

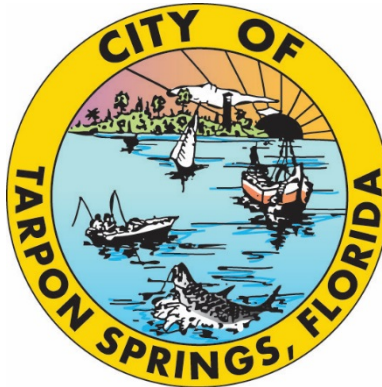
APPENDIX J
2020 PINELLAS COUNTY LOCAL MITIGATION STRATEGY

CITY OF TARPON SPRINGS REPETITIVE LOSS AREA ANALYSIS:

1. CITY OF TAPRON SPRINGS 2019 ANNUAL FLOOD PLAIN MANAGEMENT REPORT
2. CITY OF TARPON SPRINGS 2018 FLOOD PLAIN MANAGMENT PLAN

ACTIVITIES 512 a. FMP & 512b. RLAA

**CITY OF TARPON SPRINGS, FLORIDA
FLOODPLAIN MANAGEMENT PLAN
2019 ANNUAL REPORT**



PREPARED BY:

Building Development Department
With assistance from the Finance, Public Services and Fire Departments

DATE:

September 1, 2019
ANNUAL PROGRESS REPORT

Background

In early 1998, The Florida Department of Community Affairs (DCA) requested that Pinellas County and its municipalities develop a unified, community-wide local mitigation strategy. Their request was aimed at controlling the skyrocketing costs of disasters. Most of the burdens of recovering from a disaster fall squarely on the shoulders of local government. A major disaster can bring extraordinary hardship to citizens, devastate the economic base, and diminish its quality of life for years to come. Recent events, such as the storms of the 2004 hurricane season as well as Hurricane Katrina (2005), Wilma (2005), Ike (Texas 2008), Hermine (2016) and recently Hurricanes Matthew and Irma (2017) demonstrate the need to plan ahead and mitigate potential impacts wherever we can. If we can avoid the hardships we have seen in other parts of the country by making smarter decisions before the disaster, we will have served the best interest of our citizens, businesses and communities.

The workgroup conducted its first meeting on March 11, 1998. Over the ensuing fifteen months, a total of twenty-two (22) meetings took place to produce the deliverables required by contract. Pinellas County and its municipalities developed and adopted a unified Local Mitigation Strategy in 1999. By developing the Local Mitigation Strategy, it was hoped Pinellas County could increase the resiliency of the community to the disruption and hardship of disasters and attempt to reduce the potential and actual costs of their impact.

The State of Florida requires an annual update of the countywide LMS. This update process focuses on the revision of the risk assessment, the identification of accomplishments and the update of the initiatives or projects list. Through its regular quarterly meetings, the county and its municipalities encourage participation in the ongoing mitigation initiatives at the local level.

The 2004 Update of the Pinellas County LMS

In 2004, Pinellas County completed the first comprehensive update of the countywide Local Mitigation Strategy prompted by new requirements of the Disaster Mitigation Act of 2000. This update incorporated new risk assessments based on a new National Flood Insurance Program (NFIP) Flood Study (conducted in 2002), the hurricane evacuation study update (2000), the hazardous material facility inventory (2004), and hazards modeling using the The Arbiter Of Storms (TAOS) model. Local Mitigation Strategy Goals and Objectives and Policies and

Ordinances were updated by the local governments identifying the adopted goals, objectives and policies within their Local Government Comprehensive Plans (LGCPs) and Land Development Regulations (LDRs) and the relevant sections of the Evaluation and Appraisal Reports (EARs) submitted to the Florida Department of Community Affairs. Vulnerabilities including repetitive loss properties and critical facilities inventories were updated and mapped using Geographic Information System (GIS) technology. In addition, the Mitigation Initiatives and Accomplishments were discussed and updated based on consensus of local priorities.

The 2009 Update of the Pinellas County LMS

All 24 jurisdictions incorporated the hazard identification and the risk assessment into their local government comprehensive plans including the goals and policies of the Future Land Use, Coastal and Conservation, Parks and Recreation, Infrastructure and Transportation Elements through the Evaluation and Appraisal Report (EAR) process. Mitigation initiatives and projects identified were incorporated into Capital Improvement Programs (CIPs) including stormwater management projects, transportation improvements and land acquisition projects (floodplain and wetland protection).

The 2015 Update of the Pinellas County LMS

In 2014, Pinellas County, its municipalities and other mitigation partners including the regional planning council, Pinellas Planning Council, water management district, utilities, health and social service agencies, non-profit organizations, economic development agencies, private sector representatives and others embarked on another comprehensive update of the Pinellas County LMS.

In a manner similar to the 2009 update, all 24 jurisdictions adopted the 2015 LMS plan. The update provides updated demographics and risk assessment based on historic events and losses. The County and its partners recognized that the planning process is as important as the plan itself. Using a 10-step planning process identified in the FEMA Floodplain Management Planning (CRS Coordinator's Manual 2013) members, working together enhanced the planning process and strengthened the overall multi-jurisdiction mitigation strategy. The City of Tarpon Springs adopted the 2015 LMS in May of 2015.

The 2017 Update of the Pinellas County LMS

In 2017, Pinellas County, its municipalities and other mitigation partners including the regional planning council, Pinellas Planning Council, water management district, utilities, health and social service agencies, non-profit organizations, economic development agencies, private sector representatives and others embarked on another comprehensive update of the Pinellas County LMS.

2019, Pinellas County is currently in the process of updating and adopting the 2020 LMS which all municipalities will follow. This project will be completed in 2020 with Tarpon Springs adopting by Board of Commission approval.

New FIRMs (Flood Insurance Rate Maps)

This multi-year project to re-examine Pinellas County coastal flood zones and develop detailed, digital flood hazard maps has been completed. FEMA released the Preliminary FIRMs and FIS reports, which reflect current flood risks, for public review last summer (2018). The County in partnership with its municipalities (Tarpon Springs was an active participant) and FEMA held four open house style public meetings around the county soon after the release of the preliminary maps. The County also made the preliminary maps available to the public on two online map services and physical copies of the maps were available in the Tarpon Springs Building Development Department office.

The new FEMA map updates include a new Coastal AE zone and a line called the Limit of Moderate Wave Action (LiMWA). The LiMWA indicates where waves can reach heights of over 1.5 feet.

Mitigation Initiatives

The following lists the mitigation opportunities and initiative within the Pinellas LMS along with other local initiatives for floodplain management and hazard mitigation planning. A statement on accomplishments during the previous year and a status of each is included.

1. Tarpon Springs has hired STANTEC CONSULTING SERVICES, Inc. under a 5-year continuing services contract for stormwater engineering services.

Accomplishments: Under the City's direction, STANTEC completed a Stormwater Action Plan Phase II (SAP). The SAP is a multi-year Capital Improvement Program which includes 16 stormwater projects with an estimated total cost of \$5.2 million. Since the program's inception in Fiscal Year 2010, eighteen (18) projects have been initiated and are in various stages of either design, permitting, construction or completion.

Status: This is an ongoing effort which will continue through Fiscal Year 2024 and possibly beyond as project need dictates.

2. **Current Tarpon Springs Stormwater Projects:** The City of Tarpon Springs created a Stormwater Action Plan (SAP) that was implemented in 2010 used as the master document to identify, evaluate and address areas susceptible to flooding. This document is available in the Tarpon Springs Stormwater Division and Building Development office. To date, the City has resolved or eliminated 22 identified projects; for a list of these projects please refer to the SAP. There are currently 7 capital improvement projects either in the beginning phases or currently under construction, 3 of these projects being funded by the South West Florida Water Management District (SWFWMD) Cooperative Funding Initiative (CFI).

Athens St. & Dodecanese Blvd. – Drainage Improvement Project: The City of Tarpon Springs contracted a Consultant to develop a Technical Memorandum that evaluates design alternatives for drainage and tidal flooding related issues at the intersection of Athens St. & Dodecanese Blvd.

Highland Ave. & Vista Pl/Jasmine Ave. & Lime St. – Drainage Improvement Project: 2 projects combined into 1 CFI with SWFWMD.

Palm Avenue Drainage Improvement Project – Stormwater rehabilitation along Pam Avenue between Glades Ave. and Gulf Road. Planned improvements include installation of a closed storm sewer system within the existing right-of-way to alleviate frequent roadway and private property flooding.

3. Tarpon Springs will implement its Comprehensive Plan, Code of Ordinances and Comprehensive Zoning and Land Development Code for all development activity in the

floodplain.

Accomplishments: In March of 2011 the City adopted a form-based zoning code and future land use amendment for a 246-acre Special Area Plan (SAP) comprised of the City's Community Redevelopment Area and the Sponge Docks Tourist Area. Much of this area is located within the Coastal High Hazard Area (Level 1 Hurricane Evacuation Area). The City included a transfer of development rights process in the new code to allow residential density to only be transferred within or outside of the Coastal High Hazard Area, ensuring that there would be no net gain of residential density within these flood hazard areas. Additionally, there were no increases in residential density within these areas above what was previously allowed.

Continued enforcement of the City's Comprehensive Zoning and Land Development Code also plays a role in reducing unsafe conditions and inappropriate uses, and limits development and redevelopment in the floodplain. The Comprehensive Zoning and Land Development Code sections, which affect uses and development in the floodplain, include but are not limited to the following:

- Stormwater Management
- Floodplain Management
- Open Space Preservation
- Wetlands and Shoreline Protection
- Tree Protection and Preservation
- Endangered/Threatened Species Protection

4. All development and redevelopment in floodplains and floodways must comply with the regulations of the Federal Emergency Management Agency (FEMA), National Flood Insurance Program (NFIP), Federal Insurance Administration (FIA), Florida Building Code and the Tarpon Springs Floodplain Management ordinance.

Accomplishments: Tarpon Springs has participated in FEMA's National Flood Insurance Program (NFIP) since May 1971. As a participant the City complies with the minimum standards of the program plus those additional activities established in the Community Rating System (CRS) program for which the City has participated since October 1992. On October

1, 2019, the City of Tarpon Springs increased from a classification 7 to a classification 6.

Compliance is achieved through aggressive enforcement of the City's Comprehensive Plan, Code of Ordinances, and the Comprehensive Zoning and Land Development Code, Floodplain Management Regulations are found in the Chapter 6 of the City's Code of Ordinances.

On December 31, 2017, the 2017 *Florida Building Code (FBC)*, 6th Ed. became effective throughout the State of Florida. In August 2012, the City adopted a new floodplain management ordinance for local application and enforcement. This ordinance was based upon the Model Floodplain Management Ordinance developed by the Florida Division of Emergency Management (DEM). The purposes of this ordinance and the flood load and flood resistant construction requirements of the *Florida Building Code* are to establish minimum requirements to safeguard the public health, safety, and general welfare and to minimize public and private losses due to flooding through regulation of development in flood hazard areas.

Specific activities include limiting density, providing map information, and issuing and enforcing building permits under these regulations. The City limits densities in coastal high hazard areas to a maximum of five (5) residential units per acre. Map information from Flood Insurance Rate Maps (FIRM) is provided for new development, additions, and reconstruction or at the request of the general public. Building permits rely on this information since the permit must state the minimum base flood elevation (BFE). The most current 2017 FBC, 6th Ed. update included a new requirement of 1 ft. of freeboard above BFE for new construction which was already a requirement for Tarpon Springs.

RLAA (Repetitive Loss Area Analysis)

Step 1: Advise all the properties in the repetitive loss areas that the analysis will be conducted and request their input on the hazard and recommended actions. A Storm Savvy flyer was sent to all residents of Tarpon Springs in the utility bill to inform them about the RLAA initiative. To encourage participation in the RLAA, the Storm Savvy informs citizens of where to obtain a Flood Prevention Planning Questionnaire, where they can provide important information regarding flooding issues, flood protection measures, flood-related information,

and whether or not the City may follow-up with the resident. The Flood Prevention Planning Questionnaire is available in hardcopy form in City Hall and the City Library. In addition, the form is available on the City's website. The Storm Savvy publicizes the website and City locations of the hard-copy form. The Streets and Stormwater Department gathers this information to better assess drainage patterns in the area. Data is collected with regard to how streets flood, property flooding, warning notification, what parts of the property flooded, as well as dates and duration of flooding. In addition, the resident may specify the number of inches of water present, road accessibility, flood protection measures in place such as backup valves, sump pumps, waterproofed walls, etc. The ability to attach photos and videos is also enabled for residents to better verify flooding comments and concerns.

Step 2: Contact Agencies or organizations that may have plans or studies that could affect the cause or impacts of flooding. Active and historical studies were researched and incorporated in the Stormwater Action Plan. Specifically, the Master Drainage Study created by Dames & Moore was evaluated. In some cases, flood prone areas that were identified by Dames & Moore were still problem areas and therefore prioritized in the stormwater focus areas where appropriate.

Step 3: Visit each building in the repetitive loss area and collect basic area. During the RLAA data collection process, photos of the properties within the repetitive loss area, description and photo numbers, drainage patterns, and mitigation recommendations were collected. It is to be noted that although photos were not captured of every building, that drainage patterns and mitigation recommendations were documented for the overall area and not for the repetitive loss property specifically. Drainage improvements such as a roadside swale were recommended to alleviate flooding. Similarly to repetitive loss areas, the City's stormwater focus areas do not specifically target a single property but incorporate a larger area so that drainage improvements can alleviate flooding. Addressing larger drainage areas reduces flood risk for the largest number of residents and assists in prioritizing critical infrastructure and roadways necessary to execute roadway level of service for emergency vehicles and flood evacuation. The tables in support of the RLAA data collection process are not published and are for internal use only. Protected by the Privacy Act of 1974.

Step 4: Review alternative approaches and determine whether any property protection measures or drainage improvements are feasible. The RLAA tables contain mitigation improvements based on the types of buildings and location. In the development of the stormwater focus areas, special attention was paid to critical infrastructure as noted in the Emergency Services section of 510-4 of the CRS Coordinator's Manual as well as water quality issues that might impact natural resources. Flood attenuation was also prioritized for both street and private property as a preventative measure to reduce flood risk. The City actively engages its citizens as noted in Activity 330 of the CRS Coordinator's Manual to inform them of their flood zone and help them understand how to address flooding concerns or provide information about flood protection and flood insurance.

Step 5: Document the findings. The findings for each repetitive loss area are documented below. More detail on each stormwater focus area can be referenced in the SAP. The SAP can be found on the City's website at:

https://www.ctsfl.us/index_htm_files/StormwaterCIP.pdf.

Completed stormwater projects are outlined in the CRS Project Status Update 2019. A capital improvement program is in place to plan and fund action items for the stormwater program. The City of Tarpon Springs - Stormwater Capital Improvement Program can be found on the City's website at https://www.ctsfl.us/index_htm_files/StormwaterCIP.pdf.

Lastly, the City of Tarpon Springs is participating in the coastal Risk Mapping, Assessment and Planning (Risk MAP) project. Risk MAP is a FEMA program that assists community efforts to identify, assess, and reduce their flood risk. The project addresses portions of Pinellas County, which includes Tarpon Springs, affected by coastal flooding.

Activity 510

514 g., CRS Coordinator's Manual (2017 Edition)

1. This Annual Progress Report was prepared by the Building Development Department with assistance from the Finance, Public Services, and Fire Departments. Copies of this report will be distributed to the Board of Commissioners, the local media and made available to the public at the following locations:

- Tarpon Springs City Hall – 324 E. Pine Street, Tarpon Springs, FL 34689
 - Tarpon Springs Public Library – 138 E. Lemon Street, Tarpon Springs, FL 34689
 - Tarpon Springs Cultural Center – 101 S. Pinellas Avenue, Tarpon Springs, FL 34689
2. Copies of the Pinellas LMS and this report can be obtained by contacting the Building Development Department at (727) 942-5604.
 3. A review of the mitigation opportunities and initiatives in the Pinellas LMS along with local mitigation initiatives and accomplishments during the previous year are outlined in this report.
 4. All initiatives are ongoing.
 5. List any recommendations for new projects or revised projects.
 - Tarpon Springs will continue to review its Comprehensive Plan and codes on a regular basis to insure floodplain management planning is current. New and revised projects are scheduled on an annual basis in the City's Capital Improvement Program (CIP).
 - Tarpon Springs will continue to participate in hazard mitigation programs, such as the Pinellas LMS and modify such plans accordingly.
 - Tarpon Springs will continue to participate in FEMA's coastal Risk MAP project.

For more information, please contact the City's CRS Coordinator:

Megan Araya, CFM
Floodplain Coordinator
Building Development Department
(727) 942-5604
maraya@cstfl.us

Activity 510

“Floodplain Management Planning”



City of Tarpon Springs
“2018” 5 Year Cycle Visit
June 2018

Activity 510 - Floodplain Management Planning		
Element	Attachment Pg(s)	Description
512.b. FMP	3-14	Repetitive loss area analysis (RLAA)
512.b. FMP	11-14	RLAA Data Collection - Table is for internal use only. Protected by the Privacy Act of 1974
512.b. FMP	9	Impact Adjustment Map (see calculation in Legend) RLAA Map of Repetitive Loss Areas
512.b. FMP	10	RLAA Map of Repetitive Loss Areas and Stormwater Action Plan Locations
512.b. (b) FMP	15-18	Documentation showing how the owners or residents of the areas were notified
512.b.(c) FMP	17-18	Documentation showing how the analysis was made available to the media and the public - RLAA Flood Prevention Planning - Resident Flood Prevention Planning Questionnaire
512.b.(d) FMP	19	A copy of the formal action by the governing body that adopts the area analysis or accepts changes in subsequent update - City Board of Commissioners approved American Consulting to conduct SAP
512.b. FMP	20-202	Stormwater Action Plan (SAP) Update & SAP
510	203-205	SOP - Flooded Area Response Protocol Application & Maintenance
510	206	Flood Evaluation - Properties Located on the SE Corner of MLK Jr. Drive and S. Goose Avenue
510	207-212	122-12 Hurricane Shelter Impact Study
512.a. FMP	213-221	City of Tarpon Springs Floodplain Management Plan 2017 Annual Report
512.a. FMP	222-1134	2015 Pinellas County Local Mitigation Strategy
512.a. FMP	1135	City of Tarpon Springs Staff Memorandum - Annual Update of the Local Mitigation Strategy (LMS)
512.a. FMP	1136-1213	Pinellas County 2017 Local Mitigation Strategy Annual Progress Report
512.a. FMP	1214-1218	Resolution 2015-17 and follow-up correspondance regarding adoption

512.b. (a) RLAA - A copy of each repetitive loss area analysis report

Repetitive Loss Area Analysis (RLAA)

In 2014 the City of Tarpon Springs contracted with STANTEC Engineering to complete an in depth Stormwater Action Plan (SAP) to address drainage to reduce or eliminate flooding in areas that are problematic. In 2018 there was an update to this SAP listing all of the current projects alleviating the areas with drainage issues. The City has completed, resolved or eliminated 18 identified projects and there are currently 6 capital improvement projects in design or in the construction phase.

With the 2017 CRS Coordinator's Manual update requiring a Repetitive Loss Area Analysis (RLAA), we have requested additional money in our Fiscal Year 2019 budget to expand upon the current RLAA/SAP. The RLAA will provide valuable information that can be used in conjunction with our SAP to include future drainage projects not already identified throughout the City. It is to be noted, that both the RLAA and the SAP are projects that are constantly evolving due to completion of drainage improvement projects and receipt of new information regarding flooding from residents or staff.

Table 1 contains a summary of the completed stormwater projects and flood prone areas as identified in SAP Phase 1.

Table 1 - Repetitive Loss Area Analysis - Stormwater Action Plan Phase I Results							
Repetitive Loss Area	N/A	2	3	4	5	6	Count
Completed Stormwater Projects	13		6	1	2	2	24
Flood Prone Area	27	1	6	2	2		38
Stormwater Problem To Be Addressed By Others	6		1				7

As part of the RLAA initiative, the following activities were performed to satisfy the 5 steps outlined in the 2017 Coordinator's Manual.

Step 1: Advise all the properties in the repetitive loss areas that the analysis will be conducted and request their input on the hazard and recommended actions.

A Storm Savvy flyer was sent to all residents of Tarpon Springs in the utility bill to inform them about the RLAA initiative. To encourage participation in the RLAA, the Storm Savvy informs citizens of where to obtain a Flood Prevention Planning Questionnaire, where they can provide important information regarding flooding issues, flood protection measures, flood-related information, and whether or not the City may follow-up with the resident. The Flood Prevention Planning Questionnaire is available in hard-copy form in City Hall and the City Library.

In addition, the form is available on the City's website. The Storm Savvy publicizes the website and City locations of the hard-copy form. The Streets and Stormwater Department gathers this information to better assess drainage patterns in the area. Data is collected with regard to how streets flood, property flooding, warning notification, what parts of the property flooded, as well as dates and duration of flooding. In addition, the resident may specify the number of inches of water present, road accessibility, flood protection measures in place such as backup valves, sump pumps, waterproofed walls, etc. The ability to attach photos and videos is also enabled for residents to better verify flooding comments and concerns.

Step 2: Contact Agencies or organizations that may have plans or studies that could affect the cause or impacts of flooding.

Active and historical studies were researched and incorporated in the Stormwater Action Plan. Specifically, the Master Drainage Study created by Dames & Moore was evaluated. In some cases, flood prone areas that were identified by Dames & Moore were still problem areas and therefore prioritized in the stormwater focus areas where appropriate.

Step 3: Visit each building in the repetitive loss area and collect basic area.

During the RLAA data collection process, photos of the properties within the repetitive loss area, description and photo numbers, drainage patterns, and mitigation recommendations were collected. It is to be noted that although photos were not captured of every building, that drainage patterns and mitigation recommendations were documented for the overall area and not for the repetitive loss property specifically. Drainage improvements such as a roadside swale were recommended to alleviate flooding. Similarly to repetitive loss areas, the City's stormwater focus areas do not specifically target a single property but incorporate a larger area so that drainage improvements can alleviate flooding. Addressing larger drainage areas reduces flood risk for the largest number of residents and assists in prioritizing critical infrastructure and roadways necessary to execute roadway level of service for emergency vehicles and flood evacuation. The tables in support of the RLAA data collection process are not published and are for internal use only. Protected by the Privacy Act of 1974.

Step 4: Review alternative approaches and determine whether any property protection measures or drainage improvements are feasible.

The RLAA tables contain mitigation improvements based on the types of buildings and location. In the development of the stormwater focus areas, special attention was paid to critical infrastructure as noted in the Emergency Services section of 510-4 of the CRS Coordinator's Manual as well as water quality issues that might impact natural resources. Flood attenuation was also prioritized for both street and private property as a preventative measure to reduce flood risk. The City actively engages its citizens as noted in Activity 330 of the CRS Coordinator's Manual to inform them of their flood zone and help them understand how to address flooding concerns or provide information about flood protection and flood insurance.

Step 5: Document the findings.

The findings for each repetitive loss area are documented below. More detail on each stormwater focus area can be referenced in the attached SAP. The SAP can be found on the City's website at <https://www.ctsfl.us/index.htm/files/StormwaterCIP.pdf>.

Completed stormwater projects are outlined in the CRS Project Status Update 2018 for projects from 2011-2018. A capital improvement program is in place to plan and fund action items for the stormwater program. The City of Tarpon Springs - Stormwater Capital Improvement Program can be found on the City's website at <https://www.ctsfl.us/index.htm/files/StormwaterCIP.pdf>.

Repetitive Loss Area 1:

Currently, no stormwater projects or flood prone areas have been identified in Area 1. Due to the density of other flood prone areas and their proximity to residential properties, CIP funds were allocated to address Areas 3, 4, 5, and 6. There are 6 repetitive loss properties within Area 1.

Repetitive Loss Area 2:

1 flood prone area has been identified from the SAP within Repetitive Loss Area 2. Area 2 contains 2 repetitive loss properties. Flood Prone Area #39 has been identified as street and yard flooding.

ID	Repetitive Loss Area	Location Type
39	2	Flood Prone Area

Repetitive Loss Area 3:

Area 3 contains 6 flood prone areas and 6 stormwater projects have been completed to address drainage problems. Area 3 contains 61 repetitive loss properties and was therefore the focus of CIP funding.

ID	Repetitive Loss Area	Location Type
23	3	Completed Stormwater Projects
61	3	Completed Stormwater Projects
49	3	Completed Stormwater Projects
59	3	Completed Stormwater Projects
24	3	Completed Stormwater Projects
48	3	Completed Stormwater Projects
43	3	Flood Prone Area
42	3	Flood Prone Area
62	3	Flood Prone Area
25	3	Flood Prone Area
24B	3	Flood Prone Area
100	3	Flood Prone Area
76	3	Stormwater Problem To Be Addressed By Others

Flood Prone Area #43 has been identified as street and private property flooding, #42 as street flooding with inadequate infrastructure/backwater, #62 has been identified as street and private property flooding with water quality concerns, #25 as rear yard flooding, #24B as private property flooding, and 100 as street flooding.

Repetitive Loss Area 4:

Two flood prone areas have been identified in the SAP and 1 stormwater project has been completed to alleviate areas of flooding. Area 4 contains 2 repetitive loss properties.

ID	Repetitive Loss Area	Location Type
----	----------------------	---------------

30	4	Completed Stormwater Projects
31	4	Flood Prone Area
70	4	Flood Prone Area

Flood Prone Area #31 has been identified as roadside flooding due to a ditch along Huey Avenue that floods and #70 as street and private property flooding.

Repetitive Loss Area 5:

Two flood prone areas have been identified in the SAP and 2 stormwater projects have been completed to date. Area 5 contains 3 repetitive loss properties.

ID	Repetitive Loss Area	Location Type
33	5	Flood Prone Area
15	5	Flood Prone Area
32	5	Completed Stormwater Projects
52	5	Completed Stormwater Projects

Flood Prone Area #15 has been identified as street and private property flooding. Highland Avenue roadway was deemed impassible. #33 contains street and private property flooding.

Repetitive Loss Area 6:

Two stormwater projects have been completed in Area 6. Although no flood prone areas were identified through the SAP, there are 3 repetitive loss properties located in Area 6.

ID	Repetitive Loss Area	Location Type
16	6	Completed Stormwater Projects
66	6	Completed Stormwater Projects

In addition to targeting flood prone areas that overlap with repetitive loss areas, the City of Tarpon Springs is proactive in addressing drainage problems in other locations to alleviate flooding concerns or stormwater infrastructure issues.

ID	Repetitive Loss Area	Location Type
13	N/A	Completed Stormwater Projects
38	N/A	Completed Stormwater Projects
40	N/A	Completed Stormwater Projects
36	N/A	Completed Stormwater Projects
34	N/A	Completed Stormwater Projects
19	N/A	Completed Stormwater Projects
26	N/A	Completed Stormwater Projects
	N/A	Completed Stormwater Projects
55	N/A	Completed Stormwater Projects
56	N/A	Completed Stormwater Projects

60	N/A	Completed Stormwater Projects
64	N/A	Completed Stormwater Projects
53	N/A	Completed Stormwater Projects
51	N/A	Completed Stormwater Projects
3	N/A	Flood Prone Area
2	N/A	Flood Prone Area
ID	Repetitive Loss Area	Location Type
6	N/A	Flood Prone Area
5	N/A	Flood Prone Area
14	N/A	Flood Prone Area
4	N/A	Flood Prone Area
18	N/A	Flood Prone Area
1B	N/A	Flood Prone Area
22	N/A	Flood Prone Area
35	N/A	Flood Prone Area
20	N/A	Flood Prone Area
29	N/A	Flood Prone Area
8	N/A	Flood Prone Area
10	N/A	Flood Prone Area
11	N/A	Flood Prone Area
17	N/A	Flood Prone Area
28	N/A	Flood Prone Area
7	N/A	Flood Prone Area
21	N/A	Flood Prone Area
57	N/A	Flood Prone Area
69	N/A	Flood Prone Area
28A	N/A	Flood Prone Area
74	N/A	Flood Prone Area
71	N/A	Flood Prone Area
72	N/A	Flood Prone Area
102	N/A	Flood Prone Area
101	N/A	Flood Prone Area
12	N/A	Stormwater Problem To Be Addressed By Others
41	N/A	Stormwater Problem To Be Addressed By Others
37	N/A	Stormwater Problem To Be Addressed By Others
8	N/A	Stormwater Problem To Be Addressed By Others
75	N/A	Stormwater Problem To Be Addressed By Others
1A	N/A	Stormwater Problem To Be Addressed By

		Others
--	--	--------

Cause of Flooding

Hurricane Information

There were two dates listed on several of the AW-501's that correspond with storm events in our area:

June 23–27 2012 - Tropical Storm Debby: This was a weak system but lasted a few days and produced catastrophic flooding across northern and central Florida. There was record river flooding in certain areas.

September 1 2016 - Hurricane Hermine: Many counties in Florida received flooding up to nine feet due to river swelling.

Geographic Location and Topography

As a coastal community, the City of Tarpon Springs is tidally influenced and as such has heavy exposure to natural elements. Areas # 1, 2, 3, 5, & 7 are all tidal influenced areas. These areas have high tides & high winds, and water surges affect all locations within these areas. As for areas # 4 & 6, these locations are low-lying depressional areas that are subject to the "bowl effect" and partial to flooding due to topography.

The SAP contains further details for stormwater focus areas including reasoning for developing the stormwater focus areas and recommended capital improvements. In 2018, a CRS Project Status Update was developed to summarize the results of the SAP for a total of 18 stormwater improvement projects completed between 2011-2018.



City of Tarpon Springs Repetitive Loss Data Sheet

PHOTO		C / R	FOUNDATION	#. OF STORIES	CONSTRUCTION TYPE	STRUCTURAL CONDITION	DRAINAGE PATTERNS	MITIGATION IMPROVEMENTS
7, 8		R	SLAB ON GRADE	1	CONC BLOCK	GOOD	STREET DRAINS	CREATE SWALES
3		C	SLAB ON GRADE	1	CONC BLOCK	GOOD	STREET DRAINS	FLOOD PROOF
1, 2		C	SLAB ON GRADE	1	WOOD FCAME	GOOD	STREET DRAINS	FLOOD PROOF
N/A		C	CANNOT LOCATE STRUCTURE					
4		C	SLAB ON GRADE	1	CONC BLOCK	GOOD	STREET DRAINS	FLOOD PROOF
5, 6		C	SLAB ON GRADE	1	WOOD FCAME	GOOD	STREET DRAINS	FLOOD PROOF
13		R	SLAB ON GRADE	1	CONC BLOCK	FAIR	SIDE SWALES	CREATE SWALES
15, 16		R	SLAB ON GRADE	1	WOOD FRAME	FAIR	SIDE SWALES	CREATE SWALES
14		R	SLAB ON GRADE	1	CONC BLOCK	GOOD	SIDE SWALES	FLOOD PROOF
N/A		R	CANNOT LOCATE STRUCTURE					
17, 18		R	SLAB ON GRADE	1	WOOD FRAME	GOOD	SIDE SLOPES	CREATE SWALES
19		R	SLAB ON GRADE	1	CONC BLOCK	GOOD	SIDE SLOPES	CREATE SWALES
9,10,11,12		R	SLAB ON GRADE	1	CONC BLOCK	GOOD	STREET DRAINS	CREATE SWALES
20, 21		R	STEM WALL	1	WOOD FRAME	FAIR	STREET DRAINS	CREATE SWALES
25		R	STEM WALL	1	CONC BLOCK	GOOD	SIDE SLOPES	CREATE SWALES
26,27,28,29		R	STEM WALL	2	CONC BLOCK	FAIR	SIDE SLOPES	CREATE SWALES
34,35,36		R	STEM WALL	1	CONC BLOCK	EXCELLENT	SIDE SLOPES	CREATE SWALES
30,31,32,33		R	STEM WALL	3	CONC BLOCK	EXCELLENT	SIDE SLOPES	CREATE SWALES
22,23,24		R	STEM WALL	1	CONC BLOCK	GOOD	SIDE SLOPES	CREATE SWALES
55,		R	SLAB ON GRADE	1	CONC BLOCK	GOOD	CURB/ ST. DRAINS	LOWER GRADE LF SD
53, 54		R	STEM WALL	1	CONC & WOOD FRAME	FAIR	FLAT	CREATE SWALES
52		R	SLAB ON GRADE	1	CONC BLOCK	FAIR	FLAT	CREATE SWALES
48, 49		R	STEM WALL	1	CONC BLOCK	GOOD	FLAT	CREATE SWALES
50, 51		R	STEM WALL	1	WOOD FRAME	FAIR	FLAT	CREATE SWALES
46, 47		R	SLAB ON GRADE	1	CONC BLOCK	GOOD	FLAT	CREATE SWALES
44, 45		R	STEM WALL	2	WOOD FRAME	GOOD	RT. SIDE SWALE	STORMWATER MGT
M20,21,22		C	SLAB ON GRADE	2	CONC BLOCK	GOOD	FLAT	SWALES



City of Tarpon Springs Repetitive Loss Data Sheet

PHOTO	LOCATION/ADDRESS	C / R	FOUNDATION	#. OF STORIES	CONSTRUCTION TYPE	STRUCTURAL CONDITION	DRAINAGE PATTERNS	MITIGATION IMPROVEMENTS
	██████████	R	SLAB ON GRADE	1	CONC BLOCK	GOOD	FLAT	CREATE SWALES
40, 41	██████████	R	SLAB ON GRADE	1	CONC BLOCK	GOOD	FLAT	CREATE SWALES
37, 38, 39	██████████	R	SLAB ON GRADE	1	CONC BLOCK	GOOD	FLAT	CREATE SWALES
42, 43	██████████	R	SLAB ON GRADE	1	CONC BLOCK	GOOD	FLAT	CREATE SWALES
DG1	██████████	R	SLAB ON GRADE	1	CONC BLOCK	GOOD	FLAT, SLOPING TOWARD HOUSE IN SOME AREAS	CREATE SWALES
DG2, DG3	██████████	R	SLAB ON GRADE / SPLIT LEVEL	2	CONC BLOCK	GOOD	GRADE SLOPES SLIGHTLY AWAY FROM FOUNDATION	BUILDING CODES
DG13	██████████	R	SLAB ON GRADE	1	CONC BLOCK	GOOD	FLAT / SLOPING TOWARD HOUSE	CREATE SWALES
DG4	██████████	R	SLAB ON GRADE	1	CONC BLOCK	GOOD	SLIGHT SLOPE FROM FRONT TO REAR	CREATE SWALES
DG10	██████████	R	SLAB / CRAWL SPACE	2 w/ ATTACHED 1 STORY GARAGE AND BREEZEWAY	BRICK	GOOD	FLAT AND DROPS OFF ON RIVER SIDE	BUILDING ELEVATION
DG8	██████████	R	SLAB ON GRADE	1	CONC BLOCK	GOOD	FLAT	CREATE SWALES
DG11	██████████	R	SLAB ON GRADE	1	WOOD	GOOD	FLAT w/ SLIGHT PITCH TOWARDS HOUSE IN SOME AREAS	CREATE SWALES
DG6	██████████	R	SLAB ON GRADE	1	CONC BLOCK	GOOD	SLOPING TOWARD HOUSE IN FRONT AND SIDES	BUILDING ELEVATION
DG5	██████████	R	SLAB ON GRADE	1	CONC BLOCK	GOOD	SLIGHT GRADE AWAY FROM FOUNDATION	CREATE SWALES



City of Tarpon Springs Repetitive Loss Data Sheet

PHOTO	LOCATION/ADDRESS	C R	FOUNDATION	#. OF STORIES	CONSTRUCTION TYPE	STRUCTURAL CONDITION	DRAINAGE PATTERNS	MITIGATION IMPROVEMENTS
DG7	[REDACTED]	R	SLAB ON GRADE	1	CONC BLOCK	GOOD	FLAT GRAD AND SLOPING TOWARD HOUSE IN SOME AREAS	BUILDING ELEVATION
MA14, MA15	[REDACTED]	R	SLAB ON GRADE	1	CONC BLOCK	GOOD	LEFT SIDE NEIGHBOR SLOPES ONTO PROPERTY	BUILDING ELEVATION
MA17, MA18	[REDACTED]	R	SLAB ON GRADE	1	CONC BLOCK	POOR	FLAT	CREATE SWALES
MA4	[REDACTED]	R	SLAB ON GRADE	1	CONC BLOCK	GOOD	FLAT / SIDE YARD SLOPES	CREATE SWALES
MA5, MA6, MA7	[REDACTED]	R	SLAB ON GRADE	1	CONC BLOCK	FAIR	SLOPES IN ON BOTH SIDES	BUILDING ELEVATION
MA1	[REDACTED]	R	SLAB ON GRADE	2	CONC BLOCK / FRAME	GOOD	FLAT / KRAEMER BAYOU IN BACK	CREATE SWALES
MA2, MA3	[REDACTED]	R	N/A	N/A	N/A	N/A	FLAT / KRAEMER BAYOU IN BACK	CREATE SWALES
MA10, 11, 12	[REDACTED]	C	SLAB ON GRADE	1	CONC BLOCK	1,2 GOOD & 3,4 FAIR	SLOPES TO LEFT	BUILDING ELEVATION
MA8, MA9	[REDACTED]	R	MOBILE HOME	1	METAL	GOOD	SLOPES TO RIGHT	ACQUISITION
MA33, 34	[REDACTED]	R	SLAB ON GRADE	1	CONC BLOCK	GOOD	FLAT	CREATE SWALES
MA23	[REDACTED]	R	SLAB ON GRADE	1	CONC BLOCK	GOOD	FLAT	CREATE SWALES
MA24	[REDACTED]	R	SLAB ON GRADE	1	CONC BLOCK	GOOD	FLAT	CREATE SWALES
MA27	[REDACTED]	R	SLAB ON GRADE	2	CONC BLOCK	GOOD	FLAT	CREATE SWALES
MA25, 26	[REDACTED]	R	SLAB ON GRADE	1	CONC BLOCK	GOOD	FLAT	CREATE SWALES
MA28, 29	[REDACTED]	R	SLAB ON GRADE	1	CONC BLOCK	GOOD	SITE WORK/UNDER CONSTRUCTION	TBD
MA30, 31, 32	[REDACTED]	R	SLAB ON GRADE	1	CONC BLOCK	GOOD	SLOPES DOWN FROM L SIDE YARD	CREATE SWALES
MA42, 43	[REDACTED]	R	SLAB ON GRADE	1	CONC BLOCK	GOOD	FLAT	CREATE SWALES
MA37, 38	[REDACTED]	R	SLAB ON GRADE	1	CONC BLOCK	GOOD	FLAT / CONCRETE WALL IN FRONT	REMOVE WALL
MA35, 36	[REDACTED]	R	SLAB ON GRADE	1	CONC BLOCK	GOOD	SEVERE SLOPE FROM L NEIGHBOR	BUILDING ELEVATION
MA41	[REDACTED]	R	SLAB ON GRADE	1	CONC BLOCK	GOOD	FLAT	CREATE SWALES



City of Tarpon Springs Repetitive Loss Data Sheet

PHOTO	LOCATION/ADDRESS	C R	FOUNDATION	#. OF STORIES	CONSTRUCTION TYPE	STRUCTURAL CONDITION	DRAINAGE PATTERNS	MITIGATION IMPROVEMENTS	
MA41		R	SLAB ON GRADE	1	BLOCK / FRAME	FAIR	FLAT	CREATE SWALES	
MA39,40		R	SLAB ON GRADE	1	CONC BLOCK	GOOD	FLAT / R NEIGHBOR HAS TALL RETENTION WALL	ELEVATION	
DG13		R	SLAB ON GRADE	1	CONC BLOCK	GOOD	SLOPES FROM THE ROAD TO THE RIVER SLIGHTLY	STORMWATER MGT	
DG12		R	SLAB ON GRADE	1	CONC BLOCK	GOOD	FLAT	CREATE SWALES	
CB2		R	STEMWALL	1	CONC BLOCK	GOOD	S SWALE TO GULF	ADDITIONAL SWALE	
CB3		R	VACANT LOT	N/A	N/A	N/A	REAR SIDE GULF	N/A	
CB4		R	STEMWALL	2	CONC BLOCK / FRAME	GOOD	NORTHSIDE RET POND	CREATE SWALES	
CB7		R	STAMWALL	2	CONC BLOCK	GOOD	SE RET POND	CREATE SWALES	
CB15,16,17		R	SLAB ON GRADE	1	CONC BLOCK	POOR	FLAT	CREATE SWALES	
CB13		R	SLAB ON GRADE	1	CONC BLOCK	GOOD	E AND NORTH SWALES	STORMWATER MGT	
CB9		R	SLAB ON GRADE	1	CONC BLOCK	GOOD	FLAT	CREATE SWALES	
CB10,11,12		R	PEDESTAL	1	WOOD FRAME	FAIR	N CORNER OF RET POND	CREATE SWALES	
CB14		R	MONOSLAB	1	CONC BLOCK	GOOD	S LAKE TARPON	CREATE SWALES	
CB8		R	MONOSLAB	1	CONC BLOCK	GOOD	N SWALE	ADDITIONAL SWALE	
CB1		R	MITIGATED						
CB5,6		R	MITIGATED						



Storm Savvy, 2018

*Storm Savvy is a publication of the City of Tarpon Springs
Building Development Department
Kevin Powell, CBO, CFM, Building Development Director
Megan Araya, CFM, Community Rating System Coordinator*



Preparing for the Storms

The City of Tarpon Springs is a coastal community. Because it is located on the Gulf of Mexico, the City is subject to periodic flooding. This newsletter will provide you with information that is helpful in preparing for and understanding storm activity.

Flooding is the result primarily from tidal activity (and associated wave action) from the Gulf of Mexico. This is caused by severe weather conditions, including tropical storms and hurricanes. However, not all storms produce high tides.

Flooding has occurred during storms along the coastline including Riverside Drive, Dodecanese Boulevard, Athens Street, Pinellas Avenue and other low lying areas throughout the City.

Recent floods include storms of the 2004 hurricane season as well as Hurricane Katrina (2005), Wilma (2005), Ike (Texas (2008), Hermine (2016) and recently, Irma (2017).

Flood Warning System

The Pinellas County Emergency Management Department issues flood warnings for Hurricanes and severe weather. Pinellas County's website is: <http://www.pinellascounty.org/emergency>

Tarpon Springs website is: http://www.tspd.us/reverse_911.html

This information is available on Local News Channels as well as the Weather Channel and the Pinellas County Government Channel. Check your local TV Guide for channel information. You can also tune in to the City's Local Radio Station AM 1610.

Before, During and After the Storm

Nobody can stop a flood. But if you are faced with one, there are actions you can take to protect your family and keep your property losses to a minimum.

Before a Flood:

- Know your evacuation zone
- Review your family disaster plan
- Get your survival kit ready
- Fill your vehicle(s) gas tank
- Get cash, secure papers and valuables
- Make sure if you take prescription drugs that you have at least a two week supply available
- Gather special supplies for infants, children, seniors and pets
- Fill containers and tubs with water, even if you plan to evacuate you may need the water when you return
- Secure your yard equipment and furniture

- Shutter your windows
- If you live in an evacuation zone, know where you will go and how you will get there.
- If you have special needs, be sure you are registered for a special needs shelter.

When the Flood Arrives:

- Do not drive through a flooded area. If you come upon a flooded road, turn around and go another way. More people drown in their cars than anywhere else.
- Do not walk through flooded areas. As little as six inches of moving water can knock you off your feet.
- Stay away from downed power lines and electrical wires.
- Electrocutation is another major source of deaths in floods.
- Electric current passes easily through water.
- Look out for animals- especially snakes. Animals lose their homes in floods, too. They may seek shelter in yours.

After the Flood:

- Before entering a building, check for structural damage. Don't go in if there is any chance of the building collapsing.
- Upon entering the building, do not use matches,

cigarette lighters or any other open flames, since gas may be trapped inside. Instead, use a flashlight to light your way.

- Keep power off until an electrician has inspected your system for safety.
- Flood waters pick up sewage and chemicals. If your home has been flooded, protect your family's health by cleaning up your home right away.
- Throw out foods and medicines that may have come into contact with flood water.
- Until local authorities proclaim your water supply to be safe, boil water for drinking and food preparation vigorously for five minutes before using.
- Take steps to reduce your risk of future floods. Make sure to follow local building codes and ordinances when rebuilding.
- Use flood-resistant materials and techniques to protect yourself and your property from future flood damage. Call the City's Building Development Department for questions at 727-942-5617

Property Protection

- Mark your fuse or breaker box to show the circuits located in floodable areas.
- Consider elevating your house above flood levels.
- Check your building for water entry points. These can be windows, doors and dryer vents.
- These can be protected with low walls or temporary shields.
- Install a floor drain plug, stand-pipe, overhead sewer or sewer backup valve to prevent sewer backup flooding.

More information can be found in *Homeowner's Guide to Retrofitting: 3rd Edition (2014)*

Copies are available at:

<https://www.fema.gov/media-library/assets/documents/480>

NOTE: Some flood protection measures may require a building permit and some measures may not be safe for your building, be sure to call the Building Development Department at (727) 942-5617.

Sources of Financial Assistance

<https://www.fema.gov/disaster/4294-4297/updates/fact-sheet-what-femas-individual-assistance-program>

Pinellas County Community Development:

727-464-8210

<http://www.pinellascounty.org/>

Florida Department of Community Affairs:

2555 Shumard Oak Blvd

Tallahassee, FL 32399-2100

850-413-9960

Flood Insurance

One of the most important things you can do to protect your home and family before a flood is to purchase a flood insurance policy.

You can obtain one through your insurance company or agent. Flood insurance is guaranteed through the National Flood Insurance Program (NFIP), administered by the Federal Emergency Management Agency. Your homeowners insurance does not cover flood damage. Don't wait until a flood is coming to purchase your policy. It normally takes 30 days after purchase for a flood insurance policy to go into effect. For more information about the

NFIP and flood insurance,

Contact your insurance company or agent, or call the NFIP at 1-888-

CALL-FLOOD or 1-888-379-9531 or visit:

<https://www.fema.gov/national-flood-insurance-program>

for more information.

Manufacture / Mobile

Home Residents

Here are a few **SAFETY TIPS** and contacts.

- Check for loose straps
- Make sure straps are properly aligned and not on an angle
- Check to be sure the proper number of tie-downs have been installed properly
- Be sure support piers are in contact with the frame
- Replace straps or ground anchors that show signs of corrosion or damage

For additional protection,

- you may want to consider installing a longitudinal tie-down system which is located at the front and rear of your home

For detailed information about manufactured/mobile homes, contact the Florida Department of Highway Safety and Motor Vehicles at 850-617-3004 or visit: <https://www.flhsmv.gov/>

Important Information

HURRICANE SEASON IS APPROACHING; CONTACT THE BUILDING DEPARTMENT AT 324 E PINE STREET, OR PHONE 727-942-5617 FOR FLOOD-ZONE INFORMATION.

THE PUBLIC SERVICES, WATER DIVISION IS AVAILABLE TO ASSIST WITH ANY FLOODING PROBLEMS AND TO ANSWER ANY QUESTIONS THAT YOU MAY HAVE, CALL (727) 942-5606.

DUMPING IN STREAMS AND WATERWAYS IS STRICTLY PROHIBITED, THE HOUSE YOU FLOOD MAY BE YOUR OWN. REPORT DUMPING TO CODE ENFORCEMENT AT 727-937-0017

THE CITY IS IN THE PROCESS OF CONDUCTING A REPETITIVE LOSS AREA ANALYSIS (RLAA). THIS IS PART OF THE CITY'S ON-GOING EFFORT TO IDENTIFY AND ANALYZE AREAS THAT HAVE DRAINAGE ISSUES SO THAT FUTURE PROJECTS CAN CORRECT THESE AREAS. IF YOU HAVE PROBLEMS WITH FLOODING IN YOUR AREA PLEASE VISIT: <http://www.ctsfl.us/flood%20questionnaire.htm> TO FILL OUT OUR FLOOD PREVENTION PLANNING QUESTIONNAIRE. COPIES OF THIS FORM ARE LOCATED IN CITY HALL, LIBRARY AND ONLINE

512.b. (c) RLAA Documentation showing how the analysis was made available to the media and the public

ATTENTION RESIDENTS:

The City of Tarpon Springs needs your input for its Repetitive Loss Area Analysis (RLAA) and a Stormwater Action Plan (SAP). Please note that the RLAA and SAP are ongoing projects due to changes in drainage patterns due to completed stormwater improvement projects. The RLAA and the SAP Capital Improvement Projects may be viewed on the City’s Flood Information Page at <https://www.ctsfl.us/flood.htm>. Hard copies of the RLAA are also available at the Building Department.

Information about your community and its flood history is critical for future flood prevention planning. This Information will only be used for internal planning purposes and all personal information will be kept confidential. For Questions call 727-942-5606. This questionnaire is also available to fill out electronically on the City’s Flood Information page at <https://www.ctsfl.us/flood.htm>

RESIDENT FLOOD PREVENTION PLANNING QUESTIONNAIRE

Full Name: _____

Email Address: _____

Street Address: _____

City, State, Zip: _____

Is address of flooding same as above: YES NO

If different address please list: _____

Phone Number: _____

May we contact you? YES NO If yes, please provide best time to call: _____

Have the streets in your neighborhood ever flooded? YES NO

If yes please provide the typical duration of the street flooding: _____

Has your property ever been flooded? YES NO

How long have you owned or lived at this address? _____

In the worst flooding of your property, did you receive any warning? YES NO

If you received warning, from what source? _____

What year(s) or dates did your property flood? _____



512 b. (d) RLAA A copy of the formal action by the governing body that adopts the area analysis or accepts changes in subsequent update

City of Tarpon Springs, Florida

Public Services Department
324 E. Pine Street
Tarpon Springs, FL 34689
(727) 942-5610

JOHN CRUZ
PUBLIC SERVICES DIRECTOR
FEDERAL ID # 59-6000437

February 11, 2009

Mr. Ryan Forrestel, P.E.
American Consulting Engineers of Florida, LLC
129 6th Avenue North
Safety Harbor, FL 34695

RE: Contract: Stormwater Engineering Services Continuing Contract, RFQ No. 080086.

Dear Mr. Forrestel,

Please consider this letter an official Notification to Proceed effective on February 11, 2009 as authorized by the City Board of Commissioners on January 13, 2009 for the subject contract. This project includes professional engineering services required for Continuing Stormwater Engineering Services in accordance with the terms negotiated previously between the City and with American Consulting Engineers of Florida, LLC.

If you have any questions or require any additional information, please telephone me at (727) 942-5610 or you may e-mail me at robertson@ci.tarpon-springs.fl.us.

Sincerely,

Bob Robertson
Program Manager, Utilities Capital Projects

cc: Jay Jackus, Purchasing Administrator
Paul Smith, Assistant Public Services Director

CRS PROJECT STATUS UPDATE 2018

TARPON SPRINGS

CITY OF
TARPON SPRINGS, FLORIDA

Stormwater Action Plan

Task Order No. ACE 01-03

Prepared By:
American Consulting Professionals, LLC

Prepared For:
City of Tarpon Springs
324 E. Pine Street
Tarpon Springs, FL 34689

American
CONSULTING

253 Pine Avenue North, Unit A | Oldsmar, FL 34677 | 727.499.5750 | www.acp-americas.com

The City's Stormwater Action Plan (SAP) is the flood protection "Master Plan", if you will, for the reduction and or elimination of flood prone areas within the City. The Plan was implemented in 2010 and to this day is a living document used to identify, evaluate and address areas susceptible to flooding. The SAP is discussed biweekly during our conference call with our stormwater engineers and is updated quarterly. Since its inception, the City has completed, resolved or eliminated **18** identified Projects. Currently there are **6** Capital Improvement Projects either in design or about to enter construction phase. Of these 6 current Projects, **3** are funded in part by the SWFWMD Cooperative Funding Initiative (**CFI**). The following projects contained in this Report were completed since 2010.



PROJECT/PHASE IN-PROGRESS
 PROJECT IN-CONSTRUCTION
 PROJECT/PHASE COMPLETED

Project Location and/or Description	Fiscal Year Design to Commence	Fiscal Year Right-Of-Way to be Purchased	Fiscal Year Construction to Commence
Walton Ave. between Tarpon Ave. & Lime St.	2010	2011	2012
Roosevelt Boulevard	2010	NOT REQUIRED	2011-2012
Disston Ave. south of Tarpon Ave.	2011	NOT REQUIRED	2013
Chesapeake Drive	2011	NOT REQUIRED	2012
MLK Jr. Drive Technical Memorandum	2011	NOT REQUIRED	NA
S. Disston Ave. Pond Technical Memorandum	2011	NOT REQUIRED	NA
Charlotte Ave. Evaluation/Exhibit	2011	NOT REQUIRED	2012
City Golf Course Evaluation	2011	NOT REQUIRED	NA
Pinellas Trail Outfall Ditch (Safford Ave. Rec. Park)	2012	NOT REQUIRED	2013
Hibiscus St. & Park St.	2012	NOT REQUIRED	2012
Huey Ave. north of Tarpon Ave.	2012	NOT REQUIRED	2013
Gulf Road	2012	NOT REQUIRED	2012
East end of Boston St.	2013	NOT REQUIRED	2013
Island Dr. near Hill St.	2013	NOT REQUIRED	2015
Disston Ave. & Center St.	2013	NOT REQUIRED	2013-2015
Cemetery Stormwater Improvements	2013	NOT REQUIRED	2013
Earl Street Extension Evaluation	2014	2014	NA
North Parcel Recreation Stormwater Improvements	2015	NOT REQUIRED	2015
Earl Street Stormwater Pond Permit	2015	NOT REQUIRED	2015
Riverside Dr. & Hillside Dr.	2016	NOT REQUIRED	2017
Bath St./Shaddock Ave. Alley	2017	NOT REQUIRED	2018
Athens St. & Dodecanese Blvd.	2016	NOT REQUIRED	2016
Highland Ave. & Vista Pl./Jasmine Ave. & Lime St.	2017	NOT REQUIRED	2017
Pent St. 200' east of Grosse Ave.	2017	2018-2019	2018-2019
Spruce St. between Levis Ave. & Grosse Ave.	2017	NOT REQUIRED	2020
Palm Ave. between Tarpon Dr. & Gulf Rd.	2018	2017	2026
Citywide GIS Mapping	2018	NOT REQUIRED	2018
Watershed Management Plan	2017	NOT REQUIRED	2017
Disston Ave. & Center St.	2019	NOT REQUIRED	2020-2022
Coburn Dr. 100' west of Florida Ave.	2019	NOT REQUIRED	2020
Levis Ave. Alleyway/Levis Ave. between Lime St. & Oakwood St.	2020	NOT REQUIRED	2021
Kenneth Way at Seaside Dr.	2021	NOT REQUIRED	2022
Disston Ave. between Spruce St. & Live Oak St.	2022		2024-2025
Disston Ave. south of Harrison St.	2017	NOT REQUIRED	2018

Current Projects

Athens St. & Dodecanese Blvd. – Drainage Improvement Project

ATTACHMENT A – SCOPE OF SERVICES

Prepared February 16, 2017

City of Tarpon Springs
Stormwater Engineering Services Continuing Contract
Athens Street & Dodecanese Boulevard Drainage Analysis (Phase 1)

City Task Order Number STN 02-05

A. General

The City of Tarpon Springs requests that the CONSULTANT develop a Technical Memorandum that evaluates design alternatives (2 max.) for drainage and tidal flooding related issues at the intersection of Athens Street and Dodecanese Boulevard.

- A.1. The CONSULTANT will prepare a Technical Memorandum evaluating up to two (2) alternative solutions that address previously reported flooding area(s) generally in the area of the Athens Street and Dodecanese Boulevard intersection. The alternatives would, but not limited to, the evaluation of: increasing the number of roadside inlets and size of the existing internal conveyance pipe(s), providing a stormwater pump and vault system, and providing a check valve on outfall structure/pipe system to prevent tidal influences. Of particular concern is the roadway flooding caused by tidal influences that has been observed/reported.
- A.2. The development of this Technical Memorandum will be based on the following general steps:
 - Data collection
 - Identification of the design criteria being used and development of an evaluation approach
 - Development of design alternatives
 - Technical Memorandum preparation and recommendations

1. Data collection

- 1.1 Obtain available roadway as-builts, topographical data, drainage conveyance systems and stormwater data from existing roadway plans, permits, public input/complaints, City's Stormwater Action Plan (SAP), Southwest Florida Water Management District (SWFWMD) 1-foot Contour Maps, Pinellas County LIDAR contour data, and other information provided by the City to be used in the evaluation of the problem location. A field topographic survey will be performed of existing intersection and storm sewer collection system.

Perform two field investigations (dry with high tide and wet) of the problem area identified by the City. During each field investigation take/obtain photographs at the site and take notes of existing field conditions based on the visual observations and verify contributing drainage basin

boundaries. The notes/photos are to be included in the technical memorandum. It is anticipated that two half-day site visits will be required to accomplish this task, including documentation.

1.2 Review of the following will be performed relative to this analysis and will be noted in the technical memorandum:

- City's 2014 Stormwater Action Plan (SAP)

2 Design criteria and development of evaluation approach

2.1 Evaluate the existing closed stormwater collection system using the SCS Type II Florida modified rainfall distribution for a 2.33-mean annual, 5-year/24-hour, 10-year/24-hour, and 25-year/24-hour storm events. An existing conditions model for the intersection will be developed and evaluated using the mean low water (MLW) and mean higher high water (MHHW) for boundary conditions of the Anclote River. The proposed conditions will be evaluated in an overall effort to reduce flood stages and duration of the Athens Street and Dodecanese Boulevard intersection, and eliminate flooding of private property. An emergency pump system will also be evaluated to prevent roadway flooding for 2.33-mean annual storm event combined with the mean higher high tide (MHHW). Each alternative will be evaluated with the existing conditions to assist with determining the feasibility of an acceptable alternative to the City that could provide flooding relief for the intersection and surrounding private property. Estimated construction costs for each alternative will also be developed.

3 Design alternatives and evaluation of results

3.1 The following services (3.2 thru 3.5) will be performed for the two (2) alternatives.

3.2 Sub-basin delineation will be developed using Pinellas County LIDAR contour data, field review, topographical survey data, and other applicable data. Flood stages and durations will be determined using the SCS Type II Florida modified rainfall distribution for 2.33-mean annual, 5-year/24-hour, 10-year/24-hour, and 25-year/24-hour storm events. Perform a preliminary design evaluation for the alternatives such that the results could be used to develop construction documents, and estimate the costs associated with the construction and permitting of the alternative solution. Construction costs associated with potential utility impacts associated with each alternative are not to be included. Standard stormwater routing procedures are anticipated using the Interconnected Channel and Pond Routing Model (ICPR) (Ver. 3.1) and/or Automated Storm Sewer Analysis and Design (ASAD v3).

3.3 Attend a Southwest Florida Water Management District Pre-Application meeting to discuss alternatives, criteria, and confirm permissibility.

3.4 Summarize the information gathered, stormwater modelling results, and estimated construction costs into a Draft Technical Memorandum. Meet with City staff to review the draft technical memorandum and obtain concurrence on a recommendation. One meeting is anticipated for this activity.

