



**City of Tampa**

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**ADDENDUM 2**

**Via E-Mail**

**DATE: December 19, 2019**

Contract 20-C-0012 Ignacio Haya Park Living Shoreline

Bidders on the above referenced project are hereby notified that the following addendum is made to the Contract Documents. BIDS TO BE SUBMITTED SHALL CONFORM TO THIS NOTICE.

Item 1: Change, on Specifications page I-1b, in I-1.05 Time for Completion, second paragraph "150" to be "120"

Item 2: Replace page P-2 with the attached page P-2R

Item 3: Replace Division 2 – Technical Provisions with the attached Division 2 - Technical Provisions

All other provisions of the Contract Documents and Specifications not in conflict with this Addendum shall remain in full force and effect. Questions are to be e-mailed to Contract Administration@tampagov.net.

*Jim Greiner*

Jim Greiner, P.E., Contract Management Supervisor

**Contract 20-C-00012**  
**Ignacio Haya Park Living Shoreline**

Item No.	Description	Unit	Approx Quantity	Unit Price in Words	Unit Price	Total Computed Price
101.1	MOBILIZATION	LS	1		\$	\$
102.1	MAINTENANCE OF TRAFFIC	LS	1		\$	\$
104.1	EROSION CONTROL - SILT FENCE	LF	600		\$	\$
104.2	EROSION CONTROL - TURBIDITY BARRIER	LF	300		\$	\$
110.4	CLEARING & GRUBBING	AC	0.11		\$	\$
110.15.1	TREE PROTECTION	LF	6,000		\$	\$
110.15.2	VEGETATION REMOVAL - STUMP TREAT	AC	0.11		\$	\$
110.15.3	HERBACIDE TREATMENT	AC	0.12		\$	\$
120.2	EXCAVATION AND DISPOSAL OFF SITE	CY	304		\$	\$
120.3	EMBANKMENT (COMPACT IN PLACE)	CY	450		\$	\$
120.1000	GRADING	SY	722		\$	\$
430.2	18" ROUND STORMWATER PIPE (HDPE PIPE)	LF	20		\$	\$
430.400	18" FLARED-END SECTION	EA	2		\$	\$
530	RIPRAP (RUBBLE)	TN	250		\$	\$
580-1	LANDSCAPE (SMOOTH CORDGRASS)	EA	1,312		\$	\$
580-2	LANDSCAPE (SOFTSTEM BULRUSH)	EA	216		\$	\$
580-3	LANDSCAPE (SALTMARSH BULRUSH)	EA	116		\$	\$
580-4	LANDSCAPE (MARSH HAY CORDGRASS)	EA	250		\$	\$
580-5	LANDSCAPE (BLACK NEEDLERUSH)	EA	116		\$	\$
580-6	LANDSCAPE (HERB-OF-GRACE)	EA	38		\$	\$
580-7	LANDSCAPE (SAND CORDGRASS)	EA	260		\$	\$
580-8	LANDSCAPE (MUHLY GRASS)	EA	260		\$	\$
580-9	LANDSCAPE (DUNE SUNFLOWER)	EA	198		\$	\$
580-10	LANDSCAPE (ST. AUGUSTINE SOD)	SY	2,222		\$	\$
901.1	COARSE AGGREGATE (3"-6" BEDDING STONE)	TN	50		\$	\$
902.1	FINE AGGREGATE (CLEAN SAND FILL)	TN	450		\$	\$
985	GEOSYNTHETIC MATERIALS (FILTER FABRIC)	SF	2,200		\$	\$
999	SURVEY, TESTING, QUALITY CONTROL & RECORD DRAWINGS	LS	1		\$	\$
SP-11.16	CONTINGENCY ALLOWANCE	LS	1	EIGHT THOUSAND FIVE HUNDRED DOLLARS AND NO CENTS	\$ 8,500.00	\$8,500.00
<b>TOTAL :</b>						

## DIVISION 2 - TECHNICAL PROVISIONS

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### **SECTION 001 - STANDARD SPECIFICATIONS**

- A. All work of this Contract shall conform to the applicable technical specifications of Florida Department of Transportation Standard Specifications for Road and Bridge Construction, 2017 and Supplemental Specification, Special Provisions and addenda thereto, except as modified and supplemented hereinafter. Reference to Article numbers herein-after apply to the FDOT Standard Specifications, and reference in FDOT Standard Specifications to Department shall be taken as the Owner or its appointed Representative. Wherever the Specifications, Supplementals, etc. may refer to the "Owner", "Department", "State of Florida Department of Transportation", or words relating to offices of State Government, such words shall be taken as meaning Owner or City of Tampa, Florida. Wherever the word "Owner's Engineer", "District Engineer", "Engineer", "Project Engineer", etc., appears, it shall be taken to mean the Registered Professional Project Engineer of the City of Tampa Public Works Department, Engineering Division acting directly or through duly authorized representatives. Wherever the word "Resident Engineer" appears, it shall be taken to mean an authorized representative of the Owner's Engineer on the Project (Resident Construction Inspector) who will act as an agent for the City of Tampa, assigned to observe the progress quantity and quality of the work.
- B. Permissible Work Days and Hours  
Regular working hours are defined as Monday through Friday 8AM to 5PM, however, construction activity shall be limited to those daylight hours between to ½ hour after sunrise through ½ hour before sundown. The times sunset shall be those published by the National Oceanic and Atmospheric Administration for each day of the work. At

the CONTRACTOR's election, construction activity may be undertaken seven days per week. Suitable additional safety precautions, including additional personnel or barricades as required, shall be implemented during weekend operations.

C. Site Maintenance

The CONTRACTOR shall inspect the work areas at the end of every workday to ensure that all debris left by the CONTRACTOR's and or subcontractor's workers has been removed from the work areas and properly disposed. Turbidity curtains shall be removed each day to eliminate the ability for entanglement by manatees, sea turtles or smalltooth sawfish.

D. Project Sign

The CONTRACTOR shall furnish, install, maintain, and remove a Project Sign at the work site. The sign shall be of the format, style and minimum size indicated on the sketch at the end of these specifications. The sign shall be neatly and sturdily constructed and shall be securely erected in a workmanlike manner to support the sign properly for the life of the contract. Upon completion and acceptance of construction, the CONTRACTOR shall remove the sign and dispose of the sign at a disposal site subject to the approval of the OWNER.

E. Construction Access

The CONTRACTOR will access the construction site via North River Boulevard and the existing Construction Access shown on the Drawings. During construction, the CONTRACTOR shall make provisions to (a) not interfere with normal vehicular traffic on North River Boulevard and, (b) control public access and provide for public safety within the construction area and Construction Access. Existing topography, vegetation, and upland improvements shall be disturbed only to the minimum extent necessary for construction and construction access and other authorized activities. To the maximum extent feasible, the CONTRACTOR shall limit clearing for the access to areas of exotic vegetation. The CONTRACTOR shall avoid disturbing native vegetation wherever possible; any disturbance of existing native vegetation by the CONTRACTOR shall be restored by the CONTRACTOR at no additional cost to the OWNER.

