SELMON EXPRESSWAY

Whiting Street PD&E Study

Pond Siting Report

March 2022

Professional Engineer Certification

Pond Siting Report

Project: Whiting Street Project Development and Environment Study

THEA Project No: HI-0112

Study Limits: From End of Existing Six-lane Section at the Selmon Expressway West Extension Project to the Beginning of the Six-lane Section Near Whiting Street

Date: March 2022

This pond siting report contains engineering information for the Whiting Street Project Development and Environment Study 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 civil 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 H.W. Lochner, Inc. and that I have prepared or approved the evaluation, findings, opinions, conclusions, or technical advice for this project.

THERESA D ELLISON
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This item has been digitally signed and sealed by Theresa D. Ellison, P.E. 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.

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1.0 Project Summary

1.1 Project Description

The Tampa Hillsborough Expressway Authority (THEA), in coordination with the City of Tampa, is conducting a Project Development and Environment (PD&E) Study to evaluate the needs, costs, and effects of extending Whiting Street and reconfiguring the on-ramps of the Selmon Expressway at Jefferson Street and off-ramps at Florida Avenue and Channelside Drive. The study considers extending Whiting Street to North Meridian Avenue and includes improvements and realignment of the existing segment of Whiting Street, from Jefferson Street to North Brush Street. The extension will provide a direct connection of the Whiting Street corridor to North Meridian Avenue which will improve traffic flow and safety for all transportation modes and offer additional connections within the street network.

The study will also evaluate reconfiguring the on-ramp to the Selmon Expressway at Jefferson Street and the off-ramps at Florida Avenue and Channelside Drive. It is anticipated that the Florida Avenue off-ramp will be widened to two lanes, the Channelside Drive off-ramp will be removed, and the new Whiting Street off-ramp will extend from the Selmon Expressway, near Morgan Street, to Nebraska Avenue and intersect with the new Whiting Street alignment to provide a direct connection from the Selmon Expressway. See Figure 1.1 for the project location map.

Figure 1.1: Project Location Map

1.2 Project Purpose & Need

The purpose of this project is to provide a direct connection of the Whiting Street corridor to North Meridian Avenue to improve traffic flow and safety for all transportation modes and offer additional connections within the street network. The project will also reconfigure the on-ramps to the Selmon Expressway at Jefferson Street and the off-ramps at Florida Avenue and Channelside Drive to improve safety, traffic circulation, and access to Whiting Street and North Meridian Avenue.

The need for the project is based on the following criteria:

System Linkage

Based upon the Tampa Bay Regional Planning Model (TBRPM) Version 8.2, the existing roadway network will be over capacity by the 2046 design year. Additional network connectivity is necessary to alleviate congestion, such as the Whiting Street extension and ramp reconfigurations, which provide additional route choice and access from the Selmon Expressway.

Safety

Safety and operational concerns with the Florida Avenue and Channelside Drive off-ramps include a substandard radius and a free-flow merge movement onto Florida Avenue with a sidewalk/crosswalk conflict. The ramp termini onto Channelside Drive terminates into a 5-leg intersection at Channelside Drive and Morgan Street, which is a major pedestrian access point to the Amalie Arena. Six (6) years of data (2013-2018) were reviewed, and 14 crashes have occurred at this ramp. As the Water Street Project builds out to the east of the ramp system, the adverse impact of geometric issues and pedestrian conflicts are expected to be exacerbated. Also, the planned widening of the Selmon Expressway south of the downtown ramps will alleviate congestion issues and result in higher speed, higher volume interactions at this ramp. As such, improving the ramp geometry, eliminating pedestrian conflicts, and redirecting Downtown east traffic beyond the Water Street District is critical to proactively address safety concerns as both the Selmon Expressway and Downtown Tampa continue to develop.

Transportation Demand

Based upon the Tampa Bay Regional Planning Model (TBRPM) Version 8.2, Jefferson Street (39,000 AADT) and Kennedy Boulevard (AADT 34,000) are expected to reach their operational capacity by 2040. As the Water Street Project develops, the vehicle demand is expected to increase. The proposed connection of Whiting Street could carry up to 14,800 AADT, providing valuable route divergence and congestion relief to the parallel facilities.

1.3 Preferred Alternative

THEA has committed to provide a new connection to Meridian Avenue, by extending Whiting Street between Meridian Avenue and Brush Street. In order to construct the extension of Whiting Street, the existing railroad tracks will need to be removed. Removing the railroad tracks and completing the extension to Meridian Avenue will offer an additional connection within the street network, providing additional route choice and alleviating congestion.

The preferred alternative proposes improvements to existing ramp configurations and the existing street network at multiple locations in the Downtown/Channelside area. The improvements can be broken up into four distinct locations. See **Figure 1.2** for each location of proposed improvements.

Figure 1.2: Project Area Location Map

Location A

Whiting Street currently ends at Brush Street, west of the railroad tracks. The preferred alternative proposes to extend Whiting Street, from Brush Street to Meridian Avenue, with a new signal at the T-intersection of Whiting Street and Meridian Avenue. The proposed typical section for the Whiting Street extension includes two 11-foot wide travel lanes in each direction, a 15-foot wide raised median, curb and gutter, and 10-foot

wide sidewalks on both the north and south sides of the road. The eastbound approach to Meridian Avenue includes two 11-foot wide dedicated left turn lanes and one 11-foot wide dedicated right turn lane. If necessary, the proposed 15-foot wide raised median can be converted to an additional dedicated left turn lane in the future. The existing grassed median on Meridian Avenue will be split in order to accommodate the proposed signalized intersection. The preferred alternative includes the addition of a southbound dedicated right turn lane and a northbound dedicated left turn lane. The preferred alternative does not propose any other improvements to Meridian Avenue.

Location B

Whiting Street, between Jefferson Street and Brush Street, is currently a two-lane roadway with on-street parking on both the north and south sides of the road. East of the Selmon Expressway, Whiting Street is a brick road in much need of repair. The preferred alternative proposes to widen/reconstruct Whiting Street from two to four lanes with two 11-foot wide travel lanes in each direction, curb and gutter, and 10-foot wide sidewalks on both the north and south sides of the road. The preferred alternative also includes installing two new traffic signals; one at the intersection of Whiting Street and the terminus of the proposed Whiting off-ramp, just east of the Selmon Expressway, and the other at the intersection of Whiting Street and Brush Street. A dedicated eastbound left turn lane is proposed at the intersection of Whiting Street and Brush Street.

Location C

The existing exit ramp 6B provides users the ability to travel east along Channelside Drive, towards Amalie Arena and the Florida Aquarium. The preferred alternative proposes relocating exit ramp 6B approximately 700 feet north and providing a direct connection to Whiting Street. The proposed ramp includes a single 15-foot wide ramp lane, which will remain on structure beyond the existing Jefferson Street on ramp. From this point the ramp profile begins to decrease and the ramp will be supported by Mechanically Stabilized Earth (MSE) wall, which ends approximately 100 feet south of Whiting Street. The ramp widens to three 12-foot wide lanes at the intersection, with one dedicated left turn lane and two dedicated right turn lanes. The proposed ramp will cut off access north, along Nebraska Avenue, and therefore requires a horizontal curve to connect Nebraska Avenue to Finley Street. The existing Jefferson Street on ramp entrance will be shifted to the north to accommodate the new Whiting Street off-ramp.

Location D

The current configuration of exit ramp 6A includes a tight single lane loop ramp that merges onto Florida Avenue under a free-flow condition. The short, tight curve provides little room for vehicles to slow down and queue if there is any backup when trying to merge onto Florida Avenue. The preferred alternative proposes widening the ramp from one to two lanes as well as lengthening the ramp to provide a wider curve. The loop ramp terminates at Florida Avenue at a proposed signalized intersection. The proposed loop ramp includes two 12-foot wide ramp lanes and will remain on structure beyond the existing exit ramp 6B to provide an open area underneath for mixed use and to promote pedestrian travel. Approximately 300 feet north of Florida Avenue, the ramp widens to three lanes to provide more vehicle storage and efficient

queue dispersion onto Florida Avenue. The increased ramp length as well as the additional lanes will minimize backup and potential vehicle queueing onto the Selmon Expressway. The preferred alternative includes a 10-foot wide sidewalk on the inside edge of the proposed loop ramp, crossing underneath the ramp at the location of the existing exit ramp 6B. Pedestrians will have the ability to cross the loop ramp, to access Channelside Drive, at a proposed crosswalk. No right of way is required to construct the proposed loop ramp.

Please refer to **Appendix A** for the Preferred Alternative Concept Plans.

2.0 Introduction

2.1 Existing Conditions

2.1.1 Roadway

The Selmon Expressway is a limited access facility through the Downtown East/West interchange area, with a posted speed limit of 55 miles per hour (mph). Additionally, the Selmon Expressway is part of the Florida Department of Transportation (FDOT) Strategic Intermodal System (SIS). At the Downtown East/West interchange, Florida Avenue has a 30 mph posted speed limit and Channelside Drive has a posted speed limit of 40 mph. Currently, the Selmon Expressway provides off-ramp access to Florida Avenue and Channelside Drive within the project limits.

Whiting Street is a two-lane, non-continuous roadway that terminates at Brush Street. Whiting Street is currently an east-west arterial with discontinuity from Brush Street to Meridian Avenue. East of Meridian Avenue, Whiting Street picks up again, providing access to the Channelside District.

2.1.2 Drainage

The study area is located within the Ybor City Drain drainage basin in Downtown Tampa, which is rapidly developing and has limited open land. The entire study area is within the jurisdiction of the Southwest Florida Water Management District (SWFWMD). Ybor City Drain is defined as Water Body ID (WBID) 1584A1 by the Florida Department of Environmental Protection (FDEP) and is verified as impaired for fecal coliform on the current FDEP 303(d) Impaired Waters List. There are no Outstanding Florida Waters (OFW) within the project limits.

Drainage within the study area is accomplished through collection and conveyance by vertical pipes connected to the bridge piles, open roadside ditches, side drains, ditch bottom inlets and cross drains.

The project limits cross two stormwater basins, Basin 100 and Basin 200. General information about each of these basins is described below. The existing drainage map is provided in **Appendix B**.

Basin 100

Basin 100 extends from the bridge over the Hillsborough River to east of Morgan Street in downtown Tampa. Runoff from the expressway in this basin typically is conveyed from the overpass to a storm sewer system on the ground level by vertical pipes connected to the bridge piles. The vertical pipes are connected to the storm drain system via 6" DIP. Runoff from the storm drain system on the ground level travels westward before discharging into the Hillsborough River via a 42" pipe. No existing stormwater management facilities exist within this basin.

Basin 200

Basin 200 extends from east of Morgan Street to the end of the project limits and includes Whiting Street and Meridian Avenue. Bridge deck runoff from the expressway in this basin is typically conveyed to a storm drain system on the ground level by vertical pipes connected to the expressway's structural piles. The storm drain system conveys runoff northeast, before turning south and discharging into the Garrison Channel via an 8'x5' concrete box culvert. Runoff from Meridian Avenue is collected by an existing storm drain system and conveyed to an existing stormwater management facility (Pond 2) constructed under SWFWMD ERP No. 441660.032 for the Meridian Avenue improvements. Runoff from the west end of Whiting Street is collected by an existing storm drain system and conveyed north along Jefferson Street, west along Jackson Street and, ultimately, to the Jackson Street Basin outfall at the Hillsborough River. A portion of the east end of Whiting Street is collected by an existing storm drain system and conveyed north along Brush Street, west along Jackson Street and, ultimately, to the Jackson Street Basin outfall at the Hillsborough River. The remaining portion of Whiting Street flows to an existing concrete ditch on the north side of existing Pond 2. The ditch flows east and then south along the west side of the existing railroad to a ditch bottom inlet. The ultimate outfall for both existing Pond 2 and the concrete ditch is the Garrison Channel via a 60" pipe.

2.1.3 Soils

The United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) soil survey for the area is included in **Appendix C**. This survey indicates that the soils along the project alignment consist of Urban Land, 0 to 2 percent slopes (56). Urban Land (56) comprises of up to 85 percent impervious surfaces such as asphalt and concrete. Urban land (56) surfaces are covered by streets, parking lots, buildings and other structures. Most areas classified as Urban land (56) are artificially drained by sewer systems, gutters and other man-made drainage systems. Annual precipitation as well as depth to seasonal high water table in naturally drained areas are not reported by the USDA on soils consisting of Urban Land.

2.1.4 Land Use

The existing land use data reported by Plan Hillsborough reveals a variety of land uses within ½ mile of the proposed project corridor. These land uses and their respective acreages are summarized according to land use designations in **Table 2.1** and are provided graphically in **Figure 2.3**. As shown, the majority of existing land use types within a ½ mile of the project corridor are public/quasi-public/institutions, light commercial, and multi-family.

Table 2.1: Existing Land Use

Description	Acres	% Total
Educational	11	2
Heavy Commercial	1	<1
Heavy Industrial	27	5
Light Commercial	122	20
Light Industrial	19	3
Multi-Family	98	16
Public / Quasi-Public / Institutions	220	37
Public Communications / Utilities	7	1
Right of Way / Roads / Highways	48	8
Single Family / Mobile Home	9	2
Two Family	1	<1
Vacant	39	6
Total:	**602**	**100**

Note: Existing land use data represents year 2021.
Source: Plan Hillsborough, June 2021.

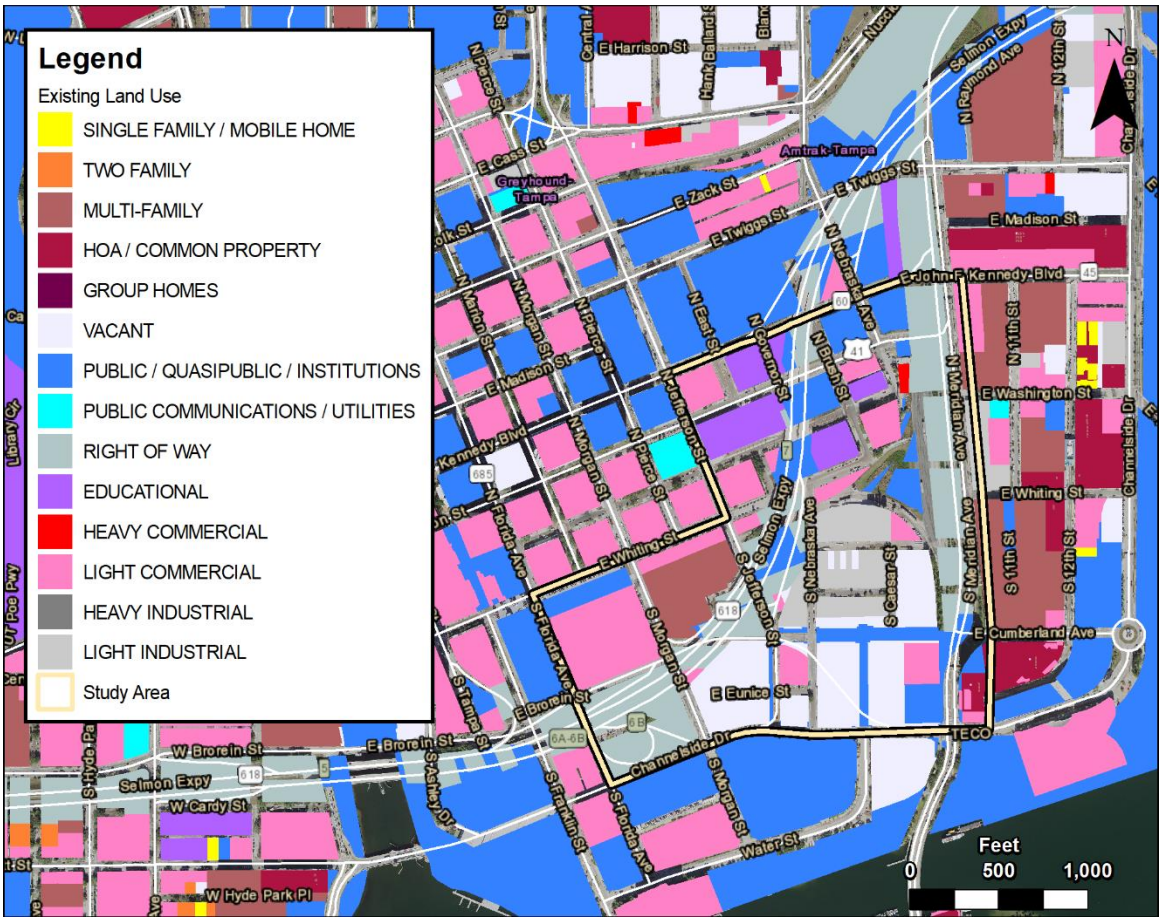


Figure 2.3: Existing Land Use Map

2.1.5 Flooding History

Runoff from Whiting Street and other adjacent properties drains east and flows through the concrete-lined ditch at the east end of Whiting Street, on the north side of the existing stormwater management facility constructed for the Meridian Avenue improvements. The ditch flows east and then south along the west side of the existing railroad to a ditch bottom inlet, ultimately discharging into Garrison Channel. This ditch washed out fill under the railroad tracks several times; consequently, THEA lined the railroad ditch with fabriform. No flooding of existing roadways has occured.

Figure 2.4: Existing Flooding

2.1.6 FEMA Floodplains

The Federal Emergency Management Agency (FEMA) has designated locations of the 100-year base floodplain within the project corridor as shown on Flood Insurance Rate Map (FIRM) Number 12057C0354H (Effective Date: August 28, 2008). Based on a recent floodplain update, FIRM Number 12057C0354J (Map Revised Date: October 7, 2021) is available. Both maps are included in **Appendix D**.

The majority of the study limits are outside of the floodplain. Portions of the project along Florida Avenue, Finley Street and the east end of the Whiting Street extension are within Zone X, defined as areas of 0.2% (500-year) annual chance flood hazard; areas of 1% annual chance flood with average depth less than one

foot or with drainage areas of less than one square mile. The portion of the project along Meridian Avenue is within Zone AE (11) and Zone AE (12), defined as areas of special flood hazard with base flood elevations determined. Based on previous permitting, these 100-year flood elevations are associated with a tidal storm surge. Flood elevations are referenced to the North America Vertical Datum of 1988 (NAVD 88).

There are no FEMA regulatory floodways located within the project limits.

