE OF INVASIVE SPECIES IN THE BAY:** IS-2 Support prevention, eradication or management of invasive species in Tampa Bay and its watershed
Public Access	
Foster adequate and appropriate access to the bay and address competing uses	**ACTIONS TO IMPROVE RESPONSIBLE PUBLIC USE OF THE BAY:** PA-1 Provide for and manage recreational uses of the bay
Public Education and Involvement	
Create a constituency of informed, involved citizens who engage in actions to protect the bay and actively participate in restoring and protecting it	**ACTIONS TO INCREASE PUBLIC EDUCATION AND INVOLVEMENT:** PE-1 Promote public involvement in bay restoration and protection PE-2 Promote public education about key issues affecting Tampa Bay
Local Implementation	
Integrate CCMP goals, actions and priorities in local government comprehensive plans and development guidance	**ACTIONS TO INCORPORATE CCMP GOALS AND TARGETS INTO LOCAL LAND USE PLANS, DEVELOPMENT CODES, CLIMATE CHANGE AND LAND ACQUISITION PROGRAMS:** LI-1 Incorporate CCMP goals and actions in local government comprehensive plans, land development regulations or ordinances
Climate Change	
Assess the vulnerability of critical coastal habitats to sea level rise and support adaptation strategies that promote the long-term resiliency and diversity of these habitats	**ACTIONS TO IMPROVE THE RESILIENCY OF BAY HABITATS TO CLIMATE CHANGE:** CC-1 Improve ability of bay habitats to adapt to a changing climate CC-2 Understand and address the effects of ocean acidification

INDEX OF ACTIONS FOR TAMPA BAY

WATER & SEDIMENT QUALITY

Actions to improve water quality:

WQ-1 Implement the Tampa Bay nutrient management strategy*

~~*WQ-2*~~ Reduce pollution from recreational boaters
Action moved to Public Health Action Plan in 2017 Revision

WQ-3 Reduce frequency and duration of harmful algal blooms
New action in 2017 Revision

Actions to reduce pollution from stormwater runoff:

SW-1 Reduce nitrogen runoff from urban landscapes*

~~*SW-2*~~ Assist businesses in implementing best management practices to reduce pollution, and to develop model landscaping guidelines for commercial use
Action merged into revised SW-1

~~*SW-3*~~ Encourage local governments to adopt integrated pest management policies and implement environmentally beneficial landscaping practices
Action retired in 2017 Revision

~~*SW-4*~~ Reduce impervious paved surfaces
Action retired in 2006 update

~~*SW-5*~~ Require older properties being redeveloped to meet current stormwater treatment standards for that portion of the site being redeveloped, or
Action retired in 2006 update

~~*SW-6*~~ Promote compact urban development and redevelopment
Action retired in 2006 update

~~*SW-7*~~ Enforce and require the timely completion of the consent order for the cleanup of fertilizer facilities in the East Bay sector
Action retired in 2017 Revision

SW-8 Expand adoption and implementation of best management practices for commercial and urban agriculture
Action revised in 2017 Revision

~~*SW-9*~~ Improve compliance with agricultural ground and surface water management plans
Action retired in 2006 update

SW-10 Expand use of Green Infrastructure practices
Action Revised

~~*SW-11*~~ Expand the Adopt-A-Pond program to additional communities
Action merged into revised SW-1

~~*SW-12*~~ Reduce nitrogen loading from urban landscapes
Action moved to SW-1 in 2017 Revision and expanded to incorporate SW-2 and SW-11

Actions to reduce the effects of air pollution on the bay:

AD-1 Continue to reduce nitrogen loading from atmospheric deposition

~~*AD-2*~~ Promote public and business energy conservation
Action merged into AD-1

Actions to reduce pollution from wastewater discharged to the bay:

WW-1 Expand the beneficial use of reclaimed water
Action revised in 2017 Revision

WW-2 Extend central sewer service to priority areas now served by septic systems

WW-3 Require standardized monitoring and reporting of wastewater discharges

~~*WW-4*~~ Revise HRS rules to incorporate environmental performance or design standards for septic systems
Action retired in 2006 update

WW-5 Reduce the occurrence of sanitary sewer overflows to the bay*
New action in 2017 Revision.

Actions to reduce Contaminants of Concern in the bay:

Note: This Action Plan was renamed Contaminants of Concern in 2017 CCMP update

COC-1 Address hot spots of contamination in the bay
Action revised in 2017 Revision, renamed as "Contaminants of Concern"

~~*TX-2*~~ Improve opportunities for proper hazardous waste disposal
Action retired in 2017 Revision

~~*TX-3*~~ Reduce toxic contaminants from ports and marinas
Action retired in 2006 update

COC-4 Identify and understand emerging contaminants
New action in 2017 Revision

Actions to reduce pathogens:

~~*PH-1*~~ Reduce the occurrence of municipal sewer overflows to the bay
Action moved to Wastewater Action Plan in 2017 Revision.

PH-2 Continue assessments of human and environmental health indicators suitable for Tampa Bay beaches and other recreational waters.

~~*PH-3*~~ Install additional sewage pump-out facilities for recreational boaters and live-aboard vessels
Action retired in 2006 update. Issue incorporated in PH-5 in 2017 Revision.

PH-4 Reduce fecal contamination from humans and pets in Tampa Bay Area waters
Action revised in 2017 Revision and moved from Public Access Action Plan

***denotes Priority Action**

PH-5 Reduce pollution from recreational boaters

Action moved from Water Quality Action Plan in 2017 Revision

BAY HABITATS

Actions to increase and preserve the number and diversity of healthy bay habitats:

BH-1 Implement the Tampa Bay Habitat Master Plan*

BH-2 Establish and implement mitigation criteria

BH-3 Reduce propeller scarring of seagrass and pursue seagrass transplanting opportunities

BH-4 Identify hard bottom communities and avoid impacts

Action revised in 2017 Revision

~~*BH-5*~~ Improve management of parking and vehicle access along causeways and coastal areas

Action retired in 2006 update

BH-6 Encourage habitat enhancement along altered waterfront properties

Action revised in 2017 Revision

~~*BH-7*~~ Improve compliance with and enforcement of wetland permits

Action retired in 2006 update

BH-8 Continue and enhance habitat mapping and monitoring programs

BH-9 Enhance ecosystem values of tidal tributaries

Action added in 2012 update

BH-10 Implement the Tampa Bay Freshwater Wetland Habitat Masterplan

New action in 2017 Revision

Actions to establish and preserve adequate freshwater inflows to Tampa Bay and its tributaries:

FI-1 Maintain seasonal freshwater flows in rivers

Action revised in 2017 Revision

FISH & WILDLIFE

Actions to protect and enhance fisheries and wildlife:

FW-1 Increase on-water enforcement of environmental regulations

~~*FW-2*~~ Establish and enforce manatee protection zones

Action merged in FW-1 in 2017 Revision

FW-3 Achieve a sustainable bay scallop population

Action revised in 2017 Revision

~~*FW-4*~~ Assess the need to investigate the cumulative impacts of power plant-entrainment on fisheries

Action retired in 2017 Revision

FW-5 Continue and expand the Critical Fisheries Monitoring Program

FW-6 Preserve the diversity and abundance of bay wildlife*

DREDGING & DREDGED MATERIAL MANAGEMENT

Actions to reduce the impact of dredging and improve dredged material management:

DR-1 Develop a plan for beneficial uses of dredged material in Tampa Bay

Action revised in 2017 Revision

DR-2 Continue to minimize impacts to bay wildlife and their habitats from dredging activities

New action in 2017 Revision

SPILL PREVENTION & RESPONSE

Actions to improve spill prevention and response:

SP-1 Continue implementation of advanced technology to improve coordination of ship movements in Tampa Bay

Action revised in 2017 Revision

SP-2 Evaluate and update oil and hazardous material spill response plans for priority areas

~~*SP-3*~~ Improve fueling and bilge-pumping practices among pleasure boaters

Action retired in 2006 update

INVASIVE SPECIES

Actions to reduce the occurrence of invasive species in the bay:

~~*IS-1*~~ Assess the extent of the existing invasions in Tampa Bay

Action retired in 2017 Revision

IS-2 Support prevention, eradication or management of invasive species in Tampa Bay and its watershed

Action revised in 2017 Revision

PUBLIC EDUCATION & INVOLVEMENT

Actions to increase public education and involvement:

PE-1 Promote public involvement in bay restoration and protection

PE-2 Promote public education about key issues affecting Tampa Bay

New action in 2017 Revision

PUBLIC ACCESS

Actions to improve responsible public use of the bay:

~~*PA-1*~~ Reduce human and pet waste in traditional bay recreation areas

Action moved to Public Health Action Plan in 2017 Revision

PA-1 Provide for and manage recreational uses of the bay*

New action in 2017 Revision

CLIMATE CHANGE

Actions to improve the resiliency of bay habitats to climate change:

CC-1 Improve ability of bay habitats to adapt to a changing climate

Action added in 2012 update

CC-2 Understand and address effects of ocean acidification

New action in 2017 Revision

LOCAL IMPLEMENTATION

Actions to incorporate CCMP goals and targets into local land use plans and other planning and development guidance tools:

LI-1 Incorporate CCMP goals and actions in local government comprehensive plans, land development regulations or ordinances*

New action in 2017 Revision

***denotes Priority Action**

WATER AND SEDIMENT QUALITY

WQ-1

WATER QUALITY

Implement the nutrient management strategy for Tampa Bay

OBJECTIVES:

Continue to implement the nutrient management strategy for Tampa Bay to maintain water quality necessary to support seagrass at or above target levels. Document trends in water quality, and track nutrient reduction and prevention actions within the watershed. Develop and implement nutrient criteria recommendations and management strategies for the bay's tidal streams.

STATUS:

Ongoing. The Tampa Bay Estuary Program (TBEP) continues to maintain the Nitrogen Reduction Action Plan Database and prepare Reasonable Assurance documentation for water quality requirements. TBEP further supported: 1) establishment of estimates for atmospheric deposition to Tampa Bay watershed sub basins and waters, 2) establishment of estimates of nitrogen loading from residential fertilizer and irrigation and corresponding nutrient load reductions associated with fertilizer restrictions and 3) development of numeric nutrient criteria recommendations for Tampa Bay.

RELATED ACTIONS:

AD-1 *Continue to reduce nitrogen loading from atmospheric deposition*

BH-1 *Implement the Tampa Bay Habitat Master Plan*

BH-9 *Enhance ecosystem values of tidal tributaries*

SW-1 *Reduce nitrogen runoff from urban landscapes*

SW-10 *Expand use of green infrastructure practices*

SW-8 *Expand adoption and implementation of best management practices for commercial and urban agriculture*

WW-1 *Expand the beneficial use of reclaimed water*

WW-2 *Extend central sewer service to priority areas now served by septic systems*

WW-3 *Require standardized monitoring of wastewater discharges*

WW-5 *Reduce the occurrence of municipal sewer overflows to the bay*

At left: Because seagrass requires clear water to flourish, it is a valuable indicator of water quality in Tampa Bay. Photo by Jimmy White.

BACKGROUND:

Controlling nitrogen input into the bay as a means to regain vital seagrass beds has been one of TBEP's most prominent initiatives. Seagrasses were selected as a metric by which efforts to improve the bay are measured because of their overall importance as a bay habitat and nursery, and because they are an important barometer of water quality.

In 1995, TBEP adopted a goal of restoring seagrass to 1950 levels after decades of decline. Reaching this goal required collaboration from local governments, industries, and citizens to reduce nutrients throughout the watershed. By June 2016, more than 500 nitrogen load reduction projects had been implemented, resulting in water clarity equivalent to the 1950s period. In 2017, the bay had 41,655 acres of seagrasses, surpassing the original restoration goal (38,000 acres) by more than 3,600 acres.

YEAR	OLD TAMPA BAY	HILLS-BOROUGH BAY	MIDDLE TAMPA BAY	LOWER TAMPA BAY
1978				
1979				
1980				
1981				
1982				
1983				
1984				
1985				
1986				
1987				
1988				
1989				
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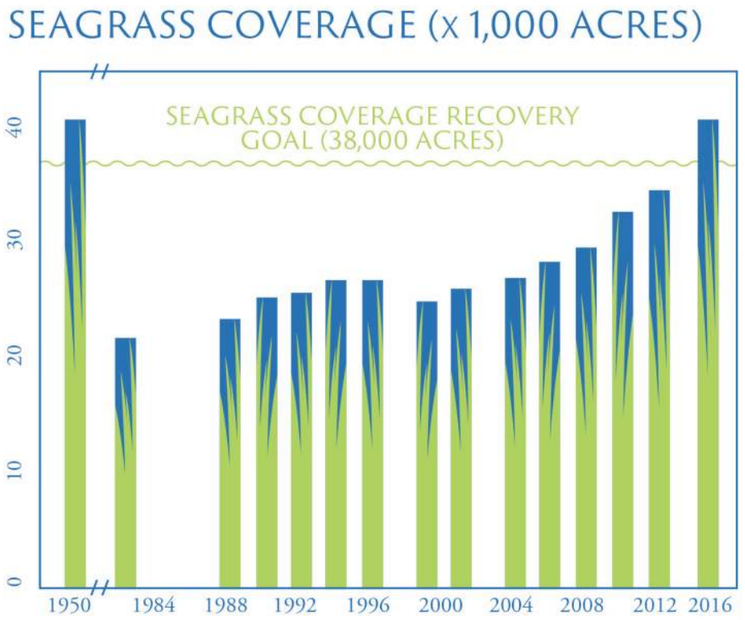
2006				
2007				
2008				
2009				
2010				
2011				
2012				
2013				
2014				
2015				
2016				

Water Quality Report Card.
Green: Bay segment met chlorophyll and water clarity targets.
Blue: Bay segment did not meet one of the targets.
Orange: Bay segment did not meet either target.
SOURCE: TBEP



The nationally recognized Tampa Bay Nitrogen Management Consortium (TBNMC) — an alliance of more than 55 local governments, regulatory agencies and key industries bordering the bay — played a leading role in reducing nitrogen loadings in the bay. TBNMC members developed voluntary water quality and nutrient loading targets to support TBEP's seagrass recovery goals. This partnership removed or prevented loading of 537 tons of nitrogen to the bay through a combined $649 million investment.

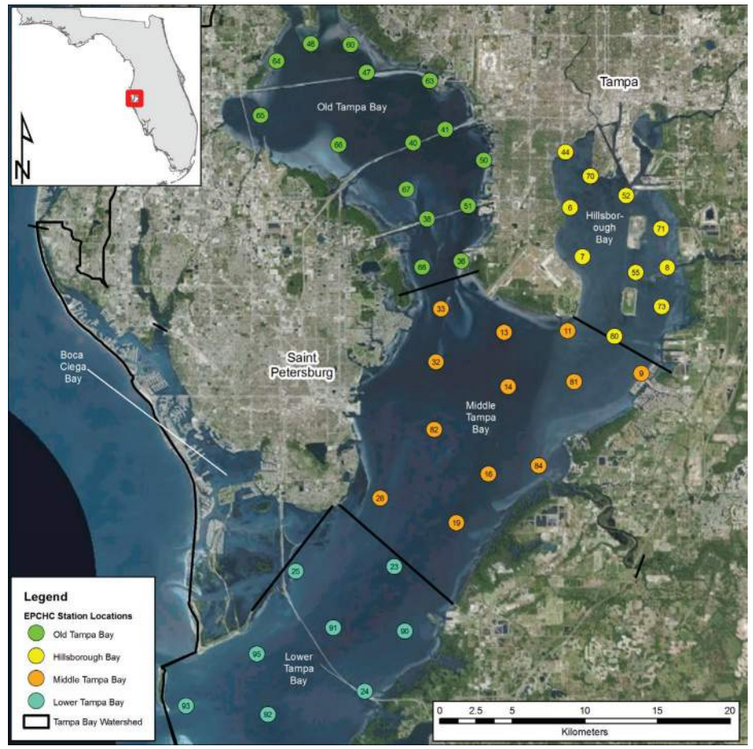
In 1998, the U.S. Environmental Protection Agency (EPA) approved a regulatory Total Maximum Daily Load (TMDL) for Tampa Bay; in 2007, EPA required all permitted nutrient sources within the Tampa Bay watershed to adhere to annual numeric loading limits, or allocations, for their nitrogen discharge to Tampa Bay. The TBNMC proactively developed voluntary nitrogen loading limits for themselves and submitted those limits as recommended allocations to EPA and the Florida Department of Environmental Protection (FDEP), rather than relying on the regulatory agencies to develop the limits for them. Both EPA and FDEP encouraged and participated in this effort, which was led by TBEP.

As outlined in the 2009 and 2012 Tampa Bay Reasonable Assurance documents, TBNMC members developed fair and equitable allocations for all 189 permitted sources within the watershed that total the federally-recognized TMDL for Tampa Bay. Consequently, both FDEP and EPA accepted the recommended allocations as meeting water quality requirements for Tampa Bay. In 2011, the TBNMC further developed recommended numeric nutrient criteria consistent with the bay's nutrient loading targets, which were subsequently adopted by the State in 2012.

The Tampa Bay nutrient management strategy has become a national and international model for successful watershed management collaborations. TBNMC success has utilized a multifaceted approach to reduce nutrient impacts to the bay, including stormwater treatment (see *Action SW-10*), wastewater reuse and aquifer recharge (see *Action WW-1*), septic conversions and reduction in sewer overflows (see *Actions WW-2, WW-3* and *WW-5*), reduction in fertilizer use (see *Action SW-8*), process improvements for industrial manufacturing and power plants (see *Action AD-1*), habitat rehabilitation and restoration (see *Action BH-1*) and homeowner education (see *Action SW-1*).

Examples (with corresponding reduction in Total Nitrogen, TN, where available) include:

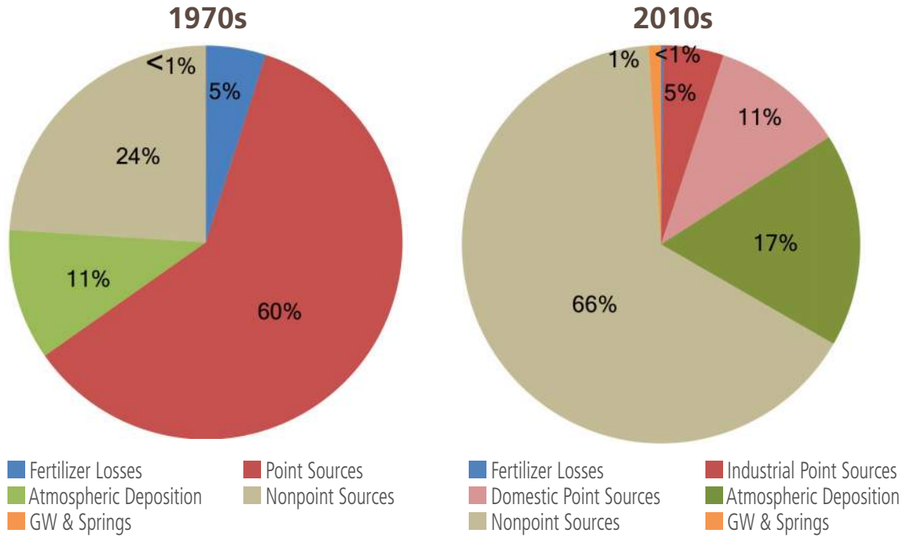
- ***stormwater treatment projects*** such as the City of Clearwater's Cliff Stephens Park Stormwater Retrofit Project (5.8 tons/yr TN reduction)
- ***atmospheric deposition reduction projects*** such as Tampa Electric Company's repowering of Gannon Power Plant Bayside (1.9 tons/yr TN reduction)
- ***industrial manufacturing process upgrades*** such as those at CF Industries (now Mosaic) Bartow Phosphate Complex (18 tons/yr TN reduction)
- ***agricultural water and fertilizer reductions*** such as citrus and row crop conversion to micro-irrigation in Hillsborough County (2 tons/yr TN reduction)
- ***wastewater discharge to reuse*** such as Hillsborough County's South County Reuse System (17.7 tons/yr TN reduction)
- ***regional restoration and stormwater treatment creation*** such as Southwest Florida Water Management District's Cockroach Bay Restoration Project (0.7 tons/yr TN reduction)



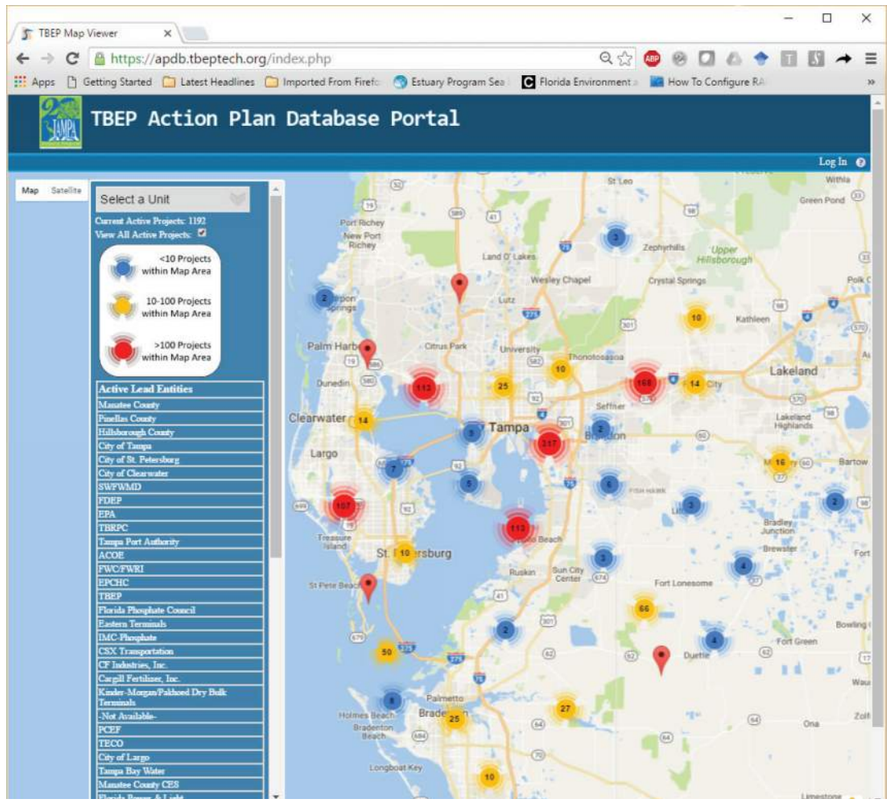
Water quality sampling sites in Tampa Bay. SOURCE: EPCHC.

- ***overlay districts requiring additional stormwater treatment*** such as Manatee County's Development and Agricultural Overlay District in the Lake Manatee watershed (9.6 tons/yr TN reduction)
- ***residential fertilizer ordinances restricting the use of nitrogen fertilizer during the rainy season*** adopted by Pinellas County, Manatee County, and cities of St. Petersburg, Clearwater and Tampa (an estimated 6% reduction in TN stormwater runoff)
- ***stream and creek rehabilitation*** such as Pinellas County's Allen's Creek Rehabilitation Project (0.7 tons/yr TN reduction)
- ***lake sediment rehabilitation*** such as the City of St. Petersburg's Lake Maggiore Dredging Project (1.7 tons/yr TN reduction)

SOURCES OF NITROGEN LOADING TO TAMPA BAY, 1970s VS. 2010s



SOURCE: TBEP



Screen shot for TBEP Action Plan Database for tracking nitrogen management projects by Nitrogen Management Consortium Partners.

- ***point discharge to deep well injection*** such as Tropicana's Deep Well Injection Project (11 tons/yr TN reduction)
- ***education campaigns addressing homeowner actions*** to reduce stormwater runoff such as UF/IFAS Extension's Florida Friendly Landscaping™ and TBEP's *Be Floridian* campaign.

Periodic assessments of the bay's condition using nutrient-related metrics are now required by FDEP for TBEP partners and the TBNMC. These reporting requirements include annual water quality reports and 5-year Reasonable Assurance (RA) demonstrations that assure that the Tampa Bay Nutrient Management Strategy continues to meet state and federal water quality requirements. Reporting elements in the RA document include 5-year nitrogen loadings from all sources, compliance assessments with approved allocations, water quality trends in each bay segment, and identification of current and future actions to reduce nutrient loadings to Tampa Bay.[1] The next Tampa Bay RA report, which covers the 2012-2016 period, is due to FDEP by December 2017. Additional planned and budgeted projects are expected to reduce TN loading by 62 tons per year.

Efforts to implement a similar nutrient management strategy in Tampa Bay tidal streams are underway (see *Action BH-9*). Ongoing research includes development of environmental indicators and thresholds of tidal stream health and nursery function to protect wetland systems against nutrient impairment and a management framework for their restoration. This framework establishes proactive metrics that can be utilized by partners to implement watershed restoration actions that can reduce nutrient inputs to tidal streams.

As a follow-up, project partners are proposing to explore the relationship between nutrient dynamics and tidal stream condition, advancing regional knowledge of these important low-salinity habitats, as well as informing and prioritizing management actions that may be needed to protect or enhance the ecology of these systems.

STRATEGY:

Activity 1 Continue to assess and report water quality targets annually. Expand monitoring and reporting to tidal creeks as available resources allow and appropriate water quality indicators are identified (see *Action BH-9*).

Responsible parties: TBEP (lead), with water quality data from EPCHC, Pinellas County and Manatee County

Timeframe: Ongoing; annual reports are delivered to FDEP and EPA by April 1 each year

Cost and potential funding sources: $ Using TBEP Workplan and CWA Section 320 funds for the annual bay report; $$ for water quality monitoring conducted by EPCHC, Pinellas County and Manatee County

Location: Baywide

Benefit/Performance measure: Annual documentation of attainment of numeric water quality targets in each major bay segment and in tidal creeks where data are available. Public reports to promote understanding of water quality trends to multiple audiences.

Results: Annual assessment of water quality progress and potential problems will allow timely understanding of potential problem areas and promote adaptive management of nutrient management in each bay segment.

Deliverables: Annual reports assessing numeric water quality targets in each major bay segment and tidal creek where data are available. Graphic report of water quality trends for public outreach.

Activity 2 Develop Reasonable Assurance Updates to demonstrate that the *Tampa Bay Nutrient Management Strategy* is effective at maintaining water quality to support seagrasses. Maintain the *Nitrogen Action Plan Database* developed by TBEP to effectively track and quantify nitrogen load reduction projects.

Responsible parties: Tampa Bay Nitrogen

Management Consortium participants (lead), TBEP (facilitation of the Consortium and maintenance of database)

Timeframe: Ongoing; next Reasonable Assurance document submitted in 2017 and every 5 years thereafter

Cost and potential funding sources: $ Staff time and funds to support Consortium's technical contractor from TBNMC participants; $ for TBEP database management (CWA Section 320 funds); $$–$$$$ to implement nutrient management projects by local partners.

A scientist measures water clarity using a Secchi disk.

Location: Baywide

Benefit/Performance measure: Documentation of nutrient loadings and nutrient reductions from projects conducted throughout the Tampa Bay watershed.

Results: Nutrient management projects and programs implemented throughout the watershed will help attain water quality targets and seagrass goals.

Deliverables: 2017 Reasonable Assurance documentation. Updated TBNMC Action Plan database of nitrogen reduction projects.

Activity 3

Further develop and refine effective nutrient management strategies to support ecological function of Tampa Bay tidal tributaries.

Responsible parties: TBEP (in partnership with Sarasota Bay and Charlotte Harbor National Estuary Programs), local government and agency partners

Timeframe: Initiate in 2018, complete within 3 years of initiation

Cost and potential funding sources: $$ grant funds from EPA or other agencies; $ for TBEP staff time (CWA Section 320 funds)

Location: Tidal creeks throughout Tampa Bay

Benefit/Performance measure: Analysis and documentation of nutrient dynamics in Southwest Florida tidal creeks. Prioritized strategies for effective nutrient management to support ecological function of these systems.

Results: Increased protection and management of tidal creeks and the fisheries that depend upon them.

Deliverables: Final report documenting nutrient dynamics and prioritized management strategies for ecological function of tidal creeks.

