

**SELMON  
EXPRESSWAY**

Whiting Street PD&E Study

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**Location Hydraulic  
Report Technical  
Memorandum**

January 2022

## Professional Engineer Certification

### Location Hydraulic Report Technical Memorandum

**Project:** Whiting Street Project Development and Environment Study

**THEA Project No:** HI-0112

**Date:** January 2022

This location hydraulic report technical memorandum 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.



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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 2045 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 Existing Conditions

### 2.1 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.

### 2.2 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, storm drains, concrete ditches, side drains, inlets and cross drains.

The project limits cross two stormwater basins, Basin 100 and Basin 200 as described below. Individual basin maps are 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 drain system on the ground level by vertical pipes connected to the bridge piles. 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.

## 2.3 Soils and Geotechnical Data

The United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) soil survey for the area is attached 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.

## 2.4 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** below 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
<b>Total:</b>	<b>602</b>	<b>100</b>

Note: Existing land use data represents year 2021.

Source: Plan Hillsborough, June 2021.



## 2.5 Floodplains and Floodways

### 2.5.1 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 occurred.

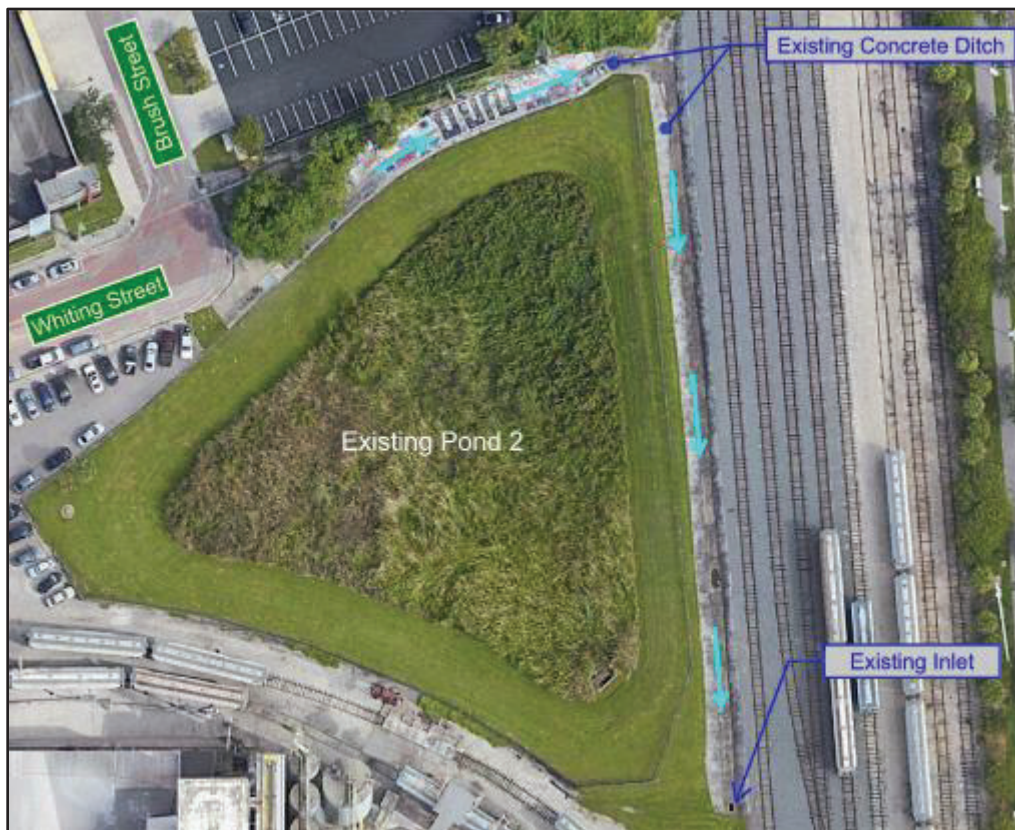


Figure 2.4: Existing Flooding

### 2.5.2 Flood Insurance Rate Maps

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**.