2.1.7 Existing Permits

19654.008 – Lee Roy Selmon Expressway Bridge Widening and Deck Replacement

This permit was a standard general permit for improvements to the Selmon Expressway from west of Morgan Street to 22nd Street, which encompasses the northern end of the Whiting Street PD&E Study. The project involved widening from four to six lanes in this area and replacing bridge decks. The permit was issued on 5/15/2012.

1660.032 - Hillsborough County Meridian Avenue Pond 2 Modification

This permit was a standard general permit for improvements to Meridian Avenue from Channelside Drive to Twiggs Street. The project involved widening from a two lane to a six lane divided roadway with a wide pedestrian sidewalk and a 10-ft bicycle trail. A wet detention pond (Pond 2), located west of Meridian Avenue, just south of Whiting Street, was constructed to provide water quality treatment. The permit was issued on 6/13/2005 and permit information is included in **Appendix E**.

42679.000 City of Tampa Waterfront District

This permit is a Redevelopment Conceptual Permit for re-development within the Waterfront District, which is located within the City of Tampa's Downtown Core Community Redevelopment Area. The project site is located north and east of the Amalie Arena in downtown Tampa, Hillsborough County. The provided conceptual stormwater management plan identifies ten (10) on-site post-development drainage sub-basins and establishes the existing annual nutrient loadings within the redevelopment boundary. Conceptual approval also includes the realignment of multiple roadways, and the preliminary design and placement of nutrient separating baffle boxes. Runoff from the proposed project area discharges into Garrison Channel which is a part of Tampa Bay. Direct discharges to the tidal waters of Tampa Bay do not require attenuation. In addition, floodplains mapped within and adjacent to the project boundary are the result of coastal flood surge and no compensation for impacts to the floodplain are required.

The permit was issued on 10/11/2016 and permit information is included in **Appendix E**.

2.2 Proposed Conditions

The preferred alternative proposes improvements to existing ramp configurations and the existing street network at multiple locations in the Downtown/Channelside area.

Within Basin 100, the preferred alternative proposes widening exit ramp 6A from one to two lanes, as well as lengthening the ramp to provide a wider curve. The loop ramp terminates at Florida Avenue at a

proposed signalized intersection. The proposed loop ramp includes two 12-foot wide ramp lanes and will remain on structure beyond the existing exit ramp 6B to provide an open area underneath for mixed use and to promote pedestrian travel. Approximately 300 feet north of Florida Avenue, the ramp widens to three lanes to provide more vehicle storage and efficient queue dispersion onto Florida Avenue. The preferred alternative includes a 10-foot wide sidewalk on the inside edge of the proposed loop ramp, crossing underneath the ramp at the location of the existing exit ramp 6B. No right of way is required to construct the proposed loop ramp.

Within Basin 200, the proposed conditions consist of the following:

The preferred alternative proposes to extend Whiting Street, from Brush Street to Meridian Avenue, with a new signal at the T-intersection of Whiting Street and Meridian Avenue. The proposed typical section for the Whiting Street extension includes two 11-foot wide travel lanes in each direction, a 15-foot wide raised median, curb and gutter, and 10-foot wide sidewalks on both the north and south sides of the road. The eastbound approach to Meridian Avenue includes two 11-foot wide dedicated left turn lanes and one 11-foot wide dedicated right turn lane. The preferred alternative includes the addition of a southbound dedicated right turn lane and a northbound dedicated left turn lane. The preferred alternative does not propose any other improvements to Meridian Avenue.

The preferred alternative proposes to widen/reconstruct Whiting Street from two to four lanes with two 11-foot wide travel lanes in each direction, curb and gutter, and 10-foot wide sidewalks on both the north and south sides of the road. The preferred alternative also includes installing two new traffic signals; one at the intersection of Whiting Street and the terminus of the proposed Whiting off-ramp, just east of the Selmon Expressway, and the other at the intersection of Whiting Street and Brush Street. A dedicated eastbound left turn lane is proposed at the intersection of Whiting Street and Brush Street.

The preferred alternative proposes relocating exit ramp 6B approximately 700 feet north and providing a direct connection to Whiting Street. The proposed ramp includes a single 15-foot wide ramp lane, which will remain on structure beyond the existing Jefferson Street on ramp. From this point the ramp profile begins to decrease and the ramp will be supported by Mechanically Stabilized Earth (MSE) wall, which ends approximately 100 feet south of Whiting Street. The ramp widens to three 12-foot wide lanes at the intersection, with one dedicated left turn lane and two dedicated right turn lanes. The existing Jefferson Street on ramp entrance will be shifted to the north to accommodate the new Whiting Street off-ramp.

3.0 Design Requirements

All stormwater management facilities and drainage systems that result from any of the build alternatives must be designed to meet certain criteria and regulations. Governing drainage design criteria from agencies with jurisdiction of this area are the SWFWMD and FDEP. In addition, the design will comply with the FDOT design standards.

A pre-application meeting was held with SWFWMD on January 26, 2022. Please refer to **Appendix E** for the meeting notes. The various SWFWMD regulations regarding drainage design are separated into three categories: water quality, water quantity and floodplain mitigation design requirements. Table 3 summarizes these design requirements. Key design criteria are summarized below.

3.1 Water Quality

Two separate water quality requirements affect this project. These criteria are referred to as the presumptive water quality treatment requirement and the net nutrient improvement requirement. The SWFWMD presumptive requirement states that either 0.5 inches or 1.0 inch of runoff, for dry retention or wet detention ponds, respectively, must be stored and treated from any additional impervious area. The required treatment volume was calculated for each basin (1-inch over the area of new roadway impervious area).

Additionally, no net increase in nutrient loading (e.g. nitrogen and phosphorus) is required by the SWFWMD and the Florida Department of Environmental Protection (FDEP) for nutrient-impaired basins. The project lies within the FDEP Water Body Identification number (WBID) 1443E (Hillsborough River - Basin 100) and WBID 1584A1 (Ybor Channel - Basin 200). Review of the FDEP Final Verified Lists for Group 1 Basins shows that WBID 1443E is not meeting standards for Dissolved Oxygen (DO) and is impaired for metals. WBID 1584A1 is only impaired for fecal coliforms, which is not considered a nutrient impairment.

Therefore, Basin 100 will require net improvement. For Basin 200, presumptive water quality requirements will control the design.

3.2 Water Quantity

The SWFWMD rules dictated the use of the 25-year/24-hour design storm event. The NRCS method was used to calculate pre-development and post-development runoff volumes. The runoff volume difference between pre-development and post-development conditions was used to determine the pond volume required for attenuation of the design storm event. The attenuation volume calculated was added to the required treatment volume to size each pond alternative. The design analysis is strictly a Volumetric Analysis for the purposes of this report (see Appendix F – Stormwater Management Calculations).

Since the outfall for Basin 100 includes City of Tampa streets, Pond 100 must attenuate the post-development 25-year storm to the pre-development 5-year storm to meet City of Tampa requirements.

For Basin 200, the existing outfall to Garrison Channel will be utilized; therefore, water quantity attenuation is not required since the discharge is to a tidally-influenced waterbody without restrictions, resulting in no adverse impacts.

Table 3.2: Drainage Design Criteria

Design Control	Value	Source
Presumptive Water Quality Treatment	Wet Detention: Treat 1" over Increase in Impervious Area Dry Retention: Treat 0.5" over Increase in Impervious Area	SWFWMD
Net Nutrient Improvement	Net reduction in nutrients must be met for discharges into impaired waters	SWFWMD/FDEP
Historic Basin Storage	Any existing storage capacity in existing depressional areas must be replaced or mitigated	SWFWMD
Water Quantity Attenuation	<25-yr/24-hr Design Storm Peak Discharge Rate (cfs) 25-yr/24-hr < 5-yr/24-hr Design Storm Peak Discharge Rate (cfs)	SWFWMD City of Tampa
Retention Pond Recovery	Dry Systems: Treatment volume shall be available within 72 hours; volume available within 36 hours can be counted for water quantity storage Wet Systems: Bleed ½ the treatment volume in 60 hours, all treatment volume in no less than 120 hours	SWFWMD
Side Slope Criteria	Retention and detention areas should have side slopes no steeper than 1:4 (V:H) unless protected or 2' below NWL	SWFWMD

3.3 Required Treatment and Attenuation Volumes

The following table presents the estimated treatment and attenuation volumes required for the construction of the Preferred Alternative.

Table 3.3: Required Treatment and Attenuation Volumes

Basin No.	Treatment Volume Required (ac-ft)	Treatment Volume Required due to Storage Lost (ac-ft)	Attenuation Volume Required due to Added Impervious Area (ac-ft)	Notes
100	0.07	-	0.48	City of Tampa Outfall
200	0.20	1.13	-	Existing Pond 2
Totals:		**1.40**	**0.48**	

Treatment volumes were estimated to meet net improvement for Basin 100 and the presumptive water quality criteria for Basin 200. The required treatment volumes in Table 3.3 are separated into two categories:

- Required due to increases in impervious area
- Required due to SWM facilities that were impacted and must be replaced

Attenuation volumes were estimated as follows:

- Basin 100 must attenuate the post-development 25-year storm to the pre-development 5-year storm to meet City of Tampa requirements.
- Basin 200 does not impact any City of Tampa drainage systems and discharges to a tidal outfall; therefore, attenuation is not required.

The total required volumes for the project are 1.40 acre-feet of required treatment and 0.48 acre-feet of required attenuation.

Please refer to **Appendix F** for the stormwater management calculations.

3.4 Floodplain Impacts

The majority of the study limits are outside of the floodplain. Portions of the project along Florida Avenue, Finley Street and the east end of the Whiting Street extension are within Zone X, defined as areas of 0.2% (500-year) annual chance flood hazard; areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile. Impacts to Zone X floodplains do not require compensation.

The portion of the project along Meridian Avenue is within Zone AE (11) and Zone AE (12), defined as areas of special flood hazard with base flood elevations determined. The proposed improvements include connecting Whiting Street to Meridian Avenue and the addition of right and left turn lanes along Meridian Avenue at the new intersection. Based on previous permitting, these 100-year flood elevations are associated with a tidal storm surge. Therefore, floodplain compensation is not required.

4.0 Proposed Drainage Conditions

The stormwater management approach considered in this section aims to make use of all available right-of-way within each basin to provide the required treatment and attenuation volumes.

4.1 Stormwater Management

Existing flow patterns will be maintained, and stormwater management facilities will be utilized to provide the necessary stormwater management. It is assumed that any existing offsite stormwater runoff will be "passed through" the proposed ponds, where necessary, with no additional treatment required. Weir structures and pipes must be sized to accommodate the additional offsite flows passing through the proposed ponds. The following subsections provide an outline of the stormwater management approach used to meet treatment and attenuation requirements for the project.

Please refer to **Appendix C** for the Geotecnical Information, **Appendix F** for the stormwater management calculations, and **Appendix G** for the Preferred Pond Alternatives.

4.1.1 Basin 100

Basin 100 extends from the bridge over the Hillsborough River to east of Morgan Street in downtown Tampa. The proposed improvements associated with the preferred alternative will generate approximately 0.83 acres of new pavement within this basin. Compensatory treatment will be utilized by directing an area of pavement to the pond that is equivalent to the new impervious area. These improvements require a treatment volume of 0.07 ac-ft. and a required attenuation volume of 0.48 ac-ft. A wet detention pond will be utilized to provide the required treatment and attenuation volumes. The Seasonal High Groundwater Table (SHWT) was estimated to be four (4) feet deep, at an elevation of 12.1 feet, NAVD 88. Runoff from the expressway in this basin is conveyed to a storm drain system on the ground level by vertical pipes connected to the bridge piles and travels westward before discharging into the Hillsborough River via a 42" pipe. The total area required for Pond 100 is 0.50 acres.

4.1.2 Basin 200

Basin 200 extends from east of Morgan Street to the end of the project limits and includes Whiting Street and Meridian Avenue. The proposed improvements associated with the preferred alternative will generate approximately 2.35 acres of new pavement within this basin. Compensatory treatment will be utilized by directing an area of pavement to the pond that is equivalent to the new impervious area. These improvements require a treatment volume of 0.20 ac-ft. In addition, it is anticipated that future development will impact the existing stormwater pond (Pond 2), constructed under SWFWMD ERP No. 441660.032, in its entirety. To accommodate this future development and the improvements along the Selmon Expressway off-ramp (Ramp 6B) to Whiting Street, along Whiting Street, and along Meridian Avenue, it is assumed that the existing stormwater pond (Pond 2) will be replaced and enlarged. The permitted treatment volume for Pond 2 is 1.13 ac-ft. Therefore, the total treatment volume required for Basin 200 is 1.33 ac-ft. The SHWT

was estimated to be four (4) feet deep, at an elevation of 13.0 feet, NAVD 88. The new stormwater management facility will be comprised of four interconnected wet detention ponds (200-1 through 200-4) to provide the total required treatment volume. All four ponds will require impermeable pond liners to lower the control elevation to 3.0', which is below the measured SHWT elevation. It should be noted that existing Pond 2 includes a pond liner. The existing outfall to Garrison Channel will be utilized; therefore, water quantity attenuation is not required since the discharge is to a tidally-influenced waterbody without restrictions, resulting in no adverse impacts. The total pond area required for Basin 200 is 1.90 acres. ***This pond area considers improvements associated with this Whiting Street PD&E Study only and does not include stormwater needs of the future street grid.*** In addition, since all proposed ponds are within THEA right-of-way, there should be no impacts to the City of Tampa Waterfront Permit.

Table 4.4: Provided Treatment and Attenuation Volumes in Ponds

Basin No.	Pond Name	Treatment Volume Required (ac-ft)	Treatment Volume Provided (ac-ft)	Attenuation Volume Required (ac-ft)	Attenuation Volume Provided (ac-ft)
100	100	0.07	0.08	0.48	0.49
200	200-1 200-2 200-3 200-4	1.33	0.12 0.44 0.69 0.14	0.0	0.0
	Totals:	***1.40***	***1.47***	***0.48***	***0.49***

4.2 Drainage Design Considerations

Existing flow patterns will be maintained in the proposed condition.

4.2.1 Basin 100

The new storm drain system and the discharge from Pond 100 will be connected to the existing outfall system along Florida Avenue.

4.2.2 Basin 200

The existing rail lines and the concrete ditch in Basin 200 will be removed. It is assumed that flow currently accommodated in the concrete ditch, including runoff from Whiting Street and offsite flow from the rail lines north of Whiting Street, will be collected by a storm drain system along Whiting Street.

The discharge from Pond 200 system will be connected to the existing outfall system to Garrison Channel. Pipe sizes along the outfall should be checked to ensure that the discharge from the ponds can be accommodated.