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[1] 2015 Tampa Bay Nutrient Management Compliance Assessment Results

APPENDIX H

Cultural Resources Ponds Addendum

CULTURAL RESOURCES ASSESSMENT SURVEY PONDS ADDENDUM FOR GANDY BOULEVARD (US 92/SR 600) PROJECT DEVELOPMENT AND ENVIRONMENT STUDY PINELLAS COUNTY, FLORIDA

CONSULTANT:	SEARCH 700 N. 9th Avenue, Pensacola, Florida 32501
PRINCIPAL INVESTIGATOR:	Steven RabbySmith, MA, RPA
ARCHAEOLOGIST:	Kyle Feriend, BA
ARCHITECTURAL HISTORIAN:	Jason Newton, MA, MLIS
CLIENT:	FDOT District 7
DATE:	August 2022
FINANCIAL MANAGEMENT #:	441250-1
SEARCH PROJECT #:	20089

This report details the results of a cultural resources assessment survey (CRAS) of three proposed retention pond locations along Gandy Boulevard in the City of St Petersburg, Pinellas County, Florida. The Florida Department of Transportation (FDOT), District 7, is conducting a Project Development and Environment (PD&E) study to evaluate location and design concepts for widening the current divided four-lane facility to six lanes, adding grade separations at major intersections along the approximate 7.2-mile (mi) (11.6-kilometer [km])-long corridor, improving pedestrian and bicycle accommodations; the project includes three proposed pond locations (Pond 1, Pond 2A, and Pond 2B). The three proposed pond locations total 1.8 hectares (ha) (4.4 acres [ac]) and include one (Pond 1) entirely within the existing Gandy Boulevard right-of-way (ROW)and two (Ponds 2A and 2B) outside the existing ROW.

The Area of Potential Effects (APE) was defined to include the pond footprints plus a 100-foot (ft) (30-meter [m]) buffer. The archaeological survey area was limited to the proposed pond footprint while the survey area for architectural resources included both the pond footprint and the 100-ft (30-m) buffer. This report serves as an addendum to the 2022 SEARCH report titled *Cultural Resource Assessment Survey Gandy Boulevard (US 92/SR 600) Project Development and Environment Study from 4th Street to Westshore Boulevard* (Newton et al. 2022; FMSF Survey No. TBD). As such, the paleoenvironment, historic context, map review, and research design are not repeated in this document. The survey log sheet for this addendum is included as **Attachment 1**.

The work was conducted to comply with Public Law 113-287 (Title 54 USC), which incorporates the provisions of the National Historic Preservation Act (NHPA) of 1966, as amended, including Section 106 (54 U.S.C. §306108), and the Archaeological and Historic Preservation Act of 1974, as amended, 36 CFR Part 800 (Protection of Historic Properties), and all laws, regulations, and guidelines promulgated by the State of Florida governing cultural resources work, in particular Chapters 267.031(1) and 267.12, Florida Statutes and 1A-46, Florida Administrative Code. All work was performed in accordance with Part 2, Chapter 8 of the FDOT's PD&E Manual (revised January 2019) and the Florida Division of Historical Resources' (FDHR) recommendations for

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 23 U.S.C. § 327 and a Memorandum of Understanding renewed May 26, 2022and executed by the Federal Highway Administration and FDOT.

such projects as stipulated in the FDHR's Cultural Resource Management Standards & Operations Manual, Module Three: Guidelines for Use by Historic Preservation Professionals. The work was performed by professional archaeologists who meet the qualifications established in the Secretary of the Interior's *Standards and Guidelines* (48 FR 44716, 29 September 1983).

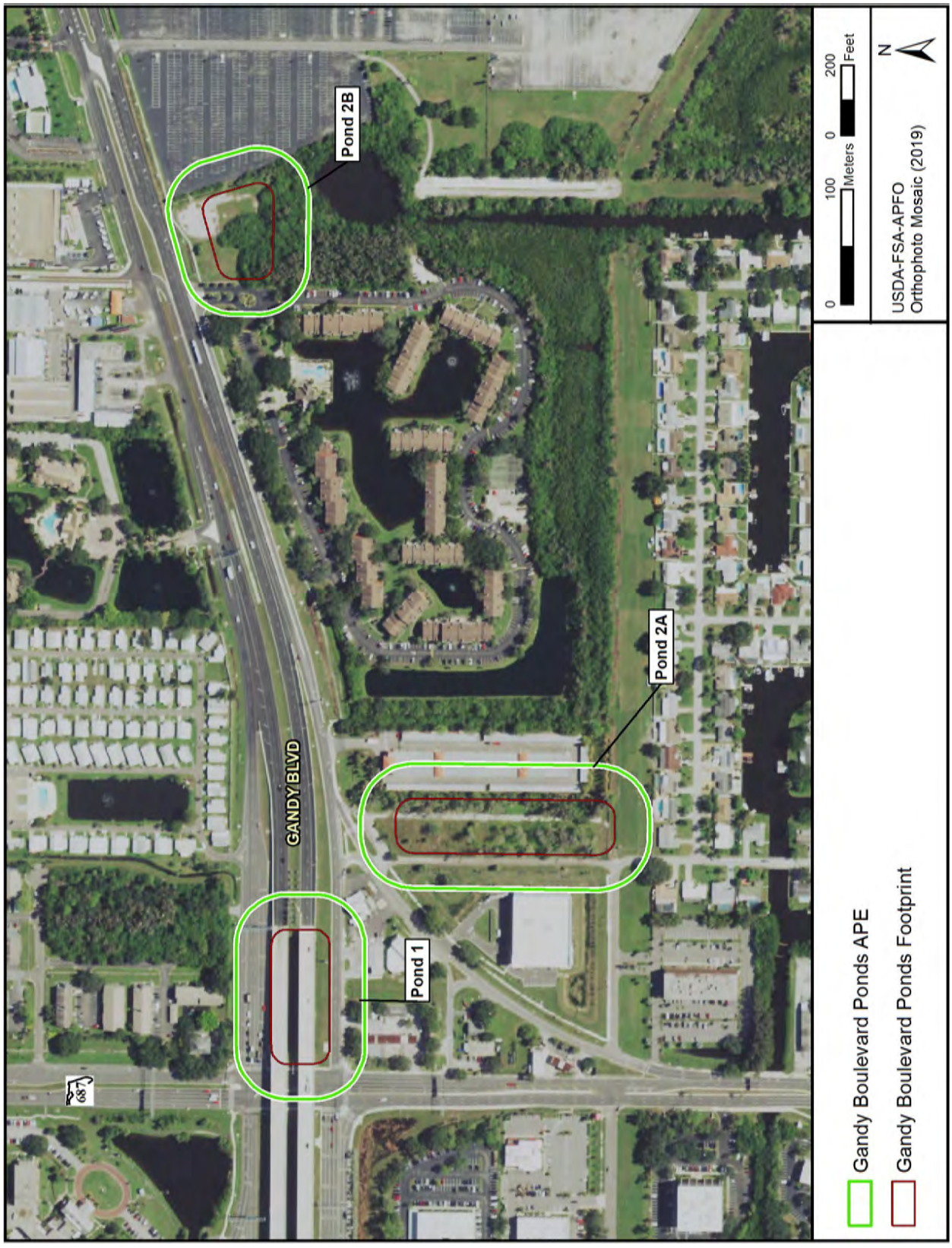

Figure 1. Location of the APE in Pinellas County, Florida.

ENVIRONMENT AND MODERN CONDITIONS

The ponds APE is characterized by heavy urban development. Pond 1 is located under the Gandy Boulevard overpass, which crosses SR 687 just east of the intersection of the two roads. The majority of Pond 1 is currently being used as a stormwater retention pond. Ponds 2A and 2B are both located on the south side of Gandy Boulevard and contain sections of pavement that appear to be associated with an abandoned access road and possible parking areas. Otherwise, Ponds 2A and 2B are wooded with mixed hardwoods, palms, low-lying scrub, and various grasses and vines. Vegetation in some parts of Ponds 2A were very dense at the time of the survey. The three proposed pond locations are at the following coordinates in the Public Land Survey System (PLSS):

- Pond 1 is in Township 30 South, Range 17 East, Sections 18 and 19
- Pond 2A is in Township 30 South, Range 17 East, Section 19
- Pond 2B is in Township 30 South, Range 17 East, Section 18

Geologically, the APE is within the Pinellas Peninsula physiographic province, which is a part of the larger Southwestern Flatwoods District (Brooks 1981). The Pinellas Peninsula province is characterized by deeply weathered sand hills and lower terraces underlain with Plio-Pleistocene-age sand and shell. Elevations within the APE range from approximately 7 ft (2.1 m) below mean sea level (bmsl) to 2 ft (0.61 m) above mean sea level (amsl). Soils within the APE consist of Urban land, somewhat poorly drained Matlacha and St. Augustine soils, poorly drained EauGallie sand, and poorly drained Immokalee fine sand (**Figure 2**).

BACKGROUND RESEARCH

Florida Master Site File Review

The Florida Master Site File (FMSF) database (updated July 2022) was reviewed to identify previously conducted cultural resources surveys and previously recorded cultural resources within the APE. The FMSF review indicates that 10 previous cultural resources surveys intersect the current project APE (**Table 1**; **Figure 3**). Of these previous surveys, the most relevant to the current project are FMSF Survey Nos. 3550 and 7041. FMSF Survey No. 3550 was a CRAS conducted in 1992 by Janus Research and Piper Archaeological Research in support of the Gandy Bridge Connector project (Estabrook et al. 1992). This survey covered a significant portion of the Pond 2B footprint. Survey methods included pedestrian survey and systematic shovel testing, although the degree of shovel testing within the proposed Pond 2B footprint is uncertain. FMSF Survey No. 7041 was a CRAS conducted in 2002 by Archaeological Consultants, Inc., in support of proposed improvements to Gandy Boulevard. This survey encompassed the southern half of the Pond 1 footprint and included pedestrian survey and systematic shovel testing. Neither survey recorded any archaeological sites within the current ponds APE.

Table 1. Previously Conducted Cultural Resource Surveys in the APE.

FMSF No.	Title	Year	Organization/Firm
1522	*An Archaeological Survey of the City of St. Petersburg, Florida*	1987	Piper Archaeological Research
2745	*St. Petersburg Architectural and Historic Resources*	1981	City of St. Petersburg
2827	*An Archaeological and Historical Survey of the Unincorporated Areas of Pinellas County, Florida*	1991	Austin, Robert J., Charles Fuhrmeister, and Howard F. Hansen
3550	*A Cultural Resource Assessment Survey of the Proposed Gandy Bridge Connector Project Alignments Between 4th Street and Dale Mabry Highway, Pinellas and Hillsborough Counties, Florida*	1992	Estabrook, Richard W., Laura M. Weant, Howard F. Hansen, and Edwin S. Dethlefsen
7041	*Cultural Resource Assessment Survey Update Technical Memorandum Gandy Boulevard (SR 694) PD&E Study from West of US 19 to East of 4th Street, Pinellas County*	2002	Archaeological Consultants, Inc.
13268	*Phase I and II Testing of the Florida Power Corporation D/B/A Progress Energy Florida, Inc. Bartow Power Plant Repowering Project Area*	2006	Janus Research
16115	*Countywide Cultural Resources Survey, Pinellas County, Florida*	2008	Sullivan, Patrick, Greg C. Smith, Mary Beth Reed, Pinellas County Planning Department
19059	*Historic Resources Survey Update Technical Memorandum State Road 694 (Gandy Boulevard) From West of Dr. Martin Luther King Street North (9th Street North) to East of SR 687 (4th Street North), Pinellas County, Florida*	2012	Berger, Christopher
22310	*Phase I Cultural Resource Assessment Survey and Phase II Evaluative Testing, 12-inch St. Petersburg Lateral Relocation for FDOT Gandy Boulevard Improvements, Pinellas County, Florida*	2015	SEARCH
25403	*Pinellas County Bridges Historic Resources Survey*	2018	Hinder, Kimberly

Further review of the FMSF database indicates that there are three previously recorded cultural resources within the APE, including two historic structures (8PI03174 and 8PI12016), and one historic district (8PI12021) (**Table 2; Figure 4**). SEARCH documented and evaluated these resources as part of the Gandy Boulevard roadway CRAS.

Table 2. Previously Recorded Cultural Resources within the APE.

Historic Structures				
FMSF No.	**Address**	**Year Built**	**Surveyor Evaluation**	**SHPO Evaluation**
8PI03174	10035 Second Street North	c. 1945	Not Evaluated	Not Evaluated
8PI12016	10056 Gandy Boulevard North	c. 1952	Ineligible for the NRHP	Ineligible for the NRHP
Resource Groups				
FMSF No.	**Name**	**Period of Significance**		**SHPO Evaluation**
8PI12021	Derby Lane	1925–1962		Eligible for the NRHP

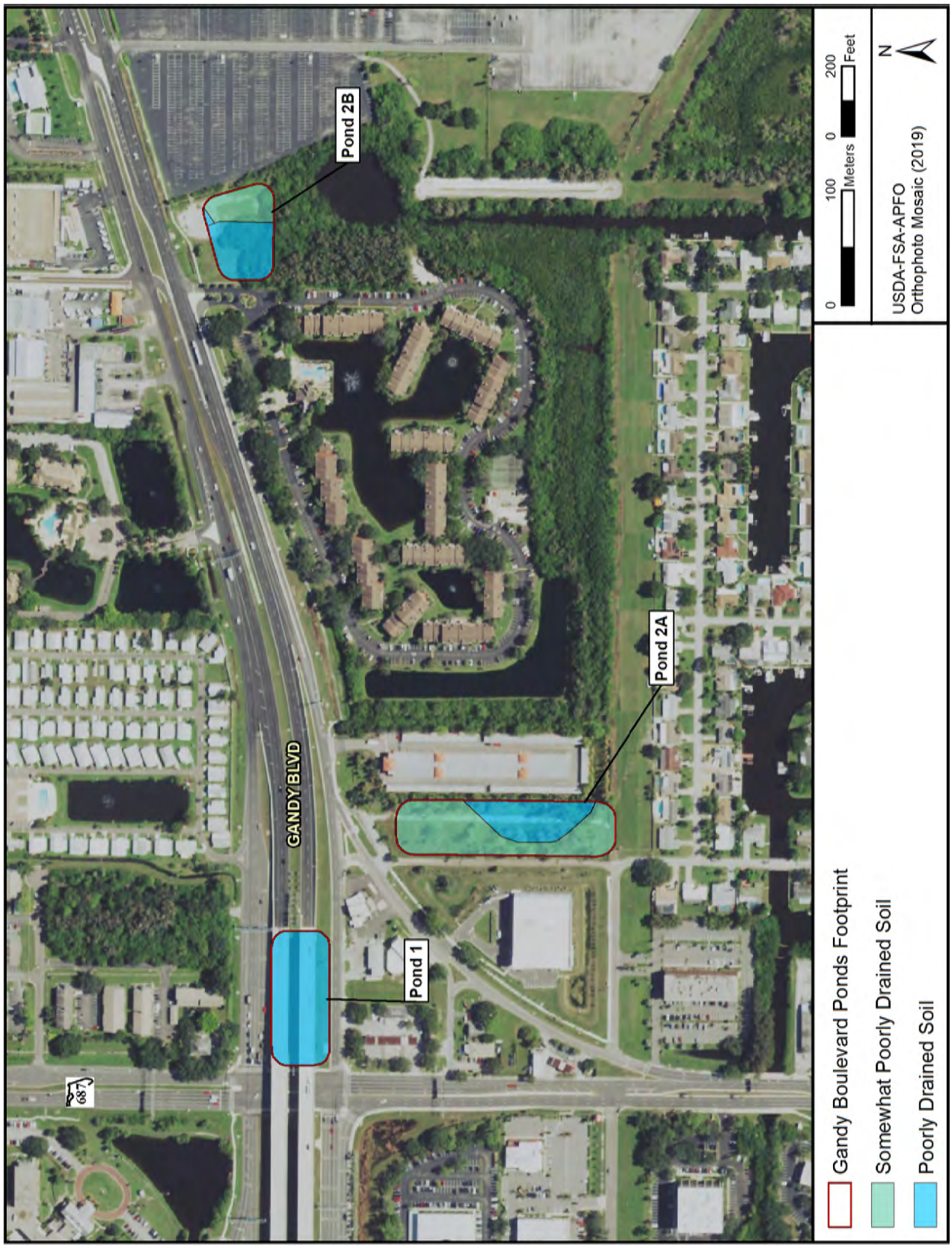

Figure 2. Soil Drainage in the APE.

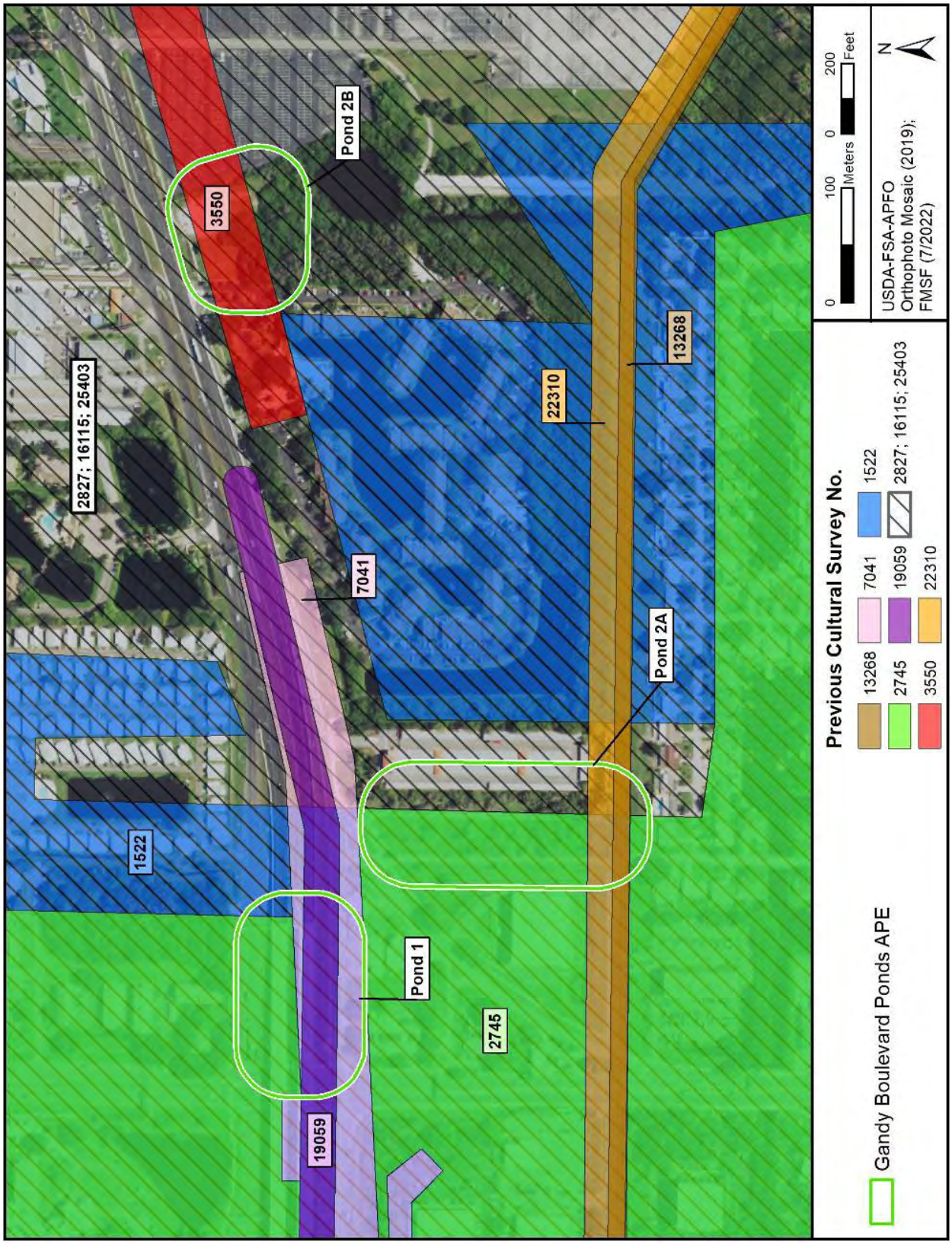

Figure 3. Previously conducted cultural resource surveys within the APE.

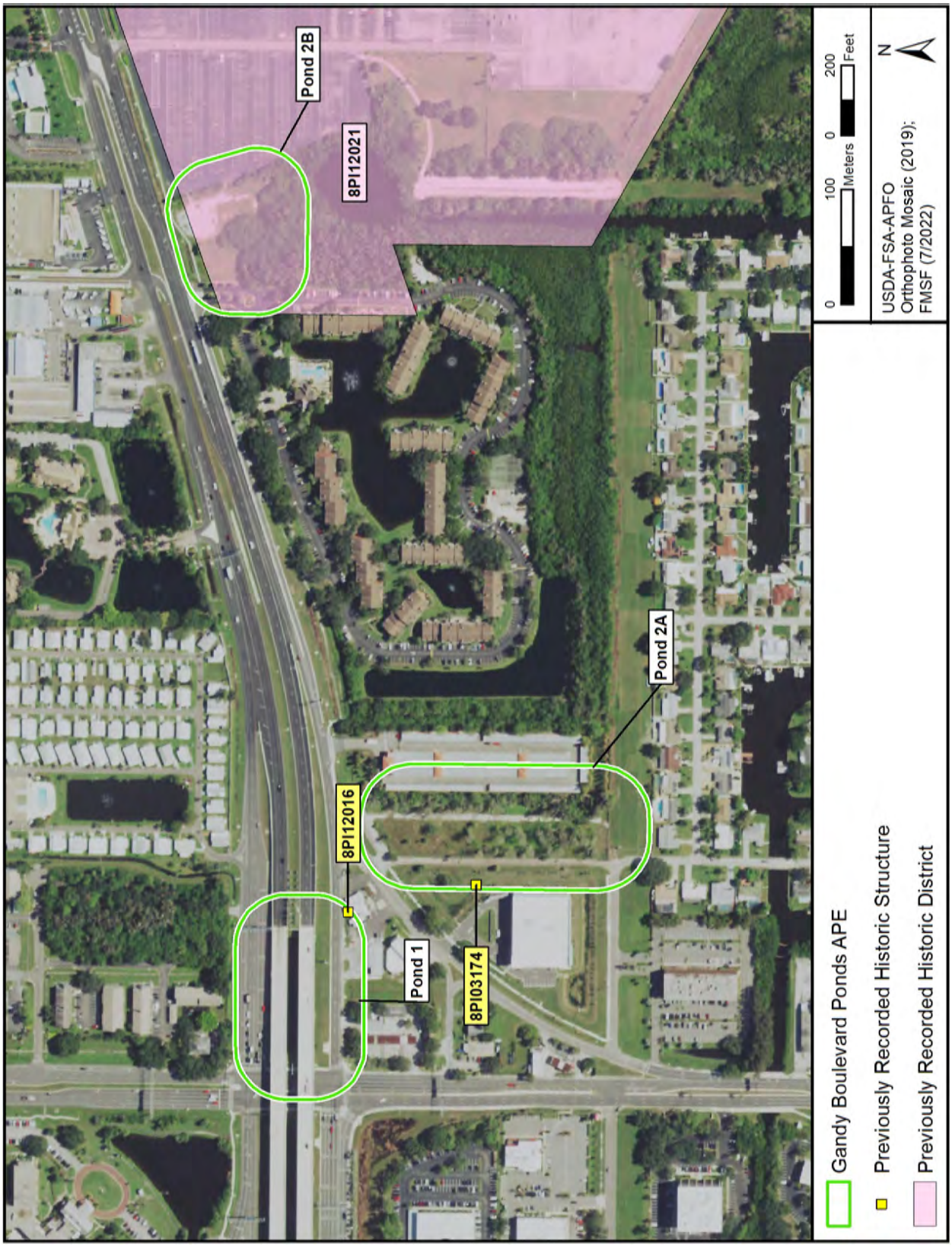

Figure 4. Previously recorded resources within the APE.

CULTURAL RESOURCE POTENTIAL

Based on an examination of environmental variables (soil drainage, relative elevation, access to marine resources, extent of filling and grading) and the results of previously conducted surveys and level of subsurface disturbance (i.e., buried utilities and heavy residential and commercial development), the potential for precontact archaeological sites to be present within the APE was considered low to moderate. In addition, the areas within and adjacent to the APE has been used as a transportation corridor and hosted numerous degrees of urban development during the twentieth century. These conditions suggest an elevated potential for postcontact archaeological sites; however, due to significant disturbance associated with land alterations and modern development, the potential for postcontact sites was considered merely moderate. Due to the presence of previously documented historic resources within the ponds APE, there is a high probability for historic architectural resources.

SURVEY METHODS

Archaeological Field Methods

The Phase I field survey consisted of systematic subsurface shovel testing according to the low to moderate potential for buried archaeological sites. Accordingly, shovel tests were excavated at 50-m (164-ft) intervals or judgmentally within the proposed pond footprints. Shovel tests measured approximately 50 centimeters (cm) (19 inches [in]) in diameter and were excavated to a minimum depth of 100 cm (39 in) below surface (cmbs), subsurface conditions permitting. All excavated sediments were screened through 0.63-cm (1/4-in) mesh hardware cloth. The location of each shovel test was marked on field maps (**Attachment 2**) and recorded on Wide Area Augmentation System (WAAS)-enabled handheld GPS units. The cultural content, soil strata, and environmental setting of each shovel test were recorded in field notebooks. The entire archaeological survey area was subjected to pedestrian survey to identify the areas most conducive to subsurface testing; if testing of an area was confirmed to be infeasible due to existing development or a safety hazard, a “no-dig” point was marked on the field map and recorded with GPS units to document the visual inspection of this area.

Architectural Field Methods

Because the recent survey of the Gandy Boulevard roadway APE documented the three previously recorded historic resources within the ponds APE, no additional architectural fieldwork was required for the Gandy Boulevard Ponds CRAS.

Laboratory Methods

No artifacts were recovered as a result of this survey, and therefore no laboratory analysis was required.

Curation

The original maps and field notes are currently housed at SEARCH's Newberry office. The original maps and field notes will be turned over to FDOT, District 7, upon project completion; SEARCH will retain copies.

Procedures to Deal with Unexpected Discoveries

Every reasonable effort has been made during this investigation to identify and evaluate possible locations of prehistoric and historic archaeological sites; however, the possibility exists that evidence of cultural resources may yet be encountered within the project limits. Should any evidence of unrecorded cultural resources be discovered during construction activities, all work in that portion of the project area must stop. Evidence of cultural resources includes aboriginal or historic pottery, prehistoric stone tools, bone or shell tools, historic trash pits, and historic building foundations. Should questionable materials be uncovered during the excavation of the project area, representatives of FDOT, District 7, will assist in the identification and preliminary assessment of the materials. If such evidence is found, the FDHR will be notified within two working days.

In the unlikely event that human skeletal remains or associated burial artifacts are uncovered within the project area, all work in that area must stop. The FDOT, District 7, Cultural Resources Coordinator must be contacted. The discovery must be reported to local law enforcement, who will in turn contact the medical examiner. The medical examiner will determine whether the State Archaeologist should be contacted per the requirements of Chapter 872.05, Florida Statutes.

RESULTS

The ponds APE is located along a section of roadway characterized by commercial and residential development and a heavily modified landscape to accommodate this development (see **Figure 1**). Disturbances in the project area include paved surfaces, buried utilities, concrete culverts, and existing drainage features. No previously documented archaeological sites are within the APE; however, the FMSF indicates there are three previously documented historic resources within the APE. The archaeological survey included pedestrian reconnaissance and excavation of five shovel tests within the survey area (**Figure 5**). A discussion of archaeological testing at each proposed pond location is included below. SEARCH documented and assessed the previously recorded historic resources within the APE as part of the mainline roadway CRAS, but they are included in the discussion below to address them in relation to the ponds APE.