3.5 Finalize the evaluation results and provide the final Technical Memorandum (see below) to the City.

4. Technical Memorandum preparation

The following services (4.1 thru 4.4) will be performed.

Prepare and submit a Technical Memorandum that contains the following:

- 4.1. An existing conditions drainage map with 1-foot contours, sub-basin boundaries, basin areas, direction of flow, and a node/link diagram depicting storage and conveyance elements of the stormwater system(s).
- 4.2. The alternative solutions for the Athens Street and Dodecanese Boulevard Drainage Analysis will be depicted on drainage maps with 1-foot contours, sub-basin boundaries, basin areas, direction of flow, and a node/link diagram depicting storage and conveyance elements of the stormwater system(s).
- 4.3. A Draft Technical Memorandum with a written description of the issue(s), photos of the area(s), the evaluated methodology, evaluated alternatives, and estimated construction costs for each of the alternatives. This Draft Technical Memorandum will be discussed with the City, after which the Final Technical Memorandum will be prepared and submitted for approval. One meeting with the City is anticipated for reviewing the Draft Technical Memorandum.
- 4.4. After the City has reviewed the Draft Technical Memorandum the Final Technical Memorandum will be prepared and submitted for approval.

PROJECT SCHEDULE

<u>Milestone</u>	<u>Date Due</u>
Issue Draft Technical Memorandum	42 Calendar Days from receipt of survey
Issue Final Technical Memorandum	14 Calendar Days from receipt of City review comments on Draft Technical Memorandum

The CONSULTANT shall notify City in writing of any delays beyond the CONSULTANT'S control in accordance with the Agreement. City may grant a time extension for reasons so documented at its sole discretion.

Construction plans, utility coordination/design, permit applications/fees, structural analysis/design, or geotechnical services are not a part of this scope of work.

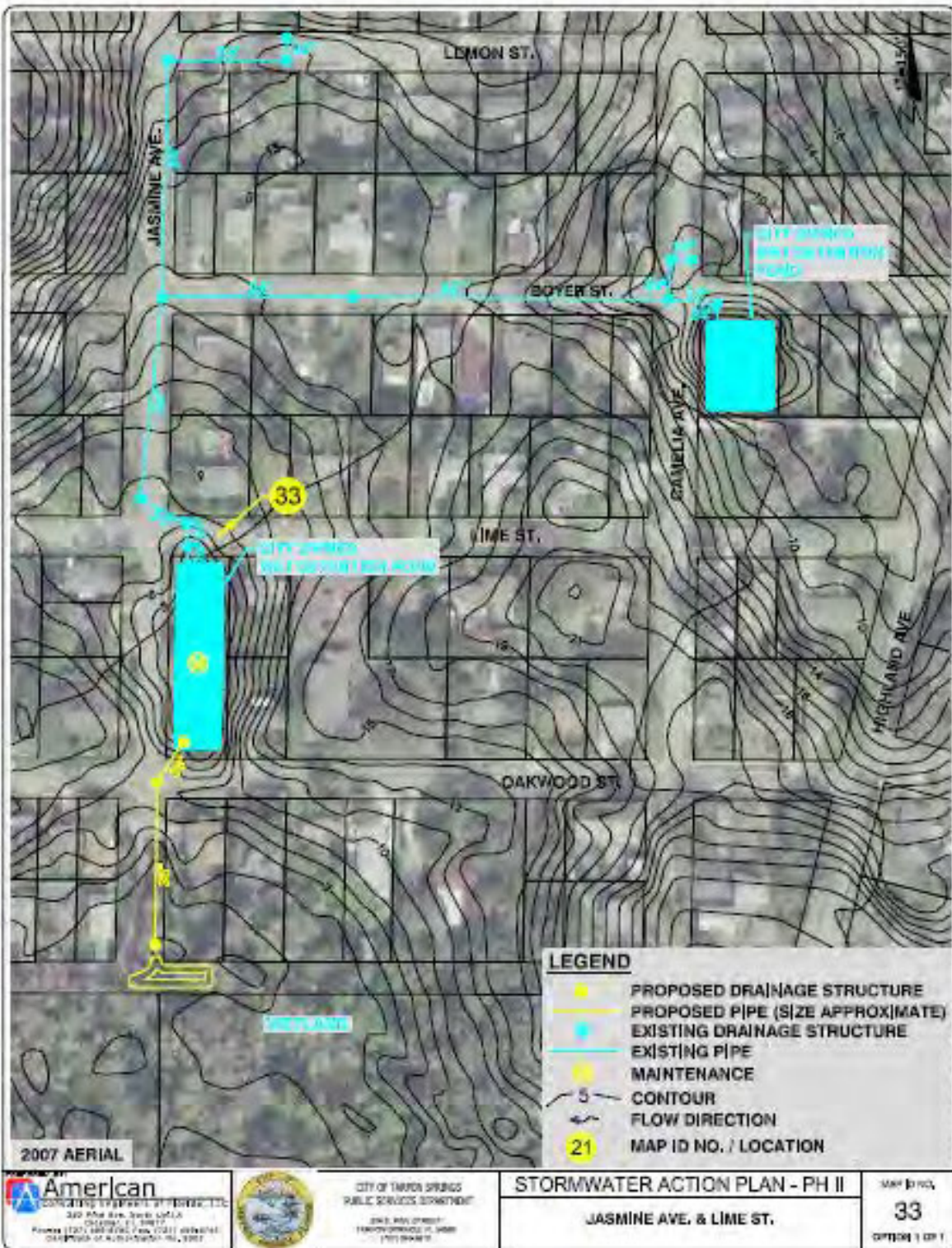
COST OF SERVICES

The scope of services set forth herein will be completed for a lump sum cost of \$27,060.00, which includes all analysis and design labor. A separate Owner's Allowance of \$5,000.00 is proposed, which is only to be utilized as directed by written authorization of the City. Survey fee is \$6,819.00. Grand total estimate is \$38,879.00.

END OF ATHENS STREET AND DODECANESE BOULEVARD DRAINAGE ANALYSIS (PHASE 1) SCOPE-OF-SERVICES

Highland Ave. & Vista Pl/Jasmine Ave. & Lime St. – Drainage Improvement Project

(2 Projects combined into 1 Cooperative Funding Project with SWFWMD)



Copy of Contract cancellation request letter to SWFWMD



City of Tarpon Springs, Florida

Public Works Department
325 E. Pine Street
Tarpon Springs, FL 34689
(727) 942-5606

February 21, 2018

Joel Brown
Government Affairs Regional Manager
Southwest Florida Water Management District
7601 US Hwy. 301
Tampa, FL 33637-6759

Subject: FY2017, CFI N782 Highland/Jasmine Avenue Flooding Abatement
SWFWMD Agreement No. 17CF0000385

Dear Joel,

Please let this letter serve as the City of Tarpon Springs request that the above referenced project and Award be terminated for the grant award period of October 1, 2016 through June 18, 2019. All regulatory permits (Southwest Florida Water Management District, US Army Corps of Engineers, and Pinellas County) were secured, however, the scope of work required to provide the flood abatement identified in the original proposal and concept, as presented to the Southwest Florida Water Management District, has increased the projected construction costs of which the City is unable to secure funding at this time.

We wish to thank you for your assistance on this project and look forward to working with the District in the near future. Please let us know if you need any further, clarifying information on this request.

Respectfully,

Tom Funcheon
Public Works Director
City of Tarpon Springs

Scope of Services
Professional Services Agreement
Grosse Avenue Stormwater Rehabilitation from
Tarpon Avenue to Pine Street
Stormwater Action Plan (SAP) #5
City of Tarpon Springs
Final Design and Post-Design Services Task Order

TABLE OF CONTENTS

- 1.00 PROJECT OBJECTIVE AND DESCRIPTION
- 2.00 PROJECT PHASING AND DESIGN LIMITS
- 3.00 QUALIFICATIONS DURING TERM OF SERVICES
- 4.0 BASIC SERVICES - SCOPE AND RESPONSIBILITY REQUIREMENTS
 - 4.1 Project Schedule
 - 4.2 Design, Construction Plans and Bidding Documents
 - 4.3 Plans and Design Submittals
 - 4.4 Design Survey
 - 4.5 Subsurface Investigation and Pavement Design
 - 4.6 Roadway Alignment (NOT APPLICABLE)
 - 4.7 Utility Coordination and Design
 - 4.8 Drainage Design Requirements
 - 4.9 Coordination of Design within Project Limits
 - 4.10 Maintenance of Traffic Plan Preparation
 - 4.11 Construction Cost Estimates
 - 4.12 Post Design Services
 - 4.13 Specifications
 - 4.14 Community Involvement
 - 4.15 Work Not Included in the Scope of Work
 - 4.16 Owner's Allowance
- 5.00 PLANS PREPARATION, ENDORSEMENT AND OWNERSHIP
- 6.00 MILESTONE DATES
- 7.00 SERVICES DURING CONSTRUCTION
- 8.00 COST PROPOSAL
- 9.00 SUBCONTRACT SERVICES
- 10.00 NOTICE TO PROCEED MEETING (NOT APPLICABLE)
- 11.00 EXPERT WITNESS TESTIMONY
- 12.00 SERVICES TO BE PROVIDED BY THE CITY
- 13.00 PLANS REVIEW CHECK LIST

August 19, 2016

Scope of Services
Professional Services Agreement
Grosse Avenue Stormwater Rehabilitation from

**Tarpon Avenue to Pine Street
Stormwater Action Plan (SAP) #5
City of Tarpon Springs
Final Design and Post-Design Services Task Order**

1.00 PROJECT OBJECTIVE AND DESCRIPTION

1.1 Services required of the CONSULTANT involve furnishing, providing, and performing engineering analysis, design, plan preparation, contract bid documents as per sub article 4.2.4; permitting services, and limited services during construction in connection with the planned stormwater rehabilitation of Grosse Avenue from Tarpon Avenue to Pine Street. Planned improvements include installation of a closed storm sewer system(s) within the existing right-of-way and planned stormwater easement(s) to alleviate the frequent roadway and private property flooding conditions, construction of a new stormwater management facility (SMF) at the northeast corner of the Grosse Avenue/Cypress Street intersection, construction of a joint-use SMF within the Tarpon Springs Elementary School (TSES) property, reconstruction of the existing roadway pavement and curb where applicable due to installation of stormwater infrastructure, utility coordination and permitting. These improvements would be as conceptually shown on Exhibit 1, and in accordance to the alternative selected by the City as presented within the Stormwater Action Plan - SAP #5 Pent Street 100 ft. east of Grosse Avenue. 1.2 This Project shall be designed by the CONSULTANT upon receipt of a written Notice to Proceed (NTP) with services to be provided as more particularly described herein.

2.00 PROJECT PHASING AND DESIGN LIMITS

CONSULTANT shall provide professional consulting services to the CITY, consisting of two (2) distinct phases hereinafter known as the "Project". 2.1 Phase 1 shall consist of preparation of 30%, 60%, 90% and final (100%) plans and securing all applicable permits. Construction and bidding documents will also be prepared. 2.2 Phase 2 will consist of services during construction.

3.00 QUALIFICATIONS DURING TERM OF SERVICES

The CONSULTANT shall provide all engineering services for the Project, in accord with and of a quality, meeting the minimum design standards established by the City of Tarpon Springs.
August 19, 2016

4.00 BASIC SERVICES - SCOPE AND RESPONSIBILITY REQUIREMENTS

The CONSULTANT will provide the following customary basic services for the Project;

4.1 Project Schedule:

The CONSULTANT shall prepare, furnish and maintain a Gantt chart using critical path method for the Project design services. In preparing the bar chart schedule, the scheduling of all design activities shall be the responsibility of the CONSULTANT. The schedule shall be submitted to the CITY within 10 working days of receiving NTP for review.

4.2 Design, Construction Plans and Bidding Documents (Phase 1 Services):

4.2.1 Subject plans shall include design and construction requirements for drainage and roadway improvements; signing and pavement markings; and other incidental design items within the Project limits. Temporary traffic control plans (TTCP) shall be provided.

Specific improvements are as follows:

(a) Tarpon Avenue (approx. 170 ft. east of Grosse Avenue):

1.) Replace existing stormwater inlets and pipes within the existing right-of-way as required; install closed storm sewer system through proposed drainage easement.

(b) Grosse Avenue (Orange Street to Pine Street):

1.) Install new stormwater inlets and pipes within the existing right-of-way as required. New stormwater collection system to connect to existing stormwater collection system at Grosse Avenue/Pine Street intersection.

(c) Cypress Street:

1.) Install new stormwater inlets and pipes within the existing right-of-way as required.

2.) Construct new SMF at northeast quadrant of Grosse

Avenue/Cypress Street intersection on City-owned property. SMF will provide flood abatement volume for the 25-year/24-hour event. SMF will provide water quality treatment for contributing drainage basin area. SMF will discharge into planned stormwater collection system for Grosse Avenue.

(d) Pent Street:

1.) Install new stormwater inlets and pipes within the existing right-of-way as required. New system will address low point approximately 200 ft. east of the Pent St. /Levis Ave. intersection.

2.) Proposed Pent Street system to drain north through a proposed drainage easement located between Grosse Avenue and Levis Avenue, ultimately discharging into existing SMF currently serving Tarpon Springs Elementary School.

(e) Tarpon Springs Elementary School (TSES) Joint-Use SMF:

1.) Expand existing Pinellas County School Board-owned SMF located on the TSES property. Expansion will provide additional flood abatement for the 25-year/24-hour storm event for additional contributing basin area of new stormwater collection system. Expansion will also provide water quality treatment for the additional contributing residential basin area of the new stormwater collection system. CONSULTANT will coordinate with the Pinellas County School Board to determine if water quantity and water quality requirements should be accounted for within the proposed SMF expansion for planned future school property improvements. 4.2.2 Construction plans and bidding documents shall be prepared for the project in accordance with section 2.1 above. Transmittable electronic plans and bidding documents (Adobe PDF format or similar "portable" format) shall be provided. 4.2.3 Plans shall be prepared in accordance with the current standards adopted by the Florida Department of Transportation, the City of Tarpon Springs, as listed hereinafter or as will be made known to the CONSULTANT during performance of all services for the Project. Specific design and construction references, aids and standards shall include, but will not necessarily be limited to the materials listed below. These design reference materials shall be the latest edition materials in effect at the time of performance of the Services Agreement for the project. The controlling design standards will be those presented in the list below:

(a) FDOT Drainage Manual

(b) FDOT Standard Specifications for Road and Bridge Construction

(c) Current FDOT Design Standards Indexes

(d) Current Florida Greenbook

(e) Manual on Uniform Traffic Control Devices

(f) City of Tarpon Springs Standards

(g) SWFWMD Standards

(h) Pinellas County Standard Specifications (if no City of Tarpon Springs Specification exists)

4.2.4 Subject contract bidding documents will be assembled and reproduced for bidding by the CITY.

To be supplied by the CONSULTANT:

- (a) Special Provisions
- (b) Technical Specifications (based on City Standard Technical Specifications, See Section 4.13)
- (c) Contract Plans, including the following categories: Roadway/Drainage Plans including Signing and Pavement Marking Plans and Maintenance of Traffic Plans
- (d) Bid Schedule
- (e) Construction cost estimate

"Front End" documents to be supplied by the CITY include:

- (a) Advertisement for Bids (Legal Notice)
- (b) Instruction to Bidders
- (c) Project Sign
- (d) Bid Bond
- (e) Contract Form
- (f) Contractor's Guarantee
- (g) Contractor's Affidavit and Release of All Claims
- (h) Certificate of Corporate Principal
- (i) Contractor's Payment and Performance Bond
- (j) General Conditions

4.3 Plans and Design Submittals:

4.3.1 Review Plans:

All plans submitted to the CITY for the purpose 30%, 60%, 90% and 100% (Final) review may be 11" x 17" in size with screened planimetrics background. During the design stage the CONSULTANT shall submit the following:

- (a) Five sets of progress plans for review by the CITY at 30%, 60%, 90% and 100% (final) completion intervals.
- (b) Two sets of plans for review by the Pinellas County School Board at 30%, 60%, 90% and 100% (final) completion intervals.
- (c) Sets of plans (Adobe PDF format or similar "portable" format) for affected utilities at 30%, 60%, and 90% design completion intervals only.

4.3.2 Final Plans:

All final design plans may be 11" x 17" in size and all adopted scales shall be as outlined under subarticle 4.3.2.1. Aerial photographic base maps are not required. The CONSULTANT shall submit the following final plans for the Project:

- (a) Five set of plans and two sets of technical specifications signed and sealed in accordance with applicable Florida Statutes.
- (b) Bid documents in PDF and Word format.
- (c) CD with AutoCAD/Microstation compatible files and PDF format.

4.3.2.1 Plan Scales for 22" x 34" Plan Sheets (Subject to Final Approval during Design)

Description Horizontal Scale Vertical Scale

- (a) Typical Section Sheet(s) N/A
- (b) Drainage Map 1" 200' 1"= 5'
- (c) Roadway Plan & Profile Sheets 1" 20' 1"= 2'

- (d) Drainage Detail Sheet 1" 10' N/A
- (e) Other Plans Sheets to be prepared at scales approved by the CITY

4.3.3 Design Computation Documents:

All of the following record documents shall be submitted to the CITY by CONSULTANT, or Sub-Consultant as applicable, at the time of final acceptance or otherwise as noted elsewhere in this scope of services document, neatly bound in an 8 ½" x 11" format or as to the satisfaction of the CITY. All review comments made on design documents or reports submitted as listed below shall be responded to and incorporated into the documents as applicable and such documents or reports shall be resubmitted to CITY at the following design interval submittal date as requested. All plans, specifications, and/or reports prepared or obtained under this Agreement shall be considered works made for hire and shall become the property of the CITY and shall be made available, upon request, to the CITY at any time. Submittals of design computations shall include, but not necessarily be limited to the following:

- (a) Five copies of design computations that shall include, but not necessarily be limited to: ICPR routing and storm sewer calculations at 60% and 100% design intervals.
- (b) One copy of probable construction cost estimates at 30%, 60%, 90% and 100% design intervals.
- (c) One copy of required environmental permit applications for the Project as listed under article 4.8.4 of this scope of services prior to submittal of 60% plans and as amended due to permitting agencies reviews.
- (d) Project correspondence required to document design decisions reached during development of the plans at each design review interval as applicable.

4.4 Design Survey:

This work (all of 4.4) will be completed by CITY and provided to the CONSULTANT. This work includes survey, R/W mapping, and easements.

4.5 Subsurface Investigation and Pavement Design: A total of 8 Standard Penetration Test (SPT) borings, 2 SPT borings within each of the pond site alternatives (delineated in Exhibit 2 in red). Of the two borings to be performed in each area, one should be terminated within the limestone layer and the other one should be performed to a depth of 20 feet. We anticipate that the limestone will be encountered between the depths of 15 to 20 feet below the ground surface. Four (4) hand auger borings, 1 hand auger within each of the proposed pond sites and one in the existing pond site (delineated in Exhibit 2 in red). Four (4) Double Ring Infiltration (DRI) tests, 1 in each of the proposed pond sites and one in the existing pond site (delineated in Exhibit 2 in red). Pavement reconstruction will be in accordance with the latest edition of the City of Tarpon Springs Standard Details.

4.6 Roadway Alignment (NOT APPLICABLE)

4.7 Utility Coordination and Design:

4.7.1 The CONSULTANT shall provide sets of plans (Adobe PDF format or similar "portable" format) for affected utilities at 30%, 60%, and 90% design completion intervals only for the Project.

4.7.2 The CONSULTANT shall conduct two utility coordination meetings with affected utility owners and CITY representatives for the Project. The time of such meetings should take place following the 60% and 90% submittals.

4.7.3 The CONSULTANT is not required to perform, provide, and furnish utility engineering, design, and plan preparation services for those private utility facilities enumerated above with the exception that CONSULTANT shall show all existing and planned utility facilities made known to the CONSULTANT by said private utility owners on the Project plans. The existing utility information shall be secured by CONSULTANT from field location surveys and from plans furnished to CONSULTANT by affected utility owners. Also, CONSULTANT shall be responsible for coordinating with the CITY and Utilities to resolve utility conflicts and to modify design, if needed, to resolve such conflicts and shall show that on construction plans.

4.7.4 It is anticipated that any design services for the CITY water and sewer facilities within the limits of this project will be completed by the CITY.

4.7.5 Subsurface utility exploration is anticipated to be required for this project. CONSULTANT will provide technicians, equipment and special tools to locate (SUE Level A) the utilities identified in the plans provided at the proposed drainage structures. This estimate is based on up to 35 locates and survey of the 35 locations. CONSULTANT will provide horizontal and vertical information for the utility located at the test holes preformed, the survey data will consist of the existing ground elevation and top of utility. This information will be provided to the CITY in a signed and sealed Surveyor's report.

4.8 Drainage Design Requirements:

4.8.1 There are existing drainage facilities along Tarpon Avenue, Cypress Street, Pent Street, and Grosse Avenue. The CONSULTANT, with input from the CITY, will determine what structures and storm sewer pipes will be replaced. It is anticipated that only those facilities within the existing right-of-way would require replacement.

4.8.2 The CONSULTANT will design a closed storm sewer collection system within the existing right-of-way, to the maximum extent feasible, along the east side of Grosse Avenue to provide for conveyance of roadway and offsite runoff. A diversion storm structure or "smart box" will be designed at Grosse Avenue/Cypress Street intersection to divert low stormwater flows into the proposed stormwater management facility (SMF) in the northeast corner of the intersection. High stormwater flows will pass through the diversion structure (and by-pass the proposed SMF) and continue to drain along the proposed closed storm sewer collection system for Grosse Avenue. The CONSULTANT will design the proposed stormwater collection system to connect to the existing stormwater collection system at the Grosse Avenue/Pent Street with every intent to not cause significant revisions to the existing stormwater collection system. The CONSULTANT will design a closed storm sewer collection system within the existing right-of-way along Pent Street to provide for conveyance of roadway and offsite runoff. Runoff will be conveyed north through a proposed/future drainage easement and ultimately discharge into an existing dry detention SMF currently serving the Tarpon Springs Elementary School. The proposed closed storm sewer systems will be designed using the 3-year design frequency (rational method). The proposed SMF at the northeast corner of the Grosse Avenue/Cypress Street intersection will be designed to attenuate the pre versus post runoff volume from the 25-year/24-hour storm event (SWFWMD FLMOD 24-hour rainfall distribution) as well as to provide as much stormwater treatment as possible within the limits of the proposed SMF site shown on Exhibit 1. The proposed TSES SMF expansion will be designed to attenuate the pre versus post runoff volume from the additional 5.90 acres of offsite residential area for the 25-year/24-hour storm event (SWFWMD FLMOD 24-hour rainfall distribution) as well as to provide as much stormwater treatment as possible within the limits of the proposed SMF site shown on Exhibit 1. CONSULTANT will coordinate with the

Pinellas County School Board to determine if water quantity and water quality requirements should be accounted for within the proposed SMF expansion for planned future school property improvements.

4.8.3 The CONSULTANT shall coordinate permitting requirements during preliminary drainage design tasks with SWFWMD. The CONSULTANT shall attend a pre-application meeting with the CITY and SWFWMD for this task. One meeting is anticipated.

4.8.4 The CONSULTANT shall prepare all applicable permit applications.

4.9 Coordination of Design within Project Limits:

4.9.1 Design services specified herein shall include transitions to match existing sidewalk, curb, pavement, driveways, and pathways on TSES property.

4.9.2 To the extent necessary for CONSULTANT'S performance of services and upon request from CONSULTANT, the CITY will provide all available record data, information, plans, right-of-way permits, etc. relating to adjacent land developments (existing and proposed).

4.10 Maintenance of Traffic Plan Preparation:

The CONSULTANT is required to design and prepare plans for the maintenance of traffic (MOT) for the entire project. MOT plans shall address vehicular, pedestrian, and bicyclist traffic, through the construction area, as well as maintaining access to adjacent properties. MOT plans will consist of general notes and a detour plan, if applicable. Detailed MOT plans are not required.

4.11 Construction Cost Estimates:

Prepare and submit an engineers' estimate of probable construction cost with the 30%, 60%, 90%, and 100% (final) plans submittal.

4.12 Post Design Services (Phase 2 Services)

The CONSULTANT shall provide services during construction as described below. These services are included in the CONSULTANT's Basic Lump Sum Services. The CITY will provide construction inspection and administrative services.

4.12.1 BIDDING SERVICES: The CONSULTANT shall assist the CITY in bidding by attending the pre-bid meeting, attending the pre-construction meeting, responding to questions, issuing plan revisions, and reviewing bids received. The CONSULTANT will participate in a total of four meetings (one pre-bid, one preconstruction meeting and two construction progress meetings).

4.12.2 PERIODIC SITE VISITS: The CONSULTANT shall provide up to four site visits during construction for the project.

4.12.3 STORMWATER CERTIFICATION (AS-BUILTS): The CONSULTANT shall review the provided record drawings and prepare final project certificates for the required certification of the SWFWMD ERP Permit based on the contractor provided as-built drawings provided no significant deviations will be made to the approved construction plans.

4.12.4 SAFETY: The CONSULTANT is not responsible for observing, monitoring, or inspecting the safety aspects of the contractor's construction operations. The contractor shall be solely

responsible for all safety aspects of the project including safety of his/her employees, subcontractor employees, and the public.

4.12.5 CONSTRUCTION METHODS: CONSULTANT is not responsible for the contractor methods and means of constructing the proposed improvements. The CONSULTANT shall not be responsible for any acts or omissions of the contractor or subcontractors. The CONSULTANT does not guarantee the performance of the contractor and shall not be responsible for the contractor's failure to perform its work in accordance with the contract documents or any applicable laws, codes, rules, or regulations.

4.12.6 SHOP DRAWING REVIEWS: The CONSULTANT shall review and process shop drawings, furnished by the Contractor, associated with material included on the construction plans. It is the Contractor's responsibility to provide all documentation required to prove any substitute material is the same or better than the material specified. It is assumed all submittals will be made in a timely manner allowing the CONSULTANT a minimum of two (2) weeks of review time. It is also assumed that the submittals will be provided in no more than three (3) submittal packages, and no more than twenty-five (25%) percent of submittals will require re-submittal.

4.12.7 RFI / SUPPORT SERVICES: CONSULTANT will provide office support and assistance during the construction phase of the project. This will include, on a limited basis, responding to Requests for Information (RFI) and providing other input and clarification to the CITY, or Contractor for issues relating/resulting from the elements of the project designed by the CONSULTANT. This will include up to four (4) RFIs, any additional will be considered as additional services.

4.13 Specifications

The CONSULTANT shall prepare special provisions, bid tabulation sheet and the technical specifications for the project using the CITY's standard technical specifications. The CITY will provide an electronic file (Microsoft Word TM or other electronic format) of all the CITY's standard technical specifications. Any deviations required by the design from the CITY's standard technical specifications will be prepared by the CONSULTANT. The CITY will be responsible for preparing the "front end" documents as noted in Article 4.2.4. One set of signed and sealed specifications will be prepared for the project.

4.14 Community Involvement

CONSULTANT shall attend two (2) public information meetings, one to be held at the beginning of the project to review the 30% plans and one at the 90% design phase. The purpose of these meetings is to acquaint citizens with the project. The initial meeting is to solicit citizen comments and respond to questions regarding the project design. The subsequent public meeting is for the purpose of familiarizing the public with the project and is not for the purpose of soliciting public input to the design. The arrangements for the meeting shall be made by the CITY. Prior to the meetings, CONSULTANT shall prepare the visual aids necessary to depict the project, including: roll plot of proposed design on display boards that depict proposed stormwater improvements, right-of-way, proposed easements, and cross-sectional views of improvements; two design plan sets (11" x 17") with proposed right-of-way and easements marked in color; drainage maps; maps indicating proposed stormwater detention/retention sites; and, copies of all studies prepared for the project. The CONSULTANT's Project Manager and at least one senior member of the CONSULTANT's staff shall attend the meetings. The CITY will review citizen comments and questions and advise CONSULTANT of any action to be taken, or design revisions that may be required, as a result of the comments.

4.15 Work Not Included In Scope of Work:

- 4.15.1 Public information newsletters, flyers, etc.
- 4.15.2 Topographic, Right-of-way surveys or the preparation of right-of-way or easement documents.
- 4.15.3 Structural design.
- 4.15.4 Environmental (wetland mitigation, wildlife, contamination, etc.) services.
- 4.15.5 Landscaping and irrigation.
- 4.15.6 Tree pruning.
- 4.15.7 Utility design of water or sewer facilities

4.16 Owner's Allowance

During the course of this project, the CITY and/or the CONSULTANT may identify Additional Services required of the CONSULTANT which are necessary to either complete this work scope or enhance the overall project. These additional services could include, but would not be limited to: those items listed above, additional survey, preparation of presentations, additional graphics or other items. If Additional Services are identified during the course of this project, the CONSULTANT at the request of the CITY will prepare a detailed work scope and budget to perform the Additional Services. Once the CITY and the CONSULTANT have agreed on the scope and budget, the CITY will issue a written notice to proceed for the Additional Services under Owner's Allowance. Because it is impossible to adequately budget for individual Additional Services at this time, an Owners Allowance budget of \$10,000 has been established for such activities. If the Additional Services work scope and budget is approved by the CITY it will be performed and invoiced in accordance with the salary rates established in the Agreement for this Scope of Services.

5.00 PLANS PREPARATION, ENDORSEMENT AND OWNERSHIP

5.1 All plan/profile sheets, except key sheets, shall have a title block across the entire bottom of the sheet. A standard Project title block shall also be furnished by the CITY.

5.2 All final plans, documents, reports, studies and other data prepared by the CONSULTANT and/or its subconsultants will bear the signature and seal of the CONSULTANT's record engineer or the applicable design engineer who shall be duly registered in the appropriate professional category.

5.3 After the CITY's acceptance of final plans and documents and in accordance with Article Six of the Agreement, five (5) record set of 11" X 17" plans will be provided to the CITY. The CONSULTANT shall signify, by affixing an endorsement (seal/signature, as appropriate) on the five (5) record sets, that the work shown on the endorsed sheets was produced by the CONSULTANT. A CD shall be provided to the CITY of the design files in AutoCAD/Microstation compatible format and Adobe PDF or other similar "portable" document format.

6.00 MILESTONE DATES:

6.1 The schedule for the final design and plan preparation services for Project improvements is presented below.

6.2 Project design status submittals for the Project improvements shall be completed in the number of calendar days as follows following issuance of the Notice to Proceed:

6.2.1 30% Design Submittal:

To be completed within 56 calendar days (8 weeks) from the receipt of project survey.

6.2.2 60% Design Submittal:

To be completed within 155 calendar days (22 weeks) from the receipt of project survey.

6.2.3 90% Design Submittal:

To be completed within 250 calendar days (35 weeks) from the receipt of project survey.

6.2.4 100% Design (Final Plans) Submittal:

To be completed within 299 calendar days (43 weeks) from the receipt of project survey.

6.3 The CITY anticipates that a (maximum) two (2) week formal review and critique period will be necessary for each milestone design submittal identified in Article 6.2 upon receipt of plans and accompanying information from the CONSULTANT. Accordingly, this 14 calendar day review period has been included in the plan submittal schedule, Article 6.2 above. 6.4 The CONSULTANT shall formulate and prepare the bar chart schedule for the Project in specific accord with the above stated design status review schedule.

7.00 SERVICES DURING CONSTRUCTION (Phase 2 Services)

The CITY will require the CONSULTANT to provide professional services during the bidding and construction phases for the Project, as identified in Article 4.12.

8.00 COST PROPOSAL:

8.1 The CONSULTANT's services described herein shall be provided for a lump sum cost as follows: for all services, a grand total fee of \$164,244.00; which includes \$132,865.00 (not to exceed) for design/permitting/post design, \$6,725.00 (not to exceed) for geotechnical subconsultant, \$14,320.00 (not to exceed) for subsurface utility engineering subconsultant, \$2,184.00 for SWFWMD ERP Permit, \$8,000 for Owner's Allowance, and \$150.00 for expenses.

8.2 The CONSULTANT's cost proposal herein does include costs for permit application fees to respective environmental or CITY agencies. The cost for permitting, if paid by CONSULTANT, shall be reimbursable by the CITY in full upon submittal of fees justification.

9.00 SUBCONTRACT SERVICES:

Due to the nature and scope of the required services, it may be desirable for the CONSULTANT to subcontract portions of the work (i.e. survey and geotechnical investigation). The CONSULTANT shall be authorized to subcontract these services under the provisions of this Agreement. The subcontracting firms must be approved in writing by the CITY prior to initiation of any work. The fee for subcontracted work shall be a pass-through cost and shall not include a CONSULTANT markup.

10.00 NOTICE TO PROCEED MEETING: (NOT APPLICABLE):

11.0 EXPERT WITNESS TESTIMONY:

The CONSULTANT shall serve as an expert witness for the Project in legal proceedings if required by the CITY. A separate fee schedule for these services shall be established, if and when said services are required.

12.00 SERVICES TO BE PROVIDED BY THE CITY

The following tasks, activities and or items will be provided by the CITY

12.1 CITY utility as-builts, plans, and/or GIS data.

12.2 Notifications to property owners.

12.3 "Front-end" contract documents identified in Article 4.2.4.

12.4 Assemble and copy construction documents for bidding.

12.5 Electronic files (Microsoft Word Format) of CITY standard technical specifications.

12.6 Copies of proposed development plans adjacent to the project limits.

12.7 Provide inspection and administrative services during construction.

12.8 Public information coordination with businesses and public.

13.00 PLANS REVIEW CHECK LIST:

The following four (4) pages represent the minimum amount of information that shall be shown for each design interval. Minimum submittal requirements herein listed for the 30%, 60%, 90% and 100% (final) design status intervals are not all-inclusive; see Article 4.3 for additional service requirements.

CONSULTING ENGINEERING SERVICES AGREEMENT
SCOPE OF BASIC PROFESSIONAL SERVICES
Grosse Avenue Stormwater Rehabilitation from Tarpon Avenue to Pine Street
Stormwater Action Plan (SAP) #5
30% Plan Review (Preliminary Plans)

Purpose/Description: To review the CONSULTANT's proposed grades, geometric layout, survey data, basic geometrics, right-of-way, study/report recommendations, and other preliminary design materials. Provides the technical basis for further plan development. Submission of review plans Five (5) 11" X 17" size construction plans sets and other data two copies of any design documentation data to City. Minimum submittal requirements (shown thus X) (Typical, including the following).

- X 1. Update of Project Schedule
- X 2. Key Sheet (Complete)
- X 3. Drainage Map (Existing Conditions) (Complete)
- NIC 4. Typical Sections (Preliminary)
- X 5. General Notes Sheet (Preliminary)
- NIC 6. Summary of Quantities (Preliminary)
- X 7. Plan / Profile Sheet (Preliminary)
- NIC 8. Drainage Detail Sheets (Preliminary)
- NIC 9. Stormwater Pollution Prevention Plan Sheets (Preliminary)
- NIC 10. Contract Technical Specifications (Preliminary)
- X 11. Estimate of Probable Construction Cost (Preliminary)

CONSULTING ENGINEERING SERVICES AGREEMENT
SCOPE OF BASIC PROFESSIONAL SERVICES
Grosse Avenue Stormwater Rehabilitation from Tarpon Avenue to Pine Street
Stormwater Action Plan (SAP) #5
60% Plan Review (Preliminary Plans)

Purpose/Description: To review the CONSULTANT's final grades, drainage mapping, typical sections, drainage structures, and similar design elements. Final designs at this stage are subject to minor revisions. Substantive changes to the type, size, and location of major features will be considered extra work. Initial review of the quantities. Submission of review plans Five (5) 11" X 17" size construction plans sets and other data two copies of any design documentation data to City. Minimum submittal requirements (shown thus X) (Typical, including the following).

- X 1. Update of Project Schedule
- X 2. Key Sheet (Complete)
- X 3. Drainage Map (Existing and Proposed Conditions) (Complete)
- X 4. Typical Section Sheet(s) (Complete)
- X 5. Summary of Quantities (Preliminary)
- NIC 6. Summary of Drainage Structure Sheets
- X 7. Project Layout (Complete)
- X 8. General Notes (Complete)
- X 9. Roadway Plan-Profile (Complete)

- X 10. Drainage Structures (Complete)
- X 11. Pond Details (Complete)
- X 12. Stormwater Pollution Prevention Plan (Complete)
- X 13. Temporary Traffic Control Plan (Preliminary)
- NIC 14. Contract Technical Specifications (Preliminary)
- X 15. Estimate of Probable Construction Cost (Preliminary)

**CONSULTING ENGINEERING SERVICES AGREEMENT
SCOPE OF BASIC PROFESSIONAL SERVICES**

**Grosse Avenue Stormwater Rehabilitation from Tarpon Avenue to Pine Street
Stormwater Action Plan (SAP) #5
90% Plan Review (Preliminary Plans)**

Purpose/Description: To review the CONSULTANT's final plans, evaluations, recommendations, quantities, contract documents, and the like, for content, completeness, and form and sufficiency for bidding purposes. Initial review of specifications. Purpose of review is to correct typographic errors. To determine outstanding contract obligations by CONSULTANT and timetable for contract closeout. Submission of review plans Five (5) 11" X 17" size construction plans sets and other data two copies of any design documentation data to City. Minimum submittal requirements (shown thus X) (Typical, including the following).

- X 1. Update of Project Schedule
- X 2. Key Sheet (Complete)
- X 3. Drainage Map (Existing and Proposed Conditions) (Complete)
- X 4. Typical Section Sheet(s) (Complete)
- X 5. Summary of Quantities (Complete)
- X 6. Summary of Drainage Structure Sheets (Complete)
- X 7. Project Layout (Complete)
- X 8. General Notes (Complete)
- X 9. Roadway Plan-Profile (Complete)
- X 10. Drainage Structures (Complete)
- X 11. Pond Details (Complete)
- X 12. Stormwater Pollution Prevention Plan (Complete)
- X 13. Temporary Traffic Control Plan (Complete)
- X 14. Contract Technical Specifications (Preliminary)
- X 15. Signing and Pavement Marking Plans (Preliminary)
- NIC 16. Electronic Design Files on CD (AutoCAD/Microstation compatible)
- X 17. Estimate of Probable Construction Cost (Preliminary)

**CONSULTING ENGINEERING SERVICES AGREEMENT
SCOPE OF BASIC PROFESSIONAL SERVICES**

**Grosse Avenue Stormwater Rehabilitation from Tarpon Avenue to Pine Street
Stormwater Action Plan (SAP) #5
100% Plan Final Submittal**

Purpose/Description: To review the CONSULTANT's final plans, evaluations, recommendations, quantities, contract documents, and the like, for content, completeness, and form and sufficiency for bidding purposes. Submission of review plans Five (5) 11" X 17" size construction plans sets and other data two copies of any design documentation data to City. Minimum submittal requirements (shown thus X) (Typical, including the following).

- X 1. Key Sheet (Complete)
- X 2. Drainage Map (Existing and Proposed Conditions) (Complete)
- X 3. Typical Section Sheet(s) (Complete)
- X 4. Summary of Quantities (Complete)
- X 5. Summary of Drainage Structure Sheets (Complete)
- X 6. Project Layout (Complete)
- X 7. General Notes (Complete)
- X 8. Roadway Plan-Profile (Complete)
- X 9. Drainage Structures (Complete)
- X 10. Pond Details (Complete)
- X 11. Stormwater Pollution Prevention Plan (Complete)
- X 12. Temporary Traffic Control Plan (Complete)
- X 13. Contract Technical Specifications (Complete)
- X 14. Signing and Pavement Marking Plans (Complete)
- X 15. Electronic Design Files on CD (AutoCAD/Microstation compatible)
- X 16. Estimate of Probable Construction Cost (Final)

B. SCOPE OF SERVICES

The services to be provided by Terracon are summarized in the following paragraphs.

Field Program: We propose to perform the following field program:

- A total of 8 Standard Penetration Test (SPT) borings, 2 SPT borings within each of the pond site alternatives (delineated in Figure 1 in red). Of the two borings to be performed in each area, one should be terminated within the limestone layer and the other one should be performed to a depth of 20 feet. We anticipate that the limestone will be encountered between the depths of 15 to 20 feet below the ground surface.
- 4 hand auger borings, 1 hand auger within each of the pond site alternatives (delineated in Figure 1 in red)
- 4 Double Ring Infiltration (DRI) tests, 1 in each of the pond site alternatives (delineated in Figure 1 in red).

GEOTECHNICAL INVESTIGATION SCOPE

Terracon Consultants, Inc. 504 East Tyler Street Tampa, FL 33602

P [813] 221-0050 F [813] 221-0051 terracon.com

July 25, 2016

ICON Consultant Group, Inc.

10006 North Dale Mabry Highway, #201

Tampa, Florida 33618

Attn: Bryan Anderson, P.E.

Tel: 813.962.8689

E: banderson@iconconsultantgroup.com

Re: Proposal for Preliminary Geotechnical Exploration

City of Tarpon Springs, SAP 5 – Storm water Improvements

Pent Street and Grosse Avenue

Tarpon Springs, Florida 34689

Proposal No. PH4165103

Dear Mr. Anderson:

Terracon Consultants, Inc. (Terracon) appreciates the opportunity to submit this proposal to provide a geotechnical exploration for the above referenced project. The purpose of this study will be to evaluate soil conditions for a new storm water management facility at the northwest corner of Pent Street and Grosse Avenue in Tarpon Springs, Florida. This proposal outlines our understanding of the project and scope of services and provides a lump sum fee for our services.

A. PROJECT INFORMATION

Site Location / Project Description

ITEM DESCRIPTION

Location

The proposed 4 sites for testing in Tarpon Springs, Florida are delineated by N. Grosse Avenue and N. Lewis on the west/east respectively and by Spruce Street and E. Orange Street on the north/south respectively. The proposed locations for ponds are more specifically shown on Figure 1 below.

General area: Latitude 28.151223°, Longitude -82.750996°

Existing improvements Based on on-line aerial photos, the subject areas are vacant lots

Current ground cover the ground cover at these locations are generally wooded.

Existing topography the sites are relatively flat with an approximate elevation between +6 of +12 feet.

Proposed Construction/

Stormwater

Management

The project will include a brand new stormwater management facility at the NW corner of Pent St./Grosse Ave. and a SMF expansion and/or new SMF located on the Tarpon Springs Elementary School property

Proposal for Geotechnical Engineering Services

Storm Water Improvements ■ Tarpon Springs, Florida

July 25, 2016 ■ Terracon Proposal No. PH4165103

Responsive ■ Reliable ■ Resourceful 2

Should any of the above information or assumptions be inconsistent with the planned construction, please let us know so that we may make any necessary modifications to this proposal.

B. SCOPE OF SERVICES

The services to be provided by Terracon are summarized in the following paragraphs.

Field Program: We propose to perform the following field program:

■ A total of 8 Standard Penetration Test (SPT) borings, 2 SPT borings within each of the pond site alternatives (delineated in Figure 1 in red). Of the two borings to be performed in each area, one should be terminated within the limestone layer and the other one should be performed to a depth of 20 feet. We anticipate that the limestone will be encountered between the depths of 15 to 20 feet below the ground surface.

■ 4 hand auger borings, 1 hand auger within each of the pond site alternatives (delineated in Figure 1 in red)

■ 4 Double Ring Infiltration (DRI) tests, 1 in each of the pond site alternatives (delineated in Figure 1 in red).

Proposal for Geotechnical Engineering Services

Storm Water Improvements

Tarpon Springs, Florida

Terracon Proposal No. PH4165103

Responsive ■ Reliable ■ Resourceful 3

Sampling of the SPT borings will be in general accordance with industry standard procedures wherein five split-barrel samples are obtained in the upper ten feet of each boring and at intervals of about five feet thereafter. Once the samples have been collected and classified in the field, they will be placed in appropriate sample containers for transport to our laboratory. The geotechnical scope of services for this project does not include, either specifically or by implication, any environmental assessment of the site intended to identify or quantify potential site contaminants.

Site Access: Based upon our review of on-line aerial photographs, we expect that the site is accessible to our track-mounted drilling equipment and no major site clearing, wet ground conditions, tree or shrub clearing, repair of landscape damage. We have provided an option for a private utility locate of underground utilities to be used in conjunction with contacting Sunshine State One Call of Florida (SSOCOF). If conditions are known to exist on the site which limit our access, Terracon should be notified so that we may adjust our scope of services and fee, if necessary. To conduct our exploration of the project site, we must be granted access by the property owner. By acceptance of this proposal without information to the contrary, we consider that you have provided access to our exploration equipment for the conduct of our work consistent with the agreed work scope.

Conditions/Items to be provided by client: Items to be provided by the client include the right of entry to conduct the exploration and an awareness and/or location of any private subsurface utilities existing in the area. Terracon will take reasonable efforts to reduce damage to the property. However, it should also be understood that in the normal course of our work some disturbance could occur. We have not budgeted to restore the site beyond backfilling our boreholes with grout when the borings extend down into the limestone. If there are any restrictions or special requirements regarding this site or exploration, these should be known prior to commencing field work. For safety purposes, the boring will be backfilled immediately after completion. Because backfill material often settles below the surface after a period of time, Terracon recommends the borehole be checked periodically and backfilled if necessary.

Laboratory Testing: The samples will be returned to our laboratory and visually classified in general accordance with the Unified Soil Classification System (USCS). Based on our observation and the field data, index testing may be performed on representative samples.

Proposal for Geotechnical Engineering Services

Storm Water Improvements ■ Tarpon Springs, Florida

July 25, 2016 ■ Terracon Proposal No. PH4165103

Responsive ■ Reliable ■ Resourceful 4

Engineering Analysis and Report: The results of our field and laboratory test program will be reviewed by a professional geotechnical engineer licensed in the State of Florida. Based on the results of our field testing, an engineering report will be prepared that details the results of the testing performed, provides logs of the borings and a diagram of the site/boring layout. The report will include the following:

- Computer generated boring logs with soil stratification based on visual soil classification.
- A brief review of our test procedures and the results of testing conducted;
- A summary of the area and site conditions;
- Graphical representation of the boring and laboratory test data as appropriate;
- Current water level and estimated seasonal high groundwater level;
- DRI results and Recommendations

Schedule: We estimate the final written geotechnical report can be completed within 3 weeks from notice-to-proceed. We can provide verbal information after we have completed our field and laboratory program.

C. SAFETY - IIF

At Terracon, we all have a personal and uncompromising commitment to everyone going home safely each and every day. Incident and Injury-Free (*IIF*) is about care and concern for people. It is our personal and organizational commitment at all levels of the company and is where safety is held as a core value as well as an operational priority. Working safely is an inseparable part of working correctly, just as much as other operational priorities, in particular quality, profitability and schedule. Incident and Injury-Free is our commitment to our people and others, who we value for who they are and what they do. *IIF* is not just something we do; it's in everything we do. As part of our *IIF* process, we will prepare a "Pre-Task Plan" for this project where we will identify the potential site safety and job hazards associated with your site. Our Pre-Task Plan will identify and prepare our personal to be able to handle conditions such as but not limited to traffic control, environmental contamination, site access issues, overhead and underground utilities, adverse weather conditions, and personal protection equipment and will continually be reviewed and reevaluated throughout the field work activities. We understand that each site is unique and may contain different safety conditions and as a company to protect our personal as well as others, we look at each site individually to identify the potential concerns.

Reference Number: PH4165103

AGREEMENT FOR SERVICES

This AGREEMENT is between ICON Consultant Group, Inc. ("Client") and Terracon Consultants, Inc. ("Consultant") for Services to be provided by Consultant for Client on the City of Tarpon Springs, SAP 5 ? Pent St./Grosse Ave. Stormwater Improvements project ("Project"), as described in the Project Information section of Consultant's Proposal dated 07/21/2016 ("Proposal") unless the Project is otherwise described in Exhibit A to this Agreement (which section or Exhibit is incorporated into this Agreement).

1. **Scope of Services.** The scope of Consultant's services is described in the Scope of Services section of the Proposal ("Services"), unless Services are otherwise described in Exhibit B to this Agreement (which section or exhibit is incorporated into this Agreement). Portions of the Services may be subcontracted. Consultant's Services do not include the investigation or detection of, nor do recommendations in Consultant's reports address the presence or prevention of biological pollutants (e.g., mold, fungi, bacteria, viruses, or their byproducts) or occupant safety issues, such as vulnerability to natural disasters, terrorism, or violence. If Services include purchase of software, Client will execute a separate software license agreement. Consultant's findings, opinions, and recommendations are based solely upon data and information obtained by and furnished to Consultant at the time of the Services.

2. **Acceptance/ Termination.** Client agrees that execution of this Agreement is a material element of the consideration Consultant requires to execute the Services, and if Services are initiated by Consultant prior to execution of this Agreement as an accommodation for Client at Client's request, both parties shall consider that commencement of Services constitutes formal acceptance of all terms and conditions of this Agreement. Additional terms and conditions may be added or changed only by written amendment to this Agreement signed by both parties. In the event Client uses a purchase order or other form to administer this Agreement, the use of such form shall be for convenience purposes only and any additional or conflicting terms it contains are stricken. This Agreement shall not be assigned by either party without prior written consent of the other party. Either party may terminate this Agreement or the Services upon written notice to the other. In such case, Consultant shall be paid costs incurred and fees earned to the date of termination plus reasonable costs of closing the project.

3. **Change Orders.** Client may request changes to the scope of Services by altering or adding to the Services to be performed. If Client so requests, Consultant will return to Client a statement (or supplemental proposal) of the change setting forth an adjustment to the Services and fees for the requested changes. Following Client's review, Client shall provide written acceptance. If Client does not follow these procedures, but instead directs, authorizes, or permits Consultant to perform changed or additional work, the Services are changed accordingly and Consultant will be paid for this work according to the fees stated or its current fee schedule. If project conditions change materially from those observed at the site or described to Consultant at the time of proposal, Consultant is entitled to a change order equitably adjusting its Services and fee.

4. **Compensation and Terms of Payment.** Client shall pay compensation for the Services performed at the fees stated in the Compensation section of the Proposal unless fees are otherwise stated in Exhibit C to this Agreement (which section or Exhibit is incorporated into this Agreement). If not stated in either, fees will be according to Consultant's current fee schedule. Fee schedules are valid for the calendar year in which they are issued. Fees do not include sales tax. Client will pay applicable sales tax as required by law. Consultant may invoice Client at least monthly and payment is due upon receipt of invoice. Client shall notify Consultant in writing, at the address below, within 15 days of the date of the invoice if Client objects to any portion of the charges on the invoice, and shall promptly pay the undisputed portion. Client shall pay a finance fee of 1.5% per month, but not exceeding the maximum rate allowed by law, for all unpaid amounts 30 days or older. Client agrees to pay all collection-related costs that consultant incurs, including attorney fees. Consultant may suspend Services for lack of timely payment. It is the responsibility of Client to determine whether federal, state, or local prevailing wage requirements apply and to notify Consultant if prevailing wages apply. If it is later determined that prevailing wages apply, and Consultant was not previously notified by Client, Client agrees to pay the prevailing wage from that point forward, as well as a retroactive payment adjustment to bring previously paid amounts in line with prevailing wages. Client also agrees to defend, indemnify, and hold harmless Consultant from any alleged violations made by any governmental agency regulating prevailing wage activity for failing to pay prevailing wages, including the payment of any fines or penalties.

5. Third Party Reliance. This Agreement and the Services provided are for Consultant and Client's sole benefit and exclusive use with no third party beneficiaries intended. Reliance upon the Services and any work product is limited to Client, and is not intended for third parties. For a limited time period not to exceed three months from the date of the report, Consultant will issue additional reports to others agreed upon with Client, however Client understands that such reliance will not be granted until those parties sign and return Consultant's reliance agreement and Consultant receives the agreed-upon reliance fee.

6. LIMITATION OF LIABILITY. **CLIENT AND CONSULTANT HAVE EVALUATED THE RISKS AND REWARDS ASSOCIATED WITH THIS PROJECT, INCLUDING CONSULTANT'S FEE RELATIVE TO THE RISKS ASSUMED, AND AGREE TO ALLOCATE CERTAIN OF THE ASSOCIATED RISKS. TO THE FULLEST EXTENT PERMITTED BY LAW, THE TOTAL AGGREGATE LIABILITY OF CONSULTANT (AND ITS RELATED CORPORATIONS AND EMPLOYEES) TO CLIENT AND THIRD PARTIES GRANTED RELIANCE IS LIMITED TO THE GREATER OF \$50,000 OR CONSULTANT'S FEE, FOR ANY AND ALL INJURIES, DAMAGES, CLAIMS, LOSSES, OR EXPENSES (INCLUDING ATTORNEY AND EXPERT FEES) ARISING OUT OF CONSULTANT'S SERVICES OR THIS AGREEMENT. PRIOR TO ACCEPTANCE OF THIS AGREEMENT AND UPON WRITTEN REQUEST FROM CLIENT, CONSULTANT MAY NEGOTIATE A HIGHER LIMITATION FOR ADDITIONAL CONSIDERATION. THIS LIMITATION SHALL APPLY REGARDLESS OF AVAILABLE PROFESSIONAL LIABILITY INSURANCE COVERAGE, CAUSE(S) OR THE THEORY OF LIABILITY, INCLUDING NEGLIGENCE, INDEMNITY, OR OTHER RECOVERY. THIS LIMITATION SHALL NOT APPLY TO THE EXTENT THE DAMAGE IS PAID UNDER CONSULTANT'S COMMERCIAL GENERAL LIABILITY POLICY.**

7. Indemnity/Statute of Limitations. Consultant and Client shall indemnify and hold harmless the other and their respective employees from and against legal liability for claims, losses, damages, and expenses to the extent such claims, losses, damages, or expenses are legally determined to be caused by their negligent acts, errors, or omissions. In the event such claims, losses, damages, or expenses are legally determined to be caused by the joint or concurrent negligence of Consultant and Client, they shall be borne by each party in proportion to its own negligence under comparative fault principles. Neither party shall have a duty to defend the other party, and no duty to defend is hereby created by this indemnity provision and such duty is explicitly waived under this Agreement. Causes of action arising out of Consultant's services or this Agreement regardless of cause(s) or the theory of liability, including negligence, indemnity or other recovery shall be deemed to have accrued and the applicable statute of limitations shall commence to run not later than the date of Consultant's substantial completion of services on the project

8. Warranty. Consultant will perform the Services in a manner consistent with that level of care and skill ordinarily exercised by members of the profession currently practicing under similar conditions in the same locale. **EXCEPT FOR THE STANDARD OF CARE PREVIOUSLY STATED, CONSULTANT MAKES NO WARRANTIES OR GUARANTEES, EXPRESS OR IMPLIED, RELATING TO CONSULTANT'S SERVICES AND CONSULTANT DISCLAIMS ANY IMPLIED WARRANTIES OR WARRANTIES IMPOSED BY LAW, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.**

9. Insurance. Consultant represents that it now carries, and will continue to carry: (i) workers' compensation insurance in accordance with the laws of the states having jurisdiction over Consultant's employees who are engaged in the Services, and employer's liability insurance (\$1,000,000); (ii) commercial general liability insurance (\$1,000,000 occ / \$2,000,000 agg); (iii) automobile liability insurance (\$1,000,000 B.I. and P.D. combined single

SUBSURFACE UTILITY ENGINEERING (SUE) SCOPE

8509 Benjamin Road, Suite E, Tampa, FL 33634

Telephone: (813) 852-1888 Fax: (866) 485-3356

August 2, 2016

ICON Consultant Group, Inc.

10006 N. Dale Mabry Highway, Suite 201

Tampa, FL 33618

ATTN: Bryan Anderson, P.E.

RE: **CTS-SAP 5 Pent Street**

Dear Mr. Anderson:

Thank you for the opportunity to provide SUE services for the project referenced above. The table below contains our rates and proposed scope of work. We are ready to mobilize immediately.

SERVICES QUANTITY RATE FEE

SUE Locating 5 Days \$1,925.00 Per Day \$9,625.00

Survey Crew 2 Days \$1,655.00 Per Day \$3,310.00

SUE PM 5 Hours \$135.00 Per Hour \$675.00

Sr. Surveyor & Mapper 2 Hours \$175.00 Per Hour \$350.00

Survey Tech 4 Hours \$90.00 Per Hour \$360.00

TOTAL \$14,320.00

Proposed Subsurface Utility Engineering (SUE) and Survey

OMNI will provide technicians, equipment and special tools to Locate (SUE Level A) the utilities identified in the plans provided at the proposed drainage structures. This estimate is based on up to 35 locates and survey of the 35 locations. OMNI will provide horizontal and vertical information for the utility located at the test holes performed, the survey data will consist of the existing ground elevation and top of utility. This information will be provided to the Client in a signed and sealed Surveyor's report. The Client is responsible to provide project horizontal and vertical control to be used. *This estimate does not include performance bonding or permits if needed.*

8509 Benjamin Road, Suite E, Tampa, FL 33634
Telephone: (813) 852-1888 Fax: (866) 485-3356

Locating (SUE Level A)

Vacuum excavation is a technique used to safely expose utilities by using a combination of compressed and vacuum air. Once the utility has been exposed, depth, diameter and material type can be obtained. Utilization of the equipment and methods above are the industry recognized procedure for finding/locating underground utilities and features. Although effective and reliable, there is the possibility that all utilities may not be located or field-verified due to environmental or soil conditions, water table, excessive depth, feature makeup and/or equipment limitations.

Sincerely,
Shannon Wright
SUE Manager
8509 Benjamin Road, Suite E, Tampa, FL 33634
Telephone: (813) 852-1888 Fax: (866) 485-3356

Palm Avenue – Drainage Improvement Project

March 26, 2018

EXHIBIT - A
Scope of Services Professional Services Agreement
Palm Avenue Stormwater Improvements
Stormwater Action Plan (SAP) #22
City of Tarpon Springs
Final Design and Post-Design Services Task Order (STN03-06)

TABLE OF CONTENTS

- 1.00 PROJECT OBJECTIVE AND DESCRIPTION
- 2.00 PROJECT PHASING AND DESIGN LIMITS
- 3.00 QUALIFICATIONS DURING TERM OF SERVICES
- 4.0 BASIC SERVICES - SCOPE AND RESPONSIBILITY REQUIREMENTS
 - 4.1 Project Schedule
 - 4.2 Design, Construction Plans and Bidding Documents
 - 4.3 Plans and Design Submittals
 - 4.4 Design Survey
 - 4.5 Geotechnical Investigation and Pavement Design
 - 4.6 Roadway Alignment (NOT APPLICABLE)
 - 4.7 Utility Coordination and Design
 - 4.8 Drainage Design Requirements
 - 4.9 Coordination of Design Within Project Limits
 - 4.10 Maintenance of Traffic Plan Preparation
 - 4.11 Construction Cost Estimates
 - 4.12 Post Design Services
 - 4.13 Specifications
 - 4.14 Community Involvement (NOT APPLICABLE)
 - 4.15 Work Not Included in the Scope of Work
 - 4.16 Owner's Allowance
- 5.00 PLANS PREPARATION, ENDORSEMENT AND OWNERSHIP
- 6.00 MILESTONE DATES
- 7.00 SERVICES DURING CONSTRUCTION
- 8.00 COST PROPOSAL
- 9.00 SUBCONTRACT SERVICES
- 10.00 NOTICE TO PROCEED MEETING (NOT APPLICABLE)
- 11.00 EXPERT WITNESS TESTIMONY
- 12.00 SERVICES TO BE PROVIDED BY THE CITY
- 13.00 PLANS REVIEW CHECK LIST

**Scope of Services
Professional Services Agreement
Palm Avenue Stormwater Improvements
Stormwater Action Plan (SAP) #22
City of Tarpon Springs
Final Design and Post-Design Services Task Order (STN03-06)**

1.00 PROJECT OBJECTIVE AND DESCRIPTION

1.1 Services required of the CONSULTANT involve furnishing, providing, and performing engineering analysis, design, plan preparation, contract bid documents as per subarticle 4.2.4; permitting services, and limited services during construction in connection with the planned stormwater rehabilitation along Palm Avenue between Glades Avenue and Gulf Road. Planned improvements include installation of a closed storm sewer system(s) within the existing right-of-way to alleviate the frequent roadway and private property flooding conditions, construction of a new stormwater management facility (SMF) along the east side of Tarpon Avenue between Village Drive and Gulf Road, reconstruction of the existing roadway pavement and curb where applicable due to installation of stormwater infrastructure, utility coordination and permitting. These improvements would be as conceptually shown on Exhibit 1, and in accordance to the alternative selected by the City as presented within the Stormwater Action Plan - SAP #22.