Appendices

Appendix A

PREFERRED ALTERNATIVE CONCEPT PLANS

MORGAN STREET

JEFFERSON STREET

WASHINGTON STREET

BRUSH STREET

MERIDIAN AVENUE

WHITING STREET

0 20 150
Feet

B

A

C

FINLEY STREET

NEBRASKA AVENUE

WALTON STREET

CUMBERLAND AVENUE

MORGAN STREET

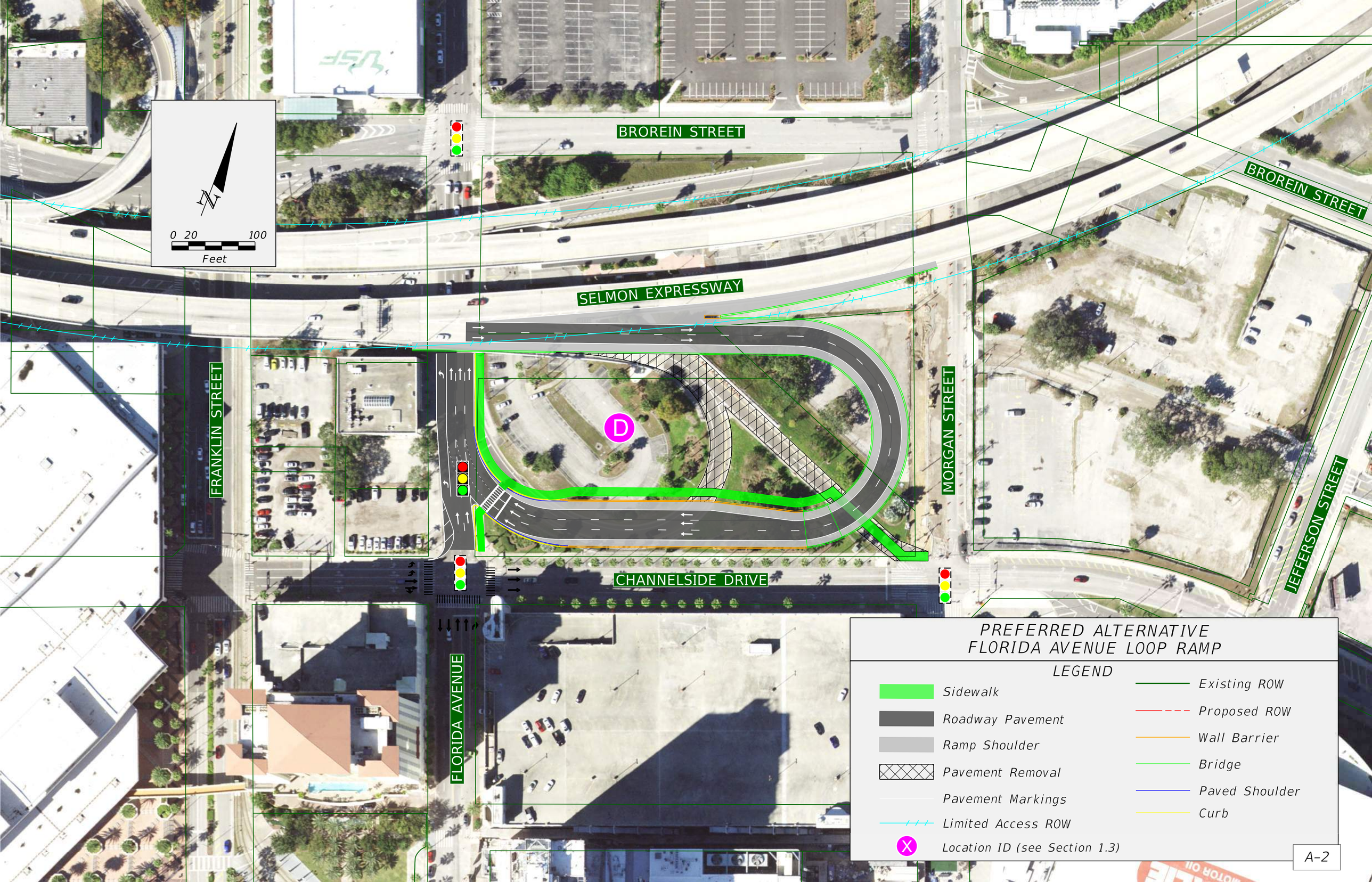
JEFFERSON STREET

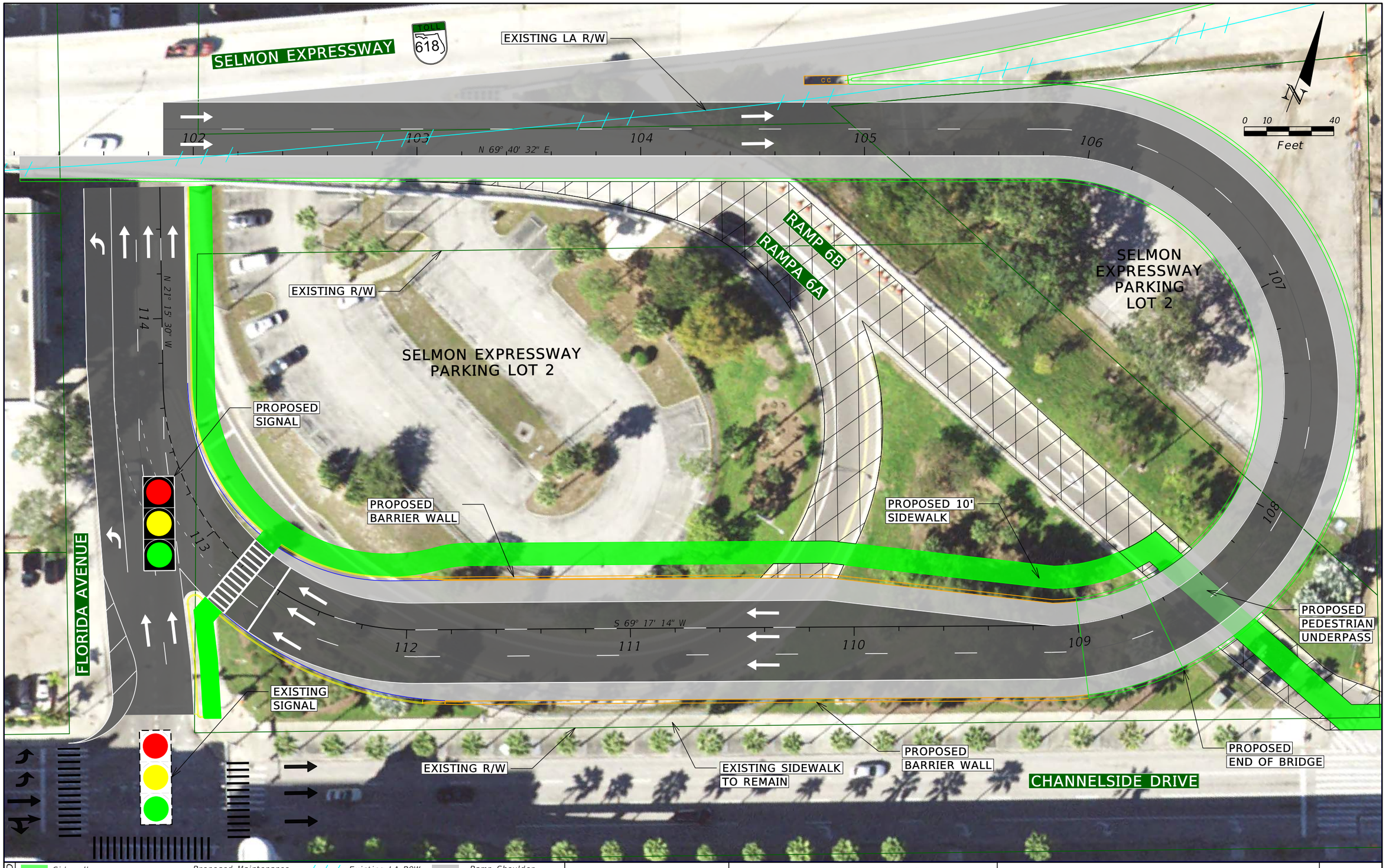
WHITING STREET

PREFERRED ALTERNATIVE
WHITING STREET IMPROVEMENTS

LEGEND

- Sidewalk
- Roadway Pavement
- Ramp Shoulder
- Grass
- Traffic Separator / Raised Median
- Pond
- Proposed Maintenance Agreement
- Proposed Roadway Limits of Construction
- Existing ROW
- Proposed ROW
- Wall Barrier
- Bridge
- Paved Shoulder
- Pavement Markings
- Curb
- Pavement Removal
- Limited Access ROW
- X Location ID (see Section 1.3)


BROREIN STREET
SELMON EXPRESSWAY
BROREIN STREET
FRANKLIN STREET
MORGAN STREET
JEFFERSON STREET
CHANNELSIDE DRIVE
FLORIDA AVENUE
D
N
0 20 100
Feet
PREFERRED ALTERNATIVE
FLORIDA AVENUE LOOP RAMP
LEGEND
Sidewalk
Roadway Pavement
Ramp Shoulder
Pavement Removal
Pavement Markings
Limited Access ROW
Location ID (see Section 1.3)
Existing ROW
Proposed ROW
Wall Barrier
Bridge
Paved Shoulder
Curb
A-2



LEGEND

- Sidewalk
- Travel Lanes
- Grass
- Traffic Separator/ Raised Median
- Proposed Maintenance Agreement
- Proposed Roadway Limits of Construction
- Existing ROW
- Proposed ROW
- Existing LA ROW
- Wall Barrier
- Bridge
- Curb
- Ramp Shoulder
- Pavement Removal
- High Level Contamination
- Medium Level Contamination

H.W. LOCHNER, INC.
4350 W. CYPRESS STREET - SUITE 800
TAMPA, FL 33607
CERTIFICATE OF AUTHORIZATION #894

TAMPA HILLSBOROUGH EXPRESSWAY AUTHORITY

ROAD NO.	COUNTY	FINANCIAL PROJET ID
SR 618	HILLSBOROUGH	HI-0141

PREFERRED ALTERNATIVE CONCEPT PLAN SHEET

SHEET NO. A-3

EXISTING LA R/W

PROPOSED RELOCATED
EXIT RAMP 6B

200 201 202 203 204 205

N 49° 34' 00" E

SELMON EXPRESSWAY

TOLL 618

0 10 40
Feet

EXISTING R/W

EXISTING LA R/W

PROPOSED RAMP
STRUCTURE

EXISTING R/W

BROREIN STREET

EXISTING R/W

EXISTING SIGNAL

AMALIE ARENA
TEAL PARKING LOT

EUNICE STREET

JEFFERSON STREET

MATCHLINE SHEET 3

LEGEND

- Sidewalk
- Travel Lanes
- Grass
- Traffic Separator/ Raised Median
- Proposed Maintenance Agreement
- Proposed Roadway Limits of Construction
- Existing ROW
- Proposed ROW
- Existing LA ROW
- Wall Barrier
- Bridge
- Curb
- Ramp Shoulder
- Pavement Removal
- High Level Contamination
- Medium Level Contamination

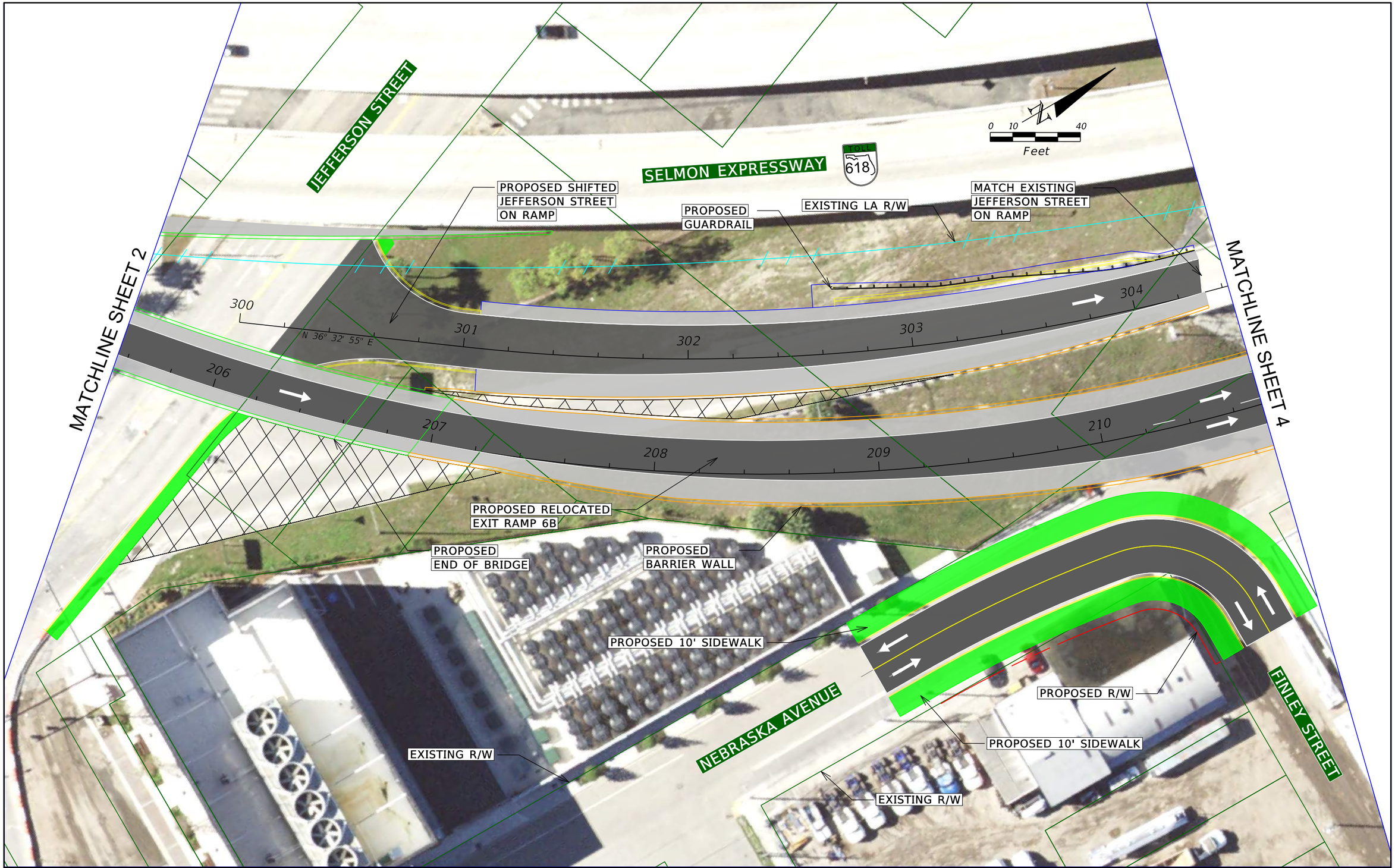
H.W. LOCHNER, INC.
4350 W. CYPRESS STREET - SUITE 800
TAMPA, FL 33607
CERTIFICATE OF AUTHORIZATION #894

TAMPA HILLSBOROUGH EXPRESSWAY AUTHORITY

ROAD NO.	COUNTY	FINANCIAL PROJET ID
SR 618	HILLSBOROUGH	HI-0141

PREFERRED ALTERNATIVE CONCEPT PLAN SHEET

SHEET NO. A-4



LEGEND

- Sidewalk
- Travel Lanes
- Grass
- Traffic Separator/ Raised Median
- Proposed Maintenance Agreement
- Proposed Roadway Limits of Construction
- Existing ROW
- Proposed ROW
- Existing LA ROW
- Wall Barrier
- Bridge
- Curb
- Ramp Shoulder
- Pavement Removal
- High Level Contamination
- Medium Level Contamination

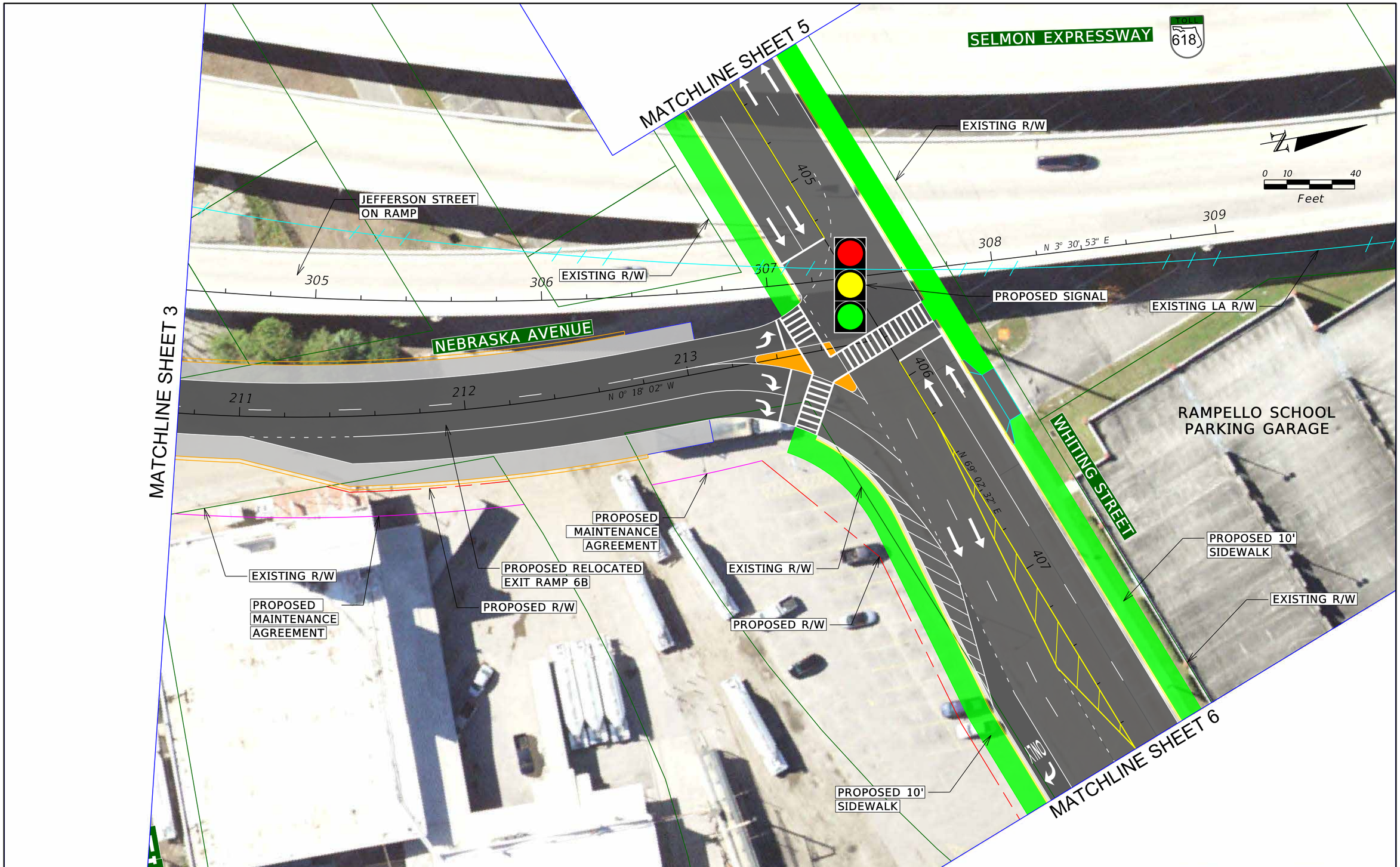
H.W. LOCHNER, INC.
4350 W. CYPRESS STREET - SUITE 800
TAMPA, FL 33607
CERTIFICATE OF AUTHORIZATION #894

TAMPA HILLSBOROUGH EXPRESSWAY AUTHORITY

ROAD NO.	COUNTY	FINANCIAL PROJET ID
SR 618	HILLSBOROUGH	HI-0141

PREFERRED ALTERNATIVE CONCEPT PLAN SHEET

SHEET NO. A-5



LEGEND

- Sidewalk
- Travel Lanes
- Grass
- Traffic Separator/ Raised Median
- Proposed Maintenance Agreement
- Proposed Roadway Limits of Construction
- Existing ROW
- Proposed ROW
- Existing LA ROW
- Wall Barrier
- Bridge
- Curb
- Ramp Shoulder
- Pavement Removal
- High Level Contamination
- Medium Level Contamination

H.W. LOCHNER, INC.
4350 W. CYPRESS STREET - SUITE 800
TAMPA, FL 33607
CERTIFICATE OF AUTHORIZATION #894

TAMPA HILLSBOROUGH EXPRESSWAY AUTHORITY

ROAD NO.	COUNTY	FINANCIAL PROJET ID
SR 618	HILLSBOROUGH	HI-0141

PREFERRED ALTERNATIVE CONCEPT PLAN SHEET

SHEET NO. A-6

ALLEGRA MARKETING
PRINT MAIL

THE ART OF
THE BRICK

JEFFERSON STREET

EXISTING SIGNAL

EXISTING R/W

PROPOSED 10'
SIDEWALK

N EAST STREET

0 10 40
Feet

WHITING STREET

400 401 402 403 404

MATCHLINE SHEET 4

PROPOSED 10'
SIDEWALK

EXISTING R/W

618

SELMON EXPRESSWAY

EXISTING LA R/W

EXISTING LA R/W

AURORA
APARTMENTS

JEFFERSON STREET

305

LEGEND

- Sidewalk
- Travel Lanes
- Grass
- Traffic Separator/ Raised Median
- Proposed Maintenance Agreement
- Proposed Roadway Limits of Construction
- Existing ROW
- Proposed ROW
- Existing LA ROW
- Wall Barrier
- Bridge
- Curb
- Ramp Shoulder
- Pavement Removal
- High Level Contamination
- Medium Level Contamination