### 2.5.3 Flood Zone Descriptions

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).

### 2.5.4 Regulatory Floodways

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



## 3.0 Proposed Conditions

### 3.1 Roadway

The Preferred Alternative consists of the following improvements, and is shown in **Appendix A**:

- Realigning and widening the eastbound Selmon Expressway off-ramp to Downtown West (Exit 6A) with two lanes off of the Selmon Expressway and three lanes at the Florida Avenue intersection;
- Providing a pedestrian underpass at the location of the existing Channelside Drive off-ramp;
- Relocating the eastbound Selmon Expressway off-ramp to Downtown East (Exit 6B) from its existing access at the Channelside Drive and Morgan Street intersection to new access at Whiting Street;
- Realigning the eastbound Selmon Expressway on-ramp at Jefferson Street to accommodate the new overhead off-ramp to Whiting Street;
- Connecting Whiting Street from Jefferson Street to Meridian Avenue with a four-lane typical section;
- Providing a traffic signal at the Whiting Street at Brush Street intersection; and
- Providing two T-intersections at the Whiting Street at Meridian Avenue intersection.

### 3.2 Drainage

The improvements within the study area will require stormwater management facilities (ponds) to meet SWFWMD permitting requirements as described in the following sections.

#### Basin 100

For the improvements proposed in Basin 100, it is anticipated that a stormwater pond, Pond 100, will be located within the existing right-of-way to provide water quality (treatment) and water quantity (attenuation).

#### Basin 200

A future intermodal center is planned to impact existing stormwater pond (Pond 2), constructed under SWFWMD ERP No. 441660.032, in its entirety. To accommodate the intermodal center and the improvements along the Selmon Expressway off-ramp to Whiting Street, along Whiting Street, and along Meridian Avenue, it is anticipated that the existing stormwater pond (Pond 2) will be replaced and enlarged to accommodate the improvements associated with this project. The new stormwater management facility will be comprised of four ponds (200-1 through 200-4) to provide the current permitted treatment volume and the additional treatment volume required by the proposed improvements to the Selmon Expressway, Whiting Street, and Meridian Avenue. 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.

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.

### 3.3 Floodplains and Floodways

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.

Please refer to **Appendix E** for existing permit information.

## 4.0 Recommendations & Conclusions

The impacts to the floodplains along the project corridor are determined to have no encroachment.

### 4.1 Project Summary Statement

In accordance with FDOT's PD&E Manual, Part 2, Chapter 13, Floodplains, the corridor has been evaluated to determine the impact of the proposed hydraulic modifications. Summary statements are grouped into six categories based upon the type of hydraulic improvements and estimated floodplain impact. The proposed project can be best described as Project Activity Category 1 – "Projects Which Will Not Involve Any Work Below the 100-Year Flood Elevation". This statement is used when the 100-year flood elevation is available from existing information, and it is evident that project will not involve any work below the 100-year flood elevation.

#### PROJECTS WHICH WILL NOT INVOLVE ANY WORK BELOW THE 100-YEAR FLOOD ELEVATION

*Although this project involves work within the limits of the 100-year floodplain, the floodplain is associated with tidal surge and, thus, this project does not encroach upon the base floodplain.*

In addition to the above statement, since this project does not involve regulatory floodways and does not support incompatible base floodplain development, the following statement is added:

It has been determined, through consultation with local, state, and federal water resources and floodplain management agencies that there is no regulatory floodway involvement on the project and that the project will not support base floodplain development that is incompatible with existing floodplain management programs.