1.2 This Project shall be designed by the CONSULTANT upon receipt of a written Notice to Proceed (NTP) with services to be provided as more particularly described herein.

2.00 PROJECT PHASING AND DESIGN LIMITS

CONSULTANT shall provide professional consulting services to the CITY, consisting of two (2) distinct phases hereinafter known as the "Project".

2.1 Phase 1 shall consist of preparation of 30%, 60%, 90% and final (100%) plans and securing all applicable permits. Construction and bidding documents will also be prepared.

2.2 Phase 2 will consist of services during construction.

3.00 QUALIFICATIONS DURING TERM OF SERVICES

The CONSULTANT shall provide all engineering services for the Project, in accord with and of a quality, meeting the minimum design standards established by the City of Tarpon Springs.

4.00 BASIC SERVICES - SCOPE AND RESPONSIBILITY REQUIREMENTS

The CONSULTANT will provide the following customary basic services for the Project;

4.1 Project Schedule:

The CONSULTANT shall prepare, furnish and maintain a Gantt chart using critical path method for the Project design services. In preparing the bar chart schedule, the scheduling of all design activities shall be the responsibility of the CONSULTANT. The schedule shall be submitted to the CITY within 15 working days of receiving NTP for review.

4.2 Design, Construction Plans and Bidding Documents (Phase 1 Services):

4.2.1 Subject plans shall include design and construction requirements for drainage and roadway improvements; driveway/sidewalk improvements, signing and pavement markings; and other incidental design items within the Project limits. Temporary traffic control plans (TTCP) shall be provided.

The above designs and plans shall be prepared in accordance with current standards adopted by the American Association of State Highway and Transportation Officials, the Florida Department of Transportation, the City of Tarpon Springs, as listed hereinafter or as will be made known to the CONSULTANT during performance of all services for the Project.

Specific improvements for Palm Avenue and Tarpon Avenue are as follows:

(a) Palm Avenue (approx. 500 ft west and 300 ft east of Palm Avenue/Tarpon Avenue intersection):

1.) Install new stormwater inlets and pipes within the existing right-of-way as required. New system will address low points approximately 500 ft west and 300 ft east of Palm Avenue/Tarpon Avenue intersection. (b) Tarpon Avenue (Palm Avenue to approximately 270 feet south of Gulf Road/Tarpon Avenue intersection):

1.) Install new stormwater manholes and pipes within the existing right-of-way as required. New stormwater collection system to connect to proposed system for Palm Avenue stormwater collection system at Palm Avenue/Tarpon Avenue intersection.

2.) Construct new SMF along the east side of Tarpon Avenue between Village Drive and Gulf Road on City-owned property. SMF will provide flood abatement volume for the 25-year/24-hour event. SMF will provide water quality treatment for contributing drainage basin area. SMF will discharge into existing an existing wetland/tidal bayou.

4.2.2 Construction plans and bidding documents shall be prepared for the project in accordance with section 2.1 above. Transmittable electronic plans and bidding documents (Adobe PDF format or similar "portable" format) shall be provided.

4.2.3 Specific design and construction references, aids and standards shall include, but will not necessarily be limited to the materials listed below. These design reference materials shall be the latest edition materials in effect at the time of performance of the Services Agreement for the project. The controlling roadway design standards will be those presented in the Florida Green Book (see item 4.2.3 (a)).

(a) Manual of Uniform Minimum Standards for Design, Construction, and Maintenance for Streets and Highways, latest edition (Florida Green Book)

(b) FDOT Drainage Manual

(c) FDOT Standard Specifications for Road and Bridge Construction

(d) Current FDOT Roadway Design Standards Indexes

(e) Current Florida Greenbook

(f) Manual on Uniform Traffic Control Devices

(g) AASHTO Policy on Design of Urban Highways and Arterial Streets

(h) City of Tarpon Springs Standards

(i) SWFWMD Standards

(j) Pinellas County Standard Specifications (if no City of Tarpon Springs Specification exists)

4.2.4 Subject contract bidding documents will be assembled and reproduced for bidding by the CITY.

To be supplied by the CONSULTANT:

- (a) Special Provisions
- (b) Technical Specifications (based on City Standard Technical Specifications, See Section 4.13)
- (c) Contract Plans, including the following categories: Roadway/Drainage Plans including Signing and Pavement Marking Plans and Maintenance of Traffic Plans
- (d) Bid Schedule
- (e) Construction cost estimate

“Front End” documents to be supplied by the CITY include:

- (a) Advertisement for Bids (Legal Notice)
- (b) Instruction to Bidders
- (c) Project Sign
- (d) Bid Bond
- (e) Contract Form
- (f) Contractor’s Guarantee
- (g) Contractor’s Affidavit and Release of All Claims
- (h) Certificate of Corporate Principal
- (i) Contractor’s Payment and Performance Bond
- (j) General Conditions

4.3 Plans and Design Submittals:

4.3.1 Review Plans:

All plans submitted to the CITY for the purpose 30%, 60%, 90% and 100% (Final) review may be 11” x 17” in size with screened planimetrics background. During the design stage the

CONSULTANT shall submit the following:

- (a) Five sets of progress plans for review by the CITY at 30%, 60%, 90% and 100% (final) completion intervals.
- (b) Sets of plans (Adobe PDF format or similar “portable” format) for affected utilities at 30%, 60%, and 90% design completion intervals only.

4.3.2 Final Plans:

All final design plans may be 11” x 17” in size and all adopted scales shall be as outlined under subarticle 4.3.2.1. Aerial photographic base maps are not required. The CONSULTANT shall submit the following final plans for the Project:

- (a) Five set of plans and two sets of technical specifications signed and sealed in accordance with applicable Florida Statutes.
- (b) Bid documents in PDF and Word format.
- (c) CD with AutoCAD/Microstation compatible files and PDF format.

4.3.2.1 Plan Scales for 22” x 34” Plan Sheets (Subject to Final Approval during Design)

Description Horizontal Scale Vertical Scale

- (a) Typical Section Sheet(s) N/A N/A
- (b) Drainage Map 1” 200’ 1”= 5’
- (c) Roadway Plan & Profile Sheets 1” 40’ 1”= 2’

- (d) Drainage Detail Sheet 1" 10' N/A
- (e) Other Plans Sheets to be prepared at scales approved by the CITY

4.3.3 Design Computation Documents:

All of the following record documents shall be submitted to the CITY by CONSULTANT, or Sub-Consultant as applicable, at the time of final acceptance or otherwise as noted elsewhere in this scope of services document, neatly bound in an 8 ½" x 11" format or as to the satisfaction of the CITY. All review comments made on design documents or reports submitted as listed below shall be responded to and incorporated into the documents as applicable and such documents or reports shall be resubmitted to CITY at the following design interval submittal date as requested. All plans, specifications, and/or reports prepared or obtained under this Agreement shall be considered works made for hire and shall become the property of the CITY and shall be made available, upon request, to the CITY at any time. Submittals of design computations shall include, but not necessarily be limited to the following:

- (a) Five copies of design computations that shall include, but not necessarily be limited to: ICPR routing and storm sewer calculations at 60% and 100% design intervals.
- (b) One copy of probable construction cost estimates at 30%, 60%, 90% and 100% design intervals.
- (c) One copy of required environmental permit applications for the Project as listed under article 4.8.4 of this scope of services prior to submittal of 60% plans and as amended due to permitting agencies reviews.
- (d) Project correspondence required to document design decisions reached during development of the plans at each design review interval as applicable.

4.4 Design Survey:

Design Survey to be provided by Omni Communications, Inc.

This following field survey tasks shall be performed:

4.04.1 Prepare a "topographic survey" of the project area as shown on the attached Exhibit A.

4.04.2 Hydrographic Survey: (NOT APPLICABLE)

4.04.3 Horizontal coordinates will be referenced to the West Zone of the Florida State Plane Coordinate System, North American Datum of 1983 (NAD 83). Elevations will be referenced to the North American Vertical Datum of 1988 (NAVD 88).

4.04.4 CONSULTANT shall also provide an electronic version of the survey in either "DWG", "DXF" or other acceptable digital format as well as an xyz file of the survey points in ASCII format.

4.04.5 Centerline Referencing: (NOT APPLICABLE)

4.04.6 Drainage Survey: (NOT APPLICABLE)

4.04.7 Right-of-Way: Recover and locate the approximate right of way lines immediately adjacent to the project limits based on the latest official records and existing monumentation.

4.04.8 Wetland Survey: survey the wetland jurisdictional limit flags to be set by ICON Consultant Group as shown in red on attached survey exhibit.

4.5 Geotechnical Investigation and Pavement Design:

Geotechnical investigation to be provided by MC Squared, Inc. (MC₂).

Two (2) hand auger borings, 1 hand auger within each of the proposed pond sites and one in the existing pond site (delineated in Exhibit 2 in red).

Four (4) Double Ring Infiltration (DRI) tests, 1 in each of the proposed pond sites and one in the existing pond site (delineated in Exhibit 2 in red).

Pavement reconstruction will be in accordance with the latest edition of the City of Tarpon Springs Standard Details.

4.6 Roadway Alignment (NOT APPLICABLE)

4.7 Utility Coordination and Design:

4.7.1 The CONSULTANT shall provide sets of plans (Adobe PDF format or similar “portable” format) for affected utilities at 30%, 60%, and 90% design completion intervals only for the Project.

4.7.2 The CONSULTANT shall conduct two utility coordination meetings with affected utility owners and CITY representatives for the Project. The time of such meetings should take place following the 60% and 90% submittals.

4.7.3 The CONSULTANT is not required to perform, provide, and furnish utility engineering, design, and plan preparation services for those private utility facilities enumerated above with the exception that CONSULTANT shall show all existing and planned utility facilities made known to the CONSULTANT by said private utility owners on the Project plans. The existing utility information shall be secured by CONSULTANT from field location surveys and from plans furnished to CONSULTANT by affected utility owners. Also, CONSULTANT shall be responsible for coordinating with the CITY and Utilities to resolve utility conflicts and to modify design, if needed, to resolve such conflicts and shall show that on construction plans.

4.7.4 It is anticipated that any design services for the CITY water and sewer facilities within the limits of this project will be completed by the CITY.

4.7.5 Subsurface utility investigation is anticipated to be required for this project.

Subsurface utility investigation to be provided by Omni Communications, Inc.

The designation/investigation effort will be performed with a combination of ground penetrating radar (GPR) and EM (electromagnetic signal induction) toning. Deliverable items for this effort will be (i) a field sketch diagram of designated utilities; and (ii) the markings upon the ground reflecting designated utilities.

Technicians, equipment and special tools will be provided to locate (SUE Level A) the utilities identified in the plans provided at the proposed drainage structures. This estimate is based on up to 20 locates and survey of the 20 locations. The deliverable item for this task will be field markings of each excavation together with a horizontal and vertical reference point for each excavation; excavation data sheets noting the utility type, size, material, and direction together with a measured depth from the top of utility to the established reference point; and photographs at each excavation.

4.8 Drainage Design Requirements:

4.8.1 There are existing drainage facilities along Gulf Road and Tarpon Drive. The CONSULTANT, with input from the CITY, will determine what structures and storm sewer pipes will be replaced, if any.

4.8.2 The CONSULTANT will design a closed storm sewer collection system within the existing right-of-way, to the maximum extent feasible, along the south side of Palm Avenue to provide for conveyance of roadway and offsite runoff. The Palm Avenue storm sewer systems will converge at the Palm Avenue/Tarpon Drive intersection and flow south along Tarpon Drive.

Runoff will be conveyed south crossing under Gulf Road and ultimately discharge into a proposed stormwater management facility (SMF) before discharging into the tidal bayou. The proposed closed storm sewer systems will be designed using the 3-year design frequency (rational method).

The proposed SMF will be designed to attenuate the pre versus post runoff volume from the additional offsite residential area (west side of Tarpon Drive along Palm Avenue) for the 25-year/24-hour storm event (SWFWMD FLMOD 24-hour rainfall distribution) as well as to provide as much stormwater treatment as possible within the limits of the proposed SMF site shown on Exhibit 1.

4.8.3 The CONSULTANT shall coordinate permitting requirements during preliminary drainage design tasks with SWFWMD and Pinellas County (Gulf Road). The CONSULTANT shall attend a pre-application meeting with the CITY and SWFWMD for this task. One meeting is anticipated.

4.8.4 The CONSULTANT shall prepare all applicable permit applications (SWFWMD, Pinellas County, and USACOE).

4.9 Coordination of Design within Project Limits:

4.9.1 Design services specified herein shall include transitions to match existing sidewalk, curb, pavement, and driveways.

4.9.2 To the extent necessary for CONSULTANT'S performance of services and upon request from CONSULTANT, the CITY will provide all available record data, information, plans, right-of-way permits, etc. relating to adjacent land developments (existing and proposed).

4.10 Maintenance of Traffic Plan Preparation:

The CONSULTANT is required to design and prepare plans for the maintenance of traffic (MOT) for the entire project. MOT plans shall address vehicular, pedestrian, and bicyclist traffic, through the construction area, as well as maintaining access to adjacent properties. MOT plans will consist of general notes and a detour plan, if applicable. Detailed MOT plans are not required.

4.11 Construction Cost Estimates:

Prepare and submit an engineers' estimate of probable construction cost with the 30%, 60%, 90%, and 100% (final) plans submittal.

4.12 Post Design Services (Phase 2 Services)

The CONSULTANT shall provide services during construction as described below. These services are included in the CONSULTANT's Basic Lump Sum Services. The CITY will provide construction inspection and administrative services.

4.12.1 BIDDING SERVICES: The CONSULTANT shall assist the CITY in bidding by attending the pre-bid meeting, attending the pre-construction meeting, responding to questions, issuing plan revisions, and reviewing bids received. The CONSULTANT will participate in a total of four meetings (one pre-bid, one preconstruction meeting and two construction progress meetings).

4.12.2 PERIODIC SITE VISITS: The CONSULTANT shall provide up to four site visits during construction for the project.

4.12.3 STORMWATER CERTIFICATION (AS-BUILTS): The CONSULTANT shall review the provided record drawings and prepare final project certificates for the required certification of the SWFWMD ERP Permit based on the contractor-provided as-built drawings provided no significant deviations will be made to the approved construction plans.

4.12.4 SAFETY: The CONSULTANT is not responsible for observing, monitoring, or inspecting the safety aspects of the contractor's construction operations. The contractor shall be solely

responsible for all safety aspects of the project including safety of his/her employees, subcontractor employees, and the public.

4.12.5 CONSTRUCTION METHODS: CONSULTANT is not responsible for the contractor methods and means of constructing the proposed improvements. The CONSULTANT shall not be responsible for any acts or omissions of the contractor or subcontractors. The CONSULTANT does not guarantee the performance of the contractor and shall not be responsible for the contractor's failure to perform its work in accordance with the contract documents or any applicable laws, codes, rules, or regulations.

4.12.6 SHOP DRAWING REVIEWS: The CONSULTANT shall review and process shop drawings, furnished by the Contractor, associated with material included on the construction plans. It is the Contractor's responsibility to provide all documentation required to prove any substitute material is the same or better than the material specified. It is assumed all submittals will be made in a timely manner allowing the CONSULTANT a minimum of two (2) weeks of review time. It is also assumed that the submittals will be provided in no more than three (3) submittal packages, and no more than twenty-five (25%) percent of submittals will require re-submittal.

4.12.7 RFI / SUPPORT SERVICES: CONSULTANT will provide office support and assistance during the construction phase of the project. This will include, on a limited basis, responding to Requests for Information (RFI) and providing other input and clarification to the CITY, or Contractor for issues relating/resulting from the elements of the project designed by the CONSULTANT. This will include up to four (4) RFIs, any additional will be considered as additional services.

4.13 Specifications

The CONSULTANT shall prepare special provisions, bid tabulation sheet and the technical specifications for the project using the CITY's standard technical specifications. The CITY will provide an electronic file (Microsoft Word TM or other electronic format) of all the CITY's standard technical specifications. Any deviations required by the design from the CITY's standard technical specifications will be prepared by the CONSULTANT. The CITY will be responsible for preparing the "front end" documents as noted in Article 4.2.4. One set of signed and sealed specifications will be prepared for the project.

4.14 Community Involvement (NOT APPLICABLE)

4.15 Work Not Included In Scope of Work: 4.15.1 Public information newsletters, flyers, etc.

4.15.2 Topographic, Right-of-way surveys or the preparation of right-of-way or easement documents.

4.15.3 Structural design.

4.15.4 Environmental (wetland mitigation, wildlife, contamination, etc.) services.

4.15.5 Landscaping and irrigation.

4.15.6 Tree pruning.

4.15.7 Utility design of water or sewer facilities

4.16 Owner's Allowance

During the course of this project, the CITY and/or the CONSULTANT may identify Additional Services required of the CONSULTANT which are necessary to either complete this work scope or enhance the overall project. These additional services could include, but would not be limited

to: those items listed above, additional survey, preparation of presentations, additional graphics or other items.

If Additional Services are identified during the course of this project, the CONSULTANT at the request of the CITY will prepare a detailed work scope and budget to perform the Additional Services. Once the CITY and the CONSULTANT have agreed on the scope and budget, the CITY will issue a written notice to proceed for the Additional Services under Owner's Allowance. Because it is impossible to adequately budget for individual Additional Services at this time, an Owners Allowance budget of \$8,000 has been established for such activities. If the Additional Services work scope and budget is approved by the CITY it will be performed and invoiced in accordance with the salary rates established in the Agreement for this Scope of Services.

5.00 PLANS PREPARATION, ENDORSEMENT AND OWNERSHIP

5.1 All plan/profile sheets, except key sheets, shall have a title block across the entire bottom of the sheet. A standard Project title block shall also be furnished by the CITY.

5.2 All final plans, documents, reports, studies and other data prepared by the CONSULTANT and/or its subconsultants will bear the signature and seal of the CONSULTANT's record engineer or the applicable design engineer who shall be duly registered in the appropriate professional category.

5.3 After the CITY's acceptance of final plans and documents and in accordance with Article Six of the Agreement, five (5) record set of 11" X 17" plans will be provided to the CITY. The CONSULTANT shall signify, by affixing an endorsement (seal/ signature, as appropriate) on the five (5) record sets, that the work shown on the endorsed sheets was produced by the CONSULTANT. A CD shall be provided to the CITY of the design files in AutoCAD/Microstation compatible format and Adobe PDF or other similar "portable" document format.

6.00 MILESTONE DATES:

6.1 The schedule for the final design and plan preparation services for Project improvements is presented below.

6.2 Project design status submittals for the Project improvements shall be completed in the number of calendar days as follows following issuance of the Notice to Proceed:

6.2.1 30% Design Submittal:

To be completed within 56 calendar days (8 weeks) from the receipt of project survey.

6.2.2 60% Design Submittal:

To be completed within 155 calendar days (22 weeks) from the receipt of project survey.

6.2.3 90% Design Submittal:

To be completed within 250 calendar days (35 weeks) from the receipt of project survey.

6.2.4 100% Design (Final Plans) Submittal:

To be completed within 299 calendar days (43 weeks) from the receipt of project survey.

6.3 The CITY anticipates that a (maximum) two (2) week formal review and critique period will be necessary for each milestone design submittal identified in Article 6.2 upon receipt of plans and accompanying information from the CONSULTANT. Accordingly, this 14 calendar day review period has been included in the plan submittal schedule, Article 6.2 above.

6.4 The CONSULTANT shall formulate and prepare the bar chart schedule for the Project in specific accord with the above stated design status review schedule.

7.00 SERVICES DURING CONSTRUCTION (Phase 2 Services)

The CITY will require the CONSULTANT to provide professional services during the bidding and construction phases for the Project, as identified in Article 4.12.

8.00 COST PROPOSAL:

8.1 The CONSULTANT's services described herein shall be provided for a lump sum cost as follows: for all services, a grand total fee of \$131,592.00; which includes \$87,590.00 (not to exceed) for design/permitting/post design, \$6,181.40 (not to exceed) for geotechnical subconsultant, \$21,420.00 (not to exceed) for survey and utility designation subconsultant, \$8,000.00 subsurface utility engineering subconsultant, \$250.00 for SWFWMD ERP Permit, \$8,000 for Owner's Allowance, and \$150.60 for expenses.

8.2 The CONSULTANT's cost proposal herein does include costs for permit application fees to respective environmental or CITY agencies. The cost for permitting, if paid by CONSULTANT, shall be reimbursable by the CITY in full upon submittal of fees justification.

9.00 SUBCONTRACT SERVICES:

Due to the nature and scope of the required services, it may be desirable for the CONSULTANT to subcontract portions of the work (i.e. survey, SUE, and geotechnical investigation). The CONSULTANT shall be authorized to subcontract these services under the provisions of this Agreement. The subcontracting firms must be approved in writing by the CITY prior to initiation of any work. The fee for subcontracted work shall be a pass-

through cost and shall not include a CONSULTANT markup.

10.00 NOTICE TO PROCEED MEETING: (NOT APPLICABLE):

11.0 EXPERT WITNESS TESTIMONY:

The CONSULTANT shall serve as an expert witness for the Project in legal proceedings if required by the CITY. A separate fee schedule for these services shall be established, if and when said services are required.

12.00 SERVICES TO BE PROVIDED BY THE CITY

The following tasks, activities and or items will be provided by the CITY

12.1 CITY utility as-builts, plans, and/or GIS data.

12.2 Notifications to property owners.

12.3 "Front-end" contract documents identified in Article 4.2.4.

12.4 Assemble and copy construction documents for bidding.

12.5 Electronic files (Microsoft Word Format) of CITY standard technical specifications.

12.6 Copies of proposed development plans adjacent to the project limits.

12.7 Provide inspection and administrative services during construction.

12.8 Public information coordination with businesses and public.

13.00 PLANS REVIEW CHECK LIST:

The following four (4) pages represent the minimum amount of information that shall be shown for each design interval. Minimum submittal requirements herein listed for the 30%, 60%, 90% and 100% (final) design status intervals are not all-inclusive; see Article 4.3 for additional service requirements.

CONSULTING ENGINEERING SERVICES AGREEMENT SCOPE OF BASIC PROFESSIONAL SERVICES

**Palm Avenue Stormwater Improvements
Stormwater Action Plan (SAP) #22
30% Plan Review (Preliminary Plans)**

Purpose/Description To review the CONSULTANT's proposed grades, geometric layout, survey data, basic geometrics, right-of-way, study/report recommendations, and other preliminary design materials. Provides the technical basis for further plan development.

Submission of review plans Five (5) 11" X 17" size construction plans sets and other data Two copies of any design documentation data to City.

Minimum submittal requirements (shown thus X) (Typical, including the following).

- X 1. Update of Project Schedule
- X 2. Key Sheet (Complete)
- X 3. Drainage Map (Existing Conditions) (Complete)
- NIC 4. Typical Sections (Preliminary)
- X 5. General Notes Sheet (Preliminary)
- NIC 6. Summary of Quantities (Preliminary)
- X 7. Plan / Profile Sheet (Preliminary)
- NIC 8. Drainage Detail Sheets (Preliminary)
- NIC 9. Stormwater Pollution Prevention Plan Sheets (Preliminary)
- NIC 10. Utility Adjustment Sheets (Preliminary)
- NIC 11. Contract Technical Specifications (Preliminary)
- X 12. Estimate of Probable Construction Cost (Preliminary)

CONSULTING ENGINEERING SERVICES AGREEMENT SCOPE OF BASIC PROFESSIONAL SERVICES

**Palm Avenue Stormwater Improvements
Stormwater Action Plan (SAP) #22
60% Plan Review (Preliminary Plans)**

Purpose/Description: To review the CONSULTANT's final grades, drainage mapping, typical sections, drainage structures, and similar design elements. Final designs at this stage are subject to minor revisions. Substantive changes to the type, size, and location of major features will be considered extra work. Initial review of the quantities. Submission of review plans Five (5) 11" X 17" size construction plans sets and other data Two copies of any design documentation data to City.

Citywide GIS Mapping – *Infrastructure/Drainage Mapping Project*

SCOPE OF SERVICES

City of Tarpon Springs

Professional Services Agreement

Stormwater Infrastructure GIS Data Collection

Task Order Number STN-04-04

A. General

The City of Tarpon Springs (CITY) requests that the Stantec Consulting Services (CONSULTANT) provide field data collection/input process for the development of a stormwater infrastructure GIS inventory system. More specifically, this task order will enable the CONSULTANT to perform as an extension of CITY staff in performing field data collection of stormwater features and building the GIS.

1. GIS Field Survey and Data Collection

1.1. The CONSULTANT will coordinate with CITY staff to develop and execute a plan to collect stormwater infrastructure locations and characteristics throughout the City's jurisdiction. The resulting data will be delivered as a geodatabase containing these locations and characteristics.

This task will include the following activities:

- Field identification of drainage structures and connectivity
- Real Time Kinematic (RTK) and traditional survey data collection
- Coordination with CITY staff for assistance as needed in accessing structures and clearing of blocked structures
- QA/QC of collected data
- GIS mapping and database activities as needed to support the field data collection
- Regularly scheduled progress reports/updates
- After the collection of data within the initial EMS grid, an assessment will be made as to the estimated number of structures which are anticipated to be provided under

the current project budget. This assessment will be communicated to CITY staff and, if requested, adjustments may be made to collection procedures in order to increase the estimated number of structures that can be collected within the current project budget.

- Finalization of GIS deliverables, including topology adherence, data transformations, etc.
- Meetings and presentations as needed

Disclaimers

The CONSULTANT will not perform any subsurface utility engineering (SUE) activities including, but not limited to ground penetrating radar (GPR) and vacuum excavation. All locations of underground stormwater infrastructure such as pipes, will be pulled from existing data in the GIS or as-builts and verified, where possible, by field observations of structures.

Also, the CONSULTANT will not perform any work in confined spaces such as junction boxes. Work in confined spaces requires that the person entering the confined space be certified and using the appropriate equipment/instrumentation to do so. All invert elevation data will be collected using measure downs from the rim elevation of the manhole or grate as determined by RTK GPS and supplemented by conventional methods where necessary.

Deliverables

The following deliverables will be provided by the CONSULTANT to the CITY at task completion:

- Final Stormwater Geodatabase populated with final attribute data for all collected structures.

B. Schedule

CONSULTANT’S services shall commence upon written authorization from the CITY, which will constitute Notice to Proceed (NTP). This Task Order will end on October 31st, 2019. Per the nature of this time and materials Task Order, the schedule for all activities will be determined by the client on an ongoing basis. At a minimum, all items identified in the Deliverables section will be provided by the end of this Task Order. The following table presents a proposed schedule.

Schedule	Start	Duration
Kickoff	NTP	1 week
GIS Field Survey and Data Collection – Task 1	NTP + 1 week	Duration of Task Order

The CONSULTANT shall notify CITY in writing of any delays beyond the CONSULTANT’S control in accordance with the Agreement. CITY may grant a time extension for reasons so documented at its sole discretion.

C. Cost of Services

The fees for these professional services shall be based on a TIME-CHARGE basis based on the executed contract for Stormwater Engineering Services Continuing Contract, RFQ No. 140031-S-JJ plus any out-of-pocket expenses for a Not-To-Exceed (NTE) cost of \$200,000.00; said sum including labor and expenses.

END OF SCOPE

Watershed Management Plan (*City of Tarpon Springs/Pinellas County*) *Drainage/Basin Mapping Project*

Pinellas County/City of Tarpon Springs Anclote River Watershed Management Plan Scope

The cost for Tarpon Springs share, based on percent area of the watershed, is \$152,000.00. This would be spread out over 3 fiscal years and would also provide a multitude of information for you all. The WMP will provide an evaluation of the watershed, identify problems requiring management of resources, and recommend solutions to improve water quality and natural systems. The WMP will address localized flooding situations, erosion, sedimentation, SLR, and stormwater pollution. The WMP will include the initial collection of design, water quality, and sediment data, the evaluation of existing 10-year, 25-year, 50-year and 100-year flood elevations, the diagnostic evaluation of the watershed, the use of an appropriate hydraulic/hydrologic model that is approved by the National Flood Insurance Program, the County and SWFWMD, and the development of a WMP that provides recommendations for non-structural and site-specific structural improvements. Climate change scenarios such as SLR and changes in rainfall patterns should also be considered. The County's preference is to model the watershed using ICRP4. A pollutant loading model will be developed to estimate pollutant loads generated by sub-basins, relative levels of pollutant loads delivered to the Anclote River watershed by major outfalls or adjacent sub-basins, and relative pollutant loads delivered from the watershed to St. Joseph Sound. The model will also estimate pollutant load reductions that may result through implementing the WMPs. The WMPs will also address the Florida Department of Environmental Protection's (FDEP) Total Maximum Daily Load (TMDL) program.

City of Tarpon Springs

Stormwater Action Plan



 City of Tarpon Springs
Stormwater Dollars at Work

**Stormwater System
Improvement Project**

Please call 727-937-2557
for additional information

Task Order No. STN 01-02

Prepared For:
City of Tarpon Springs
324 E. Pine Street
Tarpon Springs, FL 34689



**Stormwater Action Plan
Final Report
October 2014**

TABLE OF CONTENTS

		<u>Page</u>
1.0	Purpose.....	1
2.0	Scope of Work	1
2.1	Data Collection and Review	1
2.2	Develop Conceptual Solutions.....	1
2.3	Conceptual Solution Analysis.....	3
2.4	Stormwater Capital Improvement Program (CIP)	3
2.5	Stormwater Action Plan Report.....	3
3.0	Data Collection and Review	3
3.1	Dames and Moore Master Drainage Study Phase I & II	3
3.2	Stormwater Action Plan Phase I	4
3.3	Field Investigation	4
4.0	Conceptual Solution Recommendations.....	7
4.1	Problem Areas Selected for Drainage Improvements.....	7
4.2	Engineer's Preliminary Construction Cost Estimate	7
4.3	Cost/Benefit Analysis	10
4.4	Funding Implementation.....	12
4.5	Recommended Capital Improvements.....	12
4.6	Permitting.....	14
5.0	Completed Projects	15
5.1	Record of Completed Projects	15

LIST OF FIGURES

Figure 1:	Project Location Map	2
-----------	----------------------------	---

LIST OF TABLES

Table 1:	Summary of Stormwater Focus Areas	6
Table 2:	Summary of Evaluated Conceptual Solutions.....	9
Table 3:	Cost/Benefit Summary of Recommended Conceptual Solutions	11
Table 4:	Projects Eligible for Additional Funding	12
Table 5:	Stormwater Capital Improvement Program	13
Table 6:	Summary of Completed Projects	15

LIST OF APPENDICES

Appendix A	Recommended Solutions, Problem Descriptions, and Cost Estimates
Appendix B	Stormwater Focus Area Scoring Criteria
Appendix C	Secondary Alternatives and Cost Estimates
Appendix D	Completed/Constructed Projects

1.0 Purpose

Development of a Stormwater Action Plan for the multiple stormwater problem areas located within the limits of the City. The project area, as shown on Figure 1 – Project Location Map, is generally bounded by the Gulf of Mexico (West), Klosterman Road (South), Lake Tarpon (East), and the Anclote River (North). The purpose of the project is to assess the flooding conditions that occur to numerous locations within the City limits, provide potential conceptual solutions to abate these flooding conditions, prepare a prioritized capital improvement plan for implementation, and enhance water quality by utilizing treatment systems and best management practices.

2.0 Scope of Work

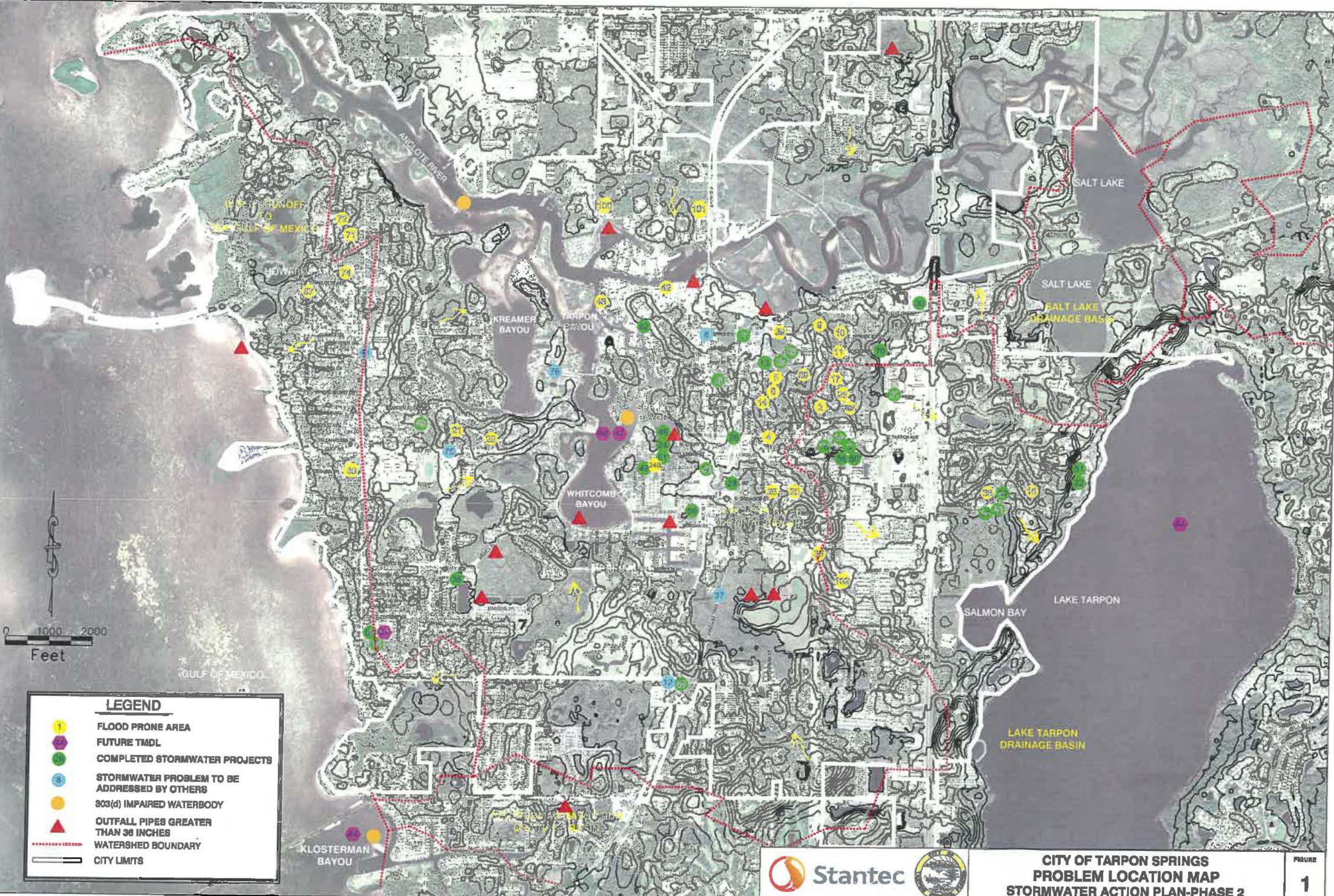
The following scope of work was developed for the Stormwater Action Plan Phase II and presents specific items, which were performed as services for this project.

2.1 Data Collection and Review

American Consulting Professional's performed a detailed review of the 1992 and 1993 Dames and Moore Master Drainage Study Phases I and II, American Consulting Professional's Stormwater Action Plan (SAP) Phase I, existing aerial photographs, and right-of-way maps as a prerequisite to field investigations and during development of the conceptual solutions. Available roadway design plans, as-built information, 1-foot contour maps, and other pertinent materials were obtained from the Florida Department of Transportation, City of Tarpon Springs Engineering Department, Pinellas County Environmental Management Department, and the Southwest Florida Water Management District (SWFWMD) for review.

2.2 Develop Conceptual Solutions

Upon completion of the data review and field investigations, two conceptual solutions were developed for each of the 36 stormwater focus areas identified in the Stormwater Action Plan Phase II to resolve the particular stormwater issue for each location. These conceptual solutions are not engineered solutions based on survey data, geotechnical investigations, or engineering calculations. The conceptual solutions are shown on aerial exhibits utilizing the Pinellas County 2007 LIDAR contour aerial with existing 1-foot contours, in addition to Pinellas County Property Appraiser parcel lines.



WATER RUNOFF TO GULF OF MEXICO

HOWARD

KREMER BAYOU

TARPON BAYOU

WHITCOMB BAYOU

SALT LAKE

SALT LAKE

SALT LAKE DRAINAGE BASIN

SALMON BAY

LAKE TARPON

LAKE TARPON DRAINAGE BASIN

KLOSTERMAN BAYOU

LEGEND

- FLOOD PRONE AREA
- FUTURE TMDL
- COMPLETED STORMWATER PROJECTS
- STORMWATER PROBLEM TO BE ADDRESSED BY OTHERS
- 303(d) IMPAIRED WATERBODY
- ▲ OUTFALL PIPES GREATER THAN 36 INCHES
- - - - - WATERSHED BOUNDARY
- CITY LIMITS



**CITY OF TARPON SPRINGS
PROBLEM LOCATION MAP
STORMWATER ACTION PLAN-PHASE 2**

2.3 Conceptual Solution Analysis

Each of the developed conceptual solutions were evaluated to reduce flooding and provided recommended system improvements. An alternative cost/benefit analysis was utilized in the selection and prioritization of the recommendations. Stantec prepared preliminary construction cost estimates that included survey, geotechnical, final design services, permitting, estimated property costs, construction, a twenty-five percent (25%) contingency, and materials.

2.4 Stormwater Capital Improvement Program (CIP)

Based on the available funding projections, a multi-year stormwater capital improvement program was developed. Consideration was also given to the potential of these recommendations to receive cooperative funding through the State of Florida (SWFWMD or the Florida Department of Environmental Protection (FDEP)). **A Miscellaneous Service task has also been incorporated into the CIP program.**

2.5 Stormwater Action Plan Report

The Draft Stormwater Action Report was reviewed by the City. City requested revisions were incorporated and the Final Stormwater Action Report was prepared. The City's stormwater engineer continues to maintain the report periodically.

3.0 Data Collection and Review

The following review and actions were performed in the development of the Stormwater Action Plan Phase II and presents specific items, which were performed as services for this project.

3.1 Dames and Moore Master Drainage Study Phase I & II

American obtained these two reports during the data collection task under the SAP Phase I. Both reports contain valuable information pertaining to the City's existing stormwater infrastructure, watershed drainage basins, hydrologic and hydraulic parameters, and potential solutions to several of the stormwater focus areas.

Each of the reports was used as references throughout the development of the SAP Phase I and the SAP Phase II tasks.

3.2 Stormwater Action Plan Phase I

Phase I of the Stormwater Action Plan was the data collection and problem identification phase for the Stormwater Action Plan. It was in this phase where American obtained the following to be used in the development of the SAP Phase I and II: all available stormwater data from past studies, reports, permits, regulatory requirements, plans, public complaints, City's Comprehensive and Capital Improvement Plan, and other information provided by the City.

After reviewing all the obtained data American documented the existing and resolved stormwater focus areas. A total of 73 stormwater focus areas were identified during this phase. After several meetings with the City a number of the stormwater focus areas were removed. There were a total of 32 locations removed from the original listing because the problem had either been addressed, completed, or was out of the City's jurisdiction. Five other stormwater focus areas were removed from the original listing because these locations will be governed by future regulatory regulations from the FDEP.

American then performed site visits to all remaining 36 stormwater focus areas. Photographs were taken at all sites in addition to notes of the existing field conditions based on the visual observations. Notes of the existing field conditions and descriptions of the problem areas are located in Appendix A.

Each of the 36 stormwater focus areas identified in the SAP Phase I were then analyzed on the following criteria: traffic safety, emergency access/route, property impacts, environmental, problem documentation, maintenance, and City score. Using these criteria a Stormwater Action Plan (SAP) Score was developed for each of the stormwater focus areas. The scoring criteria can be located within Appendix B. A summary of the 36 stormwater focus areas that were identified as needing drainage improvements is shown on Table 1: Summary of Stormwater Focus Areas.

3.3 Field Investigation

During the SAP Phase I American conducted field investigations for all 36 stormwater focus areas within the City limits. Particular attention was given to the location, elevation, and condition of the existing infrastructure (if any) in the areas identified as having flooding problems. Existing field information was verified and updated if possible as well as determining the impacts that contribute to the flooding. Surface water and topographical features were evaluated to identify any particular physical characteristics affecting current drainage patterns. American also

evaluated potential sites for flood attenuation and water quality improvement projects. Descriptions of the stormwater focus areas are located in Appendix A.

Table 1: Summary of Stormwater Focus Areas

Ref	Map ID No.	SAP Pr. I Score	Stormwater Focus Area	Problem	Reference
1	1B	34	Disston Ave. (south of Tarpon Ave.)	Street and private property flooding; roadway impassable	No. 1 CIP - Utility Element Table 9
2	5	31	Pent St. 200' east of Grosse Ave.	Street and private property flooding	No. 7 CIP - Utility Element Table 8/No. 15 Dames & Moore Master Drainage Study - Phase 1
3	101	30	Alternate 19 & Anclote Rd.	Street and private property flooding	2014 Field Investigation (Stantec)
4	100	29	Intersection of marina Dr. & Anclote rd.	Street flooding	2014 Field Investigation (Stantec)
5	15	28	Highland Ave. and Vista Place	Street and private property flooding; Highland Ave. roadway impassable	No. 8 CIP - Utility Element Table 8/No. 20 Dames & Moore Master Drainage Study - Phase 1
6	3	26	Walton Ave. between Tarpon Ave. & Lime St. Phase III	Street flooding; impassable road	No. 10 CIP - Utility Element Table 8/No. 23 Dames & Moore Master Drainage Study - Phase 1
7	2	23	Disston Ave. & Center St.	Street and private property flooding	No. 9 CIP - Utility Element Table 8/No. 5 Dames & Moore Master Drainage Study - Phase 1
8	33	18	Jasmine Ave. & Lime St.	Street and private property flooding	No. 21 Dames & Moore Master Drainage Study - Phase 1
9	71	18	Riverside Dr. at Hillside Dr.	Low spot - street flooding	Staff recommendation
10	11	13	Boston St. between Disston Ave. & Walton Ave.	Street and private property flooding	No. 13 CIP - Utility Element Table 8/No. 10 Dames & Moore Master Drainage Study - Phase 1
11	39	12	Coburn Dr. 100' west of Florida Ave.	Street and yard flooding	No. 31 Dames & Moore Master Drainage Study - Phase 1
12	57	12	Kenneth Way @ Seaside Dr.	Street flooding	Staff recommendation
13	102	12	Mango St. & Mango Circle	Street flooding	2014 Field Investigation (Stantec)
14	18	11	Hibiscus St. & Park St.	Street & yard flooding	No. 15 CIP - Utility Element Table 8/No. 2 Dames & Moore Master Drainage Study - Phase 1
15	21	10	Palm Ave. between Tarpon Dr. & Glades Ave.	Street & private property flooding	No. 18 CIP - Utility Element Table 8/No. 33 Dames & Moore Master Drainage Study - Phase 1
16	28A	10	Walton Ave. & Center St.	Street and private property flooding	Staff recommendation
17	69	10	Pent St. 100' east of Levis Ave.	Street and private property flooding	Staff recommendation
18	9	9	Disston Ave. between Spruce St. & Live Oak St.	Street and yard flooding	No. 12 Dames & Moore Master Drainage Study -Phase 1
19	14	9	Grosse Ave. between Pine St. & Orange St.	Street & yard flooding	No. 5 CIP - Utility Element Table 8/No. 6 Dames & Moore Master Drainage Study - Phase 1
20	42	9	Intersection of Athens St. & Dodecanese Blvd.	Street flooding; inadequate infrastructure/backwater	No. 37 Dames & Moore Master Drainage Study - Phase 1
21	17	8	Pent St. between Disston Ave. & Walton Ave.	Street & yard flooding	No. 14 CIP - Utility Element Table 8/No. 9 Dames & Moore Master Drainage Study - Phase 1
22	24B	8	Bath St./Shaddock Ave. Alley	Private property flooding	Staff recommendation
23	25	8	Levis Ave. Alleyway	Rear yard flooding	No. 3 CIP - Utility Element Table 9
24	62	7	Roosevelt Blvd.	Street flooding/water quality/property flooding	Staff recommendation
25	43	7	Island Dr. near Hill St.	Street and private property flooding	No. 38 Dames & Moore Master Drainage Study - Phase 1
26	28	7	Cypress St. between Disston Ave. and Walton Ave.	Street and private property flooding	No. 11 Dames & Moore Master Drainage Study - Phase 1
27	4	6	Tarpon Ave. 100' east of Grosse Ave.	Street flooding	No. 4 CIP - Utility Element Table 8/No. 1 Dames & Moore Master Drainage Study - Phase 1
28	70	6	East end of Boston St.	Street and private property flooding	Staff recommendation
29	74	6	Avoca Dr. 500' west of Florida Dr.	Low spot - street and property flooding	Staff recommendation
30	35	6	Disston Ave. south of Harrison St.	Street flooding	No. 25 Dames & Moore Master Drainage Study - Phase 1
31	73	6	Riverside Dr. at Seabreeze Dr.	Low spot - street flooding	Staff recommendation
32	7	5	Outfall @ Pinellas Trail & Spruce St.	Needs maintenance/obstructing flow	American recommendation
33	29	5	Spruce St. between Levis Ave. & Grosse Ave.	Street and private property flooding	No. 14 Dames & Moore Master Drainage Study - Phase 1
34	6	5	Cypress St. 200' east of Grosse Ave.	Street & yard flooding	No. 6 CIP - Utility Element Table 8/No. 16 Dames & Moore Master Drainage Study - Phase 1
35	22	5	Palm Ave. between Tarpon Dr. & Gulf Rd.	Private property flooding	No. 19 CIP - Utility Element Table 8/No. 32 Dames & Moore Master Drainage Study - Phase 1
36	20	4	Levis Ave. between Lime St. & Oakwood St.	Minor street flooding	No. 17 CIP - Utility Element Table 8/No. 24 Dames & Moore Master Drainage Study - Phase 1
37	31	3	Huey Ave. north of Tarpon Ave.	Roadside flooding; ditch along Huey Ave. floods	No. 18 Dames & Moore Master Drainage Study - Phase 1
38	72	3	1314 Riverside Dr.	Low spot - street flooding	Staff recommendation
39	10	2	Spruce St. between Disston Ave. & Walton Ave.	Street and yard flooding	No. 12 CIP - Utility Element Table 8/No. 8 Dames & Moore Master Drainage Study - Phase 1

4.0 Conceptual Solution Recommendations

Upon completion of the data review and field investigations, up to two conceptual solutions were developed for each of the 36 stormwater focus areas identified in the SAP Phase I to resolve the individual stormwater issue for each location. These conceptual solutions are not engineered solutions based on survey data, geotechnical investigations, or engineering calculations. The conceptual solutions are shown on aerial exhibits utilizing the Pinellas County 2007 LIDAR contour aerial with existing 1-foot contours, in addition to Pinellas County Property Appraiser parcel lines. The recommended conceptual solutions along with their descriptions are located in Appendix A. The other evaluated conceptual alternatives and their respective cost estimates are located in Appendix B.

4.1 Problem Areas Selected for Drainage Improvements

A total of 36 stormwater focus areas were identified as needing drainage improvements in the SAP Phase I. These locations were an accumulation of stormwater problems originally identified in the 1992 Dames and Moore Master Drainage Study Phase I, areas identified by City resident's, areas identified by City staff, and those identified by American during the initial field investigations for SAP Phase I.

As the City continues to grow, additional areas of concern will be identified, reviewed, and evaluated utilizing the same approach previously discussed. These new areas will then be added to the City's Stormwater CIP.

While developing conceptual solution(s) each of these locations was reviewed individually and collectively in order to join multiple stormwater focus areas into a common or phased project. Several of the conceptual solutions utilized grouping multiple stormwater focus.

4.2 Engineer's Preliminary Construction Cost Estimate

Preliminary construction cost estimates were developed for all conceptual solutions. The preliminary cost estimates included survey, geotechnical, final design services, permitting, estimated property costs, construction, a twenty-five percent (25%) contingency, and materials. Unit prices are based on the Florida Department of Transportation (FDOT) Item Average Unit Costs for Area 08 (includes Pinellas County). These unit prices will be updated periodically with the stormwater contract. The preliminary cost estimates for all developed conceptual solutions are shown in Table 2: Summary of Evaluated Conceptual Solutions. The itemized preliminary cost estimates for each of the recommended conceptual solutions are

located in Appendix A. The itemized preliminary cost estimates for the other alternative conceptual solutions are located in Appendix C.

Table 2: Summary of Evaluated Conceptual Solutions

Focus Area Map ID No.	Option No.	Project Location	Resolved Focus Area Map ID No.	Design & Construction Cost	ROW Acquisition Estimate	Total Cost	Total SAP Score	Total Cost/SAP Point	Level of Permitting
1B	1	Disston Ave. south of Tarnon Ave.	1A, 1B, 1C	\$301,504	NA	\$180,309	54	5.583	MEDIUM
2	1	Disston Ave. & Center St.	2	\$254,400	NA	\$254,400	31	8.206	MEDIUM
2	2	Disston Ave. & Center St.	2, 17, 28, 28A	\$818,117	0	\$818,117	72	11.363	HIGH
3	1	Walton Ave. between Tarnon Ave. & Lime St.	3	\$40,500	\$120,000	\$160,500	36	4.458	MEDIUM
3	2	Walton Ave. between Tarnon Ave. & Lime St.	3	\$103,000	NA	\$103,000	36	2.861	MEDIUM
5	1	Pent St. 200' east of Grosse Ave.	5, 6, 14, 69, 4	\$904,999	\$150,000	\$1,054,999	93	11.344	HIGH
7	1	Pinellas Trail Outfall Ditch	7	\$22,600	NA	\$22,600	11	2.055	LOW
9	1	Disston Ave. between Spruce St. & Live Oak St.	9	\$75,400	\$0	\$75,400	15	5.027	LOW
9	2	Disston Ave. between Spruce St. & Live Oak St.	9, 10, 11	\$610,500	\$0	\$610,500	38	16.066	MEDIUM
9	3	Disston Ave. between Spruce St. & Live Oak St.	9, 10, 11	\$667,483	\$0	\$667,483	38	17.565	MEDIUM
15	1	Highland Ave. & Vista Pl.	15	\$145,760	\$50,000	\$195,760	36	5.438	MEDIUM
15	2	Highland Ave. & Vista Pl.	15	\$250,100	NA	\$250,100	36	6.947	MEDIUM
18	1	Hibiscus St. & Park St.	18	\$61,200	NA	\$61,200	17	3.600	LOW
22	1	Palm Ave. between Tarnon Dr. & Gulf Rd.	21, 22	\$387,500	NA	\$387,500	25	15.500	MEDIUM
22	2	Palm Ave. between Tarnon Dr. & Gulf Rd.	21, 22	\$500,758	\$350,000	\$850,758	25	34.030	MEDIUM
24B	1	Bath St/Shaddock Ave. Allev	24B	\$95,800	\$0	\$95,800	14	6.843	LOW
25	1	Levis Ave. Allevway/Levis Ave. between Lime St. & Oakwood St.	20, 25	\$105,600	\$120,000	\$225,600	20	11.280	MEDIUM
25	2	Levis Ave. Allevway/Levis Ave. between Lime St. & Oakwood St.	20, 25	\$248,638	\$0	\$248,638	20	12.432	MEDIUM
29	1	Spruce St. between Levis Ave. & Grosse Ave.	29	\$48,400	NA	\$48,400	11	4.400	LOW
29	2	Spruce St. between Levis Ave. & Grosse Ave.	29	\$151,230	\$0	\$151,230	11	13.748	LOW
31	1	Huey Ave. north of Tarnon Ave.	31	\$31,700	NA	\$31,700	7	4.529	LOW
33	1	Jasmine Ave. & Lime St.	33	\$135,580	\$0	\$135,580	24	5.649	LOW
35	1	Disston Ave. south of Harrison St.	35	\$123,400	NA	\$123,400	10	12.340	MEDIUM
35	2	Disston Ave. south of Harrison St.	35	\$91,500	\$0	\$91,500	10	9.150	LOW
39	1	Coburn Dr. 100' west of Florida Ave.	39	\$220,040	\$0	\$220,040	18	12.224	MEDIUM
39	2	Coburn Dr. 100' west of Florida Ave.	39	\$34,900	NA	\$34,900	18	1.939	LOW
42	1	Athens St. & Dodecanese Blvd.	42	\$105,100	NA	\$105,100	15	7.007	MEDIUM
42	2	Athens St. & Dodecanese Blvd.	42	\$51,105	\$0	\$51,105	15	3.407	MEDIUM
43	1	Island Dr. near Hill St.	43	\$57,600	NA	\$57,600	13	4.431	LOW
57	1	Kenneth Way at Seaside Dr.	57	\$91,000	NA	\$91,000	18	5.036	MEDIUM
57	2	Kenneth Way at Seaside Dr.	57, 74	\$418,642	\$30,000	\$448,642	30	14.955	MEDIUM
62	1	Roosevelt Blvd.	62	\$543,648	NA	\$543,648	24	22.652	LOW
70	1	East end of Boston St.	70	\$47,300	NA	\$47,300	12	3.942	LOW
71	1	Riverside Dr. & Hillside Dr.	71, 72	\$124,600	NA	\$124,600	29	4.297	MEDIUM
71	2	Riverside Dr. & Hillside Dr.	71, 72	\$88,861	\$0	\$88,861	29	3.064	LOW
73	1	Riverside Dr. at Seabreeze Dr.	73	\$70,871	\$0	\$70,871	7	10.124	LOW
100	1	Intersection of Marina Dr. & Anclote Rd.	100	\$56,200	\$0	\$56,200	29	1.938	LOW
100	2	Intersection of Marina Dr. & Anclote Rd.	100	\$34,488	\$0	\$34,488	29	1.189	LOW
101	1	Alternate US 19 & Anclote Rd.	101	\$70,000	\$0	\$70,000	30	2.333	MEDIUM
101	2	Alternate US 19 & Anclote Rd.	101	\$24,800	\$0	\$24,800	30	827	LOW
102	1	Mango St. & Mango Cl.	102	\$45,900	\$0	\$45,900	12	3.825	LOW
102	2	Mango St. & Mango Cl.	102	\$60,700	\$0	\$60,700	12	5.058	LOW

Recommended Alternative

1. Total cost includes additional funding from FDOT (\$121,105)

4.3 Cost/Benefit Analysis

Using the SAP Phase I score for each of the stormwater focus areas and the preliminary construction cost estimates for the conceptual solutions a cost/benefit analysis was performed. This analysis was used to assist with determining which conceptual alternative provided the best solution to the problem for the least cost. From the original 36 stormwater focus areas a total of 24 individual stormwater projects were developed. **As the City continues to grow, additional stormwater problem areas have been added to the stormwater CIP. Please see Table 3: Cost/Benefit Summary of Recommended Solutions.**

Table 3: Cost/Benefit Summary of Recommended Conceptual Solutions

Focus Area Map ID No.	Option No.	Project Location	Resolved Focus Area Map ID No.	Design & Construction Cost	ROW Acquisition Estimate	Total Cost	Total SAP Score	Total Cost/SAP Point
100	2	Intersection of Marina Dr. & Anclote Rd.	100	\$34,488	\$0	\$34,488	29	1,189
101	1	Alternate US 19 & Anclote Rd.	101	\$70,000	\$0	\$70,000	30	2,333
71	2	Riverside Dr. & Hillside Dr.	71,72	\$88,861	\$0	\$88,861	29	3,064
42	2	Athens St. & Dodecanese Blvd.	42	\$51,105	\$0	\$51,105	15	3,407
102	1	Mango St. & Mango Ct.	102	\$45,900	\$0	\$45,900	12	3,825
43	1	Inland Dr. near Hill St.	43	\$57,600	\$0	\$57,600	13	4,431
15	1	Highland Ave. & Vista Pl.	15	\$145,760	\$50,000	\$195,760	36	5,438
20	1	Disston Ave. south of Tarpon Ave.	1A, 1B, 1C	\$301,504	\$0	\$180,309	54	5,583
33	1	Jasmine Ave. & Lime St.	33	\$135,580	\$0	\$135,580	24	5,649
24B	1	Baft St./Shaddock Ave. Alley	24B	\$95,800	\$0	\$95,800	14	6,843
35	2	Disston Ave. south of Harrison St.	35	\$91,500	\$0	\$91,500	10	9,150
73	1	Riverside Dr. at Seabreeze Dr.	73	\$70,871	\$0	\$70,871	7	10,124
5	1	Pent St. 200' east of Grosse Ave.	5, 6, 14, 69, 4	\$904,999	\$150,000	\$1,054,999	93	11,344
2	2	Disston Ave. & Center St.	2, 17, 28, 28A	\$818,117	\$0	\$818,117	72	11,363
39	1	Coburn Dr. 100' west of Florida Ave.	39	\$220,040	\$0	\$220,040	18	12,224
25	2	Levis Ave. Alleyway/Levis Ave. between Lime St. & Oakwood St.	20, 25	\$248,638	\$0	\$248,638	20	12,432
29	2	Spruce St. between Levis Ave. & Grosse Ave.	29	\$151,230	\$0	\$151,230	11	13,748
57	2	Kenneth Way at Seaside Dr.	57, 74	\$418,642	\$30,000	\$448,642	30	14,955
9	3	Disston Ave. between Spruce St. & Live Oak St.	9, 10, 11	\$667,483	\$0	\$667,483	38	17,565
22	2	Palm Ave. between Tarpon Dr. & Gulf Rd.	21, 22	\$500,758	\$350,000	\$850,758	25	34,030

4.4 Funding Implementation

The City has an existing Stormwater Utility Fee from which the funds will be implemented in order to design, permit, and construct recommended solutions to the stormwater focus areas. The City's projected available funding based on this Stormwater Utility Fee is approximately \$400,000 annually.