H.W. LOCHNER, INC.
4350 W. CYPRESS STREET - SUITE 800
TAMPA, FL 33607
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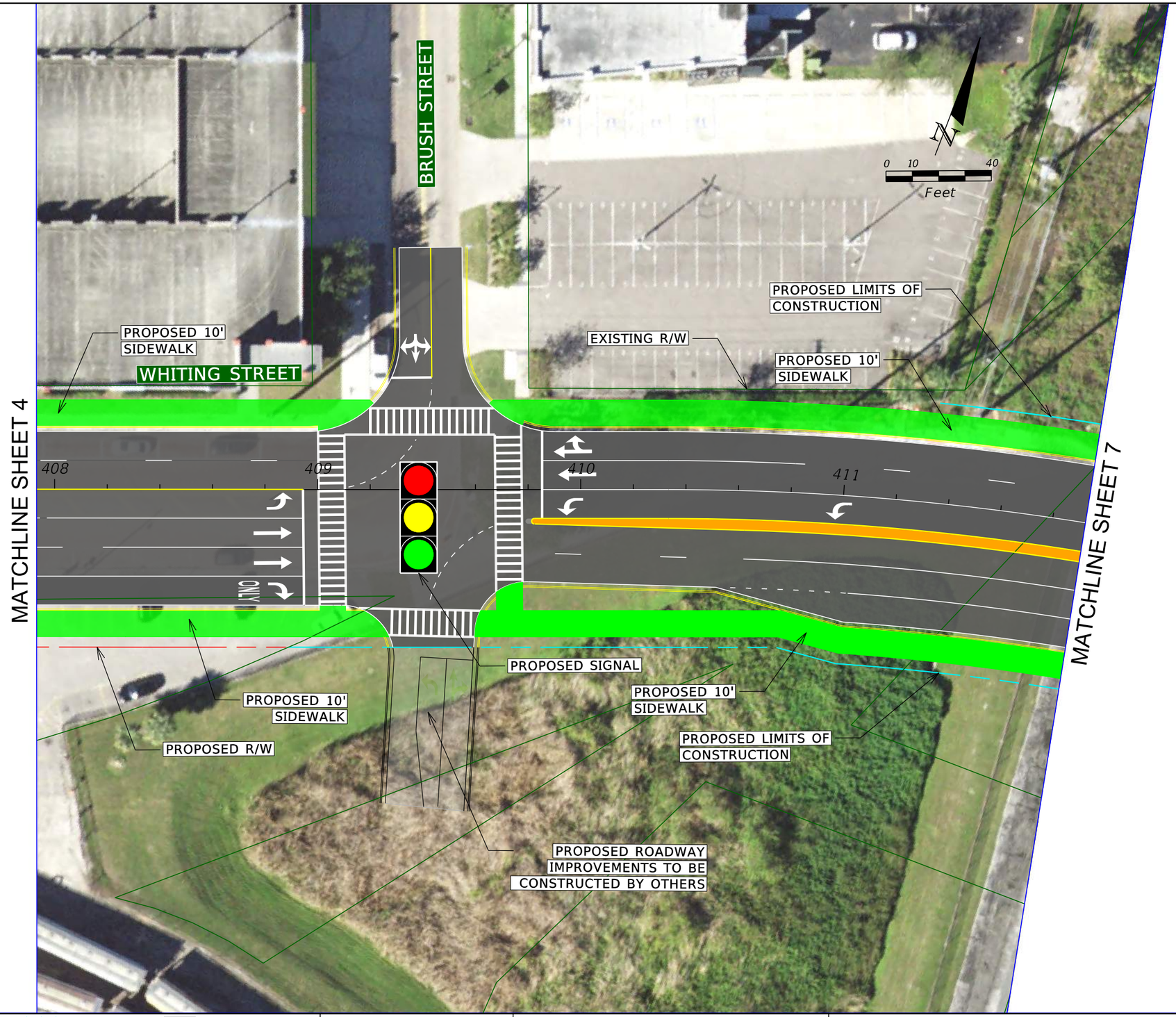
TAMPA HILLSBOROUGH EXPRESSWAY AUTHORITY

ROAD NO.	COUNTY	FINANCIAL PROJET ID
SR 618	HILLSBOROUGH	HI-0141

PREFERRED ALTERNATIVE CONCEPT PLAN SHEET

SHEET NO. A-7



LEGEND

- Sidewalk
- Travel Lanes
- Grass
- Traffic Separator/ Raised Median
- Proposed Maintenance Agreement
- Proposed Roadway Limits of Construction
- Existing ROW
- Proposed ROW
- Existing LA ROW
- Wall Barrier
- Bridge
- Curb
- Ramp Shoulder
- Pavement Removal
- High Level Contamination
- Medium Level Contamination

H.W. LOCHNER, INC.
4350 W. CYPRESS STREET - SUITE 800
TAMPA, FL 33607
CERTIFICATE OF AUTHORIZATION #894

TAMPA HILLSBOROUGH EXPRESSWAY AUTHORITY

ROAD NO.	COUNTY	FINANCIAL PROJET ID
SR 618	HILLSBOROUGH	HI-0141

PREFERRED ALTERNATIVE CONCEPT PLAN SHEET

SHEET NO. A-8

MATCHLINE SHEET 6

PROPOSED 10' SIDEWALK

PROPOSED LIMITS OF CONSTRUCTION

EXISTING RAILROAD TRACKS TO BE REMOVED

PROPOSED 12' SHARED USE PATH

MATCH EXISTING 12' SHARED USE PATH

PAUL'S AUTO AND COLLISION

0 10 40 Feet

WHITING STREET

412

413

414

ONLY

706 707 708 709 710 711

N 4° 02' 21" W

N 85° 57' 39" E

PROPOSED SIGNAL

EXISTING MEDIAN OPENING TO REMAIN

N MERIDIAN AVENUE

MATCH EXISTING N MERIDIAN AVENUE

EXISTING R/W

MATCHLINE SHEET 8

LEGEND

- Sidewalk
- Travel Lanes
- Grass
- Traffic Separator/ Raised Median
- Proposed Maintenance Agreement
- Proposed Roadway Limits of Construction
- Existing ROW
- Proposed ROW
- Existing LA ROW
- Wall Barrier
- Bridge
- Curb
- Ramp Shoulder
- Pavement Removal
- High Level Contamination
- Medium Level Contamination

H.W. LOCHNER, INC.
4350 W. CYPRESS STREET - SUITE 800
TAMPA, FL 33607
CERTIFICATE OF AUTHORIZATION #894

TAMPA HILLSBOROUGH EXPRESSWAY AUTHORITY

ROAD NO.	COUNTY	FINANCIAL PROJET ID
SR 618	HILLSBOROUGH	HI-0141

PREFERRED ALTERNATIVE CONCEPT PLAN SHEET

SHEET NO. A-9

PROPOSED ROADWAY IMPROVEMENTS TO BE CONSTRUCTED BY OTHERS

EXISTING RAILROAD TRACKS TO BE REMOVED

PROPOSED 12' SHARED USE PATH

MATCH EXISTING SHARED USE PATH

MATCH EXISTING N MERIDIAN AVENUE

EXISTING SIGNAL

N MERIDIAN AVENUE

EXISTING R/W

WHITING STREET

700 701 702 703 704 705

0 10 20 Feet

MATCHLINE SHEET 7

LEGEND

- Sidewalk
- Travel Lanes
- Grass
- Traffic Separator/ Raised Median
- Proposed Maintenance Agreement
- Proposed Roadway Limits of Construction
- Existing ROW
- Proposed ROW
- Existing LA ROW
- Wall Barrier
- Bridge
- Curb
- Ramp Shoulder
- Pavement Removal
- High Level Contamination
- Medium Level Contamination

H.W. LOCHNER, INC.
4350 W. CYPRESS STREET - SUITE 800
TAMPA, FL 33607
CERTIFICATE OF AUTHORIZATION #894

TAMPA HILLSBOROUGH EXPRESSWAY AUTHORITY

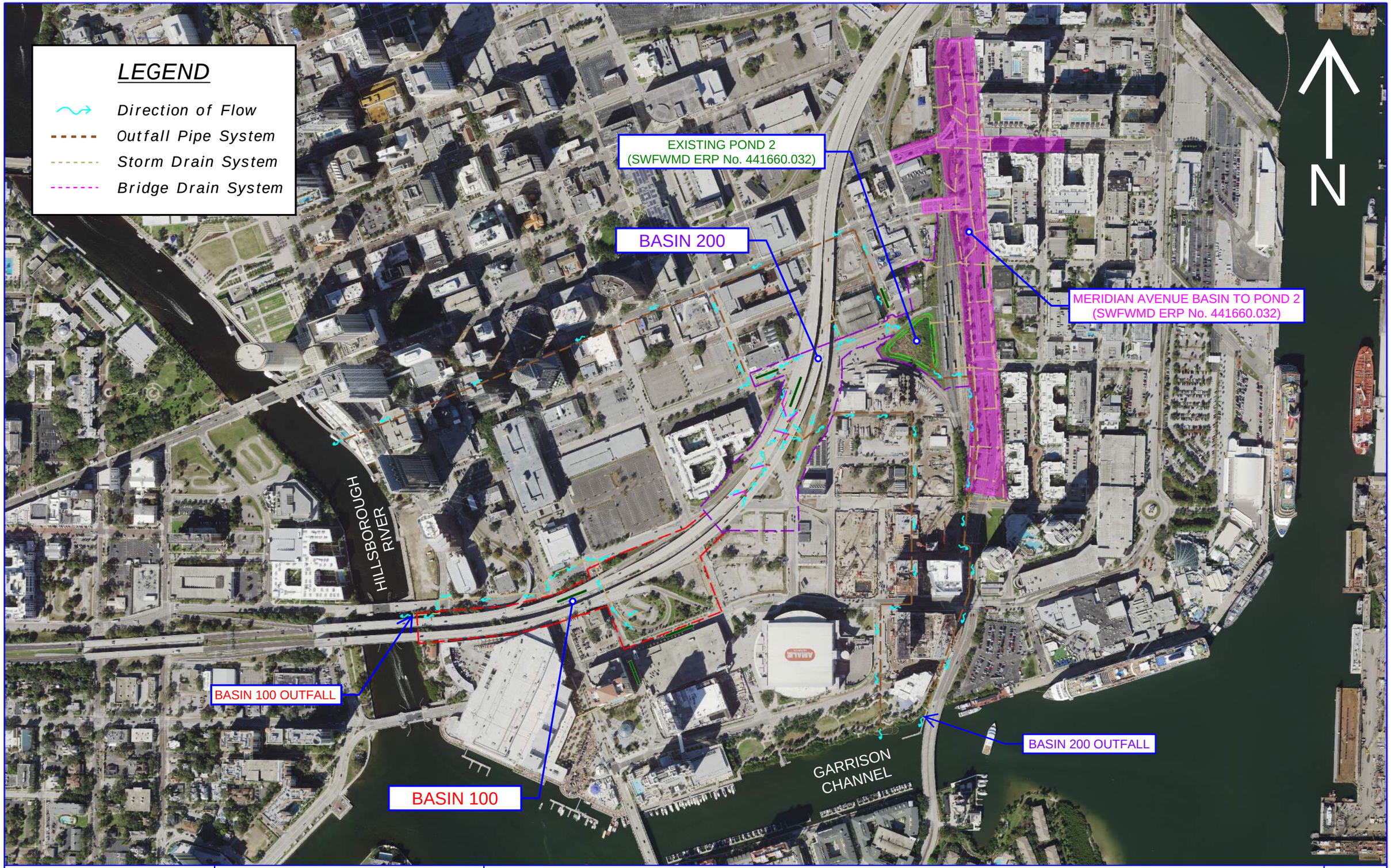
ROAD NO.	COUNTY	FINANCIAL PROJET ID
SR 618	HILLSBOROUGH	HI-0141

PREFERRED ALTERNATIVE CONCEPT PLAN SHEET

SHEET NO. A-10

Appendix B

EXISTING DRAINAGE MAP



H.W. LOCHNER, INC. 4350 W. CYPRESS STREET SUITE 800 TAMPA, FL 33607	TAMPA HILLSBOROUGH EXPRESSWAY AUTHORITY		
	ROAD NO.	COUNTY	THEA PROJECT NO.
	SR 618	HILLSBOROUGH	HI-0141

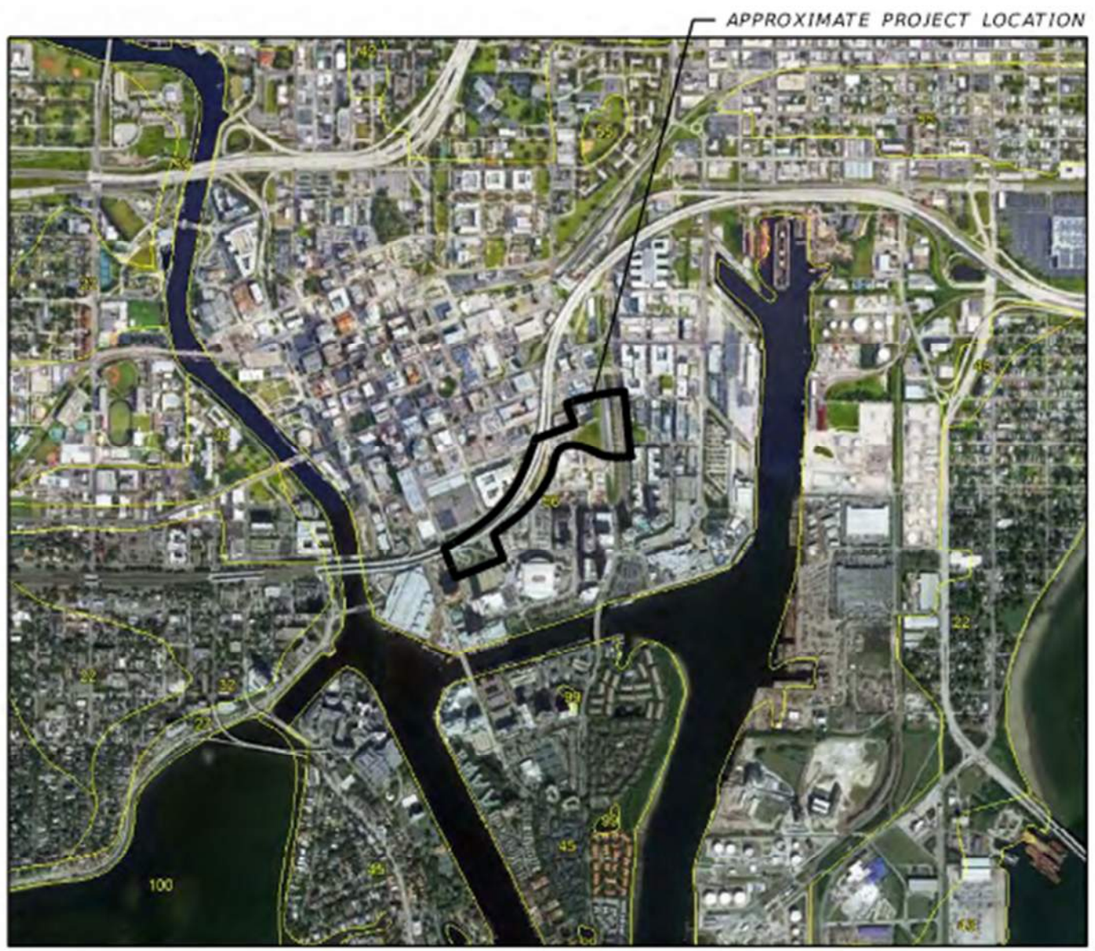
WHITING STREET PD&E STUDY EXISTING DRAINAGE MAP

SHEET NO.
B-1

Appendix C

GEOTECHNICAL INFORMATION

USDA SOIL SURVEY MAP



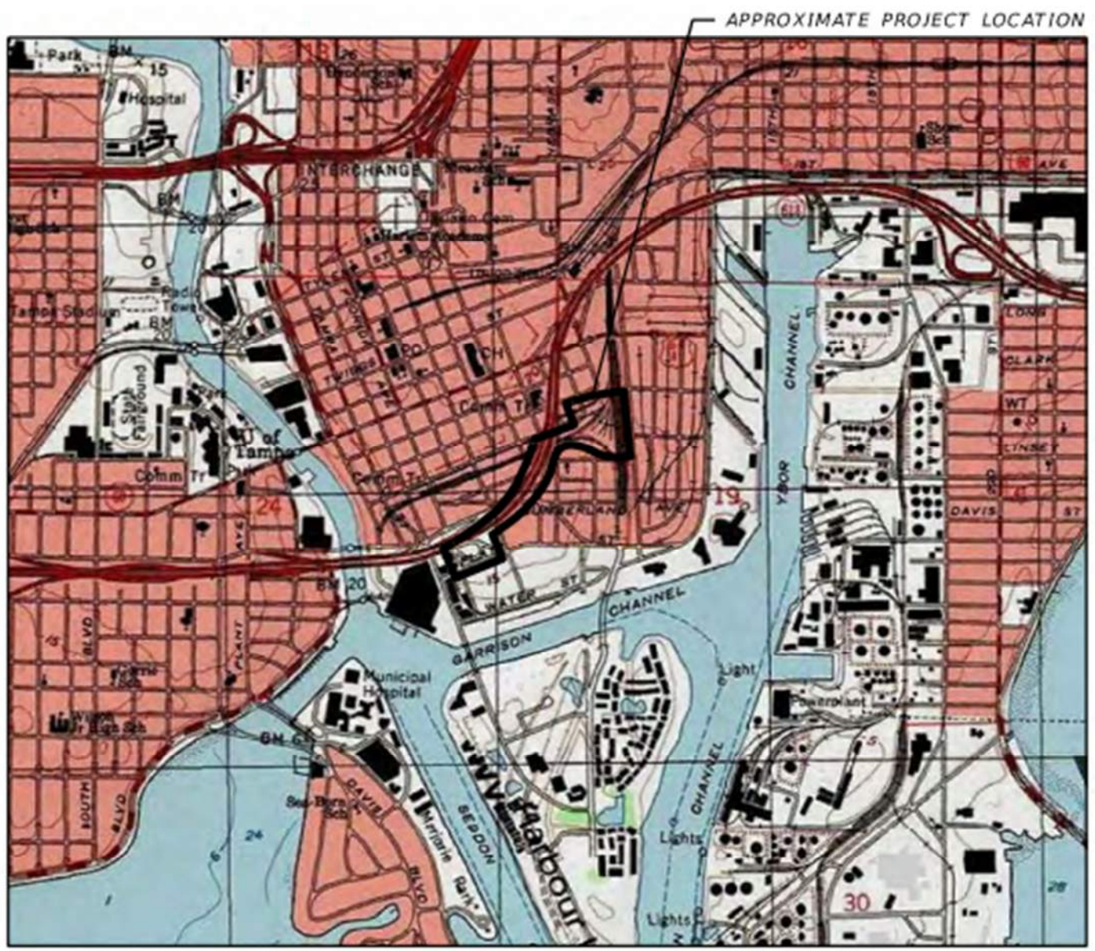
REFERENCE: USDA SOIL SURVEY OF HILLSBOROUGH COUNTY, FLORIDA

TOWNSHIP:	29 S	29 S
RANGE:	18 E	19 E
SECTION:	24	19

0 500 2000
Feet

N

USGS TOPOGRAPHIC MAP



REFERENCE: "TAMPA, FLORIDA" USGS QUADRANGLE MAP

TOWNSHIP:	29 S	29 S
RANGE:	18 E	19 E
SECTION:	24	19

0 500 2000
Feet

N

GEOTECHNICAL INFORMATION

EXCERPTED FROM

GEOTECHNICAL MEMORANDUM

(PREPARED UNDER SEPARATE COVER)

EXCERPTED FROM GEOTECHNICAL MEMORANDUM

6.0 Stormwater Ponds

Pond 100 at the Florida Avenue Loop and Pond 200 at the Whiting Street improvements are proposed. The two pond borings (PB-01 and PB-02) performed encountered fine sand and fine sand with silt (A-3) from the existing ground surface to the boring termination depth of 20 feet. The ground water table was measured at a depth of approximately 8 feet in boring PB-02. The groundwater table was not apparent (GNA) in boring PB-01 performed at the Pond 100 location. Bridge boring BB-01 was performed within the limits of Pond 100 to the southwest of boring PB-01 and encountered the groundwater table at a depth of 6 feet below the existing ground surface.