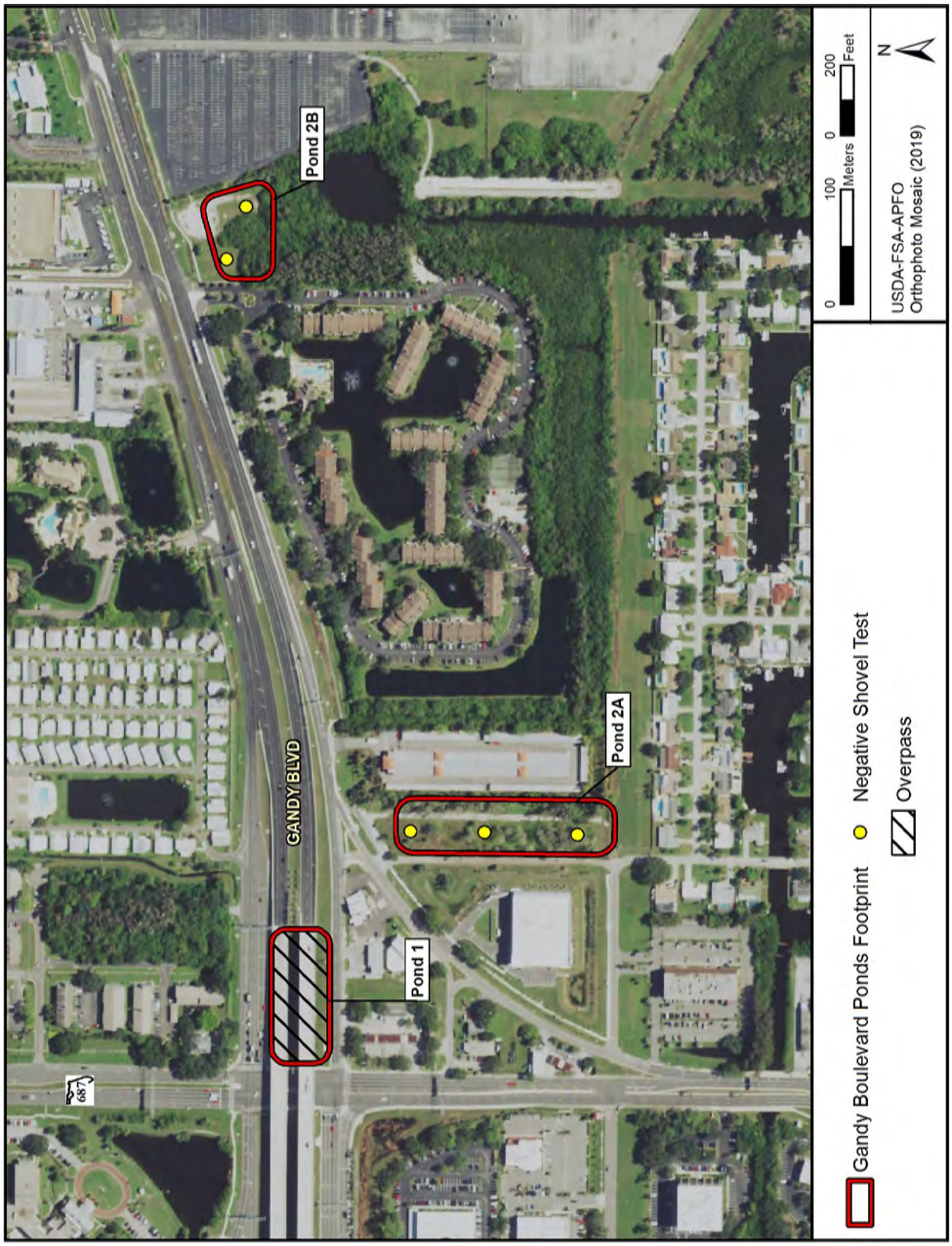

Figure 5. Results of archaeological testing within the APE.

Pond 1

Pond 1 consists of an approximately 0.6-ha (1.4-ac) footprint located in the Gandy Boulevard ROW underneath the overpass at SR 687 just east of the intersection of the two roads (**Figure 6**). No subsurface archaeological testing was conducted at the proposed Pond 1 footprint due to an overlapping existing pond and buried utilities adjacent to the inundated portions of the pond. SEARCH completed pedestrian survey and photo documentation within the pond footprint. These efforts encountered no archaeological sites or occurrences within the proposed Pond 1 footprint. No further archaeological survey is recommended.

One previously documented historic building, the Former Webb's City Outpost (8PI12016), is located at the southeast corner of the Pond 1 APE (see **Figure 6**). Built ca. 1952, this Masonry Vernacular former retail establishment was evaluated as ineligible for the NRHP by the SHPO in May 2012. SEARCH revisited and documented 8PI12016 during the current Gandy Boulevard mainline roadway CRAS and determined that the building remained ineligible for the NRHP. Based on the results of the roadway and ponds CRAS, no further work is recommended for Pond 1.

Figure 6. Pond 1 overview. Left: terrain and vegetation at Pond 1, view east; Right: 8PI12016 (Former Webb's Outpost), view northeast.

Pond 2A

Pond 2A consists of an approximately 0.8-ha (2-ac) footprint located approximately 100 m (328 ft) southeast of proposed Pond 1 in a vacant lot just east of 2nd Street North (see **Figure 1**). The area is lightly wooded and contains an overgrown segment of roadway that is no longer in use (**Figure 7**). SEARCH archaeologists excavated three shovel tests at 50-m (164-ft) intervals within the Pond 2A footprint, all of which were negative for cultural material (see **Figure 5**). Soils were relatively uniform throughout the area with a typical soil profile consisting of very dark gray (10YR 3/1) loamy sand containing a scatter of shell fragments from 0 to 35 cmbs (0 to 13.8 in; Stratum I); dark gray (10YR 4/1) sand from approximately 35 to 50 cmbs (13.8 to 19.7 in; Stratum II) and a gray (10YR 5/1) sand from approximately 50 to 70 cmbs (19.7 to 27.6 in; Stratum III) (See **Figure 7**). All three tests were terminated upon encountering the water table

at 70 cmbs (27.6 in). SEARCH archaeologists encountered no archaeological sites or occurrences within the proposed Pond 2A footprint. No further archaeological survey is recommended.

The FMSF GIS data indicates one previously documented historic building (8PI03174) along the western edge of the Pond 2A APE (see **Figure 4**). SEARCH's survey of the Gandy Boulevard mainline roadway confirmed that 8PI03174 is no longer extant. Based on the results of the Gandy Boulevard roadway and ponds CRAS, no further work is recommended for Pond 2A.

Figure 7. Pond 2A overview. Left: Terrain and vegetation at Pond 2A, view east; Right: Typical shovel test profile observed at Pond 2A.

Pond 2B

Pond 2B consists of an approximately 0.4-ha (1-ac) footprint located approximately 470 m (1542 ft) east-northeast of Pond 2A in a vacant lot just east of the Vantage Point Condominium complex (see **Figure 1**). SEARCH archaeologists excavated two shovel tests at 50-m (164-ft) intervals across the footprint of Pond 2B, both of which were negative for cultural material (see **Figure 5**). The soil profile of a shovel test in this pond footprint consisted of mottled dark gray (10YR 4/1) sand with shell and modern glass from 0 to 30 cmbs (0 to 11.8 in; Stratum I), mottled very dark gray (10YR 3/1) sand from 30 to 35 cmbs (11.8 to 13.8 in; Stratum II), mottled grayish brown (10YR 5/2) sand from 35 to 60 cmbs (13.8 to 23.6 in; Stratum III), and brown (10YR 4/3) sand from 60 to 75 cmbs (23.6 to 29.5 in; Stratum IV) (**Figure 8**). Soil mottling and the presence of crushed shell and modern glass noted in Strata I through III indicate significant disturbance from urban development across the pond footprint. The test was terminated at 75 cmbs (29.5 in) upon encountering the water table. The second of the two shovel tests excavated in the Pond 2B footprint encountered an inactive buried utility line at 25 cmbs (9.8 in), at which point the test was terminated. SEARCH archaeologists encountered no archaeological sites or occurrences within the proposed Pond 2B footprint. No further archaeological survey is recommended.

One previously documented resource group, Derby Lane Historical District (8PI12021), intersects the entirety of the Pond 2B footprint and most of the overall pond APE (see **Figure 8**). Formerly called the St. Petersburg Kennel Club, 8PI12021 was established in 1925 primarily for dog racing, although other events were also held there in its earlier years. The park was renamed Derby Lane in 1949 and remains in operation today. SHPO evaluated 8PI12021 as eligible for the NRHP in May 2012 under Criterion A in the areas of recreation and entertainment.

SEARCH revisited and documented 8PI12021 during the current Gandy Boulevard mainline roadway CRAS and determined that because only a small portion of the historic district was in the roadway APE, a full reevaluation of the resource was outside the project's scope of work. Further, SEARCH made an effects evaluation based on the previous NRHP-eligible evaluation and recommended that, due to the distance of the district's contributing resources from the proposed new ROW and the similar appearance and setting of the proposed new roadway to that of the existing roadway, the project would have no adverse effect on the Derby Lane Historic District.

Pond 2B is proposed to cover a 0.4-ha (1-ac) area in the extreme northwest corner of the Derby Lane Historic District. The pond site is at least 330 m (1,083 ft) northeast of the district's contributing resources. Given the relatively small amount of ROW being acquired for Pond 2B, SEARCH maintains that a reevaluation of Derby Lane's NRHP eligibility is outside the scope of work for the Gandy Boulevard Ponds CRAS. Regarding project-related effects, there are numerous existing ponds both in and around the Derby Lane Historic District, and it is SEARCH's opinion that the addition of another pond will not significantly alter the setting. The district will continue to express its significance under Criterion A, and its NRHP eligibility status will not be affected. As such, the construction of Pond 2B will have no adverse effect on the Derby Lane Historic District. Based on the results of the roadway and ponds CRAS, no further work is recommended for Pond 2B.

Figure 8. Pond 2B overview. Left: Terrain and vegetation at Pond 2B and within the Derby Lane Historic District boundaries, view east; Right: Typical shovel test profile observed in Pond 2B.

CONCLUSIONS AND RECOMMENDATIONS

This technical memorandum details the results of a CRAS for three proposed pond locations associated with improvements to Gandy Boulevard in the City of St Petersburg, Pinellas County, Florida. FDOT, District 7, is conducting a PD&E Study to evaluate location and design concepts for widening the current divided four-lane facility to six lanes, adding grade separations at major intersections, and other improvements along the approximate 7.2-mi (11.6-km)-long corridor.

Because the recent survey of the Gandy Boulevard roadway APE has documented the historic resources that overlap the ponds APE, no additional architectural fieldwork was required for the Gandy Boulevard Ponds CRAS. However, because proposed Pond 2B is within the boundaries of the NRHP-eligible Derby Lane Historic District (8PI12021), SEARCH reviewed the current ponds CRAS project in relation to the historic district to determine the appropriate measures for evaluation and potential project-related effects. Because only a small portion of the district is within the current APE, the information to provide an updated eligibility recommendation as part of the current survey is insufficient. Proposed pond construction within the boundary of 8PI12021 will impact an approximate 0.4-ha (1-ac) area in the extreme northwest corner of the district and is located a considerable distance from the district's contributing resources. Regarding project-related effects, there are numerous existing ponds both in and around the Derby Lane Historic District, and it is SEARCH's opinion that the addition of another pond will not significantly alter the setting. The district will continue to express its significance under Criterion A, and its NRHP eligibility status will not be affected. As such, the construction of Pond 2B will have no adverse effect on the Derby Lanes Historic District.

The archaeological survey consisted of the excavation of five shovel tests within the pond footprints, all of which were negative for cultural material. SEARCH recorded no archaeological sites or archaeological occurrences within the three proposed pond footprints. No further work is recommended for the Gandy Boulevard Ponds APE.

REFERENCES CITED

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2022 *Cultural Resource Assessment Survey Gandy Boulevard (US 92/SR 600) Project Development and Environment Study from 4th Street to Westshore Boulevard*

Piper Archaeological Research
1987 *An Archaeological Survey of the City of St. Petersburg, Florida*. FMSF Survey No. 1522. On file, FDHR, Tallahassee, Florida.

APPENDIX I

Contamination Screening Pond Rankings

Dayna Duffy

From: Martin Horwitz <MHorwitz@kcaeng.com>
Sent: Wednesday, September 21, 2022 11:01 AM
To: Renato Chuw
Cc: Zach Evans; Michael Campo; Branan Anderson; Chris Garth
Subject: 441250-1 Gandy PD&E / Pond Site Matrix - Contamination
Attachments: Preliminary Pond Site Evaluation Matrix.docx

Renato,

Please see attached pond site matrix regarding contamination that Tierra has provided.

Thanks,

KISINGER CAMPO & ASSOCIATES

Martin Horwitz
Sr. Environmental Scientist/Project Manager

Email: MHorwitz@kcaeng.com
Office: 407.426.7307
Cell: 321.276.0942
111 N. Magnolia Ave, STE 1050, Orlando, FL 32801

CONFIDENTIALITY NOTE: This communication may be privileged and confidential. It should not be disseminated to others. If received in error, please immediately reply that you have received this communication in error and then delete it. Thank you.

Inwood Consulting Engineers, Inc.
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US 92 / SR 600 / Gandy Blvd

from 4th St. to Westshore Blvd.

BASIN 1 ALTERNATIVE POND SITES

ENGINEERING DATA & ANALYSIS

Alternatives	Location	Existing Ground Elevation (ft)	Pond Type	Soil Names & Hydrologic Groups	Estimated SHWT Elevation (ft)	Lowest Edge of Existing Roadway (ft)	Distance From Lowest Edge of Proposed Roadway (ft)	Estimated Allowable $DHW_{25yr/24hr}$ (ft)	Estimated Allowable Treatment & Attenuation Depth (ft)	Outfall Location	Roadway Drainage Area Excluding Pond (ac)	Required Treatment & Attenuation Volume (ac-ft)	Required Pond Access Area (ac)	Required Pond Area (ac)	Required Pond Area Including Access (ac)
Exist Pond 1															

IMPACT & COST ANALYSIS

Alternatives	Pond Floodplain Impacts (ac-ft)	FEMA Floodzone	Arch. / Historical Impact Potential	Wetland Impacts (ac)	Wetland Impact Cost	Threatened or Endangered Species Impacts	Environmental Impact Risk	Hazardous Materials & Contamination Potential	Major Utility Conflict Potential (Y/N)	Existing Land Use	Future Land Use	Total Area of Parcels (Including Non-Impacted Area) (ac)	Total Pond Costs	Rankings
Exist Pond 1								Low – No construction impacts to the project are anticipated						

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US 92 / SR 600 / Gandy Blvd

from 4th St. to Westshore Blvd.

BASIN 2 ALTERNATIVE POND SITES

ENGINEERING DATA & ANALYSIS

Alternatives	Location	Existing Ground Elevation (ft)	Pond Type	Soil Names & Hydrologic Groups	Estimated SHWT Elevation (ft)	Lowest Edge of Existing Roadway (ft)	Distance From Lowest Edge of Proposed Roadway (ft)	Estimated Allowable $DHW_{25yr/24hr}$ (ft)	Estimated Allowable Treatment & Attenuation Depth (ft)	Outfall Location	Roadway Drainage Area Excluding Pond (ac)	Required Treatment & Attenuation Volume (ac-ft)	Required Pond Access Area (ac)	Required Pond Area (ac)	Required Pond Area Including Access (ac)
Pond 2A															
Pond 2B															

IMPACT & COST ANALYSIS

Alternatives	Pond Floodplain Impacts (ac-ft)	FEMA Floodzone	Arch. / Historical Impact Potential	Wetland Impacts (ac)	Wetland Impact Cost	Threatened or Endangered Species Impacts	Environmental Impact Risk	Hazardous Materials & Contamination Potential	Major Utility Conflict Potential (Y/N)	Existing Land Use	Future Land Use	Total Area of Parcels (Including Non-Impacted Area) (ac)	Total Pond Costs	Rankings
Pond 2A								Low – No construction impacts to the project are anticipated						
Pond 2B								Low – No construction impacts to the project are anticipated						

CONTAMINATION SCREENING EVALUATION REPORT

Florida Department of Transportation

District Seven

Gandy Boulevard (US 92/SR 600)

Limits of Project: 4th Street to Westshore Boulevard

Pinellas and Hillsborough Counties, Florida

Financial Management Number: 441250-1-22-01

ETDM Number: 14335

Date: June 2022

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 23 U.S.C. § 327 and a Memorandum of Understanding dated May 26, 2022 and executed by the Federal Highway Administration and FDOT.

Level I

Contamination Screening Evaluation Report

Gandy Boulevard (US 92/SR 600)

from 4th Street to Westshore Boulevard

Project Development and Environment Study

Pinellas & Hillsborough Counties, Florida

Financial Project ID: 441250-1-22-01
Federal Aid Project No. TBD

Prepared for:

Florida Department of Transportation
District Seven

June 2022, Rev. 1

Level I

Contamination Screening Evaluation Report

(Mainline)

Florida Department of Transportation
District Seven

Project Development and Environment Study
US 92/SR 600/Gandy Boulevard
from 4th Street to Westshore Boulevard

Pinellas and Hillsborough Counties, Florida

FPID: 441250-1-22-01

June 13, 2022, Rev. 1

The environmental review, consultation, and other actions required by applicable federal environmental laws for this project are being, or have been, carried out by FDOT pursuant to 23 U.S.C. § 327 and a Memorandum of Understanding dated December 14, 2016, and executed by FHWA and FDOT.

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[redacted]	

1.0 Executive Summary

On behalf of the Florida Department of Transportation, this Level I Contamination Screening Evaluation Report was prepared to support the Project Development and Environment Study for US 92/SR 600/Gandy Boulevard from 4th Street to Westshore Boulevard located in Pinellas and Hillsborough Counties, Florida. This contamination evaluation was performed in accordance with Part 2, Chapter 20 of the Florida Department of Transportation's Project Development and Environment Manual (July 1, 2020). This report was ***revised*** based on comments provided by the Client on June 9, 2022. Additional right-of-way is anticipated to accommodate the proposed project improvements. Drainage sites were not evaluated in this contamination study.

Based on the methodologies completed for this study, the following risk ratings were assigned to the contamination sites identified along the project right-of-way:

Number of Contamination Sites per Risk Rating			
High	Medium	Low	No
1	5	14	2

For the High and Medium rated sites, Level II testing, if deemed appropriate by the District Contamination Impact Coordinator, is recommended. The Level II can include hazardous material surveys, soil borings, monitor well installation, soil and groundwater sampling, laboratory testing, and the use of an Organic Vapor Analyzer and Ground Penetrating Radar.

For the locations rated No or Low for contamination, no further action is required. These locations have been determined not to have any contamination risk to the study area at this time.

Once final design plans are available, additional review is recommended in consideration of dewatering operations that may be necessary under the *National Pollutant Discharge Elimination System Generic Permit for Stormwater Discharges from Large and Small Construction Activities*. Verification testing may be warranted for contamination issues within 500 feet of the dewatering area.

For areas where proposed right of way will be acquired, in accordance with Project Development and Environment Manual, Part 2, Chapter 20, an asbestos survey is recommended for structures located within proposed right of way.

5.0 Methodology

A contamination screening was conducted to identify contamination issues from properties or operations located within the vicinity of the project. This evaluation consisted of the following tasks:

- Aerial photographs were reviewed to develop a history of the previous land uses within the study area and to identify sites which may have historical uses that pose contamination concerns. Aerial photographs dated 1938, 1943, 1951, 1952, 1957, 1965, 1970, 1976, 1987, 1994-1995, 1997-1998, 2002, 2004-2008, 2010, 2012-2014, and 2015-2021 were reviewed from the University of Florida, FDOT Survey & Mapping, and Google Earth databases. A summary of our review is discussed in **Section 6.2**. Site specific details are provided, where appropriate, in **Table 1.** A copy of the 2020 aerial photograph is presented in **Appendix A**. Copies of select historical aerial photographs are presented in **Appendix B**.

- Topographic map review using imagery available from the United States Geological Survey (USGS) website. Topographic maps can be useful identifying contamination concerns such as railroads, mine lands, bulk storage tanks, and landfills/disturbed lands. Additionally, land use and water features, including elevation contours can be identified on topographic maps. The USGS 7.5-Minute "St. Petersburg, Florida" Quadrangle dated 1956 (photo-revised 1988), and "Gandy, Florida" Quadrangle dated 1956 (photo-revised 1987, was reviewed as part of this study. The topographic map is provided in **Appendix C**.

- Hillsborough County Property Appraiser and Pinellas County Property Appraiser database information were reviewed for suspect contamination sites where other resources may not have provided ample information regarding the site, or to determine addresses, parcel boundaries and other pertinent information.

- An environmental database search using Environmental Data Management, Inc. (EDM) was conducted on June 30, 2021 to identify sites, facilities or listings within the study area containing documented or suspected petroleum contamination or other hazardous materials. This report utilizes the 600-foot search distance as requested by the District Contamination Impact Coordinator. The EDM report is used as a preliminary screening tool to identify facilities that are registered with various county, state, and federal agencies. The regulatory review of federal and state environmental records utilizes an integrated geographic information system database. The database report provides geocoded and non-geocoded regulatory listings of interest that are identified within the study area. Each listing is located by address, facility identification number and field verified where possible. All are reviewed for the potential of contamination to impact the project. The reviewed records include information compiled by the United States Environmental Protection Agency (EPA), the Florida Department of Environmental Protection (FDEP), and other various

reporting programs. A complete list of all regulatory record databases searched is included in the environmental database search report, provided in **Appendix D**. The facilities identified in the EDM report are evaluated in **Section 9.0**.

- Performed a site reconnaissance to identify new and/or undocumented contamination sites, and to verify locations of documented contamination sites. Select photographs are provided in **Appendix E**.
- Assigned risk ratings for each contamination site or pond after evaluating the findings of each of the previously mentioned methodologies. The rating system defined in PD&E Manual is divided into four categories of risk which express the degree of concern for contamination problems. The four degrees of risk ratings are "No," "Low," "Medium," and "High" and are defined as follows:

No Risk Site

A review of available information on the property and a review of the conceptual or design plans indicates there is no potential contamination impact to the project. It is possible that contaminants have been handled on the property. However, findings from the Level I evaluation indicate that contamination impacts are not expected.

Low Risk Site

A review of available information indicates that past or current activities on the property have an ongoing contamination issue; the site has a hazardous waste generator identification (ID) number, or the site stores, handles, or manufactures hazardous materials. However, based on the review of conceptual or design plans and/or findings from the Level I evaluation, it is not likely that there would be any contamination impacts to the project.

Medium Risk Site

After a review of conceptual or design plans and findings from a Level I evaluation, a potential contamination impact to the project has been identified. If there is insufficient information (such as regulatory records or site historical documents) to make a determination as to the potential for contamination impact, and there is reasonable suspicion that contamination may exist, the property should be rated at least as a "Medium." Properties used historically as gasoline stations and which have not been evaluated or assessed by regulatory agencies, sites with abandoned in place underground petroleum storage tanks or currently operating gasoline stations should receive this rating.

High Risk Site

After a review of all available information and conceptual or design plans, there is appropriate analytical data that shows contamination will substantially impact construction activities, have implications to Right-Of-Way (ROW) acquisition or have other potential transfer of contamination related liability to the FDOT.

6.0 Land Uses

Determination of previous land uses and occupancies is an important factor when evaluating the potential for contamination involvement. Developing a history of the project and surrounding areas can assist in determining the potential for releases or discharges of hazardous materials or petroleum products. To determine land uses for this project, a site reconnaissance and interviews (**Section 8.0**) were performed along with a review of historical aerial photographs and topographic maps.

6.1 Site Reconnaissance

Site visits were conducted on August 17-18, 2021 to evaluate each property within and in close proximity to the mainline for contamination concerns. The site reconnaissance in conjunction with the desktop review allow the sites to be rated as to the degree of contamination concern as discussed in **Section 5.0**. The reconnaissance included a systematic inspection of each parcel along the project corridor, and surrounding areas looking for signs of contamination. This was achieved by driving, where possible, the project, and walking the parcels within and surrounding the project (where accessible) to gain specific information regarding the usage and condition of each contamination site. Photographs of the contamination concerns were taken during the site inspection. Select images are presented in **Appendix E**.

Some of the typical physical indicators for contamination concerns include: railroad tracks, fill ports and vent pipes associated with underground storage tanks (USTs), oil/petroleum staining, drums, chemical containers, refuse, illicit dumping, solid waste, stressed vegetation, dry cleaning facilities, material handling from adjacent businesses, petroleum dispensers, excavated areas, agricultural use, chemical mix/load areas, stormwater outfall areas, surface water indicators, groundwater monitor wells, restricted area/contamination/hazardous material/petroleum pipeline signage, cattle dip vats and other property uses that may present contamination concerns.

During the site reconnaissance on August 17-18, 2021, Gandy Boulevard was observed as a four lane divided highway. An elevated portion of the Selmon Expressway was located at the east end of the project. Multiple existing paved roads intersect Gandy Boulevard. Gandy Bridge was located in the middle of the project, and crosses Old Tampa Bay. Surrounding areas were generally residential and commercial businesses.

A detailed description of field observations for each contamination site is provided in **Section 9.0**.

6.2 Historical Aerial Photograph Review

The years and sources of the aerial photographs reviewed are provided in **Section 5.0**. A copy of the 2020 aerial photograph is presented in **Appendix A**. Copies of select historical aerial photographs are presented in **Appendix B**. The following is a summary of our review:

1938 Hillsborough County: Gandy Bridge, Gandy Boulevard, and Westshore Boulevard are depicted. Rows of planted trees (presumably Australian Pines) and sandy areas are depicted along the north and south sides of Gandy Boulevard. Aerial photo coverage was not available for Pinellas County.

1943 Pinellas County: Gandy Bridge and Gandy Boulevard are depicted. One structure, presumably a toll booth is depicted within the ROW (Station 295) west of Tampa Bay. Manmade canals and/or dredged areas are depicted for about two miles along the north and south sides of Gandy Boulevard. Several roads intersect Gandy Boulevard. A dog racing track and several structures are depicted along the south side of Gandy Boulevard. Two structures depicted north of Gandy Boulevard. Surrounding areas are sparsely developed. Aerial photo coverage was not available for Hillsborough County.

1951 Pinellas County: One cell tower and one building added north side of Gandy. Aerial photo coverage mostly not available. Although aerial photo coverage was mostly not available for Hillsborough County, no changes were noted for the areas of coverage.

1952 Pinellas County: Sparse development was added. Aerial photo coverage mostly not available. Aerial photo coverage was not available for Hillsborough County.

1957 Hillsborough County/Pinellas County: The north span (west-bound lanes) of Gandy Bridge was added.

1986 Pinellas County: Earthwork and a staging area were depicted on the causeway.

2006 Pinellas County: Some development was no longer present, and some new development was added.

2018-2021 Hillsborough County: Earthwork, a staging area, and roadway construction were depicted. This work was associated with the construction of the elevated lanes of the Selmon Expressway above Gandy Boulevard.

Additional site-specific current land use details regarding facilities/sites of contamination concern are included in **Table 1** in **Section 9.0**.

6.3 USGS Topographic Map Review

Topographic maps are reviewed to develop an understanding of previous land uses in the study area and to identify any areas that may show historical, natural and manmade features, which aid in determining contamination concerns. The following reviews are provided for the USGS 7.5-Minute topographic maps (**Appendix C)**.

Based on a review of the "St. Petersburg, Florida" Quadrangle dated 1956 (photo-revised 1988), the western portion of the project is depicted as an existing road (Gandy Boulevard), undeveloped land, and urban area at the west end. The roadway is a divided at the west end with a manmade pond between the east/west lanes. Several cross roads and multiple structures are depicted within the ROW. Several radio towers are depicted along the north and south ROWs. Several wooded areas and mangroves are depicted along the north side of the ROW. Slope is generally to the east, towards Tampa Bay. A racetrack is depicted south of the ROW.

Based on a review of the "Gandy, Florida" Quadrangle dated 1956 (photo-revised 1987), the eastern portion of the project is depicted as an existing road (Gandy Boulevard), undeveloped land, and urban area at the east end. Several cross roads and access roads are depicted within the ROW. Slope is generally to the west, towards Tampa Bay.

Contamination concerns were not noted during the review of historical topographic maps.

7.0 Hydrologic Features

7.1 Aquifers of Florida

The Floridan aquifer is found throughout Florida and extends into the southern portions of Alabama, Georgia, and South Carolina. This aquifer system is comprised of a sequence of limestone and dolomite, which thickens from about 250 feet in Georgia to about 3000 feet in south Florida. The Floridan aquifer system has been divided into an upper and lower aquifer separated by a unit of lower permeability. The upper Floridan aquifer is the principal source of water supply in most of north and central Florida. In the southern portion of the state, where it is deeper and contains brackish water, the aquifer has been used for the injection of sewage and industrial waste. Groundwater flow is generally from high elevations within the central portion of the state towards the east and west coasts.

The surficial aquifer system in Florida includes any otherwise undefined aquifers that are present at land surface. The surficial aquifer is mainly used for domestic, commercial, or small municipal supplies. The surficial aquifer system is generally under unconfined, or water table conditions and is made up of mostly unconsolidated sand, shelly sand, and shell. The aquifer thickness is typically less than 50 feet. Groundwater in the surficial aquifer generally flows from areas of higher elevation towards the coast or streams where it can discharge as base flow. Water enters the aquifer from rainfall and exits as base flow to streams, discharge to the coast, evapotranspiration, and downward recharge to deeper aquifers.

7.2 Hydrology – Site Reconnaissance

During the site reconnaissance, Old Tampa Bay was observed in the middle portion of the project. Two manmade ponds were located near the west end of the project. Standing water was also observed in roadside ditches.

7.3 Hydrology – USGS 7.5 Minute Topographic Maps

Based on the topographic maps, Pinellas County and Hillsborough County are separated by Tampa Bay. One manmade pond is located between the east and westbound lanes of Gandy Boulevard near the west end of the project. Offsite, six manmade ponds are depicted near the west end of the project.