Recommended conceptual solutions that could qualify for additional funding through the SWFWMD Cooperative Funding Initiative Program, the FDEP Section 319(h) Nonpoint Source Management Grant Program, the FDEP TMDL Water Quality Restoration Grant Program, or other funding sources are shown in Table 4: Projects Eligible for Additional Funding.

Table 4: Projects Eligible for Additional Funding

Focus Area Map ID No.	Project Location	Resolved Focus Area Map ID No.	Design & Construction Cost	ROW Acquisition Estimate	Total Cost	Discharges to Impaired Waterbody
33	Jasmine Ave. & Lime St.	33	\$135,580	NA	\$135,580	YES
15	Highland Ave. & Vista Pl.	15	\$145,760	\$50,000	\$195,760	YES
5	Pent St. 200' east of Grosse Ave.	5, 6, 14, 69, 4	\$904,999	\$150,000	\$1,054,999	YES
9	Disston Ave. between Spruce St. & Live Oak St.	9, 10, 11	\$667,483	NA	\$667,483	YES
22	Palm Ave. between Tarpon Dr. & Gulf Rd.	21, 22	\$500,758	\$350,000	\$850,758	YES
TOTALS			\$2,354,580	\$550,000	\$2,904,580	

4.5 Recommended Capital Improvements

Using the SAP Phase I score and the preliminary construction cost estimates for the conceptual solutions a cost/benefit analysis was performed to assist with determining which conceptual alternative provided the best solution to the problem for the least cost. These recommended alternatives were then implemented into a Capital Improvement Program. This program was developed using an initial stormwater account balance of approximately three million dollars and an approximate annual stormwater fee of four hundred thousand dollars. The recommended alternative design, construction, and right-of-way costs are separated per fiscal calendar year. A summary of all projects (active, completed, and future projects) are shown in Table 5: Overall Stormwater Capital Improvement Program.

4.6 Permitting

American met with SWFWMD on August 11, 2010 to discuss generally the permitting requirements in addition to discussing potential cooperative funding for several of the recommended solutions. The following are the highlights from the meeting:

- Re-routing any current closed basins to either an open basin (drains to Anclote River, Gulf of Mexico, or Lake Tarpon) or another closed basin will require demonstrating that the problem/issue is not being relocated.
- Projects that incorporate stormwater treatment options (ponds or other means – CDS units, stormceptor/others) could be eligible for District funding consideration.
- There are no permit exemptions for the small addition of inlets/pipes to existing infrastructure.
- Individual project pre-application meetings should be held during the design phases for each project.
- Projects will most likely be permitted individually.



PROJECT PHASE 2 - PROGRESS
 PROJECT PHASE 3 - CONSTRUCTION
 PROJECT PHASE 4 - COMPLETED



Table 5: City of Tarpon Springs - Stormwater Capital Improvement Program (UPDATED 10/27/14)

Project Area Map ID No.	Project Location	Approved Project Area (Map ID No.)	FY 2014			FY 2015			FY 2016			FY 2017			FY 2018			FY 2019			FY 2020			FY 2021			FY 2022			CIP Total
			Design	Const.	RCOV	Design	Const.	RCOV	Design	Const.	RCOV	Design	Const.	RCOV	Design	Const.	RCOV	Design	Const.	RCOV	Design	Const.	RCOV	Design	Const.	RCOV	Design	Const.	RCOV	
66	Interchange of State St. & Atlantic St.					250,000																							250,000	
67	Atlantic St. to S. Atlantic St.					250,000																							250,000	
71	Atlantic St. & Atlantic St.	7133				250,000																							250,000	
68	Atlantic St. & Sycamore Blvd.	20				250,000																							250,000	
69	Atlantic St. & Sycamore Blvd.					250,000																							250,000	
70	Atlantic St. to Sycamore Blvd.	20				250,000																							250,000	
72	Atlantic St. & White St.	12							250,000																				250,000	
73	Atlantic St. & White St.	12							250,000																				250,000	
74	Atlantic St. & White St.	12							250,000																				250,000	
75	Atlantic St. & White St.	12							250,000																				250,000	
76	Atlantic St. & White St.	12							250,000																				250,000	
77	Atlantic St. & White St.	12							250,000																				250,000	
78	Atlantic St. & White St.	12							250,000																				250,000	
79	Atlantic St. & White St.	12							250,000																				250,000	
80	Atlantic St. & White St.	12							250,000																				250,000	
81	Atlantic St. & White St.	12							250,000																				250,000	
82	Atlantic St. & White St.	12							250,000																				250,000	
83	Atlantic St. & White St.	12							250,000																				250,000	
84	Atlantic St. & White St.	12							250,000																				250,000	
85	Atlantic St. & White St.	12							250,000																				250,000	
86	Atlantic St. & White St.	12							250,000																				250,000	
87	Atlantic St. & White St.	12							250,000																				250,000	
88	Atlantic St. & White St.	12							250,000																				250,000	
89	Atlantic St. & White St.	12							250,000																				250,000	
90	Atlantic St. & White St.	12							250,000																				250,000	
91	Atlantic St. & White St.	12							250,000																				250,000	
92	Atlantic St. & White St.	12							250,000																				250,000	
93	Atlantic St. & White St.	12							250,000																				250,000	
94	Atlantic St. & White St.	12							250,000																				250,000	
95	Atlantic St. & White St.	12							250,000																				250,000	
96	Atlantic St. & White St.	12							250,000																				250,000	
97	Atlantic St. & White St.	12							250,000																				250,000	
98	Atlantic St. & White St.	12							250,000																				250,000	
99	Atlantic St. & White St.	12							250,000																				250,000	
100	Atlantic St. & White St.	12							250,000																				250,000	
101	Atlantic St. & White St.	12							250,000																				250,000	
102	Atlantic St. & White St.	12							250,000																				250,000	
103	Atlantic St. & White St.	12							250,000																				250,000	
104	Atlantic St. & White St.	12							250,000																				250,000	
105	Atlantic St. & White St.	12							250,000																				250,000	
106	Atlantic St. & White St.	12							250,000																				250,000	
107	Atlantic St. & White St.	12							250,000																				250,000	
108	Atlantic St. & White St.	12							250,000																				250,000	
109	Atlantic St. & White St.	12							250,000																				250,000	
110	Atlantic St. & White St.	12							250,000																				250,000	
111	Atlantic St. & White St.	12							250,000																				250,000	
112	Atlantic St. & White St.	12							250,000																				250,000	
113	Atlantic St. & White St.	12							250,000																				250,000	
114	Atlantic St. & White St.	12							250,000																				250,000	
115	Atlantic St. & White St.	12							250,000																				250,000	
116	Atlantic St. & White St.	12							250,000																				250,000	
117	Atlantic St. & White St.	12							250,000																				250,000	
118	Atlantic St. & White St.	12							250,000																				250,000	
119	Atlantic St. & White St.	12							250,000																				250,000	
120	Atlantic St. & White St.	12							250,000																				250,000	
121	Atlantic St. & White St.	12							250,000																				250,000	
122	Atlantic St. & White St.	12							250,000																				250,000	
123	Atlantic St. & White St.	12							250,000																				250,000	
124	Atlantic St. & White St.	12							250,000																				250,000	
125	Atlantic St. & White St.	12							250,000																				250,000	
126	Atlantic St. & White St.	12							250,000																				250,000	
127	Atlantic St. & White St.	12							250,000																				250,000	
128	Atlantic St. & White St.	12																												

5.0 Completed Projects

5.1 Record of Completed Projects

As projects are completed/constructed, the stormwater SAP will be updated to show a track record of completed projects. Table 6 below is the summary of completed projects. Completed project description, conceptual layout & cost estimate can be found in Appendix D.

Table 6: Summary of Completed Projects

Project Map ID No.	Project Location	Fiscal Year Completed	Total Cost	Notes
1B	Disston Ave. South of Tarpon Ave.	2013	\$680,762	
3	Walton Ave. between Tarpon Ave. & Lime St.	2012	\$193,577	
7	Pinellas Trail Outfall Ditch (Safford Rec Park)	2013	\$541,574	
18	Hibiscus St. & Park St.	2013	\$90,110	
62	Roosevelt Blvd.	2011	\$315,961	
70	East end of Boston St.	2013	\$47,300	Lowe's Dev.
31	Huey Ave. north of Tarpon Ave.	2013	\$31,700	CTS Maintenance
NA	Chesapeake Drive	2011	\$184,459	
NA	MLK Drive Technical Memorandum	2011	\$19,041	
NA	S.Disston Ave. Pond Treatment Memorandum	2011	\$4,050	
NA	Charlotte Ave. Evaluation/Exhibit	2011	\$948	
NA	City Golf Course Evaluation	2011	\$32,455	
NA	Gulf Road	2011	\$57,545	

Appendix A

Recommended Solutions, Problem Descriptions, and Cost Estimates

Map ID No. 2 - Disston Ave. & Center St.

Problem:

Intersection is located in a closed basin; however, the low point is along the west side of Disston Ave. where it intersects with Center St. There is no stormwater infrastructure for the intersection. Ponding occurs within the entire intersection and with heavy or long duration storm events the intersection floods as well as adjacent properties. Several adjacent property owners have constructed earthen berms in the right-of-way to prevent flooding of their property.

Conceptual Solution(s):

Option 1

This conceptual solution would require installing a series of inlets at the intersection with a storm sewer collection system that would be routed to the west along Center St. At Levis Ave. the system would discharge into an existing dry detention system. This section of Center St. has been listed by the City as a future brick street replacement project therefore this system could be installed conventionally along the centerline of Center St. The existing City-owned dry detention pond would require an expansion. This conceptual solution would require a deep pipe installation approximately 14 to 16 feet deep due to the topography of Center St. between Levis Ave. and Disston Ave. An analysis to determine whether the pond expansion could provide the additional volume needed to accommodate the additional stormwater runoff would be required.

Option 2

This conceptual solution would require installing a series of inlets at the intersection with a storm sewer collection system that would be routed to the east along Center St. At Walton Ave. the storm sewer and inlet system would continue to the east and discharge into the existing cypress swamp located at the east end of Center St. Inlets would be placed at the Walton Ave. & Center St. intersection and just south of this intersection within the low point along Walton Ave. (Map ID No. 28A – Walton Ave. & Center St.). The main trunk system along Center St. at Walton Ave. could be sized to convey stormwater runoff collected by future extension of the system that would be installed along Pent St. between Disston Ave. and Walton Ave. (Map ID No. 17 - Pent St. between Disston Ave. & Walton Ave.) as well as along Cypress St. between Disston Ave. & Walton Ave. (Map ID No. 28 - Cypress St. between Disston Ave. & Walton Ave.). This conceptual solution would require a deep pipe installation approximately 8 to 10 feet deep due to the topography of Center St. between Disston Ave. and Walton Ave. An analysis to determine whether the cypress swamp can handle the additional runoff would be required.



Preliminary Construction Cost Estimate

MAP ID NO. 2: (OPTION 2 - INCLUDES MAP ID NO. 28A): DISSTON AVE. AND CENTER ST.

09/04/2014

Bid Item No.	Description	Quantity	Units	Unit Price	Amount
1	MOBILIZATION	1	LS	\$27,275.00	\$27,275.00
2	SYNTHETIC BALES	384	LF	\$16.00	\$6,144.00
3	STAKED SILT FENCE, TYPE III	1,270	LF	\$1.00	\$1,270.00
4	CLEARING & GRUBBING	0.362	AC	\$23,362.09	\$8,457.00
5	ROADWAY RECONSTRUCTION	14,100	SF	\$4.75	\$66,975.00
6	MANHOLE	2	EA	\$4,200.00	\$8,400.00
7	DITCH BOTTOM INLET	12	EA	\$5,706.33	\$68,476.00
8	CONCRETE CLASS I, ENDWALLS	4.53	CY	\$1,351.95	\$6,124.00
9	PIPE CULVERT REINFORCED CONCRETE, 0-24"	841	LF	\$67.08	\$56,414.00
10	PIPE CULVERT REINFORCED CONCRETE, 25-36"	262	LF	\$136.14	\$35,883.00
11	SIDEWALK CONCRETE	293	SY	\$40.71	\$11,928.00
12	PERFORMANCE TURF, SOD	759	SY	\$3.13	\$2,376.00
MAP ID NO. 2 CONSTRUCTION SUBTOTAL					\$300,032.00

MAP ID NO. 28: CYPRESS ST. BETWEEN DISSTON AVE. AND WALTON AVE.

09/04/2014

Bid Item No.	Description	Quantity	Units	Unit Price	Amount
1	MOBILIZATION	1	LS	\$11,852.00	\$11,852.00
2	SYNTHETIC BALES	64	LF	\$16.00	\$1,024.00
3	STAKED SILT FENCE, TYPE III	515	LF	\$1.00	\$515.00
4	CLEARING & GRUBBING	0.145	AC	\$23,362.09	\$3,388.00
5	ROADWAY RECONSTRUCTION	6,204	SF	\$4.75	\$29,469.00
6	MANHOLE	1	EA	\$4,200.00	\$4,200.00
7	DITCH BOTTOM INLET	2	EA	\$5,706.33	\$11,413.00
8	PIPE CULVERT REINFORCED CONCRETE, 0-24"	240	LF	\$67.08	\$16,099.00
9	PIPE CULVERT REINFORCED CONCRETE, 25-36"	289	LF	\$136.14	\$39,322.00
10	SIDEWALK CONCRETE	281	SY	\$40.71	\$11,440.00
11	PERFORMANCE TURF, SOD	337	SY	\$3.13	\$1,055.00
MAP ID NO. 28 CONSTRUCTION SUBTOTAL					\$130,377.00

MAP ID NO. 17: PENT ST. BETWEEN DISSTON AVE. AND WALTON AVE.

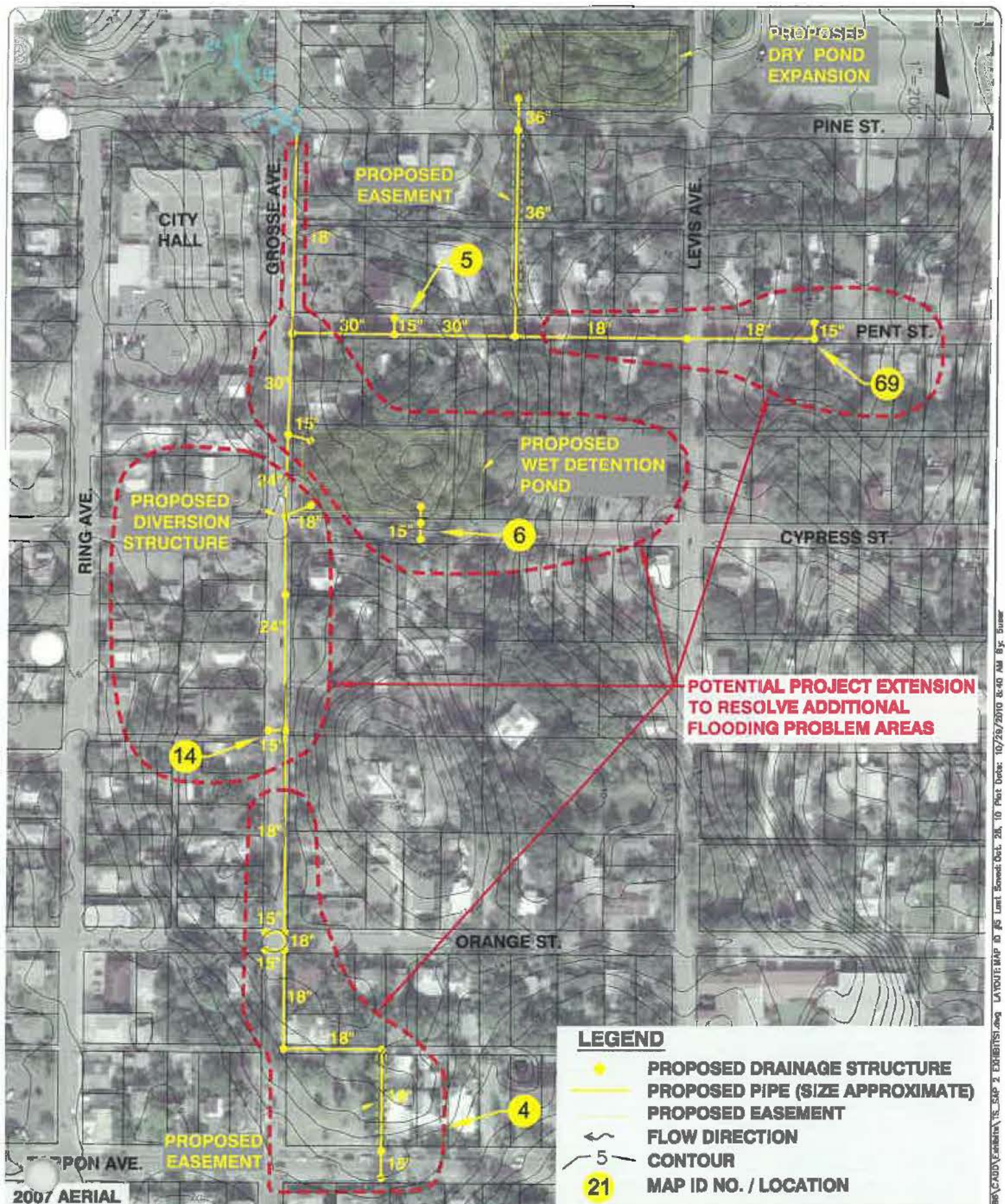
09/04/2014

Bid Item No.	Description	Quantity	Units	Unit Price	Amount
1	MOBILIZATION	1	LS	\$9,440.00	\$9,440.00
2	SYNTHETIC BALES	64	LF	\$16.00	\$1,024.00
3	STAKED SILT FENCE, TYPE III	537	LF	\$1.00	\$537.00
4	CLEARING & GRUBBING	0.152	AC	\$23,362.09	\$3,551.00
5	ROADWAY RECONSTRUCTION	6,468	SF	\$4.75	\$30,723.00
6	MANHOLE	1	EA	\$4,200.00	\$4,200.00
7	DITCH BOTTOM INLET	2	EA	\$5,706.33	\$11,413.00
8	PIPE CULVERT REINFORCED CONCRETE, 0-24"	551	LF	\$67.08	\$36,981.00
9	CONCRETE CURB	293	LF	\$16.70	\$4,883.00
10	PERFORMANCE TURF, SOD	351	SY	\$3.13	\$1,099.00
MAP ID NO. 17 CONSTRUCTION SUBTOTAL					\$103,841.00

CONSTRUCTION SUBTOTAL	\$534,280.00
20% CONTINGENCY	\$106,856.00
CONSTRUCTION TOTAL	\$641,136.00
SURVEY	\$20,036.00
GEOTECHNICAL	\$10,018.00
ENGINEERING	\$120,213.00
GRAND TOTAL	\$892,269.00

Notes:

- Unit Prices based on FDOT Item Average Unit Costs for Area DB from 10/01/2013 to 09/30/2014.
- Conceptual Cost Estimate does not include the costs of Right-of-Way Acquisition or Permitting.



PROJECT: \3087083\CADD\Exhibits\15_SAP 2 EXHIBITS.dwg LAYOUT: MAP ID 21 Map Date: 10/26/2010 8:40 AM By: Susan

2007 AERIAL

REPAIRED BY:
American
 Consulting Engineers of Florida, LLC
 285 Pine Ave, North Unit A
 Ocala, FL 34471
 Phone: (352) 489-5700 Fax: (352) 489-5701
 Certificate of Authorization No. 9302

CITY OF TARPON SPRINGS
 PUBLIC SERVICES DEPARTMENT

804 E. PINE STREET
 TARPON SPRINGS, FL 34689
 (877) 942-0010

STORMWATER ACTION PLAN - PH II

PENT ST. 100' EAST OF GROSSE AVE.

MAP ID NO.
5
 OPTION 1 OF 1

Map ID No. 5 - Pent St. 200' east of Grosse Ave.

Problem:

This is a low spot within the road with no stormwater infrastructure. Street and property flooding is occurring according to City staff. Property damage is also occurring at 428 Pent St. causing the City to install pumps to address the problem several times throughout the wet season.

Conceptual Solution(s):

Option 1

The conceptual solution would involve installing a storm sewer collection system along Grosse Ave., utilizing the City-owned property at the northeast corner of the intersection of Grosse Ave. and Cypress St. for a stormwater pond, extending the system east along Pent St. and then north through an easement prior to discharging into the existing dry detention stormwater management facility currently serving the Tarpon Springs Elementary School. The existing dry detention stormwater management facility currently serving the Tarpon Springs Elementary School would require an expansion.

This conceptual system could resolve the following five flooding locations: Map ID No. 4 - Tarpon Ave. 100' east of Grosse Ave., Map ID No. 5 - Pent St. 200' east of Grosse Ave., Map ID No. 6 - Cypress St. 200' east of Grosse Ave., Map ID No. 14 - Grosse Ave. between Pine St. & Orange St., and Map ID No. 69 - Pent St. 100' east of Levis Ave.

The proposed system would begin with 2 inlets being installed along Tarpon Ave. The storm sewer system would convey the runoff from this location (Map ID No. 4 - Tarpon Ave. 100' east of Grosse Ave.) to the north through a proposed easement. This system would then be directed to the west towards Grosse Ave. within the right-of-way between Tarpon Ave. and Orange St. Grosse Ave. After reaching Grosse Ave. the storm system would turn north along Grosse Ave. Additional inlets would be installed at the Grosse Ave. and Orange St. intersection and approximately half the distance between Orange St. and Cypress St. The storm sewer system would convey the runoff from this location (Map ID No. 14 - Grosse Ave. between Pine St. & Orange St.) to the north along Grosse Ave. up to Cypress St. where it would enter a structure with a diversion weir on the northeast corner at the intersection of Cypress St. and Grosse Ave. This diversion weir structure would divert low stormwater flows into a proposed wet detention stormwater pond utilizing the City-owned property at the northeast corner at the intersection of Grosse Ave. and Cypress St. This pond will provide attenuation and some water quality treatment for the runoff prior to discharging back into the proposed system along Grosse Ave. Two inlets and storm sewer are being proposed along Cypress St. approximately 200 feet east of Grosse Ave. These inlets will replace the existing 6-inch PVC outfall into the City-owned property located at the northeast corner of the intersection of Cypress St. and Grosse Ave. and alleviate the flooding occurring at Map ID No. 6 - Cypress St. 200' east of Grosse Ave.

The diversion weir structure will divert low stormwater flows into the proposed wet detention stormwater pond but will permit high stormwater flows from larger storm events to by-pass the proposed pond and continue north along Grosse Ave. At the intersection of Grosse Ave. and Pent St. the system would split where the main line for this system is directed east at Pent St. and two inlets are recommended approximately 200 feet east of Grosse Ave. These two inlets and the proposed stormwater pond could alleviate the flooding problem occurring at Map ID No. 5 - Pent St. 200' east of Grosse Ave. The main line storm sewer system continues east along Pent St. and then north through a proposed easement prior to discharging into the existing dry detention stormwater management facility currently serving the Tarpon Springs Elementary School. An extension of the storm sewer system could be constructed to the east along Pent St. where two inlets are recommended to alleviate the flooding occurring at Map ID No. 69 - Pent St. 100' east of Levis Ave. Where the main line of the storm sewer system is split at the intersection of Grosse Ave. and Pent St. a smaller outfall pipe is proposed along Grosse Ave. to connect into the existing storm sewer system serving the Grosse Ave. and Pine St. intersection. This split would serve two purposes; it will provide a higher discharge capacity for the proposed system for large storm events and possibly reduce the required pipe size for the outfall of the main line located within the proposed easement. Additional analysis would be required to determine whether or not the proposed connection to the existing storm sewer system serving the Grosse Ave. and Pine St. intersection would require further downstream modifications to the existing system.

An expansion of the existing dry detention stormwater management facility that currently serves the Tarpon Springs Elementary School would be required. There are several options/configurations for expanding this existing pond to provide the required volume for attenuation and treatment of the additional stormwater from the proposed stormwater collection system. The proposed pond utilizing the City-owned property at the northeast corner at the intersection of Grosse Ave. and Cypress St. will provide some attenuation and treatment for the stormwater runoff thus reducing the overall expansion needed at the existing dry detention stormwater management facility that currently serves the Tarpon Springs Elementary School. Coordination with the School Board to develop an optimal pond expansion that fits the school's future land use plans would be required along with a Southwest Florida Water Management District (SWFWMD) ERP permit modification.



Preliminary Construction Cost Estimate

MAP ID NO. 5: PENT ST. 200' EAST OF GROSSE AVE.

09/04/2014

Bld Item No.	Description	Quantity	Units	Unit Price	Amount
1	SYNTHETIC BALES	84	LF	\$16.00	\$1,024.00
2	STAKED SILT FENCE, TYPE III	1,830	LF	\$1.00	\$1,830.00
3	CLEARING & GRUBBING	0.980	AC	\$23,382.09	\$23,128.00
4	POND EXCAVATION	6,024	CY	\$3.82	\$23,012.00
5	ROADWAY RECONSTRUCTION	10,224	SF	\$4.75	\$48,564.00
6	MANHOLE	4	EA	\$4,200.00	\$16,800.00
7	CURB INLET	2	EA	\$5,708.33	\$11,413.00
8	MITERED END SECTION	1	EA	\$3,347.18	\$3,347.00
9	PIPE CULVERT REINFORCED CONCRETE, 0-24"	27	LF	\$67.08	\$1,811.00
10	PIPE CULVERT REINFORCED CONCRETE, 28-36"	656	LF	\$138.14	\$118,248.00
11	CONCRETE CURB	478	LF	\$16.70	\$7,983.00
12	SIDEWALK CONCRETE	437	SY	\$40.71	\$17,790.00
13	PERFORMANCE TURF, 80D	350	SY	\$3.15	\$1,098.00
MAP ID NO. 5 CONSTRUCTION SUBTOTAL					\$276,848.00

MAP ID NO. 89: PENT ST. 100' EAST OF LEVIS AVE.

09/04/2014

Bld Item No.	Description	Quantity	Units	Unit Price	Amount
1	SYNTHETIC BALES	64	LF	\$16.00	\$1,024.00
2	STAKED SILT FENCE, TYPE III	190	LF	\$1.00	\$190.00
3	CLEARING & GRUBBING	0.083	AC	\$23,382.09	\$1,472.00
4	ROADWAY RECONSTRUCTION	2,760	SF	\$4.75	\$13,110.00
5	CURB INLET	2	EA	\$5,708.33	\$11,413.00
6	PIPE CULVERT REINFORCED CONCRETE, 0-24"	230	LF	\$67.08	\$15,428.00
7	CONCRETE CURB	190	LF	\$16.70	\$3,173.00
8	SIDEWALK CONCRETE	108	SY	\$40.71	\$4,316.00
9	PERFORMANCE TURF, 80D	84	SY	\$3.15	\$263.00
MAP ID NO. 89 CONSTRUCTION SUBTOTAL					\$60,386.00

MAP ID NO. 8: CYPRESS ST. 200' EAST OF GROSSE AVE.

09/04/2014

Bld Item No.	Description	Quantity	Units	Unit Price	Amount
1	SYNTHETIC BALES	96	LF	\$16.00	\$1,536.00
2	STAKED SILT FENCE, TYPE III	1,300	LF	\$1.00	\$1,300.00
3	CLEARING & GRUBBING	0.184	AC	\$23,382.09	\$3,131.00
4	POND EXCAVATION	6,944	CY	\$3.82	\$26,528.00
5	ROADWAY RECONSTRUCTION	4,224	SF	\$4.75	\$20,064.00
6	MANHOLE	2	EA	\$4,200.00	\$8,400.00
7	DITCH BOTTOM INLET	1	EA	\$2,500.00	\$2,500.00
8	CURB INLET	2	EA	\$5,708.33	\$11,413.00
9	MITERED END SECTION	1	EA	\$2,000.00	\$2,000.00
10	PIPE CULVERT REINFORCED CONCRETE, 0-24"	416	LF	\$67.08	\$27,885.00
11	CONCRETE CURB	348	LF	\$16.70	\$5,812.00
12	SIDEWALK CONCRETE	193	SY	\$40.71	\$7,857.00
13	PERFORMANCE TURF, 80D	185	SY	\$3.15	\$585.00
MAP ID NO. 8 CONSTRUCTION SUBTOTAL					\$118,862.00

MAP ID NO. 14: GROSSE AVE. BETWEEN PINE ST. & ORANGE ST.

09/04/2014

Bld Item No.	Description	Quantity	Units	Unit Price	Amount
1	SYNTHETIC BALES	64	LF	\$16.00	\$1,024.00
2	STAKED SILT FENCE, TYPE III	549	LF	\$1.00	\$549.00
3	CLEARING & GRUBBING	0.180	AC	\$23,382.09	\$3,504.00
4	ROADWAY RECONSTRUCTION	5,888	SF	\$4.75	\$28,443.00
5	MANHOLE	1	EA	\$4,200.00	\$4,200.00
6	DIVERSION STRUCTURE	1	EA	\$5,200.00	\$5,200.00
7	CURB INLET	2	EA	\$5,708.33	\$11,413.00
8	MITERED END SECTION	1	EA	\$2,000.00	\$2,000.00
9	PIPE CULVERT REINFORCED CONCRETE, 0-24"	819	LF	\$67.08	\$54,816.00
10	CONCRETE CURB	451	LF	\$16.70	\$7,532.00
11	SIDEWALK CONCRETE	251	SY	\$40.71	\$10,218.00
12	PERFORMANCE TURF, 80D	289	SY	\$3.15	\$911.00
MAP ID NO. 14 CONSTRUCTION SUBTOTAL					\$108,769.00

MAP ID NO. 4: TARPON AVE. 100' EAST OF GROSSE AVE.

09/04/2014

Bld Item No.	Description	Quantity	Units	Unit Price	Amount
1	MOBILIZATION	1	LB	\$3,780.00	\$3,780.00
2	SYNTHETIC BALES	64	LF	\$16.00	\$1,024.00
3	STAKED SILT FENCE, TYPE III	78	LF	\$1.00	\$78.00
4	CLEARING & GRUBBING	0.083	AC	\$23,382.09	\$771.00
5	ROADWAY RECONSTRUCTION	1,200	SF	\$3.75	\$4,500.00
6	CURB INLET	2	EA	\$5,708.33	\$11,413.00
7	SUBSURFACE STORAGE SYSTEM	1.00	LB	\$10,000.00	\$10,000.00
8	PIPE CULVERT REINFORCED CONCRETE, 0-24"	82	LF	\$67.08	\$5,488.00
9	CONCRETE CURB	78	LF	\$16.70	\$1,303.00
10	SIDEWALK CONCRETE	43	SY	\$40.71	\$1,751.00
11	PERFORMANCE TURF, 80D	35	SY	\$3.15	\$110.00
MAP ID NO. 4 CONSTRUCTION SUBTOTAL					\$38,168.00

CONSTRUCTION SUBTOTAL	\$382,983.00
MOBILIZATION	\$36,890.00
25% CONTINGENCY	\$146,349.00
CONSTRUCTION TOTAL	\$778,822
SURVEY	\$34,967.00
GEOTECHNICAL	\$18,537.00
ENGINEERING	\$77,883.00
ROW	\$180,000.00
GRAND TOTAL	\$1,084,899

Notes:
 1. Unit Prices based on FDOT Item Average Unit Costs for Area 08 from 10/01/2013 to 09/30/2014.
 2. Conceptual Cost Estimate does not include the costs of Right-of-Way Acquisition or Permitting.



- LEGEND**
- EXISTING DRAINAGE STRUCTURE
 - EXISTING PIPE
 - PROPOSED DRAINAGE STRUCTURE
 - PROPOSED PIPE (SIZE APPROXIMATE)
 - PROPOSED SWALE
 - PROPOSED EASEMENT
 - FLOW DIRECTION
 - CONTOUR
 - MAP ID NO. / LOCATION

PREPARED BY:
American
 Consulting Engineers of Florida, LLC
 283 Pine Ave. North Unit A
 Odessa, FL 34877
 Phone: (787) 480-8788 Fax: (787) 480-8781
 Certificate of Authorization No. 9302

CITY OF TARPON SPRINGS
 PUBLIC SERVICES DEPARTMENT
 304 E. PINE STREET
 TARPON SPRINGS, FL 34689
 (727) 942-9611

STORMWATER ACTION PLAN - PH II
DISSTON AVE.
BETWEEN SPRUCE ST. & LIVE OAK ST.

MAP ID NO.
9
 OPTION 1 OF 3

2007 AERIAL
 LAYOUT: MAP ID 9 (3) Last Saved: Oct. 28, 10 Plot Date: 10/28/2010 8:48 AM By: Suvar

Map ID No. 9 - Disston Ave. between Spruce St. & Live Oak St.

Problem:

Low spot along Disston Ave. collects runoff which creates ponding to occur in roadway and residential yards. There is no stormwater infrastructure at this location. Runoff flows to the west into a wetland prior to discharging under Live Oak St. and the Pinellas Trail (3 – 19" x 30" ERCP) toward the Anclote River.

Conceptual Solution(s):

Option 1

The conceptual solution would involve installing three inlets and storm sewer pipe along Disston Ave. to collect and convey the stormwater runoff into the wetland west of Disston Ave. During a field review we were able to speak with the owner of the property (733 Disston Ave.) who said that he would work with the City to grant a drainage easement for the outfall pipe into the wetland.

Option 2

The conceptual solution would involve installing three inlets and storm sewer pipe along Disston Ave. to collect and convey the stormwater runoff into the wetland west of Disston Ave. During an additional field review we were able to speak with the owner of the property (733 Disston Ave.) who said that he would work with the City to grant a drainage easement for the outfall pipe into the wetland. The proposed pipe sizes for this option are larger than those in Option 1 to allow for solving multiple upstream problem areas as indicated below.

This conceptual solution has been developed so that a future expansion of the storm sewer system could be incorporated in order to resolve two additional flooding problem areas, Map ID No. 10 - Spruce St. between Disston Ave. & Walton Ave. and Map ID No. 11 - Boston St. between Disston Ave. & Walton Ave.



Preliminary Construction Cost Estimate

MAP ID NO. 9 (OPTION 3): DISSTON AVE. BETWEEN SPRUCE ST. & LIVE OAK ST.

09/04/2014

Bid Item No.	Description	Quantity	Units	Unit Price	Amount
2	SYNTHETIC BALES	98	LF	\$16.00	\$1,568.00
3	STAKED SILT FENCE, TYPE III	452	LF	\$1.00	\$452.00
4	CLEARING & GRUBBING	0.105	AC	\$23,362.09	\$2,453.00
5	ROADWAY RECONSTRUCTION	1,008	SF	\$4.75	\$4,788.00
6	MANHOLE	1	EA	\$4,200.00	\$4,200.00
7	CURB INLET	3	EA	\$5,708.33	\$17,119.00
8	MITERED END SECTION	1	EA	\$2,000.00	\$2,000.00
9	PIPE CULVERT REINFORCED CONCRETE, 25-36"	275	LF	\$67.08	\$18,447.00
10	CONCRETE CURB	70	LF	\$16.70	\$1,169.00
11	SIDEWALK CONCRETE	39	SY	\$40.71	\$1,588.00
12	PERFORMANCE TURF, SOD	31	SY	\$3.13	\$97.00
MAP ID NO. 9 (OPTION 3) CONSTRUCTION SUBTOTAL					\$53,849.00

MAP ID NO. 10 (OPTION 3): SPRUCE ST. BETWEEN DISSTON AVE. & WALTON AVE.

09/04/2014

Bid Item No.	Description	Quantity	Units	Unit Price	Amount
2	SYNTHETIC BALES	84	LF	\$16.00	\$1,024.00
3	STAKED SILT FENCE, TYPE III	1,370	LF	\$1.00	\$1,370.00
4	CLEARING & GRUBBING	0.230	AC	\$23,362.09	\$5,373.00
5	ROADWAY RECONSTRUCTION	3,284	SF	\$4.75	\$15,504.00
6	MANHOLE	5	EA	\$4,200.00	\$21,000.00
7	DITCH BOTTOM INLET	2	EA	\$2,862.52	\$5,725.00
8	PIPE CULVERT REINFORCED CONCRETE, 0-24"	184	LF	\$67.08	\$12,343.00
9	PIPE CULVERT REINFORCED CONCRETE, 25-36"	650	LF	\$138.14	\$89,791.00
10	CONCRETE CURB	280	LF	\$16.70	\$4,642.00
11	SIDEWALK CONCRETE	144	SY	\$40.71	\$5,862.00
12	PERFORMANCE TURF, SOD	849	SY	\$3.13	\$2,657.00
MAP ID NO. 10 (OPTION 3) CONSTRUCTION SUBTOTAL					\$184,991.00

MAP ID NO. 11 (OPTION 3): BOSTON ST. BETWEEN DISSTON AVE. & WALTON AVE.

09/04/2014

Bid Item No.	Description	Quantity	Units	Unit Price	Amount
2	SYNTHETIC BALES	180	LF	\$16.00	\$2,880.00
3	STAKED SILT FENCE, TYPE III	1,171	LF	\$1.00	\$1,171.00
4	CLEARING & GRUBBING	0.337	AC	\$23,362.09	\$7,873.00
5	POND EXCAVATION	62	CY	\$3.82	\$237.00
6	ROADWAY RECONSTRUCTION	14,878	SF	\$4.75	\$70,070.00
7	MANHOLE	4	EA	\$4,200.00	\$16,800.00
8	DITCH BOTTOM INLET	5	EA	\$2,862.52	\$14,313.00
9	PIPE CULVERT REINFORCED CONCRETE, 0-24"	931	LF	\$67.08	\$62,451.00
10	PIPE CULVERT REINFORCED CONCRETE, 0-24" (DEPTH >10')	300	LF	\$82.00	\$24,600.00
11	SIDEWALK CONCRETE	847	SY	\$40.71	\$34,481.00
12	PERFORMANCE TURF, SOD	608	SY	\$3.13	\$1,903.00
MAP ID NO. 11 (OPTION 3) CONSTRUCTION SUBTOTAL					\$227,838.00

CONSTRUCTION SUBTOTAL	\$448,478.00
MOBILIZATION	\$22,324.00
28% CONTINGENCY	\$111,619.00
CONSTRUCTION TOTAL	\$580,419
SURVEY	\$28,119.00
GEOTECHNICAL	\$14,911.00
ENGINEERING	\$48,434.00
GRAND TOTAL	\$667,483

Notes:


- Unit Prices based on FDOT Item Average Unit Costs for Area D8 from 10/01/2013 to 09/30/2014.
- Conceptual Cost Estimate does not include the costs of Right-of-Way Acquisition or Permitting.



- LEGEND**
- PROPOSED DRAINAGE STRUCTURE
 - PROPOSED PIPE (SIZE APPROXIMATE)
 - EXISTING DRAINAGE STRUCTURE
 - EXISTING PIPE
 - PROPOSED EASEMENT
 - MAINTENANCE
 - 5 CONTOUR
 - ↔ FLOW DIRECTION
 - 21 MAP ID NO. / LOCATION

2007 AERIAL

PREPARED BY:
American
 Consulting Engineers of Florida, LLC
 283 Pine Ave., North Unit A
 Oldemar, FL 34677
 Phone: (727) 498-8780 Fax: (727) 498-8781
 Certificate of Authorization No. 2302

 CITY OF TARPON SPRINGS
 PUBLIC SERVICES DEPARTMENT
 304 E. PINE STREET
 TARPON SPRINGS, FL 34689
 (727) 943-3810

STORMWATER ACTION PLAN - PH II
HIGHLAND AVE. & VISTA PLACE

MAP ID NO.
15
 OPTION 1 OF 2

F:\PROJECTS\20070608\CADD\EXHIBITS\15_SUP_2_EXHIBITS\15.dwg LAYOUT: MAP ID #15 Unit Sheet Oct. 28, 10 Plot Date: 10/28/2010 8:23 AM By: Susan

Map ID No. 15 - Highland Ave. & Vista Place

Problem:

Intersection is located within a depression and there is a stormwater collection system that collects and conveys the runoff to a City-owned stormwater pond located on the southeast corner of Boyer St. and Camelia Ave. According to the Dames and Moore Master Drainage Study Phase II this intersection experiences flooding up to 1 foot of water that has impacted private property during large storm events. This pond discharges to another City-owned pond located on the northeast corner of the intersection of Oakwood St. and Jasmine Ave.

Conceptual Solution(s):

Option 1

This conceptual solution would entail constructing a small wet detention pond in the northwest corner of the intersection of Highland Ave. and Lime St. The detention pond could provide flooding relief for the intersection and provide some additional water quality treatment for the stormwater runoff. Installation of a control structure and storm sewer to control and convey the discharge from the proposed pond to the existing wet detention pond located in the southeast corner of the intersection of Boyer St. and Camelia Ave. would also be required. Removal of non-native vegetation and accumulated sediment in this existing wet detention pond located in the southeast corner of the intersection of Boyer St. and Camelia Ave. is also recommended. Property acquisition or an easement would be required for the proposed wet detention pond in the northwest corner of the intersection of Highland Ave. and Lime St. An analysis would be required to determine whether or not the proposed improvements require further downstream modifications to the existing system.

Option 2

In the Dames and Moore Master Drainage Study Phase II it was shown that the existing collection system for the Highland Ave. and Vista Pl. intersection is undersized. This conceptual solution would involve upsizing this collection system to an equivalent 36-inch culvert as recommended in the Phase II study. In addition, a retaining wall could be constructed around the perimeter of the existing wet detention pond located in the southeast corner of the intersection of Boyer St. and Camelia Ave. The perimeter retaining wall would provide additional storage volume in addition to providing additional water quality treatment for the stormwater runoff. The improvements to the pond could also require modification or replacement of the existing control structure. Removal of non-native vegetation and accumulated sediment in this existing wet detention pond is also recommended. Property acquisition would not be required for this conceptual solution. An analysis would be required to determine whether or not the proposed improvements require further downstream modifications to the existing system.

Additional Notes (Map ID No. 15 & 33):

This system is part of a larger stormwater system that serves the residential area south of Court St., between Japonica Ave. and Highland Ave. A conceptual solution that is

similar to alternative one as described in the Dames and Moore Master Drainage Study Phase II is also presented. This conceptual solution is based on improvements throughout the entire stormwater collection and conveyance system that could also resolve flooding that is occurring at the Map ID No. 33 - Jasmine Ave. & Lime St. location. This conceptual solution would discharge to the south into the existing wetland via proposed storm drain. A spreader swale is also recommended at the discharge point. Due to possible wetland impacts at the discharge location wetland mitigation may be required for this conceptual solution.



Preliminary Construction Cost Estimate

MAP ID NO. 16 (OPTION 1): HIGHLAND AVE. AND VISTA PLACE

09/04/2014

Bid Item No.	Description	Quantity	Units	Unit Price	Amount
1	MOBILIZATION	1	LS	\$8,410.00	\$8,410.00
2	SYNTHETIC BALES	180	LF	\$18.00	\$2,560.00
3	STAKED SILT FENCE, TYPE III	585	LF	\$1.00	\$585.00
4	CLEARING & GRUBBING	0.193	AC	\$23,382.09	\$4,509.00
5	POND EXCAVATION	2,073	CY	\$3.82	\$7,919.00
6	ROADWAY RECONSTRUCTION	1,855	SF	\$4.75	\$7,881.00
7	MANHOLE	2	EA	\$4,200.00	\$8,400.00
8	DITCH BOTTOM INLET	5	EA	\$2,882.52	\$14,313.00
9	MITERED END SECTION	2	EA	\$2,000.00	\$4,000.00
10	PIPE CULVERT REINFORCED CONCRETE, 0-24"	314	LF	\$67.08	\$21,083.00
11	PIPE CULVERT REINFORCED CONCRETE, 25-36"	30	LF	\$138.14	\$4,144.00
12	PERFORMANCE TURF, SOD	827	SY	\$3.13	\$1,963.00
13	MISC. WET DETENTION POND MAINTENANCE	1	LS	\$2,000.00	\$2,000.00

CONSTRUCTION SUBTOTAL	\$87,700.00
25% CONTINGENCY	\$21,900.00
CONSTRUCTION TOTAL	\$109,600.00
SURVEY	\$8,480.00
GEOTECHNICAL	\$3,280.00
ENGINEERING	\$27,400.00
ROW	\$80,000.00
GRAND TOTAL	\$196,760.00

Notes:

- Unit Prices based on FDOT Item Average Unit Costs for Area 08 from 10/01/2013 to 08/30/2014.
- Conceptual Cost Estimate does not include the costs of Right-of-Way Acquisition or Permitting.

Map ID No. 22 - Palm Ave. between Tarpon Dr. and Gulf Rd.

Problem:

There is a low point along Palm Ave. with no stormwater infrastructure. Street and private property flooding is occurring.

Conceptual Solution(s):

Option 1

This conceptual solution would require installing two ditch bottom inlets within the right-of-way of Palm Ave. at the low point in the road (adjacent to private residence at 712 Palm Ave.). This proposed system would extend west along Palm Ave. and cross under Tarpon Dr. After crossing under Tarpon Dr. the system would turn south to Gulf Rd. where it would then turn to the west and connect into an existing storm sewer system along Gulf Rd. New inlets and pipe would replace the existing 6-inch underdrain system currently serving this portion of Gulf Rd. and adjacent offsite area. The existing stormwater system on Gulf Rd. would require an analysis to determine whether or not the increased flow will require further downstream modifications to the existing system.

The proposed system along Tarpon Dr. and Gulf Rd. could be sized to provide flooding relief to existing stormwater focus area Map ID No. 21 - Palm Ave. between Tarpon Dr. and Glades Ave. A future extension along Palm Ave. from this trunk line on Tarpon Dr. could be constructed to resolve the flooding issue at this location. Again, the existing storm drain system on Gulf Rd. would require an analysis to determine whether or not the increased flow will require further downstream modifications to the existing system.

Option 2

This conceptual solution would require installing two ditch bottom inlets within the right-of-way of Palm Ave. at the low point in the road (adjacent to private residence at 712 Palm Ave.). This proposed system would extend west along Palm Ave. and to Tarpon Dr. At Tarpon Dr. the system would turn south and run along the east side of Tarpon Dr. and cross under Gulf Rd. where it would continue south and discharge into a proposed wet retention stormwater pond. Property acquisition would be required for the proposed wet retention stormwater pond. The proposed pond could provide flooding relief in addition to water quality treatment. The proposed system along Tarpon Dr. could be sized to provide flooding relief to existing stormwater focus area Map ID No. 21 - Palm Ave. between Tarpon Dr. and Glades Ave. A future extension along Palm Ave. from this trunk line along Tarpon Dr. could be constructed to resolve the flooding issue at this location.



Preliminary Construction Cost Estimate

MAP ID NO. 22 (OPTION 2): PALM AVE. BETWEEN TARPON DR. & GULF RD.

09/04/2014

Bid Item No.	Description	Quantity	Units	Unit Price	Amount
1	SYNTHETIC BALES	64	LF	\$16.00	\$1,024.00
2	STAKED SILT FENCE, TYPE III	1,598	LF	\$1.00	\$1,598.00
3	CLEARING & GRUBBING	0.791	AC	\$23,362.09	\$18,479.00
4	POND EXCAVATION	3,377	CY	\$3.62	\$12,900.00
5	ROADWAY RECONSTRUCTION	10,484	SF	\$4.75	\$49,704.00
6	MANHOLE	5	EA	\$4,200.00	\$21,000.00
7	DITCH BOTTOM INLET	3	EA	\$2,862.52	\$8,588.00
8	MITERED END SECTION	2	EA	\$2,000.00	\$4,000.00
9	PIPE CULVERT REINFORCED CONCRETE, 0-24"	270	LF	\$67.08	\$18,112.00
10	PIPE CULVERT REINFORCED CONCRETE, 25-36"	701	LF	\$136.14	\$96,836.00
11	SIDEWALK CONCRETE	80	SY	\$40.71	\$3,257.00
12	PERFORMANCE TURF, SOD	3,180	SY	\$3.13	\$9,953.00
MAP ID NO. 22 (OPTION 2) CONSTRUCTION SUBTOTAL					\$248,461.00

MAP ID NO. 21 (OPTION 2): PALM AVE. BETWEEN TARPON DR. & GLADES AVE.

09/04/2014

Bid Item No.	Description	Quantity	Units	Unit Price	Amount
1	SYNTHETIC BALES	64	LF	\$16.00	\$1,024.00
2	STAKED SILT FENCE, TYPE III	500	LF	\$1.00	\$500.00
3	CLEARING & GRUBBING	0.152	AC	\$23,362.09	\$3,551.00
4	ROADWAY RECONSTRUCTION	6,624	SF	\$4.75	\$31,464.00
5	MANHOLE	2	EA	\$4,200.00	\$8,400.00
6	DITCH BOTTOM INLET	2	EA	\$2,862.52	\$5,725.00
7	PIPE CULVERT REINFORCED CONCRETE, 0-24"	562	LF	\$67.08	\$37,028.00
8	SIDEWALK CONCRETE	64	SY	\$40.71	\$2,805.00
9	PERFORMANCE TURF, SOD	333	SY	\$3.13	\$1,042.00
MAP ID NO. 21 (OPTION 2) CONSTRUCTION SUBTOTAL					\$81,338.00

CONSTRUCTION SUBTOTAL	\$336,799.00
MOBILIZATION	\$20,208.00
28% CONTINGENCY	\$84,187.60
CONSTRUCTION TOTAL	\$441,195
SURVEY	\$15,442.00
GEOTECHNICAL	\$8,824.00
ENGINEERING	\$35,298.00
ROW	\$350,000.00
GRAND TOTAL	\$880,768

Notes:

- Unit Prices based on FDOT Item Average Unit Costs for Area 08 from 10/01/2013 to 08/30/2014.
- Conceptual Cost Estimate does not include the costs of Right-of-Way Acquisition or Permitting.




LEGEND

- EXISTING DRAINAGE STRUCTURE
- EXISTING PIPE
- PROPOSED DRAINAGE STRUCTURE
- PROPOSED PIPE (SIZE APPROXIMATE)
- FLOW DIRECTION
- CONTOUR
- MAP ID NO. / LOCATION

2007 AERIAL

PREPARED BY:
American
 Consulting Engineers of Florida, LLC
 288 Pine Ave. North Unit A
 Oldsmar, FL 34677
 Phone: (727) 459-5700 Fax: (727) 459-5781
 Certificate of Authorization No. 3302



CITY OF TARPON SPRINGS
 PUBLIC SERVICES DEPARTMENT
 884 E PINE STREET
 TARPON SPRINGS, FL 34689
 (727) 942-5610

STORMWATER ACTION PLAN - PH II
BATH ST./SHADDOCK AVE. ALLEY

MAP ID NO.
24B
 OPTION 1 OF 1

I:\PROJECTS\30099788\CADD\Exhibits\15_SAP_2_Ext\B151.dwg LAYOUT: MAP ID #24B Lot 1 Sewer: Oct. 25, 10 Plot Date: 10/25/2010 8:31 AM 9 p. Super

Map ID No. 24B – Bath St./Shaddock Ave. Alley

Problem:

According to City staff backyard flooding is occurring along this alleyway and during the summer months this problem area creates an insect (mosquito) problem. When improvements to Bath St. were previously constructed, a stub out into the alley from the storm sewer system along Bath St. was constructed for future use to assist in alleviating the flooding in this area.

Conceptual Solution(s):

Option 1

The existing stormwater infrastructure along Bath St. has been stubbed out with a 15" pipe extending into the east entrance of the alley from Bath St. A system of ditch bottom inlets and connecting storm sewer is recommended along the north-south portion of the alley and could tie into the existing infrastructure along Bath St. to alleviate this flooding and insect problem.



Preliminary Construction Cost Estimate

MAP ID NO. 24B: BATH ST. / SHADDOCK AVE. ALLEY

09/04/2014

Bid Item No.	Description	Quantity	Units	Unit Price	Amount
1	MOBILIZATION	1	LS	\$5,880.00	\$5,880.00
2	SYNTHETIC BALES	84	LF	\$18.00	\$1,024.00
3	STAKED SILT FENCE, TYPE III	1,052	LF	\$1.00	\$1,052.00
4	CLEARING & GRUBBING	0.145	AC	\$23,362.09	\$3,388.00
5	MANHOLE	1	EA	\$4,200.00	\$4,200.00
6	DITCH BOTTOM INLET	2	EA	\$2,862.52	\$5,725.00
7	PIPE CULVERT REINFORCED CONCRETE, 0-24"	528	LF	\$67.08	\$35,284.00
8	PERFORMANCE TURF, SOD	701	SY	\$3.13	\$2,184.00

CONSTRUCTION SUBTOTAL	\$88,800.00
28% CONTINGENCY	\$14,700.00
CONSTRUCTION TOTAL	\$73,300.00
SURVEY	\$3,700.00
GEO TECHNICAL	\$2,200.00
ENGINEERING	\$18,800.00
GRAND TOTAL	\$98,800.00

Notes:

1. Unit Prices based on FDOT Item Average Unit Costs for Area 08 from 10/01/2013 to 09/30/2014.
2. Conceptual Cost Estimate does not include the costs of Right-of-Way Acquisition or Permitting.

Map ID No. 25 - Levis Ave. Alleyway

Problem:

Flooding is occurring in the backyards of the residents along Oakwood St. between Levis Ave. and Grosse St. It appears that this alleyway historically conveyed stormwater to the west where there is currently a stormwater pond that serves the Mt. Herman Missionary Baptist Church on Lime St. The alley does not have stormwater infrastructure or a positive outfall. There is an easement along the alley that could be utilized to install a stormwater collection system.

Conceptual Solution(s):

Option 1

Currently, the existing ditch bottom inlet on Levis Ave. discharges to an underdrain system that according to City staff is most likely clogged and non-functional (please see Map ID No. 20 - Levis Ave. between Lime St. & Oakwood St.). The conceptual solution would include installing a storm sewer system beginning at the existing inlet on Levis Ave. and installing two ditch bottom inlets and storm sewer system along the alley that would discharge into the existing pond currently serving the Mt. Herman Missionary Baptist Church. This proposed system could resolve the flooding that is occurring along the Levis Ave. alley in addition to the flooding as identified in Map ID No. 20 - Levis Ave. between Lime St. & Oakwood St. The existing stormwater pond currently serving the Mt. Herman Missionary Baptist Church would require expansion to accommodate the additional runoff. This proposed expansion of the pond would also require the circular drive within the church property to be modified. An easement over the proposed pond may be desired for proper maintenance.



Preliminary Construction Cost Estimate

MAP ID NO. 25 (OPTION 2): LEVIS AVE. ALLEY

09/04/2014

Bid Item No.	Description	Quantity	Units	Unit Price	Amount
1	SYNTHETIC BALES	64	LF	\$16.00	\$1,024.00
2	STAKED SILT FENCE, TYPE III	1,273	LF	\$1.00	\$1,273.00
3	CLEARING & GRUBBING	0.243	AC	\$23,362.09	\$5,677.00
4	ROADWAY RECONSTRUCTION	5,916	SF	\$3.75	\$22,185.00
5	MANHOLE	2	EA	\$4,200.00	\$8,400.00
6	DITCH BOTTOM INLET	2	EA	\$2,862.52	\$5,725.00
7	PIPE CULVERT REINFORCED CONCRETE, 0-24"	883	LF	\$67.08	\$59,232.00
8	CONCRETE CURB & GUTTER, TYPE F	493	LF	\$16.70	\$8,233.00
9	SIDEWALK CONCRETE	273	SY	\$40.71	\$11,114.00
10	PERFORMANCE TURF, SOD	630	SY	\$3.13	\$1,972.00
MAP ID NO. 25 (OPTION 2) CONSTRUCTION SUBTOTAL					\$124,838.00

MAP ID NO. 20 (OPTION 2): LEVIS AVE. BETWEEN LIME ST. & OAKWOOD ST.

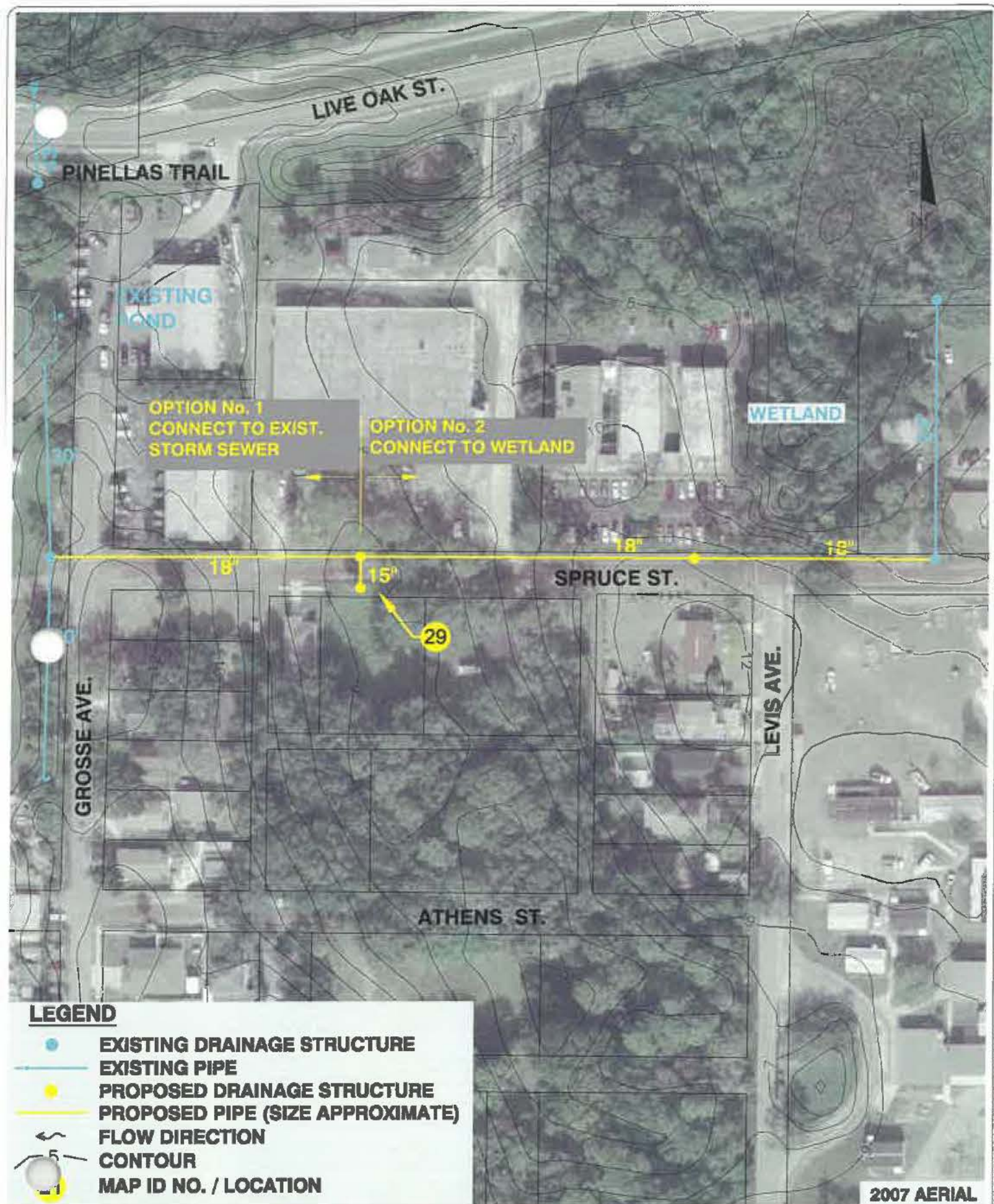
09/04/2014

Bid Item No.	Description	Quantity	Units	Unit Price	Amount
2	STAKED SILT FENCE, TYPE III	448	LF	\$1.00	\$448.00
3	CLEARING & GRUBBING	0.064	AC	\$23,362.09	\$1,495.00
4	ROADWAY RECONSTRUCTION	192	SF	\$3.75	\$720.00
5	MANHOLE	1	EA	\$4,200.00	\$4,200.00
6	PIPE CULVERT REINFORCED CONCRETE, 0-24"	232	LF	\$67.08	\$15,583.00
7	SIDEWALK CONCRETE	9	SY	\$40.71	\$366.00
8	PERFORMANCE TURF, SOD	288	SY	\$3.13	\$901.00
MAP ID NO. 20 (OPTION 2) CONSTRUCTION SUBTOTAL					\$23,693.00

CONSTRUCTION SUBTOTAL	\$148,528.00
MOBILIZATION	\$14,852.80
25% CONTINGENCY	\$37,132.00
CONSTRUCTION TOTAL	\$200,513
SURVEY	\$10,028.00
GEOTECHNICAL	\$8,018.00
ENGINEERING	\$32,083.00
GRAND TOTAL	\$248,638

Notes:

- Unit Prices based on FDOT Item Average Unit Costs for Area 08 from 10/01/2013 to 09/30/2014.
- Conceptual Cost Estimate does not include the costs of Right-of-Way Acquisition or Permitting.