6.1 Double Ring Infiltration (DRI) Test Results

DRI tests were performed at the proposed stormwater improvement areas on August 6 and August 9, 2021 in order to determine the infiltration of the shallow soils.

The following table summarizes the DRI test results:

Table 6.1.1 DRI Test Results

Test Location	Depth Below Ground Surface, feet	Measured Vertical Infiltration Rate, in/hr	Estimated Horizontal Infiltration Rate, in/hr
DRI-01	2.0	15.1	15.1
DRI-02	2.0	0.4	0.6

The vertical infiltration rate is the actual rate, as measured in the field. No factor of safety has been applied. The horizontal infiltration rate was then estimated based on the vertical infiltration rate and soil types encountered. It should be noted numerous clay and rock fragments were encountered in the shallow soils at the location of DR-02. A summary of each DRI test is attached in **Appendix A**.

6.2 Base of Aquifer

The base of the aquifer can be determined by the depth to the confining layer. A confining layer is generally regarded as a soil stratum that will significantly impede the infiltration of water. The two pond borings did not encounter a confining layer within the 20 ft depth of the borings. However, bridge boring BB-01 was performed within the limits of the proposed Pond 100 and encountered a confining layer consisting of clayey sand (A-2-6) at depths of approximately 18 to 23 feet below existing grades (elevation -2.7 to -7.7 feet, NAVD 88) underlain by weathered limestone and limestone. Wall borings WB-04 and WB-05 were performed near proposed Pond 200 and encountered a confining layer consisting of clay (A-7-6) and weathered limestone at a depths of approximately 12.5 feet (elevations 5.5 to 1.8 feet, NAVD 88) below existing grades. We recommend that depths of 20 feet (elevation -5 feet, NAVD 88) and 12.5 feet (elevation 2 feet, NAVD 88), respectively, be used as the confining layer for proposed Ponds 100 and 200.

EXCERPTED FROM GEOTECHNICAL MEMORANDUM

0 20 100
Feet

FLORIDA AVENUE
BROREIN STREET
SELMON EXPRESSWAY
CHANNELSIDE DRIVE
MORGAN STREET
JEFFERSON STREET
CUMBERLAND AVENUE

SH-01
SH-02
SH-03
SH-04
DRI-01
PB-01
POND 100

LEGEND

- APPROXIMATE SPT BORING LOCATION
- APPROXIMATE HAND AUGER BORING LOCATION
- APPROXIMATE DOUBLE RING INFILTROMETER TEST LOCATION

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

KIRK M. EASTMAN, P.E.
P.E. LICENSE NUMBER 50733
AREHNA ENGINEERING, INC.
5012 W. LEMON STREET
TAMPA, FLORIDA 33609

TAMPA HILLSBOROUGH EXPRESSWAY AUTHORITY

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
	HILLSBOROUGH	

BORING LOCATION PLAN

SHEET NO.

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

KIRK M. EASTMAN, P.E.
P.E. LICENSE NUMBER 50733
AREHNA ENGINEERING, INC.
5012 W. LEMON STREET
TAMPA, FLORIDA 33609

TAMPA HILLSBOROUGH EXPRESSWAY AUTHORITY

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
	HILLSBOROUGH	

BORING LOCATION PLAN

SHEET NO.

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

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

TABLE 3
SUMMARY OF SEASONAL HIGH GROUNDWATER TABLE ESTIMATE
THEA WHITING STREET PD&E STUDY
HILLSBOROUGH COUNTY, FLORIDA
AUTHORITY PROJECT NO. HI-0141
AREHNA Project Number: B-19-051

EXCERPTED FROM GEOTECHNICAL MEMORANDUM

Boring No.	Boring Location		Ground Elevation[1] (feet, NAVD 88)	Boring Depth (feet)	Measured Groundwater Table			USDA Soil Survey		Estimated Seasonal High Water Table		
	Station (feet)	Offset (feet)			Date Recorded	Depth[2] (feet)	Elevation (feet, NAVD 88)	Map Symbol	Estimated SHGWT[3] Depth (feet)	Depth (feet)	Elevation (feet, NAVD 88)	
SH-01	108+09	19 RT	18	8.0	5/19/2021	GNE	-	56	-	5.5	12.5	+/-0.5
SH-02	112+38	48 LT	14.9	8.0	5/19/2021	GNE	-	56	-	4.0	< 10.9	+/-0.5
SH-03	202+53	54 LT	16.8	6.0	5/19/2021	4.0	12.8	56	-	3.0	13.8	+/-0.5
SH-04	206+18	28 RT	16.3	1.5	5/19/2021	GNE	-	56	-	> 1.5	< 14.8	+/-0.5
SH-05	411+14	270 LT	17.4	6.0	5/19/2021	5.0	12.4	56	-	4.0	13.4	+/-0.5
SH-06	708+24	57 LT	10.9	5.0	5/19/2021	2.5	8.4	56	-	1.0	9.9	+/-0.5
SH-07	710+59	63 LT	12	5.0	6/30/2021	3.0	9	56	-	2.0	10.0	+/-0.5
SH-08	408+32	28 RT	15.8	6.0	6/30/2021	4.0	11.8	56	-	2.5	13.3	+/-0.5
SH-09	404+17	32 LT	17.9	3.0	5/19/2021	GNE	-	56	-	> 3.0	< 14.9	+/-0.5
SH-10	209+21	13 RT	17.8	6.0	5/19/2021	GNE	-	56	-	4.0	13.8	+/-0.5
DRI-01	105+73	6 RT	14.7	5.0	8/6/2021	GNE	-	56	-	2.5	12.2	+/-0.5
PB-01	106+29	16 LT	16.1	20.0	8/10/2021	GNA	-	56	-	4.0	12.1	+/-0.5
PB-02	408+28	118 FT	17	20.0	8/12/2021	8.0	9.0	56	-	4.0	13.0	+/-0.5

(1) Existing Ground Surface Elevations were based on survey data provided by Echo UES, Inc.

(2) Depth below existing grade at time of field work.

(3) Seasonal high water table depth per Hillsborough County, Florida USDA Soil Survey information. (No data provided for this Map Symbol).

GNE: Groundwater table not encountered within the depth of the boring performed.

GNA: Groundwater table not apparent within the depth of the boring performed.

Appendix D

FEMA FLOOD INSURANCE RATE MAPS

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations shown on this map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Coastal Stillwater Elevations table in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Coastal Stillwater Elevations table should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was Florida State Plane west zone (FIPSZONE 0902). The **horizontal datum** was NAD 83, GRS80 spheroid. Differences in datum, spheroid, projection or State Plane zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum**. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at http://www.ngs.noaa.gov or contact the National Geodetic Survey at the following address:

NGS Information Services
NOAA, N/NGS12
National Geodetic Survey
SSMC-3, #9202
1315 East-West Highway
Silver Spring, Maryland 20910-3282
(301) 713-3242

To obtain current elevation, description, and/or location information for bench marks shown on this map, please contact the Information Services Branch of the National Geodetic Survey at (301) 713-3242, or visit its website at www.ngs.noaa.gov. Information on elevation reference marks is readily available through a variety of sources: the NGS website, www.ngs.noaa.gov/cgi-bin/datasheet.prl, the Land Boundary Information System (LABINS) maintained by the Florida Department of Environmental Protection www.labins.org, and the Hillsborough County Survey Division www.hillsboroughcounty.org/realestate/surveying/.

Base map information shown on this FIRM was derived from multiple sources. Road centerlines were provided by the City of Tampa Geographic Information System (GIS) group. These data were aligned to aerial imagery at 6-inch pixel resolution dated 2004. Surface water features were provided by the Hillsborough County Information Technology & Services GIS Section. These data were digitized from aerial imagery at 1-foot and 6-inch pixel resolution dated February 2000 and April 2004. Political boundaries were provided by the Hillsborough County Real Estate Department, Survey Division, GIS Section. These data were compiled in 2003. Public Land Survey System (range, township, and sections) were provided by the Florida Geographic Data Library. These data were produced at a scale of 1:24,000.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

Contact the **FEMA Map Service Center** at 1-800-358-9616 for information on available products associated with this FIRM. Available products may include previously issued Letters of Map Change, a Flood Insurance Study report, and/or digital versions of this map. The FEMA Map Service Center may also be reached by Fax at 1-800-358-9620 and its website at http://msc.fema.gov/.

If you have **questions about this map** or questions concerning the National Flood Insurance Program in general, please call **1-877-FEMA MAP** (1-877-336-2627) or visit the FEMA website at http://www.fema.gov.

Hillsborough County

In cooperation with the Federal Emergency Management Agency (FEMA), Hillsborough County developed this Flood Insurance Rate Map in a digital countywide format to assist communities in their efforts to minimize the loss of property and life through effectively management development in floodprone areas. Hillsborough County has implemented a long term approach to floodplain management to reduce the impacts of flooding. This is demonstrated by the County's commitment to map floodplain areas at the local level. As part of this effort, Hillsborough County is working closely with FEMA as a Cooperating Technical Partner to produce and maintain this digital FIRM.


82°28'07.5"
27°58'07.5"
505000 FT
JOINS PANEL 0352
510000 FT
82°26'15"
27°58'07.5"
1320000 FT
1315000 FT
27°56'15"
82°28'07.5"
82°26'15"
27°56'15"
JOINS PANEL 0353
JOINS PANEL 0358
JOINS PANEL 0362
°94'000"N
°93'000"N
°92'000"N
°76'000"N
°57'000"E
°58'000"E
City of Tampa 120114
City of Tampa 120114
ZONE AE (EL 9)
ZONE AE (EL 10)
ZONE X
AG7252
AG7251
AG7250
AG7247
AG7246
AG7451
AG7449
AG7448
AG6034
AG6033
AG6038
AG7181
AG6037
AG6030
AG6015
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E KENNEDY BLVD
E WASHINGTON ST
E FINLEY ST
E WALTON ST
E CUMBERLAND AVE
E EUNICE AVE
E BROREIN ST
E BELL ST
E WHITING ST
E JACKSON ST
E ADAMO DR
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E 5TH AVE
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W GRAND CENTRAL AVE
W HYDE PARK AVE
W BEACH PL
W VERNE ST
W AZEELE ST
W HORATIO ST
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W BAY ST
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W GASPARILLA PLZ
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TAMPA PREP PL
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CROSSTOWN EXPY
RAILROAD
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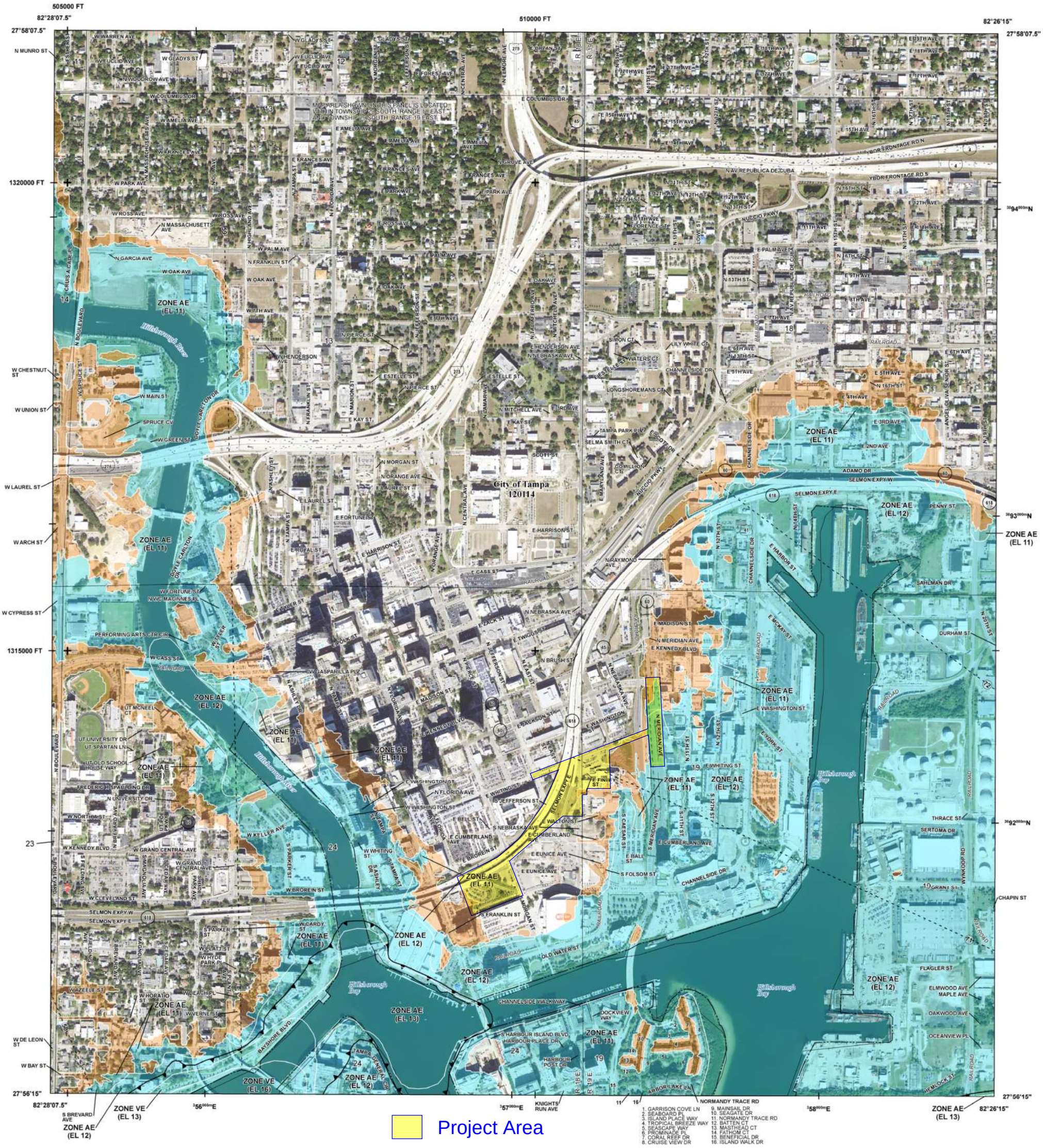

FLOOD HAZARD INFORMATION

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

THE INFORMATION DEPICTED ON THIS MAP AND SUPPORTING DOCUMENTATION ARE ALSO AVAILABLE IN DIGITAL FORMAT AT HTTPS://MSC.FEMA.GOV

SPECIAL FLOOD HAZARD AREAS	Without Base Flood Elevation (BFE) *Zone A,V, A99* With BFE or Depth *Zone AE, AO, AH, VE, AR* Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD	0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X* Future Conditions 1% Annual Chance Flood Hazard *Zone X* Area with Reduced Flood Risk due to Levee See Notes. *Zone X* Area with Flood Risk due to Levee *Zone D*
OTHER AREAS	NO SCREEN Area of Minimal Flood Hazard *Zone X* Area of Undetermined Flood Hazard *Zone D*
GENERAL STRUCTURES	Channel, Culvert, or Storm Sewer Levee, Dike, or Floodwall
OTHER FEATURES	18.2 / 17.5 Cross Sections with 1% Annual Chance Water Surface Elevation 8 Coastal Transect Coastal Transect Baseline Profile Baseline Hydrographic Feature 513 Base Flood Elevation Line (BFE) Limit of Study Jurisdiction Boundary

NOTES TO USERS

For information and questions about this Flood Insurance Rate Map (FIRM), available products associated with this FIRM, including historic versions, the current map date for each FIRM panel, how to order products, or the National Flood Insurance Program (NFIP) in general, please call the FEMA Mapping and Insurance eXchange at 1-877-FEMA-MAP (1-877-336-2627) or visit the FEMA Flood Map Service Center website at https://msc.fema.gov. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the website.

Communities annexing land on adjacent FIRM panels must obtain a current copy of the adjacent panel as well as the current FIRM Index. These may be ordered directly from the Flood Map Service Center at the number listed above.

For community and countywide map dates refer to the Flood Insurance Study Report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

Base map information shown on this FIRM was provided by Hillsborough County, dated 2008 and 2018; the Florida Department of Transportation, dated 2017; the Florida Resources and Environmental Analysis Center, dated 2003; and the U.S. Department of Agriculture, dated 2018.

LIMIT OF MODERATE WAVE ACTION: Zone AE has been divided by a Limit of Moderate Wave Action (LiMWA). The LiMWA represents the approximate landward limit of the 1.5-foot breaking wave. The effects of wave hazards between Zone VE and the LiMWA (or between the shoreline and the LiMWA for areas where Zone VE is not identified) will be similar to, but less severe than, those in the Zone VE.