### 4.2 Risk Evaluation

Part 2, Chapter 13 - Floodplains of the FDOT's PD&E Manual, refers to the Federal-Aid Policy Guide CFR 650A in conducting the risk evaluation. Because it has been determined that there are no encroachments to the base floodplain, it can be concluded that the encroachments do not create:

- a significant potential for interruption or termination of a transportation facility which is needed for emergency vehicles or provides a community's only evacuation route
- a significant flood risk
- a significant adverse impact on natural and beneficial floodplain values

Therefore, the floodplain encroachments will not create a risk to highway users (loss of life, service disruption) or risks to property owners (damages, service disruption, property loss).



### 4.3 PD&E Manual Requirements

Part 2, Chapter 13 - Floodplains of the FDOT's PD&E Manual, lists the report criteria for projects with floodplains within the project limits. The FDOT has different requirements based on the level of significance of the encroachment. This project was determined to have no encroachment and the requirements for this level of significance are listed below:

- The history of flooding of the existing facilities and/or measures to minimize any impacts due to the proposed improvements.

*There is no history of flooding of the existing facilities. The proposed improvements will maintain the existing roadway profile. Minor impacts are to a floodplain associated with a tidal surge; therefore, there will be no impacts to the base floodplain.*

- Determination of whether the encroachment is longitudinal or transverse, and if it is a longitudinal encroachment an evaluation and discussion of practicable avoidance alternatives.

*Minor impacts are to a floodplain associated with a tidal surge; therefore, there is no encroachment into the base floodplain.*

- The practicability of avoidance alternatives and/or measures to minimize impacts.

*Minor impacts are to a floodplain associated with a tidal surge; therefore, there are no impacts to the base floodplain.*

- Impact of the proposed improvement on emergency services and evacuation.

*The existing roadway profile will be preserved as much as possible along the entire project corridor. Therefore, the roadway will continue to provide equal operation of emergency services and evacuation access as in the existing condition.*

- Impacts of the proposed improvement on the base flood, likelihood of flood risk, overtopping, location of overtopping, backwater, etc.

*Minor impacts are to a floodplain associated with a tidal surge; therefore, there are no impacts to the base floodplain. The likelihood of flood risk is minimal. No overtopping of the roadway is anticipated for the entire roadway corridor.*

- Determination of the impact of the proposed improvements on regulatory floodways, if any, and documentation of coordination with FEMA and local agencies to determine the project's consistency with the regulatory floodway.

*No regulatory floodways exist within the project limits.*

- The impacts on natural and beneficial floodplain values, and measures to restore and preserve these values.

*Since the majority of the proposed improvements are located within the existing right-of-way, no adverse impact on natural and beneficial floodplain values are anticipated.*

- Consistency of the proposed improvements with the local floodplain development plan or the land use elements in the Comprehensive Plan, and the potential of encouraging development in the base floodplain.

*The proposed improvements are consistent with local plans and do not increase or encourage the potential of development in the base floodplain.*

- A map showing project, location, and impacted floodplains. Copies of applicable FIRM maps should be included in the appendix.

*A project location map is included as Figure 1.1. Flood Insurance Rate Map (FIRM) Number 12057C0354H (Effective Date: August 28, 2008) and FIRM Number 12057C0354J (Map Revised Date: October 7, 2021) are included in Appendix D.*

- Results of any risk assessments performed.

*This Location Hydraulic Report (LHR) Technical Memorandum is in support of the Whiting Street PD&E Study and determines if any impacts to floodplains and floodways occur as a result of the proposed improvements to the roadway and associated drainage/conveyance systems. The results of the risk assessment indicate that the floodplain encroachment level will be none and is described as Category 1.*

## 5.0 References

The references used in defining and developing the information base included, but was not necessarily limited to, the following:

- United States Geological Survey (USGS), Tampa Quadrangle Map
- United States Department of Agriculture, Natural Resource Conservation Service, Soil Survey of Hillsborough County, Florida
- Federal Emergency Management Agency Flood Insurance Rate Map (FIRM) Number 12037C0354H (Effective Date: August 28, 2008)
- Federal Emergency Management Agency Flood Insurance Rate Map (FIRM) Number 12037C0354J (Map Revised Date: October 7, 2021)
- FDOT Drainage Manual (January 2021)
- FDOT Project Development and Environment Manual, Part 2, Chapter 13: Floodplains (July 2020)