8.0 Interviews

Communication with landowners, facility operators, residents, and governmental agencies can aid in the understanding of past and current land uses within the study area. Where possible or when necessary, interviews or requests for information are collected in an effort to identify potential concerns associated with petroleum storage tanks; automotive or marine, maintenance, service or repair facilities; dry-cleaning processes; and other industrial or agricultural operations that could affect the project.

The following interviews were conducted, or attempted for this evaluation:

- Site 9 - Tierra emailed Mr. Scott Lashbrook, Pinellas County Health Department on August 19, 2021.
- Site 9 – Tierra emailed the FDEP Southwest District on August 25, 2021.
- Site 20 – Tierra emailed the FDEP Southwest District on March 18, 2022, and again on March 31, 2022.

These interviews and/or correspondences are documented in **Table 1** in **Section 9.0**. The emails are included in **Appendix F**.

9.0 Project Impacts

Based on the methodologies performed, twenty-two contamination sites were identified within the study area which may impact this project. These are discussed in Table 1. The location of each contamination site is illustrated in **Appendix A**.

TABLE 1: CONTAMINATION SITES

Site Number/ EDM Number	Site Name & Address	Databases/ Facility ID/ Or Other Source	Distance to Gandy Boulevard ROW	Contaminants of Concern	Risk Rating	Comments
PINELLAS COUNTY						
1 (EDM 1)	**BON SECOURS-MARIA MANOR NURSING HOME** 10300 4TH ST N	LUST STCERC 9100377	Adjacent northwest	Petroleum	Low	During the site reconnaissance, this location was observed as Bon Secours Place, an assisted living facility. The site was first depicted on the 1970 aerial photograph. EDM's report states remedial action is ongoing for one diesel fuel discharge dated October 10, 1990. This discharge is eligible in the State's Petroleum Cleanup Program with a score/rank of 10/8533, effective since 1999. For the heating oil discharge dated July 13, 1994, no cleanup is required according to EDM's report. OCULUS: According to figures found in the Low Score Site Initiative (LSSI) Site Assessment Report (SAR) dated January 9, 2018, the soil and groundwater petroleum contamination plume is located at the former UST location, 800 feet northwest of the Gandy Boulevard ROW, and west project limit. A total of three fuel storage tanks were removed (two ASTs, one UST). Two 1,500-gallon diesel fuel ASTs were installed in 2011 for emergency generators and remain active. Presumably, the ASTs are located within the generator/chiller building located 800 feet northwest of the west end of the project limits for this project. Given the separation distance to the petroleum contamination plume, this site is assigned a risk rating of Low.
2 (EDM 2)	**FORMER AMOCO #1463-JIMS TRIANGLE** 9901 4TH ST N	LUST/STCERC 8623518	70 feet south of 4th Street proposed ROW 500 feet south of Gandy Boulevard ROW	Petroleum	Low	During the site reconnaissance, this site was observed as Michelle's Ultimate Car Care, an automotive repair shop. Multiple groundwater monitor wells were observed at this facility, and three were observed within the 4th Street North concrete median, west of this facility. Although the pump island and canopy were present, fuel pumps were not observed at this facility. Three hydraulic lifts were noted inside the service bays. The site was first depicted on the 1970 aerial photograph. EDM's report states remedial action is ongoing for one diesel fuel discharge dated November 30, 1988. This discharge is eligible in the State's cleanup program (Early Detection Incentive (EDI)) with a score/rank of 11/8060, effective since 1997. According to the FDEP *Deliverable (Supplemental Site Assessment Report (SSAR)) Approval* letter dated April 2, 2021, although the FDEP agrees soil and groundwater assessment should continue, it has been put on hold due to funding. Based on figures included in the SSAR dated March 16, 2021, the soil and groundwater petroleum contamination plumes were depicted 100 feet south of the southernmost point of the 4th Street North proposed ROW. The groundwater plume is depicted within the 4th Street North ROW (100 feet south of project limits). Groundwater flow is depicted generally to the east and west, cross-gradient to the project limits. See excerpts in **Appendix F**. A total of eight USTs were removed from this facility. According to the FDEP letter dated March 26, 2021, two offsite contamination notification emails were emailed to the FDOT District Seven on March 26, 2021. The email notifications were provided to advise the FDOT that contamination was "detected or suspected" within the FDOT ROW both east and west of this site. The contaminant plume maps depict the plumes located over 100 feet south of the southern limit of this project. Given the separation distance of 100 feet, and cross-gradient groundwater flow directions, this site is assigned a risk rating of Low. Although Level II testing is not recommended/warranted, this site may trigger additional evaluation for NPDES permitting if dewatering is performed within 500 feet.

TABLE 1: CONTAMINATION SITES						
Site Number/ EDM Number	**Site Name & Address**	**Databases/ Facility ID/ Or Other Source**	**Distance to Gandy Boulevard ROW**	**Contaminants of Concern**	**Risk Rating**	**Comments**
3 (EDM 3)	**MOBIL-WHITEWAY #545** 10021 4TH ST N	LUST/STCERC 8623360CLN	Adjoining south	Petroleum	**High**	During the site reconnaissance, this location was observed as an active Mobil gas station. The pump island is located 20 feet south, and tank farm is 80 feet south of the Gandy Boulevard ROW. The site was first depicted on the 1986 aerial photograph. It is important to note, ROW acquisition is anticipated along the west side of this gas station. EDM's report states remedial action is ongoing for one discharge dated November 28, 1988. This discharge is eligible in the EDI petroleum cleanup program with a score/rank of 8/8533, effective since 2008. Two other reported discharges (dated December 29, 1989 and October 23, 1993) have been included under a combined cleanup in the EDI program. According to the Natural Attenuation Monitoring Report (NAMR) dated June 3, 2019, laboratory groundwater results from the May 2019 sampling event were below Groundwater Cleanup Target Levels (GCTLs). However, in the previous sampling event, benzene exceeded the GCTL at MW-6 (located 30 feet south of Gandy Boulevard ROW, and 50 feet east of 4th Street ROW) in December 2018. Groundwater reportedly flows to the west (towards 4th Street). See excerpts in **Appendix F**. No SRCO was found for this facility. Based on an email from Jennifer Marshall, FDEP dated September 28, 2021, the FDEP has been awaiting a Declaration of Restrictive Covenant (DRC) for over a year so a Conditional Site Rehabilitation Completion Order (SRCO) can be issued after the DRC has been approved. See email in **Appendix F**. The Conditional SRCO acknowledges that contamination will remain at the site but further rehabilitation will not be required. Given the status as an active retail gas station, and laboratory results above the GCTL for benzene at MW-6 (in 2018), this site is assigned a risk rating of High.
4	**I C SHARKS** 10020 GANDY BOULEVARD	NA	Adjoining south	Petroleum	Low	During the site reconnaissance, this location was observed as IC Sharks seafood market. Although this site appears typical of a convenience store which often are retail fuel facilities, no monitor wells, fill ports, vent pipes or evidence of other contamination concerns were noted. No regulatory files were found. The site was first depicted in the current configuration on the 1970 aerial photograph. No pump island was noted on aerial photographs. However, one petroleum 550-gallon AST was depicted on the Google Earth Street View image dated January 2020. See image in **Appendix E**. Although it appears that an AST operated at this site, there is no evidence of a discharge or spill. This site is assigned a risk rating of Low.
5 (EDM 4)	**BARNEY'S MOTORCYCLE SALES INC** 10375 OAK ST NE 10411 GANDY BOULEVARD	LUST/STCERC 8943143 9200368CLN	Adjoining north	Petroleum	Low	During the site reconnaissance, this location was observed as Barneys Motorcycle and Marine, sales and service. Service areas were noted in the north end of the building, and at locations west of this facility which appear to be owned/operated by Barney's. The nearest service bays/areas are located 250 feet north of the Gandy Boulevard ROW. EDM's report identified two discharges. For the discharge (type and quantity not given) dated December 30, 1988, no cleanup is required. For the leaded gasoline (quantity not given) discharge dated December 5, 1991, cleanup was completed and a SRCO was issued on January 2, 2019. Based on figures included with the Natural Attenuation Quarterly Monitoring Report dated July 6, 2018, the former 1,000-gallon diesel UST is depicted 200 feet north of the Gandy Boulevard ROW. The UST was removed in 1991. The site was first depicted in the current configuration on the 2002 aerial photograph. Given the separation distance of 200 feet, source removal, regulatory status, this site is assigned a risk rating of Low.

TABLE 1: CONTAMINATION SITES						
Site Number/ EDM Number	**Site Name & Address**	**Databases/ Facility ID/ Or Other Source**	**Distance to Gandy Boulevard ROW**	**Contaminants of Concern**	**Risk Rating**	**Comments**
6 (EDM 5)	**GOODWILL INDUSTRIES-SUNCOAST INC** 10596 GANDY BLVD N	LUST 8944861	Adjoining south	Petroleum	Low	During the site reconnaissance, this location was observed as Goodwill, a new and used retail store. EDM's report states this facility has one reported discharge dated February 3, 1994. Cleanup was completed and a No Further Action (NFA) was issued on June 14, 1995. Based on figures included in the Contamination Assessment Report dated October 19, 1994, the three former tanks were located 800 feet south of the Gandy Boulevard ROW. The site was first depicted on the 1976 aerial photograph. Given the separation distance, regulatory status and source removal, this site is assigned a risk rating of Low.
7 (EDM 6)	**FORMER TIMM'S STATION** 10690 GANDY BLVD N (FORMERLY 10700 GANDY BLVD N)	LUST 8842410	Adjoining south	Petroleum	Low	During the site reconnaissance, the vicinity of the former gas station was observed as landscaped area and a manmade pond associated with San Martin Village plaza (10690 Gandy Boulevard), with multiple tenants. From west to east, addresses at the plaza ranged from 10660 to 10730 Gandy Boulevard. Contamination concerns were not noted based on the tenants. However, one monitor well was observed at the southwest corner of San Martin Boulevard and Gandy Boulevard, at the east end of a stormwater pond. EDM's report states no cleanup is required for the December 19, 1988 discharge (type and quantity not given). No other discharges were reported. The address identified in EDM's report and FDEP OCULUS files, 10700 Gandy Boulevard, was not found on the Pinellas County Property Appraiser (PCPA) database. During the site reconnaissance, the address nearest the location of the former Timm's Station was 10730 Gandy Boulevard, the east end of the shopping plaza. The current structure is located over 100 feet south of the former gas station and is described as a shopping center built in 2008 located at 10690 Gandy Boulevard according information found on the PCPA database. According to the Storage Tank Notification Form dated August 16, 1990, four USTs (two 2,000-gallons unleaded gasoline, one 1,000-gallon leaded gasoline, and one 500-gallon kerosene) were removed in 1988. However, the FDEP letter dated July 27, 1990 states "based on the information you have provided and the eligibility inspection, we cannot verify that contamination existed at your facility on or prior to the December 31, 1998 reporting deadline." No assessment or closure reports were found for the tank removals in 1988. Tierra observed one groundwater monitor well at or near the location of the former gas station during the site visit. Tierra suspects the monitor well may be associated with assessment of the former gas station. The vicinity of the former gas station has been re-developed with a manmade stormwater pond, grassy ROW, and a berm. The gas station was depicted on aerial photographs from 1957 to 2006. Given the lack of documented contamination, this site is assigned a risk rating of Low.
8	**7-ELEVEN #38123** 10820 GANDY BLVD N	TANKS 9815159	Adjoining south	Petroleum	**Medium**	During the site reconnaissance, this location was observed as an active 7-Eleven gasoline station. The pump island is located 20 feet south of the ROW, and the tank farm is 60 feet south. This site was not identified in EDM's report. No discharges were identified on the FDEP OCULUS database. The tank inspection form dated March 17, 2019 states this facility is in compliance, and has two USTs filled with diesel and unleaded gasoline. This site is first depicted on the 2019 aerial photograph. Given the status as an active gasoline station, this site is assigned a risk rating of Medium.

TABLE 1: CONTAMINATION SITES						
Site Number/ EDM Number	**Site Name & Address**	**Databases/ Facility ID/ Or Other Source**	**Distance to Gandy Boulevard ROW**	**Contaminants of Concern**	**Risk Rating**	**Comments**
9	**FORMER GASOLINE/SERVICE STATION** FORMERLY 12004 GANDY BLVD	NA	Adjoining south	Petroleum	**Medium**	During the site reconnaissance, this location was observed as a grassy field, with areas of overgrowth, and palm trees. Fencing was in place around the parcel. No structures or address were noted. One temporary monitor well or piezometer (1-inch diameter PVC, four feet high, with cap) was noted at or near the former gasoline/service station, approximately fifteen feet south of the Gandy Boulevard ROW. Faded marking flags and stakes were also noted in the area. This site was identified in FDEP OCULUS documents for two sites, Sites 9 and 10 (discussed below) including the *Report on a Limited Contamination Assessment* dated May 1996, and the Phase I and Phase II ESAs, both dated 1995. Additionally, based on a Pinellas County Health Department letter dated February 16, 1996, an inspection of this gasoline/service station was performed since it was thought to be part of the Thomas A. King Estate. Although vent pipes, a pump island and service bays were noted at the gas station during that inspection, the location of the tanks was not identified. See excerpts in **Appendix F**. Tierra emailed Pinellas County Health Department on August 19, 2021 for information regarding the former gasoline/service station. The response by Mr. Scott Lashbrook, Pinellas County Health Department states: *The Florida Department of Environmental Protection (FDEP), Storage Tank Program database indicates removal of two underground storage tanks with a record entry dated April 8, 1996. However, there was no specific details about the tank systems, closure documentation, nor associated assessment. Our local office does not have any paper files for this facility.* In a subsequent email dated August 25, 2021, Mr. Lashbrook states *there appears no documentation for actual fuel station nor tank location.* See email in **Appendix F**. Tierra emailed FDEP Southwest District on August 25, 2021 for information regarding the former gasoline/service station. The FDEP provided no new information (only a link to Fac. ID 9600673, Gandy Boat Yard, which is located adjoining east of the former gas station, and is discussed as Site 9 in this CSER). Therefore, it appears no facility ID number was assigned for this former gasoline/service station. Additionally, the location(s) of the tanks was not found in any of the documents reviewed. No documentation other than that in Mr. Lashbrook's email (previously discussed) supporting the removal of tanks was found either. In our opinion, based on the email from Mr. Lashbrook, and other documents associated with the adjoining east site (Site 10), the two USTs reportedly removed in April 1996 may have been associated with this former gasoline/service station (Site 9). Additionally, since no tank registration forms were found for this facility, it is possible other USTs may still remain in place at this facility. The former gasoline/service station was depicted on aerial photographs from 1957 to 2004. According to information found on the Pinellas County Property Appraiser database, this is a "vacant commercial" with address listed as "Gandy Boulevard." The owner is identified as Gandy Harbor I, LLC since 2011. Based on the parcel map, this parcel is approximately 2-acres, and includes Sites 10 and 11. Given the lack of closure/assessment documentation, and the possibility USTs remain, this site is assigned a risk rating of Medium.

TABLE 1: CONTAMINATION SITES						
Site Number/ EDM Number	**Site Name & Address**	**Databases/ Facility ID/ Or Other Source**	**Distance to Gandy Boulevard ROW**	**Contaminants of Concern**	**Risk Rating**	**Comments**
10	**FORMER GANDY BOAT YARD (THOMAS A. KING ESTATE – WEST PARCEL)** FORMERLY 12016 GANDY BLVD	9600673	Adjoining south	Petroleum	Low	During the site reconnaissance, this location was observed as a grassy field, with areas of overgrowth, and palm trees. Fencing was in place around the parcel. No structures or address were noted. This site was not identified in EDM's report. This site was identified on the FDEP Map Direct and OCULUS databases. It is important to note, regulatory files for this site were also found on the OCULUS database under Fac. ID 9600673 and Fac. ID 9600674, the adjoining east parcel. Based on files found on the OCULUS database, no tanks were registered for 12016 Gandy Boulevard or 12020 Gandy Boulevard. OCULUS 9600673/9600674 – Based on Phase I Environmental Site Assessment (ESA) and Phase II ESA reports (both dated 1995) found on the OCULUS database, the Thomas A. King Estate was comprised of two parcels. The former Gandy Boat Yard was located on the west parcel at 12016 Gandy Boulevard, and the former Pirate's Landing Bait Shop was located on the east parcel at 12020 Gandy Boulevard. Currently, based on information found on the Pinellas County Property Appraiser (PCPA) database, both of the parcels are now included in one larger parcel (parcel ID: 17-30-17-28602-005-0050). Information found on the PCPA database also states this is a "vacant commercial" with address is listed as "Gandy Boulevard." Based on the parcel map, this parcel is approximately 2-acres. OCULUS 9600673 – The Phase II ESA dated August 20, 1995 states "this assessment was specifically designed to assess soil and groundwater quality at on the subject property." Figures in the report depict soil borings and groundwater monitor wells on both parcels (12016 and 12020). Groundwater at TMW-3 exceeds the GCTL (volatile organic aromatics), and TRPH exceeds the SCTL at a depth of two feet below land surface (bls) at SB-5 (same location as TMW-3). Tierra estimates TMW-3/SB-5 was approximately 20-30 feet south of the Gandy Boulevard ROW, near the western boundary of this parcel (12016). The highest OVA reading was 2,000 ppm at a depth of two feet bls at SB-5. According to the report, TMW-3/SB-5 was located approximately three feet east of a former gasoline/service station. Recommendations included submitting a discharge report form, and additional testing. A discharge was reported for 12016-12020 Gandy Boulevard on February 12, 1996 based on Phase II testing results. OCULUS 9600674 – Based on information found in the Limited Contamination Assessment (LCA) report for the Thomas A. King Estate, dated May 1996, soil and groundwater assessment activities were limited to 12016 Gandy Boulevard (no testing was performed in April 1996 at 12020). Eleven soil borings and three groundwater monitor wells are depicted on the west side of 12016 Gandy Boulevard (east side of a former gasoline/service station). OVA results ranged from less than 1 ppm to 350 ppm. Based on laboratory results, although petroleum constituents were detected, the concentrations were below GCTLs. The report states although boat/engine repairs were documented at 12016 Gandy Boulevard, the likely source of petroleum impacts at 12016 Gandy Boulevard is the gasoline service station (12004 Gandy Boulevard) located adjoining west of 12016 Gandy Boulevard. No further action was recommended. Depth to groundwater ranged from 2.56 feet bls to 6.55 feet bls in April 1996. Groundwater flow was reported to the southeast, away from the Gandy Boulevard ROW. Additionally, the report states a gas station (no facility ID found; Site 9) was in operation from 1955 to 1966 at 12004 Gandy Boulevard, located adjoining west. See excerpts in **Appendix F**. Based on testing results associated with the LCAR, an SRCO was issued for 12016-12020 Gandy Boulevard on December 16, 1996 for the February 12, 1996 discharge. A letter dated March 11, 1996 states "my records contain no information which would indicate there are or were any underground tanks on the property owned by the Estate" (referring to Thomas A. King Estate). See letter in **Appendix F**. No tank registration forms were found on the OCULUS database. Therefore, Tierra concludes although the FDEP assigned a tank registration number, no fuel storage tanks were actually registered for either of the two parcels (12016 and 12020 Gandy Boulevard) associated with the Thomas A. King Estate. Tierra emailed Pinellas County Health Department on August 19, 2021 for information regarding the former adjoining west gasoline/service station. See Site 9 – Former Gasoline/Service Station for further discussion. Given the regulatory status, and down-gradient location, this site is assigned a risk rating of Low.

TABLE 1: CONTAMINATION SITES						
Site Number/ EDM Number	**Site Name & Address**	**Databases/ Facility ID/ Or Other Source**	**Distance to Gandy Boulevard ROW**	**Contaminants of Concern**	**Risk Rating**	**Comments**
11 (EDM 7)	**FORMER PIRATES LANDING BAIT SHOP (THOMAS A. KING ESTATE – EAST PARCEL)** FORMERLY 12020 GANDY BLVD	LUST 9600674	Adjoining south	Petroleum	Low	During the site reconnaissance, this location was overgrown and surrounded by fencing. No structures or address were noted. EDM's report states an SRCO was issued on December 16, 1996 for the February 12, 1996 discharge. No other discharges were reported, and no tanks were registered for this facility. OCULUS 9600674 – Based on information found in the LCAR (for the Thomas A. King Estate) dated May 1996, no soil or groundwater testing was performed at 12020 Gandy Boulevard. Soil and groundwater assessment activities were limited to 12016 Gandy Boulevard, located west of this site, Pirates Landing Bait Shop. Figures depict the nearest boring location over 100 feet west of this parcel. Based on laboratory results, although petroleum constituents were detected, the concentrations were below GCTLs. No further action was recommended. Groundwater flow was reported to the southeast, away from the Gandy Boulevard ROW. See excerpts in **Appendix F**. The former bait shop was depicted on aerial photographs from 1957 to 2004. In conclusion, no tanks were registered for this site. The discharge was reported based on laboratory results contained the Phase II ESA. However, based on boring and well locations depicted in the Phase II ESA, CTL exceedances were limited to 12016 Gandy Boulevard. No CTL exceedances were identified at 12020 Gandy Boulevard. Therefore, this site is assigned a risk rating of Low.
12 (EDM 9)	**FORMER MARINER YACHT SALES INC** 12022 GANDY BLVD	LUST 9202351	Adjacent south	Petroleum	Low	During the site reconnaissance, this location was observed as AmiKids, a maritime nonprofit organization for youth. The facility did not appear to be in operation during the site reconnaissance. Multiple groundwater monitor wells were noted on the north side of the building. EDM's report states an SRCO was issued on December 15, 1995 for the May 18, 1982 discharge. No other discharges were reported. The CAR dated March 1995 states this facility was associated with Orange State Oil Company from 1947 to 1960, and has been used for yacht sales since 1977. A Phase I ESA dated 1992 identified four USTs at this facility. All four USTs (three 10,000-gallon leaded gasoline, one 550-gallon kerosene), and five cubic yards of contaminated soil were removed in 1993. Groundwater reportedly flows south, away from the Gandy Boulevard ROW. The highest OVA reading was 80 ppm located at MW-5 (south of building). Figures included in the CAR depict the former USTs located within and adjoining south of the Gandy Boulevard ROW. Laboratory results were below GCTLs, and no further assessment was recommended. The CAR Addendum dated November 1995 was prepared in response to FDEP comments. Additional soil and groundwater testing was performed in the drum storage area located on the west side of the building, and at the former UST location on the north side of the building, and south of the building where the highest OVA reading (80 ppm) was identified. Testing results were below CTLs, and no further action was recommended. Given the source removal, laboratory results below CTLs and regulatory status, this site is assigned a risk rating of Low.
13 (EDM 8)	**RACETRAC #441** 12025 GANDY BLVD	LUST 9201309	Within proposed ROW and adjoining north	Petroleum	**Medium**	During the site reconnaissance, this location was observed as an active RaceTrac gasoline station. While the pump island is located within the proposed Gandy Boulevard ROW, the tank farm is located 20 feet north of the proposed ROW. EDM's report states an SRCO was issued on August 24, 2012 for the November 14, 2007 unleaded gasoline discharge. See excerpts in **Appendix F**. No other discharges were reported. However, according to the Pinellas County Health Department Return to Compliance letter dated June 15, 2020, the documentation reviewed was sufficient to support this facility's return to compliance for pre and post spill bucket repair testing. This facility has three 12,000-gallon USTs were installed in 1992. Given the active status as a retail gasoline station, this site is assigned a risk rating of Medium. Additionally, it is important to note, the pump island is located within proposed ROW. Therefore, Level II testing may be warranted if construction impacts and/or dewatering are anticipated at or near the pump island.

TABLE 1: CONTAMINATION SITES						
Site Number/ EDM Number	**Site Name & Address**	**Databases/ Facility ID/ Or Other Source**	**Distance to Gandy Boulevard ROW**	**Contaminants of Concern**	**Risk Rating**	**Comments**
14 (EDM 10)	**FORMER I C SHARKS** 13050 GANDY BLVD N	LUST 8840880	Adjoining south	Petroleum	Low	During the site reconnaissance, this location was observed as The Getaway restaurant, and Urban Kai, a paddle board rental facility. Both are located at 13090 Gandy Boulevard. EDM's report states an SRCO was issued on January 19, 2011 for the September 29, 2010 unleaded gasoline discharge. No other discharges were reported. According to a figure in the Petroleum Storage Tank Closure Report dated October 2010, the former UST was located 70 feet south of the Gandy Boulevard ROW. Building permits found on the Pinellas County website indicate three structures associated with 13050 Gandy Boulevard were demolished in 2012. Given the regulatory status, this site is assigned a risk rating of Low.
15 (EDM 11)	**FORMER GANDY BRIDGE PARK AND RIDE** WEST GANDY BLVD	VOLCLNUP ERIC_9917	Within ROW	Petroleum, Pesticides, PCBs, Solid Waste	Low	During the site reconnaissance, this location was observed as Gandy Boulevard causeway, including grassy ROW. According to the Soil Quality Investigation report dated May 3, 1994, a soil investigation was performed "in response to an article in the Tampa Tribune that alleged possibly contamination fill material had been inadvertently utilized by the FDOT subcontractor at this location." The reported location was the median on the west side of the Gandy Bridge. Soil samples were collected at depths of 6-inches and one-foot from a total of 93 boring locations within an area 2,000-feet long and 100-feet wide. See excerpts in **Appendix F**. "Field screening using the OVA-FID found no volatile organic hydrocarbons." A total of five composite samples were submitted for laboratory analysis. Fill materials included a mixture of "shell, concrete and building materials." No details of the "building materials" were provided. An FDEP letter dated July 5, 1994 states "all soil levels in the composite samples were BDL and the grids were small enough that we determined additional sampling is not necessary for this site." EDM's report states the site status is "closed." This site was depicted on the 1986 aerial photograph. Given the laboratory results below CTLs, and regulatory status, this site is assigned a risk rating of Low.
HILLSBOROUGH COUNTY						
16 (EDM 12)	**US MARINE CORPS RESERVE** 5121 W GANDY BLVD	LUST 8625404	Adjoining north	Petroleum	Low	During the site reconnaissance, this location was observed as a USMC 4th Assault Amphibian Battalion facility. This facility is identified as a Leaking Underground Storage Tank (LUST) site in EDM's report. EDM's report further states no cleanup is required for the discharge dated January 12, 1995. OCULUS - The Discharge Report Form dated January 12, 1995 states no cleanup was required for the diesel fuel discharge (quantity not given). The most recent tank registration form dated January 4, 1995 states this facility has four registered fuel storage tanks: one AST, and three USTs. All four tanks were reportedly removed by January 4, 1995. Tank contents included diesel, leaded gasoline, and waste oil. Based on a sketch included in the combined documents (32 pages) found on OCULUS, two USTs were located 550 feet north of the Gandy Boulevard ROW. No maps or sketches were found for the remaining tank locations. Tierra presumes they were located in the same vicinity, at least 500 feet north of the Gandy Boulevard ROW. Given the separation distance to contamination concerns, this site is assigned a risk rating of Low.