Limit of Moderate Wave Action (LiMWA)

SCALE

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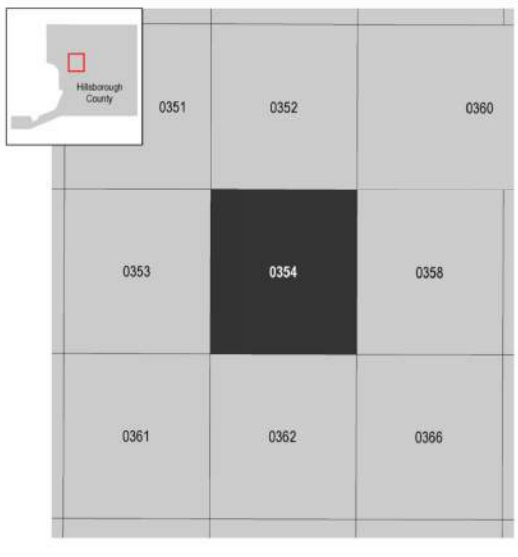
Map Projection:
State Plane Transverse Mercator, Florida West Zone 0902; North American Datum 1983; Western Hemisphere; Vertical Datum: NAVD 88

1 inch = 500 feet 1:6,000

0 250 500 750 1,000 2,000 feet

0 125 250 500 meters

PANEL LOCATOR



FEMA National Flood Insurance Program

NATIONAL FLOOD INSURANCE PROGRAM

FLOOD INSURANCE RATE MAP

HILLSBOROUGH COUNTY, FLORIDA
and Incorporated Areas

PANEL 354 OF 801

Panel Contains:

COMMUNITY	NUMBER	PANEL	SUFFIX
TAMPA, CITY OF	120114	0354	J

VERSION NUMBER
2.4.3.5

MAP NUMBER
12057C0354J

MAP REVISED
OCTOBER 7, 2021

Appendix E

PERMITTING INFORMATION

SWFWMD PRE-APPLICATION MEETING NOTES

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 409166

Date:	01/26/2022		
Time:	15:00		
Project Name:	Whiting Street PD&E Study		
District Engineer:	Scott VanOrsdale		
District ES:	N/A		
Attendees:	Alexandra Hipolito, Tracy Ellison, Mattias Ciabatti		
County:	Hillsborough County	**Sec/Twp/Rge:**	19/29/19, 24/29/18
Total Land Acreage:	+/- 10	**Project Acreage:**	+/- 10 Acres

Prior On-Site/Off-Site Permit Activity:

- ERP – 44001660.031; existing pond. Please review the surrounding R/W along the project to ensure additional permits will not be impacted.

Project Overview:

- PD&E study for widening E Whiting Street and connecting through to S Meridian Ave. (27°56'49.73"N / 82°26'55.06"W)
- Project will possibly impact an existing pond permitted under ERP 44001660.031. Project would appear to qualify for a Major Modification, due to the impacts to the existing pond However, if the pond is not impacted, the project will need to be considered a New Individual Permit (see fee schedule if a new permit is more appropriate). Processing fees noted below are assuming a Major Modification.
- Additional comments / requirements noted 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.)

- A site visit by District staff will be required to verify the presence or absence of wetlands and/or surface waters. Prior to the site visit, District staff will contact the applicant or authorized agent to provide an approximate date of the site visit and to ensure that the project area is accessible. If wetlands or surface waters are discovered during the site visit, additional information may be required.

Site Information Discussion: (SHW Levels, Floodplain, Tailwater Conditions, Adjacent Off-Site Contributing Sources, Receiving Waterbody, etc.)

- Existing roadway/intersections – E Whiting Street and connecting through to S Meridian Ave.
- Watersheds -Hillsborough River and Tampa Bay
- WBIDs need to be independently verified by the consultant – WBID 1443 E – Hillsborough River: not meeting standards for Dissolved Oxygen. Impaired for Metals. TMDL And BMAP for Fecal Coliform. WBID 1584A2 – Ybor Channel; not impaired at this time.
- 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
  - FDEP PCTS Site ID Nos. 8624930, 9807222 and 8627167 located near the existing pond, there may be other contamination sites within or adjacent to site. 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.
  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.
- Any wells 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.)

- Project will have two outfall locations.
  - On the western portion of the project the stormwater will discharge into the Hillsborough River. The outfall is located near the last three bridges along the Hillsborough River before entering the Seddon Channel. Attenuation would be required due to the head loss through bridges; however, it may be possible to demonstrate no adverse impacts will occur by increasing the discharge rate due to the location of the outfall. The applicant will need to model through the bridges to show not adverse upstream impacts will occur for all storms up to and including the 100-year design storm.
  - The second outfall is in the Garrison Channel. This outfall will not require attenuation; however, the application must show no averse offsite will result to the existing conveyances and offsite properties.
- 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).
- If applicable, 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.)

- Will need to replace volume and provide additional treatment as need to existing stormwater pond that may be impacted.
- 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.
- Army Corps criteria.
- Net improvement
  -Refer to rule 62-330.301(2), F.A.C.
  -WBID 1443E not meeting standards for Dissolved Oxygen. Please verify accuracy of WBID boundaries and status of impairment.
  --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 outfalls may be located within state owned sovereign submerged lands (SSSL). If improvements are proposed at those locations, please be advised that a title determination will be required from FDEP to verify the presence and/or location of SSSL.
- Coordination with the Tampa Port Authority for projects located in Hillsborough County is also recommended.

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:

- Individual Major Modification SWERP – Sections A, C, and E of the ERP Application.
- < 10 acres of project area and no wetland or surface water impacts - $182.00 Online Submittal
- < 40 acres of project area and < 3 acres of wetland or surface water impacts - $1,245.75
- 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.

EXCERPT FROM
SWFWMD ENVIRONMENTAL RESOURCE
PERMIT NO. 1660.032
MERIDIAN AVENUE POND 2 MODIFICATION

As a result of the project, approximately 0.03 acres (1200 square feet) of Garrison Channel will be impacted from the construction of an endwall and 60" discharge pipe. No mitigation is proposed.

Because Meridian Avenue is located in a highly urbanized area of downtown Tampa, no wildlife has been seen or is expected to be found in the vicinity of the project. However, due to the potential for manatees to occur within the vacinity of Garrison Channel, standard manatee protection measures will be implemented during construction of the discharge pipe at Garrison Channel to avoid any potential impacts. A copy of the Standard Manatee Construction Conditions is provided in (Appendix A, pgs. A-10 & A-11).

2.5 SEASONAL HIGH GROUNDWATER

Law Engineering and Environmental Services conducted soil borings along Meridian and Channelside Drive in 1994. The SHGW elevation ranged from a depth of 2.13 feet at boring B-14 to a depth of 2.72 at boring B-12 (Appendix C, page C-2). AIM Engineering & Surveying surveyed several geotechnical boring sites (by others) to determine the SHGW just north of Twiggs Street for the Lee Roy Selmon Crosstown Expressway project (Appendix C, page C-37). Figure 6 shows the location of the above mentioned soil borings. The SHGW ranged from a depth of 2 feet in borings SH-1 and SH-2 to a depth of 2.25 for boring SH-3. Williams Earth Sciences drilled an additional 56 soil borings along the Meridian Avenue project including proposed Whiting and Jackson Streets in February 2002. Due to the very disturbed nature of the soils, the SHWT could not be determined, but was estimated as 2 feet below ground surface. The soil borings indicates that the present groundwater level ranges from a depth of 6 feet at Station 107+50 (90 LT) to 2.5 feet at Station 111+40 (12 LT). Design high water elevations for setting/ evaluation of the roadway profile are addressed in a separate report.

2.6 FLOODPLAIN

The project site is located on the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) Community-Panel Number 120114 0024 C, as depicted on September 30, 1982. The project is within areas designated Zone A10, Zone B, and Zone C (Appendix A, Figure 3). The figure shows that Meridian Avenue from

Channelside Drive to Washington Street lies within Zone A10 with the flood elevation determined to be 11 feet. The area including Meridian Avenue from Washington Street to North of Kennedy Boulevard and East of Nebraska Avenue is in Zone B. The remainder of the project lies within Zone C or areas of minimal flooding. No floodplain compensation is proposed since 100-year flood elevations are due to tidal surge.

3.0 SPREAD CALCULATIONS

Per the FDOT spread standard, spread resulting from a rainfall intensity of 4.0 in/hr shall not exceed ½ the travel lane adjacent to the gutter. Refer to Appendix F for spread calculations. The maximum allowable spread was reduced to 5 feet for roadway sections that slope & drain to the median since water is not expected to be present in high-speed travel lanes.

4.0 EXISTING STORMWATER MANAGEMENT SYSTEM

The existing Ponds 1 and 2 were permitted (SWFWMD # 401660.10) to include a basin area of 6.67 acres, of which 4.33 acres is future development. The area of future development is located east of Meridian Avenue from Cumberland Avenue to Channelside Drive. The existing ground elevation in this area is too low to connect to the exfiltration pond and discharges directly to the outfall pipe. Since effluent filtration ponds require treatment of the first ½" of stormwater runoff from the contributing drainage area the required treatment volume for Pond 1 and 2 is 0.28 ac-ft. Pond 1 is located on the east side of Meridian Avenue and Pond 2 on the west, just south of Cumberland Avenue.

The *Soil Survey of Hillsborough County* shows Urban Land (#56) within the project area (Figure 4). Urban Land soils are predominately covered with concrete, asphalt, buildings or other impervious surfaces that are artificially drained. Law Engineering and Environmental Services (Appendix C, page C-13) conducted soil borings along Meridian Avenue and Channelside Drive in 1994. The SHGW elevation ranged from a depth of 2.13 feet at boring B-14 to a depth of 2.72 feet at boring B-12. The Seasonal High Water Table (SHWT) for Ponds 1 & 2 was determined to be at elevation 5 feet.

Since Pond 1 will remain an effluent filtration pond, the required treatment volume is ½" from the contributing drainage area or 0.31 ac-ft. The proposed weir will be set at elevation 6.2 feet to provide 0.31 ac-ft of treatment volume (Appendix D, p. D-19). The proposed underdrain is modified FDOT Type V and is separated from the water table by an impermeable liner. One hundred and sixty feet of underdrain pipe is required to drawdown the required treatment volume in less than 36 hours (Appendix D, page D-33). A safety factor of two is included in the calculation for the underdrain.

The tailwater of the pond was set above the hydraulic grade line (HGL) of structure S-76 for the 5 year and 25 year storm events:

Storm Event	Pond Tailwater	HGL @ S-76
5 YEAR/ 24 HOUR	4.0 (Appendix D-23)	3.94 (Appendix G-16)
25 YEAR/ 24 HOUR	5.7 (Appendix D-26)	5.65 (Appendix G-20)

The starting water level of the pond is elevation 5.2 feet, or the pond bottom. Rainfall depths were determined using the SWFWMD Rainfall maps from the SWFWMD ERP Manual. The project site is estimated to receive 8 inches of rainfall during a 25Yr/ 24 Hr storm event, and 5.5 inches during a 5 Yr/ 24 Hr storm event. The pond reaches a maximum stage of 6.67 feet for a 5 year/24 hour storm event and a stage of 6.85 feet for a 25 year/ 24 hour storm event (Appendix D, pgs. D-31 & D-32). These elevations were calculated assuming that no infiltration occurs during the storm events, which is conservative. The proposed pond has over one foot of freeboard for the 25Yr/ 24 Hr storm event since the top of bank is at elevation 8.0 feet.

5.2 MERIDIAN AVENUE POND (POND 2)

Runoff from the Meridian Avenue project will be collected by a storm sewer system and conveyed to a wet detention pond (Pond 2) located on the west side of Meridian Avenue in a triangle shaped area that is surrounded on two sides by railroad tracks. The contributing basin area to Pond 2 includes the areas discharging into the storm sewer system and direct discharge to the stormwater pond. The Meridian Avenue storm sewer system includes the following inlets: S-10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22,

24, 25, 26, 27, 28, 29, 30, 32, 33, 34, 34A, 35, 36, 37, 38, 39, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 57 and 58. This includes 8.8 acres of impervious and 2.0 acres of pervious surfaces along the roadway. The total basin area for Pond 2 is 13.5 acres including Pond 2 (Appendix E). The time of concentration (Tc) of 25 minutes for Meridian was determined from the ASAD storm sewer system into Pond 2 (Appendix G, page G-13).

The following is a summary of the hydrology input data in Ad ICPR:

	Basin MERIDIAN	Basin NEWPOND
Unit Hydrograph:	UH256	UH256
Peaking Factor:	256	256
Rainfall File:	SCSII-24	SCSII-24
Storm Duration (hrs):	24	24
Area (ac):	10.8	2.7
CN:	80	87.4
DCIA (%):	81	0
Tc (min):	25	10

The required treatment volume for wet detention is 1 inch over the basin or 1.13 ac-ft (Appendix E, P. E-2). The proposed pond will have a top of bank at elevation 12 feet and a pond bottom at elevation 2 feet. Since the ground elevations in this area are relatively high, 2:1 sideslopes were used to provide the required water quality treatment volume for the SWFWMD. A fence with maintenance gates will surround the pond since the sideslopes are steeper than 4:1. The triangle- shaped pond has a 10' maintenance berm on all sides. Two sumps are proposed for the inflow area and control structure of Pond 2 (Refer to Construction Plans).

A treatment volume of 1.19 ac-ft was provided by setting the weir at elevation 4.3 feet (Appendix E, p. E-2). The pond control structure will allow stormwater to discharge from the pond since attenuation is not required. The control structure will be constructed with an orifice and skimmer. A pond liner is required since the orifice is set at elevation 3.0', which is less than the SHWT. The orifice is allowed to discharge no more than half the required treatment volume (0.58 ac-ft) in 60 hours. A two-inch circular orifice discharges 0.50 ac-ft in 60 hours (Appendix E, page E-22). Wet detention ponds require a minimum

of 35% littoral zone concentrated at the outfall. The littoral zone is calculated as 35% of the area at the control elevation or 0.33 acres. Pond 2 has a littoral zone of 55%.

The project site was estimated to receive 5.5 inches of rainfall during a 5Yr/ 24 Hr storm event and 8 inches during a 25 Yr/ 24 Hr storm event. The starting water level in the pond is the 36-hour orifice drawdown elevation of 3.96 feet (Appendix E, p. E-21). The tailwater of Pond 2 was set above the hydraulic grade line of S-65 for the 5 year and 25 year storm events:

Storm Event	Pond Tailwater	HGL @ S-65
5 YEAR/ 24 HOUR	4.2 (Appendix E-5)	4.15 (Appendix G-16)
25 YEAR/ 24 HOUR	6.25 (Appendix E-8)	6.23 (Appendix G-20)

The maximum stage in Pond 2 is 4.85 ft for the 5-Yr/24-Hr Storm and 6.68 ft for the 25-Yr/24-Hr Storm (Appendix E, pgs. E-15 & E-16). The outfall of the pond is a 48" diameter pipe that increases to a 60" diameter pipe that discharges into the Garrison Channel. The outfall pipe was sized to supplement the existing 54" outfall pipe, the Meridian Avenue project and an additional 12 acres of future development by the THCEA (12-ac site, 83% impervious). A grate has been included on the end of the 60" outfall pipe (S-74) at the Garrison Channel for safety and manatee protection.

Equivalent treatment for a future 12' lane along Brorein Street from Channelside Drive to Jefferson Street is included in Pond 2 when the storm sewer system was extended to include runoff from Kennedy Boulevard near 11th Street (Refer to Appendix E, p. E-26). The additional area treated in the Meridian Avenue Pond 2 is 0.41 acres. The pollutant loading for Kennedy Boulevard is greater than or at least equal to Brorein Street since Kennedy Boulevard (SR 60) is a major roadway through downtown Tampa.

6.0 PROPOSED STORM SEWER SYSTEMS

Three sewer systems were designed for the Meridian Avenue project. Each storm sewer system was designed using the 5 Yr/ 24 Hr storm as required by the City of Tampa. In

EXCERPT FROM
SWFWMD CONCEPTUAL PERMIT NO. 49042679.000
CITY OF TAMPA WATERFRONT DISTRICT

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
ENVIRONMENTAL RESOURCE

CONCEPTUAL
PERMIT NO. 49042679.000

EXPIRATION DATE: **October 12, 2021** **PERMIT ISSUE DATE:** **October 12, 2016**

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 use 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), to proceed with further applications for construction permitting.

PROJECT NAME:	Waterfront District
GRANTED TO:	City of Tampa Attn: Richard A. Hoel 306 East Jackson Street, 6th Floor North Tampa, FL 33602
OTHER PERMITTEES:	N/A

ABSTRACT: This Urban Infill or Redevelopment Conceptual Permit grants conceptual approval per Rule 62-330.055, F.A.C. for re-development within the Waterfront District, which is located within the City of Tampa's Downtown Core Community Redevelopment Area. The provided conceptual stormwater management plan identifies ten (10) on-site post-development drainage sub-basins and establishes the existing annual nutrient loadings at 497.84 kg (1,095.25 lbs) of nitrogen and 68.38 kg (150.44 lbs) of phosphorous within the 85.72-acre redevelopment boundary. Conceptual approval also includes the realignment of multiple roadways, and the preliminary design and placement of four (4) nutrient separating baffle boxes as identified on Sheets 162-165 of the conceptual plans. Additional information regarding the limitations of development within the proposed conceptual redevelopment boundary is stated below and on the permitted construction drawings for this project. The project site is located north and east of the Amalie Arena in downtown Tampa, Hillsborough County.

OP. & MAIN. ENTITY:	City of Tampa
OTHER OP. & MAIN. ENTITY:	N/A
COUNTY:	Hillsborough
SEC/TWP/RGE:	S19/T29S/R19E, S24/T29S/R18E
TOTAL ACRES OWNED OR UNDER CONTROL:	85.72
PROJECT SIZE:	85.72 Acres
LAND USE:	Government
DATE APPLICATION FILED:	October 21, 2015
AMENDED DATE:	November 23, 2015

I. Water Quantity/Quality

Water Quantity/Quality Comments:

Runoff from the proposed project area discharges into Garrison Channel which is a part of Tampa Bay. Direct discharges to the tidal waters of Tampa Bay do not require attenuation.

Pursuant to Rule 62-330.055, F.A.C., all redevelopment associated with this project must result in a net improvement to the receiving waterbody (Tampa Bay).