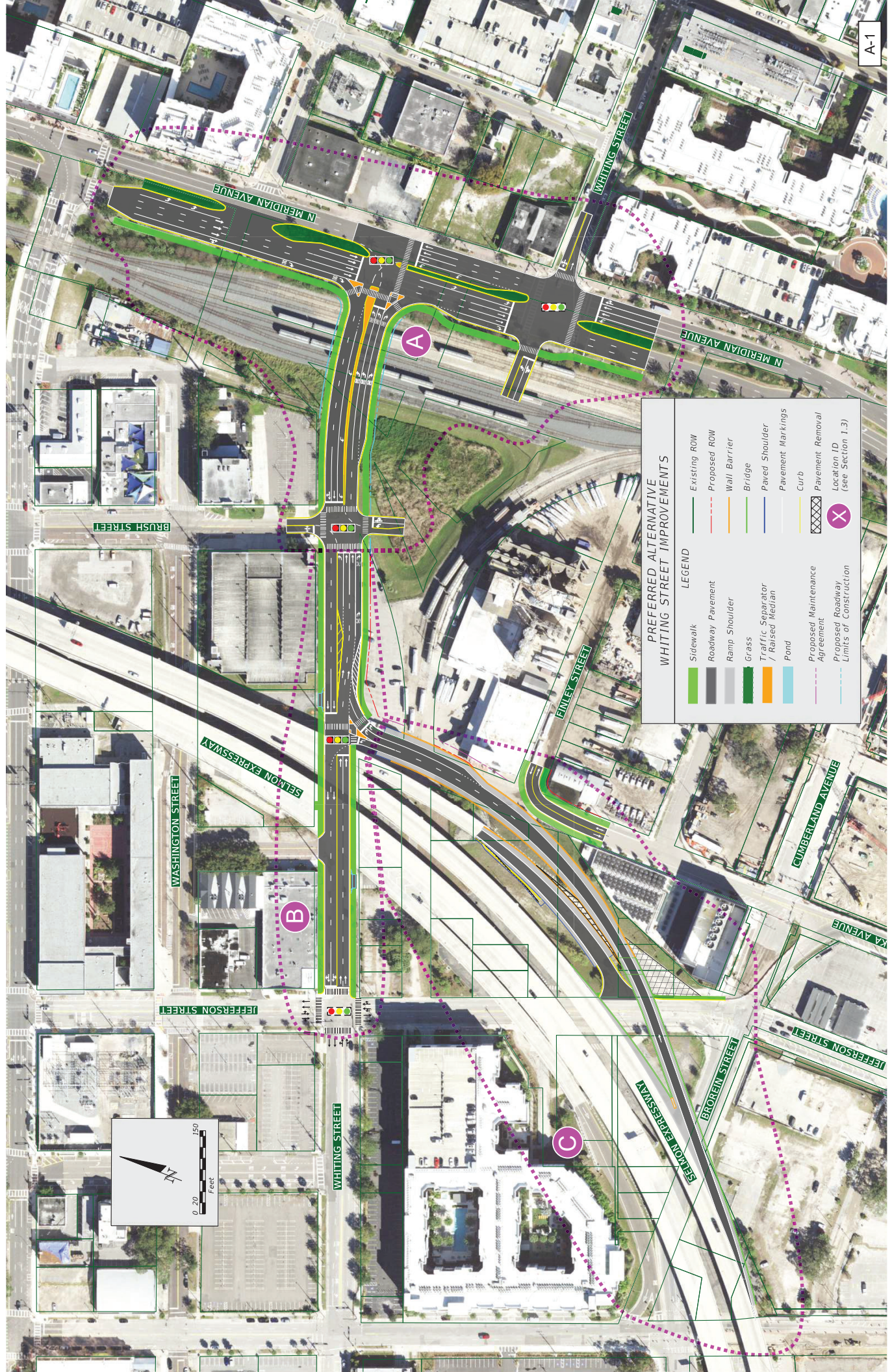
# Appendices



# Appendix A

PREFERRED ALTERNATIVE CONCEPT PLANS





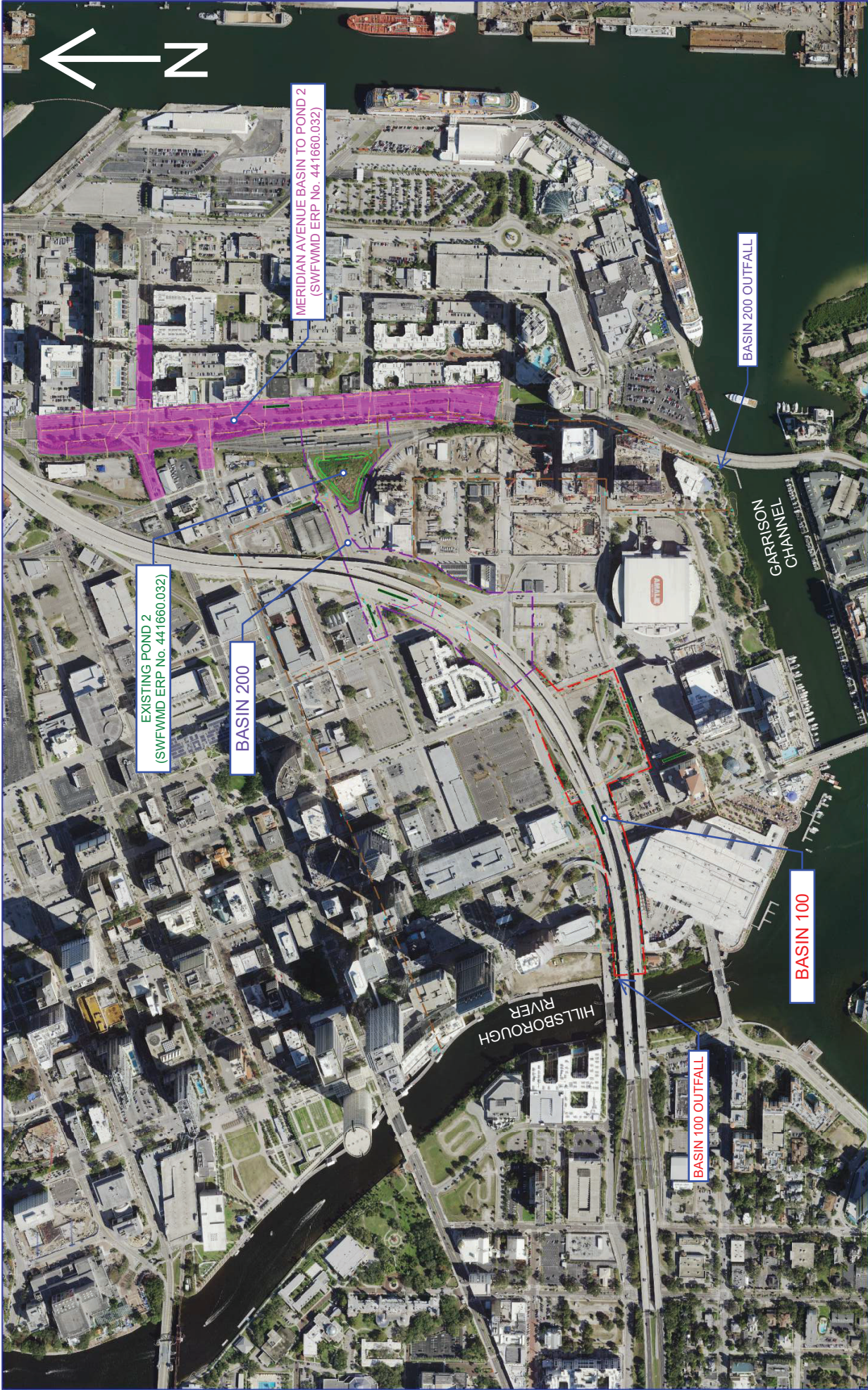