F. Inspection Notification

The CONTRACTOR shall notify the OWNER at least 48 hours before the following construction activities:

- Mobilization
- Arrival of rock rip-rap/fill at the site
- Site preparation
- Material placement
- Dredging activities commence
- Site restoration
- Demobilization

G. Pre-Construction Meeting

Prior to commencement of construction, the CONTRACTOR shall meet with the

OWNER to verify the construction access, and pre-construction conditions of the site (Pre-Construction Photos/Video to be supplied by the Contractor). At this meeting, the CONTRACTOR shall identify (a) his proposed trucking or barge route and provide, (b) schedule for the work, (c) methods of construction staking, (d) location of staging area, and (e) location of the Project Sign; these items are subject to review and acceptance by the OWNER.

H. Survey Layout & As-Built

The Contractor's Surveyor shall establish secondary control points and maintain grade stakes throughout the project. After final completion all grade stakes must be collected and disposed of properly by the CONTRACTOR.

I. Completion of Work

Upon Substantial Completion of the Work, deliver Record Drawings/As-Built Drawings to ENGINEER. Final payment will not be made until satisfactory record documents are received and approved by ENGINEER.

## **SECTION 004 - SCOPE OF WORK**

The project consists of maintenance dredging and recontouring the drainage ditch at the south end of Ignacio Haya Park. Dredged material will be stockpiled and tested in the staging areas. It will be tested for suitable reuse as fill along the park shoreline. The CONTRACTOR will also provide, deliver, place and grade specifically sized rock riprap along approximately 1000 linear feet of shoreline for rehabilitation of an existing rip rap sill and installation of a new rip rap revetment along the east shore of the Hillsborough River and within Ignacio Haya Park. The CONTRACTOR is to place clean rip rap along the existing shoreline as shown in the Construction Drawings. The CONTRACTOR will also install 20 ft of HDPE pipe, and install flared end sections on two existing 18" HDPE pipes and treat and dispose of exotic/nuisance vegetation as shown on the drawings. The shoreline will be planted with native estuarine species according to the planting plan. The construction site is located on the Hillsborough River Shoreline and lies directly east of, and parallel to the Hillsborough River south of Hillsborough Avenue Bridge.

## **SECTION 101.1 - MOBILIZATION**

The work specified in this section shall conform to Section 101 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction.

### **Item of Payment**

Payment for the work specified in this item shall be made under:

Bid Item No. 101 - Mobilization – Per Lump Sum Sixty percent (60%) of the lump sum price for mobilization-demobilization is payable to the CONTRACTOR after 100 tons of material have been delivered. Truck weight tickets will be used to verify the volume. The remaining forty percent (40%) will be paid upon completion and acceptance of the all work.

All costs associated with the work and not specifically included in other bid items shall be included in the CONTRACTOR's bid for BID ITEM 101.

## **SECTION 102.1 - MAINTENANCE OF TRAFFIC**

The work specified in this item shall conform to Section 102 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction, except as modified herein.

- A. **GENERAL PROVISIONS-DESCRIPTION:** The work specified in this Section consists of maintaining traffic within the limits of the project for the duration of the construction period, including any temporary suspensions of the work. It shall include the construction and maintenance of any necessary detour facilities; the providing of necessary facilities for access to residences, businesses, etc., along the project; the furnishing, installing and maintaining of traffic control and safety devices during construction, the control of dust through the use of calcium chloride if necessary, and any other special requirements for safe and expeditious movement of traffic as may be called for on the plans. The term, Maintenance of Traffic, as used herein, shall include all of such facilities, devices and operations as are required for the safety and convenience of the public as well as for minimizing public nuisance.
- B. **BEGINNING DATE OF CONTRACTOR'S RESPONSIBILITY:** The Contractor shall present his Maintenance of Traffic Plan at the pre-construction conference. The Maintenance of Traffic Plan shall indicate the type and location of all signs, lights, barricades, striping and barriers to be used for the safe passage of pedestrians and vehicular traffic through the project and for the protection of the workmen. The plan will indicate conditions and setups for each phase of the CONTRACTOR'S activities.

When the project plans include or specify a specific Maintenance of Traffic Plan, alternate proposals will be considered when they are found to be equal to or better than the plan specified.

In no case may the CONTRACTOR begin work until the Maintenance of Traffic Plan has been approved in writing by the ENGINEER. Modifications to the Maintenance of Traffic Plan that become necessary shall also be approved in writing. Except in an emergency, no changes to the approved plan will be allowed until approval to change such plan has been received.

The cost of all work included in the Maintenance of Traffic Plan shall be included in the pay item for Maintenance of Traffic.

The Contractor shall be responsible for performing daily inspections, including weekends and holidays, with some inspections at nighttime, of the installations on the project and replace all equipment and devices not conforming with the approved standards during that inspection. The project personnel will be advised of the schedule of these inspections and be given the opportunity to join in the inspection as is deemed necessary.

- C. TRAFFIC CONTROL - STANDARDS: The FDOT Design Standards for Design, Construction, Maintenance and Utility Operations On the State Highway System, Edition as dated on the plans set forth the basic principles and prescribes minimum standards to be followed in the design, application, installation, maintenance and removal of all traffic control devices and all warning devices and barriers which are necessary to protect the public and workmen from hazards within the project limits. The standards established in the aforementioned manual constitute the minimum requirements for normal conditions, and additional traffic control devices warning devices, barriers or other safety devices will be required where unusual, complex or particularly hazardous conditions exist.

The above referenced standards were developed using F.H.W.A., U.S.D.O.T. Manual on Uniform Traffic Control Devices (MUTCD).

- D. TRAFFIC CONTROL DEVICES, WARNING DEVICES AND BARRIERS - INSTALLATION: The responsibility for installation and maintenance of adequate traffic control devices, warning devices and barriers, for the protection of the travel in public and workmen, as well as to safeguard the work area in general shall rest with the CONTRACTOR. Consideration shall be given to recommendations of the Engineer. The required traffic control devices, warning devices and barriers shall be erected by the Contractor prior to creation of any hazardous condition and in conjunction with any necessary re-routing of traffic. The CONTRACTOR shall immediately remove, turn or cover any devices or barriers which do not apply to existing conditions. All traffic control devices shall conform to MUTCD standards and shall be clean and relatively undamaged. Damaged devices diminishing legibility and recognition, during either night or day conditions, are not acceptable for use.
- E. NO WAIVER OF LIABILITY: The CONTRACTOR shall conduct his operations in such a manner that no undue hazard will result due to the requirements of this article, and the procedures and policies described therein shall in no way act as a waiver of any of the terms of the liability of the CONTRACTOR or his surety.
- F. CONTRACTOR'S Maintenance of Traffic Plan shall maintain continuous vehicular traffic on North River Boulevard at all times. The Contractor shall maintain one lane of traffic at all times during Construction.
- G. The Changeable Variable Message Sign shall be used as necessary. The location, message, and duration shall be as directed by ENGINEER.