LEGEND

- EXISTING DRAINAGE STRUCTURE
- EXISTING PIPE
- PROPOSED DRAINAGE STRUCTURE
- PROPOSED PIPE (SIZE APPROXIMATE)
- FLOW DIRECTION
- CONTOUR
- MAP ID NO. / LOCATION

2007 AERIAL

American
 Consulting Engineers of Florida, LLC
 383 Pine Ave. North Unit A
 Clearwater, FL 34617
 Phone: (727) 498-5700 Fax: (727) 498-5751
 Certificate of Authorization No. 9002

CITY OF TARPON SPRINGS
 PUBLIC SERVICES DEPARTMENT
 124 E. PINE STREET
 TARPON SPRINGS, FL 34689
 (727) 942-0610

STORMWATER ACTION PLAN - PH II
SPRUCE ST.
BETWEEN LEVIS AVE. & GROSSE AVE.

MAP ID NO.
29
 OPTION 1 & 2

PROJECT: S:\099798\CADD\Exhibits\TS_SAP_2 EXHIBITS.dwg LAYOUT: MAP ID #29 Last Saved: Oct. 28, 10 Plot Date: 10/28/2010 8:32 AM By: Suser

Map ID No. 29 - Spruce St. between Levis Ave. & Grosse Ave.

Problem:

This location is a low spot along Spruce St. that has no stormwater infrastructure. Street and yard flooding occurs according to the Dames and Moore Master Drainage Study Phase I. At the low point the City has removed a portion of the granite curb and constructed a small grassed swale in the right-of-way along the south side of the road. If the adjacent lot were to be developed flooding could be more severe at this location. Installing a collection system and connecting to the City-owned stormwater pond to the west could be considered to resolve the flooding problem.

Conceptual Solution(s):

Option 1

This conceptual solution would involve installing two ditch bottom inlets at the low point along Spruce St. with a connecting storm sewer system routed to the west along Spruce St. This system would connect into an existing stormwater system that discharges into an existing City-owned pond. Modification to the control structure at the existing City-owned pond may be required.

Option 2

This conceptual solution would involve installing two ditch bottom inlets at the low point in Spruce St. and connecting to a ditch bottom inlet on the north side of Spruce St. east of Levis Ave. This inlet discharges to the north into the wetland located just north of Spruce St. via a 24-inch PVC pipe. An analysis would be required in order to determine if this existing outfall pipe has the sufficient capacity for the additional runoff.



Preliminary Construction Cost Estimate

MAP ID NO. 29 (OPTION 2): SPRUCE ST. BETWEEN LEVIS AVE. & GROSSE AVE.

09/04/2014

Bid Item No.	Description	Quantity	Units	Unit Price	Amount
1	MOBILIZATION	1	LS	\$8,720.00	\$8,720.00
2	SYNTHETIC BALES	64	LF	\$16.00	\$1,024.00
3	STAKED SILT FENCE, TYPE III	558	LF	\$1.00	\$558.00
4	CLEARING & GRUBBING	0.168	AC	\$23,362.09	\$3,891.00
5	ROADWAY RECONSTRUCTION	6,884	SF	\$4.75	\$32,604.00
6	MANHOLE	1	EA	\$4,200.00	\$4,200.00
7	DITCH BOTTOM INLET	2	EA	\$2,862.52	\$5,725.00
8	PIPE CULVERT REINFORCED CONCRETE, 0-24"	572	LF	\$67.08	\$38,370.00
9	PERFORMANCE TURF, SOD	365	SY	\$3.13	\$1,142.00

CONSTRUCTION SUBTOTAL	\$96,000.00
20% CONTINGENCY	\$24,000.00
CONSTRUCTION TOTAL	\$120,000.00
SURVEY	\$6,000.00
GEOTECHNICAL	\$3,800.00
ENGINEERING	\$21,630.00
GRAND TOTAL	\$181,230.00

Notes:

1. Unit Prices based on FDOT Item Average Unit Costs for Area D8 from 10/01/2013 to 09/30/2014.
2. Conceptual Cost Estimate does not include the costs of Right-of-Way Acquisition or Permitting.



- LEGEND**
- PROPOSED DRAINAGE STRUCTURE
 - PROPOSED PIPE (SIZE APPROXIMATE)
 - EXISTING DRAINAGE STRUCTURE
 - EXISTING PIPE
 - M MAINTENANCE
 - 5 — CONTOUR
 - ↔ FLOW DIRECTION
 - 21 MAP ID NO. / LOCATION

2007 AERIAL

PREPARED BY:
American
 Consulting Engineers of Florida, LLC
 883 Pine Ave. North Unit A
 Clearwater, FL 34617
 Phone: (727) 499-5700 Fax: (727) 499-5751
 Certificate of Authorization No. 8302

 CITY OF TARPON SPRINGS
 PUBLIC SERVICES DEPARTMENT
 324 E. PINE STREET
 TARPON SPRINGS, FL 34689
 (727) 942-6610

STORMWATER ACTION PLAN - PH II
JASMINE AVE. & LIME ST.

MAP ID NO.
33
 OPTION 1 OF 1

F:\PROJECTS\100007655C\100007655C\100007655C_SAP_2_100007655C.dwg - SAP 2 - 10/29/2010 10:29:20 AM By: Suser

Map ID No. 33 - Jasmine Ave. & Lime St.

Problem:

The intersection is located in a depression with stormwater infrastructure that is in good condition. According to the Dames and Moore Master Drainage Study Phase II this intersection floods up to 1 foot of water and has impacted private property during higher storm events. The infrastructure conveys the runoff to a City-owned pond located along the east side of Jasmine Ave. between Oakwood St. and Lime St.

Conceptual Solution(s):

Option 1

This conceptual solution would entail modification or replacement of the existing control structure and outfall pipe. A spreader swale is also recommended at the discharge location into the wetland. Impacts to the wetland at the spreader swale location may require mitigation. Removal of non-native vegetation and accumulated sediment in this existing wet detention pond is also recommended. There appears to be two berms or grassed weirs within the pond that could be removed that would provide additional volume and water quality treatment capacity. Property acquisition would not be required for this conceptual solution. An analysis would be required to determine whether or not the proposed improvements require further upstream modifications to the existing system.

Additional Notes (Map ID No. 33):

This system is part of a larger stormwater system that serves the residential area south of Court St., between Japonica Ave. and Highland Ave. A conceptual solution that is similar to alternative one as described in the Dames and Moore Master Drainage Study Phase II is also presented (shown on combined Map ID No. 15 & 33, Option 1 of 1). This conceptual solution is based on improvements throughout the entire stormwater system that could also resolve flooding that is occurring at the Map ID No. 15 - Highland Ave. & Vista Pl. location.



Preliminary Construction Cost Estimate

MAP ID NO. 33 (OPTION 1); JASMINE AVE. AND LIME ST.

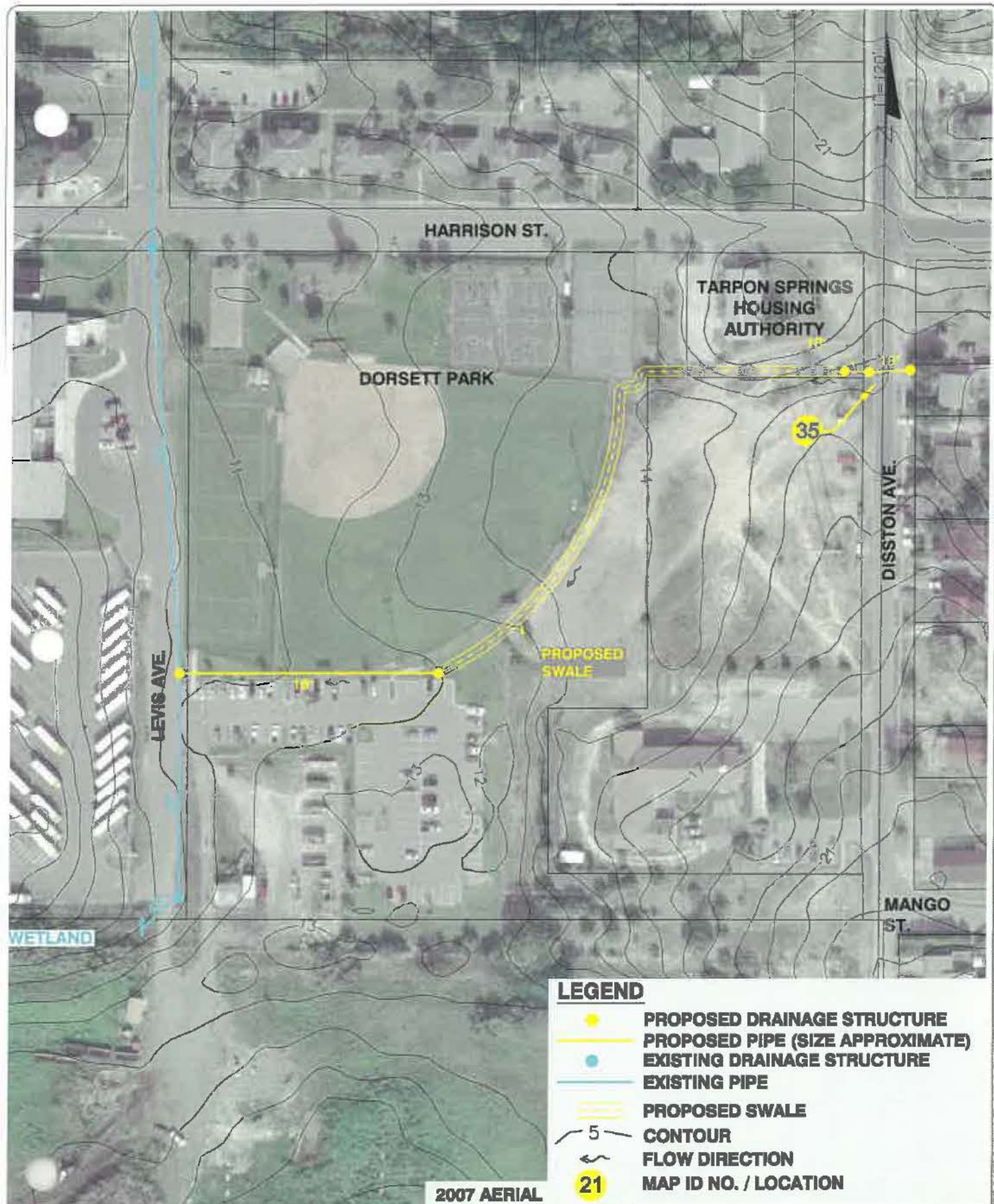
09/04/2014

Bid Item No.	Description	Quantity	Units	Unit Price	Amount
1	MOBILIZATION	1	LS	\$11,640.00	\$11,640.00
2	SYNTHETIC BALES	32	LF	\$16.00	\$512.00
3	STAKED SILT FENCE, TYPE III	305	LF	\$1.00	\$305.00
4	TURBIDITY BARRIER	50	LF	\$10.00	\$500.00
5	CLEARING & GRUBBING	0.088	AC	\$23,362.09	\$1,589.00
6	REGULAR EXCAVATION	223	CY	\$3.82	\$852.00
7	POND EXCAVATION	1,734	CY	\$3.82	\$6,624.00
8	ROADWAY RECONSTRUCTION	2,780	SF	\$4.75	\$13,110.00
9	MANHOLE	1	EA	\$4,200.00	\$4,200.00
10	DITCH BOTTOM INLET	1	EA	\$2,862.52	\$2,862.00
11	MITERED END SECTION	1	EA	\$2,000.00	\$2,000.00
12	PIPE CULVERT REINFORCED CONCRETE, 26-36"	245	LF	\$138.14	\$33,844.00
13	CONCRETE CURB	120	LF	\$16.70	\$2,004.00
14	PERFORMANCE TURF, SOD	807	SY	\$3.13	\$2,526.00
15	MISC. WET DETENTION POND MAINTENANCE	1	LS	\$3,500.00	\$3,500.00

CONSTRUCTION SUBTOTAL	\$88,100.00
25% CONTINGENCY	\$21,600.00
CONSTRUCTION TOTAL	\$107,600.00
SURVEY	\$5,400.00
GEOTECHNICAL	\$3,200.00
ENGINEERING	\$19,380.00
GRAND TOTAL	\$136,580.00

Notes:

- 1. Unit Prices based on FDOT Item Average Unit Costs for Area 08 from 10/01/2013 to 09/30/2014.
- 2. Conceptual Cost Estimate does not include the costs of Right-of-Way Acquisition or Permitting.



- LEGEND**
- PROPOSED DRAINAGE STRUCTURE
 - PROPOSED PIPE (SIZE APPROXIMATE)
 - EXISTING DRAINAGE STRUCTURE
 - EXISTING PIPE
 - = PROPOSED SWALE
 - 5 CONTOUR
 - ~ FLOW DIRECTION
 - 21 MAP ID NO. / LOCATION

2007 AERIAL

PREPARED BY:
American
 Consulting Engineers of Florida, LLC
 268 Pine Ave. North Unit A
 Clearwater, FL 34617
 Phone: (727) 499-5700 Fax: (727) 499-5751
 Certificate of Authorization No. 8302



CITY OF TARPON SPRINGS
 PUBLIC SERVICES DEPARTMENT
 324 E. IRVING STREET
 TARPON SPRINGS, FL 34689
 (727) 942-0410

STORMWATER ACTION PLAN - PH II
DISSTON AVE.
SOUTH OF HARRISON ST.

MAP ID NO.
35
 OPTION 2 OF 2

T:\PROJECT\140096786\CADD\Layouts\14_SAP_2_EXHIBITS.dwg LAYOUT: MAP ID #35 (2) Last Saved: Oct. 26, 10 Plot Date: 10/28/2010 8:17 AM By: Susan

Map ID No. 35 - Disston Ave. south of Harrison St.

Problem:

There is a low point along Disston Ave. at this location with no stormwater infrastructure. According to the Dames and Moore Master Drainage Study Phase I minor street flooding occurs until the runoff can flow southwest into a vacant lot adjacent to a church.

Conceptual Solution(s):

Option 1

This conceptual solution would consist of adding ditch bottom inlets along Disston Ave. in the location of the low point. These inlets would connect to a proposed storm sewer system that would be routed along the south side of the Tarpon Springs Housing Authority property and discharge into a proposed dry detention pond located within Dorsett Park. A proposed control structure and outfall system for the pond would convey discharge from the pond into an outfall pipe to the west and into the storm sewer system along Levis Ave. The affected properties are City-owned, therefore; a drainage easement would not be required.

Option 2

This conceptual solution would consist of adding ditch bottom inlets along Disston Rd. in the location of the low point. These inlets would discharge into a proposed swale along the south side of the Tarpon Springs Housing Authority property which would continue along the eastern boundary of the Dorsett Park property until discharging in a proposed spreader swale located east of the existing parking lot. The spreader swale would discharge into an outfall pipe to the west and into the storm sewer system along Levis Ave. An easement would not be required since the affected properties are City-owned.



Preliminary Construction Cost Estimate

MAP ID NO. 35 (OPTION 2): DISSTON AVE. SOUTH OF HARRISON ST.

09/04/2014

Bid Item No.	Description	Quantity	Units	Unit Price	Amount
1	MOBILIZATION	1	LS	\$5,370.00	\$5,370.00
2	SYNTHETIC BALES	98	LF	\$16.00	\$1,568.00
3	STAKED SILT FENCE, TYPE III	1,654	LF	\$1.00	\$1,654.00
4	CLEARING & GRUBBING	0.239	AC	\$23,382.09	\$5,584.00
5	REGULAR EXCAVATION	310	CY	\$3.82	\$1,184.00
6	ROADWAY RECONSTRUCTION	240	SF	\$4.75	\$1,140.00
7	MANHOLE	1	EA	\$4,200.00	\$4,200.00
8	DITCH BOTTOM INLET	3	EA	\$2,862.52	\$8,588.00
9	MITERED END SECTION	1	EA	\$2,000.00	\$2,000.00
10	PIPE CULVERT REINFORCED CONCRETE, 0-24"	309	LF	\$67.08	\$20,728.00
11	PERFORMANCE TURF, SOD	1,103	SY	\$3.13	\$3,452.00

CONSTRUCTION SUBTOTAL	\$88,400.00
25% CONTINGENCY	\$13,900.00
CONSTRUCTION TOTAL	\$102,300.00
SURVEY	\$3,500.00
GEOTECHNICAL	\$2,100.00
ENGINEERING	\$18,800.00
GRAND TOTAL	\$130,600.00

Notes:

1. Unit Prices based on FDOT Item Average Unit Costs for Area 08 from 10/01/2013 to 09/30/2014.
2. Conceptual Cost Estimate does not include the costs of Right-of-Way Acquisition or Permitting.

Map ID No. 39 - Coburn Dr. 100 feet west of Florida Ave.

Problem:

There is a low point on Coburn Dr. just west of the intersection with Florida Ave. with no stormwater infrastructure. Minor roadway and private property flooding appear to be occurring.

Conceptual Solution(s):

Option 1

This conceptual solution would consist of installing two ditch bottom inlets within the right-of-way at the low spot and routing the storm sewer conveyance system west. This system would outfall into a linear treatment swale located in the Coburn Dr. right-of-way prior to discharging into the Gulf of Mexico.

Option 2

This conceptual solution would involve constructing a small roadside ditch along the north side of Coburn Dr. to convey the stormwater runoff towards the west where it would be treated in a linear swale prior to discharging into the Gulf of Mexico. This conceptual solution would involve reconstruction of several residential driveways to provide positive discharge of the swale.



Preliminary Construction Cost Estimate

MAP ID NO. 38 (OPTION 1): COBURN DR. 100' WEST OF FLORIDA AVE.

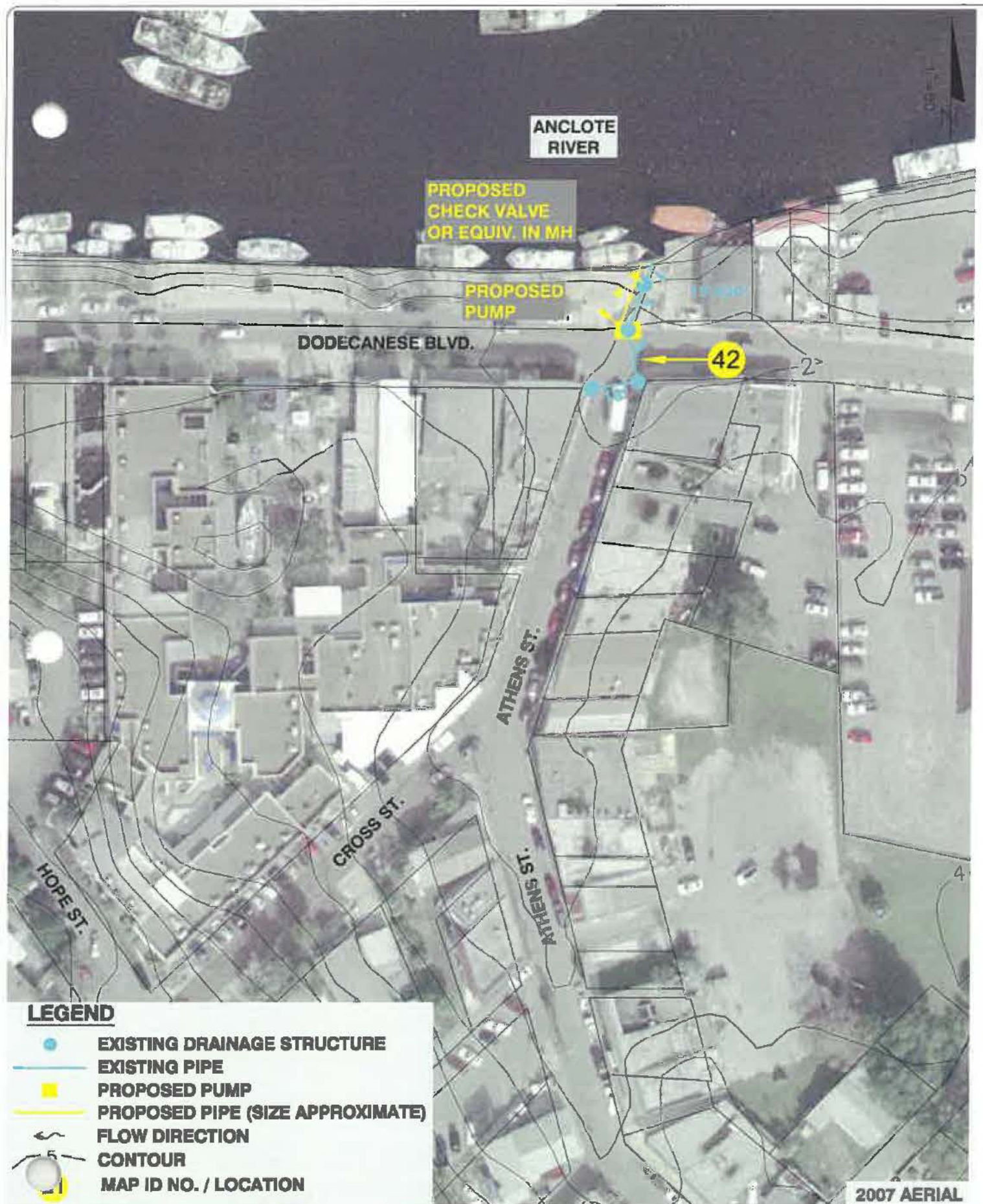
09/04/2014








Bid Item No.	Description	Quantity	Units	Unit Price	Amount
1	MOBILIZATION	1	LS	\$14,050.00	\$14,050.00
2	SYNTHETIC BALES	64	LF	\$16.00	\$1,024.00
3	STAKED SILT FENCE, TYPE III	1,025	LF	\$1.00	\$1,025.00
4	CLEARING & GRUBBING	0.251	AC	\$23,362.09	\$5,864.00
5	REGULAR EXCAVATION	153	CY	\$3.82	\$584.00
6	ROADWAY RECONSTRUCTION	480	SF	\$4.75	\$2,280.00
7	MANHOLE	3	EA	\$4,200.00	\$12,600.00
8	DITCH BOTTOM INLET	2	EA	\$2,862.52	\$5,725.00
9	MITERED END SECTION	1	EA	\$2,000.00	\$2,000.00
10	PIPE CULVERT REINFORCED CONCRETE, 0-24"	860	LF	\$67.08	\$57,689.00
11	SIDEWALK CONCRETE	914	SY	\$40.71	\$37,209.00
12	PERFORMANCE TURF, SOD	1,452	SY	\$3.13	\$4,545.00

CONSTRUCTION SUBTOTAL	\$144,800.00
20% CONTINGENCY	\$36,200.00
CONSTRUCTION TOTAL	\$180,800.00
SURVEY	\$8,035.00
GEOTECHNICAL	\$5,400.00
ENGINEERING	\$24,305.00
GRAND TOTAL	\$220,540.00

Notes:

1. Unit Prices based on FDOT Item Average Unit Costs for Area 08 from 10/01/2013 to 09/30/2014.
2. Conceptual Cost Estimate does not include the costs of Right-of-Way Acquisition or Permitting.



- LEGEND**
-  EXISTING DRAINAGE STRUCTURE
 -  EXISTING PIPE
 -  PROPOSED PUMP
 -  PROPOSED PIPE (SIZE APPROXIMATE)
 -  FLOW DIRECTION
 -  CONTOUR
 -  MAP ID NO. / LOCATION

2007 AERIAL

PREPARED BY:

 American Consulting Engineers of Florida, LLC
 288 Pine Ave. North Unit A
 Ocala, FL 32667
 Phone: (352) 439-5750 Fax: (352) 489-5751
 Certificate of Authorization No. 9302


 CITY OF TARPON SPRINGS
 PUBLIC SERVICES DEPARTMENT
 334 E. PINE STREET
 TARPON SPRINGS, FL 34689
 (772) 943-0810

STORMWATER ACTION PLAN - PH II
 INTERSECTION OF
 ATHENS ST. & DODECANESE BLVD.

MAP ID NO.
42
 OPTION 2 CP 2

F:\PROJECT\13089786\13089786\ADD\Exhibit13_SAP_2_EXHIBITS.dwg LAYOUT: MAP ID #42 (2) Last Saved: Oct. 28, 10 Plot Date: 10/28/2010 9:19 AM B.F. Suar

Map ID No. 42 - Athens St. & Dodecanese Blvd.

Problem:

Street flooding occurs at the intersection and is most likely attributed to the tidal influences from the Anclote River. Infrastructure is in good condition and appears to be adequately sized. A field visit on June 23, 2009 during high tide (3.6 ft @ 1:07 PM; Datum – Cedar Key MLLW) found the inlets at the intersection completely filled with water from the river. According to the closest tide station (Station ID 872-6905) the Mean Low Water (MLW) and the Mean High Water (MHW) elevations are -1.27 feet and 0.82 feet, respectively. These elevations are based on the NAVD 88 datum.

Conceptual Solution(s):

Option 1

This conceptual solution would include replacing the inlets at the intersection of Athens St. and Cross St. and installing a subsurface stormwater storage system along Athens St. south of the intersection with Dodecanese Blvd. The new inlets would collect more runoff than the existing ones, and route it to the stormwater vault, thereby reducing the amount of water converging on the inlets at the intersection of Athens St. and Dodecanese Blvd. The last manhole within the existing system could be retrofitted with a Tideflex duckbill check valve (or equivalent) to prevent tidal influence from the Anclote River to the existing storm sewer system. Discharge from the stormwater vault could then occur when the tide recedes. Having the duckbill check valve located inside this manhole would allow periodic maintenance in addition to preventing damage to the valve from docking vessels.

Option 2

This conceptual solution would entail installing a stormwater vault outfitted with a submersible pump and 4-inch forcemain. The pump and 4-inch forcemain could be designed to turn on when the existing storm sewer system reaches a determined capacity. The last manhole within the existing system could be retrofitted with a Tideflex duckbill check valve (or equivalent) to prevent tidal influence from the Anclote River to the existing storm sewer system. Having the duckbill check valve located inside this manhole would allow periodic maintenance in addition to preventing damage to the valve from docking vessels.



Preliminary Construction Cost Estimate

MAP ID NO. 42 (OPTION 2): ATHENS ST. & DODECANESE BLVD.

09/04/2014

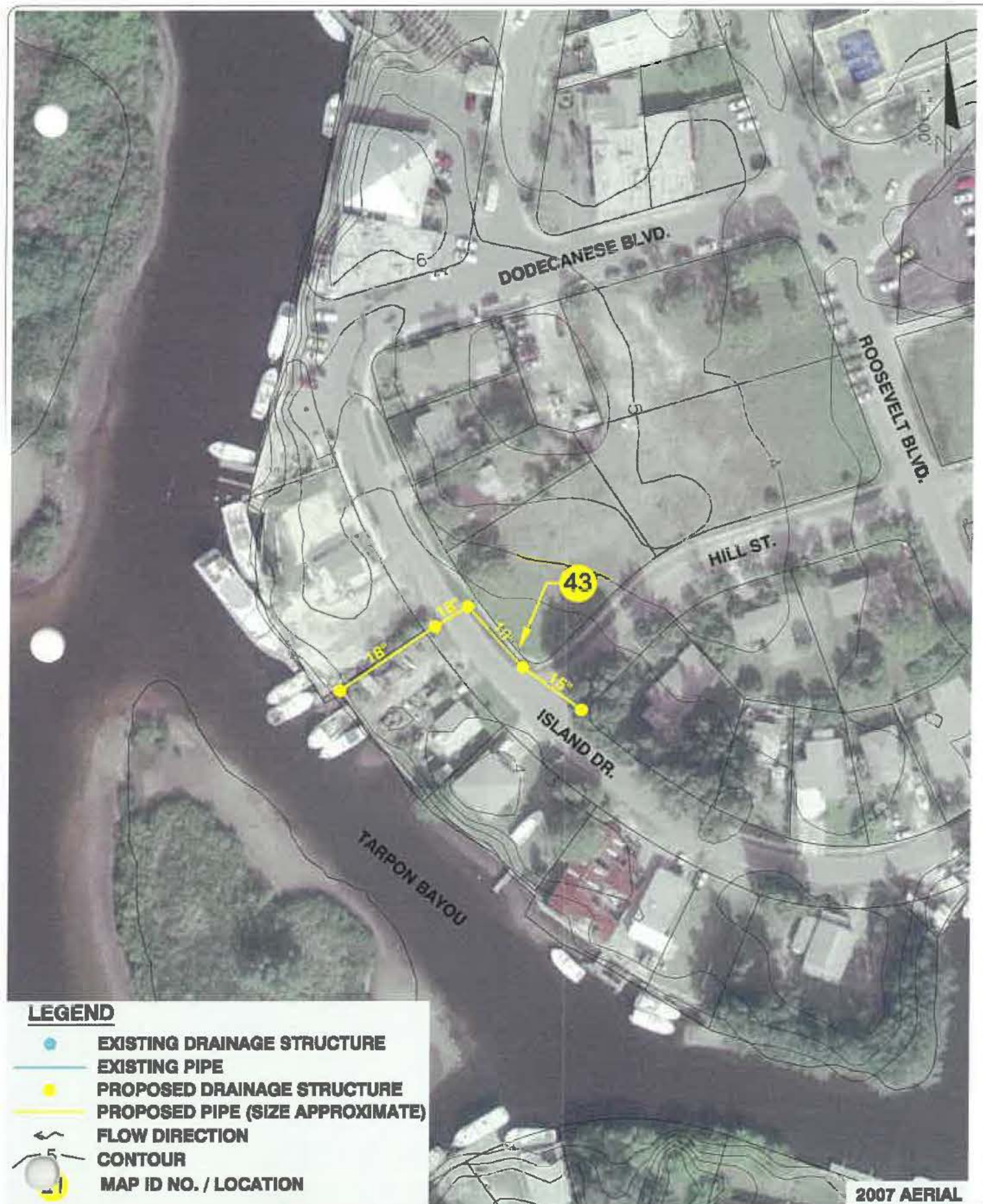
Bid Item No.	Description	Quantity	Units	Unit Price	Amount
1	MOBILIZATION	1	LS	\$3,080.00	\$3,080.00
2	CLEARING & GRUBBING	0.011	AC	\$23,382.09	\$257.00
3	SUBMERSIBLE PUMP & CONTROL PANEL	1.00	LS	\$10,000.00	\$10,000.00
4	PUMP VAULT	1.00	EA	\$4,200.00	\$1.00
5	TIDEFLEX STORMWATER VALVE*	1.00	EA	\$3,000.00	\$3,000.00
6	SIDEWALK CONCRETE	56	SY	\$40.71	\$2,280.00

*Tideflex technologies (www.tideflex.com)

CONSTRUCTION SUBTOTAL	\$18,600.00
30% CONTINGENCY	\$5,600.00
CONSTRUCTION TOTAL	\$24,200.00
SURVEY	\$1,205.00
GEOTECHNICAL	\$700.00
ENGINEERING	\$28,000.00
GRAND TOTAL	\$51,105.00

Notes:

1. Unit Prices based on FDOT Item Average Unit Costs for Area 08 from 10/01/2013 to 09/30/2014.
2. Conceptual Cost Estimate does not include the costs of Right-of-Way Acquisition or Permitting.



LEGEND

- EXISTING DRAINAGE STRUCTURE
- EXISTING PIPE
- PROPOSED DRAINAGE STRUCTURE
- PROPOSED PIPE (SIZE APPROXIMATE)
- FLOW DIRECTION
- CONTOUR
- MAP ID NO. / LOCATION

2007 AERIAL

PREPARED BY:
 American Consulting Engineers of Florida, LLC
 263 Pine Ave. North Unit A
 Ocala, FL 34477
 Phone: (352) 489-5700 Fax: (352) 489-5751
 Certificate of Authorization No. 9302

CITY OF TARPON SPRINGS
 PUBLIC SERVICES DEPARTMENT
 324 E. PINE STREET
 TARPON SPRINGS, FL 34689
 (727) 942-5810

STORMWATER ACTION PLAN - PH II
ISLAND DR. NEAR HILL ST.

MAP ID NO.
43
 OPTION 1 OF 1

T:\PROJECTS\300097865\GIS\A001\A001.mxd, S:\AP_2_Coverage\app, LA\QUL\MAP ID #43 Land Survey Qc1 - 26, 10 Plot Item, 10/26/2010 8:20 AM By: Suser

Map ID No. 43 - Island Dr. near Hill Street

Problem:

Intersection is a low spot with no stormwater infrastructure. The stormwater runoff collects in the small roadside swales and floods the intersection during small and large storm events.

Conceptual Solution(s):

Option 1

This conceptual solution would include installing ditch bottom inlets along the roadside swales north and south of the intersection along Island Dr. and replacing the existing 12-inch steel outfall pipe under Island Dr. and the existing 8-inch PVC outfall pipe into Tarpon Bayou.



Preliminary Construction Cost Estimate

MAP ID NO. 43: ISLAND DR. NEAR HILL ST.

09/04/2014

Bid Item No.	Description	Quantity	Units	Unit Price	Amount
1	MOBILIZATION	1	LS	\$4,180.00	\$4,180.00
2	SYNTHETIC BALES	128	LF	\$16.00	\$2,048.00
3	STAKED SILT FENCE, TYPE III	254	LF	\$1.00	\$254.00
4	TURBIDITY BARRIER	50	LF	\$10.00	\$500.00
5	CLEARING & GRUBBING	0.068	AC	\$23,362.09	\$1,598.00
6	ROADWAY RECONSTRUCTION	888	SF	\$3.75	\$3,330.00
7	DITCH BOTTOM INLET	4	EA	\$2,500.00	\$10,000.00
8	CONCRETE CLASS I, ENDWALLS	1.56	CY	\$1,351.95	\$2,109.00
9	PIPE GULVERT REINFORCED CONCRETE, 0-24'	248	LF	\$67.08	\$16,638.00
10	SIDEWALK CONCRETE	39	SY	\$40.71	\$1,598.00
11	PERFORMANCE TURF, SOD	170	SY	\$3.13	\$532.00

CONSTRUCTION SUBTOTAL	\$42,800.00
25% CONTINGENCY	\$10,700.00
CONSTRUCTION TOTAL	\$53,500.00
SURVEY	\$2,700.00
GEOTECHNICAL	\$1,600.00
ENGINEERING	\$12,300.00
GRAND TOTAL	\$70,100.00

Notes:

- Unit Prices based on FDOT Item Average Unit Costs for Area 08 from 03/01/2008 to 02/25/2009.
- Conceptual Cost Estimate does not include the costs of Right-of-Way Acquisition or Permitting.

Map ID No. 57 - Kenneth Way at Seaside Dr.

Problem:

According to the City roadway flooding is occurring at this location. The CIP Project List states that in 2002 the City constructed a surface water treatment facility (SWTF) with an outfall structure (adjacent to Baynard Dr.) and provided bank stabilization. Some minor street ponding does appear to be taking place on the north side of the SWTF. Per a meeting with the City on July 28, 2009 the SWTF may be undersized which is causing flooding to occur along Seaside Dr.

Conceptual Solution(s):

Option 1

This conceptual solution would involve constructing a dry detention stormwater pond within the right-of-way of Kenneth Way between Charlotte Ave. and Kenneth Way. This would require hammer head style street terminations for both Charlotte Ave. and Kenneth Way.

Option 2

This conceptual solution would involve installing a control structure to discharge excess runoff from the existing stormwater treatment facility to the west and into an existing pond owned and maintained by Pinellas County. An expansion of the County owned pond is also proposed in order to accommodate the increased flow from the City-owned pond. The County owned outfall system would require an analysis to determine whether or not the increased flow can be accommodated without adversely impacting the surrounding properties.



Preliminary Construction Cost Estimate

MAP ID NO. 57 (OPTION 2): KENNETH WAY & SEASIDE DR.

05/13/2010

Bid Item No.	Description	Quantity	Units	Unit Price	Amount
1	MOBILIZATION	1	LS	\$3,440.00	\$3,440.00
2	SYNTHETIC BALES	64	LF	\$16.00	\$1,024.00
3	STAKED SILT FENCE, TYPE III	660	LF	\$1.00	\$660.00
4	CLEARING & GRUBBING	0.293	AC	\$6,140.00	\$2,385.00
5	POND EXCAVATION	1,708	CY	\$3.50	\$5,982.00
6	ROADWAY RECONSTRUCTION	3,551	SF	\$3.75	\$13,316.00
7	DITCH BOTTOM INLET	2	EA	\$2,500.00	\$5,000.00
8	PIPE CULVERT REINFORCED CONCRETE, 0-24"	78	LF	\$51.00	\$3,978.00
9	PERFORMANCE TURF, SOD	1,025	SY	\$2.00	\$2,050.00

CONSTRUCTION SUBTOTAL	\$37,900.00
25% CONTINGENCY	\$9,500.00
CONSTRUCTION TOTAL	\$47,400.00
SURVEY	\$2,400.00
GEOTECHNICAL	\$1,400.00
ENGINEERING	\$38,800.00
GRAND TOTAL	\$91,000.00

MAP ID NO. 74 (OPTION 2): AVOCA DR. 500' WEST OF FLORIDA AVE.

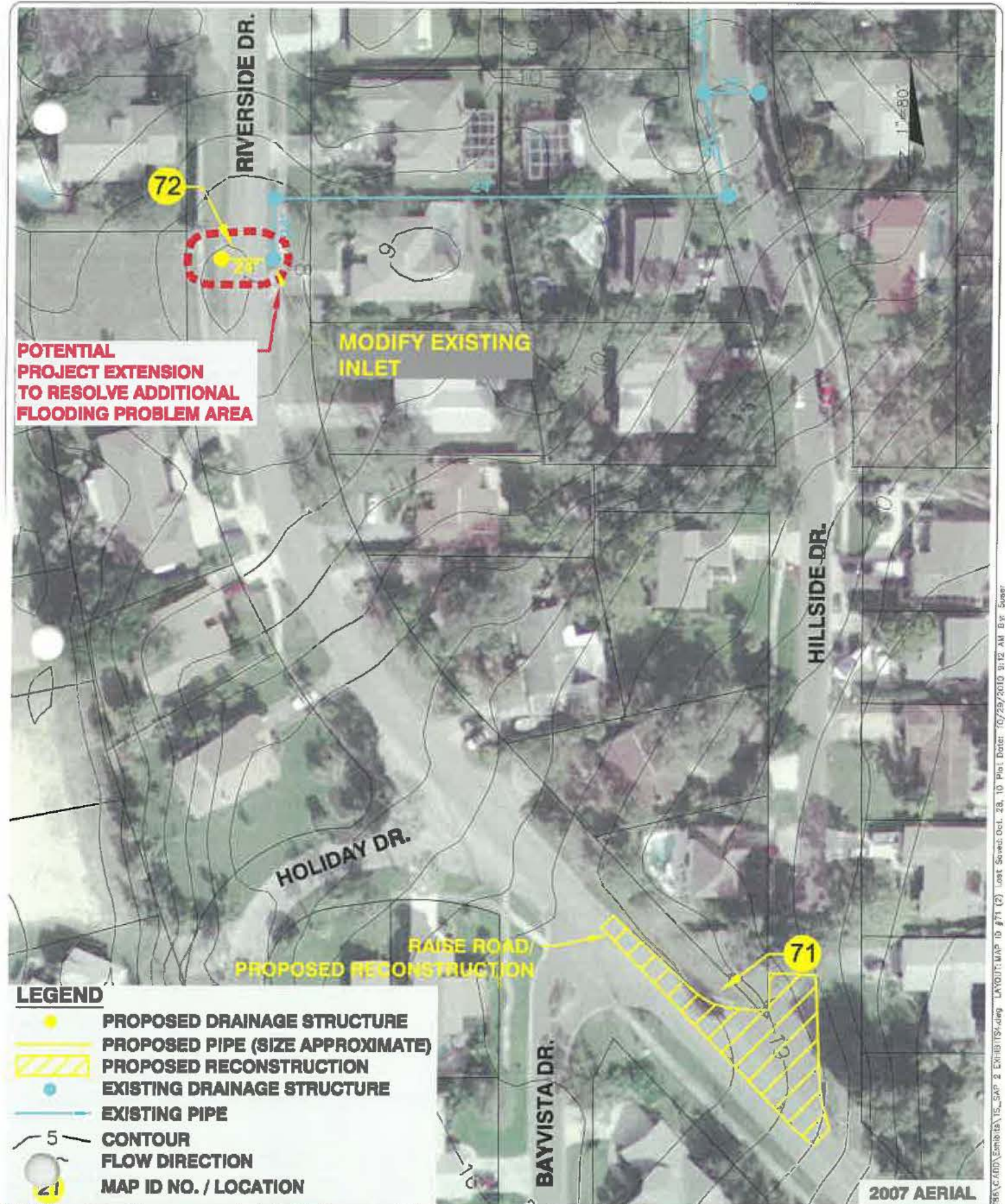
05/13/2010

Bid Item No.	Description	Quantity	Units	Unit Price	Amount
1	MOBILIZATION	1	LS	\$15,130.00	\$15,130.00
2	SYNTHETIC BALES	128	LF	\$16.00	\$2,048.00
3	STAKED SILT FENCE, TYPE III	1,885	LF	\$1.00	\$1,885.00
4	CLEARING & GRUBBING	0.353	AC	\$8,140.00	\$2,873.00
5	ROADWAY RECONSTRUCTION	9,498	SF	\$3.75	\$35,506.00
6	MANHOLE	2	EA	\$4,200.00	\$8,400.00
7	DITCH BOTTOM INLET	5	EA	\$2,500.00	\$12,500.00
8	MITERED END SECTION	2	EA	\$2,000.00	\$4,000.00
9	PIPE CULVERT REINFORCED CONCRETE, 0-24"	1,360	LF	\$51.00	\$70,360.00
10	SIDEWALK CONCRETE	516	SY	\$35.00	\$18,060.00
11	PERFORMANCE TURF, SOD	1,054	SY	\$2.00	\$2,108.00

CONSTRUCTION SUBTOTAL	\$172,700.00
25% CONTINGENCY	\$43,200.00
CONSTRUCTION TOTAL	\$215,900.00
SURVEY	\$10,800.00
GEOTECHNICAL	\$8,900.00
ENGINEERING	\$38,900.00
GRAND TOTAL	\$272,100.00

Notes:

1. Unit Prices based on FDOT Item Average Unit Costs for Area 08 from 03/01/2008 to 02/28/2009.
2. Conceptual Cost Estimate does not include the cost of Right-of-Way Acquisition.



LEGEND

- PROPOSED DRAINAGE STRUCTURE
- PROPOSED PIPE (SIZE APPROXIMATE)
- PROPOSED RECONSTRUCTION
- EXISTING DRAINAGE STRUCTURE
- EXISTING PIPE
- 5 CONTOUR
- FLOW DIRECTION
- 72 MAP ID NO. / LOCATION

PREPARED BY:
American
 Consulting Engineers of Florida, LLC
 383 Pine Ave. North Dail A
 Clearwater, FL 34627
 Phone: (727) 489-5750 Fax: (727) 489-5751
 Certificate of Authorization No. 9302

**CITY OF TARPON SPRINGS
 PUBLIC SERVICES DEPARTMENT**

300 N. PINE STREET
 TARPON SPRINGS, FL 34688
 (727) 942-5610

STORMWATER ACTION PLAN - PH II

RIVERSIDE DR. & HILLSIDE DR.

MAP ID NO.
71
 OPTION 2 OF 2

F:\PROJECT\5098786\ADD\Embrits\IS_SAP_2\EXHIBITS\4.dwg LAYOUT:MAP ID #71 (2) Last Saved: Oct. 28, 10 10:10 AM 10/28/2010 9:12 AM By: Suser

Map ID No. 71 – Riverside Dr. and Hillside Dr.

Problem:

Location is a low point along Riverside Dr. with no stormwater infrastructure. Roadway flooding is occurring and is most likely impeding traffic and is a concern due to the roadway geometry for traffic approaching from the north and south.

Conceptual Solution(s):

Option 1

This conceptual solution would include installing a ditch bottom inlet at the northwest corner of the Riverside Dr. and Hillside Dr. intersection. The inlet and storm sewer system would be routed north along Riverside Dr. where it would connect into an existing inlet at 1314 Riverside Dr. (Map ID No. 72 – 1314 Riverside Dr.). This existing system flows into an existing stormwater pond which outfalls into the Anclote River. The existing stormwater system would require an analysis to determine whether or not the increased flow will require further downstream modifications to the existing system. This conceptual solution could be combined with the conceptual solution for Map ID No. 72.

Option 2

This conceptual solution would include reconstructing/regrading the low point in the roadway within the intersection of Riverside Dr. and Hillside Dr. This would allow runoff to drain to the north along Riverside Dr. until reaching the existing inlet in front of 1314 Riverside Dr. In addition to regrading the low point in the roadway this conceptual solution could involve installing a new inlet and storm drain to connect into the existing inlet located at 1314 Riverside Dr. This conceptual improvement could also resolve the flooding problem area Map ID No. 72 – 1314 Riverside Dr.



Preliminary Construction Cost Estimate

MAP ID NO. 71 (OPTION 2): RIVERSIDE DR. & HILLSIDE DR.

09/04/2014

Bid Item No.	Description	Quantity	Units	Unit Price	Amount
2	SYNTHETIC BALES	32	LF	\$16.00	\$512.00
3	STAKED SILT FENCE, TYPE III	298	LF	\$1.00	\$298.00
4	CLEARING & GRUBBING	0.139	AC	\$23,362.09	\$3,247.00
5	ROADWAY RECONSTRUCTION	6,045	SF	\$4.75	\$28,714.00
6	PERFORMANCE TURF, SOD	199	SY	\$3.13	\$623.00

MAP ID NO. 71 (OPTION 2) CONSTRUCTION SUBTOTAL \$33,394.00

MAP ID NO. 72 (OPTION 2): 1314 RIVERSIDE DR.

09/04/2014

Bid Item No.	Description	Quantity	Units	Unit Price	Amount
2	SYNTHETIC BALES	64	LF	\$16.00	\$1,024.00
3	STAKED SILT FENCE, TYPE III	20	LF	\$1.00	\$20.00
4	CLEARING & GRUBBING	0.007	AC	\$23,362.09	\$164.00
5	ROADWAY RECONSTRUCTION	288	SF	\$4.75	\$1,368.00
6	INLET MODIFICATION	1	LS	\$1,000.00	\$1,000.00
7	DITCH BOTTOM INLET	1	EA	\$2,862.52	\$2,863.00
8	PIPE CULVERT REINFORCED CONCRETE, 0-24"	24	LF	\$67.08	\$1,610.00
9	PERFORMANCE TURF, SOD	13	SY	\$3.13	\$41.00

MAP ID NO. 72 (OPTION 2) CONSTRUCTION SUBTOTAL \$8,090.00

CONSTRUCTION SUBTOTAL	\$41,484.00
MOBILIZATION	\$6,223.00
28% CONTINGENCY	\$10,371.00
CONSTRUCTION TOTAL	\$58,078.00
SURVEY	\$2,904.00
GEOTECHNICAL	\$1,743.00
ENGINEERING	\$26,136.00
GRAND TOTAL	\$88,961.00

Notes:

1. Unit Prices based on FDOT Item Average Unit Costs for Area 08 from 10/01/2013 to 09/30/2014.
2. Conceptual Cost Estimate does not include the costs of Right-of-Way Acquisition or Permitting.



PROJECT: C:\009766\CAD\GIS\Corbin\15_SAP_2_20181124.dwg LAYOUT: MAP ID 731 Unit Source: Oct. 28, 10 Plot Date: 10/28/2018 9:15 AM By: Susan

LEGEND

- PROPOSED DRAINAGE STRUCTURE
- PROPOSED PIPE (SIZE APPROXIMATE)
- EXISTING DRAINAGE STRUCTURE
- EXISTING PIPE
- 5 CONTOUR
- FLOW DIRECTION
- 73 MAP ID NO. / LOCATION

2007 AERIAL

PREPARED BY:
American
 Consulting Engineers of Florida, LLC
 285 Pine Ave. North Unit A
 Oldsmar, FL 34677
 Phone: (727) 499-2750 Fax: (727) 499-5751
 Certificate of Authorization No. 9302



CITY OF TARPON SPRINGS
 PUBLIC SERVICES DEPARTMENT
 304 E. PINE STREET
 TARPON SPRINGS, FL 34689
 (727) 942-0610

STORMWATER ACTION PLAN - PH II
RIVERSIDE DR. & SEABREEZE DR.

MAP ID NO.
73
 OPTION 1 OF 1

Map ID No. 73 – Riverside Dr. and Seabreeze Dr.

Problem:

According to City staff roadside flooding is occurring at this location. During a field visit standing water was visible at the entrance to the apartments along the north side of Seabreeze Dr. as well as along the roadside swales. There is an existing stormwater collection and conveyance system serving the intersection.

Conceptual Solution(s):

Option 1

During a field visit it appeared that the invert for the downstream pipe of the inlet on the east side of Riverside Drive was considerably higher than the upstream invert. This invert change also appeared to be causing the water to back up into the roadside swale along Riverside Dr. and Seabreeze Dr. The conceptual solution for this location would include survey for the existing stormwater system and possible replacement of the last two outfall pipes for the existing system.



Preliminary Construction Cost Estimate

MAP ID NO. 73: RIVERSIDE DR. & SEABREEZE DR.

09/04/2014

Bid Item No.	Description	Quantity	Units	Unit Price	Amount
1	MOBILIZATION	1	LS	\$4,150.00	\$4,150.00
2	SYNTHETIC BALES	99	LF	\$16.00	\$1,584.00
3	STAKED SILT FENCE, TYPE III	1,207	LF	\$1.00	\$1,207.00
4	CLEARING & GRUBBING	0.140	AC	\$23,362.08	\$3,271.00
5	POND EXCAVATION	105	CY	\$3.82	\$401.00
6	ROADWAY RECONSTRUCTION	720	SF	\$4.75	\$3,420.00
7	DITCH BOTTOM INLET	2	EA	\$2,862.52	\$5,725.00
8	MITERED END SECTION	1	EA	\$2,000.00	\$2,000.00
9	PIPE CULVERT REINFORCED CONCRETE, 0-24"	271	LF	\$67.08	\$18,179.00
10	SIDEWALK CONCRETE	33	SY	\$40.71	\$1,343.00
11	PERFORMANCE TURF, SOD	876	SY	\$3.13	\$2,718.00

CONSTRUCTION SUBTOTAL	\$43,300.00
25% CONTINGENCY	\$10,800.00
CONSTRUCTION TOTAL	\$54,100.00
SURVEY	\$2,706.00
GEOTECHNICAL	\$1,823.00
ENGINEERING	\$12,443.00
GRAND TOTAL	\$70,871.00

Notes:

1. Unit Prices based on FDOT Item Average Unit Costs for Area 08 from 10/01/2013 to 09/30/2014.
2. Conceptual Cost Estimate does not include the costs of Right-of-Way Acquisition or Permitting.



2007 AERIAL

LEGEND

- PROPOSED DRAINAGE STRUCTURE
- PROPOSED PIPE (SIZE APPROXIMATE)
- 5' CONTOUR
- FLOW DIRECTION
- 74 MAP ID NO. / LOCATION

PREPARED BY:
American
 Consulting Engineers of Florida, LLC
 255 Pine Ave. North Unit A
 Oldsmar, FL 34677
 Phone: (727) 499-5750 Fax: (727) 499-5781
 Certificate of Authorization No. 2302

CITY OF TARPON SPRINGS
 PUBLIC SERVICES DEPARTMENT
 334 E. PINE STREET
 TARPON SPRINGS, FL 34689
 (727) 942-0610

STORMWATER ACTION PLAN - PH II

AVOCA DR.
 500' WEST OF FLORIDA AVE.

MAP ID NO.
74
 OPTION 1 OF 1

P:\PROJECTS\2008\3662\ADD\AERIAL\AERIAL_74.dwg: 10/21/2010 9:14 AM By: Susan

Map ID No. 74 – Avoca Dr. 500' west of Florida Ave.

Problem:

The location is two low points along Avoca Dr. with no stormwater infrastructure. According to City staff roadway and private property flooding is occurring. Flooding of road and private property was visible during a field visit due to the floating debris lines within the resident's yards.

Conceptual Solution(s):

Option 1

This conceptual solution would include the installation of two inlets at the low points along Avoca Dr. These inlets would be connected to a storm drain system that would be routed to the west along Avoca Dr. and discharge into the proposed new stormwater pond as proposed in Map ID No. 57, Option 1. This option would also require a connection to and possible expansion of the existing County-owned stormwater pond.

Option 2

This conceptual solution would include the installation of two inlets at the low points along Avoca Dr. These inlets would be connected to a storm drain system that would be routed to the west along Avoca Dr. and discharge into the Gulf of Mexico.



Preliminary Construction Cost Estimate

08/04/2014

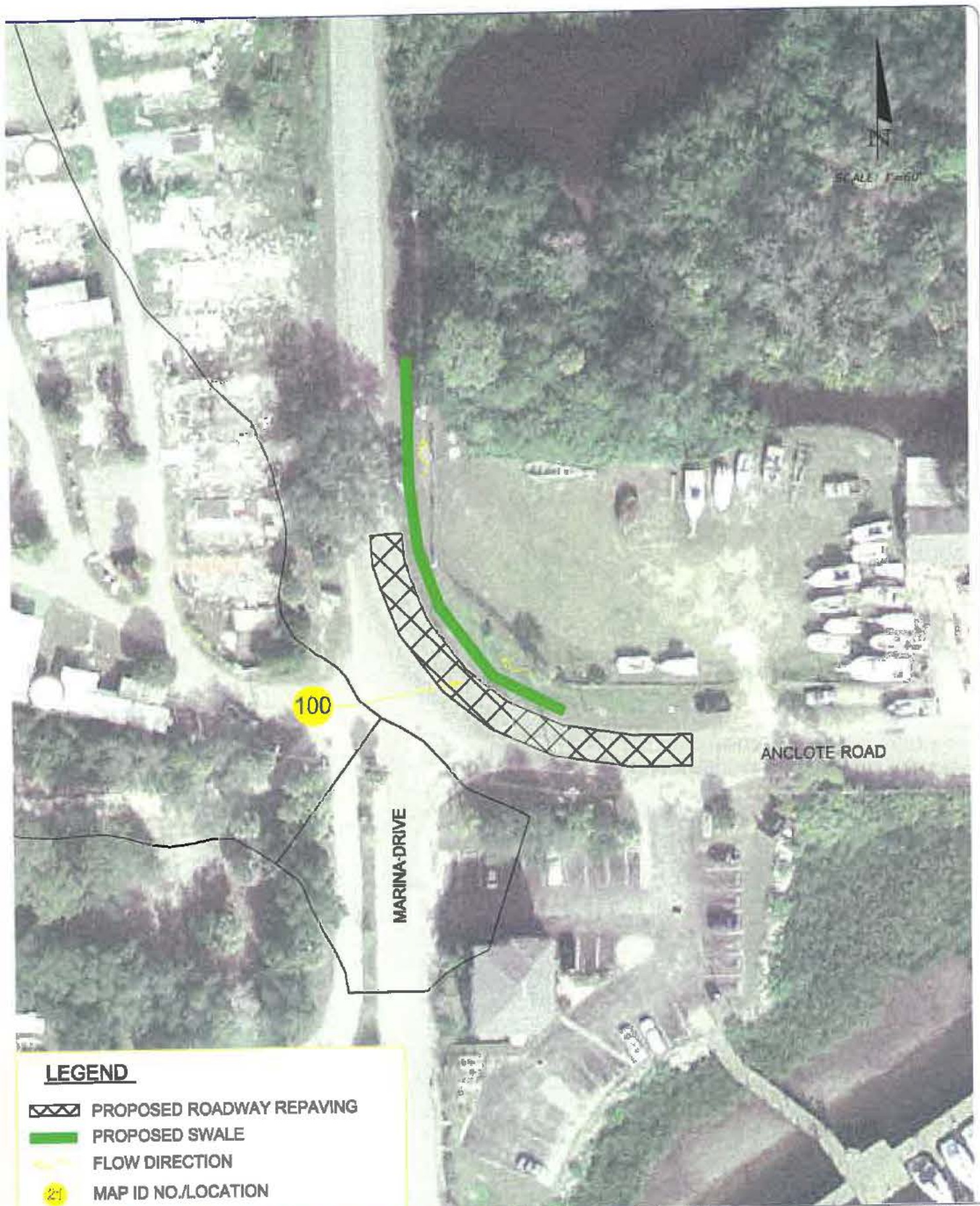
MAP ID NO. 74: AVOCA DR. 500' WEST OF FLORIDA AVE.

Bid Item No.	Description	Quantity	Units	Unit Price	Amount
1	MOBILIZATION	1	LS	\$15,870.00	\$15,870.00
2	SYNTHETIC BALES	128	LF	\$16.00	\$2,048.00
3	STAKED SILT FENCE, TYPE III	881	LF	\$1.00	\$881.00
4	CLEARING & GRUBBING	0.258	AC	\$23,962.09	\$6,911.00
5	ROADWAY RECONSTRUCTION	8,468	SF	\$3.75	\$35,505.00
6	MANHOLE	1	EA	\$4,200.00	\$4,200.00
7	DITCH BOTTOM INLET	4	EA	\$2,882.52	\$11,450.00
8	MITERED END SECTION	1	EA	\$2,000.00	\$2,000.00
9	PIPE CULVERT REINFORCED CONCRETE, 0-24"	817	LF	\$67.08	\$58,512.00
10	SIDEWALK CONCRETE	616	SY	\$40.71	\$21,008.00
11	PERFORMANCE TURF, 60D	671	SY	\$3.15	\$1,797.00





CONSTRUCTION SUBTOTAL	\$182,900.00
25% CONTINGENCY	\$40,800.00
CONSTRUCTION TOTAL	\$223,700.00
SURVEY	\$10,100.00
GEOTECHNICAL	\$6,100.00
ENGINEERING	\$36,500.00
GRAND TOTAL	\$282,600.00

Notes:

1. Unit Prices based on FDOT Item Average Unit Costs for Area 08 from 03/01/2008 to 02/28/2009.
2. Conceptual Cost Estimate does not include the costs of Right-of-Way Acquisition or Permitting.