TABLE 1: CONTAMINATION SITES						
Site Number/ EDM Number	**Site Name & Address**	**Databases/ Facility ID/ Or Other Source**	**Distance to Gandy Boulevard ROW**	**Contaminants of Concern**	**Risk Rating**	**Comments**
17 (EDM 13)	**FORMER COASTAL MART #603** 5002 W GANDY BLVD	LUST 8625224	Adjoining south	Petroleum	Low	During the site reconnaissance, this site was observed as the grassy south Gandy Boulevard ROW, and a landscape area with a sign monument. EDM's report states this site has two discharges: 1) an SRCO was issued on February 27, 2015 for the discharge dated August 19, 1991, and 2) no cleanup was required for the unleaded gasoline (no quantity given) discharge dated January 25, 1988. Based on aerial photographs, the former pump island was located within the existing Gandy Boulevard ROW, and the former USTs were located adjacent south of the existing Gandy Boulevard ROW. The *Natural Attenuation Monitoring Report & Response to HCEPC Comments* dated February 3, 2015 states laboratory results are below GCTL, groundwater flow is southwest, away from the ROW. Therefore, an SRCO without conditions was recommended. See excerpts in **Appendix F**. No groundwater monitor wells were noted during the site reconnaissance. This site is depicted on aerial photographs from 1976 to 2004. Given the source removal, groundwater flow away from the ROW, and regulatory status, this site is assigned a risk rating of Low.
18	**FORMER IMPERIAL YACHT BASIN MARINA** 5000 W GANDY BLVD	LUST 8625418	Adjacent south	Petroleum	Low	During the site reconnaissance, this site was observed as Town Westshore apartments. An SRCO was issued on March 15, 2013 for the discharge dated December 1, 2005. According to the Closure Assessment Final Report dated January 18, 2006, two 10,000-gallon USTs (unleaded gasoline and diesel) were removed in December 2005. See excerpts in **Appendix F**. Although the former parcel was located adjacent south of the Gandy Boulevard ROW, figures in the report depict the former USTs and dispensers located 650 feet south of the Gandy Boulevard ROW. Underground storage tanks and dispenser pumps were not visible on aerial photographs. However, structures in this vicinity were removed by 2006. Given the regulatory status, source removal, and separation distance of 650 feet, this site is assigned a risk rating of Low.
19 (EDM 14)	**DANMARK RECLAMATION CORP** 4808 WEST PAUL AVENUE	STCERC ERIC_9193CLN VOLCLNUP 37380 CERCLIS SEMSACTV NFRAP FL0001093103	640 feet south	Waste oil, solvents	No	Although EDM's report and the FDEP database depict this facility adjoining south of the ROW, maps included in the FDEP database depict the actual location 640 feet south of the Gandy Boulevard ROW. A site map included in the EPA Action Memorandum dated April 7, 1995 is included in **Appendix F**. The most recent file found on OCULUS is an EPA letter dated September 23, 1997, which states this "site does not qualify for further remedial." According to the Preliminary Assessment report dated October 16, 1996, this former used oil hauler, collection, and recycling facility was closed in 1993. The report further states the FDEP and EPC noted approximately 80,000-gallons of waste oil and chlorinated solvents, 150-tons of solid wastes consisting of soil, used oil filters and sludge during "on-site investigations" after the site was abandoned in 1993. Source removal took place in 1995 and 1996. Groundwater flow was reported to the west and southwest, cross-gradient and down-gradient to the Gandy Boulevard ROW. Given the regulatory status and separation distance of 640 feet, this site is assigned a risk rating of No.

TABLE 1: CONTAMINATION SITES						
Site Number/ EDM Number	**Site Name & Address**	**Databases/ Facility ID/ Or Other Source**	**Distance to Gandy Boulevard ROW**	**Contaminants of Concern**	**Risk Rating**	**Comments**
20	**SHELL/CIRCLE K** 4801 W GANDY BLVD **JETSTAR TANKER SPILL** 4801 W GANDY BLVD	8735366 8732519 ERIC_6602 OHMIT 2022-4I-68767	Adjoining north	Petroleum	**Medium**	During site reconnaissance, this site was observed as an active Shell gas station. The pump island and tank farm were noted approximately 30 feet north of the ROW. The LSSI NFA Order & Notice of Remaining Contamination dated May 13, 2013 was issued for two discharges dated May 14, 1991 and August 28, 1996. The order states "groundwater monitoring has indicated that the plume is shrinking or stable," and "no excessively contamination soil…exists on the source property." Although no files were found on the OCULUS database for the FDEP Waste Cleanup ERIC_6602, the entire parcel is marked with the Florida Institutional Control Registry line. The Groundwater Monitoring Report dated February 19, 2013 states "2-methyl naphthalene did exceed the GCTLs in MW-6." MW-6 was depicted 70 feet north of the ROW. See excerpts in **Appendix F**. This site is depicted on aerial photographs from 1995 to current. Based on imagery found on local news (Channel 13) website, a tanker truck jet fuel spill occurred on February 1, 2022. The photo depicted the spill within FDOT ROW, along the north side of Gandy Boulevard. No regulatory files were found on OCULUS. Therefore, Tierra emailed the FDEP for further information. The FDEP email dated March 31, 2022 included the FDEP Emergency Response Incident Report (Incident 2022-4I-68767), a Discharge Notification Form, and other documents. The discharge notification form states a tanker truck accident on February 1, 2022 resulted in 6,700-gallons of jet fuel being discharged to soil and a drainage canal. The incident report states the tanker truck leak was partially plugged, free product was removed and booms were placed within a nearby drainage canal. A Work Plan for Site Remediation was submitted on February 22, 2022. While other documents were provided, they were of poor quality. These documents are included in **Appendix F**. Given the active status as a retail gasoline station, a petroleum groundwater plume associated with Circle K USTs, and the Jetstar tanker spill with ongoing assessment, this site is assigned a risk rating of Medium.
21 (EDM 15)	**7-ELEVEN #37149** 4747 W GANDY BLVD	LUST 8625042	Adjacent northeast	Petroleum	**Medium**	During site reconnaissance, this site was observed as an active 7-Eleven gas station. EDM's report states an SRCO was issued on June 27, 2014 for one unleaded gasoline discharge dated August 21, 1991. Based on an Environmental Protection Commission Hillsborough County letter dated September 3, 2021, this facility is operating in compliance. Given the active status as a retail gasoline station, this site is assigned a risk rating of Medium.
22 (EDM 16)	**CITGO-GANDY #372** 4702 W GANDY BLVD	LUST/STCERC 8625651	500 feet east	Petroleum	No	During site reconnaissance, this site was observed as an active Citgo gas station. EDM's report states remedial action is ongoing for one diesel fuel discharge dated October 10, 1990. This discharge is eligible for cleanup in the EDI program with a score/rank of 6/8533, effective since 2009. For the heating oil discharge dated July 13, 1994, no cleanup is required. According to the routine compliance inspection dated November 14, 2019, this facility has three USTs. Given the separation distance of 500 feet, this site is assigned a risk rating of No.

10.0 Conclusions and Recommendations

10.1 Conclusions

Based on this contamination screening evaluation, a total of twenty-two contamination sites were identified within the project limits. The following table presents a summary of the risk ratings assigned for each contamination site/facility:

Table 2: Summary of Risk Ratings – Mainline			
High	Medium	Low	No
1	5	14	2

The High rated site was a former gasoline/service station. The five Medium rated sites are active retail gasoline stations.

10.2 Recommendations

Based on the conclusions of this study and the risk ratings noted above, the following recommendations are made.

- Additional information may become available or site-specific conditions may change from the time this report was prepared and should be considered prior to acquiring right-of-way and/or proceeding with roadway construction. If the preferred alignment changes or preferred pond sites are selected, and/or new potential contamination sites have been constructed, this report should be revised and updated to reflect those changes.

- For the locations rated No or Low for contamination, no further action is required. These locations have been determined not to have any contamination risk to the study area at this time.

- Further evaluation and Level II testing, if deemed appropriate by the District Contamination Impact Coordinator, is recommended for the following sites:
    - Site 3 – Mobil Whiteway #545 (High rating),
    - Site 8 – 7-Eleven #38123 (Medium rating),
    - Site 8 – Former Gasoline/Service Station (Medium rating),
    - Site 13 – RaceTrac #441 (Medium rating),
    - Site 20 – Shell/Circle K (Medium rating), and
    - Site 21 – 7-Eleven #37149 (Medium rating).

- For the High and Medium rated sites, soil and groundwater analytical testing may include TRPH by the Florida PRO method, BTEX/MTBE by United States Environmental

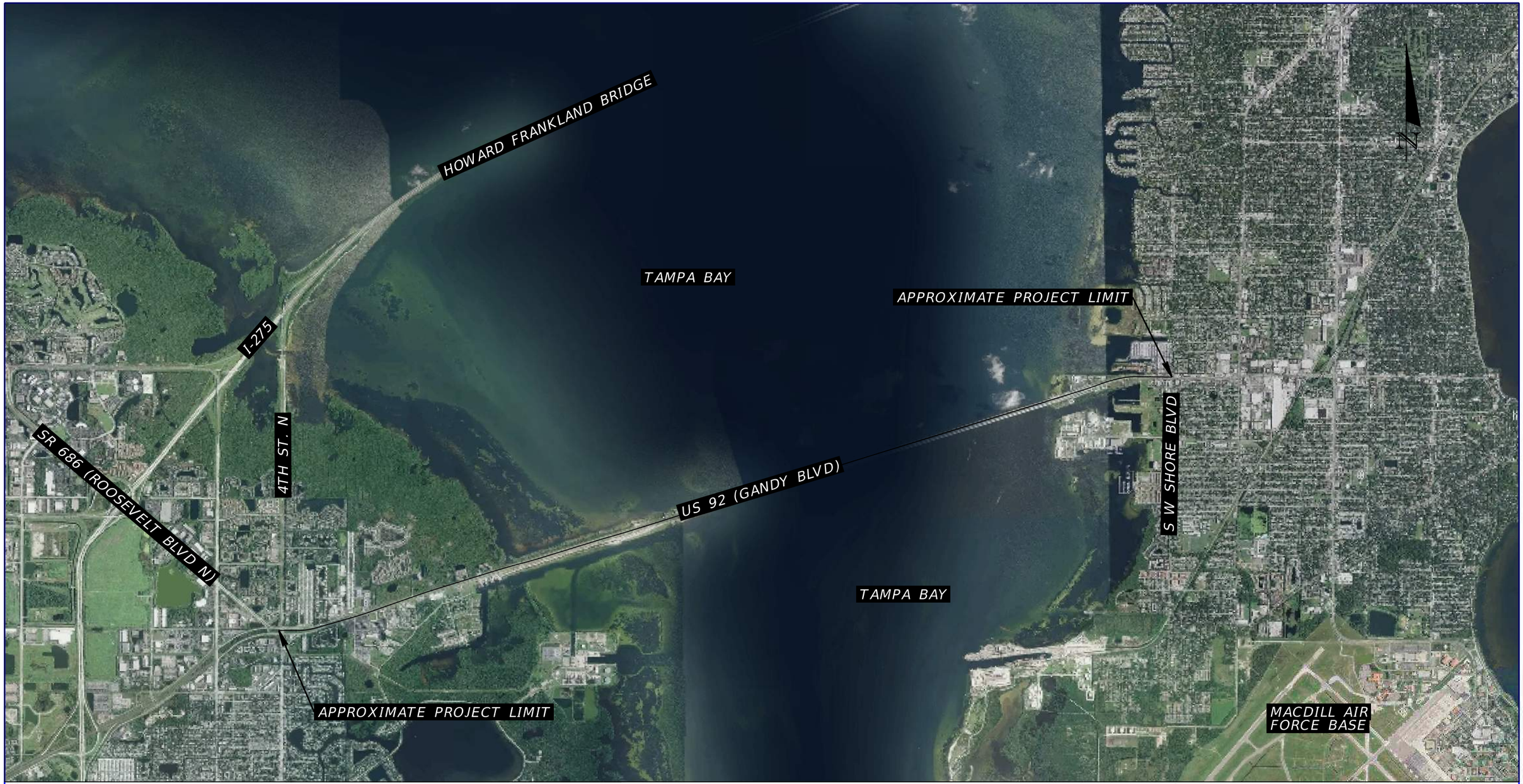
Protection Agency (EPA) Method 8260, and PAHs by EPA Method 8270. Detections above the regulatory standard may require additional samples for delineation purposes. An Organic Vapor Analyzer can be utilized for field screening purposes. A site survey using Ground Penetrating Radar can be useful to identify underground tank location. Level II testing costs are estimated at $5,000 to $10,000 per site.

- Once final design plans are available, additional review is recommended in consideration of dewatering operations that may be necessary under the *National Pollutant Discharge Elimination System Generic Permit for Stormwater Discharges from Large and Small Construction Activities*. Verification testing may be warranted for contamination issues within 500 feet of the dewatering area. If Level III support is needed for National Pollution Discharge Elimination System permitting and treatment, costs can reach up to $100,000 per site.

- In accordance with Project Development and Environment Manual, Part 2, Chapter 20, an asbestos survey may be warranted for structures located within the Gandy Boulevard ROW. For parcels with building structures that might be purchased as part of the right of way acquisition, Level II Assessment should include review of building interiors, if possible.

- During construction, for unidentified areas of contamination not identified in this report, if abnormal conditions are encountered or exposed indicating the presence of contaminated materials, cease operations immediately in the vicinity and notify the Engineer, and the County's designated representative. The presence of tanks or barrels; discolored earth, metal, wood, ground water, etc.; visible fumes; abnormal odors; excessively hot earth; smoke; or other conditions that appear abnormal may indicate the presence of contaminated materials and must be treated with extreme caution. These unidentified contamination areas should be managed in accordance with FDOT Specification 120-1.2 Unidentified Areas of Contamination.

APPENDIX A PROJECT LOCATION MAP AND CONTAMINATION SITES MAP



SOURCE: FDOT SURVEY AND MAPPING DATED 2017

PROJECT LOCATION MAP

0 800 4000

Feet

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION
			TIERRA PROJECT NO.: 6511-19-265E

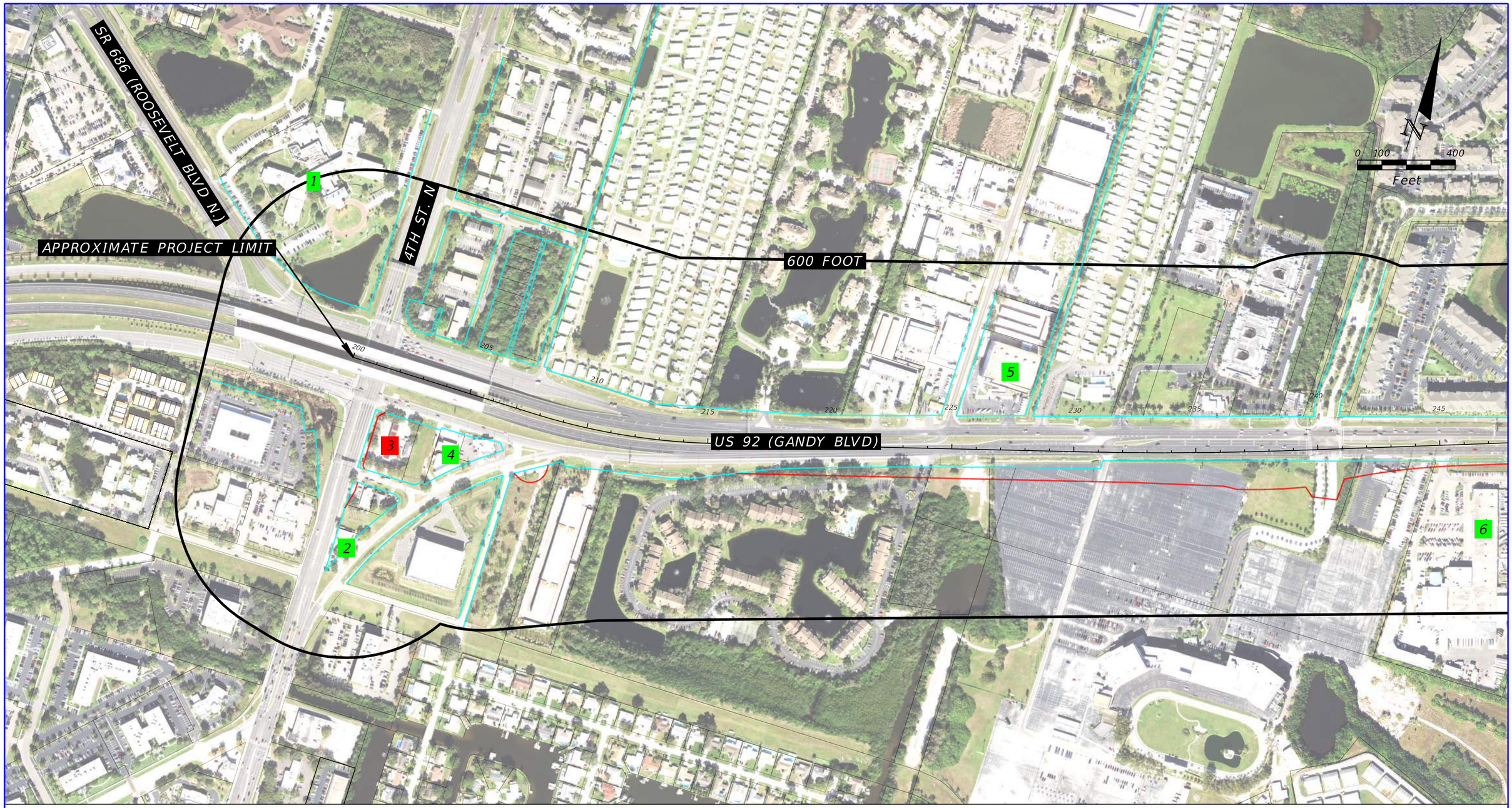
TIERRA, INC.
7351 TEMPLE TERRACE HIGHWAY
TAMPA, FLORIDA 33637

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
US 92/ SR 600	PINELLAS HILLSBOROUGH	441250-1-22-01

US 92/ SR 600/ GANDY BOULEVARD FROM 4TH STREET TO WEST SHORE BOULEVARD

SHEET NO. A-1



POTENTIAL CONTAMINATION SITES

SOURCE: FDOT SURVEY AND MAPPING DATED 2020

EXISTING RIGHT OF WAY

PROPOSED RIGHT OF WAY

PARCEL LINES

SITE NO. GREEN = NO/LOW RISK SITES

SITE NO. RED = HIGH/MEDIUM RISK SITES

REVISIONS				TIERRA, INC. 7351 TEMPLE TERRACE HIGHWAY TAMPA, FLORIDA 33637	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			US 92/ SR 600/ GANDY BOULEVARD FROM 4TH STREET TO WEST SHORE BOULEVARD	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		A-2
			TIERRA PROJECT NO.: 6511-19-265E		US 92/ SR 600	PINELLAS HILLSBOROUGH	441250-1-22-01		

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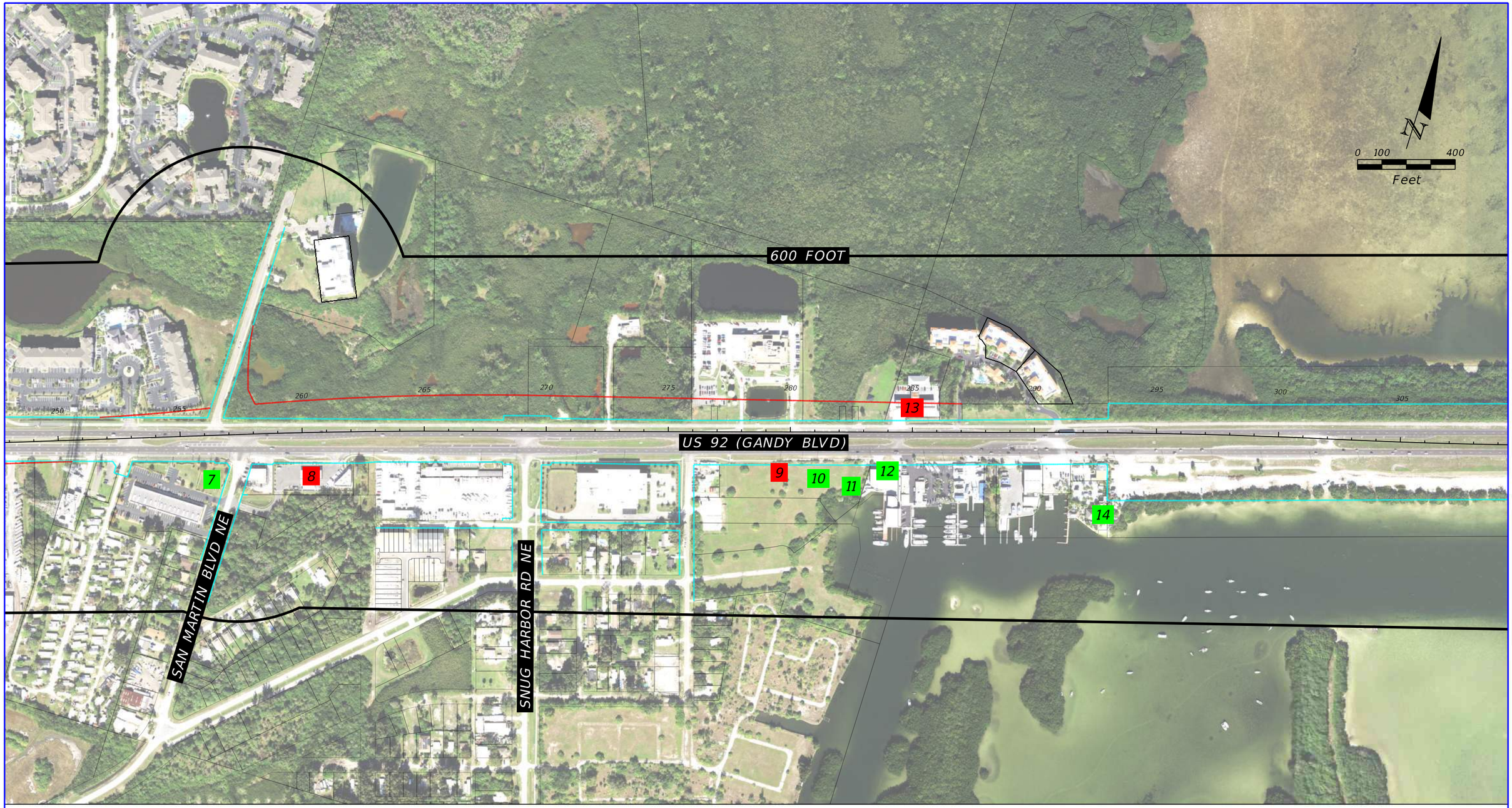


POTENTIAL CONTAMINATION SITES

SOURCE: FDOT SURVEY AND MAPPING DATED 2020

EXISTING RIGHT OF WAY

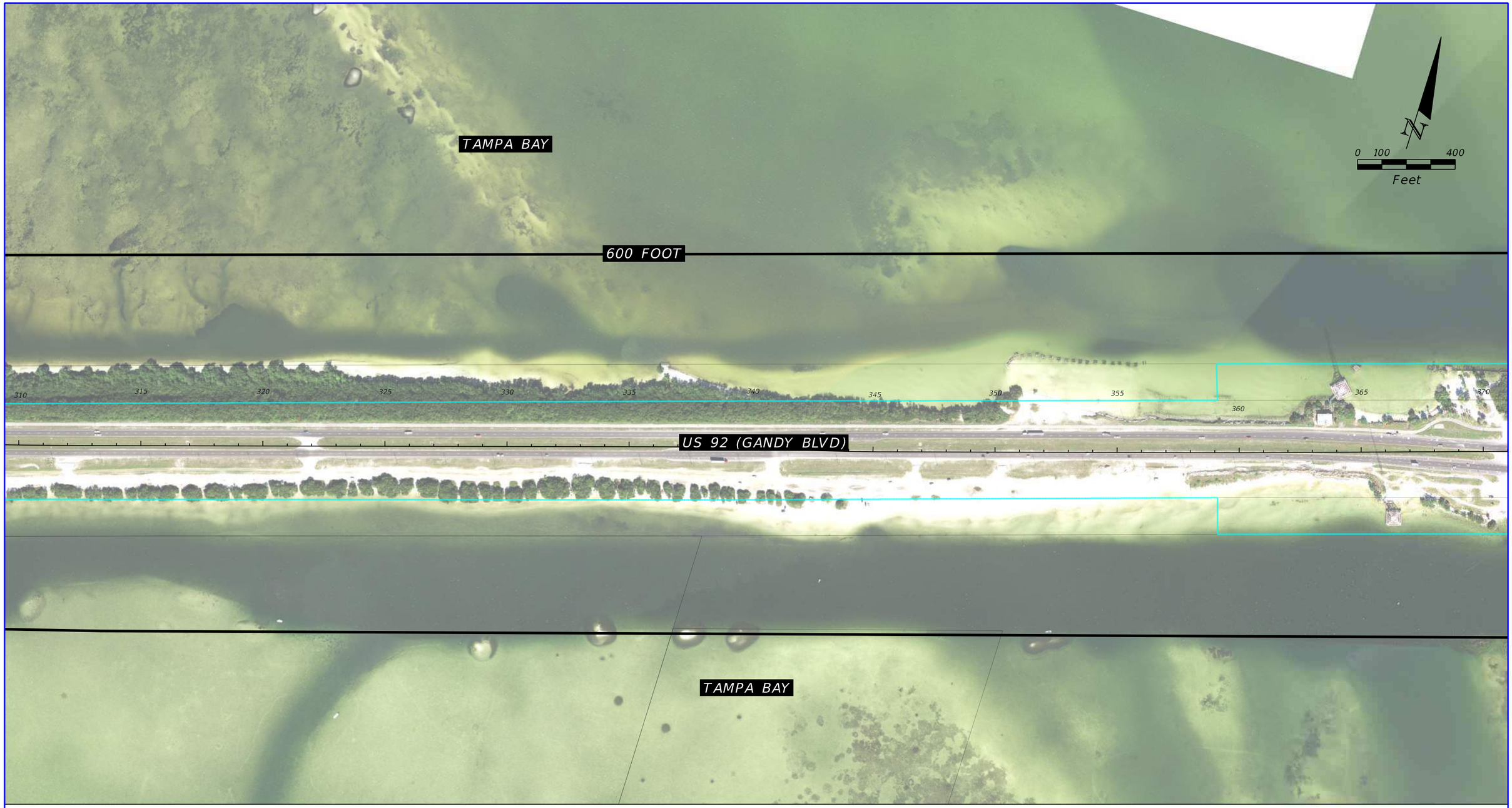
PROPOSED RIGHT OF WAY

PARCEL LINES

SITE NO. GREEN = NO/LOW RISK SITES

SITE NO. RED = HIGH/MEDIUM RISK SITES

REVISIONS				TIERRA, INC. 7351 TEMPLE TERRACE HIGHWAY TAMPA, FLORIDA 33637	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			US 92/ SR 600/ GANDY BOULEVARD FROM 4TH STREET TO WEST SHORE BOULEVARD	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
			TIERRA PROJECT NO.: 6511-19-265E		US 92/ SR 600	PINELLAS HILLSBOROUGH	441250-1-22-01		A-3



POTENTIAL CONTAMINATION SITES

SOURCE: FDOT SURVEY AND MAPPING DATED 2020

EXISTING RIGHT OF WAY

PROPOSED RIGHT OF WAY

PARCEL LINES

SITE NO. GREEN = NO/LOW RISK SITES

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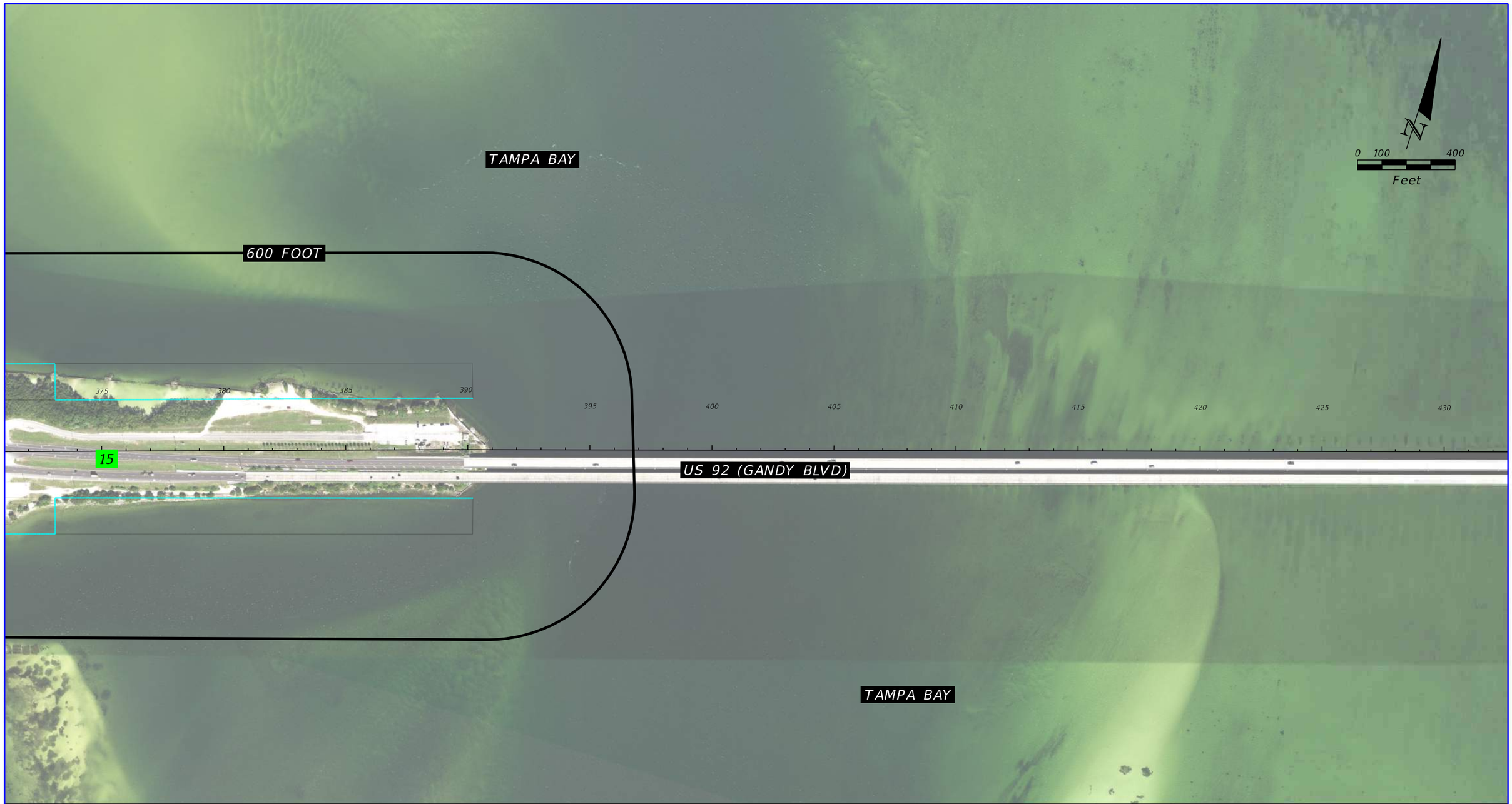
REVISIONS					
DATE	DESCRIPTION	DATE	DESCRIPTION		
			TIERRA PROJECT NO.: 6511-19-265E	TIERRA, INC. 7351 TEMPLE TERRACE HIGHWAY TAMPA, FLORIDA 33637	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
US 92/ SR 600	PINELLAS HILLSBOROUGH	441250-1-22-01