Item of Payment

Payment for the work specified in this item shall be made under:

Bid Item No. 102 - Maintenance of Traffic – Per Lump Sum

## **SECTION 104 - PREVENTION, CONTROL, AND ABATEMENT OF EROSION AND WATER POLLUTION**

### **PART 1 – GENERAL**

#### **1.1 SCOPE**

- A. This Section covers erosion control and the treatment of dewatering water and stormwater runoff from the construction site and work area. Pollution control measures shall prevent polluted or turbid waters from being discharged from the construction site or work area to undeveloped portions of the site or offsite, including but not limited to Multiple Separate Storm Sewer Systems (MS4s) and Waters of the State.
- B. The OWNER considers pollution from dewatering water and stormwater runoff from a construction site or work area to be a very serious offense. The CONTRACTOR is solely responsible for preventing pollution caused by dewatering water and stormwater runoff from the construction site or work area. Note that state regulations do not allow mixing stormwater and dewatering groundwater in the same release – separate and independent discharges are required.
- C. Pollution control measures specified herein represent minimum standards to be adhered to by the CONTRACTOR throughout the Project's construction. The OWNER reserves the right to require the CONTRACTOR to employ additional pollution control measures, when in the sole opinion of the OWNER, they are warranted. If site specific conditions require additional erosion and stormwater pollution control measures during any phase of construction or operation to prevent erosion or to control sediment or other pollution, beyond those specified in the Drawings, the Project's approved Stormwater Pollution Prevention Plan (SWPPP), or herein, implement additional best management practices as necessary, in accordance with [Chapter 4, "Best Management Practices for Erosion and Sedimentation Control" of the Florida Erosion and Sediment Control Inspector's Manual](#) and other references as may be applicable or required by regulatory permits.
- D. The OWNER may terminate this Contract if the CONTRACTOR fails to comply with this Section. Alternatively, the OWNER may halt the CONTRACTOR's operations until the CONTRACTOR is in full compliance with this Section. If the OWNER halts the CONTRACTOR's Work as a result of failure to comply with this Section, the Contract time clock will continue to run.
- E. In addition to these Specifications, comply with [Chapter 4 - "Best Management Practices for Erosion and Sedimentation Control"](#) and [Chapter 5 – "Best Management Practices for Dewatering"](#) of the [Florida Erosion and Sediment Control Inspector's Manual](#). In the event of a conflict between the referenced chapters and these Specifications, the more stringent requirement shall prevail.

#### **1.2 PERMITS**

- A. The OWNER has obtained certain permits for this project and they are listed below. The CONTRACTOR must apply for and obtain all other required federal, state, and local permits, licenses, sampling, and tests.
1. U.S. Army Corps of Engineers
  2. Florida Department of Environmental Protection
  3. Hillsborough County Environmental Protection Commission – Minor Work Permit
- B. The CONTRACTOR must provide copies of all approved permits to the OWNER and ENGINEER and comply with all conditions contained in all permits at no extra cost to the OWNER. If there is a conflict between any permit requirement and these Specifications or requirements between permits, the more stringent specification or requirement shall govern.
- C. The CONTRACTOR must pay for all required water quality sampling and laboratory tests.

### 1.3 GENERAL

- A. Do not begin any other construction work until the pollution control and treatment system has been constructed in accordance with approved plans, permits, and these Specifications; and the installed system has been examined by the OWNER for compliance.
- B. From time to time, the OWNER or ENGINEER will inspect the pollution control and treatment system and may take effluent samples for analysis by a testing laboratory selected and paid for by the OWNER. If at any time, the OWNER or ENGINEER determines that the pollution control and treatment system is not in compliance with the approved system, the OWNER or ENGINEER will shut the portion of the project down that is not in compliance, and it shall remain shut-down until the pollution control and treatment system is properly constructed or repaired, and complies with the approved pollution control and treatment system plans, specifications, contract documents, and permits.
- C. The CONTRACTOR shall schedule construction to minimize erosion and stormwater runoff from the construction site. Implement erosion control measures on disturbed areas as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, but in no case more than 7 days after the construction activity in that portion of the site has temporarily or permanently ceased.
- D. Inspect each pollution control system at least once per day and after each rainfall event. Clean and maintain each pollution control system as required until the system is no longer needed. If a water quality violation occurs, immediately cease all work contributing to the water quality violation and correct the problem. Immediately report all water quality violations to the OWNER. Immediately report the discharge of any hazardous substance to the State Warning Point at 800-320-0519 or 850-413-9911.

E. Discharge shall not violate State or local water quality standards in receiving waters, nor cause injury to the public health or to public or private property, nor to the Work completed or in progress. The receiving point for water from construction operations shall be approved by the applicable owner, regulatory agency, and the ENGINEER. The receiving point shall be shown on the Project SWPPP.

F. Promptly repair all damage at no cost to the OWNER.

#### 1.4 SUBMITTALS

A. Shop Drawings: Submit shop drawings of the proposed pollution control and treatment systems.

B. Approved Stormwater Pollution Prevention Plan.

C. "Contractor's Affidavit Regarding Erosion Control and Treatment of Dewatering Water and Stormwater from Construction Activities"

#### 1.5 STORMWATER TREATMENT AND EROSION CONTROL SYSTEM RESPONSIBILITY

A. Prepare a site-specific design of the erosion and stormwater pollution control system. Install and maintain all erosion and stormwater pollution control devices under the supervision of a State Certified Stormwater, Erosion, and Sedimentation Control Inspector. Maintain the erosion and stormwater pollution control devices until in the ENGINEER's sole opinion, the devices are no longer necessary (such time not to extend past the date the OWNER formally accepts the project as complete). Before beginning construction, submit to the City of Tampa, Florida Department of Environmental Protection (FDEP) and other applicable regulatory agencies for review and approval, a Stormwater Pollution Prevention Plan (SWPPP), prepared by the certified erosion control subcontractor. Construction shall not begin until the SWPPP has been approved by the City of Tampa, FDEP, and all applicable regulatory agencies. Submit the approved SWPPP to the ENGINEER before beginning construction. Include in the SWPPP, the "Contractor's Affidavit Regarding Erosion Control and Treatment of Dewatering Water and Stormwater from Construction Activities" (located at the end of this Section).

#### 1.6 "POLLUTION" AND CERTAIN UNCONTESTABLE POLLUTION EVENTS DEFINED

A. With respect to this Section, "pollution" is the presence in off-site waters of any substances, contaminants, or manmade or human-induced impairment of off-site waters or alteration of the chemical, physical, biological, or radiological integrity of off-site water in quantities or at levels which are or may be potentially harmful or injurious to human health or welfare, animal or plant life, or property. Pollutants to be removed include but are not limited to, sediment and suspended solids, solid and sanitary wastes, phosphorus, nitrogen, pesticides, oil and grease, concrete truck washout, stucco mixer washout, curb machine washout, washout from other construction equipment, construction chemicals, and construction debris.

J. When the Discharge is Directly into an Existing Water Body

An existing water body (including ditches and canals) is defined to be polluted by the CONTRACTOR's operations when at any time, the turbidity of the water immediately downstream of the CONTRACTOR's discharge point(s) is at least 29 nephelometric turbidity units (NTUs) higher than the turbidity of the background water upstream of the discharge point(s). [See Fla. Administrative Code 62-302.530]. Exception: When the discharge is directly into or through an outfall discharging into "Outstanding Florida Waters," designated by Florida Statute 403.061(27), the turbidity of the discharged water cannot exceed the turbidity of the immediate receiving water. The ENGINEER or OWNER shall determine the locations where the turbidity is measured.

K. When the Discharge is not Directly into an Existing Water Body

In some instances, dewatering water or stormwater runoff from the construction site or work area may reach a water body indirectly, such as by overland flow. If the discharge water's TSS and turbidity measurements exceed pre-construction background values by 20 percent for TSS and 29 NTUs for turbidity, then the discharge is defined to be polluted.

L. When Pollution Always Occurs

The discharge from a construction site or work area is defined to be polluted whenever the pH of the discharge is less than 6.5 or greater than 8.5, or whenever any of the following is present in the discharge water:

- (1) Hazardous waste or hazardous materials in any quantity,
- (2) Any petroleum product or by-product in any quantity,
- (3) Any chemical in any quantity, or
- (4) Concentrated pollutants.