LEGEND

-  PROPOSED ROADWAY REPAVING
-  PROPOSED SWALE
-  FLOW DIRECTION
-  MAP ID NO./LOCATION

Stantec
 2208 North 20th Street
 Tampa, FL 34605
 Phone: (813) 223-9800 Fax: (813) 223-0909
 Certificate of Authorization No. 37013


CITY OF TARPON SPRINGS
 PUBLIC SERVICES DEPARTMENT
 224 E. PINE STREET
 TARPON SPRINGS, FL 34689
 (727) 942-6610

STORMWATER ACTION PLAN - PH II
INTERSECTION OF
MARINA DRIVE & ANCLOTHE RD.

MAP ID NO.
100
 OPTION 2 OF 2

Map ID No. 100 – Intersection of Marina Drive and Anclote Road

Problem:

Location is in the low side of a superelevated curve on Anclote Road. Roadway flooding is occurring and is most likely impeding traffic and is a concern due to the roadway geometry for traffic approaching from the east. Roadway does not have storm infrastructure.

Conceptual Solutions:

Option 1

This conceptual solution would include installing a ditch bottom inlet within the right-of-way at the low spot and routing the storm sewer system to the historical outfall to the north of the intersection. To address the condition of the existing pavement, the inside lane of the superelevated curve will be milled and resurfaced with the addition of a 4 foot non-paved shoulder.

Option 2

This conceptual solution would involve re-grading the roadside shoulder to create a 4 foot shoulder along the inside of the curve that would allow the stormwater to run off of the roadway and into a shallow swale that would be graded to flow to the north to the historical outfall. This option will also include the milling and resurfacing of the inside lane in the superelevated curve.

Recommended Option

The recommended option for this project is to do option 2. Option 2 will alleviate the flooding problem for the least amount of money and is a lasting solution that would only need minimum amount of maintenance to be affective for the duration of the roadway in its present condition.



Preliminary Construction Cost Estimate

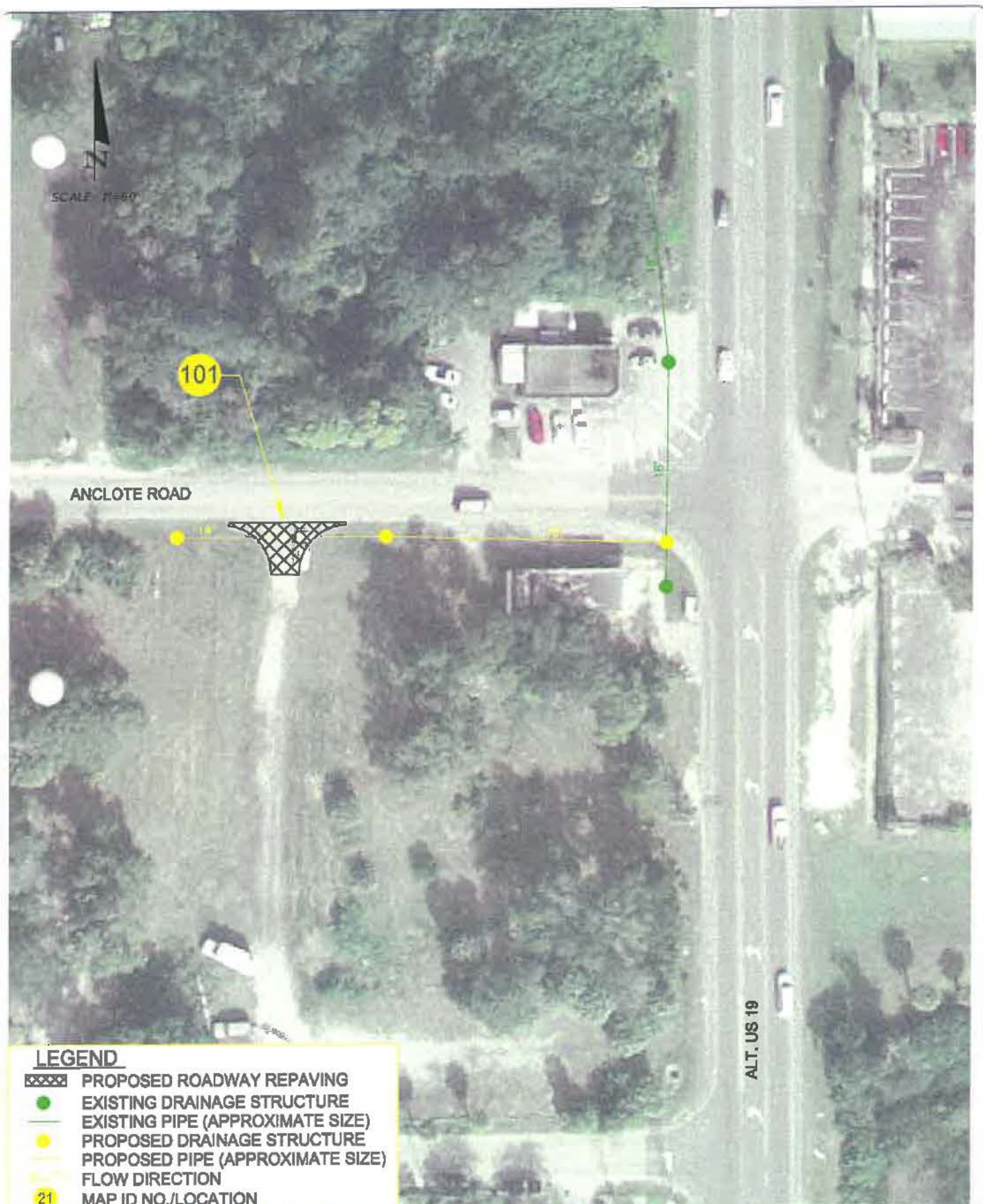
MAP ID NO. 100 (OPTION 2): Marine Drive and Ancloste Road

09/03/2014

Bid Item No.	Description	Quantity	Units	Unit Price	Amount
1	MOBILIZATION	1	LS	\$1,420.00	\$1,420.00
2	STAKED SILT FENCE, TYPE III	285	LF	\$1.00	\$285.00
3	CLEARING & GRUBBING	0.064	AC	\$23,362.09	\$1,495.00
4	REGULAR EXCAVATION	19.250	CY	\$3.82	\$74.00
5	MILLING & RESURFACING (1" AVG. DEPTH)	267	SY	\$1.69	\$451.00
6	STRUCTURE COURSE	22	TN	\$450.64	\$9,914.00
7	STRIPING DBL 6" YELLOW	200	LF	\$1.91	\$382.00
8	STRIPING SINGLE 6" WHITE	200	LF	\$0.84	\$168.00
9	PERFORMANCE TURF, SOD	73	SY	\$3.13	\$228.00
CONSTRUCTION SUBTOTAL					\$14,400.00
25% CONTINGENCY					\$3,600.00
CONSTRUCTION TOTAL					\$18,000.00
SURVEY					\$1,080.00
GEOTECHNICAL					\$1,008.00
ENGINEERING					\$14,400.00
GRAND TOTAL					\$34,488.00

Notes:

1. Unit Prices based on FDOT Item Average Unit Costs for Area 06 from 10/01/2013 to 09/30/2014.
2. Conceptual Cost Estimate does not include the costs of Right-of-Way Acquisition or Permitting.



- LEGEND**
- XXXX PROPOSED ROADWAY REPAVING
 - EXISTING DRAINAGE STRUCTURE
 - EXISTING PIPE (APPROXIMATE SIZE)
 - PROPOSED DRAINAGE STRUCTURE
 - PROPOSED PIPE (APPROXIMATE SIZE)
 - FLOW DIRECTION
 - 21 MAP ID NO./LOCATION

Stantec
 2208 North 20th Street
 Tampa, FL 34605
 Phone: (813) 233-8800 Fax: (813) 233-0098
 Certificate of Authorization No. 27013

CITY OF TARPON SPRINGS
 PUBLIC SERVICES DEPARTMENT
 324 E. PINE STREET
 TARPON SPRINGS, FL 34689
 (727) 942-5810

STORMWATER ACTION PLAN - PH II
 INTERSECTION OF
 ALT. US 19 & ANCLOTE RD.

MAP ID NO.
101
 OPTION 1 OF 2

Map ID No. 101 – Alternate US 19 & Anclote Road

Problem:

Location is at a depressional area on Anclote Road at the driveway of an open lot that is used as parking for Captain Jacks Sunset Grill. The driveway is a hard crushed limestone material with a depression at Anclote Rd. Roadway flooding is occurring along Anclote Rd. and is most likely impeding traffic and is a concern due to the roadway geometry for traffic approaching from the east and west. An existing stormwater infrastructure is located along Alt. 19 with inlets at the intersection of Alt. 19 and Anclote Rd. but is not along Anclote Rd.

Conceptual Solutions:

Option 1

This conceptual solution would include installing ditch bottom inlets (2) within the right-of-way and routing the storm sewer system to an existing stormwater drainage system along Alt. 19 that outfalls to the Gulf of Mexico. To address the condition of the existing pavement, 200 feet of the roadway will be milled and resurfaced. The depressional area at the driveway into the open lot will be filled in and graded.

Option 2

This conceptual solution would involve re-grading the roadside shoulder on both sides of the roadway to create a 4 foot shoulder that would allow the stormwater to run off of the roadway and into a shallow swale. The north side of the roadway would be graded to flow to along Anclote Rd. and then to the north to the right-of-way for a future roadway. This option will also include the milling and resurfacing of 200 feet of Anclote Rd. and the rebuilding of the driveway into the open lot.

Recommended Option

The recommended option for this project is option 1. Even though option 1 has more initial cost than option 2, option 2 is a temporary fix and does not provide a lasting solution for the flooding. Option 1 will provide relief from the stormwater runoff for a longer period of time even if the conditions in the area break down back to the present conditions.



Preliminary Construction Cost Estimate

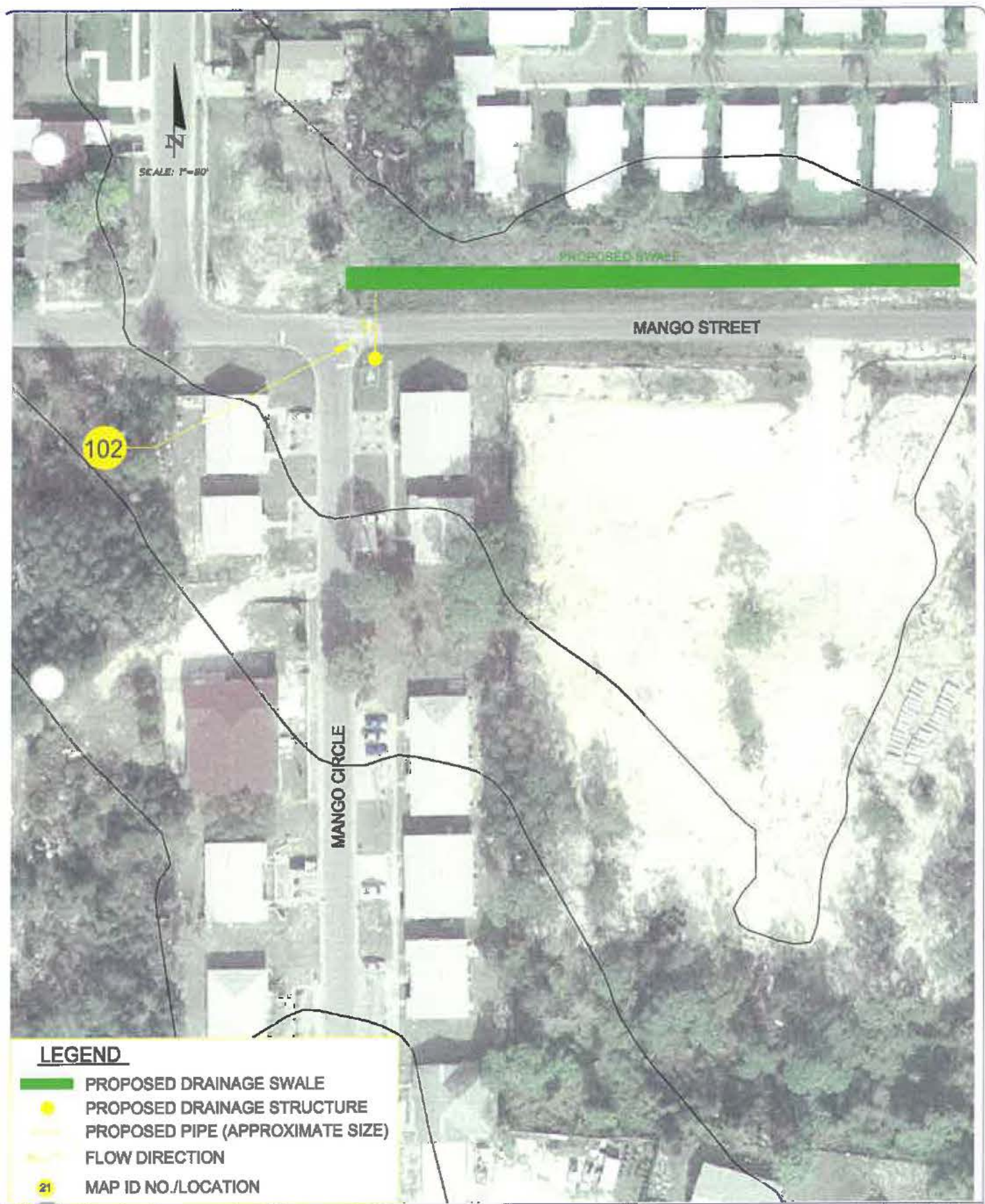
MAP ID NO. 101 (OPTION 1): ALT. 19 and Anciate Road

09/03/2014

Bid Item No.	Description	Quantity	Units	Unit Price	Amount
1	MOBILIZATION	1	LS	\$3,180.00	\$3,180.00
2	STAKED SILT FENCE, TYPE III	100	LF	\$1.00	\$100.00
3	CLEARING & GRUBBING	0.016	AC	\$23,362.09	\$374.00
4	MILLING & RESURFACING (1" AVG. DEPTH)	534	SY	\$1.69	\$902.00
5	OPTIONAL BASE GROUP	133	SY	\$22.94	\$3,059.00
6	STRUCTURE COURSE	11	TN	\$460.64	\$4,957.00
7	DITCH BOTTOM INLET TYPE "C"	2	EA	\$2,230.17	\$4,460.00
8	MANHOLE TYPE "P-7"	1	EA	\$2,998.18	\$2,998.00
9	18" PIPE CULVERT	280	LF	\$46.43	\$13,000.00
10	STRIPING DBL 6" YELLOW	200	LF	\$1.91	\$382.00
11	STRIPING SINGLE 6" WHITE	200	LF	\$0.84	\$168.00
12	PERFORMANCE TURF, SOD	122	SY	\$3.13	\$382.00
CONSTRUCTION SUBTOTAL					\$34,000.00
25% CONTINGENCY					\$8,500.00
CONSTRUCTION TOTAL					\$42,500.00
SURVEY					\$2,100.00
GEOTECHNICAL					\$1,800.00
ENGINEERING					\$23,800.00
GRAND TOTAL					\$70,000.00

Notes:

- 1. Unit Prices based on FDOT Item Average Unit Costs for Area 08 from 10/01/2013 to 09/30/2014.
- 2. Conceptual Cost Estimate does not include the costs of Right-of-Way Acquisition or Permitting.




LEGEND

- PROPOSED DRAINAGE SWALE
- PROPOSED DRAINAGE STRUCTURE
- PROPOSED PIPE (APPROXIMATE SIZE)
- FLOW DIRECTION
- 21 MAP ID NO./LOCATION



 2206 North 20th Street
 Tampa, FL 34608
 Phone: (813) 223-9800 Fax: (813) 223-0000
 Certificate of Authorization No. 22818



 CITY OF TARPON SPRINGS
 PUBLIC SERVICES DEPARTMENT
 324 E. PINE STREET
 TARPON SPRINGS, FL 34689
 (727) 942-8810

STORMWATER ACTION PLAN - PH II
INTERSECTION OF
MANGO STREET AND MANGO CIRCLE

MAP ID NO.
102
 OPTION 1 OF 2

Map ID No. 102 – Mango Street and Mango Circle

Problem:

Location is at the intersection of Mango Street and Mango Circle. A depressed area in Mango Street at the western edge of Mango Circle creates a flooding hazard along Mango Street. Roadway does not have storm infrastructure.

Conceptual Solutions:

Option 1

This conceptual solution would include installing a ditch bottom inlet within the right-of-way of Mango Street at the southwestern portion of Mango Street and Mango Circle and routing the stormwater runoff to the north side of Mango Street to a proposed swale. The proposed swale would be connected to an existing swale that runs on the north side of Mango Street.

Option 2

This conceptual solution would involve adding shoulder gutter along Mango Street for approx. 225 feet on both sides of the roadway to collect the stormwater runoff and direct it into ditch bottom inlets in the shoulder gutter. On the north side of the roadway spillways will allow the stormwater runoff to flow into a proposed swale that would be connected to an existing swale. In the shoulder gutter on the south side of Mango Street, ditch bottom inlets will collect the stormwater runoff and take it to an existing stormwater treatment facility located to the west of Mango Circle.

Recommended Option

The recommended option for this project will be option 1. Option 1 will provide the needed relief from the flooding issue at a reduced cost while maintaining the aesthetics of the surrounding area.



Stormwater Action Plan - Phase II

Preliminary Construction Cost Estimate

MAP ID NO. 102 (OPTION 1): Mango Street and Mango Circle

09/03/2014

Bid Item No.	Description	Quantity	Units	Unit Price	Amount
1	MOBILIZATION	1	LS	\$2,230.00	\$2,230.00
2	STAKED SILT FENCE, TYPE III	70	LF	\$1.00	\$70.00
3	CLEARING & GRUBBING	0.016	AC	\$23,382.09	\$374.00
4	STRUCTURE COURSE	17,800	TN	\$460.84	\$7,931.00
5	OPTIONAL BASE GROUP	213,330	SY	\$22.94	\$4,894.00
6	REGULAR EXCAVATION - DITCH GRADING	185.2	CY	\$3.82	\$707.00
7	DITCH BOTTOM INLET TYPE "C"	1	EA	\$2,230.17	\$2,230.00
8	18" PIPE CULVERT	26	LF	\$46.43	\$1,207.00
9	18" (1:4) MES	1	EA	\$2,000.00	\$2,000.00
10	PERFORMANCE TURF, SOD	240	SY	\$3.13	\$751.00
CONSTRUCTION SUBTOTAL					\$22,400.00
28% CONTINGENCY					\$8,800.00
CONSTRUCTION TOTAL					\$31,200.00
SURVEY					\$1,400.00
GEOTECHNICAL					\$1,100.00
ENGINEERING					\$15,400.00
GRAND TOTAL					\$48,900.00

Notes:

- Unit Prices based on FDOT Item Average Unit Costs for Area C8 from 10/01/2013 to 09/30/2014.
- Conceptual Cost Estimate does not include the costs of Right-of-Way Acquisition or Permitting.

Appendix B

Stormwater Focus Area Scoring Criteria



<u>CRITERIA</u>	<u>MAX POINTS</u>
TRAFFIC SAFETY	10
EMERGENCY ACCESS/ROUTE	10
PROPERTY IMPACTS	10
ENVIRONMENTAL	10
PROBLEM DOCUMENTATION	5
MAINTENANCE	5
CITY SCORE	<u>10</u>
TOTAL POSSIBLE POINTS	60

Traffic Safety

0-5 points for a problem that impedes standard traffic flow rates. These locations are more of a nuisance due to partial roadside flooding.
 6-10 points for a problem that poses a threat to life, impedance to major arterial road or hurricane evacuation route, or flooding near electrical equipment.

Emergency Access/Route

0-3 points for a problem that may cause an emergency vehicle some delay
 4-7 point for a problem that may cause an emergency vehicle to change course while responding to an emergency.
 8-10 points for a problem that impedes an evacuation route or route to emergency shelter.

Property Impacts

0-3 points for a problem that is primarily minor street and private property ponding.
 4-7 points for a problem that impedes access to or from private property or causes flooding on more than one property; for a problem that occurs no more than 6 times a year and has a duration of less than 48 hours.
 8-10 points for a problem that poses threat to flooding a structure or causing erosion threatening a structure; for a problem that occurs at least 6 times a year and has a duration of more than 48 hours.

Environmental

0-3 points for a problem that impacts the local proximity.
 4-7 points for a problem that has potential water quality impacts to impaired waterbody.
 8-10 points for a problem that is mandated by the FDEP or EPA and/or discharges to an impaired waterbody.

Problem Area Documentation

0-2 points for a problem that has been identified by City Staff and/or the Dames and Moore Master Drainage Study.
 3-5 points for a problem that has public complaints and/or photographs filed with the City.

Maintenance

0-2 points for a problem that in the past has cost the City to maintain or retrofit.
 3-5 points for a problem that annually costs the City to maintain or for a problem that if not properly maintained causes flooding.

City Score

- Level A (10 points)
- Represent a significant and immediate threat to life, health, and/or property.
 - Completely blocks the flow of traffic through main thoroughfares (traffic cannot safely pass and must be re-routed). Blocks access to neighborhoods or areas of the City.
 - Water enters a structure.
 - Represents a significant and severe contribution to surface water pollution.

- Level B (8 points)
- Represent a potential threat to life, health, and/or property.
 - Blocks the flow of traffic on a single street, several structures, or business access.
 - Water surrounds but does not enter a structure.
 - Represents a potential contribution to surface water pollution.



**CITY OF TARPON SPRINGS
STORMWATER ACTION PLAN (SAP)
SAP TASK 1 - DATA COLLECTION
STORMWATER FOCUS AREA SCORING CRITERIA
OCTOBER 2014**



Level C (6 points)

- Represent a possible threat to life, health, and/or property.
- Blocks traffic access to a single home.
- Water surrounds or pools on a portion of a homeowner's or business owner's property.
- Represents a possible contribution to surface water pollution.

Level D (4 points)

- Nuisance flooding that does not pose any threat to life, health, and/or property.
- Does not block traffic access to homes, businesses, or streets.
- Water does not threaten a structure.
- Does not contribute to surface water pollution.

Level E (2 points)

- Project is complete or remedy is underway (currently undergoing design or construction).

Level F (0 points)

- Non-jurisdictional

Appendix C

Secondary Alternatives and Cost Estimates



LEGEND

- PROPOSED DRAINAGE STRUCTURE
- PROPOSED PIPE (SIZE APPROXIMATE)
- FLOW DIRECTION
- 5' CONTOUR
- MAP ID NO. / LOCATION

American
 Consulting Engineers of Florida, LLC
 888 Pine Ave, North Palm A
 Delray Beach, FL 33487
 Phone: (561) 437-5700 Fax: (561) 490-8761
 Certificate of Authorization No. 0002



CITY OF TARPON SPRINGS
 PUBLIC SERVICES DEPARTMENT
 304 E PINE STREET
 TARPON SPRINGS, FL 34689
 (813) 942-0810

STORMWATER ACTION PLAN - PH II
DISSTON AVE. AND CENTER ST.

MAP ID NO.
2
 OPTION 1 OF 2

PROJECT: C:\projects\2009\2009_Aerial\2009_Aerial.dwg DATE: 10/27/2010 4:17:38 PM BY: SCS



Stormwater Action Plan - Phase II

Preliminary Construction Cost Estimate

MAP ID NO. 2 (OPTION 1 - STANDARD METHOD): DISSTON AVE. AND CENTER ST.

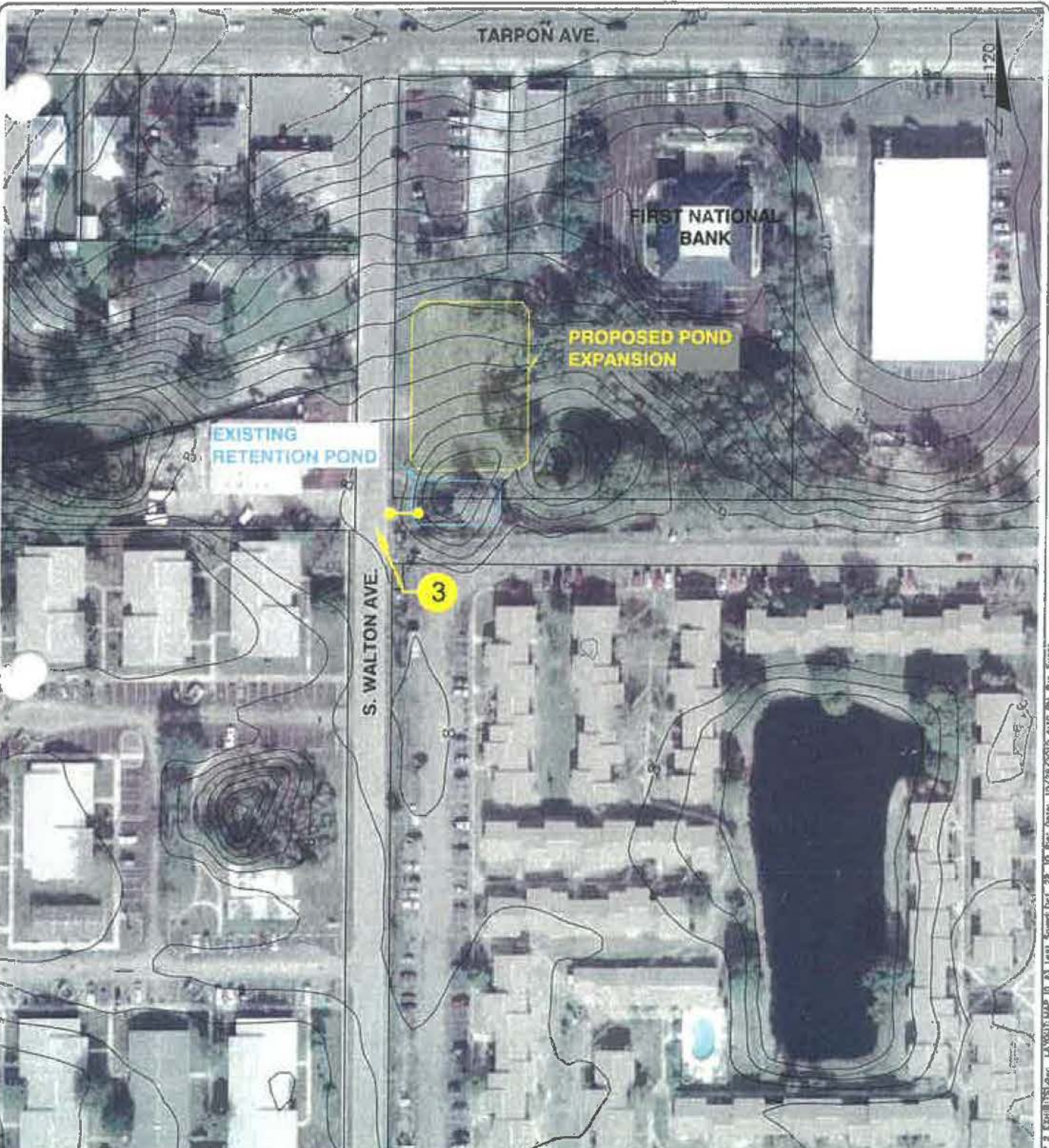
08/13/2010

Bid Item No.	Description	Quantity	Units	Unit Price	Amount
1	MOBILIZATION	1	LS	\$14,880.00	\$14,880.00
2	SYNTHETIC BALES	128	LF	\$16.00	\$2,048.00
3	STAKED SILT FENCE, TYPE III	1,842	LF	\$1.00	\$1,842.00
4	CLEARING & GRUBBING	0.742	AC	\$8,140.00	\$6,040.00
6	POND EXCAVATION	2,264	CY	\$3.50	\$7,929.00
8	ROADWAY RECONSTRUCTION	18,484	SF	\$3.75	\$69,140.00
7	MANHOLE	3	EA	\$4,200.00	\$12,600.00
8	DITCH BOTTOM INLET	4	EA	\$2,500.00	\$10,000.00
9	CONCRETE CLASS I, ENDWALLS	1.23	CY	\$600.00	\$738.00
10	PIPE CULVERT REINFORCED CONCRETE, 0-24"	784	LF	\$51.00	\$40,484.00
11	PERFORMANCE TURF, SOD	1,880	SY	\$2.00	\$3,760.00

CONSTRUCTION SUBTOTAL	\$181,500.00
20% CONTINGENCY	\$40,400.00
CONSTRUCTION TOTAL	\$221,900.00
SURVEY	\$10,100.00
GEOTECHNICAL	\$8,100.00
ENGINEERING	\$38,300.00
GRAND TOTAL	\$284,400.00

Notes:

1. Unit Prices based on FDOT Item Average Unit Costs for Area 08 from 03/01/2008 to 02/28/2009.
2. Conceptual Cost Estimate does not include the cost of Right-of-Way Acquisition.



LEGEND

- PROPOSED POND EXPANSION
- 5 CONTOUR
- 3 MAP ID NO. / LOCATION

American
 Consulting Engineers of Florida, LLC
 888 Pines Ave. North Unit A
 Clearwater, FL 34617
 Phone: (727) 493-5780 Fax: (727) 493-5781
 Certificate of Authorization No. 6802

CITY OF TARPON SPRINGS
 PUBLIC SERVICES DEPARTMENT
 304 N. PINEAPPLE
 TARPON SPRINGS, FL 34689
 (727) 943-0610

STORMWATER ACTION PLAN - PH II
WALTON AVE.
BETWEEN TARPON AVE. & LIME ST.

MAP ID NO.
3
 OPTION 1 OF 2

15/28/2019 2:16 PM 8/3/2019
 L:\PROJECTS\2019\2019-0001\Map 3 Contributing L\2019\MAP ID 3 WALTON AVE.DWG



Stormwater Action Plan - Phase II

Preliminary Construction Cost Estimate

MAP ID NO. 3 (OPTION 1): WALTON AVE. BETWEEN TARPON AVE. & LIME ST.

06/13/2010

Bid Item No.	Description	Quantity	Units	Unit Price	Amount
1	MOBILIZATION	1	LS	\$1,908.00	\$1,908.00
2	STAKED SILT FENCE, TYPE III	438	LF	\$1.00	\$438.00
3	CLEARING & GRUBBING	0.295	AC	\$8,140.00	\$2,401.00
4	POND EXCAVATION	3,818	CY	\$3.50	\$13,363.00
5	PERFORMANCE TURF, 90D	1,427	SY	\$2.00	\$2,854.00









CONSTRUCTION SUBTOTAL	\$21,000.00
28% CONTINGENCY	\$5,880.00
CONSTRUCTION TOTAL	\$26,880.00
SURVEY	\$1,300.00
GEO TECHNICAL ENGINEERING	\$1,000.00
GRAND TOTAL	\$48,560.00

Notes:

1. Unit Prices based on FDOT Item Average Unit Costs for Area 08 from 03/01/2008 to 02/25/2009.
2. Conceptual Cost Estimate does not include the cost of Right-of-Way Acquisition.



LEGEND

-  EXISTING DRAINAGE STRUCTURE
-  EXISTING PIPE
-  PROPOSED DRAINAGE STRUCTURE
-  PROPOSED PIPE (SIZE APPROXIMATE)
-  PROPOSED EASEMENT
-  FLOW DIRECTION
-  CONTOUR
-  MAP ID NO. / LOCATION

2007 AERIAL

American
 Consulting Engineers of Florida, LLC
 200 Pine Ave. North Hill A
 Odessa, FL 33457
 Phone: (772) 499-8700 Fax: (772) 499-8701
 Certificate of Authorization No. 3682

CITY OF TARPON SPRINGS
 PUBLIC SERVICES DEPARTMENT
 304 S. PINE STREET
 TARPON SPRINGS, FL 34689
 (727) 940-0810

STORMWATER ACTION PLAN - PH II
DISSTON AVE.
BETWEEN SPRUCE ST. & LIVE OAK ST.

MAP ID NO.
9
 OPTION 1 OF 3

L:\Projects\2007\20070920\20070920.dwg 10/20/07 10:00 AM 10/20/07 10:00 AM 10/20/07 10:00 AM 10/20/07 10:00 AM 10/20/07 10:00 AM



Preliminary Construction Cost Estimate

MAP ID NO. 9 (OPTION 1): DISSTON AVE. BETWEEN SPRUCE ST. & LIVE OAK ST.

06/13/2010

Bid Item No.	Description	Quantity	Units	Unit Price	Amount
1	MOBILIZATION	1	LS	\$4,280.00	\$4,280.00
2	SYNTHETIC BALES	98	LF	\$16.00	\$1,568.00
3	STAKED SILT FENCE, TYPE III	482	LF	\$1.00	\$482.00
4	CLEARING & GRUBBING	0.105	AC	\$8,140.00	\$855.00
5	ROADWAY RECONSTRUCTION	1,008	SF	\$3.75	\$3,780.00
6	MANHOLE	1	EA	\$4,200.00	\$4,200.00
7	CURB INLET	3	EA	\$4,500.00	\$13,500.00
8	WATERED END SECTION	1	EA	\$2,000.00	\$2,000.00
9	PIPE CULVERT REINFORCED CONCRETE, 0-24"	275	LF	\$51.00	\$14,025.00
10	CONCRETE CURB	70	LF	\$15.00	\$1,050.00
11	SIDEWALK CONCRETE	38	SY	\$36.00	\$1,368.00
12	PERFORMANCE TURF, 80D	31	SY	\$2.00	\$62.00

CONSTRUCTION SUBTOTAL	\$47,100.00
25% CONTINGENCY	\$11,800.00
CONSTRUCTION TOTAL	\$68,900.00
SURVEY	\$2,900.00
GEOTECHNICAL	\$1,800.00
ENGINEERING	\$11,800.00
GRAND TOTAL	\$75,400.00

Notes:

- Unit Prices based on FDOT Item Average Unit Costs for Area 06 from 03/01/2009 to 02/28/2009.
- Conceptual Cost Estimate does not include the cost of Right-of-Way Acquisition.



- LEGEND**
- EXISTING DRAINAGE STRUCTURE
 - EXISTING PIPE
 - PROPOSED DRAINAGE STRUCTURE
 - PROPOSED PIPE (SIZE APPROXIMATE)
 - PROPOSED SWALE
 - - - PROPOSED EASEMENT
 - FLOW DIRECTION
 - 5' CONTOUR
 - 9 MAP ID NO. / LOCATION

Prepared by
American
 Consulting Engineers of Florida, LLC
 289 Pico Ave., North Unit A
 Orlando, FL 32807
 Phone: (727) 499-5755 Fax: (727) 499-5751
 Certificate of Authorization No. 6502

CITY OF TARPON SPRINGS
 PUBLIC SERVICES DEPARTMENT
 204 N. PINE STREET
 TARPON SPRINGS, FL 34689
 (727) 943-2010

STORMWATER ACTION PLAN - PH II
DISSTON AVE.
BETWEEN SPRUCE ST. & LIVE OAK ST.

MAP ID NO.
9
 OPTION 2 OF 3

2007 AERIAL
 L:\Projects\2007\Stormwater\Map 9 - Disston Ave\Map 9 - Disston Ave.dwg
 User: jason.dickinson
 Date: 10/23/2007 10:49:48 AM



Stormwater Action Plan - Phase II

Preliminary Construction Cost Estimate

MAP ID NO. 9 (OPTION 2): DISSTON AVE. BETWEEN SPRUCE ST. & LIVE OAK ST.

05/13/2010

Bid Item No.	Description	Quantity	Units	Unit Price	Amount
1	MOBILIZATION	1	LS	\$4,720.00	\$4,720.00
2	SYNTHETIC BALES	98	LF	\$18.00	\$1,764.00
3	STAKED SILT FENCE, TYPE III	482	LF	\$1.00	\$482.00
4	CLEARING & GRUBBING	0.105	AC	\$8,140.00	\$855.00
5	ROADWAY RECONSTRUCTION	1,008	SF	\$9.75	\$9,780.00
6	MANHOLE	1	EA	\$4,200.00	\$4,200.00
7	CURB INLET	3	EA	\$4,500.00	\$13,500.00
8	MITERED END SECTION	1	EA	\$2,000.00	\$2,000.00
9	PIPE CULVERT REINFORCED CONCRETE, 25-36"	275	LF	\$67.00	\$18,425.00
10	CONCRETE CURB	70	LF	\$15.00	\$1,050.00
11	SIDEWALK CONCRETE	39	SY	\$36.00	\$1,386.00
12	PERFORMANCE TURF, SOD	31	SY	\$2.00	\$62.00

CONSTRUCTION SUBTOTAL	\$61,900.00
28% CONTINGENCY	\$17,332.00
CONSTRUCTION TOTAL	\$79,232.00
SURVEY	\$3,300.00
GEOTECHNICAL	\$1,800.00
ENGINEERING	\$1,170.00
GRAND TOTAL	\$87,732.00

MAP ID NO. 10 (OPTION 2): SPRUCE ST. BETWEEN DISSTON AVE. & WALTON AVE.

05/13/2010

Bid Item No.	Description	Quantity	Units	Unit Price	Amount
1	MOBILIZATION	1	LS	\$9,890.00	\$9,890.00
2	SYNTHETIC BALES	64	LF	\$18.00	\$1,152.00
3	STAKED SILT FENCE, TYPE III	583	LF	\$1.00	\$583.00
4	CLEARING & GRUBBING	0.180	AC	\$8,140.00	\$1,465.20
5	ROADWAY RECONSTRUCTION	3,924	SF	\$9.75	\$38,259.00
6	MANHOLE	1	EA	\$4,200.00	\$4,200.00
7	DITCH BOTTOM INLET	2	EA	\$2,500.00	\$5,000.00
8	PIPE CULVERT REINFORCED CONCRETE, 0-24"	24	LF	\$61.00	\$1,464.00
9	PIPE CULVERT REINFORCED CONCRETE, 25-36"	353	LF	\$67.00	\$23,651.00
10	PIPE CULVERT REINFORCED CONCRETE, 25-36" (DEPTH >10')	200	LF	\$87.00	\$17,400.00
11	CONCRETE CURB	583	LF	\$15.00	\$8,745.00
12	SIDEWALK CONCRETE	307	SY	\$35.00	\$10,745.00
13	PERFORMANCE TURF, SOD	248	SY	\$2.00	\$496.00

CONSTRUCTION SUBTOTAL	\$109,900.00
28% CONTINGENCY	\$30,772.00
CONSTRUCTION TOTAL	\$140,672.00
SURVEY	\$6,900.00
GEOTECHNICAL	\$4,100.00
ENGINEERING	\$24,700.00
GRAND TOTAL	\$176,372.00

MAP ID NO. 11 (OPTION 2): BOSTON ST. BETWEEN DISSTON AVE. & WALTON AVE.

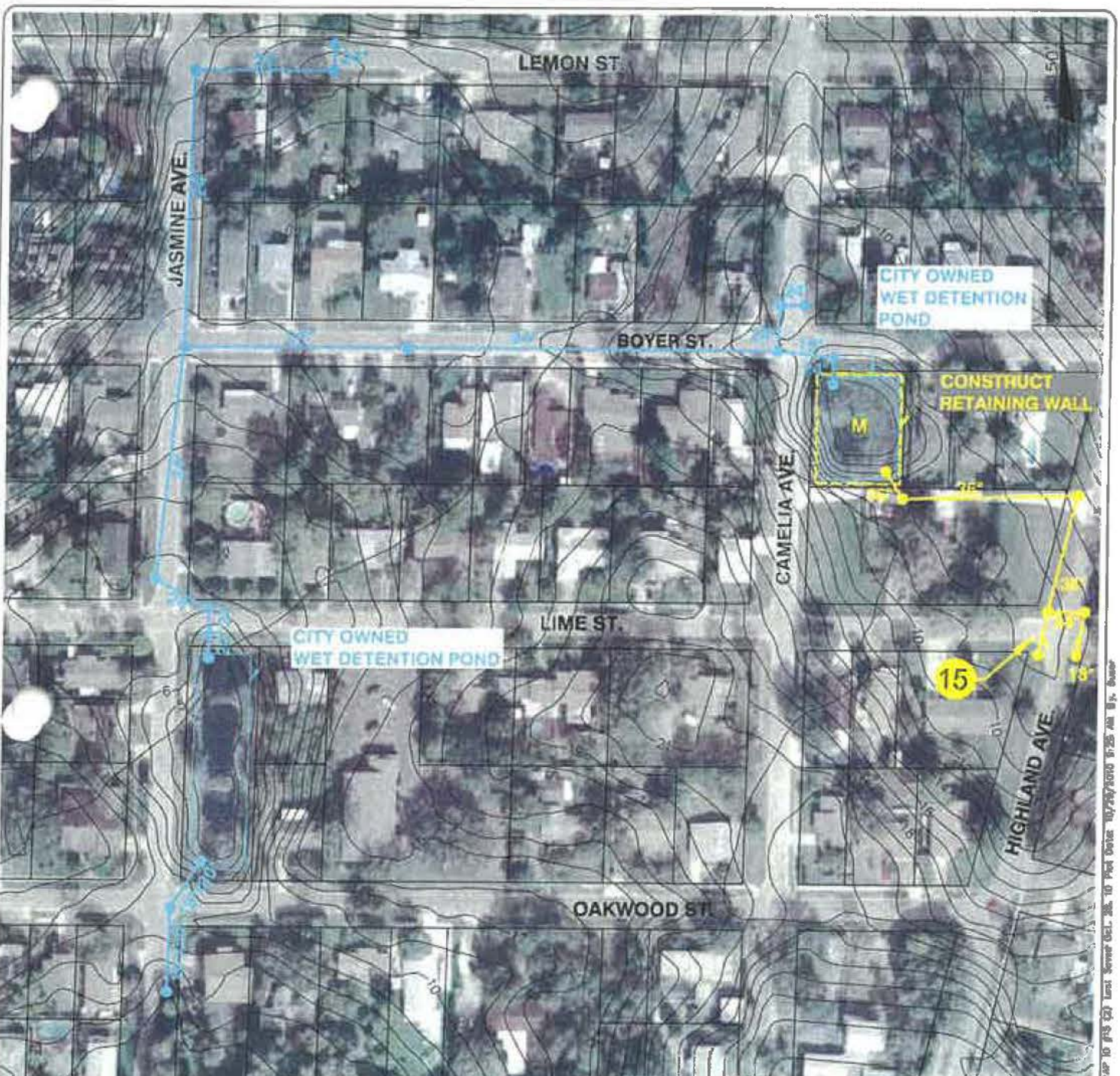
05/13/2010

Bid Item No.	Description	Quantity	Units	Unit Price	Amount
1	MOBILIZATION	1	LS	\$20,530.00	\$20,530.00
2	SYNTHETIC BALES	180	LF	\$18.00	\$3,240.00
3	STAKED SILT FENCE, TYPE III	1,331	LF	\$1.00	\$1,331.00
4	CLEARING & GRUBBING	0.381	AC	\$8,140.00	\$3,101.00
5	POND EXCAVATION	62	CY	\$3.50	\$217.00
6	ROADWAY RECONSTRUCTION	18,598	SF	\$9.75	\$181,235.00
7	MANHOLE	5	EA	\$4,200.00	\$21,000.00
8	DITCH BOTTOM INLET	5	EA	\$2,500.00	\$12,500.00
9	PIPE CULVERT REINFORCED CONCRETE, 0-24"	1,091	LF	\$61.00	\$66,551.00
10	PIPE CULVERT REINFORCED CONCRETE, 0-24" (DEPTH >10')	300	LF	\$66.00	\$19,800.00
11	SIDEWALK CONCRETE	738	SY	\$35.00	\$25,830.00
12	PERFORMANCE TURF, SOD	578	SY	\$2.00	\$1,156.00

CONSTRUCTION SUBTOTAL	\$228,800.00
28% CONTINGENCY	\$64,064.00
CONSTRUCTION TOTAL	\$292,864.00
SURVEY	\$14,100.00
GEOTECHNICAL	\$8,500.00
ENGINEERING	\$80,800.00
GRAND TOTAL	\$396,264.00

Notes:

- Unit Prices based on FDOT Item Average Unit Costs for Area 08 from 03/01/2008 to 02/28/2009.
- Conceptual Cost Estimate does not include the cost of Right-of-Way Acquisition.



- LEGEND**
- PROPOSED DRAINAGE STRUCTURE
 - PROPOSED PIPE (SIZE APPROXIMATE)
 - EXISTING DRAINAGE STRUCTURE
 - EXISTING PIPE
 - RETAINING WALL
 - M MAINTENANCE
 - 5 CONTOUR
 - ↔ FLOW DIRECTION
 - 21 MAP ID NO. / LOCATION

7 AERIAL

American
 Consulting Engineers of Florida, LLC
 283 Pine Ave, North Unit A
 Ocala, FL 34877
 Phone: (787) 498-8768 Fax: (787) 498-8781
 Certificate of Authorization No. 8202



CITY OF TARPON SPRINGS
 PUBLIC SERVICES DEPARTMENT
 801 S. PARK STREET
 TARPON SPRINGS, FL 34689
 (727) 942-0310

STORMWATER ACTION PLAN - PH II

HIGHLAND AVE. & VISTA PLACE

MAP ID NO.
15
 OPTION 2 OF 2

L:\Projects\2015\Stormwater\Map 15 - Highland Ave. & Vista Place\Map 15 - Highland Ave. & Vista Place.dwg
 10/27/2015 10:25 AM 11/11/2015



Preliminary Construction Cost Estimate

MAP ID NO. 15 (OPTION 2): HIGHLAND AVE. AND VISTA PLACE

05/13/2010

Bid Item No.	Description	Quantity	Units	Unit Price	Amount
1	MOBILIZATION	1	LS	\$14,440.00	\$14,440.00
2	SYNTHETIC BALES	180	LF	\$18.00	\$3,240.00
3	STAKED SILT FENCE, TYPE III	930	LF	\$1.00	\$930.00
4	CLEARING & GRUBBING	0.240	AC	\$8,140.00	\$1,964.00
5	POND EXCAVATION	173	CY	\$3.50	\$608.00
6	ROADWAY RECONSTRUCTION	3,218	SF	\$3.76	\$12,080.00
7	MANHOLE	1	EA	\$4,200.00	\$4,200.00
8	DITCH BOTTOM INLET	5	EA	\$2,500.00	\$12,500.00
9	CONCRETE CLASS I, ENDWALLS	4.53	CY	\$900.00	\$2,718.00
10	CONCRETE CLASS I, RETAINING WALL	122	CY	\$900.00	\$73,200.00
11	PIPE CULVERT REINFORCED CONCRETE, 0-24"	138	LF	\$51.00	\$7,038.00
12	PIPE CULVERT REINFORCED CONCRETE, 25-36"	355	LF	\$67.00	\$23,785.00
13	PERFORMANCE TURF, SOD	409	SY	\$2.00	\$808.00
14	MISC. WET DETENTION POND MAINTENANCE	1	LS	\$2,000.00	\$2,000.00

CONSTRUCTION SUBTOTAL	\$168,800.00
20% CONTINGENCY	\$33,760.00
CONSTRUCTION TOTAL	\$202,560.00
SURVEY	\$9,900.00
GEOTECHNICAL	\$6,000.00
ENGINEERING	\$35,700.00
GRAND TOTAL	\$283,160.00

Notes:

1. Unit Prices based on FDOT Item Average Unit Costs for Area 08 from 03/01/2008 to 02/28/2009.
2. Conceptual Cost Estimate does not include the cost of Right-of-Way Acquisition.



**POTENTIAL PROJECT EXTENSION
TO RESOLVE ADDITIONAL
FLOODING PROBLEM AREA**

- LEGEND**
- EXISTING DRAINAGE STRUCTURE
 - EXISTING PIPE
 - PROPOSED DRAINAGE STRUCTURE
 - PROPOSED PIPE (SIZE APPROXIMATE)
 - FLOW DIRECTION
 - ~ 5' CONTOUR
 - 1 MAP ID NO. / LOCATION

2007 AERIAL

PREPARED BY:
American
 Consulting Engineers of Florida, LLC
 253 Pine Ave, North Unit A
 Orla, FL 32677
 Phone: (727) 499-5760 Fax: (727) 499-5761
 Certificate of Authorization No. 3502



CITY OF TARPON SPRINGS
 PUBLIC SERVICES DEPARTMENT
 331 S. PINE STREET
 TARPON SPRINGS, FL 34689
 (727) 948-0910

STORMWATER ACTION PLAN - PH II
PALM AVE.
BETWEEN TARPON DR. & GULF RD.

MAP ID NO.
22
 OPTION 1 OF 2

L:\PROJECTS\2010\2010-0001\2010-0001.dwg
 DATE: 10/25/2010 10:01 AM
 USER: S:\Users\j\Documents\2010\2010-0001\2010-0001.dwg



Preliminary Construction Cost Estimate

MAP ID NO. 22 (OPTION 1): PALM AVE. BETWEEN TARPON DR. & GULF RD.

06/13/2010

Bid Item No.	Description	Quantity	Units	Unit Price	Amount
1	MOBILIZATION	1	LS	\$15,660.00	\$15,660.00
2	SYNTHETIC BALES	64	LF	\$18.00	\$1,024.00
3	STAKED SILT FENCE, TYPE III	1,167	LF	\$1.00	\$1,167.00
4	CLEARING & GRUBBING	0.319	AC	\$8,140.00	\$2,597.00
5	ROADWAY RECONSTRUCTION	13,864	SF	\$3.75	\$52,065.00
6	MANHOLE	4	EA	\$4,200.00	\$16,800.00
7	DITCH BOTTOM INLET	2	EA	\$2,500.00	\$5,000.00
8	PIPE CULVERT REINFORCED CONCRETE, 0-24"	351	LF	\$51.00	\$17,901.00
10	PIPE CULVERT REINFORCED CONCRETE, 25-36"	782	LF	\$67.00	\$52,394.00
11	PIPE CULVERT REINFORCED CONCRETE, 25-36" (DEPTH >10')	24	LF	\$87.00	\$2,088.00
12	SIDEWALK CONCRETE	112	SY	\$35.00	\$3,820.00
13	PERFORMANCE TURF, SOD	771	SY	\$2.00	\$1,542.00

CONSTRUCTION SUBTOTAL	\$172,108.00
29% CONTINGENCY	\$43,000.00
CONSTRUCTION TOTAL	\$215,108.00
SURVEY	\$10,800.00
GEOTECHNICAL ENGINEERING	\$8,500.00
GRAND TOTAL	\$234,408.00

MAP ID NO. 21 (OPTION 1): PALM AVE. BETWEEN TARPON DR. & GLADES AVE.

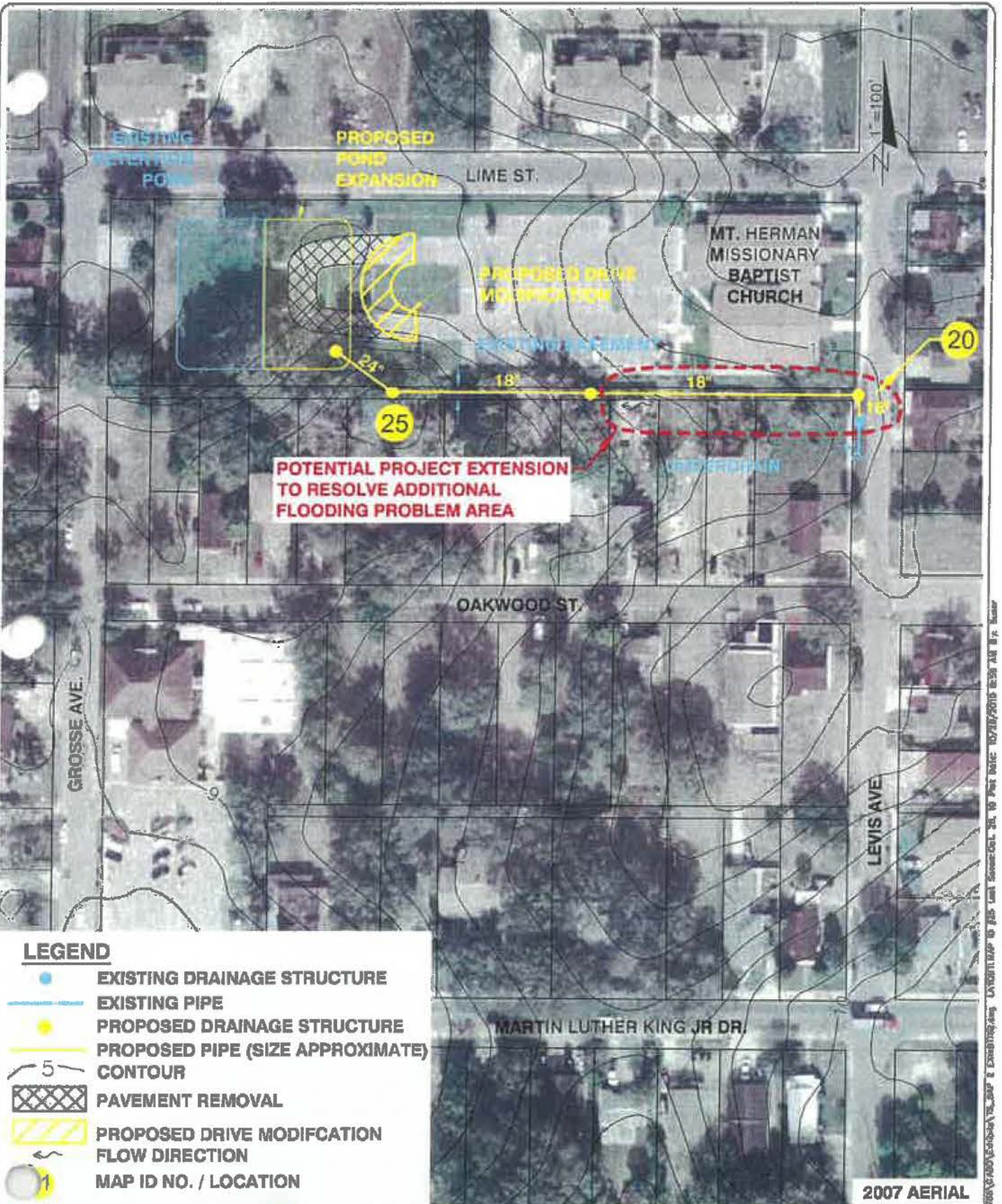
06/13/2010

Bid Item No.	Description	Quantity	Units	Unit Price	Amount
1	MOBILIZATION	1	LS	\$6,720.00	\$6,720.00
2	SYNTHETIC BALES	64	LF	\$18.00	\$1,024.00
3	STAKED SILT FENCE, TYPE III	500	LF	\$1.00	\$500.00
4	CLEARING & GRUBBING	0.138	AC	\$8,140.00	\$1,123.00
5	ROADWAY RECONSTRUCTION	6,000	SF	\$3.75	\$22,500.00
6	MANHOLE	2	EA	\$4,200.00	\$8,400.00
7	DITCH BOTTOM INLET	2	EA	\$2,500.00	\$5,000.00
8	PIPE CULVERT REINFORCED CONCRETE, 0-24"	485	LF	\$51.00	\$24,735.00
9	PIPE CULVERT REINFORCED CONCRETE, 0-24" (DEPTH >10')	15	LF	\$66.00	\$990.00
10	SIDEWALK CONCRETE	64	SY	\$35.00	\$2,240.00
11	PERFORMANCE TURF, SOD	333	SY	\$2.00	\$666.00

CONSTRUCTION SUBTOTAL	\$73,900.00
26% CONTINGENCY	\$19,500.00
CONSTRUCTION TOTAL	\$93,400.00
SURVEY	\$4,800.00
GEOTECHNICAL ENGINEERING	\$2,800.00
GRAND TOTAL	\$111,000.00

Notes:

- Unit Prices based on FDOT Item Average Unit Costs for Area 08 from 03/01/2008 to 02/28/2009.
- Conceptual Cost Estimate does not include the cost of Right-of-Way Acquisition.



**POTENTIAL PROJECT EXTENSION
TO RESOLVE ADDITIONAL
FLOODING PROBLEM AREA**

- LEGEND**
- EXISTING DRAINAGE STRUCTURE
 - EXISTING PIPE
 - PROPOSED DRAINAGE STRUCTURE
 - PROPOSED PIPE (SIZE APPROXIMATE)
 - 5' CONTOUR
 - XXXXXX PAVEMENT REMOVAL
 - XXXXXX PROPOSED DRIVE MODIFICATION
 - FLOW DIRECTION
 - 1 MAP ID NO. / LOCATION

2007 AERIAL

P:\Projects\2010\2010-0001\2010-0001.dwg 10/27/2010 10:29 AM 1/2

American
 Consulting Engineers of Florida, LLC
 255 Pine Ave. North Unit A
 Odessa, FL 34877
 Phone: (727) 499-5700 Fax: (727) 499-0701
 Certificate of Authorization No. 9302



CITY OF TARPON SPRINGS
 PUBLIC SERVICES DEPARTMENT
 304 S. PINE STREET
 TARPON SPRINGS, FL 34689
 (727) 943-0810

STORMWATER ACTION PLAN - PH II
LEVIS AVE.
BETWEEN LIME ST. & OAKWOOD ST. AND
LEVIS AVE. ALLEYWAY

MAP ID NO.
25
 OPTION 1 OF 2



Stormwater Action Plan - Phase II

Preliminary Construction Cost Estimate

MAP ID NO. 25 (OPTION 1): LEVIS AVE. ALLEY

05/13/2010

Bid Item No.	Description	Quantity	Units	Unit Price	Amount
1	MOBILIZATION	1	LS	\$3,918.00	\$3,918.00
2	SYNTHETIC BALES	84	LF	\$18.00	\$1,024.00
3	STAKED SILT FENCE, TYPE III	798	LF	\$1.00	\$798.00
4	CLEARING & GRUBBING	0.385	AC	\$8,140.00	\$3,134.00
5	ROADWAY RECONSTRUCTION	2,359	SF	\$3.75	\$8,836.00
6	POND EXCAVATION	1,216	CY	\$3.50	\$4,267.00
7	DITCH BOTTOM INLET	2	EA	\$2,500.00	\$5,000.00
8	MITERED END SECTION	1	EA	\$2,000.00	\$2,000.00
9	PIPE CULVERT REINFORCED CONCRETE, 0-24"	214	LF	\$51.00	\$10,914.00
10	PERFORMANCE TURF, SOD	1,602	SY	\$2.00	\$3,204.00

CONSTRUCTION SUBTOTAL	\$43,100.00
25% CONTINGENCY	\$10,800.00
CONSTRUCTION TOTAL	\$53,900.00
SURVEY	\$2,700.00
GEOTECHNICAL	\$1,600.00
ENGINEERING	\$18,100.00
GRAND TOTAL	\$73,300.00

MAP ID NO. 26 (OPTION 1): LEVIS AVE. BETWEEN LIME ST. & OAKWOOD ST.