# Appendix B

EXISTING DRAINAGE MAPS





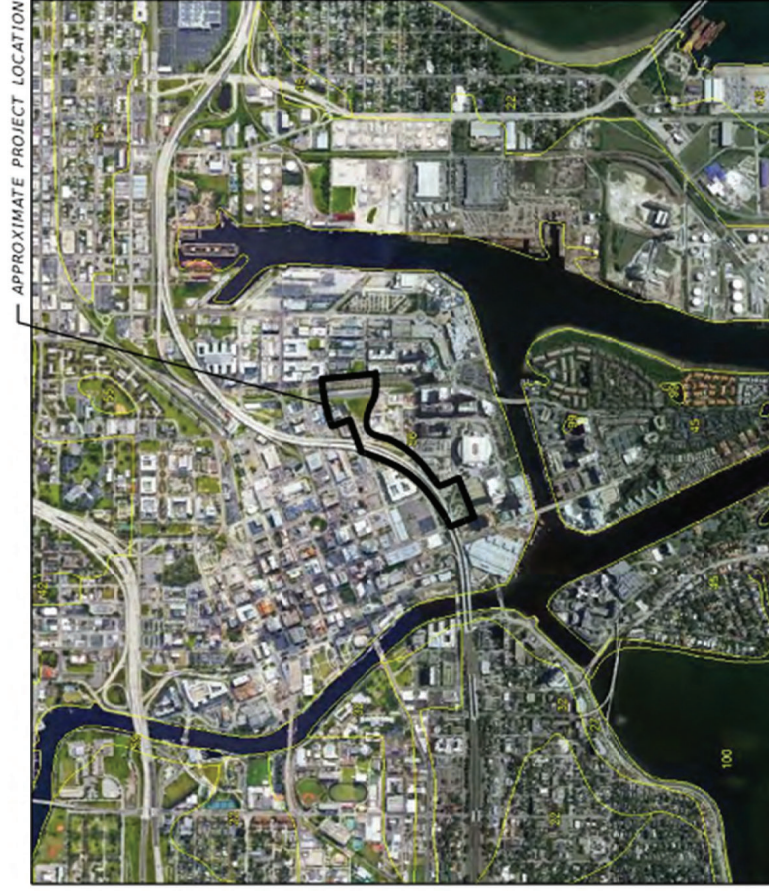
H.W. LOCHNER, INC. 4350 W. CYPRESS STREET SUITE 800 TAMPA, FL 33607	TAMPA HILLSBOROUGH EXPRESSWAY AUTHORITY		WHITING STREET PD&E STUDY EXISTING DRAINAGE MAP		SHEET NO.
	ROAD NO. SR 61E	COUNTY HILLSBOROUGH	THEA PROJECT NO. HI-0141		B-1