US 92/ SR 600/ GANDY BOULEVARD FROM 4TH STREET TO WEST SHORE BOULEVARD

SHEET NO. A-4



POTENTIAL CONTAMINATION SITES

SOURCE: FDOT SURVEY AND MAPPING DATED 2020

EXISTING RIGHT OF WAY

PROPOSED RIGHT OF WAY

PARCEL LINES

SITE NO. GREEN = NO/LOW RISK SITES

SITE NO. RED = HIGH/MEDIUM RISK SITES

REVISIONS				TIERRA, INC. 7351 TEMPLE TERRACE HIGHWAY TAMPA, FLORIDA 33637	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			US 92/ SR 600/ GANDY BOULEVARD FROM 4TH STREET TO WEST SHORE BOULEVARD	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
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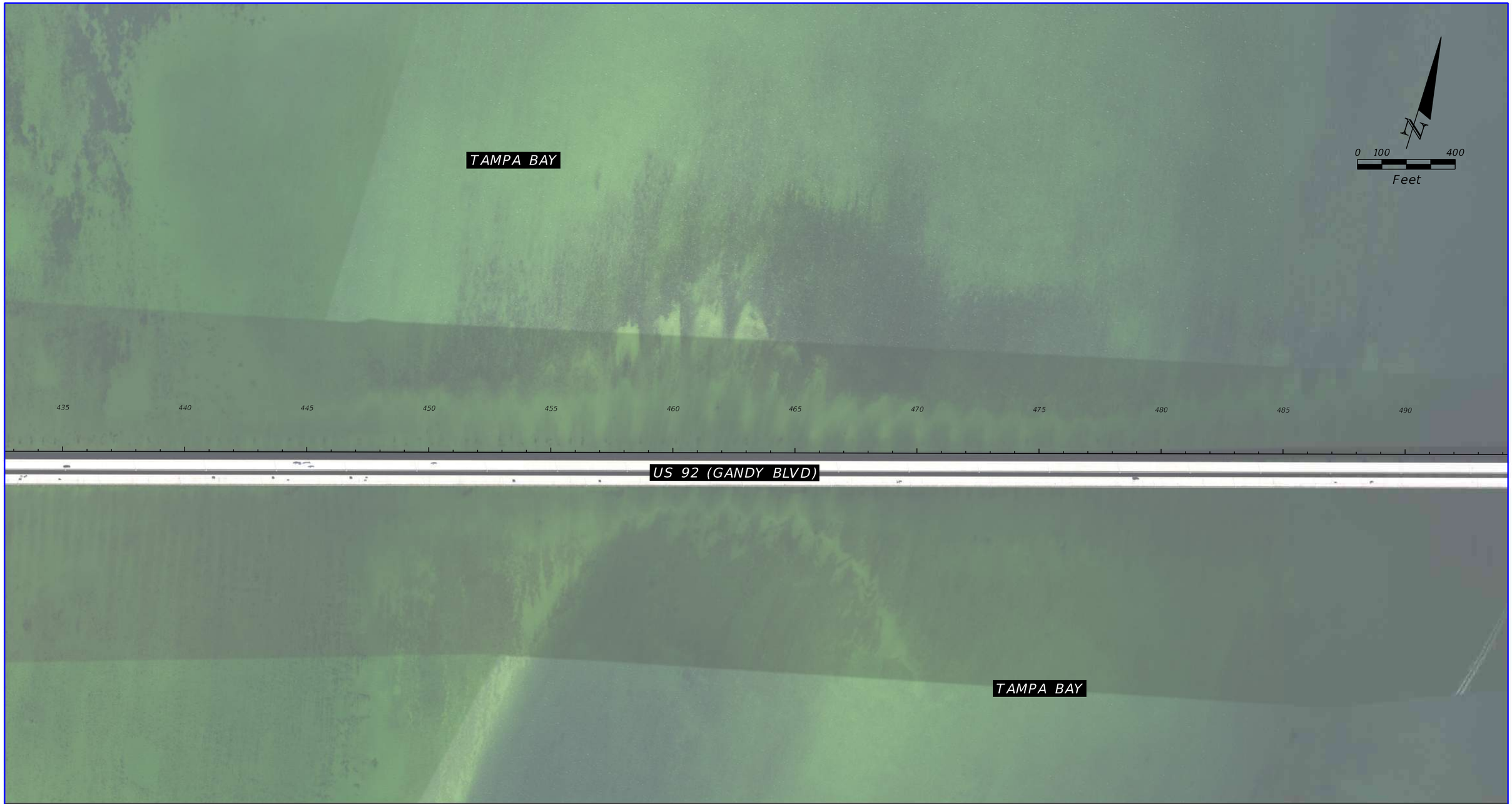

POTENTIAL CONTAMINATION SITES

SOURCE: FDOT SURVEY AND MAPPING DATED 2020

EXISTING RIGHT OF WAY

PROPOSED RIGHT OF WAY

PARCEL LINES

SITE NO. GREEN = NO/LOW RISK SITES

SITE NO. RED = HIGH/MEDIUM RISK SITES

REVISIONS				TIERRA, INC. 7351 TEMPLE TERRACE HIGHWAY TAMPA, FLORIDA 33637	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			US 92/ SR 600/ GANDY BOULEVARD FROM 4TH STREET TO WEST SHORE BOULEVARD	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
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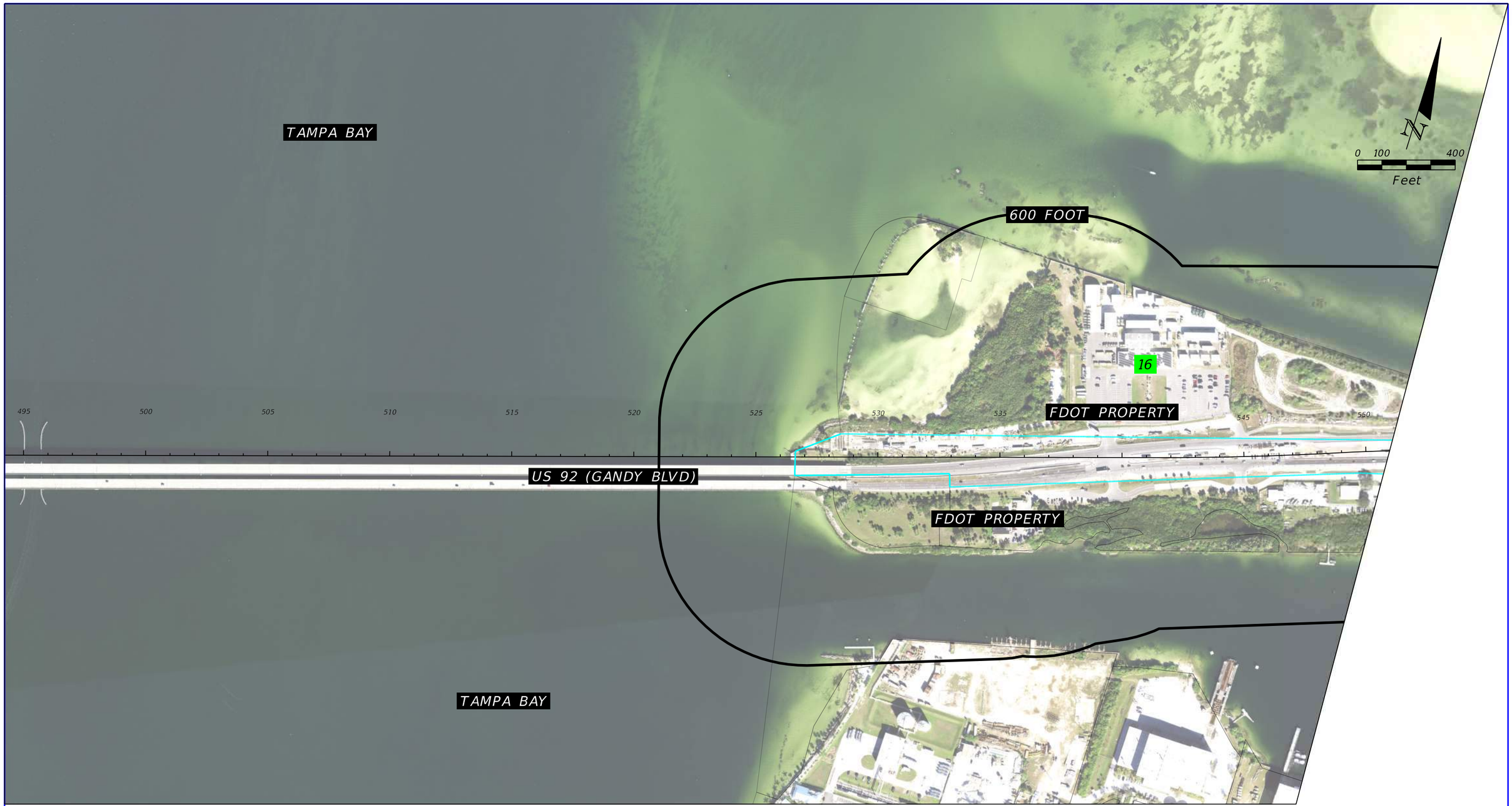

POTENTIAL CONTAMINATION SITES

SOURCE: FDOT SURVEY AND MAPPING DATED 2020

EXISTING RIGHT OF WAY

PROPOSED RIGHT OF WAY

PARCEL LINES

SITE NO. GREEN = NO/LOW RISK SITES

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REVISIONS				TIERRA, INC. 7351 TEMPLE TERRACE HIGHWAY TAMPA, FLORIDA 33637	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			US 92/ SR 600/ GANDY BOULEVARD FROM 4TH STREET TO WEST SHORE BOULEVARD	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		A-7
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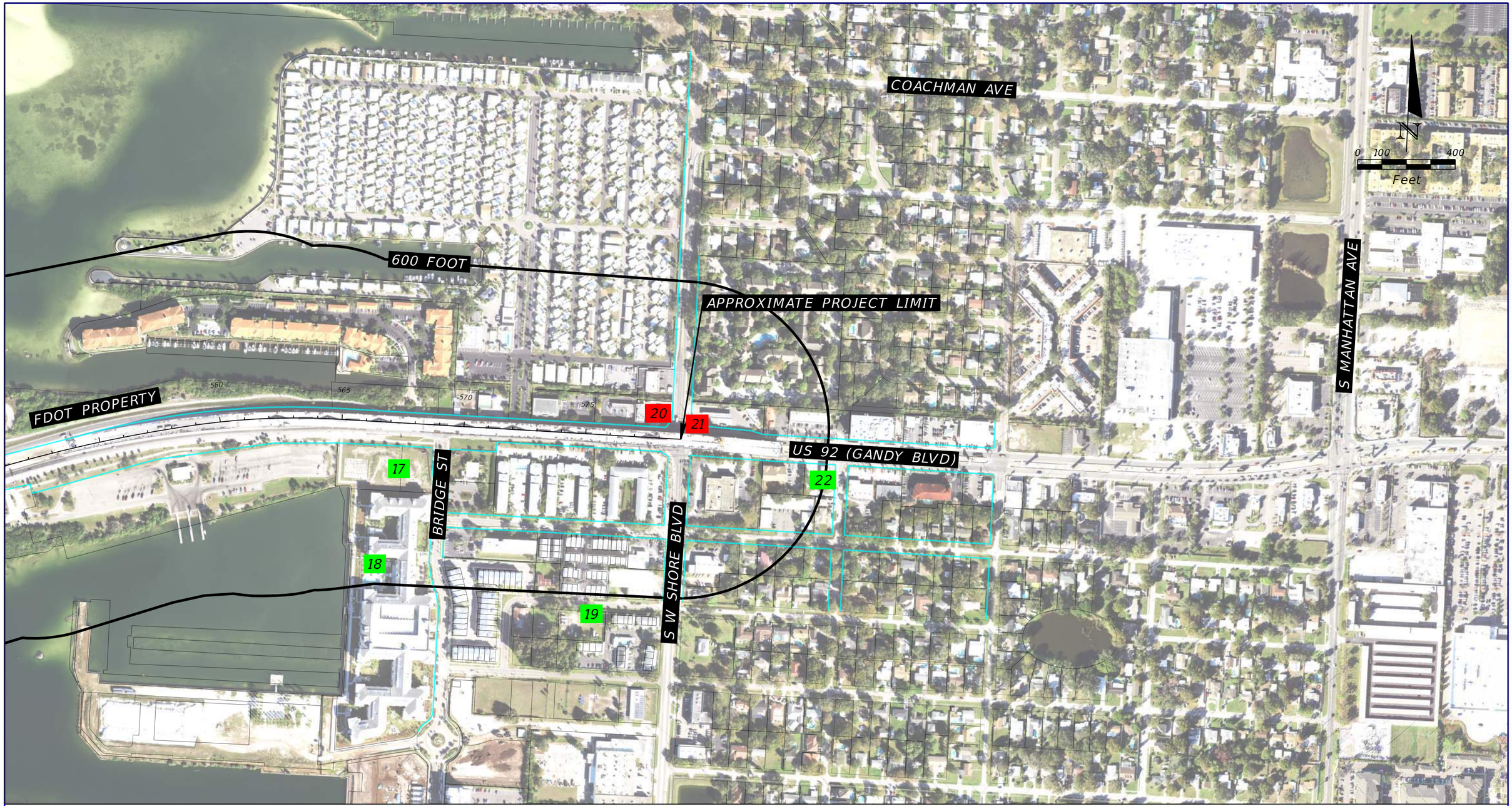

POTENTIAL CONTAMINATION SITES

SOURCE: FDOT SURVEY AND MAPPING DATED 2020

EXISTING RIGHT OF WAY

PROPOSED RIGHT OF WAY

PARCEL LINES

SITE NO. GREEN = NO/LOW RISK SITES

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REVISIONS				TIERRA, INC. 7351 TEMPLE TERRACE HIGHWAY TAMPA, FLORIDA 33637	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			US 92/ SR 600/ GANDY BOULEVARD FROM 4TH STREET TO WEST SHORE BOULEVARD	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		A–8
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APPENDIX J

Correspondence

Meeting Notes **Drainage Scope Clarification**

US 92/SR 600/Gandy Blvd from 4th St. to West Shore Blvd. November 6, 2019, 2:30 pm

FPID: 414506-2-22-01/414506-2-32-01 Contract No.: C9S01

Attendees

- Lilliam Escalera
- Michael Campo
- Theresa Ellison
- Renato Chuw
- Abdul Waris
- Dayna Duffy
- Przemyslaw Kuzlo

Discussion

Tampa Bay Water Quality Improvement Credits

Przemyslaw Kuzlo provided an explanation of how the Tampa Bay Water Quality Improvement Project (TBWQI) was applied to TB Next. He said there are 75% of the 20% of total credits [held in reserve] that are still available. Kuzlo said this should be sufficient to eliminate the need for new stormwater ponds for water quality treatment and nutrient loading reductions for the basins within the project limits that drain directly to the bay.

Tracey added that most of the project basins are all tidally influenced so there would also not be a need to attenuate the stormwater runoff. However, Tracey added that the west end of the project does not drain directly to the bay. Renato agreed and said this is represented by Basin 1 in the OTP slide (slide #78)

This means that the need for stormwater ponds is potentially almost entirely eliminated except for on the west end.

Tracey, Kuzlo, and Abdul discussed the method of calculating the credits required. They noted that the calculation is based on the presumptive treatment volumes. It was suggested to refer to the Howard Franklin project for the methodology used to equate the TBWQI credits to the required water quality treatment volume.

A question came up regarding potentially using the TBWQI credits to offset impacts to existing permitted stormwater systems. This may be an issue at the eastern end of the project. Tracey and Przemyslaw mentioned that an upcoming meeting with SWFWMD will be held to discuss this and should know the answer after this meeting.

Hillsborough Segment

All of the Hillsborough County segment is tidally influenced. Therefore, only impacts to existing stormwater facilities would require new treatment/attenuation.

LHR

Only a memo will be required for the LHR because the project is tidal and will not require flood plain compensation ponds. However, an analysis of existing cross drains will be included in the LHR/memo.

Abdul said that three alternative pond sites per basin are preferred but a minimum of two is acceptable if three acceptable sites cannot be identified. Pond sites will be based on the most impactful (i.e. biggest footprint) alternative.

BHR

Intera will provide the BHR which will be reviewed by Tracey. The Gandy scope for the BHR was written based on the Howard Franklin scope. A BHRS will not be provided because a BDR is not included (only a BCR).

Other discussions

FDOT is OK with having one Stormwater Management Facility Report (SMF) that includes all necessary information

Confirmed with FDOT that only a Base Clearance Report (per the scope) is required for the 15% design submittal

If an option consisted of using an area for SMF within the existing R/W, there was no need to explore other SMF alternatives

It was suggested to invite Tracey, Przemyslaw and Abdul to the pre application meeting with SWFWMD for the Gandy project

For water quality treatment calculations, paved shoulders can be excluded from the treatment areas as well as sidewalks and trails

We will contact FDOT maintenance and inquired about any drainage issues or flooding at the western end limits

Infield areas created the proposed alternative roadway concepts will be explored for potential SMFs

The THEA viaduct project proposed to discharge to the existing permitted swales along Gandy at the eastern end of the project. They were allowed to do so because of minimal to no increase of runoff to these systems

Scope Changes

- None required

Meeting Minutes

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DATE: June 10, 2021

TO: **All Attendees / Project File**

FROM: Renato Chuw, PE

RE: US 92 / SR 600 / Gandy Blvd PD&E; FPID 441250-1 FDOT Longlist SMF Meeting

CC: Craig Fox, Abdul Waris, Kirk Bogen, Michael Campo, Branan Anderson, Martin Horwitz, Renato Chuw, Zach Evans

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An initial pond siting (Longlist SMF) meeting was held on June 9, 2021 at 4 pm at the FDOT D7 office. The purpose of the meeting was to present the initial pond sites to FDOT for the Gandy Blvd PD&E Study and obtain concurrence before the sites are released for further screenings by other sub-consultants. In attendance were:

Craig Fox (FDOT PM)	Michael Campo (KCA)	Renato Chuw (Inwood) – via Teams
Kirk Bogen (FDOT)	Branan Anderson (KCA)	Zach Evans (Inwood) – via Teams
Abdul Waris (FDOT)	Martin Horwitz (KCA) – via Teams	

The following is a summary of the items discussed in this meeting:

- A brief project overview of the scope of the study and evaluation of roadway concept was provided by Michael Campo.

- Gandy Blvd (between Brighton Bay Blvd to West Shore Blvd) is within the limits of the Old Tampa Bay watershed in which a permit was issued by SWFWMD to FDOT for water quality credits due to improvements made to the circulation of the bay. As FDOT projects come online within this watershed, water quality credits are deducted from the ledger. Therefore, as per initial discussions with FDOT during the kickoff meeting, no proposed pond sites are required within these limits. The required water quality treatment will be converted to the appropriate water quality credit for documentation and accounting purposes.

- Between 4th Street to Brighton Bay Blvd, the roadway falls upon the Tinney Creek watershed. Two basins were developed between these limits based on inspection of the existing Gandy Blvd permit.

- Basin 1 begins at 4th Street and extend approximately 1,400 feet to the east along Gandy Blvd. The existing FDOT pond under the bridge east of 4th St. will be used and expanded to the south. The expansion required is 0.17 acres since the existing pond is maxed out in the current condition.

    - It was agreed that no additional offsite pond alternatives need to be evaluated if the existing pond within the R/W can work and is viable for this basin.
    - The existing pond outfalls to a system under 4th St. that runs in a north to south direction. The control structure of the pond is on the SW corner of the existing pond.
    - Inwood mentioned that there are also two other existing ponds for Gandy Blvd. One is under the existing bridge west of 4th St. and the other is on the SW quadrant of 4th St. and Gandy Blvd. However, only the existing pond east of 4th St. is proposed to be modified for this study.
    - The existing permitted calculations showed that pre vs. post discharge attenuation was performed, even though the project is within the tidal influence of the bay.

- Abdul recommended that the question is asked to SWFWMD to confirm if pre vs. post discharge attenuation is required. The argument could be made that the eventual outfall is tidal. This would be dependent on the outfall system being able to handle additional flow without causing hydraulic issues within the storm sewer system.
- Concerns of the pond expansion and potential impacts to the existing mast arm was brought up. Abdul indicated that some form of liner treatment or cutoff wall may be required to prevent seepage from the pond that could impact the mast arm foundation. Inwood mentioned that the pond expansion could be done in a way to create more buffer to the existing mast arm and this will be evaluated further.

- Basin 2 begins 1,400 feet east of 4th St. and continues until Brighton Blvd. There are two existing cross drains (a single 5'x3' box culvert and a 24" pipe) that convey runoff south to a ditch system around the perimeter of the Vantage Point Condominium complex. East of Brighton Bay Blvd, it was verified through existing plans and permits that runoff flows east towards Old Tampa Bay.

  - Two pond alternatives were sited (Ponds 2A and 2B). A 3rd alternative was difficult to site due to the dense urbanization in the area and lack of available land without significant and costly impacts. FDOT agreed and accepted the approach for two alternative sites for this basin.
  - Per the existing Gandy Blvd permit, linear treatment swales along both sides of the road currently provide water quality treatment/attenuation. Inwood indicated that the proposed pond sizes account for the permitted volumes that will be lost due to encroachment of the roadway improvements in these swales, in addition to the new volume requirements for the study improvements.
  - The site for Pond 2A is in a parcel owned by International House of Tampa Bay, LLC., and located south of Gandy and east of 2nd St.
    - A proposed easement was shown for this pond, but it was indicated that the alternative roadway concept showed a cul-de-sac encroaching into this parcel and that the proposed easement could be eliminated.
    - Kirk asked the purpose of the cul-de-sac. Branan indicated that through coordination with traffic ops, the approach is to send traffic south along 4th St. and those who wish to have access to Gandy Blvd, will have access via the existing signal at 4th St.
    - This site showed that it was for sale and most likely it will be a total take. Furthermore, additional volume could be provided by expanding this pond to take the entire parcel and potentially be use as an ELA for future projects. Another benefit would be additional fill material for construction of the roadway.
    - From looking at older aerials, it appeared that this site was a mobile home community but appeared to be vacated in 2006. The parcel is currently vacant. No other adjacent parcels are owned by International House of Tampa Bay, LLC.
  - The site for Pond 2B is in a parcel owned by St. Petersburg Kennel Club, Inc., and adjacent west to the Greyhound track (same ownership).
    - This site will be a total take within the parcel.
    - Abdul asked if there would be issues conveying the runoff to this pond if the system is going against the profile for Gandy Blvd. Inwood stated that the pond is centrally located within the basin and not far from the basin divide. In addition, the pond is controlled much lower than the existing roadway elevation.

- An existing Duke Energy easement exists running east/west and south of the Pond 2A site. However, the pond site will not impact the existing utility nor the easement.

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- Abdul indicated that a flooding complaint was made to the County by the Goodwill Industries and the adjacent Mobile Home Park regarding the runoff from the existing ditch between these two properties. Abdul mentioned that the county went out and cleaned the ditch, which appeared to be under an existing easement to the county. A culvert under the existing sidewalk along the south side of Gandy Blvd allows runoff to get into this ditch.

- Inwood stated that other than the Old Tampa Bay water quality credit program and using the credits for our study, limited ELA opportunities were found in the portion west of the project (between 4th St. and Brighton Bay Blvd). As indicated before, the proposed pond expansion (2A) could meet ELA requirements by providing additional capacity for future uses or regional opportunities down the line.

- The meeting concluded with FDOT concurring with the approach and the pond site alternatives presented.

Action Items

1. Revised Pond 2A to show taking the entire parcel.
2. Provide updated pond sites to KCA to begin evaluation by other sub-consultants.
3. Verify with SWFWMD regarding pre vs. post attenuation for proposed ponds in Basins 1 and 2.
    a. Set up meeting with SWFWMD.

These are the author's understanding of the discussions and decisions reached at this meeting. If there are comments or questions, please contact Renato Chuw at rchuw@inwoodinc.com or 407-971-8850.

Gandy Blvd PD&E Concept Meeting Agenda – *Meeting Notes*

US 92/SR 600/Gandy Blvd from 4th St. to Westshore Blvd.
WPI Seg No.: 441250-1 ETDM No.: 14335

Date: 7/09/2021
Time: 10:00 AM – 11:00 AM
Location: D7 - HQ Executive Conf Room / Microsoft Office Teams

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I. Introductions

a. FDOT Project Manager: Craig Fox, P.E.

b. Consultant Project Manager: Michael Campo, P.E.