E. Above paragraphs do not in any way, limit the types of conditions in which pollution may be determined to occur.

## 1.7 PENALTIES FOR NONCOMPLIANCE WITH THIS SECTION

A. In addition to the OWNER's specific remedies, if erosion or pollution is caused by dewatering water or stormwater runoff from the construction site, the OWNER may report the violations to the City of Tampa, SWFWMD, FDEP as appropriate), and other pertinent regulatory or enforcement agencies.

## PART 2 - MATERIALS AND INSTALLATION

### 2.1 GENERAL

A. Staked Silt Fences:

1. General: Use silt fences to control runoff from the construction site where the soil has been disturbed.
2. Installation: Install per the manufacture's recommendations and as specified herein. In general, install the silt fence in a manner that allows it to stop the water long enough for the sediment to settle while the water passes through the

silt fence fabric. All supporting posts shall be on the down-slope side of the fencing. Place the bottom of the fabric 6-inches minimum, under compacted soil to prevent the flow of sediment underneath the fence. Place silt fences away from the toe of slopes. Otherwise, work shall conform to Section 104 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction.

3. Product: All material shall be new and unused. Use FDOT Types III through IV silt fences where large sediment loads are anticipated, where slopes are 1:2 (vertical: horizontal) or steeper, or as directed by the ENGINEER; otherwise use FDOT Type II silt fence.

#### B. Turbidity Barriers:

1. General: Use turbidity barriers to control sediment contamination of rivers, lakes, ponds, canals, etc.

2. Installation: Install per the manufacturer's recommendations and per Section 104 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction unless directed otherwise by the ENGINEER. Under Bid Item 104-2, the CONTRACTOR shall install, maintain, and remove floating turbidity barriers to contain turbidity that may occur as the result of construction activities. As shown on the Drawings, the CONTRACTOR shall place the floating turbidity barrier prior to construction in 100' – 200' segments, which shall be removed at the end of each day. The CONTRACTOR may need to deploy turbidity barriers around isolated areas of concern. The OWNER will identify such areas. Install the barriers in accordance with the details shown in the plans or as approved by the OWNER and or ENGINEER. Ensure that the type barrier used and the deployment and maintenance of the barrier will minimize dispersion of turbid waters from the construction site. The OWNER may approve alternate methods or materials.

Operate turbidity barriers in such a manner to avoid or minimize the degradation of the water quality of the surrounding waters.

4. Product: All material shall be new and unused. The turbidity barrier shall be a pervious barrier and the fabric color shall be yellow. Use staked turbidity barriers in water less than one-foot deep. Use floating turbidity barriers in water one-foot or deeper.

### PART 3 - EXECUTION

A. Design, construct, and maintain the pollution control and treatment system to minimize erosion and capture and remove pollutants from the construction site and from all other areas disturbed by construction activities.

B. Turbidity curtains shall be removed each day to eliminate the ability for entanglement by manatees, sea turtles or smalltooth sawfish

C. REPAIR ALL EROSION DAMAGE – At no additional cost to the OWNER and regardless of the state of completion of the Work, immediately clean all dirt and debris from all

pipes and drainage structures; and repair all flooding, washouts, and all other erosion damage to the Work. This responsibility shall not end until Final Acceptance of the Work by the OWNER. Included is damage caused by erosion of any kind (e.g. wind, waves, stormwater runoff, hurricanes, etc.) including Acts of God. Restore all erosion damaged areas to design grades and elevations.

#### Item of Payment

Payment for the work specified in this item shall be made under:

Bid Item No. 104.1– Silt Fence - Per Linear Foot

Bid Item No. 104.2 – Floating Turbidity Barrier – Per Linear Foot

#### **SECTION 110.4 - CLEARING AND GRUBBING**

The work specified in this item shall conform to Section 110 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction with the following modifications:

- A. Prior to any clearing and grubbing, the contractor will stake the right-of-way. Unimproved areas shall be cleared of trees, logs, stumps, brush, vegetation, rubbish and other perishable or objectionable matter within limits shown on the plans excepting for certain trees and shrubs shown on the plans or as directed by the Engineer which are to remain undisturbed and protected. Stumps and roots between slope stakes in cuts and in embankments 3 feet or less in depth shall be removed to a depth of 18 inches below subgrade. No stumps, roots, or perishable matter of any description shall remain under concrete slabs or footing, including pavement and sidewalks.
- B. No trees shall be removed or relocated until the ENGINEER or his representative has marked all trees to be saved, after a review of the project site with the CONTRACTOR'S representative.
- C. Where the final pavement or structural work will be close to existing trees, the CONTRACTOR shall exercise care in the vicinity of the trees (see Tree Protection Details, Sheet C-25) Further, the CONTRACTOR shall saw cut along the edge of the outside limits of the stabilization, structure subgrade or sidewalk to a minimum depth of 4 feet below the finish grade and paint with a commercial grade pruning paint the ends of all sawn roots. If directed by the Engineer or where shown on the drawings, work shall be done by hand in order to protect the trees.
- D. The CONTRACTOR shall exercise care when working in the vicinity of all trees to remain so as to not damage or remove major root structures. The CONTRACTOR shall not pull hair or major root structures. All severed roots shall be sawn clean and paint with pruning paint. Stumps, roots, etc., shall be completely removed and disposed of by the CONTRACTOR. Undesirable, dead, and/or damaged trees (as so designated by the ENGINEER) shall be removed.

- E. All trees to be removed shall be disposed offsite; burning will be strictly prohibited.
- F. All trees or shrubs which are to remain shall be preserved and protected by the CONTRACTOR. Where the removal of valuable trees or shrubs specifically for transplanting is required, this work shall be done in cooperation with the OWNER and at no additional expense to the OWNER.
- G. All items to be removed shall be excavated to their full depth. All metal castings for catch basins, manholes, or other structures shall be carefully removed and stored in the City's Storage Yard if they are deemed salvageable by the ENGINEER. The excavated materials shall be removed from the job site and disposed in a location designated or approved by the OWNER. Any culverts, structures or any material excavated or removed from the project site under clearing and grubbing deemed unsalvageable by the ENGINEER shall be disposed of in a legal manner by the CONTRACTOR. Where required, suitable material as approved by the ENGINEER shall then be backfilled and compacted to restore the original contour of the ground. The fill material shall be backfilled and compacted in accordance with Section 120 of these specifications.
- H. No additional payment will be made, nor will additional work, or change orders be authorized for work needed to remove, relocate, protect, or otherwise account for in the construction of the work depicted in the plans, for any feature, or item that would be apparent from a careful inspection of the site and review of the plans, even though such feature or item is not specifically called out in the plans. It is therefore essential the contractor make such inspection and review.
- I. The unit price bid for this item shall include the cost of all labor, tools, and equipment necessary to excavate, remove, and dispose of those items as directed by the Engineer and where designated on the Drawings. The cost of restoration and backfill and compaction for the specific area of removal shall also be included under this item.