Future projects within the conceptually approved redevelopment boundary shall use the master ledger associated with this permit in order to determine the amount of treatment credits available. Activities requested under the general permit in Rule 62-330.450, F.A.C., that use the BMPs approved in the stormwater master plan, that reduce impervious surfaces, or that otherwise meet the pollutant loading target in the stormwater master plan, and that also comply with all the terms and conditions of the general permit, will result in a debit to the ledger. Once the entire pollutant load target is reached for the receiving waters, no more development is allowed under the general permit, and further development will require an individual permit for construction, alteration, operation, removal, or abandonment that meets all conditions for issuance under Rule 62-330.301, F.A.C.

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

Floodplain Comments:

Floodplain mapped within and adjacent to the project boundary is the result of coastal flood surge. No compensation for impacts to the floodplain are 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

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

Appendix F

STORMWATER MANAGEMENT CALCULATIONS

BASIN 100 CALCULATIONS

BASIN 100 - MUST MEET CITY OF TAMPA REQUIREMENTS (25YR/24HR$_{POST}$ < 5YR/24HR$_{PRE}$)

Curve Number and Runoff Volume Calculation

Pre-Condition Curve Number Calculation

Land Use Description	Soil Map Unit	Hydrologic Group	Area	CN	Product
Impervious Roadway	--	--	0.71 acres	98	70
Impervious (Shldr, SW, Parking)	--	--	1.31 acres	98	128
Sod/Grass	56	D	1.67 acres	80	134
		Totals:	3.69 acres		332

Pre-Condition Composite Curve Number: 89.9

Pre-Condition Runoff Volume Calculation

5-yr/24-hr Rainfall Depth (P) = 7.44 IN
CN = 89.9
Drainage Area (A) = 3.69 AC
Potential maximum retention after runoff begins (S) and S is:
(S) = 1000/CN-10 = 1.13 IN
Runoff Depth (Q) = (P-0.2S)^2/(P+0.8S) = 6.24 IN
Pre-Condition Runoff Volume (V_{PRE}) = A x Q = 1.92 AC-FT

Post-Condition Curve Number Calculation

Land Use Description	Soil Map Unit	Hydrologic Group	Area	CN	Product
Impervious Roadway	--	--	0.71 acres	98	70
New Impervious Roadway	--	--	0.83 acres	98	81
Impervious (Sidewalk)	--	--	0.16 acres	98	16
Impervious (Parking)	--	--	0.50 acres	98	49
Sod/Grass	56	D	1.25 acres	80	100
Pond (Impervious)	--	--	0.24 acres	100	24
		Totals:	3.69 acres		340

Post-Condition Composite Curve Number: 92.0

Post-Condition Runoff Volume Calculation

25-yr/24-hr Rainfall Depth (P) = 8.76 IN
CN = 92.0
Drainage Area (A) = 3.69 AC
Potential maximum retention after runoff begins (S) and S is:
(S) = 1000/CN-10 = 0.87 IN
Runoff Depth (Q) = (P-0.2S)^2/(P+0.8S) = 7.80 IN
Post-Condition Runoff Volume (V_{POST}) = A x Q = 2.40 AC-FT

Required Attenuation Volume = V_{POST} - V_{PRE} = 0.48 AC-FT

BASIN 100 (POND 100)

TREATMENT VOLUME CALCULATION

NEW ROADWAY IMPERVIOUS AREA:

BASIN 100 = 0.83 ACRES

TREATMENT VOLUME REQUIRED:

1 inch x 0.83 acres = 0.07 AC-FT

TOTAL REQUIRED = 0.07 AC-FT

POND SIZE ESTIMATION

NRCS SOILS AT POND: 56 - Urban Land

SHWT EL: 12.1 FT (based on geotechnical investigation)

VERTICAL LIMITATIONS:

AT POND SITE:

AVERAGE NATURAL GROUND EL = 16.1 FT

SHWT EL = 12.1 FT (based on geotechnical investigation)

AT ROADWAY:

LOW EOP EL = 16.0 FT

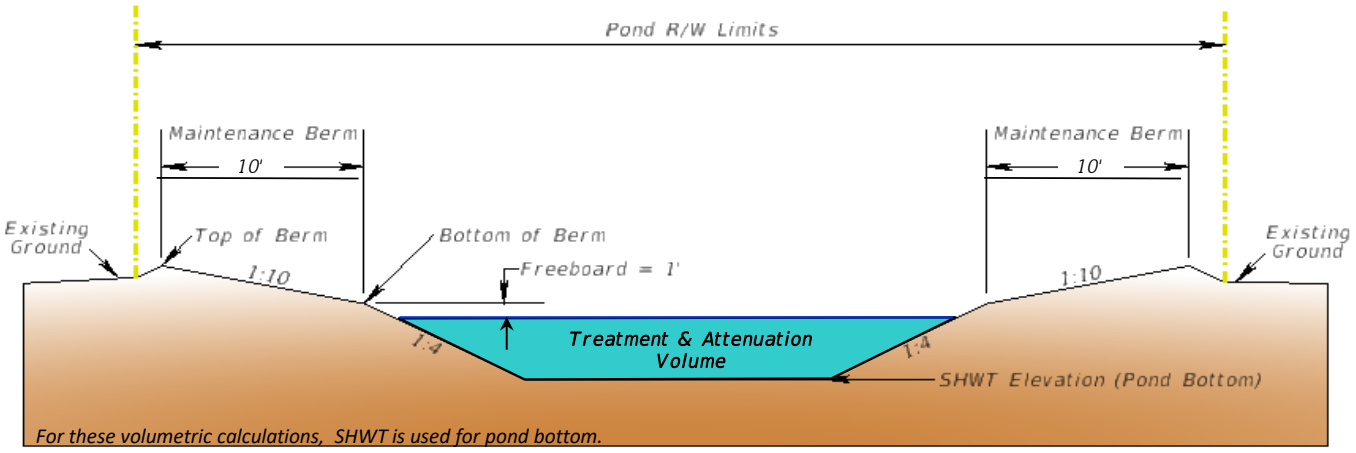


Figure F-1: Typical Pond Cross Section for Sizing Pond

Available depth for treatment and attenuation =	2.9	FT
Treatment Depth =	0.5	FT
Attenuation Depth =	2.4	FT
Approx. low edge of pavement elevation (LEOP) =	16.0	FT
Approx. Proposed Top of Berm elevation =	16.0	FT
Average Ground at Pond Site =	16.1	FT
Freeboard =	1.0	FT
Actual Depth of Treatment and Attenuation =	2.9	FT
Pond Bottom Elevation =	12.1	FT

BASIN 100 (POND 100)

POND SIZE ESTIMATION (CONTIN.)

Treatment Volume provided by treatment depth	**0.08**	**AC-FT**
Square dimension at bottom of treatment depth	80.0	FT
Square dimension at top of treatment depth	84.0	FT
Square dimension at top of freeboard	103.2	FT
Square dimension at top berm	133.2	FT
Outside pond dimensions (including tie-down)	133.6	FT

Minimum Total Area Required: **0.50 ACRES**

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

POND 100 STAGE-STORAGE CALCULATIONS

Estimated Seasonal High Water Table (SHWT) = 12.10 ft
Estimated Low Edge of Pavement = 16.00 ft

Elevation	Area	Area	Acumulated Volume	Total Volume	Total Volume	REMARKS
(ft)	(sf)	(ac)	(cf)	(cf)	(ac-ft)	
12.10	6400.0	0.15	0.0	0.0	0.00	
12.60	7056.0	0.16	3364.0	3364.0	0.08	*TV*
15.00	10650.2	0.24	21247.5	24611.5	0.57	
16.00	17742.2	0.41	14196.2	38807.7	0.89	*Top of Berm*
16.10	21597.2	0.50	--	--	--	

Required Treatment Volume =	0.07	ac-ft	
Provided Treatment Volume =	0.08	ac-ft	✓
Required Attenuation Volume =	0.48	ac-ft	
Provided Attenuation Volume =	0.49	ac-ft	✓

Net Improvement Analysis
Basin 100

Site and Catchment Information

Analysis: Net Improvement

Catchment Name	Pond 100
Rainfall Zone	Florida Zone 4
Annual Mean Rainfall	51.00

Pre-Condition Land Use Information

Land Use	Highway: TN=1.520 TP=0.200
Area (acres)	3.69
Rational Coefficient (0-1)	0.51
Non DCIA Curve Number	80.00
DCIA Percent (0-100)	54.74
Nitrogen EMC (mg/l)	1.520
Phosphorus EMC (mg/l)	0.200
Runoff Volume (ac-ft/yr)	7.985
Nitrogen Loading (kg/yr)	14.966
Phosphorus Loading (kg/yr)	1.969

Post-Condition Land Use Information

Land Use	Highway: TN=1.520 TP=0.200
Area (acres)	3.69
Rational Coefficient (0-1)	0.54
Non DCIA Curve Number	80.00
DCIA Percent (0-100)	59.60
Wet Pond Area (ac)	0.50
Nitrogen EMC (mg/l)	1.520
Phosphorus EMC (mg/l)	0.200
Runoff Volume (ac-ft/yr)	7.364
Nitrogen Loading (kg/yr)	13.802
Phosphorus Loading (kg/yr)	1.816

Net Improvement Analysis
Basin 100

Catchment Number 1: Pond 100

Watershed Characteristics

Catchment Area (acres)	3.69
Contributing Area (acres)	3.190
Non-DCIA Curve Number	80.00
DCIA Percent	59.60
Rainfall Zone	Florida Zone 4
Rainfall (in)	51.00

Wet Detention Design

Permanent Pool Volume (ac-ft)	0.490
Permanent Pool Volume (ac-ft) for 31 days residence	0.625
Annual Residence Time (days)	24
Littoral Zone Efficiency Credit	None
Wetland Efficiency Credit	None

Net Improvement Analysis
Basin 100

Analysis Summary

Analysis Type: Net Improvement
BMP Type: Wet Detention
Catchment 1 - (Pond 100)
Based on % removal values to the nearest percent:
Total nitrogen target removal met? **Yes**
Total phosphorus target removal met? **Yes**

✓ Net Improvement Requirement Met

Nitrogen

Surface Water Discharge

Total N pre load	14.97 kg/yr
Total N post load	13.8 kg/yr
Target N discharge load	14.97 kg/yr
Percent N load reduction	7.8%
Provided N discharge load	13.8 kg/yr
Provided N load removed	1.17 kg/yr

Phosphorus

Surface Water Discharge

Total P pre load	1.969 kg/yr
Total P post load	1.816 kg/yr
Target P discharge load	1.969 kg/yr
Percent P load reduction	7.8%
Provided P discharge load	1.816 kg/yr
Provided P load removed	0.153 kg/yr

BASIN 200 CALCULATIONS

BASIN 200

Required Water Quality Treatment Volume

From SWFWMD ERP Applicant's Handbook, Volume II, Part IV, Section 4.5:

The volume of runoff to be treated from a site shall be determined by the type of treatment system.

A wet detention treatment system will be used for: Pond 200

A wet detention treatment system shall treat one inch of runoff from the contributing area.
For this project, equivalent treatment is being used. The contributing area will include a total impervious area equal to or greater than the new impervious roadway area being added within the basin.

Therefore:

Required Treatment Volume = New Impervious Rdwy Area x 1 inch x $^{1\ foot}/_{12\ inches}$

New Impervious (Rdwy) Area:	2.35	AC
Required Treatment Area:	**2.35**	**AC**

Required Treatment Volume: 2.35 x 1 in x $^{1\ ft}/_{12\ in}$ =	**0.20**	**AC-FT**
	8,538	**CF**

Total Required Treatment Volume:
Treatment volume required for new impervious area = 0.20 ac-ft
Treatment volume to replace Existing Pond 2 = 1.13 ac-ft*

Total Required Treatment Volume = 1.33 ac-ft

*See following page.

Available Pond Volume

EXISTING POND 2*

Estimated Seasonal High Water Table (SHWT) = 3.00 ft **
Estimated Low Edge of Pavement (LEOP) EL = 16.00 ft

Elevation (ft)	Area (sf)	Area (ac)	Acu. Volume (cf)	Total Volume (cf)	Total Volume (ac-ft)	REMARKS
1.0	13503.6	0.31	0.0	0.0	0.00	
2.0	37026.0	0.85	25264.8	25264.8	0.58	
3.0	38986.2	0.90	38006.1	63270.9	1.45	
4.3	41534.5	0.95	52338.4	115609.3	2.65	Weir EL
12.0	56628.0	1.30	377925.5	493534.8	11.33	

Required Treatment Volume =	1.13	ac-ft	49223 cf	
Provided Treatment Volume =	**1.20**	**ac-ft**	52338 cf	✓

* Stage-storage data from SWFWMD ERP No. 441660.032
** Pond liner elevation per SWFWMD ERP No. 441660.032

Treatment volume to be replaced (1.13 ac-ft) due to total impact to Existing Pond 2.

Estimated Pond Volume

POND 200-1

Estimated Seasonal High Water Table (SHWT) = 3.00 ft *
Estimated Low Edge of Pavement (LEOP) EL = 16.00 ft

Elevation (ft)	Area (sf)	Area (ac)	Acu. Volume (cf)	Total Volume (cf)	Total Volume (ac-ft)	REMARKS
1.0	0.0	0.00	0.0	0.0	0.00	
2.0	2888.0	0.07	1444.0	1444.0	0.03	
3.0	3678.2	0.08	3283.1	4727.1	0.11	
4.3	4705.4	0.11	5449.4	10176.5	0.23	Weir EL
12.0	10789.8	0.25	59656.7	69833.2	1.60	

Provided Treatment Volume = 0.12 ac-ft 5449 cf

POND 200-2

Estimated Seasonal High Water Table (SHWT) = 3.00 ft *
Estimated Low Edge of Pavement (LEOP) EL = 16.00 ft

Elevation (ft)	Area (sf)	Area (ac)	Acu. Volume (cf)	Total Volume (cf)	Total Volume (ac-ft)	REMARKS
1.0	4791.6	0.11	0.0	0.0	0.00	
2.0	12632.4	0.29	8712.0	8712.0	0.20	
3.0	13900.4	0.32	13266.4	21978.4	0.50	
4.3	15548.9	0.36	19142.0	41120.5	0.94	Weir EL
12.0	25312.7	0.58	157317.1	198437.6	4.56	

Provided Treatment Volume = 0.44 ac-ft 19142 cf

POND 200-3

Estimated Seasonal High Water Table (SHWT) = 3.00 ft *
Estimated Low Edge of Pavement (LEOP) EL = 16.00 ft

Elevation (ft)	Area (sf)	Area (ac)	Acu. Volume (cf)	Total Volume (cf)	Total Volume (ac-ft)	REMARKS
1.0	7840.8	0.18	0.0	0.0	0.00	
2.0	20804.3	0.48	14322.5	14322.5	0.33	
3.0	22174.2	0.51	21489.2	35811.8	0.82	
4.3	23955.2	0.55	29984.1	65795.9	1.51	Weir EL
12.0	34503.9	0.79	225067.3	290863.2	6.68	

Provided Treatment Volume = 0.69 ac-ft 29984 cf

* Assumes pond liner is used to replicate the liner in Existing Pond 2.

Estimated Pond Volume

POND 200-4

Estimated Seasonal High Water Table (SHWT) = 3.00 ft *
Estimated Low Edge of Pavement (LEOP) EL = 16.00 ft

Elevation (ft)	Area (sf)	Area (ac)	Acu. Volume (cf)	Total Volume (cf)	Total Volume (ac-ft)	REMARKS
1.0	0.0	0.00	0.0	0.0	0.00	
2.0	3558.9	0.08	1779.4	1779.4	0.04	
3.0	4262.3	0.10	3910.6	5690.0	0.13	
4.3	5176.9	0.12	6135.5	11825.5	0.27	Weir EL
12.0	10593.8	0.24	60717.1	72542.6	1.67	

Provided Treatment Volume = 0.14 ac-ft 6136 cf

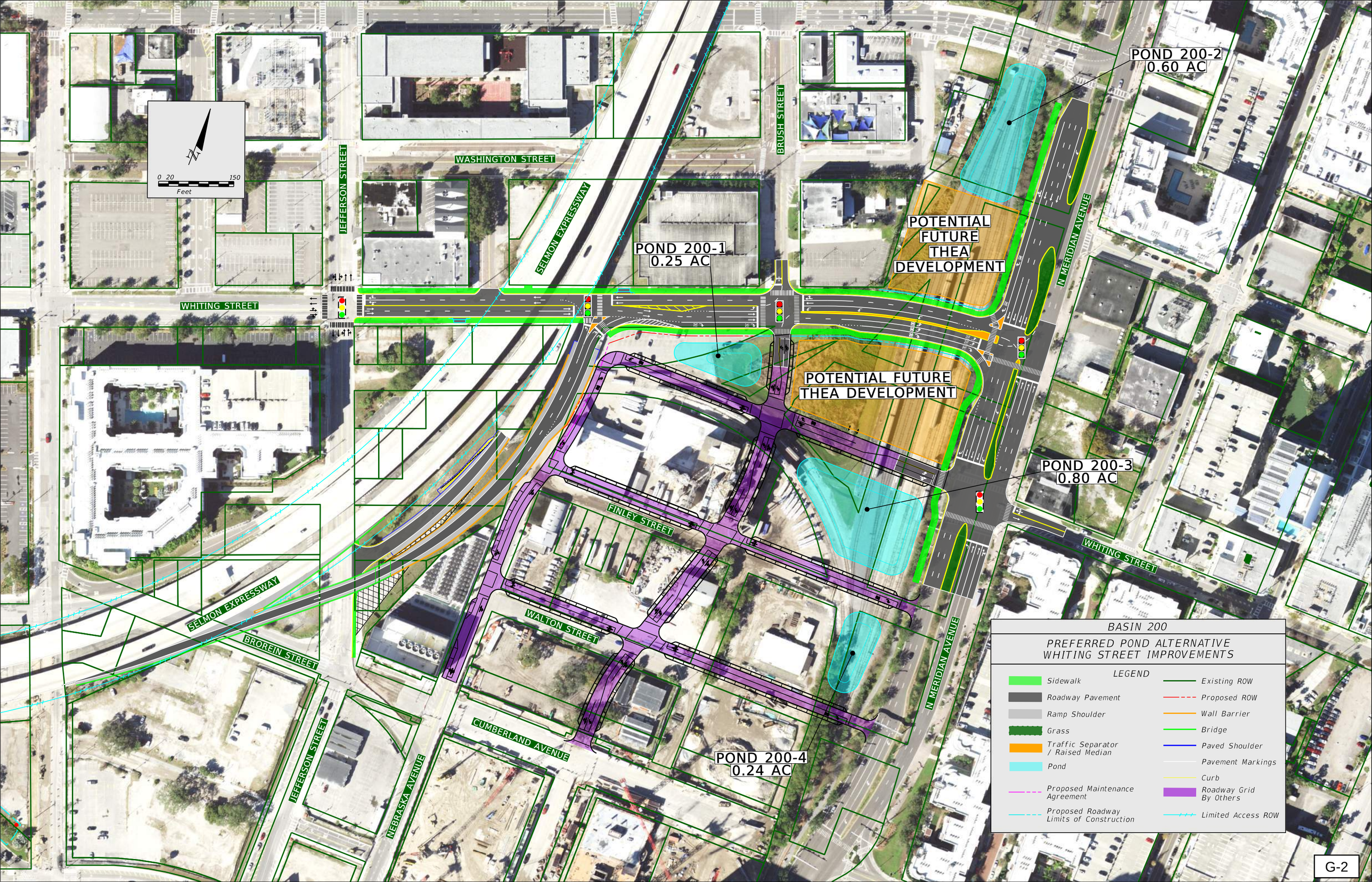
Total Required Treatment Volume = 1.33 ac-ft 57935 cf
Total Provided Treatment Volume = 1.39 ac-ft 72543 cf ✓

* Assumes pond liner is used to replicate the liner in Existing Pond 2.