Deputy Project Manager: Branan Anderson, P.E. (Engineering)

Deputy Project Manager: Martin Horwitz (Environmental)

- *Note: Please see attached for the meeting attendees*

II. Project Overview

Work Program Item Segment # (WPI Seg. No.)	Description
Project Development & Environment (PD&E) Phase	
441250-1	Gandy Blvd from: 4th St. to Westshore Blvd
Design Phase	
256931-4 (Western Roadway)	Gandy Blvd from: 4th St to W of Gandy Bridge
441250-2 (Gandy Bridges)	Gandy Blvd from: W of Gandy Bridge to E end of Gandy Bridge
441250-3 (Eastern Roadway)	Gandy Blvd from: E end of Gandy Bridge to Westshore Blvd

- *Branan Anderson provided a brief project overview of the scope of the PD&E Study and development of the preferred alternative concept.*
- *Tim O'Brien is the design PM for 256931-4 Pinellas Segment. Eyra Cash will be the PM in place of Pia Cormier for the 441250-2 & 441250-3 design segments.*

III. PD&E Concept Approach

a. Roadway

i. Context Classification
ii. Functional Classification
iii. Strategic Intermodal System Inclusion
iv. Design / Posted Speeds
v. Typical Sections
vi. Preferred Alternative Alignment
vii. Pedestrian / Bicyclist Accommodations

- *William Parman requested clarification for how the team plans to cross pedestrians/bicyclists across Gandy Blvd. within the Pinellas Segment. Branan noted the overpass locations provide at grade crossing opportunities.*
- *Branan noted the mutli-use recreational trail crossings at sidestreets and driveways will be evaluated for safe operations including high emphasis crosswalks and minimizing driveway connection widths. The improvements will be documented within the safety design report under the design phase.*

b. Traffic Operations

    i. Traffic Forecast

- *Branan noted the initial traffic forecast and regional growth is showing the demand for the six-lane typical section over the Old Tampa Bay beyond the design year 2045 (additional capacity not needed until 2057). This forecast is still under development and the current build AADT's and growth rates will be included in the Traffic Forecast memorandum for FDOT review/approval.*

c. Traffic Design

- *Joel Provenzano with FDOT noted he and the District traffic group will include the comments discussed in this meeting with the ERC review for the preferred alternative.*
- *Joel noted there is a large residential complex planned south of Gandy within the Pinellas Segment east of San Fernando Dr. which he is currently assisting with the access management. The current location of the access ramps for the Gandy mainline will be in direct conflict with the driveway access to this development. Allan was concerned with the weave for traffic exiting the Gandy mainline prior to the overpass in front of the Getaway and traffic attempting to make a left turn.*
- *Branan noted the access ramps between San Martin Blvd. and the overpass in front of the Getaway can likely be removed from the concept. The access ramp locations were placed conservatively until the traffic analysis could confirm the demand. Based on the initial feedback from the traffic model, these ramps are not needed and can be eliminated.*
    - *Leigh Ann White with Jacobs confirmed the current model does not include the additional access points.*

- *The current configuration for where the Gandy mainline picks up/drops the third lane just east of the Getaway will remain as currently shown if the access ramps to the west are eliminated.*
- *Branan noted the anticipated delay at the intersection at 4th St. will progressively get worse with rerouting northbound traffic from south Pinellas County to access eastbound Gandy Blvd. from the 4th St. intersection. Branan noted the reason for the dedicated right turn lane and cul-de-sac along Gandy Blvd. N. is due to the weave previously discussed with FDOT traffic operations. Now the concept has been updated to relocate the access ramps so the weave is further upstream and should not be an issue. FDOT agreed the dedicated right turn lane leading into the 4th St. intersection and cul-de-sac should be removed to maintain the current access from Gandy Blvd. N.*
- *Discussion included providing a full signal for the median opening in front of the Getaway. Branan noted the signal will likely be required based on the additional volume accessing the Gandy mainline from San Martin Blvd. and eliminating the prior access ramps to the west.*
    - *Joel noted the median opening could be treated unsignalized for motorists accessing Gandy from the local development. He is currently monitoring the median opening there today and doesn't believe the volumes/turning movements will warrant a signal – KCA to confirm.*
- *Joel noted the Hillsborough Segment will need to show an existing full median opening at Bridge Street which will be signalized. The existing West Shore Blvd. intersection will be unable to handle the future demand with all of the residential development south of Gandy Blvd.*
- *Joel noted the proposed signal to access the Gandy Boat Ramp and USMC Reserve Center should be removed due to the close proximity of the proposed signal at Bridge St. This median opening will likely operate acceptably un-signalized based on the low volume of traffic. Branan expressed safety concerns for traffic accessing the boat ramp unsignalized with the limited sight distance due to the location of the Selmon bridge abutments and high volume of traffic along eastbound Gandy Blvd. entering the West Shore area at high speeds. Allan agreed to remove the signal at this intersection.*

- *Joel recommended removable bollards to separate westbound traffic exiting the Selmon Expwy. and westbound Gandy Blvd. traffic from the West Shore area. This will help prohibit motorists from attempting to access the proposed parking area at AJ Palonis Jr. Park. Joel recommended a directional median opening be provided for westbound traffic exiting the Selmon Expwy. to access the Gandy Boat Ramp. Branan noted if this is the approach then the dedicated right turn lane can be removed leading into the parking area. Allan agreed to eliminate the dedicated right turn lane into the parking area. Branan noted an alternative to providing the directional median opening is to sign the Gandy Boat Ramp users upstream, prior to accessing the Selmon Expwy. elevated viaduct, to access the Gandy Boat Ramp via at grade and exit the Selmon Expwy. near Dale Mabry.*
    - *Branan noted the parking area was provided conservatively from a sizing standpoint in order to improve the existing parking area. The disposition of the parking area is pending coordination with the City of Tampa for their planned site development and further coordination with FDOT for PD&E commitments.*

d. Drainage
    i. Meeting held with FDOT on 6/9/2021
    ii. Alternative pond sites

- *Branan noted the alternative pond sites currently approved by FDOT drainage staff for further evaluation include expanding the existing pond site underneath the bridge at 4th St. and two alternative pond sites along the south side of Gandy Blvd. just west of Brighton Bay Blvd.*
- *Allan Urbonas asked what impacts are involved with the pond in front of the WTSP business. Renato Chuw noted the permitting approach discussed with FDOT drainage during the meeting held on 6/9/2021 is to use the Old Tampa Bay water quality credits for the improvements east of Brighton Bay Blvd. for the remaining limits of the study.*
- *Daniel Lauricello requested the team to coordinate with the SWFWMD first to determine the eligibility for using the Old Tampa Bay water quality credits that it is his understanding the SWFWMD would still want the first flush addressed. Renato noted there may be opportunities underneath the viaduct bridge between Brighton*

Bay Blvd. and San Martin Blvd. depending on feedback from the SWFWMD on the drainage approach.

- *Renato will request a pre-application meeting with the SWFWMD to confirm.*

- *Concerns for circulation were discussed around the Pinellas Causeway segment. May need to explore cut in land causeway to see if worth getting credits to increase circulation. Coordination with the Tampa Bay Estuary was recommended and to include the following individuals:*
  - *Gary Rawlinson*
  - *Chris Anastasiou (SWFWMD SWIM Program)*
  - *Ed Sherwood*

e. Environmental

- *Martin Horwitz gave a brief update for the status of the environmental reports which the draft reports are planned to be submitted for FDOT review on 8/25/2021.*
- *Starting to work on Natural Resources Evaluation, Contamination, Cultural Resources reports and Section 4(f) properties research.*

f. Maintenance

i. Gandy Beach Maintenance Meeting - 7/27/21

- *Michael Lenhart noted FDOT maintenance has concerns for the Pinellas Causeway segment and will be including comments in the ERC for review. Mike would like to see a design which controls access to the beach area and recreational use, similar to the SR 60 Courtney Campbell design (look at Courtney Campbell agreement with local agency and review pros/cons from agreement then contact local agency(ies)). He recommended barrier wall or some other physical barrier to deter beach users from parking freely and misusing the beach area. Mangroves are being cut back to provide direct access to the shoreline. Camping, drugs, dumping, etc. are all examples of misuse of the beach area.*
- *The parking area shown at the bridge approach is too small and would need to be increased if the location is planned to remain.*
- *The public has expressed concern for debris along the shoreline which has become dangerous to swimmers. Portions of the previous bridge systems appear to have been dumped in this area. There is also an old existing boat ramp which was built for temporary construction access and is now in disrepair and potentially*

hazardous. Mike said if the boat ramp is needed at this location the existing structure should be repaired or replaced.

- *Mike suggested FDOT consider possibilities of adding a more formal area and access to north side of Gandy beach area on Pinellas side (NW of Gandy Bridges)*
- *Pay attention to the habitat and nesting for shorebirds on south side of Gandy Blvd. In area west of communication tower.*
- *Craig Fox mentioned FDOT will likely coordinate with the City of St. Pete for a maintenance and operations agreement for the Pinellas Causeway Beach and Recreational Area.*

g. Right-of-Way (R/W)

- *Branan noted the team has coordinated with FDOT R/W which played a key role in the development of preferred alternative with minimizing impacts to the surrounding property. The concept attempts to balance property impacts and bridge costs associated with the elevated viaduct between Brighton Bay Blvd. and San Martin Blvd.*

h. Structures

- *Gautom Dey asked which segments of the PD&E are funded for design/construction. Craig Fox noted the Pinellas Segment is the only segment funded for a portion of design, but not construction. The remaining two segments, including the Gandy Bridge and the Hillsborough Segment are not funded for design or construction.*
- *Guatom asked if consideration was given to the Alternative 3 shown in the earlier presentation in lieu of the elevated viaduct. Branan noted the Alternative referred to as the Hybrid Alternative in the presentation was considered which includes a cantilever section to the outside, similar to sections along US 19. However, the section width did not eliminate the costly R/W and business damages to the surrounding property. This is the reason for the elevated viaduct.*
- *Tracey Hood asked if the team has considered utilizing the existing eastbound structure over Old Tampa Bay for pedestrian/bicyclist use for the remaining useful bridge life. Branan noted the team is expecting high interest in pedestrian/bicyclist connectivity over Old Tampa Bay. The team is scoped to evaluate the structural adequacy of the existing bridge to include an expected useful life, life cycle cost for maintenance/operations which will be documented in a report soon to be*

submitted to FDOT for review/approval. Early results of this evaluation show there are negative structural implications with maintaining the existing bridge and this will likely support any negative feedback received from the public to demo the existing bridge.

i. Utilities

- *Bill McTeer noted the previous issues with FGT when Amy Neidringhaus was PM for the Gandy Blvd. improvements – adjacent segment to the west (need to check if existing agreement for adjacent project included areas of current Gandy Blvd. PD&E study). Branan noted the team is aware of the FGT involvement and the team will be coordinating with Joe Sanchez for the disposition of the FGT utilities in the area which will be documented in the Utility Assessment Package. This report is currently under development with the assistance of Desiree Davis.*

j. Construction

- *Branan noted the PD&E Study from 4th St. to West Shore Blvd. could be considered an ultimate improvement now that the six lane improvements for the bridge over Old Tampa Bay isn't showing demand until 2057. There could be interim improvements for FDOT to consider with separate phasing for both the Pinellas and Hillsborough segments prior to the bridge widening and replacement.*

IV. Project Coordination

- *The team is coordinating with the City of Tampa for the site development plan and improvements within the Hillsborough Segment. These improvements may have a large impact to the existing conditions within the area which may dictate modifications to the preferred concept and PD&E improvements.*

V. Schedule Activities

Activity	Submittal Date
Traffic Forecast Memorandum	7/16/2021
Draft Preliminary Engineering Report	8/18/2021
Draft Engineering Reports (Utilities, Drainage, Structures, Geotech, etc.)	8/18/2021
Draft Environmental Reports (NRE, CSER, CRAS, Noise, Section 4F)	8/25/2021
Draft Project Traffic Analysis Report	9/23/2021

Activity	Submittal Date
Typical Section Package	9/30/2021
Public Hearing	Spring 2022

VI. Open Discussion

VII. Action Items

- *Craig to set up meetings with FDOT Maintenance and FDOT Traffic Operations*
- *KCA to submit the Life Cycle Cost Analysis for the Existing Eastbound Gandy Bridge for FDOT review/approval*
- *KCA to submit the FDOT traffic forecast AADTs and growth rates for FDOT review/approval – **Submitted 7/12/2021***
- *KCA to coordinate with the City of Tampa for the site development plan at Polanis Park and parcel on south side of Gandy Blvd. within the Hillsborough Segment*
- *KCA to review the public comment from Goodwill regarding access to the business*
- *KCA to revise the Pinellas Segment to eliminate the dedicated right turn lane at the 4th St. intersection and remove the cul-de-sac along Gandy Blvd. N.*
- *KCA to revise the Hillsborough Segment to show an existing full median opening – signalized at Bridge St. and eliminate the signal just west of the intersection servicing the Gandy Boat Ramp*
- *KCA/Inwood to schedule a pre-application meeting with the SWFWMD.*
- *KCA to coordinate with the Tampa Bay Estuary and include the following individuals:*
    - *Gary Rawlinson*
    - *Chris Anastasiou*
    - *Ed Sherwood*
- *KCA to confirm the demand for a full signal for the median opening in front of the Getaway*
- *Depending on a local agency maintenance/operations agreement, KCA to evaluate the Pinellas Causeway Segment for controlled access, parking, and recreational use, similar to the SR 60 Courtney Campbell Causeway*

Meeting Minutes

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DATE: August 3, 2021

TO: **All Attendees / Project File**

FROM: Renato Chuw, PE

RE: US 92 / SR 600 / Gandy Blvd PD&E; FPID 441250-1 SWFWMD Pre Application Meeting

CC: Attendees, Abdul Waris

A pre application meeting with the Southwest Florida Water Management District (SWFWMD) permit staff was held on August 3rd, 2021, at 10:00 am via Teams. The purpose of the meeting was to provide an overview and discuss the project concept for the Gandy Blvd PD&E Study and verify the drainage, permit criteria and approach. In attendance were:

Craig Fox (FDOT)
Anthony Celani (FDOT)
Joel Johnson (FDOT)
Przemyslaw Kuzlo (HNTB)
Tracy Ellison (HW Lochner)
Scott VanOrsdale (SWFWMD)
Al Gagne (SWFWMD)
Amber Smith (SWFWMD)
Michael Campo (KCA)
Branan Anderson (KCA)
Martin Horwitz (KCA)
Renato Chuw (Inwood)
Allyson Burke (Inwood)
Zach Evans (Inwood)

The following is a summary of the items discussed in this meeting:

- An overview of the project was provided by Inwood. The PD&E Study proposes to improve the existing Gandy Blvd between 4th St. in Pinellas County and S W. Shore Blvd in Hillsborough County. The existing EB bridge will be demolished while the existing WB bridge will be repurposed as the new EB direction bridge. A new bridge to the north is proposed to serve as the WB direction bridge. The study includes the entire project limits; however, a design phase has been funded up until 15% Line and Grade for the segment within Pinellas County terminating at the start of the bridge. The remaining portions of Gandy Blvd are not funded for design at this time.

- A description of the drainage approach was provided. Two basins have been delineated from 4th St. to Brighton Bay Blvd. These two basins are part of the Tinney Creek watershed and WBID. East of Brighton Bay Blvd until the end of the project, the basin is part of the Old Tampa Bay watershed. Basins 1 and 2 contain existing permitted stormwater facilities. An existing wet detention pond under the Gandy Blvd bridge over 4th street treats runoff from Basin 1. Dry linear swales within the R/W treats runoff within Basin 2. Within the Old Tampa Bay watershed, runoff currently goes untreated to the bay. Past the bridge into the Hillsborough County side, a permit was issued for the THEA Selmon Expressway project.

- Inwood explained that stormwater management alternatives are being investigated for the PD&E study phase. In Basin 1, the existing FDOT pond will be expanded within the R/W. Two alternatives pond sites are being evaluated for Basin 2, with one ultimately to be the preferred site. Within the Old Tampa Bay watershed, is anticipated that water quality credits will be used from the permitted ledger for the Old Tampa Bay permit.

- The ponds are sized to treat runoff based on the net new DCIA (Directly Connected Impervious Areas) and not including paved shoulders, sidewalks, or shared use paths. SWFWMD indicated that typically the

presumptive treatment criteria govern which is to treat the DCIA, however Inwood explained that for Basins 1 and 2, the ponds are sized to accommodate the previous required treatment volume plus the additional impervious areas for the study. SWFWMD agreed that this approach was acceptable. Compensating treatment was also discussed as an alternative.

- Pre vs Post attenuation are considered in the design of the proposed SMFs in Basins 1 and 2. This is consistent with the design and permit approach for the existing permitted facilities. East of Brighton Bay Blvd, attenuation is not required because of the tidal influence of the bay.

- Inwood stated that the approach for the basin east of Brighton Bay Blvd is to tap into the water quality credits and the ledger established for the Old Tampa Bay watershed. SWFWMD mentioned that the ledger may not address Total Suspended Solids (TSS) and oils but will verify with Dave Kramer about the treatment covered by the ledger. There is a potential that the first flush of treatment may be required.

- Chris (Kuzlow) indicated that for the Howard Frankland Bridge project, stormwater ponds or pre-treatment was not required and that the water quality credits for the OTB permit was used. It was stated that all projects within the Bay should be covered by the ledger. Chris provided the meeting notes with SWFWMD from 2019 for Tampa Bay Next discussing this. SWFWMD indicated that they have been using the credits for bridge projects.

- SWFWMD will verify if the OTB permit which is providing the credits per the ledger is functioning as intended in order to release all credits. FDOT indicated that the OTB project has succeeded in meeting the target credits per the ledger to this point.

- Inwood asked if the credits can be used to offset impacts to the existing pond for the Channel 10 News site. FDOT mentioned that the credits have been used before to offset impacts to offsite systems.

- Inwood indicated that floodplain compensation is not anticipated for this project because of the tidal influence of the bay. SWFWMD stated to verify the St. Pete Watershed Study and model for the tidal influence limits. SWFWMD will provide a link to obtain a copy of the model when preparing the pre app meeting notes.

- Inwood staff mentioned that the approximate primary and secondary wetland impacts are being reviewed and mitigation sites will be identified. The impacts and mitigation will be finalized during the design phase of the project.

- The project location is within the limits retained by the USACE for 404 permitting.

- NMFS, USFWS, and FWC will be coordinated with to ensure protection of fish and wildlife species.

- KCA will confirm if the bridge is located within SSL. If yes, will confirm that all proposed improvements are within an SSL easement during design.

- Conservation Easement: there is one known CE located E of 4th St on the N side of Gandy - appears to be outside of ROW and will not be impacted by current design.

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Action items

1. SWFWMD to confirm with Dave Kramer regarding viability to use OTP water quality credits and the ledger for the Gandy Blvd project
2. SWFWMD to confirm that the OTB permit, and ledger is functioning as intended in order to release credits for the Gandy Blvd project
3. Inwood to investigate the St. Pete watershed model for tidal influence limits
4. KCA to confirm that the proposed bridge is within the SSL easement

These are the author's understanding of the discussions and decisions reached at this meeting. If there are comments or questions, please contact Renato Chuw at rchuw@inwoodinc.com or 407-971-8850.

THIS FORM IS INTENDED TO FACILITATE AND GUIDE THE DIALOGUE DURING A PRE-APPLICATION MEETING BY PROVIDING A PARTIAL "PROMPT LIST" OF DISCUSSION SUBJECTS. IT IS NOT A LIST OF REQUIREMENTS FOR SUBMITTAL BY THE APPLICANT.

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
RESOURCE REGULATION DIVISION
PRE-APPLICATION MEETING NOTES

FILE NUMBER:

PA 408718

Date:	08/03/2021
Time:	10:00AM
Project Name:	Gandy Blvd
District Engineer:	Scott VanOrsdale
District ES:	Al Gagne
Attendees:	Craig Fox (FDOT) Anthony Celani (FDOT) Joel Johnson (FDOT) Renato Chuw (Inwood) Allyson Burke (Inwood) Zach Evans (Inwood) Przemyslaw Kuzlo (HNTB) Tracy Ellison (HW Lochner) Michael Campo (KCA) Branan Anderson (KCA) Martin Horwitz (KCA) Amber Smith (SWFWMD)

County:	Pinellas County	**Sec/Twp/Rge:**	15,16,17,18,&19/30/17
Total Land Acreage:	N/A	**Project Acreage:**	< 640 acres

Prior On-Site/Off-Site Permit Activity:

- Multiple permits along R/W that could be impacted. Consultants to verify which permits will be impacted. One noted during the meeting was ERP No. 23680.000, for the Channel Ten Site and the Tampa Bay Water Quality Improvement project – ERP No. 920.017.

Project Overview:

- Proposed road widening from 4th Street North to the start of the bridge. New bridge will be built in the future, scope of this pre-app was to discuss the requirements for Gandy Blvd from 4th Street North to the start of the bridge.
- Two Basin have been identified from 4th Street North to just east Brighton Bay. An existing pond and linear swales will be modified to accommodate the widening for the new DICA (excluding sidewalks, shared paths and safety shoulders). Must attenuate to the 25-year event in these basins.
- East of Brighton Bay Blvd. Right-of-way is limited. Will utilize the treatment credits from the Old Tampa Bay Water Quality Improvement Project - ERP No. 920.017 (OTB), must address the 95% reduction for discharges directly into the OFW for total suspended solids (TSS) and provide mechanism to skim oils and greases (80% reduction for TSS any non-direct discharges). Any direct discharges into the bay will not require attenuation; however, any discharges that co-mingle prior to entering the bay may require attenuation.
- The stormwater management system for ERP No. 3680.000, will be impact and is located east of Brighton Bay Blvd. May use the OTB treatment credits to offsite any treatment losses; however, must ensure the modifications will still meet the 95% reduction for discharges directly into the OFW for total suspended solids (TSS) and provide mechanism to skim oils and greases (80% reduction for TSS any non-direct discharges).
- Will need to determine if there are sufficient functional gain available in the Old Tampa Bay Water Quality Improvement Project - ERP No. 920.017, to offset the proposed improvements.
- Additional comments/requirements below:

Environmental Discussion: (Wetlands On-Site, Wetlands on Adjacent Properties, Delineation, T&E species, Easements, Drawdown Issues, Setbacks, Justification, Elimination/Reduction, Permanent/Temporary Impacts, Secondary and Cumulative Impacts, Mitigation Options, SHWL, Upland Habitats, Site Visit, etc.)

- Wetland/surface water impacts are proposed with this project. FDOT may wish to use excess functional gain from the Old Tampa Bay Water Quality Improvement Project to help offset impacts from this project.

- Provide the limits of jurisdictional wetlands and surface waters. Roadside ditches or other water conveyances, including permitted and constructed water conveyance features, can be claimed as surface waters per Chapter 62-340 F.A.C. if they do not meet the definition of a swale as stated under Rule 403.803 (14) F.S.
- Provide appropriate mitigation using UMAM for impacts.
- The site is located in the Tampa Bay and Coastal Areas ERP Basin. Mitigation Banks that serve this area include the Nature Coast, Big Bullfrog Creek, Tampa Bay and Northshore Seagrass mitigation banks. For an interactive map of permitted mitigation banks and their service areas, use this LINK.
- If the wetland mitigation is appropriate and the applicant is proposing to utilize mitigation bank credit as wetland mitigation, the following applies: Provide letter or credit availability or, if applicable, a letter of reservation from the wetland mitigation bank. The wetland mitigation bank current credit ledgers can be found out the following link: https://www.swfwmd.state.fl.us/business/epermitting/environmental-resource-permit, Go to "ERP Mitigation Bank Wetland Credit Ledgers"
- Demonstrate elimination and reduction of wetland impacts.
- Maintain minimum 15 foot, average 25 foot wetland conservation area setback or address secondary impacts.
- Please note, the Florida Department of Environmental Protection (FDEP) has assumed the Federal dredge and fill permitting program under section 404 of the Federal Clean Water Act within certain waters. State 404 Program streamlining intentions direct Agency staff to coordinate joint site visits for overall consistency between the two State programs. As such, District staff and the FDEP will need to conduct a joint site visit for evaluation of the wetland/surface water systems proposed for impact. District staff will coordinate with FDEP staff on determining dates/times of joint Agency availability. Upon determination of joint availability, staff will provide the applicant's representative with site visit scheduling options.

Site Information Discussion: (SHW Levels, Floodplain, Tailwater Conditions, Adjacent Off-Site Contributing Sources, Receiving Waterbody, etc.)

- Existing roadway/intersections – Gandy Blvd. from 4th street North to start of the bridge.
- Watersheds – Roosevelt Creek and City of St. Pete Watershed models available. Link to these provide in the water quantity section of the notes.
- WBIDs need to be independently verified by the consultant – WBID 1624 Roosevelt Basin and 1661D Tinney Creek – Not meeting standards for DO. Direct discharges to Tampa Bay will require net improvement per the Tampa Bay Estuary Program agreement.
- Possibly discharging to impaired waters.
- OFW on Pinellas side, elevated treatment criterion for direct discharge shall be required.
- Document/justify SHWE's at pond locations, wetlands, and OSWs.
- Determine normal pool elevations of wetlands.
- Determine 'pop-off' locations and elevations of wetlands.
- Provide documentation to support tailwater conditions for quality and quantity design
- Proposed control structures in wetlands should be consistent with existing 'pop-off' elevations of wetlands; demonstrate no adverse impacts to wetland hydroperiod for up to 2.33yr mean annual storm.
- Minimum flows and levels of receiving waters shall not be disrupted.
- Contamination issues need to be resolved with the FDEP. Check FDEP MapDirect layer for possible contamination points within/adjacent to the project area. FDEP MapDirect Link
  - Several contamination sites shown on or near the roadway. Please verify with FDEP if any have current contamination issues.
  For known contamination within the site or within 500' beyond the proposed stormwater management system:
  - after the application is submitted, please contact FDEP staff listed below and provide them with the ERP Application ID # along with a mounding analysis (groundwater elevation versus distance) of the proposed stormwater management system that shows the proposed groundwater mound will not adversely impact the contaminated area. FDEP will review the plans submitted to the District and mounding analysis to determine any adverse impacts. Provide documentation from FDEP that the proposed construction will not result in adverse impacts. This is required prior to the ERP Application being deemed complete.
  For known offsite contamination between 500' and 1500' beyond the site:
  - FDEP may also require a mounding analysis (groundwater elevation versus distance) for the proposed stormwater systems. SWFWMD will issue the permit when contamination sites are located outside the 500 ft radius prior to concurrence from DEP, however, it is the Permittee's responsibility to resolve contaminated site assessment concerns with the FDEP prior to beginning any construction activities. A permit condition

will be used to reiterate this. You are advised to contact DEP as soon as possible, preferably during permit application period.
FDEP Contacts:
- For projects located within Citrus, Hernando, Pasco, Hillsborough, Pinellas, Manatee, Polk and Hardee Counties: Yanisa Angulo yanisa.angulo@floridadep.gov

- Stormwater retention and detention systems are classified as moderate sanitary hazards with respect to public and private drinking water wells. Stormwater treatment facilities shall not be constructed within 100 feet of an existing public water supply well and shall not be constructed within 75 feet of an existing private drinking water well. Subsection 4.2, A.H.V.II.
- Multiple wells shown within the R/W on GIS. Any on site should be identified and their future use/abandonment must be designated.

Water Quantity Discussions: (Basin Description, Storm Event, Pre/Post Volume, Pre/Post Discharge, etc.)

- Demonstrate that post development peak discharges from proposed project area will not cause an adverse impact for a 25-year, 24-hour storm event.
- Demonstrate that site will not impede the conveyance of contributing off-site flows.
- Demonstrate that the project will not increase flood stages up- or down-stream of the project area(s).
- Watershed Model information may be available for download using the following link: https://watermatters.sharefile.com/d-s8c9019e00fd243908654e733a6b2016c
- Provide equivalent compensating storage for all 100-year, 24-hour riverine floodplain impacts if applicable. Providing cup-for-cup storage in dedicated areas of excavation is the preferred method of compensation if no impacts to flood conveyance are proposed and storage impacts and compensation occur within the same basin. In this case, tabulations should be provided at 0.5-foot increments to demonstrate encroachment and compensation occur at the same levels. Otherwise, storage modeling will be required to demonstrate no increase in flood stages will occur on off-site properties, using the mean annual, 10-year, 25-year, and 100-year storm events for the pre- and post-development conditions.
- Please be aware that if there is credible historical evidence of past flooding or the physical capacity of the downstream conveyance or receiving waters indicates that the conditions for issuance will not be met without consideration of storm events of different frequency or duration, applicants shall be required to provide additional analyses using storm events of different duration or frequency than the 25-year 24-hour storm event, or to adjust the volume, rate or timing of discharges. [Section 3.0 Applicant's Handbook Volume II]

Water Quality Discussions: (Type of Treatment, Technical Characteristics, Non-presumptive Alternatives, etc.)

- OTB water quality credits can be used where available and applicable (see Project Overview Section above).
- Replace treatment function of existing ditches to be filled.
- Presumptive Water Quality Treatment for Alterations to Existing Public Roadway Projects:
  -Refer to Section 4.5 A.H.V.II for Alterations to Existing Public Roadway Projects.
  -Refer to Sections 4.8, 4.8.1 and 4.8.2 A.H.V.II for Compensating Stormwater Treatment, Overtreatment, and Offsite Compensation.
  -All co-mingled existing & new impervious that is proposed to be connected to a treatment pond will require treatment for an area equal to the co-mingled existing & new impervious (times ½" for dry treatment or 1" for wet treatment). This applies whether or not equivalent treatment concepts are used.
  -However, if equivalent treatment concepts are used it is possible to strategically locate the pond(s) so that the minimum treatment requirement may be for an area equivalent to the new impervious area only. That is, co-mingled existing & new impervious that is not connected to a treatment pond may bypass treatment (as per Section 4.5(2), A.H.V.II); if the 'total impervious area' that is connected to the treatment pond(s) is at least equivalent to the area of new impervious only. The 'total impervious area' that is connected to the pond(s) may be composed of co-mingled existing & new impervious.
  -Offsite impervious not required to be treated; but may be useful to be treated when using equivalent treatment concepts.
  -Existing treatment capacity displaced by any road project will require additional compensating volume. Refer to Subsection 4.5(c), A.H.V.II.
- Will acknowledge compensatory treatment to offset pollutant loads associated with portions of the project area that cannot be physically treated.
- Provide additional 50% treatment for any direct discharges to OFW. Refer to ERP Applicant's Handbook Vol. II Subsection 4.1(f).

- Please be advised that although use of isolated wetlands for ERP treatment purposes is permittable as per Section 4.1(a)(3), A.H.V.II, use of isolated wetlands for treatment purposes may not necessarily meet US Army Corps criteria.
- Net improvement
  -Refer to rule 62-330.301(2), F.A.C.
  -WBIDs 1624 and 1661D not meeting standards Dissolved Oxygen. Please verify accuracy of WBID boundaries and status of impairment.
  - Tampa Bay is designated as a Category 4b waterbody (impaired, but no TMDL required); therefore, net improvement (for nutrients) is required for discharges to Tampa Bay.
  -The application must demonstrate a net improvement for nutrients. Applicant may demonstrate a net improvement for the parameters of concern by performing a pre/post pollutant loading analysis based on existing land use and the proposed land use. Refer to ERP Applicant's Handbook Vol. II Subsection 4.1(g).
  -Effluent filtration is known to be ineffective for treating nutrient related impairments, unless special nutrient adsorption media provided. However, please note special nutrient adsorption media has extremely low conductivity values compared to typical sand type effluent filtration filter media. Note: if treatment volume required for net improvement is less than the treatment volume required for 'presumptive' treatment, then use of effluent filtration is ok.