#### Item of Payment

Payment for the work specified in this item shall be made under:

Bid Item No. 110 - Clearing and Grubbing – Per Acre

### **SECTION 110.15.1 – TREE PROTECTION**

- A. Trees to be protected are shown on Sheets 9-13 of the construction drawings.
- B. Tree protection shall follow applicable permits from FDEP and City of Tampa.
- C. Tree protection shall encircle the tree along the crown drip line or as directed by the OWNER or ENGINEER.
- D. Tree barriers are to be constructed from High Density Polyethylene fencing 4 feet in height, with 3.5" x 1.5" openings. Color: Orange

- E. Steel Posts shall be 2" x 6' (or approved equal) and installed on 8' centers.
- F. 8.5" x 11" laminated sign "KEEP OUT TREE PROTECTION AREA" shall be affixed to the barrier every 50 feet.
- G. Pruning shall be performed by and ISA certified arborist.
- H. Trees shall be watered if onsite rain gauge does not show 2" of rain per week.

Item of Payment

Payment for the work specified in this item shall be made under:

Bid Item No. 110.15.1 – Tree Protection – Per Linear Foot

**SECTION 110.15.2 – VEGETATION REMOVAL – STUMP TREAT**

- A. Cut Stump Herbicide Treatment – Herbicide treatments shall begin immediately after cutting of woody/canopy species. The Cut Stump Treatment Method will be utilized by the CONTRACTOR for the application of herbicides, for the prevention of canopy regrowth. With this methodology, an herbicide solution is applied directly and entirely over the stump top, immediately after the plant has been cut down, thereby preventing herbicide damage to surrounding vegetation. This methodology should not be performed if rain is expected within four (4) to six (6) hours after treatment.
- A. Certifications - The CONTRACTOR shall be licensed as a Certified Aquatic Commercial Applicator, within the State of Florida. The CONTRACTOR shall ensure that all employees are applying herbicides safely and correctly, in accordance with the federal environmental pesticide control act of 1972 (PL 92-516, FIFRA). ***ALL chemical applications will follow the directions on the herbicide label. The label is the law.***
- B. Size of stump to remain - Canopy species shall be cut or milled three inches above the water line (within the wetlands) and three inches above the soil substrate (within the uplands). Stumps shall be left in place for herbicide treatments that will occur concurrently with the clearing activities.
- C. Warranty - The Contractor shall ensure a 90 percent kill rate of the cut vegetation, for a period of 3 months (90 days). Should regrowth of cut vegetation be greater than 90 percent, a supplemental herbicide treatment will be required at the end of the 90-day warranty period.

Item of Payment

Payment for the work specified in this item shall be made under:

Bid Item No. 110.15.2 – Vegetation Removal – Stump Treat – Per Acre

### **SECTION 110.15.3 – HERBICIDE TREATMENT**

- B. Herbicide Treatment shall consist of “kill in place” herbicide applications to herbaceous species as shown on Sheets 9-12 on the construction plans utilizing Florida Department of Environmental Protection (FDEP) approved herbicides in order to prevent regrowth. FDEP approved aquatic herbicides shall be utilized within the wetland areas of the project site.
- C. Certifications - The CONTRACTOR shall be licensed as a Certified Aquatic Commercial Applicator, within the State of Florida. The CONTRACTOR shall ensure that all employees are applying herbicides safely and correctly, in accordance with the federal environmental pesticide control act of 1972 (PL 92-516, FIFRA). ***ALL chemical applications will follow the directions on the herbicide label. The label is the law.***
- D. Warranty - The Contractor shall ensure a 90 percent kill rate of the cut vegetation, for a period of 3 months (90 days). Should regrowth of vegetation be greater than 90 percent, a supplemental herbicide treatment will be required at the end of the 90-day warranty period.

#### **Item of Payment**

Payment for the work specified in this item shall be made under:

Bid Item No. 110.15.3 – Herbicide Treatment – Per Acre

### **SECTION 120.2 - EXCAVATION AND DISPOSAL OFFSITE**

Cost shall include all work specified in this section and Section 120 of the FDOT Standard Specifications for Road and Bridge Construction. Such price and payment shall specifically include all cost of any roadway, lateral ditch or canal, and final dressing operations. Excavator will be utilized in the maintenance dredge and re-contouring of the ditch and the slope embankment. Fill can be used from the immediate project area with approval of the OWNER and the ENGINEER, testing will be the responsibility of the CONTRACTOR (must meet the specification 902.1 Fine Aggregate (Clean Sand Fill). Native vegetation existing along the periphery of the embankments that does not need to be removed for access to the embankment shall remain. All work shall be in accordance with the Plans, Specifications and requirements set forth within the Contract and conducted in accordance with all federal, state and local permits and authorizations issued for this Project.

- a. Access to Work Areas.

All work areas in this project are tidal in nature. The CONTRACTOR should be prepared isolate the work from the tidal water exchange during excavation and grading. The purpose of this project is restoration and the OWNER would like as little impact to natural resources as possible, therefore resource protection procedures during excavation must be approved by the ENGINEER and the OWNER.

- b. Allowable Vertical Tolerance of Excavation.  
Final design elevations must be within 0.2 feet of design grade with no more than 60% of grade shots being either below or above the target grade for that location.
- c. Disposal of debris and obstructions.  
Debris, such as vegetation, trees, stumps, roots, logs, rocks, bedrock, concrete, asphalt, wood, trash, garbage, unusable soil, metal and any other objects except archeological or historic resources that are unearthed during the excavation operations, shall be removed, transported, and properly disposed of at an approved location. If archeological or historic resources are encountered the CONTRACTOR shall notify the OWNER immediately and stop work until directed to restart. Removal and disposal of debris and obstructions shall not be provided for separately for payment. All costs associated with the required disposal of debris shall be included in the Contract Price for Excavation, (Regular Excavation). These specifications are not an all-inclusive reference of debris types, which may be encountered during this excavation.

A. Subsoil Excavation - Contractor shall coordinate with OWNER/ENGINEER prior to any subsoil excavation or over template excavation.

B. Payment shall be made under:

Bid Item No. 120.2 – Excavation and Disposal Offsite - Per Cubic Yard

### **SECTION 120.3 - EMBANKMENT (COMPACTED IN PLACE)**

Cost shall include all work specified in this section and Section 120 of the FDOT Standard Specifications for Road and Bridge Construction. Such price and payment shall specifically include all cost of any roadway, lateral ditch or canal, and final dressing operations. Excavator will be utilized in the maintenance dredge and re-contouring of the ditch and the slope embankment. Fill can be used from the immediate project area with approval of the OWNER and the ENGINEER. All work shall be in accordance with the Plans, Specifications and requirements set forth within the Contract and conducted in accordance with all federal, state and local permits and authorizations issued for this Project.

A. General Requirements for Embankment Materials:

- a. Access to Work Areas.

All work areas in this project are tidal in nature. The CONTRACTOR should be prepared isolate the work from the tidal water exchange during embankment and grading. The purpose of this project is restoration and the OWNER would like as little impact to natural resources as possible, therefore resource protection procedures during embankment must be approved by the ENGINEER and the OWNER.