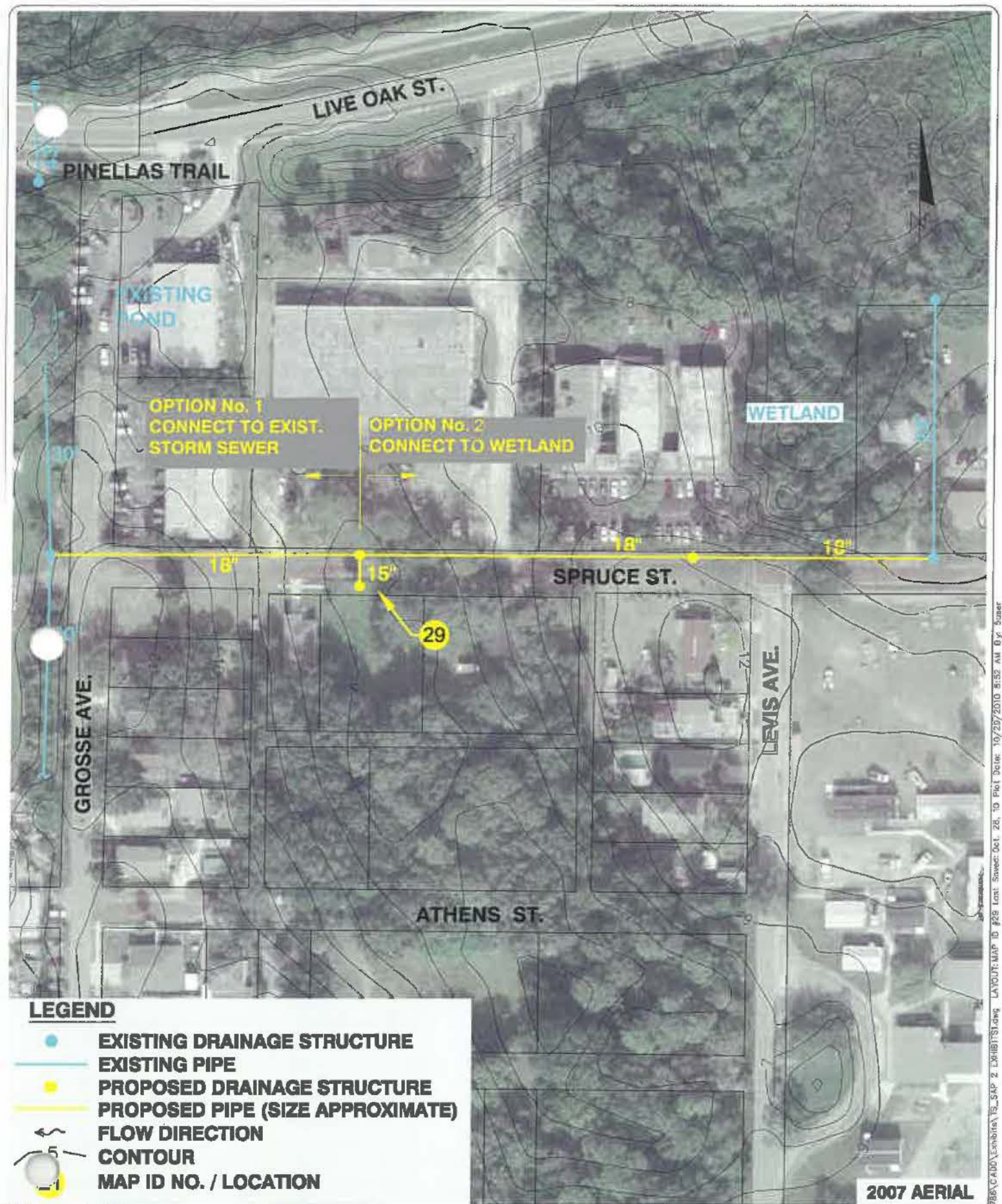
05/13/2010

Bid Item No.	Description	Quantity	Units	Unit Price	Amount
1	MOBILIZATION	1	LS	\$1,881.00	\$1,881.00
2	STAKED SILT FENCE, TYPE III	448	LF	\$1.00	\$448.00
3	CLEARING & GRUBBING	0.064	AC	\$8,140.00	\$521.00
4	ROADWAY RECONSTRUCTION	182	SF	\$3.75	\$720.00
5	MANHOLE	1	EA	\$4,200.00	\$4,200.00
6	PIPE CULVERT REINFORCED CONCRETE, 0-24"	232	LF	\$51.00	\$11,832.00
7	SIDEWALK CONCRETE	9	SY	\$35.00	\$315.00
8	PERFORMANCE TURF, SOD	268	SY	\$2.00	\$578.00

CONSTRUCTION SUBTOTAL	\$20,800.00
25% CONTINGENCY	\$5,100.00
CONSTRUCTION TOTAL	\$25,900.00
SURVEY	\$1,300.00
GEOTECHNICAL	\$800.00
ENGINEERING	\$4,800.00
GRAND TOTAL	\$32,300.00

Notes:

1. Unit Prices based on FDOT Item Average Unit Costs for Area 06 from 03/01/2008 to 02/28/2009.
2. Conceptual Cost Estimate does not include the cost of Right-of-Way Acquisition.



LEGEND

- EXISTING DRAINAGE STRUCTURE
- EXISTING PIPE
- PROPOSED DRAINAGE STRUCTURE
- PROPOSED PIPE (SIZE APPROXIMATE)
- FLOW DIRECTION
- CONTOUR
- MAP ID NO. / LOCATION

2007 AERIAL

PREPARED BY:
American
 Consulting Engineers of Florida, LLC
 268 Pine Ave. North Unit A
 Oldsmar, FL 34077
 Phone: (727) 498-8750 Fax: (727) 498-8751
 Certificate of Authorization No. 9002



CITY OF TARPON SPRINGS
 PUBLIC SERVICES DEPARTMENT
 304 N. PINE STREET
 TARPON SPRINGS, FL 34689
 (727) 949-0610

STORMWATER ACTION PLAN - PH II
SPRUCE ST.
BETWEEN LEVIS AVE. & GROSSE AVE.

MAP ID NO.
29
 OPTION 1 & 2

P:\PROJECT\5099786\CGADD\Exhibits\18_SAP_2_EXHIBIT\SLDwg_LAYOUT\MAP ID 29_Lost_Sweat_Oct_28_10_Plot_Docx 10/28/2010 9:33 AM By: Sauer



Stormwater Action Plan - Phase II

Preliminary Construction Cost Estimate

MAP ID NO. 26 (OPTION 1): SPRUCE ST. BETWEEN LEVIE AVE. & GROSSE AVE.

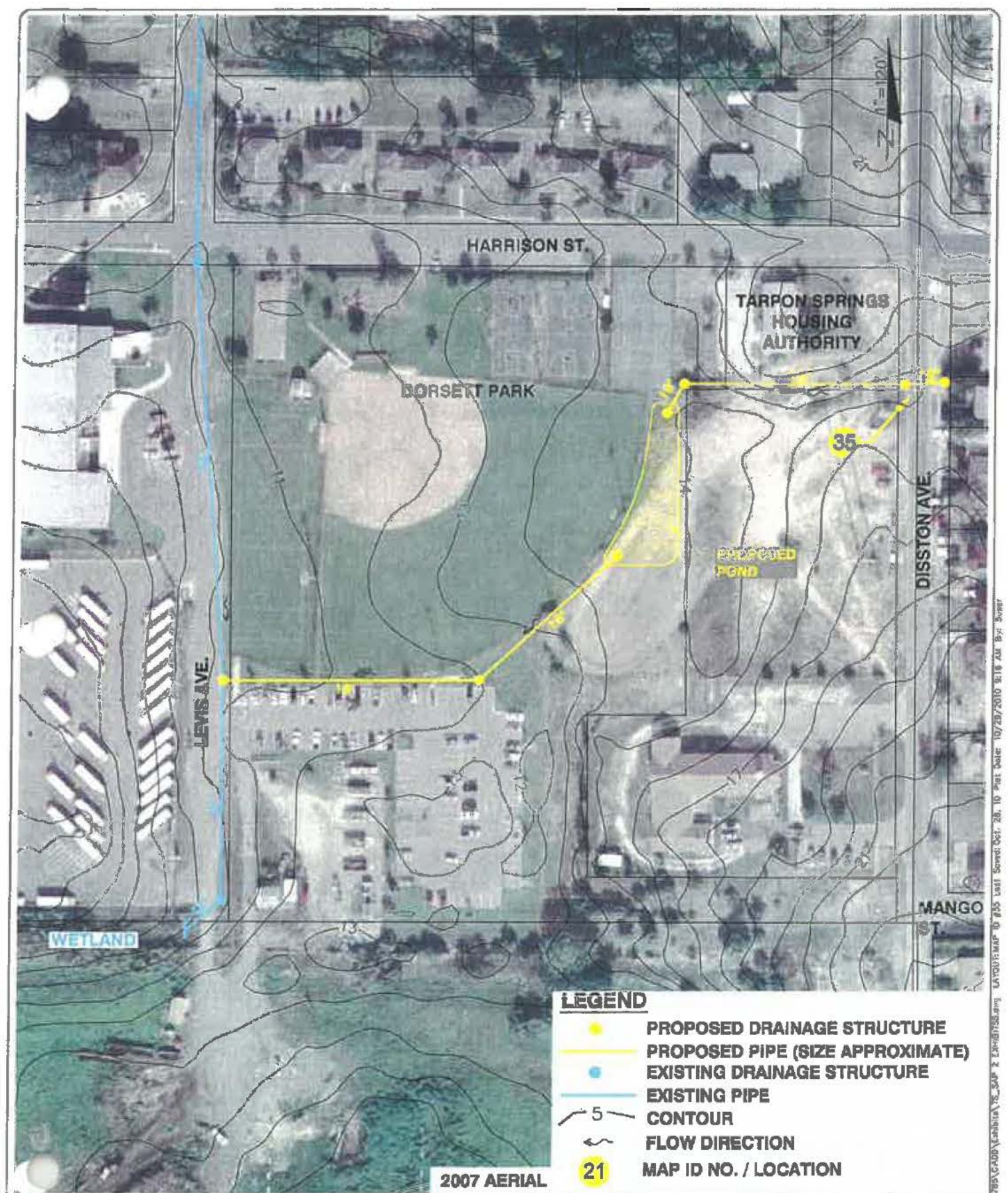
08/13/2010

Bid Item No.	Description	Quantity	Units	Unit Price	Amount
1	MOBILIZATION	1	LS	\$2,500.00	\$2,500.00
2	SYNTHETIC BALES	64	LF	\$18.00	\$1,024.00
3	STAKED SILT FENCE, TYPE III	302	LF	\$1.00	\$302.00
4	CLEARING & GRUBBING	0.087	AC	\$8,140.00	\$708.00
5	DITCH BOTTOM INLET	2	EA	\$2,500.00	\$5,000.00
6	PIPE CULVERT REINFORCED CONCRETE, 0-24"	318	LF	\$51.00	\$16,118.00
7	SIDEWALK CONCRETE	73	SY	\$35.00	\$2,555.00
8	PERFORMANCE TURF, SOD	138	SY	\$2.00	\$272.00

CONSTRUCTION SUBTOTAL	\$28,600.00
28% CONTINGENCY	\$7,200.00
CONSTRUCTION TOTAL	\$35,800.00
SURVEY	\$1,500.00
GEOTECHNICAL	\$1,100.00
ENGINEERING	\$3,700.00
GRAND TOTAL	\$43,300.00

Notes:

1. Unit Prices based on FDOT Item Average Unit Costs for Area 06 from 03/01/2008 to 02/28/2009.
2. Conceptual Cost Estimate does not include the cost of Right-of-Way Acquisition.



- LEGEND**
- PROPOSED DRAINAGE STRUCTURE
 - PROPOSED PIPE (SIZE APPROXIMATE)
 - EXISTING DRAINAGE STRUCTURE
 - EXISTING PIPE
 - 5 CONTOUR
 - FLOW DIRECTION
 - 21 MAP ID NO. / LOCATION

2007 AERIAL

American
 Consulting Engineers of Florida, LLC
 263 Pines Ave. North Unit A
 Oldsmar, FL 34677
 Phone: (727) 489-8780 Fax: (727) 489-8781
 Certificate of Authorization No. 9902



CITY OF TARPON SPRINGS
 PUBLIC SERVICES DEPARTMENT
 304 E. PINE STREET
 TARPON SPRINGS, FL 34689
 (727) 949-0810

STORMWATER ACTION PLAN - PH II
DISSTON AVE.
SOUTH OF HARRISON ST.

MAP ID NO.
35
 OPTION 1 OF 2

L:\PROJECTS\2009\99-CAD\Yamaha\%_35AP 2 LHM\GIS\Maping LAYOUT\MAP ID 35.dwg Plot Date: 10/23/2010 9:16 AM By: Jover



Preliminary Construction Cost Estimate

MAP ID NO. 36 (OPTION 1): DISTON AVE. SOUTH OF HARRISON ST.

08/13/2010

Bid Item No.	Description	Quantity	Units	Unit Price	Amount
1	MOBILIZATION	1	LS	\$7,130.00	\$7,130.00
2	SYNTHETIC BALES	98	LF	\$16.00	\$1,568.00
3	STAKED SILT FENCE, TYPE III	1,757	LF	\$1.00	\$1,757.00
4	CLEARING & GRUBBING	0.348	AC	\$8,140.00	\$2,808.00
5	POND EXCAVATION	745	CY	\$3.50	\$2,608.00
6	EMBANKMENT	174	CY	\$5.00	\$870.00
7	ROADWAY RECONSTRUCTION	240	SF	\$3.75	\$900.00
8	MANHOLE	3	EA	\$4,200.00	\$12,600.00
9	DITCH BOTTOM INLET	3	EA	\$2,500.00	\$7,500.00
10	MITERED END SECTION	1	EA	\$2,000.00	\$2,000.00
11	PIPE CULVERT REINFORCED CONCRETE, 6-24"	884	LF	\$51.00	\$38,384.00
12	PERFORMANCE TURF, SOD	1,844	SY	\$2.00	\$3,688.00

CONSTRUCTION SUBTOTAL	\$78,400.00
28% CONTINGENCY	\$18,600.00
CONSTRUCTION TOTAL	\$98,000.00
SURVEY	\$4,800.00
GEOTECHNICAL	\$2,900.00
ENGINEERING	\$17,800.00
GRAND TOTAL	\$123,400.00

Notes:

1. Unit Prices based on FDOT Item Average Unit Costs for Area 06 from 03/01/2008 to 02/28/2009.
2. Conceptual Cost Estimate does not include the cost of Right-of-Way Acquisition.



Preliminary Construction Cost Estimate

MAP ID NO. 38 (OPTION 2); COBURN DR. 100' WEST OF FLORIDA AVE.

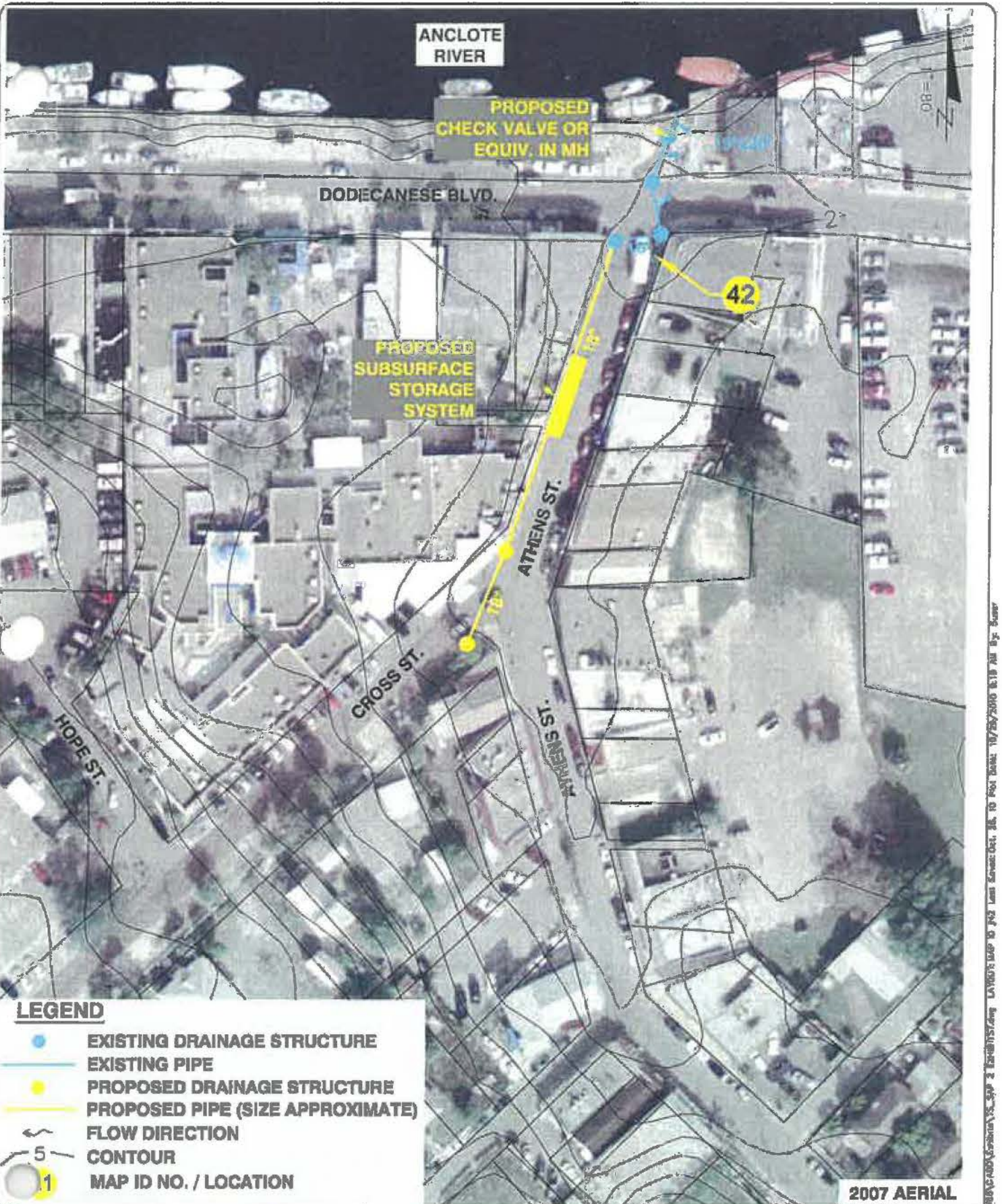
05/13/2010

Bid Item No.	Description	Quantity	Units	Unit Price	Amount
1	MOBILIZATION	1	LS		\$0.00
2	STAKED SILT FENCE, TYPE III	815	LF	\$1.00	\$815.00
3	CLEARING & GRUBBING	0.197	AC	\$8,140.00	\$1,604.00
4	REGULAR EXCAVATION	.381	CY	\$3.50	\$1,334.00
5	DITCH BOTTOM INLET	1	EA	\$2,500.00	\$2,500.00
6	MITERED END SECTION	1	EA	\$2,000.00	\$2,000.00
7	PIPE CULVERT REINFORCED CONCRETE, 0-24"	15	LF	\$51.00	\$765.00
8	SIDEWALK CONCRETE (DRIVEWAY REPLACEMENT)	171	SY	\$35.00	\$5,985.00
9	PERFORMANCE TURF, BOD	1,090	SY	\$2.00	\$2,180.00

CONSTRUCTION SUBTOTAL	\$17,000.00
20% CONTINGENCY	\$4,300.00
CONSTRUCTION TOTAL	\$21,300.00
SURVEY	\$1,100.00
GEOTECHNICAL	\$600.00
ENGINEERING	\$11,900.00
GRAND TOTAL	\$34,900.00

Notes:

1. Unit Prices based on FDOT Item Average Unit Costs for Area 08 from 03/01/2008 to 02/29/2009.
2. Conceptual Cost Estimate does not include the cost of Right-of-Way Acquisition.



LEGEND

- EXISTING DRAINAGE STRUCTURE
- EXISTING PIPE
- PROPOSED DRAINAGE STRUCTURE
- PROPOSED PIPE (SIZE APPROXIMATE)
- FLOW DIRECTION
- 5' CONTOUR
- 1 MAP ID NO. / LOCATION

PREPARED BY
American
 Consulting Engineers of Florida, LLC
 200 West Ave., South Unit A
 Dunedin, FL 34627
 Phone: (727) 499-5755 Fax: (727) 499-5781
 Certificate of Authorization No. 9502



CITY OF TARPON SPRINGS
 PUBLIC SERVICES DEPARTMENT
 301 E. PINE STREET
 TARPON SPRINGS, FL 34608
 (727) 948-0910

STORMWATER ACTION PLAN - PH II
ATHENS ST. & DODECANESE BLVD.

MAP ID NO.
42
 OPTION 1 OF 2

P:\Projects\42\Map\42_01_01\42_01_01.dwg LAUSD\MAP ID 42 1st Issue.dwg 10/25/2010 8:18 AM B.P. Buser



Preliminary Construction Cost Estimate

MAP ID NO. 42 (OPTION 1): ATHENS ST. & DODECANESE BLVD.

05/13/2010

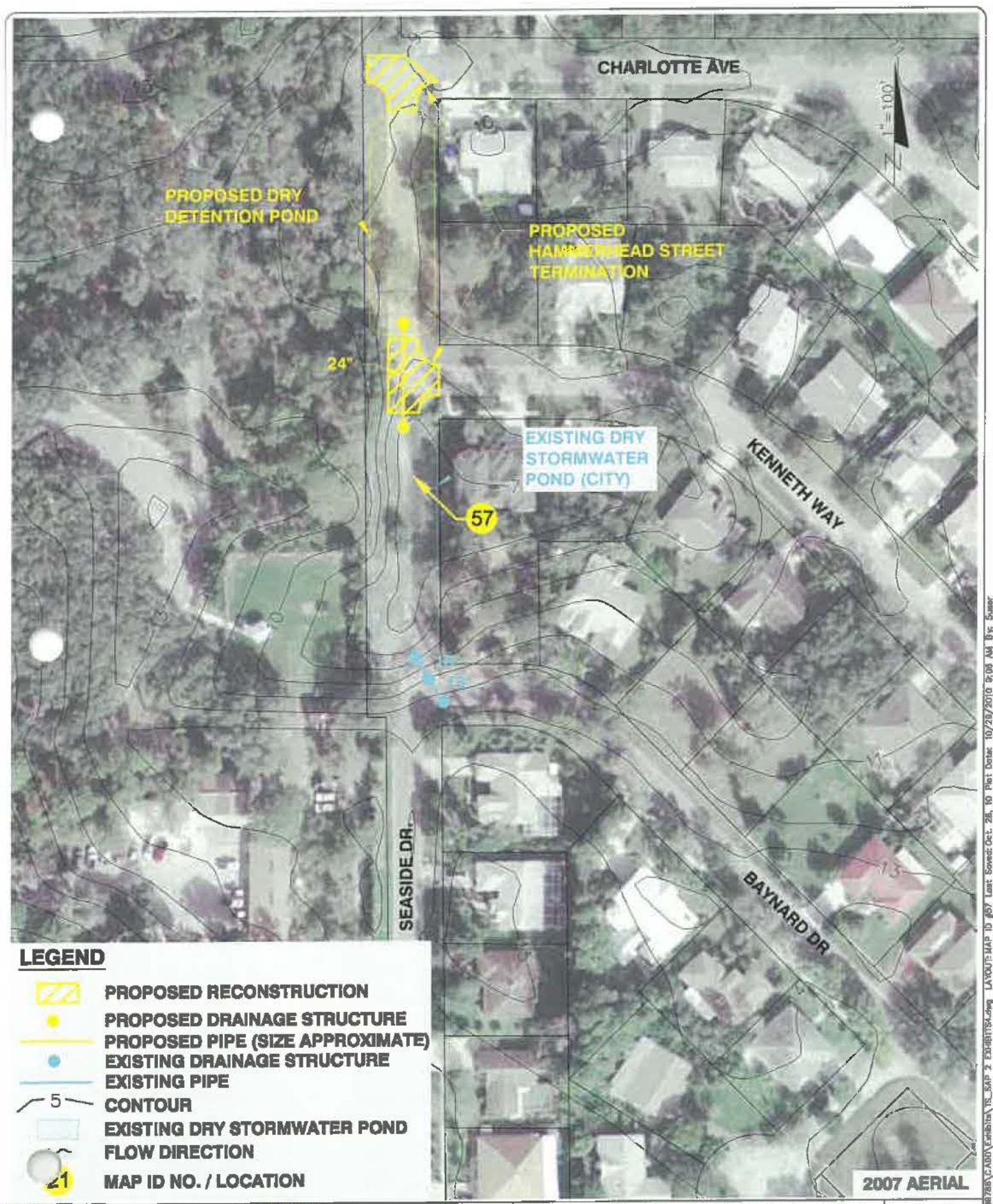
Bid Item No.	Description	Quantity	Units	Unit Price	Amount
1	MOBILIZATION	1	LS	\$5,880.00	\$5,880.00
2	SYNTHETIC BALES	64	LF	\$18.00	\$1,024.00
3	CLEARING & GRUBBING	0.091	AC	\$8,140.00	\$741.00
4	ROADWAY RECONSTRUCTION	3,980	SF	\$3.75	\$14,850.00
5	CURB INLET	2	EA	\$4,500.00	\$9,000.00
6	SUBSURFACE STORAGE SYSTEM	1.00	LS	\$10,000.00	\$10,000.00
7	TIDEFLEX STORMWATER VALVE*	1.00	EA	\$2,500.00	\$2,500.00
8	PIPE CULVERT REINFORCED CONCRETE, 0-24"	220	LF	\$51.00	\$11,220.00
9	CONCRETE CURB	275	LF	\$15.00	\$4,125.00
10	SIDEWALK CONCRETE	153	SY	\$35.00	\$5,355.00

*Tidflex technologies (www.tidflex.com)

CONSTRUCTION SUBTOTAL	\$64,760.00
25% CONTINGENCY	\$16,200.00
CONSTRUCTION TOTAL	\$80,960.00
SURVEY	\$4,000.00
GEOTECHNICAL	\$2,400.00
ENGINEERING	\$17,500.00
GRAND TOTAL	\$106,100.00

Notes:

1. Unit Prices based on FDOT Item Average Unit Costs for Area 06 from 03/01/2009 to 02/28/2009.
2. Conceptual Cost Estimate does not include the cost of Right-of-Way Acquisition.



PROJECT: Y:\2008\785\CADD\Exhibits\57_SAP_2_EXHIBITS.dwg LAYOUT: MAP ID 57 Plot Date: 10/28/2010 8:08 AM By: Suser

LEGEND

- PROPOSED RECONSTRUCTION**
- PROPOSED DRAINAGE STRUCTURE**
- PROPOSED PIPE (SIZE APPROXIMATE)**
- EXISTING DRAINAGE STRUCTURE**
- EXISTING PIPE**
- CONTOUR**
- EXISTING DRY STORMWATER POND**
- FLOW DIRECTION**
- MAP ID NO. / LOCATION**

Prepared by:
American
 Consulting Engineers of Florida, LLC
 288 Pine Ave. North Unit A
 Dade City, FL 34677
 Phone: (727) 498-5733 Fax: (727) 498-5791
 Certificate of Authorization No. 3302

CITY OF TARPON SPRINGS
 PUBLIC SERVICES DEPARTMENT
 304 E. PINE STREET
 TARPON SPRINGS, FL 34689
 (727) 942-5610

STORMWATER ACTION PLAN - PH II
KENNETH WAY & SEASIDE DR.

MAP ID NO.
57
 OPTION 1 OF 2

2007 AERIAL



Preliminary Construction Cost Estimate

MAP ID NO. 57 (OPTION 1): KENNETH WAY & SEASIDE DR.

08/04/2014

Bid Item No.	Description	Quantity	Units	Unit Price	Amount
1	MOBILIZATION	1	LS	\$870.00	\$870.00
2	SYNTHETIC BALES	32	LF	\$16.00	\$512.00
3	STAKED SILT FENCE, TYPE III	66	LF	\$1.00	\$66.00
4	CLEARING & GRUBBING	0.010	AC	\$23,362.09	\$234.00
5	DITCH BOTTOM INLET	1	EA	\$2,862.62	\$2,863.00
6	MITERED END SECTION	1	EA	\$2,000.00	\$2,000.00
7	PIPE CULVERT REINFORCED CONCRETE, 0-24"	38	LF	\$57.08	\$2,214.00
8	PERFORMANCE TURF, SOD	44	SY	\$3.13	\$138.00

CONSTRUCTION SUBTOTAL	\$8,900.00
25% CONTINGENCY	\$2,200.00
CONSTRUCTION TOTAL	\$11,100.00
SURVEY	\$800.00
GEOTECHNICAL	\$300.00
ENGINEERING	\$9,300.00
GRAND TOTAL	\$21,300.00

Notes:

1. Unit Prices based on FDOT Item Average Unit Costs for Area 08 from 03/01/2008 to 02/28/2009.
2. Conceptual Cost Estimate does not include the costs of Right-of-Way Acquisition or Permitting.



Stormwater Action Plan - Phase II

Preliminary Construction Cost Estimate

MAP ID NO. 71 (OPTION 1): RIVERSIDE DR. & HILLSIDE DR.

06/13/2010

Bid Item No.	Description	Quantity	Units	Unit Price	Amount
1	MOBILIZATION	1	LS	\$8,308.00	\$8,308.00
2	SYNTHETIC BALES	98	LF	\$16.00	\$1,568.00
3	STAKED SILT FENCE, TYPE III	662	LF	\$1.00	\$662.00
4	CLEARING & GRUBBING	0.155	AC	\$8,140.00	\$1,262.00
5	ROADWAY RECONSTRUCTION	6,744	SF	\$3.75	\$25,290.00
6	DITCH BOTTOM INLET	2	EA	\$2,500.00	\$5,000.00
7	PIPE CULVERT REINFORCED CONCRETE, 0-24"	552	LF	\$51.00	\$28,162.00
8	PERFORMANCE TURF, 800	375	SY	\$2.00	\$750.00

CONSTRUCTION SUBTOTAL	\$69,406.00
28% CONTINGENCY	\$17,406.00
CONSTRUCTION TOTAL	\$86,800.00
SURVEY	\$4,300.00
GEOTECHNICAL	\$2,800.00
ENGINEERING	\$15,800.00
GRAND TOTAL	\$119,300.00

MAP ID NO. 72 (OPTION 1): 1314 RIVERSIDE DR.

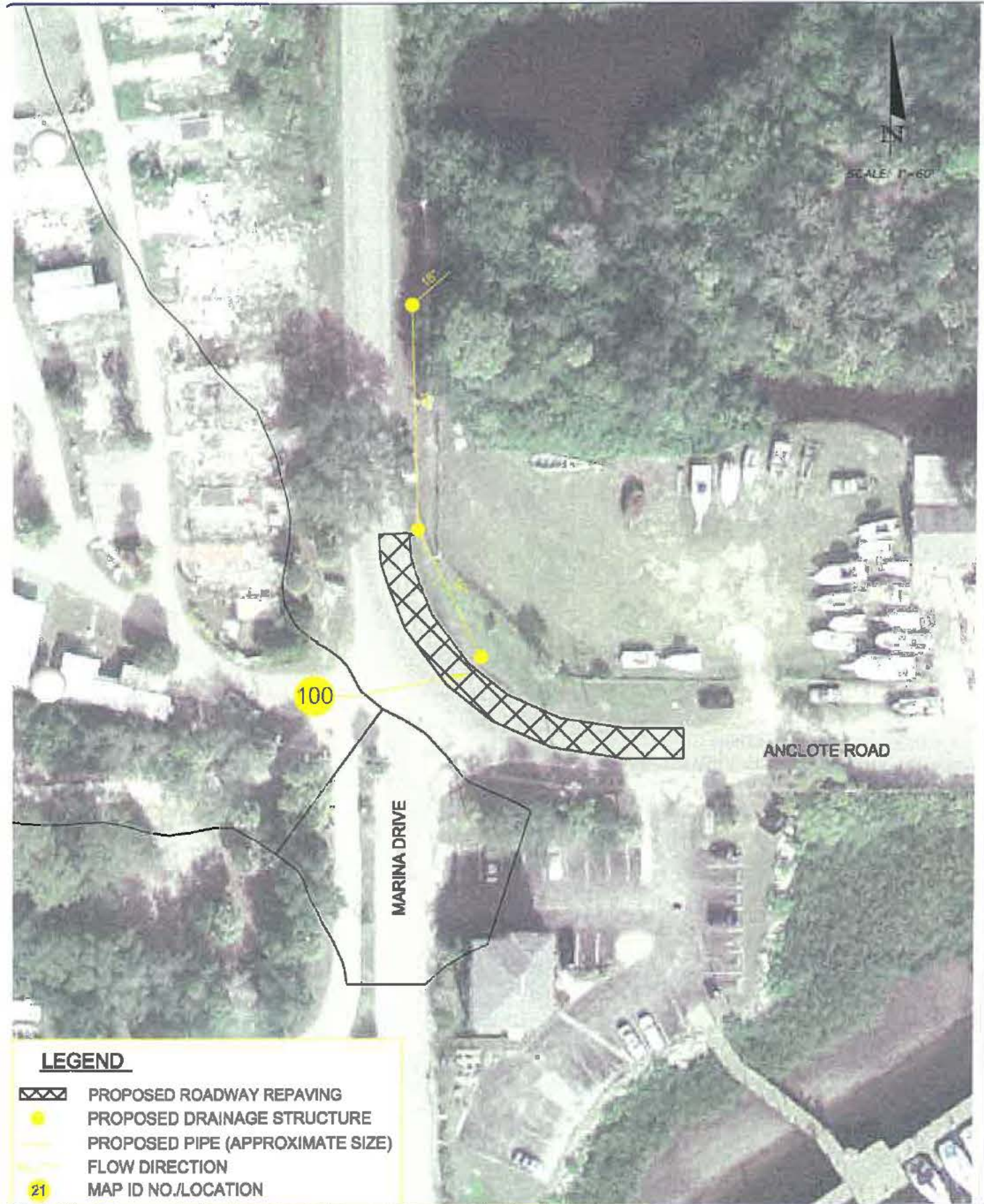
06/13/2010

Bid Item No.	Description	Quantity	Units	Unit Price	Amount
1	MOBILIZATION	1	LS	\$890.00	\$890.00
2	SYNTHETIC BALES	64	LF	\$19.00	\$1,224.00
3	STAKED SILT FENCE, TYPE III	20	LF	\$1.00	\$20.00
4	CLEARING & GRUBBING	0.007	AC	\$8,140.00	\$57.00
5	ROADWAY RECONSTRUCTION	288	SF	\$3.75	\$1,080.00
6	INLET MODIFICATION	1	LS	\$1,000.00	\$1,000.00
7	DITCH BOTTOM INLET	1	EA	\$2,500.00	\$2,500.00
8	PIPE CULVERT REINFORCED CONCRETE, 0-24"	24	LF	\$51.00	\$1,224.00
9	PERFORMANCE TURF, 800	13	SY	\$2.00	\$26.00






CONSTRUCTION SUBTOTAL	\$7,800.00
28% CONTINGENCY	\$1,900.00
CONSTRUCTION TOTAL	\$9,600.00
SURVEY	\$600.00
GEOTECHNICAL	\$300.00
ENGINEERING	\$5,000.00
GRAND TOTAL	\$16,300.00

Notes:

- Unit Prices based on FDOT Item Average Unit Costs for Area 08 from 03/01/2008 to 02/28/2009.
- Conceptual Cost Estimate does not include the cost of Right-of-Way Acquisition.



LEGEND

-  PROPOSED ROADWAY REPAVING
-  PROPOSED DRAINAGE STRUCTURE
-  PROPOSED PIPE (APPROXIMATE SIZE)
-  FLOW DIRECTION
-  MAP ID NO./LOCATION

Stantec
 3205 North 20th Street
 Tampa, FL 33605
 Phone: (813) 239-0800 Fax: (813) 239-0098
 Certificate of Accreditation No. 2713



CITY OF TARPON SPRINGS
 PUBLIC SERVICES DEPARTMENT
 324 E. PINE STREET
 TARPON SPRINGS, FL 34689
 (727) 942-5810

STORMWATER ACTION PLAN - PH II
INTERSECTION OF MARINA DRIVE & ANCLOTE RD.

MAP ID NO.
100
 OPTION 1 OF 2



Preliminary Construction Cost Estimate

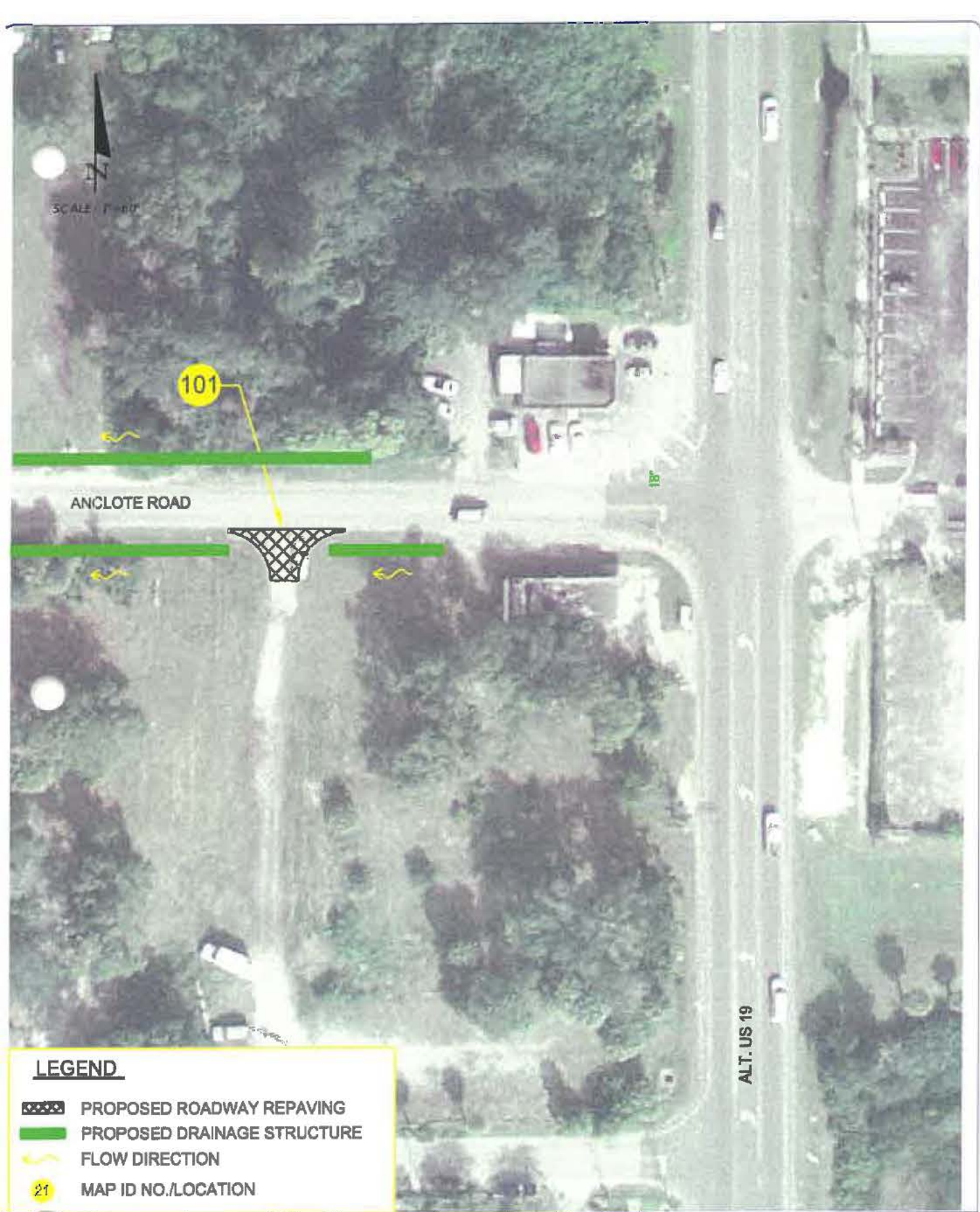
MAP ID NO. 14-1 (OPTION 1): Marina Drive and Ancote Road

09/03/2014





Bid Item No.	Description	Quantity	Units	Unit Price	Amount
1	MOBILIZATION	1	LS	\$2,800.00	\$2,800.00
2	STAKED SILT FENCE, TYPE III	285	LF	\$1.00	\$285.00
3	CLEARING & GRUBBING	0.064	AC	\$23,362.09	\$1,485.00
4	MILLING & RESURFACING (1" AVG. DEPTH)	287	SY	\$1.69	\$485.00
5	STRUCTURE COURSE	22	TN	\$450.84	\$9,914.00
6	DITCH BOTTOM INLET TYPE "C"	1	EA	\$2,230.17	\$2,230.00
7	MANHOLE TYPE "P-8"	1	EA	\$2,986.19	\$2,986.00
8	18" PIPE CULVERT	130	LF	\$46.43	\$6,036.00
9	18" MES	1	EA	\$2,800.00	\$2,800.00
10	STRIPING DBL 6" YELLOW	200	LF	\$1.91	\$382.00
11	STRIPING SINGLE 6" WHITE	200	LF	\$0.84	\$168.00
12	PERFORMANCE TURF, SOG	122	SY	\$3.19	\$382.00
CONSTRUCTION SUBTOTAL					\$29,200.00
25% CONTINGENCY					\$7,300.00
CONSTRUCTION TOTAL					\$36,500.00
SURVEY					\$1,800.00
GEOTECHNICAL ENGINEERING					\$1,400.00
GRAND TOTAL					\$39,700.00

Notes:

- Unit Prices based on FDOT Item Average Unit Costs for Area 08 from 08/01/2013 to 07/31/2014.
- Conceptual Cost Estimate does not include the costs of Right-of-Way Acquisition or Permitting.



LEGEND

-  PROPOSED ROADWAY REPAVING
-  PROPOSED DRAINAGE STRUCTURE
-  FLOW DIRECTION
-  MAP ID NO./LOCATION

Stantec
 2205 North 20th Street
 Tampa, FL 34605
 Phone: (813) 225-8800 Fax: (813) 225-8000
 Equal Opportunity Employer M/F/V

 **CITY OF TARPON SPRINGS**
 PUBLIC SERVICES DEPARTMENT
 324 E. PINE STREET
 TARPON SPRINGS, FL 34688
 (727) 942-5810

STORMWATER ACTION PLAN - PH II
INTERSECTION OF
ALT. US 19 & ANCLOTE RD.

MAP ID NO.
101
 OPTION 2 OF 2



Preliminary Construction Cost Estimate

MAP ID NO. 14-2 (OPTION 2): ALT. 19 and Anclole Road

09/03/2014

Bid Item No.	Description	Quantity	Units	Unit Price	Amount
1	MOBILIZATION	1	LS	\$1,260.00	\$1,260.00
2	STAKED SILT FENCE, TYPE III	100	LF	\$1.00	\$100.00
3	CLEARING & GRUBBING	0.037	AC	\$23,362.09	\$884.00
4	MILLING & RESURFACING (1" AVG. DEPTH)	534	SY	\$1.69	\$902.00
5	OPTIONAL BASE GROUP	133	SY	\$22.94	\$3,059.00
6	STRUCTURE COURSE	11	TN	\$450.64	\$4,957.00
9	REGULAR EXCAVATION	210	CY	\$3.82	\$802.00
10	STRIPING DBL 6" YELLOW	200	LF	\$1.91	\$382.00
11	STRIPING SINGLE 6" WHITE	200	LF	\$0.84	\$168.00
12	PERFORMANCE TURF, SOD	122	SY	\$3.13	\$382.00
CONSTRUCTION SUBTOTAL					\$12,940.00
25% CONTINGENCY					\$3,260.00
CONSTRUCTION TOTAL					\$16,100.00
SURVEY					\$600.00
GEOTECHNICAL					\$600.00
ENGINEERING					\$7,300.00
GRAND TOTAL					\$24,890.00

Notes:

- 1. Unit Prices based on FDOT Item Average Unit Costs for Area 08 from 06/01/2013 to 07/31/2014.
- 2. Conceptual Cost Estimate does not include the costs of Right-of-Way Acquisition or Permitting.



LEGEND

- PROPOSED DRAINAGE SWALE
- PROPOSED DRAINAGE STRUCTURE
- PROPOSED PIPE (APPROXIMATE SIZE)
- PROPOSED SHOULDER GUTTER
- FLOW DIRECTION
- 21 MAP ID NO./LOCATION



 2288 Worin 20th Street
 Tampa, FL 34608
 Phone: (813) 223-8800 Fax: (813) 223-6000
 Certificate of Authorization No. 22813



 CITY OF TARPON SPRINGS
 PUBLIC SERVICES DEPARTMENT
 324 E. PINE STREET
 TARPON SPRINGS, FL 34689
 (727) 942-6610

STORMWATER ACTION PLAN - PH II
INTERSECTION OF
MANGO STREET AND MANGO CIRCLE

MAP ID NO.
102
 OPTION 2 OF 2



Preliminary Construction Cost Estimate

MAP ID NO. 14-3 (OPTION 2): Mango Street and Mango Circle

08/03/2014

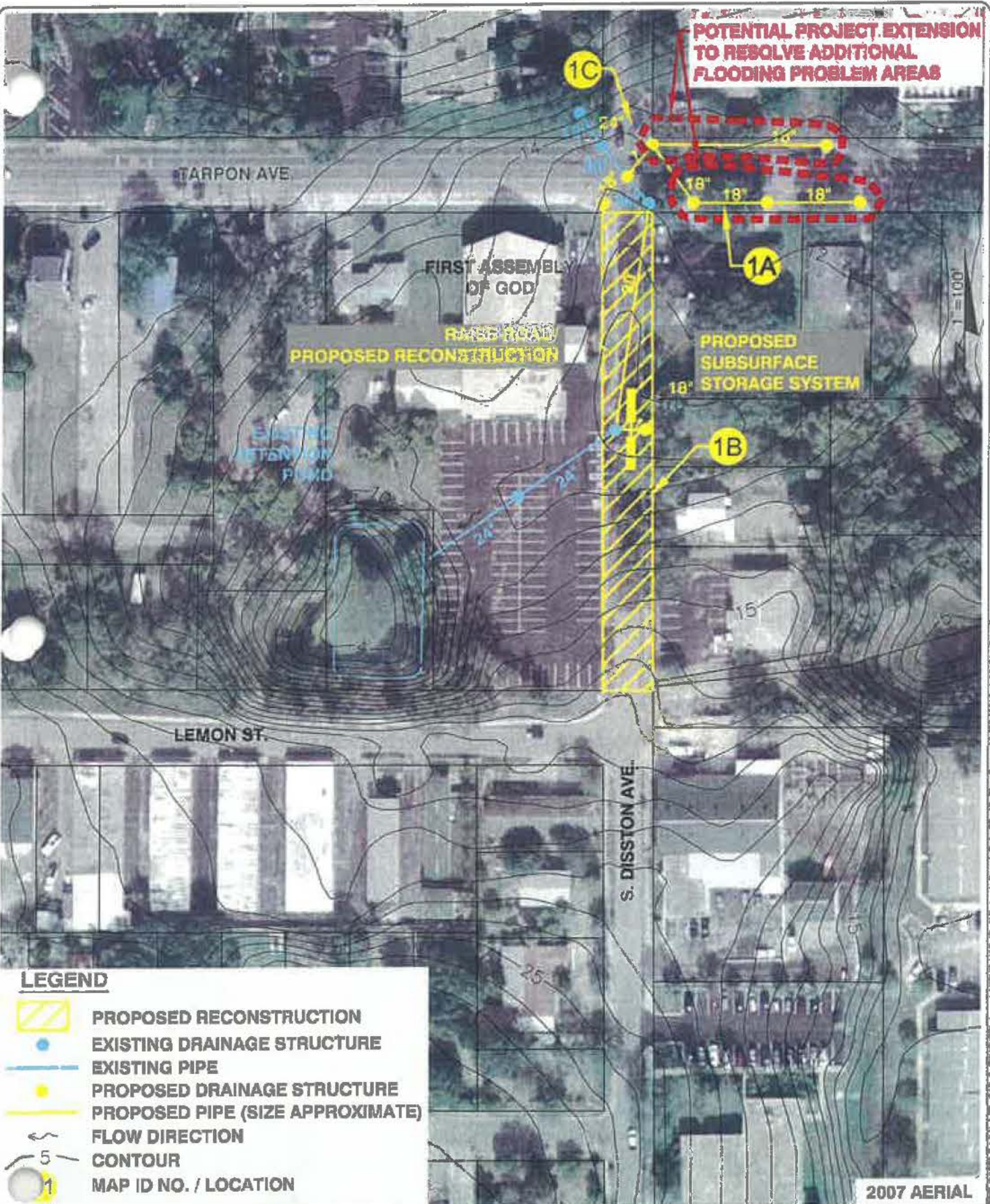
Bid Item No.	Description	Quantity	Units	Unit Price	Amount
1	MOBILIZATION	1	LS	\$3,160.00	\$3,160.00
2	STAKED SILT FENCE, TYPE III	70	LF	\$1.00	\$70.00
3	CLEARING & GRUBBING	0.018	AC	\$23,362.09	\$374.00
4	SHOULDER GUTTER - CONCRETE	450.0	LF	\$19.17	\$8,627.00
5	DITCH BOTTOM INLET TYPE 'C'	2	EA	\$2,230.17	\$4,460.00
6	18" PIPE CULVERT	250	LF	\$48.49	\$11,808.00
7	18" (1:4) MEB	1	EA	\$2,000.00	\$2,000.00
8	MISCELLANEOUS CONCRETE - SPILLWAYS	6	CY	\$90.00	\$460.00
9	PERFORMANCE TURF, SOD	240	SY	\$3.19	\$751.00
CONSTRUCTION SUBTOTAL					\$81,580.00
25% CONTINGENCY					\$7,900.00
CONSTRUCTION TOTAL					\$89,480.00
SURVEY					\$2,000.00
GEOTECHNICAL					\$1,500.00
ENGINEERING					\$17,500.00
GRAND TOTAL					\$110,480.00

Notes:









- Unit Prices based on FDOT Item Average Unit Costs for Area 08 from 08/01/2013 to 07/31/2014.
- Conceptual Cost Estimate does not include the costs of Right-of-Way Acquisition or Permitting.

Appendix D

Completed/Constructed Projects



LEGEND

-  PROPOSED RECONSTRUCTION
-  EXISTING DRAINAGE STRUCTURE
-  EXISTING PIPE
-  PROPOSED DRAINAGE STRUCTURE
-  PROPOSED PIPE (SIZE APPROXIMATE)
-  FLOW DIRECTION
-  CONTOUR
-  MAP ID NO. / LOCATION

2007 AERIAL

PROJECT: C:\Users\jgibson\Documents\GIS\Map 1B\Map 1B.dwg
 DRAWN BY: jgibson
 CHECKED BY: jgibson
 DATE: 10/28/2010 4:16 PM

American
 Consulting Engineers of Florida, LLC
 268 Pile Ave, North Unit A
 Odessa, FL 34912
 Phone: (727) 489-8750 Fax: (727) 489-8751
 Certificate of Authorization No. 6909



CITY OF TARPON SPRINGS
 PUBLIC SERVICES DEPARTMENT
 304 E. PINE STREET
 TARPON SPRINGS, FL 34689
 (727) 963-6610

STORMWATER ACTION PLAN - PH II
DISSTON AVE.
SOUTH OF TARPON AVE.

MAP ID NO.
1B
 OPTION 1 OF 1

Map ID No. 1B - Disston Avenue (south of Tarpon Drive)

Problem:

Site is located in a depression in a closed drainage basin. Stormwater infrastructure is in place with curb inlets collecting and discharging to the City-owned stormwater pond. The City-owned stormwater pond has no positive outfall. There is significant flooding along Disston Ave. which occurs frequently and causes the road to be impassable. The flooding appears to be caused by the pond being undersized for the volume of runoff it receives and having no positive outfall or the elevation of Disston Ave. is too low.

Conceptual Solution(s):

Option 1

To alleviate the flooding occurring along Disston Ave. based on the runoff generated from the 2-year, 24-hour storm event this conceptual solution would require raising the road to elevation 11.10 feet (NAVD 88 - Profile Grade Line) as indicated in the Tarpon Ave./Disston Ave. SMF Evaluation that American provided to the City on January 28th, 2010. This would require elevating the roadway a maximum of 2 feet at the roadway low point. Additional flood storage volume may be required to be added below the roadway in a pipe/vault system. In addition to raising the road this conceptual solution would involve installing new inlets at the Tarpon Ave. and Disston Ave. intersection to resolve flood problem area Map ID No. 1A - Tarpon Avenue (at Disston Ave. within Tarpon Ave. ROW) (see above for description of problem). This conceptual solution will also address the flooding occurring at the northwest corner of the Tarpon Ave. and Disston Ave. intersection, Map ID No. 1C, which was identified during a previous review of *Drainage flooding Complaint Inventory Sheet*, dated November 10, 2009 (Drainage Report) prepared by the Florida Department of Transportation (FDOT). New inlets are also proposed for the sag location along Disston Ave. and the new storm drain system would connect into the existing 24-inch RCP outfall pipe that discharges into the existing stormwater pond.



Preliminary Construction Cost Estimate

MAP ID NO. 1B: DISSTON AVE. SOUTH OF TARPON AVE.

09/04/2014

Bid Item No.	Description	Quantity	Units	Unit Price	Amount
1	MOBILIZATION	1	LS	\$12,760.00	\$12,760.00
2	SYNTHETIC BALES	32	LF	\$16.00	\$512.00
3	STAKED SILT FENCE, TYPE III	770	LF	\$1.00	\$770.00
4	CLEARING & GRUBBING	0.863	AC	\$23,382.09	\$20,147.00
5	EMBANKMENT	570	CY	\$4.86	\$2,762.00
6	ROADWAY RECONSTRUCTION	9,240	SF	\$3.75	\$34,650.00
7	MANHOLE	1	EA	\$4,200.00	\$4,200.00
8	CURB INLET	1	EA	\$5,706.33	\$5,706.00
9	SUBSURFACE STORAGE SYSTEM	1	LS	\$10,000.00	\$10,000.00
10	PIPE CULVERT REINFORCED CONCRETE, 0-24"	30	LF	\$67.08	\$2,012.00
11	PIPE CULVERT REINFORCED CONCRETE, 25-36"	175	LF	\$138.14	\$24,175.00
12	CONCRETE CURB	770	LF	\$16.70	\$12,859.00
13	SIDEWALK CONCRETE	213	SY	\$40.71	\$8,671.00
14	PERFORMANCE TURF, 80D	171	SY	\$3.13	\$536.00

CONSTRUCTION SUBTOTAL	\$127,900.00
25% CONTINGENCY	\$32,000.00
CONSTRUCTION TOTAL	\$159,900.00
SURVEY	\$8,000.00
GEOTECHNICAL ENGINEERING	\$4,800.00
GRAND TOTAL	\$201,500.00

MAP ID NO. 1C: TARPON AVE. AT DISSTON AVE. WITHIN TARPON AVE. ROW

09/04/2014

Bid Item No.	Description	Quantity	Units	Unit Price	Amount
1	MOBILIZATION	1	LS	\$4,170.00	\$4,170.00
2	SYNTHETIC BALES	64	LF	\$16.00	\$1,024.00
3	STAKED SILT FENCE, TYPE III	135	LF	\$1.00	\$135.00
4	CLEARING & GRUBBING	0.045	AC	\$23,382.09	\$1,051.00
5	ROADWAY RECONSTRUCTION	1,980	SF	\$3.75	\$7,425.00
6	CURB INLET	2	EA	\$5,706.33	\$11,413.00
7	PIPE CULVERT REINFORCED CONCRETE, 0-24"	165	LF	\$67.08	\$11,068.00
8	CONCRETE CURB	135	LF	\$16.70	\$2,255.00
9	SIDEWALK CONCRETE	75	SY	\$40.71	\$3,053.00
10	PERFORMANCE TURF, 80D	50	SY	\$3.13	\$156.00

CONSTRUCTION SUBTOTAL	\$41,600.00
25% CONTINGENCY	\$10,600.00
CONSTRUCTION TOTAL	\$52,200.00
SURVEY	\$2,600.00
GEOTECHNICAL ENGINEERING	\$1,600.00
GRAND TOTAL	\$65,900.00

MAP ID NO. 1A: TARPON AVE. AT DISSTON AVE. WITHIN TARPON AVE. ROW

09/04/2014

Bid Item No.	Description	Quantity	Units	Unit Price	Amount
1	MOBILIZATION	1	LS	\$4,680.00	\$4,680.00
2	SYNTHETIC BALES	98	LF	\$16.00	\$1,568.00
3	STAKED SILT FENCE, TYPE III	120	LF	\$1.00	\$120.00
4	CLEARING & GRUBBING	0.047	AC	\$23,382.09	\$1,098.00
5	ROADWAY RECONSTRUCTION	2,040	SF	\$3.75	\$7,650.00
6	CURB INLET	3	EA	\$5,706.33	\$17,119.00
7	PIPE CULVERT REINFORCED CONCRETE, 0-24"	170	LF	\$67.08	\$11,404.00
8	CONCRETE CURB	120	LF	\$16.70	\$2,004.00
9	PERFORMANCE TURF, 80D	80	SY	\$3.13	\$250.00

CONSTRUCTION SUBTOTAL	\$45,700.00
25% CONTINGENCY	\$11,400.00
CONSTRUCTION TOTAL	\$57,100.00
SURVEY	\$2,900.00
GEOTECHNICAL ENGINEERING	\$1,700.00
GRAND TOTAL	\$72,600.00

Notes:

- Unit Prices based on FDOT Item Average Unit Costs for Area 08 from 03/01/2008 to 02/28/2009.
- Conceptual Cost Estimate does not include the costs of Right-of-Way Acquisition or Permitting.



LEGEND

- PROPOSED DRAINAGE STRUCTURE
- PROPOSED POND EXPANSION
- 5 CONTOUR
- 3 MAP ID NO. / LOCATION

American
 Consulting Engineers of Florida, LLC
 855 Pine Ave, North Unit A
 Dunedin, FL 34627
 Phone: (727) 499-8780 Fax: (727) 499-8781
 Certificate of Authorization No. 8303

CITY OF TARPON SPRINGS
 PUBLIC SERVICES DEPARTMENT
 801 E. PINE STREET
 TARPON SPRINGS, FL 34689
 (727) 943-8810

STORMWATER ACTION PLAN - PH II
WALTON AVE.
BETWEEN TARPON AVE. & LIME ST.

MAP ID NO.
3
 OPTION 2 OF 2

2007 AERIAL
 DATE: 10/26/2010 6:38 AM
 MAP ID: 3
 PROJECT: WALTON AVE. RCP & POND EXPANSION

Map ID No. 3 - Walton Ave. between Tarpon Ave. & Lime St.

Problem:

Flooding is occurring on Walton Ave. adjacent to a City-owned stormwater pond. Dames and Moore Master Drainage Study Phase I and II noted that the City-owned pond may be undersized.