Sovereign Lands Discussion: (Determining Location, Correct Form of Authorization, Content of Application, Assessment of Fees, Coordination with FDEP)

- The project may be located within state owned sovereign submerged lands (SSSL). Be advised that a title determination will be required from FDEP to verify the presence and/or location of SSSL.
- If use of SSSL is proposed, authorization will be required. Refer to Chapter 18-21, F.A.C. and Chapter 18-20, F.A.C. for guidance on projects that impact SSSL and Aquatic Preserves.
- For projects such as these, a public easement may the appropriate form of SSSL authorization. Refer to Chapter 18-21.005, F.A.C.

Operation and Maintenance/Legal Information: (Ownership or Perpetual Control, O&M Entity, O&M Instructions, Homeowner Association Documents, Coastal Zone requirements, etc.)

- The permit must be issued to entity that owns or controls the property.
- Provide evidence of ownership or control by deed, easement, contract for purchase, etc. Evidence of ownership or control must include a legal description. A Property Appraiser summary of the legal description is NOT acceptable.

Application Type and Fee Required:

- SWERP – Sections A, C, and E of the ERP Application.
- < 640 acres of project area and < 50 acre of wetland or surface water impacts - $3,105.75, Online Submittal
- Consult the fee schedule for different thresholds.

Other: (Future Pre-Application Meetings, Fast Track, Submittal Date, Construction Start Date, Required District Permits – WUP, WOD, Well Construction, etc.)

- An application for an individual permit to construct or alter a dam, impoundment, reservoir, or appurtenant work, requires that a notice of receipt of the application must be published in a newspaper within the affected area. Provide documentation that such noticing has been accomplished. Note that the published notices of receipt for an ERP can be in accordance with the language provided in Rule 40D-1.603(10), F.A.C.

- Provide a copy of the legal description (of all applicable parcels within the project area) in one of the following forms:
  a. Deed with complete Legal Description attachment.
  b. Plat.
  c. Boundary survey of the property(ies) with a sketch.

- The plans and drainage report submitted electronically must include the appropriate information required under Rules 61G15-23.005 and 61G15-23.004 (Digital), F.A.C. The following text is required by the Florida Board of Professional Engineers (FBPE) to meet this requirement when a digitally created seal is not used and must appear where the signature would normally appear:

ELECTRONIC (Manifest): *[NAME] State of Florida, Professional Engineer, License No. [NUMBER]*

This item has been electronically signed and sealed by [NAME] on the date indicated here using a SHA authentication code. Printed copies of this document are not considered signed and sealed and the SHA authentication code must be verified on any electronic copies

DIGITAL: *[NAME] State of Florida, Professional Engineer, License No. [NUMBER]; This item has been digitally signed and sealed by [NAME] on the date indicated here; Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.*

- Provide soil erosion and sediment control measures for use during construction. Refer to ERP Applicant's Handbook Vol. 1 Part IV Erosion and Sediment Control.
- Demonstrate that excavation of any stormwater ponds does not breach an aquitard (see Subsection 2.1.1, A.H.V.II) such that it would allow for lesser quality water to pass, either way, between the two systems. In those geographical areas of the District where there is not an aquitard present, the depth of the pond(s) shall not be excavated to within two (2) feet of the underlying limestone which is part of a drinking water aquifer. [Refer to Subsection 5.4.1(b), A.H.V.II]
- If lowering of SHWE is proposed, then burden is on Applicant to demonstrate no adverse onsite or offsite impacts as per Subsection 3.6, A.H.V.II. Groundwater drawdown 'radius of influence' computations may be required to demonstrate no adverse onsite or offsite impacts. Please note that new roadside swales or deepening of existing roadside swales may result in lowering of SHWE. Proposed ponds with control elevation less than SHWE may result in adverse lowering of onsite or offsite groundwater.
- On December 17, 2020, the Environmental Protection Agency (EPA) formally transferred permitting authority under CWA Section 404 from the U.S. Army Corps of Engineers (Corps) to the State of Florida for a broad range of water resources within the State. The primary State 404 Program rules are adopted by the Florida Department of Environmental Protection (FDEP) as Chapter 62-331 of the Florida Administrative Code (F.A.C.). While the State 404 Program is a separate permitting program from the Environmental Resource Permitting program (ERP) under Chapter 62-330, F.A.C., and agency action for State 404 Program verifications, notices, or permits shall be taken independently from ERP agency action, the FDEP and the Southwest Florida Water Management District (SWFWMD) will be participating in a Joint application Process. Upon submittal of an ERP application that proposes dredge/fill activities in wetlands or surface waters within state assumed waters, the SWFWMD will forward a copy of your application to the FDEP for activities under State 404 jurisdiction. The applicant may choose to have the State 404 Program and ERP agency actions issued concurrently to help ensure consistency and reduce the need for project modifications that may occur when the agency actions are issued at different times. Additional information on the FDEP's 404 delegation can be found at: https://floridadep.gov/water/submerged-lands-environmental-resources-coordination/content/state-404-program

  Additionally, for those projects located in areas where the Corps retains jurisdiction, the applicant is advised that the District will not send a copy of an application that does not qualify for a State Programmatic General Permit (SPGP) to the U.S. Army Corps of Engineers. If a project does not qualify for a SPGP, you will need to apply separately to the Corps using the appropriate federal application form for activities under federal jurisdiction. Please see the Corps' Jacksonville District Regulatory Division Sourcebook for more information about federal permitting. Please call your local Corps office if you have questions about federal permitting. Link: http://www.saj.usace.army.mil/Missions/Regulatory/Source-Book/

Disclaimer: The District ERP pre-application meeting process is a service made available to the public to assist interested parties in preparing for submittal of a permit application. Information shared at pre-application meetings is superseded by the actual permit application submittal. District permit decisions are based upon information submitted during the application process and Rules in effect at the time the application is complete.

Meeting Minutes

3000 Dovera Drive, Suite 200, Oviedo, FL 32765 I P: 407-971-8850 I F: 407-971-8955 I www.inwoodinc.com

DATE: August 31, 2021

TO: **All Attendees / Project File**

FROM: Renato Chuw, PE

RE: US 92 / SR 600 / Gandy Blvd PD&E; FPID 441250-1 Tampa Bay Estuary Program Meeting

CC: Attendees

A coordination meeting with the Tampa Bay Estuary (TBE) was held on August 31st, 2021, at 4:00 pm via Teams. The purpose of the meeting was to provide an overview and discuss the project concept for the Gandy Blvd PD&E Study with the Tampa Bay Estuary and obtain input and suggestion pertaining the circulation of Old Tampa Bay. In attendance were:

Craig Fox (FDOT)
Abdul Waris (FDOT)
Anthony Celani (FDOT)
Joel Johnson (FDOT)
Ahmad Chehab (FDOT)
Ed Sherwood (TBE)
Maya Burke (TBE)
Michael Campo (KCA)
Branan Anderson (KCA)
Martin Horwitz (KCA)
Renato Chuw (Inwood)
Zach Evans (Inwood)
Allyson Burke (Inwood)

The following is a summary of the items discussed in this meeting:

- Introductions of attendees and an overview of the project was provided. KCA is the prime consultant for the study. Inwood is the subconsultant tasked for the drainage evaluation and natural environment assessments. The PD&E Study proposes to improve the existing Gandy Blvd. between 4th St. in Pinellas County and S Westshore Blvd. in Hillsborough County. The existing EB bridge is proposed to be demolished while the existing WB bridge will be repurposed as the new EB direction bridge. A new bridge to the north is proposed to serve as the WB direction bridge. The study includes the entire project limits; however, a design phase has been funded up in the Pinellas County side terminating at the start of the bridge. The remaining portions of Gandy Blvd. are not funded for design at this time.

- Craig noted that a new bridge over Old Tampa Bay is proposed to carry two lanes of westbound traffic and a shared use path with accommodations for future widening to provide an additional westbound travel lane. He clarified that a previous concept proposed a three-lane structure and widening of an existing bridge to carry six lanes of traffic over Old Tampa Bay. He explained that the traffic analysis does not show the need for 6 lanes before the design year.

- From 4th Street to Brighton Bay Blvd, runoff from the roadway will be collected and managed in an existing FDOT pond that will be expanded (under the 4th St. bridge) and a new offsite pond. The study team is currently in the process of preparing a Pond Siting Report for the study. From Brighton Bay Blvd to the eastern end of the study, the runoff discharges to the bay. Runoff from the existing bridge discharges directly to the bay via scuppers. The plan is to maintain the existing drainage patterns to the bay and utilize the water quality/nutrient credits and the ledger for the Old Tampa Bay permit, in which circulation in the bay was improved. This is a similar approach taken from the Howard Frankland bridge improvements. Inwood discussed the possibility of implementing shallow retention swales within the R/W where possible, to capture the initial runoff and providing an additional benefit for nutrient removal. TBEP supported this

approach. This has been discussed with SWFWMD during the pre-application meeting and they have agreed that it is an acceptable approach.

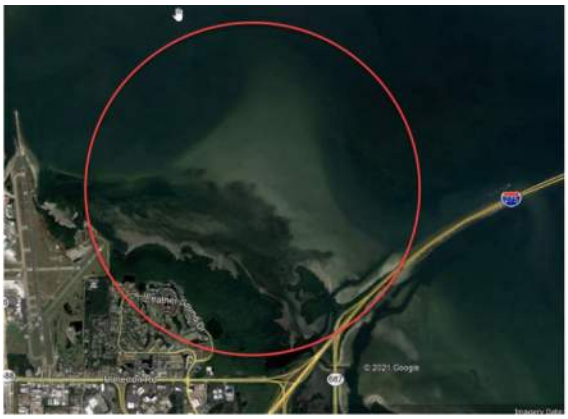
- Ed explained that the removal of the Gandy Bridge/causeways has not been specifically modeled (although all three bridges were modeled together in the early 2000s).

- Ed asked if there were enough water quality credits available for the Gandy Blvd project. The response was yes, there are enough available credits.

- TBEP indicated that they focus on nutrient management and impediments to circulation. Ed indicated that since 2018 the bay has experienced a decline in seagrass coverage and water quality, primarily in the OTB segment where poor water quality and recent loss of seagrass has occurred. He attributed it to nutrient loading, poor circulation and long residence times in the OTB segment. Removal of the Gandy Blvd. bridge and causeway have not been modeled in the Old Tampa Bay model, but the Howard Frankland bridge project utilized the OTB model and then modified it.

- TBEP mentioned that they are interested in improving the circulation of the OTB segment as a whole.

- Seagrass beds have been relatively stable near the Gandy Blvd. bridge. Impacts to these seagrass beds would be the main concern for the TBEP. Improving the seagrass beds in areas that have recently suffered significant losses (e.g., the Feather Sound "hump" highlighted below) is the principal concern of the TBEP. Impacts to the seagrass were most significant on a 4,000-acre area in the Feather Sound "hump" (i.e. large, shallow flat between the HFB and the St. Pete-CLW Airport) just north of the Howard Frankland bridge between 2018 and 2020 (see map below).



- TBEP is encouraging FDOT to consider ways that circulation can be improved in OTB when these large infrastructure/bridge replacement projects are pursued to improve the seagrass beds. It was recognized that the Gandy Blvd. bridge and causeway may not be the most influential impediment to circulation in this region of OTB; however, linking multiple causeway alteration projects together was viewed as a necessary means to improve overall circulation patterns in OTB. Significant summertime algal blooms (Pyrodinium sp.) are occurring in western OTB which are affecting the seagrass. Red tide (Karenia brevis) was also observed in OTB in 2021.

- Therefore, Ed and Maya indicated that improvements to Gandy causeway would need to be made in conjunction to similar improvements to the Howard Frankland causeway to be effective in addressing the overall water quality issues.

- Maya clarified that the proposed bridge improvements and construction are not anticipated to create significant impacts to the bay. She noted nutrient runoff from other development that ultimately discharges to the bay along with existing poor circulation are the main contributors to the water quality issues.

- Michael mentioned the scope of our study is just the Gandy Blvd. bridge and asked how the modeling a potential cut in the land causeway and benefits would be measured for the bay by considering pockets of long residence time. How could the cost-benefit ratio be measured? Ed stated that the benefits of a new cut in the causeway could be measured in new seagrass coverage created. However, he acknowledged the benefit created is unlikely to exceed the cost for the Gandy project alone because the ledger mitigation credits are already available to the Department and the full benefit of the project will not be realized until similar improvements are implemented on the Howard Frankland causeway.

- Maya explained that a better approach to funding potential Gandy causeway improvements would be through the use of special funding sources such as grant applications from the Restore Act or FEMA resilience funds (or potentially additional funding sources currently being debated in Congress). Maya mentioned the BRIC funding further described here (national competition awards up to $50M): https://www.floridadisaster.org/globalassets/dem/mitigation/bric-building-resilient-infrastructure-and-communities-grant-program/application/fy-2021-building-resilient-infrastructure-and-communities-fact-sheet.pdf. Abdul noted that FEMA resilience funds would require the existing roadway profile to be raised above storm surge elevation which would create additional issues with access and impacts to adjacent parcels.

- Ed recommended reaching out to Allison Yeh. She has completed several FHWA resilience/transportation projects that show the value of modifying the causeways (elevating/replacing with bridge), incl. Gandy https://www.tbrpc.org/wp-content/uploads/2020/03/030920_Resilient-Tampa-Bay-Transportation-Study_Yeh_Kiselewski_Hillsborough-MPO.pdf;https://planhillsborough.org/resilient-tampa-bay-transportation/

- TBEP indicated a “big picture” approach should be considered for various projects within the bay and they are willing to partner with FDOT. Pre-treatment of stormwater is good for addressing nutrient loading but doesn’t help circulation.

- FDOT mentioned similar improvements to what was done for the Courtney Campbell causeway could potentially be implemented but should be evaluated independent of the Gandy Blvd PD&E study.

- Opening up the causeway areas along the mangrove fringe and closer to shore, on Pinellas side, will provide a more localized benefit. Improvements within the causeway further east and in deeper conditions have higher potential to provide benefits further north within the bay. Linking multiple causeway improvements throughout multiple bridges within the bay will add cumulative circulation benefits within the bay.

- TBEP stated the circulation pattern is north along the eastern side of the bay, once it gets to the Courtney Campbell bridge, it circulates and then slowly goes out along the western front. The Courtney Campbell bridge project improved the circulation of the bay.

- FDOT mentioned that raising the causeway would create issues with tie downs to existing driveways and other features. TBEP would provide sample projects done in Miami that dealt with similar issues.

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- Miami Beach is working with D6 on the "Rising Above the Risk" strategy https://www.miamibeachfl.gov/wp-content/uploads/2020/01/Jacobs-Engineering-Final-Presentation-Tasks-2-3.pdf

- Because we are in the PD&E study phase, it is good to have these conversations now to see what can be done as part of this project to improve the bay circulation. A broader look will need to be discussed within the Department moving forward.

These are the author's understanding of the discussions and decisions reached at this meeting. If there are comments or questions, please contact Renato Chuw at rchuw@inwoodinc.com or 407-971-8850.

FLOOD INVESTIGATION INVENTORY SHEET

Flood Investigation # 1504052011437

Entry Date: 4/5/2011 6:02:03 PM
Revised Date: 4/5/2011 6:12:18 PM
Completed By: Daniel Lauricello, FDOT

SECTION I: LOCATION

County - Pinellas
State Road - SR 600 WB
Road Description - 2 lane(s), Principal Arterial, Roadside Ditches
Roadway Separation - Divided w/Traversable Median
Direction of Travel - Two-Way
Functional System of Road - Mixed
Specific Classification of Road - Principal Arterial
Roadway Drainage - Roadside Ditches

Flooding Condition - Off-System

Local Road Subject to Flooding - Gandy Blvd
Business Name: Barney's Mini Storage
Business/Private Property Address Subject to Flooding -
Gandy Blvd. North
Pinellas Park , FL

Location:
Latitude: 27.865942
Longitude: -82.632217

Section/Township/Range - 18 / 30N / 17E
Project is Active - No

Associated Projects

Project Date	State Project Number	Financial Project ID	Work Program ID	Project Description	Attachment
4/5/2011	-	416838 - 1 - 52 - 01		Resurfacing	416838 Rdwy plans.tif

SECTION II: PROBLEM DESCRIPTION

Date of Original Complaint - 3/29/2011
Complainant Name -
Problem Description - Property Flooding

Details of the Problem -
From: White, Daniel C
Sent: Tuesday, March 29, 2011 1:49 PM
To: Derrick, Darron W.; Nazmurreza, Abu M.
Subject: 416838 Gandy Blvd Drainage Issue

During this project, a drainage structure at Mile post 7.301 was removed and replaced. During its removal is was noted that an existing 6” pipe from off the R/W was tied into this structure but the pipe had been capped inside the structure. Since this pipe was not called out on the plans, the contractor set new structure without attaching the 6” pipe.

The recent rain filled a nearby retention pond. The manager of Barney’s Mini Storage complained to my lead inspector. According to him, the pond was connected to the structure long ago. He believed that the structure was damaged several years ago by large crane setting a large bill board for Brighthouse. He also said that Brighthouse paid to have the structure repaired. This may have been when the 6” pipe was capped.

Frequency of Flooding - New problem
Source for Frequency Data - Local Resident/Person Interviewed

Historic High Water - No historic high water data was available.

Flooding Event High Water - No event high water was recorded.

History of Problem - This recently occured (3/29/11) due to the significant rain we have received.

Persons Interviewed

Site Visit Date - 4/5/2011
Site Inspection By - Daniel Lauricello FDOT District VII Drainage,
Interviewee(s) - Charles Vansolkema Barney's Mini Storage,
Site Visit Conditions - null

Observed High Water - A High Water of Unknown was observed on the date of the site visit at null.

Site Visit Details - Daniel Lauricello conducted a field visit on 4/5/11. During his field visit the property manager, Mr. Charles Vansolkema, for Barney's Mini Storage spoke with Daniel Lauricello about the issue.

Mr. Vansolkema stated the pond connected to an old FDOT structure in the FDOT right-of-way by a 6" pvc pipe. The pipe was previously capped so when the new structure was installed the pipe was not reconnected to the structure. The pond filled and over topped during the recent heavy rains.

Daniel Lauricello reviewed the site and found that the FDOT structure was the historic outfall for the pond and concluded the connection should be restored.

SECTION III: PROBLEM ANALYSIS

Attachments

Attachment	Attachment Type	Attachment Description
Field_Review_40511A.pdf	Site Photo	Photo Log
email040511.pdf	Other Data	

SECTION IV: CONCLUSIONS AND RECOMMENDATIONS

Recommendation:
The 416838 Gandy Boulevard drainage Issue Drainage issue was reviewed. It was concluded the outfall from the offsite pond should be restored.

Recommendation Date: 4/5/2011

Project Ranking:

ROADWAY FLOODING MATRIX

Ranking of the roadway hazard level based on accident data, ADT, depth and location of water, and site specific factors. **(Weight Factor = 10)**	1
Ranking of the operational impacts (i.e. magnitude of vehicle speed reduction, ADT, frequency of flooding, availability of detour route, and cost to FDOT to handle problem, etc.) **(Weight Factor = 7)**	1
	1

Ranking of the nuisance factor to the public and FDOT. **(Weight Factor = 3)**	
Ranking of the length of time before scheduled roadway improvements that will also provide remedy, are to be let to contract. **(Weight Factor = 5)**	1
Ranking of the costs to cure the problem, if any. **(Weight Factor = 5)**	1
Total Score	**30**

PRIVATE PROPERTY FLOODING MATRIX

Ranking of the potential financial impacts versus the flooding frequency that impacts the private property. **(Weight Factor = 10)**	10
Ranking of the hazard level versus the flooding frequency that impacts the private property. **(Weight Factor = 10)**	10
Ranking of the nuisance factor to the private property as well as FDOT. **(Weight Factor = 5)**	10
Ranking of the costs to FDOT to cure the problem versus the financial impact to the private property if not cured. **(Weight Factor = 10)**	0
Ranking of the length of time before scheduled roadway improvements that will also provide remedy, are to be let to contract. **(Weight Factor = 5)**	0
Total Score	**250**

FLOOD INVESTIGATION INVENTORY SHEET

Flood Investigation # 1504082013554

Entry Date: 4/8/2013 8:38:36 AM
Revised Date: 2/16/2015 7:55:18 AM
Completed By: Richard Griffin, FDOT

SECTION I: LOCATION

County - Pinellas
State Road - SR 600
Road Description - 4 lane(s), Major Collector, Roadside Ditches
Roadway Separation - Divided w/Traversable Median
Direction of Travel - Two-Way
Functional System of Road - Rural
Specific Classification of Road - Major Collector
Roadway Drainage - Roadside Ditches

Flooding Condition - Both

Local Road Subject to Flooding - San Fernando Dr NE
Business Name: The Crab Shack
Business/Private Property Address Subject to Flooding -
11400 Gandy Blvd
, FL

Location:
Latitude: 27.869855
Longitude: -82.616259

Section/Township/Range - 20 / 30S / 17E
Project is Active - No

SECTION II: PROBLEM DESCRIPTION

Date of Original Complaint -
Complainant Name -
Problem Description - Property Flooding

Details of the Problem - The Crab Shack restaurant adjacent to Gandy Blvd experienced flooding following the construction of sidewalks.

Frequency of Flooding - New problem
Source for Frequency Data - Construction

Historic High Water - A historic high water of located at Unknown was documented by null.

Flooding Event High Water - The original complaint was made by , on . An event high water of was recorded by null on unkonown date.

History of Problem - This flooding was realted to the sidewalk construction on Gandy Blvd and was corrected during the construction of the project.

SECTION III: PROBLEM ANALYSIS

Attachments

Attachment	Attachment Type	Attachment Description
10-125 Brave.pdf	null	
Attachment 2 Drainage Design Doc.docx	null	
Attachment 6 PLANRD-CBSK01-AERIAL.pdf	null	
Crab Shack.pdf	Other Data	Pre construction picture
Gandy 08.pdf	Aerial Photo	Pre construction aerial
Gandy DM.tif	FDOT Drainage Map	Old drainage map
No flooding at Crab Shack August 2011 .xps	Other Data	Email following drainage fix
Crab Shack Flooded July 2011 .xps	Other Data	email following flooding
Crab_Shack_072811teb.txt	null	
Tracker No 2-27-2013 5-03-32 PM.pdf	null	

SECTION IV: CONCLUSIONS AND RECOMMENDATIONS

Recommendation: There has been no reported flooding following revisions during construction.

Recommendation Date:

Project Ranking:

ROADWAY FLOODING MATRIX

0

Ranking of the roadway hazard level based on accident data, ADT, depth and location of water, and site specific factors. **(Weight Factor = 10)**	
Ranking of the operational impacts (i.e. magnitude of vehicle speed reduction, ADT, frequency of flooding, availability of detour route, and cost to FDOT to handle problem, etc.) **(Weight Factor = 7)**	0
Ranking of the nuisance factor to the public and FDOT. **(Weight Factor = 3)**	1
Ranking of the length of time before scheduled roadway improvements that will also provide remedy, are to be let to contract. **(Weight Factor = 5)**	0
Ranking of the costs to cure the problem, if any. **(Weight Factor = 5)**	0
Total Score	**3**

PRIVATE PROPERTY FLOODING MATRIX

Ranking of the potential financial impacts versus the flooding frequency that impacts the private property. **(Weight Factor = 10)**	0
Ranking of the hazard level versus the flooding frequency that impacts the private property. **(Weight Factor = 10)**	0
Ranking of the nuisance factor to the private property as well as FDOT. **(Weight Factor = 5)**	1
Ranking of the costs to FDOT to cure the problem versus the financial impact to the private property if not cured. **(Weight Factor = 10)**	0
Ranking of the length of time before scheduled roadway improvements that will also provide remedy, are to be let to contract. **(Weight Factor = 5)**	0
Total Score	**5**

FLOOD INVESTIGATION INVENTORY SHEET

Flood Investigation # 1502082019609

Entry Date: 2/8/2019 3:15:11 PM
Revised Date: 2/8/2019 3:32:23 PM
Completed By: ,

SECTION I: LOCATION

County - Pinellas
State Road - SR 600
Road Description - 4 lane(s), Principal Arterial, Roadside Ditches
Roadway Separation - Divided w/Traversable Median
Direction of Travel - Two-Way
Functional System of Road - Urban
Specific Classification of Road - Principal Arterial
Roadway Drainage - Roadside Ditches

Flooding Condition - On-System

Local Road Subject to Flooding - Gandy Blvd
Business Name: Peridot Palms Apartments
Business/Private Property Address Subject to Flooding -
10601 Gandy Blvd N
St Petersburg , FL 33702

Location:
Latitude: 27.867778
Longitude: -82.625331

Section/Township/Range - 17 / 30S / 17E
Project is Active - No

Associated Projects

Project Date	State Project Number	Financial Project ID	Work Program ID	Project Description	Attachment
9/13/2011	-	416838 - 1 - 52 - 01		Resurfacing	416838-1-52-01 Gandy Blvd-Asbuilts.pdf

SECTION II: PROBLEM DESCRIPTION

Date of Original Complaint - 10/10/2017
Complainant Name - Carlos Frey

Problem Description - Standing Water

Details of the Problem -

The shared use path trail along the north side of Gandy Blvd and east of Brighton Bay Blvd (in front of Peridot Palms Apartments) has standing water and algae growth very often

Frequency of Flooding - Several times per year
Source for Frequency Data - City Maintenance

Historic High Water - No historic high water data was available.

Flooding Event High Water - No event high water was recorded.

History of Problem - Flooding happens every time it rains. It seems to have started since the path construction and it has worsened after the apartments' construction next to the trail

Other Communications

Communication Date	Type	Communication From	Communication To	Communication Attachment Name
10/10/2017	Email	Carlos Frey, City of St Petersburg	Jim Hubbard, Cardno	Gandy Blvd Trail Flooding Complaint 10102017.pdf
3/15/2018	Email	Michael Mckinnon, FDOT	Brian Pickard, FDOT	Gandy Blvd Trail Flooding Resolution 03152018.pdf

SECTION III: PROBLEM ANALYSIS

Current Problem Analysis

Current Problem Analysis: The path was built at existing ground. There was a natural low point where the flooding occurs, elevation 4.0. The apartments were built later on, filling the adjacent site and constructing an elevated landscape berm that has worsened the flooding at this low spot in the path

Outfall Description: Roadside Swale
Responsible Entity for Maintenance of Outfall: FDOT

Attachments

Attachment	Attachment Type	Attachment Description
Gandy Blvd Path Plans.pdf	Project Plans	Gandy Blvd Path Re-grading Plans
gis-contours_200sc.pdf	Other Data	GIS Contours

SECTION IV: CONCLUSIONS AND RECOMMENDATIONS

Recommendation:

The trail will be raised by overbuilding to elevation 5 for a distance of 388 ft

6" pipes will be installed at the ground low point to drain the stormwater from the area between the trail and the apartments berm to the FDOT ditch

Utility adjustments will be coordinated with the UAO's and a license agreement will be obtained to regrade into the apartments's property

Recommendation Date: 3/15/2018

Project Ranking:

ROADWAY FLOODING MATRIX

Ranking of the roadway hazard level based on accident data, ADT, depth and location of water, and site specific factors. **(Weight Factor = 10)**	1
Ranking of the operational impacts (i.e. magnitude of vehicle speed reduction, ADT, frequency of flooding, availability of detour route, and cost to FDOT to handle problem, etc.) **(Weight Factor = 7)**	1
Ranking of the nuisance factor to the public and FDOT. **(Weight Factor = 3)**	3
Ranking of the length of time before scheduled roadway improvements that will also provide remedy, are to be let to contract. **(Weight Factor = 5)**	7
Ranking of the costs to cure the problem, if any. **(Weight Factor = 5)**	7
Total Score	**96**

PRIVATE PROPERTY FLOODING MATRIX

1

Ranking of the potential financial impacts versus the flooding frequency that impacts the private property. **(Weight Factor = 10)**	
Ranking of the hazard level versus the flooding frequency that impacts the private property. **(Weight Factor = 10)**	8
Ranking of the nuisance factor to the private property as well as FDOT. **(Weight Factor = 5)**	1
Ranking of the costs to FDOT to cure the problem versus the financial impact to the private property if not cured. **(Weight Factor = 10)**	1
Ranking of the length of time before scheduled roadway improvements that will also provide remedy, are to be let to contract. **(Weight Factor = 5)**	1
Total Score	**110**