- b. Allowable Vertical Tolerance of Embankment.  
Final design elevations must be within 0.2 feet of design grade with no more than 60% of grade shots being either below or above the target grade for that location.
- c. Compaction of Material.  
Embankment areas above the Mean High Water Line shall be filled in 12 inch lifts, and compacted to a minimum of 95% of the Modified Proctor Maximum Dry density in accordance with ASTM D-1557. The CONTRACTOR shall hire a geotechnical firm acceptable to the OWNER to perform one density test per lift in accordance with ASTM D-2922.
- d. Embankment quantities shall be considered as in-place material with no shrinkage or expansion factors.
- e. If the material excavated from the ditch onsite is less volume than that required for fill, or if a portion of the ditch material is not suitable for reuse onsite, then the CONTRACTOR should supplement with suitable upland fill approved by the OWNER and ENGINEER meeting the following criteria:
  - 1. Roadway Design Standard Index No. 505, Embankment Utilization Details is modified by the addition of the following:
    - i. Any stratum or stockpile or soil which contains obvious pockets of highly organic material may be designated as muck or unsuitable for construction of subgrade by the OWNER.
    - ii. Backfill material containing more than 10.0% by weight of organic material, as determined by FM 1-T 267 and by averaging the test results for three randomly selected samples from each stratum or stockpile of a particular material, shall not be used in construction of the reinforced volume. If an individual test value of the three samples exceeds 12.0%, the stratum or stockpile will not be suitable for construction of the reinforced volume.
    - iii. No A-8 material permitted in embankment.

Payment shall be made under:

Bid Item No. 120.3 - Embankment (Compacted in Place)

## **SECTION 120.1100 - GRADING**

Grading shall be for upland (above the Mean High Water Line) areas only. Grading will be to the elevations shown on the Plans and shall be verified complete by as-built survey prior to planting and/or sodding. Final design elevations must be within 0.2 feet of design grade with no more than 60% of grade shots being either below or above the target grade for that location.

A. Payment shall be made under:

Bid Item No. 120.1100 – Grading– Per Square Yard

### **SECTION 430.2 – 18” ROUND STORMWATER PIPE (HDPE PIPE)**

This section will include installation of HDPE Pipe in accordance with the requirements of Section 430 of the FDOT Specifications, as amended herein, and all applicable drawings of the FDOT Standard Plans, latest edition.

Installation – Will include installing 20 linear feet of 18” HDPE pipe such that the pipe terminates in the new flared end section. HDPE pipe, the pipe and fittings must be made of polyethylene compounds and must meet or exceed the requirements of ASTM D1248, ASTM F810, ASTM F667, and AASHTO M294-97. The nominal size of the pipe and fittings is based on the nominal inside diameter of the pipe. Joints may be made with bell and spigot or with couplings, but the outside diameter must be uniform throughout the length of the pipe. Joints must utilize gaskets to ensure a watertight seal. All pipe joints must be wrapped with filter fabric pipe jackets. Cost for filter fabric pipe jackets must be included in the cost of the pipe. If specified by the manufacturer, noncorrosive pipe straps and screw anchor assembly must be installed at the specified spacing.

Payment shall be made under:

Bid Item No. 430.2 – 18” Round Stormwater Pipe (HDPE Pipe) – Per Linear Foot (LF)

### **SECTION 430.400 - FLARED-END SECTION**

The CONTRACTOR shall install two (2) flared end sections.

The work specified under this Section consists of the furnishing and installation of pipe culvert flared end sections, in accordance with the requirements of Sections 346, 400, 415 and 430 of the FDOT Specifications, latest edition, as amended herein, all applicable drawings of the FDOT Standard Plans, latest edition, and the details and notes shown in the Plans.

A Class II surface finish must be applied as directed by the ENGINEER.

The work specified under this Section must include all forms, bracing, concrete, reinforcing steel, grates and other required materials and accessories, all clearing and

grubbing, excavation, backfilling, disposal of surplus material, and any other incidental work required to complete the installation of the end sections to the satisfaction of the Engineer.

Ownership of all suitable material must remain with the OWNER until all earthwork requirements for the project have been fulfilled. Except as otherwise provided for in the contract for the project, all surplus material and other items not claimed by the OWNER must become the property of the CONTRACTOR and must be disposed of by the CONTRACTOR in off-site areas provided by the CONTRACTOR.

A. Payment shall be made under:

Bid Item No. 430-400 – Flared End Section – Per Each

### **SECTION 530 - RIPRAP (RUBBLE)**

Under Bid Item 530, the CONTRACTOR shall furnish, deliver and place clean rock riprap and filter fabric to the site. Rubble riprap shall consist entirely of broken limestone conforming to the following requirements:

- a. The material shall be sound and durable quality stone, and shall have a minimum specific gravity of 2.3 (density of 140 pcf).
- b. The faces of individual pieces of stone shall be roughly angular, not rounded, in shape.
- c. The least dimension of each stone shall not be less than one-third (1/3) of the greatest dimension of that stone.
- d. Stones shall be of a graded mixture, with individual pieces weighing, in general, from 250 pounds to 925 pounds each.
- e. At least 97% of the material by weight is smaller than 925 lbs. and at least 50% of the material by weight is greater than 585 lbs. and at least 85% of the material by weight is greater than 250 pounds. The thickness of stones shall not exceed 3.0 ft. (36 inches).
- f. A sample of the rip rap material shall be provided to the ENGINEER for approval prior to CONTRACTOR staging on site.
- g. ENGINEER has the option to reject any rip rap material either in the staging area or placed on the breakwater. Proper disposal of any rejected material and costs associated with disposal shall be the responsibility of the CONTRACTOR.
- h. Rip rap stone shall be free of loose sediment, rebar, steel, wood, and other construction debris.
- i. Site Preparation: The CONTRACTOR is responsible for any site preparation required of the base prior to the installation of the riprap, including but not limited to removing trash, grading, minimal dredging/excavation, leveling, compaction, etc. If the CONTRACTOR encounters soft or unexpected sediments along the base that may cause instability in the placement of the revetment the CONTRACTOR shall notify the OWNER and ENGINEER immediately.

The riprap shall be placed and arranged to form compact layers conforming to the neat

lines called for in the Plans, and to the thickness' specified, plus or minus six (6) inches. The riprap shall be placed in a manner such that the smaller pieces are evenly distributed and placed so as to fill the voids between the larger pieces, and in a manner to avoid sharp exposed edges. No material may be placed outside the footprint of the structure as shown on the drawings without prior written approval of the ENGINEER.

**Interlocking of Stones:** Stones shall be placed in such a manner that they will be properly interlocked with the adjacent stones to resist displacement by wave action and form a uniform and compact section. Each stone shall be firmly set and well-supported by underlying material and adjacent stone with a minimum of four points of contact.

**Excessive Material Placement:** Material placement from beyond the Project limits as specified on the Contract Drawings shall be considered excessive material for which payment will NOT be made. The CONTRACTOR shall be responsible for all federal, state, and local regulatory permits, implications, violations and/or fees as a result of such work.

**Misplaced Project Materials:** Any project materials deposited at locations other than as designated or approved by the OWNER shall be considered misplaced material and shall NOT be paid for until the CONTRACTOR, at their expense, removes and replaces such misplaced material to an approved location. This required removal and replacement of misplaced material and any necessary restoration work shall not be the basis for a time extension or additional compensation under this Contract.

**Transport/Delivery:** The CONTRACTOR shall transport material to the construction site by truck or barge. No overflow or spill-out of fill shall be permitted during transport to the fill site. All trucks shall be covered in order to prevent spillage. Failure to modify those methods of operation which are resulting in spillage during transport will result in suspension of transport operations and shall require prompt repair or change of operations so as to prevent spillage as a prerequisite to resumption of transport operations.