Appendix G

PREFERRED POND ALTERNATIVES


BROREIN STREET
SELMON EXPRESSWAY
CHANNELSIDE DRIVE
FLORIDA AVENUE
FRANKLIN STREET
MORGAN STREET
POND 100
0.53 AC
0 20 100
Feet
BASIN 100
PREFERRED POND ALTERNATIVE
FLORIDA AVENUE LOOP RAMP
LEGEND
Sidewalk
Roadway Pavement
Ramp Shoulder
Pavement Removal
Pavement Markings
Existing ROW
Proposed ROW
Wall Barrier
Bridge
Paved Shoulder
Curb


0 20 150
Feet
WASHINGTON STREET
JEFFERSON STREET
SELMON EXPRESSWAY
BRUSH STREET
WHITING STREET
POND 200-1
0.25 AC
POTENTIAL
FUTURE
THEA
DEVELOPMENT
N MERIDIAN AVENUE
POND 200-2
0.60 AC
POTENTIAL FUTURE
THEA DEVELOPMENT
POND 200-3
0.80 AC
FINLEY STREET
WALTON STREET
CUMBERLAND AVENUE
NEBRASKA AVENUE
JEFFERSON STREET
BROREIN STREET
SELMON EXPRESSWAY
POND 200-4
0.24 AC
N MERIDIAN AVENUE
WHITING STREET
BASIN 200
PREFERRED POND ALTERNATIVE
WHITING STREET IMPROVEMENTS
LEGEND
Sidewalk
Roadway Pavement
Ramp Shoulder
Grass
Traffic Separator / Raised Median
Pond
Proposed Maintenance Agreement
Proposed Roadway Limits of Construction
Existing ROW
Proposed ROW
Wall Barrier
Bridge
Paved Shoulder
Pavement Markings
Curb
Roadway Grid By Others
Limited Access ROW
G-2

Appendix H

DRAFT SUBMITTAL REVIEW COMMENTS AND RESPONSES

Whiting PD&E Draft Pond Siting Report – Review

Review Comments by: Al Stewart – HNTB
January 11, 2022

1. Page 1 Section 1.2 2nd paragraph (System Linkage), 2nd sentence: Is the "access" referring to access to/from the Selmon Expressway? If so, consider explicitly stating.
   Response: Agree. Section 1.2, System Linkage, has been revised for clarification.
   Follow-up Comment: Response accepted.
2. Page 4 Location B, first sentence: After "Whiting Street", consider adding, "between Jefferson Street and Brush Street", or similar language. The limits of the respective project areas A, B, C, and D are not clear from Figure 1.2: Project Area Location Map.
   Response: Agree. Section 1.3, Location B, has been revised to clarify the limits In addition, Appendix A has been revised to show the Location IDs described in Section 1.3.
   Follow-up Comment: Response accepted.
3. Pages 3 and 4: Suggest referencing the applicable Concept Plans sheets in Appendix A in the respective descriptions of the project areas (A, B, C, and D).
   Response: Agree. The following sentence has been added at the end of Section 1.3: "Please refer to Appendix A for the Preferred Alternative Concept Plans." In addition, Appendix A has been revised to show the Location IDs described in Section 1.3.
   Follow-up Comment: Response accepted.
4. PDF Page 15 of 69, Figure 2.3 Project Area Location: Is it possible to get a clearer image for this figure? The text in the legend is blurry. Also, please verify Figure label. Should it read, "Figure 2.3 Existing Land Use Map" since earlier Figure 1.2 on PDF Page 9 of 69 is titled "Project Area Location Map"?
   Response: Agree. Figure 2.3 has been revised and the figure label has been corrected.
   Follow-up Comment: Response accepted.
5. Water Quality – SWFWMD has historically been looking at the Bay as "Impaired" and requiring net nutrient improvement, for systems that directly and indirectly outfall to the Bay. Need to verify with SWFWMD as this may impact the last sentence in Section 3.1 Water Quality on Page 13.
   Response: A pre-application meeting was held with SWFWMD on 1/26/2022. It was determined that this section of the Bay (Garrison Channel) is not considered impaired and that net improvement is not required. The pre-application meeting notes will be referenced in Section 3.0 of the report and included in an appendix.
   Follow-up Comment: Response accepted.
6. Section 3.2 Water Quantity – Basin 100 is not addressed. Part of the outfall includes City of Tampa Streets and City has advised that project may have to attenuate 25-year post storm to 5-year pre-developed (existing condition) rate.
   Response: Agree. Basin 100 requirements will be addressed in Section 3.2. Volumetric calculations will be revised to show attenuation of the post-development 25-year storm to the pre-development 5-year storm to meet City of Tampa requirements. In addition, a pre-application meeting was held with SWFWMD on 1/26/2022, and it was determined that the Hillsborough River outfall will require net improvement due to a DO impairment. Calculations and report will be revised accordingly.
   Follow-up Comment: Response accepted.

7. Should Section 4.1.2 discussing the Basin 200 ponds mention that pond liners may be required since the existing Meridian Pond 2 was constructed with a liner?
   Response: Agree. Section 4.1.2 has been revised to include a discussion of the pond liners that are assumed for the Basin 200 ponds.
   Follow-up Comment: Response accepted.
8. Also, should Section 4.1.2 emphasize that the pond sizes shown are for the THEA Whiting Street Project improvements only and do not include stormwater needs of the future street grid?
   Response: Agree. Section 4.1.2 has been revised to state that the pond sizes shown are for the THEA Whiting Street PD&E improvements only and do not include stormwater needs of the future street grid.
   Follow-up Comment: Response accepted.
9. PDF Page 40 of 69 – Section 6.1 DRI Test Results – Last sentence references "Appendix A" for the DRI summary of each test. It appears that the referenced "Appendix A" must be in the Geotechnical Report as the PSR Appendix A includes the Preferred Alternate plan sheets, and the DRI test results are not included in the PSR. Including the excerpted page from the Geotechnical Memorandum is somewhat confusing since it is formatted so like the PSR. May want to more prominently point out that this page is an excerpt from the Geotech Memorandum.
   Response: Agree. Appendix C has been revised to clearly state that it includes excerpts from the Geotechnical Memorandum.
   Follow-up Comment: Response accepted.
10. PDF Page 40 of 69: Should Section 6.0 also address the estimated depth to SHWT as that is the basis for pond design or should this be discussed in the body of report in Section 4?
    Response: Discussion of the SHWT will be added in Section 4.0 of the report. Section 6.0 is an excerpt from the Geotechnical Memorandum. Appendix C has been revised to clearly state that it includes excerpts from the Geotechnical Memorandum.
    Follow-up Comment: Response accepted.

Review Comments by: Michael Johnson – HNTB
January 11, 2022

1. Table of Contents. Section 6.0 is not listed, and Section numbering skips #5. Is Section 6.0 part of Appendix C? If so, please add to the 'Appendices' descriptions. If not, consider reordering the sheets, renumbering.
   Response: The referenced Section 6.0 is an excerpt from the Geotechnical Memorandum. Appendix C has been revised to clearly state that it includes excerpts from the Geotechnical Memorandum.
   Follow-up Comment: Response accepted.
2. Table 6.1.1 is not listed on the 'List of Tables' sheet.
   Response: The referenced Table 6.1.1 is an excerpt from the Geotechnical Memorandum. Appendix C has been revised to clearly state that it includes excerpts from the Geotechnical Memorandum.
   Follow-up Comment: Response accepted.

3. PDF Page 7 of 69: Please include in the project summary comments that explain that the roadway concepts shown are the preferred concepts selected from the PD&E Study. Throughout the document the phrase 'preferred alternative' should be amended to 'preferred roadway alternative' so it is not confused with the preferred Pond locations.
   Response: Section 1.0 is common to all PD&E documents. This section has been reviewed and approved by HNTB/THEA and is consistent with the other documents produced for the project. In addition, this section of the document is titled Project Summary and Project Description, addressing the overall project description and not the pond sites.
   Follow-up Comment: Response accepted. However, please note that as a stand-alone document, descriptions such "preferred alternative" should be clarified.
4. PDF Page 10 of 69: 4th line, replace 'grassed' with raised curb.
   Response: Section 1.0 is common to all PD&E documents. This section has been reviewed and approved by HNTB/THEA and is consistent with the other documents produced for the project. In addition, this section of the document is titled Project Summary and Project Description, addressing the overall project description and not the pond sites.
   Follow-up Comment: Response accepted.
5. PDF Page 10 of 69: 4th line, replace 'split' with 'opened'.
   Response: Section 1.0 is common to all PD&E documents. This section has been reviewed and approved by HNTB/THEA and is consistent with the other documents produced for the project. In addition, this section of the document is titled Project Summary and Project Description, addressing the overall project description and not the pond sites.
   Follow-up Comment: Response accepted.
6. PDF page 10 of 69 (and throughout): The phrase 'on structure' is used in several locations. What does this mean? Raised? On the existing ramp structure?
   Response: Section 1.0 is common to all PD&E documents. This section has been reviewed and approved by HNTB/THEA and is consistent with the other documents produced for the project. In addition, this section of the document is titled Project Summary and Project Description, addressing the overall project description and not the pond sites.
   Follow-up Comment: Response accepted.
7. PDF Page 10 of 69: Consider for the last sentence of Location C: Proposed Ramp 6B will require realignment of Nebraska Avenue along the expressway, also requiring relocation of the Finley/Nebraska and Whiting/Nebraska intersections.
   Response: Section 1.0 is common to all PD&E documents. This section has been reviewed and approved by HNTB/THEA and is consistent with the other documents produced for the project. In addition, this section of the document is titled Project Summary and Project Description, addressing the overall project description and not the pond sites.
   Follow-up Comment: Response accepted.
8. Page 12 of 69: Are the vertical pipes connected to the 42" trunk line directly or is there overland conveyance via ditches or spur pipes?
   Response: The vertical pipes are connected to the storm drain system via 6" DIP.
   Follow-up Comment: Response accepted.

9. Page 16 of 69: It is understood that the existing rail lines will be removed as part of this project – Can it be assumed that the concrete lined ditch will also be removed? If so, with the understanding that this report is not the drainage report, please briefly explain the new flow pattern to the proposed ponds to avoid flooding.
   Response: The final drainage design must accommodate removal of the existing concrete ditch. It is assumed that a closed drainage system (inlets and pipes) would be utilized. A discussion of the new flow pattern and the requirements of the design phase will be included in the report.
   Follow-up Comment: Response accepted.
10. General comment: The report does not mention a pre-application meeting with SWFWMD – Is it possible to include the results of that meeting in the final draft? How does this proposed project and pond locations impact the City's Waterfront Permit?
    Response: A pre-application meeting was held with SWFWMD on 1/26/2022. The pre-application meeting notes will be referenced in Section 3.0 of the report and included in an appendix. The PSR and pond calculations will be revised based on the resulting requirements. The pond sizes shown are for the THEA Whiting Street PD&E improvements only and do not include stormwater needs of the future street grid. Since all proposed ponds are within THEA right-of-way, there should be no impacts to the City's Waterfront Permit.
    Follow-up Comment: Response Accepted, however it should be noted as such in the report.
11. General comment: Does the project impact drainage systems/joint drainage systems, or fall under City of Tampa criteria?
    Response: Part of the outfall for Basin 100 includes City of Tampa Streets. Volumetric calculations will be revised to show attenuation of the post-development 25-year storm to the pre-development 5-year storm to meet City of Tampa requirements. Basin 200 does not impact any City of Tampa drainage systems.
    Follow-up Comment: Response Accepted. Please revise the narrative accordingly.
12. PDF Page 20 of 69: Table 3.2 p Presumptive Water Quality Treatment should be corrected per SWFWMD Criteria in ERP Applicant's Handbook Volume II (2018), Section 4.1.a(1). Unless SWFWMD has agreed in a pre-app or other communication to allow consideration of only new pavement. Since Pond 2 is being eliminated, all contributing areas should be considered.
    Response: A pre-application meeting was held with SWFWMD on 1/26/2022. It was confirmed that the project must replace the permitted treatment volume for existing Pond 2 in its entirety and, in addition, provide treatment for the increased impervious area for the project. Compensatory treatment method will be utilized to collect and convey area equivalent to the new impervious area to the pond(s) for treatment. The pre-application meeting notes will be referenced in Section 3.0 of the report and included in an appendix.
    Follow-up Comment: Response Accepted.

13. PDF Page 26 of 69: General statement for all exhibits. Please remove the county parcel lines and replace with the THEA ROW lines if possible. If THEA ROW lines are not available, then a sketched version of what is understood to be THEA ROW with the legend stating as such is acceptable (i.e., 'Estimated THEA ROW').
    Response: Review of existing as-built plans found that right-of-way for the Selmon Expressway varies between 150-200 feet but is generally 150 feet wide. Therefore, we will add LA ROW, centered between the eastbound and westbound directions, 150 feet wide. We recommend leaving the existing parcel lines because we are proposing right of way impacts to a few properties due to surface street improvements.
    Follow-up Comment: Response accepted.
14. PDF Page 26 of 69: The Proposed ROW line in the legend does not match the other exhibits.
    Response: Agree, this will be fixed.
    Follow-up Comment: Response accepted.
15. PDF Page 31 of 69: The line for the proposed ROW is also labeled 'Proposed Maintenance Agreement'. With the City?
    Response: The colors are different for the two lines. The line for the "Proposed Maintenance Agreement" is pink and the line for the "Proposed ROW" is red.
    Follow-up Comment: Response accepted.
16. PDF Page 37 of 69: The brownish lines blend into the Aerial and should be changed to a different color. What do these lines depict? It appears that flow arrows are there (green) but that the scale provided the flow arrows cannot be read. Please provide larger flow arrows or, as an alternative, include flow arrows on the Pond exhibits later in the document.
    Response: The drainage map will be revised for clarity. Flow arrows will be enlarged.
    Follow-up Comment: Response accepted.
17. Sheet 42 of 69: Pond 200-1 and Pond 200-2 are depicted differently here than they are in subsequent exhibits. Please reconcile.
    Response: The Boring Location Plan is an excerpt from the Geotechnical Memorandum. It has been revised to correspond to the latest alternative pond sites.
    Follow-up Comment: Response accepted.
18. Sheet 60 of 69: Appendix F, Sheet F-2 please title and label the figure since it does not depict the actual pond.
    Response: Agree. The figure will be titled and labeled.
    Follow-up Comment: Response accepted.
19. Treatment Volume General Comment: Contributing area should be all areas within the pond basin unless the new impervious is meant to be separated. If it is one basin to be mixed into the same pond, then all roadway areas should be included. Please review calculations considering this standard.
    Response: A pre-application meeting was held with SWFWMD on 1/26/2022. It was confirmed that the project must replace the permitted treatment volume for existing Pond 2 in its entirety and, in addition, provide treatment for the increased impervious area for the project. Compensatory treatment will be utilized by directing an area of

pavement to the pond that is equivalent to the new impervious area. The pre-application meeting notes will be referenced in Section 3.0 of the report and included in an appendix.

Follow-up Comment: Response accepted.

20. PDF Page 68 and 69: Earlier exhibits show possible contaminated soils in the areas of Pond 100, 200-1 and 200-3. Please provide preliminary information on contaminate mitigation per FDOT Drainage Manual (2021) Section 5.5.

    Response: Section 5.5 of the FDOT Drainage Manual (January 2022) requires preliminary information on potential hazardous waste contaminations (Section 5.5.1). Contamination mitigation is specific to the type and degree of contamination and is beyond the scope of the PD&E pond siting report. However, a commitment is contained within the PEIR that addresses additional screening of Medium and High risk ranked contamination sites. This commitment states, "For those locations with a risk ranking of MEDIUM and HIGH, Level II field screening should be considered during future project implementation phases and prior to construction. Note that additional information may become available or site-specific conditions may change from the time the Contamination Screening Evaluation Report (CSER) was prepared and should be considered prior to proceeding with roadway construction."

    Follow-up Comment: Response accepted.

21. PDF Page 68 and 69: Please remove the county parcel line work and replace with THEA ROW, existing pipe infrastructure and flow arrows if possible.

    Response: Review of existing as-built plans found that right-of-way for the Selmon Expressway varies between 150-200 feet but is generally 150 feet wide. Therefore, we will add LA ROW, centered between the eastbound and westbound directions, 150 feet wide. We recommend leaving the existing parcel lines because we are proposing right of way impacts to a few properties due to surface street improvements. Existing pipe infrastructure and flow arrows will be revised on the drainage map per response to Comment 16.

    Follow-up Comment: Response accepted.

22. General Statement: Portions of the narrative speak of neighboring parcels draining into the concrete lined ditch north of existing Pond 2, however the drainage basin only includes the roadway sections. Please include all contributing areas in the depicted basins.

    Response: Agree. All contributing areas will be included in the basin delineations.

    Follow-up Comment: Response accepted.