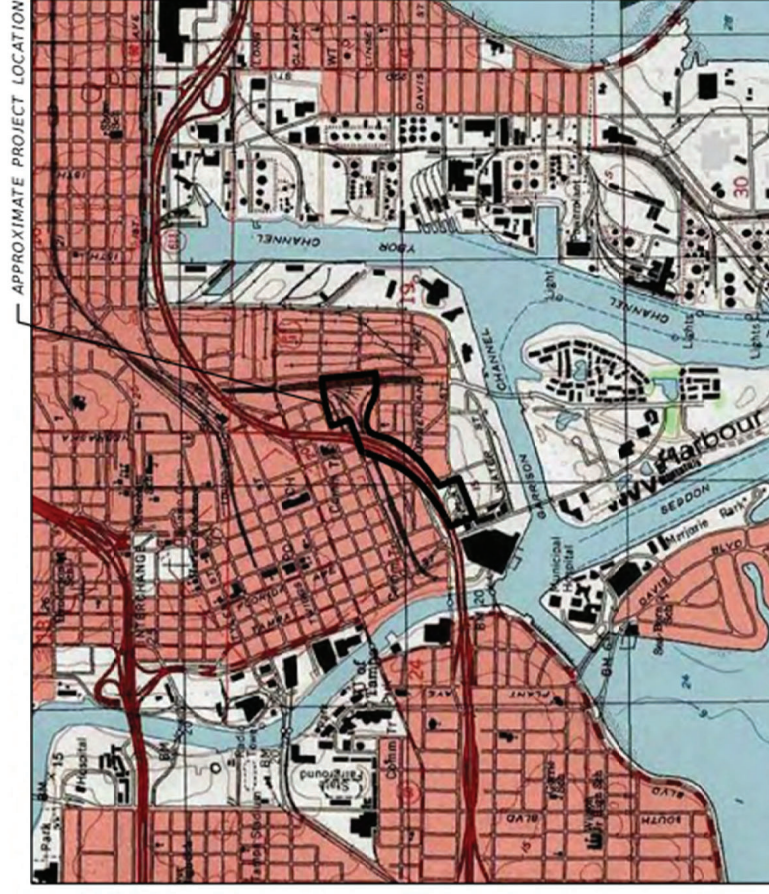
# Appendix C

USDA SOIL SURVEY MAP & USGS TOPOGRAPHIC MAP

USDA SOIL SURVEY MAP



USGS TOPOGRAPHIC MAP



# Appendix D

FEMA FLOOD INSURANCE RATE MAP



## NOTES TO USERS

[illegible][illegible]

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In cooperation with the Federal Emergency Management Agency (FEMA), Hillsborough County developed this Flood Insurance Rate Map (FIRM) to identify flood-prone areas and to help property owners minimize the loss of property and life through effectively management of flood-prone areas. Hillsborough County has been successful in developing flood-prone areas into flood-resistant areas, thus minimizing the impacts of flooding. This is demonstrated by the County's commitment to flood-prone areas at the local level. As part of this commitment, Hillsborough County has established the Floodplain Management Department, which is responsible for the development and implementation of the County's Floodplain Management Ordinance. This ordinance is a key component of the County's Floodplain Management Program, which is designed to protect the County's flood-prone areas from flooding. The Floodplain Management Department is also responsible for the development and implementation of the County's Floodplain Management Plan, which is a key component of the County's Floodplain Management Program. The Floodplain Management Department is also responsible for the development and implementation of the County's Floodplain Management Ordinance, which is a key component of the County's Floodplain Management Program. The Floodplain Management Department is also responsible for the development and implementation of the County's Floodplain Management Plan, which is a key component of the County's Floodplain Management Program.



## Project Area

[illegible]

<b>FIRM</b> FLOOD INSURANCE RATE MAP HILLSBOROUGH COUNTY, FLORIDA AND INCORPORATED AREAS <b>PANEL 354 OF 801</b> (SEE MAP INDEX FOR FIRM PANEL LOCATION)	MAP NUMBER 12057C0354H	EFFECTIVE DATE AUGUST 28, 2008
	MAP NUMBER 12057C0354H	
COORDINATE COMMUNITY TOWNAL CITY OF	NUMBER 12057H 12057H 12057H 12057H	MAP NUMBER 12057C0354H

Nothing to Show: This Map Number designates before and after flood insurance rate maps which are identical except for the Community Name and Effective Date. This map is identical to the map shown on the previous panel of this map sheet.

NATIONAL FLOOD INSURANCE PROGRAM



D-2

# Appendix E

EXISTING PERMIT INFORMATION



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 vicinity 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  $\frac{1}{2}$  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  $\frac{1}{2}$ " 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.

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.