**Measurement and Payment of Fill Quantities:** The CONTRACTOR shall load and weigh (before and after loading) the trucks used to transport the material from the pit to the construction site. The trucks shall be weighed empty, loaded with rock material and weighed full in a location that is easily accessible and will cause no delay in the transport of the rock material to the construction site. The CONTRACTOR shall have available such equipment as will be necessary to collect the material, store the material, load the transport trucks and weigh the trucks full and empty, without interruption. The scales used for weighing the trucks shall be certified by The Florida Department of Transportation. The CONTRACTOR shall provide a "weight ticket" for each truckload citing the net weight of material in the truck and the date of delivery; these tickets will be the basis for final payment to the CONTRACTOR under Bid Item 2. During construction, by 10 a.m. each day, the CONTRACTOR will provide to the OWNER a daily log including (1) a summary table of all truckloads of material delivered to the site during the prior day including the net weight and the location of delivery (the survey stationing along the shoreline construction, i.e. STA.5+00) for each truckload or barge load, and (2) the

total tonnage of material delivered through the prior day. With the CONTRACTOR's requests for payment under this bid item, the CONTRACTOR shall provide the OWNER with copies of all yard tickets that shall be the basis of payment.

Payment for rock material shall be made on the basis of the quantity (tons) of material placed within the limits of the project as measured by the weight tickets for each truckload, as reported by the CONTRACTOR, and as verified by the OWNER through review of weight tickets and measurements of the material placement area.

Payment for all materials and labor shall be made by the OWNER to the CONTRACTOR according to the unit prices indicated on the Bid Schedule for materials actually used in the construction and accepted by the OWNER and ENGINEER. The OWNER may increase or decrease quantities prior to materials actually being used by the CONTRACTOR for construction and performance of the work; the unit prices cited on the CONTRACTOR's Bid Schedule shall remain valid for adjustments in quantities by the OWNER equivalent to up to 25% of the Total Cost cited on the CONTRACTOR's Bid Schedule.

**Unsuitable Material:** All material furnished under this Agreement must comply with these Technical Provisions and any deviation from this specification may result in a material breach of the Agreement. Any material that the CONTRACTOR provides, which does not meet this specification, shall be removed and replaced at the CONTRACTOR's expense. The material may be collected and tested by the OWNER periodically throughout the construction project. In the event that unsuitable material is detected as part of these procedures, the CONTRACTOR will immediately stop furnishing such material and shall be responsible for immediately removing the unsuitable material prior to any further construction. Any unsuitable material shall be removed at the expense of the CONTRACTOR in a manner approved by the OWNER. Burial of material that does not conform to these specifications is prohibited.

A. Payment shall be made under:

Bid Item No. 530 – RIPRAP (RUBBLE max. 3.0 ft. dia. Limestone) – Per Ton

## **SECTION 580 - LANDSCAPE**

This section pertains to the planting of Smooth cordgrass (*Spartina alterniflora*), Marsh hay cordgrass (*Spartina patens*), Sand cordgrass (*Spartina bakeri*), Muhly grass (*Muhlenbergia capillaris*), Dune sunflower (*Helianthus debilis*), Softstem bulrush (*Schoenoplectus tabermontani*), Saltmarsh bulrush (*Bolboschoenus robustus*), Black rush (*Juncus roemerianus*), Herb-of-grace (*Bocopa monnieri*) species:

- a. Handle and transport plants so that roots and root balls are adequately protected from breakage, from sun or drying winds. Ensure tops of roots or plants are not permitted to desiccate.
- b. Protect tops of plants from damage. Damaged plants will be rejected.
- c. Plant species when there are sufficient moisture conditions, or alternatively provide sufficient water immediately after installation to ensure proper establishment.

- d. Plants are to be installed within 24 hours of delivery and only after acceptance of the planting areas by the ENGINEER.
- e. Material shall be installed at the soil/sediment depths at which it was grown.
- f. Indicate locations of plant installations for approval of the ENGINEER prior to installation.
- g. CONTRACTOR is required to maintain and provide sufficient water to the plantings during the 90-day establishment period to ensure plant establishment. Maintenance is intended to prevent nuisance or exotic species from becoming established within the planting zones during any portion of the establishment period.
- h. The CONTRACTOR shall be responsible for the labor and materials to replace existing and installed vegetation or sod that may be damaged during the maintenance and watering activities for a period up to 1 year from installation.
- i. Sod shall be grown between six (6) to twelve (12) months with root development that will support its own weight, without tearing, when suspended vertically by holding the upper two corners.
- j. Sod shall be inspected and found free of diseases, nematodes, pests, and pest larvae and not contain noxious weeds.
- k. Sod Species: St. Augustine

A. Payment shall be made under:

- Bid Item No. 580.1 – Landscape (Smooth cordgrass – 2”) – Per Each
- Bid Item No. 580.2 – Landscape (Marsh hay cordgrass – 2”) – Per Each
- Bid Item No. 580.3 – Landscape (Sand cordgrass – 4”) – Per Each
- Bid Item No. 580.4 – Landscape (Muhly grass – 4”) – Per Each
- Bid Item No. 580.5 – Landscape (Dune sunflower – 2”) – Per Each
- Bid Item No. 580.6 – Landscape (Softstem bulrush – 2”) – Per Each
- Bid Item No. 580.7 – Landscape (Saltmarsh bulrush – 2”) – Per Each
- Bid Item No. 580.8 – Landscape (Black rush – 2”) – Per Each
- Bid Item No. 580.9 – Landscape (Herb-of-grace – 2”) – Per Each
- Bid Item No. 580.10 – Landscape (St. Augustine Sod) – Per Square Yard

**SECTION 901.1 – COARSE AGGREGATE – BEDDING STONE (3-6”)**

The CONTRACTOR shall furnish and install a Coarse Aggregate - Bedding Stone of either a durable quality limestone or other quarry run stone, with a bulk specific gravity of not less than 1.90 and that is reasonably free from thin, flat and elongated pieces. Ensure that the bedding stone is also reasonably free from organic matter and soft, friable particles. Meet the following gradation limits:

Standard Sieve Sizes	Individual Percentage by Weight Passing
6 inches	100
5 inches	50 to 100
3 inches	15 to 50

2 inch	0 to 15
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In lieu of limestone or other quarry run stone, the Contractor may substitute non-reinforced concrete.

Bid Item No. 901– Coarse Aggregate – Bedding Stone (3”-6”) - Per Ton

**SECTION 902.1 - FINE AGGREGATE (Clean Sand Fill)**

The CONTRACTOR shall provide 450 Tons of clean, silica sand:

Sieve Opening Size	Percent Retained	Percent Passing
No. 4	0 to 5%	95 to 100%
No. 8	0 to 15%	85 to 100%
No. 16	3 to 35%	65 to 97%
No. 30	30 to 75%	25 to 70%
No. 50	65 to 95%	5 to 35%
No. 100	93 to 100%	0 to 7%
No. 200	Minimum 96%	Maximum 4%

This quantity may be adjusted, if surplus onsite material from excavation of the ditch generates material that meets the specifications above. CONTRACTOR must test surplus material (Section 999) and provide results to the OWNER and ENGINEER for approval and then stockpile the material in the designated staging area until installation. Whether from onsite or trucked in from a supplier, fine aggregate shall be stockpiled separately where it remains clean and not mixed with other materials until it is placed.