Conceptual Solution(s):

Option 1

This conceptual solution would involve expanding the existing pond to the north into the vacant lot. The expansion could provide flooding relief for Walton Ave. in addition to providing additional water quality treatment. Further analysis would be required to determine whether the additional volume provided by this expansion would provide flooding relief for Walton Ave. This expansion would require a property acquisition from the First National Bank.

Option 2

This conceptual solution would involve expanding the existing pond to the east into the existing right-of-way for Lemon St. The expansion could provide flooding relief for Walton Ave. in addition to providing additional water quality treatment. Further analysis would be required to determine whether the additional volume provided by this expansion would provide flooding relief for Walton Ave. This expansion would not require property acquisition.



Stormwater Action Plan - Phase II

Preliminary Construction Cost Estimate

MAP ID NO. 3 (OPTION 2): WALTON AVE. BETWEEN TARPON AVE. & LIME ST.

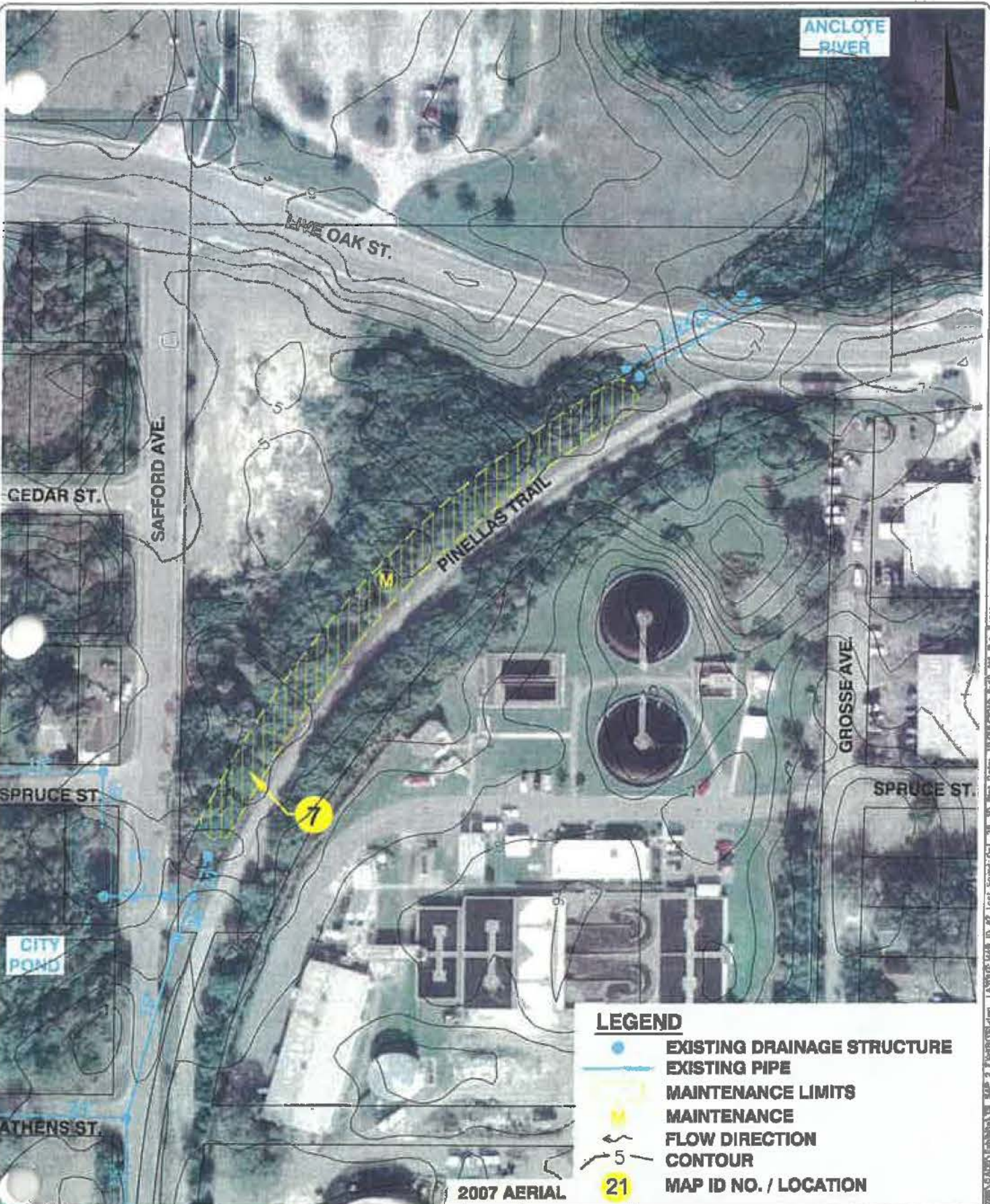
06/13/2010

Bid Item No.	Description	Quantity	Units	Unit Price	Amount
1	MOBILIZATION	1	LS	\$5,122.00	\$5,122.00
2	STAKED SILT FENCE, TYPE III	1,121	LF	\$1.00	\$1,121.00
3	CLEARING & GRUBBING	0.592	AC	\$8,140.00	\$4,819.00
4	POND EXCAVATION	3,818	CY	\$3.50	\$13,363.00
5	CURB INLET	1	EA	\$4,800.00	\$4,800.00
6	MITERED END SECTION	1	EA	\$2,000.00	\$2,000.00
7	PIPE CULVERT REINFORCED CONCRETE, 25-36"	25	LF	\$357.00	\$1,875.00
8	FENCING, TYPE B	1,098	LF	\$15.00	\$16,020.00
9	FENCE GATE, TYPE B	1	EA	\$2,000.00	\$2,000.00
10	PERFORMANCE TURF, SOD	2,883	SY	\$2.00	\$5,728.00

CONSTRUCTION SUBTOTAL	\$56,500.00
20% CONTINGENCY	\$14,100.00
CONSTRUCTION TOTAL	\$70,600.00
SURVEY	\$3,500.00
GEOTECHNICAL	\$2,100.00
ENGINEERING	\$27,000.00
GRAND TOTAL	\$103,000.00

Notes:

1. Unit Prices based on FDOT Item Average Unit Costs for Area 08 from 03/01/2009 to 02/25/2009.
2. Conceptual Cost Estimate does not include the cost of Right-of-Way Acquisition.



- LEGEND**
- EXISTING DRAINAGE STRUCTURE
 - EXISTING PIPE
 - MAINTENANCE LIMITS
 - M MAINTENANCE
 - ← FLOW DIRECTION
 - 5 CONTOUR
 - 7 MAP ID NO. / LOCATION

2007 AERIAL

PREPARED BY: American Consulting Engineers of Florida, LLC
 200 Pine Ave., North Unit A
 Odessa, FL 34677
 Phone: (737) 498-8780 Fax: (737) 498-8781
 Certificate of Authorization No. 0902

American
 Consulting Engineers of Florida, LLC
 200 Pine Ave., North Unit A
 Odessa, FL 34677
 Phone: (737) 498-8780 Fax: (737) 498-8781
 Certificate of Authorization No. 0902



CITY OF TARPON SPRINGS
 PUBLIC SERVICES DEPARTMENT
 200 W. PINE STREET
 TARPON SPRINGS, FL 34689
 (737) 948-0910

STORMWATER ACTION PLAN - PH II
OUTFALL
AT PINELLAS TRAIL & SPRUCE ST.

MAP ID NO.
7
 OPTION 1 OF 1

Map ID No. 7 - Outfall ditch located on the northwest side of the Pinellas Trail across from Spruce St. and Safford Avenue.

Problem:

This outfall ditch serves the stormwater collection systems on Spruce St., Safford Ave., Athens St., Pine St., US Alt. 19, and W. Park St. There are 4 flooding areas that discharge to this outfall, Map ID No. 8 – US Alt. 19 & Spruce St., Map ID No. 18 – Hibiscus St. & Park St., Map ID No. 26 – Tarpon Ave. and Safford Ave., and Map ID No. 27 – Pine St. and Safford Ave. The outfall ditch has a large amount of non-native vegetation, debris, and silt.

Conceptual Solution(s):

Option 1

This conceptual solution would involve removing non-native vegetation and debris from the existing outfall ditch. Re-grading the ditch banks and widening the ditch bottom would improve flow conditions through the ditch to the 2 – 5' X 10' box culverts under Live Oak St. and into the Anclote River.



Stormwater Action Plan - Phase II

Preliminary Construction Cost Estimate

MAP ID NO. 7 (OPTION 1): OUTFALL AT PINELLAS TRAIL & SPRUCE ST.

06/13/2010

Bid Item No.	Description	Quantity	Units	Unit Price	Amount
1	MOBILIZATION	1	LS	\$914.00	\$914.00
2	STAKED SILT FENCE, TYPE III	1,280	LF	\$1.00	\$1,280.00
3	CLEARING & GRUBBING	0.441	AC	\$8,140.00	\$3,590.00
4	PERFORMANCE TURF, SOD	2,133	SY	\$2.00	\$4,266.00

CONSTRUCTION SUBTOTAL	\$10,100.00
28% CONTINGENCY	\$2,800.00
CONSTRUCTION TOTAL	\$12,900.00
SURVEY	\$1,000.00
ENGINEERING	\$10,000.00
GRAND TOTAL	\$23,600.00

Notes:

1. Unit Prices based on FDOT Item Average Unit Costs for Area 08 from 03/01/2008 to 02/28/2009.
2. Conceptual Cost Estimate does not include the cost of Right-of-Way Acquisition.

Map ID No. 18 - Hibiscus St. & Park St.

Problem:

According to the Dames and Moore Master Drainage Study Phase II this intersection is experiencing severe street and yard flooding. Low point is located just north of the Park St. intersection on Hibiscus St. The infrastructure at this intersection collects and conveys the runoff to the north to Athens St. where according to the Dames and Moore Master Drainage Study Phase I there is a crushed 18-inch clay pipe. Flooding at this intersection could be a result of or combination of the following: the crushed 18-inch clay pipe, inadequate inlets at the intersection, ineffective flow through the outfall ditch (Map ID No. 7) at the Pinellas Trail, and high tides at the Anclote River.

Conceptual Solution(s):

Option 1

Prior to any design an inspection of the existing downstream system is suggested to identify any crushed pipes or severe blockage of the storm sewer system. If there are obstructions these would require repair or replacement. Replacing the two existing inlets located on Hibiscus St. just north of the intersection of Hibiscus St. and Park St. is recommended to provide higher inlet capacity to assist in alleviating the flooding occurring at this location. According to City staff the 15-inch culvert located along Park St. was plugged for installation of a water main. Two inlets with a storm sewer conveyance system tying into the existing storm drain system at the intersection of Hibiscus St. and Park St. is also suggested to assist in alleviating the flooding occurring at this location. The downstream capacity of the existing storm sewer system may also need to be analyzed to ensure no additional improvements are required.

Additional Notes (Map ID No. 18):

Inadequate discharge through the outfall ditch (Map ID No. 7) along the Pinellas Trail in combination with tidal influences from the Anclote River could also be impacting the conveyance ability and capacity of this existing system. A more detailed analysis of this existing system is recommended.



Preliminary Construction Cost Estimate

MAP ID NO. 18: HIBISCUS ST. AND PARK ST.

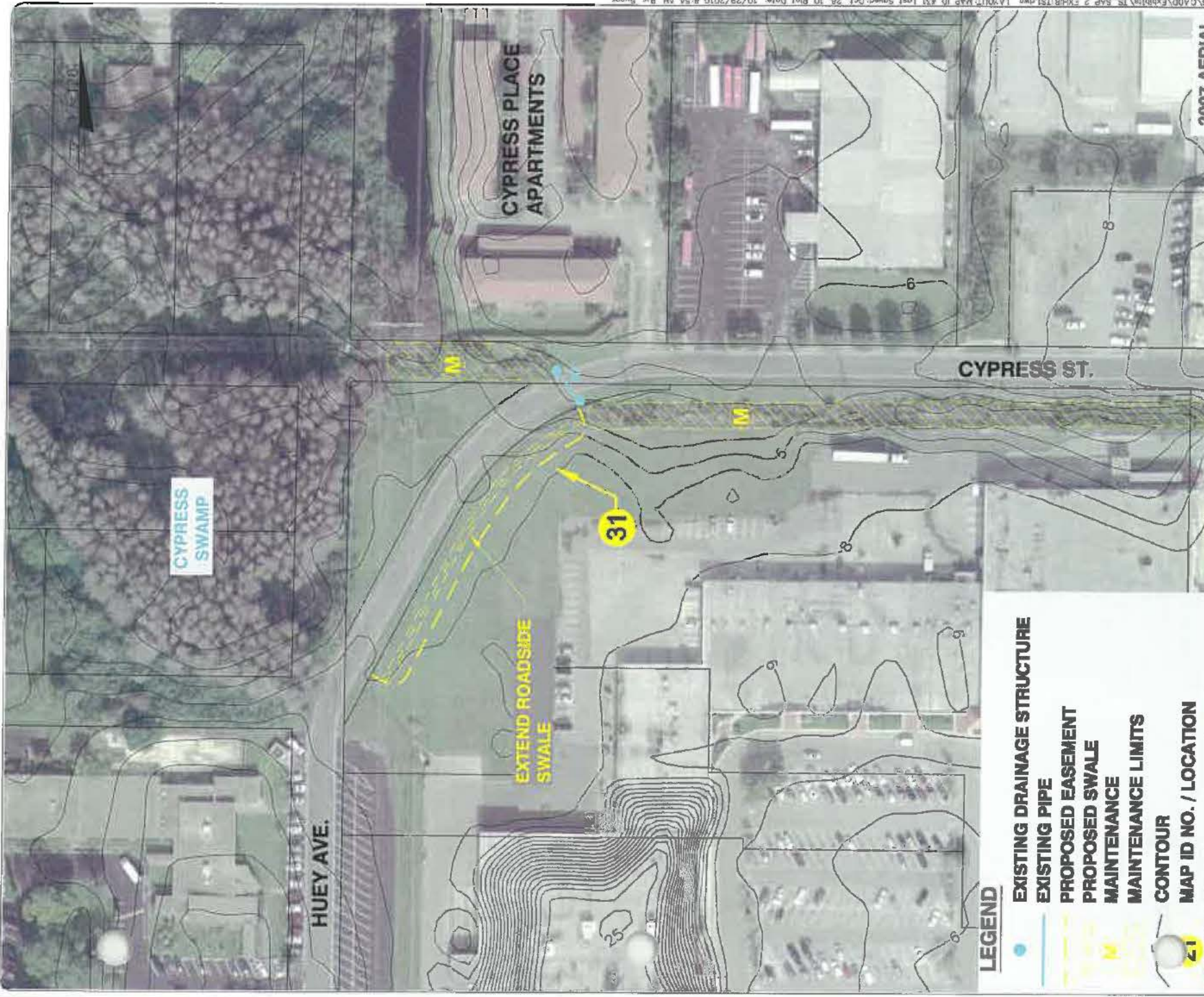
06/13/2010

Bid Item No.	Description	Quantity	Units	Unit Price	Amount
1	MOBILIZATION	1	LS	\$3,460.00	\$3,460.00
2	SYNTHETIC BALES	128	LF	\$16.00	\$2,048.00
3	STAKED SILT FENCE, TYPE III	178	LF	\$1.00	\$178.00
4	CLEARING & GRUBBING	0.051	AC	\$8,140.00	\$415.00
5	ROADWAY RECONSTRUCTION	2,232	SF	\$3.75	\$8,370.00
6	DITCH BOTTOM INLET	2	EA	\$2,500.00	\$5,000.00
7	CURB INLET	2	EA	\$4,500.00	\$9,000.00
8	PIPE CULVERT REINFORCED CONCRETE, 0-24"	188	LF	\$51.00	\$9,498.00

CONSTRUCTION SUBTOTAL	\$37,900.00
20% CONTINGENCY	\$9,500.00
CONSTRUCTION TOTAL	\$47,400.00
SURVEY	\$2,400.00
GEOTECHNICAL ENGINEERING	\$1,400.00
ENGINEERING	\$10,000.00
GRAND TOTAL	\$61,200.00

Notes:

1. Unit Prices based on FDOT Item Average Unit Costs for Area 08 from 03/01/2008 to 02/28/2009.
2. Conceptual Cost Estimate does not include the cost of Right-of-Way Acquisition.



F:\PROJECT\3098766\GADD\Exhibit15_SAP 2 EXHIBITSLDwg LAYOUT\MAP ID #31 Last Saved: Oct. 28, 10 Plot Date: 10/29/2016 8:59 AM By: Buser

LEGEND

-  EXISTING DRAINAGE STRUCTURE
-  EXISTING PIPE
-  PROPOSED EASEMENT
-  PROPOSED SWALE
-  MAINTENANCE LIMITS
-  MAINTENANCE LIMITS
-  CONTOUR
-  MAP ID NO. / LOCATION

PREPARED BY:


American
 Consulting Engineers of Florida, LLC
 268 Cisa Ave., North Unit A
 Tarpon Springs, FL 34689
 Phone: (727) 499-8756 Fax: (727) 499-8761
 Certificate of Authorization No. 5302



CITY OF TARPON SPRINGS
 PUBLIC SERVICES DEPARTMENT
 301 E. PINE STREET
 TARPON SPRINGS, FL 34689
 (727) 946-2610

STORMWATER ACTION PLAN - PH II

**HUEY AVE.
NORTH OF TARPON AVE**

2007 AERIAL

MAP ID NO.

31

OPTION 1 OF 1

Map ID No. 31 - Huey Ave. north of Tarpon Ave.

Problem:

During a meeting with City staff on June 23rd, 2009 it was identified that the swale south of the Cypress Place Apartments along Huey Ave. floods causing roadway flooding in the area where there is a 30-inch RCP crossdrain.

Conceptual Solution(s):

Option 1

This conceptual solution would consist of removing non-native vegetation and accumulated sediment from the roadside swale adjacent to Cypress St. and the swale west of Huey Ave. that connects to the existing cypress swamp. This maintenance will provide greater conveyance to the cypress swamp and additional storage volume. In addition to the swale maintenance it is recommended to extend the roadside swale to the south along Huey Ave. to provide additional storage for the runoff generated from Huey Ave. and the adjacent shopping center.

Additional Notes (Map ID No. 31):

A positive outfall location for the cypress swamp could not be identified through field investigation or through the data we have obtained for the Stormwater Action Plan Phase I, nor through the Dames and Moore Master Drainage Study Phases I and II. SWFWMD 1-foot contour maps indicate that the cypress swamp discharges to the east and ultimately into Lake Tarpon. Figure B-3B - Drainage Systems Locations, from the Dames and Moore Master Drainage Study Phase I shows a pipe connecting the roadside swale along Cypress St. to the drainage system that serves the US 19 corridor and ultimately discharges into the FDOT owned stormwater management facility located on the southeast corner of the Oakwood St. and US 19 intersection. Field investigations of this area could not locate this pipe.

FDOT plans for intersection improvements for US 19 with Tarpon Dr. showed a future outlet connection to the cypress swamp however these improvements were never constructed. A drainage map obtained from Pinellas County, that was used in the alum-injection improvements to the FDOT stormwater management facility located on the southeast corner of the Oakwood St. and US 19 intersection, also shows this cypress head as being included in the overall drainage basin area for the FDOT stormwater management facility (and ultimately Lake Tarpon). Given this information, the installation of a control structure and outfall pipe that would discharge to the existing drainage system that serves the US 19 corridor and ultimately discharges into the FDOT owned stormwater management facility would be a conceptual solution for the City to consider. Not only could this control structure reduce the flooding the problem along Huey Ave. but it would provide a positive outfall for the cypress swamp.

Additional storage could also be provided within the small triangular area located between Huey St. and the cypress swamp. A property ownership search for this location on the Pinellas County Property Appraiser Website could not determine ownership

information. Another location for additional storage is the grassed area between the shopping center parking and Huey St. Property acquisition of the property or an easement would be required in order to construct a stormwater pond in this location.

Since the cypress swamp currently may not have a positive outfall, the construction of additional storage in this location to provide flooding relief would only be beneficial for small rainfall events. Without a positive outfall this area will still be subject to flooding with small repetitive storm events and larger storm events.



**Stormwater Action Plan - Phase II
Preliminary Construction Cost Estimate**

MAP ID NO. 31: HUEY AVE. NORTH OF TARPON AVE.

05/13/2010

Bid Item No.	Description	Quantity	Units	Unit Price	Amount
1	MOBILIZATION	1	LS	\$1,586.00	\$1,586.00
2	STAKED SILT FENCE, TYPE III	2,247	LF	\$1.00	\$2,247.00
3	CLEARING & GRUBBING	0.617	AC	\$8,140.00	\$5,022.00
4	POND EXCAVATION	777	CY	\$3.50	\$2,720.00
5	PERFORMANCE TURF, SOD	2,985	SY	\$2.00	\$5,970.00

CONSTRUCTION SUBTOTAL	\$17,600.00
25% CONTINGENCY	\$4,400.00
CONSTRUCTION TOTAL	\$22,000.00
SURVEY	\$1,000.00
GEOTECHNICAL	\$700.00
ENGINEERING	\$7,000.00
GRAND TOTAL	\$31,700.00

Notes:

1. Unit Prices based on FDOT Item Average Unit Costs for Area 06 from 03/01/2008 to 02/28/2009.
2. Conceptual Cost Estimate does not include the cost of Right-of-Way Acquisition.

Map ID No. 62 – Roosevelt Blvd.

Problem:

The road is in need of repair due to high groundwater conditions, poor subsoil conditions, and poorly functioning stormwater infrastructure. The City also desires to incorporate stormwater renovations to the existing stormwater infrastructure due to the proximity to Spring Bayou and Whitcomb Bayou, both of which are considered impaired (high nitrogen) water bodies by the Florida Department of Environmental Protection (DEP). There are several ditch bottom inlets along Roosevelt Blvd. that collect and directly discharge the stormwater runoff into the Tarpon Bayou.

Conceptual Solution(s):

Option 1

Roosevelt Blvd. is proposed to be improved between Spruce St. and Dodecanese Blvd. under a separate task order. This project will include reconstruction of the roadway and stormwater infrastructure improvements. For additional information, please see the Roosevelt Boulevard Pavement and Stormwater Rehabilitation Improvements construction plans.



Roadway & Drainage Construction Cost Estimate

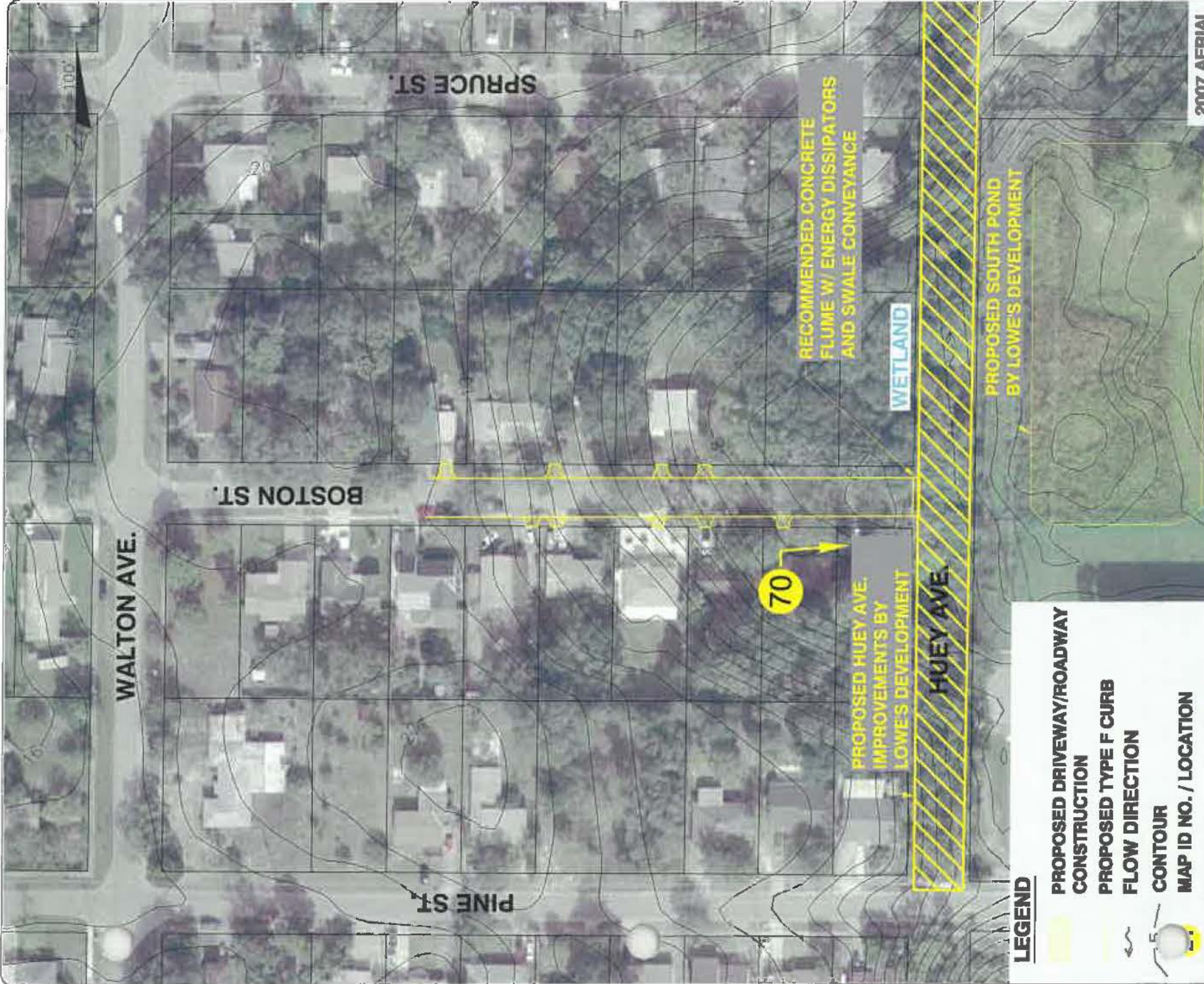
10/28/2010 (100% Plans Submittal)

Roosevelt Boulevard (Spruce Street to Dodecanese Boulevard)

BID ITEM NO.	Pay Item No.	Description	Quantity	Units	Unit price	Amount
101-1	1	MOBILIZATION	1	LS	\$38,046.32	\$38,046.32
102-1	2	MAINTENANCE OF TRAFFIC	1	LS	\$22,646.82	\$22,646.82
104-10-2	3	SYNTHETIC BALES	678	LF	\$15.59	\$10,773.42
104-11	4	FLOATING TURBIDITY BARRIER	78	LF	\$7.61	\$578.36
104-13-1	5	STAKED SILT FENCE, TYPE III	469	LF	\$0.87	\$388.73
104-16	6	ROCK BAGS	140	EA	\$5.68	\$795.20
110-1-1	7	CLEARING & GRUBBING	1,187	LS/AC	\$82.00	\$15,219.82
110-7-1	8	MAILBOX, F&J SINGLE	300	EA	\$3.40	\$1,020.00
120-1	9	REGULAR EXCAVATION	643	CY	\$5.74	\$3,700.04
120-4	10	SUBSOIL EXCAVATION	4,869	CY	\$4.79	\$23,274.81
120-6	11	EMBANKMENT	5,101	SY	\$2.77	\$14,129.77
160-4	12	STABILIZATION TYPE B (LBR 40) (12")	4,485	SY	\$9.00	\$40,455.00
205-704	13	CRUSHED CONCRETE BASE COURSE (6")	22	SY	\$1.39	\$30.58
327-70-6	14	MILLING EXIST ASPH PAVT, 1 1/2" AVG DEPTH	12	TN	\$70.98	\$851.76
334-1-12	15	SUPERPAVE TYPE SP STRUCTURAL COURSE, (TRAFFIC BI (1.5") (PARKING)	473	TN	\$70.98	\$33,573.64
334-1-12	16	SUPERPAVE TYPE SP STRUCTURAL COURSE, (TRAFFIC BI (2.0")	8	CY	\$596.11	\$4,768.88
400-1-2	17	CONCRETE CLASS I, ENDWALLS	10	CY	\$708.00	\$7,080.00
400-1-15	18	CONCRETE CLASS I, MISCELLANEOUS	3	EA	\$3,327.87	\$9,983.61
425-1-351	19	INLETS, CURB, TYPE P-5, <10"	9	EA	\$3,636.47	\$10,815.41
425-1-381	20	INLETS, CURB, TYPE P-8, <10"	2	EA	\$2,606.55	\$5,213.10
425-1-521	21	INLETS, DT BOT, TYPE G, <10"	2	EA	\$2,161.54	\$4,323.08
425-1-541	22	INLETS, DT BOT, TYPE D, <10"	4	EA	\$4,841.87	\$19,367.48
425-1-548	24	INLETS, DITCH BOTTOM, TYPE D, J BOT, <10"	4	EA	\$3,551.43	\$14,205.72
425-1-549	24	INLETS, DT BOT, TYPE D, MODIFIED	2	EA	\$2,443.33	\$4,886.66
425-1-551	25	INLETS, DT BOT, TYPE E, <10"	1	EA	\$1,812.50	\$1,812.50
425-1-559	26	INLETS, DT BOT, TYPE E, MODIFIED	1	EA	\$2,363.36	\$2,363.36
425-1-711	27	INLETS, GUTTER, TYPE V, <10"	1	EA	\$3,000.00	\$3,000.00
425-1-910	28	INLETS, CLOSED FLUME	1	EA	\$4,227.91	\$4,227.91
425-2-81	29	MANHOLES, P-9, <10"	1	EA	\$4,538.68	\$4,538.68
425-2-71	30	MANHOLES, J-7, <10"	1	EA	\$30.72	\$30.72
430-175-101	31	PIPE CULVERT REINFORCED CONCRETE, ROUND - SHAPE, 0-24"	362	LF	\$50.72	\$18,260.64
430-175-201	32	PIPE CULV, REINFORCED CONCRETE, OTHER - FLIP / ARCH, 0-24" SS	778	LF	\$68.37	\$45,285.12
430-175-202	33	PIPE CULV, REINFORCED CONCRETE, OTHER - FLIP / ARCH, 26-36" SS	157	LF	\$140.00	\$21,980.00
515-2-201	34	FED/BICYCLE RAILING, STEEL, 42" PICKET RAIL	40	LF	\$63.73	\$2,549.20
520-1-10	35	CONCRETE CURB & GUTTER, TYPE F	2,878	LF	\$13.82	\$39,787.78
520-2-4	36	CONCRETE CURB, TYPE D	138	LF	\$22.71	\$3,133.98
520-2-8	37	CONCRETE CURB, SPECIAL (MIAMI CURB)	234	LF	\$18.25	\$4,270.50
522-1	38	SIDEWALK CONCRETE, 6" THICK	843	SY	\$31.15	\$26,258.45
522-2	39	SIDEWALK CONCRETE, 8" THICK	538	SY	\$39.82	\$21,343.52
524-1-1	40	CONCRETE DITCH PAVT, NR, 3"	4	SY	\$28.04	\$112.16
570-1-2	41	PERFORMANCE TURF, SOD	2,500	SY	\$1.75	\$4,375.00
700-20-11	42	SINGLE POST SIGN, F&J, LESS THAN 12 SF	8	AS	\$306.88	\$2,455.04
700-20-40	43	SINGLE POST SIGN, RELOCATE	2	AS	\$110.18	\$220.32
700-20-80	44	SINGLE POST SIGN, REMOVE	6	AS	\$17.25	\$103.50
171-11-111	45	THERMOPLASTIC, STD. WHITE, SOLID, 6"	0.03	NM	\$2,864.04	\$85.92
171-11-123	46	THERMOPLASTIC, STD. WHITE, SOLID, 12"	267	LF	\$1.87	\$493.48
171-11-125	47	THERMOPLASTIC, STD. WHITE, SOLID, 24"	86	LF	\$3.10	\$266.80
171-11-211	48	THERMOPLASTIC, STD. YELLOW, SOLID, 6"	0.63	NM	\$2,931.63	\$1,858.76

ROADWAY SUBTOTAL \$913,826.38
 5% CONTINGENCY \$26,851.27
GRAND TOTAL \$940,677.65

Note: Unit Prices taken from FDOT Item Average Unit Cost for Area 08 from 03/01/2008 to 02/28/2009 when available.
 Unit Prices unavailable from Area 08 Average Unit Cost were taken from FDOT Statewide Item Average Unit Cost from 03/01/2008 to 02/28/2008.



LEGEND
 PROPOSED DRIVEWAY/ROADWAY CONSTRUCTION
 PROPOSED TYPE F CURB FLOW DIRECTION
 CONTOUR
 MAP ID NO. / LOCATION

PREPARED BY:

 American Consulting Engineers of Florida, LLC
 265 2nd Ave., Suite 1001, A
 Tampa, FL 33602
 Phone: (727) 498-8700 Fax: (727) 498-8701
 Certificate of Authorization No. 1802

CITY OF TARPON SPRINGS
 PUBLIC SERVICES DEPARTMENT
 300 S. PALM STREET
 TARPON SPRINGS, FL 34689
 (727) 902-0100

2007 AERIAL
 MAP ID NO. **70**
 OPTION 1 OF 1

STORMWATER ACTION PLAN - PH II
EAST END OF BOSTON ST.

P:\PROJECT\5088768\CADD\EXHIBITS\SAP 2 EXHIBITS\SLD\ LAYOUT\MAP ID 70\01\Sheet.dwg LAYOUT:MAP ID 70\01\Sheet.dwg Plot Date: 10/28/2010 4:12 PM By: buser

Map ID No. 70 – East end of Boston St.

Problem:

East end of Boston St. is a dead end road located adjacent to a wetland. No stormwater infrastructure is in place along this section of Boston St. This section of the road has an elevation change from approximately elevation 21 to elevation 6 within 400 feet. Runoff from Boston St. (high point located east of Walton Ave.) flows east along edge of pavement and through private property and into the wetland. The front yard of the resident located at 721 Boston St. has large (some are 8 to 10 inches in depth) stormwater ruts that are the result of high velocity flows. North edge of the road at 721 Boston St. is beginning to deteriorate and the sub-base is being exposed. During field review the resident at 721 Boston St. stated he has never had a structure flooding problem.

Conceptual Solution(s):

Option 1

This conceptual solution would involve adding curb and gutter to both sides of Boston St. beginning at the high point approximately 250' east of Walton Ave. and continuing to the east end of the road. A concrete flume with energy dissipaters and a spreader swale are proposed at the east end of Boston St. to reduce the velocity of the runoff and direct the stormwater towards the wetland to the northeast. The driveways along the curbed section will need to be reconstructed to ensure that runoff from Boston St. does not enter private property.



Preliminary Construction Cost Estimate

MAP ID NO. 70: EAST END OF BOSTON ST.

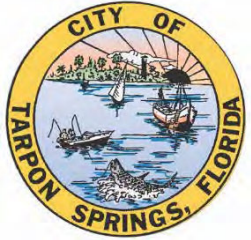
05/13/2010

Bid Item No.	Description	Quantity	Units	Unit Price	Amount
1	MOBILIZATION	1	LS	\$2,486.00	\$2,486.00
2	STAKED SILT FENCE, TYPE III	1,252	LF	\$1.00	\$1,252.00
3	CLEARING & GRUBBING	0.190	AC	\$8,140.00	\$1,547.00
4	POND EXCAVATION	1,072	CY	\$3.50	\$3,752.00
5	CONCRETE DITCH PAVEMENT, 4" (FLUME)	24	SY	\$22.00	\$528.00
6	CONCRETE CURB	600	LF	\$15.00	\$9,000.00
7	SIDEWALK CONCRETE, DRIVEWAYS	120	SY	\$35.00	\$4,200.00
8	PERFORMANCE TURF, SOD	802	SY	\$2.00	\$1,604.00

CONSTRUCTION SUBTOTAL	\$27,400.00
28% CONTINGENCY	\$6,992.00
CONSTRUCTION TOTAL	\$34,392.00
SURVEY	\$1,700.00
GEOTECHNICAL	\$1,000.00
ENGINEERING	\$10,300.00
GRAND TOTAL	\$47,392.00

Notes:

1. Unit Prices based on FDOT Item Average Unit Costs for Area 08 from 03/01/2008 to 02/26/2009.
2. Conceptual Cost Estimate does not include the cost of Right-of-Way Acquisition.

Standard Operating Procedure for:		Revised: 4/1/18	
Flooded Area Response Protocol Application & Maintenance			
Purpose of SOP:	To provide advisory warning, assure safe travel of motorists and pedestrians as well as preserve life and property of businesses, residents and guests throughout the City of Tarpon Springs during flood events.		

1. BACKGROUND

Due to existing infrastructure conditions, topography, tidal fluctuation, extreme rain events and named storm events, street flooding occurs within certain areas of the City.

These events typically occur on:

- *Roadways*
- *Intersections*

And can impact:

- *Motorists*
- *Pedestrians*
- *Businesses*
- *Commerce*
- *Homeowners*

2. PURPOSE

This procedure is being standardized and implemented to achieve the following purposes:

- Provide Hazardous condition alerts
- Closing of roadways to protect motorists and property owners
- Physically/Mechanically relieve flooding conditions (*If/when possible*)

3. OBJECTIVE

The objective of flood response is to ensure that public streets, roadways and property are protected to the best means possible to avoid loss. There are several actions that are to be taken.

- Pre Potential Flood Event: Systematically clean catch basins grid by grid prior to storm event to mitigate potential flooding.
- During Flood Event: Display “High Water”, “Road Closed”, “High Water”, “Detour”, barricades or other signage to alert motorists and pedestrians of a potential hazard.
- During & Post Flood Event: Set up trailer mounted pumps (*when feasible*) to pump down flooded areas to shorten the recovery time of the surcharged system.

4. RESPONSIBILITIES

Streets & Stormwater Supervisory Staff

- Monitor all associated Work Orders
- Distribute City grids assignments to staff (*pre-storm*)
- Assist in providing tools, materials and proper staffing
- Assure projects are completed properly and work orders are closed out

Streets & Stormwater Staff

- Respond promptly to emergency calls to deploy warning devices
- Set up & remove Barricades
- Deliver, Install, Maintain & Remove Pumps

Streets & Stormwater and Parks Staff

- Receive City grids assignments to staff (*pre-storm*)
- Staff of 2 each to inspect respective grids and remove debris present at drainage structures to prevent possible flooding
- Record debris collected on field data collection sheet
- Once assigned grid is completed, staff shall return to the office to receive additional grid assignment

5. PROCEDURE

5.1 *Deploy Barricades*

All Streets & Stormwater personnel

- Each application is unique in proper deployment of warning devices
- Follow all proper MOT requirements
- Follow all instruction by supervisory staff requests
- Sign out & sign in all required devices
- Place 2 sandbags on each barricade during high water and storm events

5.2 *Hot Spot Cleaning*

All Streets & Stormwater and Parks Staff

- Receive City grids assignments to staff (*pre-storm*)
- Staff of 2 each to inspect respective grids and remove debris present at drainage structures to prevent possible flooding
- Record debris collected on field data collection sheet
- Once assigned grid is completed, staff shall return to the office to receive additional grid assignment

5.3 *Pump Placement*

All Streets & Stormwater personnel

- Inspect pump trailer for transport (Note: *Always fire-up & check pump before delivery. This will provide a safer and better alternative to discovering it does not work in the field.*)
- Safely and properly hitch trailer to City vehicle for towing to project location
- Deliver pump to desired location and set in a safe, convenient and conspicuous position
- Attach all necessary hoses
- Periodically check & refuel equipment as necessary

6. VERSION HISTORY

ate	Version #	Description
4-01-2018	1	Original issue



American Consulting Professionals, LLC
American Consulting Engineers of Florida, LLC

2818 Cypress Ridge Blvd., Suite 200 • Wesley Chapel, Florida 33544

Tel 813.435.26220 • Fax 813.435.2601

www.acp-americas.com

MEMORANDUM

Date: November 15, 2012
To: Bob Robertson, P.E., Program Manager, Public Services Department
Cc: Ryan Forrestal, P.E., Principal-in-Charge
Shelly Saunders, P.E., Sr. Drainage Engineer
From: Keith Stimpson, P.E., Project Manager
Subject: Martin Luther King Jr. Drive Flooding Evaluation
American Project No: 5099786.01
City Task Order No: ACE04-07

1.0 Purpose

The purpose of this memorandum is to investigate flooding complaints on the properties located on the southeast corner of Martin Luther King Jr. (MLK) Drive and S. Grosse Avenue.

2.0 Scope

The following scope of work was performed in preparing this Technical Memorandum.

2.1 Data Collection and Review

The following materials were obtained and reviewed:

- The Oak Ridge South SWFWMD ERP# 46035617.00
- FEMA Flood Map 12103C0019G
- Pinellas Property Appraiser Parcel #'s 13-27-15-64926-001-0030, 13-27-15-64926-001-0020 and 13-27-15-64926-001-0010

2.2 Field Investigation and Documentation

American conducted field investigations on September 27, 2012 and October 6, 2012 to review the affective areas: including the existing storm sewer system along Grosse Avenue and to interview residents of 408 MLK Drive and 601 S. Grosse Avenue. Photographs were taken during the field investigation, and a photo log was developed for the purpose of this evaluation.

2.3 Review Permitted and As-built Conditions of Housing Development

American reviewed the grading plan and drainage design aspects as-built construction plans and SWFWMD permit for the recently constructed adjacent housing developments.

§ 122.12 - Hurricane shelter impact study.

- (A) All requests for site plan, subdivision, zoning/land use, or conditional use approval which entails residential development of 50 or more units located where evacuation in a Category 3 Storm is required shall prepare and submit an analysis which indicates that available shelter space will not be exceeded.
- (B) Shelter space demand shall be estimated based upon the assumption that 25% of the evacuating population will seek public shelter. Population for an individual project shall be based upon the number of units times the average number of persons per household. The average number of persons per household shall be based upon the most recent U.S. Census, Florida Statistical Abstract, or other acceptable documented source.
- (C) The study shall provide solutions for mitigation where a shelter deficit is projected. The solutions must provide for mitigation equivalent to the proposed development's anticipated hurricane preparedness impacts, and may utilize any single or combination of the following mitigative techniques:
 - (1) The donation of land for public facilities.
 - (2) The donation or use of private structures as hurricane shelter space.
 - (3) The provision of payments to upgrade existing shelters, to include the addition of storm shutters, provision of electric generators, provision of a food supply, provision of potable water storage capacity, and other items which are determined necessary by the Red Cross and Pinellas County Emergency Management Division to upgrade existing shelters.
 - (4) The provision of on-site shelter space when the project includes a community center or other suitable facility. The provision of on-site shelter space shall be at the ratio of 10 to 20 square feet per resident, and shall equal the proposed development's anticipated hurricane shelter space demand.
 - (5) The provision of funds to be used for the purpose of training shelter volunteers or for the purpose of enhancing existing public information programs.
 - (6) The provision for a limitation on density, or project phasing.
 - (7) The provision and maintenance of a public information program and hurricane evacuation fund within a homeowners association.
 - (8)

The provision for the elevation of all roads within the proposed development above the flood level of a category three hurricane event, making evacuation more feasible.

- (9) The provision of improvements to the evacuation routes, including roadway capacity improvements and the provision of funds for the posting of evacuation routes.
- (10) The provision of funds to be used for the purpose of procuring communication equipment which would upgrade the existing warning and notification capability of the Fire Department.
- (11) Nothing contained in this section shall preclude the use of alternative mitigative techniques.
- (12) Any mitigative technique shall provide reasonable assurance regarding the alternative's ability to reduce the development's impact upon demand for hurricane shelter space.

(D) The study shall utilize the most recent available data from the Pinellas County Emergency Management Division and the Tampa Bay Regional Planning Council.

(Ord. No. 2017-07, passed 5-2-17)

Editor's note— Ord. No. 2017-07, passed 5-2-17, renumbered § 122.13, pertaining to hurricane shelter impact study, as 122.12.

(Sample "Certificate of Concurrency" reproduced on following page.)

SAMPLE CERTIFICATE OF CONCURRENCY

(A)	Date: _____	
(B)	Development Activity:	Permit or File Number:
	_____ Site Plan or Subdivision	_____
	_____ Final Subdivision Plat	_____
	_____ Conditional Use	_____

	_____ Building Permit	_____
(C)	Proposed Development:	
	Site Acreage: _____	
	Location: _____ _____	
	Project Name: _____	
	Residential:	
	_____ Single Family	_____ Units
	_____ Two Family	_____ Units
	_____ Multifamily	_____ Units
	Nonresidential:	
	Use: _____	
	Square Footage: _____	
	Use: _____	
	Square Footage: _____	
	Use: _____	
	Square Footage: _____	
	Owner Name: _____	

	Owner Address: _____ _____	
	Contractor/Developer: _____	
(D)	Exceptions:	
	<u>§ 122.01(A)(1)</u> _____	
	<u>§ 122.01(A)(2)</u> _____	
	<u>§ 122.01(A)(3)</u> _____	
	<u>§ 122.01(A)(4)</u> _____	
(E)	Levels of Service:	
	Potable Water: _____ Compliance	_____ Noncompliance
	Sanitary Sewer: _____ Compliance	_____ Noncompliance
	Drainage: _____ Compliance	_____ Noncompliance
	Solid Waste: _____ Compliance	_____ Noncompliance
	Recreation: _____ Compliance	_____ Noncompliance
	Transportation: _____ Compliance	_____ Noncompliance

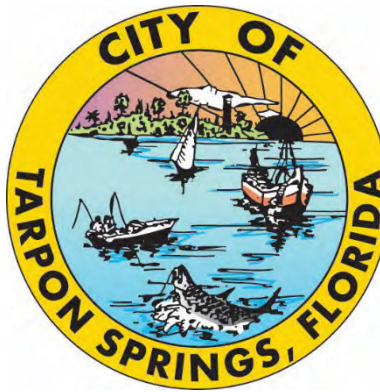
	Hurricane Shelter: _____ Compliance	_____ Noncompliance
(F)	Reserved Project Capacity:	
	Potable Water: _____	gallons per day
	Sanitary Sewer: _____	gallons per day
	Solid Waste: _____	tons per year
	Transportation: _____	peak hour trips
	Impacted Link: _____	
	Hurricane Shelter: _____ Spaces	
(G)	Conditions of Approval (List):	

(H)	Action:	
	_____ Compliance	

	_____ Noncompliance
Signature: _____	
Date of Issuance: _____	

(Ord. 90-10, passed 5-1-90; Am. Ord. 93-33, passed 10-19-93)

CITY OF TARPON SPRINGS, FLORIDA
FLOODPLAIN MANAGEMENT PLAN
2017 ANNUAL REPORT



PREPARED BY:

Building Development Department
With assistance from the Finance, Public Services and Fire Departments

DATE:

September 20, 2017

ANNUAL PROGRESS REPORT

Background

In early 1998, The Florida Department of Community Affairs (DCA) requested that Pinellas County and its municipalities develop a unified, community-wide local mitigation strategy. Their request was aimed at controlling the skyrocketing costs of disasters. Most of the burdens of recovering from a disaster fall squarely on the shoulders of local government. A major disaster can bring extraordinary hardship to citizens, devastate the economic base, and diminish its quality of life for years to come. Recent events, such as the storms of the 2004 hurricane season as well as Hurricane Katrina (2005), Wilma (2005), Ike (Texas 2008), Hermine (2016) and recently Hurricanes Matthew and Irma (2017) demonstrate the need to plan ahead and mitigate potential impacts wherever we can. If we can avoid the hardships we have seen in other parts of the country by making smarter decisions before the disaster, we will have served the best interest of our citizens, businesses and communities.

The workgroup conducted its first meeting on March 11, 1998. Over the ensuing fifteen months, a total of twenty-two (22) meetings took place to produce the deliverables required by contract. Pinellas County and its municipalities developed and adopted a unified Local Mitigation Strategy in 1999. By developing the Local Mitigation Strategy, it was hoped Pinellas County could increase the resiliency of the community to the disruption and hardship of disasters and attempt to reduce the potential and actual costs of their impact.

The State of Florida requires an annual update of the countywide LMS. This update process focuses on the revision of the risk assessment, the identification of accomplishments and the update of the initiatives or projects list. Through its regular quarterly meetings, the county and its municipalities encourage participation in the ongoing mitigation initiatives at the local level.

The 2004 Update of the Pinellas County LMS

In 2004, Pinellas County completed the first comprehensive update of the countywide Local Mitigation Strategy prompted by new requirements of the Disaster Mitigation Act of 2000. This update incorporated new risk assessments based on a new National Flood Insurance Program (NFIP) Flood Study (conducted in 2002), the hurricane evacuation study update (2000), the hazardous material facility inventory (2004), and hazards modeling using the The Arbiter Of Storms (TAOS) model. Local Mitigation Strategy Goals and Objectives and Policies and

Ordinances were updated by the local governments identifying the adopted goals, objectives and policies within their Local Government Comprehensive Plans (LGCPs) and Land Development Regulations (LDRs) and the relevant sections of the Evaluation and Appraisal Reports (EARs) submitted to the Florida Department of Community Affairs. Vulnerabilities including repetitive loss properties and critical facilities inventories were updated and mapped using Geographic Information System (GIS) technology. In addition, the Mitigation Initiatives and Accomplishments were discussed and updated based on consensus of local priorities.

The 2009 Update of the Pinellas County LMS

All 24 jurisdictions incorporated the hazard identification and the risk assessment into their local government comprehensive plans including the goals and policies of the Future Land Use, Coastal and Conservation, Parks and Recreation, Infrastructure and Transportation Elements through the Evaluation and Appraisal Report (EAR) process. Mitigation initiatives and projects identified were incorporated into Capital Improvement Programs (CIPs) including stormwater management projects, transportation improvements and land acquisition projects (floodplain and wetland protection).

The 2015 Update of the Pinellas County LMS

In 2014, Pinellas County, its municipalities and other mitigation partners including the regional planning council, Pinellas Planning Council, water management district, utilities, health and social service agencies, non-profit organizations, economic development agencies, private sector representatives and others embarked on another comprehensive update of the Pinellas County LMS.

In a manner similar to the 2009 update, all 24 jurisdictions adopted the 2015 LMS plan. The update provides updated demographics and risk assessment based on historic events and losses. The County and its partners recognized that the planning process is as important as the plan itself. Using a 10-step planning process identified in the FEMA Floodplain Management Planning (CRS Coordinator's Manual 2017) members, working together enhanced the planning process and strengthened the overall multi-jurisdiction mitigation strategy. The City of Tarpon Springs adopted the 2015 LMS in May of 2015.

The 2017 Update of the Pinellas County LMS

In 2017, Pinellas County, its municipalities and other mitigation partners including the regional planning council, Pinellas Planning Council, water management district, utilities, health and social service agencies, non-profit organizations, economic development agencies, private sector representatives and others embarked on another comprehensive update of the Pinellas County LMS. This update targeted marketing for better mitigation messaging. The Program for Public Information (PPI) for flood hazard outreach was created. Additional public warning systems are now in effect. The Alert Pinellas was introduced for registered residents and Pinellas County staff to be notified by providing updates to cell phones, land lines, emails and texts. During emergency situations, additional successful mitigation activities were updated. A new LMS Stakeholder Planning Committee will be formed and each community will be required to provide stakeholder from each member they have represented on the LMS working group committee.

Mitigation Initiatives

The following lists the mitigation opportunities and initiative within the Pinellas LMS along with other local initiatives for floodplain management and hazard mitigation planning. A statement on accomplishments during the previous year and a status of each is included.

- 1. Tarpon Springs has hired STANTEC CONSULTING SERVICES, Inc. under a 5-year continuing services contract for stormwater engineering services.**

Accomplishments: Under the City's direction, STANTEC completed a Stormwater Action Plan Phase II (SAP). The SAP is a multi-year Capital Improvement Program which includes 16 stormwater projects with an estimated total cost of \$5.2 million. Since the program's inception in Fiscal Year 2010, eighteen (18) projects have been initiated and are in various stages of either design, permitting, construction or completion.

Status: This is an ongoing effort which will continue through Fiscal Year 2024 and possibly beyond as project need dictates.

- 2. Tarpon Springs has hired AMERICAN CONSULTING to provide a stormwater action plan.**

Current Tarpon Springs Stormwater Projects: The City of Tarpon Springs created a Stormwater Action Plan (SAP) that was implemented in 2010 used as the master document to identify, evaluate and address areas susceptible to flooding. This document is available in the Tarpon Springs Stormwater Division and Development Services office. To date, the City has resolved or eliminated 18 identified projects; for a list of these projects please refer to the SAP. There are currently 6 capital improvement projects either in the beginning phases or currently under construction, 3 of these projects being funded by the South West Florida Water Management District (SWFWMD) Cooperative Funding Initiative (CFI).

Athens St. & Dodecanese Blvd. – Drainage Improvement Project: The City of Tarpon Springs contracted a Consultant to develop a Technical Memorandum that evaluates design alternatives for drainage and tidal flooding related issues at the intersection of Athens St. & Dodecanese Blvd.

Highland Ave. & Vista Pl/Jasmine Ave. & Lime St. – Stormwater Action Plan II by AMERICAN CONSULTATION. Drainage Improvement Project: 2 projects combined into 1 CFI with SWFWMD.

Grosse Avenue Stormwater Rehabilitation from Tarpon Ave. to Pine St. – STORMWATER ACTION PLAN (SAP #22). City of Tarpon Springs contracted consultant to perform improvements to include installation of a closed storm sewer systems) within the existing right of way and planned stormwater easement(s) to alleviate the frequent roadway and private property flooding conditions. Construction of a new Stormwater Management Facility (SMF) of the northeast corner of Grosse Ave/Cypress St. intersection, construction of a joint0use SMF within Tarpon Springs Elementary School property. Reconstruction of the existing roadway pavement and curb where applicable due to installation of stormwater infrastructure and utility coordination.

Palm Avenue Drainage Improvement Project – Stormwater rehabilitation along Palm Avenue between Glades Ave. and Gulf Road. Planned improvements include installation of a closed storm sewer system within the existing right-of-way to alleviate frequent roadway and private property flooding conditions. Also, construction of a new SMF along the east side of Tarpon

Ave. between Village Dr. and Gulf Rd, reconstruction of the existing roadway pavement and curb where applicable due to installation of stormwater infrastructure and utility coordination.

3. Citywide GIS Mapping – Infrastructure / Drainage Mapping Project

The City of Tarpon Springs hired STANTEC CONSULTING SERVICES to provide field data collection/ input process for the development of a stormwater infrastructure GIS inventory system of the stormwater features.

4. Tarpon Springs will implement its Comprehensive Plan, Code of Ordinances and Comprehensive Zoning and Land Development Code for all development activity in the floodplain.

Accomplishments: In March of 2011 the City adopted a form-based zoning code and future land use amendment for a 246-acre Special Area Plan (SAP) comprised of the City's Community Redevelopment Area and the Sponge Docks Tourist Area. Much of this area is located within the Coastal High Hazard Area (Level 1 Hurricane Evacuation Area). The City included a transfer of development rights process in the new code to allow residential density to only be transferred within or outside of the Coastal High Hazard Area, ensuring that there would be no net gain of residential density within these flood hazard areas. Additionally, there were no increases in residential density within these areas above what was previously allowed.

Continued enforcement of the City's Comprehensive Zoning and Land Development Code also plays a role in reducing unsafe conditions and inappropriate uses, and limits development and redevelopment in the floodplain. The Comprehensive Zoning and Land Development Code sections, which affect uses and development in the floodplain, include but are not limited to the following:

- Stormwater Management
- Floodplain Management
- Open Space Preservation
- Wetlands and Shoreline Protection
- Tree Protection and Preservation
- Endangered/Threatened Species Protection

Status: This is an ongoing effort.

4. All development and redevelopment in floodplains and floodways must comply with the regulations of the Federal Emergency Management Agency (FEMA), National Flood Insurance Program (NFIP), Federal Insurance Administration (FIA), Florida Building Code and the Tarpon Springs Floodplain Management ordinance.

Accomplishments: Tarpon Springs has participated in FEMA's National Flood Insurance Program (NFIP) since May 1971. As a participant the City complies with the minimum standards of the program plus those additional activities established in the Community Rating System (CRS) program for which the City has participated since October 1992. On May 1, 2012, the City increased to a Class 7 in the CRS.

Compliance is achieved through aggressive enforcement of the City's Comprehensive Plan, Code of Ordinances, and the Comprehensive Zoning and Land Development Code, Floodplain Management Regulations are found in the Chapter 6 of the City's Code of Ordinances.

On December 31, 2017, the 2017 *Florida Building Code (FBC), 6th Ed.* became effective throughout the State of Florida. In August 2012, the City adopted a new floodplain management ordinance for local application and enforcement. This ordinance was based upon the Model Floodplain Management Ordinance developed by the Florida Division of Emergency Management (DEM). The purposes of this ordinance and the flood load and flood resistant construction requirements of the *Florida Building Code* are to establish minimum requirements to safeguard the public health, safety, and general welfare and to minimize public and private losses due to flooding through regulation of development in flood hazard areas.

Specific activities include limiting density, providing map information, and issuing and enforcing building permits under these regulations. The City limits densities in coastal high hazard areas to a maximum of five (5) residential units per acre. Map information from Flood Insurance Rate Maps (FIRM) is provided for new development, additions, and reconstruction

or at the request of the general public. Building permits rely on this information since the permit must state the minimum base flood elevation (BFE). The most current 2017 FBC, 6th Ed. update included a new requirement of 1 ft. of freeboard above BFE for new construction which was already a requirement for Tarpon Springs.

Lastly, the City of Tarpon Springs is participating in the coastal Risk Mapping, Assessment and Planning (Risk MAP) project. Risk MAP is a FEMA program that assists community efforts to identify, assess, and reduce their flood risk. The project addresses portions of Pinellas County, which includes Tarpon Springs, affected by coastal flooding.

Status: This is an ongoing effort.

Activity 510

CRS Coordinator's Manual (2017 Edition)

1. This Annual Progress Report was prepared by the Development Services Department with assistance from the Finance, Public Services, and Fire Departments. Copies of this report will be distributed to the Board of Commissioners, the local media and made available to the public at the following locations:
 - Tarpon Springs City Hall – 324 E. Pine Street, Tarpon Springs, FL 34689
 - Tarpon Springs Public Library – 138 E. Lemon Street, Tarpon Springs, FL 34689
 - Tarpon Springs Cultural Center – 101 S. Pinellas Avenue, Tarpon Springs, FL 34689
2. Copies of the Pinellas LMS and this report can be obtained by contacting the Development Services Department at (727) 942-5604.
3. A review of the mitigation opportunities and initiatives in the Pinellas LMS along with local mitigation initiatives and accomplishments during the previous year are outlined in this report.
4. All initiatives are ongoing.
5. List any recommendations for new projects or revised projects.
 - Tarpon Springs will continue to review its Comprehensive Plan and codes on a regular basis to insure floodplain management planning is current. New and revised projects are

scheduled on an annual basis in the City's Capital Improvement Program (CIP).

- Tarpon Springs will continue to participate in hazard mitigation programs, such as the Pinellas LMS and modify such plans accordingly.
- Tarpon Springs will continue to participate in FEMA's coastal Risk MAP project.

For more information, please contact the City's CRS Coordinator:

Megan Araya, CFM
Building Development Department
(727) 942-5604
maraya@cstfl.us