Bid Item No. 902 –Fine Aggregate – Clean Sand Fill - Per Ton

**SECTION 985 - GEOSYNTHETIC MATERIALS (FILTER FABRIC)**

The CONTRACTOR shall furnish and install a geotextile fabric after grading of the embankment and prior to installation of the Rip Rap. The geotextile material shall be Mirafi 404 (Tencate), or FDOT D-4 equivalent as approved by the OWNER and ENGINEER. Geotextile Fabric shall be installed per manufacturer’s recommendations and keyed in at the top of slope extend from the top of bank down to the toe of slope, underneath the placement of the Rip Rap.

Bid Item No. 985 –Geosynthetic Materials (Filter Fabric) - Per Square Foot

**SECTION 999 – SURVEY, TESTING, QUALITY CONTROL & RECORD DRAWINGS**

**GENERAL**

Maintain, prepare and provide the ENGINEER with record documents as specified below, except where otherwise specified or modified within the scope of work provided in the specific project contract documents. The Contractor and/or Developer shall be responsible for, and

required to provide, Record Drawings as outlined in this section.

### **MAINTENANCE OF RECORD DOCUMENTS:**

1. Maintain in CONTRACTOR's field office in clean, dry, legible condition complete sets of the following project documents: Drawings, Specifications, Addenda, approved Shop Drawings, samples, photographs, Change Orders, other modifications of Contract Documents, test records, survey data, Field Orders, and all other documents pertinent to CONTRACTOR'S Work.
2. Provide files and racks for proper storage and easy access.
3. Make documents available at all times for inspection by ENGINEER and OWNER.
4. Do not use record documents for any other purpose and do not remove them from the field office.
5. Label each document "RECORD DRAWING" in 2-inch high printed letters.
6. Keep record documents current at all times.
7. No work shall be permanently concealed until the required record data has been obtained.

### **RECORD / AS-BUILT DRAWINGS**

- A. During the construction operation, the CONTRACTOR shall maintain records of all deviations from the approved Project Plans and Specifications and shall prepare therefrom "RECORD" drawings showing correctly and accurately all changes and deviations from the work made during construction to reflect the work as it was actually constructed.
- B. The Record/As-Built survey shall be performed and subsequent plans prepared by a Professional Surveyor and Mapper, registered in the state of Florida and certified to the standards set forth in Chapter 472, Florida Statutes and Chapter 5J-17.050 Florida Administrative Code (Florida Minimum Technical Standards).
- C. Field measurements of vertical or horizontal dimensions of constructed improvements shall be obtained so that the constructed facility can be delineated in such a way that the location of the construction may be compared with the construction plans. Clearly shown by symbols, notations, or delineations, those constructed improvements located by the survey.
- D. All vertical information (elevations) provided on the Record Drawings shall be referenced to the North American Vertical Datum of 1988 (NAVD 88) unless otherwise specified by the Project Engineer.
- E. The horizontal information provided on the Record Drawings shall be referenced to the State of Florida, State Plane Coordinate System, Florida West Zone as established by Global Positioning System (GPS) which meets or exceeds Third Order Class I Accuracy Standards according to current publication of the Federal Geodetic Control Committee (FGCC) procedures.

- F. All Record/As-Built drawings shall be prepared in digital format (ACAD Civil 3D 2013) and shall utilize the digital design drawings as prepared by the Project ENGINEER as a base for the Record/As-Built drawings. It is the responsibility of the Surveyor to request these files from the Contractor or Project OWNER in order to produce the Record/As-Built drawing set.
- G. ALL improvements proposed to be constructed as shown on the approved construction plans shall be field measured upon completion and shown on the Record/As-Built survey. Any improvements that appear in both plan and profile views shall show the Record/As-Built information in both views.
- H. The following items are required to be shown on all City of Tampa project Record/As-Built drawings submitted to the OWNER:

### **DRAINAGE:**

1. Right-of-way Swale/Drainage – All culvert inverts, elevations and station offsets; inlet grate and bottom elevations; swale beginning and end bottom elevations; and highs and lows along top of bank. Size of swale.
2. Pipe Culvert/PVC Sleeves – All inverts, pipe size, stations and offsets.
3. Outfalls – All pipe inverts, pipe size, elevations and station offsets, weir box elevations, weir elevation, bleeder elevation and sizes.
4. Roadway/Off Site Drainage – All inverts, elevations and station offsets; manhole top elevation; grate top elevations.
5. Retention Ponds – Provide perimeter elevations, grade breaks, depths and calculated pond areas at control elevation and grade breaks above and below water surface. Show as-built of typical cross section as shown on design plan.

### **ROADWAY:**

1. Stations and offsets related to controlling baseline and elevations of all structures, side street and major driveway radius returns (edge of pavement), bends and/or change in direction of roadway alignment, minimum of 1000' intervals along roadway alignment.
2. Elevations along Profile Grade Line (PGL), of all edge of pavements on each side of Profile Grade Line (PGL), at medians at the high/low and PVI points along Profile Grade Line (PGL).
3. All final Elevations to be plotted on PGL AND Plan & Profile sheets as applicable.
4. Elevations of edge of pavement and flow line at curb inlets and on the adjacent edge of pavement at curb inlets.

### **SURVEY CONTROL**

1. Install/re-establish: It shall be the contractor's responsibility to hire a Professional Surveyor and Mapper as defined per Chapter 472, Florida Statutes, to replace any horizontal and vertical control shown on the engineering plans that was destroyed during construction.

2. New control points (survey baseline or controlling line and all points as indicated on the plans or control sheet) upon final completion. State plane coordinates and elevations for all control points.
3. If shown on plans or not: Any Public Land Corner or Governmental Survey Control point(s), vertical control (bench marks), property corners destroyed and/or disturbed during the scope of the project shall be properly re-established as per standards as set forth within Florida Statutes, Administrative code and Minimum Technical Standards for that type of survey. All said surveying mentioned above shall be performed under the direct supervision of a registered Professional Surveyor and Mapper in the state of Florida and certified accordingly. Said Governmental agency(s) shall be notified in writing of disturbance and re-establishments.

### **RECORD/AS-BUILTS DRAWINGS FORMAT - SUBMITTAL**

- A. ENGINEER will supply the CONTRACTOR with the electronic file of the approved construction plans for the input of the As-Built (record) information.
- B. CONTRACTOR shall deliver seven (7) certified sets of Record/As-Builts with Electronic Drawing files prepared in AutoCAD Civil 3D 2013 and PDF format or in current version as agreed by the ENGINEER.
- C. CONTRACTOR's surveyor shall review, sign and seal As-Builts or Record drawing(s). Said drawing(s) shall clearly state type of survey, positional tolerances, adhere and be certified to by a registered Professional Surveyor and Mapper in the state of Florida, any standards set forth by Florida Statutes, Administrative code and Minimum Technical Standards for As-Built/Record surveys.
- D. All Record/As-Built drawings are subject to review and approval by the OWNER'S Surveyor.

### **ACCURACY**

The CONTRACTOR will be held responsible for the accuracy and completeness of Record Drawings and Electronic As-Builts and shall bear any costs incurred in finding utilities as a result of incorrect data furnished by the CONTRACTOR.

### **COMPLETION OF WORK**

Upon Substantial Completion of the Work, deliver Record Drawings/As-Built Drawings to ENGINEER. Final payment will not be made until satisfactory record documents are received and approved by ENGINEER.

### **Item of Payment**

Payment for the work specified in this item shall be made under:

Bid Item No. 999 – Survey, Testing, Quality Control & Record Drawings – Per Lump  
Sum